Group	1	Major components	2-1
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GROUP 1 MAJOR COMPONENTS



14BRJ9OM112

- 1 Mast
- 2 Lift cylinder
- 3 Carriage and backrest
- 4 Forks
- 5 Drive unit
- 6 Dash board

- 7 Frame
- 8 EPS motor
- 9 Drive motor
- 10 Drive wheel
- 11 Load wheel
- 12 Brake pedal

- 13 Accelerator pedal
- 14 Overhead guard
- 15 Pump motor
- 16 Deadman switch

GROUP 2 REMOVAL AND INSTALLATION OF UNIT

Remove and install following units as explained in the flow chart.

1. MAST

1) REMOVAL



(2) Forks

- ① Disconnect cable for the fork camera if equipped.
- 2 Remove shaft cover and bolt.
- ③ Remove fork set pin and then draw out the shaft.
- ④ Carefully remove forks one by one.



(3) Carriage

- ① Disconnect cable for the height indicator and the autotilt level if equipped.
- ② While supporting free lift chains, remove the split pins and nuts from anchor bolts of stationary upright.



- ② While supporting lift chains, remove the split pins and nuts from anchor bolts of stationary upright.
- Lift chain Outer mast
- ③ Pull the chains out of the sheaves and drape them over the front of the carriage.
- Mast Carriage Lift chain
- ④ Slowly raise inner mast upright until mast clears top of fork carriage. Move carriage to work area and lower the mast.
- A Make sure that carriage remains on floor and does not bind while mast is being raised.
- Inspect all parts for wear or damage.
 Replace all worn or damaged parts.



2-3

(4) PIPING

- ① Remove the return hoses and clamps attached to the cylinder.
- ② Remove the return hoses from the connector.
- ③ Remove hose assembly, connector, down safety valve from the lift cylinder.
- ④ Disconnect hose assembly from the flow regulator.



(5) FREE LIFT CYLINDER

- Bind the free lift cylinder with overhead hoist rope and pull up so that the rope has no slack or binding.
- ② Loosen the bolts and remove clamp, shims securing the free lift cylinder to inner mast.
- A Make sure that the free lift cylinder be tightened firmly for safety.
- ③ Using an overhead hoist draw out free lift cylinder carefully and put down on the work floor.



(6) LIFT CYLINDER

- Loosen hexagonal bolts and remove washers securing the lift cylinders to inner mast.
- ② Bind the lift cylinder with overhead hoist rope and pull up so that the rope has no slack or binding.

A Make sure that the lift cylinder be tightened firmly for safety.

- ③ Loosen and remove hexagon nuts and cylinder band securing cylinder to outer mast.
- ④ Using an overhead hoist, slowly raise the inner mast high enough to clear lift cylinder.
- ⑤ Using an overhead hoist, draw out lift cylinder carefully and put down on the work floor.



(7) MAST REMOVAL

- ① Pass wire rope around the inner, middle and outer masts to allow lifting them out with a hoist.
- ② Remove the stopper pin at the end of reach cylinder and then remove the stopper bolt at the end of guide rail.
- ③ Draw out the mast from the guide rail with lifting up.
- 4 Lower the mast and place it on stand.



(8) MIDDLE AND INNER MAST

- ① Using an overhead hoist raise the inner, middle mast straight and carefully draw out of outer mast section.
- A Be careful the mast not to swing or fall.
- ⁽²⁾ Using an universal puller, remove the load rollers.



2) INSTALLATION

After assembling mast components totally without piping connections, install mast assembly to the equipment.

* Installation procedure for each of mast component is the reverse of the removal procedure.

(1) LIFT CYLINDER INSTALLATION AND ADJUSTMENT

- Assemble the lift cylinder inside the outer mast, then tighten the stopper bolt. If the cylinder assembly has been replaced, adjust as follows so that the left and right cylinders are synchronized at the maximum lifting height.
- ② Assemble the cylinder rod to the inner mast, and check the left-to-right play of the mast at the maximum lifting height.
- * If play is to LEFT, install adjustment shim to LEFT cylinder.
- If play is to RIGHT, install adjustment shim to RIGHT cylinder.
 Shim thickness : 1.0 mm (0.04 in)



(2) REACH ROLLER AND LOCKING PIN ADJUSTMENT

* Refer to the page 8-8.

2. POWER TRAIN ASSEMBLY

1) REMOVAL



14BRJ9RE15

- (4) Disconnect the wiring.
- ① Drive motor wiring
- ② EPS motor wiring.
- (5) Loosen mounting bolts from frame and then take out drive unit assembly.

(6) Lift up the frame and support both side of frame on wood block.





(7) Remove drive unit assembly from frame by lifting.



2) INSTALLATION

Installatron is in the reverse order to removal, but be careful of following points.

