

1971-73 CHRYSLER CORP. SURE BRAKE SYSTEM

Chrysler Imperial (1971-73)

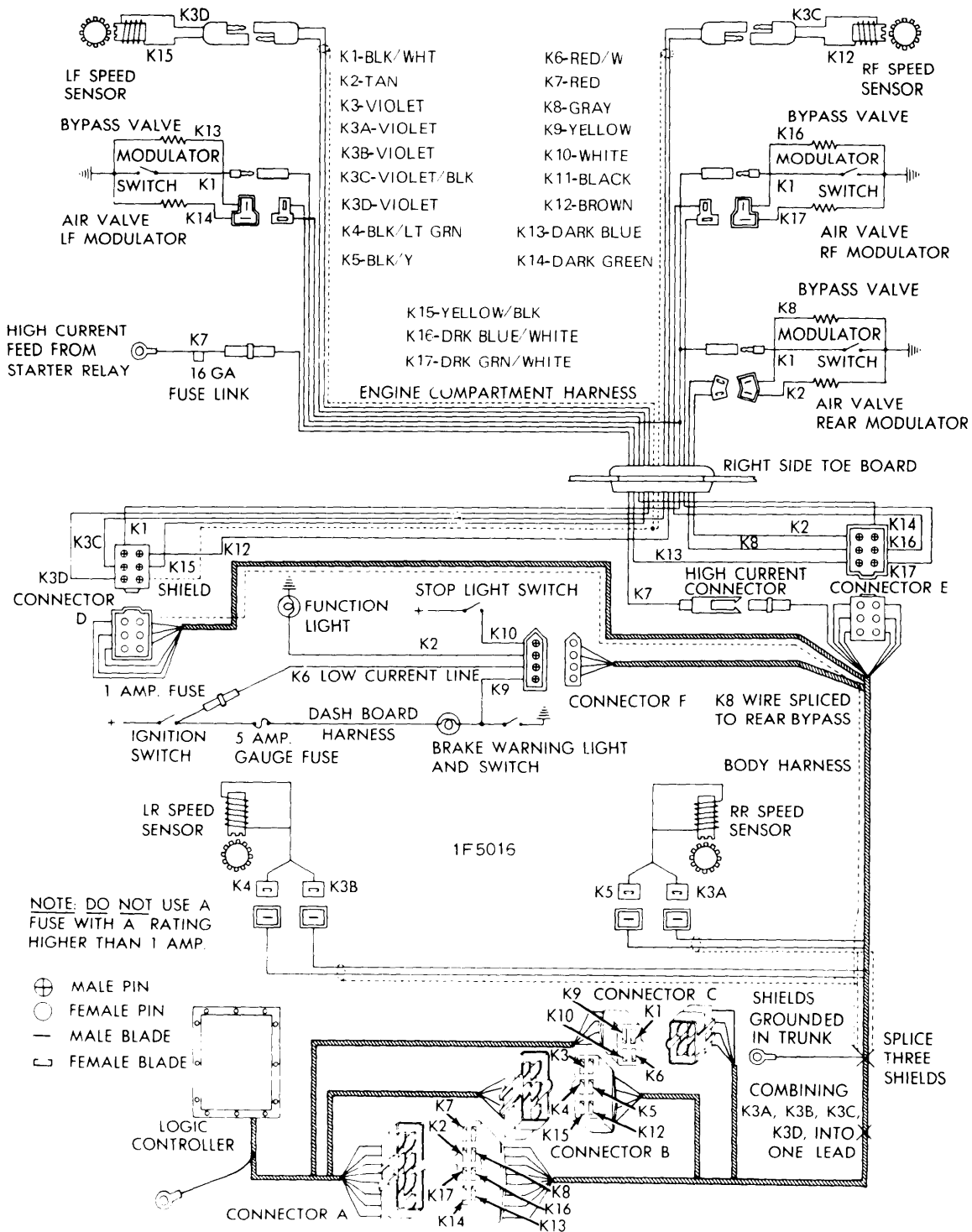
► CHANGES, CAUTIONS, CORRECTIONS

► **TRANSCIEVER INSTALLATION (WITH SURE BRAKE SYSTEM)** NOTE: Sure brake system must be checked for proper operation whenever a citizen's band transceiver or mobile telephone is installed. Installation suggestions: If

transmitter is to be installed in trunk, mount it on left side of trunk. Be sure there is a good ground between transmitter and car body. Use only good, low leakage coaxial cable at left side of trunk, as short as possible. Ensure antenna has a good ground. Antenna must not be mounted on right rear fender. Route all cables along left side of vehicle.

DESCRIPTION

System designed to prevent loss of control during emergency or maximum braking. To avoid lock-up of any wheel,

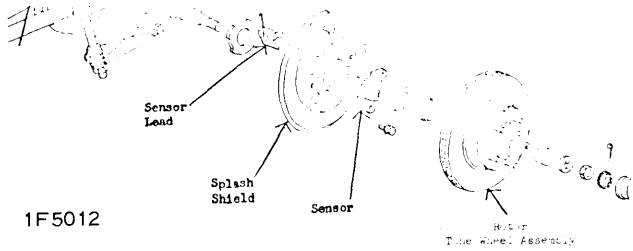


SURE BRAKE WIRING DIAGRAM

Electronic Brake Control Systems

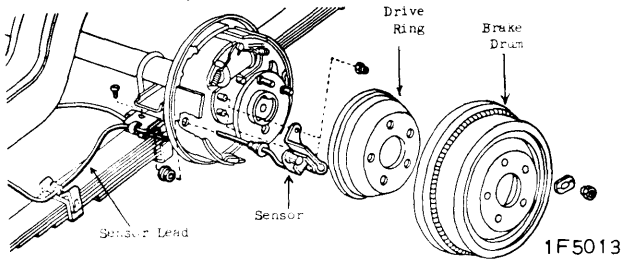
1971-73 CHRYSLER CORP. SURE BRAKE SYSTEM (Cont.)

