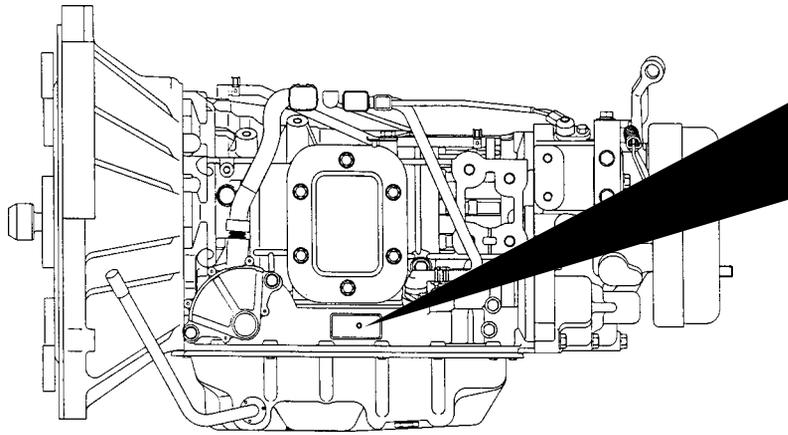
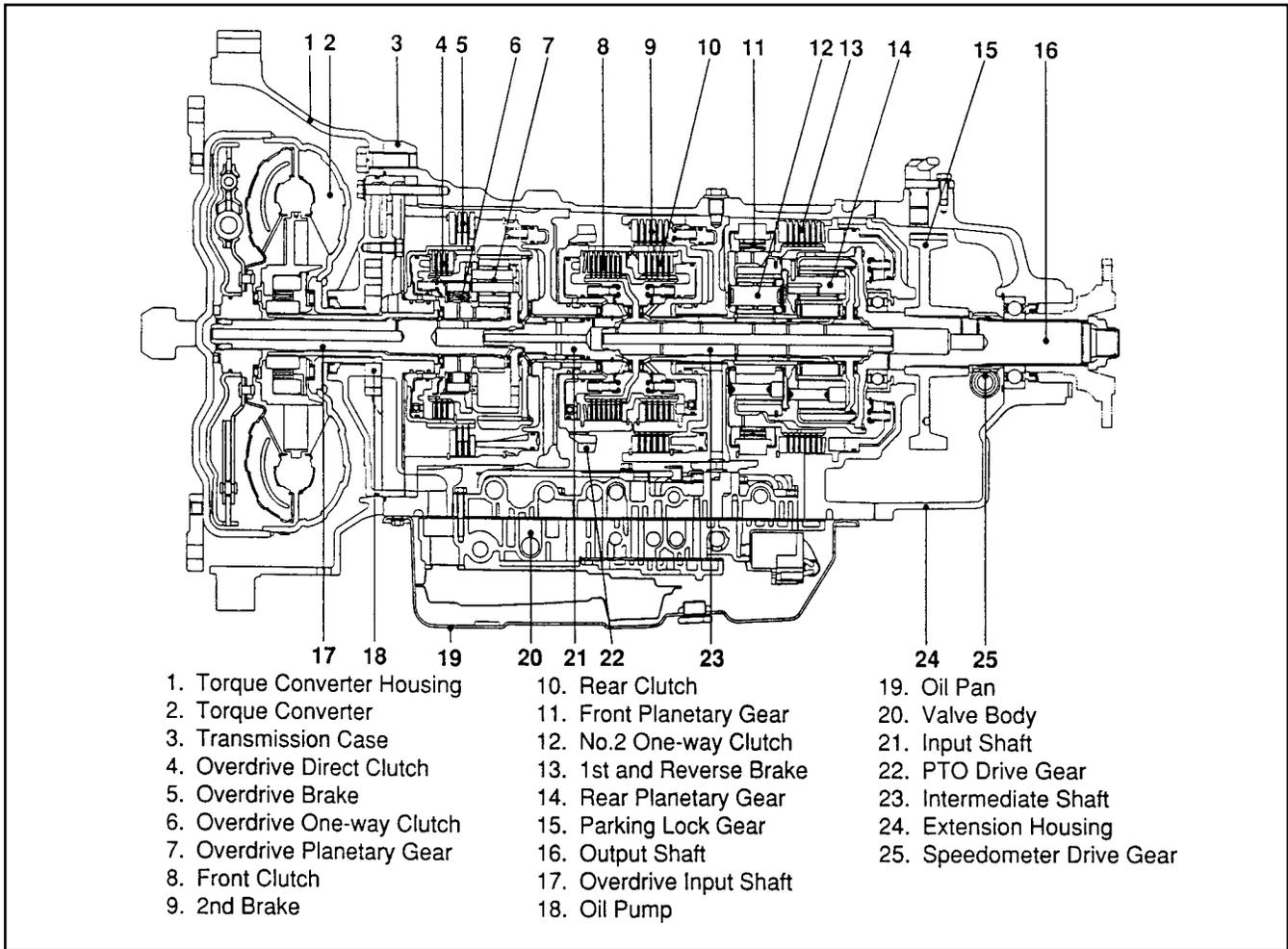


