DIFFERENTIAL LOCK - REAR

1998 Mitsubishi Montero

1997-98 DRIVE AXLES
Mitsubishi Rear Differential Lock

Montero, Montero Sport

DESCRIPTION & OPERATION

The rear differential lock system is designed to be used only when low-speed wheel spin occurs in a ditch, or on a slippery or uneven surface. The indicator light will blink when switch is turned on as system completes locking operation. After the differential is locked, the light will stop blinking and remain on.

The rear differential lock system will not lock with vehicle in 4H or 2H position, and if vehicle speed is greater than 7 MPH. Vehicle speed should be maintained at less than 12 MPH during rear differential lock operation.

NOTE: The Anti-lock Brake System (ABS) does not operate when the rear differential is locked. It is normal for the ABS warning light to be on at this time.

COMPONENT LOCATIONS

Rear Differential Lock Air Pump
Air pump is located under left side of rear seat.

Rear Differential Lock Control Unit
Control unit is located under left side lower quarter trim panel in rear compartment.

Rear Differential Lock Switch
Lock switch is located on lower center of instrument panel, below radio.

Rear Differential Lock Detection Switch
Lock detection switch is located on rear differential carrier.

TROUBLE SHOOTING

INDICATOR LIGHT FLASHES WHEN LOCK SWITCH IS TURNED ON

If vehicle speed is greater than 7 MPH, reduce speed to less than 3 MPH. If vehicle speed is less than 7 MPH, rotate steering wheel to right and left to reset light.

INDICATOR LIGHT FLASHES WHEN LOCK SWITCH IS TURNED OFF

If indicator flashes after lock switch is turned off, depress and release accelerator several times while driving straight ahead to reset light.

TESTING

REAR DIFFERENTIAL LOCK AIR PUMP

1) Connect pressure gauge with "T" joint to air pump discharge outlet nozzle. See Fig. 1. Install air hose to differential. Apply battery voltage to air pump connector. Note amount of time between when air pump starts operating to when air pump stops operating. If air pump stops within 5 seconds, internal pressure switch is operating properly.

2) Measure pressure 10-20 seconds after air pump has stopped. Pressure should be 4-6 psi (.28-.42 kg/cm^2). If pressure is as specified, internal release valve is operating properly. Ensure air pump does not begin operating for 5 minutes after it has stopped.

