

# Technical Bulletin

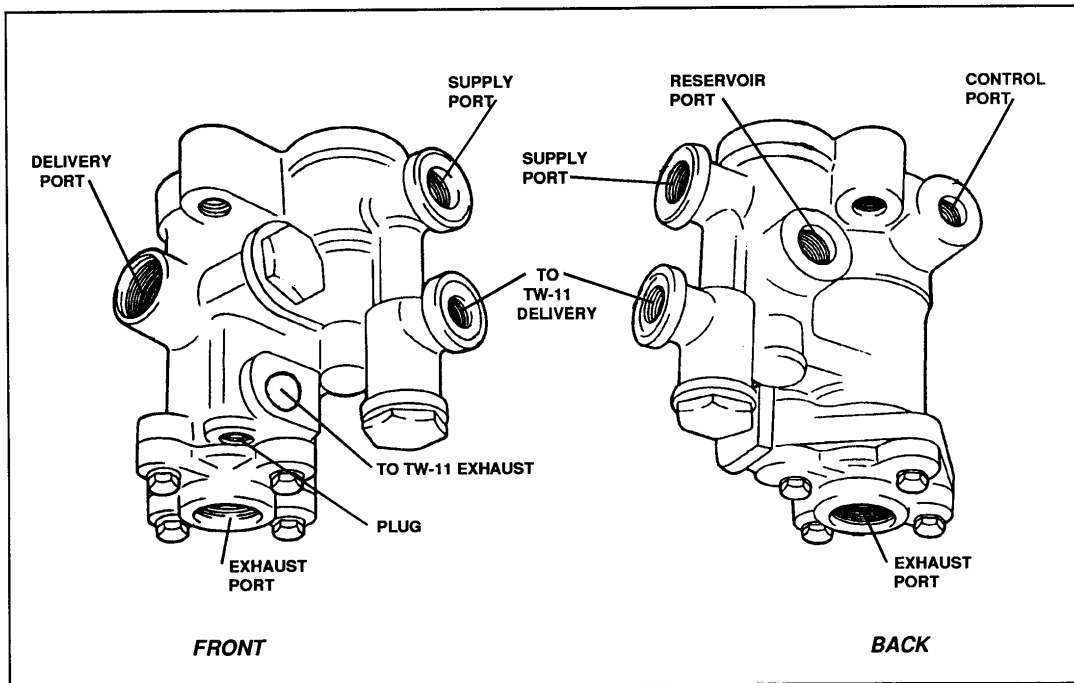
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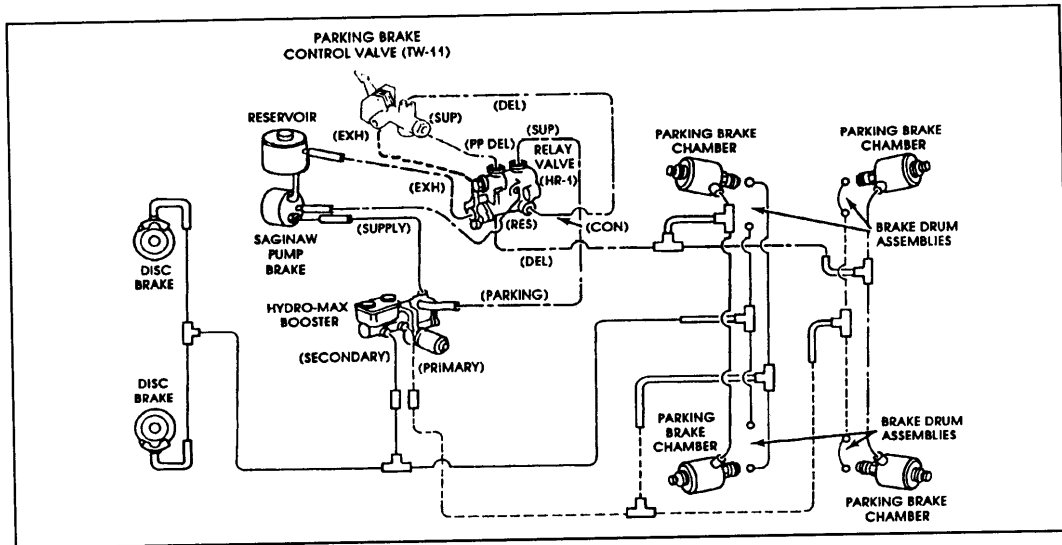
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Subject: **Ford F Series Truck Hydraulic Parking System HR-1 Hydraulic Relay Noise**



