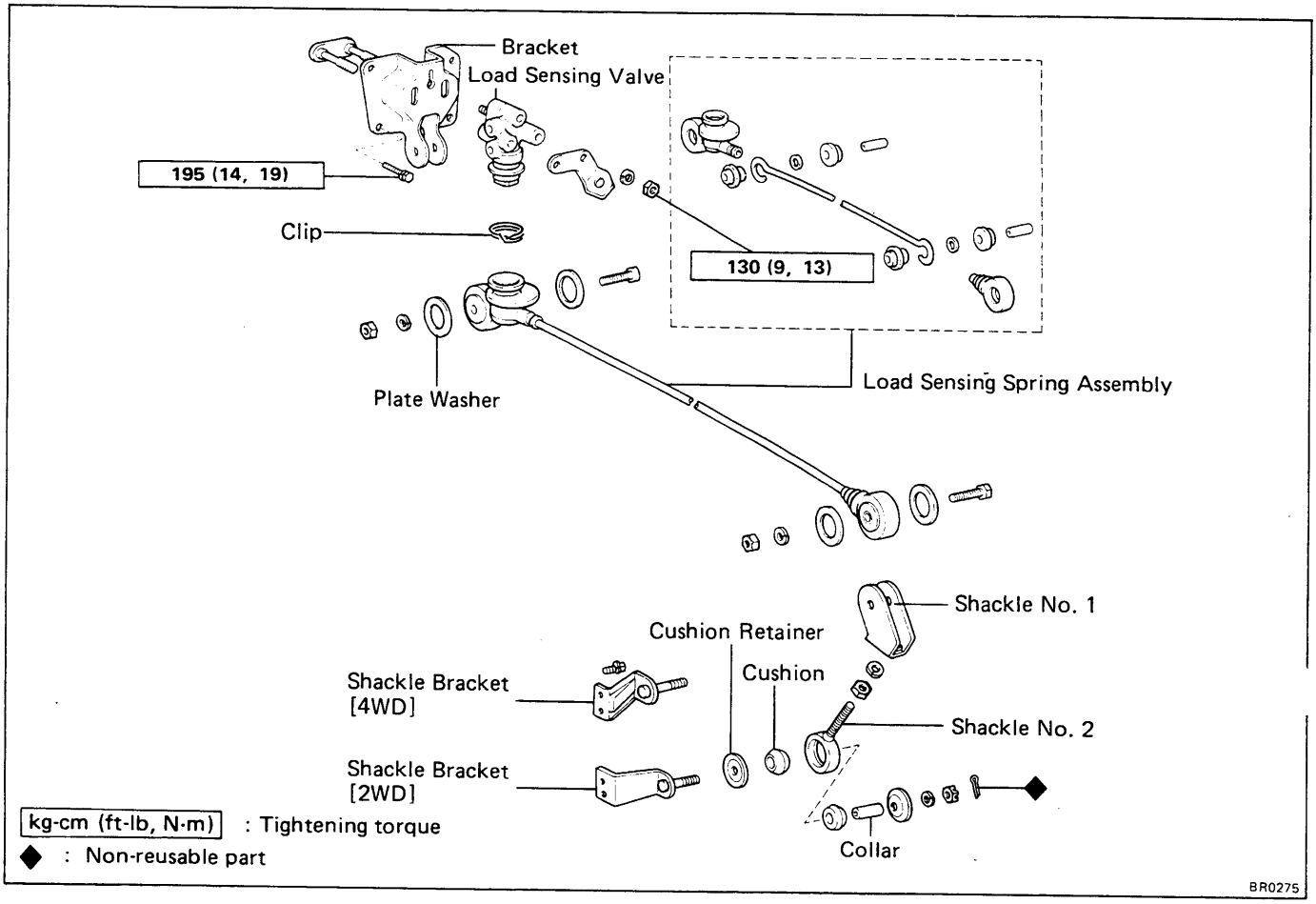
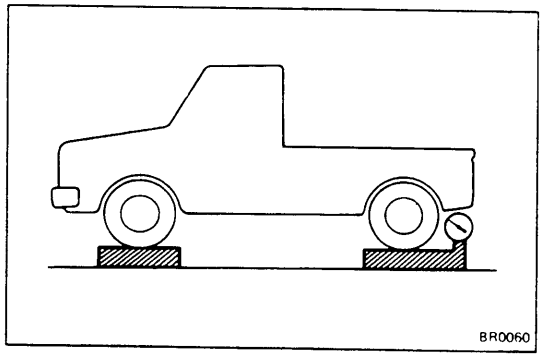
LOAD SENSING PROPORTIONING AND BY-PASS VALVE (LSP & BV)

