AUTOMATIC TRANSMISSION

CONTENTS

120002617

GENERAL INFORMATION

120002618

Items		Vehicles with 4G63 engine	Vehicles with 4G64 engine
Transmission model		R4AW2-5	R4AW2-5
Type		4-speed full automatic	4-speed full automatic
Gear ratio	1st	2.826	2.826
	2nd	1.493	1.493
	3rd	1.000	1.000
	4th	0.730	0.730
	Reverse	2.703	2.703
Speedometer gear ratio (driven/drive)		22/6	21/6

SERVICE SPECIFICATIONS

120002619

Items			Standard value
Distance between inner cable stopper and end of dust cover mm			0–1
Lock-up solenoid valve coil resistance (at 20°) Ω			Approx. 13
Stall speed r/min.		4G63	2,100–2,400
		4G64	2,300–2,600
Governor pressure kPa		1,000 r/min.	137–166
		2,000 r/min.	245–284
		3,200 r/min.	402–460
Line pressure kPa	Idle speed	D range	509–588
		R range	774–892
	Stall speed	D range	1,078–1,274
		R range	1,569–1,961
Operation temperature of engine coolant temperature switch °C	On (continuity)		50±3
	Off (no continuity)		43
Clearance between shift lever guide and steering column mm			2.4–3.6

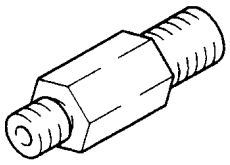
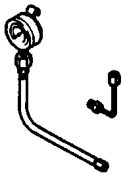
LUBRICANTS

120002620

Items	Specified lubricants	Quantity ℓ
Transmission fluid	DIA QUEEN ATF-SP or equivalent	Approx. 6.8
O-ring for oil filler pipe	DIA QUEEN ATF-SP or equivalent	As required

SPECIAL TOOLS

120002621

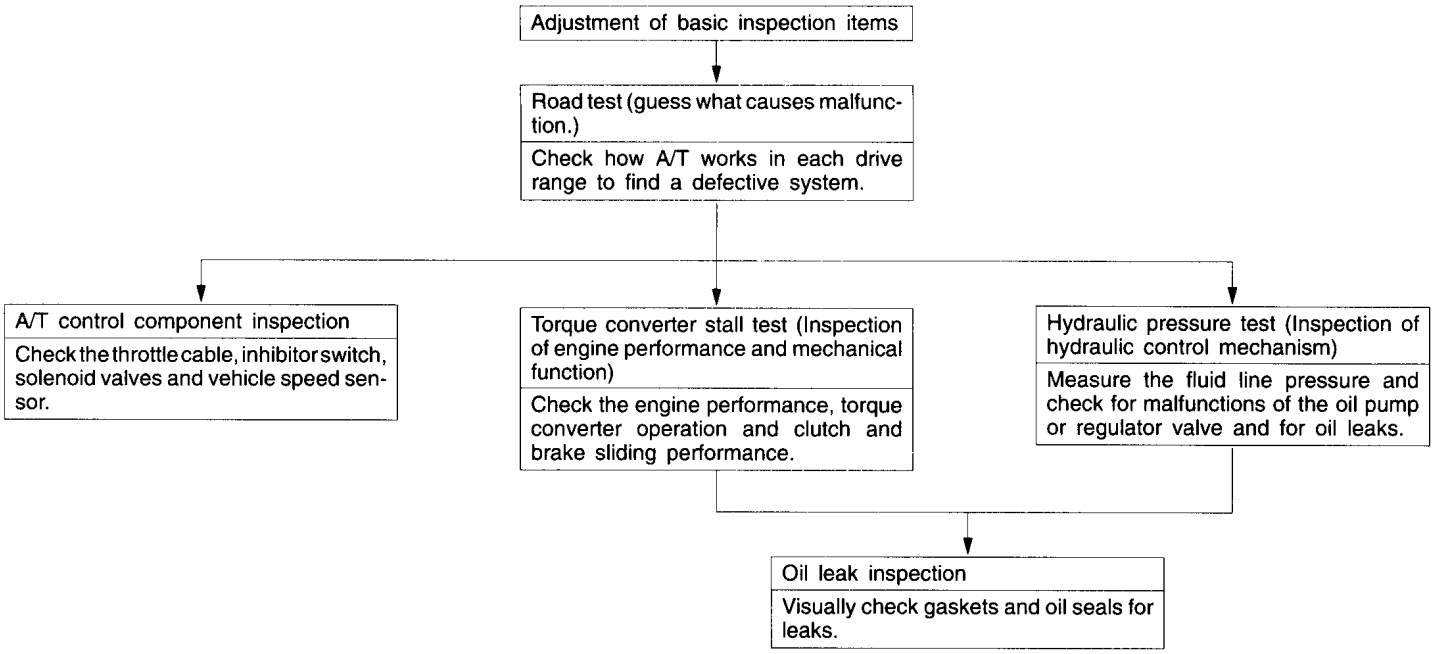
Tool	Number	Name	Use
	MD998330 (including MD998331)	Oil pressure gauge (2,942 kPa)	Measurement of oil pressure
	MD998920	Adapter	Connection of oil pressure gauge
	MD999563 (including MD998331)	Oil pressure gauge (980 kPa)	Measurement of oil pressure

TROUBLESHOOTING

120002622

Automatic transmission malfunctions may be caused by the following conditions.
(1) Improper maintenance and adjustment
(2) Mechanical malfunctions
(3) Hydraulic malfunctions
(4) Poor engine performance

Troubleshooting in the event of any such malfunctions should begin by checking fluid level, ATF condition, manual linkage adjustment, throttle control cable adjustment and other conditions whose deviation from standards can be readily known. Then, road test shall be performed to determine whether or not the problem has been corrected or more diagnosis is necessary. If the problem still persists after these tests and corrections, hydraulic tests should be performed for further troubleshooting.



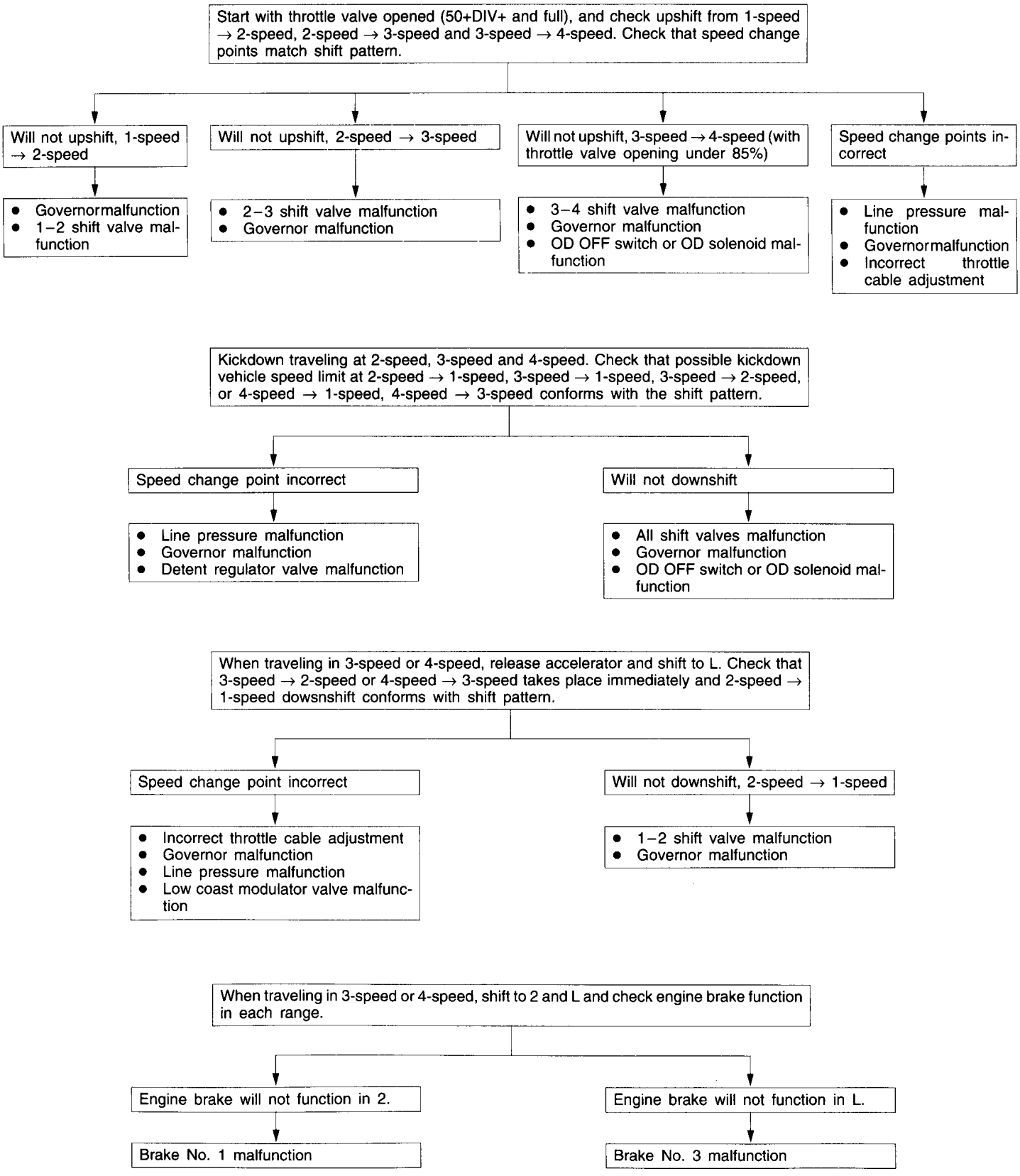
ROAD TEST

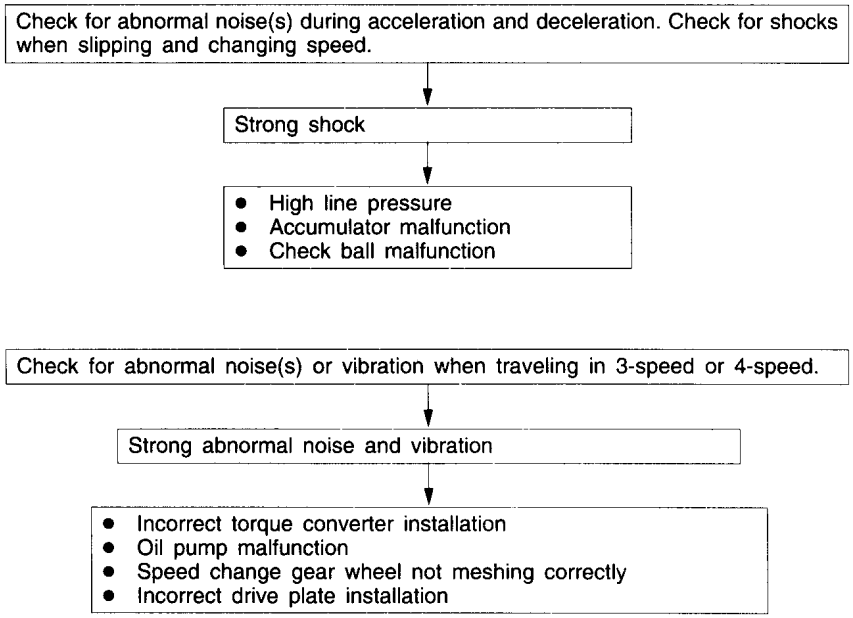
120000552

Prior to performing road test, be sure to make basic checks including check and adjustment of fluid level and condition and adjustment of the throttle cable. For road test, the transfer must be placed in the 2H (2WD-high) position. In road test, various changes such as slips in transmission and shifting conditions are checked and the transmission operation at each shift position must be checked.

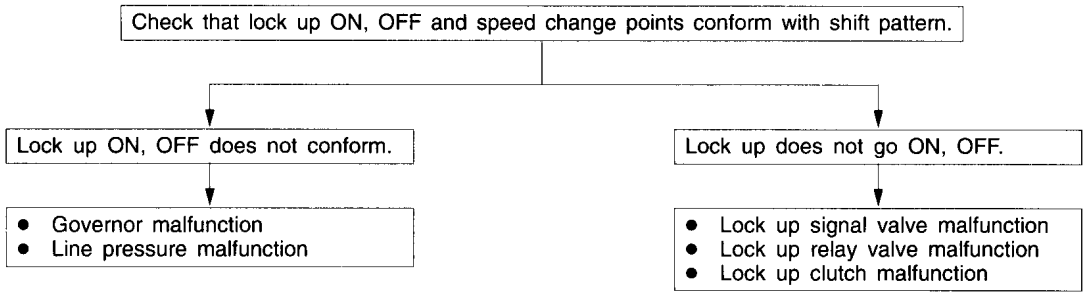
D RANGE TEST

120000553





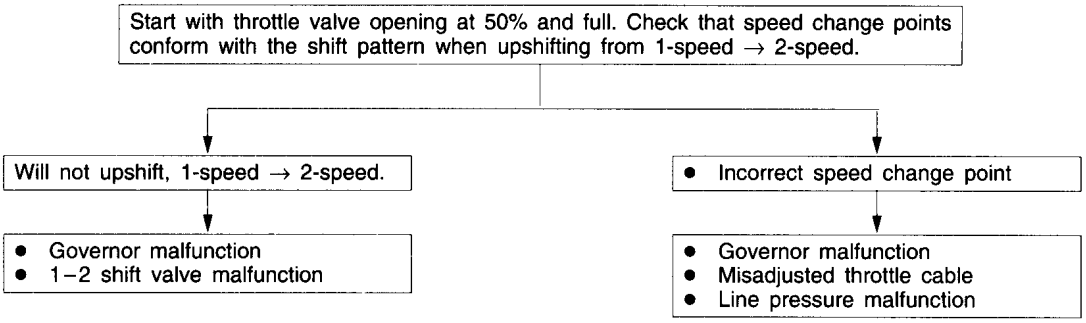
NOTE
Abnormal noises and vibrations are often caused by an unbalanced propeller shaft, differential, tyre, torque converter, engine, etc. Extremely thorough inspection is therefore required.

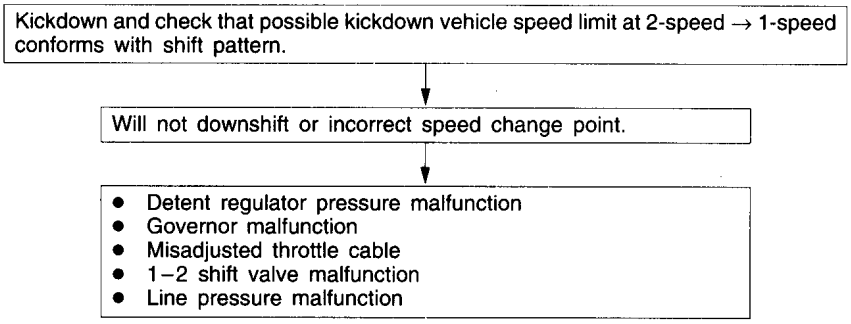


NOTE
(1) Determine the moment when lock up turns ON by decreased engine r/min. or by a slight shock back and forth.
(2) Determine the moment when lock up turns OFF by increased engine r/min.
(3) Check lock up condition by pumping the accelerator slightly. If engine r/min. rises in accordance with throttle valve opening size, determine that the lock up is OFF, if not, determine it ON.
(When lock up is OFF, drive power is transferred through the fluid in the torque converter and therefore, when the accelerator pedal is depressed, slipping occurs inside the torque converter with a resulting large increase in engine r/min.)

2 RANGE TEST

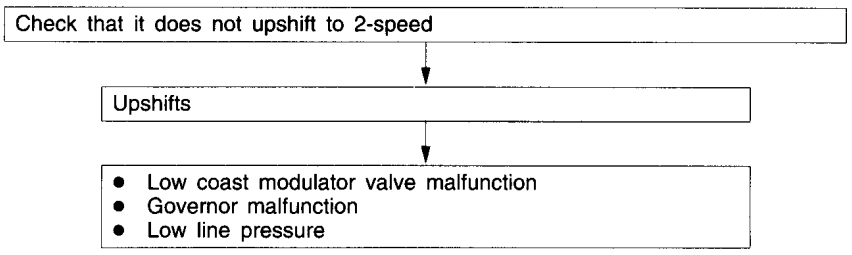
120000554





L RANGE TEST

120000555



R RANGE TEST

120000556

Start with full throttle and check for slippage

↓

Slippage

↓

- Brake No. 3 malfunction
- OD clutch or direct clutch malfunction
- OD one-way clutch malfunction
- Low line pressure

P RANGE TEST

120000557

Park vehicle on an incline (more than 5°). Release parking and service brakes and check that the vehicle does not move.