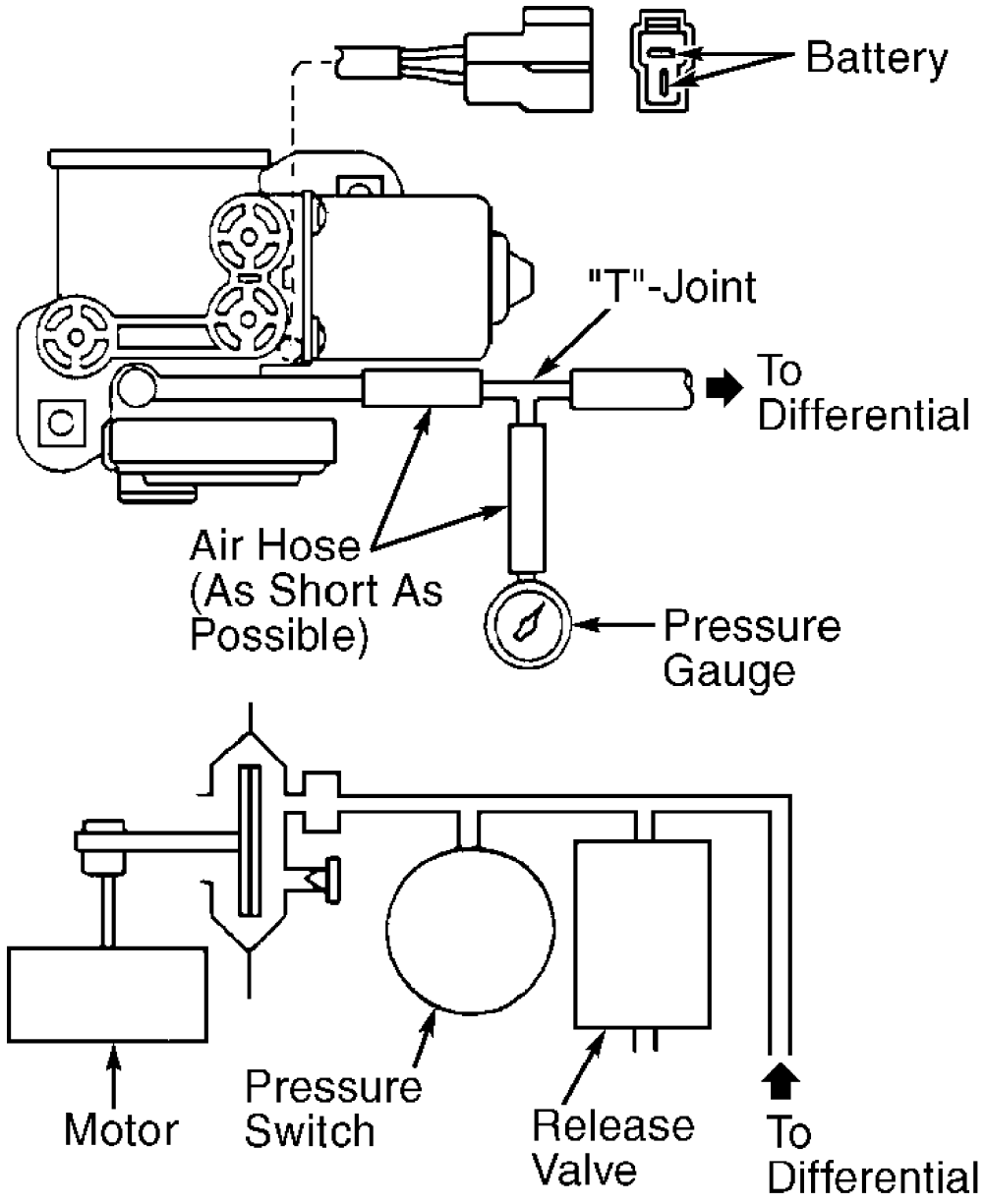

Fig. 1: Testing Rear Differential Lock Air Pump
Courtesy of Mitsubishi Motor Sales of America.

REAR DIFFERENTIAL LOCK CONTROL UNIT

Using voltmeter, backprobe rear differential lock control unit connector between terminal No. 6 (ground) and specified terminal under specified conditions. See WIRING DIAGRAMS. See REAR DIFFERENTIAL LOCK CONTROL UNIT VOLTAGE table. If voltage is not as specified, replace control unit.

REAR DIFFERENTIAL LOCK CONTROL UNIT VOLTAGE

Terminal No.	Circuit	Voltage
3	Ignition Switch (IG1)	(1) Zero
3	Ignition Switch (IG1)	(2) Battery
9 (ON side)	Rear Lock Switch	(2)(3) Zero
1 (OFF side)	Rear Lock Switch	(2)(4) Battery
10	Indicator Light	(2)(5) Zero
10	Indicator Light	(2)(6) Battery
2	Vehicle Speed Reed Switch	(7) 5
8	Rear Lock Detection Switch	(2)(5) Zero
8	Rear Lock Detection Switch	(2)(6) Battery
4	Rear Lock Air Pump	(2)(8) Battery
4	Rear Lock Air Pump	(2)(9) Zero
5	Center Lock Operation	(2)(10) Battery
5	Detection Switch	(2)(10) Battery
5	Detection Switch	(2)(11) Zero

(1) - Ignition off.
(2) - Ignition on.
(3) - ON side or OFF side.
(4) - In Neutral.
(5) - Rear differential locked.
(6) - Rear differential free.
(7) - Select Drive or 1st gear and drive forward slowly.
(8) - When filing or holding.
(9) - When releasing.
(10) - Center differential free.
(11) - Center differential locked.

REAR DIFFERENTIAL LOCK DETECTION SWITCH

NOTE: DO NOT apply more pressure than required to bring pressure gauge reading to about 4 psi (.28 kg/cm^2).

1) Raise and support vehicle. Remove air pipe and air hose connections. Connect a pressure gauge and air regulator (for adjusting compressed air pressure) to air hose. See Fig. 2. Using air regulator, adjust compressed air pressure until pressure gauge indicates about 4 psi (.28 kg/cm^2).

2) While an assistant holds one wheel on one side of vehicle stationary, slowly turn wheel on other side of vehicle. Using ohmmeter, check for continuity between rear differential lock detection switch connector terminals.

3) With air supplied, continuity should exist. With air released, continuity should not exist. If continuity is not as specified, replace lock detection switch.

