

# INTRODUCTION

## How to Use This Manual

This supplement contains information for the 94 CIVIC COUPE. Refer to following shop manuals for service procedures and data not included in this supplement.

Description	Code No.
CIVIC MAINTENANCE, REPAIR and CONSTRUCTION 92 VOL.1 and VOL.2	62SR300A 62SR300B
CIVIC SUPPLEMENT 93	62SR320
CIVIC SUPPLEMENT 94	62SR321

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 through a full table of contents. The symbols printed at the top 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.

 marked sections are not included in this manual.

First Edition 1/94 130 pages  
All Rights Reserved

HONDA MOTOR CO.,LTD.  
Service Publication Office

## General Info



## Special Tools



## Specifications

specs

## Maintenance



## Engine



## Cooling



## Fuel and Emissions



## Transaxle



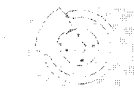
## Steering



## Suspension



## Brakes



## Body



## Heater and Air Conditioning



## Electrical



# Outline of Model Changes

ITEM	DESCRIPTION	93 CIVIC 3/4 DOOR	94 CIVIC 3/4 DOOR	94 CIVIC COUPE	REFERENCE SECTION
General	Added <ul style="list-style-type: none"> <li>CIVIC COUPE for KG, KS, KE models</li> </ul>			○	1, 3, 4
Engine	Modified <ul style="list-style-type: none"> <li>Rocker shaft collar for D15Z1 engine</li> </ul>	○			—
	Adopted <ul style="list-style-type: none"> <li>D15Z2, D15B7 and D16Y1 engines for KQ model</li> <li>D15B7 and D16Z9 engines for KB model</li> </ul> Changed <ul style="list-style-type: none"> <li>Torque value of mount and bracket bolts and nuts</li> <li>Recommended engine oil</li> </ul>		○		—
PGM-CARB.	Changed <ul style="list-style-type: none"> <li>Wire harness color</li> <li>Fuel feed pipe, fuel return pipe and fuel vapor pipe materials for 4WD (Except Europe) model</li> </ul>	○			—
	Adopted <ul style="list-style-type: none"> <li>D15Z2 engine for KQ model</li> </ul>		○		—
PGM-FI	Changed <ul style="list-style-type: none"> <li>Wire harness color</li> <li>Fuel feed pipe, fuel return pipe and fuel vapor pipe materials for 4WD (Except Europe) model</li> </ul> Out of use <ul style="list-style-type: none"> <li>Fuel-sub pump for 4WD model</li> </ul> Added <ul style="list-style-type: none"> <li>Jet pump for 4WD model</li> </ul>	○			—
	Added <ul style="list-style-type: none"> <li>D15B7 and D16Y1 engines for KQ model</li> <li>D15B7 and D16Z9 engines for KB model</li> </ul> Modified <ul style="list-style-type: none"> <li>Electronic Control Unit (ECU)</li> <li>Throttle body for B16A2 engine</li> </ul> Changed <ul style="list-style-type: none"> <li>Main wire harness</li> <li>Main wire harness for B16A2 engine</li> <li>Fuel pressure for D15B2 engine</li> <li>Throttle body</li> </ul>		○		—
	Added <ul style="list-style-type: none"> <li>D15B7 engine for KG, KS, KE models</li> <li>D16Z9 engine for KG model</li> </ul>			○	11
Clutch	Changed <ul style="list-style-type: none"> <li>Torque value of clutch pipe for LHD model</li> <li>Recommended grease</li> </ul>	○			—
Manual Transmission	Changed <ul style="list-style-type: none"> <li>Recommended grease</li> <li>Method of shift fork spring pin installing</li> </ul>	○			—

ITEM	DESCRIPTION	93 CIVIC 3/4 DOOR	94 CIVIC 3/4 DOOR	94 CIVIC COUPE	REFERENCE SECTION
Manual Transmission	Modified <ul style="list-style-type: none"> <li>• Transmission mount, right front mount/bracket and rear mount/bracket</li> </ul> Changed <ul style="list-style-type: none"> <li>• Torque value of transmission mounting bolts</li> <li>• Torque value of transmission mount bolt for S20 and Y21 manual transmissions</li> <li>• Transmission breather cap for S20 manual transmission</li> <li>• Shift fork for Y21 manual transmission</li> <li>• Super-low shaft, 2-4 select lever and transfer shaft for S22 manual transmission</li> </ul>		○		—
Automatic Transmission	Modified <ul style="list-style-type: none"> <li>• Hydraulic circuit</li> <li>• Secondary valve body</li> <li>• Reverse idler gear</li> </ul> Changed <ul style="list-style-type: none"> <li>• Drain plug</li> <li>• Throttle pressure and governor pressure</li> <li>• Reverse selector hub on the countershaft</li> </ul>	○			—
	Modified <ul style="list-style-type: none"> <li>• Hydraulic circuit</li> </ul> Changed <ul style="list-style-type: none"> <li>• Parking gear</li> <li>• Reverse idler gear shaft and holder</li> <li>• Oil guide cap of the sub-shaft</li> <li>• Secondary valve body</li> <li>• Servo body</li> <li>• Countershaft</li> <li>• Clutch assemblies</li> </ul> Abolished <ul style="list-style-type: none"> <li>• 4WD disengagement mechanism</li> </ul>		○		—
	Added <ul style="list-style-type: none"> <li>• Road test for CIVIC COUPE</li> </ul>			○	14
Rear Differential	Changed <ul style="list-style-type: none"> <li>• Rear differential assembly</li> </ul>		○		—
Driveshafts	Changed <ul style="list-style-type: none"> <li>• Rear driveshaft and propeller shaft for 4WD model</li> </ul>		○		—
Steering	Added <ul style="list-style-type: none"> <li>• Rotary-valve-type power steering gearbox for LHD model (POLTUGAL model only)</li> </ul>			○	17
Brake	Modified <ul style="list-style-type: none"> <li>• Wire colors between solenoids and ABS control unit</li> </ul>	○			—
	Modified <ul style="list-style-type: none"> <li>• ABS for 4WD model</li> </ul>		○		—

# Outline of Model Changes

ITEM	DESCRIPTION	93 CIVIC 3/4 DOOR	94 CIVIC 3/4 DOOR	94 CIVIC COUPE	REFERENCE SECTION
Body	Changed <ul style="list-style-type: none"> <li>Fastener and spacer for rear window</li> <li>Limit switch position of sunroof motor unit</li> </ul> Added <ul style="list-style-type: none"> <li>Some version emblems</li> <li>Rear seat access cable</li> </ul> Abolished <ul style="list-style-type: none"> <li>Shim for sunroof panel/glass height adjustment</li> </ul>		○		—
	Added <ul style="list-style-type: none"> <li>CIVIC COUPE model</li> </ul>			○	20
Air Conditioning	Adopted <ul style="list-style-type: none"> <li>Refrigerant HFC-134a (R-134a)</li> </ul>		○		—
Electrical	Changed <ul style="list-style-type: none"> <li>Wire color of ignition switch</li> <li>Data link connector</li> <li>Alternator brushes (Mitsuba type)</li> <li>Terminal number of shift lock solenoid</li> </ul> Modified <ul style="list-style-type: none"> <li>Power supply circuit</li> </ul>	○			—
	Changed <ul style="list-style-type: none"> <li>Ignition system for KQ model</li> <li>Integrated Control Unit for KQ and KB models</li> <li>Seat heater for some KS model</li> </ul> Added <ul style="list-style-type: none"> <li>Supplemental Restraint System (SRS) type III</li> </ul>		○		—
	Added <ul style="list-style-type: none"> <li>CIVIC COUPE model</li> </ul>			○	23



## **General Information**

<b>Chassis and Engine Numbers .....</b>	<b>1-2</b>
<b>Identification Number Locations .....</b>	<b>1-3</b>
<b>Warning/Caution Label Locations .....</b>	<b>1-4</b>
<b>Lift and Support Points</b>	
<b>Lift .....</b>	<b>1-5</b>
<b>Floor Jack .....</b>	<b>1-6</b>
<b>Safety Stands .....</b>	<b>1-7</b>

# Chassis and Engine Numbers

## Vehicle Identification Number

1HGEJ11310L300001

### Manufacturer, Make and Type of Vehicle

1HG: HONDA OF AMERICA  
MFG., INC.  
HONDA Passenger car

### Line, Body and Engine Type

EJ1: CIVIC Coupe/D16Z9  
EJ2: CIVIC Coupe/D15B7

### Body Type and Transmission Type

1: 2-door Coupe/5-speed Manual  
2: 2-door Coupe/4-speed Automatic

### Vehicle Grade (Series)

2: BASIC (EJ2: KE, KG)  
3: LSi (EJ2: KE, KG, KS)  
ESi (EJ1: KG)

### Fixed Code

### Auxiliary Number

### Factory Code

L: Ohio Factory in U.S.A. (East Liverty)

### Model Year

3: 1994

### Serial Number

## Engine Number

D15B7-3850001

### Engine Type

D15B7: 1500 SOHC 16-valves Sequential  
Multiport Fuel-injected engine  
with CATA

D16Z9: 1600 SOHC VTEC 16-valves  
Sequential Multiport Fuel-injected  
engine with CATA

### Serial Number

D15B7: 3850001 ~  
D16Z9: 1000001 ~

## Transmission Number

M24A-3000001

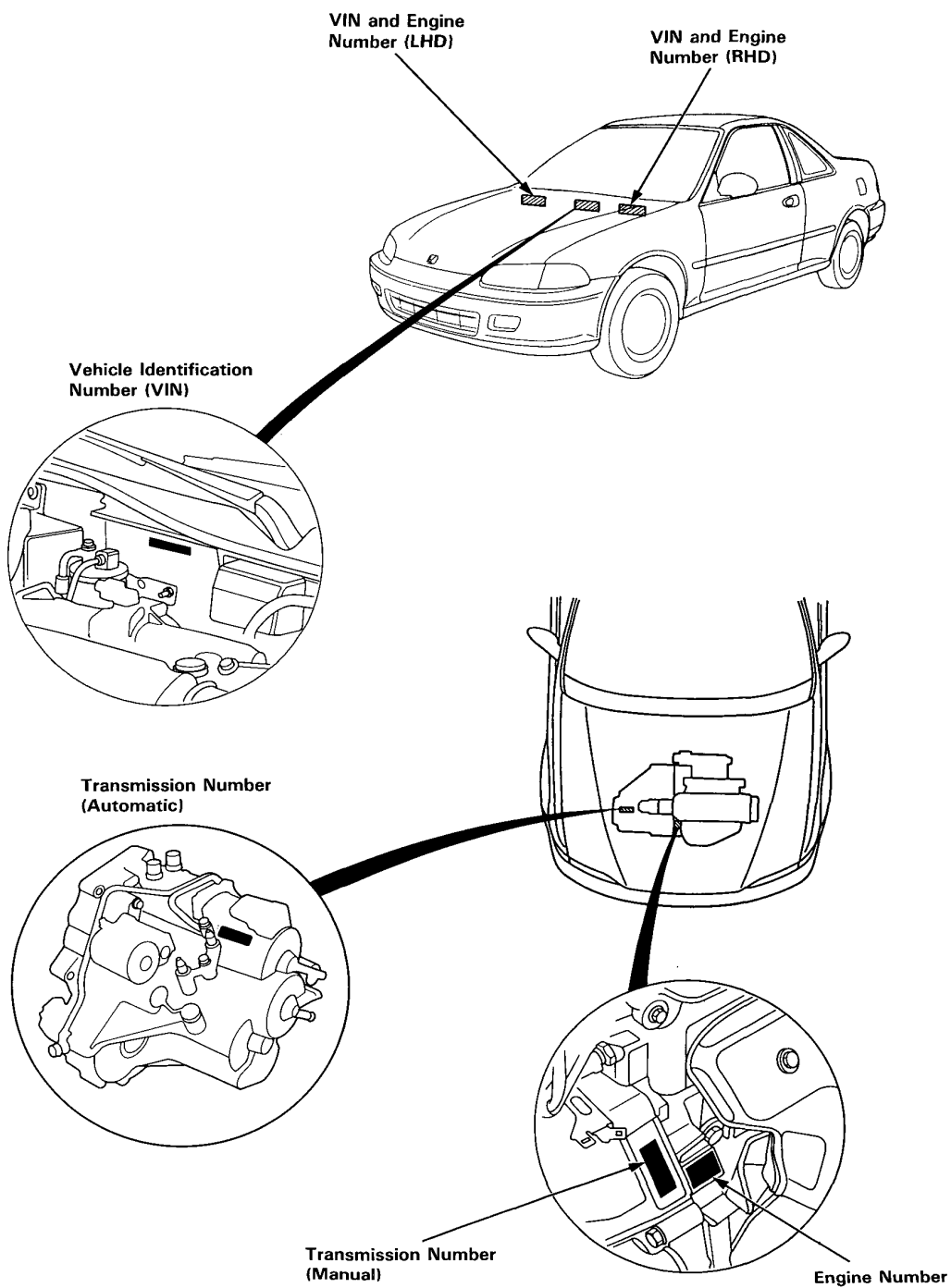
### Transmission Type

M24A: 4-speed Automatic  
S20: 5-speed Manual

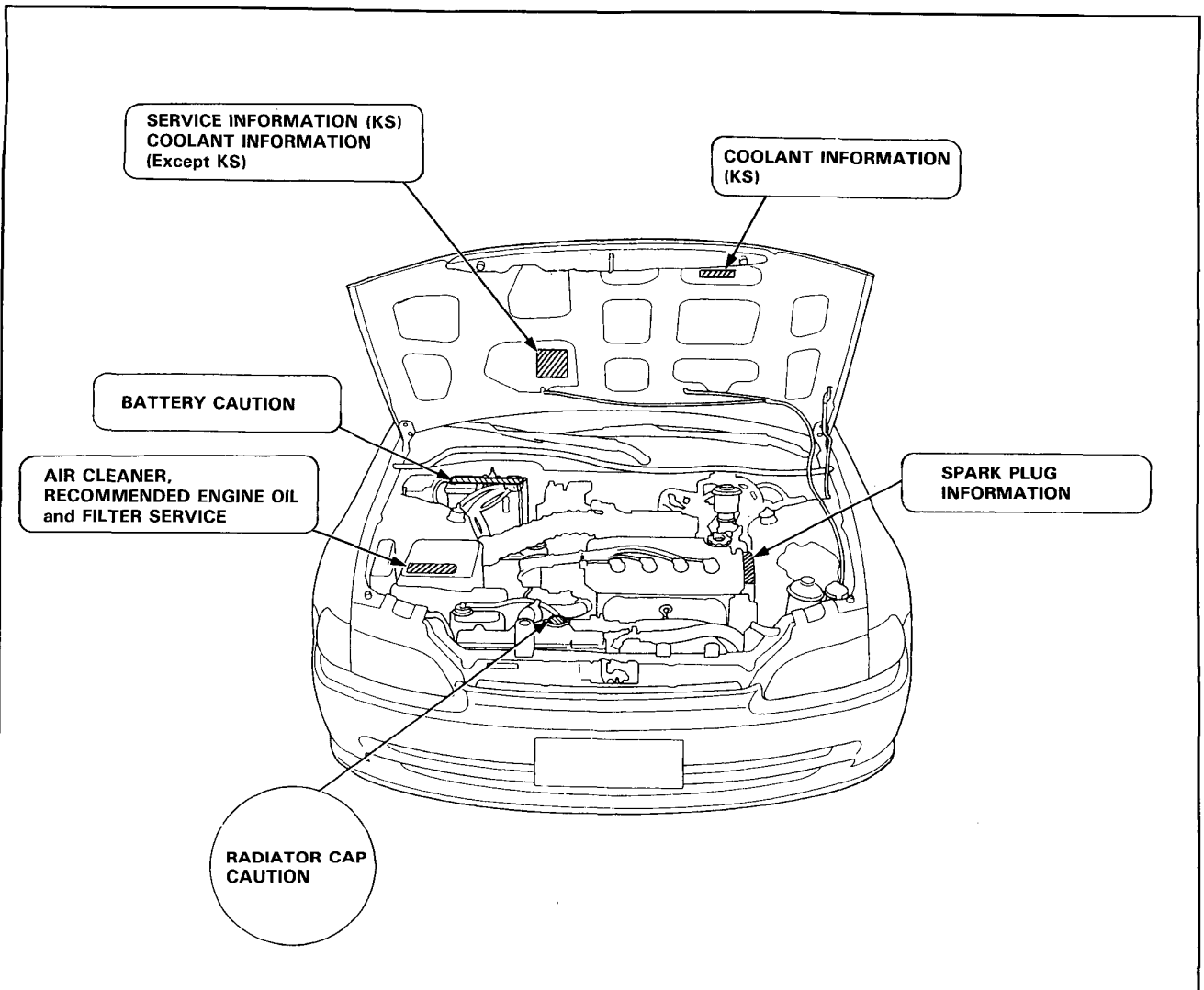
### Serial Number

M24A: 3000001 ~  
S20: 1000001 ~

# Identification Number Locations

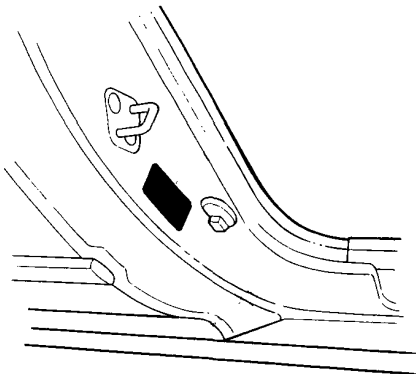


# Warning/Caution Label Locations

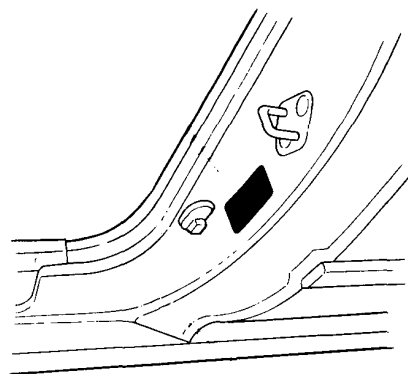


## TIRE INFORMATION

RHD:



LHD:





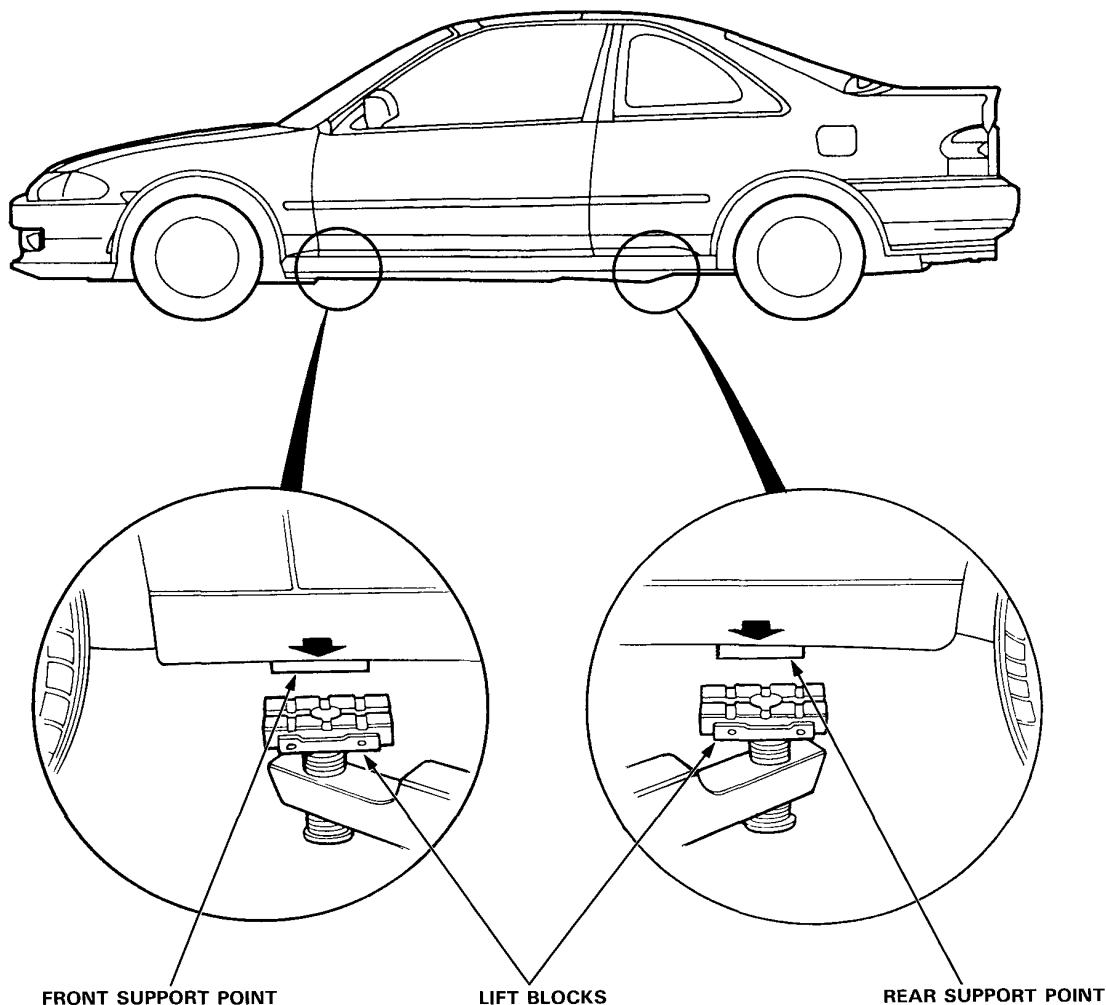
# Lift and Support Points

## Lift

**⚠ WARNING** When heavy rear components such as suspension, fuel tank, spare tire and hatch are to be removed, place additional weight in the luggage area before hoisting. When substantial weight is removed from the rear of the car, the center of gravity may change and can cause the car to tip forward on the hoist.

**NOTE:** Since each tire/wheel assembly weighs approximately 14 kg (30 lbs), placing the front wheels in the trunk can assist with the weight distribution.

1. Place the lift blocks as shown.
2. Raise the hoist until the tyres are slightly off the ground and rock the car to be sure it is firmly supported.
3. Raise the hoist to full height and inspect lift points for solid support.



# Lift and Support Points

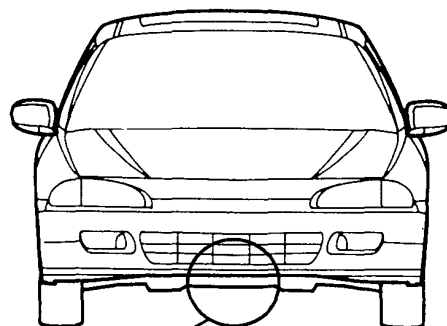
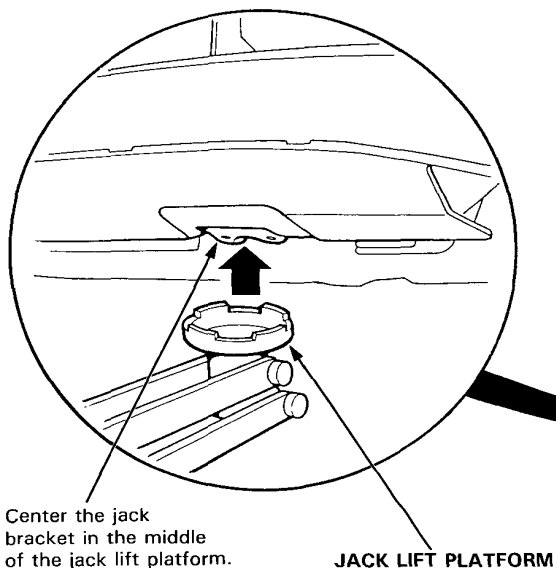
## Floor Jack

1. Set the parking brake and block the wheels that are not being lifted.
2. When lifting the rear of the car, put the gearshift lever in reverse (Automatic in **P** position).
3. Raise the car high enough to insert the safety stands.
4. Adjust and place the safety stands as shown on page 1-7 so the car will be approximately level, then lower the car onto them.

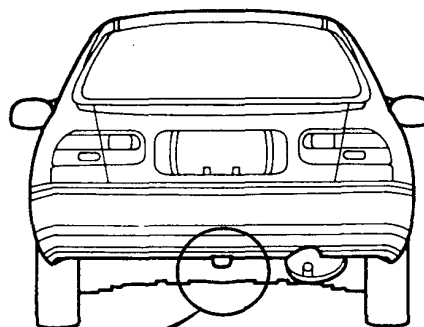
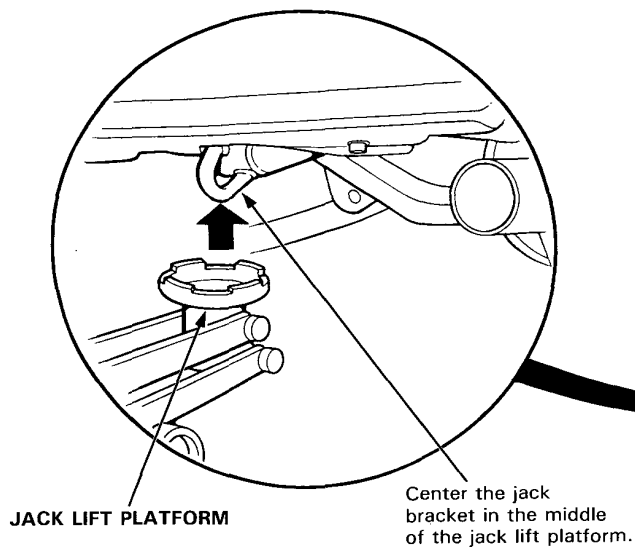
### ⚠ WARNING

- Always use safety stands when working on or under any vehicle that is supported by only a jack.
- Never attempt to use a bumper jack for lifting or supporting the car.

### Front

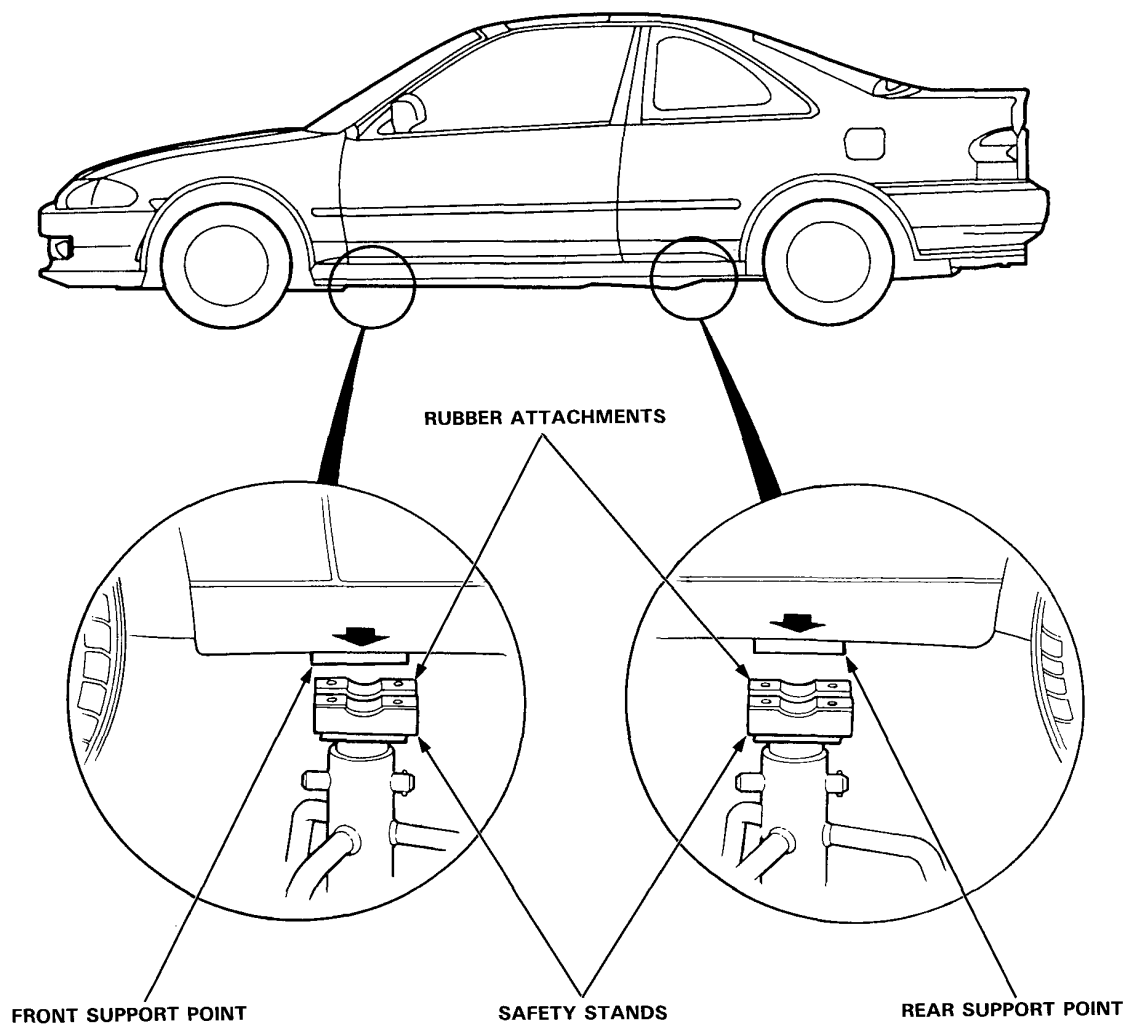


### Rear





## Safety Stands





## Special Tools

Individual tool lists are located at the front of each section.

**Specifications**

**Standards and Service Limits ..... 3-2**  
**Design Specifications ..... 3-14**  
**Body Specifications ..... 3-17**

# Standards and Service Limits

## Cylinder Head/Valve Train — Section 6

	MEASUREMENT		STANDARD (NEW)	SERVICE LIMIT
Compression	250 min <sup>-1</sup> (rpm) and wide open throttle kPa (kg/cm <sup>2</sup> , psi)	Nominal Minimum Maximum variation	1,300 (13.0, 184) 950 (9.5, 135) 200 (2.0, 28)	
Cylinder head	Warpage Height	D15B7 engine D16Z9 engine	94.95 – 95.05 (3.738 – 3.742) 92.95 – 93.05 (3.659 – 3.663)	0.05 (0.002) — —
Camshaft	End play Camshaft-to-holder oil clearance Total runout Cam lobe height	D15B7 engine IN EX D16Z9 engine IN Primary Mid Secondary EX	0.05 – 0.15 (0.002 – 0.006) 0.050 – 0.089 (0.0020 – 0.0035) 0.03 (0.001) max. 36.057 (1.4196) 36.198 (1.4251) 35.900 (1.4134) 38.107 (1.5003) 36.195 (1.4250) 38.008 (1.4964)	0.5 (0.02) 0.15 (0.006) 0.04 (0.002) — — — — — —
Valve	Valve clearance Valve stem O.D. Stem-to-guide clearance	IN EX IN EX IN EX	0.18 – 0.22 (0.007 – 0.009) 0.23 – 0.27 (0.009 – 0.011) 5.48 – 5.49 (0.2157 – 0.2161) 5.45 – 5.46 (0.2146 – 0.2150) 0.02 – 0.05 (0.001 – 0.002) 0.05 – 0.08 (0.002 – 0.003)	— — 5.45 (0.2146) 5.42 (0.2134) 0.08 (0.003) 0.12 (0.005)
Valve seat	Width Stem installed height	IN EX D15B7 engine IN EX D16Z9 engine IN EX	0.85 – 1.15 (0.033 – 0.045) 1.25 – 1.55 (0.049 – 0.061) 46.985 – 47.455 (1.8498 – 1.8683) 48.965 – 49.435 (1.9278 – 1.9463) 53.165 – 53.635 (2.0931 – 2.1116) 53.165 – 53.635 (2.0931 – 2.1116)	1.6 (0.06) 2.0 (0.08) 47.705 (1.8781) 49.685 (1.9561) 53.885 (2.1215) 53.885 (2.1215)
Valve spring	Free length	D15B7 engine IN EX D16Z9 engine IN EX	51.90 (2.043)* <sup>1</sup> 51.88 (2.043)* <sup>2</sup> 55.28 (2.176)* <sup>1</sup> 55.31 (2.178)* <sup>2</sup> 57.97 (2.282) 58.41 (2.300)	— — — — — —
Valve guide	I.D. Installed height	IN EX D15B7 engine IN EX D16Z9 engine IN EX	5.51 – 5.53 (0.217 – 0.218) 5.51 – 5.53 (0.217 – 0.218) 15.95 – 16.45 (0.628 – 0.648) 15.95 – 16.45 (0.628 – 0.648) 17.85 – 18.35 (0.703 – 0.722) 18.65 – 19.15 (0.734 – 0.754)	5.55 (0.219) 5.55 (0.219) — — — —
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: NIHON HATSUJO manufactured valve spring.

\*2: CHUO HATSUJO manufactured valve spring.

**Engine Block — Section 7**

Unit of length: mm (in)

	MEASUREMENT	STANDARD (NEW)	SERVICE LIMIT
Cylinder block	Warpage of deck surface Bore diameter Bore taper Reboring limit	0.07 (0.003) max. 75.000 – 75.020 (2.9528 – 2.95354) ——— ———	0.10 (0.004) 75.070 (2.9555) 0.05 (0.002) 0.5 (0.02)
Piston	Skirt O.D. at D15B7 engine: 16.0 mm (0.63 in), D16Z9 engine: 15.0 mm (0.59 in) from bottom of skirt Clearance in cylinder Groove width (for ring)      Top Second Oil	74.980 – 74.990 (2.9520 – 2.9524)  0.010 – 0.040 (0.0004 – 0.0016) 1.220 – 1.230 (0.0480 – 0.0484) 1.52 – 1.53 (0.0598 – 0.0602) 2.805 – 2.820 (0.1104 – 0.1110)	74.970 (2.9516)  0.05 (0.002) 1.25 (0.049) 1.55 (0.061) 2.85 (0.112)
Piston ring	Ring-to-groove clearance      Top Second Ring end gap      Top Second      D16Z9 engine D15B7 engine	0.030 – 0.060 (0.0012 – 0.0024) 0.030 – 0.055 (0.012 – 0.0022) 0.15 – 0.30 (0.006 – 0.012) 0.20 – 0.70 (0.008 – 0.028) 0.20 – 0.80 (0.008 – 0.031)	0.13 (0.005) 0.13 (0.005) 0.60 (0.024) 0.80 (0.031) 0.80 (0.031)
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      D16Z9 engine D15B7 engine 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) 0.15 – 0.30 (0.006 – 0.012)	——— ——— ——— ——— 0.40 (0.016)
Crankshaft	Main journal diameter      D16Z9 engine D15B7 engine Rod journal diameter      D16Z9 engine D15B7 engine 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) 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)
Bearings	Main bearing-to-journal oil clearance No. 1 and 5 journals No. 2, 3 and 4 journals 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)	0.05 (0.002) 0.05 (0.002) 0.05 (0.002)

# Standards and Service Limits

## Engine Lubrication — Section 8

	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 Pump housing-to-outer rotor radial clearance Pump housing-to rotor axial clearance	0.02 – 0.14 (0.001 – 0.006) 0.10 – 0.18 (0.004 – 0.007) 0.03 – 0.08 (0.001 – 0.003)	0.20 (0.008) 0.20 (0.008) 0.15 (0.006)
Relief valve	Pressure setting with oil temperature 80°C (176°F) kPa (kg/cm², psi) at idle at 3,000 min⁻¹ (rpm)	70 (0.7, 10) min. 350 (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: 0.4 ℓ (0.42 US qt, 0.35 Imp qt)	M/T A/T	4.5 (4.8, 4.0) for overhaul 3.6 (3.8, 3.2) for coolant change D15B7 engine 4.4 (4.6, 3.9) for overhaul 3.5 (3.7, 3.1) for coolant change D16Z9 engine 4.7 (5.0, 4.1) for overhaul 3.8 (4.0, 3.3) for coolant change
Radiator cap	Opening pressure kPa (kg/cm², psi)		95 – 125 (0.95 – 1.25, 14 – 18)
Thermostat	Start to opening °C (°F) Fully open °C (°F) Valve lift at fully open		76 – 80 (169 – 176) 90 (194) 8.0 (0.31) min.
Cooling fan	Coolant temperature switch “ON” temperature °C (°F) Coolant temperature switch “OFF” temperature °C (°F)		91.0 — 95.0 (196 – 203) Subtract 3 – 8 (5 – 15) from actual “ON” temperature.

## Fuel and Emissions — Section 11

	MEASUREMENT	STANDARD (NEW)
Fuel pump	Displacement/10 seconds cm³ (fl oz, Imp oz)	120 (4.0, 4.2) min.
Pressure regulator	Pressure with regulator vacuum hose disconnected kPa (kg/cm², psi)	280 – 330 (2.8 – 3.3, 40 – 47)
Fuel tank	Capacity ℓ (US gal, Imp gal)	45 (11.9, 9.9)
Engine	Idle speed with headlight and cooling fan off min⁻¹ (rpm)	M/T: Neutral 750 ± 50
		A/T: <b>N</b> or <b>P</b> position 750 ± 50
	Idle CO	0.1 % max.

