TURN SIGNAL AND HAZARD WARNING SYSTEMS

CONTENTS

GENERAL INFORMATION

INTRODUCTION

Following are general descriptions of the major components in the turn signal and hazard warning systems. Refer to 8W-52 - Turn Signals in Group 8W - Wiring Diagrams for complete circuit descriptions and diagrams.

NOTE: This group covers both Left-Hand Drive (LHD) and Right-Hand Drive (RHD) versions of this model. Whenever required and feasible, the RHD versions of affected vehicle components have been constructed as mirror-image of the LHD versions. While most of the illustrations used in this group represent only the LHD version, the diagnostic and service procedures outlined can generally be applied to either version. Exceptions to this rule have been clearly identified as LHD or RHD, if a special illustration or procedure is required.

DESCRIPTION AND OPERATION

TURN SIGNAL SYSTEM

With the ignition switch in the On position, and the multi-function switch control lever moved up (right turn) or down (left turn), the turn signal system is activated. The switch has a detent position in each direction that provides turn signals with automatic cancellation, and an intermediate momentary position that provides turn signals only until the multi-function switch lever is released.

When the turn signal switch is in a detent position, it is turned off by one of two cancelling cam lobes molded into the hub of the clockspring mechanism. When turning the steering wheel causes one of the cam lobes to contact a cancel actuator in the multi-function switch, the turn signal switch automatically returns to the off position.

When the turn signal system is activated, the selected (right or left) turn signal indicator lamp, front park/turn signal lamp, front side marker lamp, and rear tail/stop/turn signal lamp bulbs will flash. With the headlamp switch in the Off position, the front turn signal and front side marker lamps flash in unison. With the headlamp switch in the On position, the front turn signal and front side marker lamps flash alternately.

HAZARD WARNING SYSTEM

The hazard warning system is activated by a switch button in the multi-function switch. The button is located on the top of the steering column between the steering wheel and the instrument panel. The hazard warning switch button is identified with a double triangle.

The hazard warning system is connected to a non-switched battery feed so that the system remains functional, regardless of the ignition switch position. Slide the switch button to the left to activate the hazard warning system, and slide the switch button to the right to turn the system off.

When the hazard warning system is activated, the right and left turn signal indicators, front park/turn signal lamps, front side marker lamps, and rear tail/stop/turn signal lamps will flash. With the headlamp switch in the Off position, the front turn signal and front side marker lamps flash in unison. With the head or park lamps turned on, the front turn signal and front side marker lamps flash alternately.

COMBINATION FLASHER

The combination flasher is a smart relay that functions as both the turn signal system and hazard warning system flasher. The combination flasher is

DESCRIPTION AND OPERATION (Continued)

designed to handle the current flow requirements of the factory-installed lighting.

If supplemental lighting is added to the turn signal lamp circuits, such as when towing a trailer with lights, the combination flasher will automatically compensate. This allows the flash rate to remain the same, regardless of electrical load increases. However, if a bulb fails in the turn signal lamp circuits, the flash rate of the remaining bulbs in that circuit will increase to 120 flashes-per-minute, or higher.

While the combination flasher shares the terminal orientation (footprint) of a International Standards Organization (ISO)-type relay, the internal circuitry is much different. The combination flasher contains active electronic integrated circuitry elements. Do not substitute any other relay for the combination flasher.

Because of the active electronic elements within the combination flasher, it cannot be tested with conventional automotive electrical test equipment. If the combination flasher is believed to be faulty, test the turn signal and hazard warning system circuits as described in this group. Then replace the combination flasher with a known good unit to confirm system operation.

The combination flasher cannot be repaired and, if faulty, it must be replaced.

TURN SIGNAL SWITCH AND HAZARD WARNING SWITCH

The turn signal and hazard warning switches are integral to the multi-function switch assembly. The multi-function switch assembly is mounted to the left side of the steering column (Fig. 1). This switch contains circuitry for the following functions:

- Turn signals
- Hazard warning
- Headlamp beam selection
- Headlamp optical horn.

