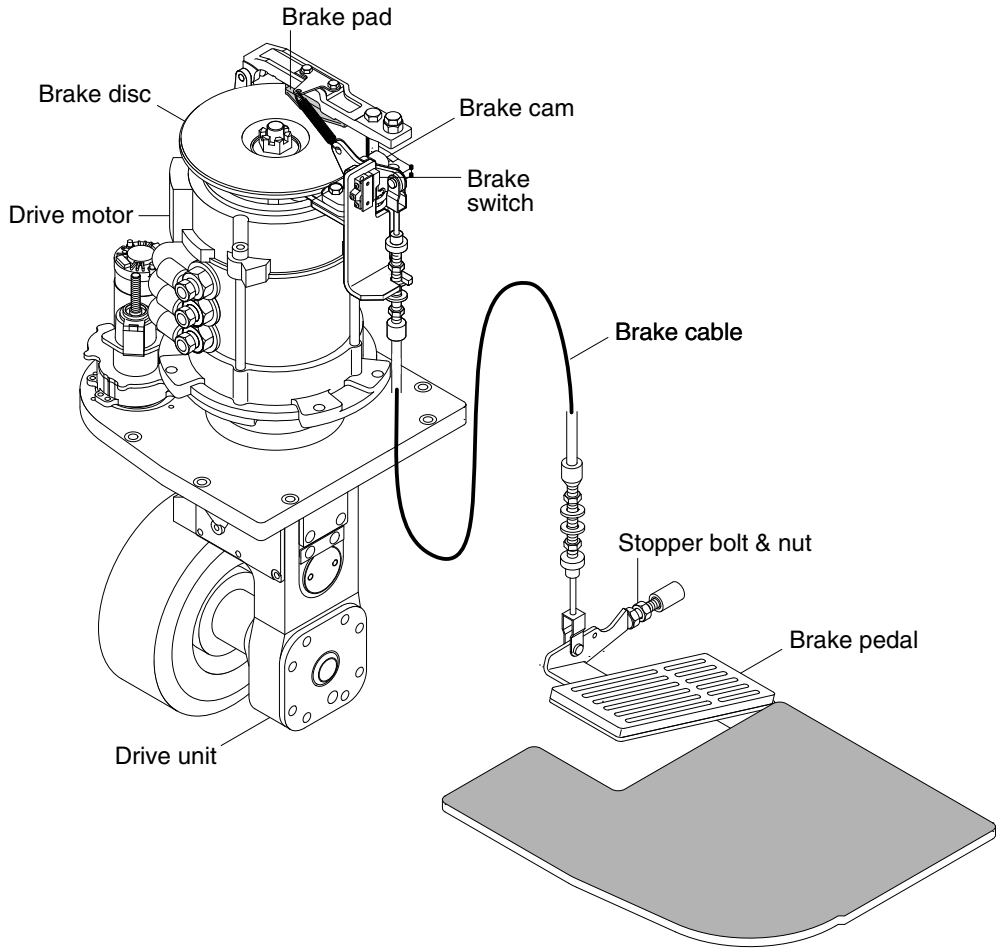
SECTION 4 BRAKE SYSTEM

GROUP 1 STRUCTURE AND FUNCTION

1. OUTLINE



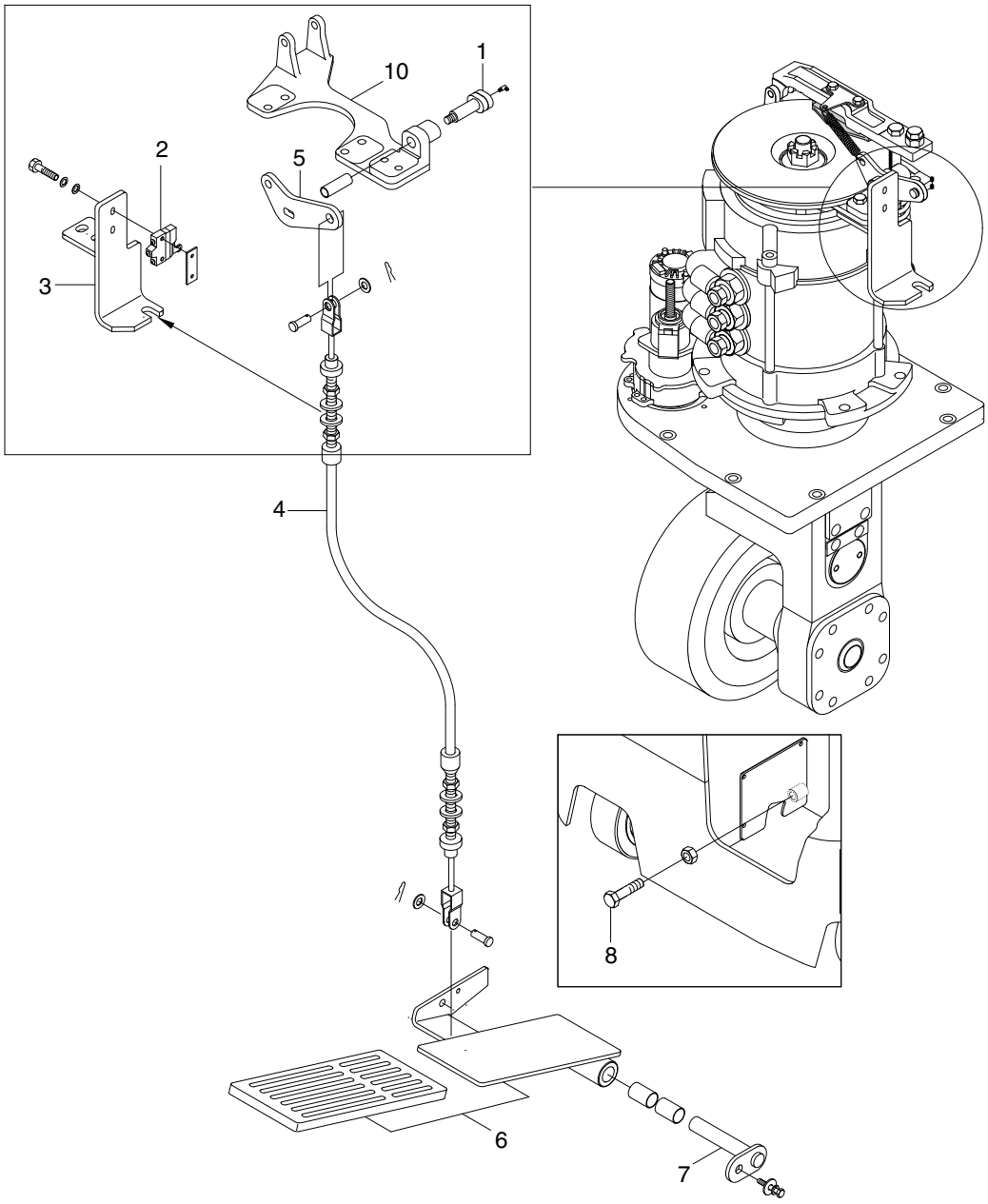
BR7BS01

2. SPECIFICATION

Item		10/13BR-9	15/18BR-9	20/25/30BR-9
Type		Deadman-type disc brake		
Brake pad	Material	Non-asbestos		
	Thickness (㎜)	9	←	←
	Min. Thickness (㎜)	4.5	←	←
Disc (Out dia. × thickness)		ø 225 × 10	←	←
Pedal height (㎜)		75	←	←
Spring length (㎜)		123	118	104
Brake distance	Unladen	Max 5.0 m		
	laden	Max 2.5 m		