Aisin Warner 450-43LE 1998-Up
Nissan "UD"
Isuzu "RNJ"
Mitsubishi FUSO



AISIN SEIKI CO., LTD.
SERIAL NO.
9A0001

→ Year: 1999
 → Month: January
 Ex. B: February
 C: March
 D: April
 *
 L: December
 → Serial Numbers



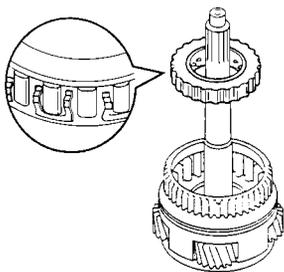
Component name	Symbol	Function
O/D direct clutch	C0	Connects O/D sun gear and O/D carrier.
Front Clutch	C1	Transmit the engine torque from the input shaft to the intermediate shaft.
Rear clutch	C2	Transmit the engine torque from the front clutch hub to the front and rear planetary sun gear.
O/D brake	B0	Locks the O/D planetary sun gear.
2 nd brake	B1	Locks the front and rear planetary sun gear.
1 st & Rev. brake	B2	Locks the front planetary carrier.
O/D one-way clutch	F0	Locks the O/D sun gear and O/D planetary carrier during acceleration in 1 st , 2 nd or 3 rd gear.
One-way clutch No.2	F1	Locks the front planetary carrier during acceleration in 1 st gear.
No.1 shift solenoid No.2 shift solenoid	S1 S2	The ON/OFF combinations of the two solenoids are used to control the gear position.

Shift position	C0	C1	C2	B0	B1	B2	F0	F1	S1	S2	Remarks
P				○					○		
R	○		○			○	●				
N				○					○		
D	1st	○	○				●	●	○		Automatic shift control 1 ⇔ 2 ⇔ 3 ⇔ 4
	2nd		○		○		●		○	○	
	3rd	○	○	○			●			○	
	O/D		○	○	○						
2	1st	○	○				●	●	○		Automatic shift control 1 ⇔ 2 ⇔ 3
	2nd	○	○		○		●		○	○	
	3rd	○	○	○			●			○	
L	1st	○	○			○	●	●	○		Fixed at 1st speed 1 ⇔ 2 ⇔ 3 (*)
	2nd	○	○		○		●		○	○	
	3rd	○	○	○			●			○	

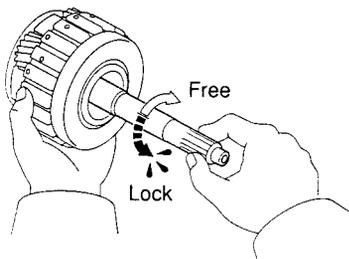
○ - Engaged

● - Operative when accelerating

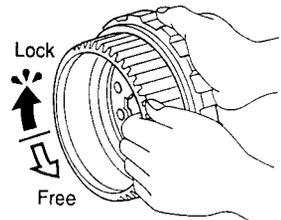
* - 3rd gear engaged when the timing solenoid is active



One-way Clutch Assembly Direction



One-way Clutch Operation

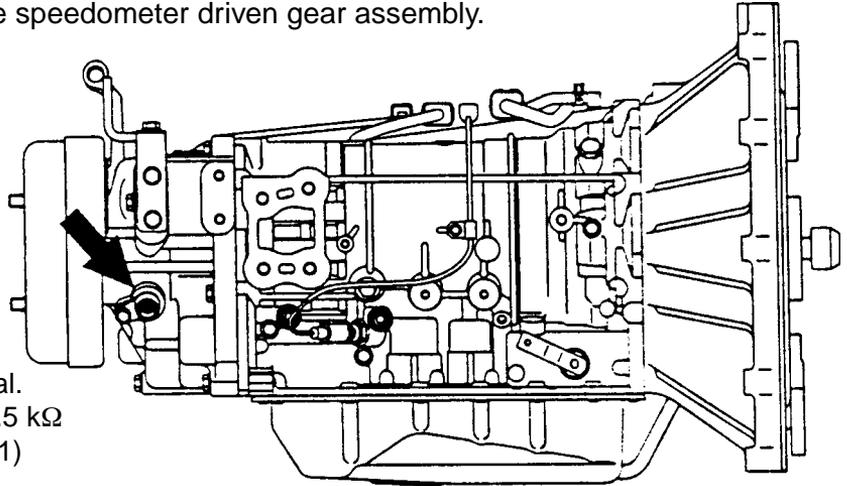


One-way Clutch Check

VEHICLE SPEED SENSOR-2

Vehicle speed sensor-2 is attached on the speedometer driven gear assembly.

