## FE.FG

## **SERVICE MANUAL**

#### **FOREWORD**

This Service Manual contains maintenance and repair methods for all those who are involved in the maintenance and repair of Mitsubishi Fuso Truck FE.FG Series. Read this manual carefully as an aid to providing correct, efficient and fast maintenance. Please note, however, that due to continued vehicle improvements the specifications and numerical given for use in maintenance may change without notice. If you have any question, or encounter a problem, please do not hesitate to contact your nearby Mitsubishi Fuso Dealer or Distributor.

May 1991

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#### MANUAL LAYOUT - GROUP CLASSIFICATIONS

#### 1. GROUP CLASSIFICATIONS

This Manual is divided into Groups, one for each system of the vehicle.

Gr. No.	Group Name	Description			
00	General	External views, major specifications, power train table, operation performance curve engine performance curves, servicing precautions, standard bolt and nut tightening torque table, towing precautions, vehicle identification numbers.			
01	Maintenance Schedule	Maintenance schedule, simple maintenance, lubrication chart, oils and greases to u			
11	Engine	Engine remove and installation, cylinder head, valve mechanism, camshaft, pistons, crankshaft, timing gear, flywheel.			
12	Lubrication	Oil pump, oil filter, oil cooler.			
13	Fuel and Engine Control	Pre-stroke control injection pump system injection nozzles, fuel filter, fuel tank, water separator, engine control, accelerator pedal, throttle button.			
14	Cooling	Water pump, thermostat, radiator, fan, auto-cool fan coupling.			
15	Intake and Exhaust	Air cleaner, intake shutter, turbocharger, intercooler.			
16	Engine electrical	Starter, alternator, vacuum pump, glow system, idle up system.			
21	Clutch	Clutch, clutch control (master cylinder, power cylinder).			
22	Manual Transmission	Transmission, transmission control.			
23	Automatic Transmission	Maintenance and inspection, removal, installation, oil seal replacement.			
24	Transfer	Transfer, transfer control.			
25	Propeller Shaft	Propeller shaft, universal joint, center bearing, double cardin propeller shaft.			
26A	Front Axle <fe series=""></fe>	Front axle, kingpins, knuckles, hub bearings.			
268	Front Axle <fg series=""></fg>	Front axle, wheel hub and brake drum, knuckle and drive shaft, reduction and differential.			
27	Rear Axle	Rear axle, reduction and differential, hub bearings.			
31	Wheels and Tires	Tire, disc wheel.			
33	Front Suspension	Front suspension, leaf springs, shock absorbers, stabilizer.			
34	Rear Suspension	Rear suspension, leaf springs, shock absorbers, stabilizers.			
34	Rear suspension	Rear suspension, leaf springs, shock absorbers, stabilizers.			
35	Brake	Brake pedal, master-vac, wheel brake(wheel cylinder, brake drum, brake shoes), exhaust brake(exhaust brake valve, power chamber).			
36	Parking Brake	Parking brake(brake drum, brake shoe), parking brake control.			
37	Steering	Steering wheel, power steering booster, power steering oil pump, steering linkage, t rods.			
41	Frame	Frame inspection and maintenance.			
42	Cab	Cab, cab mounting, window glass, doors, seats, trim.			
54	Chassis electrical	Meters, gauges, switches, lamps, warning and indicator lamps, wipers.			
55A	Air Conditioner	Air conditioner ventilation system.			
55B	Heater	Heater, ventilation.			

### 2. DEFINITIONS OF TERMS AND UNITS USED

Terms and units used commonly throughout this manual have specific meanings, as defined below.

#### (1) Front and rear

When the vehicle is travelling forward, that part of the vehicle which is in a leading position is referred to as the front; the opposite end of the vehicle referred to as the rear, or back.

#### (2) Left and Right

When an observer is facing in the same direction as the vehicle's forward direction of motion, the observer's right and left correspond to the right and left sides of the vehicle; i.e., that part of the car which is on the observer's right when facing forward is referred to as the right side of the car.