3. BRAKE PEDAL AND PIPING

1) STRUCTURE



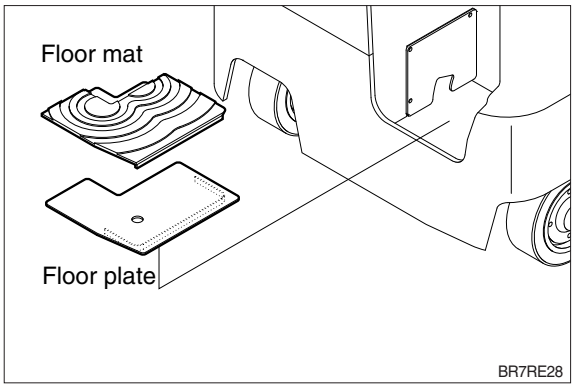
BR7BS02

1	Brake cam	6	Brake pedal
2	Brake switch	7	Pin
3	Bracket	8	Stopper bolt
4	Brake cable	10	Brake support
5	Brake cam lever		

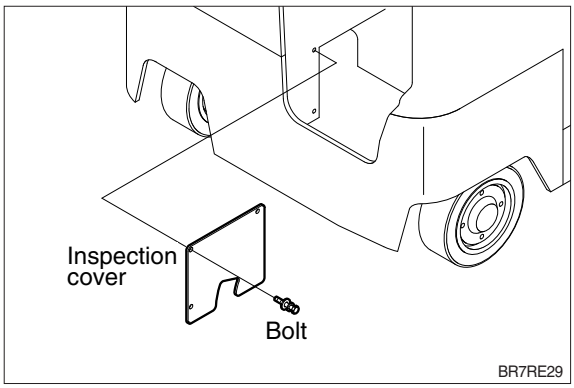
2) DISASSEMBLY AND ASSEMBLY

(1) Disassembly

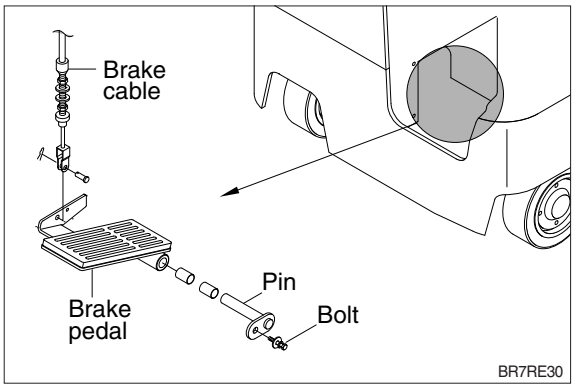
① Remove floor mat and floor plate.



② Remove inspection cover



③ Remove bolt, pin, spring and brake cable to remove brake pedal assembly.