↓

Vehicle moves

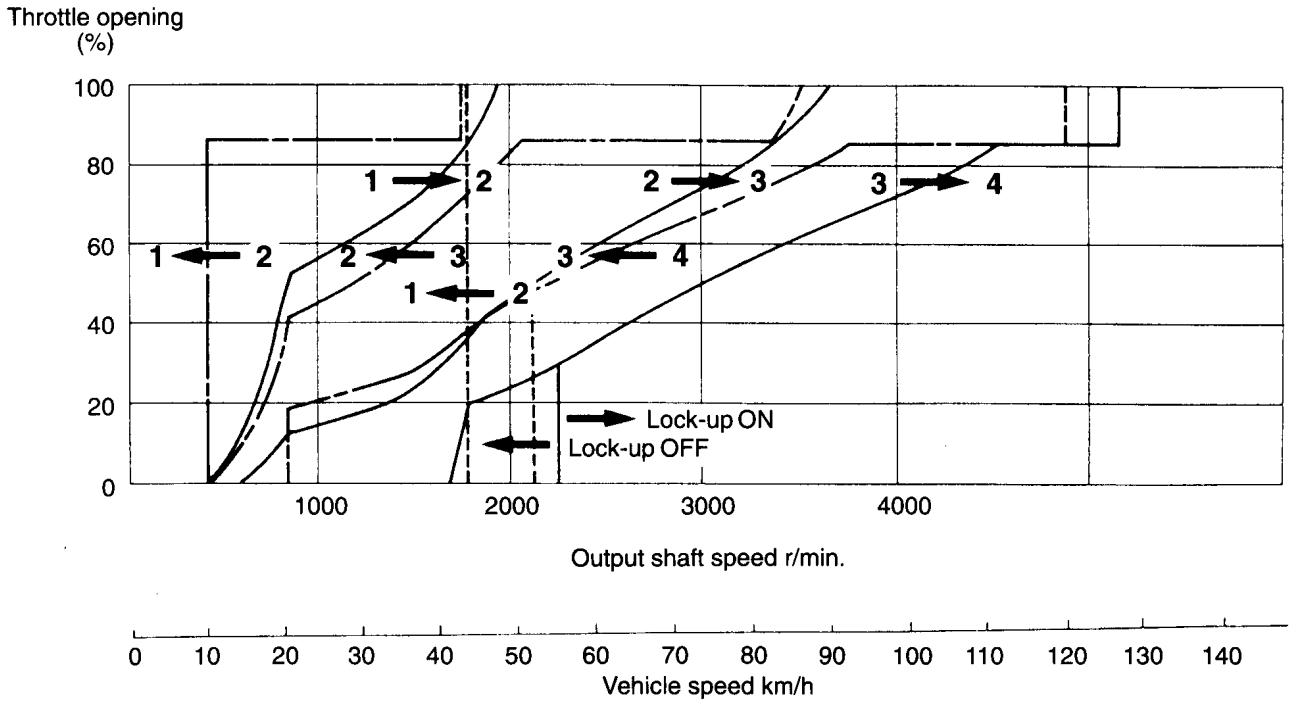
↓

- Park mechanism malfunction
- Misadjusted shift lever

SHIFT PATTERN

120002623

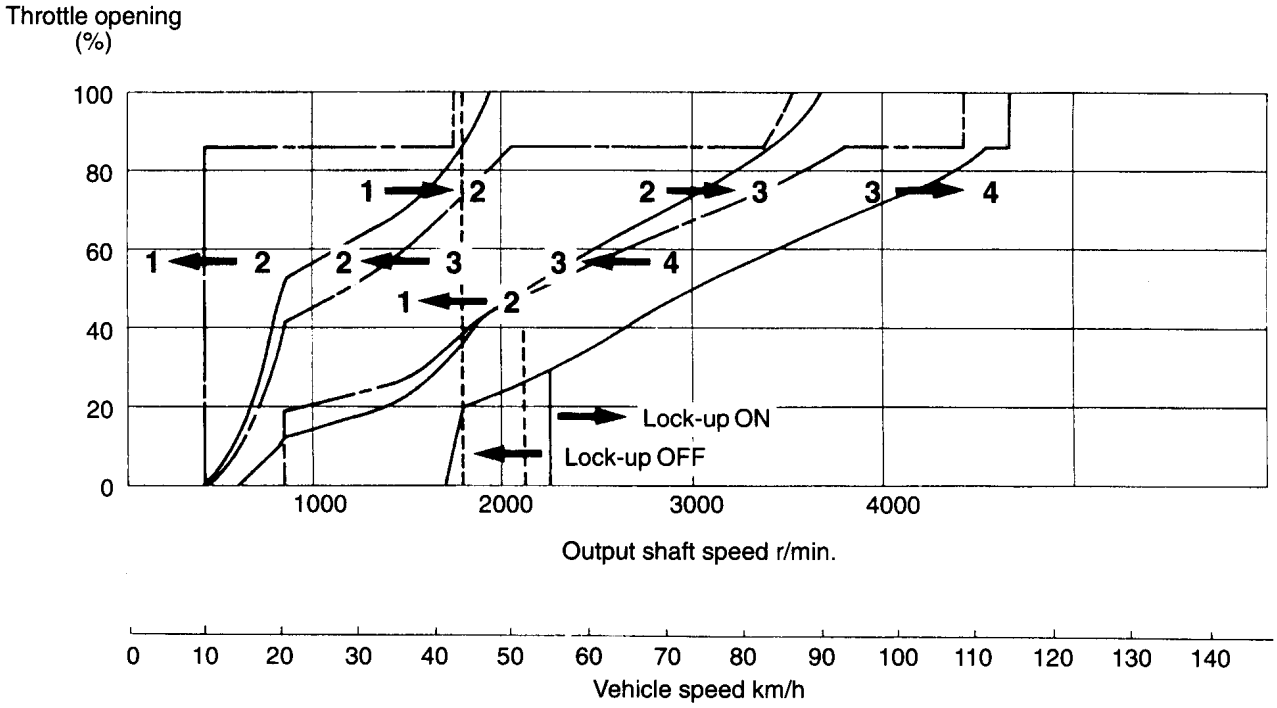
<4G63 engine>



TRA0911

<4G64 engine>

120002624

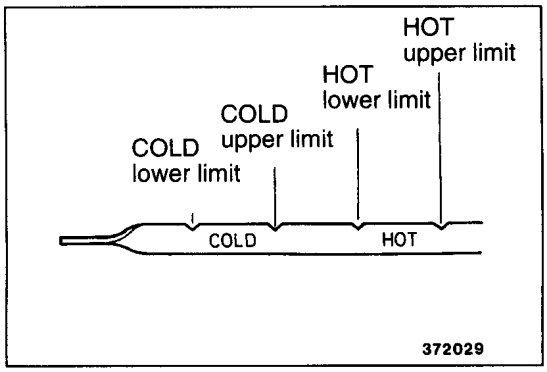


TRA0912

SERVICE ADJUSTMENT PROCEDURES

120002625

AUTOMATIC TRANSMISSION FLUID INSPECTION



(1) Place the vehicle on a level surface.
(2) Before removing the dipstick, wipe all dirt from area around the dipstick.
(3) With the selector lever in the "P" position and the parking brake applied, start the engine.
(4) The engine should be running at idle and the transmission should be warmed up sufficiently. (fluid temperature 70–80°C)
(5) Move the selector lever through all positions to fill the torque converter and hydraulic circuit with fluid. Then place the lever in the "N" position.
(6) Check that fluid is at "HOT" level on the oil level gauge. If fluid level is low, add fluid to "HOT" level.

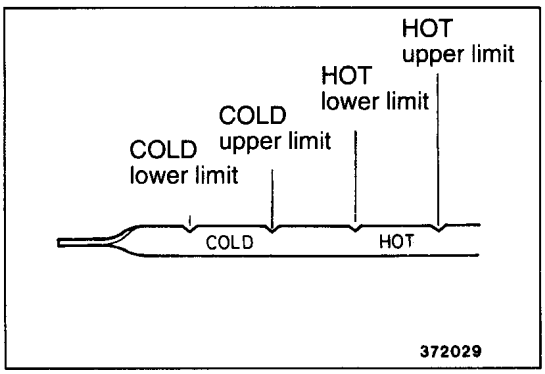
Transmission fluid: DIA QUEEN ATF-SP or equivalent

NOTE
Low fluid level can allow the oil pump to take in air together with fluid, leading to various troubles. Air trapped in hydraulic circuit forms bubbles which make the fluid spongy. This lowers pressure and shows down pressure buildup. If the transmission has too much fluid, gears churn up foam and cause same conditions as when the fluid level is low, resulting in premature deterioration of ATF. In either case, air bubbles can cause overheating and fluid oxidation and varnishing, which can interfere with normal valve, clutch and servo operation. Foaming can also result in fluid escaping from the transmission vent where it may be mistaken for a fluid leak.

(7) Check fluid condition.

NOTE
When fluid smells burned, metal bushing or friction material particles are contaminated and a complete overhaul of the transmission is needed. Be sure to examine fluid on the dipstick closely.

(8) After fluid has been checked, insert the dipstick until it is seated fully to seal out water and dirt.

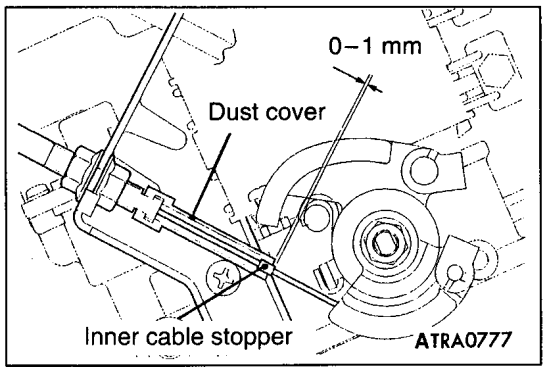


AUTOMATIC TRANSMISSION FLUID CHANGE

120002626

Caution
If ATF change is required due to damage to the transmission, be sure to clean the cooler system.

(1) Raise the vehicle on hoist. Place a drain container with large opening under the drain plug (located in bottom of the oil pan).
(2) Remove the drain plug to let ATF drain.
(3) Install the drain plug and new gasket and tighten to 20 Nm.
(4) Refill ATF through the oil level gauge hole until ATF reaches at COLD lower limit of the level gauge.
(5) Start the engine and allow it to run idle for at least two minutes. Then, with the parking brake and service brake applied, move the selector lever through all positions and finally place in the "N" or "P" position.
(6) After the transmission is warmed up to the normal operating temperature, recheck the fluid level, which must be between the HOT upper limit and HOT lower limit marks.
(7) Insert the dipstick fully to prevent dirt from entering the transmission.



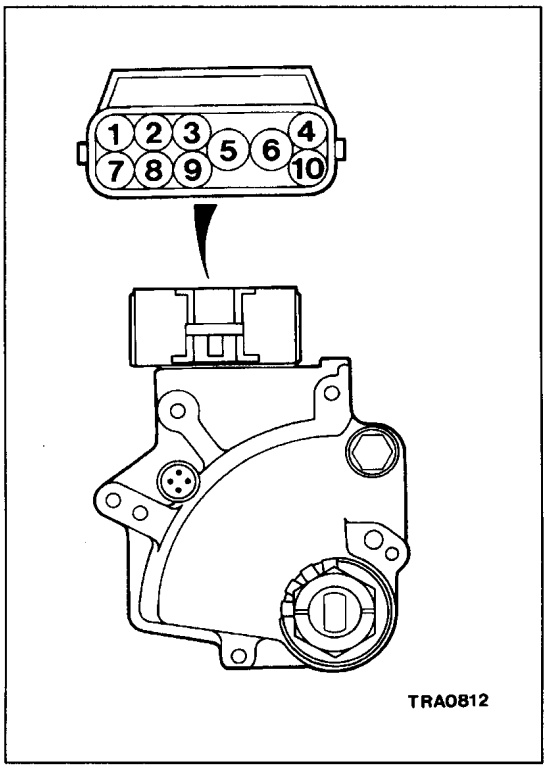
THROTTLE CABLE CHECK AND ADJUSTMENT

120002627

(1) Check the throttle lever and the bracket for deformation.
(2) Measure the distance between the inner cable stopper and the end of the dust cover when the throttle lever is fully opened.

Standard value: 0–1 mm

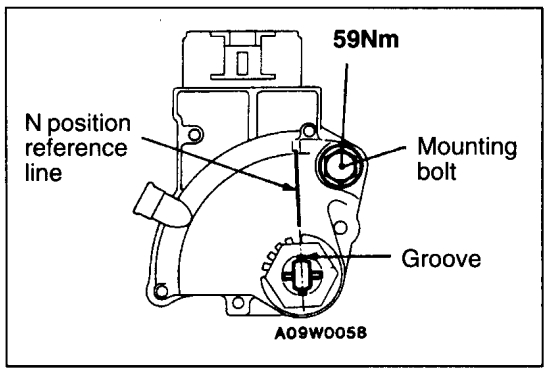
(3) If the distance is not within the standard value, turn the adjusting nut.



INHIBITOR SWITCH CONTINUITY INSPECTION

120002628

Position	Terminal No.									
	1	2	3	4	5	6	7	8	9	10
P	○				○	○				○
R	○								○	
N	○				○	○	○			
D	○							○		
2	○		○							
L	○	○								



INHIBITOR SWITCH AND CONTROL CABLE ADJUSTMENT

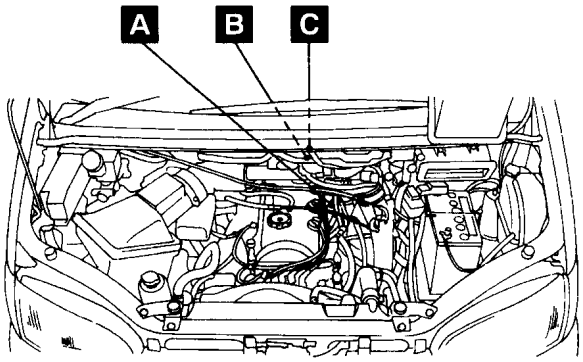
120000578

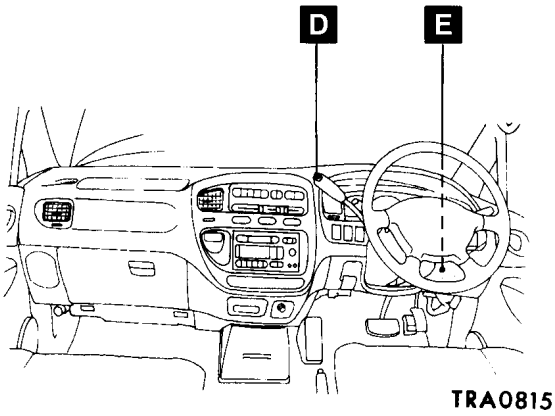
(1) Shift the manual control lever to the N position.
(2) Loosen the inhibitor switch mounting bolt.
(3) Turn the inhibitor switch to align the N position reference line on the inhibitor switch with the groove.
(4) Tighten the mounting bolt to the specified torque.