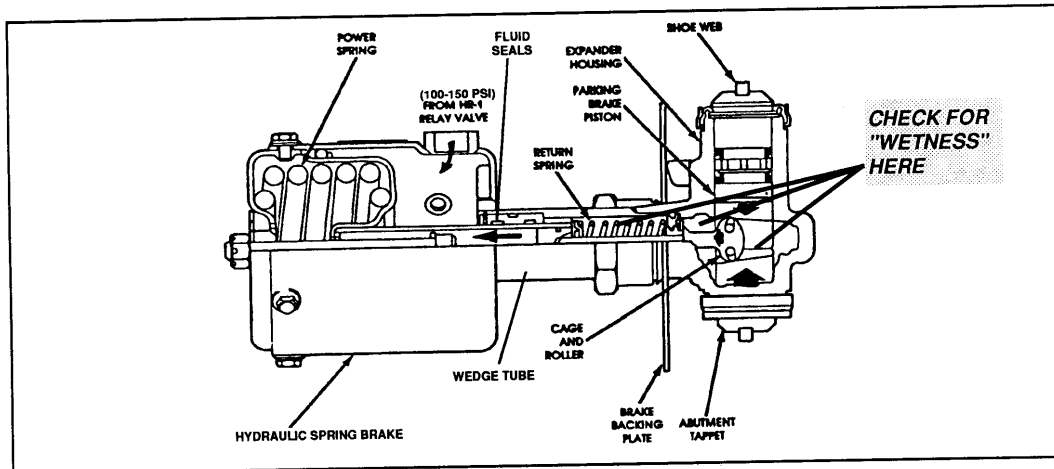
**HR-1 HYDRAULIC RELAY VALVE**

While some noise is inherent in the operation of a hydraulic brake system (pump, check valves and pressure regulating valves opening and closing) operators occasionally report hearing excessive noise emanating from the HR-1 hydraulic relay valve. The HR-1 is used on Ford truck model series 600, 700, 800, 900, 7000 and 8000. Described variously as a "buzzing, humming, popping or groaning" sound, the excessive noise is often attributed to a faulty HR-1. Because the HR-1 is mounted on the firewall, adjacent to the Hydro-Max booster, sounds are amplified. Excessive HR-1 noise can be the result of air in the parking brake system.



TYPICAL HR-1 SYSTEM

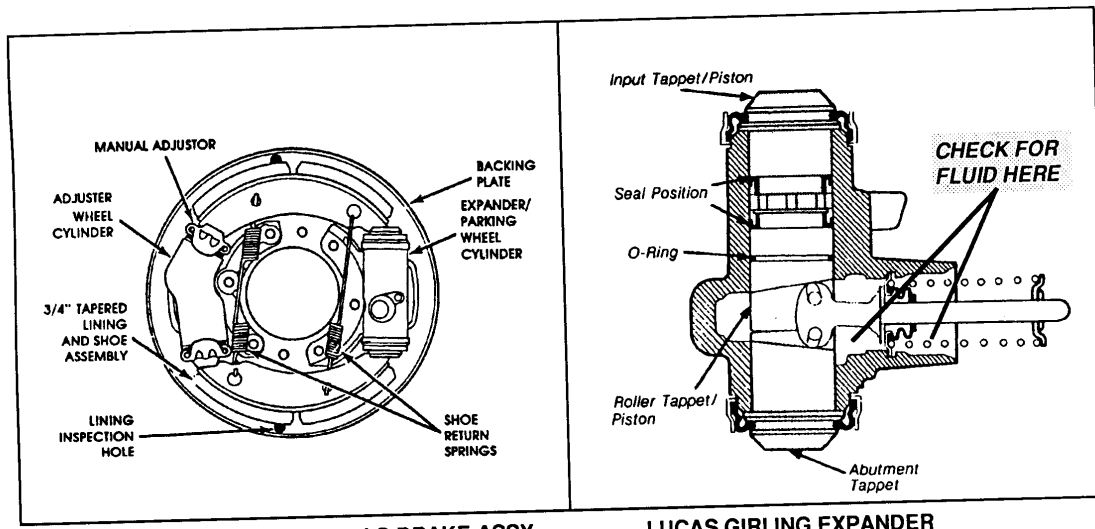
In order to eliminate the excessive HR-1 noise it is necessary to bleed the air from the spring brake actuators, using the vehicle manufacturer's recommended procedure. If the HR-1 noise is only temporarily eliminated and reappears in a short period of time, then it is likely that an external leak exists somewhere in the Hydro-Max and/or parking brake system which allows air to reenter the system. Check for fluid leakage and repair or replace as necessary.



PARKING ACTUATOR WITH LUCAS GIRLING EXPANDER

Most fluid leaks can be found by visual inspection, however the spring brake actuators can LEAK INTERNALLY INTO THE EXPANDER unit of the Lucas Girling A2LS drum brake. Internal, hydraulic spring brake leakage can not be detected visually unless the actuator is removed from the expander and checked for "wetness" inside the wedge tube.

**CAUTION:** Thoroughly read the vehicle manufacturer's maintenance manual before attempting removal of the hydraulic spring brake actuators. A VERY HIGH SPRING LOAD IS USED AND INJURY CAN RESULT FROM IMPROPER HANDLING.



Both actuators should be checked for internal leakage. If evidence of internal leakage is found in either of the actuators, it may be necessary to repair or replace all components containing BRAKE FLUID SEALS, that may have been exposed to hydraulic fluid from the leaking spring brake actuator. The affected components are the: A2LS expander unit, A2LS wheel cylinder and possibly the master cylinder. Drain, flush and replace the brake fluid in the service brake system to eliminate any hydraulic fluid contamination.