The information contained in this group addresses only the multi-function switch functions for the turn signal and hazard warning circuits. For information relative to the other switch functions, refer to the proper group. However, the multi-function switch cannot be repaired. If any function of the multi-function switch is faulty, or if the switch is damaged, the entire switch assembly must be replaced.

TURN SIGNAL INDICATOR LAMP

The turn signal indicator lamps are located in the instrument cluster. They flash with the exterior turn signal lamps to give the driver a visual indication that a turn signal or the hazard warning system is operating. For diagnosis and service of these lamps, refer to Group 8E - Instrument Panel Systems.

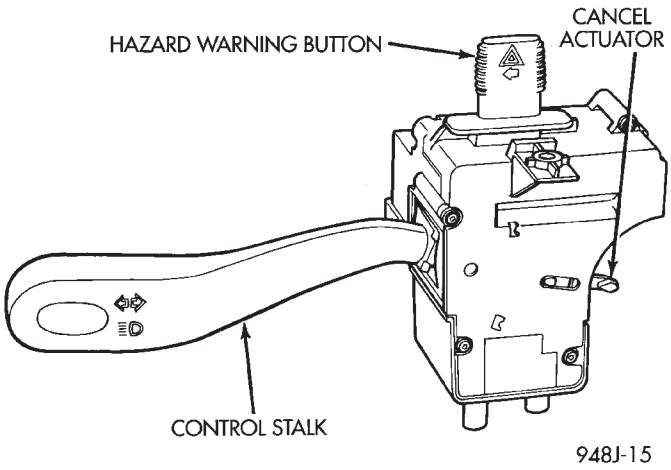

Fig. 1 Multi-Function Switch

TURN SIGNAL LAMP

The exterior lamps in the turn signal and hazard warning circuits include the front park/turn signal, the front side marker, and the rear tail/stop/turn signal. For diagnosis and service of these lamps, refer to Group 8L - Lamps.

DIAGNOSIS AND TESTING

INTRODUCTION

When diagnosing the turn signal or hazard warning circuits, remember that high generator output can burn out bulbs rapidly and repeatedly. If this is a problem on the vehicle being diagnosed, refer to Group 8C - Charging System for further diagnosis of a possible generator overcharging condition.

WARNING: ON VEHICLES EQUIPPED WITH AIRBAGS, REFER TO GROUP 8M - PASSIVE RESTRAINT SYSTEMS BEFORE ATTEMPTING ANY STEERING WHEEL, STEERING COLUMN, OR INSTRUMENT PANEL COMPONENT DIAGNOSIS OR SERVICE. FAILURE TO TAKE THE PROPER PRECAUTIONS COULD RESULT IN ACCIDENTAL AIRBAG DEPLOYMENT AND POSSIBLE PERSONAL INJURY.

TURN SIGNAL AND HAZARD WARNING SYSTEMS

For circuit descriptions and diagrams, refer to 8W-52 - Turn Signals in Group 8W - Wiring Diagrams.

DIAGNOSIS AND TESTING (Continued)

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(1) Turn the ignition switch to the On position. Actuate the turn signal lever or hazard warning button. Observe the turn signal indicator lamp(s) in the instrument cluster. If the flash rate is very high, check for a turn signal bulb that is not lit or is very dimly lit. Repair the circuits to that lamp or replace the faulty bulb, as required. Test the operation of the turn signal and hazard warning systems again. If the turn signal indicator(s) fail to light, go to Step 2.

(2) Turn the ignition switch to the Off position. Check the turn signal fuse in the junction block and/or the hazard warning fuse in the Power Distribution Center (PDC). If OK, go to Step 3. If not OK, repair the shorted circuit or component as required and replace the faulty fuse(s).

