Service Manual

MANUAL TRANSMISSION

1992 – 1993

FOREWORD

The information contained in this service manual has been prepared for the professional automotive technician involved in daily repair operations. Information in this manual is divided into groups by transaxle or transmission models. Each group is further divided to address individual components within the group.
These groups contain general information. specification. removal and installation, disassembly and reassembly procedures for the components. The first page of each group contains an alphabetical index to assist in finding the location of the component The information, descriptions and specifications were in effect at the time this manual was released.

WE SUPPORT VOLUNTARY TECHNICIAN CERTIFICATION THROUGH
National Institute for
AUTOMOTIVE SERVICE EXCELLENCE

MITSUBISHI MOTOR SALES OF AMERICA, Inc.

Mitsubishi Motors Corporation reserves the right to make changes in design or to make additions to or improvements in its products without imposing any obligations upon itself to install them on its products previously manufactured.

(C) 1992 Mitsubishi Motors Corporation

Printed in Japan

GROUP INDEX

Manual Transaxle

EXPLANATION OF MANUAL CONTENTS

Maintenance and Servicing Procedures

1) A diagram of the component pads is provided near the front of each section in order to give the reader a better understanding of the installed condition of component parts.
2) The numbers provided within the diagram indicate the sequence for maintenance and servicing procedures; the symbol N indicates a non-reusable part; the tightening torque is provided where applicable.

- Removal steps:
  The part designation number corresponds to the number in the illustration to indicate removal steps.
- Disassembly steps:
  The part designation number corresponds to the number in the illustration to indicate disassembly steps.
- Installation steps:
  Specified in case installation is impossible in reverse order of removal steps. Omitted if installation is possible in reverse order of removal steps.
- Reassembly steps:
  Specified in case reassembly is impossible in reverse order of disassembly steps. Omitted if reassembly is possible in reverse order of disassembly steps.

Classifications of Major Maintenance/Service Points

When there are major points relative to maintenance and servicing procedures (such as essential maintenance and service points, maintenance and service standard values, information regarding the use of special tools, etc.), these are arranged together as major maintenance and service points and explained in detail.

◀A▶: Indicates that there are essential points for removal or disassembly.
▶A◀: Indicates that there are essential points fo installation or reassembly.

Symbols for Lubrication, Sealants and Adhesives

Information concerning the locations for lubrication and for application of sealants and adhesives is provided, by using symbols, in the diagram of component parts or on the page following the component parts page, and explained.


..... Grease
(multipurpose grease unless there is a brand or type specified)


Sealant or adhesive


.... Brake fluid, automatic transmission fluid


. Gear oil

TSB Revision

Indicates the group number.

Indicates the page number.

Indicates the group title.

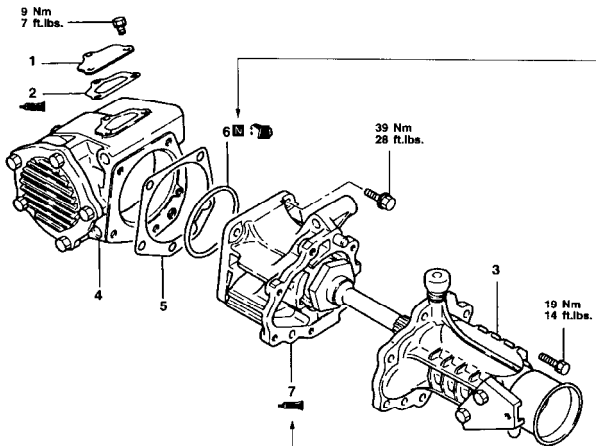
Indicates the section title.

22A-104 F4M2, F5M2, F5M3, W5M3 – Transfer <AWD>

Denotes tightening torque.

TRANSFER <AWD>

DISASSEMBLY AND REASSEMBLY



Denotes non-reusable part.

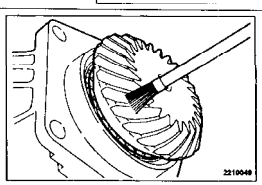
Lubricate all internal parts with gear oil during reassembly.

Z2210130

Disassembly steps

1. Cover
2. ▶C◀ Cover gasket
3. ▶B◀ Extension housing assembly
4. Transfer case sub assembly
5. Spacer
6. ▶A◀ O-ring
7. Transfer case adapter sub assembly

This number corresponds to the number appearing in "Removal steps", "Disassembly steps", "Installation steps" or "Reassembly steps".



REASSEMBLY SERVICE POINTS

Operating procedures, cautions, etc. on removal, installation, disassembly and reassembly are described.

▶A◀ **INSTALLATION OF TRANSFER CASE ADAPTER SUB ASSEMBLY**

(1) Apply a light and uniform coat of machine blue or red lead to the driven bevel gear teeth (both sides) using a brush.

TRANSAXLE/TRANSMISSION MODEL TABLE . . . . MODEL 1992

Model Code	Type	Diff.	Center Diff.	VCU	Center Diff. Lock	Vehicle Model
F4M21	FWD, 4-speed	X	—	—	—	Mirage
F5M21	FWD, 5-speed	X	—	—	—	Mirage
F5M22	FWD, 5-speed	X	—	—	—	Mirage, Expo-LRV Galant, Eclipse
F5M31	FWD, 5-speed	X	—	—	—	Expo, Galant
F5M33	FWD, 5-speed	X	—	—	—	Eclipse, 3000GT
W5M31	Full time AWD, 5-speed	X	X	X	—	Expo-LRV, Galant
W5M33	Full time AWD, 5-speed	X	X	X	—	Expo, Galant, Eclipse
W5MG1	Full time AWD, 5-speed	X	X	X	—	3000GT
R5M21	RWD, 5-speed	—	—	—	—	Truck
V5MT1	Part time AWD, 5-speed	—	X	X	X	Truck, Montero

Diff : Differential
VCU : Viscous coupling
FWD : Front wheel drive
RWD : Rear wheel drive
AWD: All wheel drive

TRANSAXLE/TRANSMISSION MODEL TABLE . . . . MODEL 1993

Model Code	Type	Diff.	Center Diff.	VCU	Center Diff. Lock	Vehicle Model
F5M21	FWD, 5-speed	X	—	—	—	Mirage
F5M22	FWD, 5-speed	X	—	—	—	Mirage, Expo-LRV Galant, Eclipse
F5M31	FWD, 5-speed	X	—	—	—	Expo, Galant
F5M33	FWD, 5-speed	X	—	—	—	Eclipse, 3000GT
W5M31	Full time AWD, 5-speed	X	X	X	—	Expo-LRV
W5M33	Full time AWD, 5-speed	X	X	X	—	Expo, Eclipse
W5MG1	Full time AWD, 5-speed	X	X	X	—	3000GT
R5M21	RWD, 5-speed	—	—	—	—	Truck
V5MT1	Part time AWD, 5-speed	—	X	X	X	Truck, Montero

Diff : Differential
VCU: Viscous coupling
FWD : Front wheel drive
RWD: Rear wheel drive
AWD : All wheel drive

TRANSAXLE/TRANSMISSION MODEL TABLE . . . . MODEL 1996

Model Code	Type	Diff.	Center Diff.	VCU	Center Diff. Lock	Vehicle Model
F5M21	FWD, 5-speed	X	—	—	—	Mirage
F5M22	FWD, 5-speed	X	—	—	—	Mirage, Expo-LRV
F5M31	FWD, 5-speed	X	—	—	—	Expo, Expo-LRV, Galant, Eclipse
F5M33	FWD, 5-speed	X	—	—	—	Eclipse, 3000GT
F5MC1	FWD, 5-speed	X	—	—	—	Eclipse
W5M33	Full time AWD, 5-speed	X	X	X	—	Expo, Expo-LRV, Eclipse
W6MG1	Full time AWD, 6-speed	X	X	X	—	3000GT
R5M21	RWD, 5-speed	—	—	—	—	Truck
V5MT1	Part time AWD, 5-speed	—	X	X	X	Montero

Diff. : Differential
VCU : Viscous coupling
FWD : Front wheel drive
RWD: Rear wheel drive
AWD : All wheel drive

TRANSAXLE/TRANSMISSION MODEL TABLE . . . . MODEL 1994

Model Code	Type	Diff.	Center Diff.	VCU	Center Diff. Lock	Vehicle Model
F5M21	FWD, 5-speed	X	—	—	—	Mirage
F5M22	FWD, 5-speed	X	—	—	—	Mirage, Expo-LRV, Eclipse
F5M31	FWD, 5-speed	X	—	—	—	Expo. Expo-LRV, Galant
F5M33	FWD, 5-speed	X	—	—	—	Eclipse, 3000GT
W5M33	Full time AWD, 5-speed	X	X	X	—	Expo, Eclipse
W5MG1	Full time AWD, 5-speed	X	X	X	—	3000GT
W6MG1	Full time AWD, 6-speed	X	X	X	—	3000GT
R5M21	RWD, 5-speed	—	—	—	—	Truck
V5MT1	Part time AWD, 5-speed	—	X	X	X	Truck, Montero

Diff : Differential
VCU : Viscous coupling
FWD : Front wheel drive
RWD: Rear wheel drive
AWD : All wheel drive

TRANSAXLE/TRANSMISSION MODEL TABLE . . . . MODEL 1995

Model Code	Type	Diff.	Center Diff.	VCU	Center Diff. Lock	Vehicle Model
F5M21	FWD, 5-speed	X	—	—	—	Mirage
F5M22	FWD, 5-speed	X	—	—	—	Mirage, Expo-LRV
F5M31	FWD, 5-speed	X	—	—	—	Expo, Expo-LRV, Galant
F5M33	FWD, 5-speed	X	—	—	—	Eclipse, 3000GT
F5MC1	FWD, 5-speed	X	—	—	—	Eclipse, Galant
W5M33	Full time AWD, 5-speed	X	X	X	—	Expo, Eclipse
W6MG1	Full time AWD, 6-speed	X	X	X	—	3000GT
R5M21	RWD, 5-speed	—	—	—	—	Truck
V5MT1	Part time AWD, 5-speed	—	X	X	X	Truck, Montero

Diff : Differential
VCU : Viscous coupling
FWD : Front wheel drive
RWD: Rear wheel drive
AWD : All wheel drive

NOTES

SPECIAL TOOL NOTE

Please refer to the special tool cross reference chart which is located in the service manual at the beginning of each group, for a cross reference from the MMC special tool number to the special tool number that is available in your market.

TORQUE REFERENCES

General tightening torque is as shown in the following table.
The specific part tightening torque is shown at the beginning of each group.

Thread size		Bolt with spring washer			Flange bolt	
Bolt nominal diameter (mm)	Pitch (mm)	Head mark 4 Nm (ftlbs.)	Head mark 7 Nm (ftlbs.)	Head mark 10 Nm (ftlbs.)	Head mark 4 Nm (ftlbs.)	Head mark 7 Nm (ftlbs.)
M5	0.8	—	5 (4)	—	—	6 (4)
M6	1.0	—	9 (7)	13 (9)	—	11 (8)
M8	1.25	11 (8)	18 (13)	30 (22)	14 (10)	24 (17)
M10	1.25	20 (14)	34 (25)	60 (43)	30 (22)	50 (36)
M12	1.25	36 (26)	62 (45)	108 (78)	55 (40)	90 (65)
M14	1.5	55 (40)	92 (67)	175 (127)	—	—

FORM-IN-PLACE GASKET

The transaxle and transmission has several areas where the form-in-place gasket (FIPG) is in use. To ensure that the gasket fully serves its purpose, it is necessary to observe some precautions when applying the gasket. Bead size, continuity and location are of paramount importance. Too thin a bead could cause leaks. Too thick a bead, on the other hand, could be squeezed out of location, causing blocking or narrowing of the fluid feed line. To eliminate the possibility of leaks from a joint, therefore, it is absolutely necessary to apply the gasket evenly without a break, while observing the correct bead size.
The FIPG used in the transaxle and transmission is a room temperature vulcanization (RTV) type and is supplied in a 120-gram tube (Part No. MD997740). Since the RTV hardens as it reacts with the moisture in the atmospheric air, it is normally used in the metallic flange areas.

Disassembly

The parts assembled with the FIPG can be easily disassembled without use of a special method. In some cases, however, the sealant between the joined surfaces may have to be broken by lightly striking with a mallet or similar tool. A flat gasket scraper may be lightly hammered in between the joined surfaces. In this case, however, care must be taken to prevent damage to the joined surfaces.

Surface Preparation

Thoroughly remove all substances deposited on the gasket application surfaces, using a gasket scraper or wire brush. Check to ensure that the surfaces to which the FIPG is to be applied is flat. Make sure that there are no oils, greases and foreign substances deposited on the application surfaces. Do not forget to remove the old sealant remained in the bolt holes.

Form-In-Place Gasket Application

When assembling parts with the FIPG, you must observe some precautions, but the procedure is very simple as in the case of a conventional precut gasket.
Applied FIPG bead should be of the specified size and without breaks. Also be sure to encircle the bolt hole circumference with a completely continuous bead. The FIPG can be wiped away unless it is hardened. While the FIPG is still moist (in less than 15 minutes), mount the parts in position. When the parts are mounted, make sure that the gasket are applied to the required area only.
The FIPG application procedure may vary on different areas. Observe the procedure described in the text when applying the FIPG.

SPECIFICATIONS

SERVICE SPECIFICATIONS

Items	Specifications (Limit)
Facing rivet sink mm (in.)	0.3 (.012)
Diaphragm spring end height difference mm (in.)	0.5 (.020)

TORQUE SPECIFICATIONS

Items	Nm	ft.lbs.
Clutch cover bolt	19	14
Release cylinder mounting bolt	19	14
Weight mounting bolt	19	14
Release cylinder union bolt	23	17
Release cylinder bleeder plug	11	8.0
Release fork fulcrum	36	24
Clutch chamber bracket mounting bolt	19	14
Clutch damper mounting bolt	9	6.5
Clutch damper bracket mounting bolt	19	14
Clutch line tube flare nut	15	11
Clutch damper bleeder plug	9	6.5
Clutch oil line bracket mounting bolt	19	14
3 way type connector mounting nut	19	14

LUBRICANTS

Items	Specified lubricants	Quantity
Clutch release cylinder inner surface	SAE JI703 (DOT 3)	As required
Piston and cup of surface		
Release fork fulcrum (except V5MT1)	Mitsubishi genuine grease Part No.0101011 or equivalent	As required
Clevis pin		
Clutch release fork shaft		
Clutch release bearing inside (except V5MTI and AWD)		
Clutch disc spline (except V5MTI)		
Clutch release bearing to release fork contact surface		
Clutch release bearing inside (V5MT1 only)	MOLYKOTE BR-2 PLUS	As required
Clutch disc spline (V5MTI only)		
Release fork fulcrum (V5MTI only)		

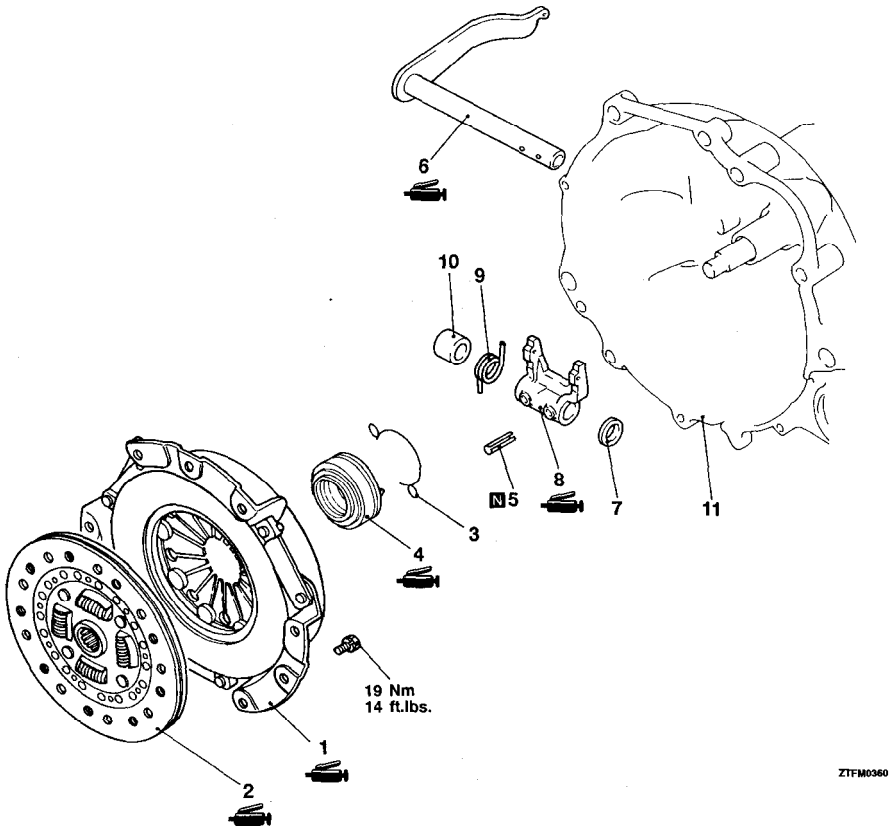
TSB Revision

CLUTCH

CONTENTS

CLUTCH

FRONT WHEEL DRIVE – CABLE CONTROL TYPE

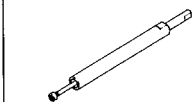


Removal steps

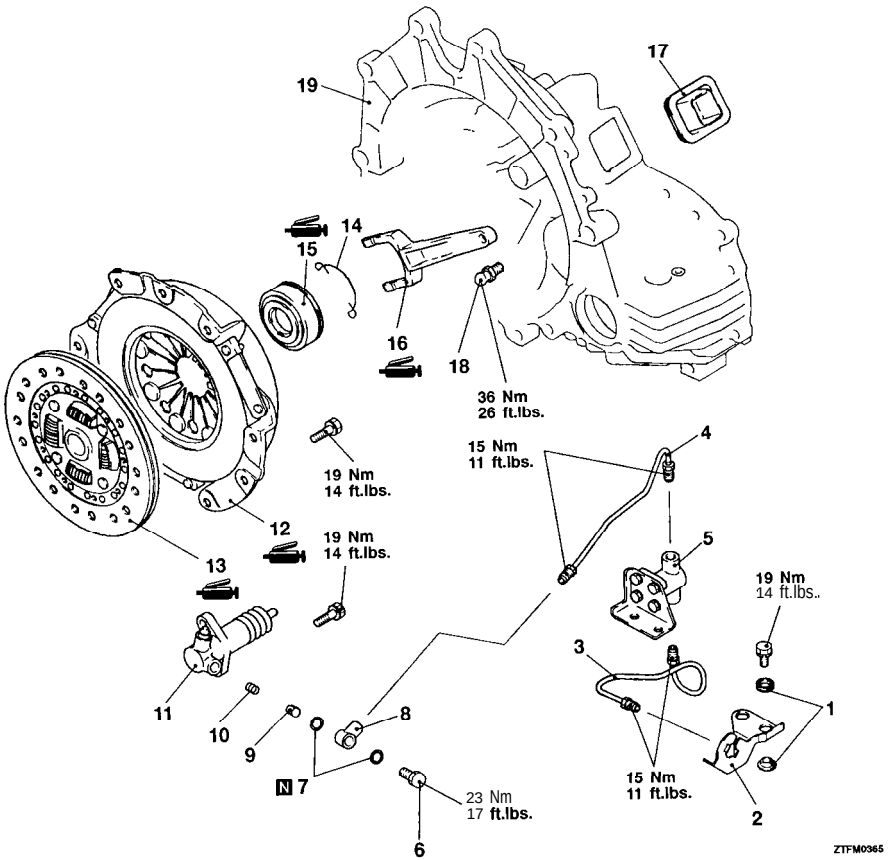
- ▶G◀ 1. Clutch cover
- ▶G◀ 2. Clutch disc
- 3. Return clip
- ▶F◀ 4. Clutch release bearing
- ◀A▶ ▶E◀ 5. Spring pin
- ▶A◀ 6. Release fork shaft
- 7. Packing
- ▶C◀ 8. Release fork
- 9. Return spring
- 10. Packing
- 11. Transaxle

TSB Revision

SPECIAL TOOL

Tool	Tool number and name	Supersession	Application
	MD998807 Lock pin remover	MD998807	Removal of spring pin

FRONT WHEEL DRIVE – HYDRAULIC CONTROL TYPE

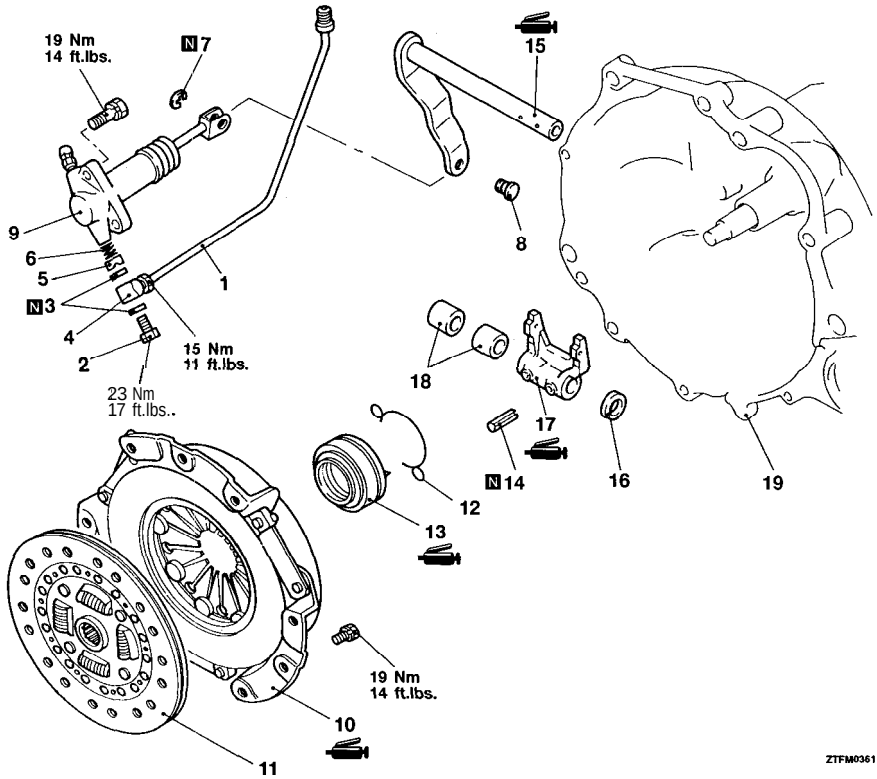


Disassembly Steps

1. Insulator
2. Clutch oil line bracket
3. Clutch oil tube (A)
4. Clutch oil tube
5. Clutch damper
6. Union bolt
7. Gasket
8. Union
9. Valve plate
10. Valve plate spring
11. Clutch release cylinder
12. Clutch cover ▶G◀
13. Clutch disc ▶G◀
14. Return clip
15. Clutch release bearing ▶F◀
16. Release fork ◀B▶ ▶D◀
17. Release fork boot
18. Fulcrum
19. Transaxle

TSB **Revision**

FRONT WHEEL DRIVE – HYDRAULIC CONTROL TYPE

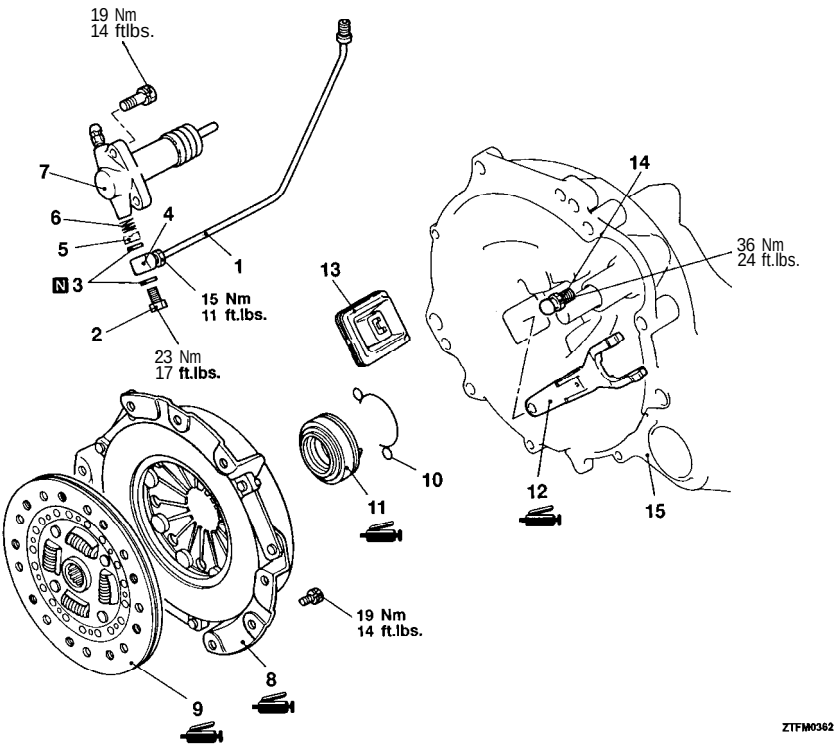


Removal steps

1. Clutch oil tube
2. Union bolt
3. Gasket
4. Union
5. Valve plate
6. Valve plate spring
7. Snap ring
8. Clevis pin
9. Clutch release cylinder
- ▶G◀ 10. Clutch cover
- ▶G◀ 11. Clutch disc
- 12. Return clio
- ▶F◀ 13. Clutch release bearing
- ◀A▶ ▶E◀ 14. Spring pin
- ▶A◀ 15. Release fork shaft
- 16. Packing
- ▶C◀ 17. Release fork
- 18. Packing
- 19. Transaxle

TSB Revision

FRONT WHEEL DRIVE – HYDRAULIC CONTROL TYPE



Removal steps

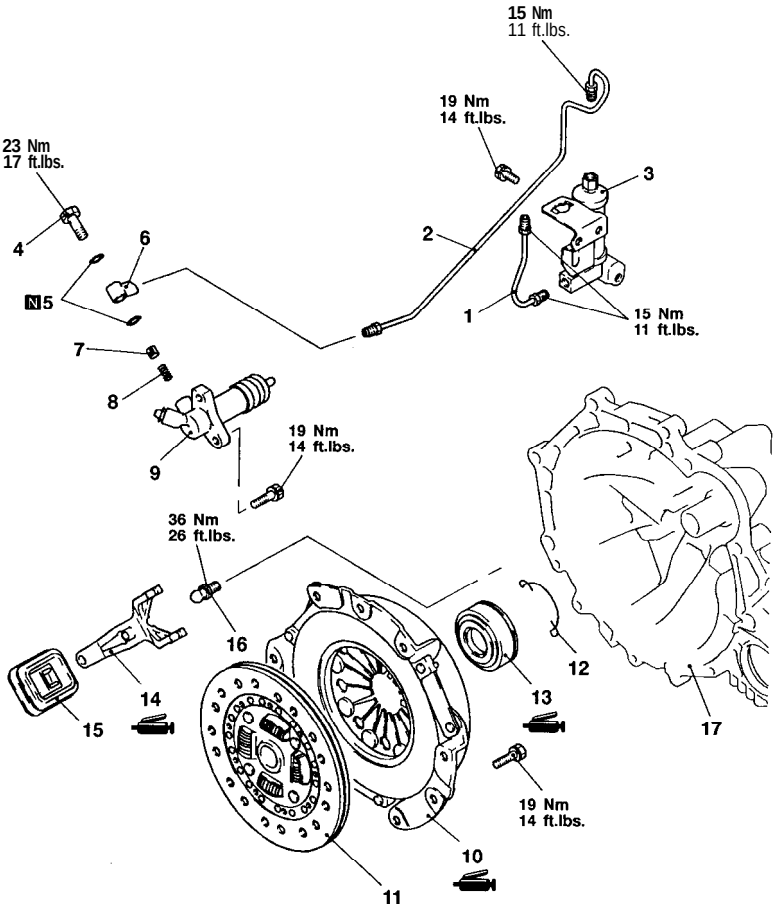
1. Clutch oil tube
2. Union bolt
3. Gasket
4. Union
5. Valve plate
6. Valve plate Spring
7. Clutch release cylinder

▶G◀ 6. Clutch cover

▶G◀ 9. Clutch disc
10 Return clip
▶F◀ 11. Clutch release bearing
◀B▶ ▶D◀ 12. Release fork
13. Release fork boot
14. Fulcrum
15. Transaxle

TSB **Revision**

FRONT WHEEL DRIVE – HYDRAULIC CONTROL TYPE



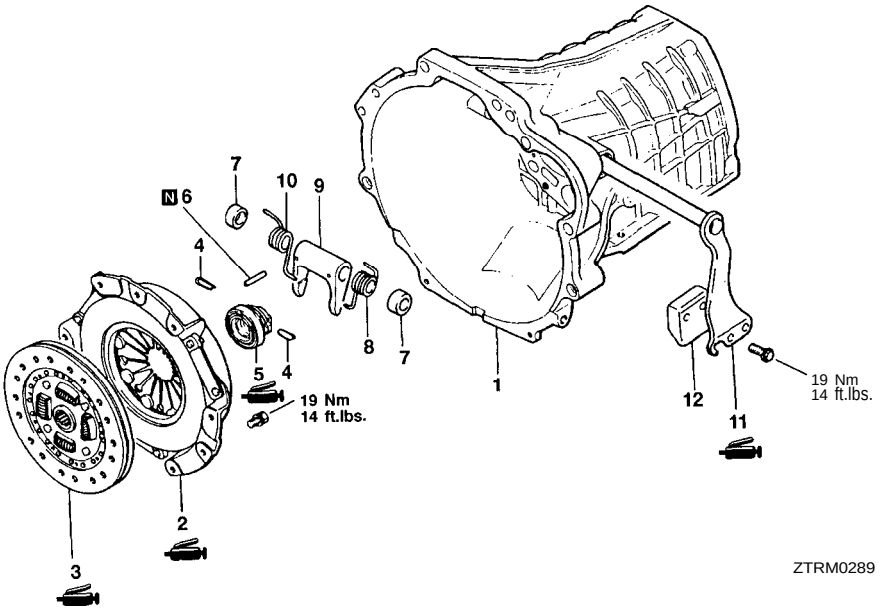
ZTFM0359

Disassembly steps

1. Clutch oil tube (A)
2. Clutch oil tube
3. Clutch oil fluid chamber
4. Union bolt
5. Gasket
6. Union
7. Valve plate
6. Valve plate spring
9. Clutch release cylinder
- ▶G◀ 10. Clutch cover
- ▶G◀ 11. Clutch disc
- 12. Return clip
- ▶F◀ 13. Clutch release bearing
- ◀B▶ ▶D◀ 14. Release fork
- 15. Release fork boot
- 16. Fulcrum
- 17. Transaxle

TSB Revision

REAR WHEEL DRIVE – CABLE CONTROL TYPE

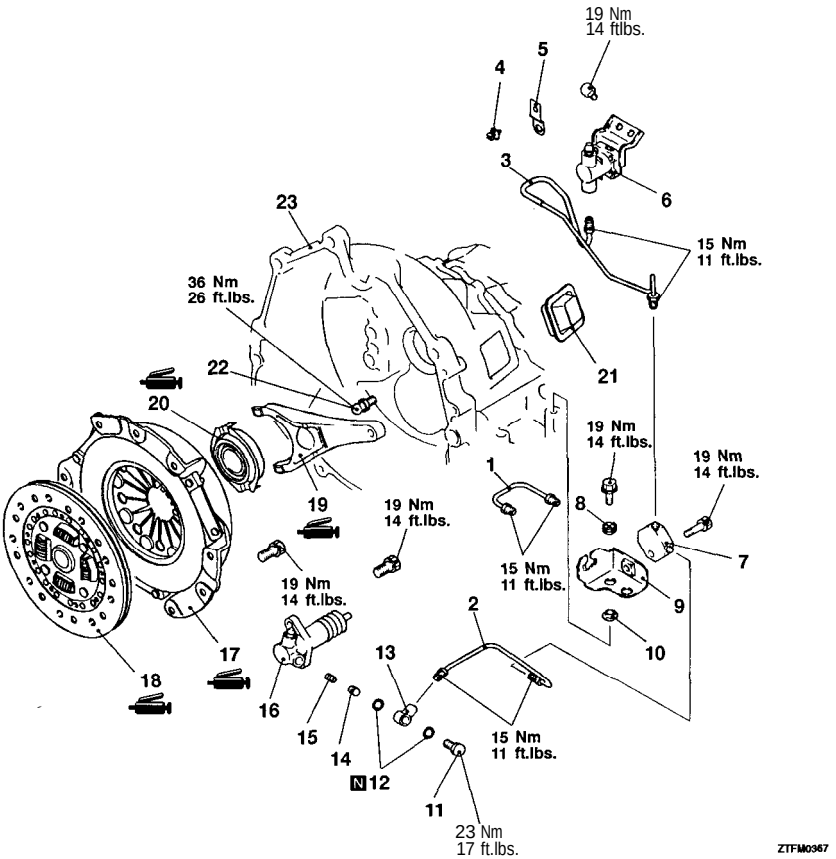


Removal steps

1. Transmission
- ▶G◀ 2. Clutch cover
- ▶G◀ 3. Clutch disc
4. Return clip
- ▶F◀ 5. clutch release bearing
- ▶E◀ 6. Spring pin
7. Packing
8. Return Spring left
9. Release fork
10. Return spring right
- ▶B◀ 11. Release fork shaft
12. Weight

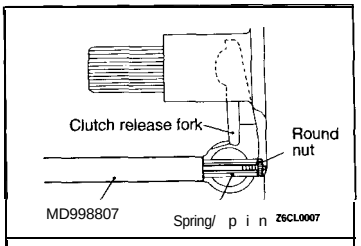
TSB Revision

FRONT WHEEL DRIVE – HYDRAULIC CONTROL TYPE



Disassembly steps

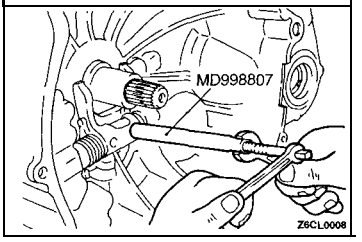
1. Clutch oil tube (A)
2. Clutch oil tube
3. Clutch damper oil tube
4. Clip
5. Bracket
6. Clutch damper
7. 3 way type connector
8. Insulator
9. Clutch oil line bracket
10. Washer
11. Union bolt
12. Gasket
13. Union
14. Valve plate
15. Valve plate spring
16. Clutch release cylinder
17. ▶G◀ Clutch cover
18. ▶G◀ Clutch disc
19. ◀B▶ ▶D◀ Release fork
20. ▶F◀ Clutch release bearing
21. Release fork boot
22. Fulcrum
23. Transaxle



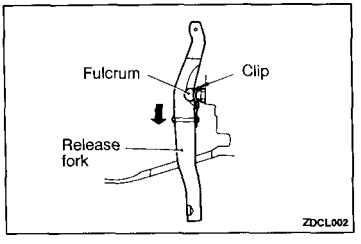
REMOVAL SERVICE POINTS

◀A▶ SPRING PIN REMOVAL

(1) Insert the special tool in the spring pin, and attach the round nut to the end of the tool.



(2) While holding the shaft of the special tool, rotate the sleeve to force out the spring pin.



◀B▶ELEASE FORK REMOVAL

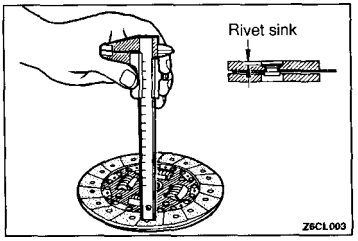
Slide release fork in direction of arrow and disengage fulcrum from clip to remove release fork. Be careful not to cause damage to clip by pushing release fork in the direction other than that of arrow and removing it with force.

INSPECTION

CLUTCH COVER ASSEMBLY

. Check the diaphragm spring end for wear and uneven height.
Replace if wear is evident or height difference exceeds the limit.
Limit: 0.5 **mm (.020 in.)**

- Check the pressure plate surface for wear, cracks and seizure.
- Check the strap plate rivets for looseness and replace the clutch cover assembly if loose.

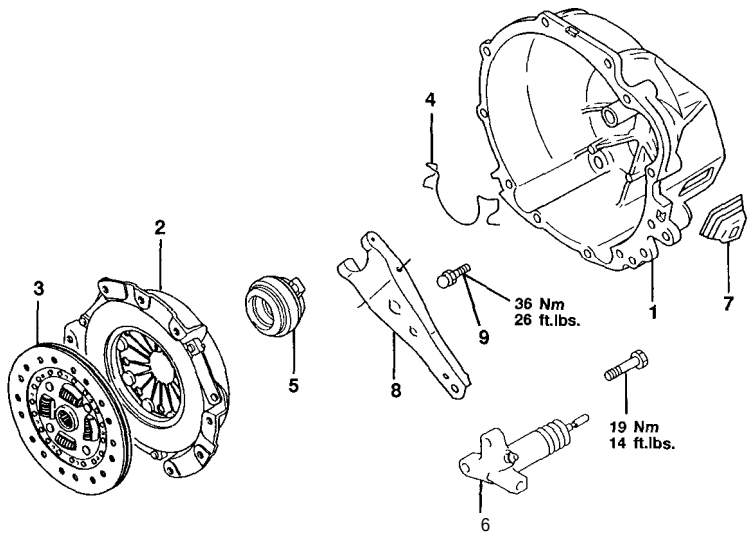


CLUTCH DISC

- Check the facing for loose rivets, uneven contact, deterioration due to seizure, adhesion of oil or grease, and replace the clutch disc if defective.
- Measure the rivet sink and replace the clutch disc if it is out of specification.

Limit: 0.3 mm (.012 in.)

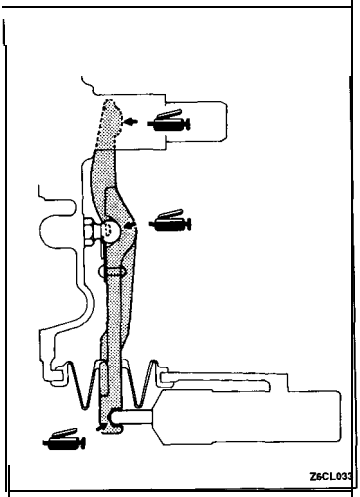
REAR WHEEL DRIVE – HYDRAULIC CONTROL TYPE



ATRM0659

Removal steps

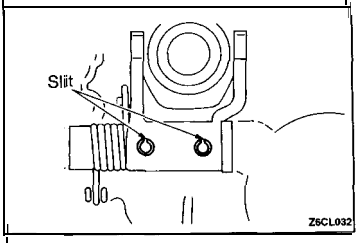
1. Transmission
2. Clutch cover
3. Clutch disc
4. Return spring
5. Clutch release bearing
6. Release cylinder
7. Boot
8. Release fork
9. Fulcrum



▶D◀ REASE APPLICATION TO RELEASE FORK

Specified grease:

MITSUBISHI genuine grease Part No. 0101011 or equivalent

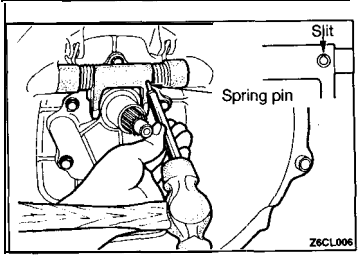


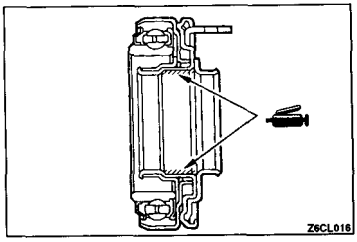
▶E◀ SPRING PIN INSTALLATION

Drive the spring pin with its slit located as shown in the illustration.

Caution

Do not reuse the spring pins.





▶F◀ GREASE APPLICATION TO CLUTCH RELEASE BEARING

Specified grease:

MITSUBISHI genuine grease Part No. 0101011 or equivalent

TSB Revision

- Check for torsion spring play and damage and if defective, replace the clutch disc.
- Combine the clutch disc with the input shaft and check sliding condition and play in the rotating direction. If it does not slide smoothly or the play is excessive, check after cleaning and reassembling. If the play is excessive, replace the clutch disc and/or the input shaft.

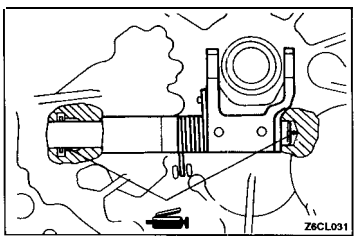
CLUTCH RELEASE BEARING

Caution
Release bearing is packed with grease. Therefore do not wash it in cleaning solvent or the like.

- Check bearing for seizure, damage, noise, or improper rotation. Check also diaphragm spring contact surface for wear.
- Replace bearing if its release fork contact surface is abnormally worn,

RELEASE FORK

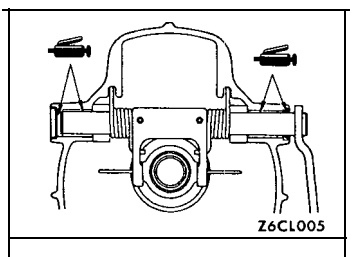
- Replace release fork if its bearing contact surface is abnormally worn.



INSTALLATION SERVICE POINTS

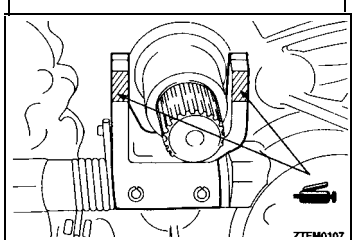
▶A◀ GREASE APPLICATION TO RELEASE FORK SHAFT

Specified grease:
Mitsubishi genuine grease Part No.0101011 or equivalent



▶B◀ GREASE APPLICATION TO RELEASE FORK SHAFT

Specified grease:
Mitsubishi genuine grease Part No.0101011 or equivalent

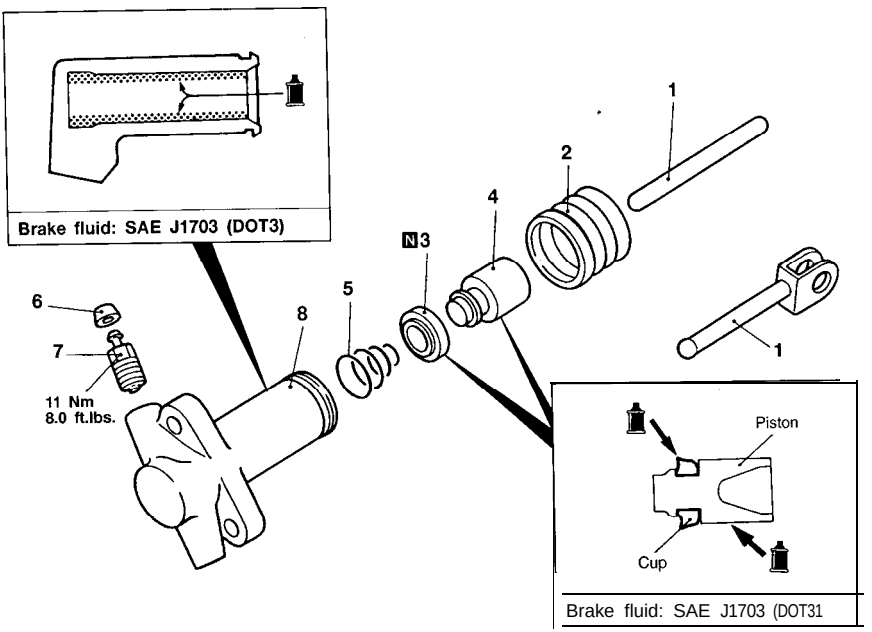


▶C◀ GREASE APPLICATION TO RELEASE FORK

Specified grease:
Mitsubishi genuine grease Part No.0101011 or equivalent

CLUTCH RELEASE CYLINDER

FRONT WHEEL DRIVE TYPE

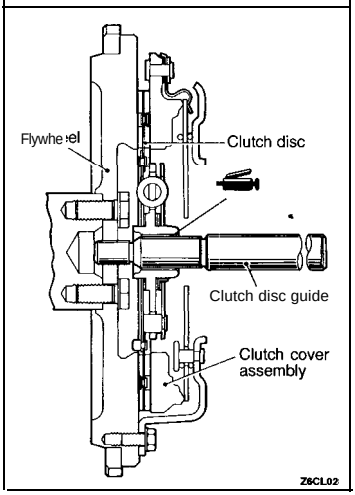


ATRM0660

Disassembly steps

1. Push rod
2. Boot
◀A▶ 3. Piston cup
◀A▶ 4. Piston
5. Conical spring
6. Cap
7. Bleeder plug
8. Release cylinder

TSB Revision



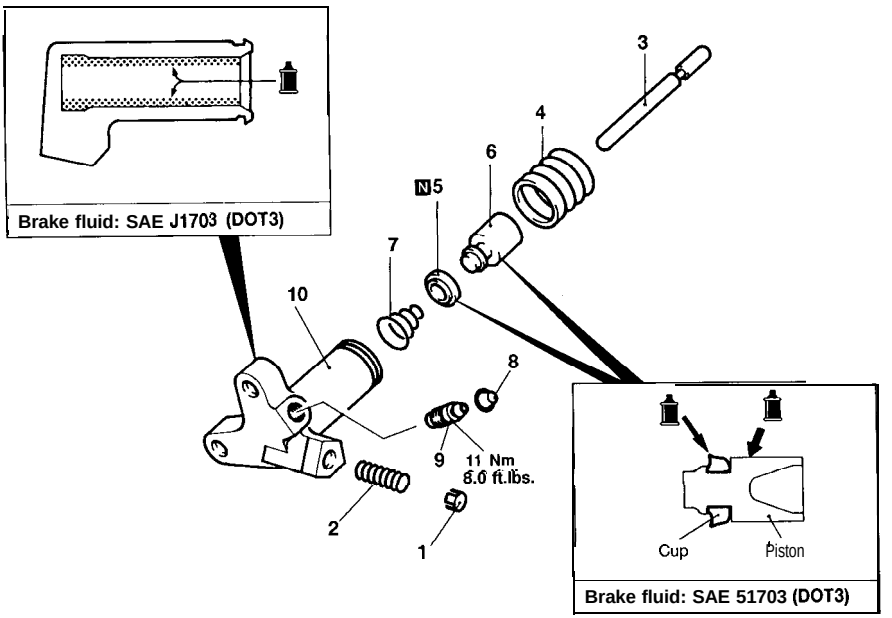
▶G◀ CLUTCH DISC/CLUTCH COVER ASSEMBLY INSTALLATION

(1) Apply specified grease to clutch disc splines and squeeze it in place with a brush.

Specified grease:
MITSUBISHI genuine grease Part No. 0101011 or equivalent

(2) Using clutch disc guide to position clutch disc on flywheel.

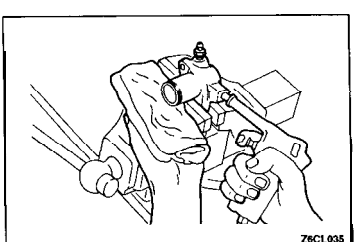
REAR WHEEL DRIVE TYPE



ATRM0662

Disassembly steps

1. Valve plate
2. Spring
3. Push rod
4. Boot
◀A▶ 5. Piston cap
◀A▶ 6. Piston
7. Conical spring
8. Cap
9. Bleeder plug
10. Release cylinder



DISASSEMBLY SERVICE POINT

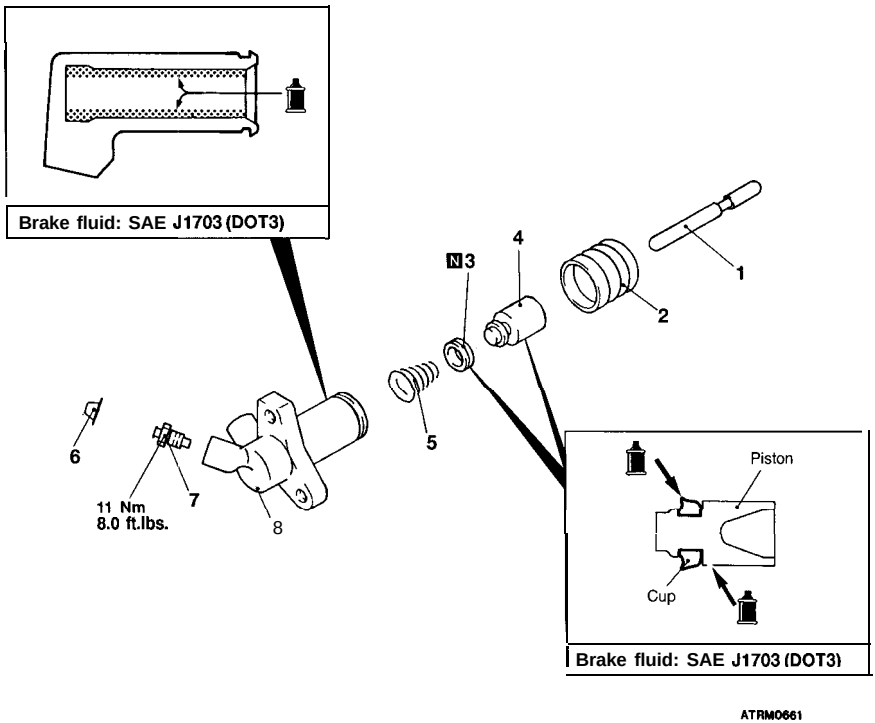
◀A▶ PISTON AND PISTON CAP REMOVAL

Remove the piston from the release cylinder using compressed air.

Caution

1. Cover with shop towel to prevent the piston from popping out.
2. Apply compressed air slowly to prevent brake fluid from splashing.

FRONT WHEEL DRIVE TYPE

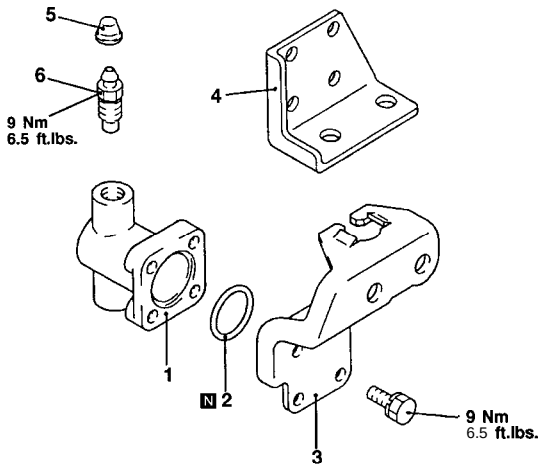


Disassembly steps

1. Push rod
2. Boot
3. Piston cup ◀A▶
4. Piston ◀A▶
5. Conical spring
6. Cap
7. Bleeder plug
8. Release cylinder

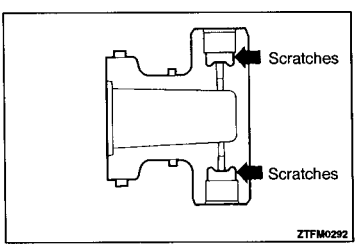
CLUTCH DAMPER

DISASSEMBLY AND REASSEMBLY



Disassembly steps

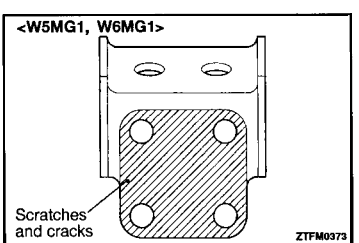
1. Clutch damper
▶A◀ 2. O-ring
3. Clutch damper bracket (W5MG1, W6MG1 only)
4. Clutch damper bracket (F5M33-2-SNQR, F5M33-2-SUQR only)
5. Cap
6. Bleeder plug



INSPECTION

CLUTCH DAMPER

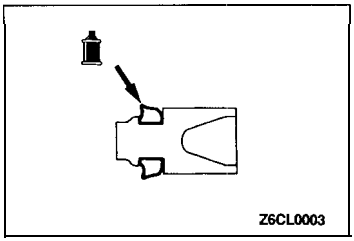
- Check that there are no scratches on the parts indicated in the illustration.
- Clean completely the inside of the clutch damper and confirm that there is no foreign material left.



CLUTCH DAMPER BRACKET

- Check that there are no scratches of cracks on the part indicated in the drawing.

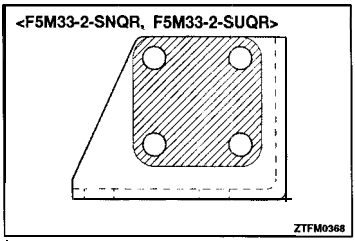
TSB Revision

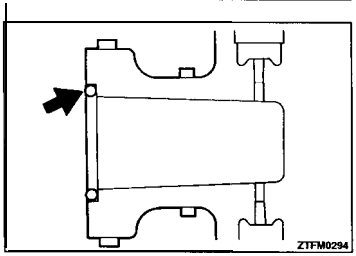


INSPECTION

(1) Check the inner surface of the release cylinder for scratches or irregular wear.
(2) Replace if the piston cup outer circumference is scratched or shows signs of fatigue, or if there is excessive wear of the lip where indicated in the figure.

NOTES





INSTALLATION SERVICE POINT

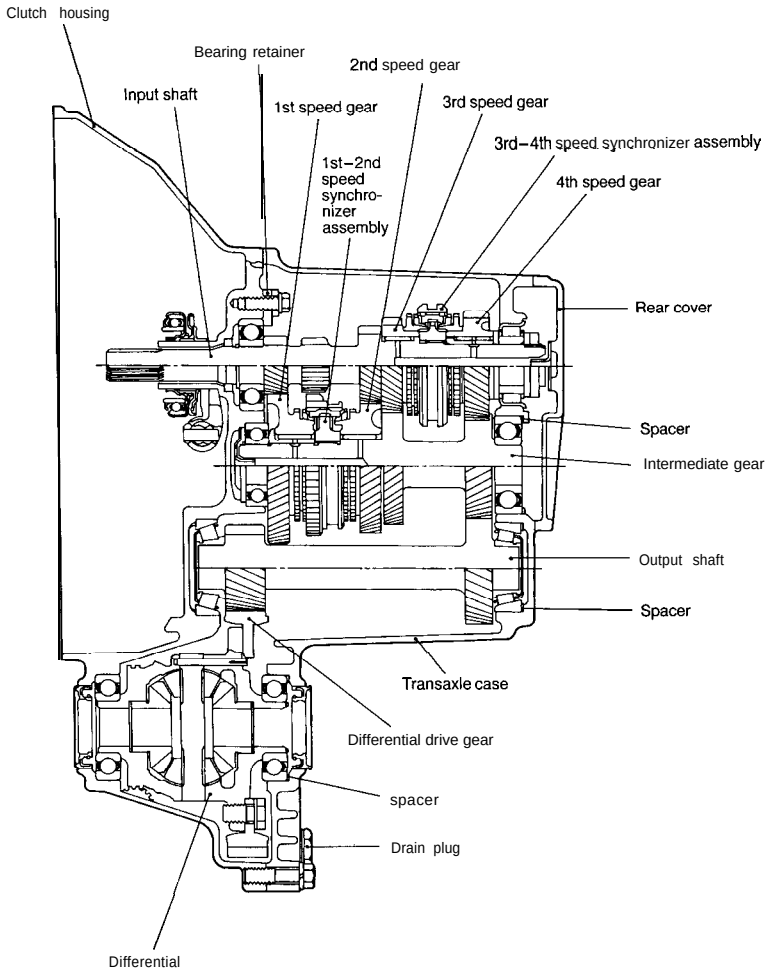
◆A◆ O-RING INSTALLATION

Apply the specified brake fluid onto the O-ring, and securely install it onto the position of the clutch damper indicated in the illustration.