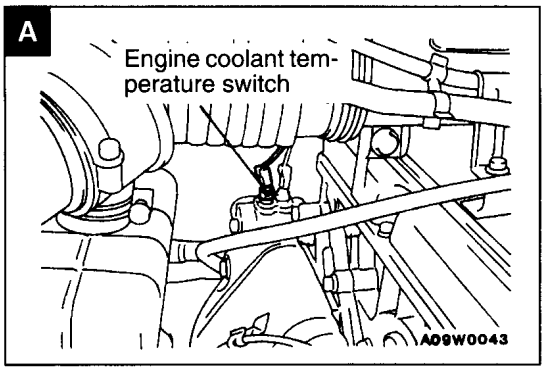
A/T CONTROL COMPONENT LOCATION

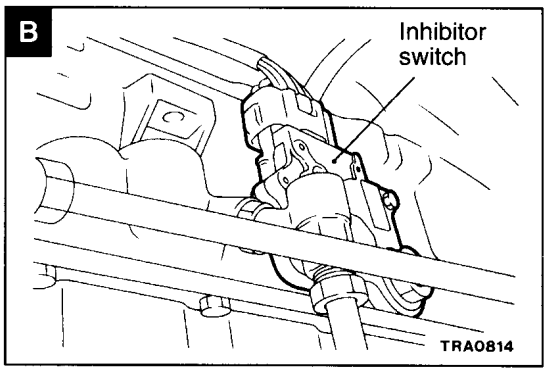
120002629

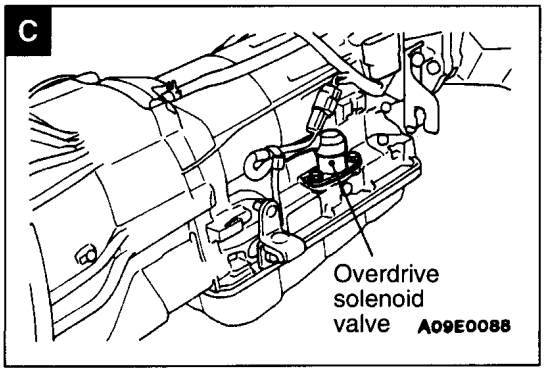
Name	Symbol	Name	Symbol
Overdrive switch	D	Inhibitor switch	B
Overdrive solenoid valve	C	Engine coolant temperature switch	A
Overdrive relay	E	–	–

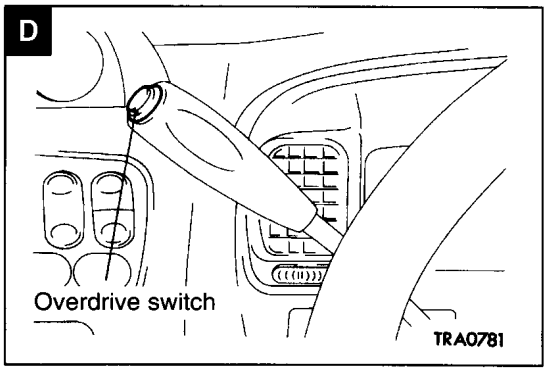


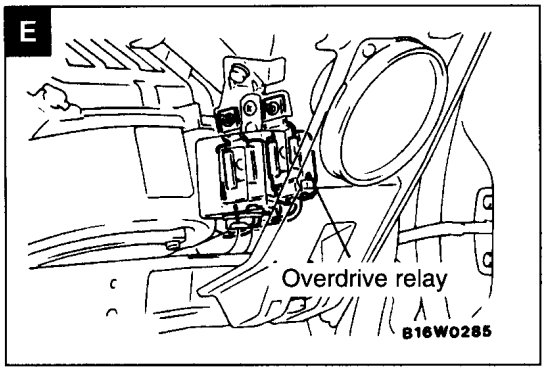












A/T CONTROL COMPONENT INSPECTION

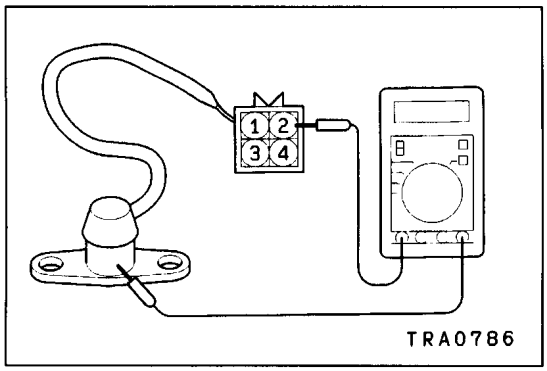
120002630

INHIBITOR SWITCH

Refer to P.23-12.

THROTTLE POSITION SENSOR 120000582

Refer to GROUP 13 – Service Adjustment Procedures.

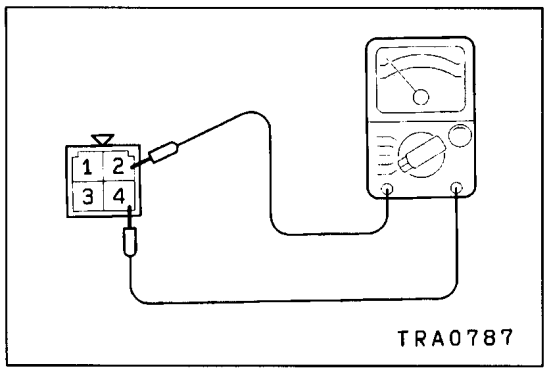


OVERDRIVE SOLENOID VALVE 120000583

(1) Disconnect the overdrive solenoid valve connector.
(2) Measure the resistance between terminal (2) of the overdrive solenoid valve connector and the body earth.

Standard value: Approx. 13Ω

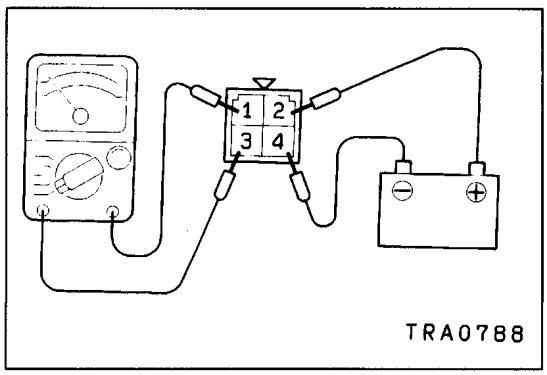
(3) If the resistance is not within the standard value, replace the overdrive solenoid valve.



OVERDRIVE RELAY CONTINUITY 120002631

(1) Remove the overdrive relay.
(2) Check the continuity between the terminals of the overdrive relay.

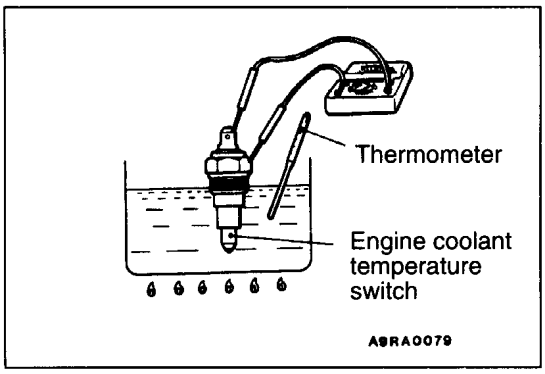
Item	Terminal No.	
	2	4
Overdrive relay	○	○



(3) Use jumper wires to connect terminal (2) of the overdrive relay to the battery (+) terminal and terminal (4) to the battery (–) terminal.
(4) Connect and disconnect the jumper wire from the battery (–) terminal. Check the continuity between the terminals of the overdrive relay at this time.

Item	Terminal No.	
	1	3
When connected	○	○
When disconnected		

(5) Replace the overdrive relay if necessary.



ENGINE COOLANT TEMPERATURE SWITCH CONTINUITY

120002632

(1) Disconnect the engine coolant temperature switch connector.
(2) Check the continuity between the switch connector terminal and the switch body.

Standard value

Item	Temperature
On (continuity)	50±3°C
Off (no continuity)	43°C

(3) Replace the engine coolant temperature switch if necessary.

CONVERTER STALL TEST 120002633

In this test, the engine maximum speed when the torque converter stalls with the shift lever in the "D" or "R" range is measured to check operation of the torque converter, starter and one-way clutch and check holding performance of the transmission clutch (including brake).

Caution
Do not stand in front or at rear of the vehicle during this test.

(1) Check the transmission fluid level. The fluid temperature should be at the level after normal operation (70–80°C). The engine coolant temperature should also be at the level after normal operation (80–90°C).
(2) Apply chocks to the rear wheels (right and left).
(3) Mount an engine tachometer.
(4) Apply the parking and service brakes fully.
(5) Start the engine.
(6) With the selector lever in the "D" range, fully depress the accelerator pedal and read off the engine maximum speed.

Standard value: 2,100–2,400 r/min. <4G63>
2,300–2,600 r/min. <4G64>

NOTE
When doing so, do not keep the engine running with throttle full open for more than necessary duration (5 seconds or more). If two or more stall tests are needed, place the selector lever in the "N" position and run the engine at about 1,000 r/min. to allow the transmission fluid to cool before another stall test.

(7) Place the selector lever in the "R" range and perform the test as above.

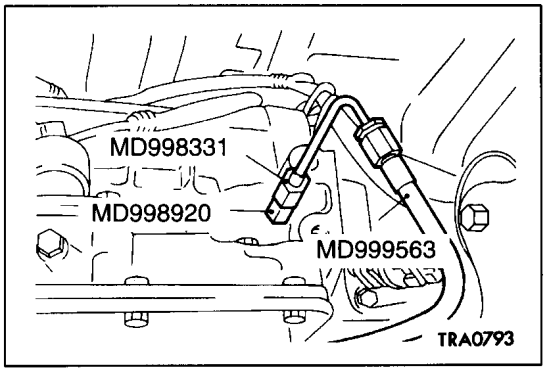
JUDGEMENT OF STALL TEST RESULTS

Stall speed in "D" and "R" range is equal to each other but lower than the nominal value.	(1) Engine output is low. (2) Starter one-way clutch is faulty. (Faulty torque converter is suspected if it is lower than nominal by more than 600 r/min.)
Stall speed in "D" range is higher than nominal.	(1) O.D. clutch slipping (2) O.D. one-way clutch faulty (3) Forward clutch slipping (4) One-way clutch No. 2 faulty (5) Low line pressure
Stall speed in "R" range is higher than nominal.	(1) O.D. clutch slipping (2) O.D. one-way clutch faulty (3) Direct clutch slipping (4) Brake No. 3 slipping (5) Low line pressure

HYDRAULIC PRESSURE TEST 120000596

The hydraulic pressure tests (governor pressure and line pressure tests) are important in determining the causes of transmission failures. Before conducting these tests, fluid level and condition and throttle cable adjustment, etc. must be checked for defects or abnormalities. When conducting the tests, the engine and transmission should be at correct operating temperatures. (engine coolant 80–90°C, transmission fluid 70–80°C.)

GOVERNOR PRESSURE TEST 120002634



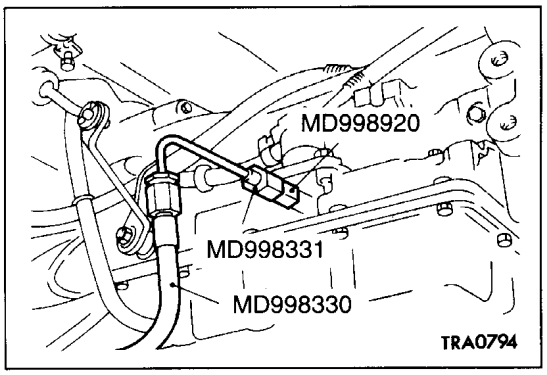
(1) Place vehicle on a chassis dynamometer.
(2) Remove plug from governor pressure take off port.
(3) Install the special tools as shown in figure and place the meter inside vehicle.
(4) Apply parking brake.
(5) Start engine.
(6) Release parking brakes.
(7) Shift to D and measure governor pressure at each output shaft r/min.

Standard value:

Output shaft speed (r/min.)	Governor pressure kPa
1,000	137–166
2,000	245–284
3,200	402–460

JUDGEMENT BY GOVERNOR PRESSURE

Governor pressure is not within the standard value	• Line pressure malfunction • Oil leak in governor circuit • Governor malfunction



LINE PRESSURE TEST

120002635

(1) Place the vehicle on a chassis dynamometer.
(2) Remove the plug from the line pressure take off port.
(3) Install special tool as shown in the figure and place the meter inside vehicle.
(4) Apply the parking brake.
(5) Start the engine.
(6) Place the selector lever in the "D" range.
(7) Depress the brake pedal firmly by the left foot and operate the accelerator pedal by the right foot to measure the line pressure at each engine rpm. If the measured pressure is not nominal, check adjustment of the throttle cable and readjust if necessary before conducting the test again.
(8) Place the selector lever in the "R" range and test as above. When measuring the hydraulic pressure for reverse, change the oil-pressure gauge to 3,000 kPa.

Standard value:

Items	Line pressure kPa	
	"D" range	"R" range
At idle	509–588	774–892
At stall	1,078–1,274	1,569–1,961

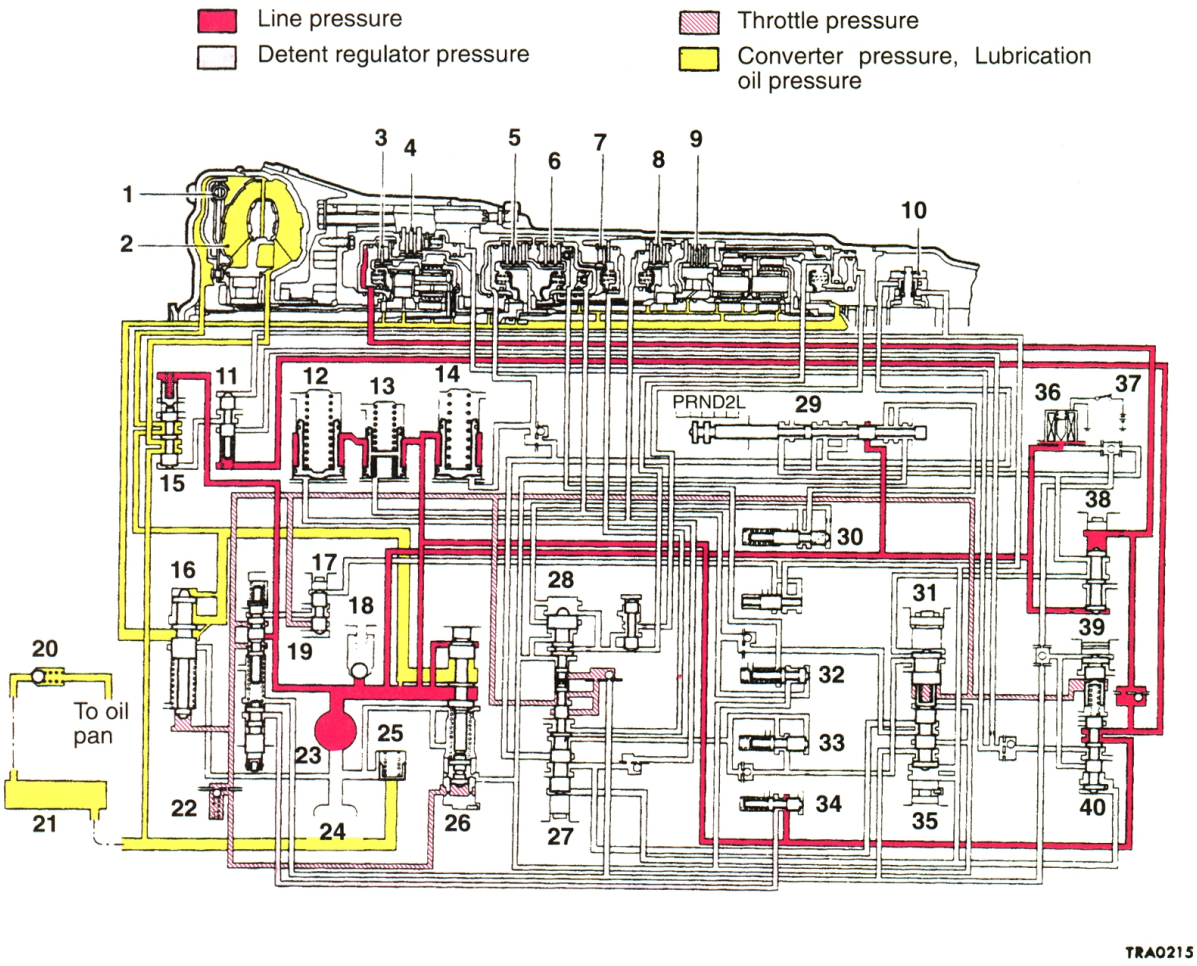
JUDGEMENT BY LINE PRESSURE

Hydraulic pressure higher than nominal in all ranges	(1) Regulator valve faulty (2) Throttle valve faulty (3) Throttle control cable incorrectly adjusted
Hydraulic pressure lower than nominal in all ranges	(1) Oil pump faulty (2) Regulator valve faulty (3) Throttle valve faulty (4) Throttle control cable incorrectly adjusted (5) O.D. clutch faulty
Hydraulic pressure lower than nominal in "D" range	(1) Large fluid leaks in "D" range hydraulic circuit (2) Forward clutch faulty (3) O.D. clutch faulty
Hydraulic pressure lower than nominal in "R" range	(1) Large fluid leaks in "R" range hydraulic circuit (2) Brake No. 3 faulty (3) Direct clutch faulty (4) O.D. clutch faulty