## Clutch — Section 12

	MEASUREMENT	STANDARD (NEW)	SERVICE LIMIT
Clutch pedal	Pedal height to floor	164 (6.46)	—
	Stroke	130 – 140 (5.12 – 5.51)	—
	Total free play	12 – 21 (0.47 – 0.83)	—
	Pedal play	1.0 – 10.0 (0.04 – 0.37)	—
	Disengagement height to floor to carpet	83 (3.27) min. 55 (2.2) min. Reference	—
Flywheel	Clutch surface runout	0.05 (0.002) max.	0.15 (0.006)
Clutch disc	Rivet depth	1.3 (0.051) min.	0.2 (0.008)
	Thickness	8.4 – 9.1 (0.33 – 0.36)	6.0 (0.24)
Pressure plate	Warpage	0.03 (0.001) max.	0.15 (0.006)
	Diaphragm spring finger alignment	0.8 (0.03) max.	1.0 (0.04)



**Manual Transmission — Section 13**

Unit of length: mm (in)

	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 A (Transmission housing side) Diameter of 4th, 5th gear contact area B Diameter of 3rd gear contact area C Diameter of ball bearing contact area D (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 3rd 4th 3rd 4th	39.009 – 39.025 (1.5358 – 1.5364) 0.06 – 0.21 (0.002 – 0.008) 0.06 – 0.19 (0.002 – 0.007) 30.22 – 30.27 (1.190 – 1.192) 30.12 – 30.17 (1.186 – 1.188)	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 A Diameter of 1st gear contact area B Diameter of ball bearing contact area C 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 (0.0008) 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) 0.03 – 0.11 (0.001 – 0.004) 31.92 – 31.97 (1.257 – 1.259)	44.07 (1.735) 0.23 (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 4th 5th 4th 5th	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)	0.85 – 1.10 (0.033 – 0.043)	0.4 (0.016)
Shift fork	Fork finger thickness Fork-to-synchro sleeve clearance	6.4 – 6.5 (0.252 – 0.255) 0.25 – 0.45 (0.010 – 0.018)	— 0.8 (0.032)
Reverse shift fork	Fork pawl groove width Fork-to-reverse idler gear clearance L-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) 0.62 (0.0244) 12.78 (0.5031)

# 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 (kg/cm <sup>2</sup> , psi) D16Z9 engine	Line pressure at 2,000 min <sup>-1</sup> (rpm) <b>N</b> or <b>P</b> position	850 – 900 (8.5 – 9.0, 121 – 128)	800 (8.0, 114)
	2nd clutch pressure at 2,000 min <sup>-1</sup> (rpm) <b>D<sub>4</sub></b> position	400 (4.0, 57) throttle fully closed	350 (3.5, 50) throttle fully closed
	3rd clutch pressure at 2,000 min <sup>-1</sup> (rpm) <b>D<sub>4</sub></b> position	850 – 900 (8.5 – 9.0, 121 – 128) throttle more than 1/8 opened	800 (8.0, 114) throttle more than 1/8 opened
	4th clutch pressure at 2,000 min <sup>-1</sup> (rpm) <b>D<sub>4</sub></b> position		
	2nd clutch pressure at 2,000 min <sup>-1</sup> (rpm) <b>2</b> position	850 – 900 (8.5 – 9.0, 121 – 128)	800 (8.0, 114)
	1st clutch pressure at 2,000 min <sup>-1</sup> (rpm) <b>D<sub>4</sub></b> or <b>1</b> position	850 – 900 (8.5 – 9.0, 121 – 128)	800 (8.0, 114)
	Governor pressure at 60 km/h (38 mph)	182 – 192 (1.82 – 1.92, 26 – 27)	177 (1.77, 25)
	Throttle B pressure Throttle fully closed Throttle fully open	0 – 15 (0 – 0.15, 0 – 2) 850 – 900 (8.5 – 9.0, 121 – 128)	— 800 (8.0, 114)
	Throttle A pressure Throttle fully closed Throttle fully open	0 – 5 (0 – 0.05, 0 – 1) 485 – 500 (4.85 – 5.00, 69 – 71)	— 480 (4.8, 68)
Hydraulic pressure kPa (kg/cm <sup>2</sup> , psi) D15B7 engine	Line pressure at 2,000 min <sup>-1</sup> (rpm) <b>N</b> or <b>P</b> position	800 – 850 (8.0 – 8.5, 114 – 121)	750 (7.5, 107)
	2nd clutch pressure at 2,000 min <sup>-1</sup> (rpm) <b>D<sub>4</sub></b> position	400 (4.0, 57) throttle fully closed	350 (3.5, 50) throttle fully closed
	3rd clutch pressure at 2,000 min <sup>-1</sup> (rpm) <b>D<sub>4</sub></b> position	800 – 850 (8.0 – 8.5, 114 – 121) throttle more than 1/8 opened	750 (7.5, 107) throttle more than 1/8 opened
	4th clutch pressure at 2,000 min <sup>-1</sup> (rpm) <b>D<sub>4</sub></b> position		
	2nd clutch pressure at 2,000 min <sup>-1</sup> (rpm) <b>2</b> position	800 – 850 (8.0 – 8.5, 114 – 121)	750 (7.5, 107)
	1st clutch pressure at 2,000 min <sup>-1</sup> (rpm) <b>D<sub>4</sub></b> or <b>1</b> position	800 – 850 (8.0 – 8.5, 114 – 121)	750 (7.5, 107)
	Governor pressure at 60 km/h (38 mph)	182 – 192 (1.82 – 1.92, 26 – 27)	177 (1.77, 25)
	Throttle B pressure Throttle fully closed Throttle fully open	0 – 15 (0 – 0.15, 0 – 2) 800 – 850 (8.0 – 8.5, 114 – 121)	— 750 (7.5, 107)
	Throttle A pressure Throttle fully closed Throttle fully open	0 – 5 (0 – 0.05, 0 – 1) 485 – 500 (4.85 – 5.00, 69 – 71)	— 480 (4.8, 68)
Stall speed min <sup>-1</sup> (rpm) (check with car on level ground)		2,600	2,400 – 2,800

**Automatic Transmission — Section 14**

	MEASUREMENT		STANDARD (NEW)	SERVICE LIMIT
Clutch	Clutch initial clearance	1st, 2nd 3rd, 4th 1st-hold	0.65 – 0.85 (0.026 – 0.033) 0.40 – 0.60 (0.016 – 0.024) 0.5 – 0.8 (0.02 – 0.03)	_____ _____ _____
	Clutch return spring free length	1st 2nd, 3rd, 4th 1st-hold	31.0 (1.22) 30.5 (1.20) 34.6 (1.36)	29.0 (1.14) 28.5 (1.12) 32.6 (1.28)
	Clutch disc thickness		1.88 – 2.00 (0.074 – 0.079)	Until grooves worn out
	Clutch plate thickness	1st Except 1st	1.55 – 1.65 (0.061 – 0.065) 1.95 – 2.05 (0.077 – 0.081)	Discoloration Discoloration
	Clutch end plate thickness (except 1st-hold)	MARK 1	2.3 – 2.4 (0.091 – 0.094)	Discoloration ↑ ↓ 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 ↑ ↓ 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)	

(cont'd)

# Standards and Service Limits

## Automatic Transmission (cont'd) — Section 14

	MEASUREMENT	STANDARD (NEW)	SERVICE LIMIT
Transmission	Diameter of needle bearing contact area		
	On mainshaft and stator shaft	22.980 – 22.993 (0.9047 – 0.9052)	Wear or damage ↑
	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	31.980 – 31.996 (1.2590 – 1.2600)	
	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 subshaft (L. side)	25.991 – 26.000 (1.0233 – 1.0236)	
	On subshaft 4th gear collar	27.980 – 27.993 (1.1016 – 1.1021)	Wear or damage ↓
	On reverse idler gear shaft	13.990 – 14.000 (0.5508 – 0.5512)	
	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)	
	Inside diameter of needle bearing contact area		
	On countershaft 3rd gear	38.000 – 38.016 (1.4961 – 1.4967)	
	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 subshaft 4th gear	32.000 – 32.016 (1.2598 – 1.2605)	
	On reverse idler gear	18.007 – 18.020 (0.7089 – 0.7094)	
	On stator shaft (R. side)	29.000 – 29.013 (1.1417 – 1.1422)	
	On stator shaft (stator side)	27.000 – 27.021 (1.0630 – 1.0638)	
	On reverse idler gear shaft holder	14.416 – 14.434 (0.5676 – 0.5683)	
	End play		Wear or damage ↑
	Mainshaft 1st gear	0.08 – 0.24 (0.003 – 0.009)	
	Mainshaft 2nd gear	0.05 – 0.13 (0.002 – 0.0051)	
	Mainshaft 4th gear	0.05 – 0.135 (0.002 – 0.0053)	
	Countershaft 1st gear	0.1 – 0.5 (0.004 – 0.020)	
	Countershaft 3rd gear	0.05 – 0.13 (0.002 – 0.0051)	
	Countershaft 4th gear	0.05 – 0.13 (0.002 – 0.0051)	
	Subshaft 4th gear	0.05 – 0.17 (0.002 – 0.007)	
	Reverse idler gear	0.05 – 0.18 (0.002 – 0.007)	
	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	45.00 – 45.03 (1.772 – 1.773)	
	Mainshaft 1st gear collar length	27.00 – 27.15 (1.063 – 1.069)	
	Mainshaft 1st gear collar flange thickness	2.5 – 2.6 (2.098 – 2.102)	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)	Wear or damage
	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)	
	Countershaft 1st gear collar flange thickness	2.4 – 2.6 (0.094 – 0.102)	
	Subshaft 4th gear collar length	24.0 – 24.1 (0.945 – 0.949)	
	Subshaft 4th gear collar flange thickness	3.00 – 3.15 (0.118 – 0.124)	Wear or damage



Unit of length: mm (in)

## Automatic Transmission — Section 14

	MEASUREMENT	STANDARD (NEW)	SERVICE LIMIT
Transmission (cont'd)	Mainshaft 2nd gear thrust washer thickness	3.47 – 3.50 (0.137 – 0.138) 3.52 – 3.55 (0.139 – 0.140) 3.57 – 3.60 (0.141 – 0.142) 3.62 – 3.65 (0.143 – 0.144) 3.67 – 3.70 (0.145 – 0.146) 3.72 – 3.75 (0.147 – 0.148) 3.77 – 3.80 (0.148 – 0.150) 3.82 – 3.85 (0.151 – 0.152) 3.87 – 3.90 (0.153 – 0.154)	Wear or damage ↑ ↓ Wear or damage
	Thrust washer thickness Mainshaft 4th gear Mainshaft ball bearing L. side Mainshaft 1st gear L. side Mainshaft 1st gear R. side	4.45 – 4.55 (0.175 – 0.179) 3.45 – 3.55 (0.136 – 0.140) 1.45 – 1.50 (0.057 – 0.059) 3.43 – 3.50 (0.135 – 0.138)	Wear or damage ↑ ↓ Wear or damage
	Countershaft 3rd gear thrust washer thickness (35 x 52 mm)	2.97 – 3.00 (0.117 – 0.118) 3.02 – 3.05 (0.119 – 0.120) 3.07 – 3.10 (0.121 – 0.122) 3.12 – 3.15 (0.123 – 0.124) 3.17 – 3.20 (0.125 – 0.126) 3.22 – 3.25 (0.127 – 0.128) 3.27 – 3.30 (0.129 – 0.130) 3.32 – 3.35 (0.131 – 0.132) 3.37 – 3.40 (0.133 – 0.134) 3.42 – 3.45 (0.135 – 0.136) 3.47 – 3.50 (0.137 – 0.138) 3.52 – 3.55 (0.139 – 0.140) 3.57 – 3.60 (0.141 – 0.142)	Wear or damage ↑ ↓ Wear or damage
	Subshaft 4th gear thrust washer thickness One-way clutch contact area I.D. Countershaft 1st gear Parking gear Mainshaft feed pipe A, O.D. Mainshaft feed pipe B, O.D. Countershaft feed pipe O.D. Subshaft feed pipe O.D. Mainshaft sealing ring thickness (29 mm and 35 mm) Mainshaft bushing I.D. Mainshaft bushing I.D. Countershaft bushing I.D. Subshaft bushing I.D. Mainshaft sealing ring groove width	2.93 – 3.00 (0.115 – 0.118) 83.339 – 83.365 (3.2810 – 3.2821) 66.685 – 66.698 (2.6254 – 2.6259) 8.97 – 8.98 (0.353 – 0.354) 5.97 – 5.98 (0.2350 – 0.2354) 7.97 – 7.98 (0.3138 – 0.3142) 7.97 – 7.98 (0.3138 – 0.3142) 1.980 – 1.995 (0.0780 – 0.0785) 6.018 – 6.030 (0.2369 – 0.2374) 9.000 – 9.015 (0.3543 – 0.3549) 8.000 – 8.015 (0.3150 – 0.3156) 8.000 – 8.015 (0.3150 – 0.3156) 8.000 – 8.015 (0.3150 – 0.3156) 2.025 – 2.060 (0.080 – 0.081)	Wear or damage ↑ ↓ Wear or damage 8.95 (0.352) 5.95 (0.234) 7.95 (0.313) 7.95 (0.313) 1.80 (0.071) 6.045 (0.2380) 9.030 (0.355) 8.030 (0.3161) 8.030 (0.3161) 2.080 (0.082)
	Regulator valve body	Sealing ring contact I.D.	35.000 – 35.025 (1.3780 – 1.3782) 35.050 (1.3799)
Shifting device and parking brake control	Reverse shift fork finger thickness Parking brake ratchet pawl Parking brake gear Throttle cam stopper height	5.90 – 6.00 (0.232 – 0.236) _____ _____ 27.0 – 27.1 (1.063 – 1.067)	5.40 (0.213) Wear or other defect _____
Servo body	Shift fork shaft bore I.D. Shift fork shaft valve bore I.D.	14.000 – 14.010 (0.5512 – 0.5516) 37.000 – 37.039 (1.4567 – 1.4582)	_____ 37.045 (1.4585)
Oil pump	Oil pump gear side clearance	Drive 0.03 – 0.05 (0.001 – 0.002)	0.07 (0.003)
	Oil pump gear-to-body clearance	Driven 0.04 – 0.06 (0.0016 – 0.0024) Drive 0.210 – 0.265 (0.0083 – 0.0104) Driven 0.070 – 0.125 (0.0028 – 0.0049)	0.07 (0.003) _____ _____
	Oil pump driven gear I.D.	14.016 – 14.034 (0.5518 – 0.5525)	Wear or damage
	Oil pump shaft O.D.	13.980 – 13.990 (0.5504 – 0.5508)	Wear or damage

(cont'd)

# Standards and Service Limits

## Automatic Transmission (cont'd) — Section 14

	MEASUREMENT	STANDARD (NEW)			
		Wire Dia.	O.D.	Free Length	No. of Coils
Springs	Regulator valve spring A				
	D16Z9 engine	1.8 (0.07)	14.7 (0.58)	88.1 (3.468)	16.5
	D15B7 engine	1.8 (0.07)	14.7 (0.58)	86.5 (3.406)	16.5
	Regulator valve spring B	1.8 (0.07)	9.6 (0.38)	44.0 (1.73)	7.5
	Stator reaction spring	5.5 (0.22)	26.4 (1.04)	30.3 (1.19)	2.1
	Torque converter check valve spring	1.0 (0.04)	8.4 (0.33)	33.8 (1.33)	8.2
	Modulator valve spring	1.2 (0.047)	*7.0 (0.276)	27.2 (1.071)	8.0
	Relief valve spring	1.1 (0.04)	8.6 (0.34)	37.1 (1.46)	13.4
	Cooler check valve spring	1.0 (0.04)	8.4 (0.33)	33.8 (1.33)	8.2
	Governor spring A	1.0 (0.04)	18.8 (0.74)	32.9 (1.30)	4.1
	Governor spring B	0.9 (0.04)	11.8 (0.47)	27.8 (1.09)	6.0
		0.9 (0.04)	11.8 (0.47)	29.1 (1.15)	6.0
	2 – 3 orifice control valve spring	0.9 (0.04)	6.6 (0.26)	33.2 (1.31)	14.9
	1 – 3 kick down valve spring	1.0 (0.04)	6.6 (0.26)	29.9 (1.18)	14.7
	2/3 – 4 orifice control valve spring	1.0 (0.04)	8.6 (0.34)	51.9 (2.04)	19.8
	2nd ON orifice control valve spring	0.9 (0.04)	8.0 (0.31)	24.1 (0.95)	9.6
	Throttle valve A spring	1.0 (0.04)	8.5 (0.33)	22.2 (0.87)	6.0
	Throttle valve A spring	1.0 (0.04)	8.5 (0.33)	22.1 (0.87)	5.5
	Throttle valve A spring	1.1 (0.04)	8.5 (0.33)	22.3 (0.87)	8.1
	Throttle valve A spring	1.1 (0.04)	8.5 (0.33)	22.3 (0.87)	7.6
	Throttle valve B adjusting spring	0.8 (0.03)	6.2 (0.24)	30 (1.18)	8
	Throttle valve A adjusting spring	0.8 (0.03)	6.2 (0.24)	27 (1.06)	8.5
	Throttle valve B spring	1.4 (0.06)	8.5 (0.33)	41.5 (1.63)	10.5
	Throttle valve B spring	1.4 (0.06)	8.5 (0.33)	41.5 (1.63)	11.2
	Throttle valve B spring	1.4 (0.06)	8.5 (0.33)	41.6 (1.64)	12.4
	1 – 2 shift valve spring	0.45 (0.018)	5.1 (0.20)	52.8 (2.08)	29
	1 – 2 shift valve ball spring	0.45 (0.018)	4.5 (0.18)	10.7 (0.42)	12.7
	2 – 3 shift valve spring	0.9 (0.04)	7.1 (0.28)	65.3 (2.57)	32.1
	2 – 3 shift valve ball spring	0.45 (0.018)	4.5 (0.18)	13.3 (0.52)	8.0
	3 – 4 shift valve spring	0.9 (0.04)	9.6 (0.38)	32.5 (1.28)	10.3
	3 – 4 shift valve ball spring	0.5 (0.02)	4.5 (0.18)	11.3 (0.44)	7.4
	1st-hold accumulator spring	4.0 (0.16)	21.5 (0.85)	71.7 (2.82)	8.3
	1st accumulator spring A	2.6 (0.10)	24.3 (0.96)	101.9 (4.01)	11.6
	1st accumulator spring B	2.3 (0.09)	9.9 (0.39)	49.0 (1.93)	4.6
	2nd accumulator spring	3.5 (0.14)	22 (0.87)	77.0 (3.03)	9.5
	3rd accumulator spring	2.6 (0.10)	17.5 (0.69)	91.8 (3.61)	15.8
	4th accumulator spring	2.6 (0.10)	16 (0.63)	90.1 (3.55)	15.6
	Lock-up shift valve spring	0.9 (0.04)	7.6 (0.30)	73.7 (2.90)	32
	Lock-up timing valve spring	0.8 (0.03)	6.6 (0.26)	61.5 (2.42)	27.6
	Lock-up control valve spring	0.9 (0.04)	6.6 (0.26)	38.4 (1.51)	25.3
	Governor cut valve spring	0.8 (0.03)	7.6 (0.30)	44.5 (1.75)	17
	CPC valve spring	0.9 (0.04)	8.4 (0.33)	24.9 (0.98)	9.8
	Reverse control valve spring	0.7 (0.03)	7.1 (0.28)	40 (1.57)	20.8
	3 – 2 timing valve spring	1.2 (0.05)	8.6 (0.34)	45.6 (1.80)	14.7
	Servo control valve spring	0.9 (0.04)	6.4 (0.25)	34.1 (1.34)	17.5
	2 – 1 timing valve spring	0.7 (0.03)	5.6 (0.22)	33 (1.30)	21.7
	4th exhaust valve spring	0.9 (0.04)	6.6 (0.26)	43.3 (1.70)	22

\*: Inside Diameter

**Differential M/T — Section 15**

	MEASUREMENT	STANDARD (NEW)	SERVICE LIMIT
Differential carrier	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	26.025 – 26.045 (1.0246 – 1.0254)	—
	Carrier-to-driveshaft clearance	0.045 – 0.086 (0.0018 – 0.0034)	0.14 (0.006)
Differential pinion gear	Backlash	0.05 – 0.15 (0.002 – 0.006)	—
	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)
Set ring-to-bearing outer race		0 – 0.1 (0 – 0.004)	Adjust with shim

**Differential A/T — Section 15**

	MEASUREMENT	STANDARD (NEW)	SERVICE LIMIT
Differential carrier	Pinion shaft contact area I.D.	18.000 – 18.018 (15.8382 – 15.8540)	—
	Carrier-to-pinion clearance	0.013 – 0.047 (0.0005 – 0.0019)	0.10 (0.004)
	Driveshaft contact area I.D.	26.005 – 26.025 (1.0238 – 1.0246)	—
	Carrier-to-driveshaft clearance	0.025 – 0.066 (0.0010 – 0.0026)	0.12 (0.005)
	Ball bearing contact area O.D.	40.002 – 40.018 (1.5749 – 1.5755)	—
Differential pinion gear	Backlash	0.08 – 0.15 (0.003 – 0.006)	—
	I.D.	18.041 – 18.061 (0.7103 – 0.7111)	—
	Pinion gear-to-pinion shaft clearance	0.054 – 0.090 (0.0021 – 0.0035)	0.15 (0.006)
Set ring-to-bearing outer race		0 – 0.15 (0 – 0.006)	Adjust

**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 (kg, lb)	
	Engine running	
Gearbox	LHD 4way valve type	30 (3.0, 6.6)
	LHD Rotary valve type	31 (3.1, 6.8)
	RHD Rotary valve type	25 (2.5, 5.5)
	Angle of rack guide screw loosened from locked position	20° ± 5°
Pump	Preload at pinion gear shaft N·m (kg-cm, lb-in)	25° max.
	LHD 4way valve type	0.6 – 1.1 (6 – 11, 5.21 – 9.55)
	LHD Rotary valve type	
	RHD Rotary valve type	
Power steering fluid	Pump pressure with valve closed (oil temp./speed: 40°C (105°F) min./idle. Do not run for more than 5 seconds). kPa (kg/cm, psi)	8,000 – 9,000 (80 – 90, 1,138 – 1,280)
	LHD 4way valve type	5,500 – 6,500 (55 – 65, 780 – 924)
	LHD Rotary valve type	5,500 – 6,500 (55 – 65, 780 – 924)
	RHD Rotary valve type	
Power steering belt*	Recommended power steering fluid	HONDA Power Steering Fluid-V
	Fluid capacity	1.1 (1.16, 0.97)
	System LHD 4way valve type	1.06 (1.16, 0.97)
	LHD Rotary valve type	1.0 (1.06, 0.88)
Power steering belt*	RHD Rotary valve type	0.4 (0.42, 0.35)
	Reservoir	
	Deflection with 100 N (10 kg, 22 lbs) between pulleys	8.0 – 12.0 (0.31 – 0.47) with used belt
	Tension measured with belt tension gauge	6.0 – 9.5 (0.24 – 0.37) with new belt
Power steering belt*	N (kg, lbs)	350 – 500 (35 – 50, 77 – 110) with used belt
		500 – 700 (50 – 70, 110 – 154) 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.

# Standards and Service Limits

## Suspension — Section 18

Suspension — Section 18						
	MEASUREMENT			STANDARD (NEW)		SERVICE LIMIT
Wheel alignment	Camber		Front	0°00' ± 1°		_____
			Rear	-0°20' ± 1°		_____
	Caster		Front	1°10' ± 1°		_____
		Total toe		Front	0 ± 2.0 (0 ± 0.08)	
			Rear	In 2.0 $\pm 2.0$ (0.08 $\pm 0.08$ )		_____
	Front wheel turning angle	Inward wheel		41°00' ± 2°		_____
Outward wheel			33°30' (Reference)		_____	
Wheel	Rim runout	Aluminum wheel	Axial	0 - 0.7 (0 - 0.03)		2.0 (0.08)
			Radial	0 - 0.7 (0 - 0.03)		1.5 (0.06)
		Steel wheel	Axial	0 - 1.0 (0 - 0.04)		2.0 (0.08)
			Radial	0 - 1.0 (0 - 0.04)		1.5 (0.06)
Wheel bearing	End play	Front	0 - 0.05 (0 - 0.002)		_____	
		Rear	0 - 0.05 (0 - 0.002)		_____	

## Brakes — Section 19

	MEASUREMENT		STANDARD (NEW)	SERVICE LIMIT
Parking brake lever	Play in stroke at 200 N (20 kg, 44 lbs) lever force		To be locked when pulled 6 - 10 notches	_____
Foot brake pedal	Pedal height (with floor mat removed)	M/T	160 (6.3)	_____
		A/T	165 (6.5)	_____
	Free play		1 - 5 (1/16 - 13/64)	_____
Master cylinder	Piston-to-pushrod clearance		0 - 0.4 (0 - 0.02)	_____
Disc brake	Disc thickness		21.0 (0.83)	19.0 (0.75)
	Disc runout		_____	0.10 (0.004)
	Disc parallelism		_____	0.015 (0.0006)
	Pad thickness	1.6 ℓ	10.0 (0.39)	1.6 (0.06)
		1.5 ℓ	9.0 (0.35)	1.6 (0.06)
Rear brake drum	I.D.		200 (7.87)	2.01 (7.91)
	Lining thickness		4.0 (0.16)	2.0 (0.08)
Brake booster	Characteristics at 200 N (20 kg, 44 lbs) pedal force.		Vacuum mmHg (inHg)	Line pressure kPa (kg/cm², psi)
	D15B7 engine		0 (0)	1,520 (15.5, 220)
			300 (11.8)	6,360 (64.9, 923)
			500 (19.7)	9,580 (97.7, 1,389)
	D16Z9 engine		0 (0)	1,310 (13.4, 191)
			300 (11.8)	5,490 (56.0, 796)
			500 (19.7)	8,270 (84.3, 1,199)

## Air Conditioning — Section 22

	MEASUREMENT		STANDARD (NEW)
Air Conditioning system	Lubricant type: SP-10 (P/N 38899 - P13 - 003) (For refrigerant: HFC-134a (R-134a))		
	Lubricant capacity mℓ (fl oz, Imp oz)	Condenser	20 (2/3, 0.7)
		Evaporator	45 (1 1/2, 1.6)
		Line or hose	10 (1/3, 0.4)
		Receiver	10 (1/3, 0.4)
Compressor	Lubricant type: SP-10 (P/N 38899 - P13 - 003) (For refrigerant: HFC-134a (R-134a))		
	Lubricant capacity mℓ (fl oz, Imp oz)		120 - 140 (4 - 4 2/3, 4.2 - 4.9)
	Coil resistance at 68°F (20°C) Ω		2.95 - 3.35
Compressor belt*	Pulley-to-pressure plate clearance		0.5 ± 0.15 (0.02 ± 0.006)
	Deflection with 100 N (10 kg, 22 lbs) between pulleys		6.5 - 10.5 (0.26 - 0.41) with used belt
			5.0 - 7.0 (0.20 ± 0.28) with new belt
	Belt tension N (kg, lbs)		350 - 500 (35 - 50, 77 - 110) with used belt
	Measured with belt tension gauge		600 - 800 (60 - 80, 132 - 176) 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.



**Electrical — Section 23**

	MEASUREMENT	STANDARD (NEW)	
Ignition coil	Rated voltage V Primary winding resistance at 20°C (68°F) Ω Secondary winding resistance at 20°C (68°F) kΩ	12 0.6 – 0.8 13.2 – 19.8	
Spark plug	Type Electrode gap	Refer to Shop Manual CIVIC SUPPLEMENT 94 (Code No. 60SR321) and this manual. 1.1 $\frac{0}{-0.1}$ (0.043 $\frac{0}{-0.004}$ )	
Ignition timing	At idling	16° ± 2° (Red) BTDC	
Alternator belt*	Deflection with 100 N (10 kg, 22 lbs) between pulleys	7.0 – 10.5 (0.28 – 0.41) with used belt 5.5 – 8.0 (0.22 – 0.31) with new belt	
	Tension measured with belt tension gauge N (kg, lbs)	350 – 500 (35 – 50, 77 – 110) with used belt 550 – 750 (55 – 75, 121 – 165) with new belt	
Alternator (NIPPONDENSO)	Output 13.5 V at hot A Coil resistance (rotor) Ω Slip ring O.D. Brush length Brush spring tension g (oz)	70 2.3 14.4 (0.567) 10.5 (0.41) 330 (11.6)	_____ _____ 14.0 (0.551) 1.5 (0.06) _____
Alternator (MITSUBISHI)	Output 13.5 V at hot A Coil resistance (rotor) Ω Slip ring O.D. Brush length Brush spring tension g (oz)	70 3.4 – 3.8 22.7 (0.89) 20.0 (0.79) 300 – 450 (10.6 – 15.9)	_____ _____ 22.2 (0.87) 5.0 (0.20) _____
Starter motor (MITSUBA 1.0 kW, 1.2 kW, 1.4 kW)	Type Mica depth Commutator runout Commutator O.D. Brush length Brush spring tension (new) N (kg, lbs)	Gear reduction 0.4 – 0.5 (0.016 – 0.020) 0 – 0.02 (0 – 0.001) 28.0 – 28.1 (1.102 – 1.106) 14.3 – 14.7 (0.56 – 0.58) 15.8 – 16.2 (0.62 – 0.64) 18.5 – 23.5 (1.85 – 2.35, 4.1 – 5.2) 16 – 18 (1.6 – 1.8, 3.5 – 4.0)	0.15 (0.006) 0.05 (0.002) 27.5 (1.083) 9.5 (0.37) 11.0 (0.43) _____ _____
Starter motor (NIPPONDENSO 1.0 kW, 1.2 kW)	Type Mica depth Commutator runout Commutator O.D. Brush length Brush spring tension (new) N (kg, lbs)	Gear reduction 0.5 – 0.8 (0.02 – 0.03) 0 – 0.02 (0 – 0.001) 29.9 – 30.0 (1.177 – 1.181) 13.0 – 13.5 (0.51 – 0.53) 15.0 – 15.5 (0.59 – 0.61) 18 – 24 (1.8 – 2.4, 4.0 – 5.3) 13 – 20 (1.3 – 2.1, 2.9 – 4.6)	0.2 (0.008) 0.05 (0.002) 29.0 (1.14) 8.5 (0.33) 10.0 (0.39) _____ _____

\*: 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.

# Design Specifications

	ITEM		METRIC		ENGLISH		NOTES
DIMENSIONS	Overall Length		4,400 mm		173.2 in		
	Overall Width		1,695 mm		66.7 in		
	Overall Height		1,345 mm		53.0 in		
	Wheelbase		2,620 mm		103.1 in		
	Track		1,475/1,465 mm		58.1/57.7 in		
	Ground Clearance		150 mm		5.9 in		
	Seating Capacity				Five		
WEIGHT	Curb Weight	1.5 ℓ BASIC	M/T	1,000 kg	2,205 lbs		KS model KS model
			A/T	1,030 kg	2,271 lbs		
	1.5 ℓ LSi	M/T	1,007 kg	2,220 lbs			
		A/T	1,037 kg	2,286 lbs			
	1.5 ℓ LSi with sunroof	M/T	1,015 kg	2,238 lbs			
		A/T	1,045 kg	2,304 lbs			
	1.6 ℓ ESi	M/T	1,060 kg	2,337 lbs			
		A/T	1,090 kg	2,403 lbs			
	Weight Distributions (Front/Rear)						KS model KS model
	1.5 ℓ BASIC	M/T	600/400 kg	1,223/882 lbs			
		A/T	630/400 kg	1,389/882 lbs			
	1.5 ℓ LSi	M/T	603.5/398.5 kg	1,330.5/878.5 lbs			
		A/T	633.5/398.5 kg	1,396.6/878.5 lbs			
	1.5 ℓ LSi with sunroof	M/T	610/405 kg	1,345/893 lbs			
		A/T	640/405 kg	1,411/893 lbs			
	1.6 ℓ ESi	M/T	640/420 kg	1,411/926 lbs			
A/T		670/420 kg	1,477/926 lbs				
Max. Permissible Weight (EC)		1.5 ℓ	1,500 kg	3,307 lbs			
		1.6 ℓ	1,530 kg	3,373 lbs			
ENGINE	Type	D15B7 engine	Water-cooled, 4-stroke SOHC gasoline engine				
		D16Z9 engine	Water-cooled, 4-stroke SOHC VTEC gasoline engine				
	Cylinder Arrangement		Inline 4-cylinder, transverse				
	Bore and Stroke	D15B7 engine	75.0 x 84.5 mm	2.95 x 3.33 in			
		D16Z9 engine	75.0 x 90.0 mm	2.95 x 3.54 in			
	Displacement	D15B7 engine	1,493 cm <sup>3</sup> (mℓ)	91 cu-in			
		D16Z9 engine	1,590 cm <sup>3</sup> (mℓ)	97 cu-in			
	Compression Ratio		9.2 : 1				
	Valve Train	D15B7 engine	Belt driven, SOHC				
		D16Z9 engine	Belt driven, SOHC VTEC				
	Lubrication System		4 valve per cylinder				
	Oil Pump Displacement at 6,000 min <sup>-1</sup> (rpm)		Forced and wet sump, trochoid pump				
	Water Pump Displacement at 6,000 min <sup>-1</sup> (rpm)		45 ℓ (48 US qt, 40 Imp qt)/minute				
	Fuel Required	D15B7 engine	125 ℓ (132 US qt, 110 Imp qt)/minute				
D16Z9 engine		UNLEADED gasoline with a Research Octane Number (RON) of 91 or higher					
		Premium UNLEADED gasoline with a Research Octane Number (RON) of 95 or higher					
STARTER	Make/Type, Output		MITSUBA/Gear reduction,				
			1.0 kW, 1.2 kW, 1.4 kW				
			NIPPONDENSO/Gear reduction,				
			1.0 kW, 1.2 kW				
	Normal Output	1.5 ℓ M/T	1.0 kW				
		1.5 ℓ A/T, 1.6 ℓ M/T	1.2 kW				
	Normal Voltage	1.6 ℓ A/T	1.4 kW				
			12 V				
	Hour Rating		30 seconds				
	Direction of Rotation		Clockwise as viewed from gear end				
Weight	MITSUBA 1.0 kW/1.2 kW		3.4 kg	7.5 lbs			
	1.4 kW		3.5 kg	7.7 lbs			
	NIPPONDENSO 1.0 kW		3.85 kg	8.49 lbs			
	1.2 kW		3.4 kg	7.5 lbs			

	ITEM		METRIC	ENGLISH	NOTES	
CLUTCH	TYPE	M/T	Single plate dry, diaphragm spring			
	Facing Area	A/T	Torque converter			
TRANSMISSION	Type	M/T	176 cm <sup>2</sup>	27 sq-in	*1: Except KS model *2: KS model	
		A/T				
	Primary Reduction	Type/Ratio	Synchronized 5-speed forward, 1 reverse 4-speed automatic with lock-up clutch, 1 reverse Direct/1 : 1			
	Manual Transmission		D15B7* <sup>1</sup> engine	D15B7* <sup>2</sup> engine		D16Z9 engine
	Gear Ratio	1st	3.250	3.250		3.250
		2nd	1.900	1.761		1.900
		3rd	1.250	1.172		1.250
		4th	0.909	0.909		0.937
		5th	0.750	0.702		0.771
		Reverse	3.153	3.153		3.153
	Final Reduction Gear	Ratio	4.250	4.058		4.250
		Type	Single helical gear			
	Automatic Transmission		D15B7* <sup>1</sup> /D16Z9 engines			D15B7* <sup>2</sup> engine
	Gear Ratio	1st	2.600			2.600
		2nd	1.393			1.468
		3rd	0.975			0.975
		4th	0.772			0.673
		Reverse	1.954			1.954
	Final Reduction Gear	Ratio	4.333			4.333
Type		Single helical gear				
AIR CONDITIONING	Cooling Capacity	RHD LHD	3,250 Kcal/h 3,838 Kcal/h	12,890 BTU/h 15,220 BTU/h		
	Compressor	Type/Make No. of Cylinder Capacity Max. Speed Lubricant Capacity Lubricant Type	Scroll/SANDEN 85.7 ml /rev   5.22 cu-in/rev 10,000 min <sup>-1</sup> (rpm) SP-10 (P/N 38899-P13-003) 120 ml   4 fl oz, 4.2 Imp oz			
	Condenser	Type	Corrugated fin			
	Evaporator	Type	Corrugated fin			
	Blower	Type Motor Input Speed Control Max. Capacity	Sirocco fan 200 W/12 V 4-speed 430 m <sup>3</sup> /h   15,188 cu-ft/h			
	Temperature Control	Type	Air-mix			
	Compressor Clutch	Type Power Consumption	Dry, single plate, poly-V-belt drive 42 W max./12 V			
	Refrigerant	Type Quantity	HFC-134a (R-134a) 550 <sup>0</sup> / <sub>-50</sub> g   19.4 <sup>0</sup> / <sub>-1.8</sub> oz			

(cont'd)

# Design Specifications

(cont'd)

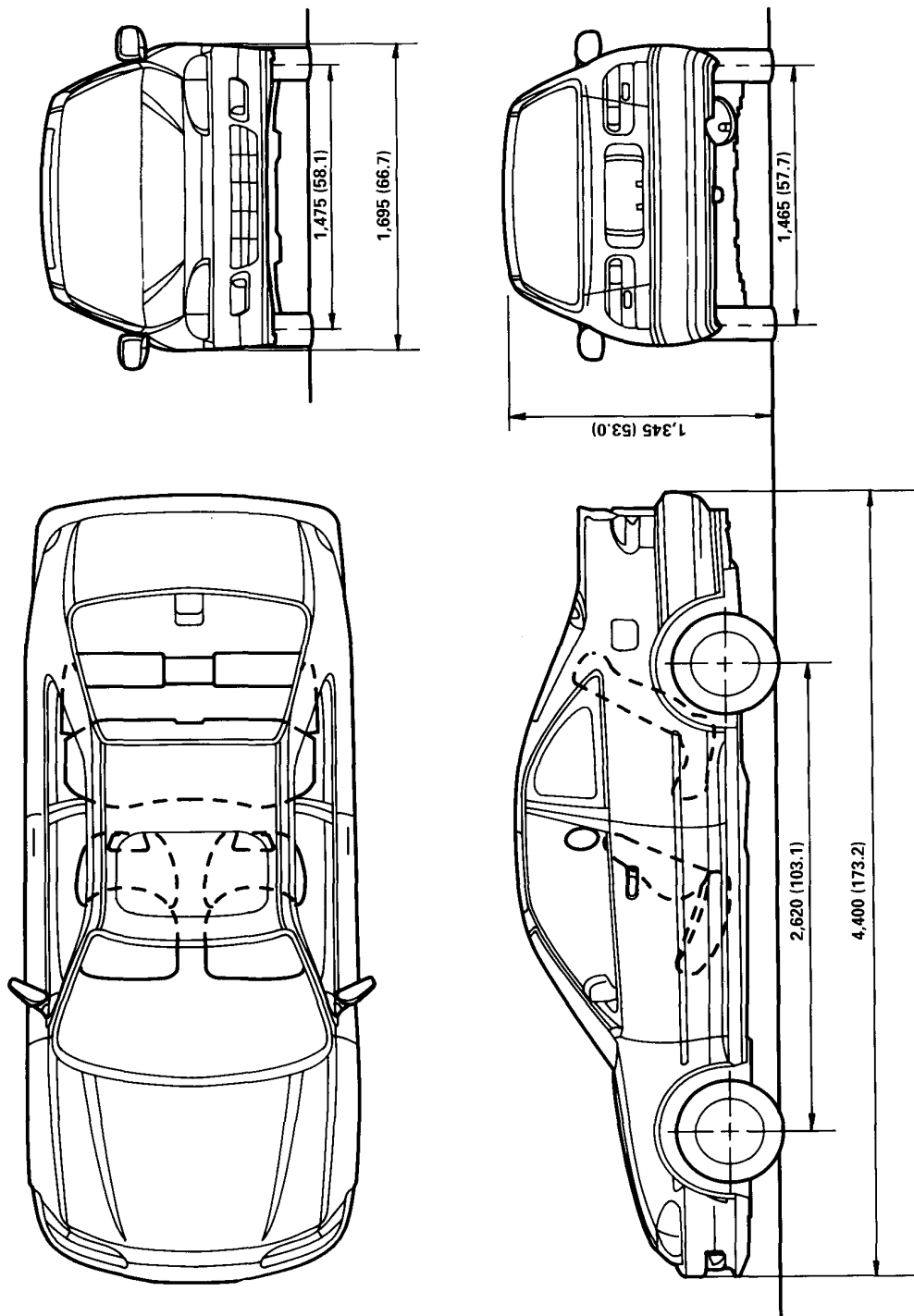
	ITEM		METRIC	ENGLISH	NOTES
STEERING SYSTEM	Type		Power assisted, rack and pinion		
	Overall Ratio	LHD	17.5		
		RHD	17.0		
	Turns, Lock-to-Lock	LHD	3.6		
		RHD	3.5		
	Steering Wheel Dia.		375 mm	14.8 in	
SUSPENSION	Type	Front	Independent double wishbone, coil spring with stabilizer		
		Rear	Independent double wishbone, coil spring with stabilizer		
	Shock Absorber	Front and Rear	Telescopic, hydraulic nitrogen gas-filled		
WHEEL ALIGNMENT	Camber	Front	0°		
		Rear	-0° 20'		
	Caster	Front	1° 10'		
	Total Toe	Front	0 mm	0 in	
		Rear	In 2.0 mm	In 0.08 in	
BRAKE SYSTEM	Type	Front	Power-assisted self-adjusting ventilated disc		
		Rear	Power-assisted self-adjusting drum		
	Pad Surface Area	Front	51.5 cm² x 2	8.0 sq-in x 2	Disc dia. 211 (8.3)
			43.2 cm² x 2	6.7 sq-in x 2	Disc dia. 191 (7.5)
	Lining Surface Area	Rear	67.2 cm² x 2	10.4 sq-in x 2	Drum brake
	Parking Brake	Type	Mechanical actuating, rear two wheel brakes		
TIRE	Size and Pressure		See tire label (see page 1-4)		
ELECTRICAL	Battery		12 V - 38 AH/5 HR		
	Starter		12 V - 1.0 kW/1.2 kW/1.4 kW		
	Alternator		12 V - 70 A		
	Fuses	In Under-dash Fuse 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		
			40 A, 50 A, 80 A		
	Headlights	High/Low	12 V - 60/55 W		
	Front Turn Signal Lights		12 V - 21 W		
	Front Position Lights		12 V - 5 W		
	Side Turn Signal Lights		12 V - 5 W		
	Rear Turn Signal Lights		12 V - 21 W		
	Brake/Taillights		12 V - 21/5 W		
	Back-up Lights		12 V - 21 W		
	Rear Fog Light		12 V - 21 W		
	License Plate Lights		12 V - 5 W		
	Ceiling Light		12 V - 5 W*1, 12 V - 8 W*2		
	Trunk Light		12 V - 3.4 W		
	Gauge Lights		12 V - 3.0 W		
	Indicator Lights		12 V - 0.84 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, 1.4 W, LED		
	Heater Illumination Lights		12 V - 1.4 W		

\*1: Without sunroof

\*2: With sunroof

# Body Specifications

Unit: mm (in)



## **Maintenance**

<b>Lubrication Points .....</b>	<b>4-2</b>
<b>Maintenance Schedule .....</b>	<b>4-4</b>



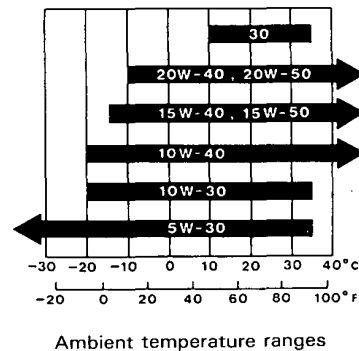
# Lubrication Points

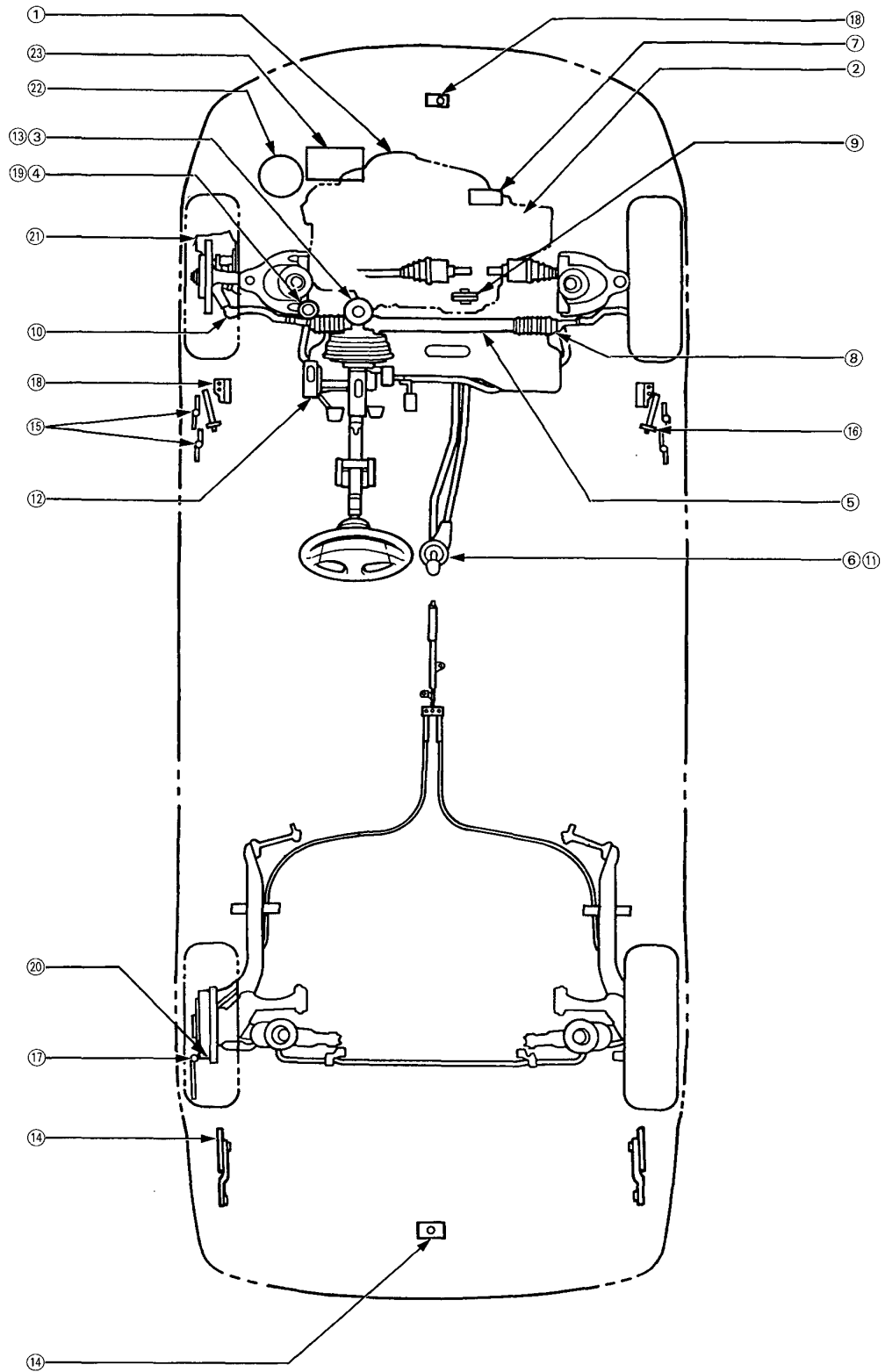
For the details of lubrication points and types of lubricants to be applied, refer to the Illustrated Index and various work procedures (such as Assembly/Reassembly, Replacement, Overhaul, Installation, etc.) contained in each section.

No.	LUBRICATION POINTS		LUBRICANT
1	Engine		API Service Grade: SF, SG or SH fuel efficient oil SAE Viscosity: See chart below
2	Transmission	Manual	API Service Grade: SF or SG SAE Viscosity: 10 W—30 or 10 W—40
		Automatic	Honda Premium Formula or DEXRON® II Automatic transmission fluid (ATF)
3	Brake Line		Brake fluid DOT3 or DOT4
4	Clutch Line		Brake fluid DOT3 or DOT4
5	Power steering gearbox		Steering grease P/N 08733—B070E
6	Shift lever pivots (Manual transmission)		Grease with molybdenum disulfide
7	Release fork (Manual transmission)		Urea Grease UM264 P/N 41211—PY5—305
8	Steering boots		Multi-purpose grease
9	Throttle cable end		
10	Steering ball joints		
11	Select lever (Automatic transmission)		
12	Pedal linkage		
13	Brake master cylinder pushrod		
14	Trunk hinges and latch		
15	Door hinges upper and lower		
16	Door opening detents		
17	Fuel fill lid		
18	Hood hinges and hood latch		
19	Clutch master cylinder pushrod		
20	Rear brake shoe linkages		
21	Caliper	Piston seal, Dust seal, Caliper pin, Piston	Silicone grease
22	Power steering system		Honda power steering fluid-V
23	Air conditioning compressor		Compressor oil: SP-10 P/N 38899—P13—003 (For Refrigerant: HFC-134a (R-134a))

Recommended Engine Oil  
API Service Grade: SF, SG or SH fuel efficient oil.  
Select the oil for the car according to this chart.