(3) Turn the ignition switch to the On position to check for battery voltage at the turn signal fuse in the junction block; or, leave the ignition switch in the Off position to check for battery voltage at the hazard warning fuse in the PDC. If OK, go to Step 4. If not OK, repair the open circuit as required.

(4) Turn the ignition switch to the Off position. Disconnect and isolate the battery negative cable. Unplug the combination flasher from its wire harness connector and replace it with a known good unit. Connect the battery negative cable. Test the operation of the turn signal and hazard warning systems. If OK, discard the faulty combination flasher. If not OK, remove the test flasher and go to Step 5.

(5) Turn the ignition switch to the On position. Check for battery voltage at the combination flasher fused ignition circuit cavity in the combination flasher wire harness connector. If OK, go to Step 6. If not OK, go to Step 8.

(6) Turn the ignition switch to the Off position. Check for battery voltage again at the combination flasher fused B+ circuit cavity in the combination flasher wire harness connector. If OK, go to Step 7. If not OK, go to Step 8.

(7) Disconnect and isolate the battery negative cable. Check for continuity between the ground circuit cavity of the combination flasher wire harness connector and a good ground. There should be continuity. If OK, go to Step 8. If not OK, repair the circuit to ground as required.

(8) Unplug the multi-function switch wire harness connector as described in this group. Check for continuity between the combination flasher turn signal circuit cavities in the combination flasher wire harness connector and in the multi-function switch wire harness connector. There should be continuity. If OK, go to Step 9. If not OK, repair the open circuit as required.

(9) Check for continuity between the combination flasher hazard warning circuit cavities in the combination flasher wire harness connector and in the multi-function switch wire harness connector. There should be continuity. If OK, test the multi-function switch as described in this group. If not OK, repair the open circuit as required.

MULTI-FUNCTION SWITCH

Perform the diagnosis of the hazard warning and/or turn signal systems as described in this group before testing the multi-function switch. For circuit descriptions and diagrams, refer to 8W-52 - Turn Signals in Group 8W - Wiring Diagrams.

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(1) Unplug the multi-function switch wire harness connector as described in this group.

(2) Using an ohmmeter, perform the switch continuity checks at the switch terminals as shown in the Multi-Function Switch Continuity chart (Fig. 2).

(3) If the switch fails any of the continuity checks, replace the faulty switch. If the switch is OK, repair the lighting circuits as required.

REMOVAL AND INSTALLATION

COMBINATION FLASHER

WARNING: ON VEHICLES EQUIPPED WITH AIRBAGS, REFER TO GROUP 8M - PASSIVE RESTRAINT SYSTEMS BEFORE ATTEMPTING ANY STEERING WHEEL, STEERING COLUMN, OR INSTRUMENT PANEL COMPONENT DIAGNOSIS OR SERVICE. FAILURE TO TAKE THE PROPER PRECAUTIONS COULD RESULT IN ACCIDENTAL AIRBAG DEPLOYMENT AND POSSIBLE PERSONAL INJURY.

REMOVAL AND INSTALLATION (Continued)

SWITCH POSITION		CONTINUITY BETWEEN
TURN SIGNAL	HAZARD WARNING	
NEUTRAL	OFF	F and H F and K A and E
LEFT	OFF	F and H C and K C and I A and E
RIGHT	OFF	F and K C and H C and J A and E
NEUTRAL	ON	B and E C and H C and K C and I C and J

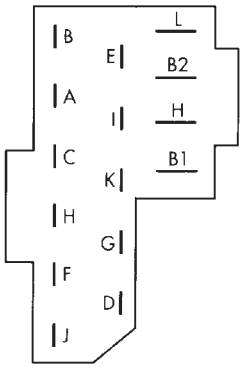

Fig. 2 Multi-Function Switch Continuity

(1) Disconnect and isolate the battery negative cable.

(2) Remove the steering column opening cover and the knee blocker as described in Group 8E - Instrument Panel Systems.

