AUTO TRANS OVERHAUL - F4A21, F4A22 & F4A23
Article Text
1992 Mitsubishi Mirage
For Dan's Transmission Service 10 Jefferson Place Fort Walton Beach FL 32548

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ARTICLE BEGINNING

AUTOMATIC TRANSMISSIONS
Mitsubishi F4A20 Series

APPLICATION

TRANSMISSION APPLICATION TABLE

Vehicle Application	Transmission Model
Colt 4-Speed (1990-92)	F4A21 & F4A22
Colt Vista 2WD (1990-94)	
1.8L & 2.0L	F4A22
2.0L Turbo	F4A23
Eclipse FWD (1990-94)	
1.8L & 2.0L	F4A22
2.0L Turbo	F4A23
Expo FWD (1992-94)	
1.8L	F4A22
2.4L	F4A23
Galant FWD	
DOHC (1990-93)	F4A22
SOHC	
(1990-93) (1)	F4A22
(1994)	F4A23
Laser Non-Turbo (1991-94)	F4A22
Mirage	
1.6L (1990-92)	F4A21
1.8L (1993-94)	F4A22
Summit FWD	F4A21 & F4A22
Sigma (1990)	F4A23
Summit Wagon 2WD (1990-94)	
1.8L & 2.0L	F4A22
2.0L Turbo	F4A23
Talon Non-Turbo (1991-94)	F4A22

(1) - Some 1990-92 Galant models with SOHC engine may be equipped with a KM175 model automatic transmission.

IDENTIFICATION

Vehicle information code plate is riveted to firewall in engine compartment area. See Fig. 1.

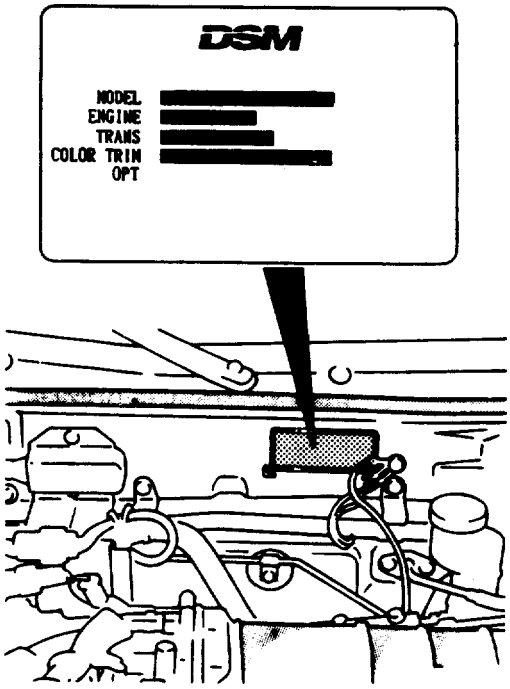

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Fig. 1: Locating Vehicle Information Code Plate
Courtesy of Mitsubishi Motor Sales of America.

DESCRIPTION

These Mitsubishi transaxles consist of transmission, torque converter, transfer assembly and differential. The F4A20 series is an electronically controlled, fully automatic 3-speed unit with an overdrive 4th gear. The transaxle consists of a 3-element torque converter with damper clutch, one planetary gear set, one brake band, 4 multiple-disc clutch assemblies. Transaxle shifting points are controlled by the Transmission Control Unit (TCU). The TCU calculates proper shift points using input from various sensors.

LUBRICATION & ADJUSTMENTS

See the appropriate TRANSMISSION SERVICING - A/T article in the AUTOMATIC TRANS SERVICING section.

TROUBLE SHOOTING

F4A20 SERIES

NOTE: Always verify proper electrical systems operation, fluid level and linkage adjustments before diagnosing shifting problems.

No Forward Or Reverse Drive
Manual linkage misadjusted,or faulty inhibitor switch.

No Forward Drive
Manual linkage misadjusted, improper fluid level or line

pressure, one-way clutch or oil pump failure, faulty valve body or pressure control valve stuck open.

No Reverse Drive
Manual linkage misadjusted, improper fluid level or line pressure, torque converter failure, faulty valve body, worn front clutch, low and reverse brake, missing "O" ring in low and reverse circuit or faulty pulse generator "B".

Engine Stalls When Shifted To "D" Or "R"
Insufficient engine performance, faulty valve body or damper clutch.

Slips In Drive
Manual linkage misadjusted, low fluid level or line pressure, one-way clutch failure, faulty valve body, sticking pressure control valve or worn rear clutch.

Slips In Reverse
Manual linkage misadjusted, low fluid level or line pressure, faulty low and reverse brake circuit or front clutch, sticking pressure control valve, missing "O" ring in low and reverse circuit or faulty valve body.

Stall RPM Too Low
Insufficient engine performance or torque converter failure.

Vehicle Creeps In "N"
Manual linkage misadjusted, parking mechanism failure, faulty inhibitor switch or faulty valve body.

Park Will Not Engage
Manual linkage misadjusted or parking mechanism failure.

Excessive Shock When Shifting To "R", "L", 2 Or "D"
Improper engine idle speed or manual linkage adjustment, faulty valve body, front clutch, rear clutch or low and reverse brake, misadjusted inhibitor switch, misadjusted TPS, overdrive switch failure or TCU failure.

No 2-3 Upshift
Faulty valve body, worn front clutch, pressure control valve sticking or faulty control unit.

No 3-4 Upshift
Malfunctioning end clutch, misadjusted manual linkage, faulty overdrive switch, or faulty control unit.

Overdrive Switch Inoperative
Faulty overdrive switch or faulty control unit

Incorrect Shift Points
Faulty TPS, faulty valve body, faulty pulse generator "B", poor ignition switch contact or TCU failure.

Vehicle Starts Off In Second Speed

Misadjusted manual linkage, torque converter failure, faulty valve body, faulty inhibitor switch, faulty accelerator switch or TCU failure.

Excessive Shift Shock On 1-2 Or 3-4 Upshift
Faulty valve body, faulty kickdown band, kickdown servo misadjusted, faulty end clutch, misadjusted TPS, faulty pulse generator "A", faulty kickdown servo switch, faulty ignition signal system or TCU failure.

Excessive Shift Shock On Upshift
Faulty or misadjusted TPS, faulty valve body, faulty front clutch, faulty pulse generator "A", faulty ignition signal system.

Excessive Shift Shock On "D"-2 Downshift
Faulty valve body, misadjusted TPS, faulty pulse generator "A", faulty ignition signal system, faulty low and reverse brake or piston.

Engine Flares On Upshift
Low line pressure, misadjusted TPS, low fluid level, faulty valve body, faulty front or end clutch, faulty kickdown band, kickdown servo misadjusted, faulty pulse generator "A", faulty ignition signal system, faulty control valve or TCU.

Engine Flares On 3-2 Downshift
Low line pressure, faulty oil pump, worn front clutch, low fluid level, faulty valve body, faulty kickdown band, kickdown servo misadjusted, faulty pulse generator "A", misadjusted TPS, faulty kickdown servo switch, faulty ignition signal system, faulty control valve or TCU.

Excessive Shift Shock Cold
Faulty valve body or TCU.

Damper Clutch Inoperative
Torque converter failure, faulty valve body, faulty throttle position sensor, faulty pulse generator "A" or "B", faulty ignition signal system, damper clutch control solenoid open, faulty or misadjusted accelerator switch, faulty oil temperature sensor or faulty TCU.

Whining Noise From Converter Housing
Oil pump failure.

Rattling Noise From Converter Housing
Cracked flexplate or loose torque converter-to-flexplate bolt.

SHIFT-LOCK SYSTEM

Symptom	Probable Cause	Remedy
The selector lever can be operated from "P" to "R" without depressing the brake pedal when the ignition key is in the ACC position.	• Damaged shift lock lever, foreign matter caught in the mechanism • Poorly adjusted shift lock cable, broken or disconnected cable • Broken or fatigued return spring of shift lock cable (shift lock lever side)	• Check selector lever bracket assembly and replace if necessary. • Check, adjust or replace shift lock cable.
The selector lever cannot be moved from "P" to "R" when the brake pedal is depressed with the ignition key in the ACC position.	• Faulty selector lever assembly • Shift lock cable, key interlock cable, automatic transaxle control cable binding • Poor routing of shift lock cable, key interlock cable • Broken or fatigued return spring of shift lock cable (brake pedal side)	• Check selector lever bracket assembly and replace if necessary. • Check, adjust or replace shift lock cable and key interlock cable. • Check routing of cables. • Replace shift lock cable.
The selector lever can be moved from "P" to "R" when the brake pedal is depressed even though the ignition key is in the LOCK position	• Deformed, damaged or worn interlock cam or interlock lever • Poorly adjusted, broken, stretched or disconnected key interlock cable	• Check interlock cam and interlock lever or replace selector lever bracket assembly. • Check, adjust or replace key interlock cable.
The selector lever cannot be moved smoothly from "P" to "R"	• Shift lock lever cannot be moved smoothly due to a large amount of play or friction of the fulcrum pin of the shift lock lever. • Poorly adjusted shift lock cable, considerable elongation of inner cable • Poorly adjusted key interlock cable • Broken or fatigued return spring of shift lock cable (brake pedal side) • Interlock cam and interlock lever not sliding smoothly	• Check and adjust shift lock lever, check and replace selector lever bracket assembly. • Check and adjust or replace shift lock cable and key interlock cable.
The selector lever cannot be moved from "R" to "P"	• Shift lock lever or interlock cam binding	• Check selector lever bracket assembly, apply grease or replace assembly.
The ignition key cannot be turned to LOCK when the selector lever is in the "P" position.	• Damaged interlock cam or interlock lever or foreign matter caught in the mechanism • Poorly adjusted key interlock cable, binding inner cable • Slide lever in key cylinder not sliding smoothly	• Check selector lever bracket assembly and replace if necessary. • Adjust or replace key interlock cable. • Check slide lever and replace if necessary.
The ignition key can be turned to LOCK even when the selector lever is at any position other than "P"	• Broken spring pin • Damaged interlock cam • Damaged interlock cover • Poorly adjusted or broken key interlock cable, stretched inner cable • Damaged slide lever	• Replace spring pin. • Check selector lever bracket assembly and replace if necessary. • Check and adjust or replace key interlock cable. • Replace slide lever.
The stop light stays ON	• Poorly adjusted shift lock cable • Broken shift lock cable spring	• Check and adjust or replace shift lock cable.

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Fig. 2: Shift Lock System Troubleshooting Chart
Courtesy of Mitsubishi Motor Sales of America.

F4A20 TRANSAXLE

Selector lever position	Overdrive control switch	Shifting gear	Engine start	Parking mechanism	Clutch				Brake	
					C1	C2	C3	OWC	B1	B2
P	–	Neutral	Possible	●						
R	–	Reverse			●					●
N	–	Neutral	Possible							
D	ON	1st				●		●		
		2nd				●			●	
		3rd			●	●	●			
		OD					●		●	
D	OFF	1st				●		●		
		2nd				●			●	
		3rd			●	●	●			
2	–	1st				●		●		
		2nd				●			●	
L	–	1st				●				●

NOTE:
C1 - Front Clutch
C2 - Rear Clutch
C3 - End Clutch
OWC - One-Way Clutch
B1 - Kickdown Brake
B2 - Low-Reverse Brake

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Fig. 3: Clutch, Band & Brake Application Chart
Courtesy of Mitsubishi Motor Sales of America.

TESTING

NOTE: See Fig. 3 for clutch, band and brake application chart.

SELF-DIAGNOSTIC TEST (F4A20 SERIES)

Self-Diagnostic Capabilities

1) Use an analog voltmeter or tester and diagnostic connector located at fuse block to read fault codes. See Fig. 4.

2) Random Access Memory (RAM) of TCU is capable of storing up to 10 different fault codes. Fault codes are stored in order of occurrence. One fault code can be stored up to 3 times.

3) If 10 fault codes have already been stored, addition of one or more new fault codes will cause the oldest codes to be cleared.

4) Stored fault codes are cleared when battery is disconnected. Fail-safe system activation locks transaxle in 3rd gear and allows vehicle operation in event of system malfunction.

5) Fail-safe fault codes are also stored in RAM. Up to 3 fail-safe codes can be stored.

6) Fail-safe operation (locked in 3rd) is cancelled when ignition switch is cycled OFF, but fail-safe code is retained in RAM.

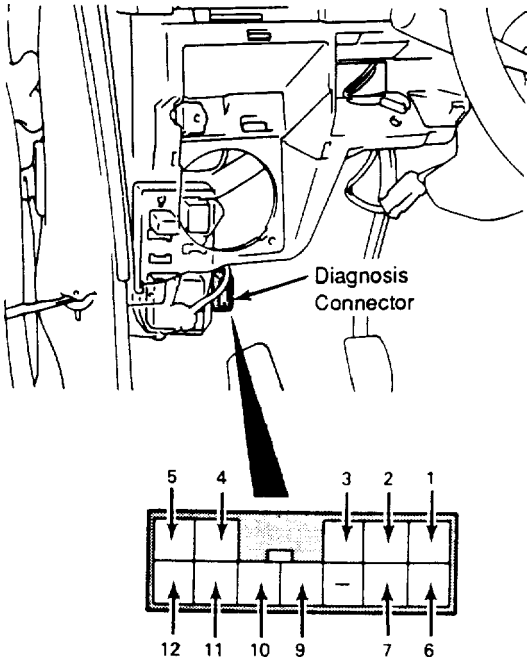

Fig. 4: Locating A/T Diagnostic Connector (F4A20 Series)
Courtesy of Mitsubishi Motor Sales of America

Self-Diagnostic Test Procedure (F4A20 Series)

Connect voltmeter to diagnostic connector terminal No. 10 and ground connector No. 12. See Fig. 4. Turn the ignition switch to the ON position, and TCU memory contents will start immediately. Obtain the fault code(s) and refer to the descriptions in both the FAULT CODE IDENTIFICATION table and the FAIL-SAFE CODE IDENTIFICATION table.

FAULT CODE IDENTIFICATION TABLE

Code	Condition
11	Abnormal Increase Of TPS Output
12	Abnormal Decrease Of TPS Output
13	Incorrect Adjustment Of TPS System
15	Open Circuit Of Low Oil Temperature Sensor Circuit
16	Short Circuit Of High Oil Temperature Sensor Circuit
17	Open Circuit Of High Oil Temperature Sensor Circuit
21	Open Circuit Of Kickdown Servo Switch Circuit
22	Short Circuit Of Kickdown Servo Switch Circuit
23	No Ignition Pulse Pick-Up Signal
24	Misadjustment Or Short Circuit Of Accelerator Switch
31	No Pulse Generator "A" Signal
32	No Pulse Generator "B" Signal
41	Open Circuit Of Shift Control Solenoid Valve "A"
42	Short Circuit Of Shift Control Solenoid Valve "A"
43	Open Circuit Of Shift Control Solenoid Valve "B"
44	Short Circuit Of Shift Control Solenoid Valve "B"
45	Open Circuit Of Pressure Control Solenoid Valve
46	Short Circuit Of Pressure Control Solenoid Valve
47	Open Circuit Of Damper Clutch Control Solenoid Valve

48	. Short Circuit Of Damper Clutch Control Solenoid Valve
49	..... Malfunction Of Damper Clutch System
51	..... 1st Gear Non-Synchronous - Pulse Generator(s) Or Kickdown Brake
52	..... 2nd Gear Non-Synchronous - Pulse Generator "A" Or Kickdown Brake
53	..... 3rd Gear Non-Synchronous - Pulse Generator(s) Or Front Or Rear Clutch
54	..... 4th Gear Non-Synchronous - Pulse Generator "A" Or Kickdown Brake

FAIL-SAFE CODE IDENTIFICATION TABLE

Code	Condition
81	..... Open Circuit Of Pulse Generator "A"
82	..... Open Circuit Of Pulse Generator "B"
83	..... Shift Control Solenoid Valve "A" Short Circuit
84	..... Shift Control Solenoid Valve "B" Short Circuit
85	..... Pressure Control Solenoid Valve Circuit Failure
86	..... Shift Steps Non-Synchronous

ELECTRONIC COMPONENT TEST (F4A20 SERIES)

ELECTRONIC COMPONENT TESTING FLOWCHART INDEX (F4A20 SERIES)

Component	Illustration
System Wiring	Fig. 5
Oil Temperature Sensor	Fig. 5
Throttle Position Sensor	Fig. 5
Pulse Generator "A" or "B"	Fig. 6
Pressure Control Solenoid Valve (PSCV)	Fig. 7
Shift-Control Solenoid Valve (SCSV) "A" Or "B"	Fig. 7
Damper Clutch System	Fig. 8
Damper Clutch Control Solenoid Valve (DCCSV)	Fig. 9
Accelerator Switch	Fig. 10
Inhibitor Switch	Fig. 10
Kickdown (K/D) Servo Switch	Fig. 11
Transaxle Control Unit (TCU)	Fig. 11

