Low Pressure Warning Switch Kit

Installation Instructions

Kit Number	Fluid Type
02-600-017	Brake Fluid
02-600-030	Hydraulic Oil

READ GENERAL INSTALLATION GUIDELINES SHEET (81-600-001) BEFORE PROCEEDING

⚠ WARNING

1. All ZF brake locking devices are **supplemental** safety equipment which provide additional brake holding action **when used with existing vehicle parking brake.**
2. The Low Pressure Warning Switch must be used in combination with an audible and/or visual alarm to signal any loss of system pressure. The Low Pressure Warning Switch is explained in the Operating Instructions (Form No. 81-620-021). **Do not disconnect Low Pressure Warning Switch.**
3. All lines, fittings, and adjacent areas must be cleaned of dirt or road residue before any lines or fittings are disconnected. Special care must be taken so dirt and road residue are not allowed to enter hydraulic brake system. This can contaminate the system and interfere with proper operation of brakes and locking devices.
4. Follow procedures outlined in Vehicle Manufacturer Service Manual or SAE Standards when making new connections or adding to existing brake systems. Use only steel brake tubing conforming to SAE specifications.
5. For brake fluid models, use only brake fluid conforming to latest SAE or DOT Standards. Improper or contaminated brake fluid may cause gummy deposits and softening and swelling of other rubber seals in the entire brake system. Such a condition must be corrected immediately.
6. Do not use sealants, tapes, teflon, or cement compounds on any connections or fittings. These sealants or compounds can contaminate the hydraulic brake system and interfere with the operation of brake components or brake locking device.
7. All fittings and connections must be in good condition and tightened to proper torque values as specified in the Installation and Service Instructions.
8. Separate models of brake locking devices are available for brake fluid and for mineral based hydraulic oil. Select a model that conforms with the type of fluid in the brake system.
9. Brake hoses, brake lines, brake locking device, brake components, cylinders, and all fittings must be routinely inspected for leaks, damage, or wear. Adequate fluid levels must be maintained. In the event of any loss of fluid, the brake system must be carefully inspected for leaks.
10. After installation, bleed the system according to vehicle manufacture recommendations.
11. Follow INSPECTIONS and TESTS section as outlined in the Operating Instructions.
12. The self-adhesive warning label accompanying each brake locking device must be affixed in the vehicle cab in view of the operator.
13. The Operating Instructions must be placed in the cab of vehicle in a place available to operator.

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THIS KIT IS FOR REPLACING EXISTING LOW PRESSURE WARNING SWITCHES

1. Locate brake lock on vehicle frame.
2. Using suitable size wrenches, loosen brake line on wheel side of lock. While line and fitting are still connected, loosen brass fitting on lock opposite switch end.
3. Remove brake line and brass fitting from lock. Install male run tee in lock and tighten with side port up.
4. Select correct size connector and install in end port of street tee and tighten. Reform brake line to fit in fitting or cut off one inch of line and connect line in fitting just installed. Tighten nut on fitting.
5. Install nipple in remaining open port on tee. Then thread pressure switch to nipple and tighten. **NOTE: Hold tee with wrench while tightening switch.**
6. Install nipple in remaining open port on tee. Then thread pressure switch to nipple and tighten. **NOTE: Hold tee with wrench while tightening switch.**
7. Bleed brake system to obtain firm pedal.

⚠ CAUTION

Make several applications to ensure a firm pedal is obtained before moving vehicle. If a spongy pedal is felt, rebleed until a firm pedal is obtained.

⚠ CAUTION

If the electrical load of the horn or warning device exceeds 10 amp do not connect the Low Pressure Warning Circuit directly to battery current. A horn relay must be used to prevent damage to pressure switch contacts.

