

SERVICE ADVISORY

Classification: EF&EC94-003	Section: Engine Fuel & Emission Control	Models: See below
Reference: TECHNICAL BULLETIN NTB94-018	Date: February 15, 1994	

ENGINE DRIVEABILITY SUPPLEMENTAL DIAGNOSTIC PROCEDURES

APPLIED MODELS: All CONSULT-compatible models

SERVICE INFORMATION

The attached diagnostic tables are designed to be used as a *supplement* to Service Manual trouble diagnostic procedures. The tables take advantage of CONSULT to broaden the diagnostic process and make it more efficient. The points below highlight some of the advantages and details of using the tables to supplement Service Manual diagnosis.

- The Basic Inspection procedure now includes a Fuel Pressure Check, CONSULT Function Test, and a reorganized CONSULT Diagnostic procedure.
- Shaded items in boxes are the recommended CONSULT diagnostic procedures.
- Items in bold print with three *** asterisks indicate that an additional diagnostic procedure has been added to the Service Manual diagnostic procedure.
- Items continue to be selected by Service Manual, symptom-related diagnostics.
- Additional items have been inserted that previously have not been listed in the Service Manual for symptom-related diagnostic procedures.
- The information is a quick-reference supplement for the Service Manual. The Service Manual should continue to be the primary source of information for trouble diagnosis.
- Individual Diagnostic Procedures 21-45 may indicate that the Service Manual should be referenced for additional diagnostic information.

NISSAN MOTOR CORPORATION U.S.A.
 Technical Publications Department

Index # **037223**

Proposed Trouble Diagnosis

Test Is Conducted Using CONSULT

Test is performed with tool other than CONSULT

Test	NMC Related Symptom(s)	Step 1	Step 2	Step 3	Step 4	Step 5	Step 6	Step 7	Step 8	Step 9	Step 10
Basic Inspection procedure		Before Starting	Connect CONSULT to the vehicle	Does engine start? Y = step 4 N = step 10	Check Fuel Pressure ***	Check Ignition Timing	Read Self Diagnosis Resets	CONSULT Function Test ***	Check Idle Adj. Screw Initial RPM	Check Throttle Position Sensor Idle Position	Check Switch Input Signal (Main Signals) ***
Diagnostic Procedure 1 High Idling after Warm-up	1S, 1SH, 1SR No return to idle, High Idle	Check IAA Unit	Check Throttle Linkage	CONSULT Data Monitor Main Signals ***	Check Intake Air Leak						
Diagnostic Procedure 2 Hunting	1H, 1HF, 1HH, 1HS Hesitation, Flat spot, Surging	CONSULT Data Monitor Main Signals ***	Perform Power Balance Test	Check Heated Oxygen Sensor	Check For Intake Air Leak	Check EGR Valve	Check Spark Plugs				
Diagnostic Procedure 3 Unstable Idle	1C Rough idle	CONSULT Data Monitor Main Signals ***	Check Idle Adj. Screw Chocking	Check Heated Oxygen Sensor	Perform Power Balance Test	Check EGR Valve	Check For Intake Air Leak	Check Fuel Pressure	Check Injector	Check Ignition Spark/Check Spark Plugs	Check Compression Pressure
Diagnostic Procedure 4 Hard to Start or Impossible to Start when the Engine is Cold	1A, 1AC, 1AH, 1AN, 1AS Hard/No Start when cold	Check Battery and Starter	Check Fuel Pressure	CONSULT Data Monitor Main Signals ***	Check IACV - Air Regulator and IACV - AAC Valve	Check Injector	Check Ignition Spark	Check Spark Plugs			
Diagnostic Procedure 5 Hard to Start or Impossible to Start when the Engine is Hot	1B, 1BC, 1BH, 1BN, 1BS Hard to start warm	Check Battery and Starter	Check Fuel Pressure	CONSULT Data Monitor Main Signals ***	Check Injector	Check Injector for Leakage ***	Check Ignition Spark	Check Fuel Vapor/Quality	Check Spark Plugs		
Diagnostic Procedure 6 Hard to Start or Impossible to Start under Normal Conditions	1B Hard to start warm	Check Battery and Starter	Check Fuel Pressure	CONSULT Data Monitor Main Signals ***	Check Injector for Leakage	Check Injector	Check Ignition Spark/Check Plugs	Check EGR Valve	Check ECM Harness Connector	Check ECM Power Supply & Ground Circuit	Try a Known Good ECM
Diagnostic Procedure 7 Hesitation when the Engine is Hot	1H, 1HF, 1HH, 1HS Hesitation, Flat spot, Surging	CONSULT Data Monitor Main Signals ***	Perform Power Balance Test	Check Fuel Pressure ***	Check Fuel Vapor/Quality	Check For Intake Air Leak ***	Check Canister Purge ***	Check Spark Plugs ***			
Diagnostic Procedure 8 Hesitation when the Engine is Cold	1H, 1HF, 1HH, 1HS Hesitation, Flat spot, Surging	CONSULT Data Monitor Main Signals ***	Perform Power Balance Test	Check Fuel Pressure ***	Check Spark Plugs	Check For Intake Air Leak	Check Injector for Leakage				
Diagnostic Procedure 9 Hesitation under Normal Conditions	1H, 1HF, 1HH, 1HS Hesitation, Flat spot, Surging	CONSULT Data Monitor Main Signals ***	Check Heated Oxygen Sensor	Perform Power Balance Test ***	Check Fuel Pressure ***	Check Injector for Leakage ***	Check For Intake Air Leak	Check Canister Purge	Check Spark Plugs		