**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.







# Maintenance Schedule

Service at the interval listed x 1,000 km (or miles) or after that number of months, whichever comes first.	x 1,000 km		20	40	60	80	100	120	140	160	180	200
	x 1,000 miles		12	24	36	48	60	72	84	96	108	120
	months		12	24	36	48	60	72	84	96	108	120
• Engine oil and oil filter	Replace every 10,000 km (6,000 miles) or 12 months											
• Transmission oil				R				R			R	
Valve clearance			I			I				I		I
Belt tension and conditions (Alternator, Power steering, A/C compressor)			I			I				I		I
Timing belt							R					R
Water pump							I					I
Cooling system hoses and connections			I			I				I		I
• Engine coolant						R				R		R
Spark plugs				R		R				R		R
For KS model, replace every 48,000 km (30,000 miles)												
Air cleaner element				R		R				R		R
Tank, fuel lines and connections				I		I				I		I
Fuel filter				R		R				R		R
Positive crankcase ventilation valve							I*1					I*1
Idle speed and idle CO			I*2	I*2	I*2	I*2	I*1	I*2	I*2	I*2	I*2	I*1
Front brake pads	Inspect every 10,000 km (6,000 miles) or 12 months											
Front brake discs and calipers			I	I	I	I	I	I	I	I	I	I
Rear brake drums, wheel cylinders and linings				I		I		I		I		I
Parking brake operation			I	I		I		I		I		I
Brake fluid				R		R				R		R
Brake hoses and lines			I	I	I	I	I	I	I	I	I	I
Exhaust system and condition			I	I	I	I	I	I	I	I	I	I
Catalytic converter heat shield							I					I
Suspension components			I	I	I	I	I	I	I	I	I	I
Steering function, tie-rod ends, gear box and boots			I	I		I		I		I		I
Power steering function, hoses and connections			I	I	I	I	I	I	I	I	I	I

•: Day to day care (engine oil, ATF and coolant level) should be done practically according to the owner's manual by the customer.

\*1: For KS model, monthly interval is recommended by manufacturer only: except for KS model, it is required.

\*2: For KS model, recommended by manufacturer only: except for KS model, it is required.



Service at the interval listed x 1,000 km (or miles) or after that number of months, whichever comes first.	x 1,000 km	20	40	60	80	100	120	140	160	180	200
	x 1,000 miles	12	24	36	48	60	72	84	96	108	120
	months	12	24	36	48	60	72	84	96	108	120
All fluid levels	Inspect every 10,000 km (6,000 miles) or 12 months										
Battery condition		I	I	I	I	I	I	I	I	I	I
Tyres condition, wear and pressure (including spare)	Inspect every 10,000 km (6,000 miles) or 12 months										
Lights operation and headlight beam	Inspect every 10,000 km (6,000 miles) or 12 months										
Paint damages and body work		I	I	I	I	I	I	I	I	I	I
Test drive (Noise, stability, dashboard operations)		I	I	I	I	I	I	I	I	I	I
Cleanliness of controls, door handles etc.	Inspect after every Service										

### Severe Driving Conditions

The following items must be serviced more frequently on cars normally used under severe driving conditions. Refer to the chart below for the appropriate maintenance intervals.

Severe driving conditions include:

- A: Repeated short distance driving.
- B: Driving in dusty conditions.
- C: Driving in severe cold weather.
- D: Driving in areas using road salt or other corrosive materials.
- E: Driving in rough and/or muddy roads.
- F: Towing a trailer.

R = Replace I = Inspect: After inspection, clean, adjust, fill up, repair or replace if necessary.

Condition	Maintenance Item	Operation	Interval
A B • • F	Engine oil and oil filter	R	Every 5,000 km (3,000 miles) or 6 months
• • • • F	Transmission oil	R	Every 20,000 km (12,000 miles) or 12 months
• B • • E •	Air cleaner element	R	Every 20,000 km (12,000 miles) or 12 months
A B • D E F	Front brake discs and calipers	I	Every 10,000 km (6,000 miles) or 6 months
• B C • E •	Power steering system	I	Every 10,000 km (6,000 miles) or 6 months

## Fuel and Emissions

### System Description

Electrical Connections ..... 11-2

### Troubleshooting

Self-diagnostic Procedures ..... 11-4

### Fuel Supply System

Fuel Injectors ..... 11-5

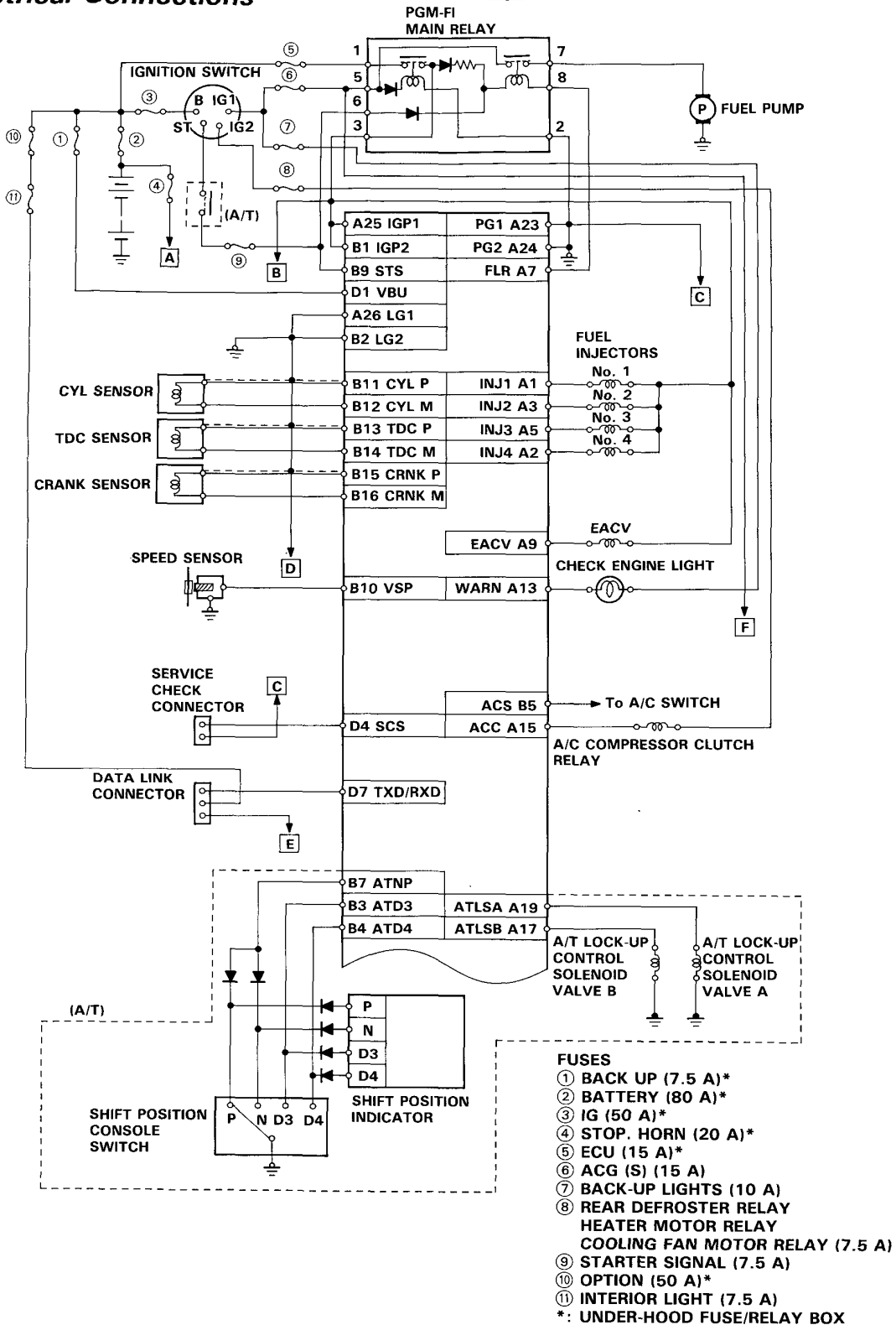


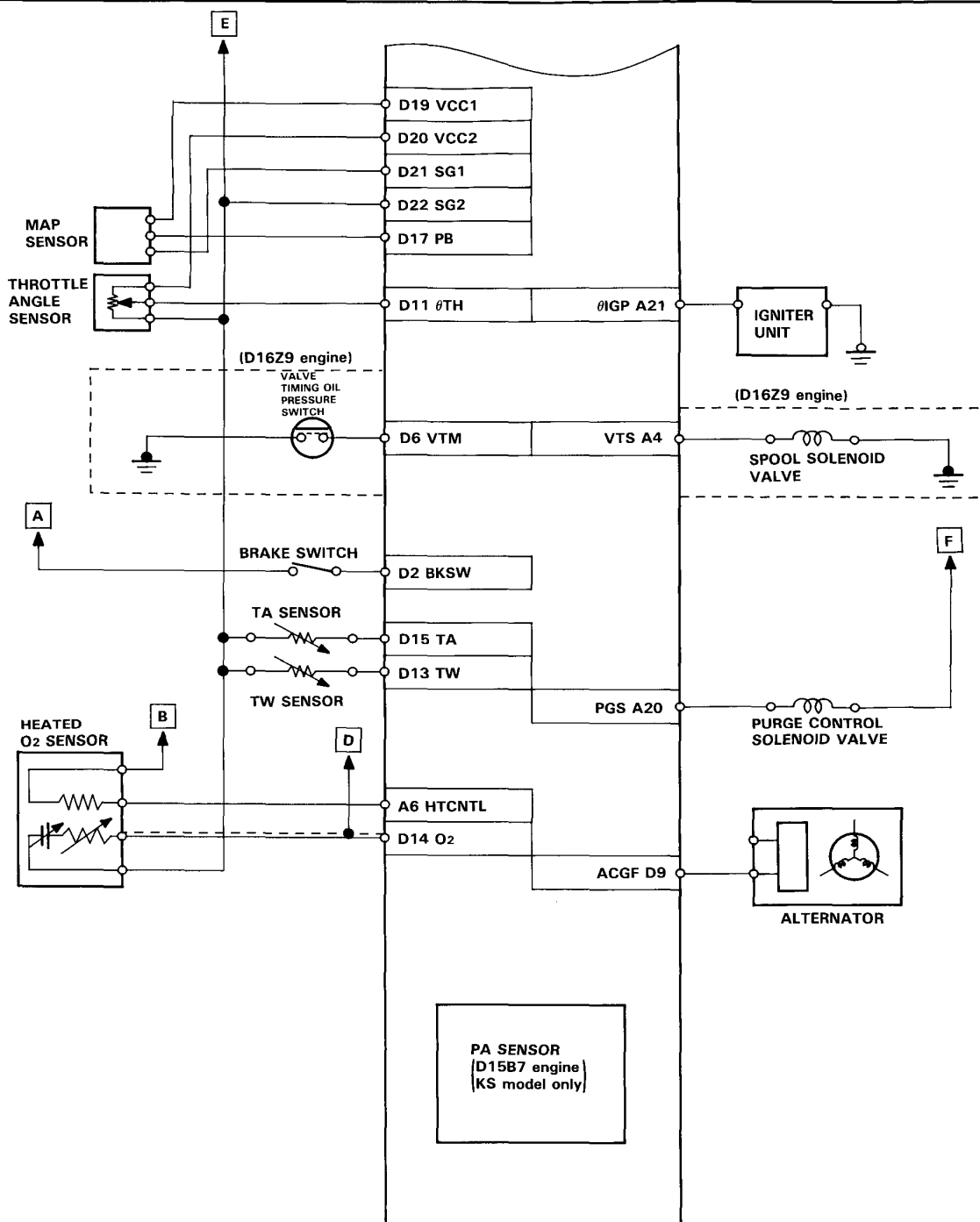
### Outline of Model Changes

- The Coupe model has been added, and changed following:
  - D16Z9 engine has been added for KG model.
  - D15B7 engine has been added for KG, KS, KE model.

# System Description

## Electrical Connections





A1	A2	A3	A7	A9	A11	A13	A15	A17	A19	A21	A23	A25	B1	B3	B5	B7	B9	B11	B13	B15	D1	D3	D5	D7	D9	D11	D13	D15	D17	D19	D21
○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
A2	A4	A6	A8	A10	A12	A14	A16	A18	A20	A22	A24	A26	B2	B4	B6	B8	B10	B12	B14	B16	D2	D4	D6	D8	D10	D12	D14	D16	D18	D20	D22

TERMINAL LOCATION

# Troubleshooting

## Self-diagnostic Procedures

SELF-DIAGNOSIS INDICATOR BLINKS	SYSTEM INDICATED	BASE MANUALS OR PAGE	
		D16Z9 engine	D15B7 engine
0	ECU	3	3
1	OXYGEN SENSOR	3	3
3	MANIFOLD ABSOLUTE PRESSURE (MAP SENSOR)	3	3
5		3	3
4	CRANK ANGLE (CRANK SENSOR)	1	1
6	COOLANT TEMPERATURE (TW SENSOR)	1	1
7	THROTTLE ANGLE	2	2
8	TDC POSITION (TDC SENSOR)	1	1
9	No. 1 CYLINDER POSITION (CYL SENSOR)	1	1
10	INTAKE AIR TEMPERATURE (TA SENSOR)	1	1
13	ATMOSPHERIC PRESSURE (PA SENSOR)	X	3 (KS model)
			X (Except KS model)
14	ELECTRONIC AIR CONTROL (EACV)	1	1
15	IGNITION OUTPUT SIGNAL	3	3
16	FUEL INJECTOR	X	11-5 (KS model)
			X (Except KS model)
17	VEHICLE SPEED SENSOR	1	1
19	A/T LOCK-UP CONTROL SOLENOID VALVE A/B	2	2
21	SPOOL SOLENOID VALVE	1	X
22	VALVE TIMING OIL PRESSURE SWITCH	1	X
41	OXYGEN SENSOR HEATER	1	1
43	FUEL SUPPLY SYSTEM	3	3

1: Refer to Code No. 62SR300

2: Refer to Code No. 62SR320

3: Refer to Code No. 62SR321

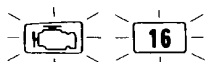
X: Not indicated

- If codes other than those listed above are indicated, verify the code. If the code indicated is not listed above, replace the ECU.
- The Check Engine Light may come on, indicating a system problem when, in fact, there is a poor or intermittent electrical connection. First, check the electrical connections, clean or repair connections if necessary.



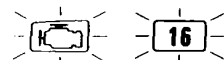
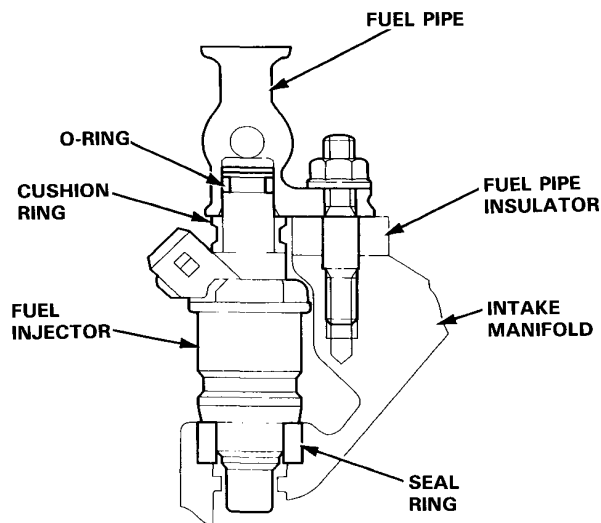
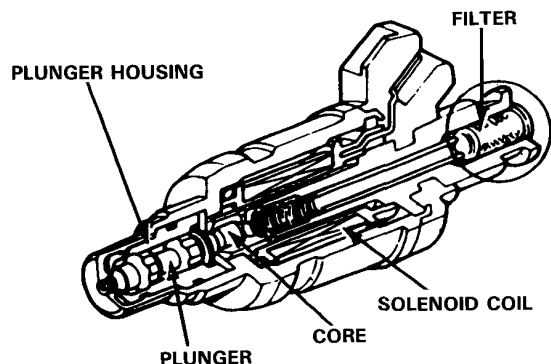
# Fuel Supply System

## Troubleshooting Flowchart — Fuel Injectors (D15B7 engine for KS model)



Self-diagnosis Check Engine Light indicates CODE 16: A problem in the Fuel Injector circuit.

The Fuel Injectors are a solenoid-actuated constant-stroke pintle type consisting of a solenoid, plunger needle valve and housing. When current is applied to the solenoid coil, the valve lifts up and pressurized fuel is injected. Because the needle valve lift and the fuel pressure are constant, the injection quantity is determined by the length of time that the valve is open (i.e., the duration the current is supplied to the solenoid coil). The Fuel Injector is sealed by an O-ring and seal ring at the top and bottom. These seals also reduce operating noise.



- Check Engine Light has been reported on.
- With service check connector jumped, CODE 16 is indicated.

Do the ECU Reset Procedure.

Start the engine and allow it to idle.

NOTE: If engine will not start, it may take 10 seconds of cranking to set the code.

Is the Check Engine Light on and does it indicate CODE 16?

NO

Intermittent failure, system is OK at this time (test drive may be necessary).  
Check for poor connections or loose wires between fuel injectors and ECU.

YES

Start the engine and listen at each fuel injector for a clicking sound.

Turn the ignition switch OFF.

Disconnect the 2P connector from the fuel injector that does not click.

(To page 11-6)

(cont'd)

# Fuel Supply System

## Troubleshooting Flowchart — Fuel Injectors (D15B7 engine for KS model) (cont'd)

(From page 11-5)

Measure resistance between the 2 terminals of fuel injector.

Is there 10–13  $\Omega$ ?

NO

Replace the fuel injector/injectors that are not 10–13  $\Omega$ .

YES

Turn the ignition switch ON.

Measure voltage between YEL/BLK (+) terminal in the 2P connector and body ground.

Is there battery voltage?

NO

Repair open in the YEL/BLK wire between the fuel injector and the PGM-FI main relay.

YES

Turn the ignition switch OFF.

Reconnect the 2P connector to the fuel injector.

Connect the test harness between the ECU and connectors.

Turn the ignition switch ON.

Measure voltage between A23 (–) terminal and following terminal:

- No. 1 fuel injector: A1 (+) terminal.
- No. 2 fuel injector: A3 (+) terminal.
- No. 3 fuel injector: A5 (+) terminal.
- No. 4 fuel injector: A2 (+) terminal.

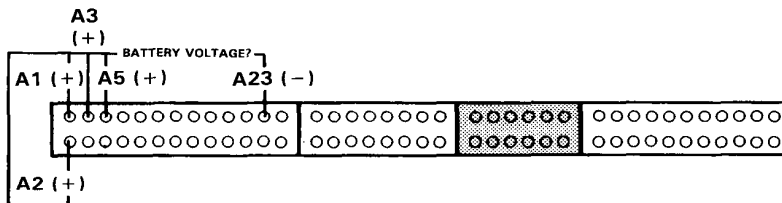
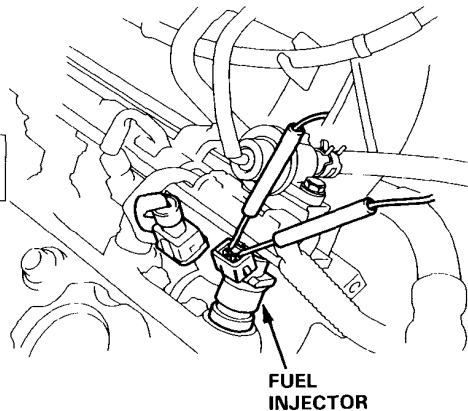
Is there battery voltage?

NO

Repair open in the wire between the ECU (A1, A3, A5 or A2) and the fuel injector.

YES

Substitute a known-good ECU and recheck. If symptom/indication goes away, replace the original ECU.





# Automatic Transmission

Road Test ..... 14-2



**Outline of Model Chanes**

- The road tests have been added for civic coupe.

# Road Test

NOTE: Warm up the engine to operating temperature.

1. Apply parking brake and block the wheels. Start the engine, then move the selector lever to **D<sub>4</sub>** position while depressing the brake pedal. Depress the accelerator pedal, and release it suddenly. Engine should not stall.
2. Repeat same test in **D<sub>3</sub>** position.
3. Shift the selector lever to **D<sub>4</sub>** position and check that the shift points occur at approximate speeds shown. Also check for abnormal noise and clutch slippage.

## D15B7: **D<sub>4</sub>** or **D<sub>3</sub>** Position

### ● Upshift

Throttle Opening	Unit of speed	1st → 2nd	2nd → 3rd	3rd → 4th
Full-closed throttle	Km/h	15 – 19	36 – 40	49 – 53
	mph	9 – 12	22 – 25	30 – 33
3/16 throttle	Km/h	21 – 25	49 – 53	66 – 72
	mph	13 – 16	30 – 33	41 – 45
6/16 throttle	Km/h	26 – 34	60 – 72	83 – 95
	mph	16 – 21	37 – 47	52 – 59
Full-opened throttle	Km/h	49 – 54	91 – 99	143 – 153
	mph	31 – 34	57 – 62	89 – 95

### ● Downshift

Throttle Opening	Unit of speed	4th → 3rd	3rd → 2nd	2nd → 1st
Full-closed throttle	Km/h	—	29 – 33	9 – 13
	mph	—	18 – 21	6 – 8
Full-opened throttle	Km/h	120 – 131	83 – 90	40 – 44
	mph	75 – 81	52 – 56	25 – 27

### ● Lock-up

Throttle Opening	Unit of speed	<b>D<sub>4</sub></b> Position		<b>D<sub>3</sub></b> Position	
		Lock-up ON	Lock-up OFF	Lock-up ON	Lock-up OFF
Full-closed throttle	Km/h	24 – 27	23 – 26	97 – 103	92 – 98
	mph	15 – 17	14 – 16	60 – 64	57 – 61
6/16 throttle	Km/h	107 – 113	87 – 93	107 – 113	92 – 98
	mph	66 – 70	54 – 58	66 – 70	57 – 61
Full-opened throttle	Km/h	141 – 147	136 – 142	132 – 138	126 – 132
	mph	88 – 91	85 – 88	82 – 86	78 – 82



# D16Z9: **D<sub>4</sub>** or **D<sub>3</sub>** Position

## ● Upshift

Throttle Opening	Unit of speed	1st → 2nd	2nd → 3rd	3rd → 4th
Full-closed throttle	Km/h	15 – 19	36 – 40	49 – 53
	mph	9 – 12	22 – 25	30 – 33
3/16 throttle	Km/h	22 – 26	52 – 56	67 – 73
	mph	14 – 16	32 – 35	42 – 45
6/16 throttle	Km/h	27 – 35	65 – 77	86 – 98
	mph	17 – 22	40 – 48	53 – 61
Full-opened throttle	Km/h	55 – 60	104 – 112	151 – 162
	mph	34 – 37	65 – 70	94 – 101

## ● Downshift

Throttle Opening	Unit of speed	4th → 3rd	3rd → 2nd	2nd → 1st
Full-closed throttle	Km/h	—	29 – 33	9 – 13
	mph	—	18 – 21	6 – 8
Full-opened throttle	Km/h	130 – 141	93 – 100	38 – 43
	mph	81 – 87	58 – 62	24 – 27

## ● Lock-up

Throttle Opening	Unit of speed	<b>D<sub>4</sub></b> Position		<b>D<sub>3</sub></b> Position	
		Lock-up ON	Lock-up OFF	Lock-up ON	Lock-up OFF
Full-closed throttle	Km/h	24 – 27	23 – 26	97 – 103	92 – 98
	mph	15 – 17	14 – 16	60 – 64	57 – 61
6/16 throttle	Km/h	107 – 113	87 – 93	107 – 113	92 – 98
	mph	66 – 70	54 – 58	66 – 70	57 – 61
Full-opened throttle	Km/h	151 – 157	145 – 151	132 – 138	127 – 133
	mph	94 – 98	90 – 94	82 – 86	79 – 83

## Steering

Special Tools .....	17-2
Component Location	
Index .....	17-3
System Description	
Fluid Flow Diagram .....	17-4
Steering Pump .....	17-5
Steering Gearbox .....	17-7
Troubleshooting	
General Troubleshooting .....	17-9
Noise and Vibration .....	17-13
Fluid Leaks .....	17-15
Inspection and Adjustment	
Steering Operation .....	17-17
Power Assist Check .....	17-17
Steering Linkage and Gearbox .....	17-18
Rack Guide Adjustment .....	17-19
Fluid Replacement .....	17-19
Fluid Leakage Inspection .....	17-20
Power Steering Hoses, Pipes	
Replacement .....	17-21
Steering Gearbox	
Disassembly .....	17-22
Reassembly .....	17-27



---

### Outline of Model Changes

- The rotary-valve-type power steering gearbox for LHD type has been added (POLTUGAL model only).

# Special Tools

Ref. No.	Tool Number	Description	Qty	Page Reference
①	07GAF – PH70100	Pilot Collar	1	17-26
②	07GAG – SD40100	Piston Seal Ring Guide	1	17-31
③	07GAG – SD40200	Piston Seal Ring Sizing Tool	1	17-31
④	07GAG – SD40400	Cylinder End Seal Guide	1	17-32
⑤	07MAG – SL00100	Ball Joint Boot Clip Guide	1	17-29
⑥	07NAD – SR30101	Driver	1	17-24
⑦	07NAD – SR30200	Attachment, 23 x 25 mm	1	17-24
⑧	07NAG – SR30200	Rack Remover	1	17-24, 32
⑨	07NAG – SR30900	Valve Seal Ring Sizing Tool	1	17-28
⑩	07746 – 0010100	Attachment, 32 x 35 mm	1	17-29, 30
⑪	07749 – 0010000	Driver	1	17-29
⑫	07NAA – SR30100	Locknut Wrench, 40 mm	1	17-19
⑬	07974 – 6890801	Cylinder End Seal Slider	1	17-31, 32
⑭	07974 – SA50200	Sleeve Seal Ring Sizing Tool	1	17-29



①



②



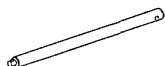
③



④



⑤



⑥



⑦



⑧



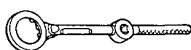
⑨



⑩



⑪



⑫



⑬



⑭

# Component Location

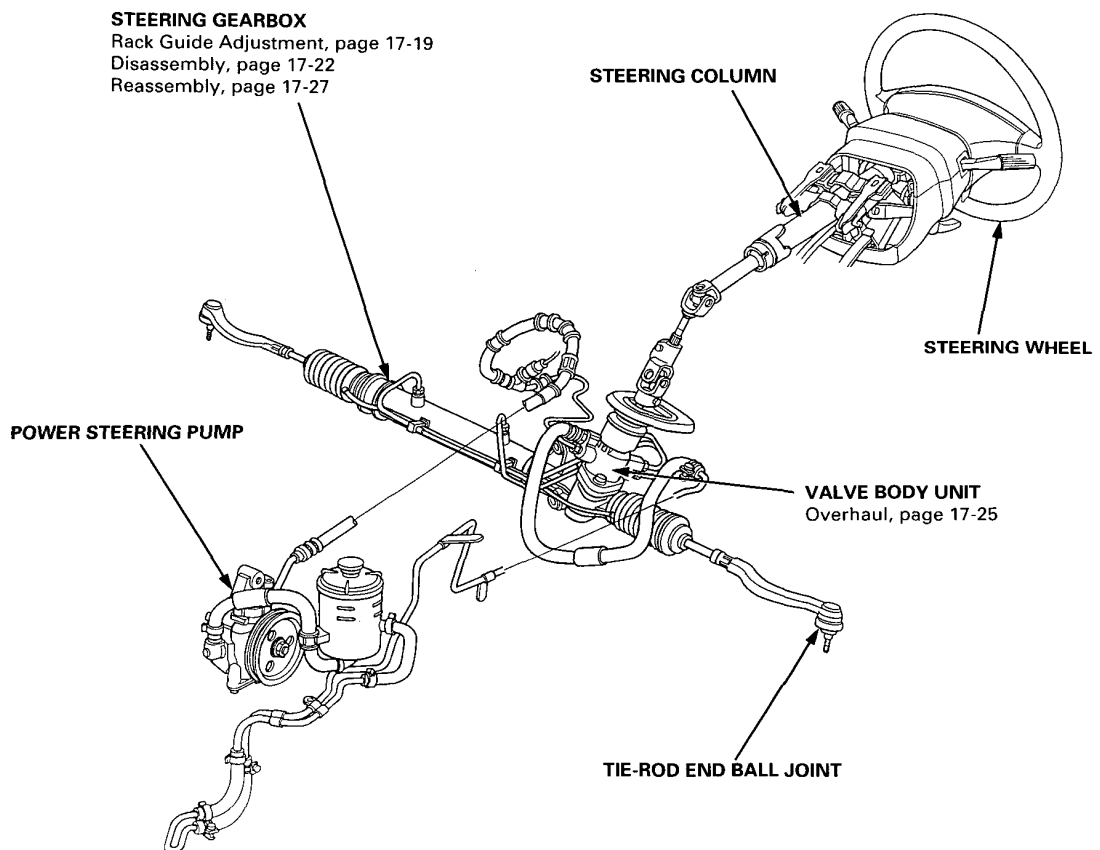


## Index

LHD type, Power Steering:

NOTE:

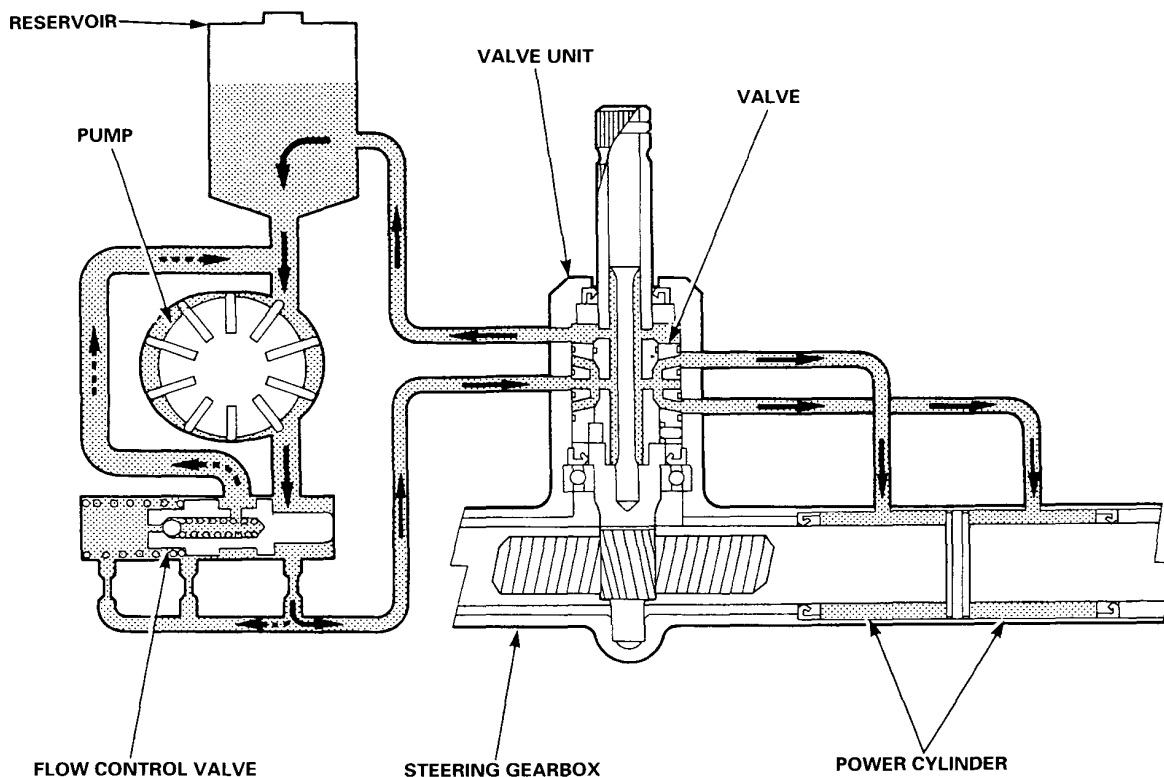
- Before removing the gearbox, remove the ignition key to keep the steering shaft from turning.
- After installing the gearbox, check the wheel alignment and adjust if necessary.



# System Description

## Fluid Flow Diagram

The system is a compact rotary-valve-type power steering, connected to the steering gearbox. The fluid pressure is provided by a vane-type pump which is driven by the engine crank pulley. The amount of fluid and pressure is regulated by the flow control valve built into the pump. The fluid pressure from the pump is delivered to the valve unit around the pinion of the steering gearbox. The valve inside the valve unit controls the hydraulic pressure and changes the direction of the flow. The fluid then flows to the power cylinder, where rack thrust is generated. Fluid returning from the power cylinder flows back to the reservoir, where the fluid is "filtered" and supplied to the pump again.

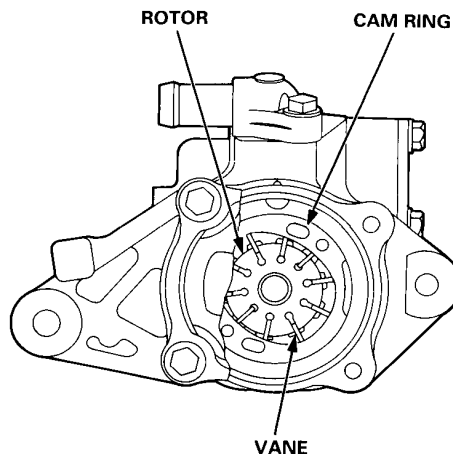
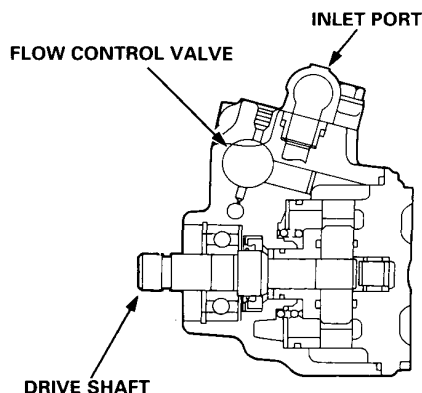




## Steering Pump

### Construction

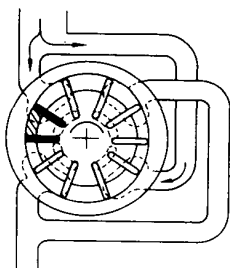
The pump is a vane-type incorporating a flow control valve (with an integrated relief valve) and is driven by a V-belt from the crank pulley. The pump features 10 vanes. Each vane performs two intake/discharge operations for every rotation of the rotor. This means that the hydraulic fluid pressure pulse becomes extremely small during discharge.



### Operation

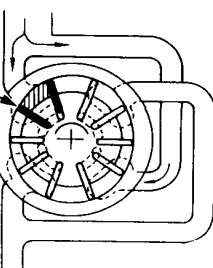
The belt-driven pulley rotates the rotor through the drive shaft. As the rotor rotates, the hydraulic pressure is applied to the vane chamber of the rotor and the vanes will rotate while being pushed onto the inner circumference of the cam ring. The inner circumference of the cam ring has an extended portion with respect to the center of the shaft, so the rollers move downward in the axial direction as the carrier rotates. As a result of this roller movement, the internal volume of the vane chamber will change, resulting in fluid intake and discharge.

#### START OF FLUID INTAKE:



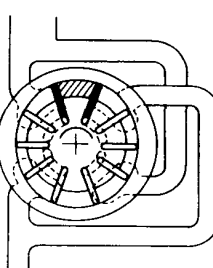
The vanes are pushed onto the inner circumference of the cam ring.

#### FLUID INTAKE:



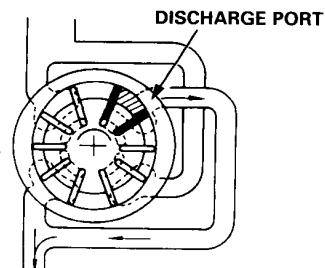
The volume of the vane chamber increases so that fluid is sucked in.

#### FLUID MOVEMENT:



The sucked-in fluid moves toward the discharge port.

#### FLUID DISCHARGE:



As the vanes return to their original position on the inner side, the volume of the vane chamber decreases so the fluid is discharged from the discharge port.

(cont'd)



# System Description

## Steering Pump (cont'd)

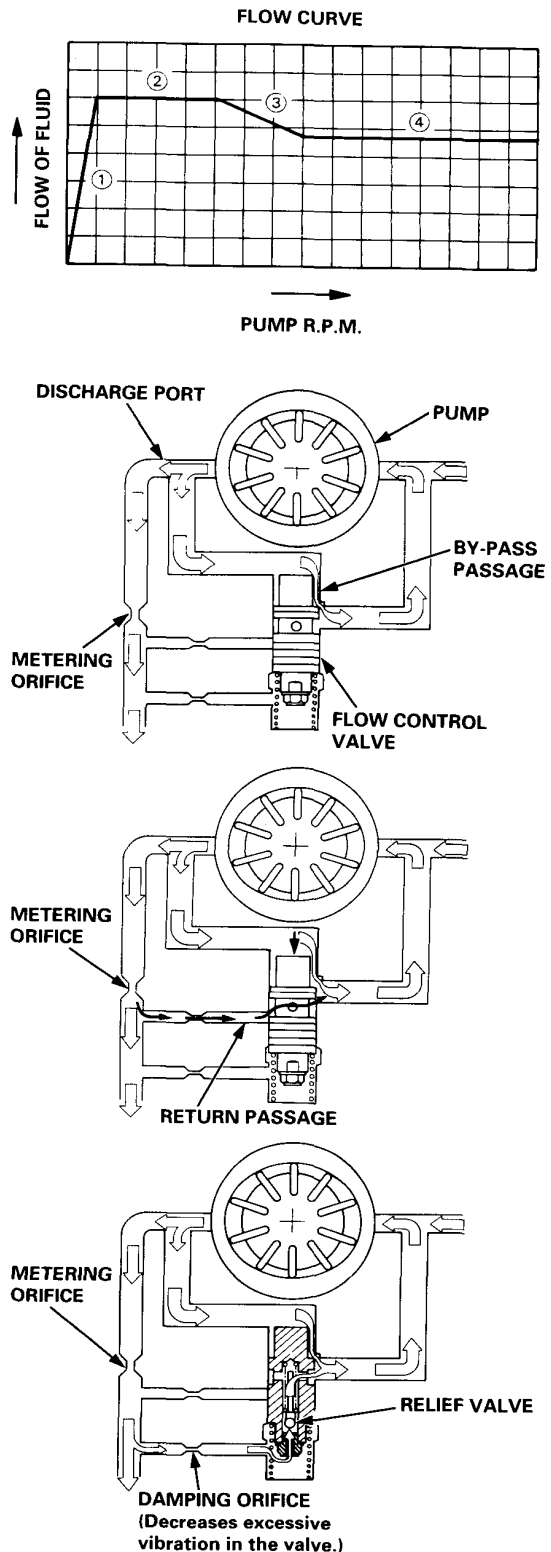
### Flow Control

The flow control valve in the pump performs the following steps ① through ④ to control the flow of fluid, i.e., to increase the discharge volume when engine speed is low and to decrease it when the engine speed increases. The assistance thrust of the steering gearbox changes in compliance with the change in the discharge volume.

- ① When the engine starts, fluid discharged from the discharge port starts to run through the metering orifice in the pump. The discharge volume increases as the engine speed increases.
- ② As the flow has already been regulated by the metering orifice when the engine speed is at or near the idle speed, a constant and regulated amount of fluid is discharged until the engine speed reaches the middle speed range. As the engine speed increases, the pressure difference between the ends of the metering orifice increases. A pressure difference is created between the top and bottom ends of the flow control valve, too, pushing the flow control valve to open the by-pass passage. This allows the excess fluid to return to the inlet port preventing pressure at the discharge port from rising excessively.
- ③ As the engine speed continues to increase, the flow control valve is pushed back further. When the engine speed reaches a given speed, the return passage outside the metering orifice is connected to the inlet port, and the opening to the inlet port widens in proportion to the increase in engine speed. This makes part of the fluid regulated by the metering orifice return to the inlet port of the pump; thereby discharged fluid from the pump is decreased slowly by this amount.
- ④ The orifice in the return passage regulates and maintains the flow of fluid discharged from the pump at a given level until the engine speed reaches the high speed range.

### Pressure Relief

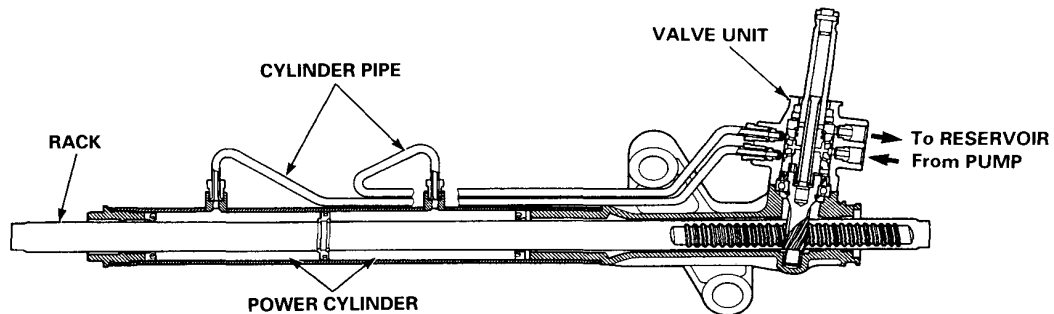
Pressure outside of the metering orifice is directed to the bottom of the flow control valve. When the pressure builds up, the relief valve in the flow control valve opens to relieve the pressure. As the flow control valve is pushed back by the pressure difference this time, the flow of fluid in the bypass passage increases, controlling the pressure outside the metering orifice. The above operations are repeated to provide constant discharge pressure from the pump.





## Steering Gearbox

The rack-and-pinion type steering gearbox has a valve unit incorporated with the pinion to control the steering fluid pressure. Steering fluid from the pump is regulated by a rotary valve in the valve unit and is sent through the cylinder pipe to the power cylinder, where hydraulic pressure is applied. The steering fluid in the other side of the power cylinder returns through the cylinder pipe and valve unit to the reservoir.