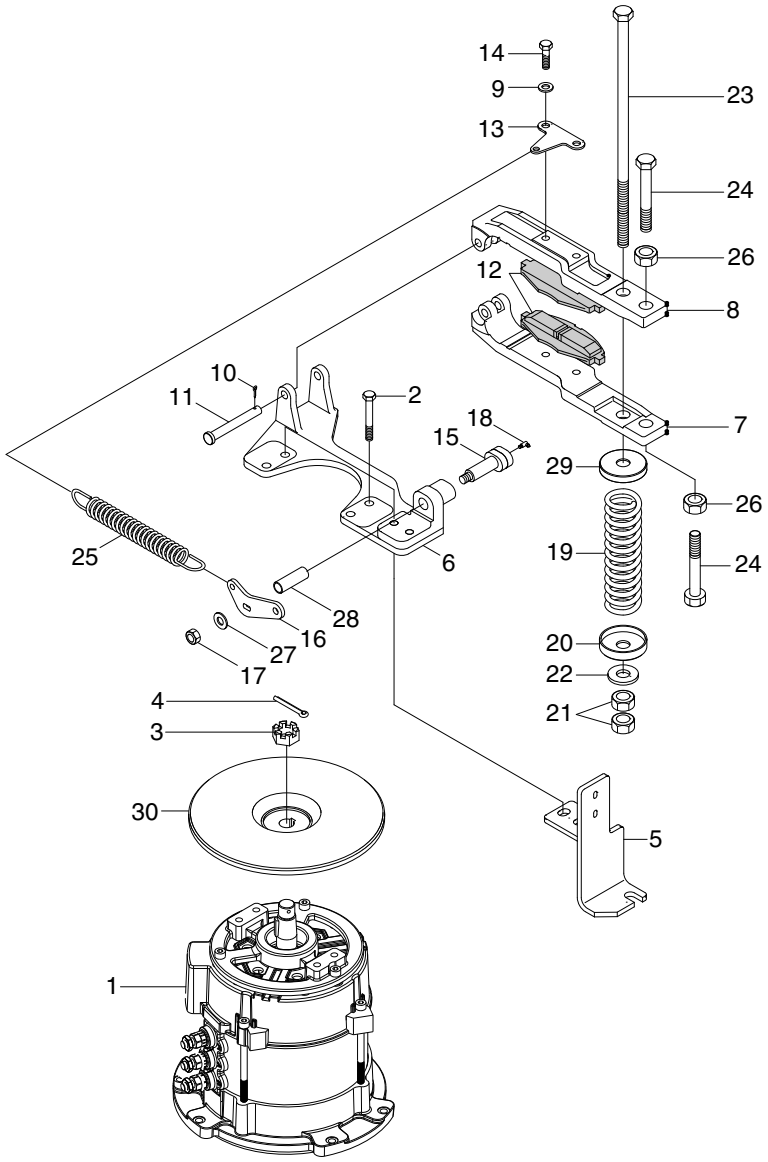


(2) Assembly

Perform disassembly in reverse order.

4. BRAKE SYSTEM

1) STRUCTURE



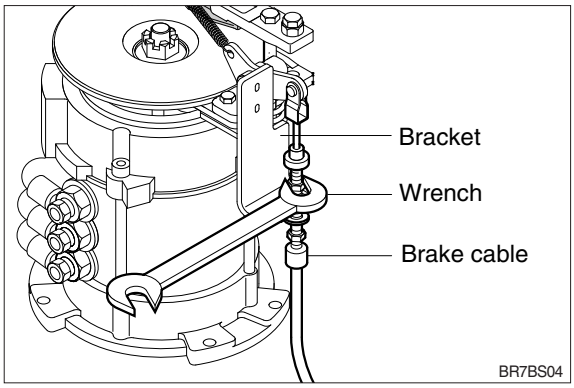
BR7BS03

1	Traction motor	11	Pin	21	Lock nut
2	W/Washer bolt	12	Pad assy	22	Washer
3	Hexagon head nut-slotted	13	Bracket	23	Rod bolt
4	Split pin	14	Bolt	24	Adjusting bolt
5	Cable bracket	15	Cam	25	Spring
6	Brake support	16	Cam lever	26	Nut
7	Under lever	17	Cam nut	27	Spring washer
8	Upper lever	18	Nipple	28	Du-bushing
9	Spring washer	19	Spring	29	Special cover
10	Split pin	20	Cover	30	Disc

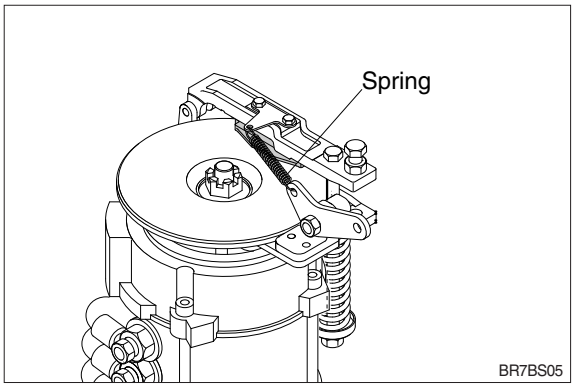
2) DISASSEMBLY AND ASSEMBLY

(1) Disassembly

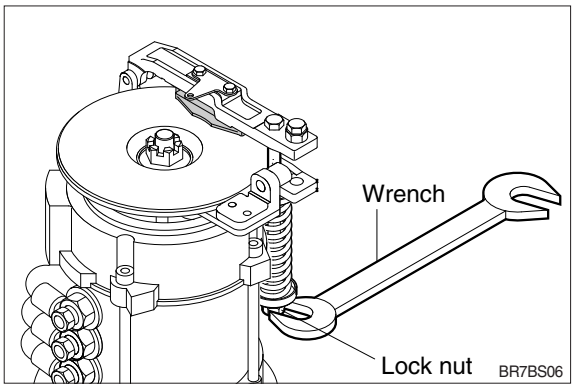
① Remove the brake cable from bracket.



② Remove spring from cam lever.

