

## Auto-Release Valve (Air/hyd Models)

# AUTO-RELEASE VALVE

## Description

The purpose of an auto-release valve, is to prevent unintentional release of the parking brake after overnight parking or spring brake hose failure, when the hand control valve lever may have been left in the OFF position. In this event, when the engine is started and left to charge the system, the driver may not necessarily be in the cab; thus the parking brake will be released when the air pressure is high enough to compress the springs in the spring brake.

The auto release valve prevents any charging air being passed to the spring brake until positive action by the driver operates the control knob. Once operated to the open position, the valve cannot be operated manually to apply the spring brake; the hand control valve used for parking purposes is the only driver-controlled method of operating the parking brake.

## Operation

When the system is charged from zero pressure, or from any pressure below 2.4 bar (35 lb/in<sup>2</sup>), the valve will be closed against the lower or inlet seat preventing any compressed air from entering the hand control valve, thus, the vehicle cannot roll away whilst the system is being charged. Even when the system is fully charged, the rubber valve will remain seated.

When the driver pulls the control knob, the spring load, acting through the sleeve on the valve, is removed. This allows the air pressure acting on the rubber valve to lift and seat the valve sharply on the upper or exhaust seat. Due to the much larger area presented to the compressed air, the spring load is easily overcome after the control knob has been released. Should the air pressure fall, due to prolonged parking or spring brake hose failure, etc., the valve will snap back sharply to its lower or inlet seat once pressure falls below 2.4 bar (35 lb/in<sup>2</sup>) and the spring brake is exhausted to the atmosphere through the auto-release valve. Once the valve closes, the air pressure must be raised above 2.8 bar (40 lb/in<sup>2</sup>) and the control knob operated before the air inlet can again be opened to permit release of the parking brake.

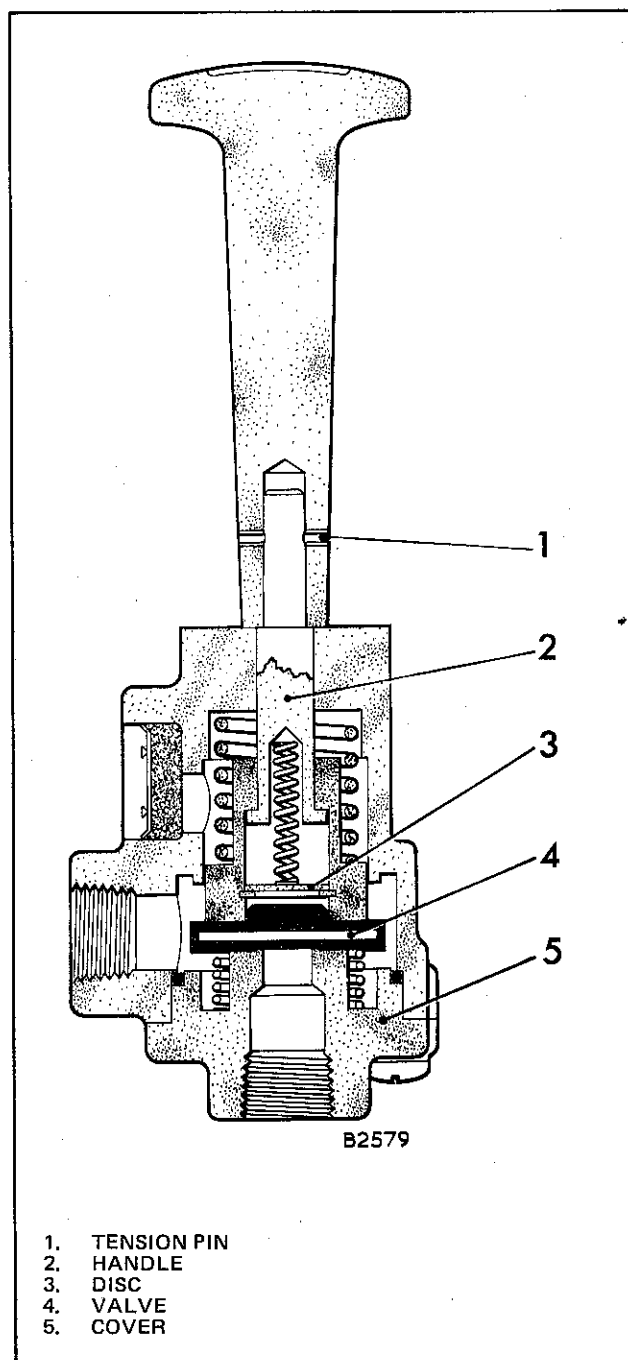


Fig. 1 Auto-release valve - sectional view

**Maintenance**

Check the tightness of the mounting screws.

Check that the union nuts of the air pipes are tight and not corroded.

Ensure that the exhaust port is clean and unobstructed.

At the time stated in the Maintenance Schedule fit a replacement valve, or remove and overhaul it completely.

**Operating Test**

Chock the wheels and fully charge the air system.

Place the hand control valve in the "OFF" position.

Reduce the pressure in the system to 2-4 bar (35 lb/in<sup>2</sup>) and check that the valve automatically exhausts the spring brake actuator allowing full parking brake application.