COMPONENTS



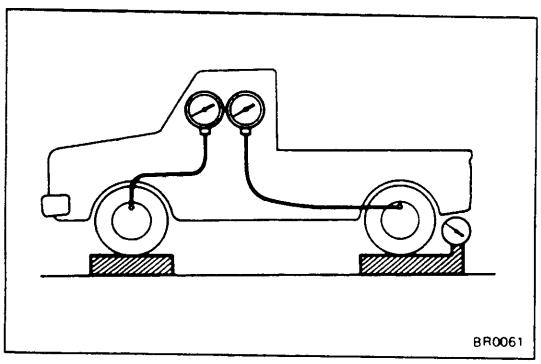


CHECK AND ADJUSTMENT OF FLUID PRESSURE

1. **SET REAR AXLE LOAD**

   Rear axle load (includes vehicle weight):

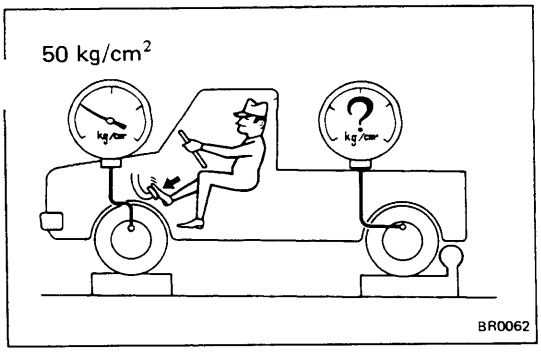
2WD	700 kg (1,543 lb)
4WD	750 kg (1,653 lb)



2. **INSTALL LSPV GAUGE (SST) AND BLEED AIR**

   SST 09709-29017

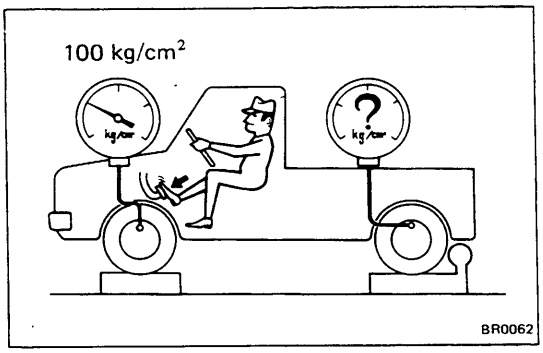
B02030



3. **RAISE FRONT BRAKE PRESSURE TO 50 kg/cm² (711 psi, 4,903 kPa) AND CHECK REAR BRAKE PRESSURE**

Rear brake pressure:
2WD 37±5 kg/cm² (526±71 psi, 3,628±490 kPa)
4WD 36±5 kg/cm² (512±71 psi, 3,530±490 kPa)

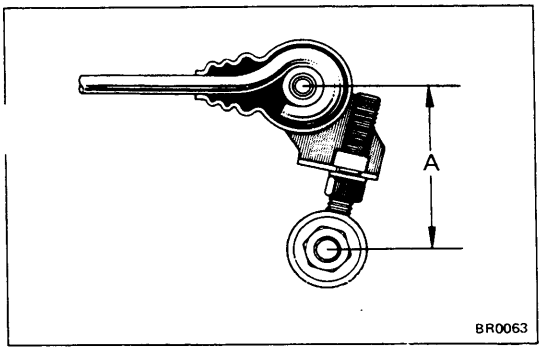
NOTE: The brake pedal should not be depressed twice and/or returned while setting to the specified pressure. Read the value of rear brake pressure two seconds after adjusting the specified fluid pressure.



4. **RAISE FRONT BRAKE PRESSURE TO 100 kg/cm² (1,422 psi, 9,807 kPa) AND CHECK REAR BRAKE PRESSURE**

Rear brake pressure:
2WD 56±7 kg/cm² (796±100 psi, 5,492±686 kPa)
4WD 55±7 kg/cm² (782±100 psi, 5,394±686 kPa)

If the brake pressure is incorrect, adjust the fluid pressure.