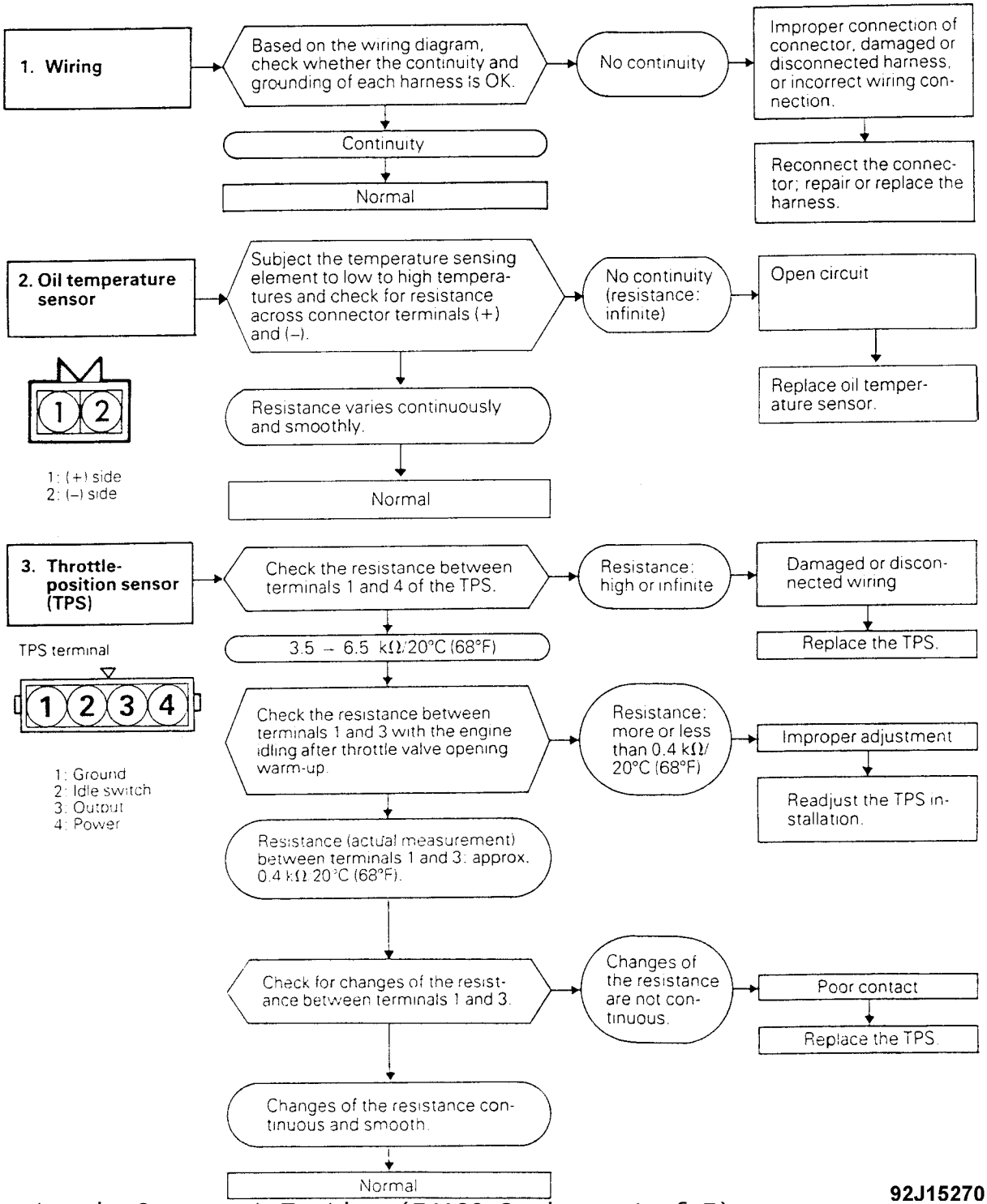

Fig. 5: Electronic Component Testing (F4A20 Series - 1 of 7)
Courtesy of Mitsubishi Motor Sales of America.

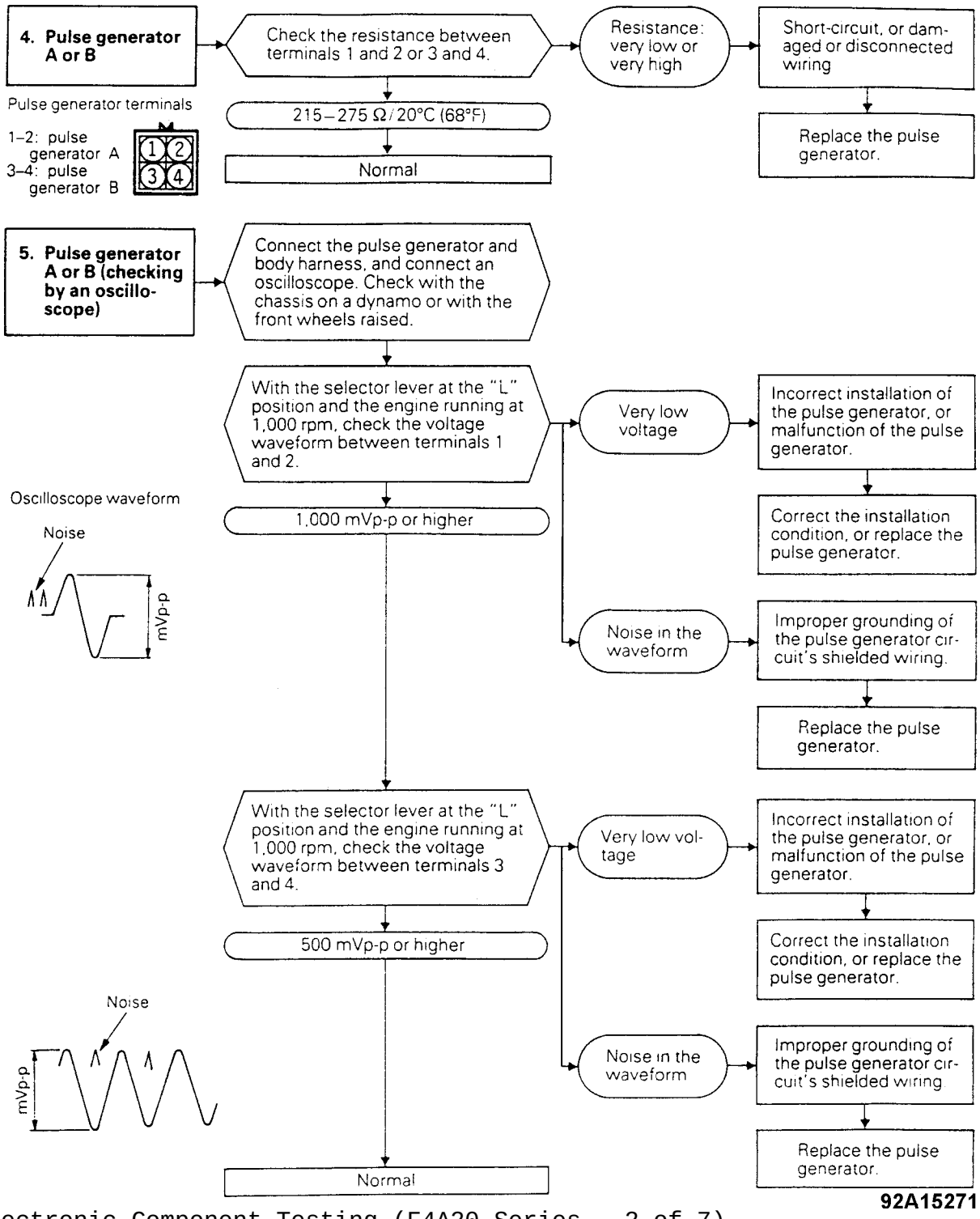

Fig. 6: Electronic Component Testing (F4A20 Series - 2 of 7)
Courtesy of Mitsubishi Motor Sales of America.

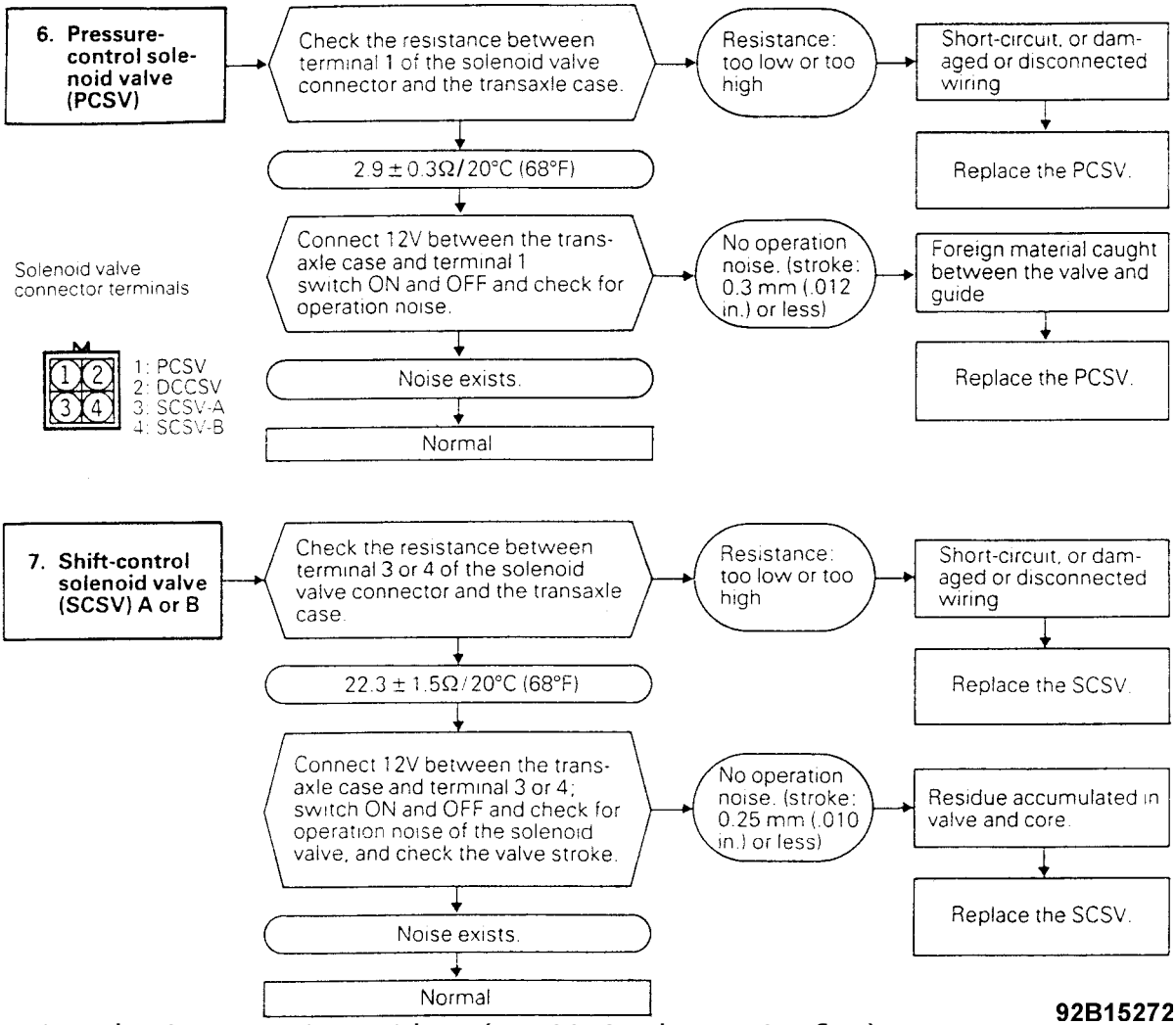

Fig. 7: Electronic Component Testing (F4A20 Series - 3 of 7)
Courtesy of Mitsubishi Motor Sales of America.

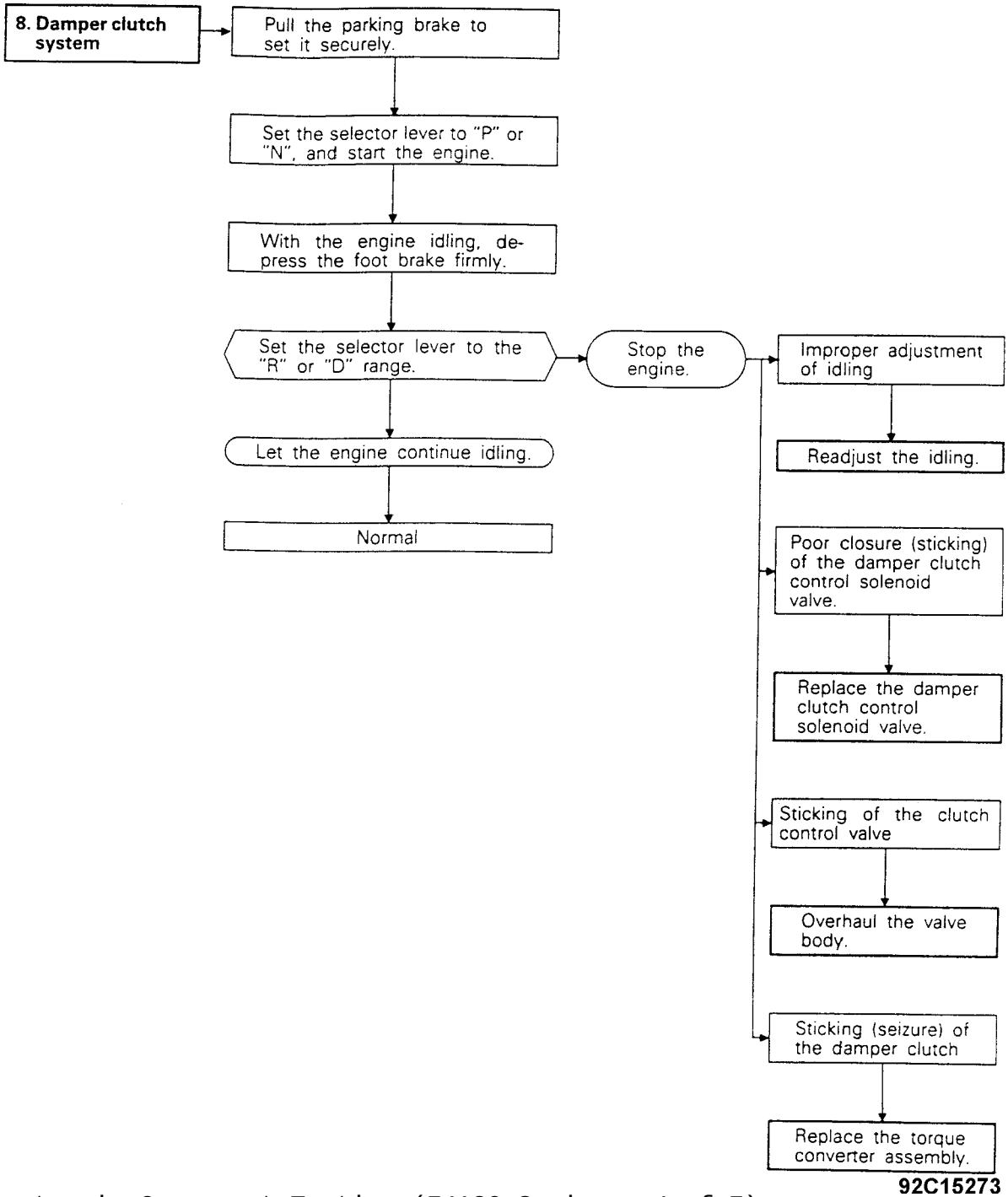

Fig. 8: Electronic Component Testing (F4A20 Series - 4 of 7)
Courtesy of Mitsubishi Motor Sales of America.

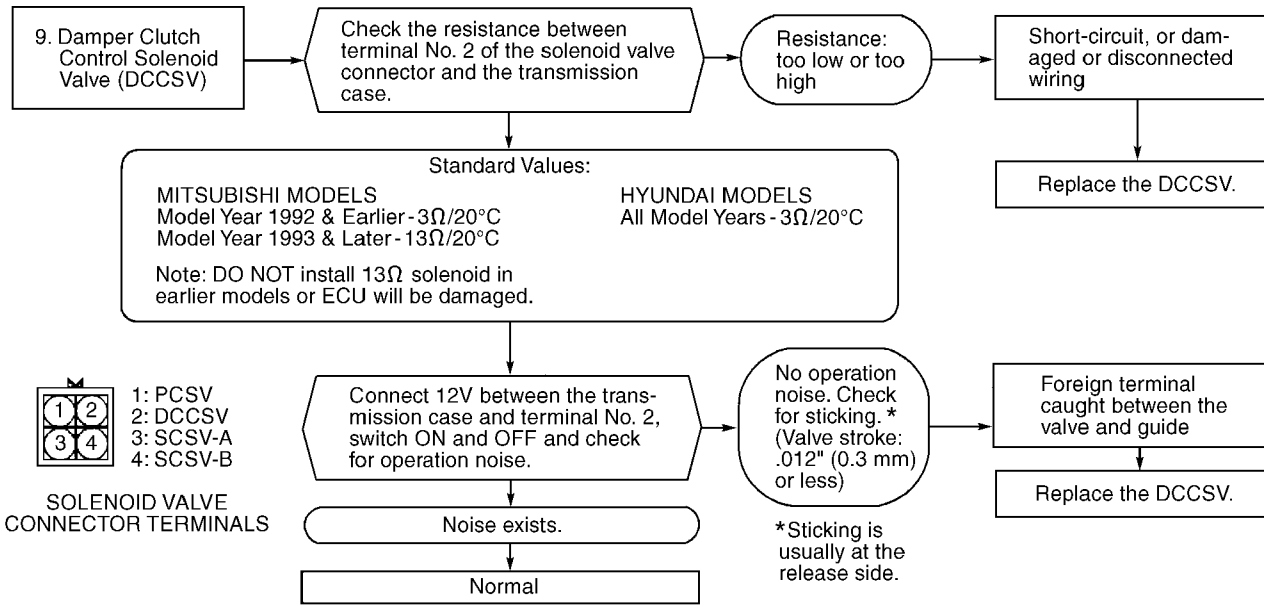

Fig. 9: Electronic Component Testing (F4A20 Series - 5 of 7)
Courtesy of Mitsubishi Motor Sales of America.

