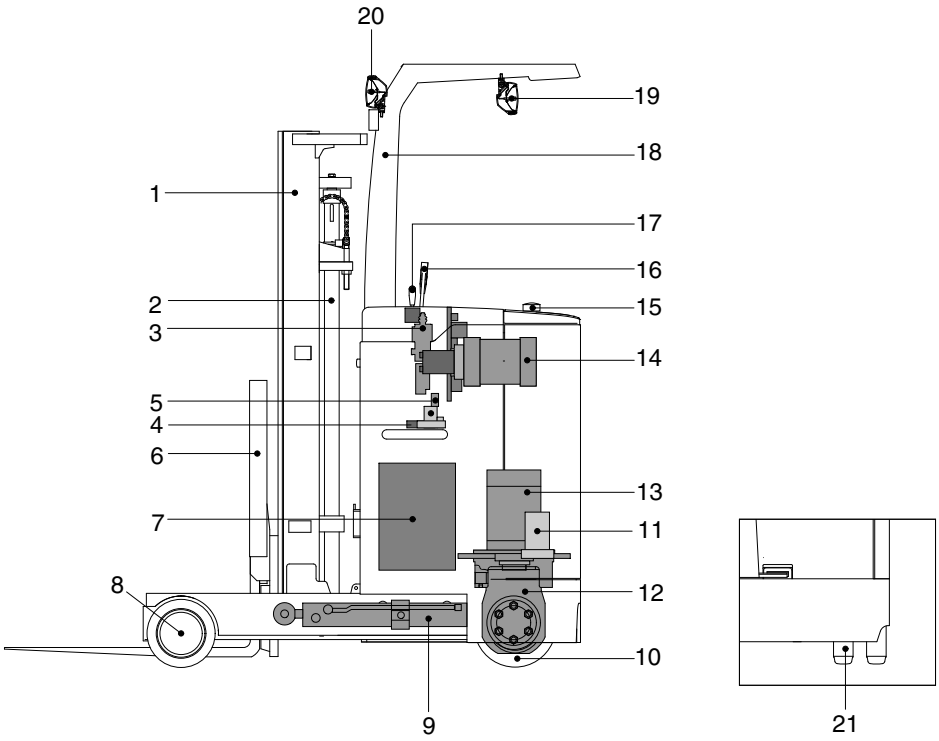
SECTION 2 REMOVAL & INSTALLATION OF UNIT

GROUP 1 MAJOR COMPONENTS



BR7RE01

1	Mast	8	Load wheel	15	Steering wheel
2	Lift cylinder	9	Reach cylinder	16	Control levers
3	Main control valve	10	Drive wheel	17	Accelerator
4	EPS filter	11	EPS actuator	18	Overhead guard
5	EPS controller	12	Drive unit	19	Rear work lamp (opt)
6	Carriage & backrest	13	Drive motor	20	Front work lamp
7	Battery	14	Pump motor	21	Caster wheel

GROUP 2 REMOVAL AND INSTALLATION OF UNIT

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

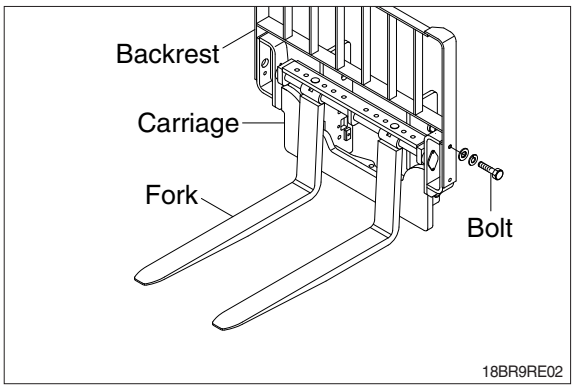
1. MAST

1) REMOVAL

Backrest & fork — Carriage — Piping — Mast

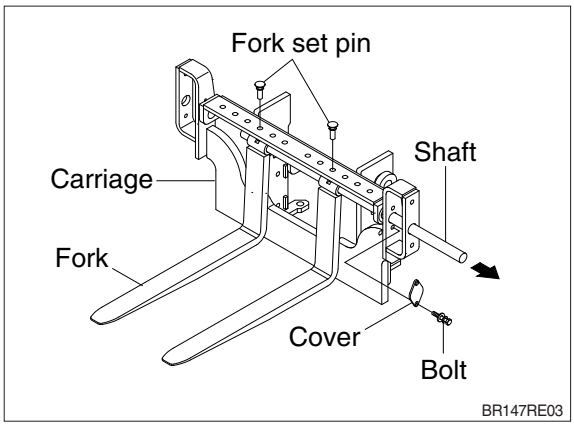
(1) Backrest

① Remove bolts securing backrest to fork carriage. Lift backrest straight up and remove it from carriage.



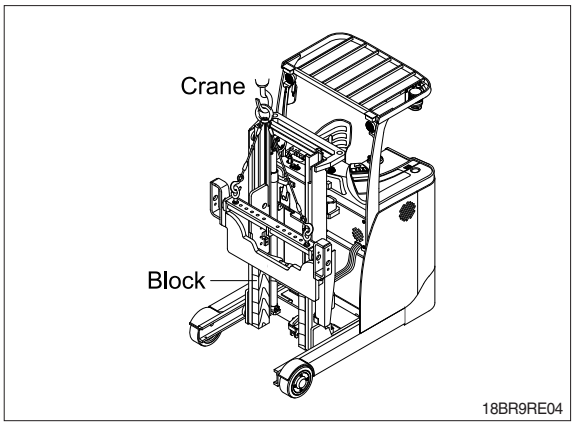
(2) Forks

① Remove shaft cover and bolt.
② Remove fork set pin and then draw out the shaft.
③ Carefully remove forks one by one.

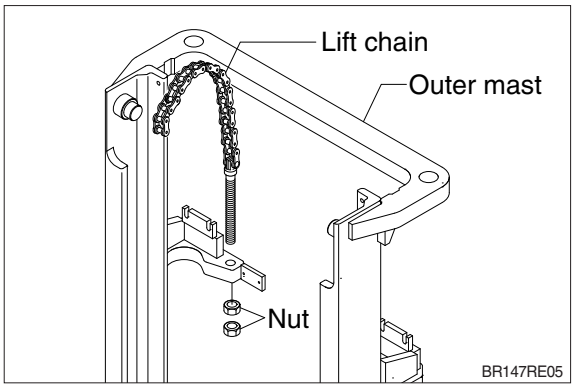


(3) Carriage

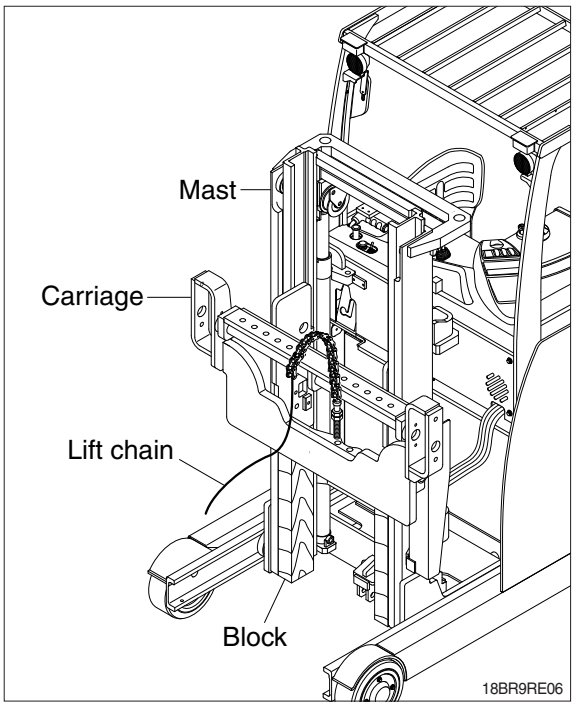
① With the mast vertical, raise the carriage high enough to place blocks under the load forks. This is done to create slack in the load chains when the carriage is lowered. Lower the carriage all the way down to the floor. Make sure the carriage is level, this will prevent any binding when the mast is raised.



② While supporting lift chains, remove the split pins and slide out chain anchor pins from the chain anchors of stationary upright.



