

SUPPLEMENTAL RESTRAINT SYSTEM (SRS)

This model has an SRS which includes a driver's airbag located in the steering wheel hub and a passenger's airbag located in the dashboard above the glove box and seat belt tensioner located in the seat belt retractors.

Information necessary to safely service the SRS is included in the Shop Manual, P/N 62S1E00.

Items marked with an asterisk (*) on the contents page include, or are located near, SRS components. Servicing, disassembling or replacing these items will require special precautions and tools, and should therefore be done by an authorized Honda dealer.

WARNING

- To avoid rendering the SRS inoperative, which could lead to personal injury or death in the event of a severe frontal collision, all SRS service work must be performed by an authorized Honda dealer.
- Improper service procedures, including incorrect removal and installation of the SRS, could lead to personal injury caused by unintentional deployment of the airbags.
- Do not bump the SRS unit. Otherwise, the system may fail in case of a collision, or the airbags may deploy when the ignition switch is ON (II).
- SRS electrical wiring harnesses are indicated by yellow color coding. Related components are located in the steering column, front console, dashboard, dashboard lower panel, and in the dashboard above the glove box. Do not use electrical test equipment on these circuits.
- Before trying to remove the seat belt tensioner, first set the sensor lock pin to LOCK position.

INTRODUCTION

How to Use This Manual

This supplement contains information for the '99 Civic Aerodeck and Civic Aerodeck TurboDiesel.

Refer to following manual for service procedures and data not included information in this supplement.

Civic Aerodeck MAINTENANCE, REPAIR and CONSTRUCTION 98
(Code No. 62S1E00)

Civic Aerodeck TurboDiesel SUPPLEMENT 98 (Code No. 62S1E20)

The first page of each section is marked with a black tab that lines up with one of the thumb index tabs on this page. You can quickly find the first page of each section without looking a full table of contents. The symbols printed at the corner of each page can also be used as a quick reference system.

Special Information

⚠ WARNING Indicates a strong possibility of severe personal injury or loss of life if instructions are not followed.

CAUTION: Indicates a possibility of personal injury or equipment damage if instructions are not followed.

NOTE: Gives helpful information.

CAUTION: Detailed descriptions of *standard workshop procedures*, safety principles and service operations are not included. Please note that this manual contains warnings and cautions against some specific service methods which could cause **PERSONAL INJURY**, damage a vehicle or make it unsafe. Please understand that these warnings cannot cover all conceivable ways in which service, whether or not recommended by HONDA, might be done, or of the possible hazardous consequences of every conceivable way, nor could HONDA investigate all such ways. Anyone using service procedures or tools, whether or not recommended by HONDA, *must satisfy himself thoroughly* that neither personal safety nor vehicle safety will be jeopardized.

All information contained in this manual is based on the latest product information available at the time of printing. We reserve the right to make changes at any time without notice. No part of this publication may be reproduced, stored in retrieval system, or transmitted, in any form by any means, electronic, mechanical, photocopying, recording, or otherwise, without the prior written permission of the publisher. This includes text, figures and tables.

First Edition 11/98 188 pages
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Service Publication Office

☐ marked sections are not included in this manual.

As sections with * include SRS components;
special precautions are required when servicing.

General Info



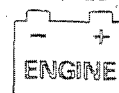
Specifications

specs

Maintenance



Engine Electrical



Engine



Cooling



Fuel and Emissions



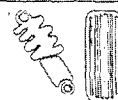
*Transaxle



*Steering



Suspension



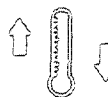
*Brakes (Including ABS)



*Body



*Heater and Air Conditioner



*Body Electrical



*Restraints



Outline of Model Changes

ITEM	DESCRIPTION	99 MODEL	REFERENCE SECTION
Engine	Added • D14Z3, D14Z4, D16W3 and D16W4 engines for KE, KG, KS models	○	5
Fuel and Emissions	Added • D14Z3, D14Z4, D16W3 and D16W4 engines for KE, KG, KS models	○	11
Manual Transmission	Added • SJ grade oil	○	13
Differential	Changed • Tapered roller bearing of the Limited Slip Differential	○	15
Driveshafts	Added • Replacement procedure for ear clamp type boot bands • Outboard joint disassembly/reassembly procedure Changed • Outboard boot of the B18C4 engine	○	16
ABS	Equipped • Electronic Brake Distribution (EBD) system	○	19
Body	Changed • Rear center lap belt • Component parts of the rear seats	○	20



General Information

Chassis and Engine Numbers 1-2

Abbreviations 1-4

Chassis and Engine Numbers

Vehicle Identification Number (VIN)

SHH MB8720XU100001

Manufacturer, Make and Type of Vehicle

SHH: HONDA OF THE U.K.
MFG., LTD. England.
HONDA Passenger vehicle

Line, Body and Engine Type

MB8: CIVIC 5-door/D14Z3, D14Z4
MB9: CIVIC 5-door/D15Z8
MC1: CIVIC 5-door/D16W3, D16W4
MC2: CIVIC 5-door/B18C4
MC3: CIVIC 5-door/20T2N

Body and Transmission Type

7: 5-door Wagon/
5-speed Manual
8: 5-door Wagon/
4-speed Automatic

Vehicle Grade

2: 1.4i
3: 1.4i
4: 1.4i, 1.5i VTEC, 1.6iLS, 1.8VTi VTEC,
2.0iTD
5: 1.4i, 1.5i VTEC, 1.6iSR, 2.0iTD
6: 1.4iS, 1.6iES, 1.6iVTEC
7: 1.4iS, 2.0iTDS
8: 1.4iSR

Fixed Code

Auxiliary Number

Factory Code

U: Honda of the U.K. Manufacturing in
England

Model Year

1: 1999

Serial Number

Engine Number

D14A7 - E100001

Engine Type

D14Z3: 1.4 l SOHC 16-valves Multiport Fuel-
injected 55 kW engine with catalytic
converter
D14Z4: 1.4 l SOHC 16-valves Multiport Fuel-
injected 66 kW engine with catalytic
converter
D15Z8: 1.5 l SOHC 16-valves Sequential
Multiport Fuel-injected VTEC-E engine
with catalytic converter
D16W3: 1.6 l SOHC 16-valves Multiport Fuel-
injected engine with catalytic converter
D16W4: 1.6 l SOHC VTEC 16-valves Multiport
Fuel-injected engine with catalytic
converter
B18C4: 1.8 l DOHC 16-valves Sequential
Multiport Fuel-injected VTEC engine
with catalytic converter
20T2N: 2.0 l SOHC 8-valves Fuel-injected
diesel engine with turbo charger, inter
cooler and catalytic converter

Serial Number

Except B18C4, D15Z8, 20T2N: E100001~
B18C4: 1200001~
D15Z8: E300001~
20T2N: 0000001~

Transmission Number

S1LA - 4000001

Transmission Type

S1LA: 4-speed Automatic
9A: 5-speed Manual
S9B: 5-speed Manual

Serial Number

S1LA: 4000001~
9A: 1000001~
S9B: 1000001~



Model/Applicable Area Code/VIN/Engine Number/Transmission Number

MODEL	APPLICABLE AREA CODE	HANDLE DRIVE TYPE	GRADE NAME	TRANSMISSION TYPE	VEHICLE IDENTIFICATION NUMBER	ENGINE NUMBER	TRANSMISSION NUMBER
CIVIC AERO-DECK	KG	LHD	1.4i	5MT	SHHMB8720XU100001~	D14Z3-E100001~	9A-1000001~
			1.4i	5MT	SHHMB8730XU100001~	D14Z3-E100001~	9A-1000001~
			1.4i S	5MT	SHHMB8760XU100001~	D14Z4-E100001~	9A-1000001~
			1.4i S	5MT	SHHMB8770XU100001~	D14Z4-E100001~	9A-1000001~
			1.4i S	4AT	SHHMB8870XU100001~	D14Z4-E100001~	S1LA-4000001~
			1.4i SR	5MT	SHHMB8780XU100001~	D14Z4-E100001~	9A-1000001~
			1.5i VTEC	5MT	SHHMB9740XU100001~	D15Z8-E300001~	9A-1000001~
			1.5i VTEC	5MT	SHHMB9750XU100001~	D15Z8-E300001~	9A-1000001~
			1.6i SR	5MT	SHHMC1750XU100001~	D16W3-E100001~	9A-1000001~
			1.6i LS	5MT	SHHMC1740XU100001~	D16W3-E100001~	9A-1000001~
			1.6i LS	4AT	SHHMC1840XU100001~	D16W3-E100001~	S1LA-4000001~
			1.6i VTEC	5MT	SHHMC1760XU100001~	D16W4-E100001~	9A-1000001~
			1.8VTi VTEC	5MT	SHHMC2740XU100001~	B18C4-1200001~	S9B-1000001~
			2.0i TD	5MT	SHHMC3740XU100001~	20T2N-0000001~	9A-1000001~
			2.0i TD	5MT	SHHMC3750XU100001~	20T2N-0000001~	9A-1000001~
			2.0i TDS	5MT	SHHMC3770XU100001~	20T2N-0000001~	9A-1000001~
	KE	RHD	1.4i	5MT	SHHMB8740XU100001~	D14Z3-E100001~	9A-1000001~
			1.4i	5MT	SHHMB8750XU100001~	D14Z3-E100001~	9A-1000001~
			1.4i	4AT	SHHMB8850XU100001~	D14Z3-E100001~	S1LA-4000001~
			1.5i VTEC	5MT	SHHMB9750XU100001~	D15Z8-E300001~	9A-1000001~
			1.6i LS	5MT	SHHMC1740XU100001~	D16W3-E100001~	9A-1000001~
			1.6i LS	4AT	SHHMC1840XU100001~	D16W3-E100001~	S1LA-4000001~
			1.6i ES	5MT	SHHMC1760XU100001~	D16W4-E100001~	9A-1000001~
			1.6i ES	4AT	SHHMC1860XU100001~	D16W4-E100001~	S1LA-4000001~
			1.8VTi VTEC	5MT	SHHMC2740XU100001~	B18C4-1200001~	S9B-1000001~
			2.0i TDS	5MT	SHHMC3770XU100001~	20T2N-0000001~	9A-1000001~
	KS	LHD	1.4i	5MT	SHHMB8740XU100001~	D14Z3-E100001~	9A-1000001~
			1.5i VTEC	5MT	SHHMB9750XU100001~	D15Z8-E300001~	9A-1000001~
			1.6i LS	5MT	SHHMC1740XU100001~	D16W3-E100001~	9A-1000001~
			1.6i LS	4AT	SHHMC1840XU100001~	D16W3-E100001~	S1LA-4000001~

Abbreviations

List of automotive abbreviations which may be used in shop manual.

ABS	Anti-lock Brake System	F	Front
A/C	Air Conditioning, Air Conditioner	FIA	Fuel Injection Air
ACL	Air Cleaner	FL	Front Left
A/F	Air Fuel Ratio	FP	Fuel Pump
ALT	Alternator	FR	Front Right
AMP	Ampere (s)	FSR	Fail Safe Relay
ANT	Antenna	FWD	Front Wheel Drive
API	American Petroleum Institute		
APPROX.	Approximately	GAL	Gallon
ASSY	Assembly	GND	Ground
A/T	Automatic Transmission		
ATDC	After Top Dead Center	H/B	Hatchback
ATF	Automatic Transmission Fluid	HC	Hydrocarbons
ATT	Attachment	HO2S	Heated Oxygen Sensor
ATTS	Active Torque Transfer System		
AUTO	Automatic	IAB	Intake Air Bypass
AUX	Auxiliary	IAC	Idle Air Control
		IAR	Intake Air Resonator
BARO	Barometric	IAT	Intake Air Temperature
BAT	Battery	ICM	Ignition Control Module
BDC	Bottom Dead Center	ID	Identification
BTDC	Before Top Dead Center	ID or I.D.	Inside Diameter
		IG or IGN	Ignition
CARB	Carburetor	IMA	Idle Mixture Adjustment
CAT	Catalytic Converter	IMMOBI.	Immobilizer (Immobiliser)
or CATA		IN	Intake
CHG	Charge	INJ	Injection
CKF	Crankshaft Speed Fluctuation	INT	Intermittent
CKP	Crankshaft Position		
CO	Carbon Monoxide	KS	Knock Sensor
COMP	Complete		
CPB	Clutch Pressure Back up	L	Left
CPC	Clutch Pressure Control	L/C	Lock-up Clutch
CPU	Central Processing Unit	LED	Light Emitting Diode
CVT	Continuously Variable Transmission	LF	Left Front
CYL	Cylinder	LH	Left Handle
CYP	Cylinder Position	LHD	Left Handle Drive
		LR	Left Rear
DI	Distributor Ignition	LSD	Limited Slip Differential
DIFF	Differential	L-4	In-line Four Cylinder (engine)
DLC	Data Link Connector		
DOHC	Double Overhead Camshaft		
DPI	Dual Point Injection		
DTC	Diagnostic Trouble Code		
EBD	Electronic Brake Distribution		
ECM	Engine Control Module		
ECT	Engine Coolant Temperature		
EGR	Exhaust Gas Recirculation		
ELD	Electrical Load Detector		
EPR	Evaporator Pressure Regulator		
EPS	Electrical Power Steering		
EVAP	Evaporative		
EX	Exhaust		



MAP	Manifold Absolute Pressure	T	Torque
MAX.	Maximum	TB	Throttle Body
MBS	Mainshaft Brake System	T/B	Timing Belt
MCK	Motor Check	TC	Torque Converter
MCU	Moment Control Unit	TCM	Transmission Control Module
MIL	Malfunction Indicator Light	TCS	Traction Control System
MIN.	Minimum	TDC	Top Dead Center
MPI	Multi Point Injection	T/N	Tool Number
M/S	Manual Steering	TP	Throttle Position
M/T	Manual Transmission	TWC	Three Way Catalytic Converter
N	Neutral	VC	Viscous Coupling
NOx	Oxides of Nitrogen	VIN	Vehicle Identification Number
OBD	On-board Diagnostic	VSS	Vehicle Speed Sensor
O2S	Oxygen Sensor	VTEC	Variable Valve Timing & Valve Lift Electronic Control
OD or O.D.	Outside Diameter	VVIS	Variable Volume Intake System
P	Park	W	With
PAIR	Pulsed Secondary Air Injection	W/O	Without
PCM	Powertrain Control Module	WOT	Wide Open Throttle
PCV	Positive Crankcase Ventilation	2WD	Two Wheel Drive
PGM-FI	Proportioning Control Valve	4WD	Four Wheel Drive
PGM-IG	Programmed-fuel Injection	2WS	Two Wheel Steering
PH	Pressure High	4WS	Four Wheel Steering
PL	Pilot Light or Pressure Low	4AT	4-speed Automatic Transmission
PMR	Pump Motor Relay	5MT	5-speed Manual Transmission
P/N	Part Number	P	Park
PRI	Primary	R	Reverse
P/S	Power Steering	N	Neutral
PSF	Power Steering Fluid	D₄	Drive (1st through 4th gear)
PSP	Power Steering Pressure	D₃	Drive (1st through 3rd gear)
PSW	Pressure Switch	2	Second
P/W	Power Window	1	First
Qty	Quantity	D	Drive
R	Right	S	Second
REF	Reference	L	Low
RHD	Right Handle Drive	1ST	Low (gear)
RL	Rear Left	2ND	Second (gear)
RON	Research Octane Number	3RD	Third (gear)
RR	Rear Right	4TH	Fourth (gear)
SAE	Society of Automotive Engineers	5TH	Fifth (gear)
SCS	Service Check Signal		
SEC	Second		
	Secondary		
SOHC	Single Overhead Camshaft		
SOL	Solenoid		
SPEC	Specification		
S/R	Sun Roof		
SRS	Supplemental Restraint System		
STD	Standard		
SW	Switch		

Specifications

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Standards and Service Limits

Engine Electrical — Section 4

	MEASUREMENT	STANDARD (NEW)	
Ignition coil*1 (TEC)	Rated voltage V	12	
	Primary winding resistance at 20°C (68°F) Ω	0.63 – 0.77	
	Secondary winding resistance at 20°C (68°F) kΩ	12.8 – 19.2	
Ignition coil*2 (LUCAS)	Rated voltage V	12	
	Primary winding resistance at 20°C (68°F) Ω	0.45 – 0.55	
	Secondary winding resistance at 20°C (68°F) kΩ	22.4 – 33.6	
Ignition coil*3 (LUCAS)	Rated voltage V	12	
	Primary winding resistance at 20°C (68°F) Ω	0.54 – 0.66	
	Secondary winding resistance at 20°C (68°F) kΩ	13.6 – 20.4	
Firing order		1 – 3 – 4 – 2	
Spark plug	Type	Refer to Section 4	
	Electrode gap	1.1 $\pm$ 0.1 (0.043 $\pm$ 0.004)	
Ignition timing	At idle	16° ± 2° (Red) BTDC*9 12° ± 2° (Red) BTDC*10	
Alternator belt*4, 5	Deflection with 98 N (10 kgf, 22 lbf) between pulleys	7.0 – 10.5 (0.28 – 0.41) with used belt 5.0 – 7.0 (0.19 – 0.28) with new belt	
	Tension measured with belt tension gauge N (kgf, lbf)	340 – 490 (35 – 50, 77 – 110) with used belt 640 – 780 (65 – 80, 140 – 180) with new belt	
Alternator belt*4, 6	Deflection with 98 N (10 kgf, 22 lbf) between pulleys	9.0 – 11.0 (0.35 – 0.43) with used belt 6.0 – 8.0 (0.24 – 0.31) with new belt	
	Tension measured with belt tension gauge N (kgf, lbf)	340 – 490 (35 – 50, 77 – 110) with used belt 640 – 880 (65 – 90, 140 – 200) with new belt	
Alternator*5 (BOSCH)	Output 13.5 V at hot A	75	
	Coil resistance (rotor) Ω	2.3	
	Slip ring O.D.	14.4 (0.567)	14.0 (0.551)
	Brush length	12.5 (0.49)	2.5 (0.10)
	Brush spring tension g (oz)	330 (11.6)	
Alternator*6 (DENSO)	Output 13.5 V at hot A	90	
	Coil resistance (rotor) Ω	2.9	
	Slip ring O.D.	14.4 (0.567)	14.0 (0.551)
	Brush length	10.5 (0.41)	1.5 (0.06)
	Brush spring tension g (oz)	330 (11.6)	
Starter motor*7 (VALEO 1.0 kW)	Type	Gear reduction	
Starter motor*8 (MITSUBA 1.0 kW)	Type	Gear reduction	
	Mica depth	0.4 – 0.5 (0.016 – 0.020)	0.15 (0.006)
	Commutator runout	0 – 0.02 (0 – 0.001)	0.05 (0.002)
	Commutator O.D.	28.0 – 28.1 (1.102 – 1.106)	27.5 (1.083)
	Brush length	15.8 – 16.2 (0.62 – 0.64)	11.0 (0.43)
	Brush spring tension (new) N (kgf, lbf)	15.7 – 17.7 (1.60 – 1.80, 3.5 – 4.0)	

*1, 6, 8, 9: B18C4 engine

*2: D15Z8 engine

*3: D14Z3, D14Z4, D16W3, D16W4 engines

*4: When using a new belt, adjust deflection or tension to new belt values. Run the engine for 5 minutes then turn it off.
Readjust deflection or tension to used belt values.

*5, 7, 10: All except B18C4 engine

Cylinder Head/Valve Train — Section 6
D14Z3, D14Z4, D15Z8, D16W3, D16W4 engines

	MEASUREMENT		STANDARD (NEW)	SERVICE LIMIT
Compression	250 rpm (min ⁻¹) and wide open throttle kPa (kgf/cm ² , psi)	Nominal Minimum Maximum variation	1,270 (13.0, 184) 930 (9.5, 135) 200 (2.0, 28)	
Cylinder head	Warpage Height		92.95 – 93.05 (3.659 – 3.663)	0.05 (0.002)
Camshaft	End play		0.05 – 0.15 (0.002 – 0.006)	0.5 (0.02)
	Camshaft-to-holder oil clearance		0.050 – 0.089 (0.002 – 0.004)	0.15 (0.006)
	Total runout		0.03 (0.001) max.	0.04 (0.002)
	Cam lobe height			
	D15Z8 engine	IN Primary EX Secondary	38.427 (1.5129) 32.292 (1.2713) 38.784 (1.5269)	— — —
	D16W3, D16W4 engines	IN EX	35.019 (1.3787)*1, 34.734 (1.3674)*2 37.904 (1.4923)	— —
	D14Z3, D14Z4 engines	IN EX	34.274 (1.3494) 36.594 (1.4407)	— —
Valve	Valve clearance	IN EX	0.18 – 0.22 (0.007 – 0.009) 0.23 – 0.27 (0.009 – 0.011)	— —
	Valve stem O.D.	IN EX	5.48 – 5.49 (0.2157 – 0.2161) 5.45 – 5.46 (0.2146 – 0.2150)	5.45 (0.2146) 5.42 (0.2134)
	Stem-to-guide clearance	IN EX	0.02 – 0.05 (0.001 – 0.002) 0.05 – 0.08 (0.002 – 0.003)	0.08 (0.003) 0.11 (0.004)
Valve seat	Width	IN EX	0.85 – 1.15 (0.033 – 0.045) 1.25 – 1.55 (0.049 – 0.061)	1.6 (0.062) 2.0 (0.079)
	Stem installed height	IN EX	53.17 – 53.64 (2.093 – 2.112) 53.17 – 53.64 (2.093 – 2.112)	53.89 (2.122) 53.89 (2.122)
Valve spring	Free length, D15Z8 engine	IN EX	56.5 (2.22) 58.7 (2.31)	— —
	D14Z3, D14Z4, D16W3, D16W4 engines	IN and EX	58.7 (2.31)	—
Valve guide	I.D.	IN EX	5.51 – 5.53 (0.217 – 0.218) 5.51 – 5.53 (0.217 – 0.218)	5.55 (0.219) 5.55 (0.219)
	Installed height	IN EX	17.85 – 18.35 (0.703 – 0.722) 18.65 – 19.15 (0.734 – 0.754)	— —
Rocker arm	Arm-to-shaft clearance	IN EX	0.017 – 0.050 (0.0007 – 0.0020) 0.018 – 0.054 (0.0007 – 0.0021)	0.08 (0.003) 0.08 (0.003)

*1: Timing belt side, *2: Distributor side

Standards and Service Limits

Cylinder Head/Valve Train (B18C4 engine) — Section 6

	MEASUREMENT		STANDARD (NEW)	SERVICE LIMIT
Compression	250 rpm (min ⁻¹) and wide open throttle kPa (kgf/cm ² , psi)	Nominal Minimum Maximum variation	1,520 (15.5, 220) 930 (9.5, 140) 290 (3.0, 43)	
Cylinder head	Warpage Height		141.95 – 142.05 (5.589 – 5.593)	0.05 (0.002)
Camshaft	End play		0.05 – 0.15 (0.002 – 0.006)	0.5 (0.02)
	Camshaft-to-holder oil clearance		0.050 – 0.089 (0.002 – 0.004)	0.15 (0.006)
	Total runout		0.03 (0.001) max.	0.04 (0.002)
	Cam lobe height	IN Primary	33.411 (1.3154)	
		Mid	36.377 (1.4322)	
		Secondary	34.547 (1.3601)	
		EX Primary	33.111 (1.3036)	
Valve	Valve clearance (Cold)*	IN	0.15 – 0.19 (0.006 – 0.007)	
		EX	0.17 – 0.21 (0.007 – 0.008)	
	Valve stem O.D.	IN	5.475 – 5.485 (0.2156 – 0.2159)	5.445 (0.2144)
	Stem-to-guide clearance	EX	5.450 – 5.460 (0.2146 – 0.2150)	5.420 (0.2134)
		IN	0.025 – 0.055 (0.0010 – 0.0022)	0.08 (0.003)
Valve seat	Width	IN	1.25 – 1.55 (0.049 – 0.061)	2.0 (0.08)
		EX	1.25 – 1.55 (0.049 – 0.061)	2.0 (0.08)
	Stem installed height	IN	37.465 – 37.935 (1.4750 – 1.4935)	38.185 (1.5033)
		EX	37.165 – 37.635 (1.4632 – 1.4817)	37.885 (1.4915)
Valve spring	Free length (Reference)	IN Outer	41.05 (1.616)	
		Inner	36.16 (1.424)	
		EX NH	41.96 (1.652)	
		CH	41.94 (1.651)	
Valve guide	I.D.	IN	5.51 – 5.53 (0.217 – 0.218)	5.55 (0.219)
		EX	5.51 – 5.53 (0.217 – 0.218)	5.55 (0.219)
	Installed height	IN	12.55 – 13.05 (0.494 – 0.514)	
		EX	12.55 – 13.05 (0.494 – 0.514)	
Rocker arm	Arm-to-shaft clearance	IN	0.025 – 0.052 (0.0010 – 0.0020)	0.08 (0.003)
		EX	0.025 – 0.052 (0.0010 – 0.0020)	0.08 (0.003)

*: Measured between the camshaft and rocker arm.

NH: NIHON HATSUJO manufacture valve spring

CH: CHUO HATSUJO manufacture valve spring

Engine Block — Section 7
D14Z3, D14Z4, D15Z8, D16W3, D16W4 engines

	MEASUREMENT	STANDARD (NEW)	SERVICE LIMIT
Cylinder block	Warpage of deck surface Bore diameter Bore taper Reboring limit	0.07 (0.003) max. 75.00 – 75.02 (2.953 – 2.954) — —	0.10 (0.004) 75.07 (2.956) 0.05 (0.002) 0.5 (0.02)
Piston	Skirt O.D. At 5 mm (0.2 in) from bottom of skirt Clearance in cylinder Groove width (for ring) Top D15Z8, D16W3, D16W4 engines D14Z3, D14Z4 engines Second D15Z8, D16W3, D16W4 engines D14Z3, D14Z4 engines Oil	74.980 – 74.990 (2.9520 – 2.9524) 0.010 – 0.040 (0.0004 – 0.0016) 1.020 – 1.030 (0.0402 – 0.0406) 1.220 – 1.230 (0.0480 – 0.0484) 1.220 – 1.230 (0.0480 – 0.0484) 1.520 – 1.530 (0.0598 – 0.0602) 2.805 – 2.820 (0.1104 – 0.1110)	74.970 (2.9516) 0.05 (0.002) 1.05 (0.041) 1.25 (0.049) 1.25 (0.049) 1.55 (0.061) 2.85 (0.112)
Piston ring	Ring-to-groove clearance Top D15Z8, D16W3, D16W4 engines D14Z3, D14Z4 engines Second Ring end gap Top Second Oil D15Z8, D16W3, D16W4 engines D14Z3, D14Z4 engines	0.035 – 0.060 (0.0014 – 0.0024) 0.030 – 0.060 (0.0012 – 0.0024) 0.030 – 0.055 (0.0012 – 0.0022) 0.15 – 0.30 (0.006 – 0.012) 0.30 – 0.45 (0.012 – 0.018) 0.20 – 0.70 (0.008 – 0.028) 0.20 – 0.80 (0.008 – 0.031)	0.13 (0.005) 0.13 (0.005) 0.13 (0.005) 0.60 (0.024) 0.70 (0.028) 0.80 (0.031) 0.90 (0.035)
Piston pin	O.D. Pin-to-piston clearance	18.994 – 19.000 (0.7478 – 0.7480) 0.010 – 0.022 (0.0004 – 0.0009)	— —
Connecting rod	Pin-to-rod interference Small end bore diameter Large end bore diameter Nominal D16W3, D16W4 engines D15Z8 engine D14Z3, D14Z4 engines End play installed on crankshaft	0.014 – 0.040 (0.0006 – 0.0016) 18.96 – 18.98 (0.746 – 0.747) 48.0 (1.89) 45.0 (1.77) 43.0 (1.69) 0.15 – 0.30 (0.006 – 0.012)	— — — — — 0.40 (0.016)
Crankshaft	Main journal diameter D16W3, D16W4 engines D14Z3, D14Z4, D15Z8 engines Rod journal diameter D16W3, D16W4 engines D15Z8 engine D14Z3, D14Z4 engines Taper Out of round End play Total runout	54.976 – 55.000 (2.1644 – 2.1654) 44.976 – 45.000 (1.7707 – 1.7717) 44.976 – 45.000 (1.7707 – 1.7717) 41.976 – 42.000 (1.6526 – 1.6535) 39.976 – 40.000 (1.5739 – 1.5748) 0.0025 (0.0001) max. 0.0025 (0.0001) max. 0.10 – 0.35 (0.004 – 0.014) 0.03 (0.001) max.	— — — — — 0.005 (0.0002) 0.005 (0.0002) 0.45 (0.018) 0.04 (0.002)
Bearing	Main bearing-to-journal oil clearance No. 1 and 5 journals No. 2, 3 and 4 journals D16W3, D16W4 engines Except D16W3, D16W4 engines Rod bearing-to-journal oil clearance	0.018 – 0.036 (0.0007 – 0.0014) 0.024 – 0.042 (0.0009 – 0.0017) 0.020 – 0.038 (0.0008 – 0.0015) 0.020 – 0.038 (0.0008 – 0.0015)	0.05 (0.002) 0.05 (0.002) 0.05 (0.002) 0.05 (0.002)

Standards and Service Limits

Engine Block (B18C4 engine) — Section 7

	MEASUREMENT	STANDARD (NEW)	SERVICE LIMIT
Cylinder block	Warpage of deck surface	0.05 (0.002) max.	0.08 (0.003)
	Bore diameter	81.00 – 81.02 (3.189 – 3.190)	81.07 (3.192)
	Bore taper	—	0.05 (0.002)
	Reboring limit	—	0.25 (0.010)
Piston	Skirt O.D. at 15 mm (0.6 in) from bottom of skirt	80.98 – 80.99 (3.188 – 3.189)	80.97 (3.188)
	Clearance in cylinder	0.01 – 0.04 (0.0004 – 0.0016)	0.05 (0.002)
	Groove width (For ring)	Top 1.030 – 1.040 (0.0406 – 0.0409)	1.060 (0.0417)
		Second 1.230 – 1.240 (0.0484 – 0.0488)	1.260 (0.0496)
Piston ring	Ring-to-piston groove clearance	Top 0.045 – 0.070 (0.0018 – 0.0028)	0.13 (0.005)
		Second 0.040 – 0.065 (0.0016 – 0.0026)	0.13 (0.005)
	Ring end gap	Top 0.20 – 0.35 (0.008 – 0.014)	0.60 (0.024)
		Second 0.40 – 0.55 (0.016 – 0.022)	0.70 (0.028)
Piston Pin	O.D.	20.994 – 21.000 (0.8265 – 0.8268)	—
	Pin-to-piston clearance	0.010 – 0.022 (0.0004 – 0.0009)	—
Connecting rod	Pin-to-rod interference	0.017 – 0.036 (0.0007 – 0.0014)	—
	Small end bore diameter	20.964 – 20.997 (0.8254 – 0.8267)	—
	Large end bore diameter	48.0 (1.89)	—
	End play installed on crankshaft	0.15 – 0.30 (0.006 – 0.012)	0.40 (0.016)
Crankshaft	Main journal diameter	—	—
	No. 1, 2, 4 and 5 journals	54.976 – 55.000 (2.1644 – 2.1654)	—
	No. 3 journal	54.974 – 54.998 (2.1643 – 2.1653)	—
	Rod journal diameter	44.976 – 45.000 (1.7707 – 1.7717)	—
	Taper	0.005 (0.0002) max.	0.010 (0.0004)
	Out-of-round	0.004 (0.0002) max.	0.006 (0.0002)
	End play	0.10 – 0.35 (0.004 – 0.014)	0.45 (0.018)
	Runout	0.02 (0.0008) max.	0.03 (0.0012)
Bearing	Main bearing-to-journal oil clearance	—	—
	No. 1, 2, 4 and 5 journals	0.024 – 0.042 (0.0009 – 0.0017)	0.060 (0.0024)
	No. 3 journal	0.030 – 0.048 (0.0012 – 0.0019)	0.060 (0.0024)
	Rod bearing-to-journal oil clearance	0.032 – 0.050 (0.0013 – 0.0020)	0.060 (0.0024)

Engine Lubrication — Section 8 D14Z3, D14Z4, D15Z8, D16W3, D16W4 engines

	MEASUREMENT	STANDARD (NEW)	SERVICE LIMIT
Engine oil	Capacity ℓ (US qt, Imp qt)	4.0 (4.2, 3.5) for engine overhaul 3.3 (3.5, 2.9) for oil change, including filter 3.0 (3.2, 2.6) for oil change, without filter	
Oil pump	Inner-to-outer rotor radial clearance	0.02 – 0.14 (0.001 – 0.006)	0.20 (0.008)
	Pump body-to-outer rotor radial clearance	0.10 – 0.18 (0.004 – 0.007)	0.20 (0.008)
	Pump body-to-rotor axial clearance	0.03 – 0.08 (0.001 – 0.003)	0.15 (0.006)
Relief valve	Pressure setting 80°C (176°F) kPa (kgf/cm ² , psi)	at idle 70 (0.7, 10) min. at 3,000 min ⁻¹ (rpm) 340 (3.5, 50) min.	

Engine Lubrication (B18C4 engine) — Section 8

	MEASUREMENT	STANDARD (NEW)	SERVICE LIMIT
Engine oil	Capacity ℓ (US qt, Imp qt)	4.8 (5.1, 4.2) for engine overhaul 4.0 (4.2, 3.5) for oil change, including filter 3.7 (3.9, 3.3) for oil change, without filter	
Oil pump	Inner-to-outer rotor clearance	0.04 – 0.16 (0.002 – 0.006)	0.20 (0.008)
	Pump housing-to-outer rotor clearance	0.10 – 0.19 (0.004 – 0.007)	0.20 (0.008)
	Pump housing-to-rotor axial clearance	0.02 – 0.07 (0.001 – 0.003)	0.15 (0.006)
Relief valve	Pressure setting at engine oil temp. 80°C (176°F) kPa (kgf/cm ² , psi)	At idle 70 (0.7, 10) min. At 3,000 rpm (min ⁻¹) 340 (3.5, 50) min.	

Cooling — Section 10

	MEASUREMENT	STANDARD (NEW)
Radiator	Coolant capacity ℓ (US qt, Imp qt) including engine, heater, cooling line and reservoir Reservoir capacity: B18C4 engine 0.5 ℓ (0.5 US qt, 0.4 Imp qt) All except B18C4 engine	5.0 (5.3, 4.4) for overhaul 4.5 (4.8, 3.9) for coolant change MT: 4.5 (4.8, 3.9) for overhaul 3.6 (3.8, 3.2) for coolant change AT: 4.4 (4.7, 3.9) for overhaul 3.5 (3.7, 3.1) for coolant change
Radiator cap	Opening pressure kPa(kgf/cm ² , psi)	93 – 123 (0.95 – 1.25, 14 – 18)
Thermostat	Start to open °C (°F) Fully open °C (°F) Valve lift at fully open	76 – 80 (169 – 176) 90 (194) 8.0 (0.31) min.
Cooling fan	Thermoswitch "ON" temperature °C (°F) Thermoswitch "OFF" temperature °C (°F)	91 – 95 (196 – 203) Subtract 3 – 8 (5 – 15) from actual "ON" temperature

Fuel and Emissions — Section 11

	MEASUREMENT	STANDARD (NEW)	
Pressure regulator	Pressure with regulator vacuum hose disconnected kPa (kgf/cm ² , psi) D14Z3, D14Z4, D15Z8, D16W3, D16W4 engines B18C4 engine	240 – 280 (2.45 – 2.85, 34.8 – 40.5) 320 – 370 (3.3 – 3.8, 47 – 54)	
Fuel tank	Capacity ℓ (US gal, Imp gal)	55 (14.5, 12.1)	
Engine	Idle speed with headlights and cooling fan off min ⁻¹ (rpm) D14Z3, D14Z4, D15Z8, D16W3, D16W4 engines B18C4 engine	M/T: Neutral	A/T: N or P position
		750 ± 50 800 ± 50	750 ± 50 _____
	Idle CO %	0.1 max.	

Clutch — Section 12

	MEASUREMENT	STANDARD (NEW)	SERVICE LIMIT
Clutch pedal	Pedal height to floor	161 (6.34)	_____
	Stroke	130 – 140 (5.12 – 5.51)	_____
	Total free play	12 – 21 (0.047 – 0.83)	_____
	Pedal play	1.0 – 10.0 (0.04 – 0.37)	_____
	Disengagement height to floor	LHD 81 (3.19) min. RHD 79 (3.11) min.	_____
Flywheel	Clutch surface runout	0.05 (0.002) max.	0.15 (0.006)
Clutch disc	Rivet depth	All except B18C4 engine B18C4 engine	0.2 (0.008) 0.2 (0.008)
	Thickness	All except B18C4 engine	6.0 (0.24)
		B18C4 engine	6.0 (0.24)
Pressure plate	Warpage	0.03 (0.001) max.	0.15 (0.006)
	Diaphragm spring finger alignment	0.6 (0.02) max.	0.8 (0.03)

Standards and Service Limits

9A Manual Transmission — Section 13

	MEASUREMENT	STANDARD (NEW)	SERVICE LIMIT
Transmission oil	Capacity ℓ (US qt, Imp qt)	1.9 (2.0, 1.7) for overhaul 1.8 (1.9, 1.6) for oil change	
Mainshaft	End play Diameter of ball bearing contact area (Transmission housing side) Diameter of 4th, 5th gear contact area Diameter of 3rd gear contact area Diameter of ball bearing contact area (Clutch housing side) Runout	0.11 – 0.18 (0.004 – 0.007) 21.987 – 22.000 (0.8656 – 0.8661) 26.980 – 26.993 (1.0622 – 1.0627) 33.984 – 34.000 (1.3380 – 1.3386) 25.977 – 25.990 (1.0227 – 1.0232) 0.02 (0.001) max.	Adjust 21.930 (0.8634) 26.930 (1.0602) 33.930 (1.3358) 25.920 (1.0205) 0.05 (0.002)
Mainshaft 3rd and 4th gears	I.D. End play Thickness	39.009 – 39.025 (1.5358 – 1.5364) 0.06 – 0.21 (0.002 – 0.008) 0.07 – 0.20 (0.003 – 0.008) 30.22 – 30.27 (1.190 – 1.192) 30.11 – 30.16 (1.185 – 1.187)	39.07 (1.538) 0.33 (0.013) 0.31 (0.012) 30.15 (1.187) 30.05 (1.183)
Mainshaft 5th gear	I.D. End play Thickness	37.009 – 37.025 (1.4570 – 1.4577) 0.06 – 0.19 (0.002 – 0.007) 28.42 – 28.47 (1.119 – 1.121)	37.07 (1.459) 0.31 (0.012) 28.35 (1.116)
Countershaft	Diameter of needle bearing contact area Diameter of 1st gear contact area Diameter of ball bearing contact area Runout	30.000 – 30.015 (1.1811 – 1.1817) 35.984 – 36.000 (1.4167 – 1.4173) 24.980 – 24.993 (0.9835 – 0.9840) 0.02 (0.001) max.	29.950 (1.1791) 35.930 (1.4146) 24.930 (0.9815) 0.05 (0.002)
Countershaft 1st gear	I.D. End play (When tightened by the specified torque) Thickness	41.009 – 41.025 (1.6145 – 1.6152) 0.03 – 0.10 (0.001 – 0.004) 30.41 – 30.44 (1.197 – 1.198)	41.07 (1.617) 0.22 (0.009) 30.36 (1.195)
Countershaft 2nd gear	I.D. End play (When tightened by the specified torque) Thickness	44.009 – 44.025 (1.7326 – 1.7333) 0.04 – 0.12 (0.002 – 0.005) 31.91 – 31.96 (1.256 – 1.258)	44.07 (1.735) 0.24 (0.009) 31.85 (1.254)
Spacer collar (Countershaft 2nd gear)	I.D. O.D. Length	33.000 – 33.010 (1.2992 – 1.2996) 38.989 – 39.000 (1.5350 – 1.5354) 32.03 – 32.06 (1.261 – 1.262)	33.05 (1.301) 38.93 (1.533) 32.01 (1.260)
Spacer collar (Mainshaft 4th and 5th gear)	I.D. O.D. Length	27.002 – 27.012 (1.0631 – 1.0635) 33.989 – 34.000 (1.3381 – 1.3386) 31.989 – 32.000 (1.2594 – 1.2598) 22.83 – 22.86 (0.899 – 0.900) 23.53 – 23.56 (0.926 – 0.928)	27.06 (1.065) 33.93 (1.336) 31.93 (1.257) 22.81 (0.898) 23.51 (0.926)
Reverse idler gear	I.D. Gear-to-reverse gear shaft clearance	15.016 – 15.043 (0.5912 – 0.5922) 0.032 – 0.077 (0.0013 – 0.0030)	15.08 (0.594) 0.14 (0.006)
Synchro ring	Ring-to-gear clearance (Ring pushed against gear)	0.73 – 1.18 (0.029 – 0.046)	0.4 (0.02)
Shift fork	Fork finger thickness Fork-to-synchro sleeve clearance	6.2 – 6.4 (0.244 – 0.252) 7.4 – 7.6 (0.291 – 0.299) 0.35 – 0.65 (0.014 – 0.026)	— — 1.0 (0.04)
Reverse shift fork	Fork pawl groove width Fork-to-reverse idler gear clearance Groove width Fork-to-5th/reverse shift piece pin clearance	12.7 – 13.0 (0.50 – 0.51) 0.5 – 1.1 (0.020 – 0.043) 7.05 – 7.25 (0.278 – 0.285) 0.05 – 0.35 (0.002 – 0.014)	— 1.8 (0.071) — 0.5 (0.02)
Shift arm A	Inner diameter of shift arm C contact point Shift arm A-to-shift arm C clearance	13.05 – 13.13 (0.514 – 0.517) 0.05 – 0.23 (0.002 – 0.009)	— 0.35 (0.014)
Shift arm B	Inner diameter of shift arm B shaft contact point Shift arm B-to-shaft clearance Shift arm B-to-shift piece clearance Diameter of shift piece contact point	13.973 – 14.000 (0.5501 – 0.5512) 0.013 – 0.070 (0.0005 – 0.0028) 0.2 – 0.5 (0.008 – 0.020) 12.9 – 13.0 (0.508 – 0.512)	— 0.16 (0.006) 0.8 (0.032) 12.78 (0.5031)

S9B Manual Transmission — Section 13

	MEASUREMENT	STANDARD (NEW)	SERVICE LIMIT
Transmission oil	Capacity ℓ (US qt, Imp qt)	2.3 (2.4, 2.0) for overhaul 2.2 (2.3, 1.9) for oil change	
Mainshaft	End play Diameter of ball bearing contact area A (Clutch housing side) Diameter of 3rd gear contact area B Diameter of ball bearing contact area C (Transmission housing side) Runout	0.11 – 0.18 (0.004 – 0.007) 27.977 – 27.990 (1.1015 – 1.1020) 37.984 – 38.000 (1.4954 – 1.4960) 27.987 – 28.000 (1.1018 – 1.1024) 0.02 (0.001) max.	Adjust 27.930 (1.0996) 37.930 (1.4933) 27.940 (1.1000) 0.05 (0.002)
Mainshaft 3rd and 4th gears	I.D. End play Thickness 3rd 4th	43.009 – 43.025 (1.6933 – 1.6939) 0.06 – 0.21 (0.002 – 0.008) 34.92 – 34.97 (1.375 – 1.377) 31.42 – 31.47 (1.237 – 1.239)	43.08 (1.696) 0.3 (0.01) 34.3 (1.350) 31.3 (1.232)
Mainshaft 5th gear	I.D. End play Thickness	43.009 – 43.025 (1.6933 – 1.6939) 0.06 – 0.21 (0.002 – 0.008) 31.42 – 31.47 (1.237 – 1.239)	43.08 (1.696) 0.3 (0.01) 31.3 (1.232)
Countershaft	Diameter of ball bearing contact area A Diameter of 1st gear contact area B Diameter of needle bearing contact area C Runout	24.980 – 24.993 (0.9835 – 0.9840) 36.984 – 37.000 (1.4561 – 1.4567) 33.000 – 33.015 (1.2992 – 1.2998) 0.02 (0.0008) max.	24.940 (0.9818) 36.930 (1.4539) 32.950 (1.2970) 0.05 (0.002)
Countershaft 1st gear	I.D. End play (When tightened by the specified torque) Thickness	42.009 – 42.025 (1.6539 – 1.6545) 0.045 – 0.205 (0.0018 – 0.0081) 31.45 – 31.50 (1.238 – 1.240)	42.07 (1.656) 0.25 (0.01) —
Countershaft 2nd gear	I.D. End play (When tightened by the specified torque) Thickness	47.009 – 47.025 (1.8507 – 1.8514) 0.07 – 0.14 (0.0027 – 0.0055) 28.92 – 28.97 (1.1386 – 1.1405)	47.07 (1.853) 0.24 (0.009) 28.8 (1.134)
Spacer collar (Countershaft 2nd gear)	I.D. O.D. Length	36.48 – 36.49 (1.4362 – 1.4366) 41.989 – 42.000 (1.6531 – 1.6535) 29.07 – 29.09 (1.1444 – 1.1453)	36.54 (1.439) 41.93 (1.651) —
Spacer collar (Mainshaft 4th and 5th gear)	I.D. O.D. Length 4th/5th gear side	31.002 – 31.012 (1.2205 – 1.2209) 37.989 – 38.000 (1.4956 – 1.4961) 56.45 – 56.55 (2.2224 – 2.2264) 26.03 – 26.08 (1.025 – 1.027)	31.06 (1.223) 37.94 (1.494) — —
Reverse idler gear	I.D. Gear-to-reverse gear shaft clearance	20.028 – 20.049 (0.7885 – 0.7893) 0.028 – 0.062 (0.0011 – 0.0024)	20.09 (0.7909) 0.16 (0.006)
Synchro ring	Ring-to-gear clearance (Ring pushed against gear)	0.73 – 1.18 (0.029 – 0.046)	0.4 (0.016)
Double cone	Clearance (Ring pushed against gear) Outer synchro ring-to-gear Inner synchro ring-to-gear Outer synchro ring-to-synchro cone	0.95 – 1.68 (0.037 – 0.066) 0.5 – 1.0 (0.02 – 0.04) 0.5 – 1.0 (0.02 – 0.04)	0.6 (0.024) 0.3 (0.01) 0.3 (0.01)
Shift fork	Fork finger thickness Fork-to-synchro sleeve clearance	7.4 – 7.6 (0.291 – 0.299) 0.35 – 0.65 (0.015 – 0.026)	— 1.0 (0.04)
Reverse shift fork	Fork pawl groove width Fork-to-reverse idler gear clearance L-groove width At 5th gear side At reverse side Fork-to-5th/reverse shift piece pin clearance At 5th gear side At reverse side	13.0 – 13.3 (0.512 – 0.524) 0.5 – 1.1 (0.02 – 0.04) 7.4 – 7.7 (0.29 – 0.30) 7.05 – 7.25 (0.278 – 0.285) 0.4 – 0.9 (0.02 – 0.04) 0.05 – 0.45 (0.002 – 0.018)	— 1.8 (0.07) — — — —
Shift piece	Shift piece-to-shift arm clearance Groove width of shift arm contact area Shift-piece-to-shift fork shaft clearance Width of shift fork contact area	0.1 – 0.3 (0.004 – 0.012) 8.1 – 8.2 (0.319 – 0.323) 0.2 – 0.5 (0.008 – 0.020) 11.9 – 12.0 (0.469 – 0.472)	0.6 (0.02) — 0.8 (0.03) —
Select arm	Select arm-to-interlock clearance Select arm-to-shim clearance	0.05 – 0.25 (0.002 – 0.01) 0.01 – 0.2 (0.0004 – 0.008)	0.45 (0.018) —
Interlock	Width of select arm contact area	9.9 – 10.0 (0.390 – 0.394)	—
Change piece	Change piece-to-shift arm holder clearance Groove width of shift arm holder contact area Change piece-to-select arm clearance Groove width of select arm contact area	0.05 – 0.35 (0.002 – 0.014) 12.05 – 12.15 (0.474 – 0.478) 0.05 – 0.35 (0.002 – 0.014) 12.05 – 12.15 (0.474 – 0.478)	0.8 (0.03) — 0.5 (0.02) —

Standards and Service Limits

Automatic Transmission — Section 14

	MEASUREMENT		STANDARD (NEW)	SERVICE LIMIT
Transmission fluid	Capacity ℓ (US qt, Imp qt)		5.9 (6.2, 5.2) for overhaul 2.7 (2.8, 2.4) for fluid change	
Hydraulic pressure kPa (kgf/cm ² , psi) D16W3, D16W4 engines	Line pressure at 2,000 rpm (min ⁻¹) N or P position		830 – 880 (8.5 – 9.0, 120 – 130)	780 (8.0, 110)
	2nd clutch pressure at 2,000 rpm (min ⁻¹) D₄ position		370 – 420 (3.8 – 4.3, 54 – 61) throttle fully closed	360 (3.7, 53) throttle fully closed
	3rd clutch pressure at 2,000 rpm (min ⁻¹) D₄ position		830 – 880 (8.5 – 9.0, 120 – 130) throttle more than 2/8 opened	780 (8.0, 110) throttle more than 2/8 opened
	4th clutch pressure at 2,000 rpm (min ⁻¹) D₄ position		830 – 880 (8.5 – 9.0, 120 – 130)	780 (8.0, 110)
	2nd clutch pressure at 2,000 rpm (min ⁻¹) 2 position		830 – 880 (8.5 – 9.0, 120 – 130)	780 (8.0, 110)
	1st clutch pressure at 2,000 rpm (min ⁻¹) D₄ or 1 position			
	1st-hold clutch pressure at 2,000 rpm (min ⁻¹) 1 position			
	Governor pressure at 60 km/h (38 mph)		173 – 192 (1.76 – 1.96, 25.0 – 27.9)	168 (1.71, 24)
	Throttle B pressure	Throttle fully closed Throttle fully opened	0 – 15 (0 – 0.15, 0 – 2.1) 830 – 880 (8.5 – 9.0, 120 – 130)	— 780 (8.0, 110)
	Throttle A pressure	Throttle fully closed Throttle fully opened	0 – 5 (0 – 0.05, 0 – 0.7) 525 – 540 (5.35 – 5.5, 76 – 78)	— 520 (5.3, 75)
Hydraulic pressure kPa (kgf/cm ² , psi) D14Z3, D14Z4 engines	Line pressure at 2,000 rpm (min ⁻¹) N or P position		780 – 830 (8.0 – 8.5, 110 – 120)	740 (7.5, 110)
	2nd clutch pressure at 2,000 rpm (min ⁻¹) D₄ position		370 – 420 (3.8 – 4.3, 54 – 61) throttle fully closed	360 (3.7, 53) throttle fully closed
	3rd clutch pressure at 2,000 rpm (min ⁻¹) D₄ position		780 – 830 (8.0 – 8.5, 110 – 120) throttle more than 2/8 opened	740 (7.5, 110) throttle more than 2/8 opened
	4th clutch pressure at 2,000 rpm (min ⁻¹) D₄ position		780 – 830 (8.0 – 8.5, 110 – 120)	740 (7.5, 110)
	2nd clutch pressure at 2,000 rpm (min ⁻¹) 2 position		780 – 830 (8.0 – 8.5, 110 – 120)	740 (7.5, 110)
	1st clutch pressure at 2,000 rpm (min ⁻¹) D₄ or 1 position			
	1st-hold clutch pressure at 2,000 rpm (min ⁻¹) 1 position			
	Governor pressure at 60 km/h (38 mph)		173 – 192 (1.76 – 1.96, 25.0 – 27.9)	168 (1.71, 24)
	Throttle B pressure	Throttle fully closed Throttle fully opened	0 – 15 (0 – 0.15, 0 – 2.1) 780 – 830 (8.0 – 8.5, 110 – 120)	— 740 (7.5, 110)
	Throttle A pressure	Throttle fully closed Throttle fully opened	0 – 5 (0 – 0.05, 0 – 0.7) 525 – 540 (5.35 – 5.5, 76 – 78)	— 520 (5.3, 75)
Stall speed rpm (min ⁻¹) (check with vehicle on level ground)		D16W3, D16W4 engines D14Z3, D14Z4 engines	2,800 2,550	2,650 – 2,950 2,400 – 2,700
Clutch	Clutch initial clearance	1st, 2nd	0.65 – 0.85 (0.026 – 0.033)	—
		3rd, 4th	0.40 – 0.60 (0.016 – 0.024)	—
		1st-hold	0.5 – 0.8 (0.02 – 0.03)	—
	Clutch return spring free length	1st	31.1 (1.22)	29.1 (1.15)
		2nd, 3rd, 4th	30.5 (1.20)	28.5 (1.12)
		1st-hold	34.6 (1.36)	32.6 (1.28)
	Clutch disc thickness		1.88 – 2.00 (0.074 – 0.079)	Until grooves wear out
	Clutch plate thickness	1st, 1st-hold	1.55 – 1.65 (0.061 – 0.065)	Discoloration
		2nd, 3rd, 4th	1.95 – 2.05 (0.077 – 0.081)	Discoloration
	Clutch end plate thickness (except 1st-hold)	MARK 1	2.3 – 2.4 (0.091 – 0.094)	Discoloration ↑ ↓
		MARK 2	2.4 – 2.5 (0.094 – 0.098)	
		MARK 3	2.5 – 2.6 (0.098 – 0.102)	
		MARK 4	2.6 – 2.7 (0.102 – 0.106)	
		MARK 5	2.7 – 2.8 (0.106 – 0.110)	
		MARK 6	2.8 – 2.9 (0.110 – 0.114)	
		MARK 7	2.9 – 3.0 (0.114 – 0.118)	
		MARK 8	3.0 – 3.1 (0.118 – 0.122)	
		MARK 9	3.1 – 3.2 (0.122 – 0.126)	
		MARK 10	3.2 – 3.3 (0.126 – 0.130)	
		MARK 11	2.0 – 2.1 (0.079 – 0.083)	
		MARK 12	2.1 – 2.2 (0.083 – 0.087)	
		MARK 13	2.2 – 2.3 (0.087 – 0.091)	
	Clutch end plate thickness (1st-hold)	MARK 1	2.05 – 2.10 (0.081 – 0.083)	Discoloration ↑ ↓
		MARK 2	2.15 – 2.20 (0.085 – 0.087)	
		MARK 3	2.25 – 2.30 (0.089 – 0.091)	
		MARK 4	2.35 – 2.40 (0.093 – 0.094)	
		NO MARK	2.45 – 2.50 (0.096 – 0.098)	
		MARK 6	2.55 – 2.60 (0.100 – 0.102)	
		MARK 7	2.65 – 2.70 (0.104 – 0.106)	Discoloration

Automatic Transmission — Section 14

	MEASUREMENT	STANDARD (NEW)	SERVICE LIMIT
Transmission	Diameter of needle bearing contact area		Wear or damage ↑
	On mainshaft stator shaft bearing	23.980 – 23.993 (0.9441 – 0.9446)	
	On mainshaft 2nd gear	35.975 – 35.991 (1.4163 – 1.4169)	
	On mainshaft 4th gear collar	31.975 – 31.991 (1.2589 – 1.2595)	
	On mainshaft 1st gear collar	30.975 – 30.991 (1.2195 – 1.2201)	
	On countershaft (L. side)	36.004 – 36.017 (1.4175 – 1.4180)	
	On countershaft 3rd gear collar	35.980 – 35.996 (1.4165 – 1.4172)	
	On countershaft 4th gear	27.980 – 27.993 (1.1016 – 1.1021)	
	On countershaft reverse gear collar	31.975 – 31.991 (1.2589 – 1.2595)	
	On countershaft 1st gear collar	31.975 – 31.991 (1.2589 – 1.2595)	
	On sub-shaft (L. side)	25.991 – 26.000 (1.0233 – 1.0236)	
	On sub-shaft 4th gear collar	27.980 – 27.993 (1.1016 – 1.1021)	
	On reverse idler gear shaft	13.990 – 14.000 (0.5508 – 0.5512)	
	Inside diameter of needle bearing contact area		
	On mainshaft 1st gear	35.000 – 35.016 (1.3780 – 1.3786)	
	On mainshaft 2nd gear	41.000 – 41.016 (1.6142 – 1.6148)	
	On mainshaft 4th gear	38.000 – 38.016 (1.4961 – 1.4967)	
	On countershaft 1st gear	38.000 – 38.016 (1.4961 – 1.4967)	
	On countershaft 3rd gear	41.000 – 41.016 (1.6142 – 1.6148)	
	On countershaft 4th gear	33.000 – 33.016 (1.2992 – 1.2998)	
	On countershaft reverse gear	38.000 – 38.016 (1.4961 – 1.4967)	
	On sub-shaft 4th gear	32.000 – 32.016 (1.2598 – 1.2605)	
	On reverse idler gear	18.007 – 18.020 (0.7089 – 0.7094)	
	On reverse idler gear shaft holder	14.416 – 14.434 (0.5676 – 0.5683)	
	End play		Wear or damage ↓
	Mainshaft 1st gear	0.05 – 0.16 (0.002 – 0.006)	
	Mainshaft 2nd gear	0.05 – 0.13 (0.002 – 0.0051)	
	Mainshaft 4th gear	0.05 – 0.16 (0.002 – 0.006)	
	Countershaft 1st gear	0.1 – 0.5 (0.004 – 0.020)	
	Countershaft 3rd gear	0.05 – 0.17 (0.002 – 0.0067)	
	Countershaft 4th gear	0.10 – 0.18 (0.004 – 0.0071)	
	Sub-shaft 4th gear	0.05 – 0.17 (0.002 – 0.0067)	
	Reverse idler gear	0.05 – 0.18 (0.002 – 0.0071)	
	Countershaft reverse gear	0.10 – 0.25 (0.004 – 0.010)	
	Selector hub O.D.	51.87 – 51.90 (2.042 – 2.043)	Wear or damage
	Mainshaft 4th gear collar length	49.50 – 49.55 (1.949 – 1.951)	
	Mainshaft 4th gear collar flange thickness	4.435 – 4.525 (0.175 – 0.178)	
	Mainshaft 1st gear collar length	27.00 – 27.05 (1.063 – 1.065)	Wear or damage
	Countershaft distance collar length (28 mm)	38.97 – 39.00 (1.534 – 1.535)	
		39.02 – 39.05 (1.536 – 1.537)	
		39.07 – 39.10 (1.538 – 1.539)	
		39.12 – 39.15 (1.540 – 1.541)	
		39.17 – 39.20 (1.542 – 1.543)	
		39.22 – 39.25 (1.544 – 1.545)	
		39.27 – 39.30 (1.546 – 1.547)	
		38.87 – 38.90 (1.530 – 1.531)	
		38.92 – 38.95 (1.532 – 1.533)	
	Countershaft reverse gear collar length	14.5 – 14.6 (0.571 – 0.575)	Wear or damage
	Countershaft reverse gear collar flange thickness	2.4 – 2.6 (0.094 – 0.102)	
	Countershaft 1st gear collar length	14.5 – 14.6 (0.571 – 0.575)	Wear or damage
	Countershaft 1st gear collar flange thickness	2.4 – 2.6 (0.094 – 0.102)	
	Countershaft 3rd gear collar	20.65 – 20.70 (0.813 – 0.815)	Wear or damage
	Sub-shaft 4th gear collar length	24.0 – 24.1 (0.945 – 0.949)	
	Sub-shaft 4th gear collar flange thickness	2.95 – 3.10 (0.116 – 0.122)	Wear or damage

