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1. STRUCTURE

This service manual has been prepared as an aid to improve the quality of repairs by giving the serviceman an accurate understanding of the product and by showing him the correct way to perform repairs and make judgements. Make sure you understand the contents of this manual and use it to full effect at every opportunity.

This service manual mainly contains the necessary technical information for operations performed in a service workshop.

For ease of understanding, the manual is divided into the following sections.

SECTION 1 GENERAL

This section explains the safety hints and gives the specification of the machine and major components.

SECTION 2 STRUCTURE AND FUNCTION

This section explains the structure and function of each component. It serves not only to give an understanding of the structure, but also serves as reference material for troubleshooting.

SECTION 3 HYDRAULIC SYSTEM

This section explains the hydraulic circuit, single and combined operation.

SECTION 4 ELECTRICAL SYSTEM

This section explains the electrical circuit, monitoring system and each component. It serves not only to give an understanding electrical system, but also serves as reference material for trouble shooting.

SECTION 5 TROUBLESHOOTING

This section explains the troubleshooting charts correlating problems to causes.

SECTION 6 MAINTENANCE STANDARD

This section gives the judgement standards when inspecting disassembled parts.

SECTION 7 DISASSEMBLY AND ASSEMBLY

This section explains the order to be followed when removing, installing, disassembling or assembling each component, as well as precautions to be taken for these operations.

SECTION 8 COMPONENT MOUNTING TORQUE

This section shows bolt specifications and standard torque values needed when mounting components to the machine.

The specifications contained in this shop manual are subject to change at any time and without any advance notice. Contact your HYUNDAI distributor for the latest information.

2. HOW TO READ THE SERVICE MANUAL

Distribution and updating

Any additions, amendments or other changes will be sent to HYUNDAI distributors.

Get the most up-to-date information before you start any work.

Filing method

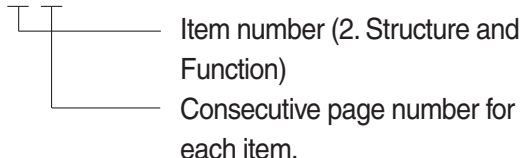
1. See the page number on the bottom of the page.

File the pages in correct order.

2. Following examples shows how to read the page number.

Example 1

2 - 3



3. Additional pages : Additional pages are indicated by a hyphen(-) and number after the page number. File as in the example.

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Added pages

Revised edition mark (①②③...)

When a manual is revised, an edition mark is recorded on the bottom outside corner of the pages.

Revisions

Revised pages are shown at the list of revised pages on the between the contents page and section 1 page.

Symbols

So that the shop manual can be of ample practical use, important places for safety and quality are marked with the following symbols.

| Symbol | Item | Remarks |
|--------|---------|---|
| | Safety | Special safety precautions are necessary when performing the work. |
| | | Extra special safety precautions are necessary when performing the work because it is under internal pressure. |
| | Caution | Special technical precautions or other precautions for preserving standards are necessary when performing the work. |

3. CONVERSION TABLE

Method of using the Conversion Table

The Conversion Table in this section is provided to enable simple conversion of figures.

For details of the method of using the Conversion Table, see the example given below.

Example

1. Method of using the Conversion Table to convert from millimeters to inches

Convert 55mm into inches.

- (1) Locate the number 50 in the vertical column at the left side, take this as (a), then draw a horizontal line from (a).
- (2) Locate the number 5 in the row across the top, take this as (b), then draw a perpendicular line down from (b).
- (3) Take the point where the two lines cross as (c). This point (c) gives the value when converting from millimeters to inches. Therefore, 55 mm = 2.165 inches.

2. Convert 550mm into inches.

- (1) The number 550 does not appear in the table, so divide by 10 (Move the decimal point one place to the left) to convert it to 55 mm.
- (2) Carry out the same procedure as above to convert 55 mm to 2.165 inches.
- (3) The original value (550 mm) was divided by 10, so multiply 2.165 inches by 10 (Move the decimal point one place to the right) to return to the original value.
This gives 550 mm = 21.65 inches.

Millimeters to inches

(b)

1 mm = 0.03937 in

| | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
|--------|-------|-------|-------|-------|-------|-----------|-------|-------|-------|-------|
| 0 | | 0.039 | 0.079 | 0.118 | 0.157 | 0.197 | 0.236 | 0.276 | 0.315 | 0.354 |
| 10 | 0.394 | 0.433 | 0.472 | 0.512 | 0.551 | 0.591 | 0.630 | 0.669 | 0.709 | 0.748 |
| 20 | 0.787 | 0.827 | 0.866 | 0.906 | 0.945 | 0.984 | 1.024 | 1.063 | 1.102 | 1.142 |
| 30 | 1.181 | 1.220 | 1.260 | 1.299 | 1.339 | 1.378 | 1.417 | 1.457 | 1.496 | 1.536 |
| 40 | 1.575 | 1.614 | 1.654 | 1.693 | 1.732 | 1.772 | 1.811 | 1.850 | 1.890 | 1.929 |
| (a) 50 | 1.969 | 2.008 | 2.047 | 2.087 | 2.126 | (c) 2.165 | 2.205 | 2.244 | 2.283 | 2.323 |
| 60 | 2.362 | 2.402 | 2.441 | 2.480 | 2.520 | 2.559 | 2.598 | 2.638 | 2.677 | 2.717 |
| 70 | 2.756 | 2.795 | 2.835 | 2.874 | 2.913 | 2.953 | 2.992 | 3.032 | 3.071 | 3.110 |
| 80 | 3.150 | 3.189 | 3.228 | 3.268 | 3.307 | 3.346 | 3.386 | 3.425 | 3.465 | 3.504 |
| 90 | 3.543 | 3.583 | 3.622 | 3.661 | 3.701 | 3.740 | 3.780 | 3.819 | 3.858 | 3.898 |

Millimeters to inches

1 mm = 0.03937 in

| | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
|----|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 0 | | 0.039 | 0.079 | 0.118 | 0.157 | 0.197 | 0.236 | 0.276 | 0.315 | 0.354 |
| 10 | 0.394 | 0.433 | 0.472 | 0.512 | 0.551 | 0.591 | 0.630 | 0.669 | 0.709 | 0.748 |
| 20 | 0.787 | 0.827 | 0.866 | 0.906 | 0.945 | 0.984 | 1.024 | 1.063 | 1.102 | 1.142 |
| 30 | 1.181 | 1.220 | 1.260 | 1.299 | 1.339 | 1.378 | 1.417 | 1.457 | 1.496 | 1.536 |
| 40 | 1.575 | 1.614 | 1.654 | 1.693 | 1.732 | 1.772 | 1.811 | 1.850 | 1.890 | 1.929 |
| 50 | 1.969 | 2.008 | 2.047 | 2.087 | 2.126 | 2.165 | 2.205 | 2.244 | 2.283 | 2.323 |
| 60 | 2.362 | 2.402 | 2.441 | 2.480 | 2.520 | 2.559 | 2.598 | 2.638 | 2.677 | 2.717 |
| 70 | 2.756 | 2.795 | 2.835 | 2.874 | 2.913 | 2.953 | 2.992 | 3.032 | 3.071 | 3.110 |
| 80 | 3.150 | 3.189 | 3.228 | 3.268 | 3.307 | 3.346 | 3.386 | 3.425 | 3.465 | 3.504 |
| 90 | 3.543 | 3.583 | 3.622 | 3.661 | 3.701 | 3.740 | 3.780 | 3.819 | 3.858 | 3.898 |

Kilogram to Pound

1 kg = 2.2046 lb

| | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
|----|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0 | | 2.20 | 4.41 | 6.61 | 8.82 | 11.02 | 13.23 | 15.43 | 17.64 | 19.84 |
| 10 | 22.05 | 24.25 | 26.46 | 28.66 | 30.86 | 33.07 | 35.27 | 37.48 | 39.68 | 41.89 |
| 20 | 44.09 | 46.30 | 48.50 | 50.71 | 51.91 | 55.12 | 57.32 | 59.5 | 61.73 | 63.93 |
| 30 | 66.14 | 68.34 | 70.55 | 72.75 | 74.96 | 77.16 | 79.37 | 81.57 | 83.78 | 85.98 |
| 40 | 88.18 | 90.39 | 92.59 | 94.80 | 97.00 | 99.21 | 101.41 | 103.62 | 105.82 | 108.03 |
| 50 | 110.23 | 112.44 | 114.64 | 116.85 | 119.05 | 121.25 | 123.46 | 125.66 | 127.87 | 130.07 |
| 60 | 132.28 | 134.48 | 136.69 | 138.89 | 141.10 | 143.30 | 145.51 | 147.71 | 149.91 | 152.12 |
| 70 | 154.32 | 156.53 | 158.73 | 160.94 | 163.14 | 165.35 | 167.55 | 169.76 | 171.96 | 174.17 |
| 80 | 176.37 | 178.57 | 180.78 | 182.98 | 185.19 | 187.39 | 189.60 | 191.80 | 194.01 | 196.21 |
| 90 | 198.42 | 200.62 | 202.83 | 205.03 | 207.24 | 209.44 | 211.64 | 213.85 | 216.05 | 218.26 |

Liter to U.S. Gallon
 $1 \ell = 0.2642 \text{ U.S. Gal}$

| | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
|----|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0 | | 0.264 | 0.528 | 0.793 | 1.057 | 1.321 | 1.585 | 1.849 | 2.113 | 2.378 |
| 10 | 2.642 | 2.906 | 3.170 | 3.434 | 3.698 | 3.963 | 4.227 | 4.491 | 4.755 | 5.019 |
| 20 | 5.283 | 5.548 | 5.812 | 6.076 | 6.340 | 6.604 | 6.869 | 7.133 | 7.397 | 7.661 |
| 30 | 7.925 | 8.189 | 8.454 | 8.718 | 8.982 | 9.246 | 9.510 | 9.774 | 10.039 | 10.303 |
| 40 | 10.567 | 10.831 | 11.095 | 11.359 | 11.624 | 11.888 | 12.152 | 12.416 | 12.680 | 12.944 |
| 50 | 13.209 | 13.473 | 13.737 | 14.001 | 14.265 | 14.529 | 14.795 | 15.058 | 15.322 | 15.586 |
| 60 | 15.850 | 16.115 | 16.379 | 16.643 | 16.907 | 17.171 | 17.435 | 17.700 | 17.964 | 18.228 |
| 70 | 18.492 | 18.756 | 19.020 | 19.285 | 19.549 | 19.813 | 20.077 | 20.341 | 20.605 | 20.870 |
| 80 | 21.134 | 21.398 | 21.662 | 21.926 | 22.190 | 22.455 | 22.719 | 22.983 | 23.247 | 23.511 |
| 90 | 23.775 | 24.040 | 24.304 | 24.568 | 24.832 | 25.096 | 25.631 | 25.625 | 25.889 | 26.153 |

Liter to U.K. Gallon
 $1 \ell = 0.21997 \text{ U.K. Gal}$

| | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
|----|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0 | | 0.220 | 0.440 | 0.660 | 0.880 | 1.100 | 1.320 | 1.540 | 1.760 | 1.980 |
| 10 | 2.200 | 2.420 | 2.640 | 2.860 | 3.080 | 3.300 | 3.520 | 3.740 | 3.950 | 4.179 |
| 20 | 4.399 | 4.619 | 4.839 | 5.059 | 5.279 | 5.499 | 5.719 | 5.939 | 6.159 | 6.379 |
| 30 | 6.599 | 6.819 | 7.039 | 7.259 | 7.479 | 7.699 | 7.919 | 8.139 | 8.359 | 8.579 |
| 40 | 8.799 | 9.019 | 9.239 | 9.459 | 9.679 | 9.899 | 10.119 | 10.339 | 10.559 | 10.778 |
| 50 | 10.998 | 11.281 | 11.438 | 11.658 | 11.878 | 12.098 | 12.318 | 12.528 | 12.758 | 12.978 |
| 60 | 13.198 | 13.418 | 13.638 | 13.858 | 14.078 | 14.298 | 14.518 | 14.738 | 14.958 | 15.178 |
| 70 | 15.398 | 15.618 | 15.838 | 16.058 | 16.278 | 16.498 | 16.718 | 16.938 | 17.158 | 17.378 |
| 80 | 17.598 | 17.818 | 18.037 | 18.257 | 18.477 | 18.697 | 18.917 | 19.137 | 19.357 | 19.577 |
| 90 | 19.797 | 20.017 | 20.237 | 20.457 | 20.677 | 20.897 | 21.117 | 21.337 | 21.557 | 21.777 |

kgf · m to lbf · ft

1 kgf · m = 7.233 lbf · ft

| | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
|-----|--------|--------|--------|--------|--------|--------|--------|--------|--------|---------|
| | | 7.2 | 14.5 | 21.7 | 28.9 | 36.2 | 43.4 | 50.6 | 57.9 | 65.1 |
| 10 | 72.3 | 79.6 | 86.8 | 94.0 | 101.3 | 108.5 | 115.7 | 123.0 | 130.2 | 137.4 |
| 20 | 144.7 | 151.9 | 159.1 | 166.4 | 173.6 | 180.8 | 188.1 | 195.3 | 202.5 | 209.8 |
| 30 | 217.0 | 224.2 | 231.5 | 238.7 | 245.9 | 253.2 | 260.4 | 267.6 | 274.9 | 282.1 |
| 40 | 289.3 | 296.6 | 303.8 | 311.0 | 318.3 | 325.5 | 332.7 | 340.0 | 347.2 | 354.4 |
| 50 | 361.7 | 368.9 | 376.1 | 383.4 | 390.6 | 397.8 | 405.1 | 412.3 | 419.5 | 426.8 |
| 60 | 434.0 | 441.2 | 448.5 | 455.7 | 462.9 | 470.2 | 477.4 | 484.6 | 491.8 | 499.1 |
| 70 | 506.3 | 513.5 | 520.8 | 528.0 | 535.2 | 542.5 | 549.7 | 556.9 | 564.2 | 571.4 |
| 80 | 578.6 | 585.9 | 593.1 | 600.3 | 607.6 | 614.8 | 622.0 | 629.3 | 636.5 | 643.7 |
| 90 | 651.0 | 658.2 | 665.4 | 672.7 | 679.9 | 687.1 | 694.4 | 701.6 | 708.8 | 716.1 |
| 100 | 723.3 | 730.5 | 737.8 | 745.0 | 752.2 | 759.5 | 766.7 | 773.9 | 781.2 | 788.4 |
| 110 | 795.6 | 802.9 | 810.1 | 817.3 | 824.6 | 831.8 | 839.0 | 846.3 | 853.5 | 860.7 |
| 120 | 868.0 | 875.2 | 882.4 | 889.7 | 896.9 | 904.1 | 911.4 | 918.6 | 925.8 | 933.1 |
| 130 | 940.3 | 947.5 | 954.8 | 962.0 | 969.2 | 976.5 | 983.7 | 990.9 | 998.2 | 10005.4 |
| 140 | 1012.6 | 1019.9 | 1027.1 | 1034.3 | 1041.5 | 1048.8 | 1056.0 | 1063.2 | 1070.5 | 1077.7 |
| 150 | 1084.9 | 1092.2 | 1099.4 | 1106.6 | 1113.9 | 1121.1 | 1128.3 | 1135.6 | 1142.8 | 1150.0 |
| 160 | 1157.3 | 1164.5 | 1171.7 | 1179.0 | 1186.2 | 1193.4 | 1200.7 | 1207.9 | 1215.1 | 1222.4 |
| 170 | 1129.6 | 1236.8 | 1244.1 | 1251.3 | 1258.5 | 1265.8 | 1273.0 | 1280.1 | 1287.5 | 1294.7 |
| 180 | 1301.9 | 1309.2 | 1316.4 | 1323.6 | 1330.9 | 1338.1 | 1345.3 | 1352.6 | 1359.8 | 1367.0 |
| 190 | 1374.3 | 1381.5 | 1388.7 | 1396.0 | 1403.2 | 1410.4 | 1417.7 | 1424.9 | 1432.1 | 1439.4 |

kgf/cm² to lbf/in²1 kgf / cm² = 14.2233 lbf / in²

| | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
|-----|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| | | 14.2 | 28.4 | 42.7 | 56.9 | 71.1 | 85.3 | 99.6 | 113.8 | 128.0 |
| 10 | 142.2 | 156.5 | 170.7 | 184.9 | 199.1 | 213.4 | 227.6 | 241.8 | 256.0 | 270.2 |
| 20 | 284.5 | 298.7 | 312.9 | 327.1 | 341.4 | 355.6 | 369.8 | 384.0 | 398.3 | 412.5 |
| 30 | 426.7 | 440.9 | 455.1 | 469.4 | 483.6 | 497.8 | 512.0 | 526.3 | 540.5 | 554.7 |
| 40 | 568.9 | 583.2 | 597.4 | 611.6 | 625.8 | 640.1 | 654.3 | 668.5 | 682.7 | 696.9 |
| 50 | 711.2 | 725.4 | 739.6 | 753.8 | 768.1 | 782.3 | 796.5 | 810.7 | 825.0 | 839.2 |
| 60 | 853.4 | 867.6 | 881.8 | 896.1 | 910.3 | 924.5 | 938.7 | 953.0 | 967.2 | 981.4 |
| 70 | 995.6 | 1010 | 1024 | 1038 | 1053 | 1067 | 1081 | 1095 | 1109 | 1124 |
| 80 | 1138 | 1152 | 1166 | 1181 | 1195 | 1209 | 1223 | 1237 | 1252 | 1266 |
| 90 | 1280 | 1294 | 1309 | 1323 | 1337 | 1351 | 1365 | 1380 | 1394 | 1408 |
| 100 | 1422 | 1437 | 1451 | 1465 | 1479 | 1493 | 1508 | 1522 | 1536 | 1550 |
| 110 | 1565 | 1579 | 1593 | 1607 | 1621 | 1636 | 1650 | 1664 | 1678 | 1693 |
| 120 | 1707 | 1721 | 1735 | 1749 | 1764 | 1778 | 1792 | 1806 | 1821 | 1835 |
| 130 | 1849 | 2863 | 1877 | 1892 | 1906 | 1920 | 1934 | 1949 | 1963 | 1977 |
| 140 | 1991 | 2005 | 2020 | 2034 | 2048 | 2062 | 2077 | 2091 | 2105 | 2119 |
| 150 | 2134 | 2148 | 2162 | 2176 | 2190 | 2205 | 2219 | 2233 | 2247 | 2262 |
| 160 | 2276 | 2290 | 2304 | 2318 | 2333 | 2347 | 2361 | 2375 | 2389 | 2404 |
| 170 | 2418 | 2432 | 2446 | 2460 | 2475 | 2489 | 2503 | 2518 | 2532 | 2546 |
| 180 | 2560 | 2574 | 2589 | 5603 | 2617 | 2631 | 2646 | 2660 | 2674 | 2688 |
| 200 | 2845 | 2859 | 2873 | 2887 | 2901 | 2916 | 2930 | 2944 | 2958 | 2973 |
| 210 | 2987 | 3001 | 3015 | 3030 | 3044 | 3058 | 3072 | 3086 | 3101 | 3115 |
| 220 | 3129 | 3143 | 3158 | 3172 | 3186 | 3200 | 3214 | 3229 | 3243 | 3257 |
| 230 | 3271 | 3286 | 3300 | 3314 | 3328 | 3343 | 3357 | 3371 | 3385 | 3399 |
| 240 | 3414 | 3428 | 3442 | 3456 | 3470 | 3485 | 3499 | 3513 | 3527 | 3542 |

TEMPERATURE

Fahrenheit-Centigrade Conversion.

A simple way to convert a fahrenheit temperature reading into a centigrade temperature reading or vice verse is to enter the accompanying table in the center or boldface column of figures.

These figures refer to the temperature in either Fahrenheit or Centigrade degrees.

If it is desired to convert from Fahrenheit to Centigrade degrees, consider the center column as a table of Fahrenheit temperatures and read the corresponding Centigrade temperature in the column at the left.

If it is desired to convert from Centigrade to Fahrenheit degrees, consider the center column as a table of Centigrade values, and read the corresponding Fahrenheit temperature on the right.

| °C | | °F | °C | | °F | °C | | °F | °C | | °F |
|-------|-----|-------|-------|----|-------|------|----|-------|------|-----|-------|
| -40.4 | -40 | -40.0 | -11.7 | 11 | 51.8 | 7.8 | 46 | 114.8 | 27.2 | 81 | 117.8 |
| -37.2 | -35 | -31.0 | -11.1 | 12 | 53.6 | 8.3 | 47 | 116.6 | 27.8 | 82 | 179.6 |
| -34.4 | -30 | -22.0 | -10.6 | 13 | 55.4 | 8.9 | 48 | 118.4 | 28.3 | 83 | 181.4 |
| -31.7 | -25 | -13.0 | -10.0 | 14 | 57.2 | 9.4 | 49 | 120.2 | 28.9 | 84 | 183.2 |
| -28.9 | -20 | -4.0 | -9.4 | 15 | 59.0 | 10.0 | 50 | 122.0 | 29.4 | 85 | 185.0 |
| | | | | | | | | | | | |
| -28.3 | -19 | -2.2 | -8.9 | 16 | 60.8 | 10.6 | 51 | 123.8 | 30.0 | 86 | 186.8 |
| -27.8 | -18 | -0.4 | -8.3 | 17 | 62.6 | 11.1 | 52 | 125.6 | 30.6 | 87 | 188.6 |
| -27.2 | -17 | 1.4 | -7.8 | 18 | 64.4 | 11.7 | 53 | 127.4 | 31.1 | 88 | 190.4 |
| -26.7 | -16 | 3.2 | -6.7 | 20 | 68.0 | 12.8 | 55 | 131.0 | 32.2 | 90 | 194.0 |
| -26.1 | -15 | 5.0 | -6.7 | 20 | 68.0 | 12.8 | 55 | 131.0 | 32.2 | 90 | 194.0 |
| | | | | | | | | | | | |
| -25.6 | -14 | 6.8 | -6.1 | 21 | 69.8 | 13.3 | 56 | 132.8 | 32.8 | 91 | 195.8 |
| -25.0 | -13 | 8.6 | -5.6 | 22 | 71.6 | 13.9 | 57 | 134.6 | 33.3 | 92 | 197.6 |
| -24.4 | -12 | 10.4 | -5.0 | 23 | 73.4 | 14.4 | 58 | 136.4 | 33.9 | 93 | 199.4 |
| -23.9 | -11 | 12.2 | -4.4 | 24 | 75.2 | 15.0 | 59 | 138.2 | 34.4 | 94 | 201.2 |
| -23.3 | -10 | 14.0 | -3.9 | 25 | 77.0 | 15.6 | 60 | 140.0 | 35.0 | 95 | 203.0 |
| | | | | | | | | | | | |
| -22.8 | -9 | 15.8 | -3.3 | 26 | 78.8 | 16.1 | 61 | 141.8 | 35.6 | 96 | 204.8 |
| -22.2 | -8 | 17.6 | -2.8 | 27 | 80.6 | 16.7 | 62 | 143.6 | 36.1 | 97 | 206.6 |
| -21.7 | -7 | 19.4 | -2.2 | 28 | 82.4 | 17.2 | 63 | 145.4 | 36.7 | 98 | 208.4 |
| -21.1 | -6 | 21.2 | -1.7 | 29 | 84.2 | 17.8 | 64 | 147.2 | 37.2 | 99 | 210.2 |
| -20.6 | -5 | 23.0 | -1.1 | 35 | 95.0 | 21.1 | 70 | 158.0 | 51.7 | 125 | 257.0 |
| | | | | | | | | | | | |
| -20.0 | -4 | 24.8 | -0.6 | 31 | 87.8 | 18.9 | 66 | 150.8 | 40.6 | 105 | 221.0 |
| -19.4 | -3 | 26.6 | 0 | 32 | 89.6 | 19.4 | 67 | 152.6 | 43.3 | 110 | 230.0 |
| -18.9 | -2 | 28.4 | 0.6 | 33 | 91.4 | 20.0 | 68 | 154.4 | 46.1 | 115 | 239.0 |
| -18.3 | -1 | 30.2 | 1.1 | 34 | 93.2 | 20.6 | 69 | 156.2 | 48.9 | 120 | 248.0 |
| -17.8 | 0 | 32.0 | 1.7 | 35 | 95.0 | 21.1 | 70 | 158.0 | 51.7 | 125 | 257.0 |
| | | | | | | | | | | | |
| -17.2 | 1 | 33.8 | 2.2 | 36 | 96.8 | 21.7 | 71 | 159.8 | 54.4 | 130 | 266.0 |
| -16.7 | 2 | 35.6 | 2.8 | 37 | 98.6 | 22.2 | 72 | 161.6 | 57.2 | 135 | 275.0 |
| -16.1 | 3 | 37.4 | 3.3 | 38 | 100.4 | 22.8 | 73 | 163.4 | 60.0 | 140 | 284.0 |
| -15.6 | 4 | 39.2 | 3.9 | 39 | 102.2 | 23.3 | 74 | 165.2 | 62.7 | 145 | 293.0 |
| -15.0 | 5 | 41.0 | 4.4 | 40 | 104.0 | 23.9 | 75 | 167.0 | 65.6 | 150 | 302.0 |
| | | | | | | | | | | | |
| -14.4 | 6 | 42.8 | 5.0 | 41 | 105.8 | 24.4 | 76 | 168.8 | 68.3 | 155 | 311.0 |
| -13.9 | 7 | 44.6 | 5.6 | 42 | 107.6 | 25.0 | 77 | 170.6 | 71.1 | 160 | 320.0 |
| -13.3 | 8 | 46.4 | 6.1 | 43 | 109.4 | 25.6 | 78 | 172.4 | 73.9 | 165 | 329.0 |
| -12.8 | 9 | 48.2 | 6.7 | 44 | 111.2 | 26.1 | 79 | 174.2 | 76.7 | 170 | 338.0 |
| -12.2 | 10 | 50.0 | 7.2 | 45 | 113.0 | 26.7 | 80 | 176.0 | 79.4 | 172 | 347.0 |

SECTION 1 GENERAL



Group 1 Safety Hints 1-1

Group 2 Specifications 1-9

SECTION 1 GENERAL

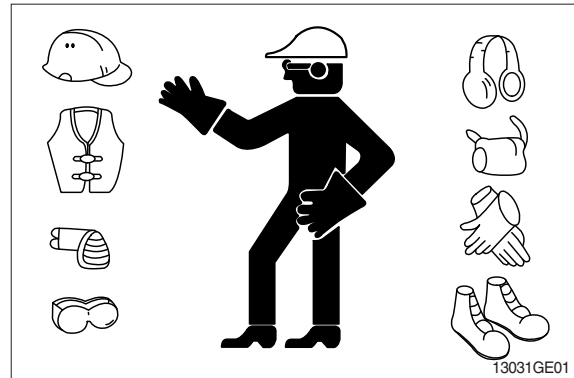
GROUP 1 SAFETY

FOLLOW SAFE PROCEDURE

Unsafe work practices are dangerous. Understand service procedure before doing work; Do not attempt shortcuts.

WEAR PROTECTIVE CLOTHING

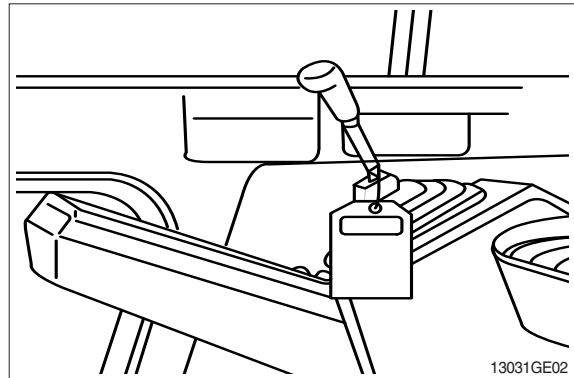
Wear close fitting clothing and safety equipment appropriate to the job.



WARN OTHERS OF SERVICE WORK

Unexpected machine movement can cause serious injury.

Before performing any work on the excavator, attach a 「Do Not Operate」 tag on the right side control lever.



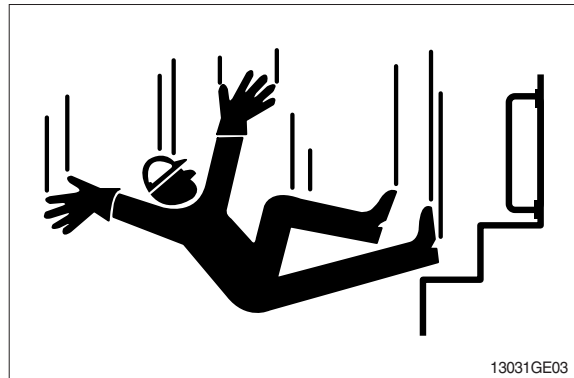
USE HANDHOLDS AND STEPS

Falling is one of the major causes of personal injury.

When you get on and off the machine, always maintain a three point contact with the steps and handrails and face the machine. Do not use any controls as handholds.

Never jump on or off the machine. Never mount or dismount a moving machine.

Be careful of slippery conditions on platforms, steps, and handrails when leaving the machine.

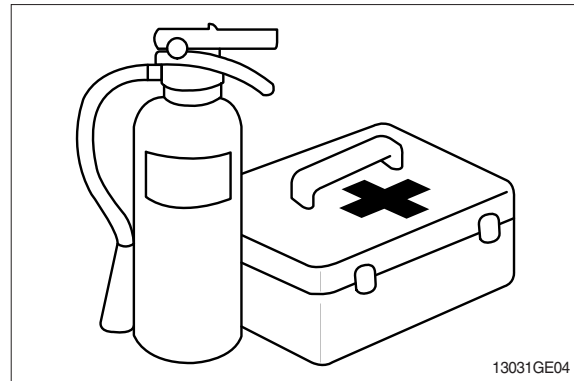


PREPARE FOR EMERGENCIES

Be prepared if a fire starts.

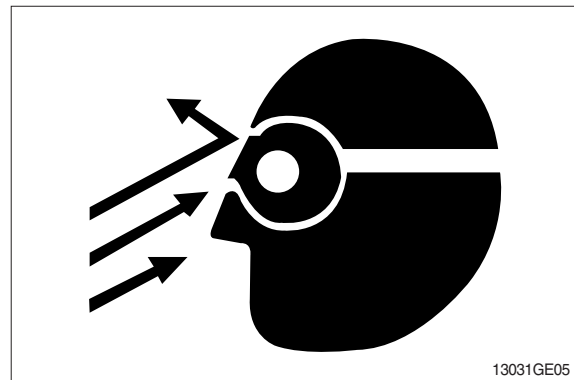
Keep a first aid kit and fire extinguisher handy.

Keep emergency numbers for doctors, ambulance service, hospital, and fire department near your telephone.



PROTECT AGAINST FLYING DEBRIS

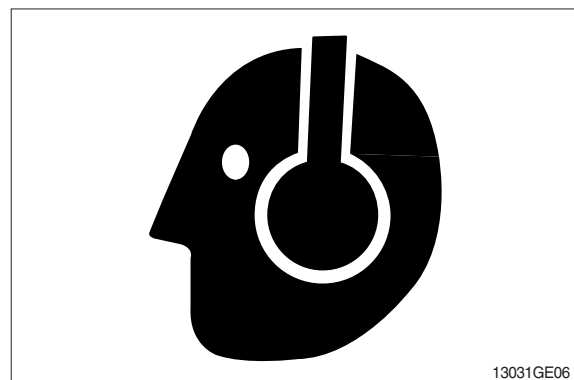
Guard against injury from flying pieces of metal or debris; Wear goggles or safety glasses.



PROTECT AGAINST NOISE

Prolonged exposure to loud noise can cause impairment or loss of hearing.

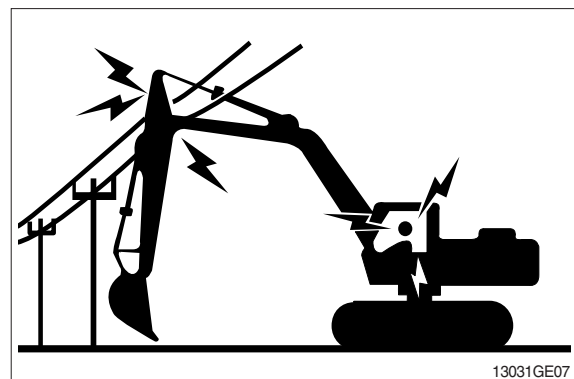
Wear a suitable hearing protective device such as earmuffs or earplugs to protect against objectionable or uncomfortable loud noises.



AVOID POWER LINES

Serious injury or death can result from contact with electric lines.

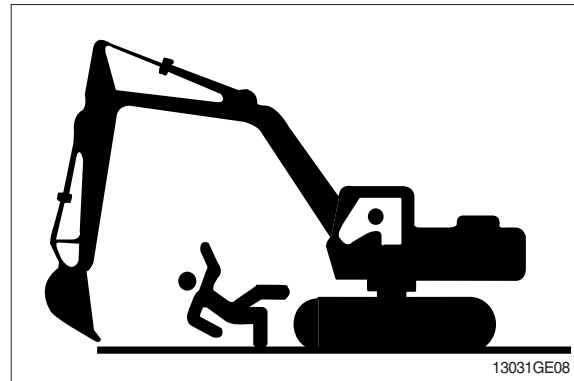
Never move any part of the machine or load closer to electric line than 3m(10ft) plus twice the line insulator length.



KEEP RIDERS OFF EXCAVATOR

Only allow the operator on the excavator.
Keep riders off.

Riders on excavator are subject to injury such as being struck by foreign objects and being thrown off the excavator. Riders also obstruct the operator's view resulting in the excavator being operated in an unsafe manner.

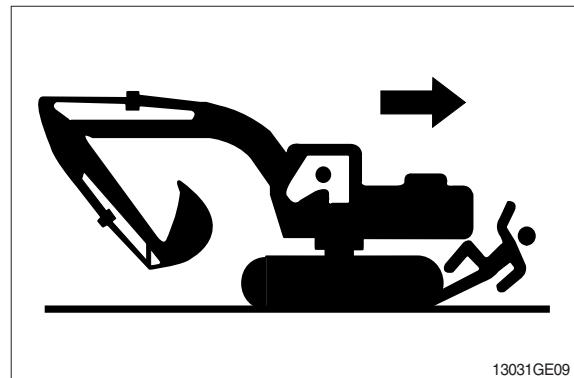


MOVE AND OPERATE MACHINE SAFELY

Bystanders can be run over. Know the location of bystanders before moving, swinging, or operating the machine.

Always keep the travel alarm in working condition. It warns people when the excavator starts to move.

Use a signal person when moving, swinging, or operating the machine in congested areas. Coordinate hand signals before starting the excavator.



OPERATE ONLY FROM OPERATOR'S SEAT

Avoid possible injury machine damage. Do not start engine by shorting across starter terminals.

NEVER start engine while standing on ground.
Start engine only from operator's seat.



PARK MACHINE SAFELY

Before working on the machine:

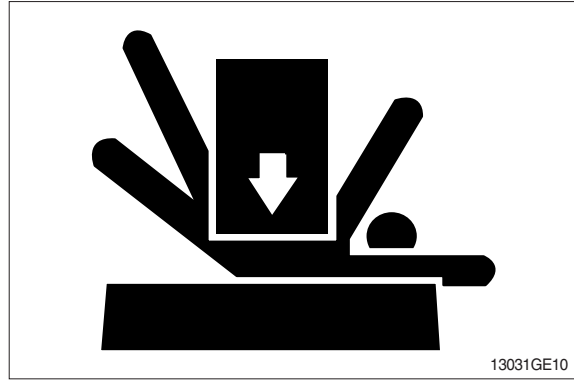
- Park machine on a level surface.
- Lower bucket to the ground.
- Turn auto idle switch off.
- Run engine at 1/2 speed without load for 2 minutes.
- Turn key switch to OFF to stop engine.
Remove key from switch.
- Move pilot control shutoff lever to locked position.
- Allow engine to cool.

SUPPORT MACHINE PROPERLY

Always lower the attachment or implement to the ground before you work on the machine. If you must work on a lifted machine or attachment, securely support the machine or attachment.

Do not support the machine on cinder blocks, hollow tiles, or props that may crumble under continuous load.

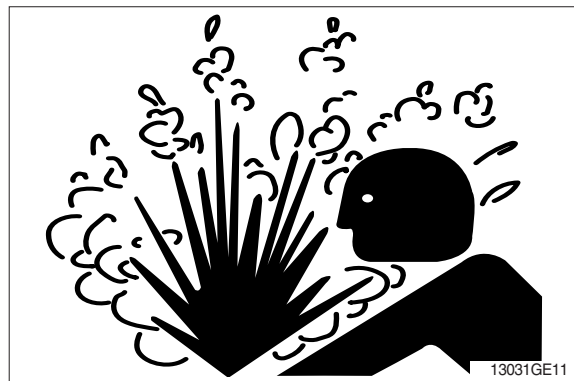
Do not work under a machine that is supported solely by a jack. Follow recommended procedures in this manual.



SERVICE COOLING SYSTEM SAFELY

Explosive release of fluids from pressurized cooling system can cause serious burns.

Shut off engine. Only remove filler cap when cool enough to touch with bare hands.



HANDLE FLUIDS SAFELY-AVOID FIRES

Handle fuel with care; It is highly flammable. Do not refuel the machine while smoking or when near open flame or sparks.

Always stop engine before refueling machine. Fill fuel tank outdoors.



Store flammable fluids away from fire hazards. Do not incinerate or puncture pressurized containers.

Make sure machine is clean of trash, grease, and debris.

Do not store oily rags; They can ignite and burn spontaneously.



BEWARE OF EXHAUST FUMES

Prevent asphyxiation. Engine exhaust fumes can cause sickness or death.

If you must operate in a building, be positive there is adequate ventilation. Either use an exhaust pipe extension to remove the exhaust fumes or open doors and windows to bring enough outside air into the area.

REMOVE PAINT BEFORE WELDING OR HEATING

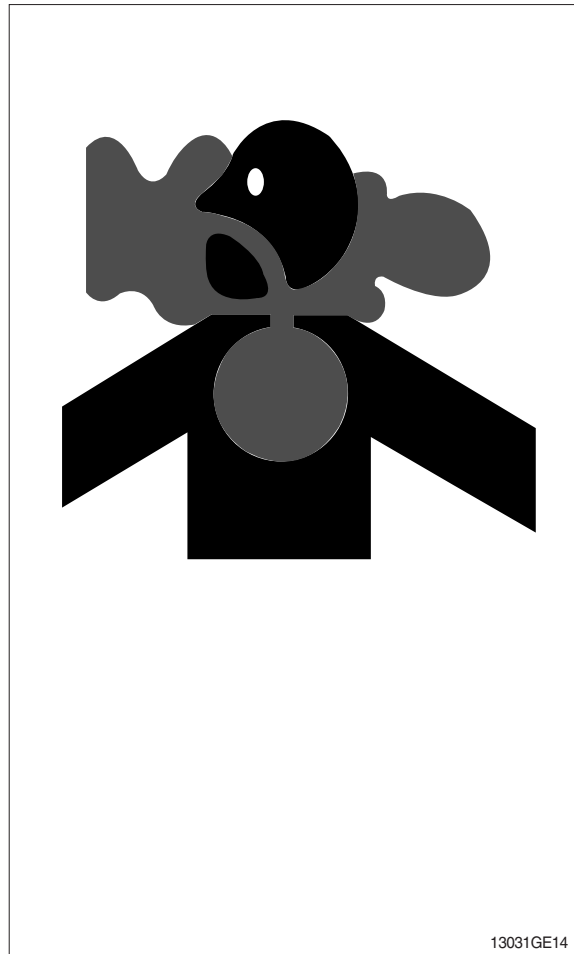
Avoid potentially toxic fumes and dust.

Hazardous fumes can be generated when paint is heated by welding, soldering, or using a torch.

Do all work outside or in a well ventilated area. Dispose of paint and solvent properly.

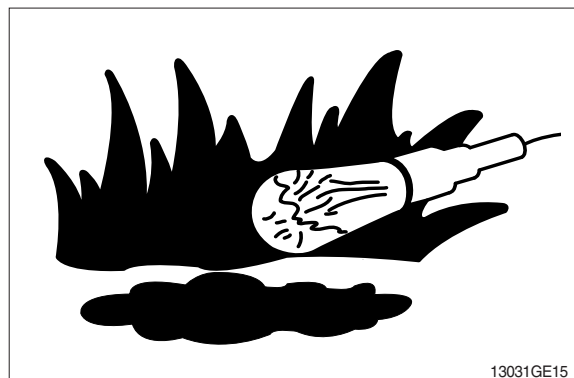
Remove paint before welding or heating:

- If you sand or grind paint, avoid breathing the dust. Wear an approved respirator.
- If you use solvent or paint stripper, remove stripper with soap and water before welding. Remove solvent or paint stripper containers and other flammable material from area. Allow fumes to disperse at least 15 minutes before welding or heating.



ILLUMINATE WORK AREA SAFELY

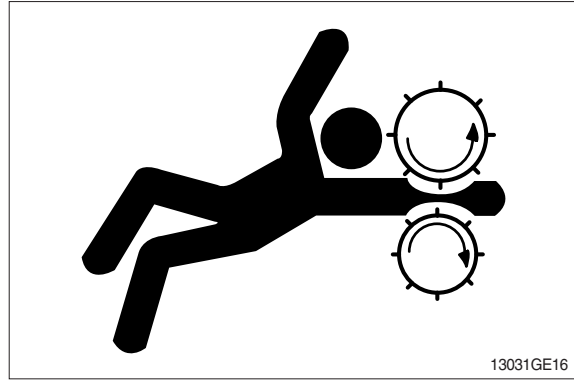
Illuminate your work area adequately but safely. Use a portable safety light for working inside or under the machine. Make sure the bulb is enclosed by a wire cage. The hot filament of an accidentally broken bulb can ignite spilled fuel or oil.



SERVICE MACHINE SAFELY

Tie long hair behind your head. Do not wear a necktie, scarf, loose clothing or necklace when you work near machine tools or moving parts. If these items were to get caught, severe injury could result.

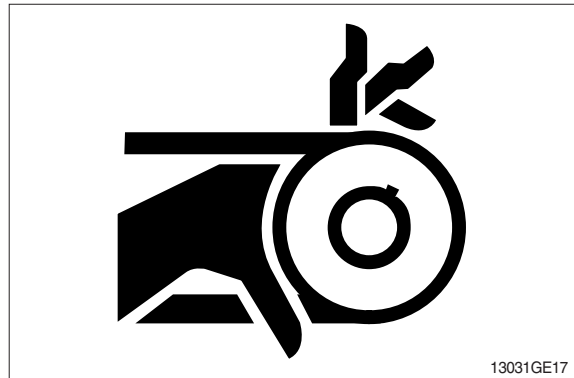
Remove rings and other jewelry to prevent electrical shorts and entanglement in moving parts.



STAY CLEAR OF MOVING PARTS

Entanglements in moving parts can cause serious injury.

To prevent accidents, use care when working around rotating parts.



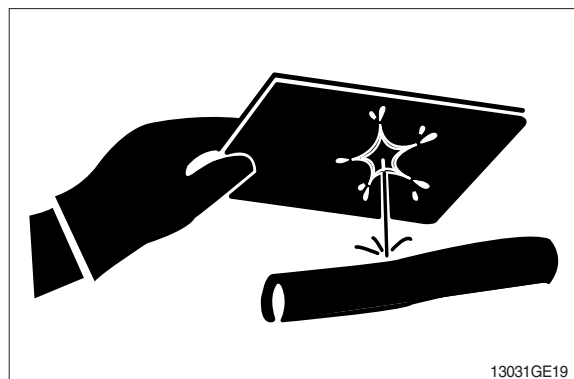
AVOID HIGH PRESSURE FLUIDS

Escaping fluid under pressure can penetrate the skin causing serious injury.

Avoid the hazard by relieving pressure before disconnecting hydraulic or other lines. Tighten all connections before applying pressure.

Search for leaks with a piece of cardboard. Protect hands and body from high pressure fluids.

If an accident occurs, see a doctor immediately. Any fluid injected into the skin must be surgically removed within a few hours or gangrene may result.



AVOID HEATING NEAR PRESSURIZED FLUID LINES

Flammable spray can be generated by heating near pressurized fluid lines, resulting in severe burns to yourself and bystanders. Do not heat by welding, soldering, or using a torch near pressurized fluid lines or other flammable materials.

Pressurized lines can be accidentally cut when heat goes beyond the immediate flame area. Install fire resisting guards to protect hoses or other materials.



PREVENT BATTERY EXPLOSIONS

Keep sparks, lighted matches, and flame away from the top of battery. Battery gas can explode.

Never check battery charge by placing a metal object across the posts. Use a volt-meter or hydrometer.

Do not charge a frozen battery; It may explode. Warm battery to 16°C (60°F).



PREVENT ACID BURNS

Sulfuric acid in battery electrolyte is poisonous. It is strong enough to burn skin, eat holes in clothing, and cause blindness if splashed into eyes.

Avoid the hazard by:

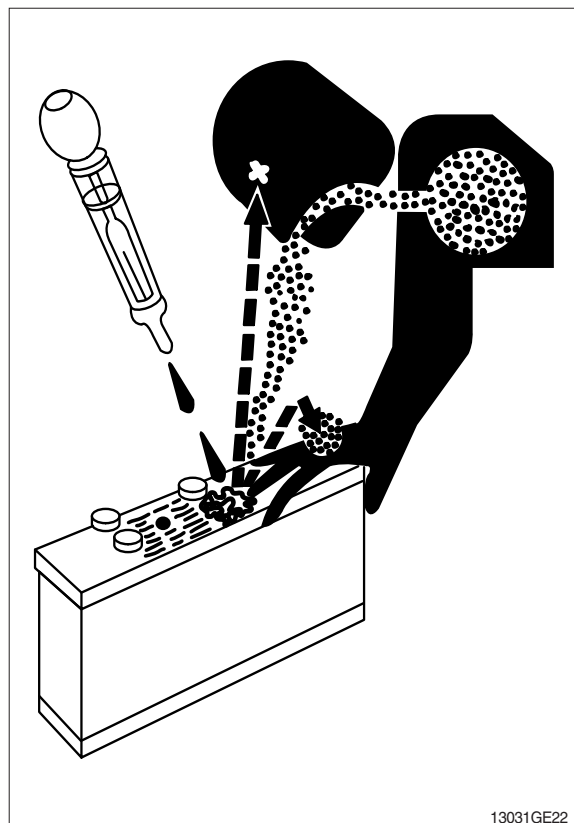
1. Filling batteries in a well-ventilated area.
2. Wearing eye protection and rubber gloves.
3. Avoiding breathing fumes when electrolyte is added.
4. Avoiding spilling or dripping electrolyte.
5. Use proper jump start procedure.

If you spill acid on yourself:

1. Flush your skin with water.
2. Apply baking soda or lime to help neutralize the acid.
3. Flush your eyes with water for 10-15 minutes. Get medical attention immediately.

If acid is swallowed:

1. Drink large amounts of water or milk.
2. Then drink milk of magnesia, beaten eggs, or vegetable oil.
3. Get medical attention immediately.



USE TOOLS PROPERLY

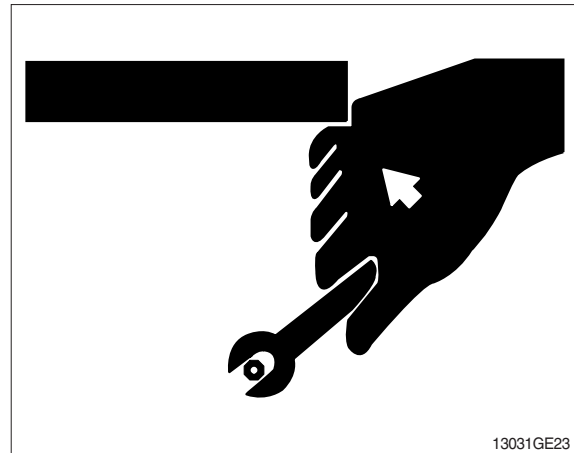
Use tools appropriate to the work.
Makeshift tools, parts, and procedures can create safety hazards.

Use power tools only to loosen threaded tools and fasteners.

For loosening and tightening hardware, use the correct size tools.

DO NOT use U.S. measurement tools on metric fasteners. Avoid bodily injury caused by slipping wrenches.

Use only recommended replacement parts.
(See Parts manual)

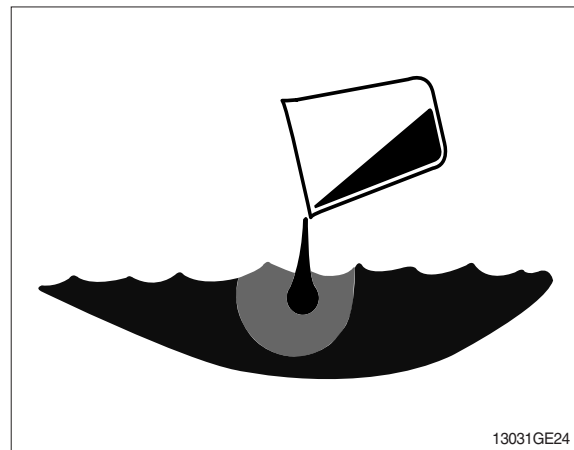


DISPOSE OF FLUIDS PROPERLY

Improperly disposing of fluids can harm the environment and ecology. Before draining any fluids, find out the proper way to dispose of waste from your local environmental agency.

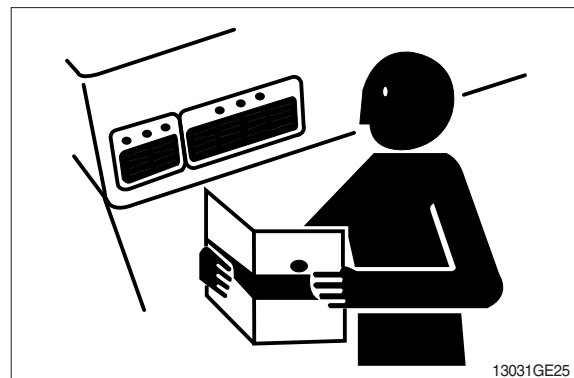
Use proper containers when draining fluids.
Do not use food or beverage containers that may mislead someone into drinking from them.

DO NOT pour oil into the ground, down a drain, or into a stream, pond, or lake. Observe relevant environmental protection regulations when disposing of oil, fuel, coolant, brake fluid, filters, batteries, and other harmful waste.



REPLACE SAFETY SIGNS

Replace missing or damaged safety signs. See the machine operator's manual for correct safety sign placement.



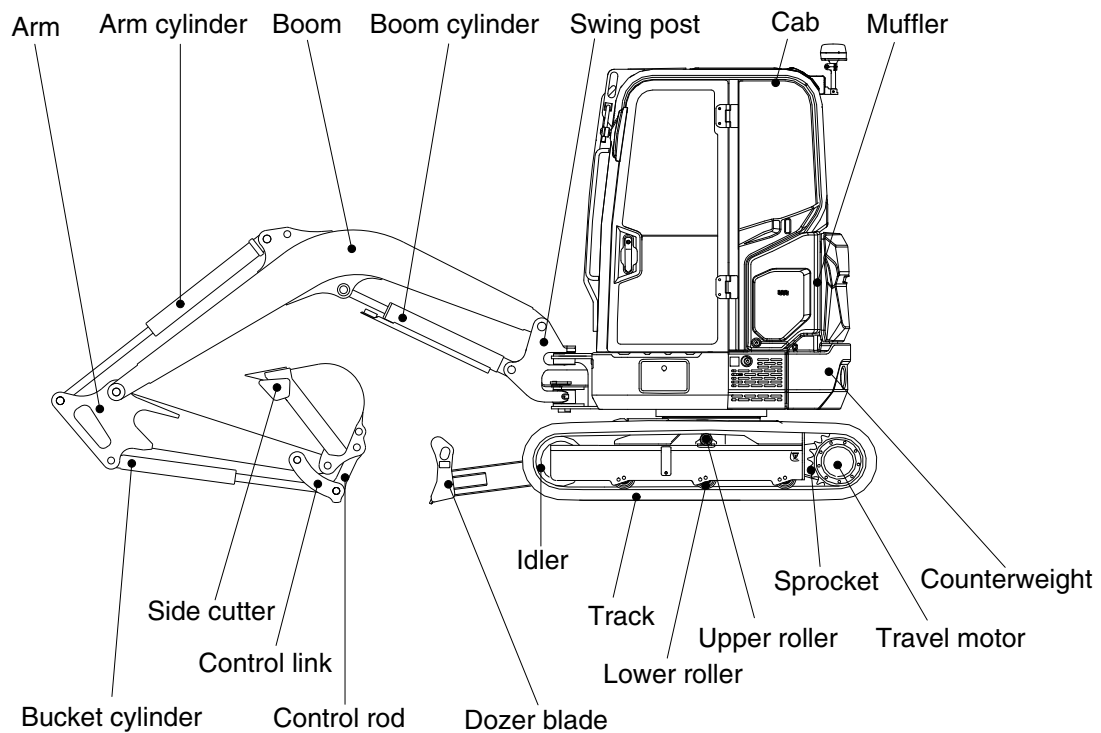
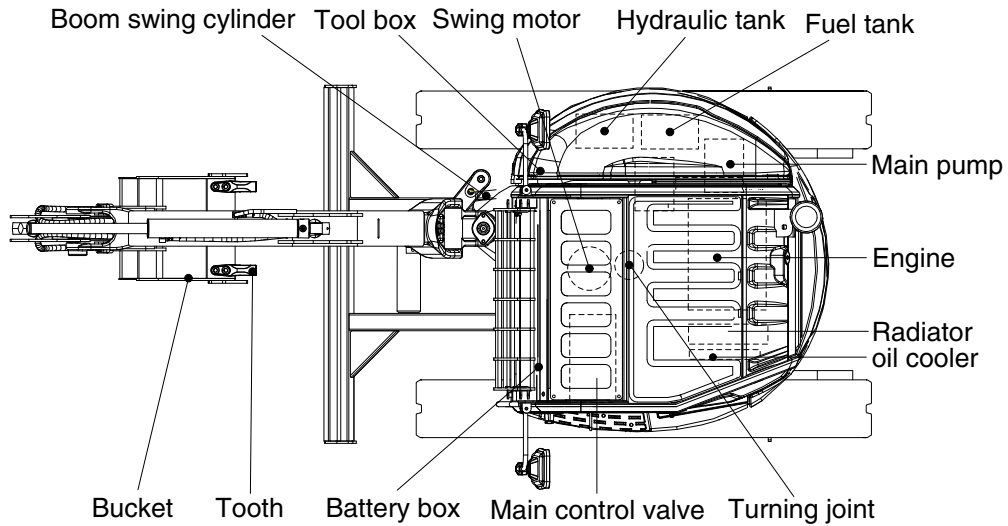
LIVE WITH SAFETY

Before returning machine to customer, make sure machine is functioning properly, especially the safety systems.

Install all guards and shields.

GROUP 2 SPECIFICATIONS

1. MAJOR COMPONENT

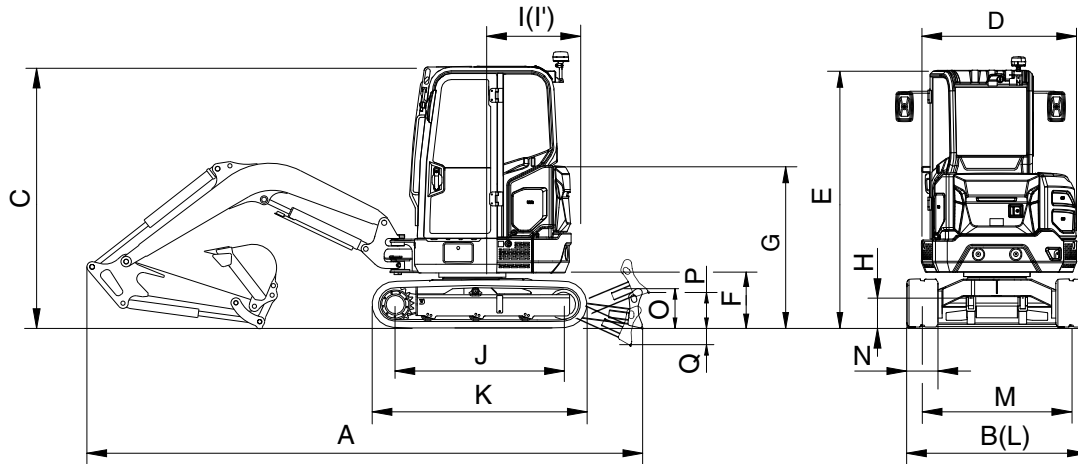


25AZ2SP01

2. SPECIFICATIONS

1) HX25AZ

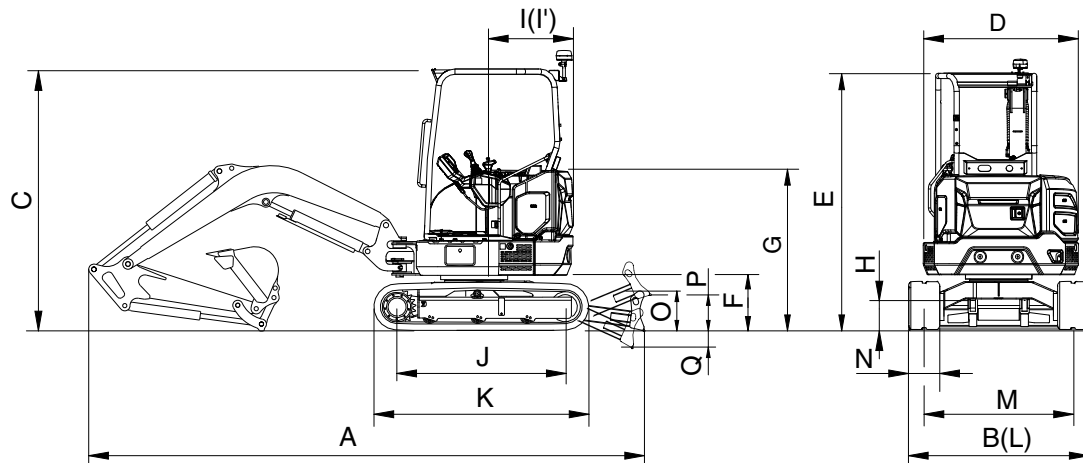
(1) 2.03 m (6' 8") mono boom, 1.12 m (3' 8") arm, with cab



25AZ2SP02

| Description | | Unit | | Specification | |
|--|----|---------------|---------|-----------------------|-----------------------|
| | | CWT | kg (lb) | 130 (287) | 270 (595) |
| Operating weight | | kg (lb) | | 2685 (5920) | 2850 (6280) |
| Bucket capacity (SAE heaped), standard | | m³ (yd³) | | 0.07 (0.09) | 0.07 (0.09) |
| Overall length | A | mm (ft-in) | | 4150 (13' 7") | 4150 (13' 7") |
| Overall width | B | | | 1534 (5' 0") | 1534 (5' 0") |
| Overall width (dozer blade) | B' | | | 1550 (5' 1") | 1550 (5' 1") |
| Overall height | C | | | 2452 (8' 1") | 2452 (8' 1") |
| Overall width of upperstructure | D | | | 1490 (4' 11") | 1490 (4' 11") |
| Overall height of cab | E | | | 2452 (8' 1") | 2452 (8' 1") |
| Ground clearance of counterweight | F | | | 504 (1' 8") | 504 (1' 8") |
| Overall height of engine hood | G | | | 1522 (5' 0") | 1522 (5' 0") |
| Minimum ground clearance | H | | | 183 (0' 7") | 183 (0' 7") |
| Rear-end distance | I | | | 775 (2' 7") | 775 (2' 7") |
| Rear-end swing radius | I' | | | 775 (2' 7") | 775 (2' 7") |
| Distance between tumblers | J | | | 1550 (5' 1") | 1550 (5' 1") |
| Undercarriage length (without grouser) | K | | | 1975 (6' 6") | 1975 (6' 6") |
| Undercarriage width | L | | | 1534 (5' 0") | 1534 (5' 0") |
| Track gauge | M | | | 1250 (4' 1") | 1250 (4' 1") |
| Track shoe width, standard | N | | | 250 (0' 10") | 250 (0' 10") |
| Height of blade | O | | | 300 (1' 0") | 300 (1' 0") |
| Ground clearance of blade up | P | | | 328 (1' 1") | 328 (1' 1") |
| Depth of blade down | Q | | | 348 (1' 2") | 348 (1' 2") |
| Travel speed (low/high) | | km/hr (mph) | | 2.38/4.35 (1.48/2.70) | 2.38/4.35 (1.48/2.70) |
| Swing speed | | rpm | | 9.16 | 9.16 |
| Gradeability | | Degree (%) | | 35 (70) | 35 (70) |
| Ground pressure 250 mm | | kgf/cm² (psi) | | 0.32 (4.49) | 0.34 (4.78) |
| Max traction force | | kg (lb) | | 2266 (5000) | 2266 (5000) |

(2) 2.03 m (6' 8") mono boom, 1.12 m (3' 8") arm, with canopy

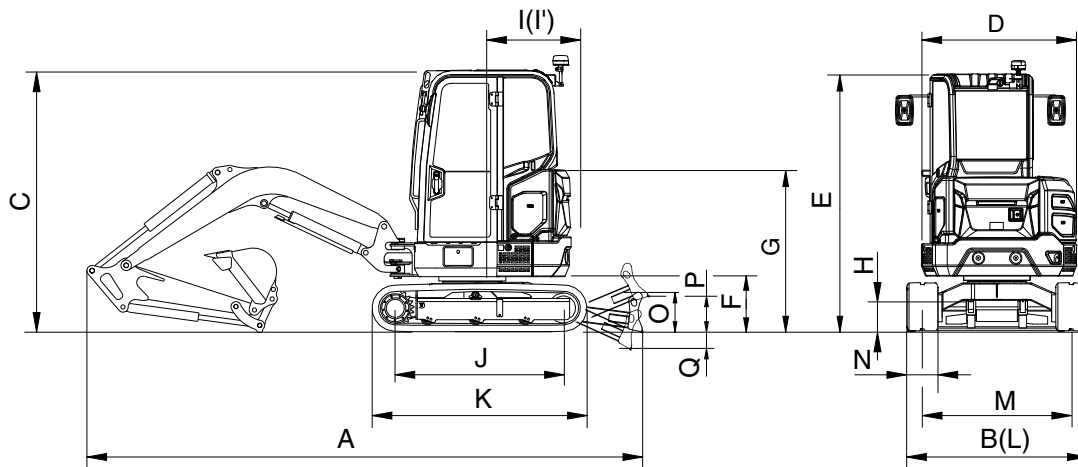


25AZ2SP03

| Description | | Unit | | Specification | |
|--|----|---------------|---------|-----------------------|-----------------------|
| | | CWT | kg (lb) | 130 (287) | 270 (595) |
| Operating weight | | kg (lb) | | 2555 (5630) | 2720 (6000) |
| Bucket capacity (SAE heaped), standard | | m³ (yd³) | | 0.07 (0.09) | 0.07 (0.09) |
| Overall length | A | mm (ft-in) | | 4150 (13' 7") | 4150 (13' 7") |
| Overall width | B | | | 1534 (5' 0") | 1534 (5' 0") |
| Overall width (dozer blade) | B' | | | 1550 (5' 1") | 1550 (5' 1") |
| Overall height | C | | | 2452 (8' 1") | 2452 (8' 1") |
| Overall width of upperstructure | D | | | 1490 (4' 11") | 1490 (4' 11") |
| Overall height of cab | E | | | 2452 (8' 1") | 2452 (8' 1") |
| Ground clearance of counterweight | F | | | 504 (1' 8") | 504 (1' 8") |
| Overall height of engine hood | G | | | 1522 (5' 0") | 1522 (5' 0") |
| Minimum ground clearance | H | | | 183 (0' 7") | 183 (0' 7") |
| Rear-end distance | I | | | 775 (2' 7") | 775 (2' 7") |
| Rear-end swing radius | I' | | | 775 (2' 7") | 775 (2' 7") |
| Distance between tumblers | J | | | 1550 (5' 1") | 1550 (5' 1") |
| Undercarriage length (without grouser) | K | | | 1975 (6' 6") | 1975 (6' 6") |
| Undercarriage width | L | | | 1534 (5' 0") | 1534 (5' 0") |
| Track gauge | M | | | 1250 (0' 10") | 1250 (4' 1") |
| Track shoe width, standard | N | | | 250 (1' 0") | 250 (0' 10") |
| Height of blade | O | | | 300 (1' 0") | 300 (1' 0") |
| Ground clearance of blade up | P | | | 328 (1' 1") | 328 (1' 1") |
| Depth of blade down | Q | | | 348 (1' 2") | 348 (1' 2") |
| Travel speed (low/high) | | km/hr (mph) | | 2.38/4.35 (1.48/2.70) | 2.38/4.35 (1.48/2.70) |
| Swing speed | | rpm | | 9.16 | 9.16 |
| Gradeability | | Degree (%) | | 35 (70) | 35 (70) |
| Ground pressure 250 mm | | kgf/cm² (psi) | | 0.30 (4.28) | 0.32 (4.55) |
| Max traction force | | kg (lb) | | 2266 (5000) | 2266 (5000) |

2) HX30AZ

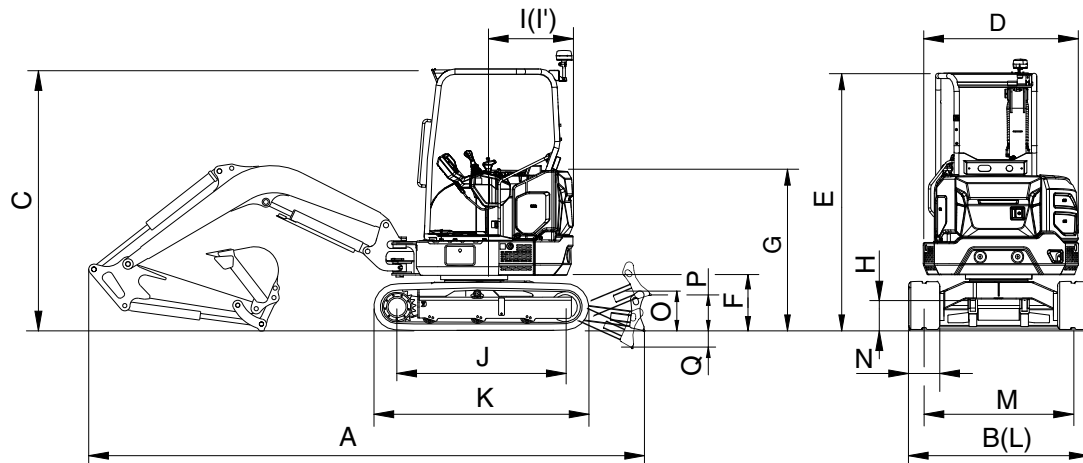
(1) 2.03 m (6' 8") mono boom, 1.3 m (4' 3") long arm, 270 kg CWT, with cab



25AZ2SP02

| Description | | Unit | Specification |
|--|----|---------------|-----------------------|
| Operating weight | | kg (lb) | 2890 (6370) |
| Bucket capacity (SAE heaped), standard | | m³ (yd³) | 0.07 (0.09) |
| Overall length | A | mm (ft-in) | 4170 (13' 8") |
| Overall width | B | | 1550 (5' 1") |
| Overall width (dozer blade) | B' | | 1550 (5' 1") |
| Overall height | C | | 2452 (8' 1") |
| Overall width of upperstructure | D | | 1490 (4' 11") |
| Overall height of cab | E | | 2452 (8' 1") |
| Ground clearance of counterweight | F | | 504 (1' 8") |
| Overall height of engine hood | G | | 1522 (5' 0") |
| Minimum ground clearance | H | | 183 (0' 7") |
| Rear-end distance | I | | 875 (2' 10") |
| Rear-end swing radius | I' | | 875 (2' 10") |
| Distance between tumblers | J | | 1550 (5' 1") |
| Undercarriage length (without grouser) | K | | 1975 (6' 6") |
| Undercarriage width | L | | 1550 (5' 1") |
| Track gauge | M | | 1250 (4' 1") |
| Track shoe width, standard | N | | 300 (1' 0") |
| Height of blade | O | | 300 (1' 0") |
| Ground clearance of blade up | P | | 328 (1' 1") |
| Depth of blade down | Q | | 348 (1' 2") |
| Travel speed (low/high) | | km/hr (mph) | 2.38/4.35 (1.48/2.70) |
| Swing speed | | rpm | 9.16 |
| Gradeability | | Degree (%) | 35 (70) |
| Ground pressure 300 mm | | kgf/cm² (psi) | 0.28 (4.03) |
| Max traction force | | kg (lb) | 2266 (5000) |

(2) 2.03 m (6' 8") mono boom, 1.3 m (4' 3") long arm, 270 kg CWT, with canopy



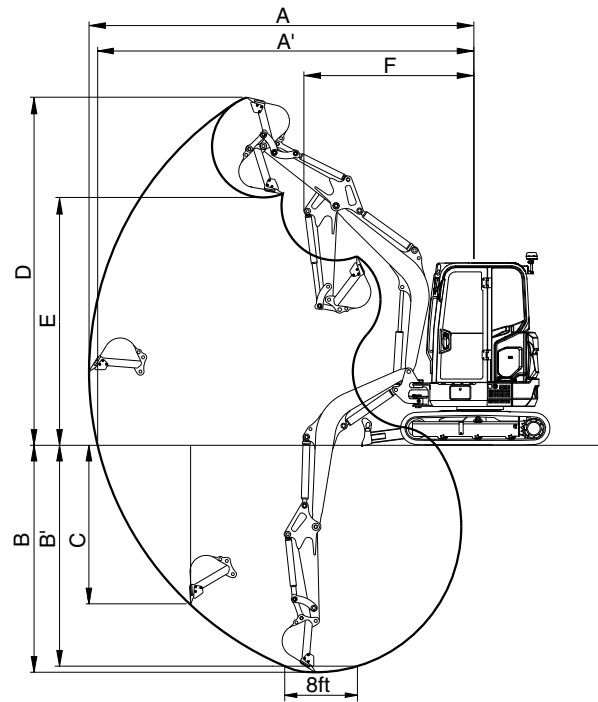
25AZ2SP03

| Description | | Unit | Specification |
|--|----|---------------|-----------------------|
| Operating weight | | kg (lb) | 2760 (6080) |
| Bucket capacity (SAE heaped), standard | | m³ (yd³) | 0.07 (0.09) |
| Overall length | A | mm (ft-in) | 4170 (13' 8") |
| Overall width | B | | 1550 (5' 1") |
| Overall width (dozer blade) | B' | | 1550 (5' 1") |
| Overall height | C | | 2452 (8' 1") |
| Overall width of upperstructure | D | | 1490 (4' 11") |
| Overall height of canopy | E | | 2452 (8' 1") |
| Ground clearance of counterweight | F | | 504 (1' 8") |
| Overall height of engine hood | G | | 1522 (5' 0") |
| Minimum ground clearance | H | | 183 (0' 7") |
| Rear-end distance | I | | 875 (2' 10") |
| Rear-end swing radius | I' | | 875 (2' 10") |
| Distance between tumblers | J | | 1550 (5' 1") |
| Undercarriage length (without grouser) | K | | 1975 (6' 6") |
| Undercarriage width | L | | 1550 (5' 1") |
| Track gauge | M | | 1250 (4' 1") |
| Track shoe width, standard | N | | 300 (1' 0") |
| Height of blade | O | | 300 (1' 0") |
| Ground clearance of blade up | P | | 328 (1' 1") |
| Depth of blade down | Q | | 348 (1' 2") |
| Travel speed (low/high) | | km/hr (mph) | 2.38/4.35 (1.48/2.70) |
| Swing speed | | rpm | 9.16 |
| Gradeability | | Degree (%) | 35 (70) |
| Ground pressure 300 mm | | kgf/cm² (psi) | 0.27 (3.85) |
| Max traction force | | kg (lb) | 2266 (5000) |

3. WORKING RANGE

1) HX25AZ

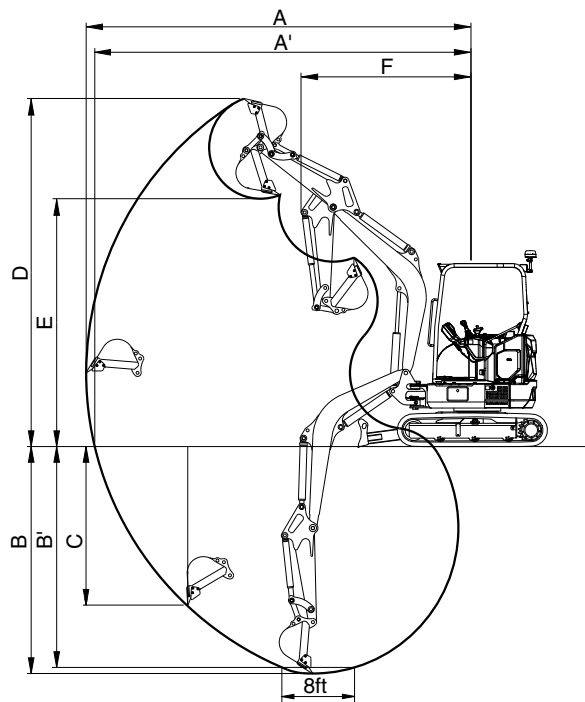
(1) 2.03 m (6' 8") mono boom, with cab



25AZ2SP10

| Description | | 1.12 m (3' 8") Arm |
|---------------------------------|-----|--------------------|
| Max digging reach | A | 4560 mm (15' 0") |
| Max digging reach on ground | A' | 4420 mm (14' 6") |
| Max digging depth | B | 2515 mm (8' 3") |
| Max digging depth (8 ft level) | B' | 1970 mm (6' 6") |
| Max vertical wall digging depth | C | 2000 mm (6' 7") |
| Max digging height | D | 4175 mm (13' 8") |
| Max dumping height | E | 2870 mm (9' 5") |
| Min swing radius | F | 2050 mm (6' 9") |
| Boom swing radius (left/right) | | 70°/50° |
| Bucket digging force | SAE | 18 kN |
| | | 1859 kgf |
| | | 4097 lbf |
| | ISO | 20 kN |
| | | 2079 kgf |
| | | 4584 lbf |
| Arm crowd force | SAE | 14 kN |
| | | 1397 kgf |
| | | 3079 lbf |
| | ISO | 14 kN |
| | | 1451 kgf |
| | | 3199 lbf |

(2) 2.03 m (6' 8") mono boom, with canopy

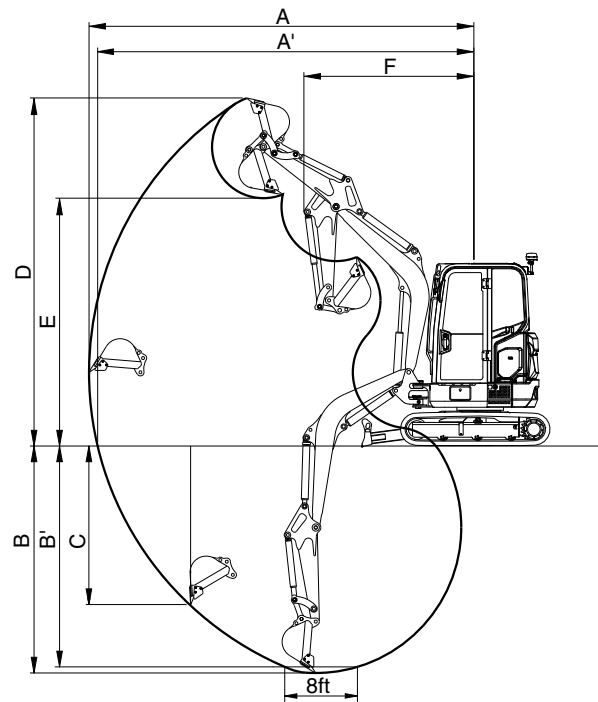


25AZ2SP11

| Description | | 1.12 m (3' 8") Arm |
|---------------------------------|-----|--------------------|
| Max digging reach | A | 4560 mm (15' 0") |
| Max digging reach on ground | A' | 4420 mm (14' 6") |
| Max digging depth | B | 2515 mm (8' 3") |
| Max digging depth (8 ft level) | B' | 1970 mm (6' 6") |
| Max vertical wall digging depth | C | 2000 mm (6' 7") |
| Max digging height | D | 4175 mm (13' 8") |
| Max dumping height | E | 2870 mm (9' 5") |
| Min swing radius | F | 2050 mm (6' 9") |
| Boom swing radius (left/right) | | 70°/50° |
| Bucket digging force | SAE | 18 kN |
| | | 1859 kgf |
| | | 4097 lbf |
| | ISO | 20 kN |
| | | 2079 kgf |
| | | 4584 lbf |
| Arm crowd force | SAE | 14 kN |
| | | 1397 kgf |
| | | 3079 lbf |
| | ISO | 14 kN |
| | | 1451 kgf |
| | | 3199 lbf |

2) HX30AZ

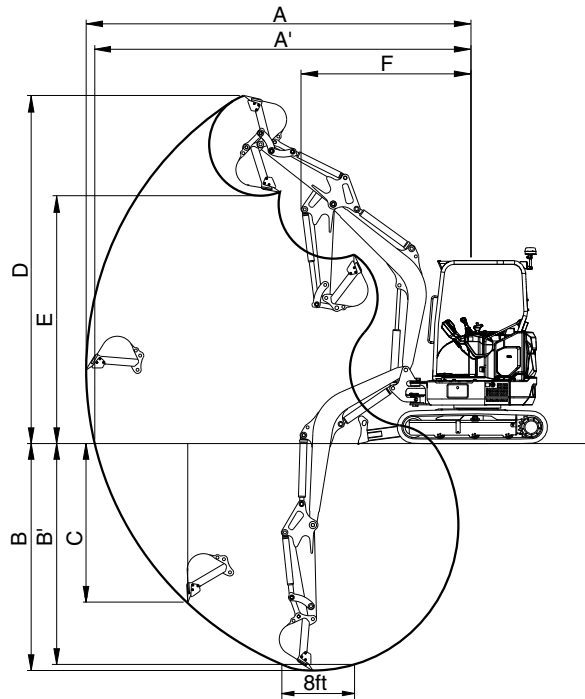
(1) 2.03 m (6' 8") mono boom, with cab



25AZ2SP10

| Description | | 1.3 m (4' 3") Long arm |
|---------------------------------|-----|------------------------|
| Max digging reach | A | 4725 mm (15' 6") |
| Max digging reach on ground | A' | 4600 mm (15' 1") |
| Max digging depth | B | 2695 mm (8' 10") |
| Max digging depth (8 ft level) | B' | 2200 mm (7' 3") |
| Max vertical wall digging depth | C | 2230 mm (7' 4") |
| Max digging height | D | 4290 mm (14' 1") |
| Max dumping height | E | 2975 mm (9' 9") |
| Min swing radius | F | 2100 mm (6' 11") |
| Boom swing radius (left/right) | | 70°/50° |
| Bucket digging force | SAE | 18 kN |
| | | 1859 kgf |
| | | 4097 lbf |
| | ISO | 20 kN |
| | | 2079 kgf |
| | | 4584 lbf |
| Arm crowd force | SAE | 12 kN |
| | | 1267 kgf |
| | | 2794 lbf |
| | ISO | 13 kN |
| | | 1313 kgf |
| | | 2894 lbf |

(2) 2.03 m (6' 8") mono boom, with canopy



25AZ2SP11

| Description | | 1.3 m (4' 3") Long arm |
|---------------------------------|-----|------------------------|
| Max digging reach | A | 4725 mm (15' 6") |
| Max digging reach on ground | A' | 4600 mm (15' 1") |
| Max digging depth | B | 2695 mm (8' 10") |
| Max digging depth (8 ft level) | B' | 2200 mm (7' 3") |
| Max vertical wall digging depth | C | 2230 mm (7' 4") |
| Max digging height | D | 4290 mm (14' 1") |
| Max dumping height | E | 2975 mm (9' 9") |
| Min swing radius | F | 2100 mm (6' 11") |
| Boom swing radius (left/right) | | 70°/50° |
| Bucket digging force | SAE | 18 kN |
| | | 1859 kgf |
| | | 4097 lbf |
| | ISO | 20 kN |
| | | 2079 kgf |
| | | 4584 lbf |
| Arm crowd force | SAE | 12 kN |
| | | 1267 kgf |
| | | 2794 lbf |
| | ISO | 13 kN |
| | | 1313 kgf |
| | | 2894 lbf |

4. WEIGHT

1) HX25AZ

| Item | kg | lb |
|---|-----|-----|
| Upperstructure assembly | | |
| · Main frame weld assembly | 366 | 807 |
| · Engine assembly (including DPF) | 95 | 209 |
| · Main pump assembly | 19 | 42 |
| · Main control valve assembly | 25 | 55 |
| · Swing motor assembly | 34 | 75 |
| · Hydraulic oil tank wa | 41 | 90 |
| · Fuel tank wa | 5 | 11 |
| · Counterweight | 130 | 287 |
| · Counterweight (add type) | 270 | 595 |
| · Cab assembly | 234 | 516 |
| Lower chassis assembly | | |
| · Track frame weld assembly | 254 | 560 |
| · Dozer blade assembly | 95 | 209 |
| · Swing bearing | 47 | 104 |
| · Travel motor assembly (2EA) | 72 | 159 |
| · Turning joint | 11 | 24 |
| · Sprocket (2EA) | 14 | 31 |
| · Track recoil spring (2EA) | 22 | 48 |
| · Idler (2EA) | 44 | 97 |
| · Upper roller (2EA) | 5 | 10 |
| · Lower roller (6EA) | 41 | 90 |
| · Track-chain assembly-250 mm rubber, (2EA) | 220 | 485 |
| · Track-chain assembly-300 mm steel, (2EA) | - | - |
| Front attachment assembly | | |
| · Boom assembly | 101 | 222 |
| · Arm assembly-1.12 m | 46 | 101 |
| · Arm assembly-1.12 m thumb bracket | 52 | 115 |
| · Bucket assembly | 55 | 120 |
| · Boom cylinder assembly | 29 | 63 |
| · Arm cylinder assembly | 26 | 57 |
| · Bucket cylinder assembly | 15 | 32 |
| · Dozer cylinder assembly | 21 | 46 |
| · Boom swing cylinder | 19 | 42 |
| · Bucket control linkage total | 23 | 51 |

※ This information is different with operating weight and transportation weight because it is not including harness, pipe, oil, fuel so on.

※ Refer to transportation for actual weight information and specifications for operating weight.

2) HX30AZ

| Item | kg | lb |
|---|-----|-----|
| Upperstructure assembly | | |
| · Main frame weld assembly | 366 | 807 |
| · Engine assembly (including DPF) | 95 | 209 |
| · Main pump assembly | 19 | 42 |
| · Main control valve assembly | 25 | 55 |
| · Swing motor assembly | 34 | 75 |
| · Hydraulic oil tank wa | 41 | 90 |
| · Fuel tank wa | 5 | 11 |
| · Counterweight (add type) | 270 | 595 |
| · Cab assembly | 234 | 516 |
| Lower chassis assembly | | |
| · Track frame weld assembly | 254 | 560 |
| · Dozer blade assembly | 95 | 209 |
| · Swing bearing | 47 | 104 |
| · Travel motor assembly (2EA) | 72 | 159 |
| · Turning joint | 11 | 24 |
| · Sprocket (2EA) | 14 | 31 |
| · Track recoil spring (2EA) | 22 | 48 |
| · Idler (2EA) | 44 | 97 |
| · Upper roller (2EA) | 5 | 10 |
| · Lower roller (6EA) | 41 | 90 |
| · Track-chain assembly-300 mm rubber, (2EA) | 270 | 595 |
| · Track-chain assembly-300 mm steel, (2EA) | - | - |
| Front attachment assembly | | |
| · Boom assembly | 101 | 222 |
| · Arm assembly-1.3 m | 49 | 107 |
| · Arm assembly-1.3 m thumb bracket | 55 | 120 |
| · Bucket assembly | 55 | 120 |
| · Boom cylinder assembly | 29 | 63 |
| · Arm cylinder assembly | 26 | 57 |
| · Bucket cylinder assembly | 15 | 32 |
| · Dozer cylinder assembly | 21 | 46 |
| · Boom swing cylinder | 19 | 42 |
| · Bucket control linkage total | 23 | 51 |

※ This information is different with operating weight and transportation weight because it is not including harness, pipe, oil, fuel so on.



※ Refer to transportation for actual weight information and specifications for operating weight.

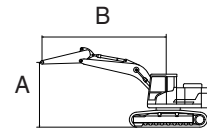
5. LIFTING CAPACITIES















1) HX25AZ

(1) Rubber track 250 mm, cab type

| Model | Type | Boom | Arm | Counterweight | Rubber shoe | Wheel | Dozer | | Outtriger | |
|--------|------|-------------|-------------|---------------|-------------|------------|-------|------|-----------|------|
| HX25AZ | Cab | Length [mm] | Length [mm] | weight [kg] | width [mm] | width [mm] | Front | Rear | Front | Rear |
| | | 2030 | 1120 | 130 | 250 | - | Up | - | - | - |

 : Rating over-front
  : Rating over-side or 360 degree



| Load point height (A) | | Load radius (B) | | | | | | | | | | | | At max. reach | | |
|-----------------------|----------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|----------------|
| | | 1.0 m (3.3 ft) | | 1.5 m (4.9 ft) | | 2.0 m (6.6 ft) | | 2.5 m (8.2 ft) | | 3.0 m (9.8 ft) | | 3.5 m (11.5 ft) | | Capacity | | Reach |
| | |  |  |  |  |  |  |  |  |  |  |  |  |  |  | m (ft) |
| 3.5 m (11.5 ft) | kg lb | | | | | | | | | | | | | 720 1590 | 560 1230 | 2.57 (8.4) |
| 3.0 m (9.8 ft) | kg lb | | | | | | | | | 550 1210 | 430 950 | | | 510 1120 | 400 880 | 3.13 (10.3) |
| 2.5 m (8.2 ft) | kg lb | | | | | | | | | 550 1210 | 430 950 | | | 420 930 | 330 730 | 3.49 (11.4) |
| 2.0 m (6.6 ft) | kg lb | | | | | | | 740 1630 | 570 1260 | 540 1190 | 420 930 | 420 930 | 330 730 | 380 840 | 290 640 | 3.72 (12.2) |
| 1.5 m (4.9 ft) | kg lb | | | | | | | 710 1570 | 540 1190 | 530 1170 | 410 900 | 410 900 | 320 710 | 350 770 | 270 600 | 3.85 (12.6) |
| 1.0 m (3.3 ft) | kg lb | | | | | | | 680 1500 | 520 1150 | 510 1120 | 390 860 | 400 880 | 310 680 | 340 750 | 260 570 | 3.89 (12.8) |
| 0.5 m (1.6 ft) | kg lb | | | | | | | 660 1460 | 500 1100 | 500 1100 | 380 840 | 400 880 | 300 660 | 340 750 | 260 570 | 3.85 (12.6) |
| 0.0 m (0.0 ft) | kg lb | | | | | 930 2050 | 680 1500 | 650 1430 | 490 1080 | 490 1080 | 370 820 | 390 860 | 300 660 | 360 790 | 280 620 | 3.72 (12.2) |
| -0.5 m (-1.6 ft) | kg lb | *1190 *2620 | *1190 *2620 | *1420 *3130 | 1130 2,490 | 930 2050 | 680 1500 | 640 1410 | 480 1060 | 490 1080 | 370 820 | | | 390 860 | 300 660 | 3.50 (11.5) |
| -1.0 m (-3.3 ft) | kg lb | *1750 *3860 | *1750 *3860 | 1670 3680 | 1150 2540 | 940 2070 | 690 1520 | 650 1430 | 490 1080 | 490 1080 | 380 840 | | | 460 1010 | 350 770 | 3.14 (10.3) |
| -1.5 m (-4.9 ft) | kg lb | | | 1700 3750 | 1170 2580 | 960 2120 | 710 1570 | 660 1460 | 500 1100 | | | | | 630 1390 | 480 1060 | 2.59 (8.5) |

Note 1. Lifting capacity are based on ISO 10567.

2. Lifting capacity of the HX series does not exceed 75% of tipping load with the machine on firm, level ground or 87% of full hydraulic capacity.

3. The lift-point is bucket pivot mounting pin on the arm (without bucket mass).

4. *Indicates load limited by hydraulic capacity.

※ Lifting capacities are based upon a standard machine conditions.

Lifting capacities will vary with different work tools, ground conditions and attachments.



The difference between the weight of a work tool attachment must be subtracted.

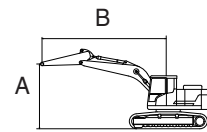
Consult with your local HD Hyundai Construction Equipment dealer regarding the lifting capacities for specific work tools and attachments.















※ Please be aware of the local regulations and instructions for lifting operations.

▲ Failure to comply to the rated load can cause serious injury, death, or property damage. Make adjustments to the rated load as necessary for non-standard configurations.

| Model | Type | Boom | Arm | Counterweight | Rubber shoe | Wheel | Dozer | | Outtriger | |
|--------|------|-------------|-------------|---------------|-------------|------------|-------|------|-----------|------|
| HX25AZ | Cab | Length [mm] | Length [mm] | weight [kg] | width [mm] | width [mm] | Front | Rear | Front | Rear |
| | | 2030 | 1120 | 130 | 250 | - | Down | - | - | - |

 : Rating over-front
  : Rating over-side or 360 degree



| Load point height (A) | | Load radius (B) | | | | | | | | | | | | At max. reach | | |
|-----------------------|----------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|----------------|
| | | 1.0 m (3.3 ft) | | 1.5 m (4.9 ft) | | 2.0 m (6.6 ft) | | 2.5 m (8.2 ft) | | 3.0 m (9.8 ft) | | 3.5 m (11.5 ft) | | Capacity | | Reach |
| | |  |  |  |  |  |  |  |  |  |  |  |  |  |  | m (ft) |
| 3.5 m (11.5 ft) | kg lb | | | | | | | | | | | | | *740 *1630 | 600 1320 | 2.57 (8.4) |
| 3.0 m (9.8 ft) | kg lb | | | | | | | | | *690 *1520 | 470 1040 | | | *710 *1570 | 430 950 | 3.13 (10.3) |
| 2.5 m (8.2 ft) | kg lb | | | | | | | | | *680 *1500 | 470 1040 | | | *670 *1480 | 360 790 | 3.49 (11.4) |
| 2.0m (6.6 ft) | kg lb | | | | | | | *810 *1790 | 610 1340 | *750 *1650 | 460 1010 | *720 *1590 | 350 770 | *660 *1460 | 320 710 | 3.72 (12.2) |
| 1.5m (4.9 ft) | kg lb | | | | | | | *1020 *2250 | 590 1300 | *850 *1870 | 440 970 | *760 *1680 | 350 770 | *670 *1480 | 300 660 | 3.85 (12.6) |
| 1.0m (3.3 ft) | kg lb | | | | | | | *1240 *2730 | 560 1230 | *960 *2120 | 430 950 | *820 *1810 | 340 750 | *710 *1570 | 290 640 | 3.89 (12.8) |
| 0.5m (1.6 ft) | kg lb | | | | | | | *1390 *3060 | 540 1190 | *1050 *2310 | 410 900 | *860 *1900 | 330 730 | *770 *1700 | 290 640 | 3.85 (12.6) |
| 0.0m (0.0 ft) | kg lb | | | | | *1590 *3510 | 750 1650 | *1440 *3170 | 530 1170 | *1090 *2400 | 410 900 | *880 *1940 | 330 730 | *800 *1760 | 300 660 | 3.72 (12.2) |
| -0.5m (-1.6 ft) | kg lb | *1190 *2620 | *1190 *2620 | *1420 *3130 | 1260 2780 | *1930 *4250 | 750 1650 | *1400 *3090 | 530 1170 | *1070 *2360 | 400 880 | | | *820 *1810 | 330 730 | 3.50 (11.5) |
| -1.0m (-3.3 ft) | kg lb | *1750 *3860 | *1750 *3860 | *2170 *4780 | 1270 2800 | *1690 *3730 | 760 1680 | *1250 *2760 | 530 1170 | *930 *2050 | 410 900 | | | *840 *1850 | 380 840 | 3.14 (10.3) |
| -1.5m (-4.9 ft) | kg lb | | | *1810 *3990 | 1300 2870 | *1270 *2800 | 770 1700 | *900 *1980 | 550 1210 | | | | | *830 *1830 | 520 1150 | 2.59 (8.5) |

- Note
1. Lifting capacity are based on ISO 10567.
 2. Lifting capacity of the HX series does not exceed 75% of tipping load with the machine on firm, level ground or 87% of full hydraulic capacity.
 3. The lift-point is bucket pivot mounting pin on the arm (without bucket mass).
 4. *Indicates load limited by hydraulic capacity.

※ Lifting capacities are based upon a standard machine conditions.

Lifting capacities will vary with different work tools, ground conditions and attachments.



The difference between the weight of a work tool attachment must be subtracted.

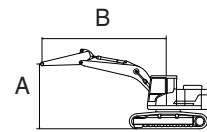
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

※ Please be aware of the local regulations and instructions for lifting operations.

▲ Failure to comply to the rated load can cause serious injury, death, or property damage. Make adjustments to the rated load as necessary for non-standard configurations.

| Model | Type | Boom | Arm | Counterweight | Rubber shoe | Wheel | Dozer | | Outtriger | |
|--------|------|-------------|-------------|---------------|-------------|------------|-------|------|-----------|------|
| HX25AZ | Cab | Length [mm] | Length [mm] | weight [kg] | width [mm] | width [mm] | Front | Rear | Front | Rear |
| | | 2030 | 1120 | 270 | 250 | - | Up | - | - | - |

 : Rating over-front
  : Rating over-side or 360 degree



| Load point height (A) | | Load radius (B) | | | | | | | | | | | | At max. reach | | |
|-----------------------|----------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|----------------|
| | | 1.0 m (3.3 ft) | | 1.5 m (4.9 ft) | | 2.0 m (6.6 ft) | | 2.5 m (8.2 ft) | | 3.0 m (9.8 ft) | | 3.5 m (11.5 ft) | | Capacity | | Reach |
| | |  |  |  |  |  |  |  |  |  |  |  |  |  |  | m (ft) |
| 3.5 m (11.5 ft) | kg lb | | | | | | | | | | | | | *740 *1630 | 640 1410 | 2.57 (8.4) |
| 3.0 m (9.8 ft) | kg lb | | | | | | | | | 630 1390 | 500 1100 | | | 580 1280 | 460 1010 | 3.13 (10.3) |
| 2.5 m (8.2 ft) | kg lb | | | | | | | | | 630 1390 | 500 1100 | | | 490 1080 | 390 860 | 3.49 (11.4) |
| 2.0m (6.6 ft) | kg lb | | | | | | | *810 *1790 | 650 1430 | 620 1370 | 490 1080 | 480 1060 | 380 840 | 440 970 | 340 750 | 3.72 (12.2) |
| 1.5m (4.9 ft) | kg lb | | | | | | | 810 1790 | 630 1390 | 600 1320 | 470 1040 | 470 1040 | 370 820 | 410 900 | 320 710 | 3.85 (12.6) |
| 1.0m (3.3 ft) | kg lb | | | | | | | 780 1720 | 600 1320 | 590 1300 | 460 1010 | 470 1040 | 370 820 | 400 880 | 310 680 | 3.89 (12.8) |
| 0.5m (1.6 ft) | kg lb | | | | | | | 750 1650 | 580 1280 | 570 1260 | 450 990 | 460 1010 | 360 790 | 400 880 | 310 680 | 3.85 (12.6) |
| 0.0m (0.0 ft) | kg lb | | | | | 1070 2360 | 790 1740 | 740 1630 | 570 1260 | 570 1260 | 440 970 | 450 990 | 350 770 | 420 930 | 320 710 | 3.72 (12.2) |
| -0.5m (-1.6 ft) | kg lb | *1190 *2620 | *1190 *2620 | *1420 *3130 | 1320 2910 | 1070 2360 | 800 1760 | 740 1630 | 570 1260 | 560 1230 | 440 970 | | | 450 990 | 350 770 | 3.50 (11.5) |
| -1.0m (-3.3 ft) | kg lb | *1750 *3860 | *1750 *3860 | 1900 4190 | 1330 2930 | 1080 2380 | 800 1760 | 750 1650 | 570 1260 | 570 1260 | 440 970 | | | 530 1170 | 410 900 | 3.14 (10.3) |
| -1.5m (-4.9 ft) | kg lb | | | *1810 *3990 | 1350 2980 | 1100 2430 | 820 1810 | 760 1680 | 580 1280 | | | | | 720 1590 | 560 1230 | 2.59 (8.5) |

- Note
1. Lifting capacity are based on ISO 10567.
 2. Lifting capacity of the HX series does not exceed 75% of tipping load with the machine on firm, level ground or 87% of full hydraulic capacity.
 3. The lift-point is bucket pivot mounting pin on the arm (without bucket mass).
 4. *Indicates load limited by hydraulic capacity.

※ Lifting capacities are based upon a standard machine conditions.

Lifting capacities will vary with different work tools, ground conditions and attachments.



The difference between the weight of a work tool attachment must be subtracted.

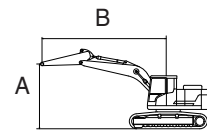
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※ Please be aware of the local regulations and instructions for lifting operations.

▲ Failure to comply to the rated load can cause serious injury, death, or property damage. Make adjustments to the rated load as necessary for non-standard configurations.

| Model | Type | Boom | Arm | Counterweight | Rubber shoe | Wheel | Dozer | | Outtriger | |
|--------|------|-------------|-------------|---------------|-------------|------------|-------|------|-----------|------|
| HX25AZ | Cab | Length [mm] | Length [mm] | weight [kg] | width [mm] | width [mm] | Front | Rear | Front | Rear |
| | | 2030 | 1120 | 270 | 250 | - | Down | - | - | - |

 : Rating over-front
  : Rating over-side or 360 degree



| Load point height (A) | | Load radius (B) | | | | | | | | | | | | At max. reach | | |
|-----------------------|----------|---|---|---|---|---|---|---|---|---|--|---|---|---|---|----------------|
| | | 1.0 m (3.3 ft) | | 1.5 m (4.9 ft) | | 2.0 m (6.6 ft) | | 2.5 m (8.2 ft) | | 3.0 m (9.8 ft) | | 3.5 m (11.5 ft) | | Capacity | | Reach |
| | |  |  |  |  |  |  |  |  |  |  |  |  |  |  | m (ft) |
| 3.5 m (11.5 ft) | kg lb | | | | | | | | | | | | | *740 *1630 | 680 1500 | 2.57 (8.4) |
| 3.0 m (9.8 ft) | kg lb | | | | | | | | | *690 *1520 | 530 1170 | | | *710 *1570 | 500 1100 | 3.13 (10.3) |
| 2.5 m (8.2 ft) | kg lb | | | | | | | | | *680 *1500 | 530 1170 | | | *670 *1480 | 410 900 | 3.49 (11.4) |
| 2.0 m (6.6 ft) | kg lb | | | | | | | *810 *1790 | 700 1540 | *750 *1650 | 520 1150 | *720 *1590 | 410 900 | *660 *1460 | 370 820 | 3.72 (12.2) |
| 1.5 m (4.9 ft) | kg lb | | | | | | | *1020 *2250 | 670 1480 | *850 *1870 | 510 1120 | *760 *1680 | 400 880 | *670 *1480 | 350 770 | 3.85 (12.6) |
| 1.0 m (3.3 ft) | kg lb | | | | | | | *1240 *2730 | 650 1430 | *960 *2120 | 490 1080 | *820 *1810 | 390 860 | *710 *1570 | 330 730 | 3.89 (12.8) |
| 0.5 m (1.6 ft) | kg lb | | | | | | | *1390 *3060 | 630 1390 | *1050 *2310 | 480 1060 | *860 *1900 | 390 860 | *770 *1700 | 340 750 | 3.85 (12.6) |
| 0.0 m (0.0 ft) | kg lb | | | | | *1590 *3510 | 860 1900 | *1440 *3170 | 610 1340 | *1090 *2400 | 470 1040 | *880 *1940 | 380 840 | *800 *1760 | 350 770 | 3.72 (12.2) |
| -0.5 m (-1.6 ft) | kg lb | *1190 *2620 | *1190 *2620 | *1420 *3130 | *1420 *3130 | *1930 *4250 | 870 1920 | *1400 *3090 | 610 1340 | *1070 *2360 | 470 1040 | | | *820 *1810 | 380 840 | 3.50 (11.5) |
| -1.0 m (-3.3 ft) | kg lb | *1750 *3860 | *1750 *3860 | *2170 *4780 | 1460 3220 | *1690 *3730 | 870 1920 | *1250 *2760 | 620 1370 | *930 *2050 | 480 1060 | | | *840 *1850 | 450 990 | 3.14 (10.3) |
| -1.5 m (-4.9 ft) | kg lb | | | *1810 *3990 | 1490 3280 | *1270 *2800 | 890 1960 | *900 *1980 | 630 1390 | | | | | *830 *1830 | 600 1320 | 2.59 (8.5) |

- Note
1. Lifting capacity are based on ISO 10567.
 2. Lifting capacity of the HX series does not exceed 75% of tipping load with the machine on firm, level ground or 87% of full hydraulic capacity.
 3. The lift-point is bucket pivot mounting pin on the arm (without bucket mass).
 4. *Indicates load limited by hydraulic capacity.

※ Lifting capacities are based upon a standard machine conditions.

Lifting capacities will vary with different work tools, ground conditions and attachments.



The difference between the weight of a work tool attachment must be subtracted.

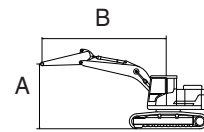
Consult with your local HD Hyundai Construction Equipment dealer regarding the lifting capacities for specific work tools and attachments.



















※ Please be aware of the local regulations and instructions for lifting operations.

▲ Failure to comply to the rated load can cause serious injury, death, or property damage. Make adjustments to the rated load as necessary for non-standard configurations.

| Model | Type | Boom | Arm | Counterweight | Rubber shoe | Wheel | Dozer | | Outtriger | |
|--------|------|-------------|-------------|---------------|-------------|------------|-------|------|-----------|------|
| HX25AZ | Cab | Length [mm] | Length [mm] | weight [kg] | width [mm] | width [mm] | Front | Rear | Front | Rear |
| | | 2030 | 1300 | 130 | 250 | - | Up | - | - | - |

 : Rating over-front
  : Rating over-side or 360 degree



| Load point height (A) | | Load radius (B) | | | | | | | | | | | | | | At max. reach | | | |
|-----------------------|----|---|---|---|---|---|---|---|---|---|---|---|--|---|---|---|---|---|---|
| | | 1.0 m (3.3 ft) | | 1.5 m (4.9 ft) | | 2.0 m (6.6 ft) | | 2.5 m (8.2 ft) | | 3.0 m (9.8 ft) | | 3.5 m (11.5 ft) | | 4.0 m (13.1 ft) | | Capacity | | Reach | |
| | |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 3.5 m (11.5 ft) | kg | | | | | | | | | | | | | | | | 610 | 470 | 2.85 |
| | lb | | | | | | | | | | | | | | | | 1340 | 1040 | (9.4) |
| 3.0 m (9.8 ft) | kg | | | | | | | | 560 | 440 | | | | | | | 460 | 360 | 3.35 |
| | lb | | | | | | | | 1230 | 970 | | | | | | | 1010 | 790 | (11.0) |
| 2.5 m (8.2 ft) | kg | | | | | | | | 560 | 440 | 430 | 340 | | | | | 390 | 310 | 3.68 |
| | lb | | | | | | | | 1230 | 970 | 950 | 750 | | | | | 860 | 680 | (12.1) |
| 2.0m (6.6 ft) | kg | | | | | | | | 550 | 430 | 420 | 330 | | | | | 350 | 270 | 3.89 |
| | lb | | | | | | | | 1210 | 950 | 930 | 730 | | | | | 770 | 600 | (12.8) |
| 1.5m (4.9 ft) | kg | | | | | 1050 | 790 | 720 | 550 | 530 | 410 | 420 | 330 | 260 | | | 330 | 260 | 4.02 |
| | lb | | | | | 2310 | 1740 | 1590 | 1210 | 1170 | 900 | 930 | 710 | 570 | | | 730 | 570 | (13.2) |
| 1.0m (3.3 ft) | kg | | | | | | | 690 | 520 | 520 | 400 | 410 | 310 | 330 | 250 | | 320 | 250 | 4.06 |
| | lb | | | | | | | 1520 | 1150 | 1150 | 880 | 900 | 680 | 730 | 550 | | 710 | 550 | (13.3) |
| 0.5m (1.6 ft) | kg | | | | | 940 | 690 | 660 | 500 | 500 | 380 | 400 | 310 | 320 | 250 | | 320 | 250 | 4.02 |
| | lb | | | | | 2070 | 1520 | 1460 | 1100 | 1100 | 840 | 880 | 680 | 710 | 550 | | 710 | 550 | (13.2) |
| 0.0m (0.0 ft) | kg | | | | | 930 | 680 | 650 | 490 | 490 | 370 | 390 | 300 | | | | 330 | 260 | 3.90 |
| | lb | | | | | 2050 | 1500 | 1430 | 1080 | 1080 | 820 | 860 | 660 | | | | 730 | 570 | (12.8) |
| -0.5m (-1.6 ft) | kg | *1040 | *1040 | *1280 | 1120 | 930 | 680 | 640 | 480 | 490 | 370 | 390 | 300 | | | | 360 | 280 | 3.69 |
| | lb | *2290 | *2290 | *2820 | 2470 | 2050 | 1500 | 1410 | 1060 | 1080 | 820 | 860 | 660 | | | | 790 | 620 | (12.1) |
| -1.0m (-3.3 ft) | kg | *1500 | *1500 | 1650 | 1130 | 930 | 680 | 640 | 480 | 490 | 370 | | | | | | 420 | 320 | 3.36 |
| | lb | *3310 | *3310 | 3640 | 2490 | 2050 | 1500 | 1410 | 1060 | 1080 | 820 | | | | | | 930 | 710 | (11.0) |
| -1.5m (-4.9 ft) | kg | *2090 | *2090 | 1680 | 1160 | 950 | 700 | 650 | 490 | | | | | | | | 530 | 410 | 2.87 |
| | lb | *4610 | *4610 | 3700 | 2560 | 2090 | 1540 | 1430 | 1080 | | | | | | | | 1170 | 900 | (9.4) |
| -2.0m (-6.6 ft) | kg | | | | | *740 | 730 | | | | | | | | | | *740 | 730 | 2.00 |
| | lb | | | | | *1630 | 1610 | | | | | | | | | | *1630 | 1610 | (6.6) |

Note 1. Lifting capacity are based on ISO 10567.

2. Lifting capacity of the HX series does not exceed 75% of tipping load with the machine on firm, level ground or 87% of full hydraulic capacity.

3. The lift-point is bucket pivot mounting pin on the arm (without bucket mass).

4. *Indicates load limited by hydraulic capacity.

※ Lifting capacities are based upon a standard machine conditions.

Lifting capacities will vary with different work tools, ground conditions and attachments.



The difference between the weight of a work tool attachment must be subtracted.

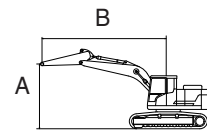
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


※ Please be aware of the local regulations and instructions for lifting operations.

▲ Failure to comply to the rated load can cause serious injury, death, or property damage. Make adjustments to the rated load as necessary for non-standard configurations.

| Model | Type | Boom | Arm | Counterweight | Rubber shoe | Wheel | Dozer | | Outtriger | |
|--------|------|-------------|-------------|---------------|-------------|------------|-------|------|-----------|------|
| HX25AZ | Cab | Length [mm] | Length [mm] | weight [kg] | width [mm] | width [mm] | Front | Rear | Front | Rear |
| | | 2030 | 1300 | 130 | 250 | - | Down | - | - | - |

 : Rating over-front
  : Rating over-side or 360 degree



| Load point height (A) | | Load radius (B) | | | | | | | | | | | | | | At max. reach | | | |
|-----------------------|----------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 1.0 m (3.3 ft) | | 1.5 m (4.9 ft) | | 2.0 m (6.6 ft) | | 2.5 m (8.2 ft) | | 3.0 m (9.8 ft) | | 3.5 m (11.5 ft) | | 4.0 m (13.1 ft) | | Capacity | | Reach | |
| | |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 3.5 m (11.5 ft) | kg lb | | | | | | | | | | | | | | | | *670 *1480 | 510 1120 | 2.85 (9.4) |
| 3.0 m (9.8 ft) | kg lb | | | | | | | | *600 *1320 | 480 1060 | | | | | | | *600 *1320 | 390 860 | 3.35 (11.0) |
| 2.5 m (8.2 ft) | kg lb | | | | | | | | *610 *1340 | 470 1040 | *640 *1410 | 360 790 | | | | | *570 *1260 | 330 730 | 3.68 (12.1) |
| 2.0m (6.6 ft) | kg lb | | | | | | | | *680 *1500 | 460 1010 | *670 *1480 | 360 790 | | | | | *560 *1230 | 300 660 | 3.89 (12.8) |
| 1.5m (4.9 ft) | kg lb | | | | | *1230 *2710 | 860 1900 | *930 *2050 | 600 1320 | *790 *1740 | 450 990 | *720 *1590 | 350 770 | *610 *1340 | 280 620 | | *570 *1260 | 280 620 | 4.02 (13.2) |
| 1.0m (3.3 ft) | kg lb | | | | | | | *1170 *2580 | 570 1260 | *920 *2030 | 430 950 | *790 *1740 | 340 750 | *710 *1570 | 280 620 | | *590 *1300 | 270 600 | 4.06 (13.3) |
| 0.5m (1.6 ft) | kg lb | | | | | *1350 *2980 | 760 1680 | *1340 *2950 | 540 1190 | *1020 *2250 | 420 930 | *850 *1870 | 330 730 | *700 *1540 | 270 600 | | *640 *1410 | 270 600 | 4.02 (13.2) |
| 0.0m (0.0 ft) | kg lb | | | | | *1580 *3480 | 740 1630 | *1430 *3150 | 530 1170 | *1080 *2380 | 410 900 | *880 *1940 | 330 730 | | | | *720 *1590 | 280 620 | 3.90 (12.8) |
| -0.5m (-1.6 ft) | kg lb | *1040 *2290 | *1040 *2290 | *1280 *2820 | 1240 2730 | *2000 *4410 | 740 1630 | *1420 *3130 | 520 1150 | *1080 *2380 | 400 880 | *860 *1900 | 320 710 | | | | *780 *1720 | 300 660 | 3.69 (12.1) |
| -1.0m (-3.3 ft) | kg lb | *1500 *3310 | *1500 *3310 | *1880 *4140 | 1260 2780 | *1810 *3990 | 750 1650 | *1310 *2890 | 530 1170 | *1000 *2200 | 400 880 | | | | | | *800 *1760 | 350 770 | 3.36 (11.0) |
| -1.5m (-4.9 ft) | kg lb | *2090 *4610 | *2090 *4610 | *2190 *4830 | 1280 2820 | *1460 *3220 | 760 1680 | *1060 *2340 | 540 1190 | | | | | | | | *810 *1790 | 440 970 | 2.87 (9.4) |
| -2.0m (-6.6 ft) | kg lb | | | | | *740 *1630 | *740 *1630 | | | | | | | | | | *740 *1630 | *740 *1630 | 2.00 (6.6) |

Note 1. Lifting capacity are based on ISO 10567.

2. Lifting capacity of the HX series does not exceed 75% of tipping load with the machine on firm, level ground or 87% of full hydraulic capacity.

3. The lift-point is bucket pivot mounting pin on the arm (without bucket mass).

4. *Indicates load limited by hydraulic capacity.

※ Lifting capacities are based upon a standard machine conditions.

Lifting capacities will vary with different work tools, ground conditions and attachments.



The difference between the weight of a work tool attachment must be subtracted.

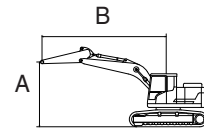
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※ Please be aware of the local regulations and instructions for lifting operations.

▲ Failure to comply to the rated load can cause serious injury, death, or property damage. Make adjustments to the rated load as necessary for non-standard configurations.

| Model | Type | Boom | Arm | Counterweight | Rubber shoe | Wheel | Dozer | | Outtriger | |
|--------|------|-------------|-------------|---------------|-------------|------------|-------|------|-----------|------|
| HX25AZ | Cab | Length [mm] | Length [mm] | weight [kg] | width [mm] | width [mm] | Front | Rear | Front | Rear |
| | | 2030 | 1300 | 270 | 250 | - | Up | - | - | - |

 : Rating over-front
 ·  : Rating over-side or 360 degree



| Load point height (A) | | Load radius (B) | | | | | | | | | | | | | | At max. reach | | | |
|-----------------------|----------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---------------|----------------|
| | | 1.0 m (3.3 ft) | | 1.5 m (4.9 ft) | | 2.0 m (6.6 ft) | | 2.5 m (8.2 ft) | | 3.0 m (9.8 ft) | | 3.5 m (11.5 ft) | | 4.0 m (13.1 ft) | | Capacity | | Reach | |
| | |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | m (ft) | |
| 3.5 m (11.5 ft) | kg lb | | | | | | | | | | | | | | | *670 *1480 | 540 1190 | 2.85 (9.4) | |
| 3.0 m (9.8 ft) | kg lb | | | | | | | | *600 *1320 | 510 1120 | | | | | | | 530 1170 | 420 930 | 3.35 (11.0) |
| 2.5 m (8.2 ft) | kg lb | | | | | | | | *610 *1340 | 500 1100 | 490 1080 | 390 860 | | | | | 450 990 | 360 790 | 3.68 (12.1) |
| 2.0m (6.6 ft) | kg lb | | | | | | | | 630 1390 | 490 1080 | 490 1080 | 390 860 | | | | | 410 900 | 320 710 | 3.89 (12.8) |
| 1.5m (4.9 ft) | kg lb | | | | | 1190 2620 | 900 1980 | 820 1810 | 640 1410 | 610 1340 | 480 1060 | 480 1060 | 380 840 | 390 860 | 300 660 | | 380 840 | 300 660 | 4.02 (13.2) |
| 1.0m (3.3 ft) | kg lb | | | | | | | 780 1720 | 610 1340 | 590 1300 | 460 1010 | 470 1040 | 370 820 | 380 840 | 300 660 | | 370 820 | 290 640 | 4.06 (13.3) |
| 0.5m (1.6 ft) | kg lb | | | | | 1080 2380 | 810 1790 | 760 1680 | 580 1280 | 580 1280 | 450 990 | 460 1010 | 360 790 | 380 840 | 290 640 | | 370 820 | 290 640 | 4.02 (13.2) |
| 0.0m (0.0 ft) | kg lb | | | | | 1070 2360 | 790 1740 | 740 1630 | 570 1260 | 570 1260 | 440 970 | 450 990 | 350 770 | | | | 390 860 | 300 660 | 3.90 (12.8) |
| -0.5m (-1.6 ft) | kg lb | *1040 *2290 | *1040 *2290 | *1280 *2820 | *1280 *2820 | 1070 2360 | 790 1740 | 740 1630 | 560 1230 | 560 1230 | 430 950 | 450 990 | 350 770 | | | | 420 930 | 330 730 | 3.69 (12.1) |
| -1.0m (-3.3 ft) | kg lb | *1500 *3310 | *1500 *3310 | *1880 *4140 | 1320 2910 | 1070 2360 | 800 1760 | 740 1630 | 570 1260 | 560 1230 | 440 970 | | | | | | 480 1060 | 370 820 | 3.36 (11.0) |
| -1.5m (-4.9 ft) | kg lb | *2090 *4610 | *2090 *4610 | 1910 4210 | 1340 2950 | 1090 2400 | 810 1790 | 750 1650 | 580 1280 | | | | | | | | 610 1340 | 480 1060 | 2.87 (9.4) |
| -2.0m (-6.6 ft) | kg lb | | | | | *740 *1630 | *740 *1630 | | | | | | | | | | *740 *1630 | *740 *1630 | 2.00 (6.6) |

Note 1. Lifting capacity are based on ISO 10567.

2. Lifting capacity of the HX series does not exceed 75% of tipping load with the machine on firm, level ground or 87% of full hydraulic capacity.

3. The lift-point is bucket pivot mounting pin on the arm (without bucket mass).

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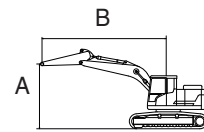
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| Model | Type | Boom | Arm | Counterweight | Rubber shoe | Wheel | Dozer | | Outtriger | |
|--------|------|-------------|-------------|---------------|-------------|------------|-------|------|-----------|------|
| HX25AZ | Cab | Length [mm] | Length [mm] | weight [kg] | width [mm] | width [mm] | Front | Rear | Front | Rear |
| | | 2030 | 1300 | 270 | 250 | - | Down | - | - | - |

 : Rating over-front
  : Rating over-side or 360 degree



| Load point height (A) | | Load radius (B) | | | | | | | | | | | | | | At max. reach | | |
|-----------------------|----|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|--------|
| | | 1.0 m (3.3 ft) | | 1.5 m (4.9 ft) | | 2.0 m (6.6 ft) | | 2.5 m (8.2 ft) | | 3.0 m (9.8 ft) | | 3.5 m (11.5 ft) | | 4.0 m (13.1 ft) | | Capacity | | Reach |
| | |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | m (ft) |
| 3.5 m (11.5 ft) | kg | | | | | | | | | | | | | | | *670 | 580 | 2.85 |
| | lb | | | | | | | | | | | | | | | *1480 | 1280 | (9.4) |
| 3.0 m (9.8 ft) | kg | | | | | | | | *600 | 540 | | | | | | *600 | 450 | 3.35 |
| | lb | | | | | | | | *1320 | 1190 | | | | | | *1320 | 990 | (11.0) |
| 2.5 m (8.2 ft) | kg | | | | | | | | *610 | 540 | *640 | 420 | | | | *570 | 380 | 3.68 |
| | lb | | | | | | | | *1340 | 1190 | *1410 | 930 | | | | *1260 | 840 | (12.1) |
| 2.0m (6.6 ft) | kg | | | | | | | | *680 | 530 | *670 | 410 | | | | *560 | 340 | 3.89 |
| | lb | | | | | | | | *1500 | 1170 | *1480 | 900 | | | | *1230 | 750 | (12.8) |
| 1.5m (4.9 ft) | kg | | | | | *1230 | 980 | *930 | 680 | *790 | 520 | *720 | 410 | *610 | 330 | *570 | 320 | 4.02 |
| | lb | | | | | *2710 | 2160 | *2050 | 1500 | *1740 | 1150 | *1590 | 900 | *1340 | 730 | *1260 | 710 | (13.2) |
| 1.0m (3.3 ft) | kg | | | | | | | *1170 | 650 | *920 | 500 | *790 | 400 | *710 | 320 | *590 | 310 | 4.06 |
| | lb | | | | | | | *2580 | 1430 | *2030 | 1100 | *1740 | 880 | *1570 | 710 | *1300 | 680 | (13.3) |
| 0.5m (1.6 ft) | kg | | | | | *1350 | 880 | *1340 | 630 | *1020 | 480 | *850 | 390 | *700 | 320 | *640 | 320 | 4.02 |
| | lb | | | | | *2980 | 1940 | *2950 | 1390 | *2250 | 1060 | *1870 | 860 | *1540 | 710 | *1410 | 710 | (13.2) |
| 0.0m (0.0 ft) | kg | | | | | *1580 | 860 | *1430 | 620 | *1080 | 470 | *880 | 380 | | | *720 | 330 | 3.90 |
| | lb | | | | | *3480 | 1900 | *3150 | 1370 | *2380 | 1040 | *1940 | 840 | | | *1590 | 730 | (12.8) |
| -0.5m (-1.6 ft) | kg | *1040 | *1040 | *1280 | *1280 | *2000 | 860 | *1420 | 610 | *1080 | 470 | *860 | 380 | | | *780 | 350 | 3.69 |
| | lb | *2290 | *2290 | *2820 | *2820 | *4410 | 1900 | *3130 | 1340 | *2380 | 1040 | *1900 | 840 | | | *1720 | 770 | (12.1) |
| -1.0m (-3.3 ft) | kg | *1500 | *1500 | *1880 | 1450 | *1810 | 870 | *1310 | 610 | *1000 | 470 | | | | | *800 | 400 | 3.36 |
| | lb | *3310 | *3310 | *4140 | 3200 | *3990 | 1920 | *2890 | 1340 | *2200 | 1040 | | | | | *1760 | 880 | (11.0) |
| -1.5m (-4.9 ft) | kg | *2090 | *2090 | *2190 | 1470 | *1460 | 880 | *1060 | 620 | | | | | | | *810 | 510 | 2.87 |
| | lb | *4610 | *4610 | *4830 | 3240 | *3220 | 1940 | *2340 | 1370 | | | | | | | *1790 | 1120 | (9.4) |
| -2.0m (-6.6 ft) | kg | | | | | *740 | *740 | | | | | | | | | *740 | *740 | 2.00 |
| | lb | | | | | *1630 | *1630 | | | | | | | | | *1630 | *1630 | (6.6) |

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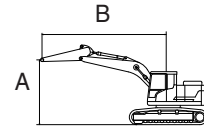
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(2) Rubber track 250 mm, canopy type

| Model | Type | Boom | Arm | Counterweight | Rubber shoe | Wheel | Dozer | | Outrigger | |
|--------|--------|-------------|-------------|---------------|-------------|------------|-------|------|-----------|------|
| HX25AZ | Canopy | Length [mm] | Length [mm] | weight [kg] | width [mm] | width [mm] | Front | Rear | Front | Rear |
| | | 2030 | 1120 | 130 | 250 | - | Up | - | - | - |

 : Rating over-front
  : Rating over-side or 360 degree



| Load point height (A) | | Load radius (B) | | | | | | | | | | | | At max. reach | | |
|-----------------------|----|---|---|---|---|---|---|---|---|---|--|---|---|---|---|--------|
| | | 1.0 m (3.3 ft) | | 1.5 m (4.9 ft) | | 2.0 m (6.6 ft) | | 2.5 m (8.2 ft) | | 3.0 m (9.8 ft) | | 3.5 m (11.5 ft) | | Capacity | | Reach |
| | |  |  |  |  |  |  |  |  |  |  |  |  |  |  | m (ft) |
| 3.5 m (11.5 ft) | kg | | | | | | | | | | | | | 680 | 530 | 2.57 |
| | lb | | | | | | | | | | | | | 1500 | 1170 | (8.4) |
| 3.0 m (9.8 ft) | kg | | | | | | | | | 520 | 410 | | | 480 | 380 | 3.13 |
| | lb | | | | | | | | | 1150 | 900 | | | 1060 | 840 | (10.3) |
| 2.5 m (8.2 ft) | kg | | | | | | | | | 520 | 410 | | | 400 | 310 | 3.49 |
| | lb | | | | | | | | | 1150 | 900 | | | 880 | 680 | (11.4) |
| 2.0 m (6.6 ft) | kg | | | | | | | 700 | 540 | 510 | 400 | 400 | 310 | 360 | 280 | 3.72 |
| | lb | | | | | | | 1540 | 1190 | 1120 | 880 | 880 | 680 | 790 | 620 | (12.2) |
| 1.5 m (4.9 ft) | kg | | | | | | | 670 | 520 | 500 | 390 | 390 | 300 | 330 | 260 | 3.85 |
| | lb | | | | | | | 1480 | 1150 | 1100 | 860 | 860 | 660 | 730 | 570 | (12.6) |
| 1.0 m (3.3 ft) | kg | | | | | | | 640 | 490 | 480 | 370 | 380 | 290 | 320 | 250 | 3.89 |
| | lb | | | | | | | 1410 | 1080 | 1060 | 820 | 840 | 640 | 710 | 550 | (12.8) |
| 0.5 m (1.6 ft) | kg | | | | | | | 620 | 470 | 470 | 360 | 370 | 290 | 320 | 250 | 3.85 |
| | lb | | | | | | | 1370 | 1040 | 1040 | 790 | 820 | 640 | 710 | 550 | (12.6) |
| 0.0 m (0.0 ft) | kg | | | | | 880 | 640 | 610 | 460 | 460 | 350 | 370 | 280 | 340 | 260 | 3.72 |
| | lb | | | | | 1940 | 1410 | 1340 | 1010 | 1010 | 770 | 820 | 620 | 750 | 570 | (12.2) |
| -0.5 m (-1.6 ft) | kg | *1190 | *1190 | *1420 | 1070 | 880 | 640 | 600 | 460 | 460 | 350 | | | 370 | 280 | 3.50 |
| | lb | *2620 | *2620 | *3130 | 2360 | 1940 | 1410 | 1320 | 1010 | 1010 | 770 | | | 820 | 620 | (11.5) |
| -1.0 m (-3.3 ft) | kg | *1750 | *1750 | 1570 | 1090 | 890 | 650 | 610 | 460 | 460 | 350 | | | 430 | 330 | 3.14 |
| | lb | *3860 | *3860 | 3460 | 2400 | 1960 | 1430 | 1340 | 1010 | 1010 | 770 | | | 950 | 730 | (10.3) |
| -1.5 m (-4.9 ft) | kg | | | 1600 | 1110 | 910 | 670 | 630 | 470 | | | | | 590 | 450 | 2.59 |
| | lb | | | 3530 | 2450 | 2010 | 1480 | 1390 | 1040 | | | | | 1300 | 990 | (8.5) |

Note 1. Lifting capacity are based on ISO 10567.

2. Lifting capacity of the HX series does not exceed 75% of tipping load with the machine on firm, level ground or 87% of full hydraulic capacity.

3. The lift-point is bucket pivot mounting pin on the arm (without bucket mass).

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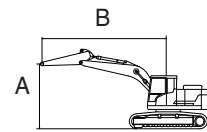
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| Model | Type | Boom | Arm | Counterweight | Rubber shoe | Wheel | Dozer | | Outtriger | |
|--------|--------|-------------|-------------|---------------|-------------|------------|-------|------|-----------|------|
| HX25AZ | Canopy | Length [mm] | Length [mm] | weight [kg] | width [mm] | width [mm] | Front | Rear | Front | Rear |
| | | 2030 | 1120 | 130 | 250 | - | Down | - | - | - |

 : Rating over-front
  : Rating over-side or 360 degree



| Load point height (A) | | Load radius (B) | | | | | | | | | | | | At max. reach | | |
|-----------------------|----------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|----------------|
| | | 1.0 m (3.3 ft) | | 1.5 m (4.9 ft) | | 2.0 m (6.6 ft) | | 2.5 m (8.2 ft) | | 3.0 m (9.8 ft) | | 3.5 m (11.5 ft) | | Capacity | | Reach |
| | |  |  |  |  |  |  |  |  |  |  |  |  |  |  | m (ft) |
| 3.5 m (11.5 ft) | kg lb | | | | | | | | | | | | | *740 *1630 | 570 1260 | 2.57 (8.4) |
| 3.0 m (9.8 ft) | kg lb | | | | | | | | | *690 *1520 | 440 970 | | | *710 *1570 | 410 900 | 3.13 (10.3) |
| 2.5 m (8.2 ft) | kg lb | | | | | | | | | *680 *1500 | 440 970 | | | *670 *1480 | 340 750 | 3.49 (11.4) |
| 2.0 m (6.6 ft) | kg lb | | | | | | | *810 *1790 | 580 1280 | *750 *1650 | 430 950 | *720 *1590 | 330 730 | *660 *1460 | 300 660 | 3.72 (12.2) |
| 1.5 m (4.9 ft) | kg lb | | | | | | | *1020 *2250 | 560 1230 | *850 *1870 | 420 930 | *760 *1680 | 330 730 | *670 *1480 | 280 620 | 3.85 (12.6) |
| 1.0 m (3.3 ft) | kg lb | | | | | | | *1240 *2730 | 530 1170 | *960 *2120 | 400 880 | *820 *1810 | 320 710 | *710 *1570 | 270 600 | 3.89 (12.8) |
| 0.5 m (1.6 ft) | kg lb | | | | | | | *1390 *3060 | 510 1120 | *1050 *2310 | 390 860 | *860 *1900 | 310 680 | *770 *1700 | 270 600 | 3.85 (12.6) |
| 0.0 m (0.0 ft) | kg lb | | | | | *1590 *3510 | 700 1540 | *1440 *3170 | 500 1100 | *1090 *2400 | 380 840 | *880 *1940 | 310 680 | *800 *1760 | 280 620 | 3.72 (12.2) |
| -0.5 m (-1.6 ft) | kg lb | *1190 *2620 | *1190 *2620 | *1420 *3130 | 1190 2620 | *1930 *4250 | 710 1570 | *1400 *3090 | 500 1100 | *1070 *2360 | 380 840 | | | *820 *1810 | 310 680 | 3.50 (11.5) |
| -1.0 m (-3.3 ft) | kg lb | *1750 *3860 | *1750 *3860 | *2170 *4780 | 1200 2650 | *1690 *3730 | 710 1570 | *1250 *2760 | 500 1100 | *930 *2050 | 380 840 | | | *840 *1850 | 360 790 | 3.14 (10.3) |
| -1.5 m (-4.9 ft) | kg lb | | | *1810 *3990 | 1230 2710 | *1270 *2800 | 730 1610 | *900 *1980 | 520 1150 | | | | | *830 *1830 | 490 1080 | 2.59 (8.5) |

- Note
1. Lifting capacity are based on ISO 10567.
 2. Lifting capacity of the HX series does not exceed 75% of tipping load with the machine on firm, level ground or 87% of full hydraulic capacity.
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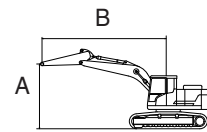
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| Model | Type | Boom | Arm | Counterweight | Rubber shoe | Wheel | Dozer | | Outtriger | |
|--------|--------|-------------|-------------|---------------|-------------|------------|-------|------|-----------|------|
| HX25AZ | Canopy | Length [mm] | Length [mm] | weight [kg] | width [mm] | width [mm] | Front | Rear | Front | Rear |
| | | 2030 | 1120 | 270 | 250 | - | Up | - | - | - |

 : Rating over-front
  : Rating over-side or 360 degree



| Load point height (A) | | Load radius (B) | | | | | | | | | | | | At max. reach | | |
|-----------------------|----------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|----------------|
| | | 1.0 m (3.3 ft) | | 1.5 m (4.9 ft) | | 2.0 m (6.6 ft) | | 2.5 m (8.2 ft) | | 3.0 m (9.8 ft) | | 3.5 m (11.5 ft) | | Capacity | | Reach |
| | |  |  |  |  |  |  |  |  |  |  |  |  |  |  | m (ft) |
| 3.5 m (11.5 ft) | kg lb | | | | | | | | | | | | | *740 *1630 | 610 1340 | 2.57 (8.4) |
| 3.0 m (9.8 ft) | kg lb | | | | | | | | | 600 1320 | 480 1060 | | | 560 1230 | 440 970 | 3.13 (10.3) |
| 2.5 m (8.2 ft) | kg lb | | | | | | | | | 600 1320 | 480 1060 | | | 460 1010 | 370 820 | 3.49 (11.4) |
| 2.0 m (6.6 ft) | kg lb | | | | | | | 800 1760 | 620 1370 | 590 1300 | 470 1040 | 460 1010 | 360 790 | 410 900 | 330 730 | 3.72 (12.2) |
| 1.5 m (4.9 ft) | kg lb | | | | | | | 770 1700 | 600 1320 | 570 1260 | 450 990 | 450 990 | 360 790 | 390 860 | 300 660 | 3.85 (12.6) |
| 1.0 m (3.3 ft) | kg lb | | | | | | | 740 1630 | 570 1260 | 560 1230 | 440 970 | 440 970 | 350 770 | 370 820 | 300 660 | 3.89 (12.8) |
| 0.5 m (1.6 ft) | kg lb | | | | | | | 720 1590 | 550 1210 | 540 1190 | 420 930 | 430 950 | 340 750 | 380 840 | 300 660 | 3.85 (12.6) |
| 0.0 m (0.0 ft) | kg lb | | | | | 1010 2230 | 760 1680 | 710 1570 | 540 1190 | 540 1190 | 420 930 | 430 950 | 340 750 | 390 860 | 310 680 | 3.72 (12.2) |
| -0.5 m (-1.6 ft) | kg lb | *1190 *2620 | *1190 *2620 | *1420 *3130 | 1250 2760 | 1020 2250 | 760 1680 | 700 1540 | 540 1190 | 530 1170 | 410 900 | | | 430 950 | 340 750 | 3.50 (11.5) |
| -1.0 m (-3.3 ft) | kg lb | *1750 *3860 | *1750 *3860 | 1810 3990 | 1270 2800 | 1020 2250 | 770 1700 | 710 1570 | 540 1190 | 540 1190 | 420 930 | | | 500 1100 | 390 860 | 3.14 (10.3) |
| -1.5 m (-4.9 ft) | kg lb | | | *1810 *3990 | 1290 2840 | 1040 2290 | 780 1720 | 720 1590 | 560 1230 | | | | | 690 1520 | 530 1170 | 2.59 (8.5) |

- Note
1. Lifting capacity are based on ISO 10567.
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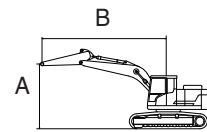
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| Model | Type | Boom | Arm | Counterweight | Rubber shoe | Wheel | Dozer | | Outtriger | |
|--------|--------|-------------|-------------|---------------|-------------|------------|-------|------|-----------|------|
| HX25AZ | Canopy | Length [mm] | Length [mm] | weight [kg] | width [mm] | width [mm] | Front | Rear | Front | Rear |
| | | 2030 | 1120 | 270 | 250 | - | Down | - | - | - |

 : Rating over-front
  : Rating over-side or 360 degree



| Load point height (A) | | Load radius (B) | | | | | | | | | | | | At max. reach | | |
|-----------------------|----|---|---|---|---|---|---|---|---|---|---|---|---|---|---|--------|
| | | 1.0 m (3.3 ft) | | 1.5 m (4.9 ft) | | 2.0 m (6.6 ft) | | 2.5 m (8.2 ft) | | 3.0 m (9.8 ft) | | 3.5 m (11.5 ft) | | Capacity | | Reach |
| | |  |  |  |  |  |  |  |  |  |  |  |  |  |  | m (ft) |
| 3.5 m | kg | | | | | | | | | | | | | *740 | 660 | 2.57 |
| (11.5 ft) | lb | | | | | | | | | | | | | *1630 | 1460 | (8.4) |
| 3.0 m | kg | | | | | | | | | *690 | 510 | | | *710 | 470 | 3.13 |
| (9.8 ft) | lb | | | | | | | | | *1520 | 1120 | | | *1570 | 1040 | (10.3) |
| 2.5 m | kg | | | | | | | | | *680 | 510 | | | *670 | 390 | 3.49 |
| (8.2 ft) | lb | | | | | | | | | *1500 | 1120 | | | *1480 | 860 | (11.4) |
| 2.0m | kg | | | | | | | *810 | 670 | *750 | 500 | *720 | 390 | *660 | 350 | 3.72 |
| (6.6 ft) | lb | | | | | | | *1790 | 1480 | *1650 | 1100 | *1590 | 860 | *1460 | 770 | (12.2) |
| 1.5m | kg | | | | | | | *1020 | 640 | *850 | 490 | *760 | 380 | *670 | 330 | 3.85 |
| (4.9 ft) | lb | | | | | | | *2250 | 1410 | *1870 | 1080 | *1680 | 840 | *1480 | 730 | (12.6) |
| 1.0m | kg | | | | | | | *1240 | 620 | *960 | 470 | *820 | 370 | *710 | 320 | 3.89 |
| (3.3 ft) | lb | | | | | | | *2730 | 1370 | *2120 | 1040 | *1810 | 820 | *1570 | 710 | (12.8) |
| 0.5m | kg | | | | | | | *1390 | 590 | *1050 | 460 | *860 | 370 | *770 | 320 | 3.85 |
| (1.6 ft) | lb | | | | | | | *3060 | 1300 | *2310 | 1010 | *1900 | 820 | *1700 | 710 | (12.6) |
| 0.0m | kg | | | | | *1590 | 820 | *1440 | 580 | *1090 | 450 | *880 | 360 | *800 | 330 | 3.72 |
| (0.0 ft) | lb | | | | | *3510 | 1810 | *3170 | 1280 | *2400 | 990 | *1940 | 790 | *1760 | 730 | (12.2) |
| -0.5m | kg | *1190 | *1190 | *1420 | 1380 | *1930 | 820 | *1400 | 580 | *1070 | 450 | | | *820 | 360 | 3.50 |
| (-1.6 ft) | lb | *2620 | *2620 | *3130 | 3040 | *4250 | 1810 | *3090 | 1280 | *2360 | 990 | | | *1810 | 790 | (11.5) |
| -1.0m | kg | *1750 | *1750 | *2170 | 1400 | *1690 | 830 | *1250 | 590 | *930 | 450 | | | *840 | 420 | 3.14 |
| (-3.3 ft) | lb | *3860 | *3860 | *4780 | 3090 | *3730 | 1830 | *2760 | 1300 | *2050 | 990 | | | *1850 | 930 | (10.3) |
| -1.5m | kg | | | *1810 | 1420 | *1270 | 850 | *900 | 600 | | | | | *830 | 570 | 2.59 |
| (-4.9 ft) | lb | | | *3990 | 3130 | *2800 | 1870 | *1980 | 1320 | | | | | *1830 | 1260 | (8.5) |

- Note
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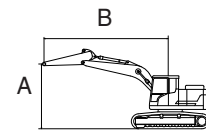
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





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| Model | Type | Boom | Arm | Counterweight | Rubber shoe | Wheel | Dozer | | Outtriger | |
|--------|--------|-------------|-------------|---------------|-------------|------------|-------|------|-----------|------|
| HX25AZ | Canopy | Length [mm] | Length [mm] | weight [kg] | width [mm] | width [mm] | Front | Rear | Front | Rear |
| | | 2030 | 1300 | 130 | 250 | - | Up | - | - | - |

 : Rating over-front
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| Load point height (A) | | Load radius (B) | | | | | | | | | | | | | | At max. reach | | |
|-----------------------|----------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|----------------|
| | | 1.0 m (3.3 ft) | | 1.5 m (4.9 ft) | | 2.0 m (6.6 ft) | | 2.5 m (8.2 ft) | | 3.0 m (9.8 ft) | | 3.5 m (11.5 ft) | | 4.0 m (13.1 ft) | | Capacity | | Reach |
| | |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | m (ft) |
| 3.5 m (11.5 ft) | kg lb | | | | | | | | | | | | | | | 580 1280 | 450 990 | 2.85 (9.4) |
| 3.0 m (9.8 ft) | kg lb | | | | | | | | | 530 1170 | 420 930 | | | | | 440 970 | 340 750 | 3.35 (11.0) |
| 2.5 m (8.2 ft) | kg lb | | | | | | | | | 530 1170 | 420 930 | 410 900 | 320 710 | | | 370 820 | 290 640 | 3.68 (12.1) |
| 2.0 m (6.6 ft) | kg lb | | | | | | | | | 520 1150 | 410 900 | 400 880 | 310 680 | | | 330 730 | 260 570 | 3.89 (12.8) |
| 1.5 m (4.9 ft) | kg lb | | | | | 1000 2200 | 750 1650 | 680 1500 | 530 1170 | 500 1100 | 390 860 | 390 860 | 310 680 | 310 680 | 240 530 | 310 680 | 240 530 | 4.02 (13.2) |
| 1.0 m (3.3 ft) | kg lb | | | | | | | 650 1430 | 500 1100 | 490 1080 | 380 840 | 380 840 | 300 660 | 310 680 | 240 530 | 300 660 | 230 510 | 4.06 (13.3) |
| 0.5 m (1.6 ft) | kg lb | | | | | 890 1960 | 650 1430 | 620 1370 | 470 1040 | 470 1040 | 360 790 | 370 820 | 290 640 | 300 660 | 230 510 | 300 660 | 230 510 | 4.02 (13.2) |
| 0.0 m (0.0 ft) | kg lb | | | | | 880 1940 | 640 1410 | 610 1340 | 460 1010 | 460 1010 | 350 770 | 370 820 | 280 620 | | | 310 680 | 240 530 | 3.90 (12.8) |
| -0.5 m (-1.6 ft) | kg lb | *1040 *2290 | *1040 *2290 | *1280 *2820 | 1060 2340 | 870 1920 | 640 1410 | 600 1320 | 450 990 | 460 1010 | 350 770 | 360 790 | 280 620 | | | 340 750 | 260 570 | 3.69 (12.1) |
| -1.0 m (-3.3 ft) | kg lb | *1500 *3310 | *1500 *3310 | 1560 3440 | 1070 2360 | 880 1940 | 650 1430 | 610 1340 | 460 1010 | 460 1010 | 350 770 | | | | | 390 860 | 300 660 | 3.36 (11.0) |
| -1.5 m (-4.9 ft) | kg lb | *2090 *4610 | *2090 *4610 | 1580 3480 | 1100 2430 | 890 1960 | 660 1460 | 620 1370 | 470 1040 | | | | | | | 500 1100 | 380 840 | 2.87 (9.4) |
| -2.0 m (-6.6 ft) | kg lb | | | | | *740 *1630 | 690 1520 | | | | | | | | | *740 *1630 | 690 1520 | 2.00 (6.6) |

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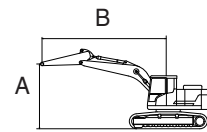
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












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| Model | Type | Boom | Arm | Counterweight | Rubber shoe | Wheel | Dozer | | Outtriger | |
|--------|--------|-------------|-------------|---------------|-------------|------------|-------|------|-----------|------|
| HX25AZ | Canopy | Length [mm] | Length [mm] | weight [kg] | width [mm] | width [mm] | Front | Rear | Front | Rear |
| | | 2030 | 1300 | 130 | 250 | - | Down | - | - | - |

 : Rating over-front
  : Rating over-side or 360 degree



| Load point height (A) | | Load radius (B) | | | | | | | | | | | | | | At max. reach | | | |
|-----------------------|----|---|---|---|---|---|---|---|---|---|---|---|---|--|---|---|---|--------|--------|
| | | 1.0 m (3.3 ft) | | 1.5 m (4.9 ft) | | 2.0 m (6.6 ft) | | 2.5 m (8.2 ft) | | 3.0 m (9.8 ft) | | 3.5 m (11.5 ft) | | 4.0 m (13.1 ft) | | Capacity | | Reach | |
| | |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | m (ft) | |
| 3.5 m (11.5 ft) | kg | | | | | | | | | | | | | | | | *670 | 490 | 2.85 |
| | lb | | | | | | | | | | | | | | | | *1480 | 1080 | (9.4) |
| 3.0 m (9.8 ft) | kg | | | | | | | | | *600 | 450 | | | | | | *600 | 370 | 3.35 |
| | lb | | | | | | | | | *1320 | 990 | | | | | | *1320 | 820 | (11.0) |
| 2.5 m (8.2 ft) | kg | | | | | | | | | *610 | 450 | *640 | 340 | | | | *570 | 310 | 3.68 |
| | lb | | | | | | | | | *1340 | 990 | *1410 | 750 | | | | *1260 | 680 | (12.1) |
| 2.0m (6.6 ft) | kg | | | | | | | | | *680 | 440 | *670 | 340 | | | | *560 | 280 | 3.89 |
| | lb | | | | | | | | | *1500 | 970 | *1480 | 750 | | | | *1230 | 620 | (12.8) |
| 1.5m (4.9 ft) | kg | | | | | *1230 | 820 | *930 | 570 | *790 | 420 | *720 | 330 | *610 | 260 | | *570 | 260 | 4.02 |
| | lb | | | | | *2710 | 1810 | *2050 | 1260 | *1740 | 930 | *1590 | 730 | *1340 | 570 | | *1260 | 570 | (13.2) |
| 1.0m (3.3 ft) | kg | | | | | | | *1170 | 540 | *920 | 410 | *790 | 320 | *710 | 260 | | *590 | 250 | 4.06 |
| | lb | | | | | | | *2580 | 1190 | *2030 | 900 | *1740 | 710 | *1570 | 570 | | *1300 | 550 | (13.3) |
| 0.5m (1.6 ft) | kg | | | | | *1350 | 720 | *1340 | 510 | *1020 | 390 | *850 | 310 | *700 | 250 | | *640 | 250 | 4.02 |
| | lb | | | | | *2980 | 1590 | *2950 | 1120 | *2250 | 860 | *1870 | 680 | *1540 | 550 | | *1410 | 550 | (13.2) |
| 0.0m (0.0 ft) | kg | | | | | *1580 | 700 | *1430 | 500 | *1080 | 380 | *880 | 310 | | | | *720 | 260 | 3.90 |
| | lb | | | | | *3480 | 1540 | *3150 | 1100 | *2380 | 840 | *1940 | 680 | | | | *1590 | 570 | (12.8) |
| -0.5m (-1.6 ft) | kg | *1040 | *1040 | *1280 | 1180 | *2000 | 700 | *1420 | 490 | *1080 | 380 | *860 | 300 | | | | *780 | 280 | 3.69 |
| | lb | *2290 | *2290 | *2820 | 2600 | *4410 | 1540 | *3130 | 1080 | *2380 | 840 | *1900 | 660 | | | | *1720 | 620 | (12.1) |
| -1.0m (-3.3 ft) | kg | *1500 | *1500 | *1880 | 1190 | *1810 | 710 | *1310 | 500 | *1000 | 380 | | | | | | *800 | 320 | 3.36 |
| | lb | *3310 | *3310 | *4140 | 2620 | *3990 | 1570 | *2890 | 1100 | *2200 | 840 | | | | | | *1760 | 710 | (11.0) |
| -1.5m (-4.9 ft) | kg | *2090 | *2090 | *2190 | 1210 | *1460 | 720 | *1060 | 510 | | | | | | | | *810 | 420 | 2.87 |
| | lb | *4610 | *4610 | *4830 | 2670 | *3220 | 1590 | *2340 | 1120 | | | | | | | | *1790 | 930 | (9.4) |
| -2.0m (-6.6 ft) | kg | | | | | *740 | *740 | | | | | | | | | | *740 | *740 | 2.00 |
| | lb | | | | | *1630 | *1630 | | | | | | | | | | *1630 | *1630 | (6.6) |

- Note
- Lifting capacity are based on ISO 10567.
 - Lifting capacity of the HX series does not exceed 75% of tipping load with the machine on firm, level ground or 87% of full hydraulic capacity.
 - The lift-point is bucket pivot mounting pin on the arm (without bucket mass).
 - *Indicates load limited by hydraulic capacity.

※ Lifting capacities are based upon a standard machine conditions.

Lifting capacities will vary with different work tools, ground conditions and attachments.



The difference between the weight of a work tool attachment must be subtracted.

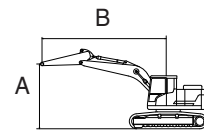
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





※ Please be aware of the local regulations and instructions for lifting operations.

▲ Failure to comply to the rated load can cause serious injury, death, or property damage. Make adjustments to the rated load as necessary for non-standard configurations.

| Model | Type | Boom | Arm | Counterweight | Rubber shoe | Wheel | Dozer | | Outtriger | |
|--------|--------|-------------|-------------|---------------|-------------|------------|-------|------|-----------|------|
| HX25AZ | Canopy | Length [mm] | Length [mm] | weight [kg] | width [mm] | width [mm] | Front | Rear | Front | Rear |
| | | 2030 | 1300 | 270 | 250 | - | Up | - | - | - |

 : Rating over-front
 ·  : Rating over-side or 360 degree



| Load point height (A) | | Load radius (B) | | | | | | | | | | | | | | At max. reach | | |
|-----------------------|----------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|----------------|
| | | 1.0 m (3.3 ft) | | 1.5 m (4.9 ft) | | 2.0 m (6.6 ft) | | 2.5 m (8.2 ft) | | 3.0 m (9.8 ft) | | 3.5 m (11.5 ft) | | 4.0 m (13.1 ft) | | Capacity | | Reach |
| | |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | m (ft) |
| 3.5 m (11.5 ft) | kg lb | | | | | | | | | | | | | | | 660 1460 | 520 1150 | 2.85 (9.4) |
| 3.0 m (9.8 ft) | kg lb | | | | | | | | | *600 *1320 | 480 1060 | | | | | 500 1100 | 400 880 | 3.35 (11.0) |
| 2.5 m (8.2 ft) | kg lb | | | | | | | | | 610 1340 | 480 1060 | 470 1040 | 370 820 | | | 430 950 | 340 750 | 3.68 (12.1) |
| 2.0 m (6.6 ft) | kg lb | | | | | | | | | 600 1320 | 470 1040 | 460 1010 | 370 820 | | | 390 860 | 310 680 | 3.89 (12.8) |
| 1.5 m (4.9 ft) | kg lb | | | | | 1140 2510 | 860 1900 | 780 1720 | 610 1340 | 580 1280 | 460 1010 | 450 990 | 360 790 | 370 820 | 290 640 | 360 790 | 290 640 | 4.02 (13.2) |
| 1.0 m (3.3 ft) | kg lb | | | | | | | 750 1650 | 580 1280 | 560 1230 | 440 970 | 440 970 | 350 770 | 360 790 | 280 620 | 350 770 | 280 620 | 4.06 (13.3) |
| 0.5 m (1.6 ft) | kg lb | | | | | 1030 2270 | 770 1700 | 720 1590 | 550 1210 | 550 1210 | 430 950 | 440 970 | 340 750 | 360 790 | 280 620 | 350 770 | 280 620 | 4.02 (13.2) |
| 0.0 m (0.0 ft) | kg lb | | | | | 1010 2230 | 760 1680 | 710 1570 | 540 1190 | 540 1190 | 420 930 | 430 950 | 340 750 | | | 370 820 | 290 640 | 3.90 (12.8) |
| -0.5 m (-1.6 ft) | kg lb | *1040 *2290 | *1040 *2290 | *1280 *2820 | 1240 2730 | 1010 2230 | 750 1650 | 700 1540 | 540 1190 | 530 1170 | 410 900 | 430 950 | 330 730 | | | 400 880 | 310 680 | 3.69 (12.1) |
| -1.0 m (-3.3 ft) | kg lb | *1500 *3310 | *1500 *3310 | 1790 3950 | 1250 2760 | 1020 2250 | 760 1680 | 700 1540 | 540 1190 | 530 1170 | 410 900 | | | | | 450 990 | 360 790 | 3.36 (11.0) |
| -1.5 m (-4.9 ft) | kg lb | *2090 *4610 | *2090 *4610 | 1820 4010 | 1280 2820 | 1030 2270 | 770 1700 | 710 1570 | 550 1210 | | | | | | | 580 1280 | 450 990 | 2.87 (9.4) |
| -2.0 m (-6.6 ft) | kg lb | | | | | *740 *1630 | *740 *1630 | | | | | | | | | *740 *1630 | *740 *1630 | 2.00 (6.6) |

- Note
- Lifting capacity are based on ISO 10567.
 - Lifting capacity of the HX series does not exceed 75% of tipping load with the machine on firm, level ground or 87% of full hydraulic capacity.
 - The lift-point is bucket pivot mounting pin on the arm (without bucket mass).
 - *Indicates load limited by hydraulic capacity.

※ Lifting capacities are based upon a standard machine conditions.

Lifting capacities will vary with different work tools, ground conditions and attachments.



The difference between the weight of a work tool attachment must be subtracted.

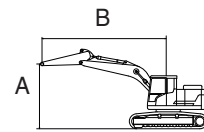
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
※ Please be aware of the local regulations and instructions for lifting operations.

▲ Failure to comply to the rated load can cause serious injury, death, or property damage. Make adjustments to the rated load as necessary for non-standard configurations.

| Model | Type | Boom | Arm | Counterweight | Rubber shoe | Wheel | Dozer | | Outtriger | |
|--------|--------|-------------|-------------|---------------|-------------|------------|-------|------|-----------|------|
| HX25AZ | Canopy | Length [mm] | Length [mm] | weight [kg] | width [mm] | width [mm] | Front | Rear | Front | Rear |
| | | 2030 | 1300 | 270 | 250 | - | Down | - | - | - |

 : Rating over-front
  : Rating over-side or 360 degree



| Load point height (A) | | Load radius (B) | | | | | | | | | | | | | | At max. reach | | | |
|-----------------------|----|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|--------|--------|
| | | 1.0 m (3.3 ft) | | 1.5 m (4.9 ft) | | 2.0 m (6.6 ft) | | 2.5 m (8.2 ft) | | 3.0 m (9.8 ft) | | 3.5 m (11.5 ft) | | 4.0 m (13.1 ft) | | Capacity | | Reach | |
| | |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | m (ft) | |
| 3.5 m (11.5 ft) | kg | | | | | | | | | | | | | | | | *670 | 560 | 2.85 |
| | lb | | | | | | | | | | | | | | | | *1480 | 1230 | (9.4) |
| 3.0 m (9.8 ft) | kg | | | | | | | | *600 | 520 | | | | | | | *600 | 430 | 3.35 |
| | lb | | | | | | | | *1320 | 1150 | | | | | | | *1320 | 950 | (11.0) |
| 2.5 m (8.2 ft) | kg | | | | | | | | *610 | 520 | *640 | 400 | | | | | *570 | 360 | 3.68 |
| | lb | | | | | | | | *1340 | 1150 | *1410 | 880 | | | | | *1260 | 790 | (12.1) |
| 2.0m (6.6 ft) | kg | | | | | | | | *680 | 510 | *670 | 390 | | | | | *560 | 330 | 3.89 |
| | lb | | | | | | | | *1500 | 1120 | *1480 | 860 | | | | | *1230 | 730 | (12.8) |
| 1.5m (4.9 ft) | kg | | | | | *1230 | 930 | *930 | 650 | *790 | 490 | *720 | 390 | *610 | 310 | | *570 | 310 | 4.02 |
| | lb | | | | | *2710 | 2050 | *2050 | 1430 | *1740 | 1080 | *1590 | 860 | *1340 | 680 | | *1260 | 680 | (13.2) |
| 1.0m (3.3 ft) | kg | | | | | | | *1170 | 620 | *920 | 470 | *790 | 380 | *710 | 310 | | *590 | 300 | 4.06 |
| | lb | | | | | | | *2580 | 1370 | *2030 | 1040 | *1740 | 840 | *1570 | 680 | | *1300 | 660 | (13.3) |
| 0.5m (1.6 ft) | kg | | | | | *1350 | 830 | *1340 | 600 | *1020 | 460 | *850 | 370 | *700 | 300 | | *640 | 300 | 4.02 |
| | lb | | | | | *2980 | 1830 | *2950 | 1320 | *2250 | 1010 | *1870 | 820 | *1540 | 660 | | *1410 | 660 | (13.2) |
| 0.0m (0.0 ft) | kg | | | | | *1580 | 820 | *1430 | 590 | *1080 | 450 | *880 | 360 | | | | *720 | 310 | 3.90 |
| | lb | | | | | *3480 | 1810 | *3150 | 1300 | *2380 | 990 | *1940 | 790 | | | | *1590 | 680 | (12.8) |
| -0.5m (-1.6 ft) | kg | *1040 | *1040 | *1280 | *1280 | *2000 | 820 | *1420 | 580 | *1080 | 450 | *860 | 360 | | | | *780 | 330 | 3.69 |
| | lb | *2290 | *2290 | *2820 | *2820 | *4410 | 1810 | *3130 | 1280 | *2380 | 990 | *1900 | 790 | | | | *1720 | 730 | (12.1) |
| -1.0m (-3.3 ft) | kg | *1500 | *1500 | *1880 | 1380 | *1810 | 830 | *1310 | 580 | *1000 | 450 | | | | | | *800 | 380 | 3.36 |
| | lb | *3310 | *3310 | *4140 | 3040 | *3990 | 1830 | *2890 | 1280 | *2200 | 990 | | | | | | *1760 | 840 | (11.0) |
| -1.5m (-4.9 ft) | kg | *2090 | *2090 | *2190 | 1400 | *1460 | 840 | *1060 | 590 | | | | | | | | *810 | 490 | 2.87 |
| | lb | *4610 | *4610 | *4830 | 3090 | *3220 | 1850 | *2340 | 1300 | | | | | | | | *1790 | 1080 | (9.4) |
| -2.0m (-6.6 ft) | kg | | | | | *740 | *740 | | | | | | | | | | *740 | *740 | 2.00 |
| | lb | | | | | *1630 | *1630 | | | | | | | | | | *1630 | *1630 | (6.6) |

Note 1. Lifting capacity are based on ISO 10567.

2. Lifting capacity of the HX series does not exceed 75% of tipping load with the machine on firm, level ground or 87% of full hydraulic capacity.

3. The lift-point is bucket pivot mounting pin on the arm (without bucket mass).

4. *Indicates load limited by hydraulic capacity.

※ Lifting capacities are based upon a standard machine conditions.

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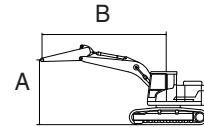
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▲ Failure to comply to the rated load can cause serious injury, death, or property damage. Make adjustments to the rated load as necessary for non-standard configurations.

(3) Steel track 300 mm, cab type

| Model | Type | Boom | Arm | Counterweight | Steel shoe | Wheel | Dozer | | Outrigger | |
|--------|------|-------------|-------------|---------------|------------|------------|-------|------|-----------|------|
| HX25AZ | Cab | Length [mm] | Length [mm] | weight [kg] | width [mm] | width [mm] | Front | Rear | Front | Rear |
| | | 2030 | 1120 | 130 | 300 | - | Up | - | - | - |

 : Rating over-front
  : Rating over-side or 360 degree



| Load point height (A) | | Load radius (B) | | | | | | | | | | | | At max. reach | | |
|-----------------------|----|---|---|---|---|---|---|---|---|---|--|---|---|---|---|--------|
| | | 1.0 m (3.3 ft) | | 1.5 m (4.9 ft) | | 2.0 m (6.6 ft) | | 2.5 m (8.2 ft) | | 3.0 m (9.8 ft) | | 3.5 m (11.5 ft) | | Capacity | | Reach |
| | |  |  |  |  |  |  |  |  |  |  |  |  |  |  | m (ft) |
| 3.5 m (11.5 ft) | kg | | | | | | | | | | | | | *740 | 600 | 2.55 |
| | lb | | | | | | | | | | | | | *1630 | 1320 | (8.4) |
| 3.0 m (9.8 ft) | kg | | | | | | | | | 590 | 460 | | | 550 | 430 | 3.12 |
| | lb | | | | | | | | | 1300 | 1010 | | | 1210 | 950 | (10.2) |
| 2.5 m (8.2 ft) | kg | | | | | | | | | 590 | 460 | | | 450 | 360 | 3.48 |
| | lb | | | | | | | | | 1300 | 1010 | | | 990 | 790 | (11.4) |
| 2.0 m (6.6 ft) | kg | | | | | | | 780 | 610 | 580 | 450 | 450 | 350 | 400 | 320 | 3.71 |
| | lb | | | | | | | 1720 | 1340 | 1280 | 990 | 990 | 770 | 880 | 710 | (12.2) |
| 1.5 m (4.9 ft) | kg | | | | | | | 750 | 580 | 560 | 440 | 440 | 340 | 380 | 290 | 3.84 |
| | lb | | | | | | | 1650 | 1280 | 1230 | 970 | 970 | 750 | 840 | 640 | (12.6) |
| 1.0 m (3.3 ft) | kg | | | | | | | 720 | 550 | 550 | 420 | 430 | 340 | 370 | 280 | 3.89 |
| | lb | | | | | | | 1590 | 1210 | 1210 | 930 | 950 | 750 | 820 | 620 | (12.8) |
| 0.5 m (1.6 ft) | kg | | | | | | | 700 | 530 | 530 | 410 | 420 | 330 | 370 | 290 | 3.85 |
| | lb | | | | | | | 1540 | 1170 | 1170 | 900 | 930 | 730 | 820 | 640 | (12.6) |
| 0.0 m (0.0 ft) | kg | | | | | 990 | 730 | 690 | 520 | 520 | 400 | 420 | 320 | 380 | 300 | 3.73 |
| | lb | | | | | 2180 | 1610 | 1520 | 1150 | 1150 | 880 | 930 | 710 | 840 | 660 | (12.2) |
| -0.5 m (-1.6 ft) | kg | *1180 | *1180 | *1400 | 1210 | 990 | 730 | 680 | 520 | 520 | 400 | 420 | 320 | 420 | 320 | 3.50 |
| | lb | *2600 | *2600 | *3090 | 2670 | 2180 | 1610 | 1500 | 1150 | 1150 | 880 | 930 | 710 | 930 | 710 | (11.5) |
| -1.0 m (-3.3 ft) | kg | *1730 | *1730 | 1760 | 1220 | 1000 | 740 | 690 | 520 | 520 | 400 | | | 490 | 380 | 3.16 |
| | lb | *3810 | *3810 | 3880 | 2690 | 2200 | 1630 | 1520 | 1150 | 1150 | 880 | | | 1080 | 840 | (10.4) |
| -1.5 m (-4.9 ft) | kg | | | 1790 | 1250 | 1020 | 760 | 700 | 540 | | | | | 660 | 510 | 2.61 |
| | lb | | | 3950 | 2760 | 2250 | 1680 | 1540 | 1190 | | | | | 1460 | 1120 | (8.6) |

- Note
1. Lifting capacity are based on ISO 10567.
 2. Lifting capacity of the HX series does not exceed 75% of tipping load with the machine on firm, level ground or 87% of full hydraulic capacity.
 3. The lift-point is bucket pivot mounting pin on the arm (without bucket mass).
 4. *Indicates load limited by hydraulic capacity.

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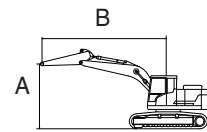
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| Model | Type | Boom | Arm | Counterweight | Steel shoe | Wheel | Dozer | | Outtriger | |
|--------|------|-------------|-------------|---------------|------------|------------|-------|------|-----------|------|
| HX25AZ | Cab | Length [mm] | Length [mm] | weight [kg] | width [mm] | width [mm] | Front | Rear | Front | Rear |
| | | 2030 | 1120 | 130 | 300 | - | Down | - | - | - |

 : Rating over-front
  : Rating over-side or 360 degree



| Load point height (A) | | Load radius (B) | | | | | | | | | | | | At max. reach | | |
|-----------------------|----|---|---|---|---|---|---|---|---|---|--|---|---|---|---|--------|
| | | 1.0 m (3.3 ft) | | 1.5 m (4.9 ft) | | 2.0 m (6.6 ft) | | 2.5 m (8.2 ft) | | 3.0 m (9.8 ft) | | 3.5 m (11.5 ft) | | Capacity | | Reach |
| | |  |  |  |  |  |  |  |  |  |  |  |  |  |  | m (ft) |
| 3.5 m (11.5 ft) | kg | | | | | | | | | | | | | *740 | 650 | 2.55 |
| | lb | | | | | | | | | | | | | *1630 | 1430 | (8.4) |
| 3.0 m (9.8 ft) | kg | | | | | | | | | *690 | 500 | | | *710 | 460 | 3.12 |
| | lb | | | | | | | | | *1520 | 1100 | | | *1570 | 1010 | (10.2) |
| 2.5 m (8.2 ft) | kg | | | | | | | | | *680 | 500 | | | *670 | 390 | 3.48 |
| | lb | | | | | | | | | *1500 | 1100 | | | *1480 | 860 | (11.4) |
| 2.0 m (6.6 ft) | kg | | | | | | | *800 | 660 | *740 | 490 | *710 | 380 | *660 | 340 | 3.71 |
| | lb | | | | | | | *1760 | 1460 | *1630 | 1080 | *1570 | 840 | *1460 | 750 | (12.2) |
| 1.5 m (4.9 ft) | kg | | | | | | | *1020 | 630 | *850 | 470 | *760 | 370 | *670 | 320 | 3.84 |
| | lb | | | | | | | *2250 | 1390 | *1870 | 1040 | *1680 | 820 | *1480 | 710 | (12.6) |
| 1.0 m (3.3 ft) | kg | | | | | | | *1240 | 600 | *960 | 460 | *820 | 360 | *700 | 310 | 3.89 |
| | lb | | | | | | | *2730 | 1320 | *2120 | 1010 | *1810 | 790 | *1540 | 680 | (12.8) |
| 0.5 m (1.6 ft) | kg | | | | | | | *1390 | 580 | *1050 | 450 | *860 | 360 | *760 | 310 | 3.85 |
| | lb | | | | | | | *3060 | 1280 | *2310 | 990 | *1900 | 790 | *1680 | 680 | (12.6) |
| 0.0 m (0.0 ft) | kg | | | | | *1580 | 800 | *1440 | 570 | *1090 | 440 | *880 | 350 | *800 | 320 | 3.73 |
| | lb | | | | | *3480 | 1760 | *3170 | 1260 | *2400 | 970 | *1940 | 770 | *1760 | 710 | (12.2) |
| -0.5 m (-1.6 ft) | kg | *1180 | *1180 | *1400 | 1340 | *1940 | 800 | *1400 | 570 | *1070 | 440 | *820 | 350 | *820 | 350 | 3.50 |
| | lb | *2600 | *2600 | *3090 | 2950 | *4280 | 1760 | *3090 | 1260 | *2360 | 970 | *1810 | 770 | *1810 | 770 | (11.5) |
| -1.0 m (-3.3 ft) | kg | *1730 | *1730 | *2150 | 1360 | *1700 | 810 | *1250 | 570 | *940 | 440 | | | *840 | 410 | 3.16 |
| | lb | *3810 | *3810 | *4740 | 3000 | *3750 | 1790 | *2760 | 1260 | *2070 | 970 | | | *1850 | 900 | (10.4) |
| -1.5 m (-4.9 ft) | kg | | | *1840 | 1380 | *1280 | 830 | *920 | 590 | | | | | *830 | 550 | 2.61 |
| | lb | | | *4060 | 3040 | *2820 | 1830 | *2030 | 1300 | | | | | *1830 | 1210 | (8.6) |

- Note
1. Lifting capacity are based on ISO 10567.
 2. Lifting capacity of the HX series does not exceed 75% of tipping load with the machine on firm, level ground or 87% of full hydraulic capacity.
 3. The lift-point is bucket pivot mounting pin on the arm (without bucket mass).
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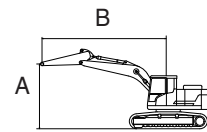
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| Model | Type | Boom | Arm | Counterweight | Steel shoe | Wheel | Dozer | | Outtriger | |
|--------|------|-------------|-------------|---------------|------------|------------|-------|------|-----------|------|
| HX25AZ | Cab | Length [mm] | Length [mm] | weight [kg] | width [mm] | width [mm] | Front | Rear | Front | Rear |
| | | 2030 | 1120 | 270 | 300 | - | Up | - | - | - |

 : Rating over-front
  : Rating over-side or 360 degree



| Load point height (A) | | Load radius (B) | | | | | | | | | | | | At max. reach | | |
|-----------------------|----|---|---|---|---|---|---|---|---|---|--|---|---|---|---|--------|
| | | 1.0 m (3.3 ft) | | 1.5 m (4.9 ft) | | 2.0 m (6.6 ft) | | 2.5 m (8.2 ft) | | 3.0 m (9.8 ft) | | 3.5 m (11.5 ft) | | Capacity | | Reach |
| | |  |  |  |  |  |  |  |  |  |  |  |  |  |  | m (ft) |
| 3.5 m (11.5 ft) | kg | | | | | | | | | | | | | *740 | 680 | 2.55 |
| | lb | | | | | | | | | | | | | *1630 | 1500 | (8.4) |
| 3.0 m (9.8 ft) | kg | | | | | | | | | 660 | 530 | | | 620 | 490 | 3.12 |
| | lb | | | | | | | | | 1460 | 1170 | | | 1370 | 1080 | (10.2) |
| 2.5 m (8.2 ft) | kg | | | | | | | | | 660 | 530 | | | 520 | 410 | 3.48 |
| | lb | | | | | | | | | 1460 | 1170 | | | 1150 | 900 | (11.4) |
| 2.0 m (6.6 ft) | kg | | | | | | | *800 | 690 | 650 | 520 | 510 | 400 | 460 | 370 | 3.71 |
| | lb | | | | | | | *1760 | 1520 | 1430 | 1150 | 1120 | 880 | 1010 | 820 | (12.2) |
| 1.5 m (4.9 ft) | kg | | | | | | | 850 | 660 | 640 | 500 | 500 | 400 | 430 | 340 | 3.84 |
| | lb | | | | | | | 1870 | 1460 | 1410 | 1100 | 1100 | 880 | 950 | 750 | (12.6) |
| 1.0 m (3.3 ft) | kg | | | | | | | 820 | 630 | 620 | 490 | 490 | 390 | 420 | 330 | 3.89 |
| | lb | | | | | | | 1810 | 1390 | 1370 | 1080 | 1080 | 860 | 930 | 730 | (12.8) |
| 0.5 m (1.6 ft) | kg | | | | | | | 800 | 610 | 610 | 480 | 480 | 380 | 420 | 330 | 3.85 |
| | lb | | | | | | | 1760 | 1340 | 1340 | 1060 | 1060 | 840 | 930 | 730 | (12.6) |
| 0.0 m (0.0 ft) | kg | | | | | 1120 | 840 | 780 | 600 | 600 | 470 | 480 | 380 | 440 | 350 | 3.73 |
| | lb | | | | | 2470 | 1850 | 1720 | 1320 | 1320 | 1040 | 1060 | 840 | 970 | 770 | (12.2) |
| -0.5 m (-1.6 ft) | kg | *1180 | *1180 | *1400 | 1390 | 1130 | 840 | 780 | 600 | 600 | 460 | 480 | 380 | 480 | 380 | 3.50 |
| | lb | *2600 | *2600 | *3090 | 3060 | 2490 | 1850 | 1720 | 1320 | 1320 | 1010 | 1060 | 840 | 1060 | 840 | (11.5) |
| -1.0 m (-3.3 ft) | kg | *1730 | *1730 | 1990 | 1400 | 1130 | 850 | 790 | 610 | 600 | 470 | | | 560 | 440 | 3.16 |
| | lb | *3810 | *3810 | 4390 | 3090 | 2490 | 1870 | 1740 | 1340 | 1320 | 1040 | | | 1230 | 970 | (10.4) |
| -1.5 m (-4.9 ft) | kg | | | *1840 | 1430 | 1150 | 870 | 800 | 620 | | | | | 750 | 590 | 2.61 |
| | lb | | | *4060 | 3150 | 2540 | 1920 | 1760 | 1370 | | | | | 1650 | 1300 | (8.6) |

- Note
- Lifting capacity are based on ISO 10567.
 - Lifting capacity of the HX series does not exceed 75% of tipping load with the machine on firm, level ground or 87% of full hydraulic capacity.
 - The lift-point is bucket pivot mounting pin on the arm (without bucket mass).
 - *Indicates load limited by hydraulic capacity.

※ Lifting capacities are based upon a standard machine conditions.

Lifting capacities will vary with different work tools, ground conditions and attachments.



The difference between the weight of a work tool attachment must be subtracted.

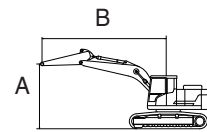
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※ Please be aware of the local regulations and instructions for lifting operations.

▲ Failure to comply to the rated load can cause serious injury, death, or property damage. Make adjustments to the rated load as necessary for non-standard configurations.

| Model | Type | Boom | Arm | Counterweight | Steel shoe | Wheel | Dozer | | Outtriger | |
|--------|------|-------------|-------------|---------------|------------|------------|-------|------|-----------|------|
| HX25AZ | Cab | Length [mm] | Length [mm] | weight [kg] | width [mm] | width [mm] | Front | Rear | Front | Rear |
| | | 2030 | 1120 | 270 | 300 | - | Down | - | - | - |

 : Rating over-front
  : Rating over-side or 360 degree



| Load point height (A) | | Load radius (B) | | | | | | | | | | | | At max. reach | | |
|-----------------------|----|---|---|---|---|---|---|---|---|---|--|---|---|---|---|--------|
| | | 1.0 m (3.3 ft) | | 1.5 m (4.9 ft) | | 2.0 m (6.6 ft) | | 2.5 m (8.2 ft) | | 3.0 m (9.8 ft) | | 3.5 m (11.5 ft) | | Capacity | | Reach |
| | |  |  |  |  |  |  |  |  |  |  |  |  |  |  | m (ft) |
| 3.5 m (11.5 ft) | kg | | | | | | | | | | | | | *740 | 730 | 2.55 |
| | lb | | | | | | | | | | | | | *1630 | 1610 | (8.4) |
| 3.0 m (9.8 ft) | kg | | | | | | | | | *690 | 570 | | | *710 | 530 | 3.12 |
| | lb | | | | | | | | | *1520 | 1260 | | | *1570 | 1170 | (10.2) |
| 2.5 m (8.2 ft) | kg | | | | | | | | | *680 | 560 | | | *670 | 440 | 3.48 |
| | lb | | | | | | | | | *1500 | 1230 | | | *1480 | 970 | (11.4) |
| 2.0 m (6.6 ft) | kg | | | | | | | *800 | 740 | *740 | 560 | *710 | 430 | *660 | 390 | 3.71 |
| | lb | | | | | | | *1760 | 1630 | *1630 | 1230 | *1570 | 950 | *1460 | 860 | (12.2) |
| 1.5 m (4.9 ft) | kg | | | | | | | *1020 | 710 | *850 | 540 | *760 | 430 | *670 | 370 | 3.84 |
| | lb | | | | | | | *2250 | 1570 | *1870 | 1190 | *1680 | 950 | *1480 | 820 | (12.6) |
| 1.0 m (3.3 ft) | kg | | | | | | | *1240 | 690 | *960 | 530 | *820 | 420 | *700 | 360 | 3.89 |
| | lb | | | | | | | *2730 | 1520 | *2120 | 1170 | *1810 | 930 | *1540 | 790 | (12.8) |
| 0.5 m (1.6 ft) | kg | | | | | | | *1390 | 670 | *1050 | 510 | *860 | 410 | *760 | 360 | 3.85 |
| | lb | | | | | | | *3060 | 1480 | *2310 | 1120 | *1900 | 900 | *1680 | 790 | (12.6) |
| 0.0 m (0.0 ft) | kg | | | | | *1580 | 920 | *1440 | 650 | *1090 | 500 | *880 | 410 | *800 | 370 | 3.73 |
| | lb | | | | | *3480 | 2030 | *3170 | 1430 | *2400 | 1100 | *1940 | 900 | *1760 | 820 | (12.2) |
| -0.5 m (-1.6 ft) | kg | *1180 | *1180 | *1400 | *1400 | *1940 | 920 | *1400 | 650 | *1070 | 500 | *820 | 410 | *820 | 410 | 3.50 |
| | lb | *2600 | *2600 | *3090 | *3090 | *4280 | 2030 | *3090 | 1430 | *2360 | 1100 | *1810 | 900 | *1810 | 900 | (11.5) |
| -1.0 m (-3.3 ft) | kg | *1730 | *1730 | *2150 | 1550 | *1700 | 930 | *1250 | 660 | *940 | 510 | | | *840 | 470 | 3.16 |
| | lb | *3810 | *3810 | *4740 | 3420 | *3750 | 2050 | *2760 | 1460 | *2070 | 1120 | | | *1850 | 1040 | (10.4) |
| -1.5 m (-4.9 ft) | kg | | | *1840 | 1580 | *1280 | 950 | *920 | 670 | | | | | *830 | 630 | 2.61 |
| | lb | | | *4060 | 3480 | *2820 | 2090 | *2030 | 1480 | | | | | *1830 | 1390 | (8.6) |

- Note
1. Lifting capacity are based on ISO 10567.
 2. Lifting capacity of the HX series does not exceed 75% of tipping load with the machine on firm, level ground or 87% of full hydraulic capacity.
 3. The lift-point is bucket pivot mounting pin on the arm (without bucket mass).
 4. *Indicates load limited by hydraulic capacity.

※ Lifting capacities are based upon a standard machine conditions.

Lifting capacities will vary with different work tools, ground conditions and attachments.



The difference between the weight of a work tool attachment must be subtracted.

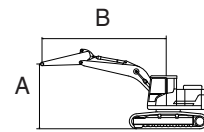
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





※ Please be aware of the local regulations and instructions for lifting operations.