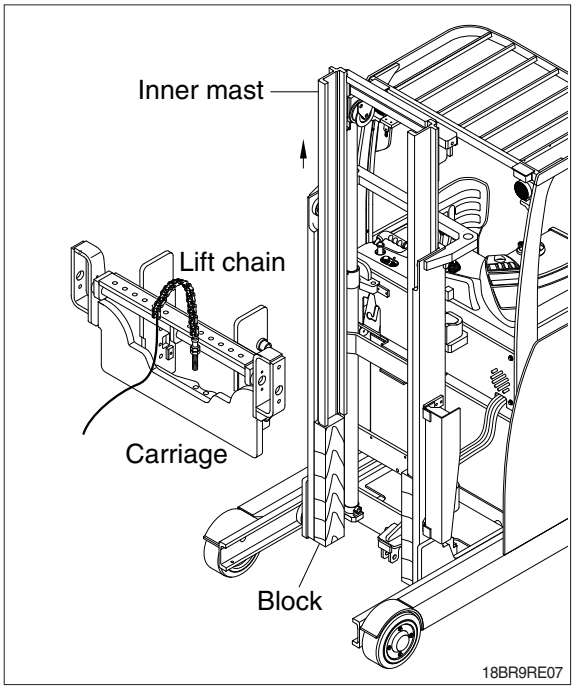
③ Pull the chains out of the sheaves and drape them over the front of the carriage.



④ Slowly raise inner mast upright until mast clears top of fork carriage. Move carriage to work area and lower the mast.

⚠ Make sure that carriage remains on floor and does not bind while mast is being raised.

⑤ Inspect all parts for wear or damage. Replace all worn or damaged parts.

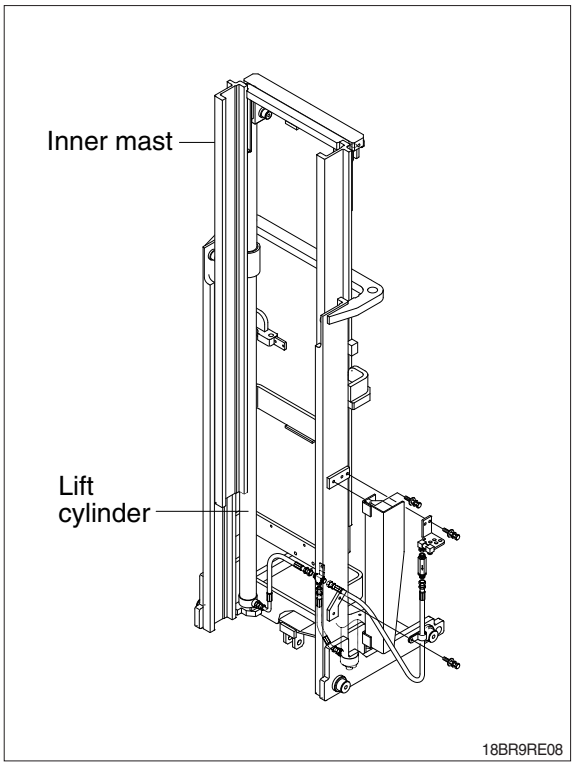


(4) PIPING

① Remove the hoses and clamps attached to the cylinder.

② Remove hose assembly, connector, down safety valve from the lift cylinder.

③ Disconnect hose assembly from the flow regulator.



(5) LIFT CYLINDER

① Loosen hexagonal bolts and remove washers securing the lift cylinders to inner mast.

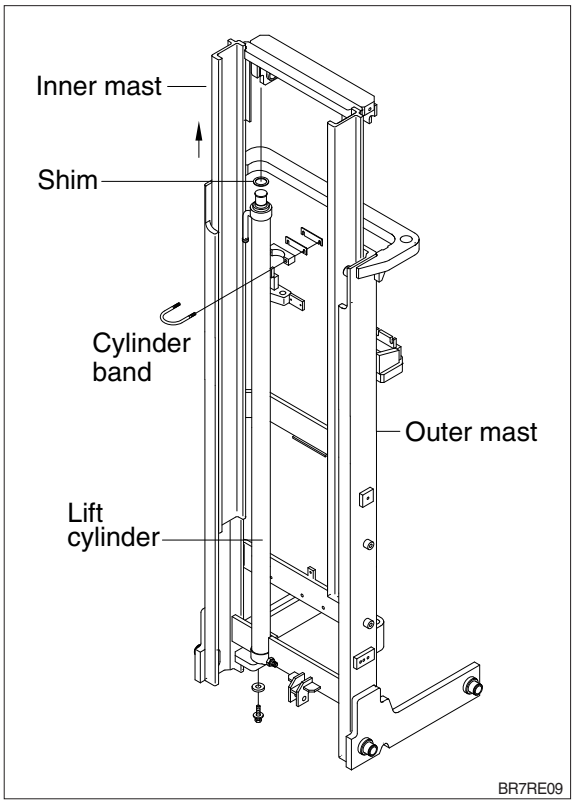
② Bind the lift cylinder with overhead hoist rope and pull up so that the rope has no slack or binding.

⚠ 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.

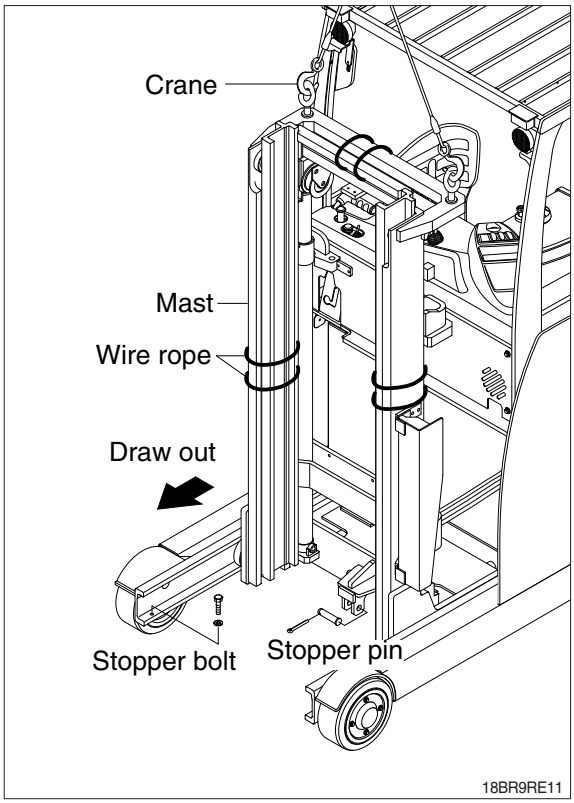
④ Using an overhead hoist, slowly raise the inner mast high enough to clear lift cylinder.

⑤ Using an overhead hoist, draw out lift cylinder carefully and put down on the work floor.



(6) MAST REMOVAL

① Pass wire rope around the inner 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.

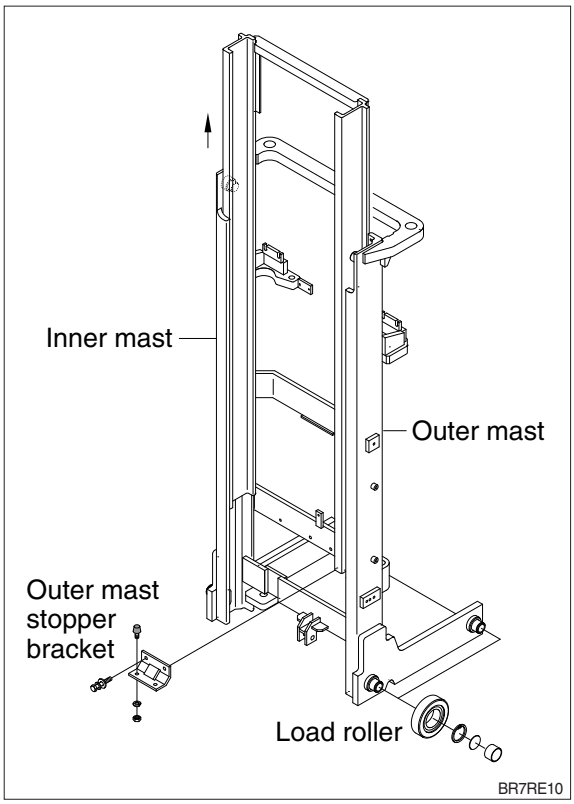


(7) INNER MAST

① Using an overhead hoist raise the inner mast straight and carefully draw out of outer mast section.