### Valve Unit

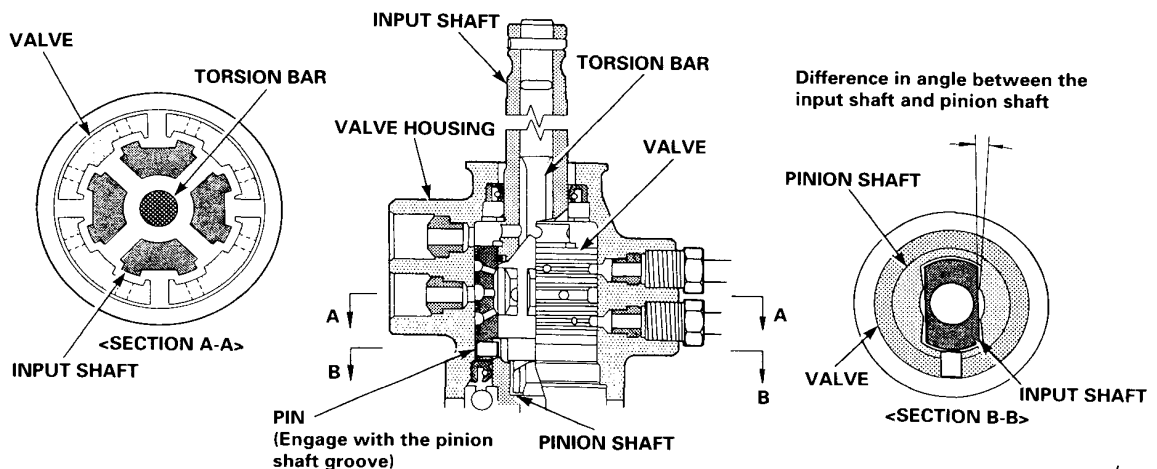
Inside the valve unit is the valve, which is coaxial with the pinion shaft, and controls the steering fluid pressure. The valve housing is connected with the fluid pipe from the pump, return pipe to the pump, and the two cylinder pipes from the respective power cylinder.

The pinion shaft is double – structured with the input shaft connected to the pinion gear, both of which are interconnected with the torsion bar.

The pin inserted in the valve and the pinion shaft groove engage; this allows the pinion shaft to rotate together with the valve.

Because of this construction, the difference in angle in the circumferential direction between the input shaft and the valve becomes larger according to the torsional strength of the pinion or steering resistance. However, maximum torsion between the shafts is regulated by the engaged splines of the shafts at the pin engagement section to hold the torsion bar within the set value.

This allows the steering system to function as an ordinary rack-and-pinion type steering if the steering fluid is not pressurized because of a faulty pump.



(cont'd)

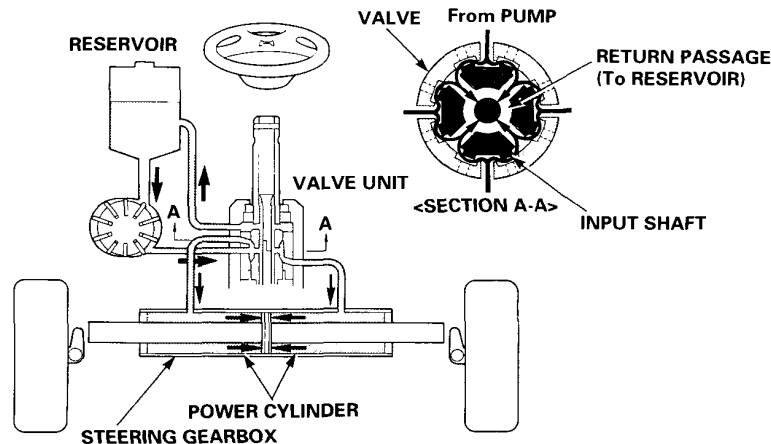
# System Description

## Steering Gearbox (cont'd)

### Pressure Control

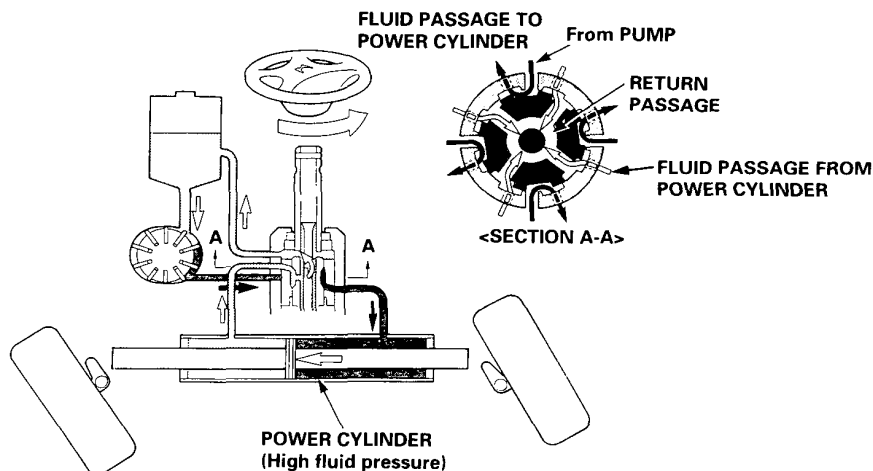
Low assist at higher speeds:

When steering resistance is low, such as when driving at high speeds, or when driving straight ahead, the input shaft is near or in the neutral position, so there is little or no flow to any of the power cylinder orifices. Most of the feed pressure from the pump is bypassed to the reservoir. Because of this, the pressure stays the same in both sides of the power cylinder, resulting in low or no assist.



High assist at lower speeds:

When steering resistance is high, such as when driving at low speed, or when turning the wheel with the car stopped, the difference in angle created between the input shaft and the valve opens the fluid passage on one side, and closes the fluid passage on the other side, at each pair of orifices. The fluid pressure increases in the side of the power cylinder fed by the larger fluid passage. This increased pressure pushes on the rack piston, allowing the steering wheel to be turned with light effort. On the other side of the power cylinder, the return passage opens allowing the steering fluid to return through the input shaft to the reservoir. The fluid passages to the power cylinder automatically change in size, increasing as the steering resistance increases. In other words, the passages become larger and power assist increases when the steering effort would normally be high, (for example, when parking or making low speed turns), and the passages become smaller and power assist decreases when the steering effort would normally be low, (for example, when driving at high speeds or straight ahead).



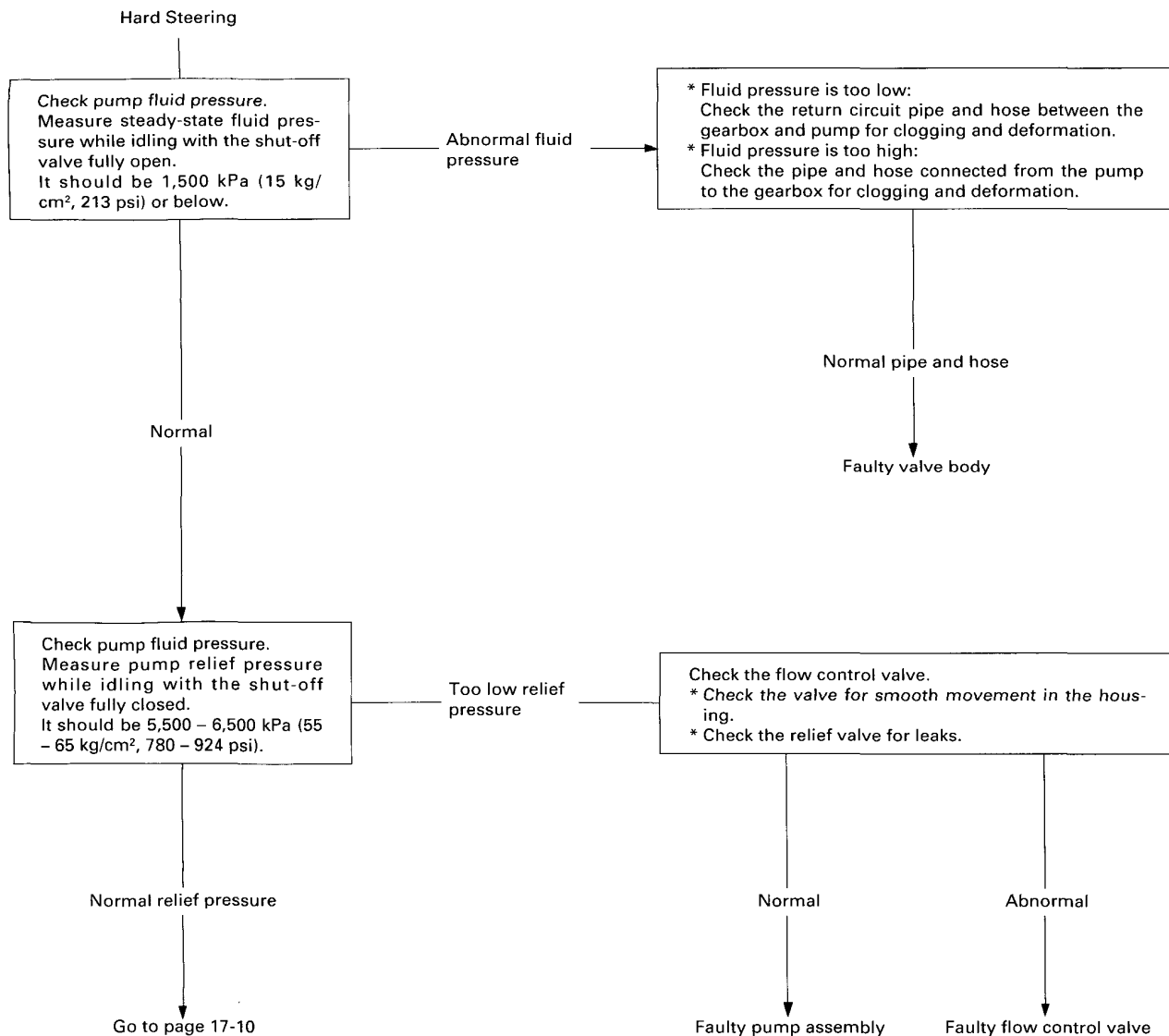


# Troubleshooting

## General Troubleshooting

Check the following before you begin:

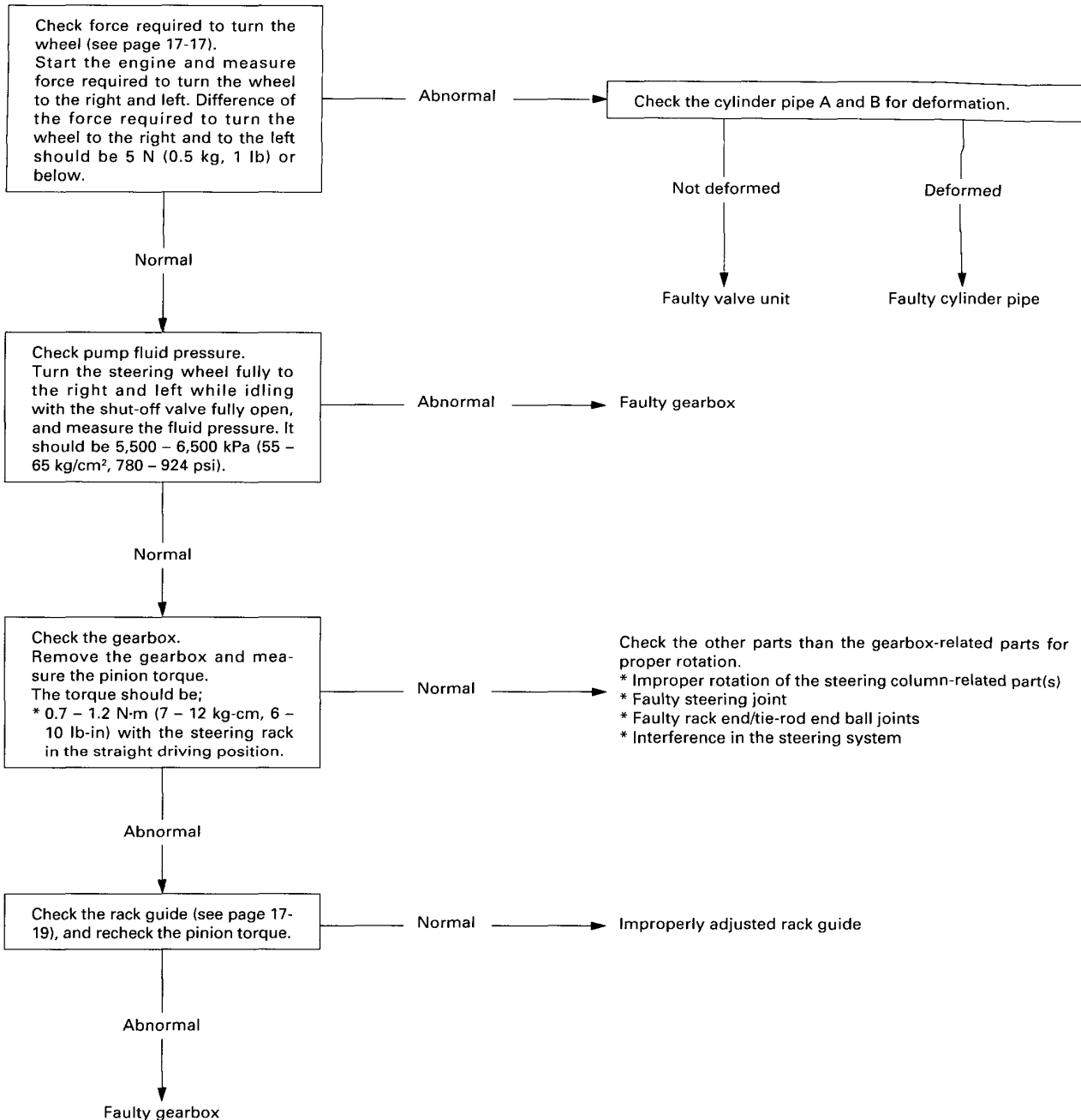
- Has the suspension been modified in a way that would affect steering?
- Are tire sizes and air pressure correct?
- Is the steering wheel original equipment or equivalent?
- Is the power steering pump belt properly adjusted?
- Is steering fluid reservoir filled to proper level?
- Is the engine idle speed correct and steady?



(cont'd)

# Troubleshooting

## General Troubleshooting (cont'd)





Assist (excessively light steering) at high speed.

Check the rack guide proper adjustment (see page 17-19).

If the problem is not corrected by adjusting the rack guide, adjust the front wheel alignment (see section 18).

Shock or vibration when wheel is turned to full lock.

Check the rack guide for proper adjustment (see page 17-19).

Rack guide was backed off excessively.

Adjust.

Rack guide is adjusted properly.

Check the belt for slip and adjust as necessary.

If the problem is not corrected by adjusting the rack guide, replace the gearbox.

Wheel will not return smoothly.

Check the cylinder pipe A and B for deformation.

If either one or both of the cylinder pipe A and B is/are deformed, replace.

If the cylinder pipe A and B are normal, remove the gearbox from the frame and measure the pinion torque on the gearbox.

It should be 0.7 – 1.2 N·m (7 – 12 kg·cm, 6 – 10 lb·in) or below with the steering rack in the straight ahead driving position.

If the measurements are out of specifications, adjust the rack guide.

If the problem is not corrected by adjusting the rack guide, replace the gearbox.

(cont'd)

# Troubleshooting

## General Troubleshooting (cont'd)

Uneven or rough steering.

Improperly adjusted rack guide.

Adjust rack guide (see page 17-19).

If the problem is not corrected by adjusting the rack guide, replace the gearbox.

Belt slipping on pulley.

Adjust belt tension. Replace belt, if necessary.

Idle speed low or erratic.

If the engine stalls when wheel is turned while car is stopped or moving at low speed, adjust idle speed.

Air in reservoir, or check power steering fluid level.

Check power steering fluid level. If level is excessively low, check for leaks in the system. Add fluid to the specified level.

If fluid level is OK, check O-rings and seals on both ends of the pump inlet hose, and the oil pump housing mating surfaces for suction leaks. Replace parts as necessary.

Steering kicks back during wide turns.

Pump belt slipping on pulley (pump stops momentarily).

Adjust belt tension or replace belt.

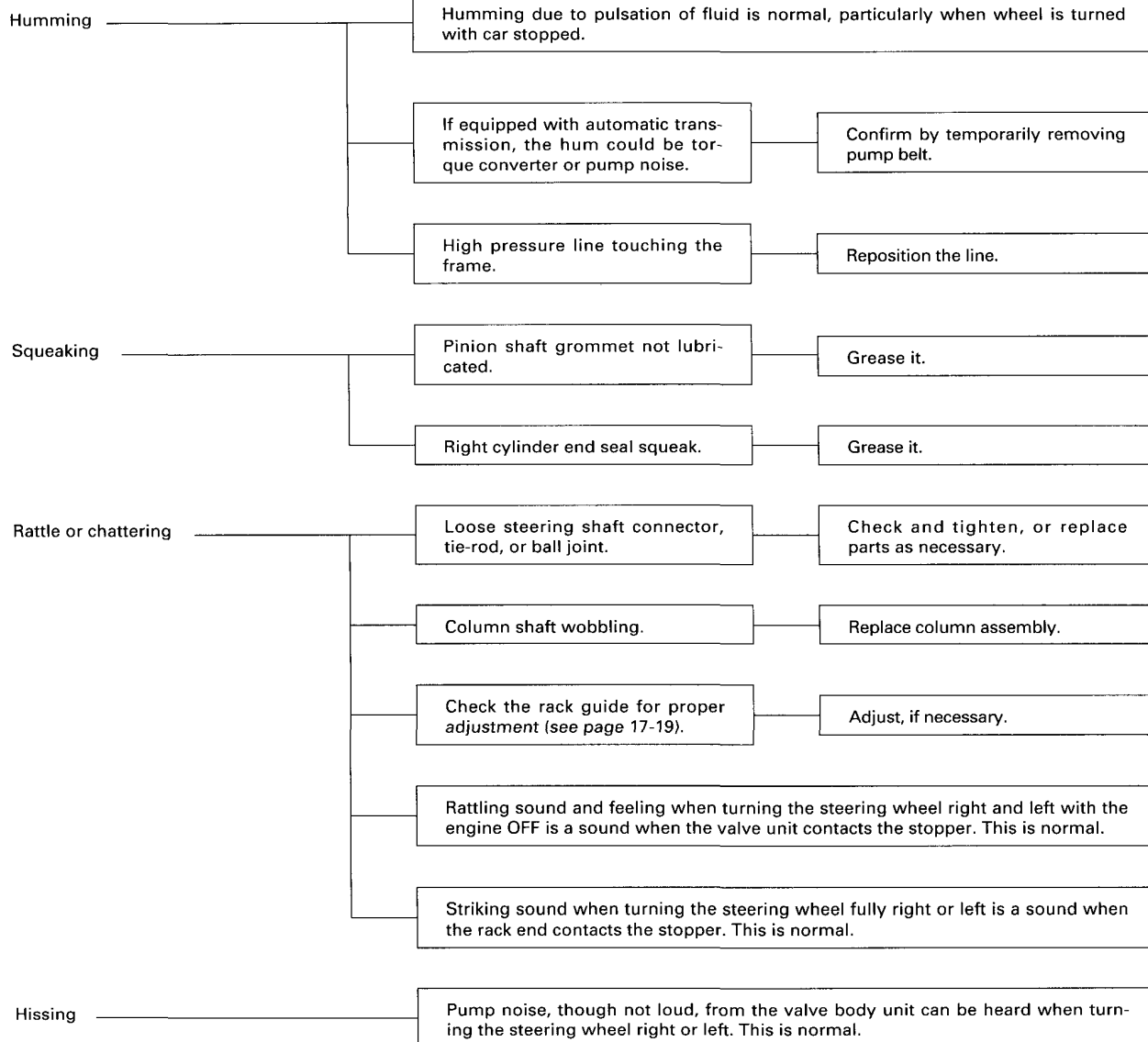
Set the power steering pressure gauge. Close the shut-off valve fully and measure the pump pressure.

Check if pump pressure is within the range 5,500 – 6,500 kPa (55 – 65 kg/cm<sup>2</sup>, 780 – 924 psi) and the gauge needle travel is  $\pm 500$  kPa ( $\pm 5$  kg/cm<sup>2</sup>,  $\pm 71$  psi) or less. Check the flow control valve if the needle travel exceeds  $\pm 500$  kPa ( $\pm 5$  kg/cm<sup>2</sup>,  $\pm 71$  psi). If the flow control valve is normal, replace the pump as an assembly.



## Noise and Vibration

NOTE: Pump noise during first 2 – 3 minutes after starting in cold weather (–20°C, –4°F or colder) is normal.



(cont'd)



# Troubleshooting

## Noise and Vibration (cont'd)

Grating noise from pump

Cavitation caused by air bubbles in fluid.

Check fluid level.  
If low, fill reservoir to proper level, and check for leaks.  
Tighten or replace as necessary.

Check for crushed suction hose or a loose hose clamp allowing air into the system.  
Tighten or replace as necessary.

Pump gear noise

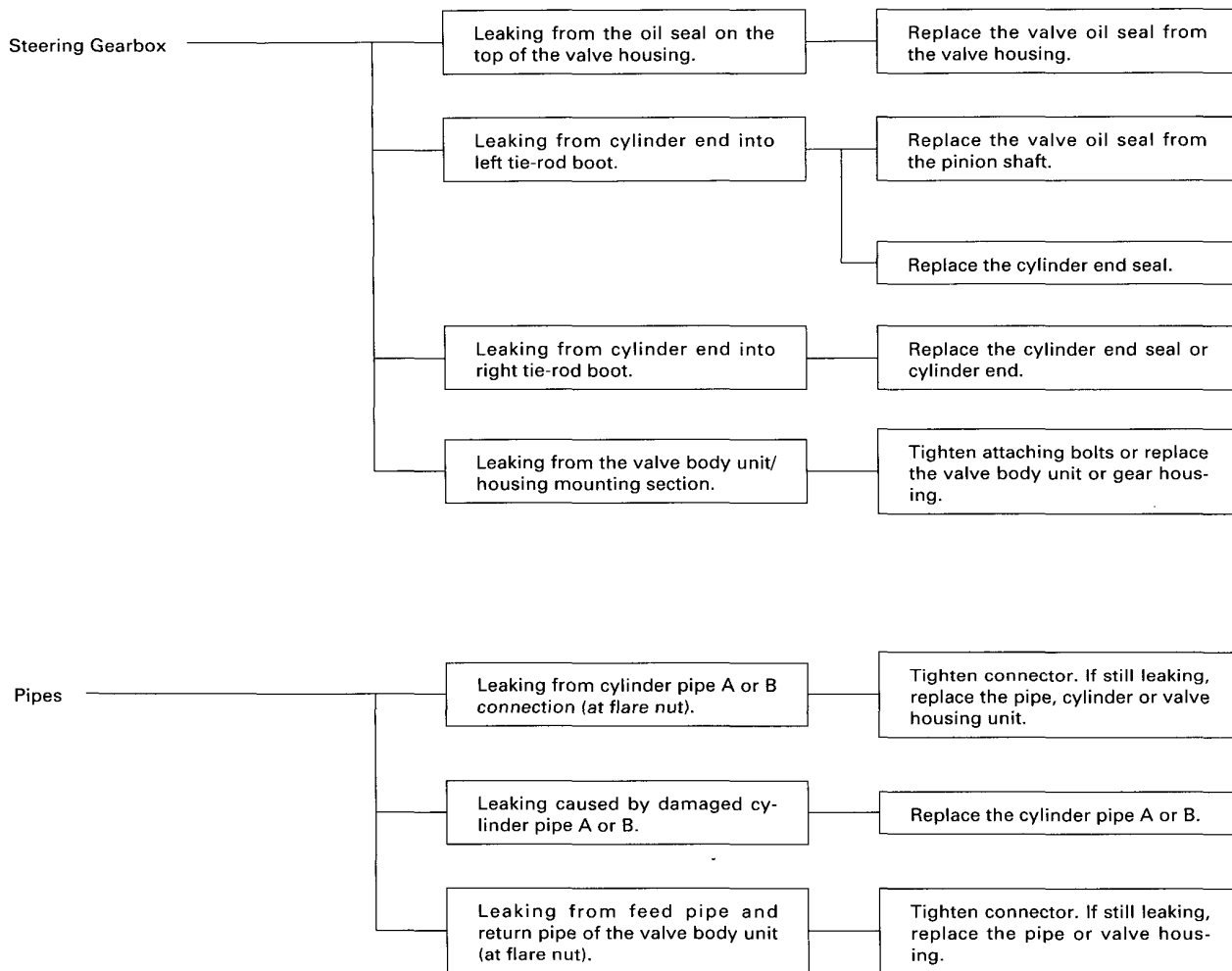
NOTE: Pump noise up to 2 – 3 minutes after starting in cold weather (–20°C, –4°F or colder) is normal.  
Compare pump noise at operating temperature to another car.

If pump noise is abnormally loud, check the pump ball bearing and any parts.



## Fluid Leaks

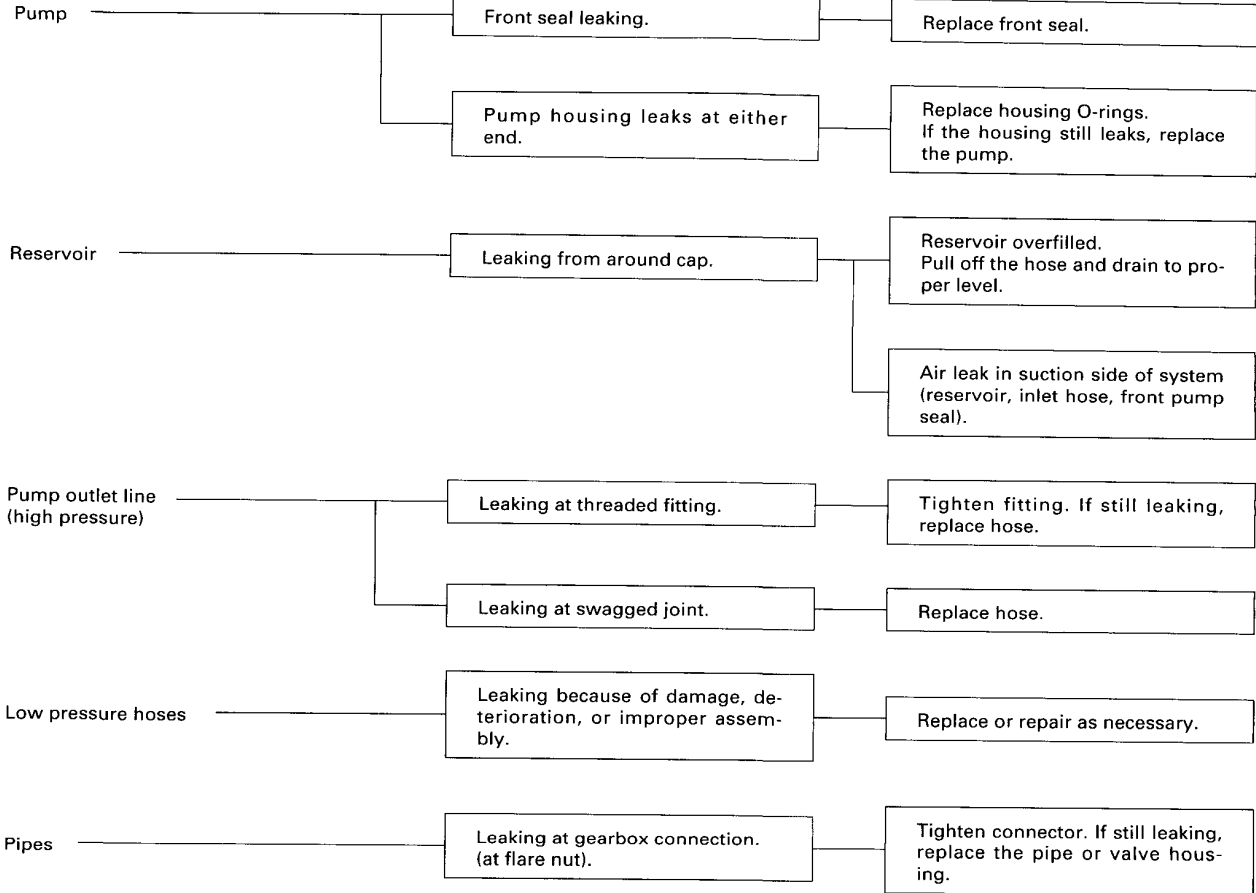
- Check the gearbox assembly for oil leaks carefully. Oil can leak out of various points, depending on location of the faulty oil seals/seal rings. Check the following before removing the gearbox from the frame.



(cont'd)

# Troubleshooting

## Fluid Leaks (cont'd)





# Inspection and Adjustment

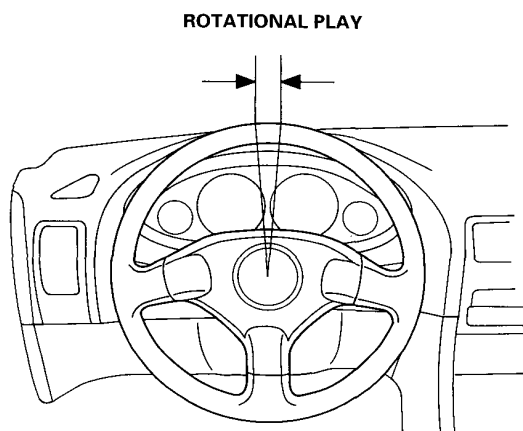
## Steering Operation

Place the front wheels in the straight ahead position and measure the distance the steering wheel can be turned without moving the front wheels.

**ROTATIONAL PLAY: 0 – 10 mm (0 – 0.39 in)**

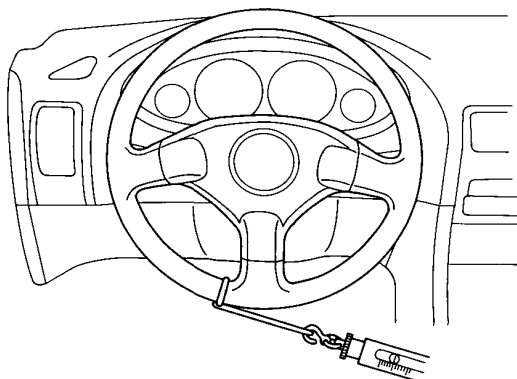
If the play exceeds the service limit, perform rack guide adjustment (see page 17-19).

If the play is still excessive after rack guide adjustment, inspect the steering linkage and gearbox as described on the next page.



## Power Assist Check with Car Parked

1. Check the power steering fluid level (see page 17-19) and pump belt tension.
2. Start the engine, allow it to idle, and turn the steering wheel from lock-to-lock several times to warm up the fluid.
3. Attach a spring scale to the steering wheel. With the engine idling and the car on a clean, dry floor, pull the scale as shown and read it as soon as the tires begin to turn.

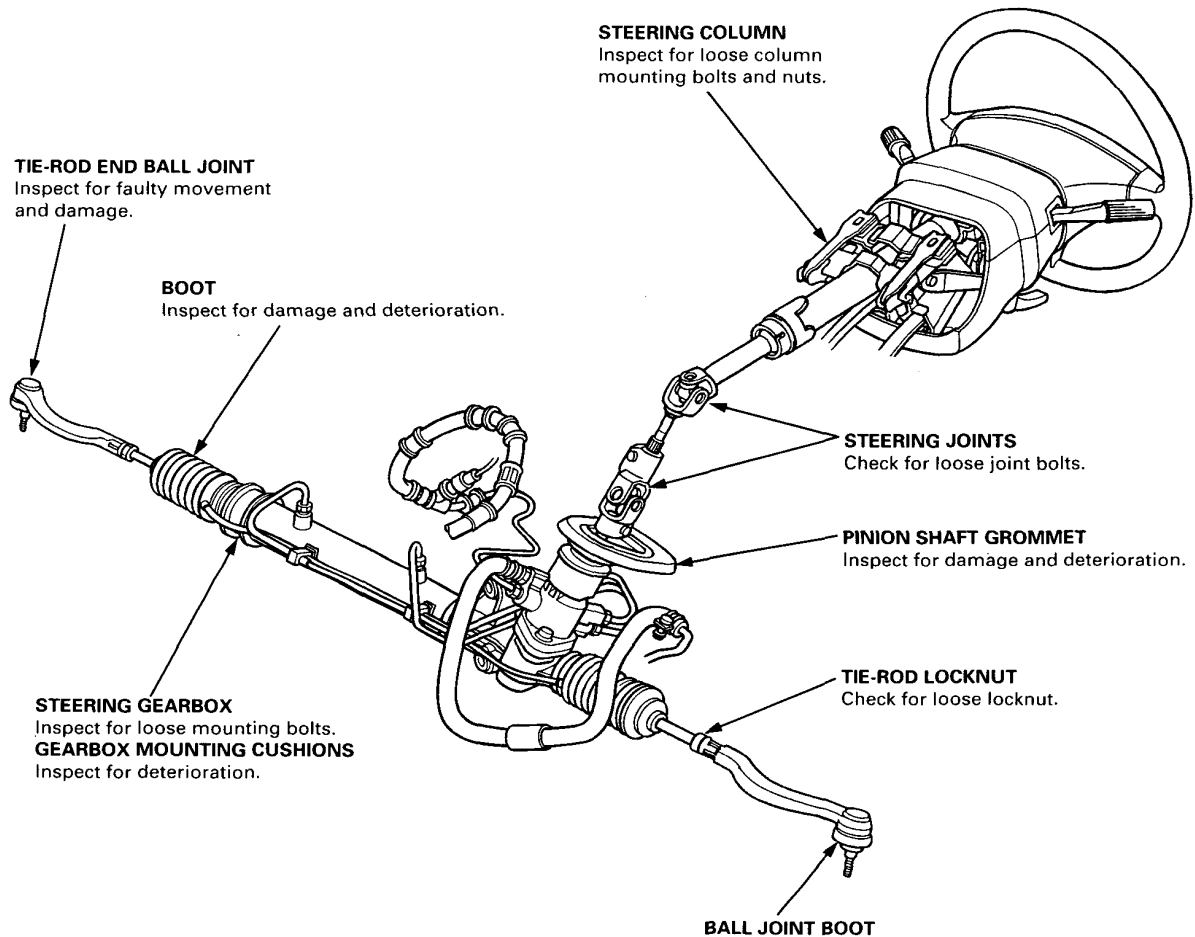


4. The scale should read no more than 31 N (3.1 kg, 6.8 lb). If it reads more, check the gearbox and pump.

# Inspection and Adjustment

## Steering Linkage and Gearbox

NOTE: LHD type is shown.





## Rack Guide Adjustment

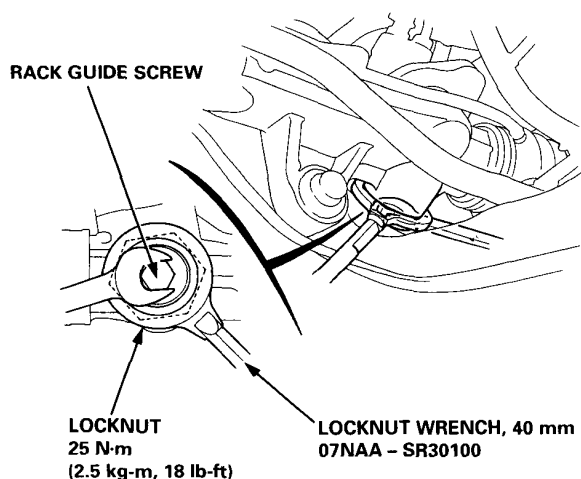
**NOTE:** Perform rack guide adjustment with the wheels in the straight ahead position.

1. Loosen the rack guide screw locknut with the special tool, then loosen the rack guide screw.
2. Tighten the rack guide screw until it compresses the spring and seats against the rack guide, then loosen it.
3. Retighten the rack guide screw to 4 N·m (0.4 kg·m, 2.9 lb·ft), then back it off to specified angle.

**Specified Return Angle:**  $20 \pm 5^\circ$

4. Tighten the locknut while holding the rack guide screw.

**NOTE:** LHD type is shown.



5. Check for tight or loose steering through the complete turning travel.
6. Perform following inspections:
  - Steering operation (see page 17-17).
  - Power assist with car parked.

## Fluid Replacement

Check the reservoir at regular intervals, and add fluid as necessary.

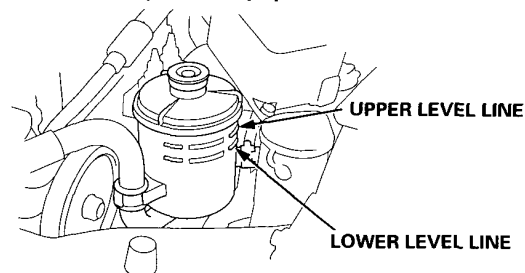
**CAUTION:** Use only Genuine Honda Power Steering Fluid-V. Using other fluids such as ATF or other manufacturer's power steering fluid will damage the system.

### SYSTEM CAPACITY:

1.06 liter (1.16 US. qt, 0.97 Imp.qt)

### RESERVOIR CAPACITY:

0.4 liter (0.42 US. qt, 0.35 Imp.qt)

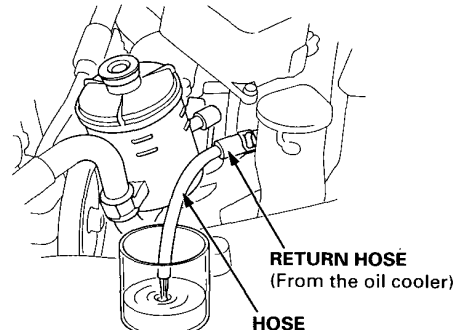


1. Raise the reservoir and disconnect the return hose that goes to the oil cooler.

2. Connect a hose of suitable diameter to the disconnected return hose and put the hose end in a suitable container.

**CAUTION:** Take care not to spill the fluid on the body and parts. Wipe off the spilled fluid at once.

3. Start the engine, let it run at idle, and turn the steering wheel from lock-to-lock several times. When fluid stops running out of the hose, shut off the engine. Discard the fluid.



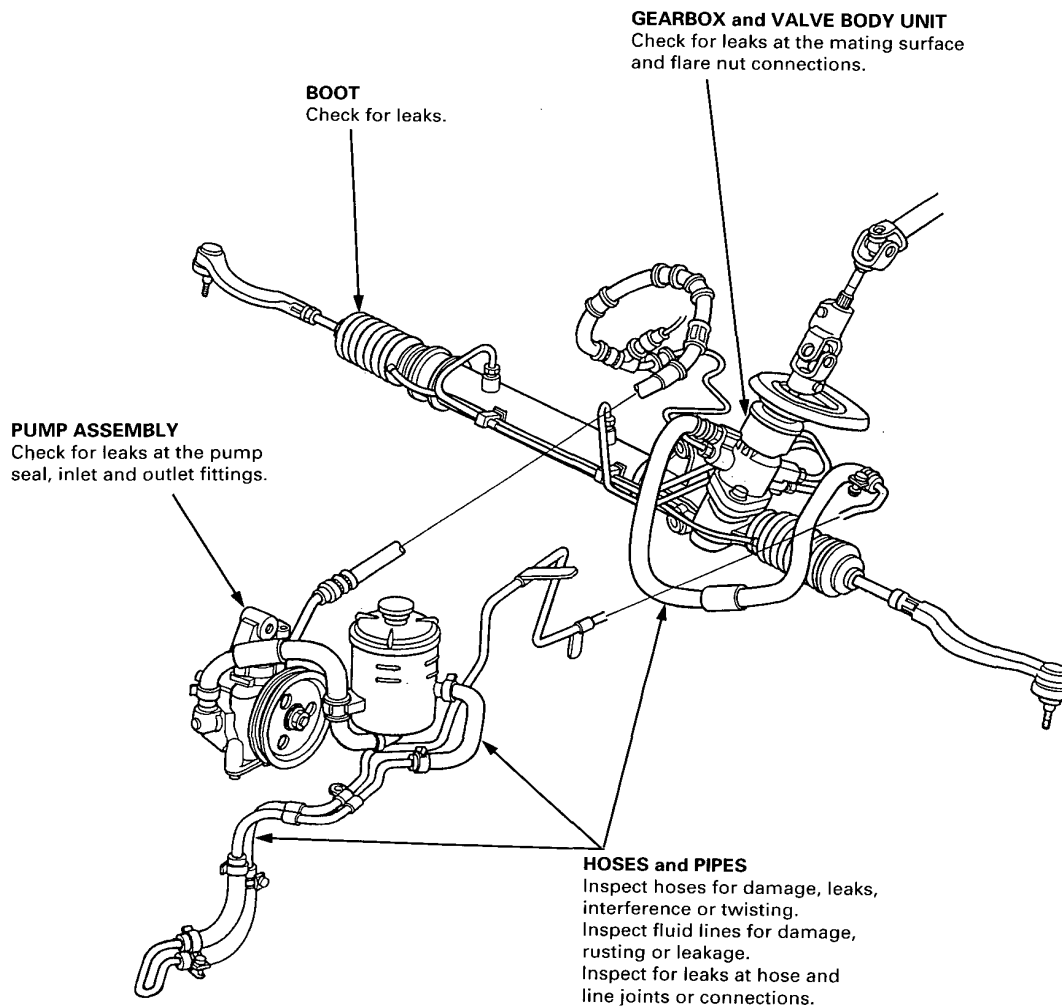
4. Refit the return hose on the reservoir.
5. Fill the reservoir to the upper level line.
6. Start the engine and run it at fast idle, then turn the steering from lock-to-lock several times to bleed air from the system.
7. Recheck the fluid level and add some if necessary.

**CAUTION:** Do not fill the reservoir beyond the upper level line.

# Power Steering Hoses, Pipes

## Fluid Leakage Inspection

NOTE: LHD type is shown.





## Replacement

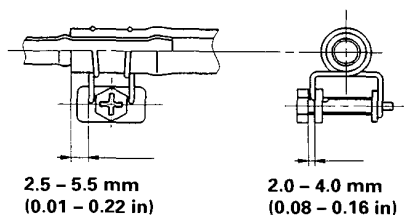
### NOTE:

- LHD type is shown.
- Connect each hose to the corresponding pipe securely until it stops at the stopper on the pipe. Install the clamp or adjustable clamp at the specified distance from the hose end as shown in the drawing.
- Add the power steering fluid to the specified level on the reservoir and check for leaks (see page 17-20).