(cont'd)

Standards and Service Limits

Automatic Transmission (cont'd) — Section 14

	MEASUREMENT	STANDARD (NEW)	SERVICE LIMIT
Transmission (cont'd)	Mainshaft 2nd gear thrust washer thickness	3.97 – 4.00 (0.156 – 0.157) 4.02 – 4.05 (0.158 – 0.159) 4.07 – 4.10 (0.160 – 0.161) 4.12 – 4.15 (0.162 – 0.163) 4.17 – 4.20 (0.164 – 0.165) 4.22 – 4.25 (0.166 – 0.167) 4.27 – 4.30 (0.168 – 0.169) 4.32 – 4.35 (0.170 – 0.171) 4.37 – 4.40 (0.172 – 0.173) 4.42 – 4.45 (0.174 – 0.175)	Wear or damage ↑ ↓ Wear or damage
	Mainshaft ball bearing L. side thrust washer thickness	2.95 – 3.05 (0.116 – 0.120)	Wear or damage
	Mainshaft 1st gear R. side thrust washer thickness	2.43 – 2.50 (0.096 – 0.098)	Wear or damage
	Countershaft 3rd gear splined washer thickness	4.95 – 5.00 (0.195 – 0.197)	Wear or damage
	Sub-shaft 4th gear thrust washer thickness	2.93 – 3.00 (0.115 – 0.118)	Wear or damage
	One-way clutch contact area		↑ ↓
	Countershaft 1st gear I.D.	83.339 – 83.365 (3.2810 – 3.2821)	Wear or damage
	Parking gear O.D.	66.685 – 66.698 (2.6254 – 2.6259)	8.95 (0.352)
	Mainshaft feed pipe A, O.D.	8.97 – 8.98 (0.353 – 0.354)	5.95 (0.234)
	Mainshaft feed pipe B, O.D.	5.97 – 5.98 (0.2350 – 0.2354)	7.95 (0.313)
	Countershaft feed pipe O.D.	7.97 – 7.98 (0.3138 – 0.3142)	7.95 (0.313)
	Sub-shaft feed pipe O.D.	7.97 – 7.98 (0.3138 – 0.3142)	1.82 (0.072)
	Mainshaft sealing ring thickness (29 mm and 35 mm)	1.87 – 1.97 (0.074 – 0.078)	6.045 (0.2380)
Regulator valve body	Mainshaft bushing I.D.	6.018 – 6.030 (0.2369 – 0.2374)	9.030 (0.355)
	Mainshaft bushing I.D.	9.000 – 9.015 (0.3543 – 0.3549)	8.030 (0.3161)
	Countershaft bushing I.D.	8.000 – 8.022 (0.3150 – 0.3158)	8.030 (0.3161)
	Sub-shaft bushing I.D.	8.000 – 8.015 (0.3150 – 0.3156)	2.095 (0.0825)
	Mainshaft sealing ring groove width	2.025 – 2.075 (0.080 – 0.082)	
	Sealing ring contact I.D.	35.000 – 35.025 (1.3780 – 1.3782)	35.050 (1.3799)
	Sealing ring contact I.D.		
	Torque converter side	27.000 – 27.021 (1.0630 – 1.0638)	Wear or damage
	ATF pump drive gear side	29.000 – 29.013 (1.1417 – 1.1422)	Wear or damage
	Reverse shift fork finger thickness	5.90 – 6.00 (0.232 – 0.236)	5.40 (0.213)
	Parking brake pawl	—	Wear or other defect
	Parking gear	—	Wear or other defect
	Shift fork shaft bore I.D.	14.000 – 14.010 (0.5512 – 0.5516)	—
	Shift fork shaft valve bore I.D.	37.000 – 37.039 (1.4567 – 1.4582)	37.045 (1.4585)
ATF pump	ATF pump gear side clearance	Drive 0.03 – 0.05 (0.001 – 0.002)	0.07 (0.003)
	ATF pump gear side clearance	Driven 0.03 – 0.05 (0.001 – 0.002)	0.07 (0.003)
	ATF pump gear-to-body clearance	Drive 0.1050 – 0.1325 (0.0041 – 0.0052)	—
	ATF pump driven gear I.D.	Driven 0.0350 – 0.0625 (0.0014 – 0.0025)	—
	ATF pump driven gear shaft O.D.	14.016 – 14.034 (0.5518 – 0.5525) 13.980 – 13.990 (0.5504 – 0.5508)	Wear or damage Wear or damage
Differential carrier	Pinion shaft contact area I.D.	18.010 – 18.028 (0.7091 – 0.7098)	—
	Carrier-to-pinion clearance	0.023 – 0.057 (0.0009 – 0.0022)	0.10 (0.004)
	Driveshaft contact area I.D.	26.025 – 26.045 (1.0246 – 1.0254)	—
	Carrier-to-driveshaft clearance	0.045 – 0.086 (0.0018 – 0.0034)	0.12 (0.005)
	Ball bearing contact area O.D.	40.002 – 40.018 (1.5749 – 1.5755)	—
Differential pinion gear	Backlash	0.05 – 0.15 (0.002 – 0.006)	—
	I.D.	18.042 – 18.066 (0.7103 – 0.7113)	—
	Pinion gear-to-pinion shaft clearance	0.055 – 0.095 (0.0022 – 0.0037)	0.15 (0.006)
Set ring-to-bearing outer race		0 – 0.15 (0 – 0.006)	Adjust

Automatic Transmission — Section 14

	MEASUREMENT	STANDARD (NEW)			
		Wire Dia.	O.D.	Free Length	No. of Coils
Springs	Regulator valve spring A D16W3, D16W4 engines	1.8 (0.071)	14.7 (0.579)	87.8 (3.457)	16.5
	D14Z3, D14Z4 engines	1.8 (0.071)	14.7 (0.579)	85.4 (3.362)	16.5
	Regulator valve spring B	1.8 (0.071)	*6.0 (0.236)	44.0 (1.732)	7.5
	Stator reaction spring	4.5 (0.177)	*26.4 (1.039)	30.3 (1.193)	1.92
	Torque converter check valve spring	1.0 (0.039)	8.4 (0.331)	33.8 (1.331)	8.2
	Modulator valve spring	1.2 (0.047)	*7.0 (0.276)	27.6 (1.087)	7.7
	Relief valve spring	1.1 (0.043)	8.6 (0.339)	37.1 (1.461)	13.4
	Cooler check valve spring	1.0 (0.039)	8.4 (0.331)	33.8 (1.331)	8.2
	Governor spring A	1.0 (0.039)	18.8 (0.740)	32.9 (1.295)	4.1
	Governor spring B	0.9 (0.035)	11.8 (0.465)	27.8 (1.094)	6.0
		0.9 (0.035)	11.8 (0.465)	29.1 (1.146)	6.0
	2 – 3 orifice control valve spring	0.9 (0.035)	6.6 (0.260)	33.2 (1.307)	14.9
	4 – 3 kick down valve spring	1.0 (0.039)	6.6 (0.260)	29.9 (1.177)	14.7
	2/3 – 4 orifice control valve spring	1.0 (0.039)	8.6 (0.339)	51.9 (2.043)	19.8
	2nd ON orifice control valve spring	0.9 (0.035)	8.0 (0.315)	24.1 (0.949)	9.6
	Throttle valve A spring	1.0 (0.039)	8.5 (0.335)	22.2 (0.874)	6.0
		1.0 (0.039)	8.5 (0.335)	22.1 (0.870)	5.5
		1.1 (0.043)	8.5 (0.335)	22.3 (0.878)	8.1
		1.1 (0.043)	8.5 (0.335)	22.3 (0.878)	7.6
	Throttle valve B adjusting spring	0.8 (0.031)	6.2 (0.244)	30.0 (1.181)	8.0
	Throttle valve A adjusting spring	0.8 (0.031)	6.2 (0.244)	27.0 (1.063)	8.5
	Throttle valve B spring	1.4 (0.063)	8.5 (0.335)	41.5 (1.634)	10.5
		1.4 (0.063)	8.5 (0.335)	41.5 (1.634)	11.2
		1.4 (0.063)	8.5 (0.335)	41.6 (1.648)	12.4
	1 – 2 shift valve spring	0.45 (0.018)	5.1 (0.201)	52.8 (2.079)	29.0
	1 – 2 shift valve ball spring	0.45 (0.018)	4.5 (0.177)	10.7 (0.421)	12.7
	2 – 3 shift valve spring	0.9 (0.035)	7.1 (0.280)	65.3 (2.571)	32.1
	2 – 3 shift valve ball spring	0.45 (0.018)	4.5 (0.177)	13.3 (0.524)	8.0
	3 – 4 shift valve spring	0.9 (0.035)	9.6 (0.378)	32.5 (1.280)	10.3
	3 – 4 shift valve ball spring	0.5 (0.020)	4.5 (0.177)	11.3 (0.445)	7.4
	1st-hold accumulator spring	4.0 (0.157)	21.5 (0.846)	71.7 (2.823)	8.3
	1st accumulator spring A	2.6 (0.102)	24.3 (0.957)	101.9 (4.012)	11.6
	1st accumulator spring B	2.3 (0.091)	*9.9 (0.390)	49.0 (1.929)	4.6
	2nd accumulator spring	3.5 (0.138)	22.0 (0.866)	77.0 (3.031)	9.5
	3rd accumulator spring	2.6 (0.102)	17.5 (0.689)	91.8 (3.614)	15.8
	4th accumulator spring	2.6 (0.102)	16.0 (0.630)	90.1 (3.547)	15.6
	Lock-up shift valve spring	0.9 (0.035)	7.6 (0.299)	73.7 (2.902)	32.0
	Lock-up timing B valve spring	0.8 (0.031)	6.6 (0.260)	61.5 (2.421)	27.6
	Lock-up control valve spring	0.9 (0.035)	6.6 (0.260)	38.4 (1.512)	23.3
	Governor cut valve spring	0.8 (0.031)	7.6 (0.299)	44.5 (1.752)	17.0
	CPC valve spring	0.9 (0.035)	8.4 (0.331)	24.9 (0.980)	9.8
	Reverse control valve spring	0.7 (0.028)	7.1 (0.280)	40.0 (1.575)	20.8
	3 – 2 timing valve spring	1.2 (0.047)	8.6 (0.339)	45.6 (1.795)	14.7
	Servo control valve spring	0.9 (0.035)	6.4 (0.252)	34.1 (1.343)	17.5
	2 – 1 timing valve spring	0.7 (0.028)	5.6 (0.220)	33.0 (1.299)	21.7
	4th exhaust valve spring	0.9 (0.035)	6.6 (0.260)	43.3 (1.705)	22.0

*: Inside Diameter

Standards and Service Limits

Differential M/T — Section 15

	MEASUREMENT	STANDARD (NEW)	SERVICE LIMIT
Differential carrier	All except B18C4 engines:		
	Pinion shaft bore diameter	18.010 – 18.028 (0.7091 – 0.7098)	_____
	Carrier-to-pinion shaft clearance	0.023 – 0.057 (0.0009 – 0.0022)	0.105 (0.004)
	Driveshaft bore diameter	26.025 – 26.045 (1.0246 – 1.0254)	_____
	Carrier-to-driveshaft clearance	0.045 – 0.086 (0.0018 – 0.0034)	0.14 (0.006)
	B18C4 engine:		
Differential pinion gear	Pinion shaft bore diameter	18.000 – 18.018 (0.7087 – 0.7094)	_____
	Carrier-to-pinion shaft clearance	0.013 – 0.047 (0.0005 – 0.0019)	0.095 (0.004)
	Driveshaft bore diameter	28.025 – 28.045 (1.1033 – 1.1041)	_____
	Carrier-to-driveshaft clearance	0.055 – 0.091 (0.0022 – 0.0036)	0.14 (0.006)
	Backlash	0.05 – 0.15 (0.002 – 0.006)	_____
Set ring to bearing outer race	Pinion gear bore diameter	18.042 – 18.066 (0.7103 – 0.7113)	_____
	Pinion gear-to-pinion shaft clearance	0.055 – 0.095 (0.0021 – 0.0037)	0.15 (0.006)
		0 – 0.1 (0 – 0.004)	Adjust with shim

Power Steering — Section 17

	MEASUREMENT	STANDARD (NEW)
Steering wheel	Play at steering wheel circumference	0 – 10 (0 – 0.4)
	Starting load at steering wheel circumference N (kgf, lbf) Engine running	30 (3.1, 6.8)
Pump	Pump pressure with valve closed (oil temp./speed: 40°C (105°F) min./idle. Do not run for more than 5 seconds). kPa (kgf/cm ² , psi)	D16W3, D16W4, B18C4 engines All except D16W3, D16W4, B18C4 engines 6,400 – 7,400 (65 – 75, 924 – 1,067) 5,400 – 6,400 (55 – 65, 782 – 924)
	Recommended power steering fluid Fluid capacity System LHD model ℓ (US qt, Imp qt) Reservoir RHD model	Honda Power Steering Fluid-V, S or II 1.0 (1.06, 0.88) 0.9 (0.95, 0.79) 0.4 (0.42, 0.35)
Power steering belt*	Deflection with 98 N (10 kgf, 22 lbf) between pulleys	All except B18C4 engine B18C4 engine 10.5 – 14.0 (0.41 – 0.55) with used belt 7.5 – 10.0 (0.30 – 1.39) with new belt 11.5 – 13.5 (0.45 – 0.53) with used belt 8.0 – 10.0 (0.31 – 1.39) with new belt
	Tension measured with belt tension gauge N (kgf, lbf)	All except B18C4 engine B18C4 engine 340 – 490 (35 – 50, 77 – 110) with used belt 640 – 780 (65 – 80, 143 – 176) with new belt 390 – 540 (40 – 55, 88 – 110) with used belt 740 – 880 (75 – 90, 165 – 198) with new belt

*: When using a new belt, adjust deflection or tension to new values. Run the engine for 5 minutes then turn it off. Readjust the deflection or tension to used belt values.

Suspension — Section 18

Suspension — Section 18

	MEASUREMENT				STANDARD (NEW)	SERVICE LIMIT
Wheel alignment	Camber	Front	All except B18C4 engine		0° ± 1°	_____
			B18C4 engine		-0°07' ± 1°	_____
		Rear			-0°50' ± 45'	_____
					1°10' ± 1°	_____
	Caster		Front		0 ± 2.0 (0 ± 0.08)	_____
	Total toe		Front			
			Rear		In 2.3 ± 2 (0.09 ± 0.08)	_____
	Front wheel turning angle	Inward wheel				
			All except B18C4 engine		36° ± 2°	_____
			B18C4 engine		40° ± 2°	_____
			Outward wheel (Reference)			
All except B18C4 engine				30°	_____	
B18C4 engine				33°	_____	
Wheel	Rim runout	Aluminum wheel	Axial	0 - 0.3 (0 - 0.01)	1.6 (0.06)	
			Radial	0 - 0.3 (0 - 0.01)	1.0 (0.04)	
		Steel wheel	Axial	0 - 0.7 (0 - 0.03)	1.7 (0.07)	
			Radial	0 - 0.5 (0 - 0.02)	1.0 (0.04)	
Wheel bearing	End play	Front		0 - 0.05 (0 - 0.002)	_____	
		Rear		0 - 0.05 (0 - 0.002)	_____	

Brakes — Section 19

Brakes — Section 19						
	MEASUREMENT		STANDARD (NEW)		SERVICE LIMIT	
Parking brake lever	Play in stroke at 196 N (20 kgf, 44 lbf) lever force		To be locked when pulled 6 – 10 notches		_____	
Foot brake pedal	Pedal height (with floor mat removed) LHD model M/T		157 (6.18)		_____	
	A/T		162 (6.38)		_____	
	RHD model M/T		154 (6.06)		_____	
	A/T		159 (6.30)		_____	
	Free play		1 – 5 (0.04 – 0.20)		_____	
Disc brake	Disc thickness	B18C4 engine Front	22.9 – 23.1 (0.90 – 0.91)		19.0 (0.75)	
		All except B18C4 engine Front	20.9 – 21.1 (0.82 – 0.83)		19.0 (0.75)	
		Rear	9.9 – 10.1 (0.39 – 0.40)		8.0 (0.31)	
	Disc runout		_____		0.10 (0.004)	
	Disc parallelism		_____		0.015 (0.0006)	
	Pad thickness	Front	11.0 – 11.7 (0.43 – 0.46)		1.6 (0.06)	
		B18C4 engine Rear	8.3 – 9 (0.33 – 0.35)		1.6 (0.06)	
		All except B18C4 engine Rear	7.3 – 8 (0.29 – 0.31)		1.6 (0.06)	
Rear brake drum	I.D.		203.20 – 203.33 (8.000 – 8.005)		204 (8.03)	
	Lining thickness		5.0 (0.20)		2.0 (0.08)	
Brake booster	Characteristics at 196 N (20 kgf, 44 lbf) pedal force.		Vacuum mmHg (inHg)		Line pressure kPa (kg/cm ² , psi)	
			0 (0)		1,280 (13.1, 186)	
			300 (11.8)		5,390 (55.0, 782)	
	model with Rear Drum	500 (19.7)		8,130 (82.9, 1,179)		
		All except B18C4 engine model with Rear Disk		0 (0)		950 (9.7, 138)
		300 (11.8)		5,520 (56.3, 801)		
	B18C4 engine model with Rear Disk	500 (19.7)		8,570 (87.4, 1,240)		
		0 (0)		830 (8.5, 121)		
300 (11.8)		4,840 (49.4, 702)				
		500 (19.7)		7,520 (76.7, 1,090)		

Standards and Service Limits

Air Conditioning — Section 22

Unit of length: mm (in)

	MEASUREMENT	STANDARD (NEW)
Air conditioning system SANDEN	Lubricant type: SP – 10 (P/N 38897 – P13 – 003, 38898 – P13 – 003 or 38899 – P13 – A01) (For Refrigerant: HFC-134a (R-134a))	
	Lubricant capacity mℓ (fl oz, Imp oz)	Condenser Evaporator Line or hose Receiver
DENSO	Lubricant type: ND – OIL8 (P/N 38897 – PR7 – 003, 38898 – PR7 – 003 or 38899 – PR7 – A01) (For Refrigerant: HFC-134a (R-134a))	
	Lubricant capacity mℓ (fl oz, Imp oz)	Condenser Evaporator Line or hose Receiver
Compressor SANDEN	Lubricant type: SP – 10	
	Lubricant capacity mℓ (fl oz, Imp oz) Field coil resistance at 20°C (68°F) Ω Pulley-to-pressure plate clearance	130 (4.4, 4.6) 3.05 – 3.35 0.5 ± 0.15 (0.02 ± 0.006)
DENSO	Lubricant type: ND – OIL8	
	Lubricant capacity mℓ (fl oz, Imp oz) Stator coil resistance at 20°C (68°F) Ω Pulley-to-pressure plate clearance	120 (4, 4.2) 3.4 – 3.8 0.5 ± 0.15 (0.02 ± 0.006)
Compressor belt*	Deflection with 98 N (10 kgf, 22 lbf) between pulleys B18C4 engine	7.5 – 9.5 (0.30 – 0.37) with used belt 5.0 – 7.0 (0.20 – 0.28) with new belt
	All except B18C4 engine	7.5 – 9.5 (0.30 – 0.37) with used belt 5.0 – 6.5 (0.20 – 0.26) with new belt
	Belt tension N (kgf, lbf) Measured with belt tension gauge B18C4 engine	390 – 540 (40 – 55, 88 – 120) with used belt 740 – 880 (75 – 90, 170 – 200) with new belt
	All except B18C4 engine	340 – 490 (35 – 50, 80 – 110) with used belt 690 – 830 (70 – 85, 150 – 190) with new belt

*: When using a new belt, adjust deflection or tension to new values. Run the engine for 5 minutes then turn it off.
Readjust deflection or tension to used belt values.

Design Specifications

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	ITEM		METRIC	ENGLISH	NOTES
DIMENSIONS	Overall Length		4,425 mm	174.2 in	
	Overall Width		1,695 mm	66.7 in	
	Overall Height		1,440 mm	56.7 in	
	Wheelbase		2,620 mm	103.1 in	
	Track	Front			
		B18C4 engine	1,465 mm	57.7 in	
		Except B18C4 engine	1,475 mm	58.1 in	
		Rear	1,470 mm	57.9 in	
	Wheel Arch	Front	638 mm	25.1 in	
		Rear	650 mm	25.6 in	
	Ground Clearance		150 mm	5.9 in	
	Seating Capacity		Five		
WEIGHT KE Model	Curb Weight				
	1.4i with SRS	M/T	1,144 kg	2,522 lbs	
	1.4i with SRS and P/W	M/T	1,147 kg	2,529 lbs	
	1.4i with SRS, ABS and P/W	M/T	1,170 kg	2,579 lbs	
	1.4i with SRS and P/W	A/T	1,157 kg	2,551 lbs	
	1.5iVTEC with SRS, P/W and A/C	M/T	1,170 kg	2,579 lbs	
	1.5iVTEC with SRS, ABS, P/W and A/C	M/T	1,180 kg	2,601 lbs	
	1.6iLS with SRS, ABS, P/W and A/C	M/T	1,190 kg	2,623 lbs	
	1.6iLS with SRS, ABS, P/W and A/C	A/T	1,222 kg	2,694 lbs	
	1.6iES with SRS, ABS, S/R, P/W and A/C	M/T	1,202 kg	2,650 lbs	
	1.6iES with SRS, ABS, S/R, P/W and A/C	A/T	1,231 kg	2,714 lbs	
	1.8VTi with SRS, ABS, S/R, P/W and A/C	M/T	1,289 kg	2,842 lbs	
	2.0iTDS with SRS, ABS, P/W and A/C	M/T	1,301 kg	2,868 lbs	
	Weight Distribution (Front/Rear)				
	1.4i with SRS	M/T	634/510 kg	1,398/1,124 lbs	
	1.4i with SRS and P/W	M/T	636/511 kg	1,402/1,127 lbs	
	1.4i with SRS, ABS and P/W	M/T	662/508 kg	1,459/1,120 lbs	
	1.4i with SRS and P/W	A/T	643/514 kg	1,418/1,133 lbs	
	1.5iVTEC with SRS, P/W and A/C	M/T	665/505 kg	1,466/1,113 lbs	
	1.5iVTEC with SRS, ABS, P/W and A/C	M/T	672/508 kg	1,481/1,120 lbs	
	1.6iLS with SRS, ABS, P/W and A/C	M/T	670/520 kg	1,477/1,146 lbs	
	1.6iLS with SRS, ABS, P/W and A/C	A/T	715/507 kg	1,576/1,118 lbs	
	1.6iES with SRS, ABS, S/R, P/W and A/C	M/T	678/524 kg	1,495/1,155 lbs	
	1.6iES with SRS, ABS, S/R, P/W and A/C	A/T	708/523 kg	1,561/1,153 lbs	
	1.8VTi with SRS, ABS, S/R, P/W and A/C	M/T	752/537 kg	1,658/1,184 lbs	
	2.0iTDS with SRS, ABS, P/W and A/C	M/T	787/514 kg	1,735/1,133 lbs	
WEIGHT KS Model	Curb Weight				
	1.4i with SRS	M/T	1,144 kg	2,522 lbs	
	1.4i with SRS and ABS	M/T	1,152 kg	2,540 lbs	
	1.5iVTEC with SRS and P/W	M/T	1,149 kg	2,533 lbs	
	1.5iVTEC with SRS, ABS and P/W	M/T	1,159 kg	2,555 lbs	
	1.6iLS with SRS, ABS and P/W	M/T	1,166 kg	2,571 lbs	
	1.6iLS with SRS, ABS and P/W	A/T	1,193 kg	2,630 lbs	
	Weight Distribution (Front/Rear)				
	1.4i with SRS	M/T	635/509 kg	1,400/1,122 lbs	
	1.4i with SRS and ABS	M/T	641/511 kg	1,413/1,127 lbs	
	1.5iVTEC with SRS and P/W	M/T	648/501 kg	1,429/1,104 lbs	
	1.5iVTEC with SRS, ABS and P/W	M/T	655/504 kg	1,444/1,111 lbs	
	1.6iLS with SRS, ABS and P/W	M/T	653/513 kg	1,440/1,131 lbs	
	1.6iLS with SRS, ABS and P/W	A/T	679/514 kg	1,497/1,133 lbs	

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Design Specifications

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	ITEM		METRIC	ENGLISH	NOTES
WEIGHT KG Model	Curb Weight				
	1.4i with SRS	M/T	1,143 kg	2,520 lbs	
	1.4i with SRS and ABS	M/T	1,156 kg	2,549 lbs	
	1.4i with SRS, ABS and S/R	M/T	1,171 kg	2,581 lbs	
	1.4i with SRS, ABS and P/W	M/T	1,153 kg	2,542 lbs	
	1.4i with SRS, ABS, S/R and P/W	M/T	1,172 kg	2,584 lbs	
	1.4iS with SRS	M/T	1,142 kg	2,518 lbs	
	1.4iS with P/W	M/T	1,135 kg	2,502 lbs	
	1.4iS with SRS and P/W	M/T	1,143 kg	2,520 lbs	
	1.4iS with SRS, P/W and A/C	M/T	1,161 kg	2,559 lbs	
	1.4iS with SRS, S/R and P/W	M/T	1,162 kg	2,562 lbs	
	1.4iS with SRS, ABS and P/W	M/T	1,153 kg	2,542 lbs	
	1.4iS with SRS, ABS, P/W and A/C	M/T	1,171 kg	2,581 lbs	
	1.4iS with SRS, ABS, S/R and P/W	M/T	1,172 kg	2,584 lbs	
	1.4iS with SRS and P/W	A/T	1,166 kg	2,571 lbs	
	1.4iS with SRS, ABS and P/W	A/T	1,158 kg	2,553 lbs	
	1.4iSR with SRS, ABS, S/R and P/W	M/T	1,170 kg	2,579 lbs	
	1.4iSR with SRS, P/W and A/C	M/T	1,159 kg	2,555 lbs	
	1.4iSR with SRS, ABS, P/W and A/C	M/T	1,169 kg	2,578 lbs	
	1.5iVTEC with SRS	M/T	1,148 kg	2,531 lbs	
	1.5iVTEC with SRS and P/W	M/T	1,150 kg	2,535 lbs	
	1.5iVTEC with SRS, ABS and P/W	M/T	1,160 kg	2,557 lbs	
	1.5iVTEC with SRS, ABS, S/R and P/W	M/T	1,161 kg	2,559 lbs	
	1.6iLS with SRS and P/W	M/T	1,152 kg	2,540 lbs	
	1.6iLS with SRS, ABS, P/W and A/C	M/T	1,178 kg	2,597 lbs	
	1.6iLS with SRS, ABS, S/R and P/W	M/T	1,180 kg	2,601 lbs	
	1.6iLS with SRS, ABS, P/W and A/C	A/T	1,200 kg	2,646 lbs	
	1.6iLS with SRS, ABS, S/R and P/W	A/T	1,183 kg	2,608 lbs	
	1.6iSR with SRS, S/R and P/W	M/T	1,176 kg	2,593 lbs	
	1.6iSR with SRS, ABS, S/R and P/W	M/T	1,186 kg	2,614 lbs	
	1.6iSR with SRS, ABS, P/W and A/C	M/T	1,185 kg	2,612 lbs	
	1.6iES with SRS, ABS, P/W and A/C	M/T	1,193 kg	2,630 lbs	
	1.6iES with SRS, ABS, S/R and P/W	M/T	1,194 kg	2,632 lbs	
	1.8VTi with SRS, ABS, P/W and A/C	M/T	1,267 kg	2,793 lbs	
	1.8VTi with SRS, ABS, S/R and P/W	M/T	1,269 kg	2,798 lbs	
	2.0iTD with SRS	M/T	1,259 kg	2,776 lbs	
	2.0iTD with SRS and P/W	M/T	1,260 kg	2,778 lbs	
	2.0iTD with SRS, P/W and A/C	M/T	1,278 kg	2,817 lbs	
	2.0iTD with SRS, ABS, P/W and A/C	M/T	1,298 kg	2,862 lbs	
	2.0iTDS with SRS, ABS and P/W	M/T	1,282 kg	2,827 lbs	
	2.0iTDS with SRS, ABS, P/W and A/C	M/T	1,300 kg	2,866 lbs	
	2.0iTDS with SRS, ABS, S/R, P/W and A/C	M/T	1,320 kg	2,910 lbs	

	ITEM	METRIC	ENGLISH	NOTES
WEIGHT KG Model	Weight Distribution (Front/Rear)			
	1.4i with SRS M/T	633/510 kg	1,396/1,124 lbs	
	1.4i with SRS and ABS M/T	641/515 kg	1,413/1,136 lbs	
	1.4i with SRS, ABS and S/R M/T	652/519 kg	1,437/1,144 lbs	
	1.4i with SRS, ABS and P/W M/T	642/511 kg	1,415/1,127 lbs	
	1.4i with SRS, ABS, S/R and P/W M/T	652/520 kg	1,438/1,146 lbs	
	1.4iS with SRS M/T	634/508 kg	1,398/1,120 lbs	
	1.4iS with P/W M/T	628/507 kg	1,384/1,118 lbs	
	1.4iS with SRS and P/W M/T	635/508 kg	1,400/1,120 lbs	
	1.4iS with SRS, P/W and A/C M/T	655/506 kg	1,444/1,115 lbs	
	1.4iS with SRS, S/R and P/W M/T	645/517 kg	1,422/1,140 lbs	
	1.4iS with SRS, ABS and P/W M/T	642/511 kg	1,415/1,127 lbs	
	1.4iS with SRS, ABS, P/W and A/C M/T	662/509 kg	1,459/1,122 lbs	
	1.4iS with SRS, ABS, S/R and P/W M/T	652/520 kg	1,438/1,146 lbs	
	1.4iS with SRS and P/W A/T	661/505 kg	1,458/1,113 lbs	
	1.4iS with SRS, ABS and P/W A/T	648/510 kg	1,429/1,124 lbs	
	1.4iSR with SRS, ABS, S/R and P/W M/T	651/519 kg	1,435/1,144 lbs	
	1.4iSR with SRS, P/W and A/C M/T	654/505 kg	1,442/1,113 lbs	
	1.4iSR with SRS, ABS, P/W and A/C M/T	661/508 kg	1,458/1,120 lbs	
	1.5iVTEC with SRS M/T	643/505 kg	1,418/1,113 lbs	
	1.5iVTEC with SRS and P/W M/T	644/506 kg	1,420/1,115 lbs	
	1.5iVTEC with SRS, ABS and P/W M/T	651/509 kg	1,435/1,122 lbs	
	1.5iVTEC with SRS, ABS, S/R and P/W M/T	642/519 kg	1,415/1,144 lbs	
	1.6iLS with SRS and P/W M/T	643/509 kg	1,418/1,122 lbs	
	1.6iLS with SRS, ABS, P/W and A/C M/T	668/510 kg	1,473/1,124 lbs	
	1.6iLS with SRS, ABS, S/R and P/W M/T	660/520 kg	1,455/1,146 lbs	
	1.6iLS with SRS, ABS, P/W and A/C A/T	698/502 kg	1,539/1,107 lbs	
	1.6iLS with SRS, ABS, S/R and P/W A/T	669/514 kg	1,475/1,133 lbs	
	1.6iSR with SRS, S/R and P/W M/T	655/521 kg	1,444/1,149 lbs	
	1.6iSR with SRS, ABS, S/R and P/W M/T	662/524 kg	1,459/1,155 lbs	
	1.6iSR with SRS, ABS, P/W and A/C M/T	672/513 kg	1,481/1,131 lbs	
	1.6iES with SRS, ABS, P/W and A/C M/T	679/514 kg	1,497/1,133 lbs	
	1.6iES with SRS, ABS, S/R and P/W M/T	669/525 kg	1,475/1,157 lbs	
	1.8VTi with SRS, ABS, P/W and A/C M/T	743/524 kg	1,638/1,155 lbs	
	1.8VTi with SRS, ABS, S/R and P/W M/T	734/535 kg	1,618/1,180 lbs	
	2.0iTD with SRS M/T	761/498 kg	1,678/1,098 lbs	
	2.0iTD with SRS and P/W M/T	760/500 kg	1,676/1,102 lbs	
	2.0iTD with SRS, P/W and A/C M/T	780/498 kg	1,719/1,098 lbs	
	2.0iTD with SRS, ABS, P/W and A/C M/T	786/512 kg	1,733/1,129 lbs	
	2.0iTDS with SRS, ABS and P/W M/T	767/515 kg	1,691/1,136 lbs	
	2.0iTDS with SRS, ABS, P/W and A/C M/T	787/513 kg	1,735/1,131 lbs	
	2.0iTDS with SRS, ABS, S/R, P/W and A/C M/T	798/522 kg	1,759/1,151 lbs	
WEIGHT	Max. Permissible Weight			
	D14Z3, D14Z4, D15Z8 engines	1,620 kg	3,572 lbs	
	D16W3, D16W4 engines	1,670 kg	3,682 lbs	
	D18C4 engine	1,710 kg	3,770 lbs	
	Max. Permissible Axle Weight			
	Front D14Z3, D14Z4, D15Z8 engines	820 kg	1,808 lbs	
	D16W3, D16W4 engines	855 kg	1,885 lbs	
	B18C4 engine	880 kg	1,940 lbs	
	Rear D14Z3, D14Z4, D15Z8 engines	835 kg	1,841 lbs	
	D16W3, D16W4, B18C4 engines	840 kg	1,852 lbs	

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Design Specifications

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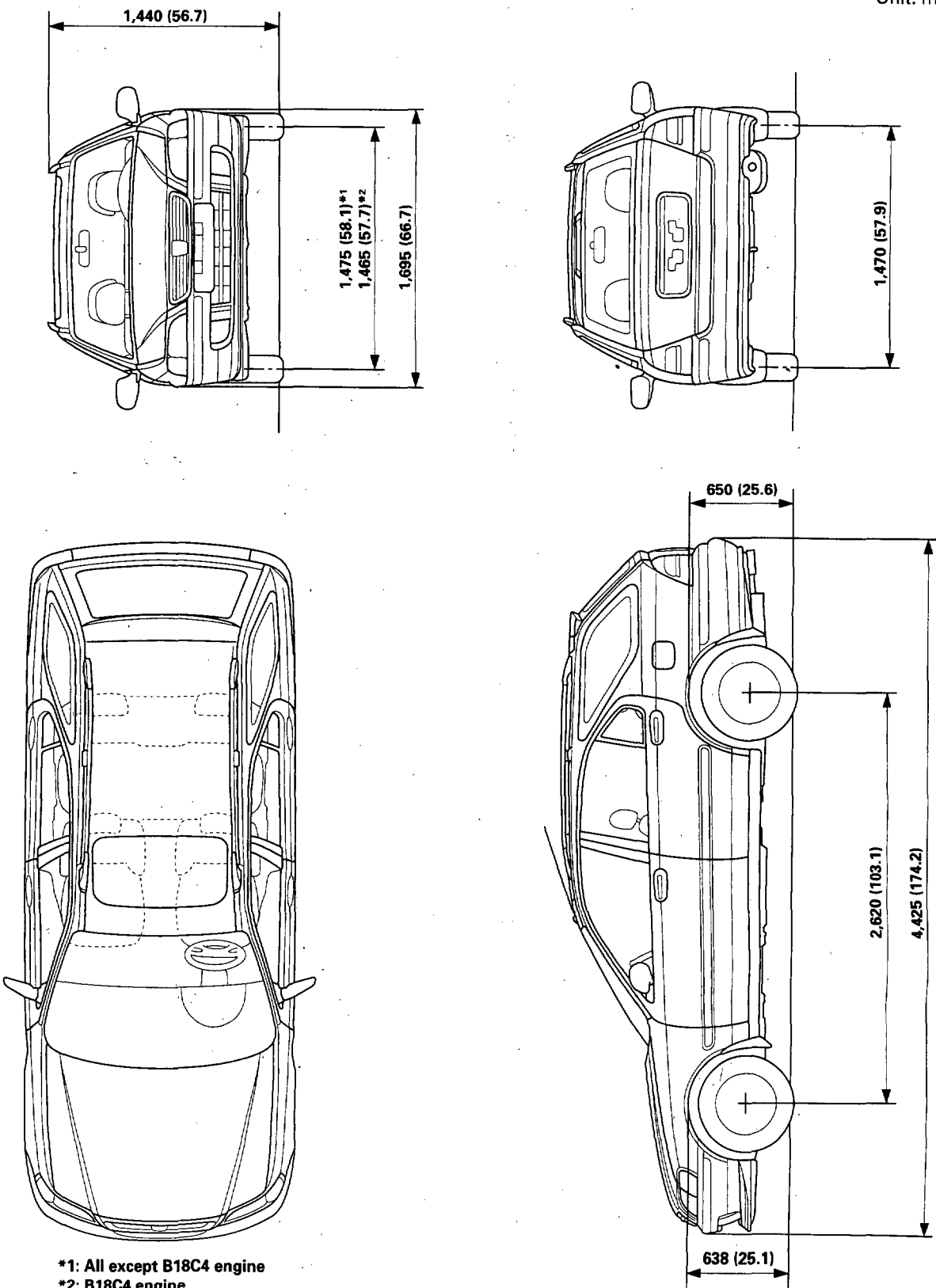
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	ITEM		DESCRIPTION				NOTES
ENGINE	Type	D14Z3, D14Z4, D16W3 engines	Water-cooled, 4-stroke SOHC gasoline engine Water-cooled, 4-stroke SOHC VTEC gasoline engine Water-cooled, 4-stroke SOHC VTEC-E gasoline engine Water-cooled, 4-stroke DOHC VTEC gasoline engine Inline 4-cylinder, transverse				
		D16W4 engine					
		D15Z8 engine					
		B18C4 engine					
	Cylinder arrangement						
	Bore and Stroke		METRIC		ENGLISH		
		D14Z3, D14Z4 engines	75.0 x 79.0 mm		2.95 x 3.11 in		
		D15Z8 engine	75.0 x 84.5 mm		2.95 x 3.33 in		
		D16W3, D16W4 engines	75.0 x 90.0 mm		2.95 x 3.54 in		
		B18C4 engine	81.0 x 87.2 mm		3.19 x 3.43 in		
	Displacement		1,396 cm ³ (ml)		85.2 cu-in		
		D14Z3, D14Z4 engines	1,493 cm ³ (ml)		91 cu-in		
		D15Z8 engine	1,590 cm ³ (ml)		97 cu-in		
		D16W3, D16W4 engines	1,797 cm ³ (ml)		110 cu-in		
		B18C4 engine					
	Compression Ratio		9.0				
		D14Z3, D14Z4 engines	9.6				
	D15Z8, D16W3, D16W4 engines	10.0					
	B18C4 engine						
Valve Train	D14Z3, D14Z4, D16W3, D16W4 engines	Belt driven SOHC 4 valves per cylinder					
	D15Z8 engine	Belt driven SOHC VTEC 4 valves per cylinder					
	B18C4 engine	Belt driven DOHC VTEC 4 valves per cylinder					
Lubrication System		Forced and wet sump, trochoid pump					
Oil Pump Discharge Rate	SOHC engine	7.11 cm ³ /rev		0.433 cu-in/rev			
	DOHC engine	9.32 cm ³ /rev		0.569 cu-in/rev			
Water Pump Discharge Rate at 6,000 rpm	SOHC engine	125 ℓ (132 US qt, 110 Imp qt)/minute					
	DOHC engine	140 ℓ (148 US qt, 123 Imp qt)/minute					
Fuel Required		Premium UNLEADED gasoline with a Research Octane Number (RON) of 95 or higher.					
STARTER	Make/Type, Output	VALEO, MITSUBA/Gear Reduction, 1.0 kW					
	Normal Output	1.0 kW					
	Normal Voltage	12 V					
	Hour Rating	30 seconds					
	Direction of Rotation	Clockwise as view from gear end					
CLUTCH	Type	M/T A/T	Single plate dry, diaphragm spring Torque converter				
	Facing Area	All M/T Except B18C4 engine M/T B18C4 engine	176 cm ² 203 cm ²		27 sq-in 31 sq-in		
TRANSMISSION	Type	M/T A/T	Synchronized 5-speed forward, 1 reverse 4-speed automatic with lock-up clutch, 1 reverse Direct/1 : 1				
	Primary Reduction	Type/Ratio					
	Manual Transmission		D14Z3 D14Z4	D16W3 D16W4	D15Z8	D18C4	
	Gear Ration						
		1st	3.250	3.250	3.250	3.230	
		2nd	1.782	1.782	1.782	1.900	
		3rd	1.172	1.172	1.250	1.360	
		4th	0.937	0.937	0.937	1.034	
		5th	0.750	0.750	0.750	0.848	
		Reverse	3.153	3.153	3.153	3.000	
		Final	4.437	4.437	3.888	4.266	
		Type	Single helical gear				
	Automatic Transmission						
	Gear Ration						
		1st	2.600				
		2nd	1.393				
		3rd	0.975				
	4th	0.772					
	Reverse	1.954					
	Ratio	4.357					
	Final Reduction Gear	Single helical gear					
	Type						

	ITEM		METRIC	ENGLISH	NOTES
AIR CONDITIONING	Cooling Capacity		4,040 kcal/h	16,030 BTU/h	
	Compressor:		Scroll		
	SANDEN	Type	85.7 cm ³ /rev	5.22 cu-in/rev	
		Capacity	10,000 rpm (min ⁻¹)		
		Max. Speed	SP - 10		
		Lubricant Type	130 cm ³	4.4 fl oz, 4.6 Imp oz	
	DENSO	Lubricant Capacity	Swash-plate		
		Type	10		
		No. of Cylinder	155.3 cm ³ /rev	94.7 cu-in/rev	
		Capacity	7,600 rpm (min ⁻¹)		
	Max. Speed	ND - OIL8			
	Lubricant Type	120 cm ³	4 fl oz, 4.2 Imp oz		
	Lubricant Capacity				
	Condenser	Type	Corrugated fin		
	Evaporator	Type	Corrugated fin		
	Blower	Type	Sirocco fan		
		Motor Input	200 W/12 V max.		
		Speed Control	4-speed		
		Max. Capacity	410 m ³ /h	14,500 cu-ft/h	
	Temp. Control	Type	Air Mix		
	Compressor Clutch	Type	Dry, single plate, poly-V belt drive		
		Power Consumption	42 W max/12 V		
		SANDEN	40 W max/12 V		
		DENSO			
	Refrigerant	Type	HFC - 134a (R - 134a)		
		Quantity	500 - 550 g	18 - 19 oz	
STEERING SYSTEM	Type		Power assisted, rack and pinion		
	Overall Ratio	All except B18C4 engine	17.1		
		B18C4 engine	17.5		
	Turns, Lock-to-Lock	All except B18C4 engine	3.48		
		B18C4 engine	3.23		
	Steering Wheel Dia.		380 mm	15.0 in	
SUSPENSION	Type	Front	Independent double wishbone, coil spring with stabilizer		
		Rear	Independent double wishbone, coil spring with stabilizer		
	Shock Absorber	Front and Rear	Telescopic, hydraulic nitrogen gas-filled		
WHEEL ALIGNMENT	Camber	Front	0°*1, -0°07'*2		*1: All except B18C4 engine *2: B18C4 engine
		Rear	-0° 50'		
	Caster	Front	1° 10'		
	Total Toe	Front	0 mm	0 in	
		Rear	In 2.3 mm	In 0.09 in	
BRAKE SYSTEM	Type	Front	Power-assisted self-adjusting ventilated disc		
		Rear	Power-assisted self-adjusting drum		
	Pad Surface Area	All except B18C4 engine	48.7 cm ² x 2	7.6 sq-in x 2	
		B18C4 engine	58.0 cm ² x 2	9.0 sq-in x 2	
		All except B18C4 engine	20.4 cm ² x 2	3.2 sq-in x 2	
		B18C4 engine	28.3 cm ² x 2	4.4 sq-in x 2	
	Lining Surface Area	Rear	65.7 cm ² x 2	10.2 sq-in x 2	
	Parking Brake	Type	Mechanical actuating, rear two wheel brakes		Drum brake
TIRE	Size and Pressure		See tire label		
ELECTRICAL	Battery		12 V - 36 AH/5 HR		*: 1.8 VTi
	Starter		12 V - 1.0 kW		
	Alternator		12 V - 75 A, *90 A		
	Fuses	In Under-dash Fuse/Relay Box	7.5 A, 10 A, 15 A, 20 A, 30 A		
		In Under-hood Fuse/Relay Box	7.5 A, 10 A, 15 A, 20 A, 30 A		
		In under-hood ABS Fuse Box	40 A, 50 A, 80 A, *100 A		
		High/Low	20 A, 40 A		
	Headlights		12 V - 60/55 W (H4)		
	Front Turn Signal Lights		12 V - 21 W		
	Front Parking Lights		12 V - 5 W		
	Side Turn Signal Lights		12 V - 5 W		
	Rear Turn Signal Lights		12 V - 21 W		
	Brake/Tail-lights		12 V - 21/5 W		
	Back-up Lights		12 V - 21 W		
	Front Fog Light*1		12 V - 55 W		
	Rear Fog Light		12 V - 21 W		
	License Plate Lights		12 V - 5 W		
	Front Ceiling Light		12 V - 5 W		
	Rear Ceiling Light		12 V - 5 W		
	Gauge Lights		12 V - 3.4 W		
	Glove Box Light		12 V - 5 W		
	Indicator Lights		12 V - 0.84 W, 0.91 W, 1.12 W, 1.4 W		
	Illumination and Pilot Lights		12 V - 0.56 W, 0.84 W, 0.91 W, 1.12 W, 1.2 W, 1.4 W, LED		
	Heater Illumination Lights		12 V - 1.4 W		
	High mount brake Light		12 V - 21 W		
			LED		

Body Specifications

Unit: mm (in)





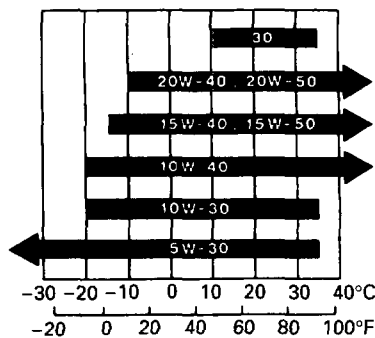
Maintenance

Lubrication Points	3-2
Maintenance Schedule	3-4

Lubrication Points

For the details of lubrication points and type of lubricants to be applied, refer to the illustrated index and various work procedure (such as Assembly/Reassembly, Replacement, Overhaul, Installation, etc.) contained in each section.

No.	LUBRICATION POINTS		LUBRICANT
1	Engine		Always use a fuel-efficient oil is that says "API Service SG, SH or SJ." SAE Viscosity: See chart below.
2	Transmission	Manual	Honda Genuine MTF*1
		Automatic	Genuine Honda ATF PREMIUM (Automatic Transmission Fluid – PREMIUM) or DEXRON® II or III ATF
3	Brake line (Includes Anti-lock brake line)		Brake fluid DOT3 or DOT4*2
4	Clutch line		Brake fluid DOT3 or DOT4*2
5	Release fork (Manual transmission)		Urea Grease UM264 (P/N 41211 – PY5 – 305)
6	Throttle cable end (Dashboard lower panel hole)		Silicone grease
7	Throttle cable end (Throttle link)		Multi-purpose grease
8	Brake master cylinder pushrod		
9	Clutch master cylinder pushrod		
10	Hood hinges and hood lock		
11	Battery terminals		
12	Fuel fill lid		
13	Door hinges, upper and lower		
14	Door open detent		
15	Tailegate hinges and latch		
16	Rear brake calipers (Connection holes parking brake lever to parking brake cable)		Rust-preventive agent
17	Power steering system		Honda power steering fluid (V, II or S)
18	Air conditioning compressor		Compressor oil: SANDEN: SP-10 (P/N 38897 – P13 – 003, 38898 – P13 – 003 or 38899 – P13 – A01) DENSO: ND-OIL8 (38897 – PR7 – 003, 38898 – PR7 – 003 or 38899 – PR7 – A01) (For Refrigerant: HFC-134a (R-134a))



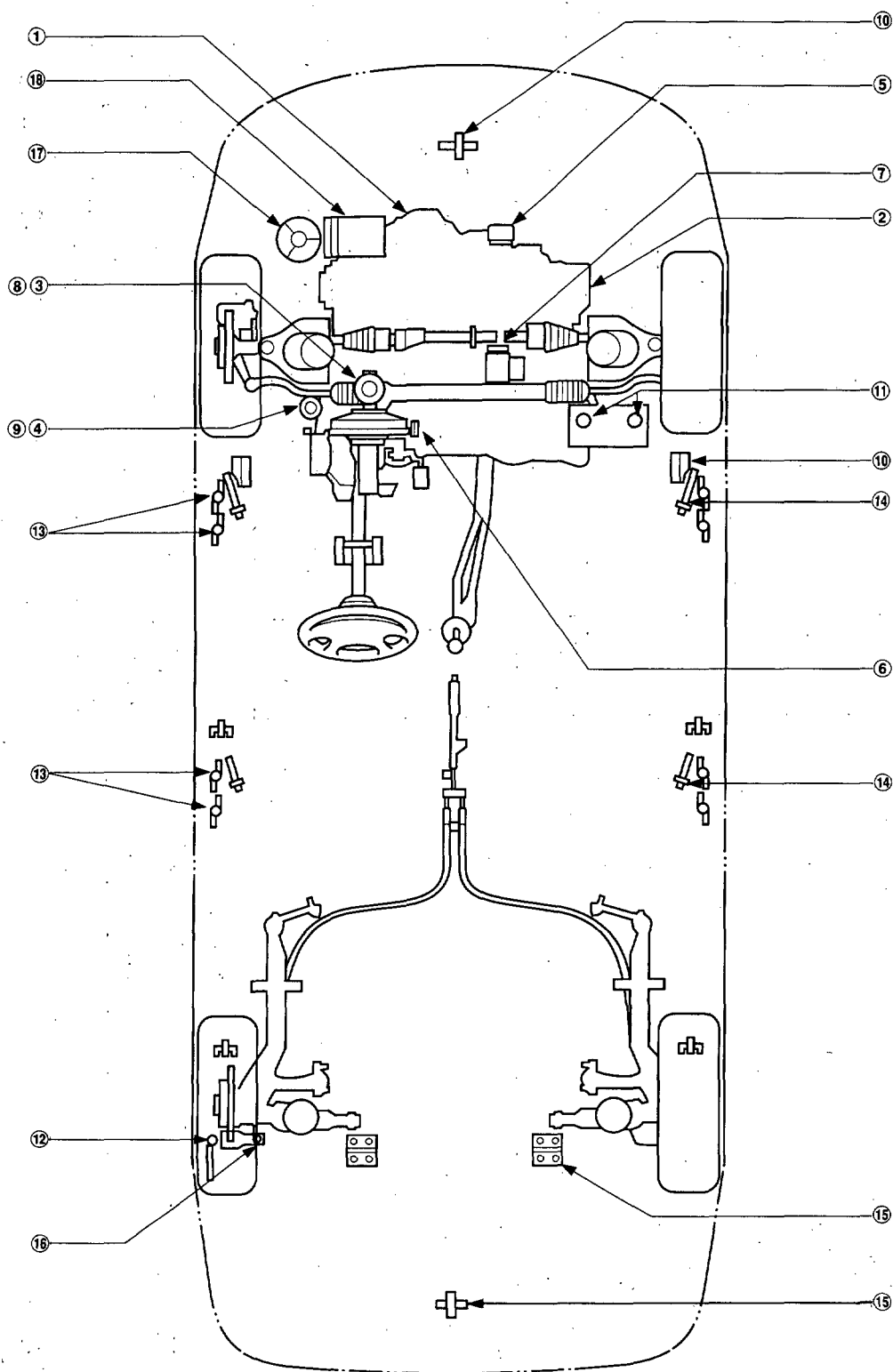
Recommended engine oil
Engine oil viscosity for
ambient temperature ranges

⚠ CAUTION

Used engine oil may cause skin cancer if repeatedly left in contact with the skin for prolonged periods. Although this is unlikely unless you handle used oil on a daily basis, it is still advisable to thoroughly wash your hands with soap and water as soon as possible after handling used oil.

*1: If Honda MTF is not available, you may use an API service SG, SH or SJ-rated motor oil with a viscosity of SAE 10W-30 or 10W-40 temporarily. Motor oil can cause increased transmission wear and higher shifting effort.

*2: We recommend Genuine Honda Brake Fluid.



Maintenance Schedule

Normal Conditions

Follow the Normal Maintenance Schedule if the severe driving conditions specified in the Severe Conditions Maintenance Schedule on pages 3-6 and 3-7 do not apply.

Service at the indicated distance or time whichever comes first.	km x 1,000 miles x 1,000 months	15	30	45	60	75	90	105	120	135	150	165	SECTION and PAGE
		9	18	27	36	45	54	63	72	81	90	99	
Replace engine oil and oil filter		●	●	●	●	●	●	●	●	●	●	●	*8-6, 7, 8, 9
Replace air cleaner element			●	●			●			●			*11-A-84
Inspect valve clearance			●	●			●			●			*6-10, 11 *6-52, 53
Replace fuel filter			●	●			●			●			*11-A-73 *11-B-66
Replace spark plugs			●	●			●			●			*4-28
Replace timing belt and inspect water pump									●				*6-17, 18, 19 *6-57, 58, 59 *10-14
Inspect and adjust drive belts			●	●			●			●			*4-41 *17-14 *22-39
Inspect idle speed								●					*11-A-60 *11-B-58 11-C-78, 79
Replace engine coolant					○	●			●			●	*10-7
Replace transmission fluid (○: Inspect)	M/T								●				13-2
	A/T		○*1			●			○		●		*14-54
Inspect front and rear brakes		●	●	●	●	●	●	●	●	●	●	●	*19-A-9, 11, 13, 14, 15, 20, 22, 23, 25, 28, 29
Replace brake fluid		Every 3 years											*19-A-7
Check parking brake adjustment		●	●	●	●	●	●	●	●	●	●	●	*19-A-6
Replace pollen filter		Every 30,000 km (18,000 miles) or 12 months											*21-22 *22-18
Check lights alignment		●	●	●	●	●	●	●	●	●	●	●	*23-D-8
Test drive (noise, stability, dashboard operations)		●	●	●	●	●	●	●	●	●	●	●	—

*1: Inspect at 45,000 km (27,000 miles)/36 months, and every 45,000 km (27,000 miles)/36 months after replacement.

*2: We recommend Genuine Honda Brake Fluid.

*3: Refer to shop manual: 98 Civic Aerodeck MAINTENANCE, REPAIR and CONSTRUCTION (P/N 62S1E00)



Service at the indicated distance or time whichever comes first.	km x 1,000	15	30	45	60	75	90	105	120	135	150	165	NOTES	SECTION and PAGE
	miles x 1,000	9	18	27	36	45	54	63	72	81	90	99		
	months	12	24	36	48	60	72	84	96	108	120	132		
Visually inspect the following items:														
Tie rod ends, steering gearbox, and boots													• Check for correct installation and position; check for cracks, deterioration, rust, and leaks. • Check tightness of screws, nuts, and joints. If necessary, retighten.	—
Suspension components													• Check rack grease and steering linkage. • Check the boot for damage and leaking grease. • Check the fluid line for damage and leaks.	*17-24, 25
Driveshaft boots													• Check the bolts for tightness. • Check the all dust cover for deterioration and damage. • Check boots and boot band for cracks. • Check rack grease.	*18-8, 9, 10, 23, 24, 25
Brake hoses and lines (including ABS)		●	●	●	●	●	●	●	●	●	●	●	*19-A-4, 17, 18, 29	
Exhaust system													Check the master cylinder, proportioning control valve and ABS modulator for damage and leakage. Check the catalytic converter heat shield, exhaust pipe and muffler for damage, leaks and tightness.	*9-8, 9, 10, 11
Fuel lines and connections													Check fuel lines for loose connections, cracks and deterioration. Retighten loose connections and replace any damaged parts.	*11-A-62
Tyre condition													Check for pressure, puncture or cuts and irregular thread wear	—

*1: Refer to shop manual: 98 Civic Aerodeck MAINTENANCE, REPAIR and CONSTRUCTION (P/N 62S1E00)

Maintenance Schedule

Severe Conditions

Service at the indicated distance or time whichever comes first.	Interval																NOTES	SECTION and PAGE
	km x 1,000	7.5	15	22.5	30	37.5	45	52.5	60	67.5	75	82.5	90	97.5	105	112.5	120	
Replace engine oil and oil filter	4.5	6	12	18	24	30	36	42	48	54	60	66	72	78	84	90	96	*38-6, 7, 8, 9
Replace air cleaner element — Use normal schedule except in dusty conditions																		*311-A-84
Inspect valve clearance																		*36-10, 11 *36-52, 53
Replace fuel filter																		*311-A-73 *311-B-66
Replace spark plugs																		*34-28
Replace timing belt and inspect water pump																		*36-17, 18, 19 *36-57, 58, 59 *310-14
Inspect and adjust drive belts																		*34-41 *317-14 *322-39
Inspect idle speed																		*311-A-60 *311-B-58 11-C-78, 79
Replace engine coolant																		*310-7
Replace transmission fluid	M/T																	13-2
	A/T																	*314-54
Inspect front and rear brakes																		*319-A-9, 11, 13, 14, 15, 20, 22, 23, 25, 28, 29
Replace brake fluid																		*319-A-7
Check parking brake adjustment																		*319-A-6
Replace pollen filter																		*321-22 *322-18
Check lights alignment																		*323-D-8
Test drive (noise, stability, dashboard operations)																		—

*1: This belts should normally be replace at the intervals shown in the maintenance schedule. (Normal Conditions)
 Replace this belts at 75,000 km or 45,000 miles if you regularly drive your vehicle in one or more of these conditions.
 • In very high temperatures (43°C (110°F) above)
 • In very low temperatures (-29°C (-20°F) under)

*2: We recommend Genuine Honda Brake Fluid.

*3: Refer to shop manual: 98 Civic Aerodeck MAINTENANCE, REPAIR and CONSTRUCTION (P/N 62S1E00)



Service at the indicated distance or time whichever comes first.	Visually inspect the following items:																	SECTION and PAGE
	km x 1,000	7.5	15	22.5	30	37.5	45	52.5	60	67.5	75	82.5	90	97.5	105	112.5	120	
	miles x 1,000	4.5	9	13.5	18	22.5	27	31.5	36	40.5	45	49.5	54	58.5	63	67.5	72	
	months	6	12	18	24	30	36	42	48	54	60	66	72	78	84	90	96	
Tie rod ends, steering gearbox, and boots																		*17-24, 25
Suspension components																		*18-8, 9, 10, 23, 24, 25
Driveshaft boots																		*16-3
Brake hoses and lines (including ABS)																		*19-A-4, 17, 18, 29
Exhaust system																		*9-8, 9, 10, 11
Fuel lines and connections																		*11-A-62
Tyre condition																		---

*1: Refer to shop manual: 98 Civic Aerodeck MAINTENANCE, REPAIR and CONSTRUCTION (P/N 62S1E00)

Follow the Severe Maintenance Schedule if the customer's vehicle is driven MAINLY under one or more of the following conditions:

- Driving less than 8 km (5 miles) per trip or, in freezing temperatures, driving less than 16 km (10 miles) per trip.
- Driving in extremely hot [over 32°C, (90°F)] conditions.
- Extensive idling or long periods of stop-and-go driving.
- Trailer towing, driving with a car-top carrier, or driving in mountainous conditions.
- Driving on muddy, dusty, or de-iced roads.