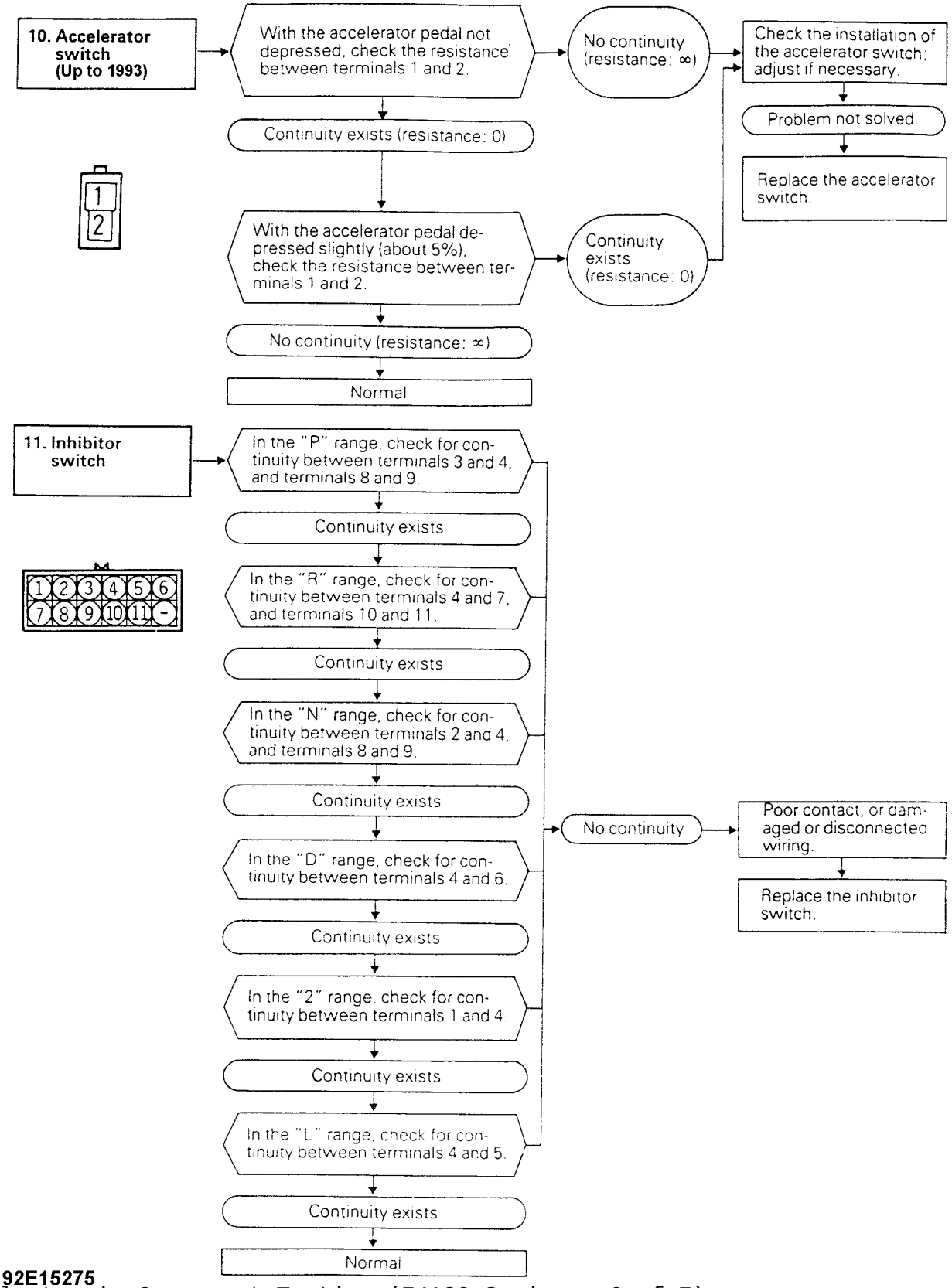

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Fig. 10: Electronic Component Testing (F4A20 Series - 6 of 7)
Courtesy of Mitsubishi Motor Sales of America.

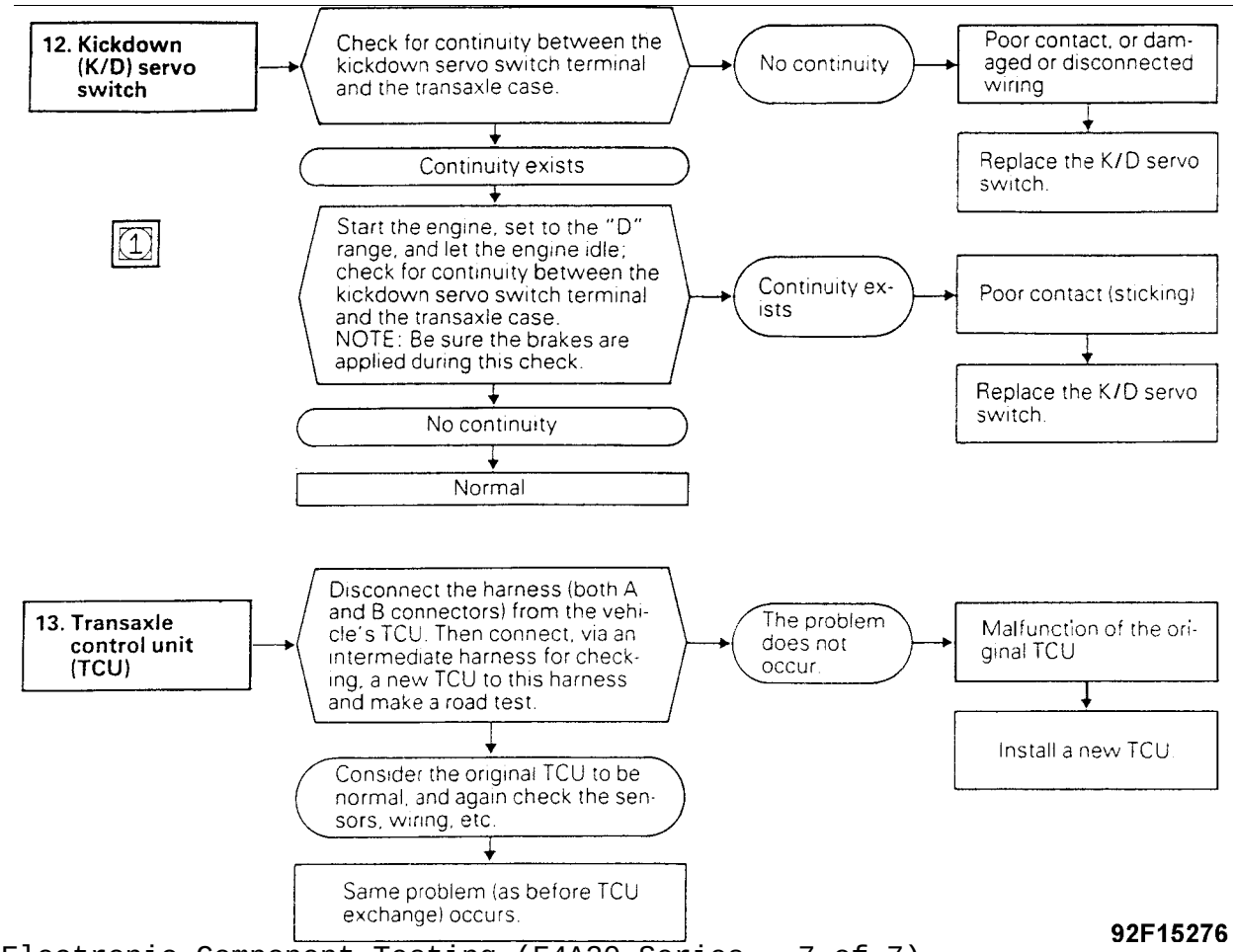
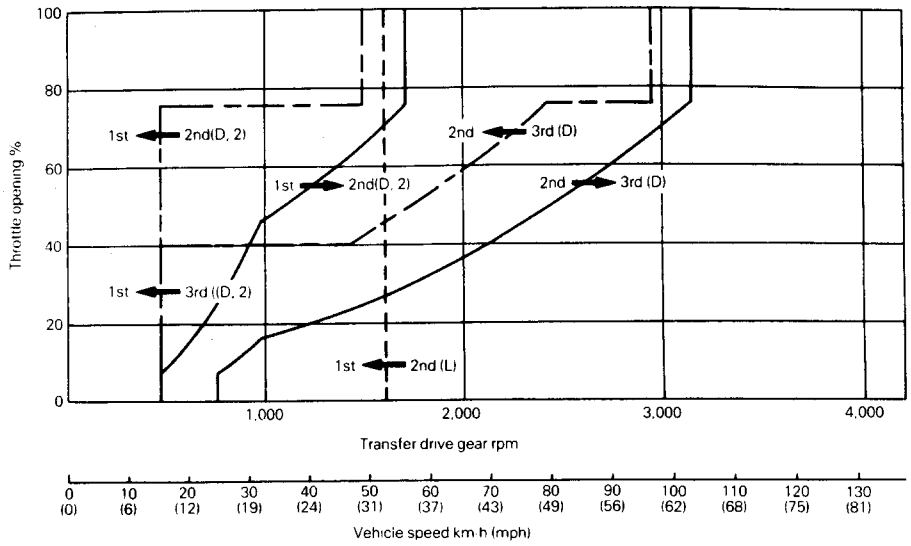


Fig. 11: Electronic Component Testing (F4A20 Series - 7 of 7)
Courtesy of Mitsubishi Motor Sales of America.

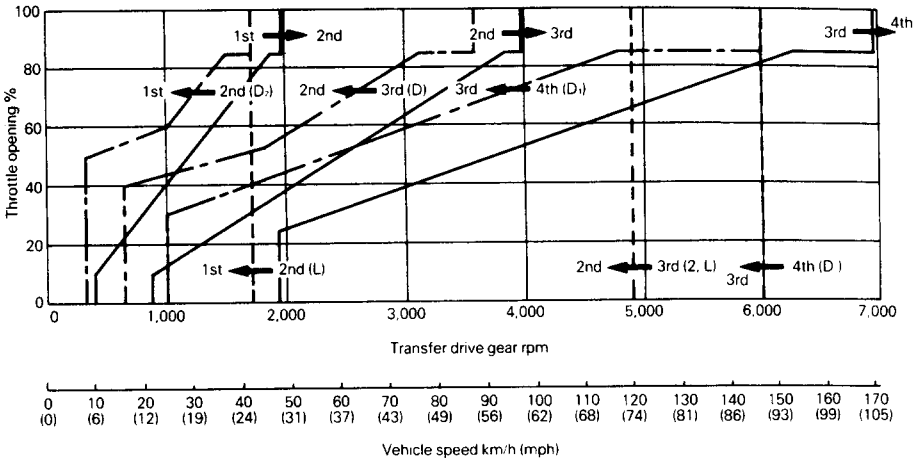
ROAD TEST

Before performing road test ensure fluid level is okay and control cable adjustments have been checked. During road test, transaxle must be checked for slipping of each friction element, a shock felt at engagement or proper upshift or downshift points. See Figs. 3, and 12 to 14.

91 & 92 Colt, Colt 200 & Summit (F3A21)



91 & 92 Colt, Colt 200 & Summit (F4A21)



91 Colt Vista (F3A22)

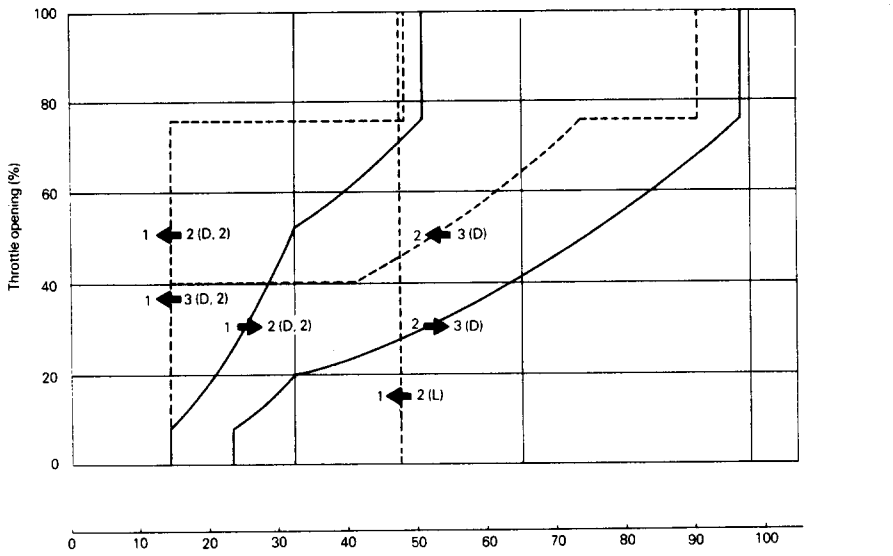


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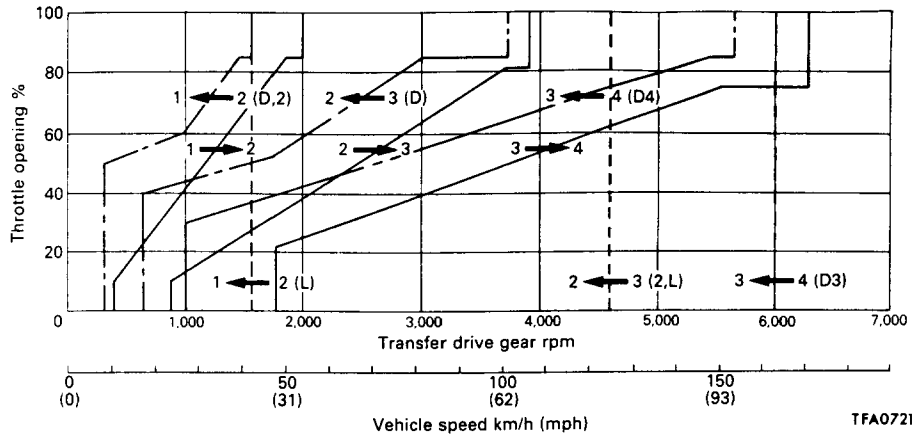
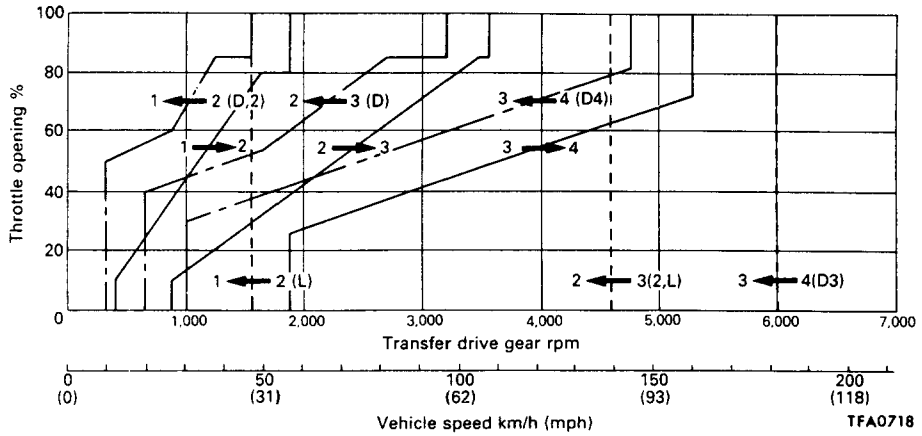
Fig. 12: Shift Pattern Chart (1 of 3)
Courtesy of Mitsubishi Motor Sales of America.

92 Colt Vista & Summit Wagon (F4A22)



92 Colt Vista & Summit Wagon (F4A23)



91 & 92 Laser & Talon 1.8L Economy Range

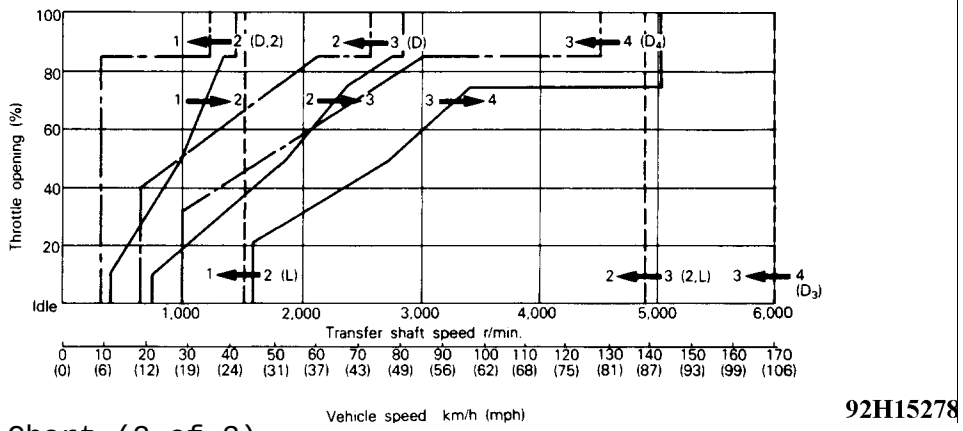
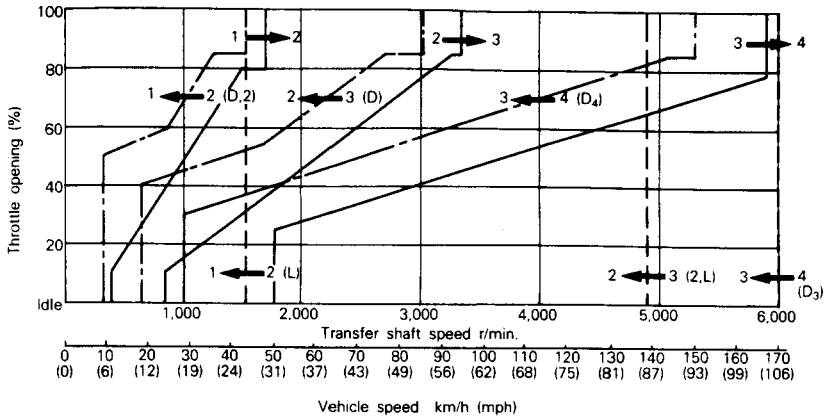
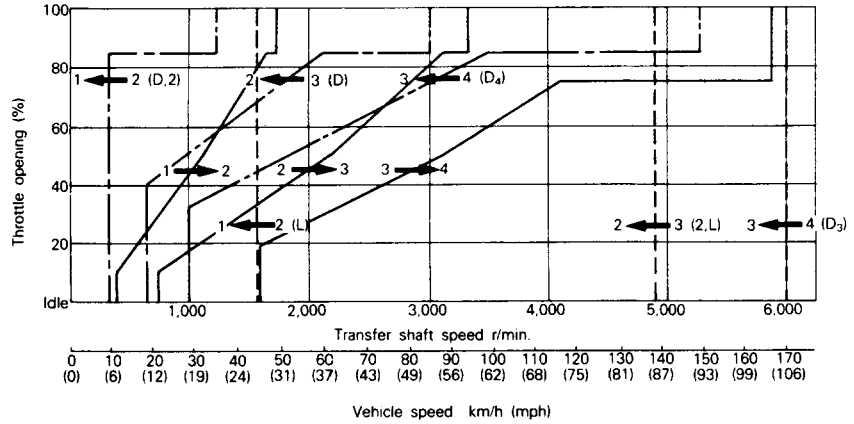


Fig. 13: Shift Pattern Chart (2 of 3)
Courtesy of Mitsubishi Motor Sales of America.