5. **IF NECESSARY, ADJUST FLUID PRESSURE**

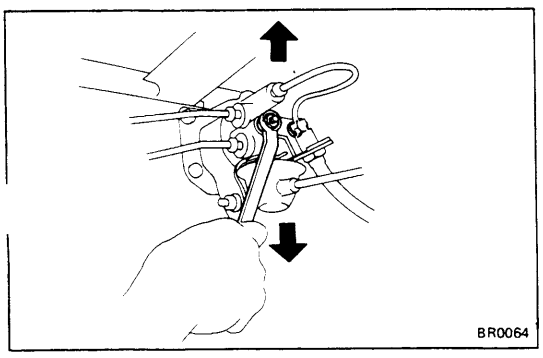
(a) Adjust the length of the No.2 shackle.

Low pressure —— Lengthen A
High pressure —— Shorten A

Initial set:
2WD 78mm (3.07 in.)
4WD 120mm (4.72 in.)

Adjusting range:
2WD 72 — 84 mm (2.83 — 3.31 in.)
4WD 114 — 126 mm (4.49 — 4.96 in.)

NOTE: One turn of the No.2 shackle changes the fluid pressure about 0.6 kg/cm² (8.5 psi, 59 kPa).



(b) In event the pressure cannot be adjusted by the No.2 shackle,raise or lower the valve body.

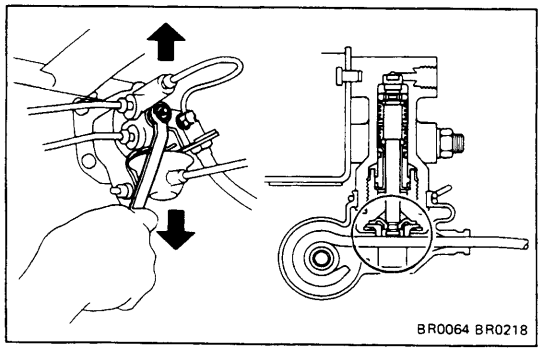
Low pressure — Lower
High pressure — Raise

(c) Torque the nuts.

Torque: 130 kg-cm (9 ft-lb, 13 N·m)

(d) Adjust the length of the No.2 shackle again.

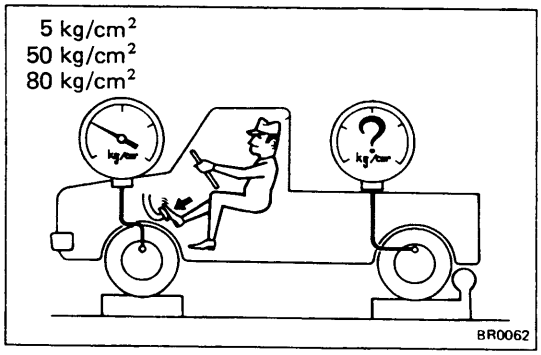
If it cannot be adjusted, inspect the valve housing.



6. IF NECESSARY,CHECK VALVE BODY

(a) Assmble the valve body in the uppermost positior

NOTE: When the brakes are applied,the piston will mov. down about 1 mm (0.04 in.).Even at this time,the piston should not make contact with or move the load sensing spring.

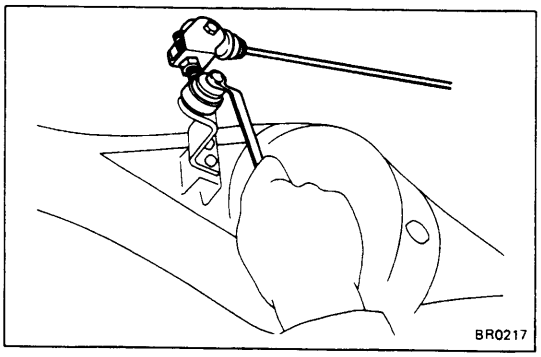


(b) In this position,check the rear brake pressure.

kg/cm² (psi,kPa)

Front brake pressure	Rear brake pressure
5 (71, 490)	5 (71, 490)
50 (711, 4,903)	19.7—23.7 (280—337, 1,932—2,324)
80 (1,138, 7,845)	29.8—35.8 (424—509, 2,922—3,511)

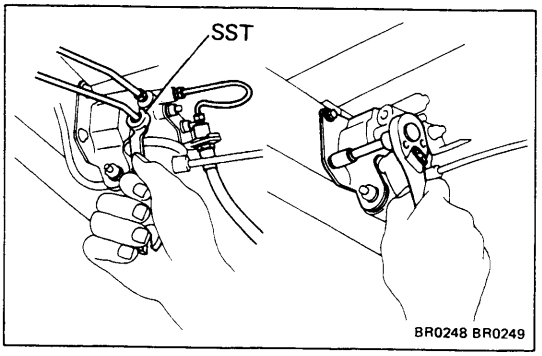
If the measured value is not within standard,replace the valve body.