**CAUTION:** Check all clamps for deterioration and deformation, and replace with new ones if necessary.

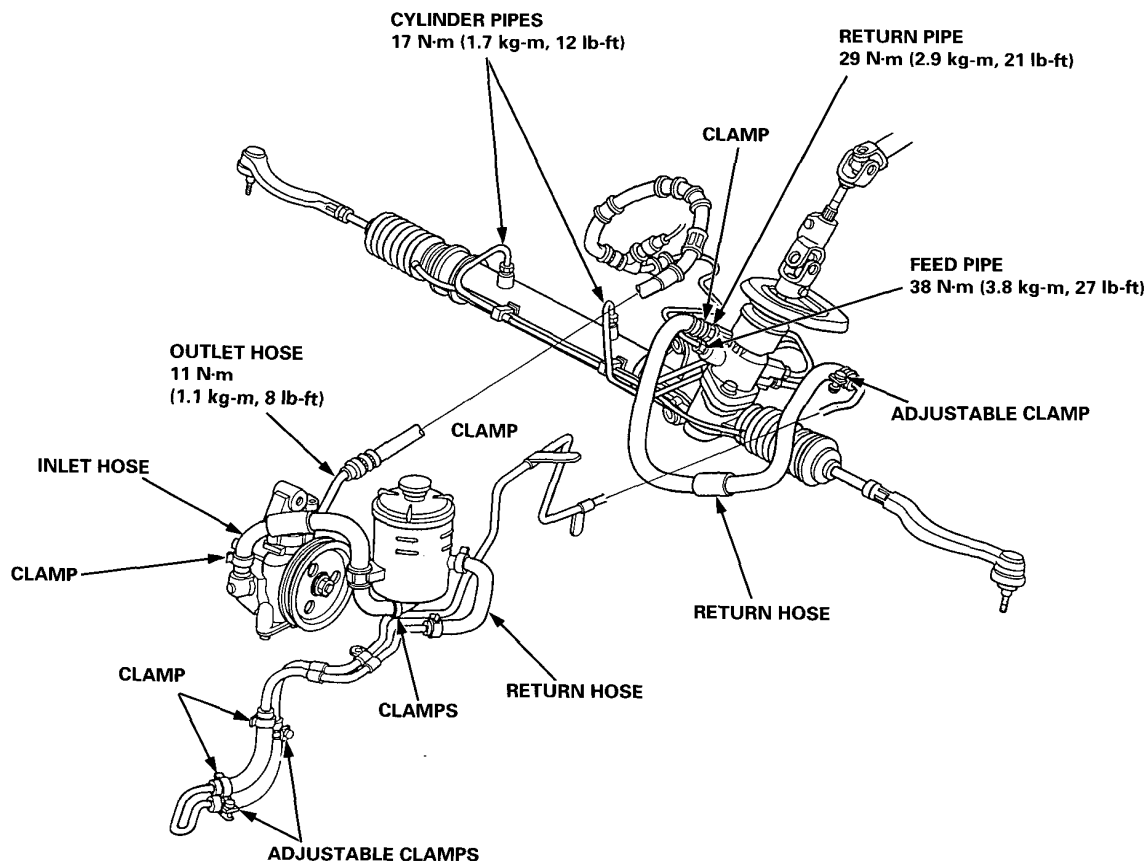
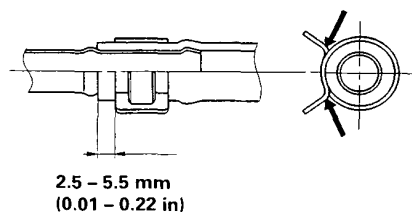
### 〈ADJUSTABLE HOSE CLAMP〉

Put over the pipe until the hose stops at the stopper.



### 〈HOSE CLAMP〉

Put over the pipe until the hose stops at the stopper.





# Steering Gearbox

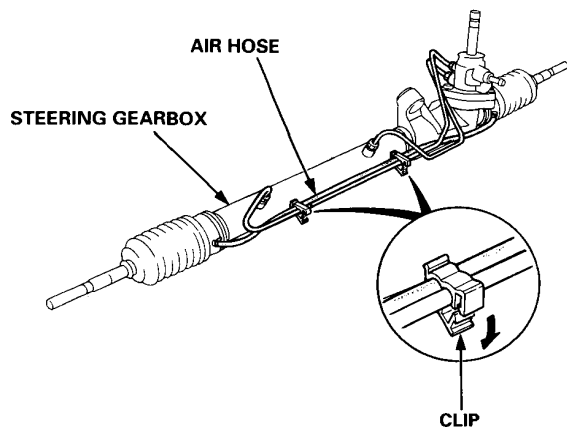
## Disassembly

### Steering Rack Disassembly

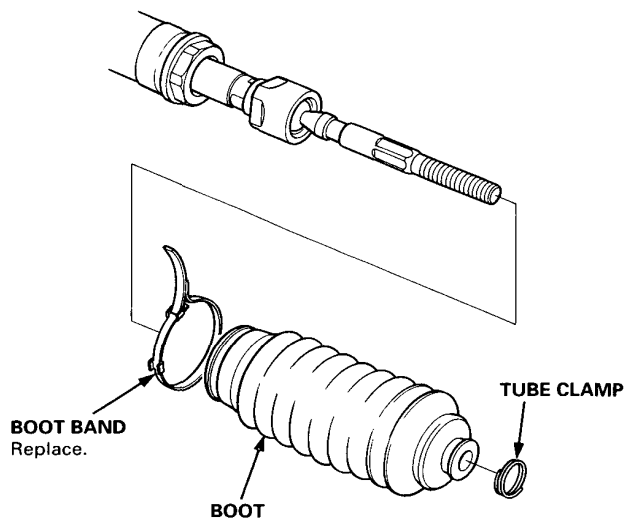
#### NOTE:

- LHD type is shown.
- Before disassembling the gearbox, wash it off with solvent and a brush.
- Do not dip seals and O-rings in solvent.

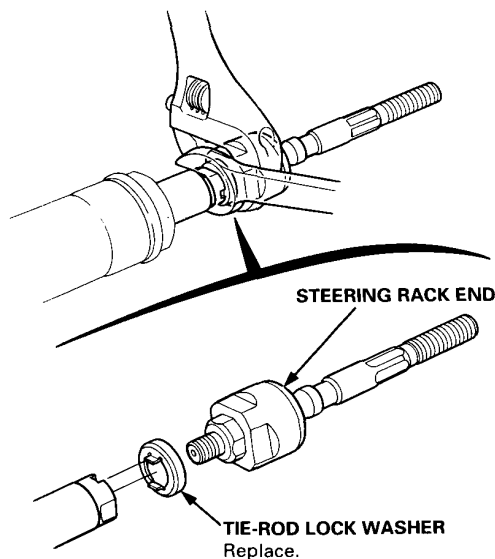
1. Remove the steering gearbox.
2. Remove the air hose and clips.
3. Remove the tie-rod end and locknut.



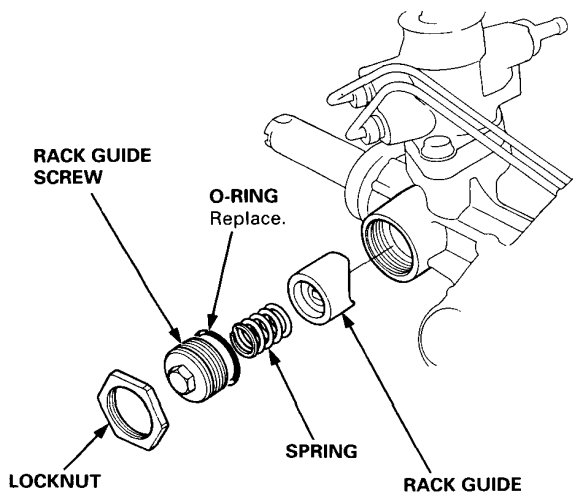
4. Remove the boot bands and tube clamps. Pull the boots away from the ends of the gearbox.



5. Hold the steering rack with a wrench and unscrew the rack end with a wrench.

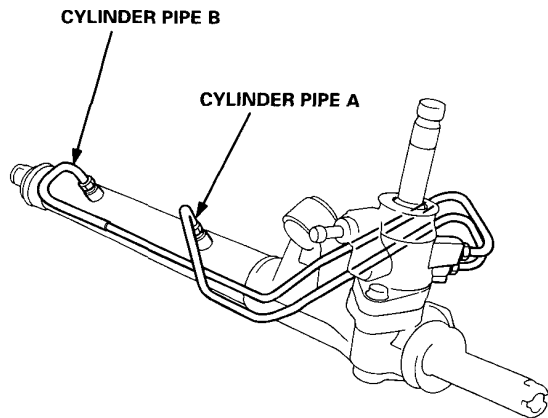


6. Loosen the locknut and remove the rack guide screw.
7. Remove the spring and rack guide from the gear housing.

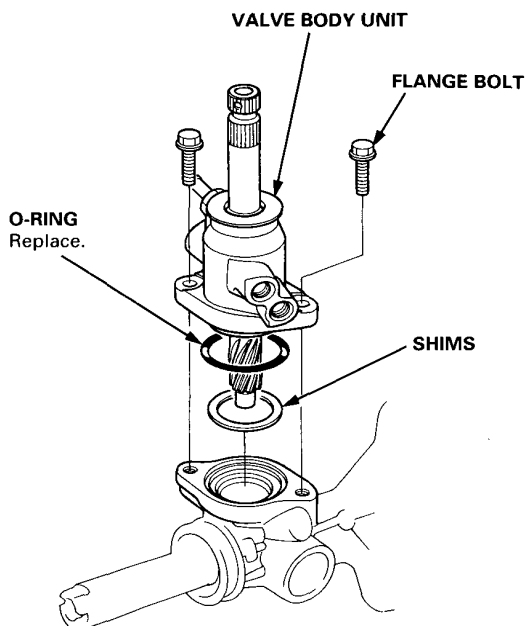




8. Remove the cylinder pipe A and B from the gearbox.
9. Drain the fluid from the cylinder fittings by moving the steering rack back and forth.

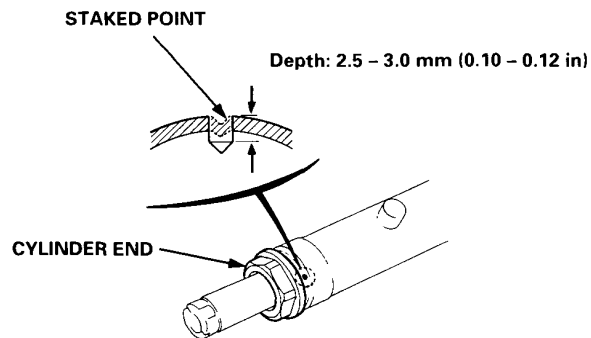


10. Remove the two flange bolts, then remove the valve body unit from the gearbox. (See page 17-25 for valve body unit disassembly.)

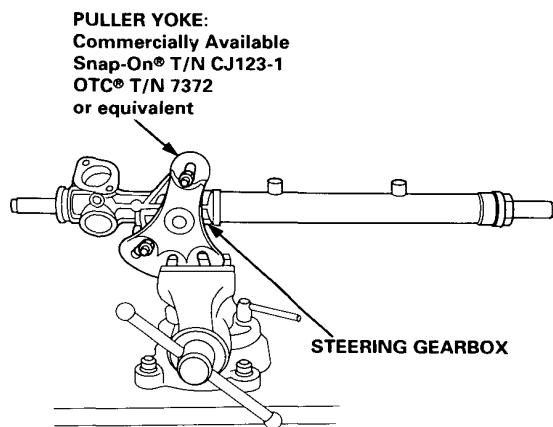


11. Drill a 3 mm (0.12 in) diameter hole approximately 2.5 – 3.5 mm (0.10 – 0.14 in) in depth in the staked-point on the cylinder.

NOTE: Do not allow metal shavings to enter the cylinder housing.



12. Install a puller yoke to the steering gearbox. Clamp the puller yoke in a vise with soft jaws as shown, then loosen and remove the cylinder end.



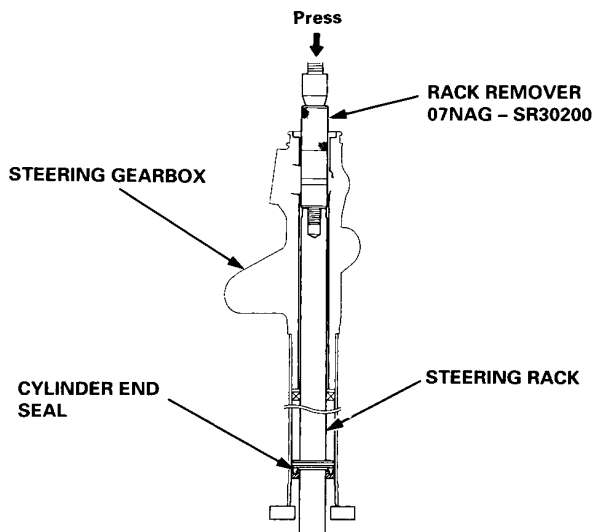
(cont'd)

# Steering Gearbox

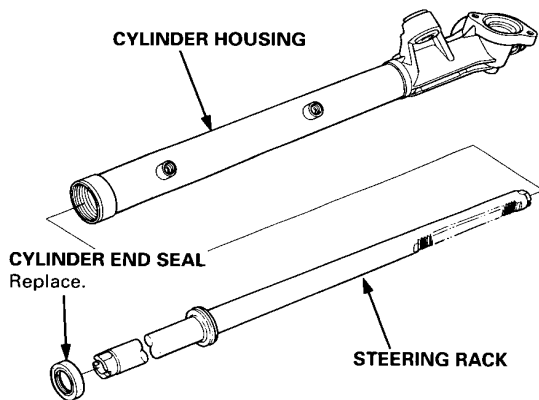
## Disassembly (cont'd)

13. Set the gearbox in a press so the gear housing points upward.
14. Install the special tool into the end of the steering rack.
15. Drive out the cylinder end seal and steering rack using a press.

NOTE: Hold onto the steering rack to keep it from falling when pressed clear.



16. Remove the special tool and cylinder end seal from the steering rack.



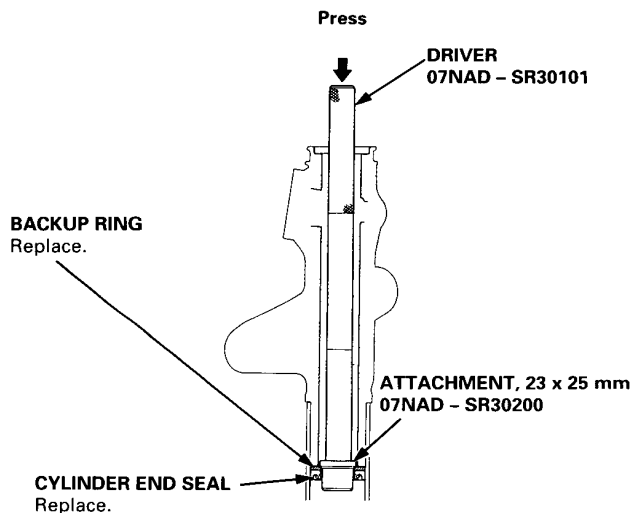
17. Insert the special tools into the cylinder from the gear housing side.

**CAUTION:** Be careful not to damage the inside surface of the housing with the special tool.

18. Set the gearbox in a press, then drive out the cylinder end seal and backup ring using the special tools and a press as shown.

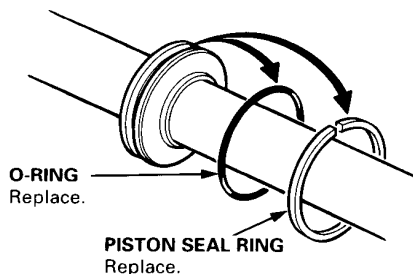
**CAUTION:**

- Keep the special tool straight to avoid damage the cylinder wall. Check the special tool angle, and correct it, if necessary, while removing the cylinder end seal.
- Use a press to remove the cylinder end seal. Do not try to remove the seal by striking the special tool. It will break the backup ring, and the cylinder end seal will remain in the gearbox.



19. Carefully pry the piston seal ring and O-ring off the piston of the rack.

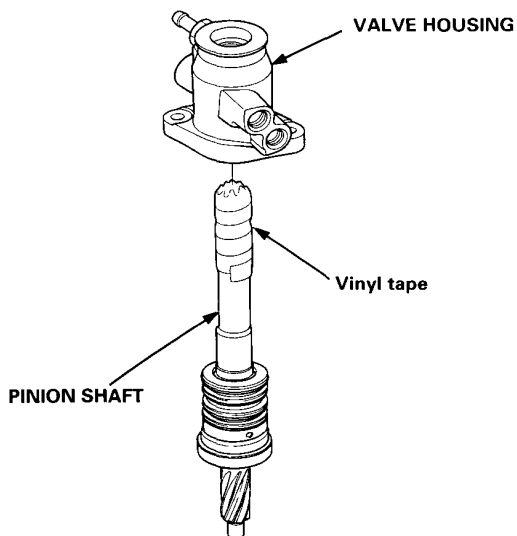
**CAUTION:** Be careful not to damage the inside of seal ring groove when removing the seal ring.





20. Apply vinyl tape to the pinion shaft.

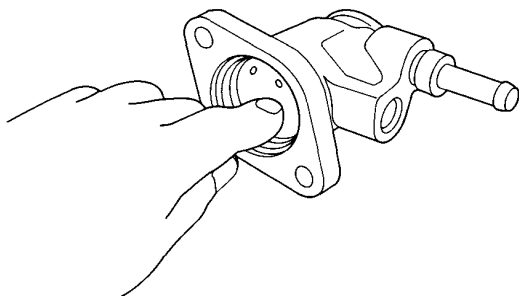
21. Separate the valve housing from the pinion shaft/valve using a press.



22. Check the inner wall of the valve housing where the seal ring slides with your finger. If there is a step in the wall, the valve housing is worn. Replace the valve housing.

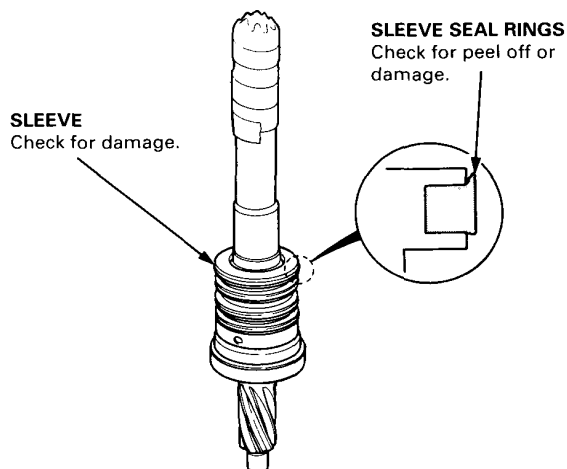
**NOTE:**

- There may be the sliding marks from the seal ring on the wall of the valve housing. Replace the valve housing only the wall is stepped.
- When the valve housing is replaced, install new 32 mm shim(s) on the bearing surface of the housing to adjust the thickness.

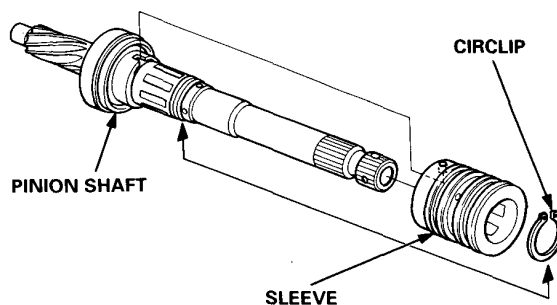


23. Check for wear, burrs and other damage to the edges of the grooves in the sleeve.

**NOTE:** The pinion shaft and sleeve are a precision matched set. If either the pinion shaft or sleeve must be replaced, replace the both parts as a set.



24. Remove the circlip and pinion shaft sleeve from the pinion shaft.



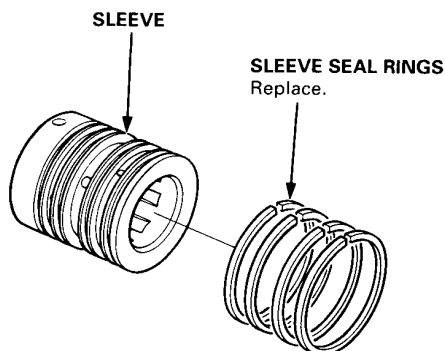
(cont'd)

# Steering Gearbox

## Disassembly (cont'd)

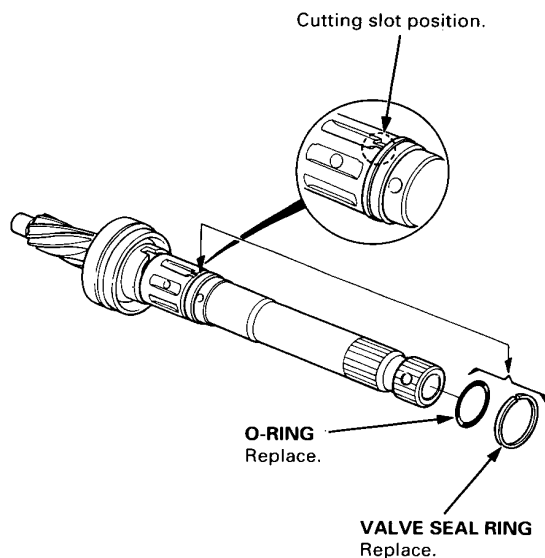
25. Using a cutter or an equivalent tool, cut and remove the four seal rings from the sleeve.

**CAUTION:** Be careful not to damage the edges of the sleeve grooves when removing the seal rings and O-ring.



26. Using a cutter or an equivalent tool, cut the valve seal ring and O-ring at the groove the pinion shaft. Remove the valve seal ring and O-ring.

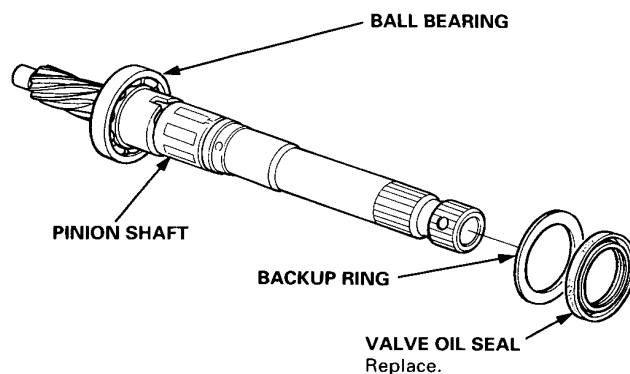
**CAUTION:** Be careful not to damage the edges of the pinion shaft groove when removing the valve seal ring and O-ring.



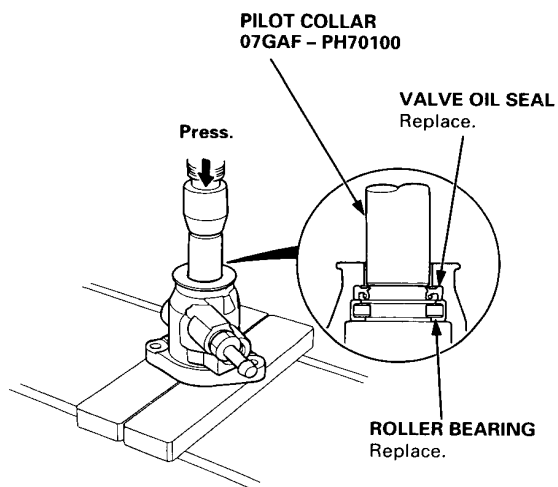
27. Remove the valve oil seal and backup ring from the pinion shaft.

### NOTE:

- Inspect the ball bearing by rotating the outer race slowly. If there is excessive play, replace the pinion shaft and sleeve as an assembly.
- The pinion shaft and sleeve are a precise fit; do not intermix old and new pinion shafts and sleeves.



28. Press the valve oil seal and roller bearing out of the valve housing using a hydraulic press and special tool shown below.

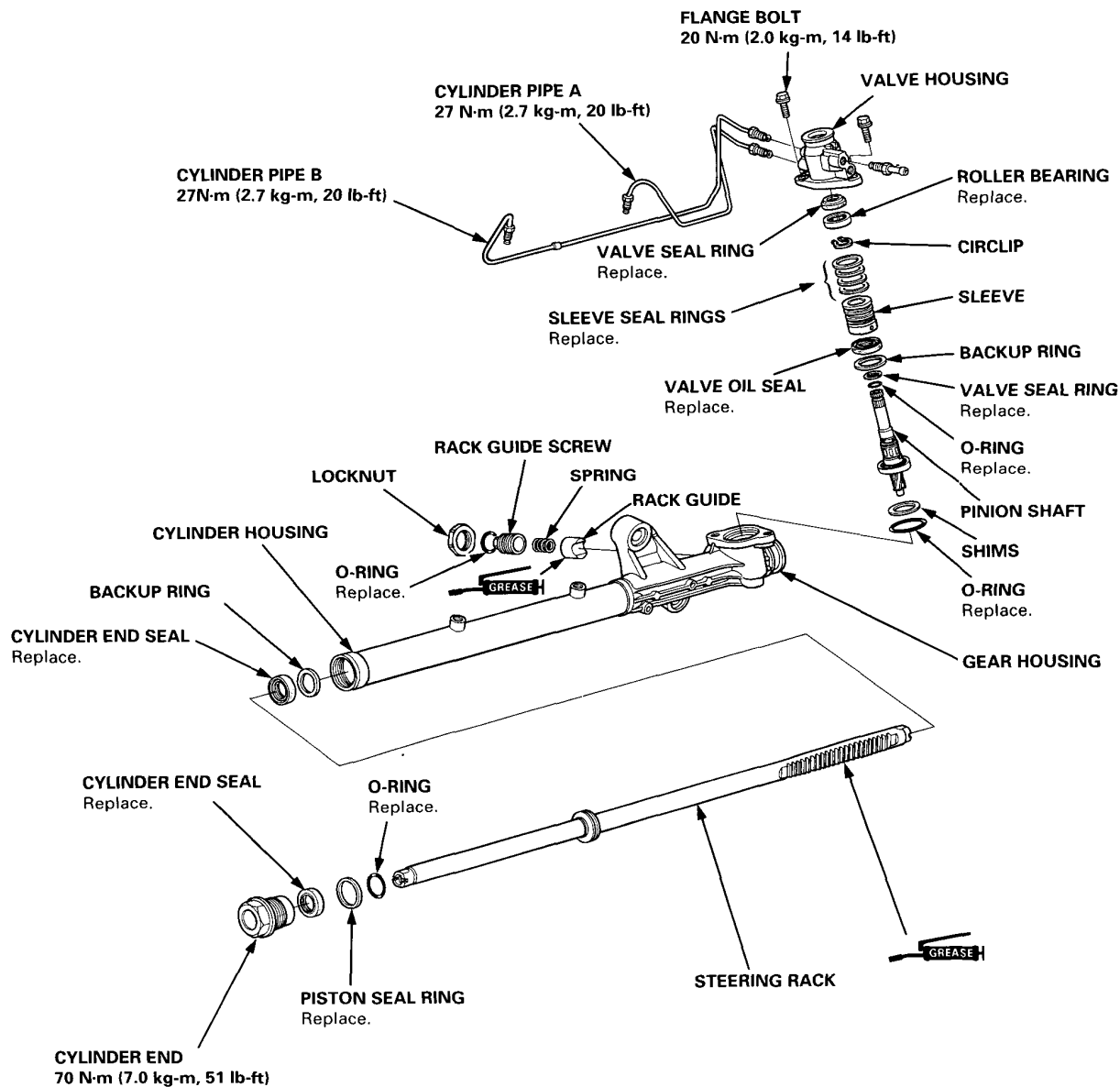




## Reassembly

### NOTE:

- LHD type is shown.
- Clean the disassembled parts with a solvent and dry them with compressed air. Do not dip the rubber parts in a solvent.
- Always replace the O-rings and rubber seals with new ones before assembly.
- Apply power steering fluid or steering grease (HONDA P/N: 08733 – B070E) to the parts indicated in the assembly procedures.
- Do not allow dust, dirt, or other foreign materials to enter the power steering system.
- Use the appropriate special tools where necessary.



(cont'd)

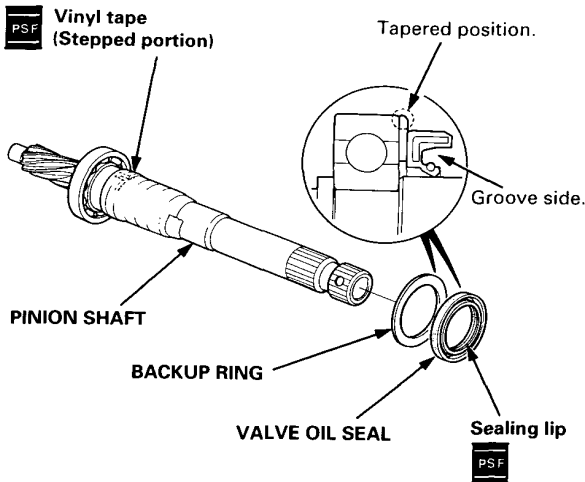
# Steering Gearbox

## Reassembly (cont'd)

### Valve Body Reassembly

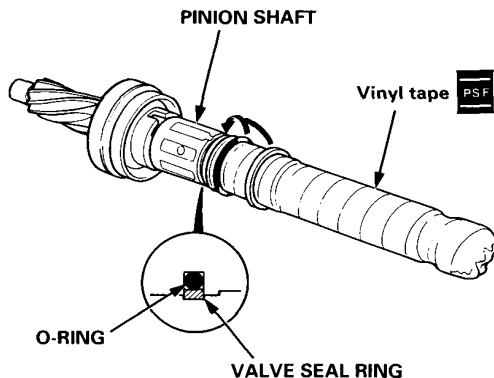
1. Apply vinyl tape to the stepped portion of the pinion shaft, and coat the surface of the vinyl tape with the power steering fluid.
2. Install the backup ring with its tapered side as shown below.
3. Coat the inside surface of the new valve oil seal with power steering fluid.
4. Slide the valve oil seal over the pinion shaft, being careful not to damage the sealing lip.

**CAUTION:** Install the valve oil seal with its grooved side facing opposite the bearing.

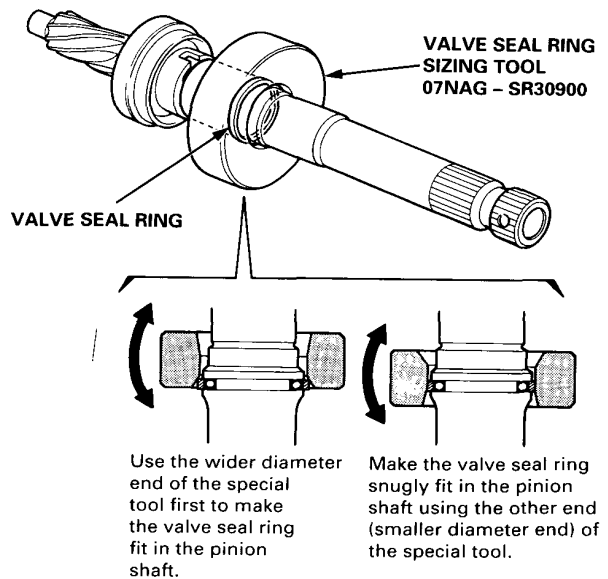


5. Fit the new O-ring in the groove of the pinion shaft. Then slide the new valve seal ring over the shaft and groove in on the pinion shaft.
6. Remove the vinyl tape from the pinion shaft.

**NOTE:** Do not over-expand the valve seal ring.



7. Apply power steering fluid to the surface of the valve seal ring that was installed on the pinion shaft.
8. Apply power steering fluid to the inside of the special tool. Set the larger diameter end of the special tool over the valve seal ring.
9. Move the special tool up and down several times to make the valve seal ring fit in the pinion shaft.
10. Remove the special tool.
11. Turn the special tool over and set the smaller diameter end of the special tool over the valve seal ring. Move the special tool up and down several times to make the valve seal ring snugly fit in the pinion shaft.





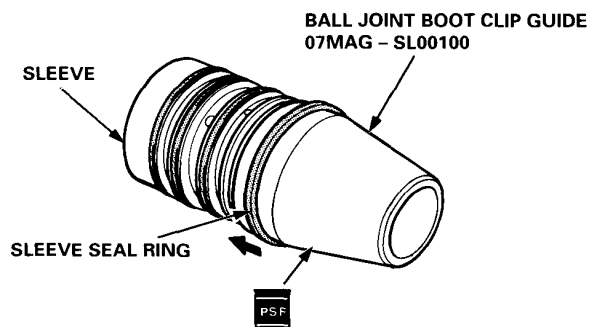
12. Apply power steering fluid to the surface of the special tool. Set the new seal rings over the special tool from the smaller diameter end of the tool, and expand the seal rings. Do two rings at a time from each end of the sleeve.

NOTE:

- Do not over-expand the seal ring. Install the resin seal rings with care so as not to damage them. After installation, be sure to contract the seal rings using the special tool (sizing tool).
- There are two types of sleeve seal rings: black and brown. Do not mix the different types of sleeve seal rings as they are not compatible.

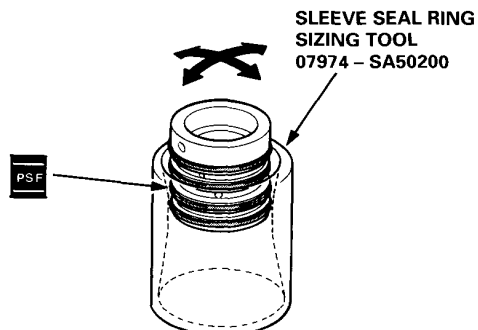
13. Set the special tool in the grooves in the sleeve, and set each ring in each groove securely.

NOTE: After installation, compress the seal rings with your fingers temporarily.



14. Apply power steering fluid to the seal rings on the sleeve and to the entire inside surface of the special tool.
15. Insert the sleeve into the special tool slowly.
16. Move the sleeve each direction several times to make the seal rings snugly fit in the sleeve.

NOTE: Be sure that the seal rings are not turned up.

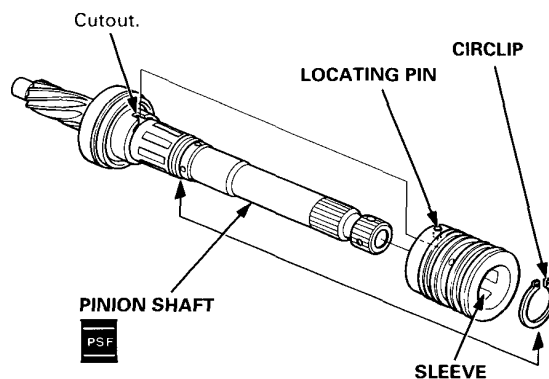


17. Apply power steering fluid to the surface of the pinion shaft, then assemble the sleeve over the pinion shaft, aligning the locating pin on the inside of the sleeve with the cutout in the shaft.

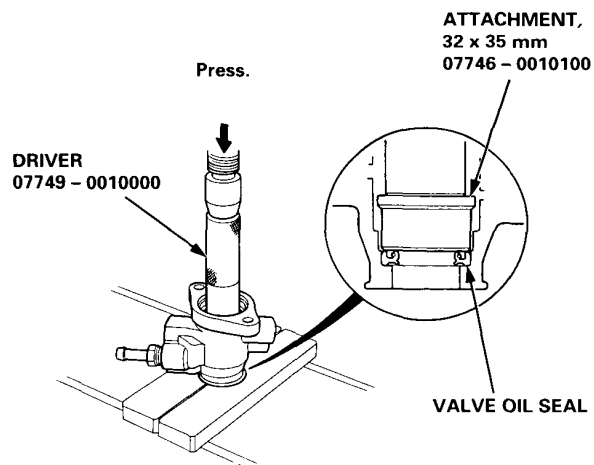
NOTE: Be careful not to damage the valve seal ring when inserting the sleeve.

18. Install the circlip securely in the pinion shaft groove.

NOTE: Install the circlip with its tapered side facing out.



19. Apply power steering fluid to the seal ring lip of the valve oil seal. Then install the seal in the valve housing using a hydraulic press and special tools as shown.



(cont'd)

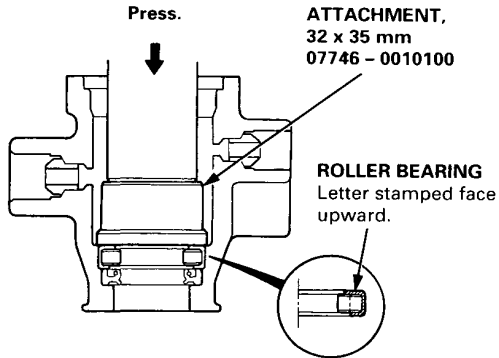


# Steering Gearbox

## Reassembly (cont'd)

20. Press the new roller bearing into the valve housing using a hydraulic press and special tool as shown.

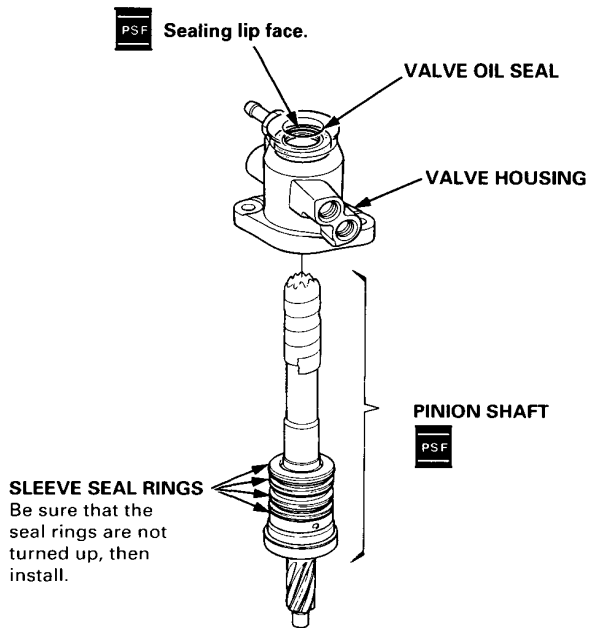
NOTE: Place the roller bearing on the valve housing with its letter stamped facing up towards the valve side.



21. Apply vinyl tape to the pinion shaft, then coat the vinyl tape with power steering fluid.
22. Insert the pinion shaft into the valve housing.

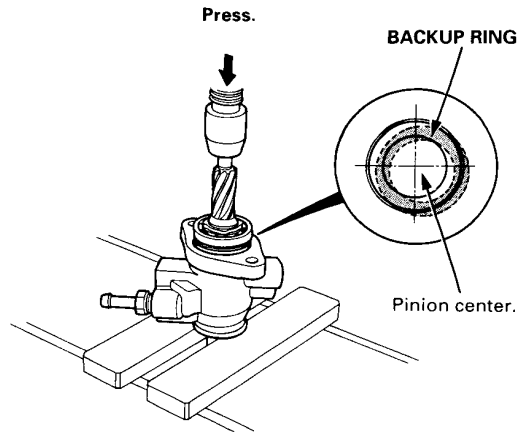
**CAUTION:** Be careful not to damage the valve seal rings.

23. Remove the vinyl tape from the pinion shaft.



24. Press the pinion shaft/sleeve using a hydraulic press as shown.

**CAUTION:** Before inserting the pinion shaft, be sure that the backup ring is centered with the pinion shaft bearing.





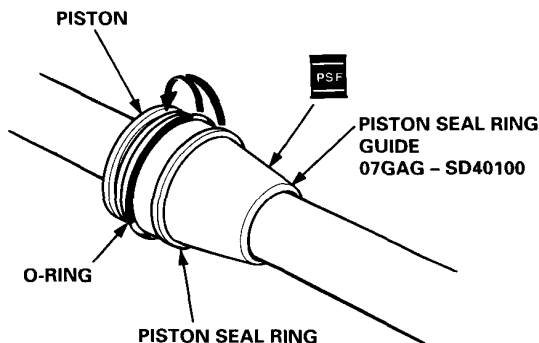
25. Coat the piston seal ring guide with power steering fluid, and slide it onto the rack, big end first.

26. Position the new O-ring and new piston seal ring on the special tool, then slide them down towards the big end of the tool.

**NOTE:**

- Do not over expand resin seal rings. Install the resin seal ring with care so as not to damage them. After installation, be sure to contract the seal ring using the special tool (sizing tool).
- Replace piston's O-ring and seal ring as a set.

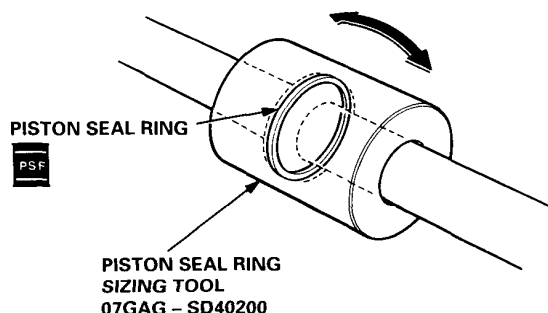
27. Pull the O-ring off into the piston groove, then pull the piston seal ring off into the piston groove on top of the O-ring.



28. Coat the piston seal ring and inside of the special tool with power steering fluid.

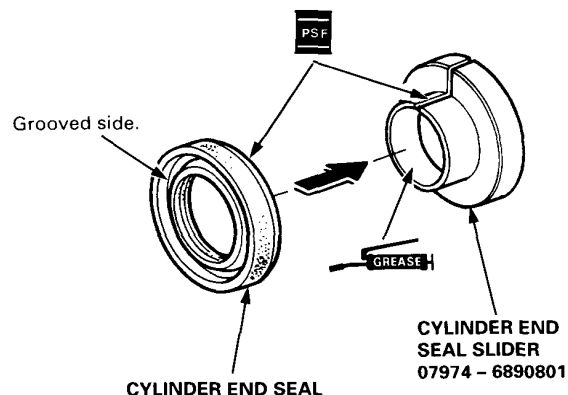
29. Carefully slide the tool onto the rack and over the piston seal ring.

30. Move the special tool back and forth several times to make the piston seal ring fit snugly in the piston.



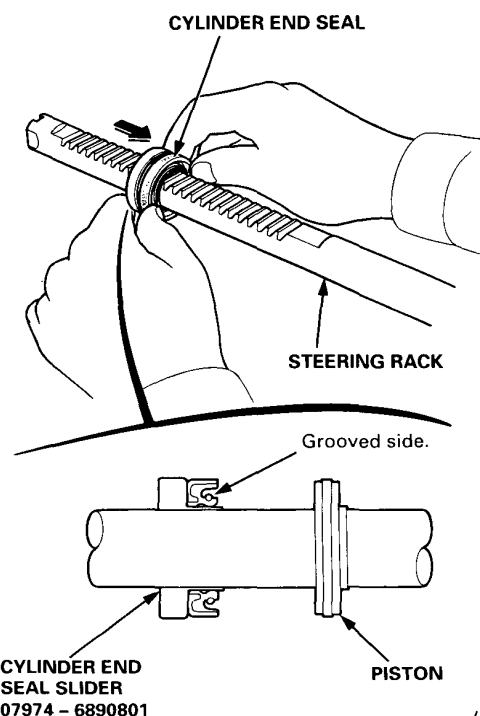
31. Coat the sliding surface of the special tool and new cylinder end seal with power steering fluid.