1. Block the wheels.
2. Disconnect the negative battery cable.
3. Disconnect the harness connector from vehicle speed sensor 2.
4. Connect the vehicle speed sensor connector terminal (1) to the battery (+) terminal and terminal (2) to the battery (-) terminal.
5. Connect a resistance of 1.3 k Ω to 1.5 k Ω (1.4W or more) between terminals (1) and (3).

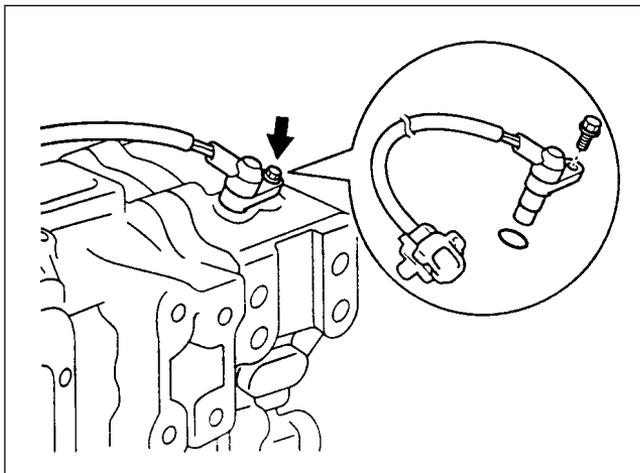
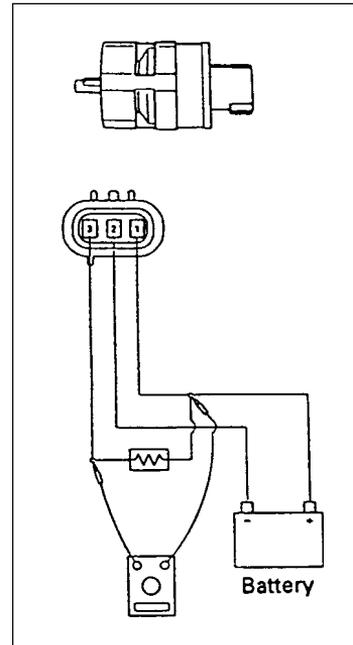


CAUTION: Be extremely careful not to connect the battery (+) terminal to the vehicle speed sensor terminal (3). This may damage the vehicle speed sensor.

6. Rotate the shaft of the vehicle speed sensor slowly and measure the voltage at both ends with a digital voltmeter.

Measure

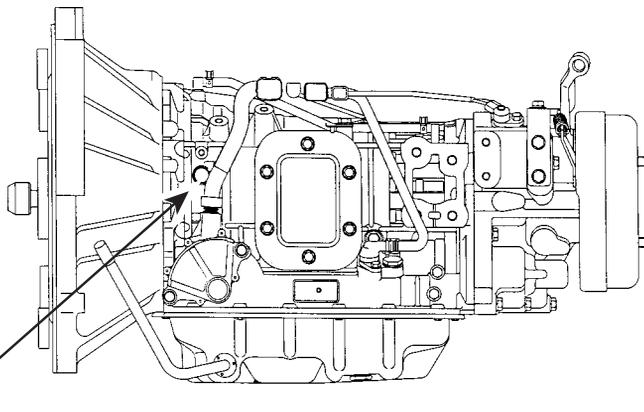
- The voltage, with one rotation of vehicle speed sensor shaft, fluctuates four times in the following range: 10 to 14 V \leftrightarrow 2V or less.



Speed Sensor 1

- Resistance 560 - 680 Ω at approx. 20 $^{\circ}$ C (68 $^{\circ}$ F)

Solenoid	Resistance (Ω) at approx. 20 $^{\circ}$ C (68 $^{\circ}$ F)
Timing solenoid	11 - 15
No. 1 Shift solenoid	
No. 2 Shift solenoid	
Lock-up solenoid	3.7—4.1
Line pressure solenoid	