NOTE: If the customer's vehicle is driven OCCASIONALLY under severe condition, you should follow the Normal Conditions Maintenance Schedule on pages 3-4 and 3-5.

Engine

D14Z3, D14Z4, D15Z8, D16W3, D16W4 engines have been added.
For related information, refer to the information below.

D14Z3 engine is D14A2 engine.

D14Z4 engine is D14A5 engine.

D15Z8 engine is D15Z3 engine.

D16W3 engine is D16Y2 engine.

D16W4 engine is D16Y4 engine.



Fuel and Emissions

D15Z8, B18C4 Engine 11-B-1

**D14Z3, D14Z4, D16W3, D16W4
Engine 11-C-1**



D15Z8, B18C4 Engine

NOTE: Refer to the D15Z8, B18C4 engine information in the 1998 Civic Aerodeck Shop Manual (P/N: 62S1E00).



D14Z3, D14Z4, D16W3, D16W4 Engine

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Fuel Injection Air Control System	11-C-84
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Emission Control System

Three Way Catalytic Converter	11-C-86
Evaporative Emission Controls	11-C-87



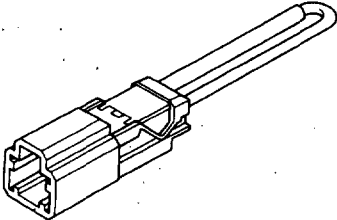
Outline of Model Changes

D14Z3, D14Z4, D16W3, D16W4 engine has been added for KE, KG, KS models. For related information, refer to the D14A7, D14A8, D16B2 engine information in the 1998 Civic Aerodeck Shop Manual (P/N: 62S1E00), and changed following:

- Component locations
- Vacuum Connections
- Electrical Connections
- Troubleshooting guide
- Engine Control Module Terminal Arrangement
- Troubleshooting flowcharts
- Three way catalytic converter
- Evaporative emission controls

Special Tools

Ref. No	Tool Number	Description	Qty	Remark
①	07PAZ – 0010100	SCS Short Connector	1	Component Tools
②	07406 – 0040002	Fuel Pressure Gauge Set	1	
②-1	07406 – 0040202	Fuel Pressure Hose Assembly	(1)	



①



②



②-1

Component Locations



Index

CRANKSHAFT

**POSITION/
TOP DEAD CENTER/
CYLINDER
POSITION
(CKP/TDC/CYP) SENSOR**
(Built into the distributor)
Troubleshooting, page 11-C-56

VEHICLE SPEED SENSOR (VSS)
Troubleshooting, page 11-C-58

**LOCK-UP CONTROL SOLENOID
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**INTAKE AIR TEMPERATURE
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**ENGINE COOLANT
TEMPERATURE
(ECT) SENSOR**
Troubleshooting, page 11-C-35

**PRIMARY HEATED OXYGEN SENSOR
(PRIMARY HO₂S) (SENSOR 1)**
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**MANIFOLD ABSOLUTE
PRESSURE (MAP) SENSOR**
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**IDLE AIR CONTROL (IAC) VALVE
[D16W4 engine (M/T)]**
Troubleshooting, page 11-C-69

**EVAPORATIVE EMISSION
(EVAP) PURGE CONTROL
SOLENOID VALVE**
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**CRANKSHAFT SPEED
FLUCTUATION (CKF) SENSOR**
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KNOCK SENSOR (KS)
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**IDLE AIR CONTROL (IAC) VALVE
[except D16W4 engine (M/T)]**
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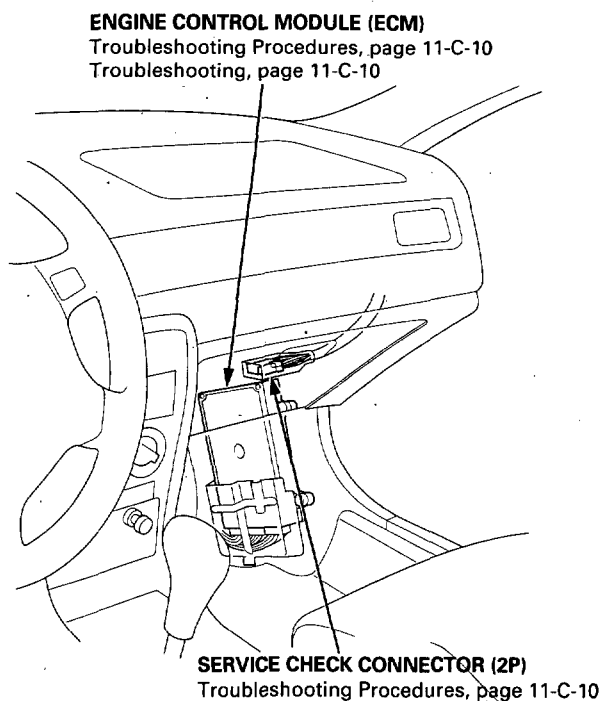
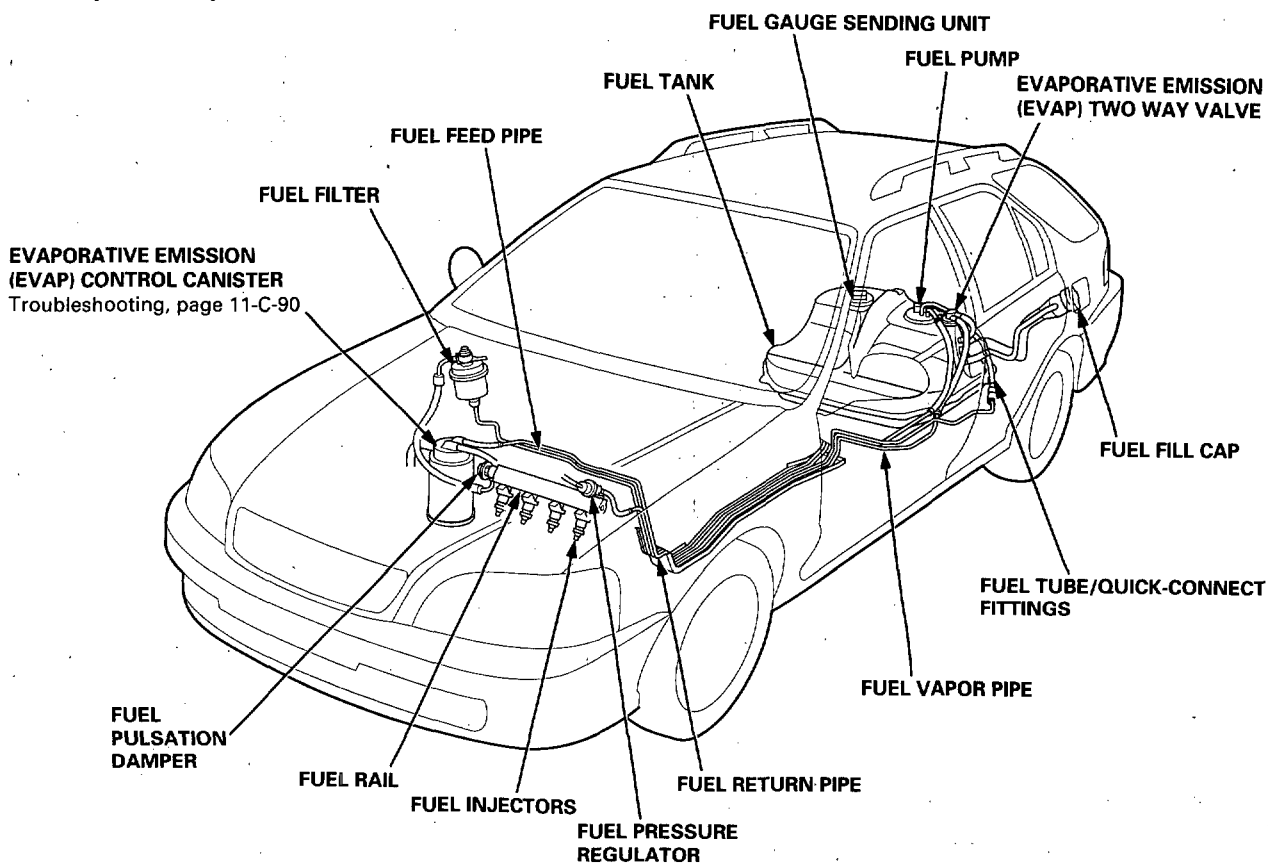
**THREE WAY CATALYTIC
CONVERTER (TWC)**
Troubleshooting, page 11-C-86

**SECONDARY HEATED OXYGEN
SENSOR
(SECONDARY HO₂S) (SENSOR 2)**
Troubleshooting, page 11-C-44

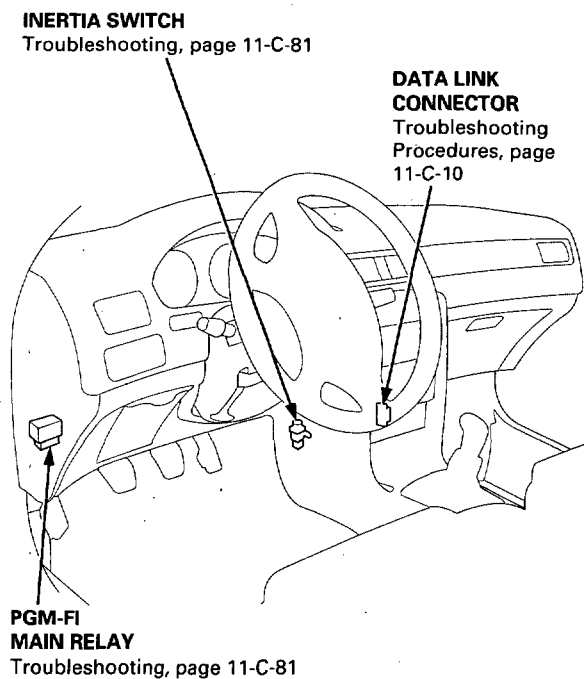
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Component Locations

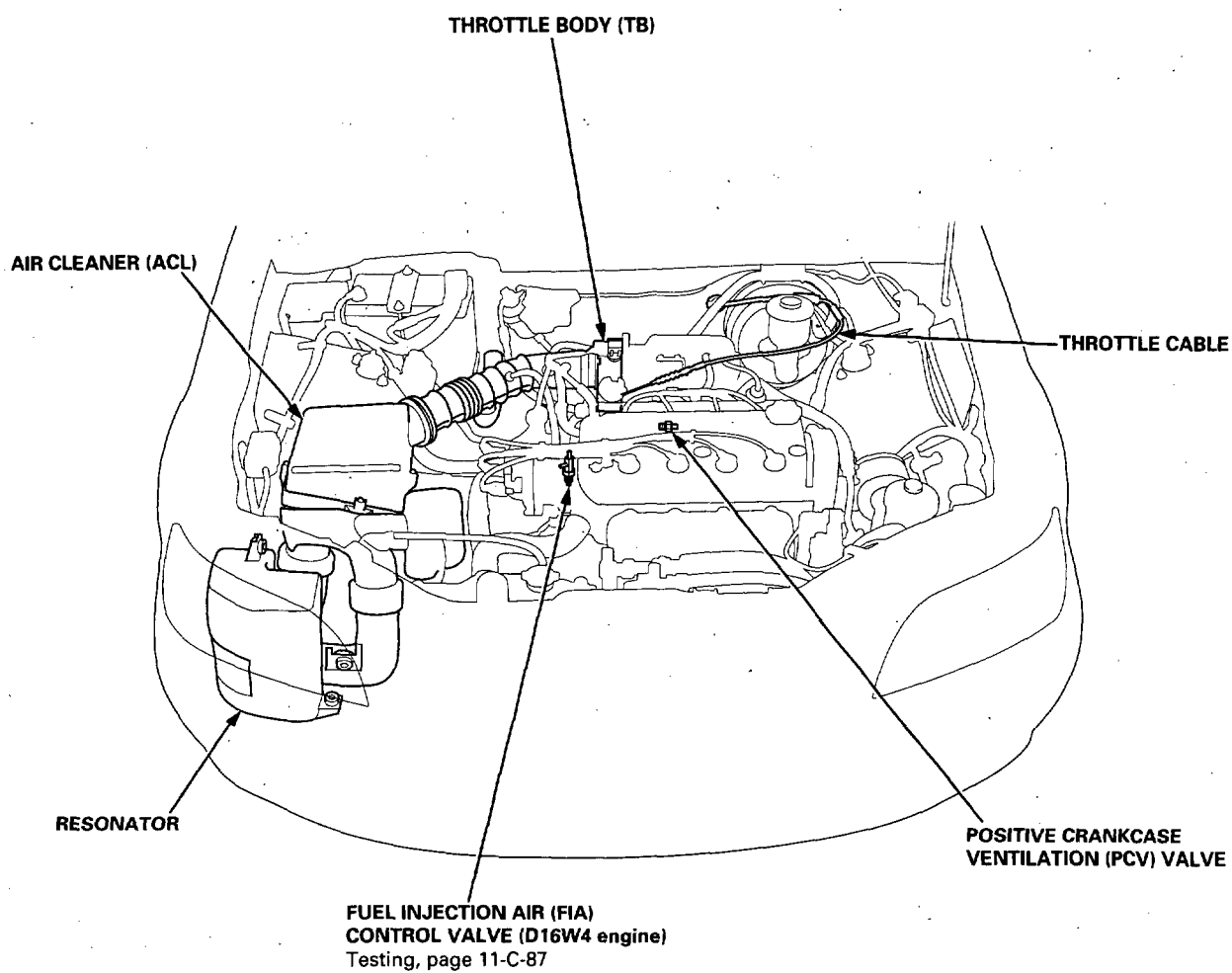
Index (cont'd)



The illustration shows LHD type. RHD type is symmetrical.

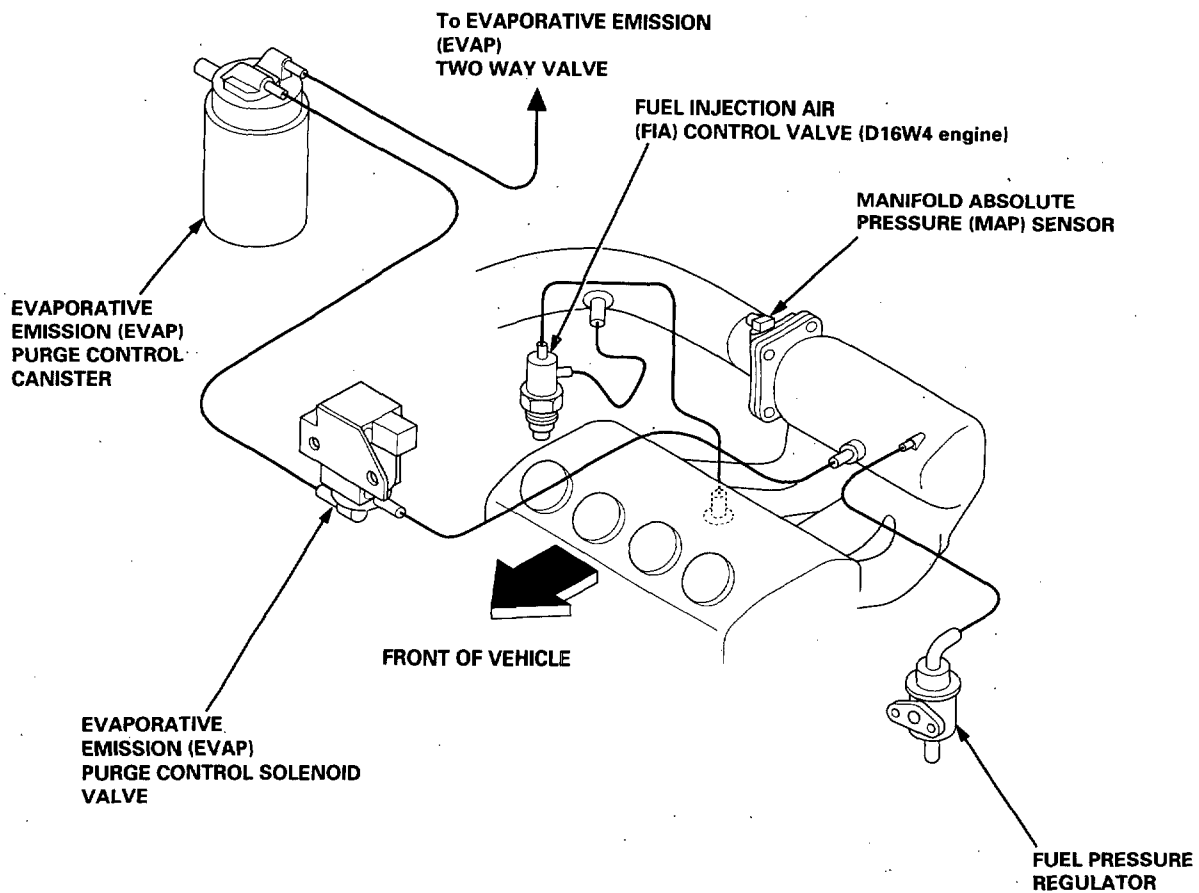


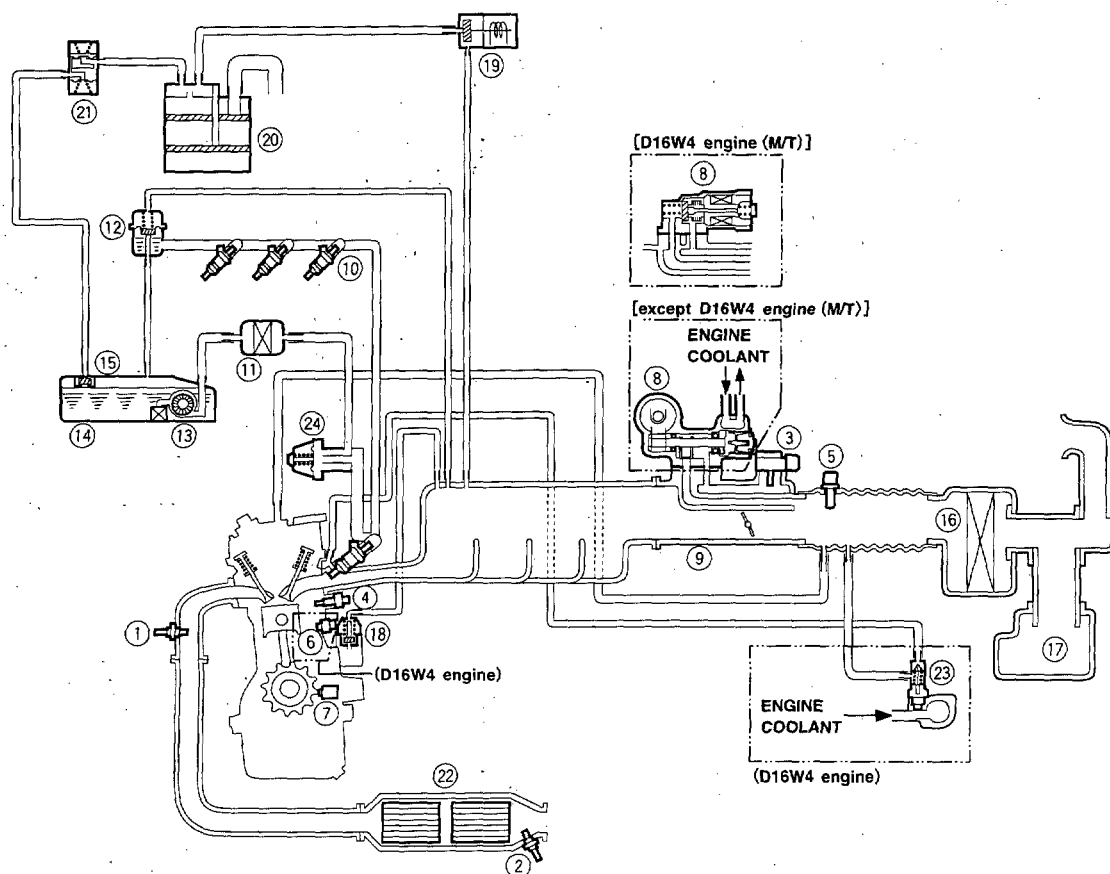
The illustration shows LHD type. RHD type is symmetrical.



System Description

Vacuum Connections



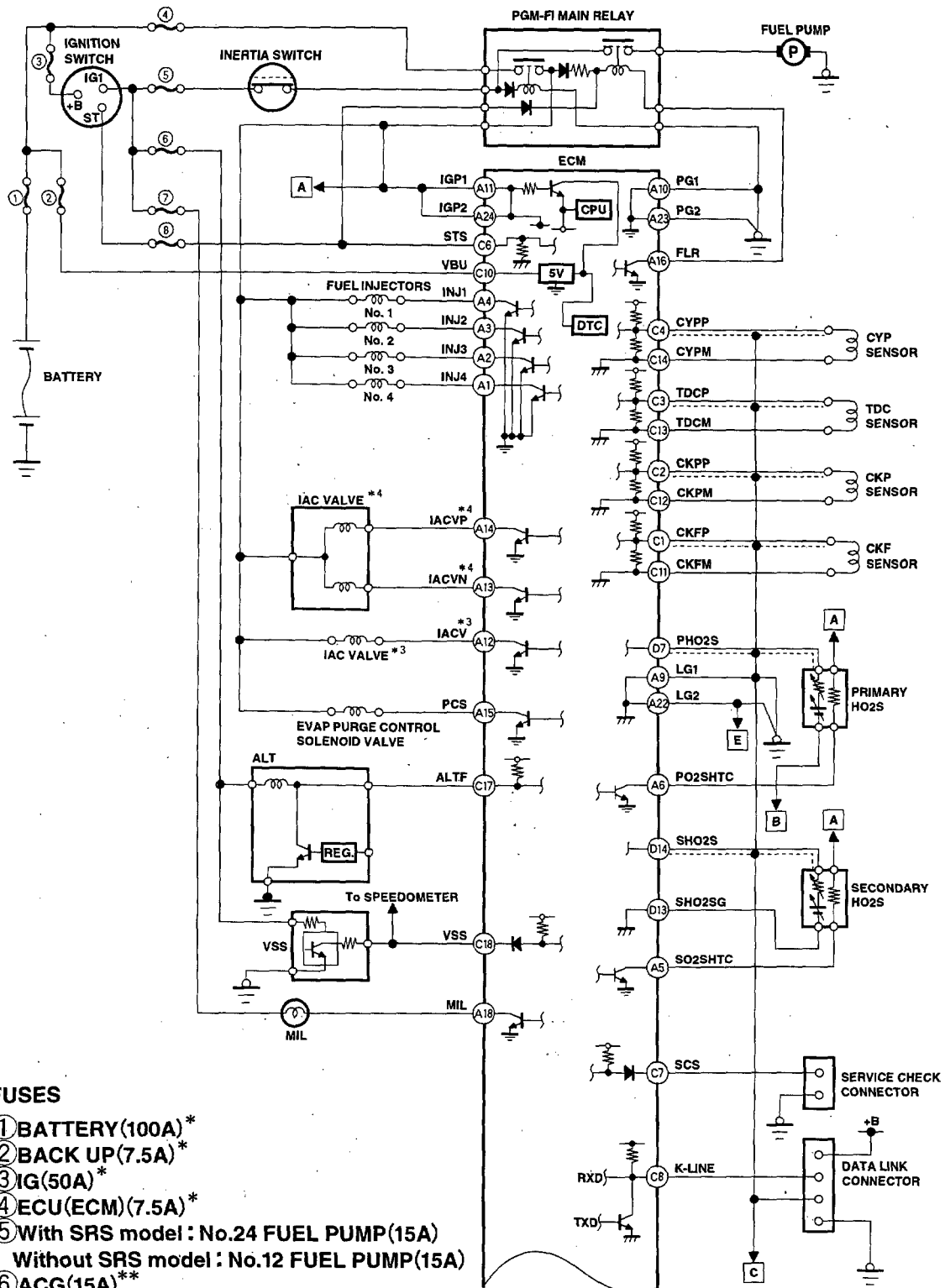


- ① PRIMARY HEATED OXYGEN SENSOR (PRIMARY HO₂S, SENSOR 1)
- ② SECONDARY HEATED OXYGEN SENSOR (SECONDARY HO₂S, SENSOR 2)
- ③ MANIFOLD ABSOLUTE PRESSURE (MAP) SENSOR
- ④ ENGINE COOLANT TEMPERATURE (ECT) SENSOR
- ⑤ INTAKE AIR TEMPERATURE (IAT) SENSOR
- ⑥ KNOCK SENSOR (KS)
- ⑦ CRANKSHAFT SPEED FLUCTUATION (CKF) SENSOR
- ⑧ IDLE AIR CONTROL (IAC) VALVE
- ⑨ THROTTLE BODY (TB)
- ⑩ FUEL INJECTOR
- ⑪ FUEL FILTER

- ⑫ FUEL PRESSURE REGULATOR
- ⑬ FUEL PUMP (FP)
- ⑭ FUEL TANK
- ⑮ FUEL TANK EVAPORATIVE EMISSION (EVAP) VALVE
- ⑯ AIR CLEANER
- ⑰ RESONATOR
- ⑱ POSITIVE CRANKCASE VENTILATION (PCV) VALVE
- ⑲ EVAPORATIVE EMISSION (EVAP) PURGE CONTROL SOLENOID VALVE
- ⑳ EVAPORATIVE EMISSION (EVAP) CONTROL CANISTER
- ㉑ EVAPORATIVE EMISSION (EVAP) TWO WAY VALVE
- ㉒ THREE WAY CATALYTIC CONVERTER (TWC)
- ㉓ FUEL INJECTION AIR (FIA) CONTROL VALVE
- ㉔ FUEL PULSATION DAMPER

System Description

Electrical Connections

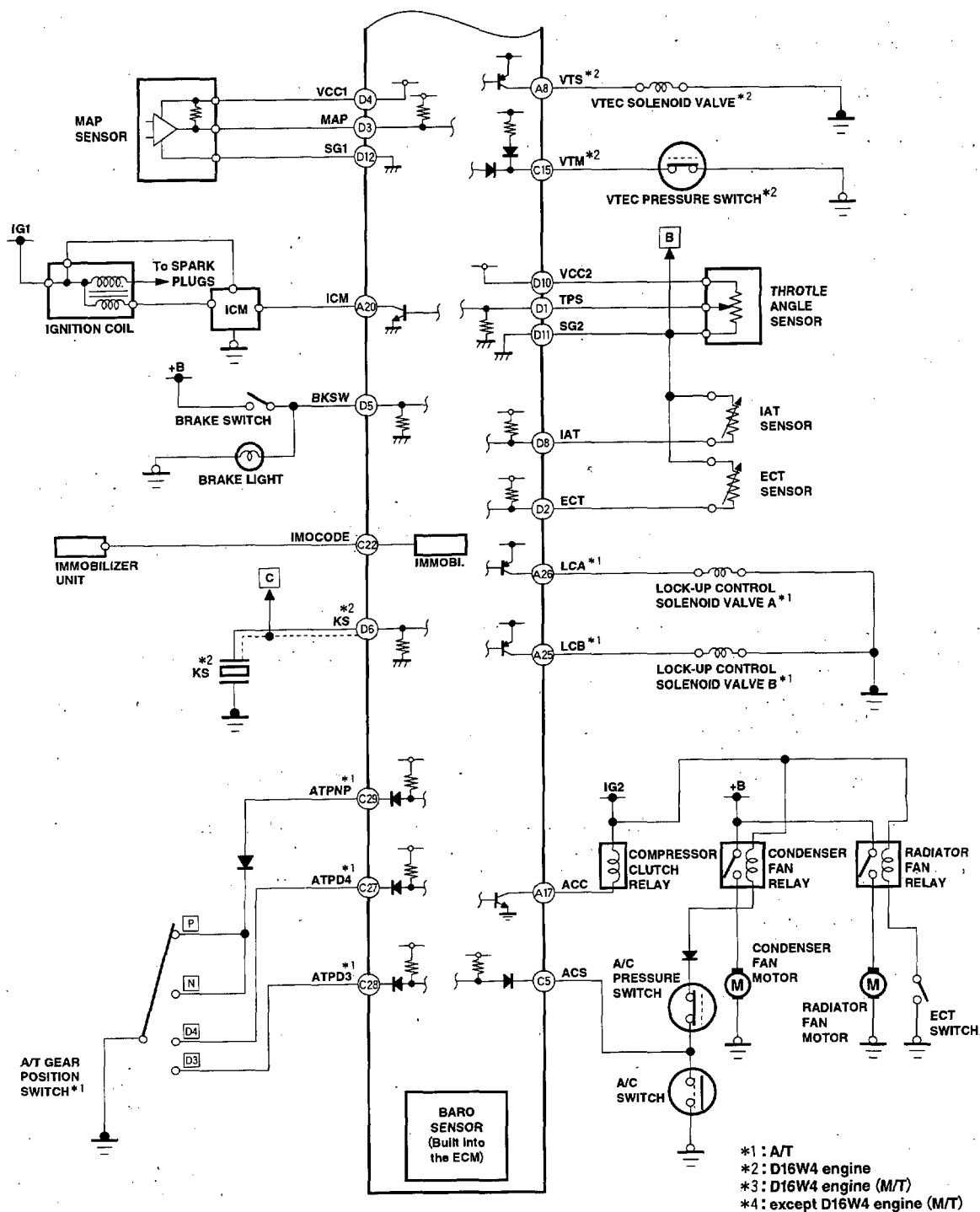


FUSES

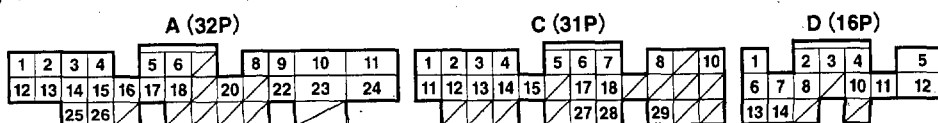
- ① BATTERY(100A)*
- ② BACK UP(7.5A)*
- ③ IG(50A)*
- ④ ECU(ECM)(7.5A)*
- ⑤ With SRS model : No.24 FUEL PUMP(15A)
Without SRS model : No.12 FUEL PUMP(15A)
- ⑥ ACG(15A)**
- ⑦ No.15 BACK UP LIGHTS(10A)
- ⑧ No.18 STARTER SIGNAL(7.5A)

*: in the under-hood fuse/relay box

** : in the fuse holder (located at the under-dash fuse/relay box)



ECM CONNECTORS



TERMINAL LOCATIONS

Troubleshooting

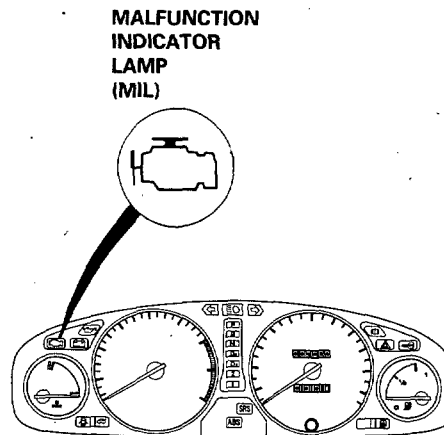
Troubleshooting Procedures

How To Begin Troubleshooting

When the Malfunction Indicator Lamp (MIL) has been reported on, or there is a driveability problem, use the appropriate procedure below to diagnose and repair the problem.

A. When the MIL has come on:

1. Connect the Honda PGM Tester or a scan tool to the 16P Data Link Connector (DLC) located under the console on the passenger side of the vehicle.
2. Turn the ignition switch ON (II).
3. Check the DTC and note it. Also check and note the freeze frame data.
4. Refer to the Diagnostic Trouble Code Chart and begin troubleshooting.

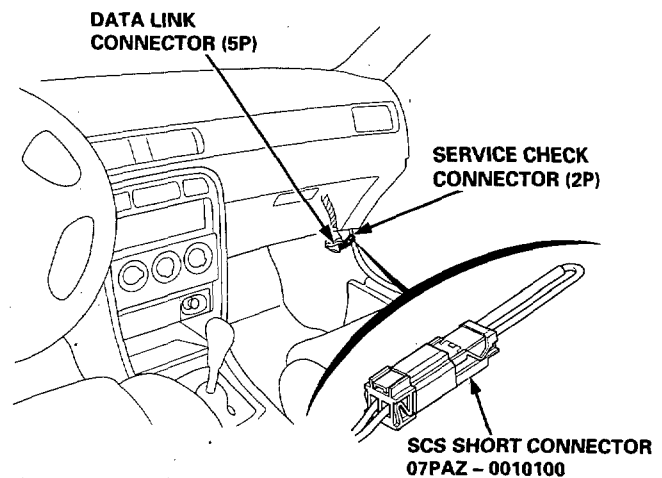
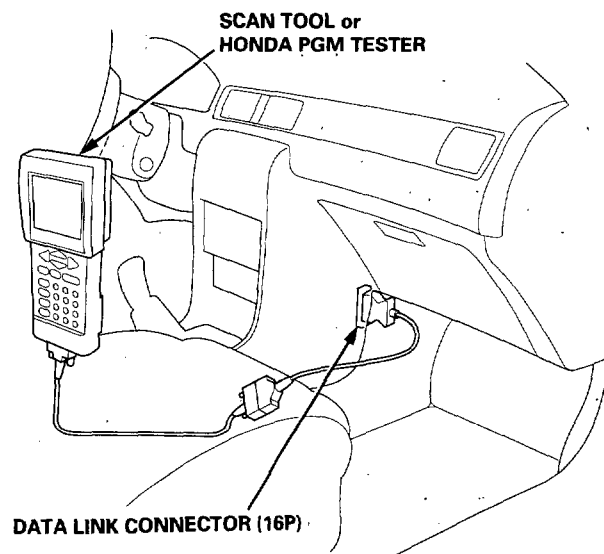


NOTE:

- See the scan tool or Honda PGM Tester user's manuals for specific operating instructions.
- The scan tool or tester can read the Diagnostic Trouble Codes (DTC), freeze frame data, current data, and other Engine Control Module (ECM) data.
- Freeze frame data indicates the engine conditions when the first malfunction, misfire or fuel trim malfunction was detected. It can be useful information when troubleshooting.

B. When the MIL has not come on, but there is a driveability problem, refer to the Symptom Chart on page 11-C-13.

- C. DTCs will be indicated by the blinking of the Malfunction Indicator Lamp (MIL) with the SCS short connector connected. Connect the SCS short connector to Service Check Connector as shown (the 2P Service Check Connector is located under the dash on the passenger's side of the vehicle). Turn the ignition switch ON (II).



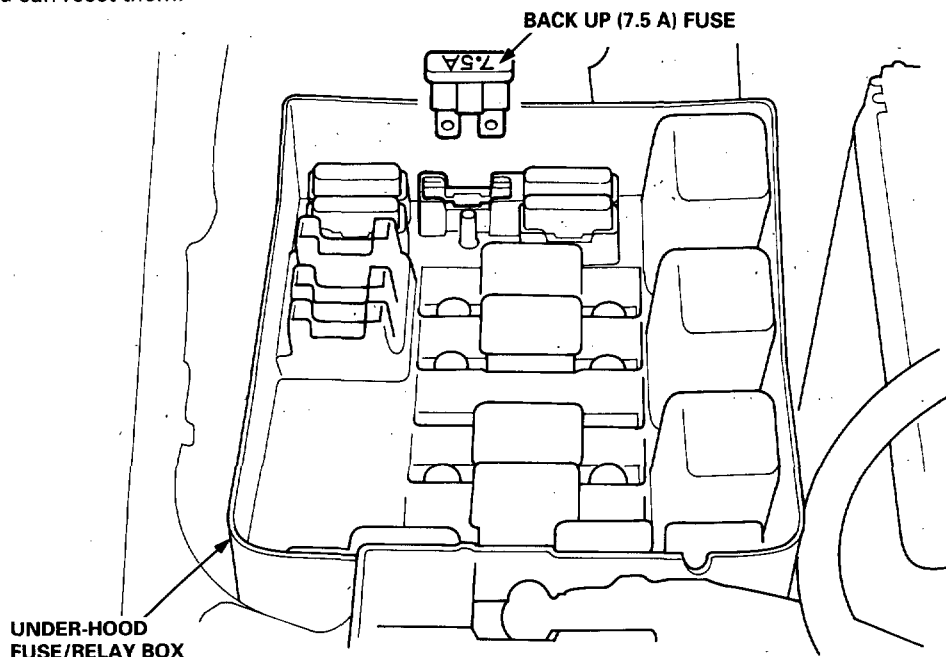
The illustration shows LHD type. RHD type is symmetrical.



Engine Control Module (ECM) Reset Procedure

Either of the following actions will reset the ECM.

- Use the scan tool or Honda PGM Tester to clear the ECM's memory.
NOTE: See the scan tool or Honda PGM Tester user's manuals for specific operating instructions.
- Turn the ignition switch OFF. Remove the BACK UP (7.5 A) fuse from the under-hood fuse/relay box for 10 seconds.
NOTE: Removing the BACK UP (7.5 A) fuse cancels the clock and the radio presets. Make note of the customer's presets so you can reset them.



Final Procedure (this procedure must be done after any troubleshooting)

1. Remove the SCS short connector if it is connected.
NOTE: If the SCS short connector is connected and there are no DTCs stored in the ECM, the MIL will stay on when the ignition switch is turned ON (II).
2. Do the ECM Reset Procedure.
3. Turn the ignition switch OFF.

Known-Good ECM Substitution

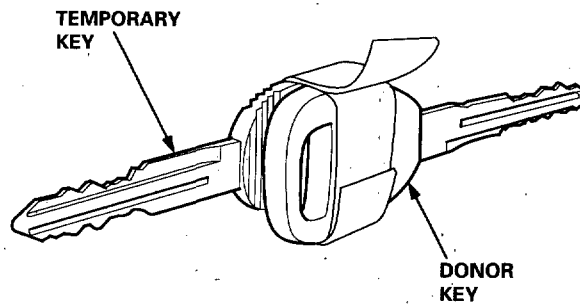
Use the following procedure if you need a known-good ECM to test a vehicle. It allows you to swap an ECM from a "donor" vehicle without having to program it to the test vehicle's ignition key.

(cont'd)

Troubleshooting

Troubleshooting Procedures (cont'd)

1. Cut a temporary ignition key for the test vehicle with a non-immobilizer key blank.
2. Remove the ECM from the test vehicle.
3. Write the test vehicle's VIN on the ECM you just removed to avoid confusing it with the donor vehicle's ECM.
4. Remove the known-good ECM from the donor vehicle, and install it in the test vehicle.
5. Tape the donor vehicle's ignition key head-to-head to the test vehicle's temporary key. The ECM will recognize the code from the donor vehicle's key and allow you to start the engine with the temporary key.



6. After completing your tests, reinstall both ECMs, and destroy the temporary key.



Symptom Chart

Listed below are symptoms and probable causes for problems that DO NOT cause the Malfunction indicator Lamp (MIL) to come on. If the MIL was reported on, go to page 11-C-10.

Troubleshoot each probable cause in the order listed (from left to right) until the symptom is eliminated.

The probable cause and troubleshooting page reference can be found below.

SYMPTOM	PROBABLE CAUSE
Engine will not start	4, 2, 3, 5, 20, 14, 1
Hard starting	2, 4, 11, 16, 13, 19
Cold fast idle too low	7, 8, 6, 16
Cold fast idle too high	7, 8, 10, 9
Idle speed fluctuates	7, 8, 10, 9
Misfire or rough running	Troubleshoot for misfire on pages 11-C-51
Low power	2, 9, 10, 12, 17, 16, 18, 20
Engine stalls	2, 4, 11, 7, 20, 8, 5, 15

Other Probable Causes for an engine that will not start:

- Compression
- Starting system
- Inertia switch
- Intake air leakage
- Overheating
- Engine locked up
- Battery
- Timing belt
- Immobilizer system

Probable Cause List (For the DTC Chart, see page 11-C-19)

Probable Cause	Page	System
1	11-C-25	Engine Control Module (ECM)
2	11-C-80	Fuel pressure
3	11-C-81	PGM-FI main relay
4	Section 23	Ignition system
5	11-C-56	Crankshaft Position/Top Dead Center/Cylinder Position sensor circuit, CKF sensor circuit
6	11-C-33	Intake Air Temperature (IAT) sensor circuit
7	11-C-69, 71	Idle Air Control Valve (IACV)
8	11-C-78	Idle speed adjustment
9	—	Throttle body
10	—	Throttle cable
11	11-C-30	Manifold Absolute Pressure (MAP) sensor
12	11-C-37	Throttle Position (TP) sensor
13	11-C-59	Barometric pressure (BARO) sensor
14	11-C-65	A/T gear position signal
15	11-C-77	Brake switch signal
16	—	Air Cleaner
17	—	Intake air pipe
18	11-C-86	Three Way Catalytic Converter (TWC)
19	11-C-88	Evaporative emission (EVAP) control
20	—	Contaminated fuel

(cont'd)

Troubleshooting

Troubleshooting Procedures (cont'd)

ECM/PCM Data

You can retrieve data from the ECM by connecting the scan tool or the Honda PGM Tester to the 16P data link connector (DLC). The items listed in the table below can be indicated by both scan tool and Honda PGM tester. The Honda PGM Tester also reads data beyond these items. Understanding this data may help you find the causes of intermittent problems.

NOTE:

- The "operating values" given below are approximate values and may be different depending on the environment and the individual vehicle.
- Unless noted otherwise, "at idle speed" means idling with the engine completely warmed up, A/T in position **P** or **N**, M/T in neutral, and the A/C and all accessories turned off.

Data	Description	Operating Value	Freeze Data
Diagnostic Trouble Code (DTC)	If the ECM detects a problem, it will store it as a code consisting of one letter and four numbers.	If no problem is detected, there is no output.	YES
Engine Speed	The ECM computes engine speed from the signals sent from the Crankshaft Position sensor. This data is used for determining the time and amount of fuel injection.	Nearly the same as tachometer indication.	YES
Vehicle Speed	The ECM converts pulse signals from the Vehicle Speed Sensor (VSS) into speed data.	Nearly the same as speedometer indication	YES
Manifold Absolute Pressure (MAP)	The absolute pressure caused in the intake manifold by engine load and speed.	With engine stopped: Nearly the same as atmospheric pressure At idle speed: 24 – 37 kPa (180 – 280 mmHg, 7.1 – 11.0 inHg)	YES
Engine Coolant Temperature (ECT)	The ECT sensor converts coolant temperature into voltage and signals the ECM. The sensor is a thermistor whose internal resistance changes with coolant temperature. The ECM uses the voltage signals from the ECT sensor to determine the amount of injected fuel.	With cold engine: Same as ambient temperature and IAT With engine warmed up: 80 – 90°C (176 – 194°F)	YES
Heated Oxygen Sensor (HO2S) (Primary, Sensor 1) (Secondary Sensor 2)	The Heated Oxygen Sensor detects the oxygen content in the exhaust gas and sends voltage signals to the ECM. Based on these signals, the ECM controls the air/fuel ratio. When the oxygen content is high (that is, when the ratio is leaner than the stoichiometric ratio), the voltage signal is lower. When the oxygen content is low (that is, when the ratio is richer than the stoichiometric ratio), the voltage signal is higher.	0.0 – 1.25 V At idle speed: about 0.1 – 0.9 V	YES (Primary Sensor 1 only)



Data	Description	Operating Value	Freeze Data
HO2S Feedback Loop Status	Loop status is indicated as "open" or "closed". Closed: Based on the HO2S output, the ECM determines the air/fuel ratio and controls the amount of injected fuel. Open: Ignoring HO2S output, the ECM refers to signals from the TP, MAP, and ECT sensors to control the amount of injected fuel.	At idle speed: closed	YES
Short Term Fuel Trim	The air/fuel ratio correction coefficient for correcting the amount of injected fuel when HO2S feedback is in the closed loop status. When the signal from the HO2S is weak, short term fuel trim gets higher, and the ECM increases the amount of injected fuel. The air/fuel ratio gradually gets richer, causing a higher HO2S output. Consequently, the short term fuel trim is lowered, and the ECM reduces the amount of injected fuel. This cycle keeps the air/fuel ratio close to the stoichiometric ratio when in closed loop status.	$\pm 20\%$	YES
Long Term Fuel Trim	Long term fuel trim is computed from short term fuel trim and indicates changes occurring in the fuel supply system over a long period. If long term fuel trim is higher than 1.00, the amount of injected fuel must be increased. If it is lower than 1.00, the amount of injected fuel must be reduced.	$\pm 20\%$	YES
Intake Air Temperature (IAT)	The IAT sensor converts intake air temperature into voltage and signals the ECM. When intake air temperature is low, the internal resistance of the sensor increases, and the voltage signal is higher.	With cold engine: Same as ambient temperature and ECT	YES
Throttle Position	Based on the accelerator pedal position, the opening angle of the throttle valve is indicated.	At idle speed: approx. 10 %	YES
Ignition Timing	Ignition timing is the ignition advance angle set by the ECM. The ECM matches ignition timing to the driving conditions.	At idle speed: $12^\circ \pm 2^\circ$ BTDC with the SCS service connector connected.	NO
Calculated Load Value (CLV)	CLV is the engine load calculated from the MAP data.	At idle speed: 15 – 35 % At 2,500 rpm (min^{-1}) with no load: 12 – 30%	YES

Troubleshooting

Engine Control Module Terminal Arrangement

ECM CONNECTOR A (32P)

1	2	3	4		5	6		8	9	10	11
INJ4	INJ3	INJ2	INJ1		SO2S HTC	P2SHTC		VTSOL	LG1	PG1	IGP1
12	13	14	15	16	17	18		20	22	23	24
IACV	IACVN	IACVP	PCS	FLR	ACC	MIL		ICM	LG2	PG2	IGP2
		25	26								
		LCB	LCA								

Wire side of female terminals

ECM CONNECTOR A (32P)

NOTE: Standard battery voltage is 12 V.

Terminal number	Wire color	Terminal name	Description	Signal
1	YEL	INJ4 (No. 4 FUEL INJECTOR)	Drives No. 4 fuel injector.	With engine running: duty controlled
2	BLU	INJ3 (No. 3 FUEL INJECTOR)	Drives No. 3 fuel injector.	
3	RED	INJ2 (No. 2 FUEL INJECTOR)	Drives No. 2 fuel injector.	
4	BRN	INJ1 (No. 1 FUEL INJECTOR)	Drives No. 1 fuel injector.	
5	GRN/RED	SO2SHTC (SECONDARY HEATED OXYGEN SENSOR HEATER CONTROL)	Drives secondary heated oxygen sensor heater.	With ignition switch ON (II): battery voltage With fully warmed up engine running: duty controlled
6	BLK/WHI	PO2SHTC (PRIMARY HEATED OXYGEN SENSOR HEATER CONTROL)	Drives primary heated oxygen sensor heater.	With ignition switch ON (II): battery voltage With fully warmed up engine running: duty controlled
8*2	GRN/YEL	VTSOL (VTEC SOLENOID VALVE)	Drives VTEC solenoid valve.	With engine at low engine speed: 0 V With engine at high engine speed: battery voltage
9	BRN/BLK	LG1 (LOGIC GROUND)	Ground for the ECM control circuit.	Less than 1.0 V at all times
10	BLK	PG1 (POWER GROUND)	Ground for the ECM power circuit.	
11	YEL/BLK	IGP1 (POWER SOURCE)	Power source for the ECM control circuit.	With ignition switch ON (II): battery voltage With ignition switch OFF: 0 V
12*3	BLK/BLU	IACV (IDLE AIR CONTROL VALVE)	Drives IAC valve.	With engine running: duty controlled
13*4	ORN	IACV N (IDLE AIR CONTROL VALVE NEGATIVE SIDE)	Drives IAC valve (negative side).	
14*4	BLK/BLU	IACV P (IDLE AIR CONTROL VALVE POSITIVE SIDE)	Drives IAC valve (positive side).	
15	RED	PCS (EVAP PURGE CONTROL SOLENOID VALVE)	Drives EVAP purge control solenoid valve.	With engine running, engine coolant below 154°F (68°C): battery voltage With engine running, engine coolant above 154°F (68°C): duty controlled
16	GRN/YEL	FLR (FUEL PUMP RELAY)	Drives fuel pump relay.	0 V for two seconds after turning ignition switch ON (II)), then battery voltage
17	RED	ACC (A/C CLUTCH RELAY)	Drives A/C clutch relay.	With compressor ON: 0 V With compressor OFF: battery voltage
18	GRN/ORN	MIL (MALFUNCTION INDICATOR LAMP)	Drives MIL.	With MIL turned ON: 0 V With MIL turned OFF: battery voltage
20	YEL/GRN	ICM (IGNITION CONTROL MODULE)	Sends ignition pulse.	With ignition switch ON: battery voltage With engine running: about 10 V (depending on engine speed)
22	BRN/BLK	LG2 (LOGIC GROUND)	Ground for the ECM control circuit.	Less than 1.0 V at all times
23	BLK	PG2 (POWER GROUND)	Ground for the ECM power circuit.	
24	YEL/BLK	IGP2 (POWER SOURCE)	Power source for the ECM control circuit.	With ignition switch ON: battery voltage With ignition switch OFF: 0 V
25*1	GRN/BLK	LC B (LOCK-UP CONTROL SOLENOID VALVE B)	Drives lock-up control solenoid valve B.	With lock-up ON: battery voltage With lock-up OFF: 0 V
26*1	YEL	LC A (LOCK-UP CONTROL SOLENOID VALVE A)	Drives lock-up control solenoid valve A.	With lock-up ON: battery voltage With lock-up OFF: 0 V

*1: A/T

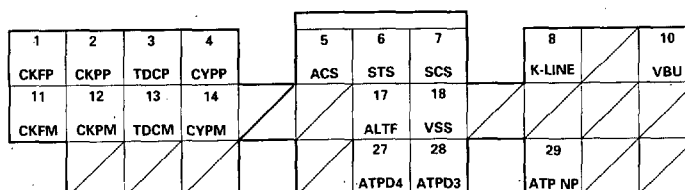
*2: D16W4 engine

*3: D16W4 engine (M/T)

*4: except D16W4 engine (M/T)



ECM CONNECTOR C (31P)



Wire side of female terminals

ECM CONNECTOR C (31P)

NOTE: Standard battery voltage is 12 V.

Terminal number	Wire color	Terminal name	Description	Signal
1	BLU/RED	CKF P (CKF SENSOR P SIDE)	Detects CKF sensor.	With engine running: pulses
2	BLU	CKP P (CKP SENSOR P SIDE)	Detects CKP sensor.	With engine running: pulses
3	GRN	TDCP (TDC SENSOR P SIDE)	Detects TDC sensor.	With engine running: pulses
4	YEL	CYPP (CYP SENSOR P SIDE)	Detects CYP sensor.	With engine running: pulses
5	BLU/RED	ACS (A/C SWITCH SIGNAL)	Detects A/C switch signal.	With A/C switch ON: 0 V With A/C switch OFF: battery voltage
6	BLU/WHT	STS (STARTER SWITCH SIGNAL)	Detects starter switch signal.	With starter switch ON (III): battery voltage With starter switch OFF: 0 V
7	BRN	SCS (SERVICE CHECK SIGNAL)	Detects service check connector signal (the signal causing a DTC indication)	With the connector connected: 0 V With the connector disconnected: 5 V
8	LT BLU	K-LINE	Sends and receives Honda PGM-Tester signal.	With ignition switch ON (II): about 5 V
10	WHT/BLU (RHD: WHT/BLK)	VBU (VOLTAGE BACK UP)	Power source for the ECM control circuit. Power source for the DTC memory.	Battery voltage at all times
11	WHT/BLU	CKF M (CKF SENSOR M SIDE)	Ground for CKF sensor signal.	
12	WHT	CKP M (CKP SENSOR M SIDE)	Ground for CKP sensor signal.	
13	RED	TDCM (TDCM SENSOR M SIDE)	Ground for TDC sensor signal.	
14	BLK	CYPM (CYP SENSOR M SIDE)	Ground for CYP sensor signal.	
15*2	BLU/BLK	VTM (VTEC PRESSURE SWITCH)	Detects VTEC pressure switch signal.	With engine at low engine speed: 0 V With engine at high engine speed: battery voltage
17	WHT/RED	ALTf (ALTERNATOR FR SIGNAL)	Detects alternator FR signal.	With fully warmed up engine running: 0 V – battery voltage (depending on electrical load)
18	BLU/WHT	VSS (VEHICLE SPEED SENSOR)	Detects VSS signal.	With ignition switch ON (II) and front wheels rotating: cycles 0 V – 5 V
27*1	GRN/BLK	ATPD4 (A/T GEAR POSITION SWITCH)	Detects A/T gear position switch signal.	In D4 position: 0 V In any other position: battery voltage
28*1	GRN/BLU	ATPD3 (A/T GEAR POSITION SWITCH)	Detects A/T gear position switch signal.	In D3 position: 0 V In any other position: battery voltage
29*1	GRN	ATPNP (A/T GEAR POSITION SWITCH)	Detects A/T gear position switch signal.	In N or P position: 0 V In any other position: battery voltage

*1: A/T

*2: D16W4 engine

*3: D16W4 engine (M/T)

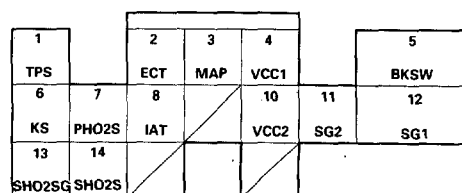
*4: except D16W4 engine (M/T)

(cont'd)

Troubleshooting

Engine Control Module Terminal Arrangement (cont'd)

ECM CONNECTOR D (16P)



ECM CONNECTOR D (16P)

Wire side of female terminals

NOTE: Standard battery voltage is 12 V.