32. Place the seal on the special tool with its grooved side facing opposite the special tool.



33. Apply a thin coat of grease to the inside of the special tool, and install it on the steering rack.

**CAUTION:** Make sure the rack teeth do not face the slot in the special tool.

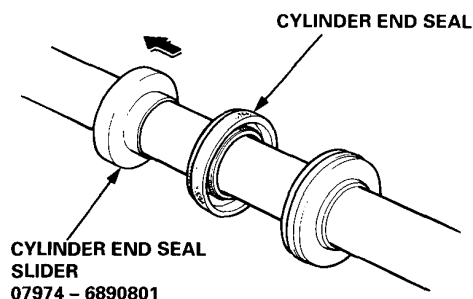


(cont'd)

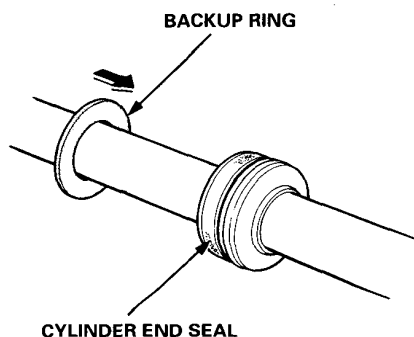
# Steering Gearbox

## Reassembly (cont'd)

34. Separate the cylinder end seal from the special tool, then remove the tool from the steering rack.

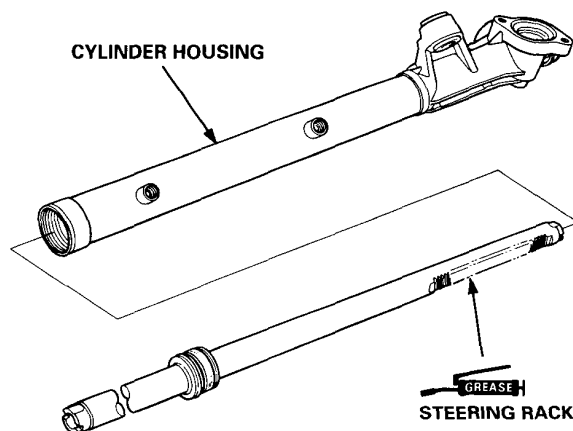


35. Install the backup ring on the steering rack, then place the cylinder end seal to piston.



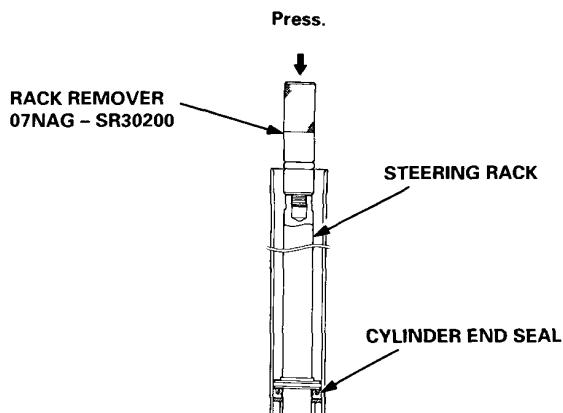
36. Grease the steering rack teeth, then insert the steering rack into the gear housing.

**CAUTION:** Be careful not to damage to inner surface of the gear housing with the rack edges.



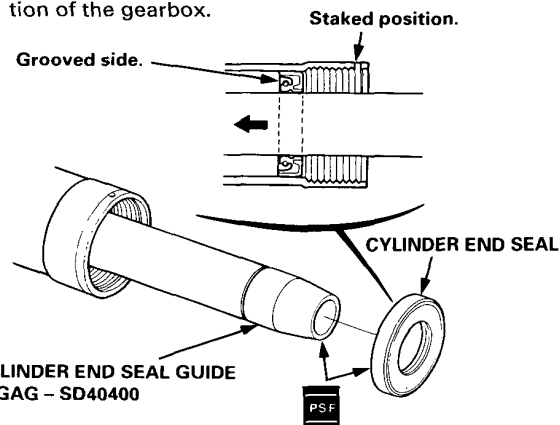
37. Set the gearbox in a press with the cylinder housing facing upward.  
38. Install the special tool it into the end of the steering rack.  
39. Install the cylinder end seal into the bottom of the cylinder by pressing on the special tool with the hydraulic press as shown.

**CAUTION:** Do not push on the special tool with excessive force as it may damage the cylinder end seal.



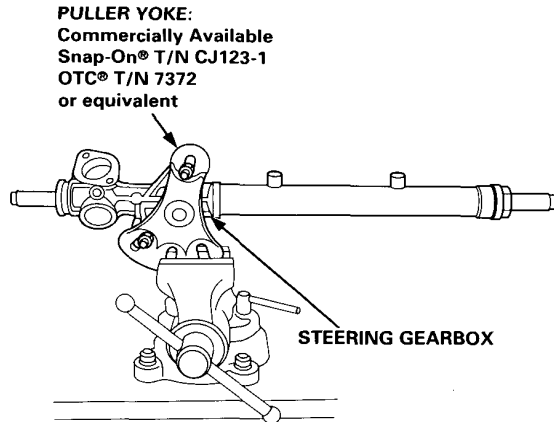
40. Remove the special tool, and center the steering rack.  
41. Install the special tool or vinyl tape onto the end of the steering rack, then coat the special tool or vinyl tape with power steering fluid.  
42. Coat the inside surface of the new cylinder end seal with power steering fluid.  
43. Install the cylinder end seal onto the steering rack with its grooved side toward the piston.  
44. Remove the special tool. Push in the cylinder end seal with finger.

**NOTE:** Take care not to damage the cylinder end seal with the threads and burrs at the staked position of the gearbox.



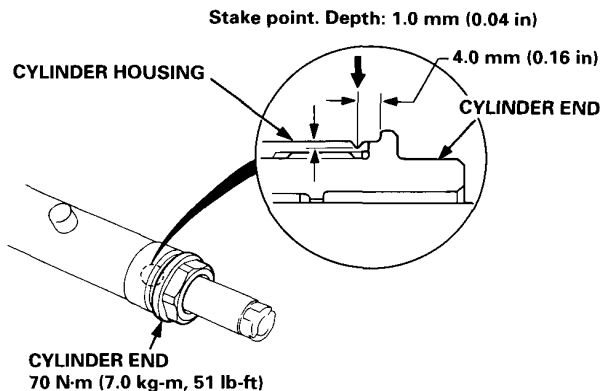


45. Install a puller yoke to the steering gearbox, then clamp the puller yoke in a vise with soft jaws as shown.



46. Grease the inside surface of the cylinder end, then install the cylinder end by screwing it into the cylinder housing.

47. After tightening the cylinder end, stake the point of the cylinder housing shown below.  
**NOTE:** Stake in the cylinder in the position opposite from where the stake was removed during disassembly.



48. Select the 32 mm shim(s).

**NOTE:** Only reinstall the original 32 mm shim(s) when the steering gearbox is reassembled without replacing the pinion shaft, valve housing, and gearbox housing with new ones.

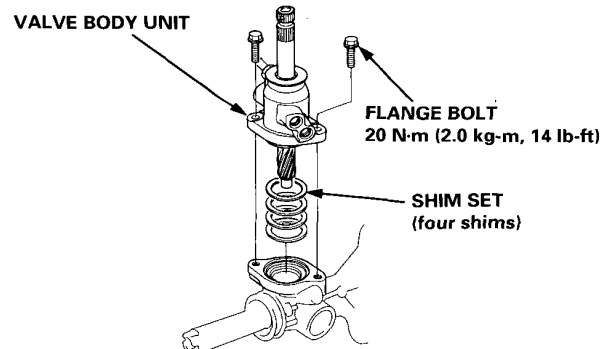
If the pinion shaft, valve housing, and gearbox housing are replaced, select the new shim(s) as follows.

**Shim selection:**

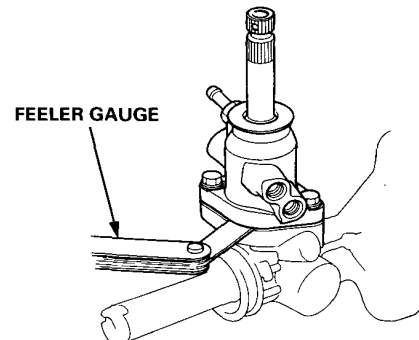
- 1. Set the four 32 mm shims on the bearing surface of the gearbox housing. Total thickness of the four shims should equal no more than 0.70 mm.  
Shim set: four 32 mm shims (Thickness: 0.10 mm, 0.15 mm, 0.20, 0.25 mm respectively)

**CAUTION:** The four 32 mm shims do not have thickness identification marks. Measure the thickness of each shim using a micrometer, and mark the shim for identification.

- 2. Install the valve body unit on the gearbox, and tighten the flange bolts to the specified torque.



- 3. Measure the clearance between the gearbox and valve body unit using a feeler gauge as shown.  
**NOTE:** Measure the clearance at the point midway between the two mounting bolts.



(cont'd)

# Steering Gearbox

## Reassembly (cont'd)

- 4. Determine the required thickness of the 32 mm shims by subtracting the clearance obtained in the step -3 from the total thickness of the four shims.  
(Total thickness of the 4 shims) - (Clearance) = Required thickness of the shims

NOTE: Select the shims so that the total thickness is close to, but less than the required thickness.

### Example:

Measurement is 0.28 mm (0.011 in):

$0.70 - 0.28 = 0.42 \text{ mm}$  ( $0.028 - 0.011 = 0.017 \text{ in}$ )

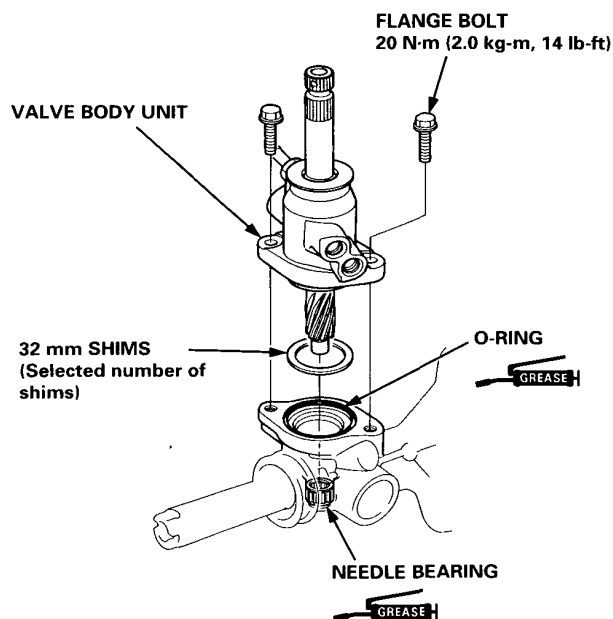
The selected shims should be 0.25 mm (0.010 in) and 0.15 mm (0.006 in) in thickness.

If the required shim thickness is 0.10 mm or less, no shims are necessary.

49. Set the selected 32 mm shims on the bearing surface of the gearbox housing.  
50. Coat the new O-ring with grease and install it in the groove in the gearbox housing.  
51. Apply grease to the needle bearing in the gearbox housing.  
52. Install the valve body unit on the gearbox housing by engaging the gears.

NOTE: Note the valve body unit installation position (direction of pipe connection).

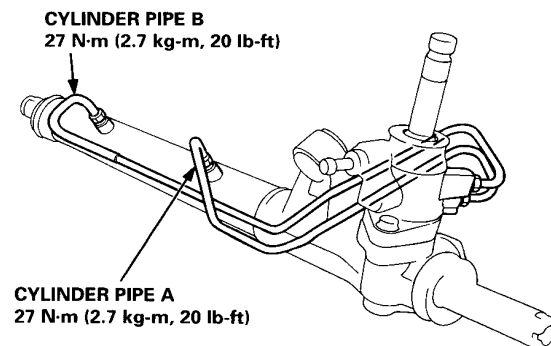
53. Tighten the flange bolts to the specified torque.



54. Install the cylinder pipes A and B.

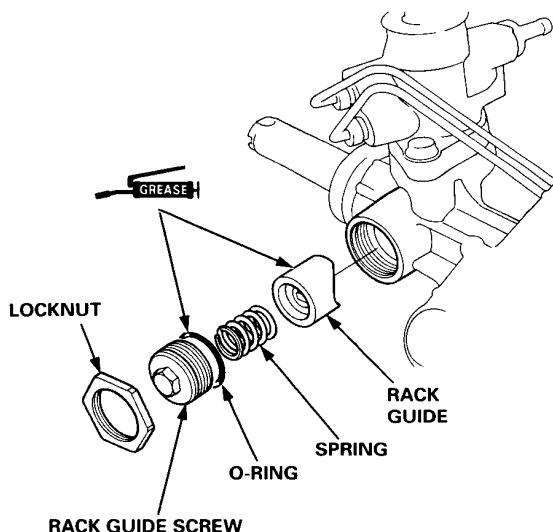
### NOTE:

- Clean the joints of the cylinder pipe A and B thoroughly. The joints must be free of foreign material.
- Install the cylinder pipe A and B by tightening the flare nuts by hand first, then tighten the flare nuts to the specified torque starting with the cylinder side nuts.



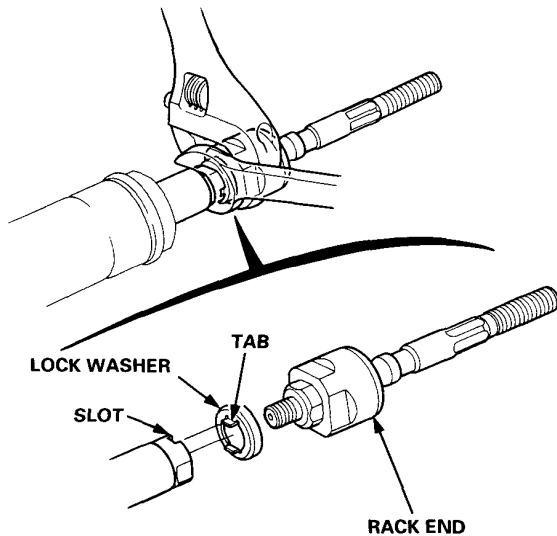
55. Grease the sliding surface of the rack guide and install it onto the gear housing.  
56. Apply a thin coat of grease to the new O-ring and install it on the rack guide screw.  
57. Install the spring, rack guide screw and locknut on the gear housing.  
58. Adjust the rack guide screw (see page 17-19).

NOTE: After adjusting, check that the rack moves smoothly by sliding to rack right and left.

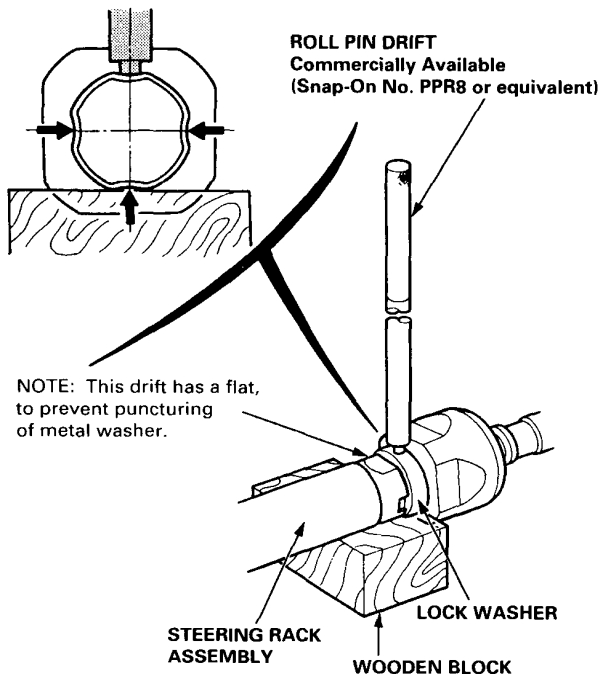




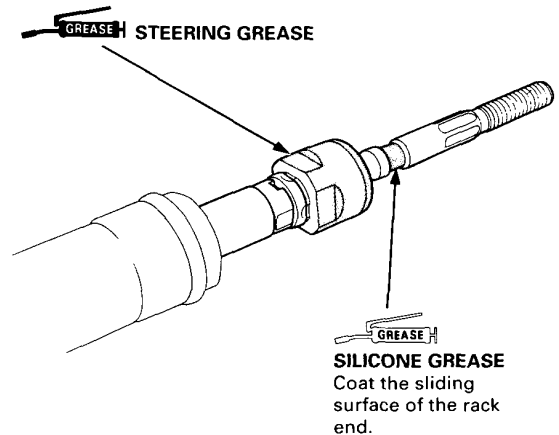
59. Install the new lock washer in the groove in the steering rack.
60. Hold the steering rack with a wrench and tighten the rack end.



61. After tightening the rack end, stake the four sections of lock washer with a commercially available roll pin drift and a mallet.

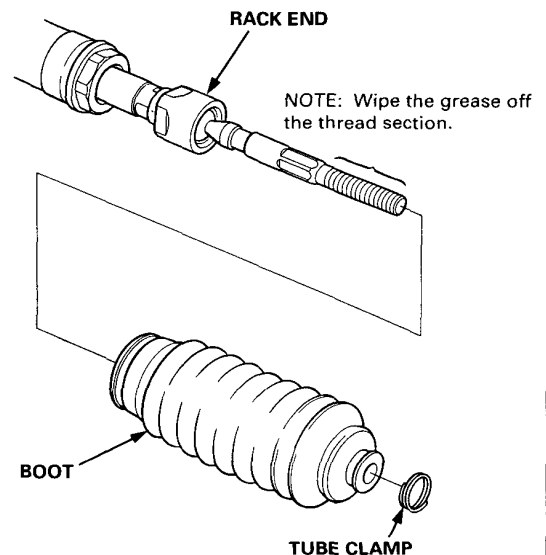


62. Apply steering grease to the circumference of the rack end housing.
63. Coat the rack end groove and inside of the boot with silicone grease.



64. Install the boots in the rack end with the tube clamps.

NOTE: Install the boots with the rack in the straight ahead position (i.e. right and left tie-rods are equal in length).

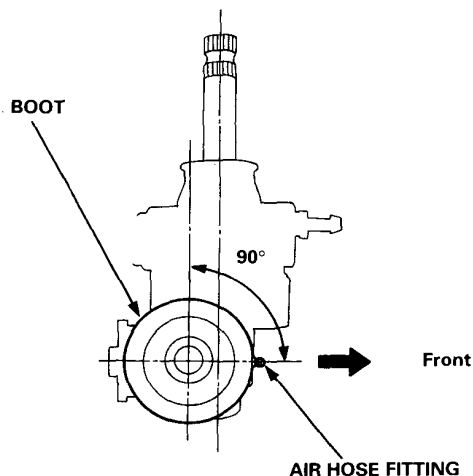


(cont'd)

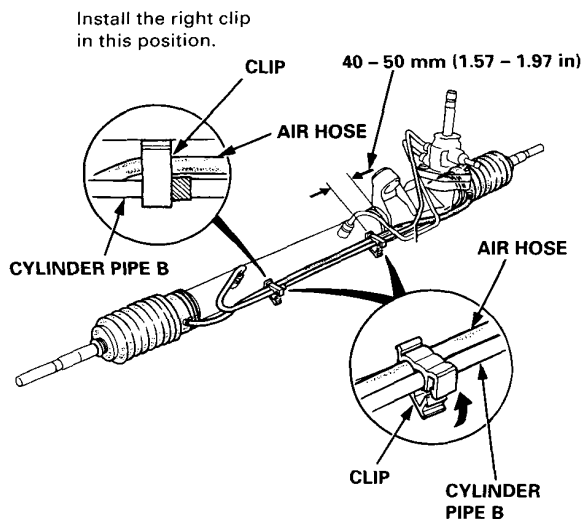
# Steering Gearbox

## Reassembly (cont'd)

65. Adjust the air hose fitting position of the boots by turning it as shown below.



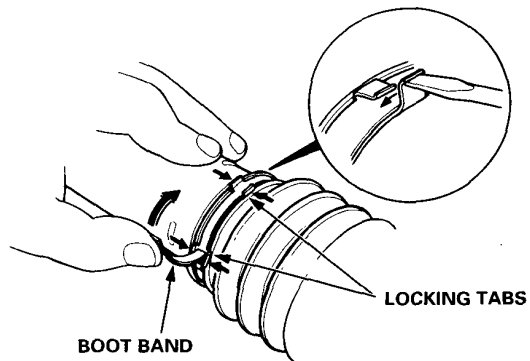
66. Connect the air hose between the right and left boot, then install the clips on the cylinder pipe B as shown.



67. Install new boot bands on the boot and bend both sets of locking tabs.

68. Lightly tap on the doubled-over portions to reduce their height.

**CAUTION: Stake the band locking tabs firmly.**



69. Slide the rack right and left to be certain that the boots are not deformed or twisted.

70. Install the right and left tie-rod ends on the rack ends.

## Body

### Door

Index ..... 20-3

### Headliner

Replacement ..... 20-13

### Interior Trim

Replacement ..... 20-14

### Mirror

Rearview Mirror Replacement ..... 20-4

### Opener Cables

Replacement ..... 20-19

### Rear Emblems

Installation ..... 20-20

### Rear Window, Quarter Glass

Index ..... 20-5

### Seat

Rear Seat Replacement ..... 20-15

### Seat Belt

Rear Seat Belt Replacement ..... 20-16

Inspection ..... 20-17

Special Tool ..... 20-2

### Trunk Lid

Replacement/Adjustment ..... 20-18

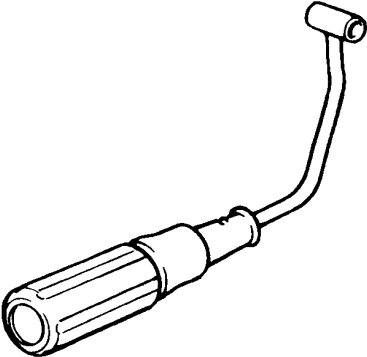


#### Outline of Model Change

- The CIVIC COUPE has been added.

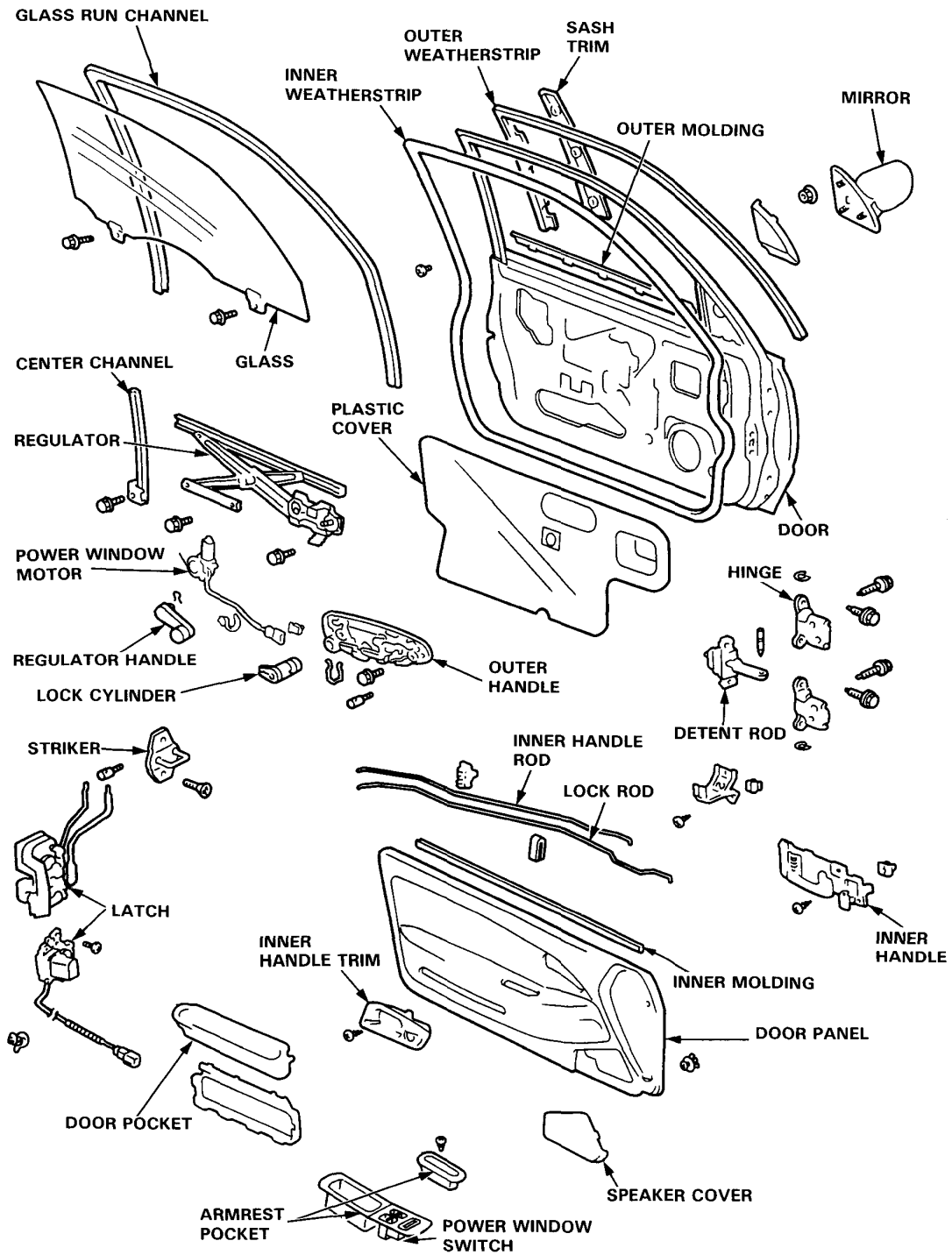


# Special Tool

Special Tool				
Ref. No.	Tool Number	Description	Q'ty	Page Reference
①	07GAZ-SE30100	Torsion Bar Assembly Tool	1	20-18
<div></div> <div>①</div>				

# Door

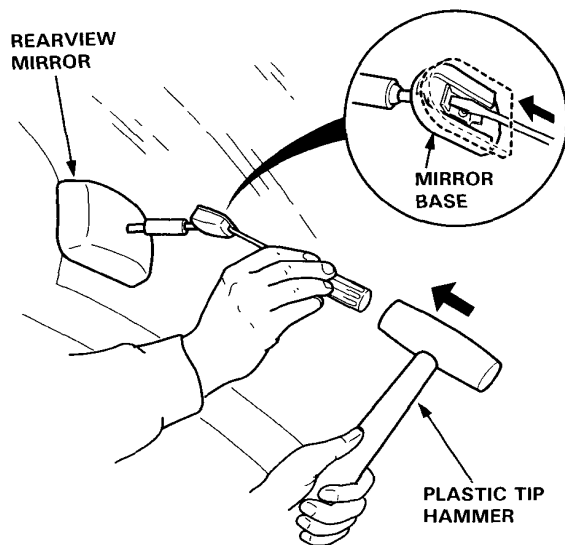
## Index



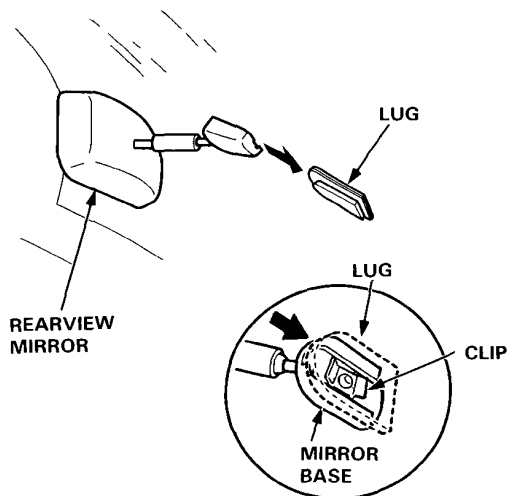
# Mirror

## Rearview Mirror Replacement

1. Carefully insert a small flat tip screwdriver into the notch in the mirror base. Gently tap the end of the screwdriver with a plastic tip hammer to release the clip.



2. Slide the rearview mirror up and off the lug.
3. Install the rearview mirror by sliding it over the lug until the clip snaps into place.

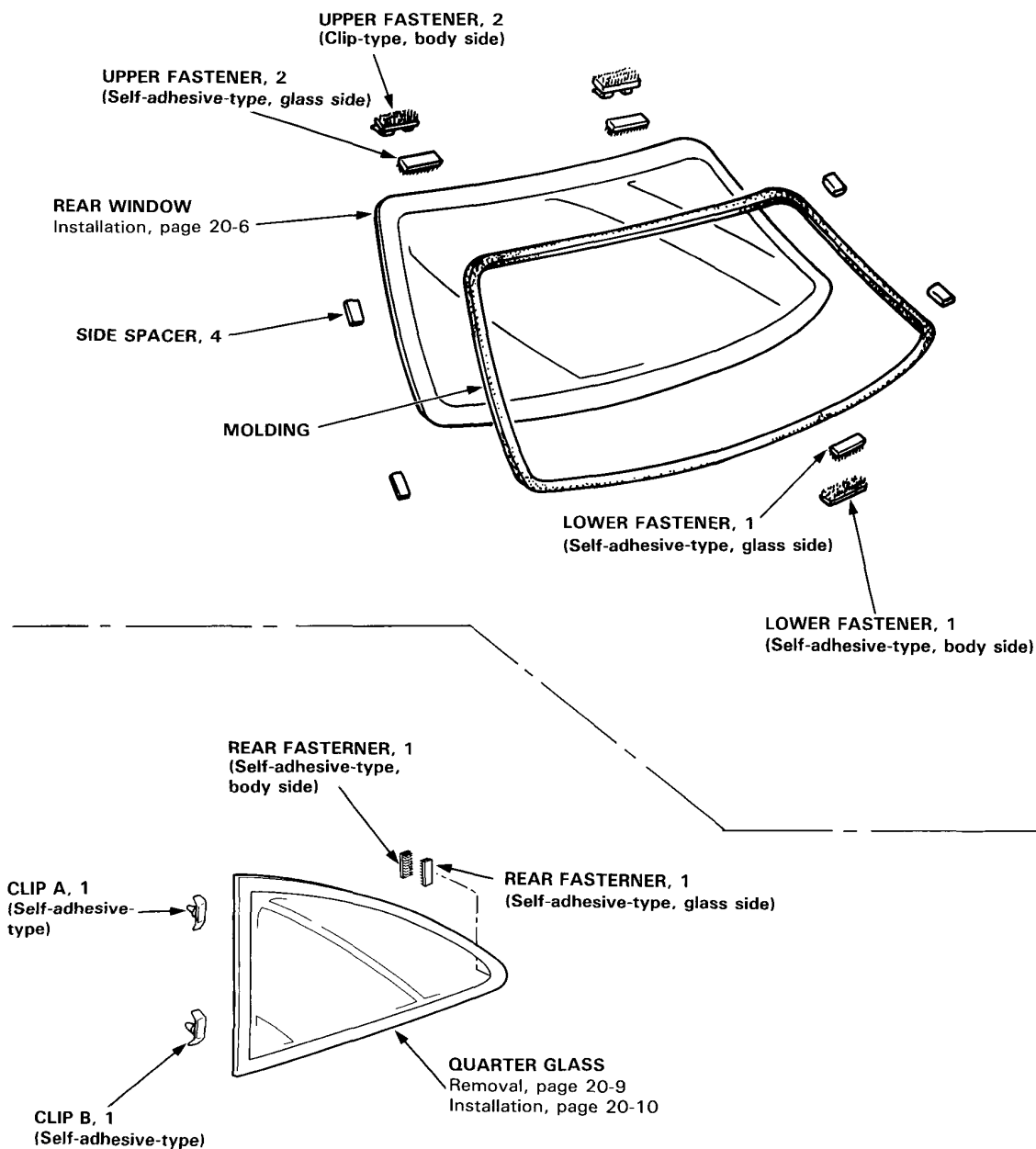




# Rear Window, Quarter Glass

## Index

NOTE: The numbers after the part names show the quantities of the parts used.



# Rear Window

## Installation

1. Scrape the old adhesive smooth with a knife, to a thickness of about 2 mm (0.08 in) on the bonding surface around the entire rear window opening flange.

### NOTE:

- Do not scrape down to the painted surface of the body; damaged paint will interfere with proper bonding.
- Remove the upper and lower fasteners from the body.
- Mask off surrounding surfaces before applying primer.

2. Clean the body bonding surface with a sponge dampened in alcohol.

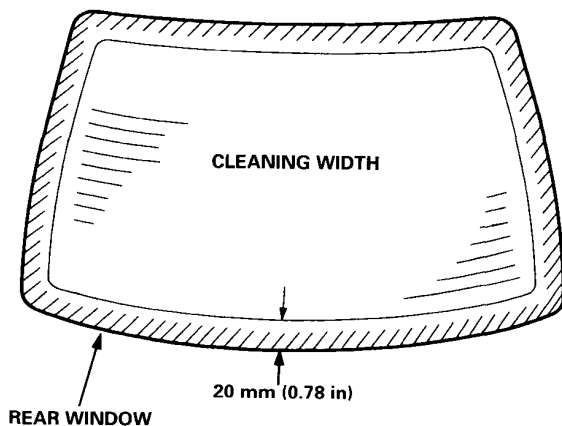
NOTE: After cleaning, keep oil, grease and water from getting on the surface.

3. If the old rear window is to be reinstalled, use a putty knife to scrape off all traces of old adhesive, then clean the rear window surface with alcohol where new adhesive is to be applied.

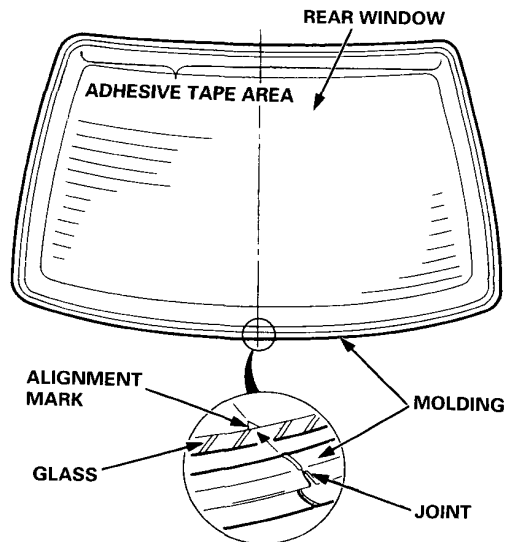
NOTE: Make sure the bonding surface is kept free of water, oil and grease.

**CAUTION:** Avoid setting the rear window on its edges; small chips may later develop into cracks.

NOTE: Clean the shadowed area.

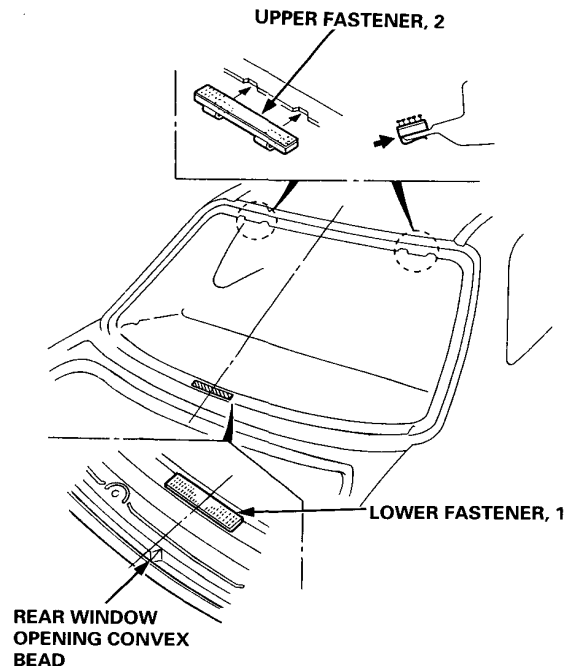


4. Glue the molding around the edge of the rear window as shown.



5. Install the upper fasteners and glue the lower fastener to the body as shown.

NOTE: The numbers after the part names show the quantities of the parts used.

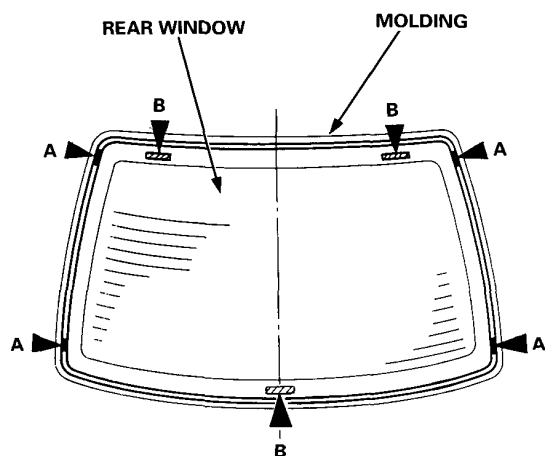
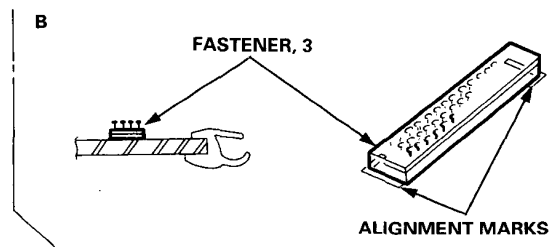
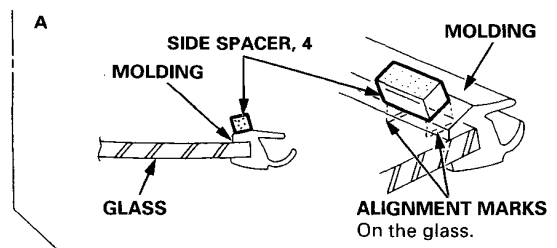




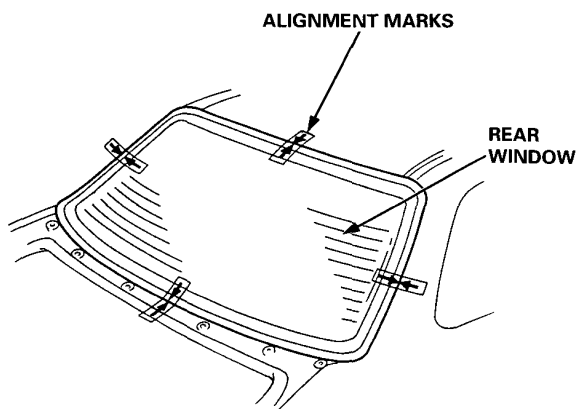
6. Glue the side spacers and fasteners to the inside face of the rear window and molding as shown.

NOTE: The numbers after the part names show the quantities of the parts used.

►: Spacer, fastener locations



7. Set the rear window, then center it in the opening. Make alignment marks across the rear window and body with a grease pencil at the four points shown.

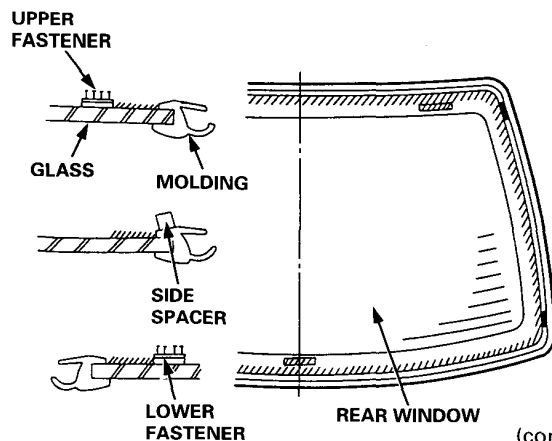


8. With a sponge, apply a light coat of glass primer around the edge of the rear window as shown, then lightly wipe it off with gauze or cheesecloth.

NOTE:

- Do not apply body primer to the rear window, and do not get body and glass primer sponges mixed up.
- Never touch the primed surfaces with your hands. If you do, the adhesive may not bond to the rear window properly, causing a leak after the rear window is installed.
- Keep water, dust, and abrasive materials away from the primed surface.

/// : Apply glass primer here.



(cont'd)

# Rear Window

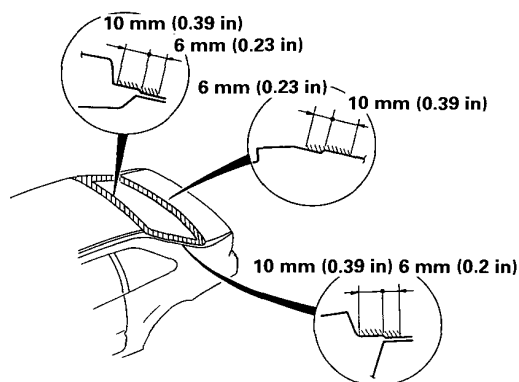
## Installation (cont'd)

- With a sponge, apply a light coat of body primer to the original adhesive remaining around the rear window opening flange. Let the body primer dry for at least 10 minutes.

### NOTE:

- Do not apply glass primer to the body, and be careful not to mix up glass and body primer sponges.
- Never touch the primed surfaces with your hands.

 : Apply body primer here.

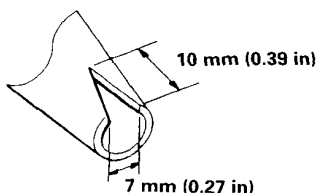


- Thoroughly mix the adhesive and hardener together on a glass or metal plate with a putty knife. Follow the instructions that came with the adhesive.

NOTE: Clean the plate with a sponge and alcohol before mixing.

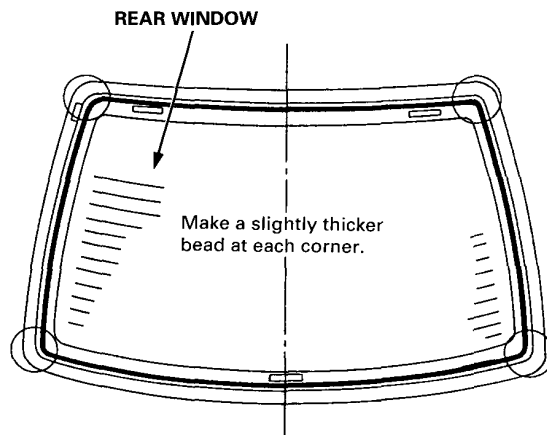
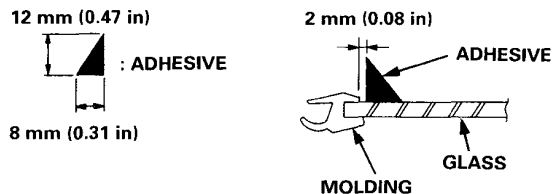
- Before filling a cartridge, cut the end of the nozzle as shown.

Cut nozzle end as shown.



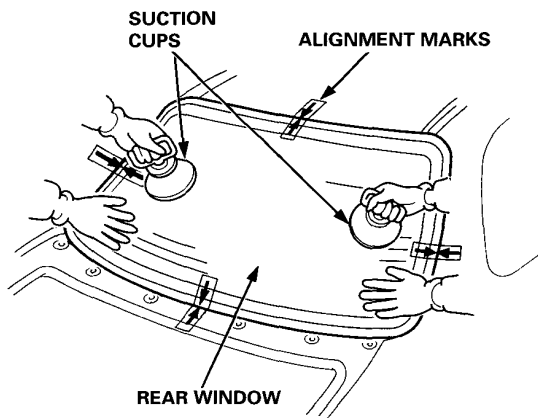
- Pack adhesive into the cartridge without air pockets to ensure continuous delivery. Put the cartridge in a caulking gun and run a bead of adhesive around the edge of the rear window as shown.

NOTE: Apply the adhesive within 30 minutes after applying the glass primer.



- Use suction cups to hold the rear window over the opening, align it with the alignment marks made in step 7 and set it down on the adhesive. Lightly push on the rear window until its edges are fully seated on the adhesive all the way around.

NOTE: Do not close or open the doors until adhesive is dry.





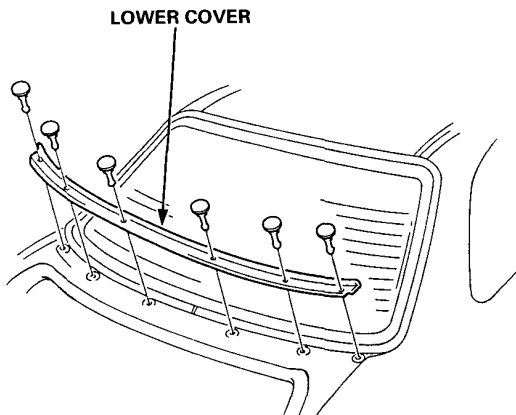
## Quarter Glass

### Removal

14. Scrape or wipe the excess adhesive off with a putty knife or towel.

NOTE: To remove adhesive from a painted surface or the rear window, use a soft shop towel dampened with alcohol.