91 & 92 Laser & Talon
1.8L Power Range



91 & 92 Laser & Talon
2.0L Economy Range



91 & 92 Laser & Talon
2.0L Power Range

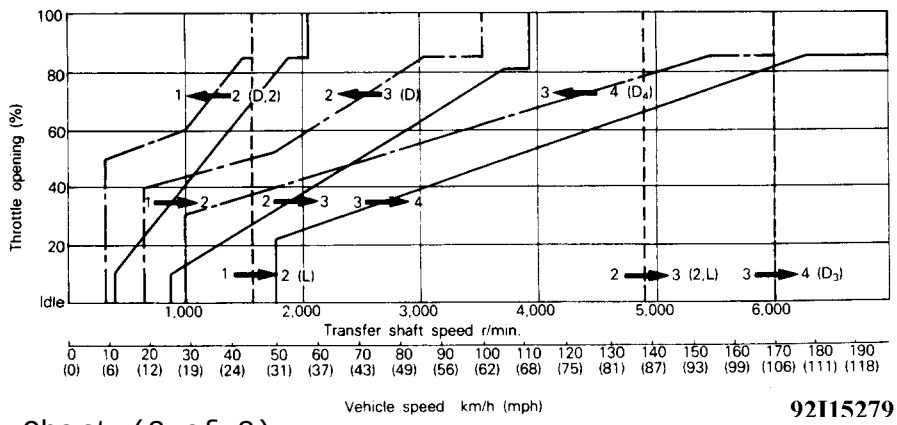


Fig. 14: Shift Pattern Chart (3 of 3)
Courtesy of Mitsubishi Motor Sales of America.

HYDRAULIC PRESSURE TESTS

NOTE: In these testing procedures, an additional person may be necessary to activate the transmission throttle control cable. Before performing pressure tests ensure fluid level and condition are acceptable.

Pressure Test (F4A20 Series)

1) Pressure testing is an important step in diagnostic procedure. Ensure fluid is at operating temperature of 160-180°F (70-80°C). Raise and support vehicle. Install engine tachometer so it can be seen from driver seat. When testing reverse pressure, use 400-psi gauge. See Fig. 15.

2) Measure oil pressure under various conditions. Compare

results with specifications in Fig. 16.

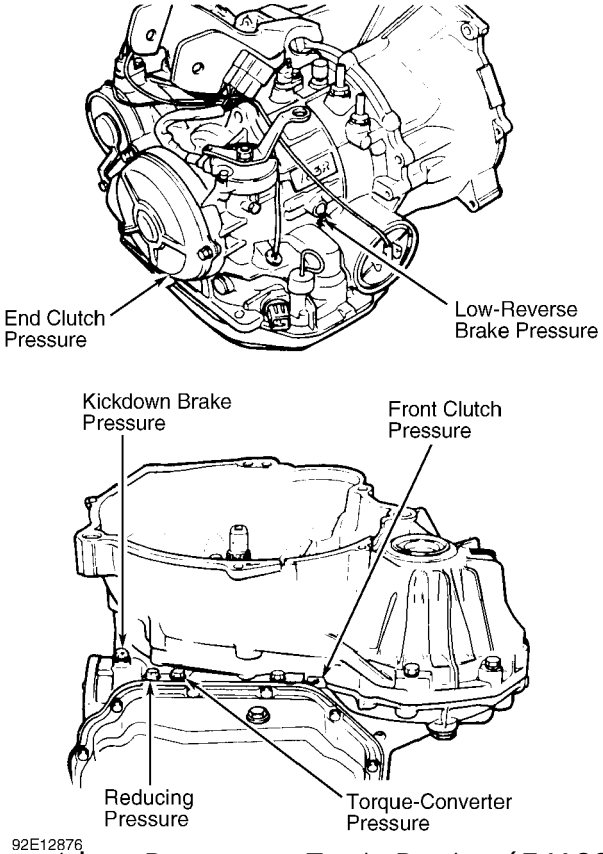


Fig. 15: Locating Pressure Test Ports (F4A20 Series)
Courtesy of Mitsubishi Motor Sales of America

No.	Conditions			Standard oil pressure kPa (psi)					
	Select lever position	Engine speed rpm	Shift position	① Reducing pressure	② Kickdown brake pressure	③ Front clutch pressure	④ End clutch pressure	⑤ Low-reverse brake pressure	⑥ Torque-converter pressure
1	N	Idling	Neutral	360–490 (51–70)	–	–	–	–	☆
2	D	Idling	2nd gear	360–490 (51–70)	100–210 (14–30)	–	–	–	☆
3	D (SW-ON)	Approx. 2,500	4th gear	360–490 (51–70)	830–900 (118–128)	–	830–900 (118–128)	–	450-650 (64-92)
4	D (SW-OFF)	Approx. 2,500	3rd gear	360–490 (51–70)	830–900 (118–128)	830–900 (118–128)	830–900 (118–128)	–	450-650 (64-92)
5	2	Approx. 2,500	2nd gear	360–490 (51–70)	830–900 (118–128)	–	–	–	450-650 (64-92)
6	L	Approx. 1,000	1st gear	360–490 (51–70)	–	–	–	300–420 (43–60)	☆
7	R	Approx. 2,500	Reverse	360–490 (51–70)	–	1,640–2,240 (233–319)	–	1,640–2,240 (233–319)	450-650 (64-92)
		Approx. 1,000				1,000 (142) or more		1,000 (142) or more	

NOTE
– must be 10 kPa (1.4 psi) or less.
SW-ON: Switch ON the overdrive control switch
SW-OFF: Switch OFF the overdrive control switch
☆: Hydraulic pressure is generated, but not the standard value.

94F38856

Fig. 16: Testing Transaxle Hydraulic Pressures (F4A20 Series)
Courtesy of Mitsubishi Motor Sales of America

Pressure Test Results (F4A20 Series)

1) If kickdown brake, front clutch, end clutch and low-reverse brake pressures are all low probable causes are: clogged oil filter, incorrect pressure regulator adjustment, sticking pressure regulator valve, incorrect oil pump discharge pressure or fluid pressure leakage at valve body.

2) Incorrect reducing pressure reading indicates: incorrect line pressure, reducing pressure filter clogging, reducing valve sticking or fluid pressure leakage at valve body.

3) Incorrect kickdown brake pressure reading indicates: fluid pressure leakage at kickdown servo or valve body malfunction.

4) Incorrect front clutch pressure reading indicates fluid pressure leakage at kickdown servo or valve body, malfunction of valve body or fluid pressure leakage at front clutch piston or retainer.

5) Incorrect end clutch pressure reading indicates: fluid leakage at end clutch piston, fluid pressure leakage at valve body or valve body malfunction.

6) Incorrect low-reverse brake pressure reading indicates: fluid pressure leakage between valve body and transaxle case at "O" ring, valve body malfunction or fluid pressure leakage at low-reverse brake piston or retainer.

7) Incorrect torque converter pressure indicates: clogging or leaking of oil cooler or lines, torque converter failure, leaking seal ring at input shaft or binding Damper Clutch Control Solenoid Valve (DCCSV) or damper control valve.

STALL TEST

CAUTION: DO NOT allow anyone to stand in front of or behind vehicle while performing stall test. Always block both rear wheels and apply parking and service brakes fully.

Stall Test Procedure

1) Check transaxle fluid level. Fluid should be at normal operating temperature of 160-180°F (70-80°C). Engine coolant should also be at normal operating temperature of 180-190°F (60-90°C).

2) Block both rear wheels. Install engine tachometer to be seen from driver's seat. Apply parking and service brakes fully. Start engine and move gear selector to "D" range.

3) With brakes fully applied, depress accelerator pedal fully to read maximum engine RPM. See STALL SPEED SPECIFICATIONS table.

NOTE: DO NOT hold wide open throttle for longer than 5 seconds at a time. If more than one stall test is required, operate engine at approximately 1000 RPM in neutral for 2 minutes to cool transaxle fluid.

4) Move gear selector to "R" range and repeat stall test procedure. See STALL SPEED SPECIFICATIONS table.

Stall Test Results

1) If stall speed is above specification in "D" range, rear clutch or overrunning clutch is slipping. HYDRAULIC PRESSURE TESTS can be performed to isolate problem.

2) If stall speed is above specification in "R" range, front

clutch or low-reverse brake is slipping. HYDRAULIC PRESSURE TESTS can be performed to isolate problem.

3) If stall speed is below specification in "R" and "D" ranges, insufficient engine performance or faulty torque converter are probable causes.

STALL SPEED SPECIFICATIONS TABLE

Transaxle Model	Stall Speed RPM
F4A20 Series	1800-2800

ON-VEHICLE SERVICE

INHIBITOR SWITCH & CONTROL CABLE ADJUSTMENTS

See the appropriate TRANSMISSION SERVICING - A/T article in the AUTOMATIC TRANS SERVICING section.

THROTTLE CONTROL CABLE ADJUSTMENT

See the appropriate TRANSMISSION SERVICING - A/T article in the AUTOMATIC TRANS SERVICING section.

THROTTLE POSITION SENSOR ADJUSTMENT

See the appropriate TRANSMISSION SERVICING - A/T article in the AUTOMATIC TRANS SERVICING section.

KICKDOWN SERVO ADJUSTMENT (F4A20 SERIES W/MITSUBISHI TOOL)

1) Thoroughly clean area around kickdown servo switch. Remove snap ring. Remove kickdown servo switch. Using Kickdown Servo Wrench (MD998918) and Wrench Adapter (MD998915-A), secure kickdown servo piston from turning. See Fig. 17.

CAUTION: DO NOT press piston inward while engaging wrench in piston. Tighten wrench adapter by hand.

2) Loosen lock nut back to "V" groove in adjusting rod. See Fig. 18. Thread inner half of Kickdown Servo Socket Wrench Set (MD998916) onto adjusting rod, and tighten it until it contacts lock nut. See Fig. 19. Place outer half of wrench set onto lock nut. Tighten inner and outer halves together using open end wrenches.

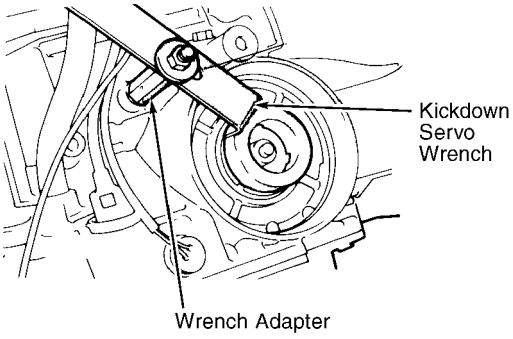


Fig. 17: Installing Kickdown Servo Wrench
Courtesy of Mitsubishi Motor Sales of America.

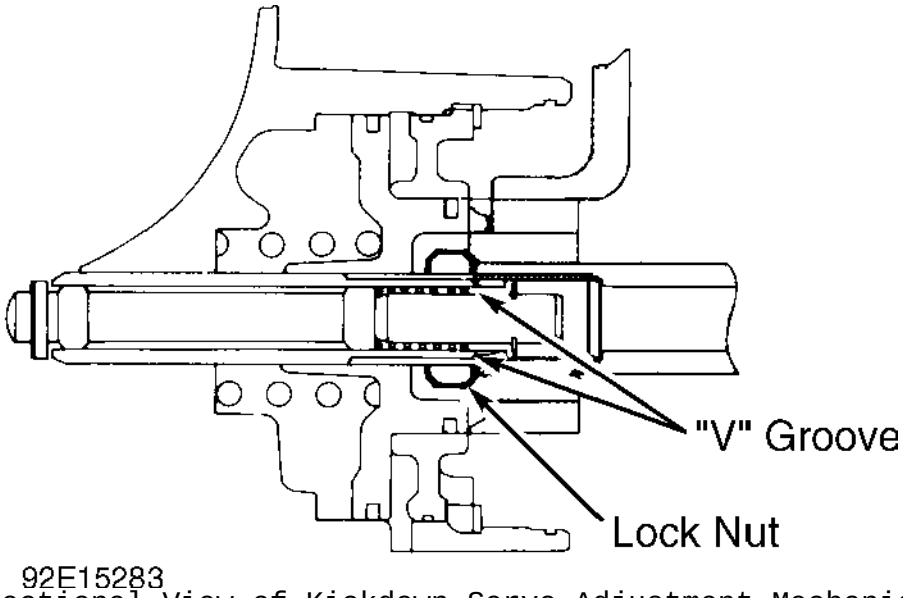


Fig. 18: Sectional View of Kickdown Servo Adjustment Mechanism
Courtesy of Mitsubishi Motor Sales of America.

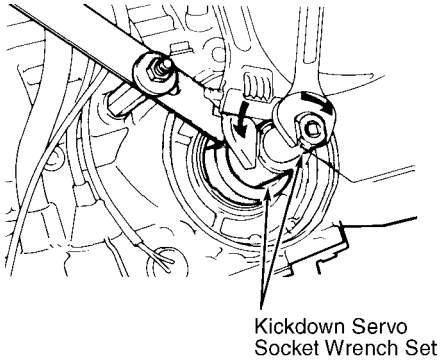


Fig. 19: Locking Servo Wrench to Adjusting Rod
Courtesy of Mitsubishi Motor Sales of America.

3) Remove outer half of wrench set. Using a torque wrench, tighten inner half of wrench set to 7.2 ft. lbs. (10 N.m). See Fig. 20. Back off wrench and repeat tightening to specified torque. Back off wrench once again, then tighten to 3.6 ft. lbs. (5 N.m). When specified torque is reached, back off wrench 2-2 1/4 turns.

4) Unlock inner half of wrench set from kickdown servo lock nut. Tighten lock nut by hand until it contacts kickdown servo piston. Tighten servo lock nut to 18-23 ft. lbs. (25-32 N.m).

NOTE: Ensure adjusting rod DOES NOT turn while tightening lock nut.

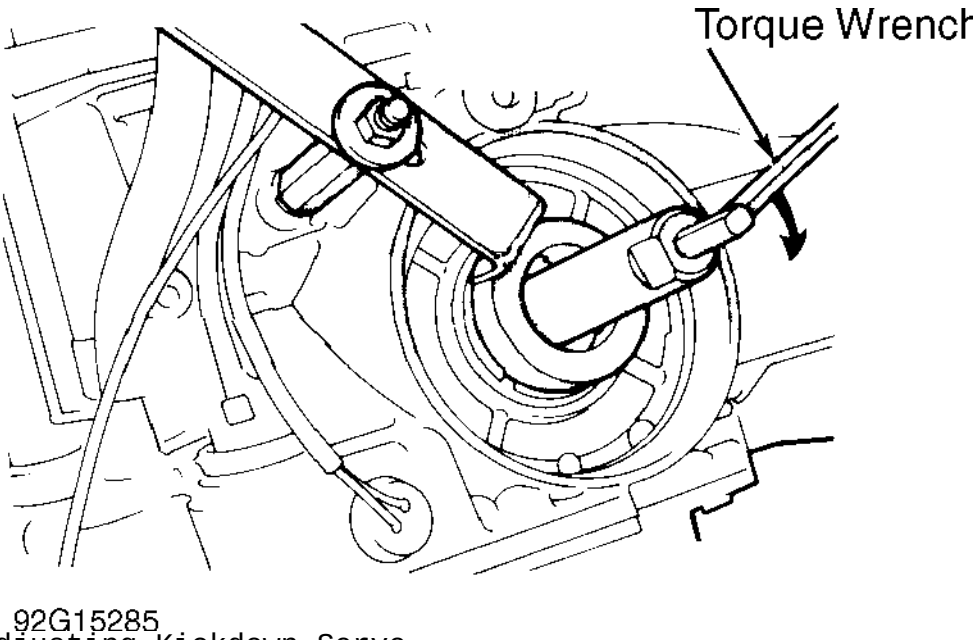


Fig. 20: Adjusting Kickdown Servo
Courtesy of Mitsubishi Motor Sales of America.

KICKDOWN SERVO ADJUSTMENT (F4A20 SERIES W/AFTERMARKET TOOL)

Adjustment Procedure

1) Ensure case area around servo cover is clean. Remove servo cover snap ring and servo cover. Select the correct Spanner Socket Support Guide to fit the servo bore from the 4 sizes available. See Fig. 21.