HYDRAULIC CIRCUIT

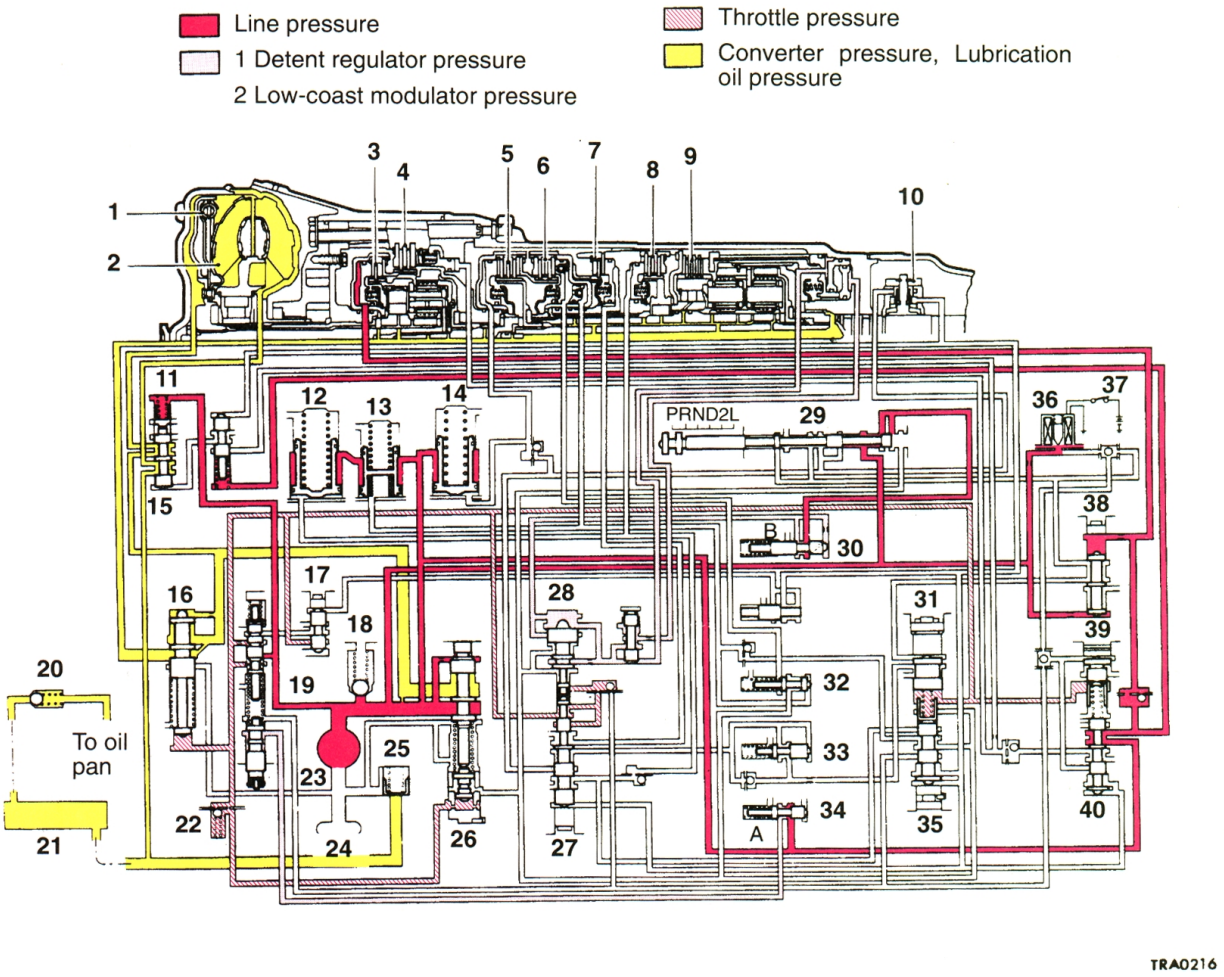
120002636

N (NEUTRAL)



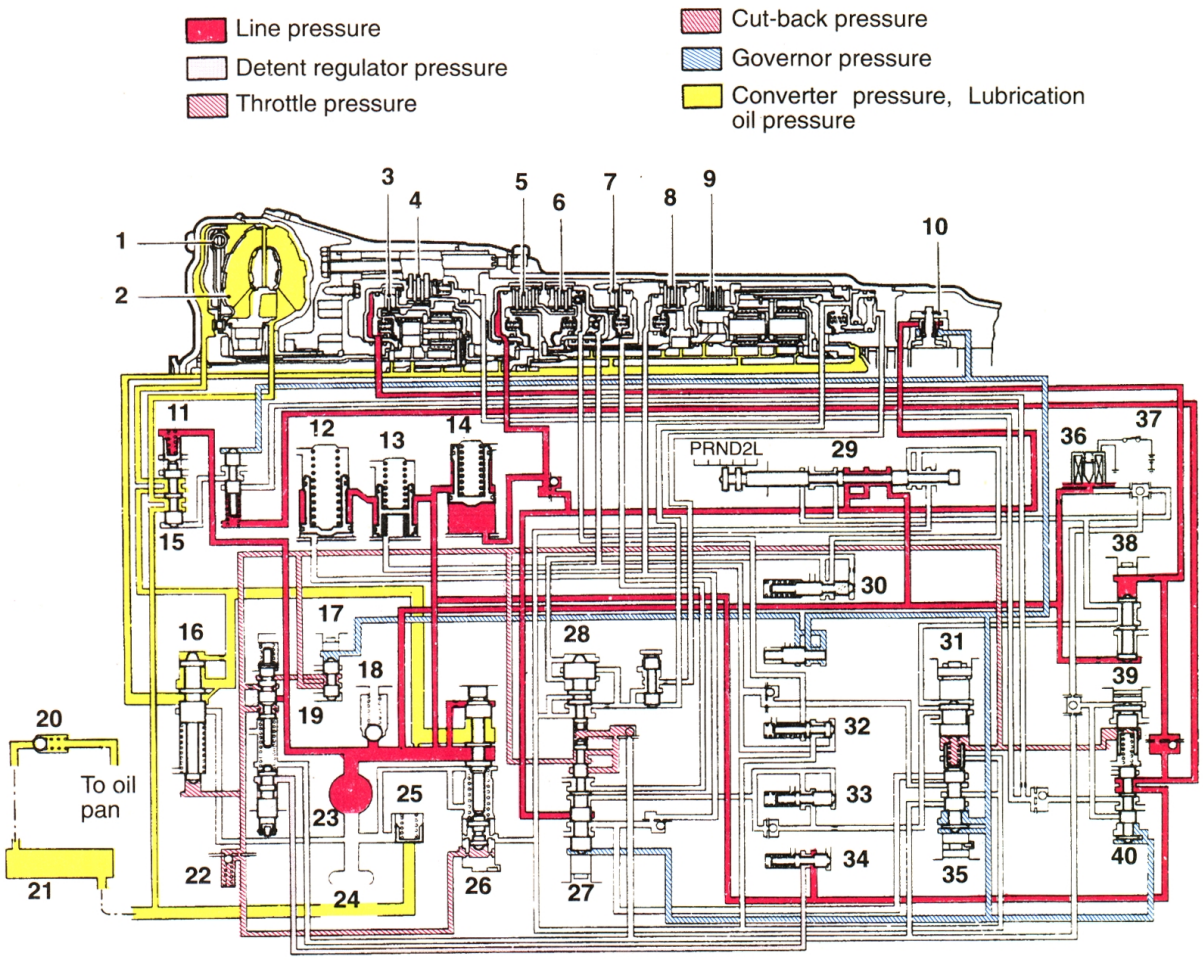
1. Lock-up clutch
2. Torque converter
3. Overdrive clutch
4. Overdrive brake
5. Forward clutch
6. Direct clutch
7. Brake No. 1
8. Brake No. 2
9. Brake No. 3
10. Governor
11. Lock-up signal valve
12. Accumulator B2
13. Accumulator C2
14. Accumulator C3
15. Lock-up relay valve
16. Secondary regulator valve
17. Cut-back valve
18. Relief valve
19. Throttle valve
20. Check valve
21. Oil cooler
22. Damping check valve
23. Oil pump
24. Strainer
25. Cooler bypass valve
26. Primary regulator valve
27. 1-2 shift valve
28. Low-coast shift valve
29. Manual valve
30. Low coast modulator valve
31. Intermediate shift valve
32. Reverse clutch sequence valve
33. Intermediate modulator valve
34. Detent regulator valve
35. 2-3 shift valve
36. Overdrive solenoid valve
37. Overdrive switch
38. D-2 down timing valve
39. 3rd-coast shift valve
40. 3-4 shift valve

P (PARKING)



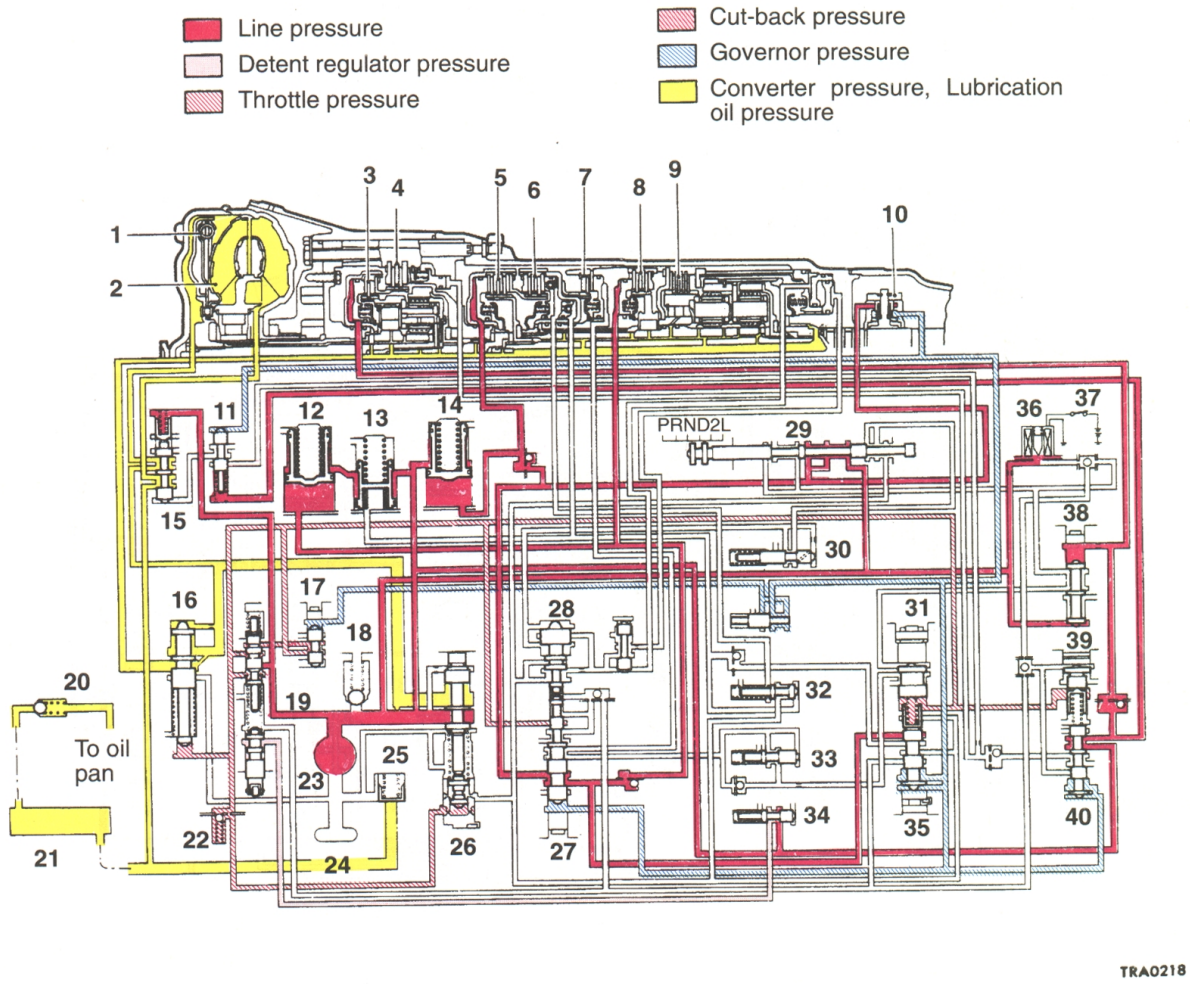
1. Lock-up clutch
2. Torque converter
3. Overdrive clutch
4. Overdrive brake
5. Forward clutch
6. Direct clutch
7. Brake No. 1
8. Brake No. 2
9. Brake No. 3
10. Governor
11. Lock-up signal valve
12. Accumulator B2
13. Accumulator C2
14. Accumulator C3
15. Lock-up relay valve
16. Secondary regulator valve
17. Cut-back valve
18. Relief valve
19. Throttle valve
20. Check valve
21. Oil cooler
22. Damping check valve
23. Oil pump
24. Strainer
25. Cooler bypass valve
26. Primary regulator valve
27. 1-2 shift valve
28. Low-coast shift valve
29. Manual valve
30. Low coast modulator valve
31. Intermediate shift valve
32. Reverse clutch sequence valve
33. Intermediate modulator valve
34. Detent regulator valve
35. 2-3 shift valve
36. Overdrive solenoid valve
37. Overdrive switch
38. D-2 down timing valve
39. 3rd-coast shift valve
40. 3-4 shift valve

D-1 (DRIVE 1ST)



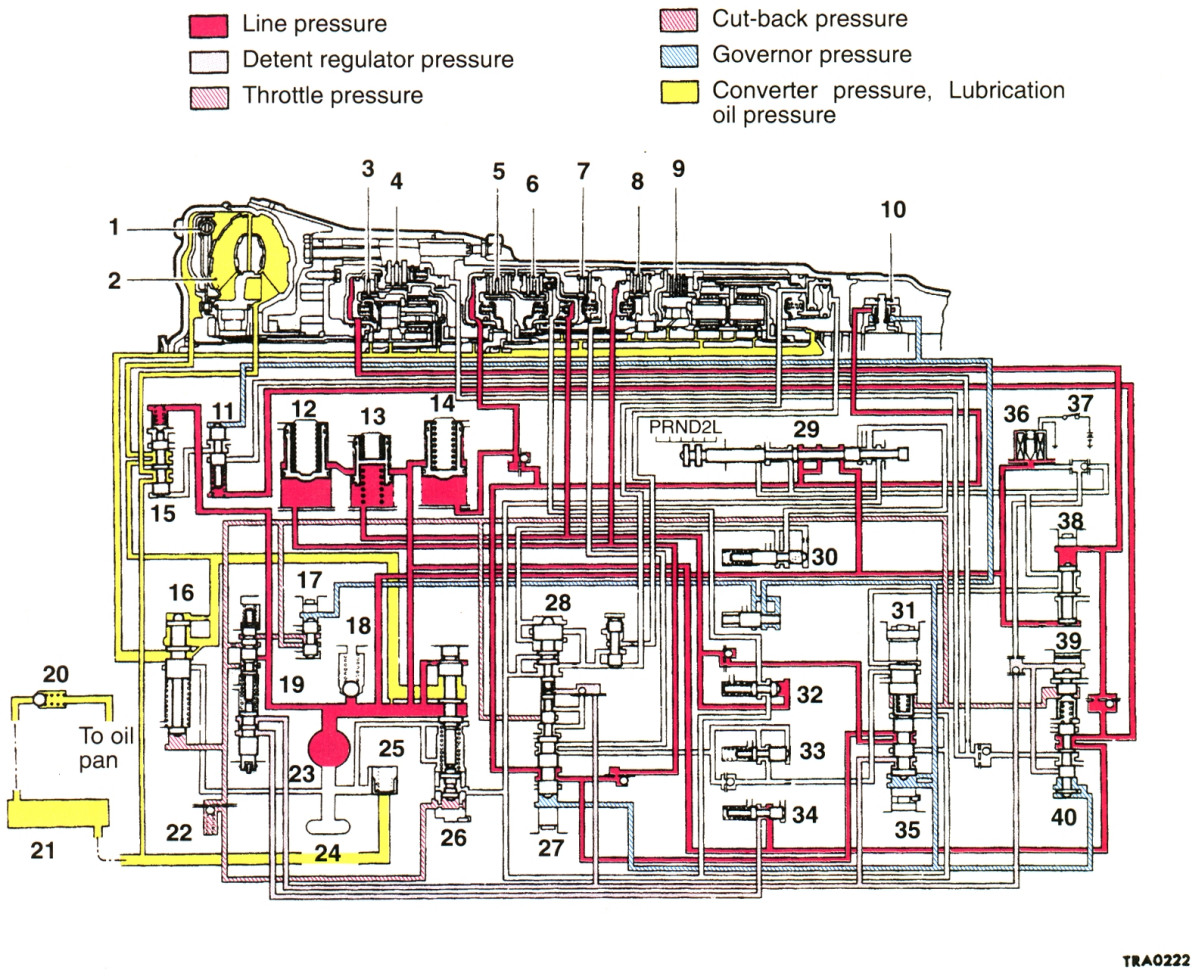
1. Lock-up clutch
2. Torque converter
3. Overdrive clutch
4. Overdrive brake
5. Forward clutch
6. Direct clutch
7. Brake No. 1
8. Brake No. 2
9. Brake No. 3
10. Governor
11. Lock-up signal valve
12. Accumulator B2
13. Accumulator C2
14. Accumulator C3
15. Lock-up relay valve
16. Secondary regulator valve
17. Cut-back valve
18. Relief valve
19. Throttle valve
20. Check valve
21. Oil cooler
22. Damping check valve
23. Oil pump
24. Strainer
25. Cooler bypass valve
26. Primary regulator valve
27. 1-2 shift valve
28. Low-coast shift valve
29. Manual valve
30. Low coast modulator valve
31. Intermediate shift valve
32. Reverse clutch sequence valve
33. Intermediate modulator valve
34. Detent regulator valve
35. 2-3 shift valve
36. Overdrive solenoid valve
37. Overdrive switch
38. D-2 down timing valve
39. 3rd-coast shift valve
40. 3-4 shift valve