⚠ 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

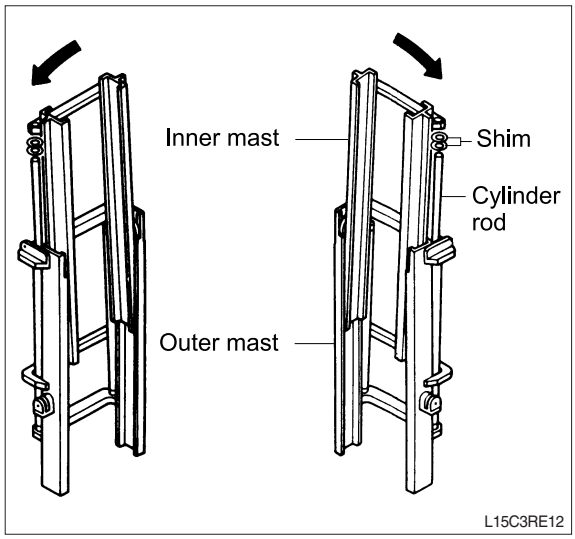
① Assemble the lift cylinder inside the outer mast, then tighten the stopper bolt. If the cylinder assembly has been replaced, adjust as follows so that the left and right cylinders are synchronized at the maximum lifting height.

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)

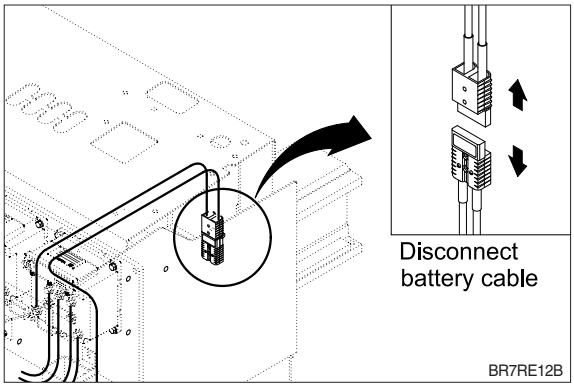


2. POWER TRAIN ASSEMBLY

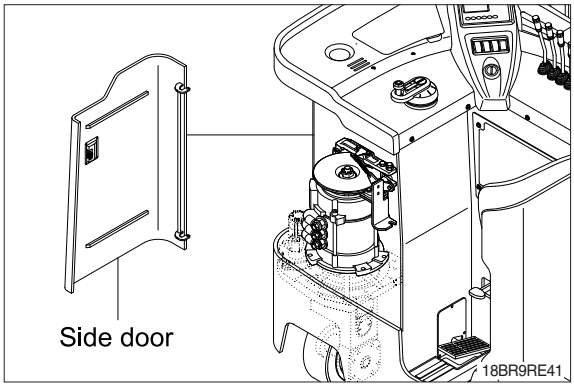
1) REMOVAL

BR7RE001

(1) Disconnect the battery cable.

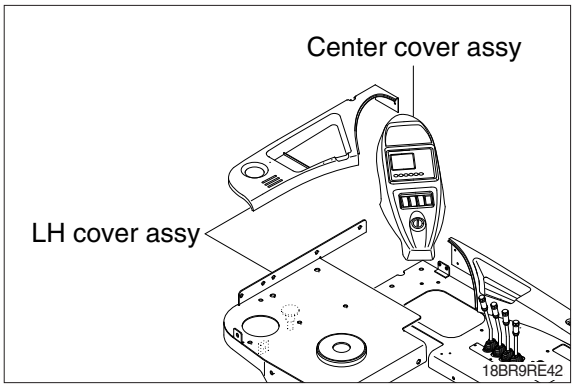


(2) Remove side door.

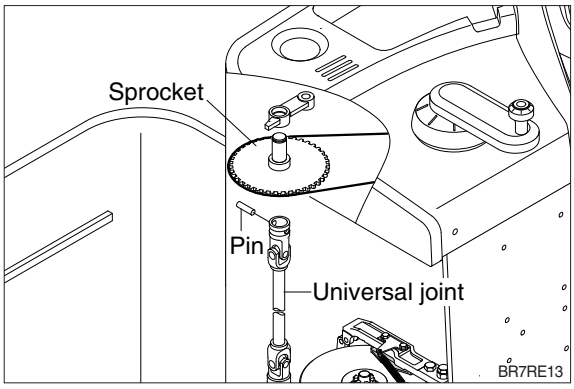


(3) Remove center cover assembly.

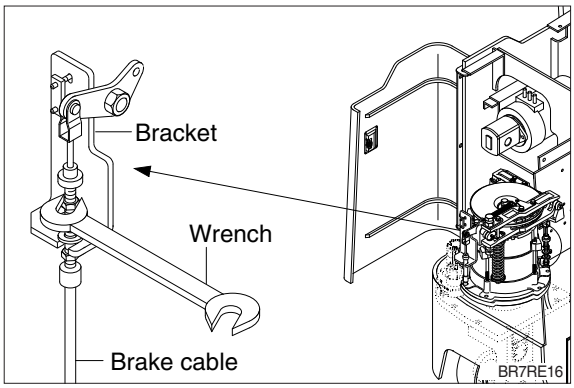
(4) Remove LH cover assembly.



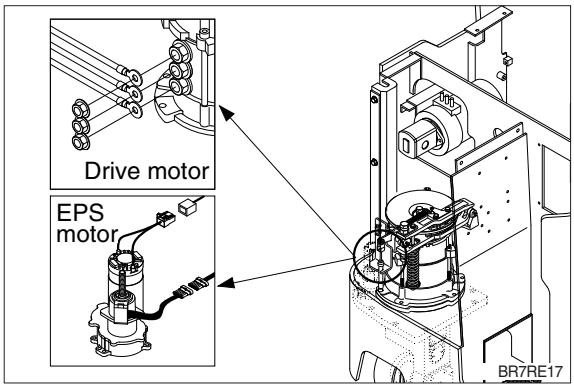
(5) Remove steering joint parts.



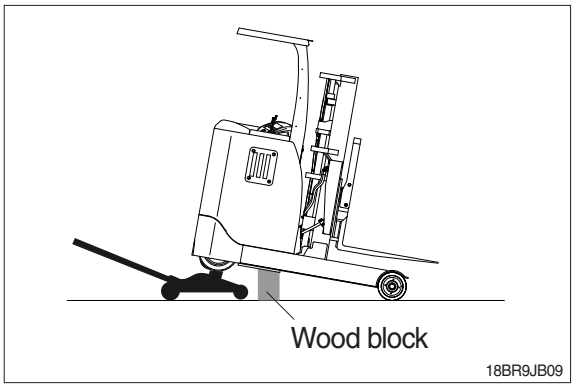
(6) Remove brake cable.



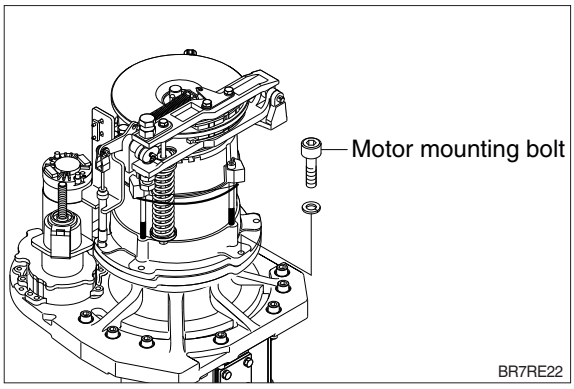
(7) Disconnect the wiring.
① Drive motor wiring
② EPS motor wiring.



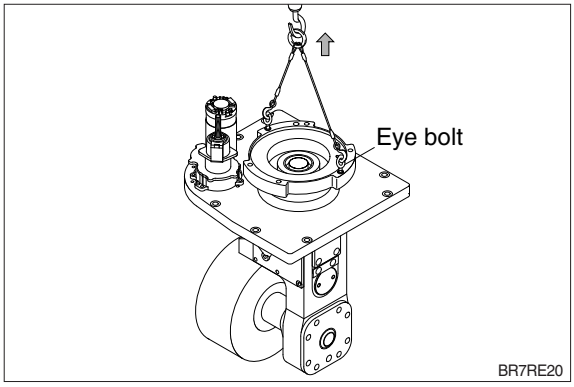
(8) Jack up the frame and support both side of frame on wood block.



(9) Remove motor mounting bolts and motor by lifting.



