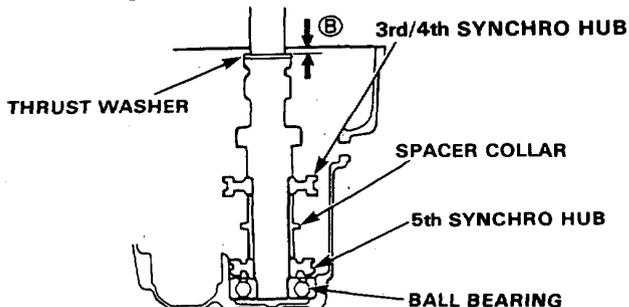


Mainshaft Thrust Shim Adjustment

1. Remove the thrust shim and oil guide plate from the transmission housing.
2. Install the 3rd/4th synchro hub, spacer collar, 5th synchro hub, ball bearing and thrust washer on the mainshaft. Install the assembly in the transmission housing.



3. Measure the distance B between the end of the transmission housing and thrust washer.

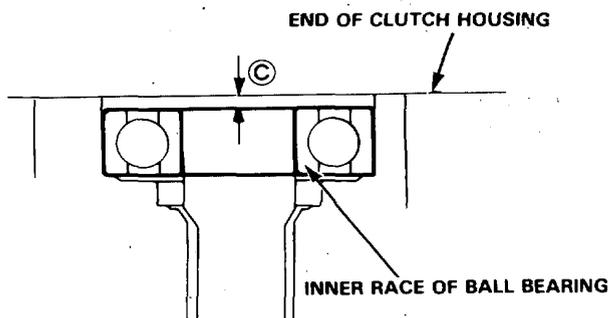
NOTE:

- Use a straight edge and feeler gauge.
- Measure at three locations and average the readings.

4. Measure the distance C between the surfaces of the clutch housing and bearing inner race.

NOTE:

- Use a straight edge and feeler gauge.
- Measure at three locations and average the readings.



5. Select the proper shim (or shim pair) on the basis of the following calculations:

NOTE: Do not use more than two shims.

(Basic Formula)

$$(B) + (C) - 0.95 = \text{shim thickness}$$

Example of calculation:

Distance B (2.00mm) + Distance C (0.09mm) = 2.09mm
 subtract the spring washer height (0.95mm) = the required thrust shim (1.14mm)

D14A, D15B: 65 mm Thrust Shim

	PART NUMBER	THICKNESS
A	23931-PL3-A10	0.60 mm (0.0236 in.)
B	23932-PL3-A10	0.63 mm (0.0284 in.)
C	23933-PL3-A10	0.66 mm (0.0260 in.)
D	23934-PL3-A10	0.69 mm (0.0272 in.)
E	23935-PL3-A10	0.72 mm (0.0283 in.)
F	23936-PL3-A10	0.75 mm (0.0295 in.)
G	23937-PL3-A10	0.78 mm (0.0307 in.)
H	23938-PL3-A10	0.81 mm (0.0319 in.)
I	23939-PL3-A10	0.84 mm (0.0331 in.)
J	23940-PL3-A10	0.87 mm (0.0343 in.)
K	23941-PL3-A10	0.90 mm (0.0354 in.)
L	23942-PL3-A10	0.93 mm (0.0366 in.)
M	23943-PL3-A10	0.96 mm (0.0378 in.)
N	23944-PL3-A10	0.99 mm (0.0390 in.)
O	23945-PL3-A10	1.02 mm (0.0402 in.)
P	23946-PL3-A10	1.05 mm (0.0413 in.)
Q	23947-PL3-A10	1.08 mm (0.0425 in.)
R	23948-PL3-A10	1.11 mm (0.0437 in.)
S	23949-PL3-A10	1.14 mm (0.0449 in.)
T	23950-PL3-A10	1.17 mm (0.0461 in.)
U	23951-PL3-A10	1.20 mm (0.0472 in.)
V	23952-PL3-A10	1.23 mm (0.0484 in.)
W	23953-PL3-A10	1.26 mm (0.0496 in.)
X	23954-PL3-A10	1.29 mm (0.0508 in.)
Y	23955-PL3-A10	1.32 mm (0.0520 in.)
Z	23956-PL3-A10	1.35 mm (0.0531 in.)
AA	23957-PL3-A10	1.38 mm (0.0543 in.)
AB	23958-PL3-A10	1.41 mm (0.0555 in.)
AC	23959-PL3-A10	1.44 mm (0.0567 in.)
AD	23960-PL3-A10	1.47 mm (0.0579 in.)
AE	23961-PL3-A10	1.50 mm (0.0591 in.)
AF	23962-PL3-A10	1.53 mm (0.0602 in.)
AG	23963-PL3-A10	1.56 mm (0.0614 in.)
AH	23964-PL3-A10	1.59 mm (0.0626 in.)
AI	23965-PL3-A10	1.62 mm (0.0638 in.)
AJ	23966-PL3-A10	1.65 mm (0.0650 in.)
AK	23967-PL3-A10	1.68 mm (0.0661 in.)
AL	23968-PL3-A10	1.71 mm (0.0673 in.)
AM	23969-PL3-A10	1.74 mm (0.0685 in.)
AN	23970-PL3-A10	1.77 mm (0.0697 in.)
AO	23971-PL3-A10	1.80 mm (0.0709 in.)

