LIST OF EFFECTIVE PAGES

Page	Revision Code	Date	Remarks
21A-0-1		May 1995	
21A-1-1	B	May 1996	
21A-2-1		May 1995	
21A-3-1 to 21A-3-3		May 1995	
21A-4-1 and 21A-4-2		May 1995	
21B-0-1	E	Jun. 1998	
21B-1-1 and 21B-1-2	H	Dec. 2000	
21B-2-1	H	Dec. 2000	
21B-2-1a	H	Dec. 2000	
21B-2-2	H	Dec. 2000	
21B-2-2a to 21B-2-2c	H	Dec. 2000	
21B-2-3 and 21B-2-4	H	Dec. 2000	
21B-2-4a	E	Jun. 1998	
21B-2-4b	C	Jan. 1997	
21B-3-1	E	Jun. 1998	
21B-3-2	C	Jan. 1997	
21B-3-2a	C	Jan. 1997	
22A-0-1	B	May 1996	
22A-0-2 and 22A-0-3		May 1995	
22A-0-4	B	May 1996	
22A-1-1	E	Jun. 1998	
22A-1-2	B	May 1996	
22A-2-1 to 22A-2-4	B	May 1996	
22A-3-1 and 22A-3-2	B	May 1996	
22A-3-2a and 22A-3-2b	B	May 1996	
22A-3-3		May 1995	
22A-3-4 to 22A-3-16	B	May 1996	
22A-4-1 to 22A-4-9	B	May 1996	
22A-5-1 to 22A-5-6	B	May 1996	
22A-6-1 to 22A-6-6	B	May 1996	
22A-7-1 to 22A-7-3		May 1995	
22A-8-1 and 22A-8-2	B	May 1996	
22B-0-1	I	Mar. 2002	
22B-0-2	A	Nov. 1995	
22B-0-3 and 22B-0-4	F	July 1999	
22B-0-4a and 22B-0-4b	**K**	**Feb. 2004**	**Revised**
22B-0-5	F	July 1999	
22B-0-6	**K**	**Feb. 2004**	**Revised**
22B-0-7	E	Jun. 1998	
22B-1-1 and 22B-1-2	H	Dec. 2000	
22B-1-2a to 22B-1-2e	J	Jun. 2003	
22B-1-2f	**K**	**Feb. 2004**	**Revised**
22B-1-2g and 22B-1-2h	J	Jun. 2003	
22B-1-3	E	Jun. 1998	
22B-1-4	H	Dec. 2000	
22B-1-5 and 22B-1-6	F	July 1999	
22B-1-7 to 22B-1-9	H	Dec. 2000	
22B-2-1 to 22B-2-4	E	Jun. 1998	

Page	Revision Code	Date	Remarks
22B-3-1 and 22B-3-2	H	Dec. 2000	
22B-3-3 and 22B-3-4	A	Nov. 1995	
22B-3-5	H	Dec. 2000	
22B-3-6 to 22B-3-9	A	Nov. 1995	
22B-4-1 and 22B-4-2	H	Dec. 2000	
22B-4-3 to 22B-4-8	E	Jun. 1998	
22B-5-1 and 22B-5-2	F	July 1999	
22B-5-2a and 22B-5-2b	H	Dec. 2000	
22B-5-3 and 22B-5-4	A	Nov. 1995	
22B-5-5 to 22B-5-7	**K**	**Feb. 2004**	**Revised**
22B-5-8	**K**	**Feb. 2004**	**Added**
22B-6-1 to 22B-6-3	E	Jun. 1998	
22B-6-4 to 22B-6-6	**K**	**Feb. 2004**	**Revised**
22B-6-7	**K**	**Feb. 2004**	**Added**
22B-7-1 and 22B-7-2	F	July 1999	
22B-7-2a and 22B-7-2b	**K**	**Feb. 2004**	**Revised**
22B-7-3 and 22B-7-4	A	Nov. 1995	
22B-7-5	F	July 1999	
22B-7-6	G	Jun. 2000	
22B-7-7	F	July 1999	
22B-8-1 and 22B-8-2	F	July 1999	
22B-8-3 and 22B-8-4	E	Jun. 1998	
22B-8-5 to 22B-8-10	**K**	**Feb. 2004**	**Revised**
22B-9-1	E	Jun. 1998	
22B-10-1	A	Nov. 1995	
22B-11-1	A	Nov. 1995	
22B-12-1	H	Dec. 2000	
22B-12-2	C	Jan. 1997	
22B-12-2a	C	Jan. 1997	
22B-13-1 and 22B-13-2	E	Jun. 1998	
22B-13-3	F	July 1999	
22B-14-1	A	Nov. 1995	
22B-14-2	F	July 1999	
22B-15-1 to 22B-15-4	E	Jun. 1998	
22B-16-1 to 22B-16-3	E	Jun. 1998	
22B-17-1 to 22B-17-3	E	Jun. 1998	
22C-0-1 to 22C-0-3	C	Jan. 1997	
22C-1-1	D	Nov. 1997	
22C-1-2 to 22C-1-6	C	Jan. 1997	
22C-2-1 to 22C-2-3	C	Jan. 1997	
22C-3-1 to 22C-3-8	C	Jan. 1997	
22C-4-1 to 22C-4-7	C	Jan. 1997	
22C-5-1 to 22C-5-8	C	Jan. 1997	
22C-6-1	C	Jan. 1997	
22C-7-1	C	Jan. 1997	
22C-8-1	C	Jan. 1997	
22C-9-1 to 22C-9-3	C	Jan. 1997	
22C-10-1 to 22C-10-3	C	Jan. 1997	
22C-11-1 and 22C-11-2	C	Jan. 1997	
22C-12-1 to 22C-12-3	C	Jan. 1997	

Missing sheets will be supplied upon request.