Terminal number	Wire color	Terminal name	Description	Signal
1	RED/BLK	TPS (THROTTLE POSITION SENSOR)	Detects TP sensor signal.	With throttle fully open: about 4.8 V With throttle fully closed: about 0.05 V
2	RED/WHT	ECT (ENGINE COOLANT TEMPERATURE SENSOR)	Detects ECT sensor signal.	With ignition switch ON (II): about 0.1 – 4.8 V (depending on engine coolant temperature)
3	RED/GRN	MAP (MANIFOLD ABSOLUTE PRESSURE SENSOR)	Detects MAP sensor signal.	With ignition switch ON (II): about 3 V At idle: about 1.0 V (depending on engine speed)
4	YEL/RED	VCC1 (SENSOR VOLTAGE)	Power source for MAP sensor.	With ignition switch ON (II): about 5 V With ignition switch OFF: 0 V
5	GRN/WHT	BKS (BRAKE SWITCH)	Detects brake switch signal.	With brake pedal released: 0 V With brake pedal depressed: battery voltage
6*2	RED/BLU	KS (KNOCK SENSOR)	Detects KS signal.	With engine knocking: pulses
7	WHT/RED	PHO2S (PRIMARY HEATED OXYGEN SENSOR, SENSOR 1)	Detects primary heated oxygen sensor (sensor 1) signal.	With throttle fully opened from idle with fully warmed up engine: above 0.6 V With throttle quickly closed: below 0.4 V
8	RED/YEL	IAT (INTAKE AIR TEMPERATURE SENSOR)	Detects IAT sensor signal.	With ignition switch ON (II): about 0.1 – 4.8 V (depending on intake air temperature)
10	YEL/BLU	VCC2 (SENSOR VOLTAGE)	Provides sensor voltage.	With ignition switch ON (II): about 5 V With ignition switch OFF: 0 V
11	GRN/BLK	SG2 (SENSOR GROUND)	Sensor ground.	Less than 1.0 V at all times
12	GRN/WHT	SG1 (SENSOR GROUND)	Ground for MAP sensor.	Less than 1.0 V at all times
13	RED/BLK	SHO2SG (SECONDARY HEATED OXYGEN SENSOR, SENSOR 2 GROUND)	Ground for secondary heated oxygen sensor (sensor 2).	
14	GRN	SO2S (SECONDARY HEATED OXYGEN SENSOR, SENSOR 2)	Detects secondary heated oxygen sensor (sensor 2) signal.	With throttle fully opened from idle with fully warmed up engine: above 0.6 V With throttle quickly closed: below 0.4 V

*1: A/T

*2: D16W4 engine

*3: D16W4 engine (M/T)

*4: except D16W4 engine (M/T)



Diagnostic Trouble Code (DTC) Chart

DTC (MIL indication*)	Detection Item	Probable Cause	Page
P0107 (3)	Manifold Absolute Pressure Circuit Low Input	• Open or short in MAP sensor circuit • MAP sensor • ECM	11-C-30
P0108 (3)	Manifold Absolute Pressure Circuit High Input	• Open in MAP sensor circuit • MAP sensor • ECM	11-C-32
P0112 (10)	Intake Air Temperature Circuit Low Input	• Short in IAT sensor circuit • IAT sensor • ECM	11-C-33
P0113 (10)	Intake Air Temperature Circuit High Input	• Open in IAT sensor circuit • IAT sensor • ECM	11-C-34
P0117 (6)	Engine Coolant Temperature Circuit Low Input	• Short in ECT sensor circuit • ECT sensor • ECM	11-C-35
P0118 (6)	Engine Coolant Temperature Circuit High Input	• Open in ECT sensor circuit • ECT sensor • ECM	11-C-36
P0122 (7)	Throttle Position Circuit Low Input	• Open or short in TP sensor circuit • TP sensor • ECM	11-C-37
P0123 (7)	Throttle Position Circuit High Input	• Open in TP sensor circuit • TP sensor • ECM	11-C-39
P0131 (1)	Primary Heated Oxygen Sensor Circuit Low Voltage (Sensor 1)	• Short in Primary HO2S (Sensor 1) circuit • Primary HO2S (Sensor 1) • Fuel supply system • ECM	11-C-40
P0132 (1)	Primary Heated Oxygen Sensor Circuit High Voltage (Sensor 1)	• Open in Primary HO2S (Sensor 1) circuit • Primary HO2S (Sensor 1) • ECM	11-C-42
P0133 (61)	Primary Heated Oxygen Sensor Slow Response (Sensor 1)	• Primary HO2S (Sensor 1) • Exhaust system	11-C-43
P0135 (41)	Primary Heated Oxygen Sensor Heater Circuit Malfunction (Sensor 1)	• Open or short in Primary HO2S (Sensor 1) heater circuit • ECM	11-C-47
P0137 (63)	Secondary Heated Oxygen Sensor Circuit Low Voltage (Sensor 2)	• Short in Secondary HO2S (Sensor 2) circuit • Secondary HO2S (Sensor 2) • ECM	11-C-44
P0138 (63)	Secondary Heated Oxygen Sensor Circuit High Voltage (Sensor 2)	• Open in Secondary HO2S (Sensor 2) circuit • Secondary HO2S (Sensor 2) • ECM	11-C-45
P0139 (63)	Secondary Heated Oxygen Sensor Slow Response (Sensor 2)	• Secondary HO2S (Sensor 2)	11-C-46

*: These DTCs will be indicated by the blinking of the Malfunction Indicator Lamp (MIL) with the SCS short connector connected

(cont'd)

Troubleshooting

Diagnostic Trouble Code (DTC) Chart (cont'd)

DTC (MIL indication)	Detection Item	Probable Cause	Page
P0141 (65)	Secondary Heated Oxygen Sensor Heater Circuit Malfunction (Sensor 2)	• Open or short in Secondary HO2S (Sensor 2) heater circuit • ECM	11-C-47
P0171 (45)	System Too Lean	• Fuel supply system • Primary HO2S (Sensor 1) • MAP sensor • Contaminated fuel • Valve clearance • Exhaust leakage	11-C-49
P0172 (45)	System Too Rich	• Fuel supply system • Primary HO2S (sensor 1) • MAP sensor • Contaminated fuel • Valve clearance	11-C-49
P0300 and some of P0301 (71) P0302 (72) P0303 (73) P0304 (74)	Random Misfire	• Ignition system • Fuel supply system • MAP sensor • EGR system • IAC valve • Contaminated fuel • Lack of fuel	11-C-54
P0301 (71) P0302 (72) P0303 (73) P0304 (74)	— Cylinder 1 — Cylinder 2 — Cylinder 3 — Cylinder 4 Misfire Detected	• Fuel Injector • Fuel Injector circuit • Ignition system • Low compression • Valve clearance	11-C-51
P0325*2 (23)	Knock Sensor (KS) Circuit Malfunction	• Open or short in Knock Sensor (KS) circuit • Knock Sensor (KS) • ECM	11-C-55
P0335 (4)	Crankshaft Position Sensor Circuit Malfunction	• Crankshaft Position Sensor • Crankshaft Position Sensor circuit • ECM	11-C-56
P0336 (4)	Crankshaft Position Sensor Range/Performance	• Crankshaft Position Sensor • Timing belt skipped teeth	11-C-56
P0420 (67)	Catalyst System Efficiency Below Threshold	• Three Way Catalytic converter • Secondary HO2S	11-C-86
P0443 (92)	A electrical problem in the EVAP Purge Control Solenoid Valve	• EVAP Purge Control Solenoid Valve • Open or short in EVAP Purge Control Solenoid Valve circuit • ECM	11-C-88
P0500 (17)	Vehicle Speed Sensor Circuit Malfunction	• Vehicle Speed Sensor • Vehicle Speed Sensor circuit • ECM	11-C-58

*2: D16W4 engine



DTC (MIL indication)	Detection Item	Probable Cause	Page
P1107 (13)	Barometric Pressure Circuit Low Input	• ECM (Baro sensor)	11-C-59
P1108 (13)	Barometric Pressure Circuit High Input	• ECM (Baro sensor)	11-C-59
P1259*2 (22)	VTEC System Malfunction	• VTEC Solenoid Valve • Open or short in VTEC Solenoid Valve circuit • VTEC Pressure Switch • Open or short in VTEC Pressure Switch circuit • ECM	Section 6
P1336 (54)	Crankshaft Speed Fluctuation Sensor Intermittent Interruption	• CKF sensor	11-C-60
P1337 (54)	Crankshaft Speed Fluctuation Sensor No Signal	• CKF sensor • CKF sensor circuit • ECM	11-C-60
P1359 (8)	Crankshaft Position/Top Dead Center Sensor Disconnected	• CKP/TDC sensor circuit	11-C-62
P1361 (8)	Top Dead Center Sensor Intermittent Interruption	• TDC sensor	11-C-56
P1362 (8)	Top Dead Center Sensor No Signal	• TDC sensor • TDC sensor circuit • ECM	11-C-56
P1381 (9)	Cylinder Position Sensor Intermittent Interruption	• CYP sensor	11-C-56
P1382 (9)	Cylinder Position Sensor No Signal	• CYP sensor • CYP sensor circuit • ECM	11-C-56
P1508*3 (14)	Idle Air Control Valve Circuit Failure	• IAC valve • IAC valve circuit • ECM	11-C-69
P1509*4 (14)	Idle Air Control Valve Circuit Failure	• Open or short in IAC valve circuit • IAC valve • ECM	11-C-71

*2: D16W4 engine

*3: D16W4 engine (M/T)

*4: except D16W4 engine (M/T)

(cont'd)

Troubleshooting

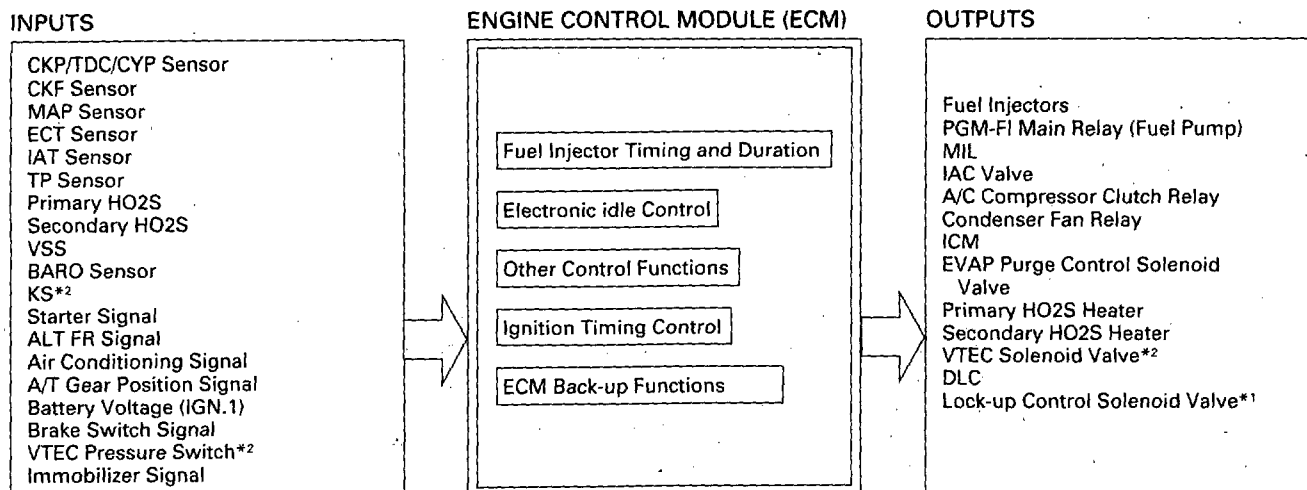
Diagnostic Trouble Code (DTC) Chart (cont'd)

DTC (MIL indication)	Detection Item	Probable Cause	Page
P1607 (-)	Engine Control Module Internal Circuit Failure A	• ECM	11-C-63
P1705 (89)*1	A/T Gear Position Switch Circuit Failure	• A/T Gear Position Switch • A/T Gear Position Switch circuit • ECM	11-C-65
P1706 (89)*1	A/T Gear Position Switch No Signal	• A/T Gear Position Switch • Disconnected A/T Gear Position Switch connector • A/T Gear Position Switch circuit • ECM	11-C-65
P1753 (19)*1	A/T Lock-up Control Solenoid Valve A Circuit Failure	• Lock-up Control Solenoid Valve A • Lock-up Control Solenoid Valve A circuit • ECM	11-C-64
P1758 (19)*1	A/T Lock-up Control Solenoid Valve B Circuit Failure	• Lock-up Control Solenoid Valve B • Lock-up Control Solenoid Valve B circuit • ECM	11-C-64

*1: A/T



System Description



*1: A/T

*2: D16W4 engine

*3: D16W4 engine (M/T)

*4: except D16W4 engine (M/T)

PGM-FI System

The PGM-FI system on this model is a sequential multiport fuel injection system.

Fuel injector Timing and Duration

The ECM contains memories for the basic discharge durations at various engine speeds and manifold air flow rates. The basic discharge duration, after being read out from the memory, is further modified by signals sent from various sensors to obtain the final discharge duration.

Idle Air Control

Idle Air Control Valve (IAC Valve)

When the engine is cold, the A/C compressor is on, the transmission is in gear, the brake pedal is depressed, or the alternator is charging, the ECM controls current to the IAC Valve to maintain the correct idle speed.

Ignition Timing Control

- The ECM/PCM contains memories for basic ignition timing at various engine speeds and manifold air flow rates. Ignition timing is also adjusted for engine coolant temperature.
- A knock control system was adopted which sets the ideal ignition timing for the octane rating of the gasoline used.*2

Other Control Functions

1. Starting Control

When the engine is started, the ECM provides a rich mixture by increasing fuel injector duration.

2. Fuel Pump Control

- When the ignition switch is initially turned on, the ECM supplies ground to the PGM-FI main relay that supplies current to the fuel pump for two seconds to pressurize the fuel system.
- When the engine is running, the ECM supplies ground to the PGM-FI main relay that supplies current to the fuel pump.
- When the engine is not running and the ignition is on, the ECM cuts ground to the PGM-FI main relay which cuts current to the fuel pump.

(cont'd)

PGM-FI System

System Description (cont'd)

3. Fuel Cut-off Control

- During deceleration with the throttle valve closed, current to the fuel injectors is cut off to improve fuel economy at speeds over the 990 rpm (min^{-1}).
- Fuel cut-off action also takes place at the following engine speeds*, regardless of the position of the throttle valve, to protect the engine from over-revving.
 - B14Z3, D14Z4, D16W3 engine: 6,800 rpm (min^{-1})
 - D16W4 engine: 6,900 rpm (min^{-1})

With A/T model, when the vehicle stops, the ECM cuts the fuel at engine speed over 5,000 rpm (min^{-1}).

4. A/C Compressor Clutch Relay

When the ECM receives a demand for cooling from the air conditioning system, it delays the compressor from being energized, and enriches the mixture to assure smooth transition to the A/C mode.

5. Evaporative Emission (EVAP) Purge Control Solenoid Valve

When the engine coolant temperature is above 68°C (154°F), the ECM controls the EVAP purge control solenoid valve which controls vacuum to the EVAP purge control canister.

ECM Fail-safe/Back-up Functions

1. Fail-safe Function

When an abnormality occurs in a signal from a sensor, the ECM ignores that signal and assumes a pre-programmed value for that sensor that allows the engine to continue to run.

2. Back-up Function

When an abnormality occurs in the ECM itself, the fuel injectors are controlled by a back-up circuit independent of the system in order to permit minimal driving.

3. Self-diagnosis Function [Malfunction Indicator Lamp (MIL)]

When an abnormality occurs in a signal from a sensor, the ECM supplies ground for the MIL and stores the DTC in erasable memory. When the ignition is initially turned on, the ECM supplies ground for the MIL for two seconds to check the MIL bulb condition.

4. Two Driving Cycle Detection Method

To prevent false indications, the "two driving cycle detection method" is used for the TWC deterioration detection and other self-diagnostic functions. When an abnormality occurs, the ECM stores it in its memory. When the same abnormality recurs after switch is turned OFF and ON (II) again, the ECM informs the driver by turning on the MIL.



Engine Control Module (ECM)

The Malfunction Indicator Lamp (MIL) never comes on (even for two seconds) after ignition is turned ON (II).

NOTE:

- If this symptom is intermittent, check for:
 - A loose ECU (ECM) (15 A) fuse in the under-hood fuse/relay box
 - A loose No. 15 BACK UP LIGHTS (10 A) fuse in the under-dash fuse/relay box
 - A loose No. 24 (without SRS model: No. 12) FUEL PUMP (15 A) in the under-dash fuse/relay box
 - An intermittent short in the wire between the ECM (A18) and the gauge assembly
 - An intermittent short in the wire between the ECM (D4) and the MAP sensor
 - An intermittent short in the wire between the ECM (D10) and the TP sensor
 - PGM-FI main relay

Check the inertia switch:

1. Press the inertia switch button.
2. Turn the ignition switch ON (II).

Does the MIL come on for two seconds after ignition switch turned ON (II)?

YES

Intermittent failure, system is OK at this time.

NO

Check the inertia switch:

1. Disconnect the inertia switch 3P connector.
2. Connect the inertia switch 3P connector terminals No. 1 and No. 3 with a jumper wire.

Does the MIL come on for two seconds after ignition switch turned ON (II)?

YES

Replace the inertia switch.

NO

Check the fuse:

Turn the ignition switch ON (II).

Is the low oil pressure light on?

NO

- Repair short in the wire between No. 15 BACK UP LIGHTS (10 A) fuse and gauge assembly.
- Replace No. 15 BACK UP LIGHTS (10 A) fuse.

YES

Check the engine starting:
Try to start the engine.

Does the engine start?

YES

- Check for an open in the wire or bulb (MIL line):**
1. Turn the ignition switch OFF.
 2. Connect the ECM connector terminal A18 to body ground.
 3. Turn the ignition switch ON (II).

NO

Is the MIL on?

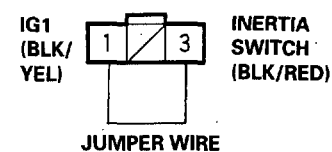
NO

- Repair open wire between the ECM (A18) and the gauge assembly.
- Replace the MIL bulb.

YES

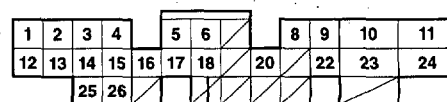
Substitute a known-good ECM and recheck (see page 11-C-11 for immobilizer information). If symptom/indication goes away, replace the original ECM.

INERTIA SWITCH 3P CONNECTOR



Wire side of female terminals

ECM CONNECTOR A (32P)



MIL (GRN/ORN)
JUMPER WIRE

Wire side of female terminals

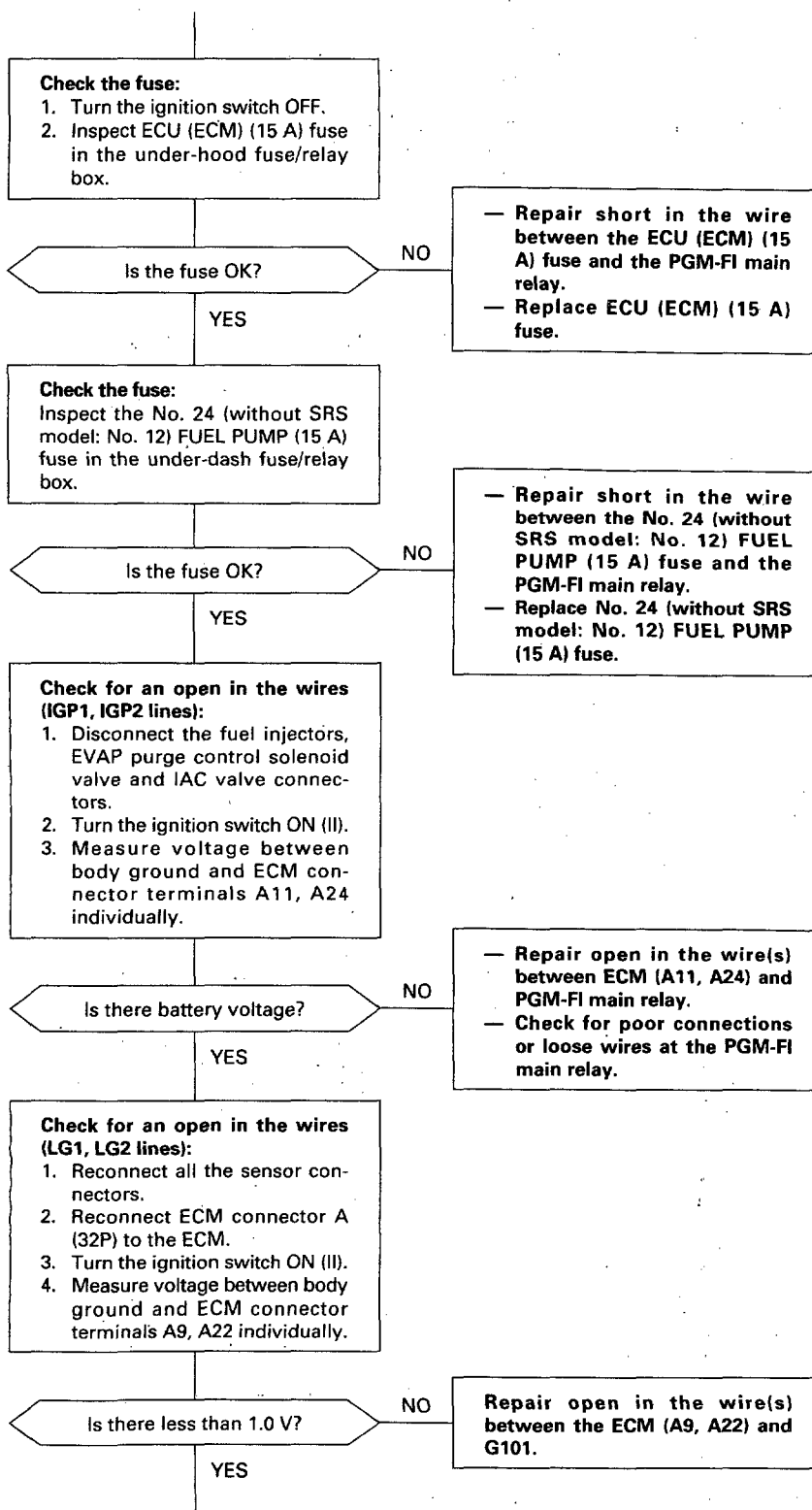
(To page 11-C-26)

(cont'd)

PGM-FI System

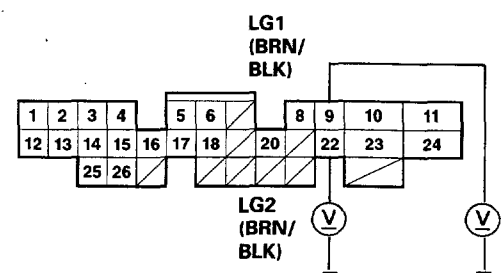
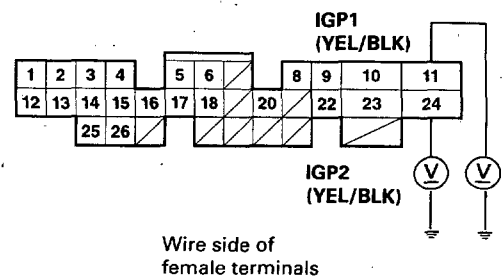
Engine Control Module (ECM) (cont'd)

(From page 11-C-25)



(To page 11-C-27)

ECM CONNECTOR A (32P)





(From page 11-C-26)

Check for a short in the wires (VCC1, VCC2 lines):
Measure voltage between body ground and ECM connector terminals D4 and D10 individually.

Is there approx. 5 V?

YES

Substitute a known-good ECM and recheck (see page 11-C-11 for immobilizer information). If symptom/indication goes away, replace the original ECM.

NO

Check for a short in a sensor.

While measuring voltage between body ground and ECM connector terminals D4 and D10 individually, disconnect the 3P connector of each sensor one at time:

- MAP sensor
- TP sensor

Is there approx. 5 V?

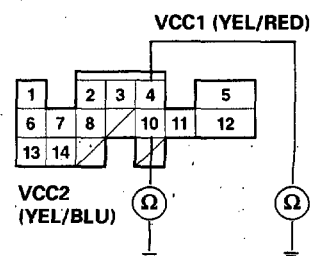
YES

Replace the sensor that had approx. 5 V.

NO

Repair short in the wire between MAP sensor, TP sensor and ECM (D4, D10).

ECM CONNECTOR D (16P)



Wire side of female terminals

(cont'd)

PGM-FI System

Engine Control Module (ECM) (cont'd)

The Malfunction Indicator Lamp (MIL) stays on or comes on after two seconds.

NOTE:

- When there is no Diagnostic Trouble Code (DTC) stored, the MIL will stay on if the SCS short connector is connected and the ignition switch is ON (II).
- If this symptom is intermittent, check for:
 - An intermittent short in the wire between the ECM (C7) and the service check connector.
 - An intermittent short in the wire between the ECM (A18) and the gauge assembly.

Check the DTC by MIL indication:

1. Turn the ignition switch OFF.
2. Connect the SCS short connector to the service check connector.
3. Turn the ignition switch ON (II).

Does the MIL indicate any DTC?

YES

Go to troubleshooting procedures (see page 11-C-10).

NO

Check the engine starting:

1. Remove the SCS short connector from the service check connector.
2. Try to start the engine.

Does the engine start?

NO

Substitute a known-good ECM and recheck (see page 11-C-11 for immobilizer information). If symptom/indication goes away, replace the original ECM.

YES

Check for a short in the wire (SCS line):

1. Turn the ignition switch OFF and turn the ignition switch ON (II).
2. Measure voltage between body ground and the ECM connector terminal C7.

Is there battery voltage?

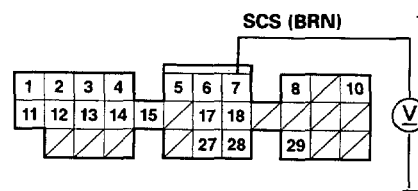
NO

Repair short to body ground in the wire between ECM (C7) and service check connector.

YES

(To page 11-C-29)

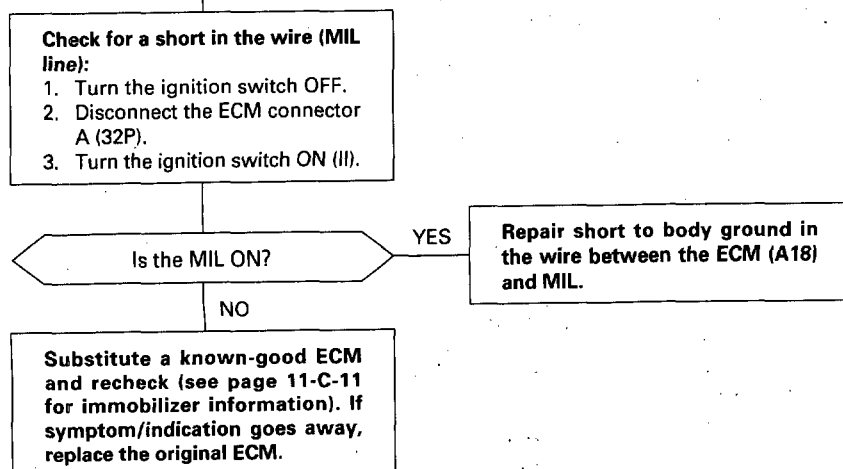
ECM CONNECTOR C (31P)



Wire side of female terminals



(From page 11-C-28)

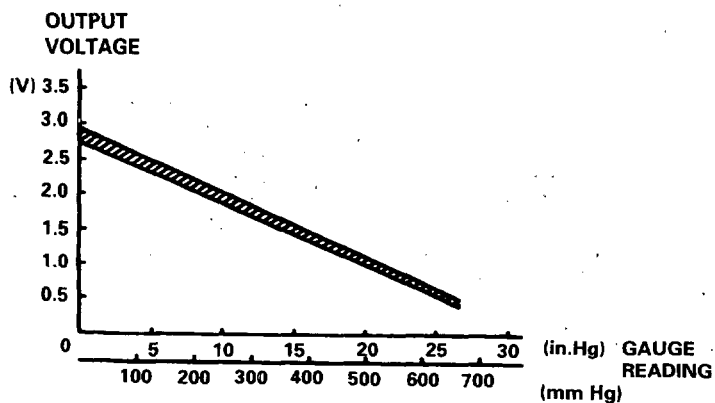
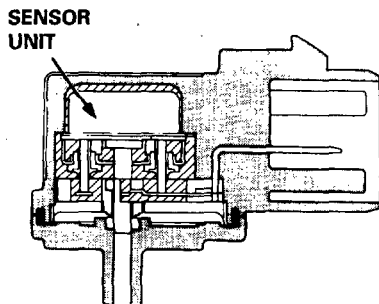


PGM-FI System

Manifold Absolute Pressure (MAP) Sensor

P0107 The scan tool indicates Diagnostic Trouble Code (DTC) P0107: A low voltage (high vacuum) problem in the Manifold Absolute Pressure (MAP) sensor.

The MAP sensor converts manifold absolute pressure into electrical signals and inputs the ECM.



— The MIL has been reported on.
— DTC P0107 is stored.

Problem verification:

1. Turn the ignition switch ON (II).
2. Check the MAP with the scan tool.

Is approx. 101 kPa (760 mmHg, 30 in.Hg) or 1.0 V indicated?

YES

Intermittent failure, system is OK at this time. Check for poor connections or loose wires between the MAP sensor and ECM.

NO

Check for an open in wire (VCC1 line):

1. Turn the ignition switch OFF.
2. Disconnect the MAP sensor 3P connector.
3. Turn the ignition switch ON (II).
4. Measure voltage between the MAP sensor connector No. 1 terminal and No. 2 terminal.

Is there approx. 5 V?

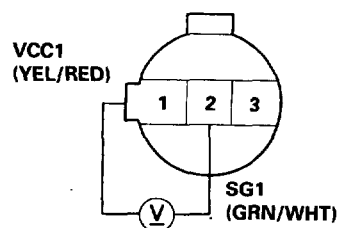
NO

Repair open in the wire between ECM (D4) and MAP sensor.

YES

(To page 11-C-31)

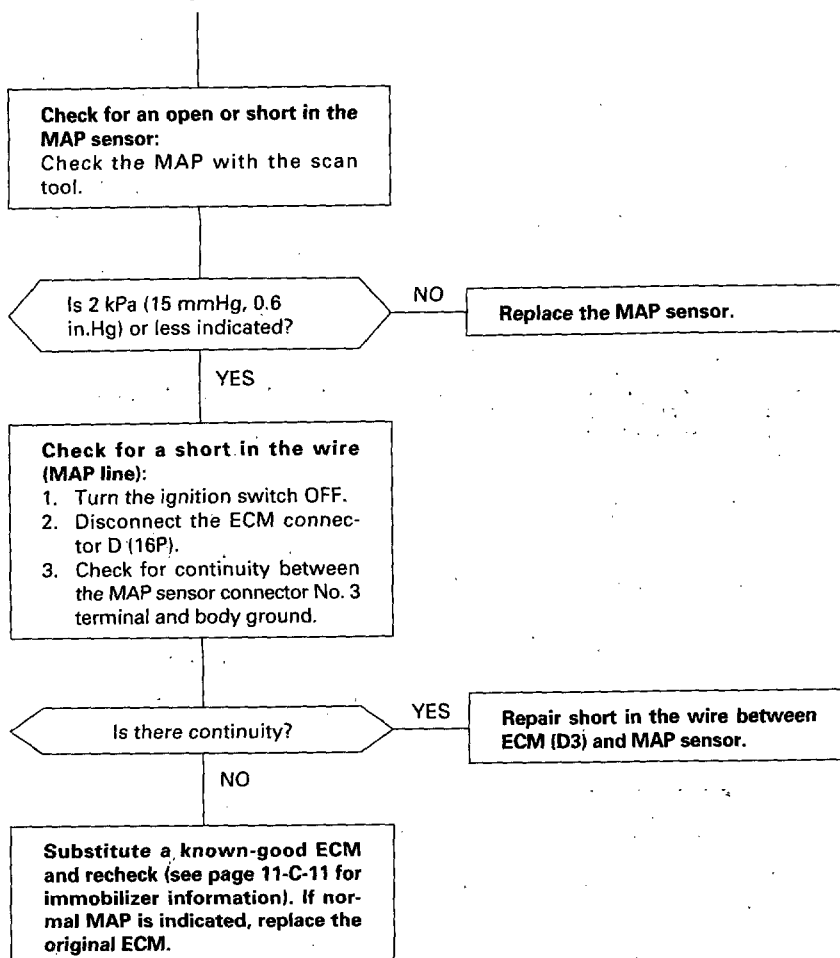
MAP SENSOR 3P CONNECTOR



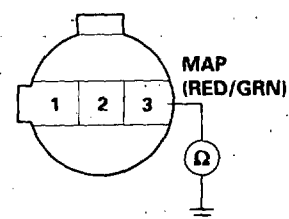
Wire side of female terminals



(From page 11-C-30)



MAP SENSOR 3P CONNECTOR



Wire side of female terminals

(cont'd)

PGM-FI System

Manifold Absolute Pressure (MAP) Sensor (cont'd)

P0108 The scan tool indicates Diagnostic Trouble Code (DTC) P0108: A high voltage (low vacuum) problem in the Manifold Absolute Pressure (MAP) sensor.

- The MIL has been reported on.
- DTC P0108 is stored.

Problem verification:

1. Start the engine. Hold the engine at 3,000 rpm (min⁻¹) with no load (A/T in [N] or [P] position, M/T in neutral) until the radiator fan comes on, then let it idle.
2. Check the MAP with the scan tool.

Is 101 kPa (760 mmHg, 30.0 in.Hg), 1.0 V or higher indicated?

NO

Intermittent failure, system is OK at this time. Check for poor connections or loose wires between the MAP sensor and ECM.

YES

Check for an open in the MAP sensor:

1. Turn the ignition switch OFF.
2. Disconnect the MAP sensor 3P connector.
3. Install a jumper wire between the MAP sensor 3P connector terminals No. 3 and No. 2.
4. Turn the ignition switch ON (II).
5. Check the MAP with the scan tool.

Is 101 kPa (760 mmHg, 30.0 in.Hg), 1.0 V or higher indicated?

NO

Replace the MAP sensor.

YES

Check for an open in wire (SG1 line):

1. Remove the jumper wire.
2. Measure voltage between the MAP sensor 3P connector terminals No. 1 and No. 2.

Is there approx. 5 V?

NO

Repair open in the wire between ECM (D12) and MAP sensor.

YES

Check for an open in the wire (MAP line):

1. Turn the ignition switch OFF.
2. Connect the ECM connector terminals D3 and D12 with a jumper wire.
3. Turn the ignition switch ON (II).
4. Check the MAP with the scan tool.

Is 101 kPa (760 mmHg, 30.0 in.Hg), 1.0 V or higher indicated?

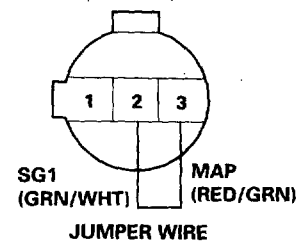
NO

Repair open in the wires between ECM (D3) and MAP sensor.

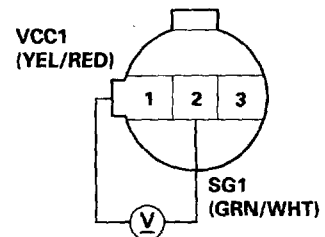
YES

Substitute a known-good ECM and recheck (see page 11-C-11 for immobilizer information). If normal MAP is indicated, replace the original ECM.

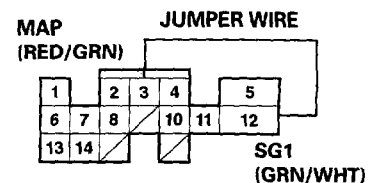
MAP SENSOR 3P CONNECTOR



Wire side of female terminals



ECM CONNECTOR C (16P)



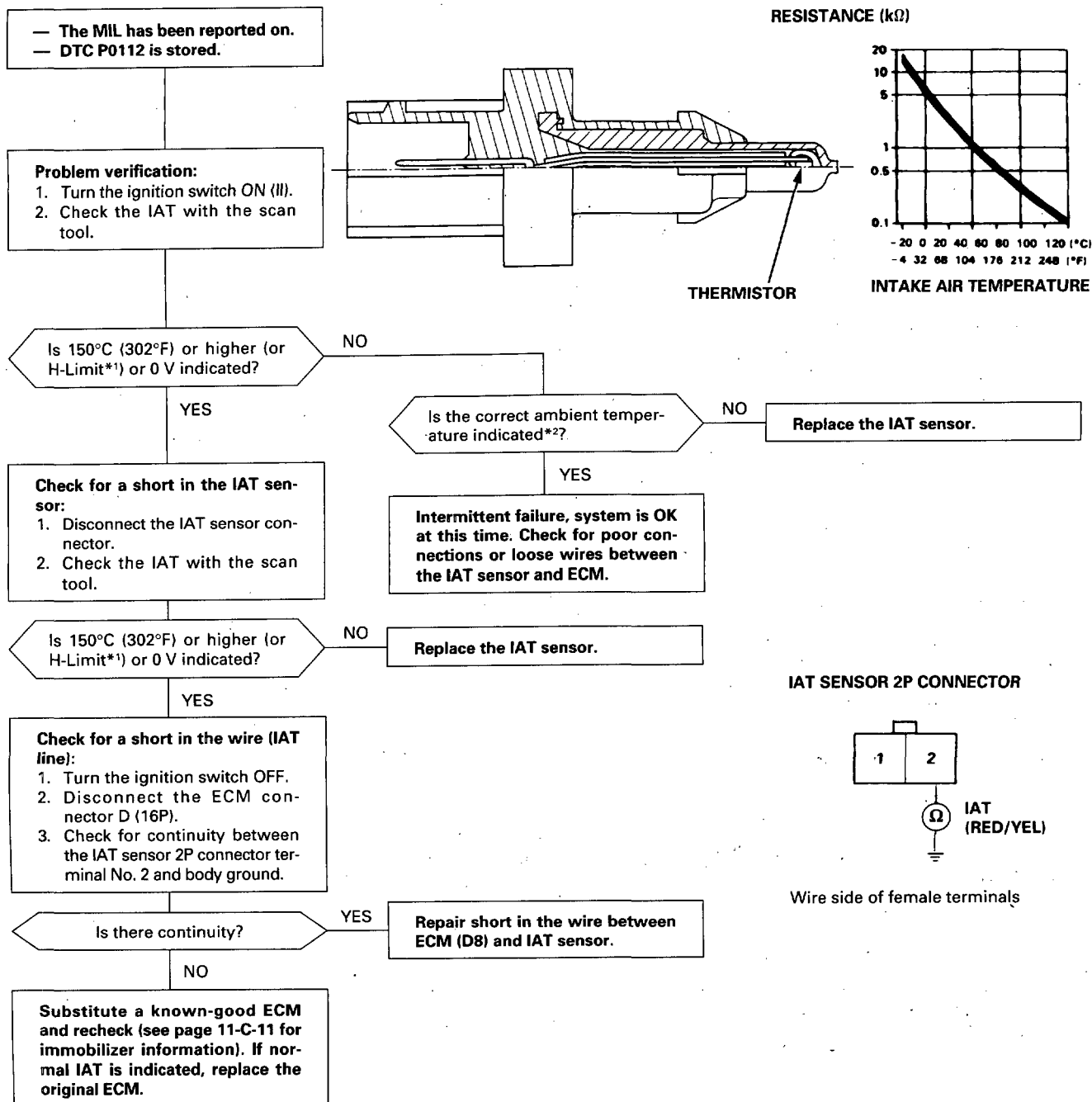
Wire side of female terminals



Intake Air Temperature (IAT) Sensor

P0112 The scan tool indicates Diagnostic Trouble Code (DTC) P0112: A low voltage (high temperature) problem in the Intake Air Temperature (IAT) sensor circuit.

The IAT Sensor is a temperature dependant resistor (thermistor). The resistance of the thermistor decreases as the intake air temperature increases as shown below.



*1: With Honda PGM Tester in Honda mode.

*2: If the engine is warm, it will be higher than ambient temperature.

(cont'd)

PGM-FI System

Intake Air Temperature (IAT) Sensor (cont'd)

P0113 The scan tool indicates Diagnostic Trouble Code (DTC) P0113: A high voltage (low temperature) problem in the Intake Air Temperature (IAT) sensor circuit.

- The MIL has been reported on.
- DTC P0113 is stored.

Problem verification:

1. Turn the ignition switch ON (II).
2. Check the IAT with the scan tool.

Is -20°C (-4°F) or less (or L-Limit*) or 5 V indicated?

NO

Intermittent failure, system is OK at this time. Check for poor connections or loose wires between the IAT sensor and ECM.

YES

Check for an open in the IAT sensor:

1. Disconnect the IAT sensor 2P connector.
2. Connect the IAT sensor 2P connector terminals No. 1 and No. 2 with a jumper wire.
3. Check the intake air temperature with the scan tool.

Is -20°C (-4°F) or less (or L-Limit*) or 5 V indicated?

NO

Replace the IAT sensor.

YES

Check for an open in the wires (IAT, SG2 lines):

1. Turn the ignition switch OFF.
2. Connect ECM connector terminals D8 and D11 with a jumper wire.
3. Turn the ignition switch ON (II).
4. Check the IAT with the scan tool.

Is -20°C (-4°F) or less (or L-Limit*) or 5 V indicated?

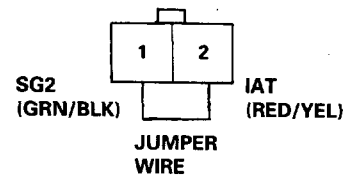
NO

Repair open in the wires between ECM (D8, D11) and IAT sensor.

YES

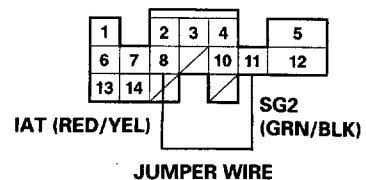
Substitute a known-good ECM and recheck (see page 11-C-11 for immobilizer information). If normal IAT is indicated, replace the original ECM.

IAT SENSOR 2P CONNECTOR



Wire side of female terminals

ECM CONNECTOR D (16P)



Wire side of female terminals

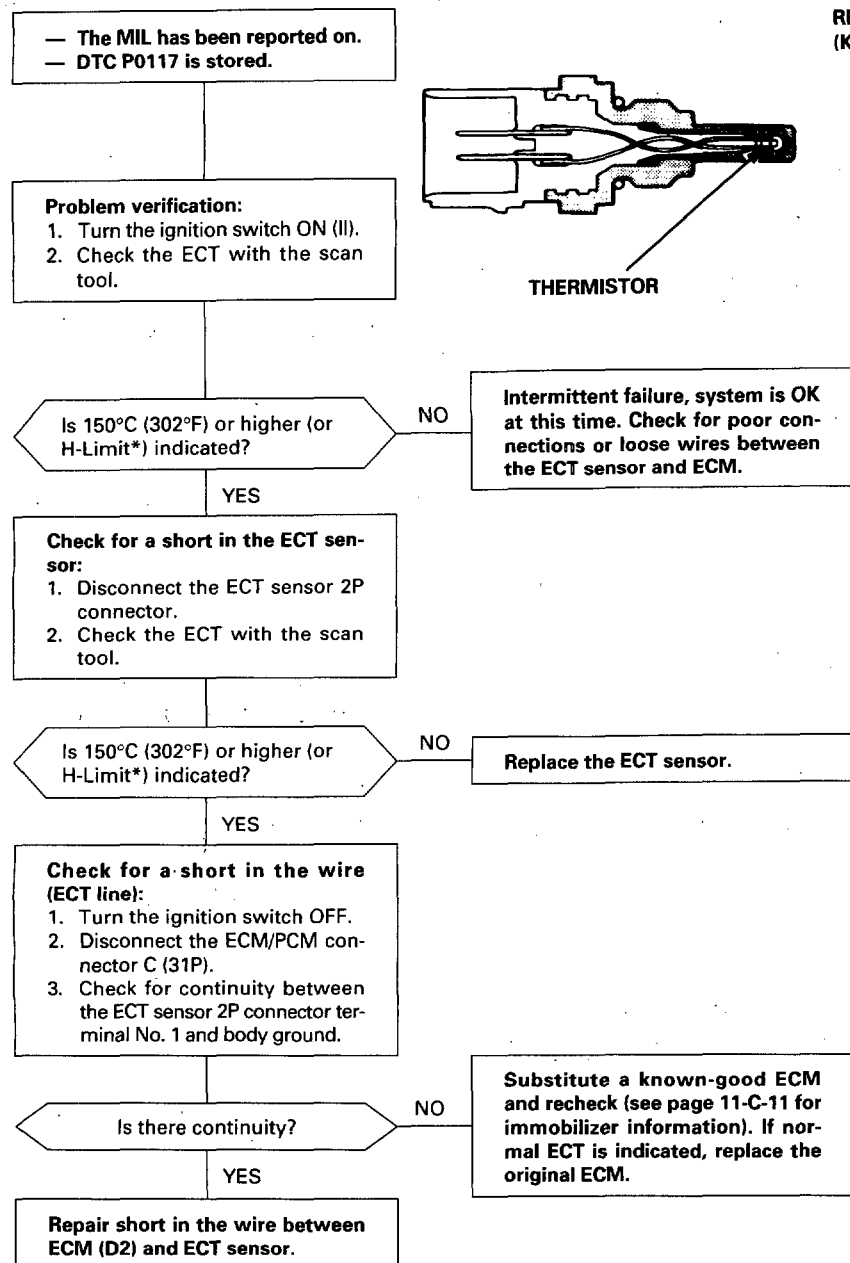
*: With Honda PGM Tester in Honda mode.



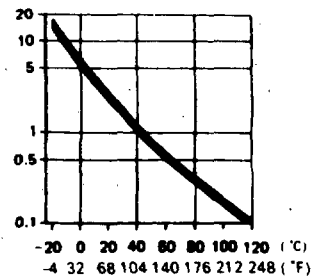
Engine Coolant Temperature (ECT) Sensor

P0117 The scan tool indicates Diagnostic Trouble Code (DTC) P0117: A low voltage (high temperature) problem in the Engine Coolant Temperature (ECT) sensor circuit.

The ECT Sensor is a temperature dependant resistor (thermistor). The resistance of the thermistor decreases as the engine coolant temperature increases as shown below.

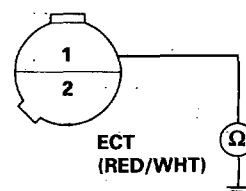


RESISTANCE (KΩ)



ENGINE COOLANT TEMPERATURE

ECT SENSOR 2P CONNECTOR



Wire side of female terminals

*: With Honda PGM Tester in Honda mode.

(cont'd)

PGM-FI System

Engine Coolant Temperature (ECT) Sensor (cont'd)

P0118 The scan tool indicates Diagnostic Trouble Code (DTC) P0118: A high voltage (low temperature) problem in the Engine Coolant Temperature (ECT) sensor circuit.

- The MIL has been reported on.
- DTC P0118 is stored.

Problem verification:

1. Turn the ignition switch ON (II).
2. Check the ECT with the scan tool.

Is -20°C (-4°F) or less (or L-Limit*) indicated?

NO

Intermittent failure, system is OK at this time. Check for poor connections or loose wires between the ECT sensor and ECM.

YES

Check for an open in the ECT sensor:

1. Disconnect the ECT sensor 2P connector.
2. Connect the ECT sensor 2P connector terminals No. 1 and No. 2 with a jumper wire.
3. Check the ECT with the scan tool.

Is -20°C (-4°F) or less (or L-Limit*) indicated?

NO

Replace the ECT sensor.

YES

Check for an open in the wires (ECT, SG2 lines):

1. Turn the ignition switch OFF.
2. Connect ECM connector terminals D2 and D11 with a jumper wire.
3. Turn the ignition switch ON (II).
4. Check the ECT with the scan tool.

Is -20°C (-4°F) or less (or L-Limit*) indicated?

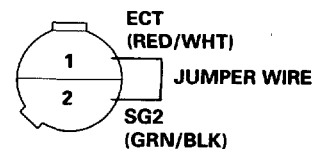
NO

Repair open in the wires between ECM (D2, D11) and ECT sensor.

YES

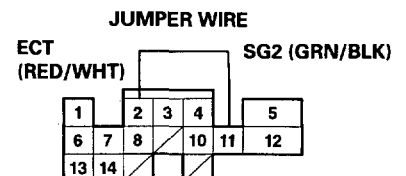
Substitute a known-good ECM and recheck (see page 11-C-11 for immobilizer information). If normal ECT is indicated, replace the original ECM.

ECT SENSOR 2P CONNECTOR



Wire side of female terminals

ECM CONNECTOR D (16P)



Wire side of female terminals

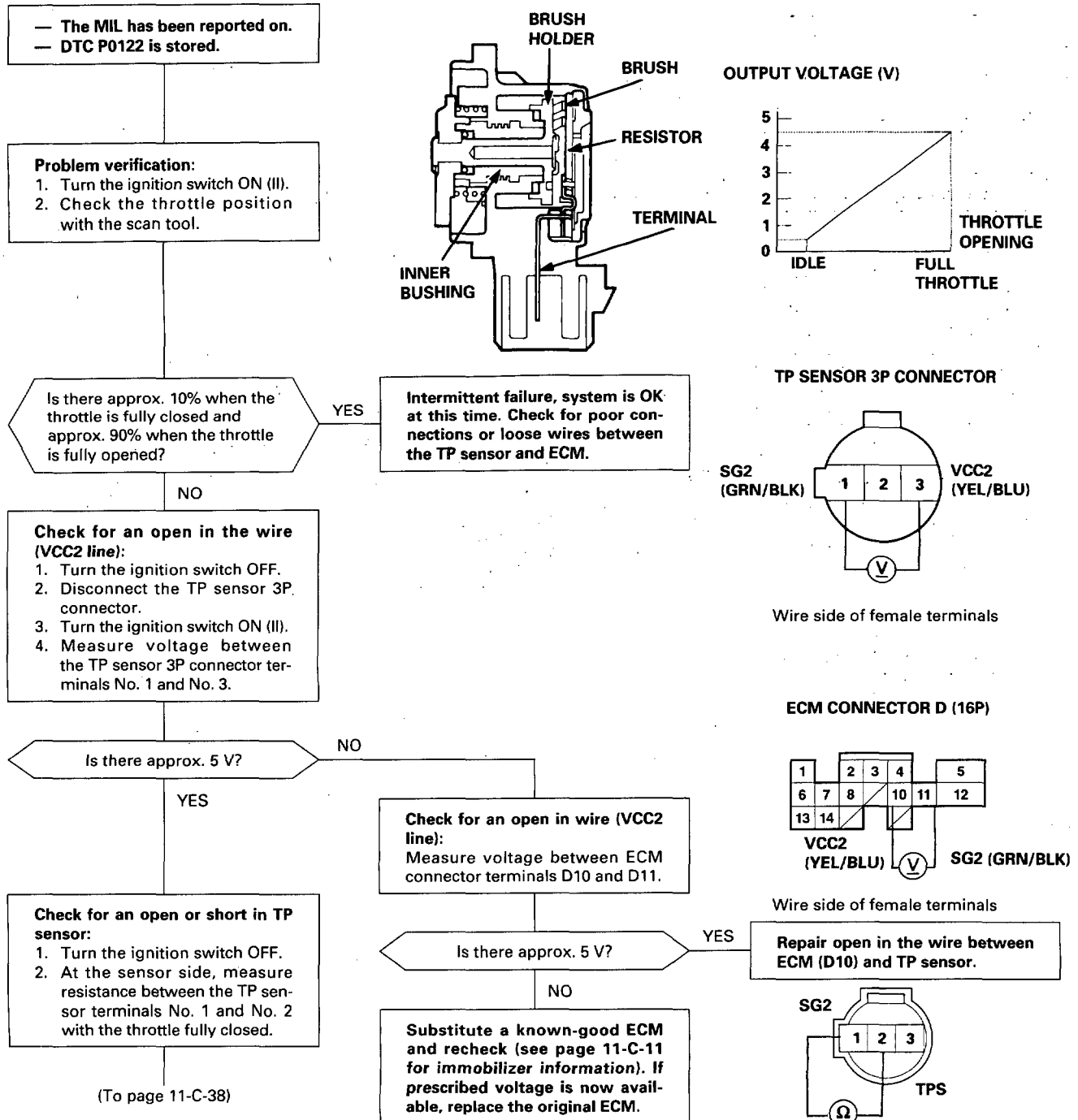
*: With Honda PGM Tester in Honda mode.



Throttle Position (TP) Sensor

P0122 The scan tool indicates Diagnostic Trouble Code (DTC) P0122: A low voltage problem in the Throttle Position (TP) sensor circuit.

The TP Sensor is a potentiometer. It is connected to the throttle valve shaft. As the throttle position changes, the throttle position sensor varies the voltage signal to the ECM.

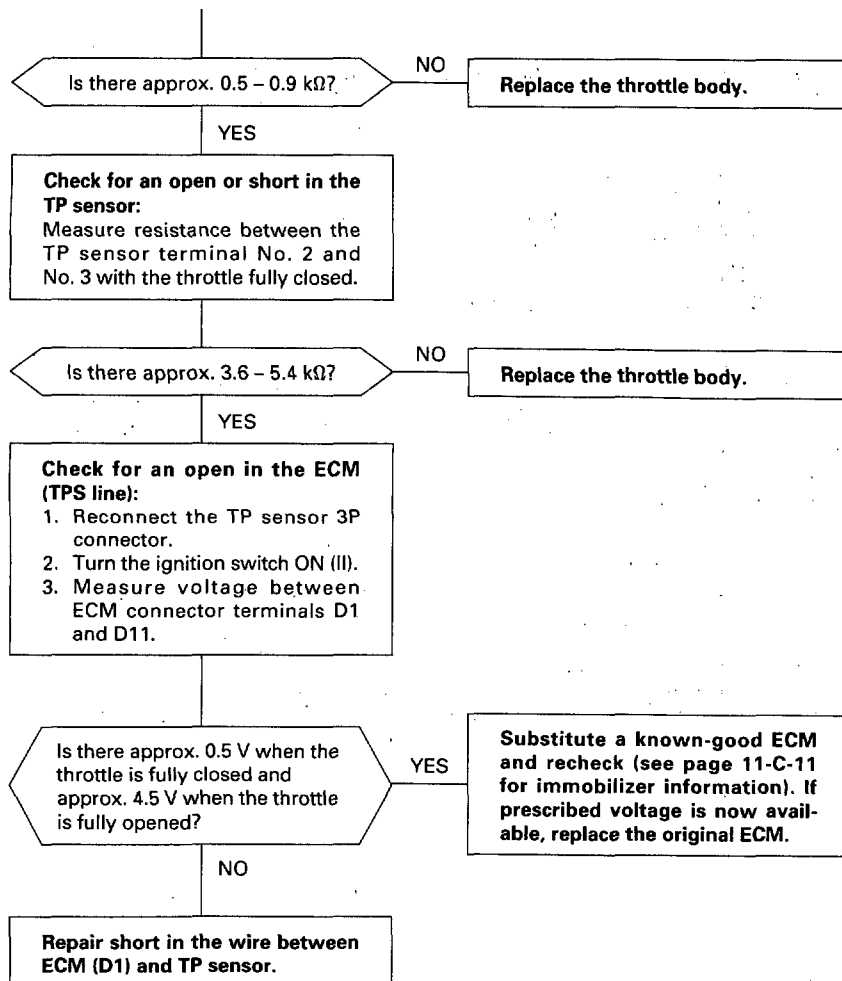


(cont'd)

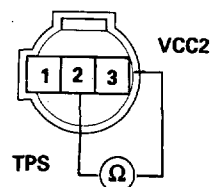
PGM-FI System

Throttle Position (TP) Sensor (cont'd)

(From page 11-C-37)

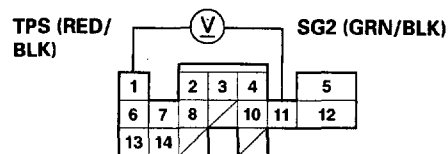


TP SENSOR 3P CONNECTOR



Terminal side of male terminals

ECM CONNECTOR D (16P)



Wire side of female terminals



P0123 The scan tool indicates Diagnostic Trouble Code (DTC) P0123: A high voltage problem in the Throttle Position (TP) sensor circuit.

- The MIL has been reported on.
- DTC P0123 is stored.

Problem verification:

1. Turn the ignition switch ON (II).
2. Check the throttle position with the scan tool.

Is there approx. 10% when the throttle is fully closed and approx. 90% when the throttle is fully opened?

YES

Intermittent failure, system is OK at this time. Check for poor connections or loose wires between the TP sensor and ECM.

NO

Check for an open in the TP sensor:

1. Turn the ignition switch OFF.
2. Disconnect the TP sensor 3P connector.
3. Turn the ignition switch ON (II).
4. At the harness side, measure voltage between the TP sensor 3P connector terminals No. 1 and No. 3.

Is there approx. 5 V?

YES

Replace the throttle body.

NO

Check for an open in the wire (SG2 line):

Measure voltage between ECM connector terminals D10 and D11.

Is there approx. 5 V?

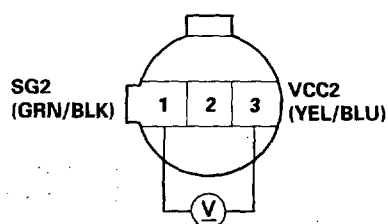
YES

Repair open in the wire between ECM (D11) and TP sensor.

NO

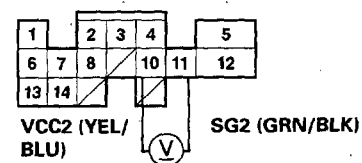
Substitute a known-good ECM and recheck (see page 11-C-11 for immobilizer information). If prescribed voltage is now available, replace the original ECM.

TP SENSOR 3P CONNECTOR



Wire side of female terminals

ECM CONNECTOR D (16P)



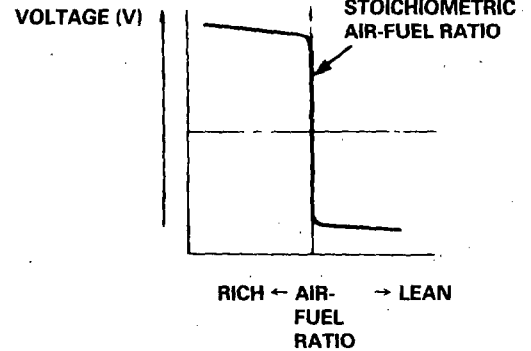
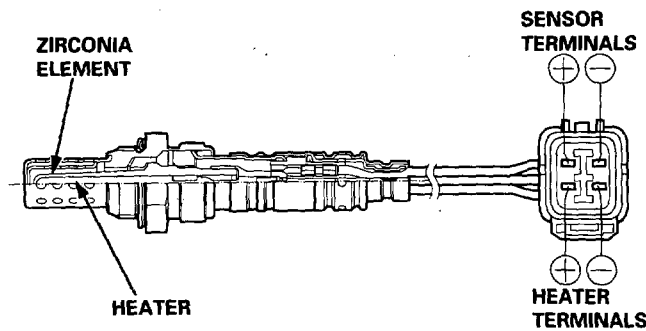
Wire side of female terminals

PGM-FI System

Primary Heated Oxygen Sensor (Primary HO2S) (Sensor 1)

The Heated Oxygen Sensor (HO2S) detects the oxygen content in the exhaust gas and signals the ECM. In operation, the ECM/PCM receives the signals from the sensor and varies the duration during which fuel is injected. To stabilize the sensor's output, the sensor has an internal heater. The Primary HO2S (Sensor 1) is installed in the exhaust manifold.

HO2S:



P0131

The scan tool indicates Diagnostic Trouble Code (DTC) P0131: A low voltage problem in the Primary Heated Oxygen Sensor (HO2S) (Sensor 1) circuit.

- The MIL has been reported on.
- DTC P0131 is stored.

Problem verification:

1. Do the ECM Reset Procedure.
2. Start the engine. Hold the engine at 3,000 rpm (min^{-1}) with no load (A/T in **N** or **P** position, M/T in neutral) until the radiator fan comes on.
3. Check the Primary HO2S (Sensor 1) output voltage with the scan tool during acceleration using wide open throttle.

Does the voltage stay at 0.5 V or less?

NO

Intermittent failure, system is OK at this time. Check for poor connections or loose wires between the Primary HO2S (sensor 1) and ECM.

YES

Check the fuel pressure.

Is it normal?

NO

Repair fuel supply system.

YES

(To page 11-C-41)



(From page 11-C-40)

Check for a short in the HO2S:

1. Turn the ignition switch OFF.
2. Disconnect the Primary HO2S (Sensor 1) 4P connector.
3. Start the engine and let it idle.
4. Check the Primary HO2S (Sensor 1) output voltage with the scan tool.

Does it stay at 0.5 V or less?

NO

Replace the Primary HO2S (Sensor 1).

YES

Check for a short in the wire (PHO2S line):

1. Turn the ignition switch OFF.
2. Disconnect the ECM connector D (16P).
3. Check for continuity between the Primary HO2S (Sensor 1) 4P connector terminal No. 1 and body ground.

Is there continuity?

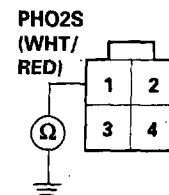
YES

Repair short in the wire between ECM (D11) and Primary HO2S (Sensor 1).

NO

Substitute a known-good ECM and recheck (see page 11-C-11 for immobilizer information). If symptom/indication goes away, replace the original ECM.

PRIMARY HO2S (Sensor 1) 4P CONNECTOR



Wire side of female terminals

(cont'd)

PGM-FI System

Primary Heated Oxygen Sensor (Primary HO2S) (Sensor 1) (cont'd)

P0132 The scan tool indicates Diagnostic Trouble Code (DTC) P0132: A high voltage problem in the Primary Heated Oxygen Sensor (Primary HO2S) (Sensor 1) circuit.

- The MIL has been reported on.
- DTC P0132 is stored.

Problem verification:

1. Do the ECM Reset Procedure.
2. Start the engine. Hold the engine at 3,000 rpm (min^{-1}) with no load (A/T in **N** or **P** position, M/T in neutral) until the radiator fan comes on.
3. Check the Primary HO2S (Sensor 1) output voltage with the scan tool during deceleration using completely closed throttle.

Does the voltage stay at 1.5 V or more?

NO

Intermittent failure, system is OK at this time. Check for poor connections or loose wires between the Primary HO2S (Sensor 1) and ECM.

YES

Check for an open in the Primary HO2S:

1. Turn the ignition switch OFF.
2. Disconnect the Primary HO2S (Sensor 1) 4P connector.
3. Connect the Primary HO2S (Sensor 1) 4P connector terminals No. 1 and No. 2 with a jumper wire.
4. Turn the ignition switch ON (II).
5. Check the Primary HO2S (Sensor 1) output voltage with the scan tool.

Is there 1.5 V or more?

NO

Replace the Primary HO2S (Sensor 1).

YES

Check for an open in the wire (PHO2S line):

1. Turn the ignition switch OFF.
2. Connect ECM connector terminals D7 and D11 with a jumper wire.
3. Turn the ignition switch ON (II).
4. Check the Primary HO2S (Sensor 1) output voltage with the scan tool.

Is there 1.5 V or more?

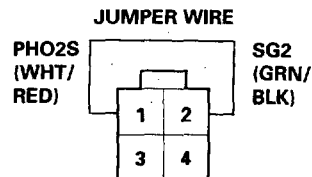
NO

Repair open in the wire between ECM (D7) and Primary HO2S (Sensor 1).

YES

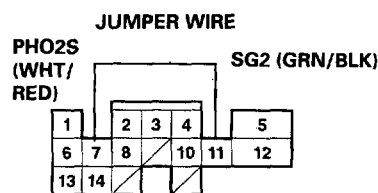
Substitute a known-good ECM and recheck (see page 11-C-11 for immobilizer information). If symptom/indication goes away, replace the original ECM.