*** Additional Diagnostic Procedure Inserted

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Diagnostic Procedure 10 Engine Stalls when Turning	IF Engine stalls	Check Fuel Level	Check Idle Adj. Screw Initial RPM ***	CONSULT Data Monitor Main Signals ***	Perform Power Balance Test	Check Injector	Check Ignition Spark	Check Fuel Pressure	Check ECM Harness Connector	Check ECM Power Supply & Ground Circuit	Try a Known Good ECM
Diagnostic Procedure 11 Engine Stalls when the Engine is Hot	IF Engine stalls	Check Fuel Vapor	Check Fuel Pressure	CONSULT Data Monitor Main Signals ***	Check Idle Adj. Screw Initial RPM ***	Perform Power Balance Test	Check Injector	Check Ignition Spark	Check ECM Harness Connector	Check ECM Power Supply & Ground Circuit	Try a Known Good ECM
Diagnostic Procedure 12 Engine Stalls when the Engine is Cold	IF Engine stalls	Check IACV-Air Regulator and IACV-AAC Valve	Check Fuel Pressure	CONSULT Data Monitor main Signals ***	Perform Power Balance Test ***	Check Injector	Check Ignition Spark/Check Spark Plugs	Clean Fuel Injectors ***	Check ECM Harness Connector	Check ECM Power Supply & Ground Circuit	Try a Known Good ECM
Diagnostic Procedure 13 Engine Stalls when Stepping on the Accelerator Momentarily	IF Engine stalls	CONSULT Data Monitor Main Signals ***	Perform Power Balance Test	Check IACV-Air Regulator and IACV-AAC	Check Fuel Pressure	Check Injector	Clean Fuel Injectors ***	Check Ignition Spark	Check ECM Harness Connector	Check ECM Power Supply & Ground Circuit	Try a Known Good ECM
Diagnostic Procedure 14 Engine Stalls after Decelerating	IF Engine stalls	Check IACV-Air Regulator and IACV-AAC Valve ***	CONSULT Data Monitor Main Signals ***	Check Heated Oxygen Sensor	Perform Power Balance Test	Check Injector	Check Ignition Spark	Check Fuel Pressure	Check ECM Harness Connector	Check ECM Power Supply & Ground Circuit	Try a Known Good ECM
Diagnostic Procedure 15 Engine Stalls when Accelerating or Cruising	IF Engine stalls	Check Fuel Pressure	CONSULT Data Monitor Main Signals ***	Perform Power Balance Test	Check Ignition Spark	Check Injector	Clean Fuel Injectors ***	Check For Intake Air Leak	Check ECM Harness Connector	Check ECM Power Supply & Ground Circuit	Try a Known Good ECM
Diagnostic Procedure 16 Engine Stalls when the Electrical Load is Heavy	IF Engine stalls	Check Battery and Alternator	Check IACV-Air Regulator and IACV-AAC Valve ***	CONSULT Data Monitor Main Signals ***	Perform Power Balance Test	Check Fuel Pressure	Check Injector	Check Ignition Spark			
Diagnostic Procedure 17 Lack of Power and Stumble	1H, 1HF, 1HH, 1HS Hesitation, Flat spot, Surging	Check Fuel Pressure	CONSULT Data Monitor Main Signals ***	Perform Power Balance Test ***	Check Spark Plugs ***	Check For Intake Air Leak					
Diagnostic Procedure 18 Knock	1M Spark Knock (pinging)	Check Ignition Timing With a Timing Light	CONSULT Data Monitor Main Signals ***	Check EGR- Solenoid Valve	Check EGR Operation	Check Vacuum Hoses	Check For Intake Air Leak ***	Check For Oil Leak To Combustion Chamber			
Diagnostic Procedure 19 Surge	1H, 1HF, 1HH, 1HS Hesitation, Flat spot, Surging	CONSULT Data Monitor Main Signals ***	Check Heated Oxygen Sensor	Check Fuel Pressure ***	Check Fuel Vapor ***	Check/Clean Injector ***	Check EGR Valve	Check ECM Power Supply & Ground Circuit	Try a Known Good ECM		

