

INSTRUMENT PANEL - ANALOG

ABC123

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2000 Chevrolet Camaro

ARTICLE BEGINNING

2000 ACCESSORIES & EQUIPMENT
General Motors Analog Instrument Panels
Camaro & Firebird

* PLEASE READ THIS FIRST *

WARNING: Deactivate air bag system before performing any service operation. See appropriate AIR BAG RESTRAINT SYSTEMS article. DO NOT apply electrical power to any component on steering column without first deactivating air bag system. Air bag may deploy.

DESCRIPTION & OPERATION

The analog instrument panel cluster consists of speedometer/odometer, engine coolant temperature gauge, oil pressure gauge, fuel gauge, tachometer and voltmeter. Instrument cluster warning indicators include: seat belt, air bag, SERVICE ENGINE SOON, low oil, brake, ABS, check gauges, security, high beam, oil change, hatch ajar and turn signal indicators. Instrument cluster may also be equipped with warning indicators for: low coolant (5.7L), ASR (Camaro 5.7L), TCS OFF (Firebird 5.7L), reduced engine power (3.8L), LOW TRAC (ASR or TCS) and SKIP SHIFT (5.7L M/T). Power is supplied to appropriate indicator lights and gauges by a flexible printed circuit attached to the back of instrument cluster case.

COMPONENT LOCATIONS

COMPONENT LOCATIONS	
AA	Locati on
Data Link Connector	Under Instrument Panel, Right Of Steering Column
Engine Oil Level Switch	Lower Left Side Of Engine, In Oil Pan
Engine Oil Pressure Sensor	
3.8L	Top Right Side Of Engine
5.7L	Top Rear Of Engine, Near Left Cylinder Head
Instrument Panel Fuse Block	On Left End of Instrument Panel
Powertrain Control Module (PCM)	Right Side Of Engine Compartment, Behind Wheel well
AA	

PROGRAMMING

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When installing a new instrument cluster it must be synchronized to the Supplemental Inflatable Restraint (SIR) module. Connect scan tool to Data Link Connector (DLC). Using scan tool, select SPECIAL FUNCTIONS key under INSTRUMENT PANEL CLUSTER. Select SYNCHRONIZE IPC and SIR key. Scan tool screen will display IPC and SIR MODULES NOW SYNCHRONIZING MODULES. If procedure is completed successfully, scan tool screen will display MODULE SYNCHRONIZATION COMPLETE. If communication is lost with SIR or IPC, scan tool screen will display LOSS OF COMMUNICATIONS WITH VEHICLE, CHECK DIAGNOSTICS LINK CONNECTOR - CHECK IGNITION (ON/OFF).

TROUBLE SHOOTING

1) Check system related fuses located in instrument panel fuse block. If more than one instrument cluster gauge is malfunctioning, check common power and ground inputs. See WIRING DIAGRAMS.

2) Before replacing instrument cluster due to an indicator problem, check for an open circuit to indicator within instrument cluster (from suspect socket to connector terminals).

3) Before replacing any components, check for poor terminal contacts at component and associated harness connectors. Check for broken (or partially broken) wire inside of insulation which could cause system failure but pass a continuity/voltage check. Check for proper installation of aftermarket equipment. If any problems are found, repair as necessary. Recheck system operation. If no problems are found, perform diagnostic system check. See INSTRUMENT CLUSTER DIAGNOSTIC SYSTEM CHECK under SELF-DIAGNOSTIC SYSTEM.

SELF-DIAGNOSTIC SYSTEM

NOTE: Procedures in this article are written specifically for Tech II scan tool. Other scan tools may have different functionality and/or display different messages.

NOTE: Using scan tool, check for Diagnostic Trouble Codes (DTC). If any Body Control Module (BCM) DTCs exist, see appropriate BODY CONTROL MODULES article. If any PCM DTCs exist, see appropriate SELF-DIAGNOSTICS article in ENGINE PERFORMANCE.

INSTRUMENT CLUSTER DIAGNOSTIC SYSTEM CHECK

1) Connect scan tool to Data Link Connector (DLC). If scan tool powers up, go to next step. If scan tool does not power up, go to SCAN TOOL DOES NOT POWER UP.

2) Turn ignition on. Following scan tool manufacturer's instructions, attempt to establish communication with Electronic Brake Control Module (EBCM), Instrument Cluster (IPC), Powertrain Control Module (PCM) and Sensing Diagnostic Module (SDM). If communication

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with all modules is established, go to next step. If communication with any module is not established, a communication problem exists with class 2 device. Repair serial data bus circuit between DLC and module in which communication was not established. See appropriate wiring diagram in DATA LINK CONNECTORS article in WIRING DIAGRAMS.

3) Select display DTC function for EBCM, IPC, PCM and SDM. Record any DTCs that are displayed and module that set the DTC. If any DTCs are displayed, perform appropriate test. See DIAGNOSTIC TROUBLE CODE INDEX table. If no DTCs are displayed, perform appropriate test under SYSTEM TESTS.

DIAGNOSTIC TROUBLE CODE INDEX

AA
DTC Description

B1000 Instrument Panel Cluster Malfunction
UXXXX (1)

(1) - For any DTC beginning with the letter "U", a communication problem exists with class 2 device. Repair serial data bus circuit between DLC and module in which communication was not established. See DATA LINK CONNECTORS article in WIRING DIAGRAMS.

AA

SCAN TOOL DOES NOT POWER UP

1) Check CIG/ACCY fuse in instrument panel fuse block. If fuse is okay, go to next step. If fuse is blown, check for short to ground in Orange wire between terminal No. 16 at Data Link Connector (DLC) and CIG/ACCY fuse. Repair wiring as necessary and retest.

2) Check for battery voltage at terminal No. 16 (Orange wire) at DLC. If battery voltage is present, go to next step. If battery voltage is not present, check for an open in Orange wire between DLC and CIG/ACCY fuse. Repair wiring as necessary.

