Component Procedures: Instrument Cluster / Carrier

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Component Procedures: Instrument Cluster / Carrier

Parts and Labor (itype_189)

Parts

Qualifier	Part #	Name	Price	Note
Instrument Cluster	56009170AB	Instrument Cluster Ass?	0.00	

Labor

Operation	Qualifier Path	Skill	Std Hrs	Wty Hrs
Replace	Instrument Cluster, R&R	B	0.6	0.4

Description (Article 2084857)

INSTRUMENT PANEL
SYSTEM
The instrument panel serves as the command center of the vehicle, which necessarily makes it a very complex unit. The instrument panel is designed to house the controls and monitors for standard and optional powertrains, climate control systems, audio systems, lighting systems, safety systems and many other comfort or convenience items. The instrument panel is also designed so that all of the various controls can be safely reached and the monitors can be easily viewed by the vehicle operator when driving, while still allowing relative ease of access to each of these items for service. See the owner's manual in the vehicle glove box for more information on the features, use and operation of all of the instrument panel components and systems.
Modular instrument panel construction allows all of the gauges and controls to be serviced from the front of the panel. In addition, most of the instrument panel electrical or heating and air conditioning components can be accessed without complete instrument panel removal. If necessary, the instrument panel can be removed from the vehicle as an assembly
Removal of the steering column opening cover and the knee blocker provides access to the steering column mounts, the steering column wiring, the gearshift interlock mechanism, the headlamp switch, and much of the instrument panel wiring. Removal of the glove box provides access to the fuseblock module, additional instrument panel wiring, and many of the heating and air conditioning components.
Removal of the
instrument cluster
bezel allows access to the
cluster
assembly. Removal of the cluster assembly allows access to the cluster
illumination
and indicator lamp bulbs, and more of the instrument panel wiring.
Removal of the instrument panel center bezel allows access to the radio, the heating and air conditioning controls, the power outlet or
cigar lighter
, and the accessory switches. The power outlet/cigar lighter is serviced only as a unit with the accessory switch bezel.
A bezel on each outboard end of the lower instrument panel is removed to service the instrument panel speakers. Removal of the complete instrument panel is required for service of the passenger side airbag module and most internal components of the heating and air conditioning system housing.
INSTRUMENT CLUSTER
A single instrument cluster is offered on this model. This cluster is an electromechanical unit that utilizes integrated circuitry and information carried on the Chrysler Collision Detection
(CCD)
data bus network for control of all gauges and many of the indicator lamps. This cluster also incorporates a digital Vacuum Fluorescent Display
(VFD)
for the
odometer
/trip odometer display functions. Some variations of this cluster exist due to optional equipment and regulatory requirements.
The instrument cluster used in the Jeep Wrangler contains six gauges and eleven
warning lamp

s. The gauges are positioned with information received by the cluster over the CCD bus from the PCM. Some of the lamps are hardwired and some are controlled by the cluster using CCD bus information. The vehicle chime function is contained on the cluster circuit board as well as the timer for the rear window defogger. There is a self test available for the cluster that will actuate all the gauges and place them at their calibration points. The test will not run if the cluster sees engine RPM or vehicle speed. This test will light all CCD controlled lamps for verification of lamp operation. It also forces the odometer vacuum fluorescent display to count up from zero through nine. The self test routine can be entered by pushing and holding the trip reset button while rotating the ignition key from the OFF to the ON position.

The 1999 TJ cluster provides bus bias and the engine controller provides termination. If either of these components are disconnected, the bus will not be operational. Starting in 1998, the cluster also provides termination as a backup to the engine controller.

The cluster will be serviced as an assembly. There will be limited parts available, bulbs and sockets, the front lens, the trip odometer stem cover and the rear cover assembly. No internal parts of the cluster will be serviced.

The cluster includes the following analog gauges:

-
Coolant temperature gauge
Fuel gauge
Oil pressure gauge
Speedometer
Tachometer
- Voltmeter.

This cluster also includes provisions for the following indicator lamps:

- Airbag indicator lamp
- Anti-lock Brake System
(ABS)
lamp
- Brake warning lamp
- Check gauges lamp
- Cruise-on indicator lamp
- Four-wheel drive indicator lamp
- Headlamp high beam indicator lamp
- Low fuel warning lamp
Malfunction indicator
(Check Engine) lamp
- Seat belt reminder lamp
- Sentry Key Immobilizer System
(SKIS)
indicator lamp
- Turn signal indicator lamps
- Upshift indicator lamp (manual transmission).

The instrument cluster circuitry has a self-diagnostic actuator test capability, which will test each of the CCD bus message-controlled functions of the cluster by lighting the appropriate indicator lamps and positioning the gauge needles at several predetermined locations on the gauge faces in a prescribed sequence. For more information on this function, refer to Instrument Cluster in the Diagnosis and Testing.

The instrument cluster circuitry also integrates a chime
tone generator
and a timer circuit. These items replace the chime or
buzzer
module, and the separate timer circuit for the rear window defogger system. Refer to Chime Warning System in the Description and Operation of Chime/Buzzer Warning Systems for more information on the chime functions of the instrument cluster. Refer to Rear Window Defogger System in the Description and Operation of Electrically Heated Systems for more information on the timer function of the instrument cluster.

The instrument cluster for this model is serviced only as a complete unit. If a cluster gauge or the cluster circuit board are faulty, the entire cluster must be replaced. The cluster lens, the cluster hood and mask, the rear
cluster housing
cover, the odometer reset knob boot and the incandescent lamp bulbs and holders are available for service replacement.

The instrument cluster is an electromechanical unit that contains integrated circuitry and internal

programming to perform a variety of functions. The instrument cluster circuitry monitors hard-wired switch inputs, as well as message inputs received from other vehicle electronic control modules on the Chrysler Collision Detection
data bus network.
The instrument cluster uses these many inputs along with its internal programming and integral timer and logic circuitry to perform the functions of the rear window defogger timer on this model. The instrument cluster circuitry also has a self-diagnostic capability. Refer to Instrument Cluster in Instrument Panel Systems for more information on this feature.
However, there are no diagnostics available for the rear window defogger timer and logic circuitry. Therefore, the diagnosis for this system consists of confirming the presence of a rear window defogger switch input signal at the instrument cluster connector, and the resulting rear window defogger relay control output signal at the defogger relay. For diagnosis of the CCD data bus and the data bus message inputs, a DRB scan tool and the proper Diagnostic Procedures are recommended.
Refer to Instrument Cluster in Instrument Panel Systems for the service procedures for the instrument cluster. The rear window defogger timer and logic circuitry cannot be adjusted or repaired and, if faulty or damaged, the instrument cluster assembly must be replaced.

Operation (Article 2084858)

INSTRUMENT CLUSTER
At key ON, the
cluster
will light the Low Fuel, Seat Belt, Check Gauges, Airbag and/or Smart Key Immobilizer and Upshift lamps (if equipped). As the key is turned farther towards the start position, the ABS (if equipped) and Brake
Warning lamp
will illuminate. The Vacuum Fluorescent Display (VFD) will indicate the last selected mode,
odometer
or trip. If there is a bus failure and the cluster cannot receive distance pulses from the PCM, the cluster will display the last mileage stored until the ignition is turned OFF. If the cluster is receiving bus messages but is unable to display odometer information because of an internal failure, the odometer will display dashes. VF dimming is handled by the potentiometer that controls instrumentation
illumination
. The odometer will remain in the last mode selected, trip or vehicle mileage after each key cycle.
GAUGE
With the ignition switch in the ON or START positions, voltage is supplied to all gauges through the instrument cluster electronic circuit board. With the ignition switch in the Off position, voltage is not supplied to the gauges. The gauges do not accurately indicate any vehicle condition unless the ignition switch is in the On or Start positions.
All of the instrument cluster gauges, except the odometer, are air core magnetic units. Two fixed electromagnetic coils are located within the gauge. These coils are wrapped at right angles to each other around a movable permanent magnet. The movable magnet is suspended within the coils on one end of a shaft. The gauge needle is attached to the other end of the shaft.
One of the coils has a fixed current flowing through it to maintain a constant magnetic field strength. Current flow through
the second
coil changes, which causes changes in its magnetic field strength. The current flowing through coil is changed by the instrument cluster electronic circuitry in response to messages received on the Chrysler Collision Detection
(CCD)
data bus network.
The gauge needle moves as the movable permanent magnet aligns itself to the changing magnetic fields created around it by the electromagnets. The instrument cluster circuitry is programmed to move all of the gauge needles back to the low end of their respective scales after the ignition switch is turned to the Off position.
REAR WINDOW DEFOGGER
The timing circuit for the rear window defogger is contained in the cluster. The operation is as follows:
With ignition ON, the first push of the defogger button will start a
10 minute
timer. After
10 minutes
have elapsed, the defogger will be turned OFF. If the button is pushed a second time during the same ignition