1. SPECIFICATIONS

GENERAL SPECIFICATIONS

Items	F5MR1	F5MR2	F5MR3
Clutch operating method	Hydraulic type	Hydraulic type	Hydraulic type
Clutch disc type	Single dry disc type	Single dry disc type	Single dry type
Clutch disc size O.D. × I.D. mm	200 × 137	215 × 147	215 × 145
Clutch cover type	Diaphragm spring strap drive type	Diaphragm spring strap drive type	Diaphragm spring strap drive type
Clutch cover setting load Nm	4,000	4,400	4,400
Clutch release cylinder I.D. mm	20.64	20.64	20.64

SERVICE SPECIFICATIONS

Items	Specifications (Limit)
Facing rivet sink mm	0.3
Diaphragm spring end height difference mm	0.5

TORQUE SPECIFICATIONS

Items	Nm
Clutch cover bolt	30
Release cylinder mounting bolt	30
Clutch tube flare nut	15
Clutch tube bracket mounting bolt	48
Release cylinder union bolt	23
Release cylinder bleeder plug	11

LUBRICANTS

Items	Specified lubricants	Quantity
Piston and cup surface	Rubber grease	As required
Clutch disc spline	Mitsubishi genuine grease Part No.0101011 or equivalent	As required
Clutch release bearing to release fork contact surface		

1. SPECIFICATIONS

GENERAL SPECIFICATIONS

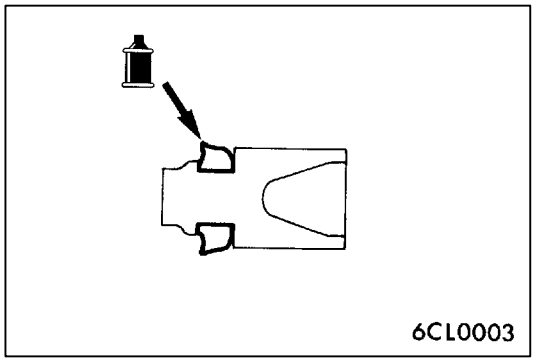
Items	F5M41-4G13, 4G15	F5M41-4G92	F5M42-4G92
Clutch operating method	Hydraulic type	Hydraulic type	Hydraulic type
Clutch disc type	Single dry disc type	Single dry disc type	Single dry disc type
Clutch disc size O.D. x I.D. mm	184 x 127	200 x 130	215 x 140
Clutch cover type	Diaphragm spring type	Diaphragm spring type	Diaphragm spring type
Clutch cover setting load N	3256	4193	4539
Clutch release cylinder I.D. mm	20.64	20.64	20.64

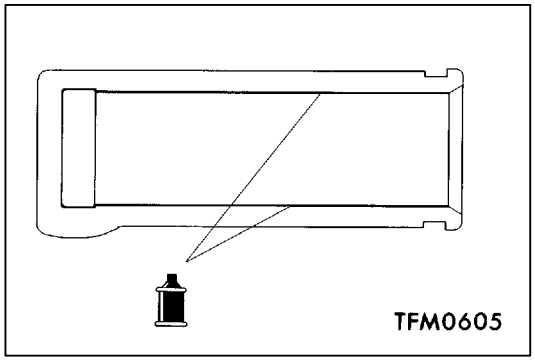
Items	F5M42-4G93, 4G94, 4G63	F5M42-4G63, 4G64, 6A12, 4D68	F5M42-6A13
Clutch operating method	Hydraulic type	Hydraulic type	Hydraulic type
Clutch disc type	Single dry disc type	Single dry disc type	Single dry disc type
Clutch disc size O.D. x I.D. mm	215 x 140	225 x 150	225 x 150
Clutch cover type	Diaphragm spring type	Diaphragm spring type	Diaphragm spring type
Clutch cover setting load N	4511	4511	5198
Clutch release cylinder I.D. mm	20.64	20.64	20.64

Items	F5M51	F5M42-4G64-GDI, W5M42	F5M42-4G94
Clutch operating method	Hydraulic type	Hydraulic type	Hydraulic type
Clutch disc type	Single dry disc type	Single dry disc type	Single dry disc type
Clutch disc size O.D. x I.D. mm	225 x 150	230 x 155	215 x 140
Clutch cover type	Diaphragm spring type	Diaphragm spring type	Diaphragm spring type
Clutch cover setting load N	5864	5200	4510
Clutch release cylinder I.D. mm	20.64	20.64	–

SERVICE SPECIFICATIONS

Items	Specifications (limit)
Clutch disc facing rivet sink mm	0.3
Diaphragm spring end height difference mm <F5M41, F5M42, W5M42>	0.5
Release cylinder I.D. to piston O.D. clearance mm	0.15





REASSEMBLY SERVICE POINT

▶A◀ PISTON / PISTON CUP INSTALLATION

After applying brake fluid to the inside wall surface of the release cylinder and all the circumferential surfaces of the piston and piston cup, insert the piston and piston cup into the cylinder.

Specified brake fluid:
Brake fluid SAE J1703 (DOT3)