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| Model | Type | Boom | Arm | Counterweight | Steel shoe | Wheel | Dozer | | Outtriger | |
|--------|------|-------------|-------------|---------------|------------|------------|-------|------|-----------|------|
| HX25AZ | Cab | Length [mm] | Length [mm] | weight [kg] | width [mm] | width [mm] | Front | Rear | Front | Rear |
| | | 2030 | 1300 | 130 | 300 | - | Up | - | - | - |

 : Rating over-front
 ·  : Rating over-side or 360 degree



| Load point height (A) | | Load radius (B) | | | | | | | | | | | | | | At max. reach | | |
|-----------------------|----------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|----------------|
| | | 1.0 m (3.3 ft) | | 1.5 m (4.9 ft) | | 2.0 m (6.6 ft) | | 2.5 m (8.2 ft) | | 3.0 m (9.8 ft) | | 3.5 m (11.5 ft) | | 4.0 m (13.1 ft) | | Capacity | | Reach |
| | |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | m (ft) |
| 3.5 m (11.5 ft) | kg lb | | | | | | | | | | | | | | | 650 1430 | 510 1120 | 2.83 (9.3) |
| 3.0 m (9.8 ft) | kg lb | | | | | | | | | 600 1320 | 470 1040 | | | | | 490 1080 | 390 860 | 3.34 (11.0) |
| 2.5 m (8.2 ft) | kg lb | | | | | | | | | 590 1300 | 470 1040 | 460 1010 | 360 790 | | | 420 930 | 330 730 | 3.67 (12.1) |
| 2.0 m (6.6 ft) | kg lb | | | | | | | | | 580 1280 | 460 1010 | 450 990 | 360 790 | | | 380 840 | 300 660 | 3.89 (12.8) |
| 1.5 m (4.9 ft) | kg lb | | | | | 1110 2450 | 840 1850 | 760 1680 | 590 1300 | 570 1260 | 440 970 | 440 970 | 350 770 | 360 790 | 280 620 | 350 770 | 280 620 | 4.01 (13.2) |
| 1.0 m (3.3 ft) | kg lb | | | | | | | 730 1610 | 560 1230 | 550 1210 | 430 950 | 430 950 | 340 750 | 350 770 | 270 600 | 340 750 | 270 600 | 4.06 (13.3) |
| 0.5 m (1.6 ft) | kg lb | | | | | 1000 2200 | 740 1630 | 700 1540 | 540 1190 | 530 1170 | 410 900 | 420 930 | 330 730 | 350 770 | 270 600 | 340 750 | 270 600 | 4.02 (13.2) |
| 0.0 m (0.0 ft) | kg lb | | | | | 990 2180 | 730 1610 | 690 1520 | 520 1150 | 520 1150 | 400 880 | 420 930 | 320 710 | | | 360 790 | 280 620 | 3.90 (12.8) |
| -0.5 m (-1.6 ft) | kg lb | *1020 *2250 | *1020 *2250 | *1260 *2780 | 1200 2650 | 990 2180 | 730 1610 | 680 1500 | 520 1150 | 520 1150 | 400 880 | 420 930 | 320 710 | | | 390 860 | 300 660 | 3.70 (12.1) |
| -1.0 m (-3.3 ft) | kg lb | *1480 *3260 | *1480 *3260 | 1740 3840 | 1210 2670 | 990 2180 | 730 1610 | 690 1520 | 520 1150 | 520 1150 | 400 880 | | | | | 440 970 | 340 750 | 3.37 (11.1) |
| -1.5 m (-4.9 ft) | kg lb | *2070 *4560 | *2070 *4560 | 1770 3900 | 1230 2710 | 1010 2230 | 750 1650 | 700 1540 | 530 1170 | | | | | | | 560 1230 | 430 950 | 2.88 (9.5) |
| -2.0 m (-6.6 ft) | kg lb | | | | | *770 *1700 | *770 *1700 | | | | | | | | | *740 *1630 | *740 *1630 | 2.04 (6.7) |

- Note
- Lifting capacity are based on ISO 10567.
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 - The lift-point is bucket pivot mounting pin on the arm (without bucket mass).
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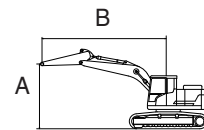
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
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| Model | Type | Boom | Arm | Counterweight | Steel shoe | Wheel | Dozer | | Outtriger | |
|--------|------|-------------|-------------|---------------|------------|------------|-------|------|-----------|------|
| HX25AZ | Cab | Length [mm] | Length [mm] | weight [kg] | width [mm] | width [mm] | Front | Rear | Front | Rear |
| | | 2030 | 1300 | 130 | 300 | - | Down | - | - | - |

 : Rating over-front
  : Rating over-side or 360 degree



| Load point height (A) | | Load radius (B) | | | | | | | | | | | | | | At max. reach | | | |
|-----------------------|----|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|--------|--------|
| | | 1.0 m (3.3 ft) | | 1.5 m (4.9 ft) | | 2.0 m (6.6 ft) | | 2.5 m (8.2 ft) | | 3.0 m (9.8 ft) | | 3.5 m (11.5 ft) | | 4.0 m (13.1 ft) | | Capacity | | Reach | |
| | |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | m (ft) | |
| 3.5 m (11.5 ft) | kg | | | | | | | | | | | | | | | | *670 | 550 | 2.83 |
| | lb | | | | | | | | | | | | | | | | *1480 | 1210 | (9.3) |
| 3.0 m (9.8 ft) | kg | | | | | | | | | *600 | 510 | | | | | | *600 | 420 | 3.34 |
| | lb | | | | | | | | | *1320 | 1120 | | | | | | *1320 | 930 | (11.0) |
| 2.5 m (8.2 ft) | kg | | | | | | | | | *610 | 500 | *640 | 390 | | | | *570 | 360 | 3.67 |
| | lb | | | | | | | | | *1340 | 1100 | *1410 | 860 | | | | *1260 | 790 | (12.1) |
| 2.0m (6.6 ft) | kg | | | | | | | | | *680 | 490 | *660 | 380 | | | | *560 | 320 | 3.89 |
| | lb | | | | | | | | | *1500 | 1080 | *1460 | 840 | | | | *1230 | 710 | (12.8) |
| 1.5m (4.9 ft) | kg | | | | | *1210 | 910 | *920 | 640 | *790 | 480 | *720 | 380 | *600 | 300 | | *570 | 300 | 4.01 |
| | lb | | | | | *2670 | 2010 | *2030 | 1410 | *1740 | 1060 | *1590 | 840 | *1320 | 660 | | *1260 | 660 | (13.2) |
| 1.0m (3.3 ft) | kg | | | | | | | *1160 | 610 | *920 | 460 | *790 | 370 | *710 | 300 | | *590 | 290 | 4.06 |
| | lb | | | | | | | *2560 | 1340 | *2030 | 1010 | *1740 | 820 | *1570 | 660 | | *1300 | 640 | (13.3) |
| 0.5m (1.6 ft) | kg | | | | | *1350 | 810 | *1340 | 580 | *1020 | 450 | *840 | 360 | *700 | 290 | | *640 | 290 | 4.02 |
| | lb | | | | | *2980 | 1790 | *2950 | 1280 | *2250 | 990 | *1850 | 790 | *1540 | 640 | | *1410 | 640 | (13.2) |
| 0.0m (0.0 ft) | kg | | | | | *1570 | 800 | *1430 | 570 | *1080 | 440 | *880 | 350 | | | | *710 | 300 | 3.90 |
| | lb | | | | | *3460 | 1760 | *3150 | 1260 | *2380 | 970 | *1940 | 770 | | | | *1570 | 660 | (12.8) |
| -0.5m (-1.6 ft) | kg | *1020 | *1020 | *1260 | *1260 | *2010 | 800 | *1420 | 570 | *1080 | 430 | *860 | 350 | | | | *780 | 320 | 3.70 |
| | lb | *2250 | *2250 | *2780 | *2780 | *4430 | 1760 | *3130 | 1260 | *2380 | 950 | *1900 | 770 | | | | *1720 | 710 | (12.1) |
| -1.0m (-3.3 ft) | kg | *1480 | *1480 | *1860 | 1340 | *1820 | 800 | *1320 | 570 | *1000 | 440 | | | | | | *800 | 370 | 3.37 |
| | lb | *3260 | *3260 | *4100 | 2950 | *4010 | 1760 | *2910 | 1260 | *2200 | 970 | | | | | | *1760 | 820 | (11.1) |
| -1.5m (-4.9 ft) | kg | *2070 | *2070 | *2210 | 1370 | *1480 | 820 | *1070 | 580 | | | | | | | | *810 | 470 | 2.88 |
| | lb | *4560 | *4560 | *4870 | 3020 | *3260 | 1810 | *2360 | 1280 | | | | | | | | *1790 | 1040 | (9.5) |
| -2.0m (-6.6 ft) | kg | | | | | *770 | *770 | | | | | | | | | | *740 | *740 | 2.04 |
| | lb | | | | | *1700 | *1700 | | | | | | | | | | *1630 | *1630 | (6.7) |

Note 1. Lifting capacity are based on ISO 10567.

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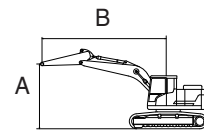
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| Model | Type | Boom | Arm | Counterweight | Steel shoe | Wheel | Dozer | | Outtriger | |
|--------|------|-------------|-------------|---------------|------------|------------|-------|------|-----------|------|
| HX25AZ | Cab | Length [mm] | Length [mm] | weight [kg] | width [mm] | width [mm] | Front | Rear | Front | Rear |
| | | 2030 | 1300 | 270 | 300 | - | Up | - | - | - |

 : Rating over-front
 ·  : Rating over-side or 360 degree



| Load point height (A) | | Load radius (B) | | | | | | | | | | | | | | At max. reach | | |
|-----------------------|----------|---|---|---|---|---|---|---|---|---|---|--|---|---|---|---|---|----------------|
| | | 1.0 m (3.3 ft) | | 1.5 m (4.9 ft) | | 2.0 m (6.6 ft) | | 2.5 m (8.2 ft) | | 3.0 m (9.8 ft) | | 3.5 m (11.5 ft) | | 4.0 m (13.1 ft) | | Capacity | | Reach |
| | |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | m (ft) |
| 3.5 m (11.5 ft) | kg lb | | | | | | | | | | | | | | | *670 *1480 | 580 1280 | 2.83 (9.3) |
| 3.0 m (9.8 ft) | kg lb | | | | | | | | | *600 *1320 | 540 1190 | | | | | 560 1230 | 440 970 | 3.34 (11.0) |
| 2.5 m (8.2 ft) | kg lb | | | | | | | | | *610 *1340 | 530 1170 | 520 1150 | 410 900 | | | 480 1060 | 380 840 | 3.67 (12.1) |
| 2.0 m (6.6 ft) | kg lb | | | | | | | | | 660 1460 | 520 1150 | 510 1120 | 410 900 | | | 430 950 | 340 750 | 3.89 (12.8) |
| 1.5 m (4.9 ft) | kg lb | | | | | *1210 *2670 | 950 2090 | 860 1900 | 670 1480 | 640 1410 | 510 1120 | 500 1100 | 400 880 | 410 900 | 320 710 | 410 900 | 320 710 | 4.01 (13.2) |
| 1.0 m (3.3 ft) | kg lb | | | | | | | 830 1830 | 640 1410 | 620 1370 | 490 1080 | 490 1080 | 390 860 | 400 880 | 320 710 | 390 860 | 310 680 | 4.06 (13.3) |
| 0.5 m (1.6 ft) | kg lb | | | | | 1140 2510 | 860 1900 | 800 1760 | 620 1370 | 610 1340 | 480 1060 | 490 1080 | 380 840 | 400 880 | 320 710 | 400 880 | 310 680 | 4.02 (13.2) |
| 0.0 m (0.0 ft) | kg lb | | | | | 1120 2470 | 840 1850 | 790 1740 | 610 1340 | 600 1320 | 470 1040 | 480 1060 | 380 840 | | | 410 900 | 320 710 | 3.90 (12.8) |
| -0.5 m (-1.6 ft) | kg lb | *1020 *2250 | *1020 *2250 | *1260 *2780 | *1260 *2780 | 1120 2470 | 840 1850 | 780 1720 | 600 1320 | 590 1300 | 460 1010 | 480 1060 | 370 820 | | | 440 970 | 350 770 | 3.70 (12.1) |
| -1.0 m (-3.3 ft) | kg lb | *1480 *3260 | *1480 *3260 | *1860 *4100 | 1390 3060 | 1130 2490 | 850 1870 | 780 1720 | 600 1320 | 600 1320 | 460 1010 | | | | | 510 1120 | 400 880 | 3.37 (11.1) |
| -1.5 m (-4.9 ft) | kg lb | *2070 *4560 | *2070 *4560 | 2000 4410 | 1410 3110 | 1140 2510 | 860 1900 | 790 1740 | 610 1340 | | | | | | | 640 1410 | 500 1100 | 2.88 (9.5) |
| -2.0 m (-6.6 ft) | kg lb | | | | | *770 *1700 | *770 *1700 | | | | | | | | | *740 *1630 | *740 *1630 | 2.04 (6.7) |

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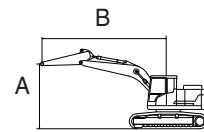
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





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| Model | Type | Boom | Arm | Counterweight | Steel shoe | Wheel | Dozer | | Outtriger | |
|--------|------|-------------|-------------|---------------|------------|------------|-------|------|-----------|------|
| HX25AZ | Cab | Length [mm] | Length [mm] | weight [kg] | width [mm] | width [mm] | Front | Rear | Front | Rear |
| | | 2030 | 1300 | 270 | 300 | - | Down | - | - | - |

 : Rating over-front
  : Rating over-side or 360 degree



| Load point height (A) | | Load radius (B) | | | | | | | | | | | | | | At max. reach | | |
|-----------------------|----------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|----------------|
| | | 1.0 m (3.3 ft) | | 1.5 m (4.9 ft) | | 2.0 m (6.6 ft) | | 2.5 m (8.2 ft) | | 3.0 m (9.8 ft) | | 3.5 m (11.5 ft) | | 4.0 m (13.1 ft) | | Capacity | | Reach |
| | |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | m (ft) |
| 3.5 m (11.5 ft) | kg lb | | | | | | | | | | | | | | | *670 *1480 | 620 1370 | 2.83 (9.3) |
| 3.0 m (9.8 ft) | kg lb | | | | | | | | | *600 *1320 | 570 1260 | | | | | *600 *1320 | 480 1060 | 3.34 (11.0) |
| 2.5 m (8.2 ft) | kg lb | | | | | | | | | *610 *1340 | 570 1260 | *640 *1410 | 440 970 | | | *570 *1260 | 410 900 | 3.67 (12.1) |
| 2.0 m (6.6 ft) | kg lb | | | | | | | | | *680 *1500 | 560 1230 | *660 *1460 | 440 970 | | | *560 *1230 | 370 820 | 3.89 (12.8) |
| 1.5 m (4.9 ft) | kg lb | | | | | *1210 *2670 | 1030 2270 | *920 *2030 | 720 1590 | *790 *1740 | 550 1210 | *720 *1590 | 430 950 | *600 *1320 | 350 770 | *570 *1260 | 350 770 | 4.01 (13.2) |
| 1.0 m (3.3 ft) | kg lb | | | | | | | *1160 *2560 | 690 1520 | *920 *2030 | 530 1170 | *790 *1740 | 420 930 | *710 *1570 | 340 750 | *590 *1300 | 340 750 | 4.06 (13.3) |
| 0.5 m (1.6 ft) | kg lb | | | | | *1350 *2980 | 930 2050 | *1340 *2950 | 670 1480 | *1020 *2250 | 520 1150 | *840 *1850 | 410 900 | *700 *1540 | 340 750 | *640 *1410 | 340 750 | 4.02 (13.2) |
| 0.0 m (0.0 ft) | kg lb | | | | | *1570 *3460 | 920 2030 | *1430 *3150 | 660 1460 | *1080 *2380 | 510 1120 | *880 *1940 | 410 900 | | | *710 *1570 | 350 770 | 3.90 (12.8) |
| -0.5 m (-1.6 ft) | kg lb | *1020 *2250 | *1020 *2250 | *1260 *2780 | *1260 *2780 | *2010 *4430 | 920 2030 | *1420 *3130 | 650 1430 | *1080 *2380 | 500 1100 | *860 *1900 | 400 880 | | | *780 *1720 | 380 840 | 3.70 (12.1) |
| -1.0 m (-3.3 ft) | kg lb | *1480 *3260 | *1480 *3260 | *1860 *4100 | 1540 3400 | *1820 *4010 | 920 2030 | *1320 *2910 | 650 1430 | *1000 *2200 | 500 1100 | | | | | *800 *1760 | 430 950 | 3.37 (11.1) |
| -1.5 m (-4.9 ft) | kg lb | *2070 *4560 | *2070 *4560 | *2210 *4870 | 1560 3440 | *1480 *3260 | 940 2070 | *1070 *2360 | 660 1460 | | | | | | | *810 *1790 | 540 1190 | 2.88 (9.5) |
| -2.0 m (-6.6 ft) | kg lb | | | | | *770 *1700 | *770 *1700 | | | | | | | | | *740 *1630 | *740 *1630 | 2.04 (6.7) |

Note 1. Lifting capacity are based on ISO 10567.

2. Lifting capacity of the HX series does not exceed 75% of tipping load with the machine on firm, level ground or 87% of full hydraulic capacity.

3. The lift-point is bucket pivot mounting pin on the arm (without bucket mass).

4. *Indicates load limited by hydraulic capacity.

※ Lifting capacities are based upon a standard machine conditions.

Lifting capacities will vary with different work tools, ground conditions and attachments.

The difference between the weight of a work tool attachment must be subtracted.



Consult with your local HD Hyundai Construction Equipment dealer regarding the lifting capacities for specific work tools and attachments.

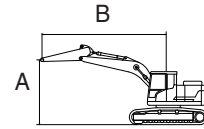
※ Please be aware of the local regulations and instructions for lifting operations.















▲ Failure to comply to the rated load can cause serious injury, death, or property damage. Make adjustments to the rated load as necessary for non-standard configurations.

(4) Steel track 300 mm, canopy type

| Model | Type | Boom | Arm | Counterweight | Steel shoe | Wheel | Dozer | | Outrigger | |
|--------|--------|-------------|-------------|---------------|------------|------------|-------|------|-----------|------|
| HX25AZ | Canopy | Length [mm] | Length [mm] | weight [kg] | width [mm] | width [mm] | Front | Rear | Front | Rear |
| | | 2030 | 1120 | 130 | 300 | - | Up | - | - | - |

 : Rating over-front
  : Rating over-side or 360 degree



| Load point height (A) | | Load radius (B) | | | | | | | | | | | | At max. reach | | |
|-----------------------|----|---|---|---|---|---|---|---|---|---|--|---|---|---|---|--------|
| | | 1.0 m (3.3 ft) | | 1.5 m (4.9 ft) | | 2.0 m (6.6 ft) | | 2.5 m (8.2 ft) | | 3.0 m (9.8 ft) | | 3.5 m (11.5 ft) | | Capacity | | Reach |
| | |  |  |  |  |  |  |  |  |  |  |  |  |  |  | m (ft) |
| 3.5 m (11.5 ft) | kg | | | | | | | | | | | | | 730 | 570 | 2.55 |
| | lb | | | | | | | | | | | | | 1610 | 1260 | (8.4) |
| 3.0 m (9.8 ft) | kg | | | | | | | | | 560 | 440 | | | 520 | 410 | 3.12 |
| | lb | | | | | | | | | 1230 | 970 | | | 1150 | 900 | (10.2) |
| 2.5 m (8.2 ft) | kg | | | | | | | | | 560 | 440 | | | 430 | 340 | 3.48 |
| | lb | | | | | | | | | 1230 | 970 | | | 950 | 750 | (11.4) |
| 2.0 m (6.6 ft) | kg | | | | | | | 740 | 580 | 550 | 430 | 420 | 330 | 380 | 300 | 3.71 |
| | lb | | | | | | | 1630 | 1280 | 1210 | 950 | 930 | 730 | 840 | 660 | (12.2) |
| 1.5 m (4.9 ft) | kg | | | | | | | 710 | 550 | 530 | 420 | 420 | 330 | 360 | 280 | 3.84 |
| | lb | | | | | | | 1570 | 1210 | 1170 | 930 | 930 | 730 | 790 | 620 | (12.6) |
| 1.0 m (3.3 ft) | kg | | | | | | | 680 | 520 | 520 | 400 | 410 | 320 | 350 | 270 | 3.89 |
| | lb | | | | | | | 1500 | 1150 | 1150 | 880 | 900 | 710 | 770 | 600 | (12.8) |
| 0.5 m (1.6 ft) | kg | | | | | | | 660 | 500 | 500 | 390 | 400 | 310 | 350 | 270 | 3.85 |
| | lb | | | | | | | 1460 | 1100 | 1100 | 860 | 880 | 680 | 770 | 600 | (12.6) |
| 0.0 m (0.0 ft) | kg | | | | | 930 | 690 | 650 | 490 | 490 | 380 | 390 | 310 | 360 | 280 | 3.73 |
| | lb | | | | | 2050 | 1520 | 1430 | 1080 | 1080 | 840 | 860 | 680 | 790 | 620 | (12.2) |
| -0.5 m (-1.6 ft) | kg | *1180 | *1180 | *1400 | 1150 | 940 | 690 | 650 | 490 | 490 | 380 | 390 | 310 | 390 | 310 | 3.50 |
| | lb | *2600 | *2600 | *3090 | 2540 | 2070 | 1520 | 1430 | 1080 | 1080 | 840 | 860 | 680 | 860 | 680 | (11.5) |
| -1.0 m (-3.3 ft) | kg | *1730 | *1730 | 1670 | 1160 | 940 | 700 | 650 | 500 | 500 | 380 | | | 460 | 360 | 3.16 |
| | lb | *3810 | *3810 | 3680 | 2560 | 2070 | 1540 | 1430 | 1100 | 1100 | 840 | | | 1010 | 790 | (10.4) |
| -1.5 m (-4.9 ft) | kg | | | 1700 | 1190 | 960 | 720 | 670 | 510 | | | | | 630 | 480 | 2.61 |
| | lb | | | 3750 | 2620 | 2120 | 1590 | 1480 | 1120 | | | | | 1390 | 1060 | (8.6) |

Note 1. Lifting capacity are based on ISO 10567.

2. Lifting capacity of the HX series does not exceed 75% of tipping load with the machine on firm, level ground or 87% of full hydraulic capacity.

3. The lift-point is bucket pivot mounting pin on the arm (without bucket mass).

4. *Indicates load limited by hydraulic capacity.

※ Lifting capacities are based upon a standard machine conditions.

Lifting capacities will vary with different work tools, ground conditions and attachments.



The difference between the weight of a work tool attachment must be subtracted.

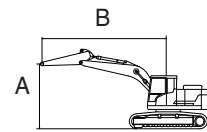
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※ Please be aware of the local regulations and instructions for lifting operations.

▲ Failure to comply to the rated load can cause serious injury, death, or property damage. Make adjustments to the rated load as necessary for non-standard configurations.

| Model | Type | Boom | Arm | Counterweight | Steel shoe | Wheel | Dozer | | Outtriger | |
|--------|--------|-------------|-------------|---------------|------------|------------|-------|------|-----------|------|
| HX25AZ | Canopy | Length [mm] | Length [mm] | weight [kg] | width [mm] | width [mm] | Front | Rear | Front | Rear |
| | | 2030 | 1120 | 130 | 300 | - | Down | - | - | - |

 : Rating over-front
  : Rating over-side or 360 degree



| Load point height (A) | | Load radius (B) | | | | | | | | | | | | At max. reach | | |
|-----------------------|----|---|---|---|---|---|---|---|---|---|--|---|---|---|---|--------|
| | | 1.0 m (3.3 ft) | | 1.5 m (4.9 ft) | | 2.0 m (6.6 ft) | | 2.5 m (8.2 ft) | | 3.0 m (9.8 ft) | | 3.5 m (11.5 ft) | | Capacity | | Reach |
| | |  |  |  |  |  |  |  |  |  |  |  |  |  |  | m (ft) |
| 3.5 m (11.5 ft) | kg | | | | | | | | | | | | | *740 | 620 | 2.55 |
| | lb | | | | | | | | | | | | | *1630 | 1370 | (8.4) |
| 3.0 m (9.8 ft) | kg | | | | | | | | | *690 | 470 | | | *710 | 440 | 3.12 |
| | lb | | | | | | | | | *1520 | 1040 | | | *1570 | 970 | (10.2) |
| 2.5 m (8.2 ft) | kg | | | | | | | | | *680 | 470 | | | *670 | 370 | 3.48 |
| | lb | | | | | | | | | *1500 | 1040 | | | *1480 | 820 | (11.4) |
| 2.0 m (6.6 ft) | kg | | | | | | | *800 | 630 | *740 | 470 | *710 | 360 | *660 | 330 | 3.71 |
| | lb | | | | | | | *1760 | 1390 | *1630 | 1040 | *1570 | 790 | *1460 | 730 | (12.2) |
| 1.5 m (4.9 ft) | kg | | | | | | | *1020 | 600 | *850 | 450 | *760 | 350 | *670 | 300 | 3.84 |
| | lb | | | | | | | *2250 | 1320 | *1870 | 990 | *1680 | 770 | *1480 | 660 | (12.6) |
| 1.0 m (3.3 ft) | kg | | | | | | | *1240 | 570 | *960 | 440 | *820 | 340 | *700 | 290 | 3.89 |
| | lb | | | | | | | *2730 | 1260 | *2120 | 970 | *1810 | 750 | *1540 | 640 | (12.8) |
| 0.5 m (1.6 ft) | kg | | | | | | | *1390 | 550 | *1050 | 420 | *860 | 340 | *760 | 290 | 3.85 |
| | lb | | | | | | | *3060 | 1210 | *2310 | 930 | *1900 | 750 | *1680 | 640 | (12.6) |
| 0.0 m (0.0 ft) | kg | | | | | *1580 | 760 | *1440 | 540 | *1090 | 410 | *880 | 330 | *800 | 300 | 3.73 |
| | lb | | | | | *3480 | 1680 | *3170 | 1190 | *2400 | 900 | *1940 | 730 | *1760 | 660 | (12.2) |
| -0.5 m (-1.6 ft) | kg | *1180 | *1180 | *1400 | 1280 | *1940 | 760 | *1400 | 540 | *1070 | 410 | *820 | 330 | *820 | 330 | 3.50 |
| | lb | *2600 | *2600 | *3090 | 2820 | *4280 | 1680 | *3090 | 1190 | *2360 | 900 | *1810 | 730 | *1810 | 730 | (11.5) |
| -1.0 m (-3.3 ft) | kg | *1730 | *1730 | *2150 | 1290 | *1700 | 770 | *1250 | 540 | *940 | 420 | | | *840 | 390 | 3.16 |
| | lb | *3810 | *3810 | *4740 | 2840 | *3750 | 1700 | *2760 | 1190 | *2070 | 930 | | | *1850 | 860 | (10.4) |
| -1.5 m (-4.9 ft) | kg | | | *1840 | 1320 | *1280 | 790 | *920 | 560 | | | | | *830 | 520 | 2.61 |
| | lb | | | *4060 | 2910 | *2820 | 1740 | *2030 | 1230 | | | | | *1830 | 1150 | (8.6) |

- Note
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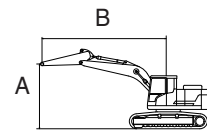
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










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| Model | Type | Boom | Arm | Counterweight | Steel shoe | Wheel | Dozer | | Outtriger | |
|--------|--------|-------------|-------------|---------------|------------|------------|-------|------|-----------|------|
| HX25AZ | Canopy | Length [mm] | Length [mm] | weight [kg] | width [mm] | width [mm] | Front | Rear | Front | Rear |
| | | 2030 | 1120 | 270 | 300 | - | Up | - | - | - |

 : Rating over-front
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| Load point height (A) | Load radius (B) | | | | | | | | | | | | At max. reach | | |
|-----------------------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|--------|
| | 1.0 m (3.3 ft) | | 1.5 m (4.9 ft) | | 2.0 m (6.6 ft) | | 2.5 m (8.2 ft) | | 3.0 m (9.8 ft) | | 3.5 m (11.5 ft) | | Capacity | | Reach |
| |  |  |  |  |  |  |  |  |  |  |  |  |  |  | m (ft) |
| 3.5 m (11.5 ft) | kg | | | | | | | | | | | | *740 | 660 | 2.55 |
| | lb | | | | | | | | | | | | *1630 | 1460 | (8.4) |
| 3.0 m (9.8 ft) | kg | | | | | | | | 630 | 500 | | | 590 | 470 | 3.12 |
| | lb | | | | | | | | 1390 | 1100 | | | 1300 | 1040 | (10.2) |
| 2.5 m (8.2 ft) | kg | | | | | | | | 630 | 500 | | | 490 | 390 | 3.48 |
| | lb | | | | | | | | 1390 | 1100 | | | 1080 | 860 | (11.4) |
| 2.0 m (6.6 ft) | kg | | | | | | *800 | 660 | 620 | 500 | 480 | 390 | 440 | 350 | 3.71 |
| | lb | | | | | | *1760 | 1460 | 1370 | 1100 | 1060 | 860 | 970 | 770 | (12.2) |
| 1.5 m (4.9 ft) | kg | | | | | | 810 | 630 | 610 | 480 | 480 | 380 | 410 | 330 | 3.84 |
| | lb | | | | | | 1790 | 1390 | 1340 | 1060 | 1060 | 840 | 900 | 730 | (12.6) |
| 1.0 m (3.3 ft) | kg | | | | | | 780 | 610 | 590 | 470 | 470 | 370 | 400 | 320 | 3.89 |
| | lb | | | | | | 1720 | 1340 | 1300 | 1040 | 1040 | 820 | 880 | 710 | (12.8) |
| 0.5 m (1.6 ft) | kg | | | | | | 760 | 590 | 580 | 450 | 460 | 360 | 400 | 320 | 3.85 |
| | lb | | | | | | 1680 | 1300 | 1280 | 990 | 1010 | 790 | 880 | 710 | (12.6) |
| 0.0 m (0.0 ft) | kg | | | | | 1070 | 800 | 750 | 580 | 570 | 450 | 460 | 360 | 420 | 3.73 |
| | lb | | | | | 2360 | 1760 | 1650 | 1280 | 1260 | 990 | 1010 | 790 | 930 | (12.2) |
| -0.5 m (-1.6 ft) | kg | *1180 | *1180 | *1400 | 1330 | 1070 | 810 | 740 | 570 | 570 | 440 | 460 | 360 | 450 | 3.50 |
| | lb | *2600 | *2600 | *3090 | 2930 | 2360 | 1790 | 1630 | 1260 | 1260 | 970 | 1010 | 790 | 990 | (11.5) |
| -1.0 m (-3.3 ft) | kg | *1730 | *1730 | 1900 | 1340 | 1080 | 810 | 750 | 580 | 570 | 450 | | | 530 | 3.16 |
| | lb | *3810 | *3810 | 4190 | 2950 | 2380 | 1790 | 1650 | 1280 | 1260 | 990 | | | 1170 | (10.4) |
| -1.5 m (-4.9 ft) | kg | | | *1840 | 1370 | 1100 | 830 | 760 | 590 | | | | | 720 | 2.61 |
| | lb | | | *4060 | 3020 | 2430 | 1830 | 1680 | 1300 | | | | | 1590 | (8.6) |

- Note
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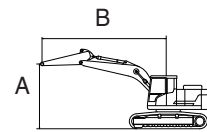
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| Model | Type | Boom | Arm | Counterweight | Steel shoe | Wheel | Dozer | | Outtriger | |
|--------|--------|-------------|-------------|---------------|------------|------------|-------|------|-----------|------|
| HX25AZ | Canopy | Length [mm] | Length [mm] | weight [kg] | width [mm] | width [mm] | Front | Rear | Front | Rear |
| | | 2030 | 1120 | 270 | 300 | - | Down | - | - | - |

 : Rating over-front
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| Load point height (A) | | Load radius (B) | | | | | | | | | | | | At max. reach | | |
|-----------------------|----|---|---|---|---|---|---|---|---|---|--|---|---|---|---|--------|
| | | 1.0 m (3.3 ft) | | 1.5 m (4.9 ft) | | 2.0 m (6.6 ft) | | 2.5 m (8.2 ft) | | 3.0 m (9.8 ft) | | 3.5 m (11.5 ft) | | Capacity | | Reach |
| | |  |  |  |  |  |  |  |  |  |  |  |  |  |  | m (ft) |
| 3.5 m (11.5 ft) | kg | | | | | | | | | | | | | *740 | 700 | 2.55 |
| | lb | | | | | | | | | | | | | *1630 | 1540 | (8.4) |
| 3.0 m (9.8 ft) | kg | | | | | | | | | *690 | 540 | | | *710 | 510 | 3.12 |
| | lb | | | | | | | | | *1520 | 1190 | | | *1570 | 1120 | (10.2) |
| 2.5 m (8.2 ft) | kg | | | | | | | | | *680 | 540 | | | *670 | 420 | 3.48 |
| | lb | | | | | | | | | *1500 | 1190 | | | *1480 | 930 | (11.4) |
| 2.0 m (6.6 ft) | kg | | | | | | | *800 | 710 | *740 | 530 | *710 | 420 | *660 | 380 | 3.71 |
| | lb | | | | | | | *1760 | 1570 | *1630 | 1170 | *1570 | 930 | *1460 | 840 | (12.2) |
| 1.5 m (4.9 ft) | kg | | | | | | | *1020 | 680 | *850 | 520 | *760 | 410 | *670 | 350 | 3.84 |
| | lb | | | | | | | *2250 | 1500 | *1870 | 1150 | *1680 | 900 | *1480 | 770 | (12.6) |
| 1.0 m (3.3 ft) | kg | | | | | | | *1240 | 660 | *960 | 500 | *820 | 400 | *700 | 340 | 3.89 |
| | lb | | | | | | | *2730 | 1460 | *2120 | 1100 | *1810 | 880 | *1540 | 750 | (12.8) |
| 0.5 m (1.6 ft) | kg | | | | | | | *1390 | 640 | *1050 | 490 | *860 | 390 | *760 | 340 | 3.85 |
| | lb | | | | | | | *3060 | 1410 | *2310 | 1080 | *1900 | 860 | *1680 | 750 | (12.6) |
| 0.0 m (0.0 ft) | kg | | | | | *1580 | 880 | *1440 | 620 | *1090 | 480 | *880 | 390 | *800 | 360 | 3.73 |
| | lb | | | | | *3480 | 1940 | *3170 | 1370 | *2400 | 1060 | *1940 | 860 | *1760 | 790 | (12.2) |
| -0.5 m (-1.6 ft) | kg | *1180 | *1180 | *1400 | *1400 | *1940 | 880 | *1400 | 620 | *1070 | 480 | *820 | 390 | *820 | 390 | 3.50 |
| | lb | *2600 | *2600 | *3090 | *3090 | *4280 | 1940 | *3090 | 1370 | *2360 | 1060 | *1810 | 860 | *1810 | 860 | (11.5) |
| -1.0 m (-3.3 ft) | kg | *1730 | *1730 | *2150 | 1480 | *1700 | 890 | *1250 | 630 | *940 | 480 | | | *840 | 450 | 3.16 |
| | lb | *3810 | *3810 | *4740 | 3260 | *3750 | 1960 | *2760 | 1390 | *2070 | 1060 | | | *1850 | 990 | (10.4) |
| -1.5 m (-4.9 ft) | kg | | | *1840 | 1510 | *1280 | 900 | *920 | 640 | | | | | *830 | 600 | 2.61 |
| | lb | | | *4060 | 3330 | *2820 | 1980 | *2030 | 1410 | | | | | *1830 | 1320 | (8.6) |

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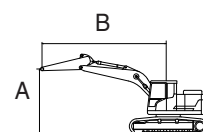
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| Model | Type | Boom | Arm | Counterweight | Steel shoe | Wheel | Dozer | | Outrigger | |
|--------|--------|-------------|-------------|---------------|------------|------------|-------|------|-----------|------|
| HX25AZ | Canopy | Length [mm] | Length [mm] | weight [kg] | width [mm] | width [mm] | Front | Rear | Front | Rear |
| | | 2030 | 1300 | 130 | 300 | - | Up | - | - | - |

 : Rating over-front
  : Rating over-side or 360 degree



| Load point height (A) | | Load radius (B) | | | | | | | | | | | | | | At max. reach | | |
|-----------------------|----------|---|---|---|---|---|---|---|---|---|---|--|---|---|---|---|---|----------------|
| | | 1.0 m (3.3 ft) | | 1.5 m (4.9 ft) | | 2.0 m (6.6 ft) | | 2.5 m (8.2 ft) | | 3.0 m (9.8 ft) | | 3.5 m (11.5 ft) | | 4.0 m (13.1 ft) | | Capacity | | Reach |
| | |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | m (ft) |
| 3.5 m (11.5 ft) | kg lb | | | | | | | | | | | | | | | 620 1370 | 490 1080 | 2.83 (9.3) |
| 3.0 m (9.8 ft) | kg lb | | | | | | | | | 570 1260 | 450 990 | | | | | 470 1040 | 370 820 | 3.34 (11.0) |
| 2.5 m (8.2 ft) | kg lb | | | | | | | | | 560 1230 | 450 990 | 430 950 | 340 750 | | | 400 880 | 310 680 | 3.67 (12.1) |
| 2.0 m (6.6 ft) | kg lb | | | | | | | | | 550 1210 | 440 970 | 430 950 | 340 750 | | | 360 790 | 280 620 | 3.89 (12.8) |
| 1.5 m (4.9 ft) | kg lb | | | | | 1060 2340 | 800 1760 | 720 1590 | 560 1230 | 540 1190 | 420 930 | 420 930 | 330 730 | 340 750 | 260 570 | 330 730 | 260 570 | 4.01 (13.2) |
| 1.0 m (3.3 ft) | kg lb | | | | | | | 690 1520 | 530 1170 | 520 1150 | 410 900 | 410 900 | 320 710 | 330 730 | 260 570 | 320 710 | 250 550 | 4.06 (13.3) |
| 0.5 m (1.6 ft) | kg lb | | | | | 950 2090 | 700 1540 | 670 1480 | 510 1120 | 510 1120 | 390 860 | 400 880 | 310 680 | 330 730 | 250 550 | 320 710 | 250 550 | 4.02 (13.2) |
| 0.0 m (0.0 ft) | kg lb | | | | | 930 2050 | 690 1520 | 650 1430 | 500 1100 | 490 1080 | 380 840 | 390 860 | 310 680 | | | 340 750 | 260 570 | 3.90 (12.8) |
| -0.5 m (-1.6 ft) | kg lb | *1020 *2250 | *1020 *2250 | *1260 *2780 | 1140 2510 | 930 2050 | 690 1520 | 650 1430 | 490 1080 | 490 1080 | 380 840 | 390 860 | 300 660 | | | 360 790 | 280 620 | 3.70 (12.1) |
| -1.0 m (-3.3 ft) | kg lb | *1480 *3260 | *1480 *3260 | 1650 3640 | 1150 2540 | 940 2070 | 690 1520 | 650 1430 | 490 1080 | 490 1080 | 380 840 | | | | | 420 930 | 320 710 | 3.37 (11.1) |
| -1.5 m (-4.9 ft) | kg lb | *2070 *4560 | *2070 *4560 | 1680 3700 | 1170 2580 | 950 2090 | 710 1570 | 660 1460 | 500 1100 | | | | | | | 530 1170 | 410 900 | 2.88 (9.5) |
| -2.0 m (-6.6 ft) | kg lb | | | | | *770 *1700 | 740 1630 | | | | | | | | | *740 *1630 | 720 1590 | 2.04 (6.7) |

Note 1. Lifting capacity are based on ISO 10567.

2. Lifting capacity of the HX series does not exceed 75% of tipping load with the machine on firm, level ground or 87% of full hydraulic capacity.

3. The lift-point is bucket pivot mounting pin on the arm (without bucket mass).

4. *Indicates load limited by hydraulic capacity.

※ Lifting capacities are based upon a standard machine conditions.

Lifting capacities will vary with different work tools, ground conditions and attachments.



The difference between the weight of a work tool attachment must be subtracted.

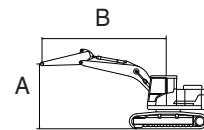
Consult with your local HD Hyundai Construction Equipment dealer regarding the lifting capacities for specific work tools and attachments.

















※ Please be aware of the local regulations and instructions for lifting operations.

▲ Failure to comply to the rated load can cause serious injury, death, or property damage. Make adjustments to the rated load as necessary for non-standard configurations.

| Model | Type | Boom | Arm | Counterweight | Steel shoe | Wheel | Dozer | | Outtriger | |
|--------|--------|-------------|-------------|---------------|------------|------------|-------|------|-----------|------|
| HX25AZ | Canopy | Length [mm] | Length [mm] | weight [kg] | width [mm] | width [mm] | Front | Rear | Front | Rear |
| | | 2030 | 1300 | 130 | 300 | - | Down | - | - | - |

 : Rating over-front
  : Rating over-side or 360 degree



| Load point height (A) | | Load radius (B) | | | | | | | | | | | | | | At max. reach | | |
|-----------------------|----------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|----------------|
| | | 1.0 m (3.3 ft) | | 1.5 m (4.9 ft) | | 2.0 m (6.6 ft) | | 2.5 m (8.2 ft) | | 3.0 m (9.8 ft) | | 3.5 m (11.5 ft) | | 4.0 m (13.1 ft) | | Capacity | | Reach |
| | |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | m (ft) |
| 3.5 m (11.5 ft) | kg lb | | | | | | | | | | | | | | | *670 *1480 | 520 1150 | 2.83 (9.3) |
| 3.0 m (9.8 ft) | kg lb | | | | | | | | | *600 *1320 | 480 1060 | | | | | *600 *1320 | 400 880 | 3.34 (11.0) |
| 2.5 m (8.2 ft) | kg lb | | | | | | | | | *610 *1340 | 480 1060 | *640 *1410 | 370 820 | | | *570 *1260 | 340 750 | 3.67 (12.1) |
| 2.0 m (6.6 ft) | kg lb | | | | | | | | | *680 *1500 | 470 1040 | *660 *1460 | 370 820 | | | *560 *1230 | 300 660 | 3.89 (12.8) |
| 1.5 m (4.9 ft) | kg lb | | | | | *1210 *2670 | 870 1920 | *920 *2030 | 610 1340 | *790 *1740 | 460 1010 | *720 *1590 | 360 790 | *600 *1320 | 290 640 | *570 *1260 | 280 620 | 4.01 (13.2) |
| 1.0 m (3.3 ft) | kg lb | | | | | | | *1160 *2560 | 580 1280 | *920 *2030 | 440 970 | *790 *1740 | 350 770 | *710 *1570 | 280 620 | *590 *1300 | 270 600 | 4.06 (13.3) |
| 0.5 m (1.6 ft) | kg lb | | | | | *1350 *2980 | 770 1700 | *1340 *2950 | 550 1210 | *1020 *2250 | 430 950 | *840 *1850 | 340 750 | *700 *1540 | 280 620 | *640 *1410 | 270 600 | 4.02 (13.2) |
| 0.0 m (0.0 ft) | kg lb | | | | | *1570 *3460 | 760 1680 | *1430 *3150 | 540 1190 | *1080 *2380 | 420 930 | *880 *1940 | 330 730 | | | *710 *1570 | 280 620 | 3.90 (12.8) |
| -0.5 m (-1.6 ft) | kg lb | *1020 *2250 | *1020 *2250 | *1260 *2780 | *1260 *2780 | *2010 *4430 | 760 1680 | *1420 *3130 | 540 1190 | *1080 *2380 | 410 900 | *860 *1900 | 330 730 | | | *780 *1720 | 310 680 | 3.70 (12.1) |
| -1.0 m (-3.3 ft) | kg lb | *1480 *3260 | *1480 *3260 | *1860 *4100 | 1280 2820 | *1820 *4010 | 760 1680 | *1320 *2910 | 540 1190 | *1000 *2200 | 410 900 | | | | | *800 *1760 | 350 770 | 3.37 (11.1) |
| -1.5 m (-4.9 ft) | kg lb | *2070 *4560 | *2070 *4560 | *2210 *4870 | 1300 2870 | *1480 *3260 | 780 1720 | *1070 *2360 | 550 1210 | | | | | | | *810 *1790 | 450 990 | 2.88 (9.5) |
| -2.0 m (-6.6 ft) | kg lb | | | | | *770 *1700 | *770 *1700 | | | | | | | | | *740 *1630 | *740 *1630 | 2.04 (6.7) |

- Note
1. Lifting capacity are based on ISO 10567.
 2. Lifting capacity of the HX series does not exceed 75% of tipping load with the machine on firm, level ground or 87% of full hydraulic capacity.
 3. The lift-point is bucket pivot mounting pin on the arm (without bucket mass).
 4. *Indicates load limited by hydraulic capacity.

※ Lifting capacities are based upon a standard machine conditions.

Lifting capacities will vary with different work tools, ground conditions and attachments.



The difference between the weight of a work tool attachment must be subtracted.

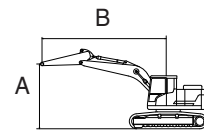
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





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▲ Failure to comply to the rated load can cause serious injury, death, or property damage. Make adjustments to the rated load as necessary for non-standard configurations.

| Model | Type | Boom | Arm | Counterweight | Steel shoe | Wheel | Dozer | | Outtriger | |
|--------|--------|-------------|-------------|---------------|------------|------------|-------|------|-----------|------|
| HX25AZ | Canopy | Length [mm] | Length [mm] | weight [kg] | width [mm] | width [mm] | Front | Rear | Front | Rear |
| | | 2030 | 1300 | 270 | 300 | - | Up | - | - | - |

 : Rating over-front
 ·  : Rating over-side or 360 degree



| Load point height (A) | | Load radius (B) | | | | | | | | | | | | | | At max. reach | | |
|-----------------------|----------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|----------------|
| | | 1.0 m (3.3 ft) | | 1.5 m (4.9 ft) | | 2.0 m (6.6 ft) | | 2.5 m (8.2 ft) | | 3.0 m (9.8 ft) | | 3.5 m (11.5 ft) | | 4.0 m (13.1 ft) | | Capacity | | Reach |
| | |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | m (ft) |
| 3.5 m (11.5 ft) | kg lb | | | | | | | | | | | | | | | *670 *1480 | 560 1230 | 2.83 (9.3) |
| 3.0 m (9.8 ft) | kg lb | | | | | | | | | *600 *1320 | 510 1120 | | | | | 530 1170 | 430 950 | 3.34 (11.0) |
| 2.5 m (8.2 ft) | kg lb | | | | | | | | | *610 *1340 | 510 1120 | 490 1080 | 400 880 | | | 450 990 | 360 790 | 3.67 (12.1) |
| 2.0 m (6.6 ft) | kg lb | | | | | | | | | 630 1390 | 500 1100 | 490 1080 | 390 860 | | | 410 900 | 330 730 | 3.89 (12.8) |
| 1.5 m (4.9 ft) | kg lb | | | | | 1190 2620 | 920 2030 | 820 1810 | 640 1410 | 610 1340 | 490 1080 | 480 1060 | 380 840 | 390 860 | 310 680 | 390 860 | 310 680 | 4.01 (13.2) |
| 1.0 m (3.3 ft) | kg lb | | | | | | | 790 1740 | 620 1370 | 600 1320 | 470 1040 | 470 1040 | 370 820 | 380 840 | 300 660 | 370 820 | 300 660 | 4.06 (13.3) |
| 0.5 m (1.6 ft) | kg lb | | | | | 1090 2400 | 820 1810 | 760 1680 | 590 1300 | 580 1280 | 460 1010 | 460 1010 | 370 820 | 380 840 | 300 660 | 380 840 | 300 660 | 4.02 (13.2) |
| 0.0 m (0.0 ft) | kg lb | | | | | 1070 2360 | 800 1760 | 750 1650 | 580 1280 | 570 1260 | 450 990 | 460 1010 | 360 790 | | | 390 860 | 310 680 | 3.90 (12.8) |
| -0.5 m (-1.6 ft) | kg lb | *1020 *2250 | *1020 *2250 | *1260 *2780 | *1260 *2780 | 1070 2360 | 800 1760 | 740 1630 | 570 1260 | 560 1230 | 440 970 | 450 990 | 360 790 | | | 420 930 | 330 730 | 3.70 (12.1) |
| -1.0 m (-3.3 ft) | kg lb | *1480 *3260 | *1480 *3260 | *1860 *4100 | 1330 2930 | 1070 2360 | 810 1790 | 740 1630 | 570 1260 | 570 1260 | 440 970 | | | | | 480 1060 | 380 840 | 3.37 (11.1) |
| -1.5 m (-4.9 ft) | kg lb | *2070 *4560 | *2070 *4560 | 1910 4210 | 1350 2980 | 1090 2400 | 820 1810 | 750 1650 | 580 1280 | | | | | | | 610 1340 | 480 1060 | 2.88 (9.5) |
| -2.0 m (-6.6 ft) | kg lb | | | | | *770 *1700 | *770 *1700 | | | | | | | | | *740 *1630 | *740 *1630 | 2.04 (6.7) |

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1. Lifting capacity are based on ISO 10567.
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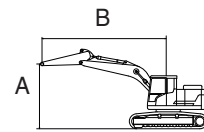
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





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| Model | Type | Boom | Arm | Counterweight | Steel shoe | Wheel | Dozer | | Outtriger | |
|--------|--------|-------------|-------------|---------------|------------|------------|-------|------|-----------|------|
| HX25AZ | Canopy | Length [mm] | Length [mm] | weight [kg] | width [mm] | width [mm] | Front | Rear | Front | Rear |
| | | 2030 | 1300 | 270 | 300 | - | Down | - | - | - |

 : Rating over-front
  : Rating over-side or 360 degree



| Load point height (A) | | Load radius (B) | | | | | | | | | | | | | | At max. reach | | |
|-----------------------|----------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|----------------|
| | | 1.0 m (3.3 ft) | | 1.5 m (4.9 ft) | | 2.0 m (6.6 ft) | | 2.5 m (8.2 ft) | | 3.0 m (9.8 ft) | | 3.5 m (11.5 ft) | | 4.0 m (13.1 ft) | | Capacity | | Reach |
| | |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | m (ft) |
| 3.5 m (11.5 ft) | kg lb | | | | | | | | | | | | | | | *670 *1480 | 600 1320 | 2.83 (9.3) |
| 3.0 m (9.8 ft) | kg lb | | | | | | | | | *600 *1320 | 550 1210 | | | | | *600 *1320 | 460 1010 | 3.34 (11.0) |
| 2.5 m (8.2 ft) | kg lb | | | | | | | | | *610 *1340 | 550 1210 | *640 *1410 | 420 930 | | | *570 *1260 | 390 860 | 3.67 (12.1) |
| 2.0 m (6.6 ft) | kg lb | | | | | | | | | *680 *1500 | 540 1190 | *660 *1460 | 420 930 | | | *560 *1230 | 350 770 | 3.89 (12.8) |
| 1.5 m (4.9 ft) | kg lb | | | | | *1210 *2670 | 990 2180 | *920 *2030 | 690 1520 | *790 *1740 | 520 1150 | *720 *1590 | 410 900 | *600 *1320 | 330 730 | *570 *1260 | 330 730 | 4.01 (13.2) |
| 1.0 m (3.3 ft) | kg lb | | | | | | | *1160 *2560 | 660 1460 | *920 *2030 | 510 1120 | *790 *1740 | 400 880 | *710 *1570 | 330 730 | *590 *1300 | 320 710 | 4.06 (13.3) |
| 0.5 m (1.6 ft) | kg lb | | | | | *1350 *2980 | 890 1960 | *1340 *2950 | 640 1410 | *1020 *2250 | 490 1080 | *840 *1850 | 390 860 | *700 *1540 | 320 710 | *640 *1410 | 320 710 | 4.02 (13.2) |
| 0.0 m (0.0 ft) | kg lb | | | | | *1570 *3460 | 880 1940 | *1430 *3150 | 630 1390 | *1080 *2380 | 480 1060 | *880 *1940 | 390 860 | | | *710 *1570 | 330 730 | 3.90 (12.8) |
| -0.5 m (-1.6 ft) | kg lb | *1020 *2250 | *1020 *2250 | *1260 *2780 | *1260 *2780 | *2010 *4430 | 880 1940 | *1420 *3130 | 620 1370 | *1080 *2380 | 480 1060 | *860 *1900 | 390 860 | | | *780 *1720 | 360 790 | 3.70 (12.1) |
| -1.0 m (-3.3 ft) | kg lb | *1480 *3260 | *1480 *3260 | *1860 *4100 | 1470 3240 | *1820 *4010 | 880 1940 | *1320 *2910 | 620 1370 | *1000 *2200 | 480 1060 | | | | | *800 *1760 | 410 900 | 3.37 (11.1) |
| -1.5 m (-4.9 ft) | kg lb | *2070 *4560 | *2070 *4560 | *2210 *4870 | 1490 3280 | *1480 *3260 | 890 1960 | *1070 *2360 | 630 1390 | | | | | | | *810 *1790 | 520 1150 | 2.88 (9.5) |
| -2.0 m (-6.6 ft) | kg lb | | | | | *770 *1700 | *770 *1700 | | | | | | | | | *740 *1630 | *740 *1630 | 2.04 (6.7) |

- Note
- Lifting capacity are based on ISO 10567.
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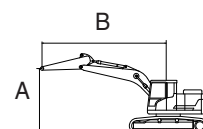
▲ Failure to comply to the rated load can cause serious injury, death, or property damage. Make adjustments to the rated load as necessary for non-standard configurations.















2) HX30AZ

(1) Rubber track 300 mm, cab type

| Model | Type | Boom | Arm | Counterweight | Rubber shoe | Wheel | Dozer | | Outtriger | |
|--------|------|-------------|-------------|---------------|-------------|------------|-------|------|-----------|------|
| HX30AZ | Cab | Length [mm] | Length [mm] | weight [kg] | width [mm] | width [mm] | Front | Rear | Front | Rear |
| | | 2030 | 1120 | 130 | 300 | - | Up | - | - | - |

 : Rating over-front
  : Rating over-side or 360 degree



| Load point height (A) | | Load radius (B) | | | | | | | | | | | | At max. reach | | |
|-----------------------|----|---|---|---|---|---|---|---|---|---|--|---|---|---|---|--------|
| | | 1.0 m (3.3 ft) | | 1.5 m (4.9 ft) | | 2.0 m (6.6 ft) | | 2.5 m (8.2 ft) | | 3.0 m (9.8 ft) | | 3.5 m (11.5 ft) | | Capacity | | Reach |
| | |  |  |  |  |  |  |  |  |  |  |  |  |  |  | m (ft) |
| 3.5 m (11.5 ft) | kg | | | | | | | | | | | | | *740 | 570 | 2.57 |
| | lb | | | | | | | | | | | | | *1630 | 1260 | (8.4) |
| 3.0 m (9.8 ft) | kg | | | | | | | | | 570 | 450 | | | 530 | 410 | 3.13 |
| | lb | | | | | | | | | 1260 | 990 | | | 1170 | 900 | (10.3) |
| 2.5 m (8.2 ft) | kg | | | | | | | | | 570 | 450 | | | 440 | 340 | 3.49 |
| | lb | | | | | | | | | 1260 | 990 | | | 970 | 750 | (11.4) |
| 2.0 m (6.6 ft) | kg | | | | | | | 760 | 590 | 560 | 440 | 430 | 340 | 390 | 300 | 3.72 |
| | lb | | | | | | | 1680 | 1300 | 1230 | 970 | 950 | 750 | 860 | 660 | (12.2) |
| 1.5 m (4.9 ft) | kg | | | | | | | 730 | 560 | 540 | 420 | 430 | 330 | 360 | 280 | 3.85 |
| | lb | | | | | | | 1610 | 1230 | 1190 | 930 | 950 | 730 | 790 | 620 | (12.6) |
| 1.0 m (3.3 ft) | kg | | | | | | | 700 | 530 | 530 | 410 | 420 | 320 | 350 | 270 | 3.89 |
| | lb | | | | | | | 1540 | 1170 | 1170 | 900 | 930 | 710 | 770 | 600 | (12.8) |
| 0.5 m (1.6 ft) | kg | | | | | | | 680 | 510 | 510 | 390 | 410 | 320 | 350 | 270 | 3.85 |
| | lb | | | | | | | 1500 | 1120 | 1120 | 860 | 900 | 710 | 770 | 600 | (12.6) |
| 0.0 m (0.0 ft) | kg | | | | | 960 | 700 | 670 | 500 | 510 | 390 | 400 | 310 | 370 | 280 | 3.72 |
| | lb | | | | | 2120 | 1540 | 1480 | 1100 | 1120 | 860 | 880 | 680 | 820 | 620 | (12.2) |
| -0.5 m (-1.6 ft) | kg | *1190 | *1190 | *1420 | 1170 | 960 | 700 | 660 | 500 | 500 | 380 | | | 400 | 310 | 3.50 |
| | lb | *2620 | *2620 | *3130 | 2580 | 2120 | 1540 | 1460 | 1100 | 1100 | 840 | | | 880 | 680 | (11.5) |
| -1.0 m (-3.3 ft) | kg | *1750 | *1750 | 1720 | 1180 | 970 | 710 | 670 | 500 | 510 | 390 | | | 480 | 360 | 3.14 |
| | lb | *3860 | *3860 | 3790 | 2600 | 2140 | 1570 | 1480 | 1100 | 1120 | 860 | | | 1060 | 790 | (10.3) |
| -1.5 m (-4.9 ft) | kg | | | 1750 | 1210 | 990 | 730 | 680 | 520 | | | | | 650 | 490 | 2.59 |
| | lb | | | 3860 | 2670 | 2180 | 1610 | 1500 | 1150 | | | | | 1430 | 1080 | (8.5) |

Note 1. Lifting capacity are based on ISO 10567.

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3. The lift-point is bucket pivot mounting pin on the arm (without bucket mass).

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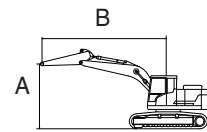
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

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| Model | Type | Boom | Arm | Counterweight | Rubber shoe | Wheel | Dozer | | Outtriger | |
|--------|------|-------------|-------------|---------------|-------------|------------|-------|------|-----------|------|
| HX30AZ | Cab | Length [mm] | Length [mm] | weight [kg] | width [mm] | width [mm] | Front | Rear | Front | Rear |
| | | 2030 | 1120 | 130 | 300 | - | Down | - | - | - |

 : Rating over-front
  : Rating over-side or 360 degree



| Load point height (A) | | Load radius (B) | | | | | | | | | | | | At max. reach | | |
|-----------------------|----------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|----------------|
| | | 1.0 m (3.3 ft) | | 1.5 m (4.9 ft) | | 2.0 m (6.6 ft) | | 2.5 m (8.2 ft) | | 3.0 m (9.8 ft) | | 3.5 m (11.5 ft) | | Capacity | | Reach |
| | |  |  |  |  |  |  |  |  |  |  |  |  |  |  | m (ft) |
| 3.5 m (11.5 ft) | kg lb | | | | | | | | | | | | | *740 *1630 | 620 1370 | 2.57 (8.4) |
| 3.0 m (9.8 ft) | kg lb | | | | | | | | | *690 *1520 | 480 1060 | | | *710 *1570 | 440 970 | 3.13 (10.3) |
| 2.5 m (8.2 ft) | kg lb | | | | | | | | | *680 *1500 | 480 1060 | | | *670 *1480 | 370 820 | 3.49 (11.4) |
| 2.0m (6.6 ft) | kg lb | | | | | | | *810 *1790 | 630 1390 | *750 *1650 | 470 1040 | *720 *1590 | 360 790 | *660 *1460 | 330 730 | 3.72 (12.2) |
| 1.5m (4.9 ft) | kg lb | | | | | | | *1020 *2250 | 610 1340 | *850 *1870 | 460 1010 | *760 *1680 | 360 790 | *670 *1480 | 310 680 | 3.85 (12.6) |
| 1.0m (3.3 ft) | kg lb | | | | | | | *1240 *2730 | 580 1280 | *960 *2120 | 440 970 | *820 *1810 | 350 770 | *710 *1570 | 300 660 | 3.89 (12.8) |
| 0.5m (1.6 ft) | kg lb | | | | | | | *1390 *3060 | 560 1230 | *1050 *2310 | 430 950 | *860 *1900 | 340 750 | *770 *1700 | 300 660 | 3.85 (12.6) |
| 0.0m (0.0 ft) | kg lb | | | | | *1590 *3510 | 770 1700 | *1440 *3170 | 550 1210 | *1090 *2400 | 420 930 | *880 *1940 | 340 750 | *800 *1760 | 310 680 | 3.72 (12.2) |
| -0.5m (-1.6 ft) | kg lb | *1190 *2620 | *1190 *2620 | *1420 *3130 | 1300 2870 | *1930 *4250 | 770 1700 | *1400 *3090 | 540 1190 | *1070 *2360 | 420 930 | | | *820 *1810 | 340 750 | 3.50 (11.5) |
| -1.0m (-3.3 ft) | kg lb | *1750 *3860 | *1750 *3860 | *2170 *4780 | 1310 2890 | *1690 *3730 | 780 1720 | *1250 *2760 | 550 1210 | *930 *2050 | 420 930 | | | *840 *1850 | 400 880 | 3.14 (10.3) |
| -1.5m (-4.9 ft) | kg lb | | | *1810 *3990 | 1340 2950 | *1270 *2800 | 800 1760 | *900 *1980 | 560 1230 | | | | | *830 *1830 | 540 1190 | 2.59 (8.5) |

- Note
1. Lifting capacity are based on ISO 10567.
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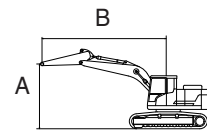
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| Model | Type | Boom | Arm | Counterweight | Rubber shoe | Wheel | Dozer | | Outtriger | |
|--------|------|-------------|-------------|---------------|-------------|------------|-------|------|-----------|------|
| HX30AZ | Cab | Length [mm] | Length [mm] | weight [kg] | width [mm] | width [mm] | Front | Rear | Front | Rear |
| | | 2030 | 1120 | 270 | 300 | - | Up | - | - | - |

 : Rating over-front
  : Rating over-side or 360 degree



| Load point height (A) | | Load radius (B) | | | | | | | | | | | | At max. reach | | |
|-----------------------|----------|---|---|---|---|---|---|---|---|---|--|---|---|---|---|----------------|
| | | 1.0 m (3.3 ft) | | 1.5 m (4.9 ft) | | 2.0 m (6.6 ft) | | 2.5 m (8.2 ft) | | 3.0 m (9.8 ft) | | 3.5 m (11.5 ft) | | Capacity | | Reach |
| | |  |  |  |  |  |  |  |  |  |  |  |  |  |  | m (ft) |
| 3.5 m (11.5 ft) | kg lb | | | | | | | | | | | | | *740 *1630 | 650 1430 | 2.57 (8.4) |
| 3.0 m (9.8 ft) | kg lb | | | | | | | | | 650 1430 | 510 1120 | | | 600 1320 | 470 1040 | 3.13 (10.3) |
| 2.5 m (8.2 ft) | kg lb | | | | | | | | | 640 1410 | 510 1120 | | | 500 1100 | 400 880 | 3.49 (11.4) |
| 2.0m (6.6 ft) | kg lb | | | | | | | *810 *1790 | 670 1480 | 630 1390 | 500 1100 | 490 1080 | 390 860 | 450 990 | 350 770 | 3.72 (12.2) |
| 1.5m (4.9 ft) | kg lb | | | | | | | 830 1830 | 640 1410 | 620 1370 | 490 1080 | 490 1080 | 380 840 | 420 930 | 330 730 | 3.85 (12.6) |
| 1.0m (3.3 ft) | kg lb | | | | | | | 800 1760 | 610 1340 | 600 1320 | 470 1040 | 480 1060 | 380 840 | 410 900 | 320 710 | 3.89 (12.8) |
| 0.5m (1.6 ft) | kg lb | | | | | | | 770 1700 | 590 1300 | 590 1300 | 460 1010 | 470 1040 | 370 820 | 410 900 | 320 710 | 3.85 (12.6) |
| 0.0m (0.0 ft) | kg lb | | | | | 1100 2430 | 820 1810 | 760 1680 | 580 1280 | 580 1280 | 450 990 | 470 1040 | 360 790 | 430 950 | 330 730 | 3.72 (12.2) |
| -0.5m (-1.6 ft) | kg lb | *1190 *2620 | *1190 *2620 | *1420 *3130 | 1350 2980 | 1100 2430 | 820 1810 | 760 1680 | 580 1280 | 580 1280 | 450 990 | | | 470 1040 | 360 790 | 3.50 (11.5) |
| -1.0m (-3.3 ft) | kg lb | *1750 *3860 | *1750 *3860 | 1950 4300 | 1360 3000 | 1110 2450 | 830 1830 | 770 1700 | 590 1300 | 580 1280 | 450 990 | | | 550 1210 | 430 950 | 3.14 (10.3) |
| -1.5m (-4.9 ft) | kg lb | | | *1810 *3990 | 1390 3060 | 1130 2490 | 840 1850 | 780 1720 | 600 1320 | | | | | 740 1630 | 570 1260 | 2.59 (8.5) |

- Note
1. Lifting capacity are based on ISO 10567.
 2. Lifting capacity of the HX series does not exceed 75% of tipping load with the machine on firm, level ground or 87% of full hydraulic capacity.
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Lifting capacities will vary with different work tools, ground conditions and attachments.



The difference between the weight of a work tool attachment must be subtracted.

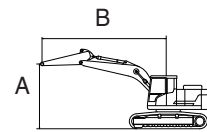
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| Model | Type | Boom | Arm | Counterweight | Rubber shoe | Wheel | Dozer | | Outtriger | |
|--------|------|-------------|-------------|---------------|-------------|------------|-------|------|-----------|------|
| HX30AZ | Cab | Length [mm] | Length [mm] | weight [kg] | width [mm] | width [mm] | Front | Rear | Front | Rear |
| | | 2030 | 1120 | 270 | 300 | - | Down | - | - | - |

 : Rating over-front
  : Rating over-side or 360 degree



| Load point height (A) | | Load radius (B) | | | | | | | | | | | | At max. reach | | |
|-----------------------|----------|---|---|---|---|---|---|---|---|---|--|---|---|---|---|----------------|
| | | 1.0 m (3.3 ft) | | 1.5 m (4.9 ft) | | 2.0 m (6.6 ft) | | 2.5 m (8.2 ft) | | 3.0 m (9.8 ft) | | 3.5 m (11.5 ft) | | Capacity | | Reach |
| | |  |  |  |  |  |  |  |  |  |  |  |  |  |  | m (ft) |
| 3.5 m (11.5 ft) | kg lb | | | | | | | | | | | | | *740 *1630 | 700 1540 | 2.57 (8.4) |
| 3.0 m (9.8 ft) | kg lb | | | | | | | | | *690 *1520 | 550 1210 | | | *710 *1570 | 510 1120 | 3.13 (10.3) |
| 2.5 m (8.2 ft) | kg lb | | | | | | | | | *680 *1500 | 550 1210 | | | *670 *1480 | 420 930 | 3.49 (11.4) |
| 2.0 m (6.6 ft) | kg lb | | | | | | | *810 *1790 | 720 1590 | *750 *1650 | 540 1190 | *720 *1590 | 420 930 | *660 *1460 | 380 840 | 3.72 (12.2) |
| 1.5 m (4.9 ft) | kg lb | | | | | | | *1020 *2250 | 690 1520 | *850 *1870 | 520 1150 | *760 *1680 | 410 900 | *670 *1480 | 360 790 | 3.85 (12.6) |
| 1.0 m (3.3 ft) | kg lb | | | | | | | *1240 *2730 | 660 1460 | *960 *2120 | 510 1120 | *820 *1810 | 400 880 | *710 *1570 | 340 750 | 3.89 (12.8) |
| 0.5 m (1.6 ft) | kg lb | | | | | | | *1390 *3060 | 640 1410 | *1050 *2310 | 490 1080 | *860 *1900 | 400 880 | *770 *1700 | 350 770 | 3.85 (12.6) |
| 0.0 m (0.0 ft) | kg lb | | | | | *1590 *3510 | 890 1960 | *1440 *3170 | 630 1390 | *1090 *2400 | 490 1080 | *880 *1940 | 390 860 | *800 *1760 | 360 790 | 3.72 (12.2) |
| -0.5 m (-1.6 ft) | kg lb | *1190 *2620 | *1190 *2620 | *1420 *3130 | *1420 *3130 | *1930 *4250 | 890 1960 | *1400 *3090 | 630 1390 | *1070 *2360 | 480 1060 | | | *820 *1810 | 390 860 | 3.50 (11.5) |
| -1.0 m (-3.3 ft) | kg lb | *1750 *3860 | *1750 *3860 | *2170 *4780 | 1500 3310 | *1690 *3730 | 900 1980 | *1250 *2760 | 630 1390 | *930 *2050 | 490 1080 | | | *840 *1850 | 460 1010 | 3.14 (10.3) |
| -1.5 m (-4.9 ft) | kg lb | | | *1810 *3990 | 1530 3370 | *1270 *2800 | 920 2030 | *900 *1980 | 650 1430 | | | | | *830 *1830 | 620 1370 | 2.59 (8.5) |

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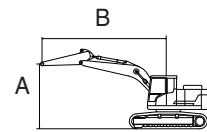
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
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| Model | Type | Boom | Arm | Counterweight | Rubber shoe | Wheel | Dozer | | Outtriger | |
|--------|------|-------------|-------------|---------------|-------------|------------|-------|------|-----------|------|
| HX30AZ | Cab | Length [mm] | Length [mm] | weight [kg] | width [mm] | width [mm] | Front | Rear | Front | Rear |
| | | 2030 | 1300 | 130 | 300 | - | Up | - | - | - |

·  : Rating over-front ·  : Rating over-side or 360 degree



| Load point height (A) | Load radius (B) | | | | | | | | | | | | | | At max. reach | | |
|-----------------------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|--------|
| | 1.0 m (3.3 ft) | | 1.5 m (4.9 ft) | | 2.0 m (6.6 ft) | | 2.5 m (8.2 ft) | | 3.0 m (9.8 ft) | | 3.5 m (11.5 ft) | | 4.0 m (13.1 ft) | | Capacity | | Reach |
| |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | m (ft) |
| 3.5 m (11.5 ft) | kg | | | | | | | | | | | | | | 620 | 490 | 2.85 |
| | lb | | | | | | | | | | | | | | 1370 | 1080 | (9.4) |
| 3.0 m (9.8 ft) | kg | | | | | | | | 580 | 450 | | | | | 470 | 370 | 3.35 |
| | lb | | | | | | | | 1280 | 990 | | | | | 1040 | 820 | (11.0) |
| 2.5 m (8.2 ft) | kg | | | | | | | | 580 | 450 | 440 | 350 | | | 400 | 320 | 3.68 |
| | lb | | | | | | | | 1280 | 990 | 970 | 770 | | | 880 | 710 | (12.1) |
| 2.0 m (6.6 ft) | kg | | | | | | | | 570 | 440 | 440 | 340 | | | 360 | 280 | 3.89 |
| | lb | | | | | | | | 1260 | 970 | 970 | 750 | | | 790 | 620 | (12.8) |
| 1.5 m (4.9 ft) | kg | | | | 1080 | 810 | 740 | 570 | 550 | 430 | 430 | 330 | 340 | 270 | 340 | 270 | 4.02 |
| | lb | | | | 2380 | 1790 | 1630 | 1260 | 1210 | 950 | 950 | 730 | 750 | 600 | 750 | 600 | (13.2) |
| 1.0 m (3.3 ft) | kg | | | | | | 710 | 540 | 530 | 410 | 420 | 330 | 340 | 260 | 330 | 260 | 4.06 |
| | lb | | | | | | 1570 | 1190 | 1170 | 900 | 930 | 730 | 750 | 570 | 730 | 570 | (13.3) |
| 0.5 m (1.6 ft) | kg | | | | 970 | 720 | 680 | 520 | 520 | 400 | 410 | 320 | 340 | 260 | 330 | 260 | 4.02 |
| | lb | | | | 2140 | 1590 | 1500 | 1150 | 1150 | 880 | 900 | 710 | 750 | 570 | 730 | 570 | (13.2) |
| 0.0 m (0.0 ft) | kg | | | | 960 | 700 | 670 | 500 | 510 | 390 | 400 | 310 | | | 350 | 270 | 3.90 |
| | lb | | | | 2120 | 1540 | 1480 | 1100 | 1120 | 860 | 880 | 680 | | | 770 | 600 | (12.8) |
| -0.5 m (-1.6 ft) | kg | *1040 | *1040 | *1280 | 1160 | 960 | 700 | 660 | 500 | 500 | 380 | 400 | 310 | | 370 | 290 | 3.69 |
| | lb | *2290 | *2290 | *2820 | 2560 | 2120 | 1540 | 1460 | 1100 | 1100 | 840 | 880 | 680 | | 820 | 640 | (12.1) |
| -1.0 m (-3.3 ft) | kg | *1500 | *1500 | 1700 | 1170 | 960 | 710 | 660 | 500 | 500 | 380 | | | | 430 | 330 | 3.36 |
| | lb | *3310 | *3310 | 3750 | 2580 | 2120 | 1570 | 1460 | 1100 | 1100 | 840 | | | | 950 | 730 | (11.0) |
| -1.5 m (-4.9 ft) | kg | *2090 | *2090 | 1730 | 1190 | 980 | 720 | 670 | 510 | | | | | | 550 | 420 | 2.87 |
| | lb | *4610 | *4610 | 3810 | 2620 | 2160 | 1590 | 1480 | 1120 | | | | | | 1210 | 930 | (9.4) |
| -2.0 m (-6.6 ft) | kg | | | | | *740 | *740 | | | | | | | | *740 | *740 | 2.00 |
| | lb | | | | | *1630 | *1630 | | | | | | | | *1630 | *1630 | (6.6) |

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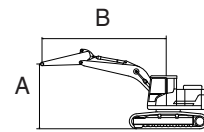
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








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| Model | Type | Boom | Arm | Counterweight | Rubber shoe | Wheel | Dozer | | Outtriger | |
|--------|------|-------------|-------------|---------------|-------------|------------|-------|------|-----------|------|
| HX30AZ | Cab | Length [mm] | Length [mm] | weight [kg] | width [mm] | width [mm] | Front | Rear | Front | Rear |
| | | 2030 | 1300 | 130 | 300 | - | Down | - | - | - |

 : Rating over-front
  : Rating over-side or 360 degree



| Load point height (A) | Load radius (B) | | | | | | | | | | | | | | | | At max. reach | | |
|-----------------------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|--------|
| | 1.0 m (3.3 ft) | | 1.5 m (4.9 ft) | | 2.0 m (6.6 ft) | | 2.5 m (8.2 ft) | | 3.0 m (9.8 ft) | | 3.5 m (11.5 ft) | | 4.0 m (13.1 ft) | | | | Capacity | Reach | |
| |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | m (ft) |
| 3.5 m (11.5 ft) | kg | | | | | | | | | | | | | | | | *670 | 530 | 2.85 |
| | lb | | | | | | | | | | | | | | | | *1480 | 1170 | (9.4) |
| 3.0 m (9.8 ft) | kg | | | | | | | | *600 | 490 | | | | | | | *600 | 400 | 3.35 |
| | lb | | | | | | | | *1320 | 1080 | | | | | | | *1320 | 880 | (11.0) |
| 2.5 m (8.2 ft) | kg | | | | | | | | *610 | 490 | *640 | 370 | | | | | *570 | 340 | 3.68 |
| | lb | | | | | | | | *1340 | 1080 | *1410 | 820 | | | | | *1260 | 750 | (12.1) |
| 2.0 m (6.6 ft) | kg | | | | | | | | *680 | 480 | *670 | 370 | | | | | *560 | 310 | 3.89 |
| | lb | | | | | | | | *1500 | 1060 | *1480 | 820 | | | | | *1230 | 680 | (12.8) |
| 1.5 m (4.9 ft) | kg | | | | *1230 | 880 | *930 | 610 | *790 | 460 | *720 | 360 | *610 | 290 | | | *570 | 290 | 4.02 |
| | lb | | | | *2710 | 1940 | *2050 | 1340 | *1740 | 1010 | *1590 | 790 | *1340 | 640 | | | *1260 | 640 | (13.2) |
| 1.0 m (3.3 ft) | kg | | | | | | *1170 | 580 | *920 | 440 | *790 | 350 | *710 | 280 | | | *590 | 280 | 4.06 |
| | lb | | | | | | *2580 | 1280 | *2030 | 970 | *1740 | 770 | *1570 | 620 | | | *1300 | 620 | (13.3) |
| 0.5 m (1.6 ft) | kg | | | | *1350 | 780 | *1340 | 560 | *1020 | 430 | *850 | 340 | *700 | 280 | | | *640 | 280 | 4.02 |
| | lb | | | | *2980 | 1720 | *2950 | 1230 | *2250 | 950 | *1870 | 750 | *1540 | 620 | | | *1410 | 620 | (13.2) |
| 0.0 m (0.0 ft) | kg | | | | *1580 | 770 | *1430 | 550 | *1080 | 420 | *880 | 340 | | | | | *720 | 290 | 3.90 |
| | lb | | | | *3480 | 1700 | *3150 | 1210 | *2380 | 930 | *1940 | 750 | | | | | *1590 | 640 | (12.8) |
| -0.5 m (-1.6 ft) | kg | *1040 | *1040 | *1280 | *1280 | *2000 | 770 | *1420 | 540 | *1080 | 420 | *860 | 330 | | | | *780 | 310 | 3.69 |
| | lb | *2290 | *2290 | *2820 | *2820 | *4410 | 1700 | *3130 | 1190 | *2380 | 930 | *1900 | 730 | | | | *1720 | 680 | (12.1) |
| -1.0 m (-3.3 ft) | kg | *1500 | *1500 | *1880 | 1300 | *1810 | 770 | *1310 | 540 | *1000 | 420 | | | | | | *800 | 360 | 3.36 |
| | lb | *3310 | *3310 | *4140 | 2870 | *3990 | 1700 | *2890 | 1190 | *2200 | 930 | | | | | | *1760 | 790 | (11.0) |
| -1.5 m (-4.9 ft) | kg | *2090 | *2090 | *2190 | 1320 | *1460 | 790 | *1060 | 550 | | | | | | | | *810 | 460 | 2.87 |
| | lb | *4610 | *4610 | *4830 | 2910 | *3220 | 1740 | *2340 | 1210 | | | | | | | | *1790 | 1010 | (9.4) |
| -2.0 m (-6.6 ft) | kg | | | | | *740 | *740 | | | | | | | | | | *740 | *740 | 2.00 |
| | lb | | | | | *1630 | *1630 | | | | | | | | | | *1630 | *1630 | (6.6) |

Note 1. Lifting capacity are based on ISO 10567.

2. Lifting capacity of the HX series does not exceed 75% of tipping load with the machine on firm, level ground or 87% of full hydraulic capacity.

3. The lift-point is bucket pivot mounting pin on the arm (without bucket mass).

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※ Lifting capacities are based upon a standard machine conditions.

Lifting capacities will vary with different work tools, ground conditions and attachments.



The difference between the weight of a work tool attachment must be subtracted.

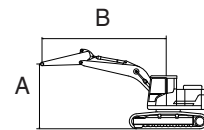
Consult with your local HD Hyundai Construction Equipment dealer regarding the lifting capacities for specific work tools and attachments.

















※ Please be aware of the local regulations and instructions for lifting operations.

▲ Failure to comply to the rated load can cause serious injury, death, or property damage. Make adjustments to the rated load as necessary for non-standard configurations.

| Model | Type | Boom | Arm | Counterweight | Rubber shoe | Wheel | Dozer | | Outtriger | |
|--------|------|-------------|-------------|---------------|-------------|------------|-------|------|-----------|------|
| HX30AZ | Cab | Length [mm] | Length [mm] | weight [kg] | width [mm] | width [mm] | Front | Rear | Front | Rear |
| | | 2030 | 1300 | 270 | 300 | - | Up | - | - | - |

 : Rating over-front
  : Rating over-side or 360 degree



| Load point height (A) | | Load radius (B) | | | | | | | | | | | | | | At max. reach | | | |
|-----------------------|----|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|--------|--------|
| | | 1.0 m (3.3 ft) | | 1.5 m (4.9 ft) | | 2.0 m (6.6 ft) | | 2.5 m (8.2 ft) | | 3.0 m (9.8 ft) | | 3.5 m (11.5 ft) | | 4.0 m (13.1 ft) | | Capacity | | Reach | |
| | |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | m (ft) | |
| 3.5 m (11.5 ft) | kg | | | | | | | | | | | | | | | | *670 | 560 | 2.85 |
| | lb | | | | | | | | | | | | | | | | *1480 | 1230 | (9.4) |
| 3.0 m (9.8 ft) | kg | | | | | | | | *600 | 520 | | | | | | | 540 | 430 | 3.35 |
| | lb | | | | | | | | *1320 | 1150 | | | | | | | 1190 | 950 | (11.0) |
| 2.5 m (8.2 ft) | kg | | | | | | | | *610 | 520 | 500 | 400 | | | | | 460 | 370 | 3.68 |
| | lb | | | | | | | | *1340 | 1150 | 1100 | 880 | | | | | 1010 | 820 | (12.1) |
| 2.0m (6.6 ft) | kg | | | | | | | | 640 | 510 | 500 | 400 | | | | | 420 | 330 | 3.89 |
| | lb | | | | | | | | 1410 | 1120 | 1100 | 880 | | | | | 930 | 730 | (12.8) |
| 1.5m (4.9 ft) | kg | | | | | 1220 | 930 | 840 | 650 | 630 | 490 | 490 | 390 | 400 | 310 | 390 | 310 | 4.02 | |
| | lb | | | | | 2690 | 2050 | 1850 | 1430 | 1390 | 1080 | 1080 | 860 | 880 | 680 | 860 | 680 | (13.2) | |
| 1.0m (3.3 ft) | kg | | | | | | | 800 | 620 | 610 | 480 | 480 | 380 | 390 | 310 | 380 | 300 | 4.06 | |
| | lb | | | | | | | 1760 | 1370 | 1340 | 1060 | 1060 | 840 | 860 | 680 | 840 | 660 | (13.3) | |
| 0.5m (1.6 ft) | kg | | | | | 1110 | 830 | 780 | 600 | 590 | 460 | 470 | 370 | 390 | 300 | 380 | 300 | 4.02 | |
| | lb | | | | | 2450 | 1830 | 1720 | 1320 | 1300 | 1010 | 1040 | 820 | 860 | 660 | 840 | 660 | (13.2) | |
| 0.0m (0.0 ft) | kg | | | | | 1100 | 820 | 760 | 590 | 580 | 450 | 470 | 360 | | | 400 | 310 | 3.90 | |
| | lb | | | | | 2430 | 1810 | 1680 | 1300 | 1280 | 990 | 1040 | 790 | | | 880 | 680 | (12.8) | |
| -0.5m (-1.6 ft) | kg | *1040 | *1040 | *1280 | *1280 | 1090 | 810 | 760 | 580 | 580 | 450 | 460 | 360 | | | 430 | 340 | 3.69 | |
| | lb | *2290 | *2290 | *2820 | *2820 | 2400 | 1790 | 1680 | 1280 | 1280 | 990 | 1010 | 790 | | | 950 | 750 | (12.1) | |
| -1.0m (-3.3 ft) | kg | *1500 | *1500 | *1880 | 1350 | 1100 | 820 | 760 | 580 | 580 | 450 | | | | | 490 | 390 | 3.36 | |
| | lb | *3310 | *3310 | *4140 | 2980 | 2430 | 1810 | 1680 | 1280 | 1280 | 990 | | | | | 1080 | 860 | (11.0) | |
| -1.5m (-4.9 ft) | kg | *2090 | *2090 | 1960 | 1370 | 1120 | 830 | 770 | 590 | | | | | | | 630 | 490 | 2.87 | |
| | lb | *4610 | *4610 | 4320 | 3020 | 2470 | 1830 | 1700 | 1300 | | | | | | | 1390 | 1080 | (9.4) | |
| -2.0m (-6.6 ft) | kg | | | | | *740 | *740 | | | | | | | | | *740 | *740 | 2.00 | |
| | lb | | | | | *1630 | *1630 | | | | | | | | | *1630 | *1630 | (6.6) | |

Note 1. Lifting capacity are based on ISO 10567.

2. Lifting capacity of the HX series does not exceed 75% of tipping load with the machine on firm, level ground or 87% of full hydraulic capacity.

3. The lift-point is bucket pivot mounting pin on the arm (without bucket mass).

4. *Indicates load limited by hydraulic capacity.

※ Lifting capacities are based upon a standard machine conditions.

Lifting capacities will vary with different work tools, ground conditions and attachments.



The difference between the weight of a work tool attachment must be subtracted.

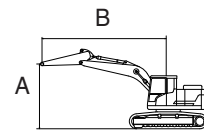
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





※ Please be aware of the local regulations and instructions for lifting operations.

▲ Failure to comply to the rated load can cause serious injury, death, or property damage. Make adjustments to the rated load as necessary for non-standard configurations.

| Model | Type | Boom | Arm | Counterweight | Rubber shoe | Wheel | Dozer | | Outtriger | |
|--------|------|-------------|-------------|---------------|-------------|------------|-------|------|-----------|------|
| HX30AZ | Cab | Length [mm] | Length [mm] | weight [kg] | width [mm] | width [mm] | Front | Rear | Front | Rear |
| | | 2030 | 1300 | 270 | 300 | - | Down | - | - | - |

 : Rating over-front
  : Rating over-side or 360 degree



| Load point height (A) | Load radius (B) | | | | | | | | | | | | | | At max. reach | | |
|-----------------------|---|---|---|---|---|---|---|---|---|--|---|---|---|---|---|---|--------|
| | 1.0 m (3.3 ft) | | 1.5 m (4.9 ft) | | 2.0 m (6.6 ft) | | 2.5 m (8.2 ft) | | 3.0 m (9.8 ft) | | 3.5 m (11.5 ft) | | 4.0 m (13.1 ft) | | Capacity | Reach | |
| |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | m (ft) |
| 3.5 m (11.5 ft) | kg | | | | | | | | | | | | | | *670 | 600 | 2.85 |
| | lb | | | | | | | | | | | | | | *1480 | 1320 | (9.4) |
| 3.0 m (9.8 ft) | kg | | | | | | | | *600 | 560 | | | | | *600 | 460 | 3.35 |
| | lb | | | | | | | | *1320 | 1230 | | | | | *1320 | 1010 | (11.0) |
| 2.5 m (8.2 ft) | kg | | | | | | | | *610 | 550 | *640 | 430 | | | *570 | 390 | 3.68 |
| | lb | | | | | | | | *1340 | 1210 | *1410 | 950 | | | *1260 | 860 | (12.1) |
| 2.0 m (6.6 ft) | kg | | | | | | | | *680 | 540 | *670 | 420 | | | *560 | 350 | 3.89 |
| | lb | | | | | | | | *1500 | 1190 | *1480 | 930 | | | *1230 | 770 | (12.8) |
| 1.5 m (4.9 ft) | kg | | | | *1230 | 1000 | *930 | 700 | *790 | 530 | *720 | 420 | *610 | 340 | *570 | 330 | 4.02 |
| | lb | | | | *2710 | 2200 | *2050 | 1540 | *1740 | 1170 | *1590 | 930 | *1340 | 750 | *1260 | 730 | (13.2) |
| 1.0 m (3.3 ft) | kg | | | | | | *1170 | 670 | *920 | 510 | *790 | 410 | *710 | 330 | *590 | 320 | 4.06 |
| | lb | | | | | | *2580 | 1480 | *2030 | 1120 | *1740 | 900 | *1570 | 730 | *1300 | 710 | (13.3) |
| 0.5 m (1.6 ft) | kg | | | | *1350 | 900 | *1340 | 650 | *1020 | 500 | *850 | 400 | *700 | 330 | *640 | 320 | 4.02 |
| | lb | | | | *2980 | 1980 | *2950 | 1430 | *2250 | 1100 | *1870 | 880 | *1540 | 730 | *1410 | 710 | (13.2) |
| 0.0 m (0.0 ft) | kg | | | | *1580 | 890 | *1430 | 630 | *1080 | 490 | *880 | 390 | | | *720 | 340 | 3.90 |
| | lb | | | | *3480 | 1960 | *3150 | 1390 | *2380 | 1080 | *1940 | 860 | | | *1590 | 750 | (12.8) |
| -0.5 m (-1.6 ft) | kg | *1040 | *1040 | *1280 | *1280 | *2000 | 890 | *1420 | 630 | *1080 | 480 | *860 | 390 | | *780 | 360 | 3.69 |
| | lb | *2290 | *2290 | *2820 | *2820 | *4410 | 1960 | *3130 | 1390 | *2380 | 1060 | *1900 | 860 | | *1720 | 790 | (12.1) |
| -1.0 m (-3.3 ft) | kg | *1500 | *1500 | *1880 | 1490 | *1810 | 890 | *1310 | 630 | *1000 | 480 | | | | *800 | 420 | 3.36 |
| | lb | *3310 | *3310 | *4140 | 3280 | *3990 | 1960 | *2890 | 1390 | *2200 | 1060 | | | | *1760 | 930 | (11.0) |
| -1.5 m (-4.9 ft) | kg | *2090 | *2090 | *2190 | 1510 | *1460 | 900 | *1060 | 640 | | | | | | *810 | 530 | 2.87 |
| | lb | *4610 | *4610 | *4830 | 3330 | *3220 | 1980 | *2340 | 1410 | | | | | | *1790 | 1170 | (9.4) |
| -2.0 m (-6.6 ft) | kg | | | | | *740 | *740 | | | | | | | | *740 | *740 | 2.00 |
| | lb | | | | | *1630 | *1630 | | | | | | | | *1630 | *1630 | (6.6) |

Note 1. Lifting capacity are based on ISO 10567.

2. Lifting capacity of the HX series does not exceed 75% of tipping load with the machine on firm, level ground or 87% of full hydraulic capacity.

3. The lift-point is bucket pivot mounting pin on the arm (without bucket mass).

4. *Indicates load limited by hydraulic capacity.

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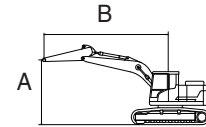
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


▲ Failure to comply to the rated load can cause serious injury, death, or property damage. Make adjustments to the rated load as necessary for non-standard configurations.

(2) Rubber track 300 mm, canopy type

| Model | Type | Boom | Arm | Counterweight | Rubber shoe | Wheel | Dozer | | Outtriger | |
|--------|--------|-------------|-------------|---------------|-------------|------------|-------|------|-----------|------|
| HX30AZ | Canopy | Length [mm] | Length [mm] | weight [kg] | width [mm] | width [mm] | Front | Rear | Front | Rear |
| | | 2030 | 1120 | 130 | 300 | - | Up | - | - | - |

 : Rating over-front
  : Rating over-side or 360 degree



| Load point height (A) | | Load radius (B) | | | | | | | | | | | | At max. reach | | |
|-----------------------|----|---|---|---|---|---|---|---|---|---|---|---|---|---|---|--------|
| | | 1.0 m (3.3 ft) | | 1.5 m (4.9 ft) | | 2.0 m (6.6 ft) | | 2.5 m (8.2 ft) | | 3.0 m (9.8 ft) | | 3.5 m (11.5 ft) | | Capacity | | Reach |
| | |  |  |  |  |  |  |  |  |  |  |  |  |  |  | m (ft) |
| 3.5 m (11.5 ft) | kg | | | | | | | | | | | | | 700 | 550 | 2.57 |
| | lb | | | | | | | | | | | | | 1540 | 1210 | (8.4) |
| 3.0 m (9.8 ft) | kg | | | | | | | | | 540 | 420 | | | 500 | 390 | 3.13 |
| | lb | | | | | | | | | 1190 | 930 | | | 1100 | 860 | (10.3) |
| 2.5 m (8.2 ft) | kg | | | | | | | | | 540 | 420 | | | 410 | 320 | 3.49 |
| | lb | | | | | | | | | 1190 | 930 | | | 900 | 710 | (11.4) |
| 2.0 m (6.6 ft) | kg | | | | | | | 720 | 560 | 530 | 410 | 410 | 320 | 370 | 290 | 3.72 |
| | lb | | | | | | | 1590 | 1230 | 1170 | 900 | 900 | 710 | 820 | 640 | (12.2) |
| 1.5 m (4.9 ft) | kg | | | | | | | 690 | 530 | 510 | 400 | 400 | 310 | 340 | 270 | 3.85 |
| | lb | | | | | | | 1520 | 1170 | 1120 | 880 | 880 | 680 | 750 | 600 | (12.6) |
| 1.0 m (3.3 ft) | kg | | | | | | | 660 | 500 | 500 | 390 | 390 | 300 | 330 | 260 | 3.89 |
| | lb | | | | | | | 1460 | 1100 | 1100 | 860 | 860 | 660 | 730 | 570 | (12.8) |
| 0.5 m (1.6 ft) | kg | | | | | | | 640 | 480 | 480 | 370 | 380 | 300 | 330 | 260 | 3.85 |
| | lb | | | | | | | 1410 | 1060 | 1060 | 820 | 840 | 660 | 730 | 570 | (12.6) |
| 0.0 m (0.0 ft) | kg | | | | | 900 | 660 | 630 | 470 | 480 | 360 | 380 | 290 | 350 | 270 | 3.72 |
| | lb | | | | | 1980 | 1460 | 1390 | 1040 | 1060 | 790 | 840 | 640 | 770 | 600 | (12.2) |
| -0.5 m (-1.6 ft) | kg | *1190 | *1190 | *1420 | 1110 | 910 | 670 | 630 | 470 | 470 | 360 | | | 380 | 290 | 3.50 |
| | lb | *2620 | *2620 | *3130 | 2450 | 2010 | 1480 | 1390 | 1040 | 1040 | 790 | | | 840 | 640 | (11.5) |
| -1.0 m (-3.3 ft) | kg | *1750 | *1750 | 1620 | 1120 | 920 | 670 | 630 | 480 | 480 | 370 | | | 450 | 340 | 3.14 |
| | lb | *3860 | *3860 | 3570 | 2470 | 2030 | 1480 | 1390 | 1060 | 1060 | 820 | | | 990 | 750 | (10.3) |
| -1.5 m (-4.9 ft) | kg | | | 1650 | 1150 | 930 | 690 | 650 | 490 | | | | | 610 | 470 | 2.59 |
| | lb | | | 3640 | 2540 | 2050 | 1520 | 1430 | 1080 | | | | | 1340 | 1040 | (8.5) |

- Note
1. Lifting capacity are based on ISO 10567.
 2. Lifting capacity of the HX series does not exceed 75% of tipping load with the machine on firm, level ground or 87% of full hydraulic capacity.
 3. The lift-point is bucket pivot mounting pin on the arm (without bucket mass).
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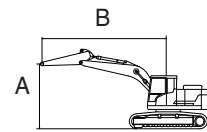
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| Model | Type | Boom | Arm | Counterweight | Rubber shoe | Wheel | Dozer | | Outtriger | |
|--------|--------|-------------|-------------|---------------|-------------|------------|-------|------|-----------|------|
| HX30AZ | Canopy | Length [mm] | Length [mm] | weight [kg] | width [mm] | width [mm] | Front | Rear | Front | Rear |
| | | 2030 | 1120 | 130 | 300 | - | Down | - | - | - |

 : Rating over-front
  : Rating over-side or 360 degree



| Load point height (A) | | Load radius (B) | | | | | | | | | | | | At max. reach | | |
|-----------------------|----------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|----------------|
| | | 1.0 m (3.3 ft) | | 1.5 m (4.9 ft) | | 2.0 m (6.6 ft) | | 2.5 m (8.2 ft) | | 3.0 m (9.8 ft) | | 3.5 m (11.5 ft) | | Capacity | | Reach |
| | |  |  |  |  |  |  |  |  |  |  |  |  |  |  | m (ft) |
| 3.5 m (11.5 ft) | kg lb | | | | | | | | | | | | | *740 *1630 | 590 1300 | 2.57 (8.4) |
| 3.0 m (9.8 ft) | kg lb | | | | | | | | | *690 *1520 | 460 1010 | | | *710 *1570 | 420 930 | 3.13 (10.3) |
| 2.5 m (8.2 ft) | kg lb | | | | | | | | | *680 *1500 | 460 1010 | | | *670 *1480 | 350 770 | 3.49 (11.4) |
| 2.0 m (6.6 ft) | kg lb | | | | | | | *810 *1790 | 600 1320 | *750 *1650 | 450 990 | *720 *1590 | 350 770 | *660 *1460 | 310 680 | 3.72 (12.2) |
| 1.5 m (4.9 ft) | kg lb | | | | | | | *1020 *2250 | 570 1260 | *850 *1870 | 430 950 | *760 *1680 | 340 750 | *670 *1480 | 290 640 | 3.85 (12.6) |
| 1.0 m (3.3 ft) | kg lb | | | | | | | *1240 *2730 | 550 1210 | *960 *2120 | 420 930 | *820 *1810 | 330 730 | *710 *1570 | 280 620 | 3.89 (12.8) |
| 0.5 m (1.6 ft) | kg lb | | | | | | | *1390 *3060 | 530 1170 | *1050 *2310 | 400 880 | *860 *1900 | 320 710 | *770 *1700 | 280 620 | 3.85 (12.6) |
| 0.0 m (0.0 ft) | kg lb | | | | | *1590 *3510 | 730 1610 | *1440 *3170 | 520 1150 | *1090 *2400 | 400 880 | *880 *1940 | 320 710 | *800 *1760 | 290 640 | 3.72 (12.2) |
| -0.5 m (-1.6 ft) | kg lb | *1190 *2620 | *1190 *2620 | *1420 *3130 | 1230 2710 | *1930 *4250 | 730 1610 | *1400 *3090 | 510 1120 | *1070 *2360 | 390 860 | | | *820 *1810 | 320 710 | 3.50 (11.5) |
| -1.0 m (-3.3 ft) | kg lb | *1750 *3860 | *1750 *3860 | *2170 *4780 | 1240 2730 | *1690 *3730 | 740 1630 | *1250 *2760 | 520 1150 | *930 *2050 | 400 880 | | | *840 *1850 | 370 820 | 3.14 (10.3) |
| -1.5 m (-4.9 ft) | kg lb | | | *1810 *3990 | 1270 2800 | *1270 *2800 | 750 1650 | *900 *1980 | 530 1170 | | | | | *830 *1830 | 510 1120 | 2.59 (8.5) |

- Note
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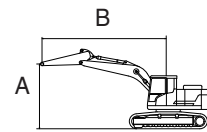
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| Model | Type | Boom | Arm | Counterweight | Rubber shoe | Wheel | Dozer | | Outtriger | |
|--------|--------|-------------|-------------|---------------|-------------|------------|-------|------|-----------|------|
| HX30AZ | Canopy | Length [mm] | Length [mm] | weight [kg] | width [mm] | width [mm] | Front | Rear | Front | Rear |
| | | 2030 | 1120 | 270 | 300 | - | Up | - | - | - |

 : Rating over-front
 ·  : Rating over-side or 360 degree



| Load point height (A) | | Load radius (B) | | | | | | | | | | | | At max. reach | | |
|-----------------------|----------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|----------------|
| | | 1.0 m (3.3 ft) | | 1.5 m (4.9 ft) | | 2.0 m (6.6 ft) | | 2.5 m (8.2 ft) | | 3.0 m (9.8 ft) | | 3.5 m (11.5 ft) | | Capacity | | Reach |
| | |  |  |  |  |  |  |  |  |  |  |  |  |  |  | m (ft) |
| 3.5 m (11.5 ft) | kg lb | | | | | | | | | | | | | *740 *1630 | 630 1390 | 2.57 (8.4) |
| 3.0 m (9.8 ft) | kg lb | | | | | | | | | 620 1370 | 490 1080 | | | 570 1260 | 450 990 | 3.13 (10.3) |
| 2.5 m (8.2 ft) | kg lb | | | | | | | | | 610 1340 | 490 1080 | | | 480 1060 | 380 840 | 3.49 (11.4) |
| 2.0m (6.6 ft) | kg lb | | | | | | | *810 *1790 | 640 1410 | 610 1340 | 480 1060 | 470 1040 | 370 820 | 420 930 | 340 750 | 3.72 (12.2) |
| 1.5m (4.9 ft) | kg lb | | | | | | | 790 1740 | 610 1340 | 590 1300 | 470 1040 | 460 1010 | 370 820 | 400 880 | 310 680 | 3.85 (12.6) |
| 1.0m (3.3 ft) | kg lb | | | | | | | 760 1680 | 590 1300 | 570 1260 | 450 990 | 450 990 | 360 790 | 390 860 | 300 660 | 3.89 (12.8) |
| 0.5m (1.6 ft) | kg lb | | | | | | | 740 1630 | 570 1260 | 560 1230 | 440 970 | 450 990 | 350 770 | 390 860 | 310 680 | 3.85 (12.6) |
| 0.0m (0.0 ft) | kg lb | | | | | 1040 2290 | 780 1720 | 730 1610 | 560 1230 | 550 1210 | 430 950 | 440 970 | 350 770 | 400 880 | 320 710 | 3.72 (12.2) |
| -0.5m (-1.6 ft) | kg lb | *1190 *2620 | *1190 *2620 | *1420 *3130 | 1290 2840 | 1040 2290 | 780 1720 | 720 1590 | 550 1210 | 550 1210 | 430 950 | | | 440 970 | 350 770 | 3.50 (11.5) |
| -1.0m (-3.3 ft) | kg lb | *1750 *3860 | *1750 *3860 | 1860 4100 | 1300 2870 | 1050 2310 | 790 1740 | 730 1610 | 560 1230 | 550 1210 | 430 950 | | | 520 1150 | 410 900 | 3.14 (10.3) |
| -1.5m (-4.9 ft) | kg lb | | | *1810 *3990 | 1330 2930 | 1070 2360 | 800 1760 | 740 1630 | 570 1260 | | | | | 710 1570 | 550 1210 | 2.59 (8.5) |

- Note
1. Lifting capacity are based on ISO 10567.
 2. Lifting capacity of the HX series does not exceed 75% of tipping load with the machine on firm, level ground or 87% of full hydraulic capacity.
 3. The lift-point is bucket pivot mounting pin on the arm (without bucket mass).
 4. *Indicates load limited by hydraulic capacity.

※ Lifting capacities are based upon a standard machine conditions.

Lifting capacities will vary with different work tools, ground conditions and attachments.



The difference between the weight of a work tool attachment must be subtracted.

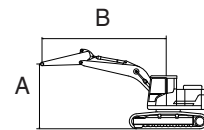
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※ Please be aware of the local regulations and instructions for lifting operations.

▲ Failure to comply to the rated load can cause serious injury, death, or property damage. Make adjustments to the rated load as necessary for non-standard configurations.

| Model | Type | Boom | Arm | Counterweight | Rubber shoe | Wheel | Dozer | | Outtriger | |
|--------|--------|-------------|-------------|---------------|-------------|------------|-------|------|-----------|------|
| HX30AZ | Canopy | Length [mm] | Length [mm] | weight [kg] | width [mm] | width [mm] | Front | Rear | Front | Rear |
| | | 2030 | 1120 | 270 | 300 | - | Down | - | - | - |

 : Rating over-front
  : Rating over-side or 360 degree



| Load point height (A) | | Load radius (B) | | | | | | | | | | | | At max. reach | | |
|-----------------------|----------|---|---|---|---|---|---|---|---|---|--|---|---|---|---|----------------|
| | | 1.0 m (3.3 ft) | | 1.5 m (4.9 ft) | | 2.0 m (6.6 ft) | | 2.5 m (8.2 ft) | | 3.0 m (9.8 ft) | | 3.5 m (11.5 ft) | | Capacity | | Reach |
| | |  |  |  |  |  |  |  |  |  |  |  |  |  |  | m (ft) |
| 3.5 m (11.5 ft) | kg lb | | | | | | | | | | | | | *740 *1630 | 670 1480 | 2.57 (8.4) |
| 3.0 m (9.8 ft) | kg lb | | | | | | | | | *690 *1520 | 520 1150 | | | *710 *1570 | 490 1080 | 3.13 (10.3) |
| 2.5 m (8.2 ft) | kg lb | | | | | | | | | *680 *1500 | 520 1150 | | | *670 *1480 | 400 880 | 3.49 (11.4) |
| 2.0m (6.6 ft) | kg lb | | | | | | | *810 *1790 | 690 1520 | *750 *1650 | 510 1120 | *720 *1590 | 400 880 | *660 *1460 | 360 790 | 3.72 (12.2) |
| 1.5m (4.9 ft) | kg lb | | | | | | | *1020 *2250 | 660 1460 | *850 *1870 | 500 1100 | *760 *1680 | 390 860 | *670 *1480 | 340 750 | 3.85 (12.6) |
| 1.0m (3.3 ft) | kg lb | | | | | | | *1240 *2730 | 630 1390 | *960 *2120 | 480 1060 | *820 *1810 | 380 840 | *710 *1570 | 330 730 | 3.89 (12.8) |
| 0.5m (1.6 ft) | kg lb | | | | | | | *1390 *3060 | 610 1340 | *1050 *2310 | 470 1040 | *860 *1900 | 380 840 | *770 *1700 | 330 730 | 3.85 (12.6) |
| 0.0m (0.0 ft) | kg lb | | | | | *1590 *3510 | 850 1870 | *1440 *3170 | 600 1320 | *1090 *2400 | 460 1010 | *880 *1940 | 370 820 | *800 *1760 | 340 750 | 3.72 (12.2) |
| -0.5m (-1.6 ft) | kg lb | *1190 *2620 | *1190 *2620 | *1420 *3130 | *1420 *3130 | *1930 *4250 | 850 1870 | *1400 *3090 | 600 1320 | *1070 *2360 | 460 1010 | | | *820 *1810 | 370 820 | 3.50 (11.5) |
| -1.0m (-3.3 ft) | kg lb | *1750 *3860 | *1750 *3860 | *2170 *4780 | 1430 3150 | *1690 *3730 | 860 1900 | *1250 *2760 | 600 1320 | *930 *2050 | 470 1040 | | | *840 *1850 | 440 970 | 3.14 (10.3) |
| -1.5m (-4.9 ft) | kg lb | | | *1810 *3990 | 1460 3220 | *1270 *2800 | 870 1920 | *900 *1980 | 620 1370 | | | | | *830 *1830 | 590 1300 | 2.59 (8.5) |

- Note
1. Lifting capacity are based on ISO 10567.
 2. Lifting capacity of the HX series does not exceed 75% of tipping load with the machine on firm, level ground or 87% of full hydraulic capacity.
 3. The lift-point is bucket pivot mounting pin on the arm (without bucket mass).
 4. *Indicates load limited by hydraulic capacity.

※ Lifting capacities are based upon a standard machine conditions.

Lifting capacities will vary with different work tools, ground conditions and attachments.



The difference between the weight of a work tool attachment must be subtracted.

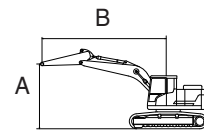
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





※ Please be aware of the local regulations and instructions for lifting operations.

▲ Failure to comply to the rated load can cause serious injury, death, or property damage. Make adjustments to the rated load as necessary for non-standard configurations.

| Model | Type | Boom | Arm | Counterweight | Rubber shoe | Wheel | Dozer | | Outtriger | |
|--------|--------|-------------|-------------|---------------|-------------|------------|-------|------|-----------|------|
| HX30AZ | Canopy | Length [mm] | Length [mm] | weight [kg] | width [mm] | width [mm] | Front | Rear | Front | Rear |
| | | 2030 | 1300 | 130 | 300 | - | Up | - | - | - |

 : Rating over-front
 ·  : Rating over-side or 360 degree



| Load point height (A) | | Load radius (B) | | | | | | | | | | | | | | At max. reach | | |
|-----------------------|----------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|----------------|
| | | 1.0 m (3.3 ft) | | 1.5 m (4.9 ft) | | 2.0 m (6.6 ft) | | 2.5 m (8.2 ft) | | 3.0 m (9.8 ft) | | 3.5 m (11.5 ft) | | 4.0 m (13.1 ft) | | Capacity | | Reach |
| | |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | m (ft) |
| 3.5 m (11.5 ft) | kg lb | | | | | | | | | | | | | | | 590 1300 | 460 1010 | 2.85 (9.4) |
| 3.0 m (9.8 ft) | kg lb | | | | | | | | | 550 1210 | 430 950 | | | | | 450 990 | 350 770 | 3.35 (11.0) |
| 2.5 m (8.2 ft) | kg lb | | | | | | | | | 550 1210 | 430 950 | 420 930 | 330 730 | | | 380 840 | 300 660 | 3.68 (12.1) |
| 2.0 m (6.6 ft) | kg lb | | | | | | | | | 540 1190 | 420 930 | 410 900 | 320 710 | | | 340 750 | 270 600 | 3.89 (12.8) |
| 1.5 m (4.9 ft) | kg lb | | | | | 1030 2270 | 770 1700 | 700 1540 | 540 1190 | 520 1150 | 410 900 | 410 900 | 320 710 | 320 710 | 250 550 | 320 710 | 250 550 | 4.02 (13.2) |
| 1.0 m (3.3 ft) | kg lb | | | | | | | 670 1480 | 510 1120 | 500 1100 | 390 860 | 400 880 | 310 680 | 320 710 | 250 550 | 310 680 | 240 530 | 4.06 (13.3) |
| 0.5 m (1.6 ft) | kg lb | | | | | 920 2030 | 680 1500 | 640 1410 | 490 1080 | 490 1080 | 370 820 | 390 860 | 300 660 | 320 710 | 240 530 | 310 680 | 240 530 | 4.02 (13.2) |
| 0.0 m (0.0 ft) | kg lb | | | | | 900 1980 | 660 1460 | 630 1390 | 480 1060 | 480 1060 | 370 820 | 380 840 | 290 640 | | | 320 710 | 250 550 | 3.90 (12.8) |
| -0.5 m (-1.6 ft) | kg lb | *1040 *2290 | *1040 *2290 | *1280 *2820 | 1100 2430 | 900 1980 | 660 1460 | 620 1370 | 470 1040 | 470 1040 | 360 790 | 380 840 | 290 640 | | | 350 770 | 270 600 | 3.69 (12.1) |
| -1.0 m (-3.3 ft) | kg lb | *1500 *3310 | *1500 *3310 | 1610 3550 | 1110 2450 | 910 2010 | 670 1480 | 630 1390 | 470 1040 | 470 1040 | 360 790 | | | | | 400 880 | 310 680 | 3.36 (11.0) |
| -1.5 m (-4.9 ft) | kg lb | *2090 *4610 | *2090 *4610 | 1630 3590 | 1130 2490 | 920 2030 | 680 1500 | 640 1410 | 480 1060 | | | | | | | 520 1150 | 400 880 | 2.87 (9.4) |
| -2.0 m (-6.6 ft) | kg lb | | | | | *740 *1630 | 710 1570 | | | | | | | | | *740 *1630 | 710 1570 | 2.00 (6.6) |

Note 1. Lifting capacity are based on ISO 10567.

2. Lifting capacity of the HX series does not exceed 75% of tipping load with the machine on firm, level ground or 87% of full hydraulic capacity.

3. The lift-point is bucket pivot mounting pin on the arm (without bucket mass).

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Lifting capacities will vary with different work tools, ground conditions and attachments.



The difference between the weight of a work tool attachment must be subtracted.

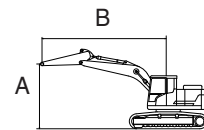
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





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▲ Failure to comply to the rated load can cause serious injury, death, or property damage. Make adjustments to the rated load as necessary for non-standard configurations.

| Model | Type | Boom | Arm | Counterweight | Rubber shoe | Wheel | Dozer | | Outtriger | |
|--------|--------|-------------|-------------|---------------|-------------|------------|-------|------|-----------|------|
| HX30AZ | Canopy | Length [mm] | Length [mm] | weight [kg] | width [mm] | width [mm] | Front | Rear | Front | Rear |
| | | 2030 | 1300 | 130 | 300 | - | Down | - | - | - |

 : Rating over-front
  : Rating over-side or 360 degree



| Load point height (A) | | Load radius (B) | | | | | | | | | | | | | | At max. reach | | |
|-----------------------|----------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|----------------|
| | | 1.0 m (3.3 ft) | | 1.5 m (4.9 ft) | | 2.0 m (6.6 ft) | | 2.5 m (8.2 ft) | | 3.0 m (9.8 ft) | | 3.5 m (11.5 ft) | | 4.0 m (13.1 ft) | | Capacity | | Reach |
| | |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | m (ft) |
| 3.5 m (11.5 ft) | kg lb | | | | | | | | | | | | | | | *670 *1480 | 500 1100 | 2.85 (9.4) |
| 3.0 m (9.8 ft) | kg lb | | | | | | | | | *600 *1320 | 470 1040 | | | | | *600 *1320 | 380 840 | 3.35 (11.0) |
| 2.5 m (8.2 ft) | kg lb | | | | | | | | | *610 *1340 | 460 1010 | *640 *1410 | 350 770 | | | *570 *1260 | 320 710 | 3.68 (12.1) |
| 2.0 m (6.6 ft) | kg lb | | | | | | | | | *680 *1500 | 450 990 | *670 *1480 | 350 770 | | | *560 *1230 | 290 640 | 3.89 (12.8) |
| 1.5 m (4.9 ft) | kg lb | | | | | *1230 *2710 | 840 1850 | *930 *2050 | 580 1280 | *790 *1740 | 440 970 | *720 *1590 | 340 750 | *610 *1340 | 270 600 | *570 *1260 | 270 600 | 4.02 (13.2) |
| 1.0 m (3.3 ft) | kg lb | | | | | | | *1170 *2580 | 550 1210 | *920 *2030 | 420 930 | *790 *1740 | 330 730 | *710 *1570 | 270 600 | *590 *1300 | 260 570 | 4.06 (13.3) |
| 0.5 m (1.6 ft) | kg lb | | | | | *1350 *2980 | 740 1630 | *1340 *2950 | 530 1170 | *1020 *2250 | 410 900 | *850 *1870 | 320 710 | *700 *1540 | 260 570 | *640 *1410 | 260 570 | 4.02 (13.2) |
| 0.0 m (0.0 ft) | kg lb | | | | | *1580 *3480 | 730 1610 | *1430 *3150 | 520 1150 | *1080 *2380 | 400 880 | *880 *1940 | 320 710 | | | *720 *1590 | 270 600 | 3.90 (12.8) |
| -0.5 m (-1.6 ft) | kg lb | *1040 *2290 | *1040 *2290 | *1280 *2820 | 1220 2690 | *2000 *4410 | 730 1610 | *1420 *3130 | 510 1120 | *1080 *2380 | 390 860 | *860 *1900 | 310 680 | | | *780 *1720 | 290 640 | 3.69 (12.1) |
| -1.0 m (-3.3 ft) | kg lb | *1500 *3310 | *1500 *3310 | *1880 *4140 | 1230 2710 | *1810 *3990 | 730 1610 | *1310 *2890 | 510 1120 | *1000 *2200 | 390 860 | | | | | *800 *1760 | 340 750 | 3.36 (11.0) |
| -1.5 m (-4.9 ft) | kg lb | *2090 *4610 | *2090 *4610 | *2190 *4830 | 1250 2760 | *1460 *3220 | 740 1630 | *1060 *2340 | 520 1150 | | | | | | | *810 *1790 | 430 950 | 2.87 (9.4) |
| -2.0 m (-6.6 ft) | kg lb | | | | | *740 *1630 | *740 *1630 | | | | | | | | | *740 *1630 | *740 *1630 | 2.00 (6.6) |

- Note
- Lifting capacity are based on ISO 10567.
 - Lifting capacity of the HX series does not exceed 75% of tipping load with the machine on firm, level ground or 87% of full hydraulic capacity.
 - The lift-point is bucket pivot mounting pin on the arm (without bucket mass).
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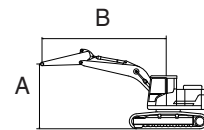
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





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| Model | Type | Boom | Arm | Counterweight | Rubber shoe | Wheel | Dozer | | Outtriger | |
|--------|--------|-------------|-------------|---------------|-------------|------------|-------|------|-----------|------|
| HX30AZ | Canopy | Length [mm] | Length [mm] | weight [kg] | width [mm] | width [mm] | Front | Rear | Front | Rear |
| | | 2030 | 1300 | 270 | 300 | - | Up | - | - | - |

 : Rating over-front
  : Rating over-side or 360 degree



| Load point height (A) | | Load radius (B) | | | | | | | | | | | | | | At max. reach | | |
|-----------------------|----------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|----------------|
| | | 1.0 m (3.3 ft) | | 1.5 m (4.9 ft) | | 2.0 m (6.6 ft) | | 2.5 m (8.2 ft) | | 3.0 m (9.8 ft) | | 3.5 m (11.5 ft) | | 4.0 m (13.1 ft) | | Capacity | | Reach |
| | |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | m (ft) |
| 3.5 m (11.5 ft) | kg lb | | | | | | | | | | | | | | | *670 *1480 | 530 1170 | 2.85 (9.4) |
| 3.0 m (9.8 ft) | kg lb | | | | | | | | | *600 *1320 | 500 1100 | | | | | 510 1120 | 410 900 | 3.35 (11.0) |
| 2.5 m (8.2 ft) | kg lb | | | | | | | | | *610 *1340 | 500 1100 | 480 1060 | 380 840 | | | 440 970 | 350 770 | 3.68 (12.1) |
| 2.0 m (6.6 ft) | kg lb | | | | | | | | | 610 1340 | 490 1080 | 480 1060 | 380 840 | | | 400 880 | 310 680 | 3.89 (12.8) |
| 1.5 m (4.9 ft) | kg lb | | | | | 1160 2560 | 890 1960 | 800 1760 | 620 1370 | 600 1320 | 470 1040 | 470 1040 | 370 820 | 380 840 | 300 660 | 370 820 | 290 640 | 4.02 (13.2) |
| 1.0 m (3.3 ft) | kg lb | | | | | | | 770 1700 | 590 1300 | 580 1280 | 450 990 | 460 1010 | 360 790 | 370 820 | 290 640 | 360 790 | 290 640 | 4.06 (13.3) |
| 0.5 m (1.6 ft) | kg lb | | | | | 1060 2340 | 790 1740 | 740 1630 | 570 1260 | 560 1230 | 440 970 | 450 990 | 350 770 | 370 820 | 290 640 | 360 790 | 290 640 | 4.02 (13.2) |
| 0.0 m (0.0 ft) | kg lb | | | | | 1040 2290 | 780 1720 | 730 1610 | 560 1230 | 550 1210 | 430 950 | 440 970 | 350 770 | | | 380 840 | 300 660 | 3.90 (12.8) |
| -0.5 m (-1.6 ft) | kg lb | *1040 *2290 | *1040 *2290 | *1280 *2820 | *1280 *2820 | 1040 2290 | 780 1720 | 720 1590 | 550 1210 | 550 1210 | 430 950 | 440 970 | 340 750 | | | 410 900 | 320 710 | 3.69 (12.1) |
| -1.0 m (-3.3 ft) | kg lb | *1500 *3310 | *1500 *3310 | 1840 4060 | 1290 2840 | 1050 2310 | 780 1720 | 720 1590 | 550 1210 | 550 1210 | 430 950 | | | | | 470 1040 | 370 820 | 3.36 (11.0) |
| -1.5 m (-4.9 ft) | kg lb | *2090 *4610 | *2090 *4610 | 1870 4120 | 1310 2890 | 1060 2340 | 790 1740 | 730 1610 | 560 1230 | | | | | | | 600 1320 | 470 1040 | 2.87 (9.4) |
| -2.0 m (-6.6 ft) | kg lb | | | | | *740 *1630 | *740 *1630 | | | | | | | | | *740 *1630 | *740 *1630 | 2.00 (6.6) |

- Note
- Lifting capacity are based on ISO 10567.
 - Lifting capacity of the HX series does not exceed 75% of tipping load with the machine on firm, level ground or 87% of full hydraulic capacity.
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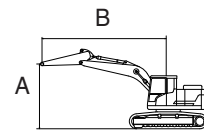
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





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| Model | Type | Boom | Arm | Counterweight | Rubber shoe | Wheel | Dozer | | Outtriger | |
|--------|--------|-------------|-------------|---------------|-------------|------------|-------|------|-----------|------|
| HX30AZ | Canopy | Length [mm] | Length [mm] | weight [kg] | width [mm] | width [mm] | Front | Rear | Front | Rear |
| | | 2030 | 1300 | 270 | 300 | - | Down | - | - | - |

 : Rating over-front
  : Rating over-side or 360 degree



| Load point height (A) | | Load radius (B) | | | | | | | | | | | | | | At max. reach | | |
|-----------------------|----------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|----------------|
| | | 1.0 m (3.3 ft) | | 1.5 m (4.9 ft) | | 2.0 m (6.6 ft) | | 2.5 m (8.2 ft) | | 3.0 m (9.8 ft) | | 3.5 m (11.5 ft) | | 4.0 m (13.1 ft) | | Capacity | | Reach |
| | |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | m (ft) |
| 3.5 m (11.5 ft) | kg lb | | | | | | | | | | | | | | | *670 *1480 | 570 1260 | 2.85 (9.4) |
| 3.0 m (9.8 ft) | kg lb | | | | | | | | | *600 *1320 | 530 1170 | | | | | *600 *1320 | 440 970 | 3.35 (11.0) |
| 2.5 m (8.2 ft) | kg lb | | | | | | | | | *610 *1340 | 530 1170 | *640 *1410 | 410 900 | | | *570 *1260 | 370 820 | 3.68 (12.1) |
| 2.0 m (6.6 ft) | kg lb | | | | | | | | | *680 *1500 | 520 1150 | *670 *1480 | 410 900 | | | *560 *1230 | 340 750 | 3.89 (12.8) |
| 1.5 m (4.9 ft) | kg lb | | | | | *1230 *2710 | 960 2120 | *930 *2050 | 670 1480 | *790 *1740 | 500 1100 | *720 *1590 | 400 880 | *610 *1340 | 320 710 | *570 *1260 | 320 710 | 4.02 (13.2) |
| 1.0 m (3.3 ft) | kg lb | | | | | | | *1170 *2580 | 640 1410 | *920 *2030 | 490 1080 | *790 *1740 | 390 860 | *710 *1570 | 320 710 | *590 *1300 | 310 680 | 4.06 (13.3) |
| 0.5 m (1.6 ft) | kg lb | | | | | *1350 *2980 | 860 1900 | *1340 *2950 | 620 1370 | *1020 *2250 | 470 1040 | *850 *1870 | 380 840 | *700 *1540 | 310 680 | *640 *1410 | 310 680 | 4.02 (13.2) |
| 0.0 m (0.0 ft) | kg lb | | | | | *1580 *3480 | 850 1870 | *1430 *3150 | 600 1320 | *1080 *2380 | 460 1010 | *880 *1940 | 370 820 | | | *720 *1590 | 320 710 | 3.90 (12.8) |
| -0.5 m (-1.6 ft) | kg lb | *1040 *2290 | *1040 *2290 | *1280 *2820 | *1280 *2820 | *2000 *4410 | 840 1850 | *1420 *3130 | 600 1320 | *1080 *2380 | 460 1010 | *860 *1900 | 370 820 | | | *780 *1720 | 340 750 | 3.69 (12.1) |
| -1.0 m (-3.3 ft) | kg lb | *1500 *3310 | *1500 *3310 | *1880 *4140 | 1420 3130 | *1810 *3990 | 850 1870 | *1310 *2890 | 600 1320 | *1000 *2200 | 460 1010 | | | | | *800 *1760 | 390 860 | 3.36 (11.0) |
| -1.5 m (-4.9 ft) | kg lb | *2090 *4610 | *2090 *4610 | *2190 *4830 | 1440 3170 | *1460 *3220 | 860 1900 | *1060 *2340 | 610 1340 | | | | | | | *810 *1790 | 500 1100 | 2.87 (9.4) |
| -2.0 m (-6.6 ft) | kg lb | | | | | *740 *1630 | *740 *1630 | | | | | | | | | *740 *1630 | *740 *1630 | 2.00 (6.6) |

Note 1. Lifting capacity are based on ISO 10567.

2. Lifting capacity of the HX series does not exceed 75% of tipping load with the machine on firm, level ground or 87% of full hydraulic capacity.

3. The lift-point is bucket pivot mounting pin on the arm (without bucket mass).

4. *Indicates load limited by hydraulic capacity.

※ Lifting capacities are based upon a standard machine conditions.

Lifting capacities will vary with different work tools, ground conditions and attachments.

The difference between the weight of a work tool attachment must be subtracted.



Consult with your local HD Hyundai Construction Equipment dealer regarding the lifting capacities for specific work tools and attachments.

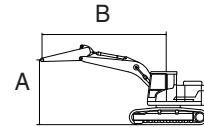
※ Please be aware of the local regulations and instructions for lifting operations.















▲ Failure to comply to the rated load can cause serious injury, death, or property damage. Make adjustments to the rated load as necessary for non-standard configurations.

(3) Steel track 300 mm, cab type

| Model | Type | Boom | Arm | Counterweight | Steel shoe | Wheel | Dozer | | Outrigger | |
|--------|------|-------------|-------------|---------------|------------|------------|-------|------|-----------|------|
| HX30AZ | Cab | Length [mm] | Length [mm] | weight [kg] | width [mm] | width [mm] | Front | Rear | Front | Rear |
| | | 2030 | 1120 | 130 | 300 | - | Up | - | - | - |

 : Rating over-front
  : Rating over-side or 360 degree



| Load point height (A) | | Load radius (B) | | | | | | | | | | | | At max. reach | | |
|-----------------------|----|---|---|---|---|---|---|---|---|---|--|---|---|---|---|--------|
| | | 1.0 m (3.3 ft) | | 1.5 m (4.9 ft) | | 2.0 m (6.6 ft) | | 2.5 m (8.2 ft) | | 3.0 m (9.8 ft) | | 3.5 m (11.5 ft) | | Capacity | | Reach |
| | |  |  |  |  |  |  |  |  |  |  |  |  |  |  | m (ft) |
| 3.5 m (11.5 ft) | kg | | | | | | | | | | | | | *740 | 600 | 2.55 |
| | lb | | | | | | | | | | | | | *1630 | 1320 | (8.4) |
| 3.0 m (9.8 ft) | kg | | | | | | | | | 590 | 460 | | | 550 | 430 | 3.12 |
| | lb | | | | | | | | | 1300 | 1010 | | | 1210 | 950 | (10.2) |
| 2.5 m (8.2 ft) | kg | | | | | | | | | 590 | 460 | | | 450 | 360 | 3.48 |
| | lb | | | | | | | | | 1300 | 1010 | | | 990 | 790 | (11.4) |
| 2.0 m (6.6 ft) | kg | | | | | | | 780 | 610 | 580 | 450 | 450 | 350 | 400 | 320 | 3.71 |
| | lb | | | | | | | 1720 | 1340 | 1280 | 990 | 990 | 770 | 880 | 710 | (12.2) |
| 1.5 m (4.9 ft) | kg | | | | | | | 750 | 580 | 560 | 440 | 440 | 340 | 380 | 290 | 3.84 |
| | lb | | | | | | | 1650 | 1280 | 1230 | 970 | 970 | 750 | 840 | 640 | (12.6) |
| 1.0 m (3.3 ft) | kg | | | | | | | 720 | 550 | 550 | 420 | 430 | 340 | 370 | 280 | 3.89 |
| | lb | | | | | | | 1590 | 1210 | 1210 | 930 | 950 | 750 | 820 | 620 | (12.8) |
| 0.5 m (1.6 ft) | kg | | | | | | | 700 | 530 | 530 | 410 | 420 | 330 | 370 | 290 | 3.85 |
| | lb | | | | | | | 1540 | 1170 | 1170 | 900 | 930 | 730 | 820 | 640 | (12.6) |
| 0.0 m (0.0 ft) | kg | | | | | 990 | 730 | 690 | 520 | 520 | 400 | 420 | 320 | 380 | 300 | 3.73 |
| | lb | | | | | 2180 | 1610 | 1520 | 1150 | 1150 | 880 | 930 | 710 | 840 | 660 | (12.2) |
| -0.5 m (-1.6 ft) | kg | *1180 | *1180 | *1400 | 1210 | 990 | 730 | 680 | 520 | 520 | 400 | 420 | 320 | 420 | 320 | 3.50 |
| | lb | *2600 | *2600 | *3090 | 2670 | 2180 | 1610 | 1500 | 1150 | 1150 | 880 | 930 | 710 | 930 | 710 | (11.5) |
| -1.0 m (-3.3 ft) | kg | *1730 | *1730 | 1760 | 1220 | 1000 | 740 | 690 | 520 | 520 | 400 | | | 490 | 380 | 3.16 |
| | lb | *3810 | *3810 | 3880 | 2690 | 2200 | 1630 | 1520 | 1150 | 1150 | 880 | | | 1080 | 840 | (10.4) |
| -1.5 m (-4.9 ft) | kg | | | 1790 | 1250 | 1020 | 760 | 700 | 540 | | | | | 660 | 510 | 2.61 |
| | lb | | | 3950 | 2760 | 2250 | 1680 | 1540 | 1190 | | | | | 1460 | 1120 | (8.6) |

- Note
1. Lifting capacity are based on ISO 10567.
 2. Lifting capacity of the HX series does not exceed 75% of tipping load with the machine on firm, level ground or 87% of full hydraulic capacity.
 3. The lift-point is bucket pivot mounting pin on the arm (without bucket mass).
 4. *Indicates load limited by hydraulic capacity.

※ Lifting capacities are based upon a standard machine conditions.

Lifting capacities will vary with different work tools, ground conditions and attachments.



The difference between the weight of a work tool attachment must be subtracted.

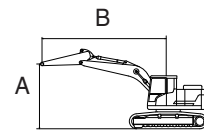
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※ Please be aware of the local regulations and instructions for lifting operations.

▲ Failure to comply to the rated load can cause serious injury, death, or property damage. Make adjustments to the rated load as necessary for non-standard configurations.

| Model | Type | Boom | Arm | Counterweight | Steel shoe | Wheel | Dozer | | Outtriger | |
|--------|------|-------------|-------------|---------------|------------|------------|-------|------|-----------|------|
| HX30AZ | Cab | Length [mm] | Length [mm] | weight [kg] | width [mm] | width [mm] | Front | Rear | Front | Rear |
| | | 2030 | 1120 | 130 | 300 | - | Down | - | - | - |

 : Rating over-front
  : Rating over-side or 360 degree



| Load point height (A) | | Load radius (B) | | | | | | | | | | | | At max. reach | | |
|-----------------------|----|---|---|---|---|---|---|---|---|---|--|---|---|---|---|--------|
| | | 1.0 m (3.3 ft) | | 1.5 m (4.9 ft) | | 2.0 m (6.6 ft) | | 2.5 m (8.2 ft) | | 3.0 m (9.8 ft) | | 3.5 m (11.5 ft) | | Capacity | | Reach |
| | |  |  |  |  |  |  |  |  |  |  |  |  |  |  | m (ft) |
| 3.5 m (11.5 ft) | kg | | | | | | | | | | | | | *740 | 650 | 2.55 |
| | lb | | | | | | | | | | | | | *1630 | 1430 | (8.4) |
| 3.0 m (9.8 ft) | kg | | | | | | | | | *690 | 500 | | | *710 | 460 | 3.12 |
| | lb | | | | | | | | | *1520 | 1100 | | | *1570 | 1010 | (10.2) |
| 2.5 m (8.2 ft) | kg | | | | | | | | | *680 | 500 | | | *670 | 390 | 3.48 |
| | lb | | | | | | | | | *1500 | 1100 | | | *1480 | 860 | (11.4) |
| 2.0 m (6.6 ft) | kg | | | | | | | *800 | 660 | *740 | 490 | *710 | 380 | *660 | 340 | 3.71 |
| | lb | | | | | | | *1760 | 1460 | *1630 | 1080 | *1570 | 840 | *1460 | 750 | (12.2) |
| 1.5 m (4.9 ft) | kg | | | | | | | *1020 | 630 | *850 | 470 | *760 | 370 | *670 | 320 | 3.84 |
| | lb | | | | | | | *2250 | 1390 | *1870 | 1040 | *1680 | 820 | *1480 | 710 | (12.6) |
| 1.0 m (3.3 ft) | kg | | | | | | | *1240 | 600 | *960 | 460 | *820 | 360 | *700 | 310 | 3.89 |
| | lb | | | | | | | *2730 | 1320 | *2120 | 1010 | *1810 | 790 | *1540 | 680 | (12.8) |
| 0.5 m (1.6 ft) | kg | | | | | | | *1390 | 580 | *1050 | 450 | *860 | 360 | *760 | 310 | 3.85 |
| | lb | | | | | | | *3060 | 1280 | *2310 | 990 | *1900 | 790 | *1680 | 680 | (12.6) |
| 0.0 m (0.0 ft) | kg | | | | | *1580 | 800 | *1440 | 570 | *1090 | 440 | *880 | 350 | *800 | 320 | 3.73 |
| | lb | | | | | *3480 | 1760 | *3170 | 1260 | *2400 | 970 | *1940 | 770 | *1760 | 710 | (12.2) |
| -0.5 m (-1.6 ft) | kg | *1180 | *1180 | *1400 | 1340 | *1940 | 800 | *1400 | 570 | *1070 | 440 | *820 | 350 | *820 | 350 | 3.50 |
| | lb | *2600 | *2600 | *3090 | 2950 | *4280 | 1760 | *3090 | 1260 | *2360 | 970 | *1810 | 770 | *1810 | 770 | (11.5) |
| -1.0 m (-3.3 ft) | kg | *1730 | *1730 | *2150 | 1360 | *1700 | 810 | *1250 | 570 | *940 | 440 | | | *840 | 410 | 3.16 |
| | lb | *3810 | *3810 | *4740 | 3000 | *3750 | 1790 | *2760 | 1260 | *2070 | 970 | | | *1850 | 900 | (10.4) |
| -1.5 m (-4.9 ft) | kg | | | *1840 | 1380 | *1280 | 830 | *920 | 590 | | | | | *830 | 550 | 2.61 |
| | lb | | | *4060 | 3040 | *2820 | 1830 | *2030 | 1300 | | | | | *1830 | 1210 | (8.6) |

- Note
1. Lifting capacity are based on ISO 10567.
 2. Lifting capacity of the HX series does not exceed 75% of tipping load with the machine on firm, level ground or 87% of full hydraulic capacity.
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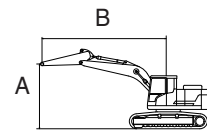
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| Model | Type | Boom | Arm | Counterweight | Steel shoe | Wheel | Dozer | | Outtriger | |
|--------|------|-------------|-------------|---------------|------------|------------|-------|------|-----------|------|
| HX30AZ | Cab | Length [mm] | Length [mm] | weight [kg] | width [mm] | width [mm] | Front | Rear | Front | Rear |
| | | 2030 | 1120 | 270 | 300 | - | Up | - | - | - |

 : Rating over-front
  : Rating over-side or 360 degree



| Load point height (A) | Load radius (B) | | | | | | | | | | | | At max. reach | | |
|-----------------------|---|---|---|---|---|---|---|---|---|--|---|---|---|---|--------|
| | 1.0 m (3.3 ft) | | 1.5 m (4.9 ft) | | 2.0 m (6.6 ft) | | 2.5 m (8.2 ft) | | 3.0 m (9.8 ft) | | 3.5 m (11.5 ft) | | Capacity | | Reach |
| |  |  |  |  |  |  |  |  |  |  |  |  |  |  | m (ft) |
| 3.5 m (11.5 ft) | kg | | | | | | | | | | | | *740 | 680 | 2.55 |
| | lb | | | | | | | | | | | | *1630 | 1500 | (8.4) |
| 3.0 m (9.8 ft) | kg | | | | | | | | 660 | 530 | | | 620 | 490 | 3.12 |
| | lb | | | | | | | | 1460 | 1170 | | | 1370 | 1080 | (10.2) |
| 2.5 m (8.2 ft) | kg | | | | | | | | 660 | 530 | | | 520 | 410 | 3.48 |
| | lb | | | | | | | | 1460 | 1170 | | | 1150 | 900 | (11.4) |
| 2.0 m (6.6 ft) | kg | | | | | | *800 | 690 | 650 | 520 | 510 | 400 | 460 | 370 | 3.71 |
| | lb | | | | | | *1760 | 1520 | 1430 | 1150 | 1120 | 880 | 1010 | 820 | (12.2) |
| 1.5 m (4.9 ft) | kg | | | | | | 850 | 660 | 640 | 500 | 500 | 400 | 430 | 340 | 3.84 |
| | lb | | | | | | 1870 | 1460 | 1410 | 1100 | 1100 | 880 | 950 | 750 | (12.6) |
| 1.0 m (3.3 ft) | kg | | | | | | 820 | 630 | 620 | 490 | 490 | 390 | 420 | 330 | 3.89 |
| | lb | | | | | | 1810 | 1390 | 1370 | 1080 | 1080 | 860 | 930 | 730 | (12.8) |
| 0.5 m (1.6 ft) | kg | | | | | | 800 | 610 | 610 | 480 | 480 | 380 | 420 | 330 | 3.85 |
| | lb | | | | | | 1760 | 1340 | 1340 | 1060 | 1060 | 840 | 930 | 730 | (12.6) |
| 0.0 m (0.0 ft) | kg | | | | | 1120 | 840 | 780 | 600 | 600 | 470 | 480 | 440 | 350 | 3.73 |
| | lb | | | | | 2470 | 1850 | 1720 | 1320 | 1320 | 1040 | 1060 | 840 | 770 | (12.2) |
| -0.5 m (-1.6 ft) | kg | *1180 | *1180 | *1400 | 1390 | 1130 | 840 | 780 | 600 | 600 | 460 | 480 | 380 | 380 | 3.50 |
| | lb | *2600 | *2600 | *3090 | 3060 | 2490 | 1850 | 1720 | 1320 | 1320 | 1010 | 1060 | 840 | 840 | (11.5) |
| -1.0 m (-3.3 ft) | kg | *1730 | *1730 | 1990 | 1400 | 1130 | 850 | 790 | 610 | 600 | 470 | | 560 | 440 | 3.16 |
| | lb | *3810 | *3810 | 4390 | 3090 | 2490 | 1870 | 1740 | 1340 | 1320 | 1040 | | 1230 | 970 | (10.4) |
| -1.5 m (-4.9 ft) | kg | | | *1840 | 1430 | 1150 | 870 | 800 | 620 | | | | 750 | 590 | 2.61 |
| | lb | | | *4060 | 3150 | 2540 | 1920 | 1760 | 1370 | | | | 1650 | 1300 | (8.6) |

Note 1. Lifting capacity are based on ISO 10567.

2. Lifting capacity of the HX series does not exceed 75% of tipping load with the machine on firm, level ground or 87% of full hydraulic capacity.

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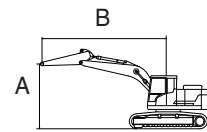
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| Model | Type | Boom | Arm | Counterweight | Steel shoe | Wheel | Dozer | | Outtriger | |
|--------|------|-------------|-------------|---------------|------------|------------|-------|------|-----------|------|
| HX30AZ | Cab | Length [mm] | Length [mm] | weight [kg] | width [mm] | width [mm] | Front | Rear | Front | Rear |
| | | 2030 | 1120 | 270 | 300 | - | Down | - | - | - |

 : Rating over-front
  : Rating over-side or 360 degree



| Load point height (A) | | Load radius (B) | | | | | | | | | | | | At max. reach | | |
|-----------------------|----|---|---|---|---|---|---|---|---|---|--|---|---|---|---|--------|
| | | 1.0 m (3.3 ft) | | 1.5 m (4.9 ft) | | 2.0 m (6.6 ft) | | 2.5 m (8.2 ft) | | 3.0 m (9.8 ft) | | 3.5 m (11.5 ft) | | Capacity | | Reach |
| | |  |  |  |  |  |  |  |  |  |  |  |  |  |  | m (ft) |
| 3.5 m (11.5 ft) | kg | | | | | | | | | | | | | *740 | 730 | 2.55 |
| | lb | | | | | | | | | | | | | *1630 | 1610 | (8.4) |
| 3.0 m (9.8 ft) | kg | | | | | | | | | *690 | 570 | | | *710 | 530 | 3.12 |
| | lb | | | | | | | | | *1520 | 1260 | | | *1570 | 1170 | (10.2) |
| 2.5 m (8.2 ft) | kg | | | | | | | | | *680 | 560 | | | *670 | 440 | 3.48 |
| | lb | | | | | | | | | *1500 | 1230 | | | *1480 | 970 | (11.4) |
| 2.0 m (6.6 ft) | kg | | | | | | | *800 | 740 | *740 | 560 | *710 | 430 | *660 | 390 | 3.71 |
| | lb | | | | | | | *1760 | 1630 | *1630 | 1230 | *1570 | 950 | *1460 | 860 | (12.2) |
| 1.5 m (4.9 ft) | kg | | | | | | | *1020 | 710 | *850 | 540 | *760 | 430 | *670 | 370 | 3.84 |
| | lb | | | | | | | *2250 | 1570 | *1870 | 1190 | *1680 | 950 | *1480 | 820 | (12.6) |
| 1.0 m (3.3 ft) | kg | | | | | | | *1240 | 690 | *960 | 530 | *820 | 420 | *700 | 360 | 3.89 |
| | lb | | | | | | | *2730 | 1520 | *2120 | 1170 | *1810 | 930 | *1540 | 790 | (12.8) |
| 0.5 m (1.6 ft) | kg | | | | | | | *1390 | 670 | *1050 | 510 | *860 | 410 | *760 | 360 | 3.85 |
| | lb | | | | | | | *3060 | 1480 | *2310 | 1120 | *1900 | 900 | *1680 | 790 | (12.6) |
| 0.0 m (0.0 ft) | kg | | | | | *1580 | 920 | *1440 | 650 | *1090 | 500 | *880 | 410 | *800 | 370 | 3.73 |
| | lb | | | | | *3480 | 2030 | *3170 | 1430 | *2400 | 1100 | *1940 | 900 | *1760 | 820 | (12.2) |
| -0.5 m (-1.6 ft) | kg | *1180 | *1180 | *1400 | *1400 | *1940 | 920 | *1400 | 650 | *1070 | 500 | *820 | 410 | *820 | 410 | 3.50 |
| | lb | *2600 | *2600 | *3090 | *3090 | *4280 | 2030 | *3090 | 1430 | *2360 | 1100 | *1810 | 900 | *1810 | 900 | (11.5) |
| -1.0 m (-3.3 ft) | kg | *1730 | *1730 | *2150 | 1550 | *1700 | 930 | *1250 | 660 | *940 | 510 | | | *840 | 470 | 3.16 |
| | lb | *3810 | *3810 | *4740 | 3420 | *3750 | 2050 | *2760 | 1460 | *2070 | 1120 | | | *1850 | 1040 | (10.4) |
| -1.5 m (-4.9 ft) | kg | | | *1840 | 1580 | *1280 | 950 | *920 | 670 | | | | | *830 | 630 | 2.61 |
| | lb | | | *4060 | 3480 | *2820 | 2090 | *2030 | 1480 | | | | | *1830 | 1390 | (8.6) |

- Note
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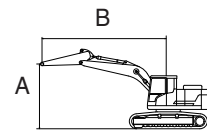
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





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| Model | Type | Boom | Arm | Counterweight | Steel shoe | Wheel | Dozer | | Outtriger | |
|--------|------|-------------|-------------|---------------|------------|------------|-------|------|-----------|------|
| HX30AZ | Cab | Length [mm] | Length [mm] | weight [kg] | width [mm] | width [mm] | Front | Rear | Front | Rear |
| | | 2030 | 1300 | 130 | 300 | - | Up | - | - | - |

 : Rating over-front
 ·  : Rating over-side or 360 degree



| Load point height (A) | | Load radius (B) | | | | | | | | | | | | | | At max. reach | | |
|-----------------------|----------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|----------------|
| | | 1.0 m (3.3 ft) | | 1.5 m (4.9 ft) | | 2.0 m (6.6 ft) | | 2.5 m (8.2 ft) | | 3.0 m (9.8 ft) | | 3.5 m (11.5 ft) | | 4.0 m (13.1 ft) | | Capacity | | Reach |
| | |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | m (ft) |
| 3.5 m (11.5 ft) | kg lb | | | | | | | | | | | | | | | 650 1430 | 510 1120 | 2.83 (9.3) |
| 3.0 m (9.8 ft) | kg lb | | | | | | | | 600 1320 | 470 1040 | | | | | | 490 1080 | 390 860 | 3.34 (11.0) |
| 2.5 m (8.2 ft) | kg lb | | | | | | | | 590 1300 | 470 1040 | 460 1010 | 360 790 | | | | 420 930 | 330 730 | 3.67 (12.1) |
| 2.0 m (6.6 ft) | kg lb | | | | | | | | 580 1280 | 460 1010 | 450 990 | 360 790 | | | | 380 840 | 300 660 | 3.89 (12.8) |
| 1.5 m (4.9 ft) | kg lb | | | | | 1110 2450 | 840 1850 | 760 1680 | 590 1300 | 570 1260 | 440 970 | 440 970 | 350 770 | 360 790 | 280 620 | 350 770 | 280 620 | 4.01 (13.2) |
| 1.0 m (3.3 ft) | kg lb | | | | | | | 730 1610 | 560 1230 | 550 1210 | 430 950 | 430 950 | 340 750 | 350 770 | 270 600 | 340 750 | 270 600 | 4.06 (13.3) |
| 0.5 m (1.6 ft) | kg lb | | | | | 1000 2200 | 740 1630 | 700 1540 | 540 1190 | 530 1170 | 410 900 | 420 930 | 330 730 | 350 770 | 270 600 | 340 750 | 270 600 | 4.02 (13.2) |
| 0.0 m (0.0 ft) | kg lb | | | | | 990 2180 | 730 1610 | 690 1520 | 520 1150 | 520 1150 | 400 880 | 420 930 | 320 710 | | | 360 790 | 280 620 | 3.90 (12.8) |
| -0.5 m (-1.6 ft) | kg lb | *1020 *2250 | *1020 *2250 | *1260 *2780 | 1200 2650 | 990 2180 | 730 1610 | 680 1500 | 520 1150 | 520 1150 | 400 880 | 420 930 | 320 710 | | | 390 860 | 300 660 | 3.70 (12.1) |
| -1.0 m (-3.3 ft) | kg lb | *1480 *3260 | *1480 *3260 | 1740 3840 | 1210 2670 | 990 2180 | 730 1610 | 690 1520 | 520 1150 | 520 1150 | 400 880 | | | | | 440 970 | 340 750 | 3.37 (11.1) |
| -1.5 m (-4.9 ft) | kg lb | *2070 *4560 | *2070 *4560 | 1770 3900 | 1230 2710 | 1010 2230 | 750 1650 | 700 1540 | 530 1170 | | | | | | | 560 1230 | 430 950 | 2.88 (9.5) |
| -2.0 m (-6.6 ft) | kg lb | | | | | *770 *1700 | *770 *1700 | | | | | | | | | *740 *1630 | *740 *1630 | 2.04 (6.7) |

- Note
1. Lifting capacity are based on ISO 10567.
 2. Lifting capacity of the HX series does not exceed 75% of tipping load with the machine on firm, level ground or 87% of full hydraulic capacity.
 3. The lift-point is bucket pivot mounting pin on the arm (without bucket mass).
 4. *Indicates load limited by hydraulic capacity.

※ Lifting capacities are based upon a standard machine conditions.

Lifting capacities will vary with different work tools, ground conditions and attachments.



The difference between the weight of a work tool attachment must be subtracted.

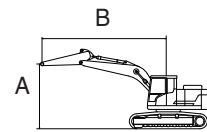
Consult with your local HD Hyundai Construction Equipment dealer regarding the lifting capacities for specific work tools and attachments.

















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▲ Failure to comply to the rated load can cause serious injury, death, or property damage. Make adjustments to the rated load as necessary for non-standard configurations.

| Model | Type | Boom | Arm | Counterweight | Steel shoe | Wheel | Dozer | | Outtriger | |
|--------|------|-------------|-------------|---------------|------------|------------|-------|------|-----------|------|
| HX30AZ | Cab | Length [mm] | Length [mm] | weight [kg] | width [mm] | width [mm] | Front | Rear | Front | Rear |
| | | 2030 | 1300 | 130 | 300 | - | Down | - | - | - |

 : Rating over-front
  : Rating over-side or 360 degree



| Load point height (A) | | Load radius (B) | | | | | | | | | | | | | | At max. reach | | |
|-----------------------|----------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|----------------|
| | | 1.0 m (3.3 ft) | | 1.5 m (4.9 ft) | | 2.0 m (6.6 ft) | | 2.5 m (8.2 ft) | | 3.0 m (9.8 ft) | | 3.5 m (11.5 ft) | | 4.0 m (13.1 ft) | | Capacity | | Reach |
| | |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | m (ft) |
| 3.5 m (11.5 ft) | kg lb | | | | | | | | | | | | | | | *670 *1480 | 550 1210 | 2.83 (9.3) |
| 3.0 m (9.8 ft) | kg lb | | | | | | | | | *600 *1320 | 510 1120 | | | | | *600 *1320 | 420 930 | 3.34 (11.0) |
| 2.5 m (8.2 ft) | kg lb | | | | | | | | | *610 *1340 | 500 1100 | *640 *1410 | 390 860 | | | *570 *1260 | 360 790 | 3.67 (12.1) |
| 2.0 m (6.6 ft) | kg lb | | | | | | | | | *680 *1500 | 490 1080 | *660 *1460 | 380 840 | | | *560 *1230 | 320 710 | 3.89 (12.8) |
| 1.5 m (4.9 ft) | kg lb | | | | | *1210 *2670 | 910 2010 | *920 *2030 | 640 1410 | *790 *1740 | 480 1060 | *720 *1590 | 380 840 | *600 *1320 | 300 660 | *570 *1260 | 300 660 | 4.01 (13.2) |
| 1.0 m (3.3 ft) | kg lb | | | | | | | *1160 *2560 | 610 1340 | *920 *2030 | 460 1010 | *790 *1740 | 370 820 | *710 *1570 | 300 660 | *590 *1300 | 290 640 | 4.06 (13.3) |
| 0.5 m (1.6 ft) | kg lb | | | | | *1350 *2980 | 810 1790 | *1340 *2950 | 580 1280 | *1020 *2250 | 450 990 | *840 *1850 | 360 790 | *700 *1540 | 290 640 | *640 *1410 | 290 640 | 4.02 (13.2) |
| 0.0 m (0.0 ft) | kg lb | | | | | *1570 *3460 | 800 1760 | *1430 *3150 | 570 1260 | *1080 *2380 | 440 970 | *880 *1940 | 350 770 | | | *710 *1570 | 300 660 | 3.90 (12.8) |
| -0.5 m (-1.6 ft) | kg lb | *1020 *2250 | *1020 *2250 | *1260 *2780 | *1260 *2780 | *2010 *4430 | 800 1760 | *1420 *3130 | 570 1260 | *1080 *2380 | 430 950 | *860 *1900 | 350 770 | | | *780 *1720 | 320 710 | 3.70 (12.1) |
| -1.0 m (-3.3 ft) | kg lb | *1480 *3260 | *1480 *3260 | *1860 *4100 | 1340 2950 | *1820 *4010 | 800 1760 | *1320 *2910 | 570 1260 | *1000 *2200 | 440 970 | | | | | *800 *1760 | 370 820 | 3.37 (11.1) |
| -1.5 m (-4.9 ft) | kg lb | *2070 *4560 | *2070 *4560 | *2210 *4870 | 1370 3020 | *1480 *3260 | 820 1810 | *1070 *2360 | 580 1280 | | | | | | | *810 *1790 | 470 1040 | 2.88 (9.5) |
| -2.0 m (-6.6 ft) | kg lb | | | | | *770 *1700 | *770 *1700 | | | | | | | | | *740 *1630 | *740 *1630 | 2.04 (6.7) |

- Note
- Lifting capacity are based on ISO 10567.
 - Lifting capacity of the HX series does not exceed 75% of tipping load with the machine on firm, level ground or 87% of full hydraulic capacity.
 - The lift-point is bucket pivot mounting pin on the arm (without bucket mass).
 - *Indicates load limited by hydraulic capacity.

※ Lifting capacities are based upon a standard machine conditions.

Lifting capacities will vary with different work tools, ground conditions and attachments.



The difference between the weight of a work tool attachment must be subtracted.

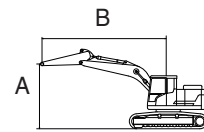
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





※ Please be aware of the local regulations and instructions for lifting operations.

▲ Failure to comply to the rated load can cause serious injury, death, or property damage. Make adjustments to the rated load as necessary for non-standard configurations.

| Model | Type | Boom | Arm | Counterweight | Steel shoe | Wheel | Dozer | | Outtriger | |
|--------|------|-------------|-------------|---------------|------------|------------|-------|------|-----------|------|
| HX30AZ | Cab | Length [mm] | Length [mm] | weight [kg] | width [mm] | width [mm] | Front | Rear | Front | Rear |
| | | 2030 | 1300 | 270 | 300 | - | Up | - | - | - |

 : Rating over-front
  : Rating over-side or 360 degree



| Load point height (A) | | Load radius (B) | | | | | | | | | | | | | | At max. reach | | |
|-----------------------|----|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|--------|
| | | 1.0 m (3.3 ft) | | 1.5 m (4.9 ft) | | 2.0 m (6.6 ft) | | 2.5 m (8.2 ft) | | 3.0 m (9.8 ft) | | 3.5 m (11.5 ft) | | 4.0 m (13.1 ft) | | Capacity | | Reach |
| | |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | m (ft) |
| 3.5 m (11.5 ft) | kg | | | | | | | | | | | | | | | *670 | 580 | 2.83 |
| | lb | | | | | | | | | | | | | | | *1480 | 1280 | (9.3) |
| 3.0 m (9.8 ft) | kg | | | | | | | | | *600 | 540 | | | | | 560 | 440 | 3.34 |
| | lb | | | | | | | | | *1320 | 1190 | | | | | 1230 | 970 | (11.0) |
| 2.5 m (8.2 ft) | kg | | | | | | | | | *610 | 530 | 520 | 410 | | | 480 | 380 | 3.67 |
| | lb | | | | | | | | | *1340 | 1170 | 1150 | 900 | | | 1060 | 840 | (12.1) |
| 2.0 m (6.6 ft) | kg | | | | | | | | | 660 | 520 | 510 | 410 | | | 430 | 340 | 3.89 |
| | lb | | | | | | | | | 1460 | 1150 | 1120 | 900 | | | 950 | 750 | (12.8) |
| 1.5 m (4.9 ft) | kg | | | | | *1210 | 950 | 860 | 670 | 640 | 510 | 500 | 400 | 410 | 320 | 410 | 320 | 4.01 |
| | lb | | | | | *2670 | 2090 | 1900 | 1480 | 1410 | 1120 | 1100 | 880 | 900 | 710 | 900 | 710 | (13.2) |
| 1.0 m (3.3 ft) | kg | | | | | | | 830 | 640 | 620 | 490 | 490 | 390 | 400 | 320 | 390 | 310 | 4.06 |
| | lb | | | | | | | 1830 | 1410 | 1370 | 1080 | 1080 | 860 | 880 | 710 | 860 | 680 | (13.3) |
| 0.5 m (1.6 ft) | kg | | | | | 1140 | 860 | 800 | 620 | 610 | 480 | 490 | 380 | 400 | 320 | 400 | 310 | 4.02 |
| | lb | | | | | 2510 | 1900 | 1760 | 1370 | 1340 | 1060 | 1080 | 840 | 880 | 710 | 880 | 680 | (13.2) |
| 0.0 m (0.0 ft) | kg | | | | | 1120 | 840 | 790 | 610 | 600 | 470 | 480 | 380 | | | 410 | 320 | 3.90 |
| | lb | | | | | 2470 | 1850 | 1740 | 1340 | 1320 | 1040 | 1060 | 840 | | | 900 | 710 | (12.8) |
| -0.5 m (-1.6 ft) | kg | *1020 | *1020 | *1260 | *1260 | 1120 | 840 | 780 | 600 | 590 | 460 | 480 | 370 | | | 440 | 350 | 3.70 |
| | lb | *2250 | *2250 | *2780 | *2780 | 2470 | 1850 | 1720 | 1320 | 1300 | 1010 | 1060 | 820 | | | 970 | 770 | (12.1) |
| -1.0 m (-3.3 ft) | kg | *1480 | *1480 | *1860 | 1390 | 1130 | 850 | 780 | 600 | 600 | 460 | | | | | 510 | 400 | 3.37 |
| | lb | *3260 | *3260 | *4100 | 3060 | 2490 | 1870 | 1720 | 1320 | 1320 | 1010 | | | | | 1120 | 880 | (11.1) |
| -1.5 m (-4.9 ft) | kg | *2070 | *2070 | 2000 | 1410 | 1140 | 860 | 790 | 610 | | | | | | | 640 | 500 | 2.88 |
| | lb | *4560 | *4560 | 4410 | 3110 | 2510 | 1900 | 1740 | 1340 | | | | | | | 1410 | 1100 | (9.5) |
| -2.0 m (-6.6 ft) | kg | | | | | *770 | *770 | | | | | | | | | *740 | *740 | 2.04 |
| | lb | | | | | *1700 | *1700 | | | | | | | | | *1630 | *1630 | (6.7) |

- Note
- Lifting capacity are based on ISO 10567.
 - Lifting capacity of the HX series does not exceed 75% of tipping load with the machine on firm, level ground or 87% of full hydraulic capacity.
 - The lift-point is bucket pivot mounting pin on the arm (without bucket mass).
 - *Indicates load limited by hydraulic capacity.

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Lifting capacities will vary with different work tools, ground conditions and attachments.



The difference between the weight of a work tool attachment must be subtracted.

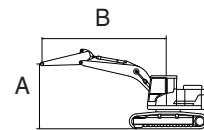
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












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| Model | Type | Boom | Arm | Counterweight | Steel shoe | Wheel | Dozer | | Outtriger | |
|--------|------|-------------|-------------|---------------|------------|------------|-------|------|-----------|------|
| HX30AZ | Cab | Length [mm] | Length [mm] | weight [kg] | width [mm] | width [mm] | Front | Rear | Front | Rear |
| | | 2030 | 1300 | 270 | 300 | - | Down | - | - | - |

 : Rating over-front
  : Rating over-side or 360 degree



| Load point height (A) | | Load radius (B) | | | | | | | | | | | | | | At max. reach | | | |
|-----------------------|----|---|---|---|---|---|---|---|---|---|---|---|---|--|---|---|---|--------|--------|
| | | 1.0 m (3.3 ft) | | 1.5 m (4.9 ft) | | 2.0 m (6.6 ft) | | 2.5 m (8.2 ft) | | 3.0 m (9.8 ft) | | 3.5 m (11.5 ft) | | 4.0 m (13.1 ft) | | Capacity | | Reach | |
| | |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | m (ft) | |
| 3.5 m (11.5 ft) | kg | | | | | | | | | | | | | | | | *670 | 620 | 2.83 |
| | lb | | | | | | | | | | | | | | | | *1480 | 1370 | (9.3) |
| 3.0 m (9.8 ft) | kg | | | | | | | | *600 | 570 | | | | | | | *600 | 480 | 3.34 |
| | lb | | | | | | | | *1320 | 1260 | | | | | | | *1320 | 1060 | (11.0) |
| 2.5 m (8.2 ft) | kg | | | | | | | | *610 | 570 | *640 | 440 | | | | | *570 | 410 | 3.67 |
| | lb | | | | | | | | *1340 | 1260 | *1410 | 970 | | | | | *1260 | 900 | (12.1) |
| 2.0 m (6.6 ft) | kg | | | | | | | | *680 | 560 | *660 | 440 | | | | | *560 | 370 | 3.89 |
| | lb | | | | | | | | *1500 | 1230 | *1460 | 970 | | | | | *1230 | 820 | (12.8) |
| 1.5 m (4.9 ft) | kg | | | | | *1210 | 1030 | *920 | 720 | *790 | 550 | *720 | 430 | *600 | 350 | | *570 | 350 | 4.01 |
| | lb | | | | | *2670 | 2270 | *2030 | 1590 | *1740 | 1210 | *1590 | 950 | *1320 | 770 | | *1260 | 770 | (13.2) |
| 1.0 m (3.3 ft) | kg | | | | | | | *1160 | 690 | *920 | 530 | *790 | 420 | *710 | 340 | | *590 | 340 | 4.06 |
| | lb | | | | | | | *2560 | 1520 | *2030 | 1170 | *1740 | 930 | *1570 | 750 | | *1300 | 750 | (13.3) |
| 0.5 m (1.6 ft) | kg | | | | | *1350 | 930 | *1340 | 670 | *1020 | 520 | *840 | 410 | *700 | 340 | | *640 | 340 | 4.02 |
| | lb | | | | | *2980 | 2050 | *2950 | 1480 | *2250 | 1150 | *1850 | 900 | *1540 | 750 | | *1410 | 750 | (13.2) |
| 0.0 m (0.0 ft) | kg | | | | | *1570 | 920 | *1430 | 660 | *1080 | 510 | *880 | 410 | | | | *710 | 350 | 3.90 |
| | lb | | | | | *3460 | 2030 | *3150 | 1460 | *2380 | 1120 | *1940 | 900 | | | | *1570 | 770 | (12.8) |
| -0.5 m (-1.6 ft) | kg | *1020 | *1020 | *1260 | *1260 | *2010 | 920 | *1420 | 650 | *1080 | 500 | *860 | 400 | | | | *780 | 380 | 3.70 |
| | lb | *2250 | *2250 | *2780 | *2780 | *4430 | 2030 | *3130 | 1430 | *2380 | 1100 | *1900 | 880 | | | | *1720 | 840 | (12.1) |
| -1.0 m (-3.3 ft) | kg | *1480 | *1480 | *1860 | 1540 | *1820 | 920 | *1320 | 650 | *1000 | 500 | | | | | | *800 | 430 | 3.37 |
| | lb | *3260 | *3260 | *4100 | 3400 | *4010 | 2030 | *2910 | 1430 | *2200 | 1100 | | | | | | *1760 | 950 | (11.1) |
| -1.5 m (-4.9 ft) | kg | *2070 | *2070 | *2210 | 1560 | *1480 | 940 | *1070 | 660 | | | | | | | | *810 | 540 | 2.88 |
| | lb | *4560 | *4560 | *4870 | 3440 | *3260 | 2070 | *2360 | 1460 | | | | | | | | *1790 | 1190 | (9.5) |
| -2.0 m (-6.6 ft) | kg | | | | | *770 | *770 | | | | | | | | | | *740 | *740 | 2.04 |
| | lb | | | | | *1700 | *1700 | | | | | | | | | | *1630 | *1630 | (6.7) |

Note 1. Lifting capacity are based on ISO 10567.

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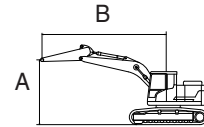
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▲ Failure to comply to the rated load can cause serious injury, death, or property damage. Make adjustments to the rated load as necessary for non-standard configurations.

(4) Steel track 300 mm, canopy type

| Model | Type | Boom | Arm | Counterweight | Steel shoe | Wheel | Dozer | | Outtriger | |
|--------|--------|-------------|-------------|---------------|------------|------------|-------|------|-----------|------|
| HX30AZ | Canopy | Length [mm] | Length [mm] | weight [kg] | width [mm] | width [mm] | Front | Rear | Front | Rear |
| | | 2030 | 1120 | 130 | 300 | - | Up | - | - | - |

 : Rating over-front
  : Rating over-side or 360 degree



| Load point height (A) | | Load radius (B) | | | | | | | | | | | | At max. reach | | |
|-----------------------|----|---|---|---|---|---|---|---|---|---|---|---|---|---|---|--------|
| | | 1.0 m (3.3 ft) | | 1.5 m (4.9 ft) | | 2.0 m (6.6 ft) | | 2.5 m (8.2 ft) | | 3.0 m (9.8 ft) | | 3.5 m (11.5 ft) | | Capacity | | Reach |
| | |  |  |  |  |  |  |  |  |  |  |  |  |  |  | m (ft) |
| 3.5 m (11.5 ft) | kg | | | | | | | | | | | | | 730 | 570 | 2.55 |
| | lb | | | | | | | | | | | | | 1610 | 1260 | (8.4) |
| 3.0 m (9.8 ft) | kg | | | | | | | | | 560 | 440 | | | 520 | 410 | 3.12 |
| | lb | | | | | | | | | 1230 | 970 | | | 1150 | 900 | (10.2) |
| 2.5 m (8.2 ft) | kg | | | | | | | | | 560 | 440 | | | 430 | 340 | 3.48 |
| | lb | | | | | | | | | 1230 | 970 | | | 950 | 750 | (11.4) |
| 2.0 m (6.6 ft) | kg | | | | | | | 740 | 580 | 550 | 430 | 420 | 330 | 380 | 300 | 3.71 |
| | lb | | | | | | | 1630 | 1280 | 1210 | 950 | 930 | 730 | 840 | 660 | (12.2) |
| 1.5 m (4.9 ft) | kg | | | | | | | 710 | 550 | 530 | 420 | 420 | 330 | 360 | 280 | 3.84 |
| | lb | | | | | | | 1570 | 1210 | 1170 | 930 | 930 | 730 | 790 | 620 | (12.6) |
| 1.0 m (3.3 ft) | kg | | | | | | | 680 | 520 | 520 | 400 | 410 | 320 | 350 | 270 | 3.89 |
| | lb | | | | | | | 1500 | 1150 | 1150 | 880 | 900 | 710 | 770 | 600 | (12.8) |
| 0.5 m (1.6 ft) | kg | | | | | | | 660 | 500 | 500 | 390 | 400 | 310 | 350 | 270 | 3.85 |
| | lb | | | | | | | 1460 | 1100 | 1100 | 860 | 880 | 680 | 770 | 600 | (12.6) |
| 0.0 m (0.0 ft) | kg | | | | | 930 | 690 | 650 | 490 | 490 | 380 | 390 | 310 | 360 | 280 | 3.73 |
| | lb | | | | | 2050 | 1520 | 1430 | 1080 | 1080 | 840 | 860 | 680 | 790 | 620 | (12.2) |
| -0.5 m (-1.6 ft) | kg | *1180 | *1180 | *1400 | 1150 | 940 | 690 | 650 | 490 | 490 | 380 | 390 | 310 | 390 | 310 | 3.50 |
| | lb | *2600 | *2600 | *3090 | 2540 | 2070 | 1520 | 1430 | 1080 | 1080 | 840 | 860 | 680 | 860 | 680 | (11.5) |
| -1.0 m (-3.3 ft) | kg | *1730 | *1730 | 1670 | 1160 | 940 | 700 | 650 | 500 | 500 | 380 | | | 460 | 360 | 3.16 |
| | lb | *3810 | *3810 | 3680 | 2560 | 2070 | 1540 | 1430 | 1100 | 1100 | 840 | | | 1010 | 790 | (10.4) |
| -1.5 m (-4.9 ft) | kg | | | 1700 | 1190 | 960 | 720 | 670 | 510 | | | | | 630 | 480 | 2.61 |
| | lb | | | 3750 | 2620 | 2120 | 1590 | 1480 | 1120 | | | | | 1390 | 1060 | (8.6) |

- Note
1. Lifting capacity are based on ISO 10567.
 2. Lifting capacity of the HX series does not exceed 75% of tipping load with the machine on firm, level ground or 87% of full hydraulic capacity.
 3. The lift-point is bucket pivot mounting pin on the arm (without bucket mass).
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※ Lifting capacities are based upon a standard machine conditions.

Lifting capacities will vary with different work tools, ground conditions and attachments.



The difference between the weight of a work tool attachment must be subtracted.

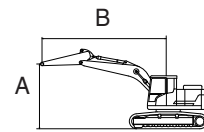
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※ Please be aware of the local regulations and instructions for lifting operations.

▲ Failure to comply to the rated load can cause serious injury, death, or property damage. Make adjustments to the rated load as necessary for non-standard configurations.

| Model | Type | Boom | Arm | Counterweight | Steel shoe | Wheel | Dozer | | Outtriger | |
|--------|--------|-------------|-------------|---------------|------------|------------|-------|------|-----------|------|
| HX30AZ | Canopy | Length [mm] | Length [mm] | weight [kg] | width [mm] | width [mm] | Front | Rear | Front | Rear |
| | | 2030 | 1120 | 130 | 300 | - | Down | - | - | - |

 : Rating over-front
  : Rating over-side or 360 degree



| Load point height (A) | | Load radius (B) | | | | | | | | | | | | At max. reach | | |
|-----------------------|----|---|---|---|---|---|---|---|---|---|--|---|---|---|---|--------|
| | | 1.0 m (3.3 ft) | | 1.5 m (4.9 ft) | | 2.0 m (6.6 ft) | | 2.5 m (8.2 ft) | | 3.0 m (9.8 ft) | | 3.5 m (11.5 ft) | | Capacity | | Reach |
| | |  |  |  |  |  |  |  |  |  |  |  |  |  |  | m (ft) |
| 3.5 m (11.5 ft) | kg | | | | | | | | | | | | | *740 | 620 | 2.55 |
| | lb | | | | | | | | | | | | | *1630 | 1370 | (8.4) |
| 3.0 m (9.8 ft) | kg | | | | | | | | | *690 | 470 | | | *710 | 440 | 3.12 |
| | lb | | | | | | | | | *1520 | 1040 | | | *1570 | 970 | (10.2) |
| 2.5 m (8.2 ft) | kg | | | | | | | | | *680 | 470 | | | *670 | 370 | 3.48 |
| | lb | | | | | | | | | *1500 | 1040 | | | *1480 | 820 | (11.4) |
| 2.0 m (6.6 ft) | kg | | | | | | | *800 | 630 | *740 | 470 | *710 | 360 | *660 | 330 | 3.71 |
| | lb | | | | | | | *1760 | 1390 | *1630 | 1040 | *1570 | 790 | *1460 | 730 | (12.2) |
| 1.5 m (4.9 ft) | kg | | | | | | | *1020 | 600 | *850 | 450 | *760 | 350 | *670 | 300 | 3.84 |
| | lb | | | | | | | *2250 | 1320 | *1870 | 990 | *1680 | 770 | *1480 | 660 | (12.6) |
| 1.0 m (3.3 ft) | kg | | | | | | | *1240 | 570 | *960 | 440 | *820 | 340 | *700 | 290 | 3.89 |
| | lb | | | | | | | *2730 | 1260 | *2120 | 970 | *1810 | 750 | *1540 | 640 | (12.8) |
| 0.5 m (1.6 ft) | kg | | | | | | | *1390 | 550 | *1050 | 420 | *860 | 340 | *760 | 290 | 3.85 |
| | lb | | | | | | | *3060 | 1210 | *2310 | 930 | *1900 | 750 | *1680 | 640 | (12.6) |
| 0.0 m (0.0 ft) | kg | | | | | *1580 | 760 | *1440 | 540 | *1090 | 410 | *880 | 330 | *800 | 300 | 3.73 |
| | lb | | | | | *3480 | 1680 | *3170 | 1190 | *2400 | 900 | *1940 | 730 | *1760 | 660 | (12.2) |
| -0.5 m (-1.6 ft) | kg | *1180 | *1180 | *1400 | 1280 | *1940 | 760 | *1400 | 540 | *1070 | 410 | *820 | 330 | *820 | 330 | 3.50 |
| | lb | *2600 | *2600 | *3090 | 2820 | *4280 | 1680 | *3090 | 1190 | *2360 | 900 | *1810 | 730 | *1810 | 730 | (11.5) |
| -1.0 m (-3.3 ft) | kg | *1730 | *1730 | *2150 | 1290 | *1700 | 770 | *1250 | 540 | *940 | 420 | | | *840 | 390 | 3.16 |
| | lb | *3810 | *3810 | *4740 | 2840 | *3750 | 1700 | *2760 | 1190 | *2070 | 930 | | | *1850 | 860 | (10.4) |
| -1.5 m (-4.9 ft) | kg | | | *1840 | 1320 | *1280 | 790 | *920 | 560 | | | | | *830 | 520 | 2.61 |
| | lb | | | *4060 | 2910 | *2820 | 1740 | *2030 | 1230 | | | | | *1830 | 1150 | (8.6) |

- Note
1. Lifting capacity are based on ISO 10567.
 2. Lifting capacity of the HX series does not exceed 75% of tipping load with the machine on firm, level ground or 87% of full hydraulic capacity.
 3. The lift-point is bucket pivot mounting pin on the arm (without bucket mass).
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Lifting capacities will vary with different work tools, ground conditions and attachments.



The difference between the weight of a work tool attachment must be subtracted.

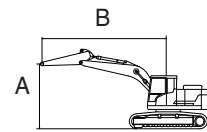
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

※ Please be aware of the local regulations and instructions for lifting operations.

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| Model | Type | Boom | Arm | Counterweight | Steel shoe | Wheel | Dozer | | Outtriger | |
|--------|--------|-------------|-------------|---------------|------------|------------|-------|------|-----------|------|
| HX30AZ | Canopy | Length [mm] | Length [mm] | weight [kg] | width [mm] | width [mm] | Front | Rear | Front | Rear |
| | | 2030 | 1120 | 270 | 300 | - | Up | - | - | - |

 : Rating over-front
  : Rating over-side or 360 degree



| Load point height (A) | Load radius (B) | | | | | | | | | | | | At max. reach | | | |
|-----------------------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|--------|--------|
| | 1.0 m (3.3 ft) | | 1.5 m (4.9 ft) | | 2.0 m (6.6 ft) | | 2.5 m (8.2 ft) | | 3.0 m (9.8 ft) | | 3.5 m (11.5 ft) | | Capacity | | Reach | |
| |  |  |  |  |  |  |  |  |  |  |  |  |  |  | m (ft) | |
| 3.5 m (11.5 ft) | kg | | | | | | | | | | | | | *740 | 660 | 2.55 |
| | lb | | | | | | | | | | | | | *1630 | 1460 | (8.4) |
| 3.0 m (9.8 ft) | kg | | | | | | | | 630 | 500 | | | | 590 | 470 | 3.12 |
| | lb | | | | | | | | 1390 | 1100 | | | | 1300 | 1040 | (10.2) |
| 2.5 m (8.2 ft) | kg | | | | | | | | 630 | 500 | | | | 490 | 390 | 3.48 |
| | lb | | | | | | | | 1390 | 1100 | | | | 1080 | 860 | (11.4) |
| 2.0m (6.6 ft) | kg | | | | | | | *800 | 660 | 620 | 500 | 480 | 390 | 440 | 350 | 3.71 |
| | lb | | | | | | | *1760 | 1460 | 1370 | 1100 | 1060 | 860 | 970 | 770 | (12.2) |
| 1.5m (4.9 ft) | kg | | | | | | | 810 | 630 | 610 | 480 | 480 | 380 | 410 | 330 | 3.84 |
| | lb | | | | | | | 1790 | 1390 | 1340 | 1060 | 1060 | 840 | 900 | 730 | (12.6) |
| 1.0m (3.3 ft) | kg | | | | | | | 780 | 610 | 590 | 470 | 470 | 370 | 400 | 320 | 3.89 |
| | lb | | | | | | | 1720 | 1340 | 1300 | 1040 | 1040 | 820 | 880 | 710 | (12.8) |
| 0.5m (1.6 ft) | kg | | | | | | | 760 | 590 | 580 | 450 | 460 | 360 | 400 | 320 | 3.85 |
| | lb | | | | | | | 1680 | 1300 | 1280 | 990 | 1010 | 790 | 880 | 710 | (12.6) |
| 0.0m (0.0 ft) | kg | | | | | 1070 | 800 | 750 | 580 | 570 | 450 | 460 | 360 | 420 | 330 | 3.73 |
| | lb | | | | | 2360 | 1760 | 1650 | 1280 | 1260 | 990 | 1010 | 790 | 930 | 730 | (12.2) |
| -0.5m (-1.6 ft) | kg | *1180 | *1180 | *1400 | 1330 | 1070 | 810 | 740 | 570 | 570 | 440 | 460 | 360 | 450 | 360 | 3.50 |
| | lb | *2600 | *2600 | *3090 | 2930 | 2360 | 1790 | 1630 | 1260 | 1260 | 970 | 1010 | 790 | 990 | 790 | (11.5) |
| -1.0m (-3.3 ft) | kg | *1730 | *1730 | 1900 | 1340 | 1080 | 810 | 750 | 580 | 570 | 450 | | | 530 | 420 | 3.16 |
| | lb | *3810 | *3810 | 4190 | 2950 | 2380 | 1790 | 1650 | 1280 | 1260 | 990 | | | 1170 | 930 | (10.4) |
| -1.5m (-4.9 ft) | kg | | | *1840 | 1370 | 1100 | 830 | 760 | 590 | | | | | 720 | 560 | 2.61 |
| | lb | | | *4060 | 3020 | 2430 | 1830 | 1680 | 1300 | | | | | 1590 | 1230 | (8.6) |

Note 1. Lifting capacity are based on ISO 10567.