#### (3) Maintenance standards terms

#### Norminal value

Indicates the design dimentions of the vehicle body and individual parts, the standard clearance between assembled parts, and the standard performance of assemblies. Values in brackets are basic diameters.

#### Limit

Indicates the dimension limit of a part, at which point the part is no longer serviceable from the view point of both performance as well as strength, and requires replacement.

#### (4) Tightening torque

Tightening bolts and nuts too much or too little can have a large influence on performance and function.

Thus, tightening torque is specified for each location that must be tightened in a particular range. When tightening must be performed under wet conditions, this is specified. If not specified, tightening is performed dry.

When tightening torque is not specified, tighten according to the standard bolts and nuts tightening torque table.

#### (5) Units

Length, weight, surface area and capacity are given in International Systems of Units, with foot pounds units indicated in brackets. Temperatures are given in degrees Celsius, with degrees in Fahrenheit in brackets.

# FE/FG Service Manual

1995 Model Changes 1994 Minor Change 1993 Minor Change 1992 Group 00 - General

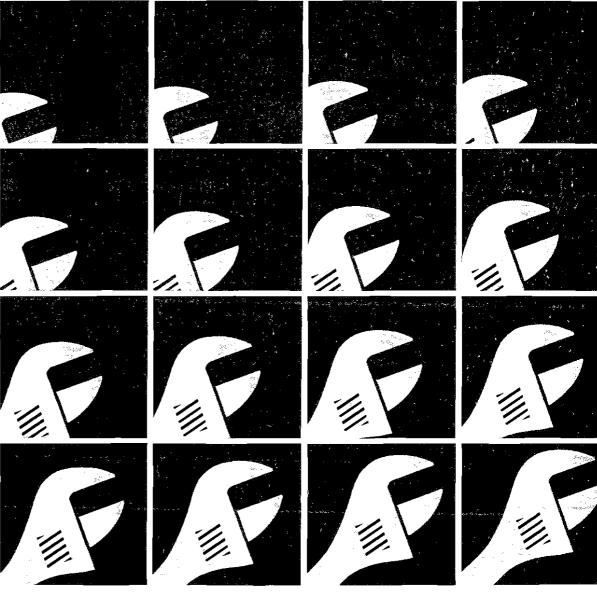




# **Service Manual**

## '95 Model Changes





Pub. No. TWSE 9408

#### **FOREWORD**

Text of this manual describes only what is new with '95 model from that of '94. When you may need any information which is not found in the text, refer to following documents.

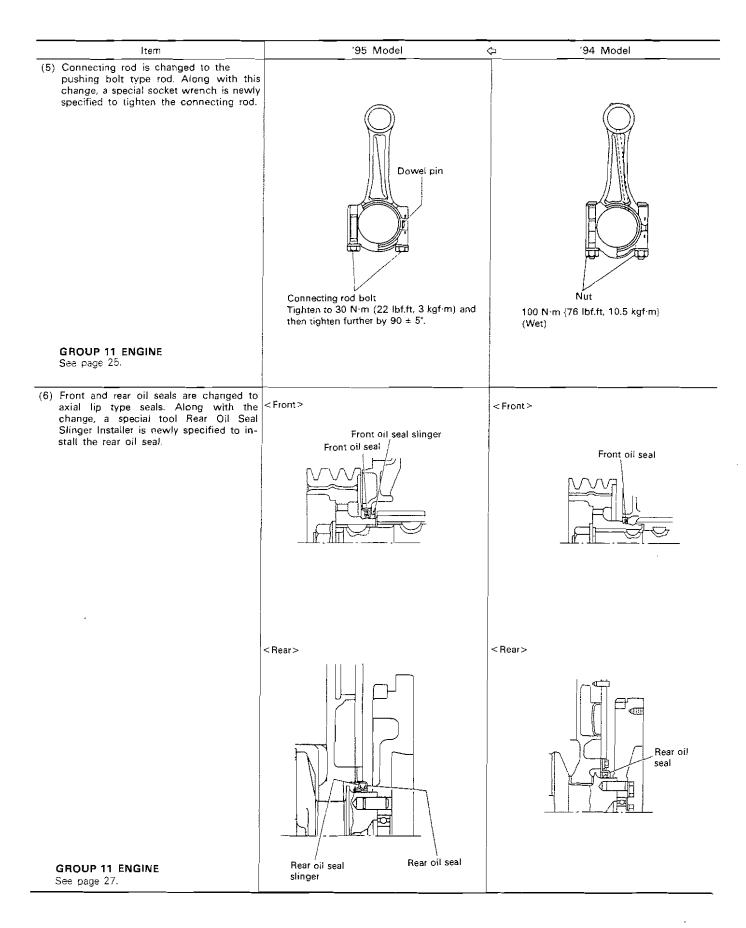
- '92 model: Service Manual FE.FG 1992, Pub. No. TWSE9105
- '93 model: Service Manual FE.FG 1993, Minor Change Pub. No. TWSE9203
- '94 model: Service Manual FE. FG 1994 Minor Change Pub. No. TWSE9306