INSPECTION

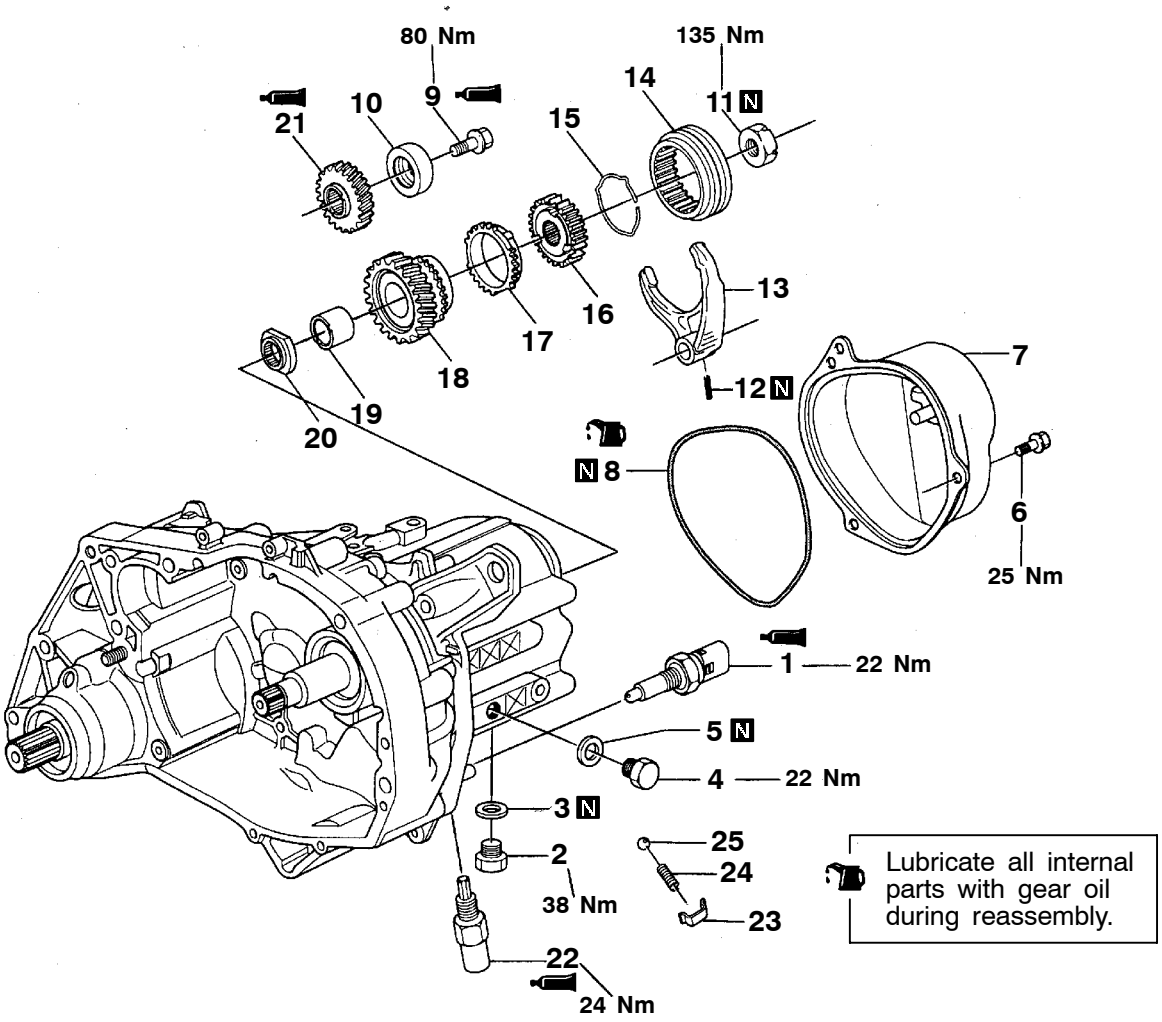
RELEASE CYLINDER

Check the inside wall surface of the release cylinder for rust and damage.
Using a cylinder gauge, measure the inside diameter of the release cylinder at about three positions (the deepest, middle and brim positions). If the clearance from the outside diameter of the piston exceeds the limit, replace the release cylinder as an assembly.

Limit: 0.15 mm

3. TRANSMISSION

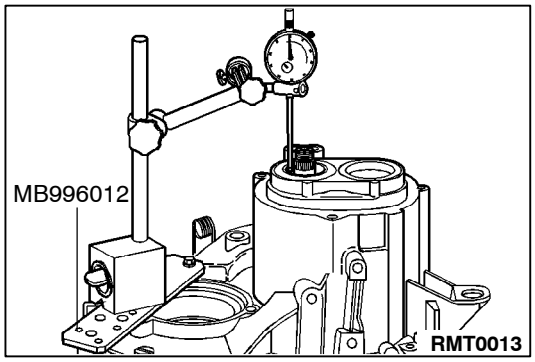
DISASSEMBLY AND REASSEMBLY <F5MR1, F5MR2>



43434

Disassembly steps

- ▶Z◀ 1. Back-up lamp switch
- 2. Drain plug
- 3. Gasket
- 4. Filler plug
- 5. Gasket
- ◀A▶ ▶Y◀ 6. Bolt
- ◀A▶ ▶Y◀ 7. Rear cover
- ◀A▶ ▶Y◀ 8. O-ring
- ◀B▶ ▶W◀ 9. Bolt
- ◀B▶ ▶W◀ 10. Shim
- ◀B▶ ▶W◀ 11. Lock nut
- ◀C▶ ▶X◀ 12. Spring pin
- ◀C▶ ▶V◀ 13. 5th speed shift fork
- ◀C▶ ▶V◀ 14. Synchronizer sleeve
- ◀D▶ ▶V◀ 15. Synchronizer spring
- ◀D▶ ▶V◀ 16. Synchronizer hub
- ◀D▶ ▶T◀ 17. Synchronizer ring
- ◀D▶ ▶T◀ 18. 5th speed gear
- ◀D▶ ▶T◀ 19. Bearing sleeve
- ◀D▶ ▶T◀ 20. Retaining ring
- ◀E▶ ▶U◀ 21. 5th gear wheel
- ◀F▶ ▶S◀ 22. Locating pin
- ◀G▶ ▶R◀ 23. Cover plate
- ◀G▶ ▶R◀ 24. Poppet spring
- ◀G▶ ▶R◀ 25. Poppet ball



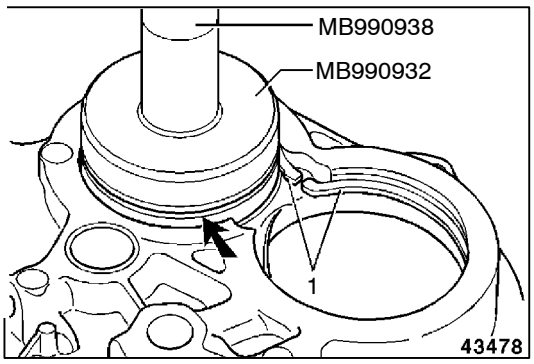
Output shaft
(7) Rotate the output shaft a few times.
(8) Raise the output shaft at the clutch end and read off the value indicated by the clock gauge.
Repeat this operation several times.

Example	A new bearings	B used bearings
pre-tension value	0.26 mm	0.06 mm
shim thickness	+1.60 mm	+1.60 mm
measured value	+0.28 mm	+0.28 mm
	=2.14 mm	=1.94 mm

Select:
A: a shim with a thickness of 2.15 mm
B: a shim with a thickness of 1.95 mm

NOTE
Always use the thickest shim in order to obtain the required pre-tension value.

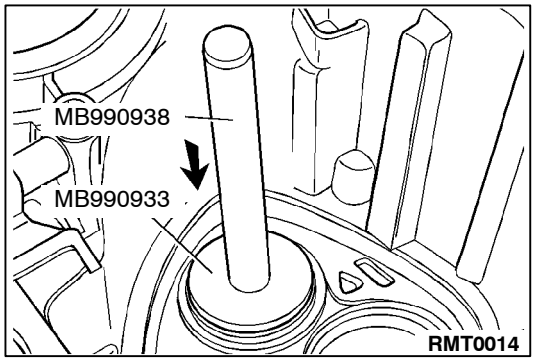
(9) Remove the transmission case and the input shaft and output shaft.