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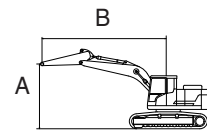
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| Model | Type | Boom | Arm | Counterweight | Steel shoe | Wheel | Dozer | | Outtriger | |
|--------|--------|-------------|-------------|---------------|------------|------------|-------|------|-----------|------|
| HX30AZ | Canopy | Length [mm] | Length [mm] | weight [kg] | width [mm] | width [mm] | Front | Rear | Front | Rear |
| | | 2030 | 1120 | 270 | 300 | - | Down | - | - | - |

 : Rating over-front
  : Rating over-side or 360 degree



| Load point height (A) | | Load radius (B) | | | | | | | | | | | | At max. reach | | |
|-----------------------|----|---|---|---|---|---|---|---|---|---|--|---|---|---|---|--------|
| | | 1.0 m (3.3 ft) | | 1.5 m (4.9 ft) | | 2.0 m (6.6 ft) | | 2.5 m (8.2 ft) | | 3.0 m (9.8 ft) | | 3.5 m (11.5 ft) | | Capacity | | Reach |
| | |  |  |  |  |  |  |  |  |  |  |  |  |  |  | m (ft) |
| 3.5 m (11.5 ft) | kg | | | | | | | | | | | | | *740 | 700 | 2.55 |
| | lb | | | | | | | | | | | | | *1630 | 1540 | (8.4) |
| 3.0 m (9.8 ft) | kg | | | | | | | | | *690 | 540 | | | *710 | 510 | 3.12 |
| | lb | | | | | | | | | *1520 | 1190 | | | *1570 | 1120 | (10.2) |
| 2.5 m (8.2 ft) | kg | | | | | | | | | *680 | 540 | | | *670 | 420 | 3.48 |
| | lb | | | | | | | | | *1500 | 1190 | | | *1480 | 930 | (11.4) |
| 2.0 m (6.6 ft) | kg | | | | | | | *800 | 710 | *740 | 530 | *710 | 420 | *660 | 380 | 3.71 |
| | lb | | | | | | | *1760 | 1570 | *1630 | 1170 | *1570 | 930 | *1460 | 840 | (12.2) |
| 1.5 m (4.9 ft) | kg | | | | | | | *1020 | 680 | *850 | 520 | *760 | 410 | *670 | 350 | 3.84 |
| | lb | | | | | | | *2250 | 1500 | *1870 | 1150 | *1680 | 900 | *1480 | 770 | (12.6) |
| 1.0 m (3.3 ft) | kg | | | | | | | *1240 | 660 | *960 | 500 | *820 | 400 | *700 | 340 | 3.89 |
| | lb | | | | | | | *2730 | 1460 | *2120 | 1100 | *1810 | 880 | *1540 | 750 | (12.8) |
| 0.5 m (1.6 ft) | kg | | | | | | | *1390 | 640 | *1050 | 490 | *860 | 390 | *760 | 340 | 3.85 |
| | lb | | | | | | | *3060 | 1410 | *2310 | 1080 | *1900 | 860 | *1680 | 750 | (12.6) |
| 0.0 m (0.0 ft) | kg | | | | | *1580 | 880 | *1440 | 620 | *1090 | 480 | *880 | 390 | *800 | 360 | 3.73 |
| | lb | | | | | *3480 | 1940 | *3170 | 1370 | *2400 | 1060 | *1940 | 860 | *1760 | 790 | (12.2) |
| -0.5 m (-1.6 ft) | kg | *1180 | *1180 | *1400 | *1400 | *1940 | 880 | *1400 | 620 | *1070 | 480 | *820 | 390 | *820 | 390 | 3.50 |
| | lb | *2600 | *2600 | *3090 | *3090 | *4280 | 1940 | *3090 | 1370 | *2360 | 1060 | *1810 | 860 | *1810 | 860 | (11.5) |
| -1.0 m (-3.3 ft) | kg | *1730 | *1730 | *2150 | 1480 | *1700 | 890 | *1250 | 630 | *940 | 480 | | | *840 | 450 | 3.16 |
| | lb | *3810 | *3810 | *4740 | 3260 | *3750 | 1960 | *2760 | 1390 | *2070 | 1060 | | | *1850 | 990 | (10.4) |
| -1.5 m (-4.9 ft) | kg | | | *1840 | 1510 | *1280 | 900 | *920 | 640 | | | | | *830 | 600 | 2.61 |
| | lb | | | *4060 | 3330 | *2820 | 1980 | *2030 | 1410 | | | | | *1830 | 1320 | (8.6) |

- Note
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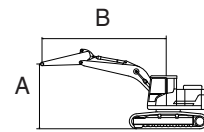
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





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| Model | Type | Boom | Arm | Counterweight | Steel shoe | Wheel | Dozer | | Outtriger | |
|--------|--------|-------------|-------------|---------------|------------|------------|-------|------|-----------|------|
| HX30AZ | Canopy | Length [mm] | Length [mm] | weight [kg] | width [mm] | width [mm] | Front | Rear | Front | Rear |
| | | 2030 | 1300 | 130 | 300 | - | Up | - | - | - |

 : Rating over-front
 ·  : Rating over-side or 360 degree



| Load point height (A) | | Load radius (B) | | | | | | | | | | | | | | At max. reach | | |
|-----------------------|----------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|----------------|
| | | 1.0 m (3.3 ft) | | 1.5 m (4.9 ft) | | 2.0 m (6.6 ft) | | 2.5 m (8.2 ft) | | 3.0 m (9.8 ft) | | 3.5 m (11.5 ft) | | 4.0 m (13.1 ft) | | Capacity | | Reach |
| | |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | m (ft) |
| 3.5 m (11.5 ft) | kg lb | | | | | | | | | | | | | | | 620 1370 | 490 1080 | 2.83 (9.3) |
| 3.0 m (9.8 ft) | kg lb | | | | | | | | | 570 1260 | 450 990 | | | | | 470 1040 | 370 820 | 3.34 (11.0) |
| 2.5 m (8.2 ft) | kg lb | | | | | | | | | 560 1230 | 450 990 | 430 950 | 340 750 | | | 400 880 | 310 680 | 3.67 (12.1) |
| 2.0 m (6.6 ft) | kg lb | | | | | | | | | 550 1210 | 440 970 | 430 950 | 340 750 | | | 360 790 | 280 620 | 3.89 (12.8) |
| 1.5 m (4.9 ft) | kg lb | | | | | 1060 2340 | 800 1760 | 720 1590 | 560 1230 | 540 1190 | 420 930 | 420 930 | 330 730 | 340 750 | 260 570 | 330 730 | 260 570 | 4.01 (13.2) |
| 1.0 m (3.3 ft) | kg lb | | | | | | | 690 1520 | 530 1170 | 520 1150 | 410 900 | 410 900 | 320 710 | 330 730 | 260 570 | 320 710 | 250 550 | 4.06 (13.3) |
| 0.5 m (1.6 ft) | kg lb | | | | | 950 2090 | 700 1540 | 670 1480 | 510 1120 | 510 1120 | 390 860 | 400 880 | 310 680 | 330 730 | 250 550 | 320 710 | 250 550 | 4.02 (13.2) |
| 0.0 m (0.0 ft) | kg lb | | | | | 930 2050 | 690 1520 | 650 1430 | 500 1100 | 490 1080 | 380 840 | 390 860 | 310 680 | | | 340 750 | 260 570 | 3.90 (12.8) |
| -0.5 m (-1.6 ft) | kg lb | *1020 *2250 | *1020 *2250 | *1260 *2780 | 1140 2510 | 930 2050 | 690 1520 | 650 1430 | 490 1080 | 490 1080 | 380 840 | 390 860 | 300 660 | | | 360 790 | 280 620 | 3.70 (12.1) |
| -1.0 m (-3.3 ft) | kg lb | *1480 *3260 | *1480 *3260 | 1650 3640 | 1150 2540 | 940 2070 | 690 1520 | 650 1430 | 490 1080 | 490 1080 | 380 840 | | | | | 420 930 | 320 710 | 3.37 (11.1) |
| -1.5 m (-4.9 ft) | kg lb | *2070 *4560 | *2070 *4560 | 1680 3700 | 1170 2580 | 950 2090 | 710 1570 | 660 1460 | 500 1100 | | | | | | | 530 1170 | 410 900 | 2.88 (9.5) |
| -2.0 m (-6.6 ft) | kg lb | | | | | *770 *1700 | 740 1630 | | | | | | | | | *740 *1630 | 720 1590 | 2.04 (6.7) |

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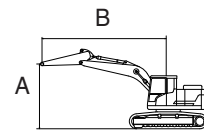
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





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| Model | Type | Boom | Arm | Counterweight | Steel shoe | Wheel | Dozer | | Outtriger | |
|--------|--------|-------------|-------------|---------------|------------|------------|-------|------|-----------|------|
| HX30AZ | Canopy | Length [mm] | Length [mm] | weight [kg] | width [mm] | width [mm] | Front | Rear | Front | Rear |
| | | 2030 | 1300 | 130 | 300 | - | Down | - | - | - |

 : Rating over-front
  : Rating over-side or 360 degree



| Load point height (A) | | Load radius (B) | | | | | | | | | | | | | | At max. reach | | |
|-----------------------|----------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|----------------|
| | | 1.0 m (3.3 ft) | | 1.5 m (4.9 ft) | | 2.0 m (6.6 ft) | | 2.5 m (8.2 ft) | | 3.0 m (9.8 ft) | | 3.5 m (11.5 ft) | | 4.0 m (13.1 ft) | | Capacity | | Reach |
| | |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | m (ft) |
| 3.5 m (11.5 ft) | kg lb | | | | | | | | | | | | | | | *670 *1480 | 520 1150 | 2.83 (9.3) |
| 3.0 m (9.8 ft) | kg lb | | | | | | | | | *600 *1320 | 480 1060 | | | | | *600 *1320 | 400 880 | 3.34 (11.0) |
| 2.5 m (8.2 ft) | kg lb | | | | | | | | | *610 *1340 | 480 1060 | *640 *1410 | 370 820 | | | *570 *1260 | 340 750 | 3.67 (12.1) |
| 2.0 m (6.6 ft) | kg lb | | | | | | | | | *680 *1500 | 470 1040 | *660 *1460 | 370 820 | | | *560 *1230 | 300 660 | 3.89 (12.8) |
| 1.5 m (4.9 ft) | kg lb | | | | | *1210 *2670 | 870 1920 | *920 *2030 | 610 1340 | *790 *1740 | 460 1010 | *720 *1590 | 360 790 | *600 *1320 | 290 640 | *570 *1260 | 280 620 | 4.01 (13.2) |
| 1.0 m (3.3 ft) | kg lb | | | | | | | *1160 *2560 | 580 1280 | *920 *2030 | 440 970 | *790 *1740 | 350 770 | *710 *1570 | 280 620 | *590 *1300 | 270 600 | 4.06 (13.3) |
| 0.5 m (1.6 ft) | kg lb | | | | | *1350 *2980 | 770 1700 | *1340 *2950 | 550 1210 | *1020 *2250 | 430 950 | *840 *1850 | 340 750 | *700 *1540 | 280 620 | *640 *1410 | 270 600 | 4.02 (13.2) |
| 0.0 m (0.0 ft) | kg lb | | | | | *1570 *3460 | 760 1680 | *1430 *3150 | 540 1190 | *1080 *2380 | 420 930 | *880 *1940 | 330 730 | | | *710 *1570 | 280 620 | 3.90 (12.8) |
| -0.5 m (-1.6 ft) | kg lb | *1020 *2250 | *1020 *2250 | *1260 *2780 | *1260 *2780 | *2010 *4430 | 760 1680 | *1420 *3130 | 540 1190 | *1080 *2380 | 410 900 | *860 *1900 | 330 730 | | | *780 *1720 | 310 680 | 3.70 (12.1) |
| -1.0 m (-3.3 ft) | kg lb | *1480 *3260 | *1480 *3260 | *1860 *4100 | 1280 2820 | *1820 *4010 | 760 1680 | *1320 *2910 | 540 1190 | *1000 *2200 | 410 900 | | | | | *800 *1760 | 350 770 | 3.37 (11.1) |
| -1.5 m (-4.9 ft) | kg lb | *2070 *4560 | *2070 *4560 | *2210 *4870 | 1300 2870 | *1480 *3260 | 780 1720 | *1070 *2360 | 550 1210 | | | | | | | *810 *1790 | 450 990 | 2.88 (9.5) |
| -2.0 m (-6.6 ft) | kg lb | | | | | *770 *1700 | *770 *1700 | | | | | | | | | *740 *1630 | *740 *1630 | 2.04 (6.7) |

Note 1. Lifting capacity are based on ISO 10567.

2. Lifting capacity of the HX series does not exceed 75% of tipping load with the machine on firm, level ground or 87% of full hydraulic capacity.

3. The lift-point is bucket pivot mounting pin on the arm (without bucket mass).

4. *Indicates load limited by hydraulic capacity.

※ Lifting capacities are based upon a standard machine conditions.

Lifting capacities will vary with different work tools, ground conditions and attachments.



The difference between the weight of a work tool attachment must be subtracted.

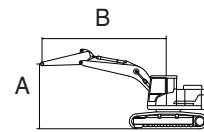
Consult with your local HD Hyundai Construction Equipment dealer regarding the lifting capacities for specific work tools and attachments.

















※ Please be aware of the local regulations and instructions for lifting operations.

▲ Failure to comply to the rated load can cause serious injury, death, or property damage. Make adjustments to the rated load as necessary for non-standard configurations.

| Model | Type | Boom | Arm | Counterweight | Steel shoe | Wheel | Dozer | | Outtriger | |
|--------|--------|-------------|-------------|---------------|------------|------------|-------|------|-----------|------|
| HX30AZ | Canopy | Length [mm] | Length [mm] | weight [kg] | width [mm] | width [mm] | Front | Rear | Front | Rear |
| | | 2030 | 1300 | 270 | 300 | - | Up | - | - | - |

 : Rating over-front
 ·  : Rating over-side or 360 degree



| Load point height (A) | | Load radius (B) | | | | | | | | | | | | | | At max. reach | | |
|-----------------------|----------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|----------------|
| | | 1.0 m (3.3 ft) | | 1.5 m (4.9 ft) | | 2.0 m (6.6 ft) | | 2.5 m (8.2 ft) | | 3.0 m (9.8 ft) | | 3.5 m (11.5 ft) | | 4.0 m (13.1 ft) | | Capacity | | Reach |
| | |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | m (ft) |
| 3.5 m (11.5 ft) | kg lb | | | | | | | | | | | | | | | *670 *1480 | 560 1230 | 2.83 (9.3) |
| 3.0 m (9.8 ft) | kg lb | | | | | | | | | *600 *1320 | 510 1120 | | | | | 530 1170 | 430 950 | 3.34 (11.0) |
| 2.5 m (8.2 ft) | kg lb | | | | | | | | | *610 *1340 | 510 1120 | 490 1080 | 400 880 | | | 450 990 | 360 790 | 3.67 (12.1) |
| 2.0 m (6.6 ft) | kg lb | | | | | | | | | 630 1390 | 500 1100 | 490 1080 | 390 860 | | | 410 900 | 330 730 | 3.89 (12.8) |
| 1.5 m (4.9 ft) | kg lb | | | | | 1190 2620 | 920 2030 | 820 1810 | 640 1410 | 610 1340 | 490 1080 | 480 1060 | 380 840 | 390 860 | 310 680 | 390 860 | 310 680 | 4.01 (13.2) |
| 1.0 m (3.3 ft) | kg lb | | | | | | | 790 1740 | 620 1370 | 600 1320 | 470 1040 | 470 1040 | 370 820 | 380 840 | 300 660 | 370 820 | 300 660 | 4.06 (13.3) |
| 0.5 m (1.6 ft) | kg lb | | | | | 1090 2400 | 820 1810 | 760 1680 | 590 1300 | 580 1280 | 460 1010 | 460 1010 | 370 820 | 380 840 | 300 660 | 380 840 | 300 660 | 4.02 (13.2) |
| 0.0 m (0.0 ft) | kg lb | | | | | 1070 2360 | 800 1760 | 750 1650 | 580 1280 | 570 1260 | 450 990 | 460 1010 | 360 790 | | | 390 860 | 310 680 | 3.90 (12.8) |
| -0.5 m (-1.6 ft) | kg lb | *1020 *2250 | *1020 *2250 | *1260 *2780 | *1260 *2780 | 1070 2360 | 800 1760 | 740 1630 | 570 1260 | 560 1230 | 440 970 | 450 990 | 360 790 | | | 420 930 | 330 730 | 3.70 (12.1) |
| -1.0 m (-3.3 ft) | kg lb | *1480 *3260 | *1480 *3260 | *1860 *4100 | 1330 2930 | 1070 2360 | 810 1790 | 740 1630 | 570 1260 | 570 1260 | 440 970 | | | | | 480 1060 | 380 840 | 3.37 (11.1) |
| -1.5 m (-4.9 ft) | kg lb | *2070 *4560 | *2070 *4560 | 1910 4210 | 1350 2980 | 1090 2400 | 820 1810 | 750 1650 | 580 1280 | | | | | | | 610 1340 | 480 1060 | 2.88 (9.5) |
| -2.0 m (-6.6 ft) | kg lb | | | | | *770 *1700 | *770 *1700 | | | | | | | | | *740 *1630 | *740 *1630 | 2.04 (6.7) |

- Note
1. Lifting capacity are based on ISO 10567.
 2. Lifting capacity of the HX series does not exceed 75% of tipping load with the machine on firm, level ground or 87% of full hydraulic capacity.
 3. The lift-point is bucket pivot mounting pin on the arm (without bucket mass).
 4. *Indicates load limited by hydraulic capacity.

※ Lifting capacities are based upon a standard machine conditions.

Lifting capacities will vary with different work tools, ground conditions and attachments.



The difference between the weight of a work tool attachment must be subtracted.

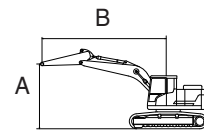
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





※ Please be aware of the local regulations and instructions for lifting operations.

▲ Failure to comply to the rated load can cause serious injury, death, or property damage. Make adjustments to the rated load as necessary for non-standard configurations.

| Model | Type | Boom | Arm | Counterweight | Steel shoe | Wheel | Dozer | | Outtriger | |
|--------|--------|-------------|-------------|---------------|------------|------------|-------|------|-----------|------|
| HX30AZ | Canopy | Length [mm] | Length [mm] | weight [kg] | width [mm] | width [mm] | Front | Rear | Front | Rear |
| | | 2030 | 1300 | 270 | 300 | - | Down | - | - | - |

 : Rating over-front
  : Rating over-side or 360 degree



| Load point height (A) | | Load radius (B) | | | | | | | | | | | | | | At max. reach | | |
|-----------------------|----------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|----------------|
| | | 1.0 m (3.3 ft) | | 1.5 m (4.9 ft) | | 2.0 m (6.6 ft) | | 2.5 m (8.2 ft) | | 3.0 m (9.8 ft) | | 3.5 m (11.5 ft) | | 4.0 m (13.1 ft) | | Capacity | | Reach |
| | |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | m (ft) |
| 3.5 m (11.5 ft) | kg lb | | | | | | | | | | | | | | | *670 *1480 | 600 1320 | 2.83 (9.3) |
| 3.0 m (9.8 ft) | kg lb | | | | | | | | | *600 *1320 | 550 1210 | | | | | *600 *1320 | 460 1010 | 3.34 (11.0) |
| 2.5 m (8.2 ft) | kg lb | | | | | | | | | *610 *1340 | 550 1210 | *640 *1410 | 420 930 | | | *570 *1260 | 390 860 | 3.67 (12.1) |
| 2.0 m (6.6 ft) | kg lb | | | | | | | | | *680 *1500 | 540 1190 | *660 *1460 | 420 930 | | | *560 *1230 | 350 770 | 3.89 (12.8) |
| 1.5 m (4.9 ft) | kg lb | | | | | *1210 *2670 | 990 2180 | *920 *2030 | 690 1520 | *790 *1740 | 520 1150 | *720 *1590 | 410 900 | *600 *1320 | 330 730 | *570 *1260 | 330 730 | 4.01 (13.2) |
| 1.0 m (3.3 ft) | kg lb | | | | | | | *1160 *2560 | 660 1460 | *920 *2030 | 510 1120 | *790 *1740 | 400 880 | *710 *1570 | 330 730 | *590 *1300 | 320 710 | 4.06 (13.3) |
| 0.5 m (1.6 ft) | kg lb | | | | | *1350 *2980 | 890 1960 | *1340 *2950 | 640 1410 | *1020 *2250 | 490 1080 | *840 *1850 | 390 860 | *700 *1540 | 320 710 | *640 *1410 | 320 710 | 4.02 (13.2) |
| 0.0 m (0.0 ft) | kg lb | | | | | *1570 *3460 | 880 1940 | *1430 *3150 | 630 1390 | *1080 *2380 | 480 1060 | *880 *1940 | 390 860 | | | *710 *1570 | 330 730 | 3.90 (12.8) |
| -0.5 m (-1.6 ft) | kg lb | *1020 *2250 | *1020 *2250 | *1260 *2780 | *1260 *2780 | *2010 *4430 | 880 1940 | *1420 *3130 | 620 1370 | *1080 *2380 | 480 1060 | *860 *1900 | 390 860 | | | *780 *1720 | 360 790 | 3.70 (12.1) |
| -1.0 m (-3.3 ft) | kg lb | *1480 *3260 | *1480 *3260 | *1860 *4100 | 1470 3240 | *1820 *4010 | 880 1940 | *1320 *2910 | 620 1370 | *1000 *2200 | 480 1060 | | | | | *800 *1760 | 410 900 | 3.37 (11.1) |
| -1.5 m (-4.9 ft) | kg lb | *2070 *4560 | *2070 *4560 | *2210 *4870 | 1490 3280 | *1480 *3260 | 890 1960 | *1070 *2360 | 630 1390 | | | | | | | *810 *1790 | 520 1150 | 2.88 (9.5) |
| -2.0 m (-6.6 ft) | kg lb | | | | | *770 *1700 | *770 *1700 | | | | | | | | | *740 *1630 | *740 *1630 | 2.04 (6.7) |

- Note
- Lifting capacity are based on ISO 10567.
 - Lifting capacity of the HX series does not exceed 75% of tipping load with the machine on firm, level ground or 87% of full hydraulic capacity.
 - The lift-point is bucket pivot mounting pin on the arm (without bucket mass).
 - *Indicates load limited by hydraulic capacity.

※ Lifting capacities are based upon a standard machine conditions.

Lifting capacities will vary with different work tools, ground conditions and attachments.

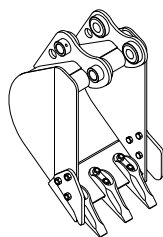
The difference between the weight of a work tool attachment must be subtracted.

Consult with your local HD Hyundai Construction Equipment dealer regarding the lifting capacities for specific work tools and attachments.

※ Please be aware of the local regulations and instructions for lifting operations.

▲ Failure to comply to the rated load can cause serious injury, death, or property damage. Make adjustments to the rated load as necessary for non-standard configurations.

6. BUCKET SELECTION GUIDE



0.04 m³ SAE
heaped bucket

| Capacity | | Width | | Weight | Recommendation | |
|--|--|------------------------|---------------------|-------------------|---------------------|--------------------|
| | | | | | 2.03 m (6' 8") boom | |
| SAE heaped | CECE heaped | Without side cutter | With side cutter | | 1.12 m (3' 8") arm | 1.30 m (4' 3") arm |
| 0.07 m ³ (0.09 yd ³) | 0.06 m ³ (0.08 yd ³) | 432 mm (17.0") | 474 mm (18.7") | 55 kg (120 lb) | ● | ● |

● Applicable for materials with density of 2100 kg/m³ (3500 lb/yd³) or less

※ These recommendations are for general conditions and average use.

Work tools and ground conditions have effects on machine performance.

Select an optimum combination according to the working conditions and the type of work that is being done.

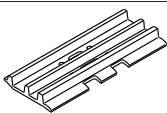
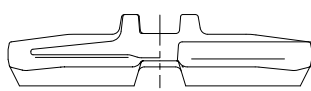
Consult with your local HD Hyundai Construction Equipment dealer for information on selecting the correct boom-arm-bucket combination.

7. UNDERCARRIAGE

1) TRACKS

X-leg type center frame is integrally welded with reinforced box-section track frames. The design includes dry tracks, lubricated rollers, idlers, sprockets, hydraulic track adjusters with shock absorbing springs and assembled track-type tractor shoes with triple grousers.

2) TYPES OF SHOES

| Model | Shapes | | Steel track | Rubber track |
|--------|-----------------------------------|---------------------------|---|---|
| | | |  |  |
| HX25AZ | Shoe width | mm (in) | 300 (12") | 250 (10") |
| | Operating weight (canopy / cabin) | kg (lb) | 2821 (6220) | 2685 (5920) |
| | Ground pressure | kgf/cm ² (psi) | 0.28 (3.98) | 0.32 (4.55) |
| | Overall width | mm (ft-in) | 1550 (5' 1") | 1500 (4' 11") |
| HX30AZ | Shoe width | mm (in) | 300 (12") | 300 (12") |
| | Operating weight (canopy / cabin) | kg (lb) | 2976 (6560) | 2890 (6370) |
| | Ground pressure | kgf/cm ² (psi) | 0.30 (4.27) | 0.29 (4.12) |
| | Overall width | mm (ft-in) | 1550 (5' 1") | 1550 (5' 1") |

3) SELECTION OF TRACK SHOE

Suitable track shoes should be selected according to operating conditions.

Method of selecting shoes

Confirm the category from the list of applications in **table 2**, then use **table 1** to select the shoe. Wide shoes (categories B and C) have limitations on applications. Before using wide shoes, check the precautions, then investigate and study the operating conditions to confirm if these shoes are suitable.

Select the narrowest shoe possible to meet the required flotation and ground pressure. Application of wider shoes than recommendations will cause unexpected problem such as bending of shoes, crack of link, breakage of pin, loosening of shoe bolts and the other various problems.

Table 1

| Model | Track shoe | Specification | Category |
|--------|---|---------------|----------|
| HX25AZ | T/chain-rubber for rail interlocking (250 mm) | Standard | B |
| | T/chain-triple for mini (300 mm) | Option | A |
| HX30AZ | T/chain-rubber for rail interlocking (300 mm) | Standard | B |
| | T/chain-triple for mini (300 mm) | Option | A |

Table 2

| Category | Applications | Precautions |
|----------|---------------------------------------|---|
| A | Rocky ground, river beds, normal soil | <ul style="list-style-type: none">Travel at low speed on rough ground with large obstacles such as boulders or fallen trees or a wide range of general civil engineering work |
| B | Normal soil, soft ground | <ul style="list-style-type: none">These shoes cannot be used on rough ground with large obstacles such as boulders or fallen treesTravel at high speed only on flat groundTravel slowly at low speed if it is impossible to avoid going over obstacles |
| C | Extremely soft ground (swampy ground) | <ul style="list-style-type: none">Use the shoes only in the conditions that the machine sinks and it is impossible to use the shoes of category A or BThese shoes cannot be used on rough ground with large obstacles such as boulders or fallen treesTravel at high speed only on flat groundTravel slowly at low speed if it is impossible to avoid going over obstacles |

8. SPECIFICATIONS FOR MAJOR COMPONENTS

1) ENGINE

| Item | Specification |
|-------------------------------------|-----------------------------------|
| Model | KUBOTA D1305-E4B |
| Type | 4-cycle vertical, IDI diesel fuel |
| Cooling method | Water cooling |
| Number of cylinders and arrangement | 3 cylinders, in-line |
| Firing order | 1-2-3 |
| Combustion chamber type | Direct injection |
| Cylinder bore × stroke | 78 × 88 mm (3.07" × 3.46") |
| Piston displacement | 1261 cc (77 cu in) |
| Compression ratio | 24 : 1 |
| Gross power | 18.5 hp (24.8 kW) |
| Net power | 18.2 hp (24.4 kW) |
| Max. power | 18.5 hp (24.8 kW) |
| Peak torque at 1900 rpm | 8.3 kgf · m (60 lbf · ft) |
| Engine oil quantity | 5.7 ℓ (2.3 U.S. gal) |
| Dry weight | 95 kg (209 lb) |
| Starting motor | 12V-1.4 kW |
| Alternator | 12V-40 A |

2) MAIN PUMP

| Item | Specification |
|------------------|--|
| Type | Variable displacement tandem axis piston pumps |
| Maximum pressure | 220 kgf/cm ² (3130 psi) |
| Capacity | 2 × 12 cc/rev |
| Rated oil flow | 2 × 28.2 ℓ/min (7.4 U.S. gpm / 6.2 U.K. gpm) |
| Rated speed | 2350 rpm |

3) GEAR PUMP

| Item | Specification |
|------------------|---|
| Type | Fixed displacement gear pump single stage |
| Capacity | 8.5/4.5 cc/rev |
| Maximum pressure | 175/30 kgf/cm ² (2489/427 psi) |
| Rated oil flow | 20/10.5 ℓ /min (5.3/2.8 U.S. gpm, 4.4/2.3 U.K. gpm) |

4) MAIN CONTROL VALVE

| Item | Specification |
|---------------------------------|---|
| Type | Sectional, 10 spools |
| Operating method | Hydraulic pilot system |
| Main relief valve pressure | 220 kgf/cm ² (3130 psi) |
| Overload relief valve pressure | 240 kgf/cm ² (3414 psi) |
| 2way (breaker piping) flow rate | 48 ℓ /min (12.7 U.S. gpm / 10.6 U.K. gpm) |

5) SWING MOTOR

| Item | Specification |
|------------------------|--|
| Type | Fixed displacement axial piston motor |
| Capacity | 12.5 cc/rev |
| Relief pressure | 170 kgf/cm ² (2420 psi) |
| Braking system | Automatic, spring applied hydraulic released |
| Braking torque | 7 kgf·m (50.6 lbf·ft) |
| Brake release pressure | 25~50 kgf/cm ² (356~711 psi) |
| Reduction gear type | 2 - stage planetary |

6) TRAVEL MOTOR

| Item | Specification |
|------------------------|---|
| Type | Two fixed displacement axial piston motor |
| Capacity | 20.7/10.9 cc/rev |
| Relief pressure | - |
| Braking torque | 5.7 kgf·m (41.2 lbf·ft) |
| Brake release pressure | 19 kgf/cm ² (270 psi) |
| Reduction gear type | 2-stage planetary |

7) CYLINDER

| Item | | Specification |
|---------------------|-----------------------------|--------------------|
| Boom cylinder | Bore dia × Rod dia × Stroke | Ø45 × Ø75 × 569 mm |
| | Cushion | Extend only |
| Arm cylinder | Bore dia × Rod dia × Stroke | Ø45 × Ø70 × 486 mm |
| | Cushion | Extend and retract |
| Bucket cylinder | Bore dia × Rod dia × Stroke | Ø35 × Ø60 × 431 mm |
| | Cushion | - |
| Boom swing cylinder | Bore dia × Rod dia × Stroke | Ø75 × Ø40 × 380 mm |
| | Cushion | - |
| Dozer cylinder | Bore dia × Rod dia × Stroke | Ø95 × Ø50 × 125 mm |
| | Cushion | - |
| Dozer cylinder-DPC | Bore dia × Rod dia × Stroke | Ø95 × Ø50 × 125 mm |
| | Cushion | - |

※ Discoloration of cylinder rod can occur when the friction reduction additive of lubrication oil spreads on the rod surface.

※ Discoloration does not cause any harmful effect on the cylinder performance.

9. RECOMMENDED OILS

HD Hyundai Construction Equipment genuine lubricating oils have been developed to offer the best performance and service life for your equipment. These oils have been tested according to the specifications of HD Hyundai Construction Equipment and, therefore, will meet the highest safety and quality requirements.

We recommend that you use only HD Hyundai Construction Equipment genuine lubricating oils and grease officially approved by HD Hyundai Construction Equipment.

| Service point | Kind of fluid | Capacity ℓ (U.S. gal) | Ambient temperature °C (°F) | | | | | | | |
|------------------------------|--|------------------------------|--|--------------|-------------|-------------|-----------|------------|------------|------------|
| | | | -50 (-58) | -30 (-22) | -20 (-4) | -10 (14) | 0 (32) | 10 (50) | 20 (68) | 30 (86) |
| Engine oil pan | Engine oil | 5.7 (1.5) | ★0W-40 | | | | | | | |
| | | | SAE 5W-30 | | | | | | | |
| | | | SAE 5W-40 | | | | | | | |
| | | | SAE 15W-40 | | | | | | | |
| Final drive | Gear oil | 0.6×2 (0.16×2) | ★SAE 75W-90 | | | | | | | |
| | | | SAE 80W-90 | | | | | | | |
| Hydraulic tank | Hydraulic oil | Tank: 27 (7.1) System: | ★ISO VG 15 | | | | | | | |
| | | | ISO VG 32 | | | | | | | |
| | | | ISO VG 46, HBHO VG 46 ★3 | | | | | | | |
| | | | ISO VG 68 | | | | | | | |
| Fuel tank | Diesel fuel★1 | 30 (7.9) | ★ASTM D975 NO.1 | | | | | | | |
| | | | ASTM D975 NO.2 | | | | | | | |
| Fitting (grease nipple) | Grease | As required | ★NLGI NO.1 | | | | | | | |
| | | | NLGI NO.2 | | | | | | | |
| Radiator (reservoir tank) | Mixture of antifreeze and soft water★2 | 6.8 (1.8) | Ethylene glycol base permanent type (50 : 50) | | | | | | | |
| | | | ★Ethylene glycol base permanent type (60 : 40) | | | | | | | |

※ Using any lubricating oils other than HD Hyundai Construction Equipment genuine products may lead to a deterioration of performance and cause damage to major components.

※ Do not mix HD Hyundai Construction Equipment genuine oil with any other lubricating oil as it may result in damage to the systems of major components.

※ For HD Hyundai Construction Equipment genuine lubricating oils and grease for use in regions with extremely low temperatures, please contact your local HD Hyundai Construction Equipment dealer.

SAE : Society of Automotive Engineers

API : American Petroleum Institute

ISO : International Organization for Standardization

NLGI : National Lubricating Grease Institute

ASTM : American Society of Testing and Material

★ : Cold region

Russia, CIS, Mongolia

★1 : Ultra low sulfur diesel

- sulfur content ≤ 10 ppm

★2 : Soft water

City water or distilled water

★3 : HD Hyundai Construction Equipment Bio Hydraulic Oil

SECTION 2 STRUCTURE AND FUNCTION

| | |
|----------------------------------|------|
| Group 1 Pump Device | 2-1 |
| Group 2 Main Control Valve | 2-6 |
| Group 3 Swing Device | 2-35 |
| Group 4 Travel Device | 2-44 |
| Group 5 RCV Lever | 2-55 |
| Group 6 RCV Pedal | 2-64 |

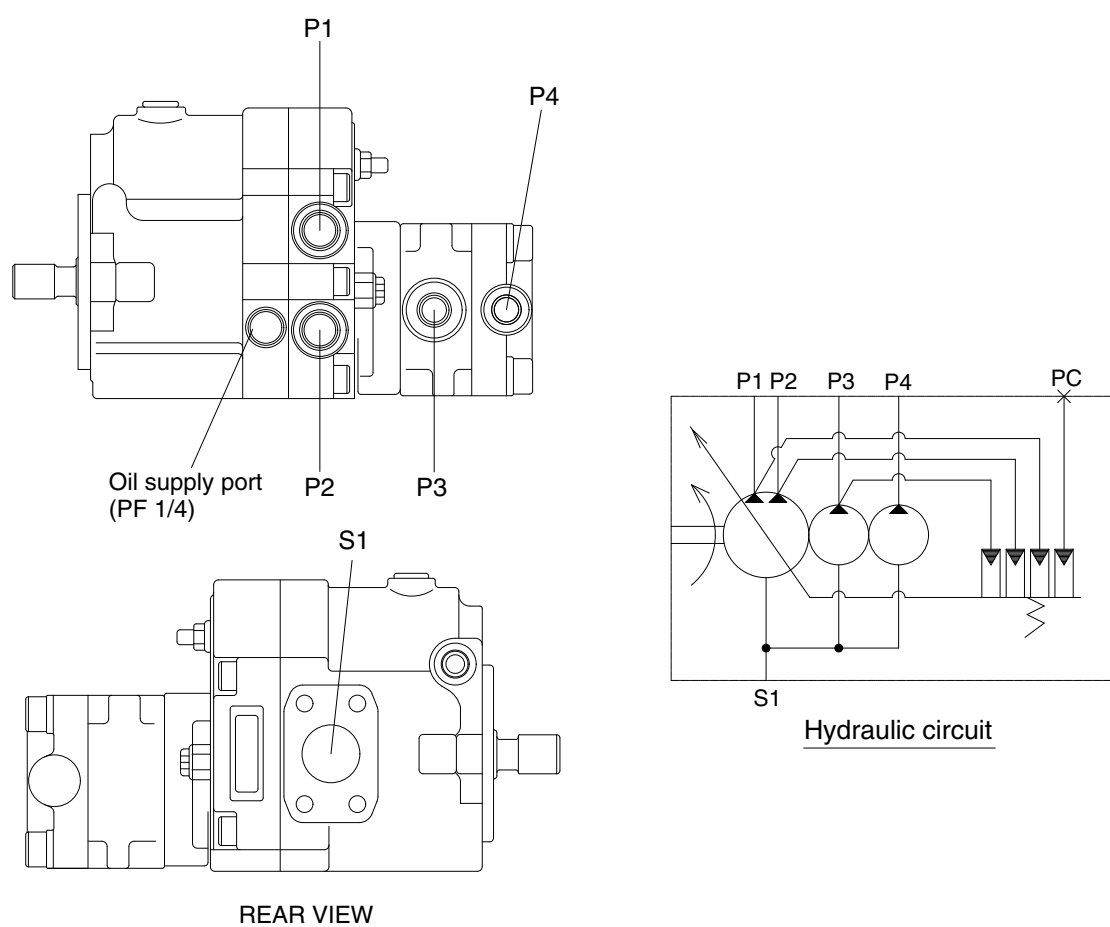
GROUP 1 HYDRAULIC PUMP

1. GENERAL

This is a variable displacement double-piston pump for discharge with equal displacements from one cylinder block. This pump is so compact as to appear a single pump though this is actually a double pump.

Because this pump has one swash plate, the tilting angle is the same for two pumps. Tilting of the pump changes in response to the total pressure of $P1 + P2$. Namely, the output is controlled to the constant value so that the relationship between the discharge pressure and flow rate Q becomes constant, $(P1 + P2) * Q = \text{Constant}$.

The third pump and pilot pump can be connected to the same shaft via a coupling.

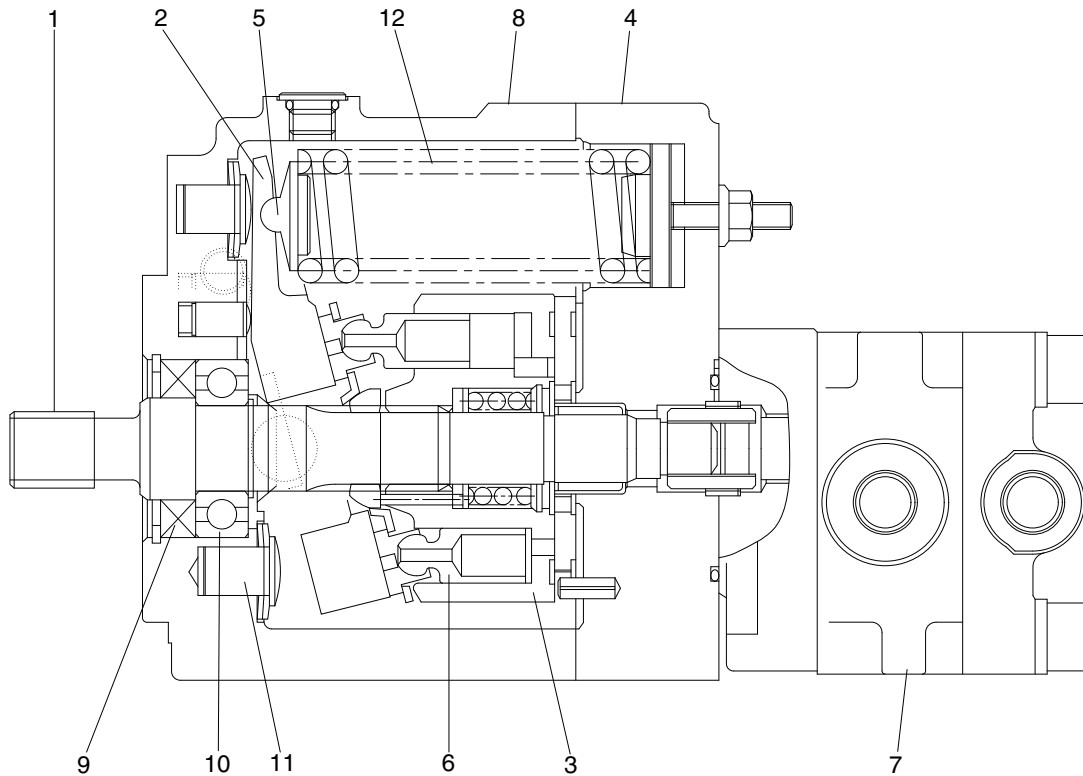


25AZ2MP01

Description of the ports

| Port | Port name | Port size |
|--------|----------------|-----------|
| S1 | Suction port | SAE 1 1/4 |
| P1, P2 | Discharge port | PF 1/2 |
| P3, P4 | Discharge port | PF 3/8 |

2. MAJOR COMPONENTS AND FUNCTIONS



R27Z92MP03

- | | | | |
|---|----------------------|----|------------------|
| 1 | Drive shaft assembly | 7 | Gear pump |
| 2 | Swash plate assembly | 8 | Housing |
| 3 | Cylinder barrel | 9 | Oil seal |
| 4 | Port plate assembly | 10 | Bearing |
| 5 | Spring seat assembly | 11 | Stopper assembly |
| 6 | Piston | 12 | Spring |

This is a variable displacement double-piston pump for discharge with two equal displacements from one cylinder block. Because this is one cylinder barrel, there is only one suction port.

The oil is divided into two equal flows by the control plate in the cover and directed to two discharge ports provided in the cover.

The discharge pressure directed to the piston tilts the hanger by overcoming the spring force.

Since the piston stroke changes according to the tilting angle of the hanger, the flow can be changed.

The simultaneous tilting angle constant-output control method is employed.

The pilot pump can be connected to the same shaft via a coupling.

1) PRINCIPLE OF OPERATION

(1) Function of pump

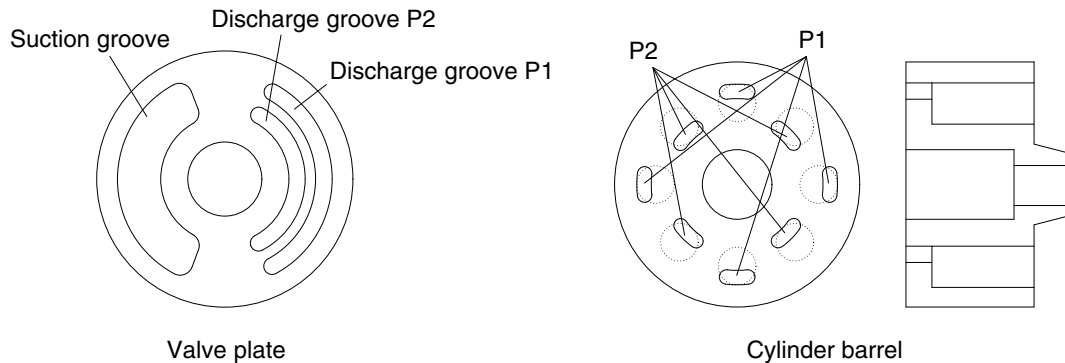


Figure 1 Working principle of PVD pump

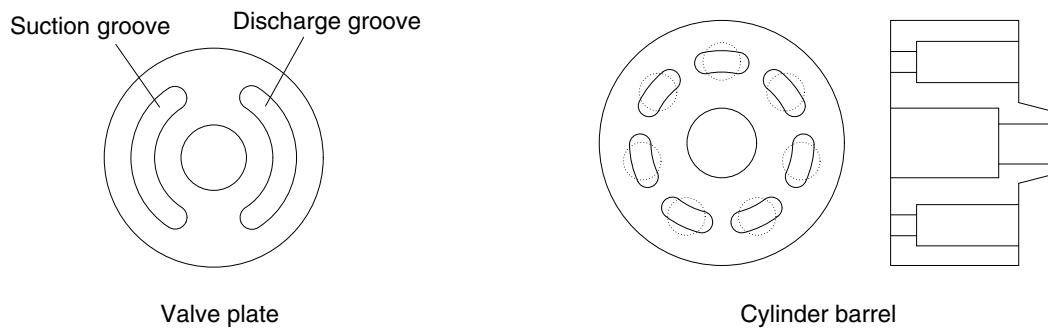


Figure 2 Working principle of Conventional type

25AZ2MP04

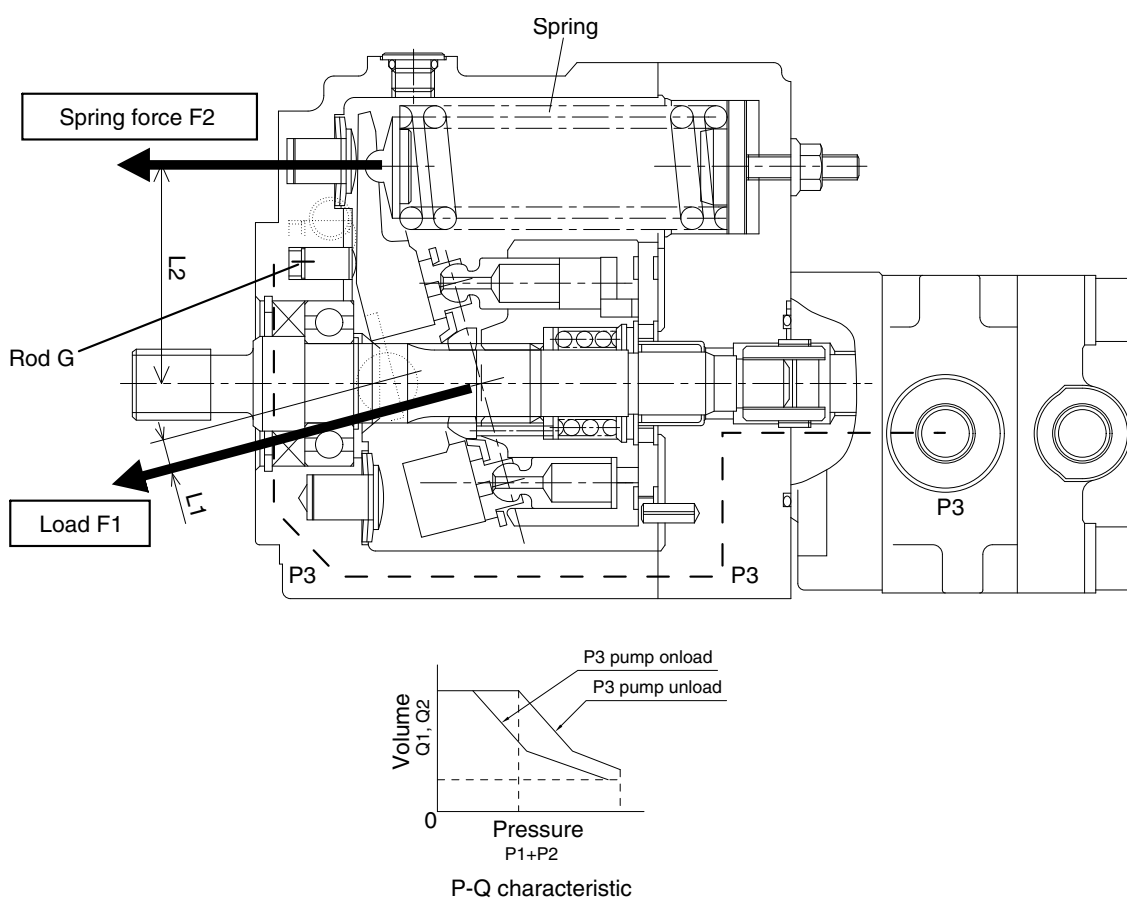
This pump adopts a new method using even numbered pistons to make functions of two same volume pumps available in one casing of a swash plate type variable volume piston pump.

Conventional valve plate has one suction groove and one discharge groove respectively as shown in figure 2. But this method adopts one common suction groove and two discharge grooves on the outer side (P1) and the inner side (P2) as shown in figure 1, the piston room in the cylinder barrel opens to either the outer side (P1) or the inner side (P2) discharge groove of the valve plate alternately, and the discharges are performed independently on the inner side and the outer side.

Since this model has even numbered pistons, same No of pistons open to the outer side and the inner side of the valve plate. All pistons are of same swash plate, so the discharges from the outer side (P1) and the inner side (P2) are equal.

Also, since only one swash plate is used, the discharges from P1 and P2 ports changes equally when the swash plate angle of rake changes in variable controls. So, there is no difference between the two discharges.

2) CONTROL FUNCTIONS



25AZ2MP05

(1) Constant horse power variable structure

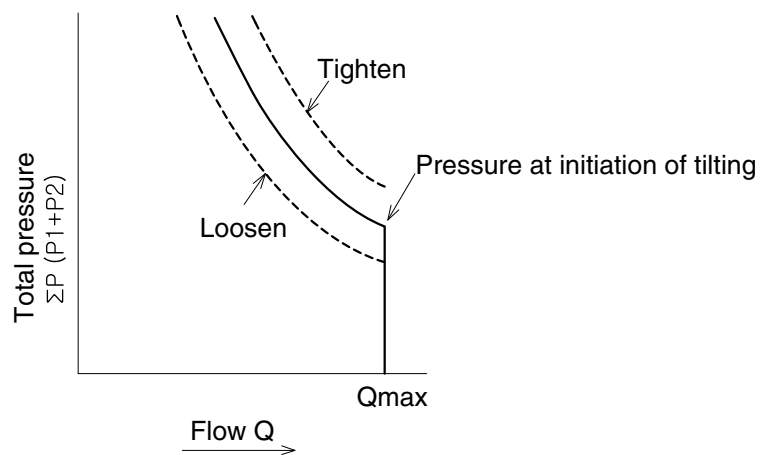
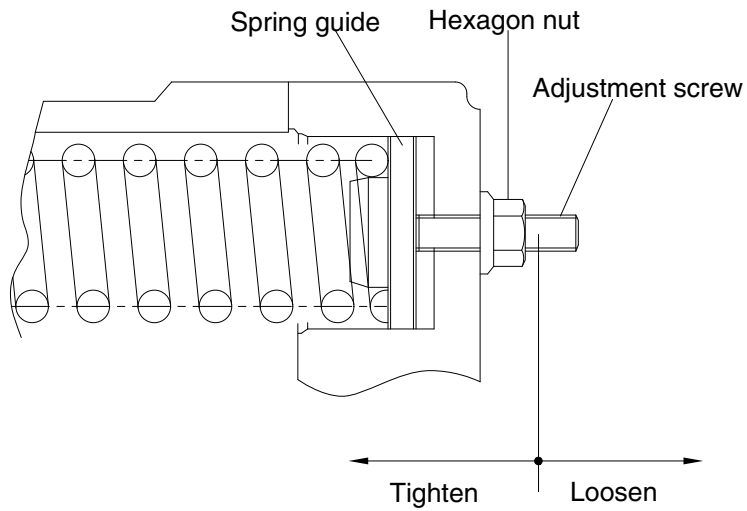
The pump output flow rate is variable depending on an angle of the swash plate which is controlled according to the pump output pressure. This control enables the pump consumption horse power to be sustained at the maximum. The tilt point of the swash plate is the balls located behind the swash plate. The load F1 from the pistons is in the direction shown in the illustration and generates a clockwise moment against the swash plate. Against this force the spring (force F2) is located in the opposite direction to keep the horse power constant and set at the appointed load. As the pressure increases, the above clockwise moment increases, and when it overcomes the counter-clockwise moment created by the spring force, the spring is sagged and the swash plate angle gets smaller. Then the output flow rate is reduced to keep the horse power constant. This prevents engine stall and the engine horse power can be utilized at the maximum.

(2) Power shift mode (Reduced horse power control by P3 pressure)

This control keeps the maximum value of the pump consumption horse power including the third pump (gear pump) constant. When the P3 (gear pump) pressure acts on the rod G, a clockwise moment proportion to the pressure acts on the swash plate and the A-Q characteristic shifts so that the total pump consumption horse power including the gear pump horse power is kept constant.

3) CONTROL / ADJUSTMENT PROCEDURE

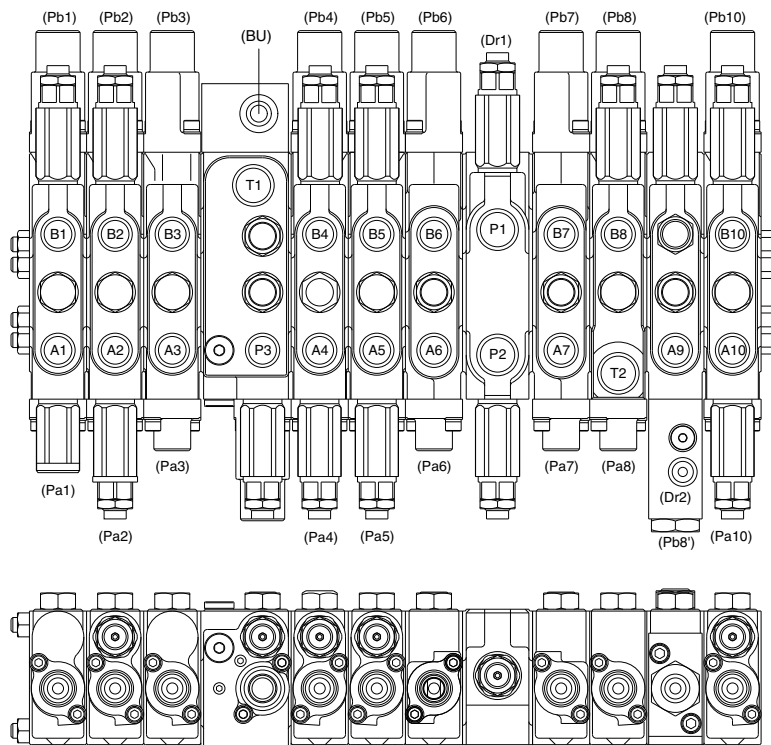
- (1) Loosen the hexagonal nut.
- (2) Tighten or loosen the adjusting screw to set the power shifting line.



25AZ2MP07

GROUP 2 MAIN CONTROL VALVE

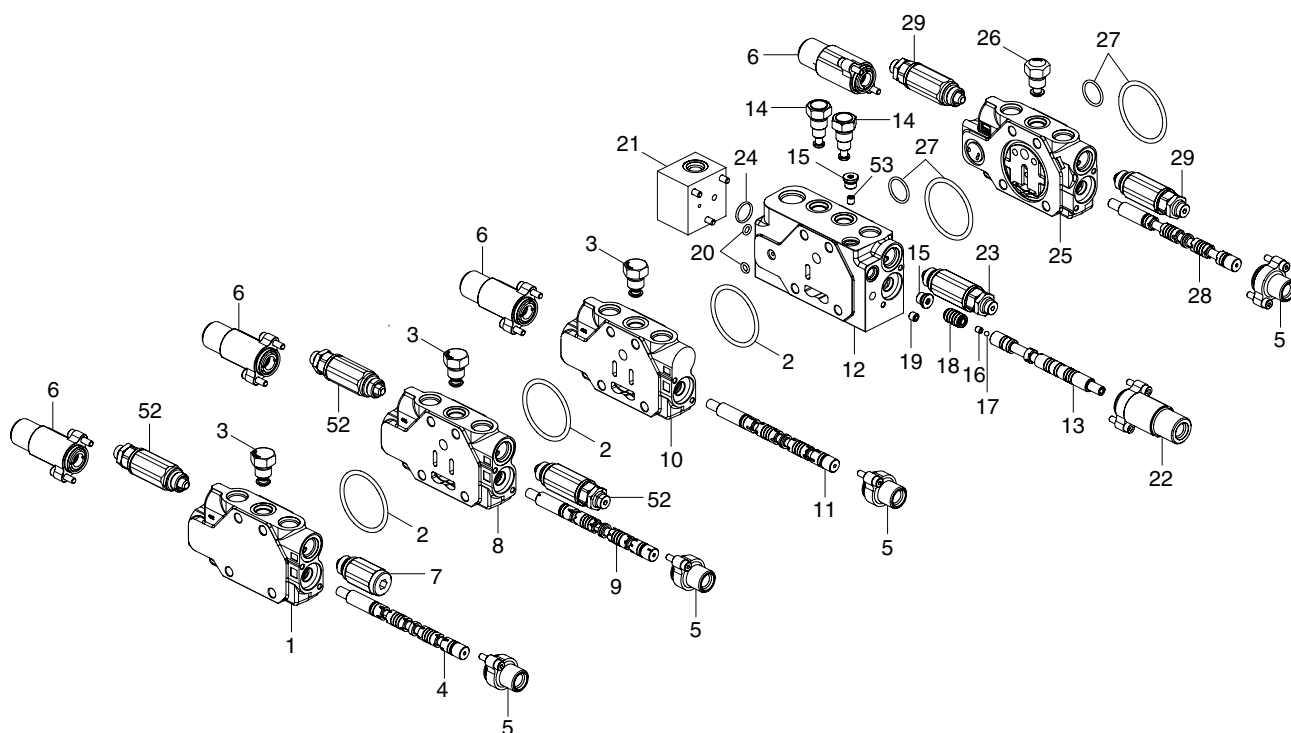
1. OUTLINE



25AZ2MCV01

| Mark | Port name | Port size | Tightening torque | Mark | Port name | Port size | Tightening torque |
|------|----------------------|-----------|-------------------|------|-------------------------------|-----------|-------------------|
| P1 | P1 pump port | PF 1/2 | 6~7 kgf · m | A10 | Bucket out port | PF 3/8 | 4.0~5.0 kgf · m |
| P2 | P2 pump port | | | B10 | Bucket in port | | |
| T1 | Tank return port | | | Pa1 | Dozer up pilot port | PF 1/4 | 2.5~3.0 kgf · m |
| T2 | Tank return port | | | Pb1 | Dozer down pilot port | | |
| P3 | P3 pump port | PF 3/8 | 4.0~5.0 kgf · m | Pa2 | Boom swing (LH) pilot port | | |
| A1 | Dozer up | | | Pb2 | Boom swing (RH) pilot port | | |
| B1 | Dozer down | | | Pa3 | Swing (LH) pilot port | | |
| A2 | Boom swing (LH) port | | | Pb3 | Swing (RH) pilot port | | |
| B2 | Boom swing (RH) port | | | Pa5 | Arm out pilot port | | |
| A3 | Swing (LH) port | | | Pb5 | Arm in pilot port | | |
| B3 | Swing (RH) port | | | Pa6 | Travel [LH/RR] pilot port | | |
| A4 | Option port | | | Pb6 | Travel [LH/FW] pilot port | | |
| B4 | Option port | | | Pa7 | Travel [RH/RR] pilot port | | |
| A5 | Arm out port | | | Pb7 | Travel [RH/FW] pilot port | | |
| B5 | Arm in port | | | Pa8 | Boom up pilot port | | |
| A6 | Travel [LH/RR] port | | | Pb8 | Boom down pilot port | | |
| B6 | Travel [LH/FW] port | | | Pa10 | Bucket out pilot port | | |
| A7 | Travel [RH/RR] port | | | Pb10 | Bucket in pilot port | | |
| B7 | Travel [RH/FW] port | | | Bu | Boom up pilot port | | |
| A9 | Boom up port | | | PP1 | Travel independent pilot port | | |
| B8 | Boom down port | | | | | | |

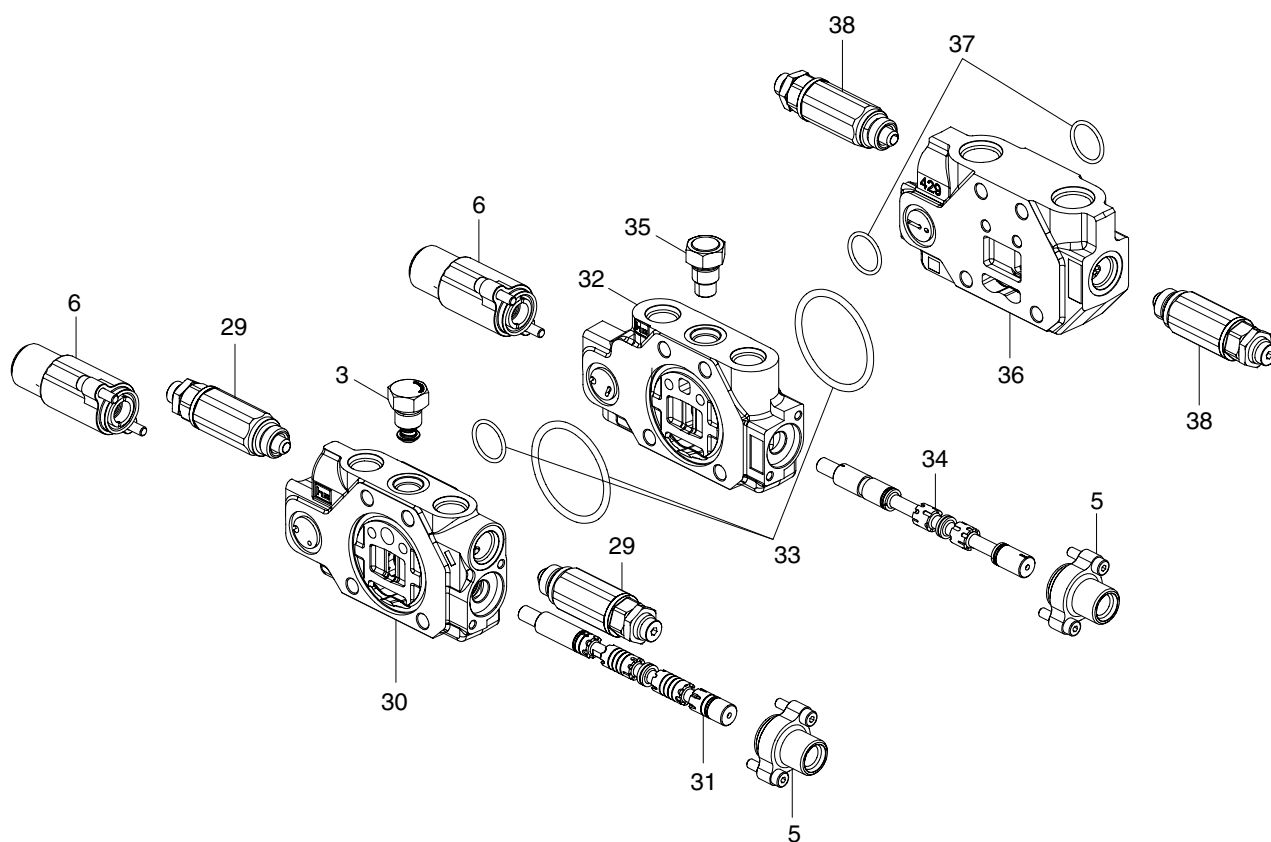
2. STRUCTURE (1/3)



25AZ2MCV02

- | | | |
|-------------------------|--------------------------|----------------------|
| 1 Dozer block assy | 11 Swing spool assy | 21 Pilot body |
| 2 O-ring | 12 Confluence block body | 22 Pilot cover |
| 3 Plug | 13 Confluence spool assy | 23 Relief valve assy |
| 4 Dozer spool assy | 14 Plug | 24 O-ring |
| 5 Pilot cover | 15 Plug | 25 PTO block body |
| 6 Pilot cover | 16 Piston | 26 Plug |
| 7 Relief valve assy | 17 Ball | 27 O-ring |
| 8 Boom swing block | 18 Spring | 28 PTO 1 spool assy |
| 9 Boom swing spool assy | 19 Piston | 29 Relief valve assy |
| 10 Swing block assy | 20 O-ring | 52 Relief valve assy |

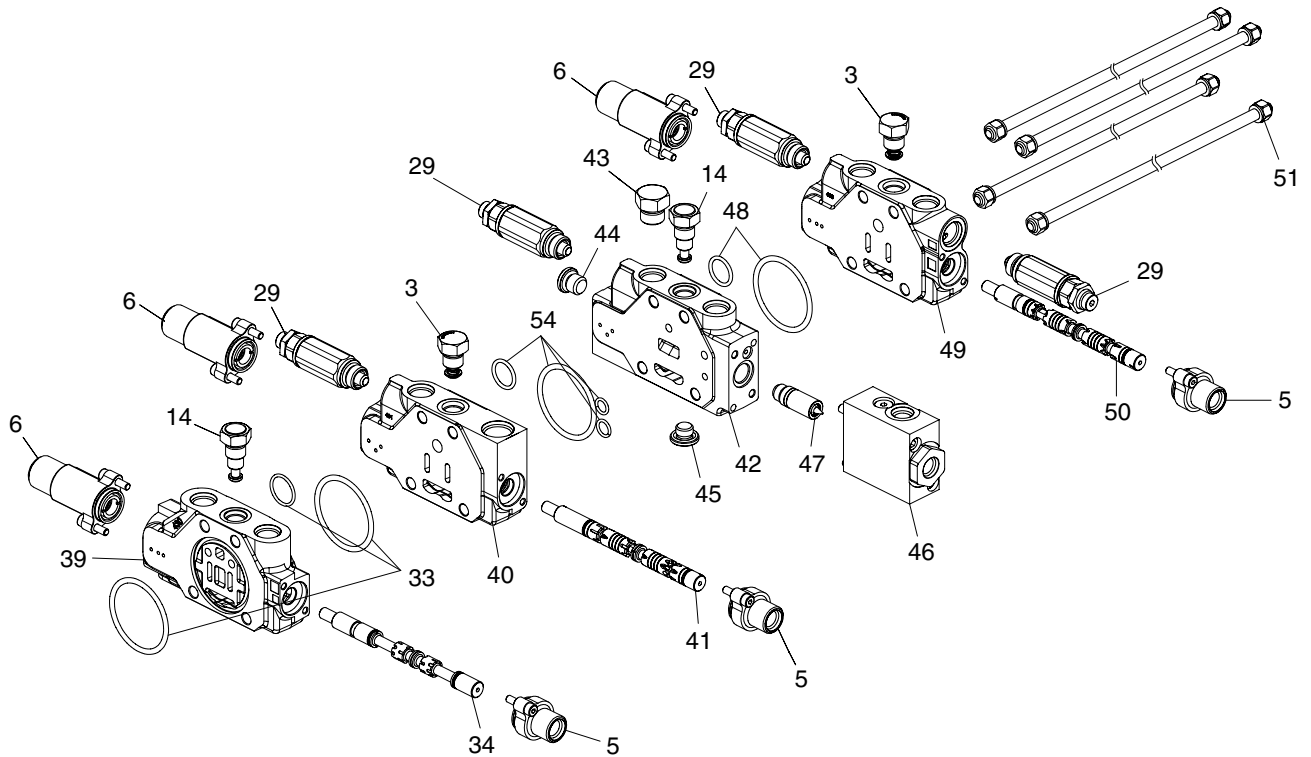
STRUCTURE (2/3)



25AZ2MCV03

- | | | | | | |
|----|-------------------|----|----------------------|----|-------------------|
| 3 | Plug | 31 | Arm spool assy | 35 | Plug |
| 5 | Pilot cover | 32 | LH travel block assy | 36 | Inlet block assy |
| 6 | Pilot cover | 33 | O-ring | 37 | O-ring |
| 29 | Relief valve assy | 34 | Travel spool assy | 38 | Relief valve assy |
| 30 | Arm block assy | | | | |

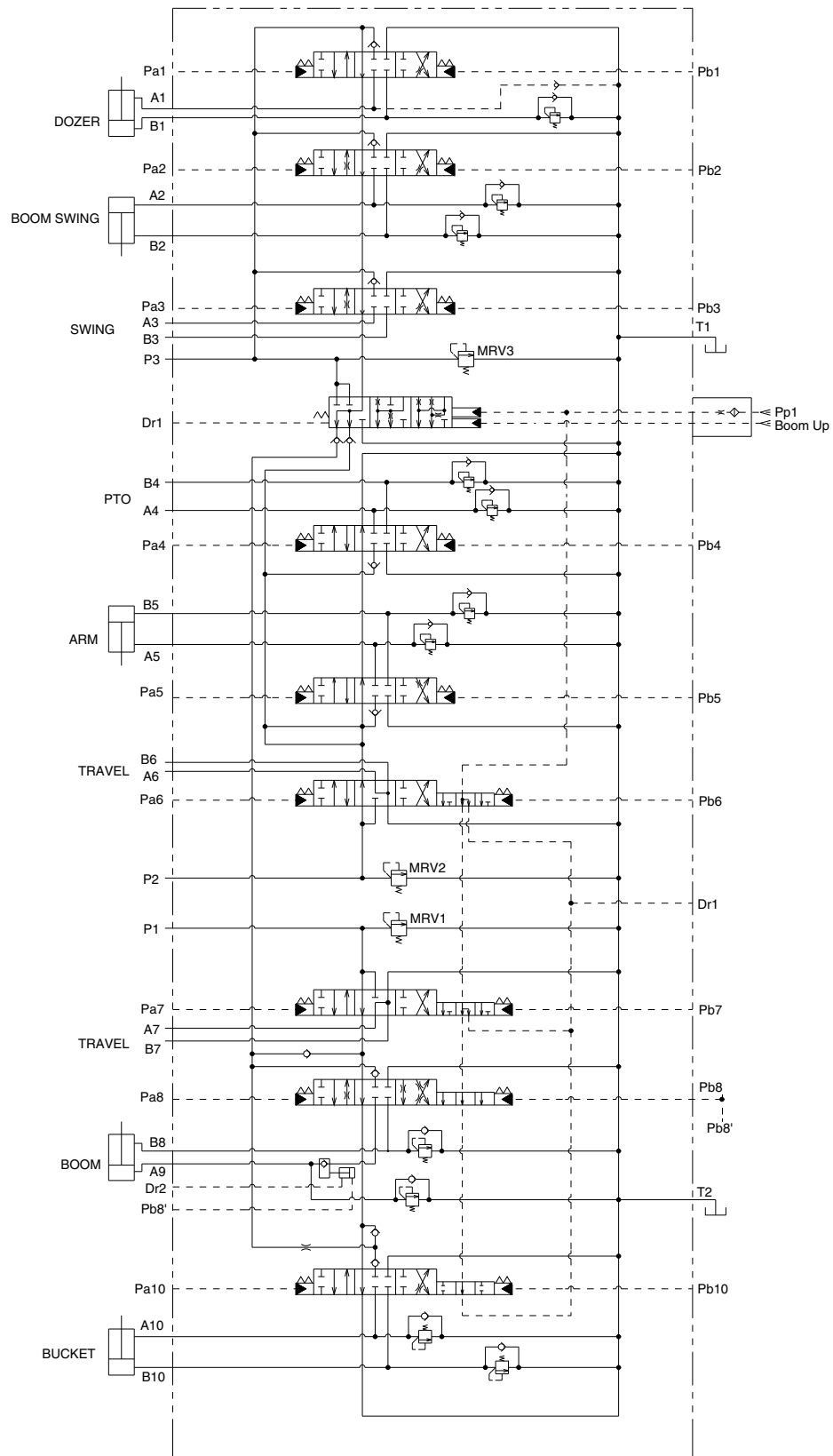
STRUCTURE (3/3)



25AZ2MCV04

| | | | | | |
|----|-------------------|----|----------------------|----|-------------------|
| 3 | Plug | 39 | RH travel block assy | 46 | Lock valve cover |
| 5 | Pilot cover | 40 | Boom block body | 47 | Lock valve |
| 6 | Pilot cover | 41 | Boom spool assy | 48 | O-ring |
| 14 | Plug | 42 | Boom lock block assy | 49 | Bucket block assy |
| 29 | Relief valve assy | 43 | Plug | 50 | Bucket spool assy |
| 33 | O-ring | 44 | Plug | 51 | Socket bolt |
| 34 | Travel spool assy | 45 | Plug | 54 | O-ring |

3. HYDRAULIC CIRCUIT



25AZ2MCV05

4. FUNCTION

1) IN NEUTRAL (When all spools are in neutral position)

P1 : The oil discharged from the hydraulic pump flows into control valve P1 port, and then flows through P1 and P2 supply body the P1 side travel spool. The oil flows through the bypass passage in the direction of travel → boom → bucket spool, and then flows from the bypass passage to the tank passage in the bucket section.

P2 : The oil discharged for the hydraulic pump flows into the control valve from P2 port, and then flows through P1 and P2 supply body to the P2 side travel spool. The oil flows through the bypass passage in the direction of travel → arm → PTO spool, and the flows from the bypass passage to the tank passage in the PTO section.

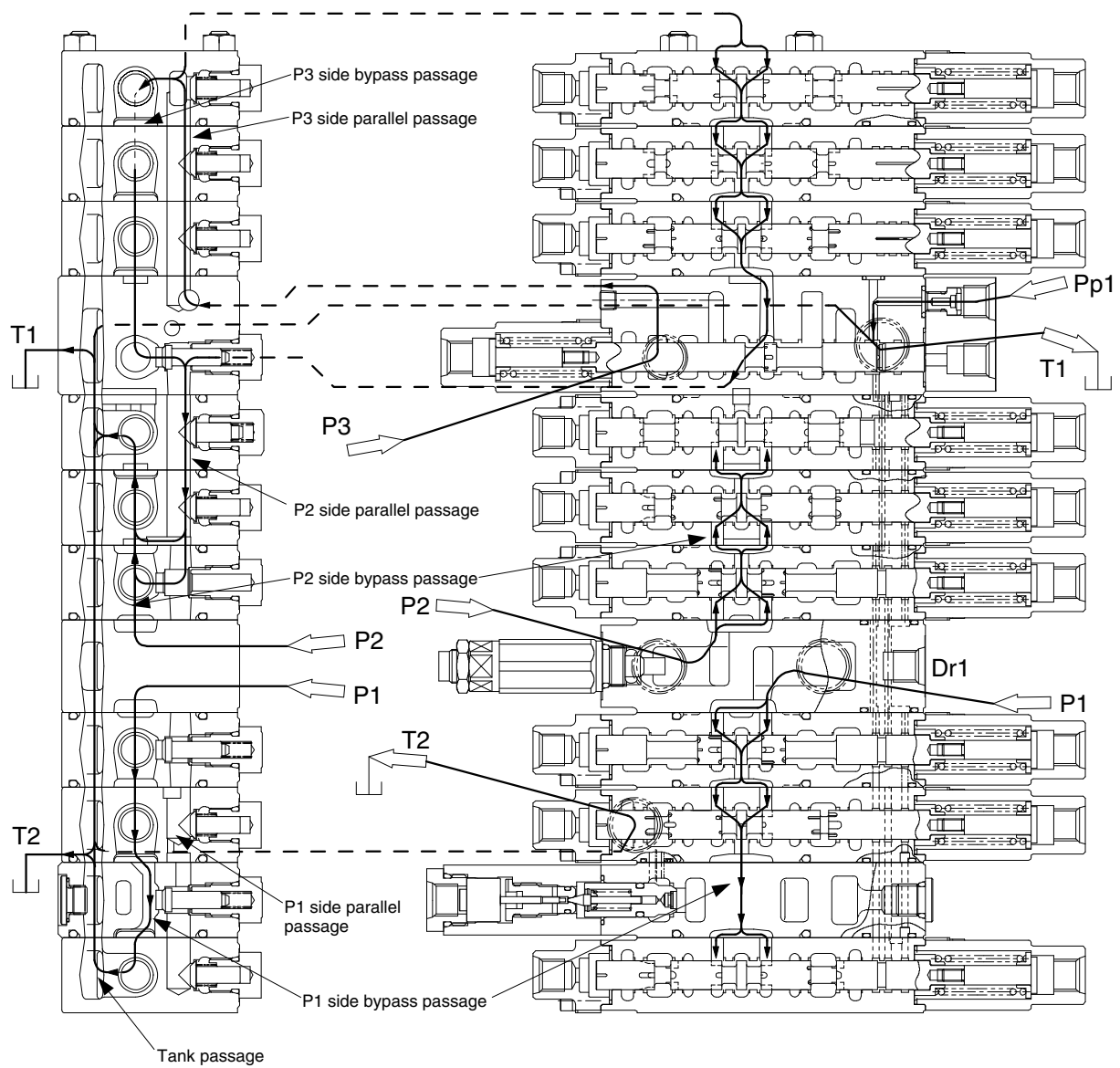
P3 : The oil discharged from the hydraulic pump flows into the control valve from P3 port, and then flows through the parallel passage of dozer, boom swing, and swing. The oil that has followed into the parallel passage flows through the bypass passage in the direction of dozer → Boom swing → swing spool, the connecting spool land, the P2 side parallel passage, the bypass passage from arm to PTO spool, the bypass passage in the PTO section, and then to the tank passage.

※ Since each line (P1, P2, P3) is supplied with oil from the pump, the section is operatable; therefore, do not operate the control valve except the working time.

- P1 line : Travel, boom, bucket
- P2 line : Travel, arm, PTO
- P3 line : Dozer, boom swing, arm, PTO, boom (up only)

P_{P1} : When P_{P1} port is applied with pilot pressure, the oil flows into the travel independent passage via an orifice.

With the spool in neutral, the oil flows into Dr1 port provided in the P1 and P2 supply body.



Hydraulic oil flow in neutral

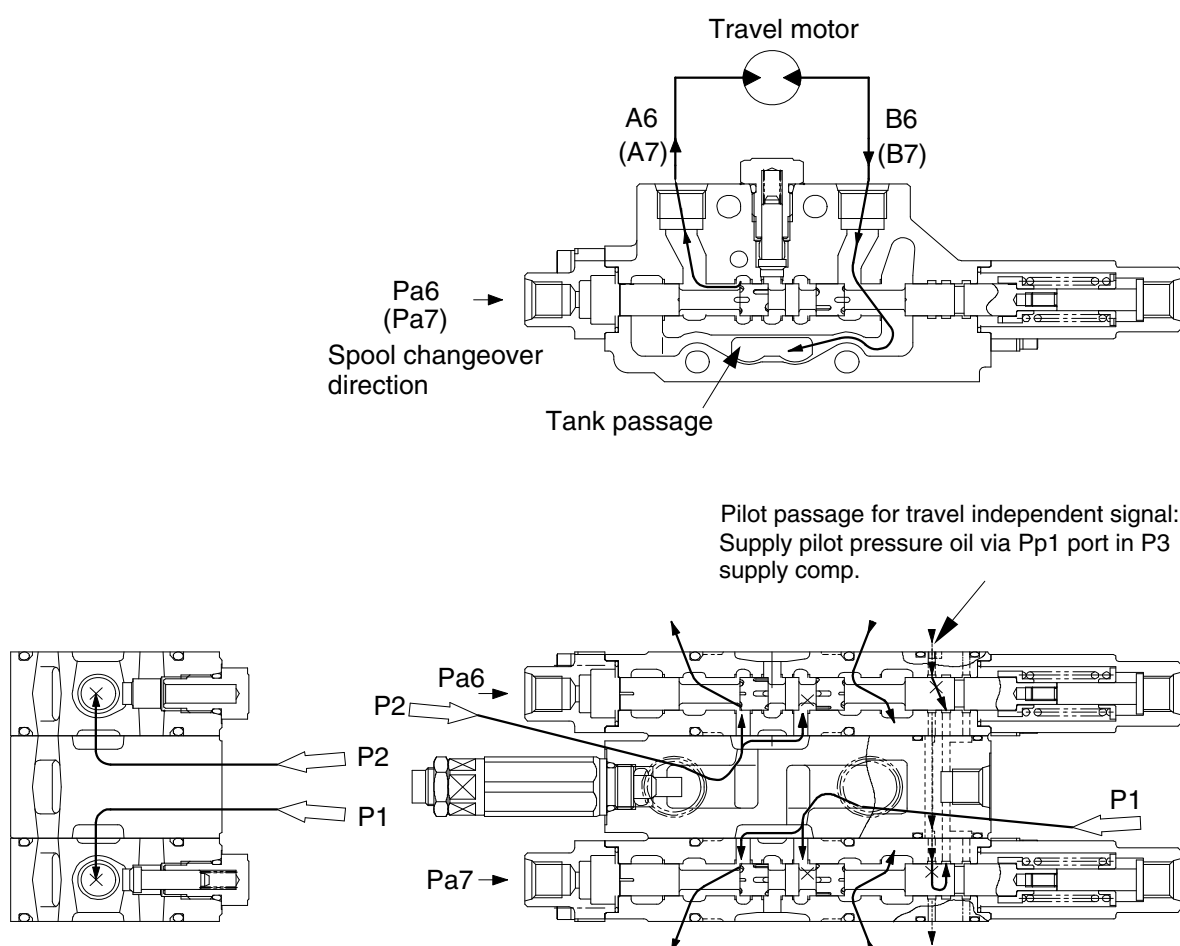
2) TRAVEL OPERATION

For the travel operation, both Pa pressurization and Pb pressurization are the same on operation so that only Pa pressurization is explained as follows.

When left (right) travel reverse is operated, the secondary pressure from the remote control valve is applied to Pa6 [Pa7] port to change over the travel spool. The oil flowed from P2 [P1] port flows through the supply body into the P2 [P1] side bypass passage. The oil flowed into the P2 [P1] side bypass passage flows through A6 [A7] port that has been opened by the spool changeover to the travel motor. On the other hand, the oil returned from the travel motor flows into the control valve from B6 [B7] port and then to the tank passage has been opened after the spool changeover.

The oil flowed from P_{p1} port flows through the orifice passage provided in the P3 supply section into the travel independent signal passage.

Although the travel independent passage (see page 2-14) in the travel section that has been opened during neutral is blocked after the both travel spools changeover, the travel independent signal passage is connected to the drain port via the bucket section. Accordingly, when the bucket section has not changed over, the connecting spool in the P3 supply section does not change over because the pressure in the travel independent signal passage is equal to the drain pressure.



Operation during travel(Forward)

R35Z72MCV12

3) BOOM OPERATION

Boom up operation

When the boom up operation is carried out, the secondary pressure from the remote control valve is applied to Pa8 port to change over the boom spool. Since Pa8 port is connected to boom up port through the piping, the pressure oil supplied to boom up port changes over the connecting spool through the connecting piston in the P3 supply section

Also, since the P1 side bypass passage is shut off at the boom section after the boom spool changeover, the oil flowed from P1 port flows through the check valve provided above the bypass passage in the travel section into the P1 side parallel passage.

On the other side, after the connecting spool changeover the oil flowed into P3 port.

- ① Flows through the internal passage in connecting spool and the check valve in the P3 supply section into the P1 side parallel passage.
- ② The oil flows through the P3 side parallel passage and P3 side bypass passage and then:
 - a. Flows through the check valve in the P3 supply section into the P1 side parallel passage.
 - b. Some oil flows through the orifice passage provided in the connecting spool and the check valve in the P3 supply section into the P2 side parallel passage.

The oil flowed into the P1 side parallel passage is connected with the oil from P1 pump.

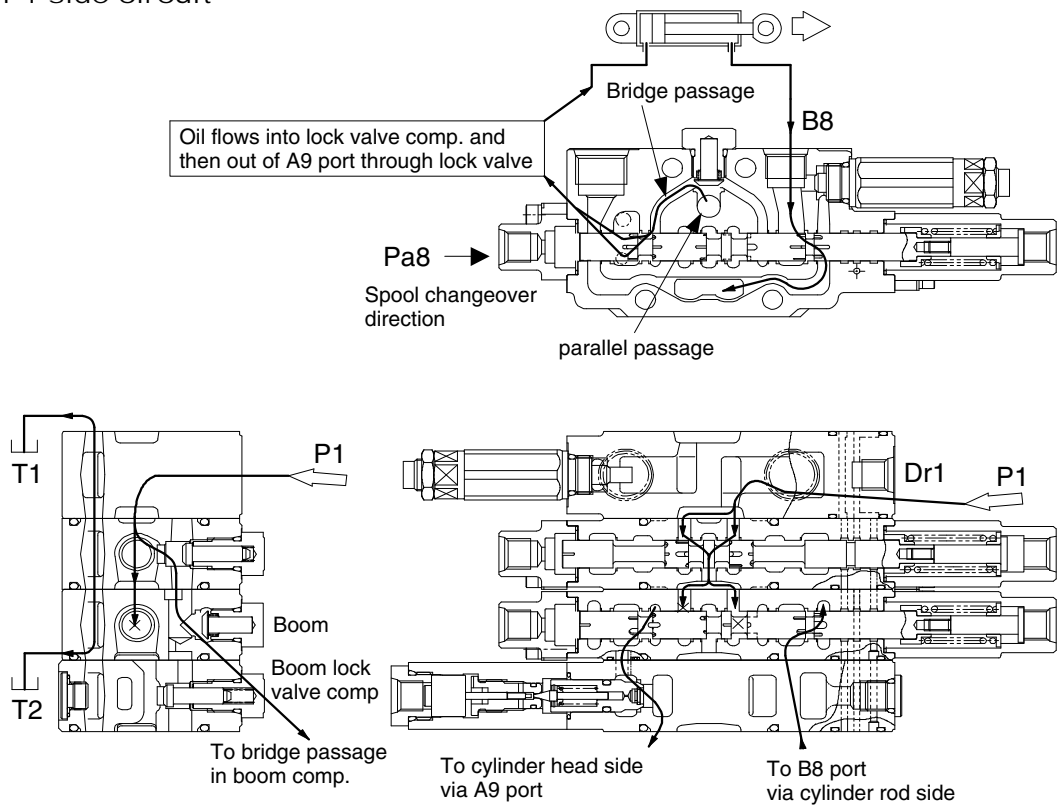
The oil flowed into the P2 side parallel passage flows through the bypass passages in the arm section and PTO section to the tank passage.

Since the passage connected to the boom lock valve and the bridge passage are opened after the boom spool changeover, the oil flowed into the P1 side parallel passage flows through the load check valve in the boom section and the bridge passage into the boom lock valve section

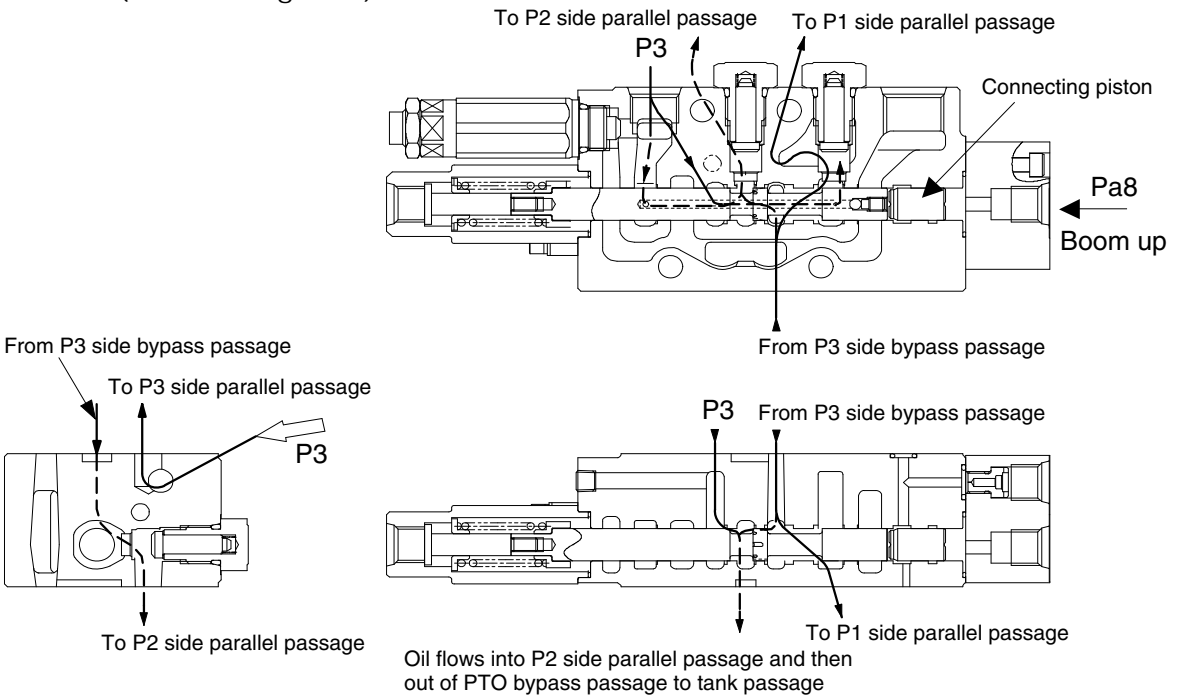
The oil flowed into the boom lock valve section opens the lock valve (free flow condition), flows into A9 port, and the to the head side of the boom cylinder.

On the other hand, the oil returned from the rod side of the boom cylinder flows into B8 port to the tank passage that has opened with the spool's notch after the spool changeover. Then, the boom cylinder extends to raise the boom.

P1 side circuit



P3 side (Connecting side) circuit



Boom up operation

R35Z72MCV13

Boom down operation

When the boom down operation is carried out, the secondary pressure from the remote control valve is applied to Pb8 port to change over the boom spool.

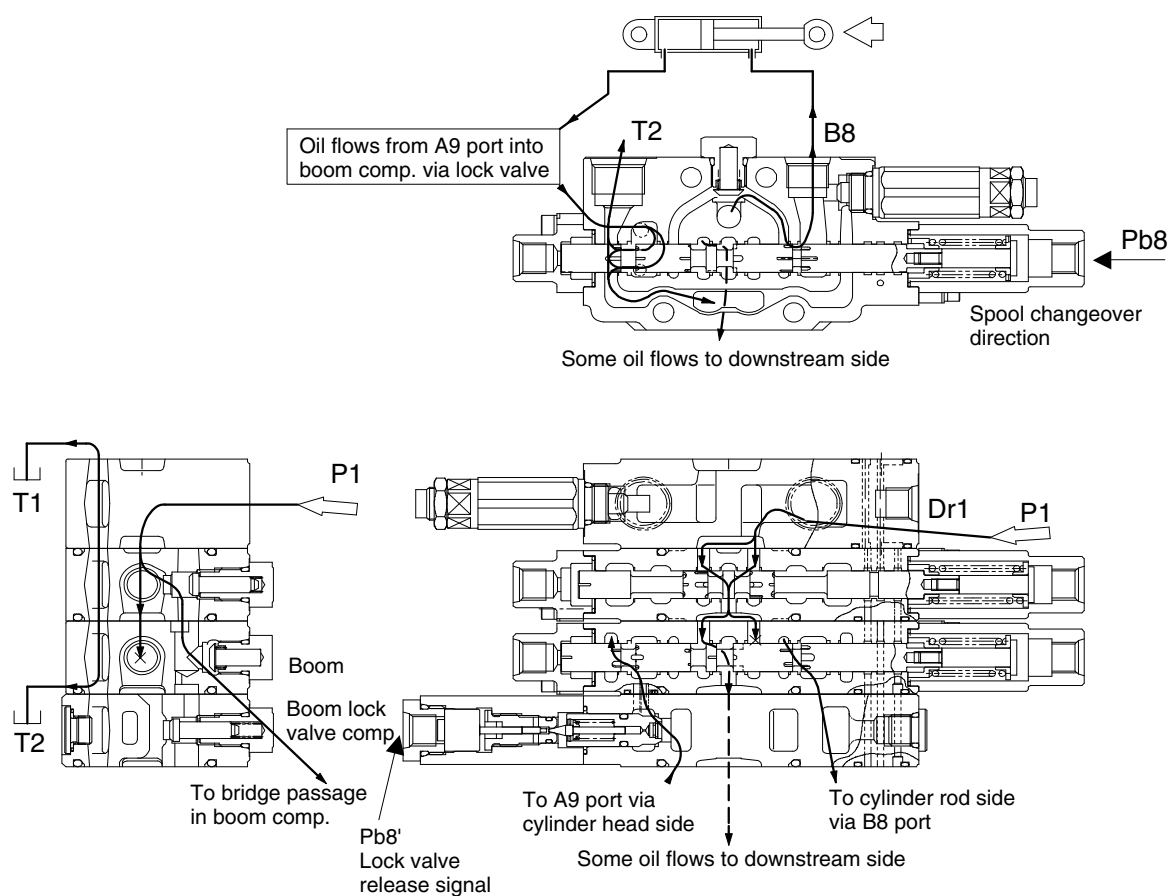
Since Pb8 port is connected to Pb8' port through the piping, the pressure is also applied to pb8' port (Boom lock valve release port) to release the boom lock valve.

(For the explanation of boom lock valve operation, see pages 2-19, 20)

Since the bypass passage is shut off at the boom section after the spool changeover (some oil flows through the orifice passage provided in the boom spool's bypass passage to the downstream side of the bypass passage), the oil flowed from P1 port flows through the check valve provided above the bypass passage in the travel section into the P1 side parallel passage.

Also, since a passage between B8 port and bridge passage is opened with the spool's notch after the spool changeover, the oil flowed into the P1 side parallel passage flows through the load check valve in the boom section into B8 port via the bridge passage and then into the rod side of the boom cylinder.

On the other side, the oil returned from the head side of the boom cylinder flows into A9 port to the tank passage that has been opened with the spool's notch after the spool changeover through the boom lock valve that has been released by Pb8' port pressure. Then, the boom cylinder retracts to lower the boom.



Boom down operation

R35Z72MCV14

4) Operation of boom lock valve

(1) Holding

In the boom spool neutral condition,

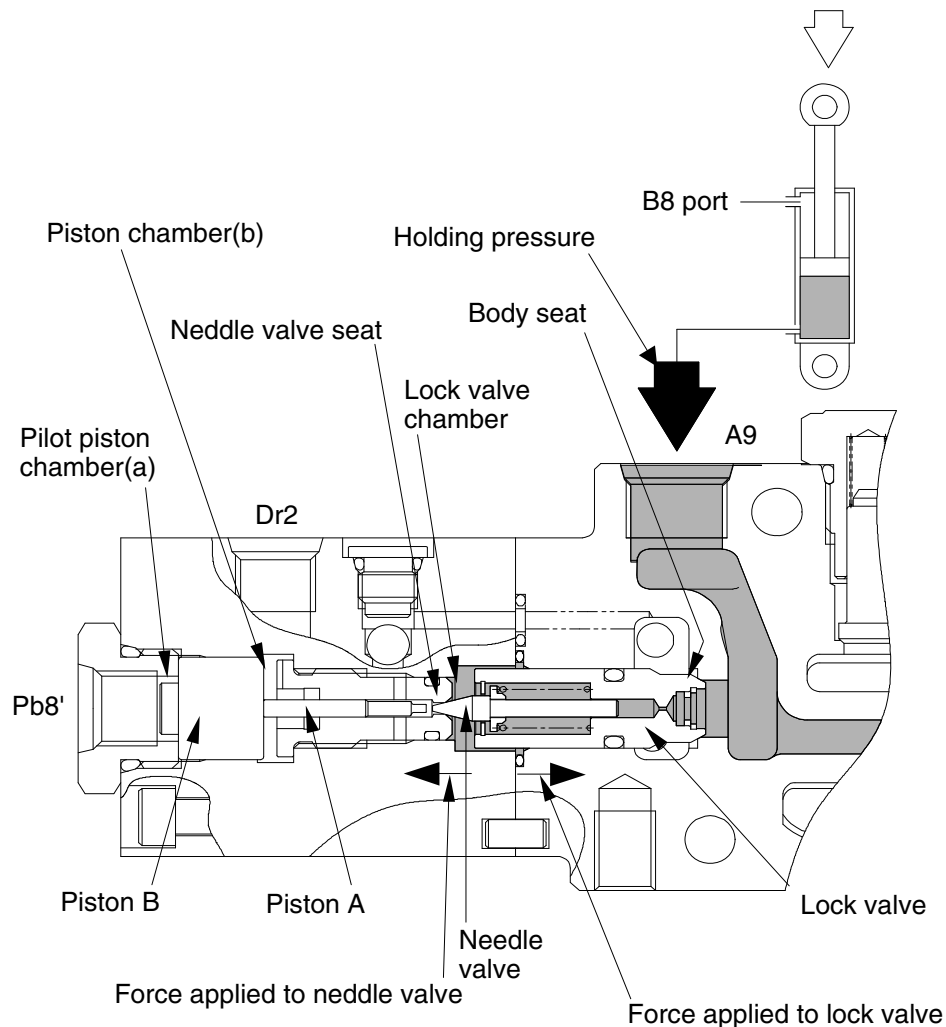
- The pilot piston chamber (a) is connected to the drain passage through the pilot port (Pb8') for releasing the boom lock valve.
- The piston chamber (b) is also connected to the drain passage through the drain port (Dr2).

Therefore, the piston (B) maintains the condition shown in the figure.

The boom cylinder holding pressure (shown in half-tone dot meshing) is applied to the lock valve chamber as shown in the figure to :

- Press the needle valve against the needle valve seat.
- Press the lock valve against the body seat.

Then, oil leakage from the boom cylinder head side is prevented to stop the movement of the boom cylinder due to leakage.



Operation of boom lock valve (holding)

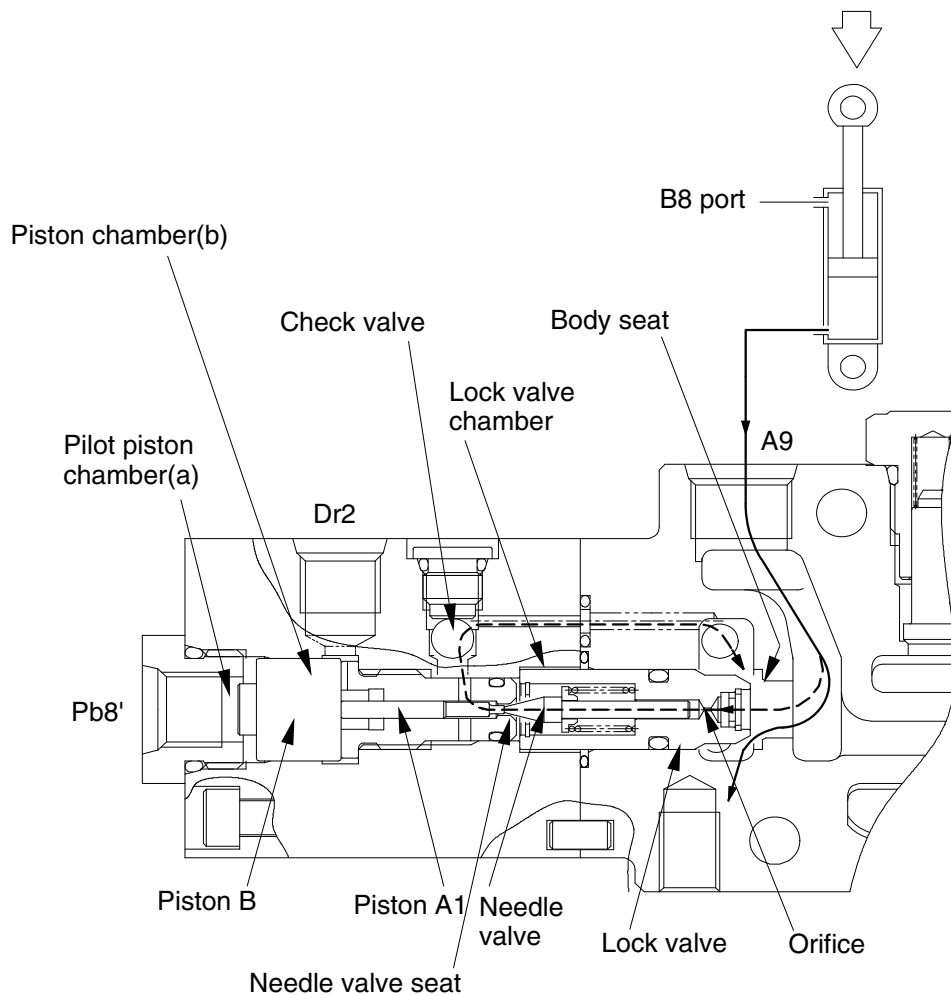
R35Z72MCV15

(2) Release

When the pilot pressure is applied to the pilot port (Pb8') for boom lock valve release, the piston (B) moves rightward to open the needle valve through the piston (A1).

Then, the oil returned from the boom cylinder flows through the passage in the direction of lock valve's orifice → lock valve chamber → needle valve seat → check valve into the lock valve's downstream side chamber (boom section).

When the lock valve's downstream chamber is connected to the tank passage after the boom spool changeover and the needle valve is released, the pressure in the lock valve chamber decreases to open the lock valve by the oil returned from the boom cylinder. The returned oil flows into the tank passage with the boom spool's notch to operate the cylinder.



Operation of boom lock valve (release)

5) BUCKET OPERATION

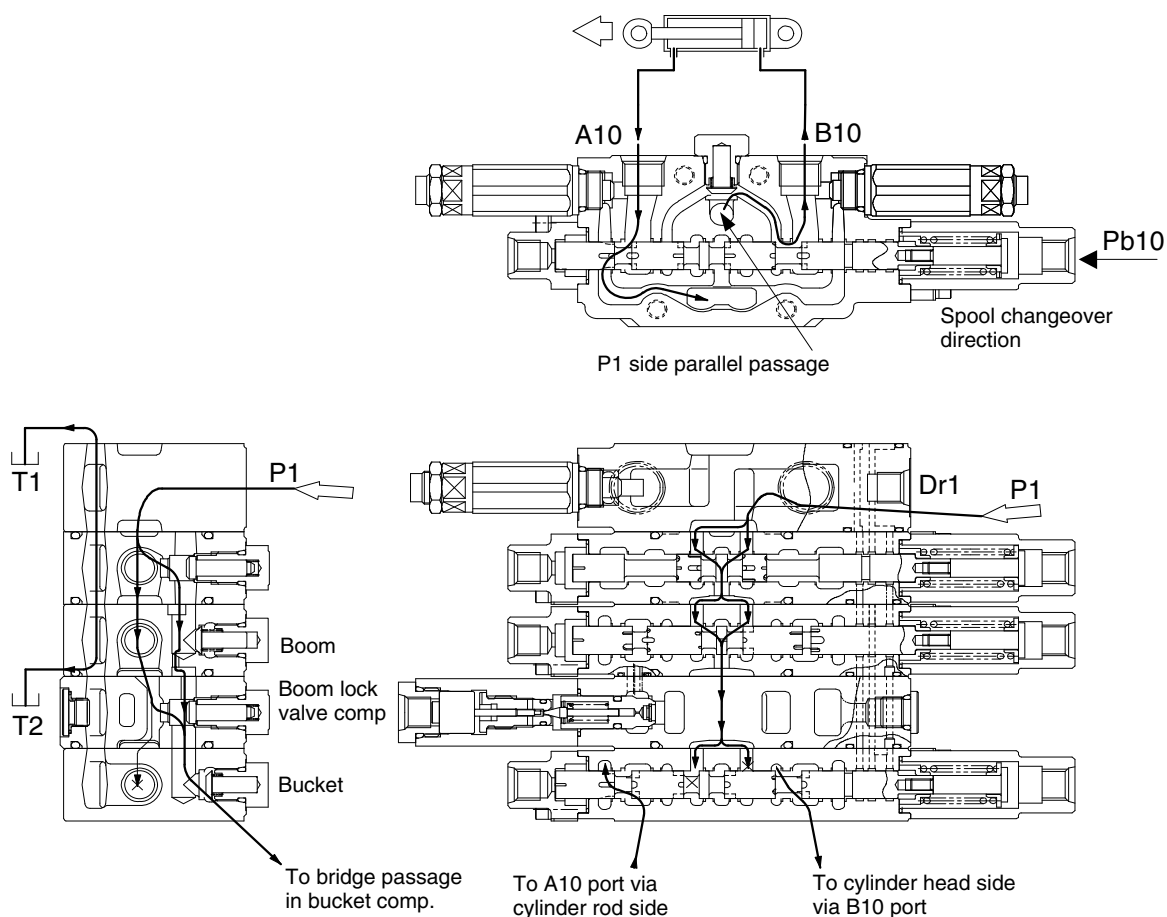
Bucket in operation

When the bucket in operation is carried out, the secondary pressure from the remote control valve flows into Pb10 port to change over the bucket spool.

Since the P1 side bypass passage is shut off at the bucket section after the bucket spool changeover, the oil flowed from P1 port flows through the check valve provided above the bypass passage in the travel section into the P1 side parallel passage.

Also, since a passage between B10 port and the bridge passage is opened after the spool changeover, the oil flowed into the P1 side parallel passage flows through the load check valve in the bucket section into B10 port via the bridge passage and then the head side of the bucket cylinder.

On the other hand, the oil returned from the rod side of the bucket cylinder flows into A10 port to the tank passage that has opened with the spool's notch after the spool changeover. Then, the bucket cylinder extends to make the bucket in.



Bucket in operation

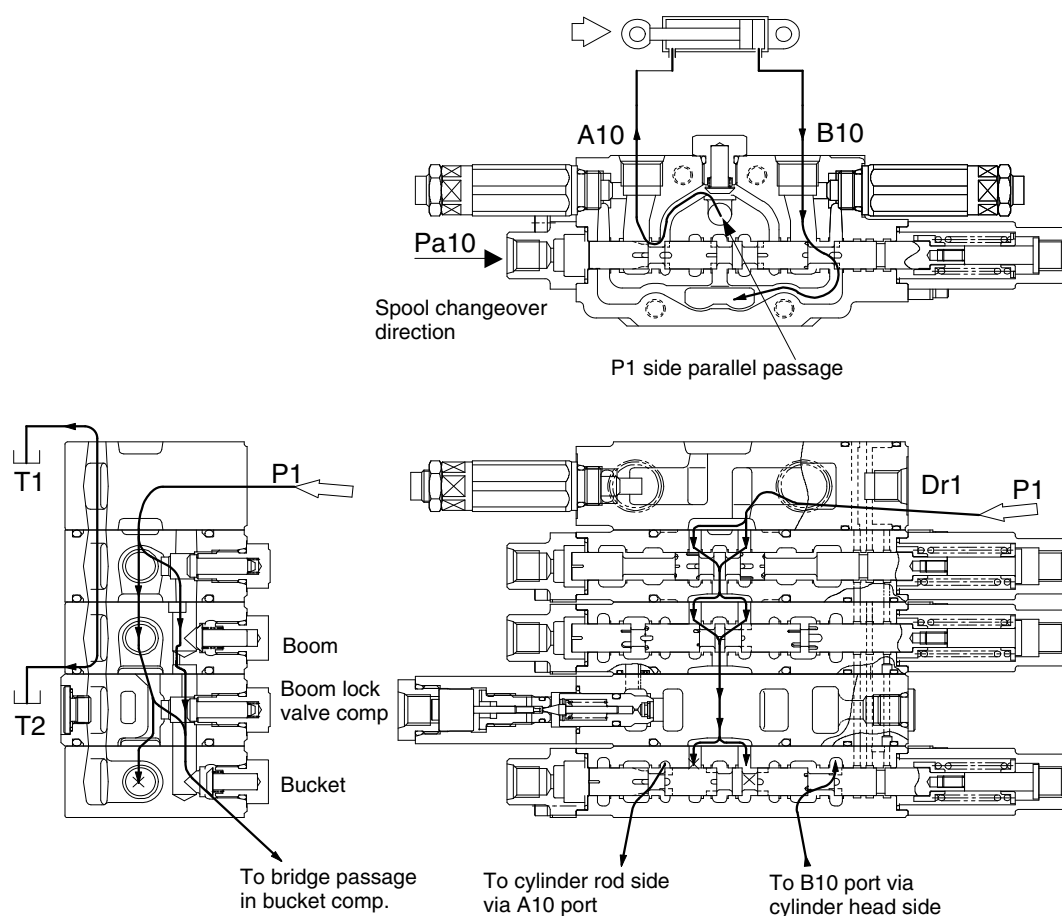
Bucket out operation

When the bucket out operation is carried out, the secondary pressure from the remote control valve flows into Pa10 port to change over the bucket spool.

Since the P1 side bypass passage is shut off at the bucket section after the bucket spool changeover, the oil flowed from P1 port flows through the check valve provided above the bypass passage in the travel section into the P1 side parallel passage.

Also, since a passage between A10 port and the bridge passage is opened after the spool changeover, the oil flowed into the P1 side parallel passage flows through the load check valve in the bucket section into A10 port via the bridge passage and then the head side of the bucket cylinder.

On the other hand, the oil returned from the head side of the bucket cylinder flows into B10 port to the tank passage that has opened after the spool changeover.



Bucket out operation

6) ARM OPERATION

Arm in operation

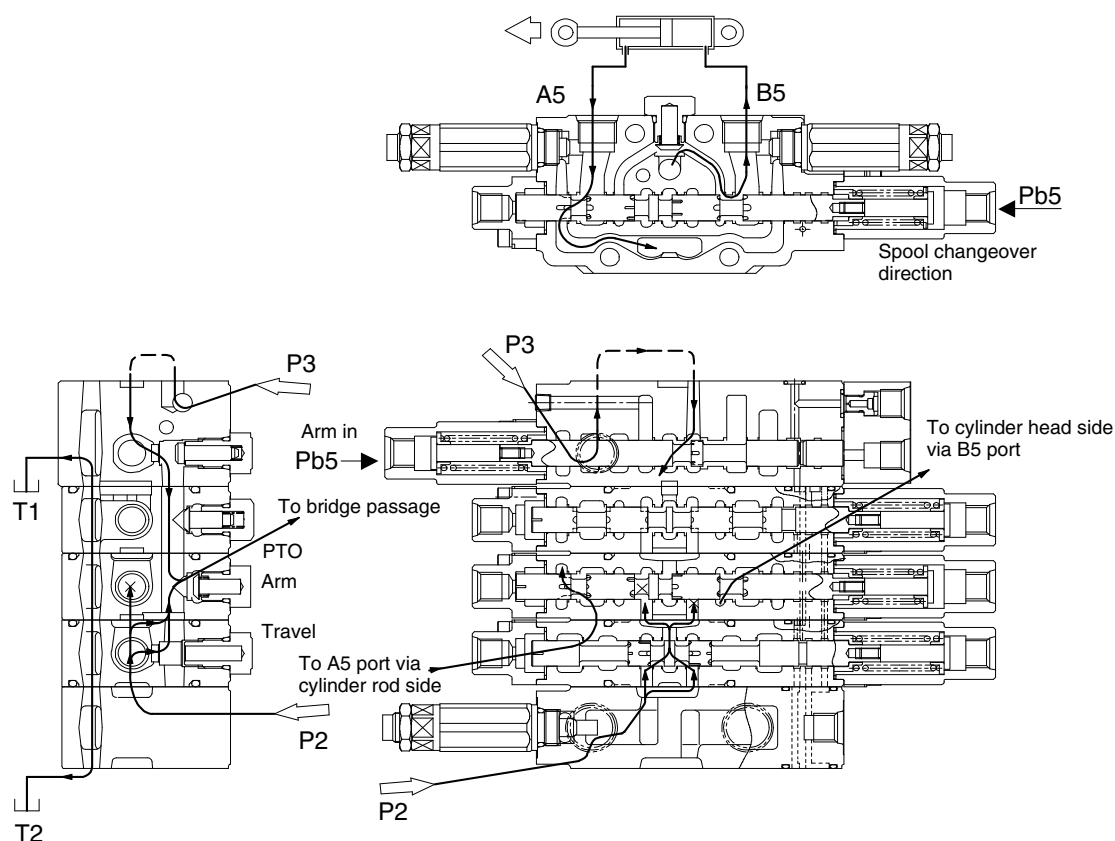
When the arm in operation is carried out, the secondary pressure from the remote control valve is applied to Pb5 port to change over the arm spool. The secondary pressure is also applied to the pilot chamber (arm in port) on the connecting section spring chamber side that has been connected through the piping. Therefore, when the operation is carried out together with the boom up operation at the same time, the connecting spool is hard to change over against the pilot pressure for arm in operation.

Since the P2 port bypass passage is shut off at the arm section after the arm spool change over, the oil flowed from P2 port flows through the travel section and a passage between travel section and arm section into the P2 side parallel passage.

Also, since the oil flowed from P3 port flows through the direction of dozer → boom swing → swing section and then into the P2 side parallel passage via the check valve in the P3 supply section, the connecting flow of P2 pump and P3 pump is supplied to the P2 side parallel passage. [Although the P3 side bypass passage is also connected to the P1 side parallel passage through the check valve in the P3 section, there is no oil flow into the P1 side as long as the P1 side sections (boom , bucket) are not operated.]

Since a passage between B5 port and the bridge passage is opened after the spool changeover, the oil flowed into the P2 side parallel passage flows through the load check valve in the arm section into B5 port via the bridge passage and then into the head side of the arm cylinder.

On the other hand, the oil returned from the rod side of the arm cylinder flows into A5 port to the tank passage that has opened with the spool's notch after the spool changeover. Then, the arm cylinder extends to make the arm in.



Arm in operation

R35Z72MCV19

Arm out operation

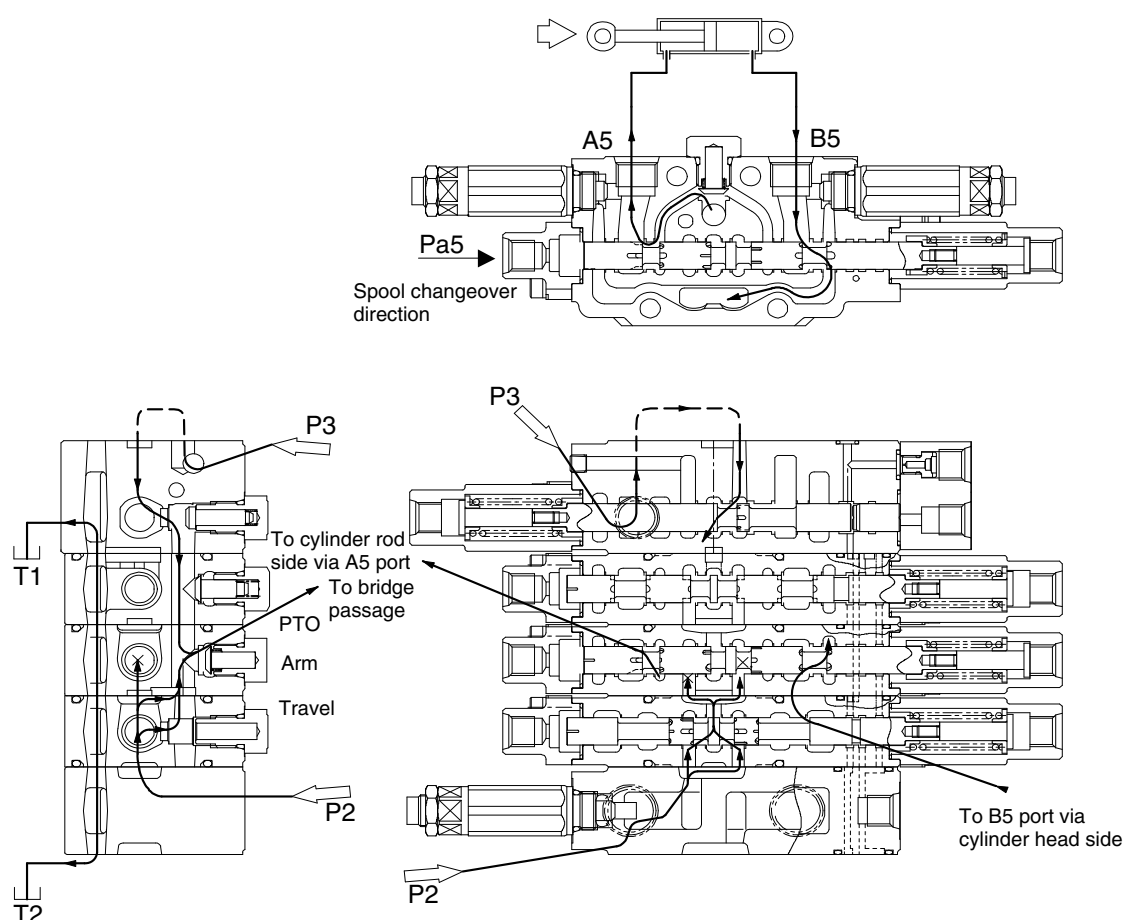
When the arm out operation is carried out, the secondary pressure from the remote control valve is applied to Pa5 port to change over the arm spool.

Since the P2 side bypass passage is shut off at the arm section after the arm spool changeover, the oil flowed from P2 port flows through the travel section and a passage between travel section and arm section into the P2 side parallel passage.

Also, since the oil flowed from P3 port flows through the direction of dozer → boom swing → swing section and then into the P2 side parallel passage via the check valve in the P3 supply section, the connecting flow of P2 pump and P3 pump is supplied to the P2 side parallel passage. [Although the P3 side bypass passage is also connected to the P1 side parallel passage through the check valve in the P3 section, there is no oil flow into the P1 side as long as the P1 side sections (boom , bucket) are not operated.]

Since a passage between A5 port and the bridge passage is opened after the spool changeover, the oil flowed into the P2 side parallel passage flows through the load check valve in the arm section into A5 port via the bridge passage and then into the rod side of the arm cylinder.

On the other hand, the oil returned from the head side of the arm cylinder flows into B5 port to the tank passage that has opened after the spool changeover. Then, the arm cylinder retracts to make the arm out.



Arm out operation

R35Z72MCV20

7) PTO OPERATION

For the PTO operation, both Pa pressurization and Pb pressurization are the same on operation so that only Pa pressurization is explained as follows.

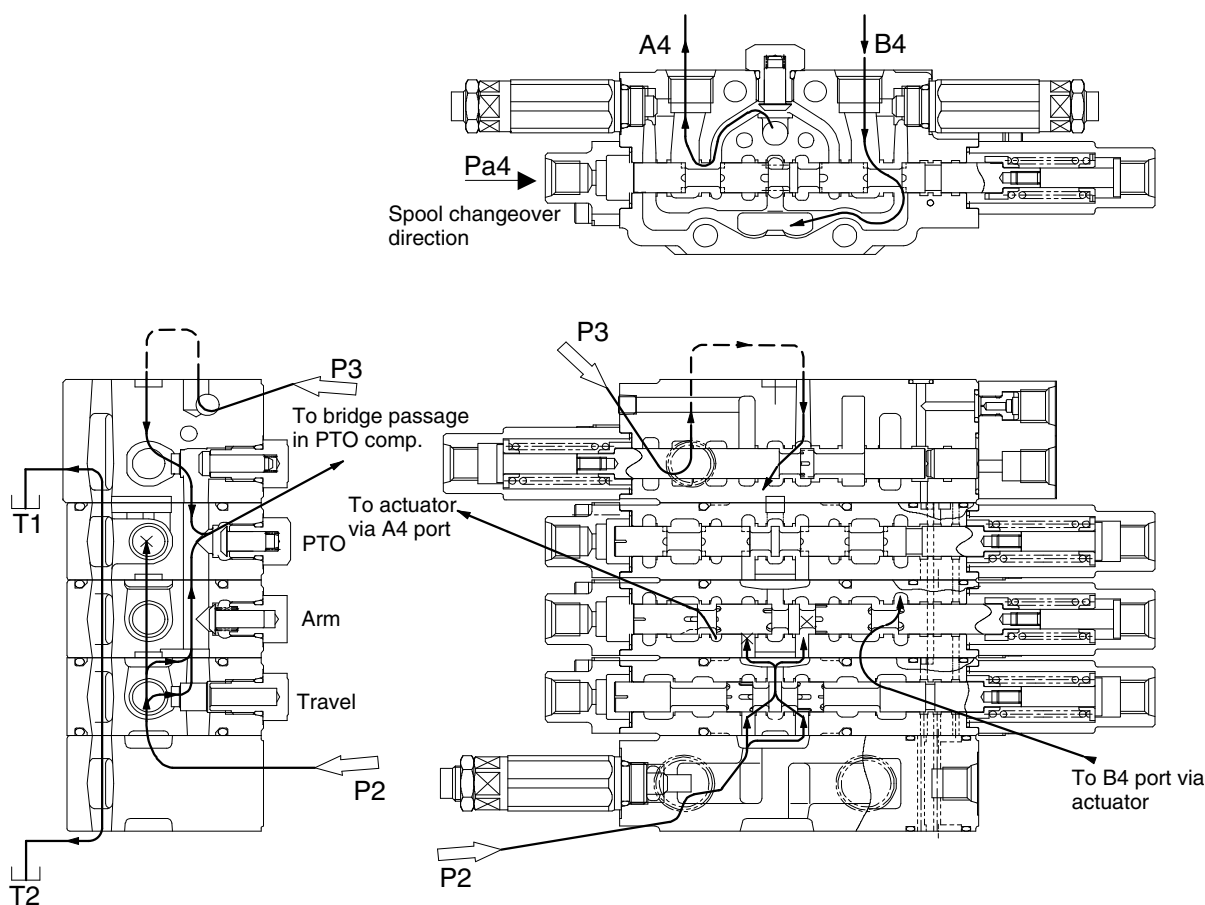
When the PTO operation (Pa4 pressurization) is carried out, the secondary pressure from the remote control valve is applied to Pa4 port to change over the PTO spool. Since the P2 side bypass passage is shut off at the PTO section after the PTO spool changeover, the oil flowed from P2 port flows through the travel section and a passage between travel section and arm section into the P2 side parallel passage.

Also, since the oil flowed from P3 port flows through the direction of dozer → boom swing → swing section and then into the P2 side parallel passage via the check valve in the P3 supply section, the connecting flow of P2 pump and P3 pump is supplied to the P2 parallel passage.

[Although the P3 side bypass passage is also connected to the P1 side parallel passage through the check valve in the P3 section, there is no oil flow into the P1 side as long as the P1 side sections (boom , bucket) are not operated.]

Since a passage between A4 port and the bridge passage is opened after the spool changeover, the oil flowed into the P2 side parallel passage flows through the load check valve in the PTO section into A4 port via the bridge passage and then into the actuator for PTO.

On the other hand, the oil returned from actuator for PTO flows into B4 port to the tank passage that has opened after the spool changeover.



PTO operation

R27Z92MCV21

8) DOZER OPERATION

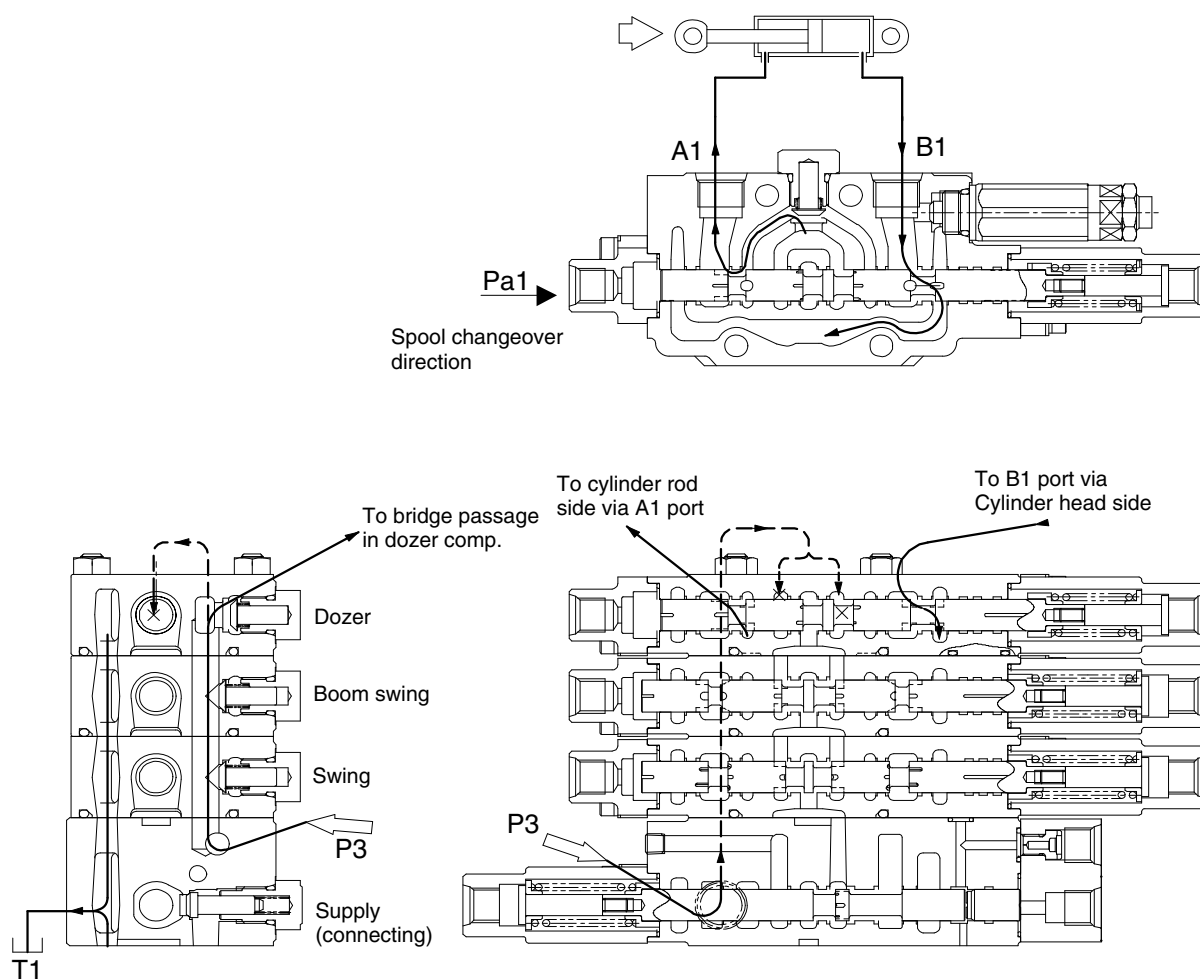
Dozer up operation

When the dozer up operation is carried out, the secondary pressure from the remote control valve is applied to Pa1 port to change over the dozer spool.

Since the P3 side bypass passage is shut off at the dozer section after the dozer spool changeover, the oil flowed from P3 port through the P3 side parallel passage flows into A1 port through the load check valve in the dozer section and the bridge passage since A1 port and the bridge passage have been opened after the spool changeover and then into the rod side of the dozer cylinder.

On the other hand, the oil returned from the head side of the dozer cylinder flows into B1 port to the tank passage that has opened after the spool changeover.

Then, the dozer cylinder retracts to raise the dozer.



Dozer up operation

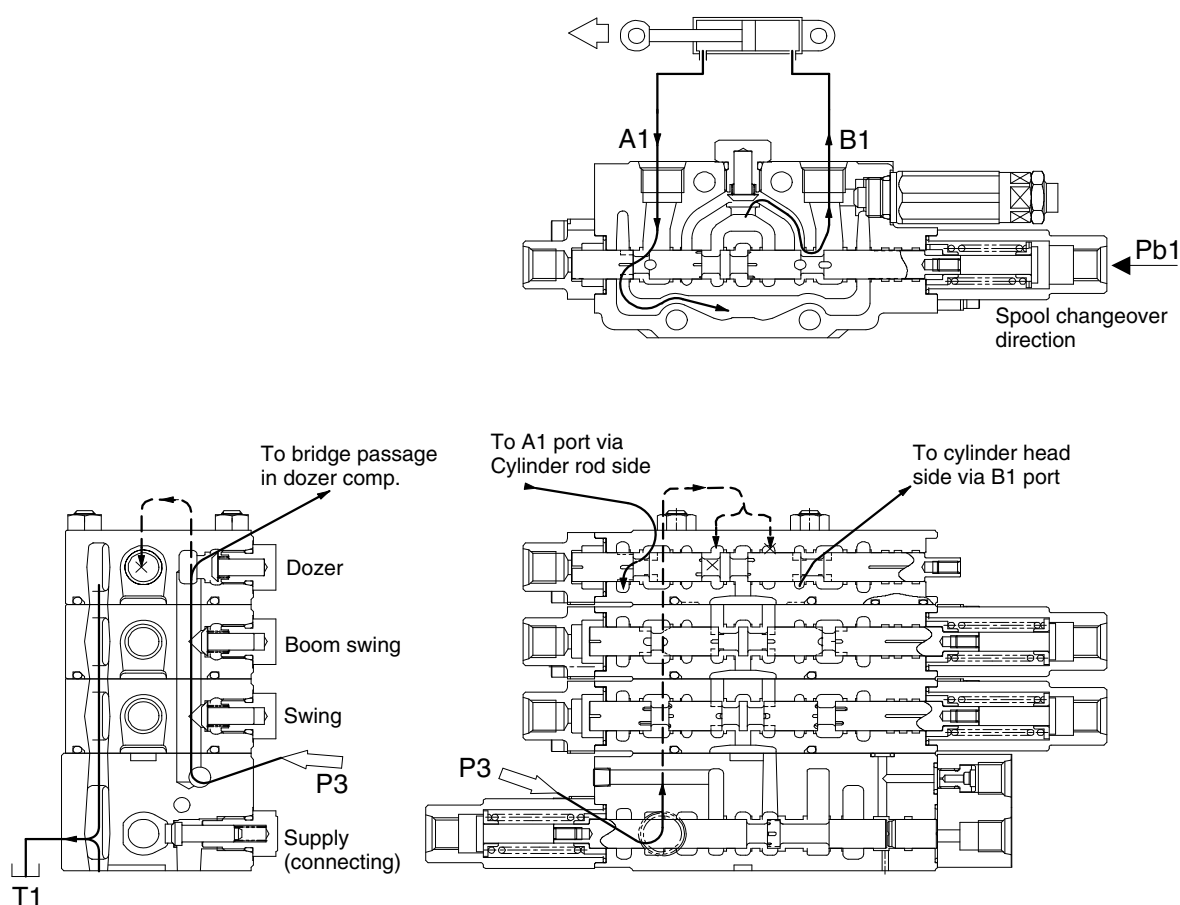
Dozer down operation

When the dozer down operation is carried out, the secondary pressure from the remote control valve is applied to Pb1 port to change over the dozer spool.

Since the P3 side bypass passage is shut off at the dozer section after the dozer spool changeover, the oil flowed from P3 port through the P3 side parallel passage flows into B1 port through the load check valve in the dozer section and the bridge passage since B1 port and the bridge passage have been opened after the spool changeover and then into the head side of the dozer cylinder.

On the other hand, the oil returned from the rod side of the dozer cylinder flows into A1 port to the tank passage that has opened with the spool's notch after the spool changeover.

Then, the dozer cylinder extends to lower the dozer.



Dozer down operation

9) BOOM SWING OPERATION

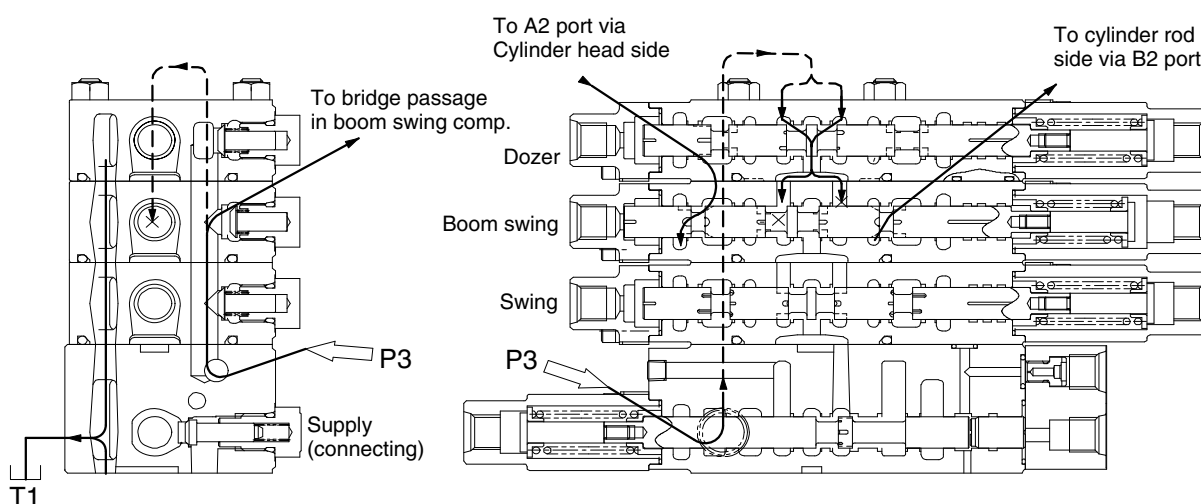
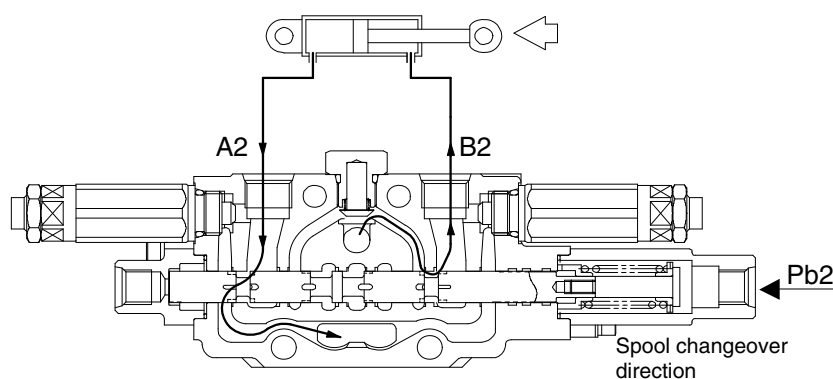
Boom right swing operation

When the boom right swing operation is carried out, the secondary pressure from the remote control valve is applied to Pb2 port to change over the boom swing spool.

Since the P3 side bypass passage is shut off at the boom swing section after the boom swing spool changeover, the oil flowed from P3 port through the P3 side parallel passage flows into B2 port through the load check valve in the boom swing section and the bridge passage since B2 port and the bridge passage have been opened after the spool changeover and then into the rod side of the boom swing cylinder.

On the other hand, the oil returned from the head side of the boom swing cylinder flows into A2 port to the tank passage that has opened with the spool's notch after the spool changeover.

Then, the boom swing cylinder retracts to swing the attachment right.



Boom right swing operation

27AZ72MCV24

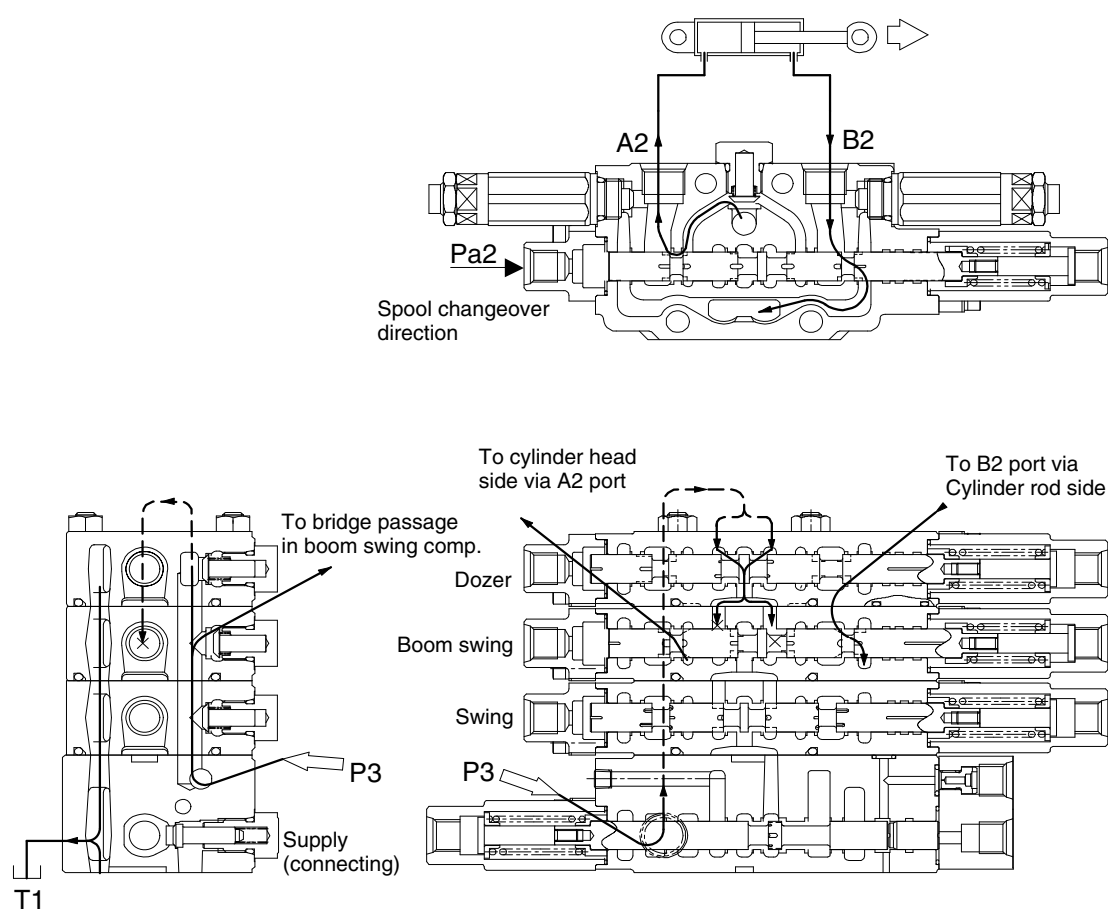
Boom left swing operation

When the boom left swing operation is carried out, the secondary pressure from the remote control valve is applied to Pa2 port to change over the boom swing spool.

Since the P3 side bypass passage is shut off at the boom swing section after the boom swing spool changeover, the oil flowed from P3 port through the P3 side parallel passage flows into A2 port through the load check valve in the boom swing section and the bridge passage since A2 port and the bridge passage have been opened after the spool changeover and then into the head side of the boom swing cylinder.

On the other hand, the oil returned from the rod side of the boom swing cylinder flows into B2 port to the tank passage that has opened with the spool's notch after the spool changeover.

Then, the boom swing cylinder extends to swing the attachment left.



Boom left swing operation

27AZ72MCV25

(10) SWING OPERATION

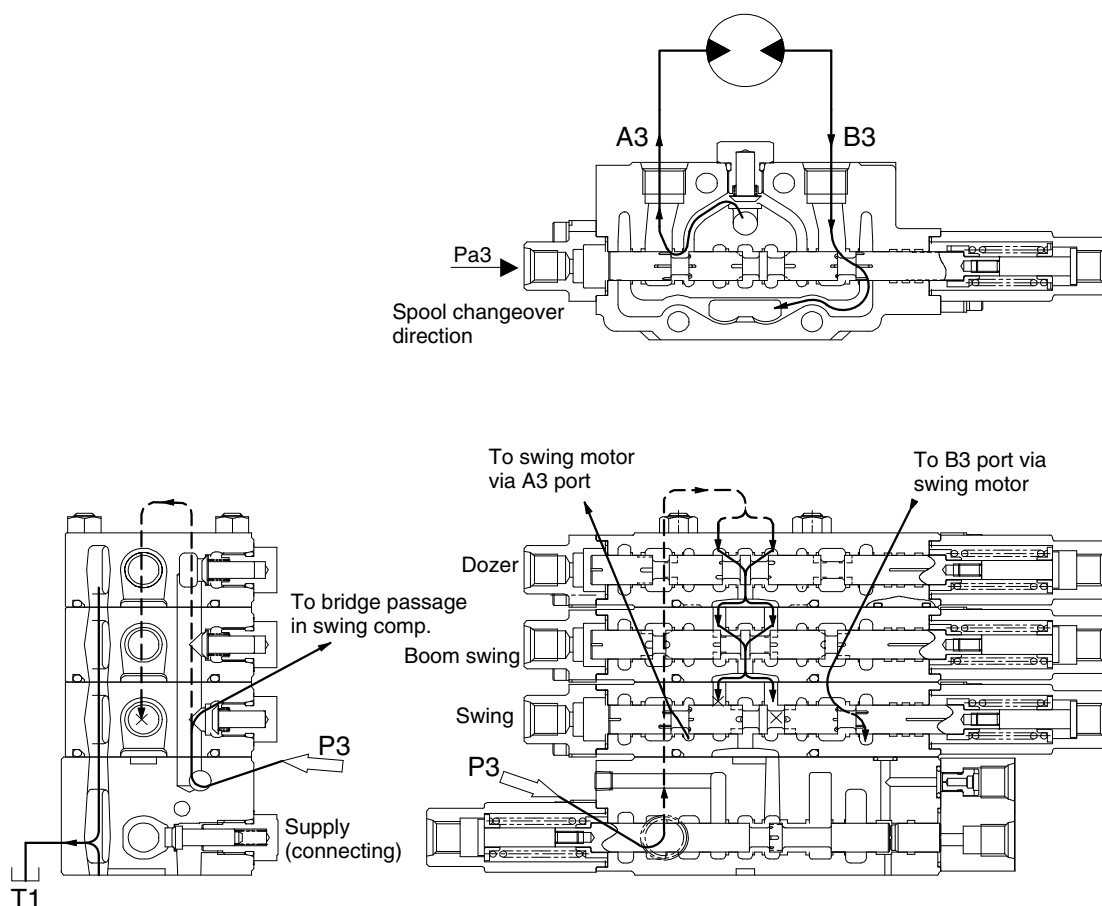
For the swing operation, both Pa pressurization and Pb pressurization are the same on operation so that only Pa pressurization is explained as follows.

When the right swing operation is carried out, the secondary pressure from the remote control valve is applied to Pa3 port to change over the swing spool.

Since the P3 side bypass passage is shut off at the swing section after the swing spool changeover, the oil flowed from P3 port through the P3 side parallel passage flows into A3 port through the load check valve in the swing section and the bridge passage since A3 port and the bridge passage have been opened after the spool changeover and then into the swing motor.

On the other hand, the oil returned from the swing motor flows into B3 port to the tank passage that has opened with the spool's notch after the spool changeover.

Then, the upper swing body swings right.



Right swing operation

(11) COMBINED CONTROL OPERATION ①

Boom up + Arm in + bucket

When the above combined control is carried out, the secondary pressure from the remote control valve is applied to each spool to change over them. Since the secondary pressure for arm in operation is also applied to the pilot chamber on the connecting section spring chamber side according to the piping, the connecting spool operates against the secondary pressure developed from boom up operation and arm in operation.

(Boom up operation secondary pressure - Arm in operation secondary pressure = connecting spool changeover pressure)

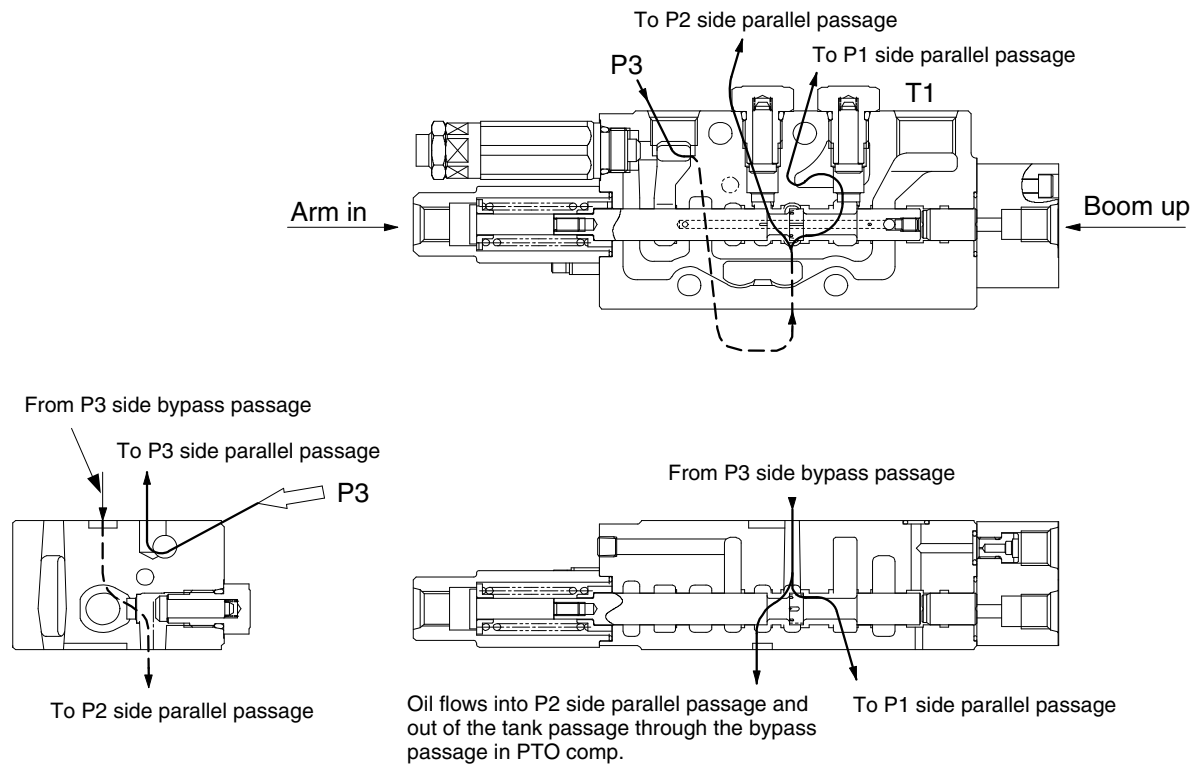
When all the above combined operations are carried out in full lever operation (full changeover), the oil supplied from P1 pump is supplied to the boom and bucket and the oil from P2 pump to the arm. Since the connecting spool changeover pressure becomes "0" as mentioned above, the connecting spool cannot change over and the oil from P3 pump flows to the P1 and P2 side parallel passages through the connecting section. Accordingly, much oil flows to the arm side normally because of its low working load.

In this condition, since gradually restricting the arm in operation (returning the lever) causes the secondary pressure for arm in operation to decrease, the connecting spool changeover pressure to increase, the connecting spool to start changing over, and the passage to the arm side to be narrowed, the oil supplied from P3 pump flows abundantly into the P1 side (Boom, bucket).

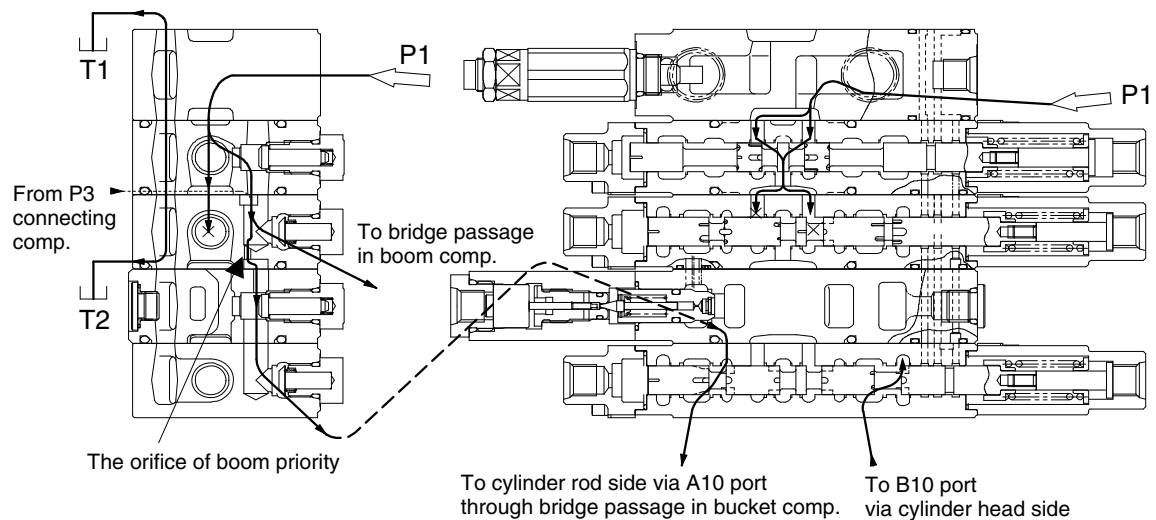
As mentioned above, the oil supplied from P3 pump flows suitably into each attachment according to the control input during the above combined control, resulting in a well-balanced and efficient working speed.

Besides, since the oil flow to the bucket whose working load is less than the boom is restricted with an orifice (the orifice of boom priority) provided before the bucket section in the P1 side parallel passage, much oil flows into the boom section. As a result, the working speed balance between both attachments is maintained during the combined operation of boom and bucket.

P3 side (connecting side) circuit



P1 side circuit (the orifice of boom priority)



Oil flow during combined operation

R35Z72MCV27

(12) COMBINED CONTROL OPERATION ②

Both travels + bucket

When the both travels operation is carried out together with the bucket operation at the same time, the oil flowed from Pp1 port flows through the orifice passage and into the travel independent signal passage; both travels and the bucket spool changeover make a passage to the drain port shut off.

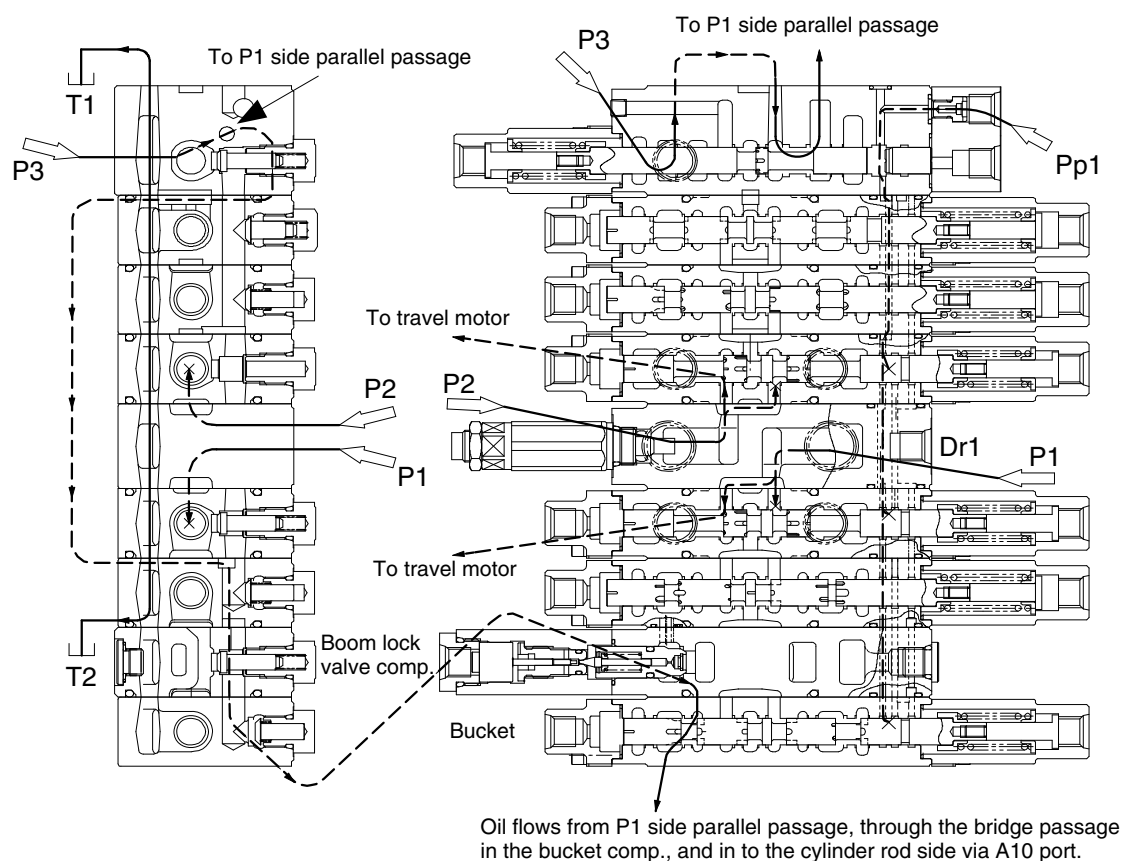
Then, the travel independent passage becomes the same pressure as P_{p1} port pressure (pilot primary pressure).

When the travel independent passage becomes Pp1 pressure, the Pp1 pressure is applied to the connecting spool to change over the connecting spool.

Since the bypass passage from P3 to P2 side, which is a passage to the tank, is restricted, the oil from P3 side flows into the P1 side parallel passage that is connected through a check valve.

With his circuit arrangement, the bucket section is supplied with pressure oil from P3 during both travels operation, the simultaneous operation becomes possible.

Besides, since each of P1 and P2 is used independently during both travels and only P3 is used for bucket operation, stable travel is possible to continue even if there is change in the bucket load.



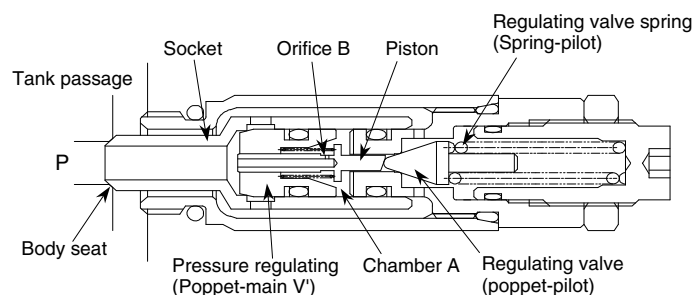
Travel independence operation

(13) MAIN AND PORT RELIEF VALVE OPERATION

Main relief valve operation

Main relief valves (MRV) are different in the uses for P1/P2 and P3; however, their structures and operation are the same.

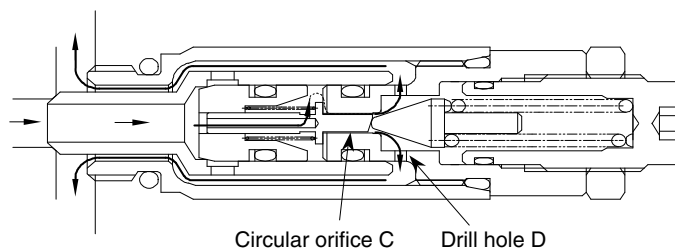
- ① Pressure oil flows through the inside of the piston built in the pressure regulating valve (poppet-main V') and the orifice B and then into the internal chamber A until it is filled up. The filled up pressure causes both of the pressure regulating valve and the socket and body seat to be seated securely.



MRV operation (1)

R35Z72MCV29

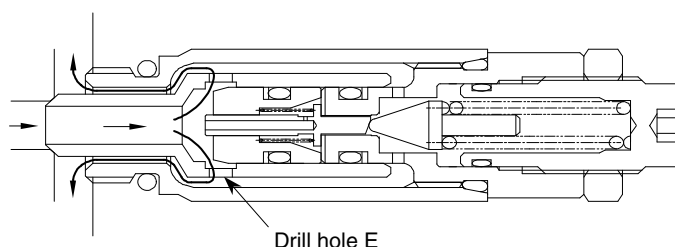
- ② When the oil pressure at port P increases up to the setting pressure of regulating valve spring, the pressure oil is applied to the regulating valve via the piston to open the regulating valve. Then, the pressure oil flows through a passage in the direction of piston inside → orifice B → chamber A → circular orifice C → Drill hole D and the external of socket and then into the tank passage.



MRV operation (2)

R35Z72MCV30

- ③ Since the pressure inside the chamber A decreases when the regulating valve is opened, which causes the pressure regulating valve to open to let the pressure oil port P flows into the tank passage through drill hole E.



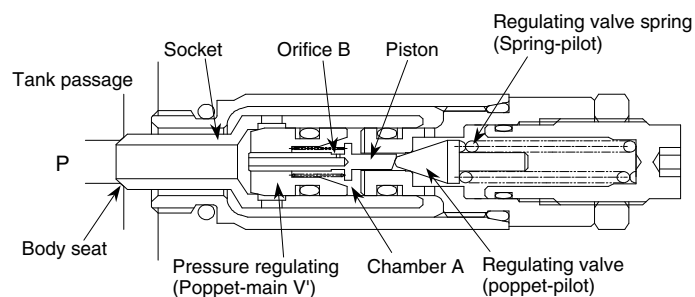
MRV operation (3)

R35Z72MCV31

- ④ Also, since the regulating valve is pressed to the seat by regulating valve spring when the pressure at port P decreases below the setting pressure of regulating valve spring, the pressure inside chamber A becomes the same as the pressure at port P to cause the pressure regulating valve to be pressed to the seat, resulting in the original condition (①).

Overload relief valve (ORV) operation ①

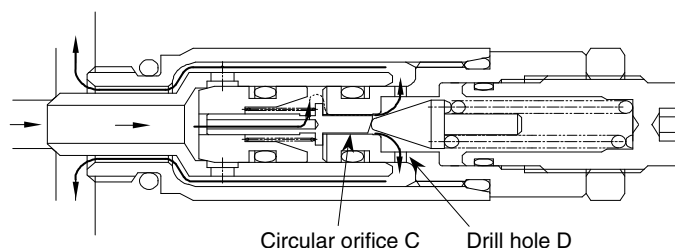
- ① Pressure oil flows through the inside of the piston built in the pressure regulating valve (poppet-main V') and the orifice B and then into the internal chamber A until it is filled up. The filled up pressure causes both of the pressure regulating valve and socket and body seat to be seated securely.



ORV operation (1)

R35Z72MCV32

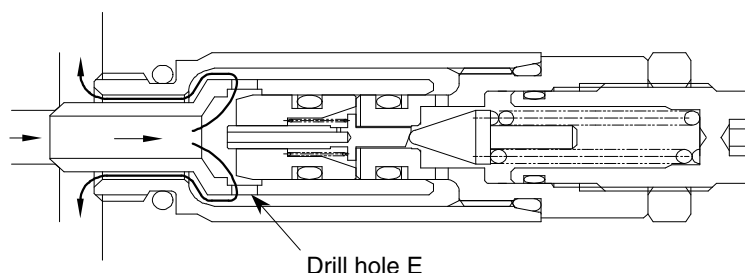
- ② When the oil pressure at port P increases up to the setting pressure of regulating valve spring, the pressure oil is applied to the regulating valve via the piston to open the regulating valve. Then, the pressure oil flows through a passage in the direction of piston inside → orifice B → chamber A → circular orifice C → Drill hole D and the external of socket and then into the tank passage.



ORV operation (2)

R35Z72MCV33

- ③ Since the pressure inside the chamber A decreases when the regulating valve is opened, which causes the pressure regulating valve to open to let the pressure oil port P flows into the tank passage through drill hole E.



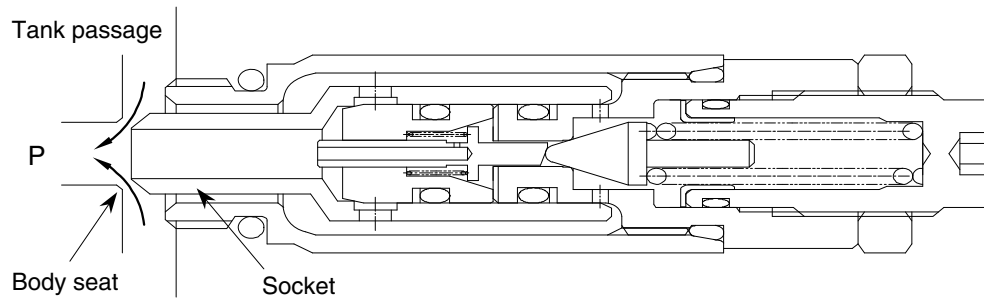
ORV operation (3)

R35Z72MCV34

- ④ Also, since the regulating valve is pressed to the seat by regulating valve spring when the pressure at port P decreases below the setting pressure of regulating valve spring, the pressure inside chamber A becomes the same as the pressure at port P to cause the pressure regulating valve to be pressed to the seat, resulting in the original condition (①).

Overload relief valve (ORV) operation ② 【Operation during suction】

If there is negative pressure at port P (or the tank passage pressure is higher than P pressure), the socket is applied with press and open force. Then, the opening between body seat and socket increases to cause the oil to flow into port P from the tank passage, filling up the space.



ORV operation (during suction)

R35Z72MCV35

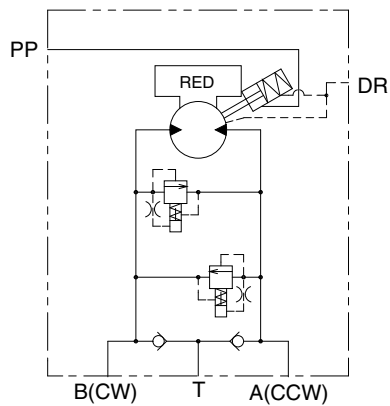
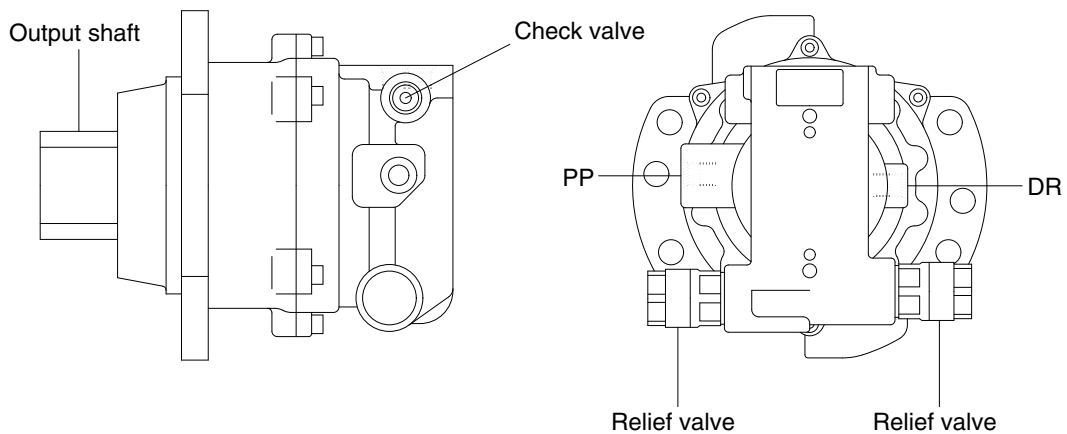
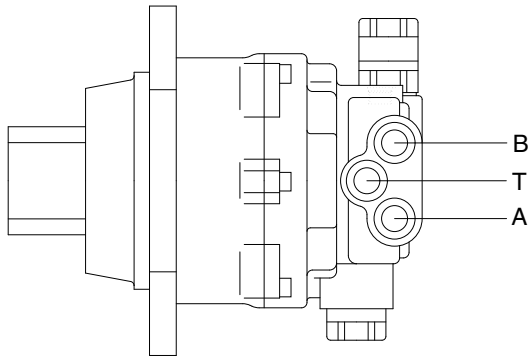
GROUP 3 SWING DEVICE

1. STRUCTURE

Swing device consists swing motor and swing reduction gear.

1) SWING MOTOR

Swing motor include mechanical parking valve, relief valve and make up valve.

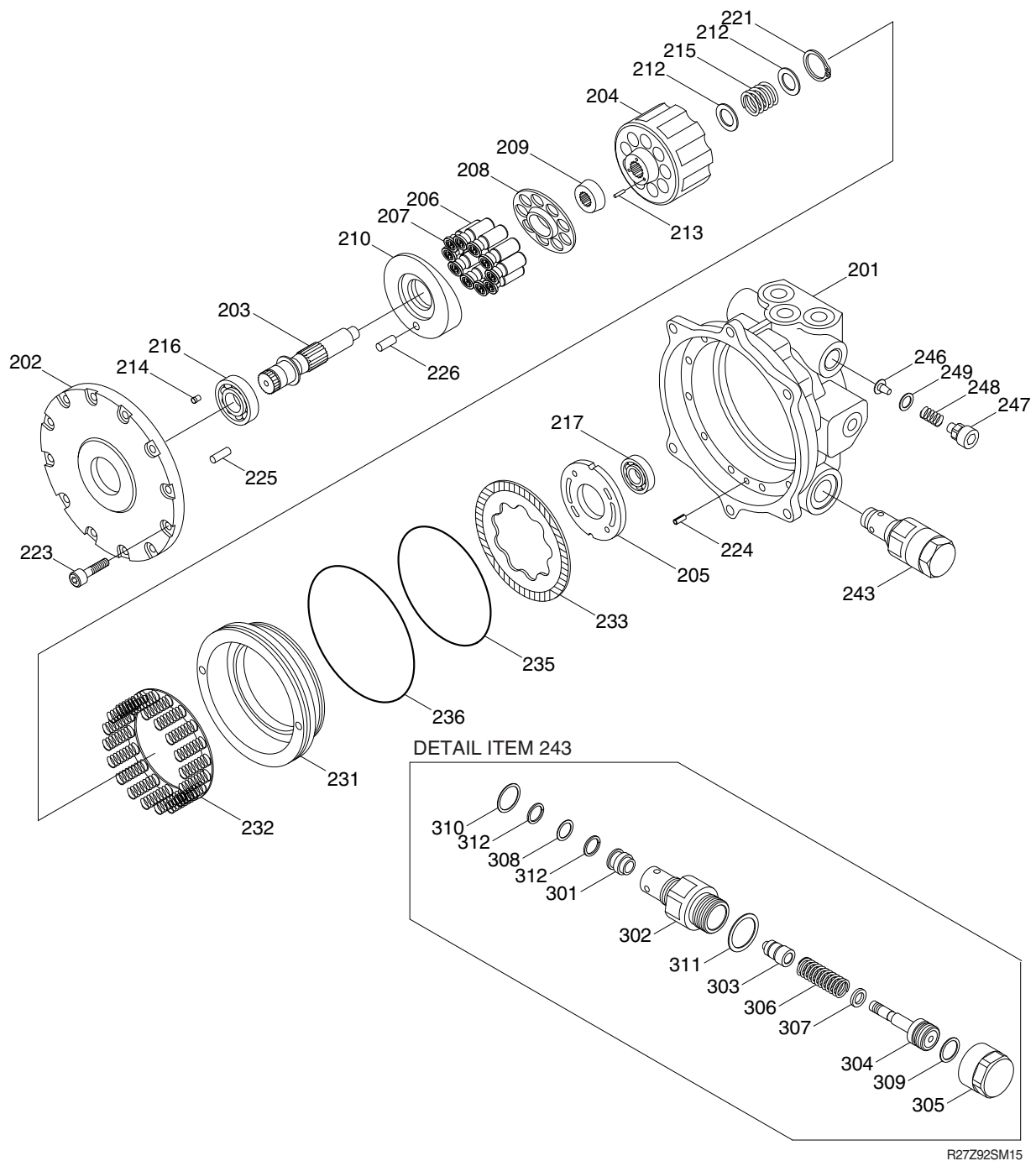


HYDRAULIC CIRCUIT

25AZ2SM01

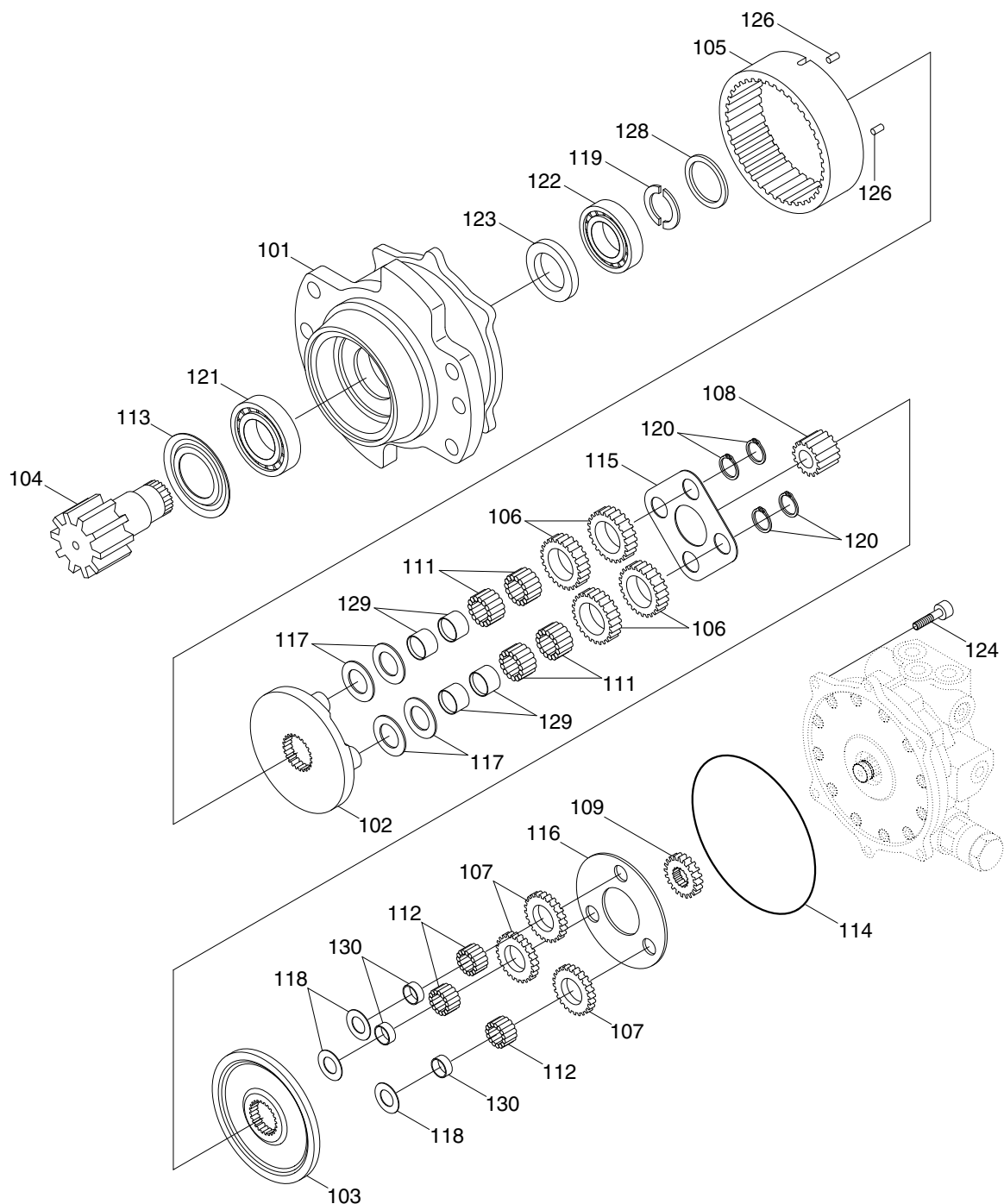
| Port | Port name | Port size |
|------|--------------------|-----------|
| A | Main port | PF 3/8 |
| B | Main port | PF 3/8 |
| DR | Drain port | PF 3/8 |
| T | Make up port | PF 3/8 |
| PP | Brake release port | PF 1/4 |

2) COMPONENTS (1/2)



| | | | | | | | |
|-----|-----------------|-----|--------------|-----|--------------|-----|--------------|
| 201 | Body | 213 | Pin | 232 | Spring assy | 303 | Poppet |
| 202 | Plate | 214 | Filter | 233 | Disk plate | 304 | Piston |
| 203 | Shaft | 215 | Spring C | 235 | O-ring | 305 | Cap |
| 204 | Cylinder barrel | 216 | Bearing | 236 | O-ring | 306 | Spring |
| 205 | Valve plate | 217 | Bearing | 243 | Relief valve | 307 | Spacer |
| 206 | Piston | 221 | Snap ring | 246 | Check valve | 308 | O-ring |
| 207 | Shoe | 223 | Screw | 247 | Plug | 309 | O-ring |
| 208 | Shoe holder | 224 | Spring pin | 248 | Spring | 310 | O-ring |
| 209 | Barrel holder | 225 | Pin | 249 | O-ring | 311 | O-ring |
| 210 | Swash plate | 226 | Pin | 301 | Seat | 312 | Back up-ring |
| 212 | Retainer | 231 | Brake piston | 302 | Retainer | | |

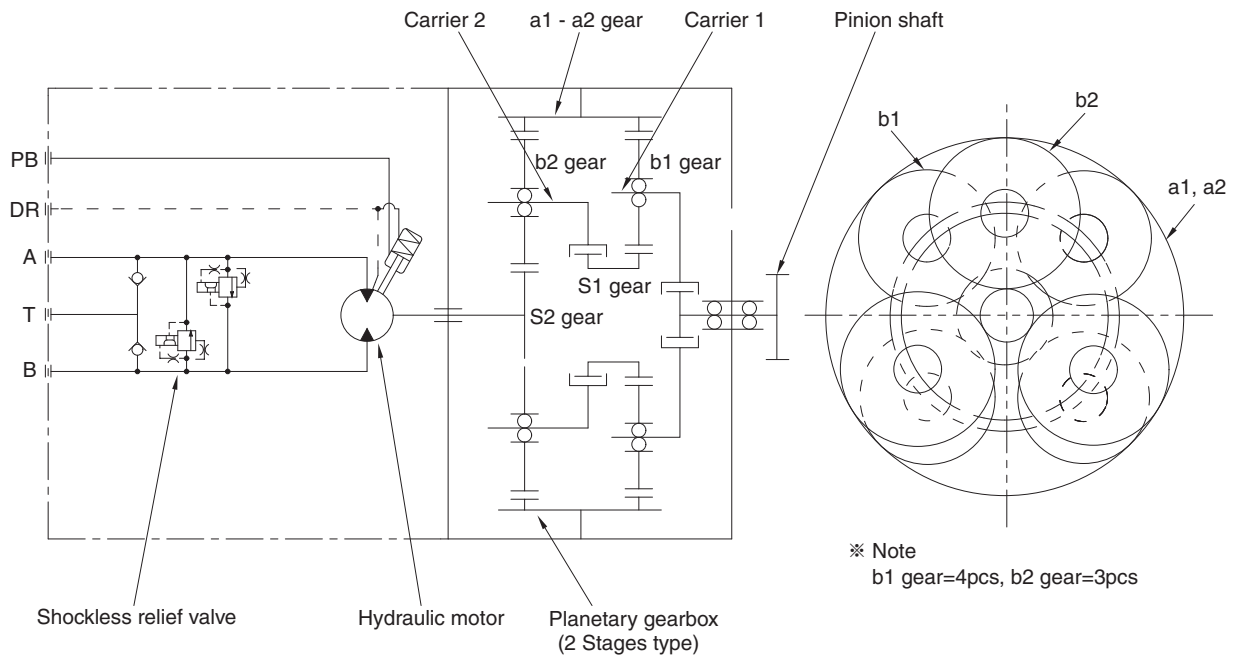
COMPONENTS (2/2)



R27Z92SM16

| | | | | | |
|-----|---------------|-----|-----------------|-----|-----------|
| 101 | Body | 111 | Needle | 120 | Snap ring |
| 102 | Carrier 1 | 112 | Needle | 121 | Bearing |
| 103 | Carrier 2 | 113 | Seal ring | 122 | Bearing |
| 104 | Pinion shaft | 114 | O-ring | 123 | Oil seal |
| 105 | Internal gear | 115 | Thrust plate 1 | 124 | Screw |
| 106 | Gear B1 | 116 | Thrust plate 2 | 126 | Pin |
| 107 | Gear B2 | 117 | Thrust washer 1 | 128 | Ring |
| 108 | Gear S1 | 118 | Thrust washer 2 | 129 | Ring 1 |
| 109 | Gear S2 | 119 | Preload collar | 130 | Ring 2 |

2. OPERATION PRINCIPLE



R27Z92SM02

3. OPERATION

The swing motor consists of a planetary gear speed reducer, a hydraulic motor and the hydraulic valves.

1) REDUCTION GEAR SECTION

(1) Function

The speed reducer of swing motor is a simple planetary gear type with two stages. The high output speed of the hydraulic motor is reduced to low speed with high torque and obtaining the pinion shaft rotation.

(2) Operation

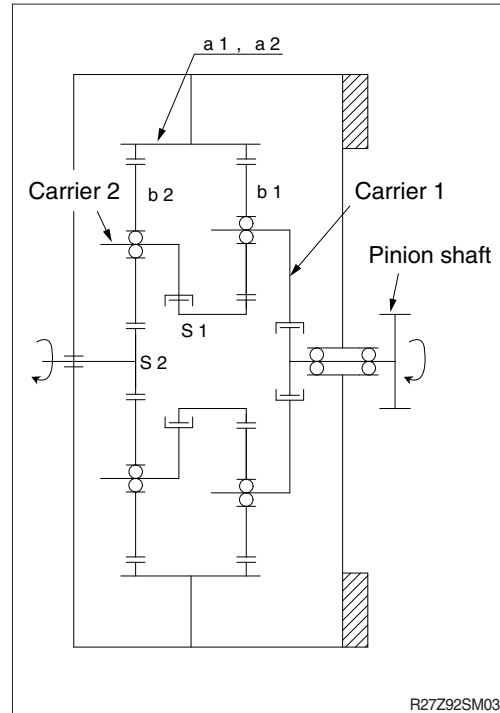
The s2 gear is attached to the hydraulic motor shaft, and the s2 output speed is reduced between the gears (s2, b2, a2).

This reduced output speed is transmitted to the s1 gear and the speed is reduced again between the gears (s1, b1, a1), and it is transmitted to the pinion shaft, and drives the machine.

The gear ratio of two stages simple planetary speed reducer is calculated using the following formula.

$$R = \frac{Z_{s1}}{Z_{s1} + Z_{a1}} \times \frac{Z_{s2}}{Z_{s2} + Z_{a2}}$$

※ Z ** : Number of gear teeth.



2) HYDRAULIC MOTOR SECTION

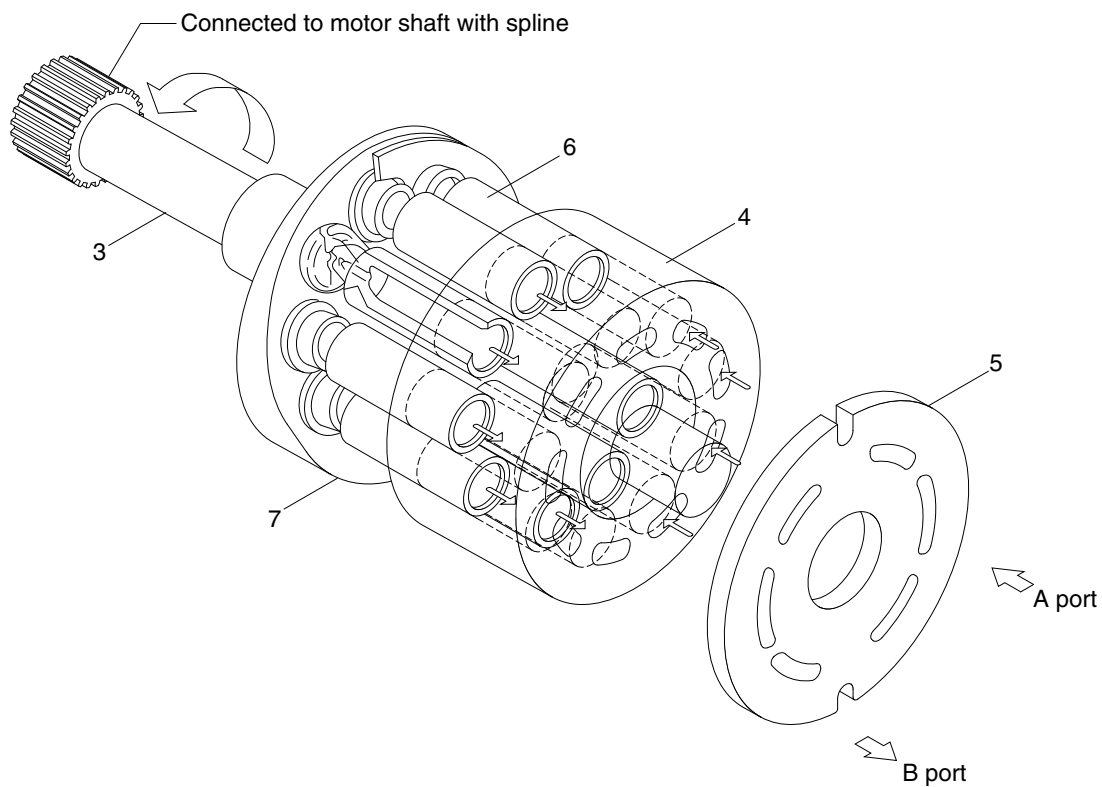
(1) Function

This hydraulic motor is an axial piston type, and changes the hydraulic energy supplied from the pump to the rotary motion.

(2) Structure

Through a hydraulic valve, the pressurized oil is supplied to the valve plate (5). When the pressurized oil is supplied to the A port, this pressurized oil pushes the piston (6) in the cylinder barrel (4). This pushing force is changed to the rotational power by the swash plate (7) and transmitted to the shaft (3) which is connected to the cylinder barrel (4) with the spline. The return flow from the cylinder port is going out through the B port of the valve plate (5).

To reverse rotation, pressurized oil is supplied to the B port and returning oil exits through the A port.



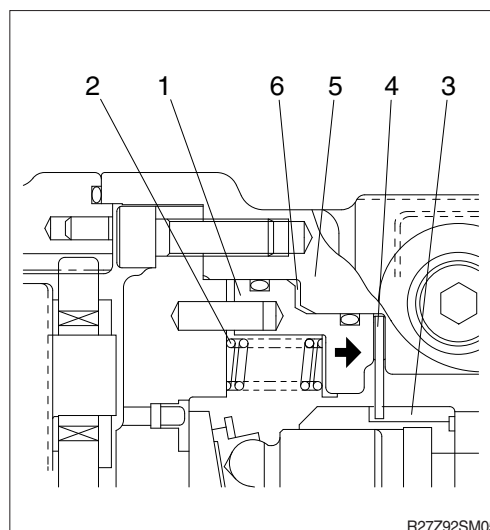
R27Z92SM04

(3) Parking brake

The parking brake fixes the output shaft of hydraulic motor mechanically while the wheel motor is stopped.