Specified brake fluid: SAE J1703 (DOT3)

GENERAL INFORMATION

SECTIONAL VIEW – F4M21



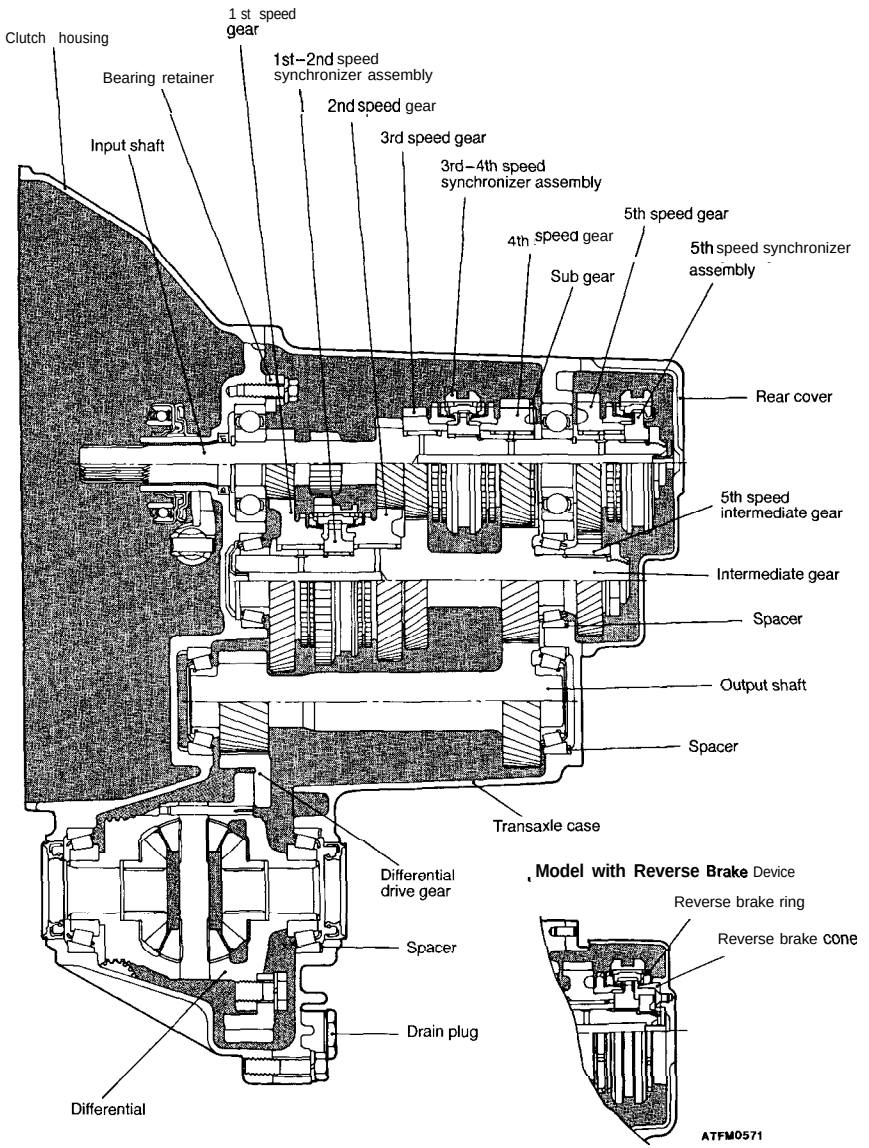
Z2000001

MANUAL TRANSAXLE

F4M2, F5M2, F5M3, W5M3

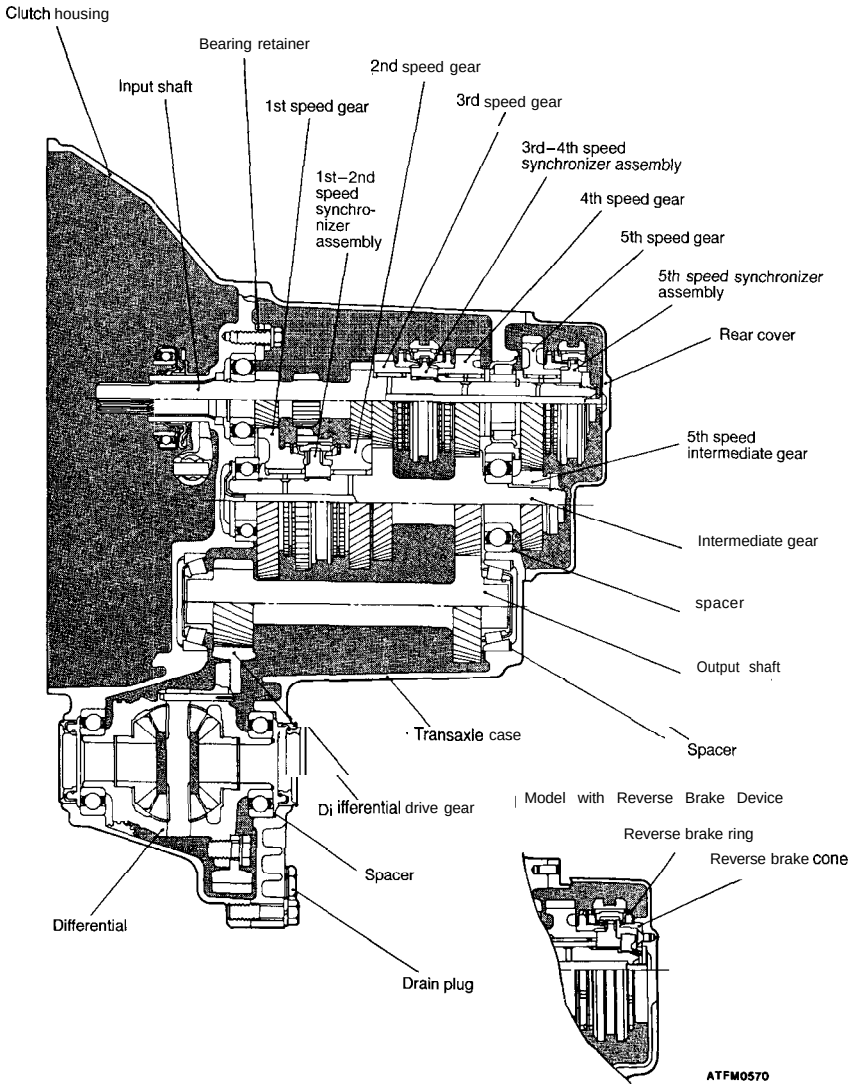
CONTENTS

SECTIONAL VIEW – F5M22



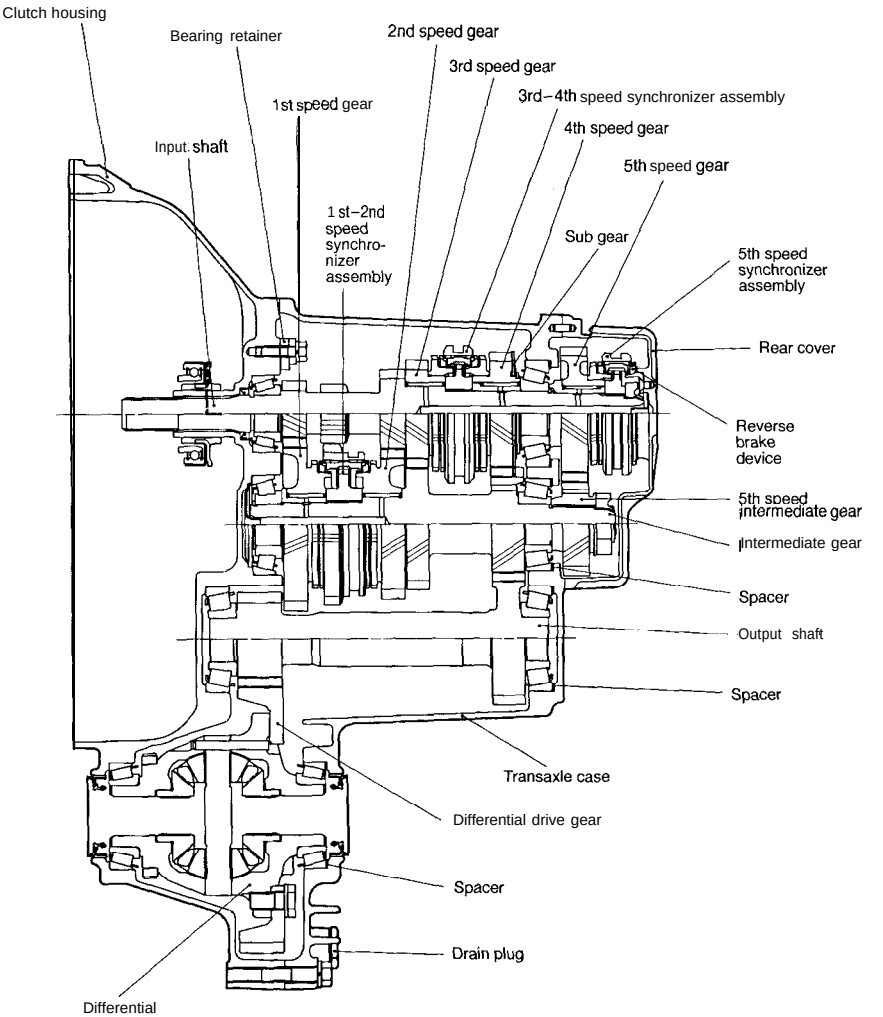
TSB Revision

SECTIONAL VIEW -- F5M21



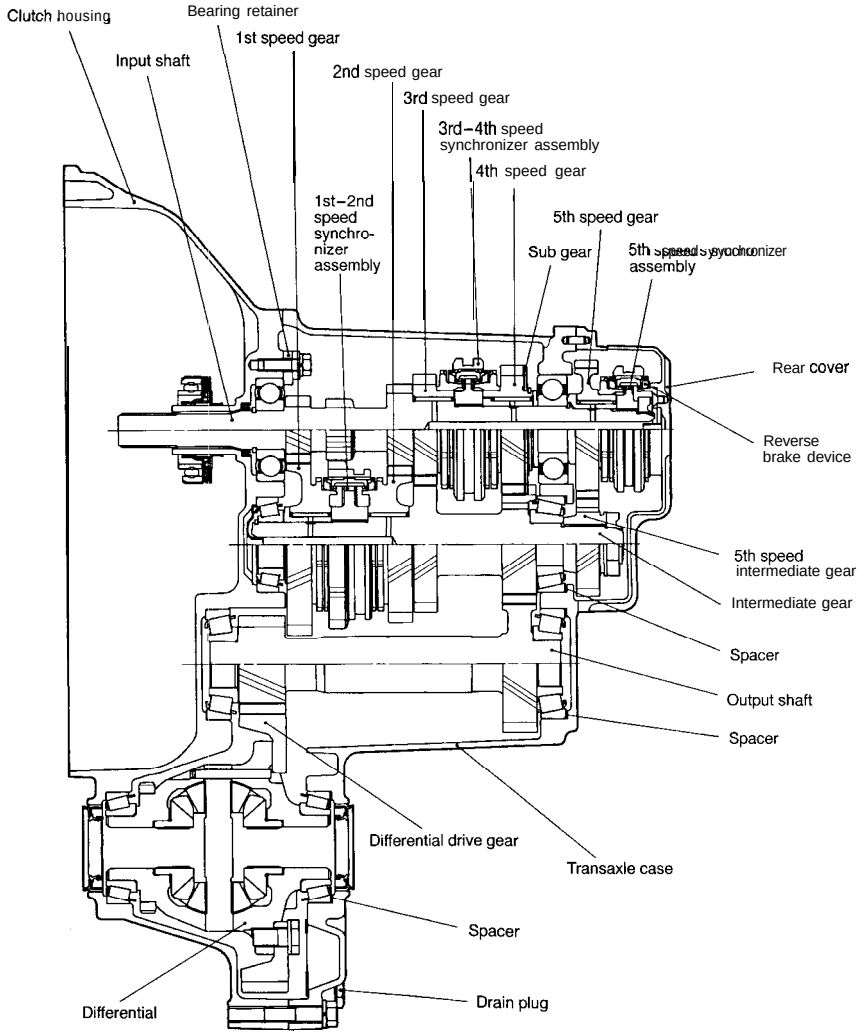
TSB Revision

SECTIONAL VIEW – F5M33



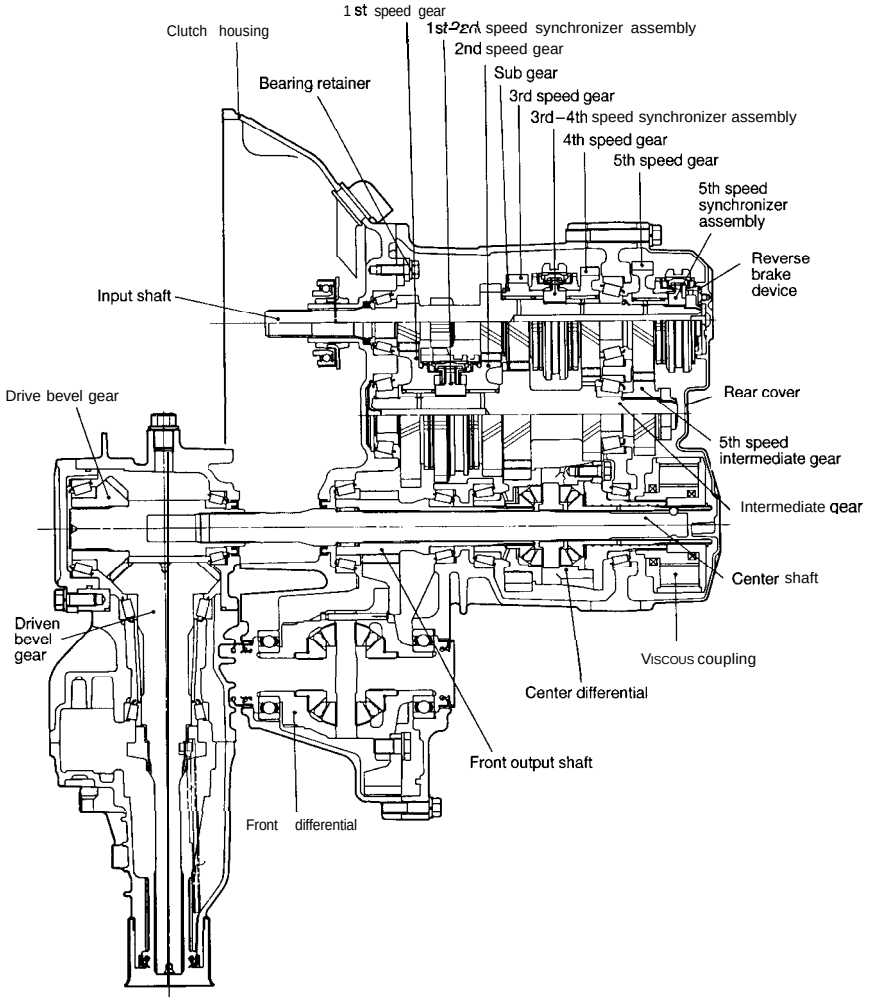
ZTFM0025

SECTIONAL VIEW – F5M31



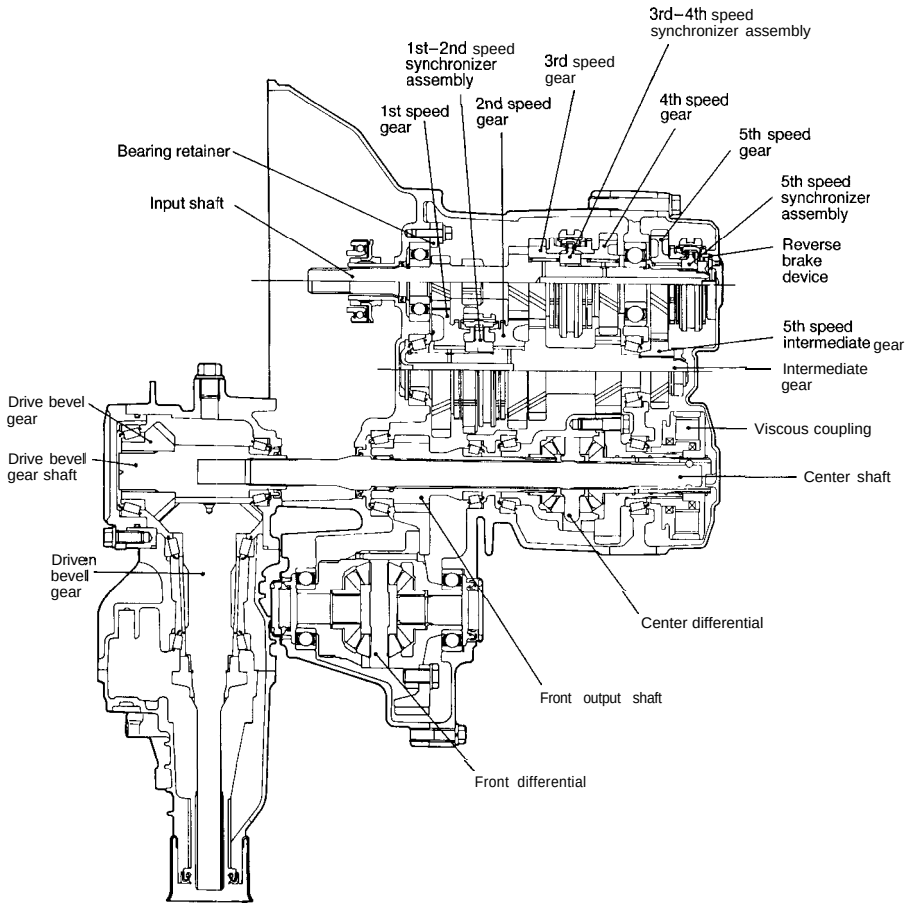
ZTFM0275

SECTIONAL VIEW – W5M33



ZTFM0014

SECTIONAL VIEW – W5M31



ZTFM0013

Transaxle model	Gear ratio	Speedometer gear ratio	Final gear ratio	Vehicle model	Engine model
F5M33-2-SPQV	H	29/36	4.153	D22A	4G62-DOHC Turbo
W5M31-2-VZXL	I	28/36	5.208	N21W	4G93
W5M33-2-NNXL	L	28/36	4.933	N24W, N44W	4G64
W5M33-2-NPXV	K	29/36	4.933	D27A	4G63-DOHC Turbo

TRANSAXLE MODEL TABLE . . . . MODEL 1994

Transaxle model	Gear ratio	Speedometer gear ratio	Final gear ratio	Vehicle model	Engine model
F5M21-2-FRAE	B	31136	3.752	CA2A, CB2A	4G15
F5M21-2-FSAE	B	32/36	3.752	CA2A	4G15
F5M22-1-VPKV	C	29/36	4.322	D21A	4G37
F5M22-2-RRKE	B	31136	4.021	CA5A	4G93
F5M22-2-RQKE	B	30/36	4.021	CA5A, CB5A	4G93
F5M22-2-VPZV	C	29/36	4.322	D22A	4G63-DOHC
F5M22-2-XNXL	E	28/36	*4.592*	N11W	4G93
F5M31-2-VNXL	G	28/36	4.322	N14W, N34W	4G64
F5M31-2-VPXF	G	29/36	4.322	E56A	4G64
F5M31-2-VPZF	G	29/36	4.322	E56A	4G64-DOHC
F5M33-2-SNQR	H	28/36	4.153	Z11A	6G72-DOHC
F5M33-2-SPQV	H	29/36	4.153	D22A	6G63-DOHC Turbo
W5M33-2-NNXL	L	28/36	*4.933*	N44W	4G64
W5M33-2-NPXV	K	29/36	*4.933*	D27A	4G63-DOHC Turbo

SPECIFICATIONS

TRANSAXLE MODEL TABLE . . . . MODEL 1992

Transaxle model	Gear ratio	Speedometer gear ratio	Final gear ratio	Vehicle model	Engine model
F4M21-1-BRAC	A	31/36	3.454	C52A	4G15
F5M21-1-RRJC	B	31/36	4.021	C52A, C62A	4G15
F5M22-1-VPKV	C	29/36	4.322	D21A	4G37
F5M22-1-RPKK	C	29/36	4.021	E33A	4G63
F5M22-2-XRZC	D	31/36	4.592	C63A	4G61-DOHC
F5M22-2-XNXL	E	28/36	4.592	N11 W	4G93
F5M22-2-VPZV	C	29/36	4.322	D22A	4G63-DOHC
F5M31-2-ZQZK	F	30/36	4.913	E33A	4G63-DOHC
F5M31-2-VNXZ	G	28/36	4.322	N34W	4G64
F5M33-2-SPZV	H	29/36	4.153	D22A	4G63-DOHC Turbo
F5M33-2-SNZR	H	28/36	4.153	Z11A	6G72-DOHC
W5M31-2-VNXL	I	28/36	5.208	N21W	4G93
W5M31-2-VQBK	J	30/36	5.208	E38A	4G63-DOHC
W5M33-2-NNXZ	K	28/36	4.933	N44W	4G64
W5M33-2-NQBM	L	30/36	4.933	E39A	4G63-DOHC Turbo
W5M33-2-NPXV	L	29/36	4.933	D27A	4G63-DOHC Turbo

TRANSAXLE MODEL TABLE . . . . MODEL 1993

Transaxle model	Gear ratio	Speedometer gear ratio	Final gear ratio	Vehicle model	Engine model
F5M21-2-FRAE	B	31/36	3.752	CA2A	4G15
F5M21-2-FSAE	B	32/36	3.752	CA2A, CB2A	4G15
F5M22-1-VPKV	C	29/36	4.322	D21A	4G37
F5M22-2-RPKK	C	29/36	4.021	E33A	4G63-DOHC
F5M22-2-RQZK	F	30/36	4.021	E33A	4G63-DOHC
F5M22-2-RRKE	B	31/36	4.021	CB5A	4G93
F5M22-2-VPZV	C	29/36	4.322	D22A	4G63-DOHC
F5M22-2-XNXL	E	28/36	4.592	N11W	4G93
F5M31-2-VNXL	G	28/36	4.322	N14W, N34W	4G64
F5M31-2-ZQZK	F	30/36	4.913	E33A	4G63-DOHC
F5M33-2-SNQR	H	28/36	4.153	Z11A	6G72-DOHC

TSB Revision

GEAR RATIO TABLE

	A	B	C	D	E	F	G	H	I	J	K	L
1st	3.363	3.363	3.363	3.083	3.454	2.846	3.166	3.090	3.083	2.846	3.083	2.846
2nd	1.947	1.947	1.947	1.947	1.947	1.833	1.833	1.833	1.684	1.684	1.684	1.684
3rd	1.285	1.285	1.285	1.285	1.285	1.217	1.240	1.217	1.115	1.115	1.115	1.115
4th	0.939	0.939	0.939	0.939	0.939	0.888	0.896	0.888	0.833	0.833	0.833	0.833
5th	—	0.777	0.756	0.756	0.756	0.731	0.731	0.741	0.690	0.690	0.666	0.666
Reverse	3.083	3.083	3.083	3.083	3.083	3.166	3.166	3.166	3.166	3.166	3.166	3.166
Transfer	—	—	—	—	—	—	—	—	1.090	1.090	1.090	1.090

SERVICE SPECIFICATIONS <FWD>

Items	Standard value
Differential case end play <F4M21, F5M21> mm (in.)	0.05–0.17 (.0020–.0067)
Differential case preload <F5M22, F5M31, F5M33> mm (in.)	0.05–0.10 (.0020 –.0040)
Differential pinion backlash <All models> mm (in.)	0.025–0.150 (.00098–.00591)
Input shaft front bearing end play <F4A21, F5M21, F5M22, F5M31> mm (in.)	0.01–0.12 (.0004–.0047)
Input shaft end play <F5M33> mm (in.)	0–0.05 (0–.0020)
Input shaft rear bearing end play <F5M21, F5M22, F5M31, F5M33> mm (in.)	0–0.09 (0–.00354)
Intermediate gear bearing end play <F4M21, F5M21, F5M22, F5M33> mm (in.)	0.01–0.14 (.0004–.0055)
Intermediate gear bearing end play <F5M31> mm (in.)	0.01–0.11 (.0004–.0044)
Intermediate gear end play <F4M21, F5M21> mm (in.)	0.05–0.17 (.0020–.0067)
Intermediate gear preload <F5M22, F5M31, F5M33> mm (in.)	0.05–0.10 (.0020–.0040)
Output shaft preload <All models> mm (in.)	0.05–0.10 (.0020–.0040)

TSB Revision

TRANSAXLE MODEL TABLE . . . . MODEL 1995

Transaxle model	Gear ratio	Speedometer gear ratio	Final gear ratio	Vehicle model	Engine model
F5M21-2-FRAE	B	31136	3.752	CA2A, CB2A	4G15
F5M21-2-FSAE	B	32/36	3.752	CA2A	4G15
F5M22-2-RQKE	B	30/36	4.021	CA5A, CB5A	4G93
F5M22-2-XPXL	B	29/36	4.592	N11W	4G93
F5M31-2-VNXL	G	28/36	4.322	N14W, N34W	4G64
F5M31-2-VVXF	G	29/36	4.322	E56A	4G64
F5M31-2-VVZF	G	29/36	4.322	E56A	4G64-DOHC
F5M33-2-SPZT	H	29/36	4.153	D32A	4G63-DOHC Turbo
F5M33-2-SUQR	H	28/36	4.153	Z11A	6G72-DOHC
W5M33-2-NNXL	L	28/36	4.933	N44W	4G64
W5M33-2-NPZT	K	29/36	4.933	D33A	4G63-DOHC Turbo

TRANSAXLE MODEL TABLE . . . . MODEL 1996

Transaxle model	Gear ratio	Speedometer gear ratio	Final gear ratio	Vehicle model	Engine model
F5M21-2-FRAE	B	31/36	3.752	CA2A	4G15
F5M21-2-FSAE	B	32/36	3.752	CA2A	4G15
F5M22-2-FRAE	B	31/36	3.752	CB2A	4G15
F5M22-2-RQKE	B	30/36	4.021	CA5A, CB5A	4G93
F5M22-2-RRKE	B	31136	4.021	CB5A	4G93
F5M22-2-XPXL	B	29/36	4.592	N11W	4G93
F5M31-2-VNXL	G	28/36	4.322	N14W, N34W	4G64
F5M31-2-VPXL	G	29/36	4.322	N14W	4G64
F5M31-2-VVXF	G	29/36	4.322	E56A	4G64-DOHC
F5M31-2-VVXT	G	29/36	4.322	D34A	4G64
F5M33-2-SPZT	H	29/36	4.153	D32A	4G63-DOHC Turbo
F5M33-2-SUQR	H	28/36	4.153	Z11A	6G72-DOHC
W5M33-2-MNXL	L	28/36	3.908	N24W, N44W	4G64
W5M33-2-NPZT	K	29/36	4.933	D33A	4G63-DOHC Turbo

SNAP RINGS AND SPACERS ADJUSTMENT

Part name	Thickness mm (in.)	Identification symbol	Part No.
Snap ring For adjustment of input shafl front bearing end play)	2.24 (.0882)	None	MD706537
	2.31 (.0909)	Blue	MD706538
	2.38 (.0937)	Brown	MD706539
Snap ring: F5M21, F5M22 For adjustment of input shaft rear bearing end play)	1.80 (.0709)	Blue	MD730785
	1.87 (.0736)	White	MD730786
	1.94 (.0764)	None	MD730787
	2.01 (.0791)	Green	MD730788
	2.08 (.0819)	Yellow	MD730834
	2.15 (.0846)	Brown	MD730835
Snap ring: F5M31, F5M33, W5M31, W5M33 For adjustment of input shafl rear bearing end play)	1.40 (.0551)	Blue	MD723276
	1.45 (.0571)	Purple	MD730889
	1.50 (.0591)	Red	MD723277
	1.55 (.0610)	White	MD730890
	1.60 (.0630)	Yellow	MD723278
	1.65 (.0650)	Brown	MD730891
	1.70 (.0670)	Green	MD723279
	1.75 (.0689)	Orange	MD730892
Spacer: F5M33, W5M33 For adjustment of input shaft end play)	0.80 (.0315)	80	MD727661
	0.83 (.0327)	83	MD720937
	0.86 (.0338)	86	MD720938
	0.89 (.0350)	89	MD720939
	0.92 (.0362)	92	MD720940
	0.95 (.0374)	95	MD720941
	0.98 (.0386)	98	MD720942
	1.01 (.0398)	01	MD720943
	1.04 (.0409)	04	MD720944
	1.07 (.0421)	07	MD720945
	1.10 (.0433)	J	MD710454
	1.13 (.0445)	D	MD700270
	1.16 (.0457)	K	MD710455
	1.19 (.0468)	L	MD710456

SERVICE SPECIFICATIONS <AWD>

Items	Standard value
Center differential case end play <All models> mm (in.)	0.08–0.13 (.0031–.0051)
Center differential side gear end play <All models> mm (in.)	0.05–0.25 (.0020 –.0100)
Front differential case end play <All models> mm (in.)	0.05–0.17 (.0020–.0067)
Front differential pinion backlash <All models> mm (in.)	0.025–0.150 (.00098 –.00591)
Front output shaft preload <All models> mm (in.)	0.08–0.13 (.0031–.0051)
Input shaft end play <W5M33> mm (in.)	0–0.05 (0–.0020)
Input shaft front bearing end play <All models> mm (in.)	0.01–0.12 (.0004–.0047)
Input shafl rear bearing end play <All models> mm (in.)	0–0.09 (0–.0035)
Intermediate gear bearing end play <W5M31> mm (in.)	0.01–0.11 (.0004–.0043)
Intermediate gear bearing end play <W5M33> mm (in.)	0.01–0.14 (.0004–.0055)
Intermediate gear preload <All models> mm (in.)	0.08–0.13 (.0031–.0051)
Transfer bevel gear set backlash <All models> mm (in.)	0.08–0.13 (.0031–.0051)
Transfer drive bevel gear rotating torque <All models> Nm (ft.lbs.)	1.7-2.5 (1.23-1.81)
Transfer driven bevel gear rotating torque <All models> Nm (ft.lbs.)	1.0–1.7 (0.72–1.23)
Viscous coupling end play <All models> mm (in.)	0.10–0.26 (.0039–.0102)

SEALANTS AND ADHESIVES

Items	Specified sealants and adhesives	Quantity
Transaxle case – rear cover mating surfaces	Mitsubishi genuine sealant Part No.MD997740 or equivalent	As required
Transaxle case – clutch housing mating surfaces		
Adapter-transaxlecasemating surfaces <AWD>		
Adapter – rear cover mating surfaces <AWD>		
Output gear bolt <AWD>	3M STUD Locking No.4170 or equivalent	As required
Differential drive gear bolts		
Bearing retainer bolt (Countersink head bolt only)		
Air breather	3M SUPER WEATHERSTRIP No.8001 or equivalent	As required
Transfer extension housing – adapter mating surfaces	Mitsubishi genuine sealant Part No.MD997740 or equivalent	As required
Transfer cover gasket	3M ATD Part No.8660 or equivalent	As required

Part name	Thickness mm (in.)	Identification symbol	Part No.
Spacer: F5M22 (For adjustment of intermediate gear end play)	0.83 (.0327)	83	MD723308
	0.86 (.0338)	86	MD723309
	0.89 (.0350)	89	MD723310
	0.92 (.0362)	92	MD723311
	0.95 (.0374)	95	MD723312
	0.98 (.0394)	98	MD723313
	1.01 (.0398)	01	MD723314
	1.04 (.0409)	04	MD723315
	1.07 (.0421)	07	MD723316
	1.10 (.0433)	10	MD723317
	1.13 (.0445)	13	MD723318
	1.16 (.0457)	16	MD723319
	1.19 (.0468)	19	MD723320
	1.22 (.0480)	22	MD723321
	1.25 (.0492)	25	MD723322
	1.28 (.0504)	28	MD723323
	1.31 (.0516)	31	MD723324
	1.34 (.0527)	34	MD723325
	1.37 (.0539)	37	MD723326
Spacer: F5M31, F5M33 (For adjustment of intermediate gear end play)	0.62 (.0244)	62	MD736754
	0.65 (.0256)	65	MD736755
	0.68 (.0268)	68	MD735659
	0.71 (.0280)	71	MD735660
	0.74 (.0291)	74	MD735661
	0.77 (.0303)	77	MD735662
	0.80 (.0315)	80	MD724142
	0.83 (.0327)	83	MD724143
	0.86 (.0338)	86	MD724144
	0.89 (.0350)	89	MD724145
	0.92 (.0362)	92	MD724146
	0.95 (.0374)	95	MD724147
	0.98 (.0386)	98	MD724148

Part name	Thickness mm (in.)	Identification symbol	Part No.
Spacer: F5M33, W5M33 (For adjustment of input shaft end play)	1.22 (.0480)	G	MD700271
	1.25 (.0492)	M	MD710457
	1.28 (.0504)	N	MD710458
	1.31 (.0561)	E	MD706574
	1.34 (.0527)	O	MD710459
	1.37 (.0539)	P	MD710460
	1.40 (.0551)	—	MD706573
	1.43 (.0563)	Q	MD710461
	1.46 (.0575)	R	MD710462
Snap ring: F4M21, F5M22, F5M33 (For adjustment of intermediate rear front bearing end play)	1.40 (.0551)	None	MD703779
	1.50 (.0591)	Brown	MD703780
	1.60 (.0630)	Blue	MD703781
Snap ring: F5M31 (For adjustment of intermediate gear front bearing end play)	1.40 (.0551)	Blue	MD723276
	1.50 (.0591)	Red	MD723277
	1.60 (.0630)	Yellow	MD723278
	1.70 (.0670)	Green	MD723279
Spacer: F4M21, F5M21 (For adjustment of intermediate gear end play)	0.47 (.0185)	47	MD736750
	0.56 (.0220)	56	MD720969
	0.65 (.0256)	65	MD720970
	0.74 (.0291)	74	MD720971
	0.83 (.0327)	83	MD720972
	0.92 (.0362)	92	MD720973
	1.01 (.0394)	01	MD720974
	1.10 (.0433)	10	MD718511
	1.19 (.0469)	19	MD736751
Spacer: F5M22 (For adjustment of intermediate gear end play)	0.62 (.0244)	62	MD736752
	0.65 (.0256)	65	MD736753
	0.68 (.0268)	68	MD735663
	0.71 (.0280)	71	MD735664
	0.74 (.0291)	74	MD735665
	0.77 (.0303)	77	MD735666
	0.80 (.0315)	80	MD723307

Part name	Thickness mm (in.)	Identification symbol	Part No.
Spacer: W5M31 (For adjustment of intermediate gear preload)	1.76 (.0692)	76	MD712342
	1.79 (.0705)	79	MD712343
	1.82 (.0716)	82	MD712344
	1.85 (.0728)	85	MD712345
Spacer: W5M33 (For adjustment of intermediate gear preload)	0.80 (.0315)	80	MD720948
	0.83 (.0327)	83	MD720949
	0.86 (.0338)	86	MD720950
	0.89 (.0350)	89	MD720951
	0.92 (.0362)	92	MD720952
	0.95 (.0374)	95	MD720953
	0.98 (.0386)	98	MD720954
	1.01 (.0398)	01	MD720955
	1.04 (.0409)	04	MD720956
	1.07 (.0421)	07	MD720957
	1.10 (.0433)	10	MD720958
	1.13 (.0445)	13	MD720959
	1.16 (.0457)	16	MD720960
	1.19 (.0468)	19	MD720961
	1.22 (.0480)	22	MD720962
	1.25 (.0492)	25	MD712346
	1.28 (.0504)	28	MD712347
	1.31 (.0515)	31	MD712348
	1.34 (.0527)	34	MD712349
	1.37 (.0539)	37	MD712329
	1.40 (.0551)	40	MD712330
	1.43 (.0563)	43	MD712331
Spacer: F4M21, F5M21, F5M22 (For adjustment of output shaft end play)	0.74 (.0291)	74	MD720947
	0.77 (.0303)	77	MD736756
	0.80 (.0315)	80	MD720948
	0.83 (.0327)	83	MD720949
	0.86 (.0338)	86	MD720950
	0.89 (.0350)	89	MD720951

Part name	Thickness mm (in.)	Identification symbol	Part No.
Spacer: F5M31, F5M33 (For adjustment of intermediate gear end play)	1.01 (.0398)	01	MD724149
	1.04 (.0409)	04	MD724150
	1.07 (.0421)	07	MD724151
	1.10 (.0433)	10	MD724152
	1.13 (.0445)	13	MD724153
	1.16 (.0457)	16	MD724154
	1.19 (.0468)	19	MD724155
	1.22 (.0480)	22	MD724156
	1.25 (.0492)	25	MD724157
	1.28 (.0504)	28	MD724158
	1.31 (.0516)	31	MD724159
	1.34 (.0527)	34	MD724160
	1.37 (.0539)	37	MD724161
Spacer: W5M31 (For adjustment of intermediate gear preload)	1.19 (.0468)	19	MD720962
	1.22 (.0480)	22	MD720961
	1.25 (.0492)	25	MD712346
	1.28 (.0504)	28	MD712347
	1.31 (.0516)	31	MD712348
	1.34 (.0527)	34	MD712349
	1.37 (.0539)	37	MD712329
	1.40 (.0551)	40	MD712330
	1.43 (.0563)	43	MD712331
	1.46 (.0575)	46	MD712332
	1.49 (.0587)	49	MD712333
	1.52 (.0598)	52	MD712334
	1.55 (.0610)	55	MD712335
	1.58 (.0622)	58	MD712336
	1.61 (.0634)	61	MD712337
	1.64 (.0646)	64	MD712338
	1.67 (.0657)	67	MD712339
	1.70 (.0669)	70	MD712340
	1.73 (.0681)	73	MD712341

'art name	Thickness mm (in.)	Identification symbol	Part No.
;pacer: F5M31, F5M33 For adjustment of output shaft end play)	1.31 (.0516)	E	MD706574
	1.34 (.0527)	0	MD710459
;pacer: F4M21, F5M21, W5M31, W5M33 For adjustment of front differential case end play)	0.56 (.0220)	56	MD727658
	0.65 (.0256)	65	MD727659
	0.74 (.0291)	74	MD727660
	0.83 (.0327)	83	MD720937
	0.92 (.0362)	92	MD720940
	1.01 (.0398)	01	MD720943
	.10 (.0433)	J	MD710454
	1.19 (.0468)	L	MD710456
	1.28 (.0504)	N	MD710458
	1.37 (.0539)	P	MD710460
Spacer: F5M22, F5M31, F5M33 (For adjustment of front differential case end play)	0.80 (.0315)	80	MD727661
	0.83 (.0327)	83	MD720937
	0.86 (.0338)	86	MD720938
	0.89 (.0350)	89	MD720939
	0.92 (.0362)	92	MD720940
	0.95 (.0374)	95	MD720941
	0.98 (.0386)	98	MD720942
Spacer: F5M22, F5M31, F5M33 (For adjustment of front differential case end play)	1.01 (.0398)	01	MD720943
	1.04 (.0409)	04	MD720944
	1.07 (.0421)	07	MD720945
	1.10 (.0433)	J	MD710454
	1.13 (.0445)	D	MD700270
	1.16 (.0457)	K	MD710455
	1.19 (.0468)	L	MD710456
	1.22 (.0480)	G	MD700271
	1.25 (.0492)	M	MD710457
Spacer (For adjustment of front differential pinion backlash)	0.75–0.82 (.0295–.0323)	—	MA180862
	0.83–0.92 (.0327–.0362)	—	MA180861

'art name	Thickness mm (in.)	Identification symbol	Part No.
;pacer: F4M21, F5M21, F5M22 For adjustment of output shaft end play)	0.92 (.0362)	92	MD720952
	0.95 (.0374)	95	MD720953
	0.98 (.0386)	98	MD720954
	1.01 (.0398)	01	MD720955
	1.04 (.0409)	04	MD720956
	1.07 (.0421)	07	MD720957
	1.10 (.0433)	10	MD720958
	1.13 (.0445)	13	MD720959
	1.16 (.0457)	16	MD720960
	1.19 (.0468)	19	MD720961
	1.22 (.0480)	22	MD720362
	1.25 (.0492)	25	MD712346
	1.28 (.0504)	28	MD712347
	1.31 (.0516)	31	MD712348
	1.34 (.0527)	34	MD712349
Spacer: F5M31, F5M33 For adjustment of output shaft end play)	0.83 (.0327)	83	MD720937
	0.86 (.0338)	86	MD720938
	0.89 (.0350)	89	MD720939
	0.92 (.0362)	92	MD720940
	0.95 (.0374)	95	MD720941
	0.98 (.0386)	98	MD720942
	1.01 (.0398)	01	MD720943
	1.04 (.0409)	04	MD720944
	1.07 (.0421)	07	MD720945
	1.10 (.0433)	J	MD710454
	1.13 (.0445)	D	MD700270
	1.16 (.0457)	K	MD710455
	1.19 (.0468)	L	MD710456
	1.22 (.0480)	G	MD700271
	1.25 (.0492)	M	MD710457
	1.28 (.0504)	N	MD710458

Part name	Thickness mm (in.)	Identification symbol	Part No.
Snap ring: W5M31, W5M33 For adjustment of viscous coupling end play (with CU)]	1.8 (.071)	Yellow	MD720690
	1.9 (.075)	Green	MD727651
Spacer: W5M31 For adjustment of center differential pinion backlash (front side)	0.59–0.66 (.0232–.0260)	73	MD724973
	0.67–0.74 (.0264–.0291)	47	MD724947
	0.75–0.82 (.0295–.0323)	46	MD724946
	0.83–0.92 (.0327–.0362)	45	MD724945
	0.93–1.00 (.0366–.0394)	81	MD720681
	1.01–1.08 (.0398–.0425)	44	MD724944
	1.09–1.16 (.0429–.0457)	43	MD724943
	1.1–1.24 (.0421–.0488)	42	MD724942
	1.25–1.32 (.0492–.0520)	72	MD724972
Spacer: W5M33 For adjustment of center differential pinion backlash (front side)	2.09–2.16 (.0823–.0850)	0	MD741413
	2.17–2.24 (.0854–.0882)	9	MD741412
	2.25–2.32 (.0886–.0913)	8	MD741411
	2.33-2.42 (.0917–.0953)	7	MD741410
	2.43–2.50 (.0597–.0984)	6	MD741 409
	2.51–2.58 (.0988–.1016)	5	MD741408
	2.59-2.66 (.1020–.1047)	4	MD741 407
	2.67-2.74 (.1050–.1079)	3	MD741 406
	2.75–2.82 (.1083–.1110)	2	MD741 405
Spacer: W5M31, W5M33 (For adjustment of center differential case preload)	1.13 (.0445)	13	MD736928
	1.16 (.0457)	16	MD736929
	1.19 (.0468)	19	MD736751

art name	Thickness mm (in.)	Identification symbol	Part No.
pacer For adjustment of front differential pinion backlash)	0.93–1.00 (.0366–.0394)	—	MA180860
	1.01–1.08 (.0398–.0425)	—	MA180875
	1.09–1.16 (.0429–.0457)	—	MA180876
pacer:W5M31, W5M33 For adjustment of front output shaft preload)	1.28 (.0504)	B28	MD726167
	1.31 (.0516)	B31	MD726168
	1.34 (.0527)	B34	MD726169
	1.37 (.0539)	B37	MD724326
	1.40 (.0551)	B40	MD724327
	1.43 (.0563)	B43	MD724328
	1.46 (.0575)	B46	MD724329
	1.49 (.0587)	B49	MD724330
	1.52 (.0598)	B52	MD724331
	1.55 (.0610)	B55	MD724332
	1.58 (.0622)	B58	MD724333
	1.61 (.0634)	B61	MD724334
	1.64 (.0646)	B64	MD724335
	1.67 (.0657)	B67	MD724336
	1.70 (.0669)	B70	MD724337
	1.73 (.0681)	B73	MD724338
	1.76 (.0692)	B76	MD724339
	1.79 (.0705)	B79	MD724340
	1.82 (.0716)	B82	MD724341
	1.85 (.0728)	B85	MD724342
	1.88 (.0740)	B88	MD724343
	1.91 (.0751)	B91	MD724344
Snap ring: W5M31, W5M33 [For adjustment of viscous coupling end play (with VCU)]	1.3 (.051)	Orange	MD727650
	1.4 (.055)	Red	MD720686
	1.5 (.059)	Blue	MD720687
	1.6 (.063)	None	MD720688
	1.7 (.067)	White	MD720689

Part name	Thickness mm (in.)	Identification symbol	Part No.
Spacer: W5M31, W5M33 (For adjustment of drive bevel gear mount)	1.34 (.0528)	34	MD723600
	1.37 (.0539)	37	MD723601
	1.40 (.0551)	40	MD723602
	1.43 (.0563)	43	MD723603
	1.46 (.0575)	46	MD723604
	1.49 (.0587)	49	MD723605
	1.52 (.0598)	52	MD723606
	1.55 (.0610)	55	MD723607
	1.58 (.0622)	58	MD723608
	1.61 (.0634)	61	MD723609
	1.64 (.0646)	64	MD726170
	1.67 (.0657)	67	MD726171
Spacer: W5M31, W5M33 (For adjustment of drive bevel gear preload)	1.28 (.0504)	B28	MD726167
	1.31 (.0516)	B31	MD726168
	1.34 (.0528)	B34	MD726169
	1.37 (.0539)	B37	MD724326
	1.40 (.0551)	B40	MD724327
	1.43 (.0563)	B43	MD724328
	1.46 (.0575)	B46	MD724329
	1.49 (.0587)	B49	MD724330
	1.52 (.0598)	B52	MD724331
	1.55 (.0610)	B55	MD724332
	1.58 (.0622)	B58	MD724333
	1.61 (.0634)	B61	MD724334
	1.64 (.0646)	B64	MD724335
	1.67 (.0657)	B67	MD724336
	1.70 (.0669)	B70	MD724337
	1.73 (.0681)	B73	MD724338
	1.76 (.0693)	B76	MD724339
	1.79 (.0705)	B79	MD724340
	1.82 (.0717)	B82	MD724341
	1.85 (.0728)	B85	MD724342

Part name	Thickness mm (in.)	Identification symbol	Part No.
Spacer: W5M31, W5M33 (For adjustment of center differential case preload)	1.22 (.0480)	22	MD736931
	1.25 (.0492)	25	MD726166
	1.28 (.0504)	28	MD718517
	1.31 (.0516)	31	MD718518
	1.34 (.0527)	34	MD718519
	1.37 (.0539)	37	MD718520
	1.40 (.0551)	40	MD718521
	1.43 (.0563)	43	MD718522
	1.46 (.0575)	46	MD718523
	1.49 (.0587)	49	MD718524
	1.52 (.0598)	52	MD718525
	1.55 (.0610)	55	MD718526
	1.58 (.0622)	58	MD718527
	1.61 (.0634)	61	MD718528
	1.64 (.0646)	64	MD718529
	1.67 (.0657)	67	MD718530
	1.70 (.0669)	70	MD718531
	1.73 (.0681)	73	MD721 959
	1.76 (.0692)	76	MD721960
	1.79 (.0705)	79	MD721961
Spacer: W5M31, W5M33 (For adjustment of center differential pinion backlash, rear side)	0.59–0.66 (.0232–.0260)	74	MD724974
	0.67–0.74 (.0264–.0291)	50	MD724950
	0.75–0.82 (.0295–.0323)	80	MD720680
	0.83–0.92 (.0327–.0362)	79	MD720679
	0.93–1.00 (.0366–0.394)	78	MD720678
	1.01–1.08 (.0398–.0425)	76	MD720676
	1.09–1.16 (.0429–.0457)	77	MD720677
	1.17-1.24 (.0421–.0488)	49	MD724949

TSB Revision

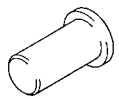
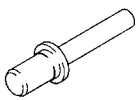
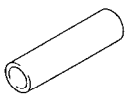
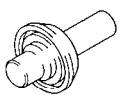
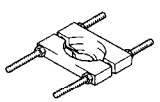
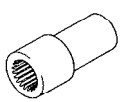
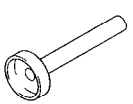
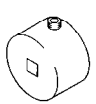
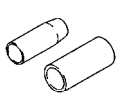
Part name	Thickness mm (in.)	Identification symbol	Part No.
Spacer:W5M31, W5M33 (For adjustment of driven bevel gear preload)	1.73 (.0681)	73	MD722098
	1.76 (.0693)	76	MD722099
	1.79 (.0705)	79	MD722100
	1.82 (.0717)	82	MD722101
	1.85 (.0728)	85	MD722102
	1.88 (.0740)	88	MD722103
	1.91 (.0752)	91	MD722104
	1.94 (.0764)	94	MD722105

TORQUE SPECIFICATIONS

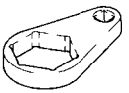
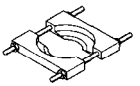
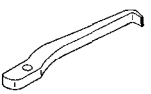
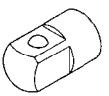
Items	Nm	ft.lbs.
Transaxle		
Backup light switch	33	24
Bearing retainer bolt	19	14
Bell housing cover mounting bolt	9	7
Center differential lock actuator mounting bolt <AWD>	19	14
Center differential lock indicator lamp switch <AWD>	33	24
Center differential shift lever mounting bolt <AWD>	19	14
Differential drive gear bolt	135	98
Input shaft lock nut	150	109
Interlock plate bolt	24	18
Intermediate gear lock nut	150	109
Oil drain plug	33	24
Oil filler plug	33	24
Output gear mounting bolt	75	55
Poppet plug	36	27
Rear cover bolt <AWD>	39	29
Rear cover bolt <FWD>	19	14
Restrict ball	33	24
Reverse brake cone machine screw	7	5
Reverse idler gear shaft bolt	49	36
Reverse shift lever assembly attaching bolt	19	14
Select lever mounting bolt	19	14

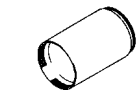
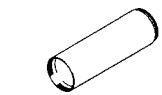
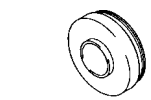
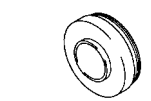
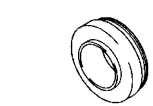
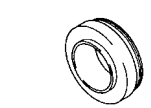
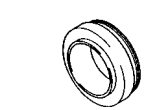
Part name	Thickness mm (in.)	Identification symbol	Part No.
Spacer: W5M31, W5M33 For adjustment of driven bevel gear mount)	0.13 (.0051)	13	MD720353
	0.16 (.0063)	16	MD720354
	0.19 (.0075)	19	MD720355
	0.22 (.0087)	22	MD720356
	0.25 (.0098)	25	MD720357
	0.28 (.0110)	28	MD720358
	0.31 (.0122)	31	MD720359
	0.34 (.0134)	34	MD720360
	0.37 (.0146)	37	MD720361
	0.40 (.0157)	40	MD720362
	0.43 (.0169)	43	MD720363
	0.46 (.0181)	46	MD720364
	0.49 (.0193)	49	MD720365
	0.52 (.0205)	52	MD720366
Spacer:W5M31, W5M33 (For adjustment of driven bevel gear preload)	1.19 (.0469)	19	MD726172
	1.22 (.0480)	22	MD722081
	1.25 (.0492)	25	MD722082
	1.28 (.0504)	28	MD722083
	1.31 (.0516)	31	MD722084
	1.34 (.0528)	34	MD722085
	1.37 (.0539)	37	MD722086
	1.40 (.0551)	40	MD722087
	1.43 (.0563)	43	MD722088
	1.46 (.0575)	46	MD722089
	1.49 (.0587)	49	MD722090
	1.52 (.0598)	52	MD722091
	1.55 (.0610)	55	MD722092
	1.58 (.0622)	58	MD722093
	1.61 (.0634)	61	MD722094
	1.64 (.0646)	64	MD722095
	1.67 (.0657)	67	MD722096
	1.70 (.0669)	70	MD722097

SPECIAL TOOLS

ool	Tool number and name	Supersession	Application
	MD998304 Oil seal installer	MD998304-01	Installation of transfer extension housing oil seal
	MD998321 Oil seal installer	MD998321-01	Installation of input shaft oil seal
	MD998323 Bearing installer	MD998323-01	Installation of input shaft bearing
	MD998325 Differential oil seal installer	MD998325-01	Installation of differential oil seal
	MD998801 Bearing remover	MD998348-01	Removal of gears and bearings of input shaft, intermediate gear and output shaft
	MD998802 Input shaft holder	MD998802-01	Installation and removal of input shaft and intermediate gear lock nut
	MD998803 Differential oil seal installer	GENERAL SERVICE TOOL	Installation of differential oil seal <AWD>
	MD998806 Wrench adapter	MD998806-01	Adjustment of tooth contact and inspection of turning drive torque <AWD>
	MD998808 Snap ring installer	MD998808-01	Installation of input shaft rear snap ring

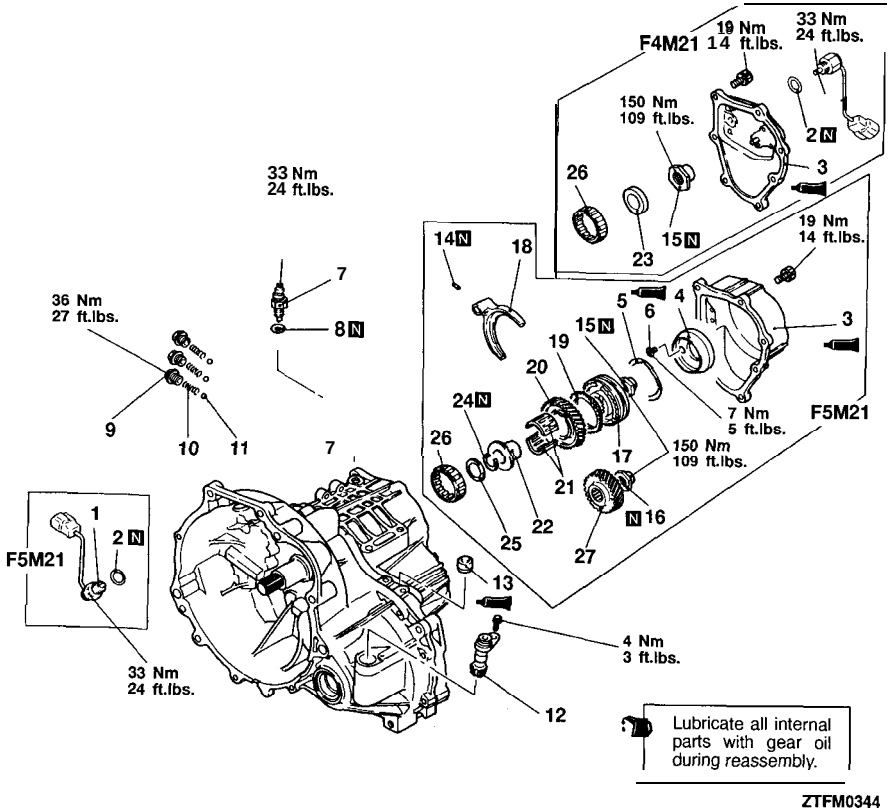
Items	Nm	ft.lbs.
Transaxle		
Shift cable bracket mounting bolt	19	14
Speedometer sleeve bolt	4	3
Starter motor mounting bolt	27	20
Stopper bracket bolt	19	14
Transaxle case tightening bolt	39	29
Transaxle mount bracket mounting bolt	70	51
Transaxle mounting bolt [10 mm diameter bolt]	49	36
Transaxle mounting bolt [8 mm diameter bolt]	27	20
Transaxle mounting bolt [6 mm diameter bolt]	11	8
Transaxle switch <FWD>	**33**	**24**
Transfer		
Cover mounting bolt	9	7
Driven bevel gear lock nut	150	109
Extension housing	19	14
Oil drain plug	33	24
Oil filler plug	33	24
Transfer case adapter mounting bolt	39	29
Transfer cover mounting bolt	39	29
Transfer mounting bolt	59	42

ool	Tool number and name	Supersession	Application
	MD998824 Installer adapter (50)	GENERAL SERVICE TOOL	Installation of each bearing
	MD998825 Installer adapter (52)	GENERAL SERVICE TOOL	
	MD998827 Installer adapter (56)	MD998827	
	MD998833 Oil seal installer	MD998323-01	Installation of transfer case oil seal
	MD998834 Special spanner	MD998834	Installation and removal of driven bevel gear lock nut <AWD>
	MD998917 Bearing remover	MD998917	Removal of intermediate gear bearing
	MD999566 Claw	GENERAL SERVICE TOOL	Removal of bearing outer race
	MB990326 Preload socket	GENERAL SERVICE TOOL	Measurement of drive bevel gear shaft rotating torque <AWD>
	MB990938 Handle	MD998323-01	Installation of transfer case oil seal

ool	Tool number and name	Supersession	Application
	MD998812 Installer cap	GENERAL SERVICE TOOL	Use with installer and adapter
	MD998813 Installer – 100	GENERAL SERVICE TOOL	Use with installer cap and adapter
	MD998814 Installer – 200	MIT304180	Use with installer cap and adapter
	MD998816 Installer adapter (30)	GENERAL SERVICE TOOL	Installation of each bearing
	MD998817 Installer adapter (34)	GENERAL SERVICE TOOL	
	MD998818 Installer adapter (38)	MD998818	
	MD998819 Installer adapter (40)	MD998819	
	MD998820 Installer adapter (42)	MIT 215013	
	MD998822 Installer adapter (46)	MD998822-01	

TRANSAXLE

DISASSEMBLY AND REASSEMBLY – F4M21, F5M21

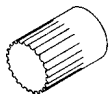


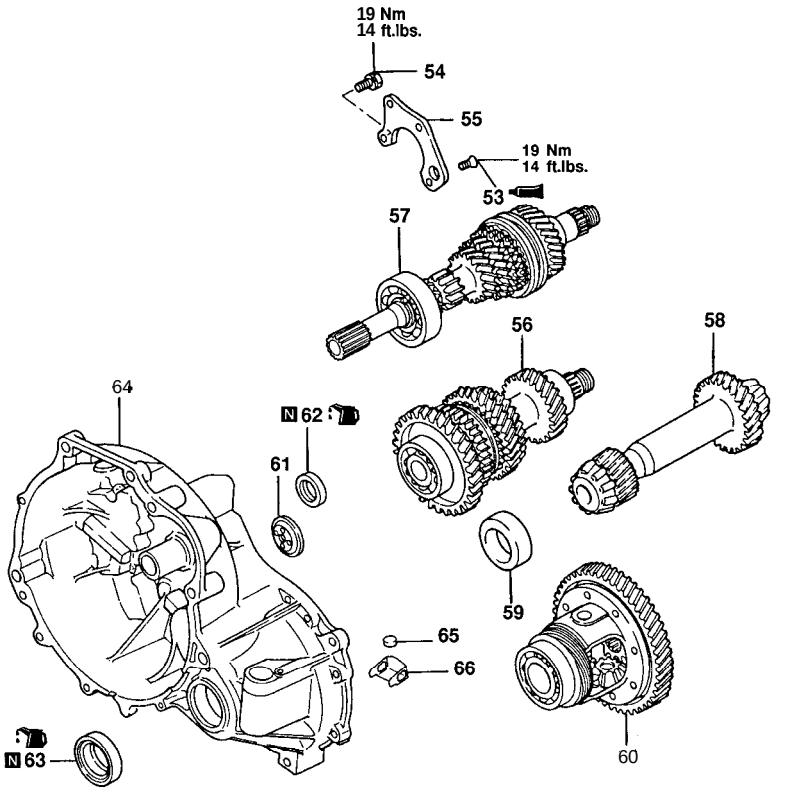
ZTFM0344

Disassembly steps

1. Transaxle switch
2. Gasket
3. Rear cover
4. Reverse brake cone <From MODEL 1993>
5. Wave spring <From MODEL 1993>
6. Machine screw <From MODEL 1993>
7. Backup light switch
8. Gasket
9. Poppet plug
10. Poppet spring
11. Poppet ball
12. Speedometer driven gear assembly
13. Air breather
14. Spring pin
15. Lock nut
16. Lock nut
17. 5th speed synchronizer assembly
18. 5th speed shift fork
19. Synchronizer ring
20. 5th speed gear
21. Needle bearing
22. Bearing sleeve
23. Dished washer
24. Snap ring
25. Spacer
26. Roller bearing
27. 5th speed intermediate gear

TSB Revision

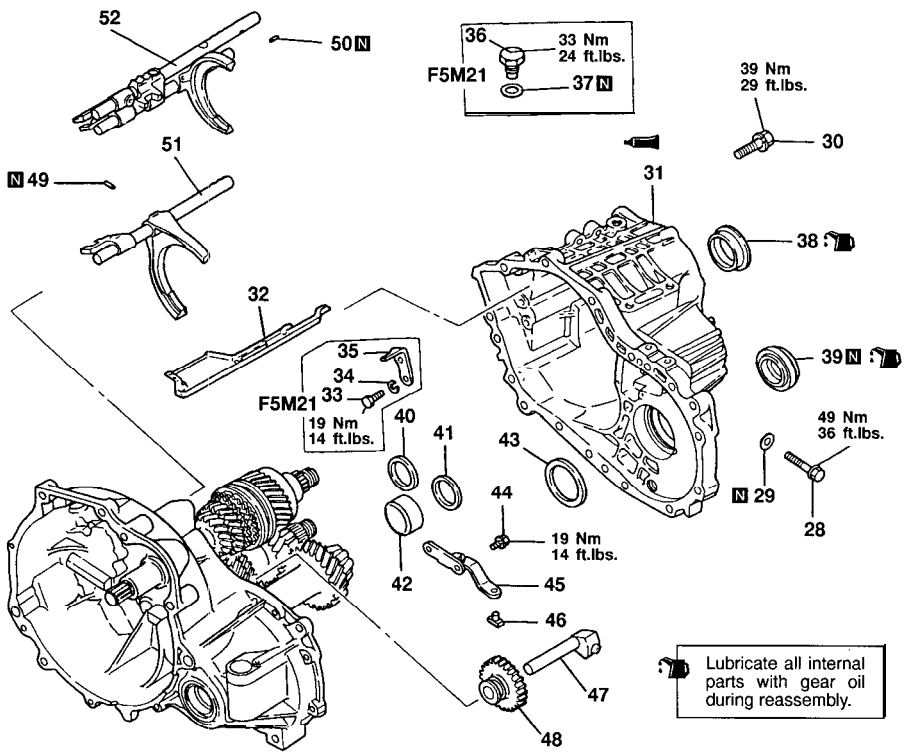
Tool	Tool number and name	Supersession	Application
	MB991144 Side gear holding tool	MB991144	Measurement of drive bevel gear shaft rotating torque <AWD>



Disassembly steps

- ▶D◀ 53. Bolt
- 54. Bolt
- 55. Bearing retainer
- ◀C▶ ▶C◀ 56. Intermediate gear assembly
- ◀C▶ ▶C◀ 57. Input shaft assembly
- 58. Output shaft assembly
- 59. Bearing outer race
- 60. Differential gear assembly
- 61. Oil guide
- ▶B◀ 62. Oil seal
- ▶A◀ 63. Oil seal
- 64. Clutch housing assembly
- 65. Magnet
- 66. Magnet holder