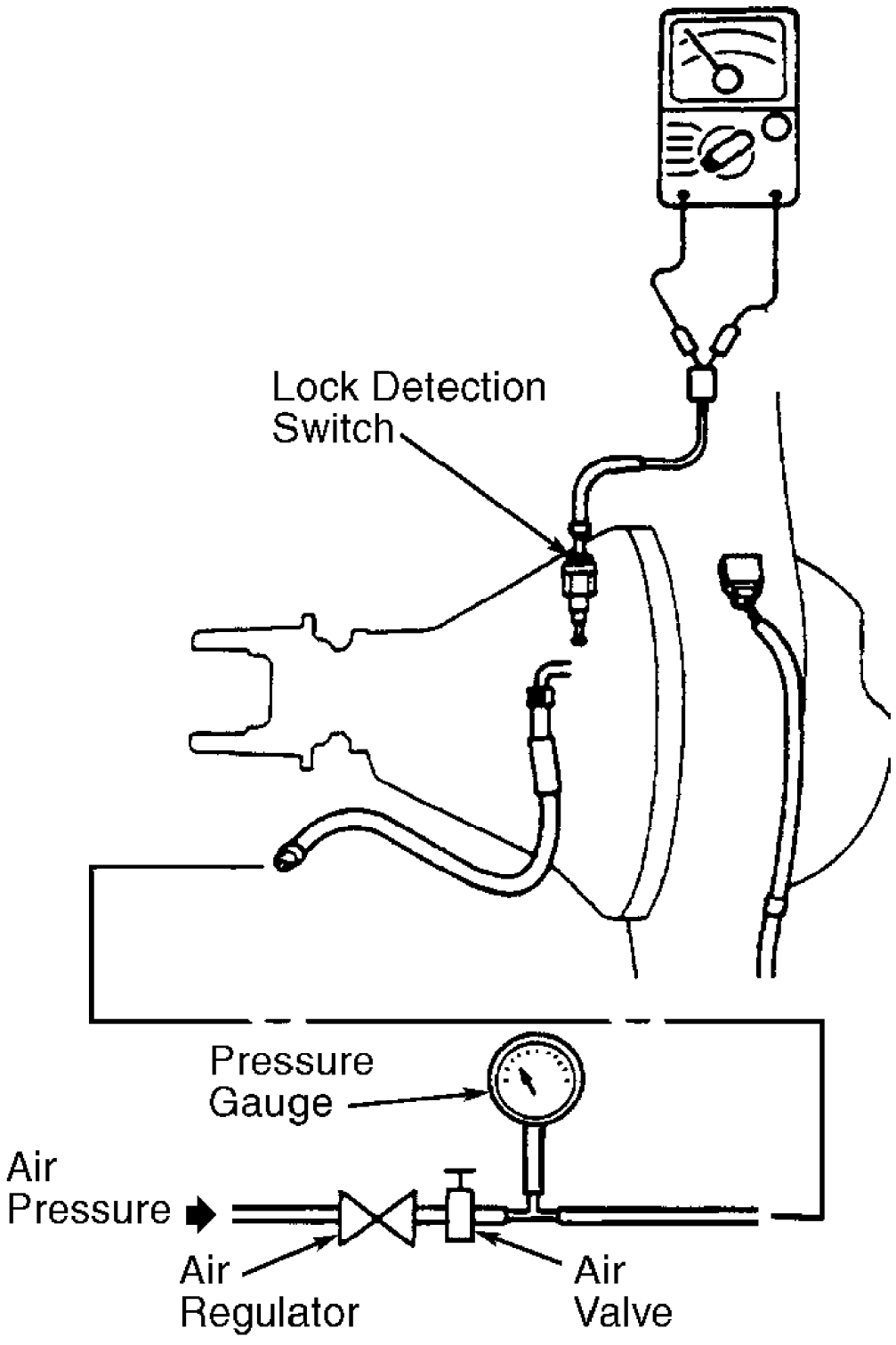

Fig. 2: Testing Rear Differential Lock Detection Switch
Courtesy of Mitsubishi Motor Sales of America.

REAR DIFFERENTIAL LOCK SWITCH

1) Using ohmmeter, check for continuity between specified rear differential lock switch terminals with switch in specified positions. See WIRING DIAGRAMS.

2) With lock switch in ON position, continuity should exist between terminals No. 2 and 5. With lock switch in OFF position, continuity should exist between terminals No. 2 and 3.