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Diagnostic Procedure 20 Backfire through the Intake	1J Backfire	CONSULT Data Monitor Main Signals ***	Check Fuel Pressure ***	Check Intake Air Leak	Check Ignition Timing With a Timing Light	Check Spark Plugs	Check Injector **	Clean Fuel Injector ***			
Diagnostic Procedure 21 Backfire through the Exhaust	1L Afterfire	Check Engine Coolant Temperature Sensor	CONSULT Data Monitor Main Signals ***	Check Injector Leak ***							
Diagnostic Procedure 22 Main Power Supply and Ground Circuit	Specific symptom dependent upon individual incident	A Check Power Supply	B Check Ground Circuit	C Check Harness Continuity Between ECCS Relay and ECM	D Check Voltage Between ECCS Relay and Ground	E Check Voltage Between ECM and Ground	F Check Ground Circuit	G Check Output Signal Circuit	H Check Input signal Circuit		
Diagnostic Procedure 23 Camshaft Position Sensor (Diagnostic trouble code No. 11)	Specific symptom dependent upon individual incident	A Check Power Supply	B Check Ground Circuit	C Check Input signal Circuit		Check Component *** Info. found other areas of S.M.					
Diagnostic Procedure 24 Mass Air Flow Sensor (Diagnostic trouble code No. 12)	Specific symptom dependent upon individual incident	A Check Power Supply	B Check Ground Circuit	C Check Input signal Circuit		Check Component *** Info. found other areas of S.M.					
Diagnostic Procedure 25 Engine Coolant Temperature Sensor (Diagnostic trouble code No. 13)	Specific symptom dependent upon individual incident	A Check Power Supply	B Check Ground Circuit		Check Component *** Info. found other areas of S.M.						
Diagnostic Procedure 26 Vehicle Speed Sensor (Diagnostic trouble code No. 14)	Specific symptom dependent upon individual incident	A Check Power Supply									
Diagnostic Procedure 27 Ignition Signal (Diagnostic trouble code No. 21)	Specific symptom dependent upon individual incident	A Check Power Supply	B Check Power Supply - II	C Check Power Supply - III	D Check Output Signal Circuit - I	E Check Ground Circuit	F Check Harness Continuity	G Check Output Signal Circuit - II	H Check Harness Continuity		Check Component *** Info. found other areas of S.M.