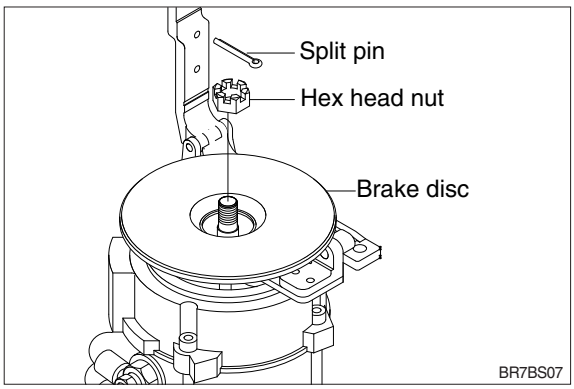


③ Remove rod bolt & spring after removing lock nut of brake spring.

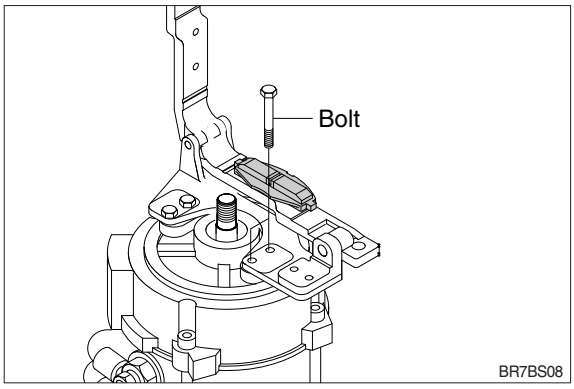


④ Remove the split pin from motor shaft and remove the hexagon head nut.

⑤ Remove brake disc from motor shaft.



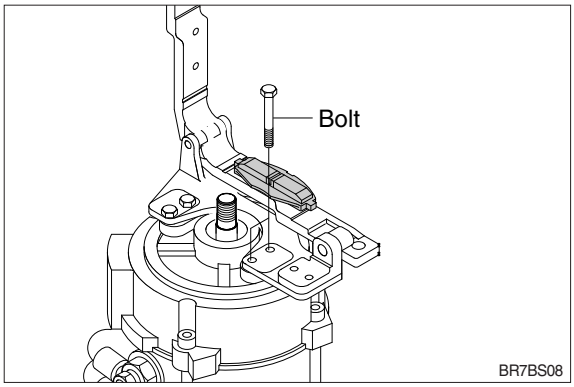
⑥ Remove the bolts from brake support.



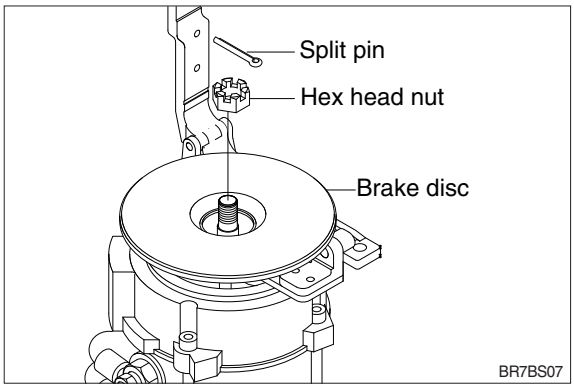
(2) Assembly

Assembly is in the reverse order to disassembly but be careful of following points.

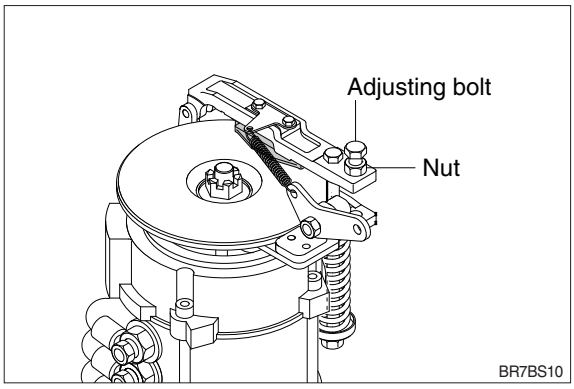
① Brake support mounting bolts.
- Tightening torque : 7.5~8.5kgf · m (54~61lbf · ft)
  M10 × 1.5