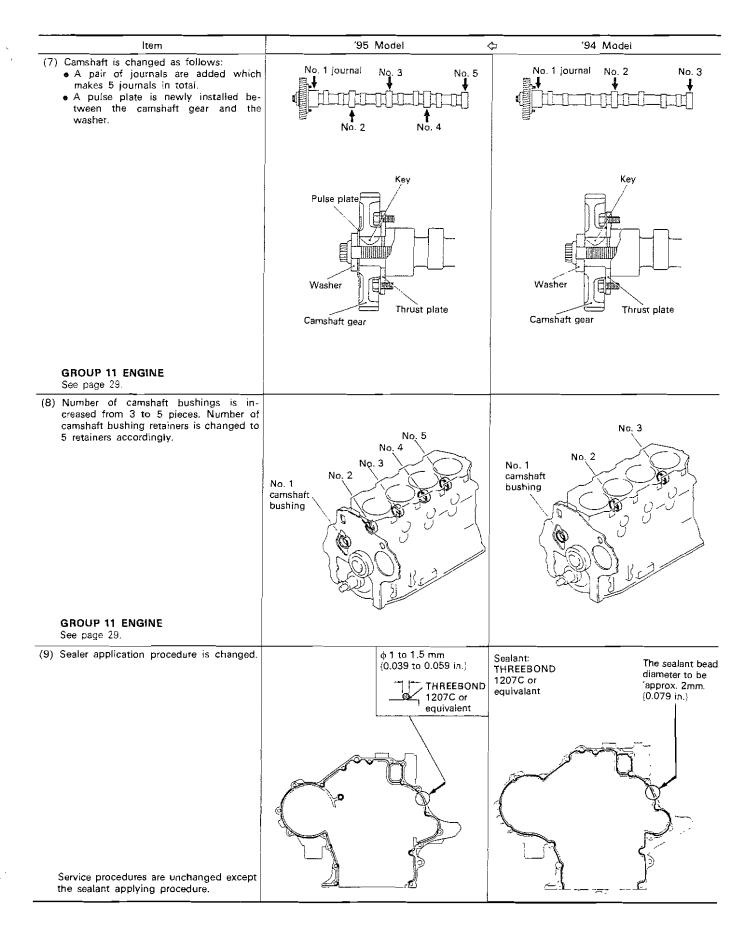
# OUTLINE OF THE '95 MODEL CHANGE

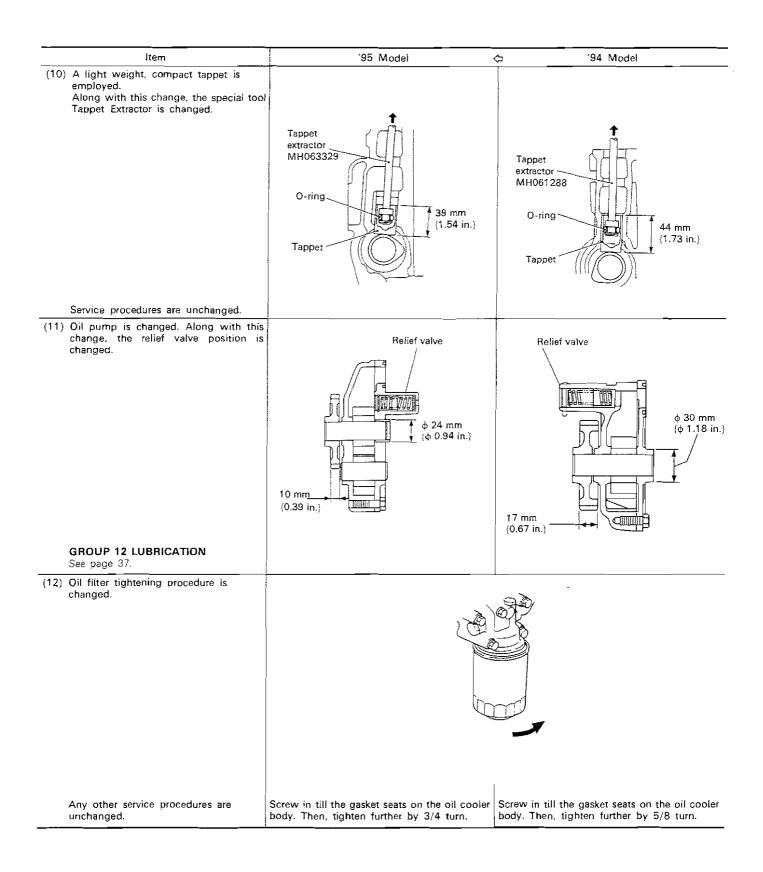
GROUP 00 GENERAL (1) Change of model
(2) Change of engine stamp mark position !  GROUP 11 ENGINE
(3) Tension of air conditioner belt (4) Change of piston (5) Change of connecting rod (6) Change of front oil seal (7) Change of camshaft (8) Change of camshaft bushing (9) Change of timing gear case sealer (10) Change of tappet
GROUP 12 LUBRICATION (11) Change of oil pump
GROUP 13 FUEL AND ENGINE CONTROL (13) Change of injection pump
GROUP 15 INTAKE AND EXHAUST (15) Employment of catalyst converter
GROUP 16 ENGINE ELECTRICAL (18) Change of alternator
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#### **'95 MODEL CHANGES**