D-2 (DRIVE 2ND)



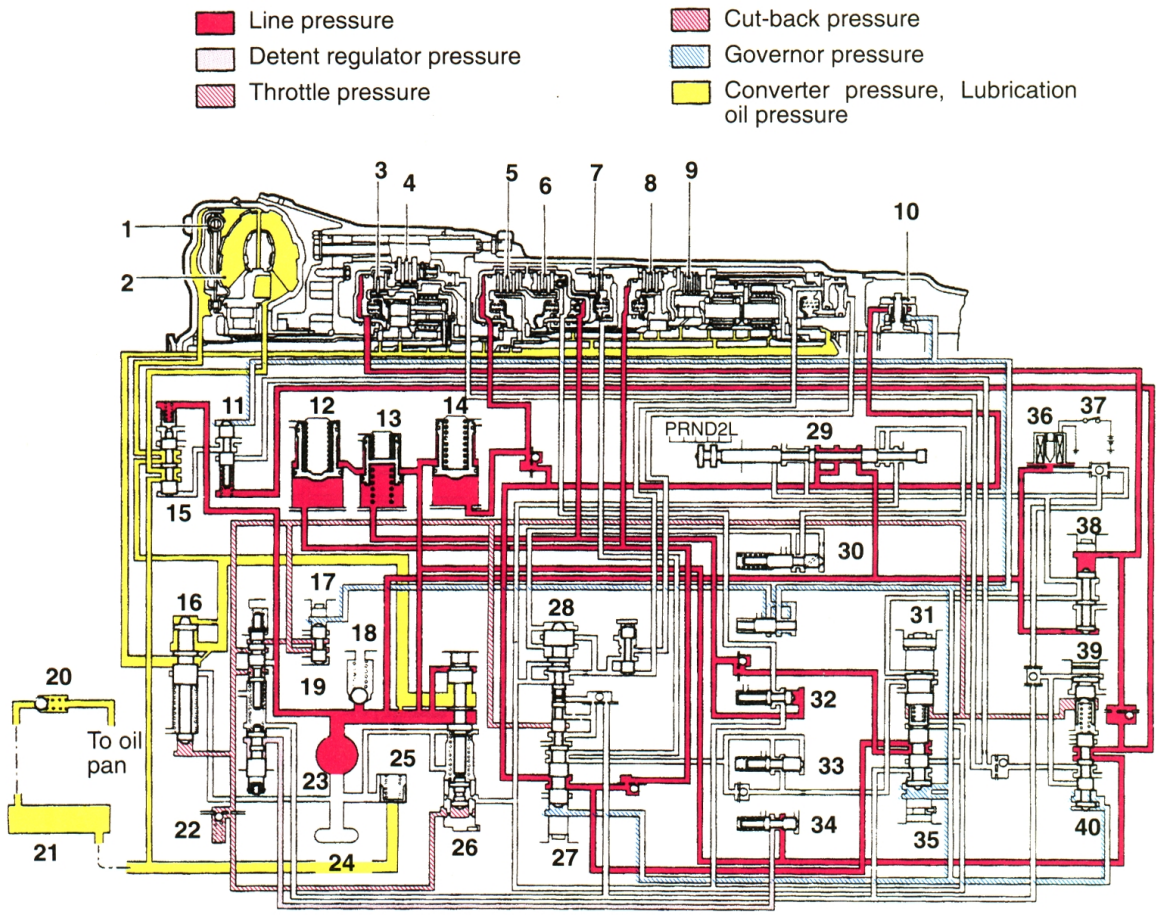
1. Lock-up clutch
2. Torque converter
3. Overdrive clutch
4. Overdrive brake
5. Forward clutch
6. Direct clutch
7. Brake No. 1
8. Brake No. 2
9. Brake No. 3
10. Governor
11. Lock-up signal valve
12. Accumulator B2
13. Accumulator C2
14. Accumulator C3
15. Lock-up relay valve
16. Secondary regulator valve
17. Cut-back valve
18. Relief valve
19. Throttle valve
20. Check valve
21. Oil cooler
22. Damping check valve
23. Oil pump
24. Strainer
25. Cooler bypass valve
26. Primary regulator valve
27. 1-2 shift valve
28. Low-coast shift valve
29. Manual valve
30. Low coast modulator valve
31. Intermediate shift valve
32. Reverse clutch sequence valve
33. Intermediate modulator valve
34. Detent regulator valve
35. 2-3 shift valve
36. Overdrive solenoid valve
37. Overdrive switch
38. D-2 down timing valve
39. 3rd-coast shift valve
40. 3-4 shift valve

D-3 (DRIVE 3RD)



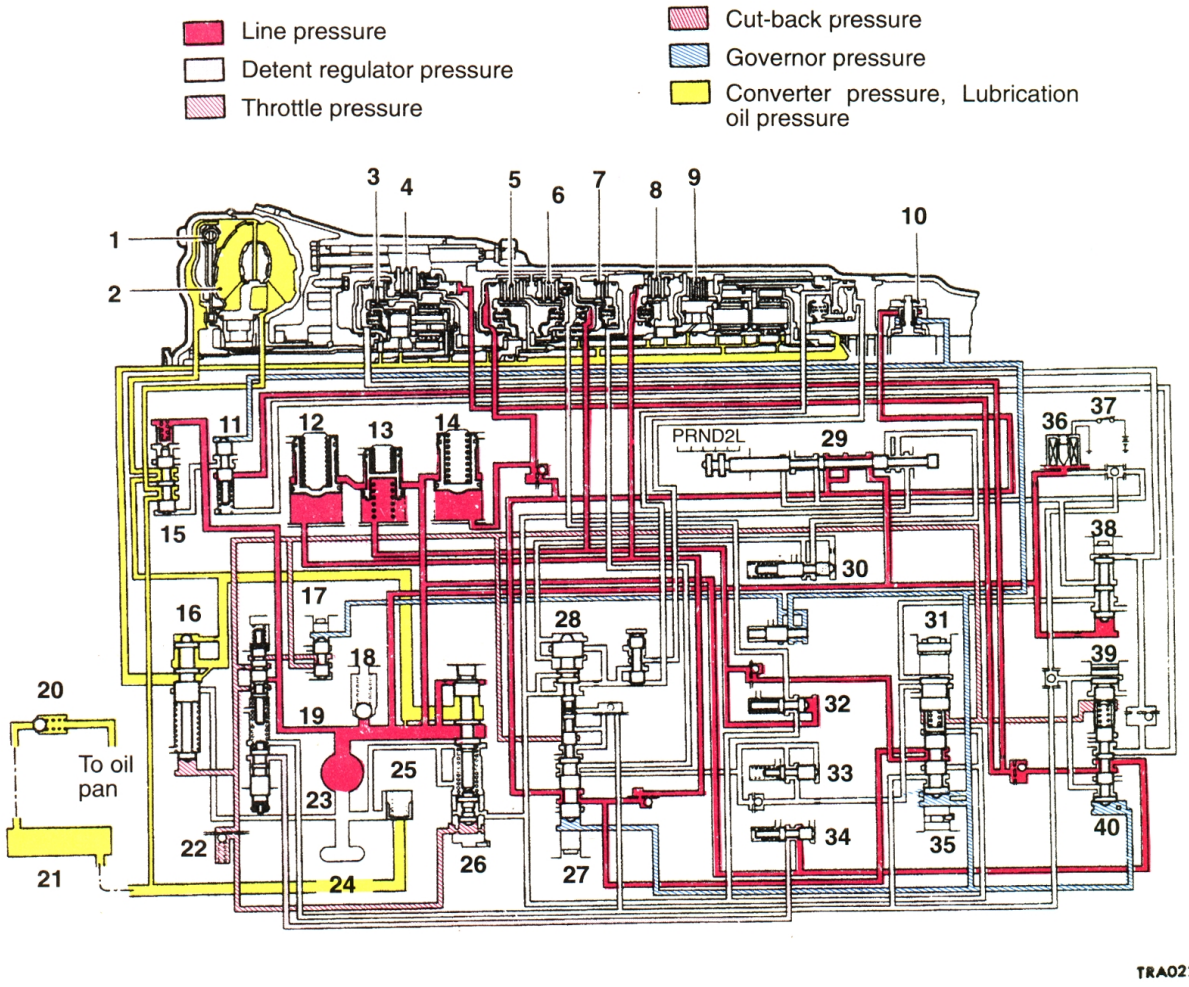
1. Lock-up clutch
2. Torque converter
3. Overdrive clutch
4. Overdrive brake
5. Forward clutch
6. Direct clutch
7. Brake No. 1
8. Brake No. 2
9. Brake No. 3
10. Governor
11. Lock-up signal valve
12. Accumulator B2
13. Accumulator C2
14. Accumulator C3
15. Lock-up relay valve
16. Secondary regulator valve
17. Cut-back valve
18. Relief valve
19. Throttle valve
20. Check valve
21. Oil cooler
22. Damping check valve
23. Oil pump
24. Strainer
25. Cooler bypass valve
26. Primary regulator valve
27. 1-2 shift valve
28. Low-coast shift valve
29. Manual valve
30. Low coast modulator valve
31. Intermediate shift valve
32. Reverse clutch sequence valve
33. Intermediate modulator valve
34. Detent regulator valve
35. 2-3 shift valve
36. Overdrive solenoid valve
37. Overdrive switch
38. D-2 down timing valve
39. 3rd-coast shift valve
40. 3-4 shift valve

D-4 (DRIVE 4TH)
LOCK-UP CLUTCH: OFF



1. Lock-up clutch
2. Torque converter
3. Overdrive clutch
4. Overdrive brake
5. Forward clutch
6. Direct clutch
7. Brake No. 1
8. Brake No. 2
9. Brake No. 3
10. Governor
11. Lock-up signal valve
12. Accumulator B2
13. Accumulator C2
14. Accumulator C3
15. Lock-up relay valve
16. Secondary regulator valve
17. Cut-back valve
18. Relief valve
19. Throttle valve
20. Check valve
21. Oil cooler
22. Damping check valve
23. Oil pump
24. Strainer
25. Cooler bypass valve
26. Primary regulator valve
27. 1-2 shift valve
28. Low-coast shift valve
29. Manual valve
30. Low coast modulator valve
31. Intermediate shift valve
32. Reverse clutch sequence valve
33. Intermediate modulator valve
34. Detent regulator valve
35. 2-3 shift valve
36. Overdrive solenoid valve
37. Overdrive switch
38. D-2 down timing valve
39. 3rd-coast shift valve
40. 3-4 shift valve

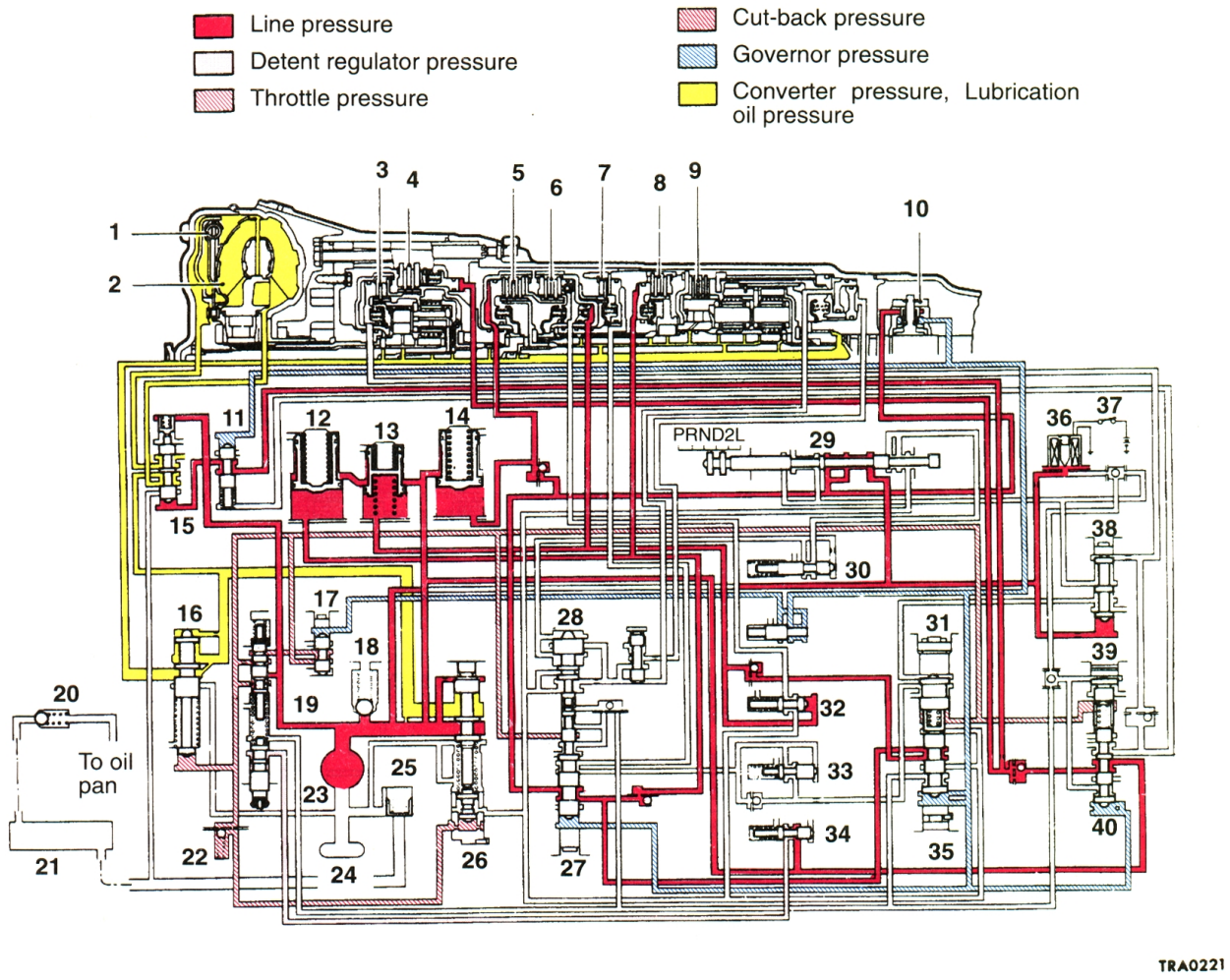
D-4 (DRIVE 4TH)
LOCK-UP CLUTCH: ON



1. Lock-up clutch
2. Torque converter
3. Overdrive clutch
4. Overdrive brake
5. Forward clutch
6. Direct clutch
7. Brake No. 1
8. Brake No. 2
9. Brake No. 3
10. Governor
11. Lock-up signal valve
12. Accumulator B2
13. Accumulator C2
14. Accumulator C3
15. Lock-up relay valve
16. Secondary regulator valve
17. Cut-back valve
18. Relief valve
19. Throttle valve
20. Check valve
21. Oil cooler
22. Damping check valve
23. Oil pump
24. Strainer
25. Cooler bypass valve
26. Primary regulator valve
27. 1-2 shift valve
28. Low-coast shift valve
29. Manual valve
30. Low coast modulator valve
31. Intermediate shift valve
32. Reverse clutch sequence valve
33. Intermediate modulator valve
34. Detent regulator valve
35. 2-3 shift valve
36. Overdrive solenoid valve
37. Overdrive switch
38. D-2 down timing valve
39. 3rd-coast shift valve
40. 3-4 shift valve