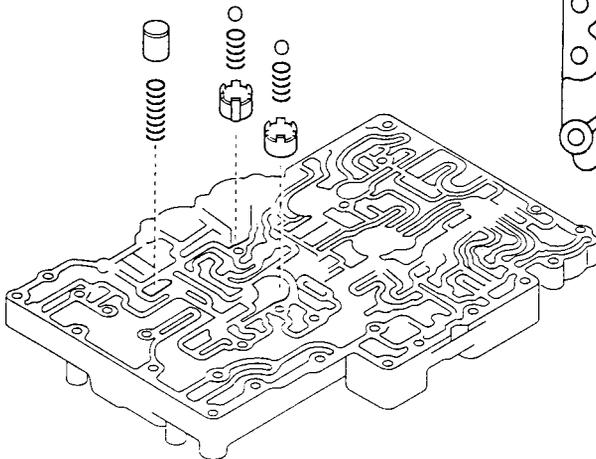
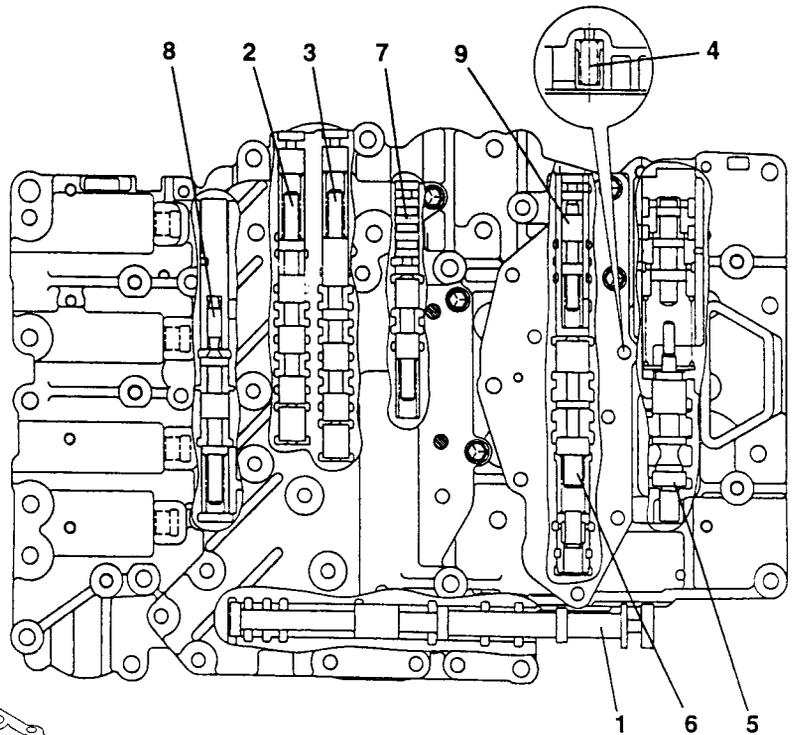
Pressure Tap Location

Range	Engine Speed	
	Idling	Stalling
D	77-114 PSI	144-215 PSI
R	5/110-164PSI	5/203-306 PSI

Solenoid	Gear Position			
	1st gear	2nd gear	3rd gear	4th gear
No. 1 shift solenoid	ON	ON	OFF	OFF
No. 2 shift solenoid	OFF	ON	ON	OFF

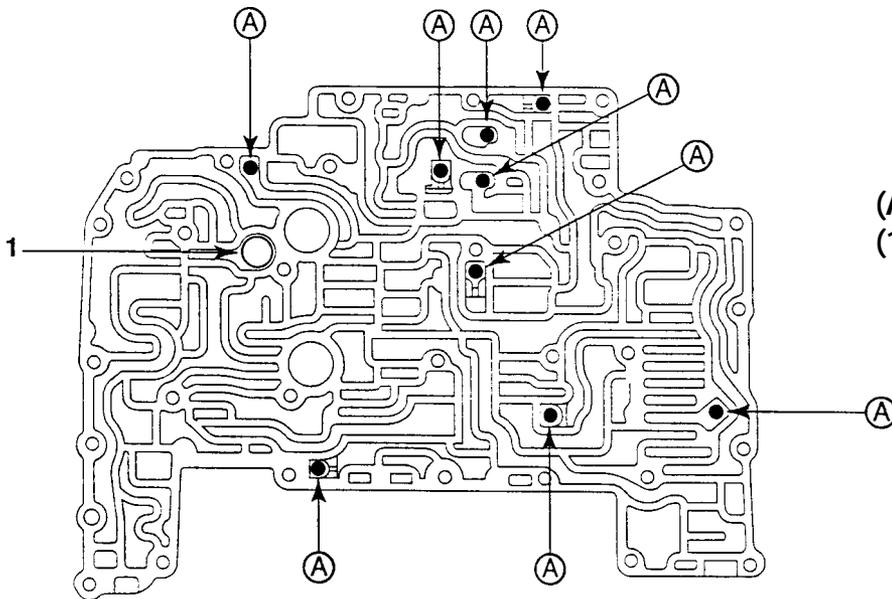
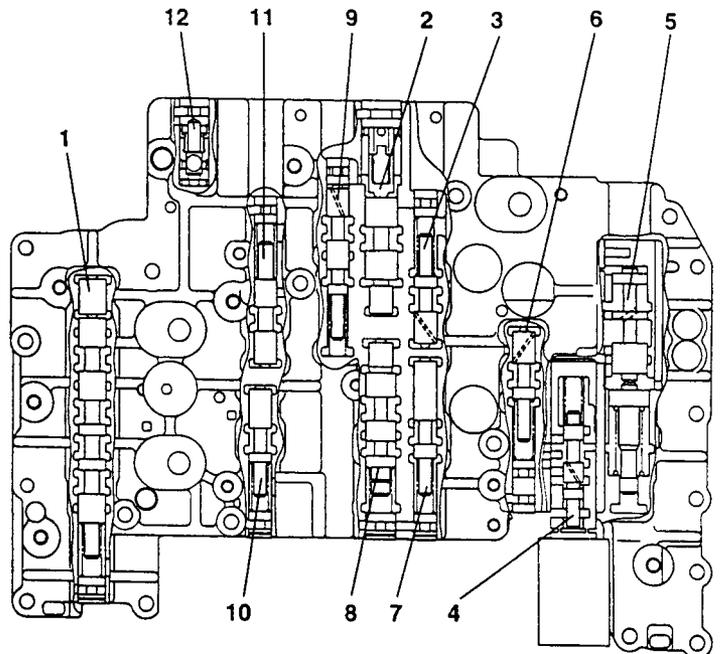
Lower Valve Body:

1. Manual Valve
2. 1-2 Shift Valve
3. 3-4 Shift Valve
4. Pressure Relief Valve
5. Primary Regulator Valve
6. Lock-up Control Valve
7. C0 Exhaust Valve
8. 2-3 Timing Valve
9. Cut-back Valve

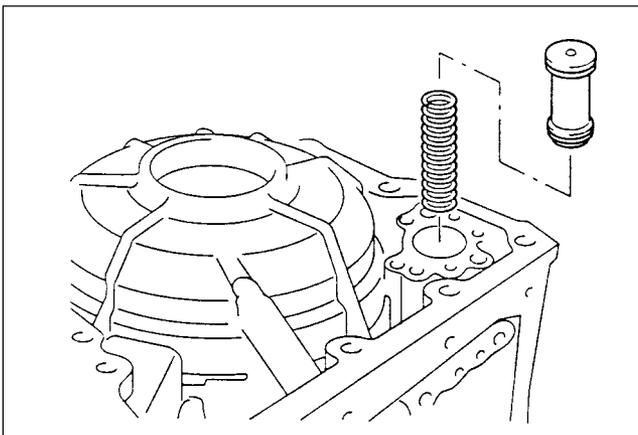


Upper Valve Body

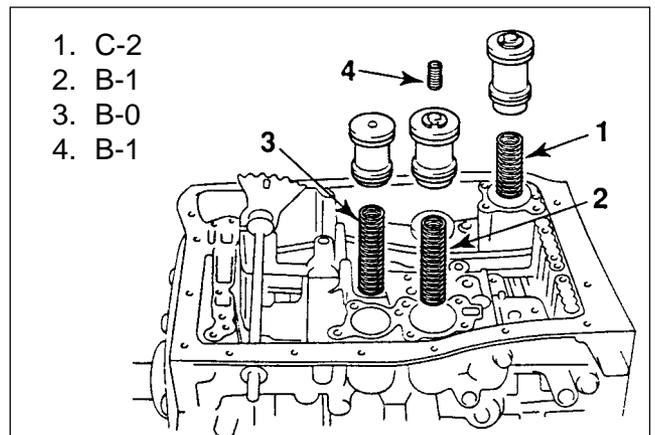
1. 2-3 Shift Valve
2. Reverse Inhibitor Valve
3. Modulator Valve
4. Throttle Valve
5. Secondary Regulator Valve
6. Reducing Valve
7. Lock-up Signal Valve
8. Accumulator Control Valve
9. Low Coast Modulator Valve
10. Orifice Control Valve
11. Low Inhibitor Valve
12. Check Valve