- * Apply loctite all of the bolt and nut before tightening.
- (1) Drive unit mounting bolts : 6 EA

 Tightening torque : 12.5~16.9 kgf ⋅ m
 (90.4~122.2 lbf ⋅ ft)
- (2) Drive unit bracket mounting bolt : 9 EA
 Tightening torque : 12.5~16.9 kgf · m (90.4~122.2 lbf · ft)
- (3) Drive motor mounting bolts : 6 EA
 Tightening torque : 3.2~4.8 kgf · m
 (23.1~34.7 lbf · ft)

 $\begin{array}{l} \text{Position sensor}: 1.3{\sim}1.7 \; \text{kgf} \cdot \text{m} \\ (9.4{\sim}12.3 \; \text{lbf} \cdot \text{ft}) \end{array}$

- (5) Pump motor mounting nuts : 3 EA · S205-081006
 - Tightening torque : 2.0~3.0 kgf · m (14.5~21.7 lbf · ft)
- (6) Pump motor mounting bolt : 2 EA · S109-100256
 - Tightening torque : 6.6~10.0 kgf · m (47.7~72.3 lbf · ft)





3. ELECTRICAL COMPONENTS

Before removing each component, disconnect cables and earth lines attached to the component.

1) REMOVAL



(1) PUMP MOTOR

Disconnect the battery cable.



2 Remove seat and hood.



- ③ Disconnect the hose, pipe and wiring from pump & motor assembly.
 Loosen mounting nuts from frame and then take out the assembly.
- ④ Remove 2 mounting bolts fastening the pump & motor and then disengage the pump from motor.



(2) DRIVE MOTOR

1 Disconnect the battery cable.

② Remove seat and hood.

Battery cable disconnect





③ Disconnect wirings.a. Drive motor wiringb. EPS motor wiring

④ Remove bolts connecting the motor and drive unit.



⑤ Tie wire rope around the drive motor and lift up slowly.



⑥ Put the motor on the clean work bench.



(3) EPS MOTOR

1 Disconnect the battery cable.



2 Remove seat and hood.



③ Disconnect wirings.



④ Loosen bolts and remove EPS motor assembly.



(4) BATTERY REMOVAL

- 1 Turn on the key.
- ② Foot on the battery unlock lever to unlock the battery trolley assembly..
- ③ Pull the reach lever until it is relief.
- 4 Push the reach lever until it is relief.
- 5 Turn off the key.
- ⑥ Disconnect the battery connector.
- ⑦ Using a battery hanger, carefully raise the battery assembly or using a battery carrier.







2) INSTALLATION

Installation is in the reverse order to removal, but be careful of following points.

(1) PUMP MOTOR

- ① Pump motor mounting nut
 Tightening torque : 2.0~3.0 kgf m (14.5~21.7 lbf • ft)
- ② Hydraulic pump mounting bolt
 Tightening torque : 6.6~10.0 kgf m

(47.7~72.3 lbf · ft)



(2) DRIVE MOTOR

- Connetion bolts between drive motor and drive unit.
 - Tightening torque : 3.2~4.8 kgf · m
 (23.1~34.7 lbf · ft)



(3) EPS MOTOR

- EPS motor mounting bolts.
 - Tightening torque : 6.6~9.8 kgf · m (47.7~70.9 lbf · ft)



(4) BATTERY INSTALLATION

- ① Using a battery hanger, carefully put the battery assembly on the battery trolley between mast and frame.
- ② Connect the battery connector.
- ③ Turn on the key.
- ④ Pull the reach lever until it sounds locked. (Auto lock)
- ⑤ Complete installation.







4. TIRE & WHEEL ASSEMBLY

1) REMOVAL

- (1) DRIVE TIRE & WHEEL ASSEMBLY
- 1 Lift up the frame
- * Lift up until the tire clear off the ground.



- ② Remove wheel nuts attaching the drive wheel and take off the drive wheel assembly.
 - Wheel nuts : 14/16BRJ : 5 EA 20/25BRJ : 7 EA



(2) LOAD WHEEL ASSEMBLY

① Lift up the reach legs and fix the machine with blocks.



- ② Disconnect brake cable
 - Remove special bolt, flat head bolt and take out wheel shaft assy.
 - Remove the load wheel tire assy.
 - Remove socket bolt.



2) INSTALLATION

Installation is in the reverse order to removal, but be careful of the following points.

- (1) Drive wheel nuts
 - Tightening torque : 13.5~15.5 kgf · m (98~112 lbf · ft)



- (2) Load wheel special bolts
 Tightening torque : 10~12 kgf · m (72.3~86.8 lbf · ft)
- (3) Load wheel flat head socket bolts
 . Tightening torque : 5~6 kgf ⋅ m

(36.2~43.4 lbf · ft)