REASSEMBLY SERVICE POINTS

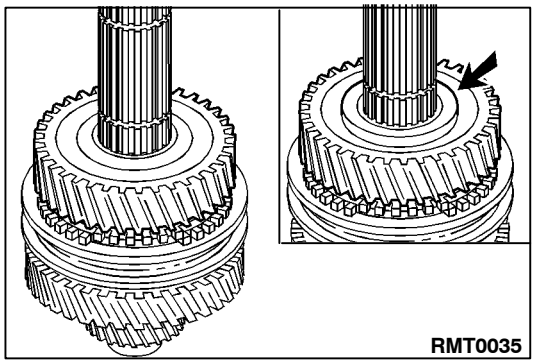
▶A◀ SNAP RING/INPUT SHAFT REAR BEARING/OUTPUT SHAFT REAR BEARING INSTALLATION

(1) Coat the mating faces in the transmission case with the specified sealant.
(2) Locate the two snap rings 1.
(3) Introduce the bearings from the outside of the transmission case with the groove facing up.
(4) Open the snap rings with a pair of pliers and tap in the bearings with a plastic-tip hammer until they are projecting about 3 mm above the transmission case.
(5) Remove the pliers.
(6) Now tap the bearings further into the transmission case with handle MB990938 and bearing installer set MB990932 until the snap rings slip into the grooves.



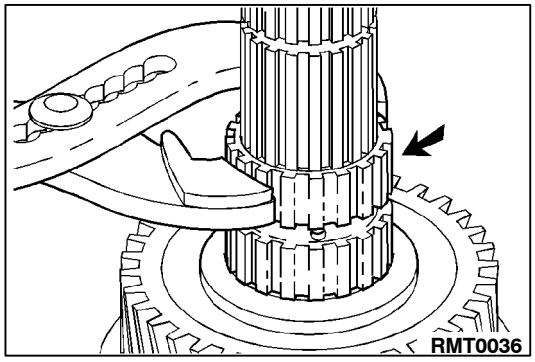
▶B◀ INPUT SHAFT REAR BEARING CUP/OUTPUT SHAFT REAR BEARING CUP INSTALLATION

(1) Coat the mating faces in the transmission case with the specified sealant.
(2) Introduce the bearing cups from the inside of the transmission case.
(3) Tap the bearing cup into the transmission case as far as the stop with handle MB990938 and installer MB990933.



▶G◀ 2ND GEAR WHEEL INSTALLATION

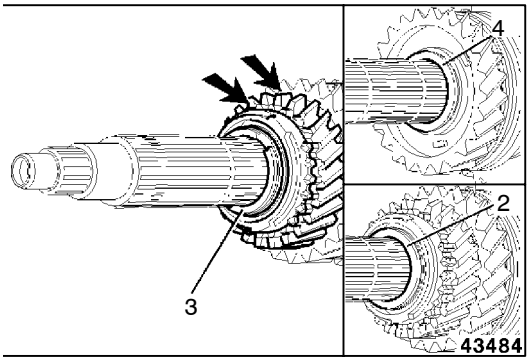
(1) Locate the gear wheel on the bearing bush.
(2) Fit the shim.



▶H◀ 3RD GEAR WHEEL BEARING BUSH INSTALLATION

(1) Locate the bearing bush so that the oil passages of the bearing bush and the output shaft are opposed.
(2) Place the heated bearing bush, using a pair of gripping pliers, over the output shaft on the shim.

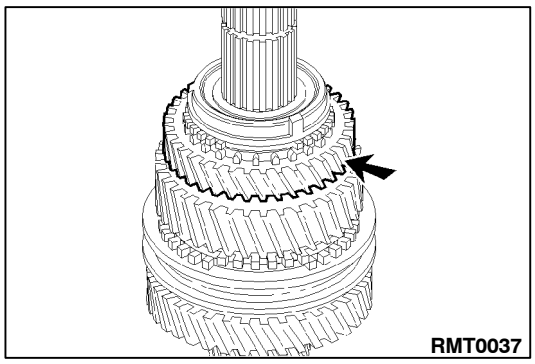
NOTE
Allow the bearing bush to cool and then lubricate copiously with transmission fluid.



▶I◀ 3RD GEAR WHEEL INSTALLATION

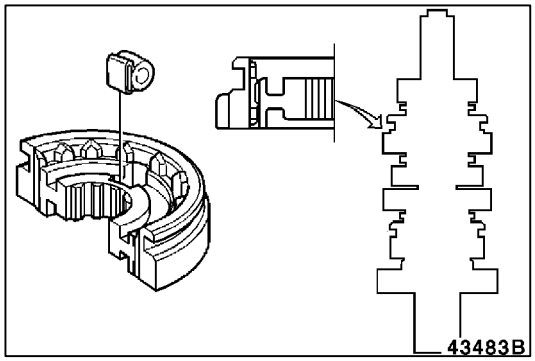
(1) Locate the serrated ring 4 (thickness: 1.5 mm) with the bevelled edge facing towards the gear wheel.
(2) Locate the gear wheel together with the synchronizer ring on the shaft.
(3) Locate the serrated ring 2 (thickness: 1.5 mm) with the bevelled edge facing towards the gear wheel.
(4) Fit a new snap ring 3.

NOTE
Make sure that the lugs of the synchronizer ring engage the recesses in the synchronizer sleeve.



▶J◀ 3RD GEAR WHEEL INSTALLATION

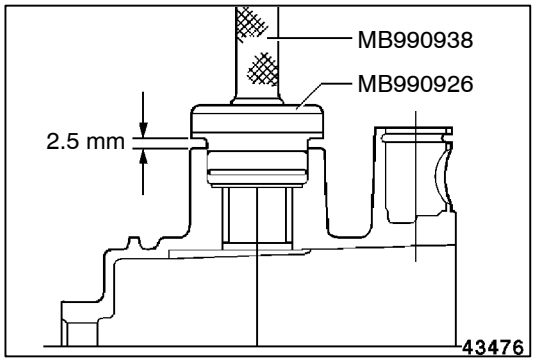
(1) Locate the gear wheel together with the synchronizer ring on the bearing bush.