(10) Remove drive unit mounting bolts and pull out the drive unit by lifting with eye-bolts on motor mounting tap. (M8 × 1.25)

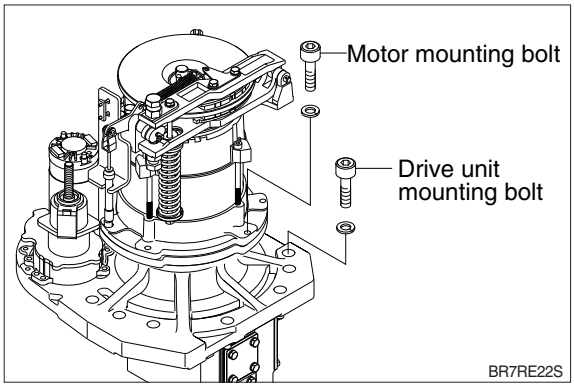


2) INSTALLATION

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

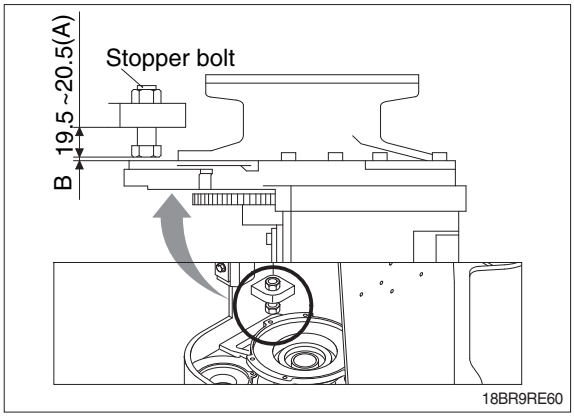
(1) Drive unit mounting bolts (M12 × 1.75)
· Tightening torque : 13.3~15.3 kgf · m
(96.2~110.1 lbf · ft)

(2) Drive motor mounting bolts (M8 × 1.25)
· Tightening torque : 3.7~4.1 kgf · m
(28.2~29.7 lbf · ft)



(3) Adjust stopper bolt (A) to 19.5~20.5.

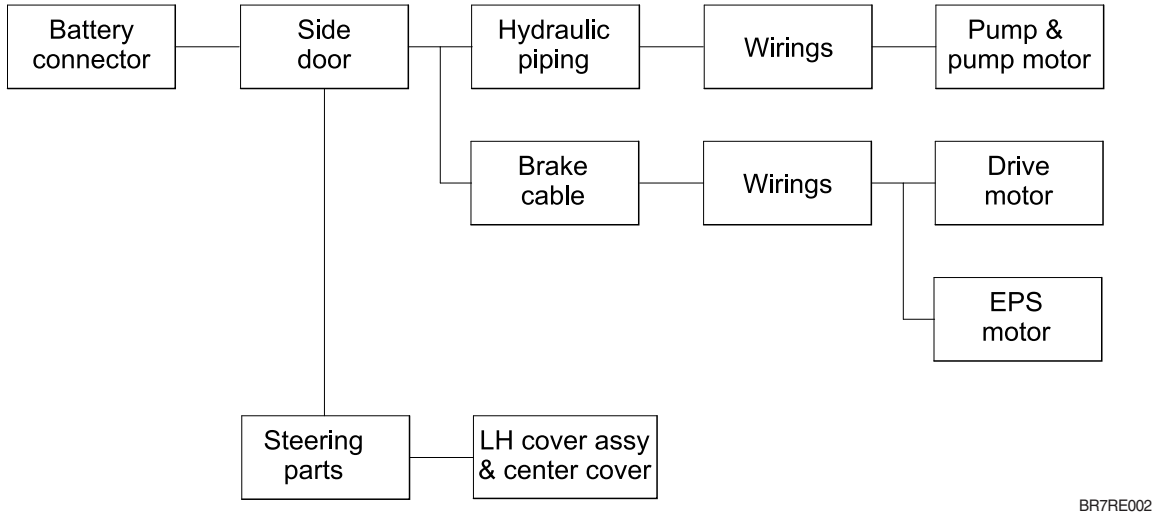
※ Maintain the articulating gap (B) :
10/13/15/18/20BR-9 : 3.3 mm
25/30BR-9 : 3.0 mm



3. ELECTRICAL COMPONENTS

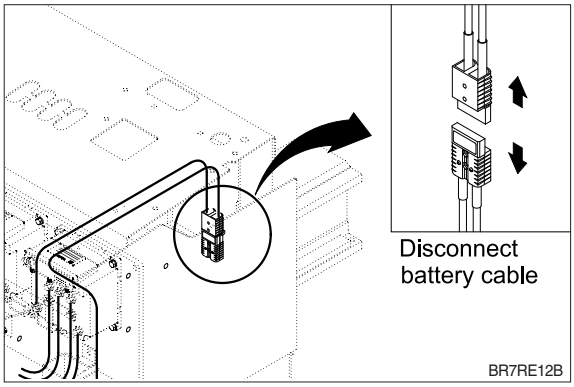
Before removing each component, disconnect cables and earth lines attached to the component.

1) REMOVAL

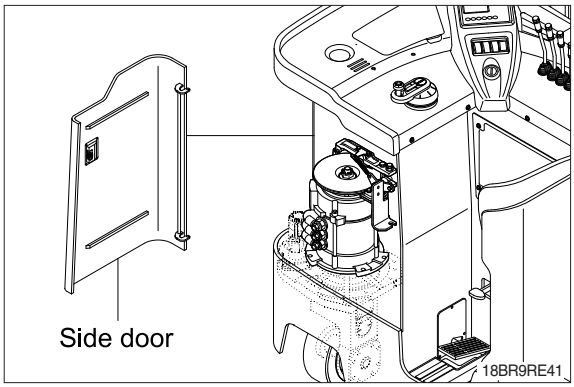


(1) PUMP MOTOR

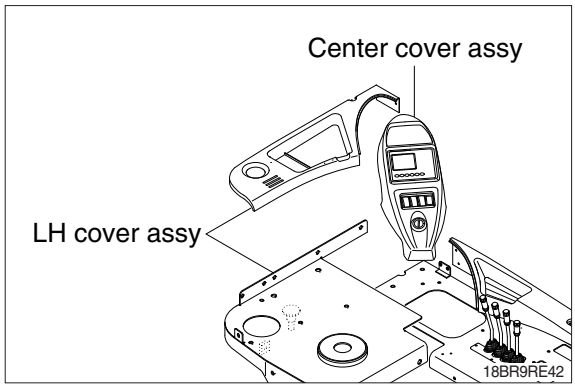
① Disconnect the battery cable.



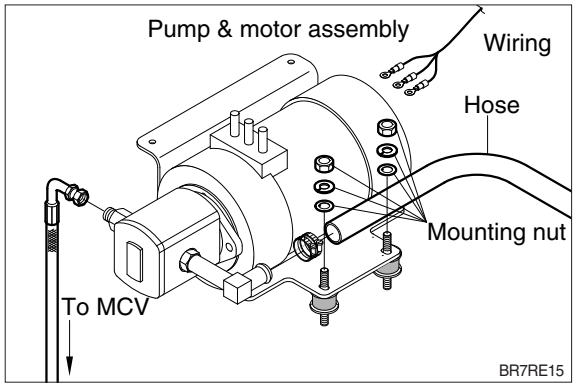
② Remove side door.



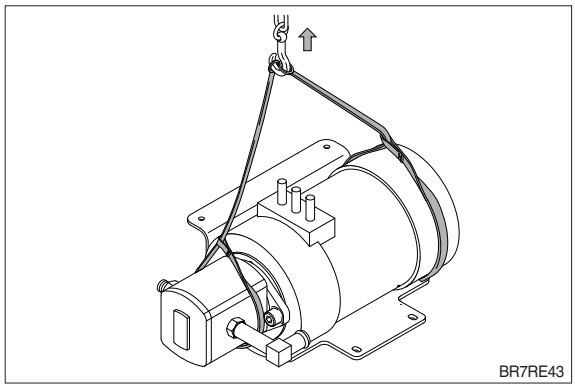
③ Remove LH cover assembly and center cover assembly.



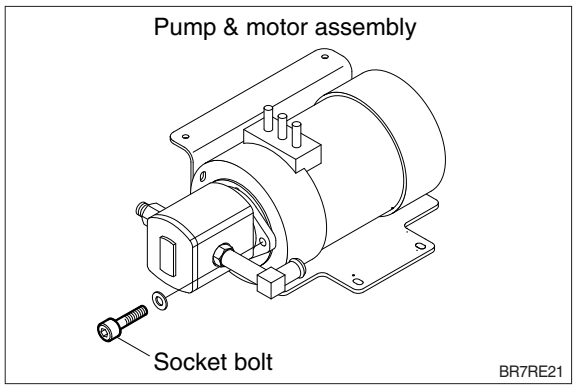
④ Disconnect the hose, pipe and wiring from pump & motor assembly.
Loosen mounting nuts from the bracket and then take out the assembly.



⑤ Tire wire rope around the hydraulic pump & pump motor assembly and lift up slowly.