3) Check for open in Black wire between ground and terminal No. 4 at DLC. If ground circuit is okay, go to next step. If faulty circuit is found, repair Black wire as necessary.

4) Check for poor connections between scan tool and terminals No. 4 and 16 at DLC. If poor connections are found, repair as necessary. If connections are okay, scan tool may be malfunctioning. Check scan tool manual for diagnostic procedures. Repair or replace scan tool as necessary.

DIAGNOSTIC TESTS

DTC B1000: INSTRUMENT CLUSTER MALFUNCTION

Description

When power is applied to instrument cluster, the instrument cluster performs an internal system check. This occurs every 63 seconds. If instrument cluster detects a malfunction in any monitored

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system, Diagnostic Trouble Code (DTC) B1000 will set in memory. If malfunction is no longer present for 100 consecutive ignition cycles, history DTC will be cleared from memory. After repair is made, history DTC can also be cleared from memory using scan tool.

Testing

1) If diagnostic system check has been performed, go to next step. If diagnostic system check has not been performed, perform INSTRUMENT CLUSTER DIAGNOSTIC SYSTEM CHECK under SELF-DIAGNOSTIC SYSTEM.

2) Using scan tool, clear DTCs. If DTC B1000 resets, replace instrument cluster. See INSTRUMENT CLUSTER under REMOVAL & INSTALLATION.

SYSTEM TESTS

CAUTION: When battery is disconnected, vehicle computer and memory systems may lose memory data. Driveability problems may exist until computer systems have completed a relearn cycle. See COMPUTER RELEARN PROCEDURES article in GENERAL INFORMATION before disconnecting battery.

CHECK ENGINE OIL INDICATOR LIGHT TESTS

Check Engine Oil Indicator Light Always On

1) If diagnostic system check has been performed, go to next step. If diagnostic system check has not been performed, perform INSTRUMENT CLUSTER DIAGNOSTIC SYSTEM CHECK under SELF-DIAGNOSTIC SYSTEM.

2) Turn ignition on and observe CHECK ENGINE OIL indicator light. If indicator light does not turn off after bulb check, turn ignition off and go to next step. If indicator light turns off after bulb check, problem may be intermittent. Try to recreate fault by wiggling wiring and connectors. Check for faulty connections at all connectors that may be causing intermittent condition. See WIRING DIAGRAMS.

3) Turn ignition on. Press and hold odometer trip reset button for about 12 seconds. If CHANGE ENGINE OIL indicator light does not flash twice and then turn off, go to next step. If CHANGE ENGINE OIL indicator light flashes twice and then turns off, no problem is indicated at this time. Test is complete.

4) Connect scan tool to Data Link Connector (DLC). Turn ignition on. Using scan tool, select WOW mode. Command instrument cluster indicator lights off. If CHECK ENGINE OIL indicator light does not turn off, go to next step. If CHECK ENGINE OIL indicator light turns off, no problem is indicated at this time. Test is complete.

5) Replace instrument cluster. See INSTRUMENT CLUSTER under REMOVAL & INSTALLATION. Check system operation.

Check Engine Oil Indicator Light Inoperative

1) If diagnostic system check has been performed, go to next step. If diagnostic system check has not been performed, perform

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INSTRUMENT CLUSTER DIAGNOSTIC SYSTEM CHECK under SELF-DIAGNOSTIC SYSTEM.

2) Turn ignition on and observe CHECK ENGINE OIL indicator light. If indicator light turns on during bulb check, turn ignition off and go to next step. If indicator light does not turn on during bulb check, problem may be intermittent. Try to recreate fault by wiggling wiring and connectors. Check for faulty connections at all connectors that may be causing intermittent condition. See WIRING DIAGRAMS.

3) Connect scan tool to Data Link Connector (DLC). Turn ignition on. Using scan tool, select WOW mode. Command instrument cluster indicator lights on. If CHECK ENGINE OIL indicator light does not turn on, go to next step. If CHECK ENGINE OIL indicator light turns on, no problem is indicated at this time. Test is complete.

4) Replace instrument cluster. See INSTRUMENT CLUSTER under REMOVAL & INSTALLATION. Check system operation.

CHECK GAUGES INDICATOR TESTS

Check Gauges Indicator Always On

1) If diagnostic system check has been performed, go to next step. If diagnostic system check has not been performed, perform INSTRUMENT CLUSTER DIAGNOSTIC SYSTEM CHECK under SELF-DIAGNOSTIC SYSTEM.

2) Start engine and observe CHECK GAUGES indicator light. If indicator light does not turn off after bulb check, go to next step. If indicator light turns off after bulb check, problem may be intermittent. Try to recreate fault by wiggling wiring and connectors. Check for faulty connections at all connectors that may be causing intermittent condition. See WIRING DIAGRAMS.

3) Turn ignition off. Ensure fuel level is at least 3/16 full. Turn ignition on and observe CHECK GAUGES indicator light. If indicator light does not turn off, go to next step. If indicator light turns off after bulb check, no problem is indicated at this time. Test is complete.

4) Using scan tool, check for Powertrain Control Module (PCM) Diagnostic Trouble Codes (DTC). If any PCM DTCs are present, perform on-board diagnostic system check. See ON-BOARD DIAGNOSTIC (OBD) SYSTEM CHECK under SELF-DIAGNOSTIC SYSTEM in appropriate SELF-DIAGNOSTICS article in ENGINE PERFORMANCE. If no PCM DTCs are present, go to next step.

5) Using scan tool, select WOW mode. Command instrument cluster indicator lights off. If CHECK GAUGES indicator light does not turn off, go to next step. If CHECK GAUGES indicator light turns off, perform on-board diagnostic system check. See ON-BOARD DIAGNOSTIC (OBD) SYSTEM CHECK under SELF-DIAGNOSTIC SYSTEM in appropriate SELF-DIAGNOSTICS article in ENGINE PERFORMANCE.