(A) Check Ball Locations
(1) Strainer

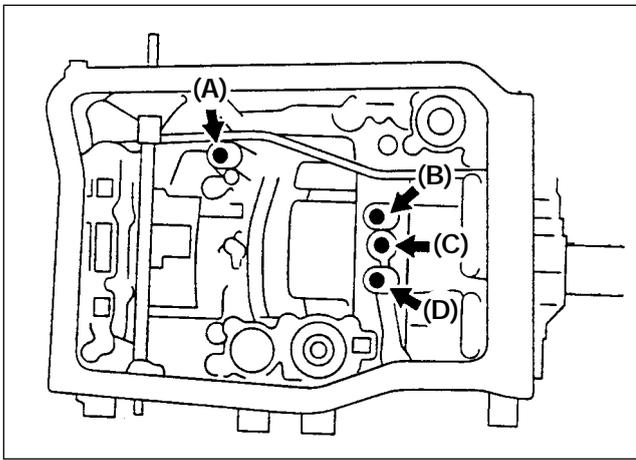


C-1 Accumulator Installation



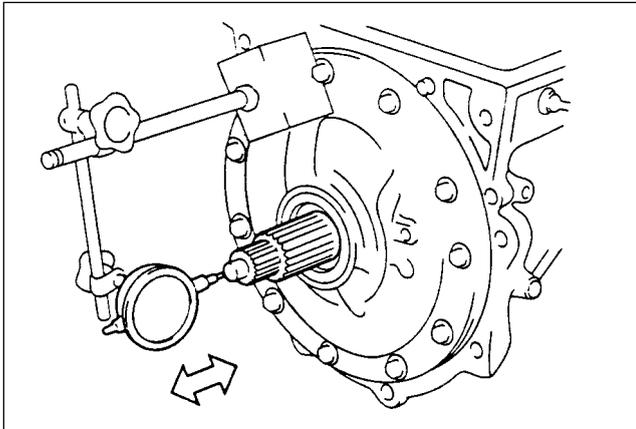
Accumulator Locations

Air Check

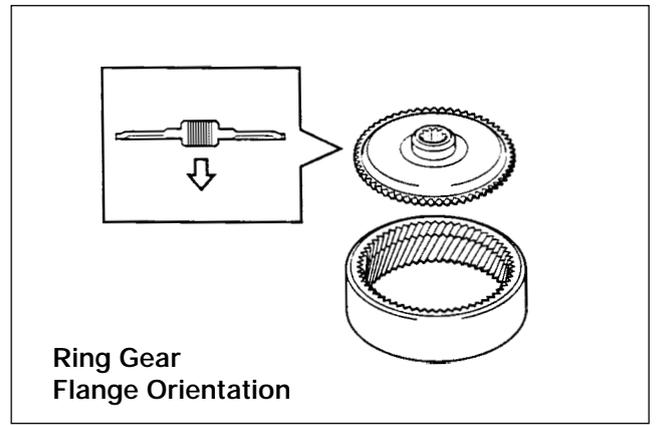
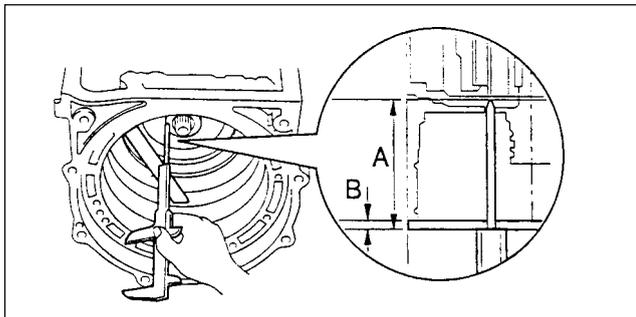


- (A) Forward (C) Direct, Orificed
 (B) Direct (D) Intermediate

Front End Play .40-.90mm/.016"-.035"

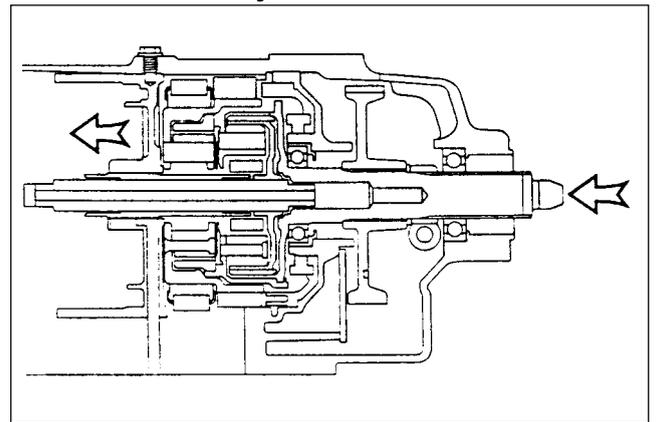


1. Place the plate on the center support.
Tool required: 5-8840-2647-0 Plate
2. Using calipers, measure distance (A) between the tops of the plate and the thrust washer on the front planetary gear.
3. Using calipers, measure the thickness (B) of the plate.