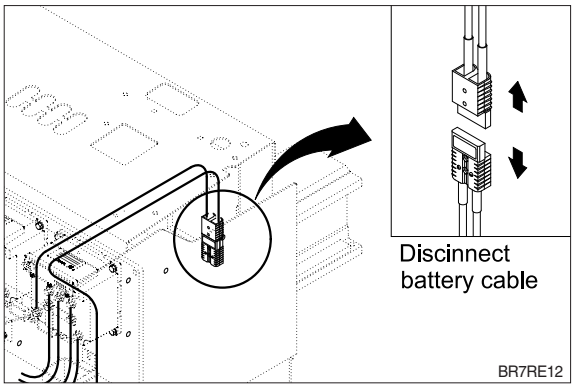


⑥ Remove 2 socket bolts fastening the pump & motor and then disengage the pump from motor.

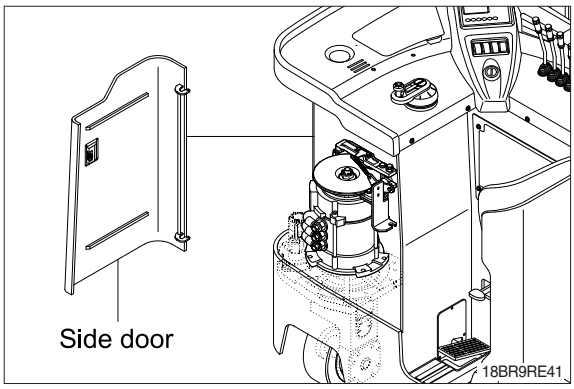


(2) DRIVE MOTOR

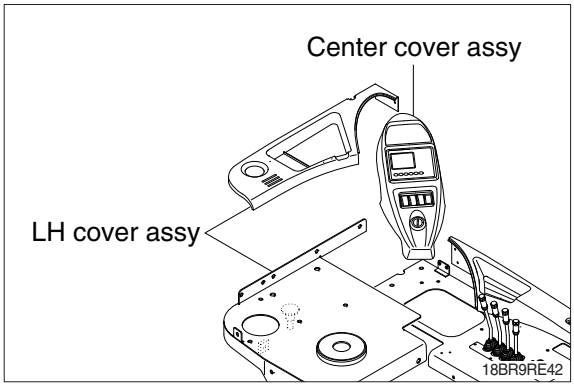
① Disconnect the battery cable.



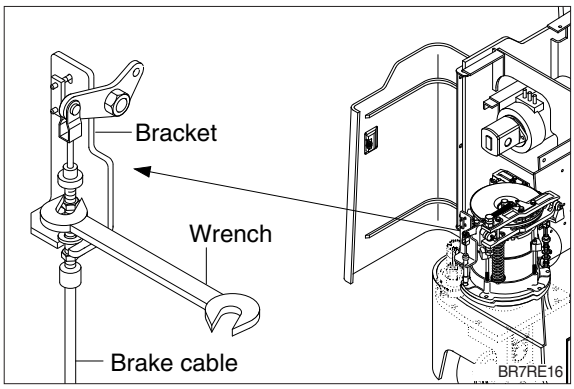
② Remove side door.



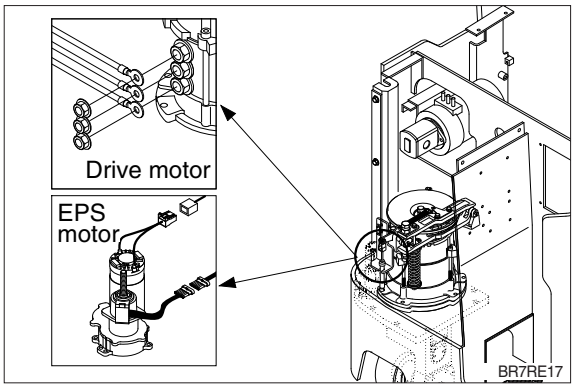
③ Remove center cover assembly.
④ Remove LH cover assembly.



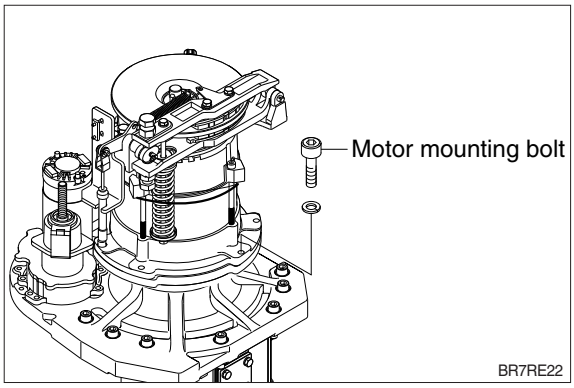
⑤ Remove brake cable.



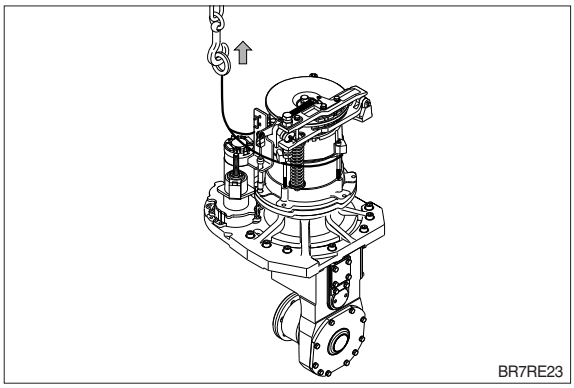
⑥ Disconnect wirings.
a. Drive motor wiring
b. EPS motor wiring



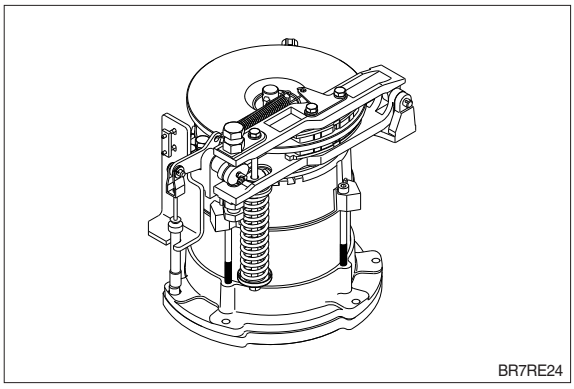
⑦ Remove bolts connecting the motor and drive unit.



⑧ Tie wire rope around the drive motor and lift up slowly.

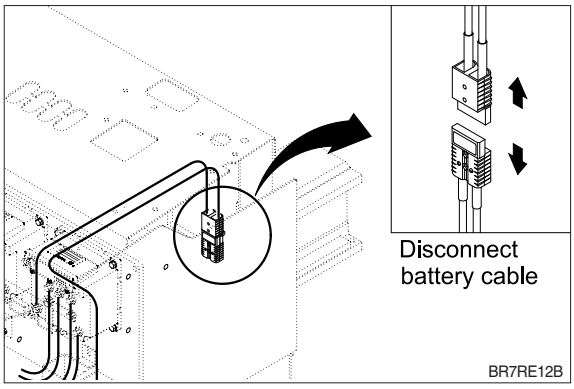


⑨ Put the motor on the clean work bench.

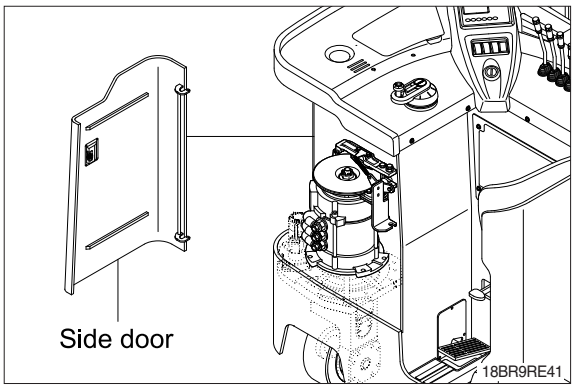


(3) EPS MOTOR

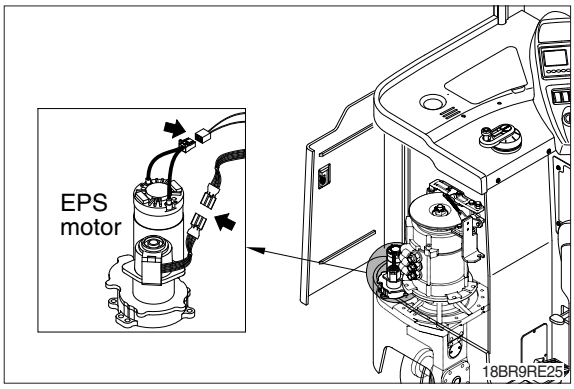
① Disconnect the battery cable.