▶K◀ 3RD - 4TH SYNCHRONIZER HUB INSTALLATION

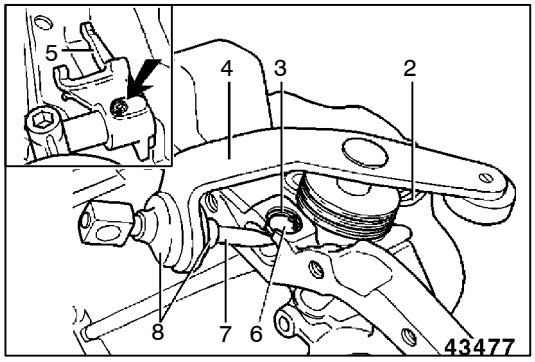
(1) Place the hub on a workbench.
(2) Locate the synchronizer sleeve on the hub with the groove for the selector fork facing up; see the illustration.
(3) Locate the three synchronizer springs together with the rollers in the hub.

NOTE
Always use new synchronizer springs.



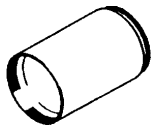
▶B◀ SELECTOR SHAFT OIL SEAL INSTALLATION

(1) Pack the lip of the oil seal with grease.
(2) Fit the new oil seal with handle MB990938 and installer MB990926 so it is located about 2.5 mm ahead of the mating face.



▶C◀ GEAR SHIFT MECHANISM INSTALLATION

(1) Coat the shift lever (ball and socket joints) and shift rail assembly shaft with grease.
(2) Fit the rubber seal 8 on the shift lever.
(3) Fit the rubber seal on the shift rail assembly.
(4) Locate the selector dog 5 and insert the remote control arm 4 in the transmission case.
(5) Fit the two spring pins opposite each other at 180° and at right-angles to the shaft.
(6) Locate the two bearing bushes 6 and fit the shift lever 7.
(7) Fit the snap ring 3.
(8) Fit the rubber seal over the oil seal.
(9) Check for correct operation.
(10) Fit the compression spring 2 on the outside.

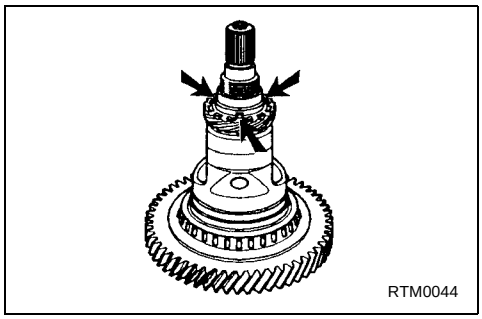
Tool	Number	Name	Use
	MD998813	Installer-100	Fitting 4th gear wheel bearing bush <F5MR3>
	MB998819	Installer adapter (40)	Fitting 4th gear wheel bearing bush <F5MR3>

Fitting output shaft bearing <F5MR3>

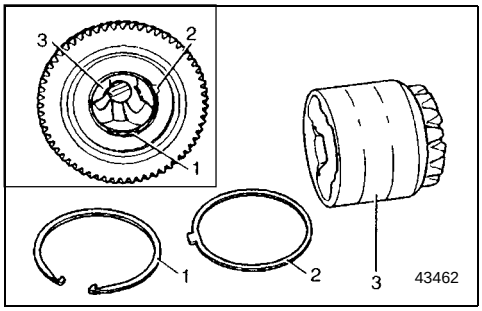
<Added>

<Added>

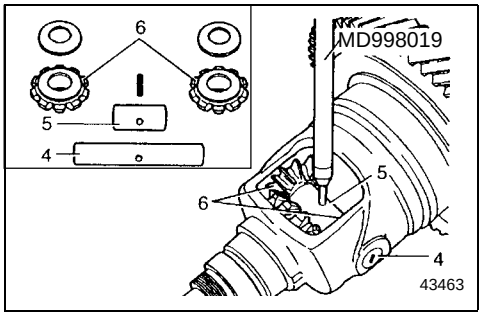
Tool	Number	Name	Use
	MB998816	Installer adapter (30)	Fitting input shaft bearing <F5MR3>



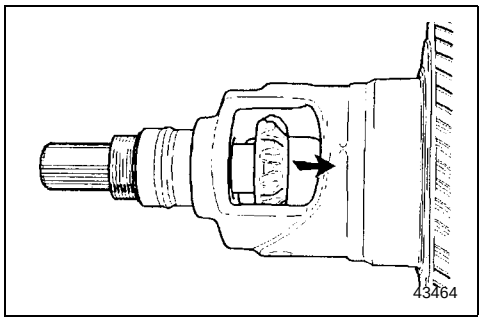
◄E► SPEEDOMETER DRIVE GEAR REMOVAL
Take the speedometer drive gear out of the differential



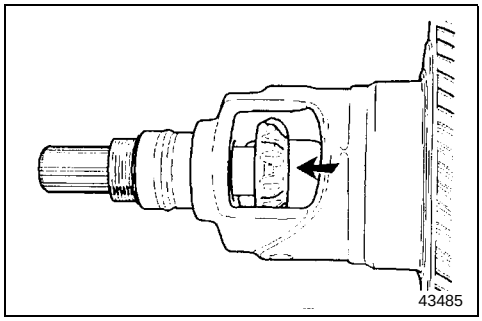
◄F► SIDE GEAR REMOVAL
(1) Remove the snap ring 1.
(2) Remove the shim 2.
(3) Withdraw the side gear 3.



◄G► PINION GEAR REMOVAL
(1) Remove the spring pin with spring pin extractor MD998019
(2) Take out the shaft.4 together with the bush 5.
(3) Remove the pinion gears 6 together with the thrust washers.



◄H► SIDE GIAR REMOVAL
Take the side gear out of the differential case.