REMOVAL OF LSP & BV OR LSPV

(See page BR-50)

1. DISCONNECT SHACKLE NO.2 FROM BRACKET

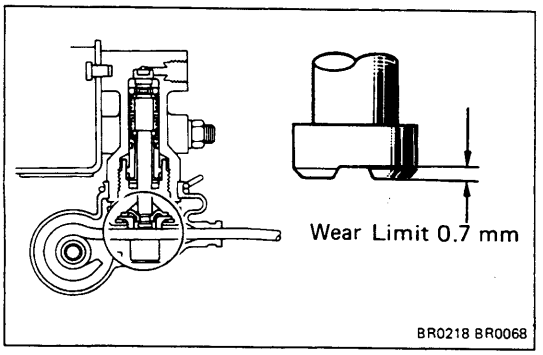


2. REMOVE LSP & BV (LSPV) ASSEMBLY

(a) Using SST, disconnect the brake tube from the valve body.

SST 09751-36011

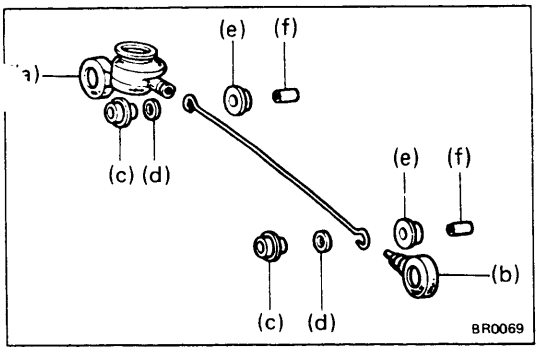
(b) Remove the valve bracket mounting bolts and remove the LSP & BV (LSPV) assembly.

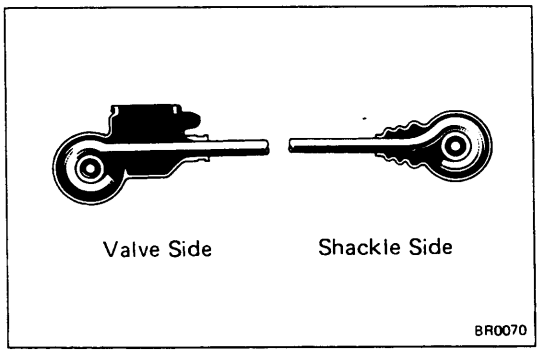


INSPECTION OF LSP & BV OR LSPV

INSPECT VALVE PISTON PIN AND LOAD SENSING CONTACT SURFACE FOR WEAR

Wear limit: 0.7 mm (0.028 in.)



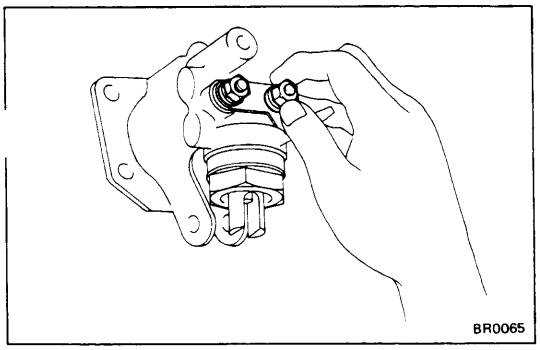


INSTALLATION OF LSP & BV OR LSPV

(See page BR-50)

1. **ASSEMBLE FOLLOWING PARTS TO LOAD SENSING SPRING:**
   - (a) Load sensing valve boot
   - (b) Load sensing spring boot
   - (c) Bushings
   - (d) Rubber plates
   - (e) Bushings
   - (f) Collars

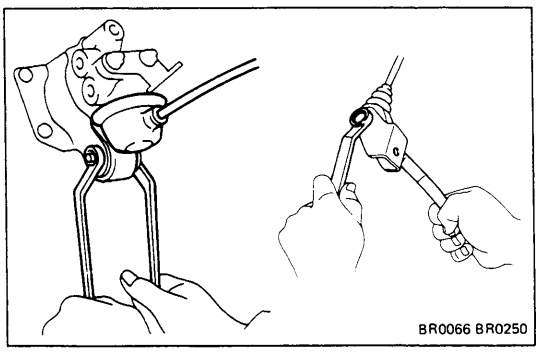
   NOTE: Apply rubber grease to all rubbing areas.
   Do not mistake the valve side for the shackle side of the load sensing spring.