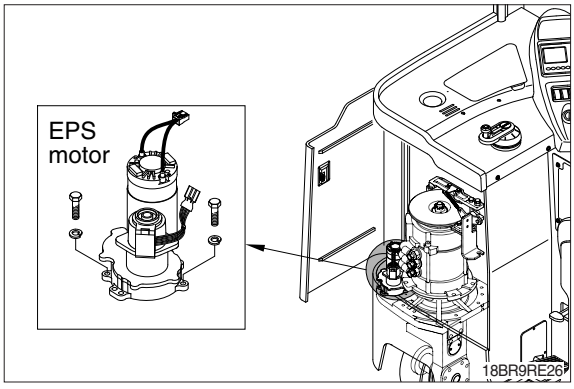
② Remove side door.



③ Disconnect wirings.



④ Loosen bolts and remove EPS motor assembly.



(4) BATTERY

① Turn on the key.

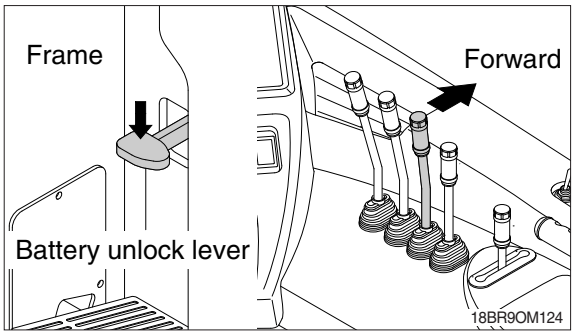
② Foot on the battery unlock lever to unlock the battery assembly.

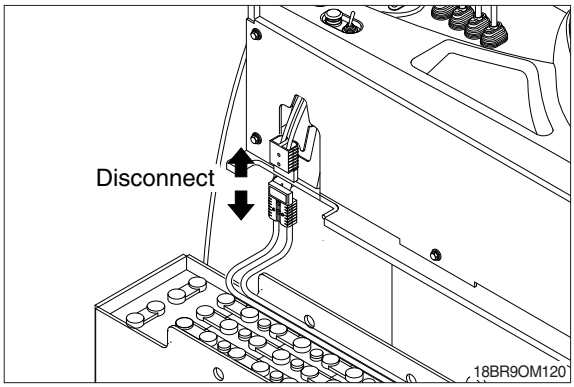
③ Push the reach lever until battery get out of frame inside.

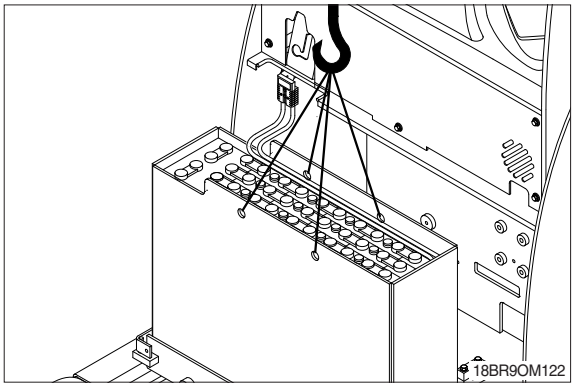
④ Turn off the key.

⑤ Disconnect the battery connector.

⑥ Using a battery hanger or carrier, carefully raise the battery assembly.







2) INSTALLATION

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

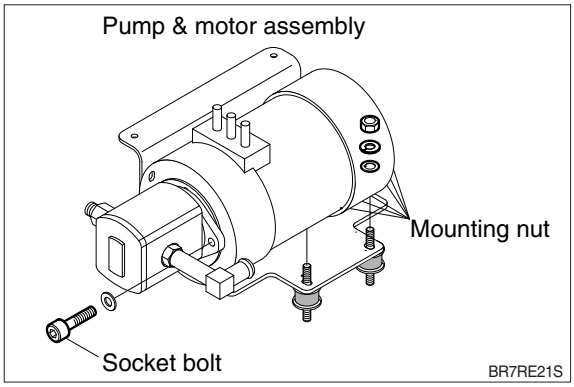
(1) PUMP MOTOR

① Pump motor mounting nut.

· Tightening torque : 3.7~4.1 kgf · m
(26.8~29.7 lbf · ft)

② Hydraulic pump mounting socket bolt

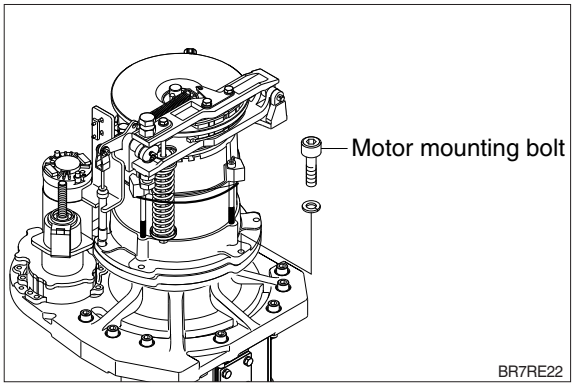
· Tightening torque : 4.0~6.0 kgf · m
(28.9~43.4lbf · ft)



(2) DRIVE MOTOR

① Connection bolts between drive motor and drive unit.

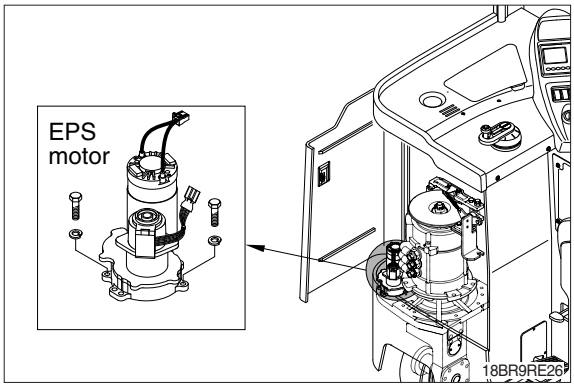
· Tightening torque : 3.7~4.1 kgf · m
(26.8~29.7 lbf · ft)



(3) EPS MOTOR

① EPS motor mounting bolts.

· Tightening torque : 3.7~4.1 kgf · m
(26.8~29.7 lbf · ft)



(4) BATTERY

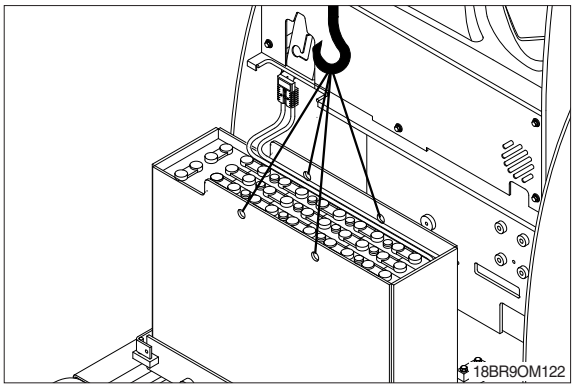
① Using a battery hanger or carrier, carefully put the battery assembly on the guard rail between mast and frame.

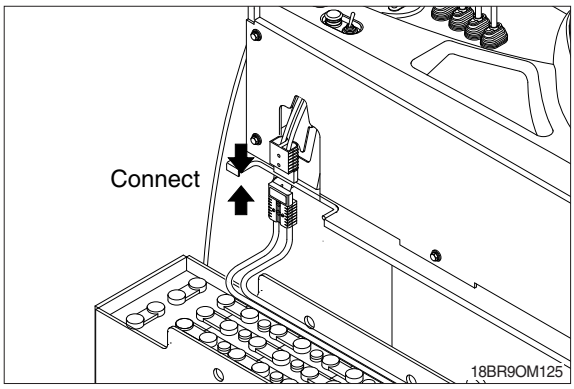
② Connect the battery connector.

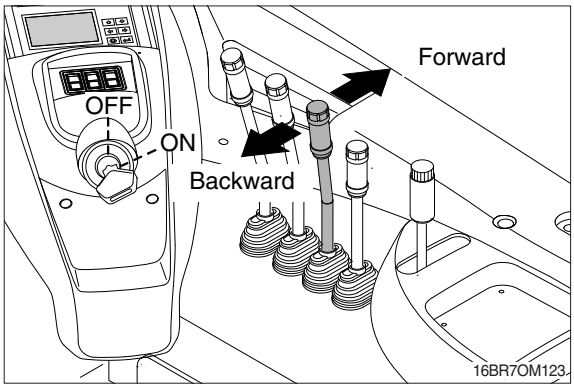
③ Turn on the key.

④ Pull the reach lever until it sounds locked. (Auto lock)

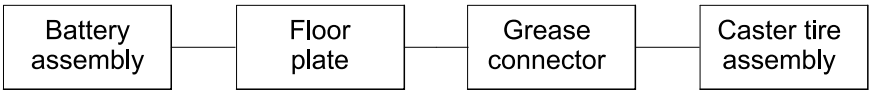
⑤ Complete installation.