(3) Reach through the outboard side of the steering column opening and remove the combination flasher and wire harness connector from the instrument panel diagonal mounting bracket by gently prying the connector retainer from the bracket mounting hole (Fig. 3).

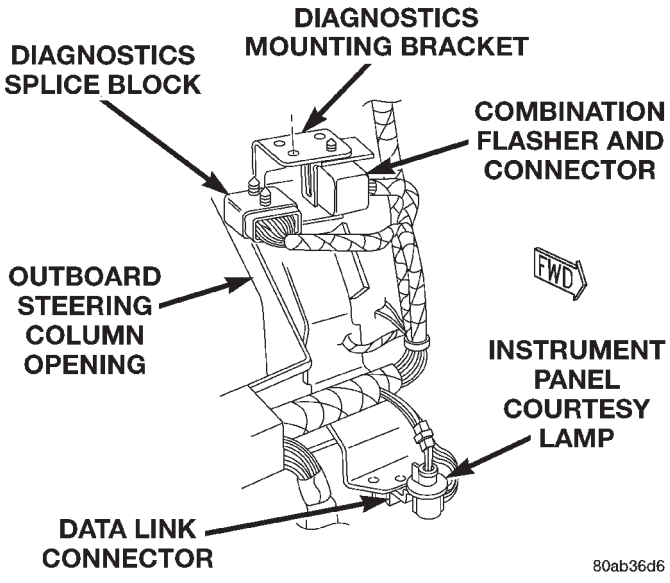

Fig. 3 Combination Flasher Remove/Install

(4) Pull the combination flasher and wire harness connector into the steering column opening far enough to unplug the flasher from the wire harness connector.

(5) Install the combination flasher by aligning the flasher terminals with the cavities in the wire harness connector and pushing the flasher firmly into place.

(6) Reinstall the retainer that secures the combination flasher and wire harness connector to the instrument panel diagonal mounting bracket.

(7) Reinstall the knee blocker and the steering column opening cover as described in Group 8E - Instrument Panel Systems.

(8) Connect the battery negative cable.

(9) Test the flasher operation.

MULTI-FUNCTION SWITCH

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(1) Disconnect and isolate the battery negative cable.

(2) Remove the steering column opening cover as described in Group 8E - Instrument Panel Systems.

(3) If the vehicle is so equipped, move the tilt steering column to the fully raised position.

(4) Insert the key in the ignition lock cylinder and turn the ignition switch to the On position.

(5) Insert a small screwdriver or pin punch through the access hole in the lower steering column shroud and depress the ignition lock cylinder retaining tumbler (Fig. 4).

(6) While holding the retaining tumbler depressed, pull the ignition lock cylinder and key out of the ignition lock housing.

(7) Remove the three screws that secure the lower steering column shroud to the upper shroud.

(8) If the vehicle is equipped with a standard non-tilt steering column, loosen the two upper steering column mounting nuts. If the vehicle is equipped with the optional tilt steering column, move the tilt steering column to the fully lowered position.

(9) Remove both the upper and lower shrouds from the steering column.

(10) Remove the two screws that secure the switch water shield and bracket to the top of the steering column (Fig. 5).

REMOVAL AND INSTALLATION (Continued)