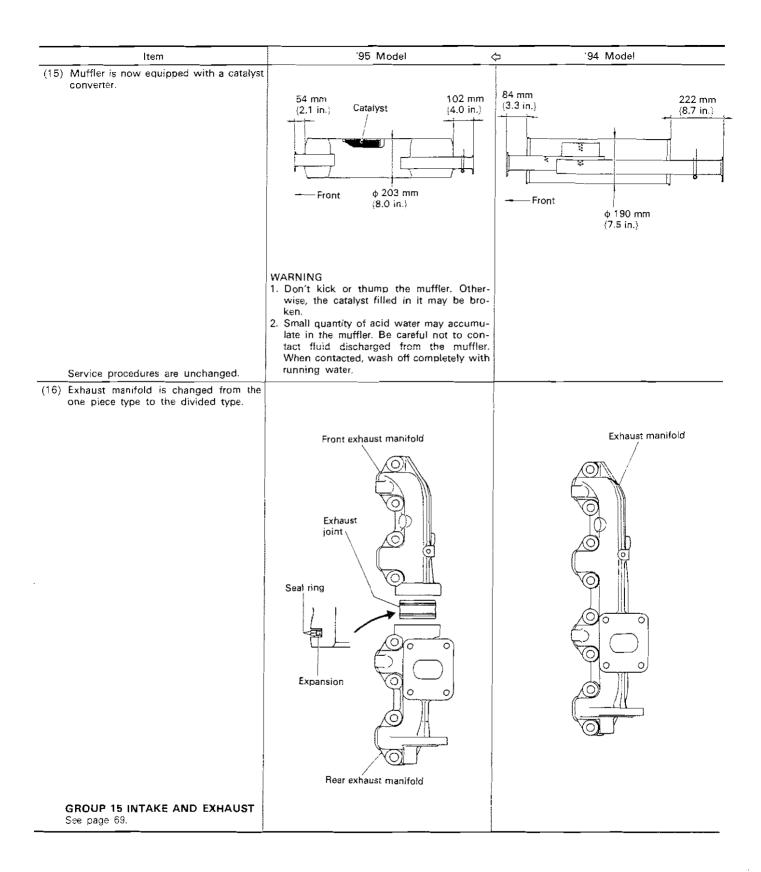
ltem	'95 Model	<u> </u>	/lodel
(1) FG Series is deleted.	Delete		Series
GROUP 00 GENERAL See page 17			
(2) Engine stamp mark position is changed.			
	Stamp mark position on '95 more		Stamp mark position on '94 model
(3) Air conditioner belt tension is changed. (No change on the fan belt tension.)	12 to 16 mm {0.47 to 0.63 in.}  Air conditioner compressor pulley  Alternator pulley  Crankshaft pulley Water pump pulley	Air conditioner compressor pulley  Alternator pulley  Crankshaft pulley	7 to 0.63 in.;  10 to 15 mm (0.39 to 0.59 in.)  Tension pulley  Water pump pulley
<ul> <li>(4) Piston is changed as follows: <ul> <li>Cooling cavity is newly provided.</li> <li>1st compression ring is moved upwards.</li> <li>Form of combustion chamber is changed.</li> <li>Values of service procedures are changed.</li> </ul> </li> </ul>	10.4 mm {0.41 in.}	16.5 mm {0.65 in.}	No.
GROUP 11 ENGINE See page 25.	Cooling cavity		