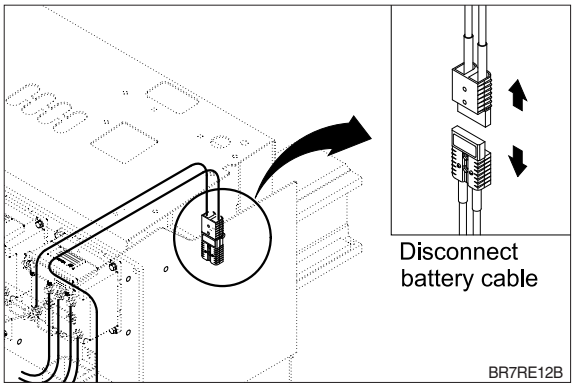
4. CASTER LINK ASSEMBLY



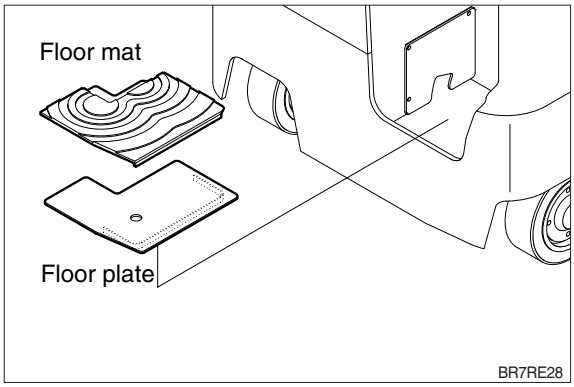
BR7RE003

1) REMOVAL

(1) Disconnect the battery cable.

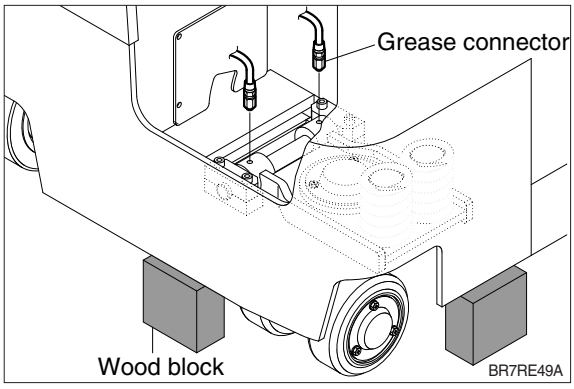


(2) Remove floor mat and floor plate.

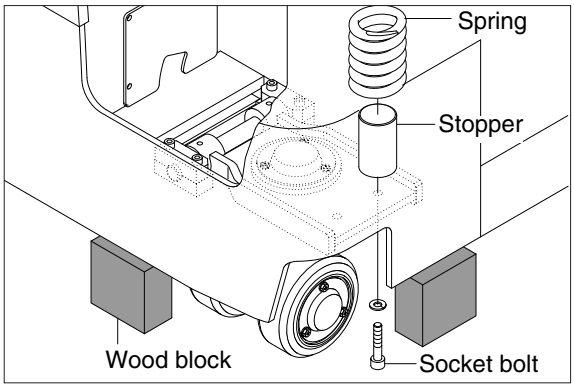


(3) Remove grease connector.

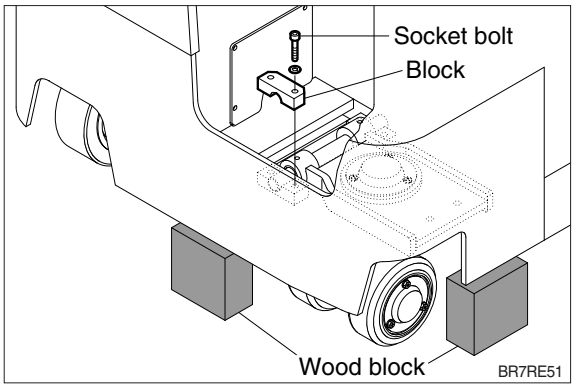
(4) Jack up the frame and support both side of frame on wood block.



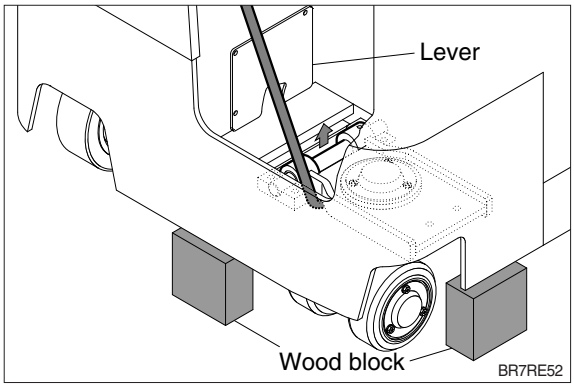
(5) Remove bolts, stopper and springs.



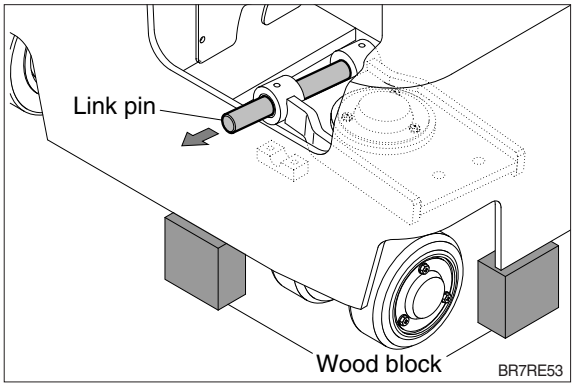
(6) Remove socket bolts and block.



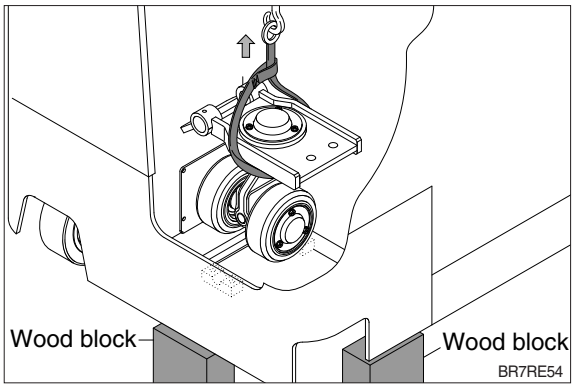
(7) Lift the caster suspension link assy with lever.



(8) Pull out the link pin from the caster suspension link.



(9) Tire wire rope around the suspension link and lift up slowly.

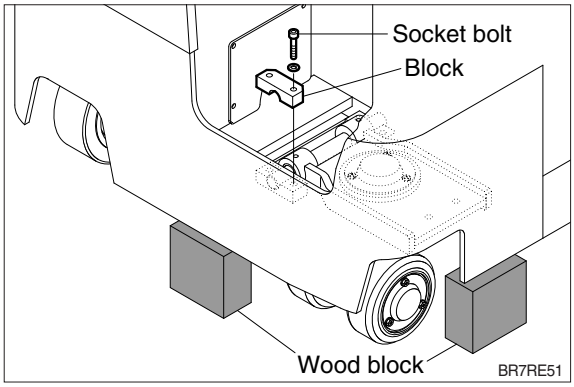


2) INSTALLATION

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

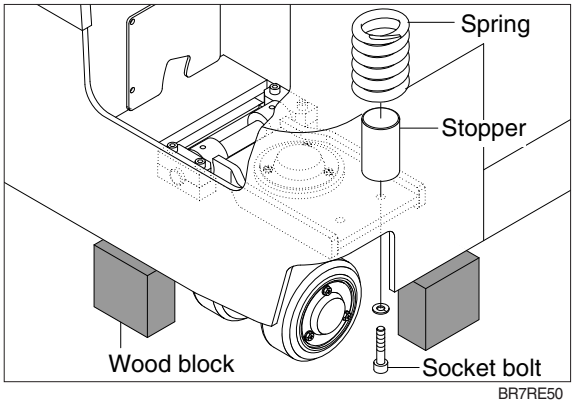
(1) Link pin mounting bolt.

· Tightening torque : 13.3~15.3 kgf · m
(96.2~111 lbf · ft)



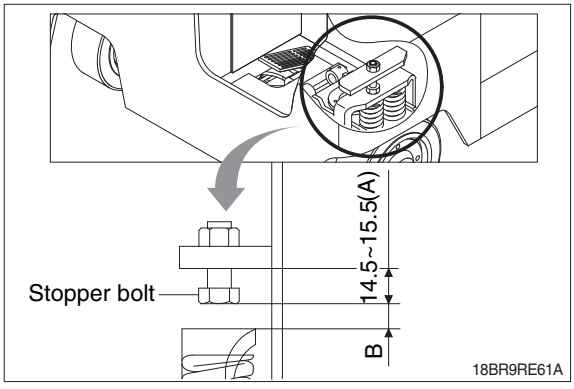
(2) Stopper fixing bolt.