① At the brake releasing pressure OFF

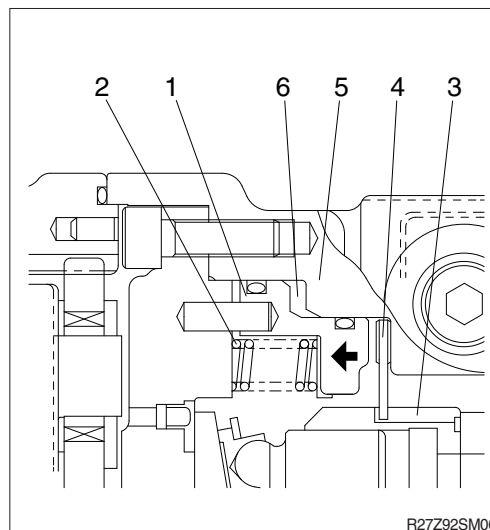
When brake releasing pressure is not supplied, the brake piston (1) is pressed in the direction (shown as arrow) by the spring (2). Then the disk plate (4) which is fixed to the cylinder barrel (3) is held between the body H (5) and the brake piston (1). As a result, with the friction of these parts, the cylinder barrel (3) and the hydraulic motor are unable to rotate.



② At the brake releasing pressure ON

When brake releasing pressure is supplied, the oil is lead to chamber (6).

Then the brake piston (1) is moved to the direction (shown as arrow in) against the force of spring (2). As a result, the disk plate (4) is released from the friction, and the cylinder barrel (3) can be rotated.



3) HYDRAULIC VALVE SECTION

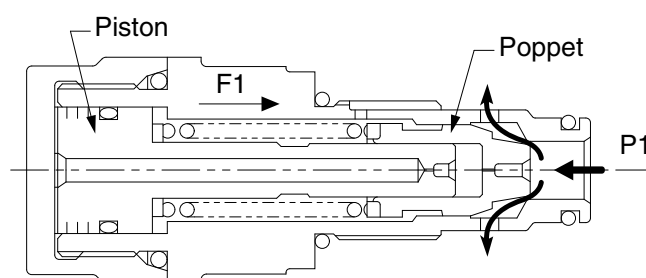
(1) Shockless relief valve

The shockless relief valve consists of the direct relief valve (poppet) and the piston for changing the spring force with two stages.

When the hydraulic motor is stopped, even after closing IN and OUT port of the hydraulic motor, the motor tries to run with inertia. Motor works as like a pump, and the pressure (brake pressure) is made on the OUT port side. The shockless relief valve releases this brake pressure with two stages of operation. This makes the shock smooth, and prevents the motor being damaged. It also makes the start of the motor smooth.

① First stage

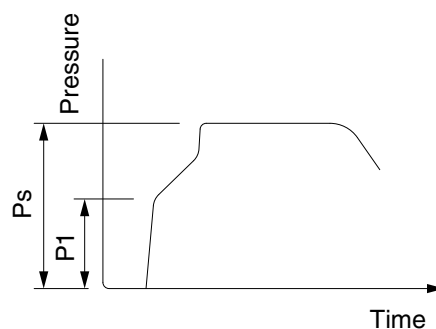
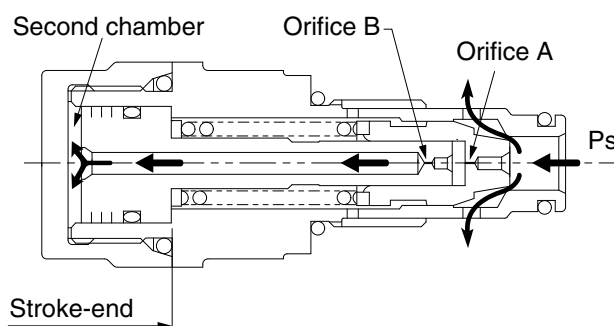
When the P1 pressure is going up, the poppet opens due to the pressure of the spring force F1.



R27Z92SM07

② Second stage

When P1 pressure enters the second chamber through the orifice A and B, the piston moves to its stroke-end. With this action, the spring is compressed, the spring force becomes stronger, and the P1 pressure is increased to the setting pressure Ps.



R27Z92SM08

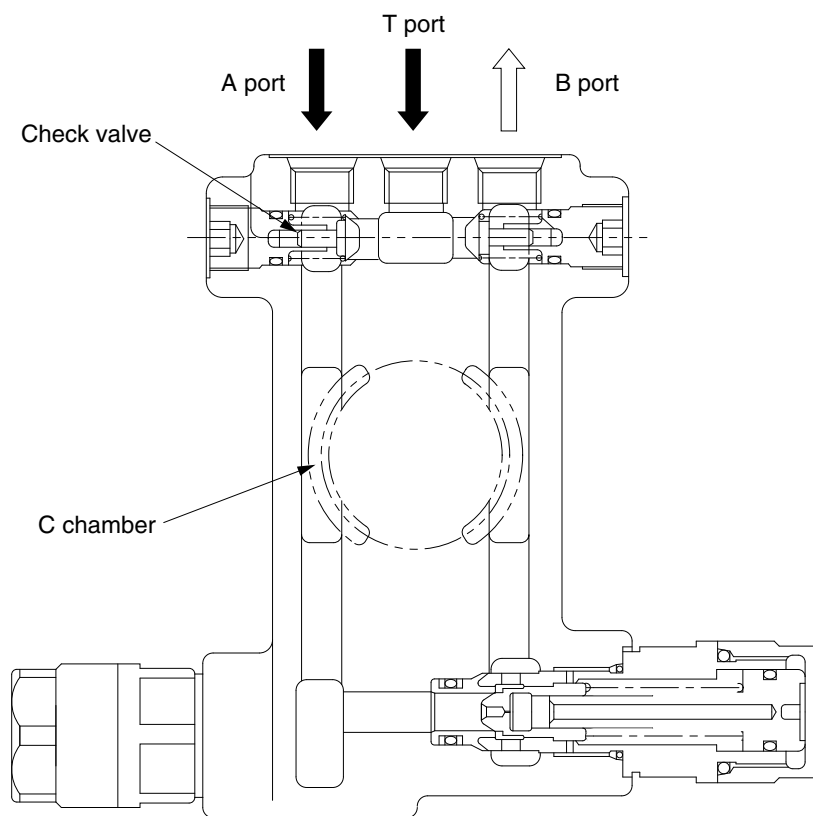
R27Z92SM09

With the above two stages of operation, the motor starts and stops smoothly.

(2) Check valve

When the swing motor is decelerated by operating the control valve, it continues to be moved by the inertia of the machine. Then, it works as pump, and the pressure of C chamber tends to become negative. However, when B port pressure is below cracking pressure of the relief valve, all flow in A port goes out from B port through the motor.

Therefore, if C chamber can get flow only from the control valve, the flow will not be enough to prevent the negative pressure; as a result, cavitation could occur. The check valve works to supply the flow from T port to C chamber; and prevents cavitation.



R27Z92SM10

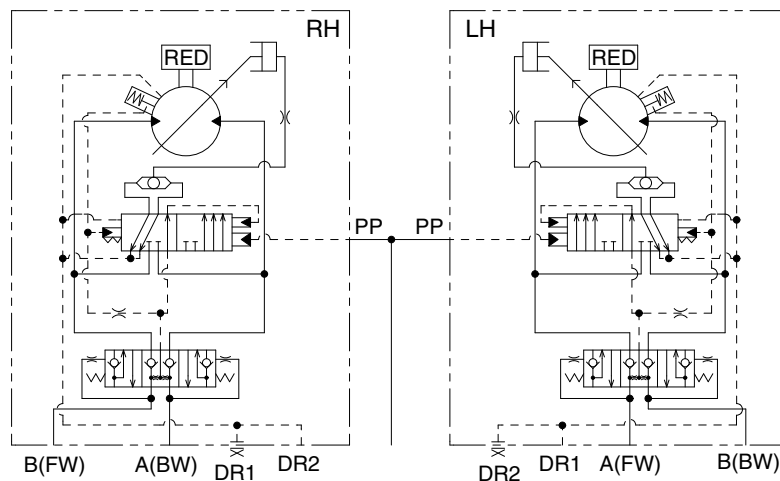
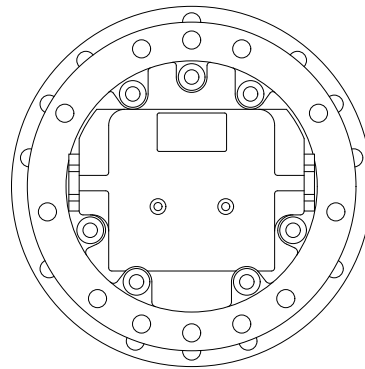
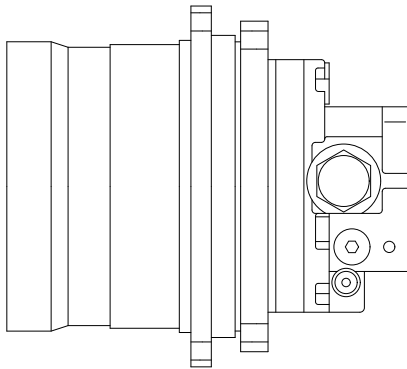
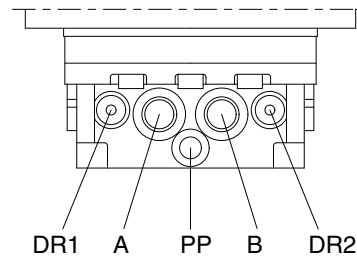
GROUP 4 TRAVEL DEVICE

1. CONSTRUCTION

Travel device consists travel motor and gear box.

Travel motor includes counterbalance valve, parking brake and high/low speed changeover mechanism.

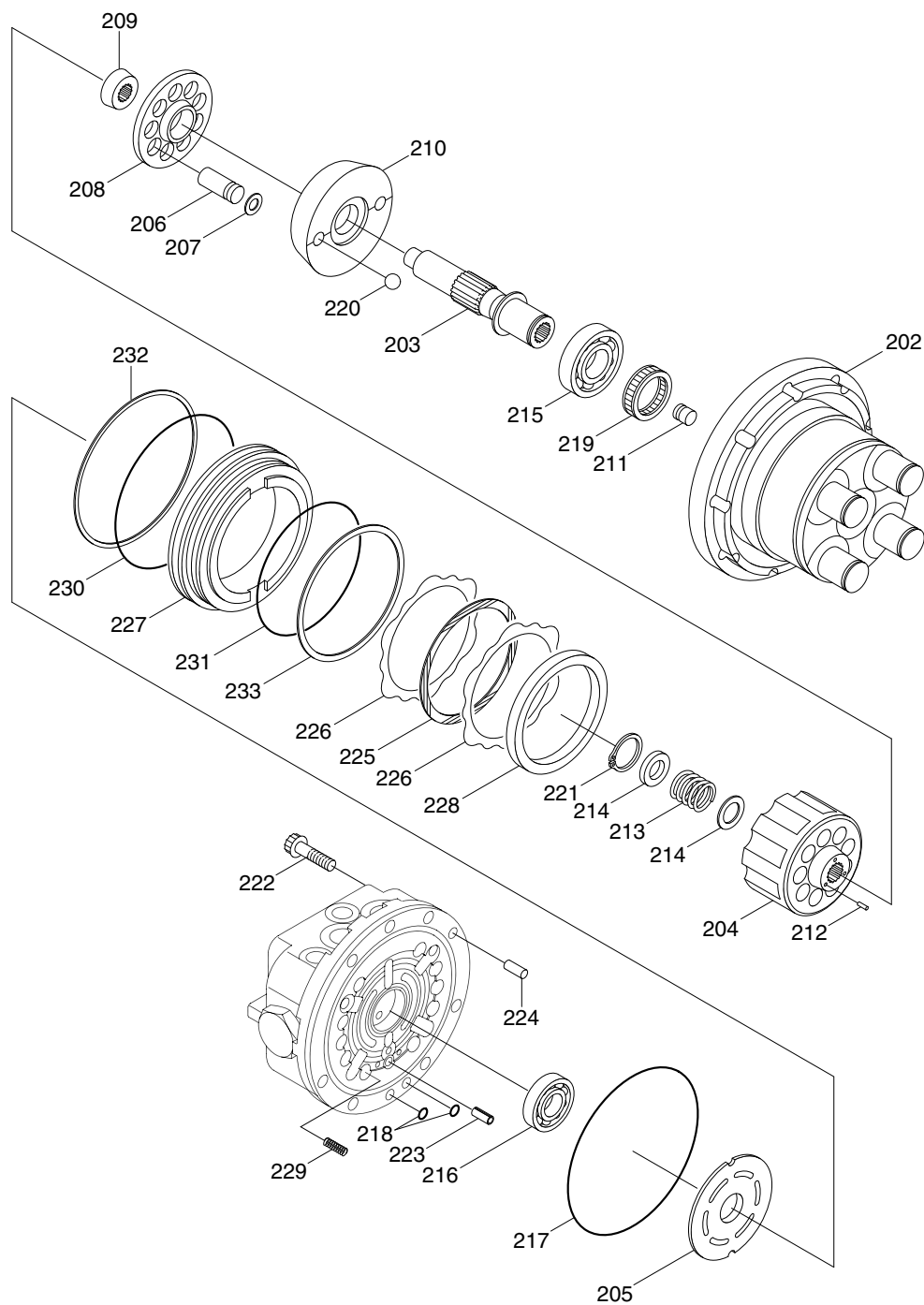
| Port | Port name | Port size |
|----------|----------------------|-----------|
| A | Main port | PF 1/2 |
| B | Main port | PF 1/2 |
| DR1, DR2 | Drain port | PF 1/4 |
| PP | 2 speed control port | PF 1/4 |



HYDRAULIC CIRCUIT

R27Z9AK2TM20

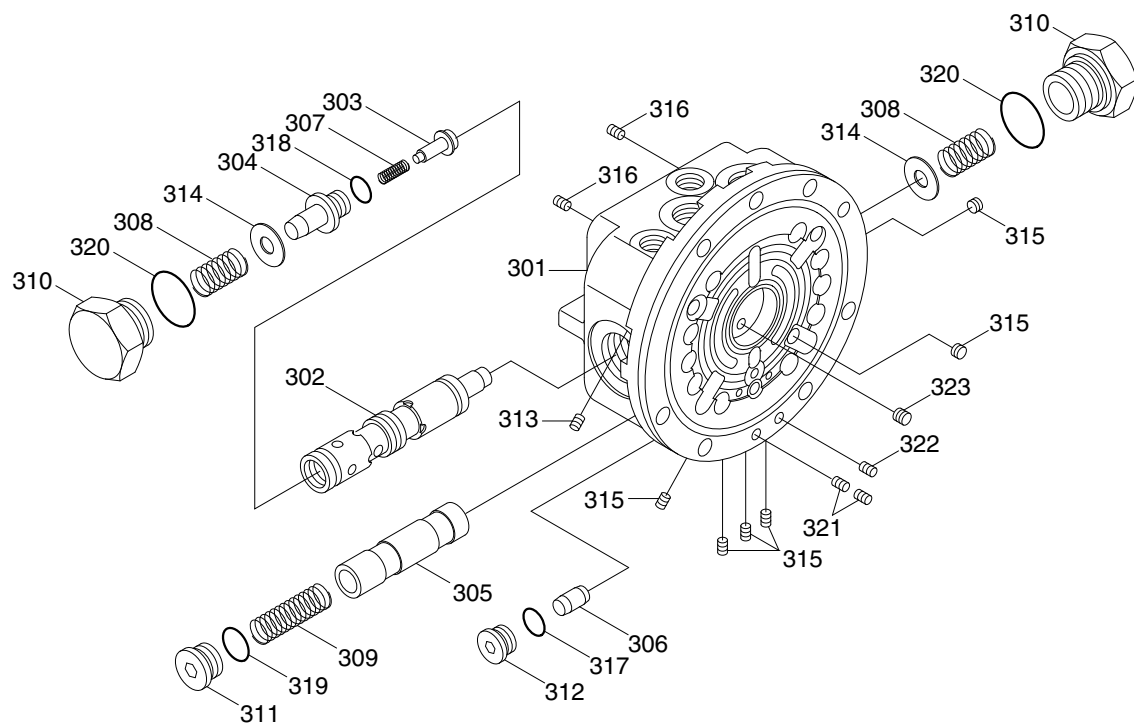
2) STRUCTURE (1/3)



| | | | | | |
|-----|-----------------|-----|------------|-----|--------------|
| 202 | Body 2 | 213 | Spring C | 224 | Pin |
| 203 | Shaft | 214 | Retainer | 225 | Disk plate |
| 204 | Cylinder barrel | 215 | Bearing | 226 | Steel plate |
| 205 | Valve plate | 216 | Bearing | 227 | Brake piston |
| 206 | Piston | 217 | O-ring | 228 | Brake spacer |
| 207 | Shoe | 218 | O-ring | 229 | Spring B |
| 208 | Shoe holder | 219 | Oil seal | 230 | O-ring |
| 209 | Barrel holder | 220 | Ball | 231 | O-ring |
| 210 | Swash plate | 221 | Snap ring | 232 | Back up-ring |
| 211 | Control piston | 222 | Screw | 233 | Back up-ring |
| 212 | Pin | 223 | Spring pin | | |

R27Z92TM23

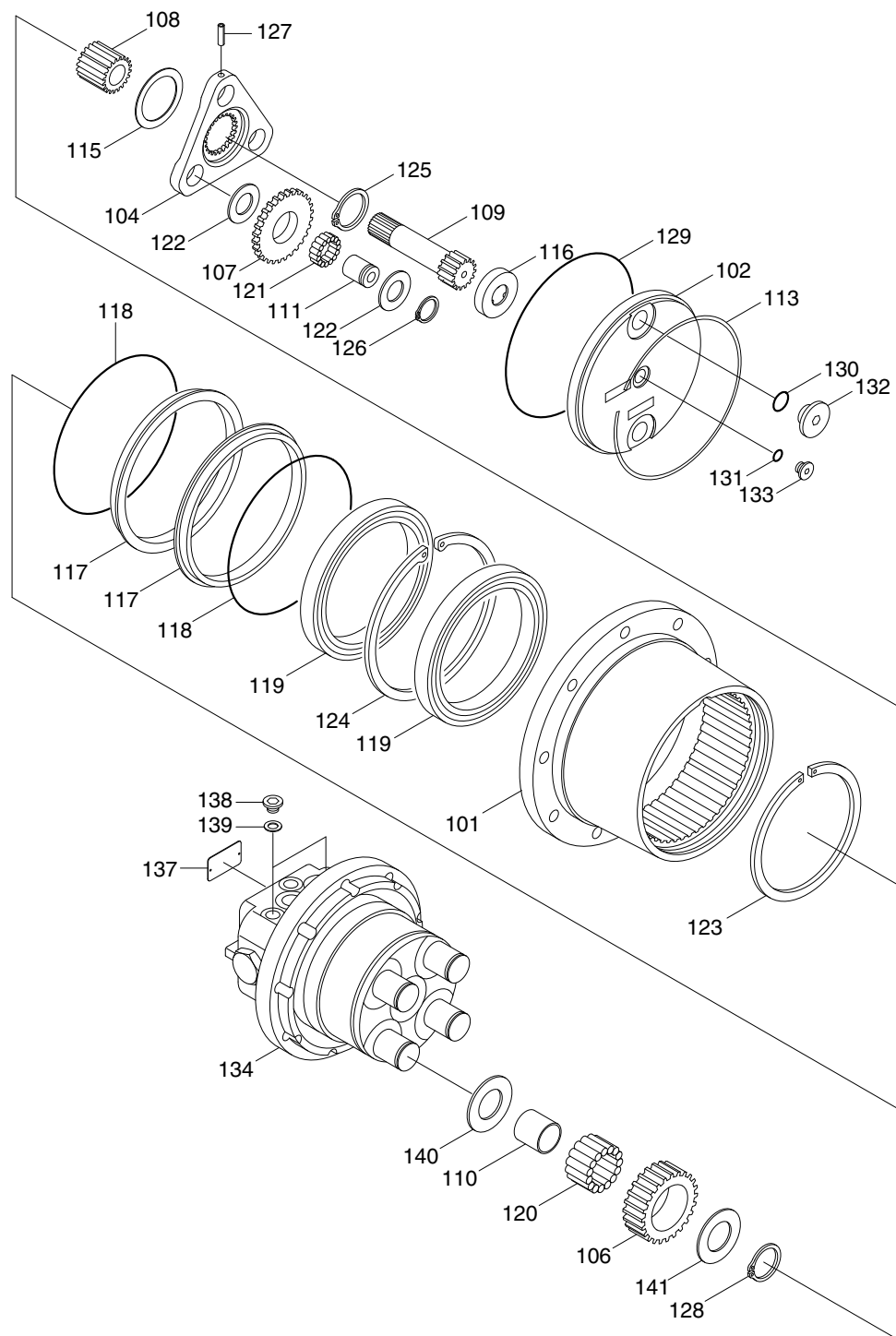
STRUCTURE (2/3)



R27Z92TM24

| | | | | | |
|-----|--------------|-----|-----------|-----|--------|
| 301 | Body 1 | 309 | Spring V3 | 317 | O-ring |
| 302 | Spool | 310 | Plug | 318 | O-ring |
| 303 | Check valve | 311 | Plug | 319 | O-ring |
| 304 | Spring guide | 312 | Plug | 320 | O-ring |
| 305 | Spool | 313 | Choke | 321 | Choke |
| 306 | spool | 314 | Ring | 322 | Choke |
| 307 | Spring V1 | 315 | Plug | 323 | Plug |
| 308 | Spring V2 | 316 | Plug | | |

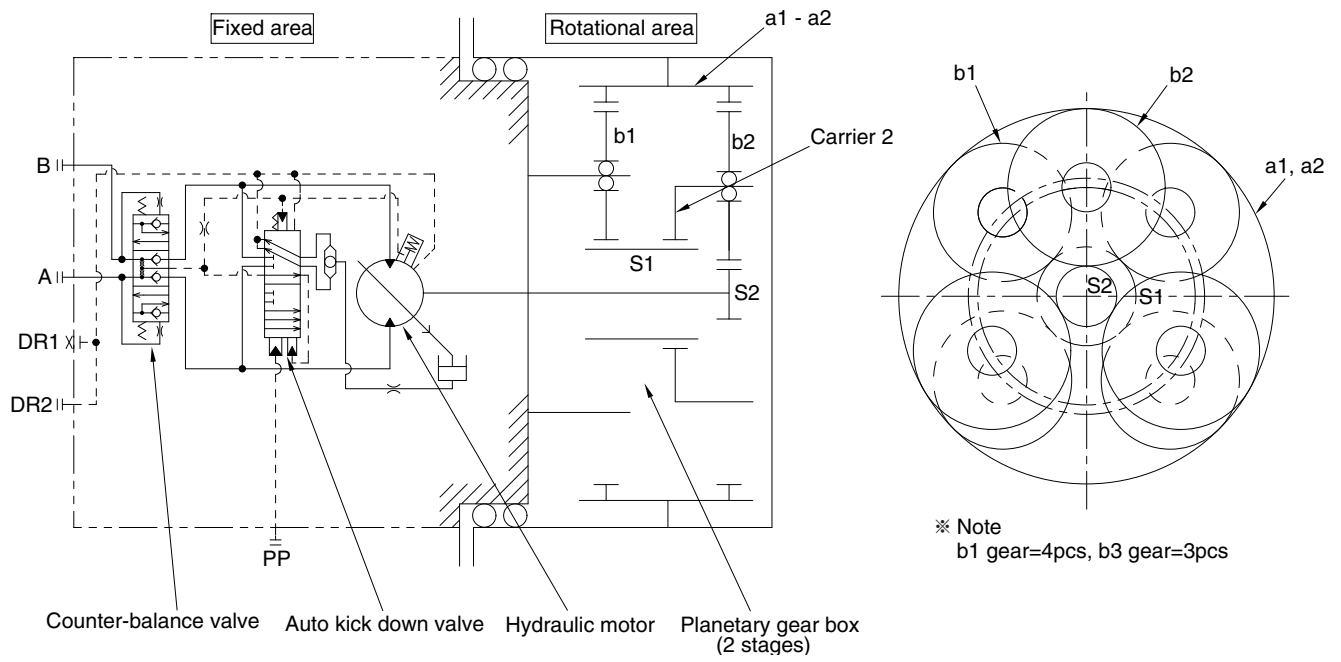
STRUCTURE (3/3)



R27Z92TM25

| | | | | | | | |
|-----|-----------|-----|-----------------------------|-----|---------------|-----|-----------------|
| 101 | Body | 113 | Snap ring | 122 | Thrust washer | 131 | O-ring |
| 102 | Cover | 115 | Thrust collar | 123 | Snap ring | 132 | Plug |
| 104 | Carrier 2 | 116 | Slide ring | 124 | Snap ring | 133 | Plug |
| 106 | Gear B1 | 117 | Floating seat (Incl 118) | 125 | Snap ring | 134 | Hydraulic motor |
| 107 | Gear B2 | 118 | O-ring | 126 | Snap ring | 137 | Name plate |
| 108 | Gear S1 | 119 | Bearing | 127 | Spring pin | 138 | Plug |
| 109 | Gear S2 | 120 | Needle | 128 | Snap ring | 139 | O-ring |
| 110 | Ring | 121 | Needle | 129 | O-ring | 140 | Thrust washer |
| 111 | Pin B2 | | | 130 | O-ring | 141 | Thrust washer |

2. DRAWING OF OPERATIONAL PRINCIPLE



R27Z9AK2TM03

3. OPERATION

Travel motor consists of a hydraulic motor "Fixed parts" and a planetary gear speed reducer "Rotating parts".

1) REDUCTION GEAR SECTION

(1) Function

The speed reducer of travel motor is a simple planetary gear type with two stages. The high output speed of the hydraulic motor is reduced to low speed with high torque.

(2) Operation

The S2 gear is attached to the hydraulic motor shaft and the S2 output speed is reduced between the gears (s2, b2, a2) as a first stage speed reducer.

The reduced output speed of this first stage is reduced again between the gears (s1, b1, a1) which are connected to the carrier 2 with the spline.

This reduced output speed of the second stage is transmitted to the body case "rotating parts" through the inner gears (a1, a2) and drives the machine.

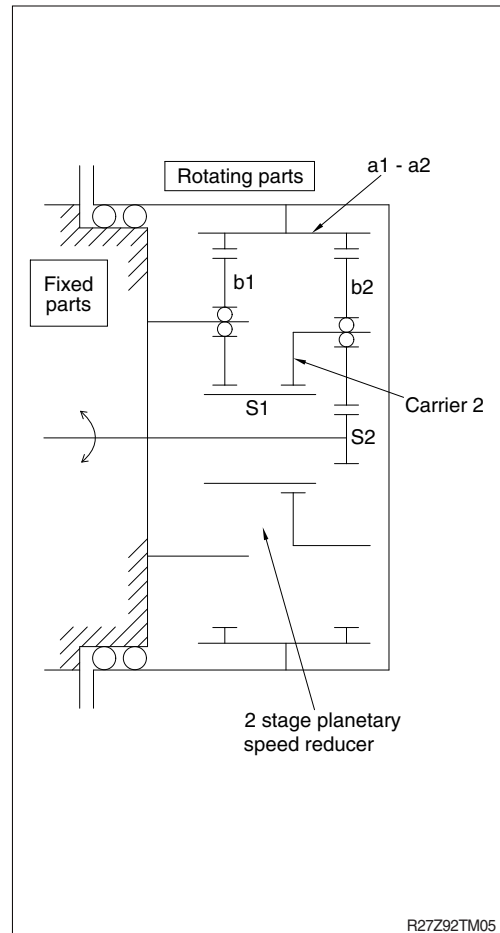
The gear ratio of 2 stage simple planetary speed reducer is calculated using the following formula.

$$R = \frac{Z_{s1}}{Z_{s1} + Z_{a1}} \times \frac{Z_{s2}}{Z_{s2} + Z_{a2}}$$

※ Z** : Number of teeth

With the travel motor, the body case rotating, so the gear ratio is ;

$$R' = \frac{1}{1 - 1/R}$$

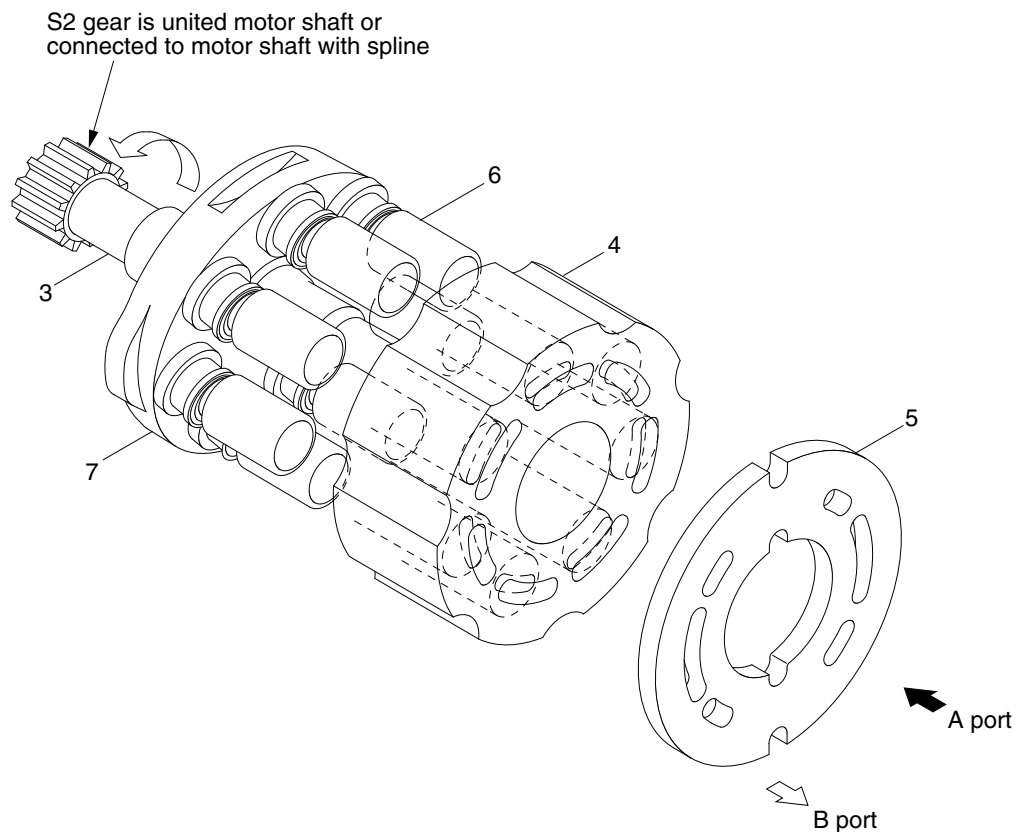


2) HYDRAULIC MOTOR SECTION

(1) Function

This hydraulic motor is an axial piston type, and changes the hydraulic energy supplied from the pump to the rotary motion.

(2) Structure



R27Z92TM06

Through a hydraulic valve, the pressurized oil is supplied to the valve plate (5).

When the pressurized oil is supplied to the A port, this pressurized oil pushes the piston (6) in the cylinder barrel (4). This pushing force is changed to the rotational power by the swash plate (7) and transmitted to the shaft (3) which is connected to the cylinder barrel (4) with the spline. The return flow from the cylinder port is going out through the B port of the valve plate (5). To reverse rotation, pressurized oil is supplied to the B port and returning oil exits through the A port.

(3) 2 Speed motor operation

The swash plate, which has surface I and II in the opposite side to the shoe sliding surface, is supported by the 2 balls which are fixed to the body 2.

Since the balls are located in the eccentric position, in the low speed range, the surface I is faced to the body 2 by the oil pressure in the piston and the spring force in the cylinder barrel. The swash plate angle is α (Max. capacity).

When the pressurized oil is supplied to the (PP) port, the two-speed spool moves to the high position.

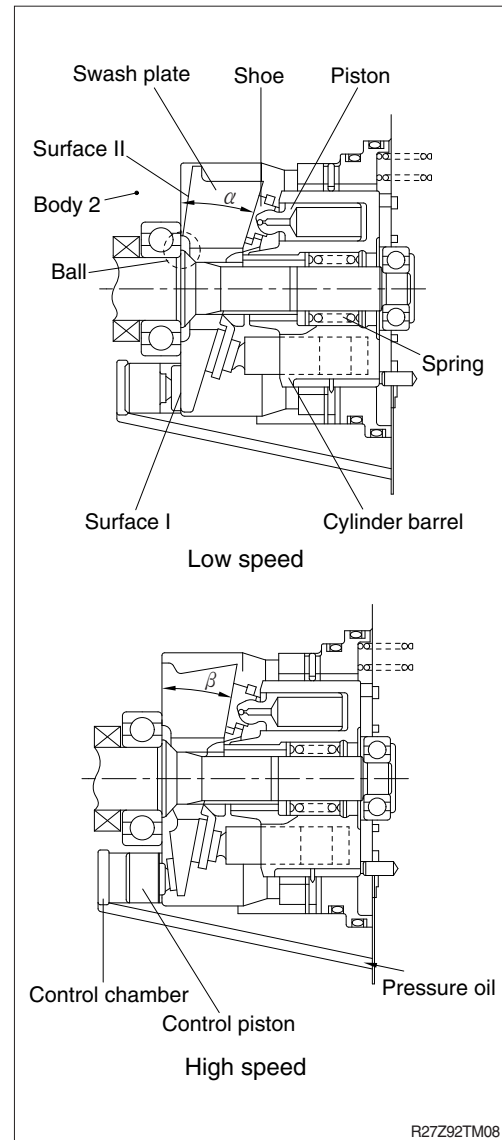
And the pressurized oil of inlet is led to the control chamber through the two-speed spool.

The control piston moves forward until the surface II of the swash plate is in contact with the body 2, and the swash plate angle becomes β .

The capacity of the hydraulic motor is made small.

The pressurized oil of the (PP) port is shut off (or the engine is stopped), the two-speed spool moves to the low position.

And the control chamber is led to the tank port through the two-speed spool and the swash plate position comes to the low speed by the spring force.



(4) Auto kick down valve

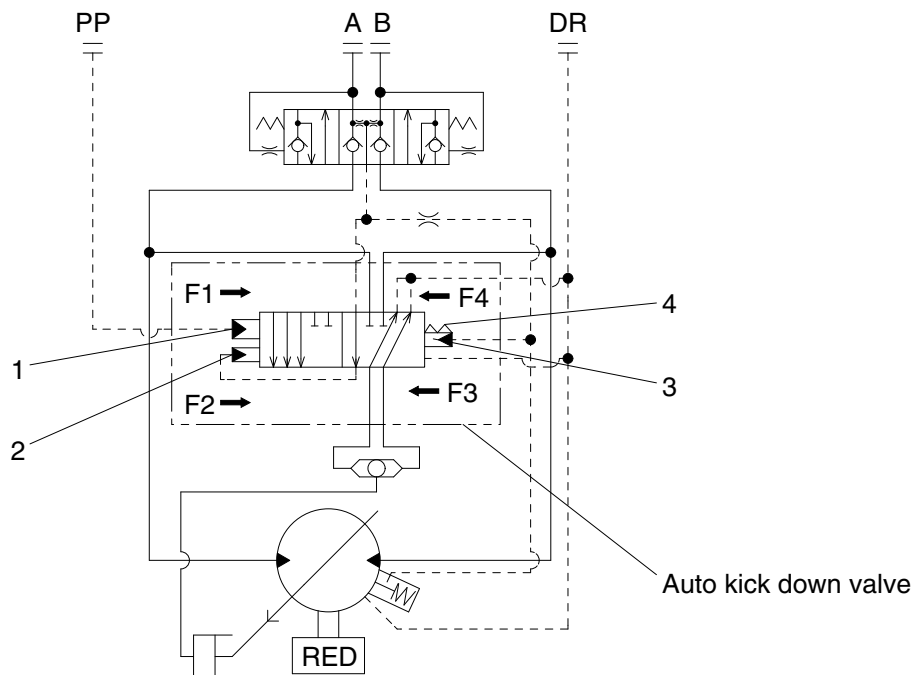
When the pilot switch for Hi speed mode is turned on, the pilot pressure for Hi speed mode comes from PP port to the hydraulic pilot (1), then the force F_1 occurs. The auto kick down valve moves to the right direction because the F_1 is larger than F_4 , which is by spring (4). Then the speed of track motor is changed to the Hi speed mode.

On the other hand, the operating pressure comes from A or B port to the hydraulic pilot (2) and (3), then the force F_2 and F_3 occur. The F_3 larger than F_2 because the area of (3) is wider than the area of (2). Therefore, if the operating pressure increased, the difference between F_2 and F_3 also increases.

When the operating pressure is larger than the setting pressure of Hi speed to Lo speed, the right direction resultant of F_1 and F_2 is smaller than the left direction resultant of F_3 and F_4 .

Therefore the auto kick down valve moves to the left direction, then the speed of track motor is changed to the Lo speed mode. When the operating pressure is smaller than the larger than the left direction resultant of F_3 and F_4 .

Therefore the auto kick down valve moves to the right direction, then the speed of track motor is changed to the Hi speed mode.



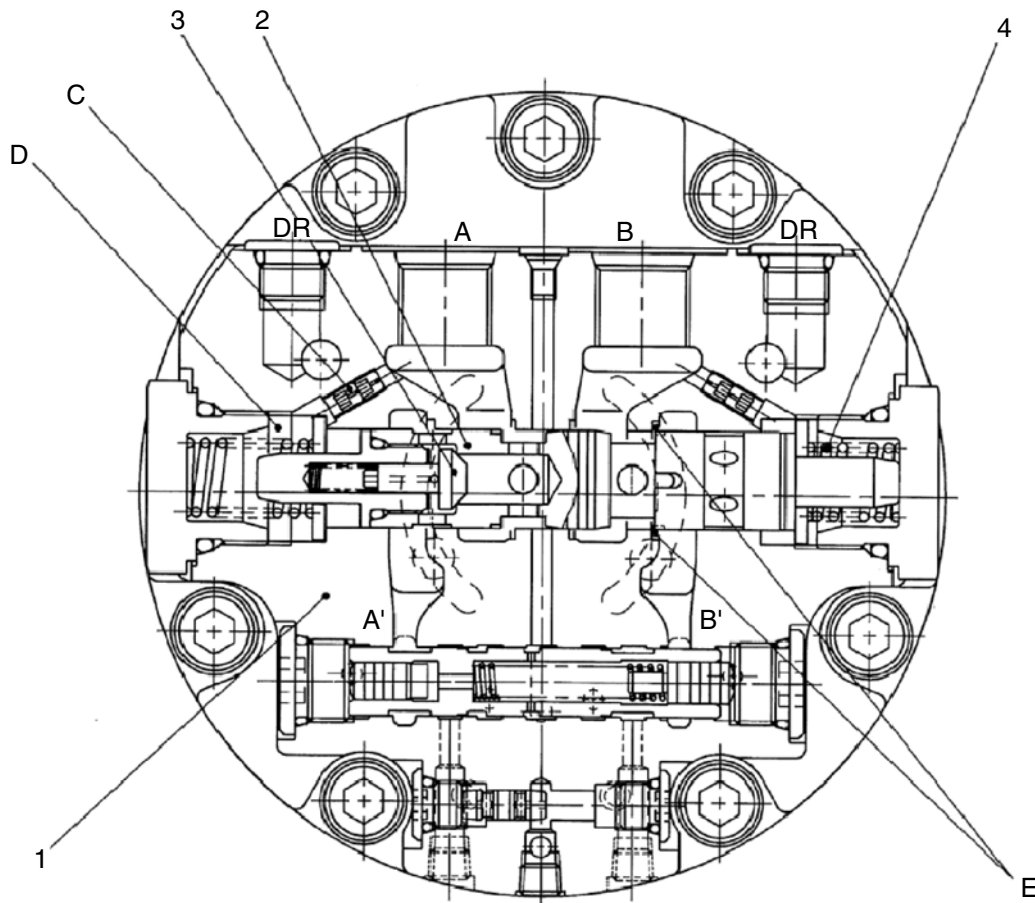
R27Z9AK2TM09

3) HYDRAULIC VALVE SECTION

(1) Counter-balance valve

When the pressurized oil is supplied from the A port, the pressurized oil opens the check valve (3) and flows into the hydraulic motor inlet A' port. At the same time, the pressurized oil goes through the orifice C into the chamber D, pushes the spring (4) and moves the spool (2) to right. Then the returned oil from the hydraulic motor flows into the B port, goes through area E and drives the hydraulic motor. When the pressurized oil is supplied from the B port, the hydraulic motor rotates in reverse.

Even the pressurized oil of the A port is shut off, the hydraulic motor tries to rotate by inertia force. When the pressurized oil from the A port is shut off, the spool (2) tries to return to left by the spring (4) force. At this time, the oil in the chamber D tries to go out to the A port through the orifice C, but due to the throttle effect of orifice C, the spool (2) speed is reduced. With the orifice and notches on the spool, the returned oil is controlled gradually and the hydraulic motor stops smoothly.



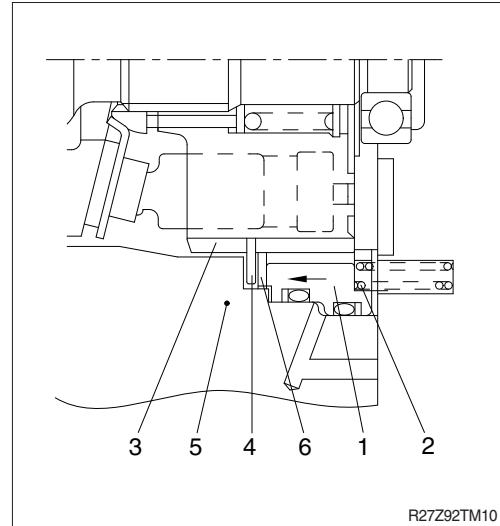
R25Z9AK2TM19

4) PARKING BRAKE SECTION

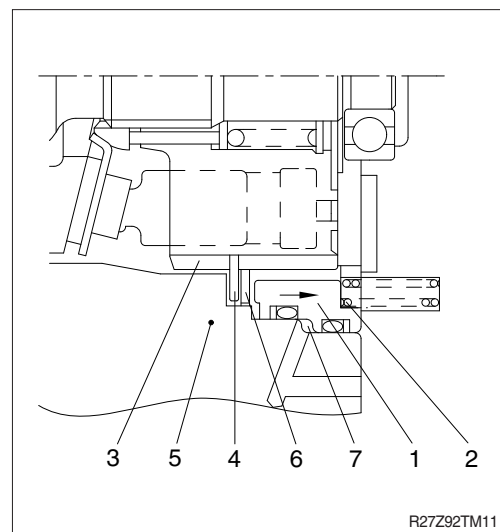
(1) Structure

The parking brake fixes the output shaft of hydraulic motor mechanically while the travel motor is stopped. And it is applied automatically in the following fashion.

When A and B ports are not pressurized, the brake piston (1) is pressed in the direction (shown as arrow) by the spring (2). Then the disk plate (4) which is fixed to the cylinder barrel (3) is held between the steel plate (6) which are fixed to the body 2 (5) and the body 2 (5). As a result, with the friction of these plates, the cylinder barrel (3) and the hydraulic motor are unable to rotate.



When A or B ports are pressurized, the oil is lead to chamber (7). Then the brake piston (1) is moved to the direction (shown as arrow) against the force of spring (2). As a result, the disk plate (4) is released from the steel plate (6) and the body 2 (5), and the cylinder barrel (3) can be rotated.

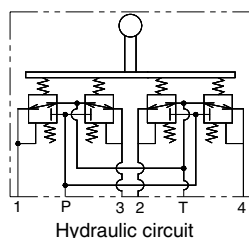
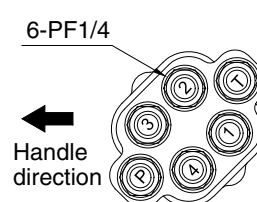
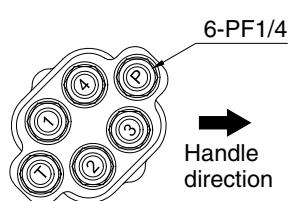
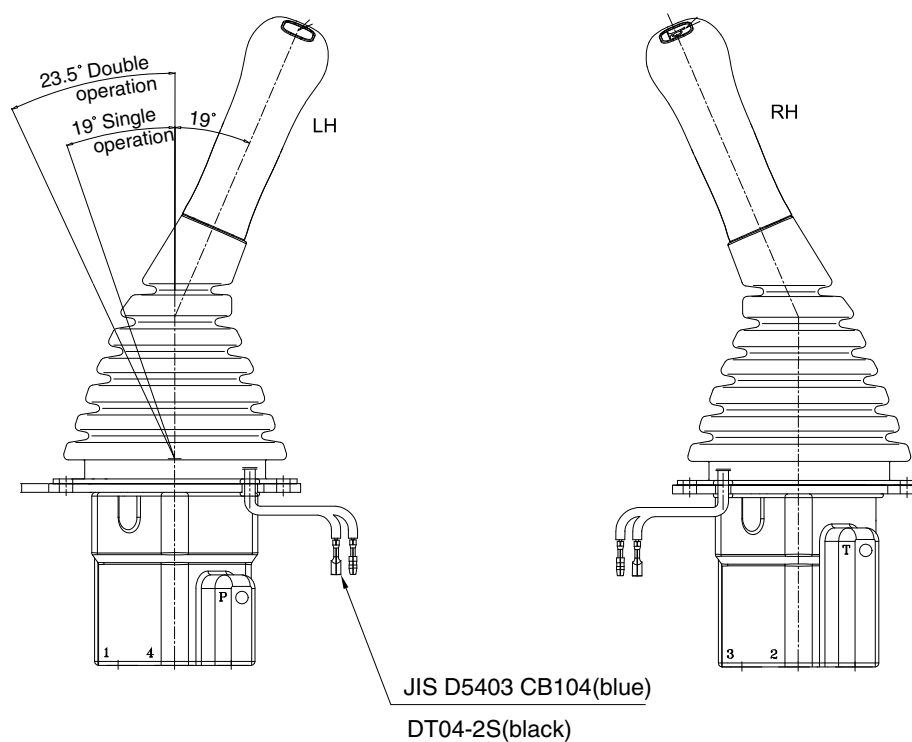


GROUP 5 RCV LEVER

■ TYPE 1 (STD)

1. STRUCTURE

The casing has the oil inlet port P (primary pressure) and the oil outlet port T (tank). In addition the secondary pressure is taken out through ports 1,2,3 and 4 provided at the bottom face.



19A2RL01

| Port | LH | RH | Port size |
|------|-----------------------|-----------------------|-----------|
| P | Pilot oil inlet port | Pilot oil inlet port | PF 1/4 |
| T | Pilot oil return port | Pilot oil return port | |
| 1 | Left swing port | Bucket out port | |
| 2 | Arm out port | Boom up port | |
| 3 | Right swing port | Bucket in port | |
| 4 | Arm in port | Boom down port | |

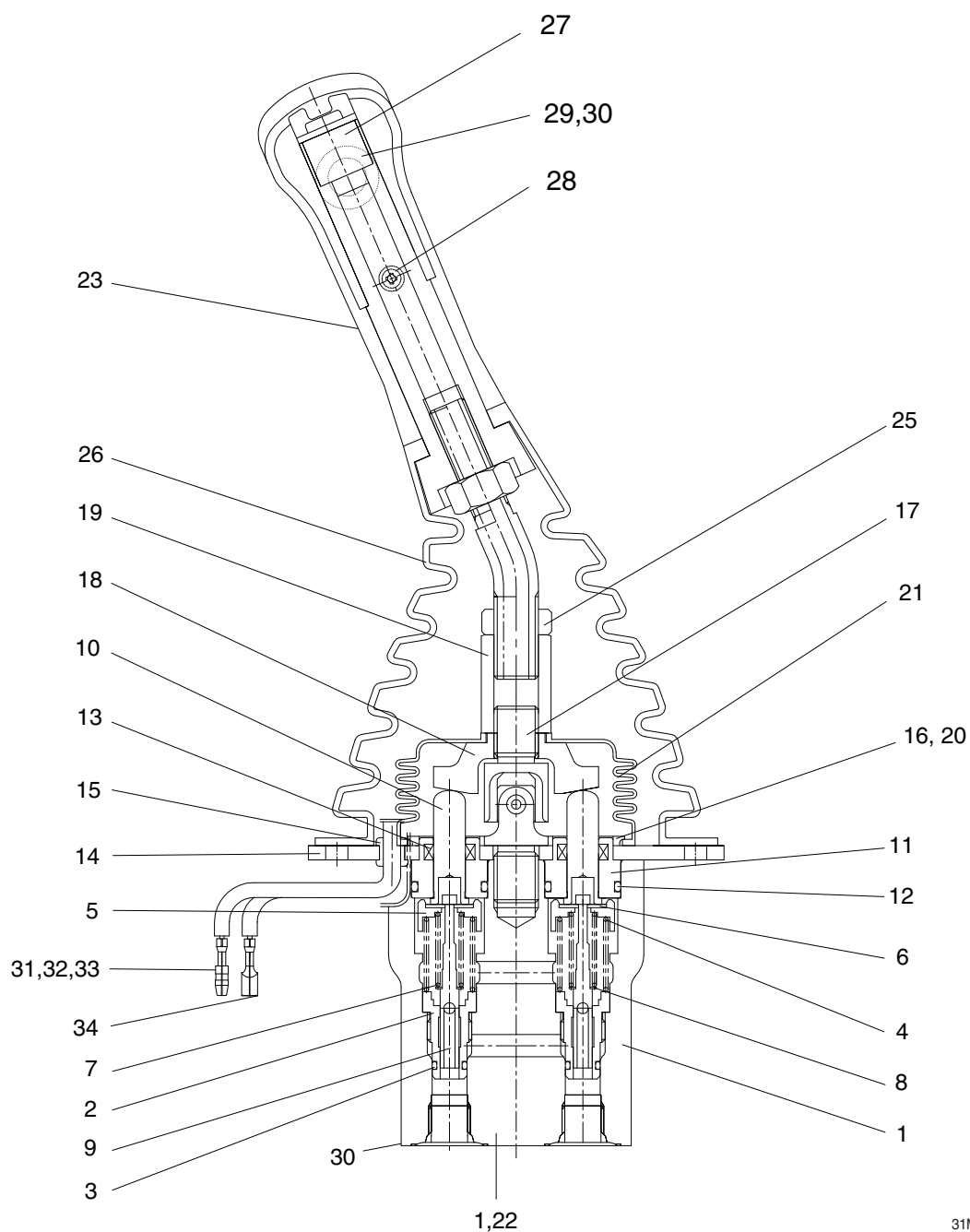
CROSS SECTION

The construction of the pilot valve is shown in the attached cross section drawing. The casing has vertical holes in which reducing valves are assembled.

The pressure reducing section is composed of the spool (9), spring (7) for setting secondary pressure, return spring (4), stopper (6), spring seat (5) and shim (8). The spring for setting the secondary pressure has been generally so preset that the secondary pressure is 5.5 to 20.5 kgf/cm² (depending on the type). The spool is pushed against the push rod (10) by the return spring.

When the push rod is pushed down by tilting the handle, the spring seat comes down simultaneously and changes setting of the secondary pressure spring.

CROSS SECTION



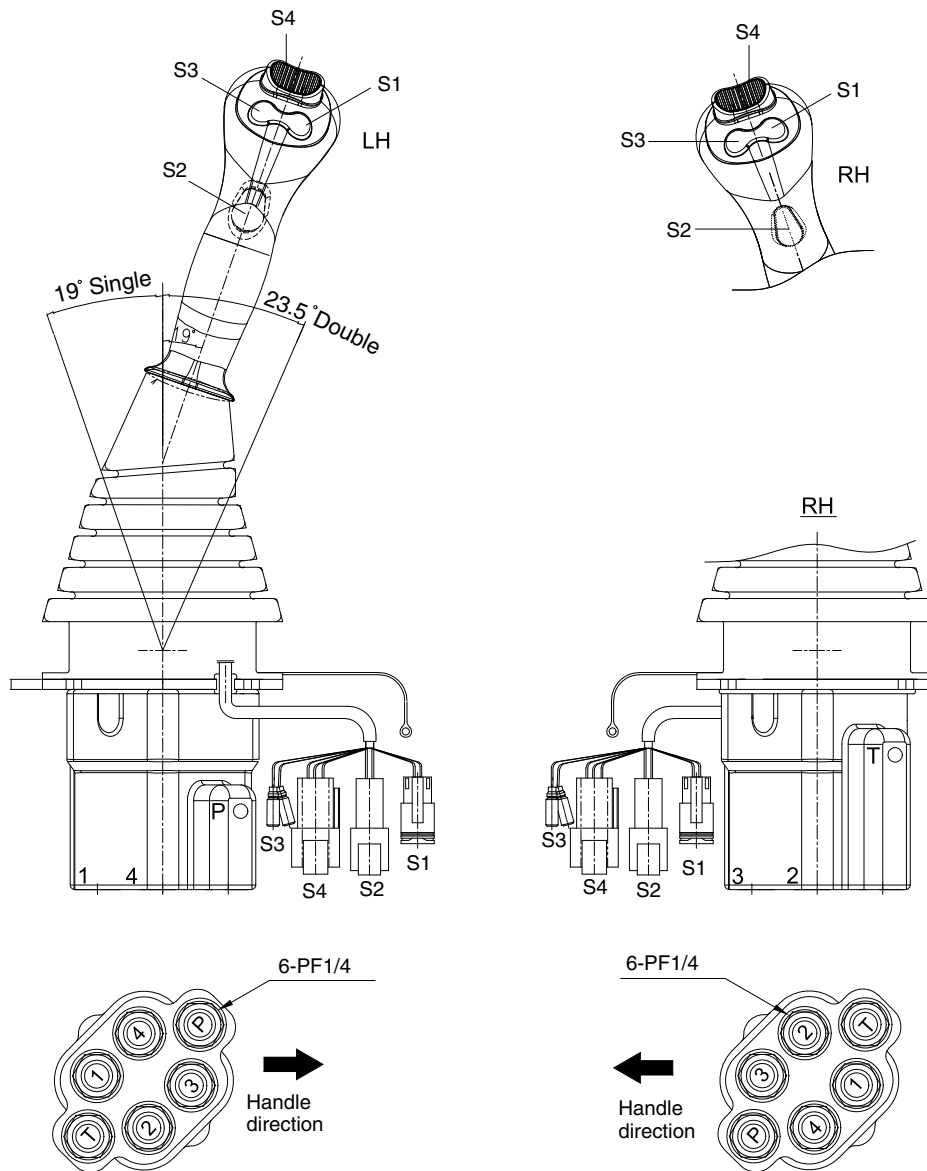
31MS-24010P

| | | | | | |
|----|-------------|----|----------------------|----|----------------|
| 1 | Body | 13 | Rod seal | 25 | Nut |
| 2 | Plug | 14 | Plate (A) | 26 | Boots |
| 3 | O-ring | 15 | Bushing | 27 | Switch 1 |
| 4 | Spring | 16 | Machine screw | 28 | Screw |
| 5 | Spring seat | 17 | Joint assy | 29 | Switch 2 |
| 6 | Stopper | 18 | Swash plate | 30 | Switch cover |
| 7 | Spring | 19 | Hex nut | 31 | Connector assy |
| 8 | Shim | 20 | Plate (B) | 32 | Terminal |
| 9 | Spool | 21 | Inner boots | 33 | Guide |
| 10 | Push rod | 22 | Plug | 34 | Connector |
| 11 | Plug | 23 | Handle assy (LH, RH) | | |
| 12 | O-ring | 24 | Handle bar | | |

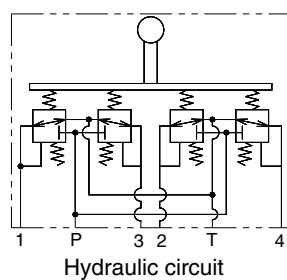
■ TYPE 2 (PROPORTIONAL, OPT)

2. STRUCTURE

The casing has the oil inlet port P (primary pressure) and the oil outlet port T (tank). In addition the secondary pressure is taken out through ports 1,2,3 and 4 provided at the bottom face.



19A2RL03



| Port | LH | RH (with proportional) | Port size |
|------|-----------------------|---------------------------|-----------|
| P | Pilot oil inlet port | Pilot oil inlet port | PF 1/4 |
| T | Pilot oil return port | Pilot oil return port | |
| 1 | Left swing port | Bucket in port | |
| 2 | Arm out port | Boom down port | |
| 3 | Right swing port | Bucket out port | |
| 4 | Arm in port | Boom up port | |

CROSS SECTION

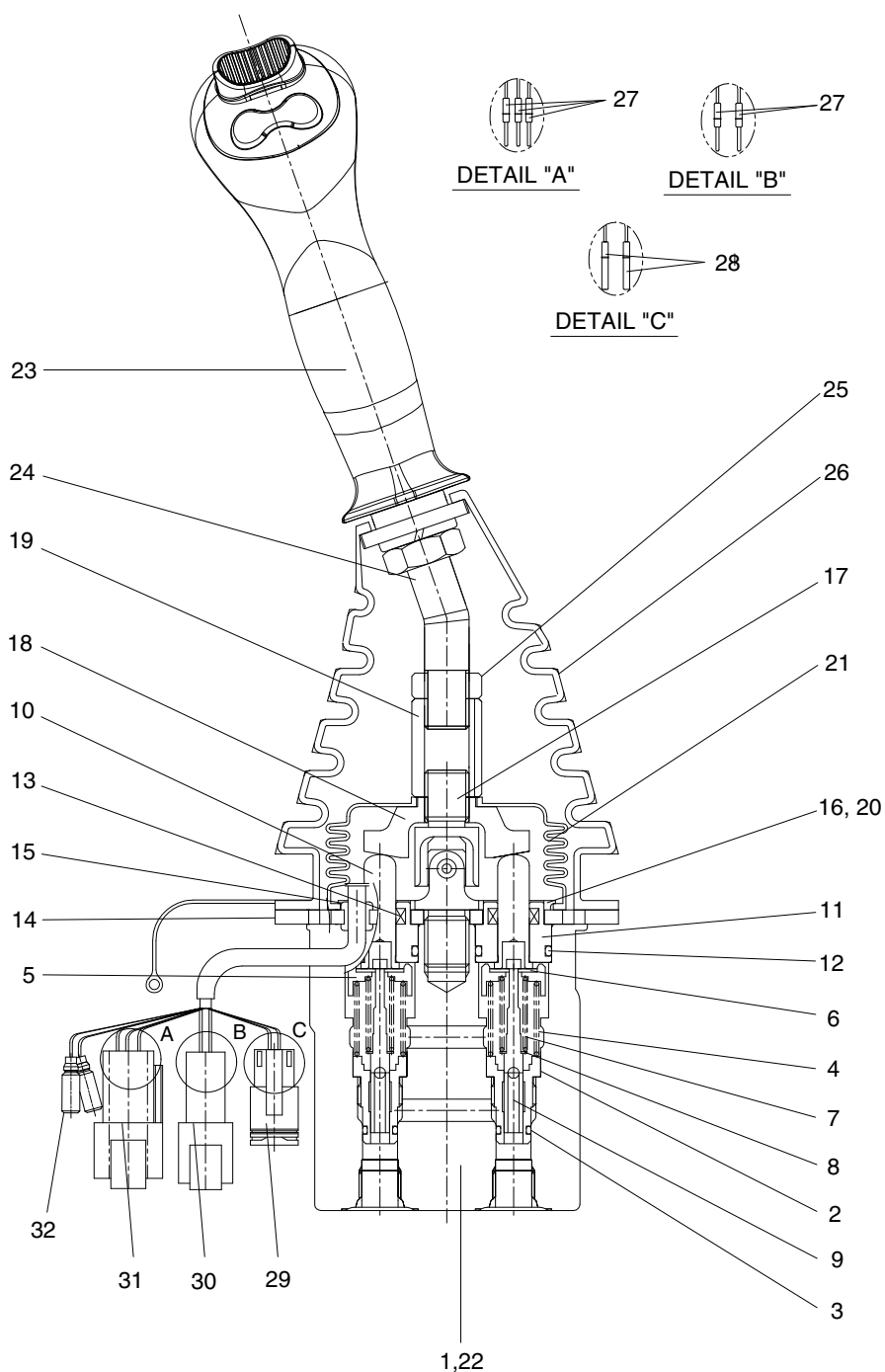
The structure of the remote control valve is as shown in the assembly. There is a vertical axial hole in the casing and the reduction valves are inserted into this.

The secondary pressure setting spring is set such that the secondary pressure is calculated as 5-5~20.5 kgf/cm². Spool (9) is pushed onto the push rod (10) by return spring (4).

Tilting the control handle pushes down push rod (10), the spring seat (5) also moves down and the setting of the secondary pressure setting spring is changed.

Port P, oil inlet (primary pressure) and port T outlet (tank) are in the casing.

CROSS SECTION



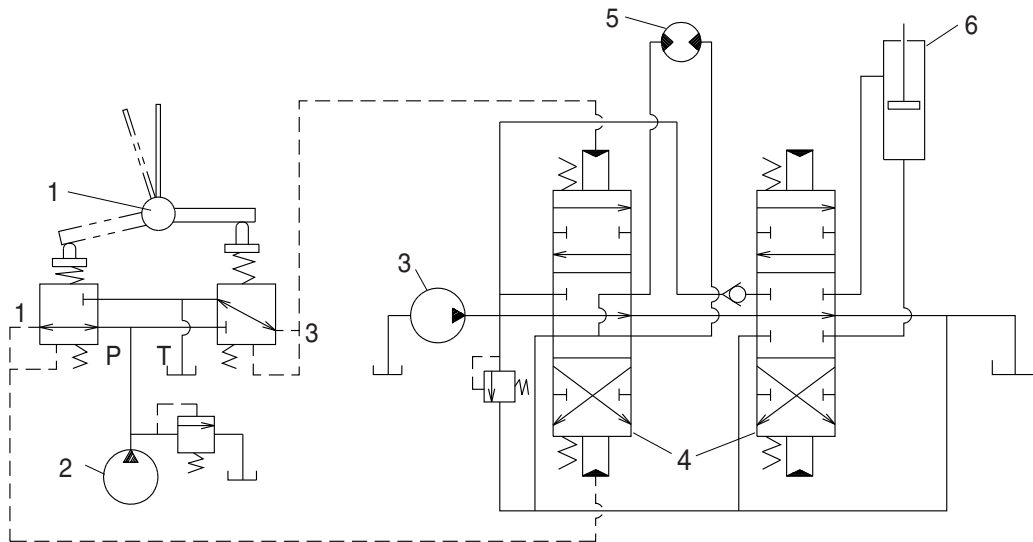
31MS-24120P

- | | | |
|---------------|------------------|-------------------------|
| 1 Body | 12 O-ring | 23 Handle assy (LH, RH) |
| 2 Plug | 13 Rod seal | 24 Handle bar |
| 3 O-ring | 14 Plate (A) | 25 Nut |
| 4 Spring | 15 Bushing | 26 Boots |
| 5 Spring seat | 16 Machine screw | 27 Connector pin male |
| 6 Stopper | 17 Joint assy | 28 Connector pin female |
| 7 Spring | 18 Swash plate | 29 Connector assy |
| 8 Shim | 19 Hex nut | 30 Connector assy |
| 9 Spool | 20 Plate (B) | 31 Connector assy |
| 10 Push rod | 21 Inner boots | 32 Connector |
| 11 Plug | 22 Plug | |

3. OPERATION

The operation of the remote control valve will be described on the basis of the hydraulic circuit diagram shown below and the attached operation explanation drawing.

The diagram shown below is the typical application example of the remote control valve.



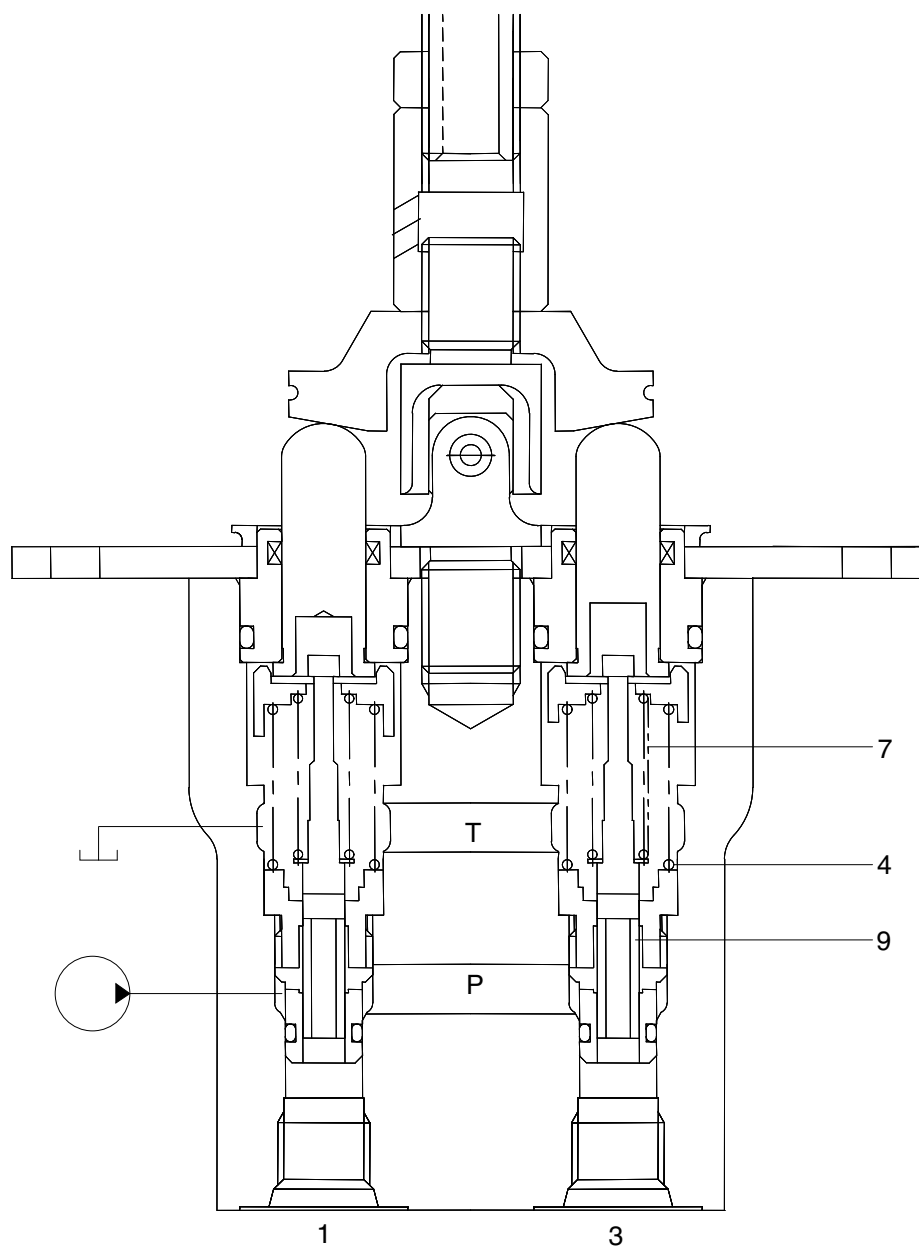
2-70 (140-7TIER)

1 Remote control valve
2 Pilot pump

3 Main pump
4 Main control valve

5 Hydraulic motor
6 Hydraulic cylinder

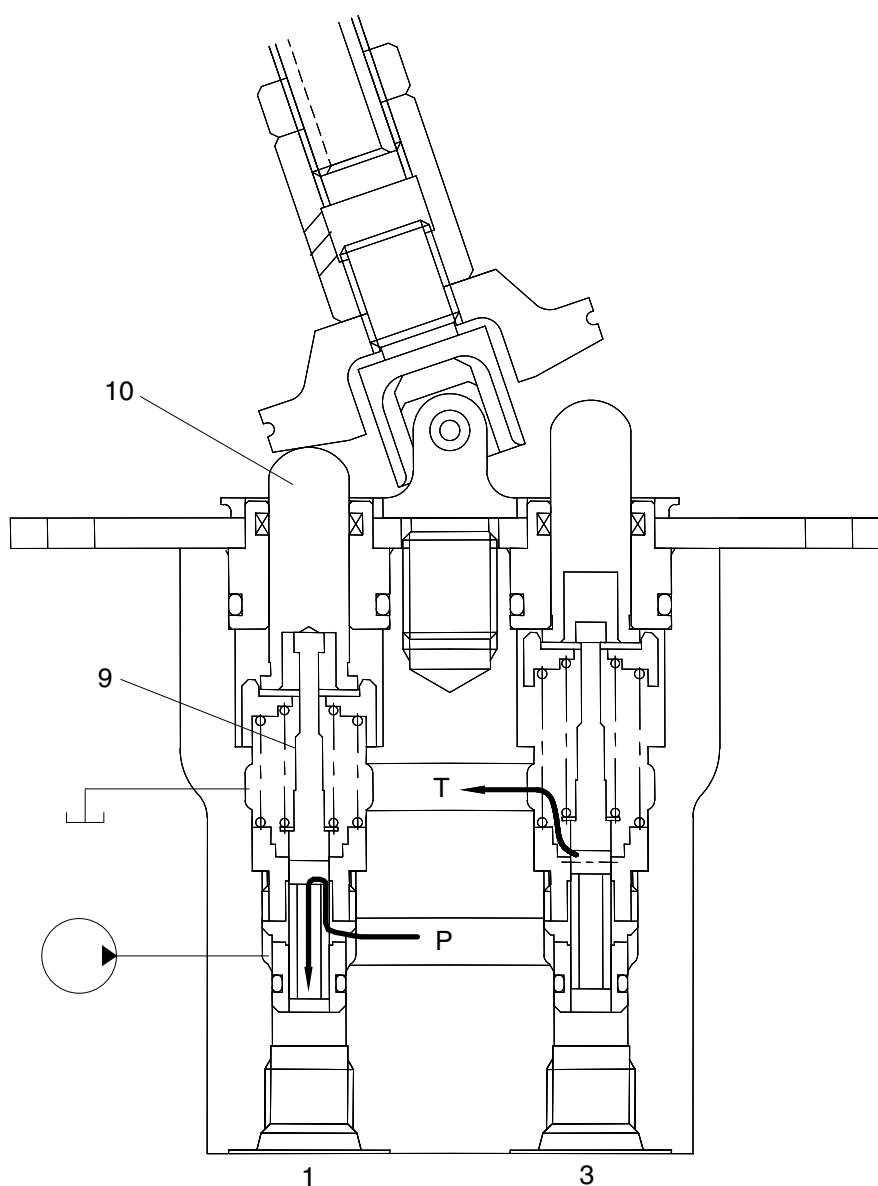
(1) Case where handle is in neutral position



R30Z9AK2RL03

The force of the spring (7) that determines the output pressure of the pilot valve is not applied to the spool (9). Therefore, the spool is pushed up by the spring (4) to the position of port (1, 3) in the operation explanation drawing. Then, since the output port is connected to tank port T only, the output port pressure becomes equal to tank pressure.

(2) Case where handle is tilted



R30Z9AK2RL04

When the push rod (10) is stroked, the spool (9) moves downwards.

Then port P is connected with port (1) and the oil supplied from the pilot pump flows through port (1) to generate the pressure.

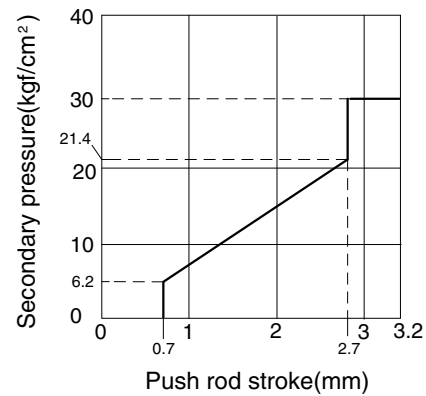
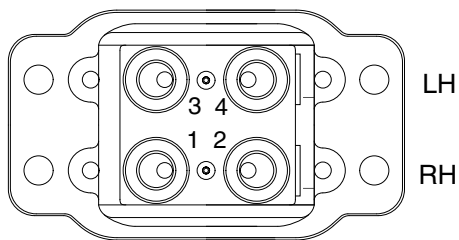
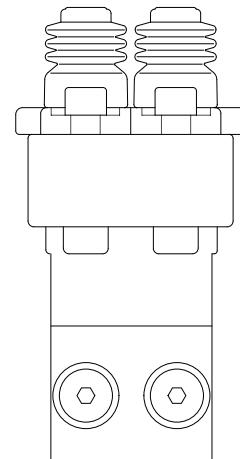
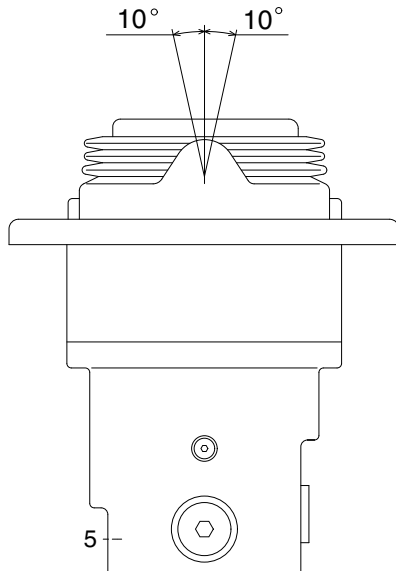
When the pressure at port (1) increases to the value corresponding to the spring force set by tilting the handle, the hydraulic pressure force balances with the spring force. If the pressure at port (1) increases higher than the set pressure, port P is disconnected from port (1) and port T is connected with port (1). If it decreases lower than the set pressure, port P is connected with port (1) and port T is disconnected from port 1.

In this manner the secondary pressure is kept at the constant value.

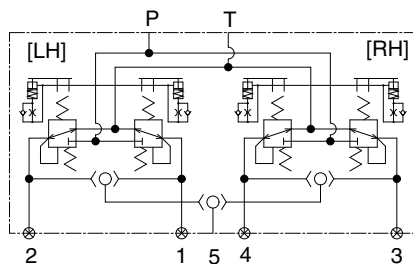
GROUP 6 RCV PEDAL

1. STRUCTURE

The casing has the oil inlet port P (primary pressure), and the oil outlet port T (tank). In addition the secondary pressure is taken out through ports 1, 2, 3 and 4 provided at the bottom face.



35AZ2RCP01



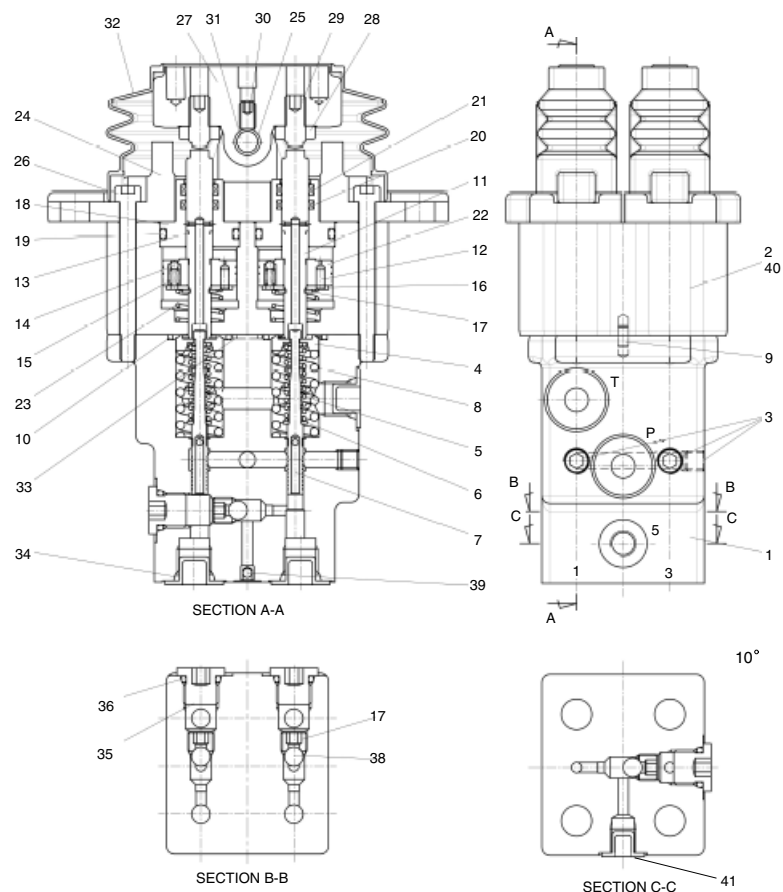
| Port | Port name | Port size |
|------|-----------------------|-----------|
| P | Pilot oil inlet port | PF 1/4 |
| T | Pilot oil return port | |
| 1 | Travel (LH, backward) | |
| 2 | Travel (LH, forward) | |
| 3 | Travel (RH, backward) | PT 1/8 |
| 4 | Travel (RH, forward) | |
| 5 | Travel alarm | |

CROSS SECTION

The construction of the RCV pedal is shown in the below drawing. The casing has vertical holes in which reducing valves are assembled.

The pressure reducing section is composed of the spool (7), spring (5) for setting secondary pressure, return spring (8), spring seat (4) and washer (6). The spring for setting the secondary pressure has been generally so preset that the secondary pressure is 6.2 to 21.4 kgf/cm² (depending on the type). The spool is pushed against the push rod (11) by the return spring.

When the push rod is pushed down by tilting pedal, the spring seat comes down simultaneously and changes setting of the secondary pressure spring.



35AZ2RCP02

| | | | | | |
|----|-------------|----|-------------|----|------------|
| 1 | Body 1 | 15 | Spring | 29 | Set screw |
| 2 | Body 2 | 16 | Plate | 30 | Set screw |
| 3 | Plug | 17 | Snap ring | 31 | Hex nut |
| 4 | Spring seat | 18 | Plug | 32 | Bellows |
| 5 | Spring | 19 | O-ring | 33 | O-ring |
| 6 | Washer | 20 | Rod seal | 34 | Cap |
| 7 | Spool | 21 | Dust seal | 35 | Plug |
| 8 | Spring | 22 | Piston | 36 | O-ring |
| 9 | Spring pin | 23 | Spring | 37 | Check seat |
| 10 | O-ring | 24 | Cover | 38 | Steel ball |
| 11 | Push rod | 25 | Bushing | 39 | Expander |
| 12 | Spring pin | 26 | Wrench bolt | 40 | Name plate |
| 13 | Seal | 27 | Cam assy | 41 | Cap |
| 14 | Steel ball | 28 | Cam shaft | | |

2. FUNCTION

1) FUNDAMENTAL FUNCTIONS

The pilot valve is a valve controls the spool stroke, direction, etc of a main control valve. This function is carried out by providing the spring at one end of the main control valve spool and applying the output pressure (secondary pressure) of the pilot valve to the other end.

For this function to be carried out satisfactorily, the pilot valve is composed of the following elements.

- (1) Inlet port (P) where oil is supplied from hydraulic pump.
- (2) Output port (1, 2, 3 & 4) to apply pressure supplied from inlet port to ends of control valve spools.
- (3) Tank port (T) necessary to control the above output pressure.
- (4) Spool to connect output port to inlet port tank port.
- (5) Mechanical means to control output pressure, including springs that work on the above spools.

2) FUNCTIONS OF MAJOR SECTIONS

The functions of the spool (7) are to receive the supply oil pressure from the hydraulic pump at its port P, and to change over oil paths to determine whether the pressure oil of port P is led to output ports 1, 2, 3 & 4 or the output spool to determine the output pressure.

The spring (5) works on this spool to determine the output pressure.

The change the deflection of this spring, the push rod (11) is inserted and can slide in the plug (18). For the purpose of changing th displacement of the push rod through the cam (27) and cam shaft (28) are provided the pedal that can be tilted in any direction around the fulcrum of the cam (27) center.

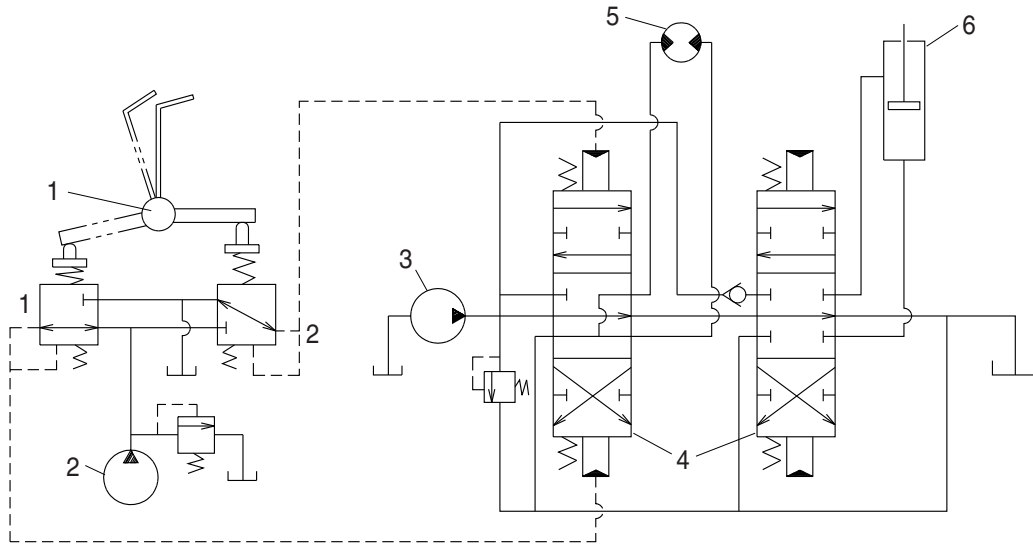
The spring (8) works on the casing (1) and washer (6) and tries to return the push rod (11) to the zero-displacement position irrespective of the output pressure, securing its resetting to the center position.

This also has the effect of a reaction spring to give appropriate control feeling to the operator.

3) OPERATION

The operation of the pilot valve will be described on the basis of the hydraulic circuit diagram shown below and the attached operation explanation drawing.

The diagram shown below is the typical application example of the pilot valve.



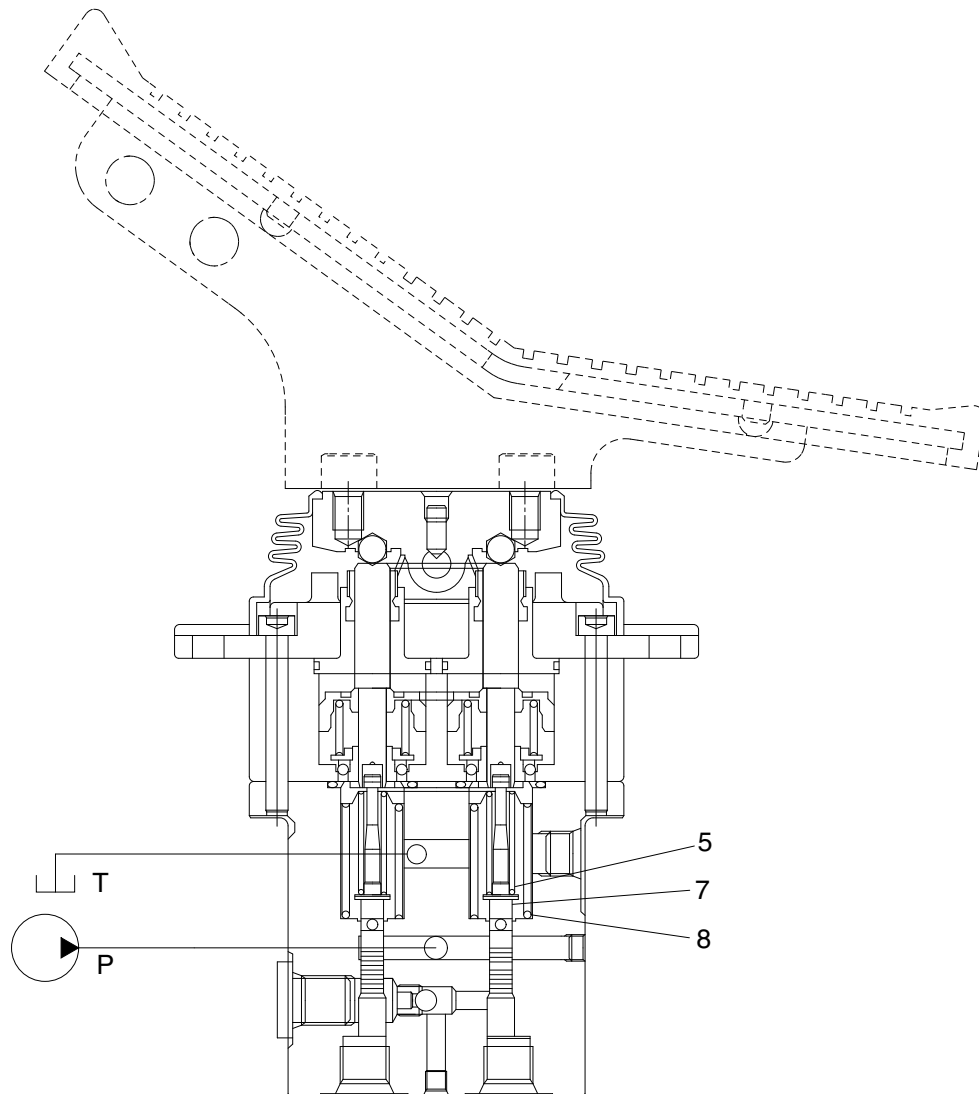
140LC-7 기타2-76

1 Pilot valve
2 Pilot pump

3 Main pump
4 Main control valve

5 Hydraulic motor
6 Hydraulic cylinder

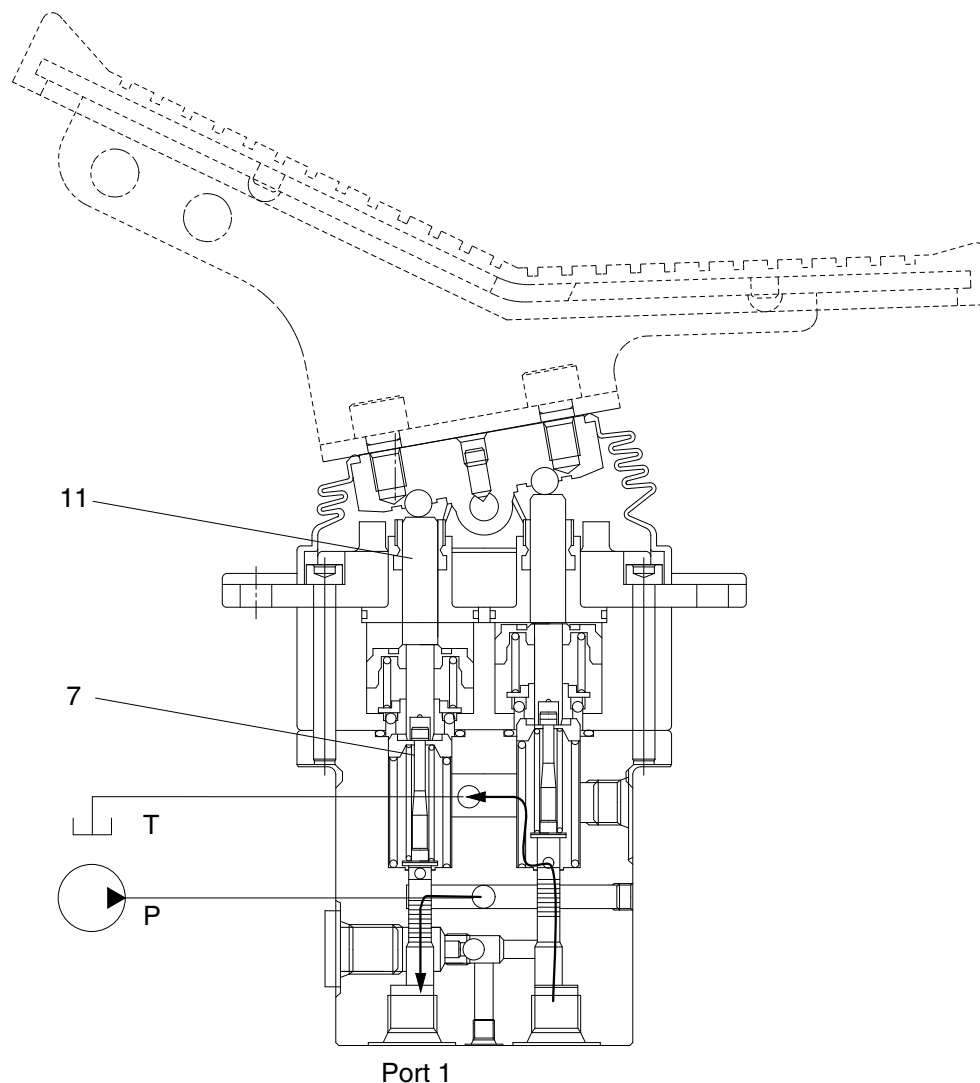
(1) Case where pedal is in neutral position



35AZ2RCP04

The force of the spring (5) that determines the output pressure of the pilot valve is not applied to the spool (7). Therefore, the spool is pushed up by the spring (8) to the position of port 2 in the operation explanation drawing. Then, since the output port is connected to tank port T only, the output port pressure becomes equal to tank pressure.

(2) Case where pedal is tilted



35AZ2RCP05

When the push rod (11) is stroked, the spool (7) moves downwards.

Then port P is connected with port 1, and the oil supplied from the pilot pump flows through port 1 to generate the pressure.

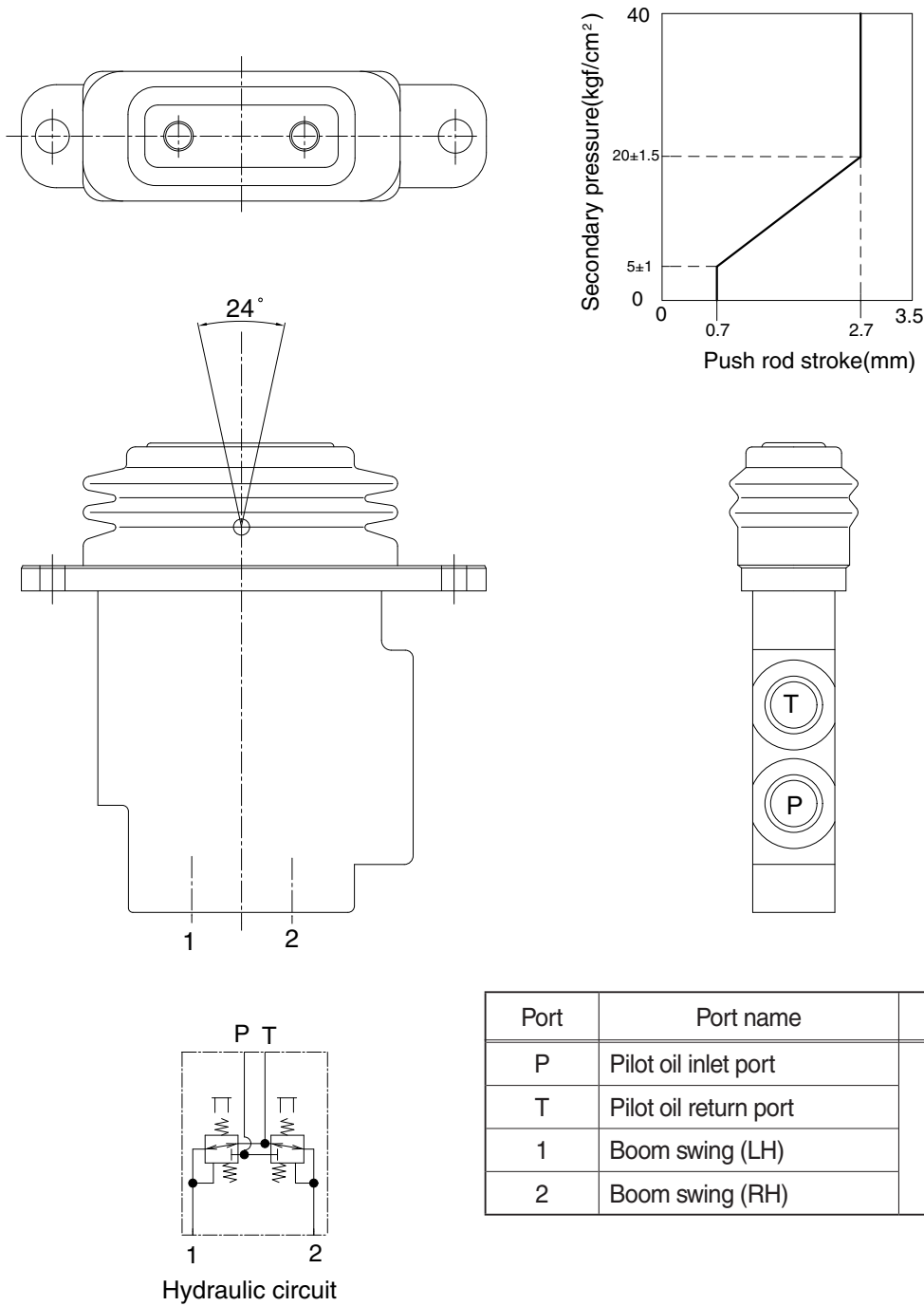
When the pressure at port 1 increases to the value corresponding to the spring force set by tilting the handle, the hydraulic pressure force balances with the spring force. If the pressure at port 1 increases higher than the set pressure, port P is disconnected from port 1 and port T is connected with port 1. If it decreases lower than the set pressure, port P is connected with port 1 and port T is disconnected from port 1.

In this manner the secondary pressure is kept at the constant value.

3. BOOM SWING PEDAL

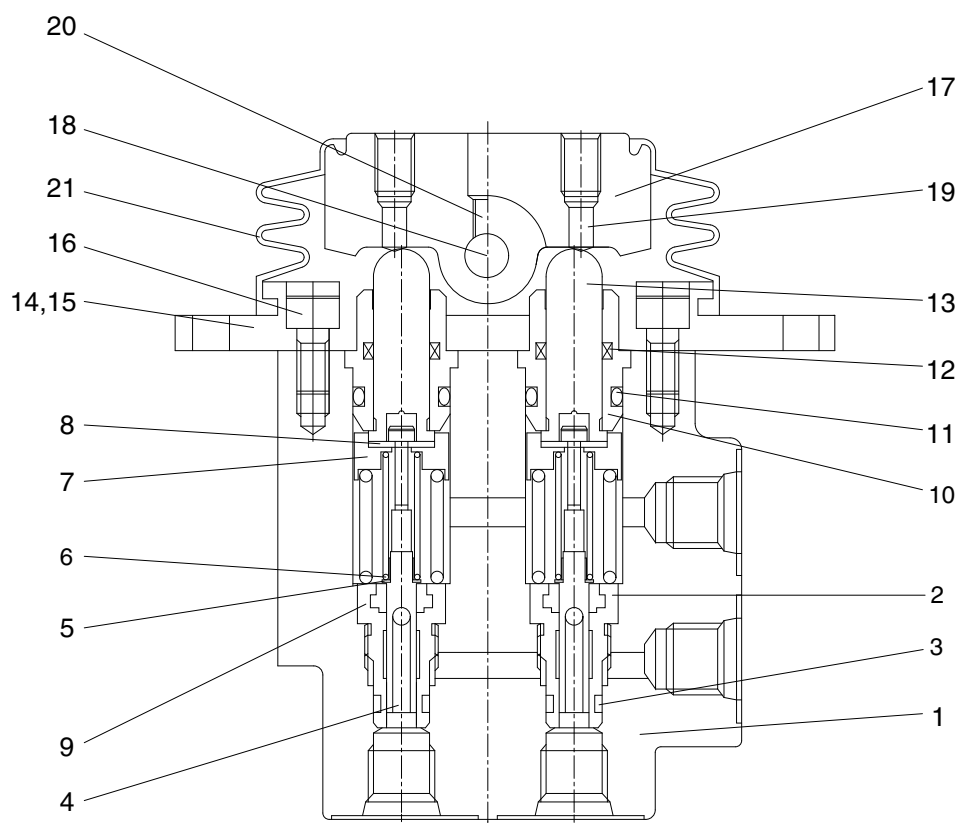
1) STRUCTURE

The casing has the oil inlet P (primary pressure) and the oil return port (tank).
In addition the secondary pressure is taken out through port 1 and port 2 provided at the housing bottom face.



| Port | Port name | Port size |
|------|-----------------------|-----------|
| P | Pilot oil inlet port | PF 1/4 |
| T | Pilot oil return port | |
| 1 | Boom swing (LH) | |
| 2 | Boom swing (RH) | |

2) COMPONENT



31MH-20050

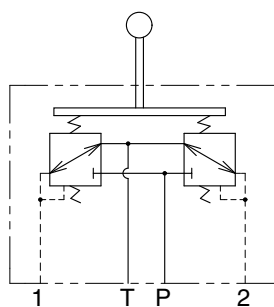
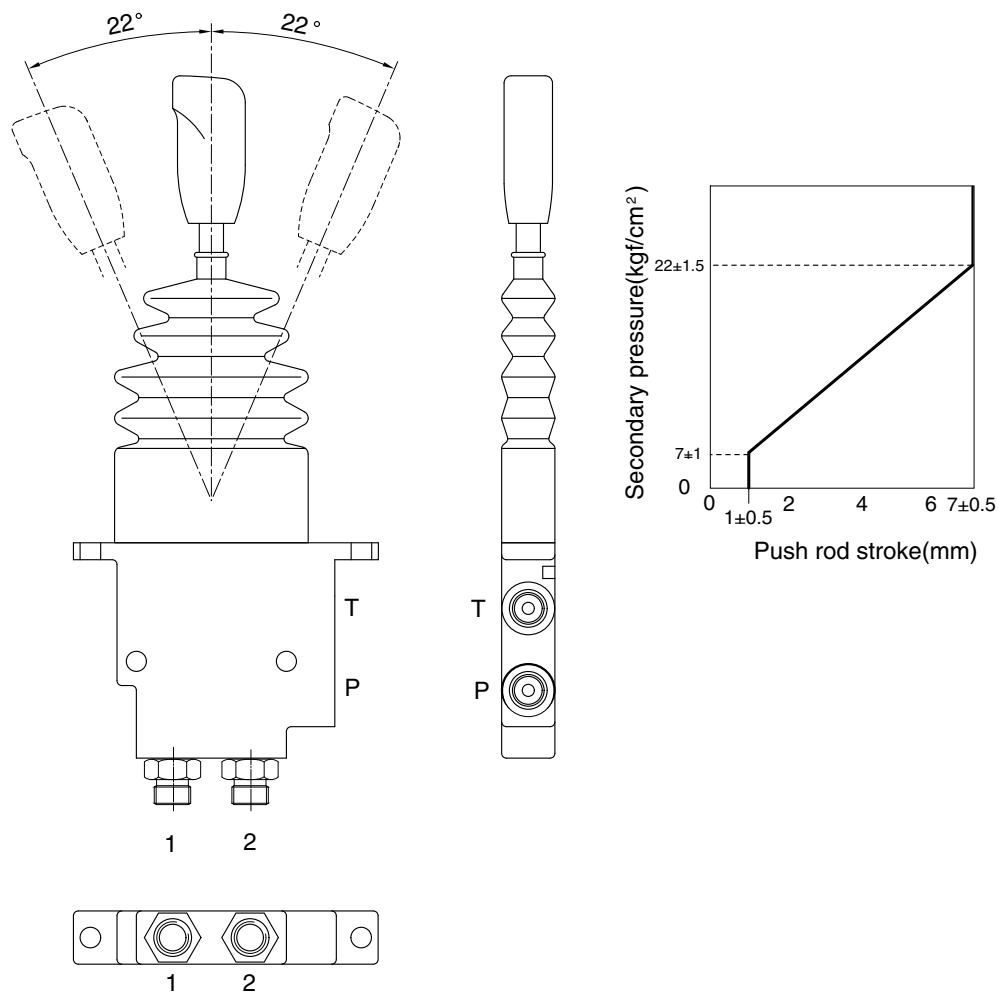
| | | | | | |
|---|-------------|----|----------|----|--------------|
| 1 | Body | 8 | Stopper | 15 | DU bush |
| 2 | Plug | 9 | Spring | 16 | Wrench bolt |
| 3 | O-ring | 10 | Plug | 17 | Cam |
| 4 | Spool | 11 | O-ring | 18 | Pin |
| 5 | Spring seat | 12 | Rod seal | 19 | Adjust screw |
| 6 | Spring | 13 | Push rod | 20 | Socket bolt |
| 7 | Spring seat | 14 | Cover | 21 | Bellows |

4. DOZER LEVER

1) STRUCTURE

The casing has the oil inlet P (primary pressure) and the oil return port (tank).

In addition the secondary pressure is taken out through port 1 and port 2 provided at the housing bottom face.

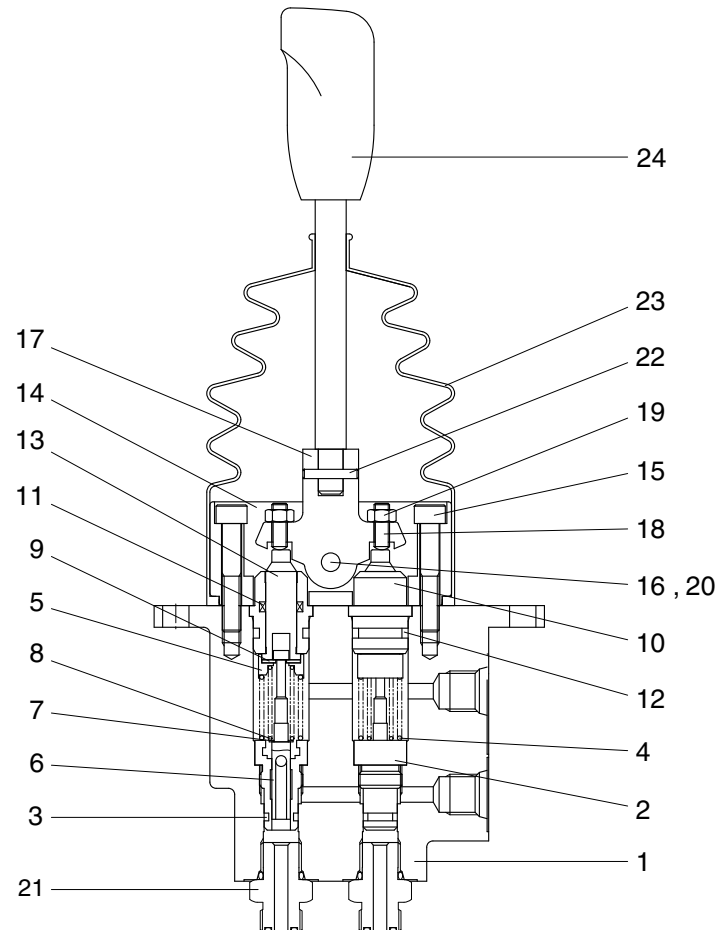


Hydraulic circuit

17AZ2DL01

| Port | Port | Port size |
|------|-----------------------|-----------|
| P | Pilot oil inlet port | PF 1/4 |
| T | Pilot oil return port | PF 1/4 |
| 1 | Dozer blade up port | 9/16 UNF |
| 2 | Dozer blade down port | 9/16 UNF |

2) COMPONENT



17AZ2DL02

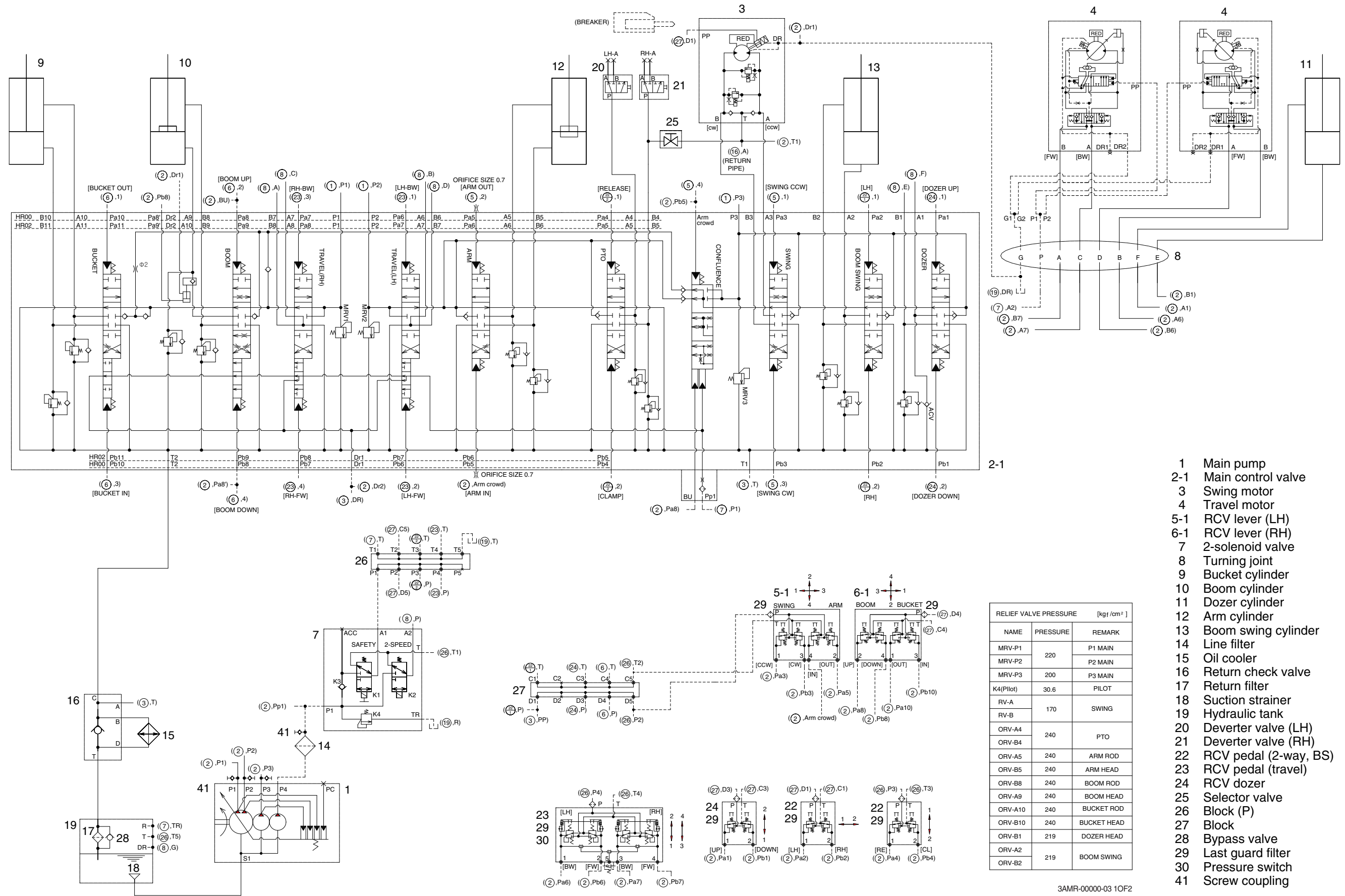
| | | | | | |
|---|-------------|----|-------------|----|-------------|
| 1 | Body | 9 | Stopper | 17 | Guide |
| 2 | Plug | 10 | Plug | 18 | Socket bolt |
| 3 | O-ring | 11 | Rod seal | 19 | Nut |
| 4 | Spring | 12 | O-ring | 20 | Snap ring |
| 5 | Spring seat | 13 | Push rod | 21 | Connector |
| 6 | Spool | 14 | Cover | 22 | Spring pin |
| 7 | Spring seat | 15 | Wrench bolt | 23 | Bellows |
| 8 | Spring | 16 | Pin | 24 | Lever |

SECTION 3 HYDRAULIC SYSTEM

| | | |
|---------|--------------------------|------|
| Group 1 | Hydraulic Circuit | 3-1 |
| Group 2 | Main Circuit | 3-3 |
| Group 3 | Pilot Circuit | 3-6 |
| Group 4 | Single Operation | 3-11 |
| Group 5 | Combined Operation | 3-23 |

GROUP 1 HYDRAULIC CIRCUIT

1. HYDRAULIC CIRCUIT 1

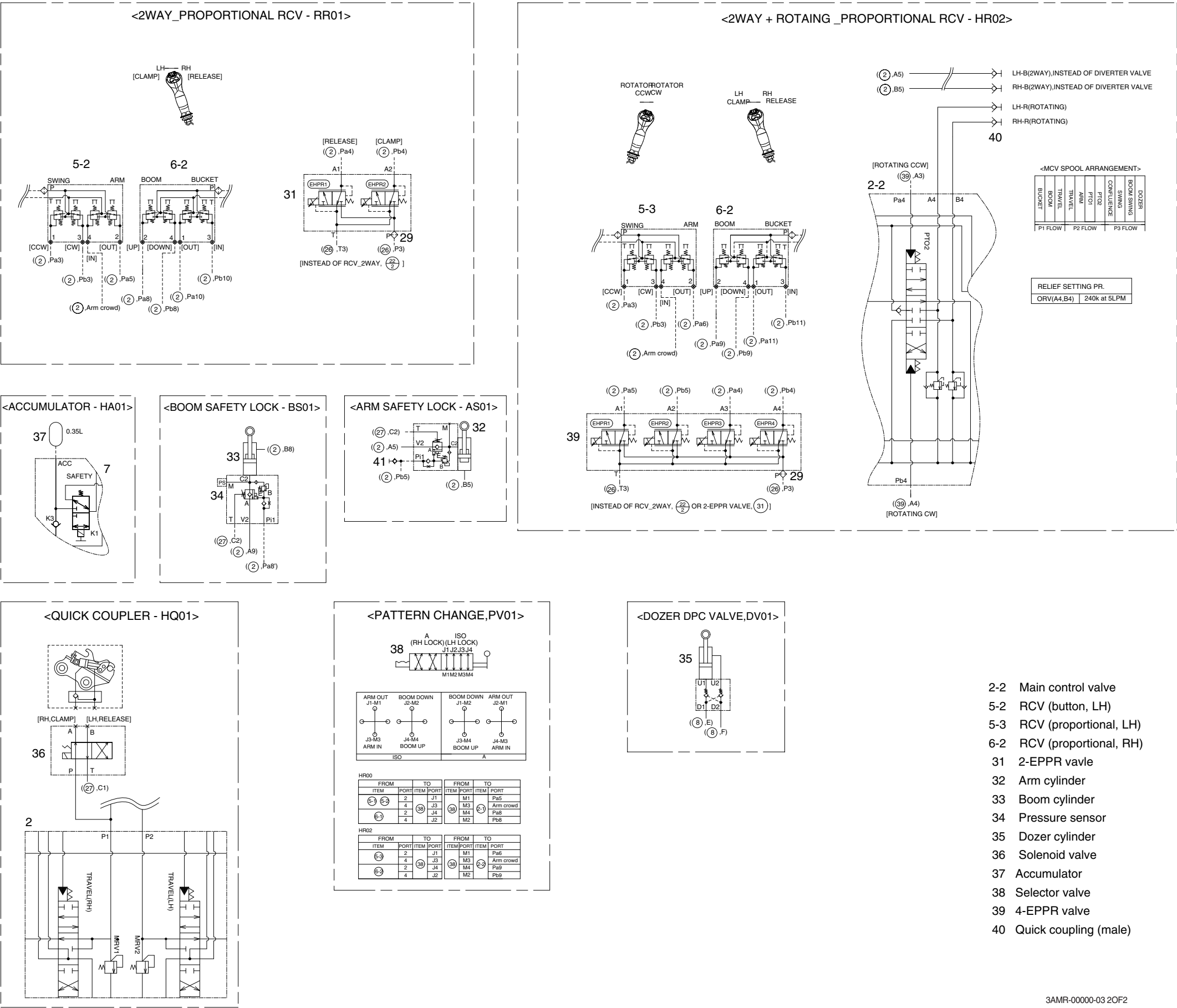


- 1 Main pump
- 2-1 Main control valve
- 3 Swing motor
- 4 Travel motor
- 5-1 RCV lever (LH)
- 6-1 RCV lever (RH)
- 7 2-solenoid valve
- 8 Turning joint
- 9 Bucket cylinder
- 10 Boom cylinder
- 11 Dozer cylinder
- 12 Arm cylinder
- 13 Boom swing cylinder
- 14 Line filter
- 15 Oil cooler
- 16 Return check valve
- 17 Return filter
- 18 Suction strainer
- 19 Hydraulic tank
- 20 Deverter valve (LH)
- 21 Deverter valve (RH)
- 22 RCV pedal (2-way, BS)
- 23 RCV pedal (travel)
- 24 RCV dozer
- 25 Selector valve
- 26 Block (P)
- 27 Block
- 28 Bypass valve
- 29 Last guard filter
- 30 Pressure switch
- 41 Screw coupling

| RELIEF VALVE PRESSURE [kgf/cm ²] | | |
|--|----------|-------------|
| NAME | PRESSURE | REMARK |
| MRV-P1 | 220 | P1 MAIN |
| MRV-P2 | | P2 MAIN |
| MRV-P3 | 200 | P3 MAIN |
| K4(Pilot) | 30.6 | PILOT |
| RV-A | 170 | SWING |
| RV-B | | |
| ORV-A4 | 240 | PTO |
| ORV-B4 | | |
| ORV-A5 | 240 | ARM ROD |
| ORV-B5 | 240 | ARM HEAD |
| ORV-B8 | 240 | BOOM ROD |
| ORV-A9 | 240 | BOOM HEAD |
| ORV-A10 | 240 | BUCKET ROD |
| ORV-B10 | 240 | BUCKET HEAD |
| ORV-B1 | 219 | DOZER HEAD |
| ORV-A2 | 219 | BOOM SWING |
| ORV-B2 | | |

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2. HYDRAULIC CIRCUIT 2



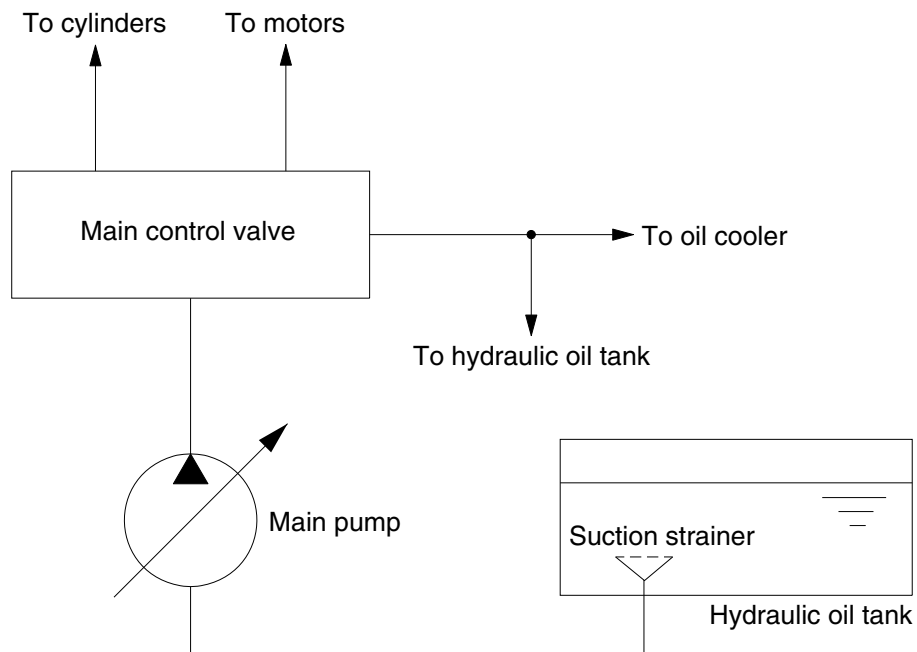
GROUP 2 MAIN CIRCUIT (OLD VERSION)

The main hydraulic circuit consists of suction circuit, delivery circuit, return circuit and drain circuit.

The hydraulic system consists of one main pump, one control valve, one swing motor, four cylinders and two travel motors.

The swash plate type variable displacement tandem axial piston pump is used as the main pump and is driven by the engine at ratio 1.0 of engine speed.

1. SUCTION AND DELIVERY CIRCUIT



140L3C101

The pumps receive oil from the hydraulic tank through a suction strainer. The discharged oil from the pump flows into the control valve and goes out the tank ports.

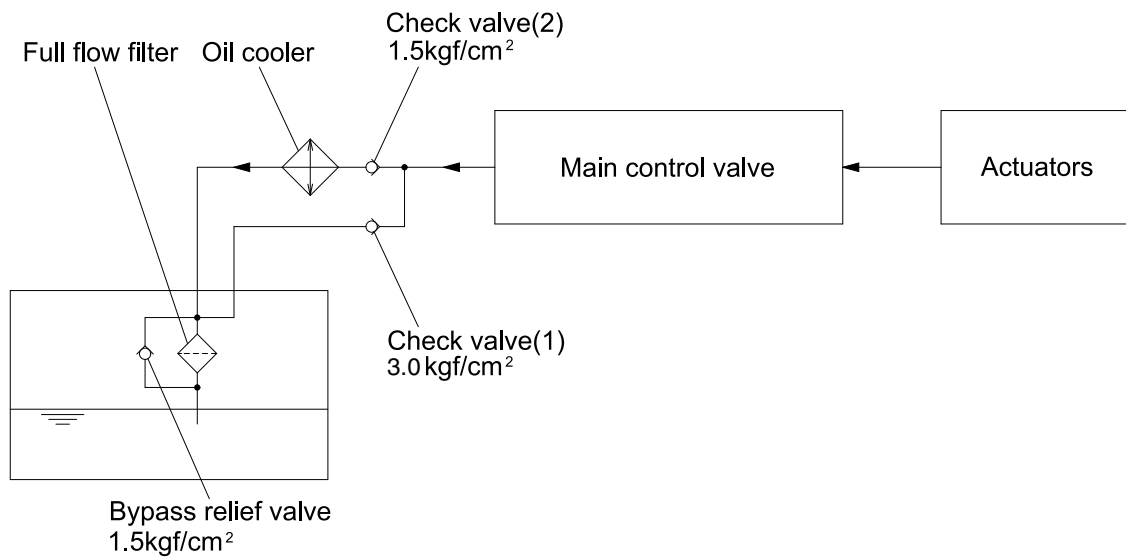
The oil discharged from the main pump flows to the actuators through the control valve.

The control valve controls the hydraulic functions.

The return oil from the actuators flows to the hydraulic tank through the control valve and the oil cooler.

※ The circuit diagram may differ from the equipment, so please check before a repair.

2. RETURN CIRCUIT



220F3CI01

All oil from each actuator returns to the hydraulic tank through the control valve.

The bypass check valves are provided in the return circuit.

The setting pressure of bypass check valves are 1.5 kgf/cm² (21 psi) and 3.0 kgf/cm² (43 psi). Usually, oil returns to the hydraulic tank from the left side of control valve through oil cooler.

When oil temperature is low, viscosity becomes higher and flow resistance increases when passing through the oil cooler. The oil pressure exceeds 3.0 kgf/cm² (43 psi), the oil returns directly to the hydraulic tank, resulting in the oil temperature being raised quickly at an appropriate level.

When the oil cooler is clogged, the oil returns directly to the hydraulic tank through bypass check valve (1).

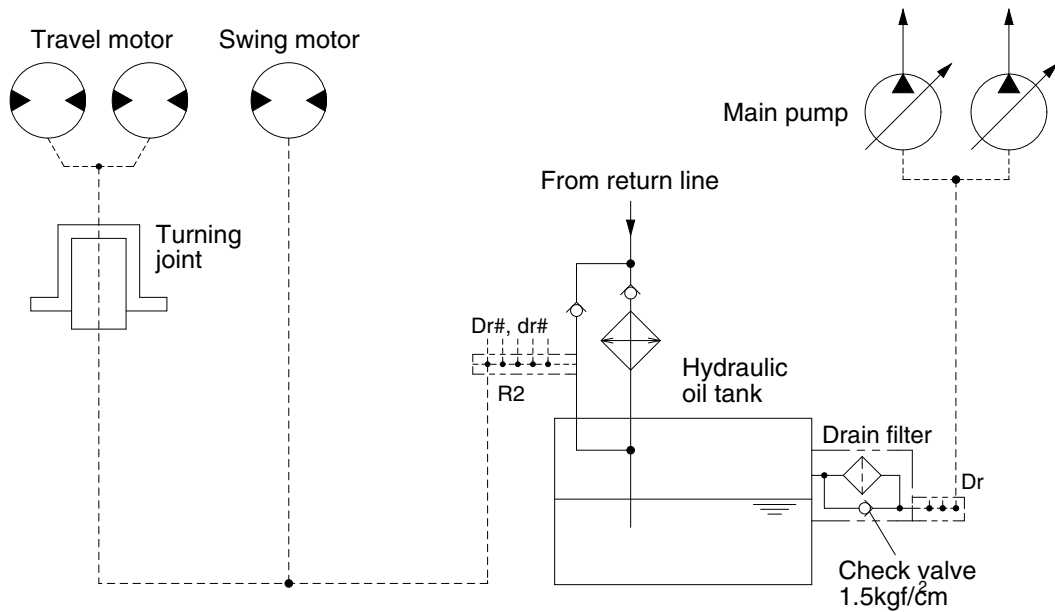
The full-flow filter and bypass relief valve are provided in the hydraulic tank.

The oil from right and left side of control valve is combined and filtered by the return filter. A bypass relief valve is provided in the full-flow filter.

When the filter element is clogged, the bypass relief valve opens at 1.5 kgf/cm² (21 psi) differential pressure.

※ The circuit diagram may differ from the equipment, so please check before a repair.

3. DRAIN CIRCUIT



300A3CI02

Besides internal leaks from the motors and main pump, the oil for lubrication circulates. These oil have to be fed to the hydraulic tank passing through drain filter and return filter.

When the drain oil pressure exceed 1.5 kgf/cm² (21 psi), the oil returns to the hydraulic tank directly.

1) TRAVEL AND SWING MOTOR DRAIN CIRCUIT

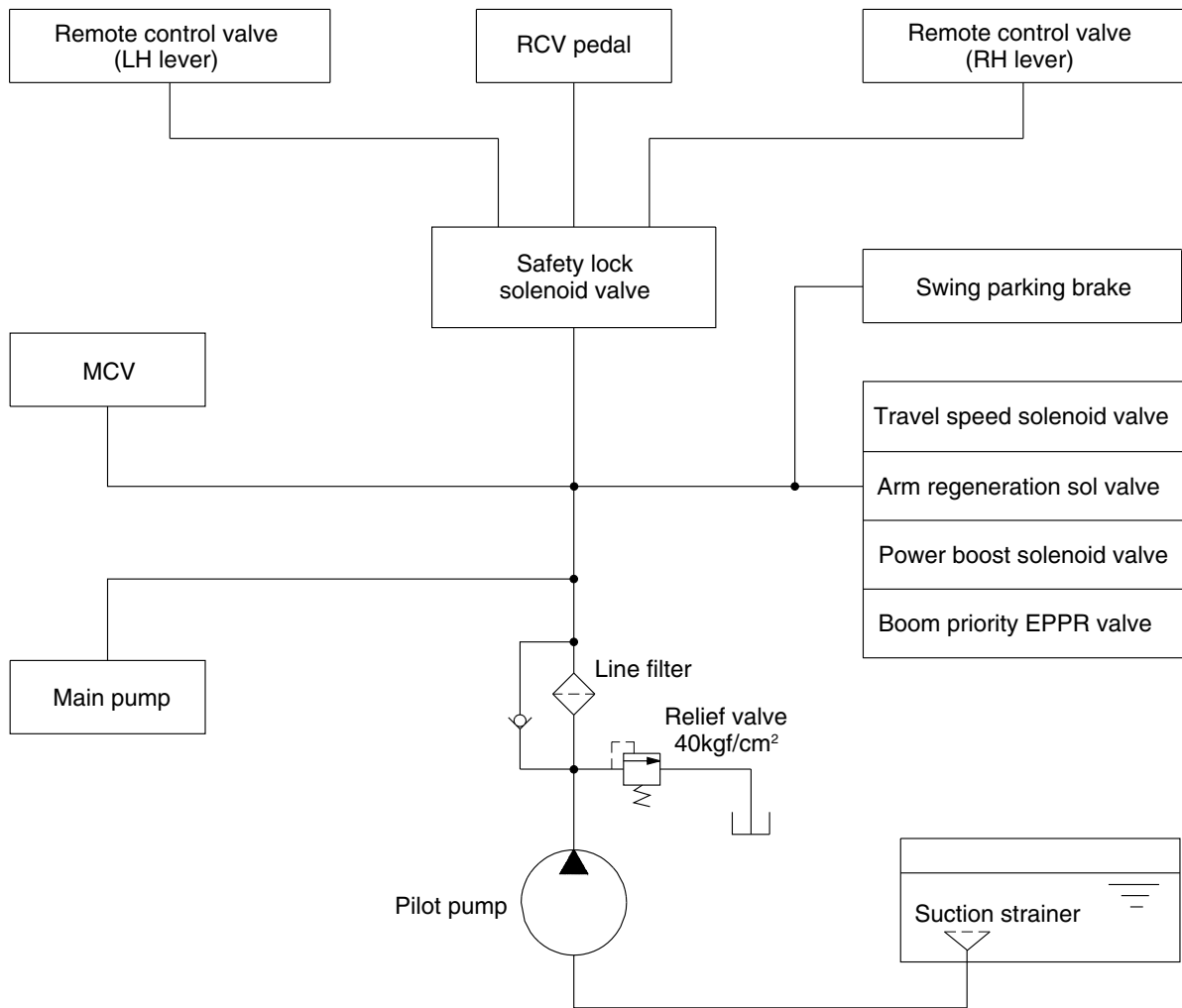
Oil leaking from the right and left travel motors comes out of the drain ports provided in the respective motor casing and join with each other. These oils pass through the turning joint and join with oil leak line of the swing motor and return to the hydraulic tank after being filtered by return filter.

2) MAIN PUMP DRAIN CIRCUIT

Oil leaking from main pump come out and return to the hydraulic tank passing through drain filter.

※ The circuit diagram may differ from the equipment, so please check before a repair.

GROUP 3 PILOT CIRCUIT (OLD VERSION)



300A3CI03

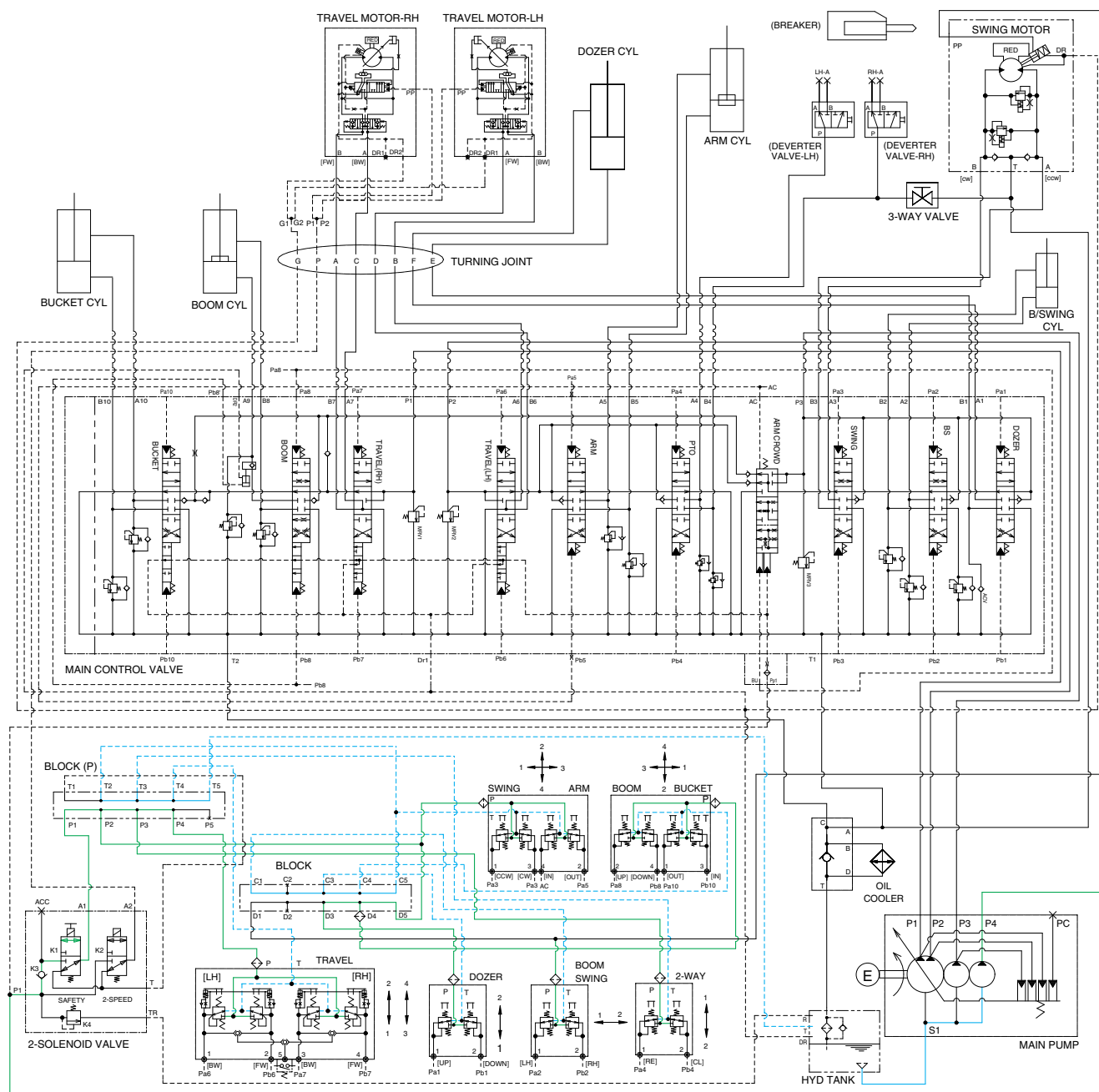
The pilot circuit consists of suction circuit, delivery circuit and return circuit.

The pilot pump is provided with relief valve, receives the oil from the hydraulic tank through the suction strainer.

The discharged oil from the pilot pump flows to the remote control valve through line strainer, EPPR valve, solenoid valve assemblies, swing parking brake, main control valve and safety lock solenoid valve.

※ The circuit diagram may differ from the equipment, so please check before a repair.

1. SUCTION, DELIVERY AND RETURN CIRCUIT



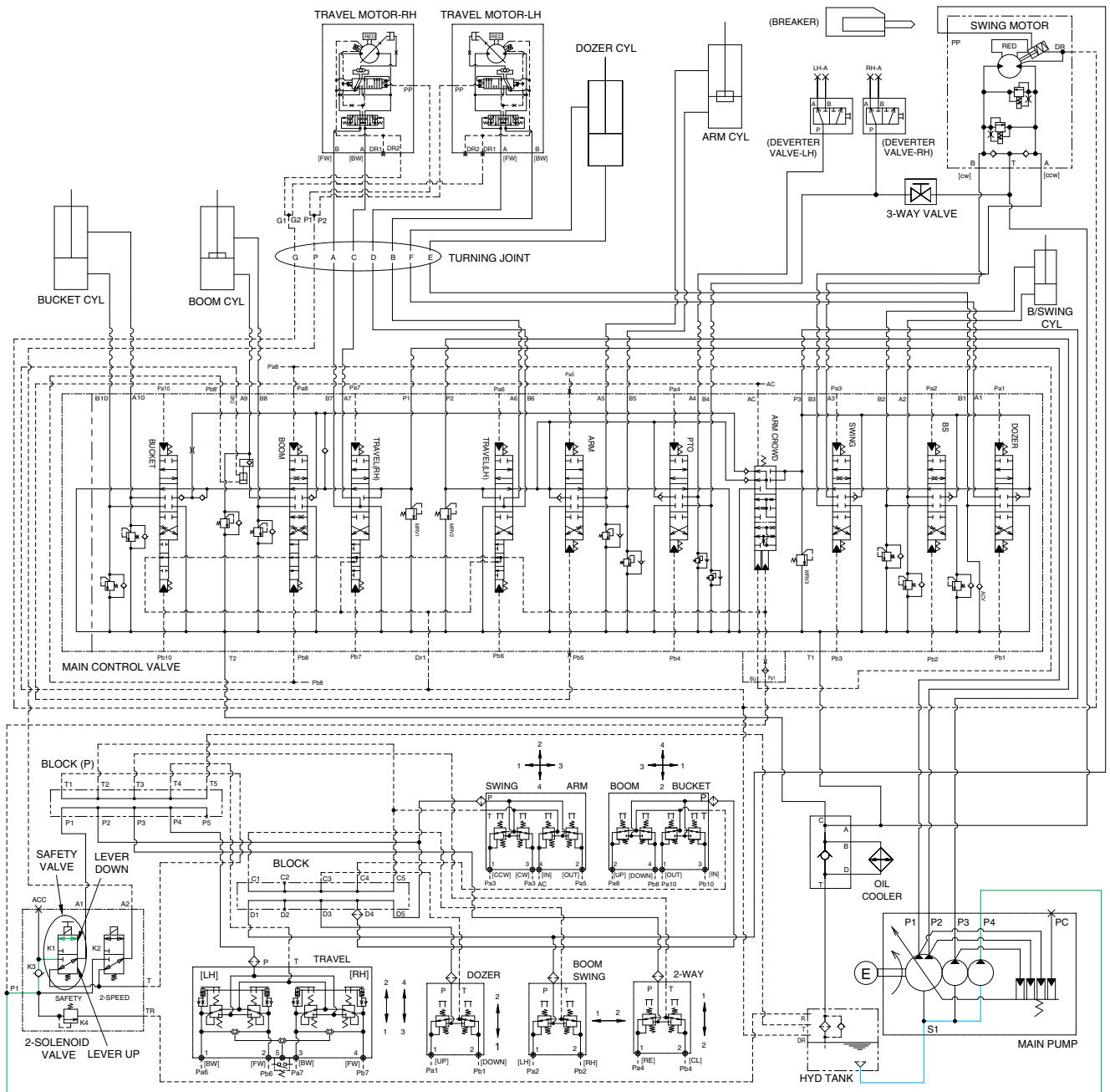
25AZ3HC03

The pilot pump receives oil from the hydraulic tank. The discharged oil from the pilot pump flows to the safety solenoid valve through the line filter. The oil is filtered by the line filter. The pilot relief valve is provided in the pilot pump for limiting the pilot circuit pressure.

The oil filtered by line filter flows remote control valve, MCV and swing motor through safety solenoid valve. The return oil flow into the hydraulic tank.

※ The circuit diagram may differ from the equipment, so please check before a repair.

2. SAFETY VALVE (SAFETY LEVER)



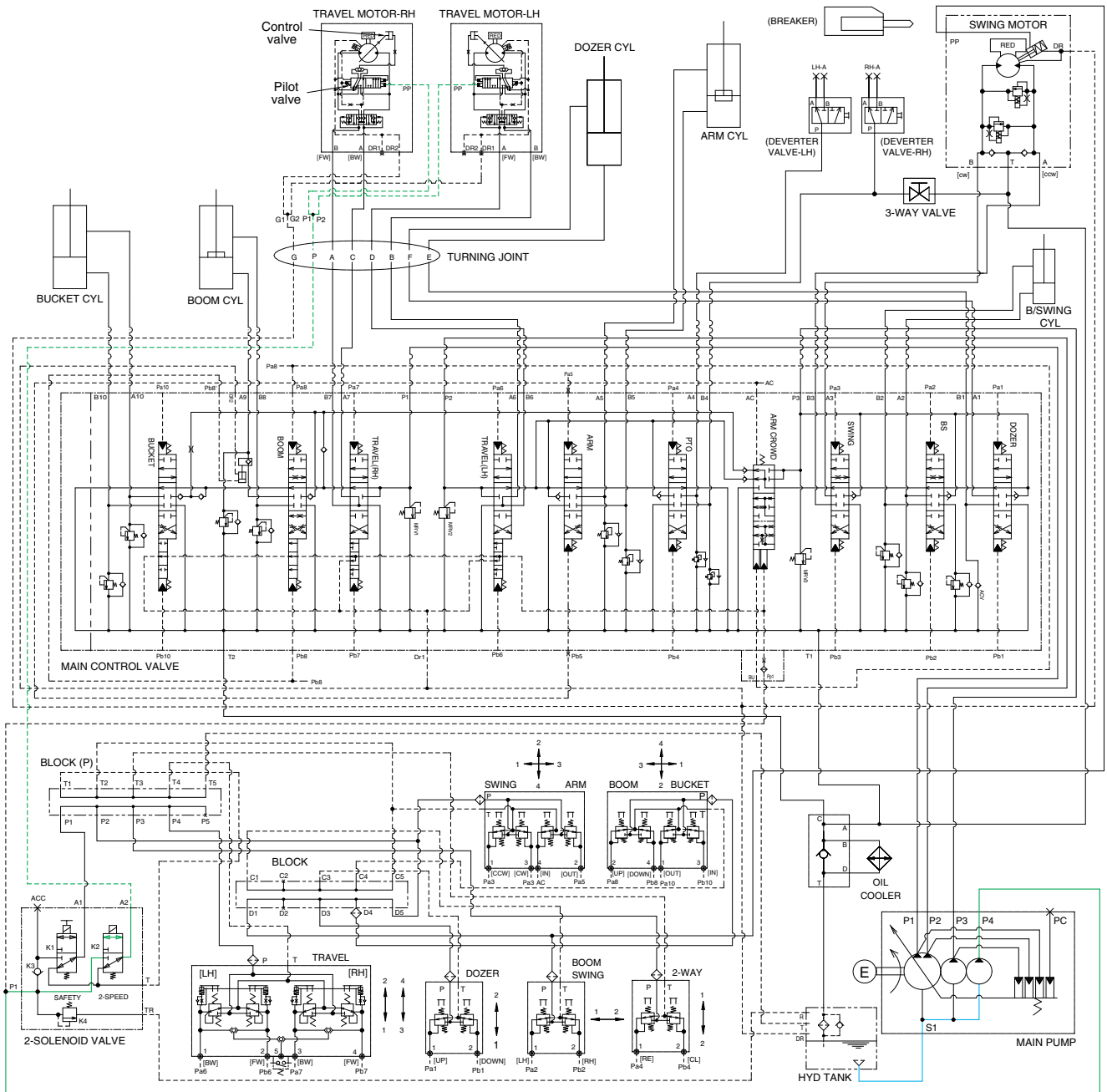
25AZ3HC04

When the lever of the safety solenoid valve is moved downward, oil flows into the remote control valve through safety solenoid valve and line filter.

When the lever of the safety solenoid valve is moved upward, oil does not flow into the remote control valve, because of the blocked port.

※ The circuit diagram may differ from the equipment, so please check before a repair.

3. TRAVEL SPEED CONTROL SYSTEM



25AZ3HC05

When the travel speed switch is pushed, the travel speed solenoid valve is actuated and the discharged oil from the pilot pump flows to the PP port of pilot valve in the travel motors.

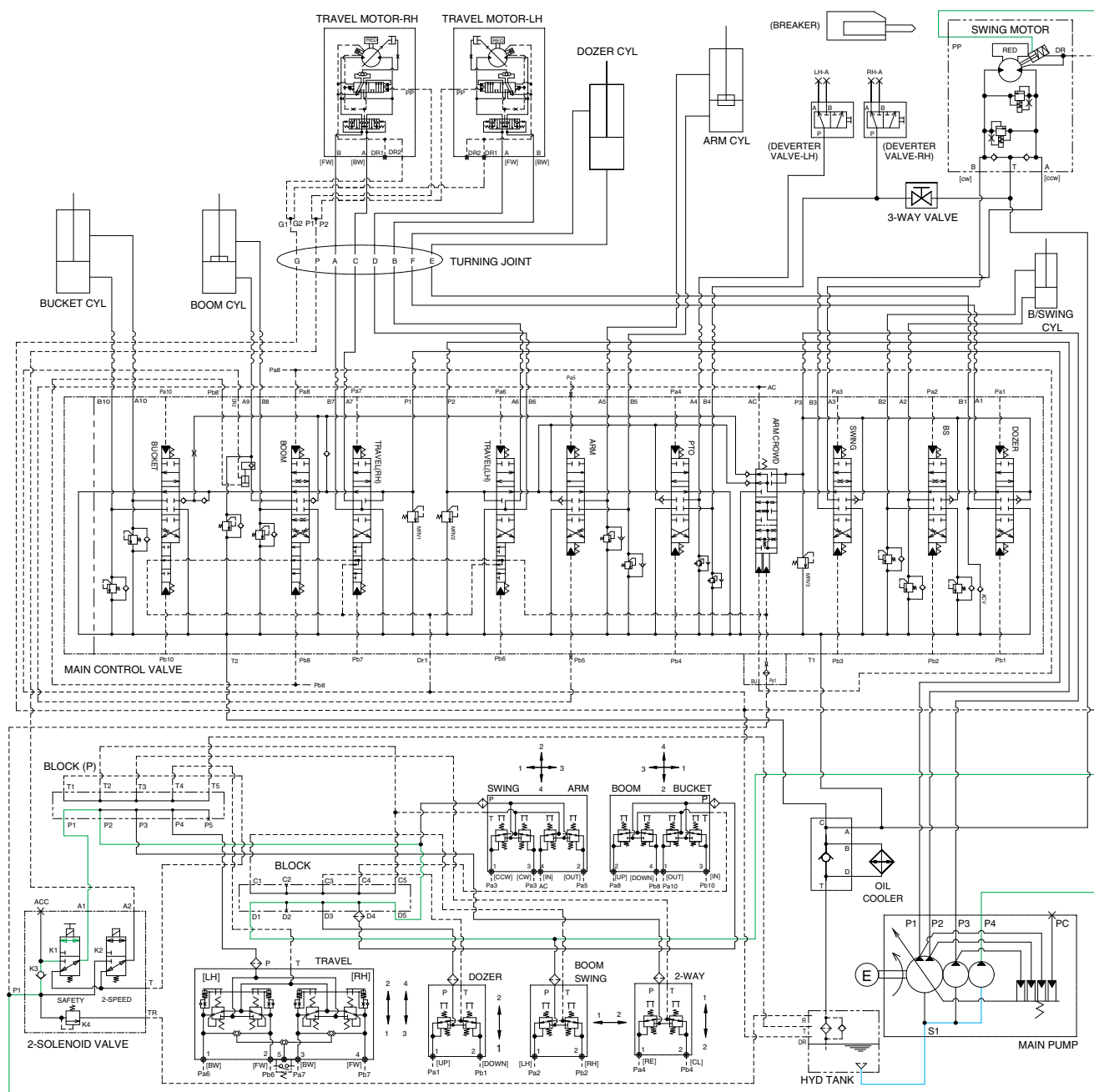
As a result, the control piston is pushed by the main oil flow, thus the displacement is minimized.

When the travel speed switch is pushed once more, the travel speed solenoid valve is return to original position by the force of spring, the hydraulic oil of PP port returns to the hydraulic tank.

As a result, the control piston is returned by the main oil flow, thus the displacement is maximized.

※ The circuit diagram may differ from the equipment, so please check before a repair.

4. SWING PARKING BRAKE RELEASE



25AZ3HC06

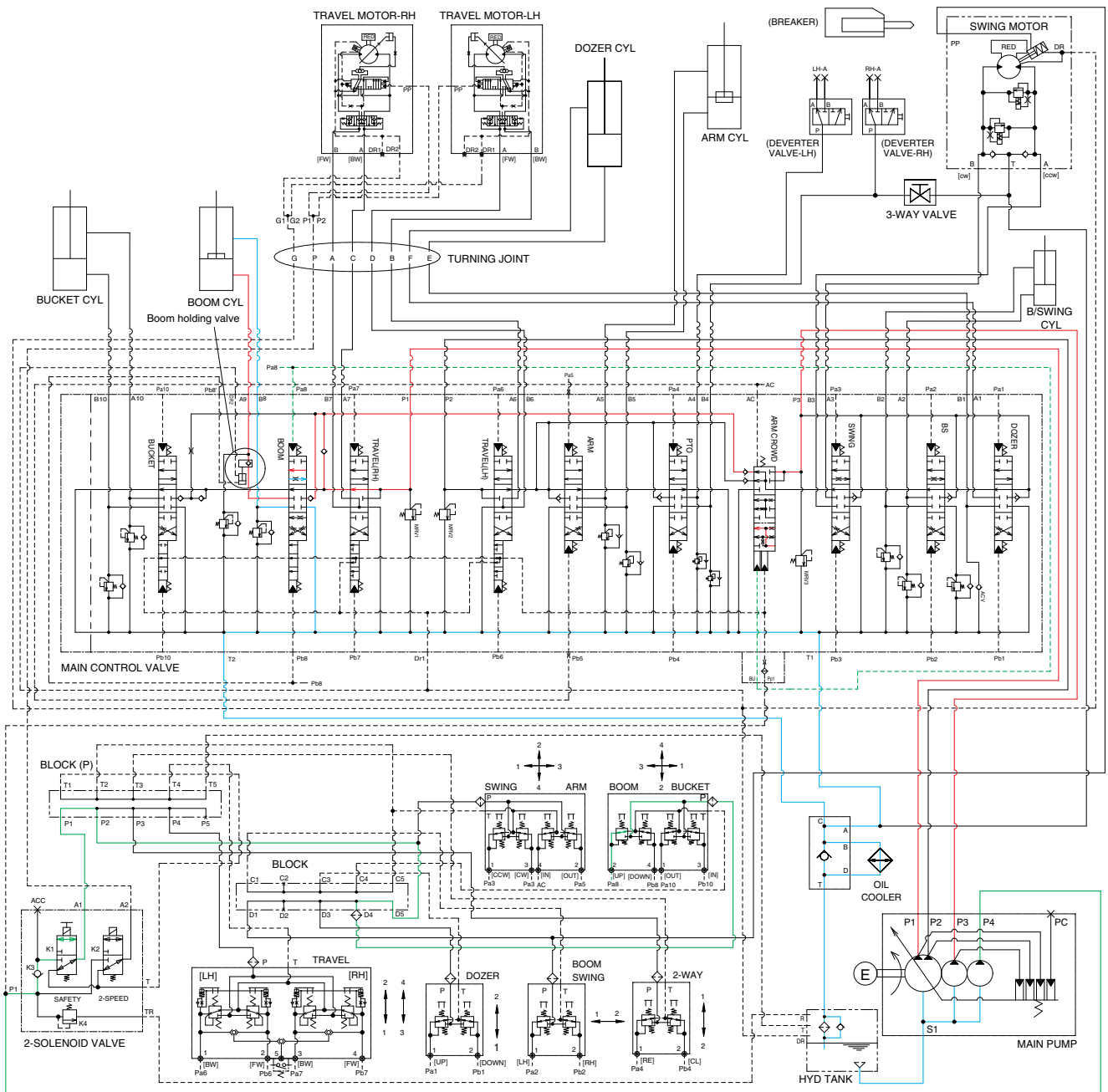
When the Safety solenoid lever is moved downward, the pilot oil flow into PP port of the swing motor through solenoid valve. This pressure is applied to swing motor disc, thus the brake is released.

When the safety solenoid lever is moved to upward, oil in the swing motor disc cylinder is drained, thus the brake is applied.

※ The circuit diagram may differ from the equipment, so please check before a repair.

GROUP 4 SINGLE OPERATION

1. BOOM UP OPERATION



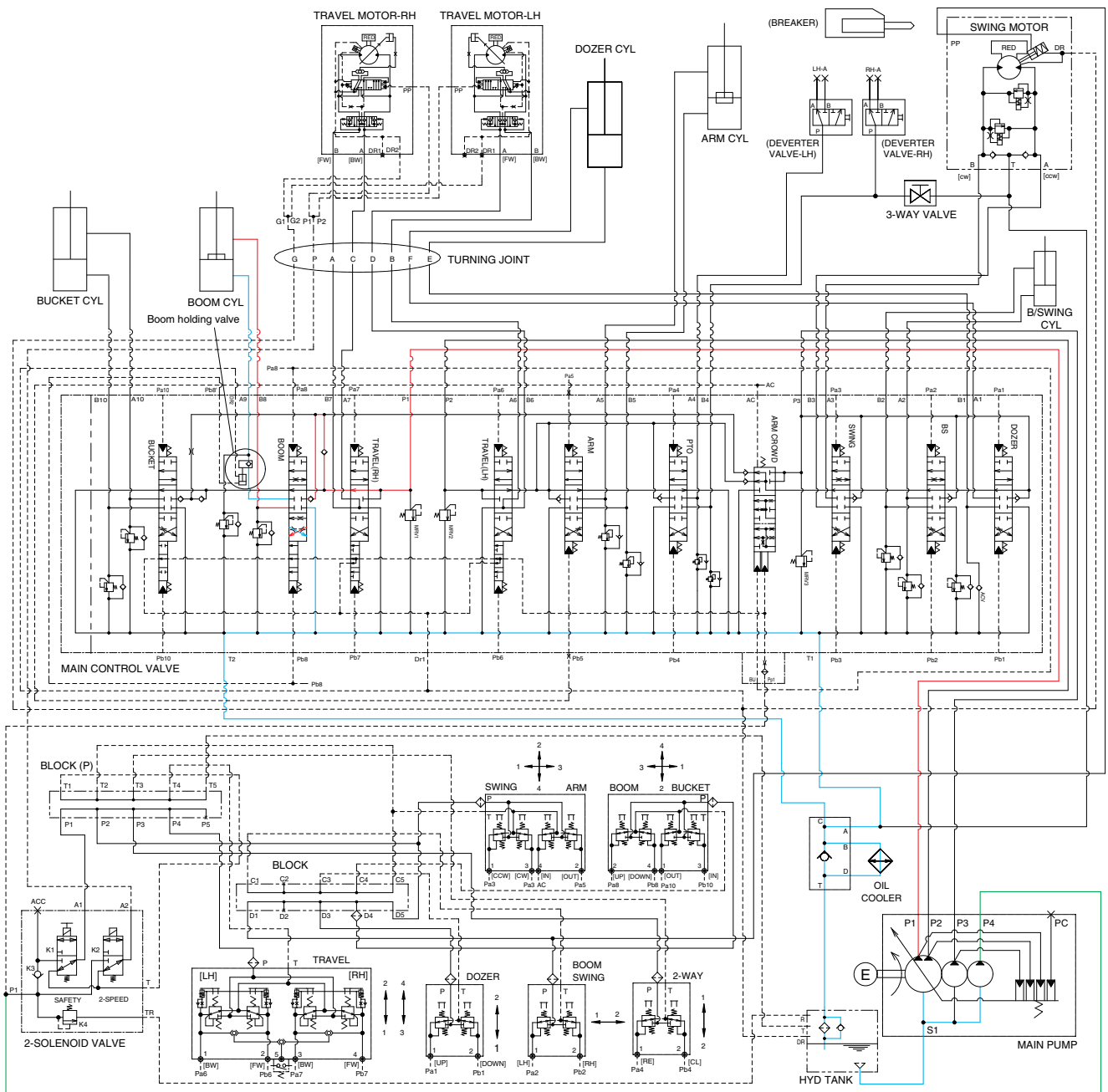
25AZ3HC10

When the right control lever is pulled back, the boom spool in the main control valve is moved to the up position by the pilot oil pressure (Pa8) from the remote control valve.

The oil from the P1 and P3 pump flows into the main control valve and then goes to the large chamber of boom cylinders. At the same time, the oil from the small chamber of boom cylinders returns to the hydraulic oil tank through the boom spool in the main control valve. When this happens, the boom goes up. The excessive pressure in the boom cylinder bottom end circuit is prevented by relief valve. When the boom is up and the control lever is returned to neutral position, the circuit for the holding pressure at the bottom end of the boom cylinder is closed by the boom holding valve. This prevents the hydraulic drift of boom cylinder.

※ The circuit diagram may differ from the equipment, so please check before a repair.

2. BOOM DOWN OPERATION



25AZ3HC11

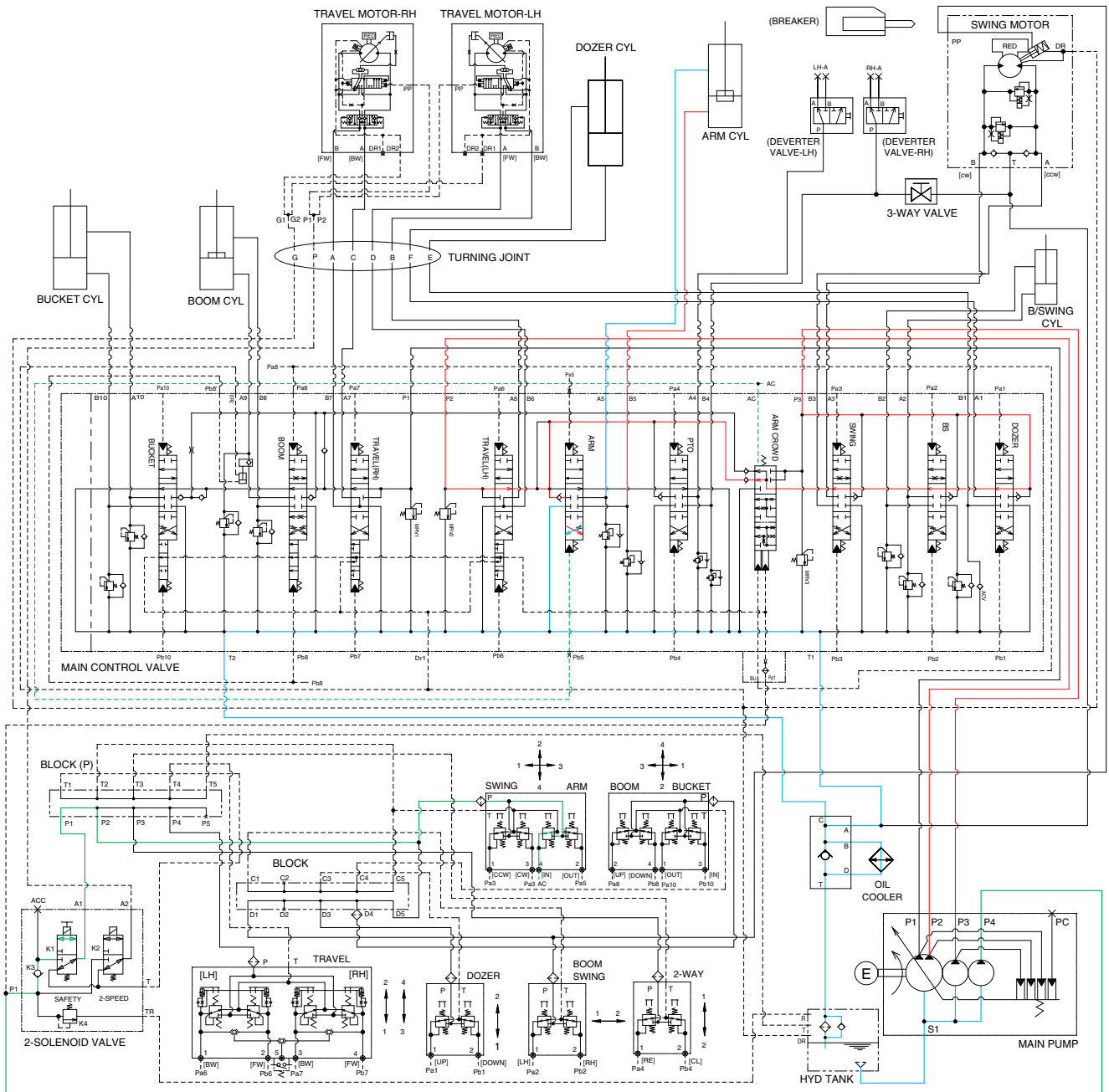
When the right control lever is pushed forward, the boom spool in the main control valve is moved to the down position by the pilot oil pressure (Pb8) from the remote control valve. Since Pb8 port is connected Pb8' port through the piping, boom holding valve is also released.

The oil from the P1 pump flows into the main control valve and then goes to the small chamber of boom cylinders. At the same time, the oil from the large chamber of boom cylinders returns to the hydraulic tank through the boom spool in the main control valve.

The excessive pressure in the boom cylinder rod end circuit is prevented by the relief valve.

※ The circuit diagram may differ from the equipment, so please check before a repair.

3. ARM ROLL IN OPERATION



25AZ3HC12

When the left control lever is pulled back, the arm spool in the main control valve is moved to the roll in position by the pilot oil pressure (AC, Pb5) from the remote control valve.

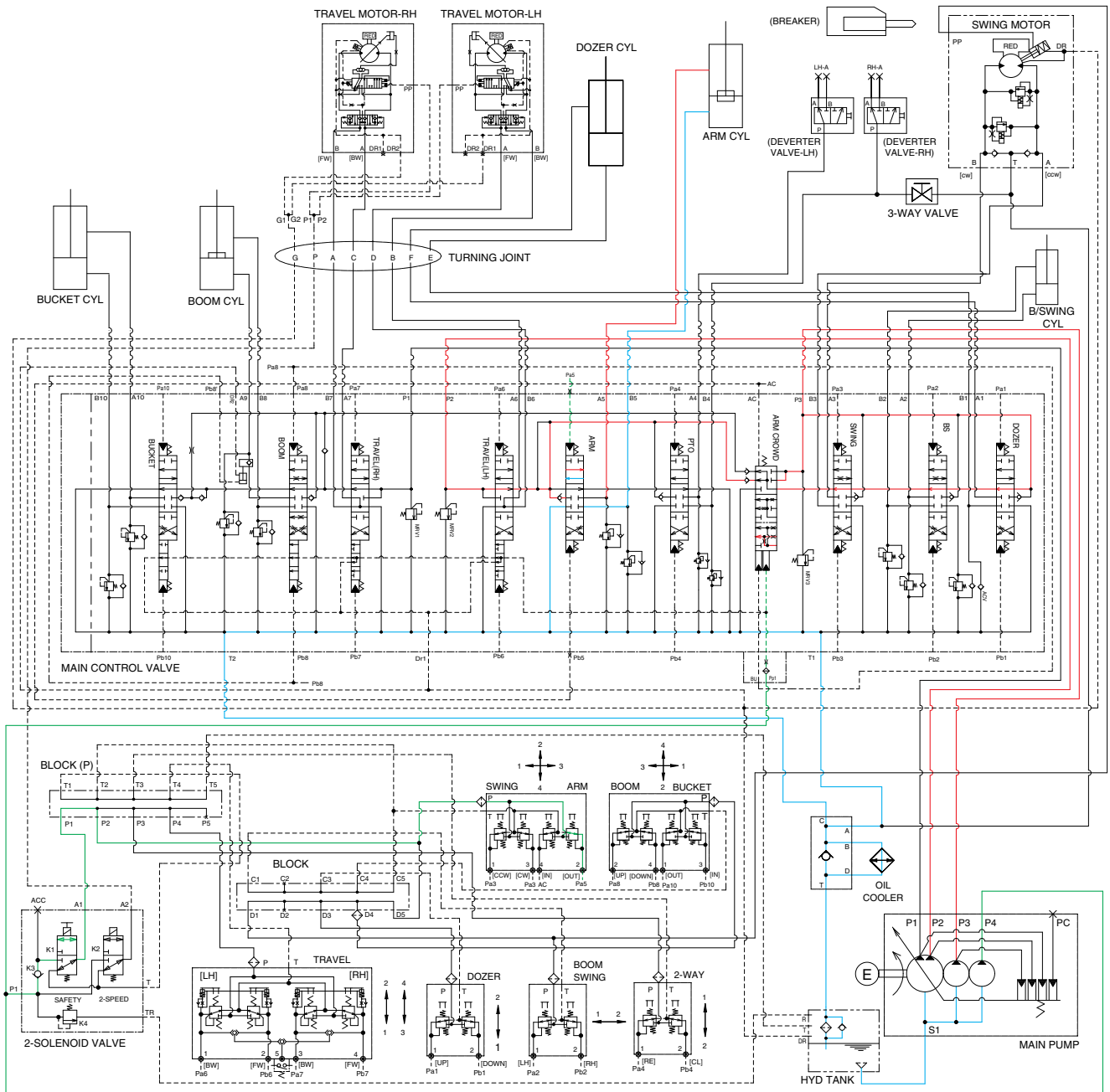
The oil from the P2 and P3 pump flows into the main control valve and then goes to the large chamber of arm cylinder.

At the same time, the oil from small chamber of arm cylinder returns to the hydraulic oil tank through the arm spool in the main control valve. When this happens, the arm rolls in.

The cavitation which will happen to the bottom of the arm cylinder is also prevented by the make-up valve in the main control valve.

※ The circuit diagram may differ from the equipment, so please check before a repair.

4. ARM ROLL OUT OPERATION



25AZ3HC13

When the left control lever is pushed forward, the arm spool in the main control valve is moved to the roll out position by the pilot oil pressure (Pa5) from the remote control valve.

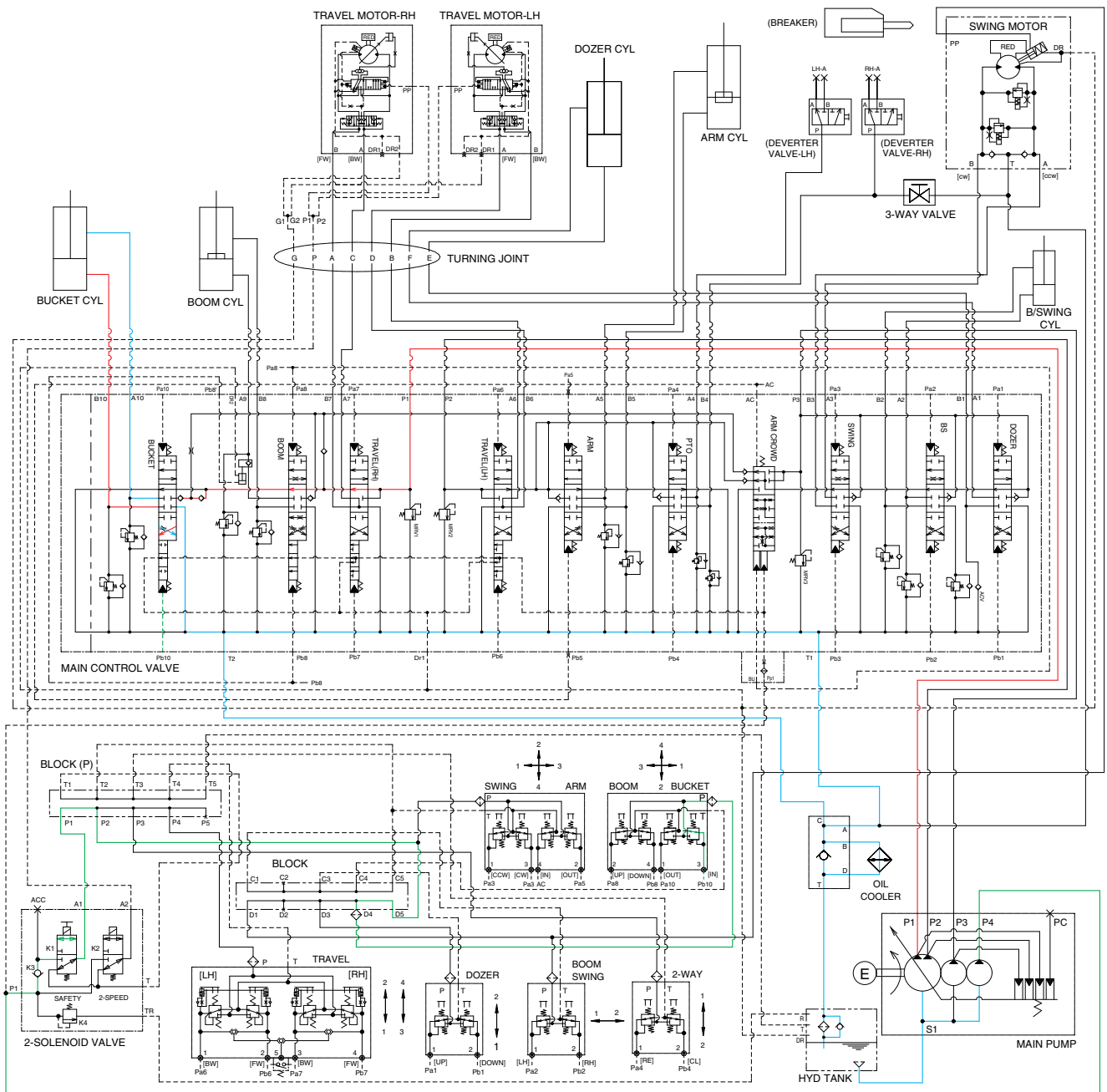
The oil from the P2 and P3 pump flows into the main control valve and then goes to the small chamber of arm cylinder.

At the same time, the oil from the large chamber of arm cylinder returns to the hydraulic oil tank through the arm spool in the main control valve. When this happens, the arm rolls out.

The cavitation which will happen to the rod of the arm cylinder is also prevented by the make-up valve in the main control valve.

※ The circuit diagram may differ from the equipment, so please check before a repair.

5. BUCKET ROLL IN OPERATION



25AZ3HC14

When the right control lever is pulled left, the bucket spool in the main control valve is moved to the roll in position by the pilot oil pressure (Pb10) from the remote control valve.

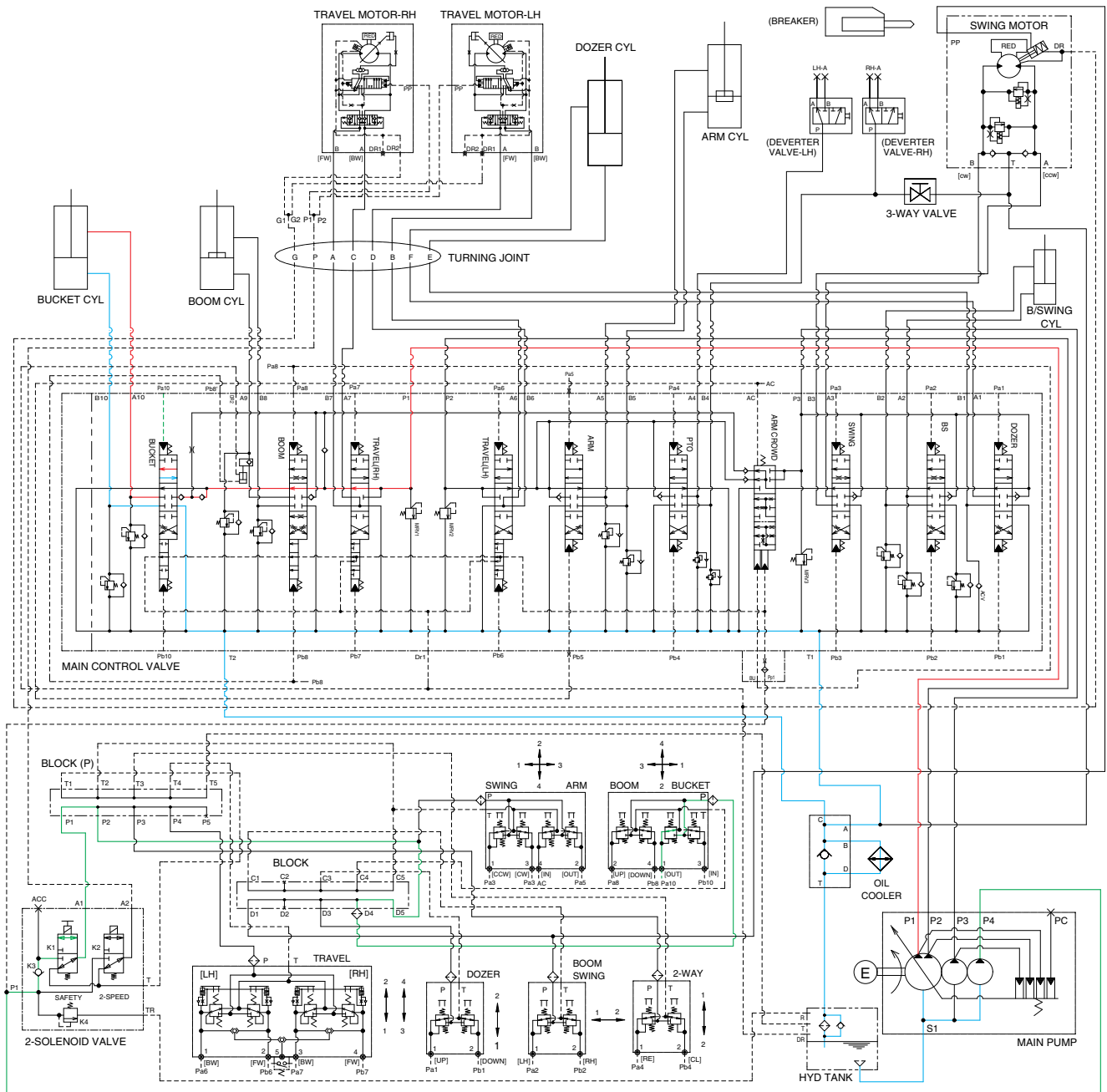
The oil from the P1 pump flows into the main control valve and then goes to the large chamber of bucket cylinder.

At the same time, the oil from the small chamber of bucket cylinder returns to the hydraulic oil tank through the boom spool in the main control valve. When this happens, the bucket rolls in.

The cavitation which will happen to the bottom of the bucket cylinder is also prevented by the make-up valve in the main control valve.

※ The circuit diagram may differ from the equipment, so please check before a repair.

6. BUCKET ROLL OUT OPERATION



25AZ3HC15

When the right control lever is pushed right, the bucket spool in the main control valve is moved to the roll out position by the pilot oil pressure (Pa10) from the remote control valve.

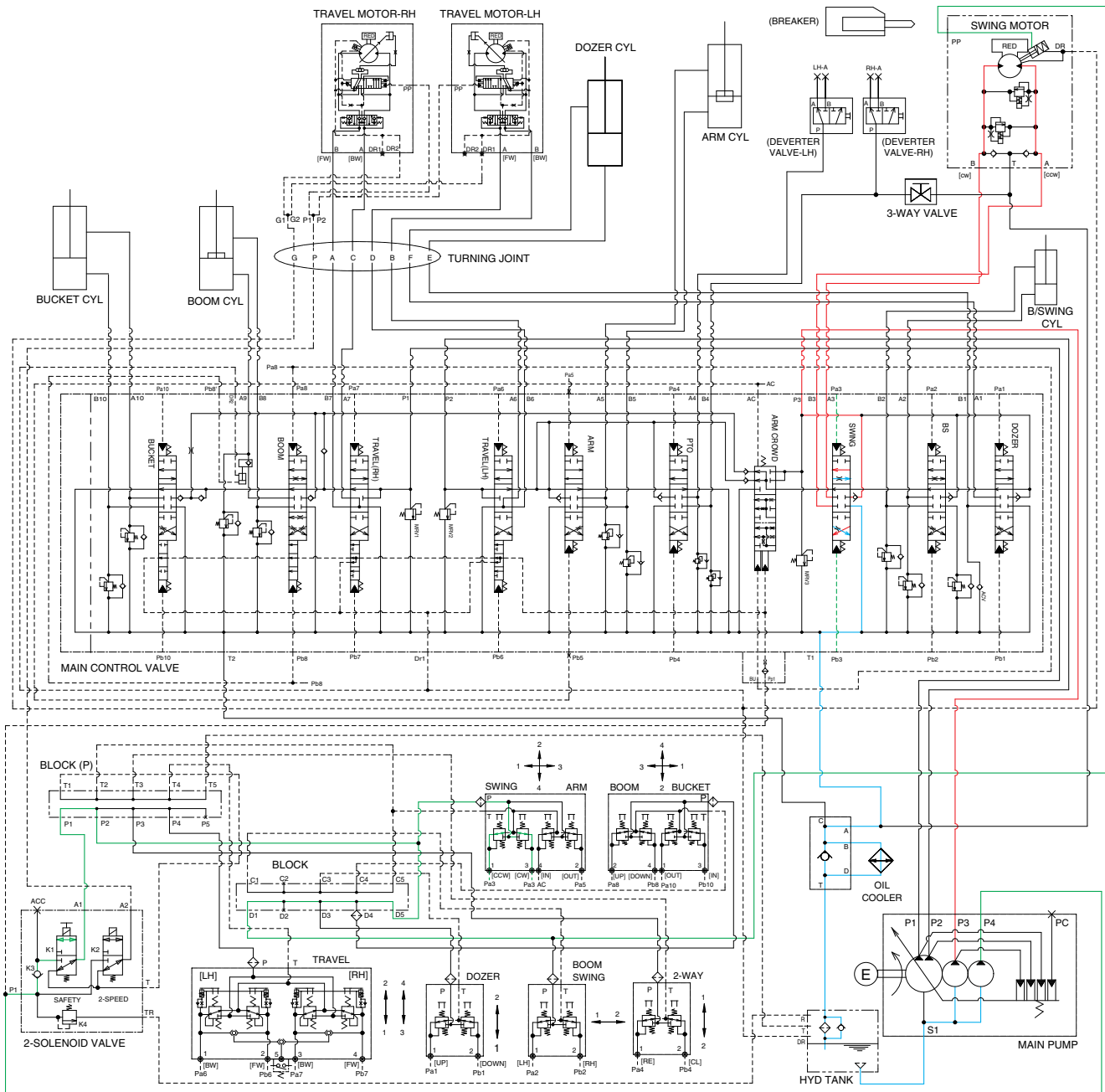
The oil from the P1 pump flows into the main control valve and then goes to the small chamber of bucket cylinder.

At the same time, the oil from the large chamber of bucket cylinder returns to the hydraulic oil tank through the bucket spool in the main control valve. When this happens, the bucket rolls out.

The cavitation which will happen to the rod of the bucket cylinder is also prevented by the make-up valve in the main control valve.

※ The circuit diagram may differ from the equipment, so please check before a repair.

7. SWING OPERATION

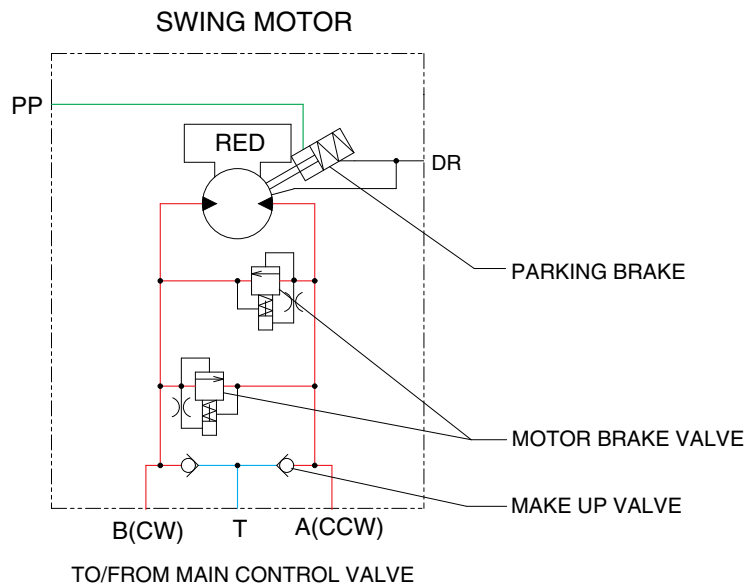


25AZ3HC16

When the left control lever is pushed left or right, the swing spool in the main control valve is moved to the left or right swing position by the pilot oil pressure (Pa3, Pb3) from the remote control valve. The oil from the P3 pump flows into the main control valve and then goes to the swing motor. At the same time, the return oil from the swing motor returns to the hydraulic oil tank through the swing spool in the main control valve. When this happens, the superstructure swings to the left or right. The swing parking brake, make up valve and the overload relief valve are provided in the swing motor. The cavitation which will happen to the swing motor is also prevented by the make up valve in the swing motor itself.

※ The circuit diagram may differ from the equipment, so please check before a repair.

SWING CIRCUIT OPERATION



1) MOTOR BRAKE VALVE

Motor brake valve for the swing motor limits to cushion the starting and stopping pressure of swing operation.

2) MAKE UP VALVE

The make up valves prevent cavitation by supplying return oil to the vacuum side of the motor.

3) PARKING BRAKE

PARKING BRAKE "ON" OPERATION

When the safety solenoid lever is moved to upward, the oil in the parking brake is drained to the tank. So, parking brake is applied.

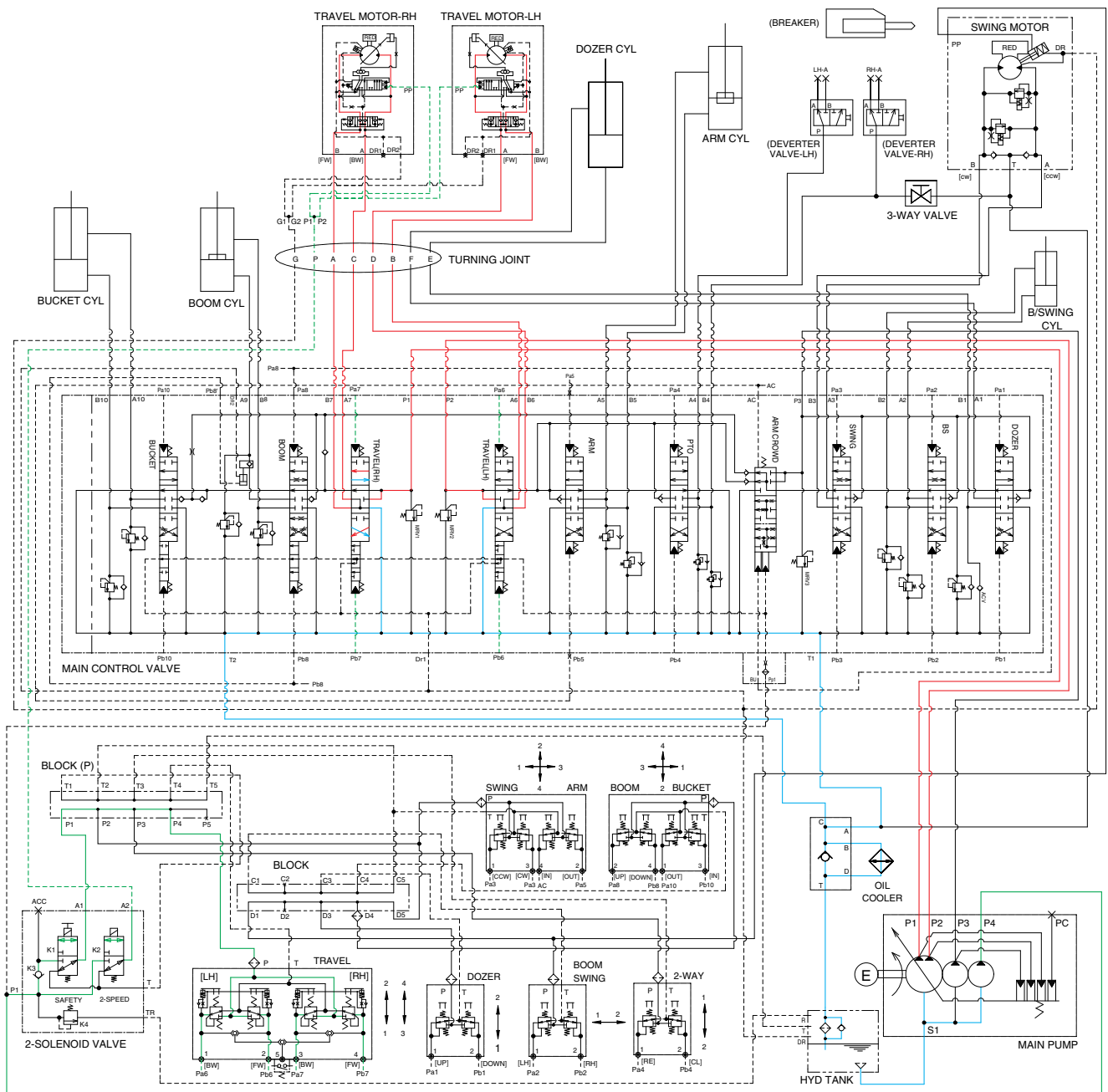
PARKING BRAKE "OFF" OPERATION

The parking brake is released by the pilot oil pressure (PP) from pilot pump.