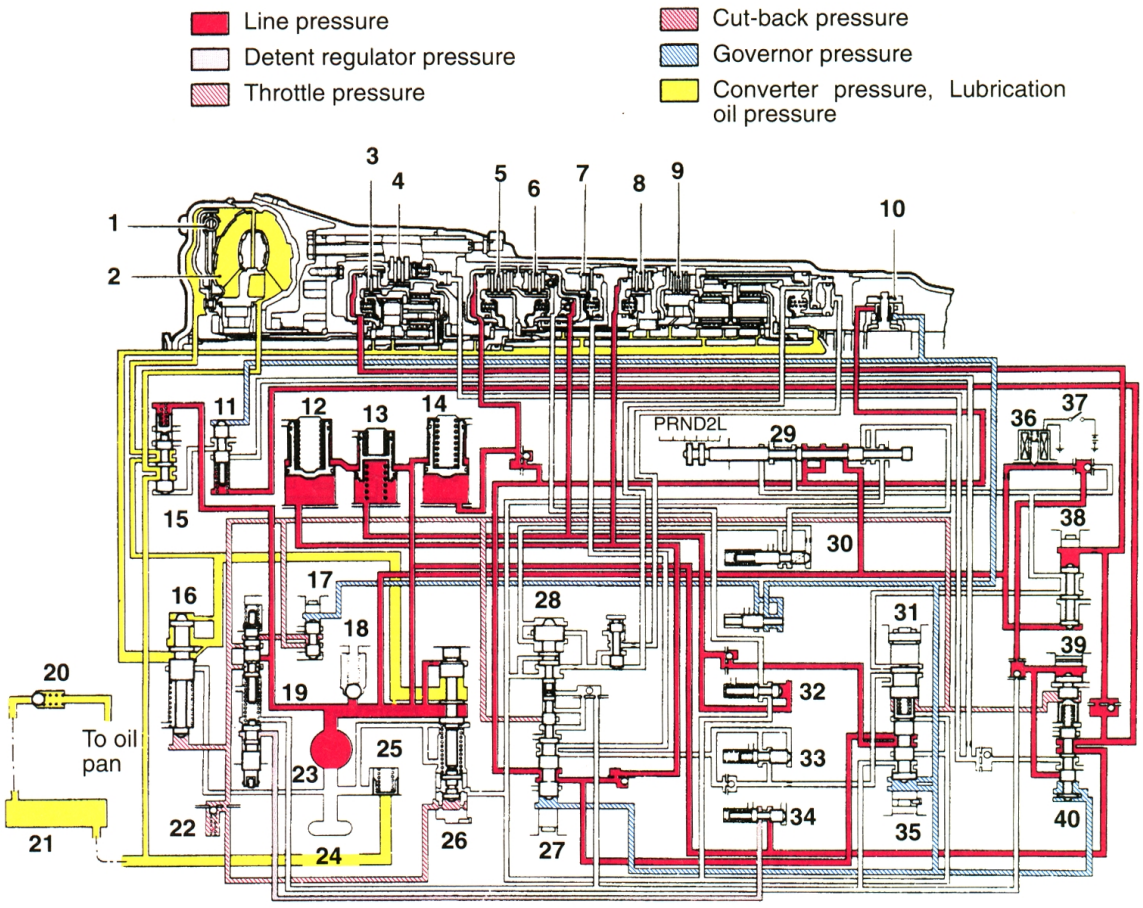
D-K/D (DRIVE KICK DOWN)

4TH➧ 3RD



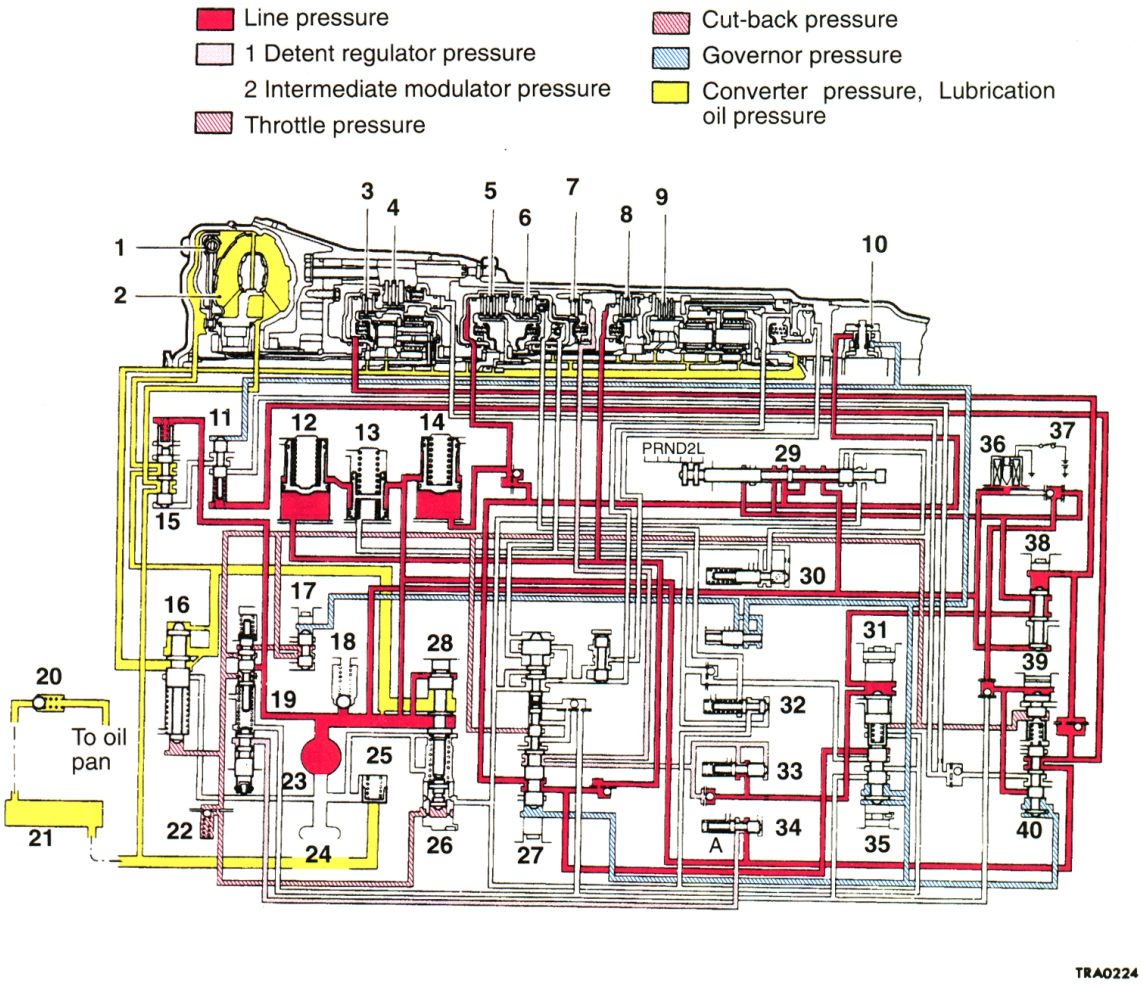
1. Lock-up clutch
2. Torque converter
3. Overdrive clutch
4. Overdrive brake
5. Forward clutch
6. Direct clutch
7. Brake No. 1
8. Brake No. 2
9. Brake No. 3
10. Governor
11. Lock-up signal valve
12. Accumulator B2
13. Accumulator C2
14. Accumulator C3
15. Lock-up relay valve
16. Secondary regulator valve
17. Cut-back valve
18. Relief valve
19. Throttle valve
20. Check valve
21. Oil cooler
22. Damping check valve
23. Oil pump
24. Strainer
25. Cooler bypass valve
26. Primary regulator valve
27. 1-2 shift valve
28. Low-coast shift valve
29. Manual valve
30. Low coast modulator valve
31. Intermediate shift valve
32. Reverse clutch sequence valve
33. Intermediate modulator valve
34. Detent regulator valve
35. 2-3 shift valve
36. Overdrive solenoid valve
37. Overdrive switch
38. D-2 down timing valve
39. 3rd-coast shift valve
40. 3-4 shift valve

D-3 (DRIVE 3RD)
OVERDRIVE SWITCH: OFF



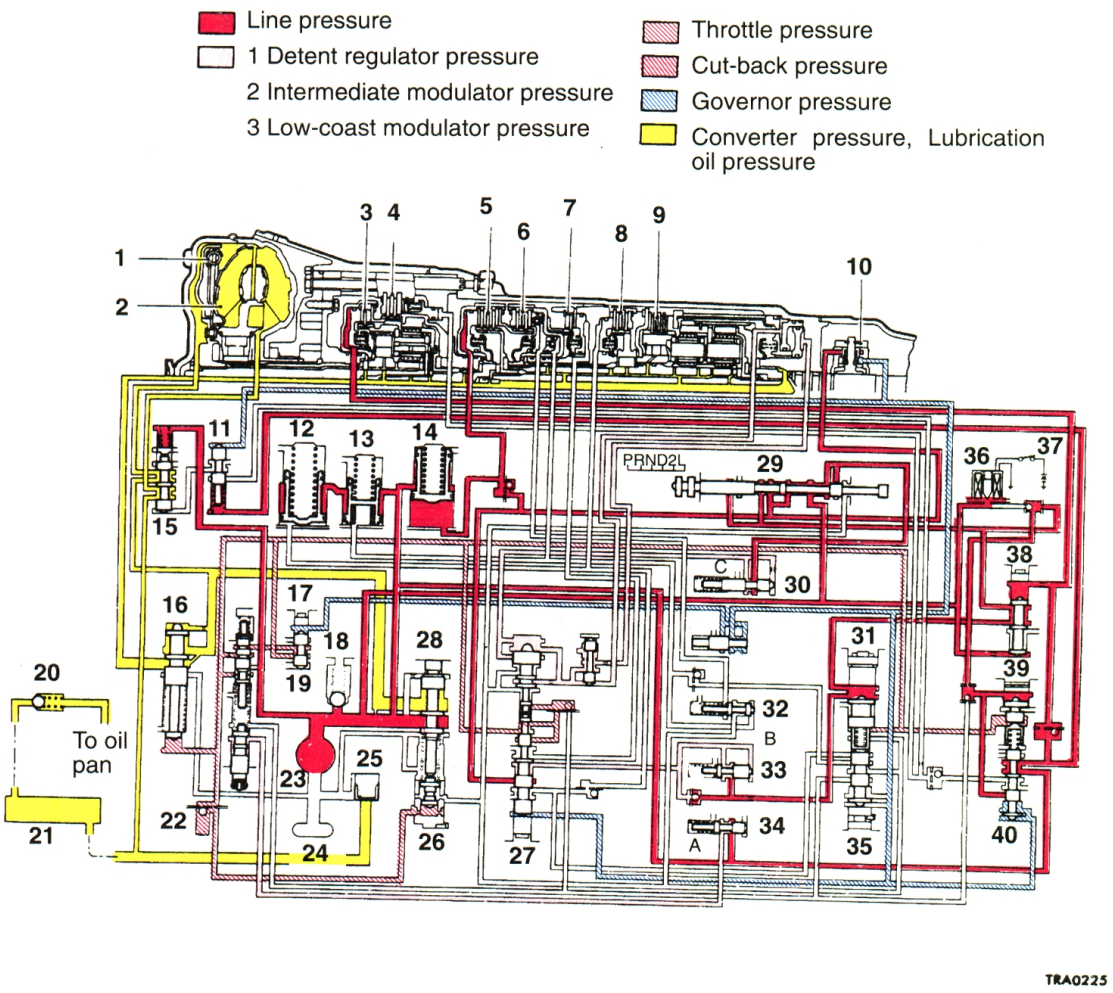
1. Lock-up clutch
2. Torque converter
3. Overdrive clutch
4. Overdrive brake
5. Forward clutch
6. Direct clutch
7. Brake No. 1
8. Brake No. 2
9. Brake No. 3
10. Governor
11. Lock-up signal valve
12. Accumulator B2
13. Accumulator C2
14. Accumulator C3
15. Lock-up relay valve
16. Secondary regulator valve
17. Cut-back valve
18. Relief valve
19. Throttle valve
20. Check valve
21. Oil cooler
22. Damping check valve
23. Oil pump
24. Strainer
25. Cooler bypass valve
26. Primary regulator valve
27. 1-2 shift valve
28. Low-coast shift valve
29. Manual valve
30. Low coast modulator valve
31. Intermediate shift valve
32. Reverse clutch sequence valve
33. Intermediate modulator valve
34. Detent regulator valve
35. 2-3 shift valve
36. Overdrive solenoid valve
37. Overdrive switch
38. D-2 down timing valve
39. 3rd-coast shift valve
40. 3-4 shift valve

2-2 (SECOND 2ND)



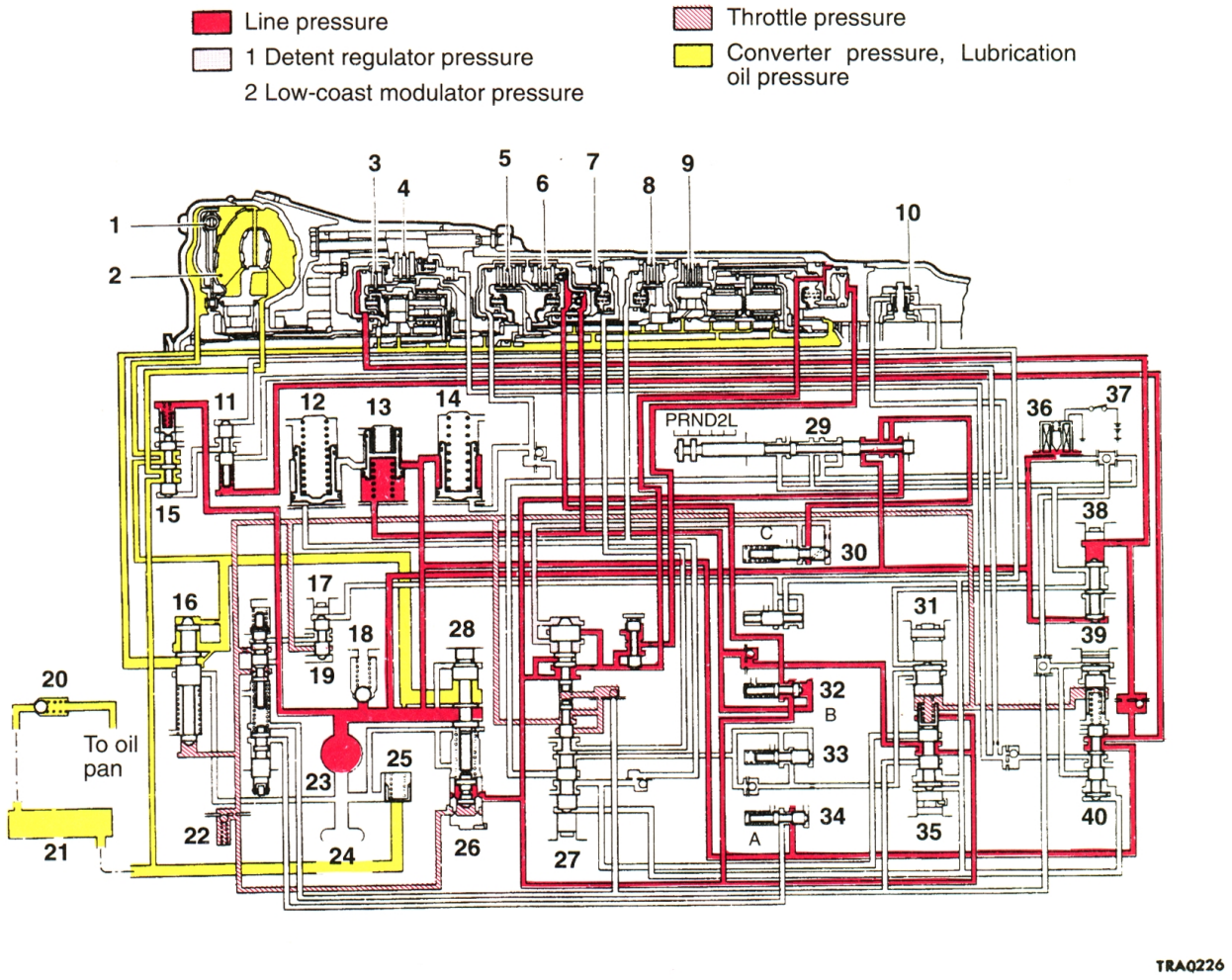
1. Lock-up clutch
2. Torque converter
3. Overdrive clutch
4. Overdrive brake
5. Forward clutch
6. Direct clutch
7. Brake No. 1
8. Brake No. 2
9. Brake No. 3
10. Governor
11. Lock-up signal valve
12. Accumulator B2
13. Accumulator C2
14. Accumulator C3
15. Lock-up relay valve
16. Secondary regulator valve
17. Cut-back valve
18. Relief valve
19. Throttle valve
20. Check valve
21. Oil cooler
22. Damping check valve
23. Oil pump
24. Strainer
25. Cooler bypass valve
26. Primary regulator valve
27. 1-2 shift valve
28. Low-coast shift valve
29. Manual valve
30. Low coast modulator valve
31. Intermediate shift valve
32. Reverse clutch sequence valve
33. Intermediate modulator valve
34. Detent regulator valve
35. 2-3 shift valve
36. Overdrive solenoid valve
37. Overdrive switch
38. D-2 down timing valve
39. 3rd-coast shift valve
40. 3-4 shift valve