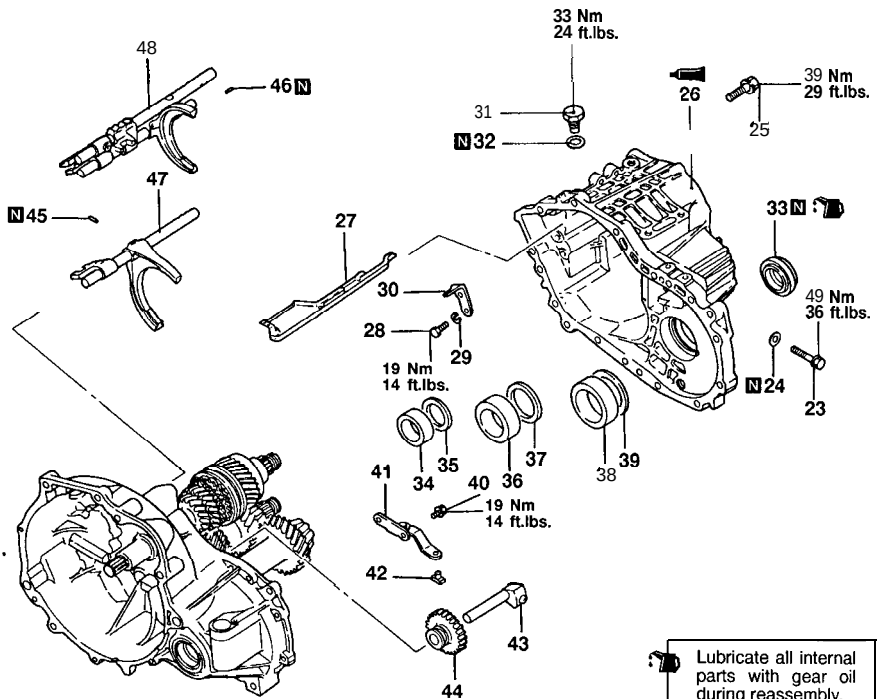
TSB Revision



Disassembly steps

- ▶K◀ 28. Reverse idler gear shaft bolt
- 29. Gasket
- 30. Bolt
- ▶J◀ 31. Transaxle case
- 32. Oil guide
- 33. Bolt
- 34. Spring washer
- 35. Stopper bracket
- 36. Restrict ball assembly
- 37. Gasket
- 38. Outer ring
- ▶I◀ 39. Oil seal
- ▶H◀ 40. Spacer
- ▶H◀ 41. Spacer
- 42. Bearing outer race
- ▶H◀ 43. Space
- 44. Bolt
- 45. Reverse shift lever assembly
- 46. Reverse shift lever shoe
- ▶G◀ 47. Reverse idler gear shaft
- 48. Reverse idler gear
- ▶F◀ 49. Spring pin
- ▶F◀ 50. Spring pin
- ◀B▶ ▶E◀ 51. Shift rail assembly
- ◀B▶ ▶E◀ 52. Shift rail assembly

TSB Revision

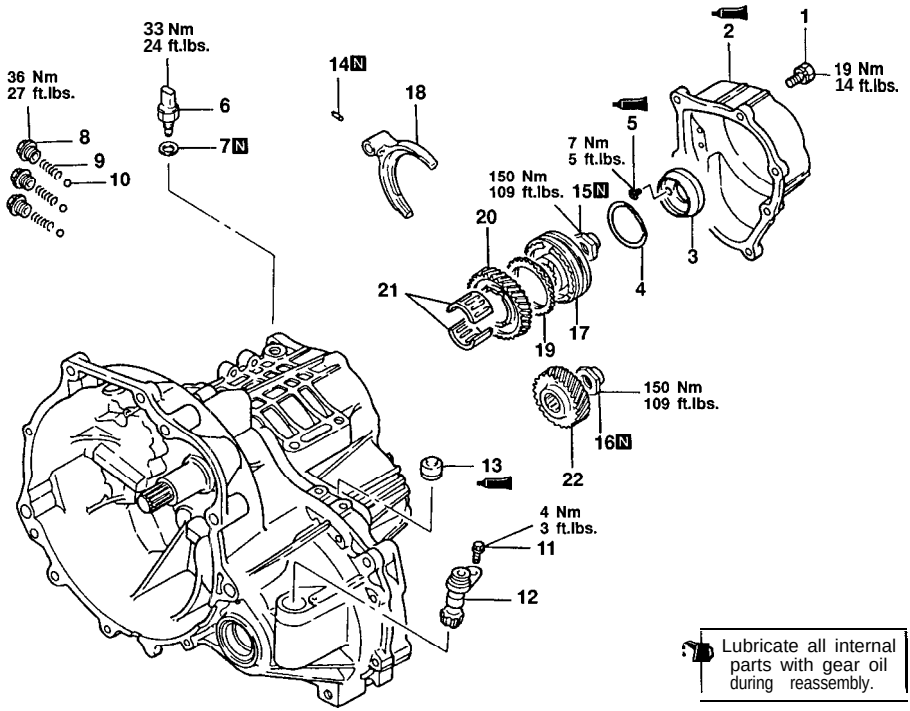


Disassembly steps

- ▶K◀ 23. Reverse idler gear shaft bolt
- 24. Gasket
- 25. Bolt
- ▶J◀ 26. Transaxle case
- 27. Oil guide
- 28. Bolt
- 29. Spring washer
- 30. Stopper bracket
- 31. Restrict ball assembly
- 32. Gasket
- ▶I◀ **33.** Oil seal
- 34. Bearing outer race
- ▶H◀ 35. Spacer
- 36. Bearing outer race
- ▶H◀ 37. Spacer
- 38. Bearing outer race
- ▶H◀ 39. Space
- 40. Bolt
- 41. Reverse shift lever assembly
- 42. Reverse shift lever shoe
- ▶G◀ 43. Reverse idler gear shaft
- 44. Reverse idler gear
- ▶F◀ 45. Spring pin
- ▶F◀ 46. Spring pin
- ◀B▶ ▶E◀ 47. Shift rail assembly
- ◀B▶ ▶E◀ 48. Shift rail assembly

TSB Revision

DISASSEMBLY AND REASSEMBLY – F5M22

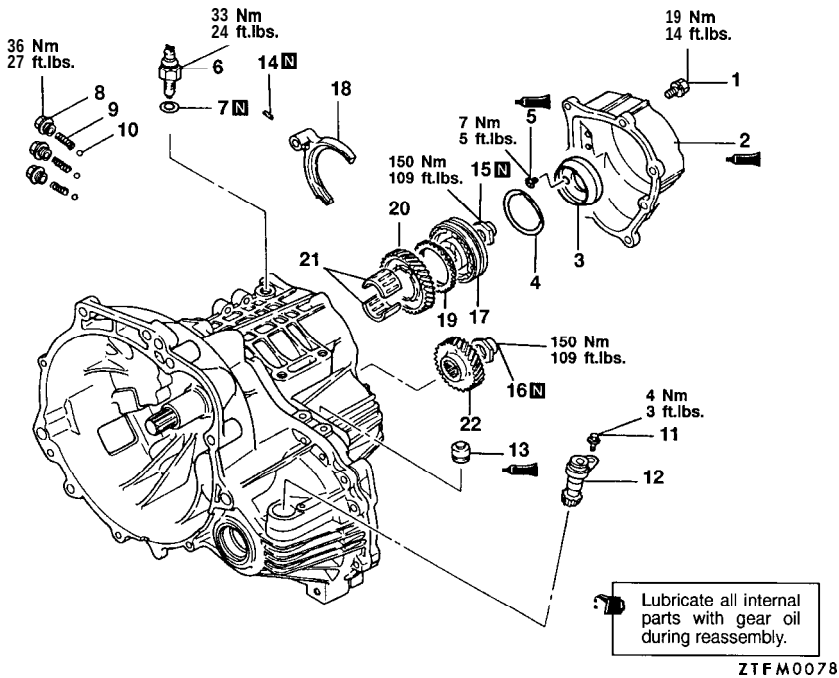


Disassembly steps

1. Bolt
2. ▶Q◀ Rear cover
3. Reverse brake cone
4. ▶Z◀ Wave spring
5. ▶R◀ Machine screw
6. Backup light switch
7. Gasket
8. Poppet plug
9. Poppet spring
10. Poppet ball
11. Bolt
12. Speedometer driven gear assembly
13. ▶P◀ Air breather
14. ▶O◀ Spring pin
15. ◀A▶ ▶N◀ Lock nut
16. ◀A▶ ▶N◀ Lock nut
17. 5th speed synchronizer assembly
18. 5th speed shift fork
19. Synchronizer ring
20. 5th speed gear
21. Needle bearing
22. 5th speed intermediate gear

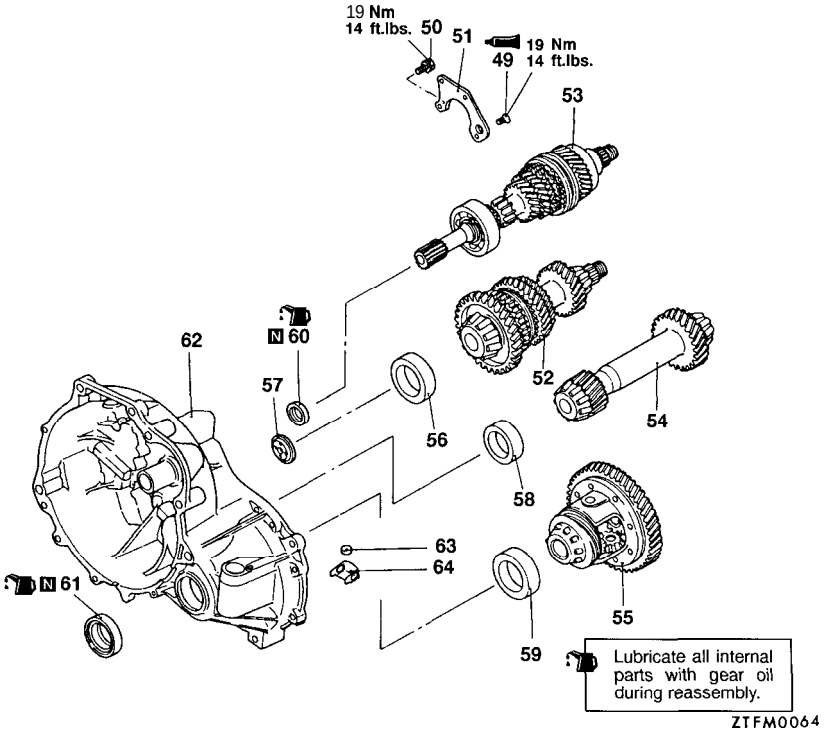
TSB Revision

DISASSEMBLY AND REASSEMBLY – F5M31



Disassembly steps

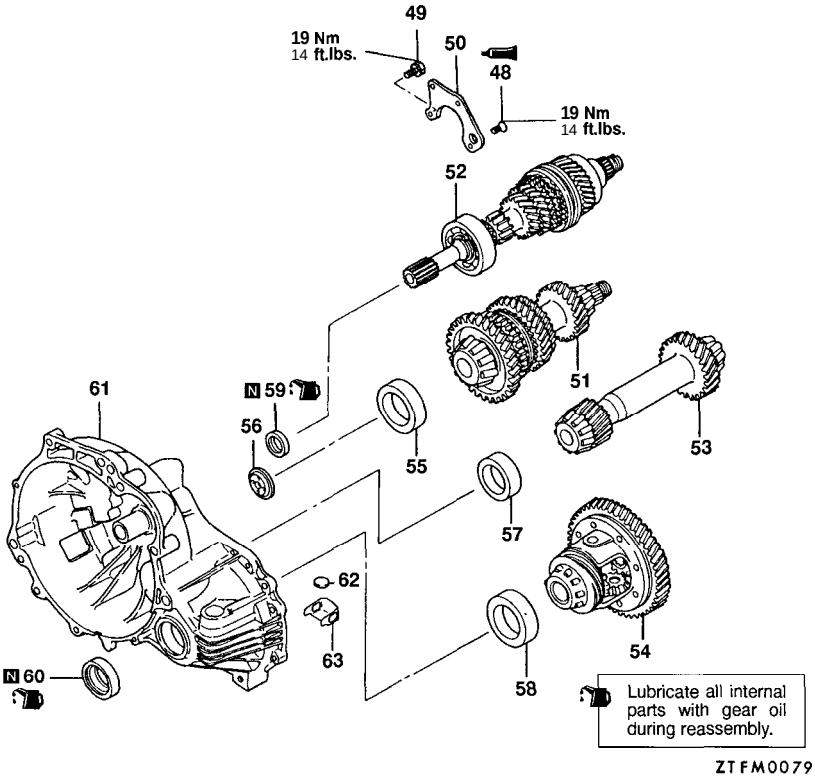
1. Bolt
▶Q◀ 2. Rear cover
3. Reverse brake cone
▶Z◀ 4. Wave spring
▶R◀ 5. Machine screw
6. Back up light switch
7. Gasket
8. Poppet plug
9. Poppet spring
10. Poppet ball
11. Bolt
12. Speedometer driven gear assembly
▶P◀ 13. Air breather
▶O◀ 14. Spring pin
◀A▶ ▶N◀ 15. Lock nut
◀A▶ ▶N◀ 16. Lock nut
17. 5th speed synchronizer assembly
16. 5th speed shift fork
19. Synchronizer ring
20. 5th speed gear
21. Needle bearing
22. 5th speed intermediate gear



Disassembly steps

- ▶D◀ 49. Bolt
- 50. Bolt
- 51. Bearing retainer
- ◀C▶ ▶C◀ 52. Intermediate gear assembly
- ◀C▶ ▶C◀ 53. Input shaft assembly
- 54. Output shaft assembly
- 55. Differential gear assembly
- 56. Bearing outer race
- 57. Oil guide
- 58. Bearing outer race
- 59. Bearing outer race
- ▶B◀ 60. Oil seal
- ▶A◀ 61. Oil seal
- 62. Clutch housing assembly
- 63. Magnet
- 64. Magnet holder

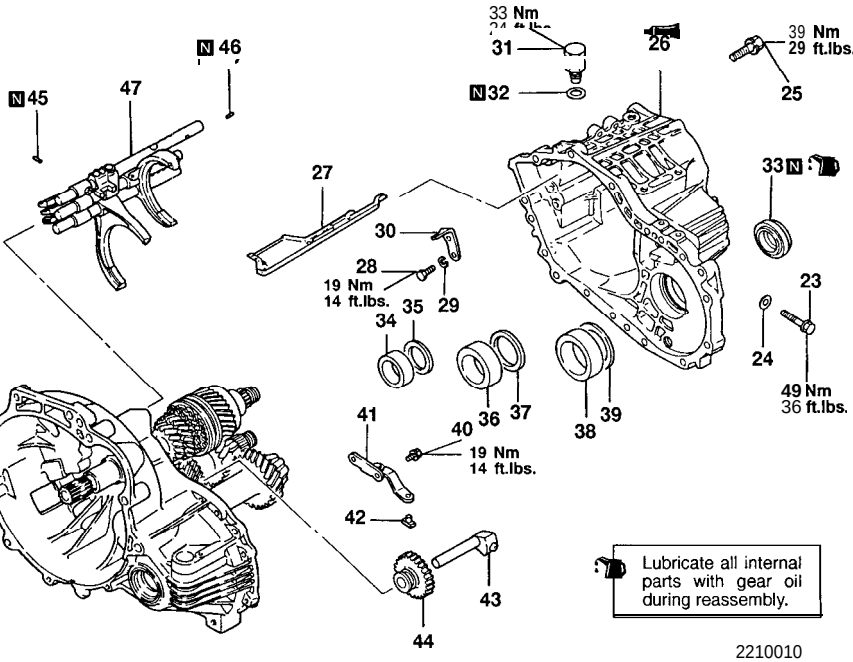
TSB Revision



Disassembly steps

- ▶D◀ **48. Bolt**
- **49. Bolt**
- 50. Bearing retainer
- ◀C▶ ▶C◀ 51. Intermediate gear assembly
- ◀C▶ ▶C◀ 52. Input shaft assembly
- 53. Output shaft assembly
- 54. Differential gear assembly
- 55. Bearing outer race
- 56. Oil guide
- 57. Bearing outer race
- 58. Bearing outer race
- ▶B◀ 59. Oil seal
- ▶A◀ 60. Oil seal
- 61. Clutch housing assembly
- 62. Magnet
- 63. Magnet holder

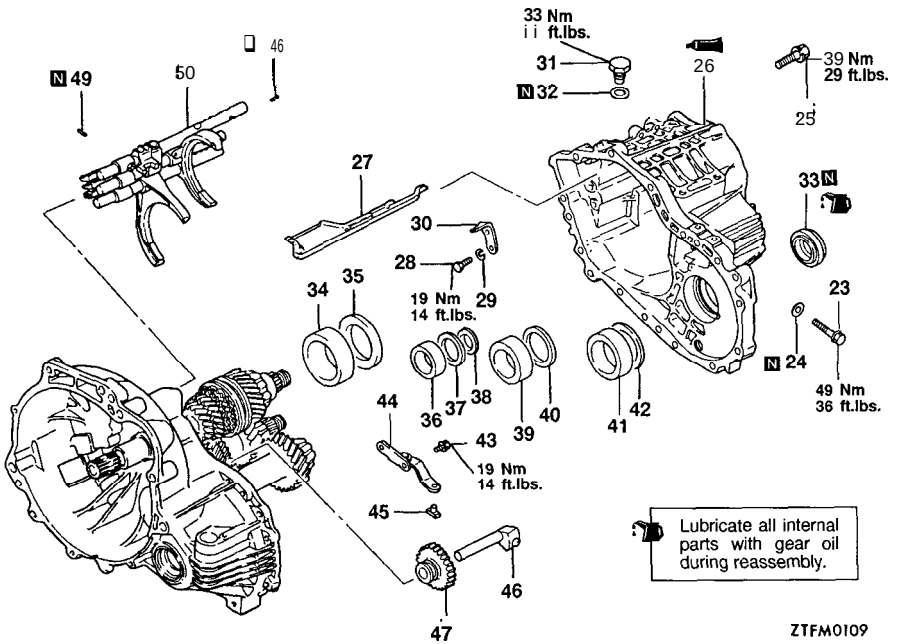
TSB **Revision**



Disassembly steps

- ▶K◀ 23. Reverse idler gear shaft bolt
- 24. Gasket
- 25. Bolt
- ▶J◀ 26. Transaxle case
- 27. Oil guide
- **28.** Bolt
- 29. Spring washer
- **30.** Stopper bracket
- **31.** Restrict ball assembly
- 32. Gasket
- ▶I◀ **33.** Oil seal
- 34. Bearing outer race
- ▶H◀ 35. Spacer
- 36. Bearing outer race
- ▶H◀ 37. Spacer
- 38. Bearing outer race
- ▶H◀ 39. Space
- 40. Bolt
- 41. Reverse shift lever assembly
- **42.** Reverse shift lever shoe
- ▶G◀ 43. Reverse idler gear shaft
- 44. Reverse idler gear
- ▶F◀ 45. Spring pin
- ▶F◀ 46. Spring pin
- ◀B▶ ▶E◀ 47. Shift rail assembly

TSB Revision

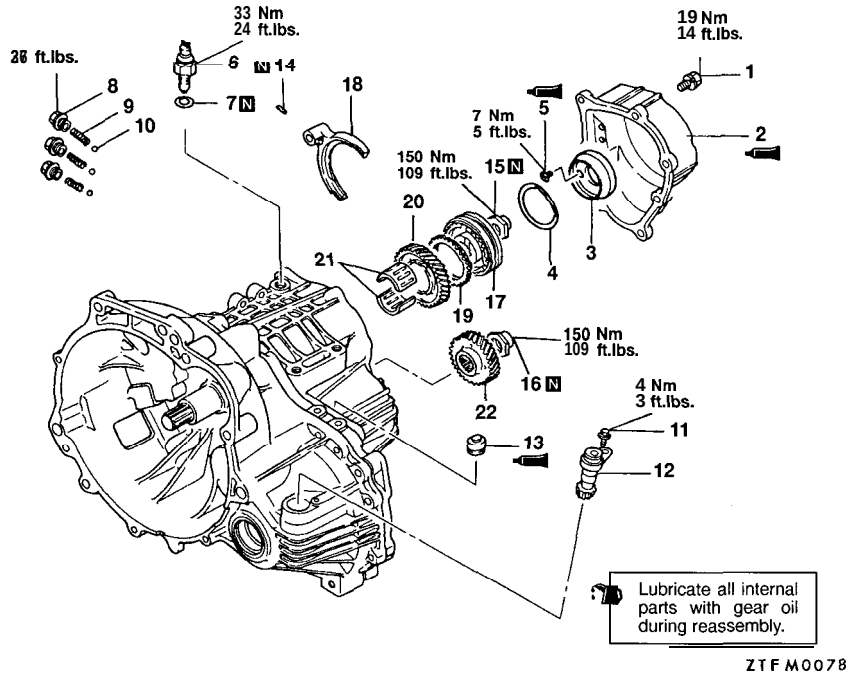


Disassembly steps

- ▶K◀ 23. Reverse idler gear shaft bolt
- 24. Gasket
- 25. Bolt
- ▶J◀ 26. Transaxle case
- 27. Oil guide
- 28. Bolt
- 29. Spring washer
- 30. Stopper bracket
- 31. Restrict ball assembly
- 32. Gasket
- ▶I◀ 33. Oil seal
- 34. Bearing outer race
- ▶H◀ 35. Spacer
- 36. Bearing outer race
- ▶H◀ 37. Spacer
- 38. Filter
- 39. Bearing outer race
- ▶H◀ 40. Spacer
- 41. Bearing outer race
- ▶H◀ 42. Space
- 43. Bolt
- 44. Reverse shift lever assembly
- 45. Reverse shift lever shoe
- ▶G◀ 46. Reverse idler gear shaft
- 47. Reverse idler gear
- ▶F◀ 48. Spring pin
- ▶F◀ 49. Spring pin
- ◀B▶ ▶F◀ 50. Shift rail assembly

TSB Revision

DISASSEMBLY AND REASSEMBLY – F5M33

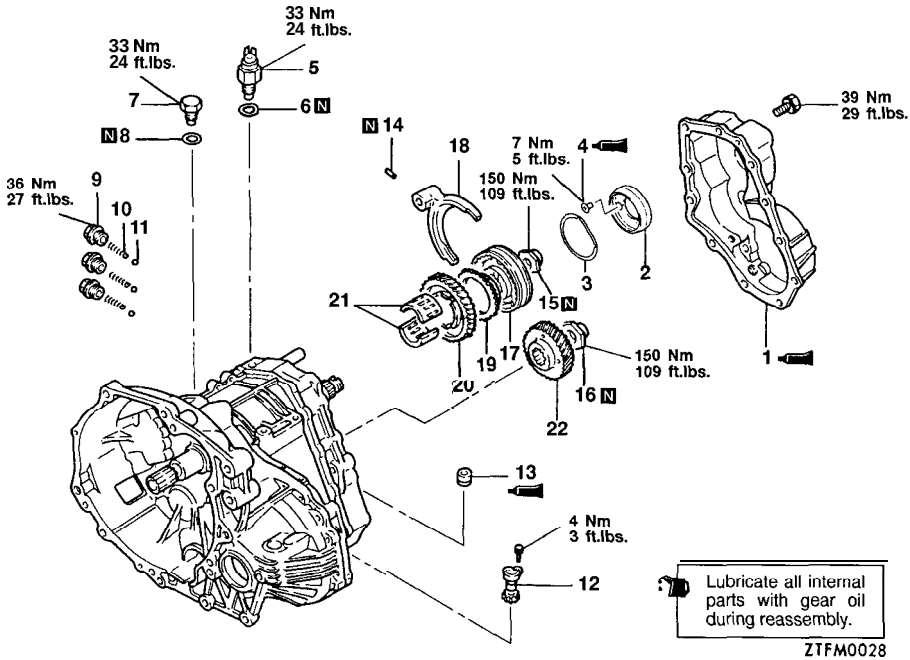


Disassembly steps

1. Bolt
▶Q◀ **2. Rear cover**
3. Reverse brake cone
▶Z◀ 4. Wave spring
▶R◀ 5. Machine screw
6. Backup light switch
7. Gasket
8. Poppet plug
9. Poppet spring
10. Poppet ball
11. Bolt
12. Speedometer driven gear assembly
▶P◀ 13. Air breather
▶O◀ 14. Spring pin
◀A▶ ▶N◀ 15. Lock nut
◀A▶ ▶N◀ 16. Lock nut
17. 5th speed synchronizer assembly
18. 5th speed shift fork
19. Synchronizer ring
20. 5th speed gear
21. Needle bearing
22. 5th speed intermediate gear

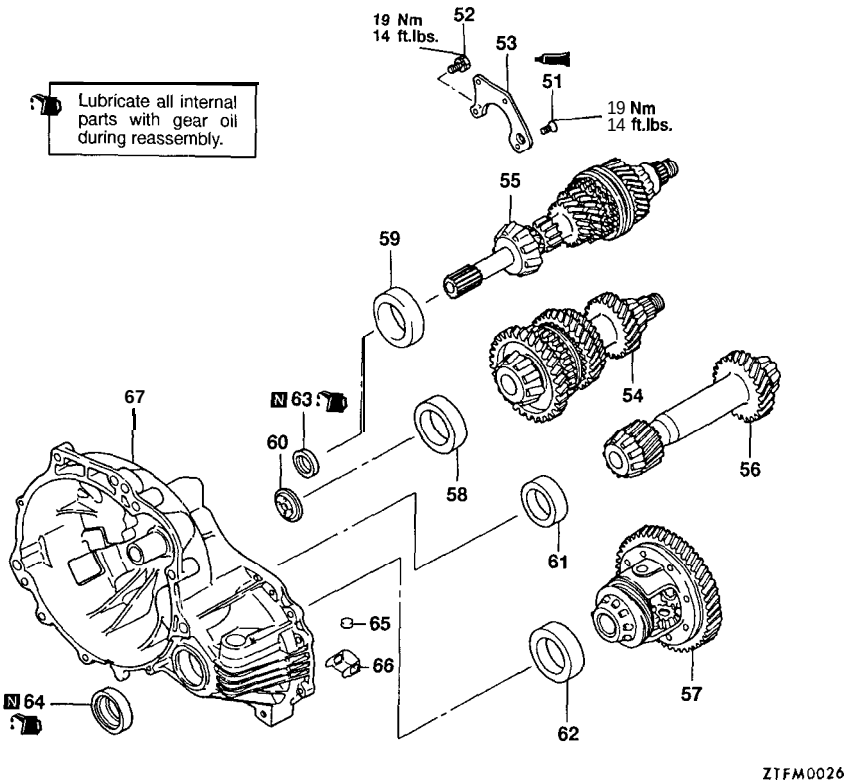
TSB Revision

DISASSEMBLY AND REASSEMBLY – W5M31



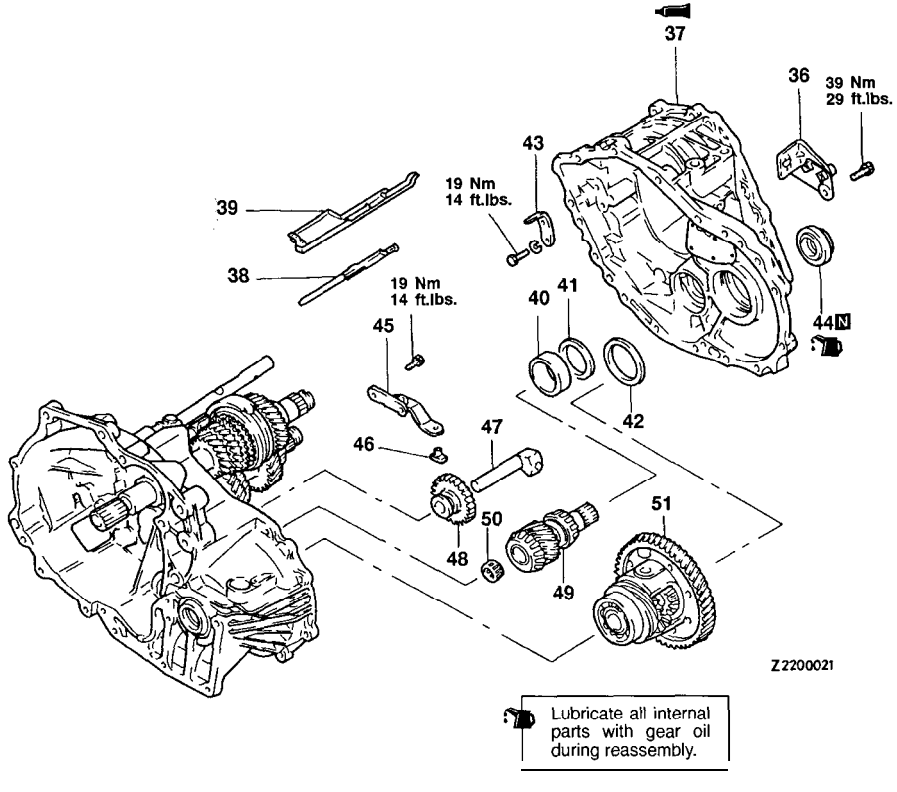
Disassembly steps

- ▶Q◀ 1. Rear cover
- 2. Reverse bracket cone
- ▶Z◀ 3. Wave spring
- ▶R◀ 4. Machine screw
- 5. Backup light switch
- 6. Gasket
- 7. Restrict ball assembly
- 8. Gasket
- 9. Poppet spring
- 10. Poppet ball
- 11. Poppet ball
- 12. Speedometer driven gear assembly
- ▶P◀ 13. Air breather
- ▶O◀ 14. Spring pin
- ◀A▶ ▶N◀ 15. Lock nut
- ◀A▶ ▶N◀ 16. Lock nut
- 17. 5th speed synchronizer assembly
- 18. Shift fork
- 19. Synchronizer ring
- 20. 5th speed gear
- 22. 5th speed intermediate gear



Disassembly steps

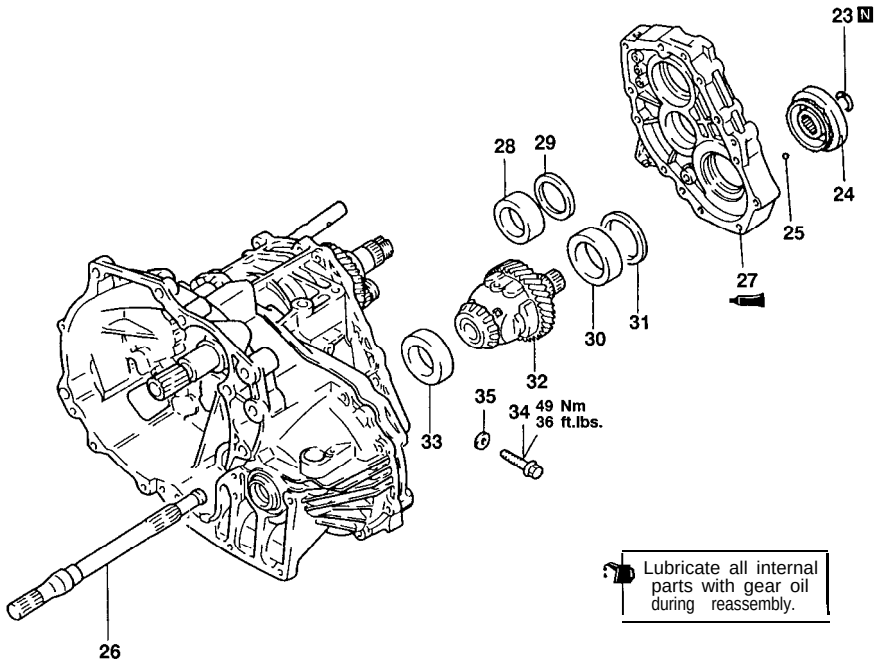
- ▶D◀ 51. Bolt
- **52.** Bolt
- 53. Bearing retainer
- ◀C▶ ▶C◀ 54. Intermediate gear assembly
- ◀C▶ ▶C◀ 55. Input shaft assembly
- 56. Output shaft assembly
- 57. Differential gear assembly
- 58. Bearing outer race
- 59. Bearing outer race
- **60.** Oil guide
- 61. Bearing outer race
- 62. Bearing outer race
- ▶B◀ **63.** Oil seal
- ▶A◀ **64.** Oil seal
- 65. Magnet
- 66. Magnet holder
- 67. Clutch housing assembly



Disassembly steps

36. Clutch oil line bracket
▶J◀ 37. Transaxle case
38. Oil guide
39. Oil guide
40. Bearing outer race
▶U◀ 41. Spacer
▶U◀ 42. Spacer
43. Stopper bracket
▶I◀ **44.** Oil seal
45. Reverse shift lever assembly
46. Reverse shift lever shoe
47. Reverse idler gear shaft
48. Reverse idler gear
49. Front output shaft
50. Needle bearing
51. Front differential

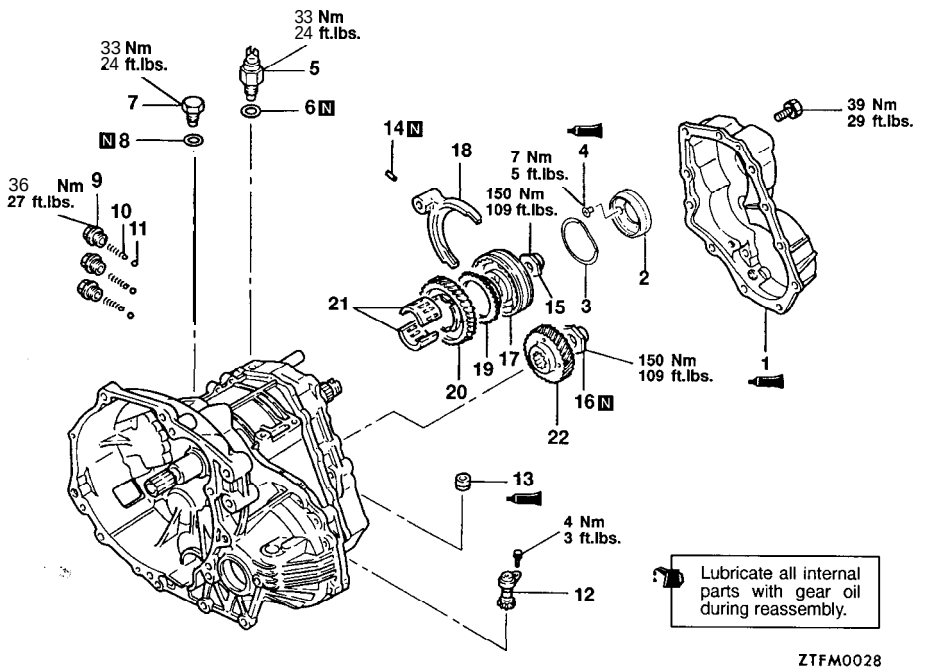
TSB Revision



Disassembly steps

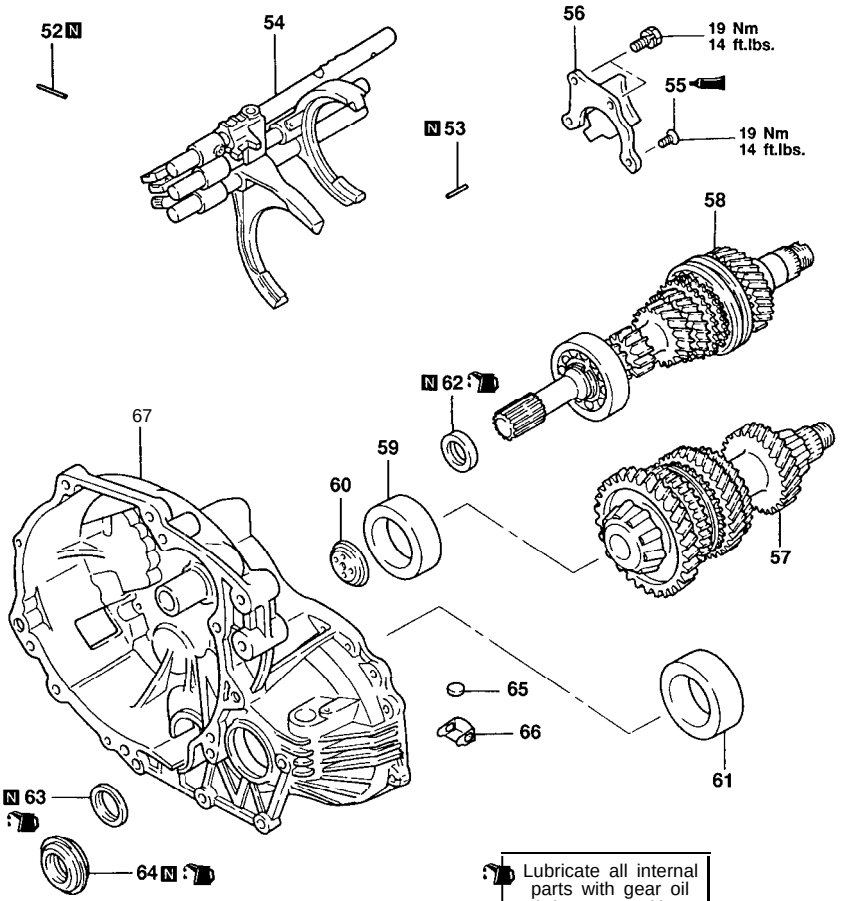
- ▶Y◀ 23. Snap ring
- 24. Viscous coupling
- ▶X◀ 25. Steel ball
- 26. Center shaft
- ▶W◀ 27. Transaxle case adapter assembly
- 28. Searing outer race
- ▶V◀ 29. Spacer
- 30. Bearing outer race
- ▶V◀ 31. Spacer
- 32. Center differential
- ◀D▶ 33. Bearing outer race
- ▶K◀ 34. Reverse idler gear shaft bolt
- 35. Gasket

DISASSEMBLY AND REASSEMBLY – W5M33



Disassembly steps

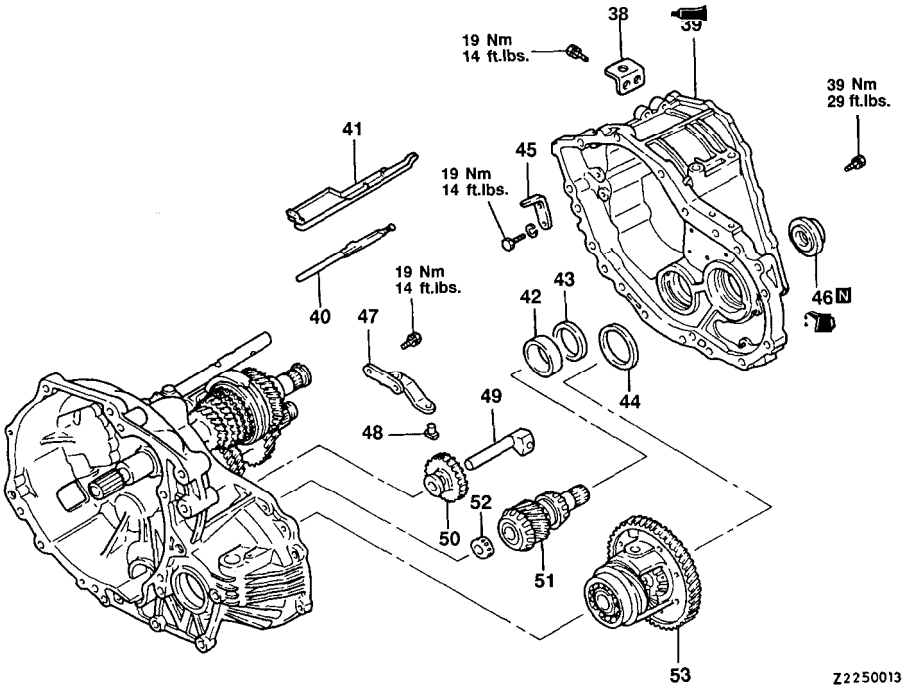
- ▶Q◀ 1. Rear cover
- 2. Reverse bracket cone
- ▶Z◀ 3. Wave spring
- ▶R◀ 4. Machine screw
- 5. Backup light switch
- 6. Gasket
- 7. Restrict ball assembly
- 8. Gasket
- 9. Poppet plug
- 10. Poppet spring
- 11. Poppet ball
- 12. Speedometer driven gear assembly
- ▶P◀ 13. Air breather
- ▶O◀ 14. Spring pin
- ◀A▶ ▶N◀ 15. Lock nut
- ◀A▶ ▶N◀ 16. Lock nut
- 17. 5th speed synchronizer assembly
- 18. Shift fork
- 19. Synchronizer ring
- 20. 5th speed gear
- 21. Needle bearing
- 22. 5th speed intermediate gear



Disassembly steps

- ▶F◀ 52. Spring pin
- ▶F◀ 53. Spring pin
- ▶E◀ 54. Shift rail assembly
- ◀B▶ ▶D◀ **55.** Bearing retainer
- ◀C▶ ▶C◀ 57. Intermediate gear assembly
- ◀C▶ ▶C◀ 58. Input shaft assembly
- ◀D▶ 59. Outer race
- ◀D▶ **60.** Oil guide
- 61. Outer race
- **62.** Oil seal
- ▶T◀ **63.** Oil seal
- ▶S◀ **64.** Oil seal
- 65. Magnet
- 66. holder
- 67. Magnet Clutch housing

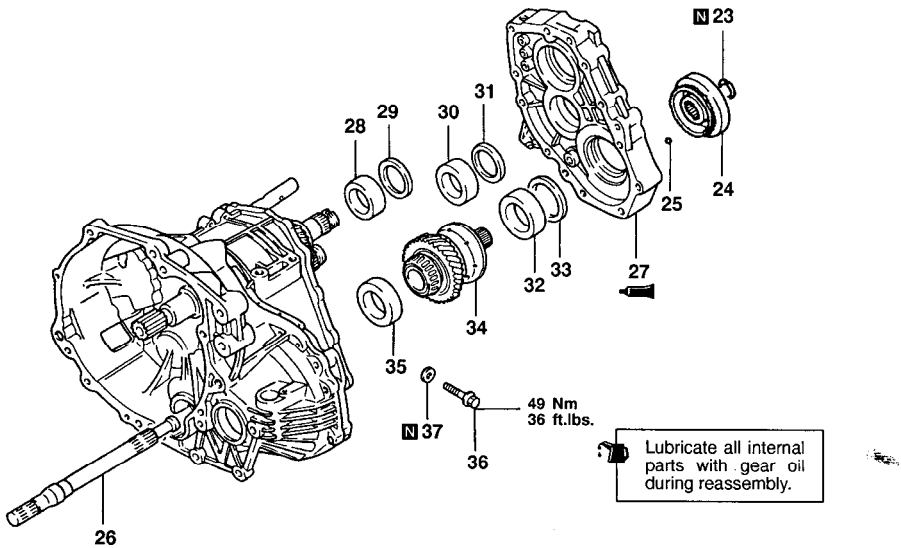
TSB Revision



Disassembly steps

38. Clutch oil line bracket
▶J◀ 39. Transaxle case
40. Oil guide
41. Oil guide
42. Outer race
▶U◀ 43. Spacer
▶U◀ 44. Spacer
45. Stopper bracket
▶I◀ 46. Oil seal
47. Reverse shift lever assembly
48. Reverse shift lever shoe
49. Reverse idler gear shaft
50. Reverse idler gear
51. Front output shaft assembly
52. Needle bearing
53. Front differential

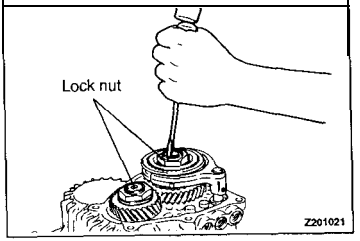
TSB Revision



YTFM0029

Disassembly steps

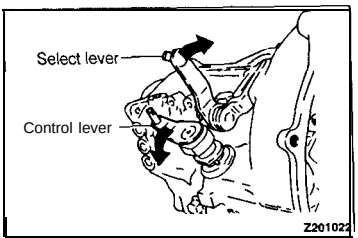
- ▶Y◀ 23. Snap ring
- 24. Viscous coupling
- ▶X◀ **25.** Steel ball
- 26. Center shaft
- ▶W◀ **27.** Transaxle case adapter
- ◀D▶ **28.** Outer case
- ▶V◀ 29. Spacer
- **30.** Outer race
- ▶V◀ 31. Spacer
- **32.** Outer race
- ▶V◀ **33.** Spacer
- 34. Center differential
- ◀D▶ **35.** Outer race
- ▶K◀ **36.** Reverse idler gear shaft bolt
- 37. Gasket



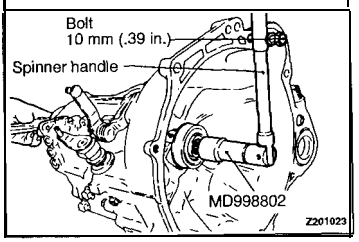
DISASSEMBLY SERVICE POINTS

◀A▶ LOCK NUTS FOR INPUT SHAFT / INTERMEDIATE GEAR REMOVAL

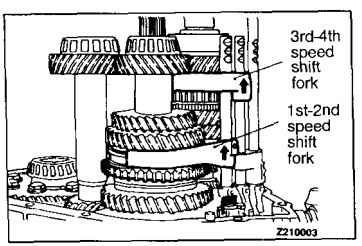
(1) Unstake lock nuts of the input shaft and intermediate gear.



(2) Shift the transaxle in reverse using the control lever and select lever.

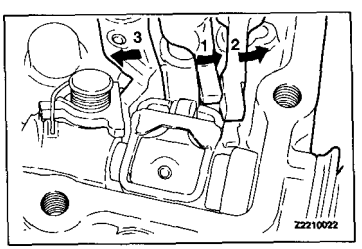


(3) Install the special tool onto the input shaft.
(4) Screw a bolt [IO mm (.39 in.)] into the bolt hole on the periphery of clutch housing and attach a spinner handle to the special tool.
(5) Remove the lock nut, while using the bolt as a spinner handle stopper.

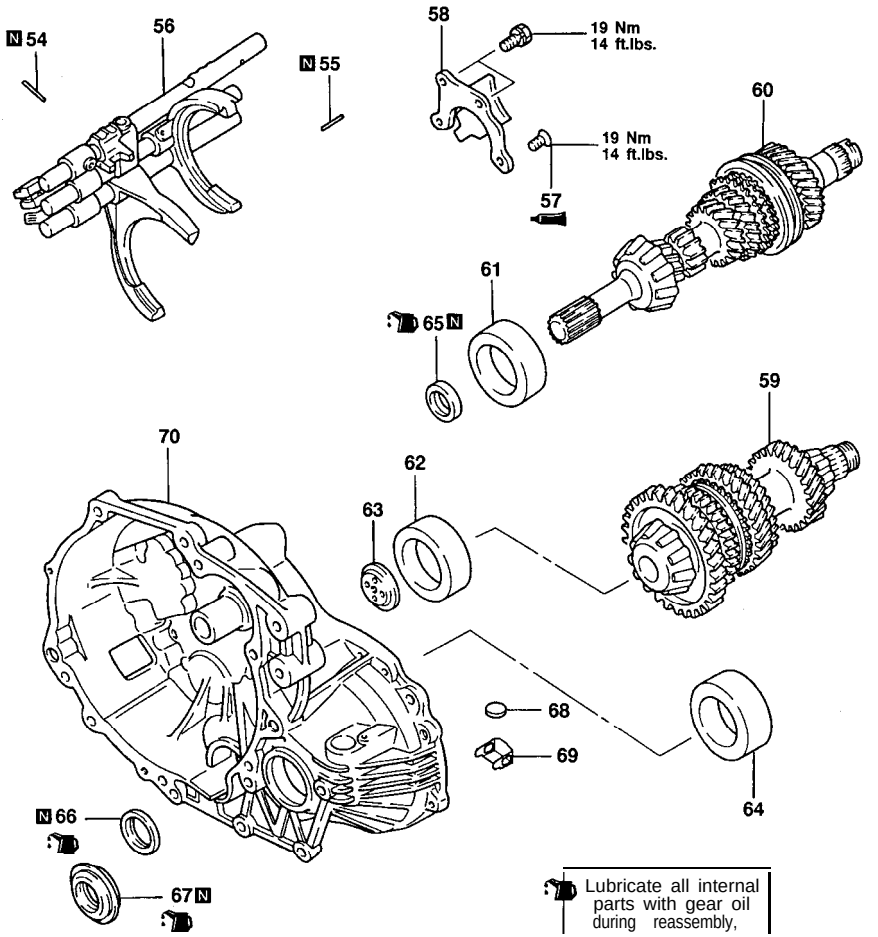


◀B▶ SHIFT RAIL ASSEMBLY REMOVAL

(1) Shift the 1st-2nd speed shift fork to the 2nd speed.
(2) Shift the 3rd-4th speed shift fork to the 4th speed.



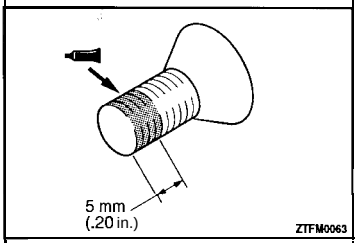
(3) Remove the shift rail assembly as shown in the illustration so as not to hit the interlock plate and control finger.



Disassembly steps

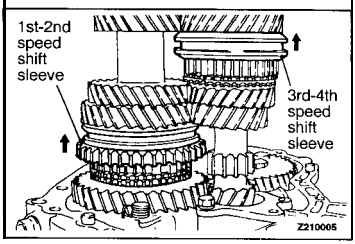
- ▶F◀ **54.** Spring pin
- ▶F◀ 55. Spring pin
- ◀B▶ ▶E◀ 56. Shift rail assembly
- ▶D◀ **57.** Bolt
- 58. Bearing retainer
- ◀C▶ ▶C◀ 59. Intermediate gear assembly
- ◀C▶ ▶C◀ 60. Input shaft assembly
- ◀D▶ **61.** Outer race
- ◀D▶ **62.** Outer race
- **63.** Oil guide
- ◀D▶ **64.** Outer race
- ▶B◀ **65.** Oil seal
- ▶S◀ **66.** Oil seal
- ▶T◀ **67.** Oil seal
- 68. Magnet
- 69. Magnet holder
- 70. Clutch housing assembly

TSB Revision



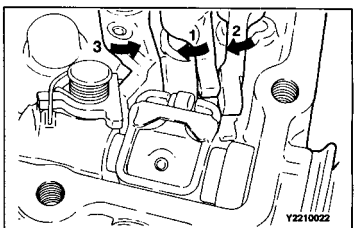
▶D◀ SEALANT APPLICATION TO BEARING RETAINER MOUNTING BOLT

Specified sealant:
3M STUD Locking No.4170 or equivalent

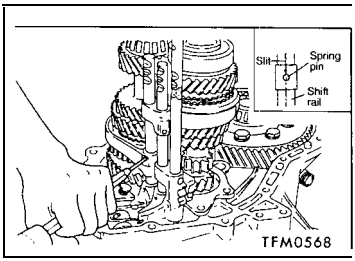


▶E◀ SHIFT RAIL ASSEMBLY INSTALLATION

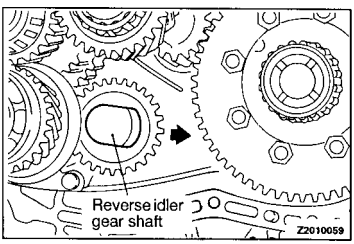
(1) Set the 1st-2nd speed shift sleeve at 2nd speed.
(2) Set the 3rd-4th speed shift sleeve at 4th speed.
(3) Install the shift forks to respective sleeves.



(4) Insert the shift rail into the shift fork hole, while turning so as to prevent the shift lug from interfering with the stopper plate.
(5) Turn the shift rail to engage shift lug.



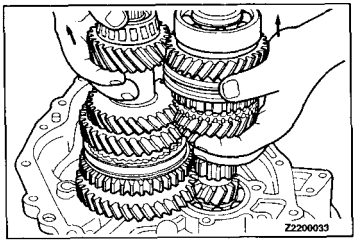
▶F◀ SPRING PINS FOR 1ST-2ND SPEED SHIFT FORK / 3RD-4TH SPEED SHIFT FORK INSTALLATION



▶G◀ REVERSE IDLER GEAR SHAFT INSTALLATION

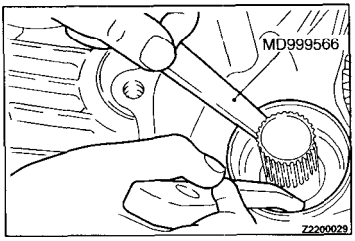
(1) Install in the direction as illustrated.

TSB Revision



◀C▶ INTERMEDIATE GEAR ASSEMBLY / INPUT SHAFT ASSEMBLY REMOVAL

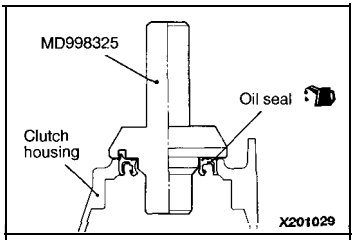
(1) Lift up the input shaft assembly and remove the intermediate gear assembly.



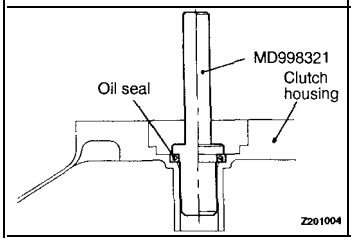
◀D▶ BEARING OUTER RACE REMOVAL

REASSEMBLY SERVICE POINTS

▶A◀ OIL SEAL FOR DRIVE SHAFT INSTALLATION

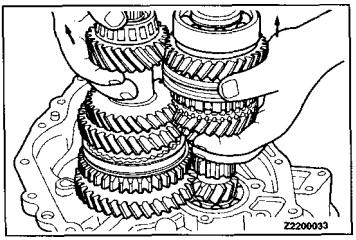


▶B◀ OIL SEAL FOR INPUT SHAFT FRONT INSTALLATION

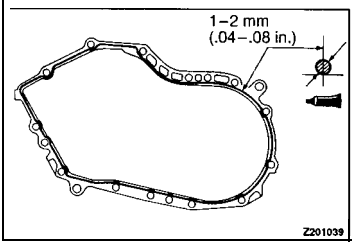


▶C◀ INTERMEDIATE GEAR ASSEMBLY / INPUT SHAFT ASSEMBLY INSTALLATION

(1) Lifting up the input shaft assembly, install it simultaneously with the intermediate gear assembly.



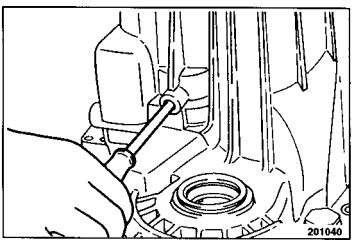
TSB Revision



▶J◀ SEALANT APPLICATION TO TRANSAXLE CASE

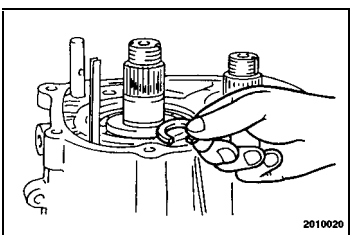
(1) Squeeze out sealant from the tube uniformly without excess or discontinuity.

Specified sealant:
Mitsubishi genuine **sealant part No.MD997740 or** equivalent



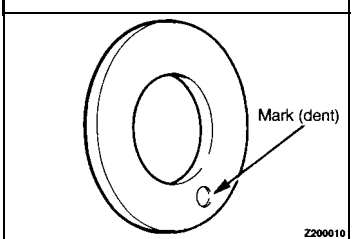
▶K◀ REVERSE IDLER GEAR SHAFT BOLT INSTALLATION

(1) Center the shaft with a Phillips screwdriver [shaft diameter 8 mm (.31 in.)] or the like.
(2) Tighten the reverse idler gear shaft bolt to specified torque.



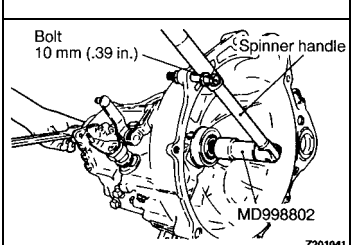
▶L◀ SNAP RING INSTALLATION

(1) Select the thickest snap ring that can be fitted into the snap ring groove.



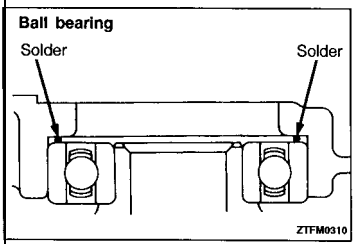
▶M◀ DISHED WASHER INSTALLATION

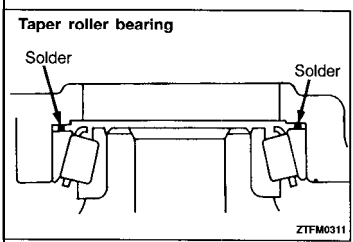
(1) Install the dished washer with the face identified by mark (dent) toward lock nut.

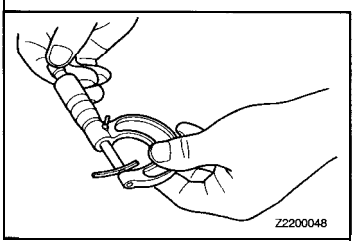


▶N◀ LOCK NUTS FOR INPUT SHAFT / INTERMEDIATE GEAR INSTALLATION

(1) Install the special tool onto the input shaft.
(2) Screw a bolt [10 mm (.39 in.)] into the hole on the periphery of clutch housing and attach a spinner handle to the special tool.







▶H◀ SPACERS SELECTION

(1) Place solder with a length of approximately 10 mm (.39 in.) and a diameter of approximately 1.6 mm (.063 in.) in the spacer mounting position.
(2) Tighten the case mounting bolt at the specified torque.
(3) Remove the case and then take out the solder. If the solder is not broken, use solder with a larger diameter to carry out the operations in (1) and (2).

(4) Measure the thickness of the crushed solder with a micrometer and select and install a spacer of thickness that gives standard end play and preload.

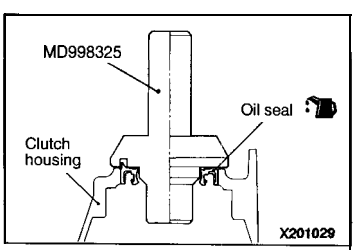
Standard value:

Input shaft
End play
0–0.05 mm (0–.0020 in.) <F5M33>

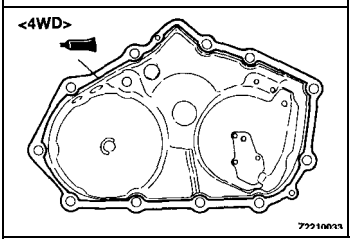
Intermediate gear
End play
0.05–0.17 mm (.0020–.0067 in.) <F5M21>
Preload
0.05–0.10 mm (.0020–.0040 in.) <F5M22>

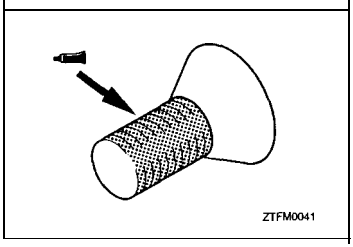
Output shaft
Preload
0.05–0.10 mm (.0020–.0040 in.) <All models>

Differential case
End play
0.05–0.17 mm (.0020–.0067 in.) <F5M21>
Preload
0.05–0.10 mm (.0020–.0040 in.) <F5M22>



▶I◀ OIL SEAL FOR DRIVE SHAFT INSTALLATION

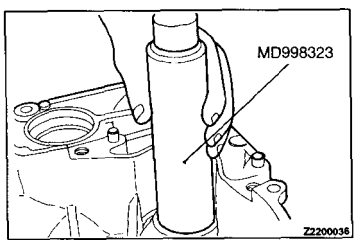




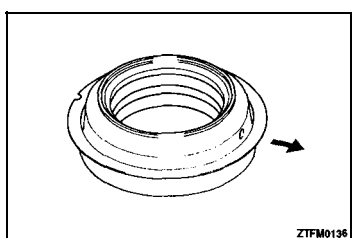
▶R◀ SEALANT APPLICATION TO MACHINE SCREW

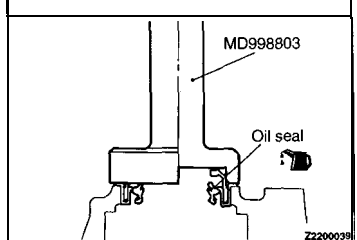
Specified sealant:

3M STUD Locking No.4170 or equivalent



▶S◀ OIL SEAL INSTALLATION





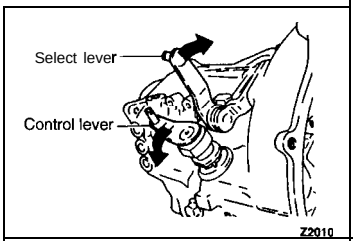
▶T◀ OIL SEAL INSTALLATION

(1) Install the oil seal flange part so that the 3 mm (.12 in.) hole faces the bottom of the transaxle.