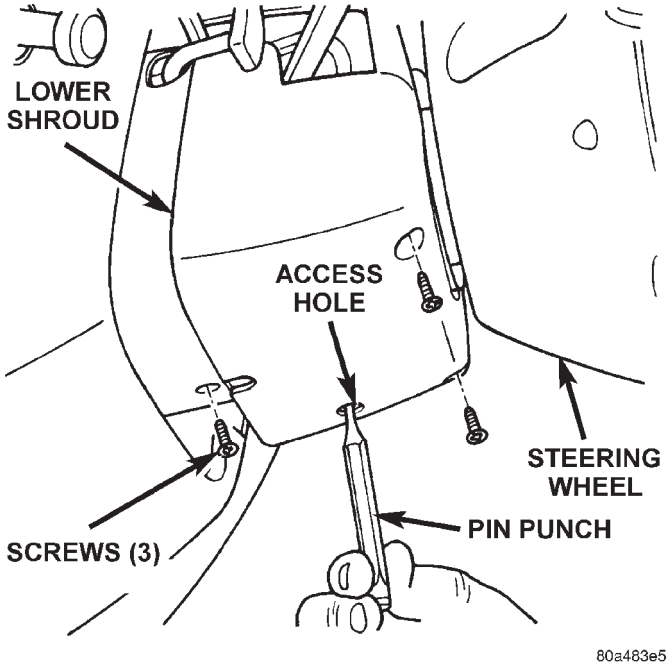

Fig. 4 Steering Column Shrouds Remove/Install

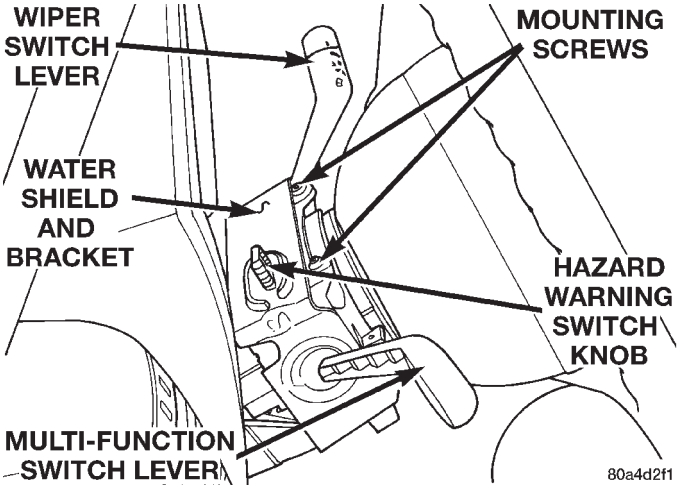

Fig. 5 Water Shield Upper Screws Remove/Install

(11) Remove the one screw located below the multi-function switch lever that secures the switch water shield and bracket to the steering column (Fig. 6).

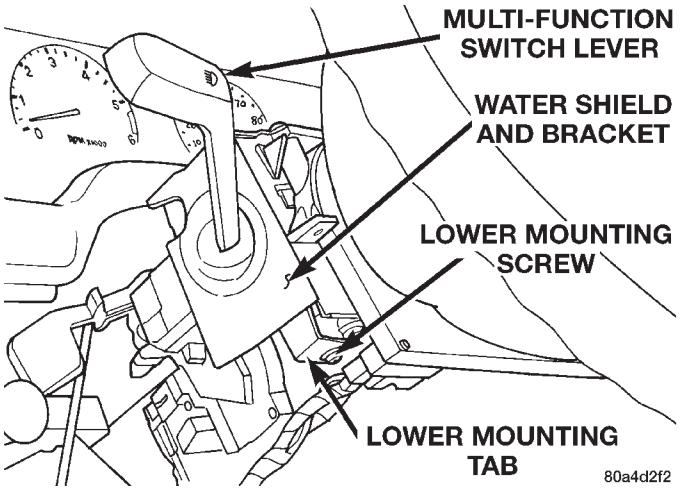

Fig. 6 Water Shield Lower Screw Remove/Install

(12) Gently pull the lower mounting tab of the switch water shield bracket away from the steering column far enough to clear the screw boss below the multi-function switch lever.

(13) Lift the water shield and bracket with the multi-function switch away from the steering column far enough to access the two multi-function switch wire harness connectors. If the vehicle is equipped with the optional tilt steering column, lifting gently upward on the tilt release lever will provide additional clearance to ease multi-function switch removal.

(14) Unplug the wire harness connectors from the multi-function switch.

(15) Remove the multi-function switch and water shield from the steering column as a unit.

(16) Gently pull the water shield over the hazard warning switch knob and the multi-function switch lever.

(17) Reverse the removal procedures to install.