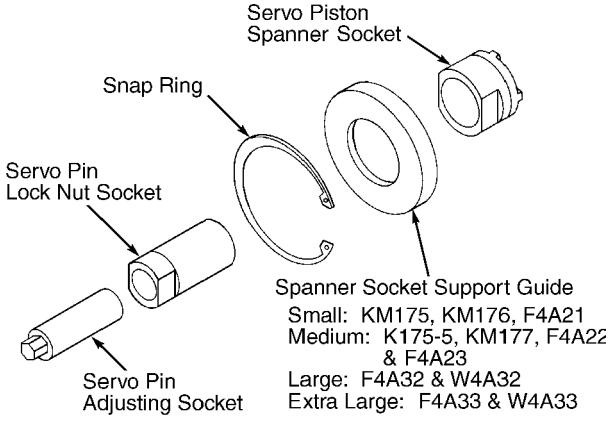


Fig. 21: Identifying KM Band Adjusting Tool Components

NOTE: The following procedure may be performed using KM Band Adjusting Tool Kit available from ZOOM Technology.

2) Insert the Servo Piston Spanner Socket into the

counterbored side of the Spanner Socket Support Guide. Insert these components into the servo bore. Slowly by hand, rotate the Servo Piston Spanner Socket until the lugs engage the cutouts on the servo piston. The tool is fully seated when the snap ring groove is completely exposed.

3) Install the snap ring in the exposed groove. If necessary, rotate the Servo Piston Spanner Socket to allow ease of installation of a 1 1/2" wrench to the socket. This should be done prior to loosening the servo pin lock nut.

4) Insert the Servo Pin Lock Nut Socket into the Servo Piston Spanner Socket. Turn the socket by hand until it has engaged the lock nut. Insert the Servo Pin Adjusting Socket into the Servo Pin Lock Nut Socket and rotate by hand until it engages the servo pin. See Fig. 22.

5) Using a 1 1/2" wrench or adjustable wrench, hold the Servo Piston Spanner Socket stationary.

CAUTION: DO NOT use pliers or a pipe wrench to hold the Servo Piston Spanner Socket stationary. This may cause injury to the user or damage to the tool.

6) Using a 1 1/16" wrench, on the Servo Pin Lock Nut Socket, loosen the servo pin lock nut by turning it counter clockwise. See Fig. 23. With one hand, push firmly inward on the Servo Pin Adjusting Socket. Using 2 fingers, turn the Servo Pin Lock Nut Socket counter clockwise until it contacts the bottom of the Servo Pin Adjusting Socket.

7) Using an INCH Lb. torque wrench and a shallow 1/2" 6-point socket, torque the Servo Pin Adjusting Socket to 86 INCH Lbs. Loosen the Servo Pin Adjusting Socket 2 or 3 turns and repeat the tightening procedure to 86 INCH Lbs. Loosen again and apply a final torque of 43 INCH Lbs. to the Servo Pin Adjusting Socket. See Fig. 24.

8) Using a 1/2" wrench, loosen the Servo Pin Adjusting Socket 2-2 1/4 complete turns. Hold the Servo Pin Adjusting Socket stationary and rotate the Servo Pin Lock Nut Socket clockwise until the servo pin lock nut firmly contacts the servo piston. Remove the Servo Pin Adjusting Socket.

9) Using a 1 1/2" wrench, hold the Servo Pin Spanner Socket stationary. Use a 1 1/16" wrench to tighten the servo lock pin nut with the Servo Pin Lock Nut Socket. Tighten the nut to approximately 18 ft. lbs. See Fig. 23.

10) Remove the snap ring and all remaining band adjusting tool components. Install the servo cover and snap ring. Ensure the sharp edge of the snap ring faces outward.

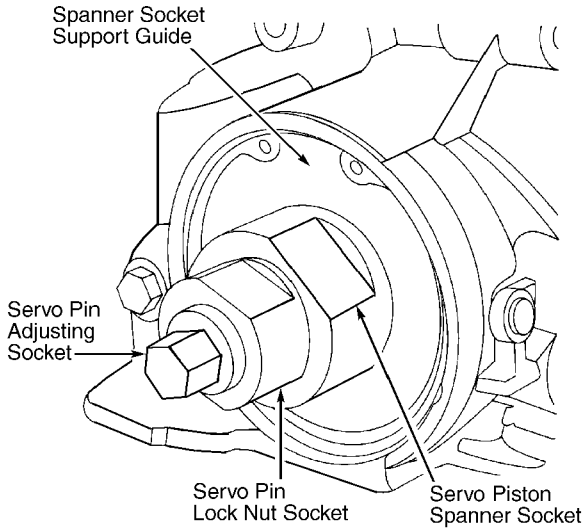


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Fig. 22: KM Band Adjusting Tool Installation

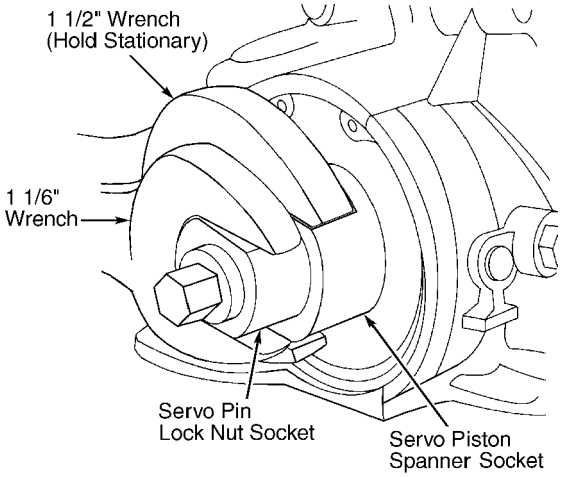

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Fig. 23: Loosening Or Tightening Servo Pin Lock Nut

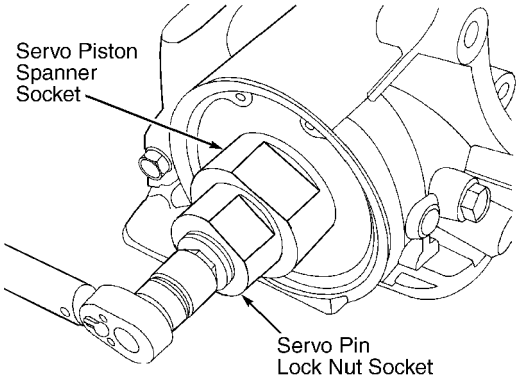

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Fig. 24: Adjusting Servo Pin

REMOVAL & INSTALLATION

See the appropriate TRANSMISSION REMOVAL & INSTALLATION - A/T article in the AUTOMATIC TRANS SERVICING section.

TORQUE CONVERTER

Torque converter is a sealed unit and cannot be disassembled for service. Replace unit if damaged or contaminated.

TRANSAXLE DISASSEMBLY

F4A20 Series

1) Prior to disassembly, plug all openings and thoroughly clean exterior of transaxle. Remove torque converter and measure input shaft end play.

2) Remove pulse generators "A" and "B" and inhibitor switch. Remove kickdown servo switch. Remove oil pan, gasket and filter. Remove oil temperature sensor.

3) Remove solenoid valve connector and valve body. Remove end clutch cover and end clutch assembly. Remove end clutch hub, thrust bearing and end clutch shaft.

4) Remove converter housing and oil pump assembly. Remove differential assembly and spacer. Remove input shaft with front and rear clutch assemblies. Remove thrust bearing and clutch hub. Remove thrust race and bearing. Remove kickdown drum and band.

5) Remove kickdown servo retainer, piston and spring. Remove anchor rod. Remove snap ring and center support. Remove reverse and forward sun gears. Remove planetary carrier assembly and thrust bearing. Remove wave spring, return spring, reaction plate, brake disc and brake plate. Remove end bearing retainer. Use impact driver if necessary.

6) Remove idler shaft lock plate and transfer idler shaft with Wrench Adapter (MD998344). Pull out transfer idler shaft and remove transfer idler gear bearing inner races (2) and spacer.

7) Remove snap ring from end bearing. Remove internal gear, output flange, transfer drive gear and bearing as an assembly from case. Remove transfer shaft cover.

8) Remove transfer shaft LEFT-HAND threaded lock nut. Remove transfer shaft with a press. Remove transfer shaft bearing using a bearing splitter. Remove set screw and manual control shaft with sprag rod support.

COMPONENT DISASSEMBLY & REASSEMBLY

OIL PUMP

Disassembly

1) Remove "O" ring from oil pump housing. Remove 5 bolts and reaction shaft support from housing. Remove oil pump drive and driven gears from housing. Make reassembly reference marks on drive and driven gears.

2) Remove steel ball from housing. Remove snap ring and oil seal from oil pump drive gear. Remove 2 seal rings from reaction shaft support.

Inspection

1) Using a straight edge check oil pump gear side clearance. Clearance should be .0012-0.0020" (.030-.050 mm). If not within specification, replace oil pump as an assembly.

2) Check reaction shaft support surface in contact with oil pump gear for evidence of interference and replace oil pump assembly if necessary.

Reassembly

1) Fit oil seal and snap ring to oil pump drive gear. After immersing drive and driven gears in ATF, install gears in pump housing. Align reference marks made during disassembly.

2) Install steel ball in pump housing and 2 seal rings to reaction shaft support. Ensure oil pump gears turn freely. Install new "O" ring to pump housing, and lubricate.

3) Install reaction shaft support to oil pump housing and tighten 5 bolts finger tight. Align reaction shaft support with oil pump housing and torque bolts to 89-106 INCH lbs. (10-12 N.m).

FRONT CLUTCH

Disassembly

1) Remove snap ring from clutch retainer. Remove 4 clutch reaction plates and 3 clutch discs.

NOTE: If clutch reaction plates and clutch discs are to be reused, DO NOT change the installation order or direction.

2) Compress return spring and remove snap ring, retainer and return spring. Remove piston from retainer and "D" rings from piston and retainer.

Reassembly

1) Install "D" rings in piston and retainer with round side out. Apply ATF to outside surface of "D" rings and install piston in front clutch retainer by pushing with hand.

2) Install return spring and spring retainer. See Fig. 25. Compress return spring and install snap ring.

3) Apply ATF and install clutch reaction plates and clutch discs. See Fig. 25. After installing snap ring check clearance between snap ring and clutch reaction plate. Clearance should be .016-.024" (.40-.60 mm). Selective snap rings are available to adjust clearance.

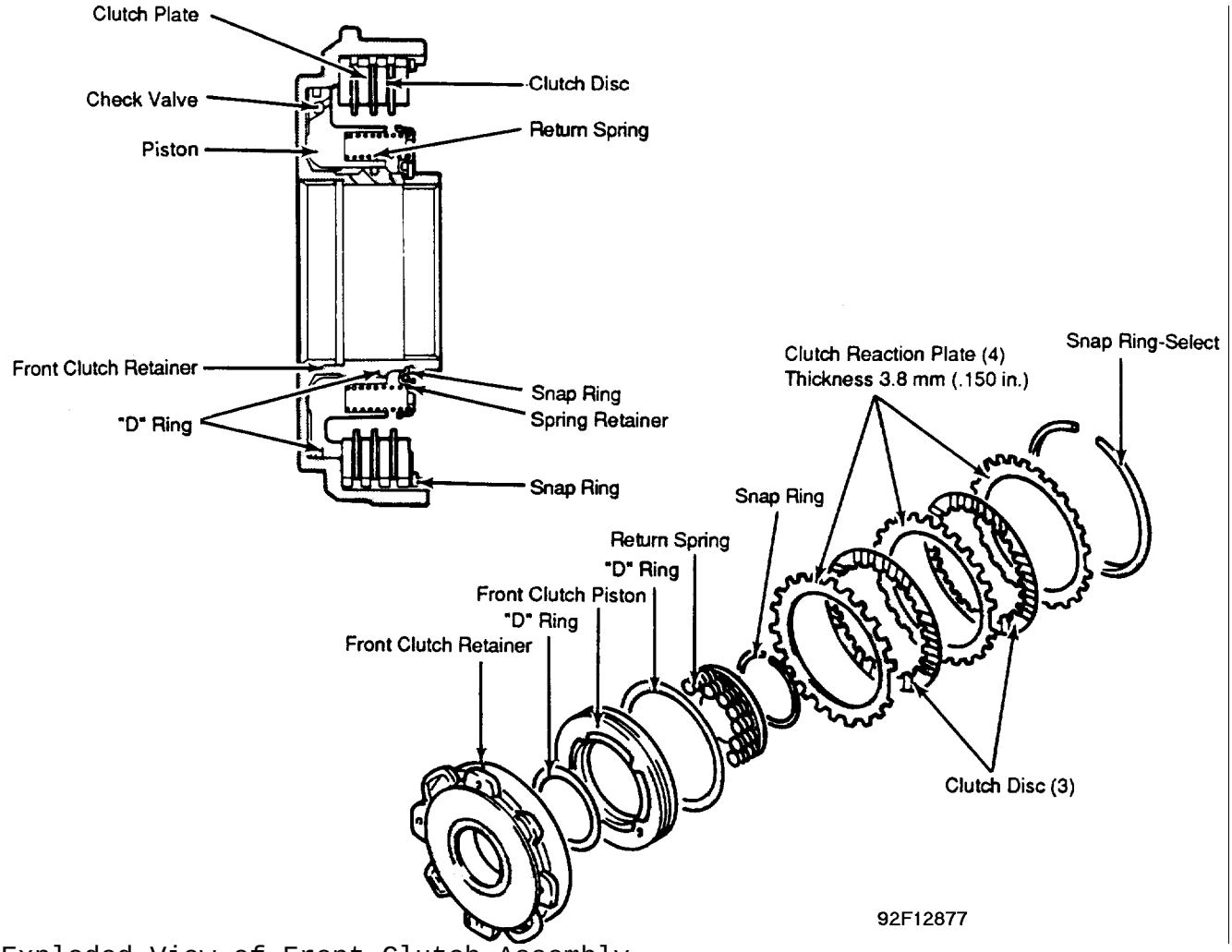


Fig. 25: Exploded View of Front Clutch Assembly
Courtesy of Mitsubishi Motor Sales of America.

REAR CLUTCH

Disassembly

1) Remove snap ring and thrust race. Remove input shaft from rear clutch retainer. Remove snap ring from rear clutch retainer.

2) Remove clutch reaction plate, 2 clutch plates, 3 clutch discs and clutch pressure plate from retainer. See Fig. 26. Compress return spring and remove wave spring. Remove spring and piston. Remove "D" rings from piston.

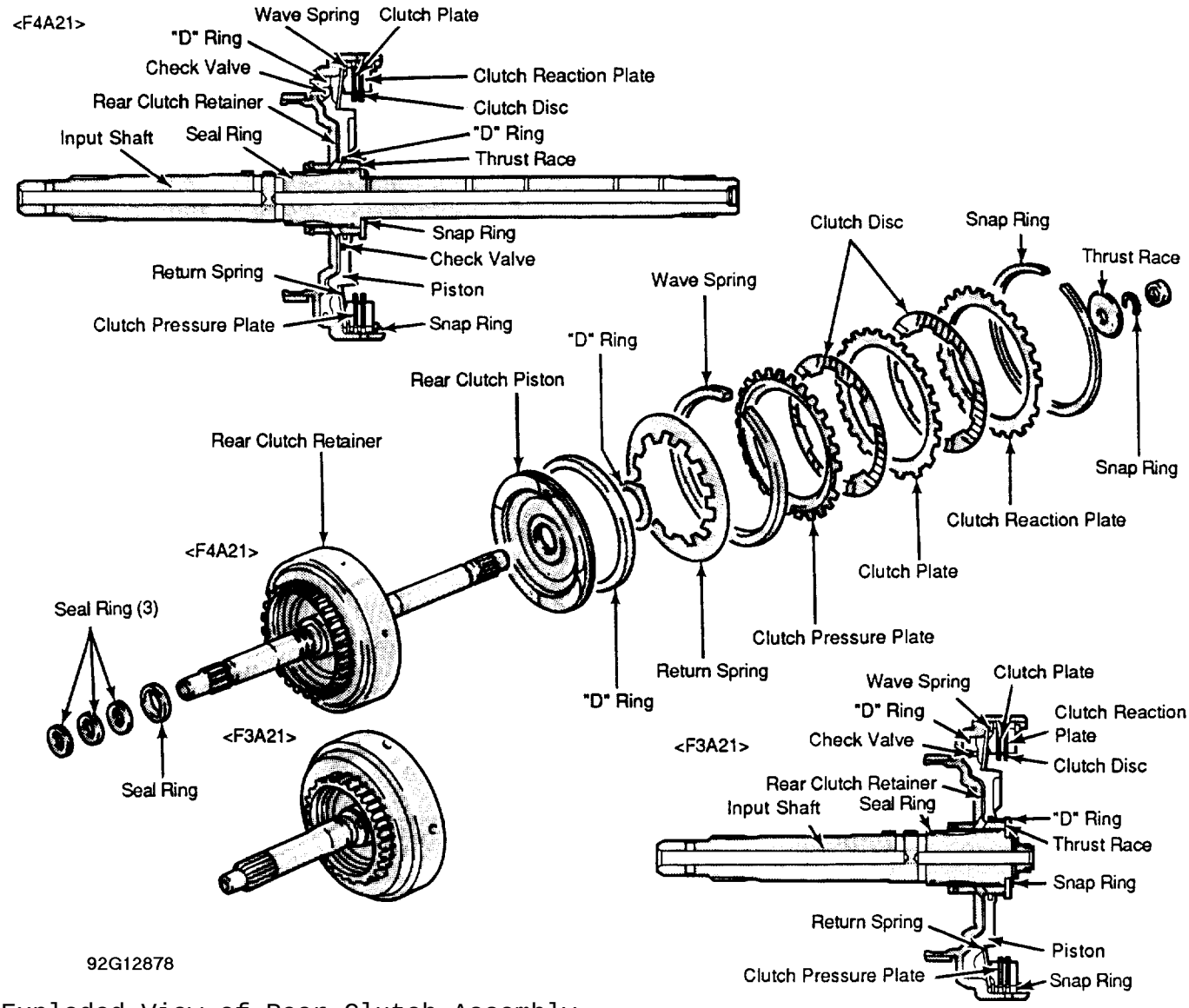


Fig. 26: Exploded View of Rear Clutch Assembly
Courtesy of Mitsubishi Motor Sales of America

Reassembly

1) Install "D" rings in clutch piston. Apply ATF to outside surfaces of "D" rings and install piston in clutch retainer by pushing with hand.