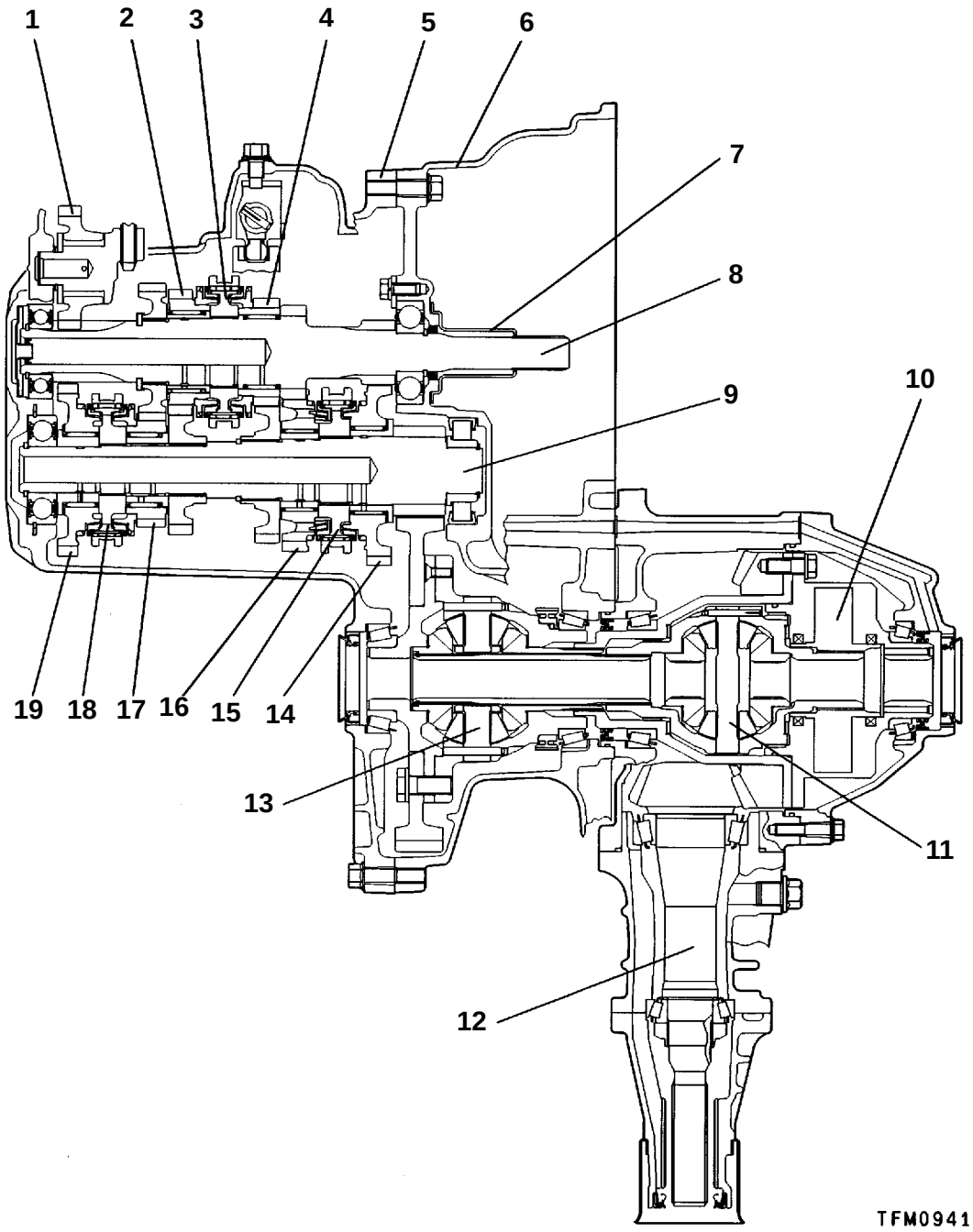
REASSEMBLY SERVICE POINTS

►A◄ SIDE GEAR INSTALLATION
(1) Smear the side gears with grease.
(2) Locate the side gear in the differential case

<Added>

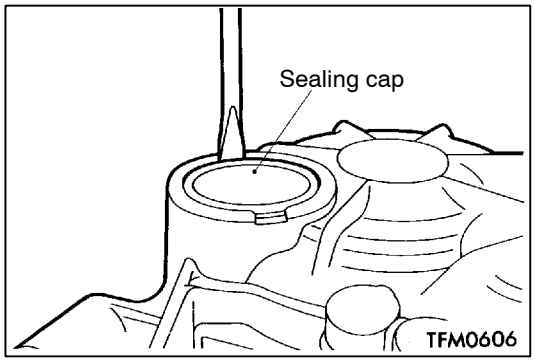
Followed by next page

W5M42



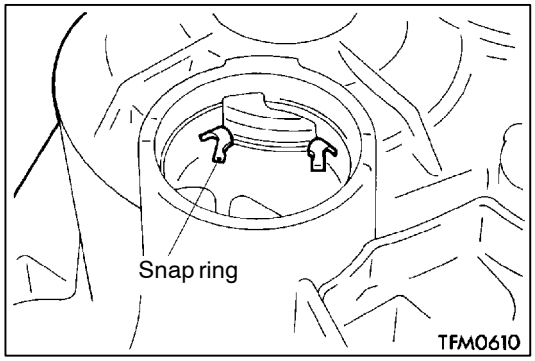
1. Reverse idler gear
2. 4th speed gear
3. 3rd-4th speed synchronizer hub
4. 3rd speed gear
5. Transmission case
6. Clutch housing
7. Release bearing retainer
8. Input shaft
9. Output shaft
10. Viscous coupling
11. Front differential
12. Transfer driven gear
13. Center differential
14. 1st speed gear
15. 1st-2nd speed synchronizer hub
16. 2nd speed gear
17. 5th speed gear
18. 5th-reverse speed synchronizer hub
19. Reverse gear

Part name	Thickness mm	Identification symbol	Part No.
Snap ring: F5M41 (For adjustment of output shaft rear bearing end play)	2.31	Black (2)	MD748800
	2.35	None	MD748801
	2.39	Blue	MD748802
	2.43	Brown	MD748803
	2.47	Green	MD748804
	2.51	White	MD748805
	2.55	Yellow	MD748806
	2.59	Black	MD748807
	2.63	Orange	MD748808
	2.67	Blue	MD748809
	2.71	Brown	MD748810
Snap ring: F5M41 (For adjustment of output shaft 3rd speed gear end play)	2.81	Green	MD748782
	2.85	White	MD748783
	2.89	Yellow	MD748784
	2.93	Black	MD748785
	2.97	Orange	MD748786
	3.01	Red	MD748787
	3.05	Pink	MD748788
	3.09	Blue	MD748789
Snap ring: F5M42, W5M42 (For adjustment of output shaft 3rd speed gear end play)	2.81	Green	MD745799
	2.85	White	MD745800
	2.89	Yellow	MD745801
	2.93	Black	MD745802
	2.97	Orange	MD745803
	3.01	Red	MD745804
	3.05	Pink	MD745805
	3.09	Blue	MD745806