When the safety solenoid lever is moved to downward, the pilot oil from the pilot pump (P4) is flow into parking brake through safety solenoid valve.

Then the pilot pressure lift the brake piston and release the parking brake.

8. TRAVEL FORWARD AND REVERSE OPERATION

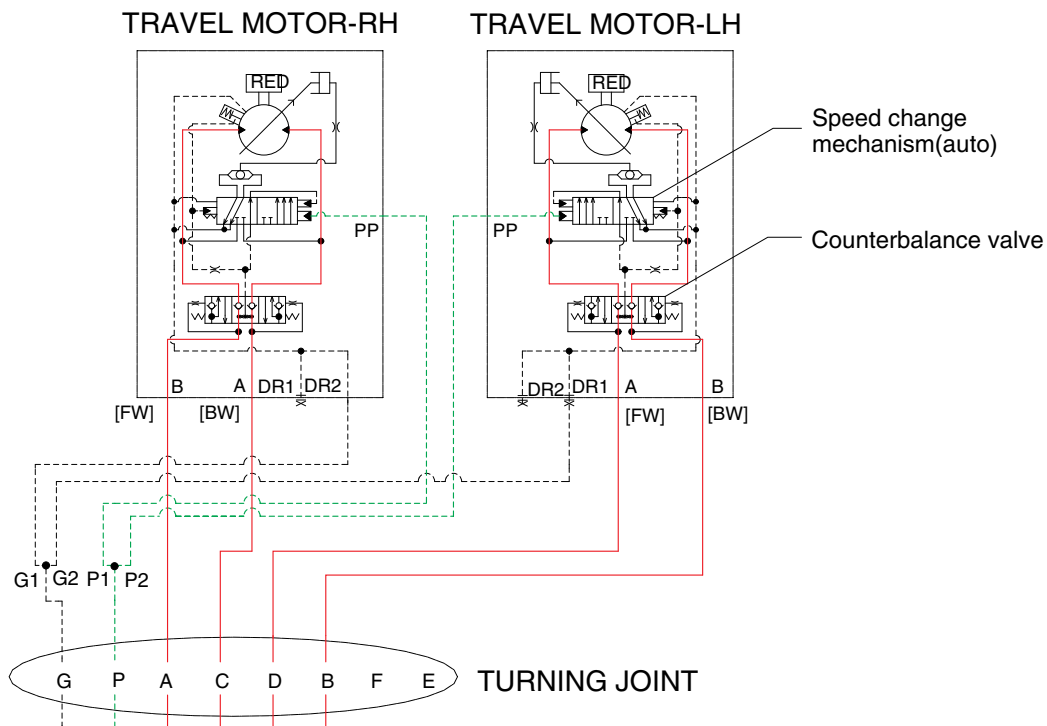


25AZ3HC17

When the travel levers are pushed forward or reverse position, the travel spools in the main control valve are moved to the forward or reverse travel position by pilot pressure oil (Pa6, Pb6, Pa7, Pb7). The oil from the P1 and P2 pumps flows into the main control valve and then goes to the both travel motors through the turning joint. The return oil from both travel motors returns to the hydraulic oil tank through the turning joint and the travel spools in the main control valve. When this happens, the machine moves to the forward or reverse.

※ The circuit diagram may differ from the equipment, so please check before a repair.

TRAVEL CIRCUIT OPERATION



25AZ3HC21

Valves are provided on travel motors to offer the following functions.

1) COUNTERBALANCE VALVE

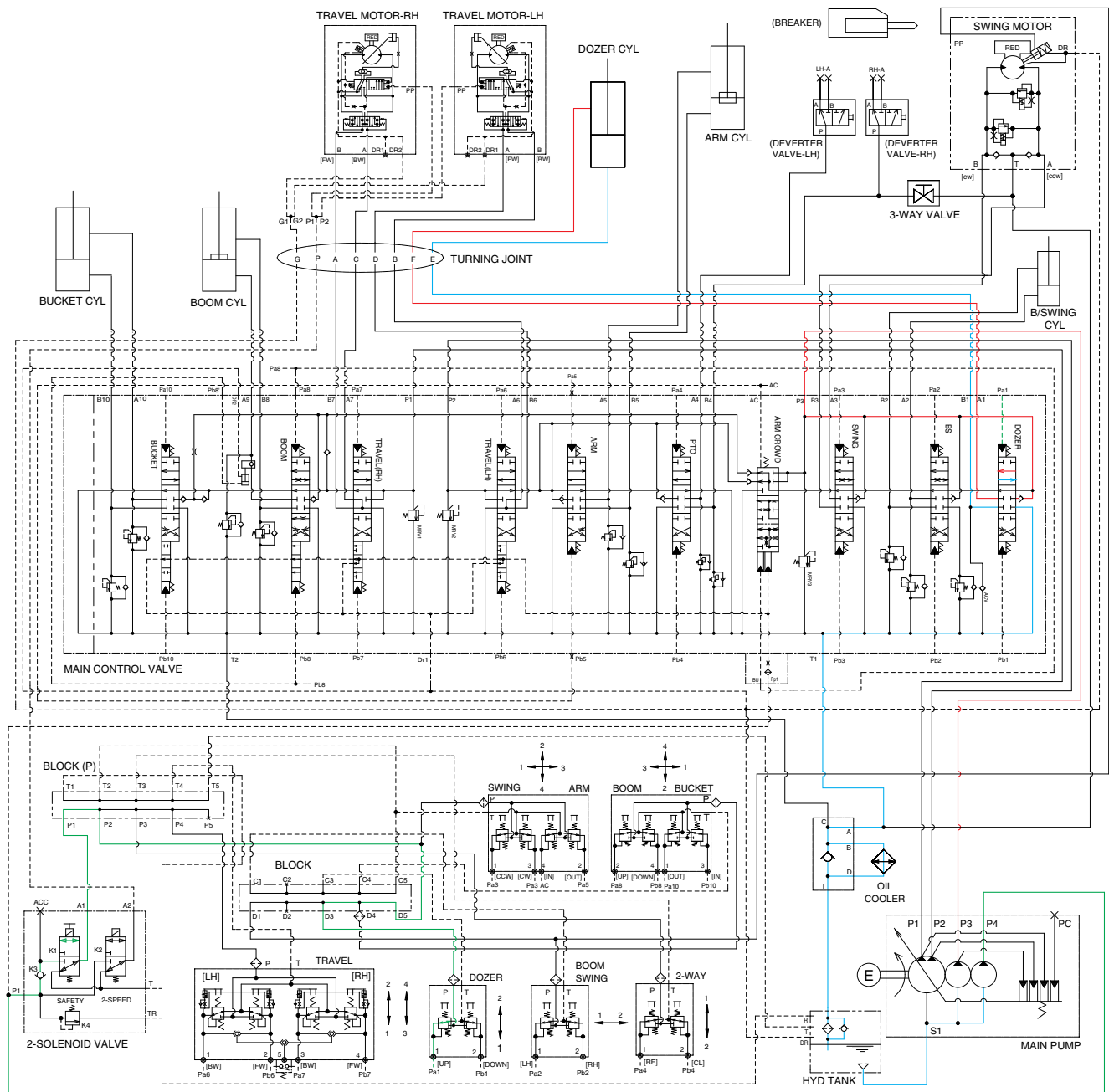
When stopping the motor of slope descending, this valve to prevent the motor over run.

2) SPEED CHANGE MECHANISM (auto)

Auto two speed control mechanism consists of two spools and spring. This valve automatically changes motor displacement in portion to motor pressure.

※ The circuit diagram may differ from the equipment, so please check before a repair.

9. DOZER UP OPERATION



25AZ3HC18

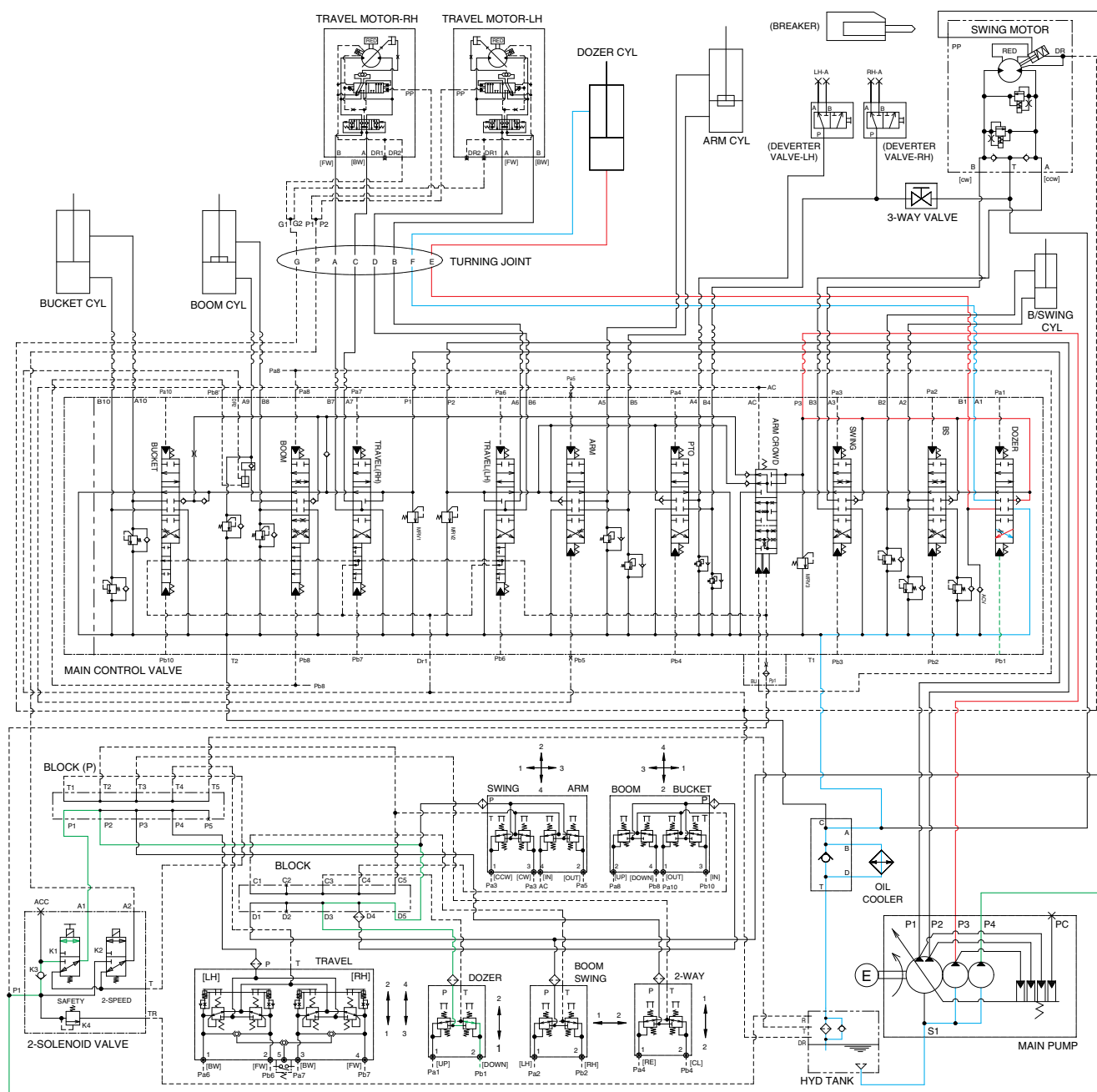
When the dozer control lever is pulled back, the dozer spool in the main control valve is moved to the dozer up position by the pilot oil pressure (Pa1) from the remote control valve.

The oil from the P3 pump flows into the main control valve and then goes to the small chamber of dozer cylinder.

At the same time, the oil from the large chamber of dozer cylinders returns to the hydraulic oil tank through the dozer spool in the main control valve. When this happens, the dozer goes up.

※ The circuit diagram may differ from the equipment, so please check before a repair.

10. DOZER DOWN OPERATION



25AZ3HC19

When the dozer control lever is pushed forward, the dozer spool in the main control valve is moved to the dozer down position by the pilot oil pressure (Pb1) from the remote control valve.

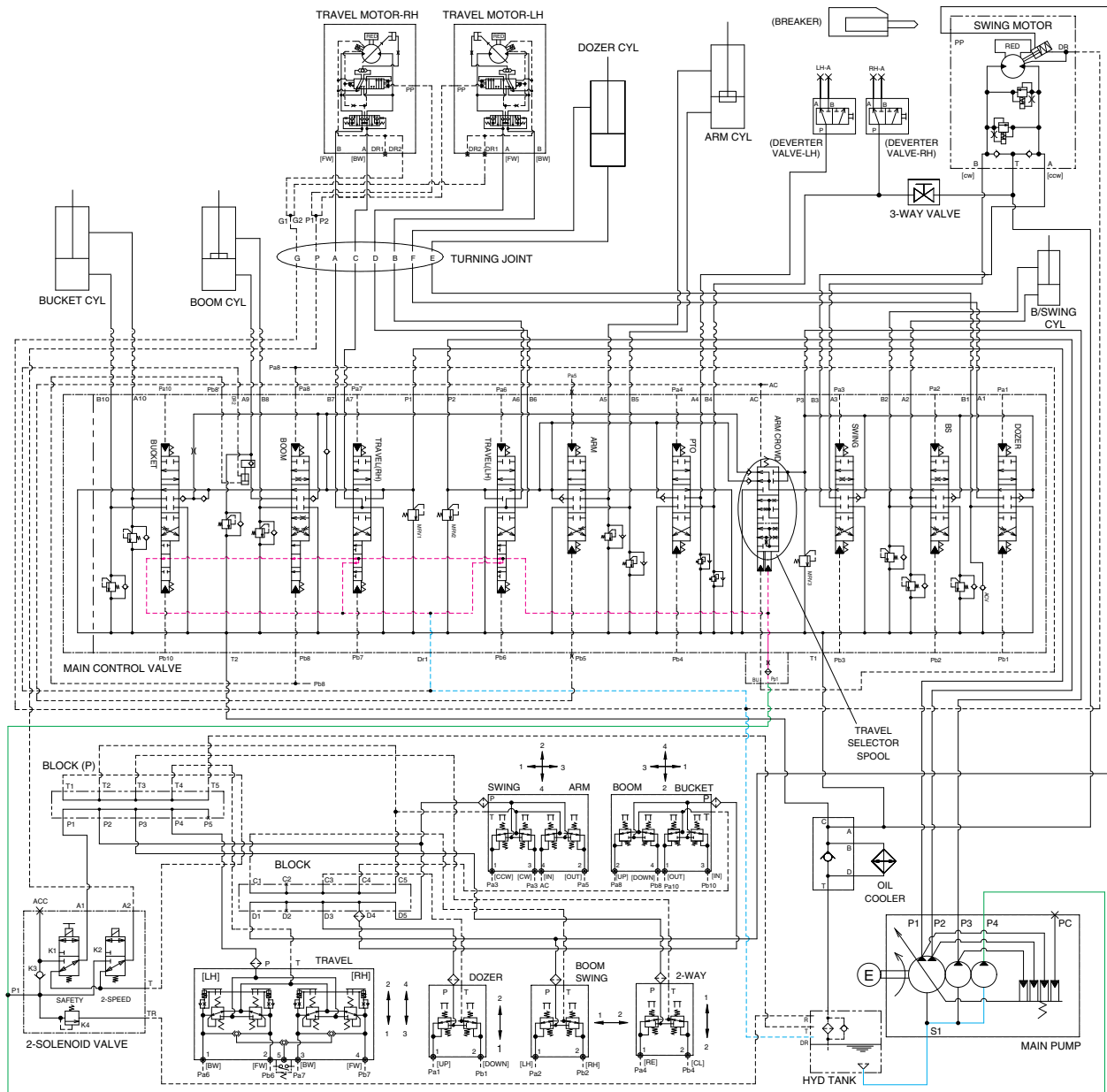
The oil from the P3 pump flows into the main control valve and then goes to the large chamber of dozer cylinder.

At the same time, the oil from the small chamber of dozer cylinder returns to the hydraulic oil tank through the dozer spool in the main control valve. When this happens, the dozer blade is down.

※ The circuit diagram may differ from the equipment, so please check before a repair.

GROUP 5 COMBINED OPERATION

1. OUTLINE



25AZ3HC30

The oil from the P1, P2 and P3 pumps flows through the neutral oil passage, bypass oil passage and confluence oil passage in the main control valve. Then the oil goes to each actuator and operates them. Check valves and orifices are located on these oil passage in the main control valve. These control the oil from the main pumps so as to correspond to the operation of each actuator and smooth the combined operation.

INDEPENDENT TRAVEL SYSTEM

This independent travel system for straight travel is provided in the main control valve.

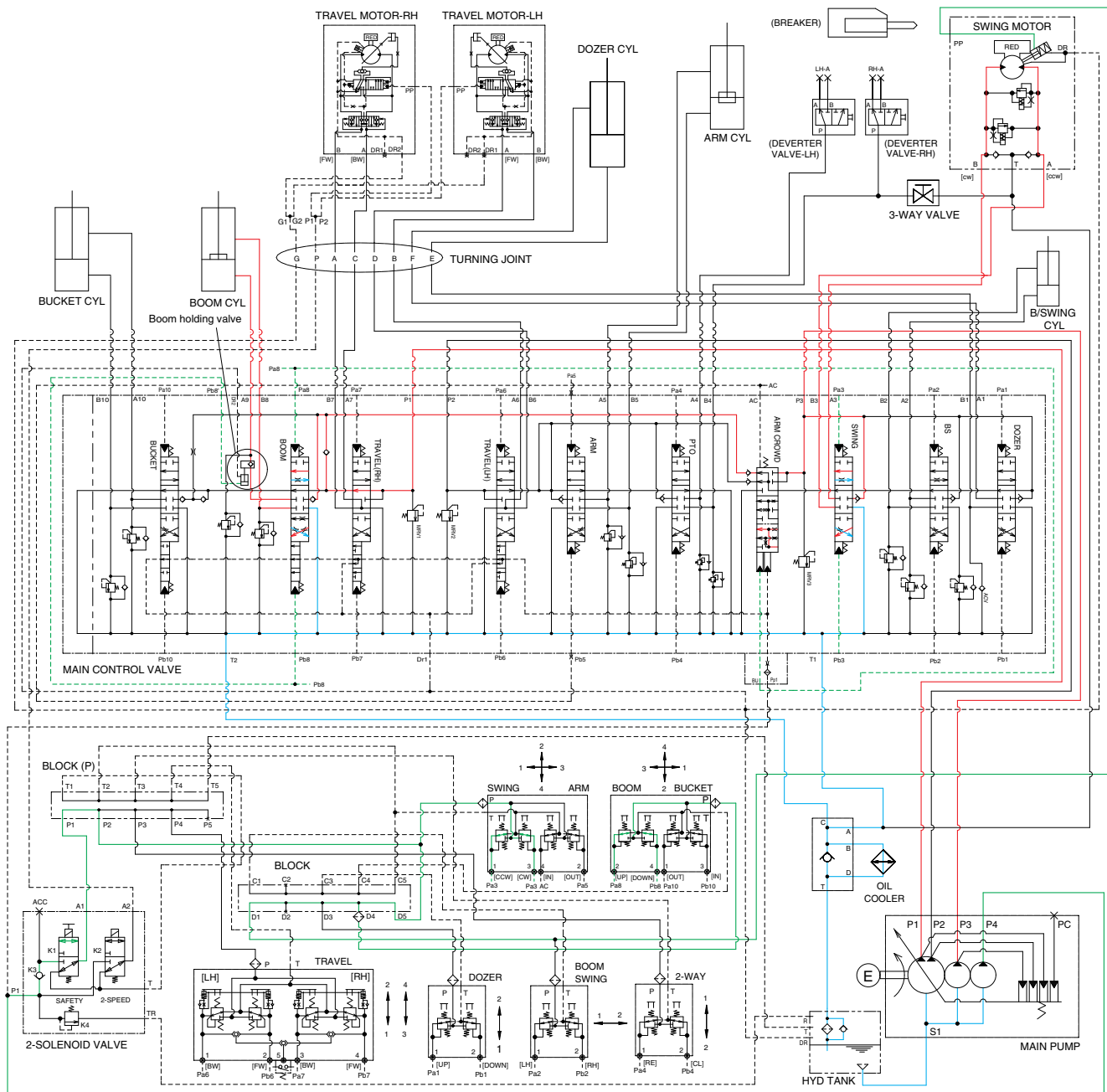
If any actuator(s) on P1 and P2 pump side is operated when traveling, the connecting spool is moved to the selected side by the pilot oil pressure (Pp1).

Consequently, the pressure oil from P1 and P2 pump are supplied to the right and left travel motor and oil from P3 pump flows into the other operated actuator.

This keeps the straight travel.

※ The circuit diagram may differ from the equipment, so please check before a repair.

2. COMBINED SWING AND BOOM OPERATION



25AZ3HC31

When the swing and boom functions are operated, simultaneously the selector spool, swing spool and boom spool in the main control valve are moved to the functional position by the pilot oil pressure (Pa3, Pb3, Pa8, Pb8) from the remote control valve.

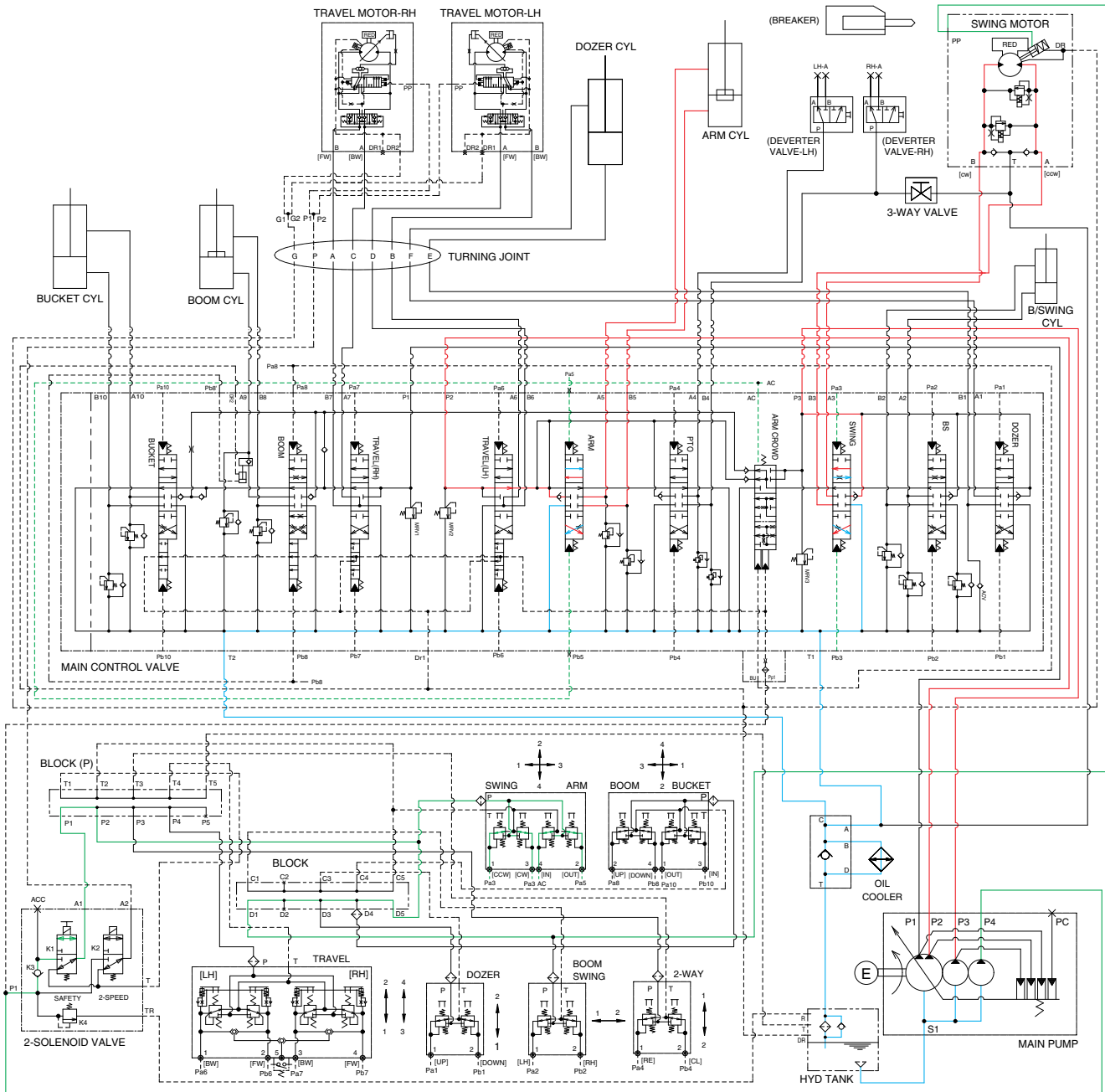
The oil from the P1 pump and some oil from the P3 pump through connecting spool (boom up only) flow into the boom cylinder.

The oil from the P3 pump flows into the swing motor through the swing spool.

The superstructure swings and the boom is operated.

※ The circuit diagram may differ from the equipment, so please check before a repair.

3. COMBINED SWING AND ARM OPERATION



25AZ3HC32

When the swing and arm functions are operated, simultaneously the swing spool and arm spool in the main control valve are moved to the functional position by the pilot oil pressure (Pa3, Pb3, Pa5, Pb5) from the remote control valve.

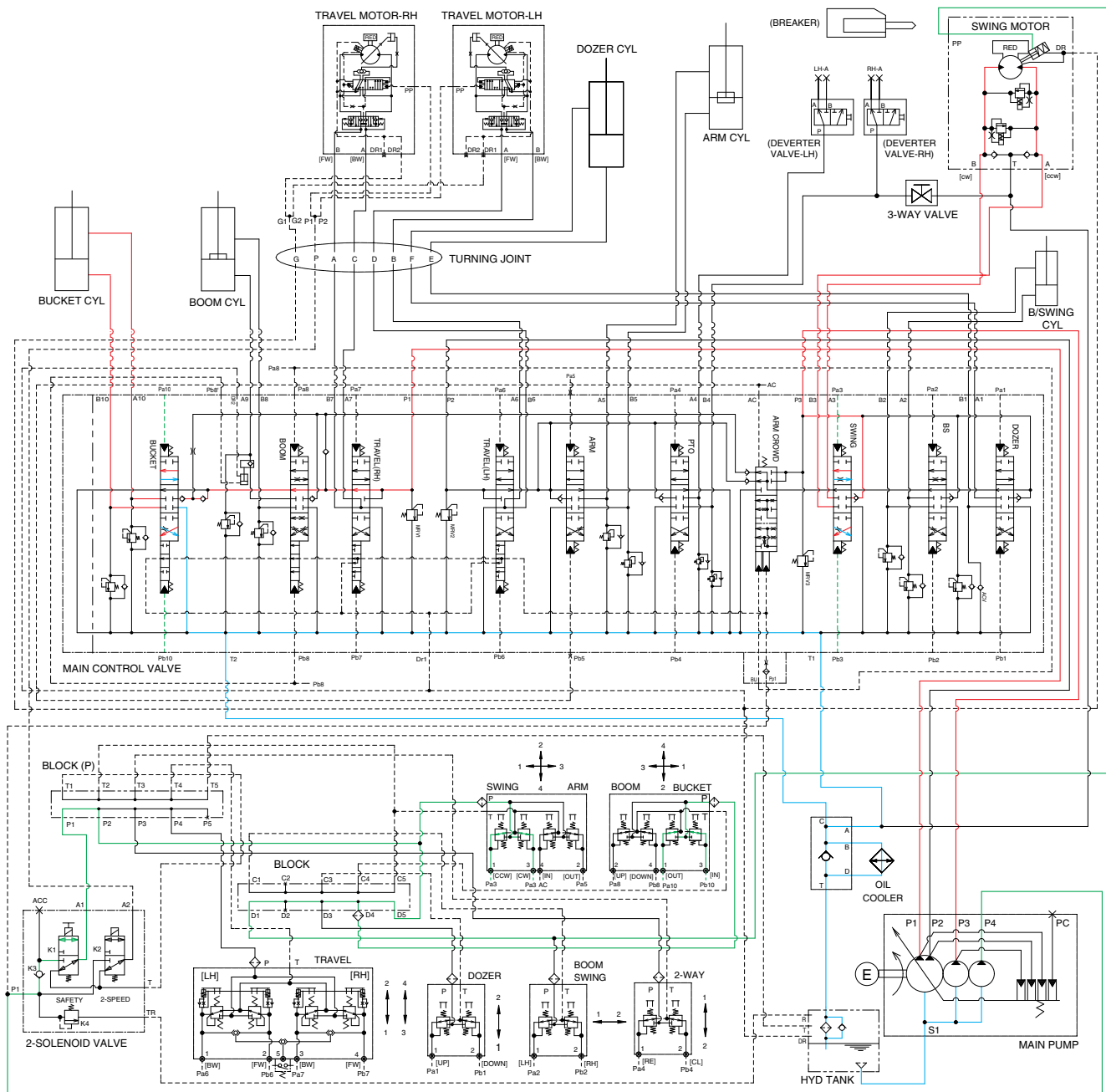
The oil from the P3 pump flows into the swing motor through swing spool.

The oil from the P2 pump flows into the arm cylinder through the arm.

The superstructure swings and the arm is operated.

※ The circuit diagram may differ from the equipment, so please check before a repair.

4. COMBINED SWING AND BUCKET OPERATION



25AZ3HC33

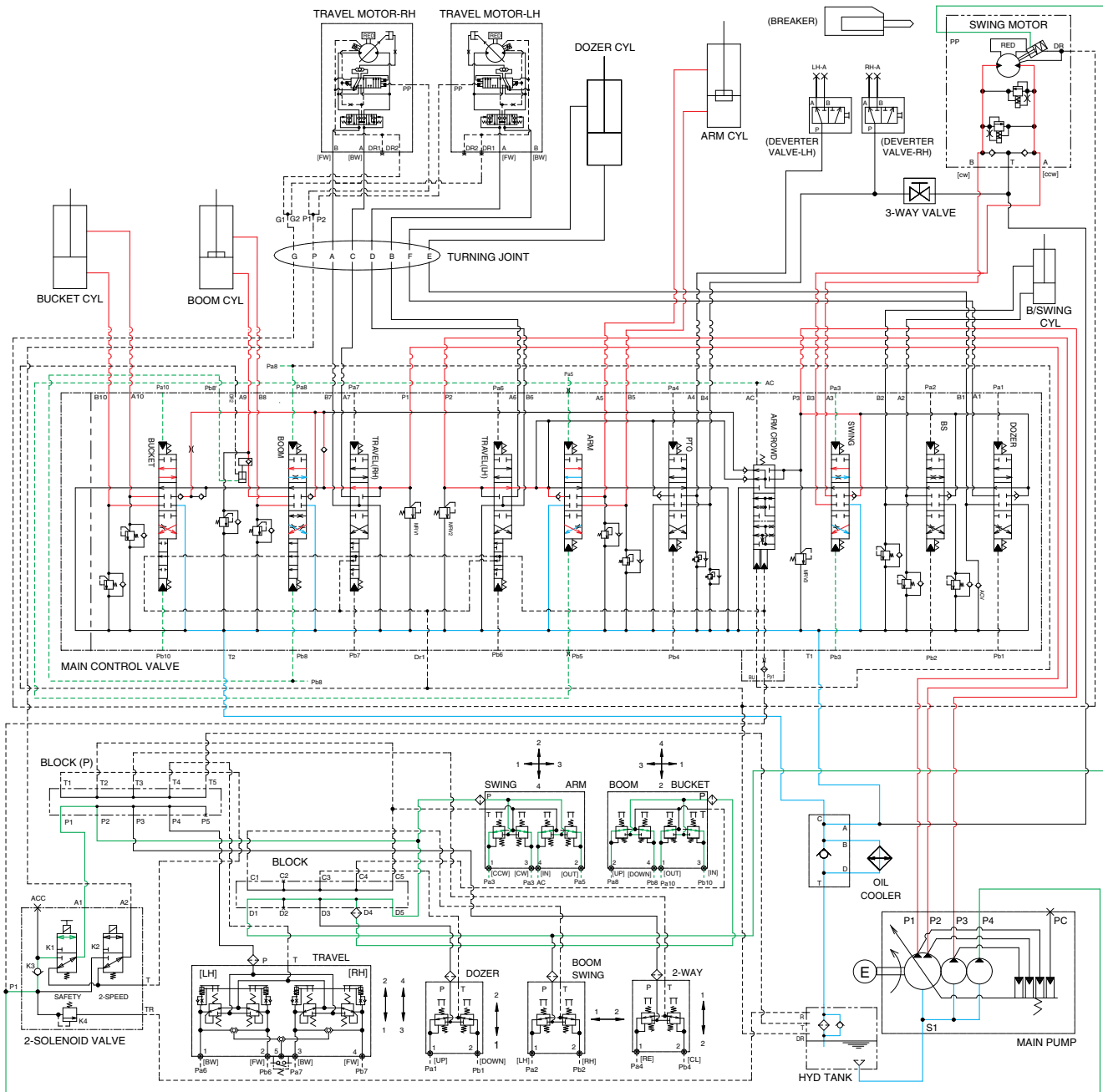
When the swing and bucket functions are operated, simultaneously the swing spool and bucket spool in the main control valve are moved to the functional position by the pilot oil pressure (Pa3, Pb3, Pa10, Pb10) from the remote control valve.

The oil from the P3 pump flows into the swing motor through the swing spool.

The oil from the P1 pump flows into the bucket cylinder through the bucket spool.

※ The circuit diagram may differ from the equipment, so please check before a repair.

5. COMBINED SWING, BOOM, ARM AND BUCKET OPERATION



25A3ZHC34

When the swing, boom, arm and bucket functions are operated, simultaneously each spool in the main control valve is moved to the functional position by the pilot oil pressure (Pa3, Pb3, Pa8, Pb8, Pa5, Pb5, Pa10, Pb10) from the remote control valve.

The oil from the P2 pump flows into the arm cylinder through, arm spool.

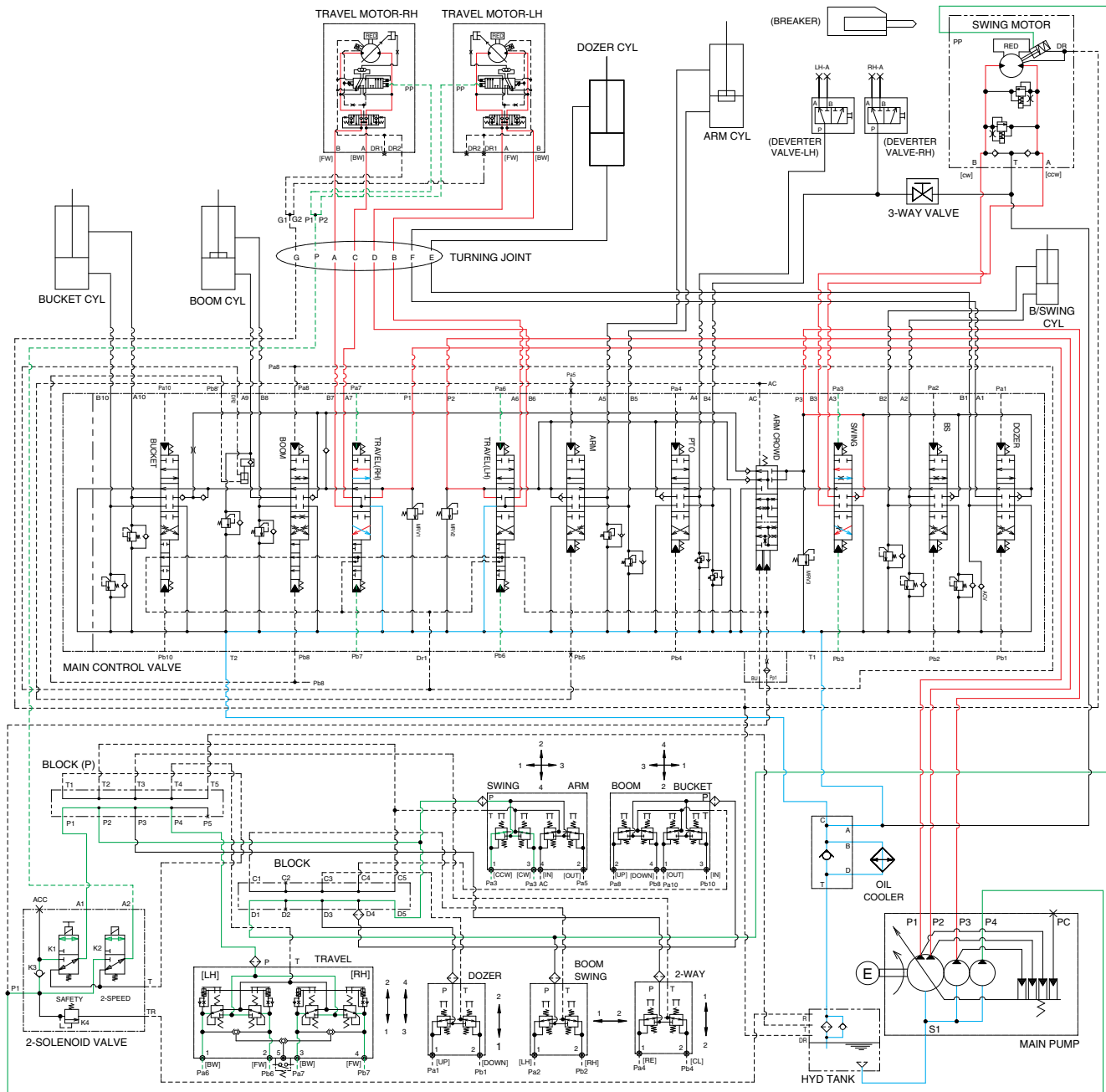
The oil from the P1 pump flows into the boom cylinder and bucket cylinder through the boom spool, bucket spool.

The oil from the P3 pump flows into the swing motor through the swing spool.

The superstructure swings and the boom, arm and bucket are operated.

※ The circuit diagram may differ from the equipment, so please check before a repair.

6. COMBINED SWING AND TRAVEL OPERATION



25AZ3HC35

When the swing and travel functions are operated, simultaneously the swing spool and travel spools in the main control valve are moved to the functional position by the pilot oil pressure (Pa3, Pb3, Pa6, Pb6, Pa7, Pb7) from the remote control valve and the travel levers.

The oil from the P3 pump flows into the swing motor through the swing spool.

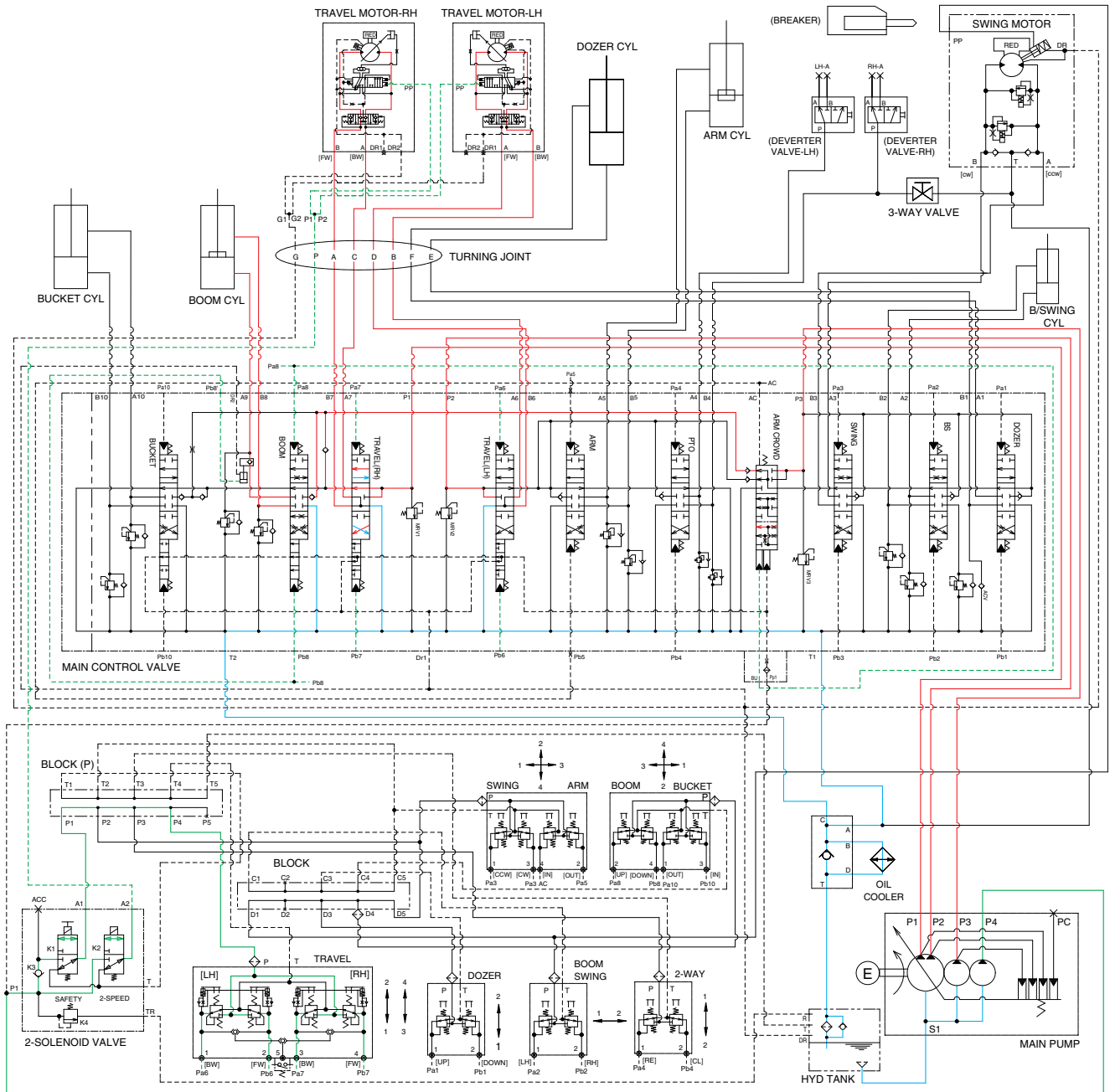
The oil from the P1 pump flows into the travel motor through the RH travel spool.

The oil from the P2 pump flows into the travel motor through the LH travel spool.

The superstructure swings and the machine travels straight.

※ The circuit diagram may differ from the equipment, so please check before a repair.

7. COMBINED BOOM AND TRAVEL OPERATION



25AZ3HC36

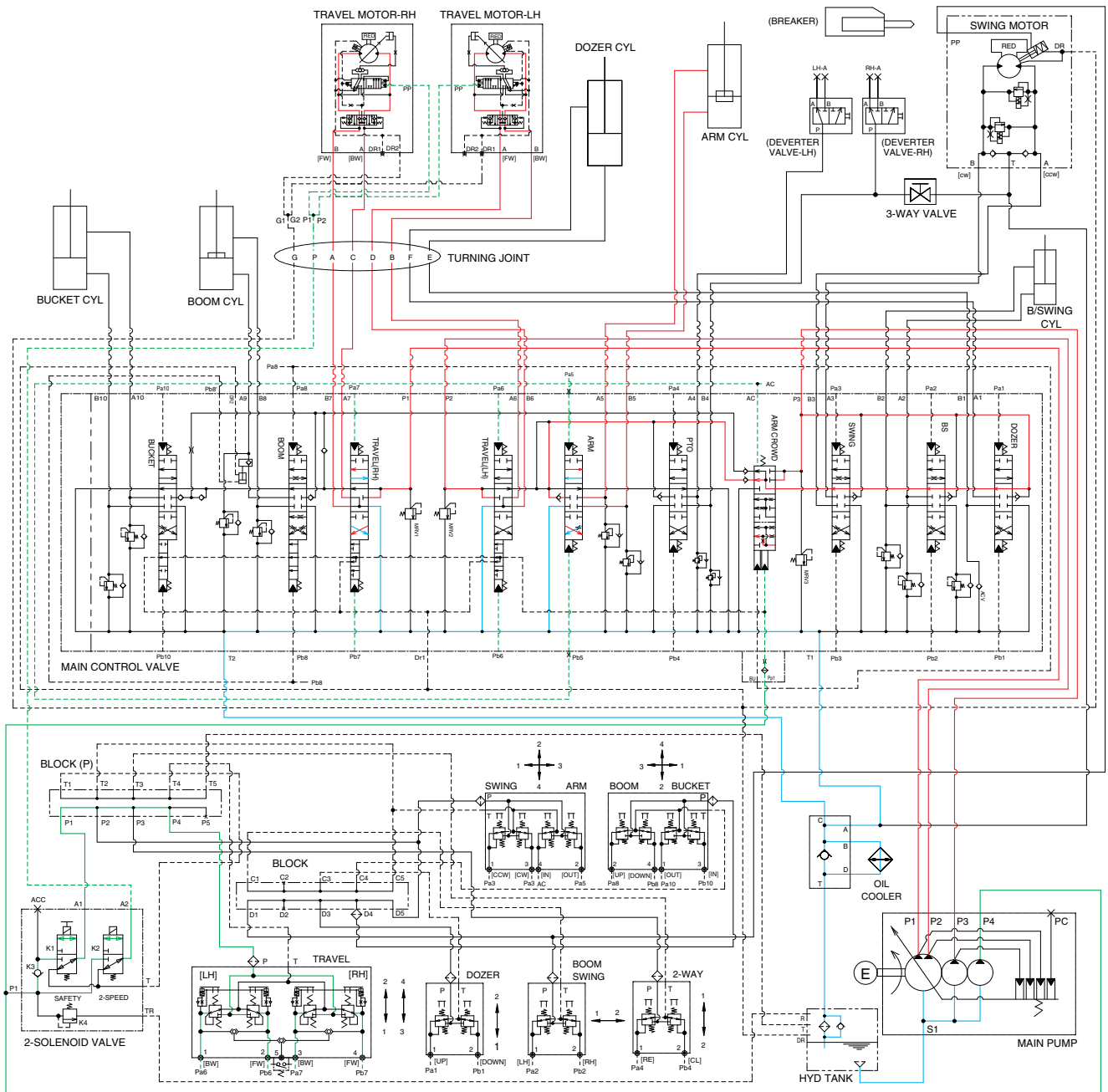
When the boom and travel functions are operated, simultaneously the boom spool and travel spools in the main control valve are moved to the functional position by the pilot oil pressure (Pa8, Pb8, Pa6, Pb6, Pa7, Pb7) from the remote control valve.

The oil from the P1 and P2 pumps flows into the travel motors through travel RH and travel LH spools.

The oil from the P3 pump flows into the boom cylinder through boom spool via the travel selector spool. The boom is operated and the machine travels straight.

※ The circuit diagram may differ from the equipment, so please check before a repair.

8. COMBINED ARM AND TRAVEL OPERATION



25AZ3HC37

When the arm and travel functions are operated, simultaneously the arm spool and travel spools in the main control valve are moved to the functional position by the pilot oil pressure (Pa8, Pb8, Pa6, Pb6, Pa7, Pb7) from the remote control valve.

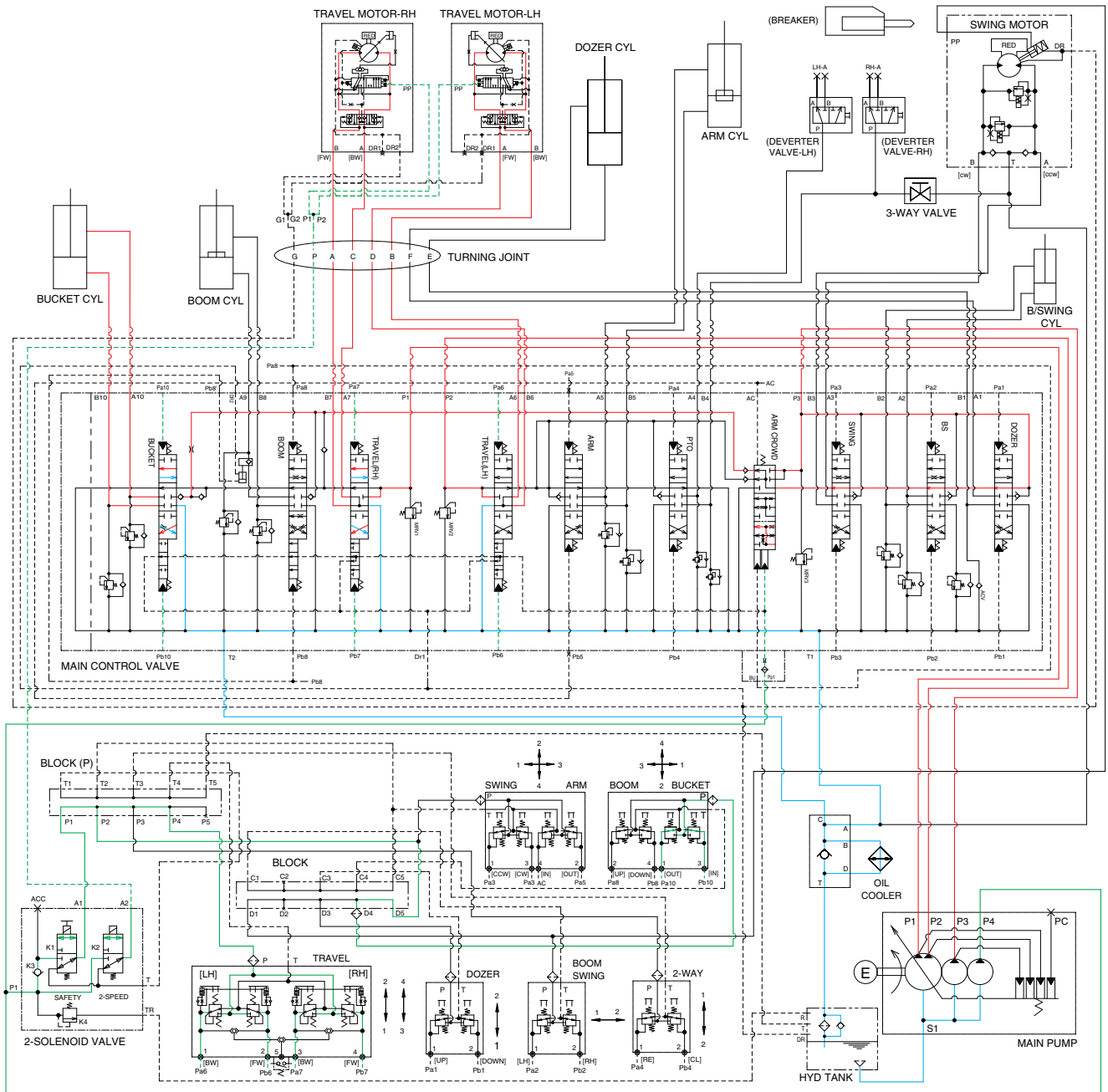
The oil from the P1 and P2 pumps flows into the travel motors through travel spools.

The oil from the P3 pump flows into the arm cylinder through arm spool via the connecting spool.

The arm is operated and the machine travels straight.

※ The circuit diagram may differ from the equipment, so please check before a repair.

9. COMBINED BUCKET AND TRAVEL OPERATION



25AZ3HC38

When the bucket and travel functions are operated, simultaneously the bucket spool and travel spools in the main control valve are moved to the functional position by the pilot oil pressure (Pa8, Pb8, Pa6, Pb6, Pa10, Pb10) from the remote control valve, and the connecting spool is pushed to the up by the oil pressure from pilot pump. The oil from the P1 and P2 pumps flows into the travel motors.

The oil from the P3 pump flows into the bucket cylinder through bucket spool via the connecting spool.

The bucket is operated and the machine travels straight.

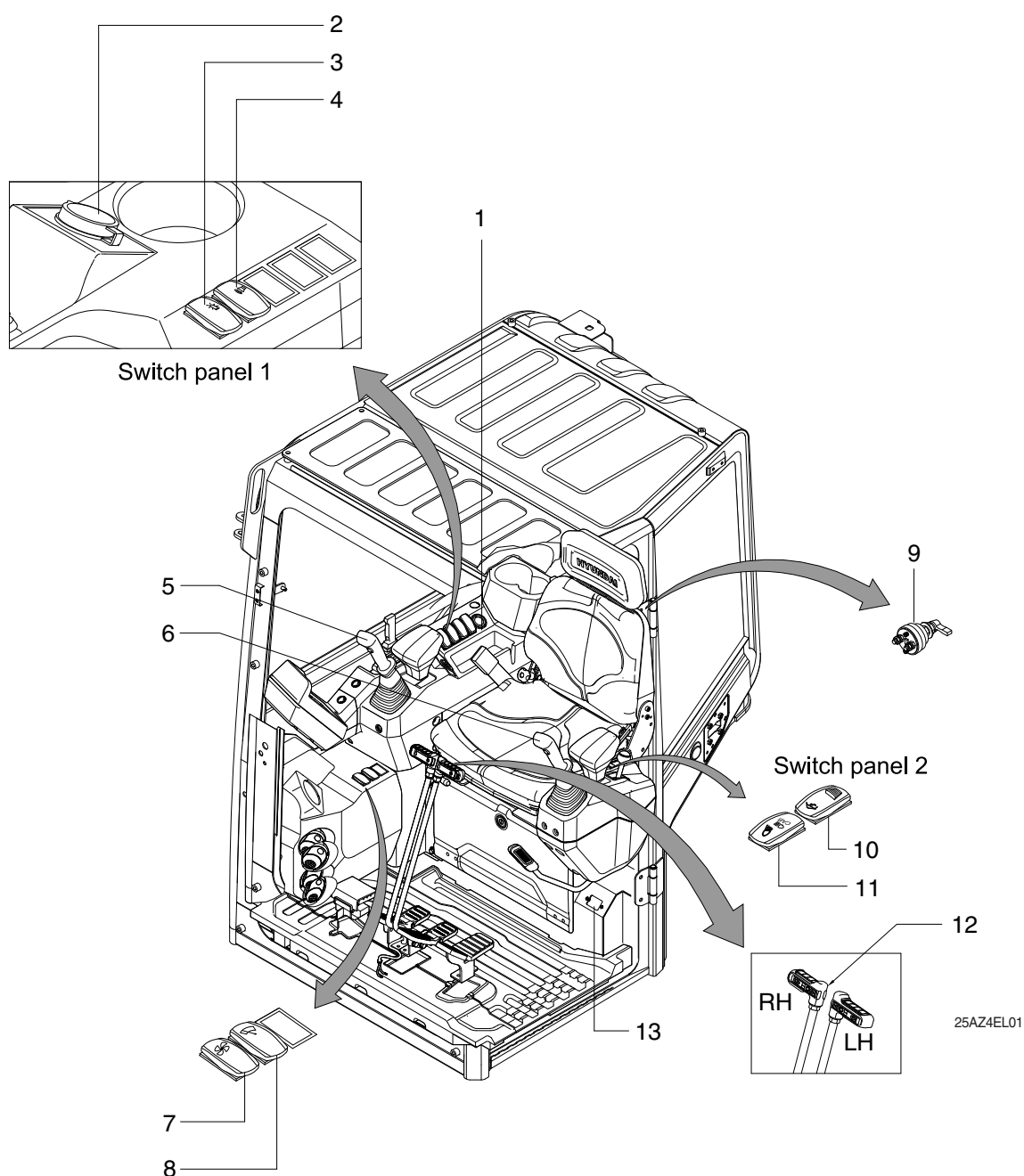
※ The circuit diagram may differ from the equipment, so please check before a repair.

SECTION 4 ELECTRICAL SYSTEM

| | |
|--|------|
| Group 1 Component Location | 4-1 |
| Group 2 Monitoring system | 4-3 |
| Group 3 Electrical Circuit | 4-23 |
| Group 4 Electrical Component Specification | 4-35 |
| Group 5 Connectors | 4-42 |

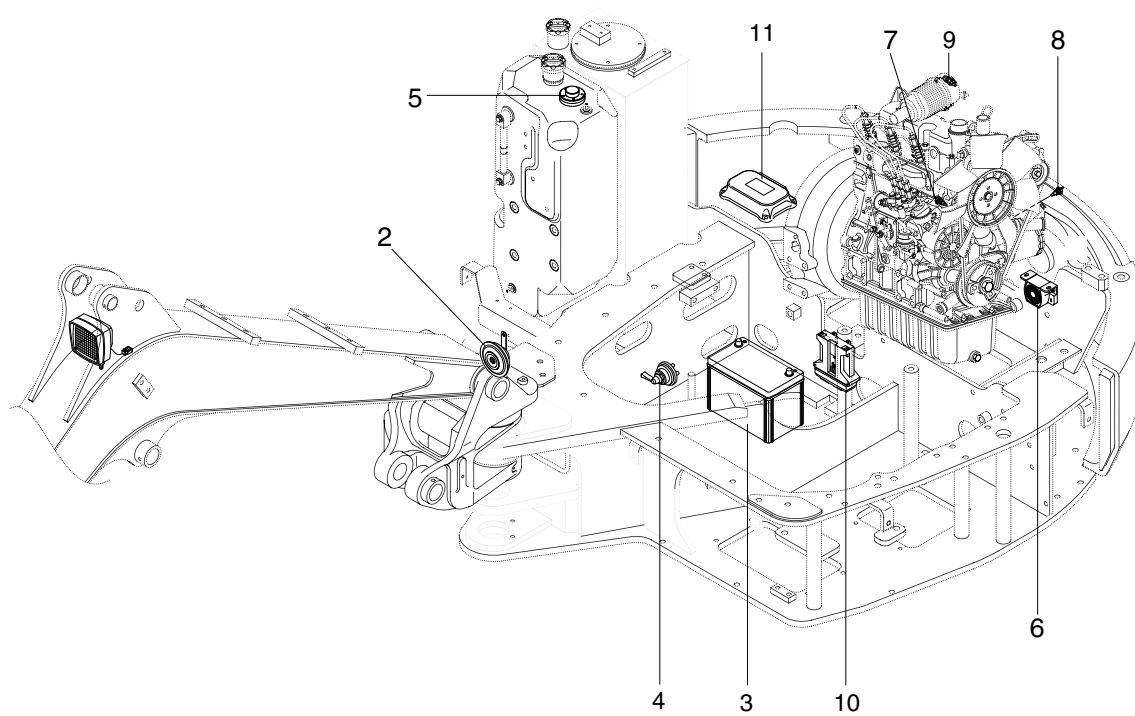
GROUP 1 COMPONENT LOCATION

1. LOCATION 1



- | | | | | | |
|---|---------------------|---|------------------------|----|-----------------------------|
| 1 | 12V socket | 6 | Switch on RH RCV | 8 | Washer/wiper switch |
| 2 | Start switch | | - Breaker switch | 9 | Master switch |
| 3 | Beacon switch | | - Horn switch | 10 | Quick coupler switch |
| 4 | Travel alarm switch | | - Quick coupler switch | 11 | Work light switch |
| 5 | Switch on LH RCV | | - 2-way switch | 12 | Travel speed control switch |
| | - Rotating switch | 7 | Heater switch | 13 | Emergency stop switch |

2. LOCATION 2



25AZ4EL02

- | | | | | | |
|---|---------------|---|----------------------------|----|-----------------------------|
| 1 | Work lamp | 5 | Fuel sender | 9 | Air cleaner pressure switch |
| 2 | Horn | 6 | Travel alarm buzzer | 10 | HCU assy |
| 3 | Battery | 7 | Water temperature sender | 11 | RMCU assy |
| 4 | Master switch | 8 | Engine oil pressure switch | | |

GROUP 2 MONITORING SYSTEM

1. OUTLINE

The cluster consists of LCD and switches as shown below. The LCD is to warn the operator in case of abnormal machine operation or conditions for the appropriate operation and inspection.

The LCD is to display for monitoring, manage and display set with the switches.

- ※ **The cluster installed on this machine does not entirely guarantee the condition of the machine. Daily inspection should be performed according to chapter 6, Maintenance.**
- ※ **When the cluster provides a warning, immediately check the problem and perform the required action.**

2. CLUSTER

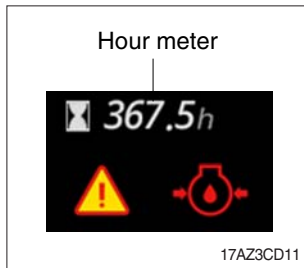
1) MONITOR PANEL



25AZ4CD01

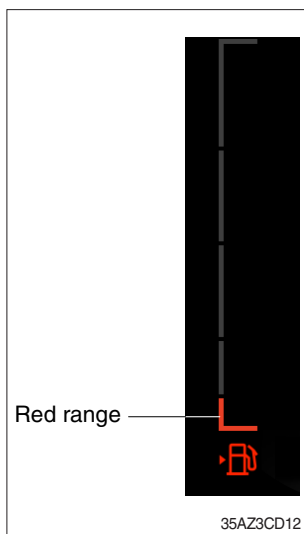
2) GAUGES AND DISPLAYS

(1) Hour meter



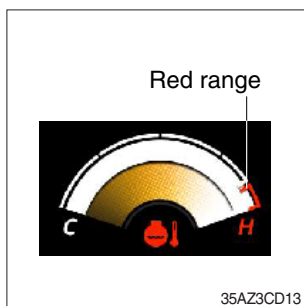
- ① This meter shows the total operation hours of the machine.
- ② Always ensure the operating condition of the meter during the machine operation.
Inspect and service the machine based on hours as indicated the operator's manual in chapter 6, maintenance.

(2) Fuel gauge



- ① This gauge indicates the amount of fuel in the fuel tank.
- ② Fill the fuel when in the red range or warning lamp ON.
- ※ If the gauge illuminates the red range or warning lamp ON even though the machine is in the normal condition range, check the electric device as this can be caused by poor connection of sensor.

(3) Engine coolant temperature gauge



- ① This indicates the temperature of coolant.
 - Red range : Above 105°C (221°F)
- ② When the red range pointed or warning lamp ON, engine do not abruptly stop but run it at medium speed to allow it to cool gradually, then stop it.
Check the radiator and engine.
- ※ If the engine is stopped without cooled down running, the temperature of engine parts will rise suddenly, this could cause severe engine trouble.
- ※ If the gauge indicates the red range or warning lamp ON in red even though the machine is in the normal condition range, check the electric device as this can be caused by poor connection of sensor.

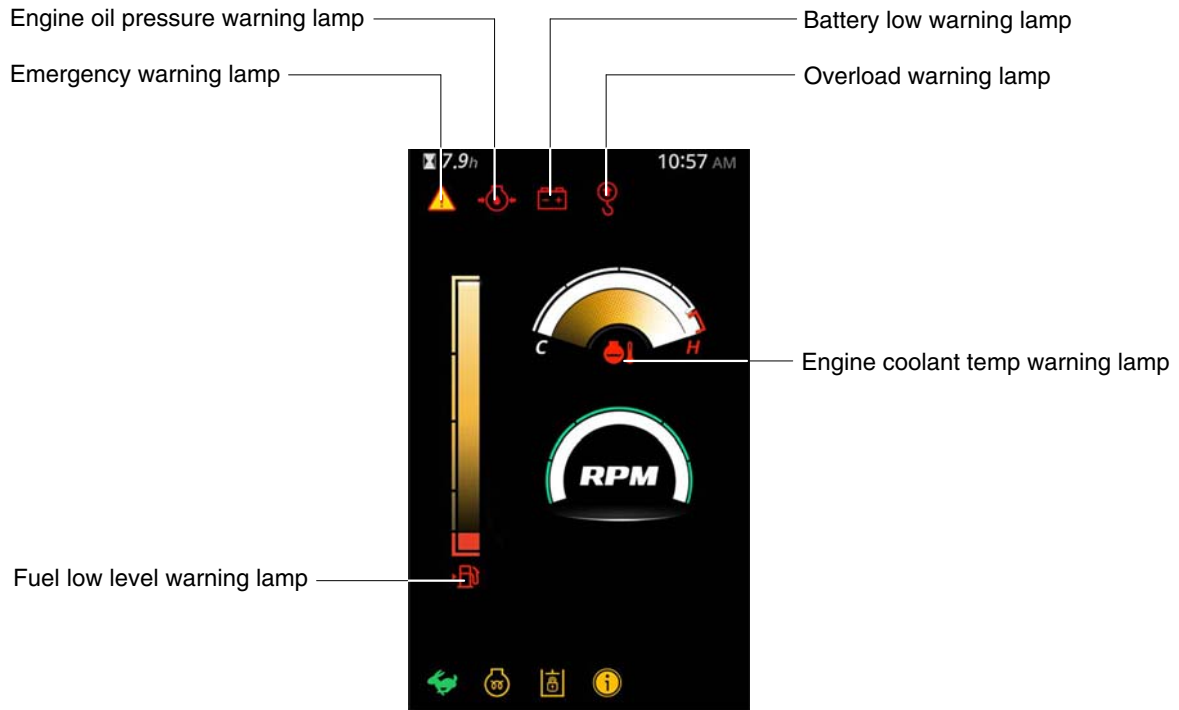
(4) Engine rpm gauge



17AZ3CD15

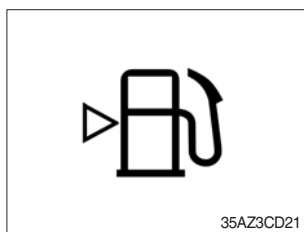
① This gauge indicates the engine speed.

3) WARNING LAMPS



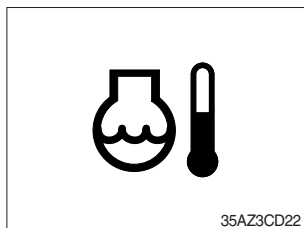
25AZ3CD20

(1) Fuel low level warning lamp



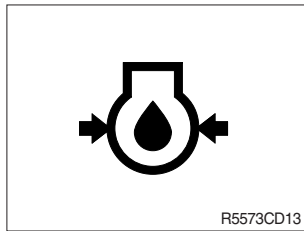
- ① This lamp lights up and buzzer sounds when the level of fuel is below 9 ℓ (2.4 U.S. gal).
- ② Fill the fuel immediately when the lamp ON.

(2) Engine coolant temperature warning lamp



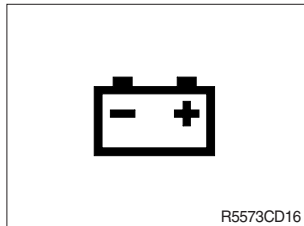
- ① This lamp lights up and buzzer sounds when the temperature of coolant is over the normal temperature 105°C (221°F) .
- ② Check the cooling system when the lamp ON.

(3) Engine oil pressure low warning lamp



- ① This lamp lights up and buzzer sounds after starting the engine because of the low oil pressure.
- ② If the lamp ON during engine operation, shut OFF engine immediately. Check oil level.

(4) Battery low warning lamp



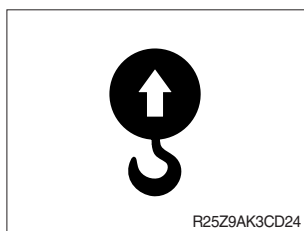
- ① This lamp lights up and buzzer sounds when the starting switch is ON, it is turned OFF after starting the engine.
- ② Check the battery charging circuit when this lamp does not turn off, or turns on or blinks during engine operation.

(5) Emergency warning lamp



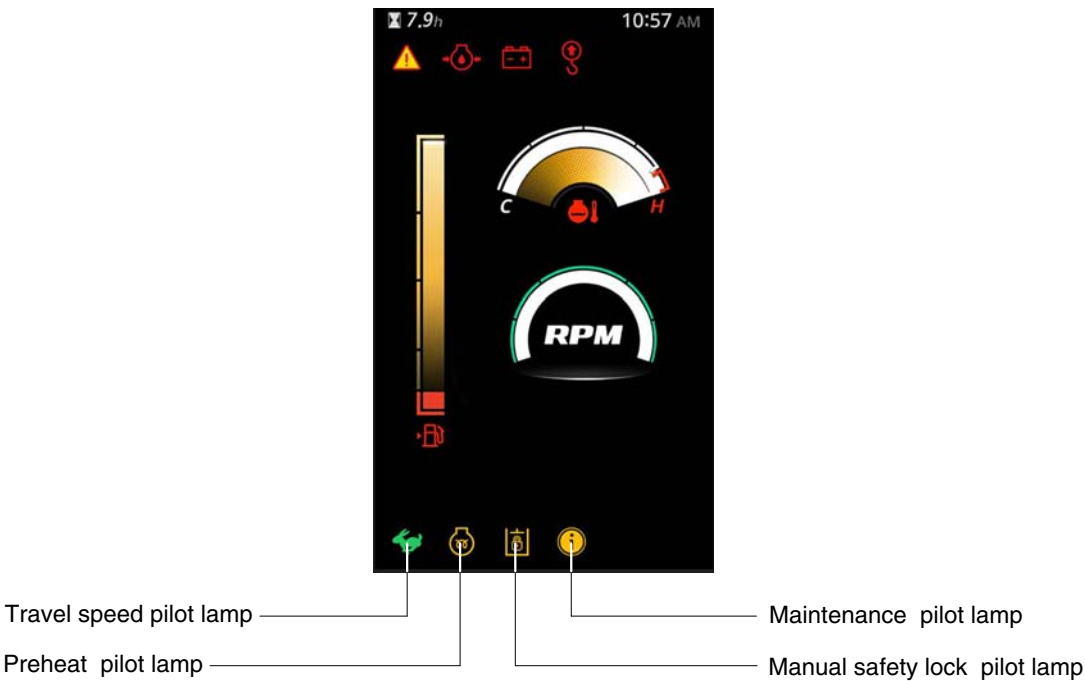
- ① This lamp pops up and the buzzer sounds when each of the below warnings occurs.
 - Engine coolant temperature high warning lamp ON
- ※ **The pop-up warning lamp moves to the original position and lights up when the buzzer stop switch is pushed or pop-up is touched. The buzzer will stop.**
This is same as following warning lamps.
- ② When this warning lamp lights up, machine must be checked and serviced immediately.

(6) Overload warning lamp





- ① When the machine is overloaded, this lamp blinks and buzzer sounds.
- ② Reduce the machine load.

4) PILOT LAMP

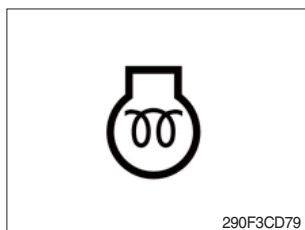


25AZ3CD30

(1) Travel mode pilot lamp

| No | Mode | Pilot lamp | Selected mode |
|----|-------------|--|---|
| 1 | Travel mode |   | Low speed traveling High speed traveling |

(2) Preheat pilot lamp



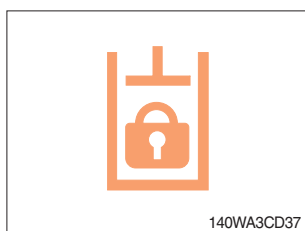
- ① Turning the start key switch to the ON position starts preheating in cold weather.
- ② Start the engine after this lamp goes OFF.
- ※ **Refer to the operator's manual page 4-4 for details.**

(3) Maintenance pilot lamp



- ① This lamp lights up when consumable parts are in need of replacement. It means that the change or replacement interval of parts is 30 hours from the required change interval.
- ② Check the message in maintenance information of main menu. Also, this lamp lights up for 3 minutes when the start switch is switched to the ON position.

(4) Manual safety lock pilot lamp



- ① This lamp lights up when the safety lever is set to the LOCK position.
- ※ **Refer to the operator's manual page 3-29 for the safety lever.**

5) SWITCHES

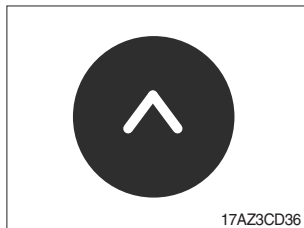
Sound short beep when each button is pressed.

(1) Menu button



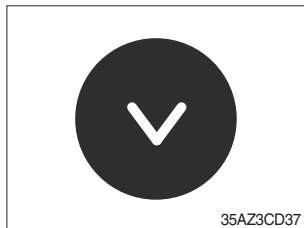
- ① Go into the menu screen.
- ※ Please refer to page 4-11.

(2) Left/up/(+) button



- ① Move left in sub menu.
- ② Move up in menu list
- ③ Increase input value in menu

(3) Right/down/(-) button



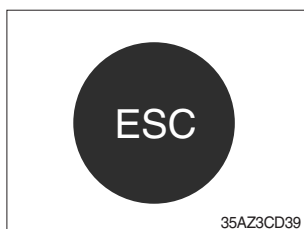
- ① Move right in sub menu.
- ② Move down in menu list
- ③ Decrease input value in menu

(4) Enter and buzzer stop button



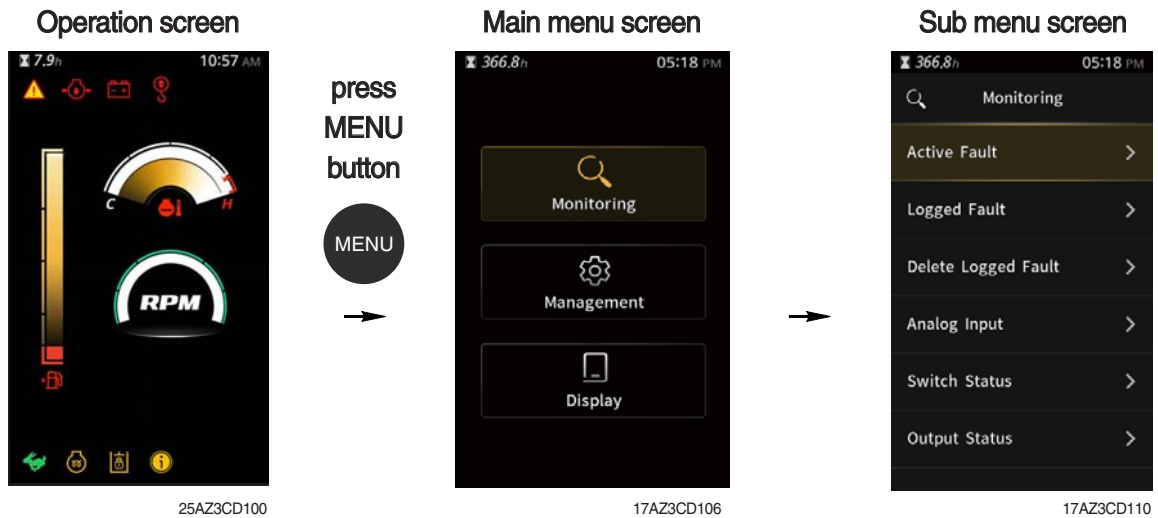
- ① Select menu (enter).
- ② Stop buzzer sound when press this button immediately.

(5) ESC






- ① Escape in the menu.

6) MAIN MENU



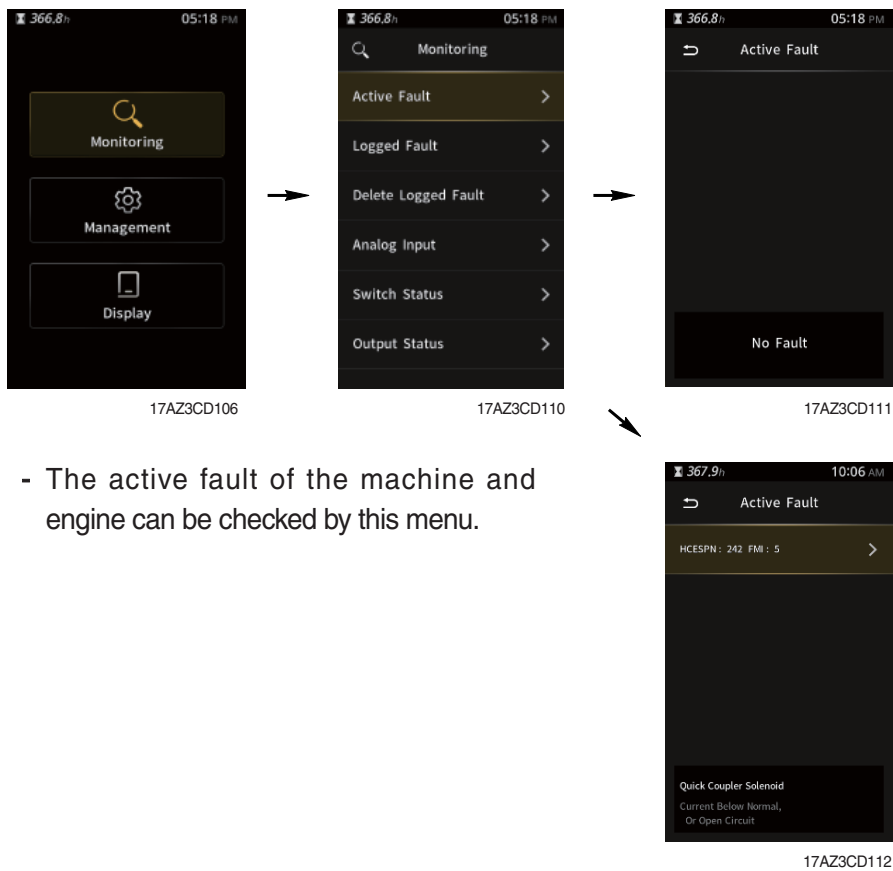
- ※ Please refer to the switches, page 4-10 for selection and change of menus and input values.
- ※ In the operation screen, press the menu button to access the sub-menu screen.

(1) Structure

| No | Main menu | Sub menu | Description |
|----|---|---|--|
| 1 |  Monitoring 17AZ3CD103 | Active fault Logged fault Delete logged fault Analog input Switch status Output status | Active fault Logged fault Delete logged fault Coolant temp., Battery volt, Engine speed, Overload pressure Safety lever, Quick coupler 1, Quick coupler 2, Travel speed Quick coupler solenoid, Start limit relay, Buzzer |
| 2 |  Manage 35AZ3CD104 | Operating hours Maintenance ESL mode Change password Warning setting Machine information A/S phone number | A day's operating hours Elapse, Interval, Replacement etc. Disabled, Enable (Always), Enable (Interval) Change password Overload on/off Machine, Engine, Cluster A/S phone number, A/S phone number change |
| 3 |  Display set 17AZ3CD105 | Clock adjust Brightness Unit Language | 12 hours, 24 hours Manual, Auto Temperature Korean, English, Turkish, etc (total 12 languages) |

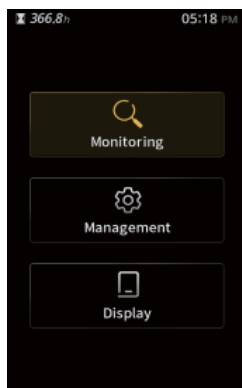
(2) Monitoring

① Active fault

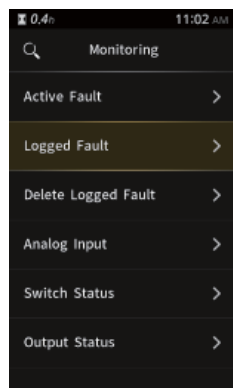


- The active fault of the machine and engine can be checked by this menu.

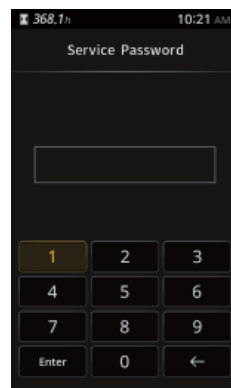
② Logged fault



17AZ3CD106



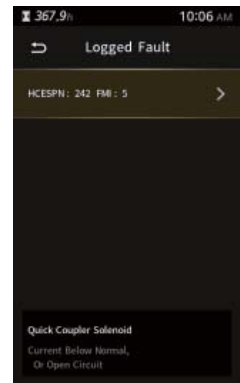
17AZ3CD113



17AZ3CD114



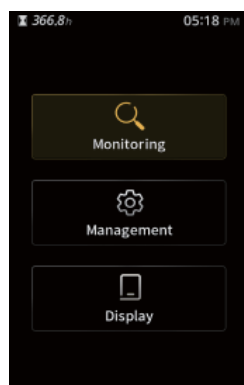
17AZ3CD115



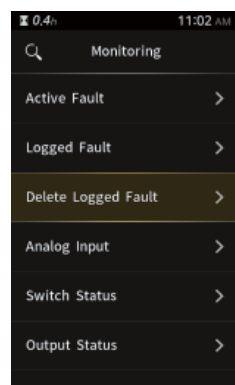
17AZ3CD116

- The logged fault of the machine and engine can be checked by this menu.
- This menu can be used only HCE service man.

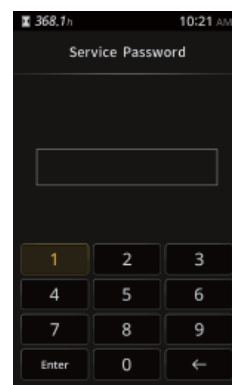
③ Delete logged fault



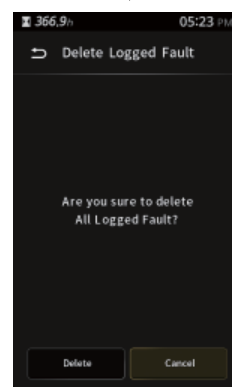
17AZ3CD106



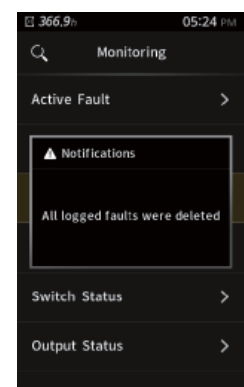
17AZ3CD117



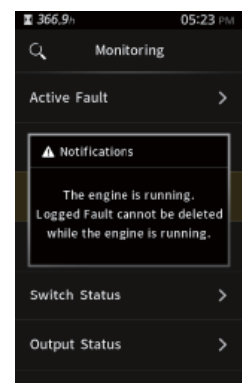
17AZ3CD118



17AZ3CD119



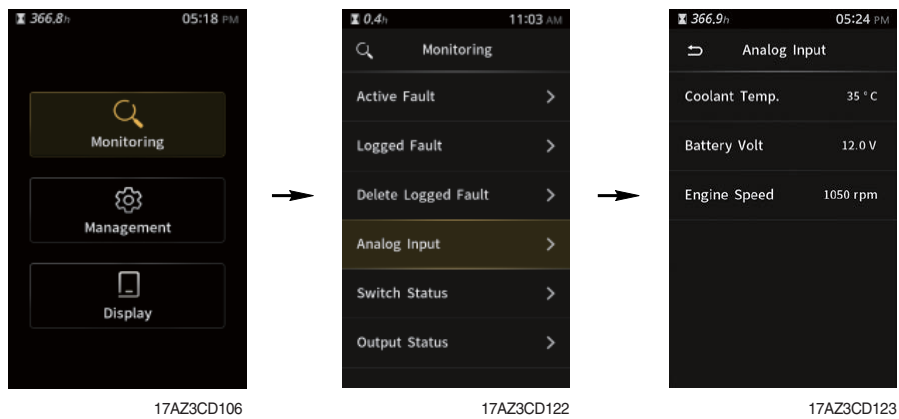
17AZ3CD120



17AZ3CD121

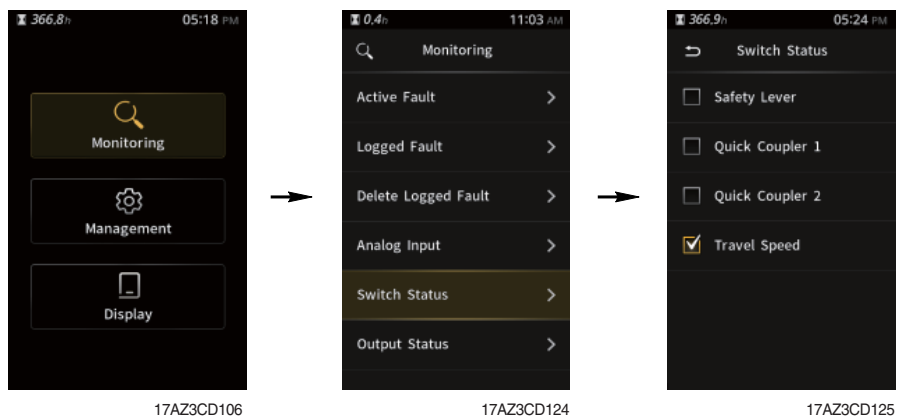
- The logged fault of the machine and engine can be deleted by this menu.
(It is possible under the engine stop conditions)

④ Analog input



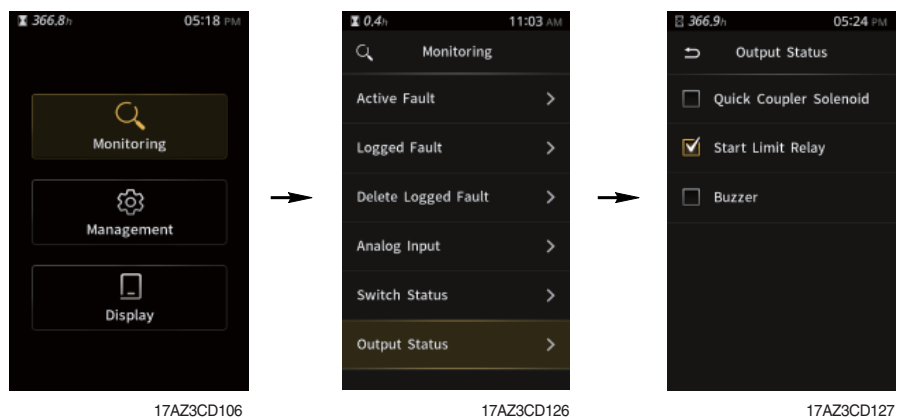
- The machine status such as the engine speed, coolant temperature, battery voltage can be checked by this menu.

⑤ Switch status



- The switch input status can be checked by this menu.

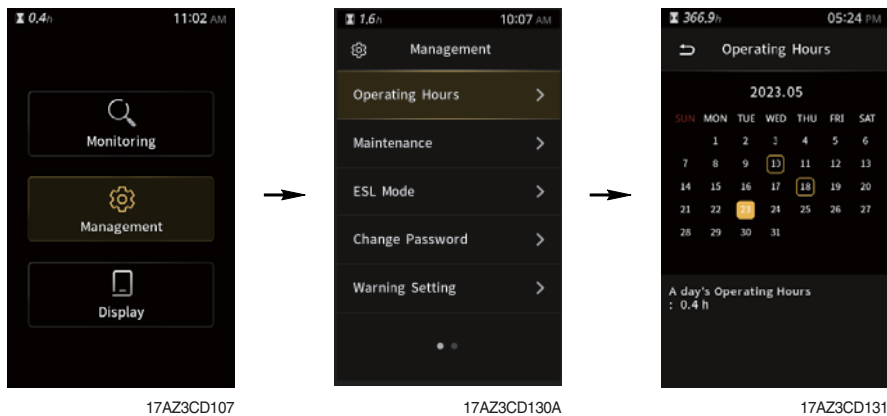
⑥ Output status



- The output status can be confirmed by this menu.

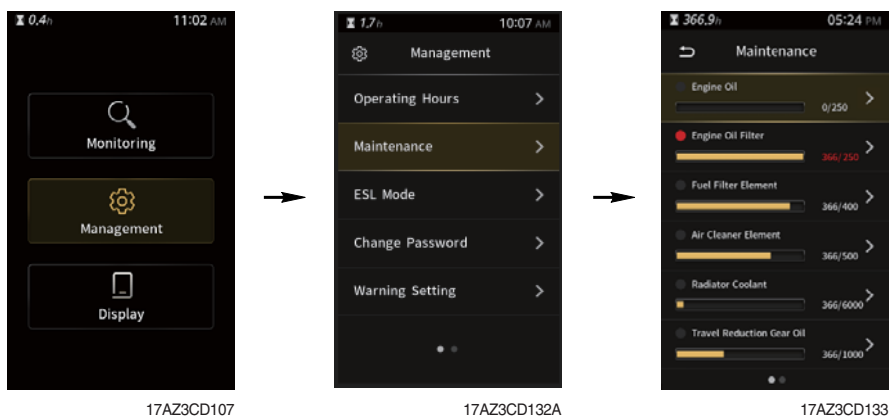
(3) Manage

① Operating hours



- You can check the operating hours by this menu.

② Maintenance

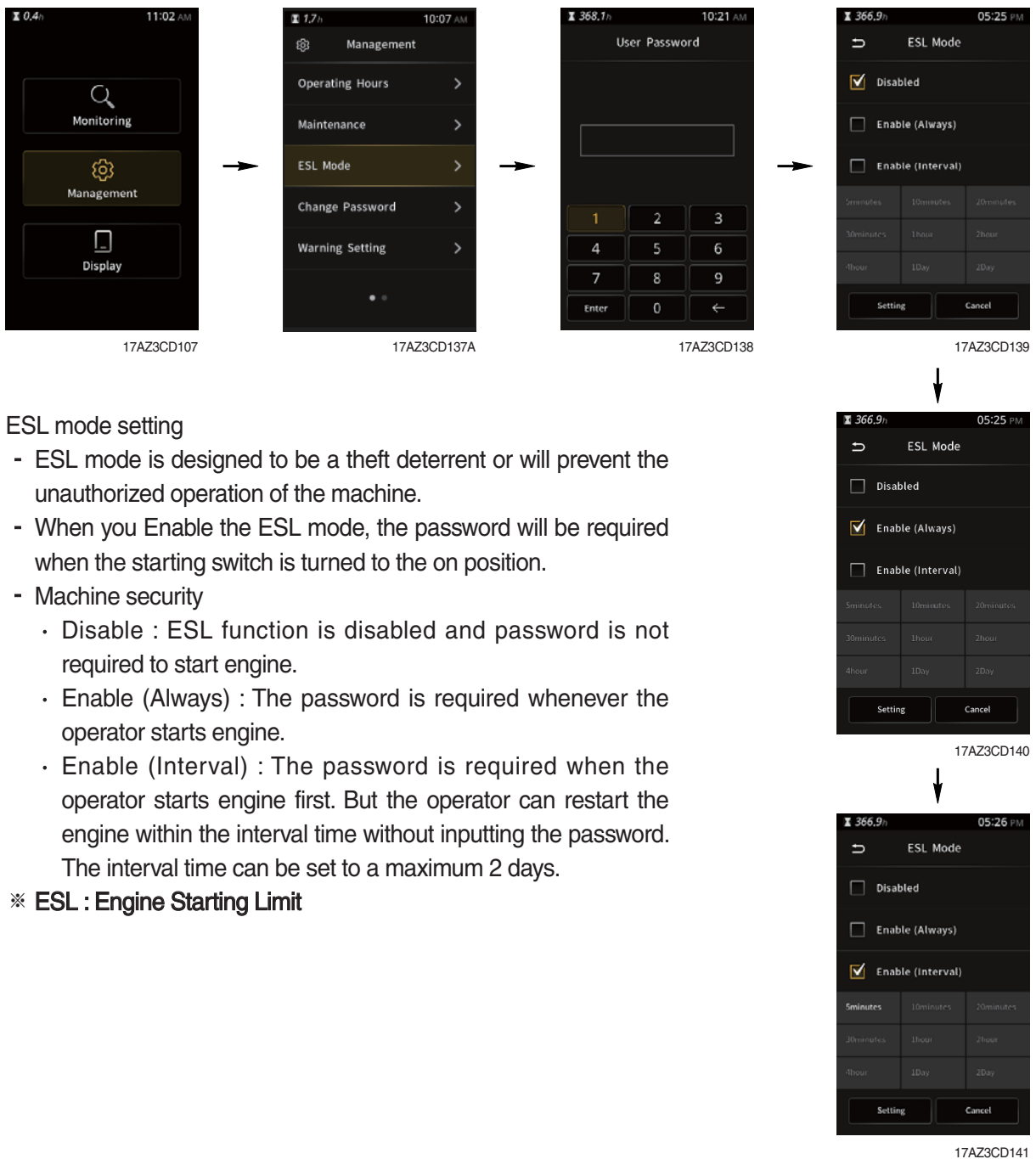


- Elapse : Maintenance elapsed time.
- Interval : The change intervals can be changed in hour increments of 50.
- History-Hourmeter : Display elapsed time.
- Replacement : The elapsed time will be reset to zero (0).

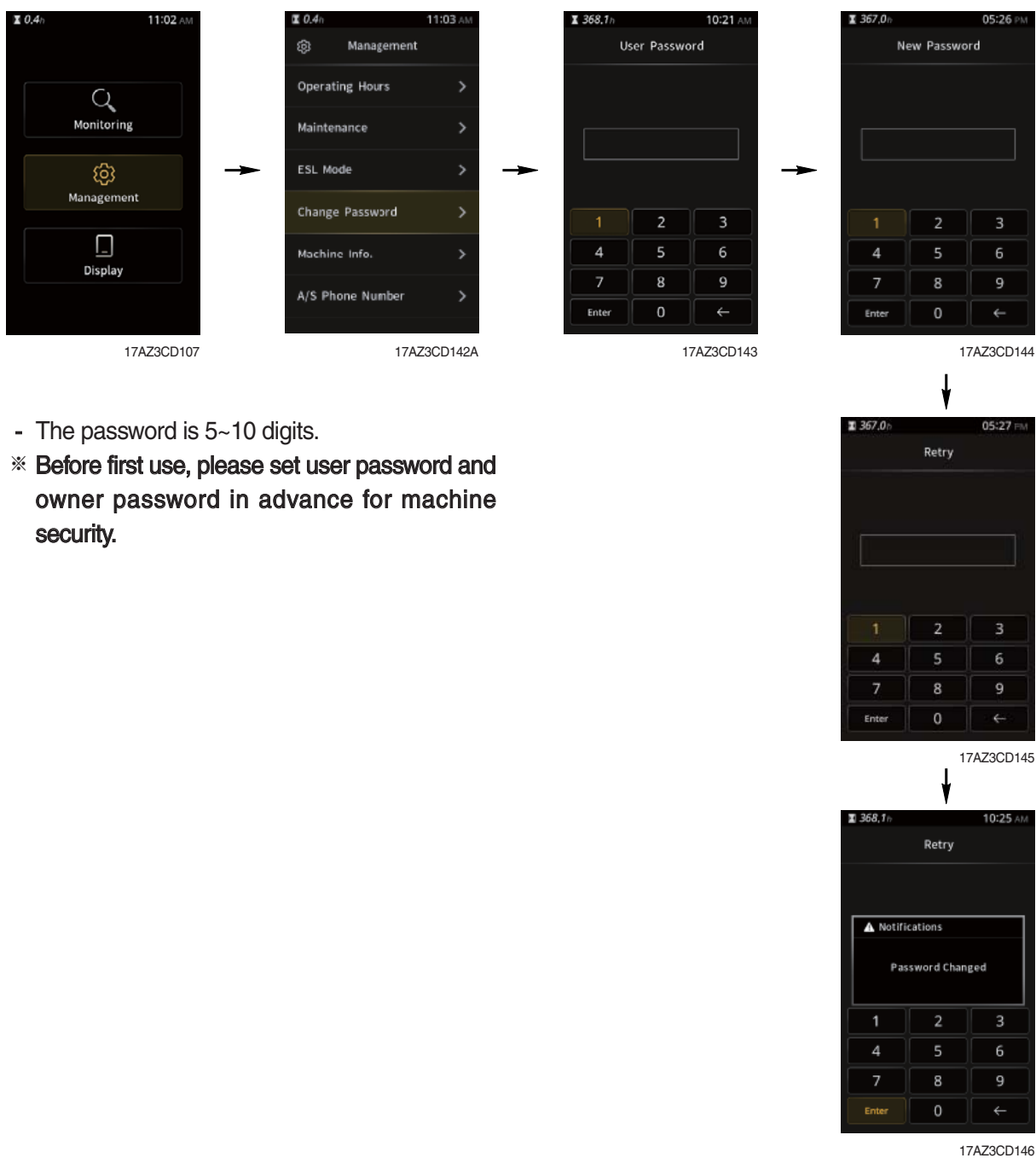
※ Refer to section, Maintenance chart for further information of maintenance interval.



③ ESL mode



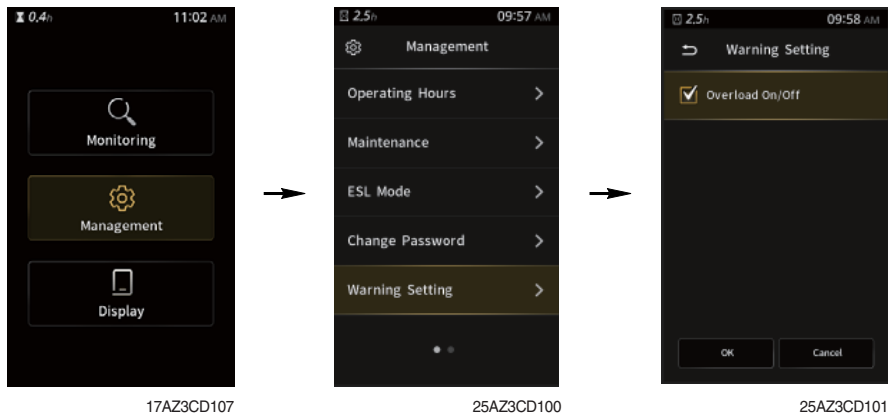
④ Change password



- The password is 5~10 digits.

※ Before first use, please set user password and owner password in advance for machine security.

⑤ Warning setting



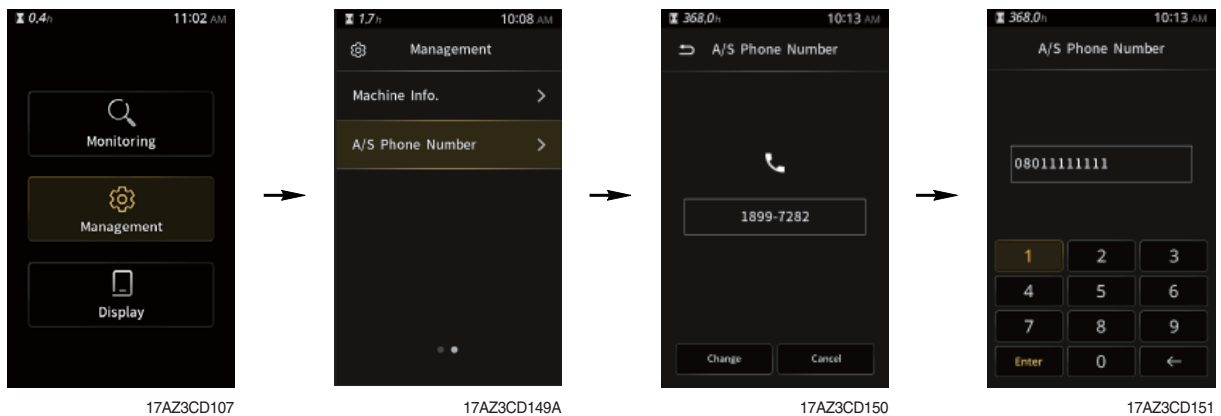
- You can set the warning items by this menu (optional menu).

⑥ Machine information



- This can confirm the identification of the machine, engine and cluster.

⑦ A/S phone number



- The A/S phone number can be checked and changed.

(4) Display set

① Clock adjust



- Set the time (12 hours or 24 hours)

② Brightness



- Manual : Manual setting for LCD brightness.
- Automatic : Automatic control of LCD brightness as set level of Day/Night.
- Setting day time : Set the time for daylight.

(in figure, black area represents night time while orange shows day time)

③ Unit



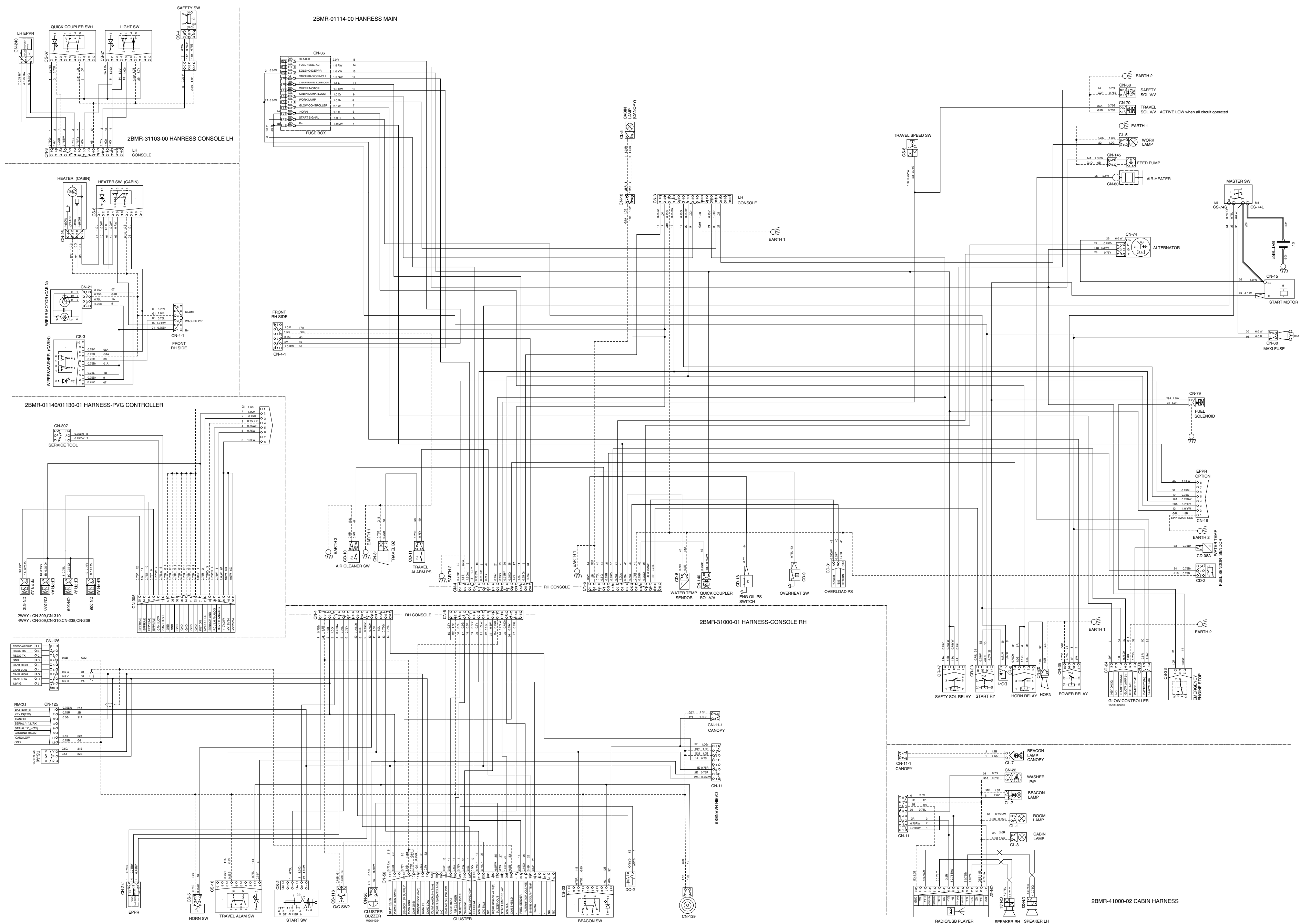
- Temperature : °C ↔ °F

④ Language



- User can select preferable language and all displays are changed to the selected language (한국어, English, Turkish, etc ; total 12 languages).

GROUP 3 ELECTRICAL CIRCUIT



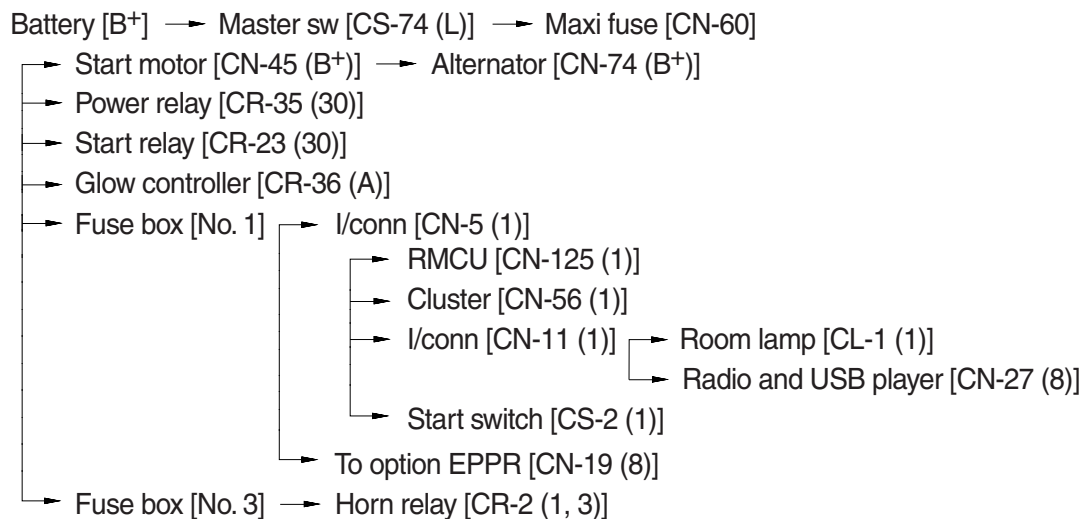
MEMORANDUM

1. POWER CIRCUIT

The negative terminal of battery is grounded to the machine chassis directly.

When the start switch is in the OFF position, the current flows from the positive battery terminal as shown below.

1) OPERATING FLOW



※ I/conn : Intermediate connector

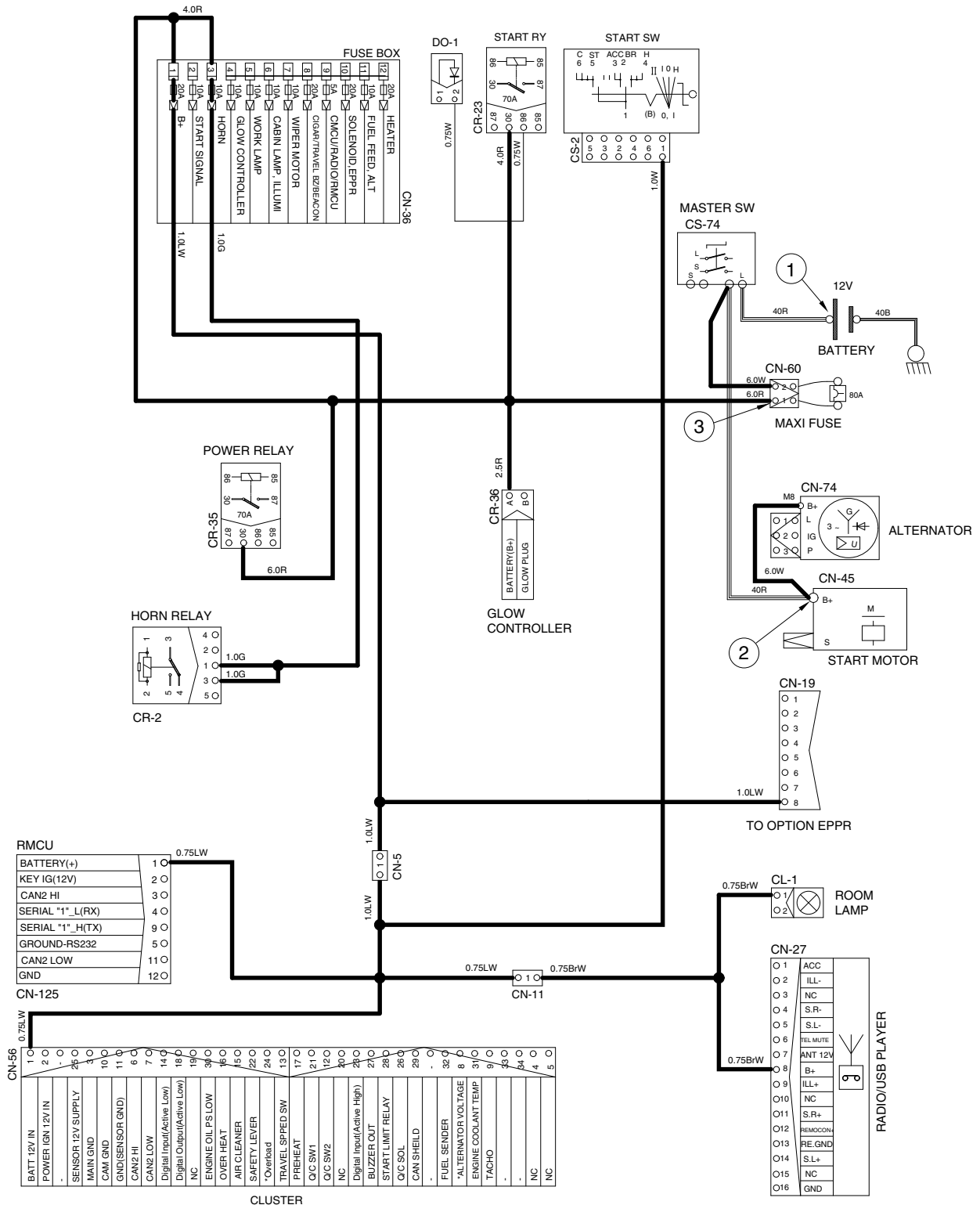
2) CHECK POINT

| Engine | Start switch | Check point | Voltage |
|--------|--------------|---|-----------|
| STOP | OFF | ① - GND (Battery) ② - GND (Start motor B ⁺) ③ - GND (Maxi fuse) | 10~12.5 V |

※ GND : Ground

※ The circuit diagram may differ from the equipment, so please check before a repair.

POWER CIRCUIT



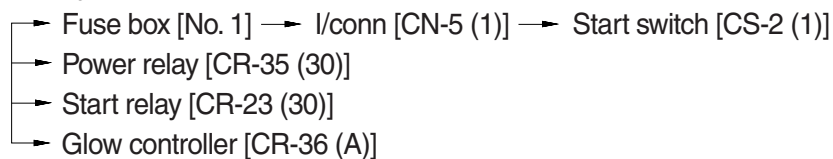
25AZ4EL04

※ The circuit diagram may differ from the equipment, so please check before a repair.

2. STARTING CIRCUIT

1) OPERATING FLOW

Battery [+] terminal → Master switch [CS-74L] → Maxi fuse [CN-60]



(1) Start switch : ON

Start switch [CS-2 (2)] → I/conn [CN-4 (6)] → Master switch [CS-74S]

→ Power relay [CR-35 (30) → (87)]

→ Fuse box [all power is supplied with electric component)

(2) Start switch : START

Start switch [CS-2 (6)] → I/conn [CN-4 (4)] → Fuse box [No.2]

→ Start relay [CR-23 (30) → (87)] → Start motor [CN-45 (S)]

→ Start motor operating

→ Glow controller [CR-24 (3)]

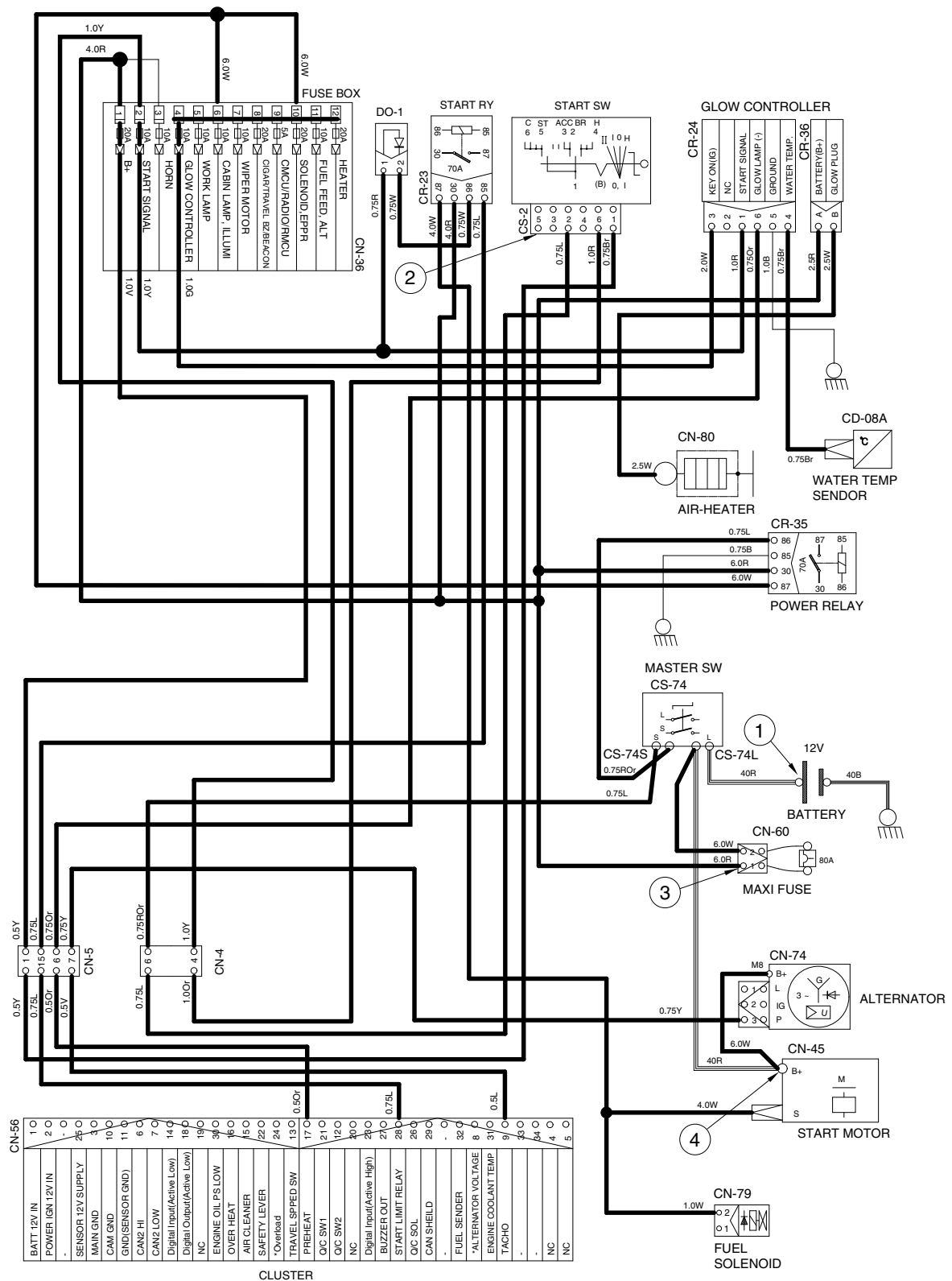
2) CHECK POINT

| Engine | Start switch | Check point | Voltage |
|-----------|--------------|---|-----------|
| Operating | START | ① - GND (Battery) ② - GND (Start switch) ③ - GND (Start motor B ⁺) ④ - GND (Start motor S) | 10~12.5 V |

※ GND : Ground

※ The circuit diagram may differ from the equipment, so please check before a repair.

STARTING CIRCUIT



25AZ4EL05

※ The circuit diagram may differ from the equipment, so please check before a repair.

3. CHARGING CIRCUIT

When the start motor is activated and the engine is started, the operator releases the start switch to the ON position.

Charging current generated by operating the alternator flows into the battery.

The current also flows from alternator to each electrical component and controller through the fuse box.

1) OPERATING FLOW

(1) Warning flow

Alternator terminal [CN-74 (1)] → I/conn [CN-5 (13)] → Cluster [CN-56 (8)]
→ Cluster warning lamp ON

(2) Charging flow

Alternator terminal [CN-74 (B⁺)] → Start motor [CN-45 (B⁺)] → Master switch [CS-74L]
→ Battery [+] terminal
→ Maxi fuse [CN-60] → Fuse box [No. 1, 3]
→ Power relay [CR-35 (30) → (87)] → Fuse box [No. 4~12]

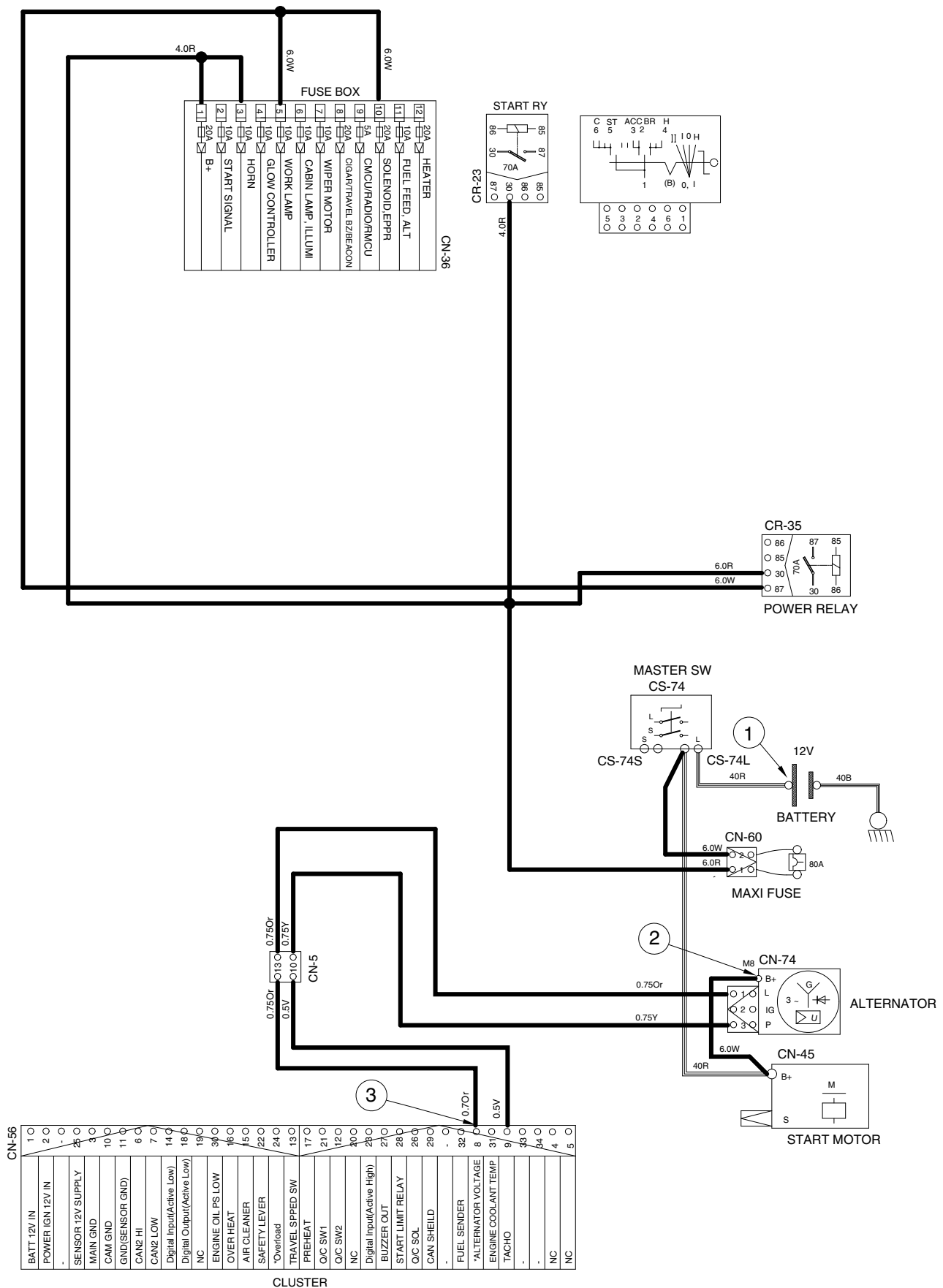
2) CHECK POINT

| Engine | Start switch | Check point | Voltage |
|-----------|--------------|--|-----------|
| Operating | ON | ① - GND (Battery voltage) ② - GND (Alternator B ⁺ terminal) ③ - GND (Cluster) | 10~12.5 V |

※ GND : Ground

※ The circuit diagram may differ from the equipment, so please check before a repair.

CHARGING CIRCUIT



25AZ4EL06

※ The circuit diagram may differ from the equipment, so please check before a repair.

4. WORK LIGHT CIRCUIT

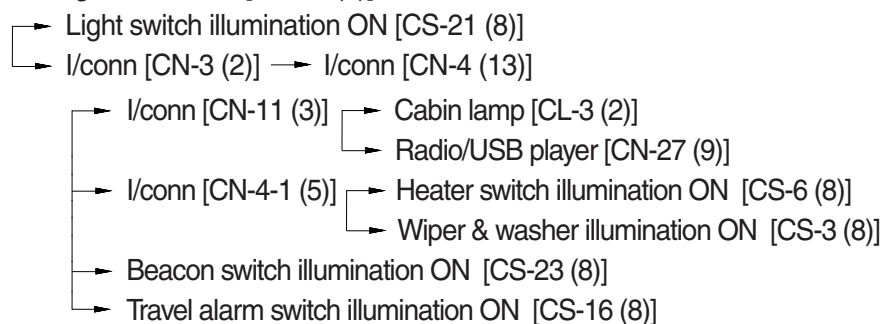
1) OPERATING FLOW

Fuse box [No.6] → I/conn [CN-3 (8)] → Light switch [CS-21 (2)]

Fuse box [No.5] → I/conn [CN-3 (13)] → Light switch [CS-21 (5)]

(1) Main light switch ON : 1st step

Main light switch ON [CS-21 (2)]



(2) Main light switch ON : 2nd step

Main light switch ON [CS-21 (4)] → I/conn [CN-3 (14)] → Work light ON [CL-5 (2)]

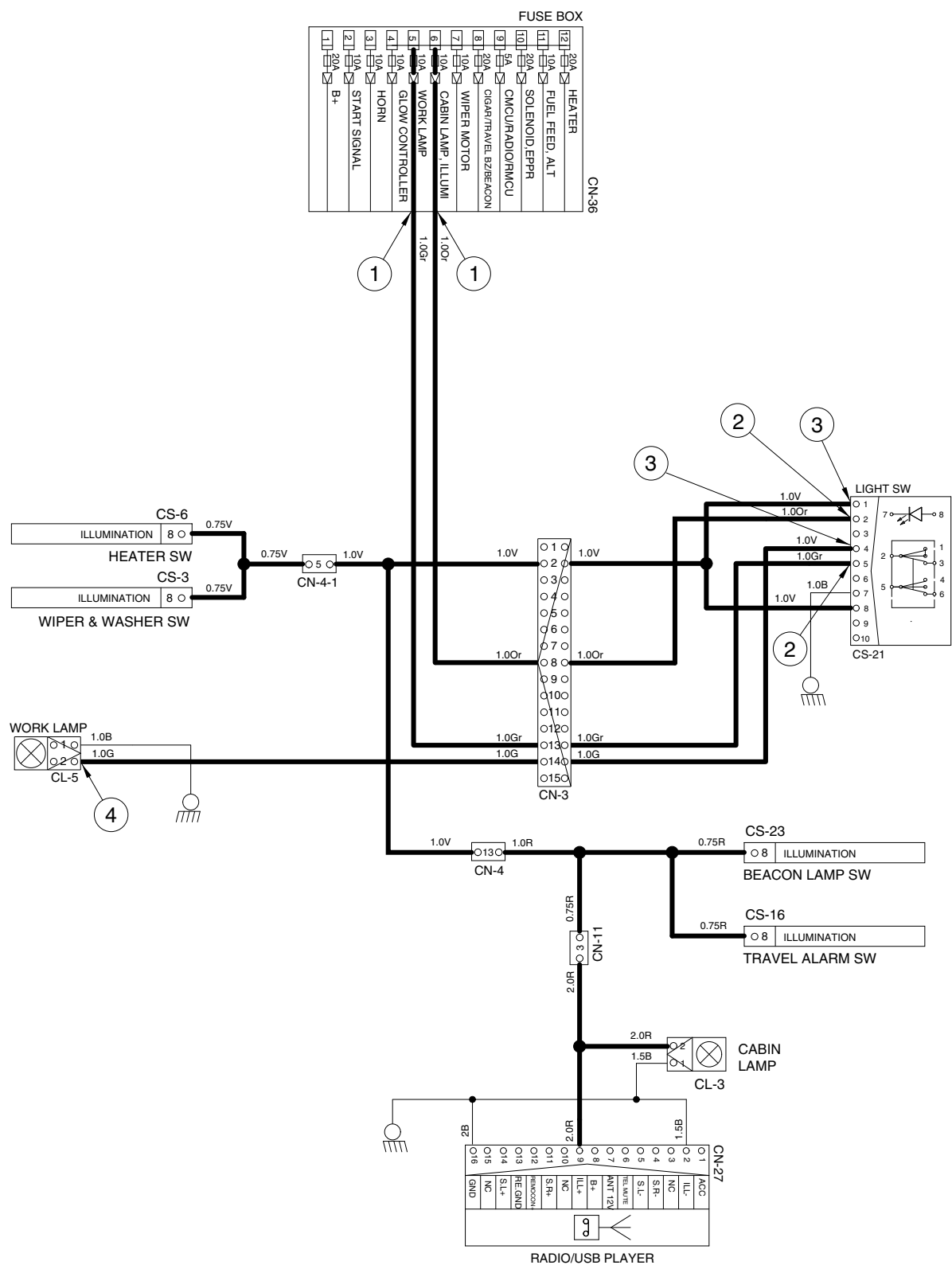
2) CHECK POINT

| Engine | Start switch | Check point | Voltage |
|--------|--------------|---|-----------|
| STOP | ON | ① – GND (Fuse box) ② – GND (Switch power input) ③ – GND (Switch power output) ④ – GND (Work light) | 10~12.5 V |

※ GND : Ground

※ The circuit diagram may differ from the equipment, so please check before a repair.

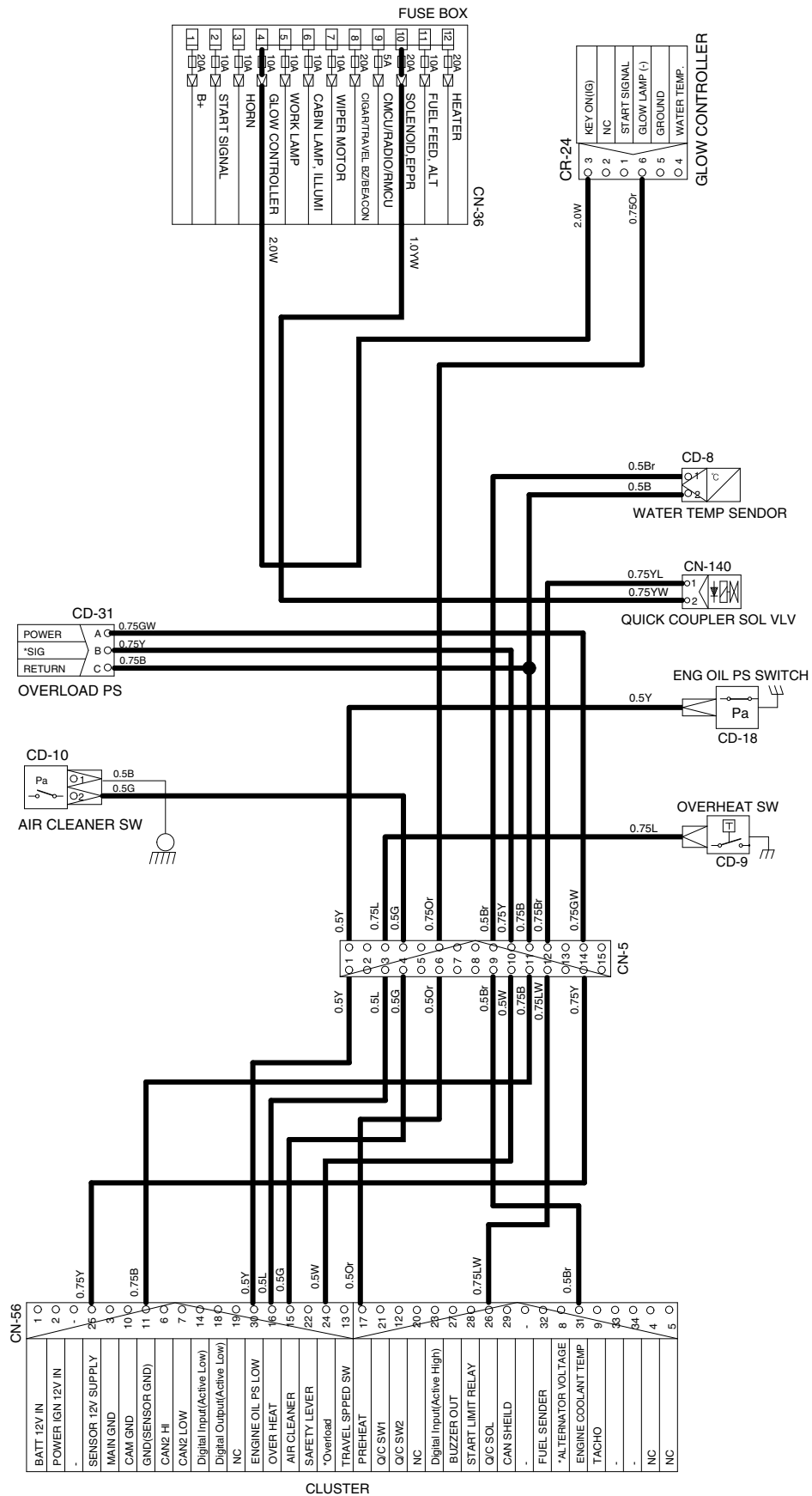
WORK LAMP CIRCUIT



25AZ4EL07

※ The circuit diagram may differ from the equipment, so please check before a repair.

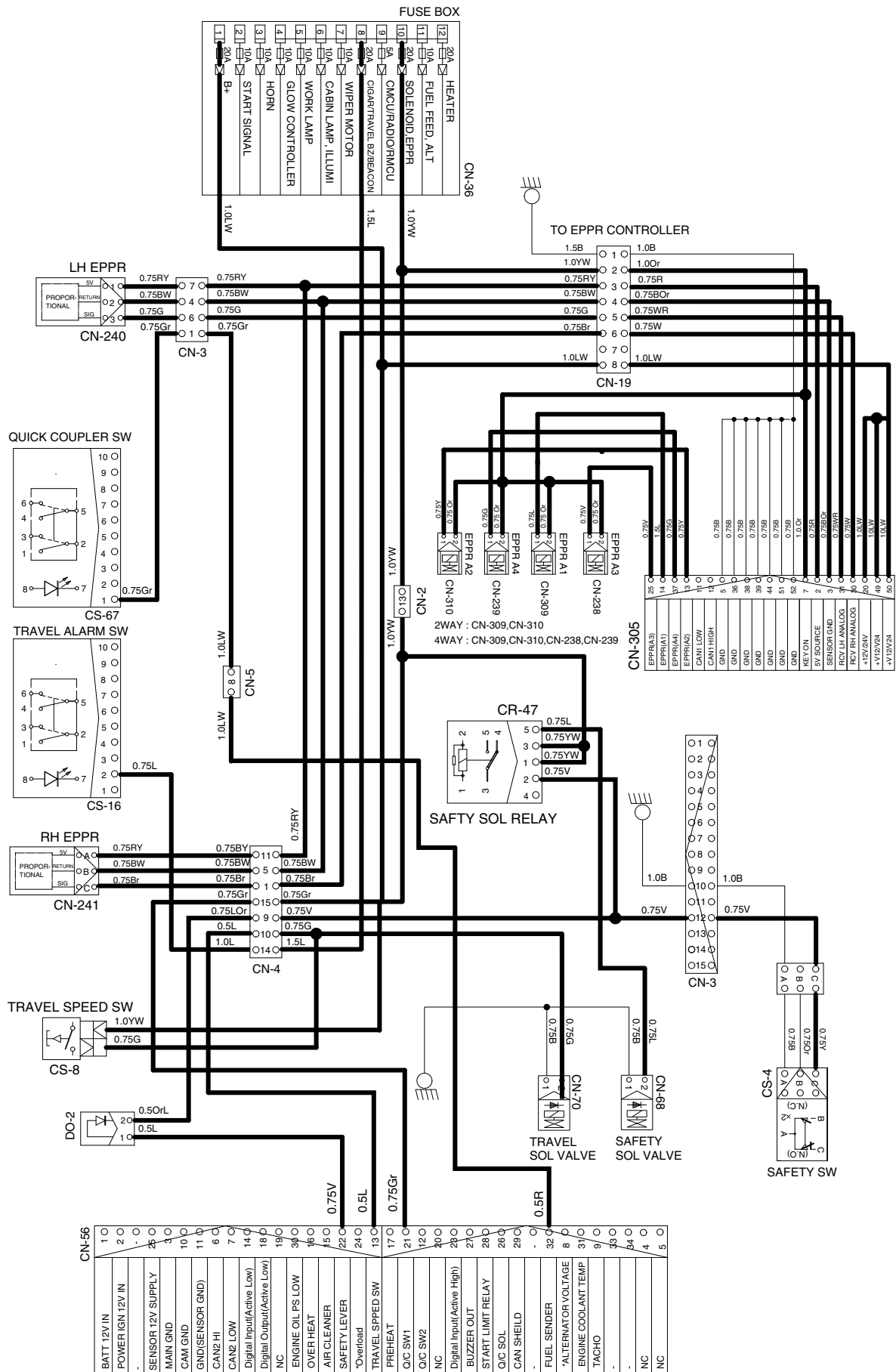
MONITORING CIRCUIT



25AZ4EL08

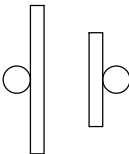
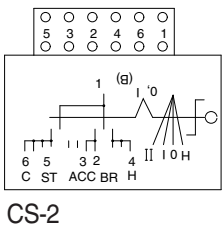
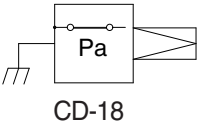
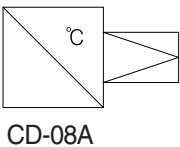
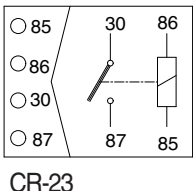
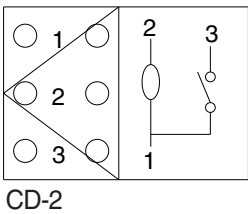
※ The circuit diagram may differ from the equipment, so please check before a repair.

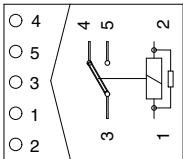
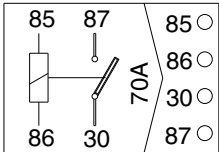
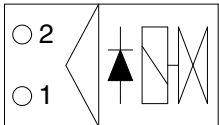
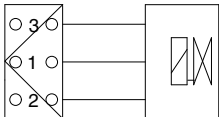
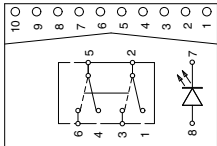
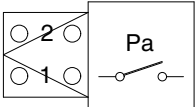
ELECTRIC CIRCUIT FOR HYDRAULIC

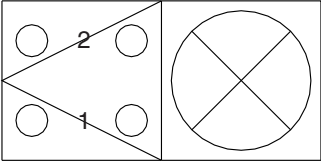
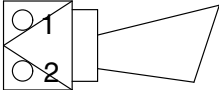
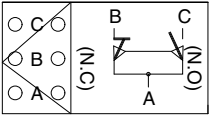
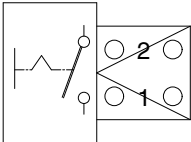
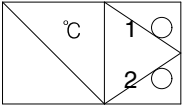
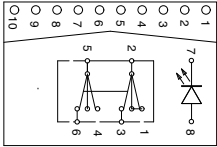


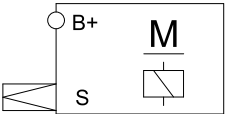
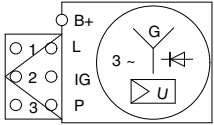
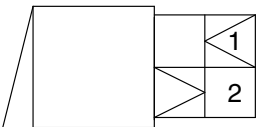
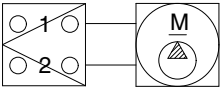
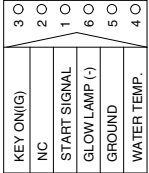
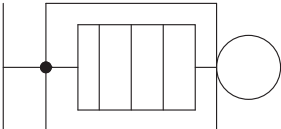
※ The circuit diagram may differ from the equipment, so please check before a repair.

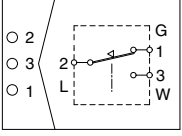
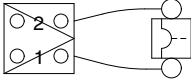
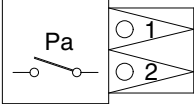
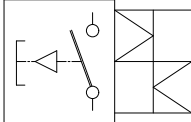
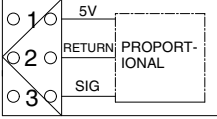
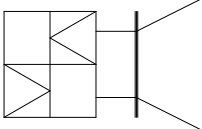
GROUP 4 ELECTRICAL COMPONENT SPECIFICATION

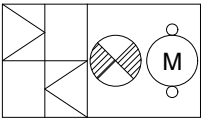
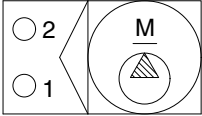
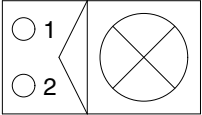
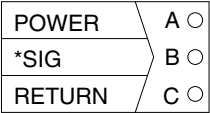
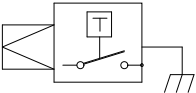
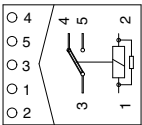
| Part name | Symbol | Specification | Check |
|-------------------------------------|---|---------------------------------------|---|
| Battery |  | 12V × 72Ah | ※ Check specific gravity 1.280 over : Over charged 1.280 ~ 1.250 : Normal 1.250 below : Recharging |
| Start switch |  CS-2 | 12V | ※ Check contact OFF : $\infty \Omega$ (for each terminal) ON : 0Ω (for terminal 1-2) START : 0Ω (for terminal 1-6) |
| Pressure switch (for engine oil) |  CD-18 | 0.5 kgf/cm ² (N.C TYPE) | ※ Check resistance Normal : 0Ω (CLOSE) |
| Water temp sendor |  CD-08A | Pressure: 635 mmH ₂ O | - |
| Start relay |  CR-23 | 12V 60A | ※ Rated coil current $1.2 \pm 0.3A$ |
| Fuel sender |  CD-2 | - | ※ Check resistance Full : 30Ω Low : 100Ω Empty warning : 200Ω |

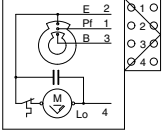
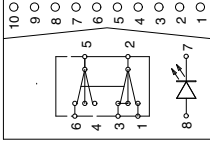
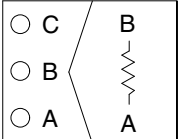
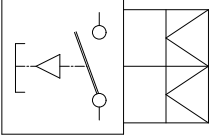
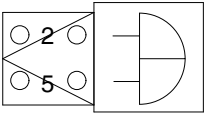
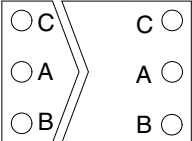
| Part name | Symbol | Specification | Check |
|---------------------------------|---|---------------------|--|
| Horn relay |  CR-2 | 12V 20A | ※ Check resistance Normal : About 200Ω (for terminal 1-3) : 0Ω (for terminal 2-4) |
| Power relay |  CR-35 | 12V 70A | ※ Rated coil current 1.2 ± 0.3 A |
| Solenoid valve |  CN-68 CN-70 CN-140 CN-238 CN-239 CN-309 CN-310 | 12V 1A | ※ Check resistance Normal : 15~25Ω (for terminal 1-2) |
| Solenoid valve (engine stop) |  CN-79 | 12V | ※ Coil resistance : 1.8Ω |
| Switch (looking type) |  CS-16 CS-23 CS-67 | 12V 16A | ※ Check contact Normal OFF - ∞Ω (for terminal 2-1) - 0Ω (for terminal 2-3) |
| Pressure switch |  CD-11 | 10bar (N.O type) | ※ Check contact Normal : 0.1Ω |

| Part name | Symbol | Specification | Check |
|-------------------|--|---------------------------------------|---|
| Work lamp |  CL-5 | 12V 55W (H3 TYPE) 12V LED (opt) | ※ Check disconnection Normal : 1.2Ω |
| Horn |  CN-20 | 12V 6A | 132±5 dB |
| Safety switch |  CS-4 | Micro 12V 15A | ※ Check contact Normal : 0Ω Operating : ∞Ω |
| Horn switch |  CS-5 | 12V 10A | ※ Check contact Normal : 0Ω |
| Water temp sender |  CD-8 | - | ※ Check contact 50°C : 0.748~0.904Ω 67°C : 0.538~0.650Ω 102°C : 0.185~0.167Ω 110°C : 0.143~0.130Ω 135°C : 0.076~0.100Ω |
| Light switch |  CS-21 | 12V 16A | ※ Check contact Normal : ∞Ω |

| Part name | Symbol | Specification | Check |
|-----------------|---|---------------|--|
| Start motor |  <p>CN-45</p> | 12V 1.4kW | ※ Check contact Normal : 0.1Ω |
| Alternator |  <p>CN-74</p> | 12V 40A | ※ Check contact Normal : 0Ω (For terminal B ⁺ -1) Normal : 10 ~ 12.5V |
| Travel alarm |  <p>CN-81</p> | 12V | - |
| Fuel feed pump |  <p>CN-145</p> | 12V | - |
| Glow controller |  <p>CR-24</p> | 12V | - |
| Air-heater |  <p>CN-80</p> | 12V 42A 500W | - |

| Part name | Symbol | Specification | Check |
|-----------------------|--|-------------------|-----------------------------------|
| Emergency engine stop |  <p>CS-33</p> | 12V | - |
| Maxi fuse |  <p>CN-60</p> | 80A | - |
| Air cleaner switch |  <p>CD-10</p> | 12V (N.O type) | - |
| Travel speed switch |  <p>CS-8</p> | 12V | - |
| EPPR valve |  <p>CN-240 CN-241</p> | 12V | - |
| Speaker |  <p>CN-23 (LH) CN-24 (RH)</p> | 4Ω 20W | ※ Check resistance Normal : 4Ω |

| Part name | Symbol | Specification | Check |
|-----------------|--|---------------|---|
| Beacon lamp |  CL-7 | 12V LED | ※ Check disconnection Normal : a few Ω |
| Washer pump |  CN-22 | 12V 3.8A | ※ Check contact Normal : 3 Ω (for terminal 1-2) |
| Room lamp |  CL-1 | 12V 10W | ※ Check disconnection Normal : a few Ω |
| Pressure sensor |  CD-31 | 12V | - |
| Overheat switch |  CD-9 | 12V | - |
| Relay |  CR-47 | 12V 20A | ※ Check resistance Normal : 0 Ω (for terminal 1-5) $\infty \Omega$ (for terminal 1-3) |

| Part name | Symbol | Specification | Check |
|-------------------------|---|---------------|---|
| Wiper motor |  CN-21 | 12V 3A | ※ Check contact Normal : 6Ω (for terminal 2-4) |
| Wiper and washer switch |  CS-3 | 12V 16A | ※ Check disconnection Normal : ∞Ω (for terminal 2-3, 5-6) |
| Resistor |  RS-A0 | 3W 120Ω | - |
| Quick coupler switch 2 |  CS-116 | 12V | - |
| Cluster buzzer |  CN-26 | 12V | - |
| Service tool |  CN-307 | - | - |

GROUP 5 CONNECTORS

1. CONNECTOR DESTINATION

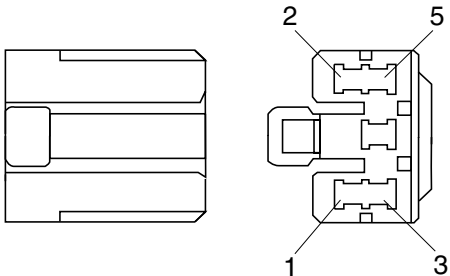
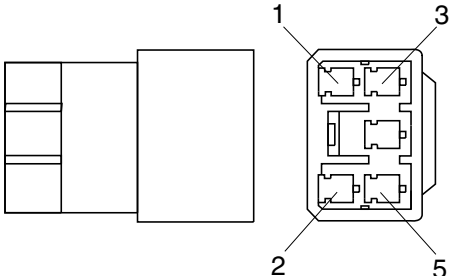
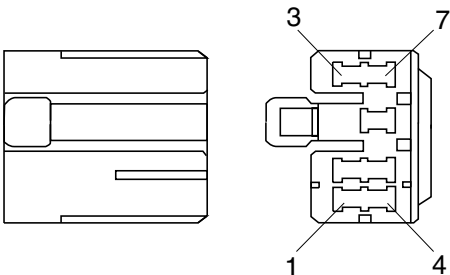
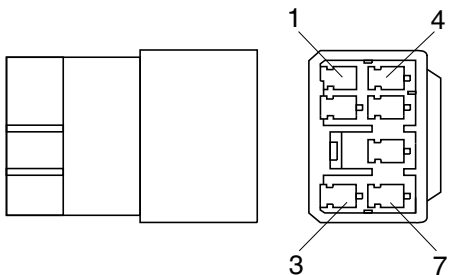
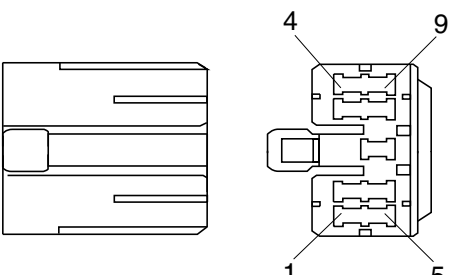
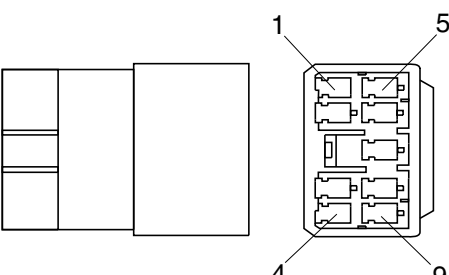
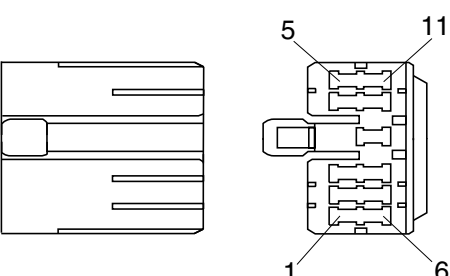
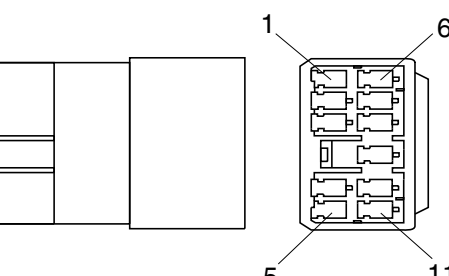
| Connector number | Type | No. of pin | Destination | Connector part No. | |
|------------------|----------|------------|--|--------------------|--------------|
| | | | | Female | Male |
| CN-3 | AMP | 16 | I/conn (LH console harness-main harness) | 368047-1 | 368050-1 |
| CN-4 | AMP | 16 | I/conn (RH console harness-main harness) | 368047-1 | 368050-1 |
| CN-4-1 | AMP | 6 | I/conn (Upper harness-washer harness) | 174262-2 | 174264-2 |
| CN-5 | AMP | 16 | I/conn (Main harness-RH console harness) | 368047-1 | 368050-1 |
| CN-10 | DEUTSCH | 2 | Canopy lamp | DT06-2S-EP06 | DT04-2P-E005 |
| CN-11 | AMP | 8 | I/conn (RH console harness-cab harness) | 174982-2 | 174984-2 |
| CN-11-1 | AMP | 2 | I/conn (RH console harness-canopy harness) | 174352-2 | 174354-2 |
| CN-19 | AMP | 8 | I/conn (Main harness-PVG controller harness) | 174982-2 | 174984-2 |
| CN-20 | DEUTSCH | 2 | Horn | DT06-2S-EP06 | - |
| CN-21 | AMP | 4 | Wiper moter | 180900-0 | - |
| CN-22 | KET | 2 | Washer tank | MG640605 | - |
| CN-23 | KET | 2 | Speaker-LH | MG610070 | - |
| CN-24 | KET | 2 | Speaker-RH | MG610070 | - |
| CN-26 | KET | 5 | Buzzer | MG614354 | - |
| CN-27 | - | 16 | Radio & USB player | PK145-16017 | - |
| CN-36 | - | - | Fuse box | F12 890 010 | - |
| CN-45 | YAZAKI | 1 | Start motor | 7123-2115 | - |
| CN-45 | RINGTERM | 1 | Start motor B+ | ST710285-2 | - |
| CN-46 | AMP | 4 | Heater | 180900-0 | - |
| CN-56 | AMP | 34 | CMCU | 4-1437290-0 | - |
| CN-60 | - | - | Maxi fuse | 03.21000 | 03.01080 |
| CN-68 | DEUTSCH | 2 | Safety solenoid valve | DT06-2S-EP06 | - |
| CN-70 | DEUTSCH | 2 | Travel speed solenoid valve | DT06-2S-EP06 | - |
| CN-74 | SUMITOMO | 3 | Alternator | 6189-0443 | - |
| CN-74 | KET | 1 | Alternator B+ | S820-306000 | - |
| CN-79 | SUMITOMO | 2 | Engine stop solenoid | 6195-0003 | - |
| CN-80 | KET | 1 | Air heater | S820-104000 | - |
| CN-81 | KET | 2 | Travel buzzer | MG610320 | - |
| CN-112 | DEUTSCH | 2 | I/conn (Upper harness-boom harness) | - | DT04-2P |
| CN-112 | DEUTSCH | 2 | To work lamp | DT06-2S-EP06 | - |
| CN-125 | DEUTSCH | 12 | GPS telematics | DT06-12S | DT06-12P |
| CN-126 | AMP | 10 | Service tool | 174655-2 | 174657-2 |
| CN-139 | AMP | 2 | 12V socket | 172434-2 | - |
| CN-140 | DEUTSCH | 2 | Quick coupler solenoid valve | DT06-2S-EP06 | DT04-2P-E005 |
| CN-145 | TE | 2 | Fuel feed pump | 174198-1 | - |

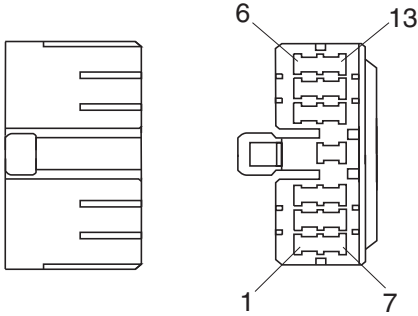
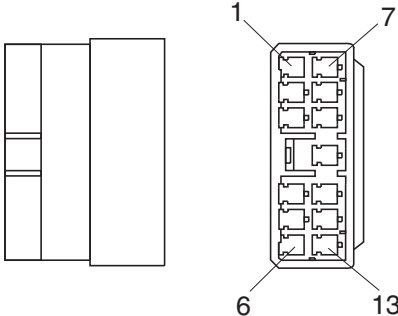
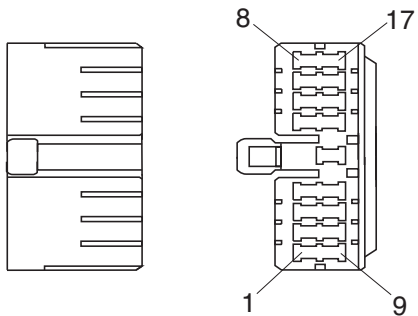
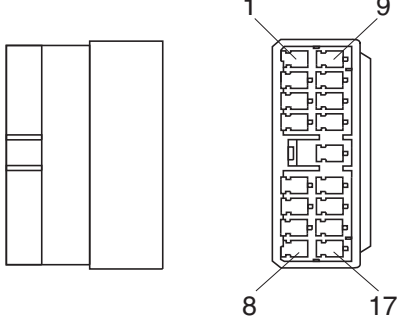
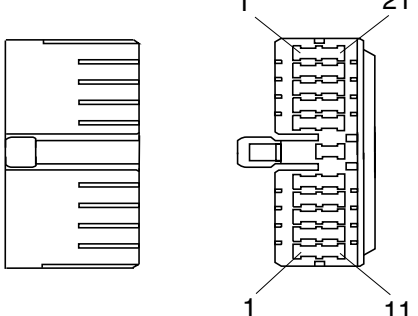
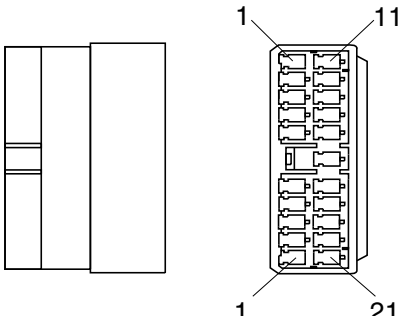
| Connector number | Type | No. of pin | Destination | Connector part No. | |
|------------------|----------|------------|------------------------------|--------------------|-------------|
| | | | | Female | Male |
| CN-238 | DEUTSCH | 2 | EPPR A3 | DT06-2S | DT04-2P |
| CN-239 | DEUTSCH | 2 | EPPR A1 | DT06-2S | DT04-2P |
| CN-240 | DEUTSCH | 3 | EPPR-LH | DT06-3S | DT04-3P |
| CN-241 | DEUTSCH | 3 | EPPR-RH | DT06-3S | DT04-3P |
| CN-264 | DEUTSCH | 2 | Extention valve | DT06-2S | DT06-2P |
| CN-305 | REXROTH | 56 | EPPR controller | 1-928-405-161 | - |
| CN-307 | DEUTSCH | 3 | Service tool | DT06-3S | DT04-3P |
| CN-309 | DEUTSCH | 2 | EPPR A1 | DT06-2S | - |
| CN-310 | DEUTSCH | 2 | EPPR A2 | DT06-2S | - |
| LAMP | | | | | |
| CL-1 | KET | 2 | Room lamp | MG610392 | - |
| CL-3 | DEUTSCH | 2 | Cab lamp | DT06-2S | - |
| CL-5 | KET | 2 | Boom lamp | DT06-2S-EP06 | - |
| CL-7 | DEUTSCH | 2 | Beacon lamp | DT06-2S-EP06 | - |
| RELAY | | | | | |
| CR-2 | AMP | 5 | Horn relay | VCFM-1002 | - |
| CR-23 | KET | 4 | Start relay | MG612017-5 | - |
| CR-24 | SUMITOMO | 6 | Glow controller relay | 6195-0021 | - |
| CR-35 | KET | 4 | Power relay | MG612017-5 | - |
| CR-36 | SUMITOMO | 2 | Glow controller | 6195-0060 | - |
| CR-47 | AMP | 5 | Safety solenoid relay | VCFM-1002 | - |
| SENSOR | | | | | |
| CD-2 | AMP | 2 | Fuel sender | 174357-2 | - |
| CD-8 | AMP | 2 | Water temp sender | 174374-3 | - |
| CD-08A | AMP | 1 | Water temp sender | 171809-2 | - |
| CD-9 | AMP | 1 | Overheat switch | 172320-2 | - |
| CD-11 | KET | 2 | Travel alarm pressure switch | MG640795 | - |
| CD-18 | KET | 1 | Engine oil pressure switch | S820-104000 | - |
| CD-31 | DEUTSCH | 3 | Overload pressure switch | DT06-3S-EP06 | DT04-3P |
| DO-01 | - | 2 | Diode | 21EA-50550 | - |
| DO-02 | - | 2 | Diode | 21EA-50550 | - |
| SWITCH | | | | | |
| CS-2 | KET | 6 | Start switch | MG610335 | - |
| CS-3 | CARLING | 10 | Wiper & washer switch | 21HN-56300 | - |
| CS-4 | DEUTSCH | 3 | Safety switch | DT06-3S | - |
| CS-5 | DEUTSCH | 2 | Horn switch | - | DT04-2P |
| CS-6 | CARLING | 10 | Heater switch | 21HN-56300 | - |
| CS-8 | KET | 1 | Travel speed switch | S822-014000 | S822-114000 |

| Connector number | Type | No. of pin | Destination | Connector part No. | |
|------------------|---------|------------|------------------------------|--------------------|-------|
| | | | | Female | Male |
| CS-16 | CARLING | 10 | Travel alarm switch | 21HN-56300 | - |
| CS-21 | CARLING | 10 | Light switch | VC2-01 | - |
| CS-23 | CARLING | 10 | Beacon switch | 21HN-56300 | - |
| CS-33 | TE | 6 | Emergency engine stop switch | 174262-2 | - |
| CS-67 | CARLING | 10 | Quick coupler switch 1 | VC2-01 | - |
| CS-74S | KET | 1 | Master switch-S | S820-306000 | - |
| CS-74L | KET | 1 | Master switch-L | ST710287-2 | - |
| CS-116 | - | 1 | Quick coupler sw 2 | - | CA104 |

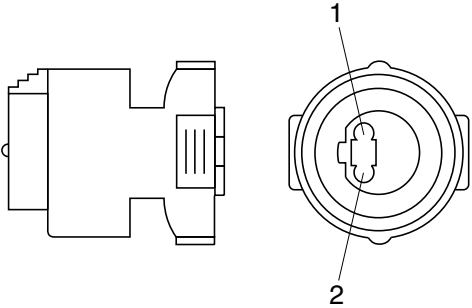
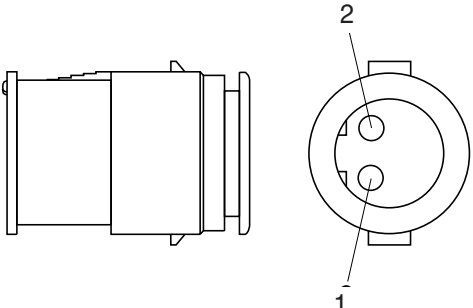
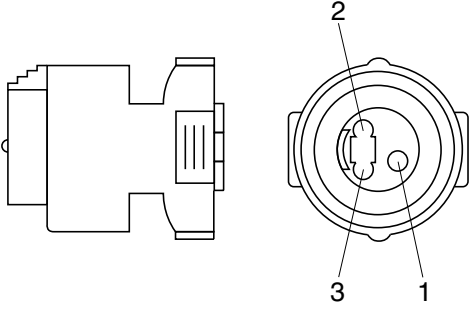
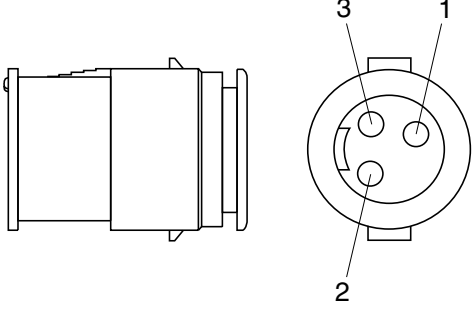
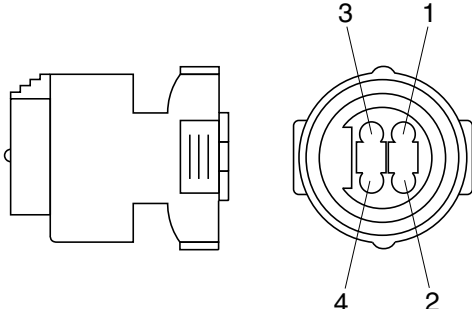
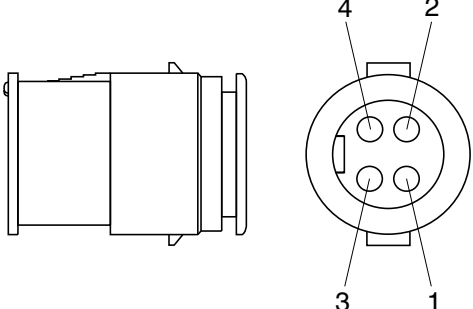
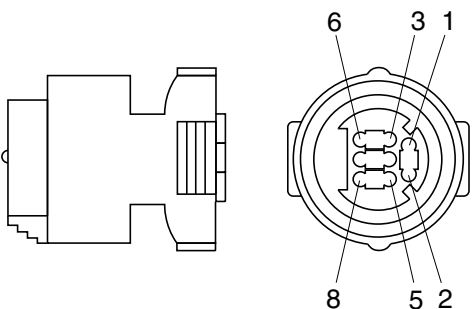
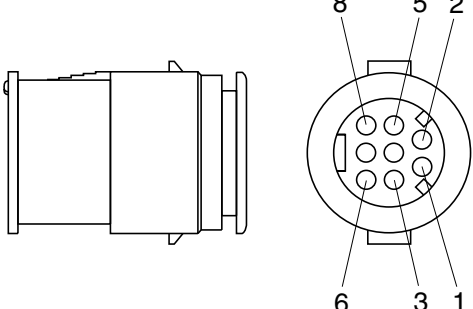
2. CONNECTION TABLE FOR CONNECTORS

1) PA TYPE CONNECTOR

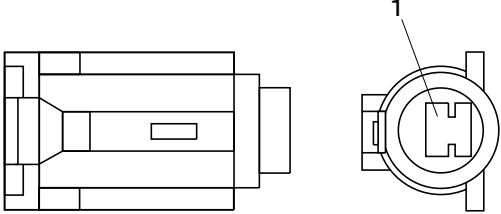
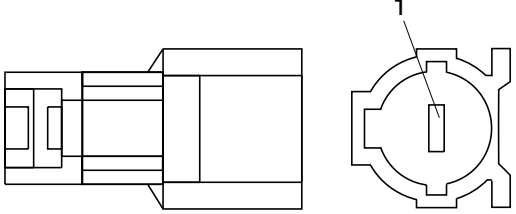
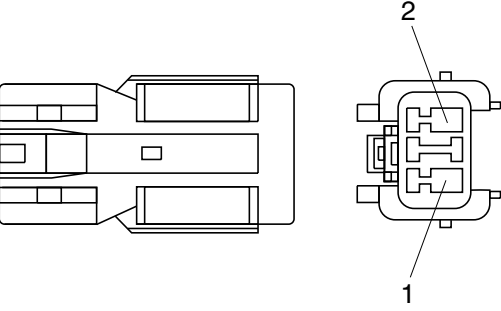
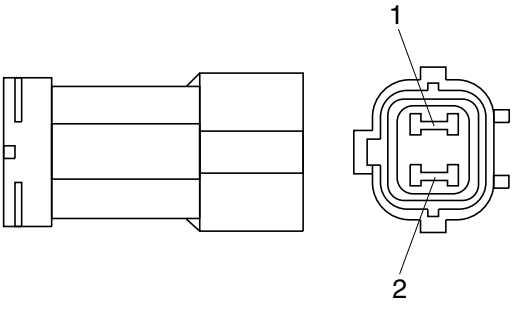
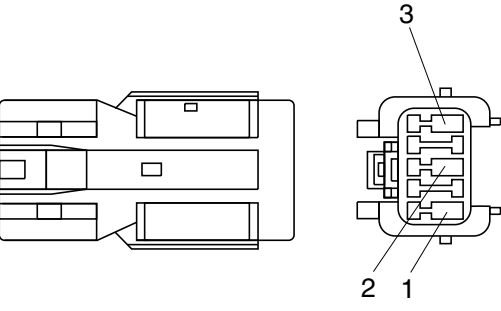
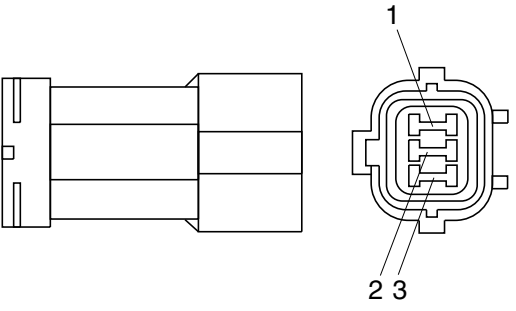
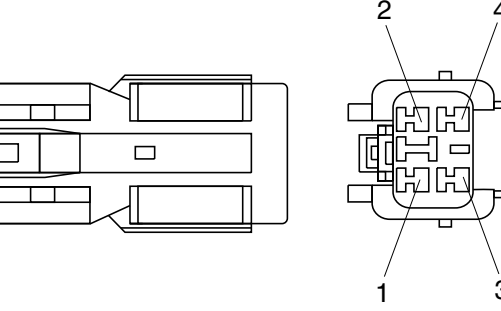
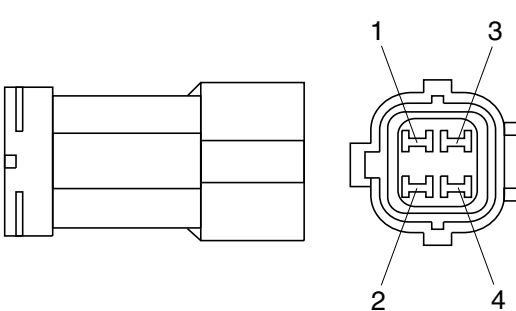
| No. of pin | Receptacle connector (female) | Plug connector (male) |
|------------|--|--|
| 5 |  <p>S811-005002</p> |  <p>S811-105002</p> |
| 7 |  <p>S811-007002</p> |  <p>S811-107002</p> |
| 9 |  <p>S811-009002</p> |  <p>3S811-109002</p> |
| 11 |  <p>S811-011002</p> |  <p>S811-111002</p> |

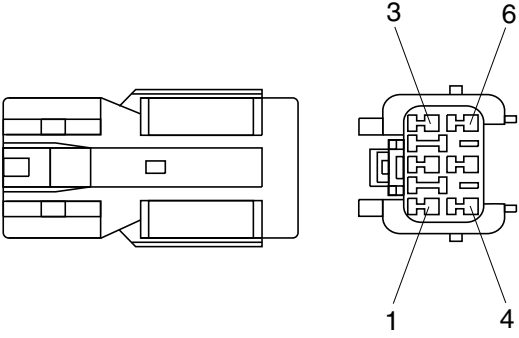
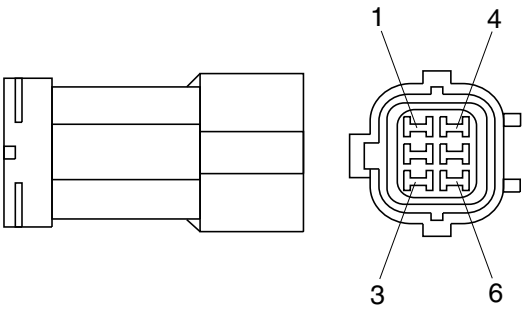
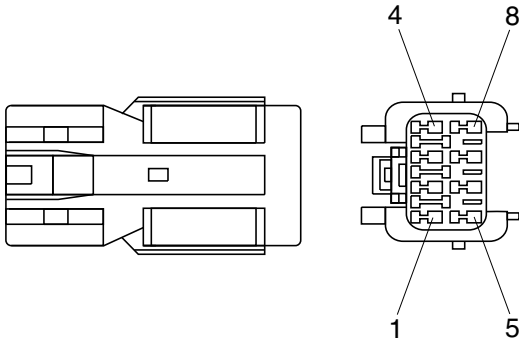
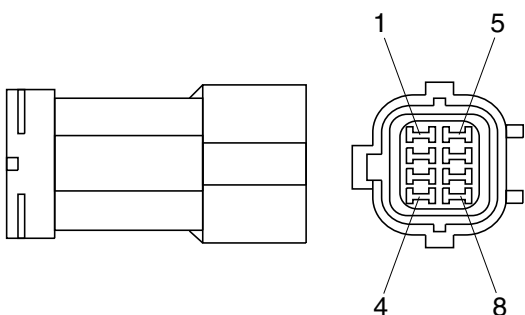
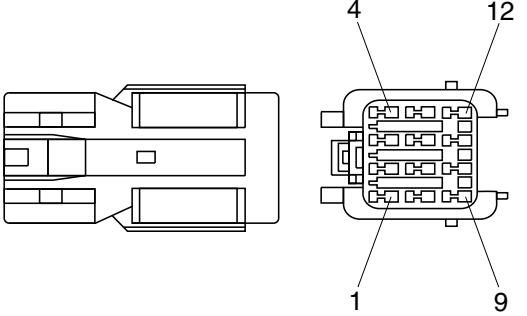
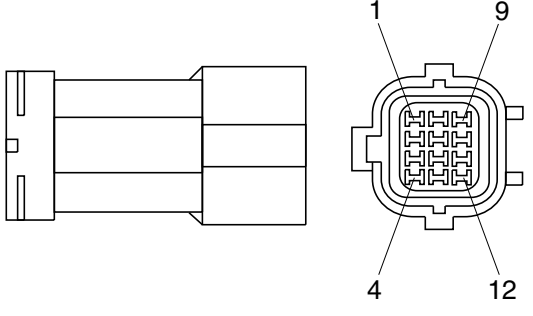
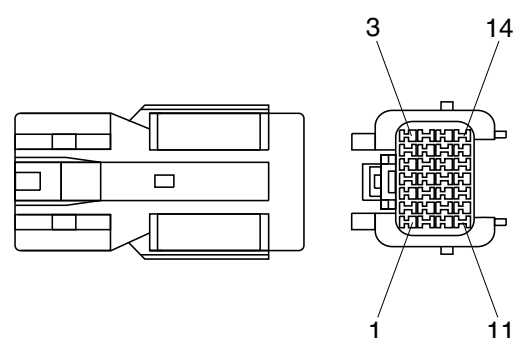
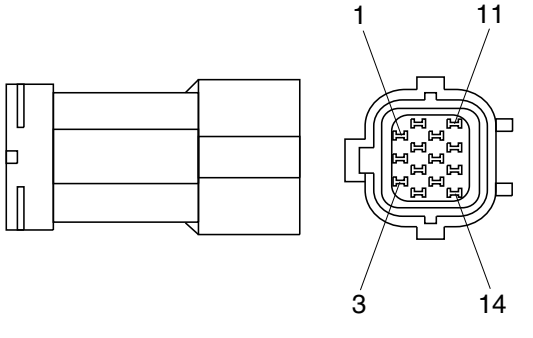
| No. of pin | Receptacle connector (female) | Plug connector (male) |
|------------|--|---|
| 13 |  <p>S811-013002</p> |  <p>S811-113002</p> |
| 17 |  <p>S811-017002</p> |  <p>S811-117002</p> |
| 21 |  <p>S811-021002</p> |  <p>S811-121002</p> |

2) J TYPE CONNECTOR

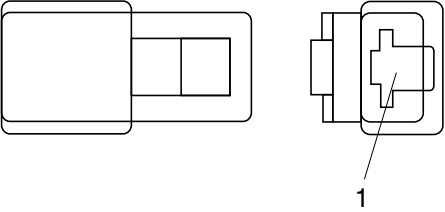
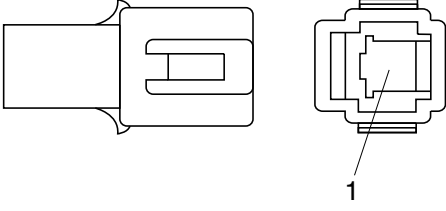
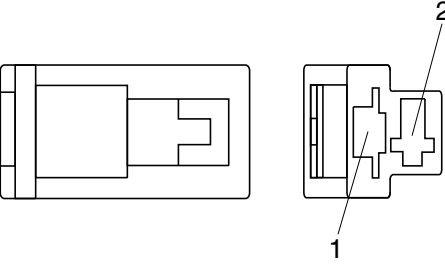
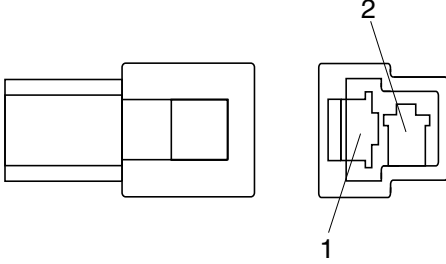
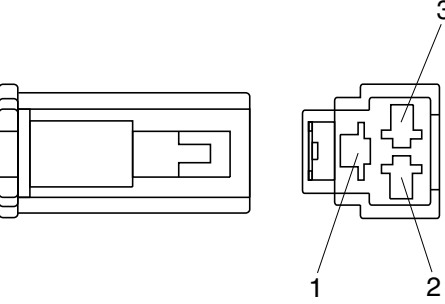
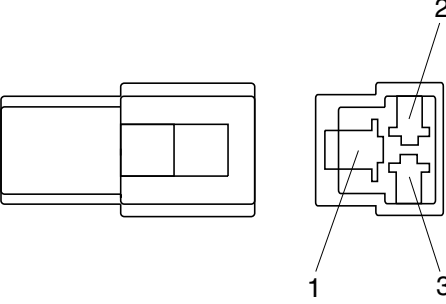
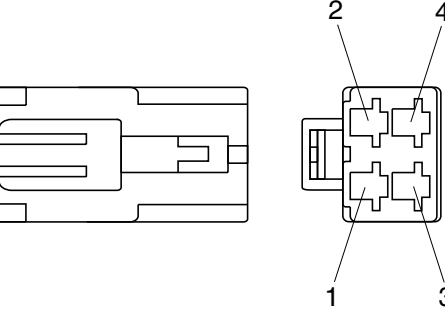
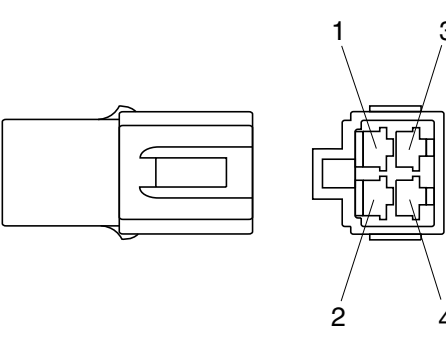
| No. of pin | Receptacle connector (female) | Plug connector (male) |
|------------|--|---|
| 2 |  <p>S816-002001</p> |  <p>S816-102001</p> |
| 3 |  <p>S816-003001</p> |  <p>S816-103001</p> |
| 4 |  <p>S816-004001</p> |  <p>S816-104001</p> |
| 8 |  <p>S816-008001</p> |  <p>S816-108001</p> |

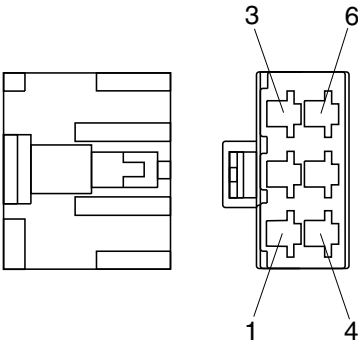
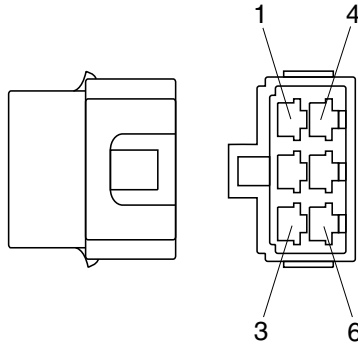
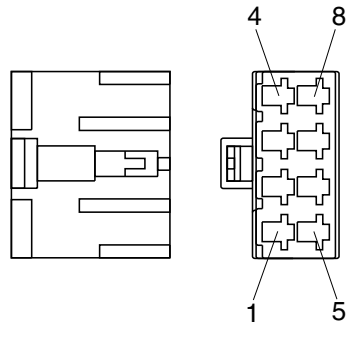
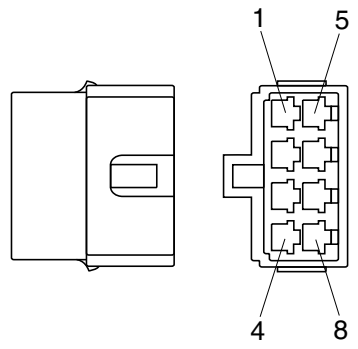
3) SWP TYPE CONNECTOR

| No. of pin | Receptacle connector (female) | Plug connector (male) |
|------------|--|---|
| 1 |  <p>S814-001000</p> |  <p>S814-101000</p> |
| 2 |  <p>S814-002000</p> |  <p>S814-102000</p> |
| 3 |  <p>S814-003000</p> |  <p>S814-103000</p> |
| 4 |  <p>S814-004000</p> |  <p>S814-104000</p> |

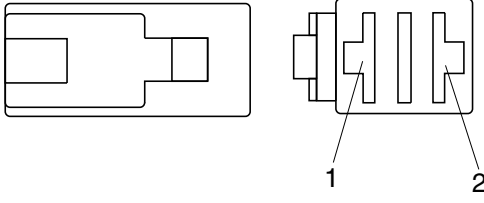
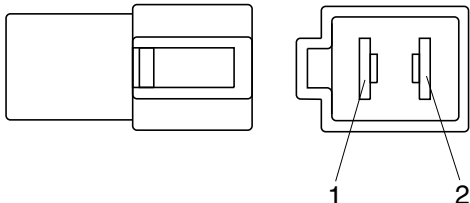
| No. of pin | Receptacle connector (female) | Plug connector (male) |
|------------|--|---|
| 6 |  <p>S814-006000</p> |  <p>S814-106000</p> |
| 8 |  <p>S814-008000</p> |  <p>S814-108000</p> |
| 12 |  <p>S814-012000</p> |  <p>S814-112000</p> |
| 14 |  <p>S814-014000</p> |  <p>S814-114000</p> |

4) CN TYPE CONNECTOR

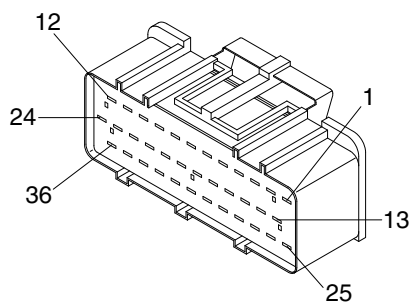
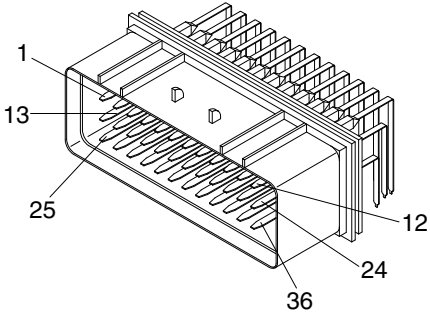
| No. of pin | Receptacle connector (female) | Plug connector (male) |
|------------|--|---|
| 1 |  <p>S810-001202</p> |  <p>S810-101202</p> |
| 2 |  <p>S810-002202</p> |  <p>S810-102202</p> |
| 3 |  <p>S810-003202</p> |  <p>S810-103202</p> |
| 4 |  <p>S810-004202</p> |  <p>S810-104202</p> |

| No. of pin | Receptacle connector (female) | Plug connector (male) |
|------------|---|--|
| 6 |  <p>S810-006202</p> |  <p>S810-106202</p> |
| 8 |  <p>S810-008202</p> |  <p>S810-108202</p> |

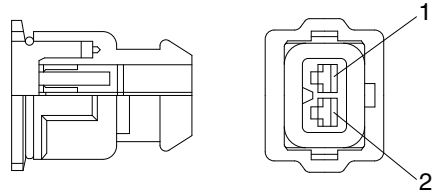
5) 375 FASTEN TYPE CONNECTOR

| No. of pin | Receptacle connector (female) | Plug connector (male) |
|------------|---|--|
| 2 |  <p style="text-align: right;">S810-002402</p> |  <p style="text-align: right;">S810-102402</p> |

6) AMP ECONOSEAL CONNECTOR

| No. of pin | Receptacle connector (female) | Plug connector (male) |
|------------|---|--|
| 36 |  <p style="text-align: right;">344111-1</p> |  <p style="text-align: right;">344108-1</p> |

7) AMP TIMER CONNECTOR

| No. of pin | Receptacle connector (female) | Plug connector (male) |
|------------|---|-----------------------|
| 2 |  <p style="text-align: right;">85202-1</p> | |

8) AMP 040 MULTILOCK CONNECTOR

| No. of pin | Receptacle connector (female) | Plug connector (male) |
|------------|-------------------------------|-----------------------|
| 12 | <p>174045-2</p> | |

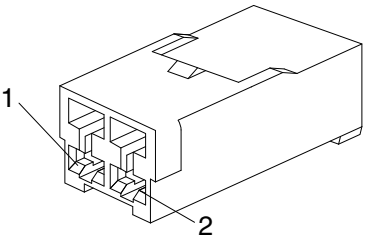
9) AMP 070 MULTILOCK CONNECTOR

| No. of pin | Receptacle connector (female) | Plug connector (male) |
|------------|-------------------------------|-----------------------|
| 14 | <p>173852</p> | |

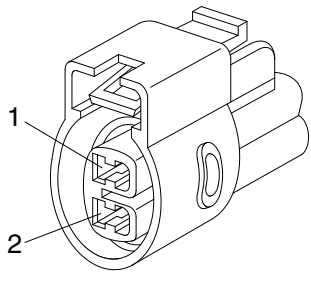
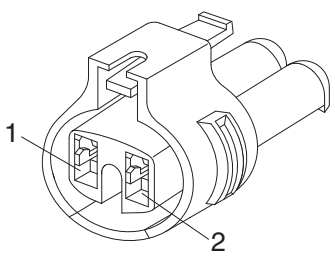
10) AMP FASTIN - FASTON CONNECTOR

| No. of pin | Receptacle connector (female) | Plug connector (male) |
|------------|-------------------------------|-----------------------|
| 6 | <p>925276-0</p> | <p>480003-9</p> |

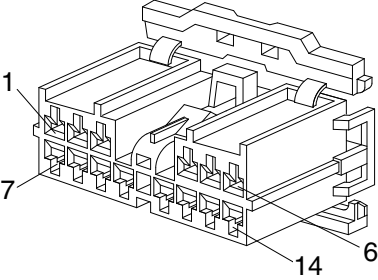
11) KET 090 CONNECTOR

| No. of pin | Receptacle connector (female) | Plug connector (male) |
|------------|---|-----------------------|
| 2 |  <p>MG610070</p> | |

12) KET 090 WP CONNECTORS

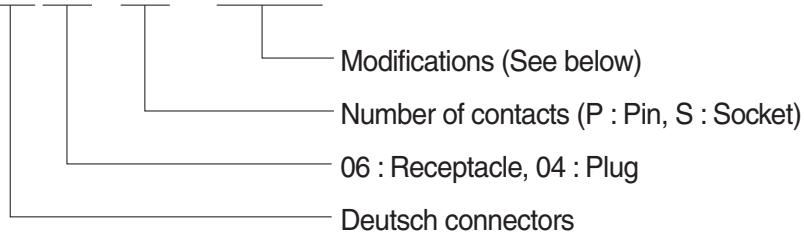
| No. of pin | Receptacle connector (female) | Plug connector (male) |
|------------|---|-----------------------|
| 2 |  <p>MG640605</p> | |
| 2 |  <p>MG640795</p> | |

13) KET SDL CONNECTOR

| No. of pin | Receptacle connector (female) | Plug connector (male) |
|------------|---|-----------------------|
| 14 | <div><p>MG610406</p></div> | |

14) DEUTSCH DT CONNECTORS

DT 06 - 3S - ★★★★★



※ Modification

E003 : Standard end cap - gray

E004 : Color of connector to be black

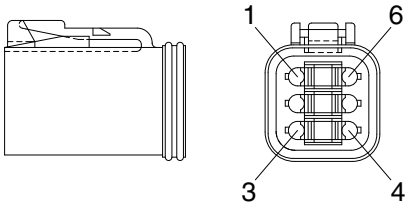
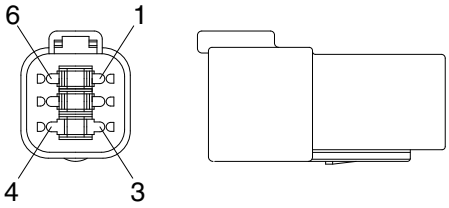
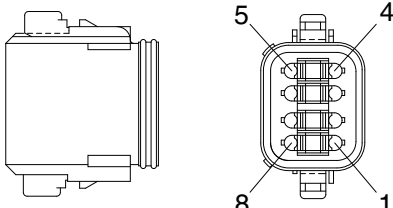
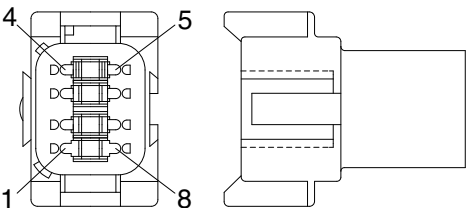
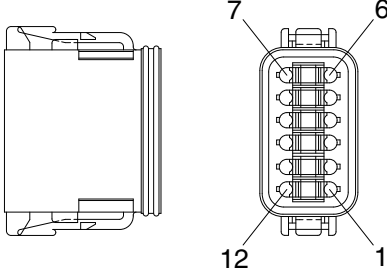
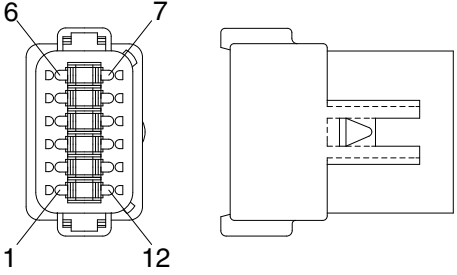
E005 : Combination - E004 & E003

EP04 : End cap

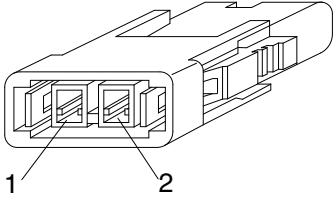
EP06 : Combination P012 & EP04

P012 : Front seal enhancement - connectors color to black for 2, 3, 4 & 6pin

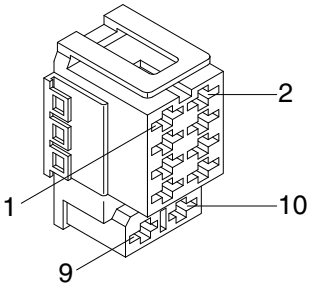
| No. of pin | Receptacle connector (female) | Plug connector (male) |
|------------|-------------------------------|-----------------------|
| 2 | <p>DT06-2S</p> | <p>DT04-2P</p> |
| 3 | <p>DT06-3S</p> | <p>DT04-3P</p> |
| 4 | <p>DT06-4S</p> | <p>DT04-4P</p> |

| No. of pin | Receptacle connector (female) | Plug connector (male) |
|------------|---|--|
| 6 |  <p>DT06-6S</p> |  <p>DT04-6P</p> |
| 8 |  <p>DT06-8S</p> |  <p>DT04-8P</p> |
| 12 |  <p>DT06-12S</p> |  <p>DT04-12P</p> |

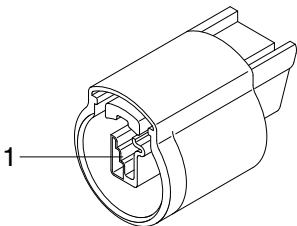
15) MOLEX 2CKTS CONNECTOR

| No. of pin | Receptacle connector (female) | Plug connector (male) |
|------------|---|-----------------------|
| 2 |  <p>35215-0200</p> | |

16) ITT SWF CONNECTOR

| No. of pin | Receptacle connector (female) | Plug connector (male) |
|------------|---|-----------------------|
| 10 |  <p>SWF593757</p> | |

17) MWP NMWP CONNECTOR

| No. of pin | Receptacle connector (female) | Plug connector (male) |
|------------|--|-----------------------|
| 1 |  <p>NMWP01F-B</p> | |

SECTION 5 TROUBLESHOOTING



Group 1 Before Troubleshooting 5-1

Group 2 Hydraulic and Mechanical System 5-4

Group 3 Electrical System 5-24

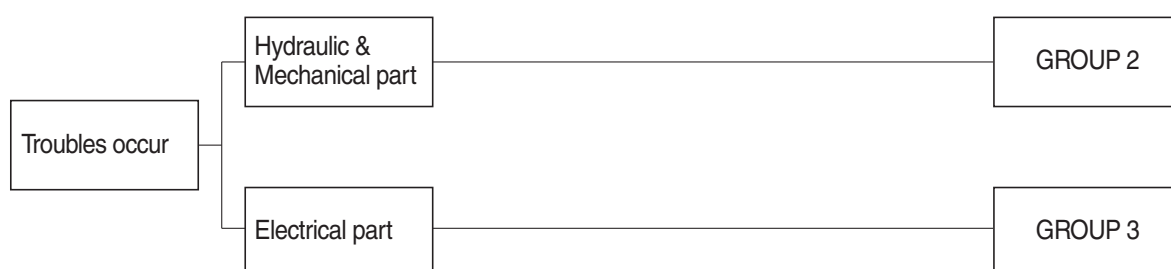
GROUP 1 BEFORE TROUBLESHOOTING

1. INTRODUCTION

When a trouble is occurred in the machine, this section will help an operator to maintain the machine with easy.