3) Continuity should also exist between terminals No. 1 and 6 with lock switch in ON or OFF position. If continuity is not as specified, replace lock switch.

REAR DIFFERENTIAL LOCK SYSTEM AIR LEAKAGE CHECK

NOTE: DO NOT apply more pressure than required to bring pressure gauge reading to about 5 psi (.35 kg/cm^2).

1) Remove rear differential lock air pump and remove air hose from air pump. Connect a pressure gauge and air regulator (for adjusting compressed air pressure) to air hose. Using air regulator, adjust compressed air pressure until pressure gauge indicates about 5 psi (.35 kg/cm^2).

2) Shut off air valve. Wait about 10 minutes and check if air pressure has dropped. If air pressure has dropped, air hose is not leaking.

REMOVAL & INSTALLATION

REAR DIFFERENTIAL LOCK AIR PUMP

Removal & Installation

Remove rear seat. Remove bracket from rear differential lock air pump and remove air pump. Disconnect air hoses from air pump. Disconnect electrical connector from air pump. To install, reverse removal procedure.

REAR DIFFERENTIAL LOCK CONTROL UNIT

Removal & Installation

Remove left side lower quarter trim panel in rear compartment. Remove rear differential lock control unit. Disconnect electrical connector from control unit. To install, reverse removal procedure.