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Diagnostic Procedure 28 ECM (ECSS Control Module) (Diagnostic trouble code No. 31)	Specific symptom dependent upon individual incident	Code 31 Displayed, Replace ECM									
Diagnostic Procedure 29 EGR Function (Diagnostic trouble code No. 32)	Specific symptom dependent upon individual incident	A Check Component	B Perform Road Test	C Check Vacuum Sources to EGR	D Check Control Function	E Check Vacuum Hose	F Check Power Supply	G Check Output Signal Test		Check Component *** Info. found other areas of S.M.	
Diagnostic Procedure 30 Heated Oxygen Sensor (Diagnostic trouble code No. 33)	Specific symptom dependent upon individual incident	A Check Component	B Mixture Ratio Test	C Check Power Supply	D Check Ground Circuit	E Check Input Signal Circuit		Check Component *** Info. found other areas of S.M.			
Diagnostic Procedure 31 Knock Sensor (Diagnostic trouble code No. 34)	Specific symptom dependent upon individual incident	A Check Input Signal Circuit		Check Component *** Info. found other areas of S.M.							
Diagnostic Procedure 32 EGR Temperature Sensor (Diagnostic trouble code No. 35)	Specific symptom dependent upon individual incident	A Check Power Supply	B Check Ground Circuit		Check Component *** Info. found other areas of S.M.						
Diagnostic Procedure 33 Throttle Position Sensor (Diagnostic trouble code No. 43)	Specific symptom dependent upon individual incident	A Check Input Signal Circuit	B Check Power Supply	C Check Ground Circuit		Check Component *** Info. found other areas of S.M.					
Diagnostic Procedure 34 Injector Leak (Diagnostic trouble code No. 45)	1W Failed EPA short test (HC/CO)	A Inspect Spark Plugs	B Data Monitor Main Signals ***	C Clear Self Learning	D Perform Road Test	E Verify Repair		Check Component *** Info. found other areas of S.M.		Check Component *** Info. found other areas of S.M.	
Diagnostic Procedure 35 Injector Circuit (Diagnostic trouble code No. 51)	IC, IF, IH Rough idle, Engine stall, Hesitation	A Check Power Supply	B CONSULT Sub Mode Pulse Width Low Level ***	C Check Output Signal Circuit Injector Resistance		Check Component *** Info. found other areas of S.M.					

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Diagnostic Procedure 36 A/T Control (Diagnostic trouble code No. 54)	Specific symptom dependent upon individual incident	A Check Input Signal Circuit									
Diagnostic Procedure 37 Closed Throttle Position Switch (Not self-diagnostic item)	Specific symptom dependent upon individual incident	A Check Overall Function	B Check Power Supply	C Check Ground Circuit		Check Component *** Info. found other areas of S.M.					
Diagnostic Procedure 38 Start Signal (Not self-diagnostic item)	1A, 1B Hard/No Start	A Check Overall Function	B Check Input Signal Circuit								
Diagnostic Procedure 39 Power Steering Oil Pressure Switch (Not self-diagnostic item)	Specific symptom dependent upon individual incident	A Check Overall Function	B Check Ground Circuit	C Check Input Signal Circuit		Check Component *** Info. found other areas of S.M.					
Diagnostic Procedure 40 Neutral Position Switch & A/T Control Unit (Neutral Position Signal) Circuit (Not self-diagnostic item)	Specific symptom dependent upon individual incident	A Check Overall Function (ECM)	B Check Ground Circuit	C Check Input Signal Circuit	D Check Overall Function (ATCU)	E Check Input Signal Circuit		Check Component *** Info. found other areas of S.M.			
Diagnostic Procedure 41 Fuel Pump (Not self-diagnostic item)	Specific symptom dependent upon individual incident	A Check Overall Function	B Check Component (Fuel Pump Relays) ***	C Check Power Supply	D Check Ground Circuit	E Check Output Signal Circuit		Check Component *** Info. found other areas of S.M.			
Diagnostic Procedure 42 IACV-AAC Valve (Not self-diagnostic item)	Specific symptom dependent upon individual incident	A Check Overall Function	B Check Power Supply	C Check Output Signal Circuit		Check Component *** Info. found other areas of S.M.					
Diagnostic Procedure 43 Power Valve Control (Not self-diagnostic item)	Specific symptom dependent upon individual incident	A Check Overall Function	B Check Vacuum Source To Power Valve Actuator	C Check Control Function	E Check Power Supply	F Check Output Signal Circuit		Check Component *** Info. found other areas of S.M.			

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Diagnostic Procedure 44 VTC Solenoid Valve (Not self-diagnostic item)	Specific symptom dependent upon individual incident	A Check Cooling Fan Low Speed Operation	B Check Control Function	C Check Power Supply	D Check Input Signal Circuit	E Check VTC Solenoid Valve Operation	F Check Output Signal Circuit	G Check Power Supply	H & I Check Ground Circuit and Harness Continuity	J Check Output Signal Circuit	K Check Component
Diagnostic Procedure 45 Cooling Fan Control (Not self-diagnostic item)	Specific symptom dependent upon individual incident	A Check Cooling Fan Low Speed Operation	B Check Cooling Fan High Speed Operation	C Check Component	D Check Power Supply	E Check Ground Circuit	F Check Output Signal Circuit	G Check Power Supply	H & I Check Ground Circuit and Harness Continuity	J Check Output Signal Circuit	K Check Component

Additional Diagnostic Procedure Inserted