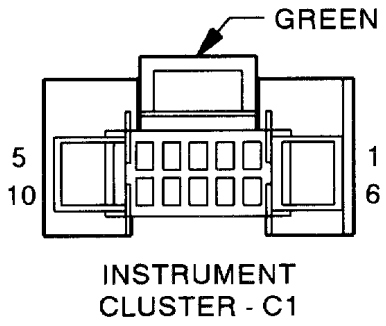
cycle, the timer will turn the defogger on for
5 minutes
. Every consecutive push will operate the defogger for
. When the defogger is ON, it can be turned OFF with a second push of the defogger button.
CHIME
The chime function is a
1000 Hz
tone contained with in the cluster. The cluster will not generate more than one chime per condition in the same ignition cycle. If a problem occurs that requires a second chime while the first one is currently being generated, the second chime request will be ignored. The chime will sound for the following conditions:
Seat Belt Warning
-
6 seconds
after key on
Key In Ignition Warning
- door open with key in ignition
Engine Temp High
- when gauge enters red zone
INDICATOR LAMPS
Indicator lamps are located in the instrument cluster and are served by the cluster circuit board and connectors. Some of the the indicator lamps in the instrument cluster are hardwired while others are controlled by the instrument cluster circuitry in response to messages received over the Chrysler Collision Detection (CCD) data bus network.
The following lamps are hardwired in the cluster and are not part of the self-test.
- Full Time 4WD (export only)
- Part Time 4WD Full Time 4WD (export only)
- Part Time 4WD
- Brake WARNING (red)
- ABS (amber)
- High Beam
- Left Turn Signal
- Right Turn Signal
- Master Illumination (export only)
The following lamps are controlled by the cluster via CCD messages. They are actuated during the self-test procedure.
- Low Fuel Warning Airbag
- Seat Belt
- Upshift (if equipped)
- Check Engine
- Check Gauges
- Smart Key Immobilizer (if equipped)
Each of the indicator lamps in the instrument cluster uses incandescent bulbs and holders, which are available for service replacement.
CLUSTER ILLUMINATION LAMP
S
The cluster
illumination lamp
s are hard wired in the instrument cluster. When the park or head lamps are turned on, the cluster illumination lamps light. Illumination brightness is adjusted by rotating the headlamp switch knob (clockwise to dim, counterclockwise to brighten). The
instrument cluster illumination
lamps receive battery feed from the panel dimmer rheostat in the headlamp switch through a fuse in the fuseblock module.
Hard-wired chime warning system inputs to the instrument cluster include the following:
Driver door jamb switch
- Driver seat belt switch
- Headlamp switch
- Key-in ignition switch.
The only instrument cluster diagnosis found consists of confirming the viability of the hard-wired chime request inputs to the instrument cluster circuitry. For diagnosis of the CCD data bus and the data bus message

inputs, a DRB scan tool and the proper Diagnostic Procedures are recommended.
Refer to
Instrument Panel
Systems for the instrument cluster service procedures. The instrument cluster chime warning circuitry and
chime
tone generator
cannot be repaired and, if faulty or damaged, the instrument cluster assembly must be replaced.
The instrument cluster electronic circuitry also monitors the cluster illumination lamp dimming level whenever the park or head lamps are turned on. The instrument cluster electronic circuitry responds by adjusting the dimming level of the odometer Vacuum Fluorescent Display (VFD), and sending dimming level messages over the Chrysler Collision Detection (CCD) data bus network. When the park lamps or headlamps are turned off, the VFD is illuminated at full brightness for improved daylight visibility.
Each of the cluster illumination lamps is located on the instrument cluster circuit board. Each cluster illumination lamp has a replaceable bulb and bulb holder.

Diagnostics (Article 2084859)

GAUGES
The
instrument cluster
will not store any DTCs. Because the engine controller gathers all the gauge information and sends it to the
cluster
via the bus, it is the PCM's responsibility to monitor these inputs and store DTC's for them, For this reason the first item to be checked regarding a gauge problem (except oil pressure) should be the PCM for any DTCs relating to the gauge in question.
There are DTCs associated with all the gauges except for the
oil pressure gauge
. When diagnosing gauges, the input that is used for the gauge message (fuel level sender for example) must be valid. Because of OBD II requirements, most of the information used for monitoring the OBD II system happens to be the same information used by the PCM to formulate the gauge bus messages. OBD II requirements state that the fuel level sender must be checked for rationality. This includes determining if the sending unit voltage is too high or too low or if the voltage hasn't changed over time. If the PCM has determined that the sender information isn't valid, it will set a diagnostic trouble code. The presence or absence of the fuel level sending code in the PCM is an important factor to determine whether a
fuel gauge
problem is in the sending unit or the cluster.
This same situation is used in all cluster diagnostics related to gauge operation with the exception of the oil pressure gauge. OBD II requirements do not include oil pressure monitoring. Therefore, oil pressure diagnostics would dictate that a mechanical oil pressure gauge be attached to the engine for absolute verification of oil pressure readings.
HARDWIRED LAMPS
The cluster contains several hardwired lamps described earlier. These lamps are set up in two configurations. Either the lamp is supplied power by the cluster and the ground is supplied by the circuit being monitored or the lamp is supplied by the ground in the cluster and power comes from a module or other device. Refer to the schematic for the specific details on the lamp in question. Verification of the bulb filament may be required in all cases of an inoperative lamp. This will require removal of the cluster and the bulb in question.
CCD CONTROLLED LAMPS
The cluster contains several CCD controlled lamps as described earlier. These lamps are part of the diagnostic self-test. When entering the self-test mode, operation of these lamps can be observed. If the bulb fails to operate during the self-test and the bulb filament is good, the cluster assembly will need to be replaced.

Connector Views (itype_47)

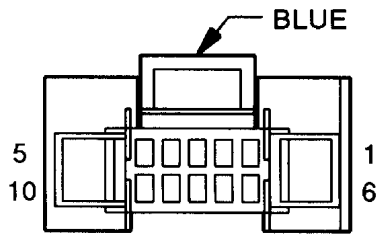


INSTRUMENT CLUSTER C1 - GREEN 10 WAY

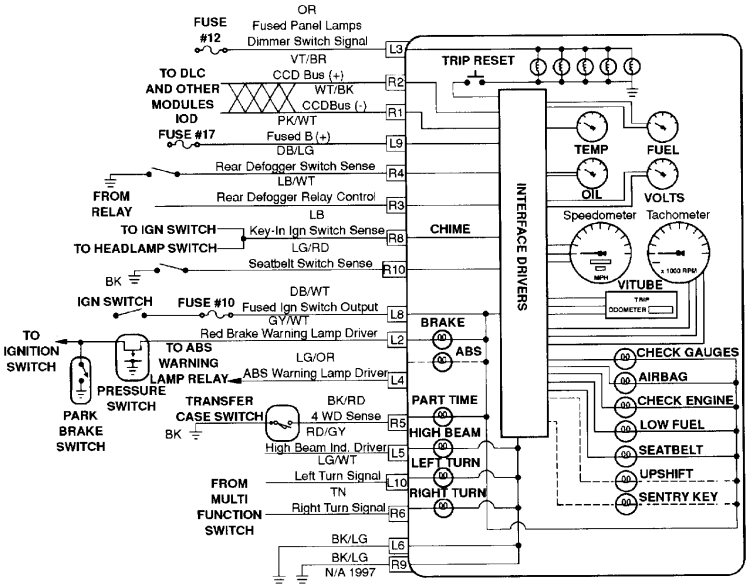
CAV	CIRCUIT	FUNCTION
1	D2 20WT/BK	CCD BUS (-)
2	D1 20VT/BR	CCD BUS (+)
3	C81 20LB/WT (HARD TOP)	REAR WINDOW DEFOGGER RELAY CONTROL
4	C80 20DB/LG (HARD TOP)	REAR WINDOW DEFOGGER SWITCH SENSE
5	G107 20BK/RD	4WD SENSE
6	L60 18TN	RIGHT TURN SIGNAL
7	-	-
8	G26 20LB	KEY-IN IGNITION SWITCH SENSE
9	Z2 18BK/LG	GROUND
10	G10 20LG/RD	SEAT BELT SWITCH SENSE