6) Replace instrument cluster. See INSTRUMENT CLUSTER under REMOVAL & INSTALLATION. Check system operation.

Check Gauges Indicator Inoperative

1) If diagnostic system check has been performed, go to next

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step. If diagnostic system check has not been performed, perform INSTRUMENT CLUSTER DIAGNOSTIC SYSTEM CHECK under SELF-DIAGNOSTIC SYSTEM.

2) Start engine and observe CHECK GAUGES indicator light. If indicator light does not turn on during bulb test, go to next step. If indicator light turns on during bulb check, problem may be intermittent. Try to recreate fault by wiggling wiring and connectors. Check for faulty connections at all connectors that may be causing intermittent condition. See WIRING DIAGRAMS.

3) Connect scan tool to Data Link Connector (DLC). Using scan tool, select WOW mode. Command instrument cluster indicator lights on. If CHECK GAUGES indicator light does not turn on, go to next step. If CHECK GAUGES indicator light turns on, perform on-board diagnostic system check. See ON-BOARD DIAGNOSTIC (OBD) SYSTEM CHECK under SELF-DIAGNOSTIC SYSTEM in appropriate SELF-DIAGNOSTICS article in ENGINE PERFORMANCE.

4) Replace instrument cluster. See INSTRUMENT CLUSTER under REMOVAL & INSTALLATION. Check system operation.

COOLANT TEMPERATURE GAUGE TESTS

Engine Coolant Temperature Gauge Always Cold

1) If diagnostic system check has been performed, go to next step. If diagnostic system check has not been performed, perform INSTRUMENT CLUSTER DIAGNOSTIC SYSTEM CHECK under SELF-DIAGNOSTIC SYSTEM.

2) Start engine. Allow engine to reach normal operating temperature. If engine coolant temperature gauge does not move to normal operating range, go to next step. If engine coolant temperature gauge moves to normal operating range, problem may be intermittent. Try to recreate fault by wiggling wiring and connectors. Check for faulty connections at all connectors that may be causing intermittent condition. See WIRING DIAGRAMS.

3) Connect scan tool to Data Link Connector (DLC). Using scan tool, perform engine coolant temperature gauge sweep test. If engine coolant temperature gauge does not sweep from cold, to hot and then return to cold, go to next step. If engine coolant temperature gauge sweeps from cold, to hot and then returns to cold, perform on-board diagnostic system check. See ON-BOARD DIAGNOSTIC (OBD) SYSTEM CHECK under SELF-DIAGNOSTIC SYSTEM in appropriate SELF-DIAGNOSTICS article in ENGINE PERFORMANCE.

4) Replace instrument cluster. See INSTRUMENT CLUSTER under REMOVAL & INSTALLATION. Check system operation.

Engine Coolant Temperature Gauge Always Hot

1) If diagnostic system check has been performed, go to next step. If diagnostic system check has not been performed, perform INSTRUMENT CLUSTER DIAGNOSTIC SYSTEM CHECK under SELF-DIAGNOSTIC SYSTEM.

2) Start engine and observe engine coolant temperature gauge. If engine coolant temperature gauge indicates hot when engine is cold, go to next step. If engine coolant temperature gauge does not indicate

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hot when engine is cold, problem may be intermittent. Try to recreate fault by wiggling wiring and connectors. Check for faulty connections at all connectors that may be causing intermittent condition. See WIRING DIAGRAMS.

3) Connect scan tool to Data Link Connector (DLC). Using scan tool, perform engine coolant temperature gauge sweep test. If engine coolant temperature gauge does not sweep from cold, to hot and then return to cold, go to next step. If engine coolant temperature gauge sweeps from cold, to hot and then returns to cold, perform on-board diagnostic system check. See ON-BOARD DIAGNOSTIC (OBD) SYSTEM CHECK under SELF-DIAGNOSTIC SYSTEM in appropriate SELF-DIAGNOSTICS article in ENGINE PERFORMANCE.

4) Replace instrument cluster. See INSTRUMENT CLUSTER under REMOVAL & INSTALLATION. Check system operation.

FUEL GAUGE TESTS

Fuel Gauge Always Indicates Empty

1) If diagnostic system check has been performed, go to next step. If diagnostic system check has not been performed, perform INSTRUMENT CLUSTER DIAGNOSTIC SYSTEM CHECK under SELF-DIAGNOSTIC SYSTEM.

2) Turn ignition off. Ensure fuel level is at least 3/16 full. Turn ignition on and observe fuel gauge. If fuel gauge does not indicate about where fuel level actually is, go to next step. If fuel gauge indicates about where fuel level actually is, problem may be intermittent. Try to recreate fault by wiggling wiring and connectors. Check for faulty connections at all connectors that may be causing intermittent condition. See WIRING DIAGRAMS.

3) Connect scan tool to Data Link Connector (DLC). Using scan tool, perform fuel gauge sweep test. If fuel gauge does not sweep from empty, to full and then return to empty, go to next step. If fuel gauge sweeps from empty, to full and then returns to empty, perform on-board diagnostic system check. See ON-BOARD DIAGNOSTIC (OBD) SYSTEM CHECK under SELF-DIAGNOSTIC SYSTEM in appropriate SELF-DIAGNOSTICS article in ENGINE PERFORMANCE.

4) Replace instrument cluster. See INSTRUMENT CLUSTER under REMOVAL & INSTALLATION. Check system operation.

Fuel Gauge Always Indicates Full

1) If diagnostic system check has been performed, go to next step. If diagnostic system check has not been performed, perform INSTRUMENT CLUSTER DIAGNOSTIC SYSTEM CHECK under SELF-DIAGNOSTIC SYSTEM.

2) Turn ignition off. Ensure fuel tank is not full. Turn ignition on and observe fuel gauge. If fuel gauge does not indicate about where fuel level actually is, go to next step. If fuel gauge indicates about where fuel level actually is, problem may be intermittent. Try to recreate fault by wiggling wiring and connectors. Check for faulty connections at all connectors that may be causing intermittent condition. See WIRING DIAGRAMS.