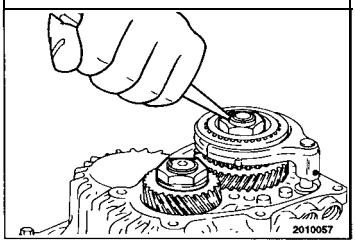
Caution

- **Apply transmission oil to the oil seal lip before installing.**

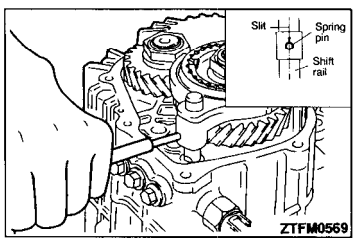
TSB Revision



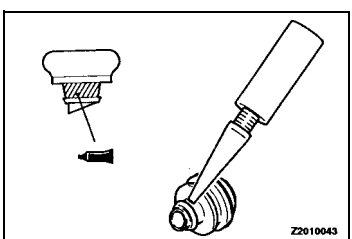
(3) Shift the transaxle in reverse using control lever and select lever.
(4) Tighten the lock nut to specified torque, while using the bolt attached in the above step as a spinner handle stop per.



(5) Stake the lock nut.

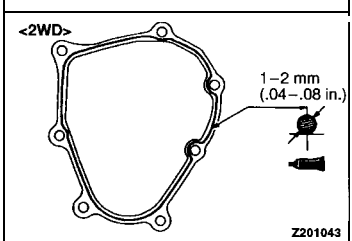


▶O◀ SPRING PIN FOR OD-R SHIFT FORK INSTALLATION



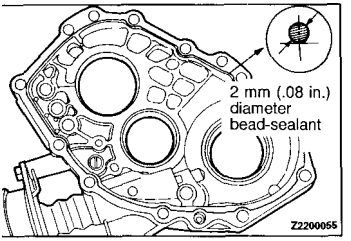
▶P◀ SEALANT APPLICATION TO AIR BREATHER

Specified sealant:
3M SUPER WEATHERSTRIP No.8001 or equivalent



▶Q◀ SEALANT APPLICATION TO REAR COVER

Specified sealant:
Mitsubishi genuine sealant Part No.MD997740 or equivalent

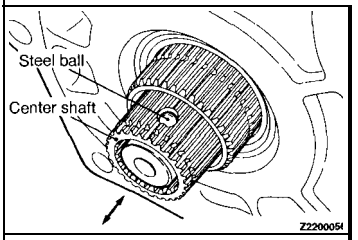


▶W◀TRANSAXLE CASE ADAPTER ASSEMBLY INSTALLATION

(1) Apply specified sealant (liquid gasket) to the transaxle case side of the transaxle case adapter assembly.

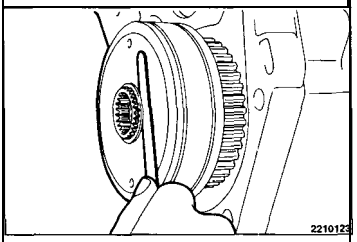
Specified sealant:
Mitsubishi genuine sealant Part No.MD997740 or equivalent

Caution
- **Squeeze out sealant from the tube uniformly without excess or discontinuity.**



▶X◀ STEEL BALLS INSTALLATION

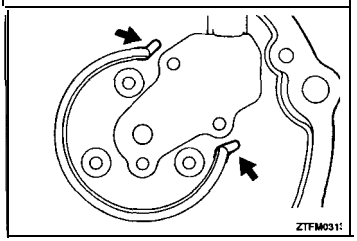
(1) Move the center shaft so that the steel balls are securely seated in the grooves.



▶Y◀ SNAP RING INSTALLATION

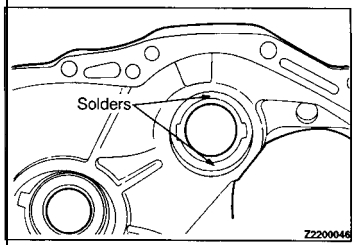
(1) Choose a snap ring that gives the standard end play of the viscous coupling and install it.

Standard value:
Viscous coupling: 0.10–0.26 mm (.0039–.0102 in.)



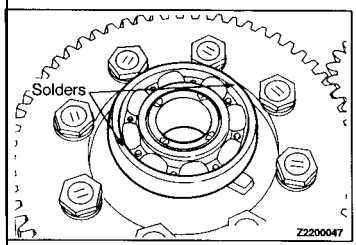
▶Z◀ WAVE SPRING INSTALLATION

(1) Install the wave spring so that the clasps come to the indicated position in the illustration.

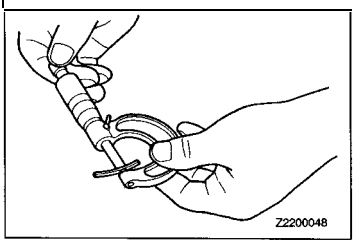


▶U◀ SPACERS INSTALLATION

(1) Place two pieces of solder measuring about 10 mm (.39 in.) in length and 3 mm (.12 in.) in diameter at illustrated locations on the transaxle and install each outer race.

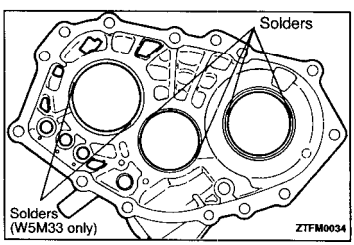


(2) Place two pieces of solder measuring about 10 mm (.39 in.) in length and 3 mm (.12 in.) in diameter on the bearing outer race as shown in illustration.
(3) Install the transaxle case and tighten the bolts to specified torque.
(4) Remove the transaxle case and remove the solder.



(5) Measure the thickness of the crushed solder with a micrometer and select and install a spacer of thickness that gives standard end play.

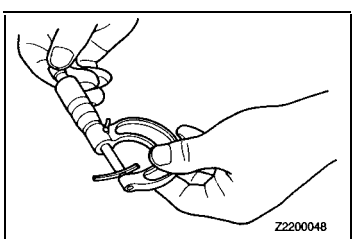
Standard value:
Front output shaft bearing preload:
0.08–0.13 mm (.0031–.0051 in.)
Front differential case end play:
0.05–0.17 mm (.0020–.0067 in.)

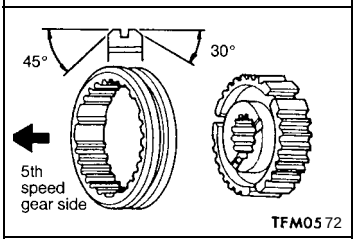


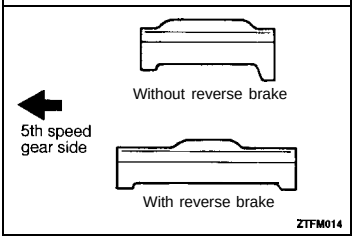
▶V◀ SPACERS INSTALLATION

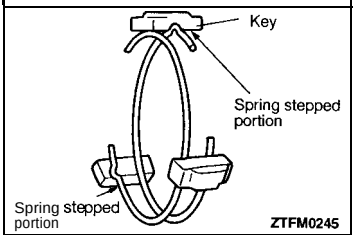
(1) Place two pieces of solder measuring about 10 mm (.39 in.) in length and 3 mm (.12 in.) in diameter at illustrated locations on the transaxle case adapter assembly and install each outer race.
(2) Install the transaxle case adapter assembly and rear cover and tighten the bolts to specified torque.
(3) Remove the transaxle case adapter assembly and rear cover.
(4) Remove each outer race and remove the solder. Measure the thickness of the crushed solder with a micrometer and select and install a spacer of thickness that gives standard end play and preload.

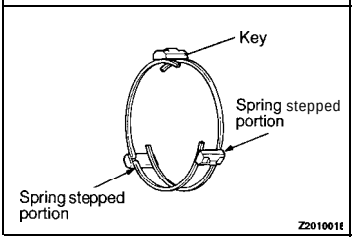
Standard value:
Intermediate gear preload:
0.08–0.13 mm (.0031–.0051 in.)
Center differential case preload:
0.08–0.13 mm (.0031–.0051 in.)
Input shaft end play:
0–0.05 mm (0–.0020 in.) <W5M33>











REASSEMBLY SERVICE POINTS

▶A◀ SYNCHRONIZER HUB / SYNCHRONIZER SLEEVE INSTALLATION

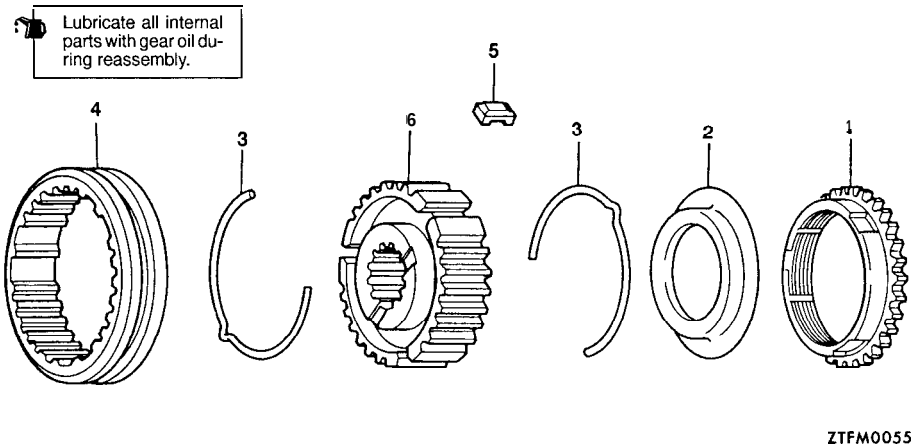
▶B◀ SYNCHRONIZER KEY INSTALLATION

▶C◀ SYNCHRONIZER SPRING INSTALLATION

(1) When installing the synchronizer springs, be sure to position each spring with respect to the keys as illustrated.

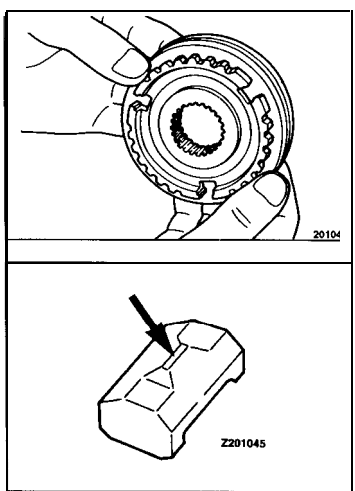
5TH SPEED SYNCHRONIZER <5–speed Model Only>

DISASSEMBLY AND REASSEMBLY



Disassembly steps

1. Reverse brake ring (with reverse brake)
2. Stop plate (without reverse brake)
▶C◀ 3. Synchronizer spring
▶A◀ 4. Synchronizer sleeve
▶B◀ 5. Synchronizer key
▶A◀ 6. Synchronizer hub



INSPECTION

SYNCHRONIZER SLEEVE AND HUB

(1) Combine the synchronizer sleeve and hub and check that they slide smoothly.
(2) Check that the sleeve is free from damage at its inside front and rear ends.
(3) Check for wear of the hub front end (surface in contact with the 5th speed gear).

Caution

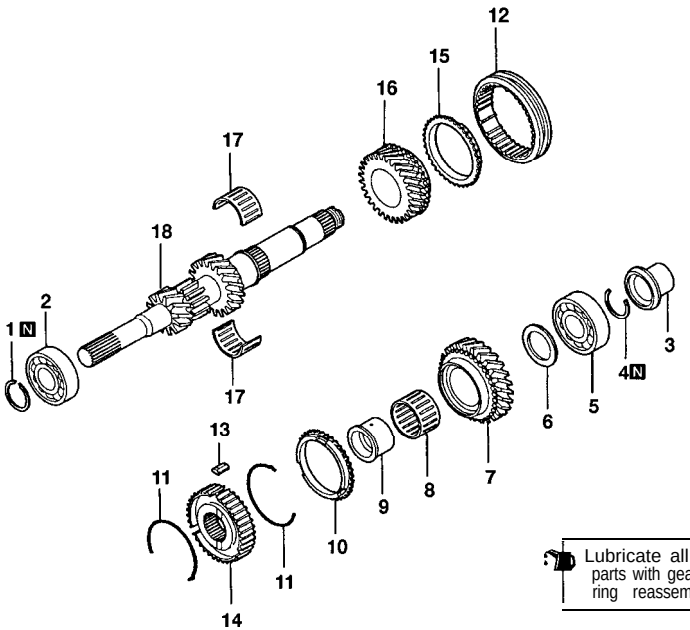
- **When replacing, replace the synchronizer hub and sleeve as a set.**

SYNCHRONIZER KEY AND SPRING

(1) Check for wear of the synchronizer key center protrusion.
(2) Check the spring for weakness, deformation and breakage.

TSB Revision

DISASSEMBLY AND REASSEMBLY – F5M22



ZTFM0260

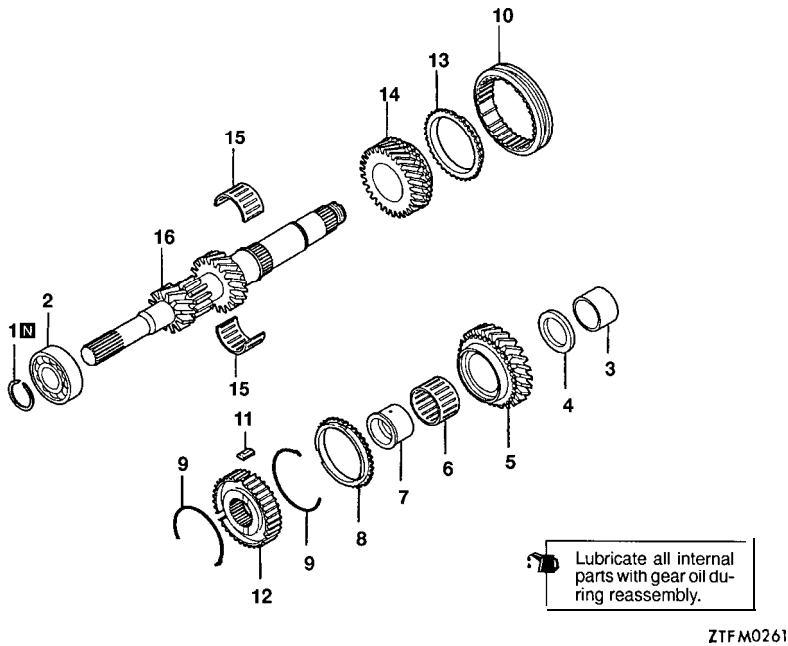
Disassembly steps

- ▶K◀ 1. Snap ring
- ◀A▶ ▶J◀ 2. Ball bearing
- ◀B▶ ▶I◀ 3. Bearing sleeve
- ▶H◀ 4. Snap ring
- ◀D▶ ▶G◀ 5. Ball bearing
- ▶E◀ 6. Spacer
- 7. 4th speed gear
- 8. Needle bearing
- ▶C◀ 9. Bearing sleeve
- 10. Synchronizer ring
- ▶B◀ 11. Synchronizer spring
- ▶A◀ 12. 3rd-4th speed synchronizer sleeve
- ▶B◀ 13. Synchronizer key
- ▶A◀ 14. 3rd-4th speed synchronizer hub
- 15. Synchronizer ring
- ◀D▶ 16. 3rd speed gear
- 17. Needle bearing
- 18. Input shaft

TSB Revision

INPUT SHAFT

DISASSEMBLY AND REASSEMBLY – F4M21, F5M21



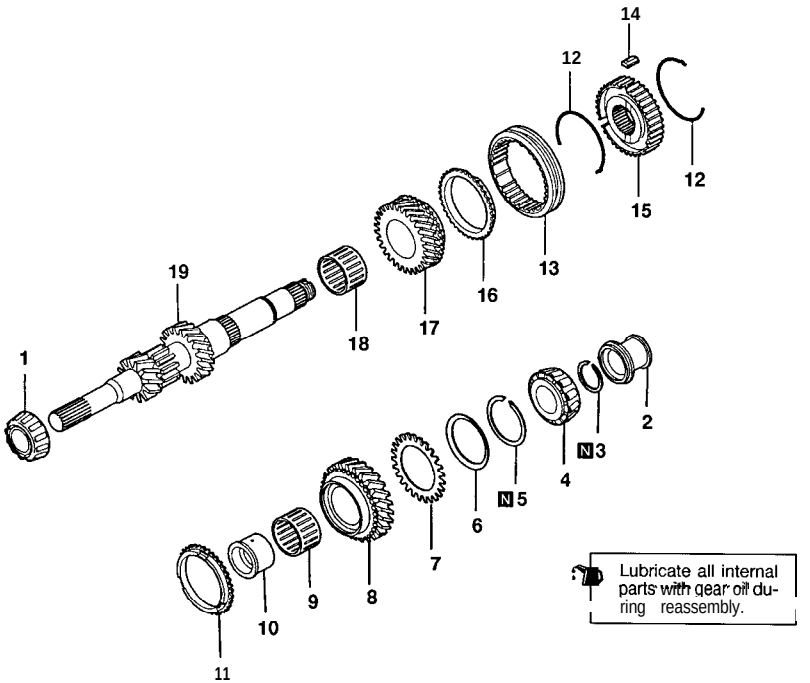
ZTFM0261

Disassembly steps

- ▶K◀ 1. Snap ring
- ◀A▶ ▶J◀ 2. Ball bearing
- ▶F◀ 3. Inner ring
- ▶E◀ 4. Spacer
- ◀C▶ 5. 4th speed gear
- 6. Needle bearing
- ▶C◀ 7. Bearing sleeve
- 8. Synchronizer ring
- ▶B◀ 9. Synchronizer spring
- ▶A◀ 10. 3rd-4th speed synchronizer sleeve
- ▶B◀ 11. Synchronizer key
- ▶A◀ 12. 3rd-4th speed synchronizer hub
- 13. Synchronizer ring
- ◀C▶ 14. 3rd speed gear
- 15. Needle bearing
- 16. Input shaft

TSB Revision

DISASSEMBLY AND REASSEMBLY – F5M33



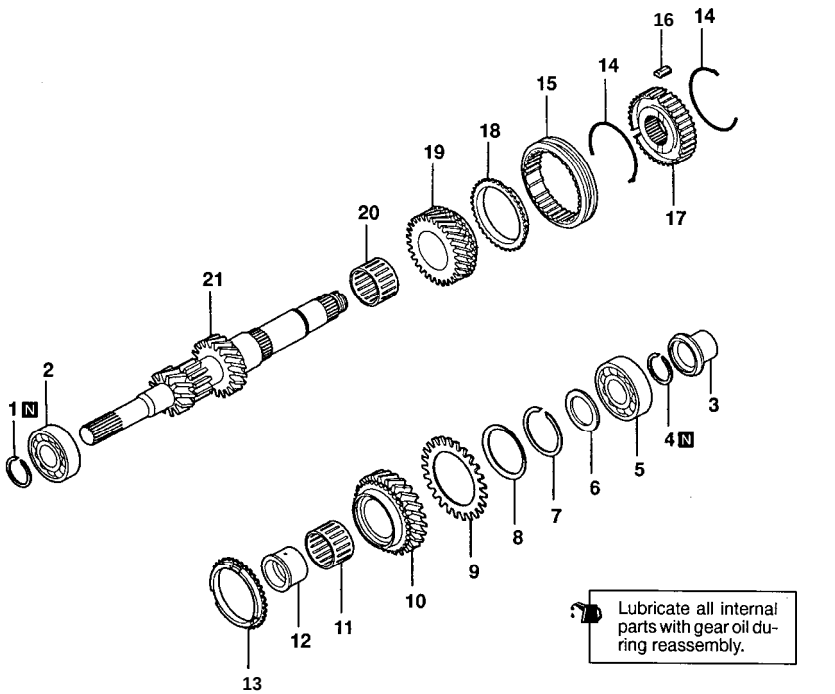
ZTFM0262

Disassembly steps

◀A▶ ▶J◀ 1. Taper roller bearing
◀B▶ ▶I◀ 2. Bearing sleeve
▶H◀ 3. Snap ring
◀D▶ ▶G◀ 4. Taper roller bearing
▶D◀ 5. Snap ring
▶D◀ 6. Cone spring
▶D◀ 7. Sub gear
8. 4th speed gear
9. Needle bearing
▶C◀ 10. Bearing sleeve
11. Synchronizer ring
▶B◀ 12. Synchronizer spring
▶A◀ 13. 3rd-4th synchronizer sleeve
▶B◀ 14. Synchronizer key
▶A◀ 15. 3rd-4th synchronizer hub
16. Synchronizer ring
◀D▶ 17. 3rd speed gear
18. Needle bearing
19. Input shaft

TSB Revision

DISASSEMBLY AND REASSEMBLY – F5M31

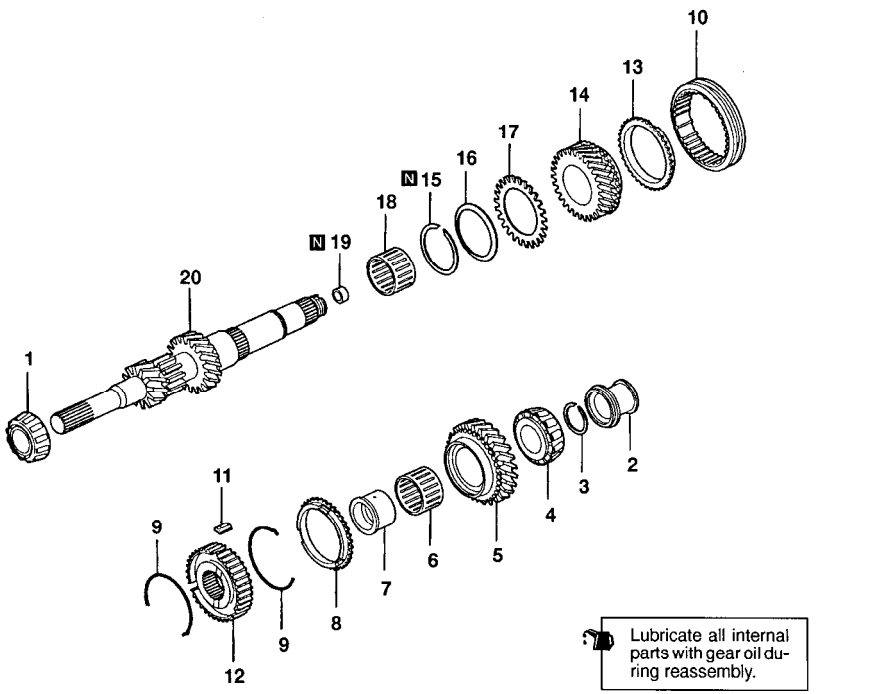


Disassembly steps

- ▶K◀ 1. Snap ring
- ◀A▶ ▶J◀ 2. Ball bearing
- ◀B▶ ▶I◀ 3. Bearing sleeve
- ◀D▶ ▶G◀ 4. Snap ring
- 5. Ball bearing
- ▶E◀ 6. Spacer
- ▶D◀ 7. Snap ring
- ▶D◀ 8. Cone spring
- ▶D◀ 9. 2nd gear
- 10. 4th speed gear
- 11. Needle bearing
- ▶C◀ 12. Bearing sleeve
- 13. Synchronizer ring
- ▶B◀ 14. Synchronizer spring
- ◀A▶◀B▶ 15. 3rd-4th speed synchronizer sleeve
- Synchronizer key
- ▶A◀ 17. 3rd-4th speed synchronizer hub
- 18. Synchronizer ring
- ◀D▶ 19. 3rd speed gear
- 20. Needle bearing
- Input shaft

TSB Revision

DISASSEMBLY AND REASSEMBLY – W5M33



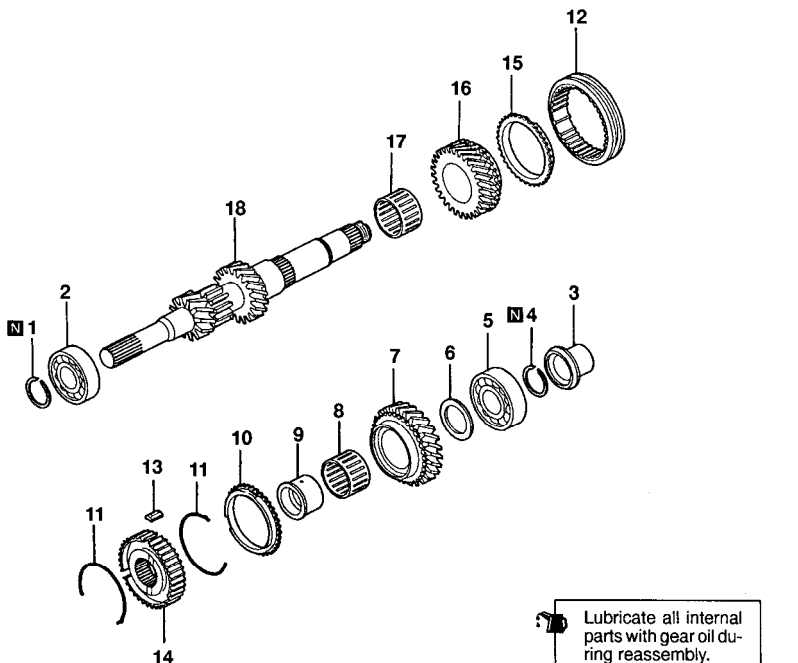
ZTFM0256

Disassembly steps

◀A▶ ▶J◀ 1. Taper roller bearing
◀B▶ ▶I◀ 2. Searing sleeve
▶H◀ 3. Snap ring
◀D▶ ▶G◀ 4. Taper roller bearing
5. 4th speed gear
6. Needle bearing
▶C◀ 7. Bearing sleeve
8. Synchronizer ring
▶B◀ 9. Synchronizer spring
▶A◀ 10. 3rd-4th speed synchronizer sleeve
▶B◀ 11. Synchronizer key
▶A◀ 12. 3rd-4th speed synchronizer hub
13. Synchronizer ring
◀D▶ 14. 3rd speed gear
▶D◀ 15. Snap ring
▶D◀ 16. Cone spring
▶D◀ 17. Sub gear
18. Needle bearing
19. Oil seal
20. Input shaft

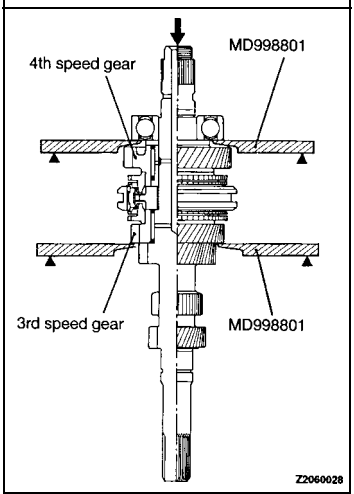
TSB Revision

DISASSEMBLY AND REASSEMBLY – W5M31

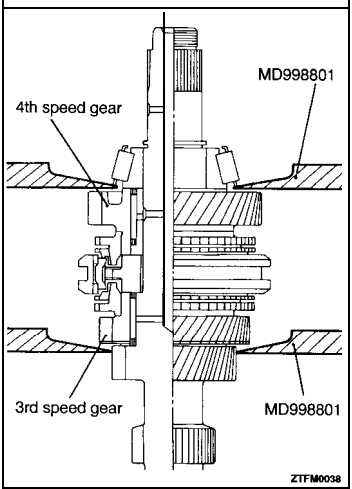


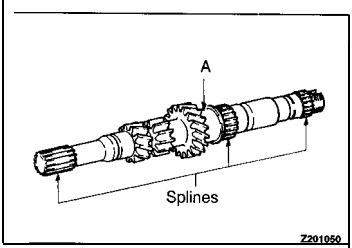
Disassembly steps

- ▶K◀ 1. Snap ring
- ◀A▶ ▶J◀ 2. Ball bearing
- ◀B▶ ▶I◀ 3. Bearing sleeve
- ▶H◀ 4. Snap ring
- ◀D▶ ▶G◀ 5. Ball bearing
- ▶E◀ 6. Spacer
- 7. 4th speed gear
- 8. Needle bearing
- ▶C◀ 9. Bearing sleeve
- 10. Synchronizer ring
- ▶B◀ 11. Synchronizer spring
- ▶A◀ 12. 3rd-4th speed synchronizer sleeve
- ▶B◀ 13. Synchronizer key
- ▶A◀ 14. 3rd-4th speed synchronizer hub
- 15. Synchronizer ring
- ◀D▶ 16. 3rd speed gear
- 17. Needle bearing
- 18. Input shaft



◀D▶ REAR BALL BEARING / TAPER ROLLER BEARING / 3RD SPEED GEAR REMOVAL

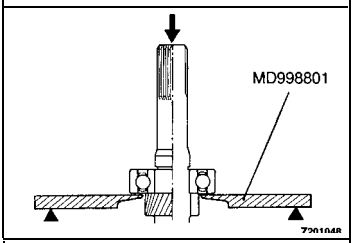




INSPECTION

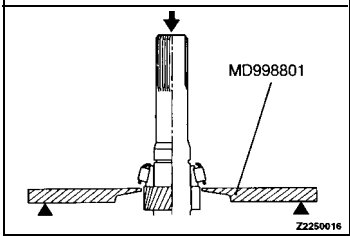
INPUT SHAFT

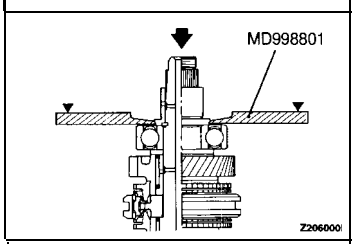
(1) Check the outer surface of the input shaft where the needle bearing is mounted for damage, abnormal wear and seizure [portion A].
(2) Check the splines for damage and wear.



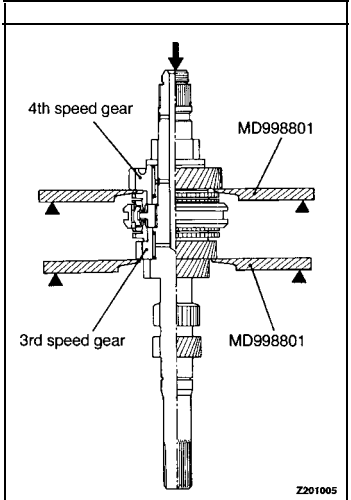
DISASSEMBLY SERVICE POINTS

◀A▶ **FRONT BALL BEARING / FRONT TAPER ROLLER BEARING REMOVAL**

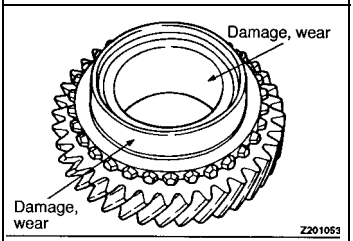




◀B▶ **BEARING SLEEVE FOR 5TH SPEED GEAR REMOVAL**



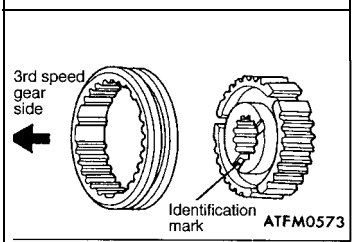
◀C▶ **4TH SPEED GEAR I 3RD SPEED GEAR REMOVAL**



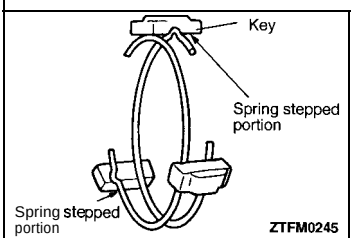
SPEED GEARS

(1) Check the synchronizer cone for rough surface, damage and wear.
(2) Check the gear bore and front and rear ends for damage and wear.

REASSEMBLY SERVICE POINTS

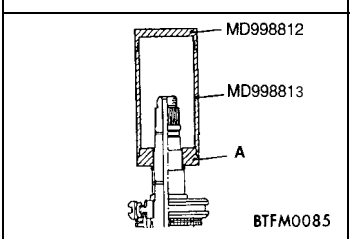


▶A◀ 3RD-4TH SPEED SYNCHRONIZER HUB / 3RD-4TH SPEED SYNCHRONIZER SLEEVE INSTALLATION



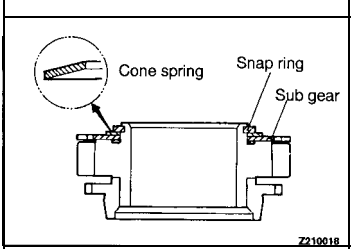
▶B◀ SYNCHRONIZER SPRING I SYNCHRONIZER KEY INSTALLATION

(1) When installing the synchronizer springs, be sure to position each spring with respect to the keys as illustrated.

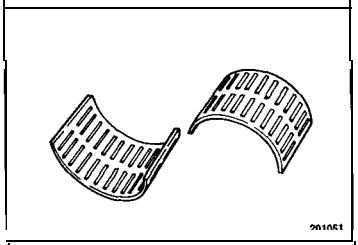


▶C◀ BEARING SLEEVE FOR 4TH SPEED GEAR INSTALLATION

	F5M21, F5M22	F5M31, F5M33, W5M31, W5M33
A	GENERAL TOOL	MD998818

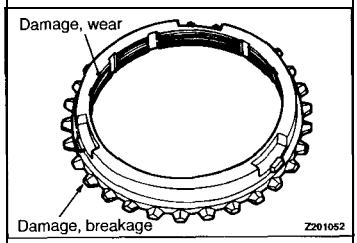


▶D◀ SUB GEAR I CONE SPRING / SNAP RING INSTALLATION



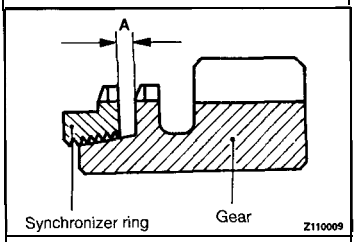
NEEDLE BEARING

(1) Combine the needle bearing with the shaft or bearing sleeve and gear and check that it rotates smoothly without abnormal noise or play.
(2) Check the needle bearing cage for deformation.



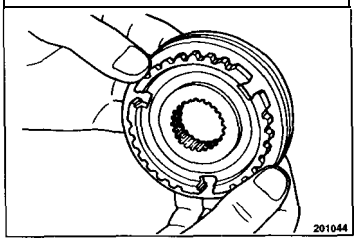
SYNCHRONIZER RING

(1) Check the clutch gear teeth for damage and breakage.
(2) Check the internal surface for damage, wear and broken threads.



(3) Force the synchronizer ring toward the clutch gear and check clearance "A". Replace if it is out of specification.

Limit: 0.5 mm (.020 in.)

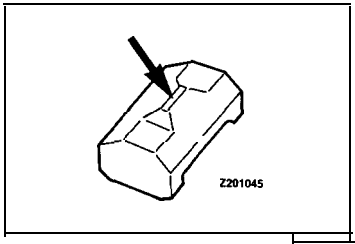


SYNCHRONIZER SLEEVE AND HUB

(1) Combine the synchronizer sleeve and hub and check that they slide smoothly.
(2) Check that the sleeve is free from damage at its inside front and rear ends.
(3) Check for wear of the hub end surfaces (in contact with each speed gear).

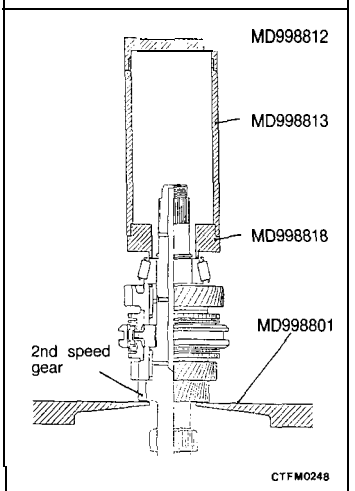
Caution

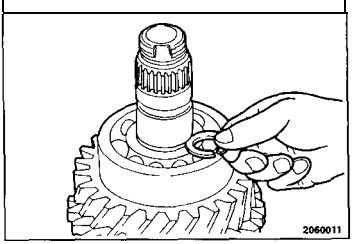
- **When replacing, replace the synchronizer hub and sleeve as a set.**



SYNCHRONIZER KEY AND SPRING

(1) Check for wear of the synchronizer key center protrusion.
(2) Check the spring for weakness, deformation and breakage.

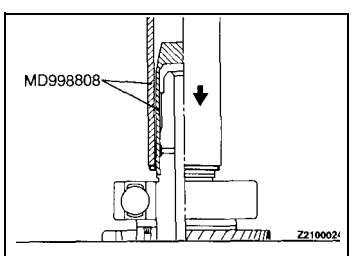




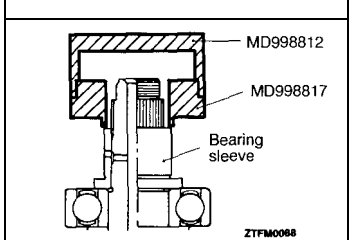
▶H◀ SNAP RING INSTALLATION

(1) Select the thickest snap ring that can be fitted in the snap ring groove.

Standard value:
Input shaft rear bearing end play
0–0.09 mm (0–.0035 in.)

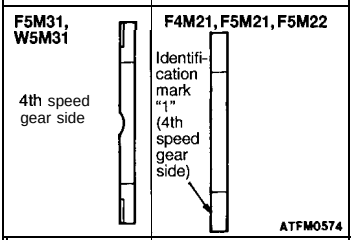


Caution
- **Do not reuse the snap ring.**
- **The snap ring may be opened too wide by pliers, resulting in inproper installation of the sleeve.**



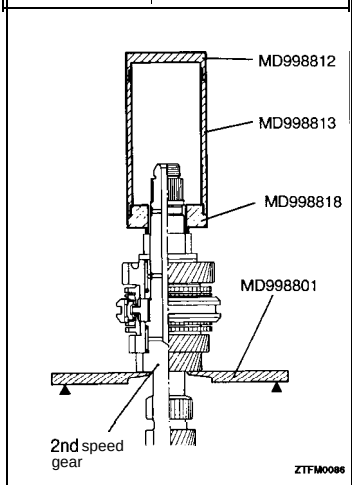
▶I◀ BEARING SLEEVE FOR 5TH SPEED GEAR INSTALLATION

Caution
- **When press-fitting the sleeve to the input shaft, make sure that the sleeve flange is closely fitted to the bearing.**

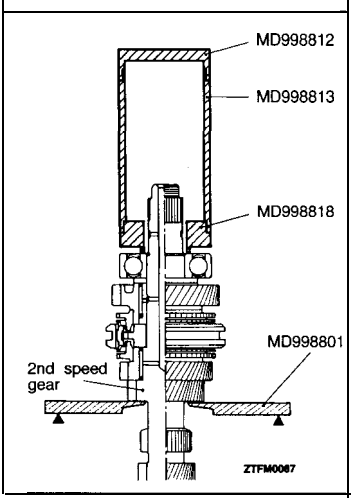


▶E◀ SPACER INSTALLATION

(1) Install with the side having the identification mark "1" on the 4th speed gear side. Spacers without identification mark may be installed in either direction.



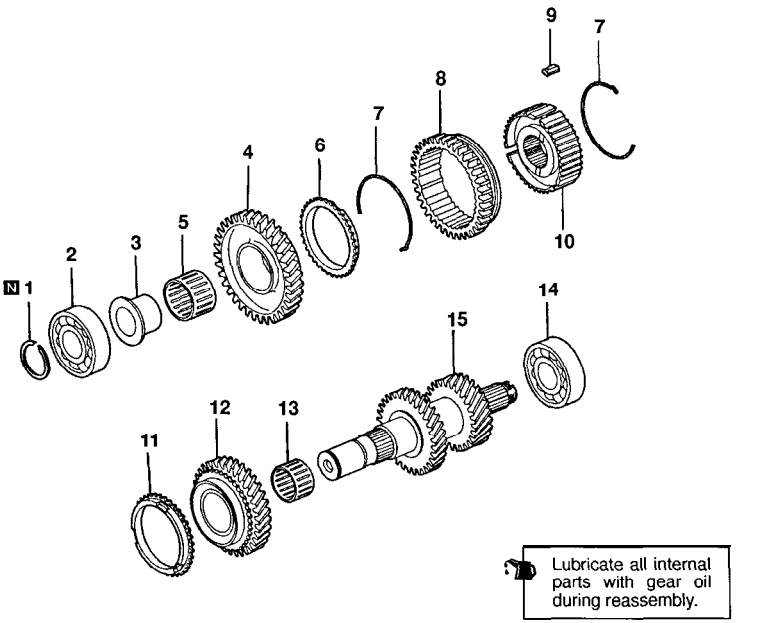
▶F◀ INNER RING FOR REAR BEARING INSTALLATION



▶G◀ REAR BALL BEARING INSTALLATION

INTERMEDIATE GEAR

DISASSEMBLY AND REASSEMBLY – F4M21, F5M21

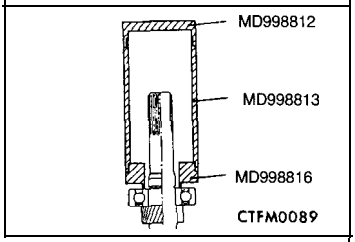


ZTFM0258

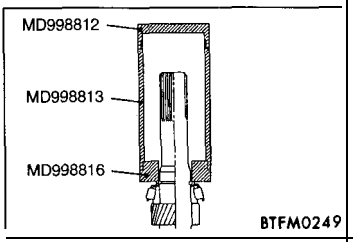
Disassembly steps

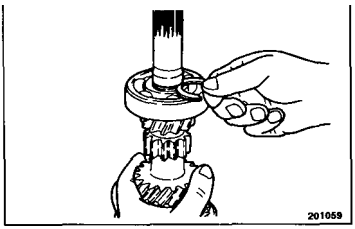
- ▶I◀ 1. Snap ring
- ◀A▶ ▶H◀ 2. Ball bearing
- ▶F◀ 3. Bearing sleeve
- ◀A▶ 4. 1st speed gear
- 5. Needle bearing
- ▶C◀ 6. Synchronizer ring
- ▶E◀ 7. Synchronizer spring
- ▶D◀ 8. 1st-2nd speed synchronizer sleeve
- ▶D◀ 9. Synchronizer key
- ◀B▶ ▶D◀ 10. 1st-2nd speed synchronizer hub
- ▶C◀ 11. Synchronizer ring
- ◀B▶ 12. 2nd speed gear
- 13. Needle bearing
- ◀C▶ ▶B◀ 14. Ball bearing
- 15. Intermediate gear

TSB Revision



▶J◀ FRONT BALL BEARING / FRONT TAPER ROLLER BEARING INSTALLATION





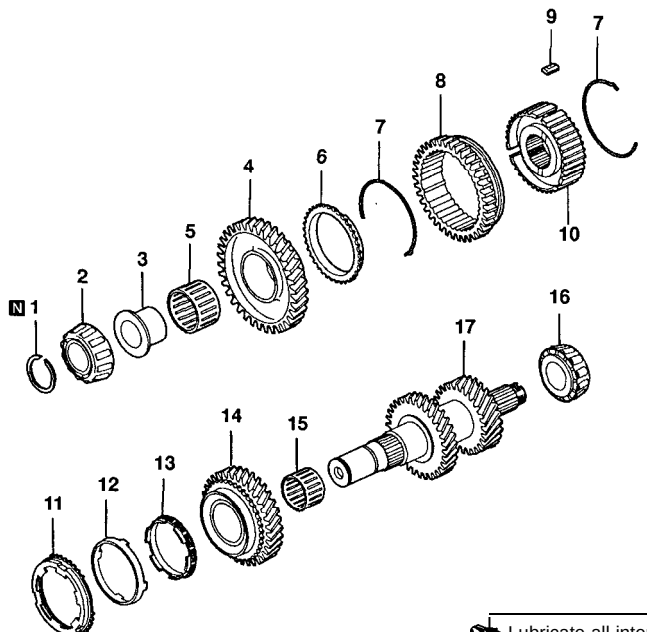
▶K◀ SNAP RING INSTALLATION

(1) Snap rings are available in three different thickness. Select the thickest one that fits in the snap ring groove.

Standard value:
Input shaft front bearing end play
0.01–0.12 mm (.0004–.0047 in.)

Caution
- **Do not damage the input shaft oil seal contacting portion.**

DISASSEMBLY AND REASSEMBLY – F5M33

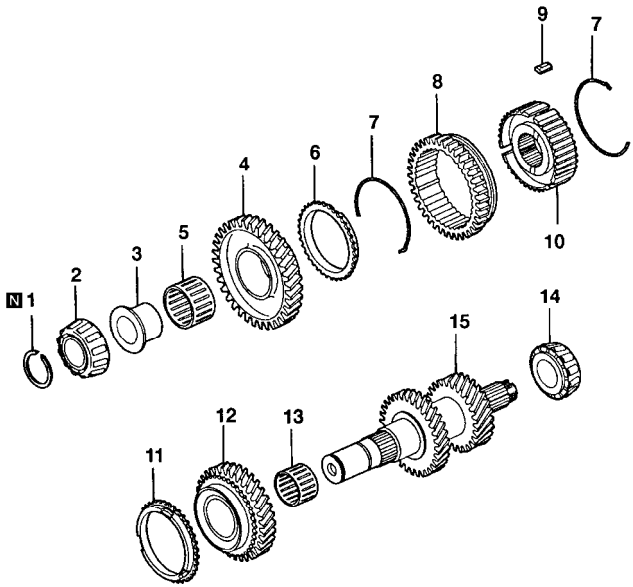


Disassembly steps

- ▶I◀ 1. Snap ring
- ◀A▶ ▶G◀ 2. Taper roller bearing
- ▶F◀ 3. Bearing sleeve
- ◀A▶ 4. 1st speed gear
- 5. Needle bearing
- ▶C◀ 6. Synchronizer ring
- ▶E◀ 7. Synchronizer spring
- ◀B▶ ▶D◀ 8. 1st-2nd speed synchronizer sleeve
- ▶D◀ 9. Synchronizer key
- ▶D◀ 10. 1st-2nd speed synchronizer hub
- 11. Synchronizer outer ring
- 12. Synchronizer cone
- 13. Synchronizer inner ring
- ◀B▶ 14. 2nd speed gear
- 15. Needle bearing
- ◀D▶ ▶B◀ 16. Taper roller bearing
- 17. Intermediate gear

TSB Revision

DISASSEMBLY AND REASSEMBLY – F5M22, F5M31, W5M31, W5M33

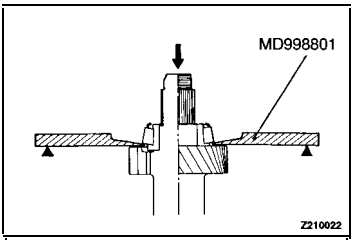


ZTFM0254

Disassembly steps

- ▶I◀ 1. Snap ring
- ◀A▶ ▶G◀ 2. Taper roller bearing
- ▶F◀ 3. Bearing sleeve
- ◀A▶ 4. 1st speed gear
- 5. Needle bearing
- ▶C◀ 6. Synchronizer ring
- ▶E◀ 7. Synchronizer spring
- ▶D◀ 8. 1st-2nd speed synchronizer sleeve
- ▶D◀ 9. Synchronizer key
- ◀B▶ ▶D◀ 10. 1st-2nd speed synchronizer hub
- ▶C◀ 11. Synchronizer ring
- ◀B▶ 12. 2nd speed gear
- 13. Needle bearing
- ◀D▶ ▶A◀ 14. Taper roller bearing
- 15. intermediate gear

TSB Revision



◀D▶ **TAPER ROLLER BEARING REMOVAL**

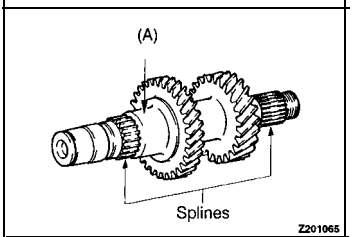
Caution

- **Do not reuse the bearing removed from the shaft.**
- **Replace the inner and outer races of the taper roller bearing as a set.**

INSPECTION

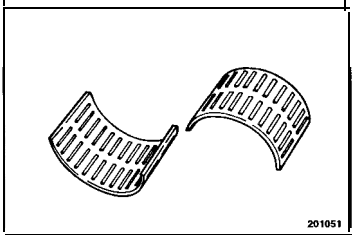
INTERMEDIATE GEAR

(1) Check the outer surface of the intermediate gear where the needle bearing is mounted for damage, abnormal wear and seizure [portion (A)].
(2) Check the splines for damage and wear.



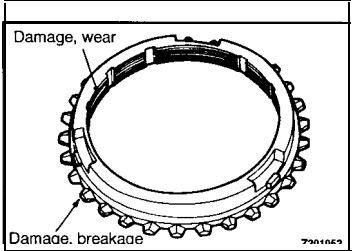
NEEDLE BEARING

(1) Combine the needle bearing with the shaft or bearing sleeve and gear and check that it rotates smoothly without abnormal noise or play.
(2) Check the needle bearing cage for deformation.

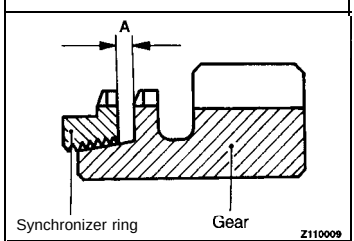


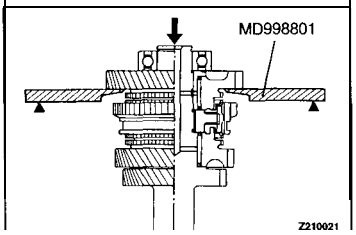
SYNCHRONIZER RING

(1) Check the clutch gear teeth for damage and breakage.
(2) Check the internal surface for damage, wear and broken threads.



(3) Force the synchronizer ring toward the clutch gear and check clearance "A". Replace if it is out of specification.
Limit: 0.5 mm (.020 in.)



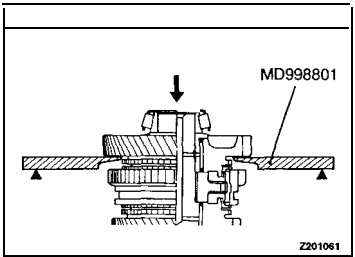


DISASSEMBLY SERVICE POINTS

◀A▶ BALL BEARING / TAPER ROLLER BEARING / 1ST SPEED GEAR REMOVAL

Caution

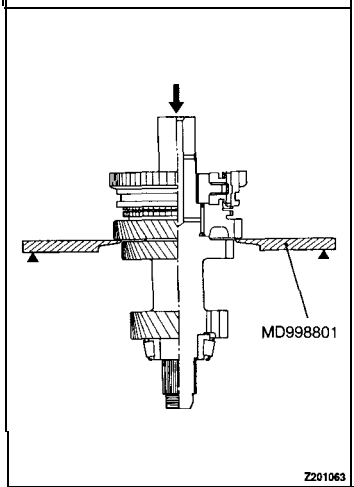
- **Do not reuse the bearing removed from the shaft.**



Caution

- **Do not reuse the bearing removed from the shaft.**
- **Replace the inner and outer races of the taper roller bearing as a set.**

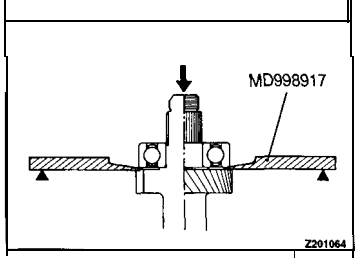
◀B▶ 1ST-2ND SPEED SYNCHRONIZER HUB / 2ND SPEED GEAR REMOVAL

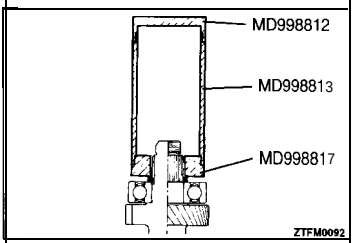


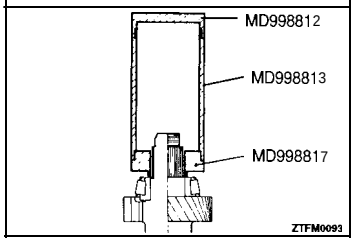
◀C▶ BALL BEARING REMOVAL

Caution

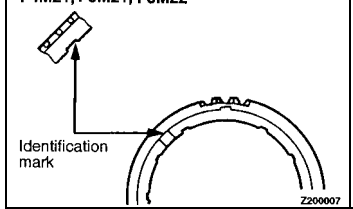
- **Do not reuse the bearing removed from the shaft.**



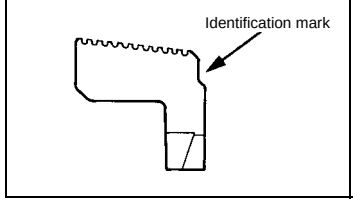




F4M21, F5M21, F5M22



F5M31, F5M33, W5M31, W5M33



REASSEMBLY SERVICE POINTS

▶A◀ BALL BEARING INSTALLATION

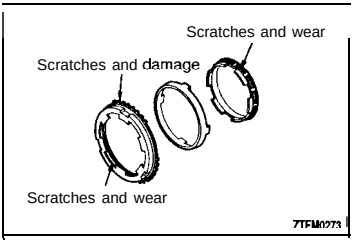
▶B◀ TAPER ROLLER BEARING INSTALLATION

Caution

- **When installing the bearing, push the inner race only.**

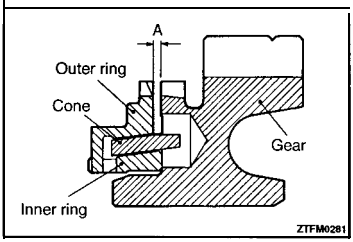
▶C◀ SYNCHRONIZER RINGS FOR 1ST SPEED GEAR, 2ND SPEED GEAR INSTALLATION

(1) The 1st speed gear and 2nd speed gear of synchronizer rings have an identification mark.



SYNCHRONIZER OUTER RING, INNER RING AND CONE

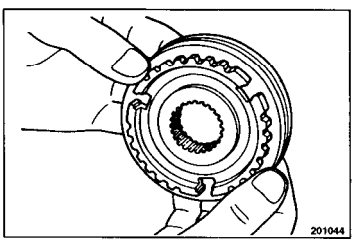
(1) Check that there are no scratches of damage on the clutch gear teeth and cone surface.
(2) Check that there are no scratches, wear or peeling on the paper lining surface.



(3) Install the outer ring, inner ring and cone, and press them onto the clutch gear. Check clearance "A", and replace if "A" is below the limit value.

Limit: 0.5 mm (.020 in.)

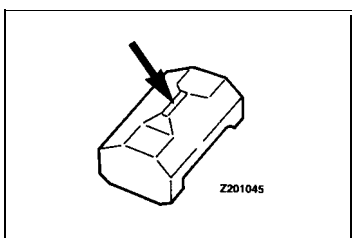
Caution
- **Replace the outer ring, inner ring and cone as a set.**



SYNCHRONIZER SLEEVE AND HUB

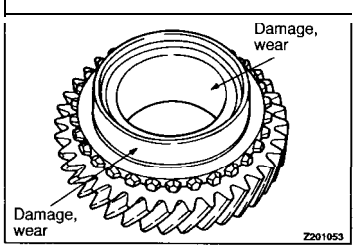
(1) Combine the synchronizer sleeve and hub and check that they slide smoothly.
(2) Check that the sleeve is free from damage at its inside front and rear ends.
(3) Check for wear of the hub end surface (in contact with each speed gear).

Caution
- **When replacing, replace the synchronizer hub and sleeve as a set.**



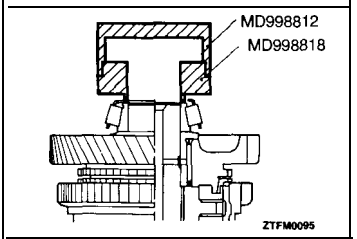
SYNCHRONIZER KEY AND SPRING

(1) Check for wear of the synchronizer key center protrusion.
(2) Check the spring for weakness, deformation and breakage.



SPEED GEARS

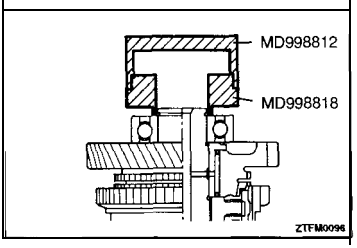
(1) Check the bevel gear and clutch gear teeth for damage and wear.
(2) Check the synchronizer cone for rough surface, damage and wear.
(3) Check the gear bore and front and rear ends for damage and wear.



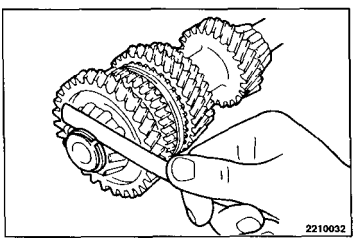
▶G◀ TAPER ROLLER BEARING INSTALLATION

Caution

- **When installing the bearing, push the inner race only.**



▶H◀ BALL BEARING INSTALLATION



▶I◀ SNAP RING INSTALLATION

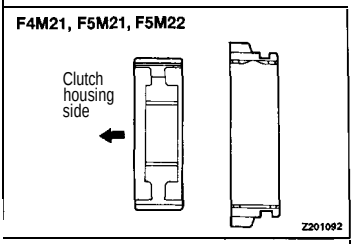
(1) Select and install the snap ring that gives standard intermediate gear bearing end play.

Standard value:

Intermediate gear bearing end play:

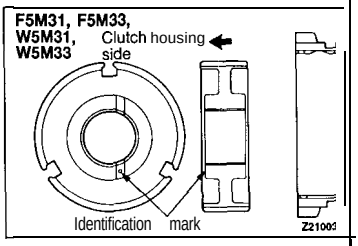
0.01–0.14 mm (.0004–.0055 in.) <F4M21, F5M21, F5M22, F5M33, W5M33>

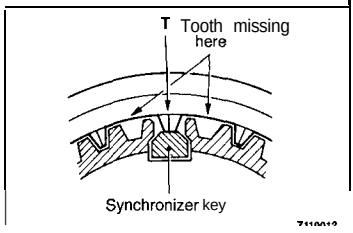
0.01–0.11 mm (.0004–.0044 in.) <F5M31, W5M31>



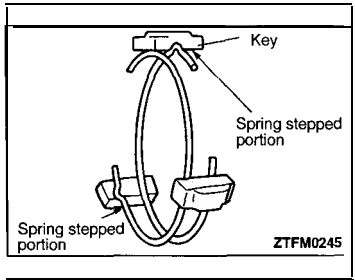
▶D◀ 1ST-2ND SPEED SYNCHRONIZER HUB I SYNCHRONIZER KEY I 1ST-2ND SYNCHRONIZER SLEEVE INSTALLATION

(1) Combine the 1st–2nd speed synchronizer hub and sleeve as illustrated.



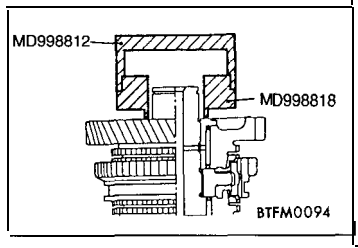


(2) The synchronizer sleeve has tooth missing at six portions. Assemble the hub to the sleeve in such a way that the center tooth "T" between two missing teeth will touch the synchronizer key.



▶E◀ SYNCHRONIZER SPRING INSTALLATION

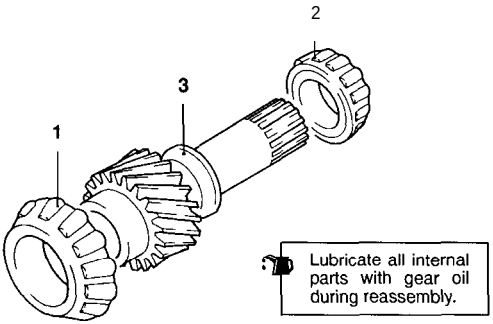
(1) When installing the synchronizer springs, be sure to position each spring with respect to the keys as illustrated.