Ring Gear
Flange Orientation

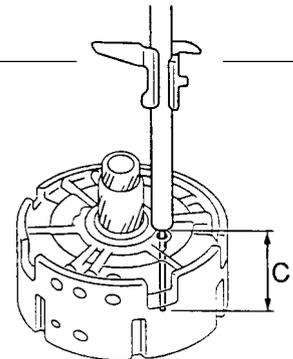
Rear End Play .30-.70mm/.012"-.028"

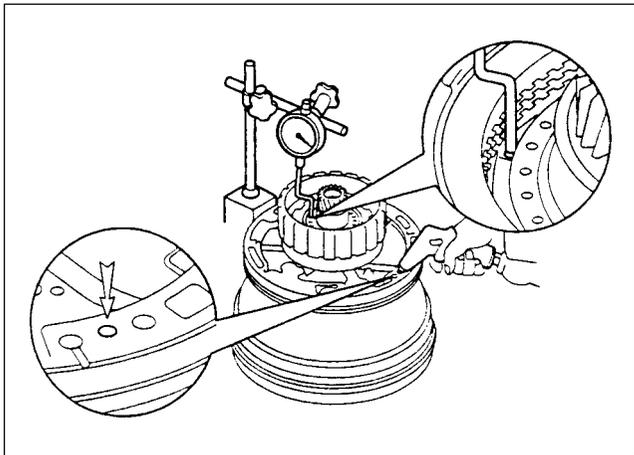


4. Turn over the center support together with the thrust washer, and place it on a flat surface.
5. Inserting the calipers into the thrust washer hole, measure the distance (C) between it and the flat surface.

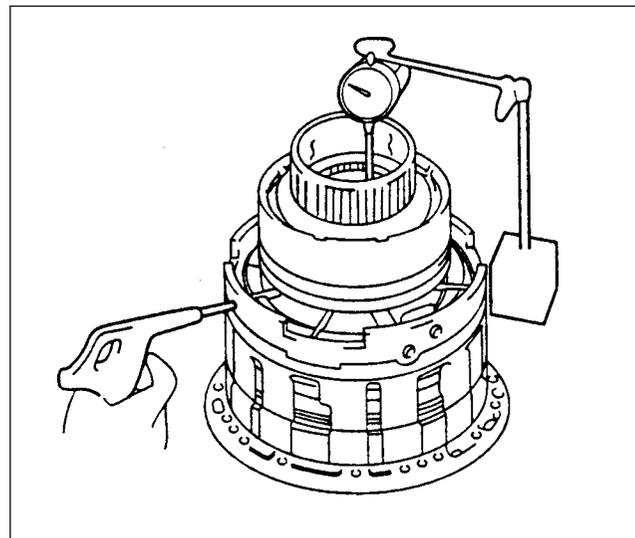
Center Support thrust clearance: $A - (B + C)$
Standard thrust clearance: 0.30-0.70 mm
 (0.0118-0.0276 in.)
Maximum thrust clearance: 0.90 mm (0.0354 in.)

Measuring
Rear End Play
Procedure

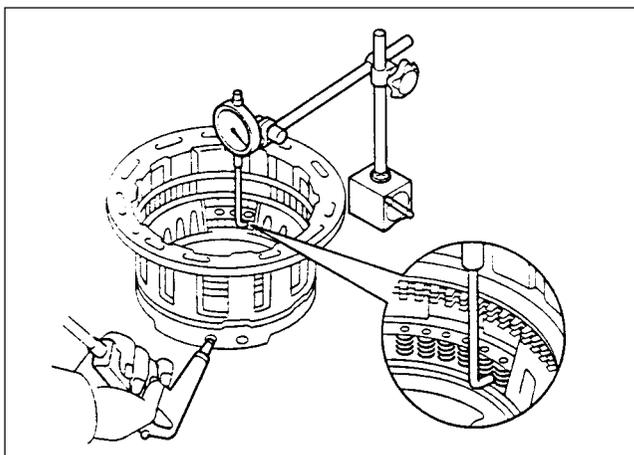




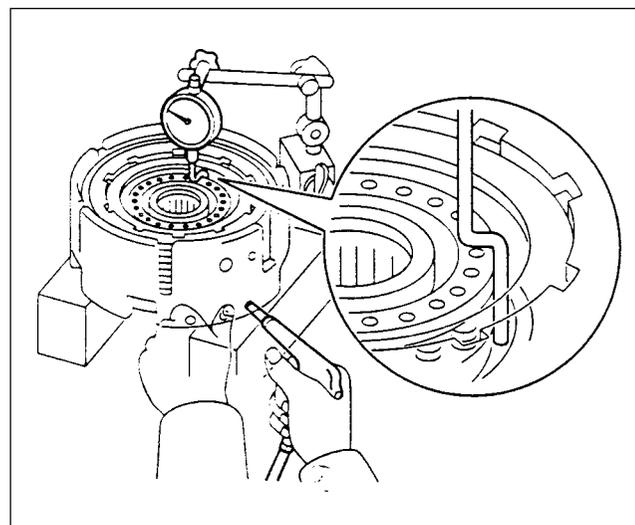
O.D. Direct Clutch Pack Clearance
.071"-.082" / 1.8-2.07mm)