3) Connect scan tool to Data Link Connector (DLC). Using scan

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tool, perform fuel gauge sweep test. If fuel gauge does not sweep from empty, to full and then return to empty, go to next step. If fuel gauge sweeps from empty, to full and then returns to empty, perform on-board diagnostic system check. See ON-BOARD DIAGNOSTIC (OBD) SYSTEM CHECK under SELF-DIAGNOSTIC SYSTEM in appropriate SELF-DIAGNOSTICS article in ENGINE PERFORMANCE.

4) Replace instrument cluster. See INSTRUMENT CLUSTER under REMOVAL & INSTALLATION. Check system operation.

LOW OIL INDICATOR TESTS

Low Oil Indicator Always On

1) If diagnostic system check has been performed, go to next step. If diagnostic system check has not been performed, perform INSTRUMENT CLUSTER DIAGNOSTIC SYSTEM CHECK under SELF-DIAGNOSTIC SYSTEM.

2) Start engine and observe low oil indicator light. If indicator light does not turn off after bulb test, go to next step. If indicator light turns off after bulb check, problem may be intermittent. Try to recreate fault by wiggling wiring and connectors. Check for faulty connections at all connectors that may be causing intermittent condition. See WIRING DIAGRAMS.

3) Check engine oil level. If engine oil is low, go to next step. If oil level is okay, go to step 5).

4) Top off engine oil. Turn ignition on and observe low oil indicator light. If low oil level indicator light does not turn on then turn off after about 3 seconds, go to next step. If low oil indicator light turns on then turns off after about 3 seconds, no fault is indicated at this time. Test is complete.

5) Using scan tool, check for Powertrain Control Module (PCM) Diagnostic Trouble Codes (DTC). If any PCM DTCs are present, perform on-board diagnostic system check. See ON-BOARD DIAGNOSTIC (OBD) SYSTEM CHECK under SELF-DIAGNOSTIC SYSTEM in appropriate SELF-DIAGNOSTICS article in ENGINE PERFORMANCE. If no PCM DTCs are present, go to next step.

6) Using scan tool, select WOW mode. Command instrument cluster indicator lights off. If low oil indicator light does not turn off, go to next step. If low oil indicator light turns off, perform on-board diagnostic system check. See ON-BOARD DIAGNOSTIC (OBD) SYSTEM CHECK under SELF-DIAGNOSTIC SYSTEM in appropriate SELF-DIAGNOSTICS article in ENGINE PERFORMANCE.

7) Replace instrument cluster. See INSTRUMENT CLUSTER under REMOVAL & INSTALLATION. Check system operation.

Low Oil Indicator Inoperative

1) If diagnostic system check has been performed, go to next step. If diagnostic system check has not been performed, perform INSTRUMENT CLUSTER DIAGNOSTIC SYSTEM CHECK under SELF-DIAGNOSTIC SYSTEM.

2) Start engine and observe low oil indicator light. If indicator light does not turn on during bulb test, go to next step. If indicator light turns on during bulb check, problem may be

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intermittent. Try to recreate fault by wiggling wiring and connectors. Check for faulty connections at all connectors that may be causing intermittent condition. See WIRING DIAGRAMS.

3) Using scan tool, select WOW mode. Command instrument cluster indicator lights on. If low oil indicator light does not turn on, go to next step. If low oil indicator light turns on, perform on-board diagnostic system check. See ON-BOARD DIAGNOSTIC (OBD) SYSTEM CHECK under SELF-DIAGNOSTIC SYSTEM in appropriate SELF-DIAGNOSTICS article in ENGINE PERFORMANCE.

4) Replace instrument cluster. See INSTRUMENT CLUSTER under REMOVAL & INSTALLATION. Check system operation.

OIL PRESSURE GAUGE TESTS

NOTE: Ensure engine oil level and engine oil pressure are okay before proceeding with testing procedures.

Oil Pressure Gauge Always Reads Low

1) If diagnostic system check has been performed, go to next step. If diagnostic system check has not been performed, perform INSTRUMENT CLUSTER DIAGNOSTIC SYSTEM CHECK under SELF-DIAGNOSTIC SYSTEM.

2) Start engine and observe engine oil pressure gauge. If oil pressure gauge does not indicate an acceptable level, go to next step. If oil pressure gauge indicates an acceptable level, problem may be intermittent. Try to recreate fault by wiggling wiring and connectors. Check for faulty connections at all connectors that may be causing intermittent condition. See WIRING DIAGRAMS.

3) Turn ignition off. Disconnect oil pressure sensor connector. Turn ignition on and observe oil pressure gauge. If oil pressure gauge indicates high pressure, go to next step. If oil pressure gauge does not indicate high pressure, go to step 5).

4) Replace oil pressure sensor. Recheck system operation.

5) Check for short to ground in Tan wire between oil pressure sensor and instrument cluster. Repair wiring as necessary. Recheck system operation. If Tan wire is okay, go to next step.

6) Replace instrument cluster. See INSTRUMENT CLUSTER under REMOVAL & INSTALLATION. Check system operation.

Oil Pressure Gauge Inaccurate Or Inoperative

1) If diagnostic system check has been performed, go to next step. If diagnostic system check has not been performed, perform INSTRUMENT CLUSTER DIAGNOSTIC SYSTEM CHECK under SELF-DIAGNOSTIC SYSTEM.

2) Start engine and observe oil pressure gauge. If oil pressure gauge does not indicate an acceptable level, go to next step. If oil pressure gauge indicates an acceptable level, problem may be intermittent. Try to recreate fault by wiggling wiring and connectors. Check for faulty connections at all connectors that may be causing intermittent condition. See WIRING DIAGRAMS.

3) If oil pressure gauge always indicates low pressure, go to OIL PRESSURE GAUGE ALWAYS READS LOW. If oil pressure gauge does not

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always indicate low pressure, go to next step.