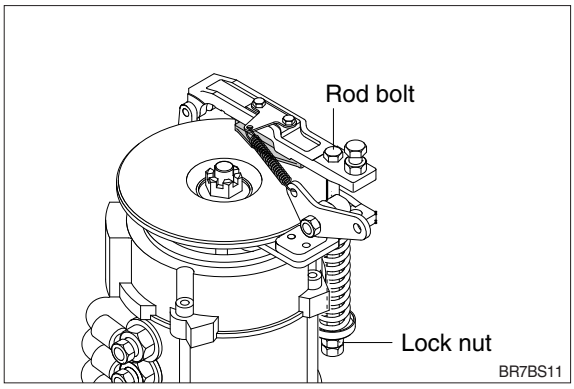
② Brake disc mounting hex head nut.
- Tightening torque : 14~16kgf · m (101~116lbf · ft)
  M20 × 1.5



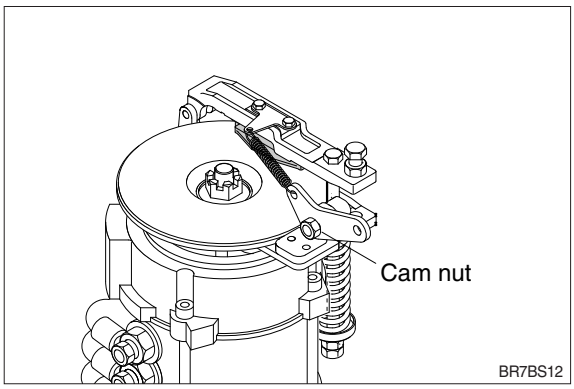
③ Adjusting bolt lock nuts.
· Tightening torque : 11.4~12.6kgf · m
(82~91lbf · ft)
M16 × 1.5



④ Rod bolts lock nuts.
· Tightening torque : 1.8~2.7kgf · m
(13~20lbf · ft)
M8 × 1.25



⑤ Cam nuts.
· Tightening torque : 0.8~1.1kgf · m
(6~8lbf · ft)
M6 × 1.0



5. INSPECTION

1) Brake pad inspection

(1) Contact normally?
(2) Any injuries?
(3) Any one sided contact?
(4) Service limit : 4.5 mm (0.16")

2) Brake disc inspection

(1) Any damage or wear?
If so, plane the disc for revising.

3) Spring inspection

(1) Are the springs weakened or damaged?

GROUP 2 OPERATIONAL CHECKS AND TROUBLESHOOTING

1. OPERATIONAL CHECKS

1) BRAKE PEDAL OPERATION

(1) Once the pedal released, the machine must remain stopped.
(2) Check the pedal height is 75~80 ㎜ (2.95~3.15 in).

2) BRAKE SYSTEM OPERATION

(1) Check the operation of brake cam.
(2) Measure lining at point with most wear, and check that lining thickness is at least 4.0 ㎜ (0.16 in).

3) BRAKE FORCE

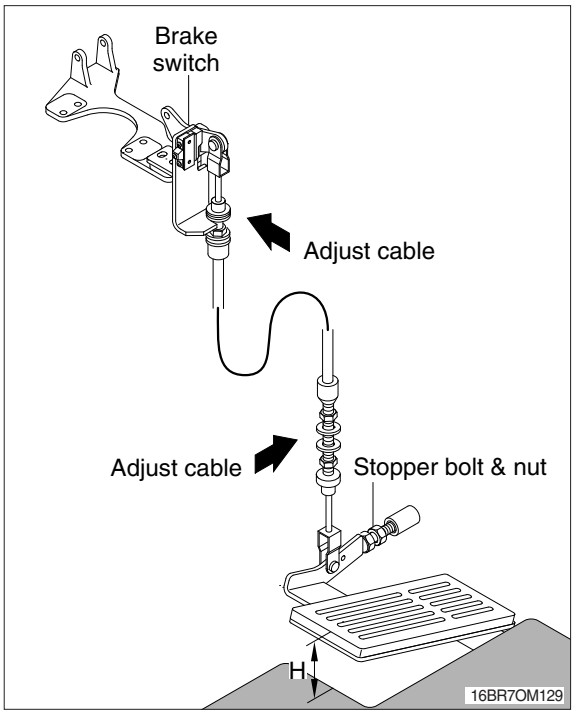
(1) Select a dry, flat, paved surface and drive truck at maximum speed when signal is given, stop truck immediately and measure distance from point where signal was given to point where truck stopped. (Unloaded)
 · Stopping distance : Within 5 m (16' 5")
(2) Check that there is no pulling of steering wheel, pulling by brakes to one side or abnormal noise when making emergency stops.