PRIMARY HO2S (Sensor 1) 4P CONNECTOR



Wire side of female terminals

ECM CONNECTOR D (16P)



Wire side of female terminals

**P0133**

The scan tool indicates Diagnostic Trouble Code (DTC) P0133: A slow response problem in the Primary Heated Oxygen Sensor (Primary HO2S) (Sensor 1) circuit.

Description

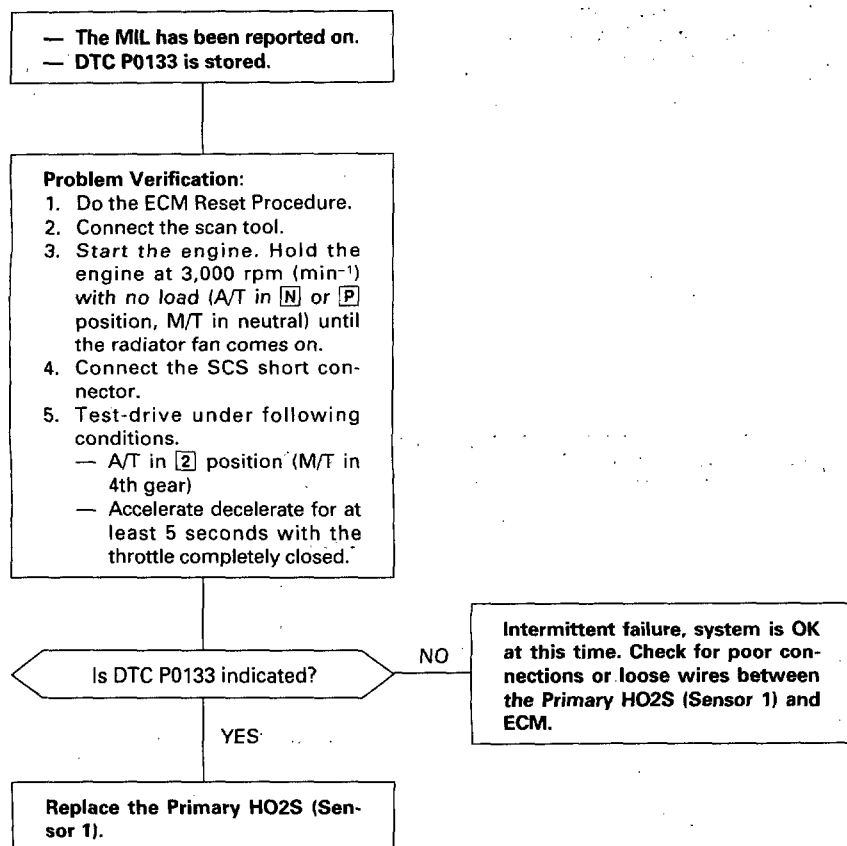
By controlling the air/fuel ratio with a Primary HO2S (Sensor 1) and a Secondary HO2S (Sensor 2), the deterioration of the Primary HO2S (Sensor 1) can be evaluated by its feedback period. When the feedback period of the HO2S exceeds a certain value during stable driving conditions, the sensor will be judged as deteriorated.

When deterioration has been detected during two consecutive trips, the MIL comes on and DTC P0133 will be stored.

NOTE: If DTC P0131, P0132 and/or P0135 are stored at the same time as DTC P0133, troubleshoot those DTCs first, then troubleshoot DTC P0133.

Possible Cause

- Primary HO2S (Sensor 1) Deterioration
- Primary HO2S Heater (Sensor 1) Deterioration
- Exhaust system leakage

Troubleshooting Flowchart

PGM-FI System

Secondary Heated Oxygen Sensor (Secondary HO2S) (Sensor 2)

P0137 The scan tool indicates Diagnostic Trouble Code (DTC) P0137: A low voltage problem in the Secondary Heated Oxygen Sensor (Secondary HO2S) (Sensor 2) circuit.

- The MIL has been reported on.
- DTC P0137 is stored.

Problem verification:

1. Do the ECM Reset Procedure.
2. Start the engine. Hold the engine at 3,000 rpm (min⁻¹) with no load (A/T in **N** or **P** position, M/T in neutral) until the radiator fan comes on.
3. With the scan tool, check the Secondary HO2S (Sensor 2) output voltage at 3,000 rpm (min⁻¹).

Does the voltage stay at 0.3 V or less?

NO

Intermittent failure, system is OK at this time. Check for poor connections or loose wires between the Secondary HO2S (Sensor 2) and ECM.

YES

Check for a short in the Secondary HO2S:

1. Turn the ignition switch OFF.
2. Disconnect the Secondary HO2S (Sensor 2) 4P connector.
3. Start the engine.
4. Check the Secondary HO2S (Sensor 2) output with the scan tool.

Does the voltage stay at 0.3 V or less?

NO

Replace the Secondary HO2S.

YES

Check for a short in the wire (SHO2S line):

1. Turn the ignition switch OFF.
2. Disconnect the ECM connector D (16P).
3. Check for continuity between the Secondary HO2S (Sensor 2) 4P connector terminal No. 1 and body ground.

Is there continuity?

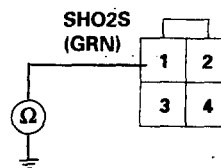
YES

Repair short in the wire between ECM (D14) and Secondary HO2S (Sensor 2).

NO

Substitute a known-good ECM and recheck (see page 11-C-11 for immobilizer information). If symptom/indication goes away, replace the original ECM.

SECONDARY HO2S (Sensor 2) 4P CONNECTOR



Wire side of female terminals



P0138

The scan tool indicates Diagnostic Trouble Code (DTC) P0138: A high voltage problem in the Secondary Heated Oxygen Sensor (Secondary HO2S) (Sensor 2) circuit.

- The MIL has been reported on.
- DTC P0138 is stored.

Problem verification:

1. Do the ECM Reset Procedure.
2. Start the engine. Hold the engine at 3,000 rpm (min^{-1}) with no load (A/T in **N** or **P** position, M/T in neutral) until the radiator fan comes on.
3. With the scan tool, check the Secondary HO2S (Sensor 2) output voltage at 3,000 rpm (min^{-1}).

Does the voltage stay at 0.6 V or more?

NO

Intermittent failure, system is OK at this time. Check for poor connections or loose wires between the Secondary HO2S (Sensor 2) and ECM.

YES

Check for an open in the Secondary HO2S:

1. Turn the ignition switch OFF.
2. Disconnect the Secondary HO2S (Sensor 2) 4P connector.
3. Connect the Secondary HO2S (Sensor 2) 4P connector terminals No. 1 and No. 2 with a jumper wire.
4. Turn the ignition switch ON (II).
5. Check the Secondary HO2S (Sensor 2) output voltage with the scan tool.

Is there 0.6 V or more?

NO

Replace the Secondary HO2S (Sensor 2).

YES

Check for an open in the wire (SHO2S line):

1. Turn the ignition switch OFF.
2. Connect ECM connector terminals D13 and D14 with a jumper wire.
3. Turn the ignition switch ON (II).
4. Check the Secondary HO2S (Sensor 2) output voltage with the scan tool.

Is there 0.6 V or more?

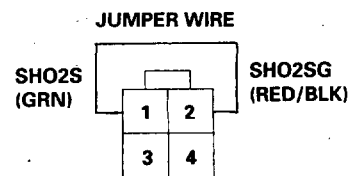
NO

Repair open in the wire between ECM (D13, D14) and Secondary HO2S (Sensor 2).

YES

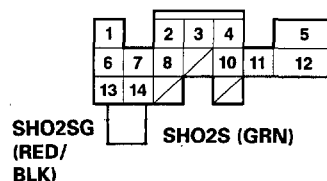
Substitute a known-good ECM and recheck (see page 11-C-11 for immobilizer information). If symptom/indication goes away, replace the original ECM.

SECONDARY HO2S (Sensor 2) 4P CONNECTOR



Wire side of female terminals

ECM CONNECTORS D (16P)



JUMPER WIRE

Wire side of female terminals

(cont'd)

PGM-FI System

Secondary Heated Oxygen Sensor (Secondary HO2S) (Sensor 2) (cont'd)

P0139 The scan tool indicates Diagnostic Trouble Code (DTC) P0139: A slow response problem in the Secondary Heated Oxygen Sensor (HO2S) (Sensor 2) circuit.

- The MIL has been reported on.
- DTC P0139 is stored.

Problem verification:

1. Do the ECM Reset Procedure.
2. Start the engine. Hold the engine at 3,000 rpm (min^{-1}) with no load (A/T in **N** or **P** position, M/T in neutral) until the radiator fan comes on.
3. With the scan tool, check the Secondary HO2S (Sensor 2) output at 3,000 rpm (min^{-1}).

Does the voltage stay within 0.3 – 0.6 V for two minutes?

NO

Intermittent failure, system is OK at this time. Check for poor connections or loose wires between the Secondary HO2S (Sensor 2) and ECM.

YES

Replace the Secondary HO2S (Sensor 2).



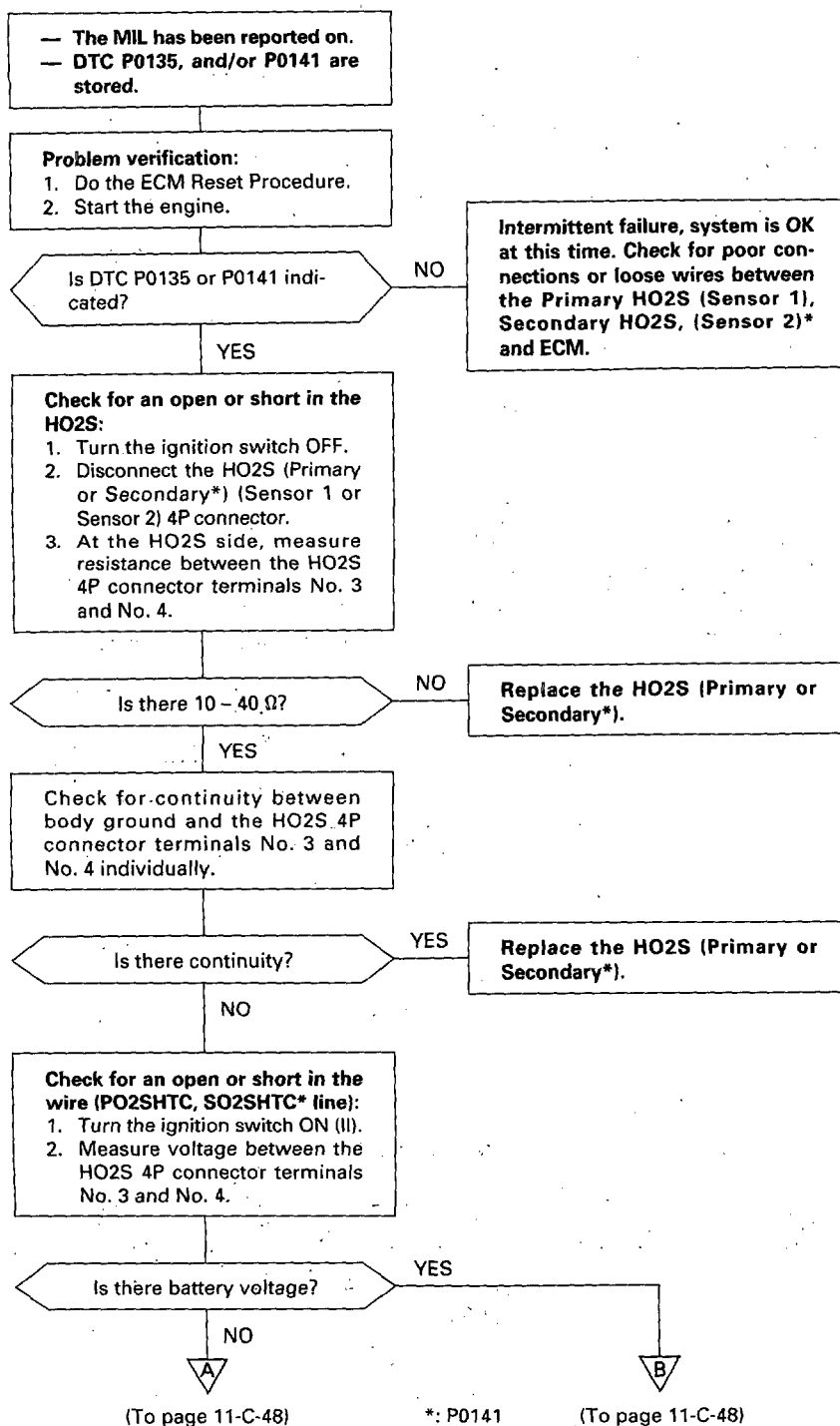
Heated Oxygen Sensor (HO2S) Heater

P0135

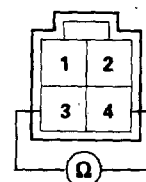
The scan tool indicates Diagnostic Trouble Code (DTC) P0135: An electrical problem in the Primary Heated Oxygen Sensor (Primary HO2S) (Sensor 1) Heater system.

P0141

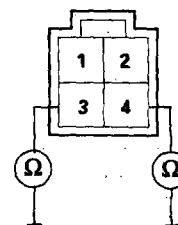
The scan tool indicates Diagnostic Trouble Code (DTC) P0141: A problem in the Secondary Heated Oxygen Sensor (Secondary HO2S) (Sensor 2) Heater circuit.



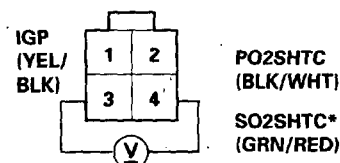
PRIMARY HO2S (Sensor 1) 4P CONNECTOR
SECONDARY HO2S (Sensor 2) 4P CONNECTOR*



Terminal side of male terminals



PRIMARY HO2S (Sensor 1)
SECONDARY HO2S (Sensor 2)* 4P CONNECTOR



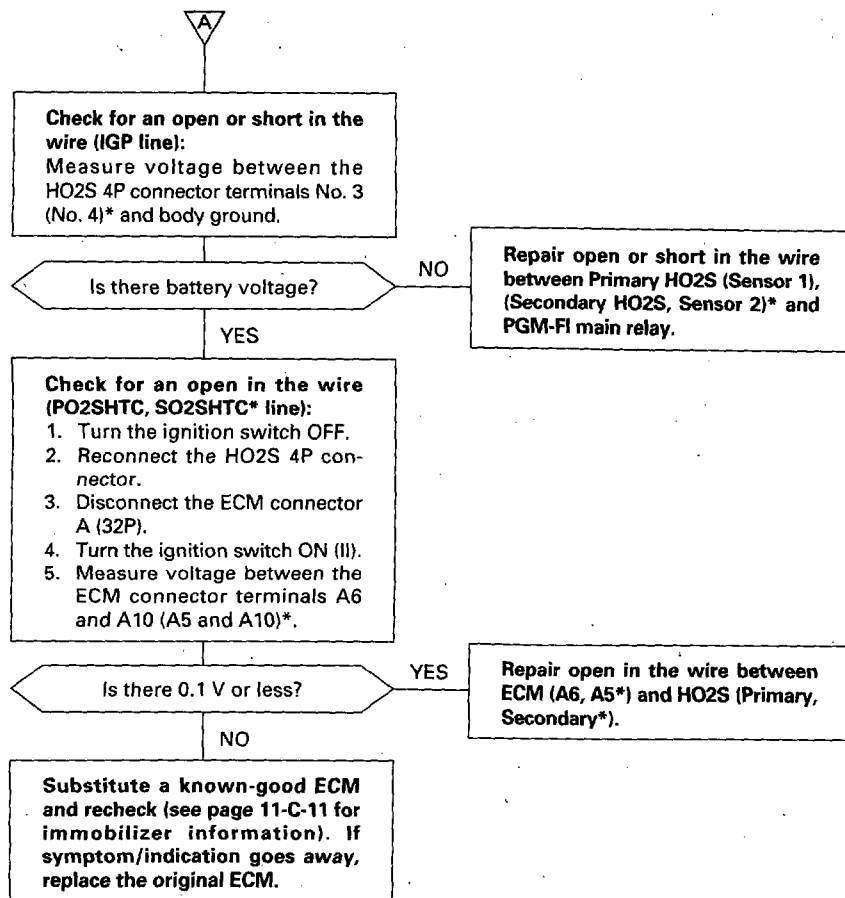
Wire side of female terminals

(cont'd)

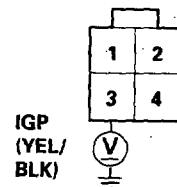
PGM-FI System

Heated Oxygen Sensor (HO2S) Heater (cont'd)

(From page 11-C-47)

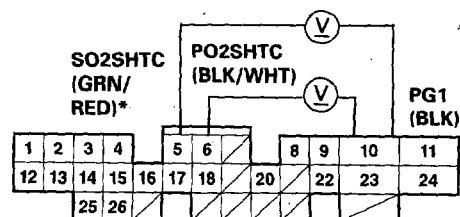


PRIMARY HO2S (Sensor 1) 4P CONNECTOR



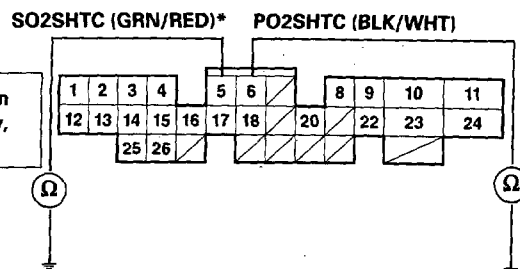
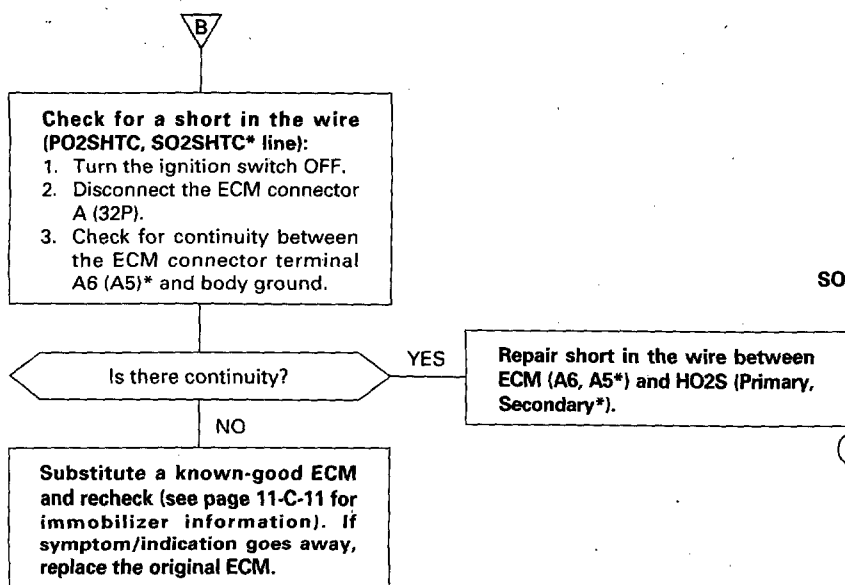
Wire side of female terminals

ECM CONNECTORS A (32P)



Wire side of female terminals

(From page 11-C-47)



*: P0141



Fuel Supply System

P0171 The scan tool indicates Diagnostic Trouble Code (DTC) P0171: The fuel system is too lean.

P0172 The scan tool indicates Diagnostic Trouble Code (DTC) P0172: The fuel system is too rich.

Description

By monitoring the Long Term Fuel Trim, long term malfunctions in the fuel system will be detected.

If a malfunction has been detected during two consecutive trips, the MIL will come on and DTC P0171 and/or P0172 will be stored.

NOTE: If some of the DTCs listed below are stored at the same time as DTC P0171 and/or P0172, troubleshoot those DTCs first, then troubleshoot DTC P0171 and/or P0172.

P0107, P0108: MAP Sensor

P0135: Primary HO2S Heater

P0137-8: Secondary HO2S

P0141: Secondary HO2S Heater

P0443: EVAP Purge Control Solenoid Valve

P1259: VTEC System*

*: D16W4 engine

Possible Cause

DTC P0171
System too lean

- Fuel Pump insufficient flow/pressure
- Fuel Feed Line clogged, leaking
- Fuel Pressure Regulator stuck open
- Fuel Filter clogged
- Fuel Injector clogged, air inclusion
- Gasoline doesn't meet Owner's Manual spec.
- Primary HO2S (Sensor 1) deteriorated
- Valve Clearance
- Exhaust leak

DTC P0172
System too rich

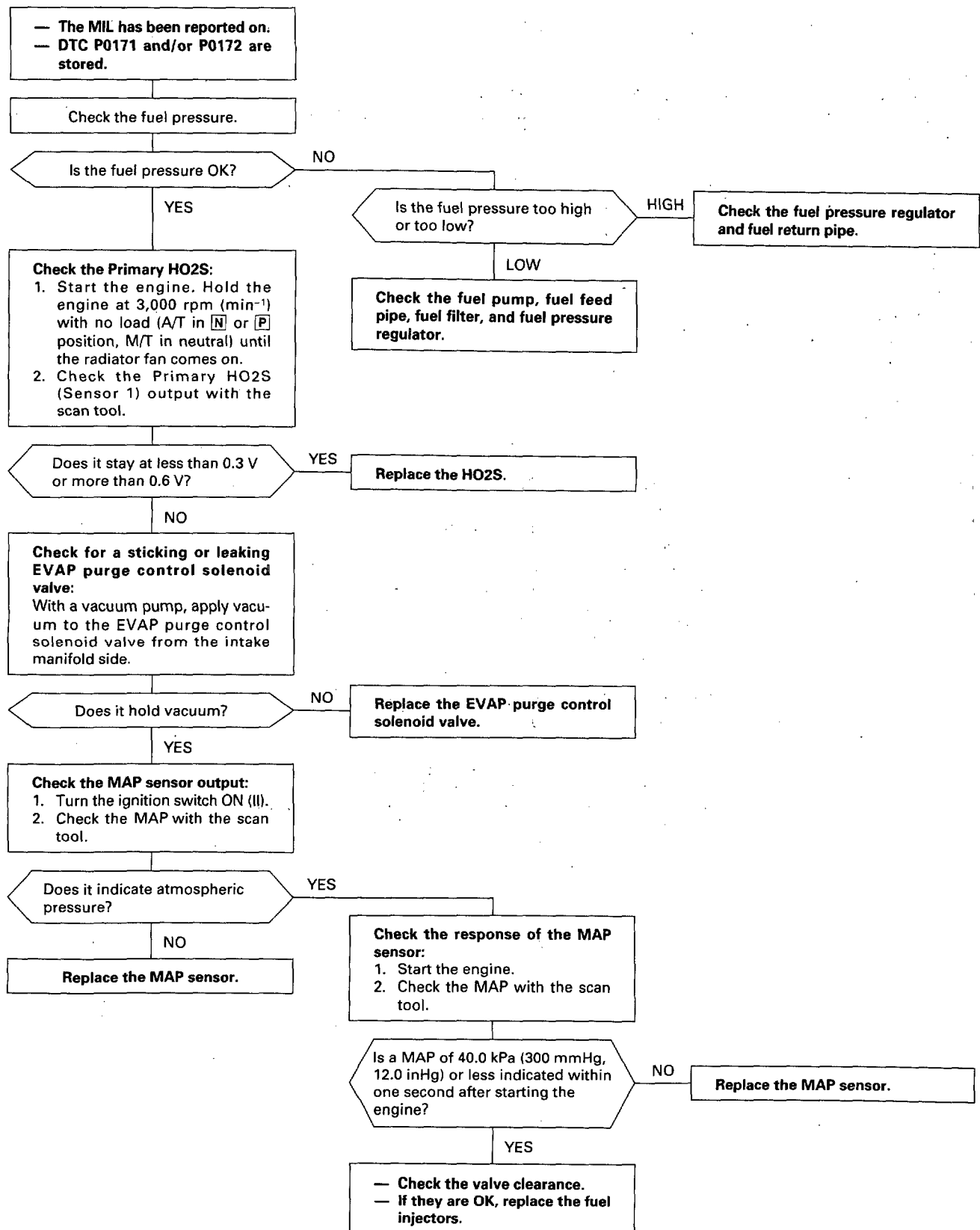
- Fuel Pressure Regulator clogged, stuck closed
- Fuel Return Pipe clogged
- Fuel Injector leaking
- Gasoline doesn't meet Owner's Manual spec.
- Primary HO2S (Sensor 1) deteriorated
- EVAP Purge Control Solenoid Valve leaking, stuck opened
- Valve Clearance

(cont'd)

PGM-FI System

Fuel Supply System (cont'd)

Troubleshooting Flowchart





Misfire Detected in One Cylinder

P0301 The scan tool indicates Diagnostic Trouble Code (DTC) P0301: Cylinder 1 misfire detected.

P0302 The scan tool indicates Diagnostic Trouble Code (DTC) P0302: Cylinder 2 misfire detected.

P0303 The scan tool indicates Diagnostic Trouble Code (DTC) P0303: Cylinder 3 misfire detected.

P0304 The scan tool indicates Diagnostic Trouble Code (DTC) P0304: Cylinder 4 misfire detected.

Description

Misfire detection is accomplished by monitoring the crankshaft speed with the crankshaft speed fluctuation (CKF) sensor which is attached to the crankshaft.

If misfiring strong enough to damage the catalyst is detected, the MIL will blink during the time of its occurrence, and DTC P0301, P0302, P0303 or P0304 will be stored. Then, after the misfire has ceased, the MIL will come on.

If misfiring that increases emissions is detected during two consecutive driving cycles, the MIL will come on, and DTC P0301, P0302, P0303 or P0304 will be stored.

NOTE: If some of the DTCs listed below are stored at the same time as a misfire DTC, troubleshoot those DTCs first, then troubleshoot the misfire DTC.

P0131, P0132: HO2S

P0171, P0172: Fuel supply system

P0335, P0336: CKF sensor

P0443: EVAP Purge Control Solenoid valve

P1359, P1361, P1362: TDC sensor

P1381, P1382: CYP sensor

Possible Cause

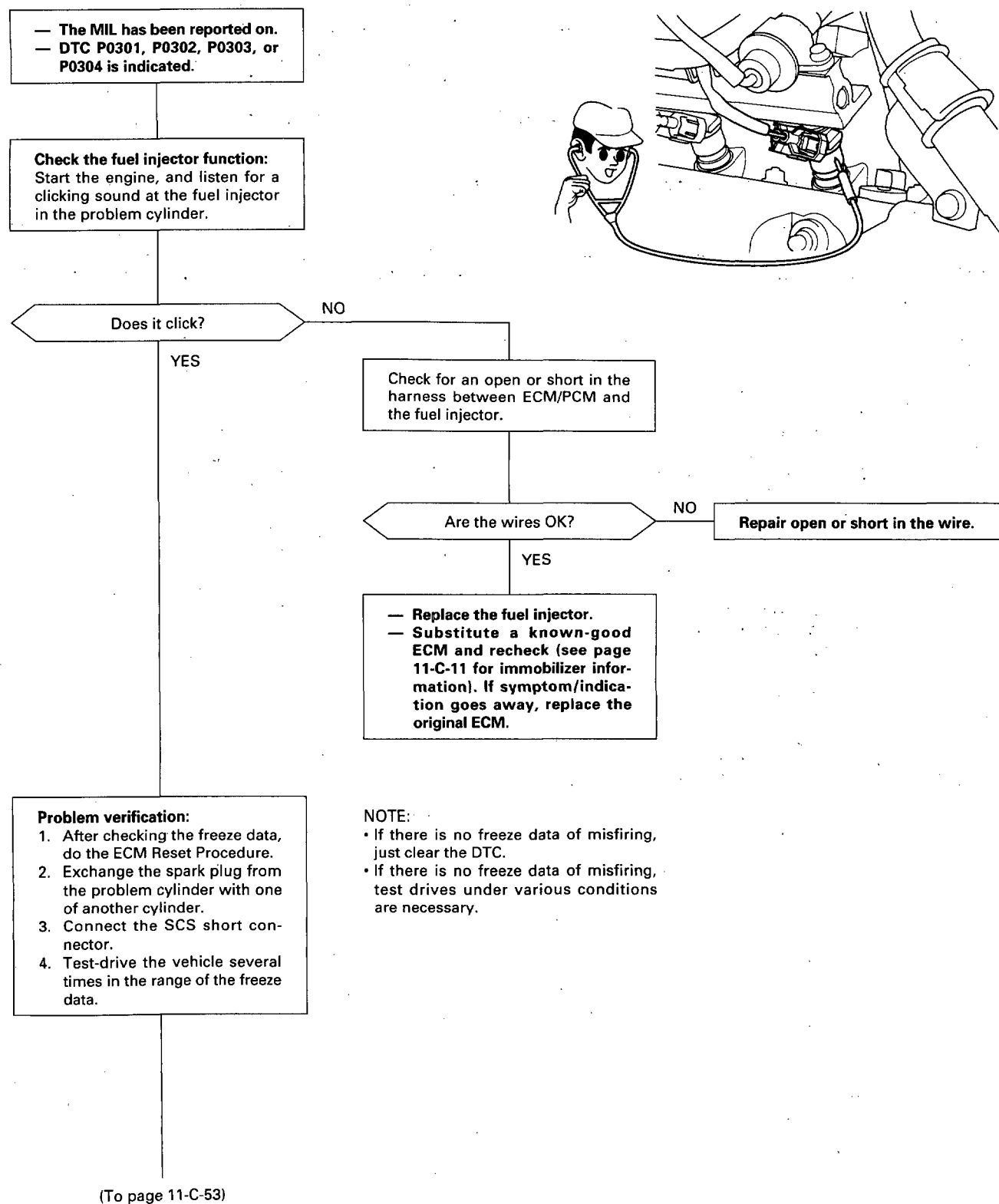
- Fuel injector clogging, fuel leakage, air leakage
- Fuel injector circuit open or shorted
- Spark plug carbon deposits, fouling, malfunction
- Ignition wires open, leaking
- Distributor malfunction
- Compression low
- Valve clearance out of spec
- VTEC system malfunction (D16W4 engine)
- HO2S
- HO2S circuit

(cont'd)

PGM-FI System

Misfire Detected in One Cylinder (cont'd)

Troubleshooting Flowchart

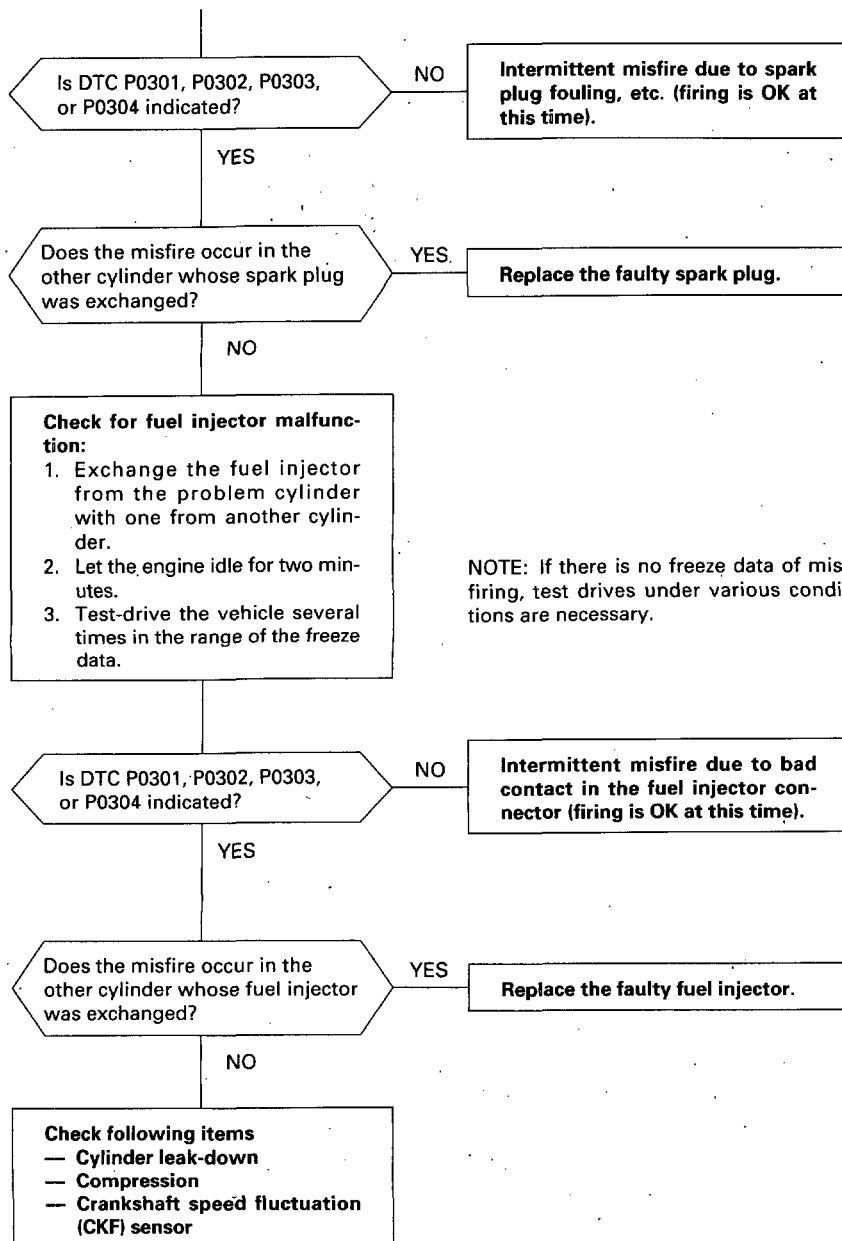


NOTE:

- If there is no freeze data of misfiring, just clear the DTC.
- If there is no freeze data of misfiring, test drives under various conditions are necessary.



(From page 11-C-52)



PGM-FI System

Random Misfire

P0300 and **P0301 through P0304**

The scan tool indicates Diagnostic Trouble Code (DTC) P0300 and some of P0301 – P0304: Random misfire.

Description

Misfire detection is accomplished by monitoring the crankshaft speed with the crankshaft speed fluctuation (CKF) sensor which is attached to the crankshaft.

If misfiring strong enough to damage the catalyst is detected, the MIL will blink during the time of its occurrence, and DTC P0300 and some of DTCs P0301 through P0304 will be stored. Then, after misfire has ceased, the MIL will come on.

If misfiring that increases emissions is detected during two consecutive driving cycles, the MIL will come on, and DTC P0300 and some of DTCs P0301 through P0304 will be stored.

NOTE: If some of the DTCs listed below are stored at the same time as a misfire DTC, troubleshoot those DTCs first, then troubleshoot the misfire DTC.

P0131, P0132: HO2S
P0171, P0172: Fuel metering
P0443: EVAP Purge Control Solenoid Valve
P1253: VTEC System (D16W4 engine)
P1361, P1362: TDC sensor
P1381, P1382: CYP sensor
P1508: IAC valve

Possible Cause

- Fuel pump insufficient fuel pressure, amount of flow
- Fuel line clogging, blockage, leakage
- Fuel filter clogging
- Fuel pressure regulator stuck open
- Distributor malfunction
- Ignition coil wire open, leakage
- Ignition control module malfunction
- Valves carbon deposit
- Compression low
- VTEC system malfunction (D16W4 engine)
- Fuel does not meet Owner's Manual spec., lack of fuel
- HO2S
- HO2S circuit

*1: D16W4 engine

Troubleshooting

By test-driving, determine the conditions during which misfire occurs. Depending on these conditions, test in the order described in the table below.

Possible cause	Crankshaft position (CKP) sensor	Fuel pressure	Distributor and Ignition wires	ICM	Valve Clearance
Page					
Condition	section 6	11-C-80	section 23	section 23	section 6
Only low rpm and load	②	①			②
Only accelerating		②	①	③	
Only high rpm and load	④	①	②	③	④
Not specific	④	①	②	③	④

NOTE: If misfire doesn't recur, some possible causes are fuel that doesn't meet owner's manual spec, lack of fuel, carbon deposits on spark plug, etc.



Knock Sensor (KS) (D16W4 engine)

P0325

The scan tool indicates Diagnostic Trouble Code (DTC) P0325: A malfunction in the circuit of the Knock Sensor (KS).

- The MIL has been reported on.
- DTC P0325 is stored.

Problem verification:

1. Do the ECM Reset Procedure.
2. Start the engine. Hold the engine at 3,000 rpm (min^{-1}) with no load (A/T in **N** or **P** position, M/T in neutral) until the radiator fan comes on, then let it idle.
3. Hold the engine at 3,000 – 4,000 rpm (min^{-1}) for at least 60 seconds.

Is DTC P0325 indicated?

NO

Intermittent failure, system is OK at this time (test drive may be necessary).
Check for poor connections or loose wires between knock sensor (KS) and ECM.

YES

Check for a short in the wire (KS line):

1. Turn the ignition switch OFF.
2. Disconnect the knock sensor 2P connector.
3. Disconnect the ECM connector D (16P).
4. Check for continuity between ECM connector terminals D6 and body ground.

Is there continuity?

YES

Repair short in the wire between ECM (D6) and knock sensor.

NO

Check for an open in the wire (KS line):

Check for continuity between ECM connector terminal D6 and knock sensor 2P connector terminal No. 1.

Is there continuity?

NO

Repair open in the wire between ECM (D6) and knock sensor.

YES

Substitute a known-good knock sensor and recheck.

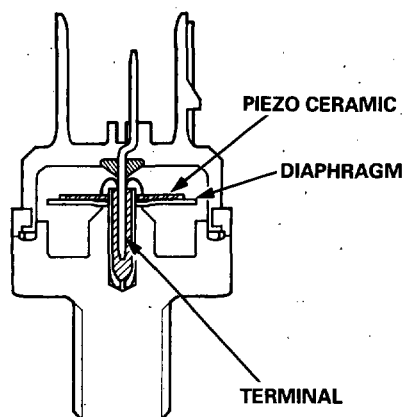
Is DTC P0325 indicated?

NO

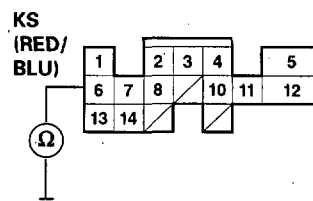
Replace the original knock sensor.

YES

Substitute a known-good ECM and recheck (see page 11-C-11 for immobilizer information). If symptom/indication goes away, replace the original ECM.

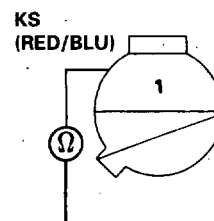


ECM CONNECTOR D (16P)

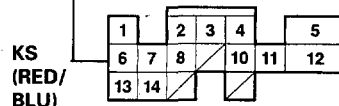


Wire side of female terminals

KS 2P CONNECTOR



Wire side of female terminals



PGM-FI System

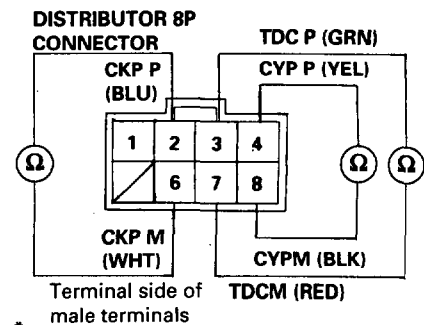
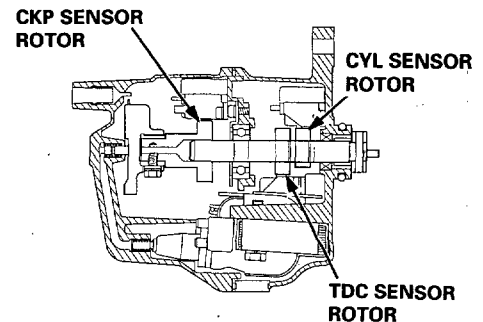
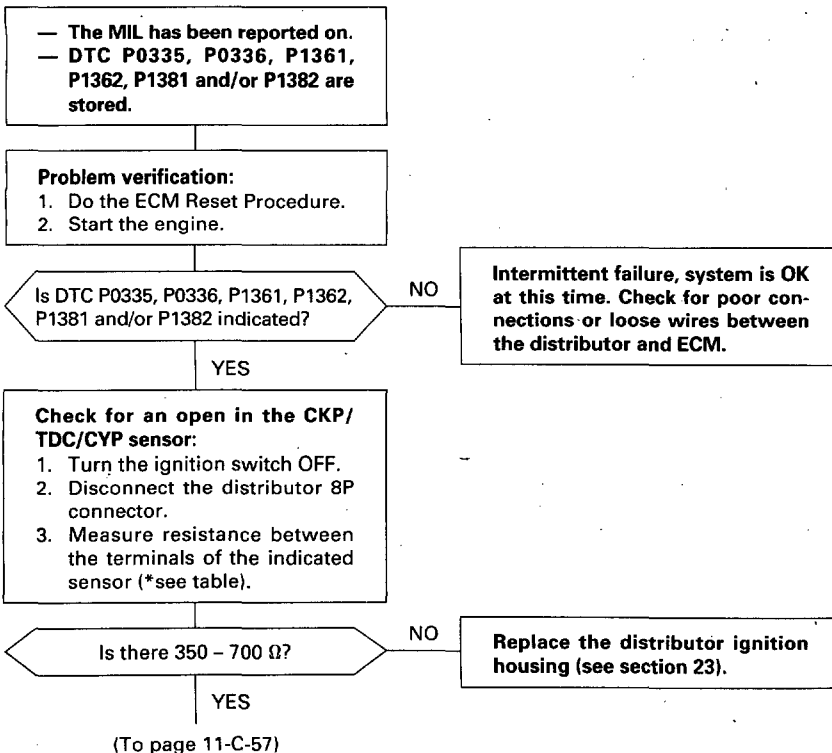
Crankshaft Position/Top Dead Center/Cylinder Position (CKP/TDC/CYP) Sensor

- P0335** The scan tool indicates Diagnostic Trouble Code (DTC) P0335: A malfunction in the Crankshaft Position (CKP) sensor circuit.
- P0336** The scan tool indicates Diagnostic Trouble Code (DTC) P0336: A range/performance problem in the Crankshaft Position (CKP) sensor circuit.
- P1361** The scan tool indicates Diagnostic Trouble Code (DTC) P1361: Intermittent interruption in the Top Dead Center (TDC) sensor circuit.
- P1362** The scan tool indicates Diagnostic Trouble Code (DTC) P1362: No signal in the Top Dead Center (TDC) sensor circuit.
- P1381** The scan tool indicates Diagnostic Trouble Code (DTC) P1381: Intermittent interruption in the Cylinder Position (CYP) sensor circuit.
- P1382** The scan tool indicates Diagnostic Trouble Code (DTC) P1382: No signal in the Cylinder Position (CYP) sensor circuit.

Description

The CKP Sensor determines timing for fuel injection and ignition of each cylinder and also detects engine speed. The TDC Sensor determines ignition timing at start-up (cranking) and when crank angle is abnormal. The CYP Sensor detects the position of No. 1 cylinder for sequential fuel injection to each cylinder. The CKP/TDC/CYP Sensor is built into the distributor.

NOTE: If DTC P1359 is stored at the same time as DTC P0335, P0336, P1361, P1362, P1381 and/or P1382, troubleshoot DTC P1359 first, then troubleshoot those DTCs.



SENSOR	DTC	SENSOR TERMINAL	ECM TERMINAL	WIRE COLOR
CKP	P0335	2	C2	BLU
	P0336	6	C12	WHT
TDC	P1361	3	C3	GRN
	P1362	7	C13	RED
CYP	P1381	4	C4	YEL
	P1382	8	C14	BLK



(From page 11-C-56)

Check for a short in the CKP/TDC/CYP sensor:
Check for continuity to body ground on both terminals of the indicated sensor individually (*see table).

Is there continuity?

YES

Replace the distributor ignition housing (see section 23).

NO

Check for an open in the wires (CKP/TDC/CYP lines):

1. Reconnect the distributor 8P connector.
2. Disconnect the ECM connector.
3. Measure resistance between the terminals of the indicated sensor on the ECM connector (*see table).

Is there 350 – 700 Ω ?

NO

Repair open in the indicated sensor wires (*see table).

YES

Check for a short in the wires (CKP/TDC/CYP lines):

Check for continuity between body ground and ECM connector terminals C2, C3 and/or C4 individually.

Is there continuity?

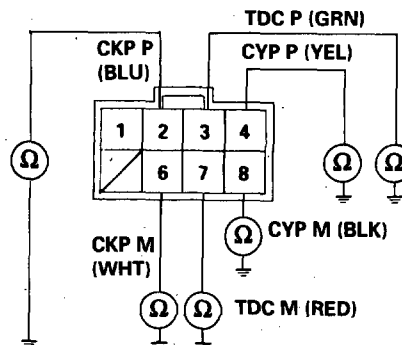
YES

Repair short in the indicated sensor wires (*see table).

NO

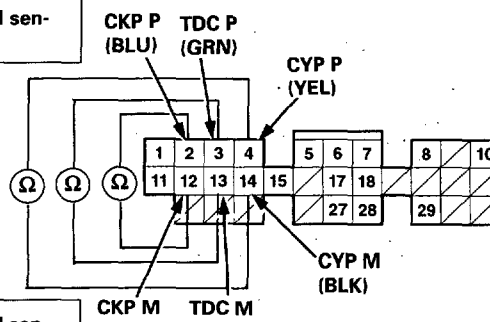
Substitute a known-good ECM and recheck (see page 11-C-11 for immobilizer information). If symptom/indication goes away, replace the original ECM.

DISTRIBUTOR 8P CONNECTOR

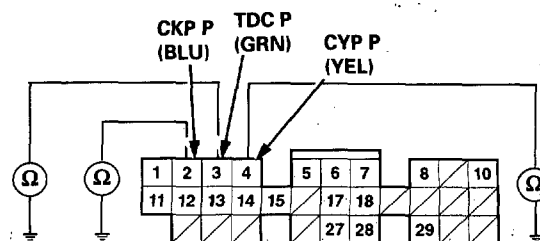


Terminal side of male terminals

ECM CONNECTORS C (31P)



Wire side of female terminals



PGM-FI System

Vehicle Speed Sensor (VSS)

P0500 The scan tool indicates Diagnostic Trouble Code (DTC) P0500: A malfunction problem in the Vehicle Speed Sensor (VSS) circuit.

- The MIL has been reported on.
- DTC P0500 is stored.

Problem verification:

1. Test-drive the vehicle.
2. Check the vehicle speed with the scan tool.

Is the correct speed indicated?

YES

Intermittent failure, system is OK at this time. Check for poor connections or loose wires between the VSS and ECM.

NO

Check for an open in the ECM:

1. Turn the ignition switch OFF.
2. Block the rear wheels and set the parking brake.
3. Jack up the front of the vehicle and support it with safety stands.
4. Turn the ignition switch ON (II).
5. Block the right front wheel and slowly rotate the left front wheel.
6. Measure voltage between the ECM connector terminals A9 and C18.

Does the voltage pulse between 0 V and approx. 5 V or battery voltage?

YES

Substitute a known-good ECM and recheck (see page 11-C-11 for immobilizer information). If symptom/indication goes away, replace the original ECM.

NO

Check for a short in the ECM:

1. Turn the ignition switch OFF.
2. Disconnect the ECM connector C (31P).
3. Turn the ignition switch ON (II).
4. Block the right front wheel and slowly rotate the left front wheel.
5. Measure voltage between the ECM connector terminals A9 and C18.

Does the voltage pulse between 0 V and approx. 5 V or battery voltage?

YES

Substitute a known-good ECM and recheck (see page 11-C-11 for immobilizer information). If symptom/indication goes away, replace the original ECM.

NO

- Repair short in the wire between ECM (C18) and VSS.
- Repair open in the wire between ECM (C18) and VSS.
- If wire is OK, test the VSS (section 23).

ECM CONNECTORS

A (32P)

LG1

(BRN/BLK)



C (31P)



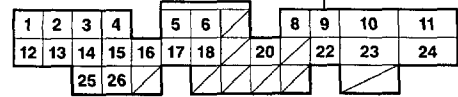
VSS (BLU/WHT)

Wire side of female terminals

V

LG1

(BRN/BLK)



VSS (BLU/WHT)

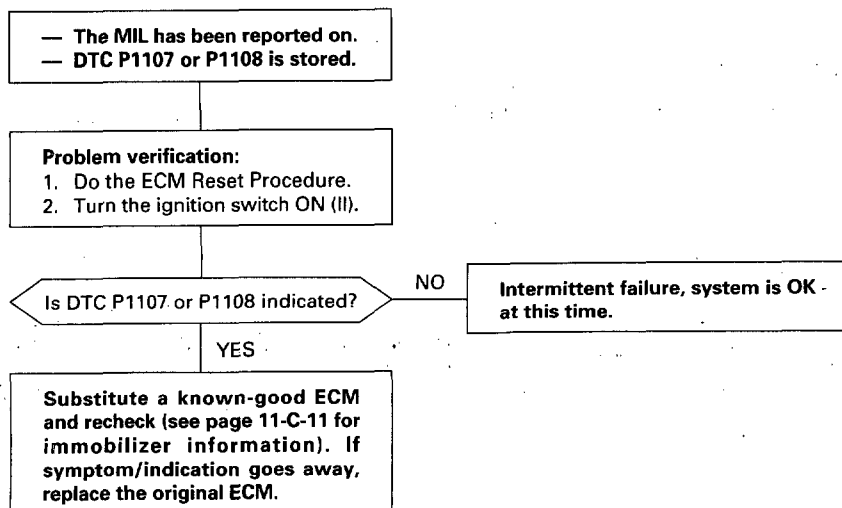
V



Barometric Pressure (Baro) Sensor

P1107 The scan tool indicates Diagnostic Trouble Code (DTC) P1107: A low voltage problem in the Baro sensor circuit.

P1108 The scan tool indicates Diagnostic Trouble Code (DTC) P1108: A high voltage problem in the Baro sensor circuit.



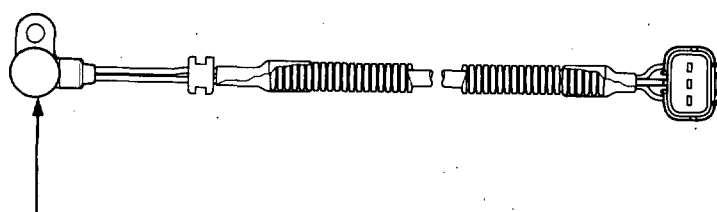
Crankshaft Speed Fluctuation (CKF) Sensor

P1336 The scan tool indicates Diagnostic Trouble Code (DTC) P1336: Intermittent interruption in the Crankshaft Speed Fluctuation (CKF) sensor circuit.

P1337 The scan tool indicates Diagnostic Trouble Code (DTC) P1337: No signal in the Crankshaft Speed Fluctuation (CKF) sensor circuit.

Description

The diagnostic system has a pulser rotor on the crankshaft and a pulse pick-up sensor on the engine block. The ECM monitors the crankshaft speed fluctuation based on the CKF sensor signal, and judges that an engine misfire occurred if the fluctuation goes beyond a predetermined limit.



CKF SENSOR

— The MIL has been reported on.
— DTC P1336 and/or P1337 are stored.

Problem verification:

1. Do the ECM Reset Procedure.
2. Start the engine.

Is DTC P1336 and/or P1337 indicated?

NO

Intermittent failure, system is OK at this time. Check for poor connections or loose wires between the CKF sensor and ECM, and make sure CKF sensor mounting bolt is tight.

YES

Check for an open in the CKF sensor:

1. Turn the ignition switch OFF.
2. Disconnect the CKF sensor 3P connector.
3. Measure the resistance between the CKF sensor 3P connector terminals No. 1 and No. 3.

Is there 1.6 – 3.2 k Ω ?

NO

Replace the CKF sensor (see section 6).

YES

Check for a short in the CKF sensor:

Check for continuity between body ground and the CKF sensor 3P connector terminals No. 1 and No. 3 individually.

Is there continuity?

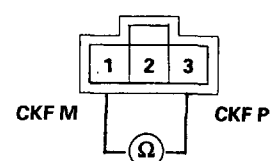
YES

Replace the CKF sensor (see section 6).

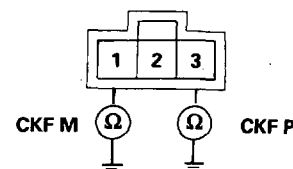
NO

(To page 11-C-61)

CKF SENSOR 3P CONNECTOR



Terminal side of male terminals





(From page 11-C-60)

Check for an open in the wires (CKF lines):

1. Reconnect the CKF sensor 3P connector.
2. Disconnect the ECM connector C (31P).
3. Measure resistance between ECM connector terminals C1 and C11.

Is there 1.6 – 3.2 k Ω ?

NO

Repair open in the wire between ECM (C1, C11) and the CKF sensor.

YES

Check for a short in the wire (CKF line):

Check for continuity between body ground and ECM connector terminal C1.

Is there continuity?

YES

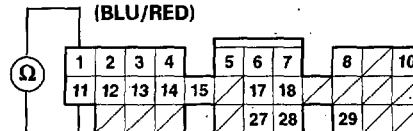
Repair short in the wire between ECM (C1) and the CKF sensor.

NO

Substitute a known-good ECM and recheck (see page 11-C-11 for immobilizer information). If symptom/indication goes away, replace the original ECM.

ECM CONNECTOR C (31P)

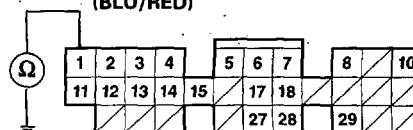
CKF P (BLU/RED)



CKF M (WHT/BLU)

Wire side of female terminals

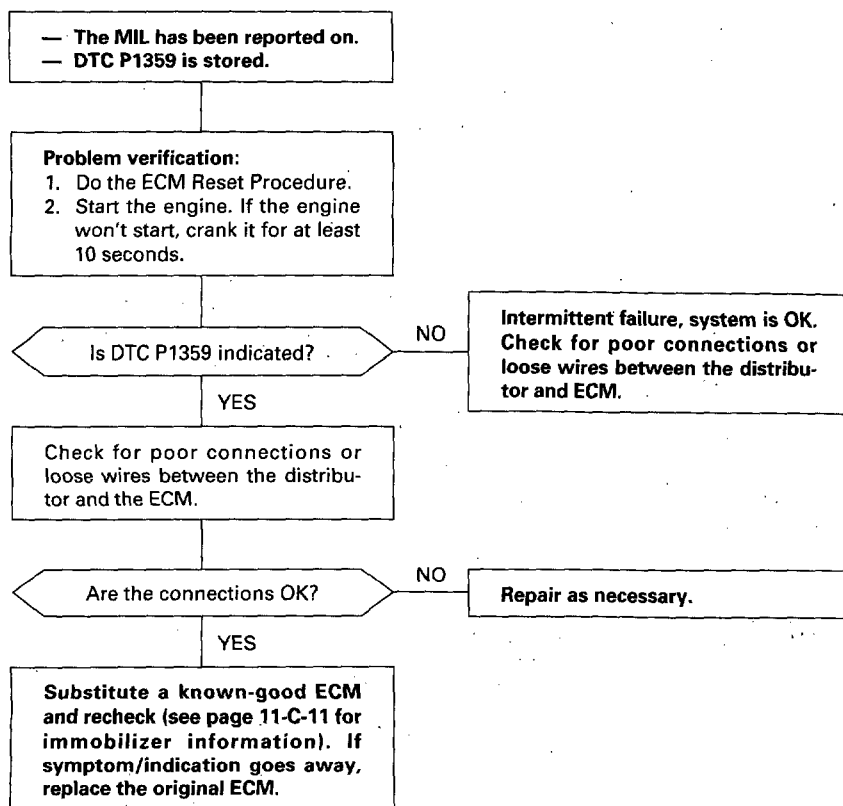
CKF P (BLU/RED)



PGM-FI System

Crankshaft Position/Top Dead Center/Cylinder Position (CKP/TDC/CYP) Sensor

P1359 The scan tool indicates Diagnostic Trouble Code (DTC) P1359: A problem in the Crankshaft Position/Top Dead Center/Cylinder Position (CKP/TDC/CYP) sensor circuit.





ECM Internal Circuit

P1607 The scan tool indicates Diagnostic Trouble Code (DTC) P1607: An ECM Internal Circuit Problem.

- The MIL has been reported on.
- DTC P1607 is stored.

Problem verification:

1. Do the ECM Reset Procedure.
2. Turn the ignition switch ON (II).
3. Wait 10 seconds.

Is DTC P1607 indicated?

NO

Intermittent failure, system is OK this time.

YES

Substitute a known-good ECM and recheck (see page 11-C-11 for immobilizer information). If symptom/indication goes away, replace the original ECM.

PGM-FI System

Lock-up Control Solenoid Valve A/B (A/T)

P1753 The scan tool indicates Diagnostic Trouble Code (DTC) P1753: A problem in the Lock-up Control Solenoid valve A circuit.

P1758 The scan tool indicates Diagnostic Trouble Code (DTC) P1758: A problem in the Lock-up Control Solenoid valve B circuit.

- The MIL has been reported on.
- DTC P1753 or P1758 is stored.

Problem verification:

1. Do the ECM Reset Procedure.
2. Test drive the vehicle for several miles so that the transmission upshifts and downshifts several times.

Is DTC P1753 or 1758 indicated?

NO

Intermittent failure, system is OK at this time. Check for poor connections or loose wires between lock-up control solenoid valve A/B and ECM.

YES

Check for a short in the wire (LC A and/or LC B* line):

1. Turn the ignition switch OFF.
2. Disconnect the ECM connector A (32P) from the ECM.
3. Disconnect the lock-up control solenoid valve 2P connector.
4. Check for continuity between body ground and ECM connector terminals A26 and/or A25* individually.

Is there continuity?

YES

Repair short in the wire between ECM (A26 or A25*) and the lock-up control solenoid valve A/B.

NO

Check the lock-up control solenoid valve A/B.

1. Reconnect the 2P connector.
2. Measure resistance between ECM connector terminals A26 and A9 and/or A25* and A9*.

Is there 10 – 22 Ω?

NO

Check for an open in the wire (LC A and/or LC B* line):
Check for continuity between lock-up control solenoid valve 2P connector terminal No. 2 and ECM connector terminal A26 (lock-up control solenoid valve 2P connector terminal No. 1 and ECM connector terminal A25)*.

*: P1758

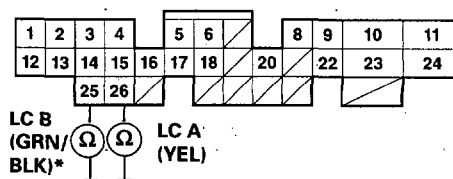
Is there continuity?

NO

Repair open in the wire between ECM (A26 or A25*) and the lock-up control solenoid valve A/B.

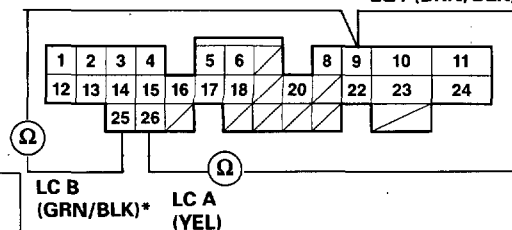
Substitute a known-good ECM and recheck (see page 11-C-11 for immobilizer information). If symptom/indication goes away, replace the original ECM.