▶F◀ BEARING SLEEVE INSTALLATION

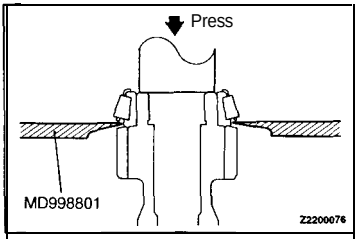
FRONT OUTPUT SHAFT <AWD>

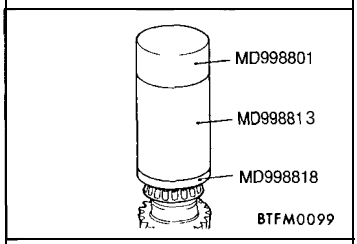
DISASSEMBLY AND REASSEMBLY

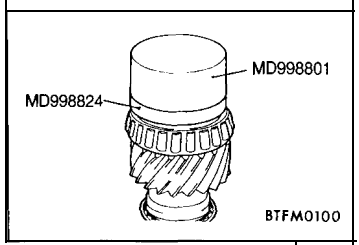


Disassembly steps

◀A▶ ▶B◀ 1. Taper roller bearing
◀A▶ ▶A◀ 2. Taper roller bearing
3. Front output shaft







DISASSEMBLY SERVICE POINTS

◀A▶ TAPER ROLLER BEARINGS REMOVAL

(1) Remove the taper roller bearings using the special tool.

NOTE
(1) Do not reuse the bearing removed from the shaft.
(2) Replace the inner and outer races of the taper roller bearing as a set.

REASSEMBLY SERVICE POINTS

▶A◀ TAPER ROLLER BEARINGS INSTALLATION

(1) Install the taper roller bearing using the special tool.

NOTE
Apply the special tool to the inner race only when installing the bearing.

▶B◀ TAPER ROLLER BEARINGS INSTALLATION

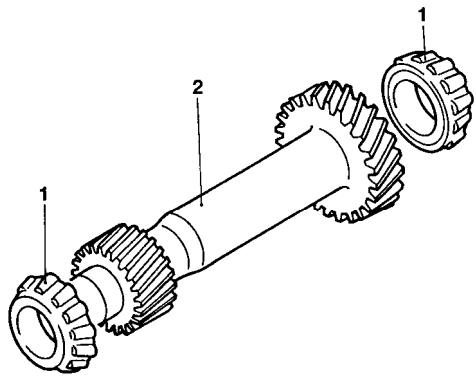
(1) Install the taper roller bearing using the special tool.

NOTE
Apply the special tool to the inner race only when installing the bearing.

TSB Revision

OUTPUT SHAFT <FWD>

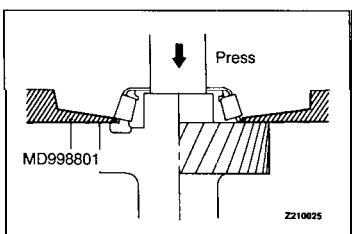
DISASSEMBLY AND REASSEMBLY

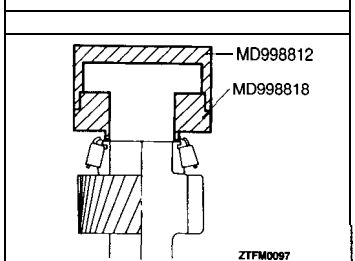


Lubricate all internal parts with gear oil during reassembly.

Z210028

Disassembly steps
◀A▶ ▶A◀ 1. Taper roller bearing
2. Output shaft





DISASSEMBLY SERVICE POINTS

◀A▶ **TAPER** ROLLER BEARINGS REMOVAL

Caution

- **Do not reuse the bearings removed from the shaft.**
- **Replace the inner and outer races of the taper roller bearing as a set.**

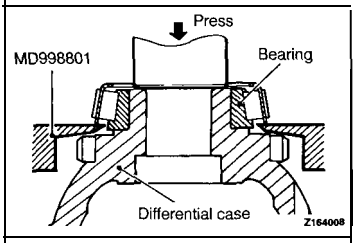
REASSEMBLY SERVICE POINTS

▶A◀ **TAPER** ROLLER BEARINGS INSTALLATION

Caution

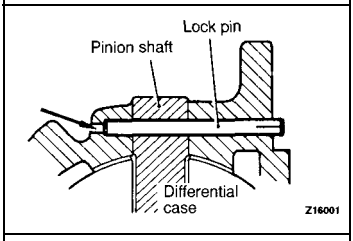
- **When installing the bearing, push the inner race only.**

TSB Revision



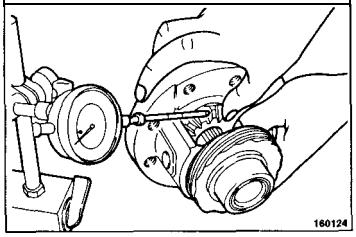
◀B▶ **TAPER ROLLER BEARING REMOVAL**

Caution
- **Do not reuse the bearing removed from the shaft.**
- **Replace the inner and outer races of the taper roller bearing as a set.**



◀C▶ **LOCK PIN REMOVAL**

(1) Drive out the lock pin from the hole A using a punch.

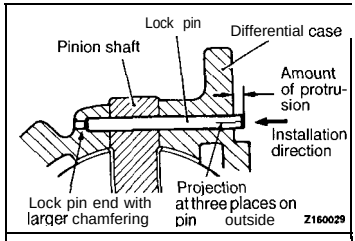


ADJUSTMENT OF PINION BACKLASH

Measure the backlash between the side gears and pinions. Adjust for same backlash of both side gears.

Standard value:
0.025–0.150 mm (.00098–.00591 in.)

If backlash is out of specification, disassemble again and using correct spacer, reassemble and adjust.

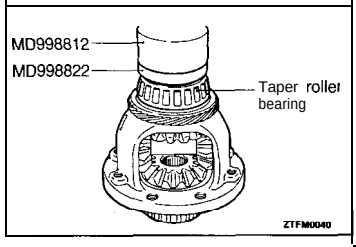


REASSEMBLY SERVICE POINTS

▶A◀ **LOCK PIN INSTALLATION**

(1) Align the pinion shaft lock pin hole with the case lock pin hole and insert the lock pin.

Caution
- **Do not reuse the lock pin.**
- **The lock pin must not protrude more than 3 mm (.118 in.). <FWD>**
- **The lock pin head must be sunk from the flange surface of the differential case. <AWD>**

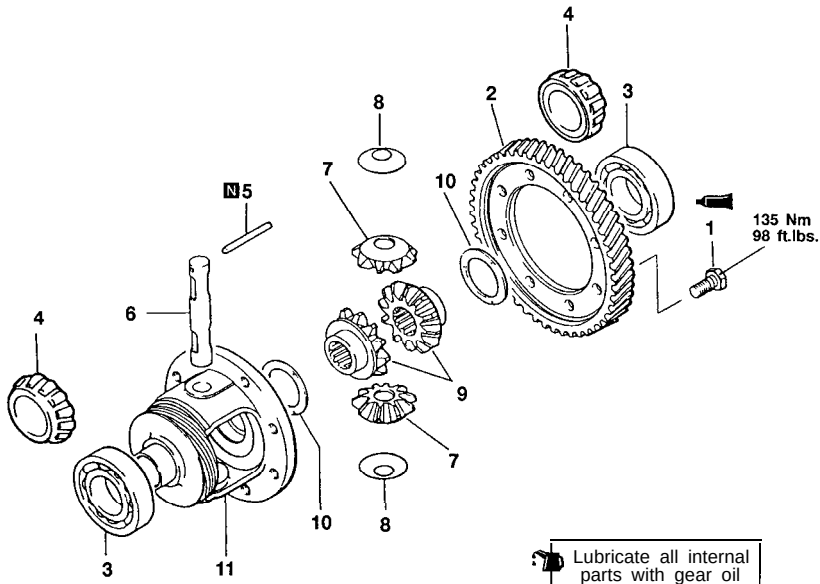


▶B◀ **TAPER ROLLER BEARINGS INSTALLATION**

Caution
- **When press-fitting the bearings, push the inner race only.**

DIFFERENTIAL

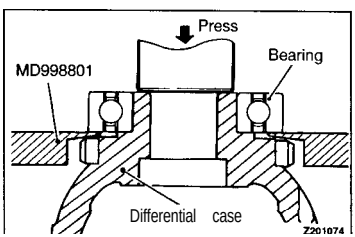
DISASSEMBLY AND REASSEMBLY



2160119

Disassembly steps

- ▶D◀ 1. Bolt
- 2. Differential drive gear
- ◀A▶ ▶C◀ 3. Ball bearing <F4M21,F5M21, W5M31, W5M33>
- ◀B▶ ▶B◀ 4. Taper roller bearing <F5M22, F5M31, F5M33>
- ◀C▶ ▶A◀ 5. Lock pin
- 6. Pinion shaft
- 7. Pinion
- 8. Washer
- 9. Side gear
- 10. Spacer
- 11. Differential case



DISASSEMBLY SERVICE POINTS

◀A▶ BALL BEARINGS REMOVAL

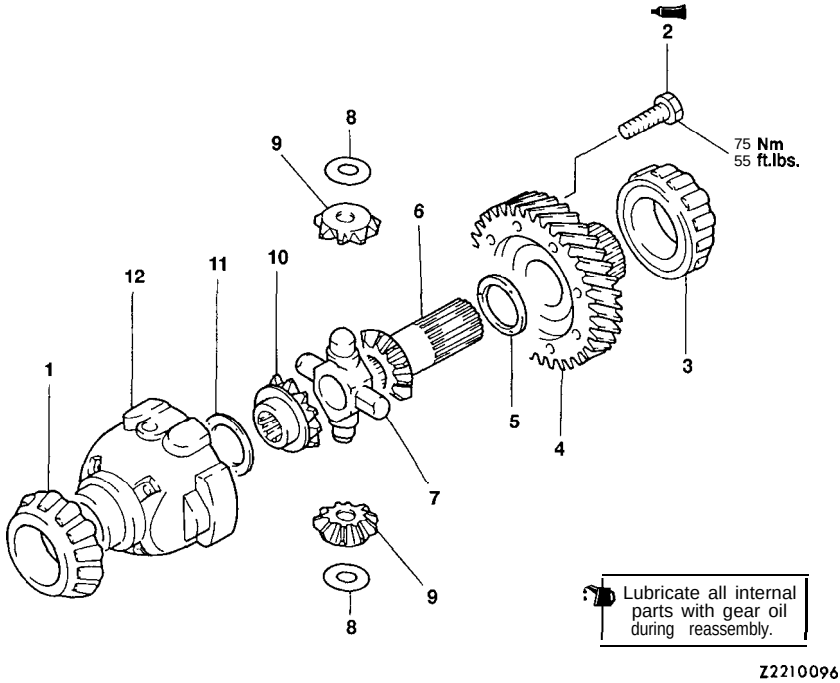
Caution

- **Do not reuse the bearing removed from the shaft.**

TSB Revision

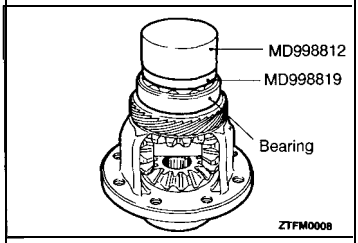
CENTER DIFFERENTIAL <AWD>

DISASSEMBLY AND REASSEMBLY – W5M31

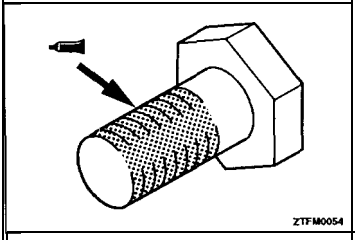


Disassembly steps

◀A▶ ▶D◀ 1. Taper roller bearing
▶C◀ 2. Bolt
◀A▶ ▶B◀ 3. Taper roller bearing
4. Output gear
▶A◀ 5. Spacer
6. Side gear
7. Pinion shaft
8. Washer
9. Pinion
10. Side gear
▶A◀ 11. Spacer
12. Center differential case



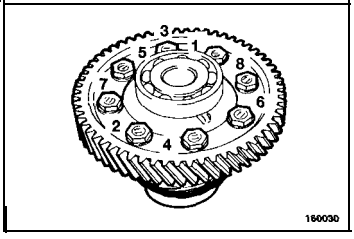
▶C◀ **BALL BEARINGS INSTALLATION**



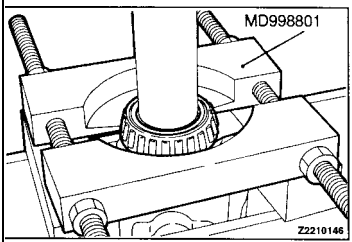
▶D◀ **BOLTS INSTALLATION**

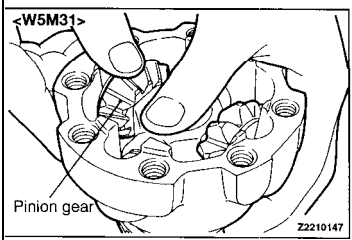
(1) Apply the specified sealant to the bolt threads.

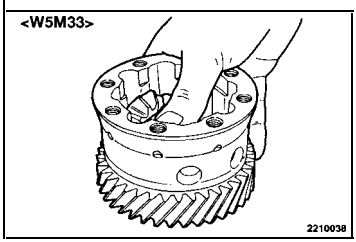
Specified sealant:
3M Stud Locking No.4170 or equivalent

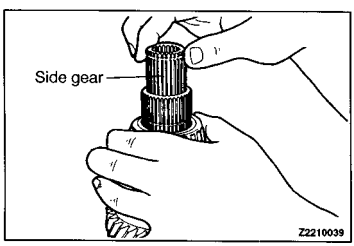


(2) Tighten to the specified torque while following the order given in the illustration.









DISASSEMBLY SERVICE POINTS

◀A▶ TAPER ROLLER BEARINGS REMOVAL

(1) Remove the taper roller bearings using the special tool.

NOTE
(1) Do not reuse the bearing removed from the shaft.
(2) Replace the inner and outer races of the taper roller bearing as a set.

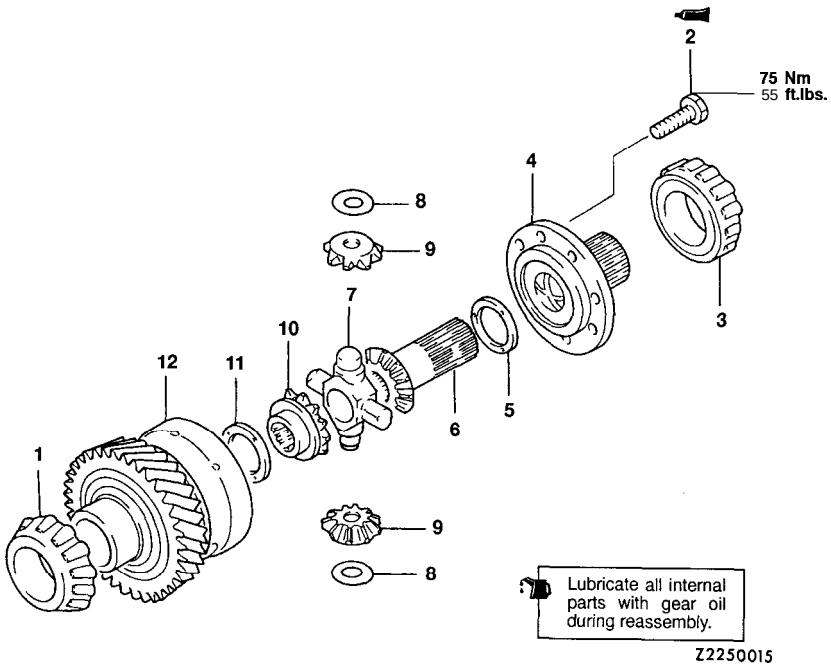
REASSEMBLY SERVICE POINTS

▶A◀ SPACERS INSTALLATION

(1) Install the spacer, side gear, pinion gear, washer and pinion shaft to the center differential case.
(2) Holding down the pinion shaft, select the spacer of maximum thickness that allows the pinion gear to turn lightly and install it to the shaft.
(3) Install the side gear, spacer and output gear and tighten the bolt to specified torque.
(4) Select the spacer of maximum thickness that allows the side gear to turn lightly and install it.
(5) Check that both side gears turn lightly.

Standard value:
Center differential side gear end play:
0.05–0.25 mm (.0020–.0010 in.)

DISASSEMBLY AND REASSEMBLY – W5M33



Disassembly steps

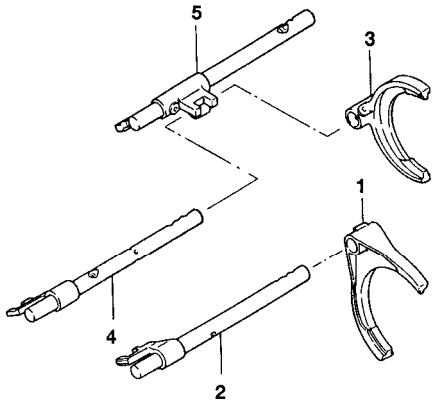
◀A▶ ▶D◀ 1. Taper roller bearing
▶C◀ 2. Bolt
◀A▶ ▶B◀ 3. Taper roller bearing
4. Output gear
▶A◀ 5. Spacer
6. Side gear
7. Pinion shaft
6. Washer
9. Pinion
10. Side gear
▶A◀ 11. Spacer
12. Center differential case

TSB Revision

SHIFT FORK

DISASSEMBLY AND REASSEMBLY – F4M21

Lubricate all internal parts with gear oil during reassembly.



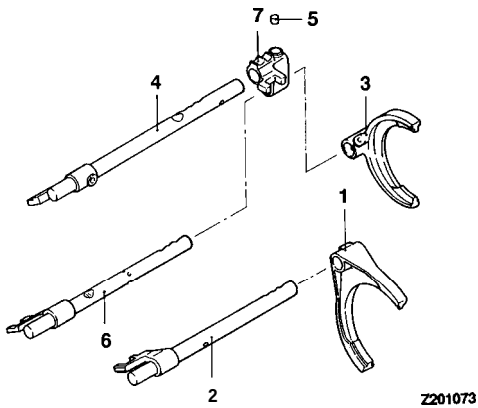
Z200005

Disassembly steps

1. 1st-2nd speed shift fork
2. 1st-2nd speed shifl rail
3. 3rd-4th speed shift fork
4. 3rd-4th speed shift rail
5. Reverse shift rail

DISASSEMBLY AND REASSEMBLY – F5M21, F5M22

Lubricate all internal parts with gear oil during reassembly.



Z201073

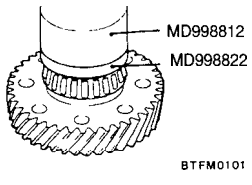
Disassembly steps

1. 1st-2nd speed shift fork
2. 1st-2nd speed shift rail
3. 3rd-4th speed shift fork
4. 5th-reverse speed shift rail

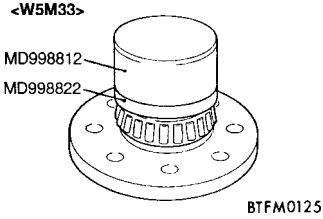
▶A◀ 5. Interlock plunger
6. 3rd-4th speed shift rail
7. Reverse shift lug

TSB Revision

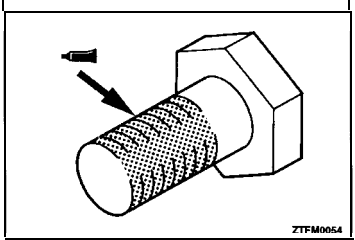
<W5M31>



<W5M33>



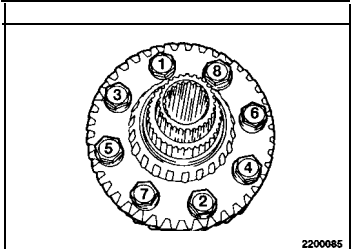
▶B◀ TAPER ROLLER BEARINGS INSTALLATION



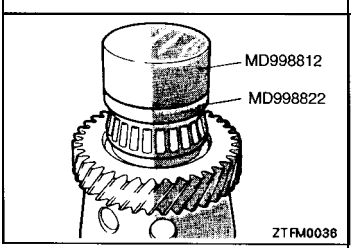
▶C◀ BOLTS INSTALLATION

(1) Apply the specified sealant to the bolt threads

Specified sealant:
3M Stud Locking No.4170 or equivalent



(2) Tighten to the specified torque while following the order given in the illustration.

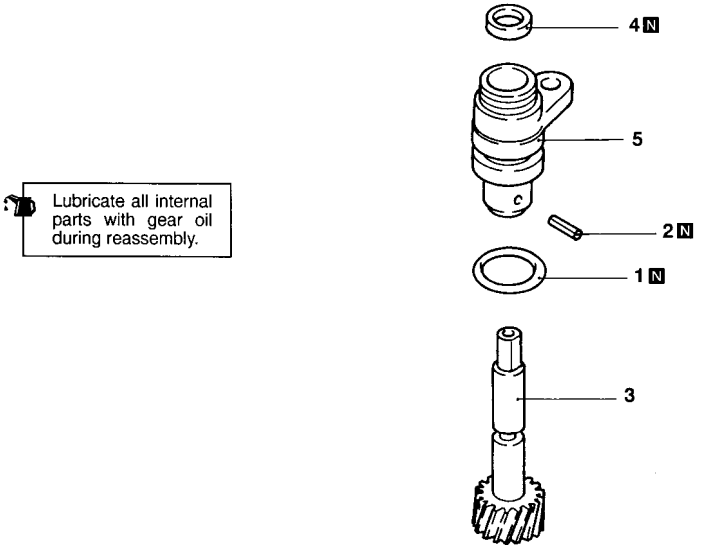


▶D◀ TAPER ROLLER BEARINGS INSTALLATION

NOTE
Apply the special tool to the inner race only when installing the bearing.

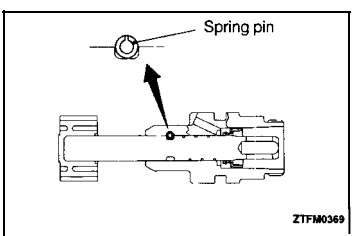
SPEEDOMETER GEAR

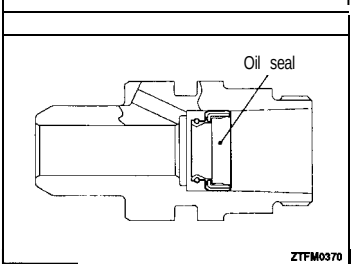
DISASSEMBLY AND REASSEMBLY



Disassembly steps

1. O-ring
▶B◀ 2. Spring pin
▶A◀ 3. Speedometer driven gear
▶C◀ 4. Oil seal
5. Sleeve





REASSEMBLY SERVICE POINTS

▶A◀ SPEEDOMETER DRIVEN GEAR INSTALLATION

(1) Apply gear oil sparingly to the speedometer driven gear shaft and insert the shaft.

▶B◀ SPRING PIN INSTALLATION

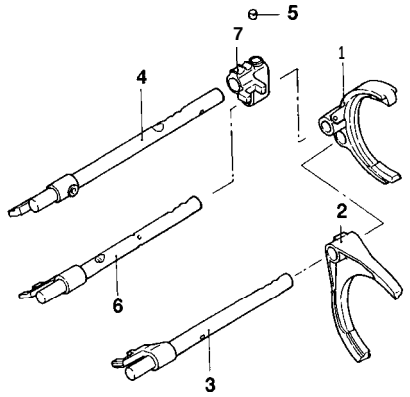
(1) Install the spring pin in such a way that its slit does not face the gear shaft.

▶C◀ OIL SEAL INSTALLATION

(1) Press into the position and direction indicated in the illustration.

DISASSEMBLY AND REASSEMBLY – F5M31, F5M33, W5M31, W5M33

Lubricate all internal parts with gear oil during reassembly.

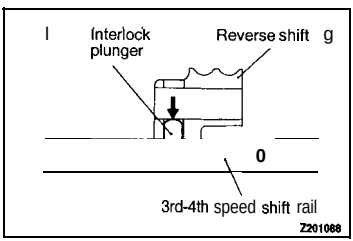


Z210027

Disassembly steps

1. 3rd-4th speed shift fork
2. 1st-2nd speed shift fork
3. 3rd-4th speed shift rail
4. 5th-reverse speed shift rail

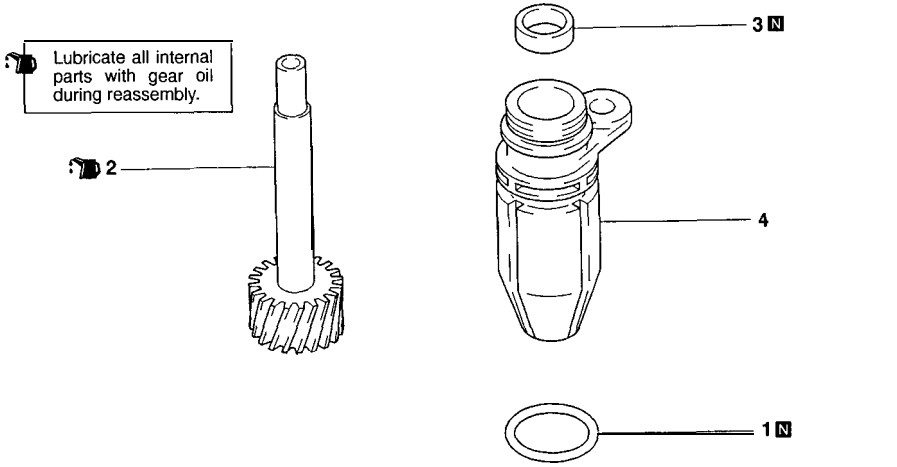
▶A◀ 5. Interlock plunger
6. 3rd-4th speed shift rail
7. Reverse shift lug



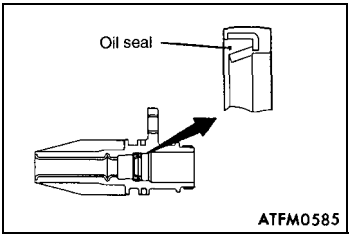
REASSEMBLY SERVICE POINTS

▶A◀ **INTERLOCK PLUNGER INSTALLATION**

DISASSEMBLY AND REASSEMBLY <F5M22–2–PQKE and XPXL>



Disassembly steps
1. O-ring
▶B◀ 2. Speedometer driven gear
▶A◀ 3. Oil seal
4. Sleeve



REASSEMBLY SERVICE POINTS

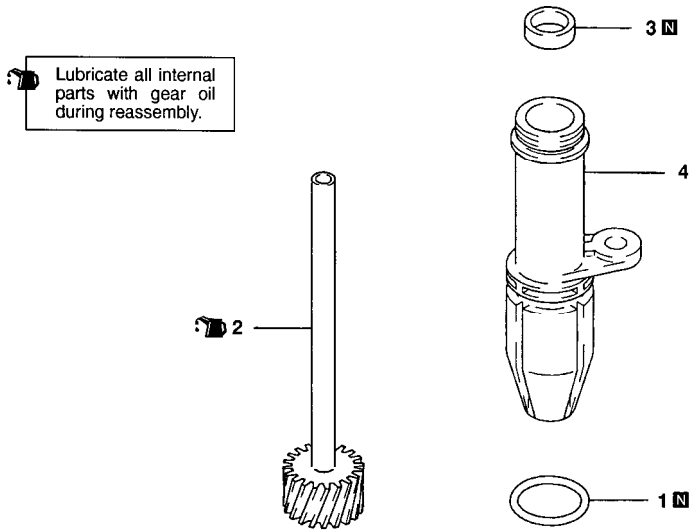
▶A◀ OIL SEAL INSTALLATION

(1) Press into the position and direction indicated in the illustration.

▶B◀ SPEEDOMETER DRIVEN GEAR INSTALLATION

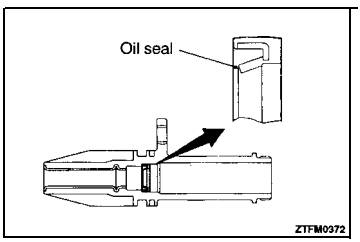
(1) Apply gear oil sparingly to the speedometer driven gear shaft and insert the shaft.

DISASSEMBLY AND REASSEMBLY <F5M31–2–VPXF and VPZF>



Disassembly steps

1. O-ring
▶B◀ 2. Speedometer driven gear
▶A◀ 3. Oil seal
4. Sleeve



REASSEMBLY SERVICE POINTS

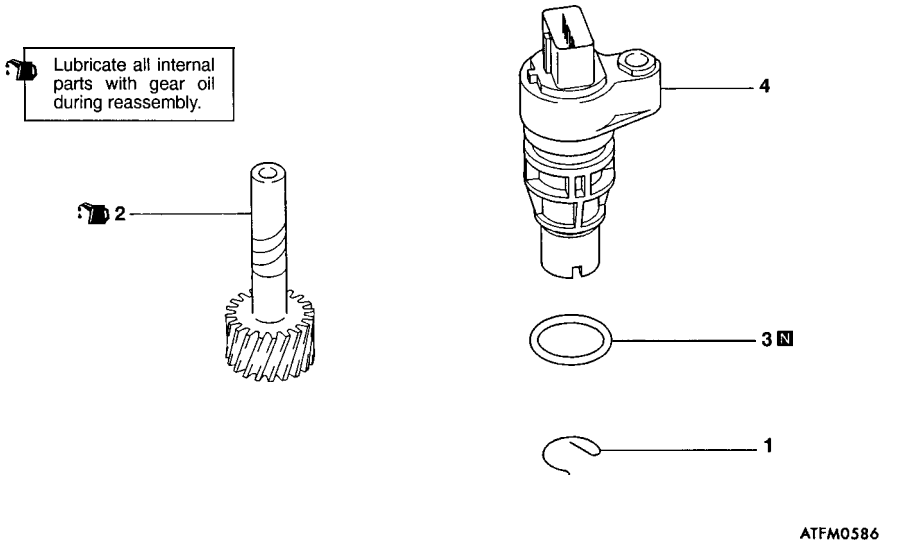
▶A◀ OIL SEAL INSTALLATION

(1) Press into the position and direction indicated in the illustration.

▶B◀ SPEEDOMETER DRIVEN GEAR INSTALLATION

(1) Apply gear oil sparingly to the speedometer driven gear shaft and insert the shaft.

DISASSEMBLY AND REASSEMBLY <F5M33–2–SUQR>



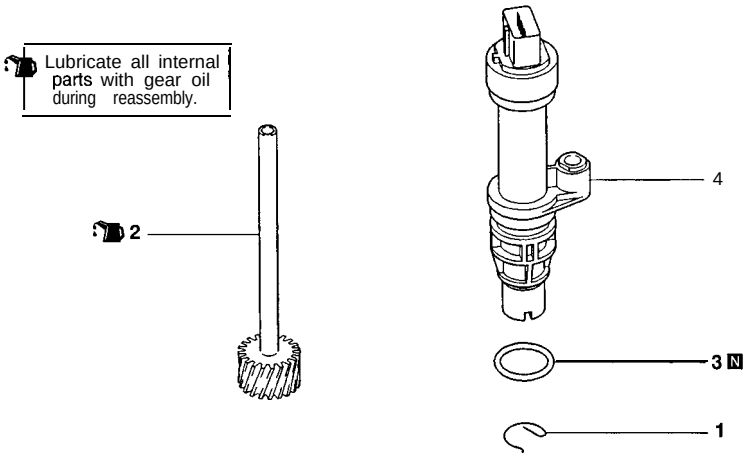
Disassembly steps
1. e-clip
▶A◀ 2. Speedometer driven gear
3. O-ring
4. Sleeve

REASSEMBLY SERVICE POINT

▶A◀ SPEEDOMETER DRIVEN GEAR INSTALLATION

Apply gear oil sparingly to the speedometer driven gear shaft and insert the shaft.

DISASSEMBLY AND REASSEMBLY
<F5M31–2–VVXF and VVZF, F5M33–2–SPZT, W5M33–2–NPZT>



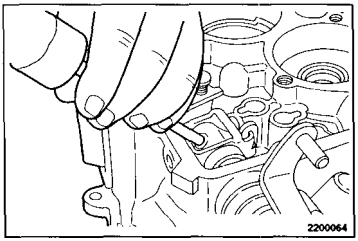
ATFM0580

Disassembly steps
1. e-clip
▶A◀ 2. Speedometer driven gear
3. O-ring
4. Sleeve

REASSEMBLY SERVICE POINT

▶A◀ **SPEEDOMETER** DRIVEN GEAR INSTALLATION

Apply gear oil sparingly to the speedometer driven gear shaft and insert the shaft.

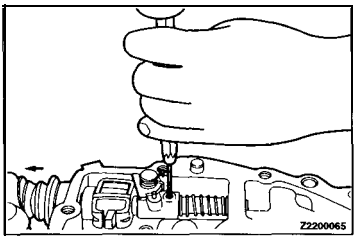


DISASSEMBLY SERVICE POINTS

◀A▶ LOCK PIN REMOVAL

Caution

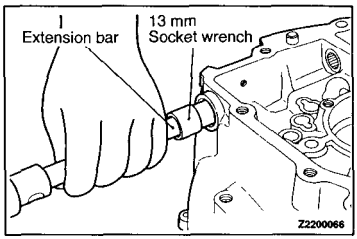
- **When removing the lock pin, turn the control lever to such position that the lock pin will not contact the clutch housing.**



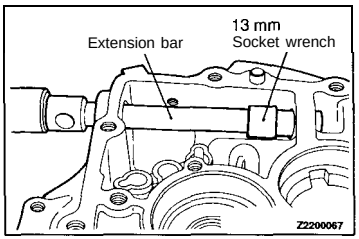
◀B▶ SPRING PIN REMOVAL

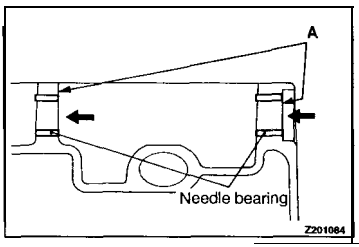
Caution

- **When removing the spring pin, pull the control shaft in the direction illustrated so that the spring pin will not contact the clutch housing.**



◀C▶ NEEDLE BEARING REMOVAL





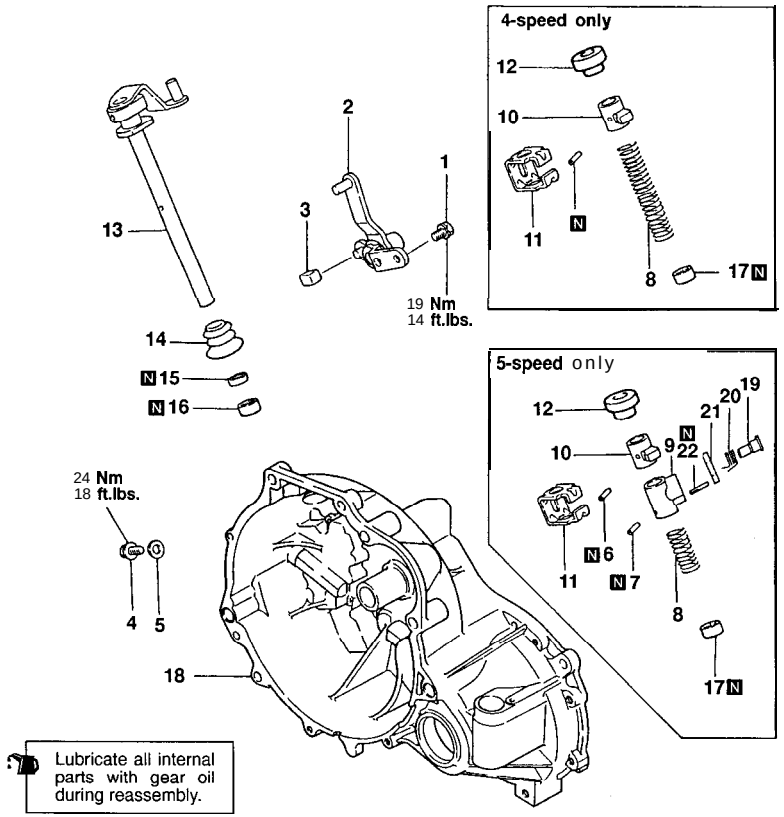
REASSEMBLY SERVICE POINTS

▶A◀ NEEDLE BEARINGS INSTALLATION

(1) Install the needle bearing flush with the surface A of the clutch housing using a socket wrench.
(2) Install with the part type stamped side facing the surface A.

CLUTCH HOUSING

DISASSEMBLY AND REASSEMBLY



22010011

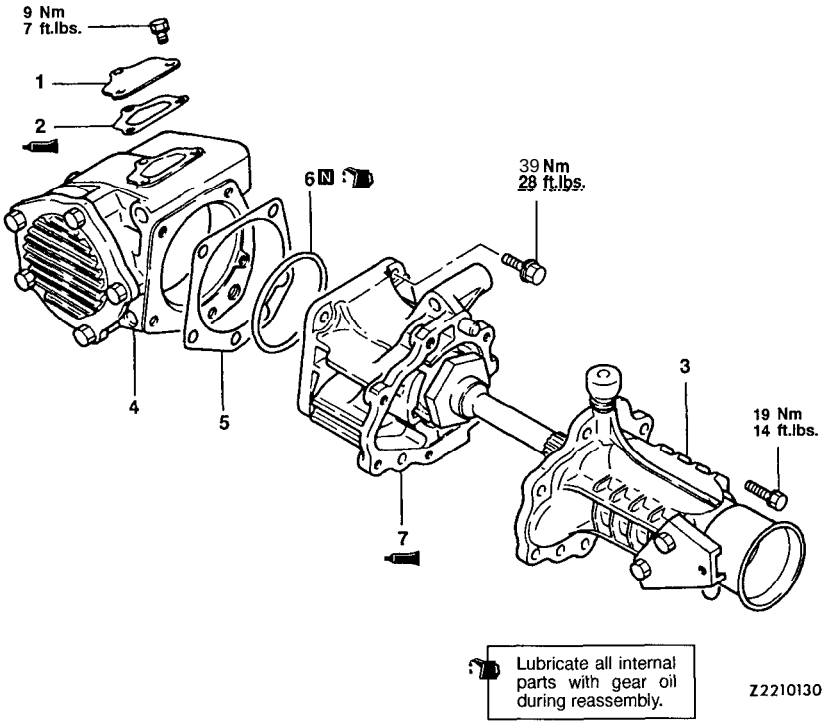
Disassembly steps

1. Bolt
2. Select lever assembly
3. Select lever shoe
4. Interlock plate bolt
5. Gasket
6. Lock pin ◀A▶ ▶C◀ ◀B▶ ▶C◀
7. Spring pin
8. Neutral return spring
9. Stopper body
10. Control finger
11. Interlock plate
12. Neutral return spring assembly
13. Control shaft
14. Control shaft boot
15. Oil seal ▶B◀
16. Needle bearing ◀C▶ ▶A◀
17. Needle bearing ◀C▶ ▶A◀
18. Clutch housing
19. Pin
20. Return spring
21. Stopper plate
22. Spring pin

TSB Revision

TRANSFER <AWD>

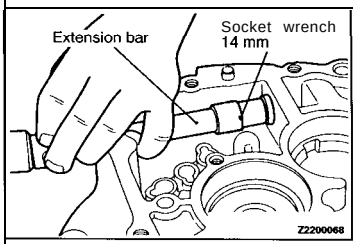
DISASSEMBLY AND REASSEMBLY

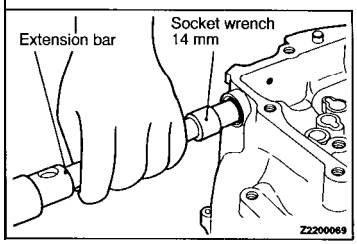


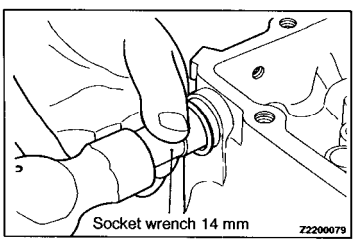
Disassembly steps

1. Cover
▶C◀ 2. Cover gasket
▶B◀ 3. Extension housing assembly
4. Transfer case sub assembly
5. Spacer
▶A◀ 6. O-ring
7. Transfer case adapter sub assembly

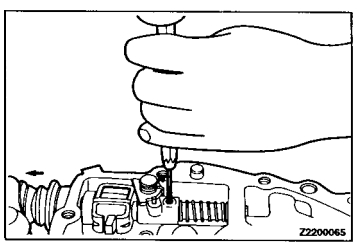
TSB Revision







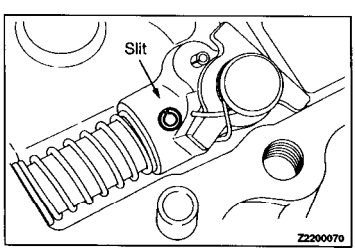
▶B◀ OIL SEAL INSTALLATION



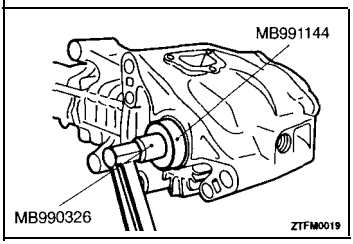
▶C◀ SPRING PIN / LOCK PIN INSTALLATION

Caution

- **Do not reuse the spring pin and lock pin.**
- **Install the spring pin in such a way its slit will be at right angle to the control shaft center.**

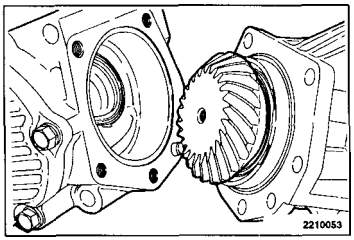


TSB Revision



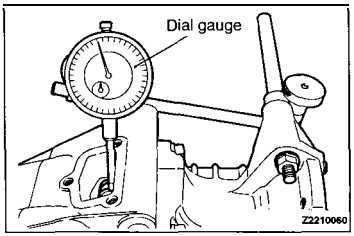
(7) Turn the drive bevel gear shaft (one forward turn, one reverse turn) using the special tool.

NOTE
Do not turn the drive bevel gear shaft more than one turn in either direction as this will cause an unclear tooth contact pattern.



(8) Check to see if the drive bevel gear tooth contact is normal.

NOTE
Refer to the TOOTH CONTACT ADJUSTMENT PROCEDURES on next page (below) for the standard tooth contact.

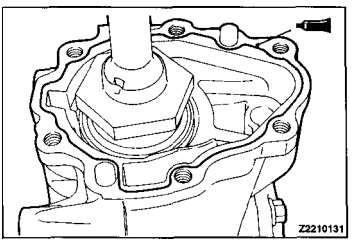


(9) Check to see if the drive bevel gear and driven bevel backlash is as specified.

Standard value: Bevel gear set backlash 0.08–0.13 mm (.0031–.0051 in.)

▶A◀ O-RING INSTALLATION

Caution
Apply transmission oil to the O-ring before installation.

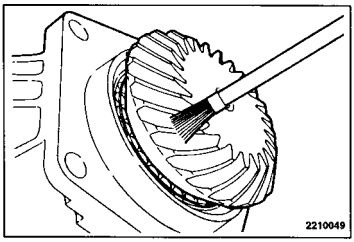


▶B◀ EXTENSION HOUSING INSTALLATION

(1) Apply sealant to the adapter flange surface and install the extension housing.

Specified sealant:
Mitsubishi genuine Sealant Part No.MD997740 or equivalent

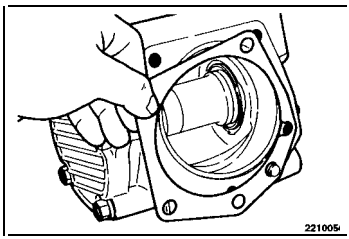
NOTE
Squeeze out sealant from the tube uniformly and continuously in adequate amount.



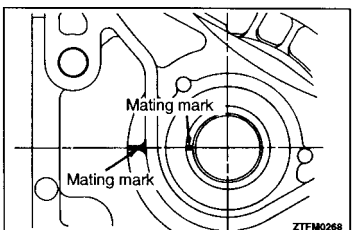
REASSEMBLY SERVICE POINTS

BACKLASH ADJUSTMENT

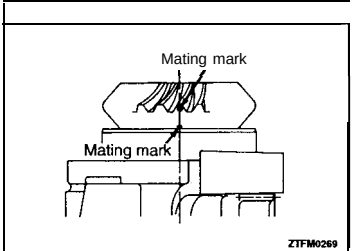
(1) Apply a light and uniform coat of machine blue or red lead to the driven bevel gear teeth (both sides) using a brush.



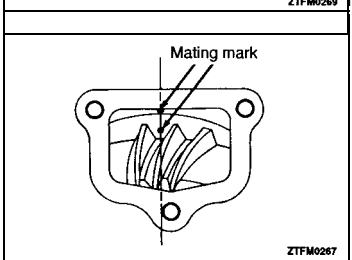
(2) Install the spacer that has been used.



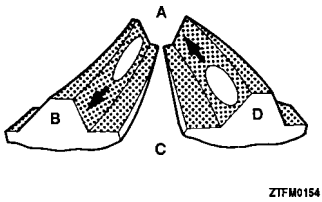
(3) Align the transfer case and drive bevel gear mating marks.



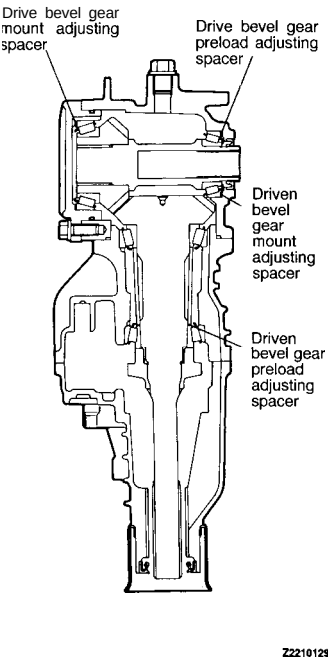
(4) Align the transfer case adapter and drive bevel gear mating marks.
(5) Assemble the transfer case and transfer case adapter and tighten to the specified torque.



(6) With the mating marks aligned as in step (3), confirm that the transfer case and drive bevel gear mating marks are matched looking from the cover.



Remedy
Use thinner driven bevel gear mount adjusting spacer to bring the driven bevel gear more closer to the drive bevel gear.



NOTE
(1) If correct tooth contact cannot be obtained even bv change of the driven bevel gear mount adjusting spacer, increase or decrease or decrease the drive bevel gear preload adjusting spacer and the drive bevel gear mount adjusting spacer as described below and then adjust tooth contact again.

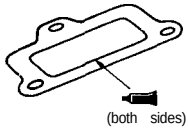
- When the driven bevel gear height is too small even if the thinnest driven bevel gear mount adjusting spacer 0.13 mm (.0051 in.) is used:

  Replace the drive bevel gear mount adjusting spacer that is in use with one that is one rank thicker and replace the drive bevel preload adjusting spacer that is in use with one that is one rank thinner.

- When the driven bevel gear height is too large even if the thickest driven bevel gear mount adjusting spacer 0.52 mm (.025 in.) is used:

  Replace the drive bevel gear mount adjusting spacer that is in use with one that is one rank thinner and replace the drive bevel gear preload adjusting spacer that is in use with one that is one rank thicker.

(2) Repeat above steps until the tooth contact pattern equal or close to the standard pattern is obtained.
(3) If the tooth contact pattern cannot be adjusted close to the standard pattern by above adjustment, replace the drive bevel gear and driven bevel gear as a set and readjust the tooth contact.



ZTFM0246

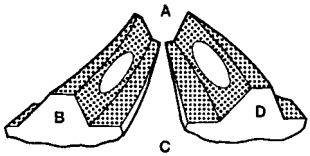
▶C◀ **SEALANT APPLICATION TO COVER GASKET**

Specified sealant:
3M ATD Part No.8660 or equivalent

TOOTH CONTACT ADJUSTING PROCEDURES

1. Standard tooth contact pattern

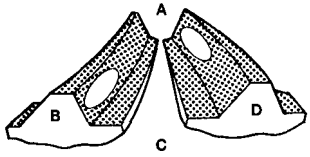
A ... Small end side
B Drive side tooth face
(Side on which force acts when running forward)
C . Big end side
D .... Coast side tooth face
(Side on which force acts when reversing)



TFM0150

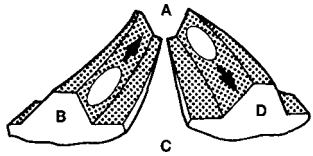
2. Tooth contact pattern produced when drive bevel gear height is too large

Cause
The driven bevel is too close to the drive bevel gear.



TFM0151

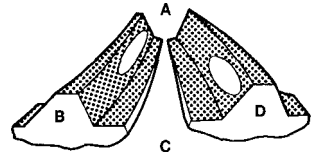
Remedy
Use thicker bevel gear mount adjusting spacer to separate the driven bevel gear more from the drive bevel gear.



ZTFM0152

3. Tooth contact pattern produced when driven bevel gear height is too small

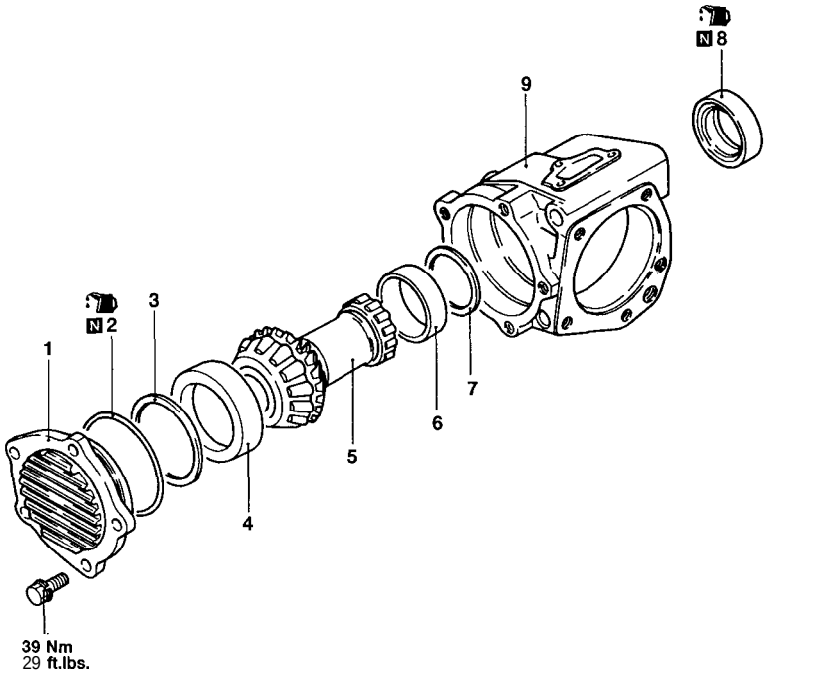
Cause
The driven bevel gear is too separated from the drive bevel gear.



TFM0153

TRANSFER CASE <AWD>

DISASSEMBLY AND REASSEMBLY



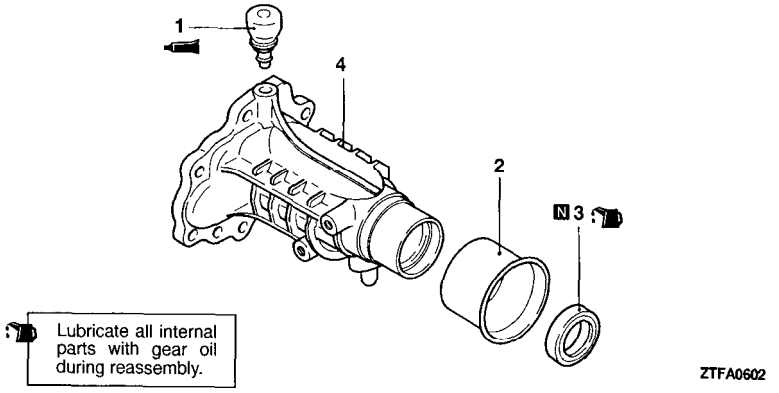
Disassembly steps

1. Transfer cover
▶C◀ 2. O-ring
▶B◀ 3. Spacer
4. Outer race
5. Drive bevel gear assembly
6. Outer race
▶B◀ 7. Spacer
▶A◀ 8. Oil seal
9. Transfer case

TSB Revision

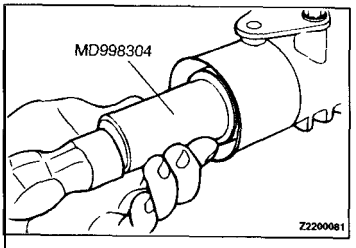
EXTENSION HOUSING <AWD>

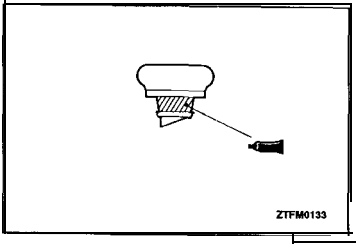
DISASSEMBLY AND REASSEMBLY



Disassembly steps

▶B◀ 1. Air bleeder
2. Dust seal guard
▶A◀ 3. Oil seal
4. Extention housing





REASSEMBLY SERVICE POINTS

▶A◀ OIL SEAL INSTALLATION

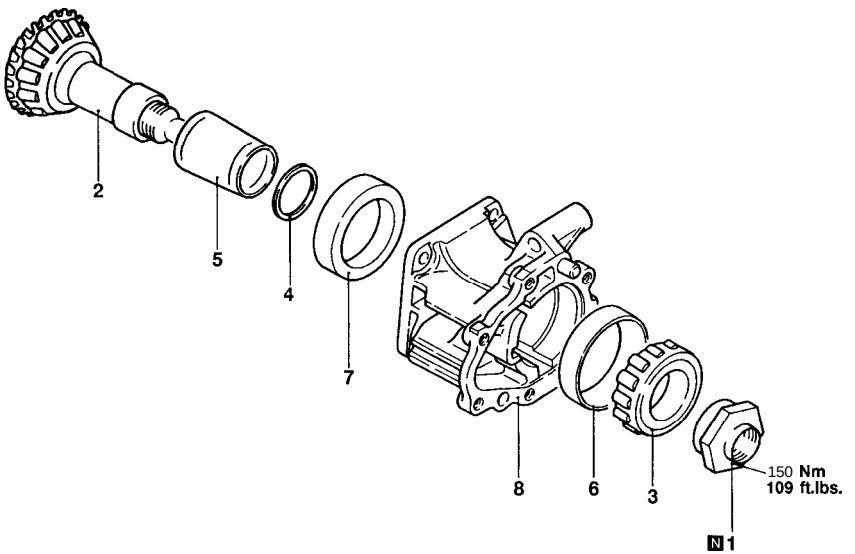
▶B◀ AIR BLEEDER INSTALLATION

(1) Install the air bleeder applying sealant to the inserting portion.

Specified sealant:
3M SUPER WEATHERSTRIP No.8001 or equivalent

TRANSFER CASE ADAPTER <AWD>

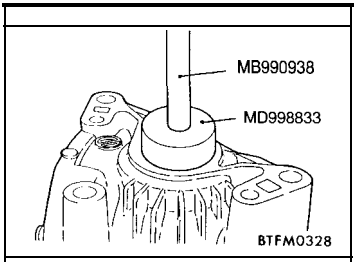
DISASSEMBLY AND REASSEMBLY

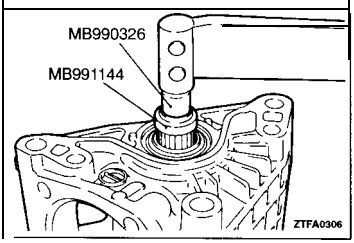


Disassembly steps

◀A▶ ▶C◀ 1. Lock nut
2. Driven bevel gear assembly
▶B◀ 3. Taper roller bearing
▶A◀ 4. Spacer
5. Collar
6. Outer race
7. Outer race
8. Transfer case assembly

TSB Revision





REASSEMBLY SERVICE POINTS

▶A◀ OIL SEAL INSTALLATION

▶B◀ SPACER SELECTION

(1) Use the existing spacer to assemble the transfer case.
(2) Using the special tool, check that the bevel gear rotating drive torque is within standard range.

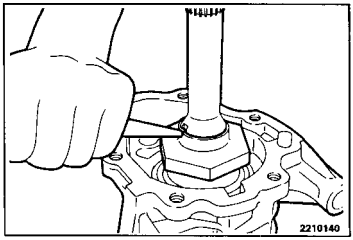
Standard value:
1.7-2.5 Nm (1.23–1.81 ft.lbs.)

(3) If the rotating drive torque is outside of the standard range, adjust using adjusting spacers.

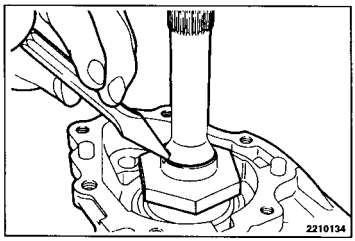
NOTE
For adjustment, use two spacers of which thickness is as close as possible to each other.

▶C◀ O-RING INSTALLATION

Caution
Apply transmission oil to the O-ring before installation.



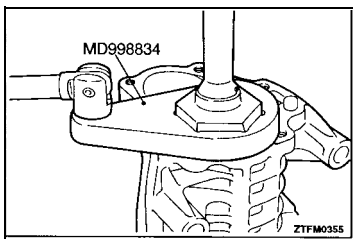
(2) Lock the lock nut at two positions.



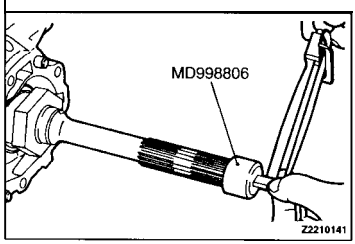
DISASSEMBLY SERVICE POINTS

◀A▶ LOCK NUT REMOVAL

(1) Unlock the lock nut. (Straighten the bent nut.)



(2) Holding the driven bevel gear in a vice and using the special tool, remove the lock nut.



REASSEMBLY SERVICE POINTS

▶A◀ SPACER SELECTION

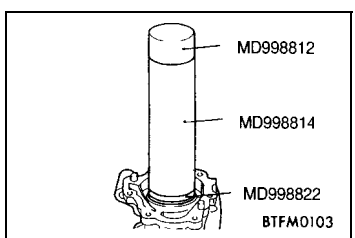
(1) Use the existing spacer to assemble the transfer case adapter.

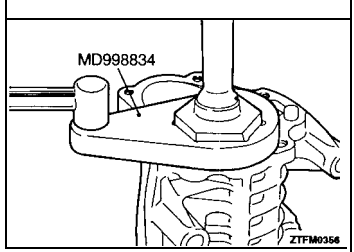
(2) Using the special tool, check that the bevel gear rotating drive torque is within standard range.

Standard value:
1.0–1.7 Nm (0.72–1.23 ft.lbs.)

(3) If the rotating drive torque is outside of the standard range, adjust using adjusting spacers.

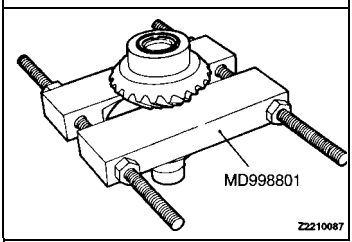
▶B◀ TAPER ROLLER BEARING INSTALLATION





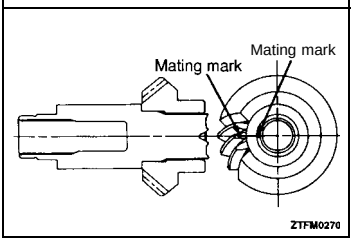
▶C◀ LOCK NUT INSTALLATION

(1) Holding the driven bevel gear in a vice and using the special tool, tighten the lock nut to specified torque.



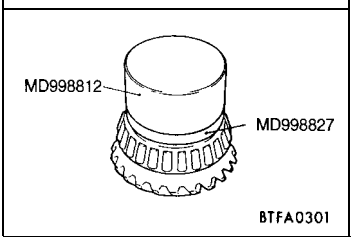
◀B▶ **DRIVE BEVEL GEAR REMOVAL**

REASSEMBLY SERVICE POINTS

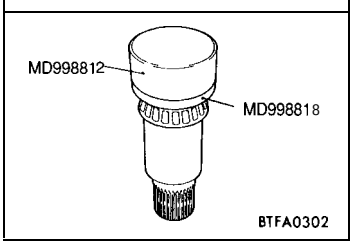


▶A◀ **TRANSFER DRIVE BEVEL GEAR INSTALLATION**

(1) Install the drive bevel gear and drive bevel gear shaft with the mating marks aligned.