INSTRUMENT CLUSTER C2 - BLUE 10 WAY

CAV	CIRCUIT	FUNCTION
1	-	-
2	G99 20GY/WT	RED BRAKE WARNING INDICATOR DRIVER
3	E2 20OR	FUSED PANEL LAMPS DIMMER SWITCH SIGNAL
4	G19 20LG/OR	ABS WARNING INDICATOR DRIVER
5	G34 16RD/GY	HIGH BEAM INDICATOR DRIVER
6	Z2 18BK/LG	GROUND
7	-	-
8	G5 20DB/WT	FUSED IGNITION SWITCH OUTPUT (ST-RUN)
9	M1 20PK/WT	FUSED B(+)
10	L61 18GY	LEFT TURN SIGNAL



Wiring Schematics (Article 2084477)



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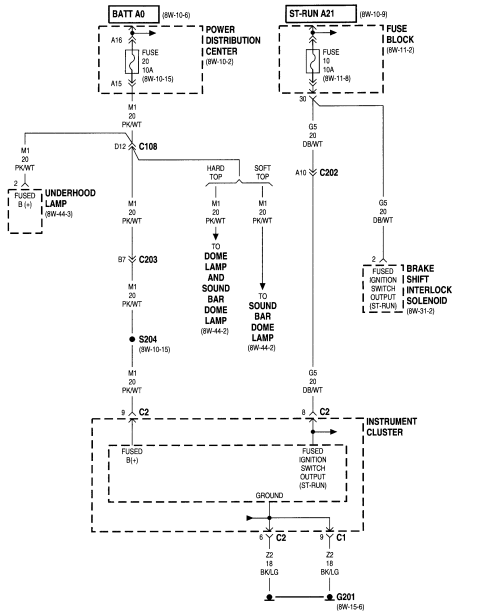
Wiring Diagrams (Article 2084478)



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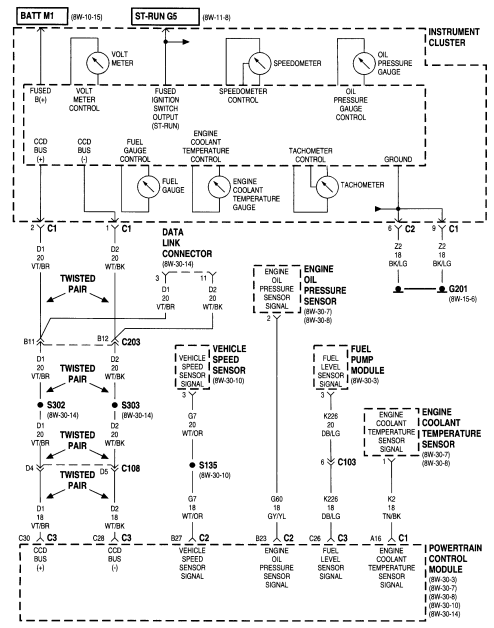

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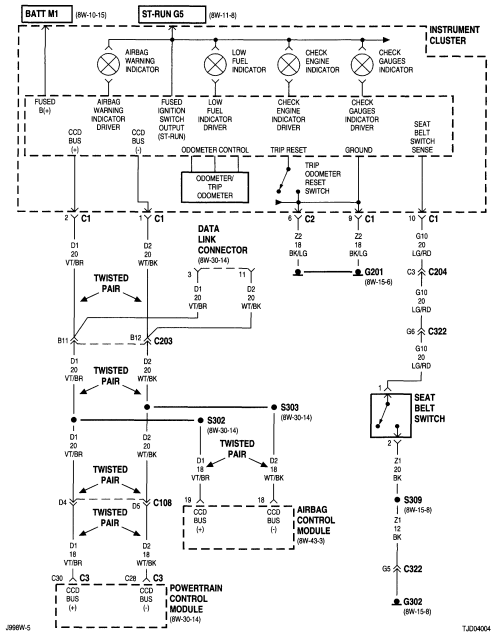
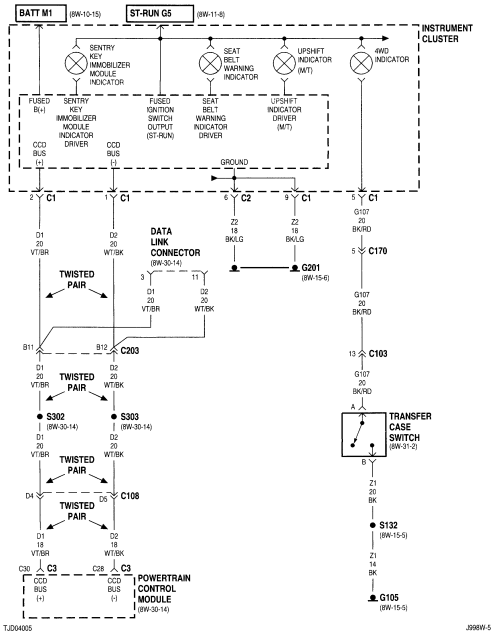
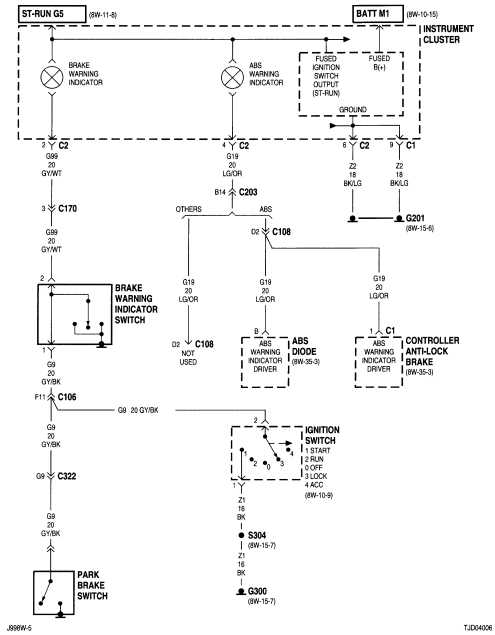
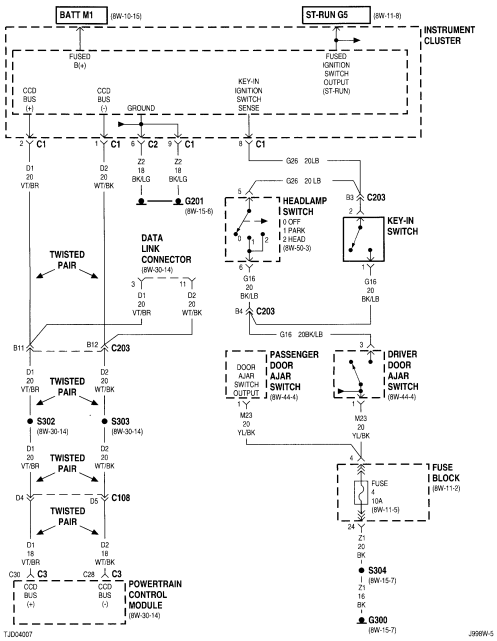

BATT M1
(8W-10-15)
ST-RUN G5
(8W-11-8)
INSTRUMENT CLUSTER
AIRBAG WARNING INDICATOR
LOW FUEL INDICATOR
CHECK ENGINE INDICATOR
CHECK GAUGES INDICATOR
FUSED B(+)
AIRBAG WARNING INDICATOR DRIVER
FUSED IGNITION SWITCH OUTPUT (ST-RUN)
LOW FUEL INDICATOR DRIVER
CHECK ENGINE INDICATOR DRIVER
CHECK GAUGES INDICATOR DRIVER
SEAT BELT SWITCH SENSE
CCD BUS (+)
CCD BUS (-)
ODOMETER CONTROL
TRIP RESET
GROUND
ODOMETER/ TRIP ODOMETER
TRIP ODOMETER RESET SWITCH
2 C1
1 C1
6 C2
9 C1
10 C1
DATA LINK CONNECTOR
(8W-30-14)
D1 20 VT/BR
D2 20 WT/BK
Z2 18 BK/LG
G10 20 LG/RD
G201
(8W-15-6)
C204
C322
TWISTED PAIR
B11
B12
C203
S303
(8W-30-14)
S302
(8W-30-14)
SEAT BELT SWITCH
Z1 20 BK
S309
(8W-15-8)
Z1 12 BK
G302
(8W-15-8)
D1 18 VT/BR
D2 18 WT/BK
D4
D5
C108
19
18
AIRBAG CONTROL MODULE
(8W-43-3)
C30 C3
C28 C3
POWERTRAIN CONTROL MODULE
(8W-30-14)
J998W-5
TJD04004