15. Install the lower cover.



16. Let the adhesive dry for at least one hour, then spray water over the rear window and check for leaks. Mark leaking areas and let the rear window dry, then seal with sealant.

NOTE: Let the car stand for at least four hours after rear window installation. If the car has to be used within the first four hours, it must be driven slowly.

17. Raise the headliner back up into position then install:
  - Rear pillar trim panel
  - Rear shelf
  - Rear seat-back

#### CAUTION:

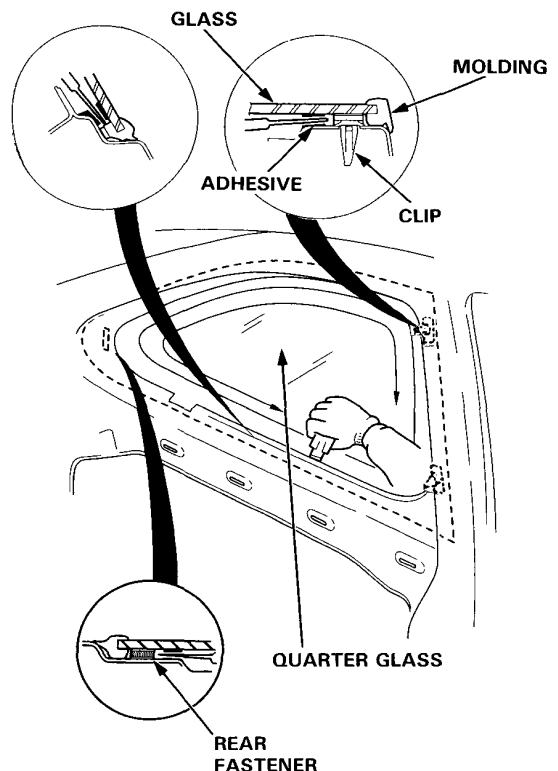
- Wear gloves to remove and install the quarter glass.
- Use seat covers to avoid damaging any surfaces.

1. To remove the quarter glass, first remove the:
  - Rear seat (see page 20-15)
  - Rear pillar trim panel (see page 20-14)
  - Quarter trim panel (see page 20-14)
2. Use a knife to cut through the adhesive from inside the car, all the way around.

#### NOTE:

- Take care not to scratch the quarter glass and molding.
- If there is damage on the molding, replace the quarter glass and molding as an assembly.

3. Remove the quarter glass.





# Quarter Glass

## Installation

1. Scrape the old adhesive smooth with a knife, to a thickness of about 2 mm (0.08 in) on the bonding surface around the entire quarter glass opening flange.

### NOTE:

- Do not scrape down to the painted surface of the body: damaged paint will interfere with proper bonding.
- Remove the clips and rear fastener from the body.
- Mask off surrounding surfaces before applying primer.

2. Clean the body bonding surface with a sponge dampened in alcohol.

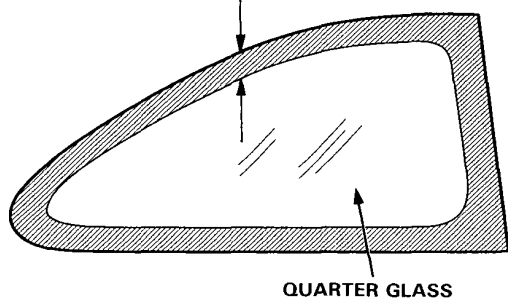
NOTE: After cleaning, keep oil, grease and water from getting on the surface.

3. If the old quarter glass is to be reinstalled, use a putty knife to scrape off all traces of old adhesive, then clean the quarter glass surface with alcohol where adhesive is to be applied.

NOTE: Make sure the bonding surface is kept free of water, oil and grease.

**CAUTION:** Avoid setting the quarter glass on its edges; small chips may later develop into cracks.

Clean the shadowed area all the way around.

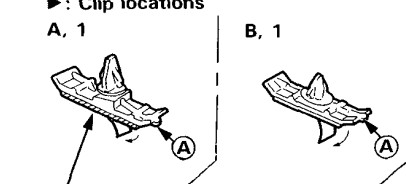


4. Install the clips and rear fastener on the inside face of the quarter glass as shown.

►: Clip locations

A, 1

B, 1

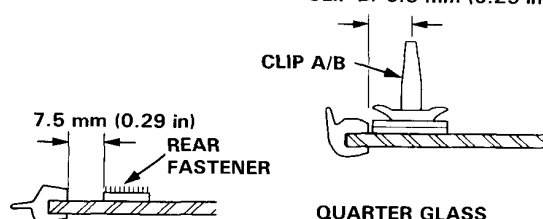


DOUBLE-FACED  
ADHESIVE TAPE

NOTE: Turn the location (A) of the clips to the bottom.

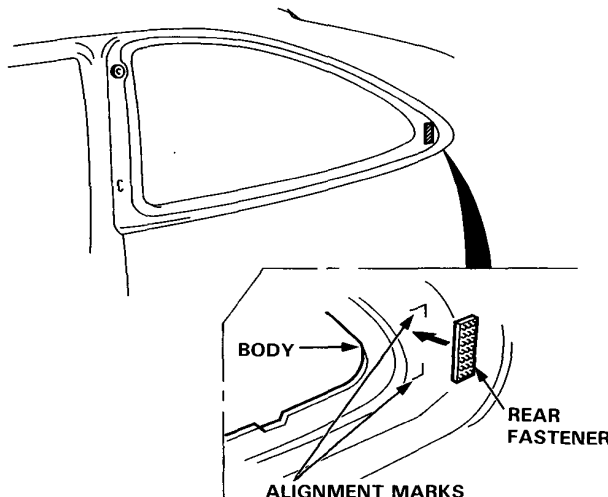
CLIP A: 6 mm (0.23 in)

CLIP B: 6.5 mm (0.25 in)



REAR  
FASTENER

5. Glue the rear fastener to the body as shown.



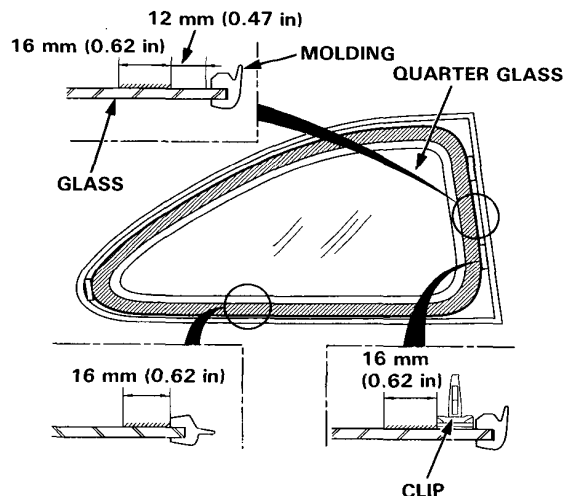


6. With a sponge, apply a light coat of glass primer to the inside face of the quarter glass as shown, then lightly wipe it off with gauze or cheesecloth.

**NOTE:**

- Do not apply body primer to the quarter glass, and do not get body and glass primer sponges mixed up.
- Never touch the primed surfaces with your hands. If you do, the adhesive may not bond to the quarter glass properly, causing a leak after the quarter glass is installed.
- Keep water, dust, and abrasive materials away from the primed surface.

/// : Apply glass primer here.

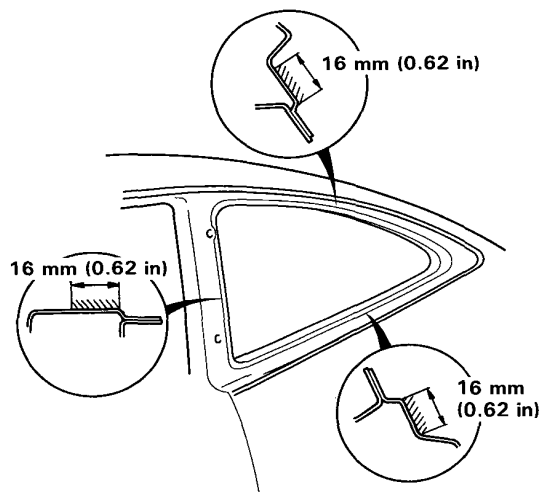


7. With a sponge, apply a light coat of body primer to the original adhesive remaining around the quarter glass opening flange. Let the body primer dry for at least 10 minutes.

**NOTE:**

- Do not apply glass primer to the body, and be careful not to mix up glass and body primer sponges.
- Never touch the primed surfaces with your hands.

/// : Apply body primer here.



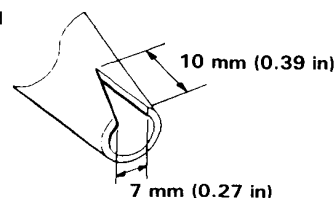
8. Thoroughly mix the adhesive and hardener together on a glass or metal plate with a putty knife.

**NOTE:**

- Clean the plate with a sponge and alcohol before mixing.
- Follow the instructions that came with the adhesive.

9. Before filling a cartridge, cut the end of the nozzle as shown.

Cut nozzle end as shown.



(cont'd)

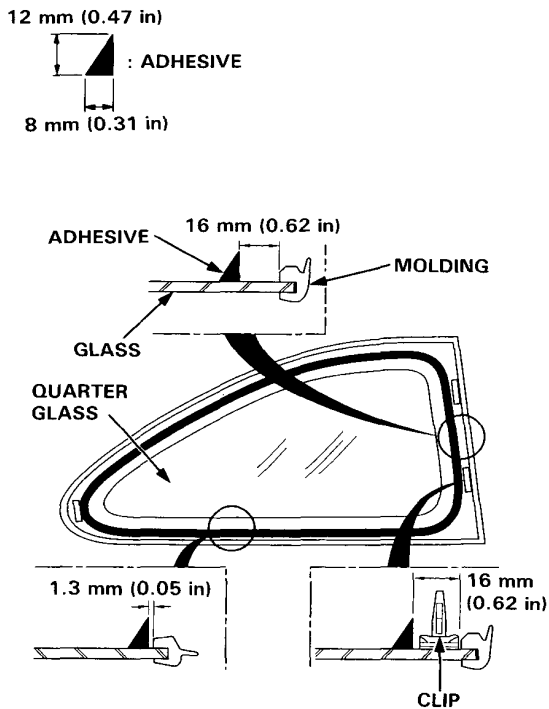
# Quarter Glass

## Installation (cont'd)

10. Pack adhesive into the cartridge without air pockets to ensure continuous delivery. Put the cartridge in a caulking gun and run a bead of adhesive around the edge of the quarter glass as shown.

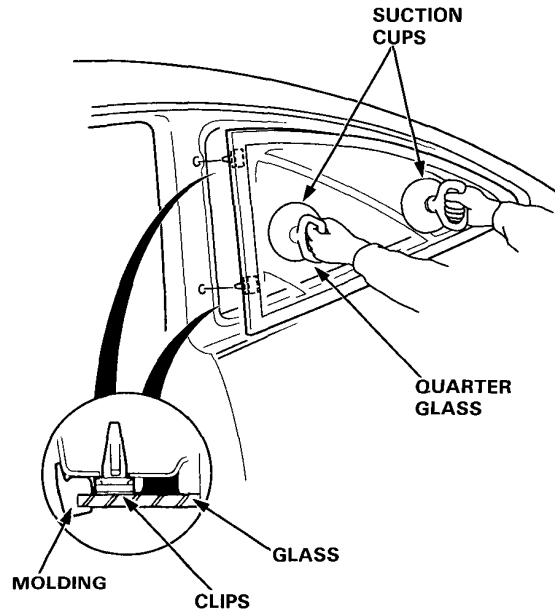
### NOTE:

- After applying the adhesive, peel the separator off the double-faced adhesive tapes.
- Apply the adhesive within 30 minutes after applying the glass primer.



11. Use suction cups to hold the quarter glass over the opening, align it with the clip setting points and set it down on the adhesive. Lightly push on the quarter glass until its edges are fully seated on the adhesive all the way around.

NOTE: Do not open or close the doors until the adhesive is dry.



12. Scrape or wipe the excess adhesive off with a putty knife or towel.

NOTE: Use a soft shop towel dampened with alcohol to remove adhesive from a painted surface or the quarter glass.

13. Let the adhesive dry for at least one hour, then spray water over the quarter glass and check for leaks. Mark leaking areas and let the quarter glass dry, then seal with sealant.

NOTE: Let the car stand for at least four hours after quarter glass installation. If the car has to be used within the first four hours, it must be driven slowly.

14. Reinstall all remaining removed parts.



# Headliner

## Replacement

### Remove:

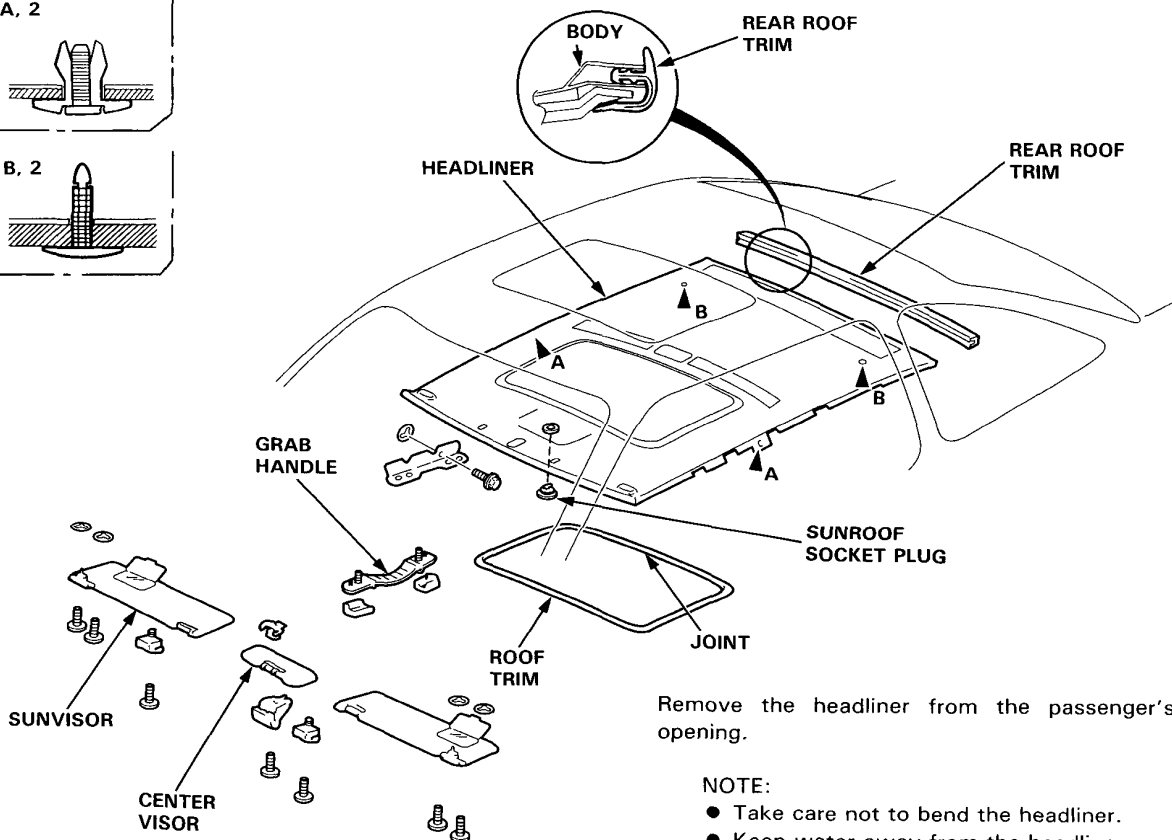
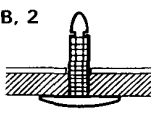
- Sunvisors and center visor
- Rearview mirror (see page 20-4)
- Front pillar trim (see page 20-14)
- Quarter trim panel and rear pillar trim panel (see page 20-14)
- Roof trim and sunroof socket plug (sunroof model)
- Grab handle
- Front seat (passenger's)
- Rear seat (see page 20-15)
- Ceiling light (see section 23)

### ►: Clip locations

A, 2



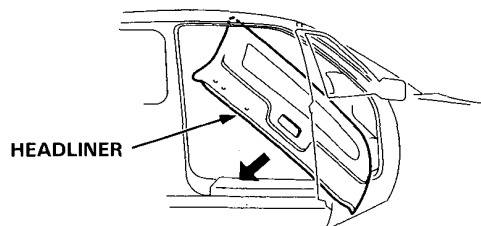
B, 2



Remove the headliner from the passenger's door opening.

### NOTE:

- Take care not to bend the headliner.
- Keep water away from the headliner.
- Be careful not to damage the dashboard and other interior trim.



Installation is the reverse of the removal procedure.

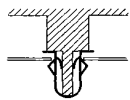
### NOTE:

- When inserting the headliner through the door opening, be careful not to fold or bend it. Also, be careful not to scratch the body.
- Check that both sides of the headliner are securely attached to the trim and panel.
- When installing the roof trim, install the joint towards the rear.

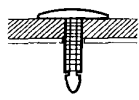
# Interior Trim Replacement

► : Clip locations

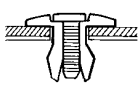
A, 24



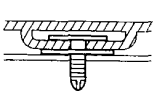
B, 13



C, 6



D, 6



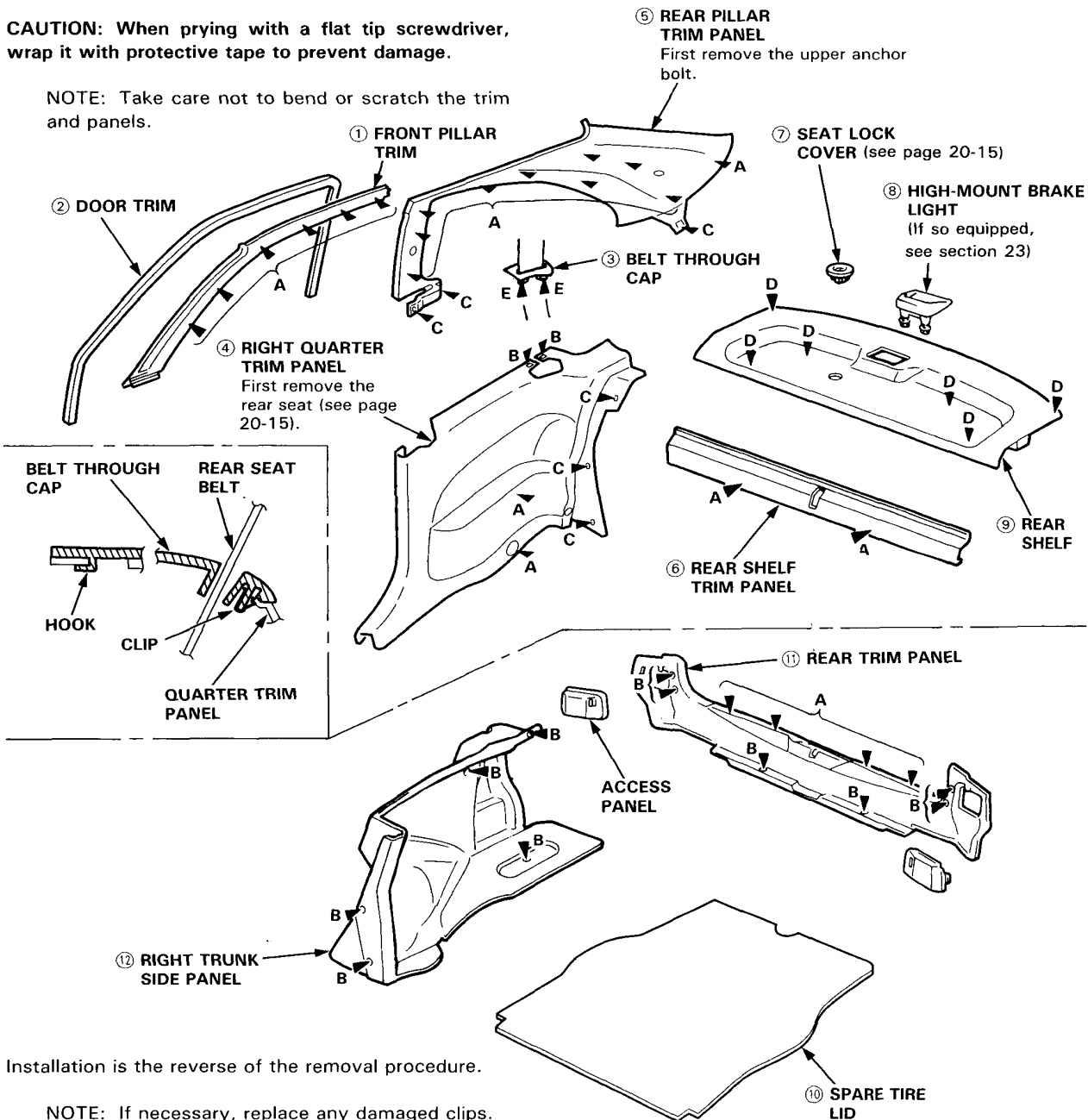
E, 2



Disassemble in numbered sequence.

**CAUTION:** When prying with a flat tip screwdriver, wrap it with protective tape to prevent damage.

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



Installation is the reverse of the removal procedure.

**NOTE:** If necessary, replace any damaged clips.

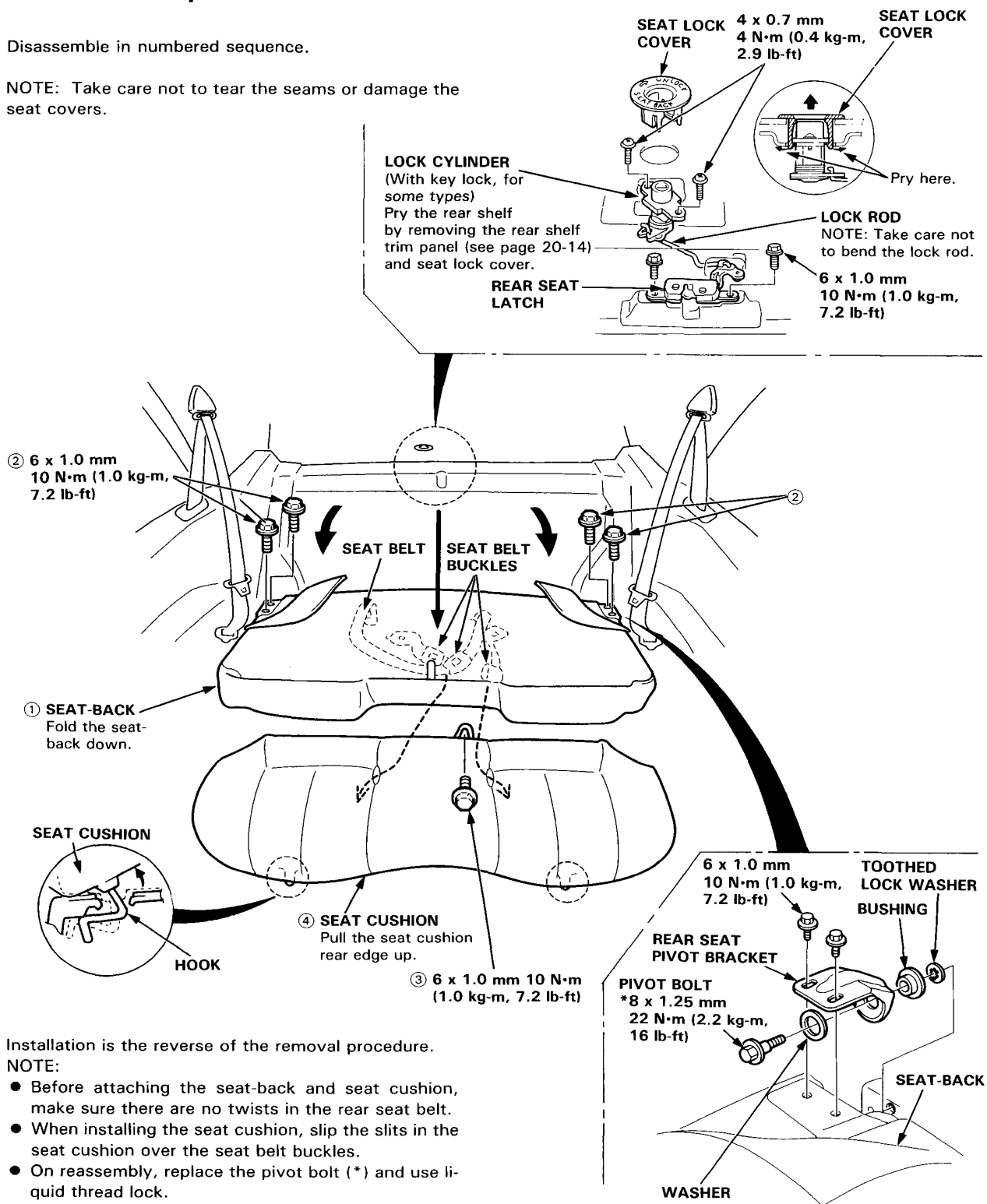


# Seat

## Rear Seat Replacement

Disassemble in numbered sequence.

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



Installation is the reverse of the removal procedure.

NOTE:

- Before attaching the seat-back and seat cushion, make sure there are no twists in the rear seat belt.
- When installing the seat cushion, slip the slits in the seat cushion over the seat belt buckles.
- On reassembly, replace the pivot bolt (\*) and use liquid thread lock.

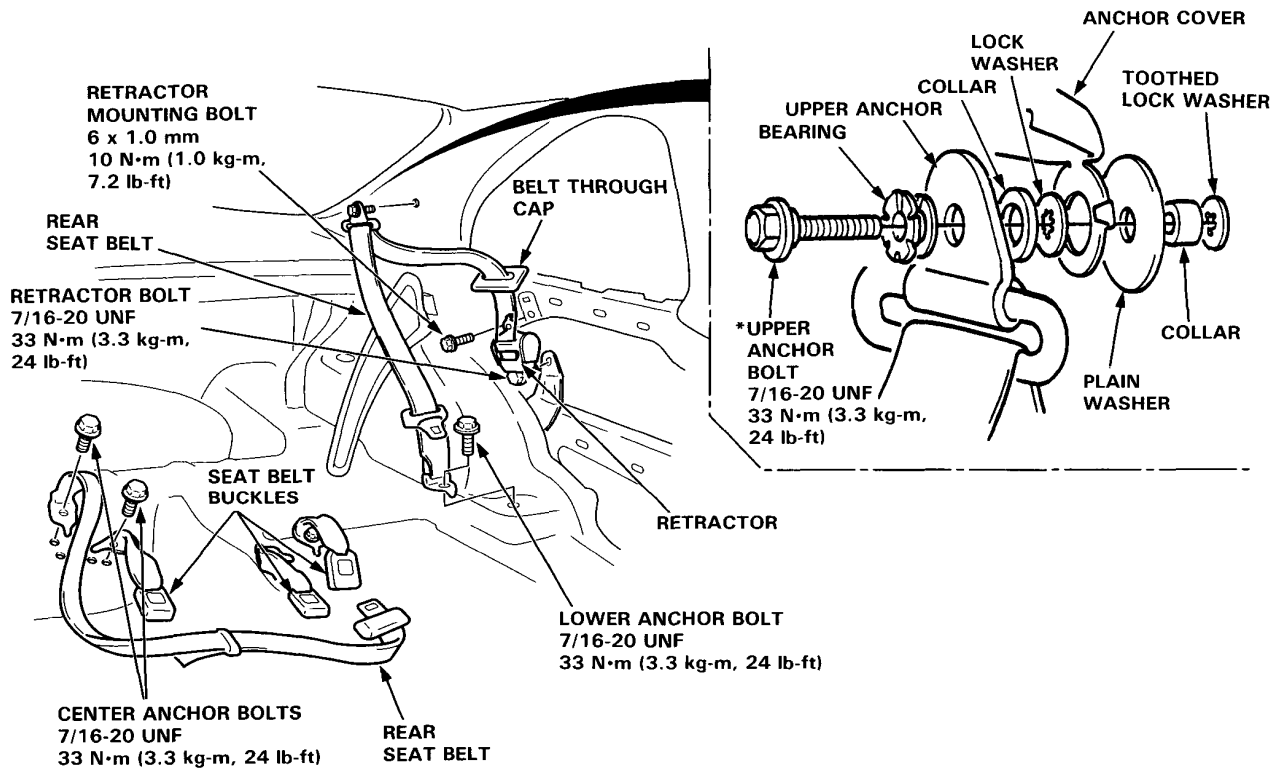
# Seat Belt

## Rear Seat Belt Replacement

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

1. Remove:
  - Rear seat (see page 20-15)
  - Quarter trim panel (see page 20-14)
2. Remove the upper anchor bolt, lower anchor bolt, retractor bolt, retractor mounting bolt and center anchor bolts, then remove the rear seat belts and seat belt buckles.

**NOTE:** When removing the upper, lower and center anchor bolts and retractor bolt, use a 17 mm socket or box-end wrench.



3. Check that the retractor locking mechanism functions as described on page 20-17.
4. Installation is the reverse of the removal procedure.

**NOTE:**

- Before attaching the quarter trim panel and rear seat, make sure there are no twists or kinks in the rear seat belts.
- On reassembly, replace the upper anchor bolt (\*) and use liquid thread lock.



## Inspection

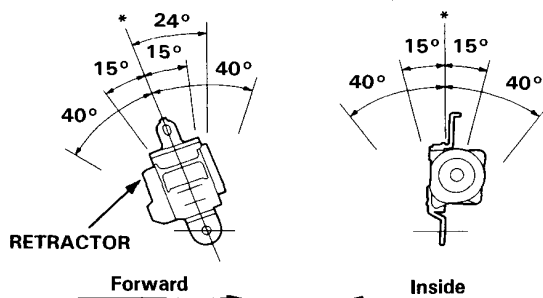
### Retractor Inspection

1. Before installing the retractor, check that the seat belt can be pulled out freely.
2. Make sure that the seat belt does not lock when the retractor is leaned slowly up to  $15^\circ$  from the mounted position. The seat belt should lock when the retractor is leaned over  $40^\circ$ .

**CAUTION:** Do not attempt to disassemble the retractor.

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

\*: Mounted Position



### On-the-Car Seat Belt Inspection

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.

**CAUTION:** Use only soap and water to clean.

**NOTE:** Dirt build-up in the metal loops of the upper anchors can cause the seat belts to retract slowly. Wipe the inside of the loops with a clean cloth dampened in isopropyl alcohol.

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. Make sure that the seat belt will retract automatically when released.
6. Replace the seat belt with a new one if there is any abnormality.



# Trunk Lid

## Replacement/Adjustment

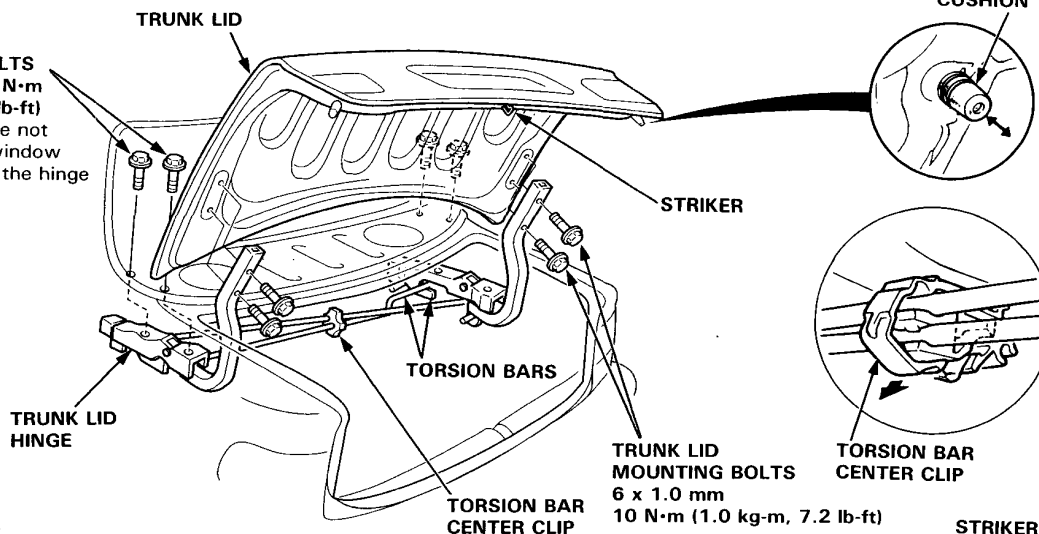
### NOTE:

- An assistant is helpful when removing the trunk lid.
- Before pulling out the wire harness, tie a string to the end of it so you can pull it back in when the trunk lid is reinstalled.
- LHD is shown, RHD is symmetrical (except wire harness).

### HINGE

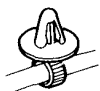
**MOUNTING BOLTS**  
6 x 1.0 mm 10 N·m  
(1.0 kg-m, 7.2 lb-ft)

NOTE: Take care not to hit the rear window when removing the hinge mounting bolts.

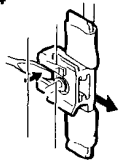


### ►:Clip locations

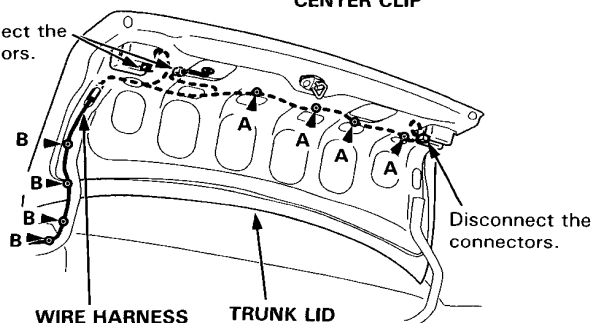
A, 4



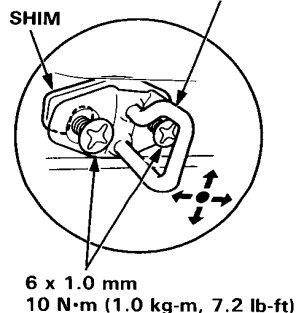
B, 4



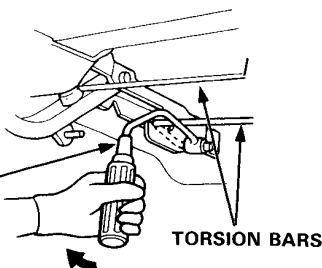
Disconnect the connectors.



Disconnect the connectors.



**TORSION BAR ASSEMBLY TOOL**  
07GAZ-SE30100



Adjust the torsion bars fore or aft with the torsion bar assembly tool as shown.



○ = Normal position  
● = Higher tension

### ALIGNMENT:

- Adjust the trunk lid fit to the trunk lid opening by moving the striker.
- Turn the trunk lid edge cushions as necessary, to make the trunk lid fit flush with the body at the rear and side edges.
- The trunk lid hinges can be adjusted fore and aft by using the elongated holes.
- Use shims as necessary, to make the trunk lid fit flush with the body at the rear edge.

Installation is the reverse of the removal procedure.

### NOTE:

- Make sure the connectors are connected properly.
- Make sure the trunk lid locks securely.
- Make sure the trunk lid opens properly.
- Align the trunk lid alignment.



# Opener Cables

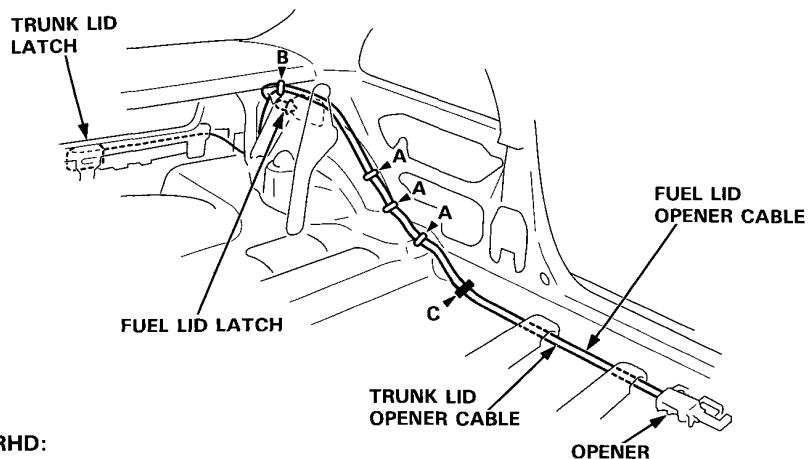
## Replacement

Remove the following parts:

- Rear seat (see page 20-15)
- Left quarter trim panel (see page 20-14)
- Spare tire lid (see page 20-14)
- Rear trim panel and left trunk side panel (see page 20-14)
- Pull the carpet back, as necessary.

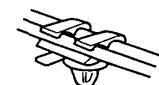
NOTE: When removing the clips, use a clip remover.

LHD:

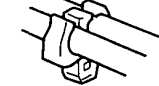


►: Clip, cable cushion locations

A, 3



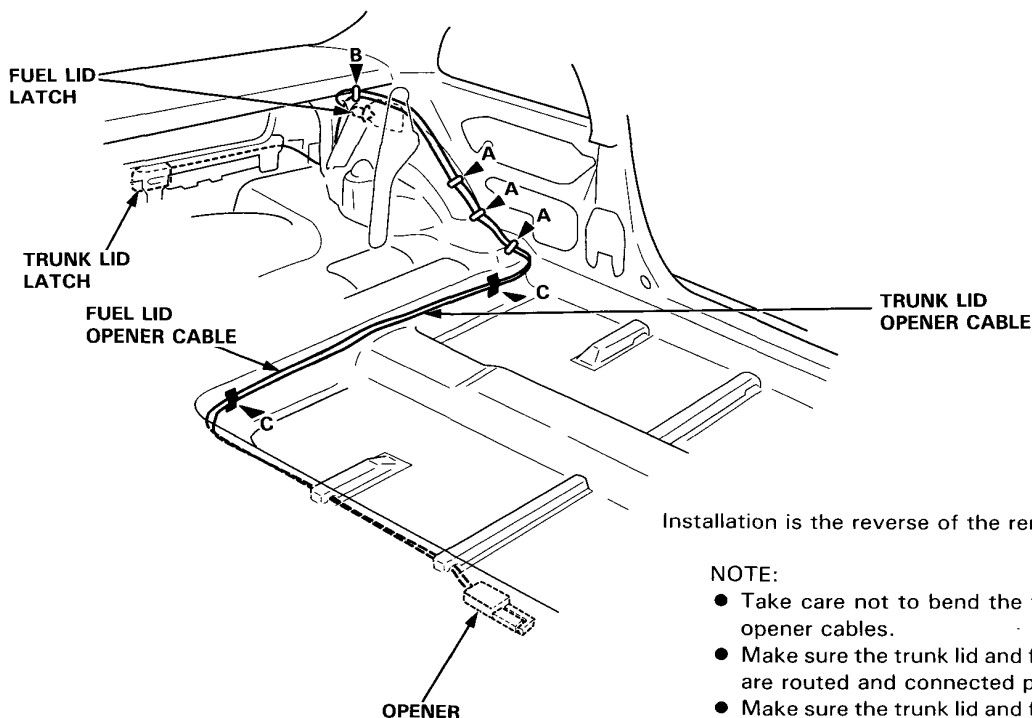
B, 1



C, LHD:1  
RHD:2



RHD:



Installation is the reverse of the removal procedure.

NOTE:

- Take care not to bend the trunk lid and fuel lid opener cables.
- Make sure the trunk lid and fuel lid opener cables are routed and connected properly.
- Make sure the trunk lid and fuel lid lock securely.
- Make sure the trunk lid and fuel lid open properly.

# Rear Emblems

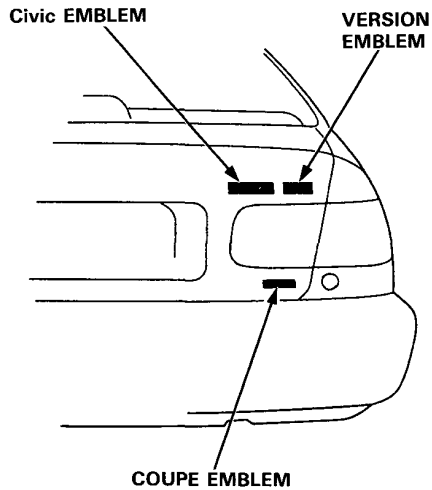
## Installation

Apply the emblems where shown.

### NOTE:

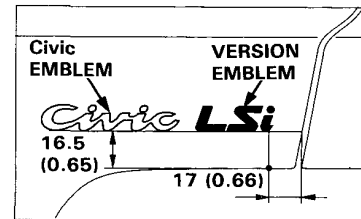
- Before applying, clean the body surface with a sponge dampened in alcohol.
- After cleaning, keep oil, grease or water from getting on the surface.
- When applying, make sure there are no wrinkles in the emblems.