4) CHECK AND ADJUSTMENT OF THE SERVICE BRAKE SYSTEM

(1) Check the pedal height (H) and adjust the stopper bolt & nut.

Model	Height (㎜)
10/13/15/18/20BR-9	75^{+5}_{0}
25/30BR-9	

(2) Check the brake switch to be operating condition while the pedal is depressed.



(3) Check the gap (B) between brake cam and adjusting bolt.

· B : 0.8~1.2 mm

If the gap is too long and short adjust the adjusting bolt.

· Adjust nut tightening torque

11.4~12.6 kgf · m (82.5~91.1 lbf · ft)

Check the operation of the cam and bolt and then lubricate grease to them.

(4) Check the brake pad wear or any damage.

If brake pad is contacted any one side or pad thickness is 4.5mm, pad should be replaced together.

· Brake pad bolt tightening torque

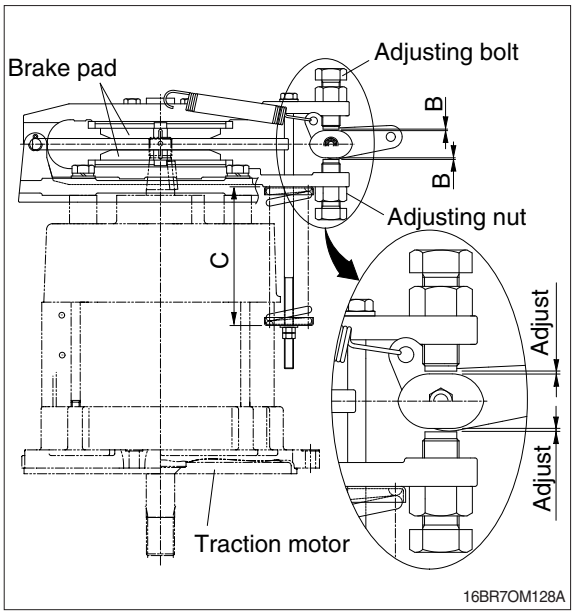
1.8~2.7 kgf · m (13.0~19.5 lbf · ft)

(5) Check the height(C) of brake spring and adjust the spring.

Model	Height (mm)
10/13BR-9	123±1.0
15/18BR-9	118±1.0
20/25/30BR-9	104±1.0

· Spring nut tightening torque

1.8~2.7 kgf · m (13.0~19.5 lbf · ft)



2. TROUBLESHOOTING

Problem	Cause	Remedy
Brake pad not releasing	· Pedal stroke is not enough	· Check and adjust
	· Clearance between cam & adjust bolt is not enough	· Check and adjust
Heavy brake pedal	· Brake spring is over fastened	· Check and adjust
	· Cable out of adjustment	· Check and adjust
Poor braking effect	· Brake spring broken or deteriorated	· Repair or replace
	· Pedal stroke is not enough	· Check and adjust
	· Brake pad worn	· Check and replace if defective
	· Faulty return due to rusting of parts	· Repair or replace
	· Clearance between cam & adjust bolt is not enough	· Check and adjust
Brake squeaks	· Brake pad glazed or dirty, worn, brake dust accumulation	· Check and replace if defective
	· Brake disc warped, cracked, dust accumulation	· Check and replace if defective
Unable driving	· Micro switch broken, unsuitable position	· Repair or replace
Brake is not working	· Brake spring height, out of adjustment	· Check and adjust
	· Brake spring broken	· Replace
	· Clearance between cam & adjust bolt, out of adjustment	· Check and adjust
	· Disc removed or worn	· Repair or replace
	· Micro switch is not working	· Check and replace if defective
	· Pedal stroke is not enough	· Check and adjust
	· Cable out of adjustment	· Check and adjust
	· Motor is broken	· Repair or replace
	· Motor shaft is broken	· Repair or replace