L (LOCK UP)



1. Lock-up clutch
2. Torque converter
3. Overdrive clutch
4. Overdrive brake
5. Forward clutch
6. Direct clutch
7. Brake No. 1
8. Brake No. 2
9. Brake No. 3
10. Governor
11. Lock-up signal valve
12. Accumulator B2
13. Accumulator C2
14. Accumulator C3
15. Lock-up relay valve
16. Secondary regulator valve
17. Cut-back valve
18. Relief valve
19. Throttle valve
20. Check valve
21. Oil cooler
22. Damping check valve
23. Oil pump
24. Strainer
25. Cooler bypass valve
26. Primary regulator valve
27. 1-2 shift valve
28. Low-coast shift valve
29. Manual valve
30. Low coast modulator valve
31. Intermediate shift valve
32. Reverse clutch sequence valve
33. Intermediate modulator valve
34. Detent regulator valve
35. 2-3 shift valve
36. Overdrive solenoid valve
37. Overdrive switch
38. D-2 down timing valve
39. 3rd-coast shift valve
40. 3-4 shift valve

R (REVERSE)



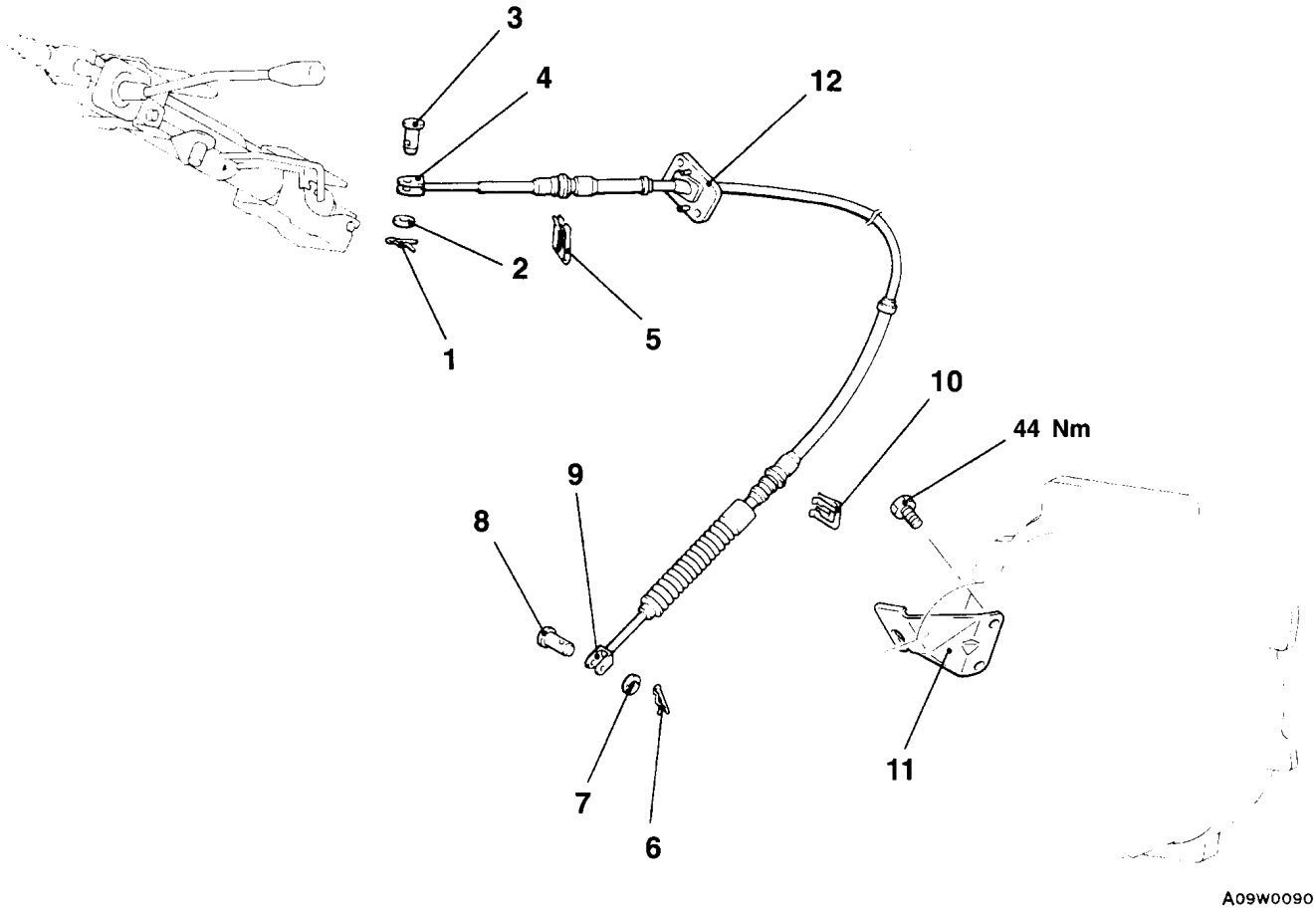
1. Lock-up clutch
2. Torque converter
3. Overdrive clutch
4. Overdrive brake
5. Forward clutch
6. Direct clutch
7. Brake No. 1
8. Brake No. 2
9. Brake No. 3
10. Governor
11. Lock-up signal valve
12. Accumulator B2
13. Accumulator C2
14. Accumulator C3
15. Lock-up relay valve
16. Secondary regulator valve
17. Cut-back valve
18. Relief valve
19. Throttle valve
20. Check valve
21. Oil cooler
22. Damping check valve
23. Oil pump
24. Strainer
25. Cooler bypass valve
26. Primary regulator valve
27. 1-2 shift valve
28. Low-coast shift valve
29. Manual valve
30. Low coast modulator valve
31. Intermediate shift valve
32. Reverse clutch sequence valve
33. Intermediate modulator valve
34. Detent regulator valve
35. 2-3 shift valve
36. Overdrive solenoid valve
37. Overdrive switch
38. D-2 down timing valve
39. 3rd-coast shift valve
40. 3-4 shift valve

TRANSMISSION CONTROL

120002225

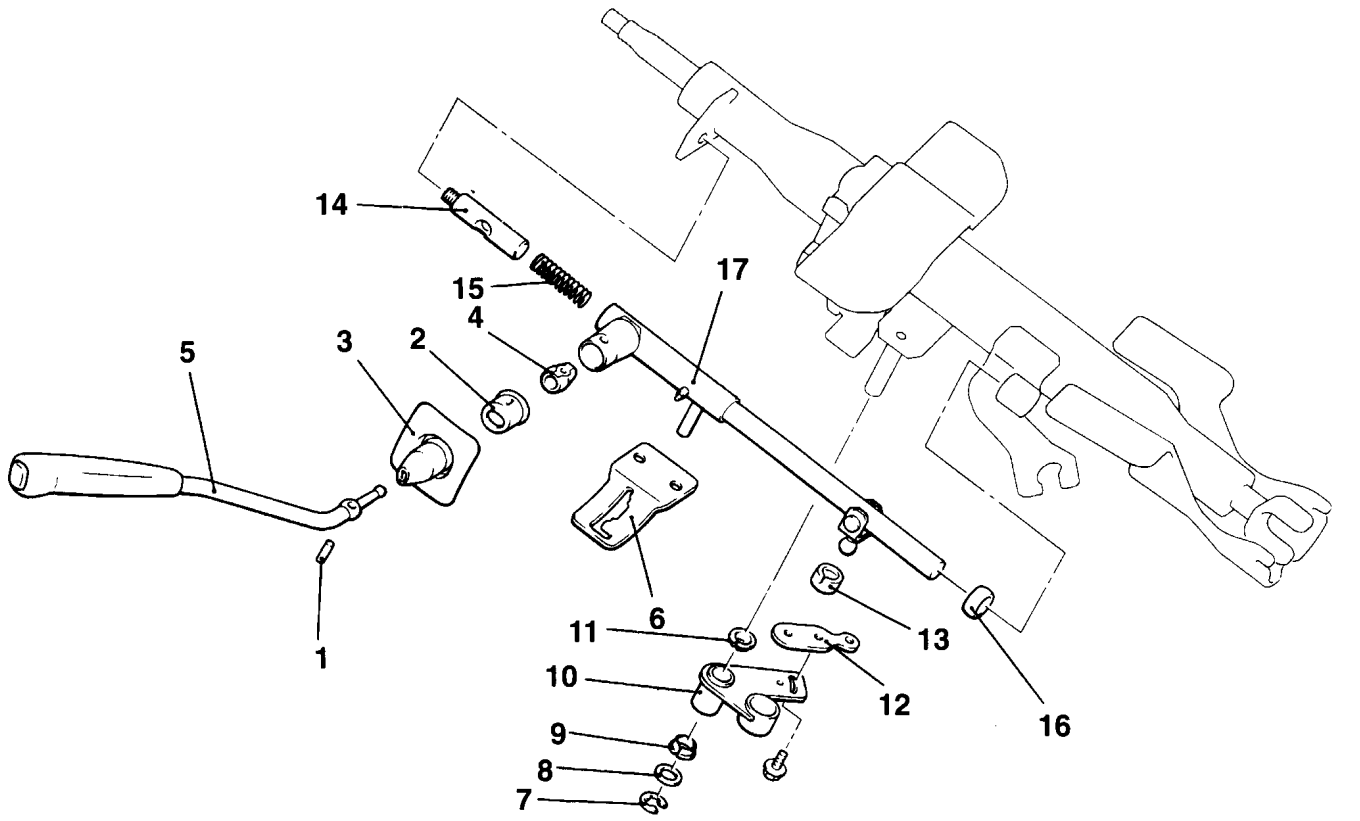
REMOVAL AND INSTALLATION

Pre-removal and Post-installation Operation
(1)Air Cleaner Removal and Installation <Petrol-powered vehicles> (Refer to GROUP 15 – Air Cleaner.)
(2)Column Cover Upper, Lower, Under Cover Removal and Installation (Refer to GROUP 37A – Steering Wheel and Shaft.)



Transmission control cable assembly removal steps

1. Snap pin
2. Washer
3. Clevis pin
▶B◀ 4. Transmission control cable connection (selector lever side)
5. Clip
6. Snap pin
7. Washer
8. Clevis pin
9. Transmission control cable connection (transmission side)
10. Clip
11. Shift control bracket
12. Transmission control cable assembly

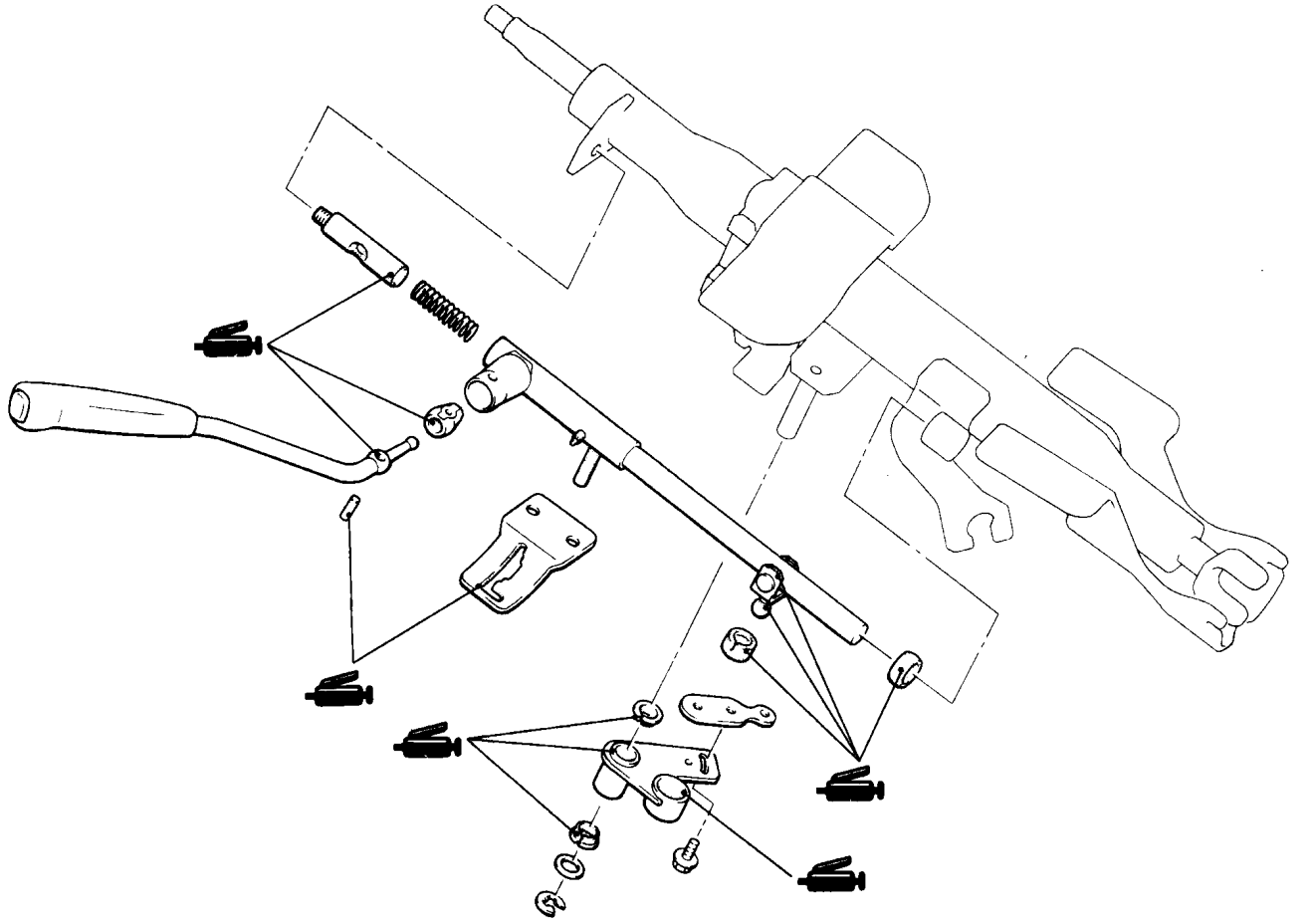


A09W0065

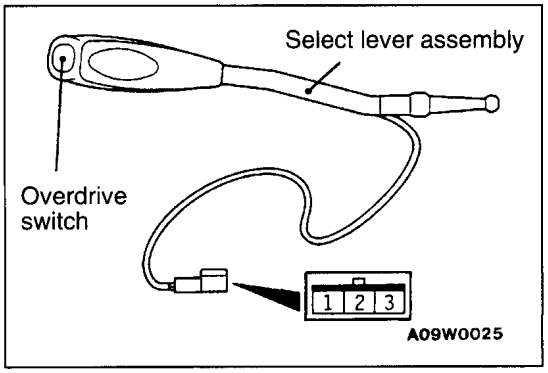
Control rod removal steps

1. Pin
2. Retainer
3. Boot
4. Selector lever support cover
5. Selector lever assembly
6. Detent plate
7. Snap ring
8. Washer
9. Bushing
10. Shift link lever
11. Bushing
12. Lever
13. Bushing
▶A◀ 14. Shift lever guide
15. Spring
16. Bushing
17. Control rod

Lubricant points



A09W0064

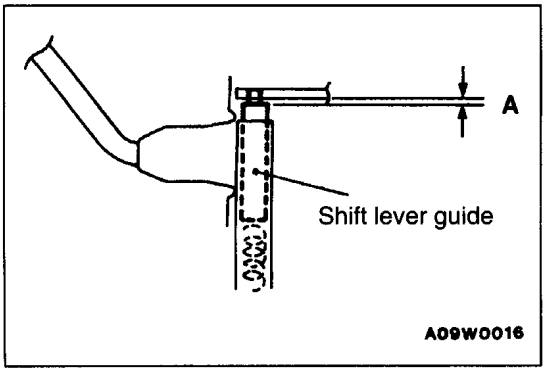


A09W0025

INSPECTION

OVERDRIVE SWITCH CONTINUITY INSPECTION

Switch position	Terminal No.		
	1	2	3
OFF	○		○
ON	○	○	

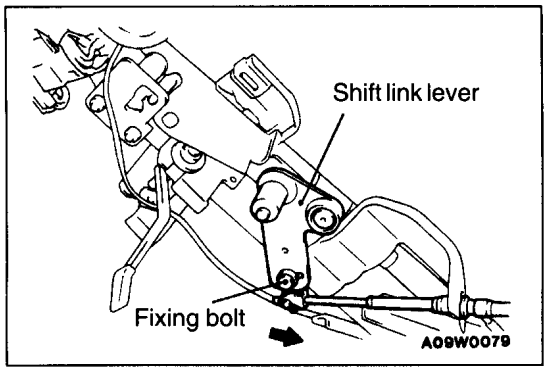


INSTALLATION SERVICE POINTS

▶A◀ SHIFT LEVER GUIDE INSTALLATION

Install so that the distance shown in the illustration is at the standard value.