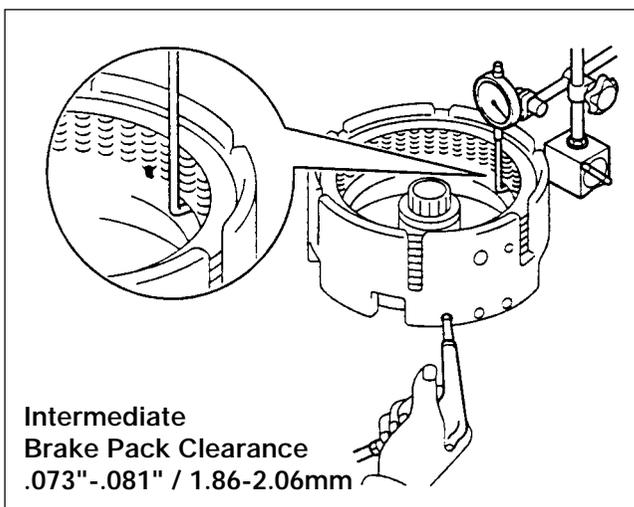
Front Clutch Clearance
.155"-.167" / 3.93-4.23mm



O.D. Brake Clutch Pack Clearance
.049"-.073" / 1.25-1.85mm)



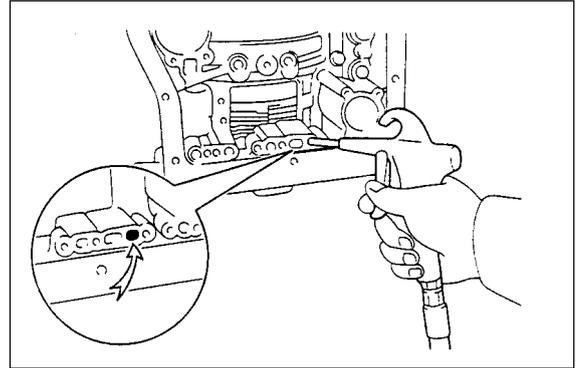
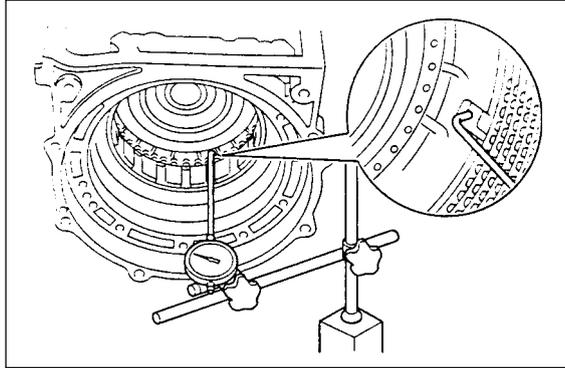
Rear Clutch Pack Clearance
.079"-.187" / 2.0-2.2mm



**Intermediate
 Brake Pack Clearance**
.073"-.081" / 1.86-2.06mm

Low/Reverse Clutch Pack Clearance

.130"-.150" / 3.3-3.8mm



TORQUE SPECIFICATIONS

Part tightened	N•m	lb•ft (lb•in)
Oil Pump cover x Oil pump body	21	15
Upper valve body x lower valve body	5.5	4
Manual detent spring x Lower valve body	5.5	(47)
C ₁ accumulator cover x Transmission case	8	(69)
Transmission case x Extension housing	37	27
Center support set bolt	25	18
Oil pan x Transmission case	7	(61)
Transmission case x Transmission housing	64	47
ATF temperature sensor x Transmission case	25	18
Inhibitor switch x Transmission case	12.5	(78)
Inhibitor switch x Manual valve shaft	7	(61)
Control shaft x Transmission case	12.5	(78)
Oil pump x Transmission case	25	18
Valve body x Transmission case	10	(87)
Solenoid valve x Valve body	10	(87)
Oil strainer x Valve body	10	(87)
Drain plug x Oil pan	27	20
Speed sensor x Transmission case	8	(69)
PTO cover x Transmission case	15	11