WIRING DIAGRAMS

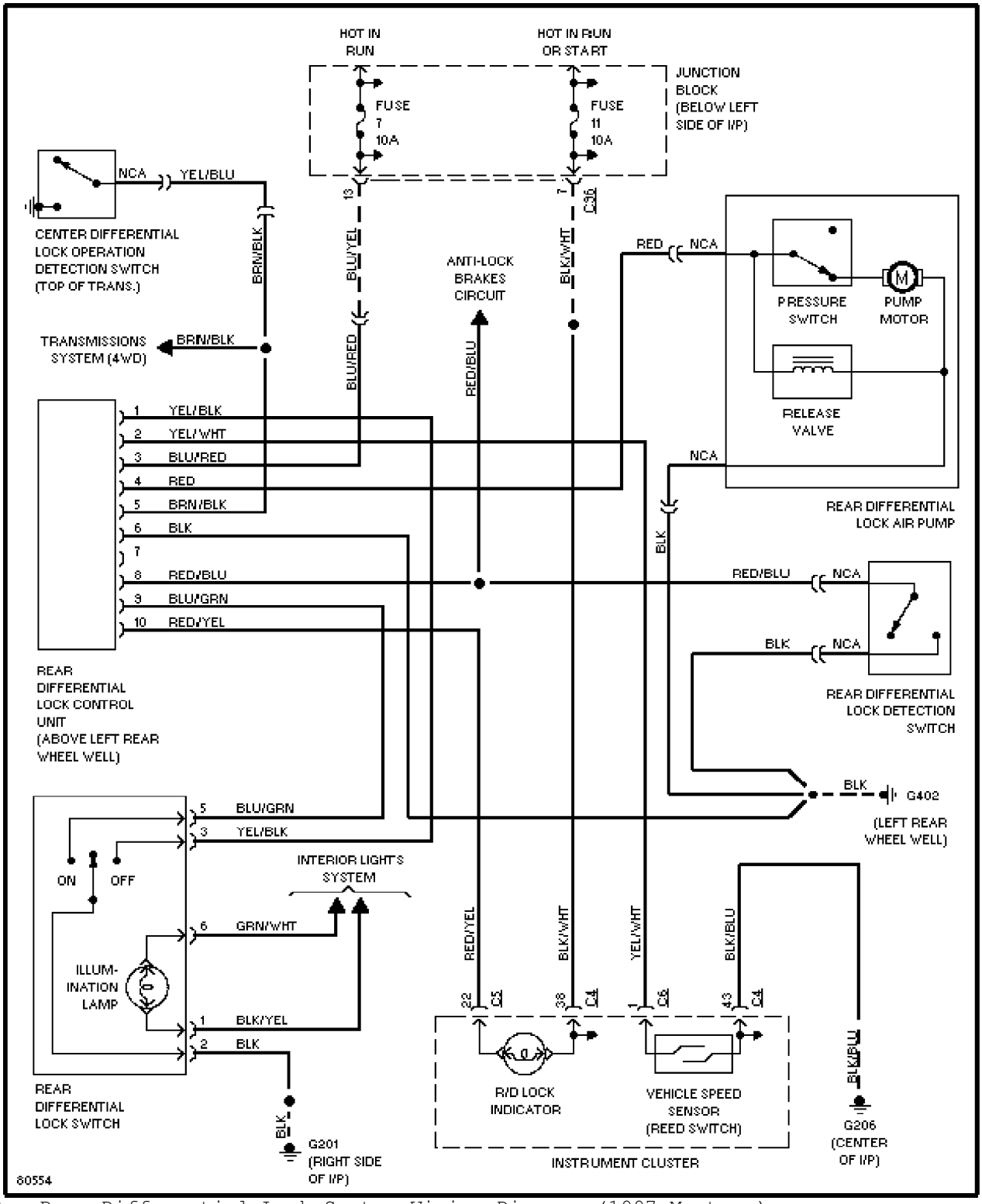

Fig. 3: Rear Differential Lock System Wiring Diagram (1997 Montero)

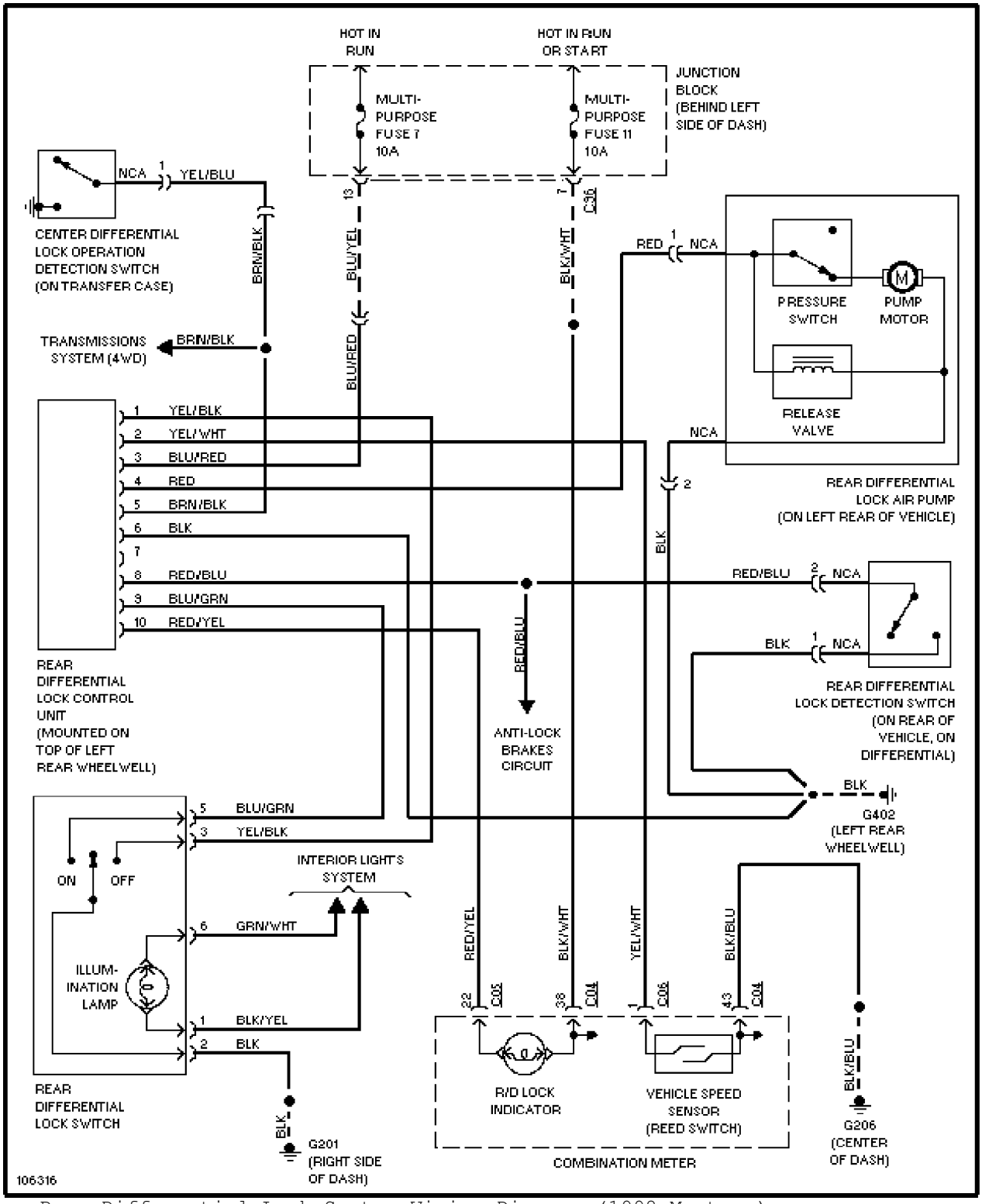

Fig. 4: Rear Differential Lock System Wiring Diagram (1998 Montero)