Standard value (A): 2.4–3.6 mm



▶B◀ TRANSMISSION CONTROL CABLE (SELECTOR LEVER SIDE) INSTALLATION

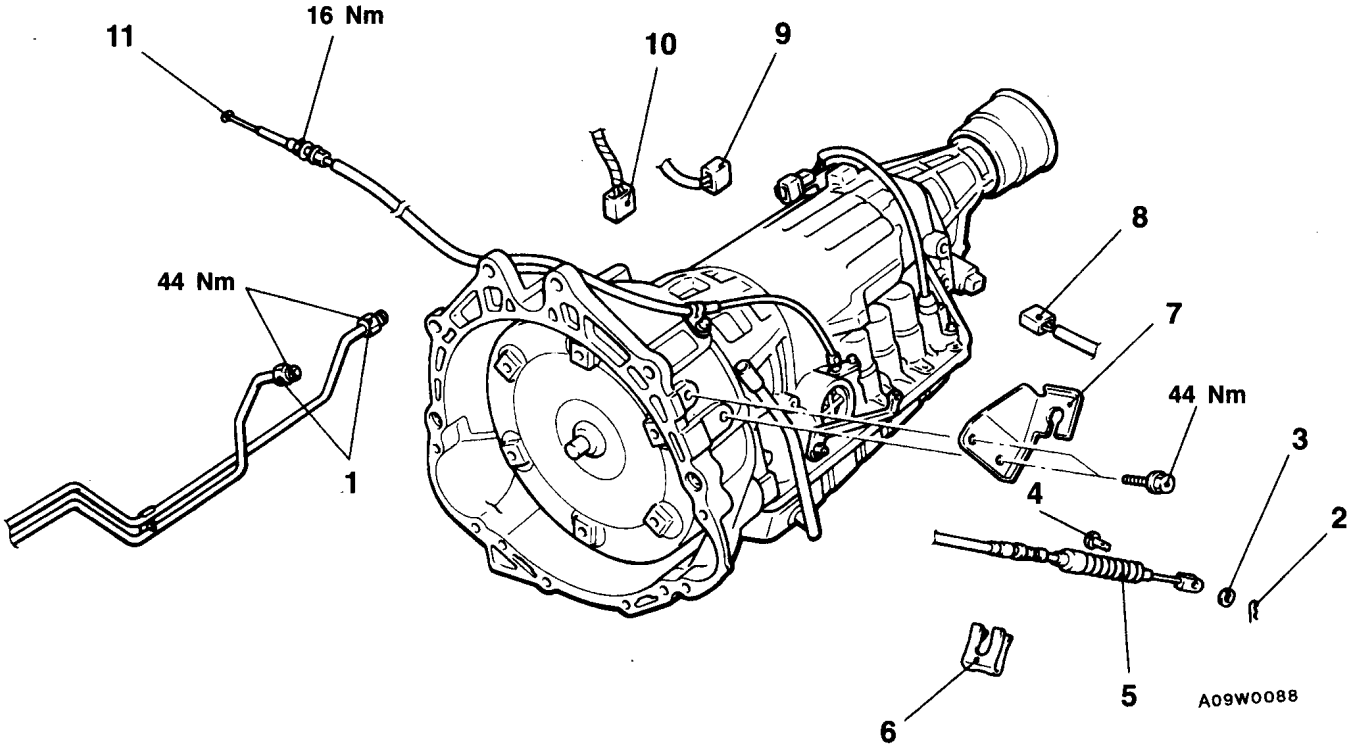
(1) Shift the selector lever to the N position.
(2) Tighten the fixing bolt while gently pushing the shift link lever in the direction of the arrow in the illustration.

TRANSMISSION ASSEMBLY

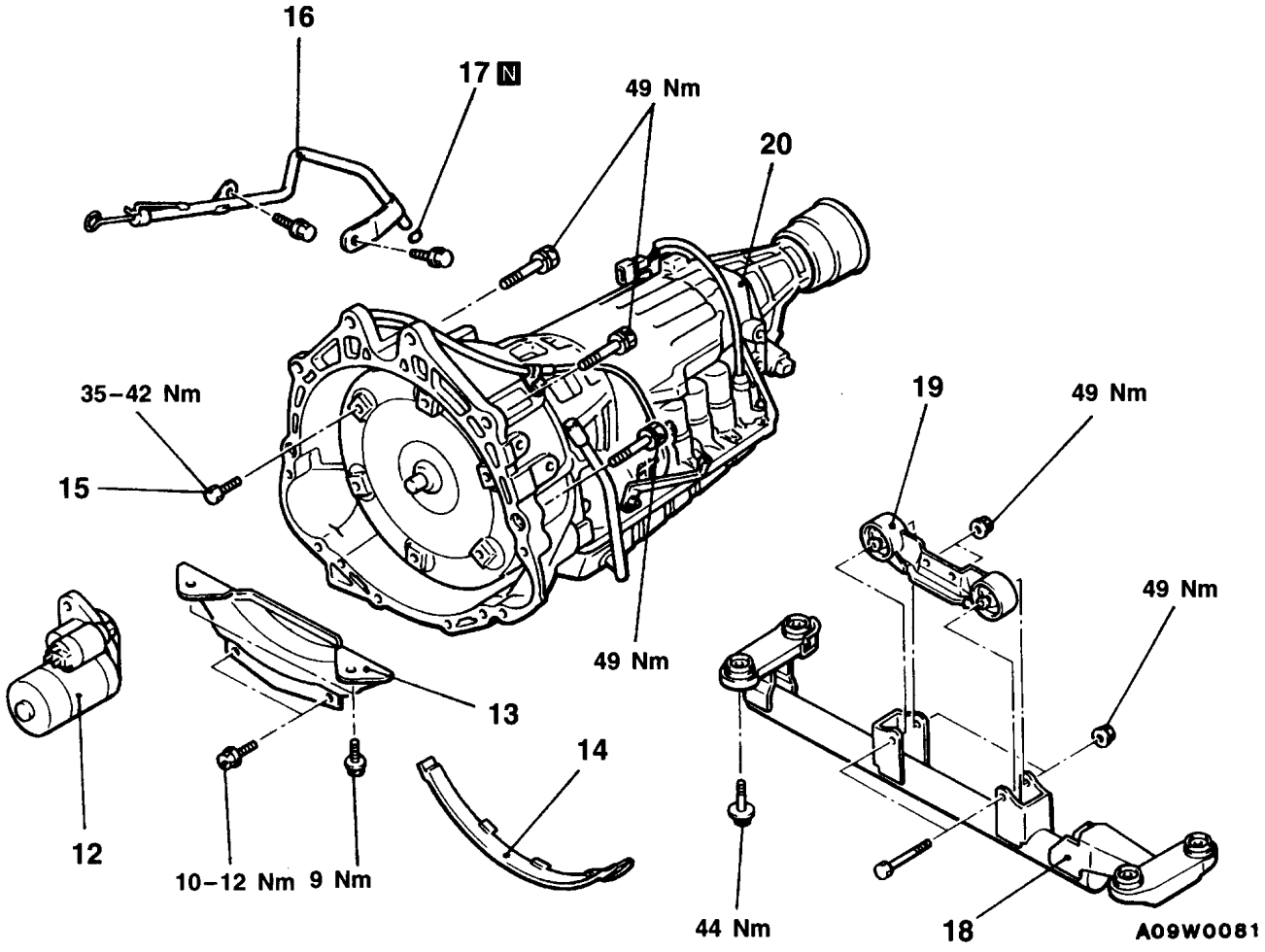
120002226

REMOVAL AND INSTALLATION

Pre-removal and Post-installation Operation
(1)Transmission Fluid Draining and Supplying (Refer to P. 23-11.)
(2)Under Cover Side Panel, Under Cover Panel Removal and Installation (Refer to GROUP 42 – Under Cover.)
(3)Propeller Shaft Removal and Installation (Refer to GROUP 25 – Propeller Shaft.)
(4)Front Exhaust Pipe (L.H), (R.H) Removal and Installation (Refer to GROUP 15 – Exhaust Pipe and Muffler.)
(5)Battery, Battery Tray Removal and Installation



Removal steps
1. Oil cooler tube connection
2. Snap pin
3. Washer
4. Pin
5. Transmission control cable connection
6. Clip
7. Shift control bracket
8. Vehicle speed sensor connector
9. Solenoid valve connector
10. Inhibitor switch connector
▶B◀ 11. Throttle cable connection



◀A▶ 12. Starter motor
13. Bell housing cover
14. Fan shroud
◀B▶ 15. Torque converter and drive plate connection bolts
16. Oil level gauge assembly
17. O-ring
• Support the transmission with a transmission jack.
18. Transmission mount crossmember assembly
19. Transmission mount insulator assembly
▶A◀ 20. Transmission assembly

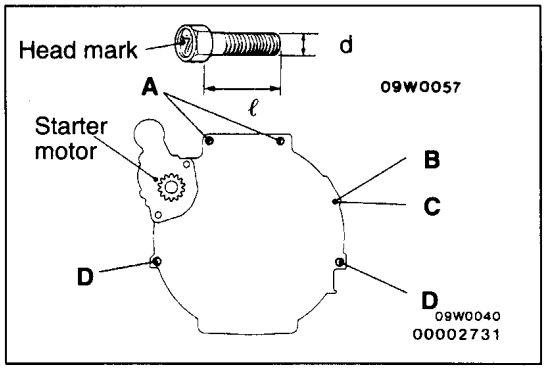
REMOVAL SERVICE POINTS

◀A▶ STARTER MOTOR REMOVAL

Remove the starter motor with the starter motor harnesses still connected, and secure it inside the engine compartment.

◀B▶ TORQUE CONVERTER AND DRIVE PLATE CONNECTION BOLTS REMOVAL

(1) Remove the connection bolts (6 places) while turning the crankshaft.
(2) Press in the torque converter to the transmission side so the torque converter does not remain on the engine side.

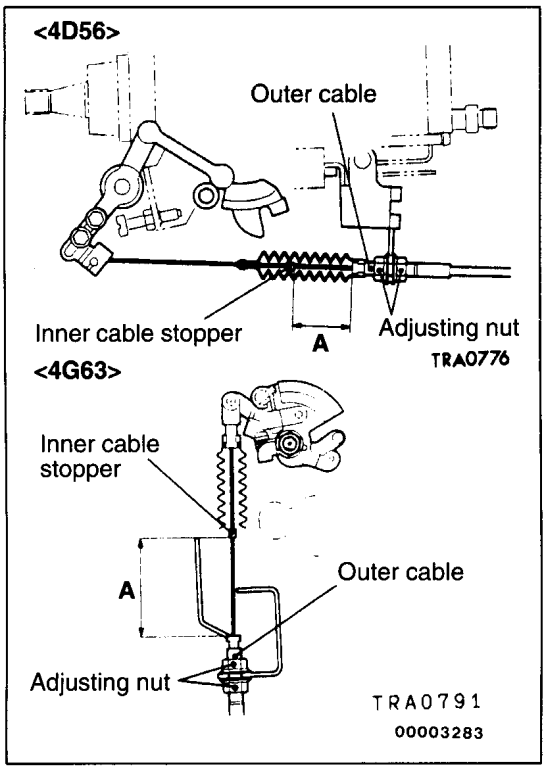


INSTALLATION SERVICE POINTS

▶A◀ TRANSMISSION ASSEMBLY INSTALLATION

The sizes of the mounting bolts are different. So be sure not to confuse them.

Bolt	Head mark	d×ℓ mm
A	7T	10×40
B <4D56>		10×55
C <4G63, 4G64>		10×60
D		10×65



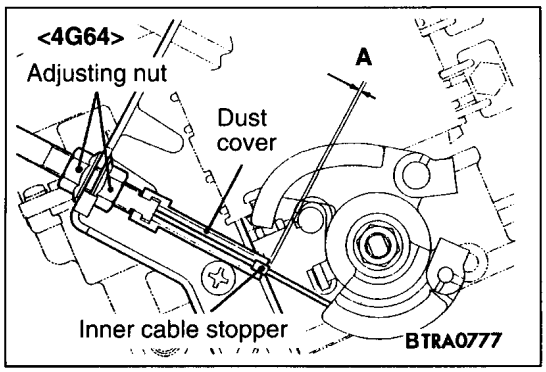
▶B◀ THROTTLE CABLE INSTALLATION

After installing the throttle cable, adjust it by the following procedure.

<4D56, 4G63>

(1) Remove the cable from the boot outer cable side until the inner cable stopper can be seen.
(2) Open the throttle lever completely and adjust the cable with the adjusting nut so that the distance between the inner dable stopper and the outer cable end is at the standard value.

Standard value (A): 34–35 mm <4D56>
54–55 mm <4G63>



<4G64>

Open the throttle lever completely and adjust the cable with the adjusting nut so that the distance between the inner cable stopper and the dust cover end is at the standard value.

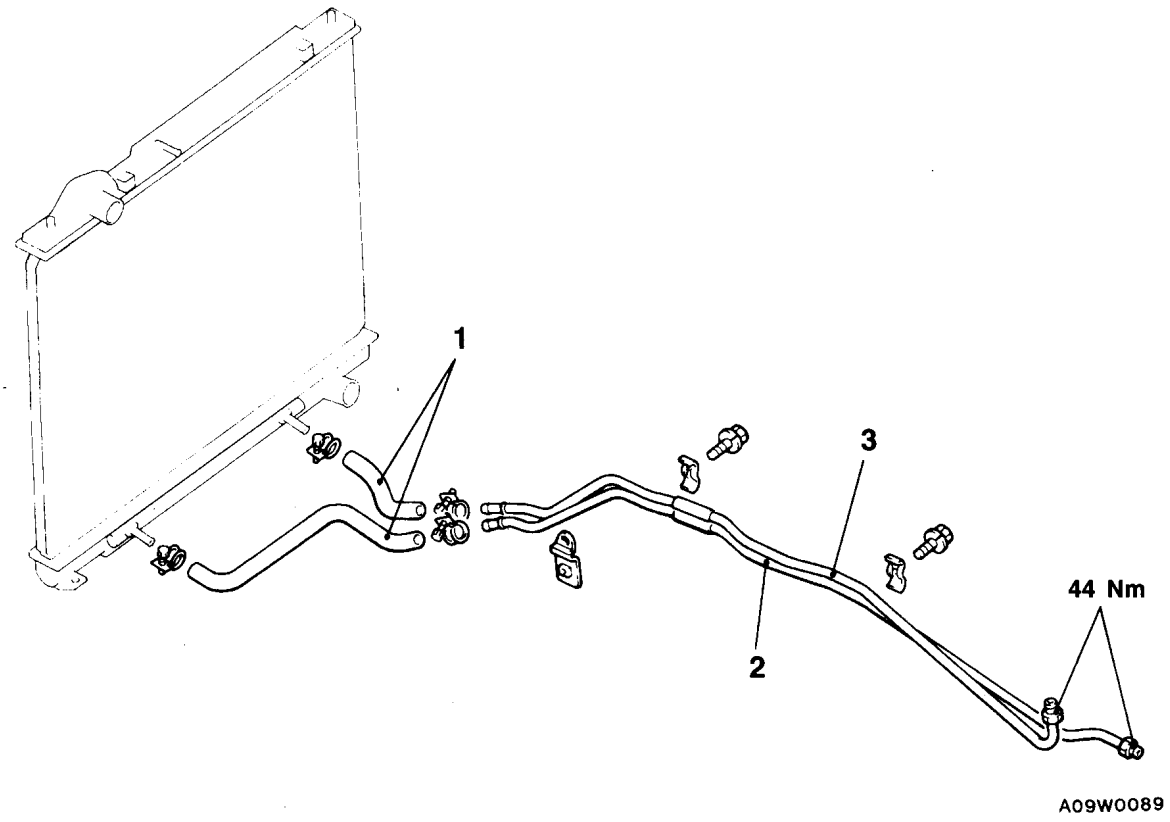
Standard value (A): 0–1 mm

TRANSMISSION OIL COOLER

120002227

REMOVAL AND INSTALLATION

Pre-removal and Post-installation Operation
(1)Transmission Fluid Draining and Supplying
(Refer to P. 23-11.)
(2)Front Bumper Removal and Installation
(Refer to GROUP 51 – Front Bumper.)



Removal steps

1. Hose
2. Oil return tube
3. Oil feed tube