2) Install return spring on piston. Compress return spring and install wave spring. Install clutch pressure plate, 3 clutch discs, 2 clutch plates and clutch reaction plate in rear clutch retainer. See Fig. 26. Apply ATF to plates and discs and install snap ring.

3) Check clearance between snap ring and clutch reaction plate with spring compressed. Clearance should be .016-.024" (.40-.60 mm). Snap rings are common to those used for front clutch. Insert input shaft into clutch retainer. Install thrust race, snap ring and 3 seal rings on input shaft.

END CLUTCH (F4A20 SERIES ONLY)

Disassembly

1) Remove snap ring, washer and return spring. Remove large snap ring, clutch reaction plate, clutch discs and clutch plates.

2) Remove clutch piston. Use compressed air if necessary. Remove seal ring from clutch retainer and 2 "D" rings from clutch piston.

Reassembly

1) Install "D" rings in piston. Apply ATF to outer surfaces of "D" rings, and install clutch piston in end clutch retainer by pushing by hand.

2) Install return spring and washer, then new snap ring. See Fig. 27. Install clutch plates, clutch discs and reaction plate in end clutch retainer. If using new discs, soak in ATF before installation.

3) Apply ATF to discs and install snap ring. Check clearance between snap ring and clutch reaction plate while compressed. Clearance should be .024-.033" (.60-.85 mm). Selective snap rings are available for clearance adjustments.

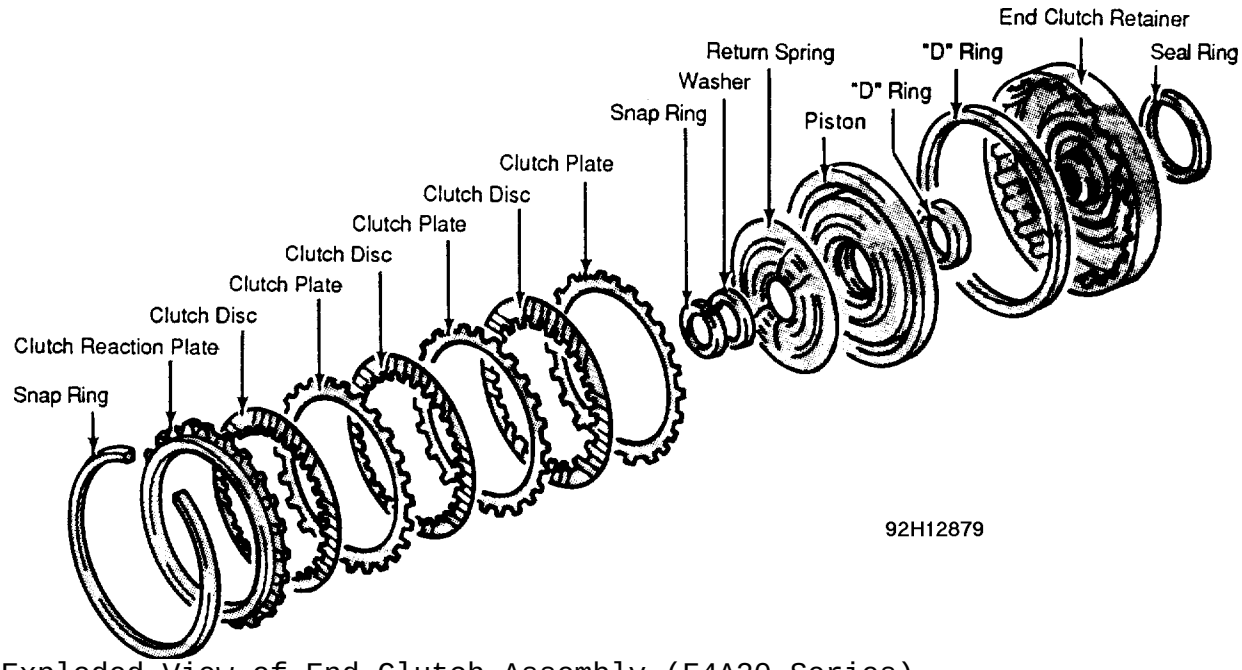


Fig. 27: Exploded View of End Clutch Assembly (F4A20 Series)
Courtesy of Mitsubishi Motor Sales of America

LOW & REVERSE BRAKE

Disassembly & Reassembly

Remove piston using compressed air. Remove "D" ring from piston. Fit new "D" ring in piston and apply ATF. Press piston in center support by hand.

PLANETARY GEAR SET

Disassembly

1) Remove 3 bolts retaining overrunning clutch outer race assembly. Remove overrunning clutch outer race assembly and overrunning clutch end plate. Remove short pinion shaft, spacer bushing and 2 front thrust washers.

2) Remove only one short pinion using care not to lose 17 needle rollers in short pinion. Remove thrust bearing from pinion carrier. Remove overrunning clutch by pushing outer race out using fingers.

Reassembly

1) Install thrust bearing in pinion carrier and ensure correct fit. Apply generous amount of petroleum jelly to inside diameter of short pinion and install 17 rollers.

2) Align holes in front and rear thrusts with shaft hole of carrier. Install short pinion, spacer bushing and 2 front thrust washers and align holes. Insert pinion shaft. Install end plate in overrunning clutch outer race. Push overrunning clutch in outer race. Ensure proper installation direction. See Fig. 28.

3) Apply petroleum jelly and install overrunning clutch end plate. Install overrunning clutch assembly to carrier and align bolt holes. Torque bolts to 25-32 ft. lbs. (35-45 N.m).

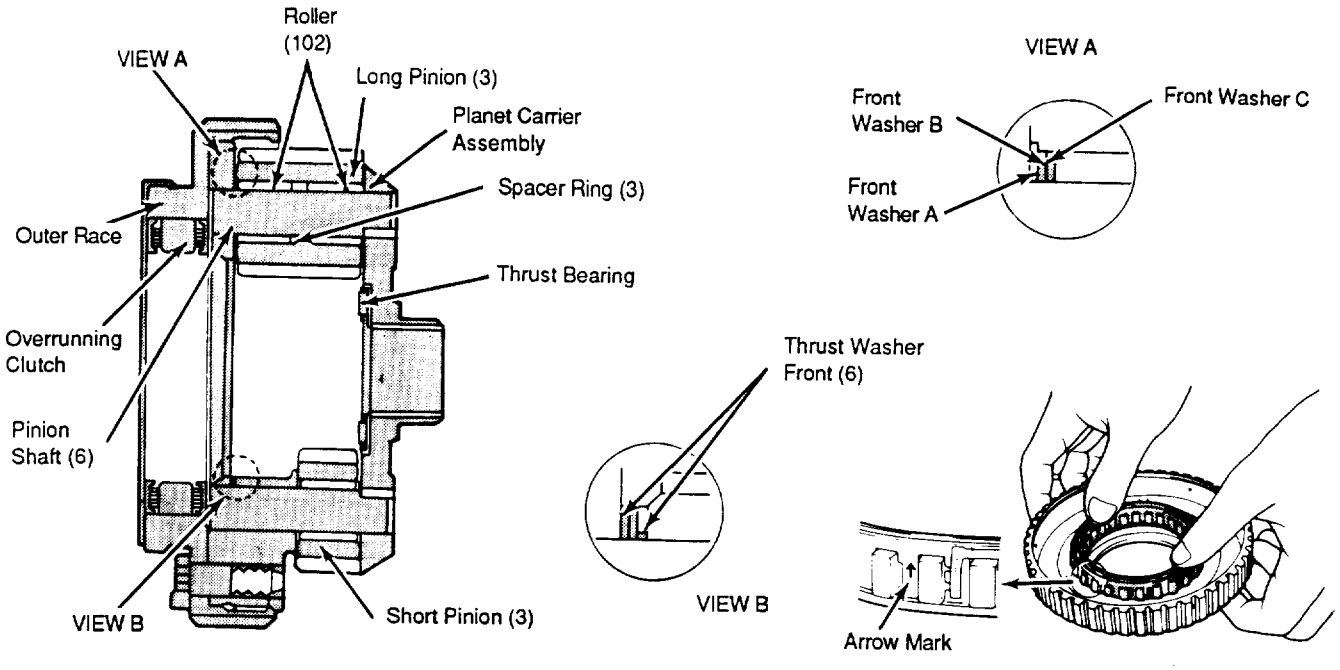


Fig. 28: Cross-Sectional View of Planetary Gear Set
Courtesy of Mitsubishi Motor Sales of America

INTERNAL GEAR & TRANSFER DRIVE GEAR SET

Disassembly

Remove snap ring from rear end of output flange. Using a puller, remove bearings (2) and transfer drive gear from output flange. Remove large snap ring, and separate internal gear from output flange.

NOTE: If replacing output flange or transfer drive gear, service as a set only.

Reassembly

1) Press transfer drive gear and bearings on output flange. Make sure the transfer drive gear is installed in the proper

direction. See Fig. 29.
2) Install output flange snap ring. This snap ring is selective; use thickest one that can be installed in groove. Standard value for snap ring is 0-.0236" (0-.060 mm).

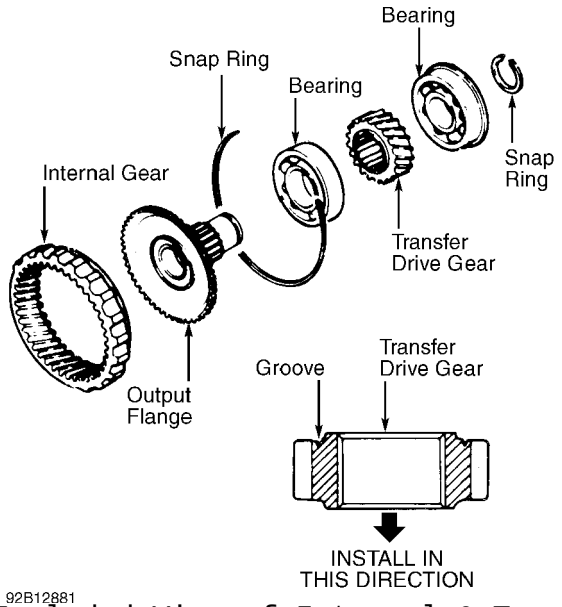


Fig. 29: Exploded View of Internal & Transfer Gear
Courtesy of Mitsubishi Motor Sales of America.

DIFFERENTIAL

Disassembly
1) Remove drive gear and bolts from differential case. Using puller, remove taper roller bearing. Inspect bearing.

NOTE: When removing parts that are to be reused, mark position and direction for reference during reassembly.

2) Drive out lock pin with punch. Remove pinion shaft, pinion gears and washers. Make reference marks for reassembly.
3) Remove side gears and spacers. Mark right and left sides of gears for reference during reassembly.

Reassembly
1) Install side gears and spacers in differential case in noted positions. If new side gears are being used install spacers of medium thickness, .0366-.0394" (.930-1.000 mm). Install pinion gears and washers in case and insert pinion shaft.
2) Measure backlash between pinion gear and side gear. Backlash should be .001-.006" (.025-.150 mm) and right and left hand gear pairs should have equal backlash. If not within specification select a spacer for correct backlash.
3) Install the pinion shaft lock pin in the direction shown. See Fig. 30. After installation, ensure correct installation depth of lock pin. Projection should be less than .118" (3.00 mm).

NOTE: DO NOT reuse lock pin. Lock pin NOT requiring more than 440 lbs. (2000 N) installation load must NOT be used.

4) Install bearings and drive gear on differential case. Apply ATF to bolts, and tighten bolts to 96-103 ft. lbs. (130-140 N.m) in a crisscross pattern.

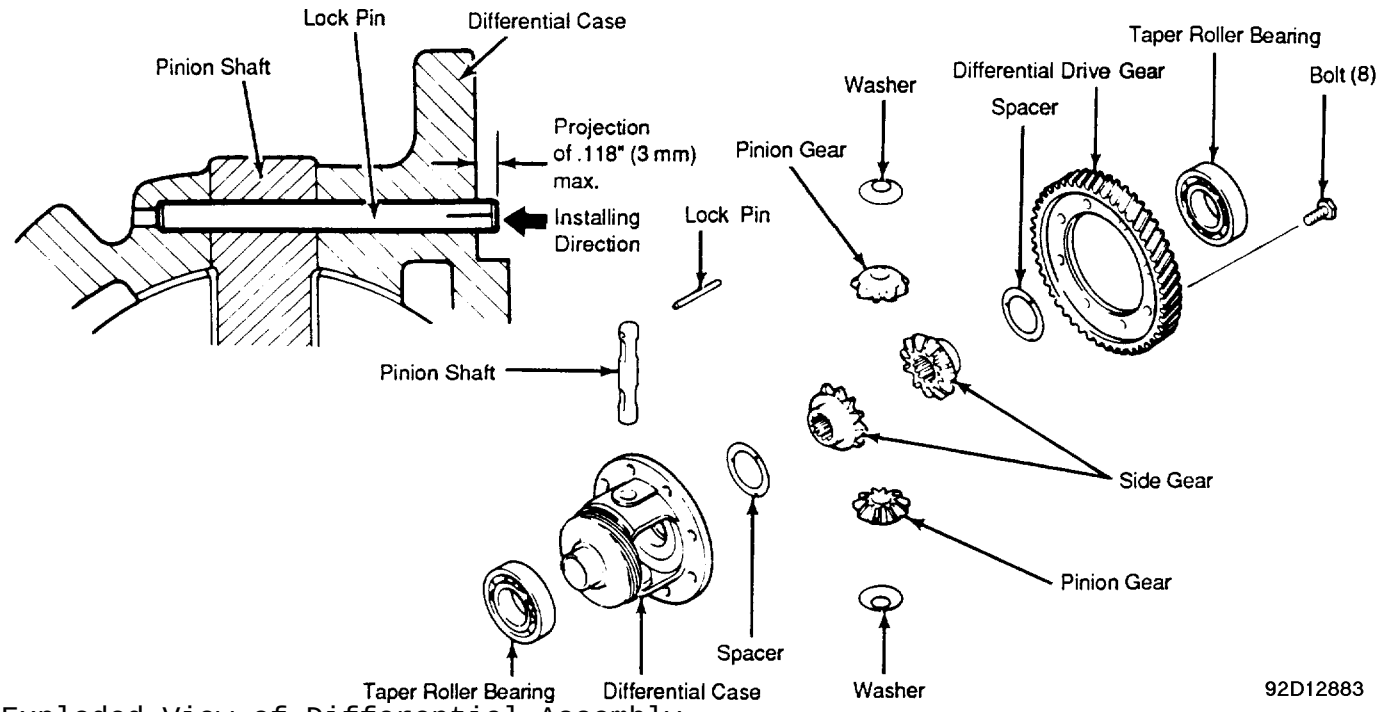


Fig. 30: Exploded View of Differential Assembly
Courtesy of Mitsubishi Motor Sales of America

KICKDOWN SERVO PISTON

Disassembly & Reassembly

Disassemble servo piston, check for damage and wear, apply ATF and reassemble. See Fig. 31.

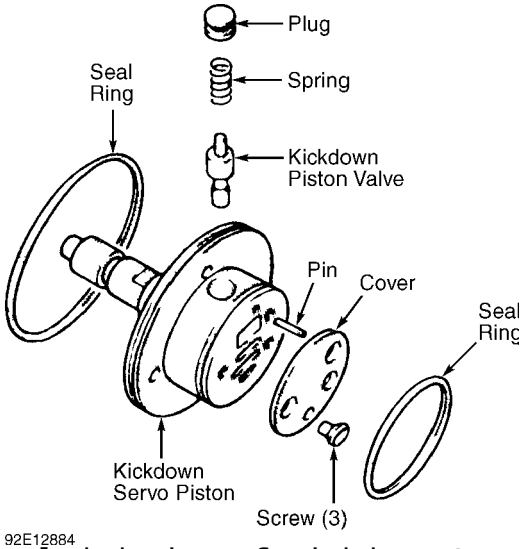


Fig. 31: Exploded View of Kickdown Servo Piston Assembly
Courtesy of Mitsubishi Motor Sales of America

SPEEDOMETER DRIVEN GEAR

Disassembly & Reassembly

Drive out spring pin and disassemble gear and sleeve. DO NOT reuse "O" ring, oil seal and spring pin. Apply a light coat of gear oil to speedometer driven gear shaft. Assemble and drive in spring pin. See Fig. 32.