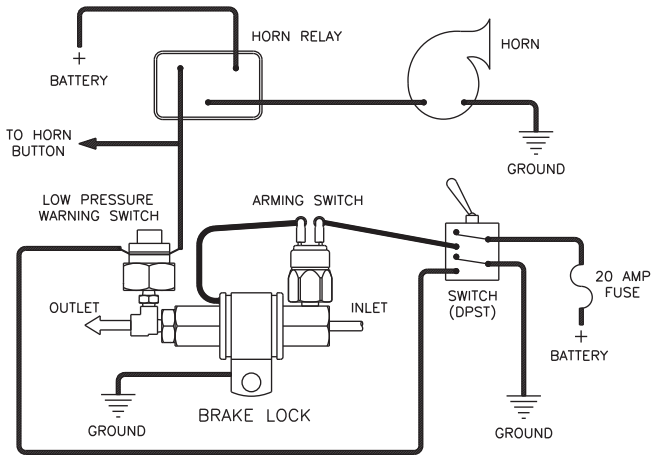

FIGURE 1

To utilize the vehicle's horn relay or an auxiliary relay make connection as shown.
(See Figure 1)

1. Connect terminal on brake lock arming switch to dashboard toggle switch. Then connect the corresponding terminal from toggle switch to any 20 amp fused HOT terminal behind the dash (as shown in figure 1).
2. Connect one terminal of Low Pressure Warning Switch (LPWS) to horn relay as shown.
3. Connect the remaining LPWS terminal to ground THROUGH the dashboard toggle switch as shown.

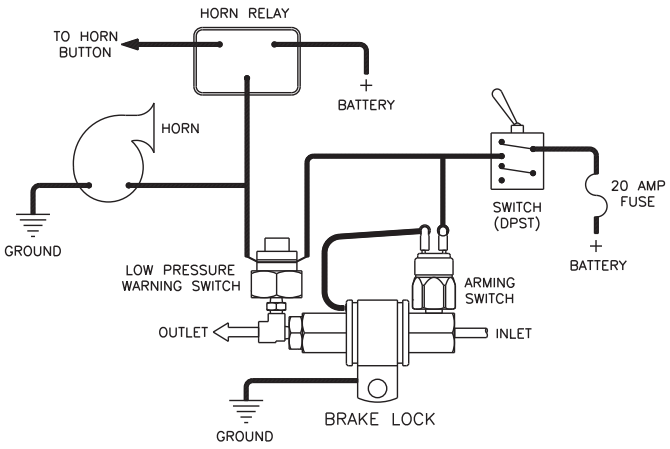

FIGURE 2

When horn draw does not exceed 10 amps the vehicle horn relay may be bypassed.
(See Figure 2)

1. Connect terminal on brake lock arming switch and one terminal of Low Pressure Warning Switch (LPWS) to the dashboard toggle switch (as shown in figure 2). Then connect the corresponding terminals from toggle switch to any 20 amp fused HOT terminal behind the dash as shown.
2. Connect the remaining LPWS terminal to the vehicle horn as shown.

INSPECTIONS AND TESTS

Federal regulations require that parking brakes be capable of holding vehicles on a 20% grade with rated capacity load, until intentionally released.

It is recommended that parking brake and brake Lock be tested daily, along with other safety equipment such as lights, horn, etc.

Testing Procedure

1. The vehicle must be fully loaded and driven on a 20% grade.
2. Parking brake and brake lock must be fully applied with engine running and transmission in neutral.
3. To test brake lock, operator must release parking brake, leaving brake lock applied, and remain in driver's seat. Vehicle must remain parked, without movement, for at least one minute.
4. To test parking brake, operator must apply parking brake, release brake lock, and remain in driver's seat. Vehicle must remain parked, without movement.

If vehicle moves while parking brake is applied, parking brake must be inspected and adjusted or replaced and tested again.

If vehicle moves while brake lock is applied, all hydraulic brake fittings, hoses, lines, and wheel cylinders must be inspected for leaks. Fittings which leak must be tightened or replaced. Hoses, lines or wheel cylinders which leak must be replaced or rebuilt. Vehicle must be tested again and if it fails to remain parked with brake lock applied, Lock must be replaced and original lock should be returned to ZF Off-Highway Solutions Minnesota Inc. for inspection and tests.