The trouble of machine is parted Hydraulic & Mechanical system and Electrical system.

At each system part, an operator can check the machine according to the troubleshooting process diagram.



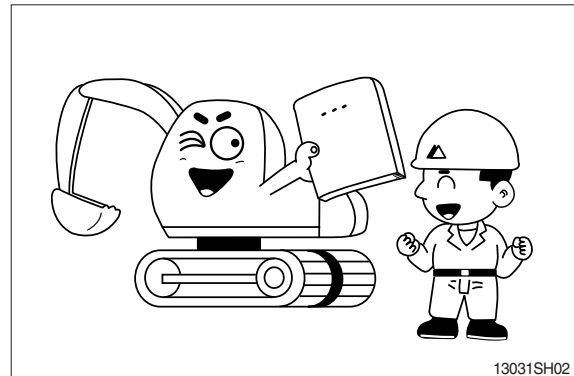
2. DIAGNOSING PROCEDURE

To carry out troubleshooting efficiently, the following steps must be observed.

STEP 1. Study the machine system

Study and know how the machine is operating, how the system is composing, what kinds of function are installed in the machine and what are specifications of the system components by the machine service manual.

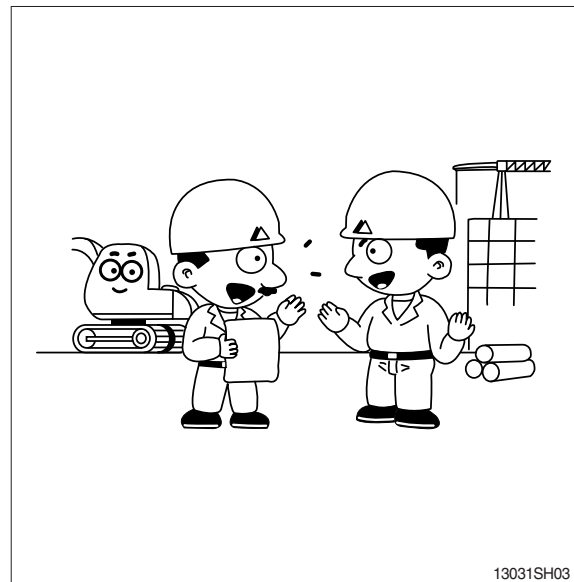
Especially, deepen the knowledge for the related parts of the trouble.



STEP 2. Ask the operator

Before inspecting, get the full story of malfunctions from a witness --- the operator.

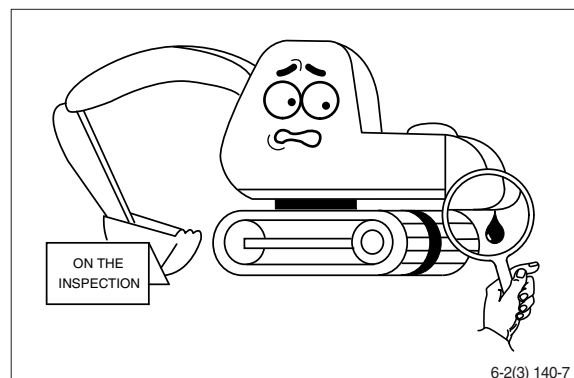
- 1) How the machine is used and when it is serviced?
- 2) When the trouble was noticed and what work the machine was doing at that time?
- 3) What is the phenomenon of the trouble?
Was the trouble getting worse, or did it come out suddenly for the first time?
- 4) Did the machine have any troubles previously? If so, which parts were repaired before.



STEP 3. Inspect the machine

Before starting troubleshooting, check the machine for the daily maintenance points as shown in the operator's manual.

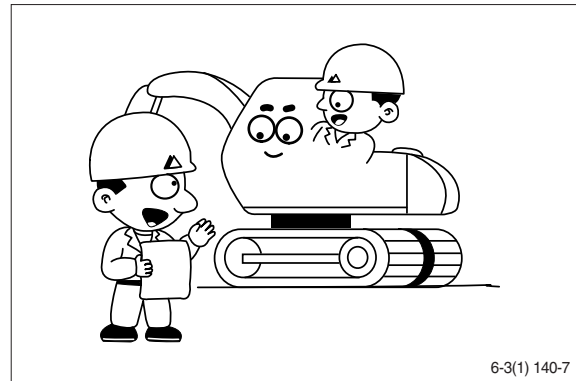
And also check the electrical system including batteries, as the troubles in the electrical system such as low battery voltage, loose connections and blown out fuses will result in malfunction of the controllers causing total operational failures of the machine.



STEP 4. Inspect the trouble actually on the machine

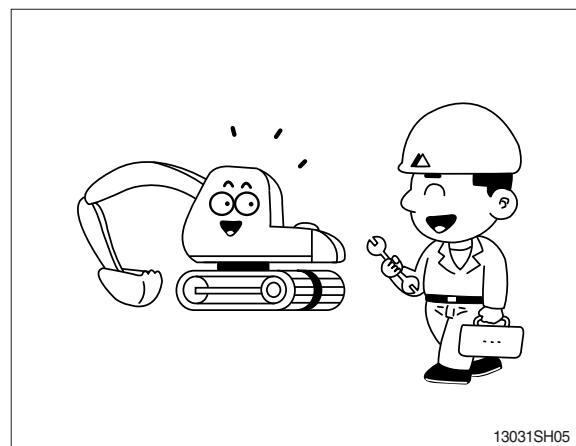
In case that some trouble cannot be confirmed, obtain the details of the malfunction from the operator.

Also, check if there are any incomplete connections of the wire harnesses or not.



STEP 5. Perform troubleshooting

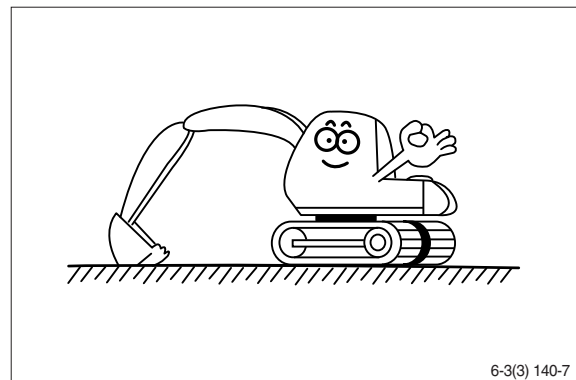
According to where the trouble parts are located, hydraulic & mechanical system part or electrical system part or mechatronics system part, perform troubleshooting the machine refer to the each system part's troubleshooting process diagram.



STEP 6. Trace a cause

Before reaching a conclusion, check the most susceptible causes again. Try to trace what the real cause of the trouble is.

Make a plan of the appropriate repairing procedure to avoid consequential malfunctions.



1. INTRODUCTION

1) MACHINE IN GENERAL

- (1) If even a minor fault is left intact and operation is continued, a fatal failure may be caused, entailing a large sum of expenses and long hours of restoration.

Therefore when even a small trouble occurs, do not rely on your intuition and experience, but look for the cause based on the troubleshooting principle and perform maintenance and adjustment to prevent major failure from occurring. Keep in mind that a fault results from a combination of different causes.

- (2) The following lists up commonly occurring faults and possible causes with this machine. For the troubleshooting of the engine, refer to the coming troubleshooting and repair.

- (3) When carrying out troubleshooting, do not hurry to disassemble the components.
It will become impossible to find the cause of the problem.

- (4) Ask user or operator the following.

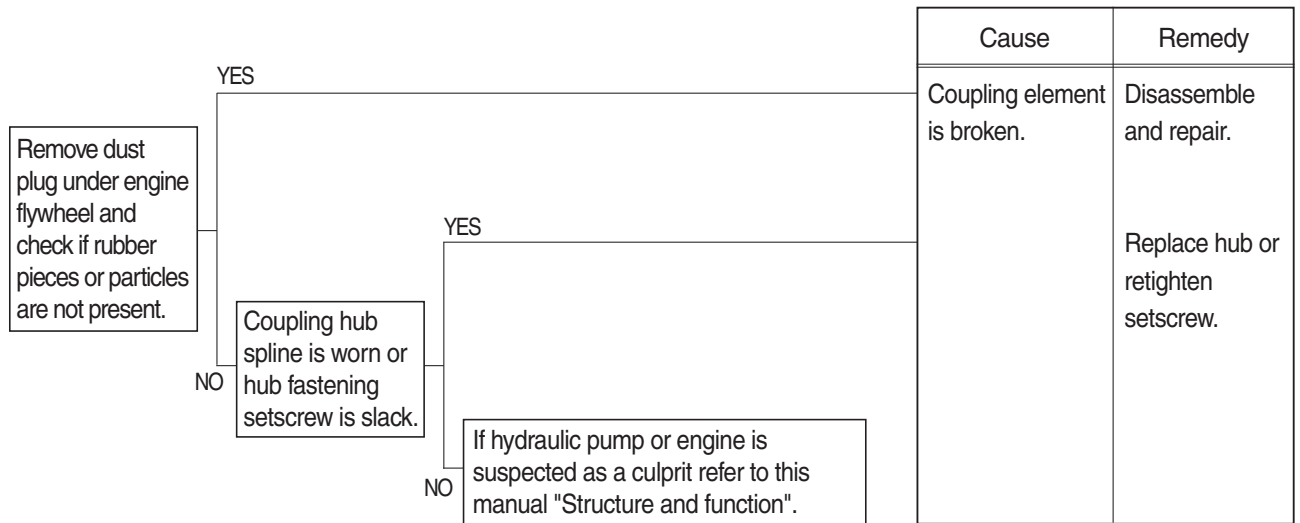
- ① Was there any strange thing about machine before failure occurred?
- ② Under what conditions did the failure occur?
- ③ Have any repairs been carried out before the failure?

- (5) Check before troubleshooting.

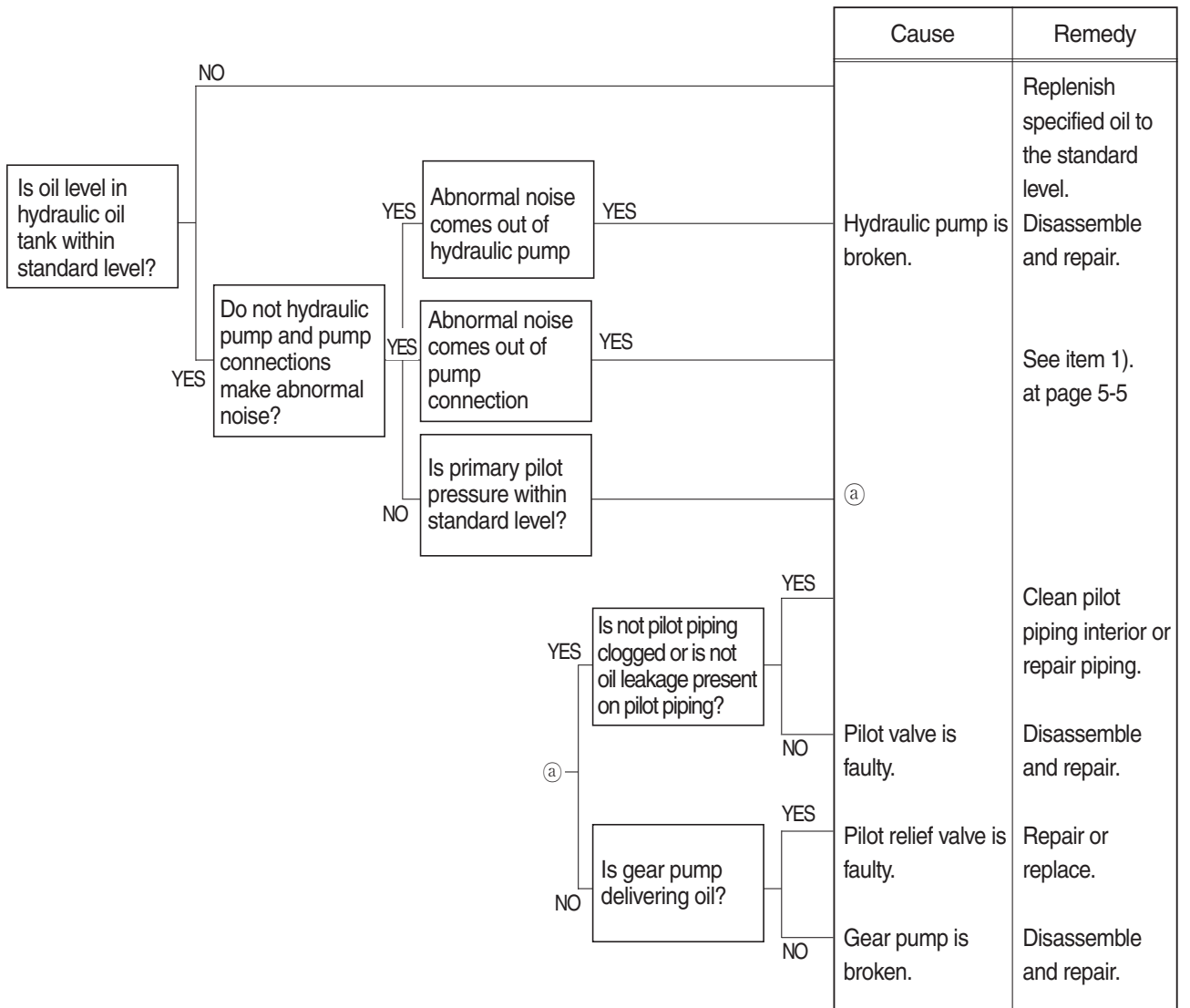
- ① Check oil and fuel level.
- ② Check for any external leakage of oil from components.
- ③ Check for loose or damage of wiring and connections.

2. DRIVE SYSTEM

1) UNUSUAL NOISE COMES OUT OF PUMP CONNECTION



2) ENGINE STARTS BUT MACHINE DOES NOT OPERATE AT ALL

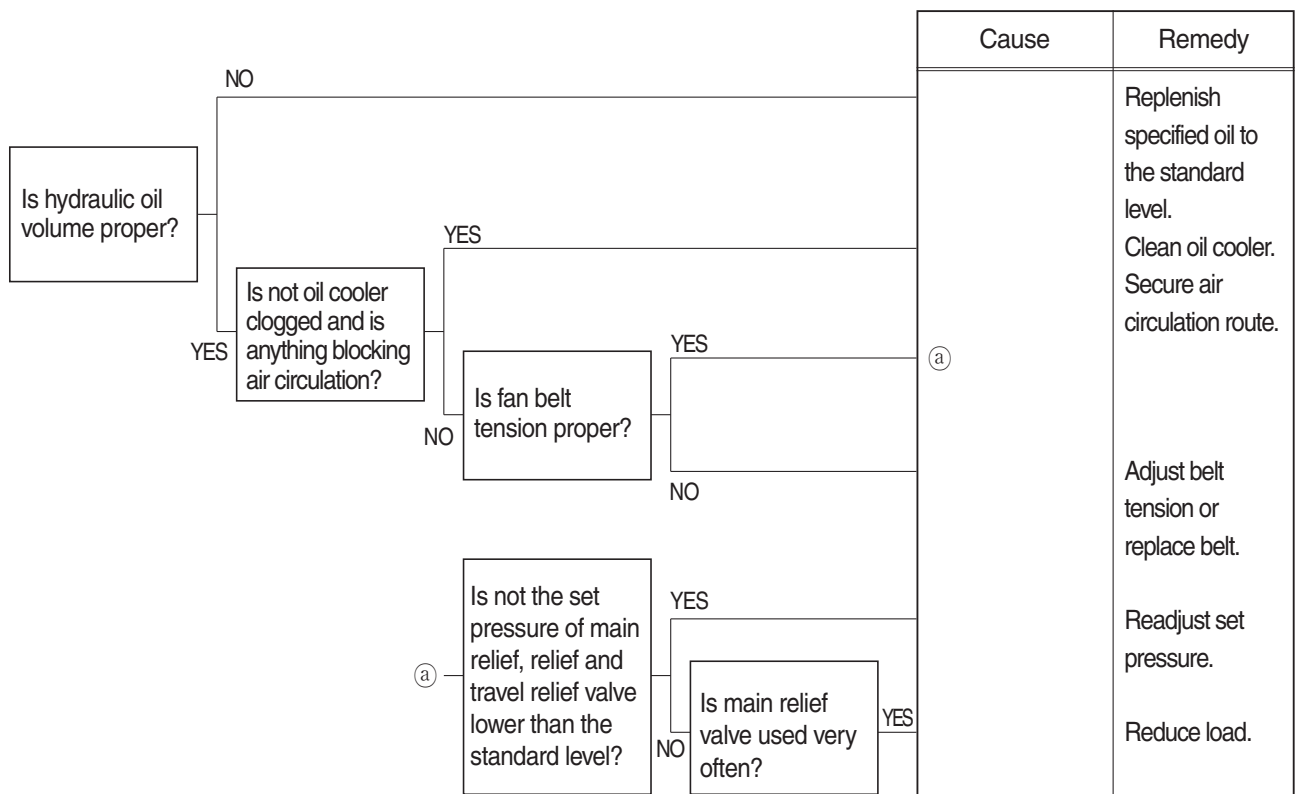


3. HYDRAULIC SYSTEM

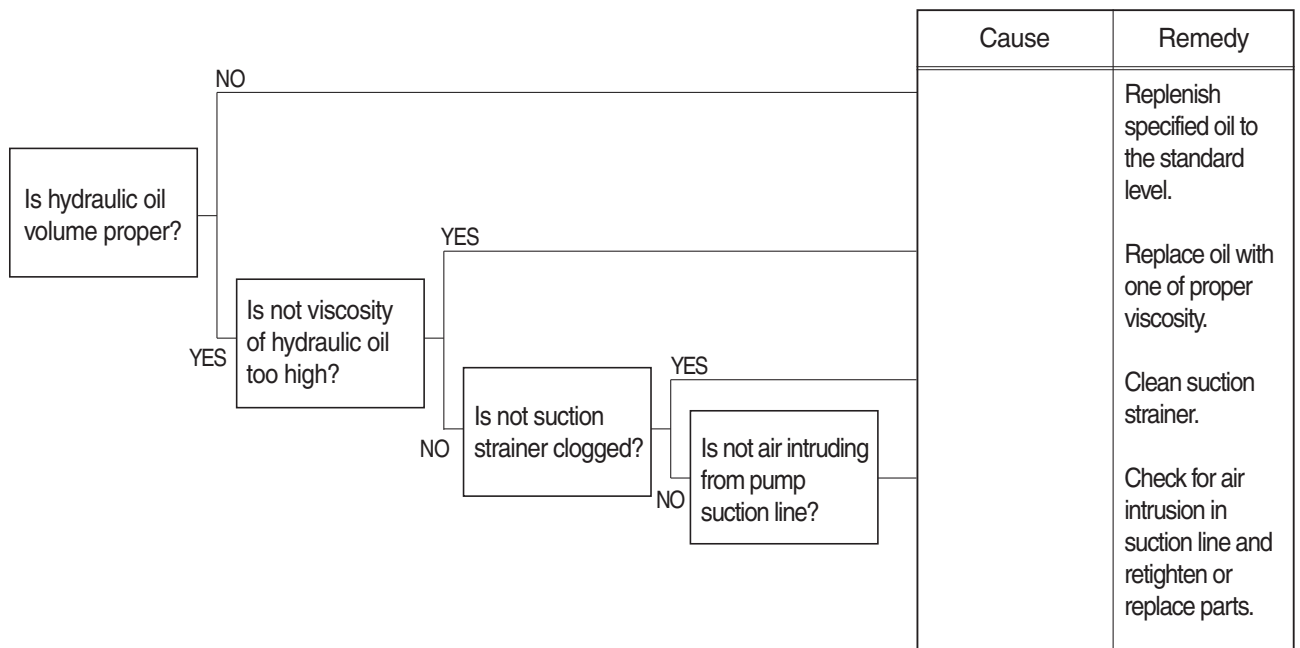
1) HYDRAULIC OIL IS CLOUDY



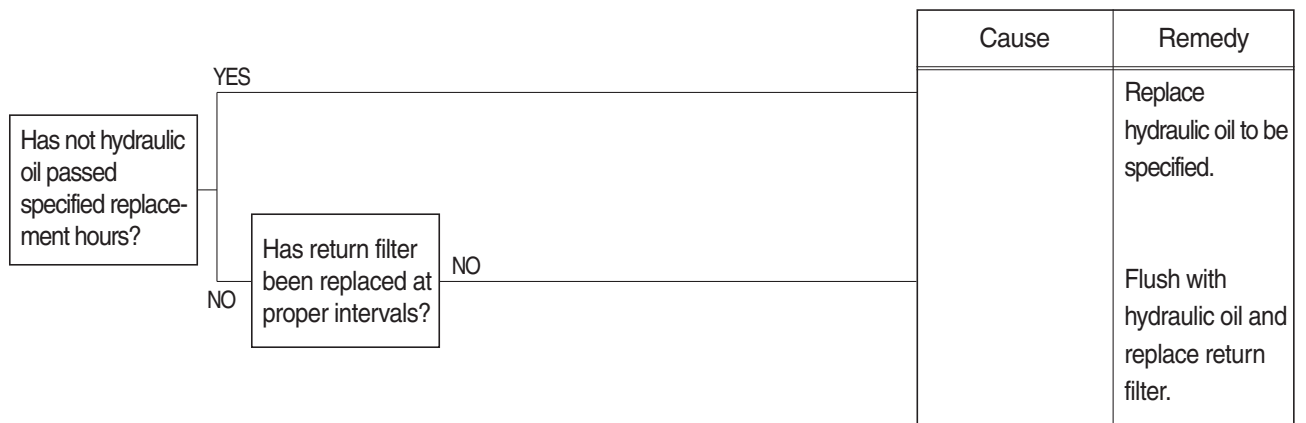
2) HYDRAULIC OIL TEMPERATURE HAS RISEN ABNORMALLY



3) CAVITATION OCCURS WITH PUMP

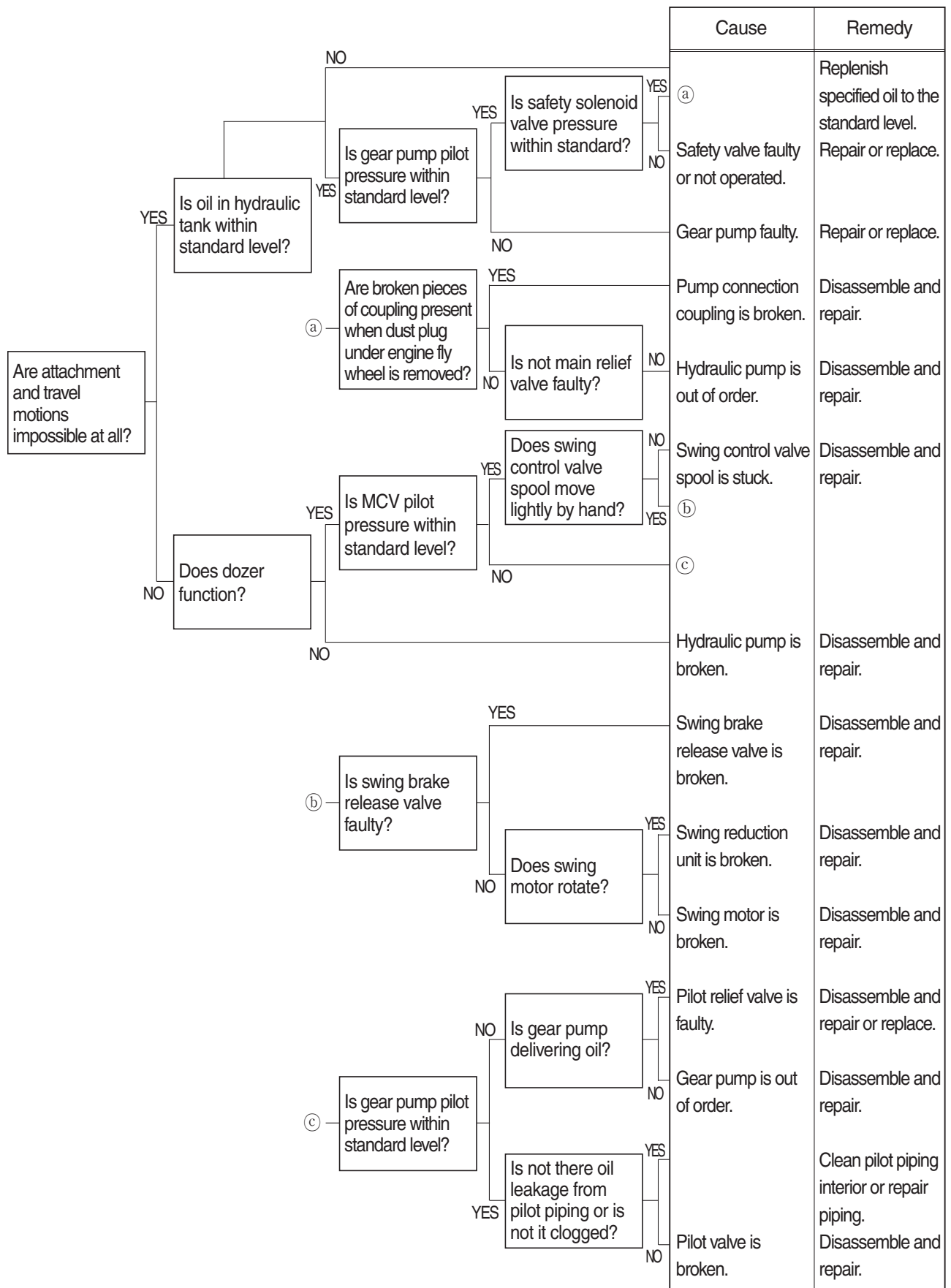


4) HYDRAULIC OIL IS CONTAMINATED

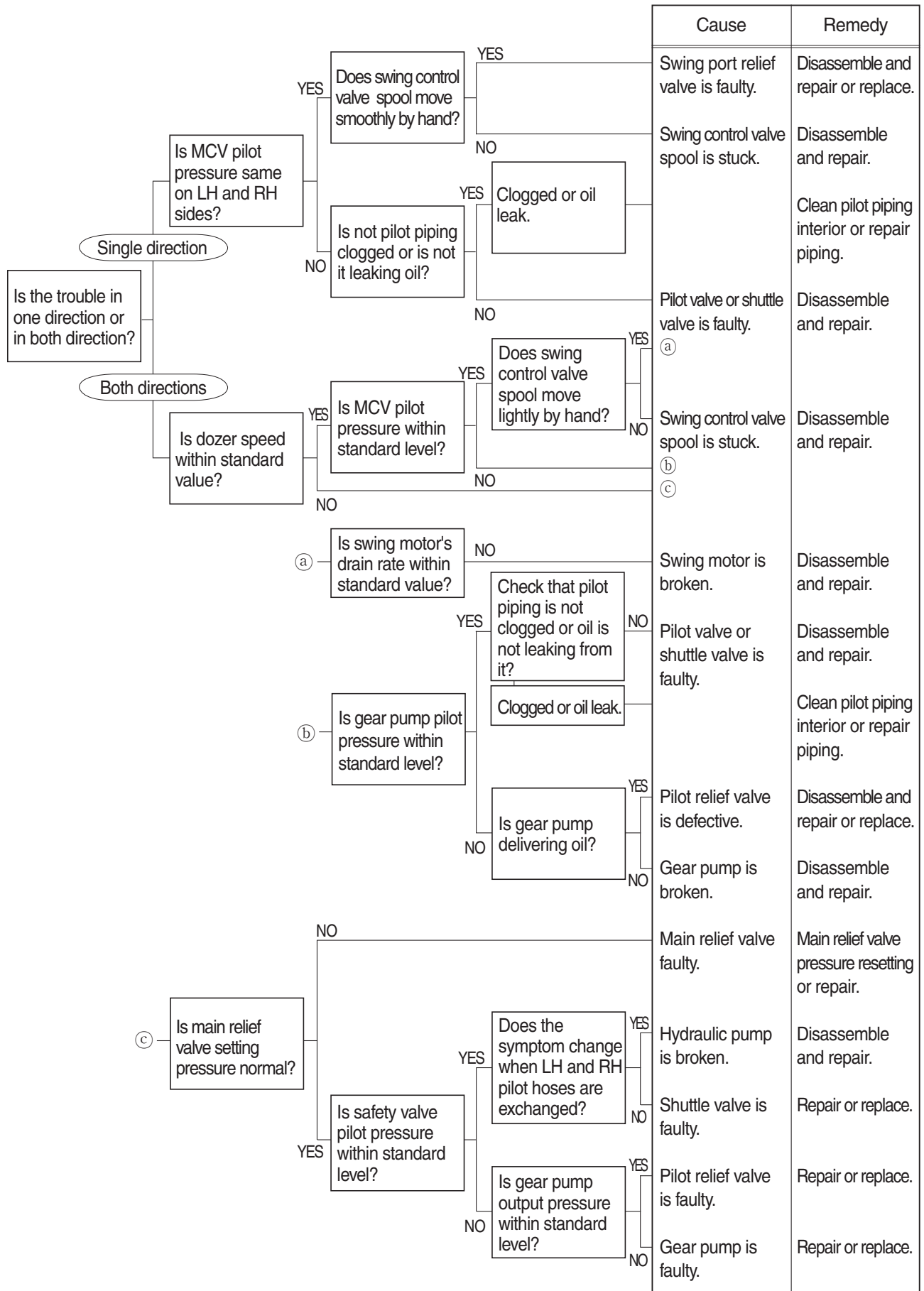


4. SWING SYSTEM

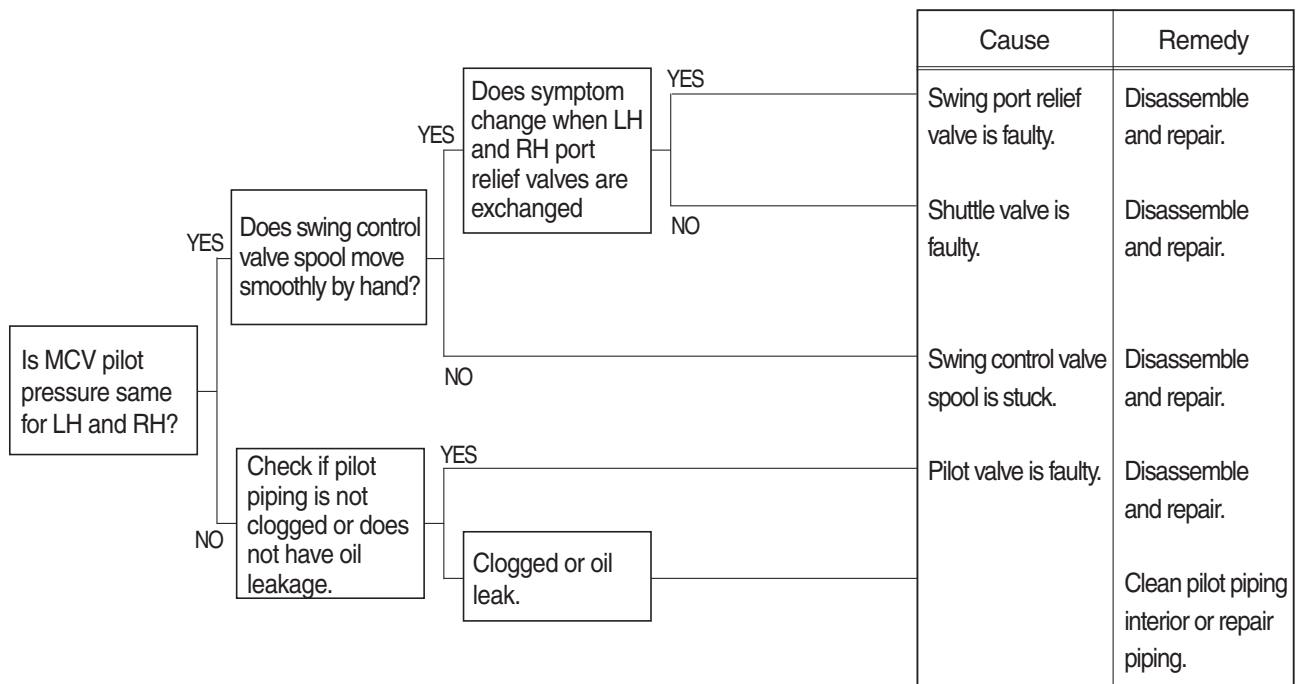
1) BOTH LH AND RH SWING ACTIONS ARE IMPOSSIBLE



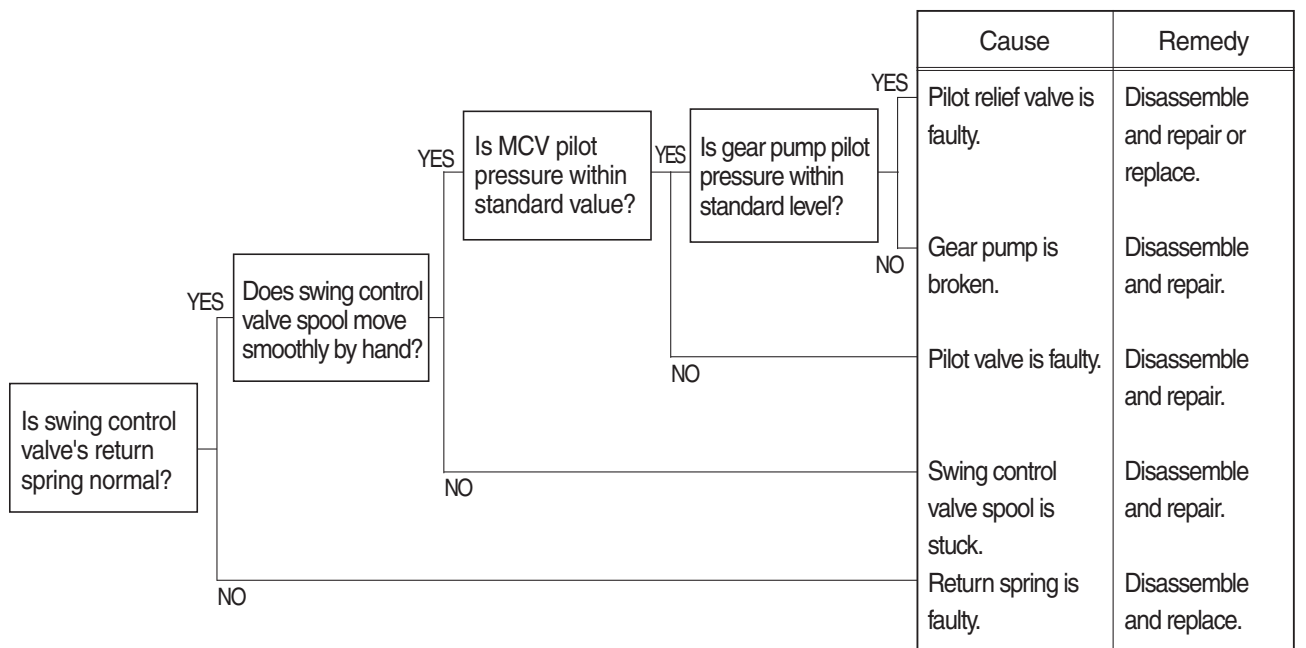
2) SWING SPEED IS LOW



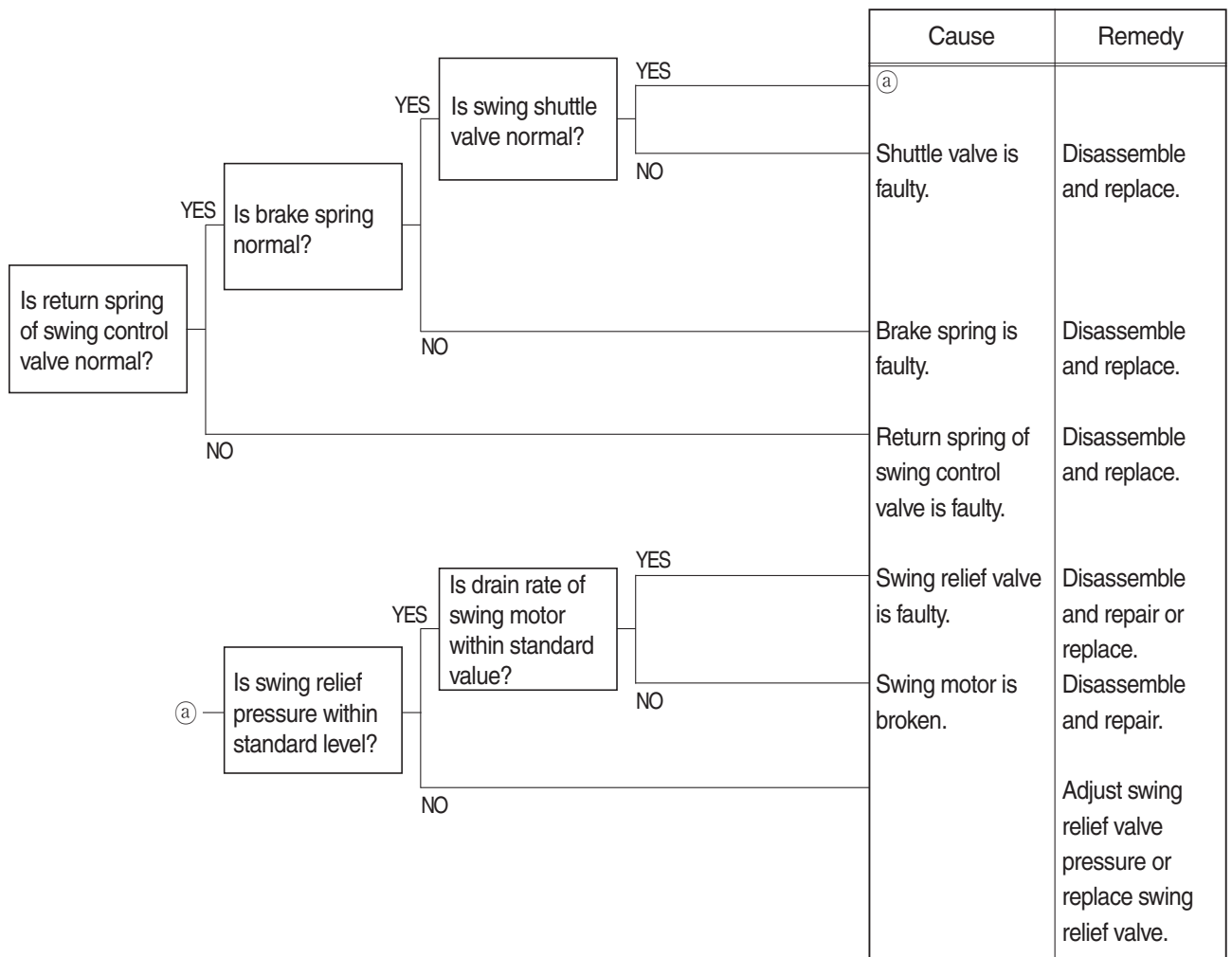
3) SWING MOTION IS IMPOSSIBLE IN ONE DIRECTION



4) MACHINE SWINGS BUT DOES NOT STOP

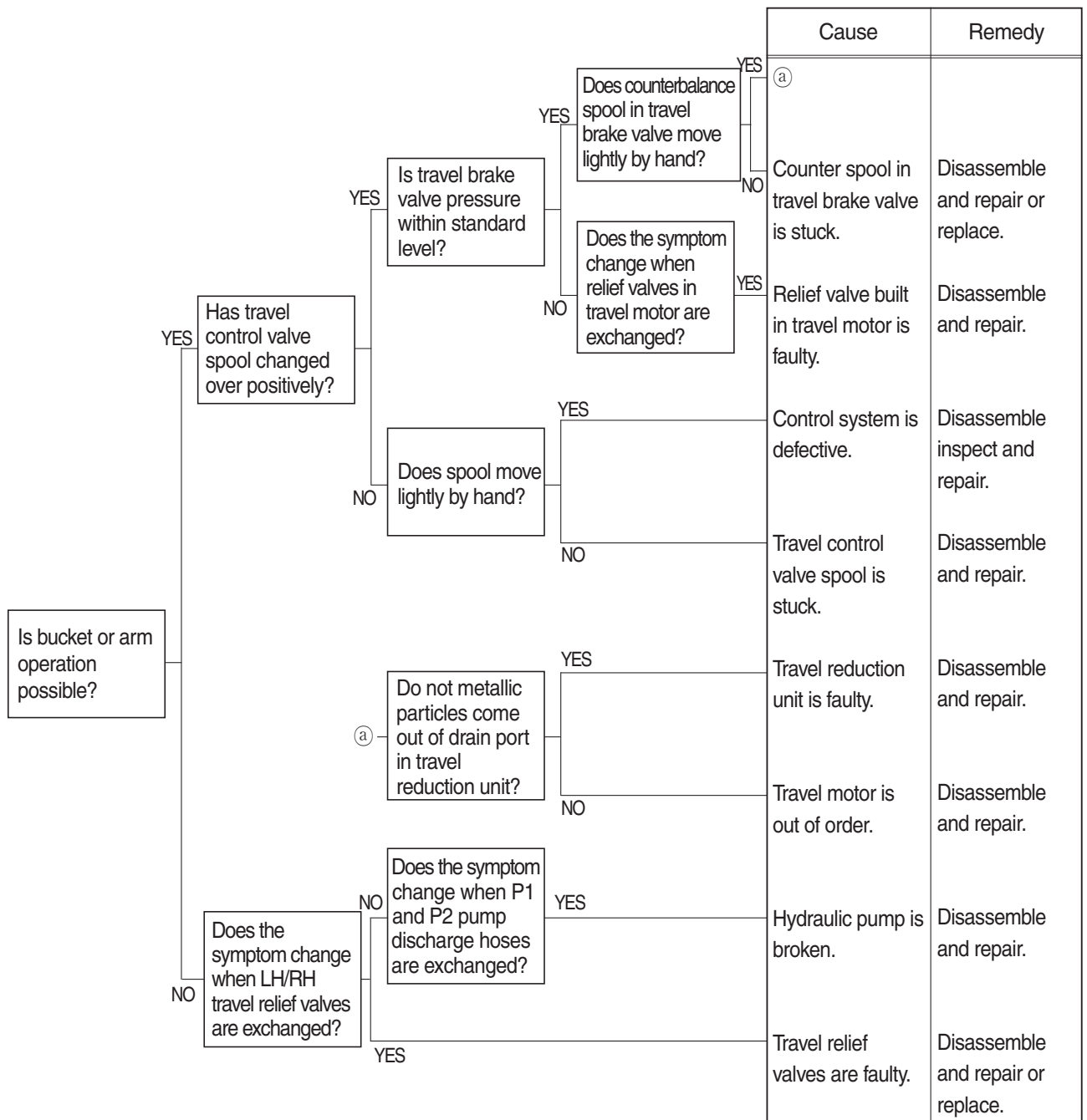


5) THE SWING UNIT DRIFTS WHEN THE MACHINE IS AT REST ON A SLOPE

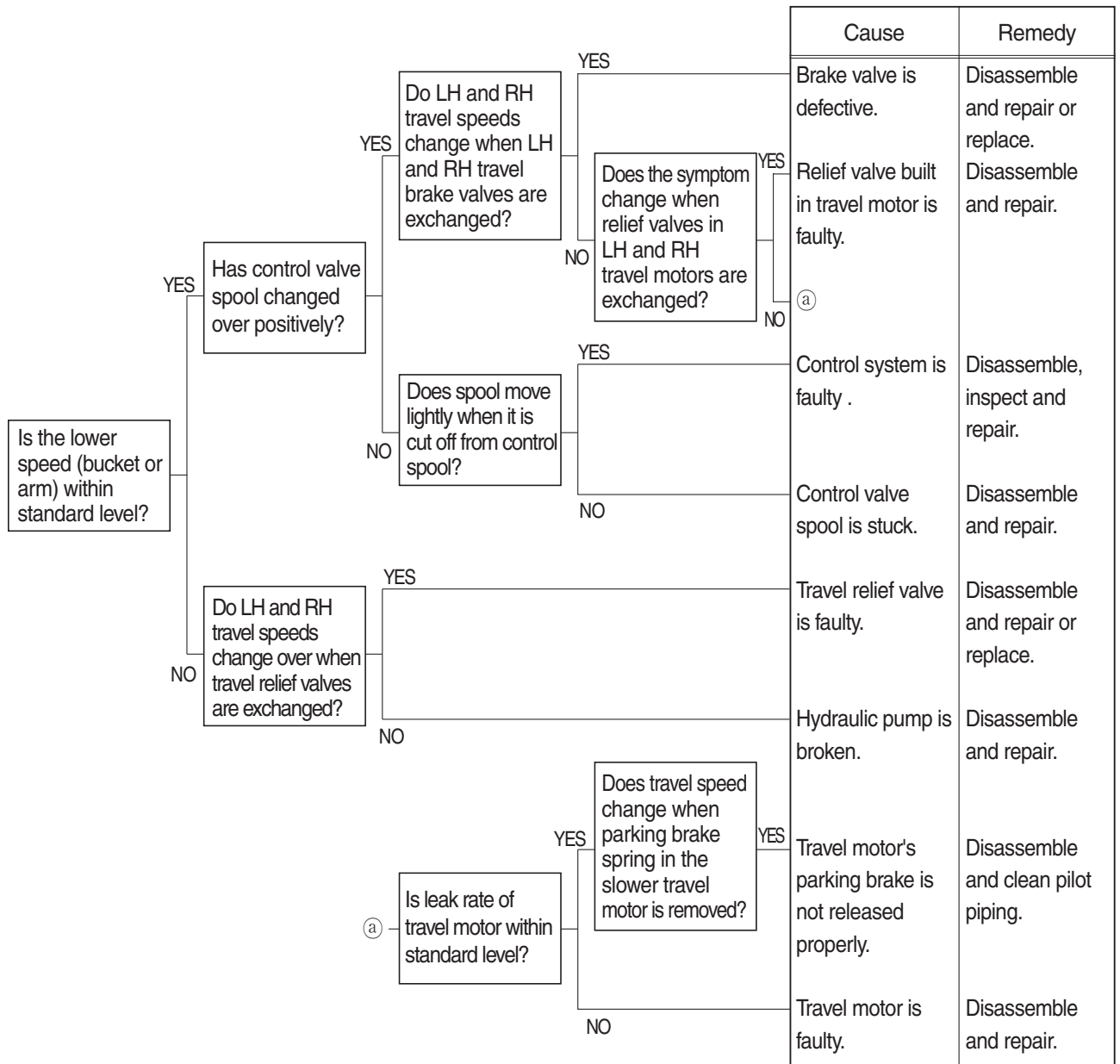


5. TRAVEL SYSTEM

1) TRAVEL DOES NOT FUNCTION AT ALL ON ONE SIDE

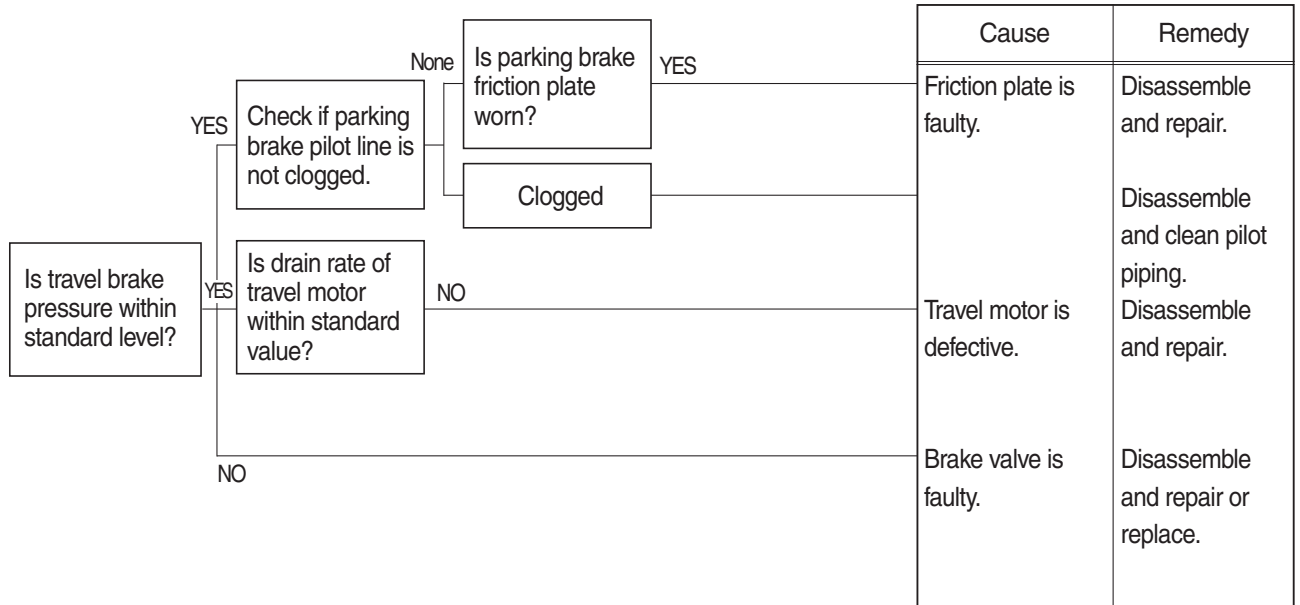


2) SPEED ON ONE SIDE FALLS AND THE MACHINE CURVES

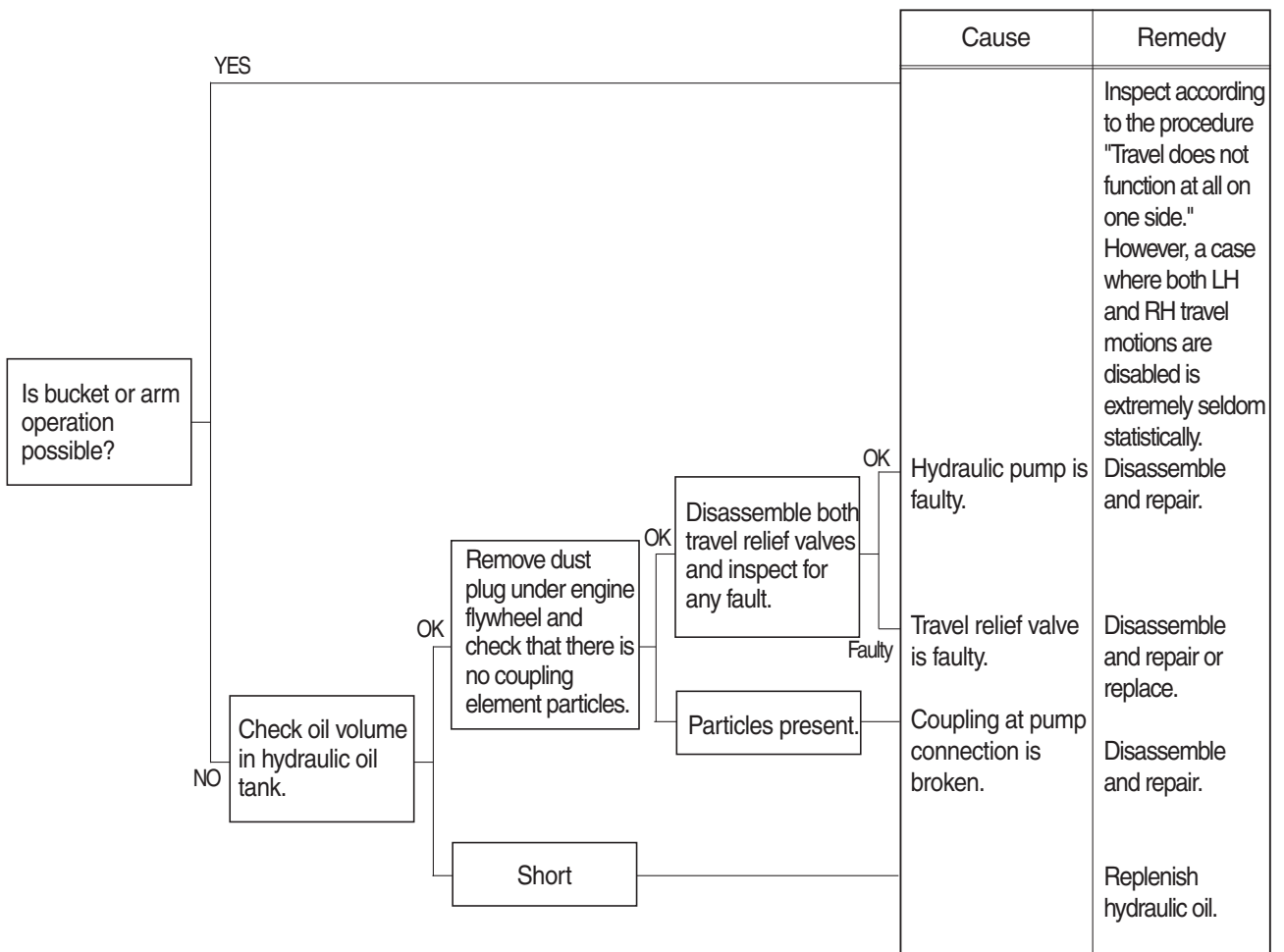


3) MACHINE DOES NOT STOP ON A SLOPE

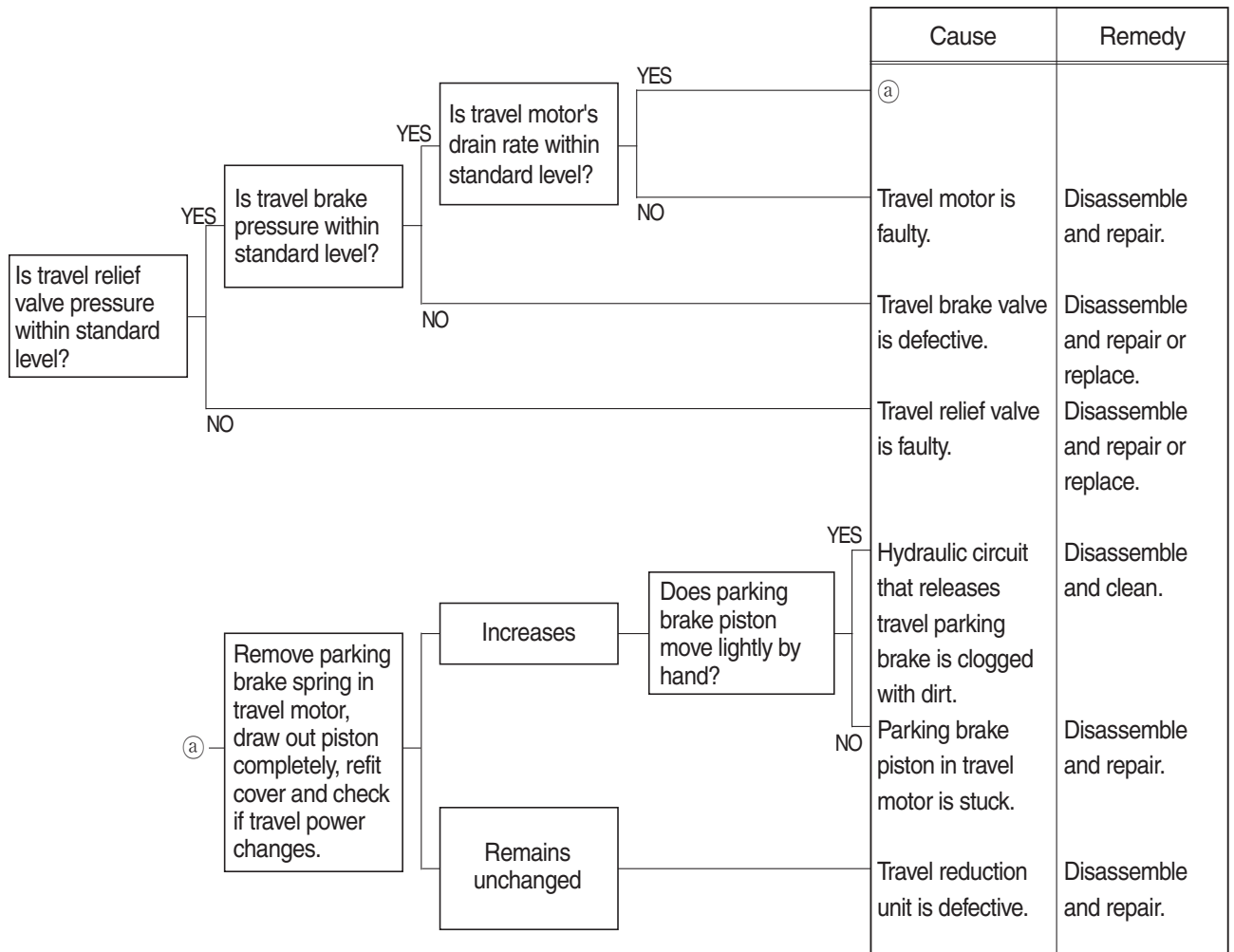
Machine is pulled forward as sprocket rotates during digging operation.



4) LH AND RH TRAVEL MOTIONS ARE IMPOSSIBLE



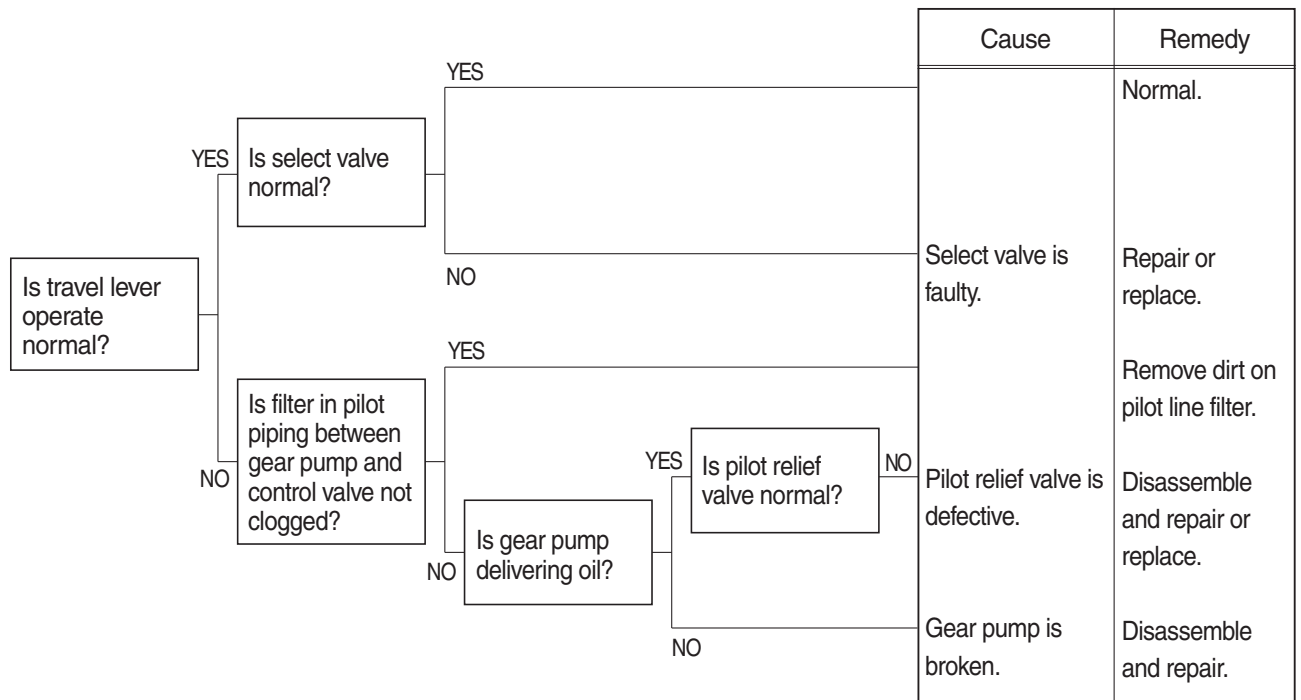
5) TRAVEL ACTION IS POWERLESS (travel only)



6) MACHINE RUNS RECKLESSLY ON A SLOPE

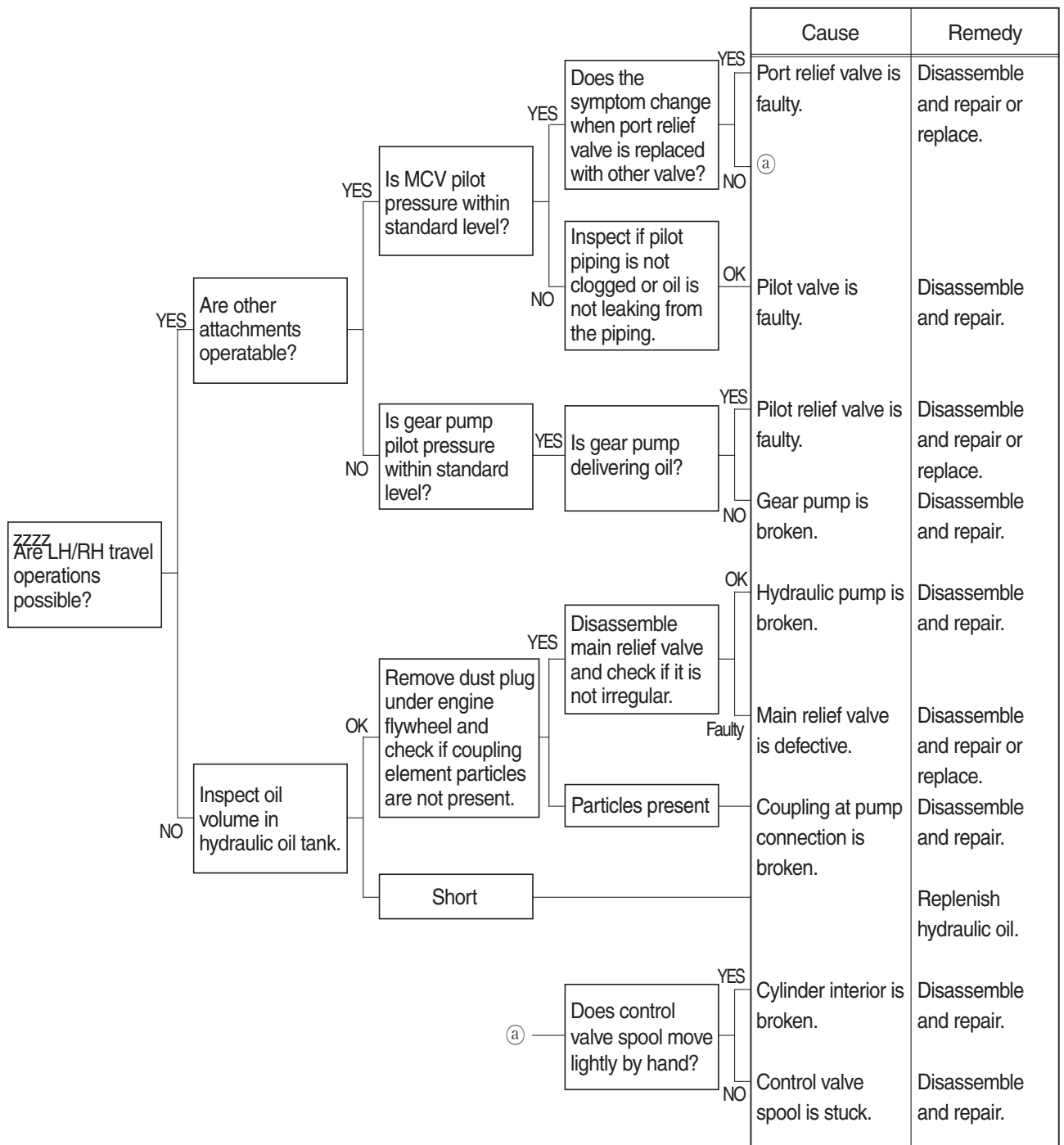


7) MACHINE MAKES A CURVED TRAVEL OR DOES NOT TRAVEL AT ALL WHEN TRAVEL AND ATTACHMENT OPERATIONS ARE EXECUTED AT THE SAME TIME

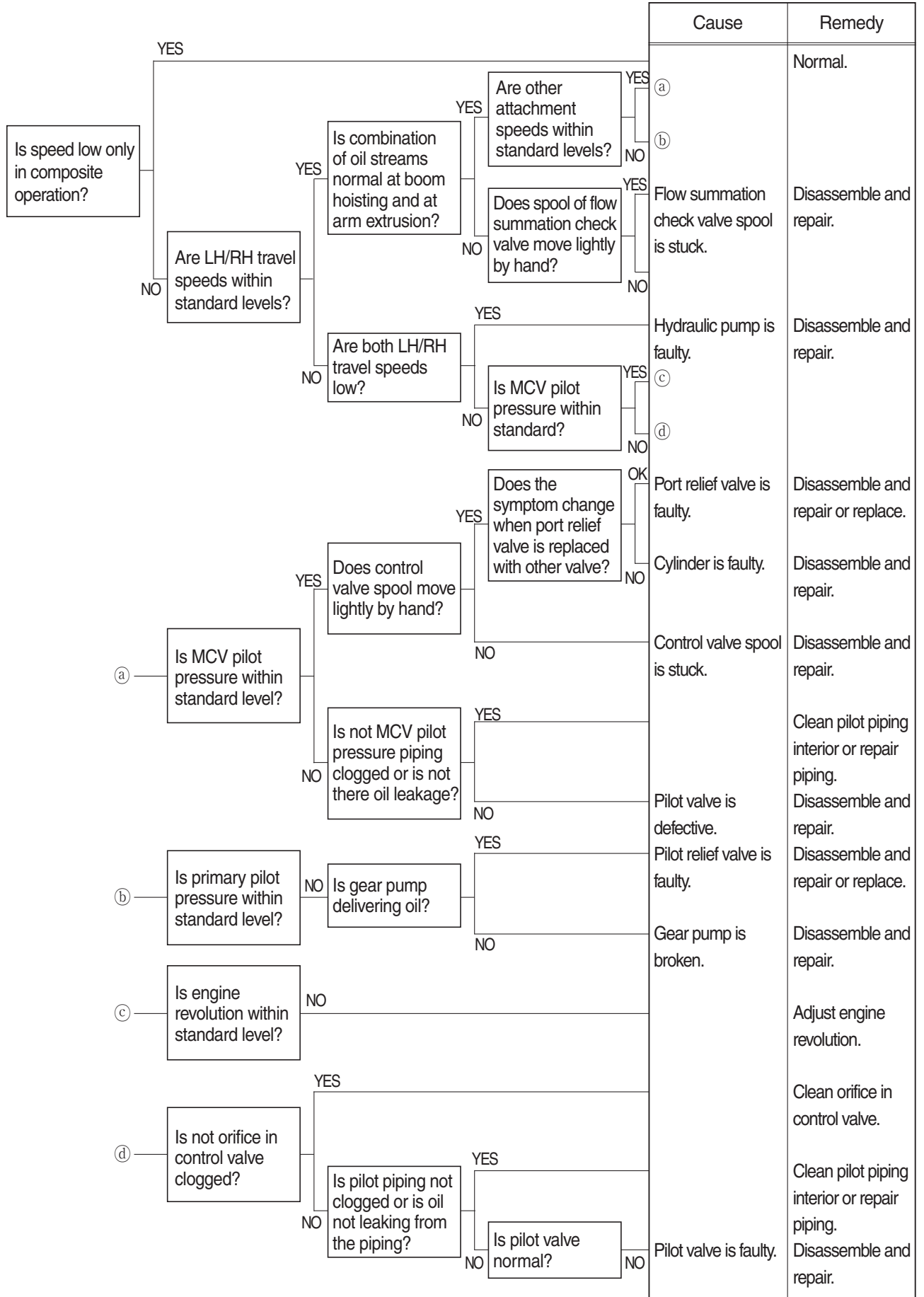


6. ATTACHMENT SYSTEM

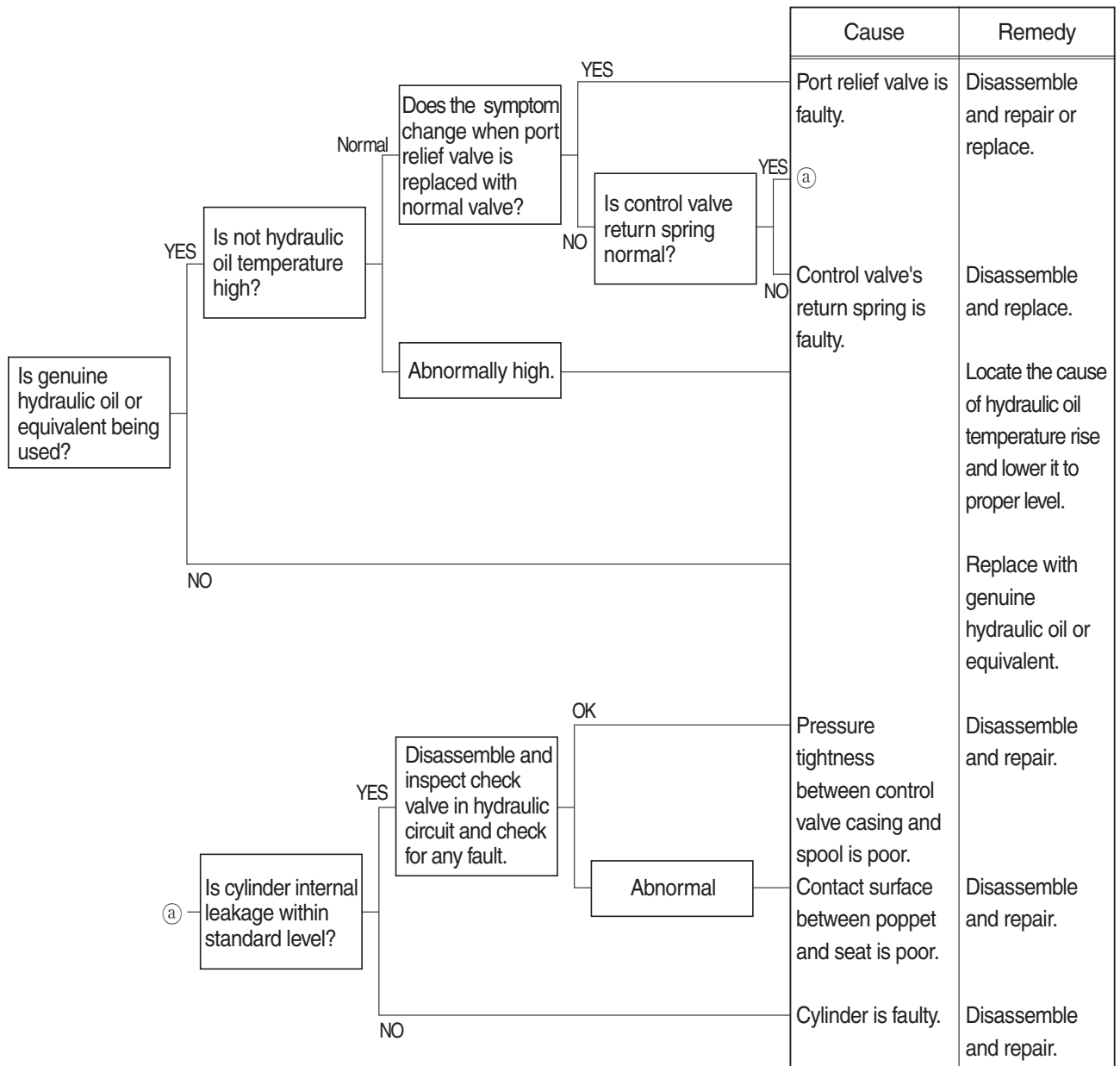
1) BOOM OR ARM ACTION IS IMPOSSIBLE AT ALL



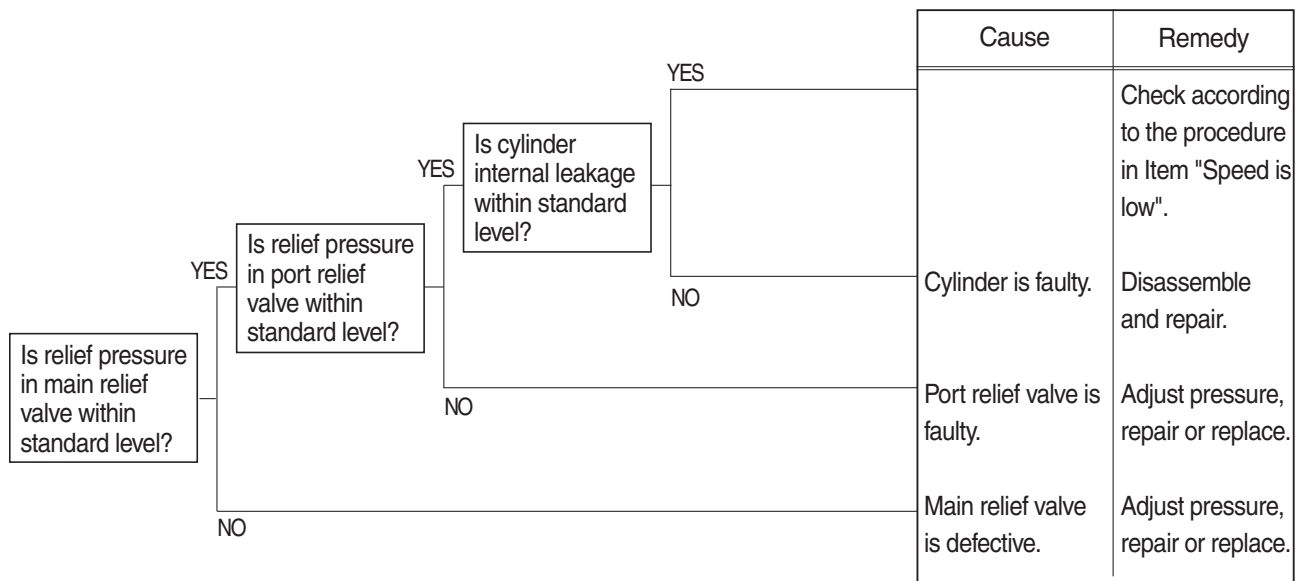
2) BOOM, ARM OR BUCKET SPEED IS LOW



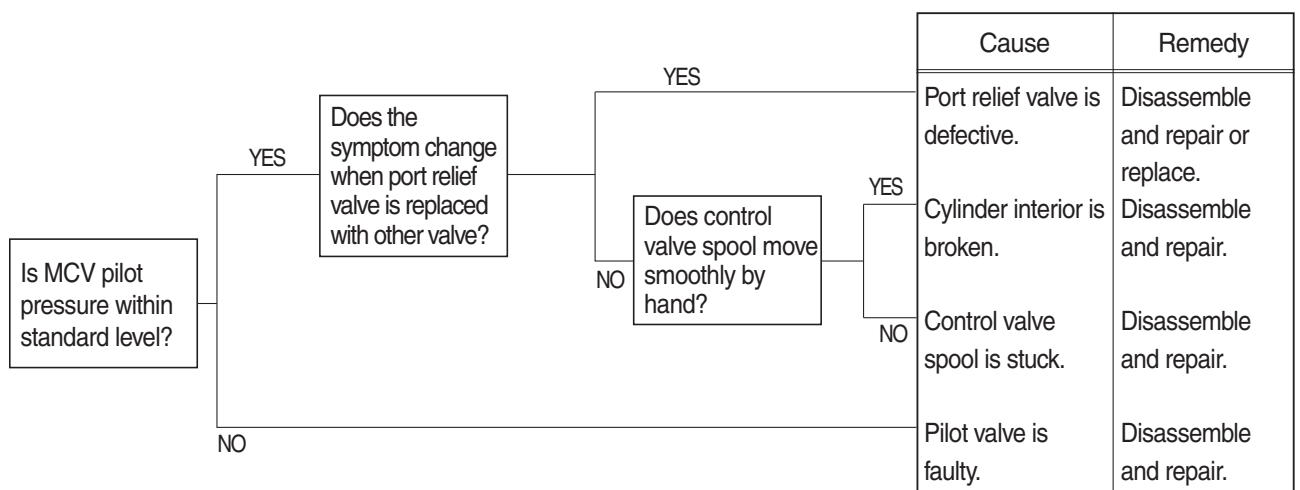
3) BOOM, ARM OR BUCKET CYLINDER EXTENDS OR CONTRACTS ITSELF AND ATTACHMENT FALLS



4) BOOM, ARM OR BUCKET POWER IS WEAK



5) ONLY BUCKET OPERATION IS TOTALLY IMPOSSIBLE

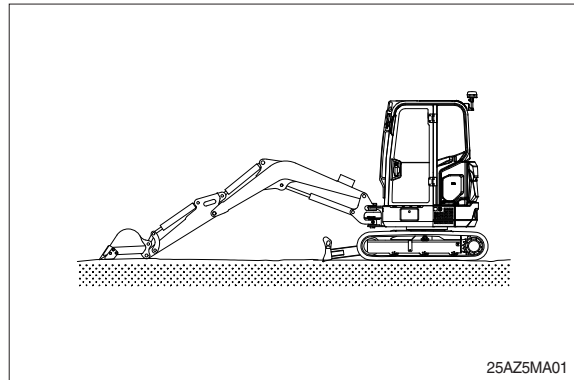


6) BOOM MAKES A SQUEAKING NOISE WHEN BOOM IS OPERATED

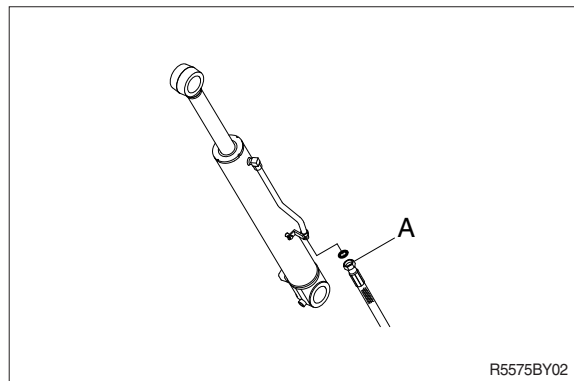
| | | Cause | Remedy |
|--|-----|--------------------------------------|--|
| Is boom foot pin greased sufficiently? | YES | | Frictional noise occurs between the sliding faces of boom cylinder's oil seal and boom proper. ※ Frictional noise will disappear if they are kept used. |
| | NO | Boom foot pin has run out of grease. | Supply grease to it. ※ If seizure is in an initial stage, supply sufficient grease. If seizure is in a grown state, correct it by paper lapping or with an oil stone. |

※ HOW TO CHECK INTERNAL BOOM CYLINDER LEAKAGE

1. Lower the bucket teeth to the ground with bucket cylinder fully retracted and arm cylinder rod retracted almost in full.



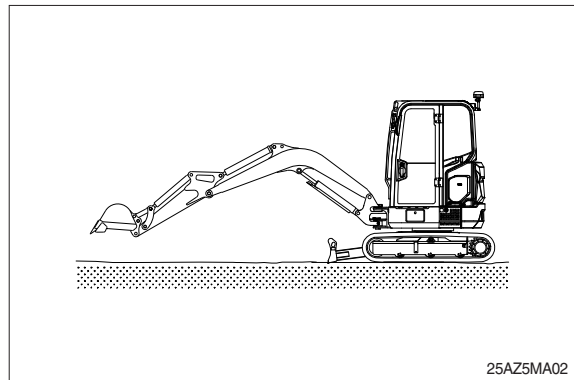
2. Disconnect hose (A) from rod side of boom cylinder and drain oil from cylinders and hose. (Put cups on piping and hose ends)



3. Raise bucket OFF the ground by retracting the arm cylinder rod.

If oil leaks from piping side and boom cylinder rod is retracted there is an internal leak in the cylinder.

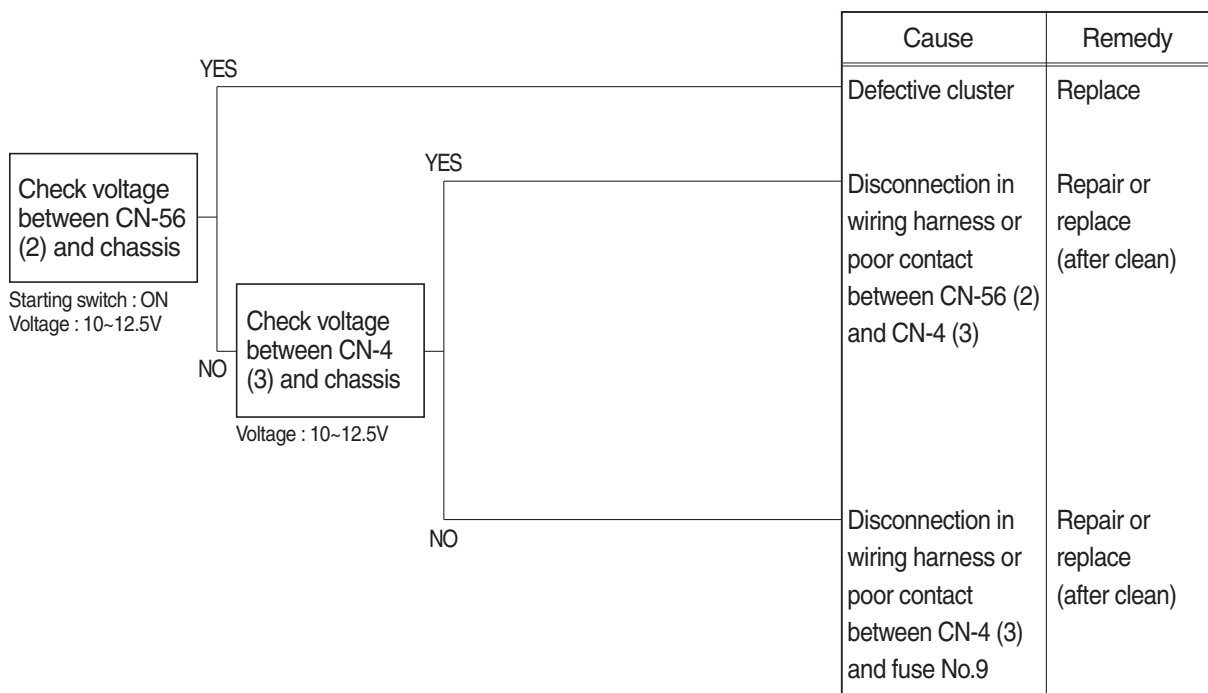
If no oil leaks from piping side and boom cylinder rod is retracted, there is an internal leak in the control valve.



GROUP 3 ELECTRICAL SYSTEM

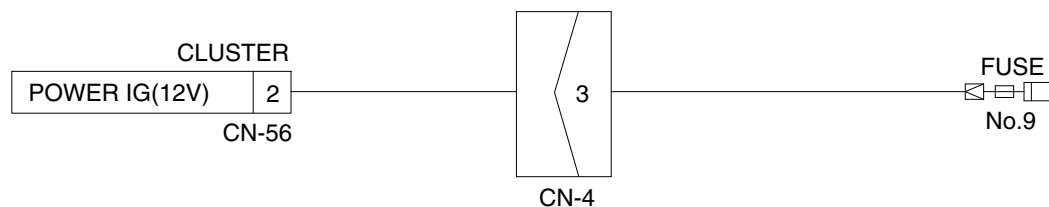
1. WHEN STARTING SWITCH IS TURNED ON, MONITOR PANEL DISPLAY DOES NOT APPEAR

- Before disconnecting the connector, always turn the starting switch OFF.
- Before carrying out below procedure, check all the related connectors are properly inserted and short of fuse No.9.
- After checking, insert the disconnected connectors again immediately unless otherwise specified.



Check voltage

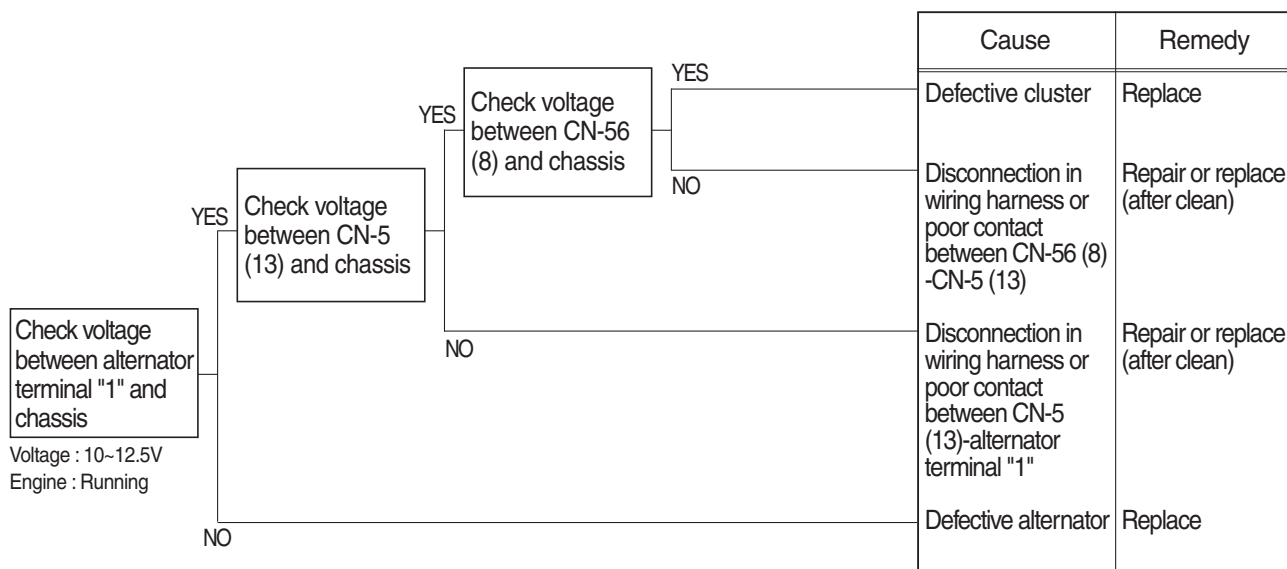
| | |
|-----|------------|
| YES | 10 ~ 12.5V |
| NO | 0V |



25AZ5TS02

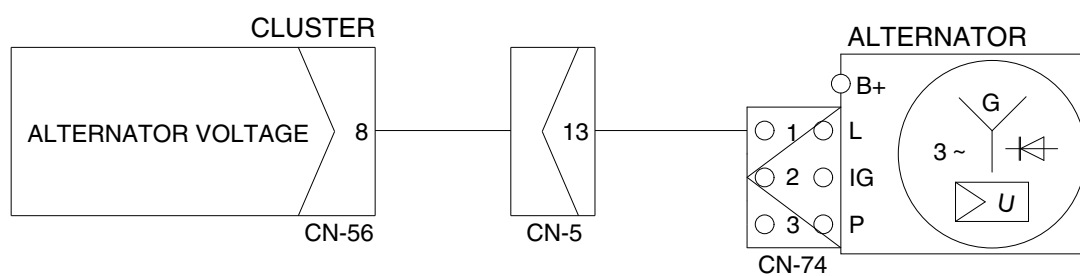
2. BATTERY CHARGING WARNING LAMP LIGHTS UP (starting switch : ON)

- Before disconnecting the connector, always turn the starting switch OFF.
- Before carrying out below procedure, check all the related connectors are properly inserted.
- After checking, insert the disconnected connectors again immediately unless otherwise specified.



Check voltage

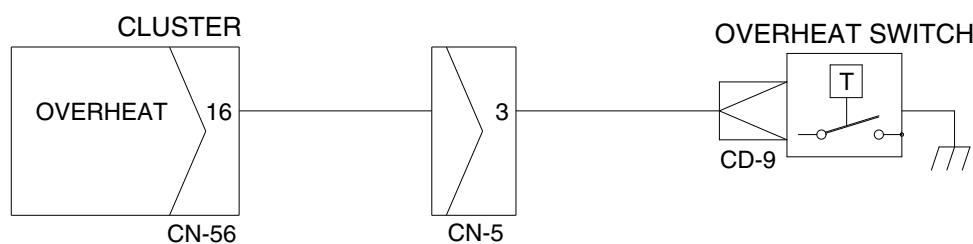
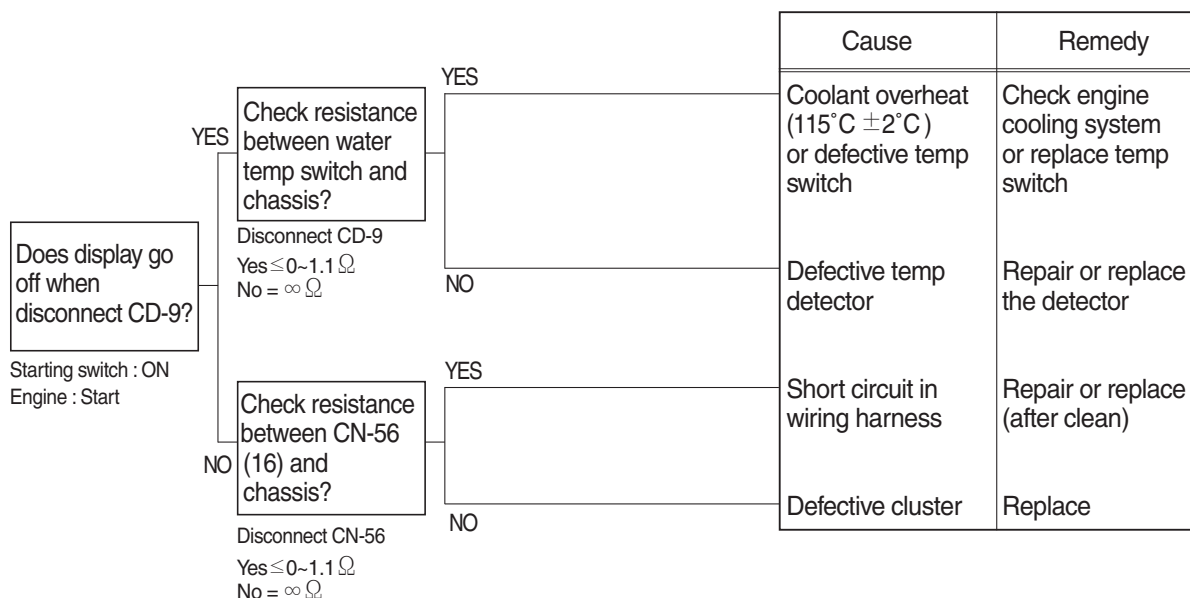
| | |
|-----|------------|
| YES | 10 ~ 12.5V |
| NO | 0V |



19A5TS03

3. WHEN COOLANT OVERHEAT WARNING LAMP LIGHTS UP (Engine is started)

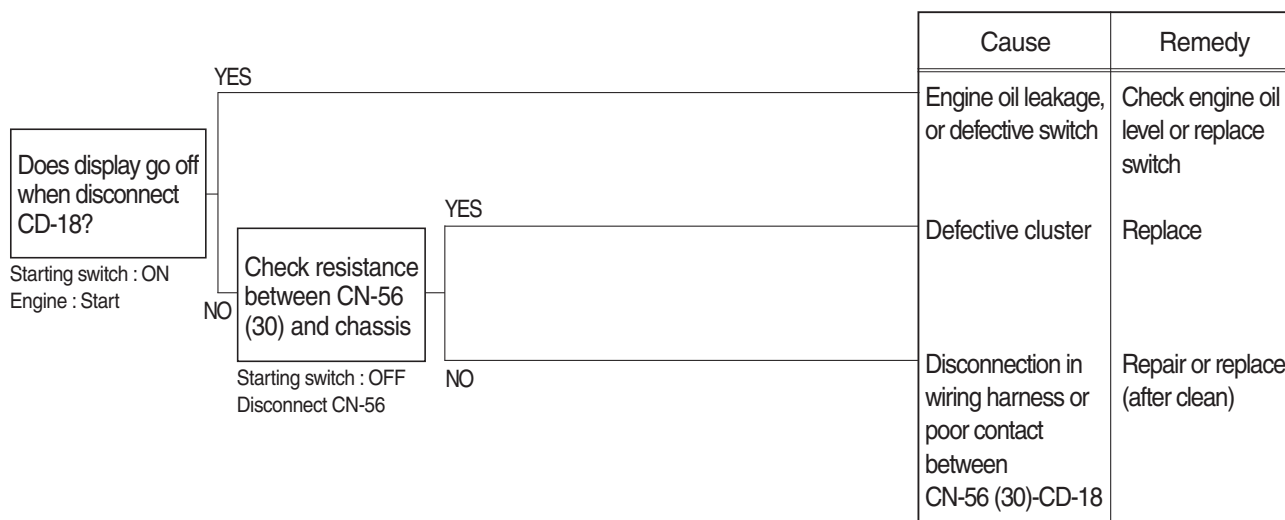
- Before disconnecting the connector, always turn the starting switch OFF.
- Before carrying out below procedure, check all the related connectors are properly inserted.
- After checking, insert the disconnected connectors again immediately unless otherwise specified.



17AZ5TS04

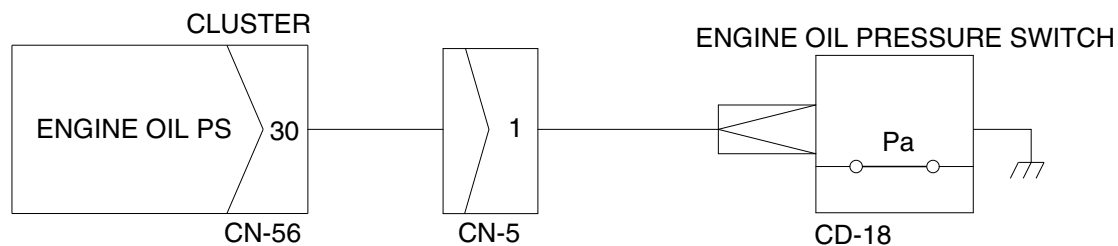
4. WHEN ENGINE OIL PRESSURE WARNING LAMP LIGHTS UP (Engine is started)

- Before disconnecting the connector, always turn the starting switch OFF.
- Before carrying out below procedure, check all the related connectors are properly inserted.
- After checking, insert the disconnected connectors again immediately unless otherwise specified.



Check resistance

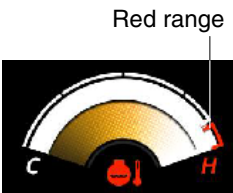
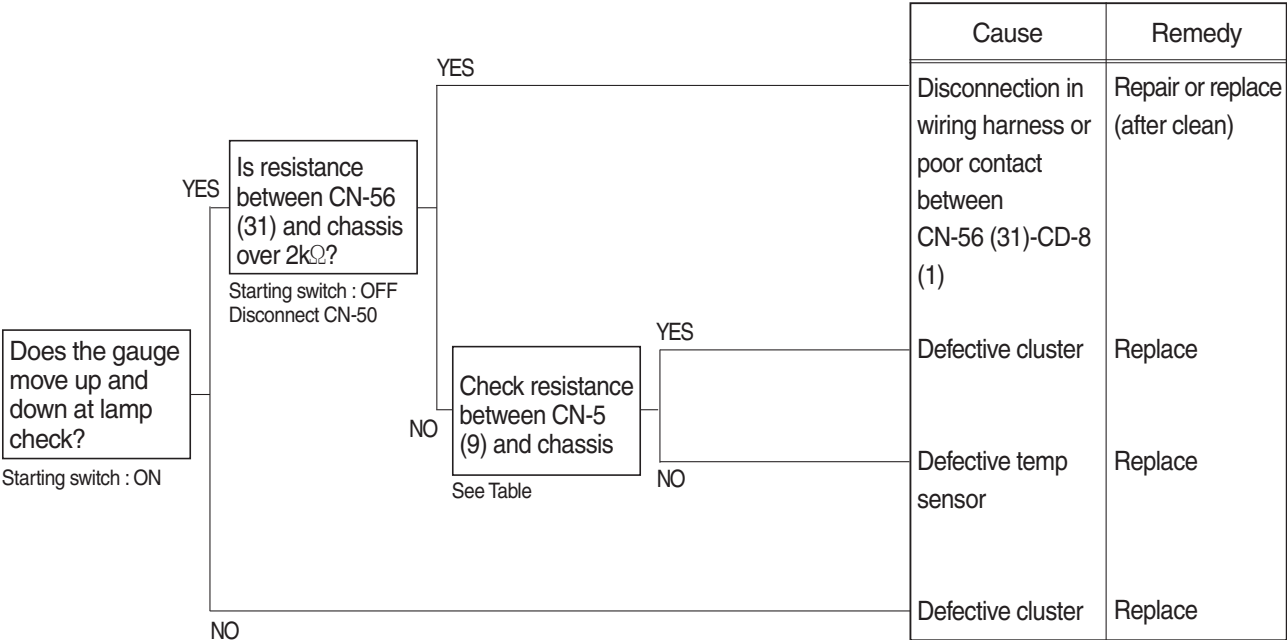
| | |
|-----|---------|
| YES | MAX 1Ω |
| NO | MIN 1MΩ |



17AZ5TS06

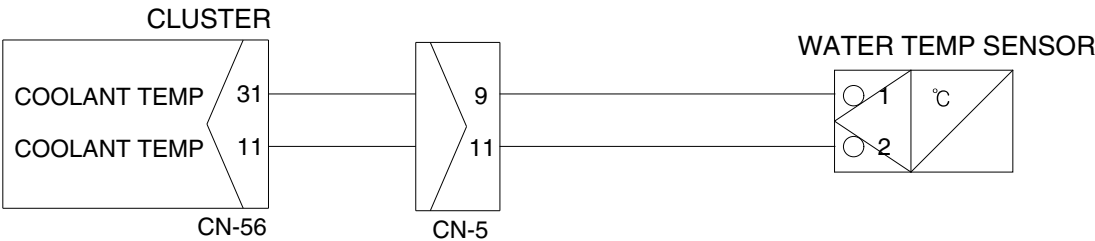
5. WHEN COOLANT TEMPERATURE GAUGE DOES NOT OPERATE

- Before disconnecting the connector, always turn the starting switch OFF.
- Before carrying out below procedure, check all the related connectors are properly inserted.
- After checking, insert the disconnected connectors again immediately unless otherwise specified.



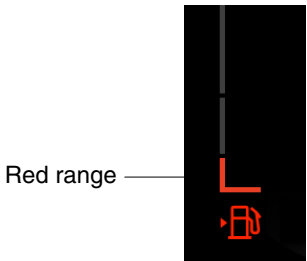
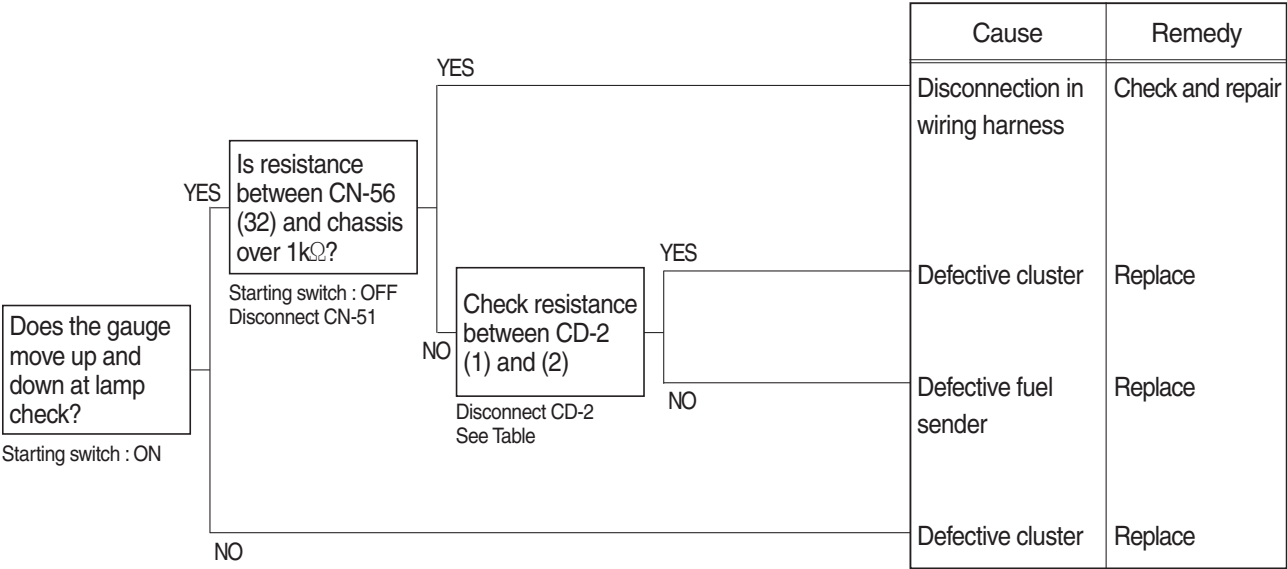
Check Table

| Temperature | 50°C | 80°C | 100°C | 115°C (red range) |
|---------------------|------|------|-------|-------------------|
| Item | | | | |
| Unit resistance (Ω) | 350 | 118 | 63.5 | 36.2 |



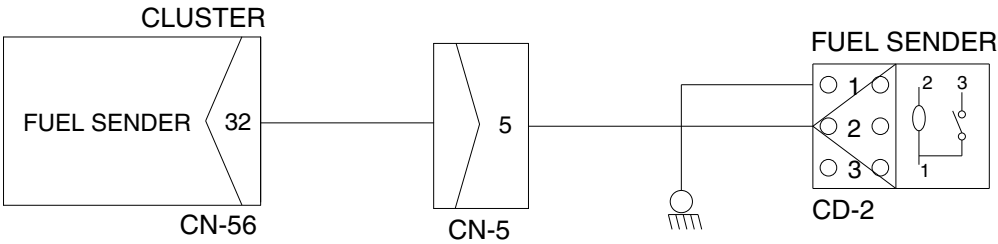
6. WHEN FUEL GAUGE DOES NOT OPERATE (Check warning lamp ON/OFF)

- Before disconnecting the connector, always turn the starting switch OFF.
- Before carrying out below procedure, check all the related connectors are properly inserted.
- After checking, insert the disconnected connectors again immediately unless otherwise specified.



Check Table

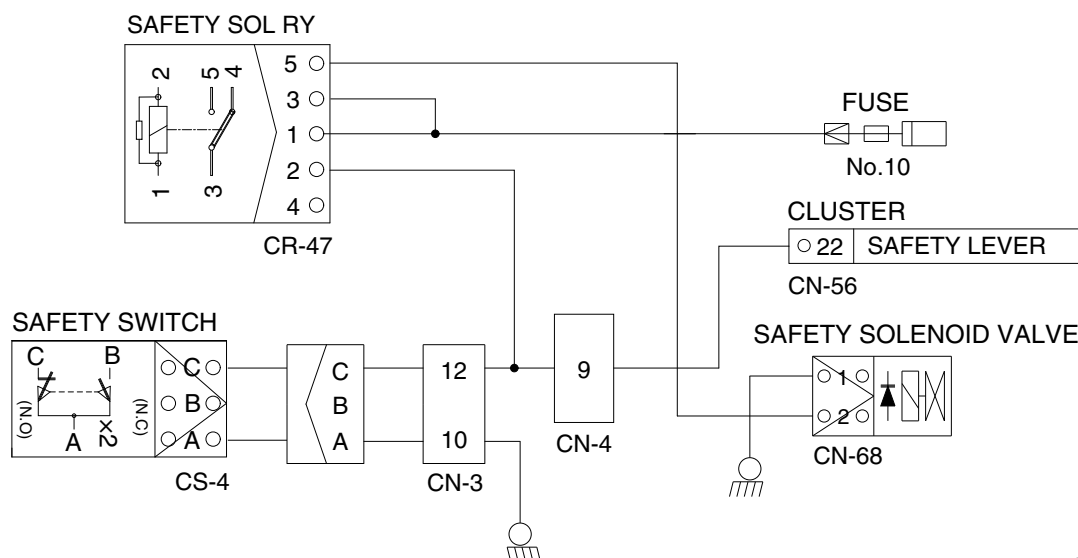
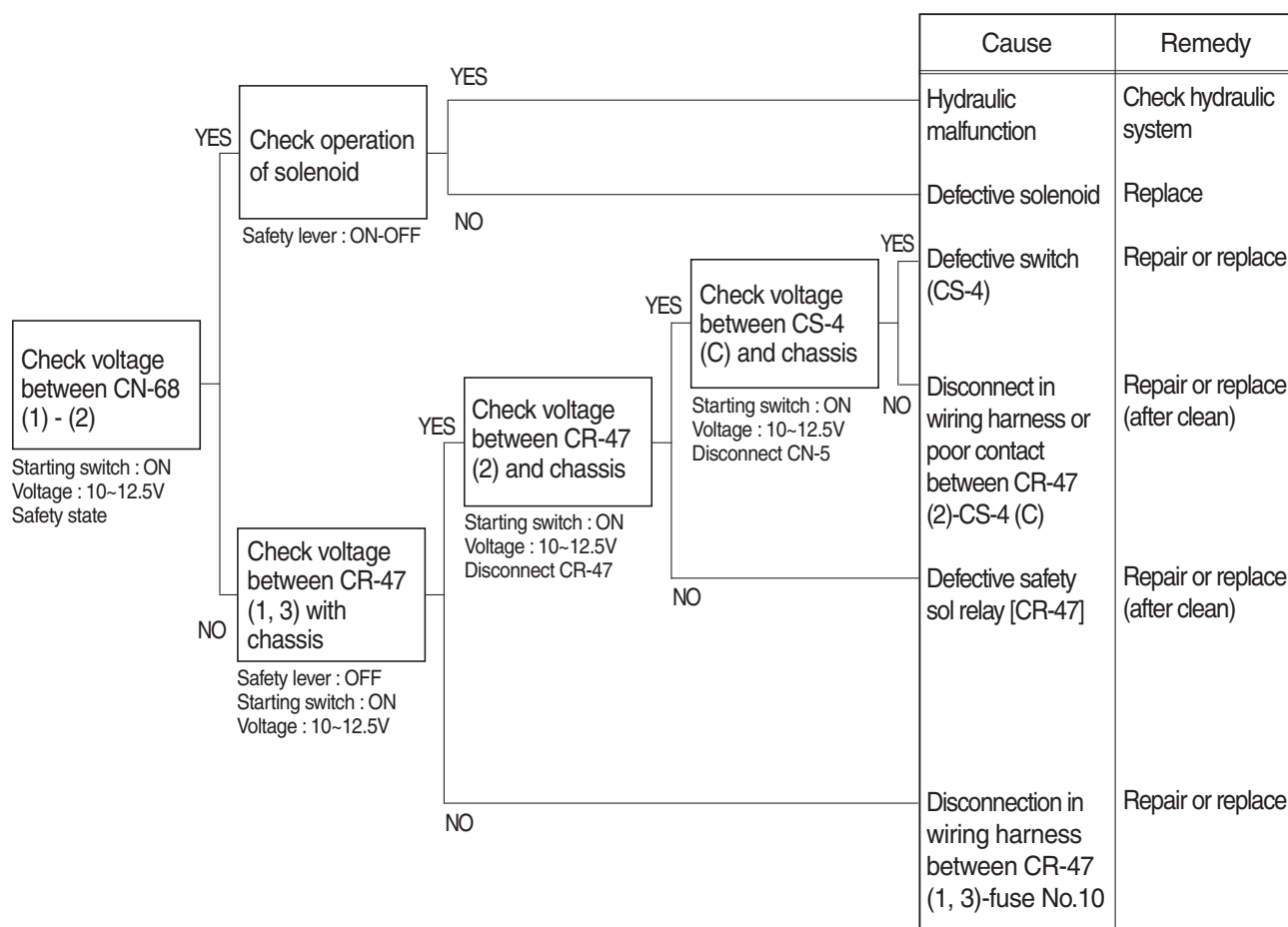
| Temperature | Empty | 1/2 | Full |
|---------------------|-------|-----|------|
| Item | | | |
| Unit resistance (Ω) | 90 | 38 | 10 |



25AZ5TS08

7. WHEN SAFETY SOLENOID DOES NOT OPERATE

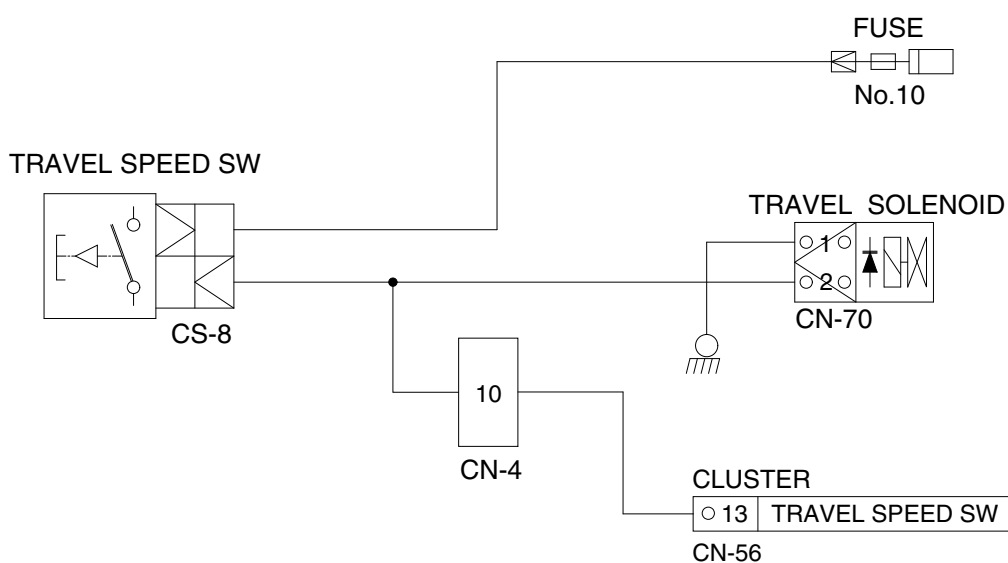
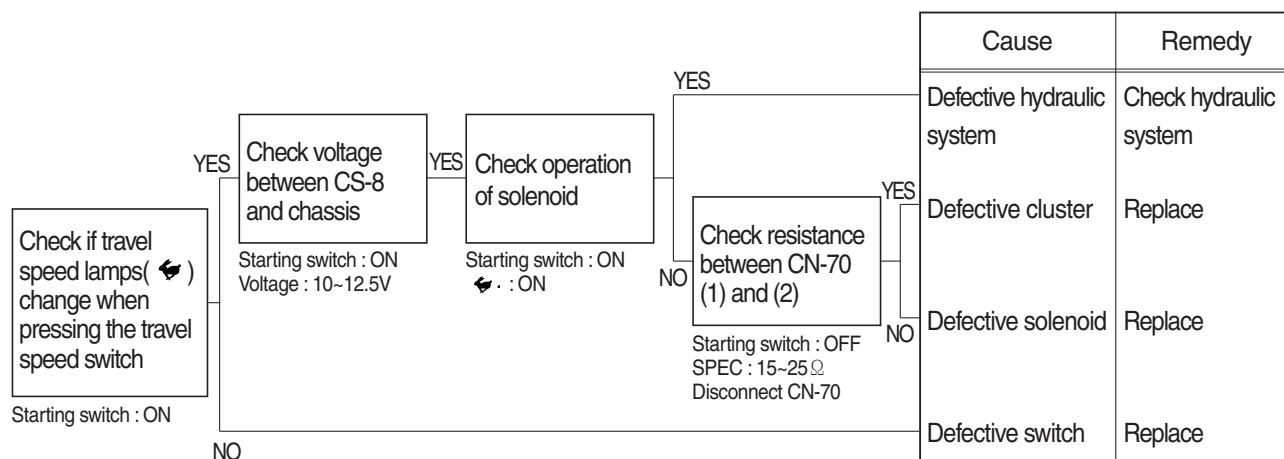
- Before disconnecting the connector, always turn the starting switch OFF.
- Before carrying out below procedure, check all the related connectors are properly inserted and short of fuse No.10.
- After checking, insert the disconnected connectors again immediately unless otherwise specified.



25AZ5TS09

8. WHEN TRAVEL SPEED HIGH, LOW DOES NOT OPERATE

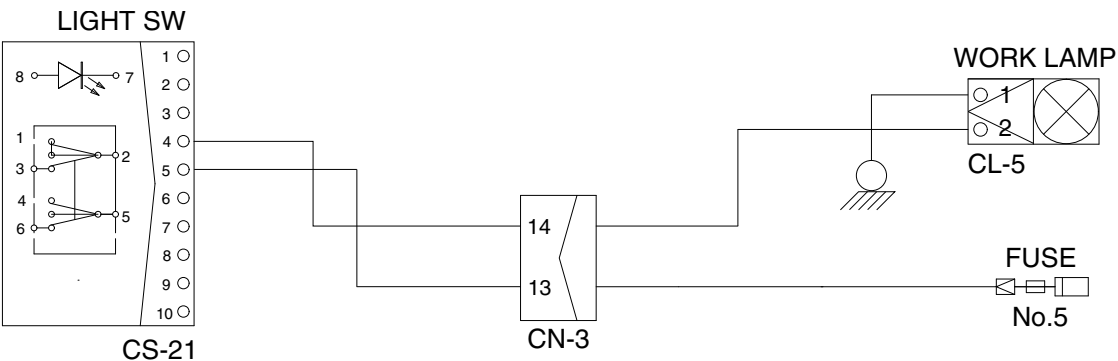
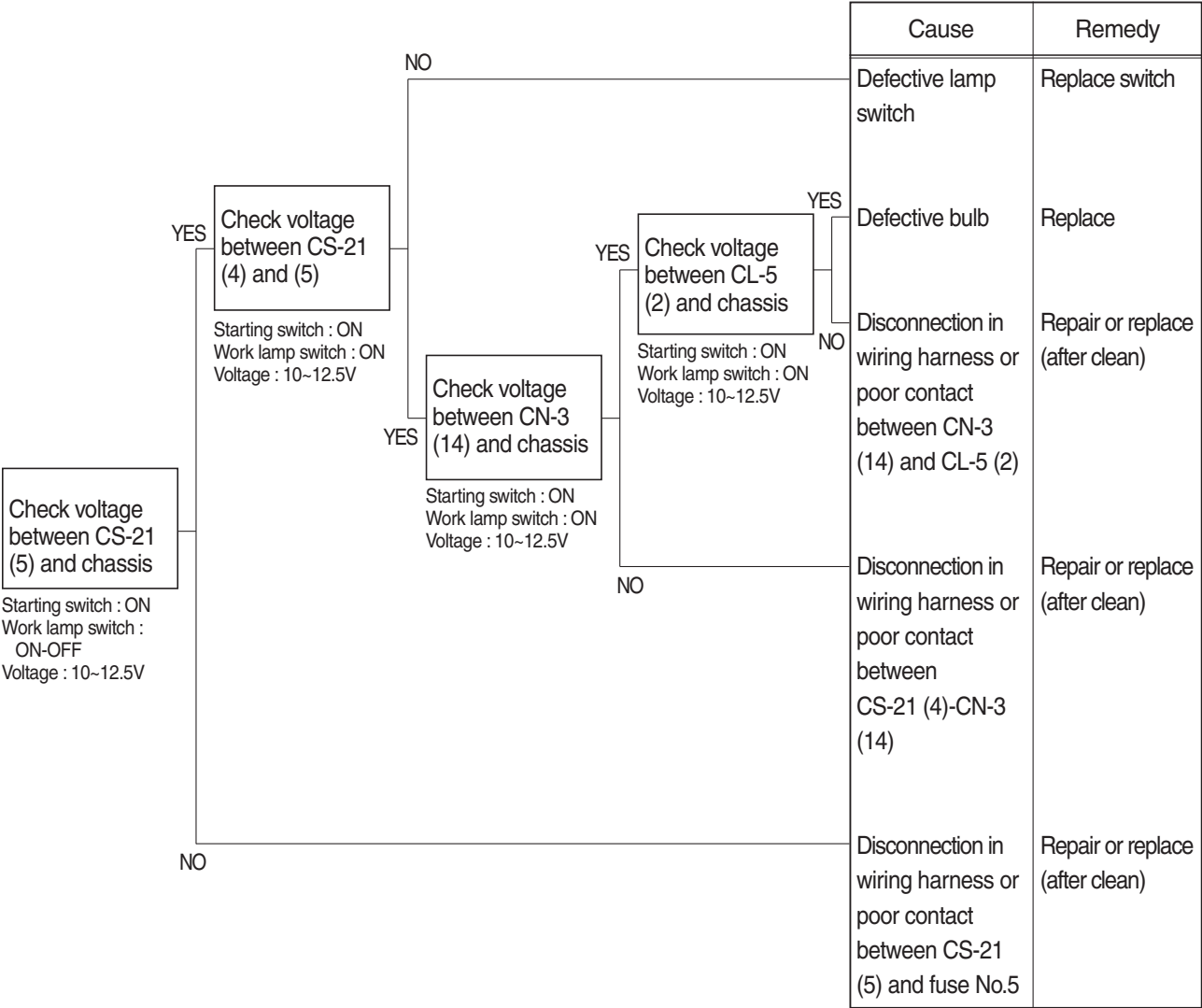
- Before disconnecting the connector, always turn the starting switch OFF.
- Before carrying out below procedure, check all the related connectors are properly inserted and short of fuse No.10.
- After checking, insert the disconnected connectors again immediately unless otherwise specified.



25AZ5TS10

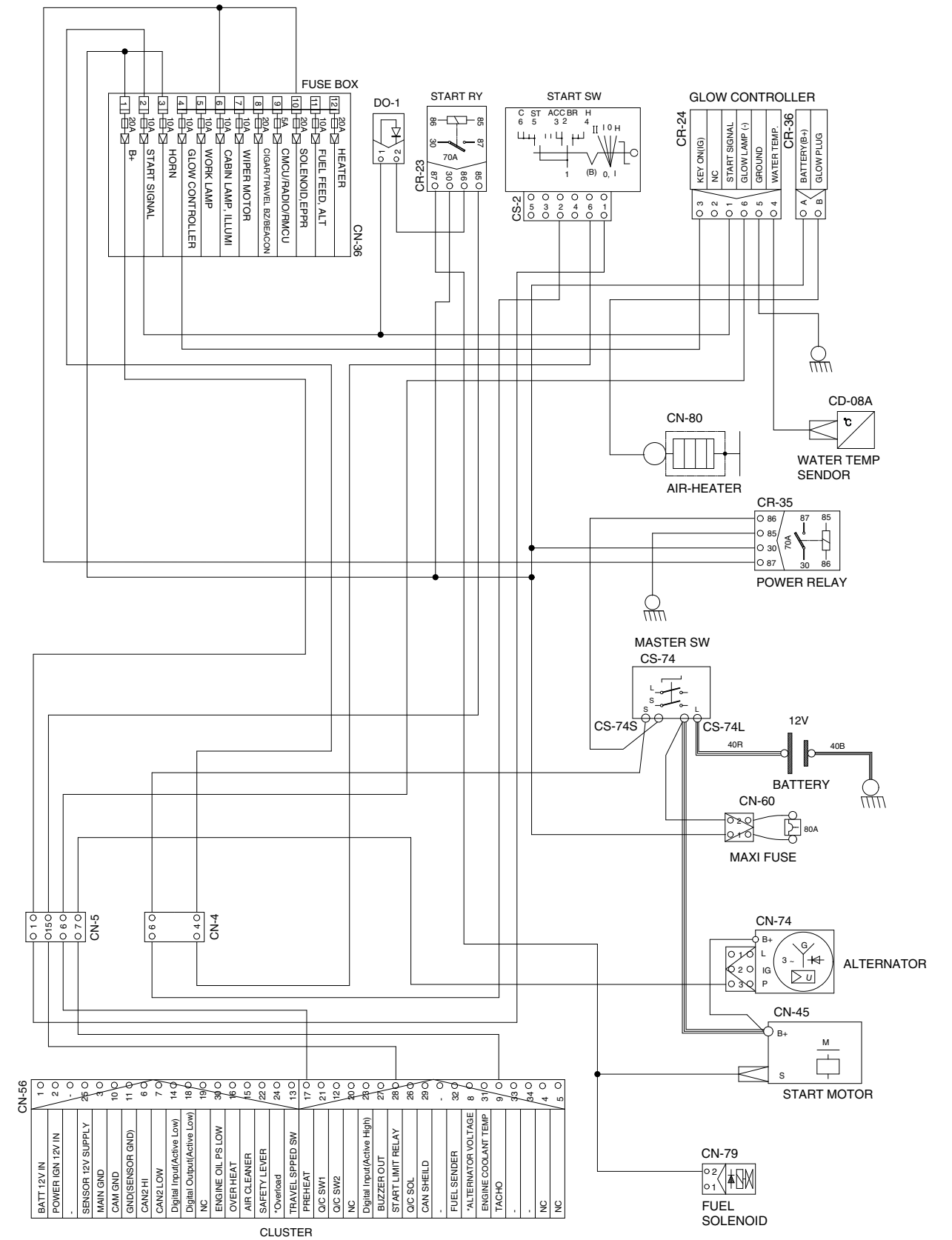
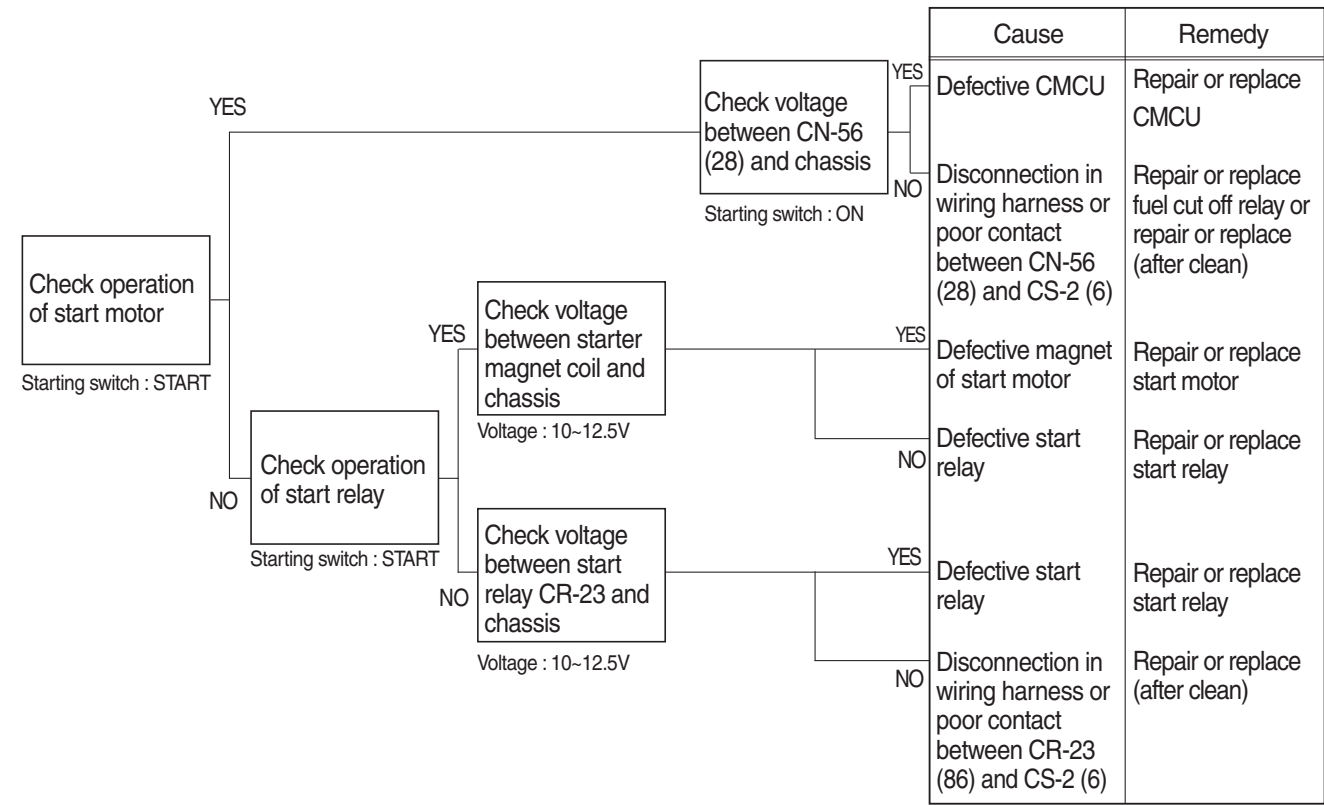
9. WHEN STARTING SWITCH IS TURNED ON, WORK LAMP DOES NOT LIGHTS UP

- Before disconnecting the connector, always turn the starting switch OFF.
- Before carrying out below procedure, check all the related connectors are properly inserted and short of fuse No.5.
- After checking, insert the disconnected connectors again immediately unless otherwise specified.



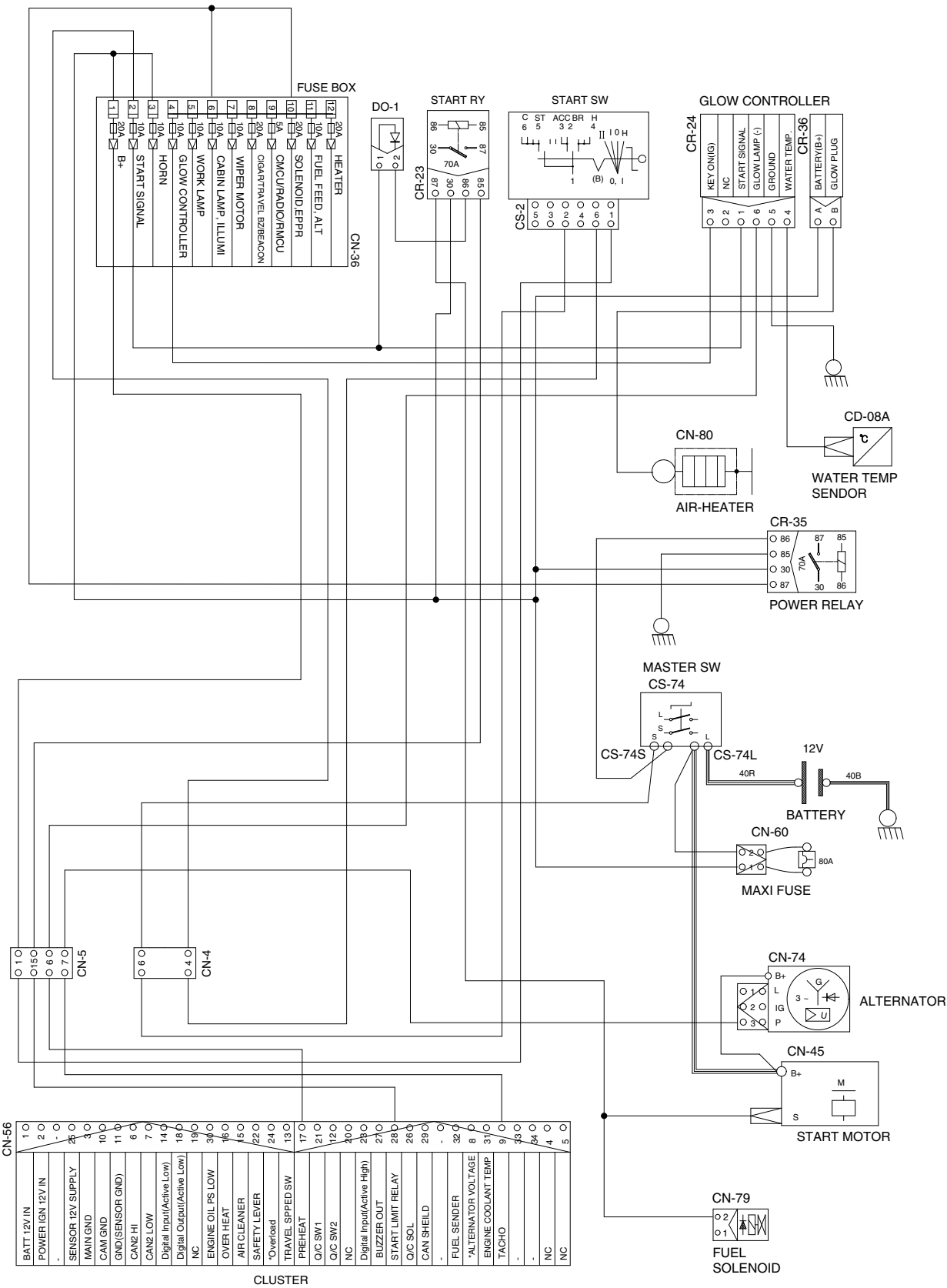
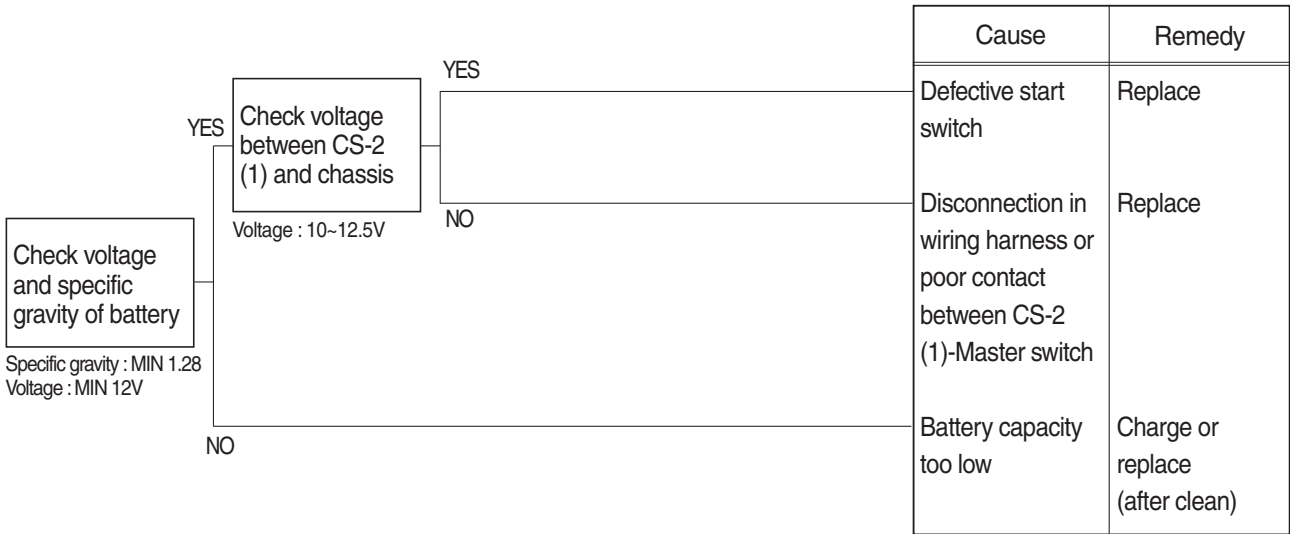
10. WHEN ENGINE DOES NOT START

- Before disconnecting the connector, always turn the starting switch OFF.
- Before carrying out below procedure, check all the related connectors are properly inserted.
- After checking, insert the disconnected connectors again immediately unless otherwise specified.



11. WHEN STARTING SWITCH ON DOES NOT OPERATE

- Before disconnecting the connector, always turn the starting switch OFF.
- Before carrying out below procedure, check all the related connectors are properly inserted and master switch ON.
- After checking, insert the disconnected connectors again immediately unless otherwise specified.



SECTION 6 MAINTENANCE STANDARD

| | | |
|---------|------------------------------------|------|
| Group 1 | Operational Performance Test | 6-1 |
| Group 2 | Major Components | 6-21 |
| Group 3 | Track and Work Equipment | 6-32 |

GROUP 1 OPERATIONAL PERFORMANCE TEST

1. PURPOSE

Performance tests are used to check:

1) OPERATIONAL PERFORMANCE OF A NEW MACHINE

Whenever a new machine is delivered in parts and reassembled at a customer's site, it must be tested to confirm that the operational performance of the machine meets Hyundai spec.

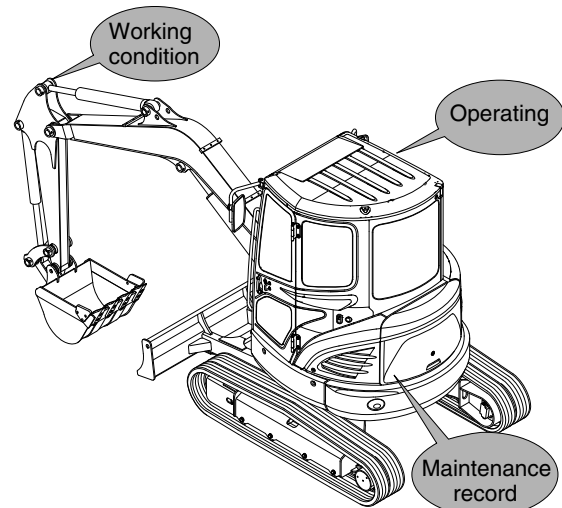
2) OPERATIONAL PERFORMANCE OF A WORKING MACHINE

With the passage of time, the machine's operational performance deteriorates, so that the machine needs to be serviced periodically to restore it to its original performance level.

Before servicing the machine, conduct performance tests to check the extent of deterioration, and to decide what kind of service needs to be done (by referring to the "Service Limits" in this manual).

3) OPERATIONAL PERFORMANCE OF A REPAIRED MACHINE

After the machine is repaired or serviced, it must be tested to confirm that its operational performance was restored by the repair and/or service work done.

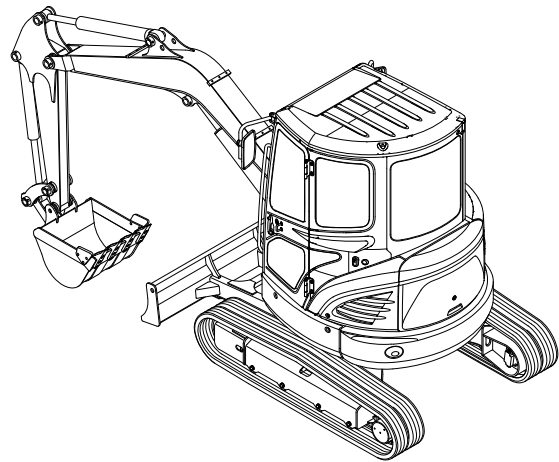


R35Z76MC01

2. TERMINOLOGY

1) STANDARD

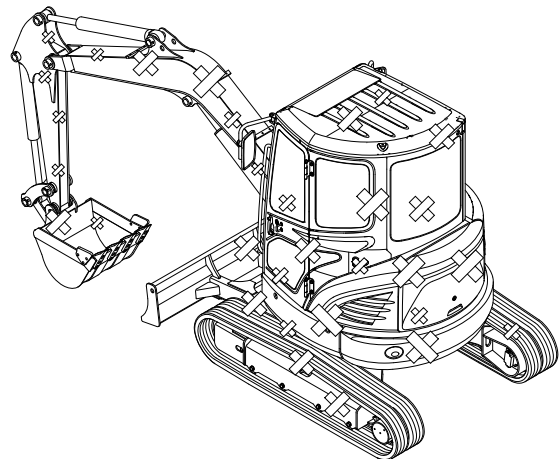
Specifications applied to the brand-new machine, components and parts.



R35Z76MC02

2) SERVICE LIMIT

The lowest acceptable performance level. When the performance level of the machine falls below this level, the machine must be removed from work and repaired. Necessary parts and components must be replaced.



R35Z76MC03

3. OPERATION FOR PERFORMANCE TESTS

- 1) Observe the following rules in order to carry out performance tests accurately and safely.

(1) The machine

Repair any defects and damage found, such as oil or water leaks, loose bolts, cracks and so on, before starting to test.

(2) Test area

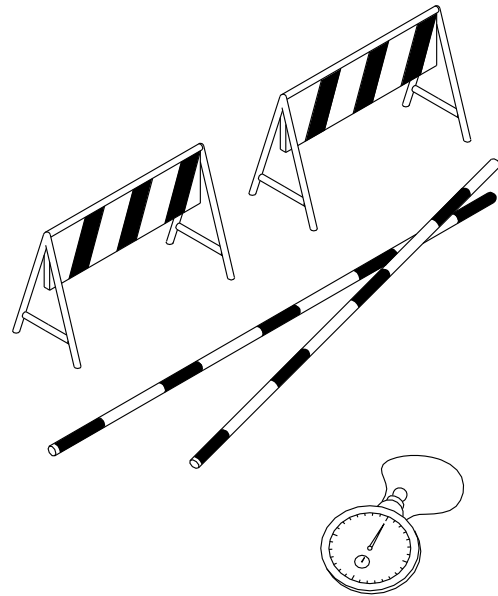
- ① Select a hard, flat surface.
- ② Secure enough space to allow the machine to run straight more than 20m, and to make a full swing with the front attachment extended.
- ③ If required, rope off the test area and provide signboards to keep unauthorized personnel away.

(3) Precautions

- ① Before starting to test, agree upon the signals to be employed for communication among coworkers. Once the test is started, be sure to communicate with each other using these signals, and to follow them without fail.
- ② Operate the machine carefully and always give first priority to safety.
- ③ While testing, always take care to avoid accidents due to landslides or contact with high voltage power lines. Always confirm that there is sufficient space for full swings.
- ④ Avoid polluting the machine and the ground with leaking oil. Use oil pans to catch escaping oil. Pay special attention to this when removing hydraulic pipings.

(4) Make precise measurements

- ① Accurately calibrate test instruments in advance to obtain correct data.
- ② Carry out tests under the exact test conditions prescribed for each test item.
- ③ Repeat the same test and confirm that the test data obtained can be procured repeatedly. Use mean values of measurements if necessary.



7-3 (140-7)

2) ENGINE SPEED

(1) Measure the engine speed at the maximum RPM.

※ **The engine speed must meet standard RPM; if not, all other operational performance data will be unreliable. It is essential to perform this test first.**

(2) Preparation and measurement

- ① Warm up the machine, until the engine coolant temperature reaches 50°C or more, and the hydraulic oil is $50 \pm 5^\circ\text{C}$.
- ② Set the accel lever at the maximum stroke.
- ③ Measure the engine RPM.

(3) Evaluation

The measured speeds should meet the following specifications.

Unit : rpm

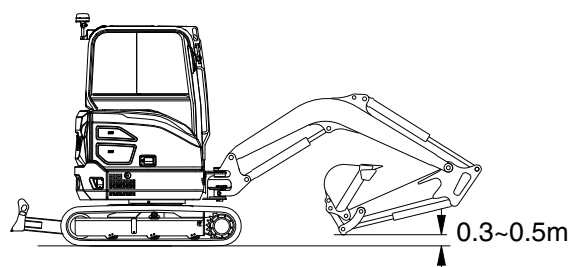
| Model | Engine speed | Standard | Remarks |
|------------------|--------------|---------------|---------|
| HX25AZ HX30AZ | Low idle | 1450 ± 50 | |
| | High idle | 2350 ± 50 | |

3) TRAVEL SPEED

- (1) Measure the time required for the excavator to travel a 20m test track.

(2) Preparation

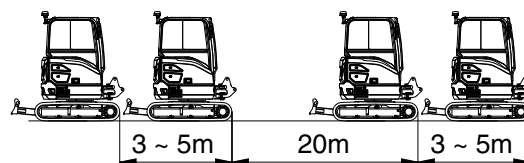
- ① Adjust the tension of both tracks to be equal.
- ② Prepare a flat and solid test track 20m in length, with extra length of 3 to 5m on both ends for machine acceleration and deceleration.
- ③ Hold the bucket 0.3 to 0.5m above the ground with the arm and bucket rolled in.
- ④ Keep the hydraulic oil temperature at $50 \pm 5^{\circ}\text{C}$.



25AZ6MS04

(3) Measurement

- ① Measure both the low and high speeds of the machine.
- ② Before starting either the low or high speed tests, adjust the travel mode switch to the speed to be tested.
- ③ Start traveling the machine in the acceleration zone with the travel levers at full stroke.
- ④ Measure the time required to travel 20m.
- ⑤ After measuring the forward travel speed, turn the upperstructure 180 ° and measure the reverse travel speed.
- ⑥ Repeat steps ④ and ⑤ three times in each direction and calculate the average values.



25AZ6MS05

(4) Evaluation

The average measured time should meet the following specifications.

Unit : Seconds / 20m

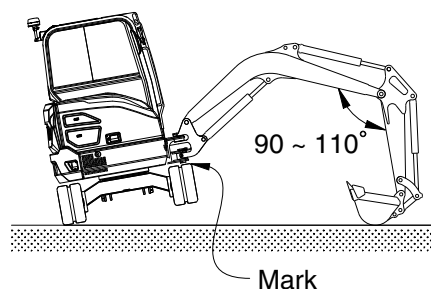
| Model | Travel speed | Standard | Maximum allowable | Remarks |
|------------------|--------------|----------------|-------------------|---------|
| HX25AZ HX30AZ | 1 Speed | 30.0 ± 2.0 | 37.5 | |
| | 2 Speed | 16.5 ± 2.0 | 21.0 | |

4) TRACK REVOLUTION SPEED

- (1) Measure the track revolution cycle time with the track raised off ground.

(2) Preparation

- ① Adjust the tension of both side tracks to be equal.
- ② On the track to be measured, mark one shoe with chalk.
- ③ Swing the upperstructure 90° and lower the bucket to raise the track off ground. Keep the boom-arm angle between 90 to 110° as shown. Place blocks under machine frame.
- ④ Keep the hydraulic oil temperature at $50 \pm 5^{\circ}\text{C}$.



25AZ6MS06

(3) Measurement

- ① Select the following switch positions.
 - Travel mode switch : 1 or 2 speed
- ② Operate the travel control lever of the raised track in full forward and reverse.
- ③ Rotate 1 turn, then measure time taken for next 3 revolutions.
- ④ Raise the other side of machine and repeat the procedure.
- ⑤ Repeat steps ③ and ④ three times and calculate the average values.

(4) Evaluation

The revolution cycle time of each track should meet the following specifications.

Unit : Seconds / 3 revolutions

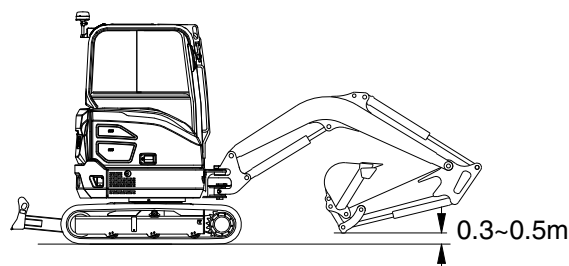
| Model | Travel speed | Standard | Maximum allowable |
|------------------|--------------|----------------|-------------------|
| HX25AZ HX30AZ | 1 Speed | 18.6 ± 2.0 | 23 |
| | 2 Speed | 10.0 ± 2.0 | 12.9 |

5) TRAVEL DEVIATION

- (1) Measure the deviation by the tracks from a 20m straight line.

(2) Preparation

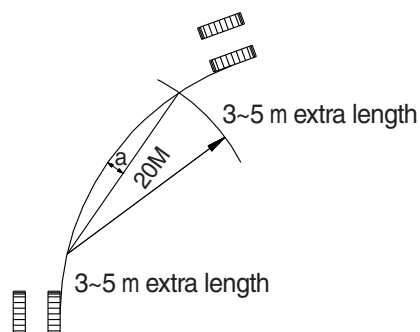
- ① Adjust the tension of both tracks to be equal.
- ② Provide a flat, solid test yard 20 m in length, with extra length of 3 to 5 m on both ends for machine acceleration and deceleration.
- ③ Hold the bucket 0.3 to 0.5 m above the ground with the arm and bucket rolled in.
- ④ Keep the hydraulic oil temperature at $50 \pm 5^{\circ}\text{C}$.



25AZ6MS04

(3) Measurement

- ① Measure the amount of mistracking at high and low travel speeds.
- ② Start traveling the machine in the acceleration zone with the travel levers at full stroke.
- ③ Measure the distance between a straight 20m line and the track made by the machine. (Dimension a)
- ④ After measuring the tracking in forward travel, turn the upperstructure 180° and measure that in reverse travel.
- ⑤ Repeat steps ③ and ④ three times and calculate the average values.



7-7(2) 140-7

(4) Evaluation

Mistrack should be within the following specifications.

Unit : mm / 20 m

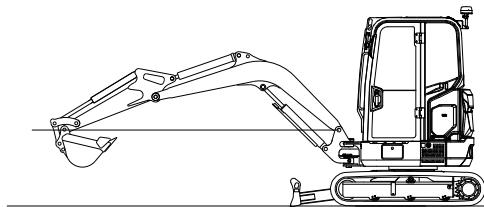
| Model | Standard | Maximum allowable | Remarks |
|------------------|-----------|-------------------|---------|
| HX25AZ HX30AZ | 200 below | 240 | |

6) SWING SPEED

- (1) Measure the time required to swing three complete turns.

(2) Preparation

- ① Check the lubrication of the swing gear and swing bearing.
- ② Place the machine on flat, solid ground with ample space for swinging. Do not conduct this test on slopes.
- ③ With the arm rolled out and bucket rolled in, hold the bucket so that the height of the bucket pin is the same as the boom foot pin. The bucket must be empty.
- ④ Keep the hydraulic oil temperature at $50 \pm 5^{\circ}\text{C}$.



25AZ6MS07

(3) Measurement

- ① Operate swing control lever fully.
- ② Swing 1 turn and measure time taken to swing next 2 revolutions.
- ③ Repeat steps ① and ② three time and calculate the average values.

(4) Evaluation

The time required for 2 swings should meet the following specifications.

Unit : Seconds / 2 revolutions

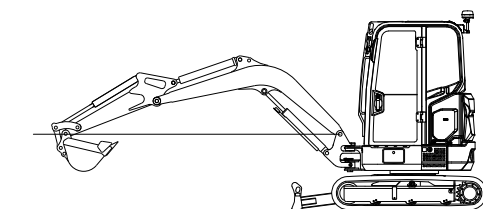
| Model | Standard | Maximum allowable | Remarks |
|------------------|----------------|-------------------|---------|
| HX25AZ HX30AZ | 13.1 ± 1.0 | 16.5 | |

7) SWING FUNCTION DRIFT CHECK

- (1) Measure the swing drift on the bearing outer circumference when stopping after a 360° full speed swing.

(2) Preparation

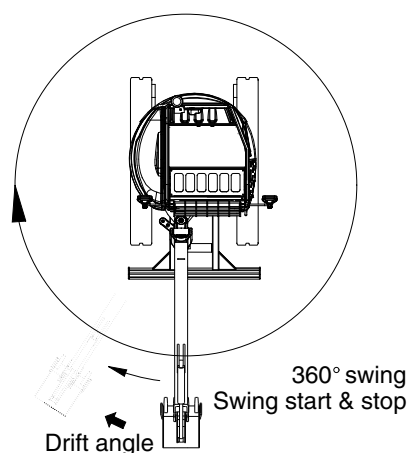
- ① Check the lubrication of the swing gear and swing bearing.
- ② Place the machine on flat, solid ground with ample space for swinging. Do not conduct this test on slopes.
- ③ With the arm rolled out and bucket rolled in, hold the bucket so that the height of the bucket pin is the same as the boom foot pin. The bucket must be empty.
- ④ Make two chalk marks: one on the swing bearing and one directly below it on the track frame.
- ⑤ Swing the upperstructure 360°.
- ⑥ Keep the hydraulic oil temperature at $50 \pm 5^{\circ}\text{C}$.



25AZ6MS07

(3) Measurement

- ① Operate the swing control lever fully and return it to the neutral position when the mark on the upperstructure aligns with that on track frame after swinging 360°.
- ② Measure the distance between the two marks.
- ③ Align the marks again, swing 360°, then test the opposite direction.
- ④ Repeat steps ② and ③ three times each and calculate the average values.



25AZ6MS08

(4) Evaluation

The measured drift angle should be within the following specifications.

Unit : Degree

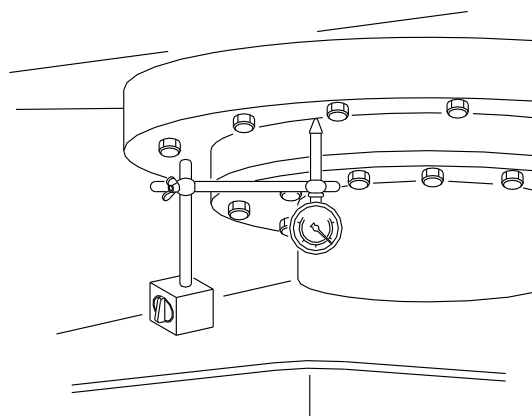
| Model | Standard | Maximum allowable | Remarks |
|------------------|----------|-------------------|---------|
| HX25AZ HX30AZ | 40 below | 50 | |

8) SWING BEARING PLAY

- (1) Measure the swing bearing play using a dial gauge to check the wear of bearing races and balls.

(2) Preparation

- ① Check swing bearing mounting cap screws for loosening.
- ② Check the lubrication of the swing bearing. Confirm that bearing rotation is smooth and without noise.
- ③ Install a dial gauge on the track frame as shown, using a magnetic base.
- ④ Position the upperstructure so that the boom aligns with the tracks facing towards the front idlers.
- ⑤ Position the dial gauge so that its needle point comes into contact with the bottom face of the bearing outer race.
- ⑥ Bucket should be empty.



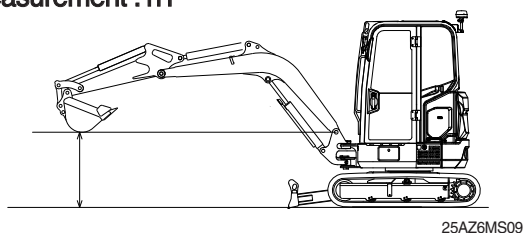
7-10(1) 140-7

(3) Measurement

- ① With the arm rolled out and bucket rolled in, hold the bottom face of the bucket to the same height of the boom foot pin. Record the dial gauge reading (h1).
- ② Lower the bucket to the ground and use it to raise the front idler 50 cm. Record the dial gauge reading (h2).
- ③ Calculate bearing play (H) from this data (h1 and h2) as follows.

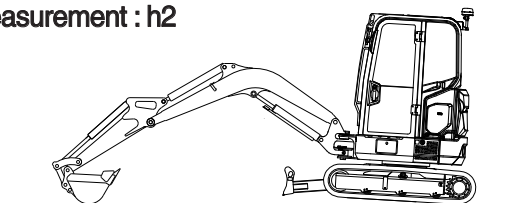
$$H = h2 - h1$$

Measurement : h1



25AZ6MS09

Measurement : h2



25AZ6MS10

(4) Evaluation

The measured drift should be within the following specifications.

Unit : mm

| Model | Standard | Maximum allowable | Remarks |
|------------------|-----------|-------------------|---------|
| HX25AZ HX30AZ | 0.5 ~ 1.2 | 2.4 | |

9) HYDRAULIC CYLINDER CYCLE TIME

- (1) Measure the cycle time of the boom, standard arm, and standard bucket cylinders.

(2) Preparation

- ① To measure the cycle time of the boom cylinders:

With the arm rolled out and the empty bucket rolled out, lower the bucket to the ground, as shown.

- ② To measure the cycle time of the arm cylinder.

With the empty bucket rolled in, position the arm so that it is vertical to the ground. Lower the boom until the bucket is 0.5m above the ground.

- ③ To measure the cycle time of the bucket cylinder.

The empty bucket should be positioned at midstroke between roll-in and roll-out, so that the sideplate edges are vertical to the ground.

- ④ Keep the hydraulic oil temperature at $50 \pm 5^\circ\text{C}$.

(3) Measurement

- ① To measure cylinder cycle times.

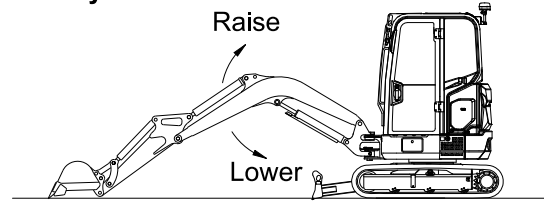
- Boom cylinders

Measure the time it takes to raise the boom, and the time it takes to lower the boom. To do so, position the boom at one stroke end then move the control lever to the other stroke end as quickly as possible.

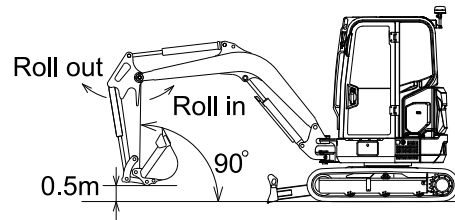
- Arm cylinder

Measure the time it takes to roll in the arm, and the time it takes to roll out the arm. To do so, position the bucket at one stroke end, then move the control lever to the other stroke end as quickly as possible.

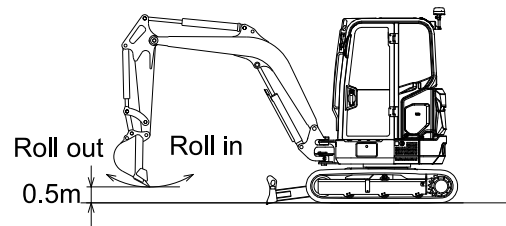
Boom cylinder



Arm cylinder



Bucket cylinder



25AZ6MS11

- Bucket cylinders

Measure the time it takes to roll in the bucket, and the time it takes to roll out the bucket. To do so, position the bucket at one stroke end, then move the control lever to the other stroke end as quickly as possible.

- Repeat each measurement 3 times and calculate the average values.

(4) Evaluation

The average measured time should meet the following specifications.

Unit : Seconds

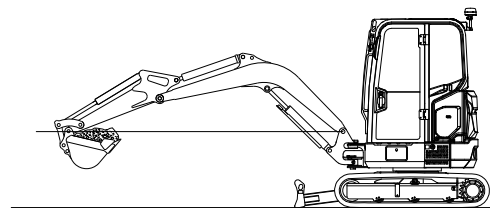
| Model | Function | Standard | Maximum allowable | Remarks |
|------------------|-----------------|---------------|-------------------|-------------------|
| HX25AZ HX30AZ | Boom raise | 2.3 ± 0.4 | 3.0 | |
| | Boom lower | 2.4 ± 0.4 | 3.0 | |
| | Arm in | 2.7 ± 0.4 | 3.4 | |
| | Arm out | 1.7 ± 0.4 | 2.4 | |
| | Bucket load | 2.7 ± 0.4 | 3.4 | |
| | Bucket dump | 1.9 ± 0.4 | 2.4 | |
| | Boom swing (LH) | 5.1 ± 0.4 | 7.1 | |
| | Boom swing (RH) | 5.2 ± 0.4 | 5.4 | |
| | Dozer up | 1.9 ± 0.3 | 2.4 | without DPC valve |
| | Dozer down | 2.5 ± 0.3 | 3.1 | |
| | Dozer up | 4.8 ± 0.3 | 5.3 | with DPC valve |
| | Dozer down | 3.0 ± 0.3 | 3.5 | |

10) DIG FUNCTION DRIFT CHECK

- (1) Measure dig function drift, which can be caused by oil leakage in the control valve and boom, standard arm, and standard bucket cylinders, with the loaded bucket. When testing the dig function drift just after cylinder replacement, slowly operate each cylinder to its stroke end to purge air.

(2) Preparation

- ① Load bucket fully. Instead of loading the bucket, weight (W) of the following specification can be used.
 - $W = M^3 \times 1.5$
 - Where :
 - M^3 = Bucket heaped capacity(m^3)
 - 1.5= Soil specific gravity
- ② Position the arm cylinder with the rod 20 to 30mm extended from the fully retracted position.
- ③ Position the bucket cylinder with the rod 20 to 30 mm retracted from the fully extended position.
- ④ With the arm rolled out and bucket rolled in, hold the bucket so that the height of the bucket pin is the same as the boom foot pin.
- ⑤ Keep the hydraulic oil temperature at $50 \pm 5^\circ\text{C}$.



25AZ6MS12

(3) Measurement

- ① Stop the engine.
- ② Five minutes after the engine has been stopped, measure the changes in the positions of the boom, arm and bucket cylinders.
- ③ Repeat step ② three times and calculate the average values.

(4) Evaluation

The measured drift should be within the following specifications.

Unit : mm / 5 min

| Model | Drift to be measured | Standard | Maximum allowable | Remarks |
|------------------|----------------------|----------|-------------------|---------|
| HX25AZ HX30AZ | Boom cylinder | 10 below | 20 | |
| | Arm cylinder | 20 below | 30 | |
| | Bucket cylinder | 20 below | 30 | |

11) CONTROL LEVER OPERATING FORCE

- (1) Use a spring scale to measure the maximum resistance of each control lever at the middle of the grip.

(2) Preparation

- ① Keep the hydraulic oil temperature at $50 \pm 5^{\circ}\text{C}$.

(3) Measurement

- ① Start the engine.
- ② Operate each boom, arm, bucket and swing lever at full stroke and measure the maximum operating force for each.
- ③ Lower the bucket to the ground to raise one track off the ground. Operate the travel lever at full stroke and measure the maximum operating force required. When finished, lower the track and then jack-up the other track.
- ④ Repeat steps ② and ③ three times and calculate the average values.

(4) Evaluation

The measured operating force should be within the following specifications.

Unit : kgf

| Model | Kind of lever | Standard | Maximum allowable | Remarks |
|------------------|---------------|--------------|-------------------|---------|
| HX25AZ HX30AZ | Boom lever | 1.4 or below | 1.9 | |
| | Arm lever | 1.4 or below | 1.9 | |
| | Bucket lever | 1.4 or below | 1.9 | |
| | Swing lever | 1.4 or below | 1.9 | |
| | Travel lever | 2.0 or below | 2.5 | |

12) CONTROL LEVER STROKE

(1) Measure each lever stroke at the lever top using a ruler.

※ When the lever has play, take a half of this value and add it to the measured stroke.

(2) Preparation

Keep the hydraulic oil temperature at $50 \pm 5^{\circ}\text{C}$.

(3) Measurement

- ① Stop the engine.
- ② Measure each lever stroke at the lever top from neutral to the stroke end using a ruler.
- ③ Repeat step ② three times and calculate the average values.

(4) Evaluation

The measured drift should be within the following specifications.

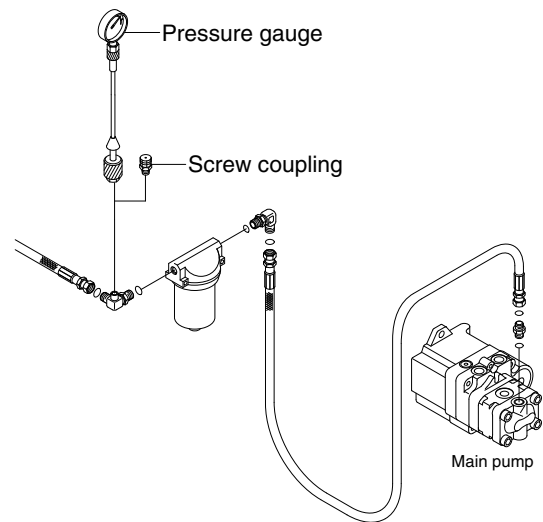
Unit : mm

| Model | Kind of lever | Standard | Maximum allowable | Remarks |
|------------------|---------------|-------------|-------------------|---------|
| HX25AZ HX30AZ | Boom lever | 87 ± 10 | 109 | |
| | Arm lever | 87 ± 10 | 109 | |
| | Bucket lever | 87 ± 10 | 109 | |
| | Swing lever | 87 ± 10 | 109 | |
| | Travel lever | 86 ± 10 | 105 | |

13) PILOT PRIMARY PRESSURE

(1) Preparation

- ① Stop the engine.
- ② Loosen the hydraulic tank cap to bleed air.
- ③ Loosen the cap of screw coupling at the fitting near pilot filter and connect pressure gauge.
- ④ Start the engine and check for oil leakage from the port.
- ⑤ Keep the hydraulic oil temperature at $50 \pm 5^{\circ}\text{C}$.



(2) Measurement

- ① Measure the primary pilot pressure.

(3) Evaluation

The average measured pressure should meet the following specifications:

25AZ6MS19

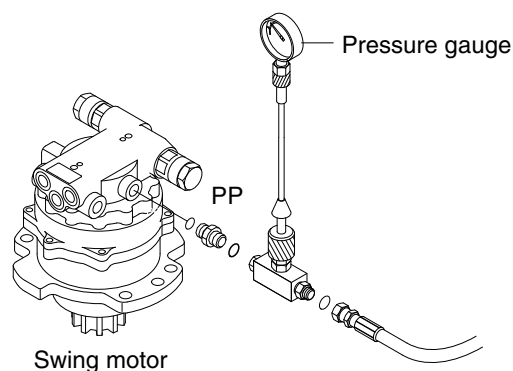
Unit : kgf / cm^2

| Model | Standard | Remarks |
|------------------|------------|---------|
| HX25AZ HX30AZ | 30 ± 5 | |

15) SWING PARKING BRAKE RELEASING PRESSURE

(1) Preparation

- ① Stop the engine.
- ② Loosen the hydraulic tank cap to bleed air.
- ③ Install a connector and pressure gauge assembly to swing motor PP port, as shown.
- ④ Start the engine and check for oil leakage from the adapter.
- ⑤ Keep the hydraulic oil temperature at $50 \pm 5^\circ\text{C}$.



(2) Measurement

- ① Operate the swing function or arm roll in function and measure the swing brake control pressure with the brake disengaged. Release the control lever to return to neutral and measure the control pressure when the brake is applied.
- ② Repeat three times and calculate the average values.

25AZ6MS16

(3) Evaluation

The average measured pressure should be within the following specifications.

Unit : kgf / cm²

| Model | Engine speed | Standard | Remarks |
|------------------|------------------|------------|---------|
| HX25AZ HX30AZ | Brake disengaged | 30 ± 5 | |
| | Brake applied | 0 | |

16) MAIN PUMP DELIVERY PRESSURE

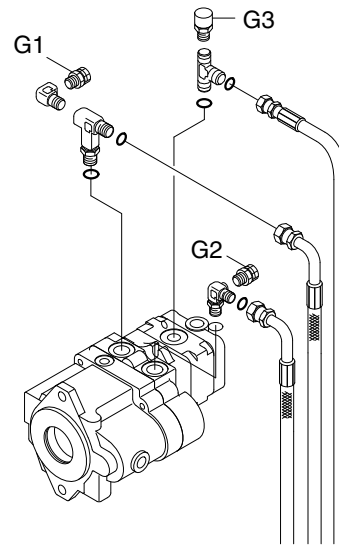
(1) Preparation

- ① Stop the engine.
- ② Loosen the hydraulic tank cap to bleed air.
- ③ To measure the main pump pressure.
Loosen the cap of screw coupling and connect pressure gauge to the main pump gauge port (G1, G2, G3) as shown.
- ④ Start the engine and check for oil leakage from the port.
- ⑤ Keep the hydraulic oil temperature at $50 \pm 5^{\circ}\text{C}$.

(2)

① Measurement

Measure the main pump delivery pressure at high idle.



25AZ6MS17

(3) Evaluation

The average measured pressure should meet the following specifications.

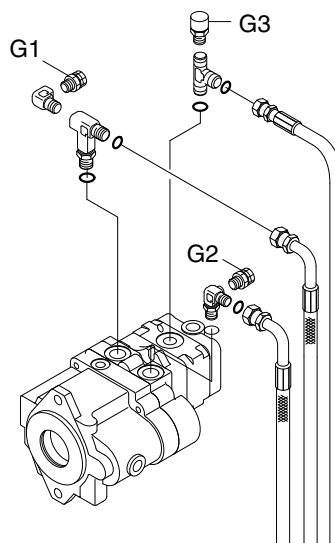
Unit : kgf / cm^2

| Model | Engine speed | Standard | Allowable limits | Remarks |
|------------------|--------------|------------|------------------|---------|
| HX25AZ HX30AZ | High idle | 20 ± 5 | - | |

17) SYSTEM PRESSURE REGULATOR RELIEF SETTING

(1) Preparation

- ① Stop the engine.
- ② Loosen the hydraulic tank cap to bleed air.
- ③ To measure the system relief pressure. Loosen the cap of screw coupling and connect pressure gauge to the main pump gauge port (G1, G2, G3) as shown.
- ④ Start the engine and check for oil leakage from the port.
- ⑤ Keep the hydraulic oil temperature at $50 \pm 5^{\circ}\text{C}$.



25AZ6MS17

(2) Measurement

- ① Slowly operate each control lever of boom, arm and bucket functions at full stroke over relief and measure the pressure.
- ② In the swing function, place bucket against an immovable object and measure the relief pressure.
- ③ In the travel function, lock undercarriage with an immovable object and measure the relief pressure.

(3) Evaluation

The average measured pressure should be within the following specifications.

Unit : kgf / cm^2

| Model | Function to be tested | Standard |
|------------------|-----------------------|--------------|
| HX25AZ HX30AZ | Boom, Arm, Bucket | 220 ± 10 |
| | Travel | 220 ± 10 |
| | Swing | 170 ± 10 |

GROUP 2 MAJOR COMPONENT

1. MAIN PUMP

Before inspection, wash the parts well and dry them completely.

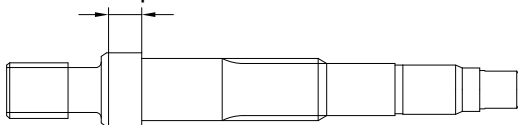
Inspect the principal parts with care and replace them with new parts when any abnormal wear exceeding the allowable limit or damage considered harmful is found.

Replace the seal also when any remarkable deformation and damage are found.