4) Disconnect oil pressure sensor connector. Using Instrument Cluster Tester (J-33431), connect one Red lead to Tan wire at oil pressure sensor connector. Connect remaining Red lead of instrument cluster tester to ground. Turn ignition on. Observe oil pressure gauge and set resistance on instrument cluster tester to 40 ohms, then to 100 ohms. Oil pressure gauge should move from low pressure to about 30 psi, then move to high pressure. If oil pressure gauge does not operate as specified, go to step 7). If oil pressure gauge operates as specified, go to next step.

5) Check for faulty connection at oil pressure sensor connector. Repair connector as necessary. Recheck system operation. If oil pressure sensor connector is okay, go to next step.

6) Replace oil pressure sensor. Recheck system operation.

7) Check for open or poor connection in Tan wire between engine oil pressure sensor and instrument cluster. Repair as necessary. Recheck system operation. If Tan wire is okay, go to next step.

8) Replace instrument cluster. See INSTRUMENT CLUSTER under REMOVAL & INSTALLATION. Check system operation.

Oil Pressure Gauge Always Reads High (3.8L)

1) If diagnostic system check has been performed, go to next step. If diagnostic system check has not been performed, perform INSTRUMENT CLUSTER DIAGNOSTIC SYSTEM CHECK under SELF-DIAGNOSTIC SYSTEM.

2) Start engine and observe oil pressure gauge. If oil pressure gauge does not indicate an acceptable level, turn ignition off and go to next step. If oil pressure gauge indicates an acceptable level, problem may be intermittent. Try to recreate fault by wiggling wiring and connectors. Check for faulty connections at all connectors that may be causing intermittent condition. See WIRING DIAGRAMS.

3) Disconnect oil pressure sensor connector. Connect a 10-amp fused jumper wire between ground and Tan wire at oil pressure sensor connector. Turn ignition on. If oil pressure gauge indicates low oil pressure, go to next step. If oil pressure gauge does not indicate low oil pressure, go to step 8).

4) Turn ignition off. Disconnect jumper wire. Reconnect jumper wire between Tan wire and Black wire at oil pressure sensor connector. Turn ignition on. If oil pressure gauge indicates low oil pressure, go to next step. If oil pressure gauge does not indicate low oil pressure, go to step 7).

5) Check for faulty connection at oil pressure sensor connector. Repair connector as necessary. Recheck system operation. If oil pressure sensor connector is okay, go to next step.

6) Replace oil pressure sensor. Recheck system operation.

7) Repair open or poor connection in Black wire between oil pressure sensor and splice S110. See WIRING DIAGRAMS. Repair as necessary. Recheck system operation.

8) Check for open or poor connection in Tan wire between oil pressure sensor and instrument cluster. Repair as necessary. Recheck system operation. If Tan wire is okay, go to next step.

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9) Replace instrument cluster. See INSTRUMENT CLUSTER under REMOVAL & INSTALLATION. Check system operation.

Oil Pressure Gauge Always Reads High (5.7L)

1) If diagnostic system check has been performed, go to next step. If diagnostic system check has not been performed, perform INSTRUMENT CLUSTER DIAGNOSTIC SYSTEM CHECK under SELF-DIAGNOSTIC SYSTEM.

2) Start engine and observe engine oil pressure gauge. If engine oil pressure gauge does not indicate an acceptable level, turn ignition off and go to next step. If engine oil pressure gauge indicates an acceptable level, problem may be intermittent. Try to recreate fault by wiggling wiring and connectors. Check for faulty connections at all connectors that may be causing intermittent condition. See WIRING DIAGRAMS.

3) Disconnect oil pressure sensor connector. Connect a 10-amp fused jumper wire between ground and Tan wire at oil pressure sensor connector. Turn ignition on. If oil pressure gauge indicates low oil pressure, go to next step. If oil pressure gauge does not indicate low oil pressure, go to step 6).

4) Check for faulty connection at oil pressure sensor connector. Repair connector as necessary. Recheck system operation. If oil pressure sensor connector is okay, go to next step.

5) Replace oil pressure sensor. Recheck system operation.

6) Check for open or poor connection in Tan wire between oil pressure sensor and instrument cluster. Repair as necessary. Recheck system operation. If Tan wire is okay, go to next step.

7) Replace instrument cluster. See INSTRUMENT CLUSTER under REMOVAL & INSTALLATION. Check system operation.

REDUCED ENGINE POWER INDICATOR TESTS (3.8L)

Reduced Engine Power Indicator Always On

1) If diagnostic system check has been performed, go to next step. If diagnostic system check has not been performed, perform INSTRUMENT CLUSTER DIAGNOSTIC SYSTEM CHECK under SELF-DIAGNOSTIC SYSTEM.

2) Start engine and observe REDUCED ENGINE POWER indicator light. If indicator light does not turn off after bulb check, turn ignition off and go to next step. If indicator light turns off after bulb check, problem may be intermittent. Try to recreate fault by wiggling wiring and connectors. Check for faulty connections at all connectors that may be causing intermittent condition. See WIRING DIAGRAMS.

3) Connect scan tool to Data Link Connector (DLC). Turn ignition on. Using scan tool, select WOW mode. Command instrument cluster indicator lights off. If REDUCED ENGINE POWER indicator light does not turn off, go to next step. If REDUCED ENGINE POWER indicator light turns off, perform on-board diagnostic system check. See ON-BOARD DIAGNOSTIC (OBD) SYSTEM CHECK under SELF-DIAGNOSTIC SYSTEM in appropriate SELF-DIAGNOSTICS article in ENGINE PERFORMANCE.

4) Replace instrument cluster. See INSTRUMENT CLUSTER under

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Reduced Engine Power Indicator Inoperative

1) If diagnostic system check has been performed, go to next step. If diagnostic system check has not been performed, perform INSTRUMENT CLUSTER DIAGNOSTIC SYSTEM CHECK under SELF-DIAGNOSTIC SYSTEM.