ECM CONNECTOR A (32P)

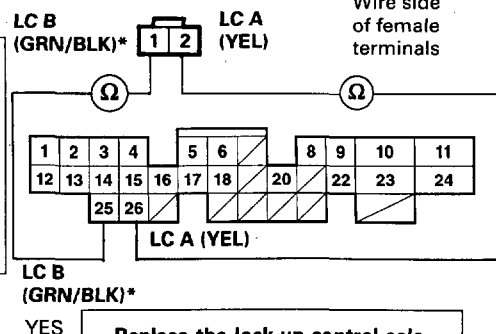


Wire side of female terminals

LG1 (BRN/BLK)



LOCK-UP CONTROL SOLENOID VALVE 2P CONNECTOR (C110)



Wire side of female terminals

Replace the lock-up control solenoid valve (see section 14).



Automatic Transaxle (A/T) Gear Position/Signal (A/T)

P1705 The scan tool indicates Diagnostic Trouble Code (DTC) P1705: A problem in the A/T Gear Position Switch circuit.

P1706 The scan tool indicates Diagnostic Trouble Code (DTC) P1706: No signal in the A/T Gear Position Switch circuit.

- The MIL has been reported on.
- DTC P1705 or P1706 is stored.

Problem verification:

1. Do the ECM Reset Procedure.
2. Turn the ignition switch ON (II).
3. Connect the SCS short connector.
4. Test-drive accelerate above 30 mph (48 km/h), then reduce below 25 mph (40 km/h) until the readiness code come on.

Is DTC P1705 or P1706 indicated?

NO

Intermittent failure, system is OK at this time (test drive may be necessary).
Check for poor connections or loose wires between A/T gear position switch, gauge assembly and ECM.

YES

Check the operation of the A/T gear position switch:

Observe the A/T shift position indicator and select each position separately.

Does the indicator light properly?

NO

See the A/T gear position indicator inspection (see section 23).

YES

Check for an open in the wire (ATP NP line):

Measure voltage between ECM connector terminals A9 and C29 with the transmission in **N** and **P** position individually.

Is there less than 1.0 V?

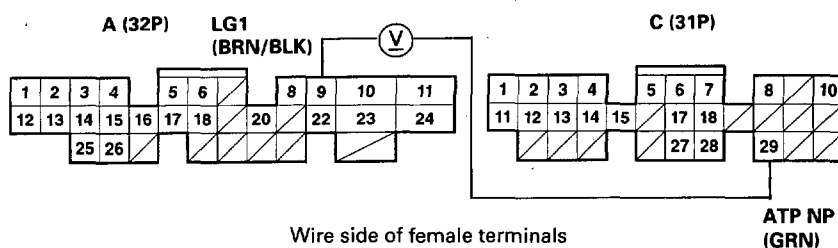
NO

Repair open in the wire between the ECM (C29) and the gauge assembly.

YES

(To page 11-C-66)

ECM CONNECTORS



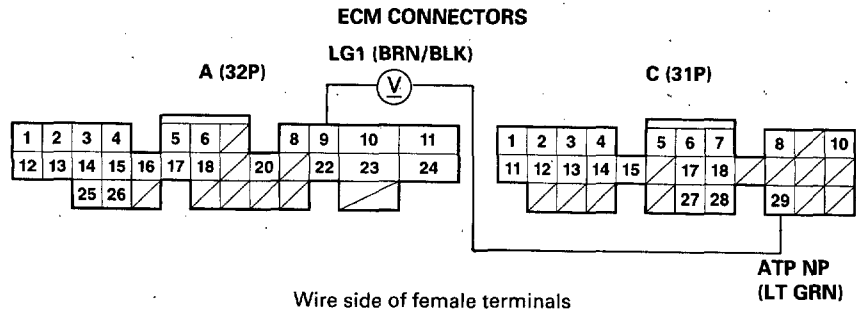
(cont'd)

PGM-FI System

Automatic Transaxle (A/T) Gear Position/Signal (A/T) (cont'd)

(From page 11-C-65)

Check for a short in the wire (ATP NP line):
Measure voltage between ECM connector terminals A9 and C29 with the transmission in **D₄** position.



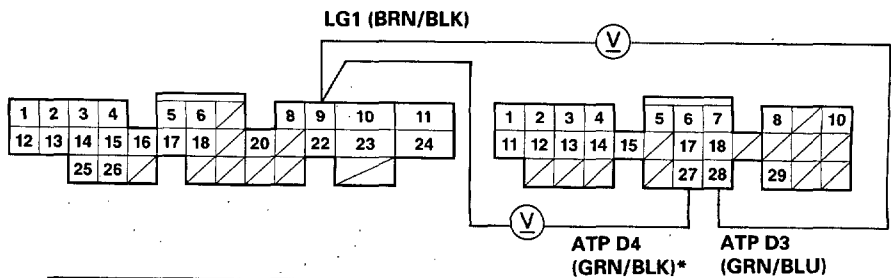
Is there less than 1.0 V?

YES

Repair short in the wire between the ECM (C29) and the gauge assembly.

NO

Check for an open in the wire (ATP D3, D4 lines):
Measure voltage between ECM connector terminals A9 and C28 and C27* with the transmission in **D₃** and **D₄*** position individually.



Is there less than 1.0 V?

NO

Repair open in the wire between the ECM (C28 or C27*) and A/T gear position switch.

YES

Substitute a known-good ECM and recheck (see page 11-C-11 for immobilizer information). If symptom/indication goes away, replace the original ECM.

*: **D₄**

Idle Control System

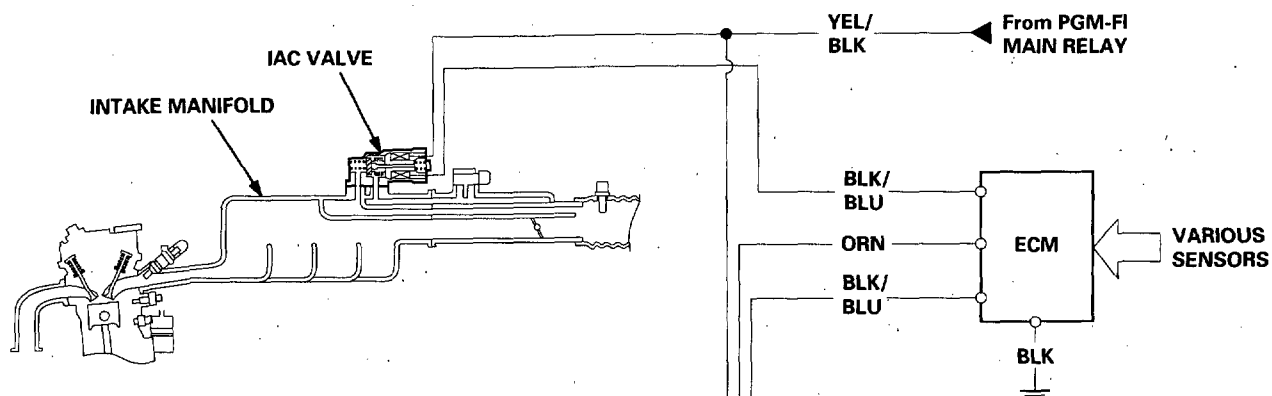


System Description

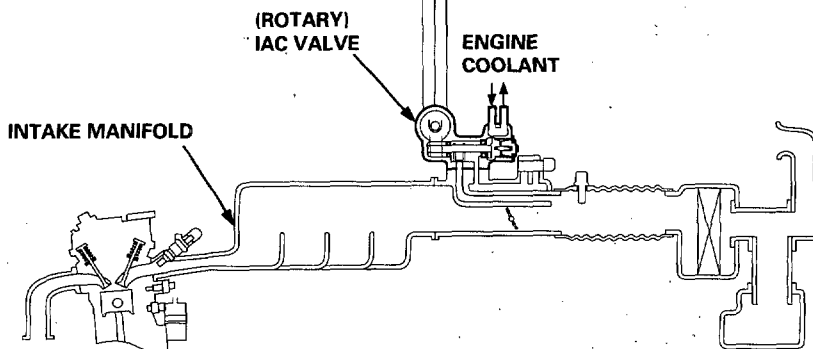
The idle speed of the engine is controlled by the Idle Air Control (IAC) Valve.

The valve changes the amount of air bypassing into the intake manifold in response to electric current controlled by the ECM. When the IAC Valve is activated, the valve opens to maintain the proper idle speed.

D16W4 engine (M/T):



except D16W4 (M/T):

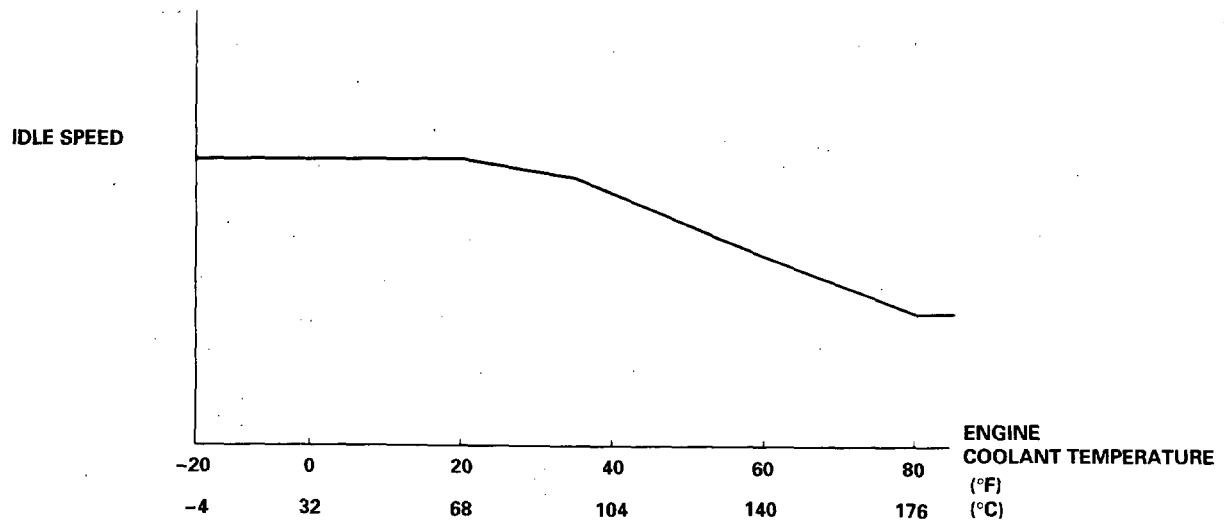


(cont'd)

Idle Control System

System Description (cont'd)

1. After the engine starts, the IAC valve opens for a certain time. The amount of air is increased to raise the idle speed about 150 – 300 rpm (min^{-1}).
2. When the coolant temperature is low, the IAC valve is opened to obtain the proper fast idle speed. The amount of bypassed air is thus controlled in relation to the engine coolant temperature.



1. When the idle speed is out of specification and the scan tool does not indicate Diagnostic Trouble Code (DTC) P0505 or P1508, check the following items:
 - Adjust the idle speed (see page 11-C-78)
 - Starter switch signal (see page 11-C-73)
 - Air conditioning signal (see page 11-C-74)
 - ALT FR signal (see page 11-C-76)
 - Brake switch signal (see page 11-C-77)
 - A/T gear position signal (see page 11-C-65)
 - Hoses and connections
 - IAC valve and its mounting O-rings
2. If the above items are normal, substitute a known-good IAC valve and readjust the idle speed (see page 11-C-78).

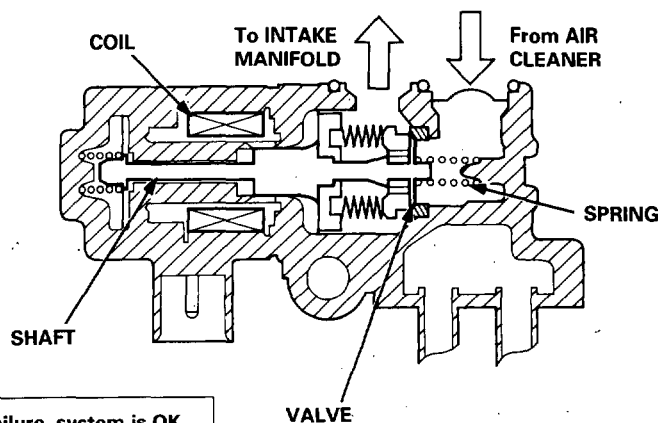
If the idle speed still cannot be adjusted to specification (and the scan tool does not indicate DTC P0505 or P1508) after IAC valve replacement, substitute a known-good ECM and recheck (see page 11-C-11 for immobilizer information). If symptom goes away, replace the original ECM.



Idle Air Control (IAC) Valve (D16W4 engine with M/T)

P1508 The scan tool indicates Diagnostic Trouble Code (DTC) P1508: A problem in the Idle Air Control (IAC) valve circuit.

The IAC Valve changes the amount of air bypassing the throttle body in response to a current signal from the ECM in order to maintain the proper idle speed.



— The MIL has been reported on.
— DTC P1508 is stored.

Problem verification:

1. Do the ECM Reset Procedure.
2. Start the engine, and warm it up to normal operating temperature.

Is DTC P1508 indicated?

NO

Intermittent failure, system is OK at this time. Check for poor connections or loose wires between the IAC valve and ECM.

YES

Check for an open in the wire (IGP1 line):

1. Turn the ignition switch OFF.
2. Disconnect the IAC valve 2P connector.
3. Turn the ignition switch ON (II).
4. Measure voltage between body ground and the IAC valve 2P connector terminal No. 2.

Is there battery voltage?

NO

Repair open in the wire between IAC valve and PGM-FI main relay.

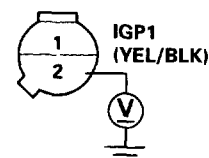
YES

Check for an open or short in the wire (IACV line):

1. Turn the ignition switch OFF and reconnect the IAC valve connector.
2. Disconnect the ECM connector A (32P).
3. Turn the ignition switch ON (II).
4. Measure voltage between body ground and ECM connector terminal A12.

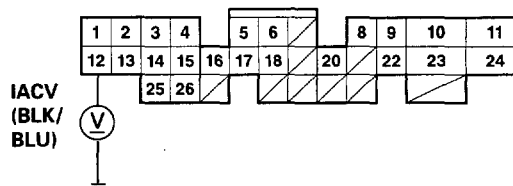
(To page 11-C-70)

IAC VALVE 2P CONNECTOR



Wire side of female terminals

ECM CONNECTOR A (32P)



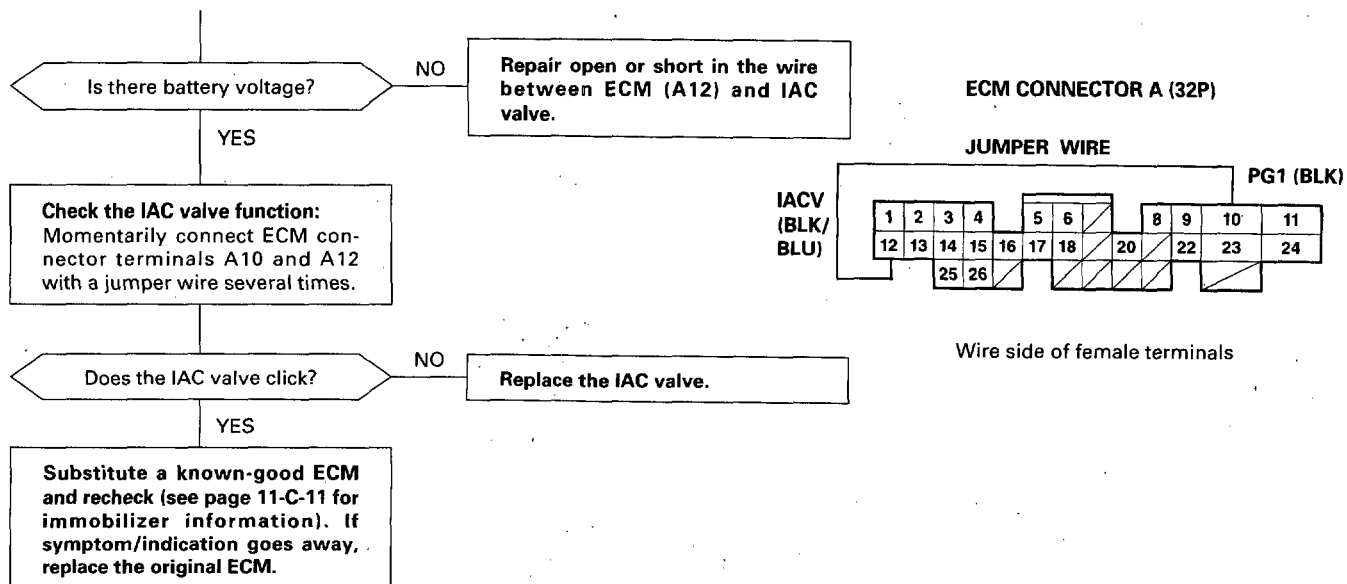
Wire side of female terminals

(cont'd)

Idle Control System

Idle Air Control (IAC) Valve (D16W4 engine with M/T) (cont'd)

(From page 11-C-69)

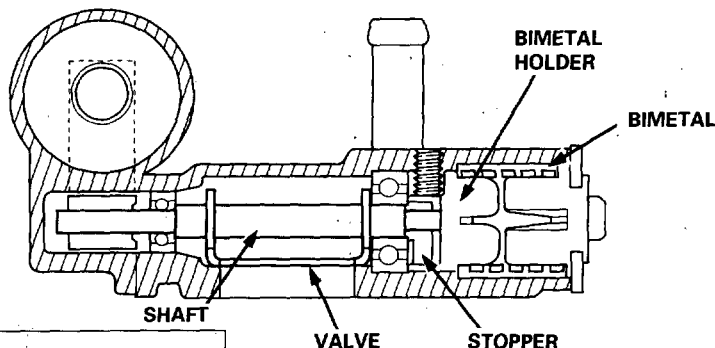




Idle Air Control (IAC) Valve (Except D16W4 engine with M/T)

P1509 The scan tool indicates Diagnostic Trouble Code (DTC) P1509: A problem in the idle Air Control (IAC) valve circuit.

The (Rotary) IAC Valve changes the amount of air bypassing the throttle body in response to a current signal from the ECM in order to maintain the proper idle speed.



- The MIL has been reported on.
- DTC P1509 is stored.

Problem verification:

1. Do the ECM Reset Procedure.
2. Turn the ignition switch ON (II).

Is DTC P1509 indicated?

NO

Intermittent failure, system is OK at this time. Check for poor connections or loose wires between the IAC valve and ECM.

YES

Check for an open in the wires (PG lines):

Measure voltage between body ground and ECM connector terminals A10 and A23 individually.

Is there more than 1.0 V?

YES

Repair open in the wires between ECM and G101 (located at the thermostat housing).

NO

Check the ECM input voltage:

1. Turn the ignition switch OFF.
2. Disconnect ECM connector A (32P) from the ECM.
3. Turn the ignition switch ON (II).
4. Measure voltage between body ground and ECM connector terminals A14 and A13* individually.

Is there battery voltage?

NO

(To page 11-C-72)

YES

Check the IAC valve:

1. Turn the ignition switch OFF.
2. Disconnect the IAC valve 3P connector.
3. Measure resistance between IAC valve 3P connector terminal No. 2 and terminals No. 1 and 3 individually.

Is there 10 – 22 Ω ?

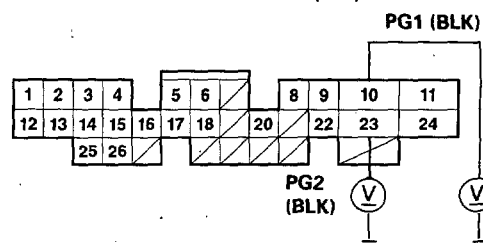
NO

Replace the IAC valve.

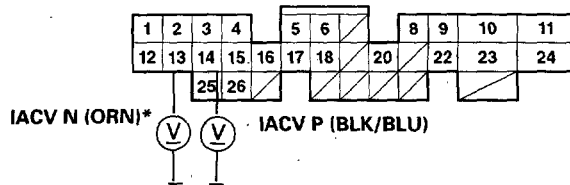
YES

Substitute a known-good ECM and recheck (see page 11-C-14 for immobilizer information). If symptom/indication goes away, replace the original ECM.

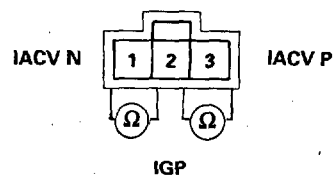
ECM CONNECTOR A (32P)



Wire side of female terminals



IAC VALVE 3P CONNECTOR



Terminal side of male terminals

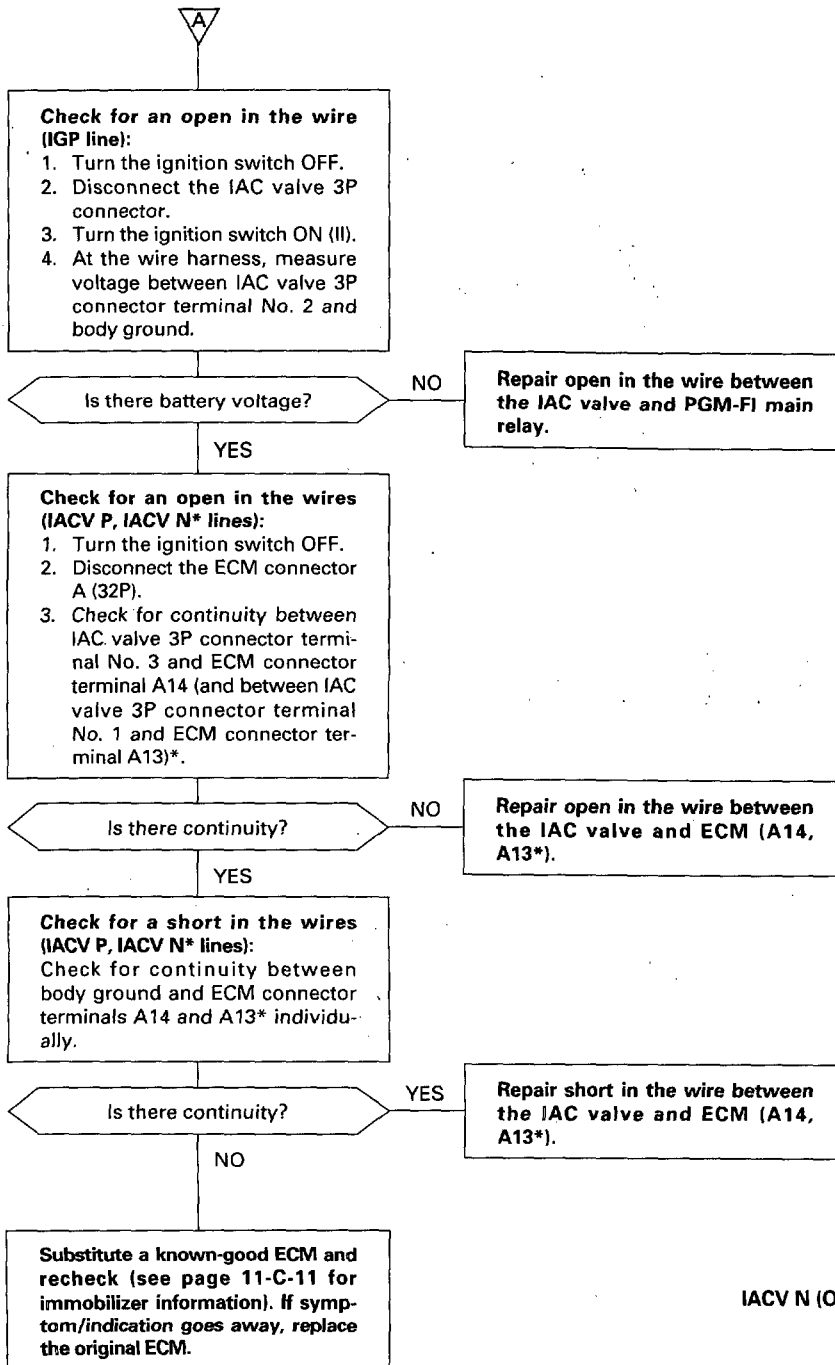
(cont'd)

*: IACV N line

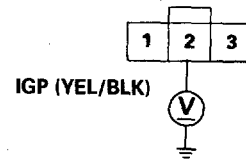
Idle Control System

Idle Air Control (IAC) Valve (Except D16W4 engine with M/T) (cont'd)

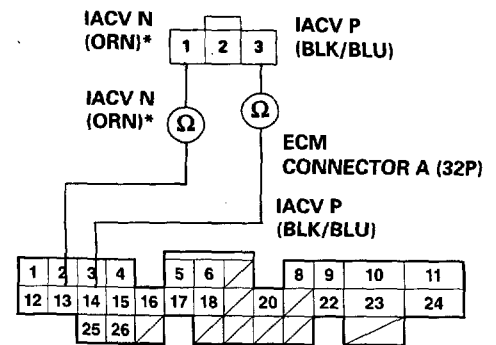
(From page 11-C-71)



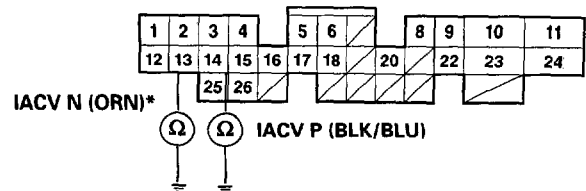
IAC VALVE 3P CONNECTOR



Wire side of female terminals



Wire side of female terminals



*: IACV N line



Starter Switch Signal

This signals the ECM when the engine is cranking.

Inspection of Starter Switch Signal.

Check for an open or short in the wire (STS line):
Measure voltage between ECM connector terminals A9 and C6 with the ignition switch in the start (III) position.

Is there battery voltage?

YES

Starter switch signal is OK.

NO

Inspect the No. 18 STARTER SIGNAL (7.5 A) fuse in the under-dash fuse/relay box.

Is the fuse OK?

YES

Repair open in the wire between the ECM (C6) and the No. 18 STARTER SIGNAL (7.5 A) fuse.

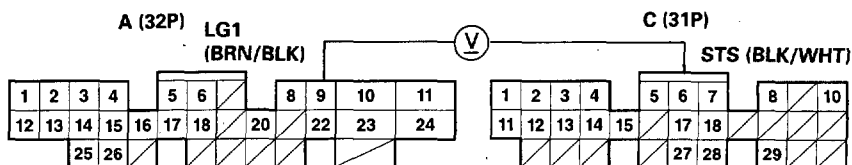
NO

— Repair short in the wire between the ECM (C6) and the No. 18 STARTER SIGNAL (7.5 A) fuse or the PGM-FI main relay.
— Replace the No. 18 STARTER SIGNAL (7.5 A) fuse.

NOTE:

- A/T: Transmission in **N** or **P** position.
- M/T: in neutral

ECM CONNECTORS

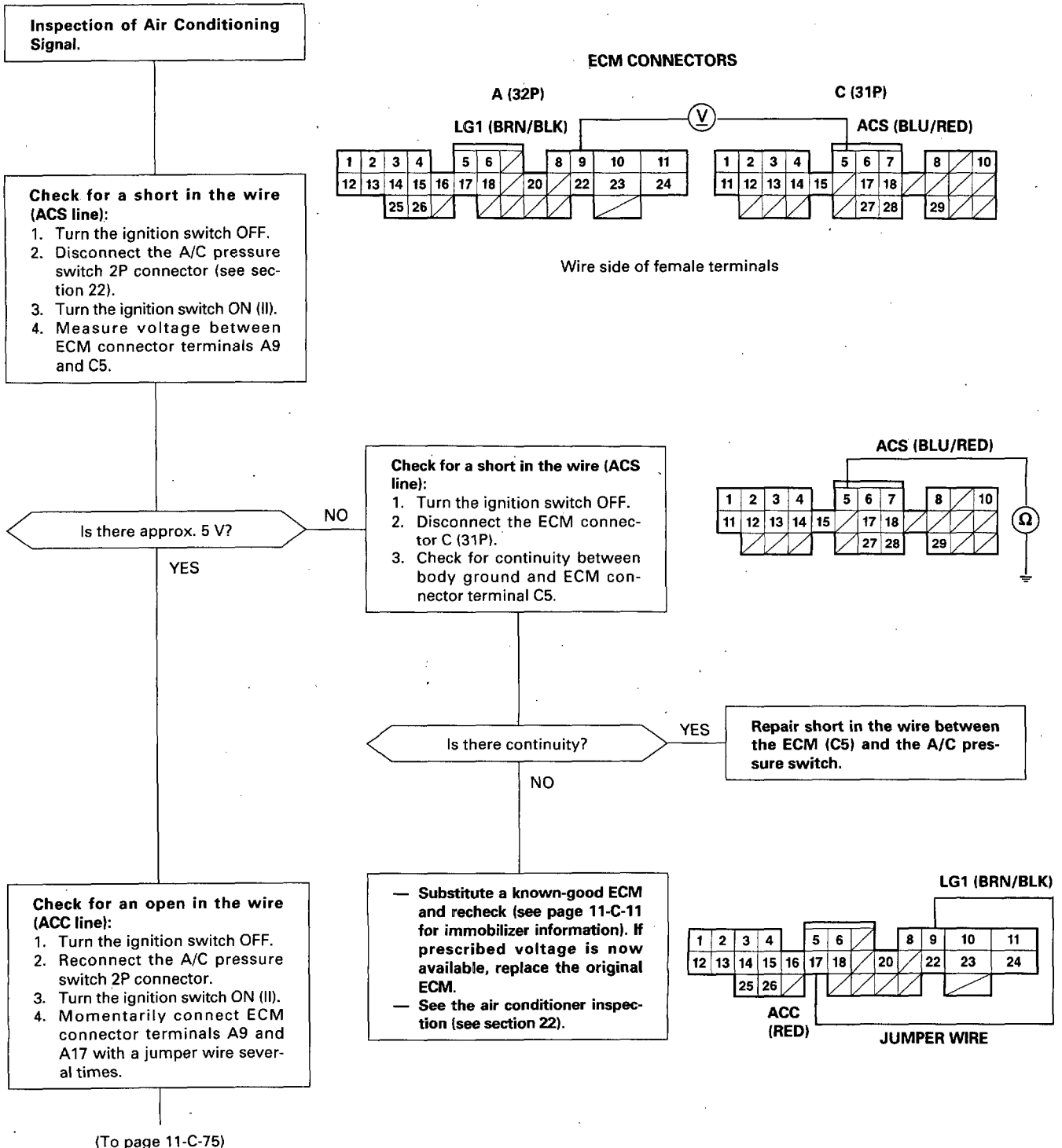


Wire side of female terminals

Idle Control System

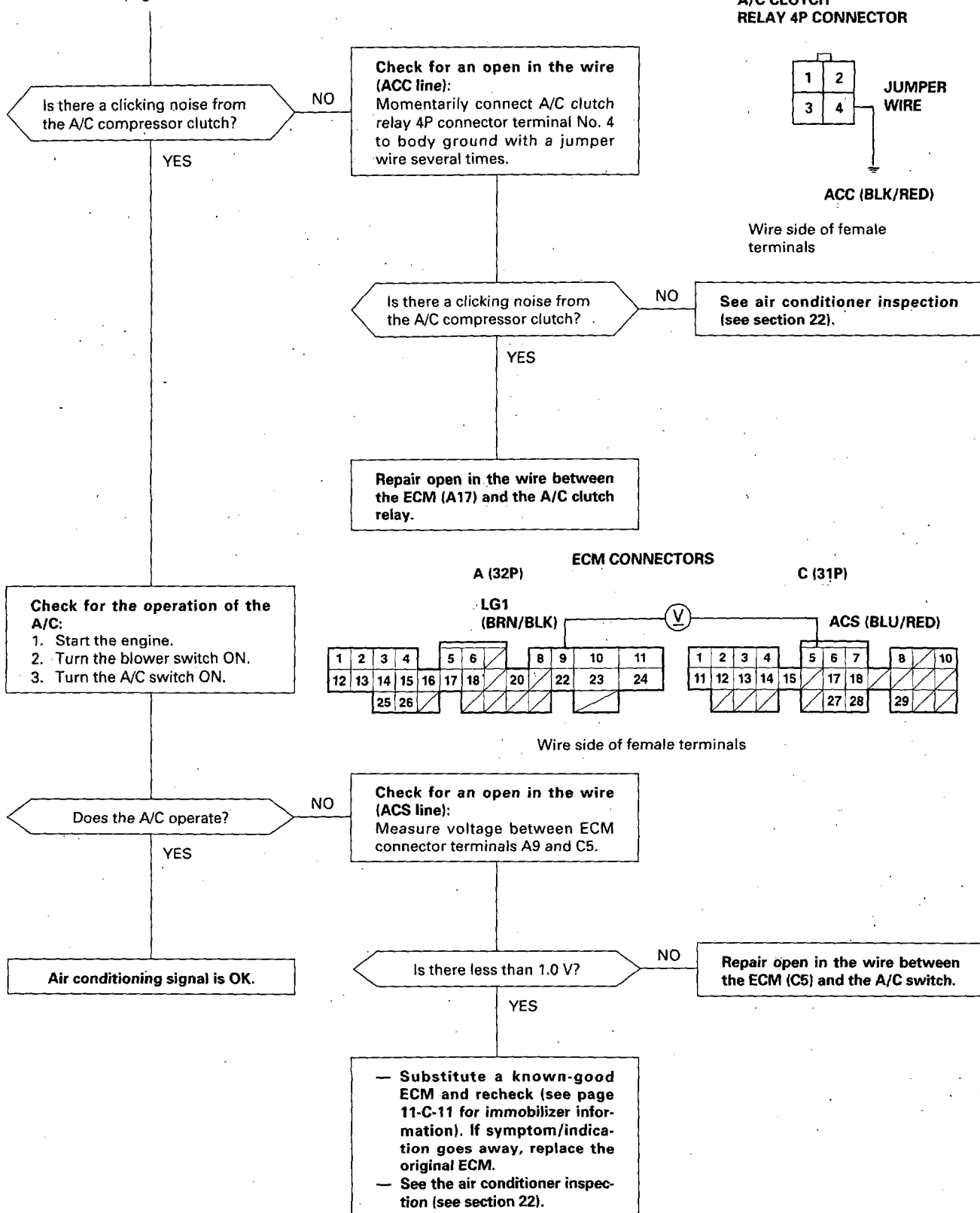
Air Conditioning Signal

This signals the ECM when there is a demand for cooling from the air conditioning system.





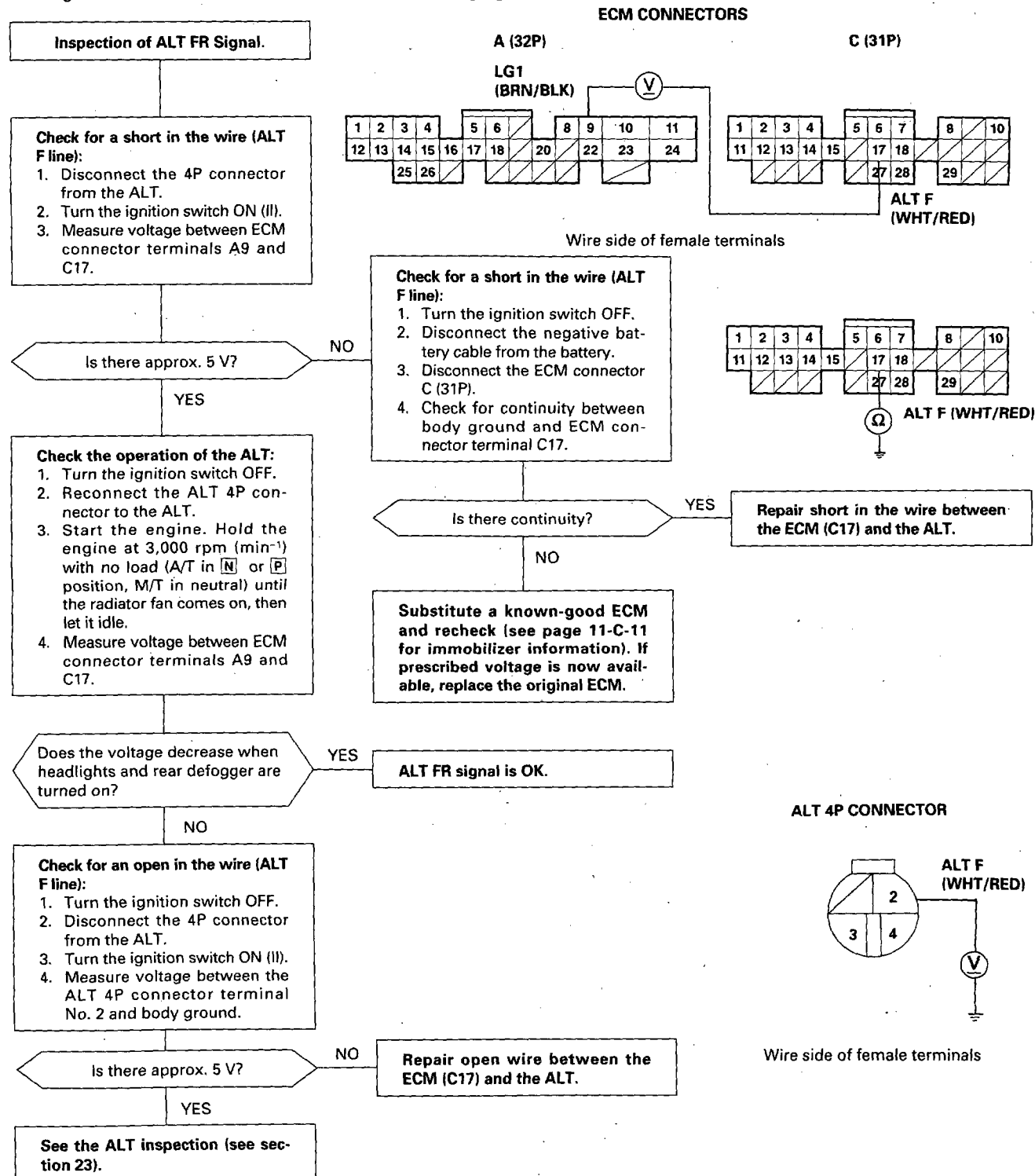
(From page 11-C-74)



Idle Control System

Alternator (ALT) FR Signal

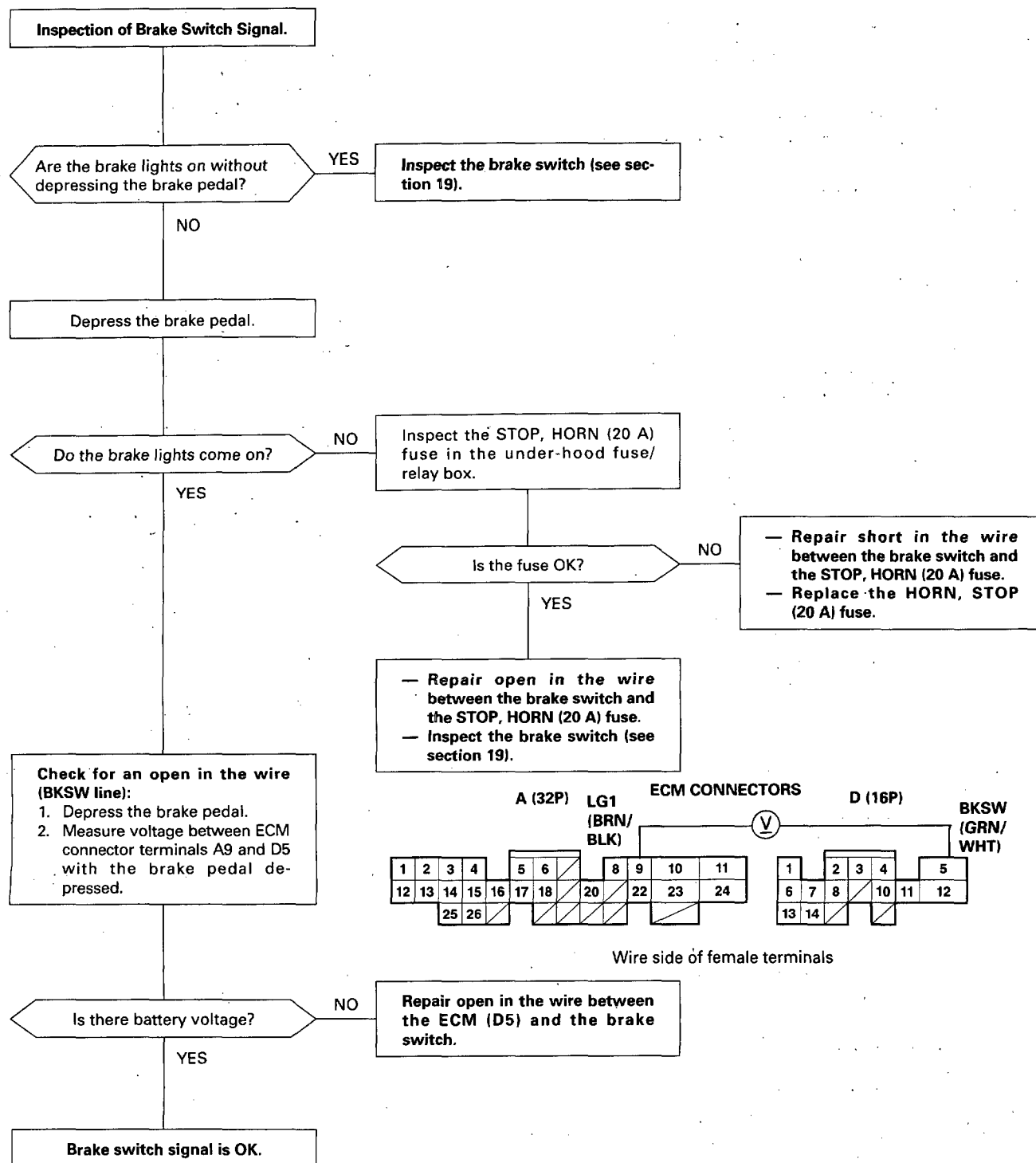
This signals the ECM when the Alternator (ALT) is charging.





Brake Switch Signal

This signals the ECM when the brake pedal is depressed.



Idle Control System

Idle Speed Setting

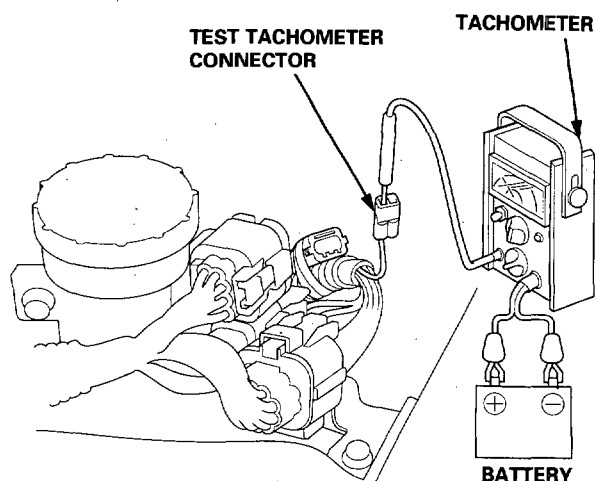
except D16W4 engine (M/T)

Adjust the idle speed using a Honda PGM Tester if possible. If not, use the following procedure:

NOTE:

- Leave the IAC valve connected.
- Before setting the idle speed, check the following items:
 - The MIL has not been reported on.
 - Ignition timing
 - Spark plugs
 - Air cleaner
 - PCV system

1. Connect a tachometer.



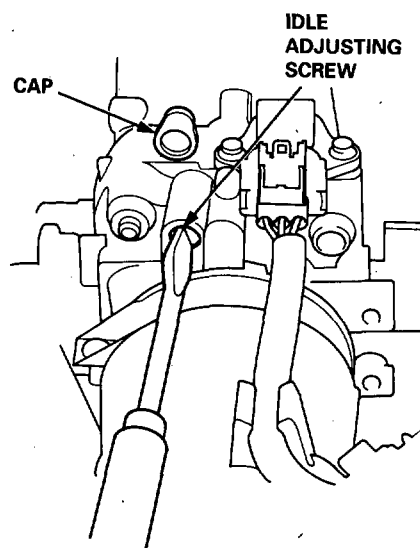
2. Start the engine. Hold the engine at 3,000 rpm (min^{-1}) with no load (A/T in **N** or **P** position, M/T in neutral) until the radiator fan comes on, then let it idle.
3. Check the idle speed with no-load conditions: head-lights, blower fan, rear defogger, radiator fan, and air conditioner are not operating.

NOTE: (KS model) Remove No. 16 (7.5 A) fuse in the under-dash fuse box, then check that the headlights and side marker lights are off

Idle speed should be:

M/T	$750 \pm 50 \text{ rpm (min}^{-1}\text{)}$
A/T	$750 \pm 50 \text{ rpm (min}^{-1}\text{)}$ (in N or P position)

4. Adjust the idle speed, if necessary, by removing the cap and turning the idle adjusting screw 1/2-turn clockwise or counterclockwise.



5. After turning the idle adjusting screw 1/2-turn, check the idle speed again. If it is out of spec, turn the idle adjusting screw 1/2-turn again.
NOTE: Do not turn the idle adjusting screw more than 1/2-turn without checking the idle speed.
6. Idle the engine for one minute with heater fan switch at HI and air conditioner on, then check the idle speed.

Idle speed should be:

M/T	$810 \pm 50 \text{ rpm (min}^{-1}\text{)}$
A/T	$810 \pm 50 \text{ rpm (min}^{-1}\text{)}$ (in N or P position)

NOTE:

- Do not turn the idle adjusting screw when the air conditioner is on.
- If the idle speed is not within specification, see Symptom Chart on page 11-C-13.



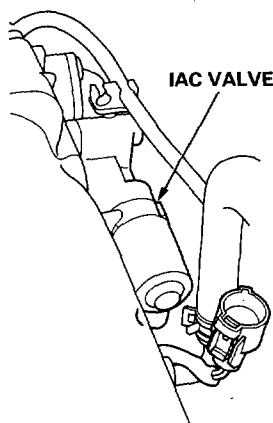
Inspection/Adjustment

D16W4 engine (M/T):

NOTE: Before setting the idle speed, check the following items:

- The MIL has not been reported on.
- Ignition timing
- Spark plugs
- Air cleaner
- PCV system

1. Start the engine. Hold the engine at 3,000 rpm (min^{-1}) with no load (transmission in neutral) until the radiator fan comes on, then let it idle.
2. Connect a tachometer.
3. Disconnect the IAC valve 2P connector.



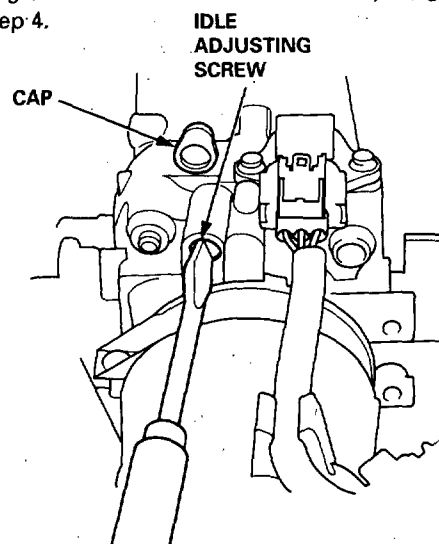
4. If the engine stalls, restart the engine with the accelerator pedal slightly depressed. Stabilize the rpm at 1,000, then slowly release the pedal until the engine idles.
5. Check idling in no-load conditions: headlights, blower fan, rear defogger, radiator fan, and air conditioner are not operating.

NOTE: (KS model) Remove No. 16 (7.5 A) fuse in the under-dash fuse box, then check that the headlights and side marker lights are off.

Idle speed should be: $450 \pm 50 \text{ rpm (min}^{-1}\text{)}$

If necessary, adjust the idle speed, by removing the cap and turning the idle adjusting screw.

After adjusting the idle speed recheck the ignition timing (see section 23). If it is out of spec, go back to step 4.



6. Turn the ignition switch OFF.
7. Reconnect the 2P connectors to the IAC valve, then do the ECM reset procedure.
8. Restart and idle the engine with no-load conditions for one minute, then check the idle speed.

Idle speed should be: $750 \pm 50 \text{ rpm (min}^{-1}\text{)}$

9. Idle the engine for one minute with headlights (Low) ON, and check the idle speed.

Idle speed should be: $750 \pm 50 \text{ rpm (min}^{-1}\text{)}$

10. Turn the headlights off. Idle the engine for one minute with heater fan switch at HI and air conditioner on, then check the idle speed.

Idle speed should be: $810 \pm 50 \text{ rpm (min}^{-1}\text{)}$

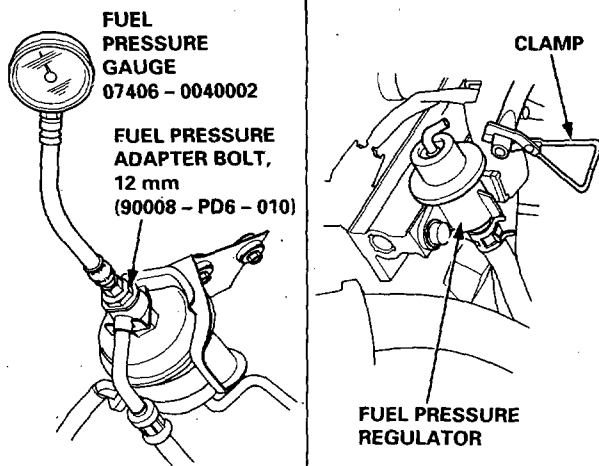
If the idle speed is not within specification, see Symptom Chart on page 11-C-13.

Fuel Supply System

Fuel Pressure

Inspection

1. Relieve fuel pressure.
2. Remove the 12 mm banjo bolt from the fuel filter while holding the fuel filter with another wrench. Attach the fuel pressure adapter bolt, 12 mm (90008 - PD6 - 010) and the special tool.



3. Start the engine. Measure the fuel pressure with the engine idling and the vacuum hose of the fuel pressure regulator disconnected from the fuel pressure regulator and pinched. If the engine will not start, turn the ignition switch ON (II), wait for two seconds, turn it off, then back on again and read the fuel pressure.

Pressure should be:

240 - 280 kPa (2.45 - 2.85 kgf/cm², 34.8 - 40.5 psi)

4. Reconnect vacuum hose to the fuel pressure regulator.

Pressure should be:

180 - 220 kPa (1.8 - 2.2 kgf/cm², 26 - 31 psi)

If the fuel pressure is not as specified, first check the fuel pump. If the fuel pump is OK, check the following:

- If the fuel pressure is higher than specified, inspect for:
 - Pinched or clogged fuel return hose or line.
 - Faulty fuel pressure regulator.
- If the fuel pressure is lower than specified, inspect for:
 - Clogged fuel filter.
 - Faulty fuel pressure regulator.
 - Fuel line leakage.



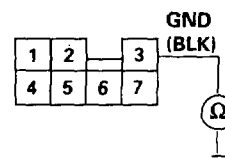
PGM-FI Main Relay

Troubleshooting

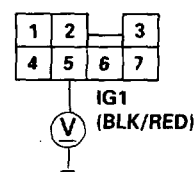
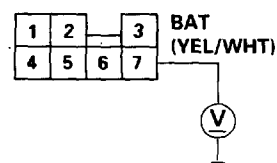
- Engine will not start.
- Inspection of PGM-FI main relay and relay harness.

NOTE: The inertia switch must be reset by pressing the button.

PGM-FI MAIN RELAY 7P CONNECTOR



Wire side of female terminals



Check for an open in the wire (GND line):
1. Turn the ignition switch OFF.
2. Disconnect the PGM-FI main relay connector.
3. Check for continuity between the PGM-FI main relay 7P connector terminal No. 3 and body ground.

Is there continuity?

NO

Repair open in the wire between the PGM-FI main relay and G101.

YES

Check for an open or short in the wire (BAT line):
Measure voltage between the PGM-FI main relay 7P connector terminal No. 7 and body ground.

Is there battery voltage?

NO

- Replace the ECU (ECM) (15 A) fuse in the under-hood fuse/relay box.
- Repair open or short in the wire between the PGM-FI main relay and the ECU (ECM) (15 A) fuse.

YES

Check for an open or short in the wire (IG1 line):
1. Turn the ignition switch ON (II).
2. Measure the voltage between the PGM-FI main relay 7P connector terminal No. 5 and body ground.

Is there battery voltage?

NO

YES



(To page 11-C-82)

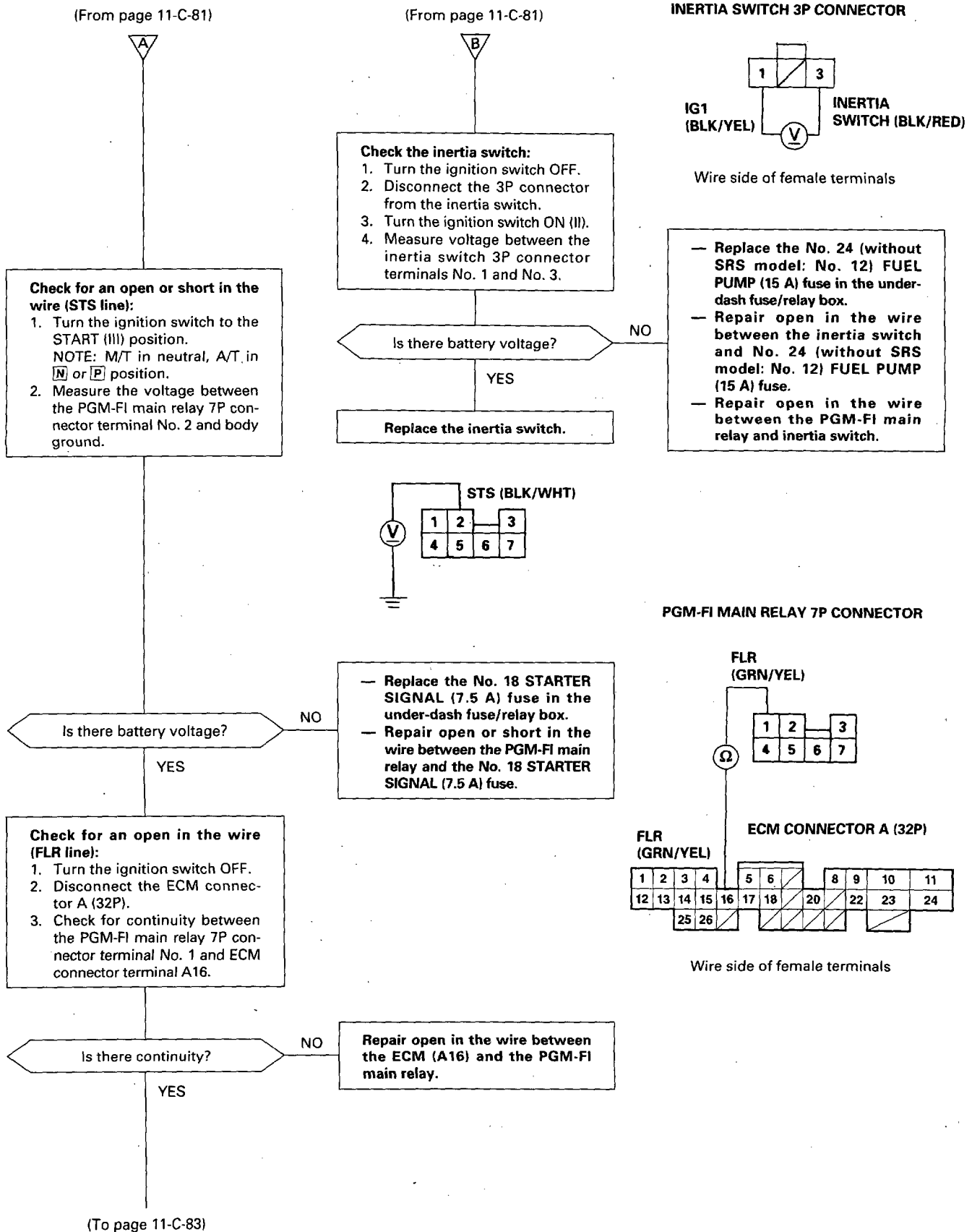


(To page 11-C-82)

(cont'd)

Fuel Supply System

PGM-FI Main Relay (cont'd)





(From page 11-C-82)

Check for an open in the wires (IGP1, IGP2 lines):

1. Reconnect the ECM connector A (32P).
2. Reconnect the PGM-FI main relay 7P connector.
3. Turn the ignition switch ON (II).
4. Measure voltage between ECM connector terminals A11 and A10, and between A24 and A10.

Is there battery voltage?

NO

- Repair open in the wire between the ECM (A11, A24) and the PGM-FI main relay.
- Replace the PGM-FI main relay.

YES

Check for an open in the ECM:

1. Turn the ignition switch OFF.
2. Measure voltage between ECM connector terminals A10 and A16 when the ignition switch is first turned ON (II) for two seconds.

Is there 1.0 V or less?

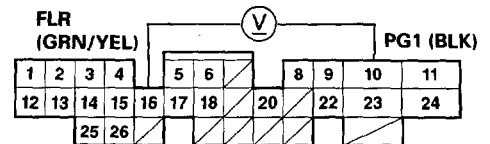
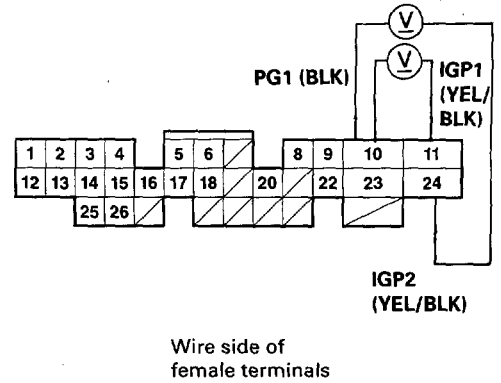
NO

Substitute a known-good ECM and recheck (see page 11-C-11 for immobilizer information). If prescribed voltage is now available, replace the original ECM.

YES

Check the PGM-FI main relay.