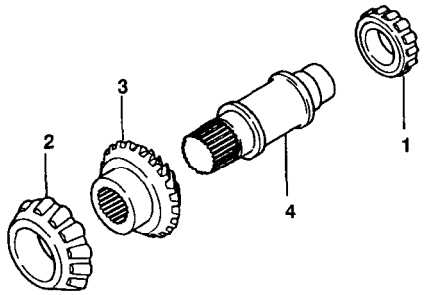


▶B◀ **TAPER ROLLER BEARING INSTALLATION**



DRIVE BEVEL GEAR <AWD>

DISASSEMBLY AND REASSEMBLY

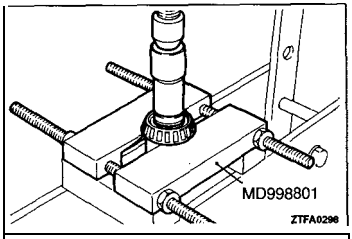


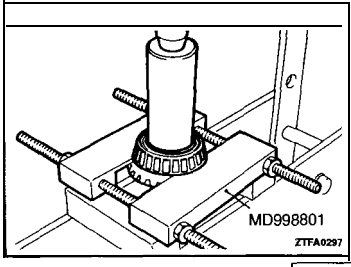
Lubricate all internal parts with gear oil during reassembly.

Z2210142

Disassembly steps

◀A▶ ▶B◀ 1. Taper roller bearing
◀A▶ ▶B◀ 2. Taper roller bearing
◀B▶ ▶A◀ 3. Drive bevel gear
4. Drive bevel gear shaft





DISASSEMBLY SERVICE POINTS

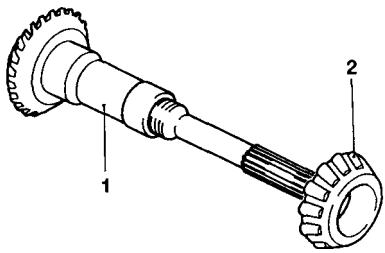
◀A▶ TAPER ROLLER BEARING REMOVAL

TSB Revision

NOTES

DRIVEN BEVEL GEAR <AWD>

DISASSEMBLY AND REASSEMBLY

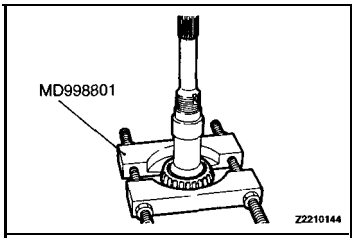


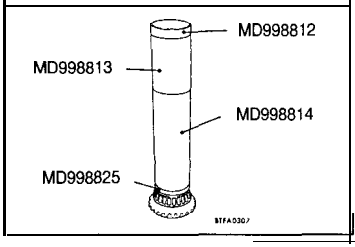
Lubricate all internal parts with gear oil during reassembly.

Z2210143

Disassembly steps

1. Driven bevel gear
◀A▶ ▶A◀ 2. Taper roller bearing





DISASSEMBLY SERVICE POINTS

◀A▶ TAPER ROLLER BEARING REMOVAL

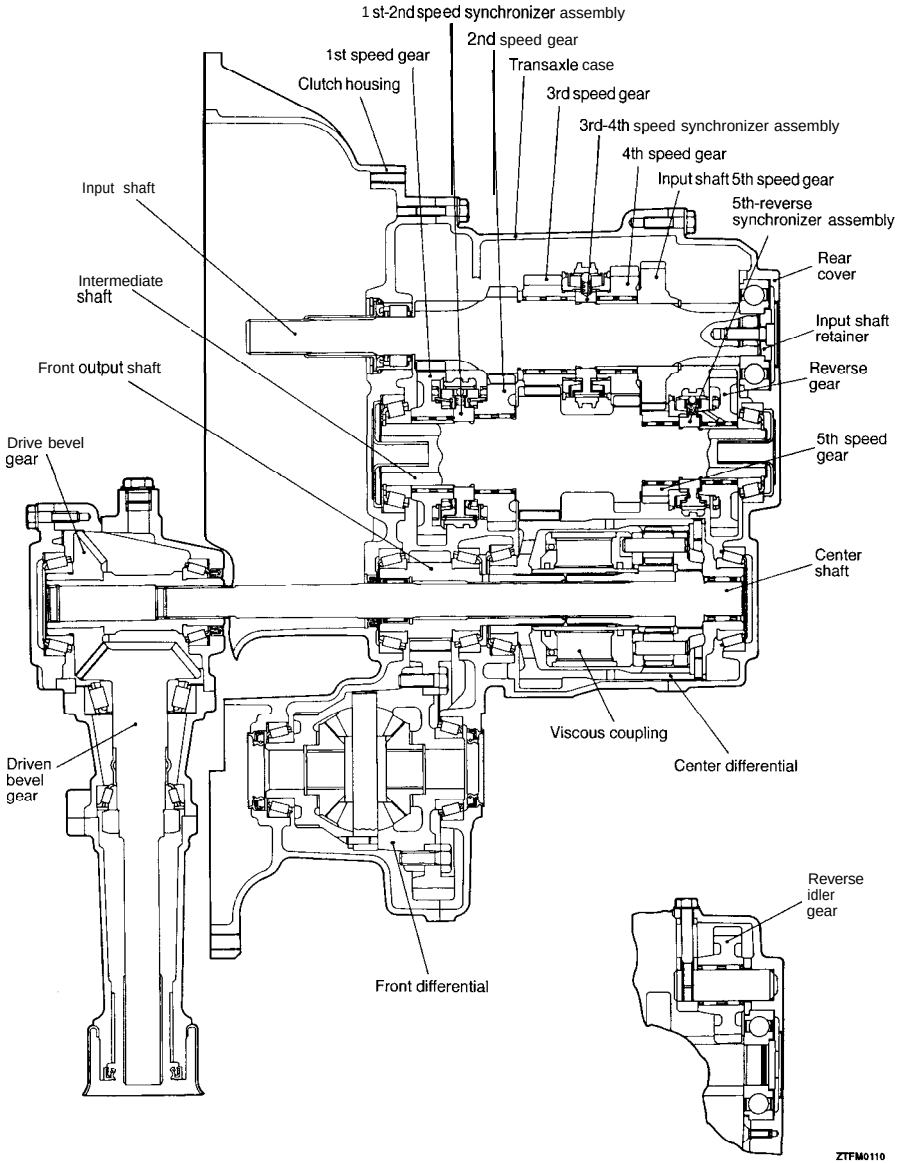
REASSEMBLY SERVICE POINTS

▶A◀ TAPER ROLLER BEARING INSTALLATION

TSB Revision

GENERAL INFORMATION

SECTIONAL VIEW <W5MG1>



TSB Revision

MANUAL TRANSAXLE

W5MG1, W6MG1

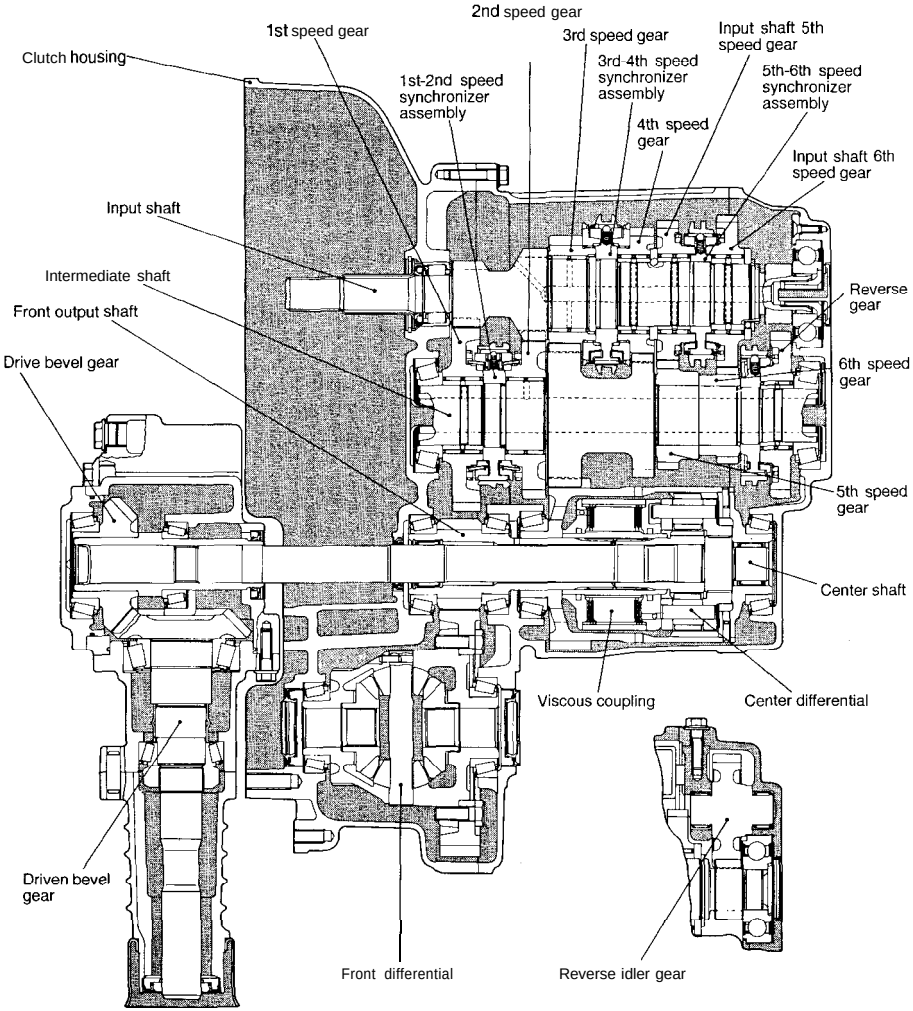
CONTENTS

SPECIFICATIONS

GENERAL SPECIFICATIONS

Items		Specifications	
Model		W5MG1	W6MG1
Applicable engine		6G72 – DOHC (Turbo)	6G72 – DOHC (Turbo)
Type		5-speed transaxle floor shift	6-speed transaxle floor shift
Gear ratio	1st	3.071	3.266
	2nd	1.739	1.904
	3rd	1.103	1.241
	4th	0.823	0.918
	5th	0.659	0.733
	6th	—	0.589
	Reverse	3.076	3.153
Reduction ratio	Primary	1.375	1.222
	Front differential	2.668	3.166
	Transfer	0.814	0.958
Speedometer gear ratio (driven/drive)		27/36	28/36

SECTIONAL VIEW <W6MG1>

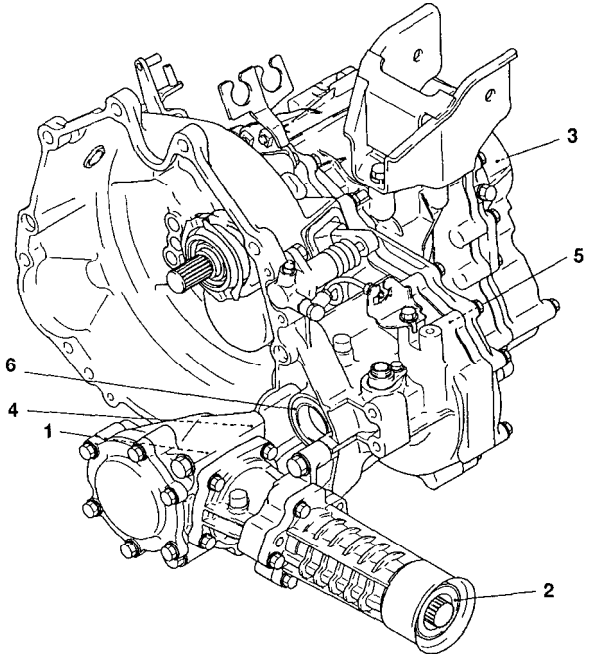


ZTFM0358

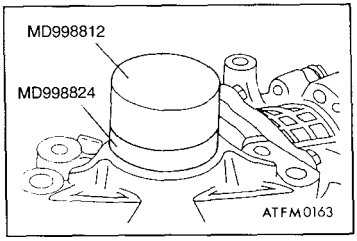
TRANSAXLE ASSEMBLY

The W5MG1 and W6MG1 transaxle cannot be disassembled.
If any parts other than describes below are defective, replace the transaxle assembly.

REPLACEABLE PART



▶A◀ 1. Transfer case oil seal
▶B◀ 2. Transfer extension housing oil Seal
▶C◀ 3. Input shaft rear seal cap
▶D◀ 4. Center shaft oil Seal
▶E◀ 5. Drive shaft oil seal
▶F◀ 6. Drive shaft oil Seal

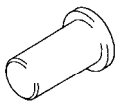
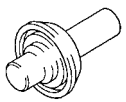
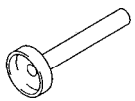


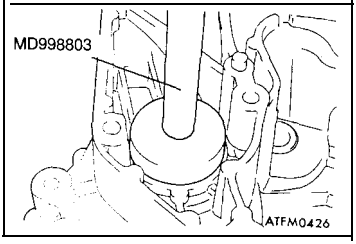
INSTALLATION SERVICE POINTS

▶A◀ **TRANSFER** DRIVE BEVEL GEAR OIL SEAL INSTALLATION

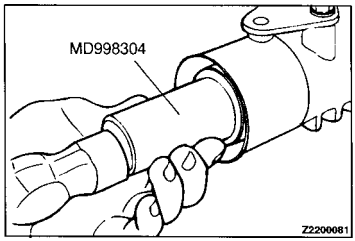
TSB Revision

SPECIAL TOOLS

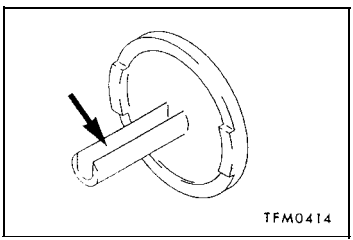
Tool	Tool number and name	Supersession	Application
	MD998304 Oil seal installer	MD998304-01	Installation of transfer extention housing oil seal
	MD998325 Differential oil seal installer	MD998325-01	Installation of drive shaft oil seal
	MD998803 Differential oil seal installer	GENERAL SERVICE TOOL	Installation of drive shaft oil seal
	MD998812 Installer cap	GENERAL SERVICE TOOL	Use with MD998824
	MD998824 Installer adapter (50)	GENERAL SERVICE TOOL	Installation of transfer case oil seal
	MB990930 Installer adapter	MB990930	Installation of input shaft rear seal cap
	MB990938 Handle	MB990938	Use with MB990930



▶F◀ DRIVE SHAFT OIL SEAL INSTALLATION

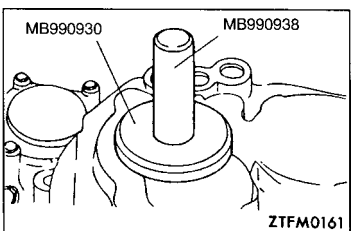


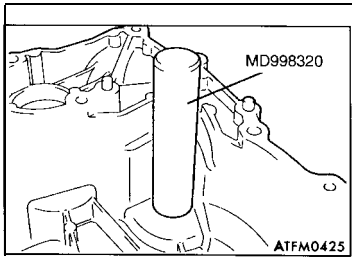
▶B◀ TRANSFER EXTENSION HOUSING OIL SEAL INSTALLATION



▶C◀ INPUT SHAFT REAR SEAL CAP INSTALLATION

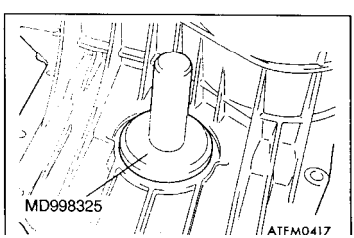
Position the groove of the seal cap toward the upper side of the transmission and strike in the seal cap until it becomes flat with the rear cover.





▶D◀ CENTER SHAFT OIL SEAL INSTALLATION

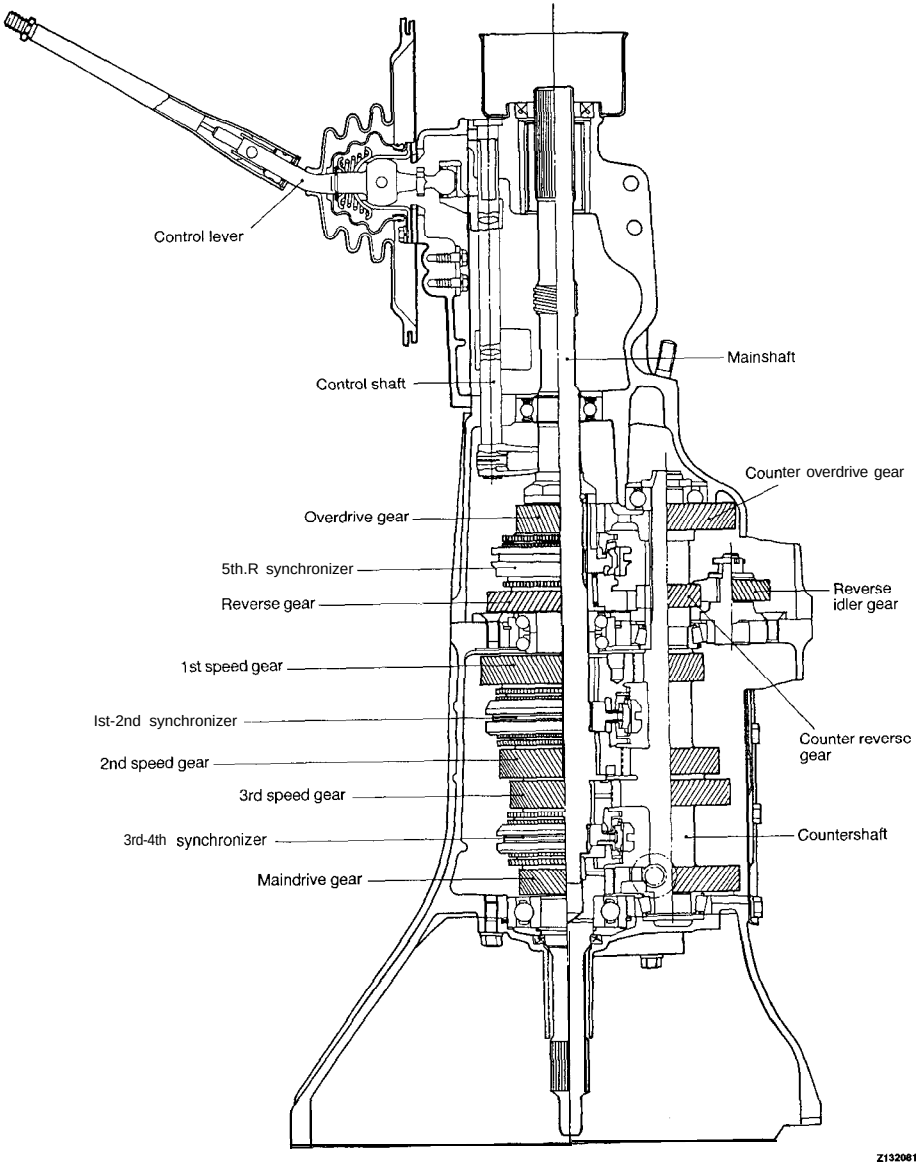
Press in the oil seal with a special tool as shown in the diagram so that the case surfaces matches with the oil seal. Take care not to press the oil seal in too far.



▶E◀ DRIVE SHAFT OIL SEAL INSTALLATION

GENERAL INFORMATION

SECTIONAL VIEW



TSB Revision

MANUAL TRANSMISSION

R5M21

CONTENTS

SNAP RINGS AND SPACERS ADJUSTMENT

Part name	Thickness mm (in.)	Identification symbol	Part No.
nap ring -or adjustment of maindrive gear bearing end play)	2.30 (.0906)	White	MD701729
	2.35 (.0925)	Brown	MD701730
	2.40 (.0945)	None	MD701731
	2.45 (.0965)	Blue	MD701732
	2.50 (.0984)	Yellow	MD701733
pacer :or adjustment of maindrive gear end play)	0.84 (.0331)	Black	MD701845
	0.93 (.0366)	None	MD701839
	1.02 (.0402)	Red	MD701840
	1.11 (.0437)	White	MD701841
	1.20 (.0472)	Yellow	MD701842
	1.29 (.0508)	Blue	MD701843
	1.38 (.0543)	Green	MD701844
;nap ring For adjustment of 3rd-4th speed synchronizer hub end play)	2.15 (.0846)	None	MD701761
	2.22 (.0874)	Yellow	MD701762
	2.29 (.0902)	Green	MD701763
	2.36 (.0929)	White	MD701764
ipacer For adjustment of countershaft preload)	1.84 (.0724)	84	MD706580
	1.87 (.0736)	87	MD706581
	1.90 (.0748)	90	MD706582
	1.93 (.0760)	93	MD706583
	1.96 (.0772)	96	MD706584
	1.99 (.0783)	99	MD706585
	2.02 (.0795)	02	MD706586
	2.05 (.0807)	05	MD706587
	2.08 (.0819)	08	MD706588
	2.11 (.0831)	11	MD706589
	2.14 (.0843)	14	MD706590
	2.17 (.0854)	17	MD706591
	2.20 (.0866)	20	MD706592
	2.23 (.0878)	23	MD706593
	2.26 (.0890)	26	MD706594

SPECIFICATIONS

TRANSMISSION MODEL TABLE . . . . MODEL 1992, 1993, 1994

Transmission Model	Gear ratio	Speedometer gear ratio	Vehicle Model	Engine Model
R5M21-1-GDL	A	24/8	TRUCK	4G64
R5M21-1-GFL	A	26/8	TRUCK	4G64

TRANSMISSION MODEL TABLE . . . . MODEL 1995, 1996

Transmission Model	Gear ratio	Speedometer gear ratio	Vehicle Model	Engine Model
R5M21-1-GDAL	A	24/8	TRUCK	4G64

GENERAL SPECIFICATIONS

Gear ratio	A
1st	3.740
2nd	2.136
3rd	1.360
4th	1.000
5th	0.856
Reverse	3.578

SERVICE SPECIFICATIONS

Items	Standard value	Limit
Maindrive gear bearing end play mm (in.)	0–0.06 (0–.0024)	—
Maindrive gear end play mm (in.)	0–0.1 (0–.004)	—
3rd-4th speed synchronizer hub end play mm (in.)	0–0.08 (0–.0031)	— --
Countershaft preload mm (in.)	0–0.05 (0–.0020)	—
Synchronizer ring to gear clearance mm (in.)	—	0.5 (.020)

SEALANTS, ADHESIVE AND GREASE

TRANSMISSION

Items	Specified sealants, adhesive and grease
Extension housing gasket	3M ATD Part No.8660 or equivalent
Front bearing retainer gasket	3M ATD Part No.8660 or equivalent
Poppet plug	3M ATD Part No.8660 or equivalent
Rear bearing retainer mounting bolt	3M STUD Locking No.4170 or equivalent
Reverse idler gear shaft mounting bolt	3M STUD Locking No.4170 or equivalent
Front bearing retainer oil seal	Mitsubishi genuine grease Part No.0101011 or equivalent

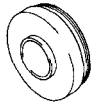
CONTROL LEVER ASSEMBLY

Items	Specified sealants
Stopper bracket assembly mounting bolt – special bolt seat	3M ATD Part No.8660 or equivalent
Stopper plate gasket	3M ATD Part No.8660 or equivalent
Stopper bracket assembly mounting bolt – special bolt Threaded part	3M ATD Part No.2353 or equivalent

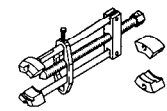
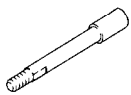
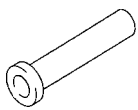
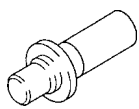
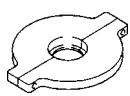
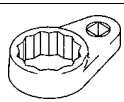
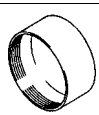
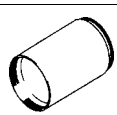
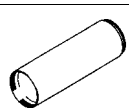
Part name	Thickness mm (in.)	Identification symbol	Part No.
Spacer (For adjustment of countershaft preload)	2.29 (.0902)	29	MD706595
	2.32 (.0913)	32	MD706596
	2.35 (.0925)	35	MD706597
	2.38 (.0937)	38	MD706598
	2.41 (.0949)	41	MD706599
	2.44 (.0961)	44	MD706600
	2.47 (.0972)	47	MD706601
	2.50 (.0984)	50	MD706602
	2.53 (.0996)	53	MD706603
	2.56 (.1008)	56	MD706604
	2.59 (.1020)	59	MD706605
	2.62 (.1031)	62	MD706606
	2.65 (.1043)	65	MD706607
	2.68 (.1055)	68	MD706608

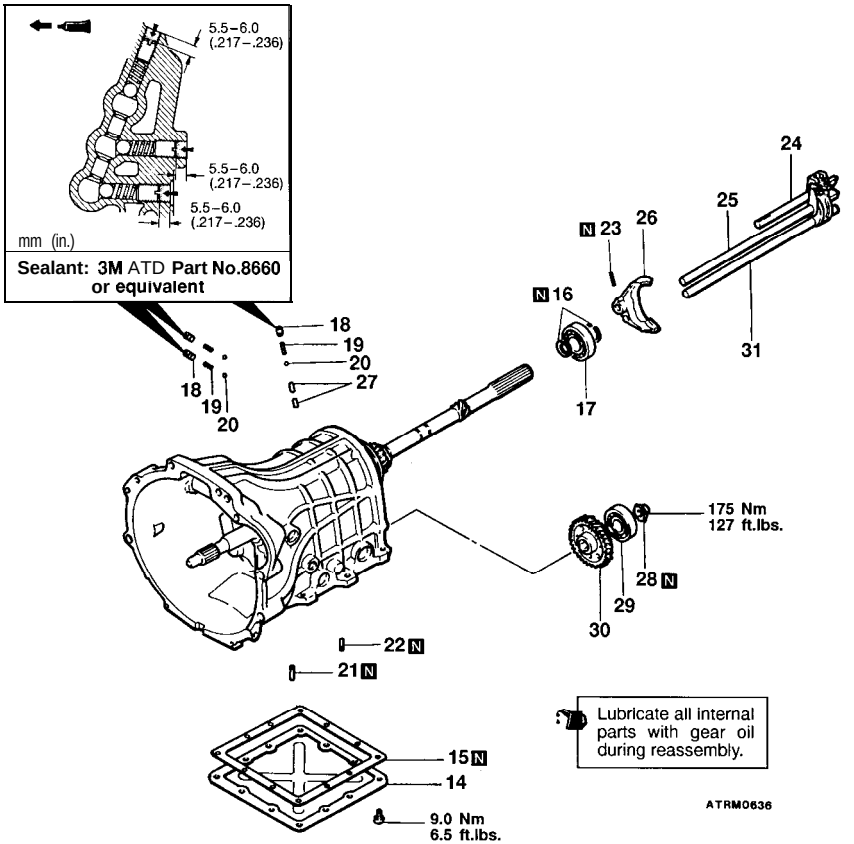
TORQUE SPECIFICATIONS

Items	Nm	ft.lbs.
Backup light switch	30	22
Countershaft lock nut	175	127
Extension housing mounting bolt	19	14
Front bearing retainer mounting nut	12	9.0
Mainshaft lock nut	260	188
Rear bearing retainer mounting bolt	12	9.0
Reverse idler gear lock nut	40	29
Reverse idler gear mounting bolt	19	14
Seal plug	36	26
Speedometer sleeve clamp bolt	12	9.0
Stopper bracket mounting nut	19	14
Stopper plate mounting bolt	9.0	6.5
Under cover bolt	9.0	6.5

Tool	Tool number and name	Supersession	Application
	MD998816 Installer adapter (30)	GENERAL SERVICE TOOL	Installation of each bearing
	MD998818 Installer adapter (38)	MD998818	
	MD998819 Installer adapter (40)	MD998819	

SPECIAL TOOLS

Tool	Tool number and name	Supersession	Application
	MD998020 Bearing puller	MD998020	Pull out the maindrive gear and mainshaft bearing
	MD998028 Bearing puller adapter	MD998028	Use with MD998020
	MD998199 Bearing installer	MD998067-01 MIT4336	Drive in the mainshaft bearing
	MD998200 Oil seal installer	MD998200-01	Drive in the front bearing retainer oil seal
	MD998359 Bearing puller	MD998348-01	Pull out the countershaft bearing
	MD998809 Lock nut wrench (41)	MD998809-01	Installation and removal of mainshaft lock nut
	MD998812 Installer cap	GENERAL SERVICE TOOL	Use with installer and adapter
	MD998813 Installer – 100	GENERAL SERVICE TOOL	Use with installer cap and adapter
	MD998814 Installer – 200	MIT304180	Use with installer cap and adapter



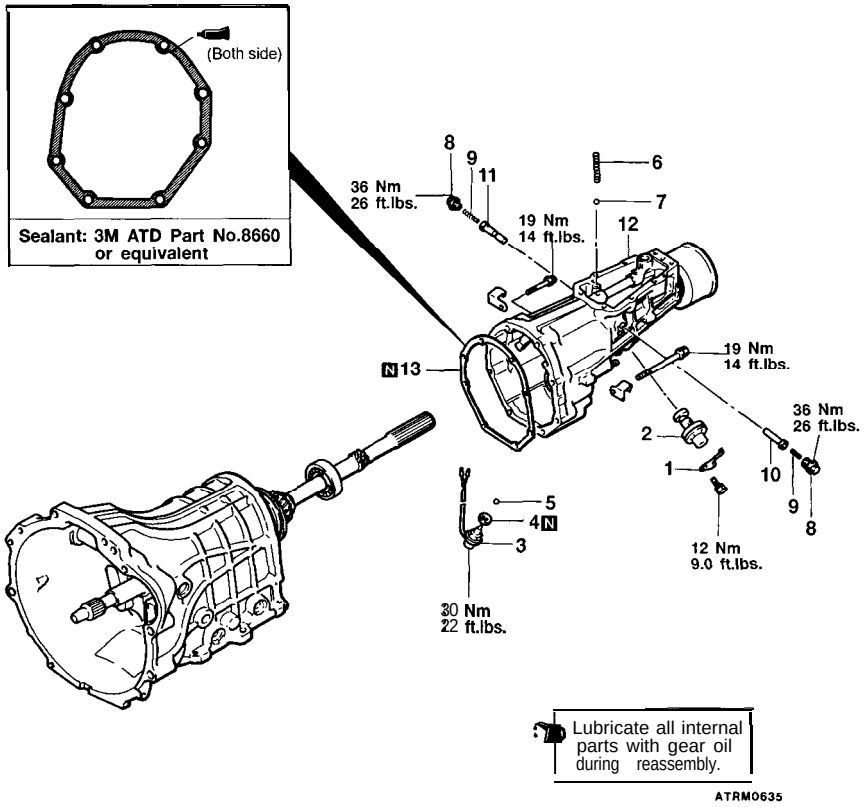
Disassembly steps

14. Under cover
15. Under cover gasket
16. Snap ring
17. Mainshaft rear bearing
18. Poppet plug
▶P◀ 19. Poppet spring
20. Steel ball
▶T◀ 21. Spring pin for 3rd-4th speed shift fork
▶T◀ 22. Spring pin for 1st-2nd speed shift fork
23. Spring pin for OD-R shift fork
24. OD-R shift rail
25. 3rd-4th speed shift rail
26. OD-R shift fork
27. Interlock plunger
▶O◀ 28. Countershaft lock nut
▶N◀ 29. Countershaft rear bearing
▶M◀ 30. Counder overdrive gear
▶M◀ 31. 1st-2nd speed shift rail

TSB Revision

TRANSMISSION

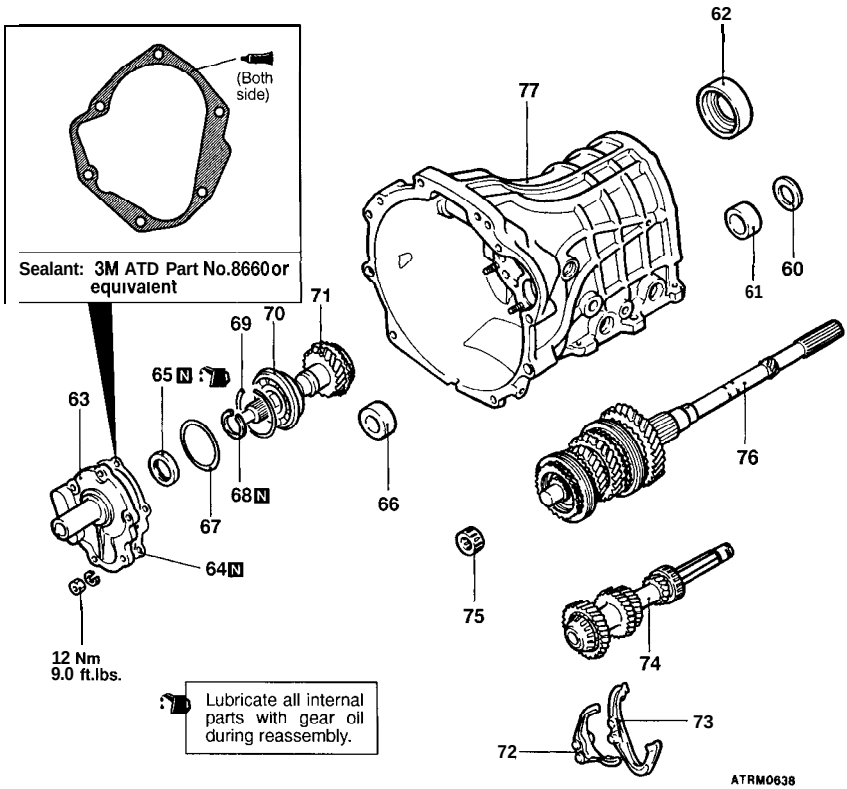
DISASSEMBLY AND REASSEMBLY



Disassembly steps

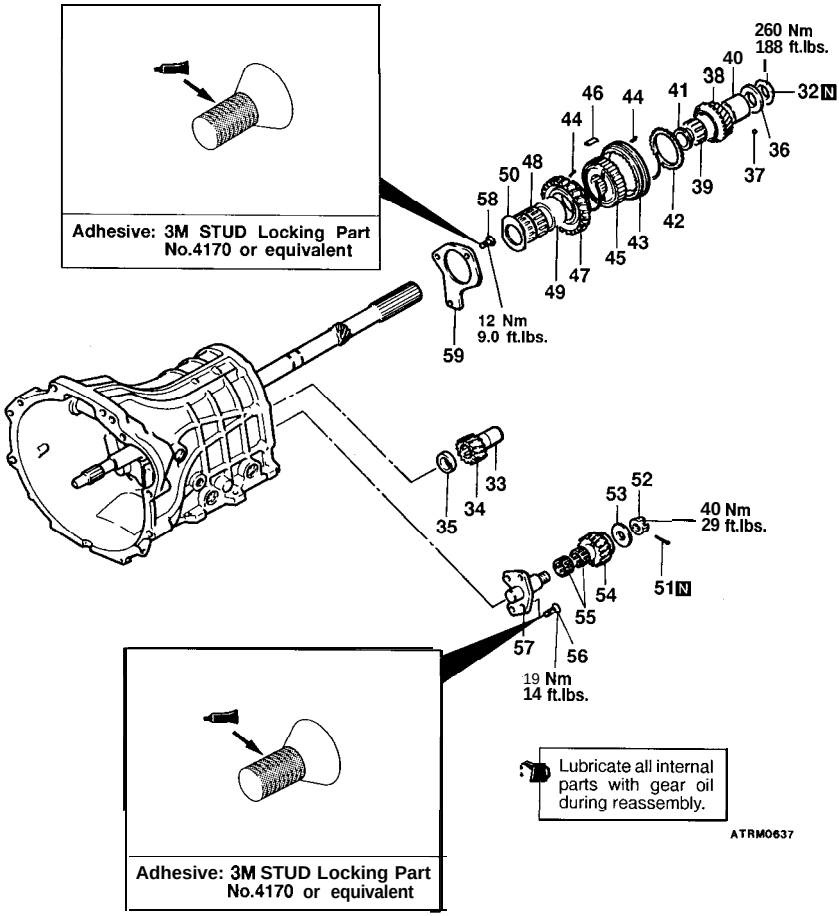
1. Sleeve clamp
▶S◀ 2. Speedometer gear
3. Backup light switch
4. Gasket
5. Steel ball
▶R◀ 6. Resistance spring
▶R◀ 7. Steel ball
▶R◀ 6. Seal plug
▶R◀ 9. Spring
▶R◀ 10. Neutral return plunger (A)
▶R◀ 11. Neutral return plunger (B)
◀A▶ ▶Q◀ 12. Extension housing
13. Extension housing gasket

TSB Revision



Disassembly steps

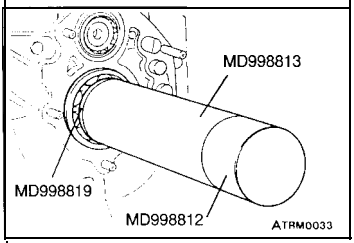
- ▶F◀ 60. Spacer
- 61. Countershaft center bearing outer race
- ◀D▶ ▶E◀ 62. Mainshaft center bearing
- 63. Front bearing retainer
- 64. Front bearing retainer gasket
- ▶D◀ **65.** Oil seal
- 66. Countershaft front bearing outer race
- ▶C◀ 67. Spacer
- ▶B◀ 68. Snap ring
- 69. Snap ring
- ◀E▶ ▶A◀ **70.** Maindrive gear bearing
- 71. Maindrive gear
- **72.** 3rd-4th speed shift fork
- **73.** 1st-2nd speed shift fork
- **74.** Countershaft assembly
- **75.** Mainshaft front bearing
- **76.** Mainshaft assembly
- **77.** Transmission case



Disassembly steps

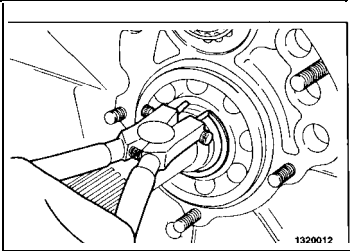
◀B▶ ▶L◀ **32.** Mainshaft lock nut
33. Spacer
34. Counter reverse gear
35. Spacer
36. Spacer
37. Steel ball
38. Overdrive gear
39. Needle bearing
◀C▶ ▶K◀ 40. Bearing sleeve
41. Bearing spacer
▶J◀ 42. Overdrive synchronizer ring
▶H◀ 43. OD-R synchronizer sleeve
▶I◀ 44. OD-R synchronizer spring
▶H◀ **45.** OD-R synchronizer hub
▶I◀ **46.** OD-R synchronizer key
47. Reverse gear
48. Needle bearing
49. Bearing sleeve
50. Spacer
51. Cotter pin
52. Slotted nut
53. Thrust washer
54. Reverse idler gear
55. Needle bearing
56. Bolt
▶G◀ 57. Reverse idler gear shaft
58. Bolt
59. Rear bearing retainer

TSB Revision



REASSEMBLY SERVICE POINTS

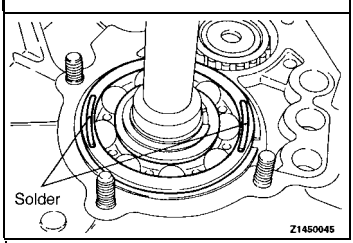
▶A◀ MAINDRIVE GEAR BEARING INSTALLATION



▶B◀ SNAP RING INSTALLATION

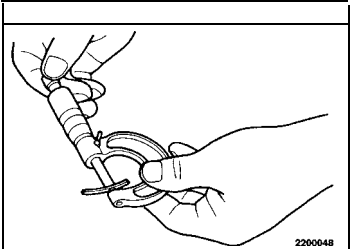
(1) Select and install snap ring to that maindrive gear bearing end play may reach standard valve.

Standard value: 0–0.06 mm (0–.0024 in.)



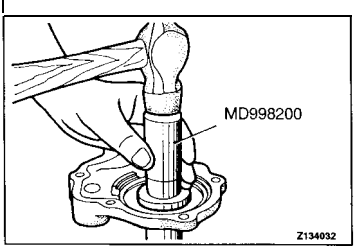
▶C◀ SPACER INSTALLATION

(1) Place two pieces of solder measuring about 10 mm (.39 in.) in length and 1.6 mm (.063 in.) in diameter on the bearing outer race as shown in illustration.
(2) Install the front bearing retainer and tighten the nuts to specified torque.
(3) Remove the front bearing retainer and remove the solder.
(4) If the solders are not compressed, use larger diameter solder to perform step (1) to (3).



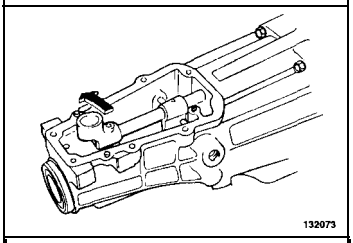
(5) Measure the thickness of the crushed solder with a micrometer and select and install a spacer of thickness that gives standard end play.

Standard value: 0–0.1 mm (0–.004 in.)



▶D◀ OIL SEAL INSTALLATION

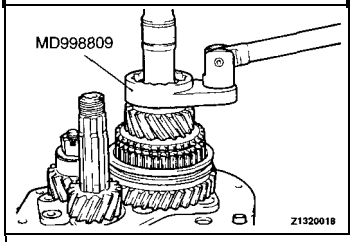
(1) Apply transmission oil to the lip on the oil seal.
(2) Using special tool, install oil seal.



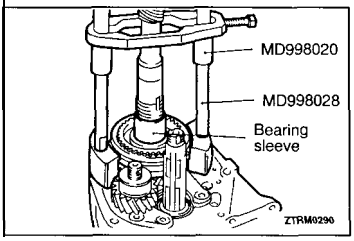
DISASSEMBLY SERVICE POINTS

◀A▶ EXTENSION HOUSING REMOVAL

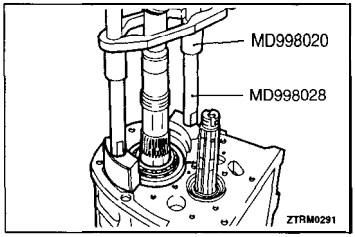
(1) Pull the extension housing toward the rear while pushing the change shifter toward the left.



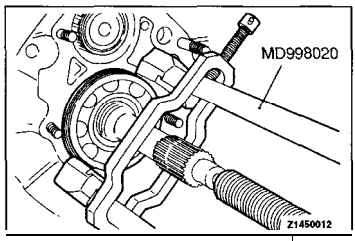
◀B▶ MAINSHAFT LOCK NUT REMOVAL



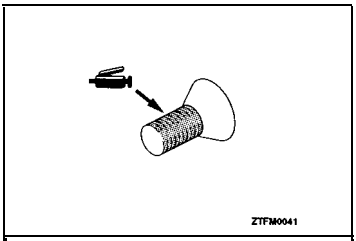
◀C▶ BEARING SLEEVE REMOVAL



◀D▶ MAINSHAFT CENTER BEARING REMOVAL

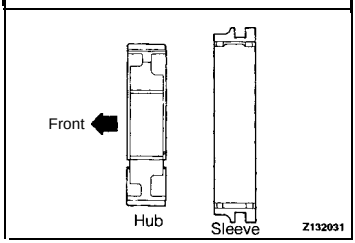


◀E▶ MAINDRIVE GEAR BEARING REMOVAL

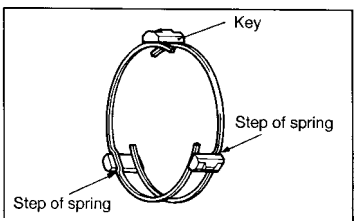


(2) Apply a coating of adhesive to the threaded part of the bolt.

Specified adhesive
3M STUD Locking Part No.4170 or equivalent

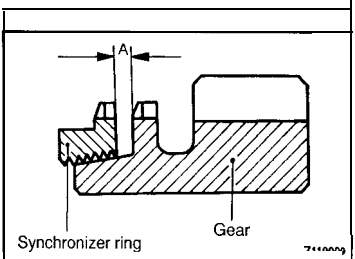


▶H◀ OD-R SYNCHRONIZER HUB/OD-R SYNCHRONIZER SLEEVE INSTALLATION



▶I◀ OD-R SYNCHRONIZER KEY/OD-R SYNCHRONIZER SPRING INSTALLATION

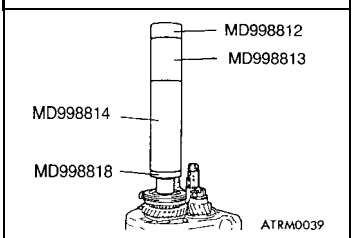
(1) Install two synchronizer springs. When installing springs, make sure that steps of front and rear springs are positioned on synchronizer key, but not on the same key.



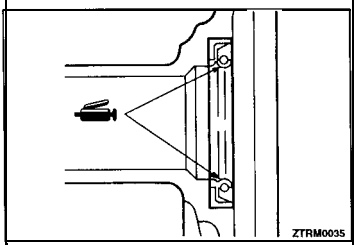
▶J◀ OVERDRIVE SYNCHRONIZER RING INSTALLATION

(1) Engage synchronizer ring to OD gear as shown in illustration before installing OD gear and ensure that there is certain clearance "A". If dimension "A" exceeds the limit, replace the ring and/or gear.

Limit: 0.5 mm (.020 in.)

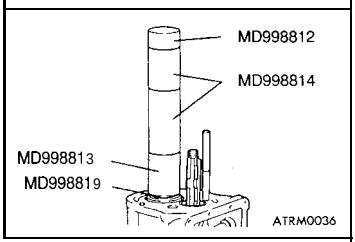


▶K◀ BEARING SLEEVE INSTALLATION

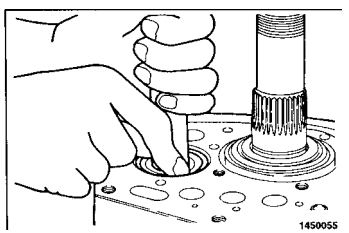


(3) Apply specified grease to the lip of the front bearing retainer oil seal.

Specified **grease:**
Mitsubishi genuine grease Part No.0101011 or equivalent

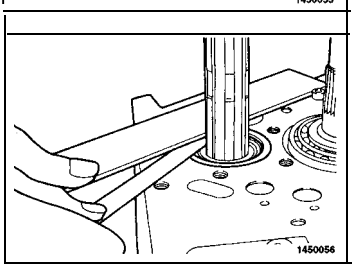


▶E◀ MAINSHAFT CENTER BEARING INSTALLATION

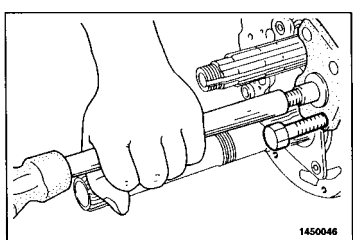


▶F◀ SPACER INSTALLATION

(1) Press-fit the outer race and counter gear securely.

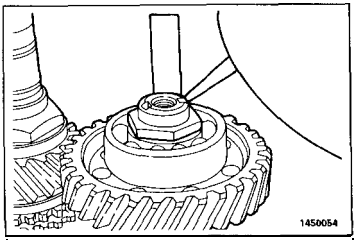


(2) Assemble the select spacers and align them with a straight edge.
(3) Select a spacer which will achieve the standard value.

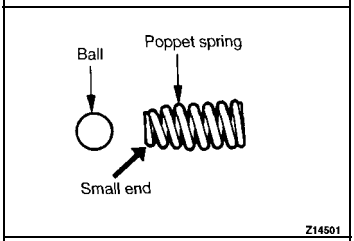


▶G◀ REVERSE IDLER GEAR SHAFT INSTALLATION

(1) Place an M8×50 mm (1.97 in.) bolt in the guide and install the reverse idler gear shaft.

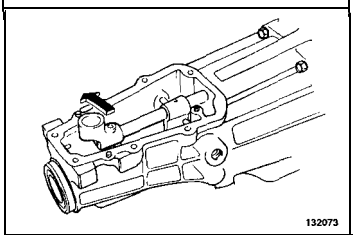


(2) Stake the area as shown in illustration without fail to prevent lock nut from loosening.
(3) Ensure that the OD gear rotates smoothly.



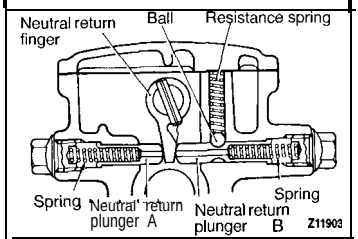
▶P◀ POPPET SPRING INSTALLATION

(i) Insert poppet spring with small end on ball side. Three springs are identical to one another.

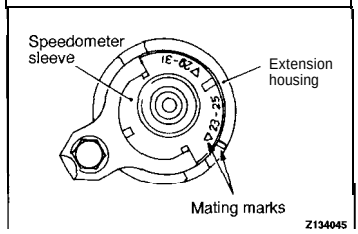


▶Q◀ EXTENSION HOUSING INSTALLATION

(1) Install the extension housing while pushing the change shifter in the direction of the arrow and fit the control finger into the groove in the selector.

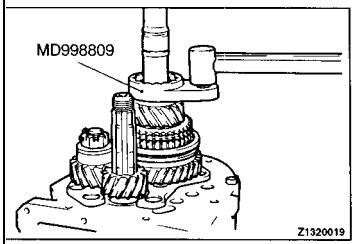


▶R◀ NEUTRAL RETURN PLUNGER (B) / NEUTRAL RETURN PLUNGER (A) / SPRING / SEAL PLUG / STEEL BALL / RESISTANCE SPRING INSTALLATION



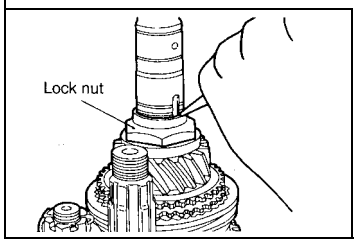
▶S◀ SPEEDOMETER GEAR INSTALLATION

(1) Match the mating marks to the number of teeth on the speedometer driven gear and install the speedometer gear.

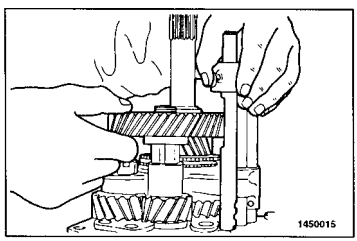


▶L◀ MAINSHAFT LOCK NUT INSTALLATION

(1) Using the special tool, tighten the mainshaft lock nut.

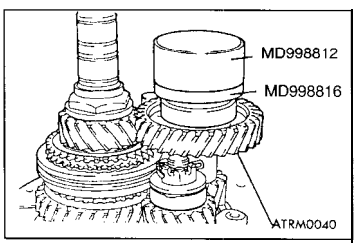


(2) Stake the area as shown in illustration of lock nut
(3) Ensure that the OD gear rotates smoothly.

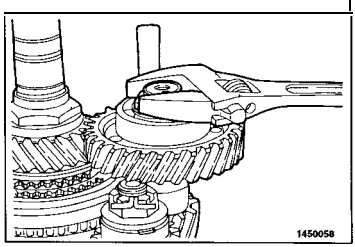


▶M◀ COUNTER OVERDRIVE GEAR/1ST-2ND SPEED SHIFT RAIL INSTALLATION

(1) Install the counter overdrive gear and 1st-2nd speed shift rail at the same time.



▶N◀ COUNTERSHAFT REAR BEARING INSTALLATION

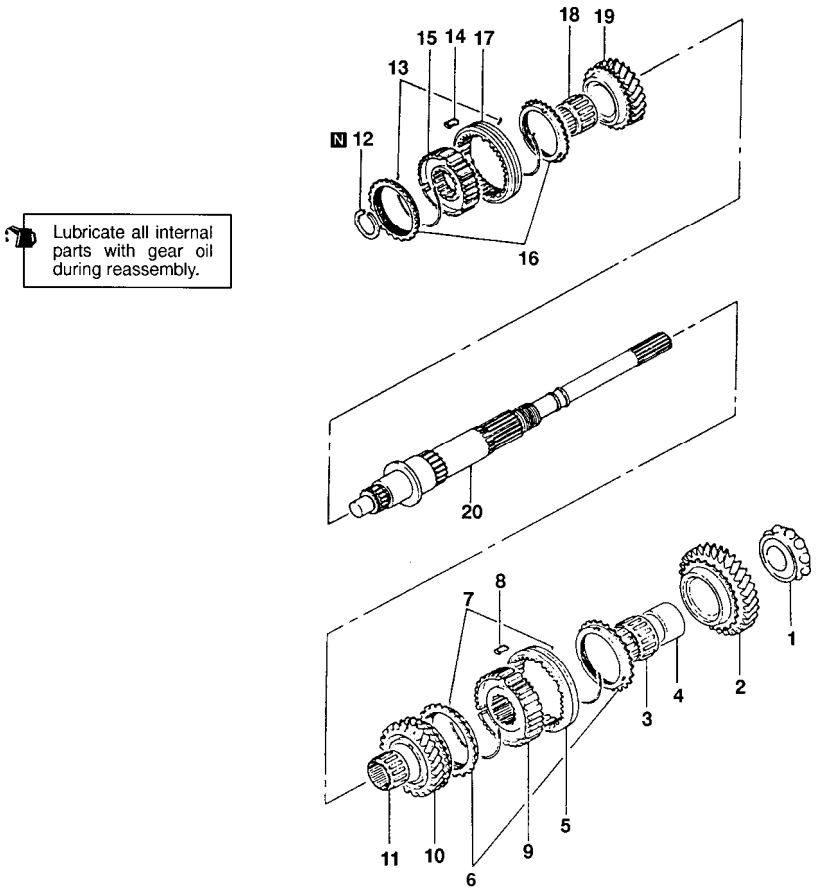


▶Q◀ COUNTERSHAFT LOCK NUT INSTALLATION

(1) Tighten the countershaft lock nut to specified torque.

MAINSHAFT

DISASSEMBLY AND REASSEMBLY

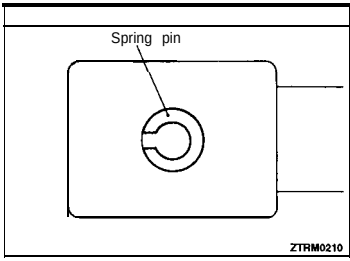


21350012

Disassembly steps

- ▶E◀ 1. Bearing inner race
- 2. 1st speed gear
- 3. Needle bearing
- 4. Searing sleeve
- 5. 1st-2nd speed synchronizer sleeve
- 6. Synchronizer ring
- ▶D◀ 7. 1st-2nd speed synchronizer spring
- ▶D◀ 8. 1st-2nd speed synchronizer key
- 9. 1st-2nd speed synchronizer hub
- 10. 2nd speed gear
- ▶C◀ 11. Needle bearing
- 12. Snap ring
- ▶B◀ 13. 3rd-4th speed synchronizer spring
- ▶B◀ 14. 3rd-4th speed synchronizer key
- ▶A◀ 15. 3rd-4th speed synchronizer hub
- 16. Synchronizer ring
- ▶A◀ 17. 3rd-4th speed synchronizer sleeve
- 18. Needle bearing
- 19. 3rd speed gear
- 20. Mainshaft

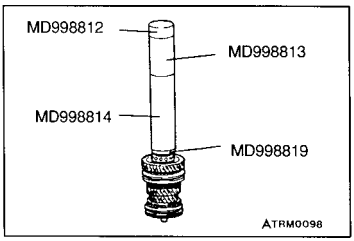
TSB Revision



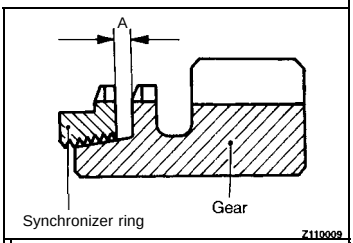
▶T◀ SPRING PIN INSTALLATION

▶D◀ 1ST-2ND SPEED SYNCHRONIZER KEY I 1ST-2ND SPEED SYNCHRONIZER SPRING INSTALLATION

(1) Assemble the 1st-2nd speed synchronizer by the same procedure as for the 3rd-4th speed synchronizer in the previous item.



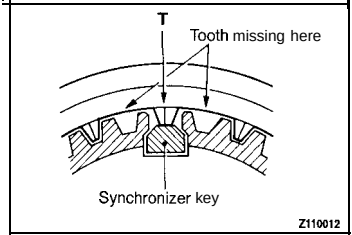
▶E◀ BALL BEARING INNER RACE INSTALLATION



INSPECTION

- Check the synchronizer ring for worn and damaged internal threads.
- With synchronizer assembled to cone of each gear, check dimension "A". If dimension "A" exceeds the limit, replace the synchronizer ring and/or gear.

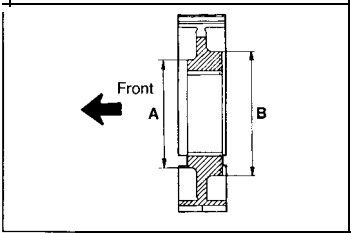
Limit: 0.5 mm (.020 in.)

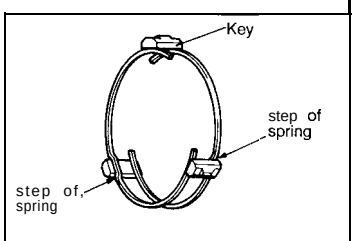


REASSEMBLY SERVICE POINTS

▶A◀ 3RD-4TH SPEED SYNCHRONIZER SLEEVE / 3RD-4TH SPEED SYNCHRONIZER HUB INSTALLATION

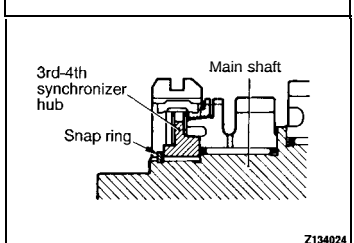
(1) Mate synchronizer hub with sleeve using mark made at disassembly. Make sure that hub and sleeve slide smoothly. If they slide unsmoothly, replace hub and sleeve assembly.
(2) 3rd-4th speed synchronizer sleeve has teeth missing at six portions. Assemble hub to sleeve in such a way that center tooth "T" between two missing teeth will touch synchronizer key.
(3) Use care when installing 3-4 synchronizer hub since only 3rd-4th speed synchronizer is directional. Smaller diameter side "A" of center boss is front of 3-4 synchronizer hub.





▶B◀ 3RD-4TH SPEED SYNCHRONIZER KEY I 3RD-4TH SPEED SYNCHRONIZER SPRING INSTALLATION

(1) Insert three keys into groove of synchronizer hub.
(2) Install two synchronizer springs to synchronizer. When synchronizer springs are installed, make sure that front and rear ones are not faced in same direction.



▶C◀ SNAP RING INSTALLATION

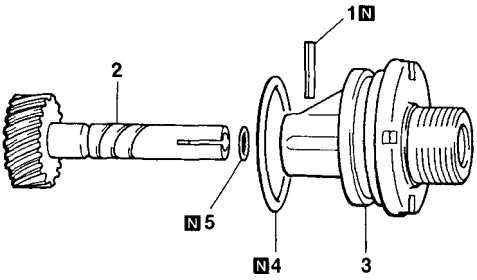
(1) Select proper snap ring and install so that the clearance between 3rd-4th speed synchronizer hub and snap ring become standard value.

Standard value: 0–0.08 mm (0–.0031 in.)

SPEEDOMETER GEAR

DISASSEMBLY AND REASSEMBLY

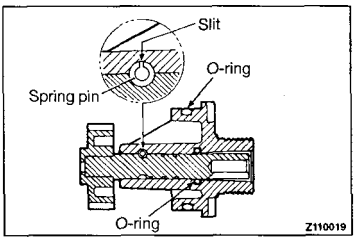
Lubricate all internal parts with gear oil during reassembly.