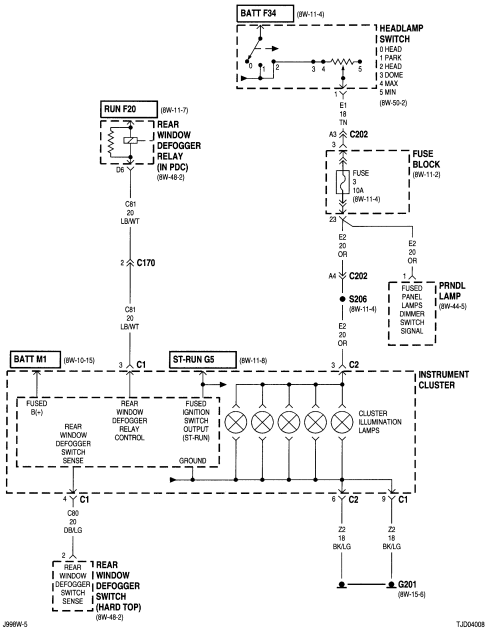

BATT M1
(8W-10-15)
ST-RUN G5
(8W-11-8)
INSTRUMENT CLUSTER
SENTRY KEY IMMOBILIZER MODULE INDICATOR
SEAT BELT WARNING INDICATOR
UPSHIFT INDICATOR (WT)
4WD INDICATOR
FUSED B(+)
SENTRY KEY IMMOBILIZER MODULE INDICATOR DRIVER
FUSED IGNITION SWITCH OUTPUT (ST-RUN)
SEAT BELT WARNING INDICATOR DRIVER
UPSHIFT INDICATOR DRIVER (M/T)
CCD BUS (+)
CCD BUS (-)
GROUND
2 C1
1 C1
6 C2
9 C1
5 C1
DATA LINK CONNECTOR
(8W-30-14)
D1 20 VT/BR
D2 20 WT/BK
Z2 18 BK/LG
G201
(8W-15-6)
G107 20 BK/RD
C170
C103
TWISTED PAIR
B11
B12
C203
S302
(8W-30-14)
S303
(8W-30-14)
TRANSFER CASE SWITCH
(8W-31-2)
S132
(8W-15-5)
G105
(8W-15-5)
D4
D5
C108
D1 18 VT/BR
D2 18 WT/BK
C30 C3
C28 C3
POWERTRAIN CONTROL MODULE
(8W-30-14)
TJD04005
J998W-5

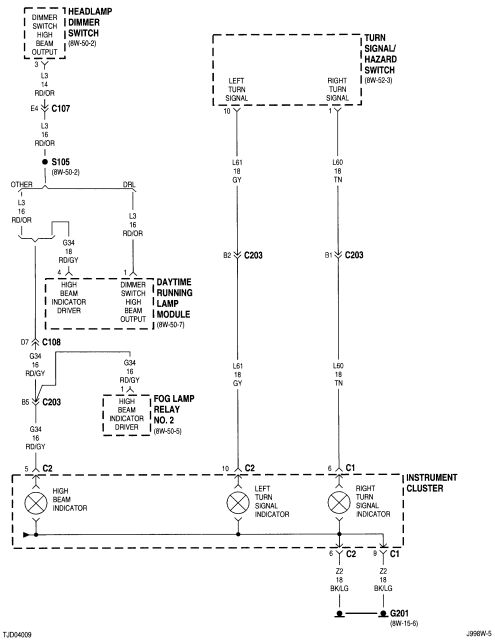


J998W-5 TJD04006

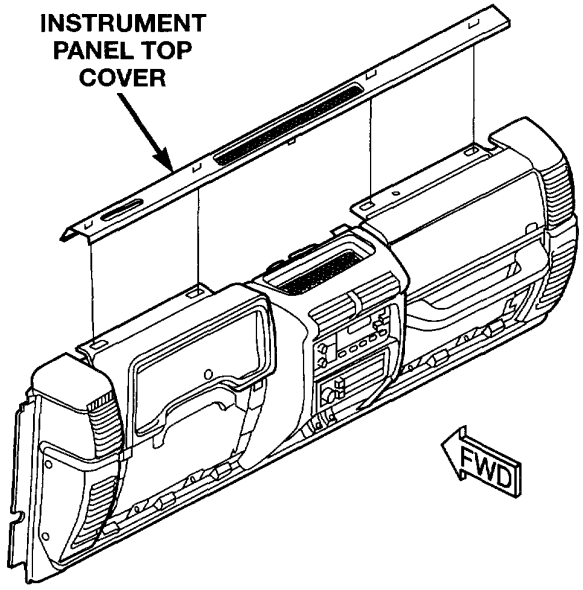


TJD04007 J998W-5





Components (itype_32)



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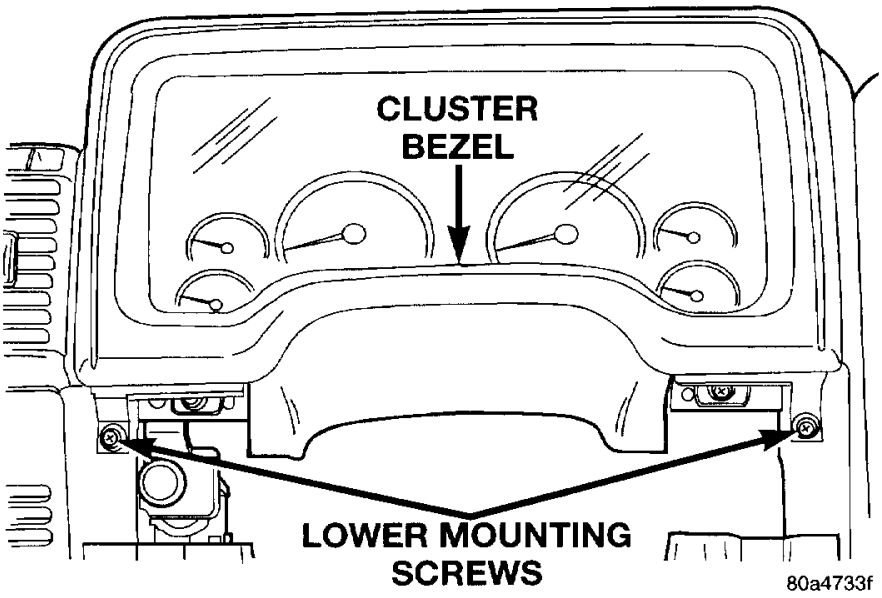