ECM CONNECTOR A (32P)

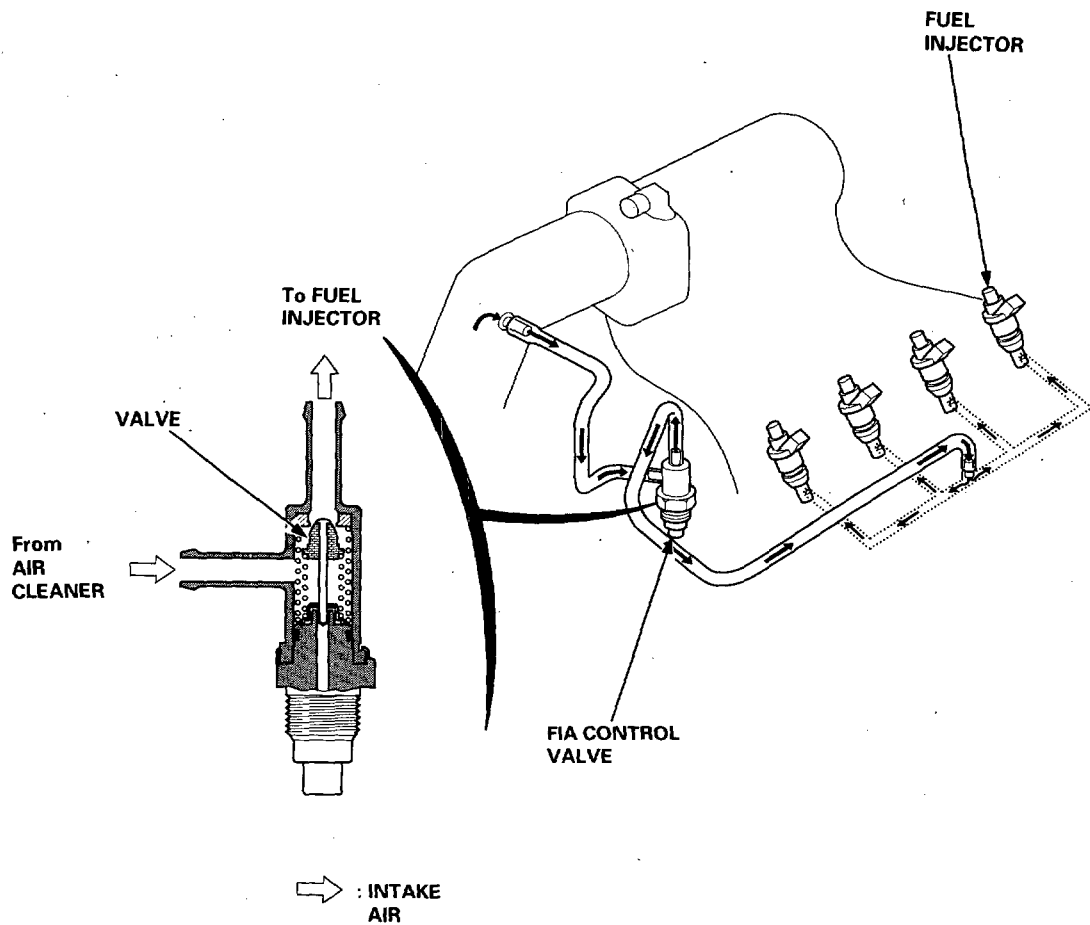


Intake Air System

Fuel Injection Air (FIA) Control System (D16W4 engine)

Description

When the engine running [engine coolant temperature below 65°C (149°F)], the Fuel Injection Air (FIA) Control Valve sends intake air to the fuel injectors.



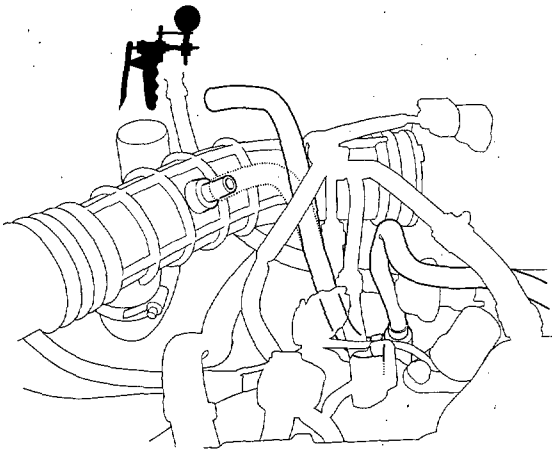


Fuel Injection Air (FIA) Control Valve Testing

1. Start the engine.
2. Remove the vacuum hose from the install pipe, and connect a vacuum gauge to the hose.

NOTE: Engine coolant temperature must be below 65°C (149°F).

VACUUM PUMP
GAUGE, 0 – 30 in.Hg.



3. Raise and lower the engine speed, and make sure the vacuum gauge reading changes as the engine speed changes.

If vacuum reading does not change check;

- the vacuum lines of FIA system for misrouting, leakage, breakage and clogging.
- the FIA control valve for cracks or damage.
- check the cooling system (see section 10).

4. Hold the engine at 3,000 rpm (min^{-1}) with no load (A/T in **N** or **P** position, M/T in neutral) until the radiator fan comes on, then let it idle and recheck.

If vacuum reading changes check;

- the FIA control valve for cracks or damage.
- check the cooling system (see section 10).

Emission Control System

Three Way Catalytic Converter (TWC)

P0420 The scan tool indicates Diagnostic Trouble Code (DTC) P0420: Catalyst system efficiency below threshold.

Description

This system evaluates the catalyst's capacity by means of the HO₂S (Primary and Secondary) output during stable driving conditions. If deterioration has been detected during two consecutive driving cycles, the MIL comes on and DTC P0420 will be stored.

NOTE: If some of the DTCs listed below are stored at the same time as DTC P0420, troubleshoot those DTCs first, then troubleshoot DTC P0420.

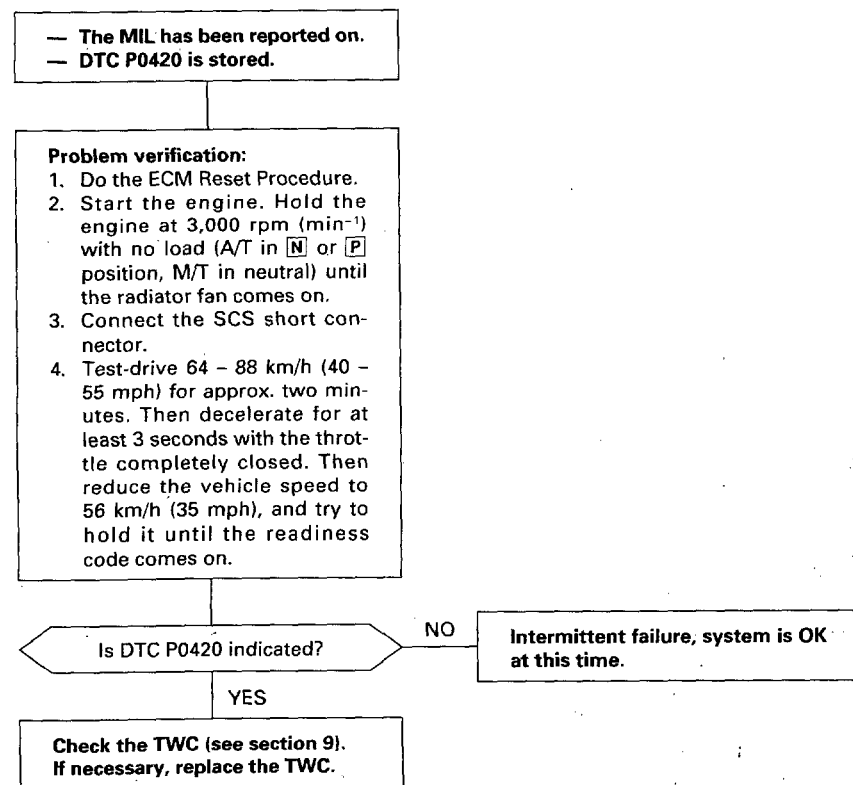
P0137, P0138: Secondary HO₂S (Sensor 2)

P0141: Secondary HO₂S (Sensor 2) Heater

Possible Cause

- TWC Deterioration
- Exhaust system leakage

Troubleshooting Flowchart





Evaporative Emission (EVAP) Controls

Description

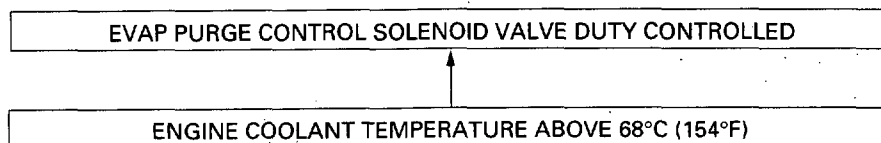
The evaporative emission controls are designed to minimize the amount of fuel vapor escaping to the atmosphere. The system consists of the following components:

A. Evaporative Emission (EVAP) Control Canister

An EVAP control canister is used for the temporary storage of fuel vapor until the fuel vapor can be purged from the EVAP control canister into the engine and burned.

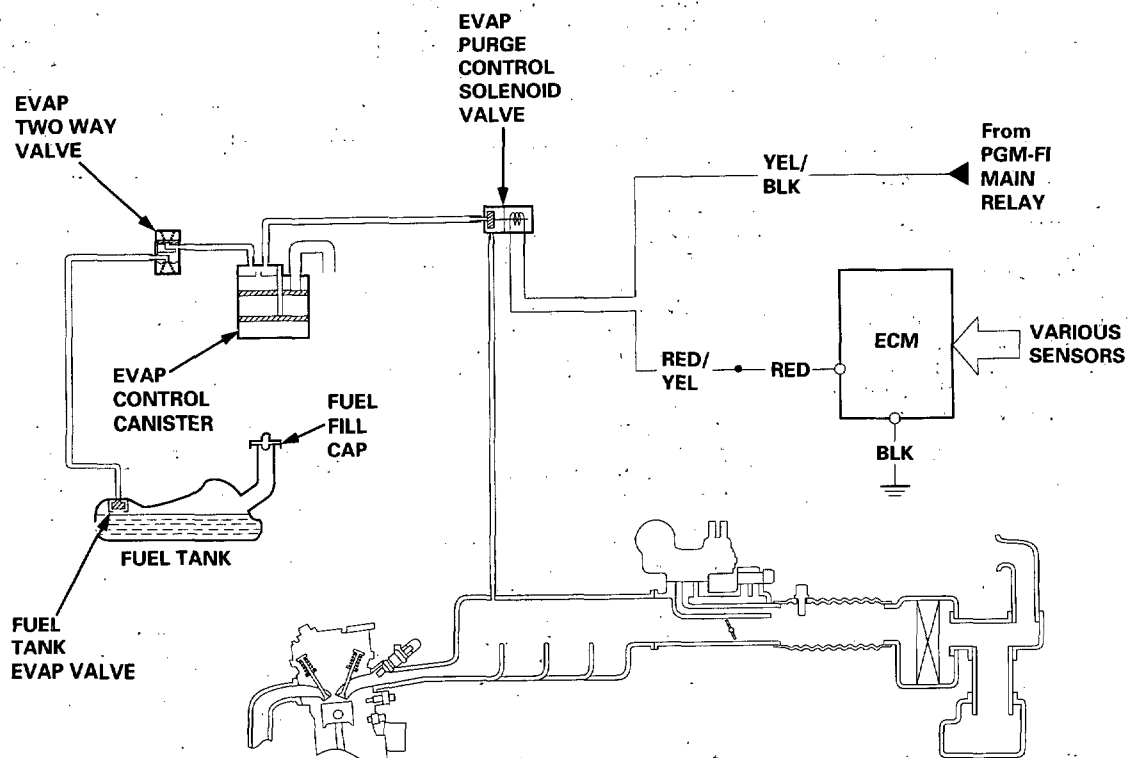
B. Vapor Purge Control System

EVAP control canister purging is accomplished by drawing fresh air through the EVAP control canister and into a port on the intake manifold. The purging vacuum is controlled by the EVAP purge control solenoid valve.



C. Fuel Tank Vapor Control System

When fuel vapor pressure in the fuel tank is higher than the set value of the EVAP two way valve, the valve opens and regulates the flow of fuel vapor to the EVAP control canister.



(cont'd)

Emission Control System

Evaporative Emission (EVAP) Controls (cont'd)

P0443 The scan tool indicates Diagnostic Trouble Code (DTC) P0443: A electrical problem in the EVAP Purge Control Solenoid Valve circuit.

- The MIL has been reported on.
- DTC P0443 is stored.

Problem verification:

1. Do the ECM Reset Procedure.
2. Turn the ignition switch ON (II).

Is DTC P0443 indicated?

NO

Intermittent failure, system is OK at this time. Check for poor connections or loose wires at the EVAP purge control solenoid valve and the ECM.

EVAP PURGE CONTROL CANISTER

VACUUM PUMP/GAUGE

YES

Check for the EVAP purge control solenoid valve:

1. Turn the ignition switch OFF.
2. Disconnect the vacuum hose from the EVAP purge control canister and connect a vacuum gauge to the hose.
3. Start the engine and allow it to idle.

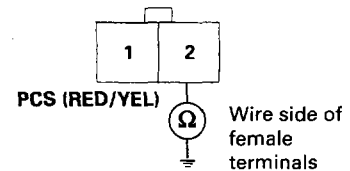
Is there vacuum?

YES

Check for a short in the wire (PCS line):

1. Turn the ignition switch OFF.
2. Disconnect the EVAP purge control solenoid valve 2P connector.
3. Check for continuity between the EVAP purge control solenoid valve 2P connector terminal No. 2 and body ground.

EVAP PURGE CONTROL SOLENOID VALVE 2P CONNECTOR



Is there continuity?

NO

Replace the EVAP purge control solenoid valve.

YES

Check for a short in the ECM:

1. Disconnect the ECM connector A (32P).
2. Check for continuity between the EVAP purge control solenoid valve 2P connector terminal No. 2 and body ground.

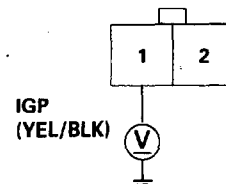
Is there continuity?

YES

Repair short in the wire between the ECM (A15) and the EVAP purge control solenoid valve.

NO

Substitute a known-good ECM and recheck (see page 11-C-11 for immobilizer information). If symptom/indication goes away, replace the original ECM.



Is there battery voltage?

NO

Repair open in the wire between the EVAP purge control solenoid valve and PGM-FI main relay.

YES

(To page 11-C-89)



(From page 11-C-88)

Check for an open in the wire (PCS line):

1. Turn the ignition switch OFF.
2. Reconnect the EVAP purge control solenoid valve 2P connector.
3. Turn the ignition switch ON (II).
4. Measure voltage between the ECM connector terminals A10 and A15.

Is there battery voltage?

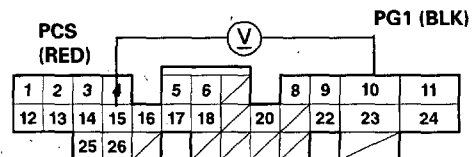
NO

Repair open in the wire between the ECM (A15) and the EVAP purge control solenoid valve. If wire is OK, replace the EVAP purge control solenoid valve.

YES

Substitute a known-good ECM and recheck (see page 11-C-11 for immobilizer information). If symptom/indication goes away, replace the original ECM.

ECM CONNECTOR A (32P)



Wire side of female terminals

(cont'd)

Emission Control System

Evaporative Emission (EVAP) Controls (cont'd)

A mechanical or vacuum problem Troubleshooting Flowchart

Inspection of Evaporative Emission Controls

Check the vacuum when cold:

1. Disconnect the vacuum hose from the EVAP purge control canister and connect a vacuum gauge to the hose.
2. Start the engine and allow it to idle.
NOTE: Engine coolant temperature must be below 68°C (154°F).

Is there vacuum?

YES

Inspect vacuum hose routing.
If OK, replace EVAP purge control solenoid valve.

NO

Check the vacuum when hot:

1. Hold the engine at 3,000 rpm (min^{-1}) with no load (M/T in neutral, A/T in **N** or **P** position) until the radiator fan comes on, then raise the engine speed to 3,000 rpm (min^{-1}).
2. Check for vacuum at the vacuum hose after starting the engine.

Is there vacuum?

NO

Inspect vacuum hose routing.
If OK, replace the EVAP purge control solenoid valve.

YES

Check the EVAP control canister:

1. Reconnect the vacuum hose to the EVAP purge control canister.
2. Remove fuel fill cap.
3. Connect a vacuum gauge to canister purge air hose.
4. Start the engine and raise speed to 3,500 rpm (min^{-1}).

Does vacuum appear on gauge within 1 minute?

NO

Replace the EVAP control canister.

YES

See EVAP two way valve test to complete.
Evaporative emission controls are OK.

EVAP PURGE CONTROL CANISTER

VACUUM PUMP/GAUGE

PURGE AIR HOSE

Transaxle

Manual Transmission	13-1
Differential (B18C4 engine)	15-1
Driveshafts	16-1



Manual Transmission

Maintenance

Transmission Oil 13-2

NOTE: Refer to the 1998 CIVIC Aerodeck Shop Manual (P/N 62S1E00) for the items not shown in this section.



Outline of Model Change

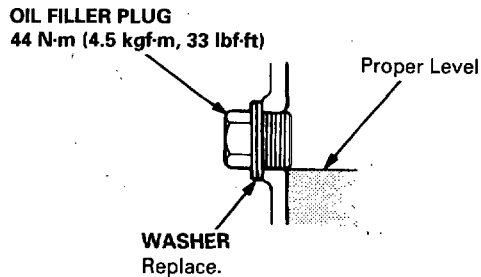
- The oil grade has been added in case of unavailable SG or SH grade oil.

Maintenance

Transmission Oil

NOTE: Check the oil with the engine OFF and car on level ground.

1. Remove the oil filler plug, then check the level and condition of the oil.



2. The oil level must be up to the filler hole. If it is below the hole, add oil until it runs out, then reinstall the oil filler plug with a new washer.
3. If the transmission oil is dirty, remove the drain plug and drain the oil.
4. Reinstall the drain plug with a new washer, and refill the transmission oil to the proper level.

NOTE: The drain plug washer should be replaced at every oil change.

5. Reinstall the oil filler plug with a new washer.

Oil Capacity

9A Model

1.8 ℓ (1.9 US qt, 1.6 Imp qt) at oil change.

1.9 ℓ (2.0 US qt, 1.7 Imp qt) at overhaul.

S9B Model

2.2 ℓ (2.3 US qt, 1.9 Imp qt) at oil change.

2.3 ℓ (2.4 US qt, 2.0 Imp qt) at overhaul.

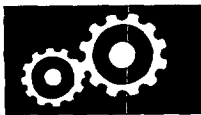
Always use genuine Honda manual transmission fluid (MTF). If it is not available, you may use an API service SG, SH or SJ grade motor oil with a viscosity of SAE 10W-30 or 10W-40 as a temporary replacement.

Differential (B18C4 engine)

Limited Slip Differential (LSD)

Illustrated Index 15-2

NOTE: Refer to the 1998 CIVIC Aerodeck Shop Manual (P/N 62S1E00) for the items not shown in this section.



Outline of Model Change

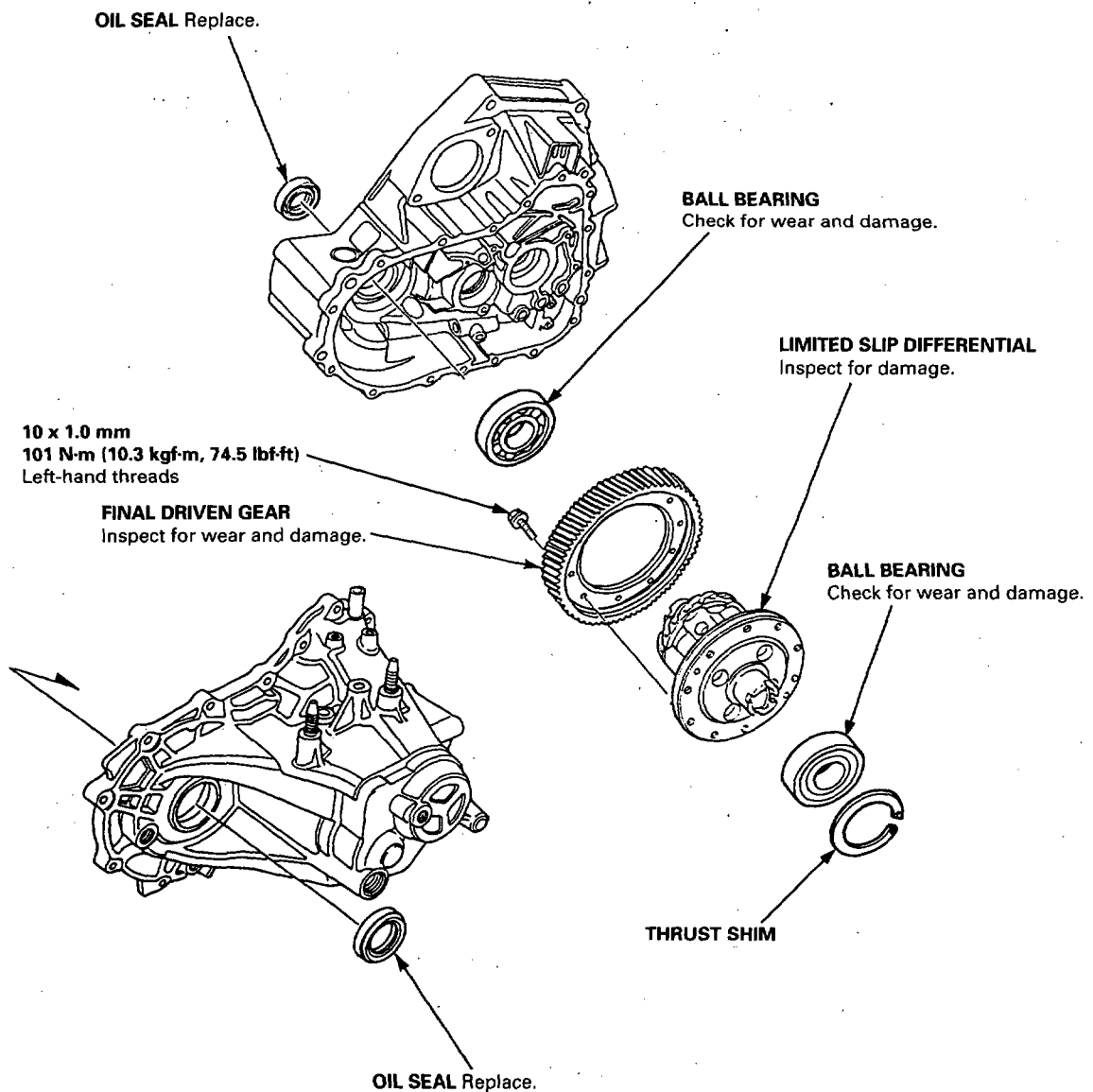
- The tapered roller bearing of the Limited Slip Differential has been changed to ball bearing.

Limited Slip Differential (LSD)

Illustrated Index

NOTE:

- The limited slip differential assembly is non-rebuildable, replace it if it is damaged.
- Tepered roller bearing has been changed to ball bearing, for the replacement procedure, refer to 9A Model (Manual Transmission) in the 1998 CIVIC Aerodeck Shop Manual (P/N 62S1E00, page 13-30 to 13-38).



Driveshafts

Special Tools	16-2
Disassembly	16-3
Reassembly	16-6

NOTE: Refer to the 1998 CIVIC Aerodeck Shop Manual (P/N 62S1E00) for the items not shown in this section.

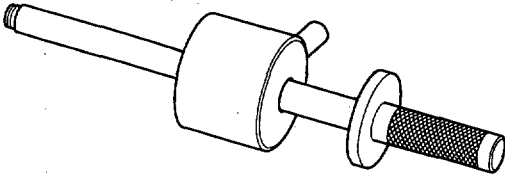
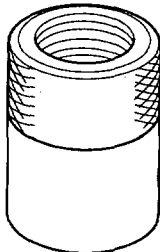


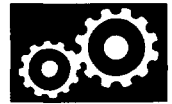
Outline of Model Changes

- The outboard boot of the B18C4 engine has been changed to Thermoplastic Polyester Elastomer (TPE).
- The replacement procedure for ear clamp type boot bands has been added.
- The outboard joint disassembly/reassembly procedure has been added.

Special Tools

Ref. No.	Tool Number	Description	Qty	Remark
①	07XAC – 0010100	Threaded Adapter, 22 x 1.5 mm	1	
②	07936 – 5790001	Sliding Hammer Set	1	



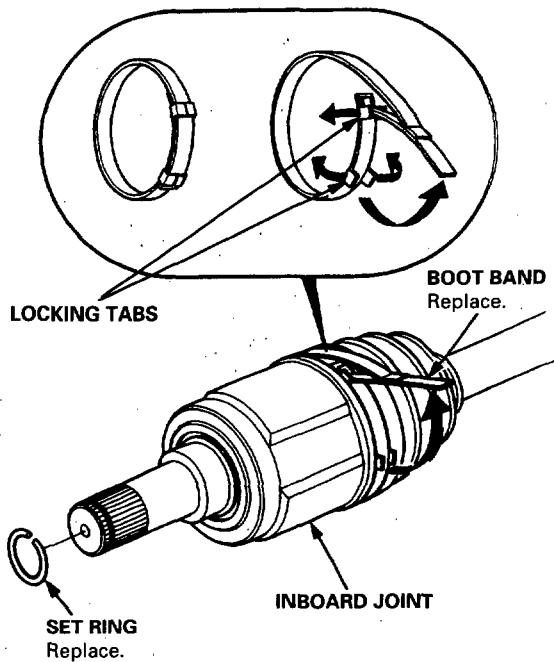


Disassembly

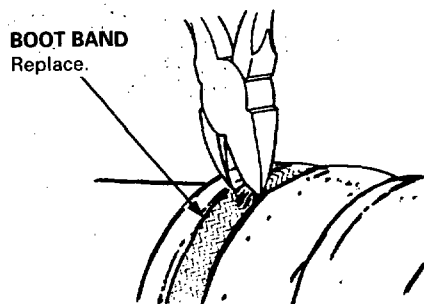
Inboard Joint Side:

1. Carefully clamp the driveshaft in a vise with soft jaws, then remove the set ring from the inboard joint.
2. Remove the boot bands. Take care not to damage the boot.
 - If the boot band is a locking tab type, pry up the locking tabs with a screwdriver, and raise the end of the band.
 - If the boot band is a welded type, cut the boot band.
 - If the boot band is a crimping type, pry up the end of the band with a screwdriver.
 - If the boot band is a double loop type, lift up the band bend.

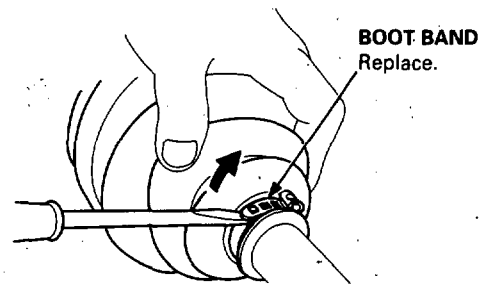
Locking Tab Type



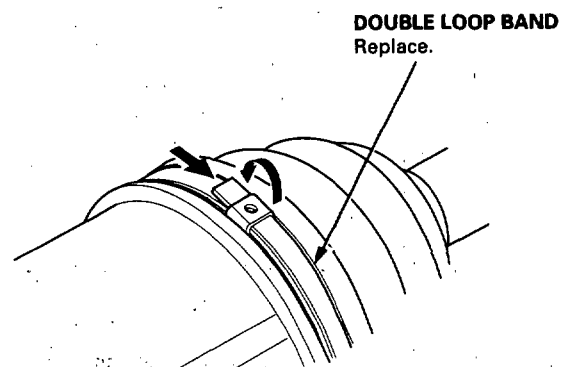
Welded Type



Crimping Type



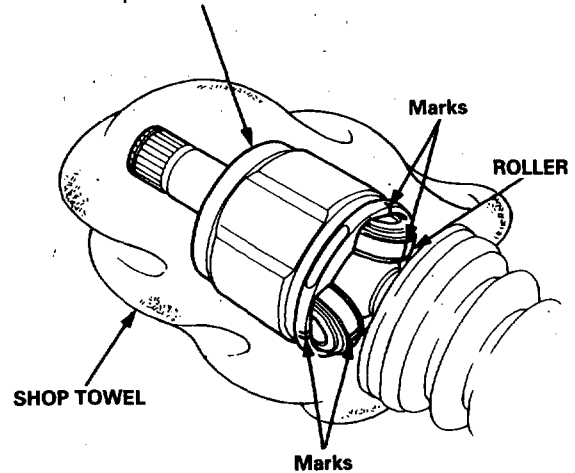
Double Loop Type



3. Mark each roller and inboard joint to identify the locations of rollers and grooves in the inboard joint. Then remove the inboard joint on the shop towel. Be careful not to drop the rollers when separating them from the inboard joint.

INBOARD JOINT

Check splines for wear or damage.
Check inside bore for wear.
Inspect for cracks.



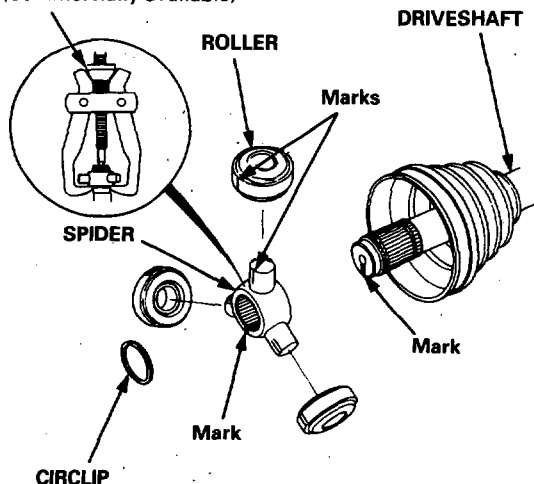
(cont'd)

Driveshafts

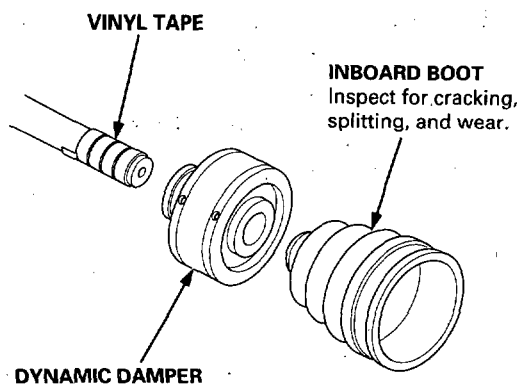
Disassembly (cont'd)

4. Mark the rollers and spider to identify the locations of the rollers on the spider, then remove the rollers.

BEARING REMOVER
(Commercially available)



5. Remove the circlip.
6. Mark the spider and driveshaft to identify the position of the spider on the shaft.
7. Remove the spider using a bearing remover.
8. Wrap the splines on the driveshaft with vinyl tape to prevent damage to the boot and dynamic damper.



9. Remove the inboard boot and dynamic damper. Take care not to damage the boot.

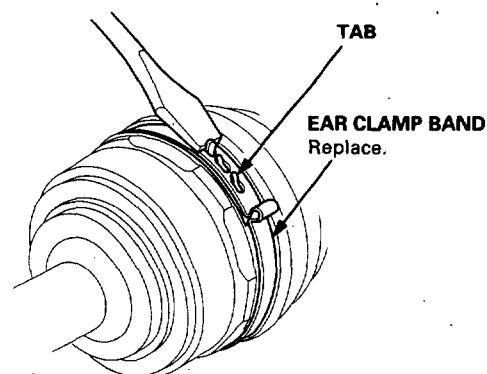
Outboard Joint Side:

1. Lift up the three tabs with a screwdriver, then remove the boot bands. Take care not to damage the boot.

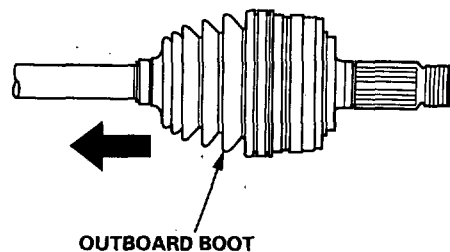
NOTE:

- If the boot band is a double loop type, lift up the band bend.
- If the boot band is a welded type, cut the boot band.
- If the boot band is the locking tabs type, pry up the tabs with a screwdriver, and lift up the end of the band.

Ear Clamp Type:

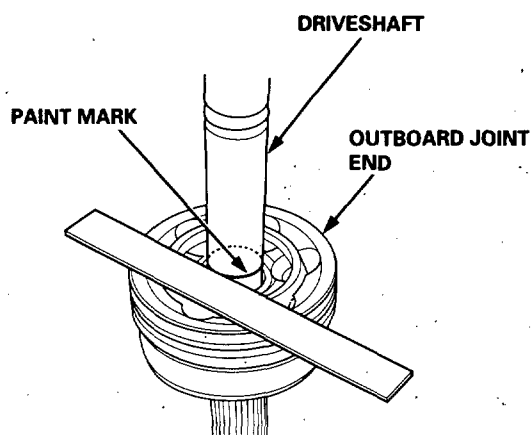


2. Slide the outboard boot to the inboard joint side.

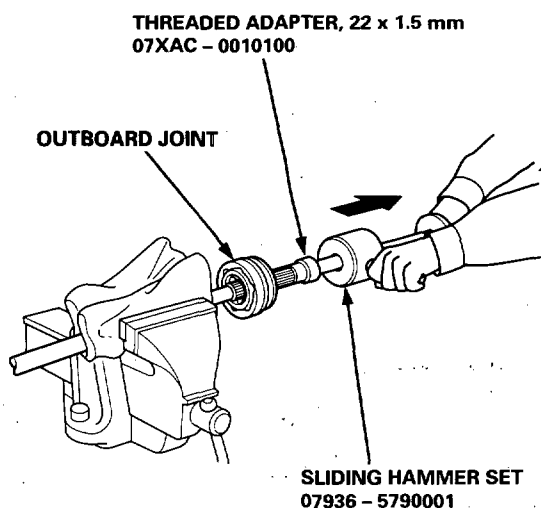




3. Wipe off the grease to expose the driveshaft and the outboard joint inner race.
4. Mark the driveshaft at the same position of the outboard joint end with paint.

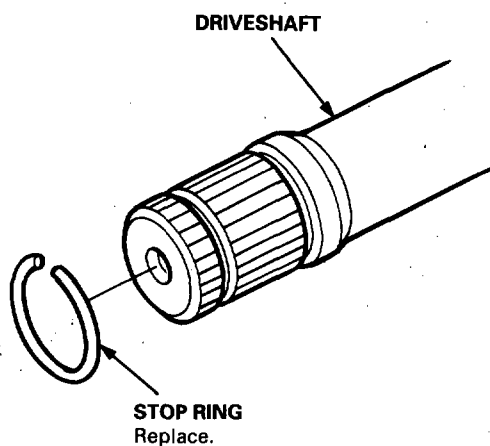


5. Carefully clamp the driveshaft in a vise.



6. Remove the outboard joint using a special tool as shown.

7. Remove the driveshaft from the vise.
8. Remove the stop ring from the driveshaft.



Driveshafts (Except B18C4 Gasoline Engines)

Reassembly

Note these items during reassembly:

- Clean the disassembled parts with solvent, and dry them thoroughly with compressed air. Do not wash the rubber parts with solvent.
-  : Thoroughly pack the inboard and outboard joints and both joint boots with the joint grease included in the new driveshaft set.

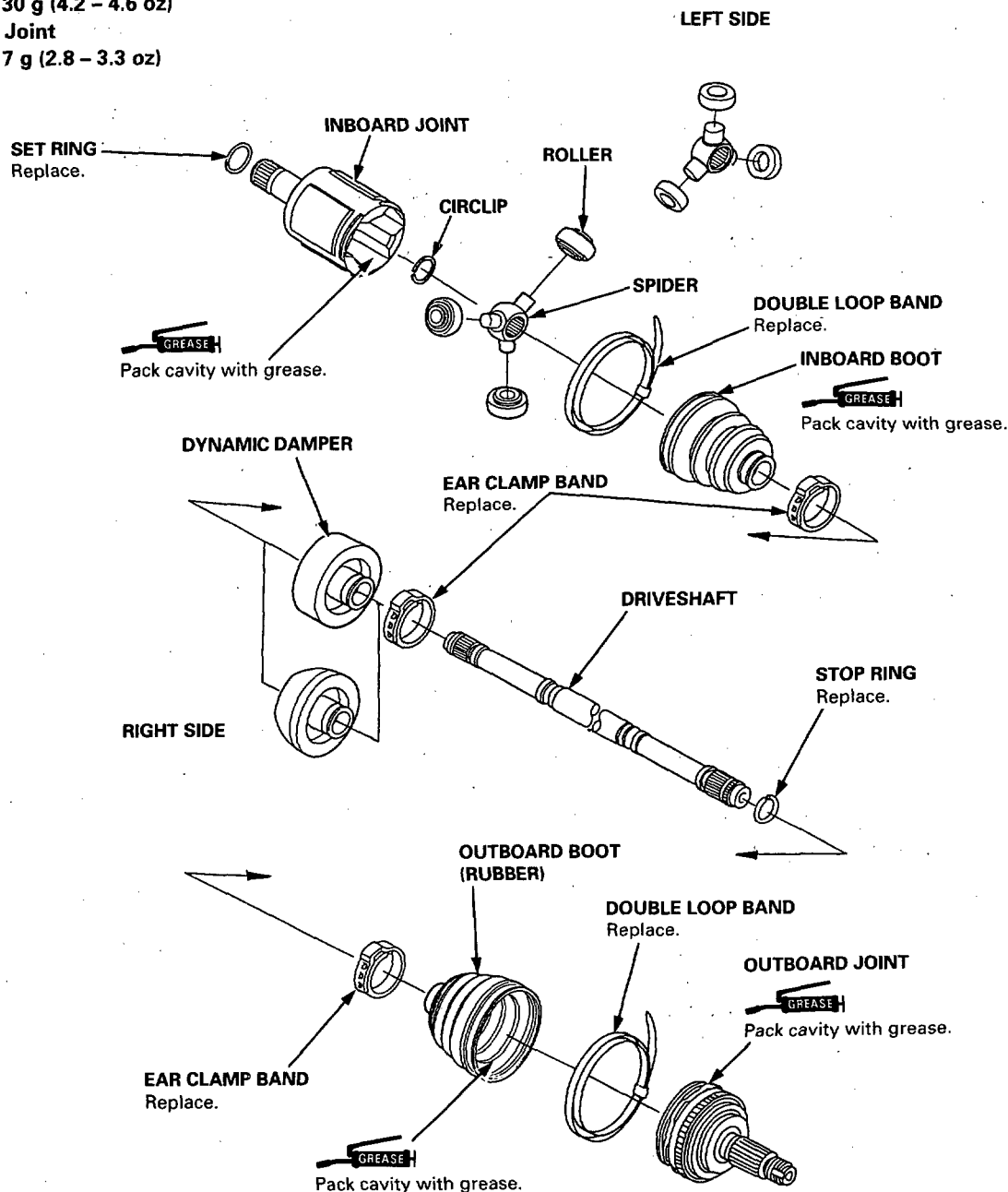
Grease quantity:

Inboard Joint

120 – 130 g (4.2 – 4.6 oz)

Outboard Joint

99 – 117 g (2.8 – 3.3 oz)



(B18C4 Engine)



Note these items during reassembly:

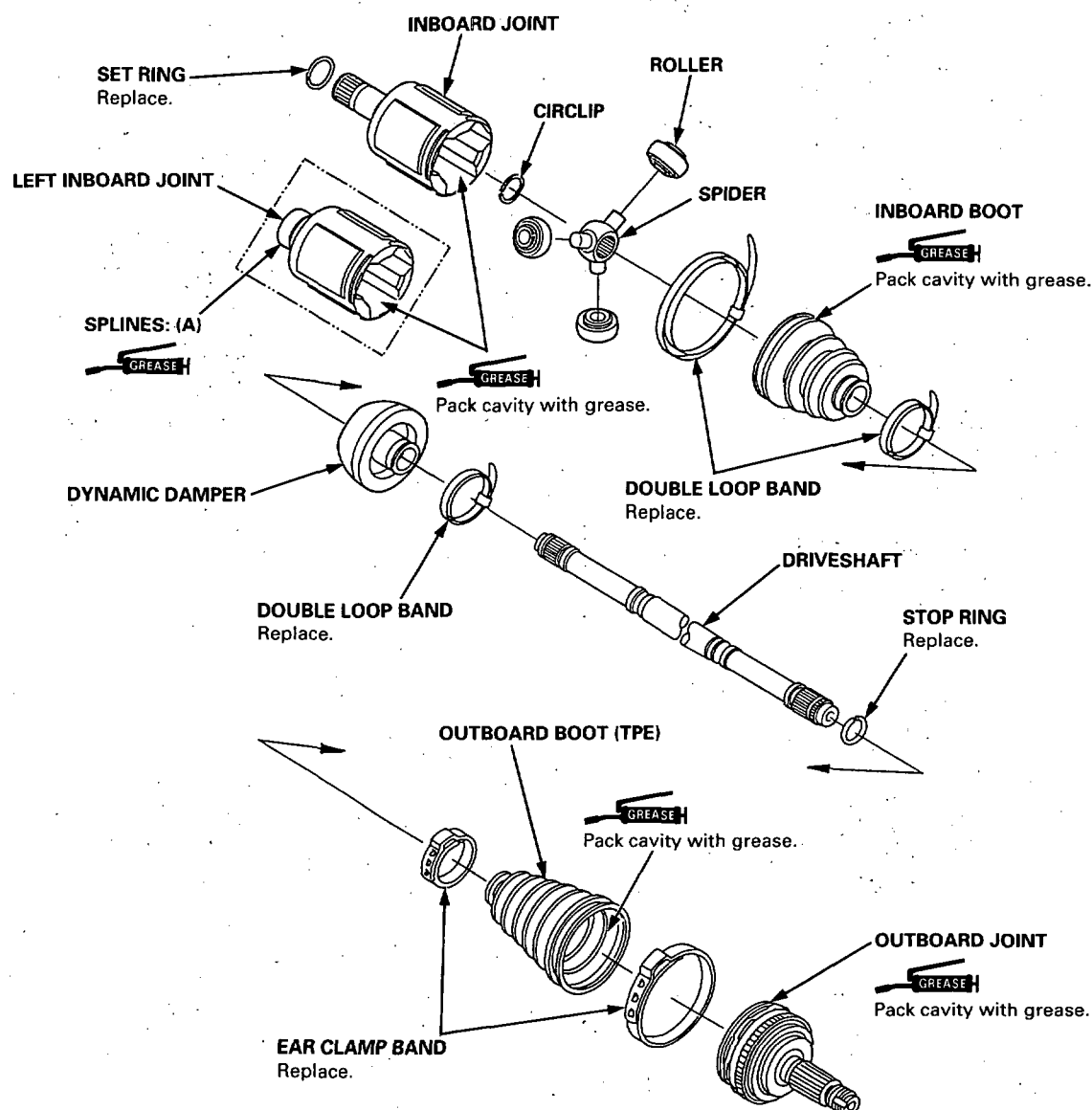
- Clean the disassembled parts with solvent, and dry them thoroughly with compressed air. Do not wash the rubber parts with solvent.
-  : Thoroughly pack the inboard and outboard joints and both joint boots with the joints boots with the joint grease included in the new driveshaft set.
- The B18C4 engine uses a TPE (Thermoplastic Polyester Elastomer) outboard joint boot. Use the ear clamp type boot band in the outboard joint boot set.

Grease quantity:

Inboard Joint: 120 – 130 g (4.2 – 4.6 oz)

Splines (A): 0.5 – 1.0 g (0.018 – 0.035 oz)

Outboard Joint: 105 – 115 g (3.0 – 3.3 oz)



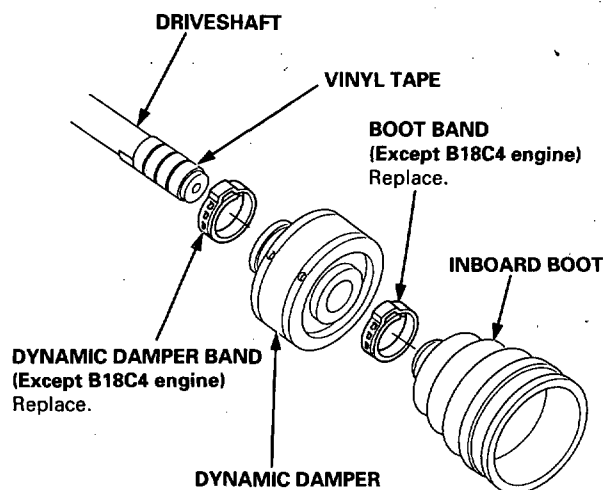
(cont'd)

Driveshafts

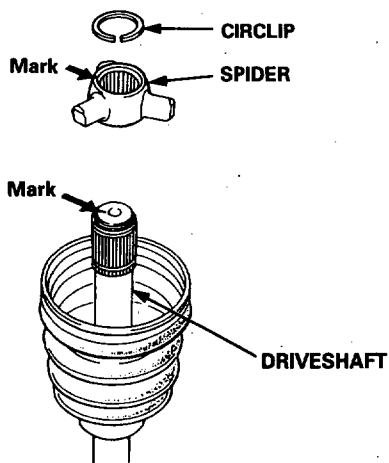
Reassembly (cont'd)

Inboard Joint Side:

1. Wrap the splines with vinyl tape prevent damage to the inboard boot and dynamic damper.



2. Install the dynamic damper and inboard boot to the driveshaft, then remove the vinyl tape. Take care not to damage the inboard boot and dynamic damper.
3. Install the spider on the driveshaft by aligning the marks on the spider and end of the driveshaft.

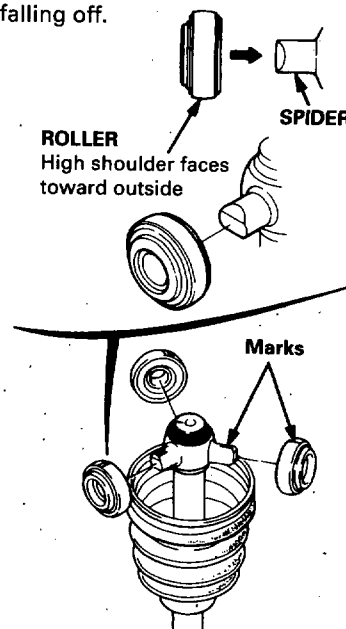


4. Fit the circlip into the driveshaft groove. Always rotate the circlip in its groove to be sure it is fully seated.

5. Fit the rollers onto the spider.

NOTE:

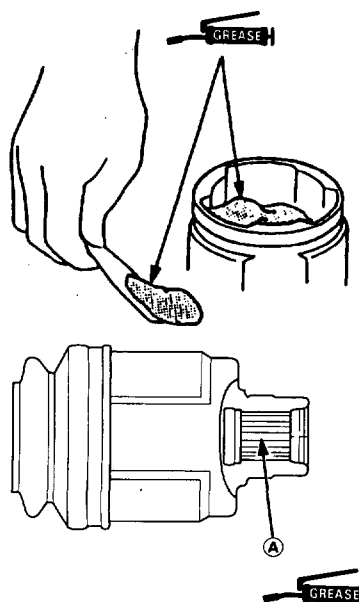
- Reinstall the rollers in their original positions on the spider by aligning the marks.
- Point the driveshaft upward prevent the rollers from falling off.



6. Pack the inboard joint with the joint grease included in the new driveshaft set.

Grease quantity: 120 – 130 g (4.2 – 4.6 oz)

Left inboard joint (B18C4 engine) splines A: 0.5 – 1.0 g (0.018 – 0.035 oz)

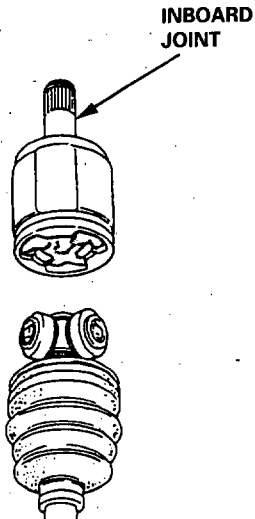




7. Fit the inboard joint onto the driveshaft.

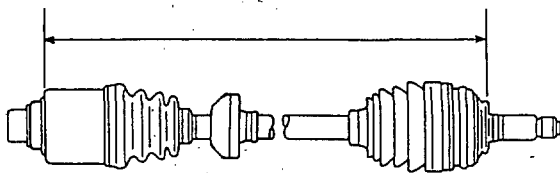
NOTE:

- Reinstall the inboard joint onto the driveshaft by aligning the marks on the inboard joint with the marks on the rollers.
- Hold the driveshaft with the inboard joint pointing upward to prevent it from falling off.

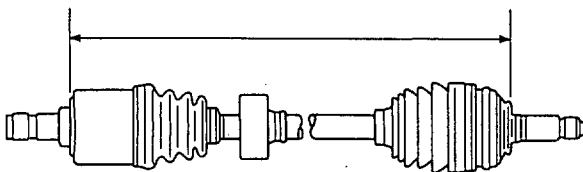


8. Adjust the length of the driveshafts to the specifications below, then adjust the boots to halfway between full compression and full extension. Make sure the ends of the boots seat in the groove of the driveshaft and joint.

Left driveshaft (B18C4 engine):
475 – 480 mm (18.7 – 18.9 in)



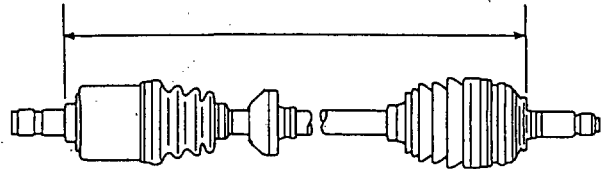
Left driveshaft (Except B18C4 engine):
772.9 – 777.9 mm (30.4 – 30.6 in)



Right driveshaft

B18C4 engine: 487 – 492 mm (19.2 – 19.4 in)

Except B18C4 engines: 502.4 – 507.4 mm (19.8 – 20.0 in)



Left driveshaft

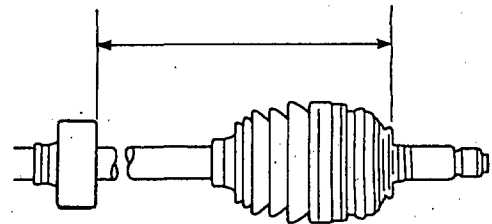
B18C4 engine: 246 – 250 mm (9.7 – 9.8 in)

Except B18C4 engines: 505 – 509 mm (19.9 – 20.0 in)

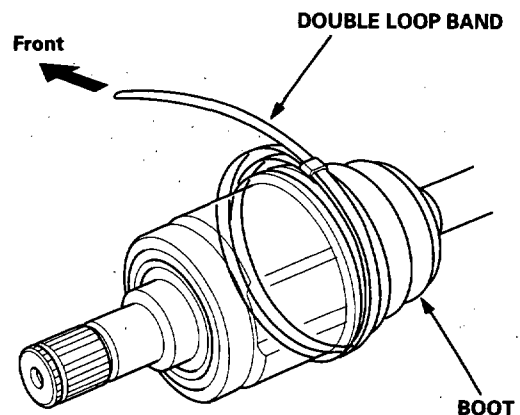
Right driveshaft

B18C4 engine: 254 – 258 mm (10.0 – 10.2 in)

Except B18C4 engines: 252 – 256 mm (9.9 – 10.0 in)



9. Set the double loop band onto the boot with the band end toward the front of the vehicle.

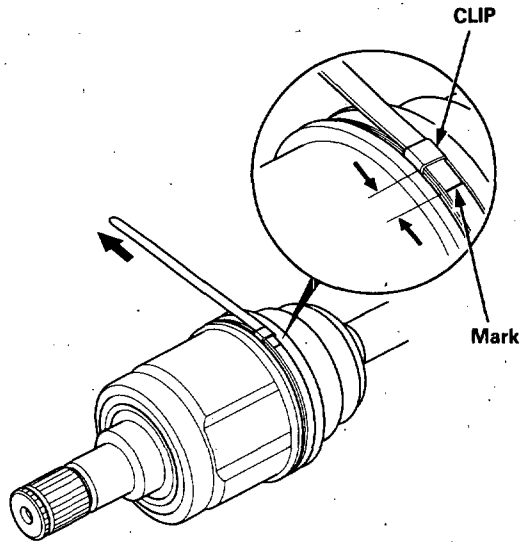


(cont'd)

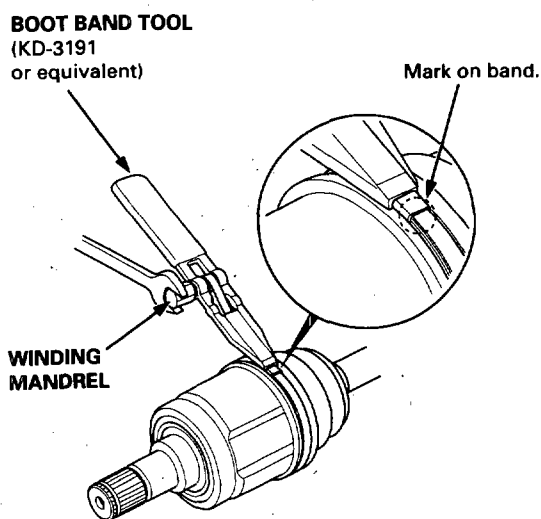
Driveshafts

Reassembly (cont'd)

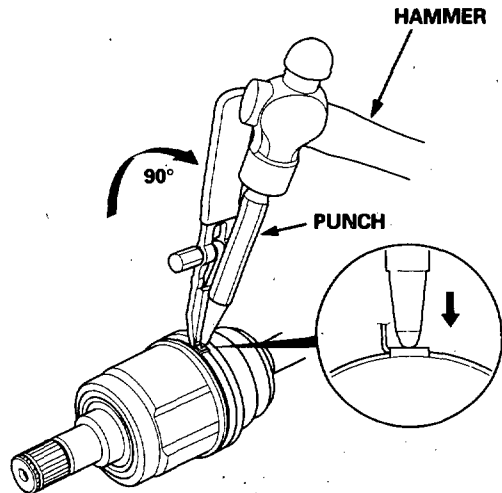
10. Pull up the slack in the band by hand.
11. Make a mark on the band 10 – 14 mm (0.4 – 0.6 in) from the clip.



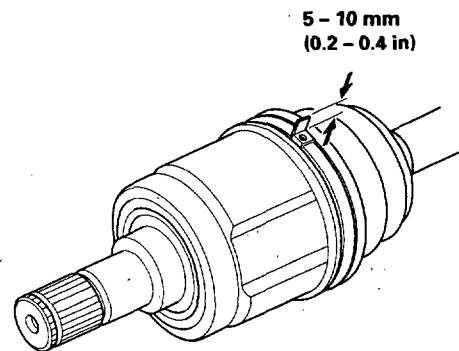
12. Thread the free end of the band through the nose section of the commercially available boot band tool (KD-3191 or equivalent), and into the slot on the winding mandrel.
13. Place a wrench on the winding mandrel of the boot band tool, and tighten the band until the marked spot on the band meets the edge of the clip.



14. Lift up the boot band tool to bend the free end of the band 90 degrees to the clip. Center punch the clip, then fold over the remaining tail onto the clip.



15. Unwind the boot band tool, and cut off the excess free end of the band to leave a 5 – 10 mm (0.2 – 0.4 in) tail protruding from the clip.

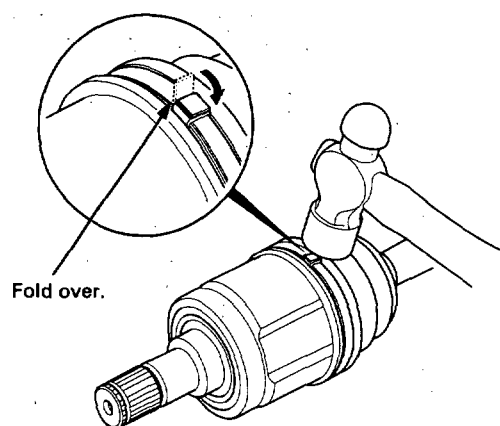




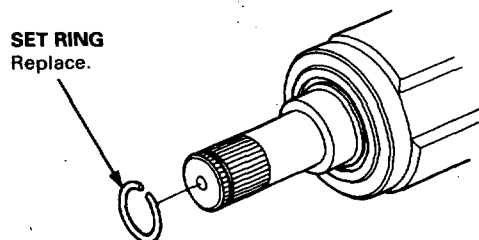
16. Bend the band end by tapping it down with a hammer.

NOTE:

- Make sure the band does not move.
- Remove any grease remaining on the surrounding surfaces.

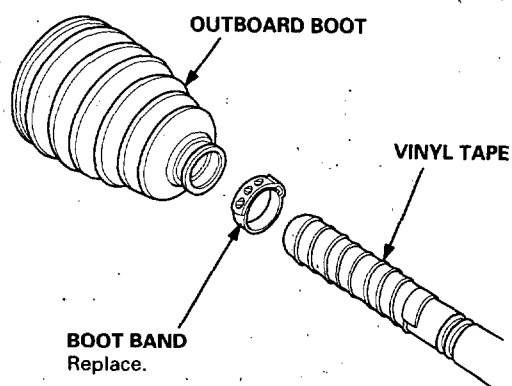


17. Install the new set ring.

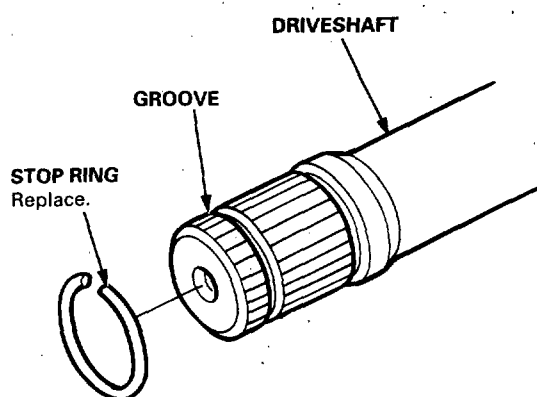


Outboard Joint Side:

1. Wrap the splines with vinyl tape to prevent damage to the boot.



2. Install the boot band and outboard boot, then remove the vinyl tape. Take care not to damage the boot.
3. Install the stop ring into the driveshaft groove.

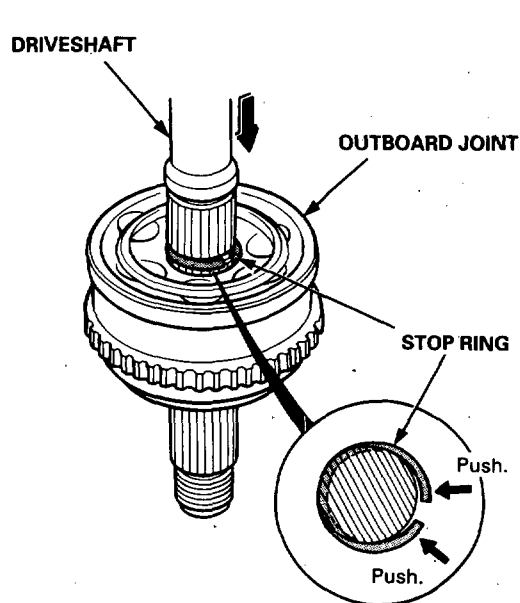


(cont'd)

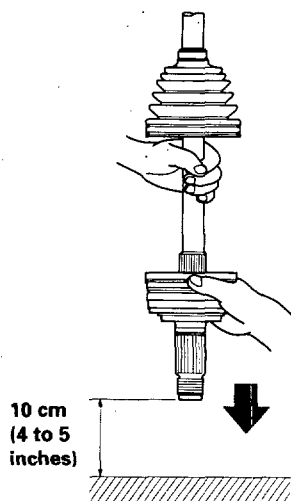
Driveshafts

Reassembly (cont'd)

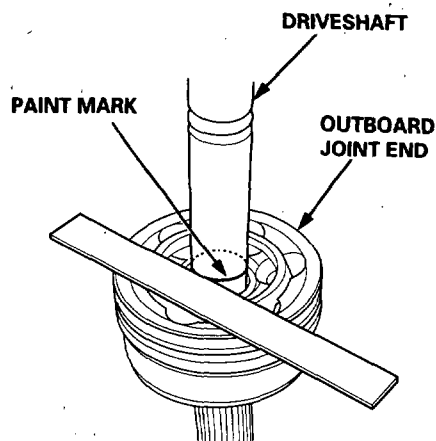
4. Insert the driveshaft into the outboard joint until the stop ring is close on the joint.