1) INSPECTION POINTS WHEN DISASSEMBLED

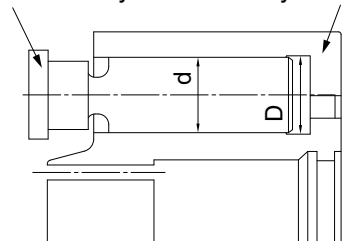
| Part | Extent of the damage | Inspection standard | Action |
|----------------------------------|---|---|----------------------------------|
| Shaft (3) | Excessive wear on the seal surface. | Worn depth : 0.025 mm or more | Replace the shaft. |
| Valve plate (5) | Excessive wear or damages on the sliding surface. | Worn depth : 0.020 mm or more | Replace the cylinder barrel kit. |
| Cylinder barrel (4) | Excessive wear or damages on the sliding surface. | Worn depth : 0.020 mm or more | Replace the cylinder barrel kit. |
| | Clearance between the pistons (D-d). | 0.050 mm or more | Replace the cylinder barrel kit. |
| Piston (6), Shoe (7) | Wear of joint section | Play (δ) between the shoe and the piston (0.2 mm or more by hand operation). | Replace the cylinder barrel kit. |
| Seals (O-rings, gasket, etc.) | Damage, excessive rust | - | Replace each part. |

Installation part of oil seal

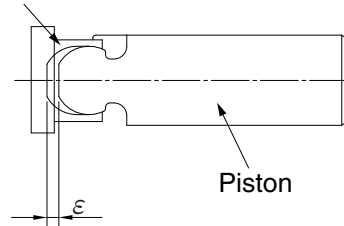


Piston assembly

Cylinder barrel



Shoe



R27Z96MC01

2) TROUBLESHOOTING AND COUNTERMEASURE

| No. | Trouble | Possible cause | Countermeasure |
|-----|--|---|--|
| 1 | Overload to engine | <ul style="list-style-type: none"> Speed is higher than standard Setting pressure is higher than specifications Damage of internal parts of pump | <ul style="list-style-type: none"> Readjust it as standard Readjust it as spec Repair or replace |
| 2 | Low pump flow or low pressure | <ul style="list-style-type: none"> Speed down of engine Wrong coupling Damage of internal parts of pump | <ul style="list-style-type: none"> Readjust of engine speed Repair or replace Repair or replace |
| 3 | Abnormal noise or abnormal vibration (cavitations) | <ul style="list-style-type: none"> Air in the oil Water in the oil Clog of suction filter High suction pressure Damage of piston shoe Installation condition is no good Wrong coupling | <ul style="list-style-type: none"> Check piping Bleed the air in the hydraulic circuit Replace oil Clean or replace Correction Replace Correction Replace |
| 4 | Oil leakage | <ul style="list-style-type: none"> Damage of O-ring or packing Loosened plug Leaking from oil seal | <ul style="list-style-type: none"> Replace Tight up Replace Replace of oil seal |

2. MAIN CONTROL VALVE

| Part name | Inspection item | Criteria & measure |
|---------------------------------------|--|---|
| Block | <ul style="list-style-type: none"> · Existence of scratch, rusting or corrosion. | <ul style="list-style-type: none"> · In case of damage in following section, replace part. - Sliding sections of casing fore and spool, especially land sections applied with holded pressure. - Seal pocket section where spool is inserted. - Seal section of port where O-ring contacts. - Seal section of each relief valve for main, travel, and port. - Other damages that may damage normal functions. |
| Spool | <ul style="list-style-type: none"> · Existence of scratch, gnawing, rusting or corrosion. · O-ring seal sections at both ends. · Insert spool in casing hole, rotate and reciprocate it. | <ul style="list-style-type: none"> · Replacement when its outside sliding section has scratch (Especially on seals-contacting section). · Replacement when its sliding section has scratch. · Correction or replacement when O-ring is damaged or when spool does not move smoothly. |
| Poppet | <ul style="list-style-type: none"> · Damage of poppet or spring · Insert poppet into casing and function it. | <ul style="list-style-type: none"> · Correction or replacement when sealing is incomplete. · Normal when it can function lightly without being caught. |
| Around spring | <ul style="list-style-type: none"> · Rusting, corrosion, deformation or breaking of spring, spring seat, plug or cover. | <ul style="list-style-type: none"> · Replacement for significant damage. |
| Around seal for spool | <ul style="list-style-type: none"> · External oil leakage. · Rusting, corrosion or deformation of seal plate. | <ul style="list-style-type: none"> · Correction or replacement. · Correction or replacement. |
| Main relief valve & port relief valve | <ul style="list-style-type: none"> · External rusting or damage. · Contacting face of valve seat. · Contacting face of poppet. · Abnormal spring. · O-rings, back up rings and seals. | <ul style="list-style-type: none"> · Replacement. · Replacement when damaged. · Replacement when damaged. · Replacement. · 100% replacement in general. |

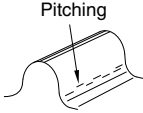
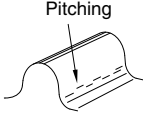
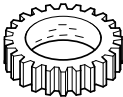


3. SWING MOTOR

1) POSSIBLE REASONS FOR THE TROUBLE AND ITS COUNTERMEASURES

| Trouble | Possible reasons | | Countermeasure |
|--|------------------|----------------------------------|---------------------------------------|
| Motor does not move. The supplied pressure is enough. | Relief valve | Setting pressure is too low. | Replace the relief valve assembly. |
| | | Faulty operation. | |
| | Hydraulic motor | Burned inner parts. | Replace the hydraulic motor assembly. |
| | | Too much internal leakage. | |
| | Reduction gear | Damage to the gears. | Replace the reduction gear assembly. |
| | Overload | - | Remove the overload. |
| Insufficient torque | Relief valve | Setting pressure is too low. | Replace the relief valve assembly. |
| | | Faulty operation. | |
| | Hydraulic motor | Burned sliding parts. | Replace the hydraulic motor assembly. |
| | | Too much internal leakage. | |
| | Reduction gear | Damage to the gears. | Replace the pinion kit, carrier kit. |
| | | Damage to bearings. | |
| Abnormal noise | Cavitation noise | Insufficient flow. | Adjust the piping. |
| | Hydraulic motor | Damage to sliding parts. | Replace the hydraulic motor assembly. |
| | Reduction gear | Damage to the gears. | Replace the pinion kit, carrier kit. |
| | | Damage to bearings | |
| | Pinion gear | Damage to the gear surface. | Replace the pinion kit. |
| Oil leakage | Body gasket | Damage to O-rings. | Replace the O-ring |
| | | Loose bolts. | Re-tighten the loose bolts. |
| | Pinion gear | Damage to oil seal. | Replace the pinion kit. |
| Delay in start up, or delay in stopping | Relief valve | Faulty operation. | Replace the relief valve assembly. |
| | Check valve | Internal leakage. | Replace the body H kit. |
| Excessive heat generation | Hydraulic motor | Burned or damaged sliding parts. | Replace the hydraulic motor assembly. |
| | Reduction gear | Damage to the gears. | Replace the pinion kit, carrier kit. |
| | | Damage to bearings | |

2) STANDARD FOR PARTS INSPECTION

(1) Reduction gear section

| Part | Extent of the damage | Inspection standard | Action |
|--|---------------------------------------|--|--------------------------|
| A internal gear | Excessive wear of the surface | Pitching area 5% or more of the gear surface  | Replace the pinion kit. |
| Carrier 1 Carrier 2 | Damage to spline section | By visual | Replace the carrier kit. |
| S1 gear S2 gear b1 gear b2 gear | Excessive wear of the surface | Pitching area 5% or more of the gear surface  | Replace the carrier kit. |
| | Excessive wear of the bearing surface | By visual pitching, flaking  | |
| Ring | Excessive wear of the bearing surface | By visual pitching, flaking  | Replace the carrier kit. |
| Roller | Excessive wear of the bearing surface | By visual pitching, flaking  | Replace the carrier kit. |
| Other (O-ring, screw, etc.) | Damage, excessive rust | - | Replace each part. |

(2) Hydraulic motor section

| Part | Extent of the damage | Inspection standard | Action |
|-----------------------------|--|--|---------------------------------------|
| Shaft | Excessive wear of the spline section | Worn depth : 25 μ m or more | Replace the hydraulic motor assembly. |
| Cylinder barrel | Excessive wear to the sliding surface of the valve plate | Worn depth : 20 μ m or more | Replace the cylinder barrel kit. |
| Valve plate | Excessive wear to the sliding surface of the cylinder barrel | Worn depth : 20 μ m or more | Replace the cylinder barrel kit. |
| Piston shoe | Wear of joint section of shoe | Play of piston and shoe : 0.3 mm or more by hand operation | Replace the cylinder barrel kit. |
| Swash plate | Excessive wear to the sliding surface of the shoe | Worn depth : 0.1 mm or more | Replace the swash plate kit. |
| Other (O-ring, screw, etc.) | Damage, excessive rust | - | Replace each part. |

4. TRAVEL MOTOR

1) MAINTENANCE STANDARD FOR TRAVEL MOTOR

Travel motors basically don't require maintenance except changing the reducer lubricant. Don't disassemble the motor unless there are problem with it. Refer to the following standards for parts (kits) replacement.

(1) Reducer

| No. | Part name | Point to be checked | Standard | Action |
|-----|-----------------------|---|--|-----------------------------|
| 1 | Body (internal gear) | Engaging tooth surface with B1 and B2 gears | No pitching with 5% or greater (ratio of engaging area to tooth surface) No abnormal damage | Replace |
| 2 | Carrier 2 | Spline tooth surface | No abnormal damage, wear | Replace whole carrier 2 kit |
| | | Loose of B2 pins | No loose by hand | |
| 3 | B1 gears | Tooth surface | No pitching with 5% or greater (ratio of engaging area to tooth surface) No abnormal damage | Replace |
| | | Needle rolling contact surface | No flaking and pitching | |
| 4 | B2 gears | Tooth surface | No pitching with 5% or greater (ratio of engaging area to tooth surface) No abnormal damage | Replace whole carrier 2 kit |
| | | Needle rolling contact surface | No flaking and pitching | |
| 5 | S1 gear | Tooth surface | No pitching with 5% or greater (ratio of engaging area to tooth surface) No abnormal damage | Replace whole carrier 2 kit |
| 6 | S2 gear | Engaging tooth surface with B2 gears | No pitching with 5% or greater (ratio of engaging area to tooth surface) No abnormal damage | Replace |
| | | Spline tooth surface | No abnormal damage, wear | |
| 7 | B2 pins | Needle rolling contact surface | No flaking and pitching | Replace whole carrier 2 kit |
| 8 | Floating seals | Seat surface | No abnormal damage, wear | Replace |
| | | O-ring surface | No damage, deformation, and hardening | |
| 9 | Angular ball bearings | Rolling contact surface | No abnormal damage, flaking | Replace |
| 10 | Needles | Rolling contact surface | No flaking and pitching | Replace whole carrier 2 kit |
| 11 | O-rings | Surface, hardness | No damage, deformation, and hardening | Replace |

(2) Hydraulic valve and motor

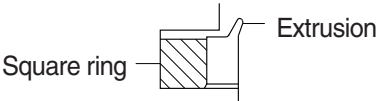
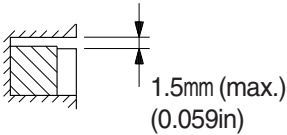
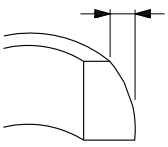
| No. | Part name | Point to be checked | Standard | Action |
|-----|---|---|---|------------------------------------|
| 12 | Body 1 | Spool sliding contact surface | No abnormal damage, wear | Replace whole body 1 kit |
| 13 | Counter valve spool Two-speed spool Shuttle spool | Body 1 sliding contact surface | No abnormal damage, wear | Replace whole body 1 kit |
| 14 | Body 2 | Spline tooth surface | No abnormal damage, wear | Replace whole body 2 kit |
| | | Control piston sliding contact surface | No abnormal damage, wear Clearance between piston and body 2 is 0.023 mm or smaller | |
| | | Swash plate installation surface | No abnormal damage, wear | |
| | | Ball sliding contact surface | No abnormal damage, wear | |
| 15 | Shaft | Spline tooth surface | No abnormal damage, wear | Replace shaft kit |
| | | Oil seal sliding contact surface | No abnormal damage, wear (0.025 mm or greater) | |
| 16 | Cylinder barrel | Piston sliding contact surface | No abnormal damage, wear Clearance between piston and cylinder barrel is 0.030 mm or smaller | Replace cylinder barrel kit |
| | | Valve plate sliding contact surface | No abnormal damage, wear (0.020 mm or greater) | Lap or replace cylinder barrel kit |
| 17 | Valve plate | Cylinder barrel sliding contact surface | No abnormal damage, wear (0.020 mm or greater) | Lap or replace cylinder barrel kit |
| 18 | Pistons Shoes | Cylinder barrel sliding contact surface | No abnormal damage, wear (0.020 mm or greater) | Replace cylinder barrel kit |
| | | Swash plate sliding contact surface | No abnormal damage, wear (0.020 mm or greater) | Lap or replace cylinder barrel kit |
| | | Loose of shoe calking part | Loose is smaller than 0.3 mm | Replace cylinder barrel kit |
| 19 | Shoe holder | Barrel holder sliding contact surface | No abnormal damage, wear | Replace cylinder barrel kit |
| 20 | Barrel holder | Spline tooth surface | No abnormal damage, wear | Replace cylinder barrel kit |
| | | Shoe holder sliding contact surface | No abnormal damage, wear | |
| 21 | Swash plate | Shoe sliding contact surface | No abnormal damage, wear (0.020 mm or greater) | Lap or replace |
| | | Ball sliding contact surface | No abnormal damage, wear | Replace |
| 22 | Control piston | Body 2 sliding contact surface | Clearance between piston and body 2 is 0.023 mm or smaller | Replace body 2 kit |
| 23 | Oil seal | Lip surface | No abnormal damage, wear and deformation | Replace |
| 24 | Ball bearing | Rolling contact surface | No abnormal damage, flaking | Replace |
| 25 | Springs | Surface | No crack | Replace |
| 26 | O-rings | Surface and hardness | No damage, deformation, and hardening | Replace |

2) FAILURE DIAGNOSIS OF TRAVEL MOTOR

| Failure detail | Major causes | Countermeasure |
|-----------------------------|--|--|
| Doesn't start | Operating defect in hydraulic equipment except travel motors | Inspect and repair or replace each equipment. Check that normal working pressure is supplied to the motor inlet port. |
| | Defect in reducer - Damage of inner parts | Replace the damaged part (kit). |
| | Defect in hydraulic motor - Oil leakage due to abnormal wear of the sliding parts - Damage of inner parts | Replace the worn part (kit). Replace the damaged part (kit). |
| | Defect in hydraulic valve - Spool doesn't move Foreign object is caught in the spool sliding part. | Remove the foreign object. In case of much leakage, replace the body 1 kit. |
| | Choke is clogged | Remove the foreign object. |
| Doesn't stop or stop slowly | Defect in hydraulic valve - Spool doesn't return Foreign object is caught in the spool sliding part. | Remove the foreign object. In case of much leakage, replace the body 1 kit. |
| | Choke is clogged. Spring is damaged. - Check valve doesn't close due to foreign object being caught on the seat. | Remove the foreign object. Replace the body 1 kit. Remove the foreign object. In case of much leakage, replace the body 1 kit. |
| Rotating speed is slow | Prescribed flow rate is not supplied to the motor due to operating defect in the pump. | Inspect and repair or replace the pump. |
| | Volumetric efficiency declines due to defect in the motor. - Abnormal wear of sliding parts | Replace the worn part (kit). |
| | Volumetric efficiency declines due to defect in the hydraulic valve. - Abnormal wear of main spool and two speed spool sliding part | Replace body 1 kit. |

| Failure detail | Major causes | Countermeasure |
|-----------------------------|--|--|
| Doesn't change to two speed | Operating defect in hydraulic equipment except travel motors | Inspect and repair or replace each equipment. Check that normal pressure is supplied to the pilot port. |
| | Defect in the hydraulic valve - Two speed spool doesn't move due to foreign object being caught in the spool sliding part. - Choke in the two speed pilot line is clogged. | Remove the foreign object. In case of much leakage, replace the body 1 kit. Remove the foreign object. |
| | Defect in the hydraulic motor - Control piston doesn't move. Foreign object is caught in the piston sliding part. Oil leakage due to abnormal wear of the sliding part. Oil leakage due to damage of O-ring located between body 1 and body 2. | Remove the foreign object. In case of much leakage, replace the body 2 kit. Replace the worn part (kit). Replace the O-ring. |
| Doesn't change to one speed | Operating defect in hydraulic equipment except travel motors | Inspect and repair or replace each equipment. Check that normal pressure is supplied to the pilot port. |
| | Defect in the hydraulic valve - Two speed spool doesn't move. Foreign object is caught in the spool sliding part. Damage of spring - Choke in the two speed pilot line is clogged. | Remove the foreign object. In case of much leakage, replace the body 1 kit. Replace the body 1 kit. Remove the foreign object. |
| Tracking deviation | Same as No.3, 4 and 5 | - |
| Oil leakage | Oil leakage due to damage of O-rings. - Damage of O-ring located in the reducer cover. - Damage of O-rings located between body 1 and body 2. | Replace the O-ring. Replace the O-ring. |
| | Oil leakage from the floating seals - Abnormal wear of the seat surface or damage of the O-ring. - Pressure in the reducer casing rises due to damage of the oil seal. | Replace the floating seal. Replace the oil seal. |

5. TURNING JOINT

| Parts Name | | Check Points | Measures |
|---------------|---|---|-----------------------|
| Body, Stem | Sliding surface with sealing sections. | Plating worn or peeled due to seizure or contamination. | Replace |
| | Sliding surface between body and stem other than sealing section. | · Worn abnormality or damaged more than 0.1 mm (0.0039 in) in depth due to seizure contamination. | Replace |
| | | · Damaged more than 0.1 mm (0.0039 in) in depth. | Smooth with oilstone. |
| | Sliding surface with thrust plate. | · Worn more than 0.5 mm (0.02 in) or abnormality. | Replace |
| | | · Worn less than 0.5 mm (0.02 in). | Smooth |
| | | · Damage due to seizure or contamination remediable within wear limit (0.5 mm) (0.02 in). | Smooth |
| Cover | Sliding surface with thrust plate. | · Worn more than 0.5 mm (0.02 in) or abnormality. | Replace |
| | | · Worn less than 0.5 mm (0.02 in). | Smooth |
| | | · Damage due to seizure or contamination remediable within wear limit (0.5 mm) (0.02 in). | Replace |
| Seal set | - | · Extruded excessively from seal groove square ring.  | Replace |
| | - | · Slipper ring 1.5 mm (0.059 in) narrower than seal groove, or narrower than back ring.  | Replace |
| | - | · Worn more than 0.5 mm (0.02 in) ~ 1.5 mm (MAX.) (0.059 in)  | Replace |

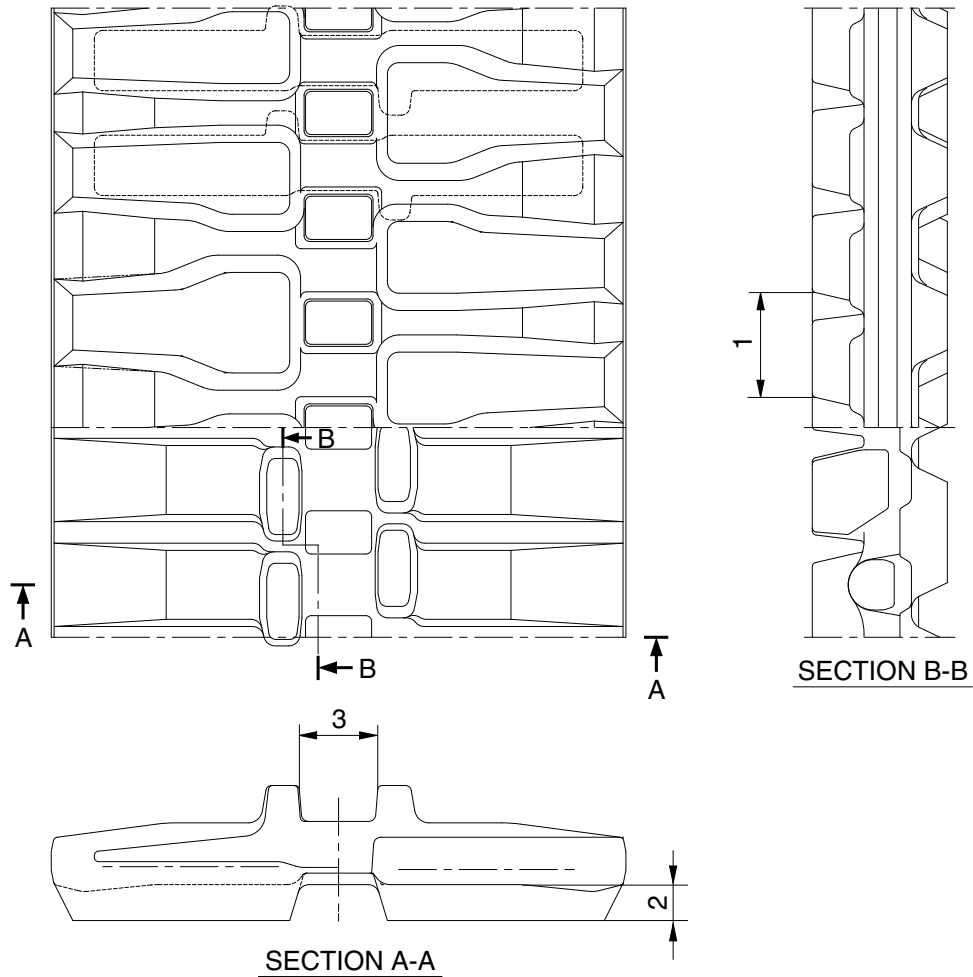
6. CYLINDER

| Part name | Inspecting section | Inspection item | Remedy |
|---------------|---|--|--|
| Piston rod | · Neck of rod pin | · Presence of crack | · Replace |
| | · Weld on rod hub | · Presence of crack | · Replace |
| | · Stepped part to which piston is attached. | · Presence of crack | · Replace |
| | · Threads | · Presence of crack | · Recondition or replace |
| | · Plated surface | · Plating is not worn off to base metal. | · Replace or replate |
| | | · Rust is not present on plating. | · Replace or replate |
| | | · Scratches are not present. | · Recondition, replate or replace |
| Cylinder tube | · Rod | · Wear of O.D. | · Recondition, replate or replace |
| | · Bushing at mounting part | · Wear of I.D. | · Replace |
| | · Weld on bottom | · Presence of crack | · Replace |
| | · Weld on head | · Presence of crack | · Replace |
| | · Weld on hub | · Presence of crack | · Replace |
| Gland | · Tube interior | · Presence of faults | · Replace if oil leak is seen |
| | · Bushing at mounting part | · Wear on inner surface | · Replace |
| | · Bushing | · Flaw on inner surface | · Replace if flaw is deeper than coating |

GROUP 3 TRACK AND WORK EQUIPMENT

1. TRACK SHOE

1) RUBBER SHOE SPEC

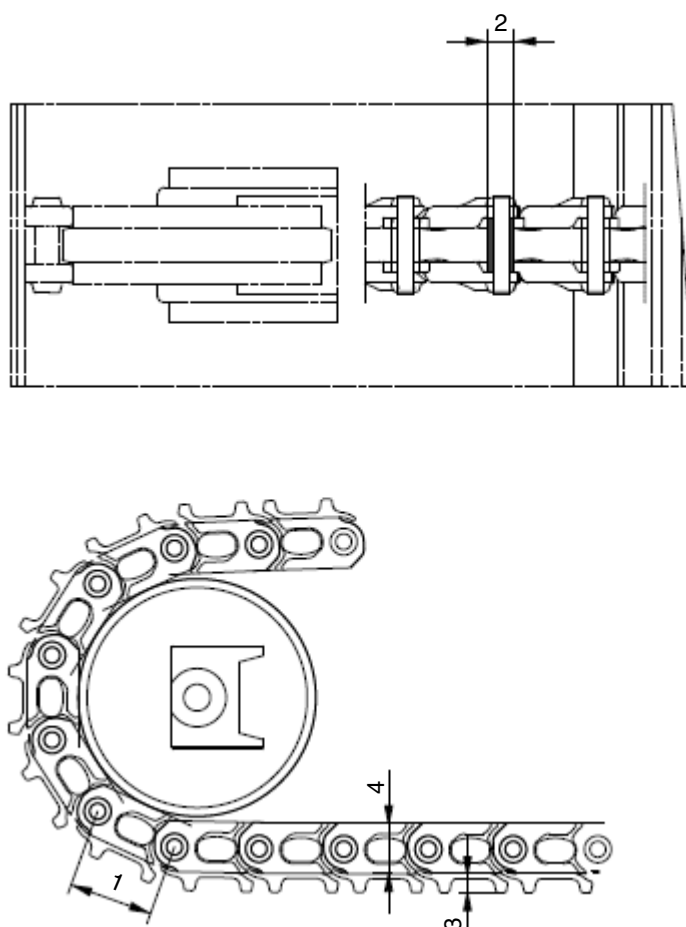


R5576MC17

Unit : mm

| No | Check item | Criteria | | Remedy |
|----|-------------------|---------------|--------------|-----------------|
| | | Standard size | Repair limit | |
| 1 | Link pitch | 52.5 | 54.5 | Turn or replace |
| 2 | Height of grouser | 28.5 | 5 | |
| 3 | Width of link | 34 | 46 | |

2) STEEL SHOE

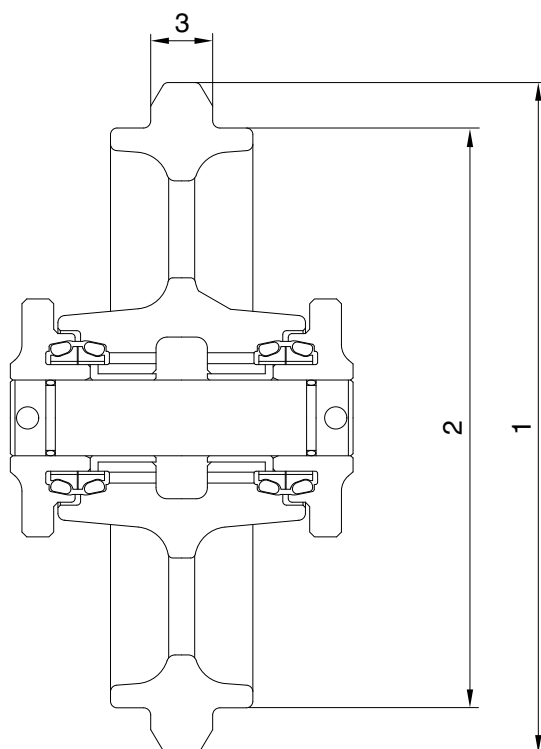


35AZ6MC18

Unit : mm

| No | Check item | Criteria | | Remedy |
|----|-----------------------------|---------------|--------------|---|
| | | Standard size | Repair limit | |
| 1 | Link pitch | 101.6 | 105.0 | Replace bushing and pin and link assembly |
| 2 | Outside diameter of bushing | 32.17 | 28.77 | |
| 3 | Height of grouser | 16.5 | 12.5 | Lug welding, rebuild or replace |
| 4 | Height of link | 65 | 60 | |

2. IDLER

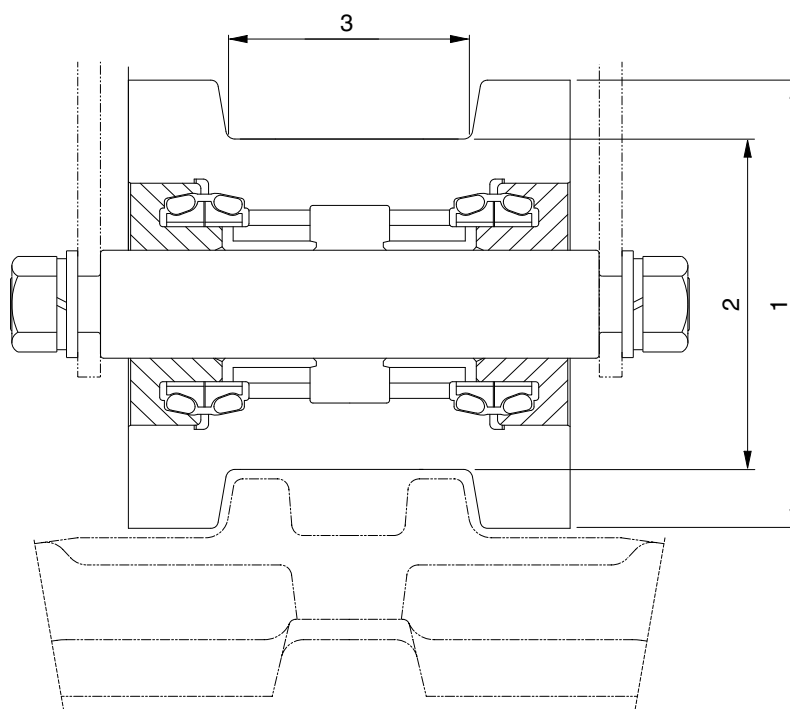


R25Z9A6MC23

Unit : mm

| No | Check item | | Criteria | | Remedy |
|----|----------------------------|--------|---------------|--------------|--------------------|
| | | | Standard size | Repair limit | |
| 1 | Outside diameter of flange | Rubber | Ø 311 | - | Rebuild or replace |
| 2 | Outside diameter of thread | Rubber | Ø 269 | Ø 263 | |
| 3 | Width of flange | | 29 | 23 | |

3. TRACK ROLLER

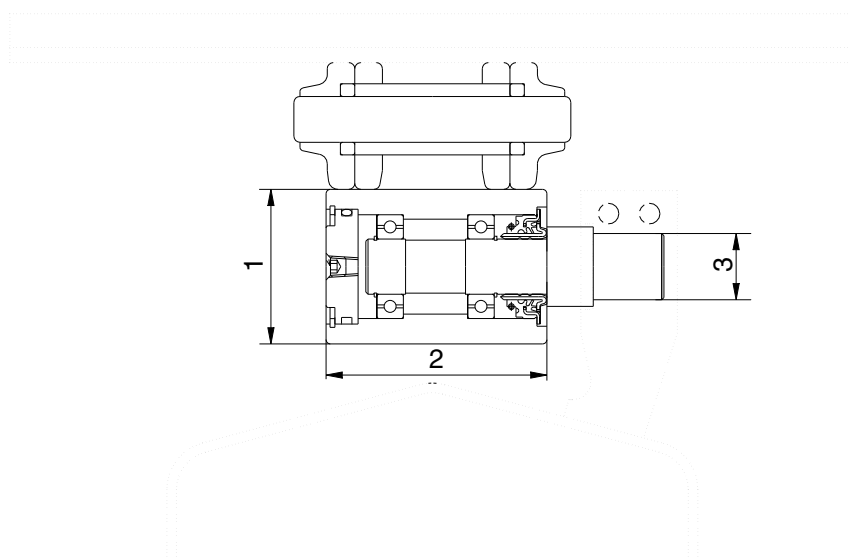


R25Z9AK6MC19

Unit : mm

| No | Check item | | Criteria | | Remedy |
|----|----------------------------|--------|---------------|--------------|--------------------|
| | | | Standard size | Repair limit | |
| 1 | Outside diameter of flange | Rubber | Ø 124 | - | Rebuild or replace |
| 2 | Outside diameter of thread | Rubber | Ø 80 | Ø 75 | |
| 3 | Width of flange | | 78 | 83 | |

4. CARRIER ROLLER

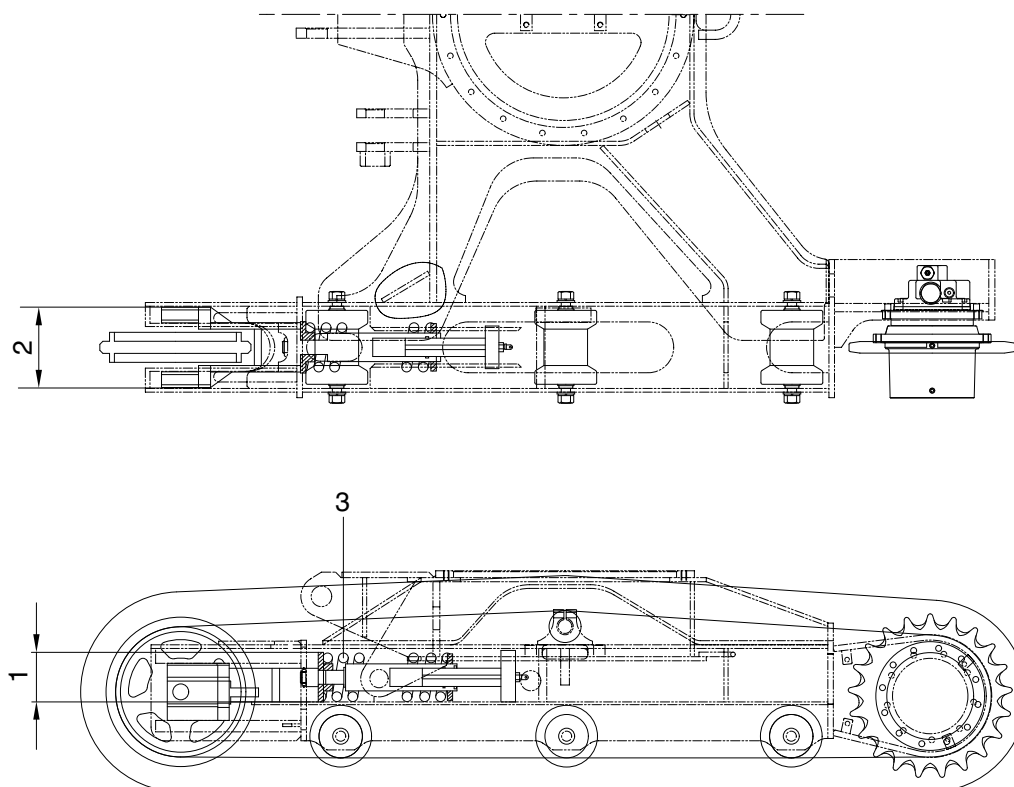


R35Z76MC20

Unit : mm

| No | Check item | Criteria | | Remedy |
|----|----------------------------|---------------|--------------|---------|
| | | Standard size | Repair limit | |
| 1 | Outside diameter of flange | Ø70 | Ø66 | Replace |
| 2 | Width of tread | Ø86 | - | |
| 3 | Diameter of shaft | Ø30 | - | |

5. TENSION CYLINDER

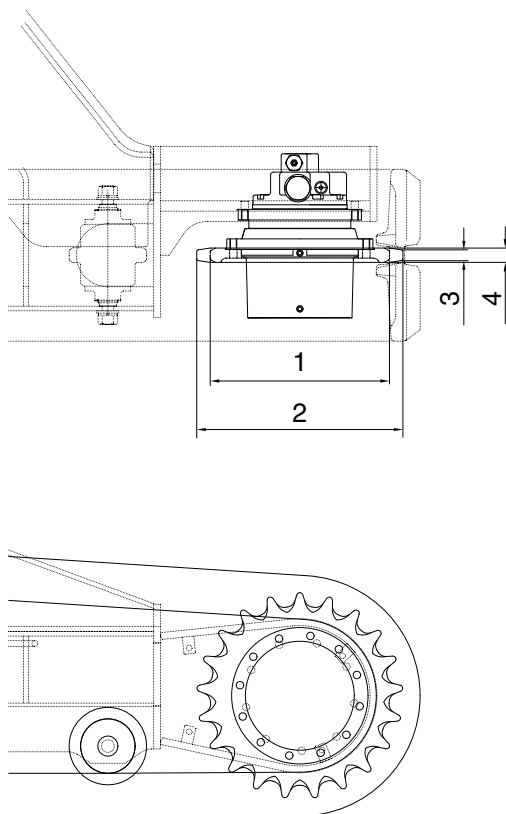


R25Z9AK6MC20

Unit : mm

| No | Check item | Criteria | | | | | Remedy |
|----|---------------------------------|---------------|------------------|----------------|--------------|----------------|--------------------|
| | | | Standard size | | Repair limit | | |
| 1 | Vertical width of idler guide | Track frame | 91 | | 93 | | Rebuild or replace |
| | | Idler support | 90 | | 88 | | |
| 2 | Horizontal width of idler guide | Track frame | 162 | | 164 | | Rebuild or replace |
| | | Idler guide | 160 | | 156 | | |
| 3 | Recoil spring | Standard size | | | Repair limit | | Replace |
| | | Free length | Installed length | Installed load | Free length | Installed load | |
| | | 218 | 178 | 2150 kg | - | 1720 kg | |

6. SPROCKET

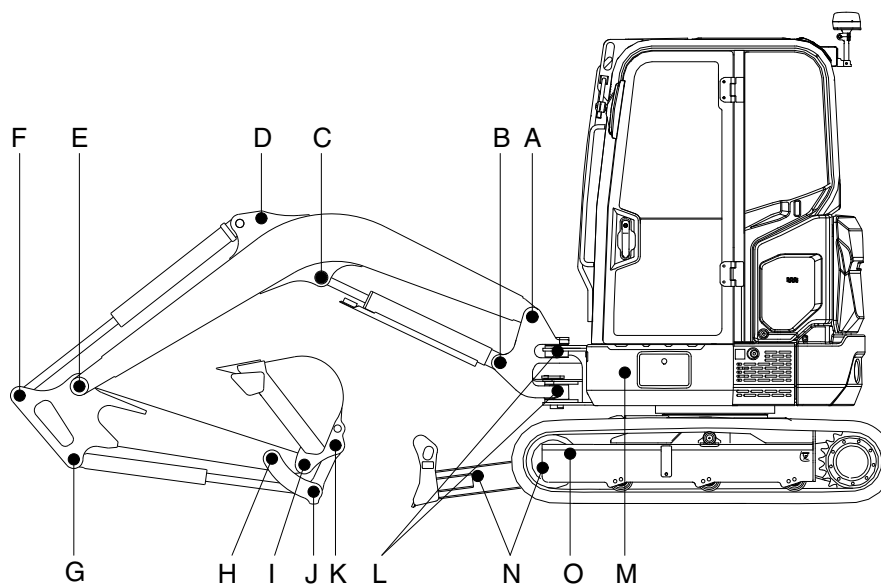


R27Z96MC22

Unit : mm

| No | Check item | Criteria | | Remedy |
|----|--|---------------|--------------|-------------------|
| | | Standard size | Repair limit | |
| 1 | Wear out of sprocket tooth lower side diameter | Ø 327.75 | Ø 319.75 | Repair or Replace |
| 2 | Wear out of sprocket tooth upper side diameter | Ø 359.75 | - | |
| 3 | Wear out of sprocket tooth upper side width | 18 | - | |
| 4 | Wear out of sprocket tooth lower side width | 25 | - | |

7. WORK EQUIPMENT



25AZ6MS30

Unit : mm

| Mark | Measuring point (Pin and Bushing) | Normal value | Pin | | Bushing | | Remedy & Remark |
|------|--------------------------------------|-----------------|-----------------------------|-----------------|-----------------------------|-----------------|-----------------------|
| | | | Recomm. service limit | Limit of use | Recomm. service limit | Limit of use | |
| A | Boom rear | 40 | 39 | 38.5 | 40.5 | 41 | Replace |
| B | Boom cylinder head | 40 | 39 | 38.5 | 40.5 | 41 | " |
| C | Boom cylinder rod | 40 | 39 | 38.5 | 40.5 | 41 | " |
| D | Arm cylinder head | 35 | 34 | 33.5 | 35.5 | 36 | " |
| E | Boom front | 35 | 34 | 33.5 | 35.5 | 36 | " |
| F | Arm cylinder rod | 35 | 34 | 33.5 | 35.5 | 36 | " |
| G | Bucket cylinder head | 35 | 34 | 33.5 | 35.5 | 36 | " |
| H | Arm link | 35 | 34 | 33.5 | 35.5 | 36 | " |
| I | Bucket and arm link | 35 | 34 | 33.5 | 35.5 | 36 | " |
| J | Bucket cylinder rod | 35 | 34 | 33.5 | 35.5 | 36 | " |
| K | Bucket link | 35 | 34 | 33.5 | 35.5 | 36 | " |
| L | Boom swing post | 70 | 69 | 68.5 | 70.5 | 71 | " |
| M | Boom swing cylinder | 35 | 34 | 33.5 | 35.5 | 36 | " |
| N | Blade cylinder | 35 | 34 | 33.5 | 35.5 | 36 | " |
| O | Blade and frame link | 35 | 34 | 33.5 | 35.5 | 36 | " |

SECTION 7 DISASSEMBLY AND ASSEMBLY

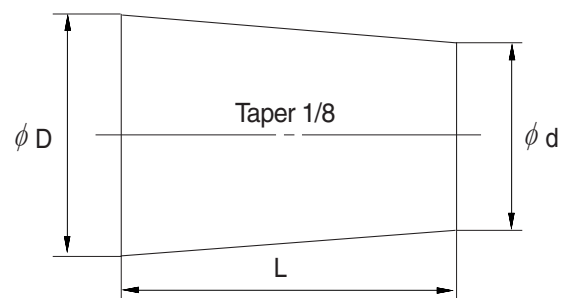
| | | |
|----------|-------------------------------------|-------|
| Group 1 | Precaution | 7-1 |
| Group 2 | Tightening Torque | 7-4 |
| Group 3 | Pump Device | 7-7 |
| Group 4 | Main Control Valve | 7-21 |
| Group 5 | Swing Device | 7-35 |
| Group 6 | Travel Device | 7-58 |
| Group 7 | RCV Lever | 7-90 |
| Group 8 | Turning Joint | 7-106 |
| Group 9 | Boom, Arm and Bucket Cylinder | 7-111 |
| Group 10 | Undercarriage | 7-130 |
| Group 11 | Work Equipment | 7-143 |

GROUP 1 PRECAUTIONS

1. REMOVAL WORK

- 1) Lower the work equipment completely to the ground.
If the coolant contains antifreeze, dispose of it correctly.
- 2) After disconnecting hoses or tubes, cover them or fit blind plugs to prevent dirt or dust from entering.
- 3) When draining oil, prepare a container of adequate size to catch the oil.
- 4) Confirm the match marks showing the installation position, and make match marks in the necessary places before removal to prevent any mistake when assembling.
- 5) To prevent any excessive force from being applied to the wiring, always hold the connectors when disconnecting the connectors.
- 6) Fit wires and hoses with tags to show their installation position to prevent any mistake when installing.
- 7) Check the number and thickness of the shims, and keep in a safe place.
- 8) When raising components, be sure to use lifting equipment of ample strength.
- 9) When using forcing screws to remove any components, tighten the forcing screws alternately.
- 10) Before removing any unit, clean the surrounding area and fit a cover to prevent any dust or dirt from entering after removal.
- 11) When removing hydraulic equipment, first release the remaining pressure inside the hydraulic tank and the hydraulic piping.
- 12) If the part is not under hydraulic pressure, the following corks can be used.

| Nominal number | Dimensions | | |
|----------------|------------|------|----|
| | D | d | L |
| 06 | 6 | 5 | 8 |
| 08 | 8 | 6.5 | 11 |
| 10 | 10 | 8.5 | 12 |
| 12 | 12 | 10 | 15 |
| 14 | 14 | 11.5 | 18 |
| 16 | 16 | 13.5 | 20 |
| 18 | 18 | 15 | 22 |
| 20 | 20 | 17 | 25 |
| 22 | 22 | 18.5 | 28 |
| 24 | 24 | 20 | 30 |
| 27 | 27 | 22.5 | 34 |



2. INSTALL WORK

- 1) Tighten all bolts and nuts (sleeve nuts) to the specified torque.
- 2) Install the hoses without twisting or interference.
- 3) Replace all gaskets, O-rings, cotter pins, and lock plates with new parts.
- 4) Bend the cotter pin or lock plate securely.
- 5) When coating with adhesive, clean the part and remove all oil and grease, then coat the threaded portion with 2-3 drops of adhesive.
- 6) When coating with gasket sealant, clean the surface and remove all oil and grease, check that there is no dirt or damage, then coat uniformly with gasket sealant.
- 7) Clean all parts, and correct any damage, dents, burrs, or rust.
- 8) Coat rotating parts and sliding parts with engine oil.
- 9) When press fitting parts, coat the surface with antifriction compound (LM-P).
- 10) After installing snap rings, check that the snap ring is fitted securely in the ring groove (Check that the snap ring moves in the direction of rotation).
- 11) When connecting wiring connectors, clean the connector to remove all oil, dirt, or water, then connect securely.
- 12) When using eyebolts, check that there is no deformation or deterioration, and screw them in fully.
- 13) When tightening split flanges, tighten uniformly in turn to prevent excessive tightening on one side.
- 14) When operating the hydraulic cylinders for the first time after repairing and reassembling the hydraulic cylinders, pumps, or other hydraulic equipment or piping, always bleed the air from the hydraulic cylinders as follows:
 - (1) Start the engine and run at low idling.
 - (2) Operate the control lever and actuate the hydraulic cylinder 4-5 times, stopping 100 mm before the end of the stroke.
 - (3) Next, operate the piston rod to the end of its stroke to relieve the circuit. (The air bleed valve is actuated to bleed the air.)
 - (4) After completing this operation, raise the engine speed to the normal operating condition.
 - ※ If the hydraulic cylinder has been replaced, carry out this procedure before assembling the rod to the work equipment.Carry out the same operation on machines that have been in storage for a long time after completion of repairs.

3. COMPLETING WORK

- 1) If the coolant has been drained, tighten the drain valve, and add water to the specified level. Run the engine to circulate the water through the system. Then check the water level again.
- 2) If the hydraulic equipment has been removed and installed again, add engine oil to the specified level. Run the engine to circulate the oil through the system. Then check the oil level again.
- 3) If the piping or hydraulic equipment, such as hydraulic cylinders, pumps, or motors, have been removed for repair, always bleed the air from the system after reassembling the parts.
- 4) Add the specified amount of grease (Molybdenum disulphide grease) to the work equipment related parts.

GROUP 2 TIGHTENING TORQUE

1. MAJOR COMPONENTS

| No. | Descriptions | | Bolt size | Torque | |
|-----|--------------------|---------------------------------------|------------|------------|-------------|
| | | | | kgf · m | lbf · ft |
| 1 | Engine | Engine mounting bolt (engine-bracket) | M10 × 1.25 | 6.9 ± 1.4 | 49.9 ± 10.1 |
| 2 | | Engine mounting bolt (bracket-frame) | M12 × 1.75 | 13.0 ± 1.0 | 94 ± 7.2 |
| 3 | | Radiator mounting bolt, nut | M12 × 1.75 | 12.8 ± 3.0 | 92.6 ± 21.7 |
| 4 | | Coupling mounting bolt | M12 × 1.75 | 9.3 ± 0.5 | 67.3 ± 3.6 |
| 5 | | Flywheel housing mounting bolt, nut | M10 × 1.5 | 6.9 ± 1.4 | 49.9 ± 10.1 |
| 6 | | Fuel tank mounting bolt | M10 × 1.5 | 6.9 ± 1.4 | 49.9 ± 10.1 |
| 7 | Hydraulic system | Main pump mounting bolt | M12 × 1.75 | 13.0 ± 1.0 | 94 ± 7.2 |
| 8 | | Main control valve mounting bolt | M10 × 1.5 | 6.9 ± 1.4 | 49.9 ± 10.1 |
| 9 | | Hydraulic oil tank mounting bolt | M12 × 1.75 | 12.8 ± 3.0 | 92.6 ± 21.7 |
| 10 | | Turning joint mounting bolt, nut | M10 × 1.5 | 6.9 ± 1.4 | 49.9 ± 10.1 |
| 11 | Power train system | Swing motor mounting bolt | M16 × 2.0 | 29.7 ± 4.5 | 215 ± 32.5 |
| 12 | | Swing bearing upper mounting bolt | M12 × 1.75 | 12.8 ± 3.0 | 92.6 ± 21.7 |
| 13 | | Swing bearing lower mounting bolt | M12 × 1.75 | 12.8 ± 3.0 | 92.6 ± 21.7 |
| 14 | | Travel motor mounting bolt | M12 × 1.75 | 12.8 ± 3.0 | 92.6 ± 21.7 |
| 15 | | Sprocket mounting bolt | M12 × 1.75 | 12.3 ± 1.2 | 89 ± 8.7 |
| 16 | Under carriage | Upper roller mounting bolt, nut | M12 × 1.75 | 12.3 ± 1.2 | 89 ± 8.7 |
| 17 | | Lower roller mounting bolt | M16 × 1.5 | 31.3 ± 3.0 | 226 ± 21.7 |
| 18 | Others | Counterweight mounting bolt | M20 × 2.5 | 59.7 ± 8.7 | 419 ± 62.9 |
| 19 | | Canopy/Cab mounting bolt, nut | M12 × 1.75 | 12.8 ± 3.0 | 92.6 ± 21.7 |
| 20 | | Operator's seat mounting bolt | M 8 × 1.25 | 2.5 ± 0.5 | 18.1 ± 3.6 |
| 21 | | Lower frame lower cover mounting bolt | M10 × 1.5 | 6.9 ± 1.4 | 49.9 ± 10.1 |
| 22 | | Travel motor cover mounting bolt | M10 × 1.5 | 6.9 ± 1.4 | 49.9 ± 10.1 |

2. TORQUE CHART

Use following table for unspecified torque.

1) BOLT AND NUT

(1) Coarse thread

| Bolt size | 8T | | 10T | |
|------------|-------------|-------------|-------------|-------------|
| | kgf · m | lbf · ft | kgf · m | lbf · ft |
| M 6 × 1.0 | 0.85 ~ 1.25 | 6.15 ~ 9.04 | 1.14 ~ 1.74 | 8.2 ~ 12.6 |
| M 8 × 1.25 | 2.0 ~ 3.0 | 14.5 ~ 21.7 | 2.7 ~ 4.1 | 19.5 ~ 29.7 |
| M10 × 1.5 | 4.0 ~ 6.0 | 28.9 ~ 43.4 | 5.5 ~ 8.3 | 39.8 ~ 60 |
| M12 × 1.75 | 7.4 ~ 11.2 | 53.5 ~ 81.0 | 9.8 ~ 15.8 | 70.9 ~ 114 |
| M14 × 2.0 | 12.2 ~ 16.6 | 88.2 ~ 120 | 16.7 ~ 22.5 | 121 ~ 163 |
| M16 × 2.0 | 18.6 ~ 25.2 | 135 ~ 182 | 25.2 ~ 34.2 | 182 ~ 247 |
| M18 × 2.5 | 25.8 ~ 35.0 | 187 ~ 253 | 35.1 ~ 47.5 | 254 ~ 344 |
| M20 × 2.5 | 36.2 ~ 49.0 | 262 ~ 354 | 49.2 ~ 66.6 | 356 ~ 482 |
| M22 × 2.5 | 48.3 ~ 63.3 | 349 ~ 458 | 65.8 ~ 98.0 | 476 ~ 709 |
| M24 × 3.0 | 62.5 ~ 84.5 | 452 ~ 611 | 85.0 ~ 115 | 615 ~ 832 |
| M30 × 3.0 | 124 ~ 168 | 898 ~ 1214 | 169 ~ 229 | 1223 ~ 1656 |
| M36 × 4.0 | 174 ~ 236 | 1261 ~ 1704 | 250 ~ 310 | 1808 ~ 2242 |

(2) Fine thread

| Bolt size | 8T | | 10T | |
|------------|-------------|-------------|-------------|-------------|
| | kgf · m | lbf · ft | kgf · m | lbf · ft |
| M 8 × 1.0 | 2.2 ~ 3.4 | 15.9 ~ 24.6 | 3.0 ~ 4.4 | 21.7 ~ 31.8 |
| M10 × 1.2 | 4.5 ~ 6.7 | 32.5 ~ 48.5 | 5.9 ~ 8.9 | 42.7 ~ 64.4 |
| M12 × 1.25 | 7.8 ~ 11.6 | 56.4 ~ 83.9 | 10.6 ~ 16.0 | 76.7 ~ 116 |
| M14 × 1.5 | 13.3 ~ 18.1 | 96.2 ~ 131 | 17.9 ~ 24.1 | 130 ~ 174 |
| M16 × 1.5 | 19.9 ~ 26.9 | 144 ~ 195 | 26.6 ~ 36.0 | 192 ~ 260 |
| M18 × 1.5 | 28.6 ~ 43.6 | 207 ~ 315 | 38.4 ~ 52.0 | 278 ~ 376 |
| M20 × 1.5 | 40.0 ~ 54.0 | 289 ~ 391 | 53.4 ~ 72.2 | 386 ~ 522 |
| M22 × 1.5 | 52.7 ~ 71.3 | 381 ~ 516 | 70.7 ~ 95.7 | 511 ~ 692 |
| M24 × 2.0 | 67.9 ~ 91.9 | 491 ~ 665 | 90.9 ~ 123 | 658 ~ 890 |
| M30 × 2.0 | 137 ~ 185 | 990 ~ 1339 | 182 ~ 248 | 1314 ~ 1796 |
| M36 × 3.0 | 192 ~ 260 | 1390 ~ 1880 | 262 ~ 354 | 1894 ~ 2562 |

2) PIPE AND HOSE (FLARE type)

| Thread size (PF) | Width across flat (mm) | kgf · m | lbf · ft |
|------------------|------------------------|---------|----------|
| 1/4" | 19 | 4 | 28.9 |
| 3/8" | 22 | 5 | 36.2 |
| 1/2" | 27 | 9.5 | 68.7 |
| 3/4" | 36 | 18 | 130 |
| 1" | 41 | 21 | 152 |
| 1-1/4" | 50 | 35 | 253 |

3) PIPE AND HOSE (ORFS type)

| Thread size (UNF) | Width across flat (mm) | kgf · m | lbf · ft |
|-------------------|------------------------|---------|----------|
| 9/16-18 | 19 | 4 | 28.9 |
| 11/16-16 | 22 | 5 | 36.2 |
| 13/16-16 | 27 | 9.5 | 68.7 |
| 1-3/16-12 | 36 | 18 | 130 |
| 1-7/16-12 | 41 | 21 | 152 |
| 1-11/16-12 | 50 | 35 | 253 |

4) FITTING

| Thread size | Width across flat (mm) | kgf · m | lbf · ft |
|-------------|------------------------|---------|----------|
| 1/4" | 19 | 4 | 28.9 |
| 3/8" | 22 | 5 | 36.2 |
| 1/2" | 27 | 9.5 | 68.7 |
| 3/4" | 36 | 18 | 130 |
| 1" | 41 | 21 | 152 |
| 1-1/4" | 50 | 35 | 253 |

GROUP 3 PUMP DEVICE

1. REMOVAL AND INSTALL

1) REMOVAL

- (1) Lower the work equipment to the ground and stop the engine.
- (2) Operate the control levers and pedals several times to release the remaining pressure in the hydraulic piping
- (3) Loosen the breather slowly to release the pressure inside the hydraulic tank.

▲ Escaping fluid under pressure can penetrate the skin causing serious injury.

- (4) Loosen the drain plug under the hydraulic tank and drain the oil from the hydraulic tank.

· Hydraulic tank quantity : 27 ℓ
(7.1 U.S.gal)

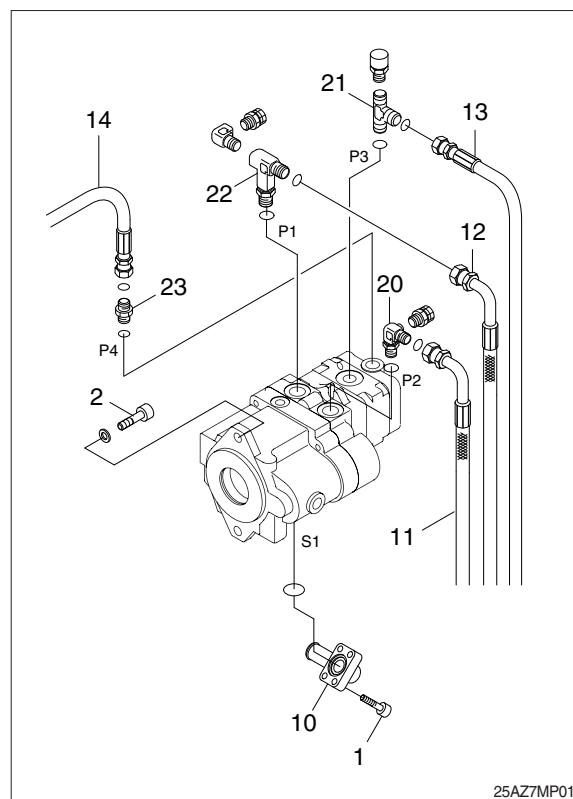
- (5) Disconnect hoses (11, 12, 13) and remove connectors (20, 21, 22).
- (6) Disconnect pilot line hoses (14) and remove connectors (23).
- (7) Remove socket bolts (1) and disconnect pump suction tube (10).

· Tightening torque : 8.27 ± 1.7 kgf·m
(59.8 ± 12.3 lbf·ft)

※ When pump suction tube is disconnected, the oil inside the piping will flow out, so catch it in oil pan.

- (8) Sling the pump assembly and remove the pump mounting bolts (2).
 - Weight : 19 kg (42 lb)
 - Tightening torque : 13.0 ± 1.0 kgf·m
(94 ± 7.2 lbf·ft)

※ Pull out the pump assembly from housing. When removing the pump assembly, check that all the hoses have been disconnected.

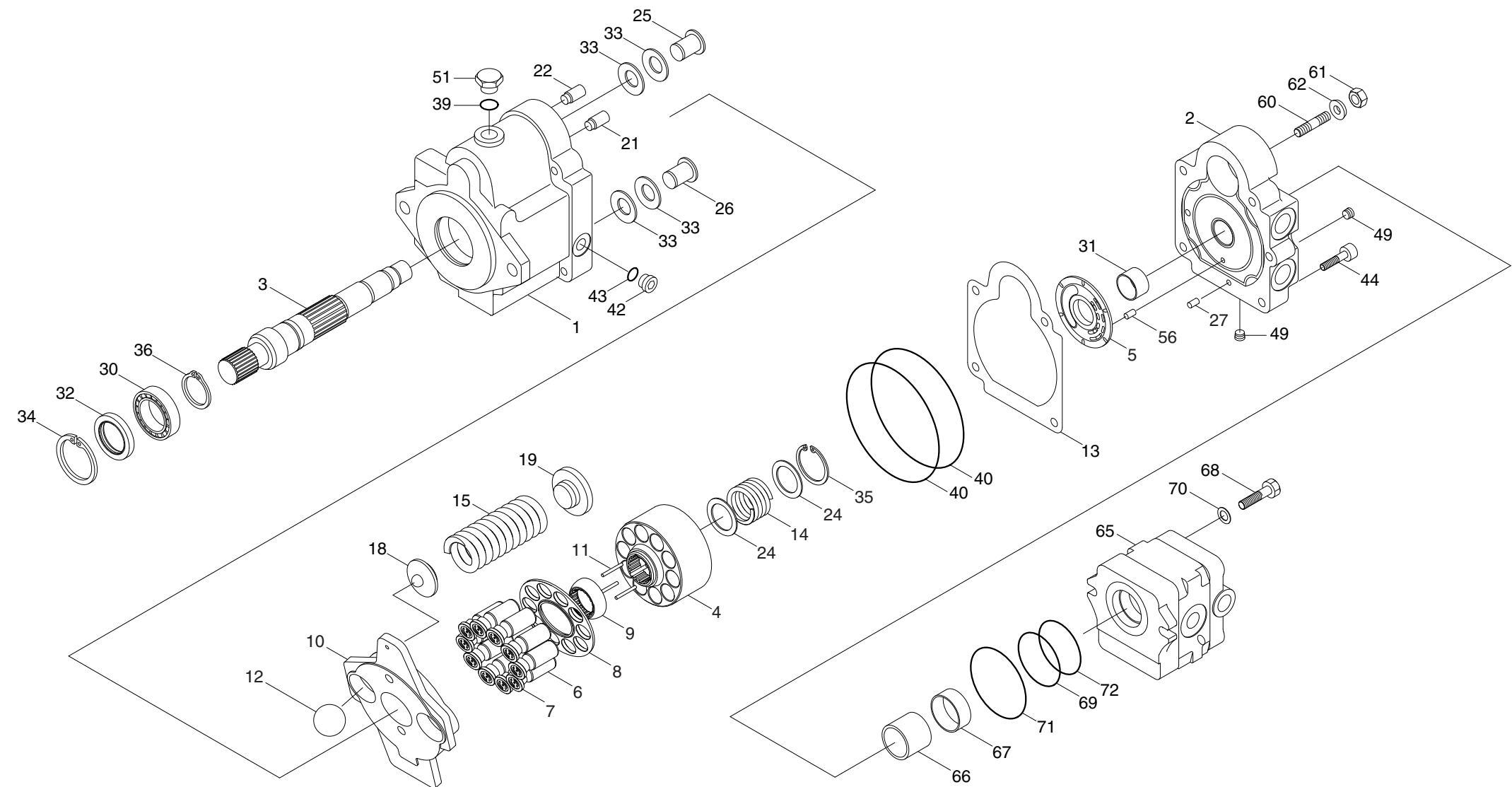


2) INSTALL

- (1) Carry out installation in the reverse order to removal.
- (2) Remove the suction strainer and clean it.
- (3) Replace return filter with new one.
- (4) Remove breather and clean it.
- (5) After adding oil to the hydraulic tank to the specified level.
- (6) Bleed the air from the hydraulic pump.
 - ① Remove the air vent plug (1EA).
 - ② Tighten plug lightly.
 - ③ Start the engine, run at low idling, and check oil come out from plug.
 - ④ Tighten plug.
- (7) Start the engine, run at low idling (3~5 minutes) to circulate the oil through the system.
- (8) Confirm the hydraulic oil level and check the hydraulic oil leak or not.

2. MAIN PUMP

1) STRUCTURE



| | | | | | | | | | | | |
|---|-----------------|----|---------------|----|----------------|----|-------------|----|-------------|----|--------|
| 1 | Body S | 10 | Swash plate | 21 | Rod G | 33 | Dish spring | 49 | Plug | 68 | Screw |
| 2 | Body H | 11 | Needle | 22 | Rod C | 34 | Snap ring | 51 | Plug | 69 | O-ring |
| 3 | Shaft | 12 | Ball | 24 | Retainer | 35 | Snap ring | 56 | Spring pin | 70 | Washer |
| 4 | Cylinder barrel | 13 | Packing | 25 | Stopper pin A | 36 | Snap ring | 60 | Screw | 71 | O-ring |
| 5 | Valve plate | 14 | Spring C | 26 | Stopper pin B | 39 | O-ring | 61 | Nut | 72 | O-ring |
| 6 | Piston | 15 | Spring T | 27 | Pin | 40 | O-ring | 62 | Seal washer | | |
| 7 | Shoe | 18 | Spring holder | 30 | Ball bearing | 42 | Plug | 65 | Gear pump | | |
| 8 | Shoe holder | 19 | Spring guide | 31 | Needle bearing | 43 | O-ring | 66 | Coupling | | |
| 9 | Barrel holder | 20 | Pin | 32 | Oil seal | 44 | Screw | 67 | Collar | | |

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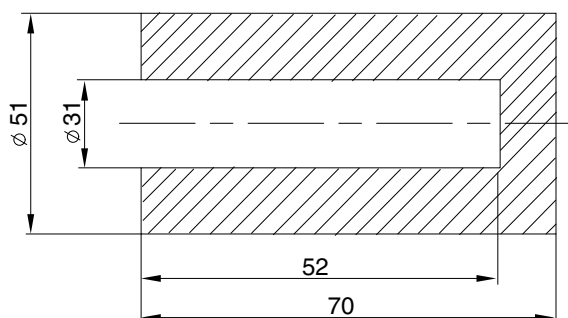
3. ASSEMBLE AND DISASSEMBLE

1) General precautions

- (1) Before disassembling, it is important to have fully understood the internal structure of the pump.
- ※ The gasket (13), oil seal (32) and O-rings will be probably damaged when you disassemble it, so be sure to have prepared spares.
- (2) After having drained oil inside the pump, wash the pump and put it on a working bench covered with clean paper, cloth, or rubber mat for disassembling and assembling. Then, disassemble and assemble the pump slowly and carefully with necessary tools. Use care not to scratch even slightly, and take proper measures to prevent foreign matters from entering the assembly.

2) Tools

| Tool name | Size | Quantity |
|------------------------------|--------------------------------------|--------------|
| Hexagon wrench | 4, 6, 8 mm | 1 each |
| Circlip player | For hole | 1 |
| Spanner wrench | 13 mm | 1 |
| Torque wrench | 45N (JIS B 4650) 90N (JIS B 4650) | 1 1 |
| Resin hammer | - | 1 |
| Special tooling for oil seal | See below | 1 |
| Seal kit | - | 1 set |
| Grease | - | Small amount |



Special tooling for oil seal

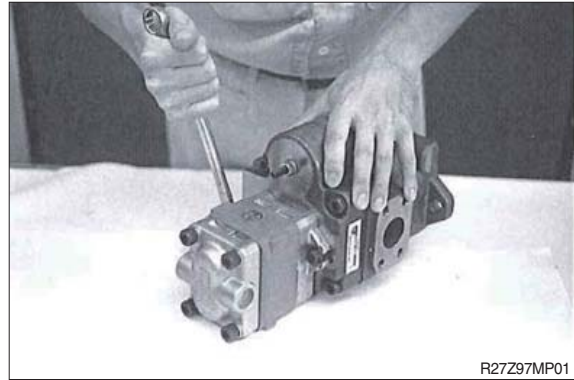
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3) DISASSEMBLING

(1) Disassembling of gear pump

Remove two screws (68) with spanner wrench 13 mm, and after that remove gear pump (65), collar (67) and coupling (66).

- ※ Coupling (66) and collar (67) may be attached with gear pump kit (65).



(2) Remove the adjustment screw

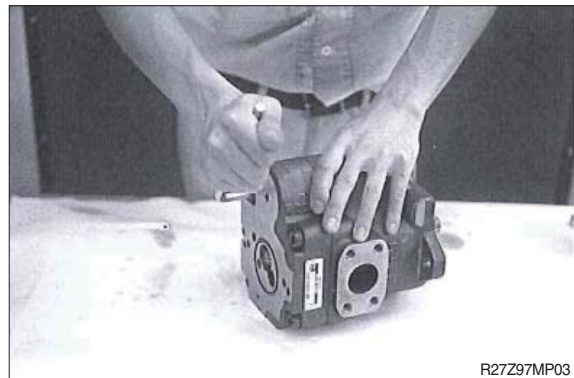
Loose hexagon nut (61) with spanner wrench 13 mm, then remove the adjustment screw (60) with hexagon wrench 4 mm.

- ※ Suggest you to measure the outside length of the adjustment screw. Because it is a good help when you readjust it after reassembling.



(3) Separation of body S and body H

Remove five screws (44) with hexagon wrench 8 mm.

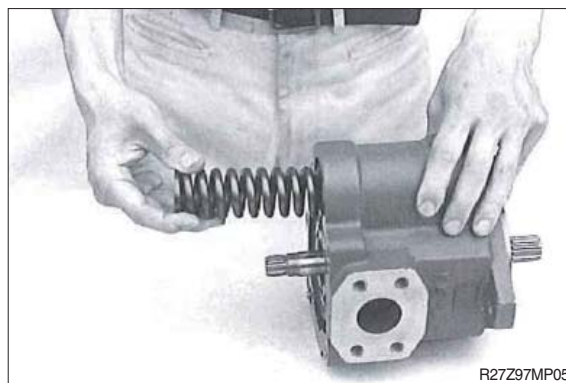


- ※ If you tap the part of inserted spring of body H with hummer softly, it is easy for separation.



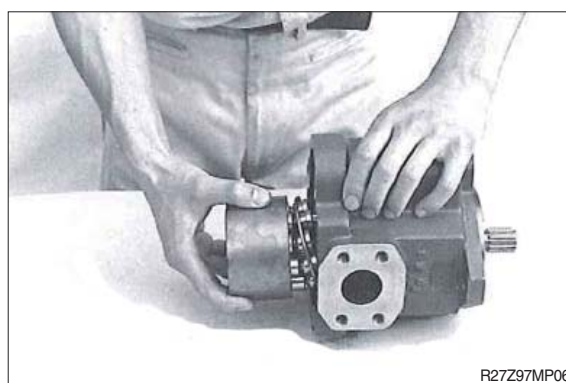
(4) Disassembling of body S kit

Remove spring T (15) from body S kit, then take off spring holder (18).



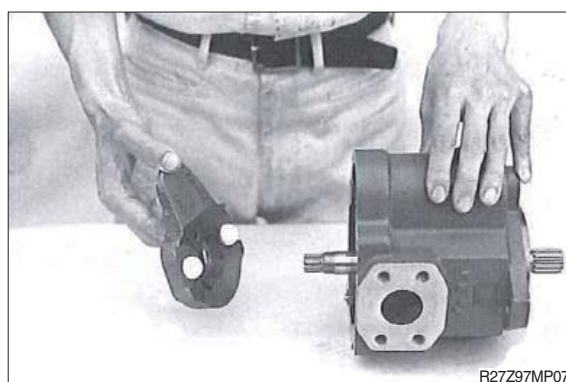
(5) Disassembling of body S kit

Remove cylinder barrel kit.



(6) Disassembling of body S kit

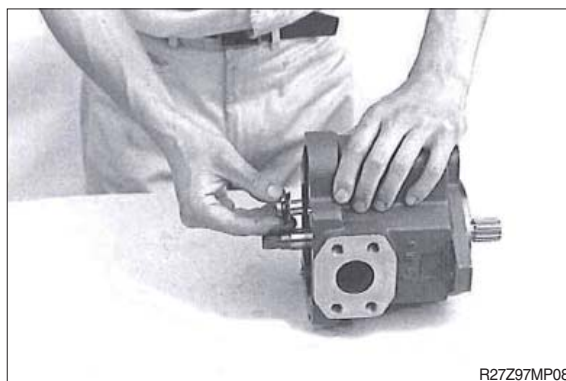
Remove swash plate (10) and two balls (12).



(7) Disassembling of body S kit

Remove stopper pin A (25), stopper pin B (26), dish springs (33), rod G (21) and rod C (22).

- ※ The length of the stopper pin A and B is different. Pay attention not to swap when reassembling.



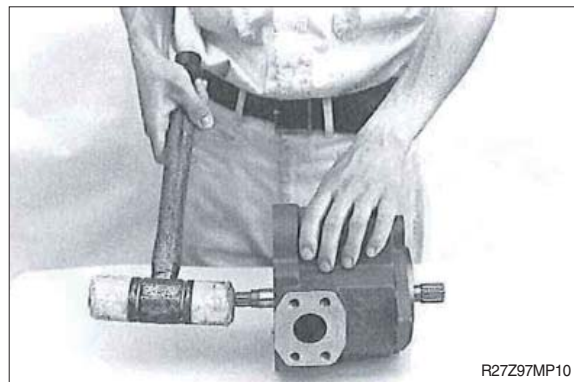
(8) Disassembling of body S kit

Remove snap ring (34) from body S (1).



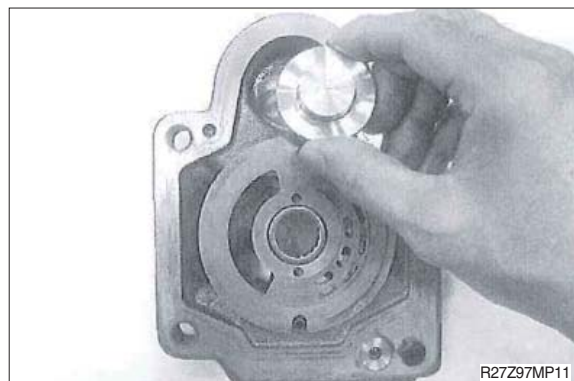
(9) Disassembling of body S kit

Tap the end of shaft (3) with hammer, then oil seal (32) and shaft with bearing (30) come off.



(10) Disassembling of body H kit

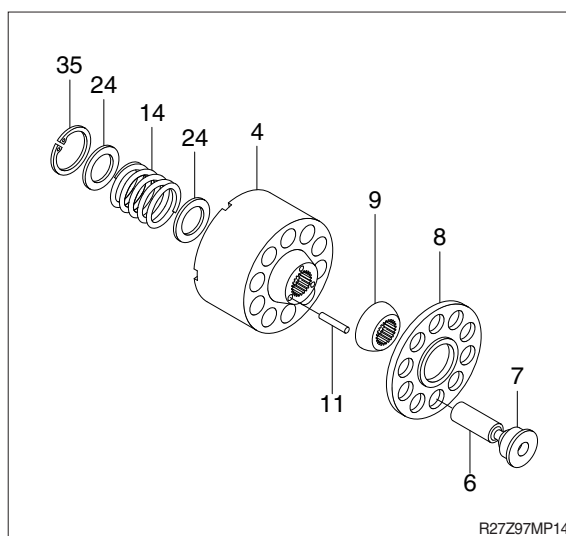
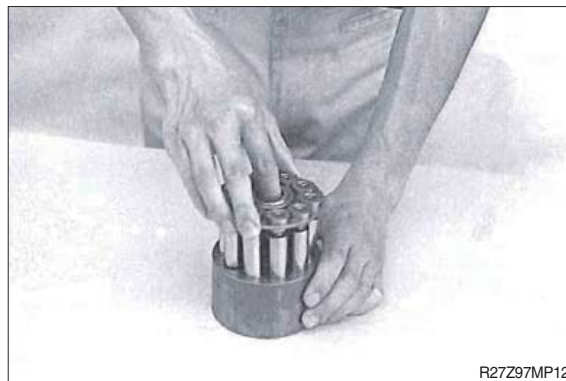
Remove spring guide (19) and valve plate (5) from body H.



(11) Disassembling of cylinder barrel kit

Remove shoe holder (8) on which piston shoe assemblies (6) and (7) are set and disassemble it in the order of barrel holder (9) and needle (11).

Also, take off snap ring (35), retainer (24), spring C (14) and retainer (24), which are set in the cylinder barrel (4) in this order.



4) ASSEMBLING

(1) Precautions during assembling

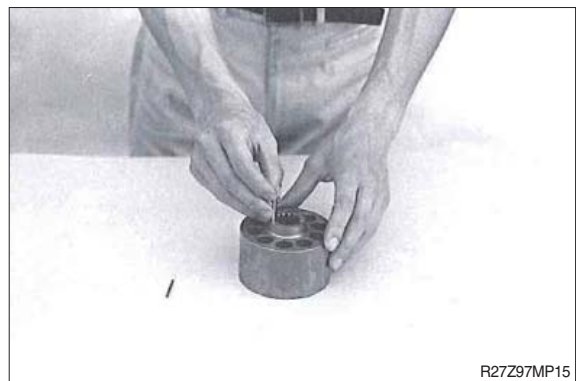
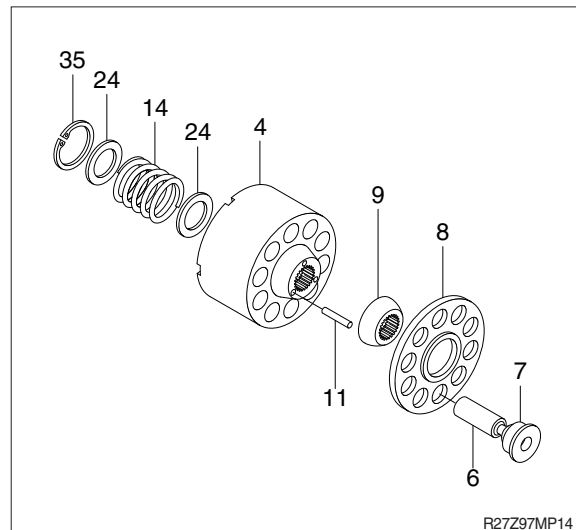
Reverse the above procedures for assembling.

When assembling, be very careful to wash parts in clean oil, to prevent dusts and water from adhering to parts entering assemblies and not to scratch on the sliding surfaces of all parts.

- ※ Apply small quantity of grease to the periphery of O-rings to be set in socket and spigot joints to prevent the O-rings from being damaged.

(2) Assembling of cylinder barrel kit

Set retainer (24), spring C (14), retainer (24) and snap ring (35) in the shaft center hole of cylinder barrel (4) in this order, and carefully set shoe holder (8), on which needle (11), barrel holder (9) and ten piston shoe assemblies have already been set, in cylinder barrel from the opposite side.



(3) Assembling of body S kit

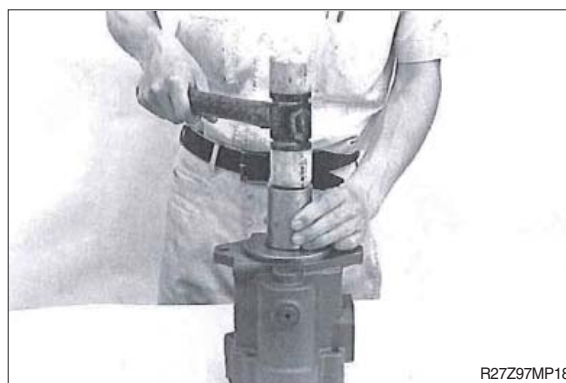
Set shaft (3) with bearing (30), oil seal (32) and snap ring (34) in this order into body S (1).

- ※ Use new oil seal for assembling. Before assembling, apply a small quantity of grease to the periphery of oil seal lip and tap it together with the special tooling with hammer.

When assembling, put body S (1) onto body H (2) tentatively for easy work.



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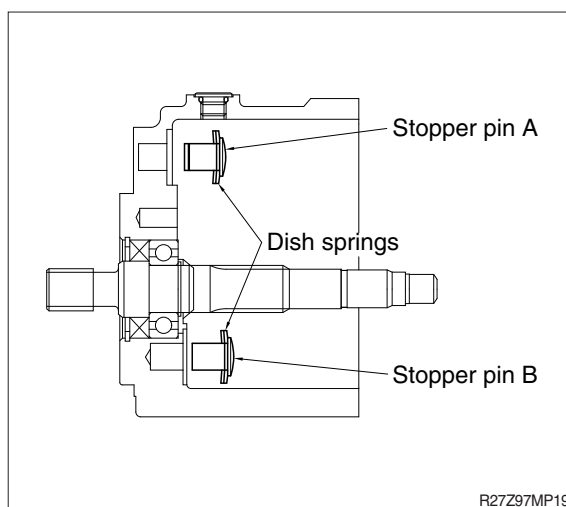


R27Z97MP18

(4) Assembling of body S kit

Set each four dish springs (33) to stopper pin A (25) and stopper pin B (26), then set them into body S (1).

- ※ Pay attention to the direction of the dish washer.
- ※ Pin A and pin B have different length. Set them to the original position. Otherwise, pump displacement changes, and engine stall or insufficient speed can occur.

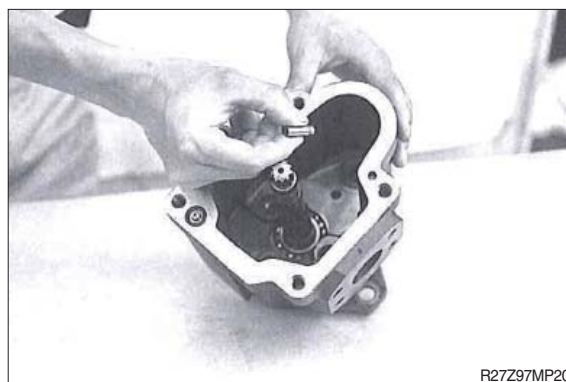


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(5) Assembling of body S kit

Set rod G (21) and rod C (22) into body S (1).

- ※ Pay attention to the direction of the rod G and rod C. (See cross section drawing for the direction.)

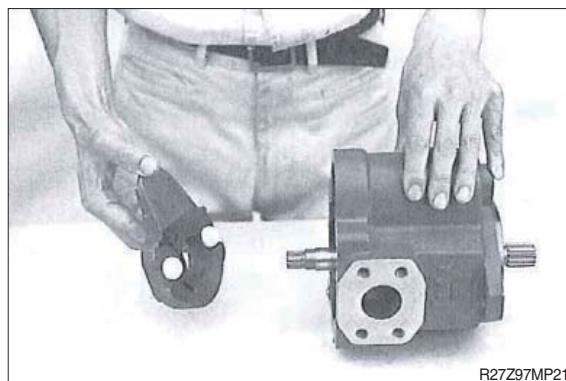


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(6) Assembling of body S kit

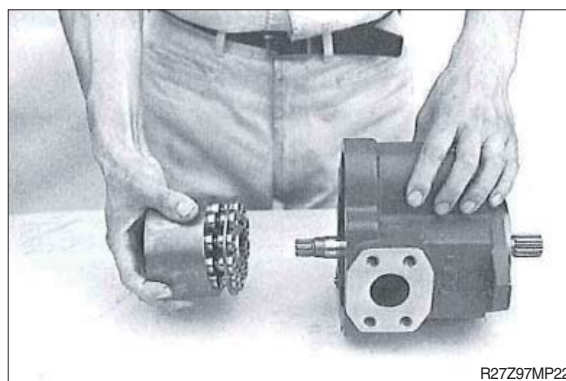
Put two balls (12) in the hole of swash plate (10) and install it in body S.

※ Apply grease on the balls if they drop out.



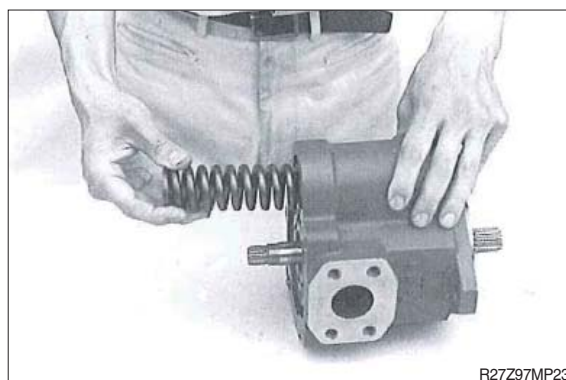
(7) Assembling of body S kit

Assemble cylinder barrel kit into the body S (1).



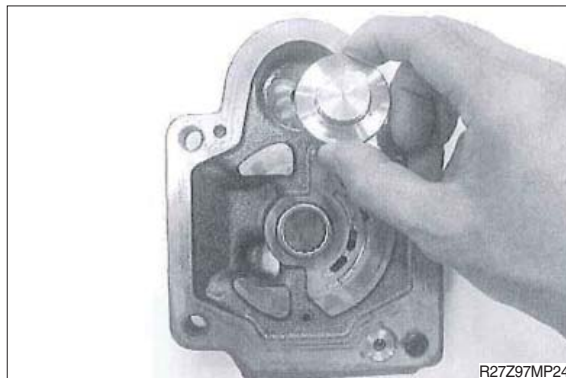
(8) Assembling of body S kit

Set spring T (15) to spring holder (18), then set them together into the hole on swash plate (10).



(9) Assembling of body H kit

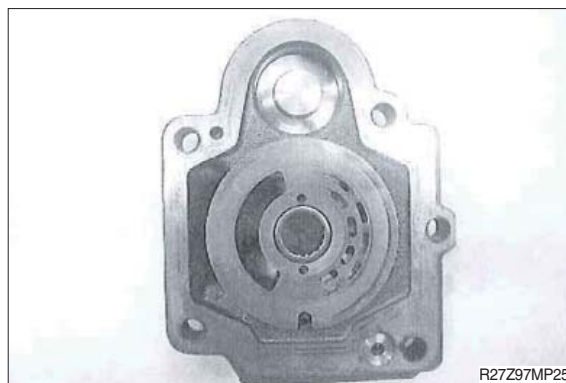
Set spring guide (19) in body H (2).



(10) Assembling of body H kit

Place valve plate (5) slowly on body H (2) by positioning it with spring pin (56).

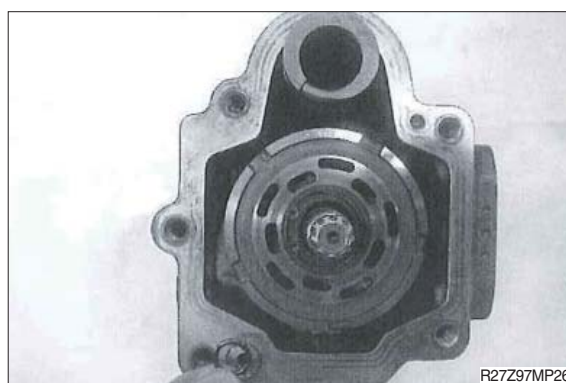
- ※ V notch copper alloy side of valve plate slides with cylinder barrel (4) and be careful not to set the valve plate to a wrong direction.



(11) Assembling of body S kit with body H kit

Place O-ring (40) on body S.

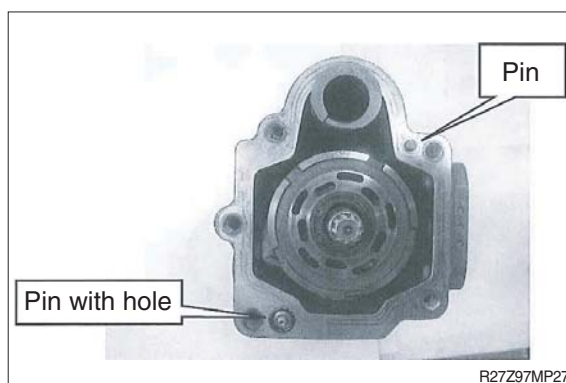
- ※ Use new O-ring for assembling.



(12) Assembling of body S kit with body H kit

Set pin (20) and pin (27) on body S.

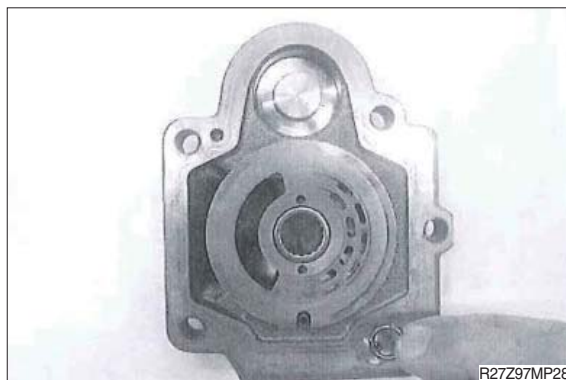
- ※ Pay attention to the position of each pin. Pin (27) has a hole.



(13) Assembling of body S kit with body H kit

Place O-ring (40) on body H.

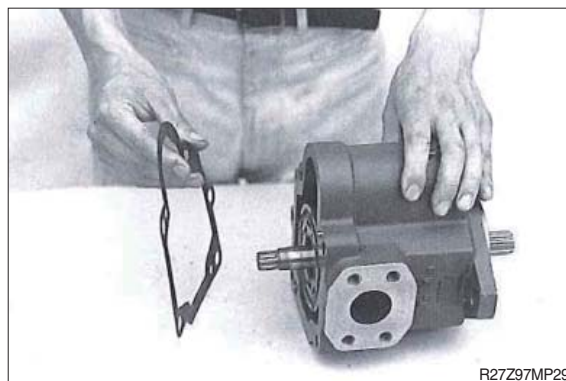
- ※ Use new O-ring for assembling.



(14) Assembling of body S kit with body H kit

Place packing (13), position it with locating pin (27) on body S.

※ Use new packing for assembling.

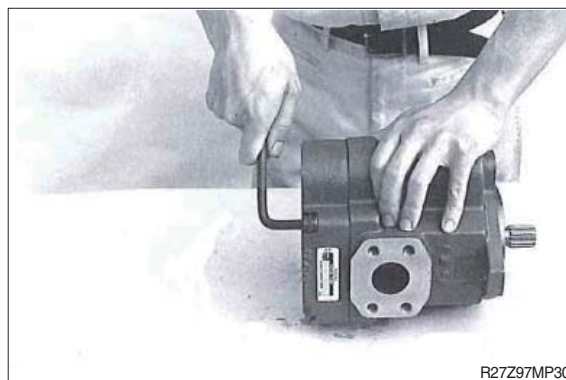


(15) Assembling of body S kit with body H kit

Set two screws (M10×65) into the upper side two screw holes, and tighten them until the distance between body S and body H comes to 5 to 10 mm.

Then set three screws (44) into the three screw holes, after that, replace the upper side two screws (M10×65) to the regular size screws (44) and fix them.

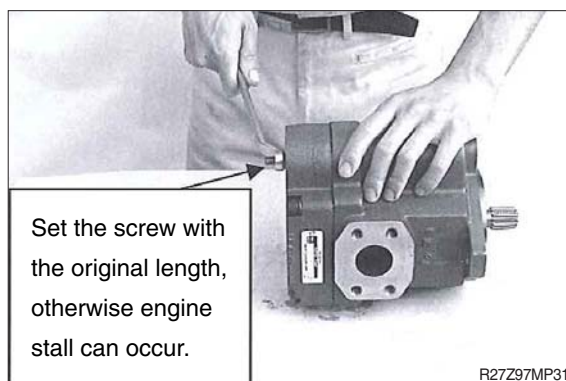
· Tightening torque : 5.2~6.6 kgf · m
(37.6~47.7 lbf · ft)



(16) Installation of the adjusting screw

Fasten the adjusting screw (60) with hexagon wrench 4 mm, then adjust the outside length of adjusting screw and fix locknut (61) with spanner wrench 13 mm. At that time, change the seal washer (62) to new one.

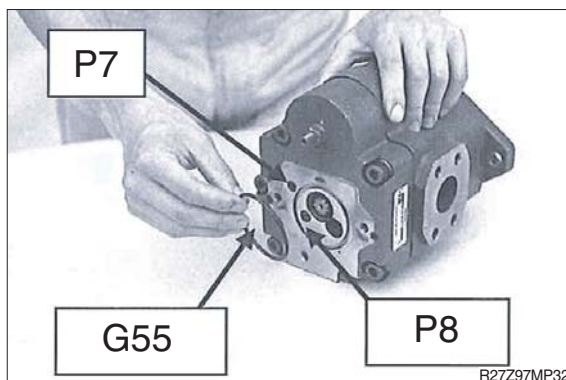
· Tightening torque : 1.5~2.0 kgf · m
(10.8~14.5 lbf · ft)



(17) Installation of gear pump kit

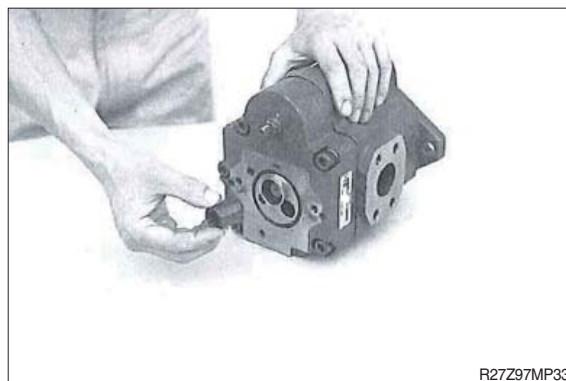
Place O-ring (69, 71, 72) on the installation side of body H.

※ Use new O-ring for assembling.



(18) Installation of gear pump kit

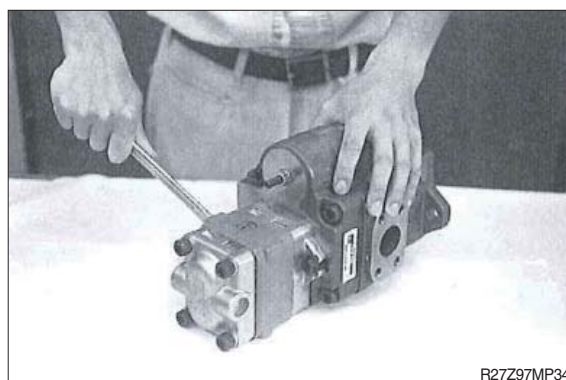
Set collar (67) and coupling (66).



(19) Installation of gear pump kit

Install gear pump kit (65) and fix it by two screws (68) and washers (70) with spanner wrench 13 mm.

- Tightening torque : 2.0~2.4 kgf · m
(14.5~17.3 lbf · ft)



(20) Inspection of assembling

After completed the assembling of pump, make sure that pump shaft rotates smoothly by hand.

GROUP 4 MAIN CONTROL VALVE

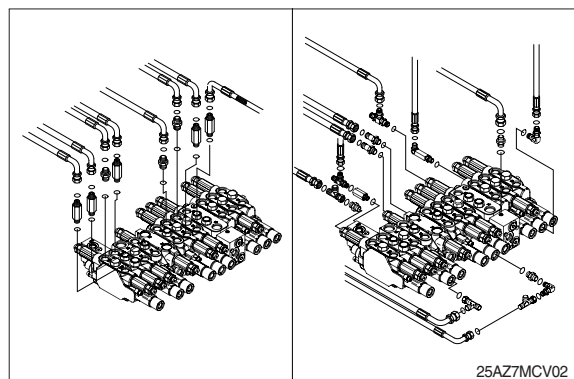
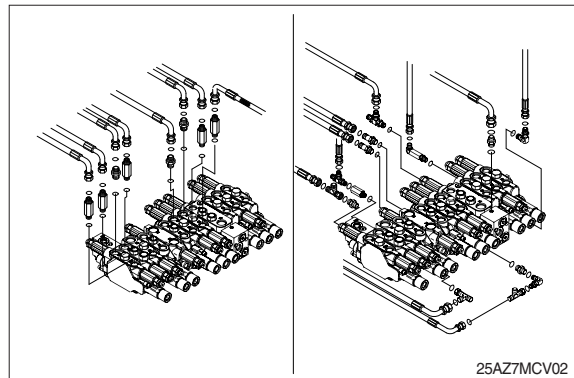
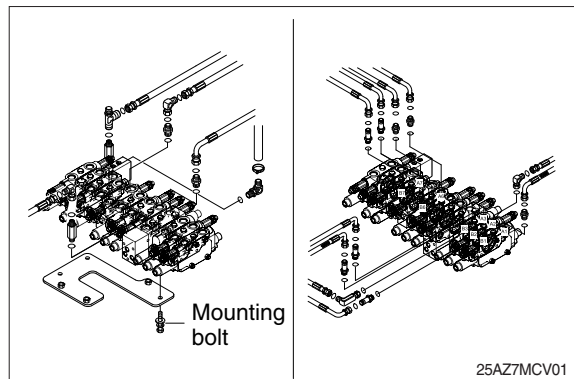
1. REMOVAL AND INSTALL OF MOTOR

1) REMOVAL

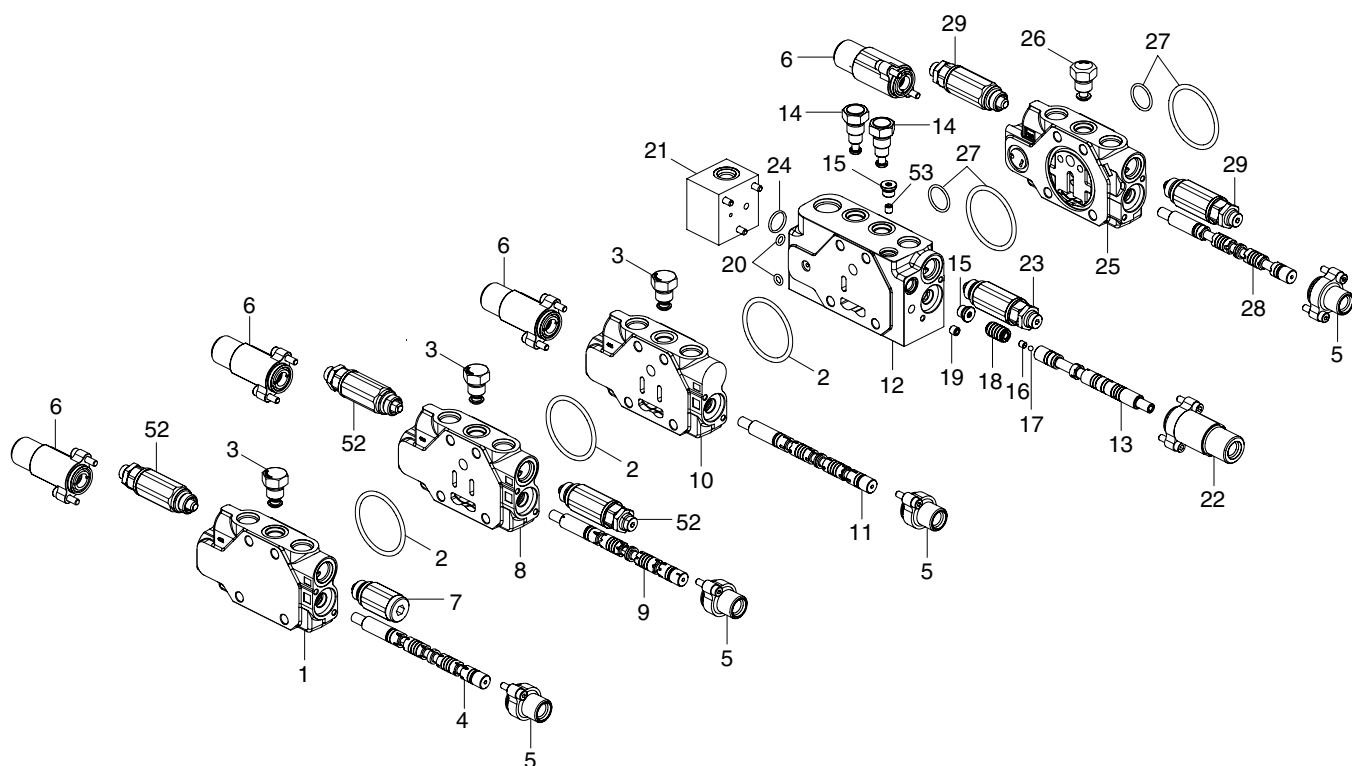
- (1) Lower the work equipment to the ground and stop the engine.
- (2) Operate the control levers and pedals several times to release the remaining pressure in the hydraulic piping.
- (3) Loosen the breather slowly to release the pressure inside the hydraulic tank.
- ▲ **Escaping fluid under pressure can penetrate the skin causing serious injury.**
- ※ When pipes and hoses are disconnected, the oil inside the piping will flow out, so catch it in oil pan.
- (4) Disconnect hydraulic hose.
- (5) Disconnect pilot line hoses.
- (6) Sling the control valve assembly and remove the control valve mounting bolt.
 - Weight : 25 kg (55 lb)
 - Tightening torque : 6.9 ± 1.4 kgf·m
(49.9 ± 10.1 lbf·ft)
- (7) Remove the control valve assembly.
When removing the control valve assembly, check that all the piping have been disconnected.

2) INSTALL

- (1) Carry out installation in the reverse order to removal.
- (2) Bleed the air from below items.
 - ① Cylinder (boom, arm, bucket)
 - ② Swing motor
 - ③ Travel motor
 ※ See each item removal and install.
- (3) Confirm the hydraulic oil level and recheck the hydraulic oil leak or not.



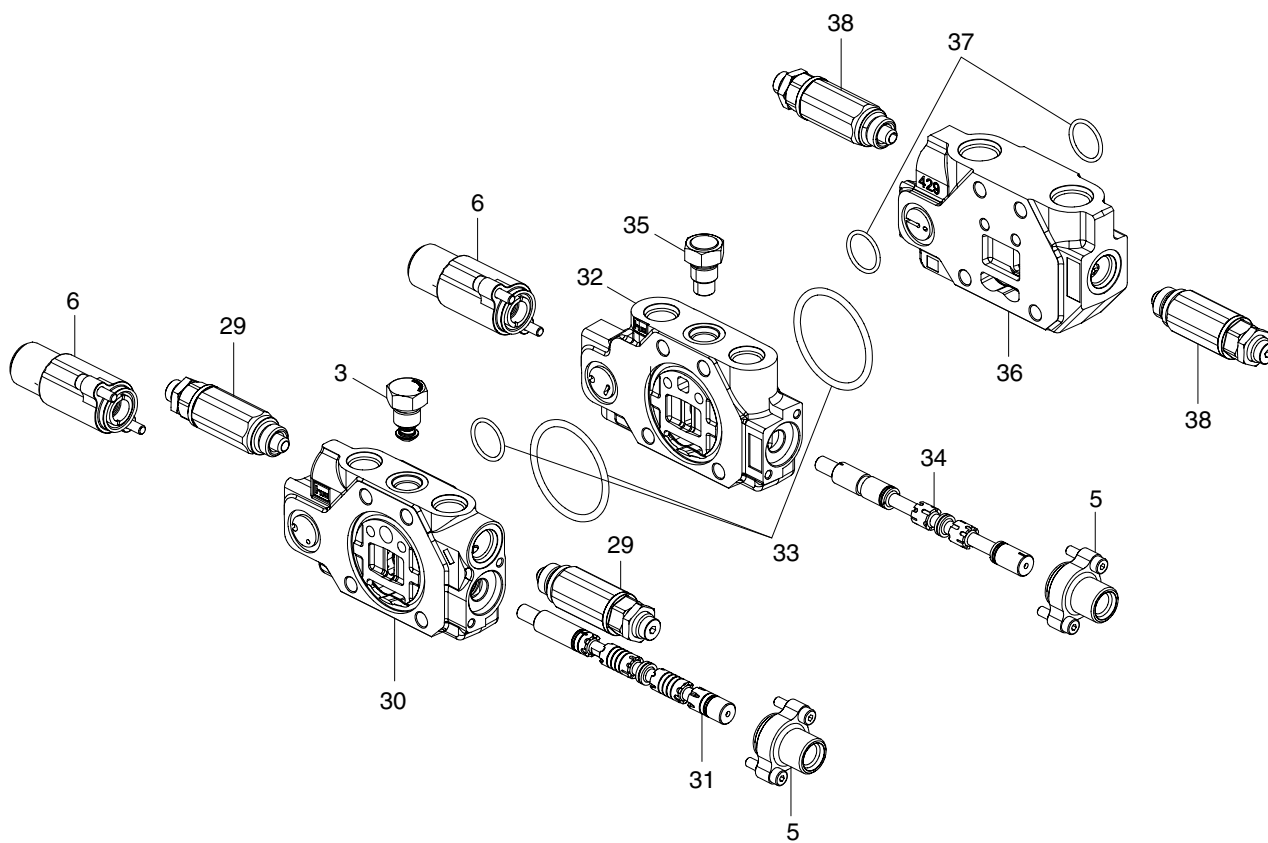
2. STRUCTURE (1/3)



25AZ2MCV02

- | | | |
|-------------------------|--------------------------|----------------------|
| 1 Dozer block assy | 11 Swing spool assy | 21 Pilot body |
| 2 O-ring | 12 Confluence block body | 22 Pilot cover |
| 3 Plug | 13 Confluence spool assy | 23 Relief valve assy |
| 4 Dozer spool assy | 14 Plug | 24 O-ring |
| 5 Pilot cover | 15 Plug | 25 PTO block body |
| 6 Pilot cover | 16 Piston | 26 Plug |
| 7 Relief valve assy | 17 Ball | 27 O-ring |
| 8 Boom swing block | 18 Spring | 28 PTO 1 spool assy |
| 9 Boom swing spool assy | 19 Piston | 29 Relief valve assy |
| 10 Swing block assy | 20 O-ring | 52 Relief valve assy |

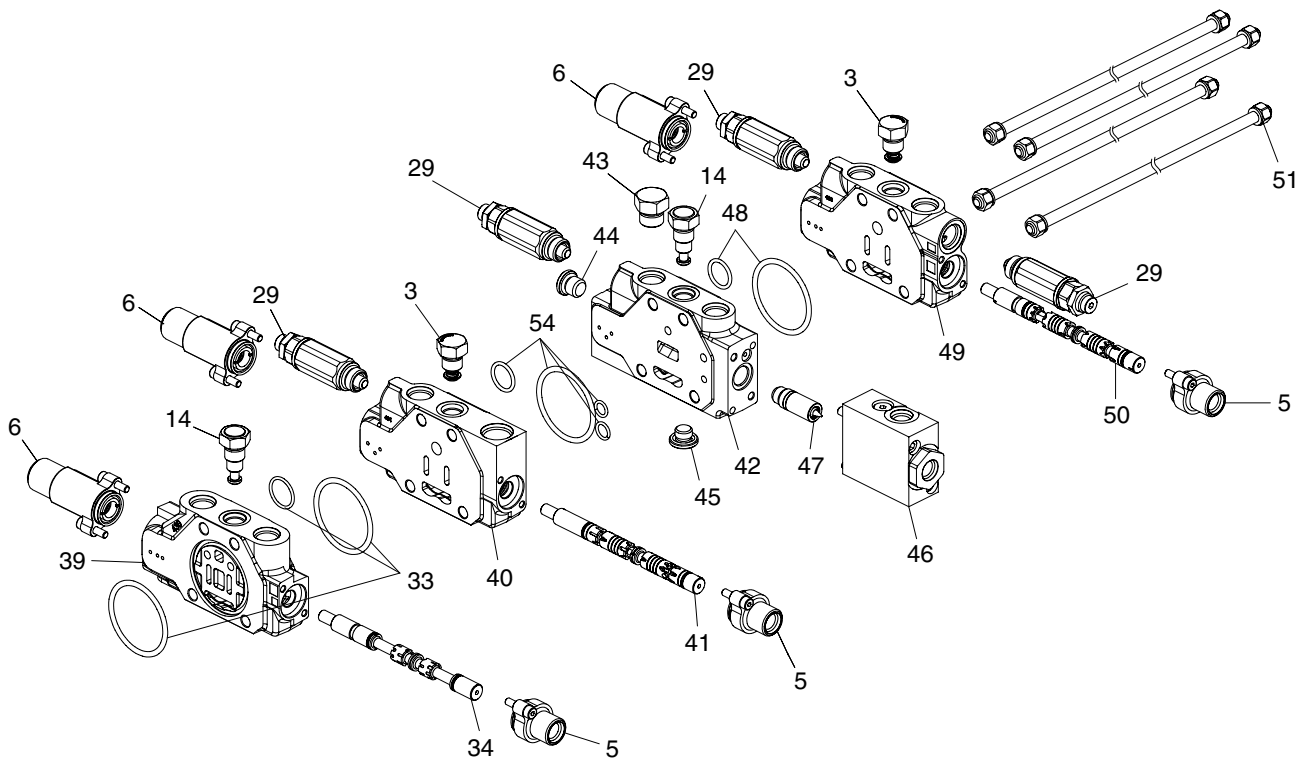
STRUCTURE (2/3)



25AZ2MCV03

- | | | | | | |
|----|-------------------|----|----------------------|----|-------------------|
| 3 | Plug | 31 | Arm spool assy | 35 | Plug |
| 5 | Pilot cover | 32 | LH travel block assy | 36 | Inlet block assy |
| 6 | Pilot cover | 33 | O-ring | 37 | O-ring |
| 29 | Relief valve assy | 34 | Travel spool assy | 38 | Relief valve assy |
| 30 | Arm block assy | | | | |

STRUCTURE (3/3)



25AZ2MCV04

| | | | | | |
|----|-------------------|----|----------------------|----|-------------------|
| 3 | Plug | 39 | RH travel block assy | 46 | Lock valve cover |
| 5 | Pilot cover | 40 | Boom block body | 47 | Lock valve |
| 6 | Pilot cover | 41 | Boom spool assy | 48 | O-ring |
| 14 | Plug | 42 | Boom lock block assy | 49 | Bucket block assy |
| 29 | Relief valve assy | 43 | Plug | 50 | Bucket spool assy |
| 33 | O-ring | 44 | Plug | 51 | Socket bolt |
| 34 | Travel spool assy | 45 | Plug | 54 | O-ring |

3. DISASSEMBLY AND ASSEMBLY

1) GENERAL PRECAUTIONS

- (1) All hydraulic components are manufactured to a high precision. Consequently, before disassembling and assembling them, it is essential to select an especially clean place.
- (2) In handling a control valve, pay full attention to prevent dust, sand, etc. from entering into it.
- (3) When a control valve is to be removed from the machine, apply caps and masking seals to all ports. Before disassembling the valve, recheck that these caps and masking seals are fitted completely, and then clean the outside of the assembly. Use a proper bench for working. Spread paper or a rubber mat on the bench, and disassemble the valve on it.
- (4) Support the body section carefully when carrying or transferring the control valve. Do not lift by the exposed spool, end cover section etc.
- (5) After disassembling and assembling of the component it is desired to carry out various tests (for the relief characteristics, leakage, flow resistance, etc.), but hydraulic test equipment is necessary for these tests. Therefore, even when its disassembling can be carried out technically, do not disassemble such components that cannot be tested, adjusted, and so on. Additionally one should always prepare clean cleaning oil, hydraulic oil, grease, etc. beforehand.

2) TOOLS

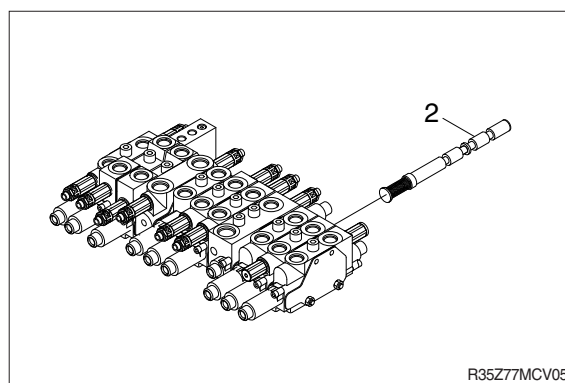
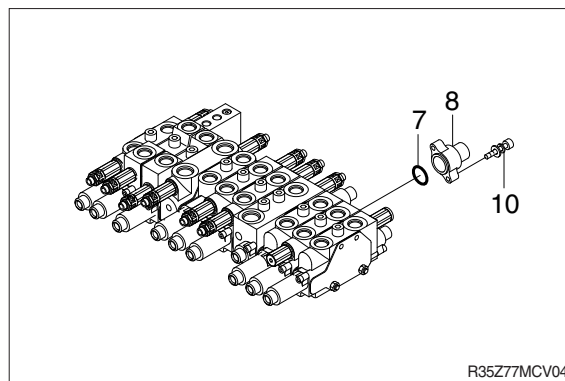
Before disassembling the control valve, prepare the following tools beforehand.

| Name of tool | Quantity | Size (mm) |
|-----------------------------------|--------------|---------------------|
| Vice mounted on bench (soft jaws) | 1 unit | |
| Hexagon wrench | Each 1 piece | 5, 6, 10, 12 and 14 |
| Socket wrench | Each 1 piece | 5 and 6 |
| Spanner | Each 1 piece | 13, 21 and 30 |
| Rod | 1 piece | Less than 10 × 250 |

3) DISASSEMBLY

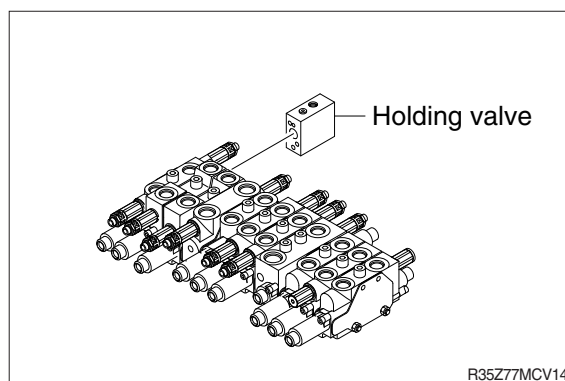
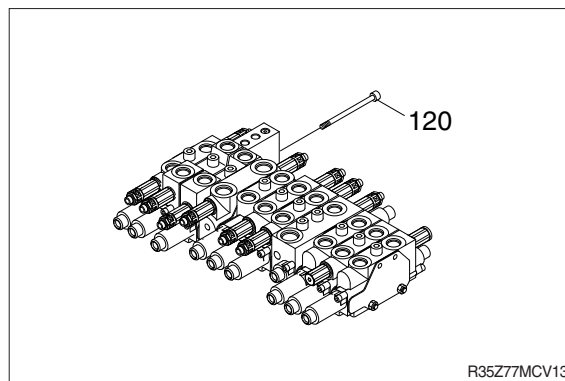
(1) Disassembly of spools (pilot type)

- ① Loosen hexagon socket head bolts (10) with washer.
(Hexagon wrench : 5 mm)
 - ② Remove the pilot cover (8).
- ※ Pay attention not to lose the O-ring (7) under the pilot cover.
- ③ Remove the spool assembly (2) from the body by hand slightly.
- ※ When extracting each spool from its body, pay attention not to damage the body.
 - ※ When extracting each spool assembly, it must be extracted from spring side only.
 - ※ When any abnormal parts are found, replace it with completely new spool assembly.
 - ※ When disassembled, tag the components for identification so that they can be reassembled correctly.



(2) Disassembly of holding valve (boom 1)

- ① Loosen hexagon socket head bolts(120).
(Hexagon wrench : 5 mm)
- ② Remove the holding valve.
 - ※ Pay attention not to lose the O-ring and the poppet under the pilot cover.
 - ※ Pay attention not to damage the "piston A" under pilot cover.
 - ※ When any abnormal parts are found, replace it with completely new holding valve assembly.
 - ※ When disassembled, tag the components for identification so that they can be reassembled correctly.



(3) Disassembly of the load check valve and the negative relief valve

① The load check valve

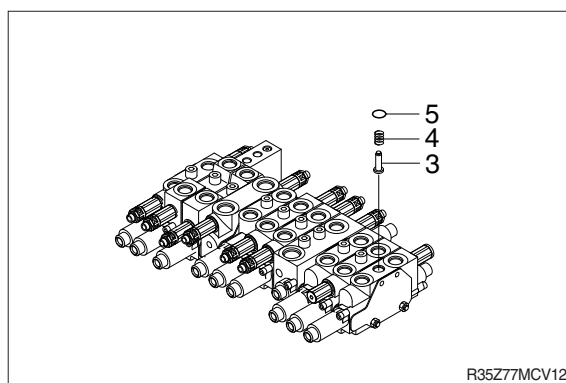
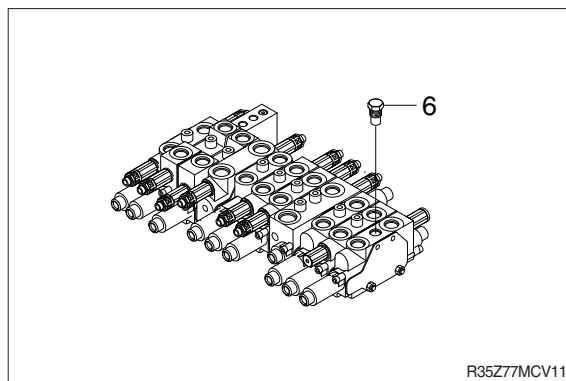
a. Fix the body to suitable work bench.

※ Pay attention not to damage the body.

b. Loosen the plug (6)

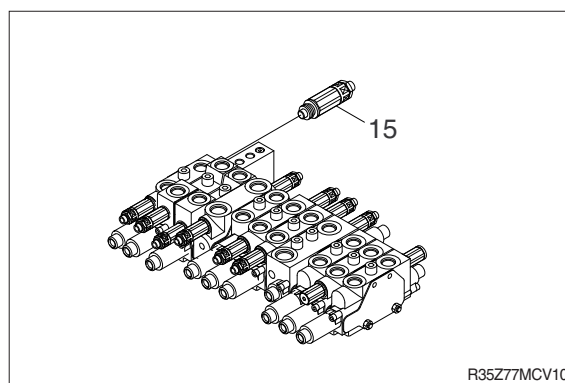
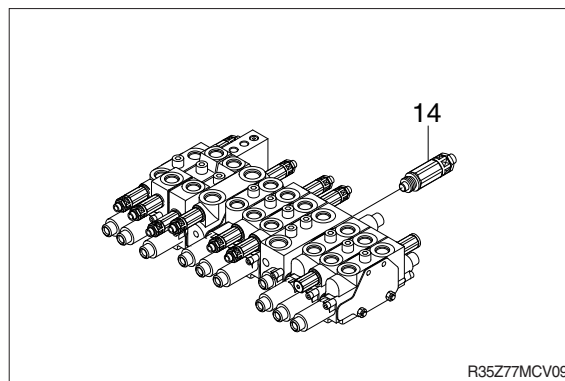
(Hexagon wrench : 10 mm).

c. Remove the O-ring (5), spring (4) and the load check valve (3) with pincers or magnet.



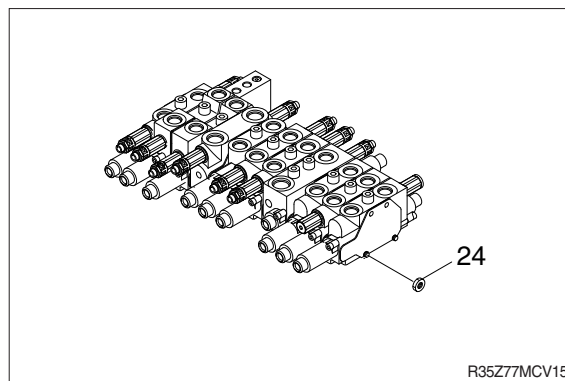
(4) Disassembly of the main and overload relief valve

- ① Fix the body to suitable work bench.
 - ② Remove the main relief valve (14).
(Spanner : 30 mm)
 - ③ Remove the overload relief valve (15).
(Spanner : 22 mm)
- ※ When disassembled, tag the relief valve for identification so that they can be reassembled correctly.
 - ※ Pay attention not to damage seat face.
 - ※ When any abnormal parts are found, replace it with completely new relief valve assembly.

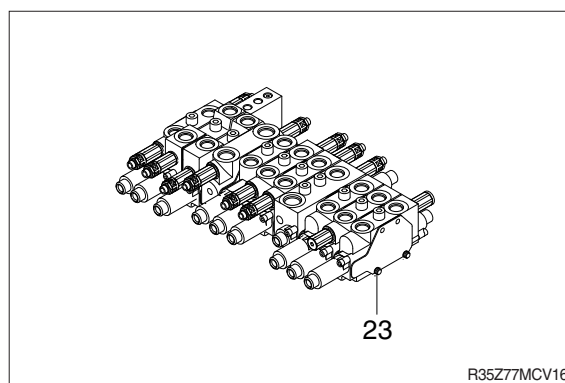


(5) Disassembly of the block assembly

- ① Fix the body to suitable work bench.
- ② Remove the nut (24).
(Spanner : 13 mm)



※ Do not removed the tie bolt (23).



(6) Inspection after disassembly

Clean all disassembled parts with clean mineral oil fully, and dry them with compressed air. Then, place them on clean papers or cloths for inspection.

① Control valve

- a. Check whole surfaces of all parts for burrs, scratches, notches and other defects.
- b. Confirm that seal groove faces of body and block are smooth and free of dust, dent, rust etc.
- c. Correct dents and damages and check seat faces within the body, if any, by lapping.
 - ※ Pay careful attention not to leave any lapping agent within the body.
- d. Confirm that all sliding and fitting parts can be moved manually and that all grooves and path's are free foreign matter.
- e. If any spring is broken or deformed, replace it with new one.
- f. When a relief valve does not function properly, repair it, following it's the prescribed disassembly and assembly procedures.
- g. Replace all seals and O-rings with new ones.

② Relief valve

- a. Confirm that all seat faces at ends of all poppets and seats are free of defects and show uniform and consistent contact faces.
- b. Confirm manually that main poppet and seat can slide lightly and smoothly.
- c. Confirm that outside face of main poppet and inside face of seat are free from scratches and so on.
- d. Confirm that springs are free from breakage, deformation, and wear.
- e. Confirm that orifices of main poppet and seat section are not clogged with foreign matter.
- f. Replace all O-rings with new ones.
- g. When any light damage is found in above inspections, correct it by lapping.
- h. When any abnormal part is found, replace it with a completely new relief valve assembly.

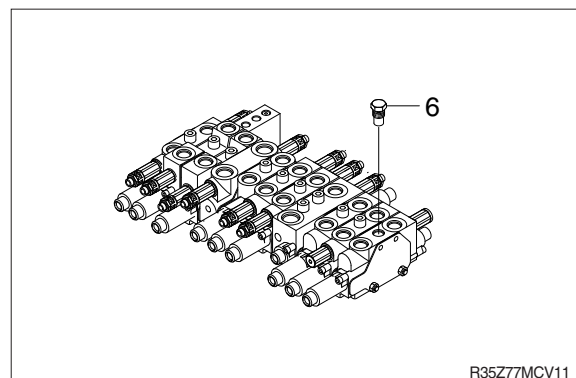
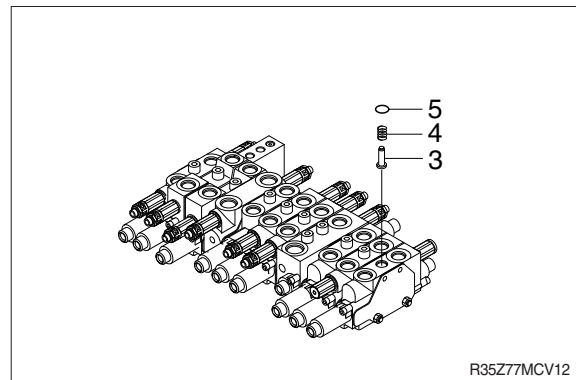
4) ASSEMBLY

(1) General precaution

- ① In this assembly section, explanation only is shown.
For further understanding, please refer to the figures shown in the previous structure & disassembly section.
- ② Pay close attention to keeping all seals free from handling damage and inspect carefully for damage before using them.
- ③ Apply clean grease or hydraulic oil to the seal so as to ensure it is fully lubricated before assembly.
- ④ Do not stretch seals so much as to deform them permanently.
- ⑤ In fitting O-rings, pay close attention not to roll them into their final position in addition, a twisted O-ring cannot easily untwist itself naturally and could thereby cause inadequate sealing and thereby both internal and external oil leakage.
- ⑥ Tighten fitting bolts for all sections with a torque wrench adjusted to the respective tightening torque.
- ⑦ Do not reuse removed O-rings and seals.

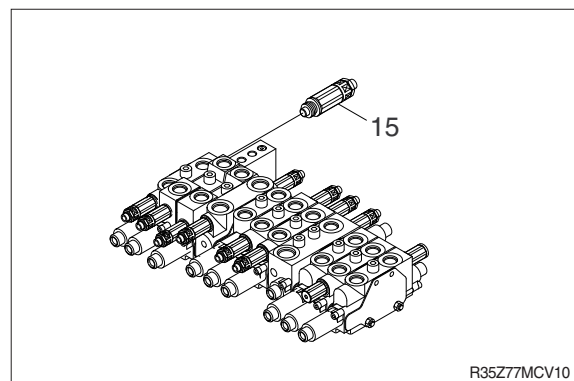
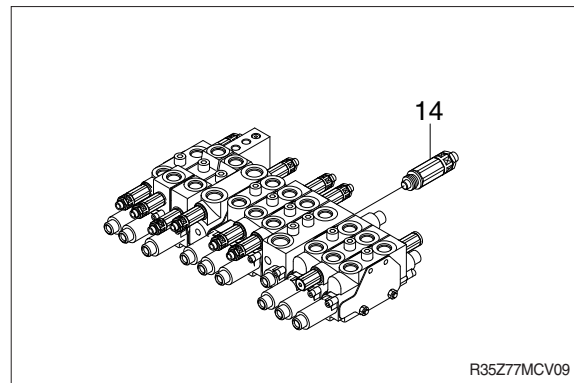
(2) Load check valve

- ① Assemble the load check valve (3) and O-ring (5), spring (4).
- ② Put O-rings on to plug (6).
- ③ Tighten plug to the specified torque.
 - Hexagon wrench : 8 mm
 - Tightening torque : 3.7 kgf · m
(26.7 lbf · ft)



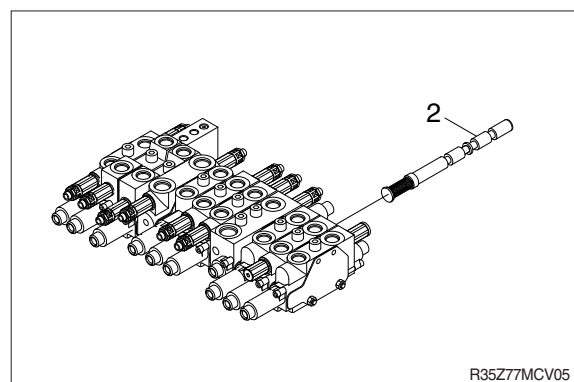
(3) Main relief, port relief valves

- ① Install the main relief valve (14).
 - Spanner : 30 mm
 - Tightening torque : 6 kgf · m (43.4 lbf · ft)
- ② Install the over load relief valve (15).
 - Spanner : 22 mm
 - Tightening torque : 4 kgf · m (28.9 lbf · ft)



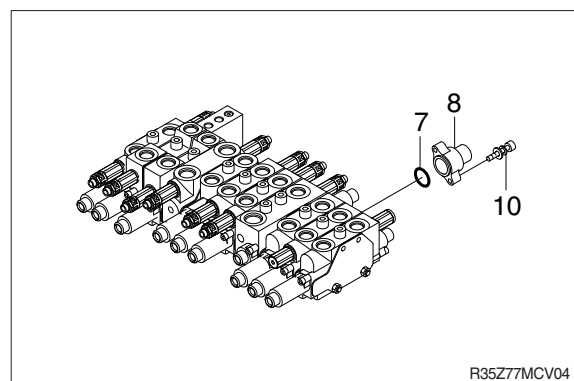
(4) Main spools

- ① Carefully insert the previously assembled spool assemblies into their respective bores within of body.
- ※ Fit spool assemblies into body carefully and slowly. Do not under any circumstances push them forcibly in.



(5) Covers of pilot type

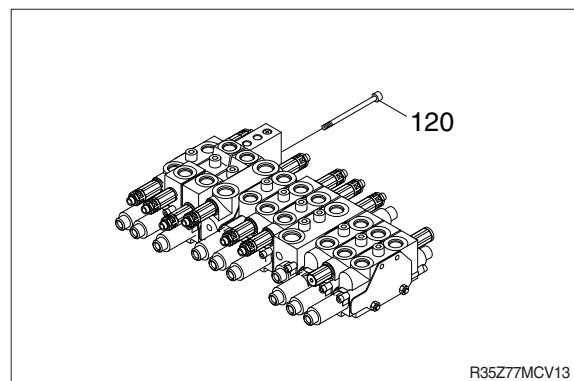
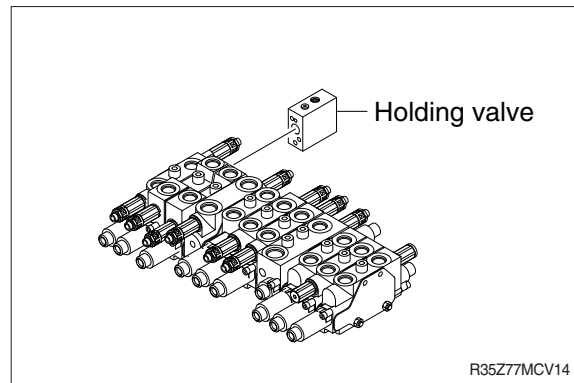
- ① Fit spool covers (8) tighten the hexagonal socket head bolts (10) with washer to the specified torque.
- Hexagon wrench : 5mm
 - Tightening torque : 1~1.1kgf · m (7.2~7.9lbf · ft)
- ※ Confirm that O-rings (7) have been fitted.



(6) Holding valve

- ① Fit the holding valve to the body and tighten hexagon socket head bolt (120) to specified torque.

- Hexagon wrench : 5 mm
- Tightening torque : 1.1 kgf · m (7.9 lbf · ft)



GROUP 5 SWING DEVICE

1. REMOVAL AND INSTALL OF MOTOR

1) REMOVAL

- (1) Lower the work equipment to the ground and stop the engine.
- (2) Operate the control levers and pedals several times to release the remaining pressure in the hydraulic piping.
- (3) Loosen the breather slowly to release the pressure inside the hydraulic tank.

▲ Escaping fluid under pressure can penetrate the skin causing serious injury.

※ When pipes and hoses are disconnected, the oil inside the piping will flow out, so catch it in oil pan.

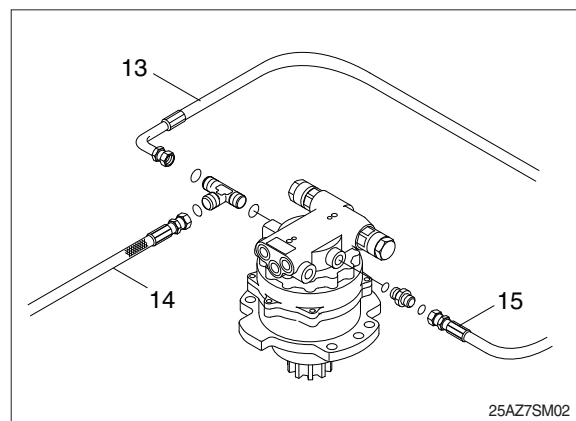
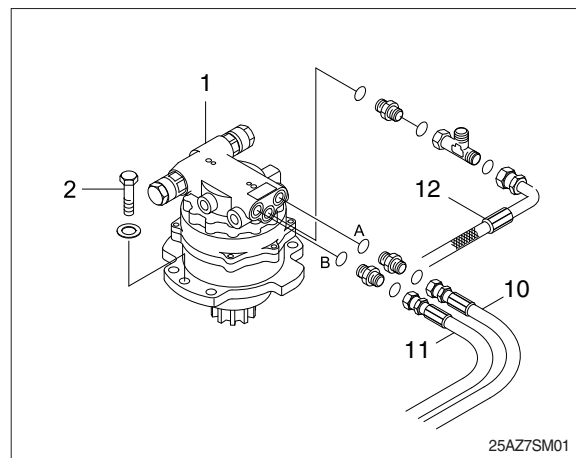
- (4) Disconnect hose assembly (10, 11, 12, 13, 14).
- (5) Disconnect pilot line hoses (15).
- (6) Sling the swing motor assembly (1) and remove the swing motor mounting bolts (2).

※ Motor device weight : 34 kg (75 lb)
 · Tightening torque : 19.6 ± 2.9 kgf·m
 (142 ± 21.0 lbf·ft)

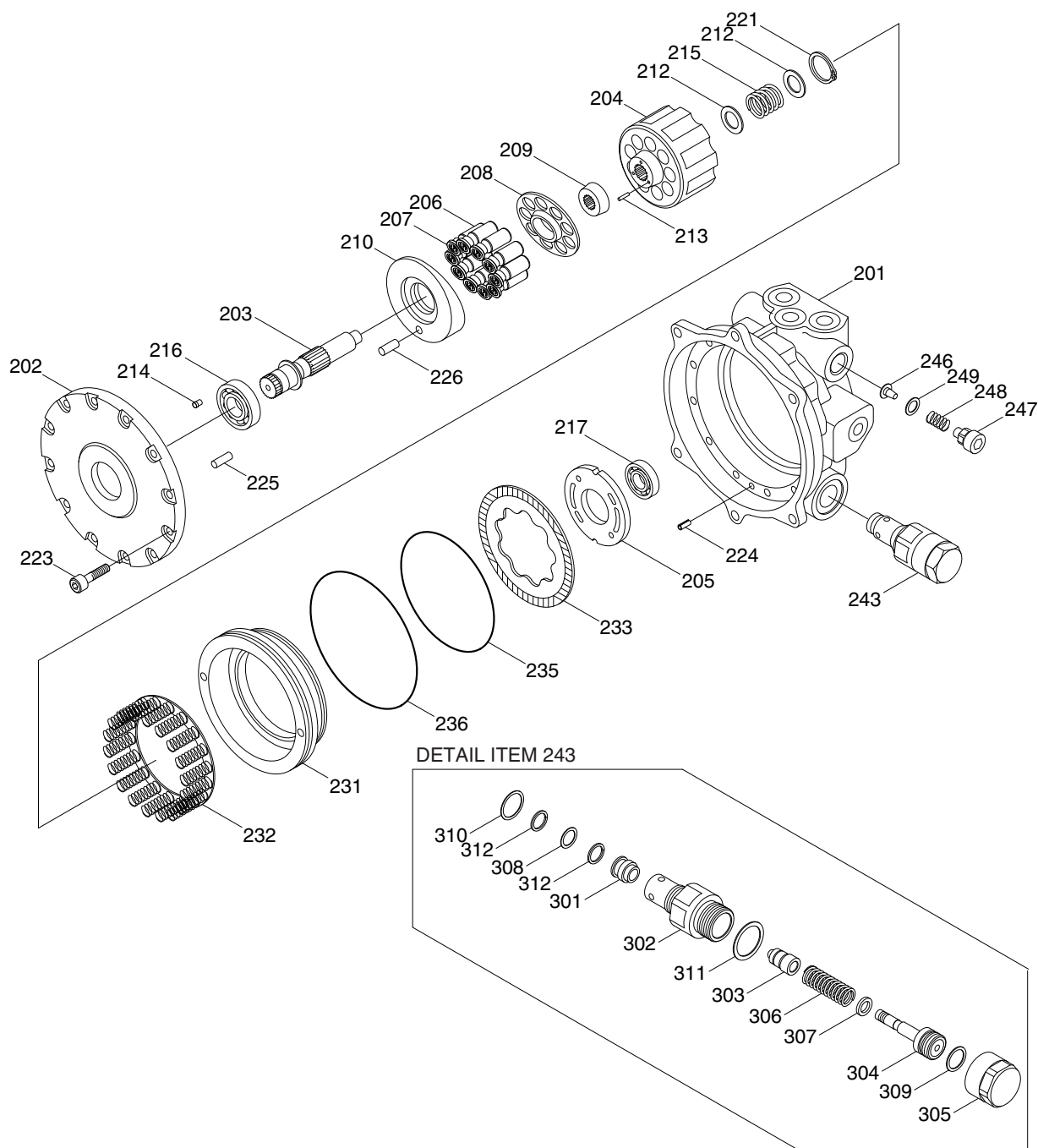
- (7) Remove the swing motor assembly.
- ※ When removing the swing motor assembly, check that all the piping have been disconnected.

2) INSTALL

- (1) Carry out installation in the reverse order to removal.
- (2) Bleed the air from the swing motor.
 - ① Remove the air vent plug.
 - ② Pour in hydraulic oil until it overflows from the port.
 - ③ Tighten plug lightly.
 - ④ Start the engine, run at low idling and check oil come out from plug.
 - ⑤ Tighten plug fully.
- (3) Confirm the hydraulic oil level and check the hydraulic oil leak or not.



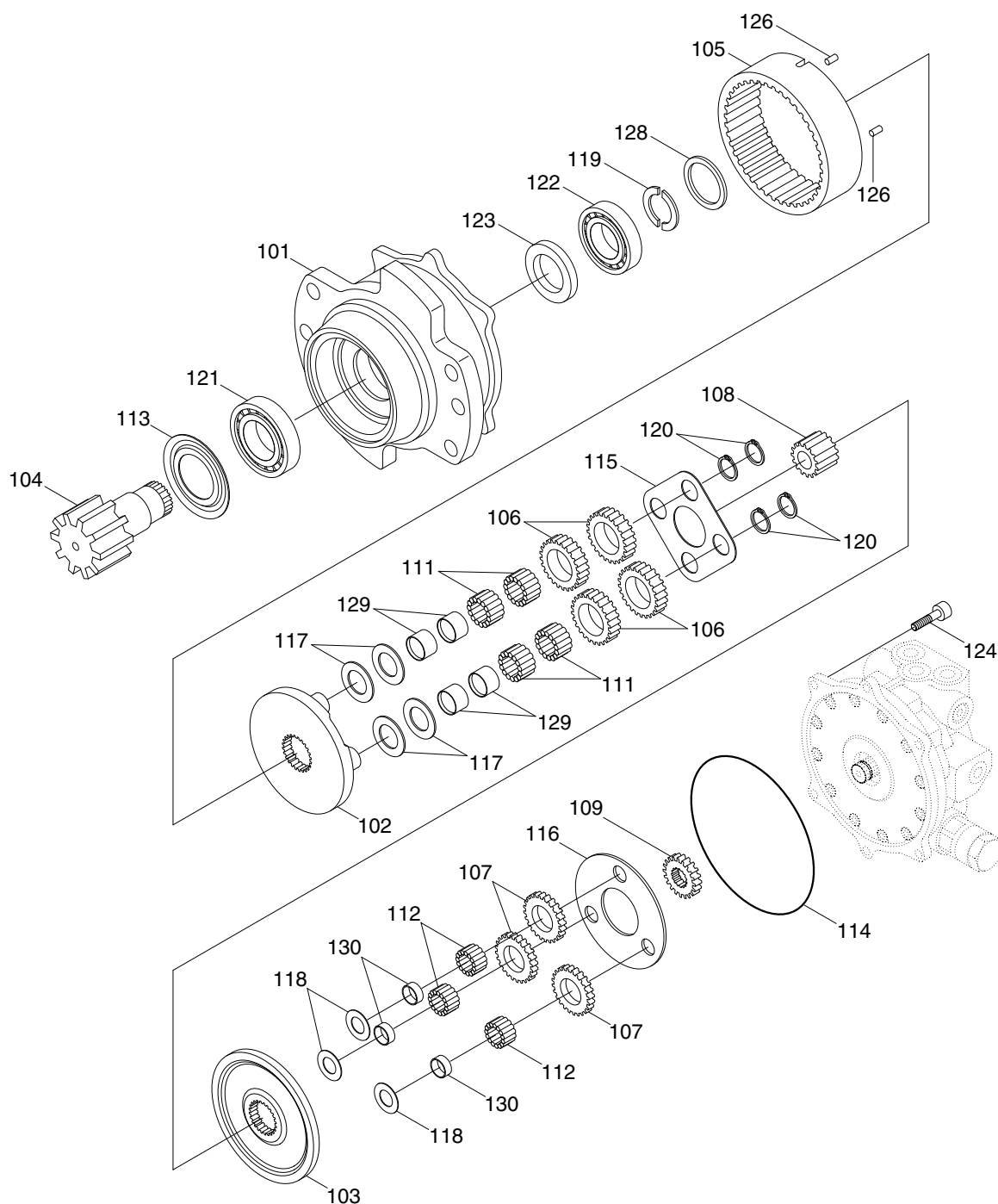
2. COMPONENTS (1/2)



R27Z92SM15

| | | | | | | | |
|-----|-----------------|-----|--------------|-----|--------------|-----|--------------|
| 201 | Body | 213 | Pin | 232 | Spring assy | 303 | Poppet |
| 202 | Plate | 214 | Filter | 233 | Disk plate | 304 | Piston |
| 203 | Shaft | 215 | Spring C | 235 | O-ring | 305 | Cap |
| 204 | Cylinder barrel | 216 | Bearing | 236 | O-ring | 306 | Spring |
| 205 | Valve plate | 217 | Bearing | 243 | Relief valve | 307 | Spacer |
| 206 | Piston | 221 | Snap ring | 246 | Check valve | 308 | O-ring |
| 207 | Shoe | 223 | Screw | 247 | Plug | 309 | O-ring |
| 208 | Shoe holder | 224 | Spring pin | 248 | Spring | 310 | O-ring |
| 209 | Barrel holder | 225 | Pin | 249 | O-ring | 311 | O-ring |
| 210 | Swash plate | 226 | Pin | 301 | Seat | 312 | Back up-ring |
| 212 | Retainer | 231 | Brake piston | 302 | Retainer | | |

COMPONENTS (2/2)



R27Z92SM16

| | | | | | |
|-----|---------------|-----|-----------------|-----|-----------|
| 101 | Body | 111 | Needle | 120 | Snap ring |
| 102 | Carrier 1 | 112 | Needle | 121 | Bearing |
| 103 | Carrier 2 | 113 | Seal ring | 122 | Bearing |
| 104 | Pinion shaft | 114 | O-ring | 123 | Oil seal |
| 105 | Internal gear | 115 | Thrust plate 1 | 124 | Screw |
| 106 | Gear B1 | 116 | Thrust plate 2 | 126 | Pin |
| 107 | Gear B2 | 117 | Thrust washer 1 | 128 | Ring |
| 108 | Gear S1 | 118 | Thrust washer 2 | 129 | Ring 1 |
| 109 | Gear S2 | 119 | Preload collar | 130 | Ring 2 |

3. DISASSEMBLY AND ASSEMBLY

1) GENERAL ATTENTION

Please pay attention following points.

- (1) Working should be done at the clean place and pay attention not to attach dust, paint cake and water. And prepare the clean box to put into the disassembled parts.
- (2) Before disassembling, clean up the dust which is attached to the outside of the swing motor and take out paint which is attached to the binding parts by the wire brush.
- (3) To make the original position when assembling, make a marking before disassembling.
- (4) Give special care to protect parts from damage.
- (5) Wash parts with washing oil sufficiently.
- (6) Check parts whether there is friction loss or seize and take out burr with sand paper.
- (7) Change the seals and snap rings to new ones.

2) DISASSEMBLY AND ASSEMBLY PROCEDURE

As the swing motor composes 2 blocks (hydraulic motor and reduction gear), explain each block disassembly and assembly procedure.

And please refer to the page 7-36~37.

3) TOOLS FOR DISASSEMBLY AND ASSEMBLY

| No. | Tool | |
|-----|----------------------------------|---|
| 1 | Preset type hand torque wrench | 45 N (JIS B4650) |
| 2 | | 90 N (JIS B4650) |
| 3 | Hexagon bar bit for above wrench | Two-plane width 6 |
| 4 | | Two-plane width 8 |
| 5 | | |
| 6 | Single purpose type hand torque | $T = 15 \pm 1.5 \text{ kgf} \cdot \text{m}$ ($108 \pm 10.8 \text{ lbf} \cdot \text{ft}$) Two-plane 36 |
| 7 | Hexagon bar wrench | Two-plane width 6 |
| 8 | | Two-plane width 8 |
| 9 | | |
| 10 | Spanner | Two-plane width 36 |
| 11 | Minus driver | Width 6~10 |
| 12 | Snap ring pliers | Ø28 For hole |
| 13 | | Ø22 For shaft |
| 14 | Hammer | - |
| 15 | Plastic hammer | - |
| 16 | Other | Grease |
| 17 | | (Oil designated hydraulic oil) |
| 18 | | Wire brush |
| 19 | | Sand paper |
| 20 | | Anti-loose adhesive (three bond #1305) |

4. DISASSEMBLY

1) HYDRAULIC MOTOR

- (1) Loose the hexagon socket head cap bolts (124), and take out the hydraulic motor assembly from the reduction gear body.

· Tools required :
Hexagon bar wrench : 6 mm

- ※ When taking out the hydraulic motor assembly from the reduction gear body, the drain port should be open.
When it is difficult to take out, insert the minus driver into the binding face to the body and take out the burr completely.



- (2) Take out the relief valve assembly.

· Tools required :
Spanner : 36 mm

- ※ Do not disassemble the relief valve assembly, unless it is necessary.



- (3) Loose the hexagon socket head cap bolts (223), and take out it.

· Tools required :
Hexagon bar wrench : 6 mm



- (4) Take out the plate S (202).

- ※ Pay attention not to drop off swash plate.



(5) Take out the swash plate (210) and the shaft kit from the plate S (202).

※ When it is difficult to take out the shaft, hit the opposite side slightly by the plastic hammer.

As the bearing (216) is pressed into the shaft, do not disassemble unless it is necessary to change the bearing.



(6) Take out the filter (214) and the parallel pin (225) from the plate S (202).

- Filter (214) : 1 pcs
- Parallel pin (225) : 3 pcs



(7) Take out the spring assembly (232) from the body H (201).



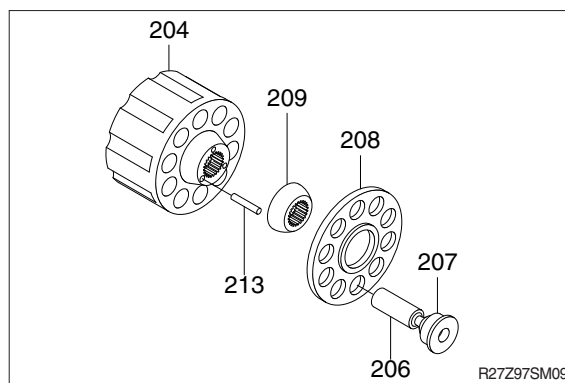
(8) Take out the cylinder barrel kit.

※ The small parts are easily dispersed, pay attention not to miss.

The valve plate (205) is sometime attached, pay attention not to drop out.



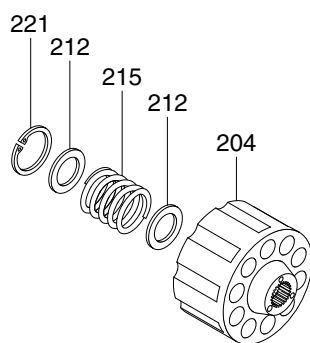
- (9) Take out the piston (206) and the shoe (207) assembly, the shoe holder (208), the barrel holder (209) and the pin (213).



- (10) Take out the snap ring (221), the retainer (212) and the spring C (215).

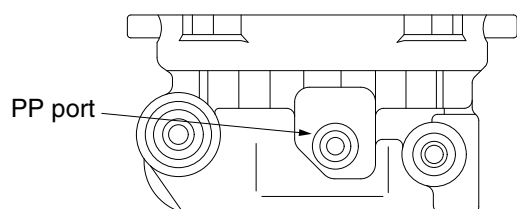
· Tools required :

Snap ring plier : $\varnothing 28$ for hole

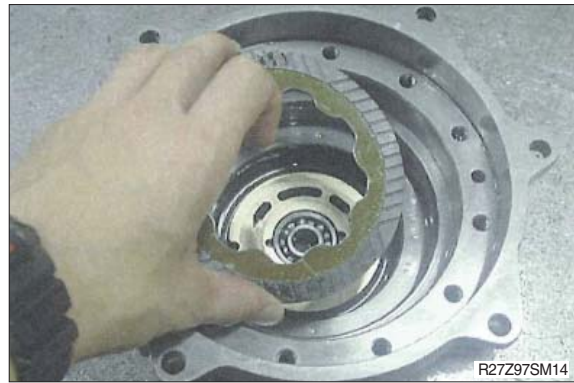


- (11) Take out the brake piston (231) and the O-ring (235, 236).

※ The brake piston is drawn out by the air blowing gradually from the PP port.
Pay attention not to draw out the brake piston rapidly by the air blowing gradually.



(12) Take out the disk plate (233).



(13) Take out the valve plate (205).



(14) Loose the plug (247), and take out the check valve (246) and the spring (248). (2 locations)

- Tools required :
Hexagon bar wrench : 8 mm



2) REDUCTION GEAR

(1) Take out the O-ring (114).



(2) Take out the S2 gear (109).



(3) Take out the carrier 2 kit.

※ Pay attention not to scattered each parts as lifting S1 gear up.



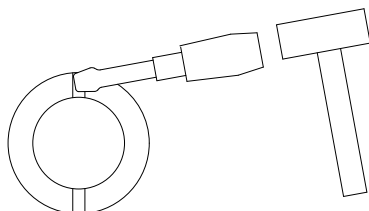
(4) Take out the carrier 1 kit.



(5) Take out the ring (128) and the pre-load collar (119).

※ To attach the minus driver to the gap of 2 pcs pre-load collar, and take out by hitting with the hammer.

As pre-adjusted the gap with the bearing, do not disassemble unless it is necessary.



R27Z97SM21



R27Z97SM22

(6) Take out the pinion kit.

※ To secure the drawing space of the pinion shaft, attach the approximate 130 mm pad to the flange part, and push out the pinion shaft (104) by the press.

As pre-adjusted the gap with the bearing, do not disassemble unless it is necessary.



R27Z97SM23

(7) Take out the thrust plate 2 (116) from the carrier 2 kit.



R27Z97SM24

(8) Take out the b2 gears (107) and the needles 2 (112) from the carrier 2 kit.

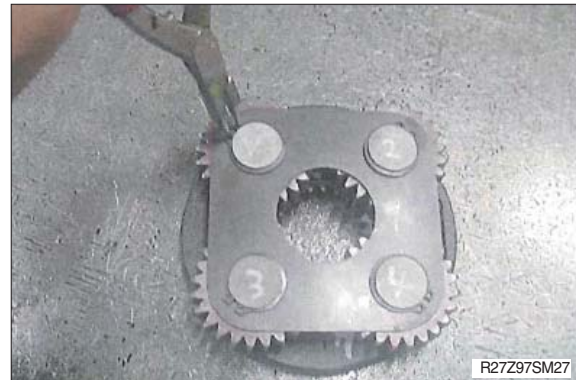


R27Z97SM25

- (9) Take out the rings 2 (130) and thrust washers 2 (118) from the carrier 2 kit.



- (10) Take out the thrust plate 1 (115) from the carrier 1 kit.
- Tools required :
Snap ring plier : $\varnothing 22$ for shaft



- (11) Take out the b1 gears (116) and needles 1 (111) from the carrier 1 kit.



- (12) Take out the rings 1 (129) and the thrust washers 1 (117) from the carrier 1 kit.



5. ASSEMBLY

1) HYDRAULIC MOTOR SECTION

- (1) Press-fit the bearing (217) and spring pin (224) into the body H (201).



- (2) Insert the 2 check valves (246) (1 pc/side), 2 springs (248) (1pc/side) and 2 plugs (247) (1pc/side) with O-ring (249) in that order into the body H (201).

· Tools required :

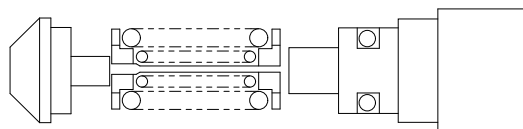
Hexagon bar wrench : 8 mm

Torque wrench

- ※ Apply grease slightly to the O-ring and assemble to pay attention not biting the seals.

· Plug tightening torque :

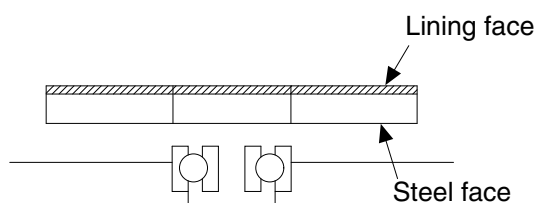
$6 \pm 0.3 \text{ kgf} \cdot \text{m}$ ($43.4 \pm 2.17 \text{ lbf} \cdot \text{ft}$)



R27Z97SM31

- (3) Place the valve plate (205) onto the body H (201).

- ※ The steel face of the valve plate should be downside and assemble.



R27Z97SM33



(4) Assemble the disk plate (233).



(5) Make the brake piston assembly which placed O-rings (235, 236) on brake piston (231), and place it onto the body H (201).

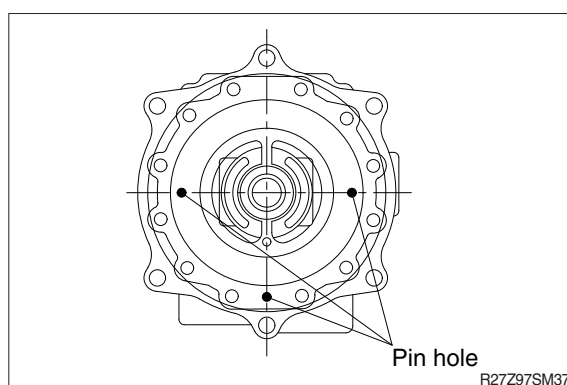
Place the brake piston assembly onto plate S placed 3 pins, then place it onto the body H as matched pin hole position. After that, press-fit it by tightening hexagon bolts little by little.

Check no pushed out, scratches and dust on O-ring at this time.

For prevention of brake piston assembly, apply grease on plate S.

Take out the plate S after placed brake piston assembly.

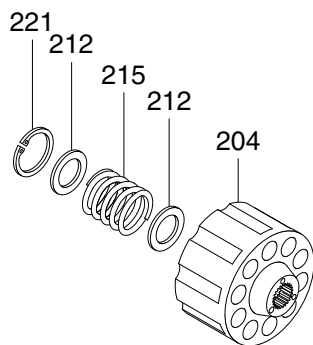
※ Pay attention to jam seal parts, install them applying grease on O-rings.



- (6) Place the retainer (212), spring C (215) and retainer (212) in that order into the cylinder barrel (204), and then secure them with the snap ring (221).

· Tools required :

Snap ring plier : $\varnothing 28$ for hole



R27Z97SM38



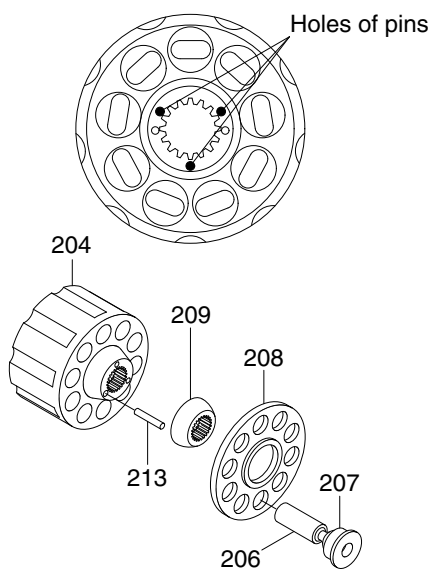
R27Z97SM39

- (7) Make the shoe holder assembly which has the 9 piston-shoe (206, 207) assemblies placed on the shoe holder (208).



R27Z97SM40

- (8) Place the 3 pins (213), barrel holder (209) and the shoe holder assembly onto the cylinder barrel (204) to make up a cylinder barrel assembly.



R27Z97SM41



R27Z97SM42

- (9) Insert cylinder barrel assembly along ditch of disk plate into body H (201).

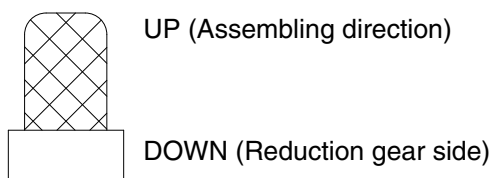


- (10) Insert the spring assembly (232) into the body H (201).



- (11) Place the filter (214) and the parallel pins (225) into the plate S (202).

- ※ Filter (214) : 1 pc
- Parallel pin (225) : 3 pcs



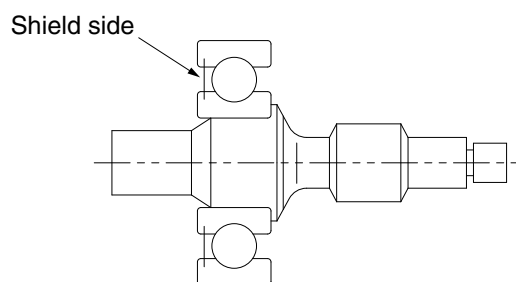
R27Z97SM45

Use a plastic hammer when it is tight.

- ※ Pay attention height of pins are 8 mm from surface after installation.



- (12) Press-fit bearing (216) with shaft (203).



R27Z97SM47



(13) Place the shaft kit into the plate S (202).



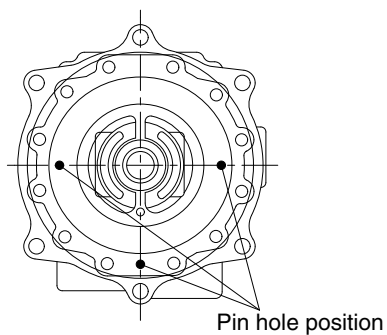
(14) Place the swash plate (210) onto the plate S (202).

- ※ In case the swash plate drops out, apply grease to the plate S side of it.



(15) Join the body H (201) and the plate S (202).

- ※ Align the serration of the shaft which is assembled to the plate S to the serration of the cylinder barrel assembly which is assembled to the body H.



R27Z97SM51

(16) Bolt the plate S (202) together with the 12 hexagon socket head cap bolts (223).

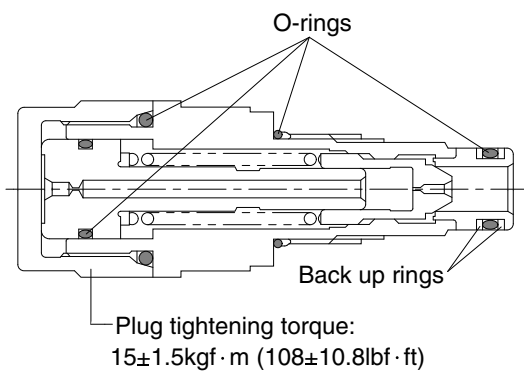
- Tools required :
Hexagon bar wrench : 6 mm
Torque wrench
- Plug tightening torque :
 $3 \pm 0.3 \text{ kgf} \cdot \text{m}$ ($21.7 \pm 2.17 \text{ lbf} \cdot \text{ft}$)



(17) Screw up the relief valve assembly.
(both side)

- Tools required :
Spanner : 36 mm
Torque wrench
- Plug tightening torque :
 $15 \pm 1.5 \text{ kgf} \cdot \text{m}$ ($108 \pm 10.8 \text{ lbf} \cdot \text{ft}$)

※ Once the relief valve is disassembled, replace the O-ring and the back up ring in the below, and screw the cap with the following torque.



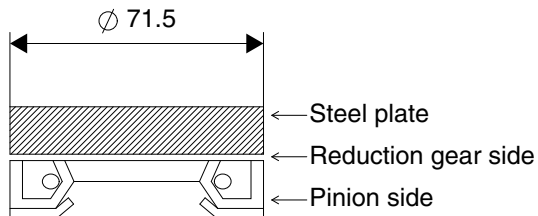
R27Z97SM54

2) REDUCTION GEAR SECTION

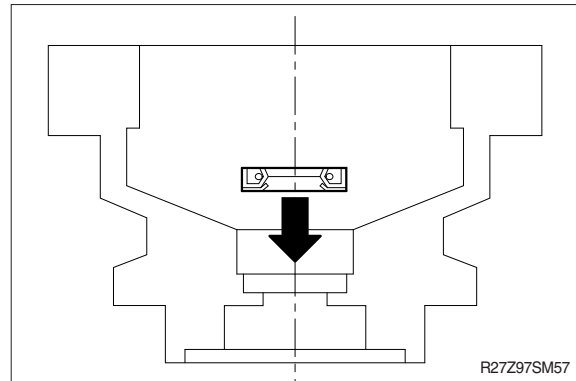
(1) Press-fit the oil seal (123) into the body (101).

※ Pay attention to the direction of the oil seal, use round steel plate for pressing to prevent misalignment.

Steel plate outer diameter : $\varnothing 71.5$

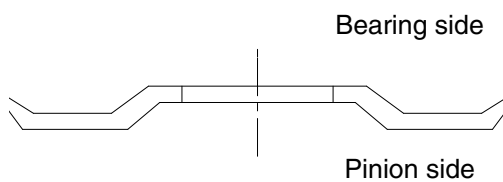


R27Z97SM56



(2) Place the ring seal (113) onto the pinion shaft (104).

※ Pay attention to direction of the ring seal.



R27Z97SM58



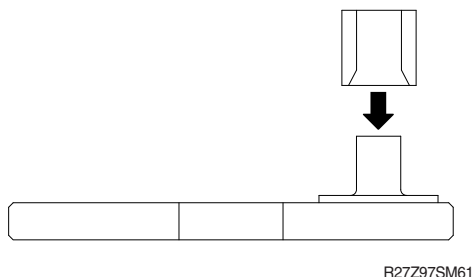
(3) Press-fit the inner ring of the bearing (121) to the pinion shaft (104).

※ After press fitting, apply grease onto the surface of the rollers, and turn them manually so that the grease can spread to the whole roller surface.



- (4) Place the 4 rings (129) (1 pc/pin) and the 4 thrust washers 1 (117) (1 pc/pin) in that order onto the 4 pins of the carrier 1 (102).

※ Pay attention to direction of the ring.
Beveling part of the ring should be down side.



- (5) Place the 4 b1 gears (106) (1 pc/pin) and the 92 needles 1 (111) (23 pcs/pin) in that order onto the 4 pins of the carrier 1 (102).



- (6) Place the thrust plate 1 (115) and the 4 snap rings (120) (1 pc/pin) to make up a carrier 1 kit.

· Tools required :

Snap ring plier : $\varnothing 22$ for shaft



- (7) Place the 3 thrust washers 2 (118) (1 pc/pin) and the 3 rings 2 (130) (1 pc/pin) in that order onto the 3 pins of the carrier 2 (103).



- (8) Place the 3 b2 gears (107) (1 pc/pin) and the 72 needles 2 (112) (24 pcs/pin) in that order onto the 3 pins of the carrier 2 (103).



- (9) Place the thrust plate 2 (116) and the S1 gear (108) to make up a carrier 2 kit.



- (10) Press-fit the outer ring of the bearing (122) into the body (101).



- (11) Press-fit the outer ring of the bearing (121) into the body (101).



(12) Fill grease in the bearing (121) section of the body (101).

※ Grease amount : approx. 80% of the space inside the outer ring.



(13) Insert the pinion shaft (104) into the body (101).

※ Pay attention not to damage the lip of the oil seal.

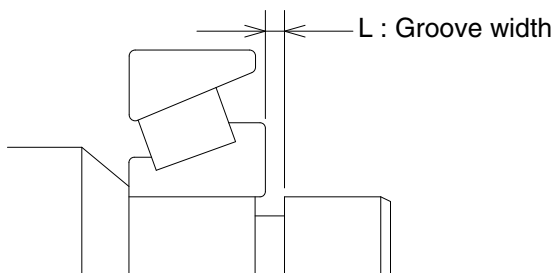


(14) Turn over the body (101), then press-fit inner ring of the bearing (122).



(15) Fix the pinion shaft (104) with the 2 pre-load collars (119).

※ Thickness of the pre-load collar must be adjusted for the below L dimension.
Standard's +0 to +0.05 mm



- (16) Place the ring (128) over the pre-load collars.



- (17) Place the carrier 1 assembly into the body (101) align spline of carrier to the pinion shaft (104).



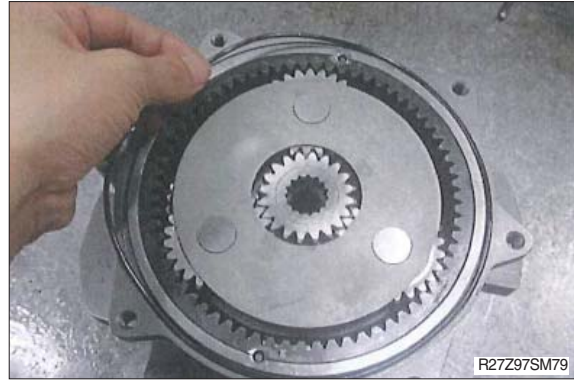
- (18) Place the carrier 2 assembly into the body (101) align spline of S1 gear to the b1 gear.



- (19) Place the S2 gear (109) into the carrier 2 assembly.



(20) Place the O-ring (114) onto the body (101).



(21) Fill body (101) with hydraulic oil.

- ※ Oil : ISO VG 46 or equivalent
Oil amount : 2 to 3 mm below top of the thrust plate 2
Wipe oil off flange surface if it is spilled.



(22) Join the hydraulic motor and the body, and then bolt them together with the 4 hexagon socket head cap bolts (124).

- Tools required :
Hexagon bar wrench : 6 mm
Torque wrench
- ※ Align the shaft of the motor to the S2 gear.
Apply anti-loose adhesive to the screws.
- Plug tightening torque :
 $3 \pm 0.3 \text{ kgf} \cdot \text{m}$ ($21.7 \pm 2.17 \text{ lbf} \cdot \text{ft}$)



GROUP 6 TRAVEL DEVICE

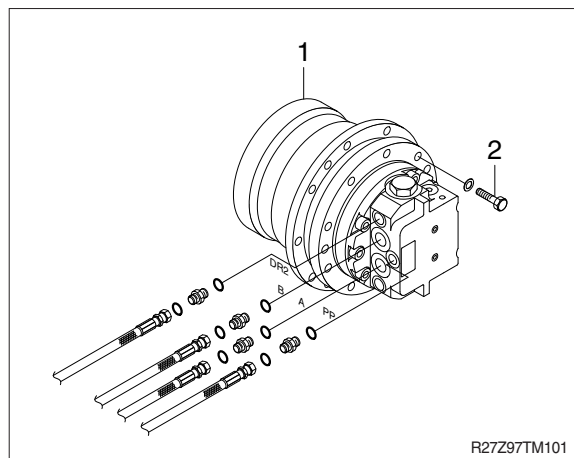
1. REMOVAL AND INSTALL

1) REMOVAL

- (1) Swing the work equipment 90° and lower it completely to the ground.
- (2) Operate the control levers and pedals several times to release the remaining pressure in the hydraulic piping.
- (3) Loosen the breather slowly to release the pressure inside the hydraulic tank.

⚠ Escaping fluid under pressure can penetrate the skin causing serious injury.

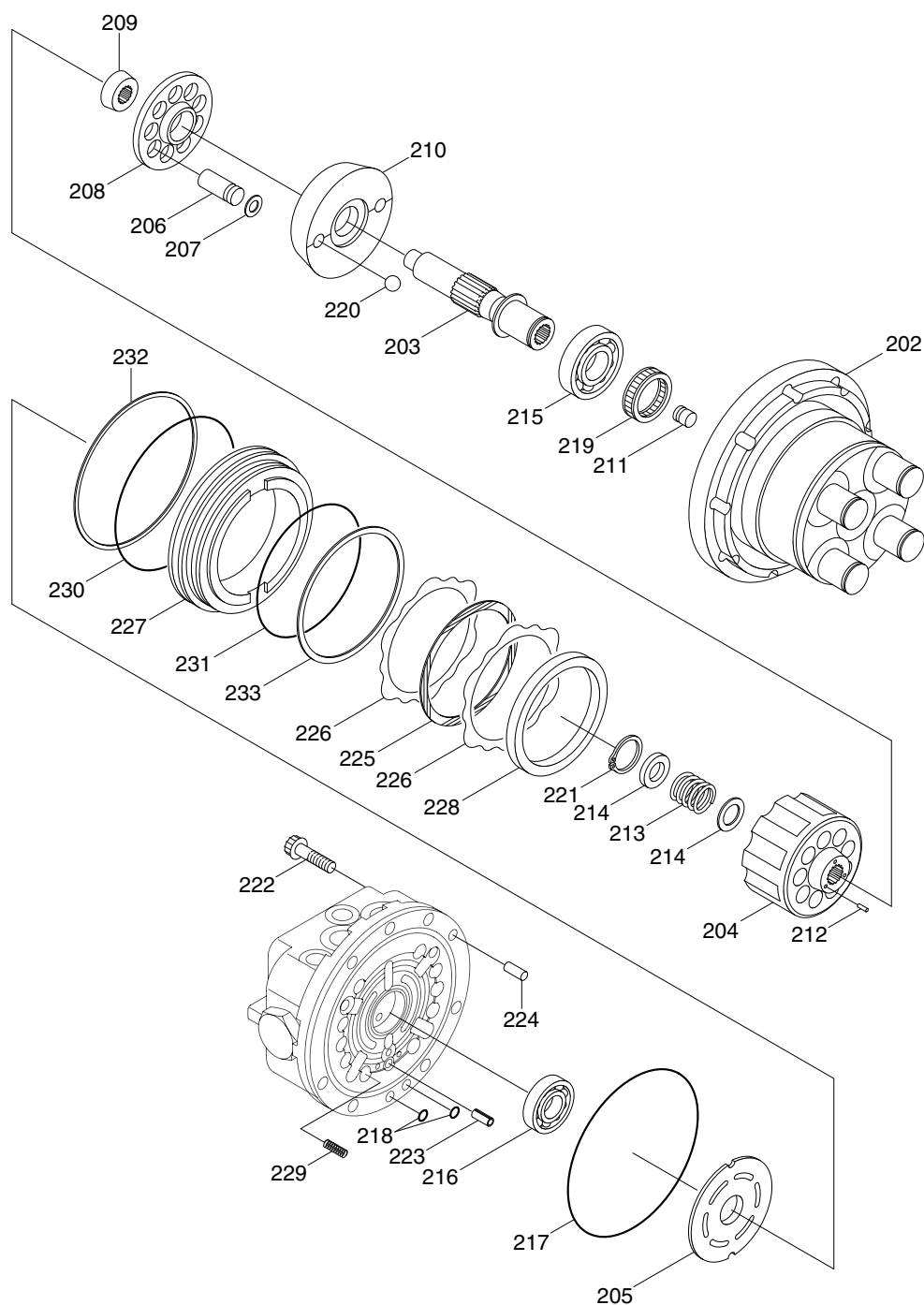
- ※ When pipes and hoses are disconnected, the oil inside the piping will flow out, so catch it in oil pan.
- (4) Remove the track shoe assembly.
For details, see removal of track shoe assembly.
 - (5) Remove the cover.
 - (6) Remove the hose.
※ Fit blind plugs to the disconnected hoses.
 - (7) Remove the bolts and the sprocket.
 - (8) Sling travel device assembly (1).
 - (9) Remove the mounting bolts (2), then remove the travel device assembly.
 - Weight : 36 kg (80 lb)
 - Tightening torque : 12.8 ± 3.0 kgf·m
(92.3 ± 21.7 lbf·ft)



2) INSTALL

- (1) Carry out installation in the reverse order to removal.
- (2) Bleed the air from the travel motor.
 - ① Remove the air vent plug.
 - ② Pour in hydraulic oil until it overflows from the port.
 - ③ Tighten plug lightly.
 - ④ Start the engine, run at low idling, and check oil come out from plug.
 - ⑤ Tighten plug fully.
- (3) Confirm the hydraulic oil level and check the hydraulic oil leak or not.

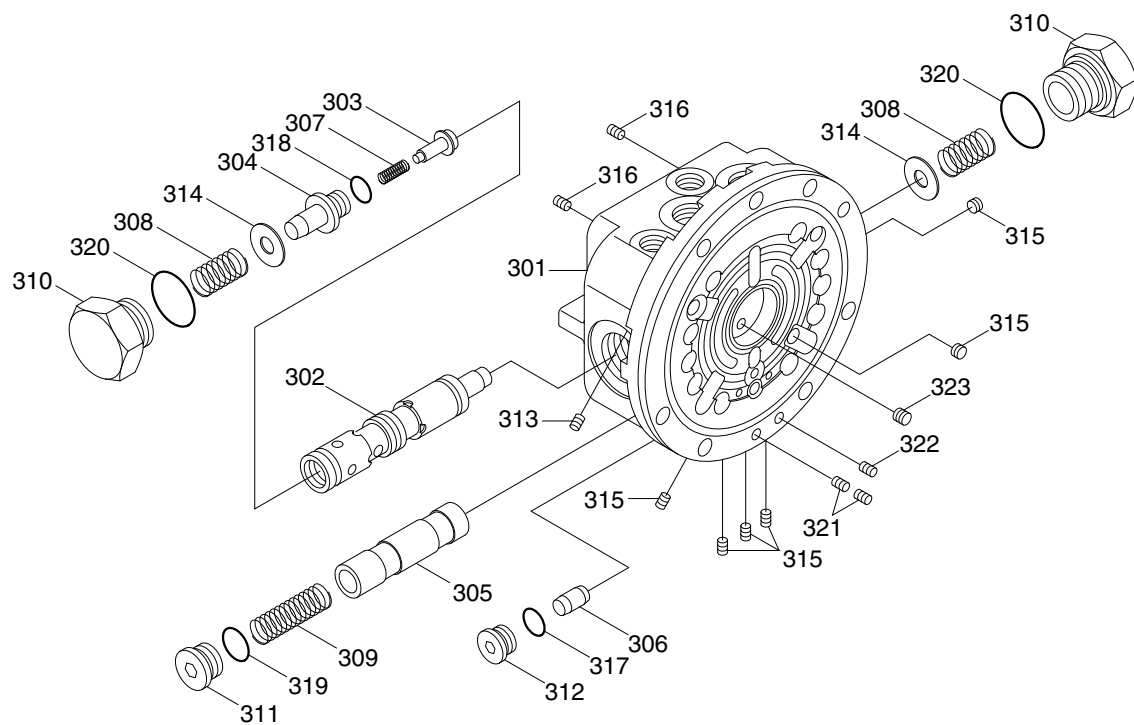
2. STRUCTURE (1/3)



R27Z92TM23

| | | | | | |
|-----|-----------------|-----|------------|-----|--------------|
| 202 | Body 2 | 213 | Spring C | 224 | Pin |
| 203 | Shaft | 214 | Retainer | 225 | Disk plate |
| 204 | Cylinder barrel | 215 | Bearing | 226 | Steel plate |
| 205 | Valve plate | 216 | Bearing | 227 | Brake piston |
| 206 | Piston | 217 | O-ring | 228 | Brake spacer |
| 207 | Shoe | 218 | O-ring | 229 | Spring B |
| 208 | Shoe holder | 219 | Oil seal | 230 | O-ring |
| 209 | Barrel holder | 220 | Ball | 231 | O-ring |
| 210 | Swash plate | 221 | Snap ring | 232 | Back up-ring |
| 211 | Control piston | 222 | Screw | 233 | Back up-ring |
| 212 | Pin | 223 | Spring pin | | |

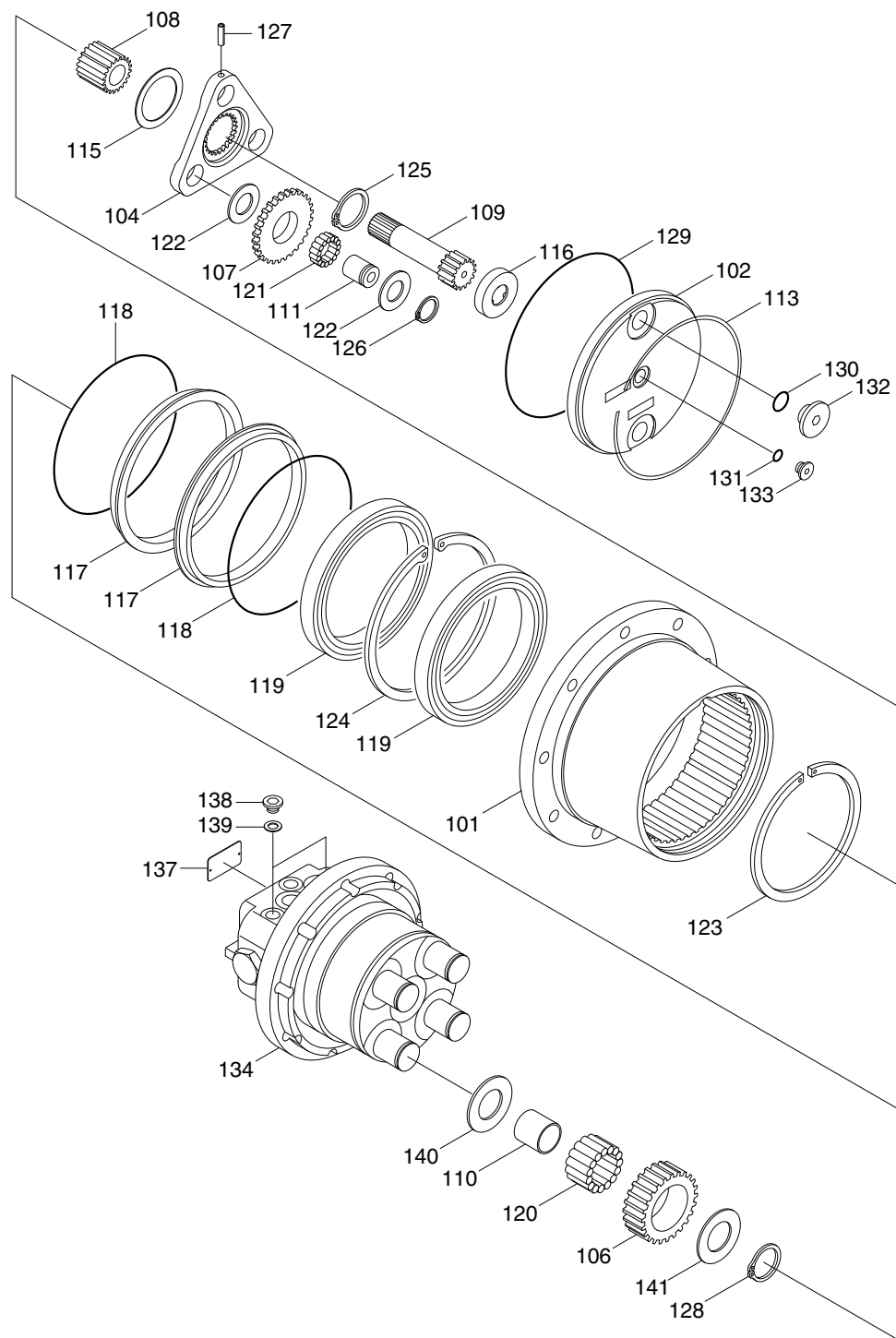
STRUCTURE (2/3)



R27Z92TM24

| | | | | | |
|-----|--------------|-----|-----------|-----|--------|
| 301 | Body 1 | 309 | Spring V3 | 317 | O-ring |
| 302 | Spool | 310 | Plug | 318 | O-ring |
| 303 | Check valve | 311 | Plug | 319 | O-ring |
| 304 | Spring guide | 312 | Plug | 320 | O-ring |
| 305 | Spool | 313 | Choke | 321 | Choke |
| 306 | spool | 314 | Ring | 322 | Choke |
| 307 | Spring V1 | 315 | Plug | 323 | Plug |
| 308 | Spring V2 | 316 | Plug | | |

STRUCTURE (3/3)



R27Z92TM25

| | | | |
|---------------|---------------------------------|-------------------|---------------------|
| 101 Body | 113 Snap ring | 122 Thrust washer | 131 O-ring |
| 102 Cover | 115 Thrust collar | 123 Snap ring | 132 Plug |
| 104 Carrier 2 | 116 Slide ring | 124 Snap ring | 133 Plug |
| 106 Gear B1 | 117 Floating seal (Incl 118) | 125 Snap ring | 134 Hydraulic motor |
| 107 Gear B2 | 118 O-ring | 126 Snap ring | 137 Name plate |
| 108 Gear S1 | 119 Bearing | 127 Spring pin | 138 Plug |
| 109 Gear S2 | 120 Needle | 128 Snap ring | 139 O-ring |
| 110 Ring | 121 Needle | 129 O-ring | 140 Thrust washer |
| 111 Pin B2 | | 130 O-ring | 141 Thrust washer |

3. DISASSEMBLY

1) TOOLS FOR DISASSEMBLY AND ASSEMBLY

| No. | Necessary tool | |
|----------------------------|-------------------------|--|
| 1 2 3 | Torque wrenches | 45N (JIS B4650) 90N (JIS B4650) 280N (JIS B4650) |
| 4 5 | Hexagon socket | Hexagon size : 5 mm Hexagon size : 8 mm |
| 6 | Socket wrenches | Hexagon size : 36 mm |
| 7 8 | Hexagon socket wrenches | Hexagon size : 5 mm Hexagon size : 8 mm |
| 9 | Screwdrivers | Width : 6~10 mm |
| 10 11 12 13 14 | Snap ring pliers | Ø28 mm for hole Ø25 mm for shaft Ø28 mm for shaft Ø30 mm for shaft Ø130 mm for shaft |
| 15 | Plastic hammer | - |
| 16 17 18 19 | Other | Grease Oil Sand paper C-clamps |

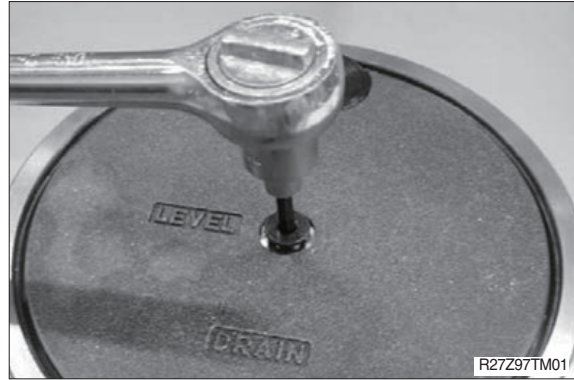
2) GENERAL PRECAUTIONS

- (1) Before disassembling the TM motors, check the items to be inspected and, for remedy against trouble, closely examine the nature of the trouble, so that the motor can be disassembled effectively.
- (2) To disassemble the motor, use the disassembling procedures described in section 2-2, and select a clean place.
- (3) Place a rubber or vinyl sheet or other such protective materials on your working bench to protect the surface of the motor to be serviced.
- (4) During disassembly, give a match mark to the mating surfaces of each part.
- (5) Arrange removed parts in order so that they will not become damaged or missing during disassembly.
- (6) Once seals have been disassembled, they should be replaced even if damage is not observed. Have replacement seals ready on hand before starting your disassembling job.

3) REDUCTION GEAR SECTION

(1) Remove the three plugs (PF3/8 and PF1/8).

- Tools required :
Hexagon size : 8 mm
Hexagon size : 5 mm



(2) Remove the snap-ring.

- ※ Put the screwdriver into the notch of the body, and then pull the snap-ring.



(3) Remove the cover.