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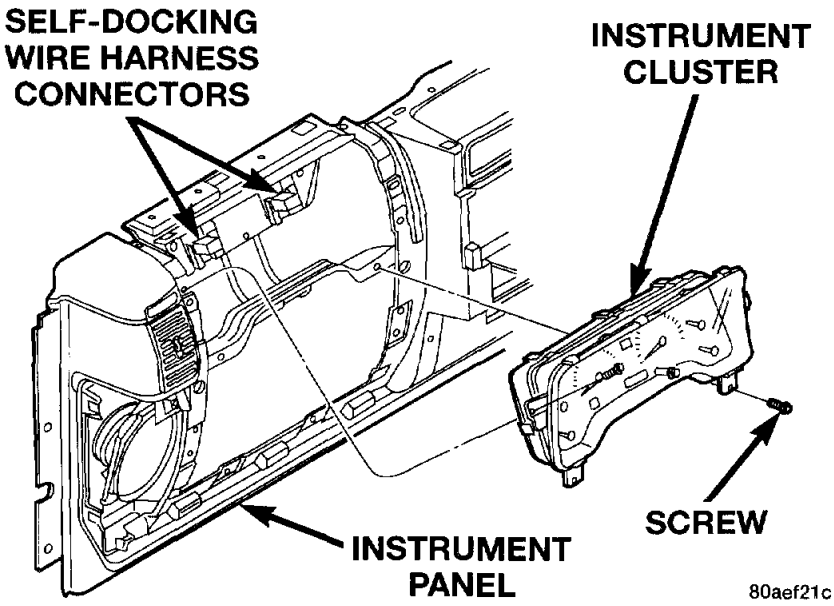
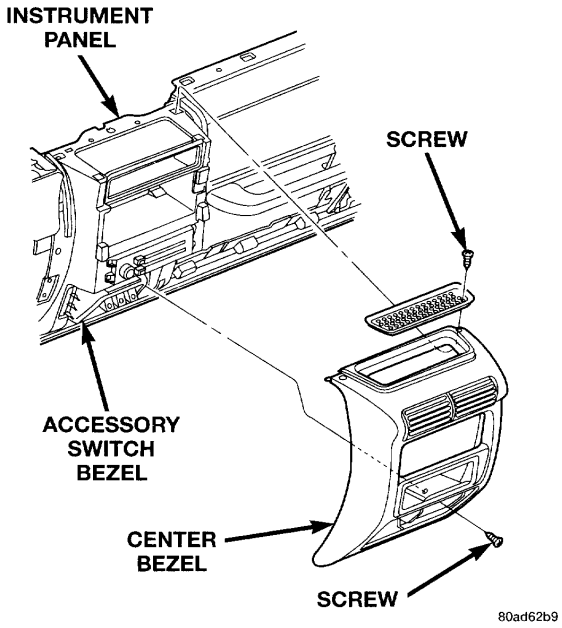

SELF-DOCKING
WIRE HARNESS
CONNECTORS
INSTRUMENT
CLUSTER
SCREW
INSTRUMENT
PANEL
80aef21c


INSTRUMENT
PANEL
SCREW
ACCESSORY
SWITCH
BEZEL
CENTER
BEZEL
SCREW
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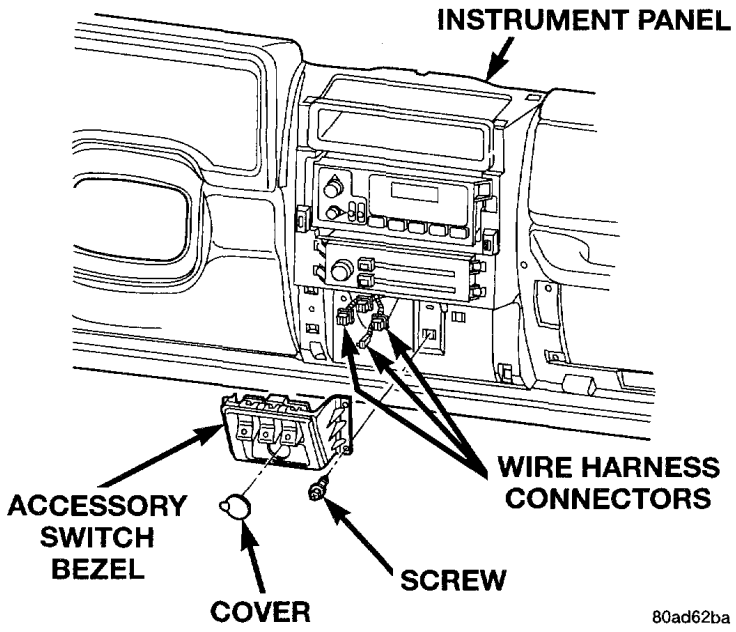
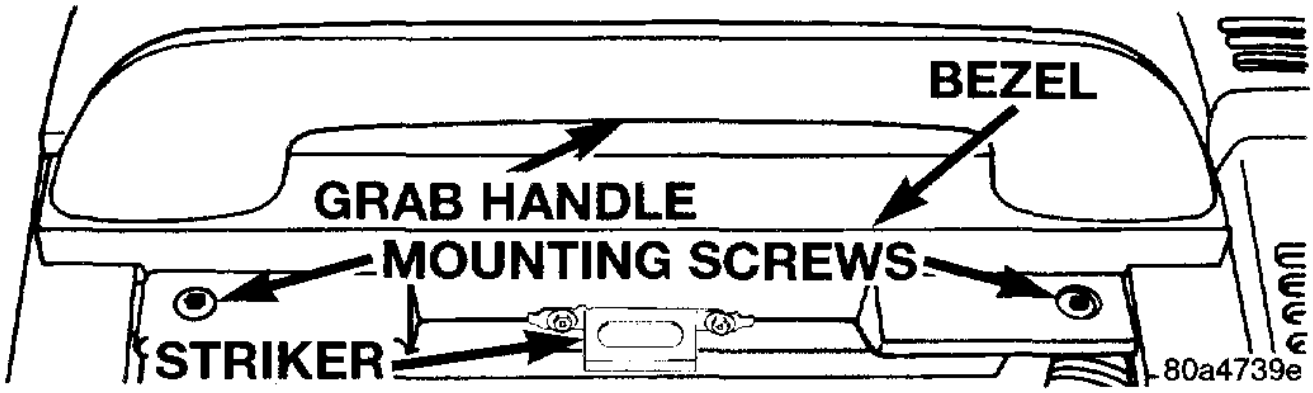
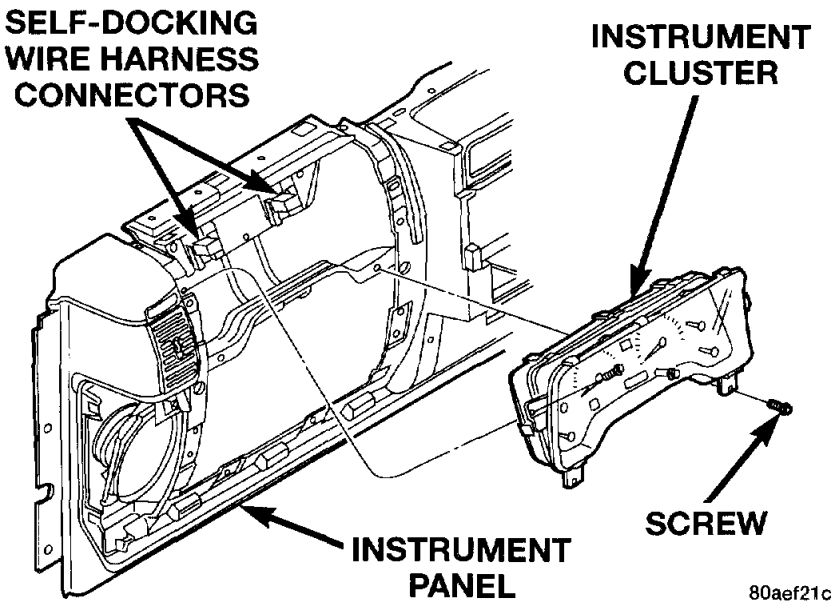
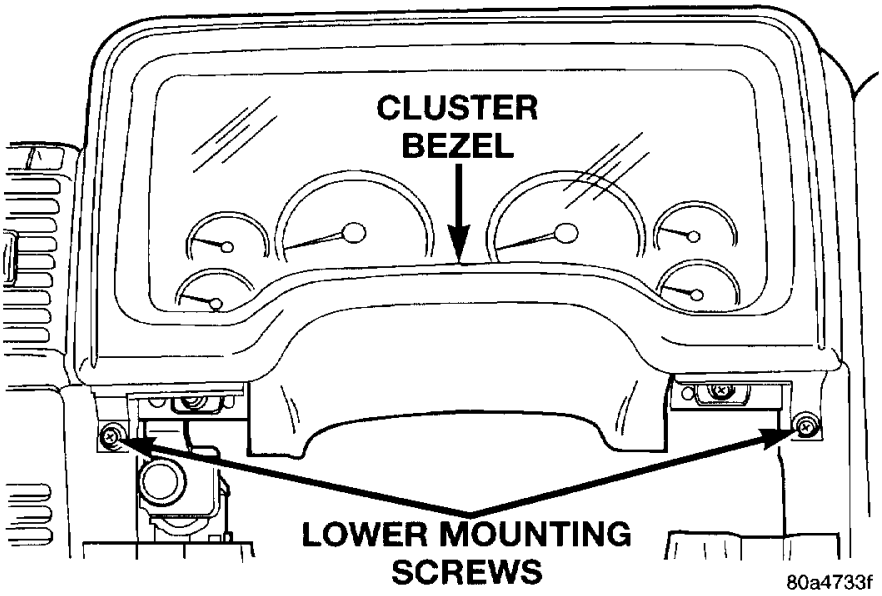