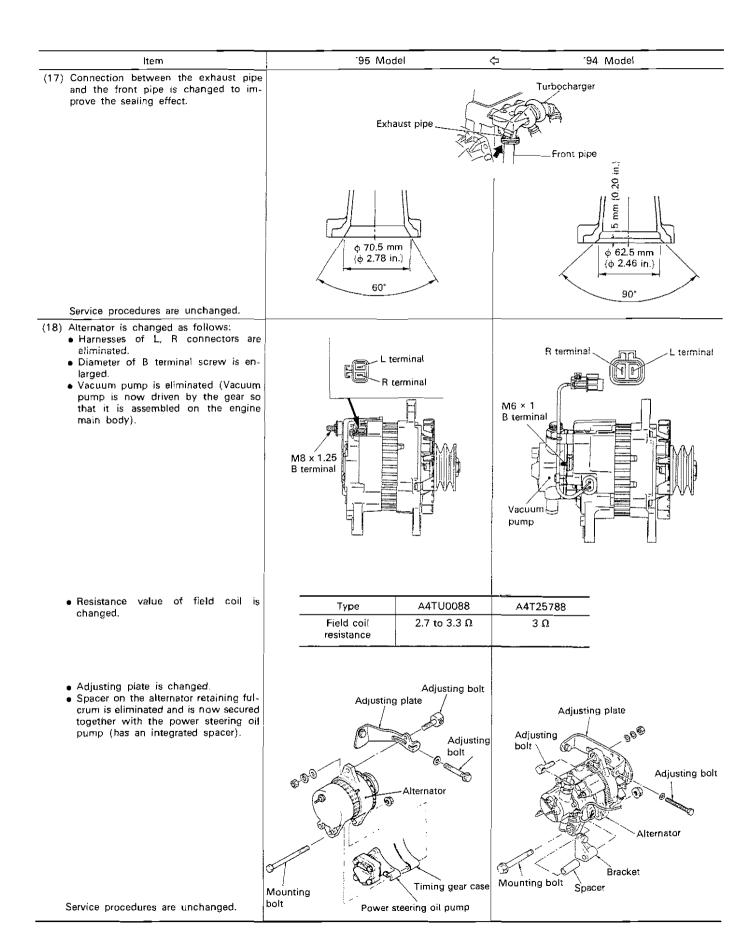


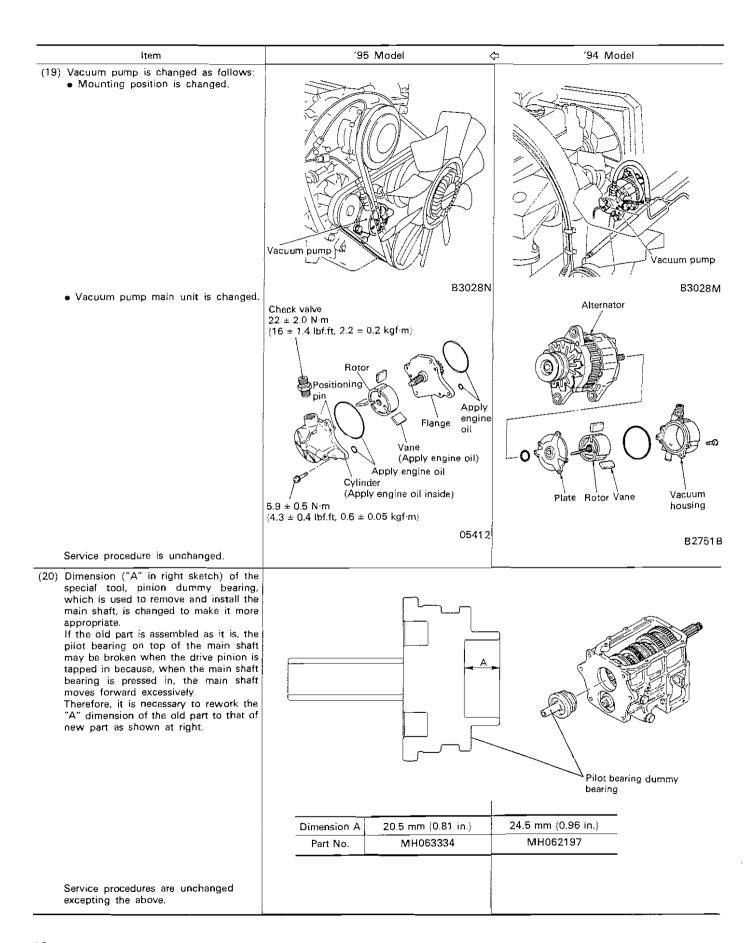




		_ <del>_</del>
ltem	'95 Model <	
<ul> <li>(13) Injection pump is changed as follows:</li> <li>Pump housing is changed to the front plug type housing.</li> <li>Priming pump is moved forward.</li> <li>Feed pump adaptor is newly added.</li> </ul> • Overflow valve is changed from the	Priming pump  Overflow valve  adaptor	Overflow valve Priming pump
steel ball type to the delivery valve type.  • Tappet of feed pump piston is eliminated.	< Delivery valve type > Delivery valve  Cap nut	<steel ball="" type=""> Steel ball</steel>
nateg.	< Non-tappet type >  Piston  Push rod	Tappet Piston
Service procedures are unchanged.		
(14) Inspection procedure which uses the pre-stroke control type injection pump MUT is added.  GROUP 13 FUEL AND ENGINE CONTROL  See page 43	_	