2) Start engine and observe REDUCED ENGINE POWER indicator light. If indicator light does not turn on during bulb check, turn ignition off and go to next step. If indicator light turns on during bulb check, problem may be intermittent. Try to recreate fault by wiggling wiring and connectors. Check for faulty connections at all connectors that may be causing intermittent condition. See WIRING DIAGRAMS.

3) Connect scan tool to Data Link Connector (DLC). Turn ignition on. Using scan tool, select WOW mode. Command instrument cluster indicator lights on. If REDUCED ENGINE POWER indicator light does not turn on, go to next step. If REDUCED ENGINE POWER indicator light turns on, perform on-board diagnostic system check. See ON-BOARD DIAGNOSTIC (OBD) SYSTEM CHECK under SELF-DIAGNOSTIC SYSTEM in appropriate SELF-DIAGNOSTICS article in ENGINE PERFORMANCE.

4) Replace instrument cluster. See INSTRUMENT CLUSTER under REMOVAL & INSTALLATION. Check system operation.

SPEEDOMETER/ODOMETER TESTS

Odometer Is Inoperative

1) If diagnostic system check has been performed, go to next step. If diagnostic system check has not been performed, perform INSTRUMENT CLUSTER DIAGNOSTIC SYSTEM CHECK under SELF-DIAGNOSTIC SYSTEM.

2) Road test vehicle and observe odometer. If odometer does not record mileage, go to next step. If odometer records mileage, problem may be intermittent. Try to recreate fault by wiggling wiring and connectors. Check for faulty connections at all connectors that may be causing intermittent condition. See WIRING DIAGRAMS.

3) If during road test speedometer functioned properly, go to next step. If speedometer did not function properly, go to SPEEDOMETER &/OR ODOMETER IS INOPERATIVE.

4) Replace instrument cluster. See INSTRUMENT CLUSTER under REMOVAL & INSTALLATION. Check system operation.

Odometer Inoperative - Trip

1) If diagnostic system check has been performed, go to next step. If diagnostic system check has not been performed, perform INSTRUMENT CLUSTER DIAGNOSTIC SYSTEM CHECK under SELF-DIAGNOSTIC SYSTEM.

2) Reset trip odometer. Road test vehicle and observe trip odometer. If trip odometer does not record mileage, go to next step. If trip odometer records mileage, problem may be intermittent. Try to recreate fault by wiggling wiring and connectors. Check for faulty connections at all connectors that may be causing intermittent

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condition. See WIRING DIAGRAMS.

3) If during road test speedometer functioned properly, go to next step. If speedometer did not function properly, go to SPEEDOMETER &/OR ODOMETER IS INOPERATIVE.

4) Replace instrument cluster. See INSTRUMENT CLUSTER under REMOVAL & INSTALLATION. Check system operation.

Speedometer &/Or Odometer Is Inoperative

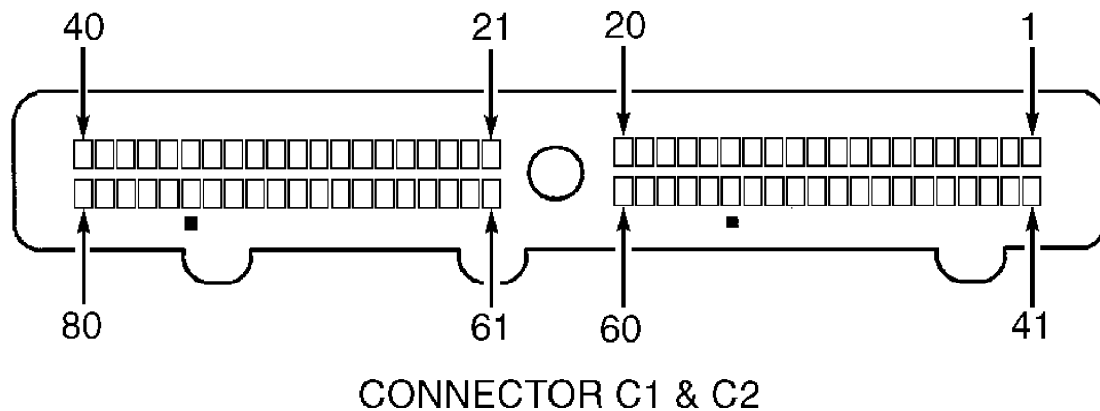
1) If diagnostic system check has been performed, go to next step. If diagnostic system check has not been performed, perform INSTRUMENT CLUSTER DIAGNOSTIC SYSTEM CHECK under SELF-DIAGNOSTIC SYSTEM.

2) Road test vehicle and observe odometer and speedometer. If odometer or speedometer does not function properly, go to next step. If odometer and speedometer function properly, problem may be intermittent. Try to recreate fault by wiggling wiring and connectors. Check for faulty connections at all connectors that may be causing intermittent condition. See WIRING DIAGRAMS.

3) Disconnect Powertrain Control Module connectors. On 3.8L, connect a 10-amp fused jumper wire between ground and terminal No. 55 (Dark Green/White wire) at PCM C1 connector. See Fig. 1. On 5.7L, connect a 10-amp fused jumper wire between ground and terminal No. 50 (Dark Green/White wire) at PCM C2 connector. See Fig. 1. On all models, disconnect instrument cluster connector. Connect a test light between terminals B8 (Dark Green/White wire) and A3 (Pink wire) at instrument cluster connector. See Fig. 2. Turn ignition on. If test light does not illuminate, go to step 5). If test light illuminates, go to next step.

4) Check for faulty connections at PCM and instrument cluster connectors. Repair as necessary. Recheck system operation. If connectors are okay, replace instrument cluster. See INSTRUMENT CLUSTER under REMOVAL & INSTALLATION.

5) Repair open or poor connection in Dark Green/White wire between PCM connector and instrument cluster connector. Repair as necessary. Recheck system operation.