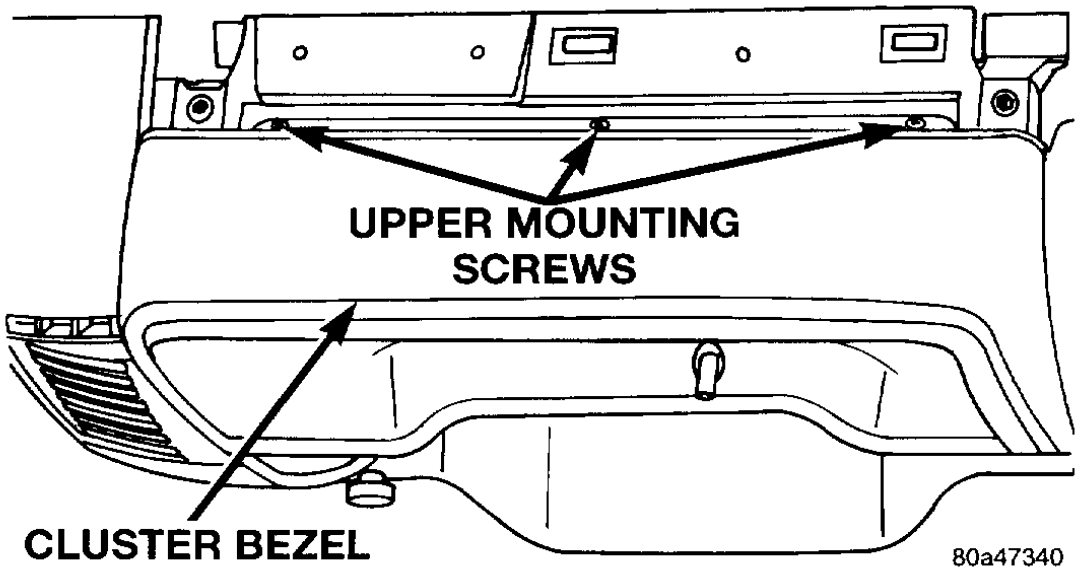


Instrument Cluster Replacement (Article 2028938)

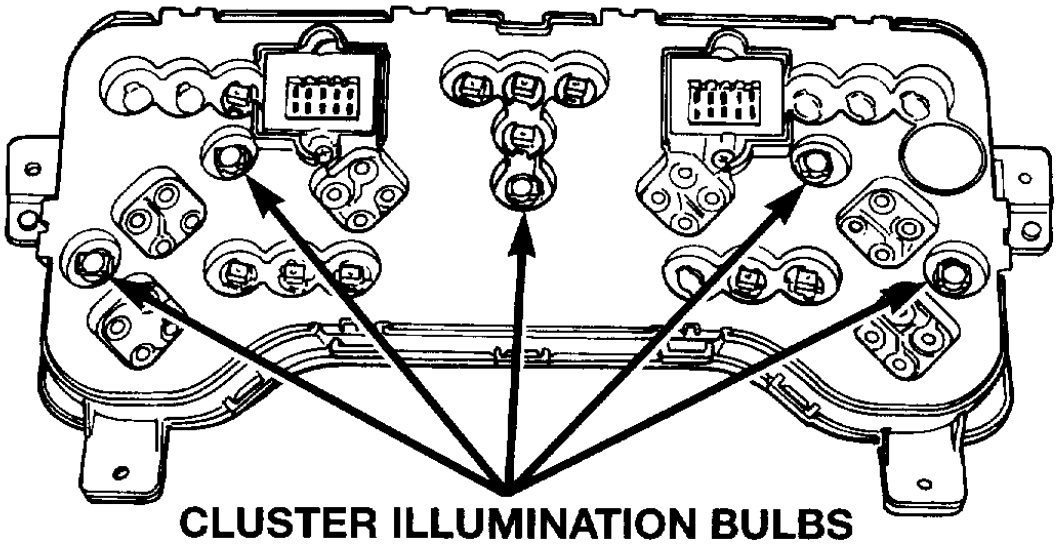


Instrument Cluster Bezel Replacement (Article 2028926)





Instrument Cluster Bulb Replacement (Article 2085027)



Instrument Cluster Hood and Mask (Article 2085028)

Some of the components for the
instrument cluster
used in this vehicle are serviced individually. The serviced components include: the incandescent instrument
cluster
indicator lamp and
illumination lamp
bulbs (including the integral bulb holders), the duster lens and hood unit, the instrument
cluster housing rear cover
, and the instrument
cluster housing
(including the trip
odometer
reset knob, the cluster mask, the gauges and the instrument cluster electronic circuit board). Following are
the service procedures for the instrument cluster components.
WARNING: ON VEHICLES EQUIPPED WITH AIRBAGS, REFER TO AIRBAG AND SEAT BELTS/AIR BAGS BEFORE ATTEMPTING ANY STEERING WHEEL, STEERING COLUMN, OR
INSTRUMENT PANEL
COMPONENT DIAGNOSIS OR SERVICE. FAILURE TO TAKE THE PROPER PRECAUTIONS COULD RESULT IN ACCIDENTAL AIR-BAG DEPLOYMENT AND POSSIBLE PERSONAL INJURY
.
REMOVAL
Cluster Hood And Mask
1. Disconnect and isolate the battery negative cable.
2. Remove the instrument cluster from the instrument panel.
See: Instrument Cluster / Carrier > Procedures > Instrument Cluster Replacement
3. Remove the cluster lens from the cluster housing.
See: Instrument Cluster / Carrier > Procedures > Instrument Cluster Lens Replacement
4. Work around the perimeter of the cluster housing to disengage each of the latches that secure the cluster hood and mask unit to the cluster housing.
5. Gently pull the cluster hood and mask unit away from the cluster housing.
INSTALLATION
1. Align the hood and mask unit with the cluster housing.
2. Press firmly and evenly on the hood and mask unit to install it onto the cluster housing.
3. Work around the perimeter of the cluster housing to be certain that each of the latches that secure the hood and mask unit to the cluster housing is fully engaged.
4. Install the cluster lens onto the cluster housing.
5. Install the instrument cluster onto the instrument panel.

6. Reconnect the battery negative cable.

Instrument Cluster Housing Rear Cover Replacement (Article 2085043)