(4) Remove the slide ring from the cover.



(5) Remove the O-ring from the body.



(6) Remove the s2 gear, the carrier 2 kit and thrust collar from the body.

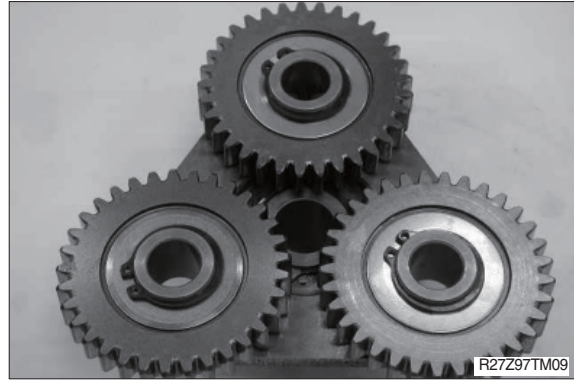
※ There is possibility the thrust collar sticks to the carrier 2 kit.



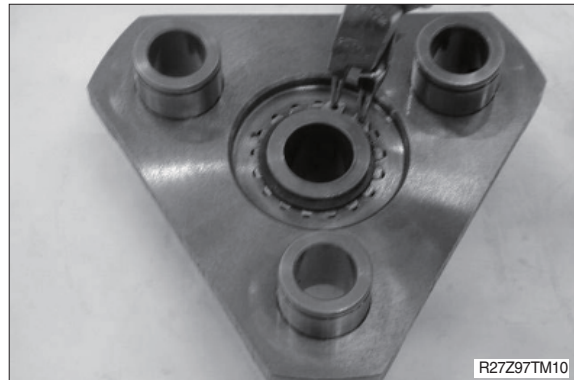
(7) Remove the three snap rings, three thrust washers, three b2 gears, forty-eight needles and three thrust washers.

※ The thrust washers on both sides of the b2 gears are the same.

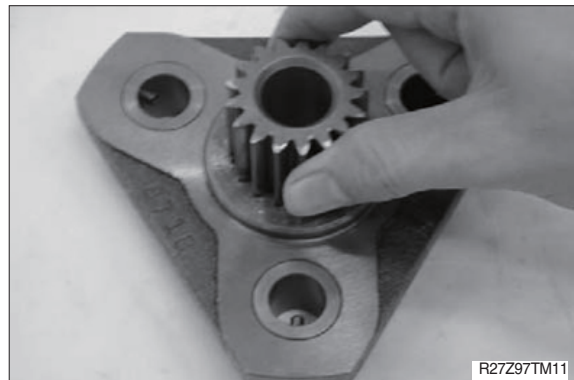
※ The b2 pins and spring pins are not able to disassemble, because they are press-fitted.



(8) Remove the snap ring from the carrier 2.



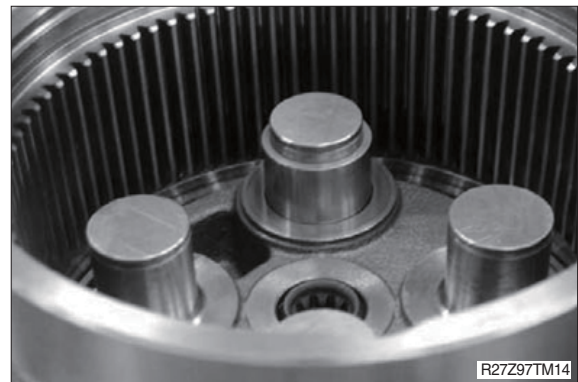
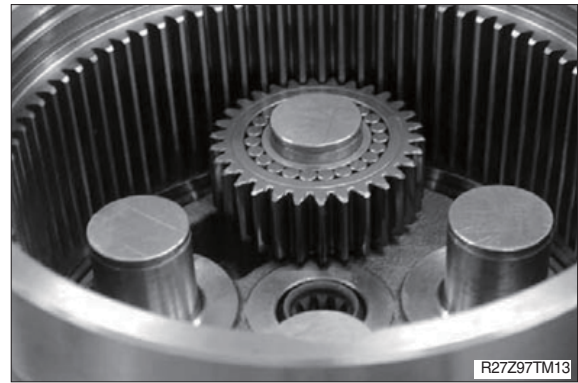
(9) Remove the s1 gear from the carrier 2.



(10) Remove the four snap rings and the four thrust washers.

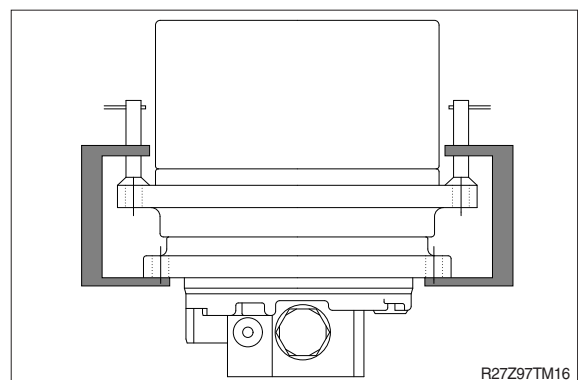


- (11) Remove the four b1 gears, ninety-two needles, four thrust washers and four rings.



- (12) Remove the snap ring and remove the body from the hydraulic motor.

- ※ Tighten the speed reducer flange and the motor flange with C-clamps or a hydraulic press (see the illustration) to make it easy.



(13) Remove the floating seal with O-ring from the body.



(14) Remove the floating seal with O-ring from the hydraulic motor.



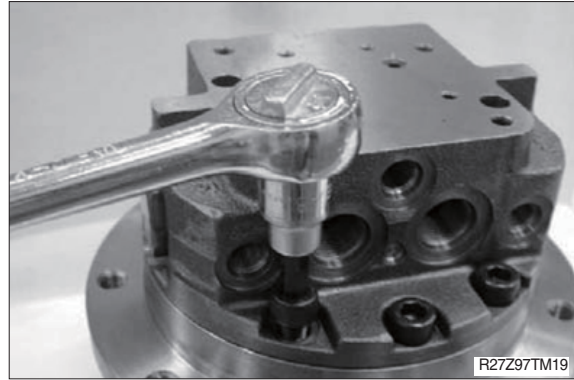
4) HYDRAULIC MOTOR SECTION

- (1) Remove the seven hexagon socket head cap bolts.

· Tools required :

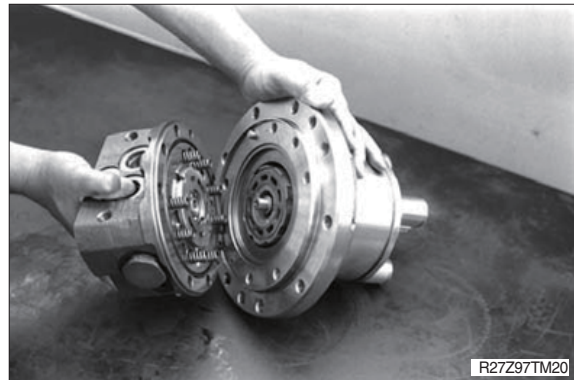
Hexagon size : 8 mm

- ※ If you fix the motor with a vice, protect it with aluminum plates or equivalent.



- (2) Remove the body 1 from the body 2.

- ※ Pay attention not to come off and damage the valve plate.



- (3) Remove the valve plate and the ten spring B.



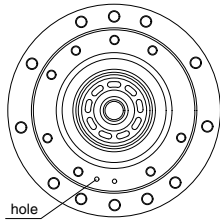
- (4) Remove the three O-rings from the body 1.

- ※ The bearing and spring pins are not able to disassemble, because they are press-fitted.

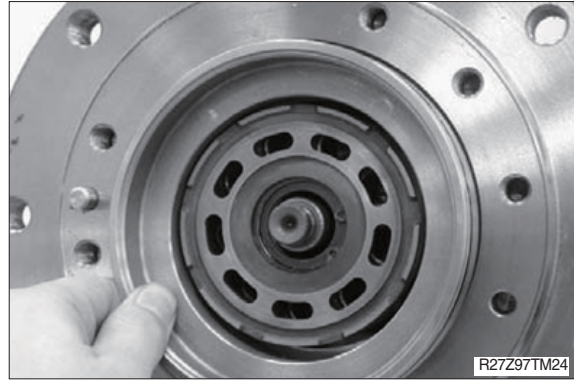


- (5) Remove the brake piston assembly from the body 2.

※ The brake piston removes when the air comes into the inside from the hole. Do not blow it suddenly, the brake piston assembly fly out.

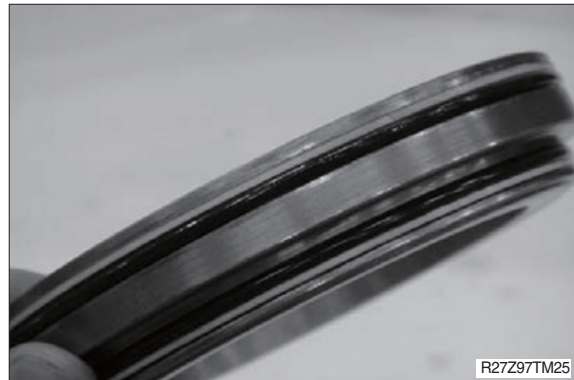


R27Z97TM23



R27Z97TM24

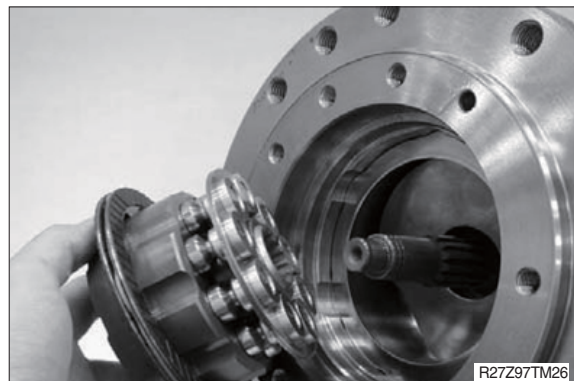
- (6) Remove the two O-rings and two back up rings from the brake piston.



R27Z97TM25

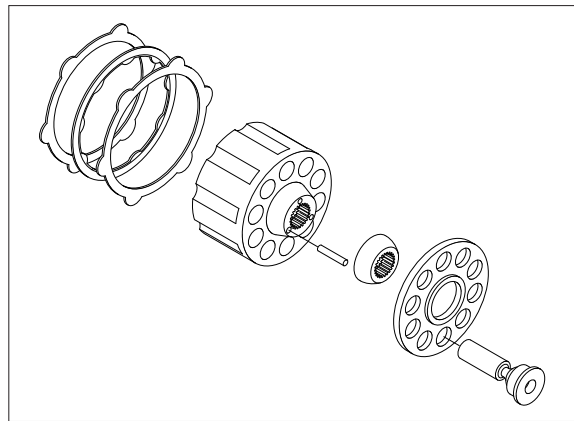
- (7) Remove the cylinder barrel assembly and brake spacer from the body 2.

※ Pay attention not to lose the each part.



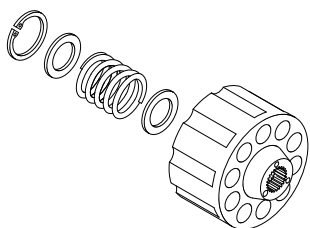
R27Z97TM26

- (8) Remove the nine piston-shoe assemblies, shoe holder, barrel holder, three pins, two steel plates and disk plate.



R27Z97TM27

- (9) Remove the snap ring, retainer, spring-C and retainer.

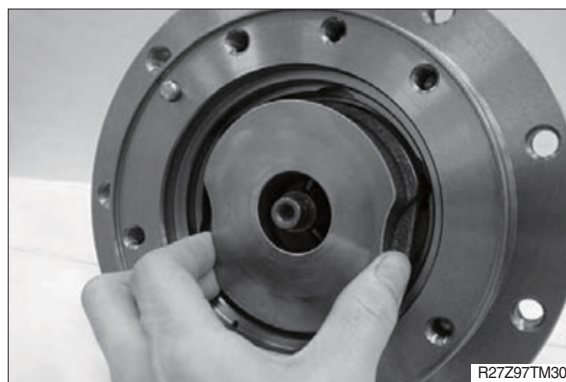


R27Z97TM28



R27Z97TM29

- (10) Remove the swash plate and two balls from the body 2.



R27Z97TM30

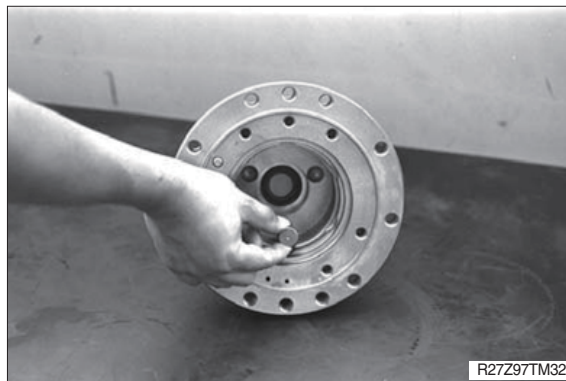
- (11) Remove the shaft from the body 2.

※ The bearing is not able to disassemble, because they are press-fitted.



R27Z97TM31

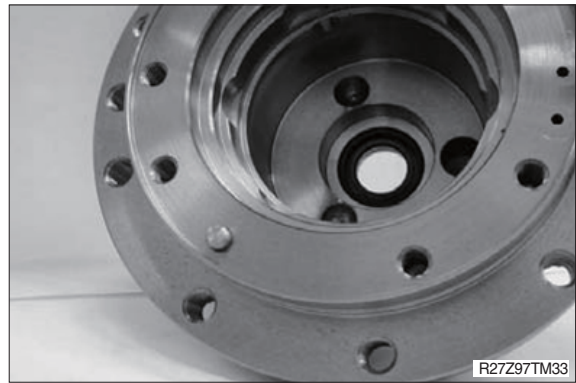
- (12) Remove the control piston from the body 2.



R27Z97TM32

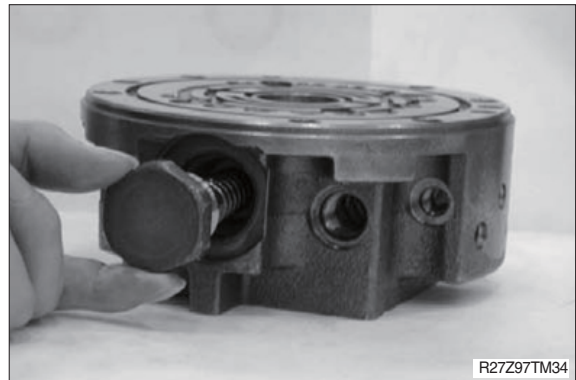
(13) Remove the oil seal from the body 2.

(14) Remove the pin from the body 2.



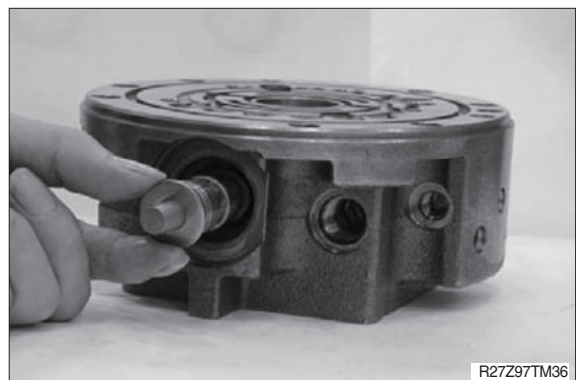
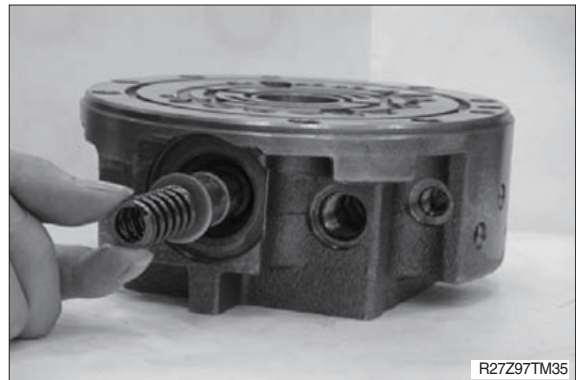
(15) Remove the two plugs with O-rings from the body 1.

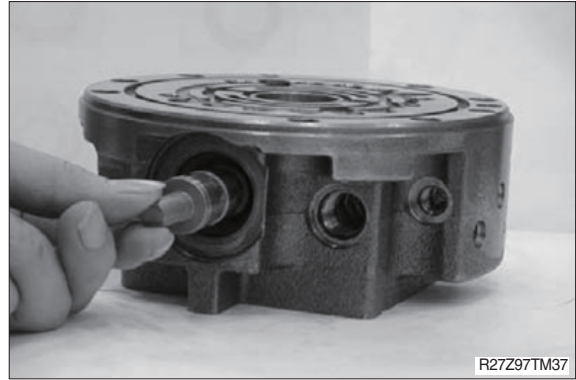
- Tools required :
Hexagon size : 36 mm



(16) Remove the two spring V2, two rings and spool assembly.

- ※ The spool assembly is not able to disassemble.





(17) Remove the two plugs with O-rings from the body 1.

- Tools required :
Hexagon size : 8 mm

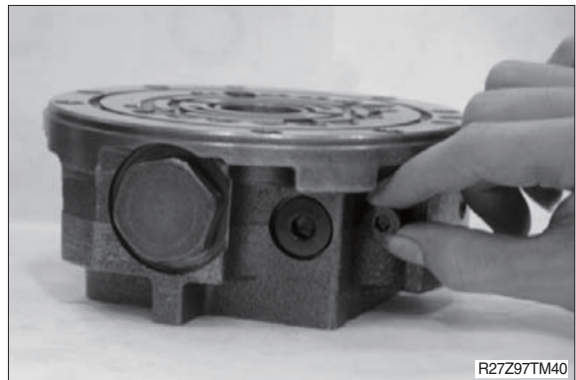


(18) Remove the spring V3 and two speed spool.

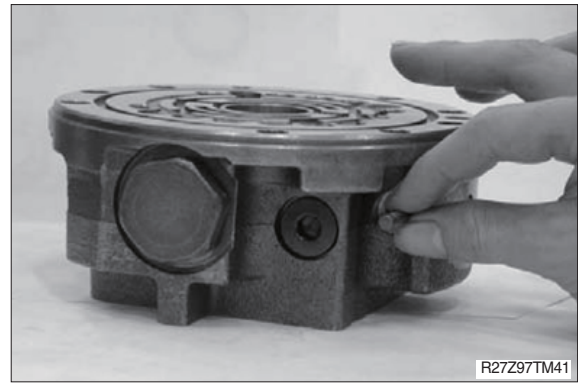


(19) Remove the plugs with O-rings from the body 1.

- Tools required :
Hexagon size : 5 mm



(20) Remove the shuttle spool.



4. ASSEMBLY

1) HYDRAULIC MOTOR SECTION

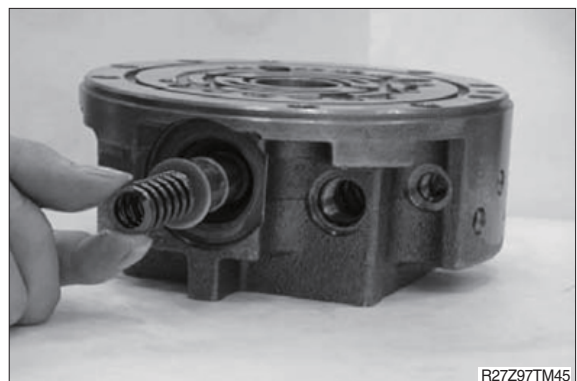
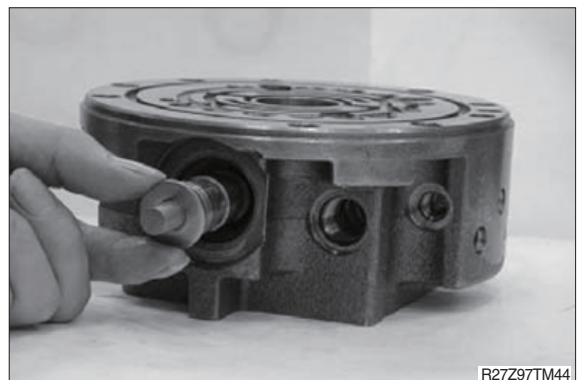
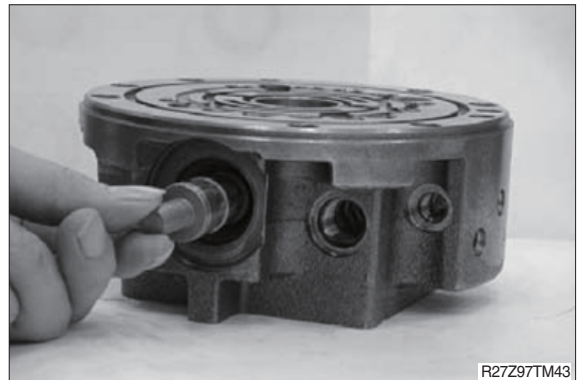
- (1) Press-fit the bearing and the spring pin into the body 1.

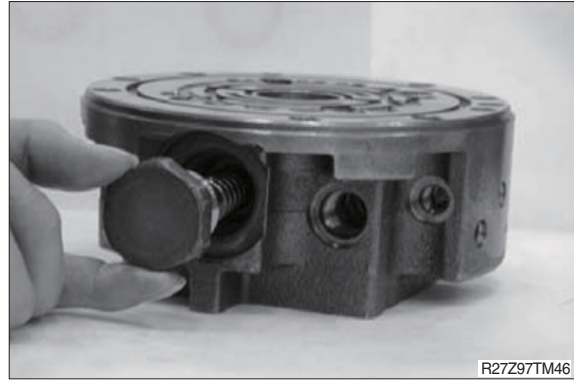


- (2) Insert the spool assembly, two rings (1pc/side) and two springs (1pc/side) in that order into the body 1, and then screw the two plugs (1pc/side) with two O-rings (1pc/side).

※ The spool assembly is not able to disassemble.

- Plugs tightening torque :
20~25 kgf · m (145~180 lbf · ft)
- Hexagon size : 36 mm





- (3) Insert the spring V3 and two speed spool into the body 1, and screw the two plugs (1pc/side) with two O-rings (1pc/side).

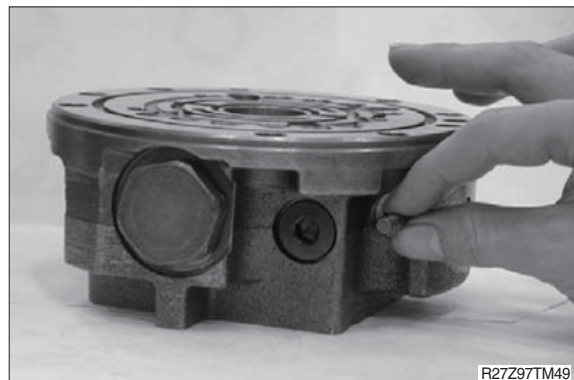
- Plugs tightening torque :
4.69~5.2 kgf · m (33.9~37.6 lbf · ft)
- Hexagon size : 8 mm

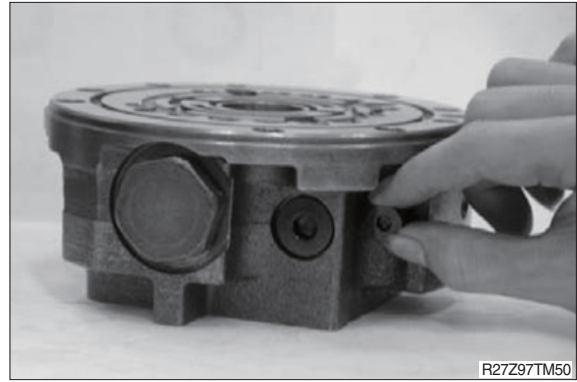
- ※ Pay attention to the direction of the spool.
(See cross sectional drawing for the direction, page 7-59~61).



- (4) Insert the shuttle spool into the body 1, and then screw the two plugs (1pc/side), with two O-rings (1pc/side).

- Plugs tightening torque :
1.22~1.84 kgf · m (8.82~13.3 lbf · ft)
- Hexagon size : 5 mm



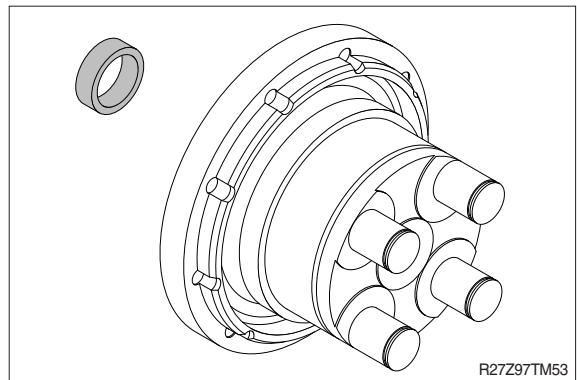
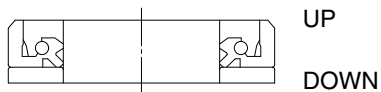


(5) Place three O-rings onto the body 1.



(6) Press-fit the oil seal into the body 2.

- ※ Apply grease to the periphery of the oil seal.
- ※ Pay attention to the direction of the oil seal, and do not slant it.



(7) Place the pin into the body 2.

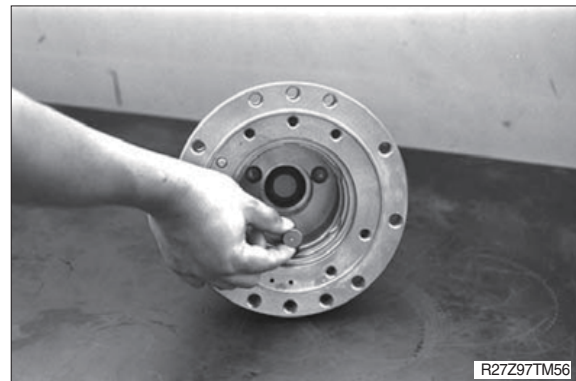


(8) Press-fit the bearing with the shaft.



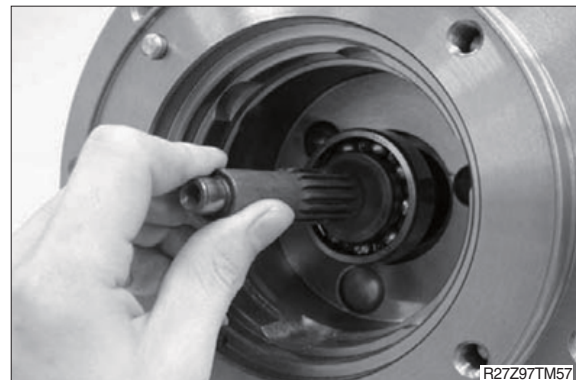
(9) Insert the control piston into the body 2.

- ※ Pay attention to the direction of the control piston. (See cross sectional drawing for the direction, page 7-59~61).



(10) Place the shaft into the body 2.

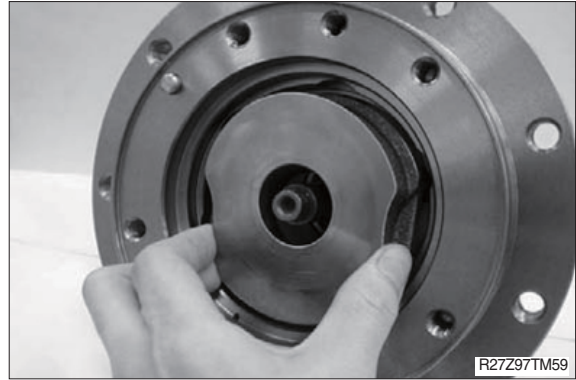
- ※ Pay attention not to damage the oil seal with the shaft.
- A oil which damaged should be replaced.



(11) Place the two balls and the swash plate onto the body 2.

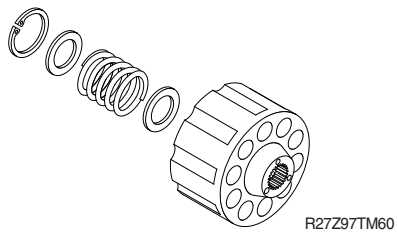
- ※ Apply oil to the working face of the swash plate.
- ※ In case the swash plate drops out, apply grease to the back of it.





R27Z97TM59

- (12) Place the retainer, spring and retainer in that order into the cylinder barrel, and then secure them with the snap ring.



R27Z97TM60



R27Z97TM61

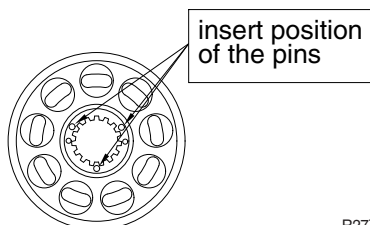
- (13) Place the piston-shoe assemblies into the shoe holder.



R27Z97TM62

- (14) Place the three pins, barrel holder and piston-shoe assemblies in that order into the cylinder barrel.

- ※ Apply oil to the inside of the cylinders, then lower the pistons into the cylinder barrel.
- ※ Pay attention to the order of pins, barrel holder and piston-shoe assemblies.

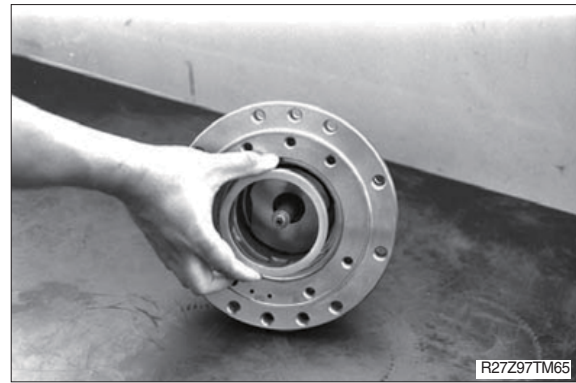


R27Z97TM63

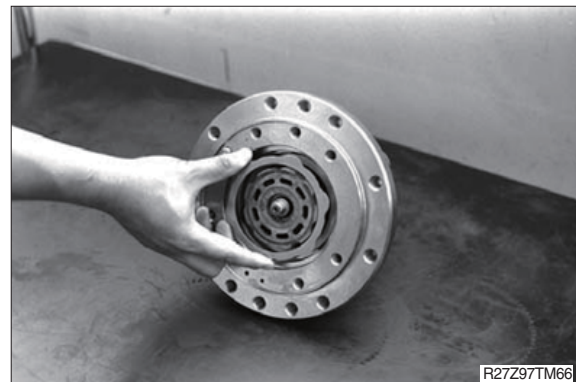


R27Z97TM64

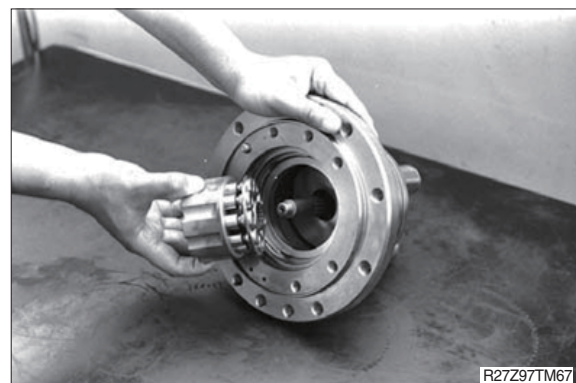
- (15) Place the brake spacer plate into the body 2.



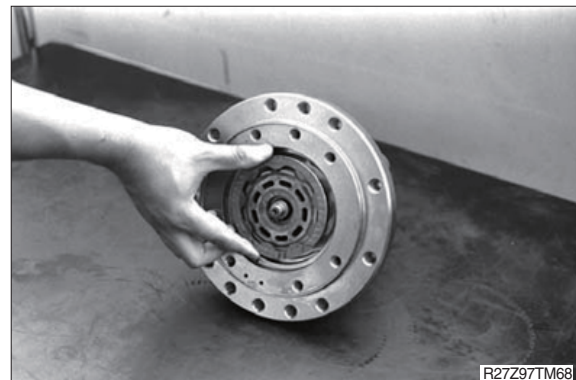
- (16) Place the steel plate into the body 2 along the groove.



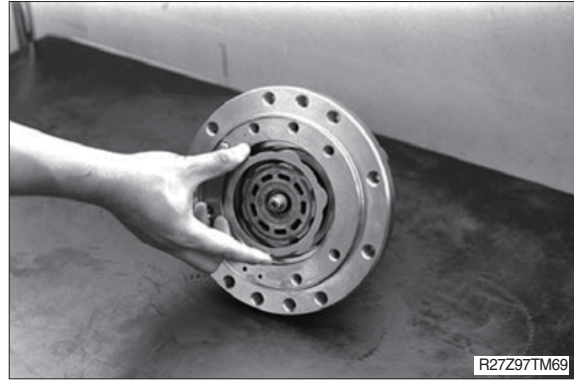
- (17) Insert the cylinder barrel assembly into the body 2 so that the shoes contact the swash plate.



- (18) Place the disk plate into the body 2 along the groove.

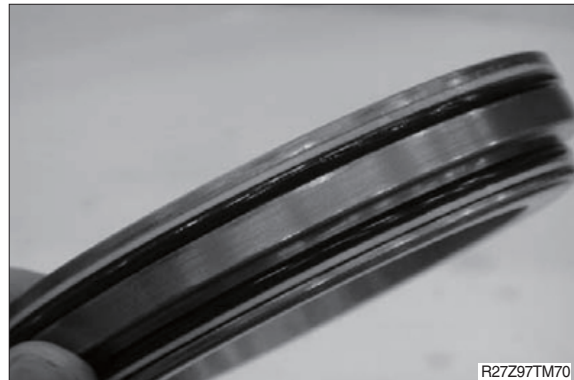


- (19) Place the steel plate into the body 2 along the groove.



- (20) Place the two O-rings and two back up rings onto the brake piston.

- ※ Pay attention to the direction of O-rings and back up rings.
(See cross sectional drawing for the direction.)



- (21) Inset the brake piston assembly into the body 2.

- ※ Apply grease to the O-ring to make it easy.



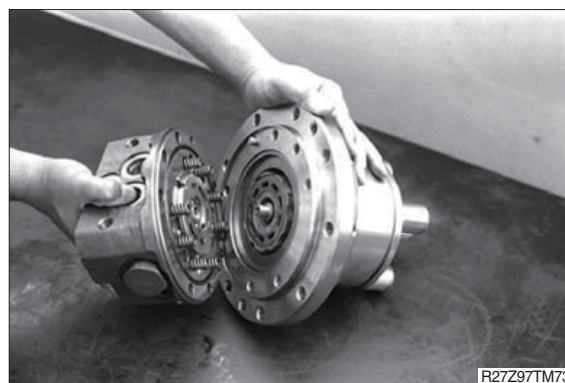
- (22) Fill the body 2 with 0.1ℓ hydraulic oil for lubrication.

(23) Place the valve plate and ten springs onto the body 1.

- ※ The copper face of the valve plate should be uppermost.
- ※ Apply oil to the copper face of the valve plate.
- ※ In case the valve plate drops out, apply grease to the steel face of it.
- ※ In case the springs drop out, apply grease to the bottom of it.
- ※ Please refer to the parts list for the number and the position with the spring B.



(24) Join the body 1 to the body 2.



(25) Bolt them with seven hexagon socket head cap bolts.

- Bolt tightening torque :
5.2~6.6 kgf · m (37.6~47.7 lbf · ft)
- Hexagon size : 8 mm

- ※ If you fix the motor with a vice, protect it with aluminum plates or equivalent.



2) REDUCTION GEAR SECTION

- (1) Place the floating seal with O-ring into the hydraulic motor.



- (2) Join the bearing and snap ring to the body.

※ Pay attention to the direction of the bearings.

(See cross sectional drawing for the direction, page 7-59~61).

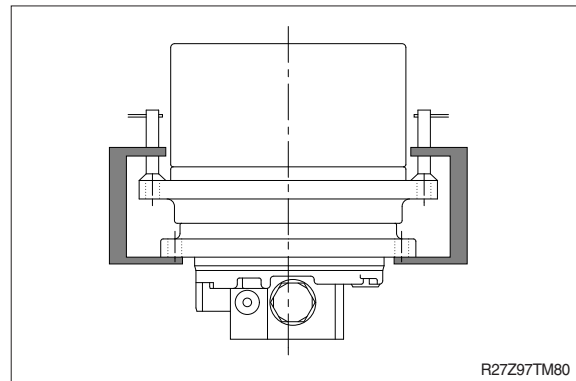


- (3) Put the floating seal with O-ring onto the body.



- (4) Join the body to the motor, and secure it with snap ring.

- ※ Degrease the surface of floating seal.
- ※ Hit around the body by the resinous hammer equally to make it easy.
- ※ Tighten the speed reducer flange and the motor flange with C-clamps or a hydraulic press when the snap ring is fastened.
- ※ The pre-load for the bearings is adjusted by thickness of the snap ring.

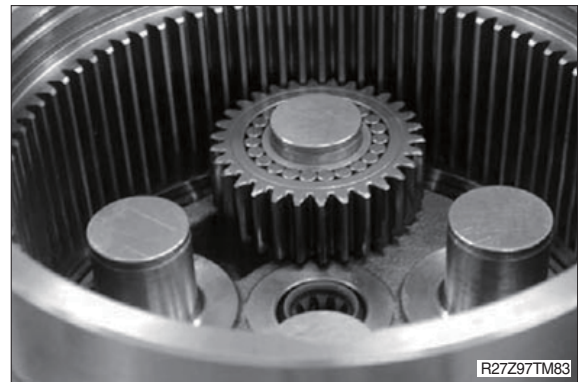
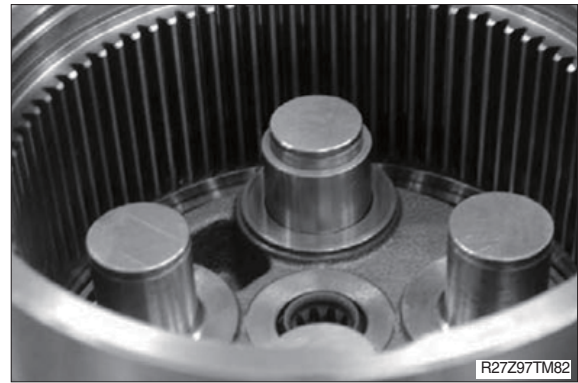


(5) Place the four rings (1pc/1pin), four thrust washers (1pc/1pin), four b1 gears (1pc/1pin) and ninety-two needles (23pcs/1pin), and four thrust washers in that order onto the body 2, and secure it with four snap rings.

※ Pay attention to the direction of the b1 gears (see cross sectional drawing for the direction, page 7-59~61).

※ Pay attention to the direction of the snap ring. The edge side should be uppermost.

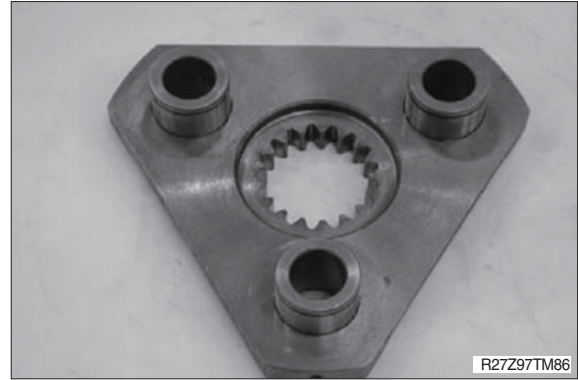
※ Pay attention not to open the snap ring too much. A snap ring which loses tension should be replaced.



(6) Place thrust collar onto the gears.

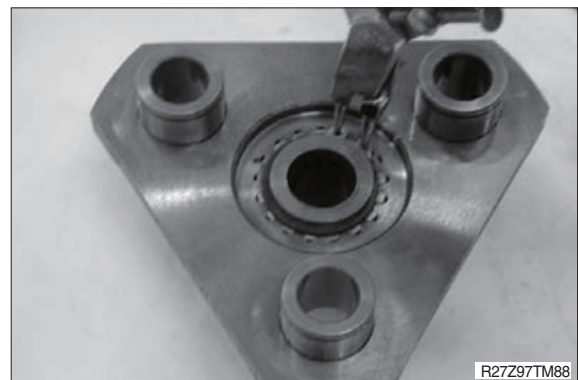
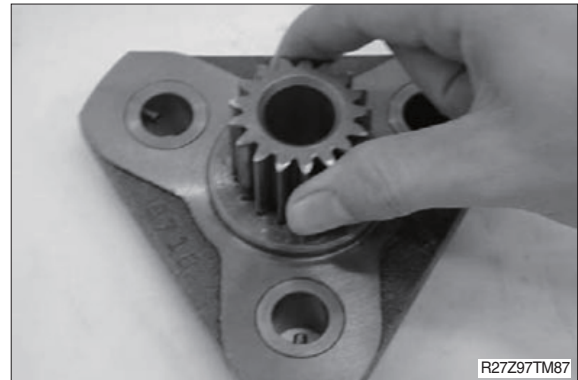


- (7) Press-fit the three b2 pins and three spring pins (1pc/pin) into the carrier 2.



- (8) Put the S1 gear to the carrier 2, and then secure them with the snap ring.

- ※ Pay attention to the direction of the snap ring. The edge side should be uppermost.
- ※ Pay attention not to open the snap ring too much. A snap ring which loses tension should be replaced.

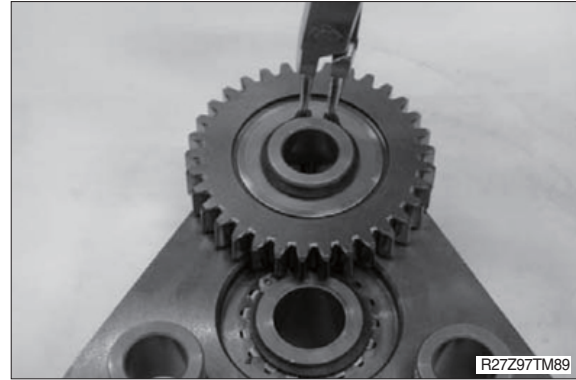


(9) Place the three thrust washers (1pc/1pin), three b2 gears (1pc/1pin), forty-eight needles (16pcs/1pin) and the three thrust washers (1pc/1pin), and secure it with three snap rings.

※ Pay attention to the direction of the b2 gears (see cross sectional drawing for the direction).

※ Pay attention to the direction of the snap ring. The edge side should be uppermost.

※ Pay attention not to open the snap ring too much. A snap ring which loses tension should be replaced.



(10) Place the carrier 2 assembly into the body.



(11) Join the S2 gear to the body.



(12) Place the O-ring to the body.

- ※ Apply grease to the O-ring.
- ※ Pay attention not the rubbish in the O-ring groove.



(13) Fill 0.6 ℓ (0.16 U.S. gal) gear oil in the body.

(14) Insert the slide ring in the cover.

- ※ Pay attention to the direction of the slide ring (see cross sectional drawing for the direction, page 7-59~61).
- ※ Apply grease to the slide ring to prevent it dropping out.



(15) Insert cover in the body.

- ※ Pay attention not to damage the O-ring.
- ※ The vertical tapped hole should be aligned with notches of the body.



(16) Put the snap ring into the groove of the body to secure the cover.

※ Put the flat blade-flared tip screwdriver to the end of the snap ring, and tap it in the direction of the circumference.



(17) Screw the two plugs (size : PF3/8) with O-rings to the cover.

- Plug tightening torque :
4.69~5.2 kgf · m (33.9~37.6 lbf · ft)
- Hexagon size : 8 mm



(18) Screw the three plugs (size : PF3/8, PF1/8) with O-rings (1pc/plug) to the cover.

- Plug tightening torque (PF3/8) :
4.69~5.2 kgf · m (33.9~37.6 lbf · ft)
- Hexagon size : 8 mm (PF3/8)
- Plug tightening torque (PF1/8) :
1.22~1.84 kgf · m (8.82~13.3 lbf · ft)
- Hexagon size : 5 mm (PF1/8)



GROUP 7 RCV LEVER

1. REMOVAL AND INSTALL

1) REMOVAL

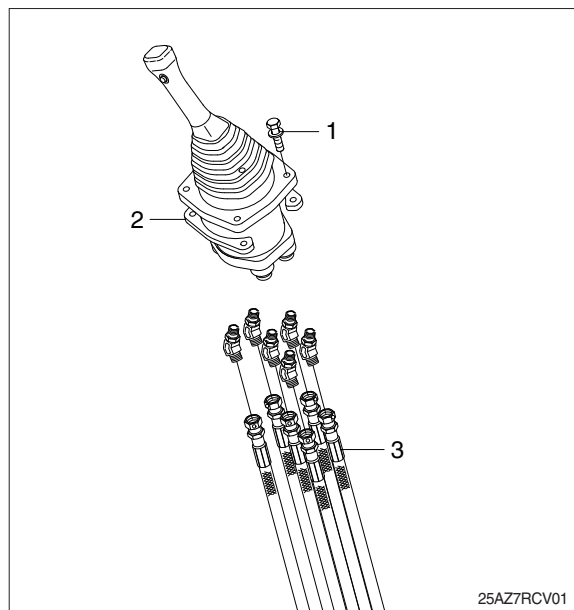
- (1) Lower the work equipment to the ground and stop the engine.
- (2) Operate the control levers and pedals several times to release the remaining pressure in the hydraulic piping.
- (3) Loosen the breather slowly to release the pressure inside the hydraulic tank.

▲ Escaping fluid under pressure can penetrate the skin causing serious injury.

- (4) Loosen the socket bolt(1).
- (5) Remove the cover of the console box.
- (6) Disconnect pilot line hoses(3).
- (7) Remove the pilot valve assembly(2).
- ※ When removing the pilot valve assembly, check that all the hoses have been disconnected.

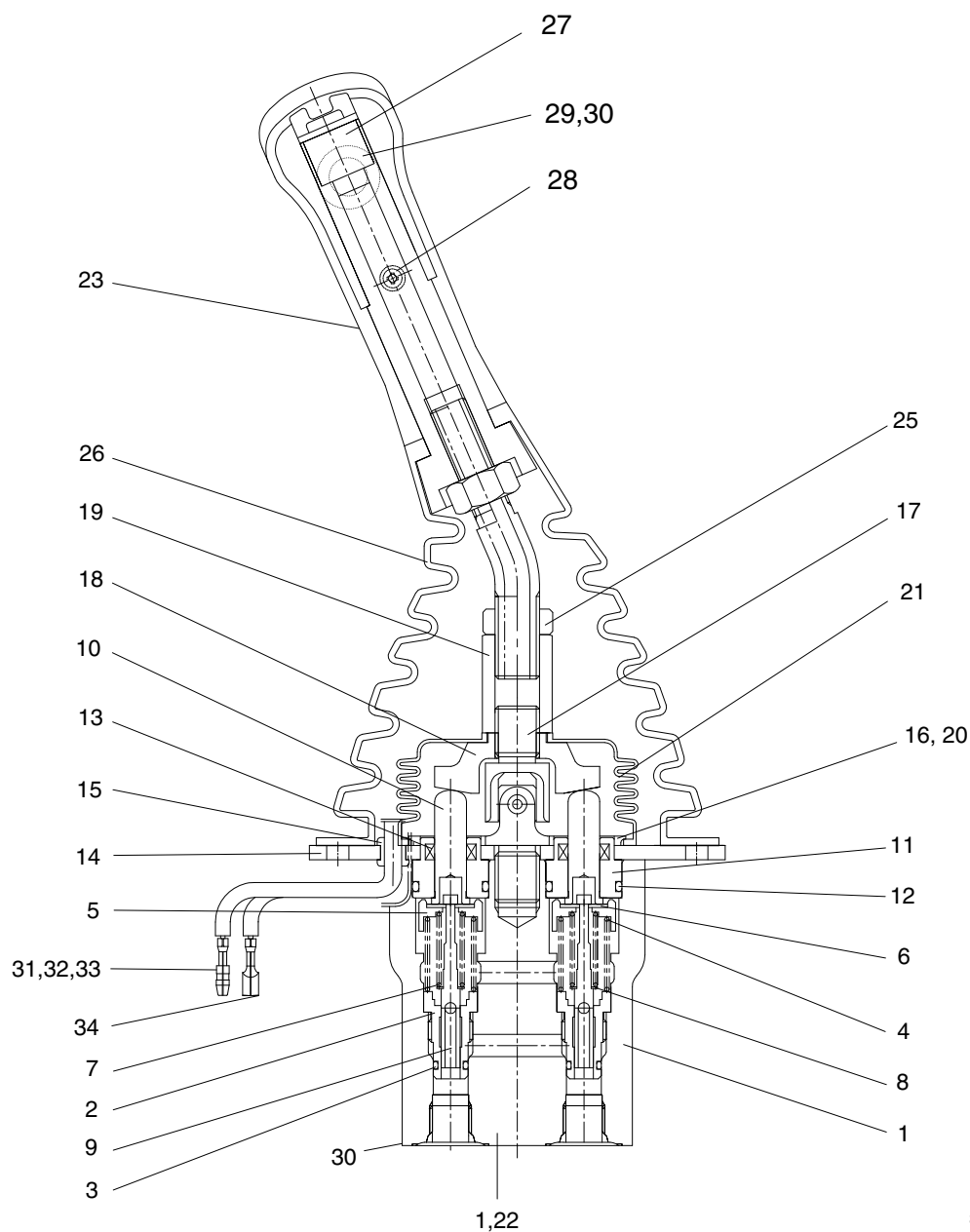
2) INSTALL

- (1) Carry out installation in the reverse order to removal.
- (2) Confirm the hydraulic oil level and check the hydraulic oil leak or not.



2. DISASSEMBLY AND ASSEMBLY

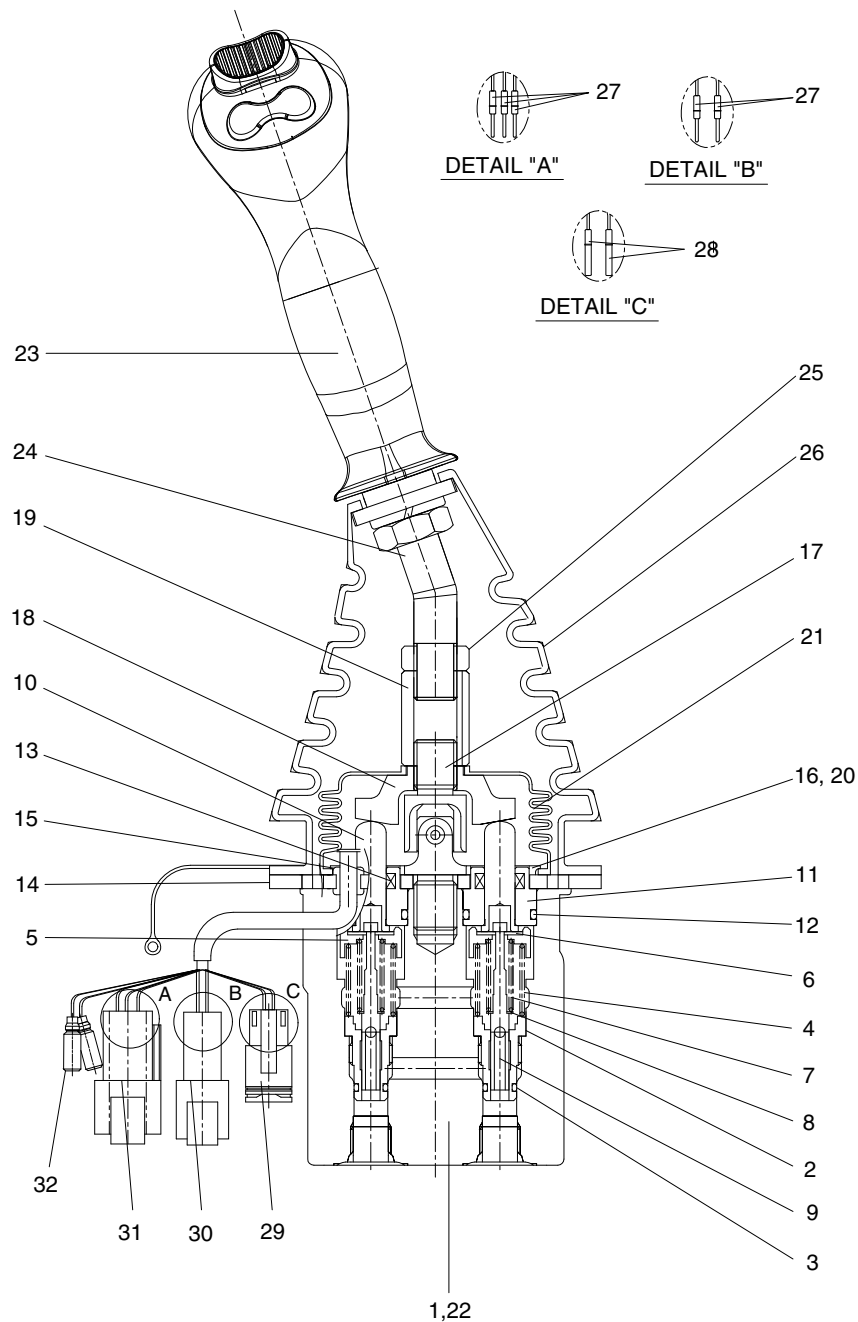
1) STRUCTURE (STD)



31MS-24010P

| | | | | | |
|----|-------------|----|---------------|----|----------------------|
| 1 | Body | 12 | O-ring | 23 | Handle assy (LH, RH) |
| 2 | Plug | 13 | Rod seal | 24 | Handle bar |
| 3 | O-ring | 14 | Plate (A) | 25 | Nut |
| 4 | Spring | 15 | Bushing | 26 | Boots |
| 5 | Spring seat | 16 | Machine screw | 27 | Switch 1 |
| 6 | Stopper | 17 | Joint assy | 28 | Screw |
| 7 | Spring | 18 | Swash plate | 29 | Switch 2 |
| 8 | Shim | 19 | Hex nut | 30 | Switch cover |
| 9 | Spool | 20 | Plate (B) | 31 | Connector assy |
| 10 | Push rod | 21 | Inner boots | 32 | Terminal |
| 11 | Plug | 22 | Plug | 33 | Guide |
| | | | | 34 | Connector |

STRUCTURE (PROPORTIONAL, OPT)



31MS-24120P

- | | | |
|---------------|------------------|-------------------------|
| 1 Body | 12 O-ring | 23 Handle assy (LH, RH) |
| 2 Plug | 13 Rod seal | 24 Handle bar |
| 3 O-ring | 14 Plate (A) | 25 Nut |
| 4 Spring | 15 Bushing | 26 Boots |
| 5 Spring seat | 16 Machine screw | 27 Connector pin male |
| 6 Stopper | 17 Joint assy | 28 Connector pin female |
| 7 Spring | 18 Swash plate | 29 Connector assy |
| 8 Shim | 19 Hex nut | 30 Connector assy |
| 9 Spool | 20 Plate (B) | 31 Connector assy |
| 10 Push rod | 21 Inner boots | 32 Connector |
| 11 Plug | 22 Plug | 33 Cap |

2) TOOLS

| Tool name | Information |
|-----------------|-------------|
| Torque wrench | 22 mm |
| Spanner | 22 & 27 mm |
| Long nose plier | - |
| Screwdriver | - |
| Plastic hammer | - |
| L-wrench | M10 |

3) ASSEMBLY

(1) Prepare the body.

※ Secure the product on a flat table.



(2) Insert greased plugs into the respective ports.

※ Insert the spring while making sure that it is as close to the center as possible.



(3) Assemble plug.

※ 10 mm torque wrench, direction of assembly: clockwise

- Tightening torque : 3kgf·m (21.7 lbf·ft)

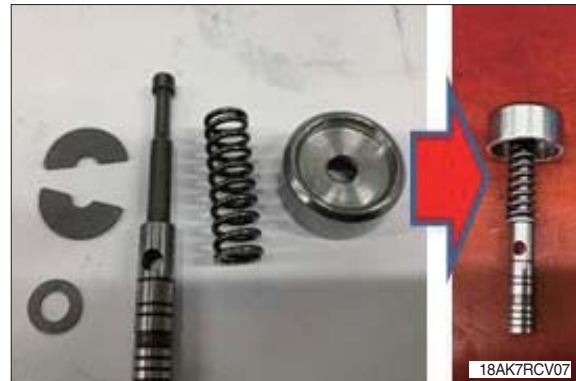


(4) Insert the op spring into the respective ports.



(5) Assemble the spool kit.

- ※ Assemble the spool, spring, spring seat, shim and stopper as shown in the photo.



(6) Assemble the spool kit to the respective ports.



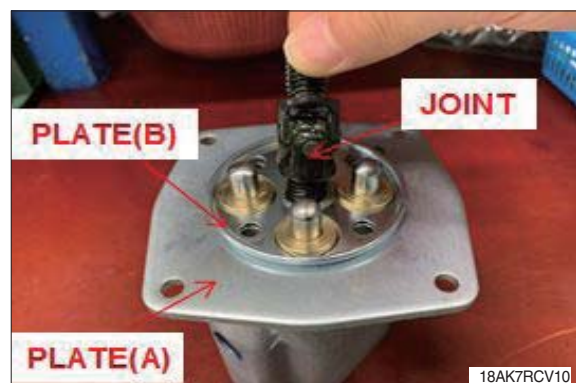
(7) Place the plug kit over the spool kit.

- ※ Align the spool head part with the push rod hole.



(8) Place plate (B) over plate (A) and assemble the joint with the wire hole facing toward port P.

- ※ Assemble the joint clockwise while pressing the plate.



(9) Assemble the joint assy.

-Tightening torque : 3 kgf·m (21.7 lbf·ft)

※ Direction of assembly: clockwise

※ Lightly tap with a hammer in all four compass directions while making sure not to scratch the product, so that the plug can be inserted at the same time.



(10) Insert screws into the four holes.



(11) Fasten the screws with an electric driver.
(Direction of assembly): clockwise



(12) Apply grease to the joint assy and push rod.

※ Grease spec: combi ep no.1 or equivalent

※ Apply grease to the rotating part of the joint and the upper surface of push rod.



(13) Assemble the swash plate.

- ※ Assemble the swash plate and push rod along the contact surface, and make sure that the push rod is not pressed.
- ※ Direction of assembly: clockwise.



(14) Assemble the hex nut.

- ※ Direction of assembly: clockwise.



(15) Assemble the hex nut with the torque wrench.

- Tightening torque : 8kgf·m (57.9 lbf·ft)

- ※ Direction of assembly of upper torque wrench: clockwise.



(16) Assemble the inner boots.

- ※ Insert the boots between the plate and body.



(17) Assemble the handle kit and fasten with a torque wrench.

-Tightening torque : 6kgf·m (43.4 lbf·ft)

※ When assembling, fasten according to the direction of the handle.

※ Assembly direction of the upper torque wrench: clockwise.



STD



PROPORTIONAL, OPT

(18) Insert wire into the bushing hole.

※ After inserting the wire, secure it with a cable tie.



(19) Insert the terminal into the respective wire.



STD

Insert the terminal into the respective wire.

| SWITCH NUMBER | CONNECTOR SPECIFICATION | WIRE COLOR |
|-----------------------|-------------------------|------------|
| 1 | DT06-2S-EP05 | GRAY |
| 2 | DT04-2P-E005 | BLACK |
| 3 | JIS D 5403 CB104 | BLUE |
| (PUSH BUTTON SWITCH) | | |
| SWITCH NUMBER | CONNECTOR SPECIFICATION | WIRE COLOR |
| 4 | DT04-3P-E004-1 | RED |
| 4 | DT04-3P-E004-2 | PURPLE |
| 4 | DT04-3P-E004-3 | WHITE |
| (PROPORTIONAL SWITCH) | | |



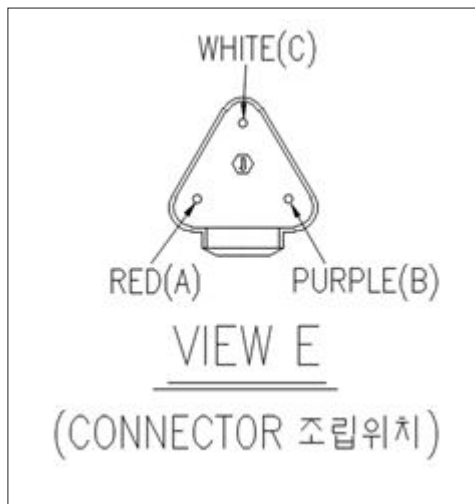
PROPORTIONAL, OPT

(20) Insert the female and male terminals.



STD

Insert the wire into the connector.



PROPORTIONAL, OPT

(21) Check the final status.

- ※ Check the exterior parts for irregularities as well as the connector specifications.



STD



PROPORTIONAL, OPT

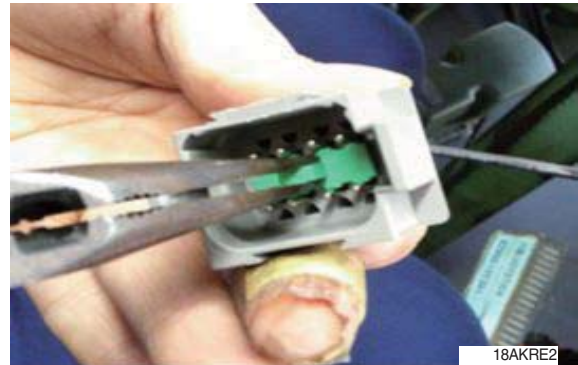
4) DISASSEMBLY

(1) 1. Prepare the joystick product.

※ Fix the product on a flat table.



(2) Disassemble the guide from the connector.



(3) Disassemble the wire from the connector.

※ Force the terminal holder to the opposite side and fix it.



(4) Pull out the terminal wire by moving the holder to the opposite side.



(5) Pull out the wire from the bushing hole.



(6) Disassemble the handle kit from the hex nut.

※ Disassembly direction: counterclockwise.



(7) Disassemble the inner boots.



(8) Disassemble the hex nut.

※ Disassembly direction: counterclockwise



- (9) Disassemble the swash plate.
※ Disassembly direction: counterclockwise.



- (10) Disassemble the joint assy.
※ Disassembly direction: counterclockwise.



- (11) Disassemble the plate and spacer.



- (12) Disassemble the plug kit from each port.
※ Fix the plug side using pliers and then force in the upper direction. take care not to damage the plug side.



(13) Disassemble the bushing.

※ Extract the bushing using a screwdriver.



(14) Extract the spool kit from the body.



(15) Extract the op spring from the body.



(16) Check the final parts.



GROUP 8 TURNING JOINT

1. REMOVAL AND INSTALL

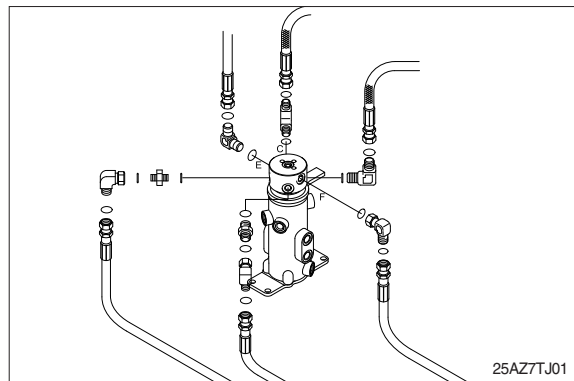
1) REMOVAL

- (1) Lower the work equipment to the ground and stop the engine.
- (2) Operate the control levers and pedals several times to release the remaining pressure in the hydraulic piping.
- (3) Loosen the breather slowly to release the pressure inside the hydraulic tank.

▲ **Escaping fluid under pressure can penetrate the skin causing serious injury.**

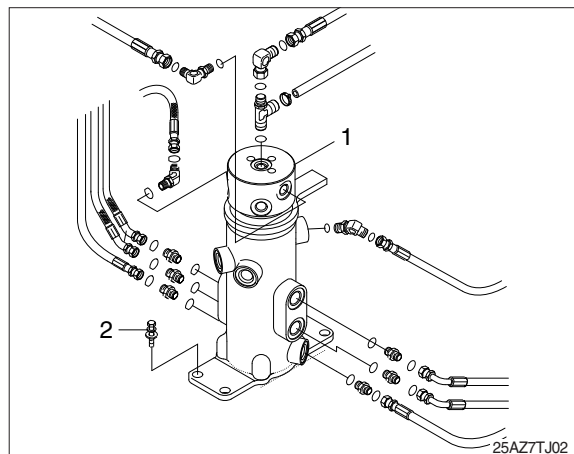
※ When pipes and hoses are disconnected, the oil inside the piping will flow out, so catch it in oil pan.

- (4) Disconnect all hoses.
 - (5) Sling the turning joint assembly (1) and remove the mounting bolt (2).
 - Weight : 11 kg (24 lb)
 - Tightening torque : $6.9 \pm 1.4 \text{ kgf} \cdot \text{m}$
($49.9 \pm 10.1 \text{ lbf} \cdot \text{ft}$)
 - (6) Remove the turning joint assembly.
- ※ When removing the turning joint, check that all the hoses have been disconnected.



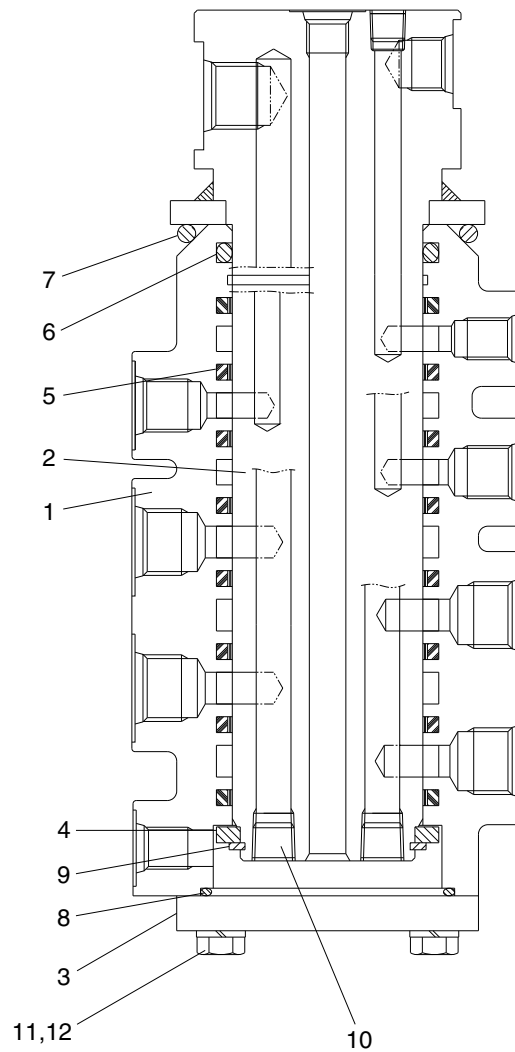
2) INSTALL

- (1) Carry out installation in the reverse order to removal.
 - ※ Take care of turning joint direction.
 - ※ Assemble hoses to their original positions.
 - ※ Confirm the hydraulic oil level and check the hydraulic oil leak or not.



2. DISASSEMBLY AND ASSEMBLY

1) STRUCTURE



25AZ7TJ03

- 1 Hub
- 2 Shaft
- 3 Cover
- 4 Spacer

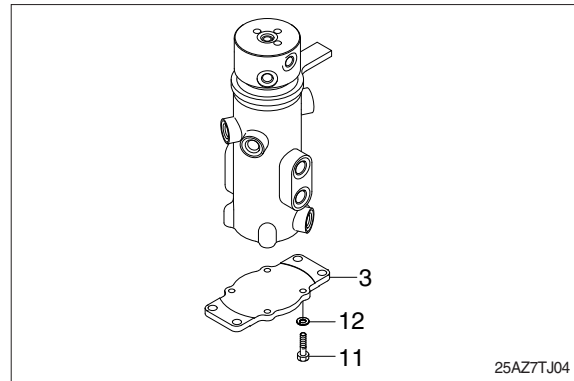
- 5 Slipper seal
- 6 O-ring
- 7 O-ring
- 8 O-ring

- 9 Retainer ring
- 10 Plug
- 11 Hexagon bolt
- 12 Spring washer

2) DISASSEMBLY

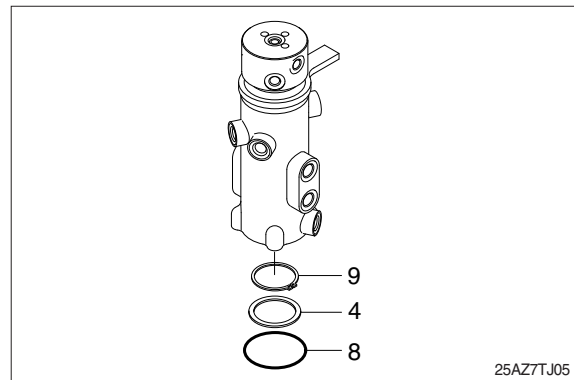
※ Before the disassembly, clean the turning joint.

- (1) Remove bolts (11), washer (12) and cover (3).



- (2) Remove O-ring (8).

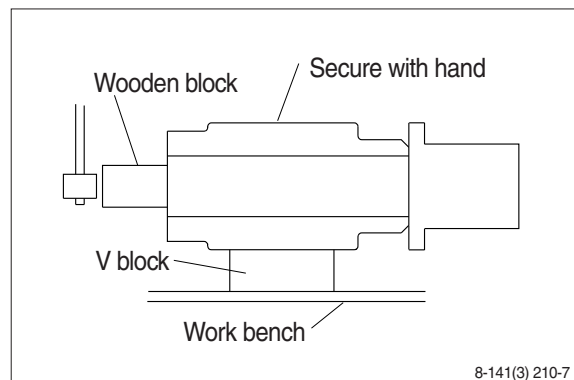
- (3) Remove retainer ring (9) and spacer (4).



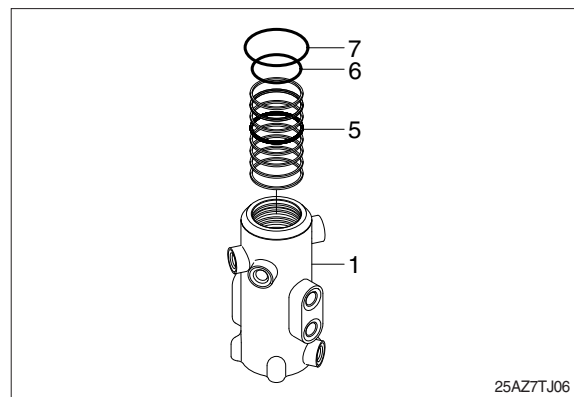
- (4) Place hub (1) on a V-block and by using a wood buffer at the shaft end, hit out shaft (2) to about 1/2 from the body with a hammer.

※ Take care not to damage the shaft (2) when remove hub (1) or rest it sideways.

※ Put a fitting mark on hub (1) and shaft (2).



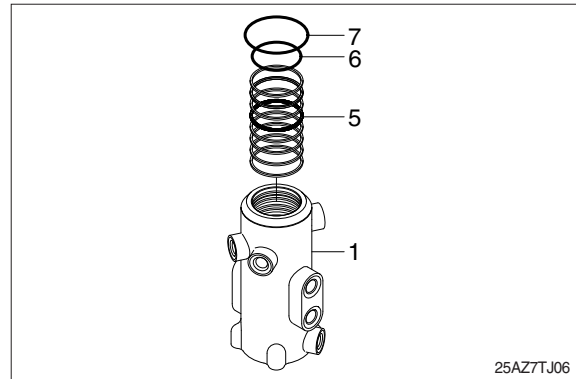
- (5) Remove eight slipper seals (5) and O-ring (6, 7) from hub (1).



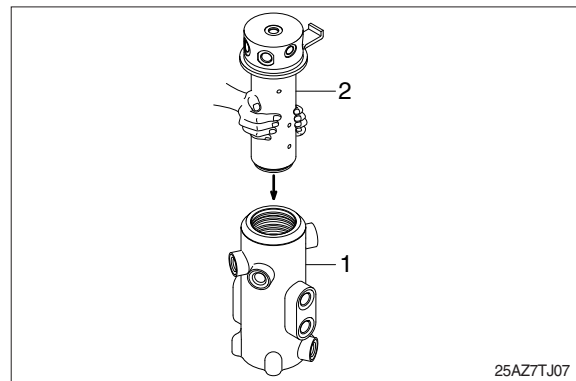
3) ASSEMBLY

- ※ Clean all parts.
- ※ As a general rule, replace oil seals and O-ring.
- ※ Coat the sliding surfaces of all parts with engine oil or grease before installing.

- (1) Fix eight slipper seal (5) and O-ring (6, 7) to hub (1).

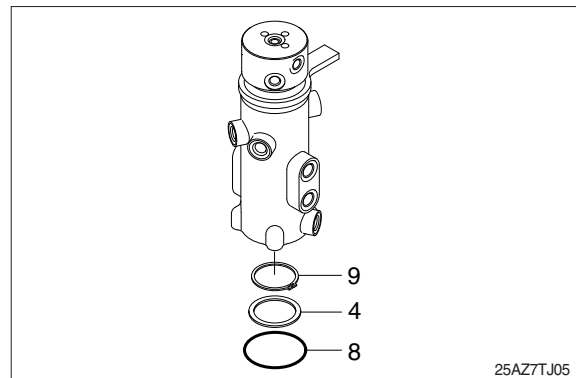


- (2) Set hub (1) on block, install shaft (2) into hub (1) by hand.

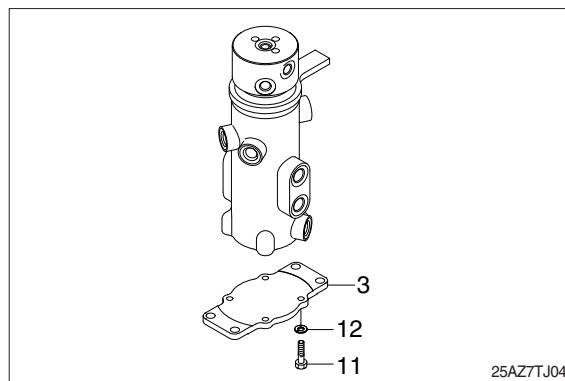


- (3) Fit spacer (4) and retainer ring (9) to shaft (2).

- (4) Fit O-ring (8) to hub (1).



- (5) Install cover (3) to hub and tighten bolts (11).
- Tightening torque : 2.5~3.0 kgf·m
(18.1~21.7 lbf·ft)



GROUP 9 BOOM, ARM AND BUCKET CYLINDERS

1. REMOVAL AND INSTALL

1) BUCKET CYLINDER

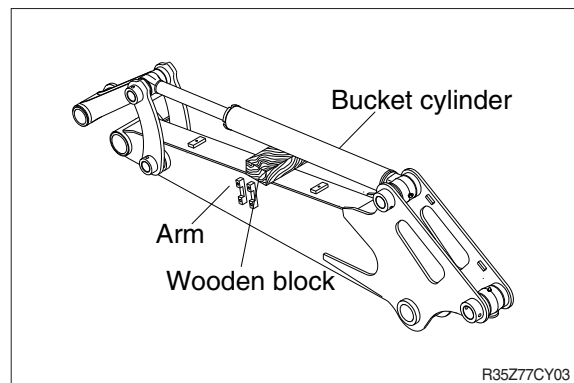
(1) Removal

- ※ Expand the arm and bucket fully, lower the work equipment to the ground and stop the engine.
- ※ Operate the control levers and pedals several times to release the remaining pressure in the hydraulic piping.

▲ Loosen the breather slowly to release the pressure inside the hydraulic tank. Escaping fluid under pressure can penetrate the skin causing serious injury.

- ※ Fit blind plugs in the hoses after disconnecting them, to prevent dirt or dust from entering.

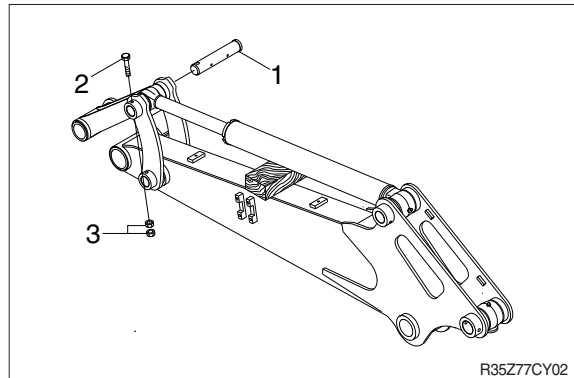
- ① Set block between bucket cylinder and arm.



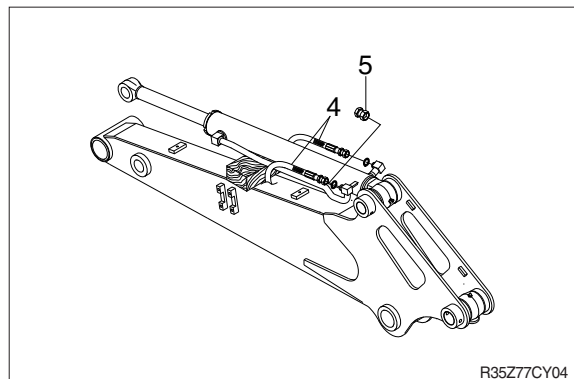
- ② Remove bolt (2), nut (3) and pull out pin (1).

- ※ Tie the rod with wire to prevent it from coming out.

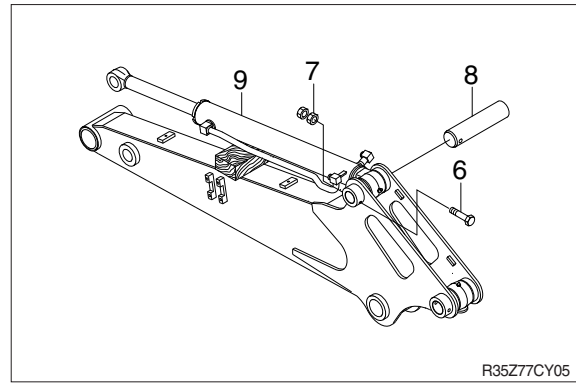
· Tightening torque : 6.9 ± 1.4 kgf·m
(49.9 ± 10.1 lbf·ft)



- ③ Disconnect bucket cylinder hoses (4) and put plugs (5) on cylinder pipe.



- ④ Sling bucket cylinder assembly (9) and remove bolt (6) and nut (7) then pull out pin (8).
- ⑤ Remove bucket cylinder assembly (9).
 - Weight : 15 kg (32 lb)
 - Tightening torque : 6.9 ± 1.4 kgf·m
(49.9 ± 10.1 lbf·ft)



(2) Install

- ① Carry out installation in the reverse order to removal.

▲ When aligning the mounting position of the pin, do not insert your fingers in the pin hole.

- ※ Bleed the air from the bucket cylinder.
- ※ Confirm the hydraulic oil level and check the hydraulic oil leak or not.

2) ARM CYLINDER

(1) Removal

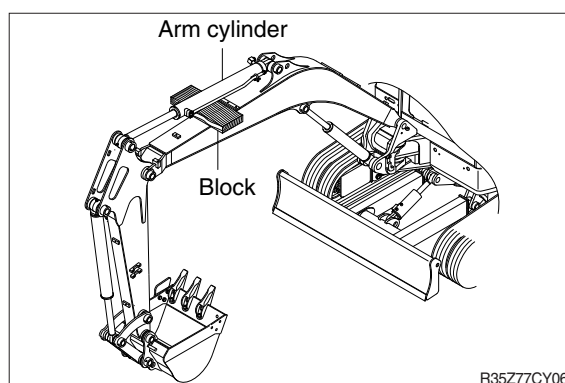
- ※ Expand the arm and bucket fully, lower the work equipment to the ground and stop the engine.
- ※ Operate the control levers and pedals several times to release the remaining pressure in the hydraulic piping.

▲ Loosen the breather slowly to release the pressure inside the hydraulic tank.

▲ Escaping fluid under pressure can penetrate the skin causing serious injury.

- ※ Fit blind plugs in the hoses after disconnecting them, to prevent dirt or dust from entering.

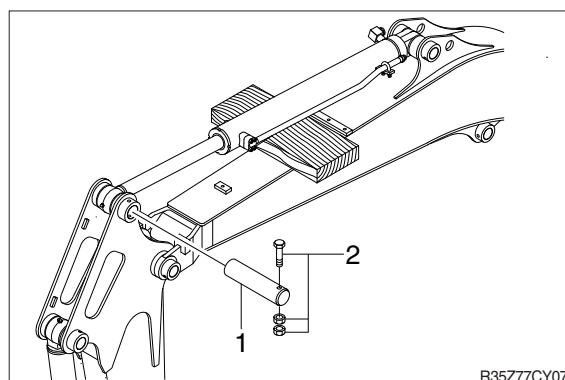
- ① Set block between arm cylinder and boom.



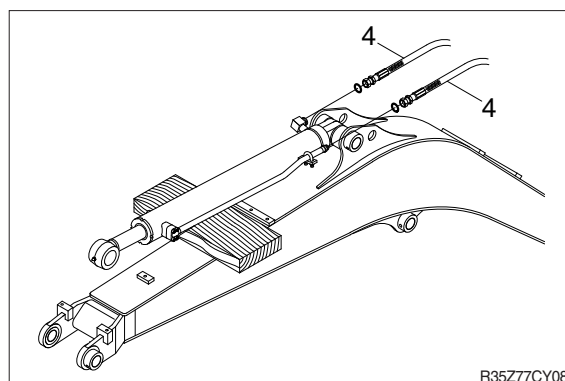
- ② Remove bolt and nut (2) and pull out pin (1).

· Tightening torque : 6.9 ± 1.4 kgf·m
(49.9 ± 10.1 lbf·ft)

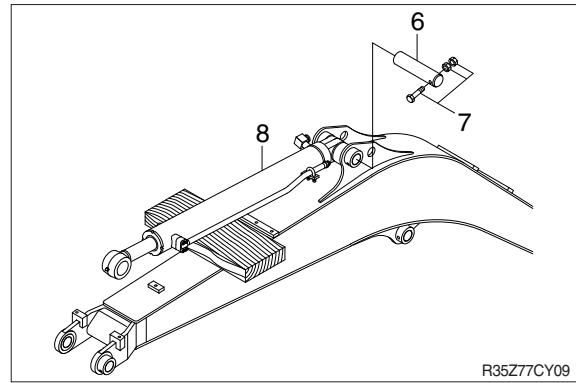
- ※ Tie the rod with wire to prevent it from coming out.



- ③ Disconnect arm cylinder hoses (4) and put plugs on cylinder pipe.



- ④ Sling arm assembly (8) and remove bolt and nut (7) then pull out pin (6).
- ⑤ Remove arm cylinder assembly (8).
 - Weight : 26 kg (57 lb)
 - Tightening torque : 6.9 ± 1.4 kgf·m
(49.9 ± 10.1 lbf·ft)



(2) Install

- ① Carry out installation in the reverse order to removal.

▲ When aligning the mounting position of the pin, do not insert your fingers in the pin hole.

- ※ Bleed the air from the arm cylinder.
- ※ Confirm the hydraulic oil level and check the hydraulic oil leak or not.

3) BOOM CYLINDER

(1) Removal

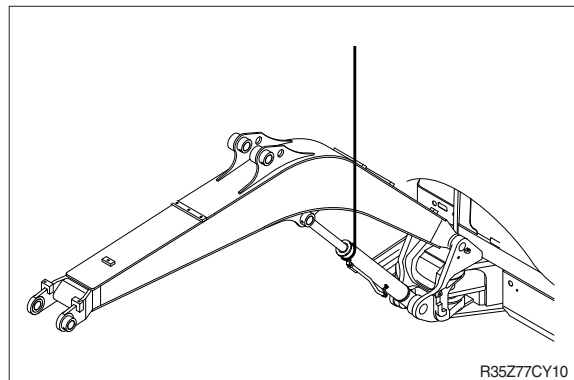
- ※ Expand the arm and bucket fully, lower the work equipment to the ground and stop the engine.
- ※ Operate the control levers and pedals several times to release the remaining pressure in the hydraulic piping.

▲ Loosen the breather slowly to release the pressure inside the hydraulic tank.

▲ Escaping fluid under pressure can penetrate the skin causing serious injury.

- ※ Fit blind plugs in the hoses after disconnecting them, to prevent dirt or dust from entering.

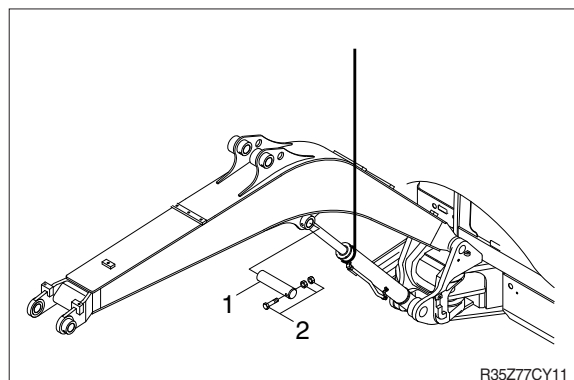
① Sling boom cylinder assembly.



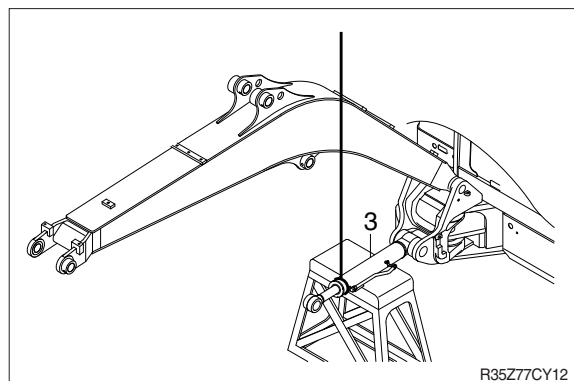
② Remove bolt and nut (2) and pull out pin (1).

- ※ Tie the rod with wire to prevent it from coming out.

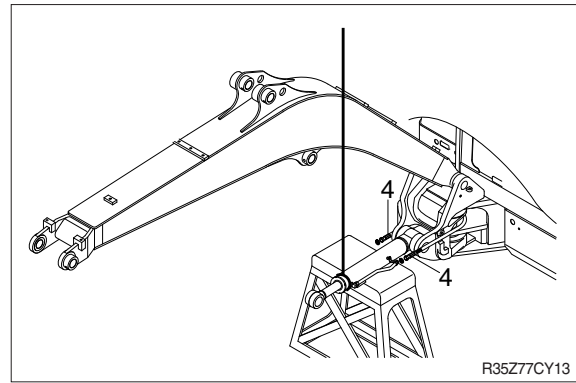
· Tightening torque : 6.9 ± 1.4 kgf·m
(49.9 ± 10.1 lbf·ft)



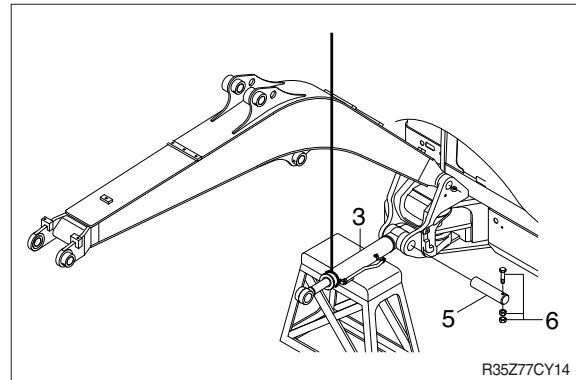
③ Lower the boom cylinder assembly (3) on a stand.



- ④ Disconnect boom cylinder hoses(4) and put plugs on cylinder pipe.



- ⑤ Remove bolt (6) and pull out pin (5).
⑥ Remove boom cylinder assembly (3).
· Weight : 29 kg (63 lb)
· Tightening torque : 12.8 ± 3.0 kgf·m
(92.6 ± 21.7 lbf·ft)



(2) Install

- ① Carry out installation in the reverse order to removal.

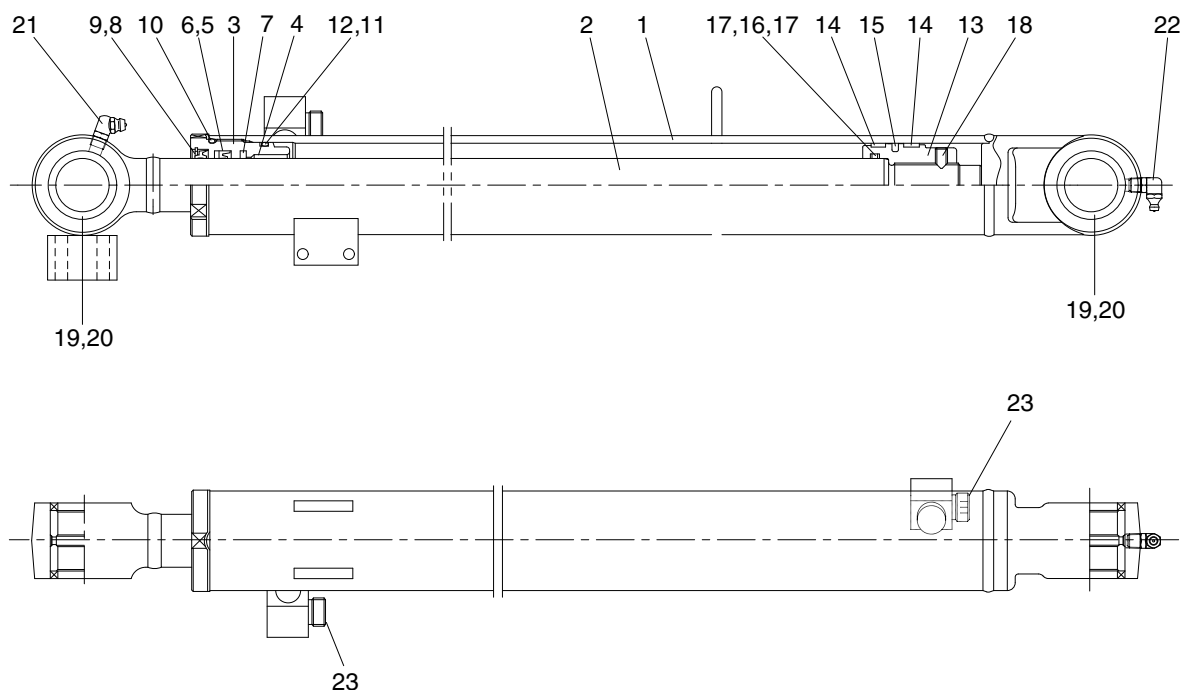
▲ When aligning the mounting position of the pin, do not insert your fingers in the pin hole.

- ※ Bleed the air from the boom cylinder.
- ※ Confirmed the hydraulic oil level and check the hydraulic oil leak or not.

2. DISASSEMBLY AND ASSEMBLY

1) STRUCTURE

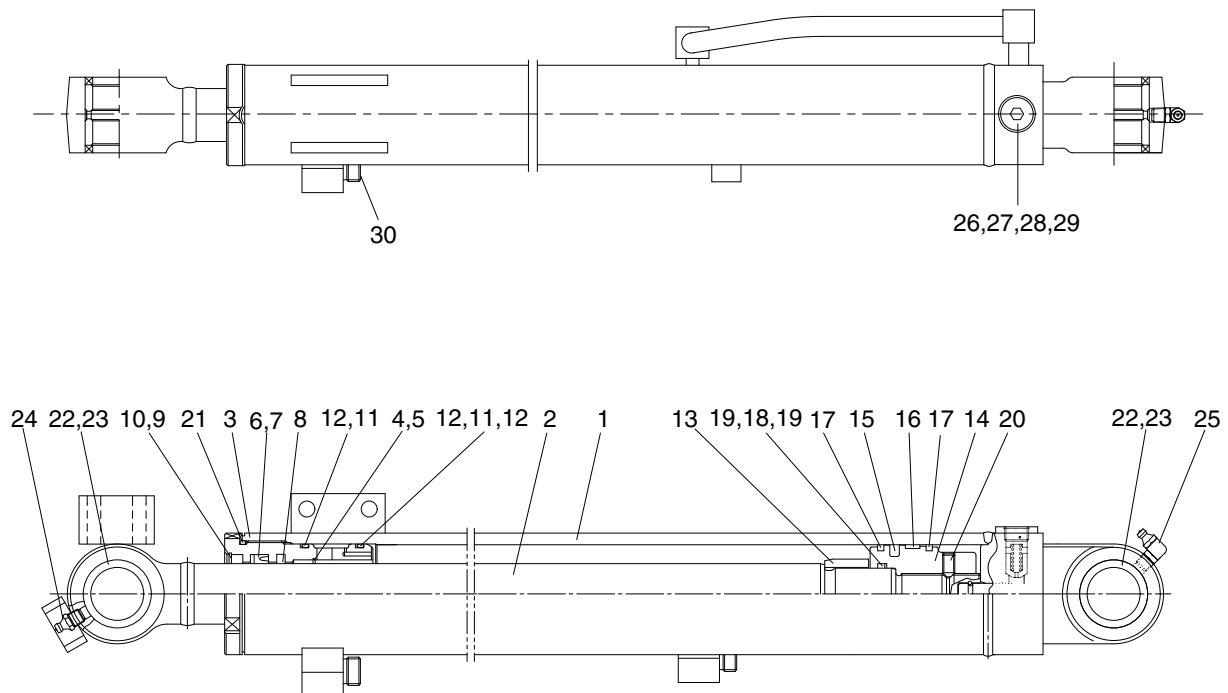
(1) Bucket cylinder



HCMR-51032

| | | | | | |
|---|---------------|----|--------------|----|---------------|
| 1 | Tube assembly | 9 | Snap ring | 17 | Back up ring |
| 2 | Rod assembly | 10 | O-ring | 18 | Set screw |
| 3 | Gland | 11 | O-ring | 19 | Pin bushing |
| 4 | DU bushing | 12 | Back up ring | 20 | Dust seal |
| 5 | Rod seal | 13 | Piston | 21 | Grease nipple |
| 6 | Back up ring | 14 | Wear ring | 22 | Grease nipple |
| 7 | Buffer ring | 15 | Piston seal | 23 | O-ring |
| 8 | Dust wiper | 16 | O-ring | | |

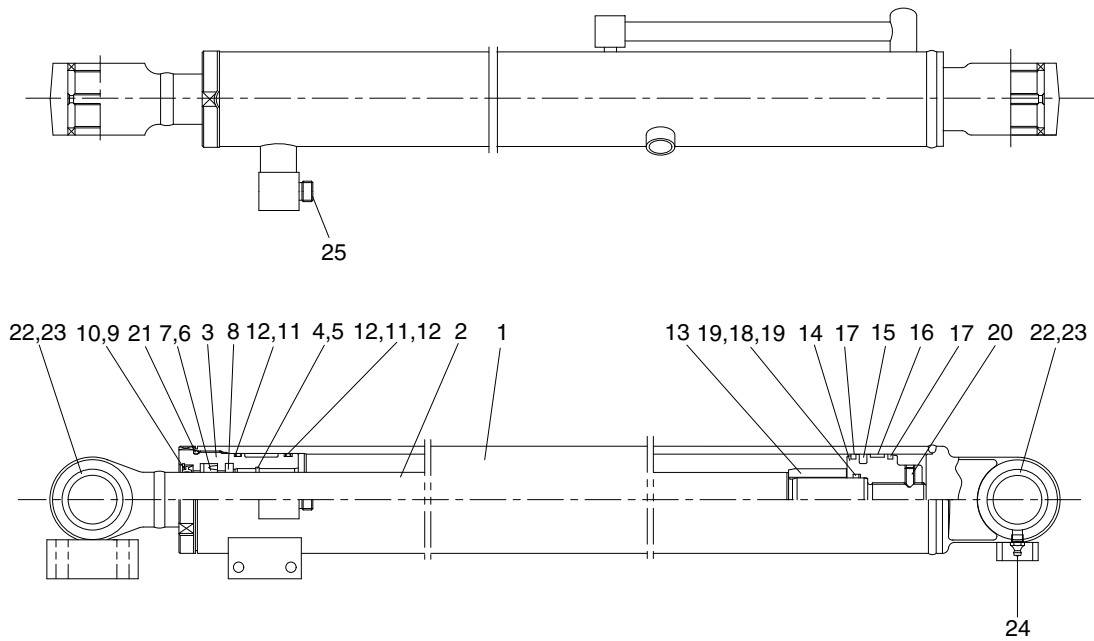
(2) Arm cylinder



HCMR-51022

| | | | | | |
|----|---------------|----|--------------|----|----------------|
| 1 | Tube assembly | 11 | O-ring | 21 | O-ring |
| 2 | Rod assembly | 12 | Back up ring | 22 | Dimple bushing |
| 3 | Gland | 13 | Cushion ring | 23 | Dust seal |
| 4 | DU bushing | 14 | Piston | 24 | Grease nipple |
| 5 | Snap ring | 15 | Piston seal | 25 | Grease nipple |
| 6 | Rod seal | 16 | Wear ring | 26 | Check valve |
| 7 | Back up ring | 17 | Dust ring | 27 | Coil spring |
| 8 | Buffer ring | 18 | O-ring | 28 | O-ring |
| 9 | Dust wiper | 19 | Back up ring | 29 | Socket plug |
| 10 | Snap ring | 20 | Set screw | 30 | O-ring |

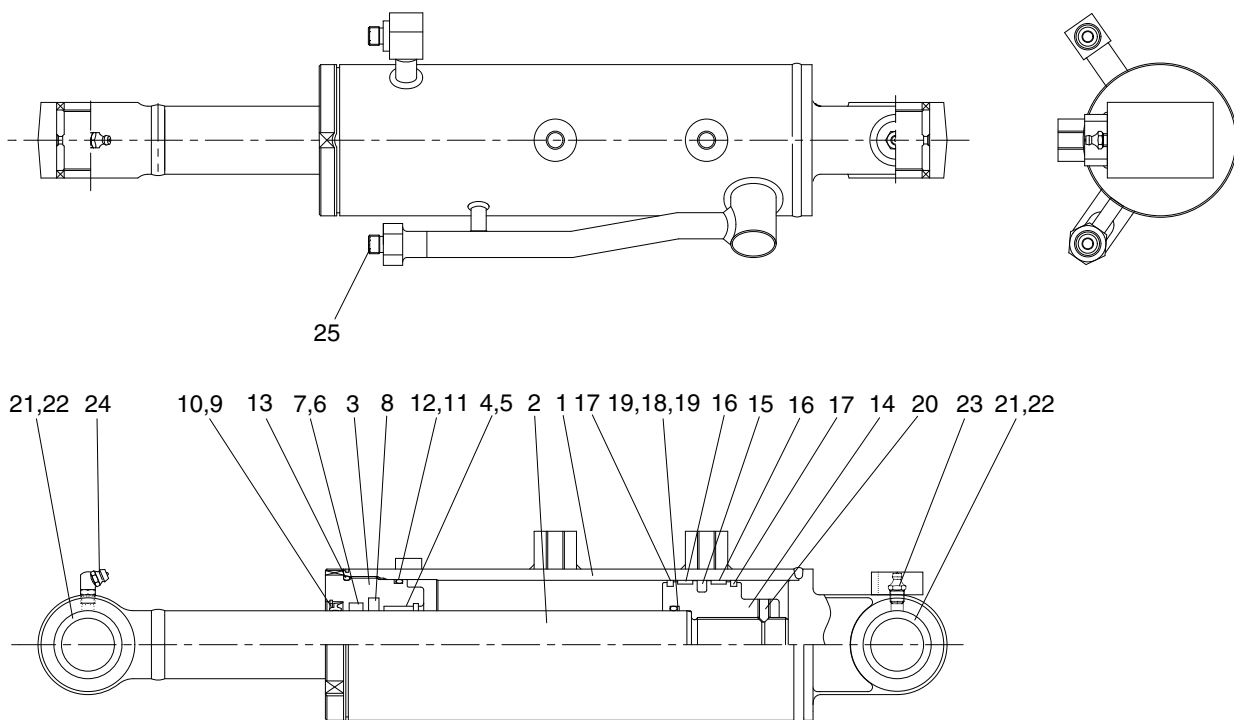
(3) Boom cylinder



HCMR-51012

- | | | | | | |
|---|---------------|----|--------------|----|---------------|
| 1 | Tube assembly | 10 | Snap ring | 19 | Back up ring |
| 2 | Rod assembly | 11 | O-ring | 20 | Set screw |
| 3 | Gland | 12 | Back up ring | 21 | O-ring |
| 4 | DU bushing | 13 | Cushion ring | 22 | Pin bushing |
| 5 | Snap ring | 14 | Piston | 23 | Dust seal |
| 6 | Rod seal | 15 | Piston seal | 24 | Grease nipple |
| 7 | Back up ring | 16 | Wear ring | 25 | O-ring |
| 8 | Buffer ring | 17 | Dust ring | | |
| 9 | Dust wiper | 18 | O-ring | | |

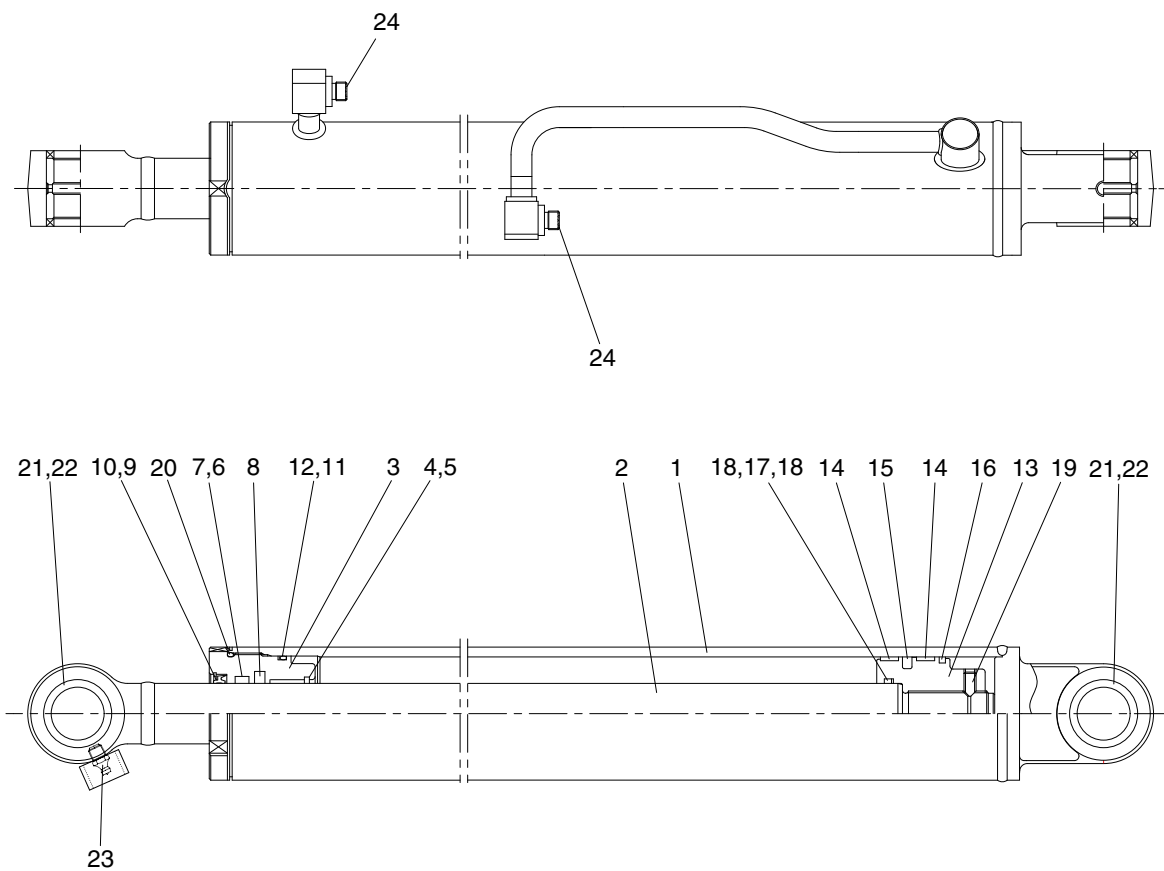
(4) Dozer cylinder



HCMR-40040

- | | | |
|-----------------|-----------------|------------------|
| 1 Tube assembly | 10 Snap ring | 19 Back up ring |
| 2 Rod assembly | 11 O-ring | 20 Set screw |
| 3 Gland | 12 Back up ring | 21 Pin bushing |
| 4 DU bushing | 13 O-ring | 22 Dust seal |
| 5 Snap ring | 14 Piston | 23 Grease nipple |
| 6 Rod seal | 15 Piston seal | 24 Grease nipple |
| 7 Back up ring | 16 Wear ring | 25 O-ring |
| 8 Buffer ring | 17 Dust ring | |
| 9 Dust wiper | 18 O-ring | |

(5) Boom swing cylinder

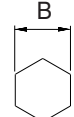


HCMR-10120

- | | | | | | |
|---|---------------|----|--------------|----|---------------|
| 1 | Tube assembly | 10 | Snap ring | 18 | Back up ring |
| 2 | Rod assembly | 11 | O-ring | 19 | Set screw |
| 3 | Gland | 12 | Back up ring | 20 | O-ring |
| 4 | DU bushing | 13 | Piston | 21 | Pin bushing |
| 5 | Snap ring | 14 | Wear ring | 22 | Dust seal |
| 6 | Rod seal | 15 | Piston seal | 23 | Grease nipple |
| 7 | Back up ring | 16 | Wear ring | 24 | O-ring |
| 8 | Buffer ring | 17 | O-ring | | |
| 9 | Dust wiper | | | | |

2) TOOLS AND TIGHTENING TORQUE

(1) Tools

| Tool name | Remark | |
|---------------|--|---|
| Allen wrench | 8 |  |
| | 3 | |
| Spanner | 22 | |
| Hook spanner | Suitable size (80~120 mm) | |
| (-) Driver | Small and large sizes | |
| Torque wrench | Capable of tightening with the specified torques | |

(2) Tightening torque

| Part name | | Item | Size | Torque | |
|-----------|---------------------|------|------|---------------|----------------|
| | | | | kgf · m | lbf · ft |
| Gland | Boom cylinder | 3 | - | 70 ± 7.0 | 506 ± 50.6 |
| | Arm cylinder | 3 | - | 70 ± 7.0 | 506 ± 50.6 |
| | Bucket cylinder | 3 | - | 70 ± 7.0 | 506 ± 50.6 |
| | Dozer cylinder | 3 | - | 70 ± 7.0 | 506 ± 50.6 |
| | Boom swing cylinder | 3 | - | 70 ± 7.0 | 506 ± 50.6 |
| Piston | Boom cylinder | 14 | - | 75 ± 7.5 | 542 ± 54.2 |
| | Arm cylinder | 14 | - | 50 ± 5.0 | 362 ± 36.2 |
| | Bucket cylinder | 13 | - | 50 ± 5.0 | 362 ± 36.2 |
| | Dozer cylinder | 14 | - | 75 ± 7.5 | 542 ± 54.2 |
| | Boom swing cylinder | 13 | - | 75 ± 7.5 | 542 ± 54.2 |
| Set screw | Boom cylinder | 20 | M8 | 1.5 ± 0.1 | 10.8 ± 0.7 |
| | Arm cylinder | 20 | M8 | 1.5 ± 0.1 | 10.8 ± 0.7 |
| | Bucket cylinder | 18 | M8 | 1.5 ± 0.1 | 10.8 ± 0.7 |
| | Dozer cylinder | 20 | - | 1.5 ± 0.1 | 10.8 ± 0.7 |
| | Boom swing cylinder | 19 | - | 1.5 ± 0.1 | 10.8 ± 0.7 |

3) DISASSEMBLY

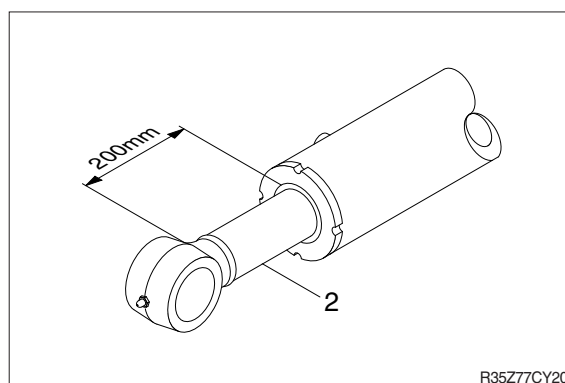
※ Procedures are based on the boom cylinder.

(1) Remove cylinder head and piston rod

① Hold the clevis section of the tube in a vise.

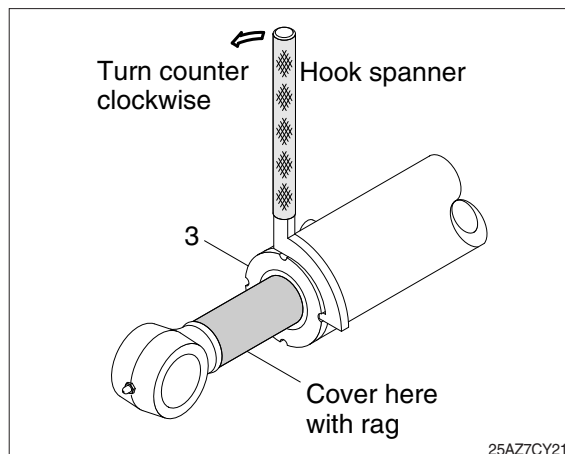
※ Use mouth pieces so as not to damage the machined surface of the cylinder tube. Do not make use of the outside piping as a locking means.

② Pull out rod assembly (2) about 200 mm (7.1 in). Because the rod assembly is rather heavy, finish extending it with air pressure after the oil draining operation.



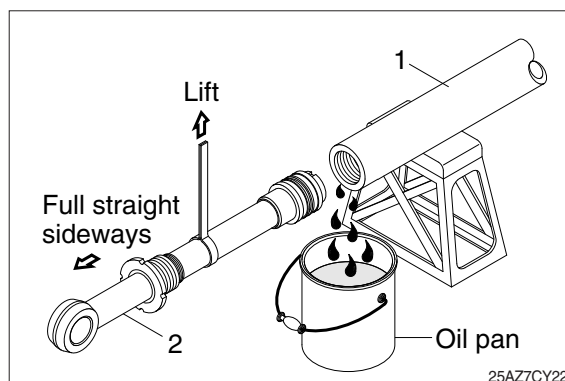
③ Loosen and remove the gland (3) by hook spanner.

※ Cover the extracted rod assembly (2) with rag to prevent it from being accidentally damaged during operation.



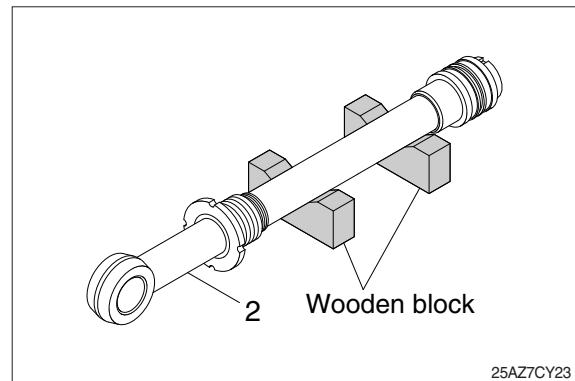
④ Draw out cylinder head and rod assembly together from tube assembly (1).

※ Since the rod assembly is heavy in this case, lift the tip of the rod assembly (2) with a crane or some means and draw it out. However, when rod assembly (2) has been drawn out to approximately two thirds of its length, lift it in its center to draw it completely.



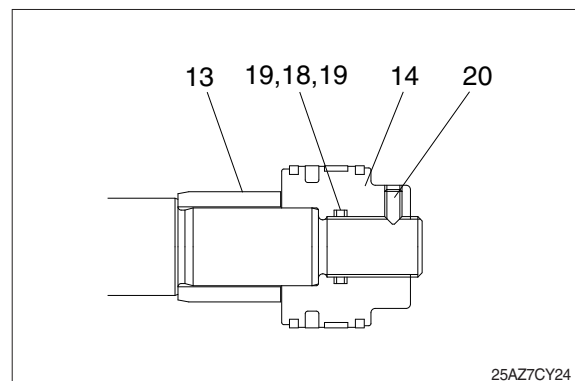
- ※ Note that the plated surface of rod assembly (2) is to be lifted. For this reason, do not use a wire sling and others that may damage it, but use a strong cloth belt or a rope.

- ⑤ Place the removed rod assembly on a wooden V-block that is set level.
- ※ Cover a V-block with soft rag.

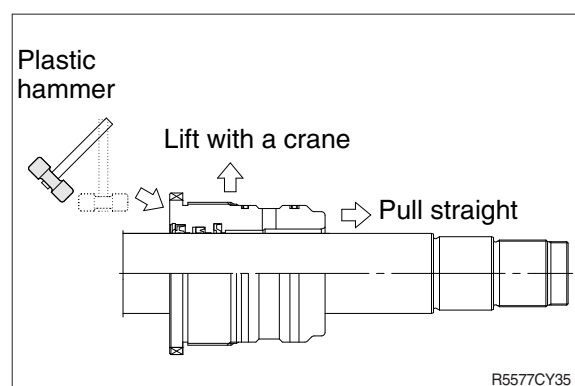


(2) Remove piston and gland

- ① Remove set screw (20).
- ② Remove piston assembly (14), back up ring (19), O-ring (18) and cushion ring (13).

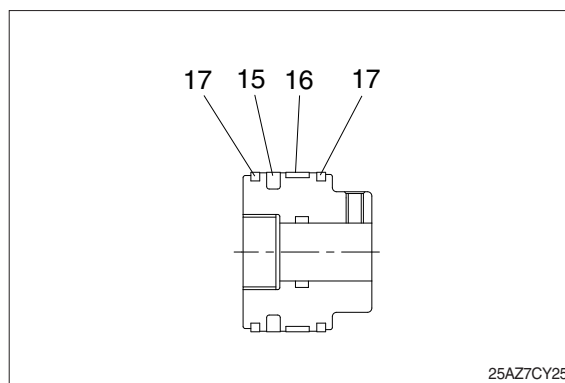


- ③ Remove the gland assembly from rod assembly (2).
- ※ If it is too heavy to move, move it by striking the flanged part of gland with a plastic hammer.
 - ※ Pull it straight with gland assembly lifted with a crane.
- Exercise care so as not to damage the lip of DU bushing (6) and packing (5, 6, 7, 8, 9, 10) by the threads of rod assembly (3).



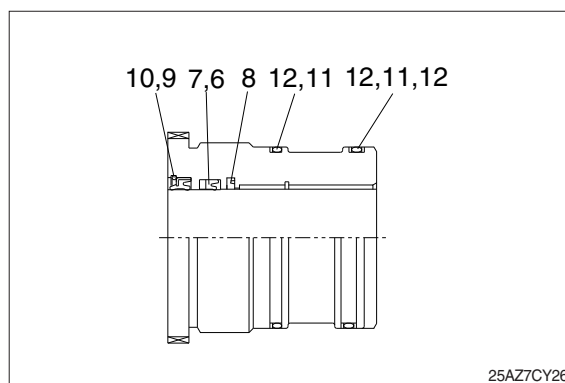
(3) Disassemble the piston assembly

- ① Remove wear ring (16).
 - ② Remove dust rings (17) and piston seal (15).
- ※ Exercise care in this operation not to damage the grooves.



(4) Disassemble gland assembly

- ① Remove back up rings (12) and O-ring (11).
 - ② Remove snap ring (10), dust wiper (9).
 - ③ Remove buffer ring (8).
 - ④ Remove the back up ring (7) and rod seal (6).
- ※ Exercise care in this operation not to damage the grooves.
- ※ Do not remove seal and ring, if does not damaged.

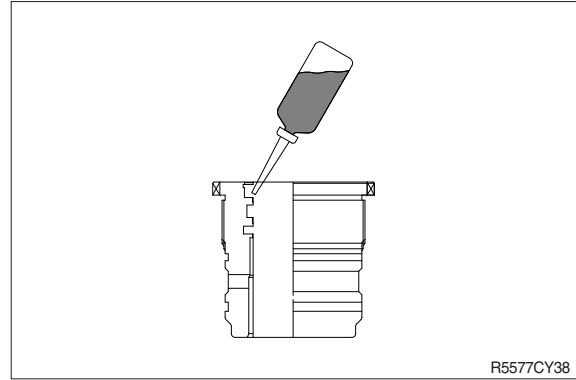


4) ASSEMBLY

(1) Assemble cylinder head assembly

※ Check for scratches or rough surfaces if found smooth with an oil stone.

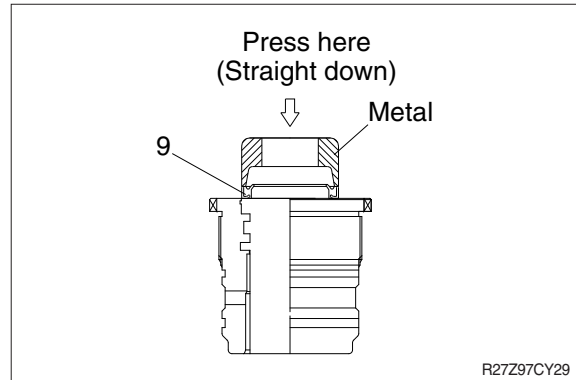
- ① Coat the inner face of gland (3) with hydraulic oil.



- ② Coat dust wiper (9) with grease and fit dust wiper (9) to the bottom of the hole of dust seal.

At this time, press a pad metal to the metal ring of dust seal.

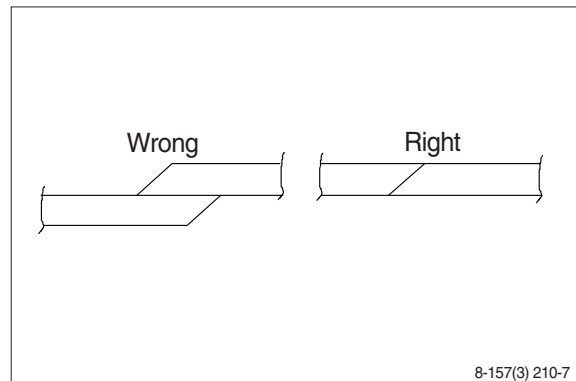
- ③ Fit back up ring (10) to the stop face.



- ④ Fit back up ring (7), rod seal (6) to corresponding grooves, in that order.

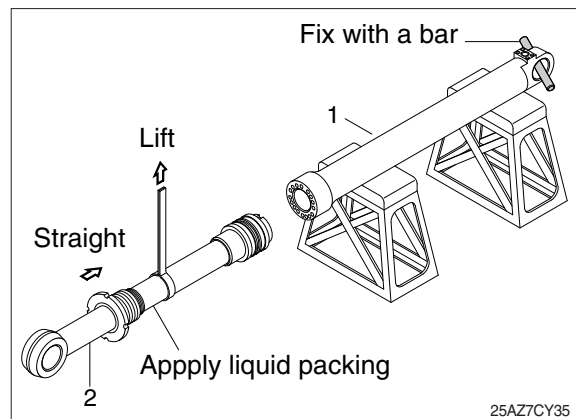
※ Coat each packing with hydraulic oil before fitting it.

※ Insert the backup ring until one side of it is inserted into groove.

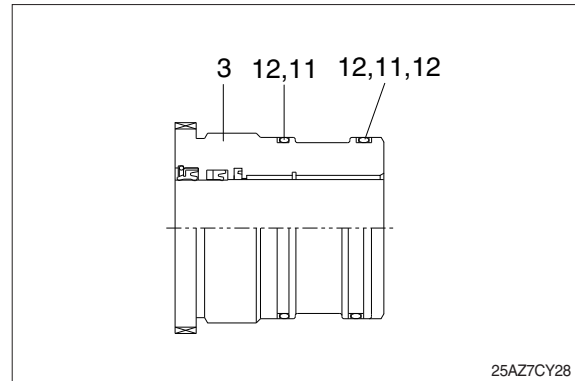


※ Buffer ring (8) has its own fitting direction. Therefore, confirm it before fitting them.

※ Fitting buffer ring (8) upside down may damage its lip. Therefore check the correct direction that is shown in fig.

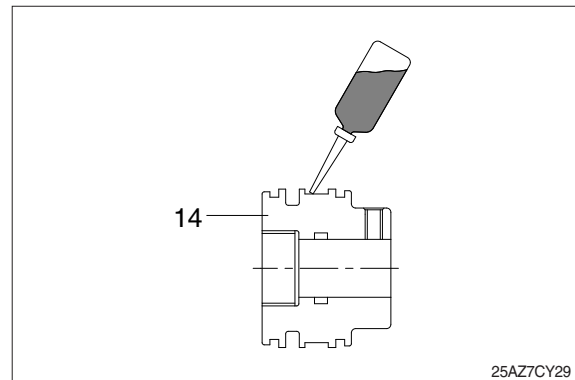


- ⑤ Fit back up ring (12) to gland (3).
- ※ Put the back up ring in the warm water of 30~50°C .
- ⑥ Fit O-ring (11) and back up ring (12) to gland (3).

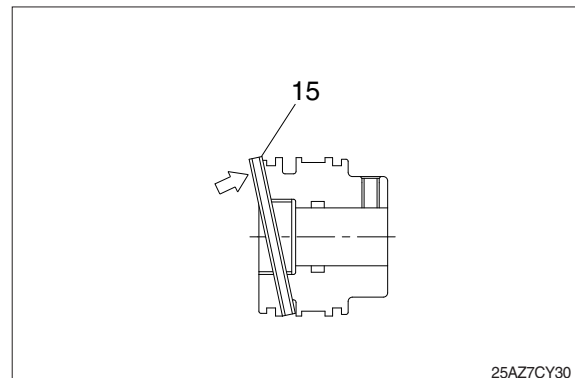


(2) Assemble piston assembly

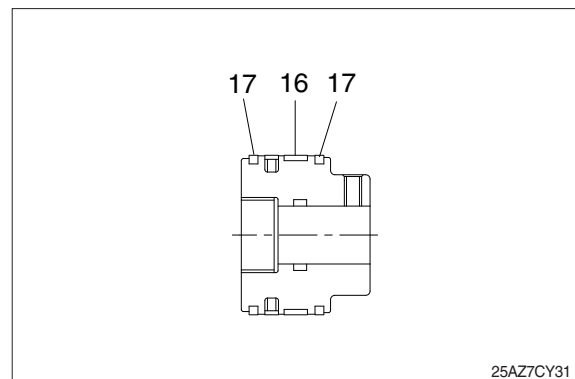
- ※ Check for scratches or rough surfaces.
If found smooth with an oil stone.
- ① Coat the outer face of piston (14) with hydraulic oil.



- ② Fit piston seal (15) to piston.
- ※ Put the piston seal in the warm water of 60~100°C for more than 5 minutes.
- ※ After assembling the piston seal, press its outer diameter to fit in.

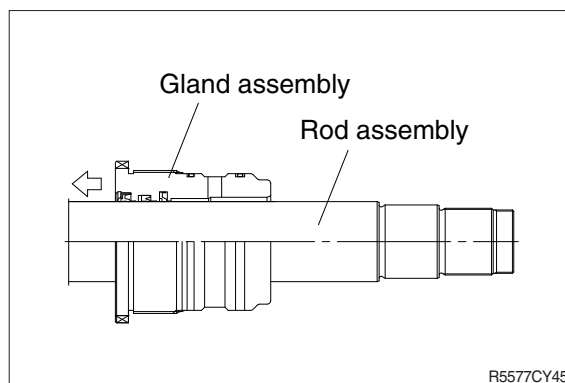


- ③ Fit wear ring (16) and dust rings (17) to piston (14).

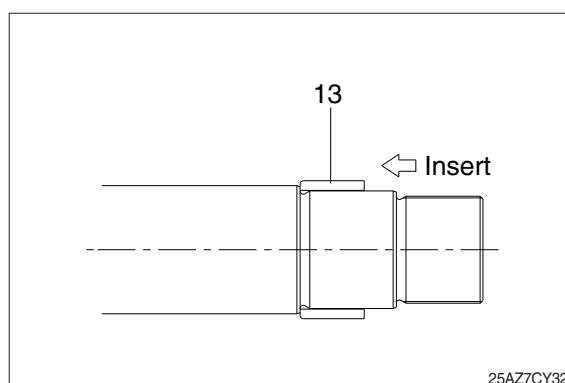


(3) Install piston and cylinder head

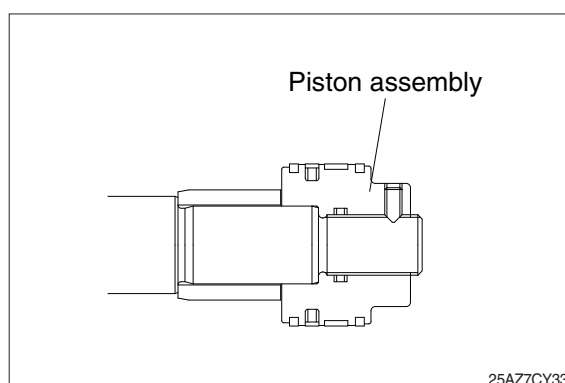
- ① Fix the rod assembly to the work bench.
- ② Apply hydraulic oil to the outer surface of rod assembly (2), the inner surface of piston and gland.
- ③ Insert gland assembly to rod assembly.



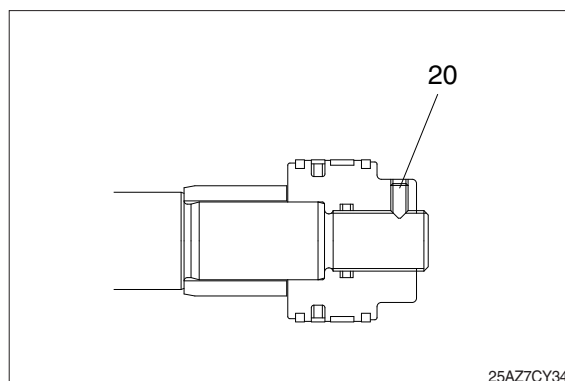
- ④ Insert cushion ring (13) to rod assembly.
- ※ Note that cushion ring (13) has a direction in which it should be fitted.



- ⑤ Fit piston assembly to rod assembly.
- Tightening torque : refer to page 7-122

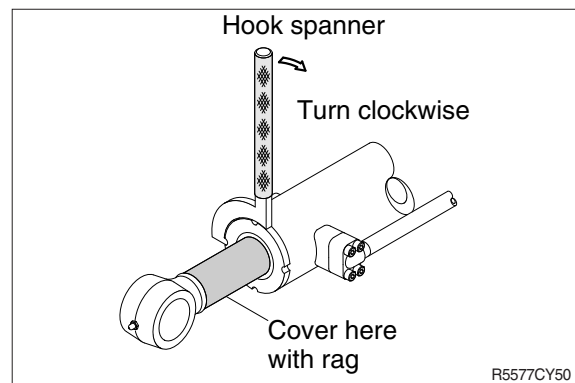
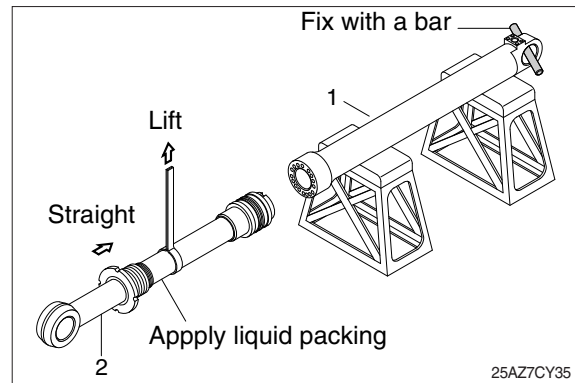


- ⑥ Fit set screw (20).
- Tightening torque : refer to page 7-122



(4) Overall assemble

- ① Place a V-block on a rigid work bench.
Mount the tube assembly (1) on it and fix the assembly by passing a bar through the clevis pin hole to lock the assembly.
- ② Insert the rod assembly in to the tube assembly, while lifting and moving the rod assembly with a crane.
 - ※ Be careful not to damage piston seal by thread of tube assembly.
- ③ Match the bolt holes in the cylinder head flange to the tapped holes in the tube assembly and tighten socket bolts to a specified torque.
 - ※ Refer to the table of tightening torque.

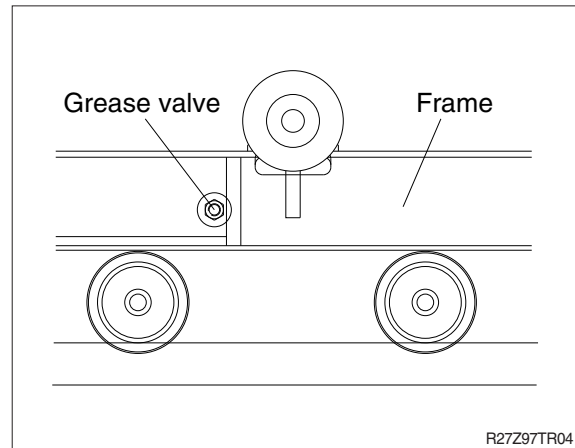


GROUP 10 UNDERCARRIAGE

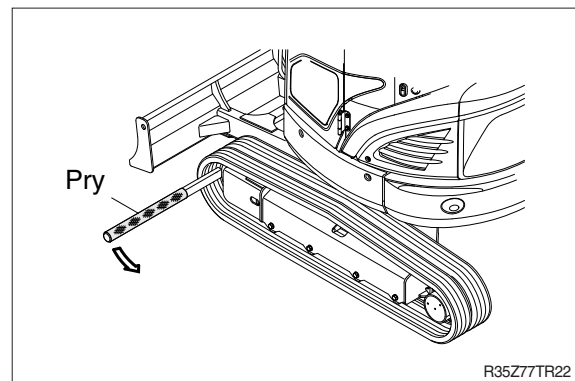
1. RUBBER TRACK

1) REMOVAL

- (1) Loosen tension of the rubber track.
 - ※ If track tension is not relieved when the grease valve is loosened, move the machine backwards and forwards.

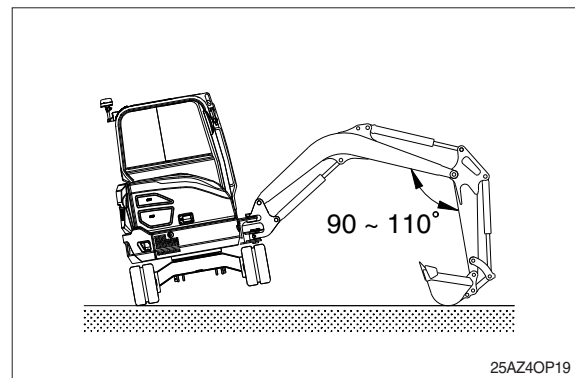


- (2) Remove the rubber track from lower frame using pry.



2) INSTALL

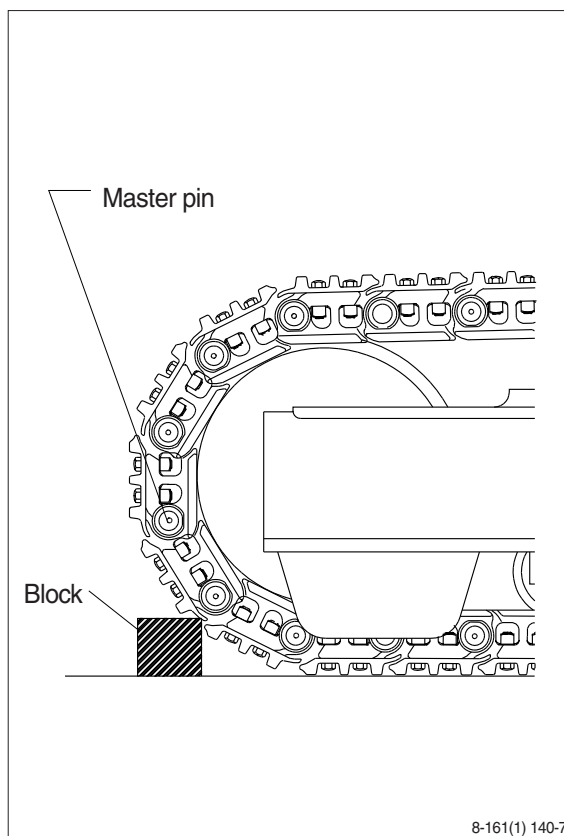
- (1) Carry out installation in the reverse order to removal.
 - ※ Adjust the tension of the rubber track.



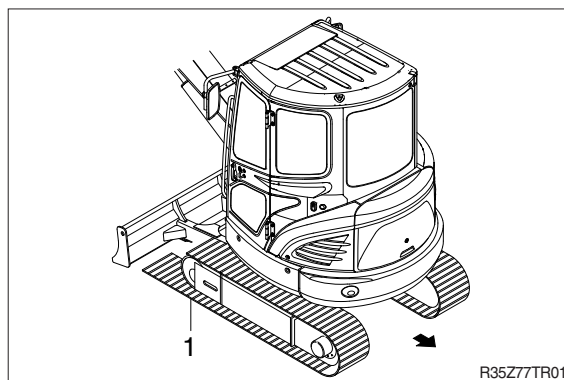
2. TRACK LINK

1) REMOVAL

- (1) Move track link until master pin is over front idler in the position put wooden block as shown.
- (2) Loosen tension of the track link.
 - ※ If track tension is not relieved when the grease valve is loosened, move the machine backwards and forwards.
- (3) Push out master pin by using a suitable tool.

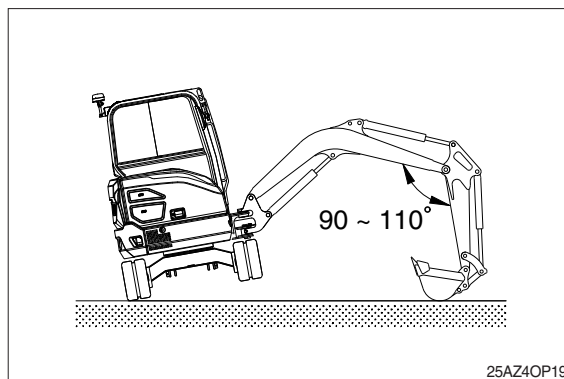


- (4) Move the machine slowly in reverse, and lay out track link assembly (1).
 - ※ Jack up the machine and put wooden block under the machine.
 - ※ Don't get close to the sprocket side as the track shoe plate may fall down on your feet.



2) INSTALL

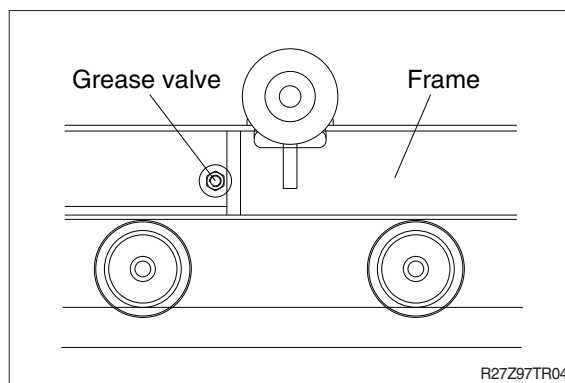
- (1) Carry out installation in the reverse order to removal.
 - ※ Adjust the tension of the track link.



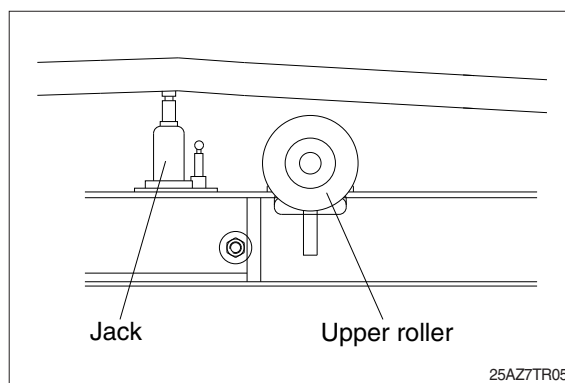
3. UPPER ROLLER

1) REMOVAL

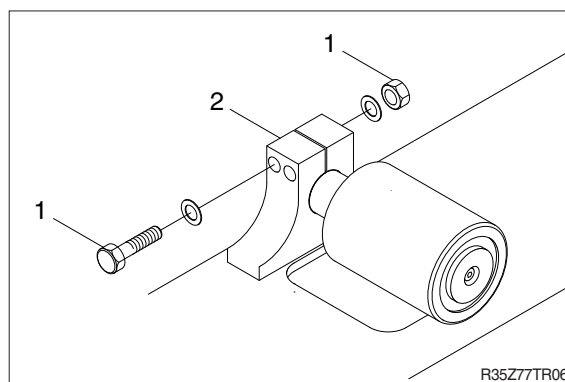
- (1) Loosen tension of the rubber track.



- (2) Jack up the rubber track height enough to permit upper roller removal.



- (3) Loosen the bolt and nut (1).
- Tightening torque : $12.3 \pm 1.2 \text{ kgf} \cdot \text{m}$
($89 \pm 8.7 \text{ lbf} \cdot \text{ft}$)
- (4) Open bracket (2) with a screwdriver, push out from inside, and remove upper roller assembly.
- Weight : 2.5 kg (5.5 lb)



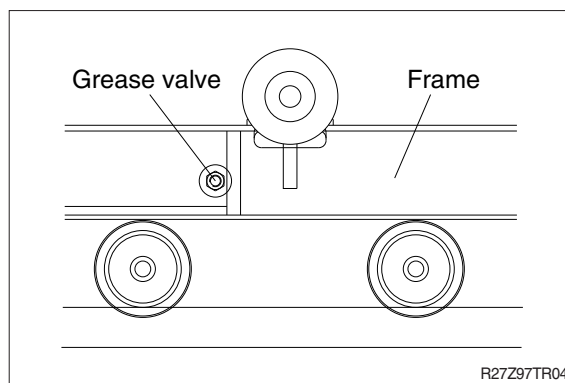
2) INSTALL

- (1) Carry out installation in the reverse order to removal.

4. LOWER ROLLER

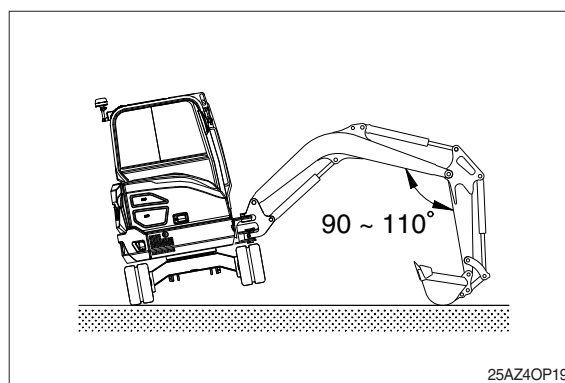
1) REMOVAL

- (1) Loosen tension of the rubber track.



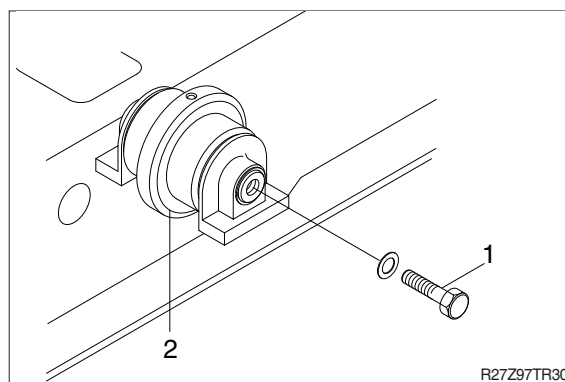
- (2) Using the work equipment, push up track frame on side which is to be removed.

※ After jack up the machine, set a block under the unit.



- (3) Remove the mounting bolt (1) and draw out the lower roller (2).

- Weight : 6.8 kg (15.0 lb)
- Tightening torque : $31.3 \pm 3.0 \text{ kgf} \cdot \text{m}$
($226 \pm 21.7 \text{ lbf} \cdot \text{ft}$)



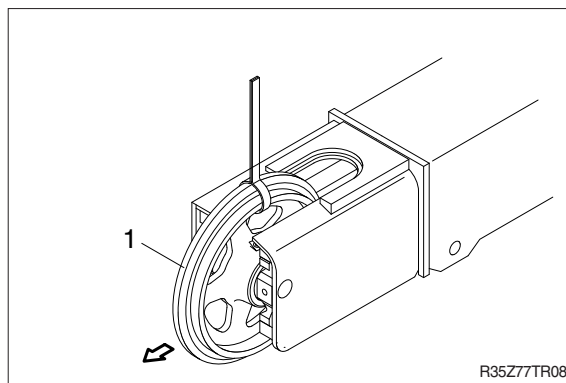
2) INSTALL

- (1) Carry out installation in the reverse order to removal.

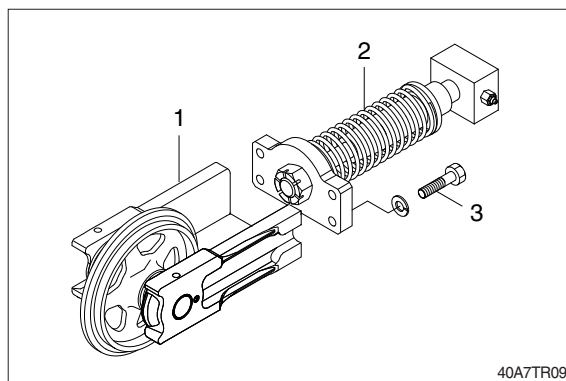
5. IDLER AND RECOIL SPRING

1) REMOVAL

- (1) Remove the track link.
For detail, see removal of track link.
- (2) Sling the idler (1) and pull out idler and recoil spring assembly from track frame, using a pry.
 - Weight : 33 kg (72.8 lb)

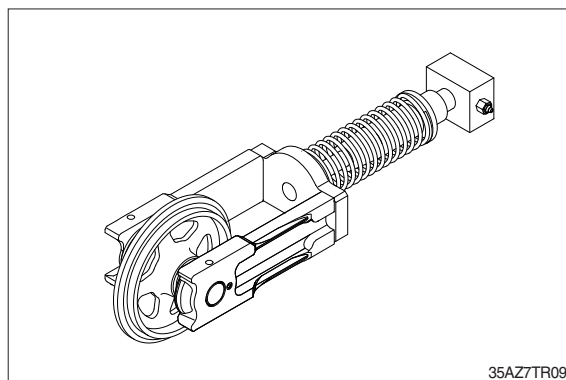


- (3) Loosen the hexagon bolt (3) and remove the idler (1) from the recoil spring assembly (3).
 - Tightening torque : 6.5 ± 0.7 kgf·m
(47.0 ± 5.1 lbf·ft)



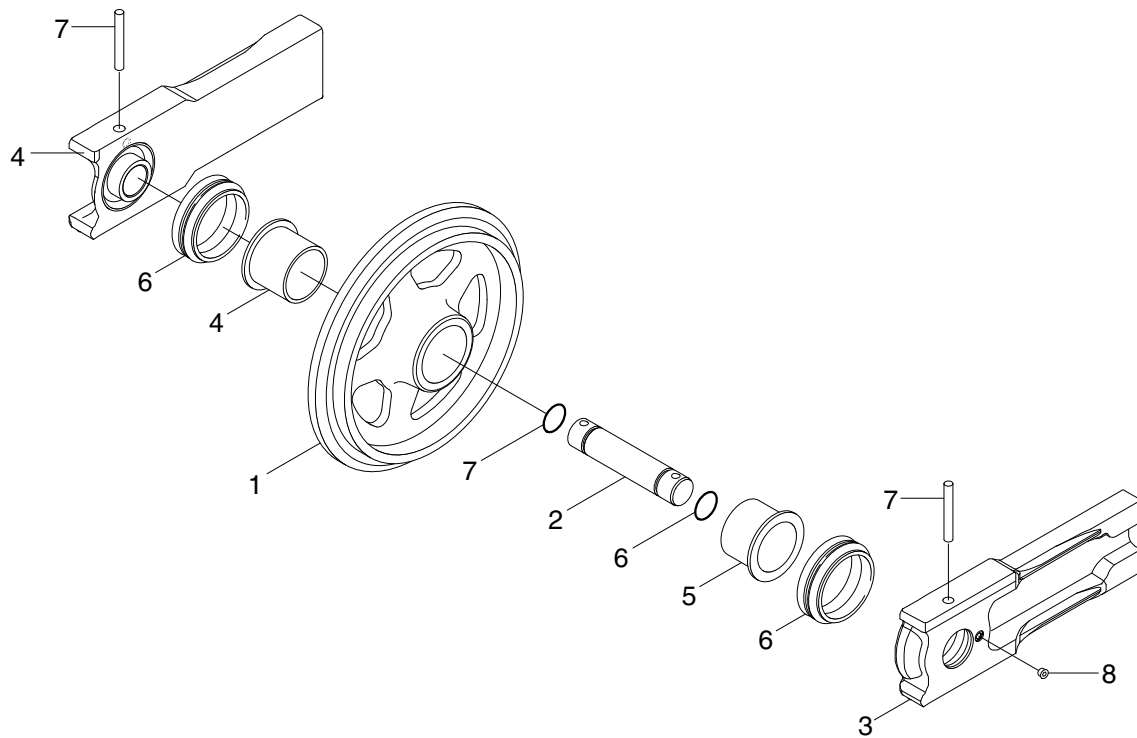
2) INSTALL

- (1) Carry out installation in the reverse order to removal.
- ※ Make sure that the boss on the end face of the recoil cylinder rod is in the hole of the track frame.



3) DISASSEMBLY AND ASSEMBLY OF IDLER

(1) Structure



81MR-13010

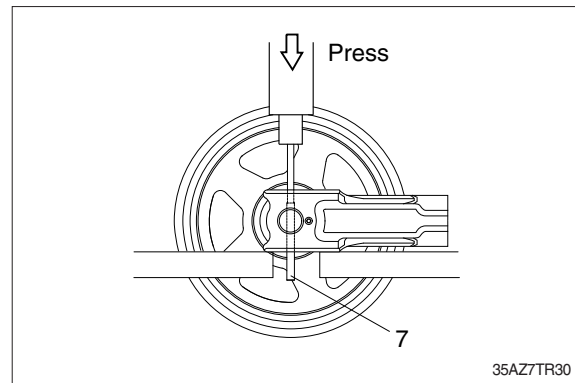
1 Shell
2 Shaft
3 Collar

4 Bushing
5 Seal assembly
6 O-ring

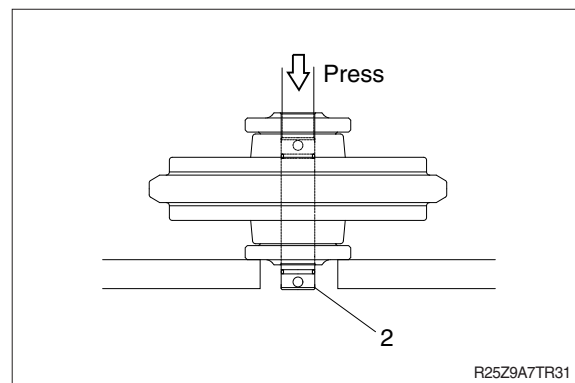
7 Spring pin
8 Plug

(2) Disassembly

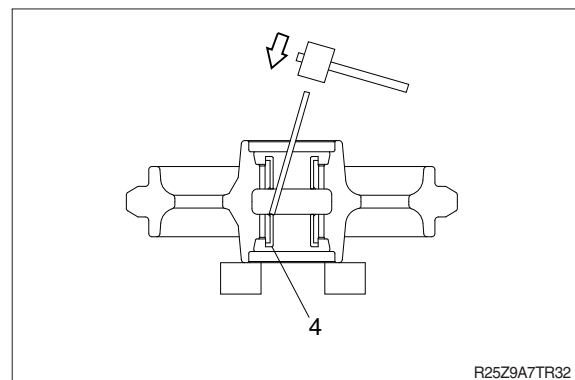
- ① Remove plug (8) and drain oil.
- ② Draw out the spring pin (7), using a press.



- ③ Pull out the shaft (2) with a press.
- ④ Remove seal (5) from idler (1) and collar (3).
- ⑤ Remove O-ring (6) from shaft.



- ⑥ Remove the bushing (4) from idler, using a special tool.
- ※ Only remove bushing if replacement is necessity.

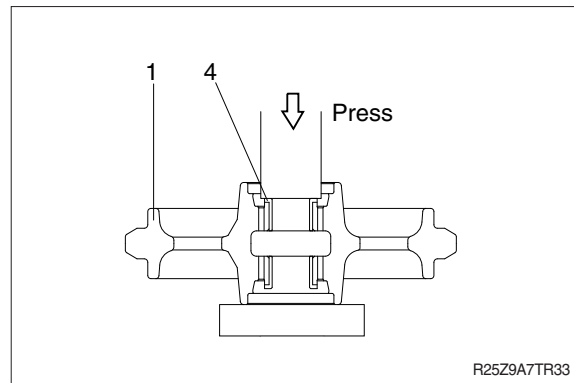


(3) Assembly

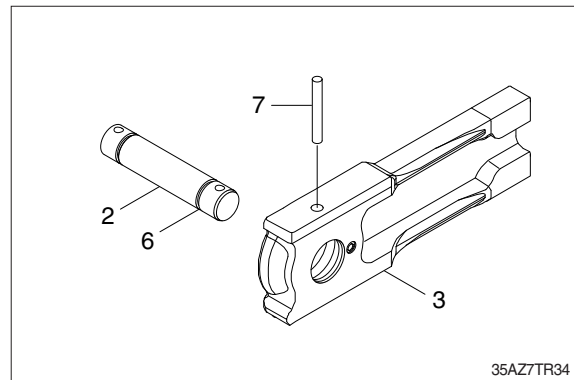
- ※ Before assembly, clean the parts.
- ※ Coat the sliding surfaces of all parts with oil.

- ① Cool up bushing (4) fully by some dry ice and press it into shell (1).

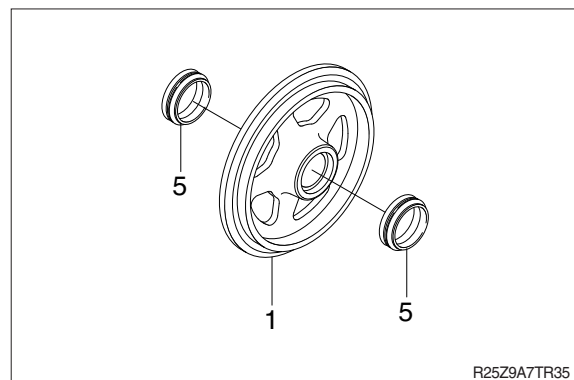
Do not press it at the normal temperature, or not knock in with a hammer even after the cooling.



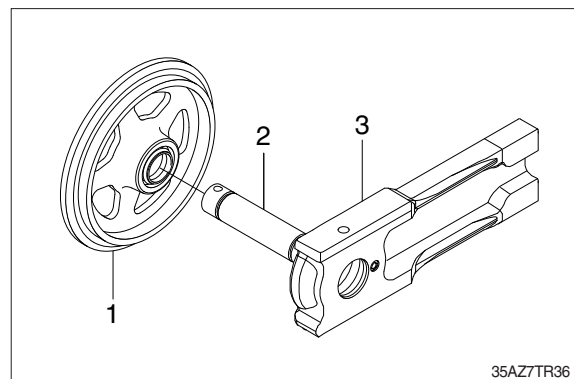
- ② Coat O-ring (6) with grease thinly, and install it to shaft (2).
- ③ Insert shaft (2) into collar (3) and drive in the spring pin (7).



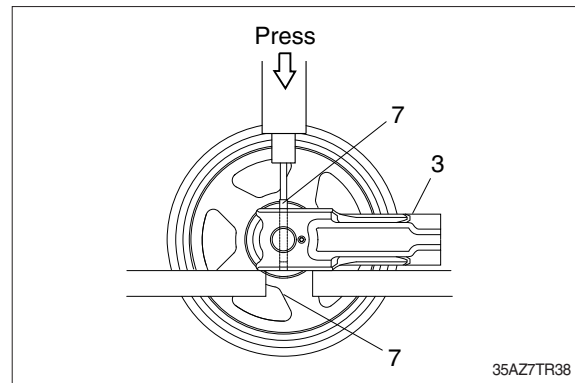
- ④ Install seal (5) to shell (1) and collar (3).



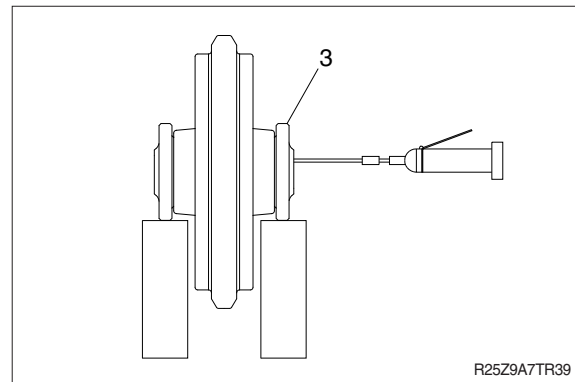
- ⑤ Install shaft (2) and collar (3) to shell (1).



- ⑥ Knock in the spring pin (7) with a hammer.

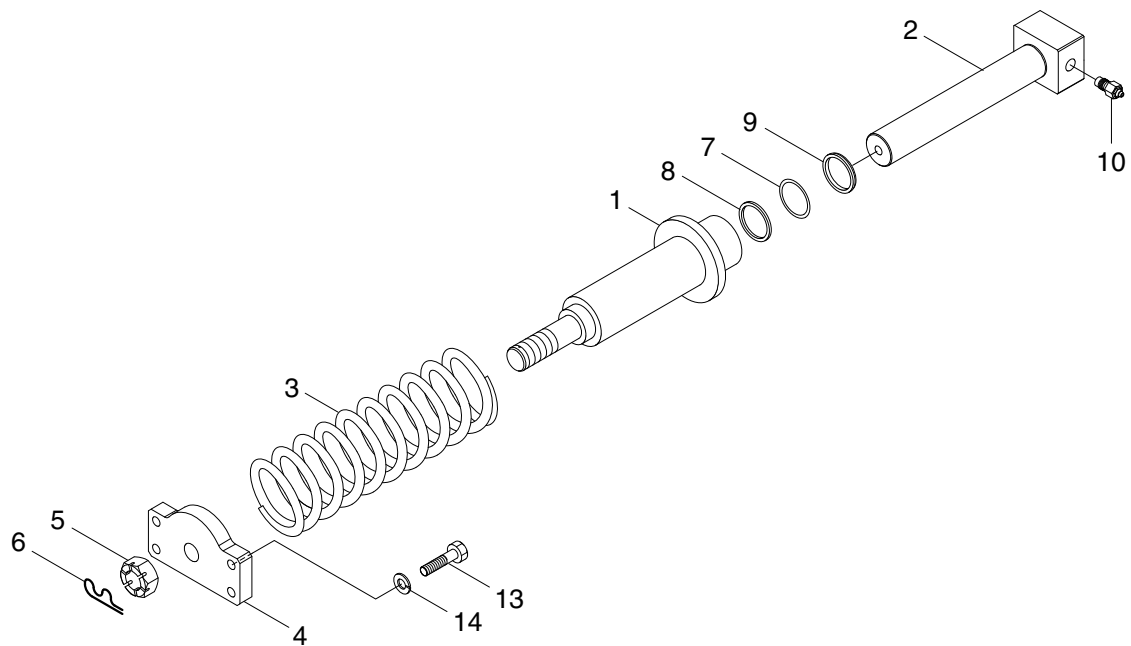


- ⑦ Lay collar (3) on its side.
Supply engine oil to the specified level,
and tighten plug.



4) DISASSEMBLY AND ASSEMBLY OF RECOIL SPRING

(1) Structure

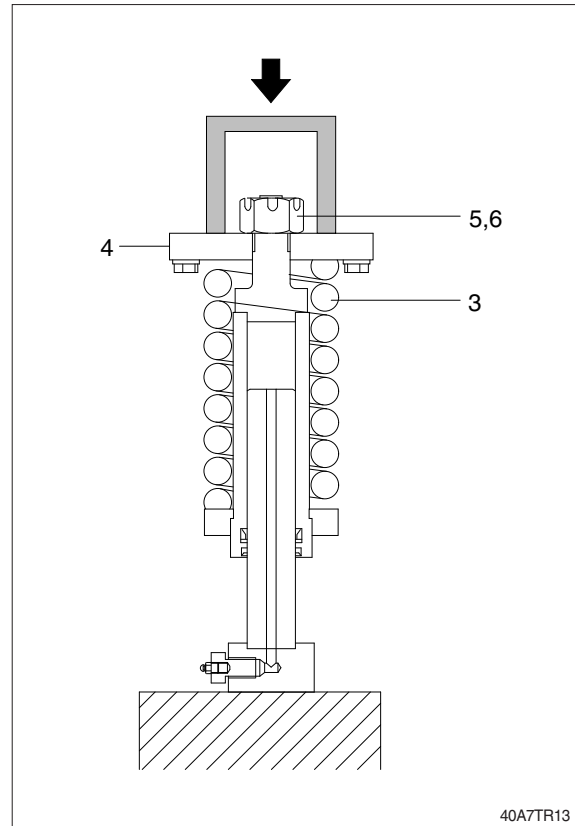


81MR-14011

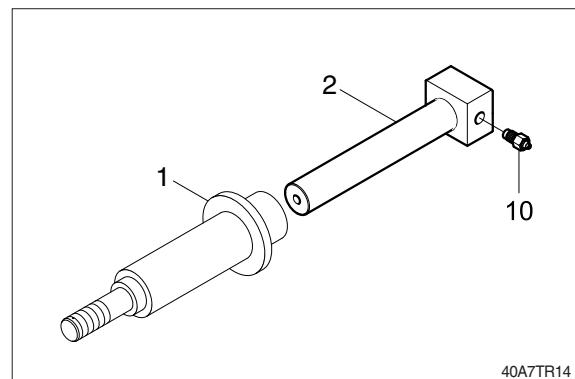
- | | | | | | |
|---|------------------|---|--------------|----|---------------|
| 1 | Tension cylinder | 5 | Castle nut | 9 | Dust seal |
| 2 | Piston | 6 | Split pin | 10 | Grease |
| 3 | Tension spring | 7 | Rod seal | 13 | Hexagon bolt |
| 4 | Yoke plate | 8 | Back up ring | 14 | Spring washer |

(2) Disassembly

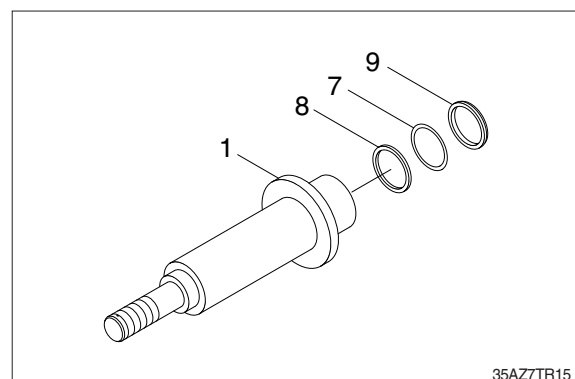
- ① Apply pressure on yoke plate (4) with a press.
 - ※ The spring is under a large installed load. This is dangerous, so be sure to set properly.
- ② Remove split pin (6) and castle nut (5). Take enough notice so that the press which pushes down the spring, should not be slipped out in its operation.
- ③ Lighten the press load slowly and remove yoke plate (4) and spring (3).



- ④ Remove piston (2) from tension cylinder (1).
- ⑤ Remove grease valve (10) from piston (2).

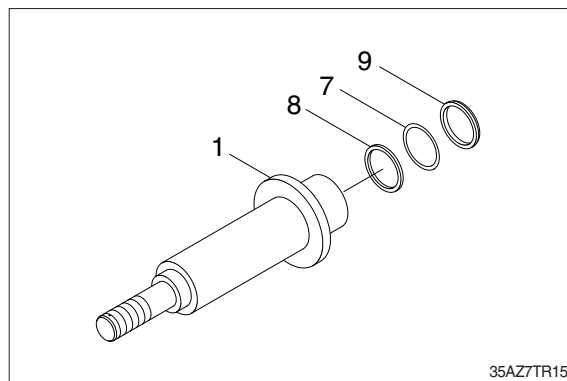


- ⑥ Remove dust seal (9), rod seal (8) and snap ring (7) from tension cylinder (1).



(3) Assembly

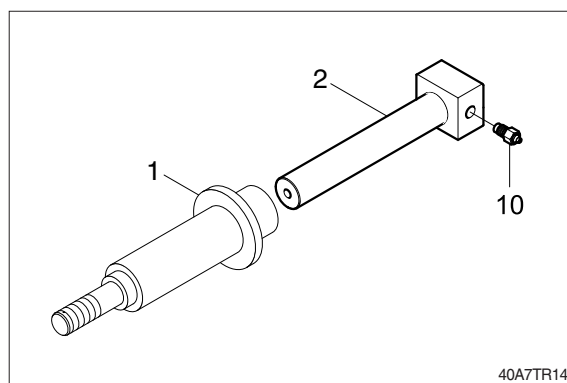
- ① Install dust seal (9), rod seal (8) and snap ring (7) from tension cylinder (1).



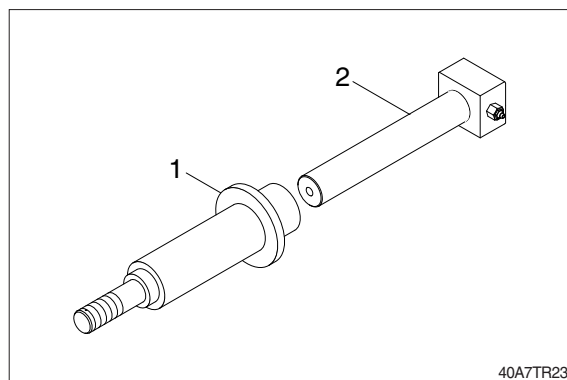
- ② Pour grease into tension cylinder (1), then push in piston (2) by hand.
After take grease out of grease valve mounting hole, let air out.

※ If air letting is not sufficient, it may be difficult to adjust the tension of crawler.

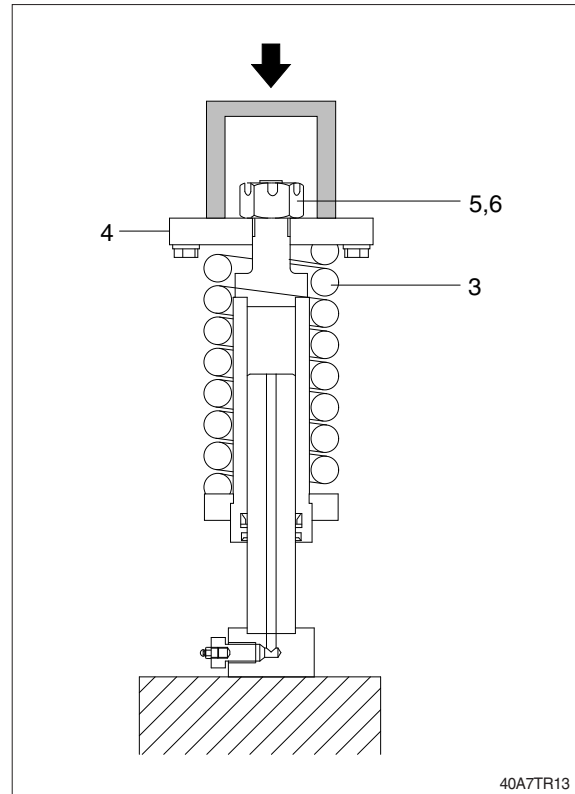
- ③ Fit grease valve (10) to piston (3).
 - Tightening torque : 8 kgf · m
(57.9 lbf · ft)



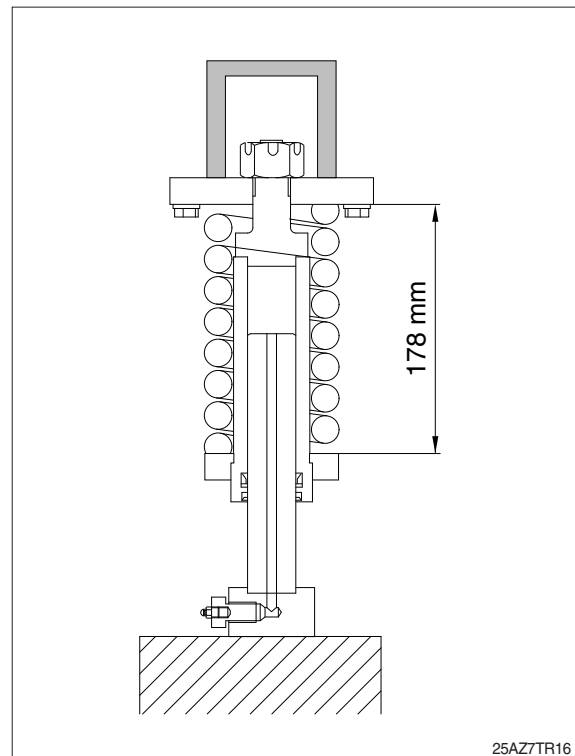
- ④ Install piston (2) to tension cylinder (1).



- ⑤ Install tension spring (3) and yoke plate (4) to tension cylinder (1).
 - ⑥ Apply pressure to tension spring (3) with a press and tighten castle nut (5).
 - ※ During the operation, pay attention specially to prevent the press from slipping out.
 - ⑦ Tighten castle nut (5) and insert split pin (6).
- Tightening torque : 10.3 ± 1.1 kgf·m
(74.5 ± 8.0 lbf·ft)

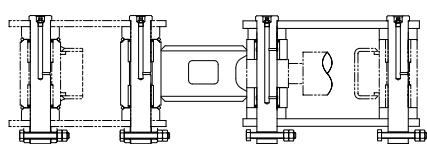
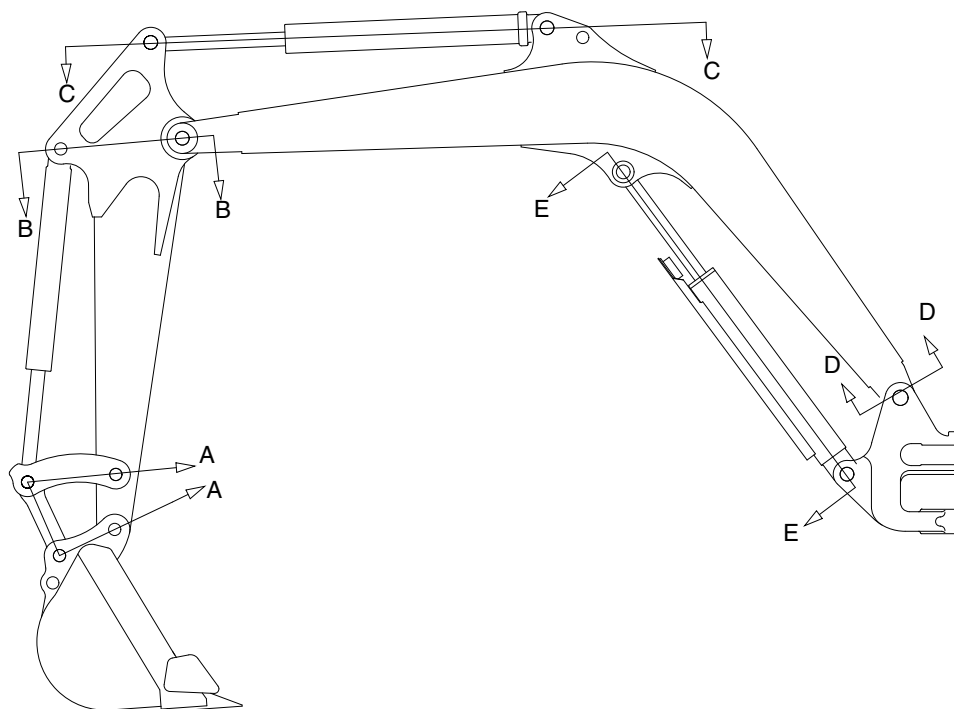


- ⑧ Lighten the press load and confirm the set length of tension spring (3).
- Spring length : 178 mm

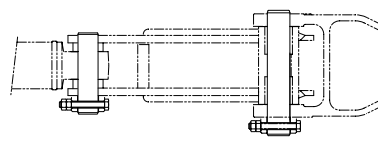


GROUP 11 WORK EQUIPMENT

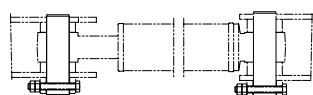
1. STRUCTURE



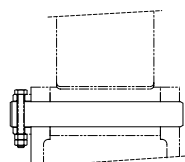
SECTION A-A



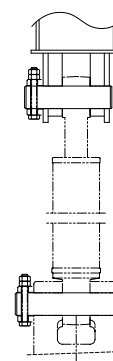
SECTION B-B



SECTION C-C



SECTION D-D



SECTION E-E

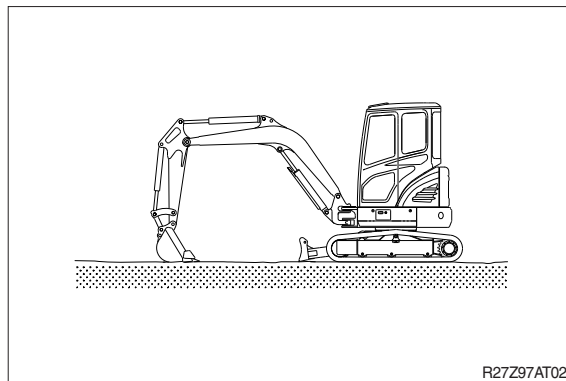
R27Z97AT01

2. REMOVAL AND INSTALL

1) BUCKET ASSEMBLY

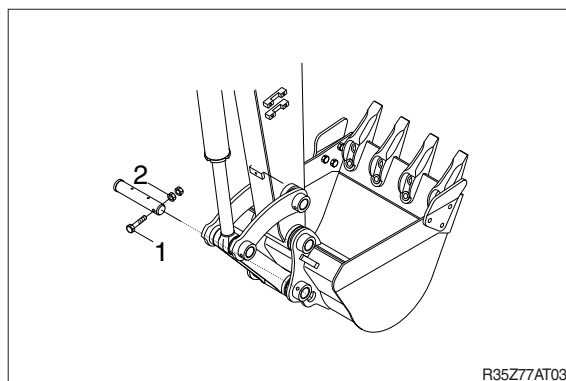
(1) Removal

- ① Lower the work equipment completely to ground with back of bucket facing down.



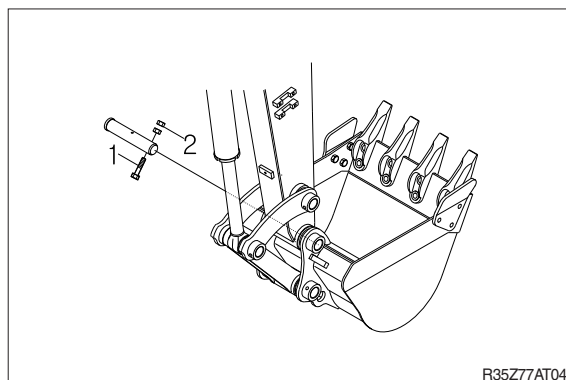
- ② Remove nut (1), bolt (2) and draw out the pin (4).

- Tightening torque : 12.8 ± 3.0 kgf·m
(92.6 ± 21.7 lbf·ft)



- ③ Remove nut (1), bolt (2) and draw out the pin (3) then remove the bucket assembly.

- Weight : 55 kg (120 lb)
- Tightening torque : 12.8 ± 3.0 kgf·m
(92.6 ± 21.7 lbf·ft)

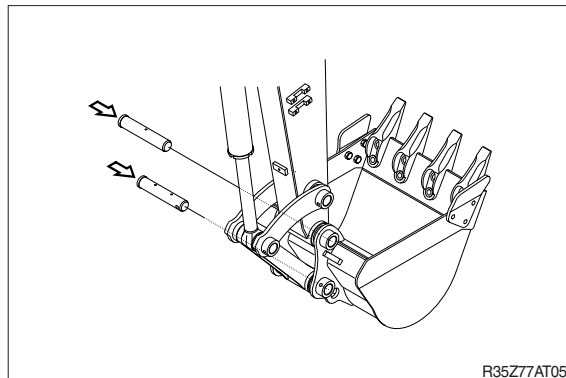


(2) Install

- ① Carry out installation in the reverse order to removal.

▲ When aligning the mounting position of the pin, do not insert your fingers in the pin hole.

- ※ Adjust the bucket clearance.
For detail, see operator's manual.



2) ARM ASSEMBLY

(1) Removal

※ Loosen the breather slowly to release the pressure inside the hydraulic tank.

▲ Escaping fluid under pressure can penetrate the skin causing serious injury.

① Remove bucket assembly.

For details, see removal of bucket assembly.

② Disconnect bucket cylinder hose (4).

▲ Fit blind plugs (5) in the piping at the chassis end securely to prevent oil from spurting out when the engine is started.

③ Sling arm cylinder assembly, remove spring, pin stopper and pull out pin.

※ Tie the rod with wire to prevent it from coming out.

④ For details, see removal of arm cylinder assembly.

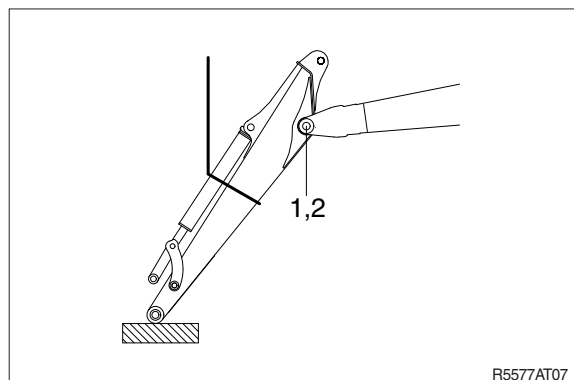
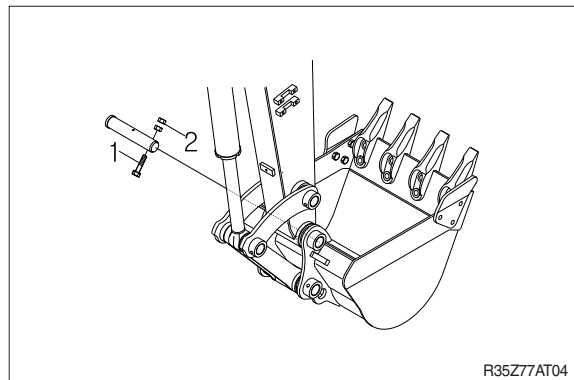
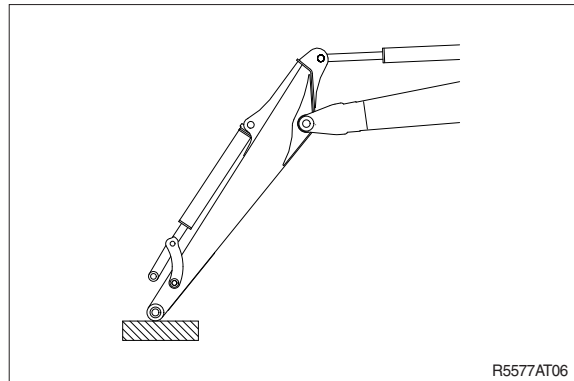
Place a wooden block under the cylinder and bring the cylinder down to it.

⑤ Remove bolt (1) and pull out the pin (2) then remove the arm assembly.

· Weight (1.12 m arm) : 46 kg (100 lb)

· Tightening torque : 12.8 ± 3.0 kgf·m
(92.6 ± 21.7 lbf·ft)

※ When lifting the arm assembly, always lift the center of gravity.



(2) Install

① Carry out installation in the reverse order to removal.

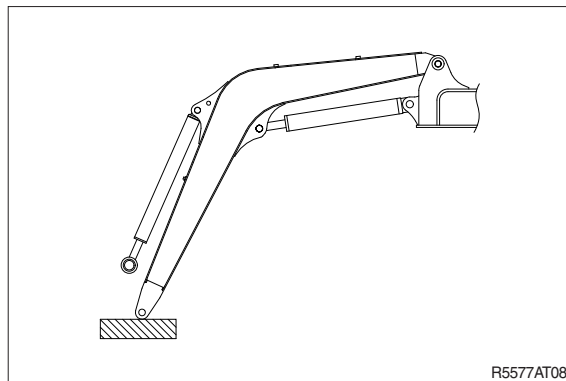
▲ When lifting the arm assembly, always lift the center of gravity.

※ Bleed the air from the cylinder.

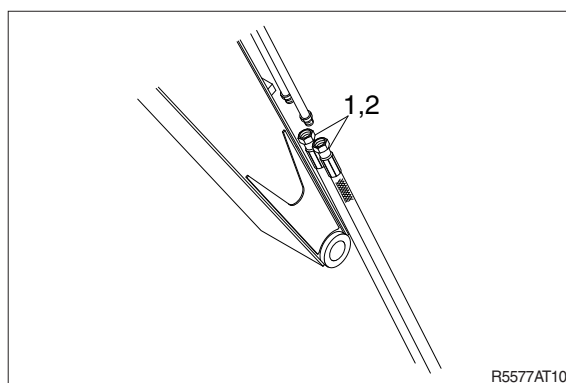
3) BOOM CYLINDER

(1) Removal

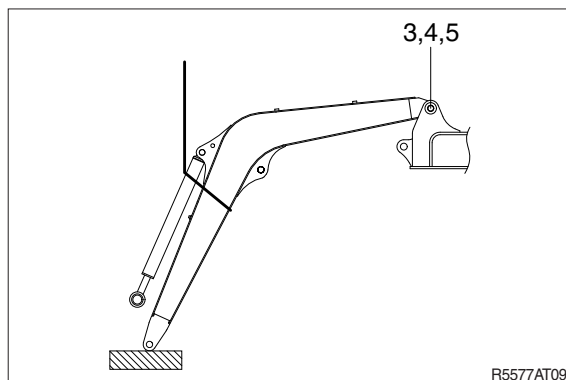
- ① Remove arm and bucket assembly.
For details, see removal of arm and bucket assembly.
- ② Remove boom cylinder assembly from boom.
For details, see removal of arm cylinder assembly.



- ③ Disconnect head lamp wiring.
- ④ Disconnect bucket cylinder hose (2) and arm cylinder hose (1).
※ When the hose are disconnected, oil may spurt out.
- ⑤ Sling boom assembly (3).



- ⑥ Remove bolt (3), nut (4) and pull out the pin (5) then remove boom assembly.
· Weight : 101 kg (220 lb)
· Tightening torque : 12.8 ± 3.0 kgf·m
(92.6 ± 21.7 lbf·ft)
※ When lifting the boom assembly always lift the center of gravity.



(2) Install

- ① Carry out installation in the reverse order to removal.
- ▲ When lifting the arm assembly, always lift the center of gravity.
- ※ Bleed the air from the cylinder.