(cont'd)

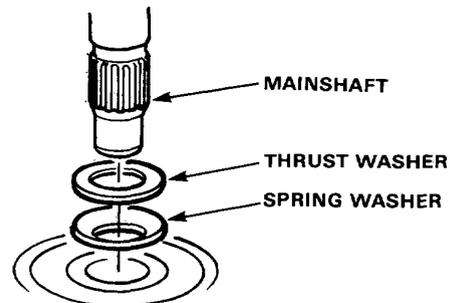
Transmission Maintenance and Repair

Mainshaft Thrust Shim Adjustment (cont'd)

D16A: 70 mm Thrust Shim

	PART NUMBER	THICKNESS
A	23931-PL3-B00	0.60 mm (0.0236 in.)
B	23932-PL3-B00	0.63 mm (0.0284 in.)
C	23933-PL3-B00	0.66 mm (0.0260 in.)
D	23934-PL3-B00	0.69 mm (0.0272 in.)
E	23935-PL3-B00	0.72 mm (0.0283 in.)
F	23936-PL3-B00	0.75 mm (0.0295 in.)
G	23937-PL3-B00	0.78 mm (0.0307 in.)
H	23938-PL3-B00	0.81 mm (0.0319 in.)
I	23939-PL3-B00	0.84 mm (0.0331 in.)
J	23940-PL3-B00	0.87 mm (0.0343 in.)
K	23941-PL3-B00	0.90 mm (0.0354 in.)
L	23942-PL3-B00	0.93 mm (0.0366 in.)
M	23943-PL3-B00	0.96 mm (0.0378 in.)
N	23944-PL3-B00	0.99 mm (0.0390 in.)
O	23945-PL3-B00	1.02 mm (0.0402 in.)
P	23946-PL3-B00	1.05 mm (0.0413 in.)
Q	23947-PL3-B00	1.08 mm (0.0425 in.)
R	23948-PL3-B00	1.11 mm (0.0437 in.)
S	23949-PL3-B00	1.14 mm (0.0449 in.)
T	23950-PL3-B00	1.17 mm (0.0461 in.)
U	23951-PL3-B00	1.20 mm (0.0472 in.)
V	23952-PL3-B00	1.23 mm (0.0484 in.)
W	23953-PL3-B00	1.26 mm (0.0496 in.)
X	23954-PL3-B00	1.29 mm (0.0508 in.)
Y	23955-PL3-B00	1.32 mm (0.0520 in.)
Z	23956-PL3-B00	1.35 mm (0.0531 in.)
AA	23957-PL3-B00	1.38 mm (0.0543 in.)
AB	23958-PL3-B00	1.41 mm (0.0555 in.)
AC	23959-PL3-B00	1.44 mm (0.0567 in.)
AD	23960-PL3-B00	1.47 mm (0.0579 in.)
AE	23961-PL3-B00	1.50 mm (0.0591 in.)
AF	23962-PL3-B00	1.53 mm (0.0602 in.)
AG	23963-PL3-B00	1.56 mm (0.0614 in.)
AH	23964-PL3-B00	1.59 mm (0.0626 in.)
AI	23965-PL3-B00	1.62 mm (0.0638 in.)
AJ	23966-PL3-B00	1.65 mm (0.0650 in.)
AK	23967-PL3-B00	1.68 mm (0.0661 in.)
AL	23968-PL3-B00	1.71 mm (0.0673 in.)
AM	23969-PL3-B00	1.74 mm (0.0685 in.)
AN	23970-PL3-B00	1.77 mm (0.0697 in.)
AO	23971-PL3-B00	1.80 mm (0.0709 in.)