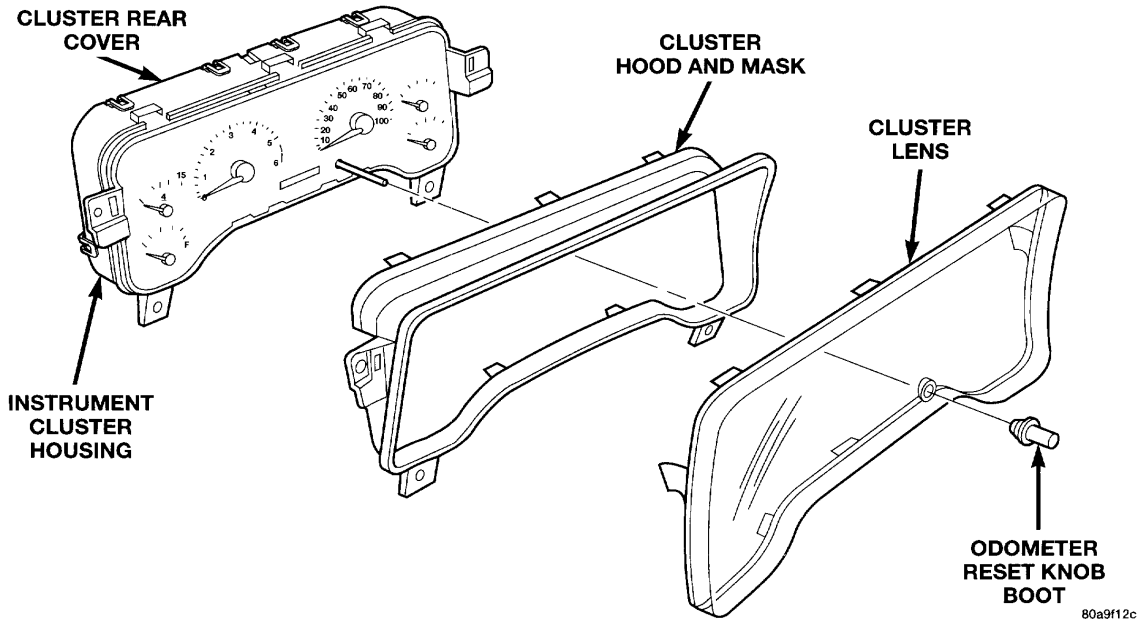
Some of the components for the
instrument cluster
used in this vehicle are serviced individually. The serviced components include: the incandescent instrument
cluster
indicator lamp and
illumination lamp
bulbs (including the integral bulb holders), the duster lens and hood unit, the instrument
cluster housing rear cover
, and the instrument
cluster housing
(including the trip
odometer
reset knob, the cluster mask, the gauges and the instrument cluster electronic circuit board). Following are
the service procedures for the instrument cluster components.
WARNING: ON VEHICLES EQUIPPED WITH AIRBAGS, REFER TO AIRBAG AND SEAT BELTS/AIR BAGS BEFORE ATTEMPTING ANY STEERING WHEEL, STEERING COLUMN, OR
INSTRUMENT PANEL
COMPONENT DIAGNOSIS OR SERVICE. FAILURE TO TAKE THE PROPER PRECAUTIONS COULD RESULT IN ACCIDENTAL AIR-BAG DEPLOYMENT AND POSSIBLE PERSONAL INJURY
.
REMOVAL
Cluster Housing Rear Cover
1. Disconnect and isolate the battery negative cable.
2. Remove the instrument cluster from the instrument panel.
See: Instrument Cluster / Carrier > Procedures > Instrument Cluster Replacement
3. Work around the perimeter of the cluster housing to disengage each of the latches that secure the rear cover to the cluster housing.
4. Gently pull the rear cover away from the back of the cluster housing.
INSTALLATION
1. Position the rear cover to the back of the cluster housing.
2. Press firmly and evenly on the rear cover until each of the latches that secure the rear cover to the cluster housing is fully engaged.
3. Install the instrument cluster onto the instrument panel.
4. Reconnect the battery negative cable.

Instrument Cluster Housing Replacement (Article 2085044)

Some of the components for the
instrument cluster
used in this vehicle are serviced individually. The serviced components include: the incandescent instrument
cluster
indicator lamp and
illumination lamp
bulbs (including the integral bulb holders), the duster lens and hood unit, the instrument
cluster housing rear cover
, and the instrument
cluster housing
(including the trip
odometer
reset knob, the cluster mask, the gauges and the instrument cluster electronic circuit board). Following are
the service procedures for the instrument cluster components.
WARNING: ON VEHICLES EQUIPPED WITH AIRBAGS, REFER TO AIRBAG AND SEAT BELTS/AIR BAGS BEFORE ATTEMPTING ANY STEERING WHEEL, STEERING COLUMN, OR
INSTRUMENT PANEL
COMPONENT DIAGNOSIS OR SERVICE. FAILURE TO TAKE THE PROPER PRECAUTIONS COULD RESULT IN ACCIDENTAL AIR-BAG DEPLOYMENT AND POSSIBLE PERSONAL INJURY
.

REMOVAL
Cluster Housing
1. Disconnect and isolate the battery negative cable.
2. Remove the instrument cluster from the instrument panel.
See: Instrument Cluster / Carrier > Procedures > Instrument Cluster Replacement
3. Remove all of the
cluster illumination lamp
and indicator lamp bulb and bulb holder units from the electronic circuit board.
See: Instrument Cluster / Carrier > Procedures > Instrument Cluster Bulb Replacement
4. Remove the cluster hood and mask unit from the cluster housing.
See: Instrument Cluster / Carrier > Procedures > Instrument Cluster Hood and Mask
5. Remove the rear cover from the cluster housing.
See: Instrument Cluster / Carrier > Procedures > Instrument Cluster Housing Rear Cover Replacement
INSTALLATION
1. Install the rear cover onto the cluster housing.
2. Install the cluster hood and mask unit onto the cluster housing.
3. Install all of the cluster
illumination
lamp and indicator lamp bulb and bulb holder units into the electronic circuit board.
4. Install the instrument cluster onto the instrument panel.
5. Reconnect the battery negative cable.

Instrument Cluster Lens Replacement (Article 2085067)



Odometer Reset Knob Boot (Article 2085077)

Some of the components for the
instrument cluster
used in this vehicle are serviced individually. The serviced components include: the incandescent instrument cluster
indicator lamp and
illumination lamp
bulbs (including the integral bulb holders), the duster lens and hood unit, the instrument cluster housing rear cover
, and the instrument
cluster housing
(including the trip
odometer
reset knob, the cluster mask, the gauges and the instrument cluster electronic circuit board). Following are the service procedures for the instrument cluster components.

WARNING: ON VEHICLES EQUIPPED WITH AIRBAGS, REFER TO AIRBAG AND SEAT BELTS/AIR BAGS BEFORE ATTEMPTING ANY STEERING WHEEL, STEERING COLUMN, OR
INSTRUMENT PANEL
COMPONENT DIAGNOSIS OR SERVICE. FAILURE TO TAKE THE PROPER PRECAUTIONS COULD RESULT IN ACCIDENTAL AIR-BAG DEPLOYMENT AND POSSIBLE PERSONAL INJURY
.
REMOVAL
Odometer Reset Knob Boot
1. Disconnect and isolate the battery negative cable.
2. Remove the instrument cluster from the instrument panel.
See: Instrument Cluster / Carrier > Procedures > Instrument Cluster Replacement
3. Remove the cluster lens from the cluster housing.
See: Instrument Cluster / Carrier > Procedures > Instrument Cluster Lens Replacement
4. Remove the odometer reset knob boot by pulling it out of the cluster lens.
INSTALLATION
1. Position the odometer reset knob to the mounting hole from the back of the cluster lens.
2. Pull the odometer reset knob into the mounting hole from the face of the cluster lens.
3. Install the cluster lens onto the cluster housing.
4. Install the instrument cluster onto the instrument panel.
5. Reconnect the battery negative cable.

Technician Safety Information (itype_15)

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Mechanical (including Torque) (itype_28)

Tighten the three screws that secure the upper mounting flange of the
cluster bezel
to the
instrument panel
screws to
2.2 Nm (20 in. lbs.)
.
Tighten the two screws that secure the lower mounting tabs of the
cluster
bezel to the instrument panel screws to
Tighten the four screws that secure the
instrument cluster
to the instrument panel screws to
Tighten the two screws that secure the top of the center bezel to the top of the instrument panel screws to
Tighten the one screw into the back of the ash receiver housing that secures the lower portion of the center bezel to the instrument panel screw to
Tighten the four screws that secure the accessory switch bezel to the instrument panel screws to
Tighten the two nuts that secure the stud on each end of the grab handle to the instrument panel nuts to
5.6 Nm (50 in. lbs.)
Tighten the two screws that secure the grab handle bezel to the instrument panel screws to
Tighten the four nuts that secure the top of the instrument panel to the studs on the top of the
dash panel
. Tighten the nuts to
12 Nm (105 in. lbs.)
Tighten the three screws that secure each end of the instrument panel to the door hinge pillars screws to
Tighten the two nuts that secure the lower passenger side airbag module bracket to the studs on the dash panel nuts to
28 Nm (250 in. lbs.)
Tighten the screws around the perimeter that secure the base trim to the instrument panel screws to
Tighten the two screws that secure the 16-way data link wire harness connector to the instrument panel screws

to

All Technical Service Bulletins (itype_100)

Tsbs

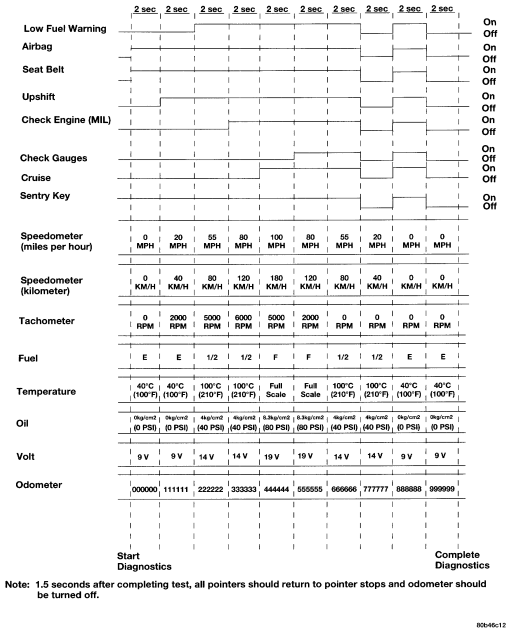
- Recall 99V117000: Instrument Panel Ground Screws Loose (NHTSA99V117000, 1999/05/06)
- Recall - Instrument Panel Ground Screws (830, 1999/05/01)
- Instrument Cluster - Intermittent/Erratic Operation (08-15-99, 1999/05/21)

Customer Interest Bulletins (itype_109)

Tsbs

- Instrument Cluster - Intermittent/Erratic Operation (08-15-99, 1999/05/21)

Actuator Test (Article 2084972)



Note: 1,5 seconds after completing test, all pointers should return to pointer stops and odometer should be turned off.