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Fig. 1: Identifying Powertrain Control Module Connector Terminal s
Courtesy of General Motors Corp.

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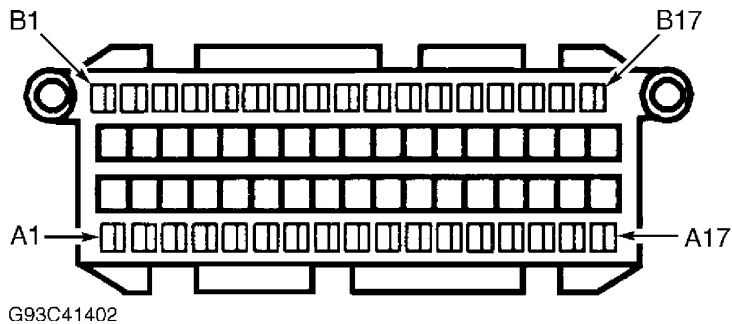


Fig. 2: Identifying Instrument Cluster Connector Terminal s
Courtesy of General Motors Corp.

Speedometer Is Inaccurate

1) If diagnostic system check has been performed, go to next step. If diagnostic system check has not been performed, perform INSTRUMENT CLUSTER DIAGNOSTIC SYSTEM CHECK under SELF-DIAGNOSTIC SYSTEM.

2) Road test vehicle and observe speedometer. If speedometer does not indicate correct speed, go to next step. If speedometer indicates correct speed, problem may be intermittent. Try to recreate fault by wiggling wiring and connectors. Check for faulty connections at all connectors that may be causing intermittent condition. See WIRING DIAGRAMS.

3) Disconnect Powertrain Control Module connectors. On 3.8L, connect a 10-amp fused jumper wire between ground and terminal No. 55 (Dark Green/White wire) at PCM C1 connector. See Fig. 1. On 5.7L, connect a 10-amp fused jumper wire between ground and terminal No. 50 (Dark Green/White wire) at PCM C2 connector. See Fig. 1. On all models, disconnect instrument cluster connector. Connect a test light between terminals B8 (Dark Green/White wire) and A3 (Pink wire) at instrument cluster connector. See Fig. 2. Turn ignition on. If test light does not illuminate, go to step 5). If test light illuminates, go to next step.

4) Check for faulty connections at PCM and instrument cluster connectors. Repair as necessary. Recheck system operation. If connectors are okay, replace instrument cluster. See INSTRUMENT CLUSTER under REMOVAL & INSTALLATION.

5) Repair open or poor connection in Dark Green/White wire between PCM connector and instrument cluster connector. Repair as necessary. Recheck system operation.

TACHOMETER INOPERATIVE TEST

1) If diagnostic system check has been performed, go to next step. If diagnostic system check has not been performed, perform INSTRUMENT CLUSTER DIAGNOSTIC SYSTEM CHECK under SELF-DIAGNOSTIC SYSTEM.

2) Start engine. If tachometer does not indicate correct engine RPM, go to next step. If tachometer indicates correct engine RPM, problem may be intermittent. Try to recreate fault by wiggling

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wiring and connectors. Check for faulty connections at all connectors that may be causing intermittent condition. See WIRING DIAGRAMS.

3) Using scan tool, perform tachometer sweep test. If tachometer does not change from low RPMs to high RPMs, then return to low RPMs, replace instrument cluster. See INSTRUMENT CLUSTER under REMOVAL & INSTALLATION. If tachometer changes from low RPMs to high RPMs, then return to low RPMs, perform on-board diagnostic system check. See ON-BOARD DIAGNOSTIC (OBD) SYSTEM CHECK under SELF-DIAGNOSTIC SYSTEM in appropriate SELF-DIAGNOSTICS article in ENGINE PERFORMANCE.

VOLT GAUGE IS INOPERATIVE OR INACCURATE TEST

1) If diagnostic system check has been performed, go to next step. If diagnostic system check has not been performed, perform INSTRUMENT CLUSTER DIAGNOSTIC SYSTEM CHECK under SELF-DIAGNOSTIC SYSTEM.

2) Start engine and observe volt gauge. If volt gauge does not indicate correct voltage, go to next step. If volt gauge indicates correct voltage, problem may be intermittent. Try to recreate fault by wiggling wiring and connectors. Check for faulty connections at all connectors that may be causing intermittent condition. See WIRING DIAGRAMS.

3) Replace instrument cluster. See INSTRUMENT CLUSTER under REMOVAL & INSTALLATION. Recheck system operation.

REMOVAL & INSTALLATION

WARNING: Deactivate air bag system before performing any service operation. See appropriate AIR BAG RESTRAINT SYSTEMS article. DO NOT apply electrical power to any component on steering column without first deactivating air bag system. Air bag may deploy.

WARNING: When battery is disconnected, vehicle computer and memory systems may lose memory data. Driveability problems may exist until computer systems have completed a relearn cycle. See COMPUTER RELEARN PROCEDURES article in GENERAL INFORMATION before disconnecting battery.

HEADLIGHT SWITCH

Removal & Installation

Carefully pry switch trim plate from instrument panel carrier. On Camaro, remove switch retaining bolts. On all models, pull switch out of instrument panel. Disconnect electrical connectors from switch. To install, reverse removal procedure. On Camaro, tighten headlight switch bolts to 17 INCH lbs. (1.9 N.m).

INSTRUMENT CLUSTER

NOTE: When installing a new instrument cluster it must be

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synchronized to the Supplemental Inflatable Restraint (SIR) module. See PROGRAMMING.