DISASSEMBLY SERVICE POINTS

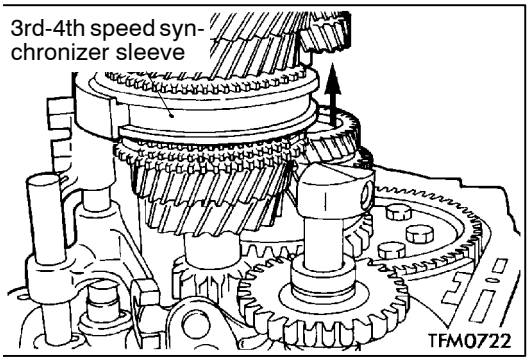
◀A▶ SEALING CAP REMOVAL



◀B▶ TRANSMISSION CASE REMOVAL

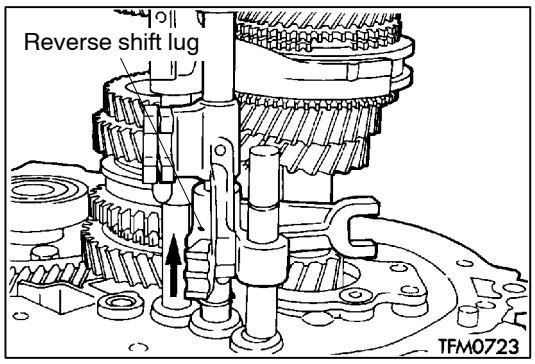
Expand the snap ring to remove it from the snap ring groove of the ball bearing.

NOTE
Expansion of the snap ring causes the snap ring groove to get out of position because of the output shaft's own weight.



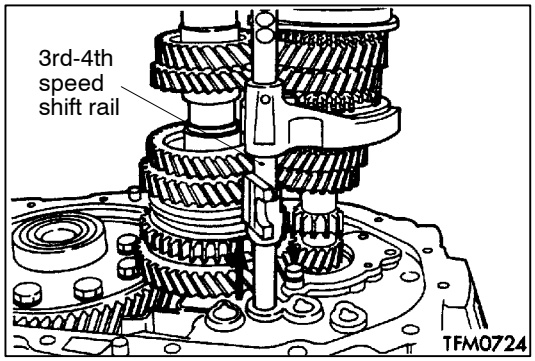
◀C▶ REVERSE IDLER GEAR SHAFT REMOVAL

Shift the 3rd-4th speed synchronizer sleeve toward the 4th speed side.



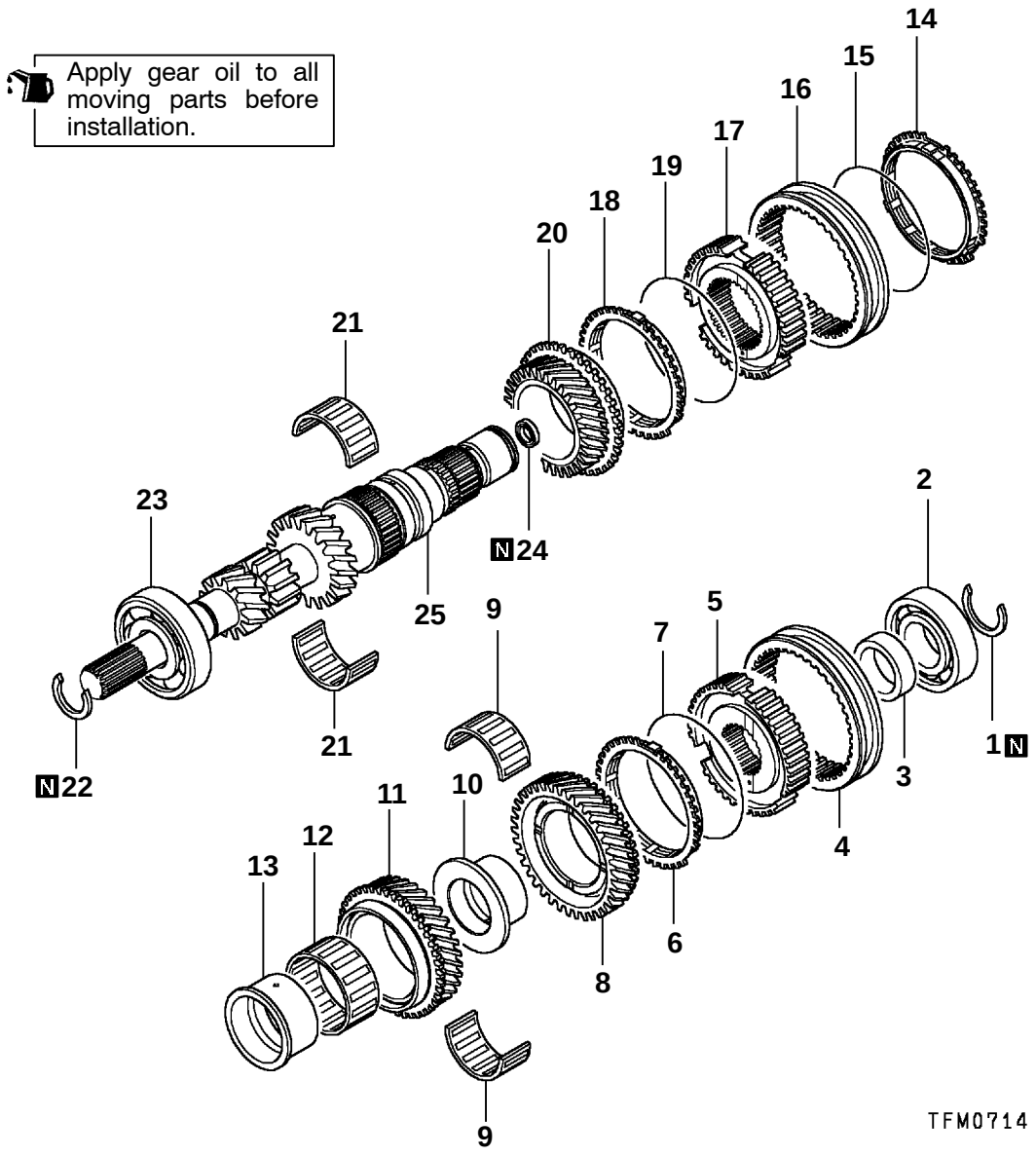
◀D▶ 3RD-4TH SPEED SHIFT RAIL / 3RD-4TH SPEED SHIFT FORK / 5TH SPEED SHIFT FORK / SNAP RING / REVERSE SHIFT LUG / 5TH SPEED SHIFT RAIL / STEEL BALL / REVERSE INTERLOCK RAIL REMOVAL

(1) While sliding the reverse shift lug in the direction shown, remove the 5th speed shift fork, 5th speed shift rail, reverse shift lug, snap ring, steel ball and reverse interlock rail.