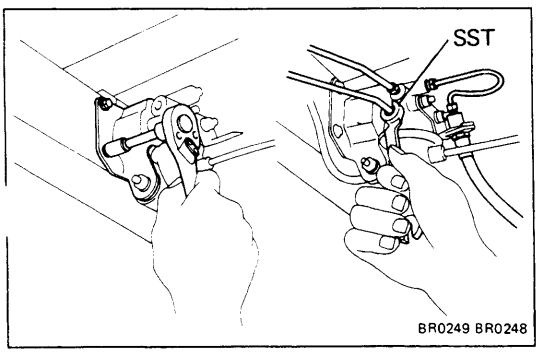
2. **ASSEMBLE VALVE BODY TO BRACKET**

   Assemble the valve body to the valve body bracket.

   NOTE: Finger tighten the valve body mounting nuts.



3. **CONNECT VALVE BODY AND NO.1 SHACKLE TO LOAD SENSING SPRING**



4. **INSTALL LSP & BV (LSPV) ASSEMBLY TO FRAME**

   Torque: 195 kg-cm (14 ft-lb, 19 N·m)

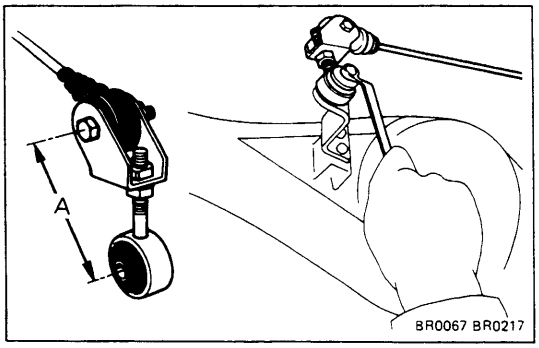
5. **CONNECT BRAKE TUBE**

   Using SST, connect the brake tubes.

   Torque the nut.

   Torque: 155 kg-cm (11 ft-lb, 15 N·m)

   SST 09751-36011



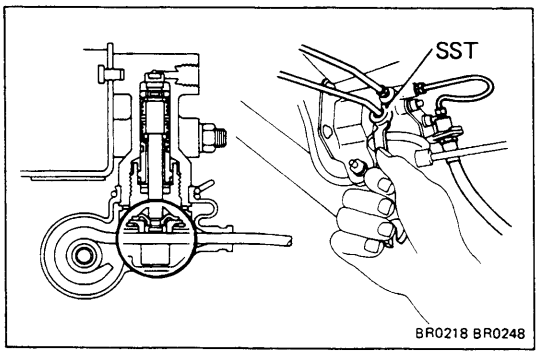
6. CONNECT SHACKLE NO.2 TO BRACKET

(a) Install shackle No. 1 and shackle No.2 to the load sensing spring.

(b) Set dimension A by turning shackle No.2.

Initial set: 2WD 78 mm (3.07 in.)
4WD 120 mm (4.72 in.)

(c) Connect shackle No. 2 to the shackle bracket.



7. SET REAR AXLE LOAD (See page BR-50)

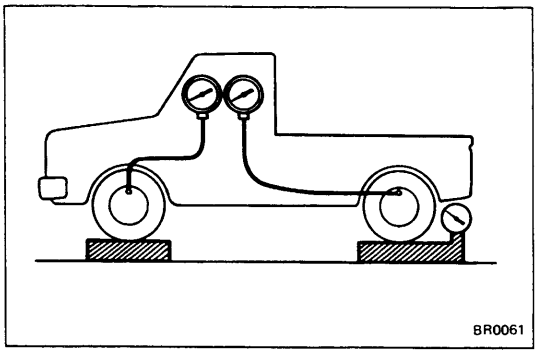
8. SET VALVE BODY

(a) When pulling down the load sensing spring,confirm that the valve piston moves down smoothly.

(b) Position the valve body so that the valve piston lightly contacts load sensing spring.

(c) Tighten the valve body mounting nuts.

9. BLEED BRAKE LINE (See page BR-6)



10. CHECK AND ADJUST LSP & BV FLUID PRESSURE (See page BR-50)