Z110008

Disassembly steps

▶A◀ 1. Spring pin
2. Driven gear
3. Sleeve
4. O-ring
5. O-ring



REASSEMBLY SERVICE POINT

▶A◀ SPRING PIN INSTALLATION

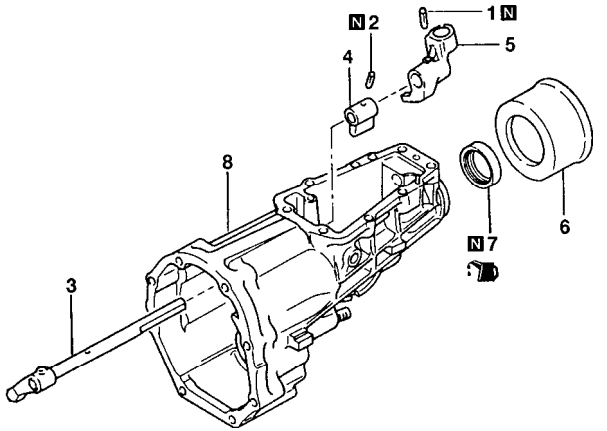
(1) Drive the spring pin in, while making sure that slit does not face gear shaft.

TSB Revision

EXTENSION HOUSING

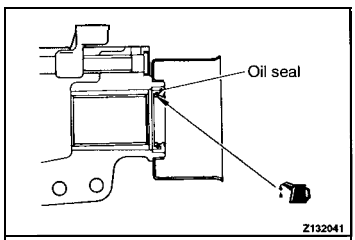
DISASSEMBLY AND REASSEMBLY

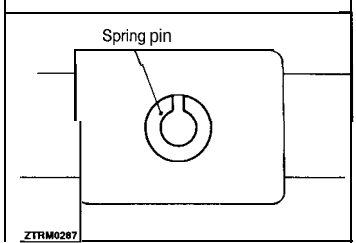
Lubricate all internal parts with gear oil during reassembly.



Disassembly steps

1. Lock pin
▶B◀ 2. Spring pin
3. Control flange and control shaft
4. Neutral return finger
5. Change shifter
6. Dust seal guard
▶A◀ 7. Oil seal
6. Extension housing





REASSEMBLY SERVICE POINTS

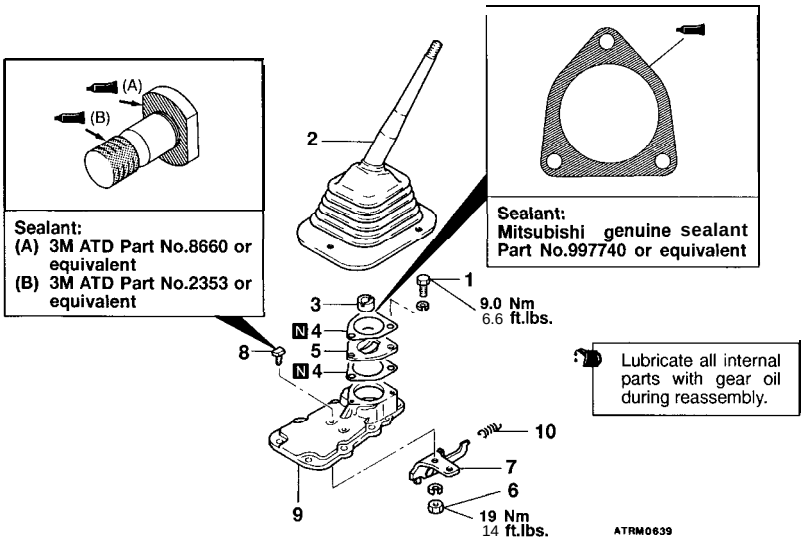
▶A◀ OIL SEAL INSTALLATION

(1) Apply transmission oil to lip of oil seal.
(2) Install oil seal with lip toward front of housing.

▶B◀ SPRING PIN INSTALLATION

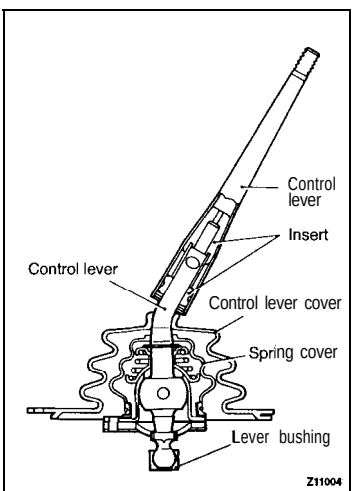
CONTROL LEVER

DISASSEMBLY AND REASSEMBLY



Disassembly steps

1. Bolt
2. Control lever
3. Lever bushing
4. Gasket
5. Stopper plate
6. Nut
7. Stopper bracket assembly
8. Special bolt
9. Extension housing cover
10. Return spring

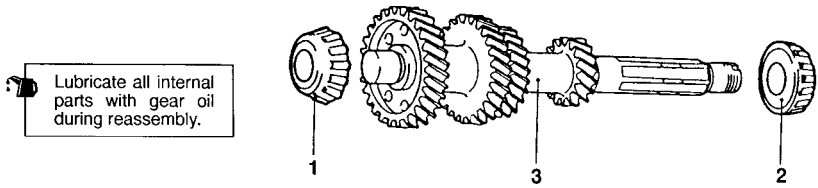


- Check for play between control lever and control lever. If play is evident, replace lever assembly.
- Push control lever in and check to ensure that it moves smoothly up and down.
- Check cover for damage and replace if necessary. To remove cover, cut away with knife. To install new cover, first apply thin coat of oil to periphery of control lever.
- Then install by sliding it down from top of lever. Check lever bushing for wear and replace if necessary.

TSB Revision

COUNTERSHAFT

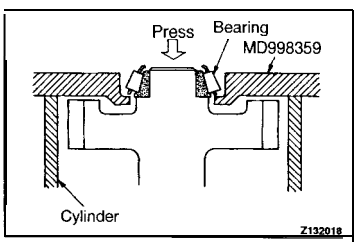
DISASSEMBLY AND REASSEMBLY



2132069

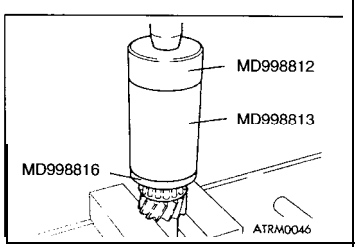
Disassembly steps

◀A▶ ▶A◀ 1. Countershaft front bearing
◀A▶ ▶A◀ 2. Countershaft rear bearing
3. Countershaft gear



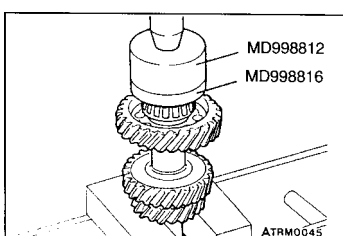
DISASSEMBLY SERVICE POINT

◀A▶ COUNTERSHAFT FRONT BEARING / COUNTERSHAFT REAR BEARING REMOVAL



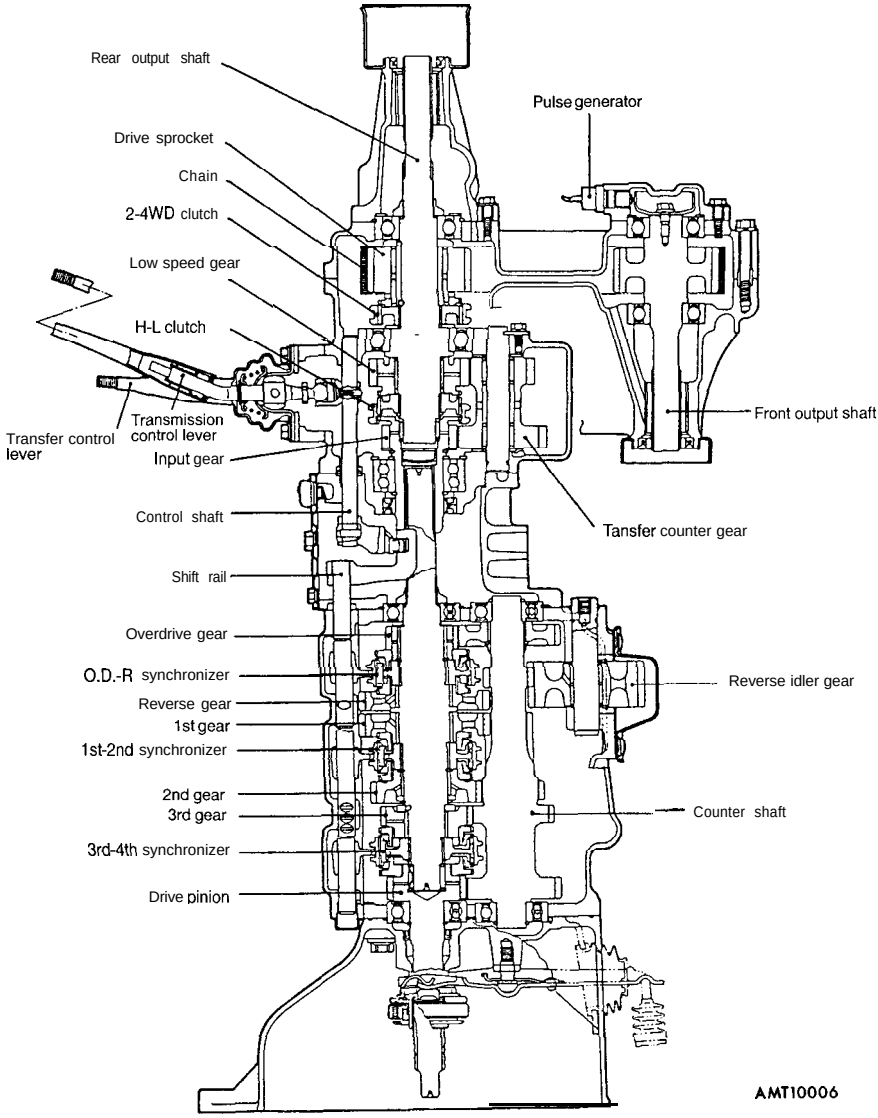
REASSEMBLY SERVICE POINT

▶A◀ COUNTERSHAFT REAR BEARING / COUNTERSHAFT FRONT BEARING INSTALLATION



GENERAL INFORMATION

V5MT1-2 <MODEL 1992>

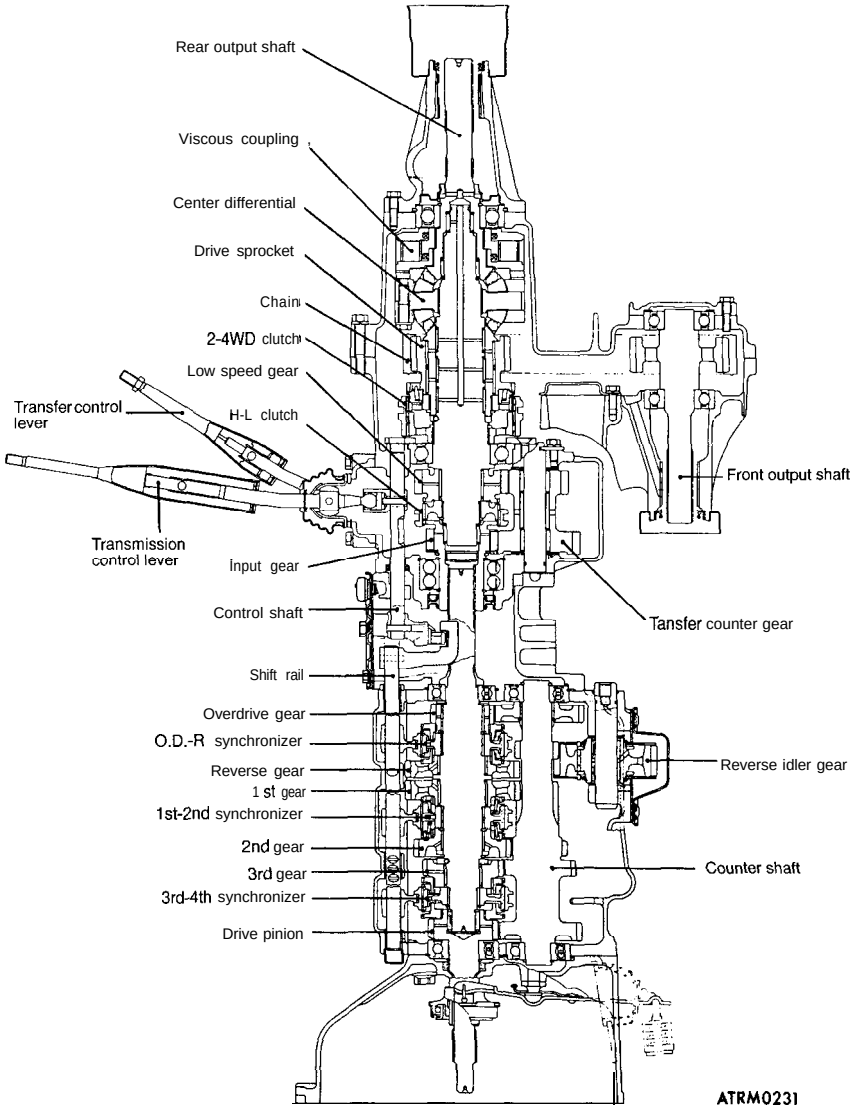


TSB Revision

MANUAL TRANSMISSION

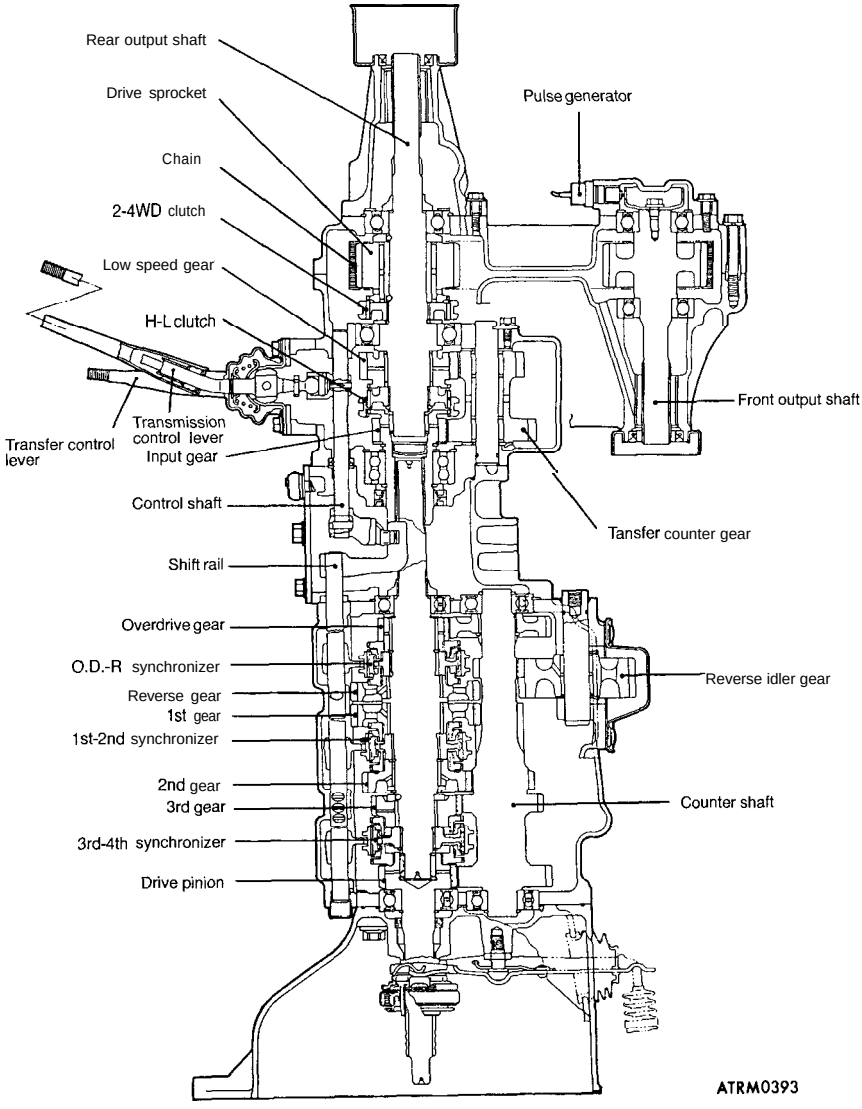
CONTENTS

MODEL V5MT1-3



TSB Revision

V5MT1-2 <MODEL 1993, 1994>



SPECIFICATIONS

TRANSMISSION MODEL TABLE . . . MODEL 1992, 1993

Transmission Model	Gear ratio	Speedometer gear ratio	Vehicle Model	Engine Model
V5MT1-2-ADSL	A	24/8	TRUCK	6G72
V5MT1-3-AFL	A	26/8	MONTERO	6G72

TRANSMISSION MODEL TABLE . . . MODEL 1994

Transmission Model	Gear ratio	Speedometer gear ratio	Vehicle Model	Engine Model
V5MT1-2-ADSL	A	24/8	TRUCK	6G72

TRANSMISSION MODEL TABLE . . . MODEL 1995

Transmission Model	Gear ratio	Speedometer gear ratio	Vehicle Model	Engine Model
V5MT1-2-ADSL	A	24/8	TRUCK	6G72
V5MT1-6-AEL	A	2518	MONTERO	6G72
V5MT1-6-AEAL	A	25/8	MONTERO	6G72

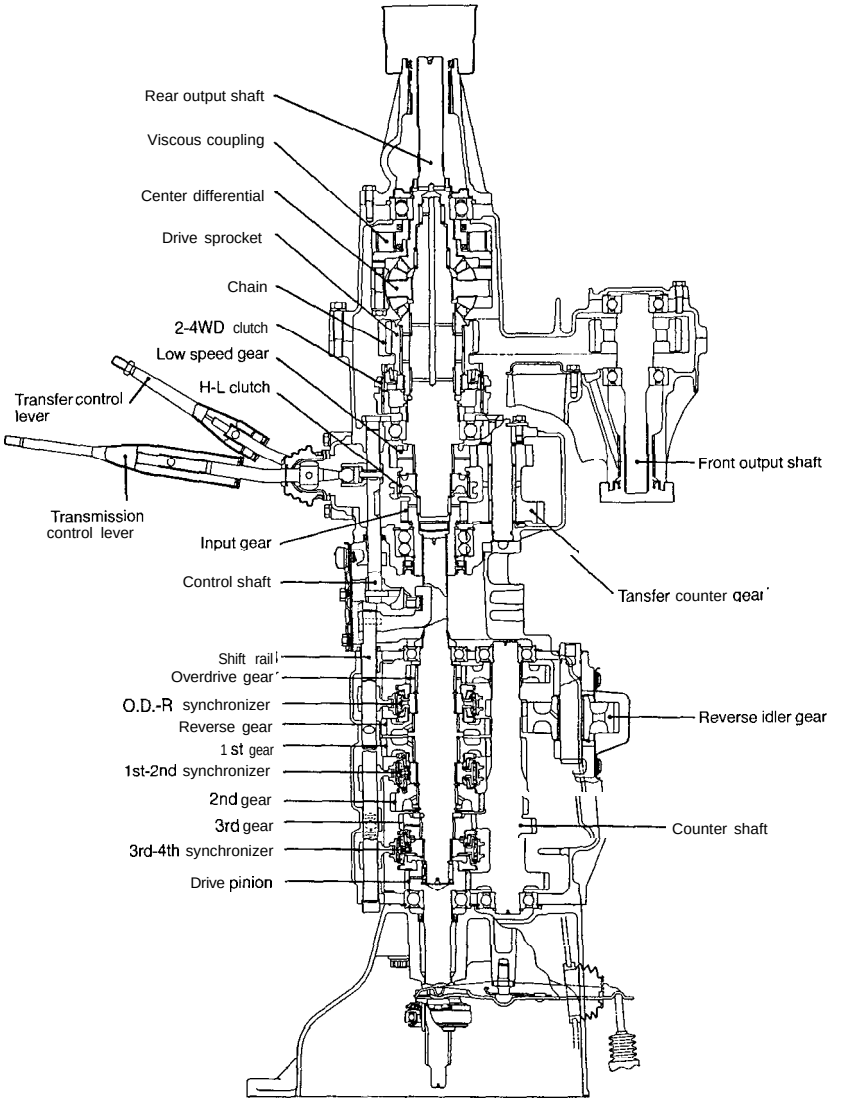
TRANSMISSION MODEL TABLE . . . MODEL 1996

Transmission Model	Gear ratio	Speedometer gear ratio	Vehicle Model	Engine Model
V5MT1-6-AEL	A	25/8	MONTERO	6G72
V5MT1-6-AEAL	A	25/8	MONTERO	6G72

GENERAL SPECIFICATIONS

Items		A
Transmission gear ratio	1st	3.918
	2nd	2.261
	3rd	1.395
	4th	1.000
	5th	0.829
	Reverse	3.925
Transfer gear ratio	High	1.000
	LOW	1.925

MODEL V5MT1-6



TSB Revision

SNAP RINGS AND SPACERS ADJUSTMENT

Transfer

Part name	Thickness mm (in.)	Identification symbol	Part No.
Snap ring (For adjustment of input gear bearing end play)	2.30 (.091)	—	MD704199
	2.35 (.093)	Red	MD704200
	2.40 (.094)	White	MD704201
	2.45 (.096)	Blue	MD704202
	2.50 (.098)	Green	MD704203
Snap ring (For adjustment of input gear assembly end play)	2.70 (.106)	Purple	MD704204
	2.75 (.108)	Pink	MD704205
	2.80 (.110)	Yellow	MD704206
	2.85 (.112)	White	MD704207
	2.90 (.114)	Blue	MD704208
Snap ring (For adjustment of H-L clutch hub end play)	2.14 (.084)	—	MD704212
	2.21 (.087)	Yellow	MD704213
	2.28 (.090)	White	MD704214
	2.35 (.093)	Blue	MD704215
	2.42 (.095)	Red	MD704216
Spacer (For adjustment of rear output shaft end play ..... V5MT1-2) (For adjustment of center differential end play V5MT1-3, V5MT1-6) <From December 1992>	0.84 (.033)	84	MD734326
	0.93 (.037)	93	MD734327
	1.02 (.040)	02	MD734328
	1.11 (.044)	11	MD734329
	1.20 (.047)	20	MD734330
	1.29 (.051)	29	MD734331
	1.38 (.054)	38	MD734332
	1.47 (.058)	47	MD734333
	1.56 (.061)	56	MD734334
	1.65 (.065)	65	MD734335
	1.74 (.069)	74	MD734336
	1.83 (.072)	83	MD734337
	1.92 (.076)	92	MD734338
	2.01 (.079)	01	MD734339

SERVICE SPECIFICATIONS

Transfer

Items	Standard value	Limit
Input gear bearing end play mm (in.)	0–0.06 (0–.0024)	—
Input gear end play mm (in.)	0–0.06 (0–.0024)	—
H-L clutch hub end play mm (in.)	0–0.08 (0–.0031)	—
Rear output shaft end play mm (in.)	0–0.1 (0–.004)	—
Front output shaft end play mm (in.)	2 (.08) or less	—
Center differential end play (V5MT1-3, V5MT1-6) mm (in.)	0.02–0.1 (.0008–.004)	—
Differential lock hub end play (V5MT1-3, V5MT1-6) mm (in.)	0–0.08 (0–.0031)	—
2-4WD synchronizer hub end play (V5MT1-3, V5MT1-6) mm (in.)	0–0.08 (0–.0031)	—
Rear output shaft bearing end play (V5MT1-3, V5MT1-6) mm (in.)	0–0.08 (0–.0031)	—
Clearance between rear surface of outer synchronizer ring and drive sprocket (V5MT1-3, V5MT1-6) mm (in.)	—	0.3 (.012)

TORQUE SPECIFICATIONS

Transmission

Items	Nm	ft.lbs.
Clutch housing mounting bolts	119	86
Transfer case adapter to transmission case mounting bolts	41	30
Transfer case adapter to transfer case mounting bolts	36	26
Gear shift case bolts	24	17
Power take-off cover bolts	19	14
Adapter cover bolts	24	17
Mainshaft locking nut	260	188
Reverse shaft lock piece bolt	41	30
Clutch release fork fulcrum	58	42
Backup light switch	35	25
Gear shift case poppet plugs	40	29
Neutral return plunger plugs	36	26
Poppet plug on transfer case adapter	48	35

Transfer

Items	Nm	ft.lbs.
Pulse rotor bolt (V5MT1-2)	19	14
Pulse generator bolt (V5MT1-2)	12	9.0
Chain cover bolt	36	26
Side cover bolt	9.0	7.0
Rear cover bolt	36	26
Cover bolt	19	14
Select plunger plug	33	24
Lock plate bolt	19	14
Rear output shaft lock nut	120	90
Speedometer gear clamp bolt	19	14
Seal plug (V5MT1-2)	36	26
4WD indicator light switch (V5MT1-2)	30	22
Detection switch (V5MT1-3, V5MT1-6)	36	26
Poppet plug (V5MT1-3, V5MT1-6)	36	26
H-L shift rail plug (V5MT1-3, V5MT1-6)	33	24
Plunger boss bolt (V5MT1-3, V5MT1-6)	33	24

Part name	Thickness mm (in.)	Identification symbol	Part No.
Snap ring V5MT1-3, V5MT1-6 (For adjustment of rear output shaft bearing end play)	2.26 (.089)	—	MD734311
	2.33 (.072)	Red	MD734312
	2.40 (.094)	White	MD734313
	2.47 (.097)	Blue	MD734314
Snap ring V5MT1-3, V5MT1-6 (For adjustment of 2-4WD synchronizer hub end play)	2.56 (.101)	—	MD738393
	2.63 (.104)	Red	MD738394
	2.70 (.106)	White	MD738395
	2.77 (.109)	Blue	MD738396
	2.84 (.112)	Yellow	MD738397
Snap ring V5MT1-3, V5MT1-6 (For adjustment of differential lock hub end play)	2.56 (.101)	—	MD738386
	2.63 (.104)	Red	MD738387
	2.70 (.106)	White	MD738388
	2.77 (.109)	Blue	MD738389
	2.84 (.112)	Yellow	MD738390
	2.91 (.115)	Green	MD738391
	2.98 (.117)	Purple	MD738392
Spacer <Up to November 1992> V5MT1-3, V5MT1-6 (For adjustment of center differential end play)	1.30 (.051)	30	MD734315
	1.38 (.054)	38	MD734316
	1.46 (.057)	46	MD734317
	1.54 (.061)	54	MD734318
	1.62 (.064)	62	MD734319
	1.70 (.067)	70	MD734320
	1.78 (.070)	78	MD734321
	1.86 (.073)	86	MD734322
	1.94 (.076)	94	MD734323
	2.02 (.080)	02	MD734324
	2.10 (.083)	10	MD734325

SEALANTS, ADHESIVE AND GREASE

TRANSMISSION

Items	Specified sealants and grease
Adapter cover	Mitsubishi genuine sealant Part No. MD997740 or equivalent
Clutch housing gasket	
Gear shift case gasket	
Transfer case adapter gasket	
Air breather	3M Super Weatherstrip No. 8001 or equivalent
Clutch housing oil seal	Multipurpose grease SAE J310,NLGI No. 2
Gear shift case screw plug	3M STUD Locking No. 4170 or eqivalent
Adapter mounting bolt	

TRANSFER

Items	Specified sealants, adhesive and grease
Chain cover gasket	3M ATD Part No. 8660 or equivalent
Cover (gasket)	
Rear cover gasket	
Poppet plug (V5MT1-3, V5MT1-6)	
Plug (V5MT1-3, V5MT1-6)	
Return spring plug (V5MT1-3, V5MT1-6)	3M Super Weatherstrip No. 8001 or equivalent
Cover mounting bolt	3M STUD Locking No. 4170 or equivalent
Bearing retainer mounting bolt (V5MT1-3, V5MT1-6)	
Neutral return plunger (A), (B)	Multipurpose grease SAE J310, NLGI No. 2

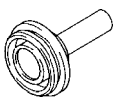
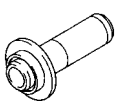
CONTROL LEVER ASSEMBLY

Items	Specified sealants
Control housing cover gasket	3M ATD Part No. 8660 or equivalent
Stopper plate gasket	
Stopper bracket assembly mounting bolt-special bolt Seat	
Stopper bracket assembly mounting bolt – special bolt Threaded part	3M Scotch Grip No. 2353 or equivalent

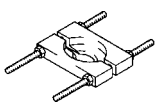
Items	Nm	ft.lbs.
Oil dam cover (V5MT1-3, V5MT1-6)	9	6.5
Bearing retainer (V5MT1-3, V5MT1-6)	19	14
Dynamic damper	70	51
Center differential case front	65	47

Control Lever assembly

Items	Nm	ft.lbs.
Control lever bolt	19	14
Stopper bracket nut	19	14

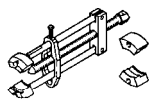
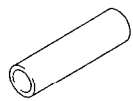
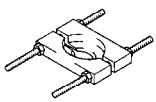
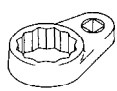
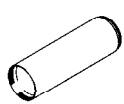
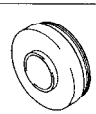
	Tool number and name	Supersession	Application
	MD998820 Installer adapter (42)	MIT215013	Installation of each bearing
	MD998823 Installer adapter (48)	MD998823	Installation of each bearing
	MH061405 Dummy bearing	MH061405-01	Supporting of countershaft at time of transmission countershan bearing installation
	MH061407 Oil seal installer	MH061407-01	Installation of clutch housing oil seal

TRANSFER

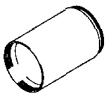
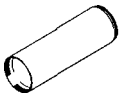
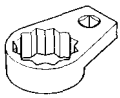
Tool	Tool number and name	Supersession	Application
	MD998192 Counter gear bearing puller	MD998192	Installation of drive shaft bearing
	MD998801 Bearing removal	MD998348-01	Removal and installation of front output shaft bearing. Removal of clutch hub
	MD998812 Installer cap	GENERAL SERVICE TOOL	Use with installer and adapter

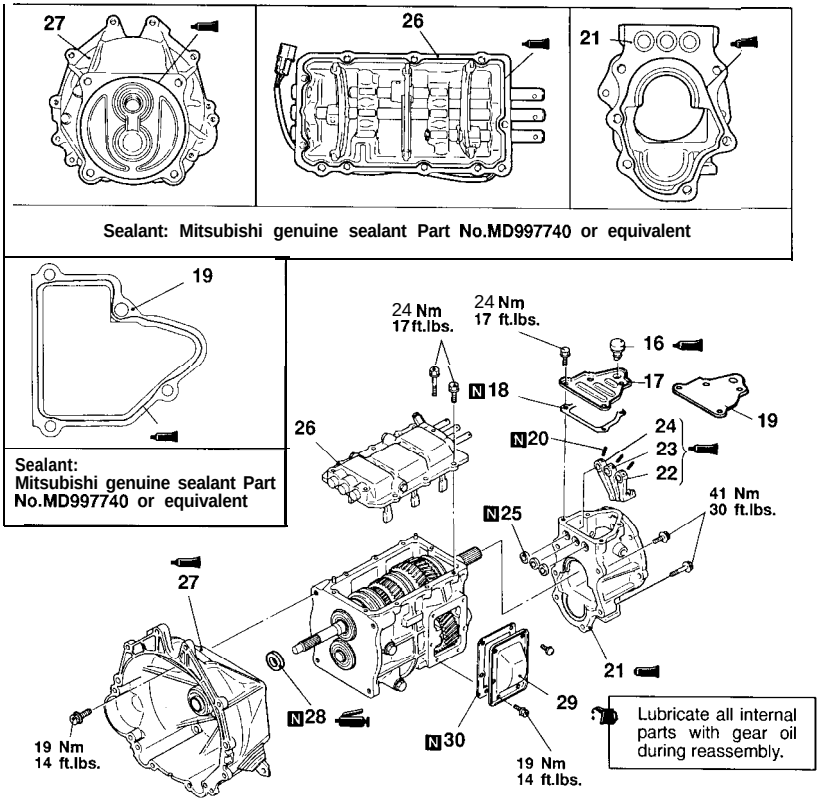
SPECIAL TOOLS

TRANSMISSION

ool	Tool number and name	Supersession	Application
	MD998020 Bearing puller	MD998020	Removal of countershaft bearing, mainshaft bearing, drive pinion bearing
	MD998323 Bearing installer	MD998323-01	Installation of countershaft rear bearing
	MD998801 Bearing remover	MD998348-01	Removal of 3rd-4th speed synchronizer hub
	MD998809 Lock nut wrench (41)	MD998809-01	Removal and installation of main-shaft lock nut
	MD998811 Bearing puller adapter	MD998811	Use with MD998020
	MD998812 Installer cap	GENERAL SERVICE TOOL	Use with installer and adapter
	MD998814 Installer –200	MIT304180	Use with installer cap and adapter
	MD998816 installer adapter (30)	GENERAL SERVICE TOOL	Installation of each bearing
	MD998817 Installer adapter (34)	GENERAL SERVICE TOOL	

	Tool number and name	Supersession	Application
	MB990929 Installer adapter	MB990929	Installation of each oil seal
	MB990934 Installer adapter	MB990934	
	MB990936 Installer adapter	MB990936	Installation of each oil seal
	MB990938 Installer bar	MB990938	

Tool	Tool number and name	Supersession	Application
	MD998813 Installer – 100	GENERAL SERVICE TOOL	Use with installer cap and adapter
	MD998814 Installer – 200	MIT304180	Use with installer cap and adapter
	MD998820 Installer adapter (42)	MIT215013	Installation of each bearing
	MD998822 Installer adapter (46)	MD998822-01	
	MD998823 Installer adapter (48)	MD998823	
	MD998824 Installer adapter (50)	GENERAL SERVICE TOOL	
	MD998830 Installer adapter (66)	MD998830	
	MD998835 Lock nut wrench (41)	MD998810-01	Removal and installation of rear output shaft bearing lock nut



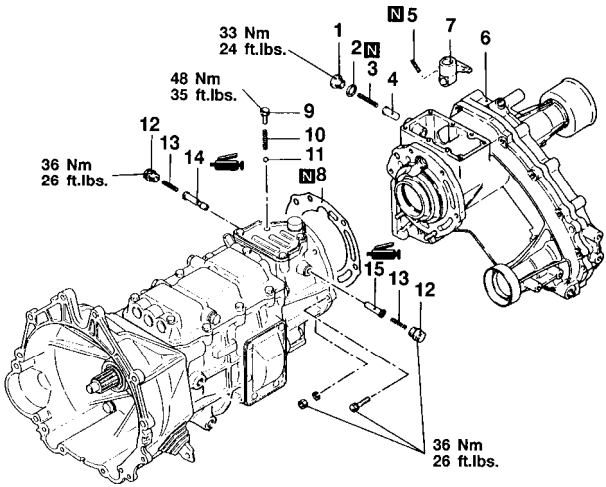
Disassembly steps

- ▶N◀ 16. Air breather <1992 model>
- 17. Adapter cover <1992 model>
- 18. Adapter cover gasket <1992 model>
- ▶R◀ 19. Adapter cover <From 1993 model>
- ▶Q◀ 20. Spring pin
- ▶M◀ 21. Transfer case adapter
- ▶M◀ 22. 1 st & 2nd gear shift jaw
- ▶M◀ 23. 3rd & 4th gear shifl jaw
- ▶M◀ 24. 5th & Rev. gear shift jaw
- 25. Seal ring
- 26. Gear shift lower case assembly
- ▶K◀ 27. Clutch housing assembly
- ▶J◀ **28.** Oil Seal
- 29. Transmission power take off cover
- 30. Power take off cover gasket

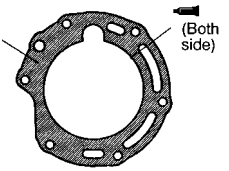
TSB Revision

TRANSMISSION

DISASSEMBLY AND REASSEMBLY



Lubricate all internal parts with gear oil during reassembly.



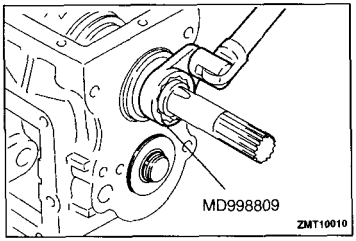
Sealant: 3M ATD Part No.8660 or equivalent

\TRM0644

Disassembly steps

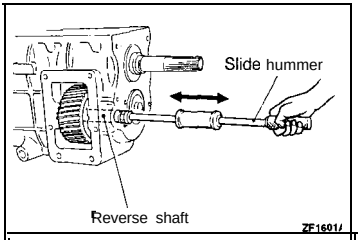
1. Select plunger plug <V5MT1-2 only>
2. Gasket <V5MT1-2 only>
3. Select spring <V5MT1-2 only>
4. Select plunger <V5MT1-2 only>
- ▶O◀ 5. Spring pin
6. Transfer assembly
7. Change shifter
8. Adapter gasket
9. Plug
10. Spring
11. Steel ball
12. Seal plug
13. Neutral return spring
- ▶L◀ 14. Neutral return plunger (B)
- ▶L◀ 15. Neutral return plunger (A)

TSB Revision

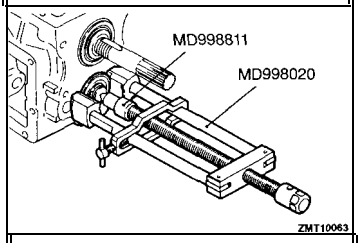


DISASSEMBLY SERVICE POINTS

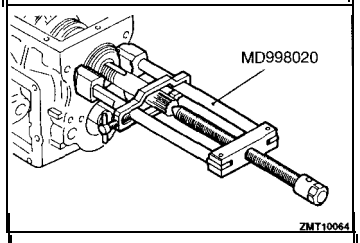
◀A▶ LOCKING NUT REMOVAL



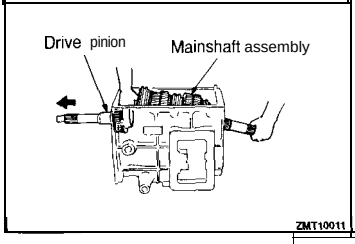
◀B▶ REVERSE SHAFT REMOVAL



◀C▶ COUNTERSHAFT BALL BEARINGS REMOVAL



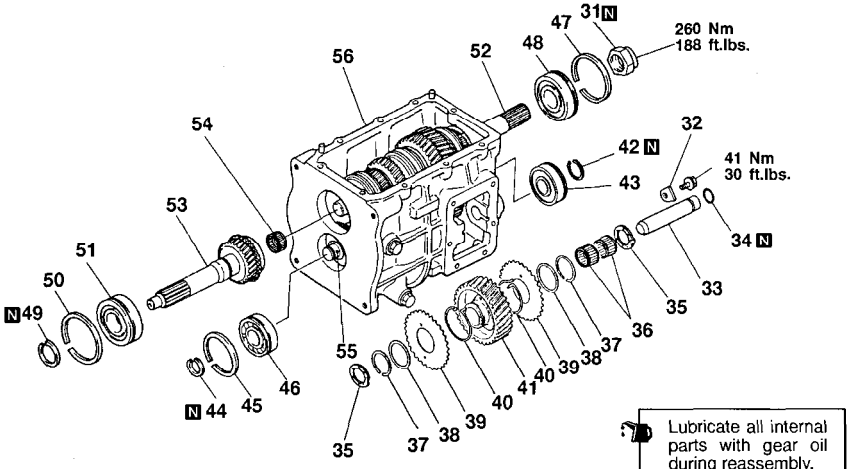
◀D▶ MAINSHAFT BALL BEARING / DRIVE PINION BALL BEARING REMOVAL



◀E▶ MAINSHAFT ASSEMBLY / DRIVE PINION REMOVAL

(1) Pull out the drive pinion to the front of the case. The gear diameter is larger than the case hole diameter so that the drive pinion cannot be removed at this point.
(2) Remove the mainshaft assembly from the case.
(3) Remove the drive pinion.

TSB Revision

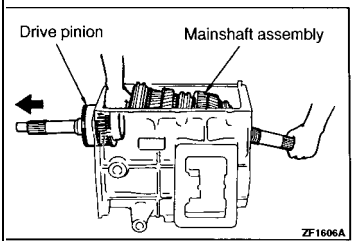


Disassembly steps

- ◀A▶ 31. Locking nut
- **32.** Lock piece
- ◀B▶ **33. Reverse** shaft
- 34. O-ring
- 35. Side washer
- 36. Needle bearing
- 37. Snap ring <V5MT1-3, V5MT1-6>
- 38. Spacer <V5MT1-3, V5MT1-6>
- 39. Sub gear <V5MT1-3, V5MT1-6>
- 40. Spring <V5MT1-3, V5MT1-6>
- 41. Reverse gear
- 42. Snap ring
- ◀C▶ 43. Ball bearing
- 44. Snap ring
- 45. Snap ring
- ◀C▶ 46. Ball bearing
- 47. Snap ring
- ◀D▶ 48. Ball bearing
- 49. Snap ring
- 50. Snap ring
- ◀D▶ 51.52. Ball Mainshaft bearing assembly
- ◀E▶
- ◀E▶ 53. Drive pinion
- 54. Pilot bearing
- ◀F▶ 55. Countershaft
- 56. Transmission case

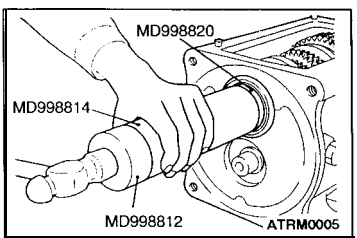
Reassembly steps

- 56. Transmission case
- ▶A◀ 55. Countershaft assembly
- ▶B◀ 51. Ball bearing
- 49. Snap ring
- ▶C◀ 53. Drive pinion
- 50. Snap ring
- ▶C◀ 54. Pilot bearing
- ▶C◀ 52. Mainshaft assembly
- 47. Snap ring
- ▶D◀ 48. Ball bearing
- 45. Snap ring
- ▶E◀ 46. Ball bearing
- 44. Snap ring
- ▶F◀ 43. Ball bearing
- 42. Snap ring
- ▶P◀ 41. Reverse gear
- 40. Spring <V5MT1-3, V5MT1-6>
- ▶G◀ 39. Sub gear <V5MT1-3, V5MT1-6>
- 38. Spacer <V5MT1-3, V5MT1-6>
- 37. Snap ring <V5MT1-3, V5MT1-6>
- ▶H◀ 36.35. Needle Side washer bearing
- 34. O-ring
- **33.** Reverse shaft
- **32.** Lock piece
- ▶I◀ 31. Locking nut

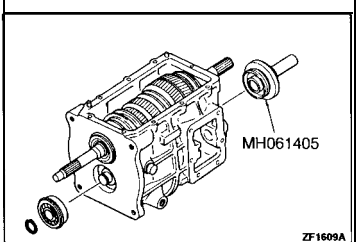


▶C◀ DRIVE PINION / PILOT BEARING / MAINSHAFT ASSEMBLY INSTALLATION

(1) Install the drive pinion to the transmission case, working from case inside and let it protrude from the case.
(2) Fit the snap ring in the ball bearing outer race groove.
(3) Insert the pilot bearing into the drive pinion rear hole.
(4) Install the mainshaft assembly to the case, working from case inside and insert its front end into the pilot bearing.
(5) Push in the drive pinion until the snap ring over the bearing comes into contact with the case front. When doing so, hold the mainshaft. If the front end of the mainshaft is disengaged from the pilot bearing, it can cause damage to the bearing.

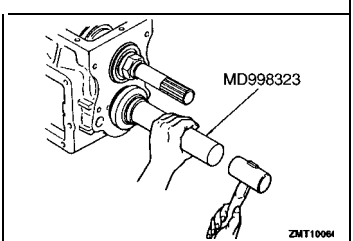


▶D◀ BALL BEARING INSTALLATION

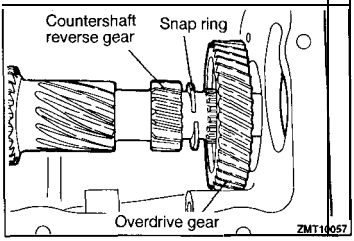


▶E◀ BALL BEARING INSTALLATION

(1) Fit the snap ring to the ball bearing outer race groove.
(2) Using the special tool, support the countershaft at the rear end.
(3) Using the special tool, install the ball bearing.
(4) Fit the snap ring to the countershaft front end groove.
(5) Remove the special tool.

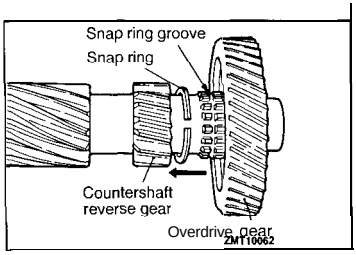


▶F◀ BALL BEARING INSTALLATION



◀F▶ COUNTERSHAFT REMOVAL

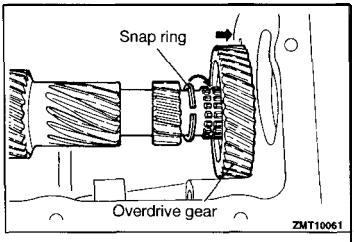
(1) Move the snap ring from its groove toward the countershaft reverse gear.
(2) Move the overdrive gear as well toward the countershaft reverse gear.
(3) Raise the countershaft a little and then lift it further up at its front end to remove from the transmission case.



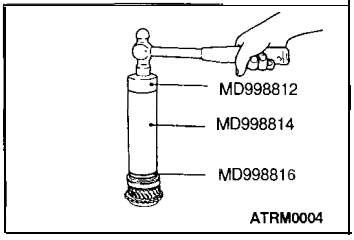
REASSEMBLY SERVICE POINTS

▶A◀ COUNTERSHAFT INSTALLATION

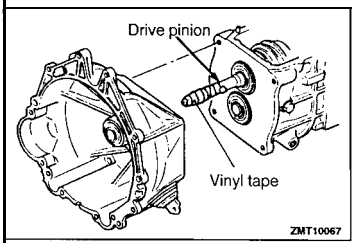
(1) Move the snap ring and overdrive gear toward the countershaft reverse gear.
(2) Install the countershaft in the transmission case.

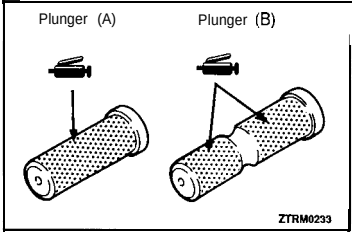


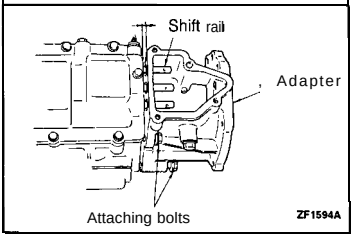
(3) Move the overdrive gear rearward.
(4) Put the snap ring in its groove.



▶B◀ BALL BEARING INSTALLATION







▶K◀ CLUTCH HOUSING INSTALLATION

(1) Apply specified sealant to the clutch housing on its surface that contacts the transmission case.

Specified sealant:
Mitsubishi genuine sealant Part No.MD997740 or equivalent

(2) Wind vinyl tape around the splined portion of the drive pinion to protect the oil seal against damage.
(3) Install the clutch housing to the transmission case and tighten bolts to specified torque.
(4) Remove the vinyl tape.

▶L◀ NEUTRAL RETURN PLUNGER (A) / NEUTRAL RETURN PLUNGER (B) INSTALLATION

Apply grease to the neutral return plungers (A) and (B) in the places shown in the illustration.

Specified grease:
Multipurpose grease SAE J310, NLGI No.2

▶M◀ TRANSFER CASE ADAPTER / SHIFT JAWS INSTALLATION

(1) Apply specified sealant to the adapter on its surface that contacts the transmission case.

Specified sealant:
Mitsubishi genuine sealant Part No.MD997740 or equivalent

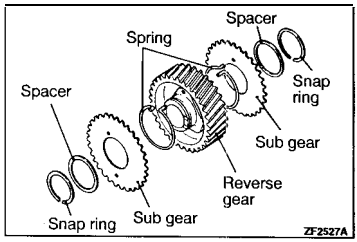
(2) Insert the shift rails into the shift rail holes of the transfer case adapter and install the adapter part way. If it is installed to the case completely, the shift jaws cannot be installed.

NOTE
When replacing the shift rails or the shift jaws, replace the shift rails and the shift jaws as a unit.

(3) Pre-coated bolts are used for the attaching bolts, so when reusing the bolts, apply sealant on the threads.

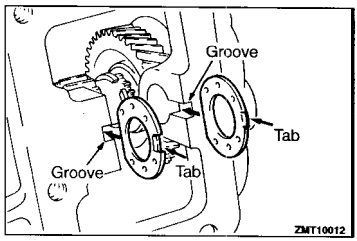
Specified sealant:
3M STUD Locking No. 4170 or equivalent

(4) Screw in adapter attaching bolts two pitches each.
(5) Install the three shift jaws to respective shift rails.
(6) Push the adapter into close contact with the case and tighten the six bolts to specified torque.

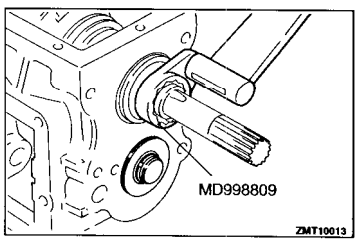


▶G◀ SUB GEAR INSTALLATION

(1) Install the spring so that the long end is directed toward the gear, and combine the sub gear and spacer into an assembly using the snap rings.
(2) Turn the sub gear to align all of the through holes.
(3) Secure the through holes with a screwdriver, etc., and install the sub gear to the transmission case.

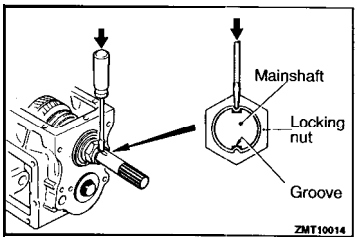


▶H◀ SIDE WASHERS INSTALLATION

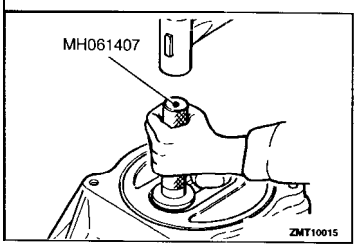


▶I◀ LOCKING NUT INSTALLATION

(1) Side the 1st-2nd gear synchronizer sleeve to the first speed side and the OD-R gear synchronizer sleeve to the reverse side for double meshing. This prevents the mainshaft from turning.
(2) Using the special tool, tighten the lock nut to specified torque.



(3) Punch the lock nut into two grooves on the mainshaft.



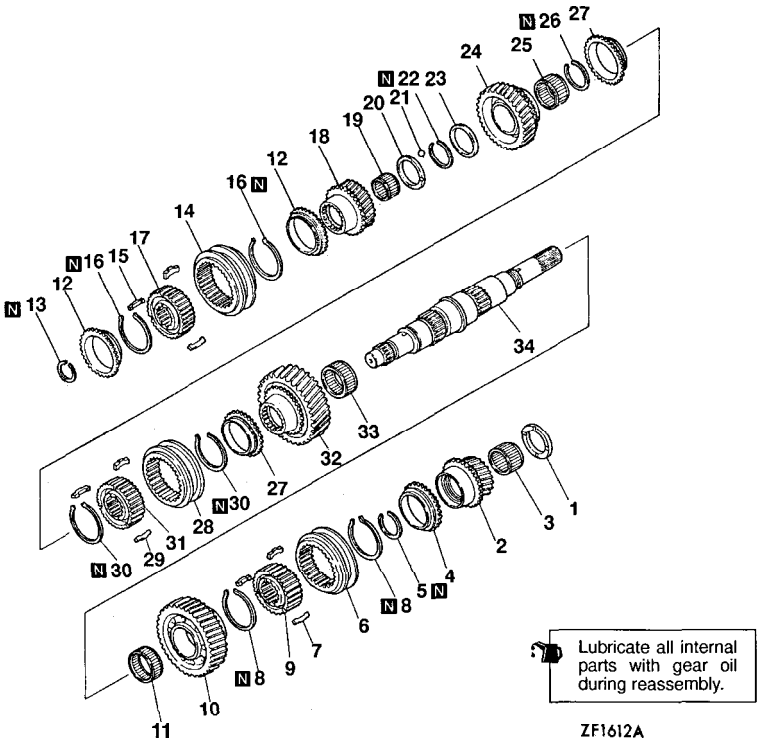
▶J◀ OIL SEAL INSTALLATION

(1) Using the special tool, drive the oil seal into the clutch housing.
(2) Apply specified grease to the oil seal lip.

Specified grease:
Multipurpose grease SAE J310, NLGI No.2

MAINSHAFT

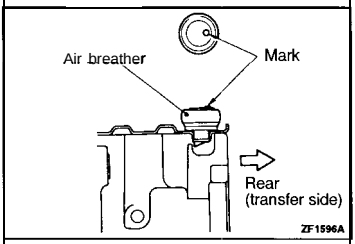
DISASSEMBLY AND REASSEMBLY (V5MT1-2)



Disassembly steps

- ▶C◀ 1. Thrust washer No.3
- 2. Overdrive gear
- 3. Needle bearing
- ▶E◀ 4. Synchronizer ring
- 5. Snap ring
- ▶B◀ 6. Synchronizer sleeve
- 7. Synchronizer key
- ▶A◀ 8. Synchronizer spring
- 9. Synchronizer hub
- 10. Reverse gear
- 11. Needle bearing
- ▶E◀ 12. Synchronizer ring
- 13. Snap ring
- ▶B◀ 14. Synchronizer sleeve
- 15. Synchronizer key
- ▶A◀ 16. Synchronizer spring
- ◀A▶ ▶D◀ 17. Synchronizer hub
- 18. Third gear
- 19. Needle bearing
- ↗ C◀ 20. Thrust washer No.1
- 21. Steel ball
- 22. Snap ring
- ▶C◀ 23. Thrust washer No.2
- 24. Second gear
- 25. Needle bearing
- 26. Snap ring
- ▶E◀ 27. Synchronizer ring
- ▶B◀ 28. Synchronizer sleeve
- 29. Synchronizer key
- ▶A◀ 30. Synchronizer spring
- 31. Synchronizer hub
- 32. First gear
- 33. Needle bearing
- 34. Mainshaft

TSB Revision

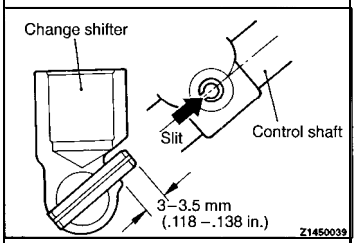


▶N◀ AIR BREATHER INSTALLATION

(1) Apply specified sealant to the press-fit portion of the air breather.

Specified sealant:
Mitsubishi genuine sealant Part No.MD997740 or equivalent

(2) Install the air breather with a mark toward rear.

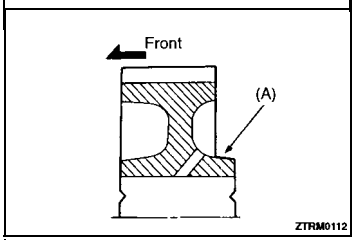


▶O◀ SPRING PIN INSTALLATION

(1) Drive the spring pin in using the pin punch.

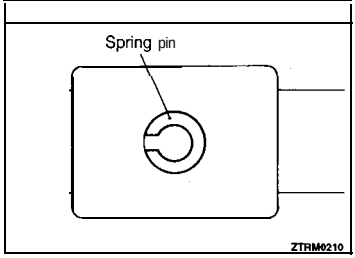
Caution
Do not reuse spring pin.

(2) Drive the spring pin in with the slit in the spring pin parallel to the shaft center of the shift rail, so that the dimensions are as shown in the illustration.



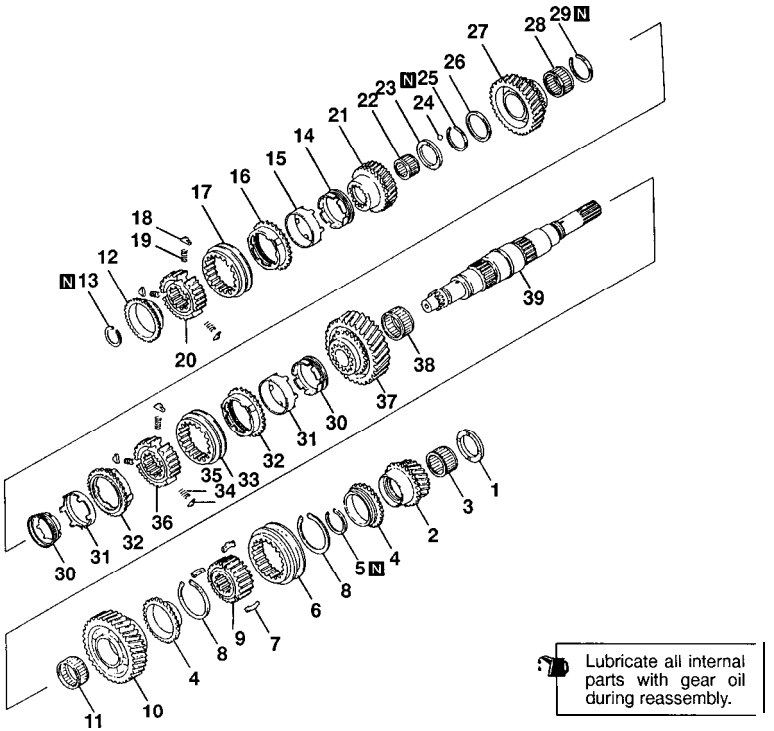
▶P◀ REVERSE GEAR INSTALLATION

Confirm the direction of reverse gear installation by observing the shape of portion (A) in the illustration.



▶Q◀ SPRING PIN INSTALLATION

DISASSEMBLY AND REASSEMBLY (V5MT1-6)

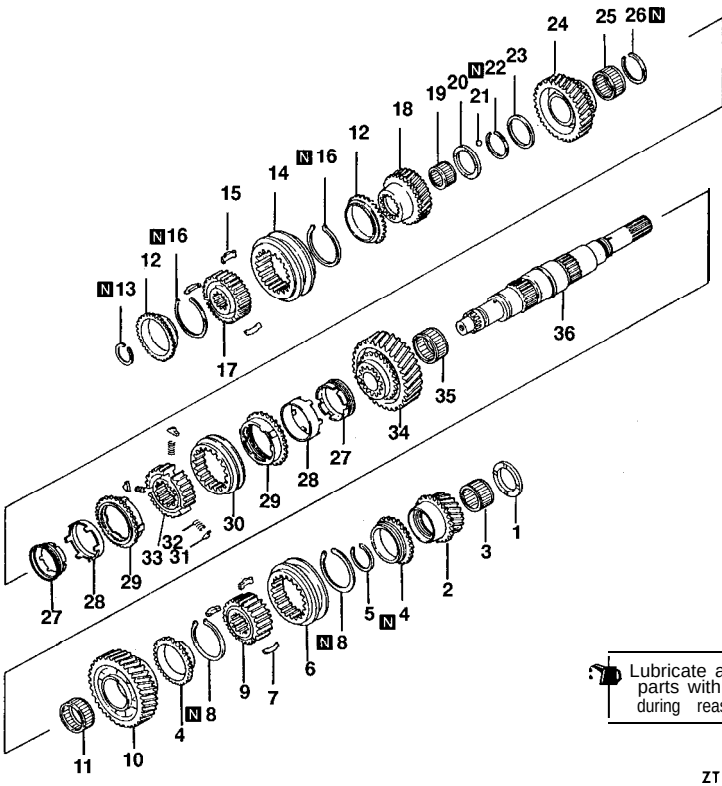


Disassembly steps

- ▶C◀ 1. Thrust washer No.3
- 2. Overdrive gear
- 3. Needle bearing
- 4. Synchronizer ring
- 5. Snap ring
- ▶B◀ 6. Synchronizer sleeve
- 7. Synchronizer key
- ▶A◀ 8. Synchronizer spring
- 9. Synchronizer hub
- 10. Reverse gear
- 11. Needle bearing
- 12. Synchronizer ring
- 13. Snap ring
- 14. Inner synchronizer ring
- 15. Synchronizer cone
- 16. Outer synchronizer ring
- ▶B◀ 17. Synchronizer sleeve
- 18. Synchronizer key
- 19. Synchronizer spring
- ◀A▶ 20. Synchronizer hub
- 21. Third gear
- 22. Needle bearing
- ▶C◀ 23. Thrust washer No.1
- 24. Steel ball
- 25. Snap ring
- ▶C◀ 26. Thrust washer No.2
- 27. Second gear
- 28. Needle bearing
- 29. Snap ring
- 30. Inner synchronizer ring
- 31. Synchronizer cone
- 32. Outer synchronizer ring
- ▶B◀ 33. Synchronizer sleeve
- 34. Synchronizer key
- 35. Synchronizer spring
- 36. Synchronizer hub
- 37. First gear
- 38. Needle bearing
- 39. Mainshaft

TSB Revision

DISASSEMBLY AND REASSEMBLY (V5MT1-3)



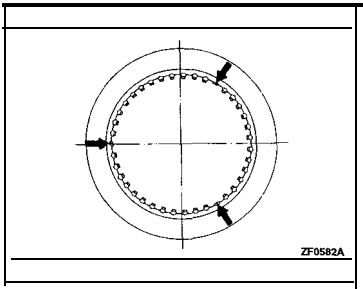
Lubricate all internal parts with gear oil during reassembly.