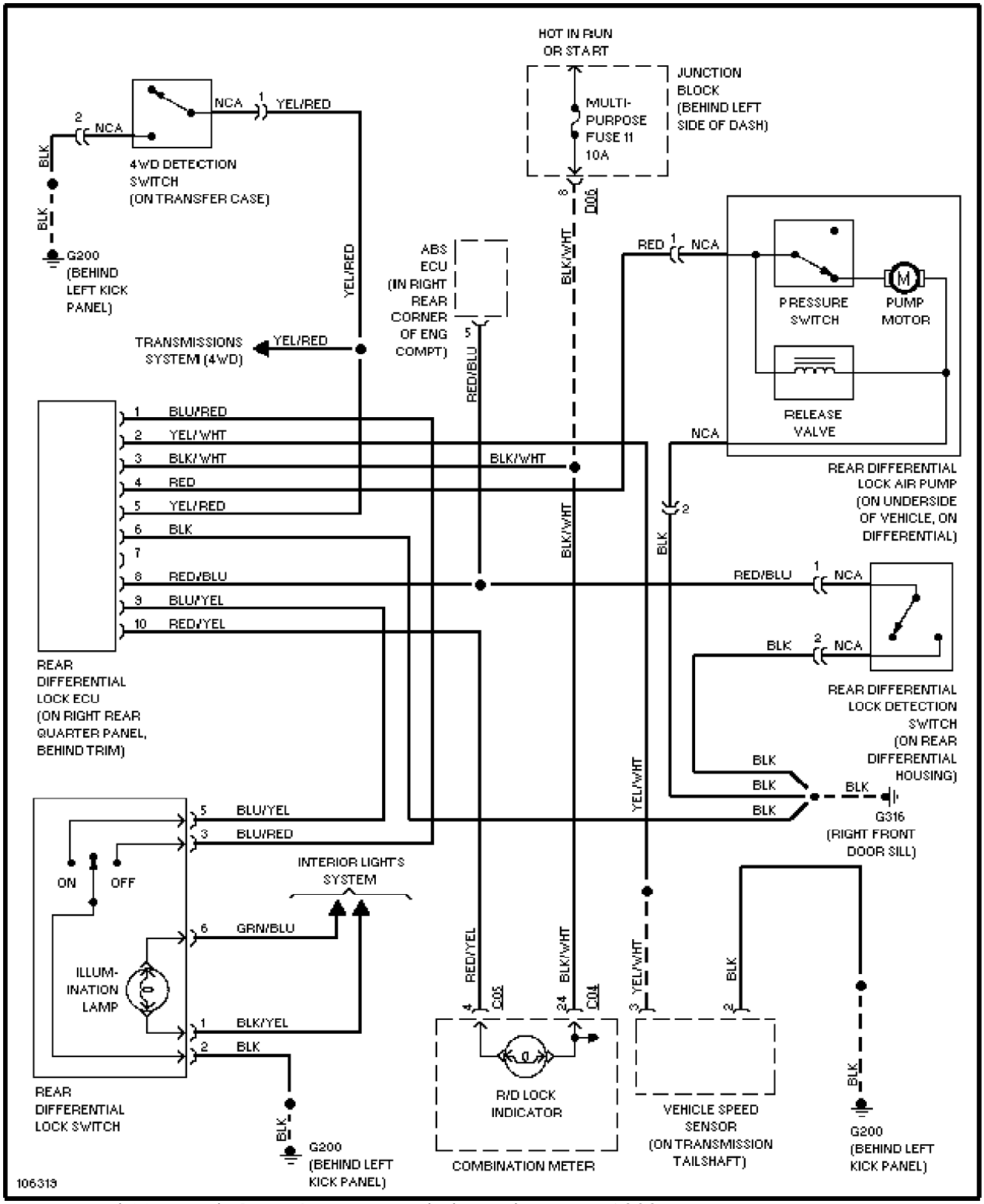

Fig. 5: Rear Differential Lock System Wiring Diagram (1998 Montero Sport)