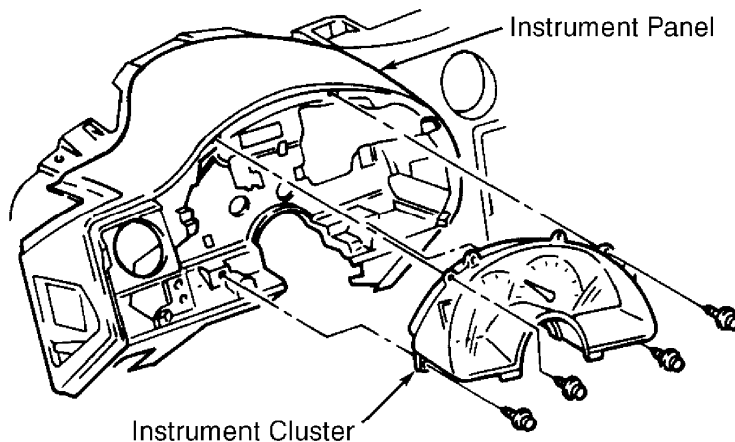
Removal & Installation

1) Disconnect negative battery cable. Disable air bag system. See appropriate AIR BAG RESTRAINT SYSTEMS article. Remove left instrument panel insulator screws. Unhook flange on insulator from side kick panel. Detach tab on insulator from retainer on instrument panel, and remove left instrument panel insulator.

2) Remove driver's side knee bolster bolts/screws. Disconnect rear compartment lid release switch connector (if equipped). Remove knee bolster. Tilt steering column to lowest position. On Camaro, remove instrument panel cluster trim plate bolts. On Firebird, remove foglight switch. On all models, unsnap cluster trim plate bezel.

3) Remove instrument cluster bolts. See Fig. 3. Partially pull cluster away from instrument panel, and disconnect electrical connector. Remove instrument cluster.

4) To install, reverse removal procedure. Tighten instrument cluster bolts to 19 INCH lbs. (2.2 N.m). Tighten instrument cluster trim plate bolts and knee bolster bolts/screws to 17 INCH lbs. (1.9 N.m).



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Fig. 3: Removing Instrument Panel Cluster (Typical)
Courtesy of General Motors Corp.

WIRING DIAGRAMS

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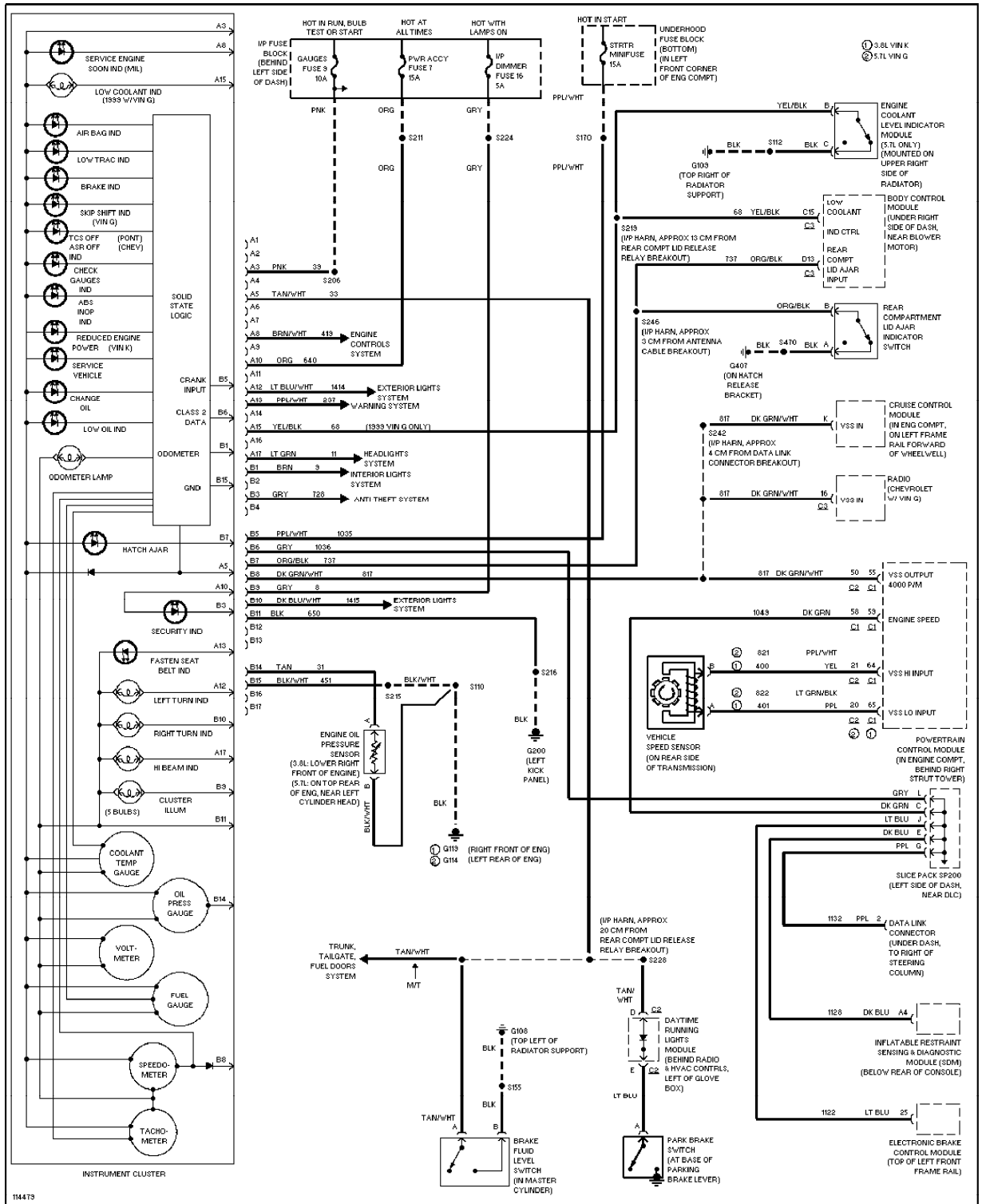


Fig. 4: Analog Instrument Panel Wiring Diagram (Camaro & Firebird)

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