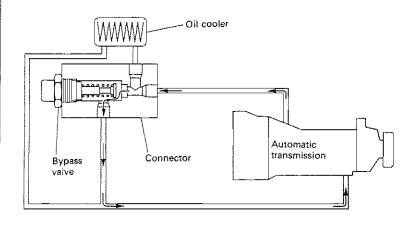
ltem		95 Model	<>□ '94	Mode!
(21) Shift fork set bolt and jaw set bolt are changed. As a result, the tightening torque is also changed. Further, a spe- cial tool Hexagon Bit is newly specified.		Set bolt		
When changing the set bolts on the currently used transmission, these new bolts can be used. In such occasion, it is necessary to rework the threaded section of the shift fork or the jaw using a tapping tool in order to avoid the effect of calked section. Where the same set bolts as those specified at this time have already been in use, replace them with new bolts when they are removed at disassembly. In such occasion, make sure to remove completely old locking material left over on the threaded section of the shift fork or jaw.	Thread leng 8.1 mm {0.3		Tread length 5.1 mm {0.20 in.}	*
	Tightening torque	29 to 36 N·m {22 to 28 lbf.ft, 3.0 to 3.7 kgf·m}	29 N·m {22 lbf.ft, 3.0 kgf·m}	<del></del>
	Locking	Locking material is applied to the set bolt.	Calked at more the 3 places on the thre (* marked in above sk with a punch.	ead
	Special tool	Hexagon bit MH063060	None	·
		10 mm {0.39 in.} 6.35 mm (0.25 in.}		
Service procedures are unchanged excepting the above.	Reuse	Prohibited (Replace when disassembled)	Allowable	
22) Speed meter gear is changed to make the oil clearance on the speed meter gear bearing more appropriate.	Measurem point	ent /	Inspection Clearance between shaft and bushing.	the speedometer gear
	Speedometer	Speedomeer gear bushing F1052A		ameter of the speedom- rushing, and then calcu-
	Basic diameter	12 mm {0.47 in.}	12 mm {0.47 in.}	<u> </u>
	Nominal value	0.04 to 0.09 mm {0.0016 to 0.0035 in.}	0.02 to 0.07 mm {0.00079 to 0.0028	
Service procedures are unchanged.	Limit	0.15 mm {0.0059 in.}	0.15 mm (0.0059 ii	1.2

'95 Model '94 Model ⟨⊐ Item (23) Tightening torque of automatic transmission manual lever attaching nut is changed for improvement. Manual lever attaching nut F2145A 58 to 83 N·m {43 to 61 Tightening 43 N·m {32 lbf.ft, lbf.ft, 6 to 8.5 kgf·m} 4.4 kgf·m} torque Service procedures are unchanged.

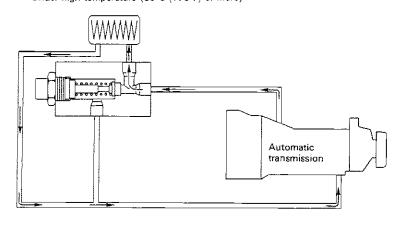
(24) A by-pass circuit is added on the midway of oil cooler pipe between the automatic transmission and the oil cooler in order to make appropriate the ATF temperature.

Along with this change, an oil bypass valve is also added to switch the circuit. When T/M OIL TEMP warning lamp lights continuously or lights repeatedly, inspect the oil temperature sensors (for electric motor fan and warning lamp) and electric fan motor as well as the oil by-pass valve pipe.

Under low temperature (75°C (167°F) or less)