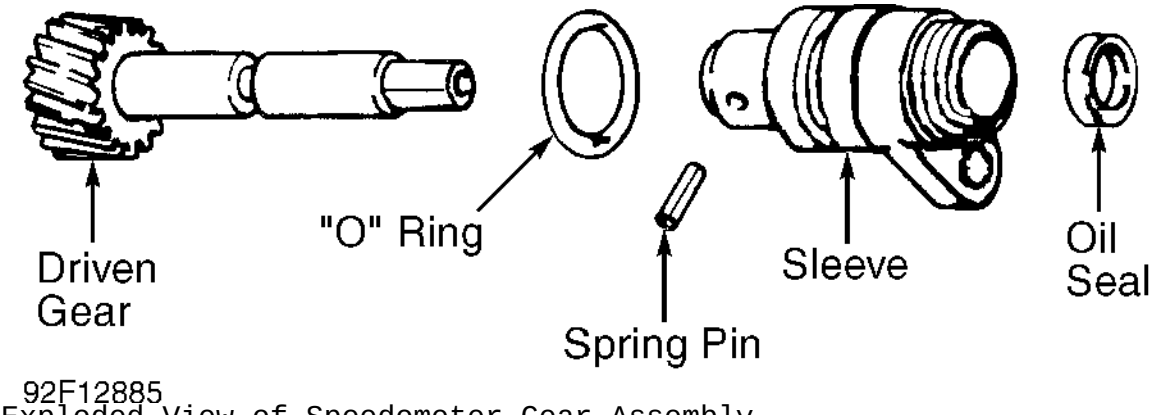


Fig. 32: Exploded View of Speedometer Gear Assembly
Courtesy of Mitsubishi Motor Sales of America

VALVE BODY

NOTE: DO NOT clamp any portion of valve body or transfer plate in a vise. Any slight distortion of valve body or transfer plate will result in sticking valves, excessive leakage or both. Clean all parts with ATF. DO NOT use shop towels during reassembly operation.

Disassembly (F4A20 Series)

1) Remove solenoid valves and manual valve. Remove valve stopper and clamp. Remove 13 bolts and remove lower valve body.

2) Remove separator plate from intermediate plate. Remove relief spring, 2 steel balls and oil filter from intermediate plate.

3) Remove 8 bolts, and remove intermediate plate and upper separating plate. Remove 3 steel balls, Teflon ball and 2 stopper plates from upper valve body. See Fig. 33. Remove valves, springs and plugs as shown in Fig. 34.

Reassembly (F4A20 Series)

1) Clean all parts with ATF. DO NOT use shop towels during reassembly operation.

2) Check sliding surfaces of oil valves and valve body for scratches or damage. Check springs for deformation or damage.

3) Lubricate with ATF and install valves, springs and plugs. See Fig. 34.

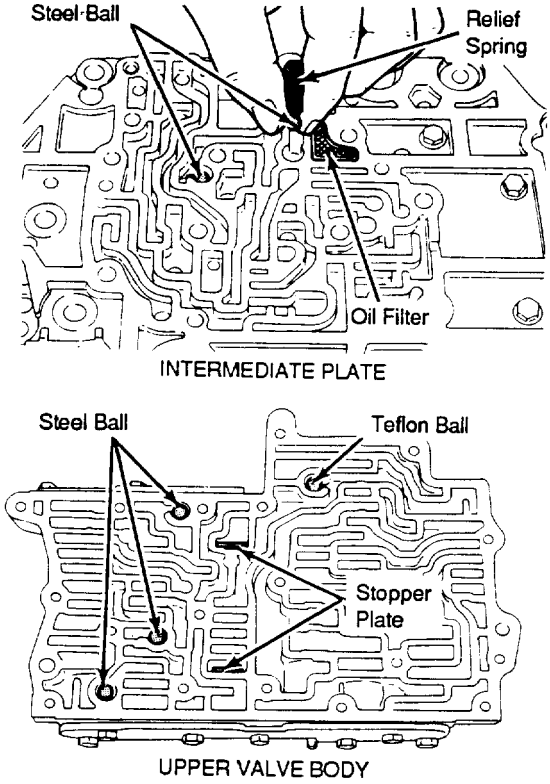
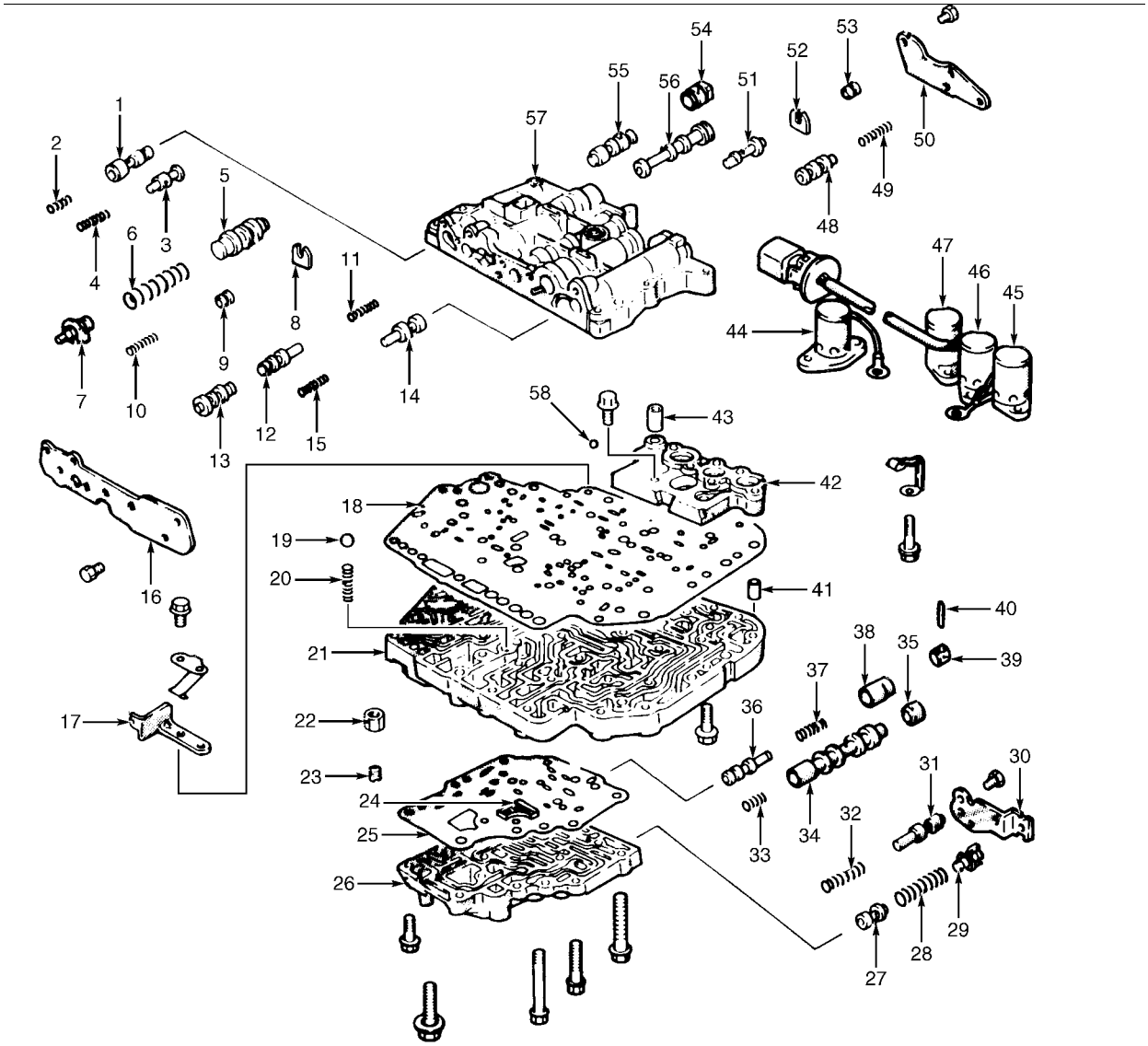


Fig. 33: Locating Steel Balls (F4A20 Series)
Courtesy of Mitsubishi Motor Sales of America



1. Pressure Control Valve
2. Pressure Control Spring
3. Torque Converter Control Valve
4. Torque Converter Control Spring
5. Regulator Valve
6. Regulator Spring
7. Adjusting Screw
8. Stopper Plate
9. Shift Control Plug
10. Shift Control Spring
11. Rear Clutch Exhaust Spring
12. Rear Clutch Exhaust Valve "B"
13. Rear Clutch Exhaust Valve "A"
14. 2-3 & 4-3 Shift Valve
15. 2-3 & 4-3 Shift Spring
16. Front End Cover
17. Valve Stopper
18. Upper Separating Plate
19. Steel Ball
20. Relief Spring
21. Intermediate Plate
22. Nut
23. Jet
24. Oil Filter
25. Lower Separating Plate
26. Lower Valve Body
27. Reducing Valve
28. Reducing Spring
29. Adjusting Screw
30. End Cover
31. N-R Control Valve
32. N-R Control Spring
33. Torque Converter Clutch (TCC) Control Spring
34. TCC Control Valve
35. TCC Control Sleeve
36. End Clutch Valve
37. End Clutch Spring
38. End Clutch Plug
39. Stopper
40. Pin
41. Dowel Bushing
42. Block
43. Pipe
44. Pressure Control Solenoid Valve (PCSV)
45. Shift Control Solenoid Valve "B" (SCSV-"B")
46. Shift Control Solenoid Valve "A" (SCSV-"A")
47. TCC Solenoid Valve
48. 1-2 Shift Valve
49. 1-2 Shift Spring
50. Rear End Cover
51. Shift Control Valve
52. Stopper Plate
53. Shift Control Plug "B"
54. N-D Control Sleeve
55. N-D Control Valve
56. Manual Valve
57. Upper Valve Body
58. Teflon Ball

Fig. 34: Exploded View of Valve Body Assembly (F4A20 Series)
Courtesy of Mitsubishi Motor Sales of America

TRANSAXLE REASSEMBLY

1) Install brake reaction plate, brake plate and brake disc

in transaxle case. Install a pressure plate with adequate size and fit the return spring. Ensure return spring is installed in proper direction.

2) Apply petroleum jelly to wave spring and stick it to the center support. Install center support and snap ring in case. Check low and reverse brake end play by mounting a dial indicator on rear of transaxle case. Install dial indicator through transfer idler shaft hole so its feeler is held perpendicular to brake reaction plate.

3) Using a hand pump feed air into low and reverse brake and read dial indicator deflection. Select a pressure plate to obtain specified end play of .0315-.0394" (.800-1.000 mm). Install transfer shaft bearing outer race in case. Install parking sprag rod on detent plate, then push manual control shaft in transaxle case. Torque manual control shaft set screw to 71-89 INCH lbs. (8-10 N.m).

4) Install sprag rod support and torque bolts to 15-20 ft. lbs. (20-27 N.m). Install bearings on transfer shaft and install shaft in transaxle case. Using a press, install transfer driven gear. Torque transfer shaft lock nut to 148-170 ft. lbs. (200-230 N.m) and stake lock nut to prevent loosening.

5) Measure transfer shaft end play and select a spacer which provides 0-.0010" (0-.025 mm) end play. Install transfer shaft cover. Assemble the planetary carrier, output flange, transfer drive gear and bearing and install in transaxle case. See Figs. 35 and 36. Install snap ring on output flange rear bearing.

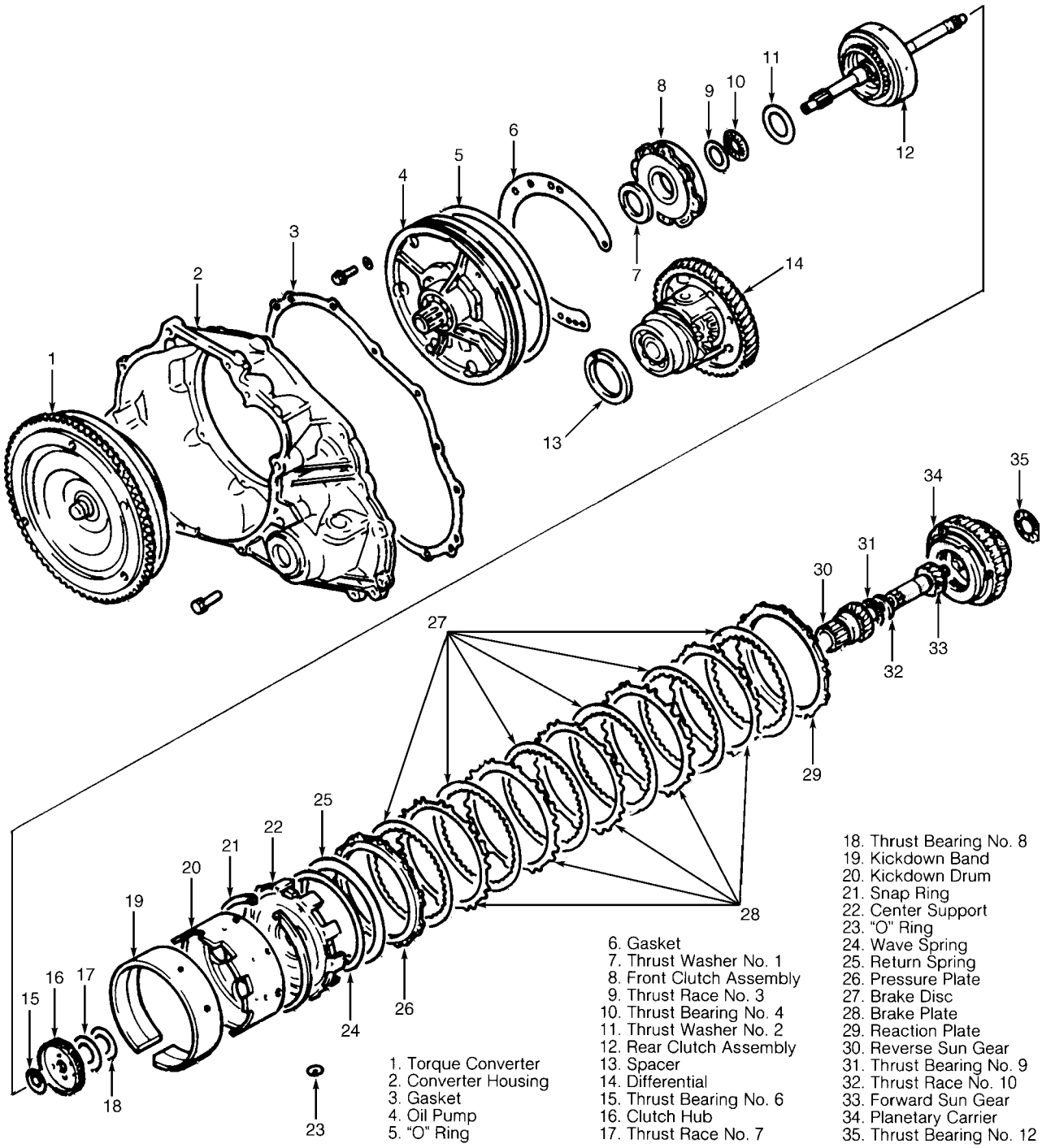
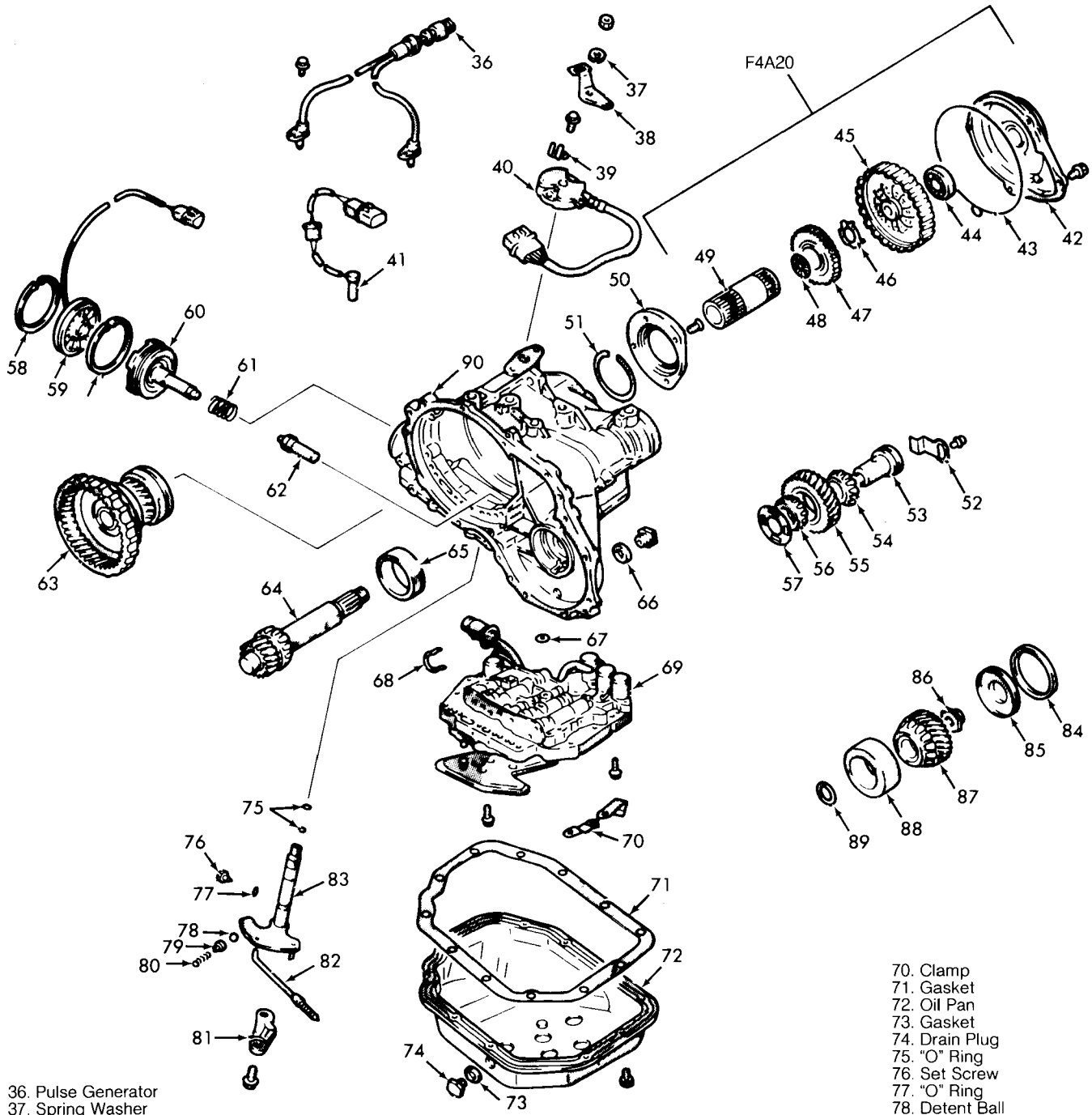


Fig. 35: Transaxle Assembly (F3A20 & F4A20 Series - 1 of 2)
Courtesy of Mitsubishi Motor Sales of America



36. Pulse Generator
37. Spring Washer
38. Control Lever
39. Clamp
40. Inhibitor Switch
41. Oil Temperature Sensor
42. End Clutch Cover
43. "O" Ring
44. Bearing
45. End Clutch
46. Thrust Washer
47. End Clutch Hub
48. Thrust Bearing No. 13
49. End Clutch Shaft
50. Bearing Retainer
51. Snap Ring
52. Lock Plate
53. Idler Gear Shaft
54. Bearing Inner Race
55. Idler Gear
56. Bearing Inner Race
57. Spacer
58. Snap Ring
59. Kickdown Servo Switch
60. Kickdown Servo Piston
61. Spring
62. Anchor Rod
63. Output Flange
64. Transfer Shaft
65. Outer Race
66. Gasket
67. "O" Ring
68. Clip
69. Valve Body Assembly
70. Clamp
71. Gasket
72. Oil Pan
73. Gasket
74. Drain Plug
75. "O" Ring
76. Set Screw
77. "O" Ring
78. Detent Ball
79. Detent Seat
80. Detent Spring
81. Sprag Rod Support
82. Parking Sprag Rod
83. Control Shaft
84. "D" Ring
85. Transfer Shaft Cover
86. Lock Nut
87. Driven Gear
88. Outer Race
89. Spacer
90. Transaxle Case

92D12891

Fig. 36: Transaxle Assembly (F3A20 & F4A20 Series - 2 of 2)
Courtesy of Mitsubishi Motor Sales of America

6) Coat transfer idler spacer and attach it to case. Install 2 taper roller bearings and spacer in transfer idler gear. Place

transfer idler gear in transaxle case and insert idler shaft from outer side of case.