Recharge the system, when the pressure in the system reaches 2-8 bar (40 lb/in<sup>2</sup>), pull the knob upwards and then release the knob. The valve should open sharply, allowing partial release of the spring brake and the knob should remain in the upward position. Failure of the valve requires investigation.

**Air Leakage Test**

Place the hand control valve in the PARK position.

Reduce the pressure in the system to 2-4 bar (35 lb/in<sup>2</sup>), check that the valve has assumed its closed position (knob in lower position).

Charge the system to operating pressure.

Remove the delivery port fitting, taking care to keep dirt out of the valve.

Brush soap solution on the port and observe any leakage. Leakage in excess of a 1 cm (0.4 in) soap bubble in three seconds is not permissible. Refit the delivery port connection.

Operate the knob to allow the valve to open and check that the knob remains in the upward position.

Brush soap solution on the exhaust port and observe any leakage. No leakage is permissible.

**To Remove**

Release the pressure in the system by operating the brake pedal.

Identify the pipe connections.

Remove the knob from the stem.

Remove the two securing screws and remove valve.

**To Dismantle**

Drive out the tension pin and remove the knob stem.

Remove the screws and spring washers securing the bottom cover.

Remove the bottom cover, sealing ring, spring and valve.

Push the handle assembly through the valve.

Remove the circlip from the sleeve and withdraw disc, spring and handle from sleeve.

Remove retainer and breather element.

**Inspection and Overhaul**

Clean all parts in solvent and blow dry.

Examine the valve seats, one in the body and one in the bottom cover, for burrs, nicks or any imperfection which could cause leakage.

Check that the sliding bores in the body are free from deep scores and excessive wear.

The outer surface of the handle and the smaller diameter bore of the sleeve should be checked for wear and scores.

Check the springs for corrosion and 'set' and renew as necessary.

Check the body and bottom cover for cracks or damage.

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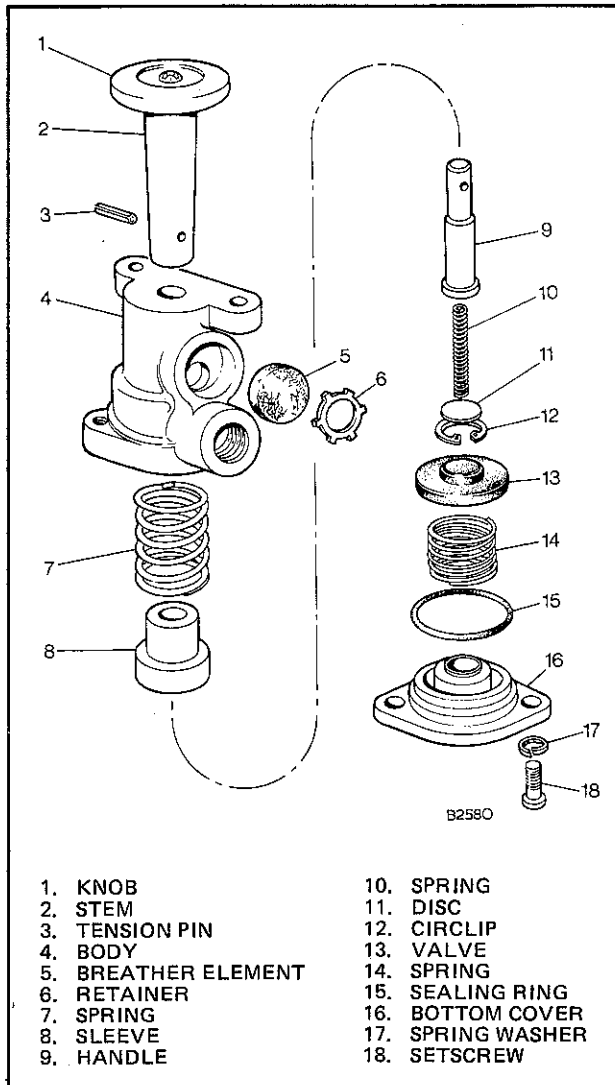


Fig. 2 Details of auto-release valve

**To re-assemble**

All sliding and load bearing surfaces, sealing rings and springs must be coated with the grease (CDS 156) supplied in the repair kit, or Rocal E1A.

Insert the handle in the sleeve so that the lip on the handle abuts the stop in the sleeve.

Place the small diameter spring into the recess in the handle and place the disc on the spring. Compress the spring and secure with new circlip.

Invert the body and place the large spring at the base.

Insert the handle and sleeve assembly into the body, ensuring that the spring seats on the sleeve shoulder.

Press a new valve into the end of the sleeve so that the flat side of the valve faces the open end of the valve.

Fit a new sealing ring on the bottom cover and position the valve spring on the valve.

Position the bottom cover correctly over the body and, ensuring that the valve spring enters the recess in the cover, press the bottom cover to the body, compressing the springs, secure with the two screws and spring washers.

Refit the breather element and retainer.

Refit the handle stem using a new tension pin.

**To refit**

Position the valve and secure with two screws. Refit the knob to the stem.

Connect the air lines as noted on removal.

Fully charge the air system and check for leakage and correct valve operation.