· Tightening torque : 10.0~12.0 kgf · m
(72.3~86.8 lbf · ft)



(3) Adjust stopper bolt (A) to 14.5~15.5 mm.

※ Maintain the articulating gap (B) :
10/13/15/18/20BR-9 : 28 mm
25/30BR-9 : 30 mm



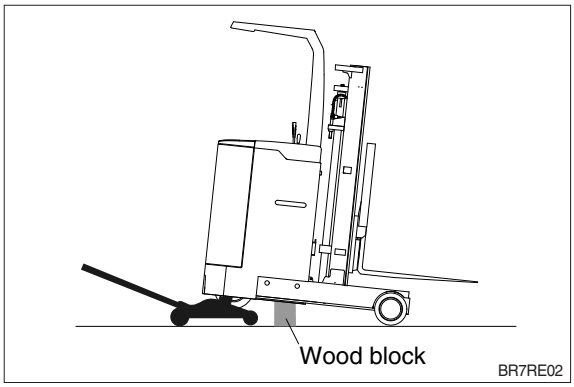
5. TIRE & WHEEL ASSEMBLY

1) REMOVAL

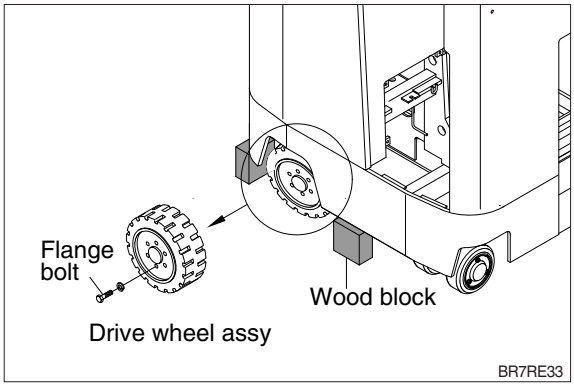
(1) DRIVE TIRE & WHEEL ASSEMBLY

① Jack up the frame and support both side of frame on wood block.

※ **Jack up until the tire clear off the ground.**

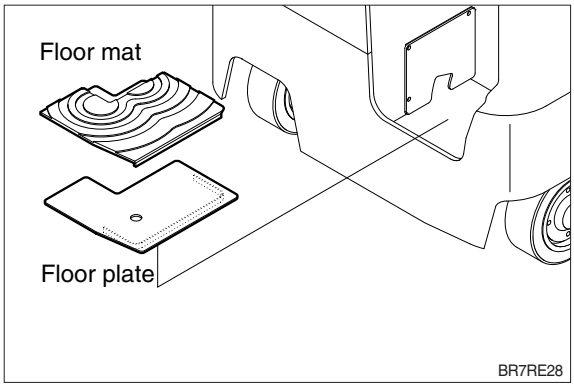


② Remove 6 flange bolts attaching the drive wheel and take off the drive wheel assembly.



(2) CASTER WHEEL ASSEMBLY

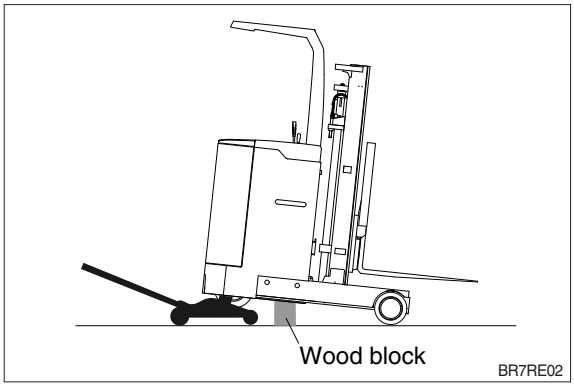
① Remove floor mat and floor plate.



② Jack up the frame.

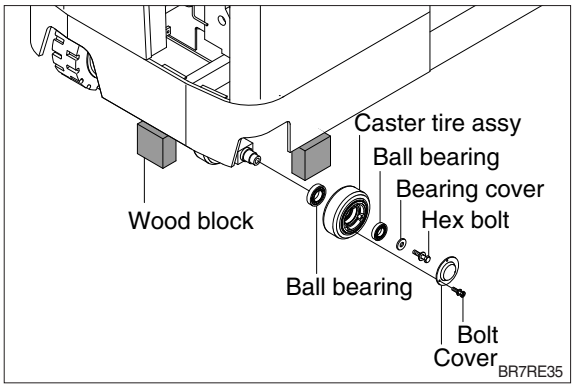
③ Blocking place under the frame with wood block

※ **Jack up until the tire clear off the ground.**



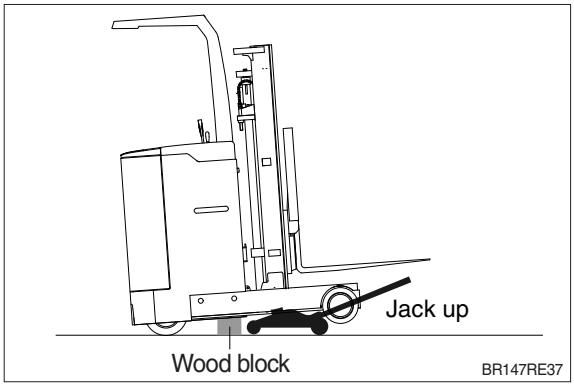
④ Take off the cover, and remove hex bolts, and bearing cover in succession.

⑤ Remove the caster tire assy and ball bearing.



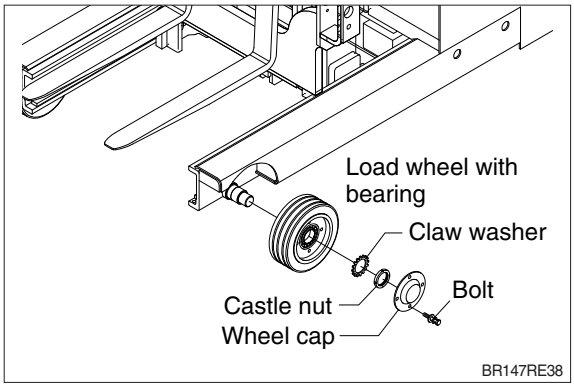
(3) LOAD WHEEL ASSEMBLY

① Jack up the reach legs and fix the machine with wood blocks.



② Take off the load wheel cap, and remove castle nut, and claw washer in succession.

Remove the load wheel together with bearing.



2) INSTALLATION

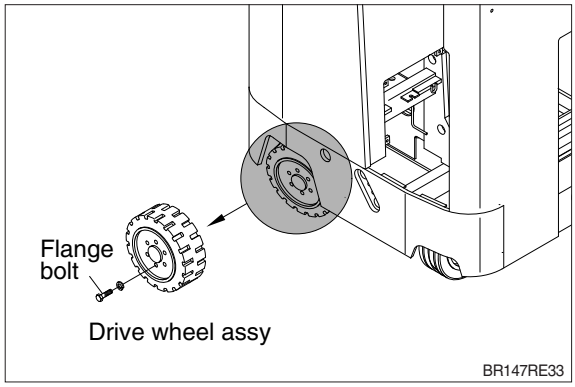
Installation is in the reverse order to removal, but be careful of the following points.

(1) Drive wheel flange bolts

· Tightening torque :

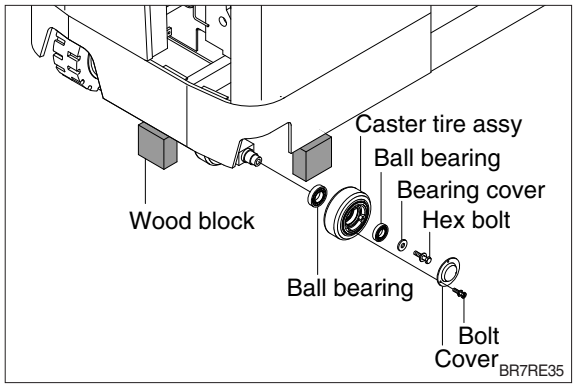
10/13/15/18/20BR-9 : 20~24 kgf · m (145~174 lbf · ft)

25/30BR-9 : 12.5~15.5 kgf · m (90.4~112 lbf · ft)



(2) Caster wheel bolts.

· Tightening torque : 11~13 kgf · m (79.6~94 lbf · ft)



(3) Load wheel bolts.

· Tightening torque : 4.5~5.5 kgf · m (32.5~39.8 lbf · ft)