### Attachment Points (Reference):

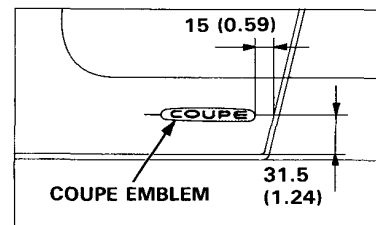
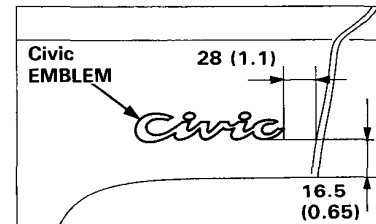


Unit: mm (in)

### LSi, ESi



### KG, KE models (except LSi, ESi)



**Electrical**

**Wire Harness and Ground Locations**  
    **Floor ..... 23-2**

**Ignition System**  
    **Ignition Timing Inspection and**  
    **Setting ..... 23-4**  
    **Idle Speed Inspection ..... 23-5**  
    **Spark Plug Inspection ..... 23-6**

**Stereo Sound System**  
    **Component Location Index ..... 23-7**  
    **Circuit Diagram ..... 23-8**

**Outline of Model Changes**

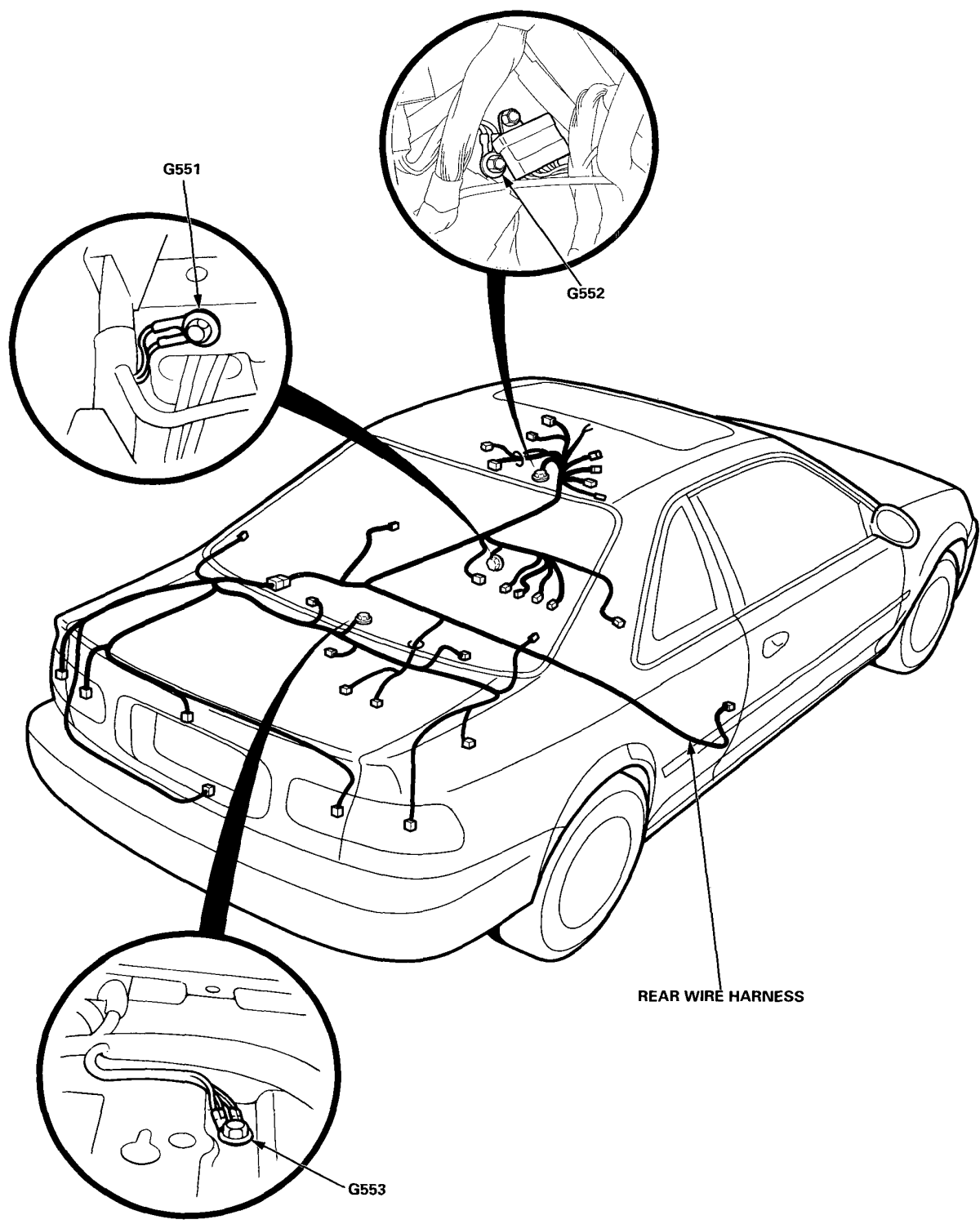
Items specific to the newly introduced Civic Coupe model have been included. For the other systems, refer to the Shop Manual 62SR300, 62SR320, and 62SR321.



# Wire Harness and Ground Locations

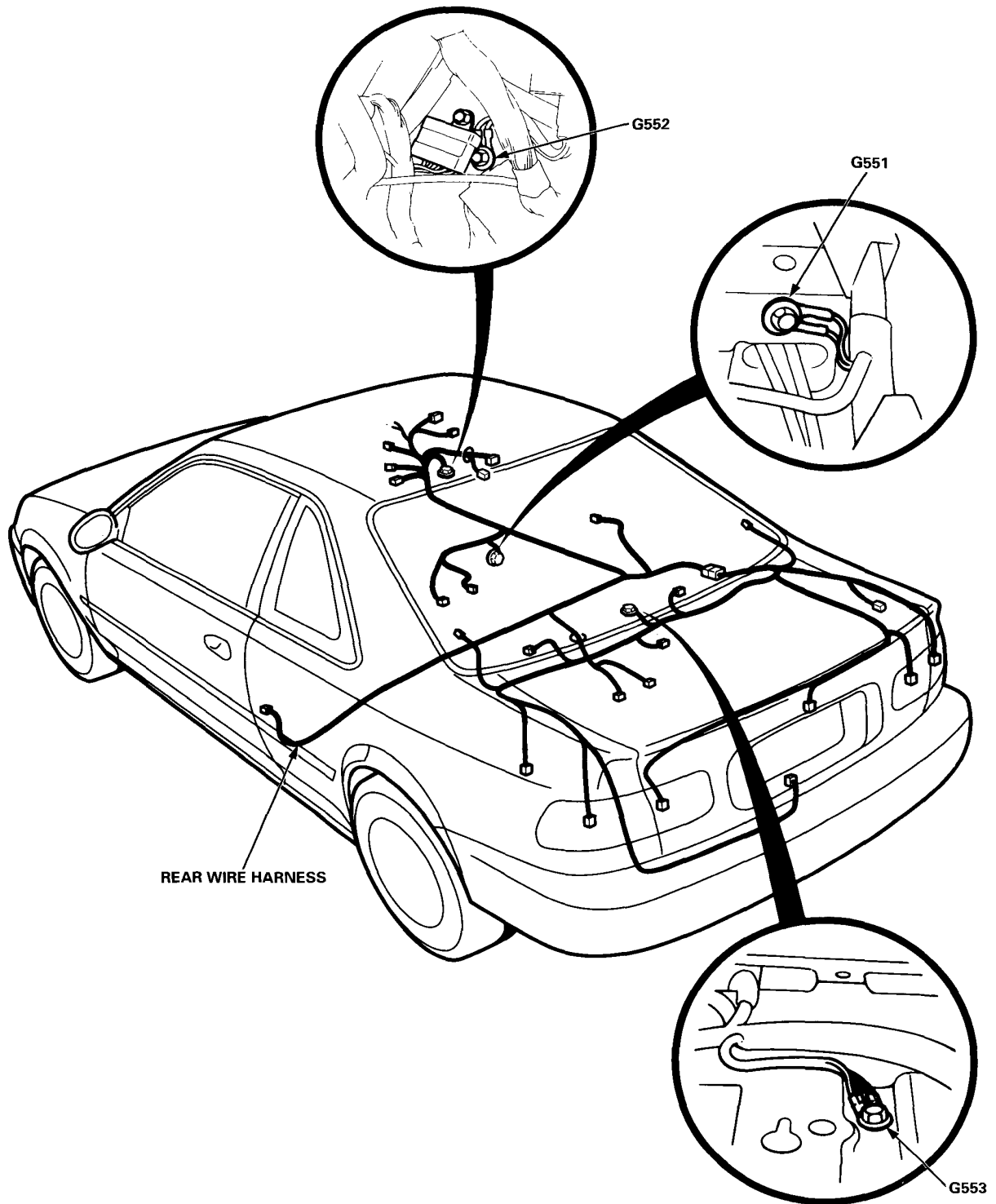
Floor \_\_\_\_\_

LHD:





RHD:

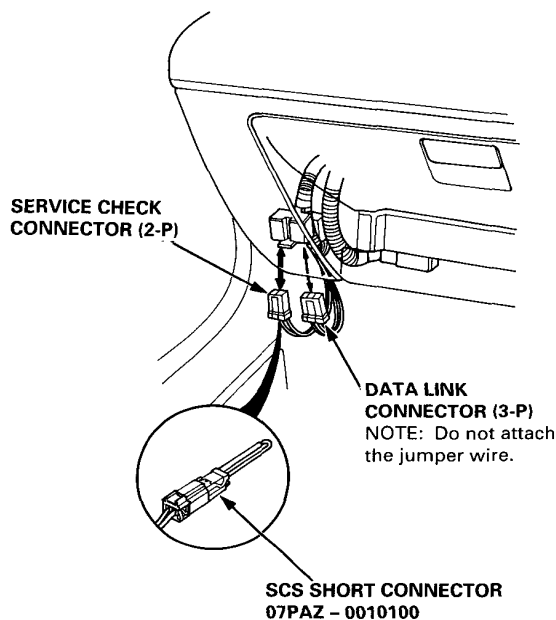


# Ignition System

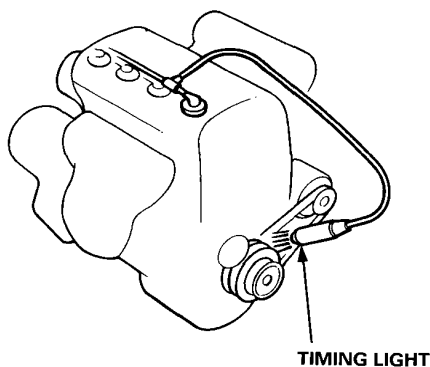
## Ignition Timing Inspection and Setting

1. Start the engine and allow it to warm up (the radiator fan comes on).
2. Connect the SCS short connector to Service Check Connector as shown (the 2-P Service Check Connector is located under the dash on the passenger side of the car).

NOTE: The illustration shows RHD type; LHD type is symmetrical.



3. Connect a timing light to the No. 1 plug wire and point it toward the pointer on the timing belt cover.



4. Adjust ignition timing, if necessary, to the following specifications:

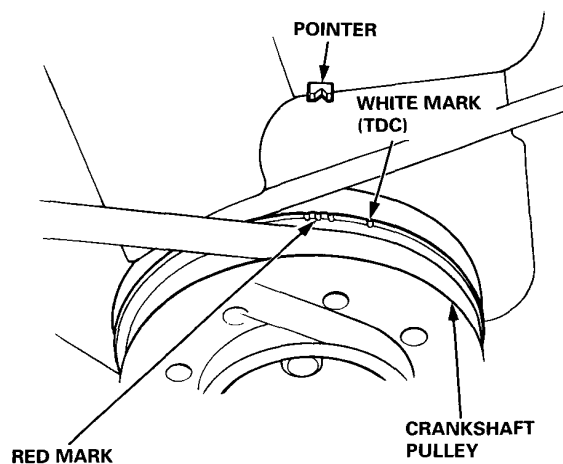
### Ignition timing:

#### D15B7/D16Z9 engine:

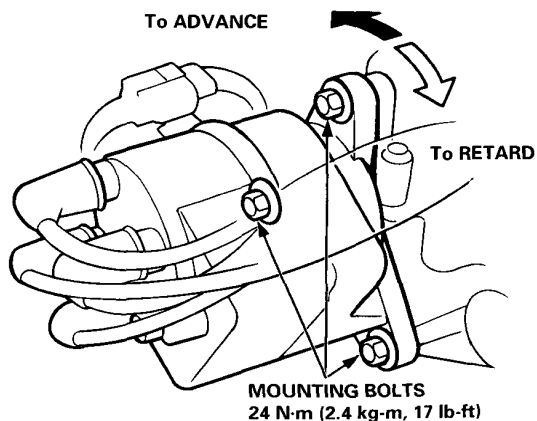
M/T:  $16^\circ \pm 2^\circ$  BTDC (RED)  
at  $750 \pm 50 \text{ min}^{-1}$  (rpm)  
A/T:  $16^\circ \pm 2^\circ$  BTDC (RED)  
at  $750 \pm 50 \text{ min}^{-1}$  (rpm)

#### NOTE:

- Shift lever in neutral position.
- All electrical systems are turned OFF.



5. If it is necessary to adjust the ignition timing, loosen the distributor mounting bolts, and turn the distributor housing counterclockwise to advance the timing, or clockwise to retard the timing.



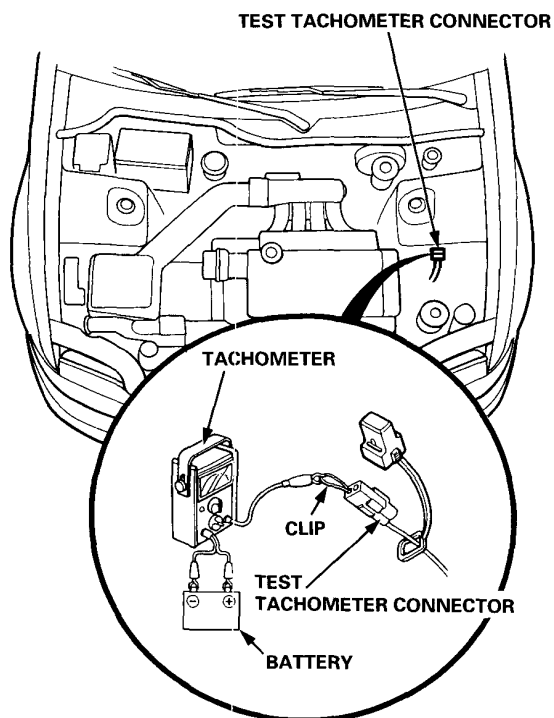
6. Tighten the adjusting bolts and recheck the timing.
7. Remove the SCS short connector from the Service Check Connector.



## Idle Speed Inspection

1. Start the engine and allow it to warm up (the radiator fan comes on).
2. Connect a tachometer to the test tachometer connector.

NOTE: LHD type is shown, RHD type is similar.



### Idle speed:

#### D15B7/D16Z9 engine:

M/T:  $750 \pm 50 \text{ min}^{-1} \text{ (rpm)}$

A/T:  $750 \pm 50 \text{ min}^{-1} \text{ (rpm)}$

#### NOTE:

- Shift lever in neutral position.
- All electrical systems are turned OFF.

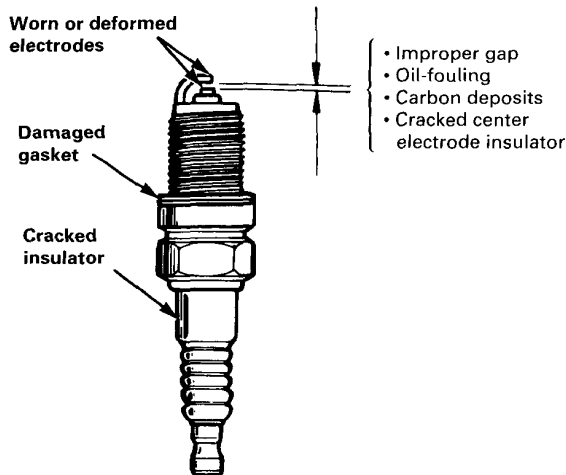
3. Adjust the idle speed, if necessary (see section 11).



# Ignition System

## Spark Plug Inspection

1. Inspect the electrodes and ceramic insulator for:



### Burned or worn electrodes may be caused by:

- Advanced ignition timing
- Loose spark plug
- Plug heat range too low
- Insufficient cooling

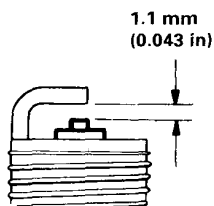
### Fouled plug may be caused by:

- Retarded ignition timing
- Oil in combustion chamber
- Incorrect spark plug gap
- Plug heat range too high
- Excessive idling/low speed running
- Clogged air cleaner element
- Deteriorated ignition coil or ignition wires

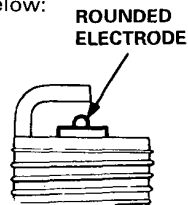
2. Adjust the gap with a suitable gapping tool.

### Electrode Gap:

Standard	$1.1 \pm 0.1 \text{ mm } (0.043 \pm 0.004 \text{ in})$
----------	--



3. Replace the plug if the center electrode is rounded as shown below:



NOTE: Do not use spark plugs other than those listed below, because these plugs are a new type (ISO standard).



These marks are sealed on the timing belt cover.

### Spark Plug

#### D15B7 engine:

ZFR5F-11 (NGK) KJ16CR-L11 (Nippondenso)	For all normal driving.
ZFR6F-11 (NGK) KJ20CR-L11 (Nippondenso)	For hot climates or continuous high speed driving.

#### D16Z9 engine:

BKR6E-11 (NGK) K20PR-U11 (Nippondenso)	For all normal driving.
BKR7E-11 (NGK) K22PR-U11 (Nippondenso)	For hot climates or continuous high speed driving.

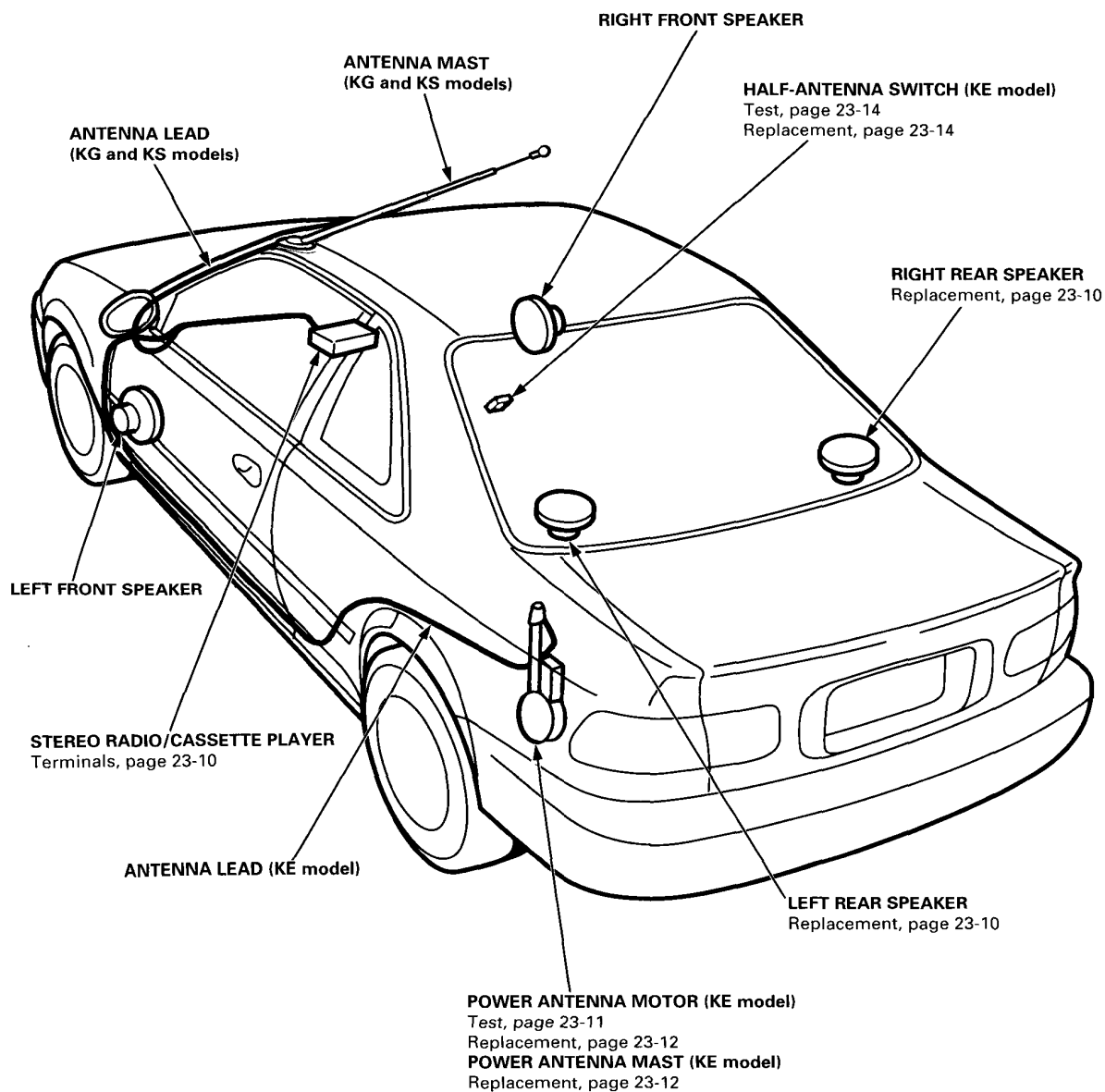
4. Screw the plugs into the cylinder head finger tight, then torque them to 18 N·m (1.8 kg-m, 13 lb-ft).

NOTE: Apply a small quantity of anti-seize compound to the plug threads before installing.



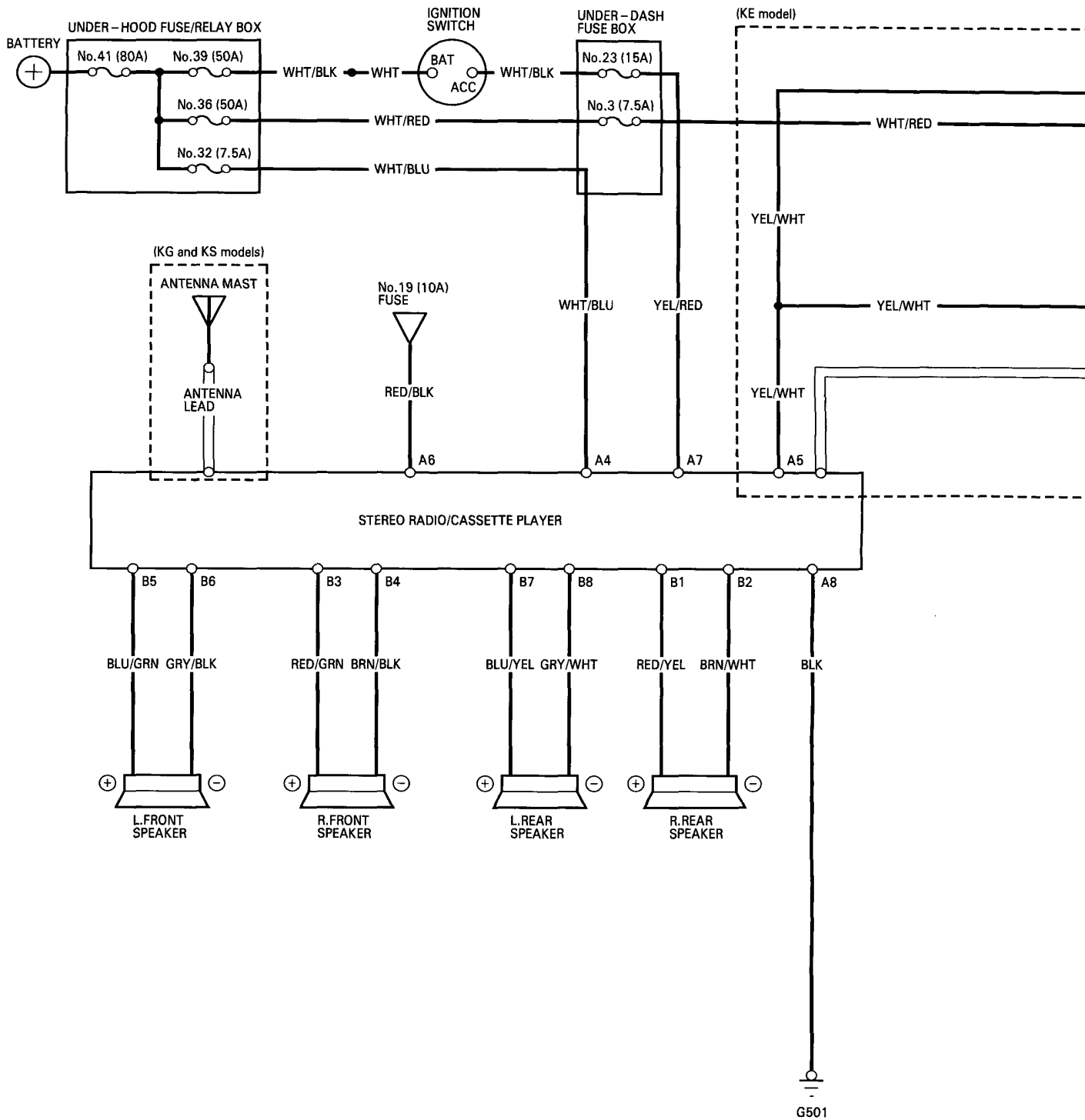
# Stereo Sound System

## Component Location Index



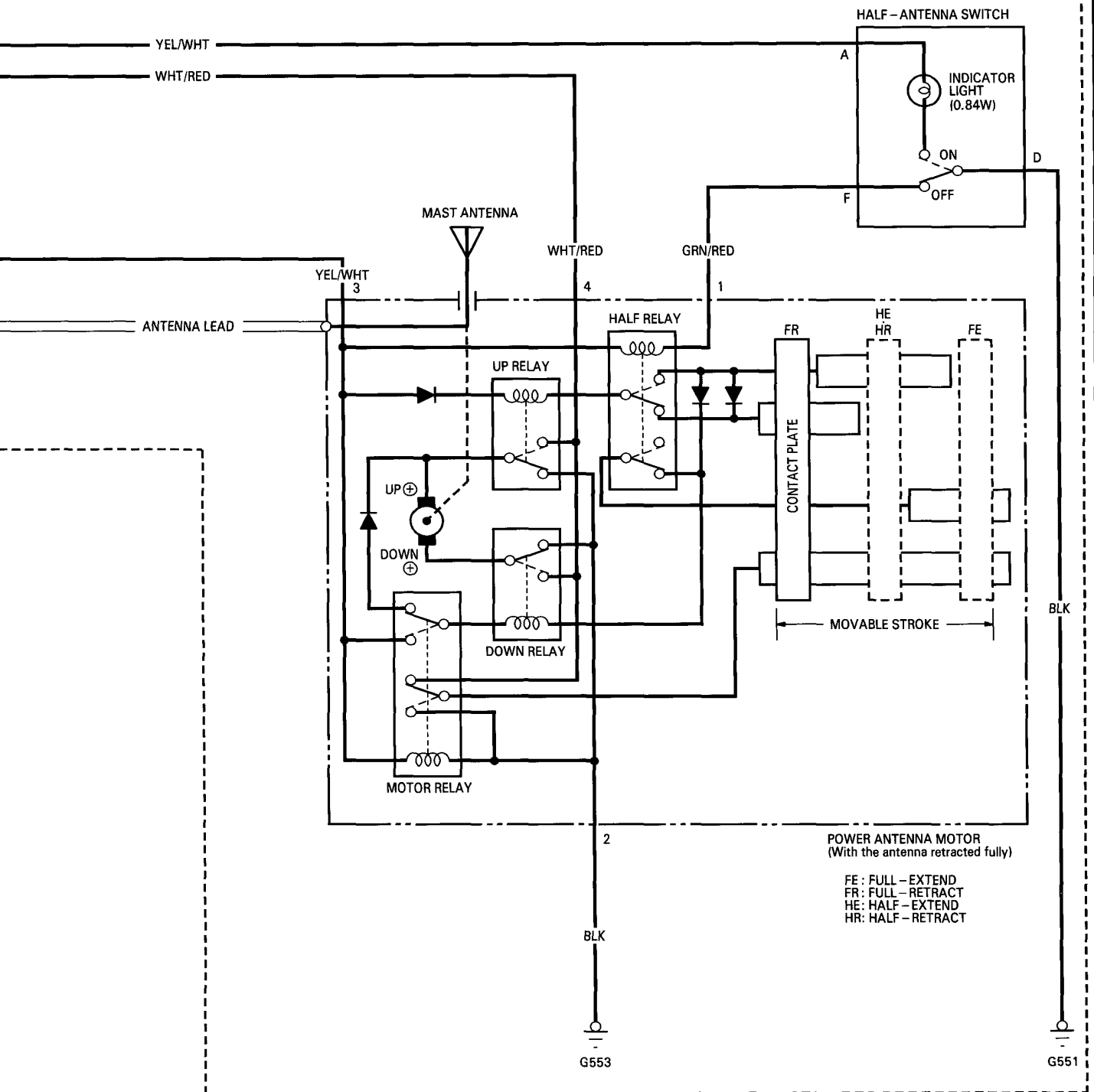
# Stereo Sound System

## Circuit Diagram





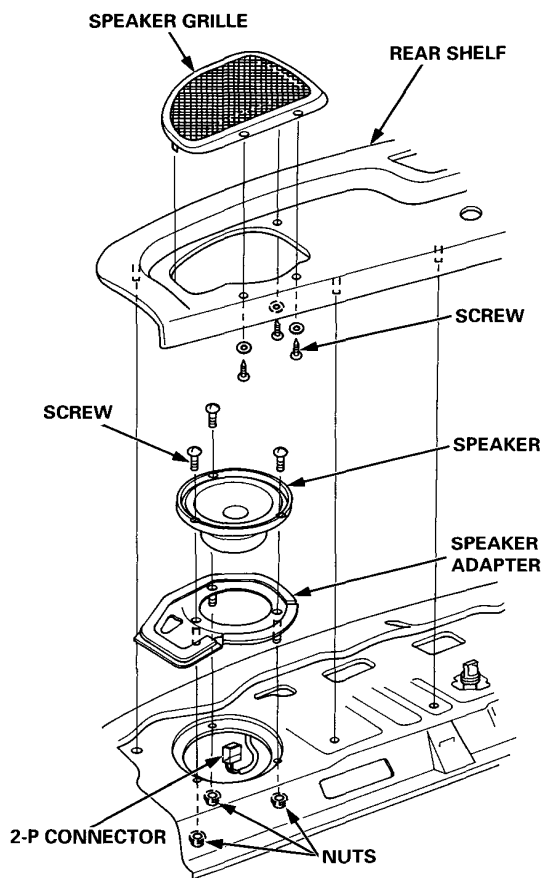
(KE model)



# Stereo Sound System

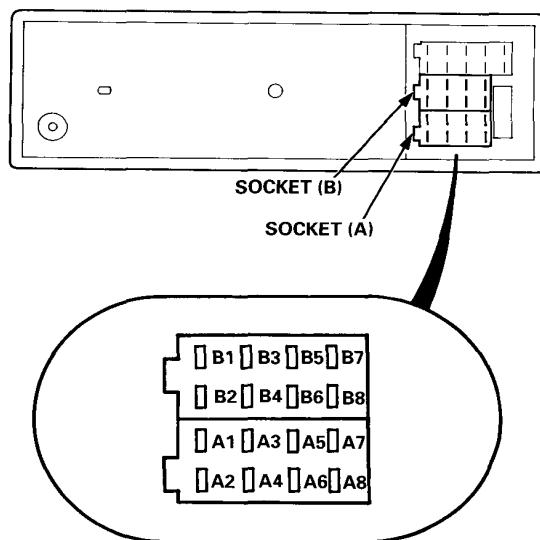
## Rear Speaker Replacement

1. Remove the rear shelf.
2. Remove the three nuts from inside the trunk, and disconnect the 2-P connector.
3. Remove the three screws from the speaker.
4. Remove the speaker from the speaker adapter.
5. If it is necessary, remove the three screws and speaker grille from the rear shelf.



6. Install in the reverse order of removal.

## Stereo Radio/Cassette Player Terminals



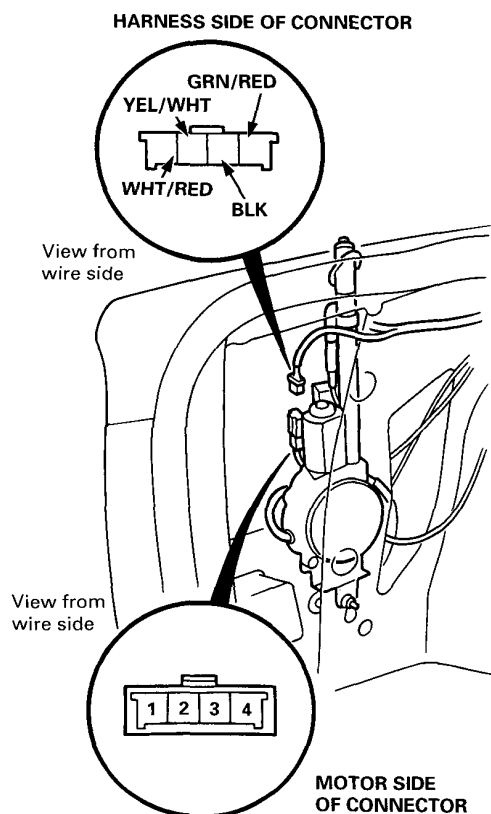
Terminal	Wire	Connects to
A1	—	(Not used)
A2	—	(Not used)
A3	—	(Not used)
A4	WHT/BLU	Constant power (Tuning memory)
*A5	YEL/WHT	Radio-switched power
A6	RED/BLK	Lights-on signal
A7	YEL/RED	ACC
A8	BLK	Ground
B1	RED/YEL	Right rear speaker ⊕
B2	BRN/WHT	Right rear speaker ⊖
B3	RED/GRN	Right front speaker ⊕
B4	BRN/BLK	Right front speaker ⊖
B5	BLU/GRN	Left front speaker ⊕
B6	GRY/BLK	Left front speaker ⊖
B7	BLU/YEL	Left rear speaker ⊕
B8	GRY/WHT	Left rear speaker ⊖

\*A5: KE model



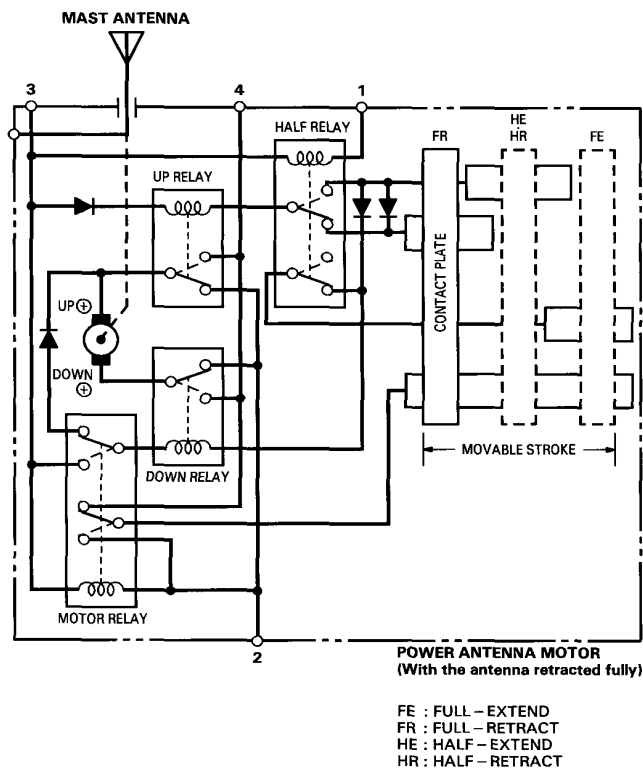
## Power Antenna Motor Test (KE model)

1. Remove the left side trunk panel and disconnect the 4-P connector from the power antenna motor.
2. Check for voltage between the WHT/RED (+) and the BLK (-) terminals.  
There should be battery voltage.
  - If there is no voltage, check for:
    - blown No. 3 (7.5 A) fuse in the under-dash fuse box.
    - an open in the WHT/RED wire.
    - poor ground (G553).
3. With the antenna fully retracted, connect battery power to No. 3 and No. 4 terminals at the motor side of the connector, and ground to No. 2 terminal. The antenna should extend and stop at halfway position.
4. With the antenna at halfway position, connect No. 1 and No. 2 terminals with a jumper wire. The antenna should fully extend and stop from its halfway position.



5. With the antenna fully extended, disconnect a jumper wire from No. 1 and No. 2 terminals. The antenna should retract and stop at halfway position from its extended position.
6. With the antenna at halfway position, disconnect battery power from No. 3 terminal. The antenna should fully retract and stop from its halfway position.

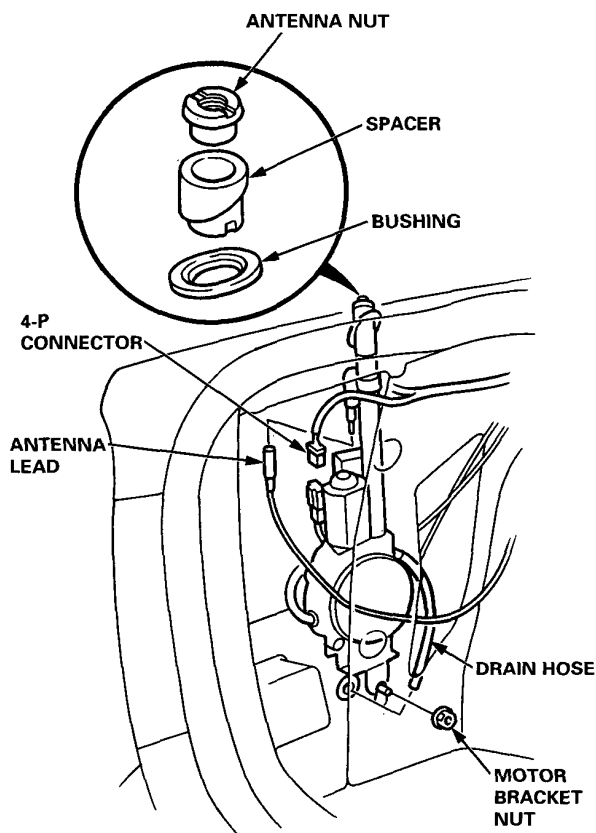
**NOTE:** If there are any malfunctions, clean the antenna with a wet shop towel and retest. If it still does not work properly, replace the power antenna motor.



# Stereo Sound System

## Power Antenna Motor Replacement (KE model)

1. Remove the antenna nut.
2. Remove the left side trunk panel, and disconnect the 4-P connector from the motor.
3. Disconnect the antenna lead and drain hose.
4. Remove the motor bracket nut.



5. Remove the motor and antenna as an assembly.
6. Install in the reverse order of removal.

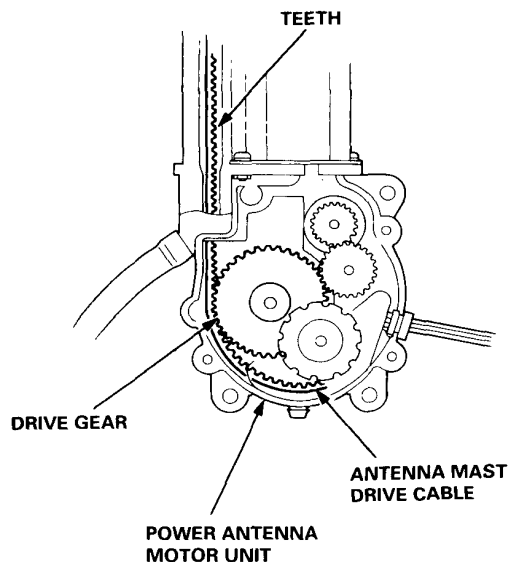
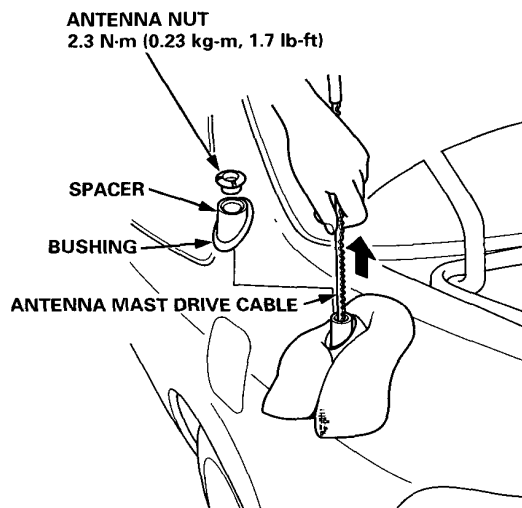
NOTE: Tighten the antenna nut, then tighten the motor bracket nut.

## Power Antenna Mast Replacement (KE model)

### Removal

NOTE: The antenna mast alone can be replaced without having to remove the power antenna motor.

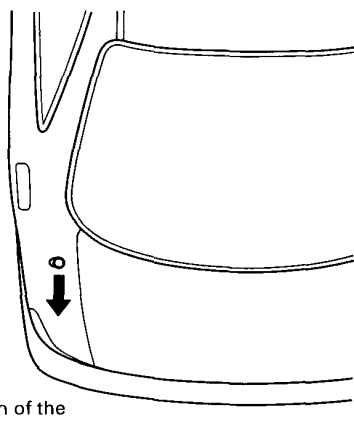
1. Remove the antenna nut, spacer and bushing.
2. Carefully withdraw the antenna mast while extending it by turning the radio switch ON.





### Installation

1. Hold the antenna so the teeth on the drive cable face in the direction shown, then insert the cable into the antenna housing.

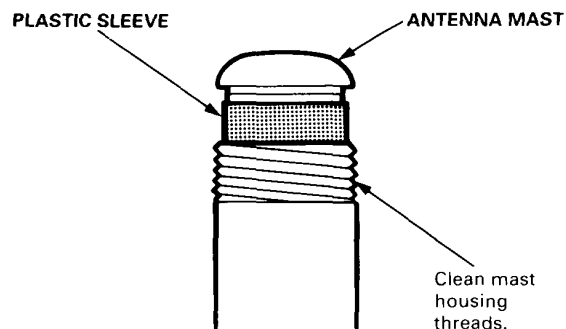


2. Check for engagement of the cable teeth with the drive gear by carefully moving the cable up and down.
3. Turn the radio switch "OFF", and let the motor pull the drive cable into the antenna housing.
4. Clean the antenna housing threads, then insert the antenna into the housing. Install the bushing and spacer, and install and tighten the antenna nut to 2.3 N·m (0.23 kg·m, 1.7 lb-ft).
5. Check that the antenna mast retracts and extends fully when the radio switch is turned ON and OFF repeatedly. If you overtighten the nut, the antenna may stick. If sticking occurs, back the nut off a little, then raise and lower the antenna again. Repeat until the antenna moves freely.

### Sticking Antenna:

The antenna sticks in either the up or down position.

1. Remove the antenna nut, spacer, and bushing.
2. Clean the antenna mast housing threads, and reinstall the spacer and bushing.



3. Tighten the antenna nut to 2.3 N·m (0.23 kg·m, 1.7 lb-ft). If you overtighten the nut, the antenna may stick. If sticking occurs, back the nut off a little, then turn the radio on and off to raise and lower the antenna again. Repeat until the antenna moves freely.

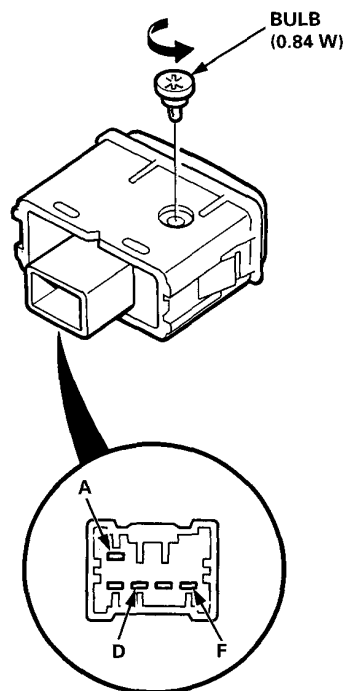
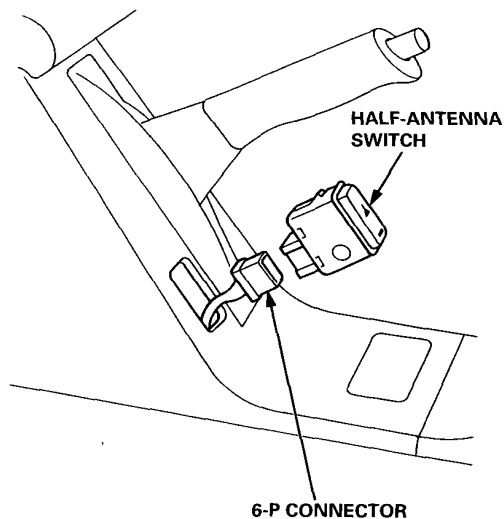


# Stereo Sound System

## Half-antenna Switch Test/Replacement (KE model)

NOTE: Before testing, make sure that the radio works normally.

1. Pry the half-antenna switch out of the rear console.
2. Disconnect the 6-P connector from the switch.



3. Check for continuity between the terminals in each switch position according to the table.

Terminal	A		D	F
Position				
ON (HALF)	○	⊗	○	
OFF (FULL)			○	○