80b46c12

Instrument Cluster Test 1 (Article 2084973)

If all of the gauges and/or indicator lamps are inoperative, perform the Preliminary Diagnosis. If an individual gauge or Chrysler Collision Detection (CCD) data bus message-controlled indicator lamp is inoperative, go directly to the Actuator Test. If an individual hard wired indicator lamp is inoperative, refer to

Instrument Cluster

- Hard Wired Lamp Diagnosis in the Diagnosis and Testing for the procedures to diagnosis that lamp.

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INSTRUMENT PANEL

COMPONENT DIAGNOSIS OR SERVICE. FAILURE TO TAKE THE PROPER PRECAUTIONS COULD RESULT IN ACCIDENTAL AIR-BAG DEPLOYMENT AND POSSIBLE PERSONAL INJURY

.

Preliminary Diagnosis

1. If the indicator lamps operate, but none of the gauges operate, go to Step 2. If all of the gauges and the CCD data bus message-controlled indicator lamps are inoperative, go to Step 5.
2. Check the fused B(+) 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.
3. Check for battery voltage at the fused B(+) fuse in the PDC. If OK, go to Step 4. If not OK, repair the open fused B(+) circuit to the battery as required.
4. Disconnect and isolate the battery negative cable. Remove the instrument

cluster

. Connect the battery negative cable. Check for battery voltage at the fused B(+) circuit cavity of the instrument cluster wire harness connector A. If OK, refer to Instrument Cluster - Actuator Test in the

Diagnosis and Testing. If not OK, repair the open fused B(+) circuit to the fuse in the PDC as required.
5. Check the fused ignition switch output (run/ start) fuse in the fuseblock module. If OK, go to Step 6. If not OK, repair the shorted circuit or component as required and replace the faulty fuse.
6. Turn the ignition switch to the On position and check for battery voltage at the fused ignition switch output (run/start) fuse in the fuseblock module. If OK, go to Step 7. If not OK, repair the open fused ignition switch output (run/start) circuit to the ignition switch as required.
7. Turn the ignition switch to the Off position. Disconnect and isolate the battery negative cable. Install the instrument cluster. Connect the battery negative cable. Turn the ignition switch to the On position. Set the park brake. The
red brake warning lamp
should light. If OK, go to Step 8. If not OK, go to Step 9.
8. Turn the ignition switch to the Off position. Turn on the park lamps and adjust the panel lamps dimmer rheostat in the headlamp switch to the full bright position. The
cluster illumination lamp
s should light. If OK, refer to Instrument Cluster - Actuator Test in the Diagnosis and Testing. If not OK, go to Step 10.
9. Turn the ignition switch to the Off position. Disconnect and isolate the battery negative cable. Remove the instrument cluster. Connect the battery negative cable. Turn the ignition switch to the On position. Check for battery voltage at the fused ignition switch output (run/start) circuit cavity of the instrument cluster wire harness connector A. If OK, refer to Instrument Cluster - Actuator Test in the Diagnosis and Testing. If not OK, repair the open fused ignition switch output (run/start) circuit to the fuse in the fuseblock module as required.
10. Disconnect and isolate the battery negative cable. Remove the instrument cluster. Check for continuity between the ground circuit cavity of the instrument cluster wire harness connector A and a good ground. There should be continuity. If OK, refer to Instrument Cluster - Actuator Test in the Diagnosis and Testing. If not OK, repair the open ground circuit to ground as required.

Instrument Cluster Test 2 (Article 2084974)

Before performing this test, complete the Defogger Switch and the Defogger Relay tests.
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INSTRUMENT PANEL
COMPONENT DIAGNOSIS OR SERVICE. FAILURE TO TAKE THE PROPER PRECAUTIONS COULD RESULT IN ACCIDENTAL AIR-BAG DEPLOYMENT AND POSSIBLE PERSONAL INJURY
.
1. Disconnect and isolate the battery negative cable. Remove the defogger relay from the Power Distribution Center (PDC) and unplug the defogger switch wire harness connector.
2. Remove the
instrument cluster
from the instrument panel. Refer to Instrument
Cluster
in Instrument Panel Systems for the procedures.
3. Check for continuity between the rear window defogger switch sense circuit cavity of the right instrument cluster wire harness connector (connector B) and a good ground. There should be no continuity. If OK, go to Step 4. If not OK, repair the short circuit as required.
4. Check for continuity between the rear window defogger switch sense circuit cavities of the right instrument cluster wire harness connector (connector B) and the defogger switch wire harness connector. There should be continuity. If OK, go to Step 5. If not OK, repair the open circuit as required.
5. Check for continuity between the rear window defogger relay control circuit cavity of the right instrument cluster wire harness connector (connector B) and a good ground. There should be no continuity. If OK, go to Step 6. If not OK, repair the short circuit as required.
6. Check for continuity between the rear window defogger relay control circuit cavities of the right instrument cluster wire harness connector (connector B) and the defogger relay receptacle (the cavity for ISO relay terminal 86) in the PDC. There should be continuity. If OK, replace the faulty instrument cluster. If not OK, repair the open circuit as required.

Instrument Cluster Test 3 (Article 2084975)

Before performing this test, complete the testing of the hard-wired chime warning system switches.
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STEERING WHEEL, STEERING COLUMN, OR
INSTRUMENT PANEL
COMPONENT DIAGNOSIS OR SERVICE. FAILURE TO TAKE THE PROPER PRECAUTIONS COULD RESULT IN ACCIDENTAL AIR-BAG DEPLOYMENT AND POSSIBLE PERSONAL INJURY
.
1. Disconnect and isolate the battery negative cable. Remove the
instrument cluster
from the instrument panel. Refer to Instrument Panel Systems for the procedures.
2. Unplug the headlamp switch and the key-in ignition switch wire harness connectors. Check for continuity between the key-in switch sense circuit cavity of the right instrument
cluster
wire harness connector (connector B) and a good ground. There should be no continuity. If OK, go to Step 3. If not OK, repair the short circuit as required.
3. Check for continuity between the key-in switch sense circuit cavities of the right instrument cluster wire harness connector (connector B) and the headlamp switch wire harness connector. There should be continuity. If OK, go to Step 4. If not OK, repair the open circuit as required.
4. Unplug the driver seat belt switch wire harness connector. Check for continuity between the seat belt switch sense circuit cavity of the right instrument cluster wire harness connector (connector B) and a good ground. There should be no continuity If OK, go to Step 5. If not OK, repair the short circuit as required.
5. Check for continuity between the seat belt switch sense circuit cavities of the right instrument cluster wire harness connector (connector B) and the driver seat belt switch wire harness connector. There should be continuity If OK, test the instrument cluster as described in Instrument Panel Systems. If not OK, repair the open circuit as required.

Erratic Operation (itype_132)

Tsbs
- Instrument Cluster - Intermittent/Erratic Operation (08-15-99, 1999/05/21)

Loose (itype_150)

Tsbs
- Recall 99V117000: Instrument Panel Ground Screws Loose (NHTSA99V117000, 1999/05/06)

New / Updated Parts (itype_117)

Tsbs
- Instrument Cluster - Intermittent/Erratic Operation (08-15-99, 1999/05/21)

Safety (itype_107)

Tsbs
- Recall 99V117000: Instrument Panel Ground Screws Loose (NHTSA99V117000, 1999/05/06)
- Recall - Instrument Panel Ground Screws (830, 1999/05/01)