5. To completely seat the outboard joint, pick up the driveshaft and joint, and drop them from about 10 cm (4 to 5 inches) onto a hard surface. Do not use a hammer as excessive force may damage the drive-shaft.



6. Check the alignment of the paint mark with the outboard joint end.

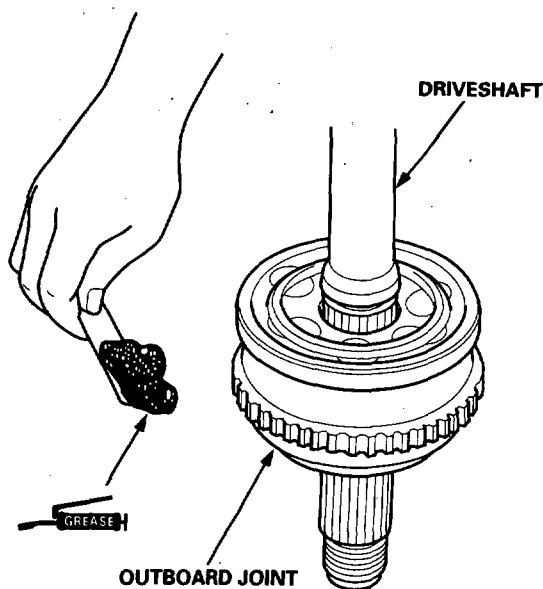


7. Pack the outboard joint with the joint grease included in the new joint boot set.

Grease quantity

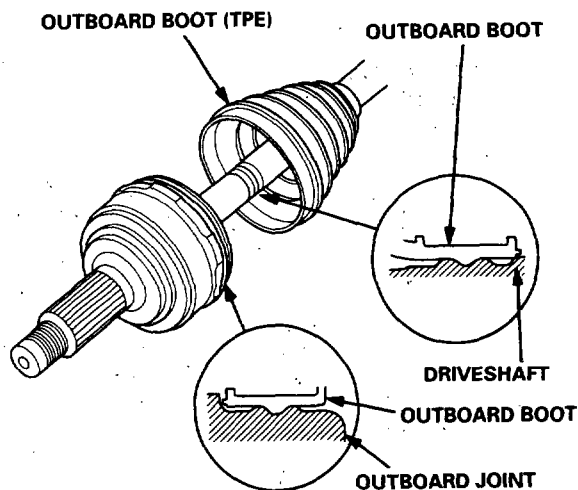
Except B18C4 engine: 99 – 117 g (2.8 – 3.3 oz)

B18C4 engine: 105 – 115 g (3.0 – 3.3 oz)



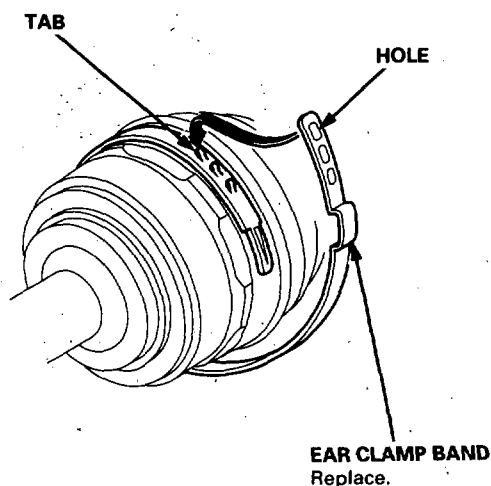


8. Fit the boot ends onto the driveshaft and outboard joint.

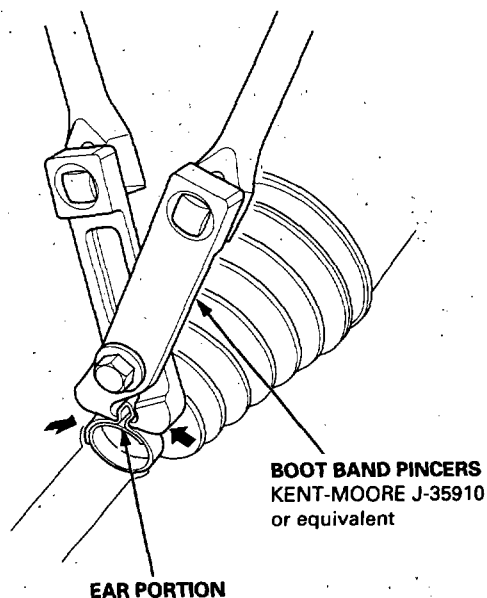


9. Install the boot bands.
- Except B18C4 engines, go to step 13
 - B18C4 engine, go to step 10.

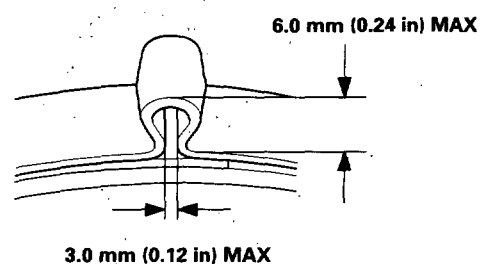
10. Set the ear clamp band by threading the tab into the holes of the band.



11. Close the ear portion of the band with a commercially available boot band pincers KENT-MOORE J-35910 or equivalent.



12. Check the clearance between the closed ear portion of the band. If the clearance is not within the standard, close the ear portion of the band further.

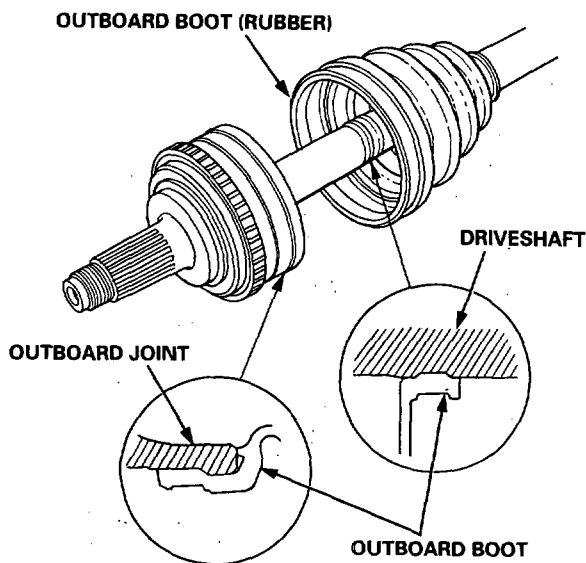


(cont'd)

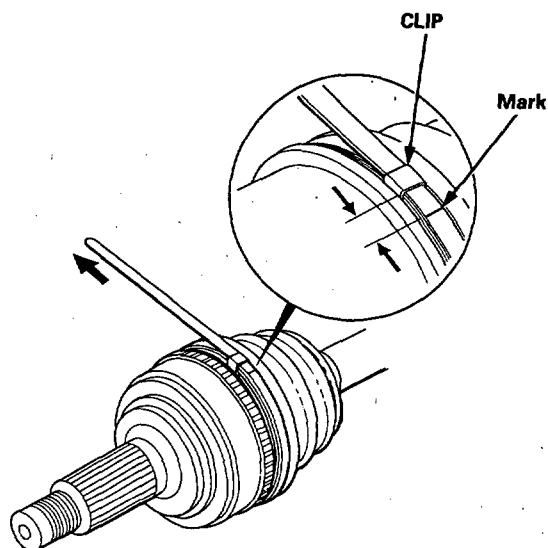
Driveshafts

Reassembly (cont'd)

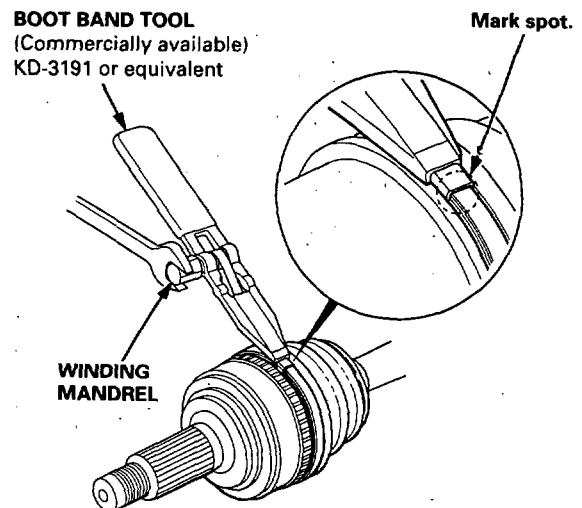
13. Fit the boot ends onto the driveshaft and the outboard joint.



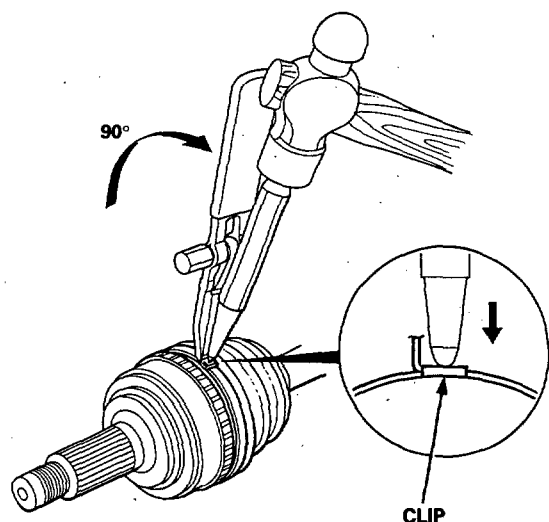
14. Fit the double loop boot bands onto the boot ends.
15. Pull up the slack in the band by hand.
16. Mark a position on the band 10 – 14 mm (0.4 – 0.6 in.) from the clip.



17. Thread the free end of the band through the nose section of the commercially available boot band tool KD-3191 or equivalent and into the slot on the winding mandrel.

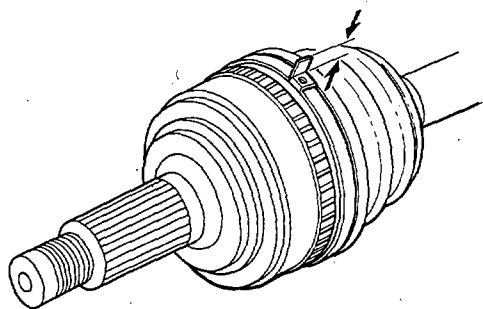


18. Place a wrench on the winding mandrel of the band tightening tool, and tighten the band until the marked spot on the band meets the edge of the clip.
19. Lift up the band tightening tool to bend the free end of the band 90° to the clip. Center punch the clip, then fold over the remaining tail onto the clip.



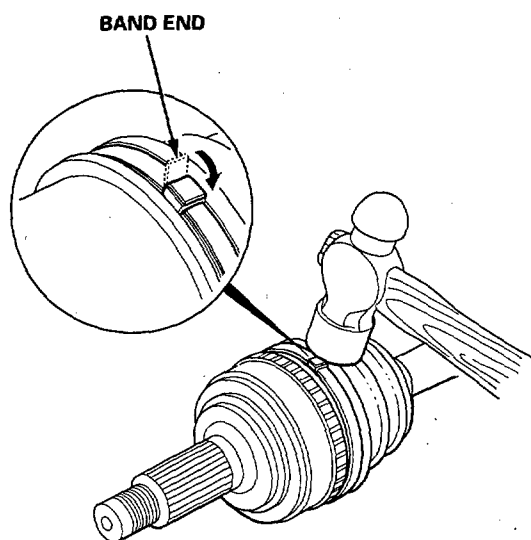


20. Unwind the band tightening tool, and cut off the excess free end of the band to leave a 5 – 10 mm (0.2 – 0.4 in) from the clip.



21. Bend the band by tapping it down with a hammer.

NOTE: Make sure that the band and the clip does not interfere with anything, and that the band does not move. Remove any grease remaining in the surrounding surfaces.



Anti-lock Brake System (ABS)

Special Tools	19-B-2
Anti-lock Brake System (ABS)	
Electronic Brake Distribution (EBD)	19-B-3
Circuit Diagram	19-B-4
Modulator Assembly Terminal	
Arrangement	19-B-6
Diagnostic Trouble Code (DTC)	
Troubleshooting Index	19-B-7
Troubleshooting	
Brake System Indicator Does Not	
Go Off (With EBD)	19-B-8
ABS Indicator Does Not Go Off	
(No DTC)	19-B-9

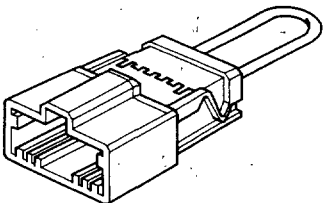


Outline of Model Change

- Electronic Brake Distribution (EBD) system was added to petrol engine models; troubleshooting was entered.

Special Tools

Ref. No.	Tool Number	Description	Qty	Remark
①	07TAZ – ST30100	ABS Short Connector	1	



①



Electronic Brake Distribution (EBD)

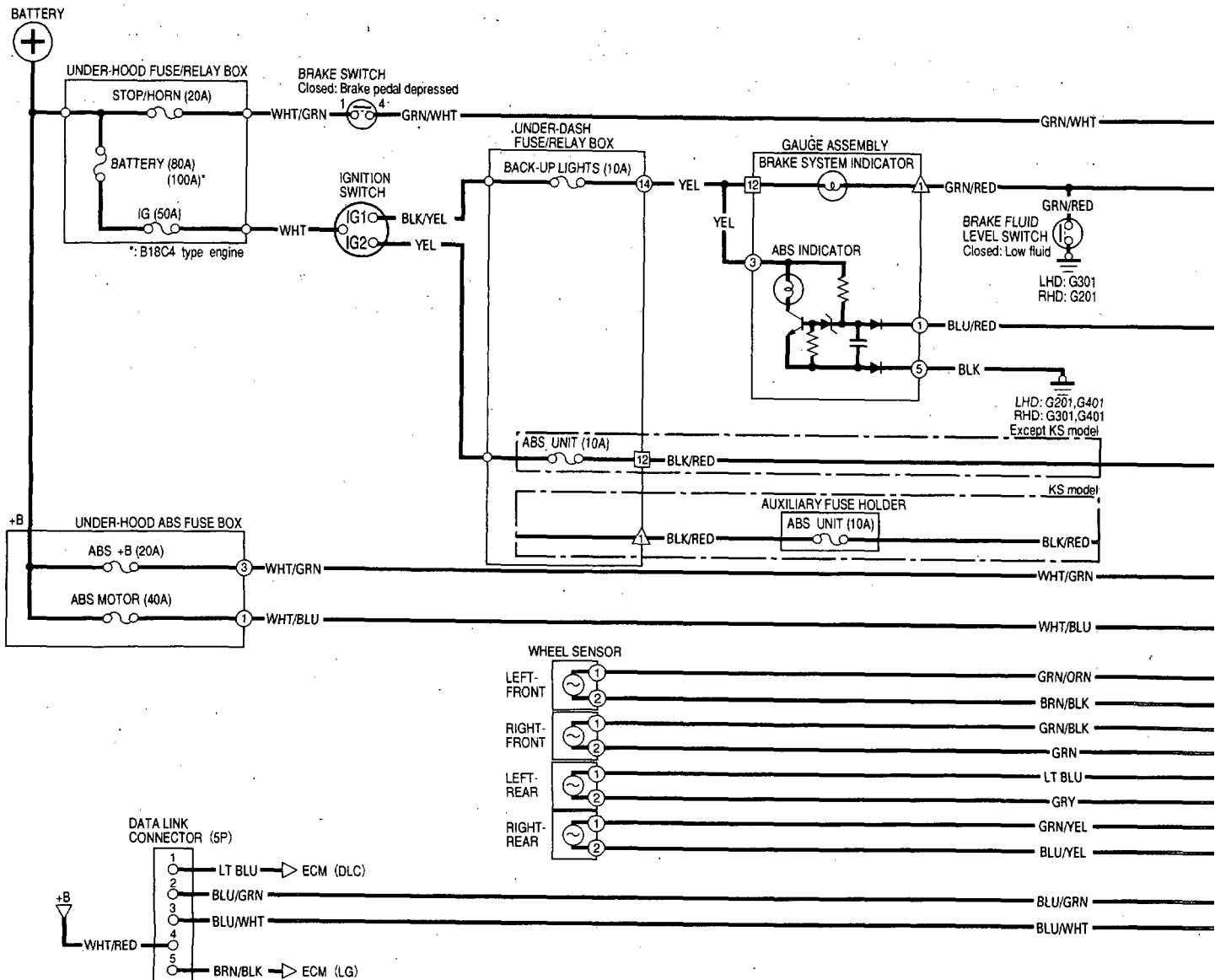
The EBD is a function that distributes the brake force best to adjust the rear brake force before ABS operated.

The EBD functions by the ABS control unit controls the modulator based on the wheel sensor signal. The ABS control unit hold the brake fluid pressure by closing the inlet valve when rear wheel speed is down less than front wheel speed, then the ABS control unit decreases the brake fluid pressure by opening the outlet valve for a moment if the rear wheel speed is down more. When the rear wheel speed returns, the ABS control unit increases the brake fluid pressure by opening the inlet valve for a moment. The ABS control unit repeats this control quickly, and the ABS control unit controls the rear brake fluid pressure individually. During these EBD function, brake pedal kickback is occurred.

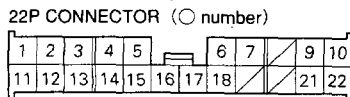
Self-diagnosis function

The ABS control unit turns the brake system indicator on, when the ABS control unit detects the problem that affects to the EBD during self-diagnosis. That time, the ABS control unit turns the ABS indicator too.

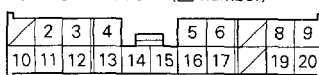
Circuit Diagram



UNDER-DASH FUSE/RELAY BOX CONNECTORS



20P CONNECTOR (□ number)



1P CONNECTOR (△ number)



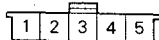
UNDER-HOOD ABS FUSE BOX CONNECTOR



BRAKE SWITCH CONNECTOR



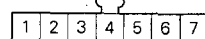
DATA LINK CONNECTOR (5P)



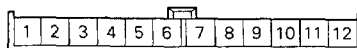
Wire side of female terminals

GAUGE ASSEMBLY CONNECTORS

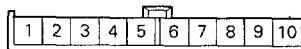
7P CONNECTOR (○ number)



12P CONNECTOR (□ number)



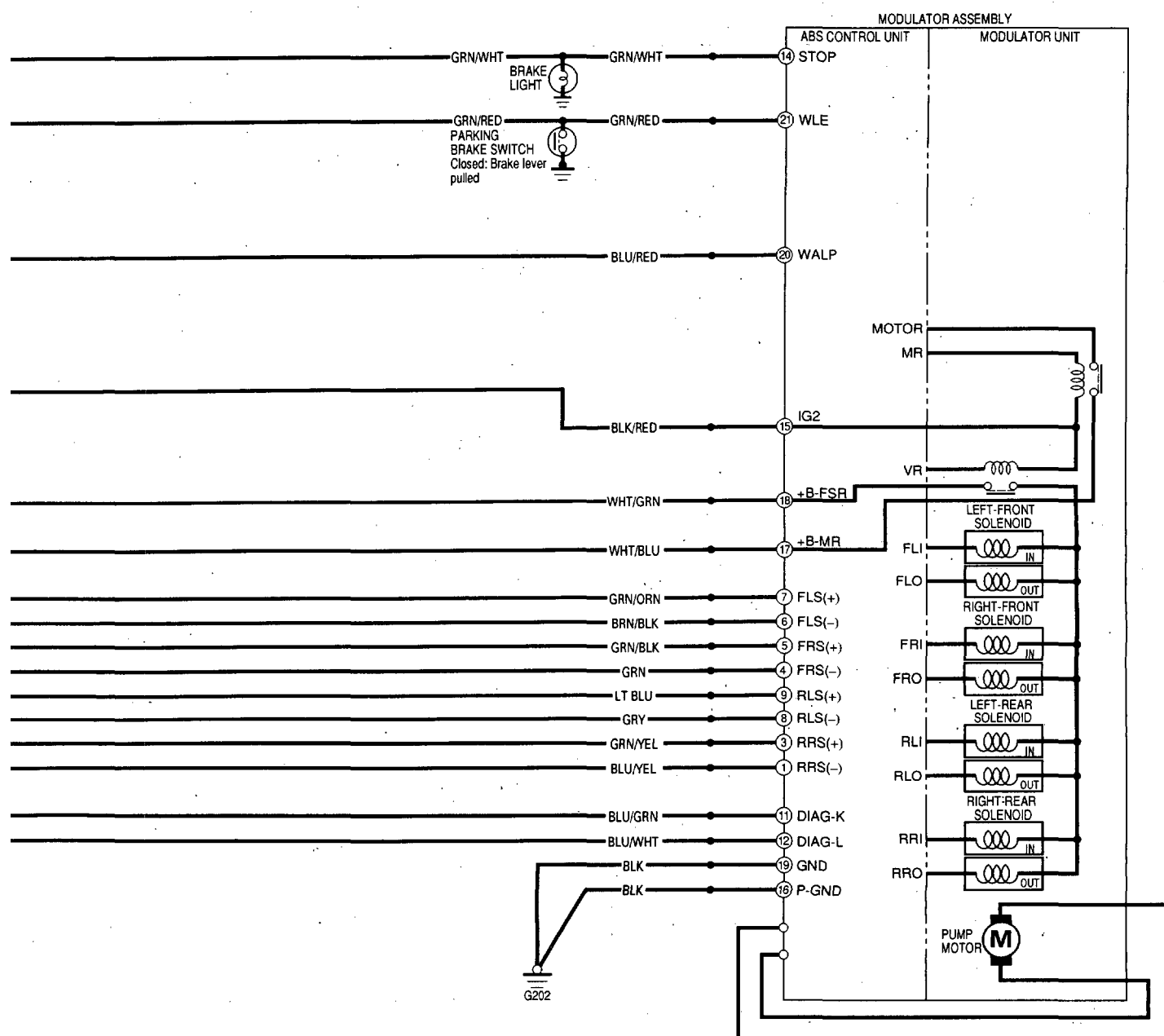
10P CONNECTOR (△ number)



WHEEL SENSOR CONNECTOR



Terminal side of male terminals



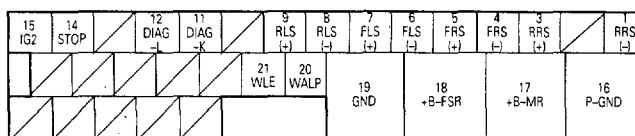
MODULATOR ASSEMBLY CONNECTOR

15	14	13	12	11	10	9	8	7	6	5	4	3	2	1
21	20	19	18	17	16	15	14	13	12	11	10	9	8	7

Terminal side of female terminals

Modulator Assembly Terminal Arrangement

MODULATOR ASSEMBLY CONNECTOR



Terminal side of female terminals

Terminal number	Wire color	Terminal sign (Terminal name)	Description	Measurement			
				Terminal	Conditions (Ignition switch ON (II))		Voltage
1	BLU/YEL	RRS (-) (Rear-right signal negative)	Detects right-rear wheel sensor signal	1-3	Wheel	Turn wheel at 1 turn/second	AC: 0.053 V or above Oscilloscope: 0.15 Vp-p or above
3	GRN/YEL	RRS (+) (Rear-right signal positive)					
4	GRN	FRS (-) (Front-right signal negative)	Detects right-front wheel sensor signal	4-5			
5	GRN/BLK	FRS (+) (Front-right signal positive)					
6	BRN	FLS (-) (Front-left signal negative)	Detects left-front wheel sensor signal	6-7			
7	GRN/ORN	FLS (+) (Front-left signal positive)					
8	GRY	RLS (-) (Rear-left signal negative)	Detects left-rear wheel sensor signal	8-9	Stops	Approx. 2.5 V	
9	LT BLU	RLS (+) (Rear-left signal positive)					
11	BLU/GRN	DIAG-K (Diagnosis K terminal)	Communicate with Honda PGM Tester	—	—		—
12	BLU/WHT	DIAG-L (Diagnosis L terminal)	Diagnostic trouble code indication	12-GND	ABS short connector	Connected	0 V
						Disconnected	Approx. 5 V
14	GRN/WHT	STOP	Detects brake switch signal	14-GND	Brake pedal	Depressed	Battery voltage
						Released	0 V
15	BLK/RED	IG2 (Ignition 2)	Detects ignition switch 2 signal (System activate signal)	15-GND	—		Battery voltage
16	BLK	P-GND (Pump ground)	Ground for the pump motor	16-GND			Below 0.3 V
17	WHT/BLU	+B-MR (+B motor relay)	Power source for the pump motor	17-GND	Every time		Battery voltage
18	WHT/GRN	+B-FSR (+B fail-safe relay)	Power source for the solenoid valve and motor relay coil	18-GND	Every time		Battery voltage
19	BLK	GND (Ground)	Ground for the modulator assembly	19-GND	—		Below 0.3 V
20	BLU/RED	WALP (Warning lamp)	Drives ABS indicator	20-GND	ABS indicator	ON	Approx. 11 V
						OFF	Below 1 V
21	GRN/RED	WLE (Warning light EBD)	Drives brake system indicator	21-GND	Engine running, parking brake	Pulled	Below 0.3 V
						Released	Battery voltage

Diagnostic Trouble Code (DTC)



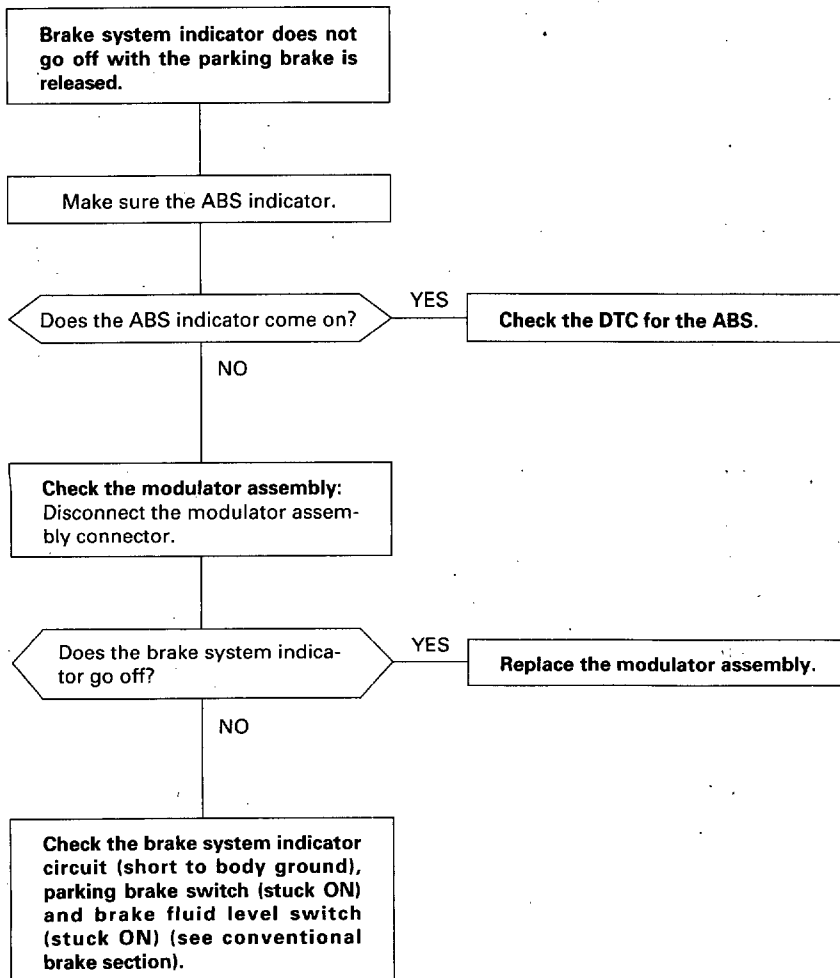
Troubleshooting Index

DTC	ABS INDICATOR	BRAKE SYSTEM INDICATOR	DIAGNOSIS/SYMPTOM		PROBLEM LOCATION	REFER TO PAGE
NO DTC	—	ON	Brake system indicator does not go off			19-B-8
	ON	—	ABS indicator does not come on			19-B-13*1
	ON	—	ABS indicator does not go off (no DTC)			19-B-9
11	ON	OFF	Wheel sensor (open/short to power)		FR	19-B-17*1
13					FL	
15					RR	
17					RL	
12	ON	OFF	Faulty wheel sensor pulse		FR	19-B-17*1
14					FL	
16					RR	
18					RL	
21	ON	ON	Continuously operation (chipped pulser)			19-B-17*1
31	ON	ON	Solenoid (open/short to body ground/short to power/stuck)		FRI	19-B-19*1
32					FRO	
33					FLI	
34					FLO	
35					RRI	
36					RRO	
37					RLI	
38					RLO	
51	ON	OFF	Motor lock			19-B-19*1
52	ON	OFF	Motor stuck off			19-B-20*1
53	ON	OFF	Motor stuck on			19-B-20*1
54	ON	ON	Main relay stuck off			19-B-21*1
61	ON	OFF	Ignition voltage (low voltage)	Above 7 V		19-B-19*1
		ON		Below 7 V		
81	ON	ON	CPU	Problem occurs except valve relay (VR) stuck ON		19-B-19*1
		OFF		Valve relay (VR) stuck ON		

*1: Refer to Civic Aerodeck shop manual (No. 62S1E00).

Troubleshooting

Brake System Indicator Does Not Go Off (With EBD)



ABS Indicator Does Not Go Off (No DTC)

- With engine running, the ABS indicator is ON.
- With the ABS short connector connected (see page 19-B-11*), no DTC is indicated.

*1: Refer to Civic Aerodeck shop manual (No. 62S1E00).

Check the ABS UNIT (10 A) fuse in the under-dash fuse relay box and reinstall the fuse if it is OK.

Is the fuse OK?

NO

Replace the fuse and recheck.

YES

Check the gauge assembly:

1. Connect the gauge assembly 7P connector terminal No. 1 and body ground with a jumper wire.
2. Turn the ignition switch ON (II).

Does the ABS indicator go off?

NO

Replace the printed circuit board in the gauge assembly.

YES

Check for an open in the WALP circuit:

1. Turn the ignition switch OFF.
2. Disconnect the modulator assembly connector.
3. Connect the terminal No. 20 and body ground with a jumper wire.
4. Turn the ignition switch ON (II).

Does the ABS indicator go off?

NO

Repair open in the wire between the gauge assembly and modulator assembly.

YES

Check for an open in the IG2 circuit:
Measure the voltage between the modulator assembly connector terminal No. 15 and body ground.

Is there battery voltage?

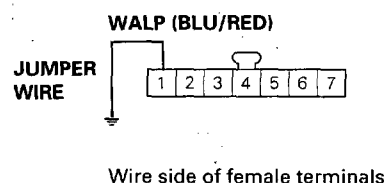
NO

Repair open in the wire between the ABS UNIT (10 A) fuse and the modulator assembly.

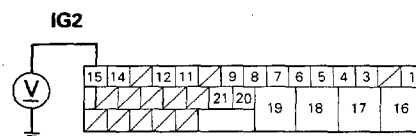
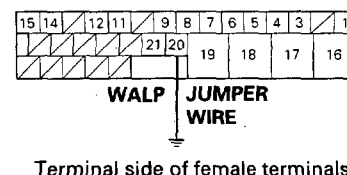
YES

(To page 19-B-10).

GAUGE ASSEMBLY 7P CONNECTOR



MODULATOR ASSEMBLY CONNECTOR

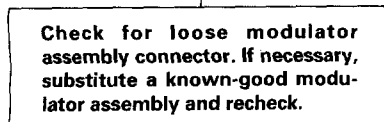
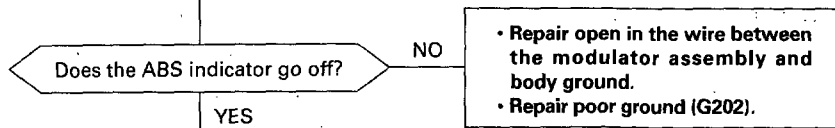
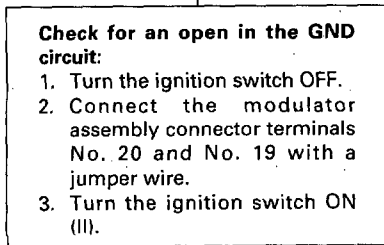


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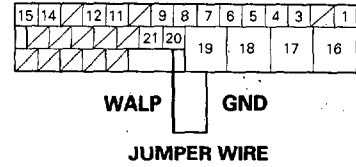
Troubleshooting

ABS Indicator Does Not Go Off (No DTC) (cont'd)

(From page 19-B-9)



MODULATOR ASSEMBLY CONNECTOR



Terminal side of female terminals

Body

Seats

Rear Seat Removal and Installation	20-2
Rear Seat Armrest Replacement	20-3
Rear Seat-back latch Replacement	20-3
Rear Seat-back Striker Replacement	20-4
Rear Seat Cover Replacement	20-4

NOTE: Refer to the 1998 CIVIC AERODECK Shop Manual, P/N 62S1E00, for the items not shown in this section.



Outline of Model Change

- The component parts of the rear seats were changed.

Seats

Rear Seat Removal and Installation

NOTE: Take care not to scratch the body or tear the seat covers.

►: Bolt locations

A ►, 2



8 x 1.25 mm
22 N·m (2.2 kgf·m,
16 lbf·ft)

B ►, 4

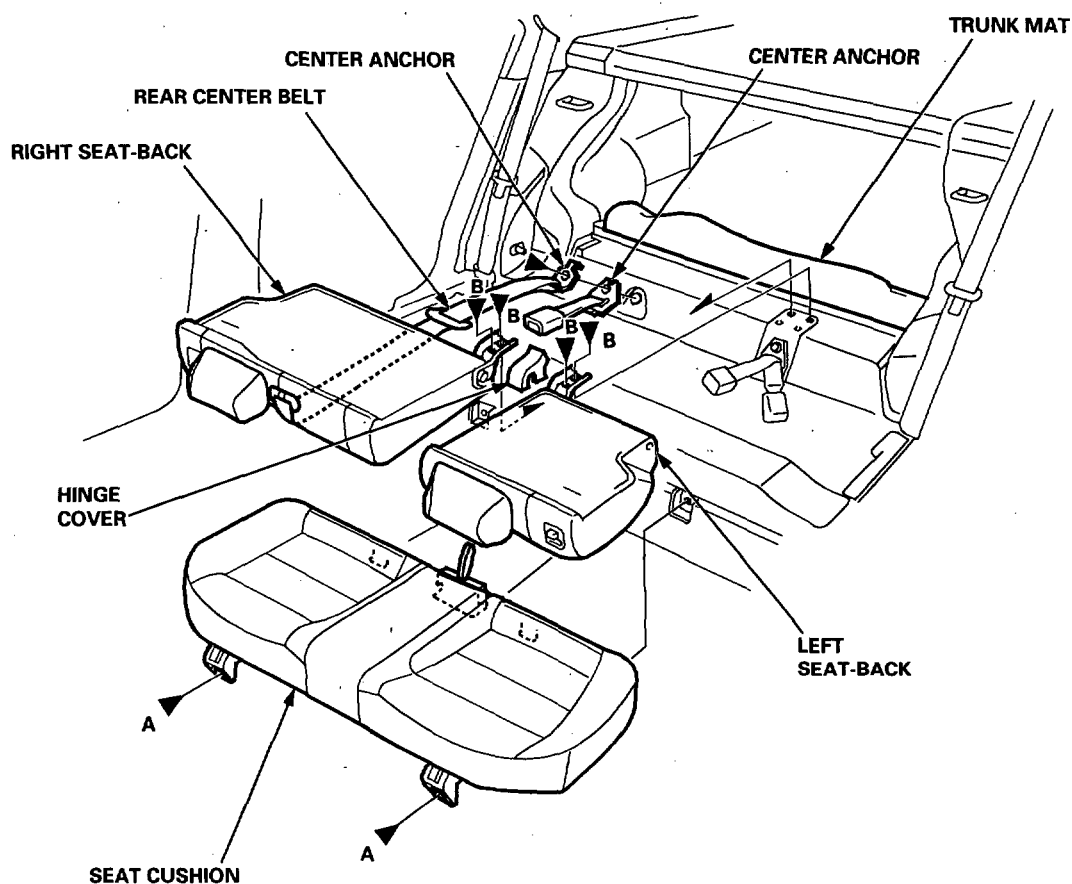


8 x 1.25 mm
22 N·m (2.2 kgf·m,
16 lbf·ft)

C ►, 1



7/16-20 UNF
32 N·m (3.3 kgf·m,
24 lbf·ft)



Install in the reverse order of removal, and note these items:

- Before attaching the rear seat-back and seat cushion, make sure there are no twists or kinks in the rear seat belt buckles and center belt.
- Make sure the seat-backs lock securely.



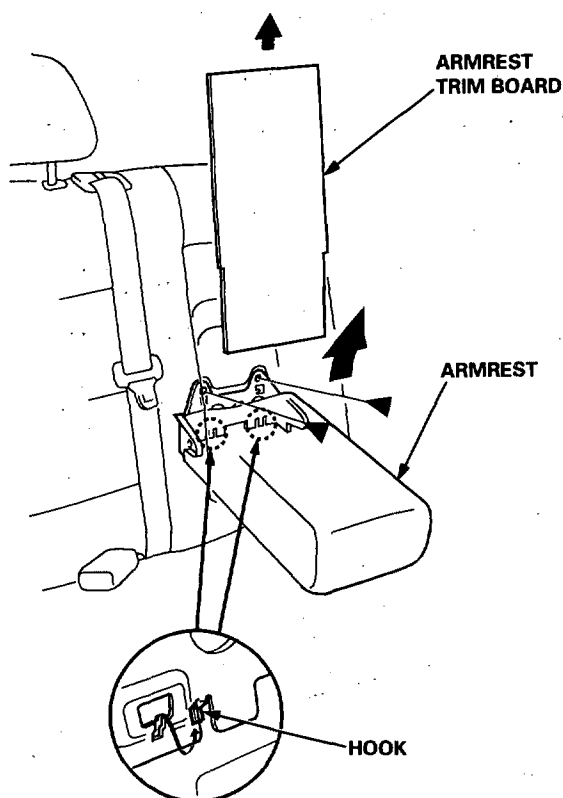
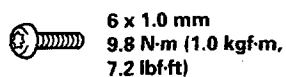
Rear Seat Armrest Replacement

For some models:

NOTE: Take care not to tear the seams or damage the seat covers.

1. Remove the armrest trim board.

►: Screw locations, 2

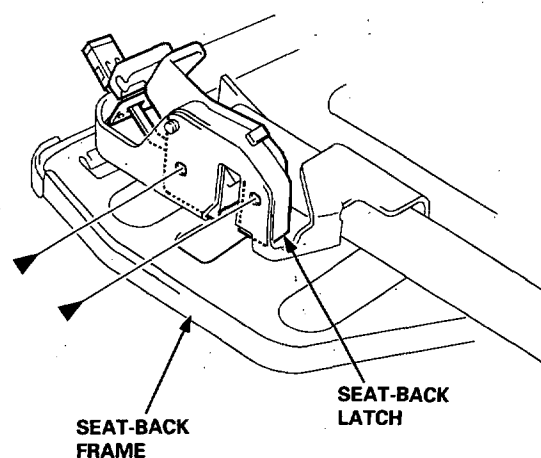
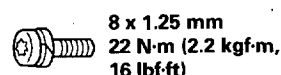


2. With a Torx T30 bit, remove the screws, and remove the armrest by releasing the hooks.
3. Install in the reverse order of removal.

Rear Seat-back Latch Replacement

1. Remove the seat-back (see page 20-2).
2. Separate the seat-back cover/pad and frame (see page 20-4).
3. With a Torx T40 bit, remove the screws, then remove the seat-back latch from the seat-back frame.

►: Screw locations, 2



4. Install in the reverse order of removal, and make sure the seat-back locks securely and opens properly.

Seats

Rear Seat-back Striker Replacement

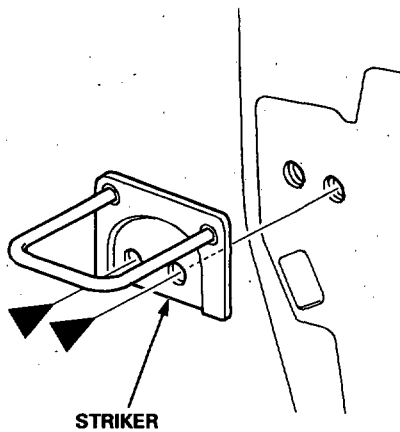
NOTE: Take care not to bend or scratch the trim and panels.

1. Remove:
 - Rear seat-back (see page 20-2)
 - Rear seat side trim
2. With a Torx T40 bit, remove the screws, then remove the striker.

►: Screw locations, 2



8 x 1.25 mm
18 N·m (1.8 kgf·m,
13 lbf·ft)



3. Install in the reverse order of removal, and make sure the seat-back locks securely.

Rear Seat Cover Replacement

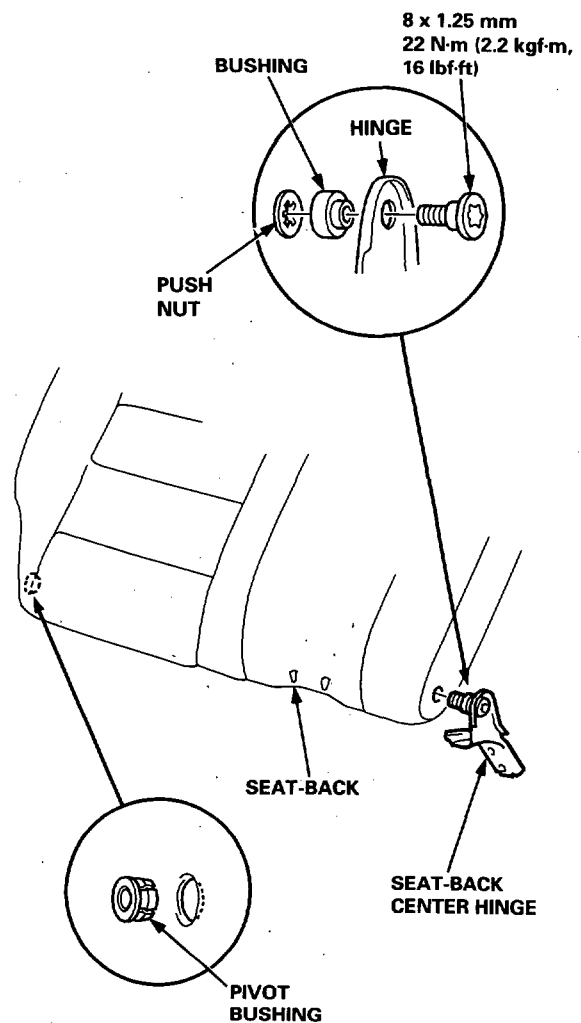
NOTE:

- Take care not to tear the seams or damage the seat covers.
- Wear gloves to protect your hands.
- Be careful not to damage the rear center belt and retractor during removal and installation of the right seat-back cover.

Seat-back cover:

NOTE: The right seat-back is shown, the left seat-back is the same manner.

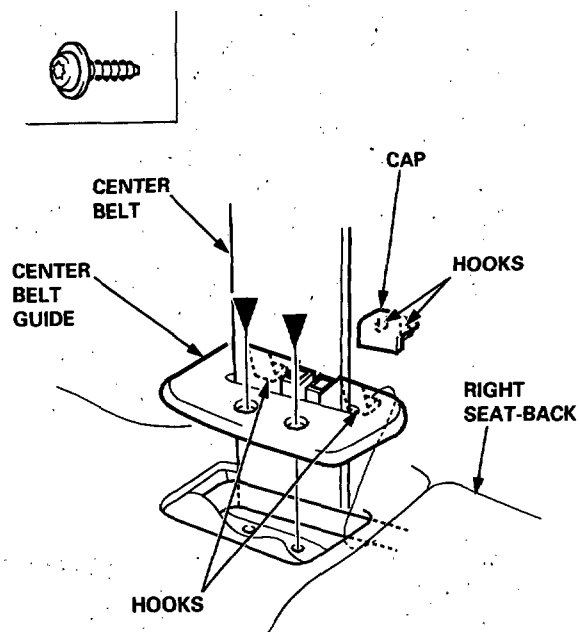
1. Remove the seat-back (see page 20-2).
2. If equipped, remove the armrest (see page 20-3).
3. Remove the pivot bushing. With a Torx T40 bit, remove the seat-back center hinge.



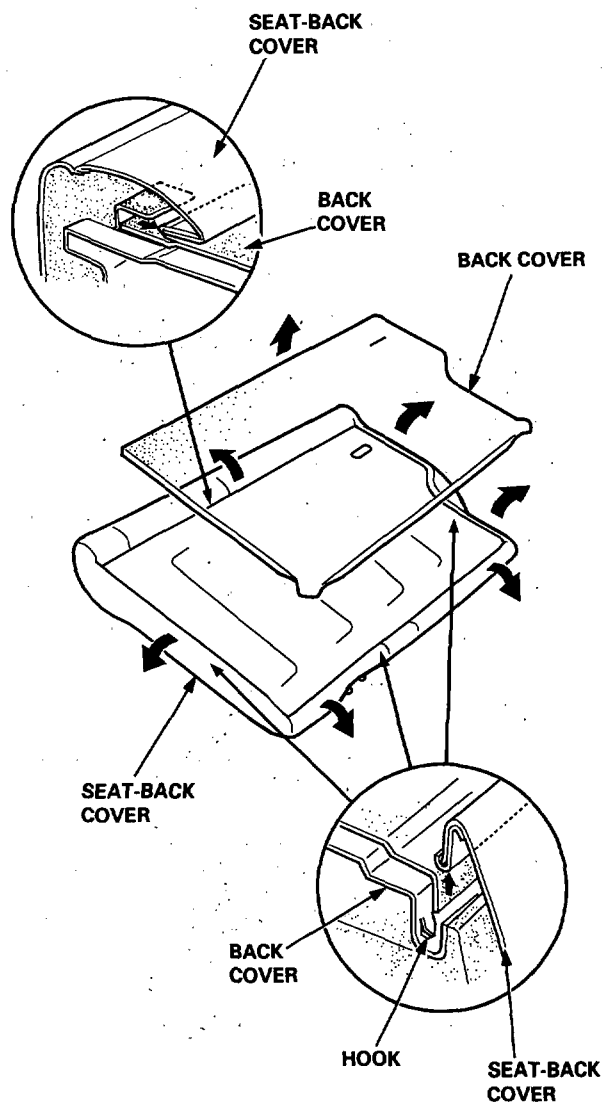


4. On the right seat-back only, remove the screws with a Torx T20 bit, release the hooks, then remove the center belt guide. Remove the cap and remove the center belt from the center belt guide through its slit.

►: Screw locations, 2



5. Pull back the seat-back cover all the way around, then remove the back cover.

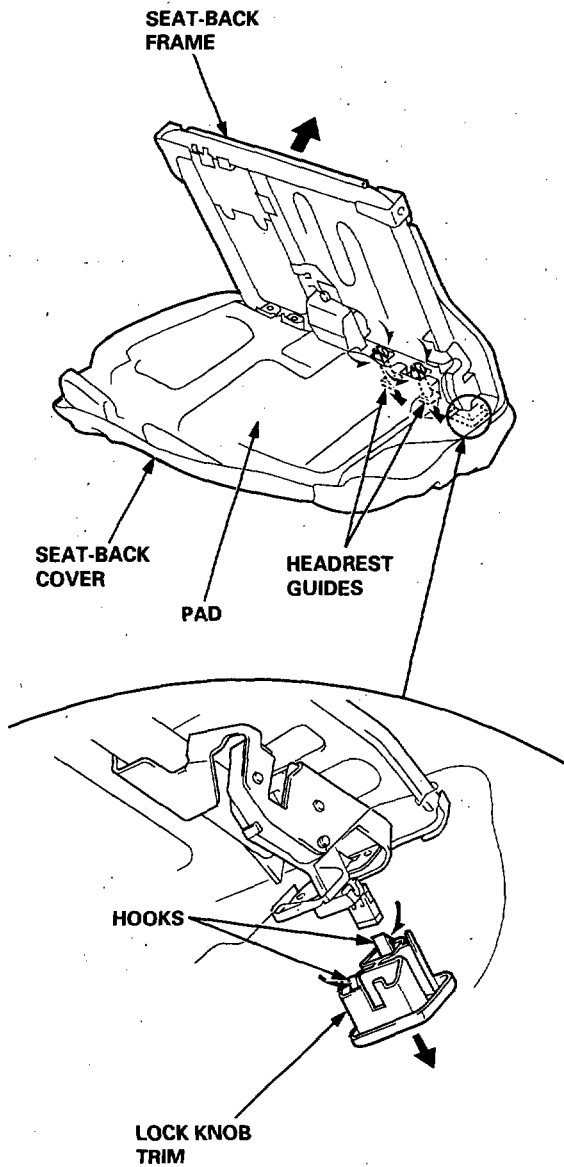


(cont'd)

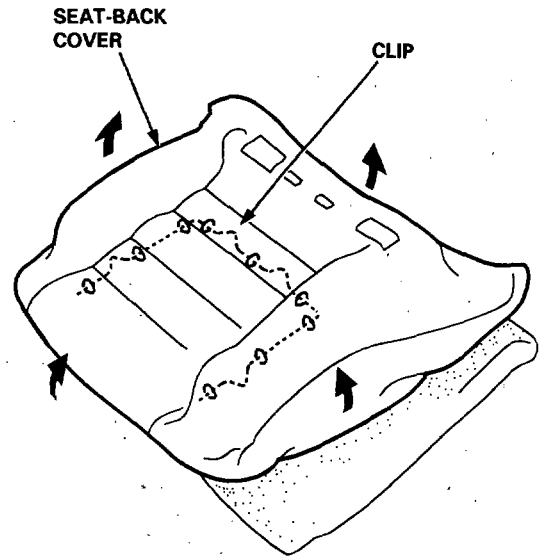
Seats

Rear Seat Cover Replacement (cont'd)

6. Pull back the seat-back frame, remove the headrest guides and lock knob trim, then separate the seat-back cover/pad and seat-back frame.

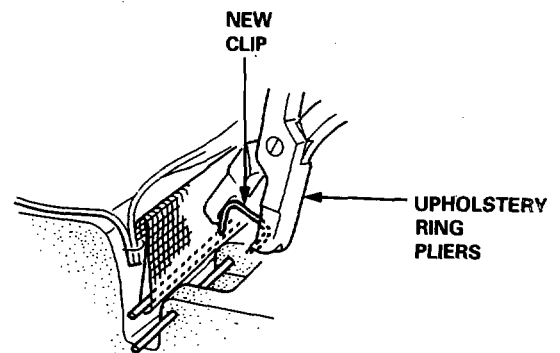


7. Pull back the edge of the seat-back cover all the way around, and release the clips, then remove the seat-back cover.



8. Install in the reverse order of removal, and note these items:

- Before installing the right seat-back cover, make sure there are no twists or kinks in the center belt.
- To prevent wrinkles when installing a seat-back cover, make sure the material is stretched evenly over the pad before securing the hooks and clips.
- Replace the clips with new ones using commercially available upholstery ring pliers.



Seat Belts

Rear Seat Belt Replacement 24-2

Inspection 24-4

NOTE: Refer to the 1998 CIVIC AERODECK Shop Manual, P/N 62S1E00 for the items not shown in this section.

Outline of Model Change

- The rear center lap belt was changed to the lap/shoulder belt.



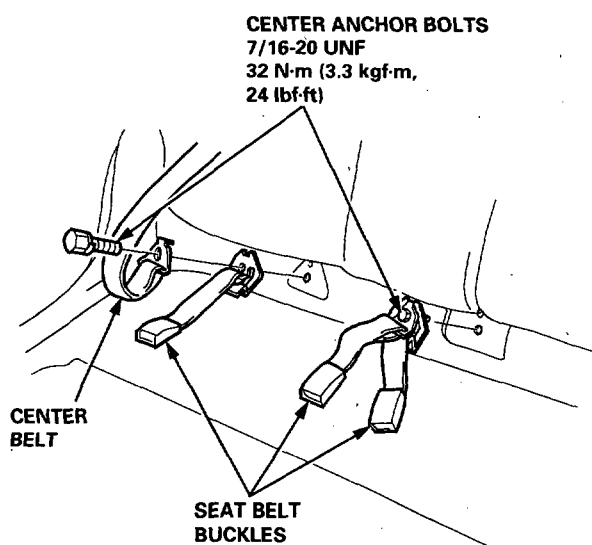
Seat Belts

Rear Seat Belt Replacement

NOTE: Check the rear seat belts for damage, and replace them if necessary. Be careful not to damage them during removal and installation.

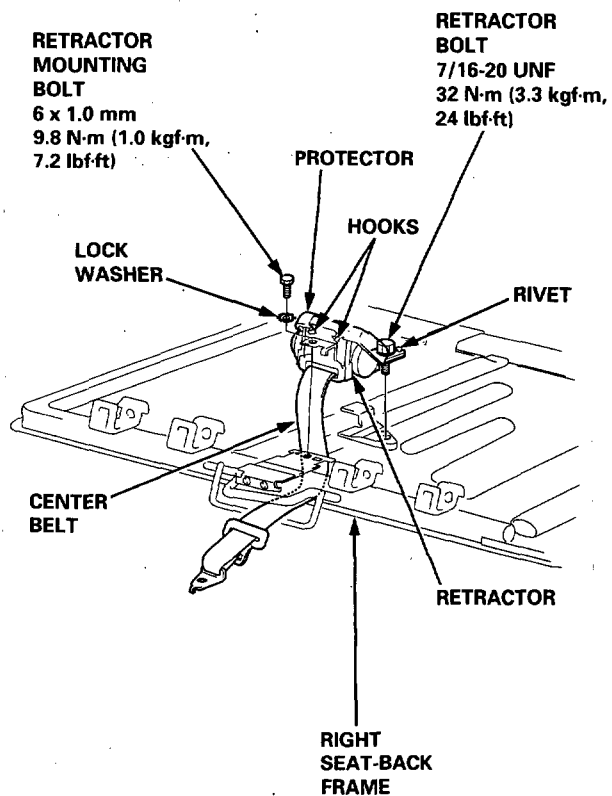
Center belt and seat belt buckles:

1. Fold the rear seat cushion forward.
2. Remove the center anchor bolts, and remove the seat belt buckles.



3. Remove the right seat-back cover/pad (see page 20-4).

4. Release the hooks, and remove the protector as necessary. Remove the retractor mounting bolt, and the retractor bolt, then remove the center belt and retractor/protector from the right seat-back frame.

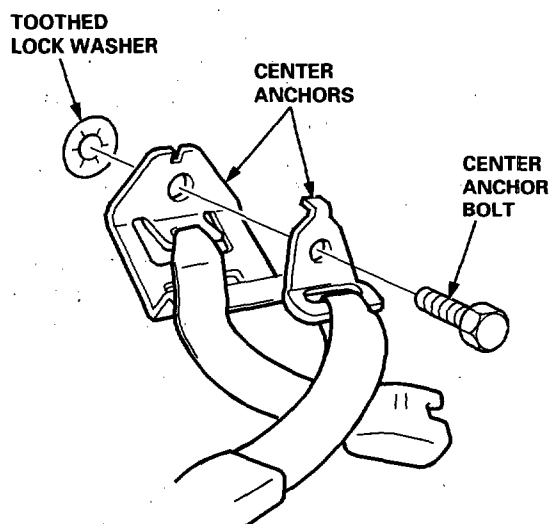




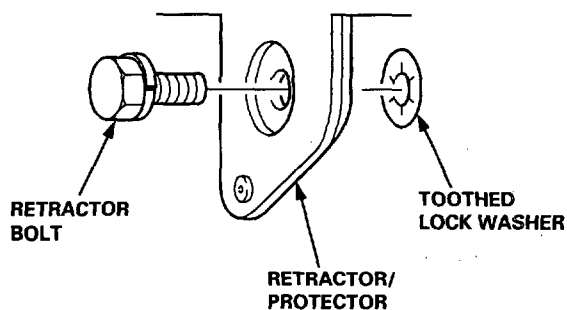
5. Install in the reverse order of removal, and note these items:

- When removing the protector from the retractor by removing the rivet, after reinstalling the retractor onto the seat-back frame, reinstall the protector onto the retractor with new rivet.
- Apply liquid thread lock to the lower anchor bolt before reinstallation.
- Check that the retractor locking mechanism functions as described on page 24-4.
- Before installing the anchor bolts, make sure there are no twists or kinks in the rear center belt.

Center anchor bolt construction:



Retractor bolt construction:



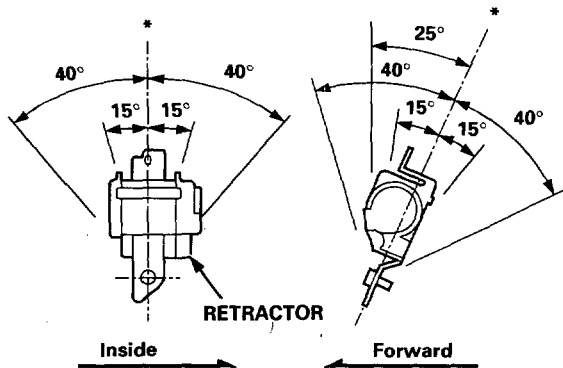
Seat Belts

Inspection

Rear center belt retractor:

1. Before installing the retractor, check that the seat belt can be pulled out freely.
2. Hold the rear center belt pulled out of the retractor over 900 mm (35.4 in.).
3. Make sure that the seat belt does not lock when the retractor is leaned slowly up to 15° from the mounted position. The seat belt should lock when the retractor is leaned over 40°. Do not attempt to disassemble the retractor.

*: Mounted Position



4. Replace the seat belt with a new one if there is any abnormality.

In-vehicle:

1. Check that the seat belt is not twisted or caught on anything.
2. After installing the anchors, check for free movement on the anchor bolts. If necessary, remove the anchor bolts and check that the washers and other parts are not damaged or improperly installed.
3. Check the seat belts for damage or discoloration. Clean with a shop towel if necessary. Use only soap and water to clean.
4. Check that the seat belt does not lock when pulled out slowly. The seat belt is designed to lock only during a sudden stop or impact.
5. For the rear center belt check that the seat belt locks when pulled out over 300 mm (11.8 in.) with the seat-back folded down.
6. Make sure that the seat belt will retract automatically when released.
7. For each passenger's seat belt, make sure that the locking mechanism in the seat belt retractor will engage when the seat belt is pulled all the way out.
8. Replace the seat belt with a new one if there is any abnormality.