system is cycled to release and re-apply brakes as required. System consists of three major components:



FRONT SPEED SENSOR MOUNTING

Speed Sensors – Mechanically driven electro-magnetic devices at each wheel produce AC current when wheels rotate. Front sensors are frictionless drive type consisting of coil and magnet attached to splash shield and large tone wheel on brake rotor hub. Rear sensors are friction drive type consisting of magnet, coil and tone wheel attached to a mounting bracket and driven by a ring secured between axle flange and drum.



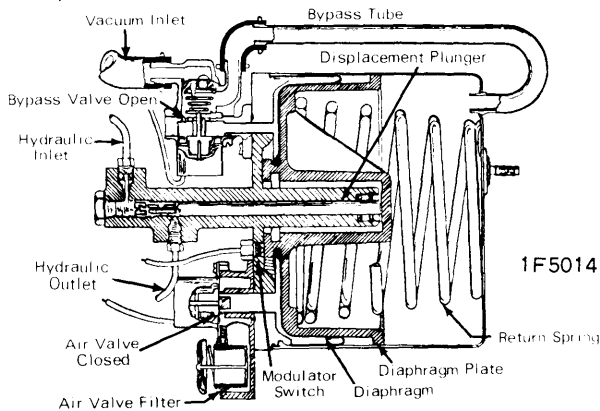
REAR SPEED SENSOR MOUNTING

Pressure Modulators – One for each front brake, located under front fenders. One for both rear brakes, located next to radiator at right side of engine compartment. Similar in appearance to a vacuum brake booster, each consists of vacuum chamber, bypass tube, end plate with hydraulic cylinder, air valve, bypass valve and pressure modulator switch. Both valves are solenoid operated. Spring loaded switch provides warning signal under certain abnormal conditions. Rear modulator air valve connected to amber light on instrument panel. Light indicates system operating each time valve is actuated.

Logic Controller – Essentially a small computer. Electronically, it contains three channels, one for each of three pressure modulators. Processes signals received from sensors and as required, sends signal to modulator that controls braking for wheel or wheels concerned to prevent lock-up.

OPERATION

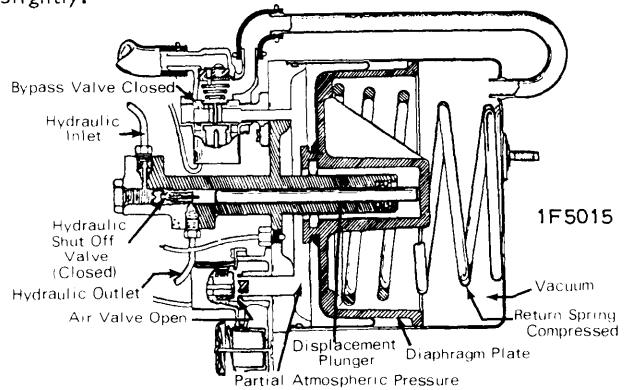
Engine Running, Vehicle Parked – Without signals from sensors, controller does not function. Modulator air valve



MODULATOR ASSEMBLY (NORMAL POSITION)

is closed, bypass valve open, vacuum admitted to front and rear of chamber, diaphragm balanced in vacuum and return spring holds plate forward against end plate. If brakes are applied under these conditions, full hydraulic pressure from master cylinder passes through modulator hydraulic cylinders to calipers and wheel cylinders.

Engine Running, Vehicle in Motion – Frequency of AC voltage generated at each sensor is directly proportional to the speed of the wheel. With light or no brake application, controller does not function. When brakes are applied with greater force, controller, based on wheel sensor signals, determines rate at which each wheel is decelerating. If lock-up is imminent, controller sends signal to modulator which controls braking for wheel or wheels concerned. Signal closes bypass valve shutting off vacuum to front of chamber, air valve opens venting front of chamber to atmosphere resulting in pressure imbalance to diaphragm, moving diaphragm and displacement plunger rearward. Calipers or cylinders are isolated from master cylinder and pressure reduced to release brakes. Controller senses wheel speed increase signal, and by controlling air and bypass valves, determines rate at which hydraulic pressure increases and brakes are re-applied. Cycle is repeated until vehicle speed is reduced to approximately 5 MPH or brakes are released. At end of brake stop, diaphragm plate and displacement plunger should always move forward enough to open hydraulic shut-off in pressure modulator. When this happens, brake pedal may drop slightly.



MODULATOR ASSEMBLY (ACTIVATED POSITION)

Excercise Cycle

If engine is started with pedal depressed (stop lights on), modulators go through two excercise cycles. When ignition switch is turned from OFF to START, all three modulators cycle once, and when switch returns from START to ON, modulators cycle again. These cycles can be heard and insure that system is operating properly.

Warning System

A secondary system, using vehicle's brake warning light will warn driver of certain types of failure in system. Brake warning light comes on under following conditions:

- 1) Pressure modulator activated (diaphragm and plate displaced to rear) in absence of brake light signal.
- 2) Controller sends signal to open modulator air valve in absence of signal to open bypass valve.
- 3) Electrical continuity of air valve lead wire broken.
- 4) Controller does not receive all speed sensor signals, or signals are not properly converted at speeds above 15 MPH.