7) Using Special Tool (MD998344) tighten idler shaft and measure preload at output flange. Adjust preload by tightening or loosening idler shaft. Preload should be 7.1 INCH lbs. (0.8 N.m).

8) After preload adjustment is complete, eliminate backlash between the idler shaft and lock plate by moving the idler shaft in the loosening direction. Install lock plate and torque to 15-20 ft. lbs. (20-27 N.m).

9) Install output flange bearing retainer and torque screws to 13-16 ft. lbs. (17-22 N.m). Apply a 5 mm bead of sealant (3M Stud Locking No. 4176) to the top. Sealant should not stick out of screw head. Stake screws to prevent loosening.

10) Install planetary carrier with thrust bearing No. 12 in place, in transaxle case. Assemble reverse sun gear and forward sun gear and install in planetary carrier. See Fig. 37. Install low and reverse brake assembly ensuring 2 new "O" rings are properly positioned on center support. See Fig. 38.

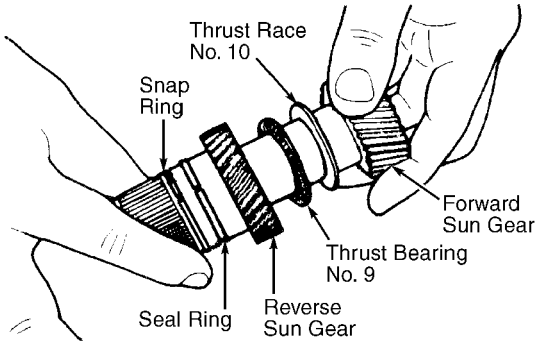


Fig. 37: Assembling Sun Gears
Courtesy of Mitsubishi Motor Sales of America

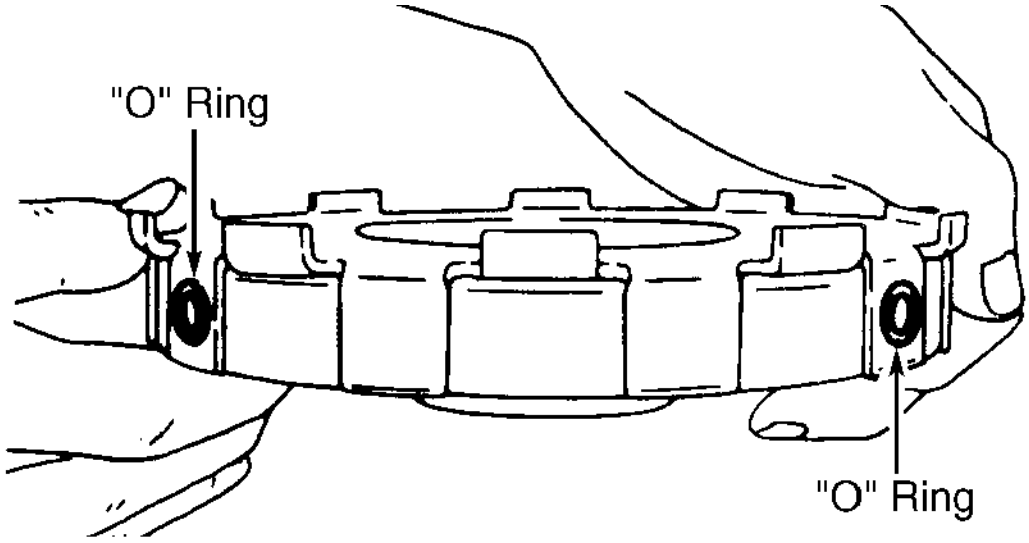


Fig. 38: Positioning "O" Rings On Center Support
Courtesy of Mitsubishi Motor Sales of America

11) Apply ATF to "O" rings. Install center support, ensuring

wave spring does not shift out of position. Install center support snap ring, ensuring snap ring ends are aligned with mounting hole for pulse generator "A".
12) Install kickdown band anchor rod. Install kickdown servo assembly and snap ring. Install kickdown band and attach ends to anchor rod and servo piston rod.

13) Install kickdown drum and position band on drum. Apply petroleum jelly to thrust bearing No. 8 and stick it to kickdown drum. Apply petroleum jelly to thrust race No. 7 and stick it to rear clutch hub.

14) Install clutch hub to sun gear splines and attach thrust bearing No. 6 to outer side of clutch hub. Install thrust washer No. 2 and thrust bearing No. 4 on rear clutch assembly. Assemble front and rear clutch assemblies and install in transaxle case. Install differential assembly.

15) If end play that was measured and recorded at disassembly is not within specification, adjust end play to specification by selecting thrust race No. 3 and thrust washer No. 1. End play should be .012-.040"(.30-1.00 mm). Install oil pump assembly, torque bolts to 11-16 ft. lbs. (15-22 N.m), and recheck end play. Readjust as necessary.

16) Measure differential end play by placing a .4" (10 mm) long, .12" (3.0 mm) diameter piece of solder at 2 locations on the differential bearing outer race. See Fig. 39. Install converter housing, without gasket, and tighten bolts to 14-17 ft. lbs. (19-23 N. m).

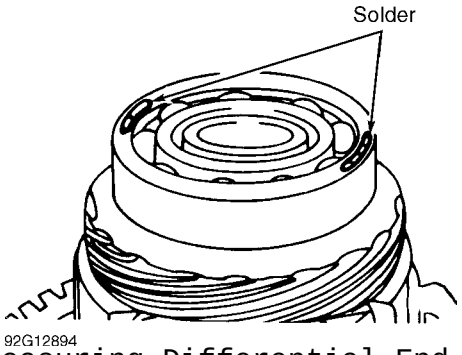


Fig. 39: Measuring Differential End Play
Courtesy of Mitsubishi Motor Sales of America

17) Remove converter housing and measure thickness of the crushed solder with a micrometer. Determine thickness of spacer to be installed using the following formula: Thickness of solder = thickness of spacer at differential + gasket thickness .0149" (.380 mm) - end play at differential. End play should be 0-.004" (0-.10 mm).

18) Apply silicone grease to hatched area of transaxle case and install new case gasket. Install converter housing and torque bolts to 14-17 ft. lbs. (19-23 N.m). Install end clutch shaft with the longest spline end towards torque converter end of transaxle. Fit thrust washer to end clutch return spring.

19) Install end clutch hub to end clutch. Using petroleum jelly, stick thrust bearing No. 13 to end clutch hub and install end clutch assembly. Attach new "O" ring to end clutch cover and install on transaxle case. When installing end cover, ensure the screw holes are correctly aligned. If aligned after installing, "O" ring may be twisted. Torque end cover bolts to 53-71 INCH lbs. (6-8 N.m).

20) Install brake oil passage "O" ring at top center of valve body, and install valve body assembly to transaxle case. Ensure manual control shaft pin is in slot of manual valve. Install solenoid valve connector in transaxle case using new "O" ring. Tighten valve body mounting bolts to 89-106 INCH lbs. (10-12 N.m). See Fig. 40.

21) Install oil filter, and tighten bolts to 44-62 INCH lbs. (5-7 N.m). With magnets in place, install oil pan. Tighten bolts to 89-106 INCH lbs. (10-12 N.m). Install kickdown servo switch using new "D" ring, and secure using snap ring. Install inhibitor switch and manual control lever.

22) Adjust inhibitor switch. Install pulse generators "A" and "B". Apply ATF to torque converter sealing area, and install torque converter. Measure distance between ring gear end and converter housing end. Installed depth should be about .47" (12.0 mm).

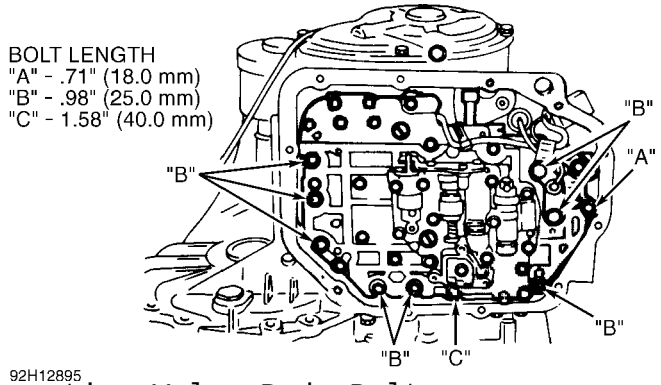


Fig. 40: Locating Valve Body Bolts
Courtesy of Mitsubishi Motor Sales of America

TORQUE SPECIFICATIONS

TORQUE SPECIFICATIONS TABLE

Application	Ft. Lbs. (N.m)
Bearing Retainer Bolts	13-16 (17-22)
Converter Housing Bolts	14-17 (19-23)
Differential Drive Gear Bolts	96-103 (130-140)
Drive Plate-To-Converter Bolts	34-39 (46-53)
Idler Shaft Lock Plate Bolt	15-20 (20-27)
Manual Control Lever Nut	13-16 (17-22)
Oil Pump Bolts	11-15 (15-20)
Planetary Carrier-To-Overrunning Clutch	26-33 (35-45)
Sprag Rod Support Bolts	15-20 (20-27)
Transfer Shaft Lock Nut	148-170 (200-230)
	INCH Lbs. (N.m)
End Clutch Cover Bolts	53-71 (6-8)
Governor Set Screw	71-89 (8-10)
Inhibitor Switch Bolts	89-106 (10-12)
Manual Control Lever Set Screw	71-89 (8-10)
Oil Filter Bolts	44-62 (5-7)
Oil Pan Bolts	89-106 (10-12)
Oil Pump Housing Bolts	89-106 (10-12)

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Pulse Generator Bolt ..................... 89-106 (10-12)
Valve Body Bolts ......................... 35-53 (4-6)
Valve Body-To-Case Bolts ................. 89-106 (10-12)
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WIRING DIAGRAMS

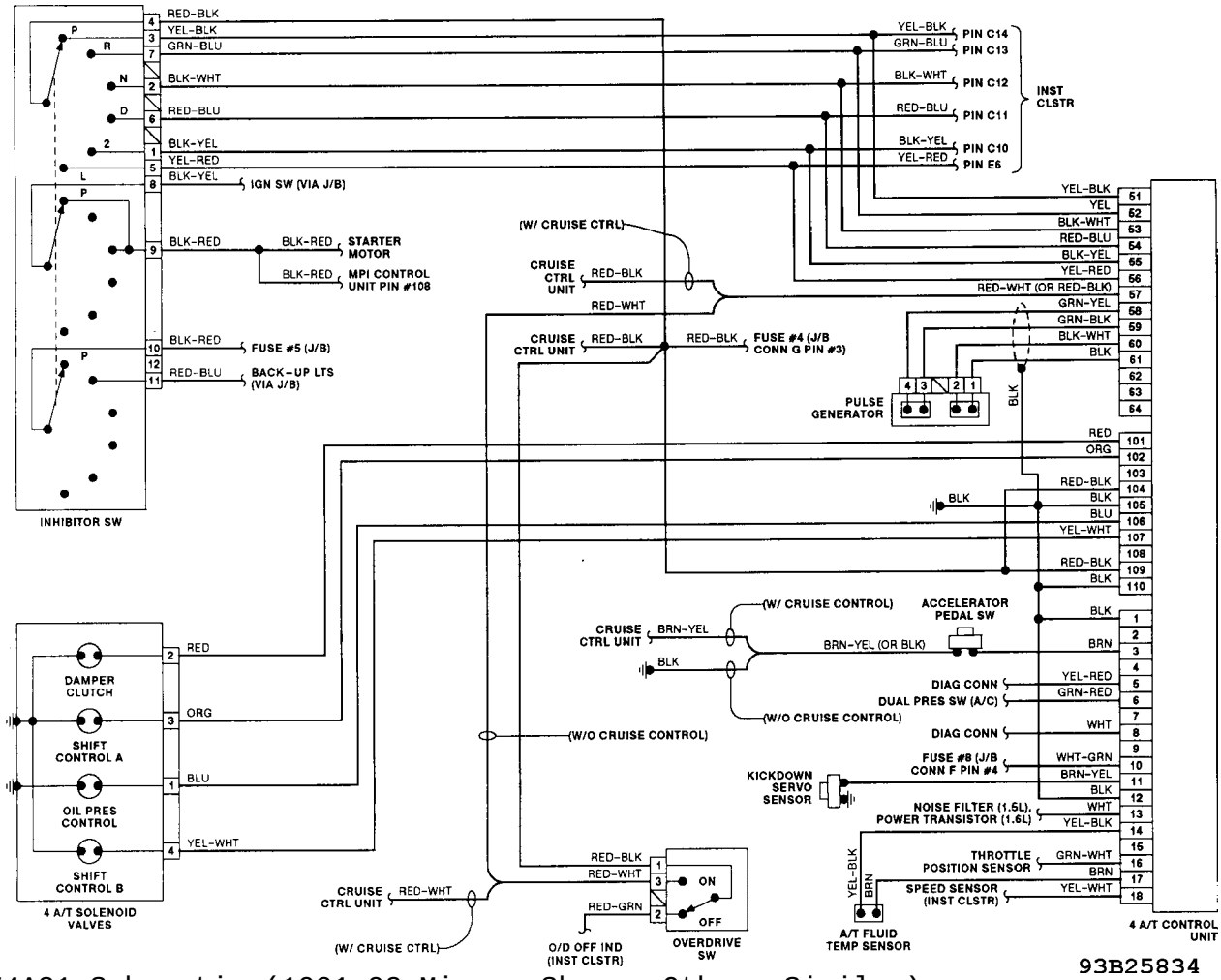

Fig. 41: F4A21 Schematic (1991-92 Mirage Shown; Others Similar)

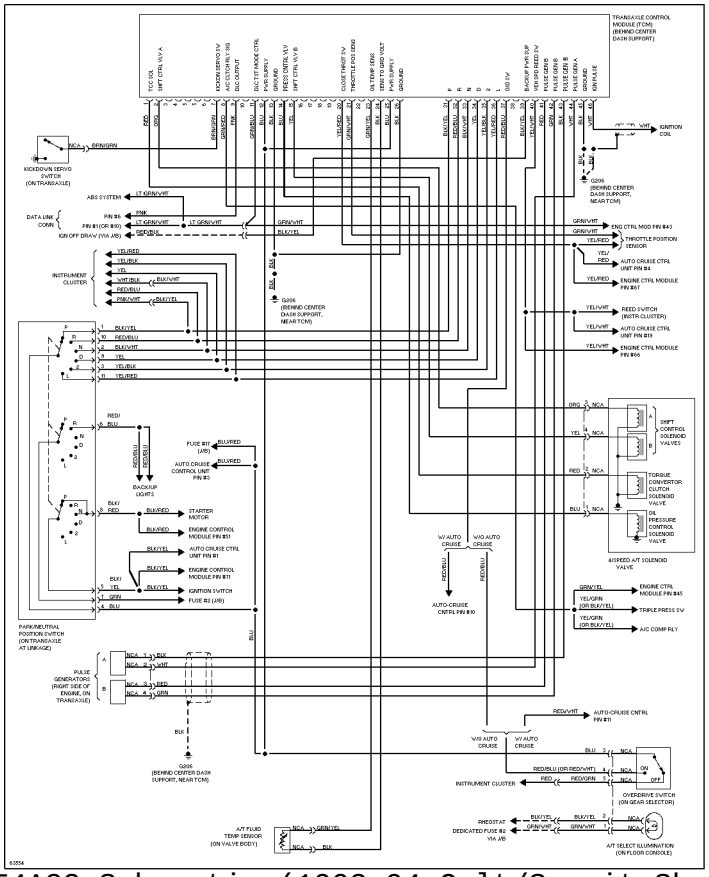

Fig. 42: F4A22 Schematic (1993-94 Colt/Summit Shown; Others Similar)

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