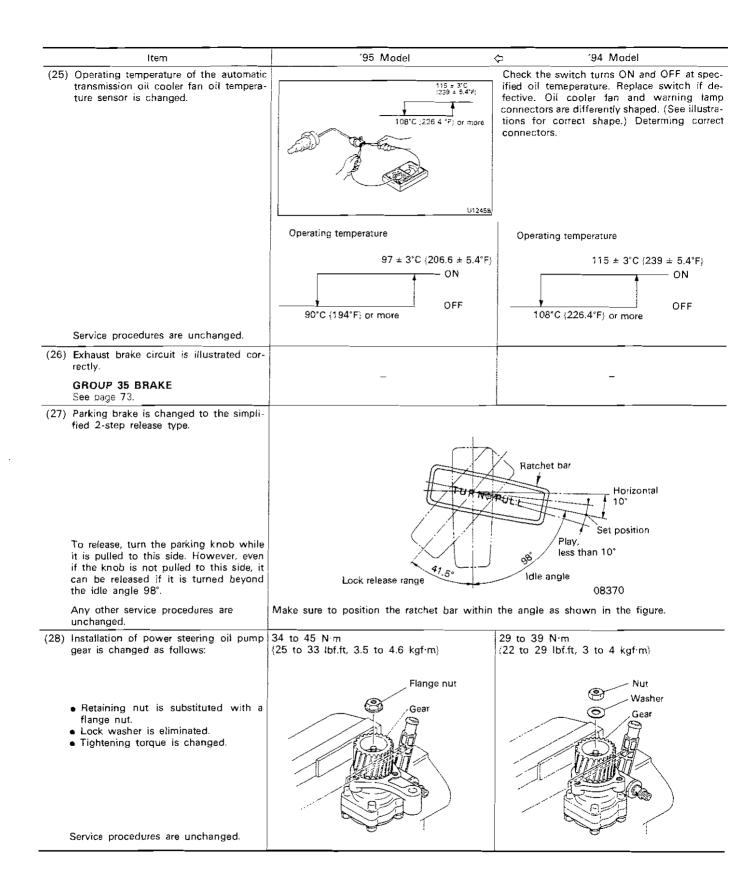


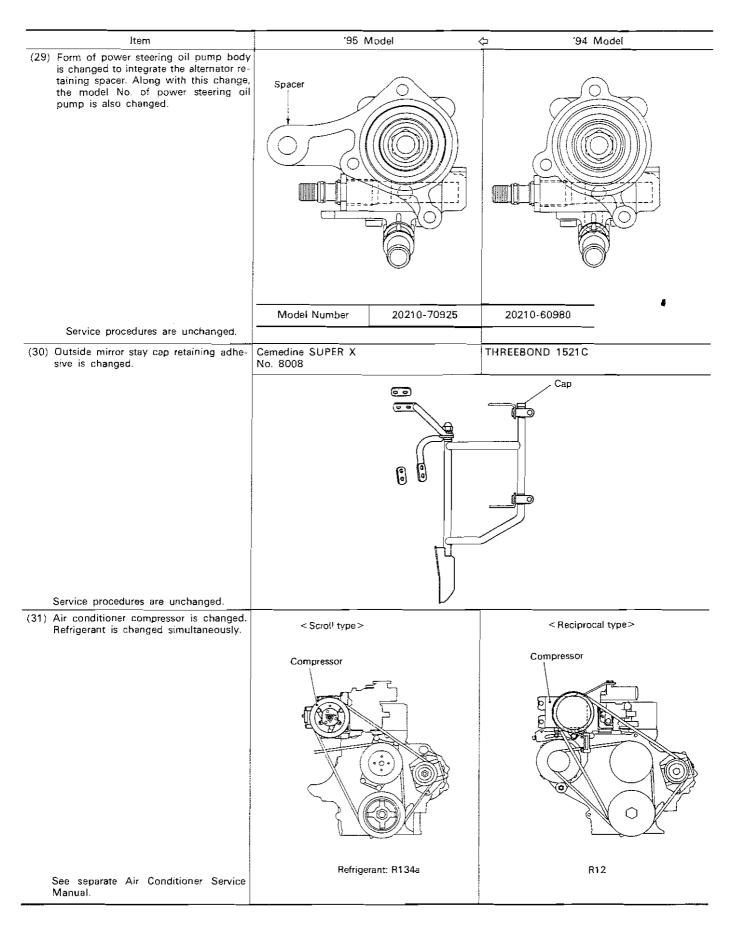
Under high temperature (80°C {176°F} or more)



GROUP 23 AUTOMATIC TRANSMISSION

See page 71.





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