6. Check the thrust clearance in the manner described below.
 - a. Install the shims selected in the transmission housing.
 - b. Install the thrust washer and spring washer in the mainshaft.



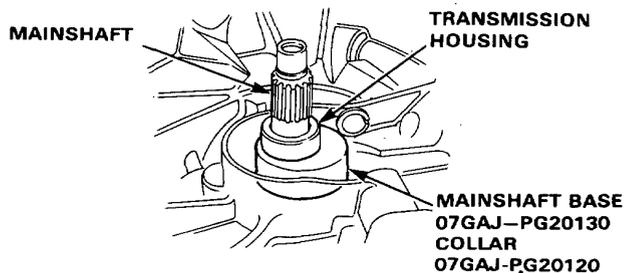
NOTE:

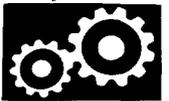
- Clean the thrust washer, spring washer and shim thoroughly before installation.
 - Install the thrust washer, spring washer and shim properly.
- c. Install the mainshaft in the clutch housing.
 - d. Place the transmission housing over the mainshaft and onto the clutch housing.
 - e. Tighten the clutch and transmission housings with several 10mm bolts.
 - f. Tap the mainshaft with a plastic hammer.

7. Check the thrust clearance in the manner described below.

CAUTION: Measurement should be made at room temperature.

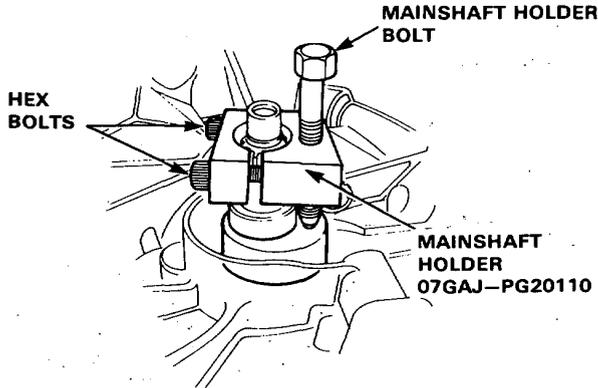
- a. Slide the mainshaft base and the collar over the mainshaft.





b. Attach the mainshaft holder to the mainshaft as follows:

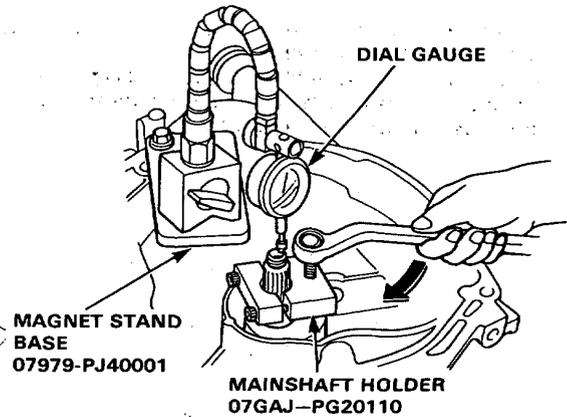
- Back-out the mainshaft holder bolt and loosen the two hex bolts.
- Fit the holder over the mainshaft so its lip is towards the transmission.
- Align the mainshaft holder's lip around the groove at the inside of the mainshaft splines, then tighten the hex bolts.



c. Seat the mainshaft fully by tapping its end with a plastic hammer.

d. Thread the mainshaft holder bolt in until it just contacts the wide surface of the mainshaft base.

e. Zero a dial gauge on the end of the mainshaft.



f. Turn the mainshaft holder bolt clockwise; stop turning when the dial gauge has reached its maximum movement. The reading on the dial gauge is the amount of mainshaft end play.

CAUTION: Turning the shaft holder bolt more than 60 degrees after the needle of the dial gauge stops moving may damage the transmission.

g. Clearance is correct if reading is between 0.13–0.20mm (0.0051–0.0079 in).

If not, recheck necessary shim thickness.