(2) While sliding the 3rd-4th speed shift rail in the direction shown, remove it together with the shift fork.

DISASSEMBLY AND REASSEMBLY <Except models with reverse brake>



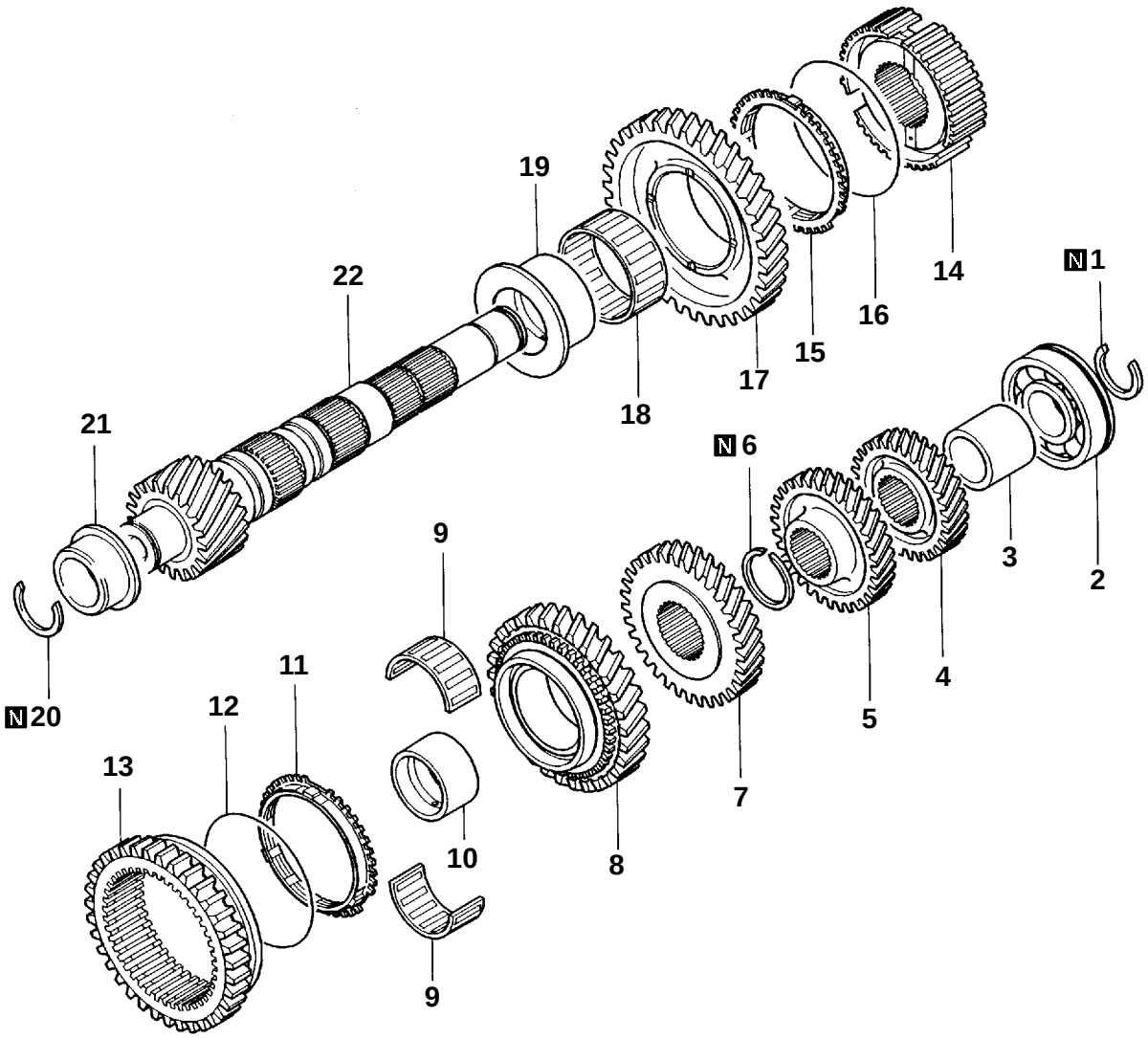
Disassembly steps

- ▶M◀ 1. Snap ring
- ◀A▶ ▶L◀ 2. Ball bearing
- 3. Collar
- ▶J◀ 4. Synchronizer sleeve
- ◀C▶ ▶I◀ 5. 5th-reverse speed synchronizer hub
- 6. Synchronizer ring
- ▶D◀ 7. Synchronizer spring
- 8. 5th speed gear
- 9. Needle roller bearing
- ◀D▶ ▶H◀ 10. 5th speed gear sleeve
- 11. 4th speed gear
- 12. Needle roller bearing
- ◀E▶ ▶G◀ 13. 4th speed gear sleeve
- 14. Synchronizer ring
- ▶D◀ 15. Synchronizer spring
- ▶F◀ 16. Synchronizer sleeve
- ▶E◀ 17. 3rd-4th speed synchronizer hub
- 18. Synchronizer ring
- ▶D◀ 19. Synchronizer spring
- 20. 3rd speed gear
- 21. Needle roller bearing
- ▶C◀ 22. Snap ring
- ◀F▶ ▶B◀ 23. Ball bearing
- ▶A◀ 24. Oil seal
- 25. Input shaft

7. OUTPUT SHAFT <F5M41>

DISASSEMBLY AND REASSEMBLY
<Types with single synchronizer ring for 2nd gear>

Apply gear oil to all moving parts before installation.



TFM0715

Disassembly steps

- ▶J◀ 1. Snap ring
- ◀A▶ ▶I◀ 2. Ball bearing
- 3. Collar
- 4. 5th speed gear
- 5. 4th speed gear
- ▶H◀ 6. Snap ring
- 7. 3rd speed gear
- 8. 2nd speed gear
- 9. Needle roller bearing
- ◀B▶ ▶G◀ 10. 2nd speed gear sleeve
- 11. Synchronizer ring
- ▶D◀ 12. Synchronizer spring
- ▶F◀ 13. Synchronizer sleeve
- ▶E◀ 14. 1st-2nd speed synchronizer hub
- 15. Synchronizer ring
- ▶D◀ 16. Synchronizer spring
- 17. 1st speed gear
- 18. Needle roller bearing
- ◀C▶ ▶C◀ 19. 1st speed gear sleeve
- ▶B◀ 20. Snap ring
- ◀D▶ ▶A◀ 21. Roller bearing inner race
- 22. Output shaft