ZTRM0237

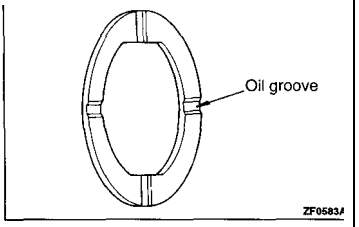
Disassembly steps

- ▶C◀ 1. **Thrust washer** No.3
- 2. Overdrive gear
- 3. Needle bearing
- ▶E◀ 4. Synchronizer ring
- 5. Snap ring
- 6. Synchronizer sleeve
- 7. Synchronizer key
- ▶A◀ 8. Synchronizer spring
- 9. Synchronizer hub
- 10. Reverse gear
- 11. Needle bearing
- ▶E◀ 12. Synchronizer ring
- 13. Snap ring
- 14. Synchronizer sleeve
- 15. Synchronizer key
- ▶A◀ 16. Synchronizer spring
- ◀A▶ ▶D◀ 17. Synchronizer hub
- 18. Third gear
- 19. Needle bearing
- ▶C◀ 20. Thrust washer No.1
- 21. Steel ball
- 22. Snap ring
- ▶C◀ 23. Thrust washer No.2
- 24. Second gear
- 25. Needle bearing
- 26. Snap ring
- 27. Inner synchronizer ring
- 28. Synchronizer cone
- 29. Outer synchronizer ring
- 30. Synchronizer sleeve
- 31. Synchronizer key
- 32. Synchronizer spring
- 33. Synchronizer hub
- 34. First gear
- 35 Needle bearing
- 36 Mainshaft

TSB Revision

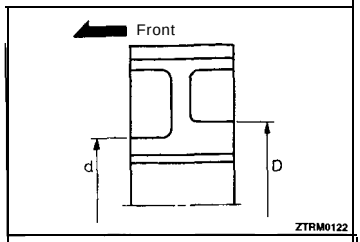


(2) Install the synchronizer sleeve with its low tooth portions at synchronizer key positions.



▶C◀ **THRUST** WASHERS INSTALLATION

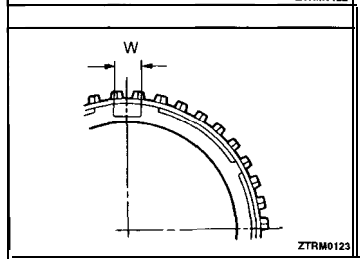
Install the thrust washers with oil grooved side toward the gear.



▶D◀ **SYNCHRONIZER** HUB FOR THIRD AND FOURTH SPEED INSTALLATION

Confirm the direction of hub installation by noting the diameters d and D in the illustration.

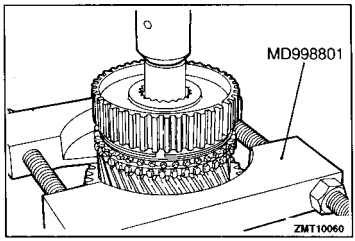
NOTE
The hub for the 1st-2nd synchronizer and the 5th-R synchronizer may be installed in either direction.



▶E◀ SYNCHRONIZER RING IDENTIFICATION

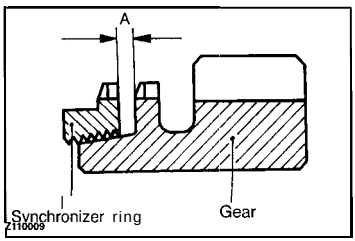
The synchronizer rings differ in groove width "W" shown in the illustration, for each of identification.

	Groove width "W" mm (in.) (Paper lining type)	Groove width "W" mm (in.) (Conventional type)
Ring for first gear	8.2 (.323)	8.7 (.343)
Ring for second gear	9.8 (.386)	9.8 (.386)
Ring for third, fourth and overdrive gears	—	9.8 (.386)



DISASSEMBLY SERVICE POINT

◀A▶ SYNCHRONIZER HUB REMOVAL



INSPECTION

SYNCHRONIZER RING

V5MT1-2

Combine the synchronizer ring with each speed gear and measure dimension A shown in the figure. If dimension A is smaller than the limit, replace the ring or the gear or both.

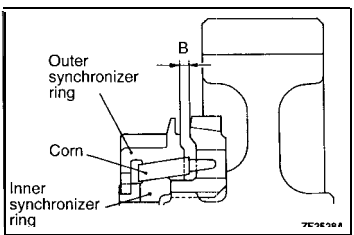
Limit: 0.2 mm (.008 in.)

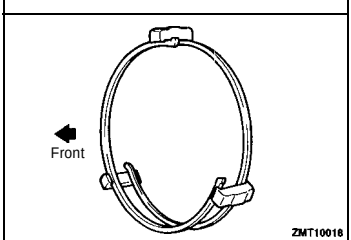
Caution
When the paper lining synchronizer ring is washed, manual transmission oil must be used.

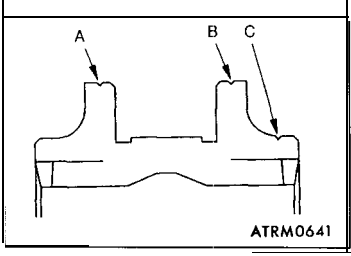
V5MT1-3, V5MT1-6

Install the inner and outer synchronizer rings and the cone to the gear, and measure dimension B shown in the illustration. If dimension B is smaller than the limit, replace the parts as a unit.

Limit: 0.3 mm (.012 in.)







REASSEMBLY SERVICE POINTS

▶A◀ SYNCHRONIZER SPRINGS INSTALLATION

(1) Note that the 1st-2nd synchronizer spring differs in shape from other synchronizer springs.
(2) Install the synchronizer spring in such a way that it will rest on the three synchronizer keys.
(3) When installing the synchronizer springs, make sure that the front and rear one are not faced in same direction.

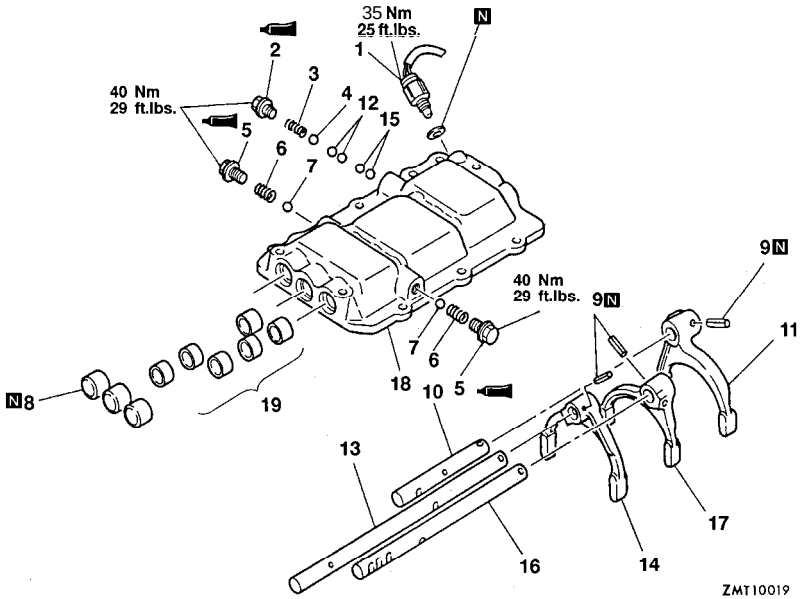
▶B◀ SYNCHRONIZER SLEEVES INSTALLATION

(1) The sections using the synchronizer sleeves are confirmed with the identification groove.

Synchronizer sleeve usage sections	Identification groove position
First-Second, Third-Fourth	A, B, C
Overdrive-Reverse	A. B

GEAR SHIFT CASE

DISASSEMBLY AND REASSEMBLY

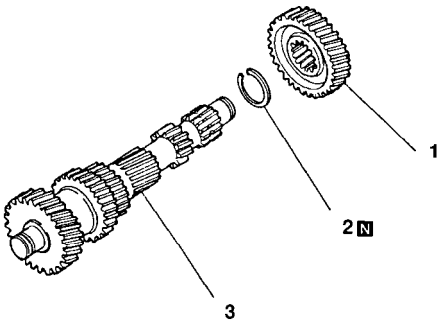


Disassembly steps

1. Backup light switch
▶E◀ 2. Screw plug
▶D◀ 3. Poppet spring
4. Steel ball
▶E◀ **5. Screw** plug
▶D◀ **6.** Poppet spring
7. Steel ball
8. Plug
▶C◀ 9. Spring pin
10. Fifth-reverse shift rail
11. Gear shift fork
▶B◀ 12. Steel ball
13. Third-fourth shift rail
14. Gear shifl fork
▶B◀ 15. Steel ball
16. First-second shift rail
17 Gear shift fork
18. Gear shift case
▶A◀ 19. Teflon bushing

COUNTERSHAFT

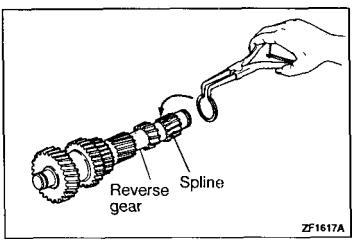
DISASSEMBLY AND REASSEMBLY



Lubricate all internal parts with gear oil during reassembly.

Disassembly steps

1. Overdrive gear
▶A◀ 2. Snap ring
3. Countershaft gear



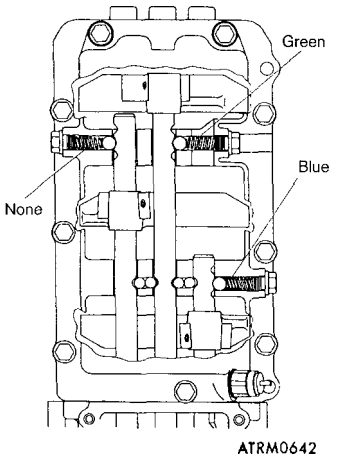
REASSEMBLY SERVICE POINT

▶A◀ SNAP RING INSTALLATION

Do not fit the snap ring in its groove. Fit it on the bearing, beforehand, between the countershaft reverse gear and the spline.

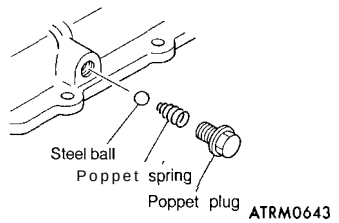
NOTE
Install the countershaft in the transmission case before putting the snap ring in its groove.

TSB Revision

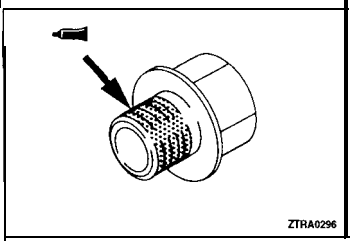


▶D◀ POPPET SPRINGS INSTALLATION

(1) The sections using the poppet springs can be determined with the identification colors. The length and spring constants of the poppet springs differ according to the usage sections, so take care not to mistaken them when installing.



(2) When using tapered poppet springs, install so that the thin edge faces the steel ball side.



▶E◀ SCREW PLUGS INSTALLATION

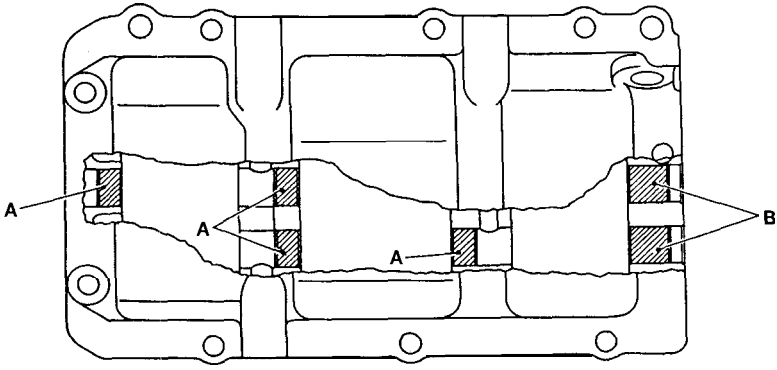
Apply specified sealant to the screw plug.

Specified sealant:
3M STUD Locking No. 4170 or equivalent

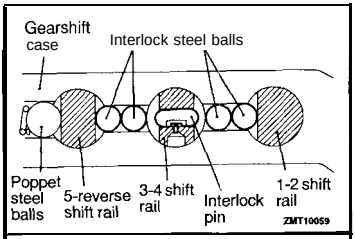
REASSEMBLY SERVICE POINTS

▶A◀ TEFLON BUSHING INSTALLATION

(1) Before reassembly, check the Teflon bushing in the shift rail.
(2) Replace the Teflon bushing if it is damaged or cracked. Teflon bushing can be pushed into position by a finger. Install the bushings at illustrated positions. Do not remove the bushing except when it is defective.

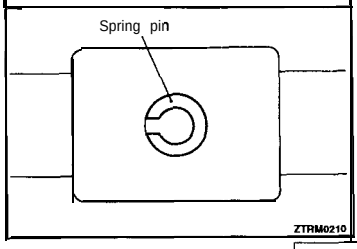


A: 12 mm long teflon bushing
B: 20 mm long teflon bushing
ZF1731A

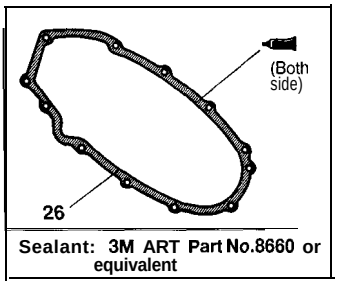


▶B◀ STEEL BALLS INSTALLATION

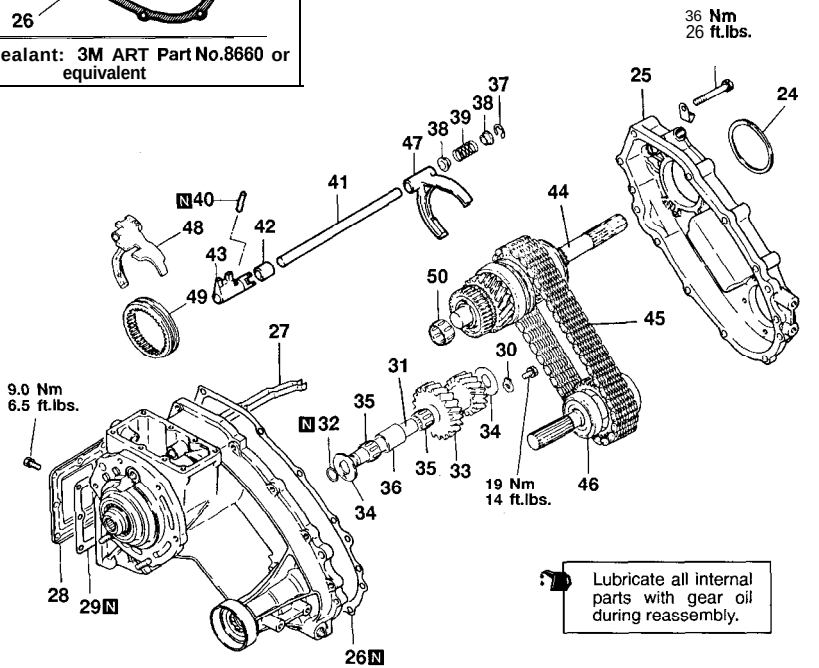
(1) Install the interlock steel balls, two at a time, in holes between the shift rails.
(2) Make sure that the interlock pin installed in the 3-4 shift rail moves smoothly.



▶C◀ SPRING PINS INSTALLATION



Sealant: 3M ART Part No.8660 or equivalent



ATRM0647

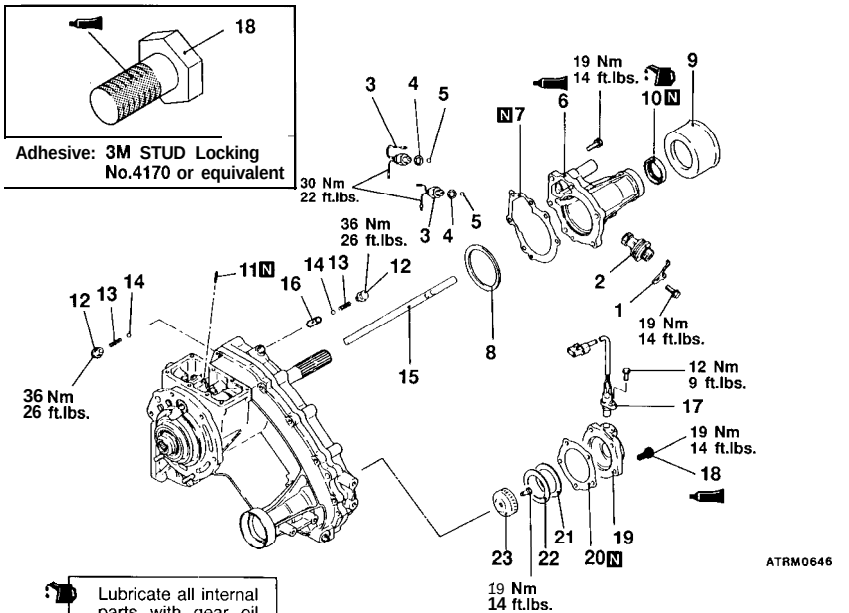
Disassembly steps

24. Snap ring
▶L◀ **25. Chain** cover
26. Chain cover gasket
27. Oil guide
28. Side cover
29. Side cover gasket
30. Lock plate
31. Counter gear shaft
32. O-ring
33. Counter gear
▶F◀ 34. Thrust washer
35. Needle bearing
36. Bearing spacer
37. Snap ring
38. Spring retainer
39. Spring
▶AB◀ 40. Spring pin
41. 2-4WD shift rail
42. Distance piece
43. 2-4WD shift lug
◀C▶ ▶H◀ 44. Rear output shaft assembly
◀C▶ ▶H◀ 45. Chain
◀C▶ ▶H◀ 46. Front output shaft assembly
47. 2-4WD shift fork
48. H-L shift fork
49. H-L clutch sleeve
50. Needle bearing

TSB Revision

TRANSFER

DISASSEMBLY AND REASSEMBLY (V5MT1-2)

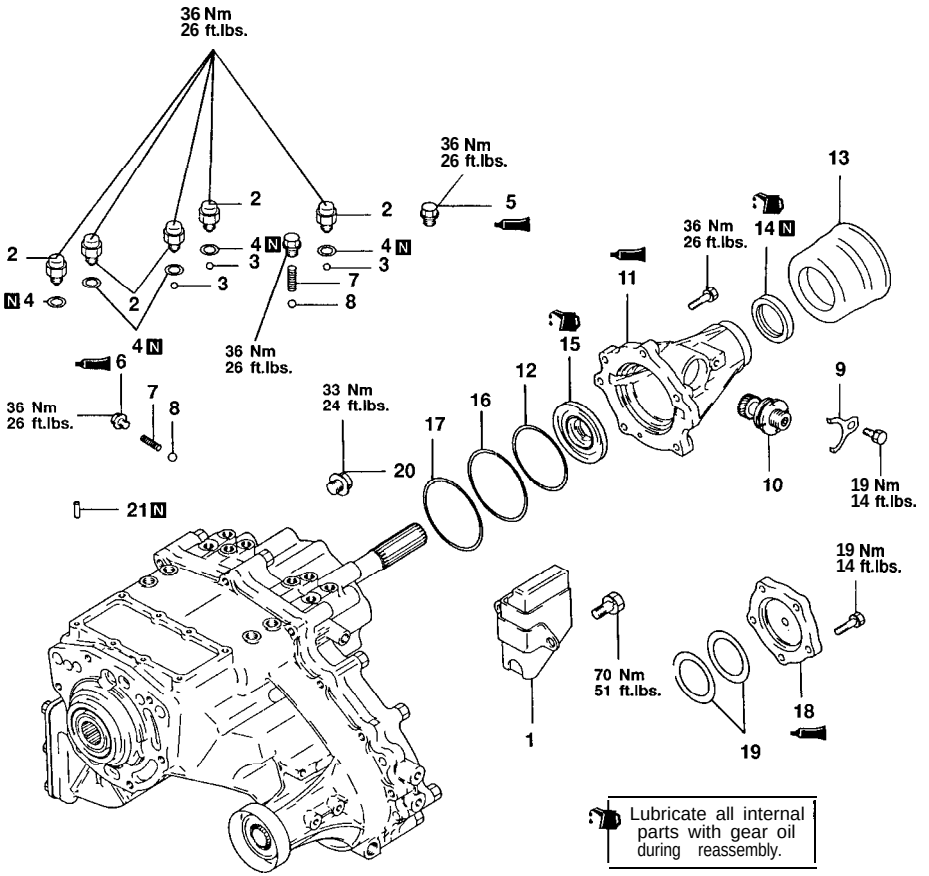


Disassembly steps

1. Sleeve clamp
▶X◀ 2. Speedometer gear
3. 4WD indicator light switch
4. Gasket
5. Steel ball
▶V◀ 6. Rear cover
▶V◀ 7. Rear cover gasket
▶V◀ 8. Spacer
9. Dust seal guard
▶T◀ 10. Oil seal
▶AB◀ 11. Spring pin
12. Seal plug
13. Poppet spring
14. Steel ball
◀A▶ ▶N◀ 15. H-L shift rail
16. Interlock plunger
17. Pulse generator
18. Bolt
▶Q◀ 19. Cover
▶Q◀ 20. Cover gasket
21. Spacer
22. Wave spring
23. Pulse rotor

TSB Revision

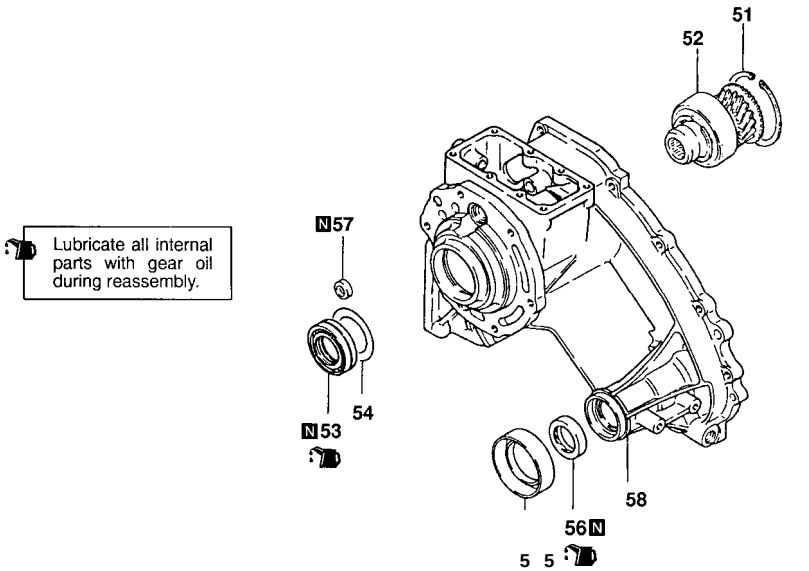
DISASSEMBLY AND REASSEMBLY (V5MT1-3, V5MT1-6)



Disassembly steps

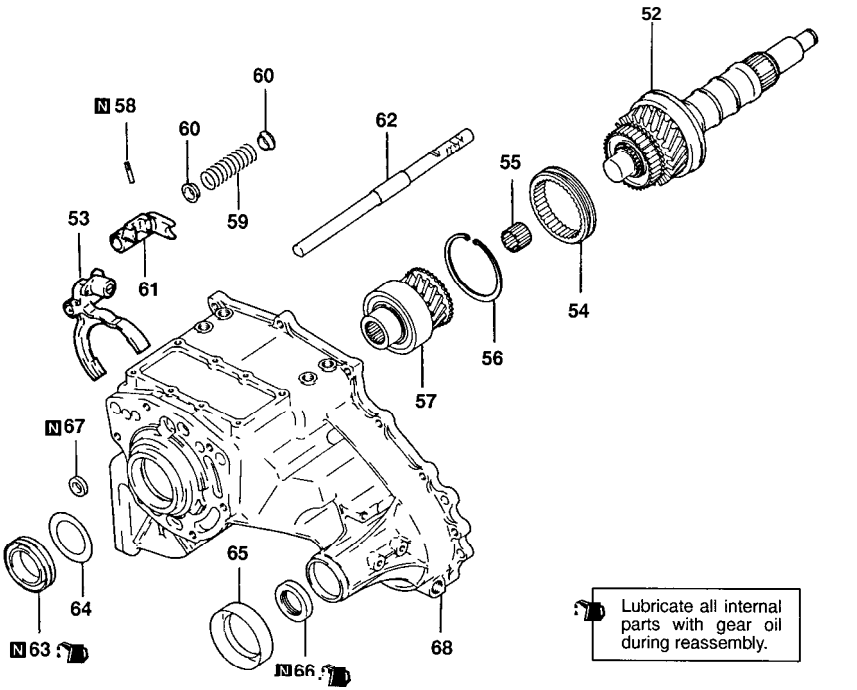
1. Dynamic damper
▶AA◀ 2. Detection switch
3. Steel ball
4. Gasket
▶Z◀ 5. Plug
▶Y◀ 6. Poppet plug
7. Poppet spring
8. Steel ball
9. Sleeve clamp
▶X◀ 10. Speedometer gear
▶W◀ 11. Rear cover
▶U◀ 12. Spacer
13. Dust seal guard
▶T◀ 14. Oil seal
▶S◀ 15. Oil seal
▶R◀ 16. Snap ring <Up to November 1992>
▶R◀ 17. Spacer <Up to November 1992>
▶P◀ 18. Cover
▶P◀ 19. Wave spring (Spacer)
20. H-L shift rail plug
▶O◀ 21. Spring pin for H-L shift fork

TSB Revision



Disassembly steps

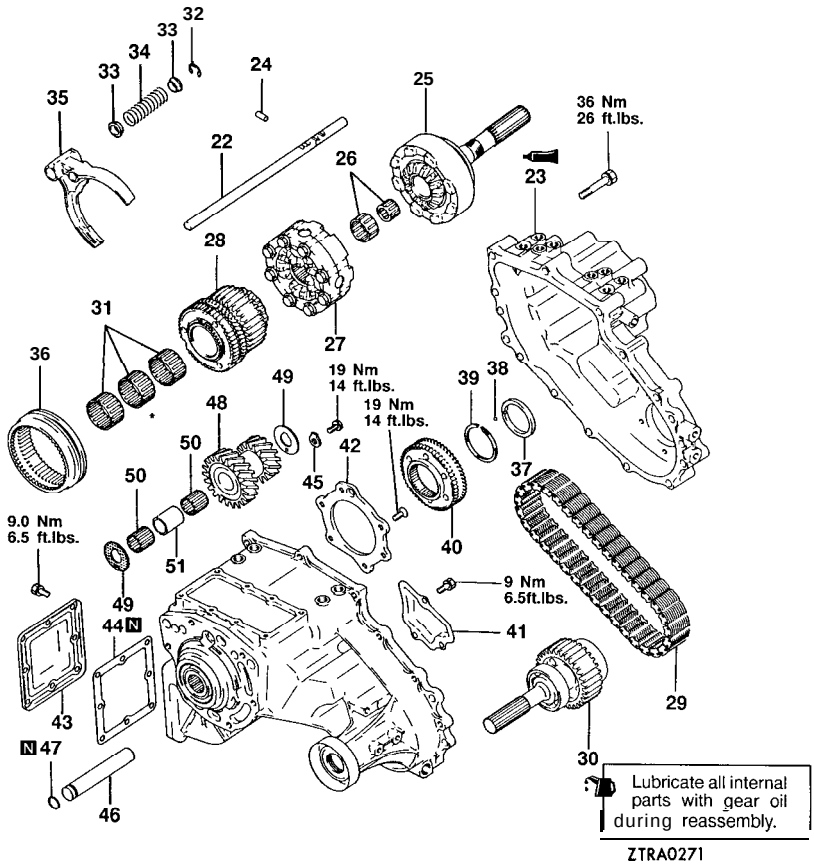
▶D◀ 51. Snap ring
52. Input gear assembly
▶B◀ 53. Oil seal (Input gear)
54. Baffle plate
55. Dust seal guide
▶A◀ 56. Oil seal (Front output shaft)
57. Oil seal
58. Transfer case



Disassembly steps

52. Transfer drive shaft assembly
53. H-L shift fork assembly
54. H-L clutch sleeve
55. Needle bearing
▶D◀ 56. Snap ring
57. Transfer input gear assembly
◀E▶ ▶E◀ 58. Spring pin for 2-4WD shift lug
▶E◀ 59. Spring
▶E◀ 60. Spring retainer
▶E◀ 61. 2-4WD shift lug
▶E◀ 62. 2-4WD shift rail
▶B◀ 63. Oil seal
64. Baffle plate
65. Dust seal guard
▶A◀ 66. Oil seal
▶C◀ 67. Oil seal
68. Transfer case

TSB Revision

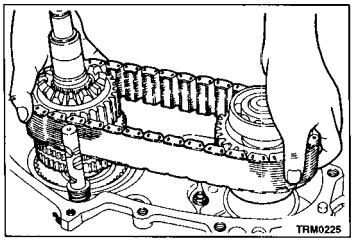


ZTRA0271

Disassembly steps

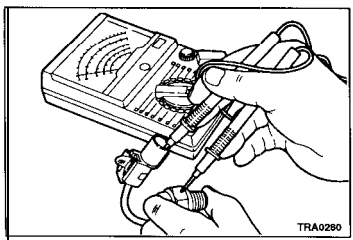
◀B▶ ▶O◀ 22. H-L shift rail
◀B▶ ▶M◀ 23. Chain cover
▶M◀ 24. Interlock plunger
25. Rear output shaft assembly
26. Needle bearing
27. Center differential case assembly
◀F▶ ▶K◀ 28. 2-4WD synchronizer assembly
◀F▶ ▶K◀ 29. Chain
◀F▶ ▶K◀ 30. Front output shaft assembly
31. Needle bearing
32. Snap ring for 2-4WD shift rail
33. Spring seat
34. Spring
35. 2-4WD shift fork
36. 2-4WD synchronizer sleeve
37. Sleeve
38. Steel ball
▶J◀ 39. Snap ring
40. Differential lock hub
41. Oil dum cover
▶I◀ 42. Bearing retainer
43. Side cover
44. Side cover gasket
45. Lock plate
◀D▶ ▶G◀ 46. Transfer counter gear shaft
47. O-ring
48. Transfer counter gear
▶F◀ 49. Thrust washer
50. Needle bearing
51. Bearing spacer

NOTE
*: One needle bearing disused. (Up to November 1992)



◀F▶ **2-4 SYNCHRONIZER ASSEMBLY I CHAIN I FRONT OUTPUT SHAFT ASSEMBLY REMOVAL**

Remove the 2-4 synchronizer assembly, chain and front output shaft from the transmission as a unit.



INSPECTION

DETECTION SWITCH INSPECTION

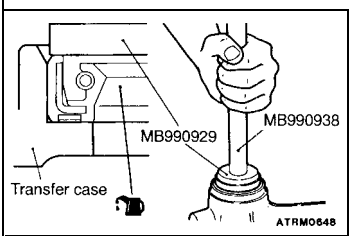
Inspect the continuity between the connector terminal and the switch body.

Switch condition	Continuity
Switch end pressed	No continuity
Switch end released	Continuity

REASSEMBLY SERVICE POINTS

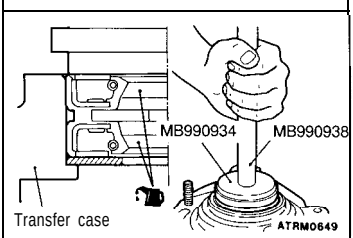
▶A◀ OIL SEAL (FRONT OUTPUT SHAFT) INSTALLATION

Apply transmission oil to the lip of the oil seal and pressure insert it.



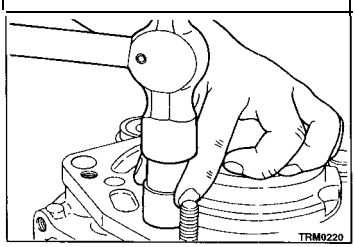
▶B◀ OIL SEAL (INPUT GEAR) INSTALLATION

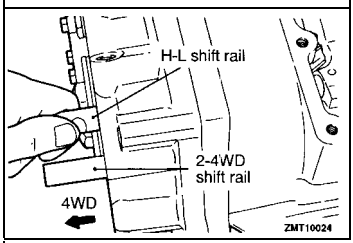
Apply transmission oil to the lip of the oil seal and pressure insert it.



▶C◀ OIL SEAL INSTALLATION

Use a socket wrench or similar tool to install the oil seal.





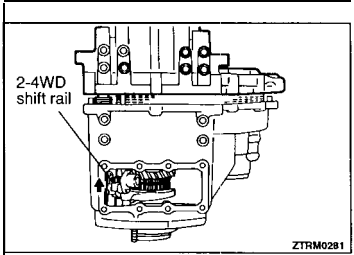
DISASSEMBLY SERVICE POINTS

◀A▶ H-L SHIFT RAIL REMOVAL

(1) Shift the 2-4WD shift rail to the 4WD position.

NOTE
If the 2-4WD shift rail in left in the 2WD position, the interlock is actuated, preventing removal of the H-L shift rail.

(2) Remove the H-L shift rail.



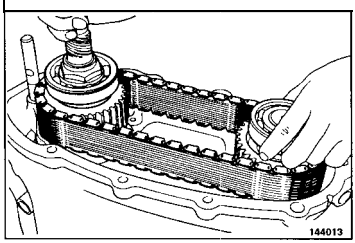
◀B▶ H-L SHIFT RAIL / CHAIN COVER REMOVAL

(1) Use a poppet spring to fix the H-L shift rail at the High side.

(2) Shift the 2-4WD shift rail to the 4WD position.

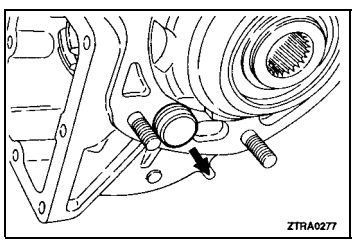
NOTE
If the 2-4WD shift rail is left in the 2WD position, the interlock will actuate, preventing removal of the chain cover.

(3) Remove the chain cover, and then remove the H-L shift rail.



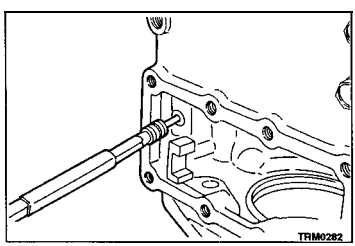
◀C▶ REAR OUTPUT SHAFT ASSEMBLY / CHAIN / FRONT OUTPUT SHAFT ASSEMBLY REMOVAL

Remove the front output shaft, rear output shaft and chain together.



◀D▶ COUNTER GEAR SHAFT REMOVAL

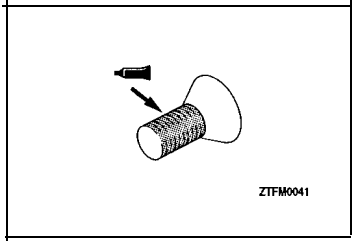
The counter gear shaft should be pulled out forward the transmission case side.



◀E▶ SPRING PIN REMOVAL

Use a pin punch or similar tool to tap out the spring pin.

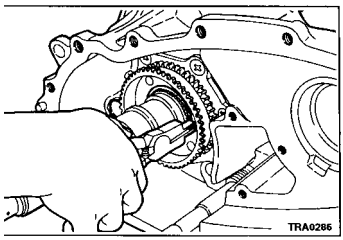
Caution
Remove the pin with **care, as there is a danger that the spring may fly out.**



▶I◀ BEARING RETAINER INSTALLATION

A pre-coated bolt is used for the bearing retainer, so if it is being reused, apply specified sealant to the thread section of the bearing retainer, and then install the bearing retainer.

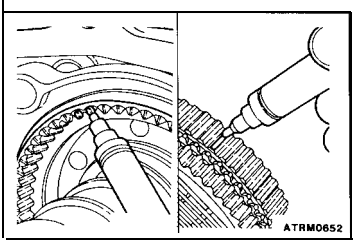
Specified adhesive:
3M STUD Locking No.4170 or equivalent



▶J◀ SNAP RING INSTALLATION

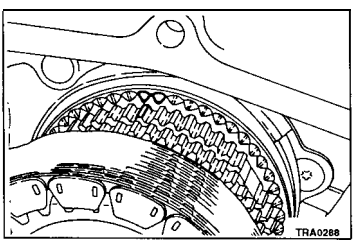
When installing the snap ring, select the one with the maximum thickness that can fit in the groove.

Standard value:
0–0.08 mm (0–.0031 in.)

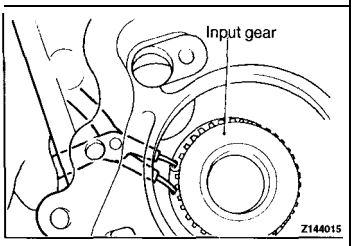


▶K◀ 2-4WD SYNCHRONIZER ASSEMBLY I CHAIN I FRONT OUTPUT SHAFT ASSEMBLY INSTALLATION

(1) Make a mark with white paint, etc., in the grooves of the 2-4WD synchronizer (3 places).
(2) Make a mark with white paint, etc., on the spline projections of the 2-4WD synchronizer sleeve (3 places).



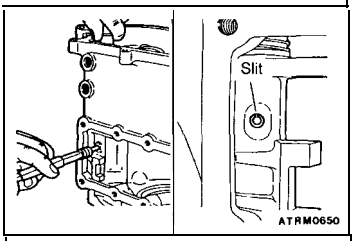
(3) Link the chain tightly onto the 2-4WD synchronizer and the front output shaft sprockets.
(4) Install both sprockets to the transfer case at the same time, while keeping them at the maximum distance apart.



▶D◀ SNAP RING INSTALLATION

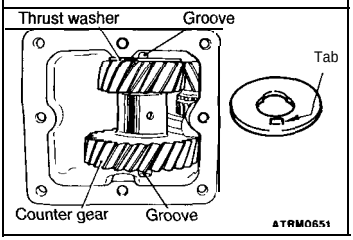
Select the thickest snap ring that will fit into the groove and install it.

Standard value: 0–0.06 mm (0–.0024 in.)



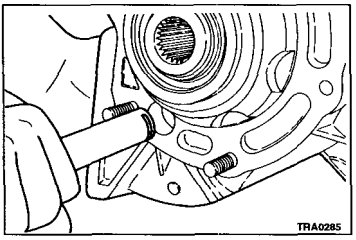
▶E◀ 2-4WD SHIFT RAIL / 2-4WD SHIFT LUG / SPRING RETAINER I SPRING I SPRING PIN INSTALLATION

(1) Install the spring retainer and spring to the shift rail, and set it to the shift lug inside the transfer case.
(2) Press the shift rail and align the shift lug and the spring pin hole of the shift rail, while being careful of the direction of the shift rail.
(3) While pressing the rail, tap in the spring pin so that the slit of the spring pin is facing the shaft centre of the shift rail.



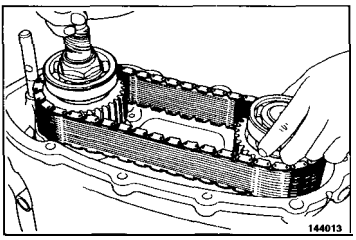
▶F◀ THRUST WASHER INSTALLATION

Install the thrust washer so that the tab fits into the groove of the transfer case.



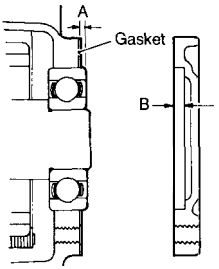
▶G◀ COUNTER GEAR SHAFT INSTALLATION

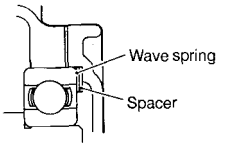
Insert the counter gear shaft from the transmission case side, being careful of the position of the lock plate groove.



▶H◀ REAR OUTPUT SHAFT ASSEMBLY / CHAIN / FRONT OUTPUT SHAFT ASSEMBLY INSTALLATION

(1) Engage the chain precisely with the sprockets of the rear output shaft and the front output shaft.
(2) Install the 2-4WD shift fork on the 2-4WD clutch sleeve. While passing them along the 2-4WD shift rail, install the rear and front output shaft and chain.



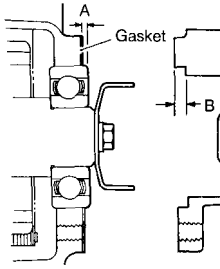


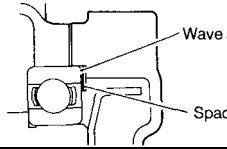
▶P◀ COVER / WAVE SPRING (SPACER) INSTALLATION

(1) Measure the amount of protrusion of the front output shaft rear bearing "A" and the amount of inset of the cover "B". If the value of "B" exceeds the value of "A" by 2 mm (.08 in.), add a spacer in between the wave spring and the cover. If the difference is less than 2 mm (.08 in.), the wave spring by itself is okay.
(2) Apply specified sealant to the cover and the thread section of the mounting bolt, and then install the cover.

Specified sealant, **adhesive:**
3M ATD Part No. 8660 or equivalent . . . . Cover
3M STUD Locking No. 4170 or equivalent . Bolt

Caution
Apply the proper amount of sealant evenly.





▶Q◀ COVER GASKET / COVER INSTALLATION

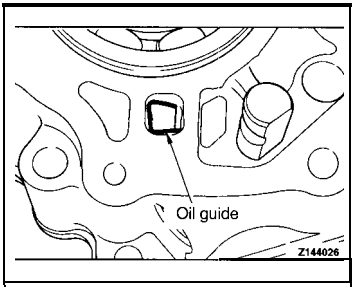
(1) Measure the projection (A) of the rear bearing from the end of the front output shaft and the depth (B) of indentation in the cover.
If the clearance (a difference between A and B) exceeds 2 mm (.08 in.) insert a spacer between the cover and the wave spring. If the clearance is 2 mm (.08 in.) or less, use the wave spring alone.
(2) Apply specified sealant to both sides of the cover gasket.

Specified sealant:
3M ATD Part No. 8660 or equivalent

(3) Install the cover.
(4) Apply the specified adhesive to the threaded part of the cover installation bolt.

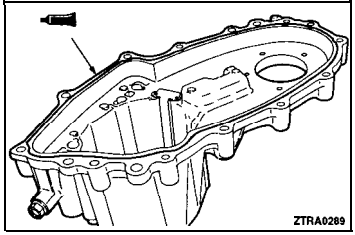
Specified adhesive:
3M STUD Locking No. 4170 or equivalent

(5) Tighten the cover installation bolt at the specified torque.



▶L◀ CHAIN COVER INSTALLATION

Install the chain cover so that the end of the oil guide may enter the hole shown in the illustration.

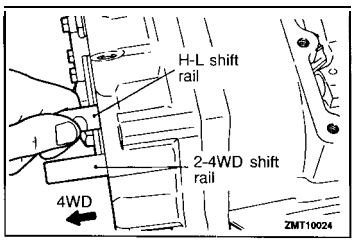


▶M◀ CHAIN COVER / INTERLOCK PLUNGER INSTALLATION

(1) Insert the interlock plunger in a position so that it does not interfere with the 2-4WD shift rail.
(2) Apply specified sealant to the chain cover, and then install the chain cover.

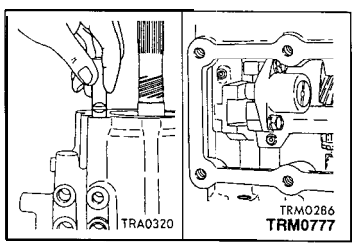
Specified **sealant:**
3M ATD Part No. 8660 or equivalent

Caution
Apply the proper amount of sealant evenly.



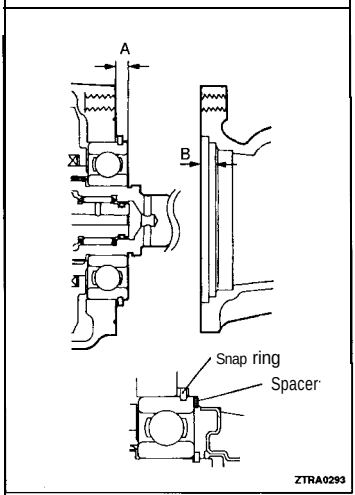
▶N◀ H-L SHIFT RAIL INSTALLATION

(1) Shift the 2-4WD shift rail to the 4WD position.
(2) Insert the H-L shift rail from the case and pass the rail through the shift fork.



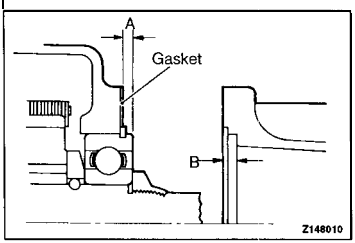
▶O◀ H-L SHIFT RAIL / SPRING PIN FOR H-L SHIFT FORK INSTALLATION

(1) Insert the H-L shift rail from the H-L shift rail hole, being careful of the direction of the shift rail.
(2) Align the spring pin holes on the shift rail and the shift fork, and tap in the spring pin so that the slit of the spring pin is facing the shaft centre of the shift rail.



▶U◀SPACER INSTALLATION

Measure the amount of protrusion of the rear output shaft bearing "A" and the amount of inset of the two stages of the cover "B". Calculate the value "C" by subtracting "B" from "A", and then select a snap ring which adjusts the difference between the value of "C" and the thickness of the spacer to the standard value below.



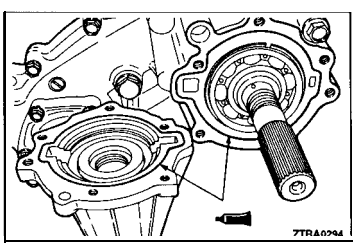
▶V◀SPACER I REAR COVER GASKET I REAR COVER INSTALLATION

(1) Measure the amount of protrusion of the rear output shaft rear bearing "A" and the amount of inset in the cover "B". Select a spacer which adjusts the end play to the standard value.

Standard value: 0–0.1 mm (0–.004 in.)

(2) Apply sealant to both sides of the rear cover gasket.

Specified **sealant:**
3M ATD Part No.8660 or equivalent

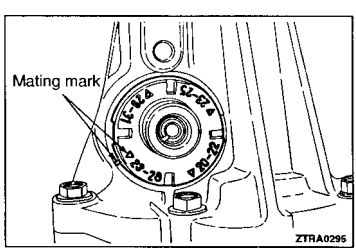


▶W◀REAR COVER INSTALLATION

Apply specified sealant to the rear cover, and then install the cover.

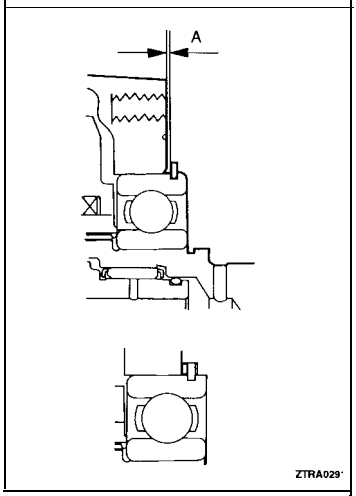
Specified sealant:
3M ATD Part No.8660 or equivalent

Caution
Apply the proper amount of sealant evenly.



▶X◀ SPEEDOMETER GEAR INSTALLATION

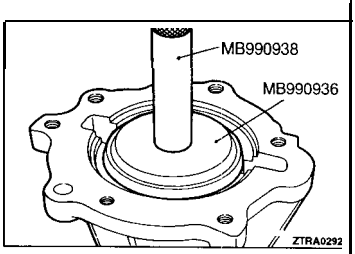
Match the mating marks to the number of teeth.



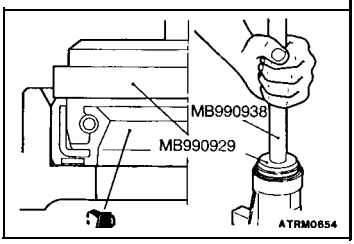
▶R◀ SPACER INSTALLATION

Measure the clearance "B" between the chain cover and the snap ring of the ball bearing, and select the spacer according to the thickness gained by adding the following standard value to clearance "B". Then, assemble the spacer.

Standard value:
0.02–0.1 mm (.0008–.0039 in.)



▶S◀ OIL SEAL INSTALLATION



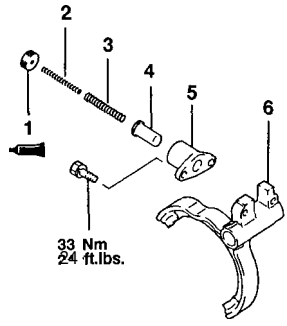
▶T◀ OIL SEAL INSTALLATION

Apply transmission oil to the lip of the oil seal before press-fitting.

H-L SHIFT FORK (V5MT1-3, V5MT1-6)

DISASSEMBLY AND REASSEMBLY

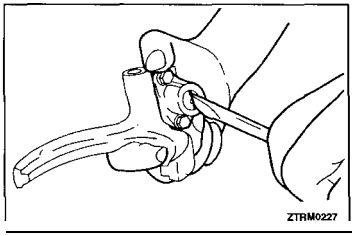
Lubricate all internal parts with gear oil during reassembly.



ZTRM0226

Disassembly steps

▶A◀ 1. Return spring plug
2. Return spring
3. Return spring
4. Select plunger
5. Plunger boss
6. H-L shift fork



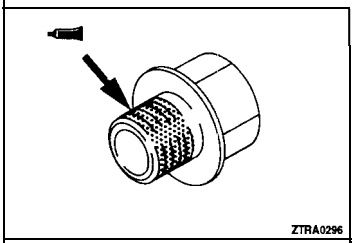
ZTRM0227

REASSEMBLY SERVICE POINT

▶A◀ RETURN SPRING PLUG INSTALLATION

Apply specified sealant to the return spring plug, and screw in the plug until it is flush with the end of the plunger boss.

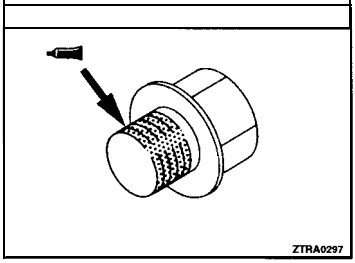
Specified sealant:
3M Super Weatherstrip No.8001 or equivalent



▶Y◀ SEALANT APPLICATION TO POPPET PLUG

Apply specified sealant to the poppet plug, and then install the poppet plug.

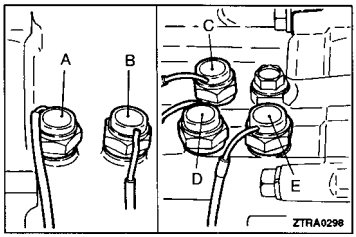
Specified sealant:
3M ATD Part No.8660 or equivalent



▶Z◀ SEALANT APPLICATION TO PLUG

A pre-coated plug is used, so if it is being re-used, apply specified sealant to the thread section, and then install.

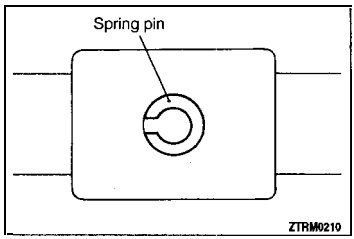
Specified sealant:
3M ATD Part No.8660 or equivalent



▶AA◀ DETECTION SWITCH INSTALLATION

Be careful not to make a mistake when installing.

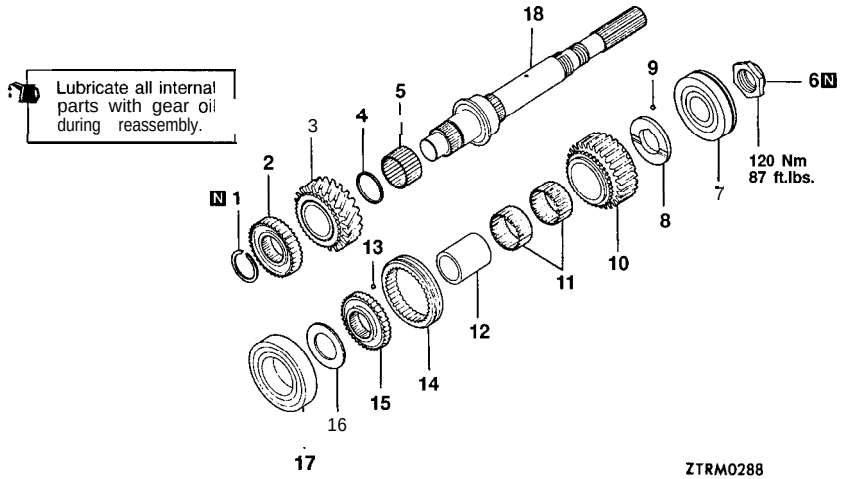
A: Ball built-in, brown connector
B: Bali built-in, black connector
C: Ball separate, brown connector
D: Ball separate, black connector
E: Ball separate, white connector



▶AB◀ SPRING PIN INSTALLATION

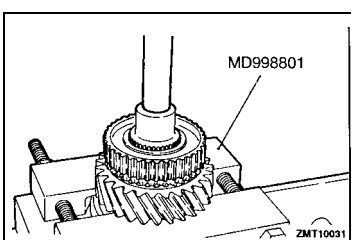
REAR OUTPUT SHAFT (V5MT1-2)

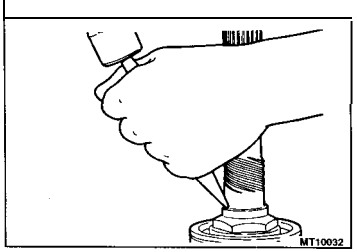
DISASSEMBLY AND REASSEMBLY



Disassembly steps

1. Snap ring
2. Clutch hub
3. Low speed gear
4. Bearing spacer
5. Needle bearing
6. Lock nut
7. Radial ball bearing
8. Sprocket spacer
9. Steel ball
10. Drive sprocket
11. Needle bearing
12. Sprocket sleeve
13. Steel ball
14. Clutch sleeve
15. Clutch hub (2-4WD)
16. Stopper plate
17. Ball bearing
18. Rear output shaft





DISASSEMBLY SERVICE POINTS

◀A▶ CLUTCH HUB REMOVAL

NOTE
Removal is sometimes possible without using a press.

(1) Place the special tool so that the load is applied at the low-speed gear.
(2) Use a press to push at the front edge of the rear output shaft and then remove the hub and gear.

◀B▶ **LOCK** NUT REMOVAL

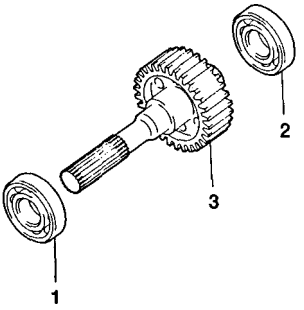
Use a chisel to crimp the lock nut.

TSB Revision

FRONT OUTPUT SHAFT

DISASSEMBLY AND REASSEMBLY

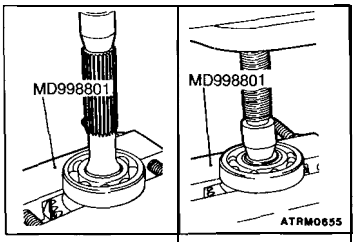
Lubricate all internal parts with gear oil during reassembly.



ZTRA0319

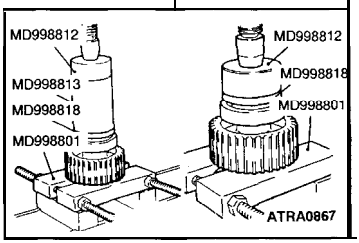
Disassembly steps

◀A▶ ▶A◀ 1. Ball bearing
◀A▶ ▶A◀ 2. Ball bearing
3. Front output shaft



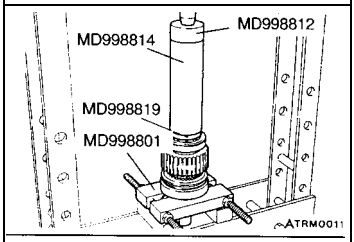
DISASSEMBLY SERVICE POINT

◀A▶ BALL BEARING REMOVAL



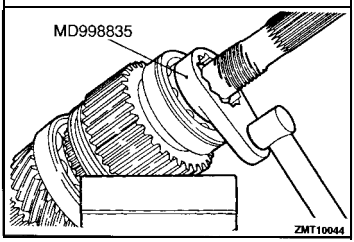
REASSEMBLY SERVICE POINT

▶A◀ BALL BEARING INSTALLATION



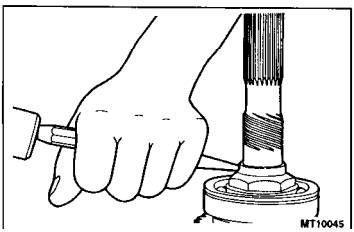
▶C◀ RADIAL BALL BEARING INSTALLATION

NOTE
The engagement of the radial ball bearing with the shaft may be loose, so that installation is possible without using a press.

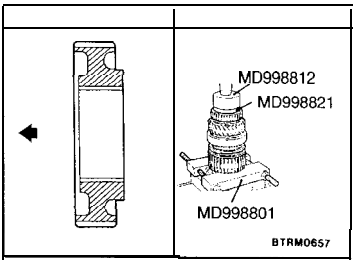


▶D◀ LOCK NUT INSTALLATION

(1) Using the special tool, tighten the lock nut at the special torque.

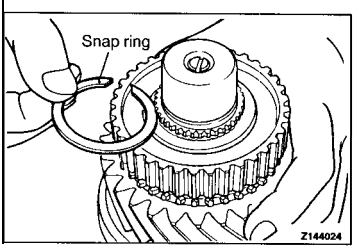


(2) Using a punch, crimp the lock nut at the groove in the rear output shaft.



▶E◀ CLUTCH HUB INSTALLATION

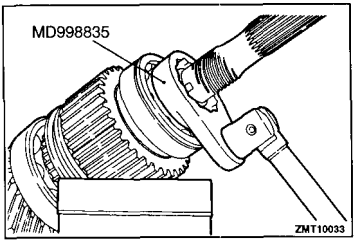
Install the hub to the rear output shaft so that the hub faces in the direction indicated in the illustration.

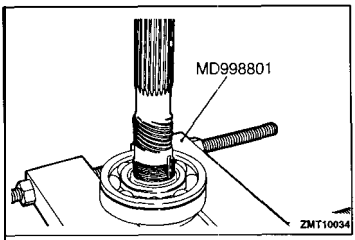


▶F◀ SNAP RING INSTALLATION

Select the thickest snap ring that will fit into the groove in the front end of the rear output shaft and install it.

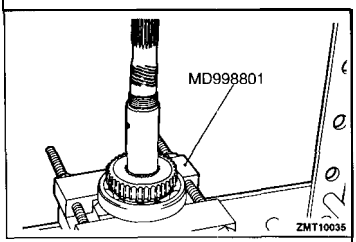
Standard value:
0–0.08 mm (0–.0031 in.)





◀C▶ RADIAL BALL BEARING REMOVAL

NOTE
The engagement of the bearing with the shaft may be loose, so that removal is possible without using a press.

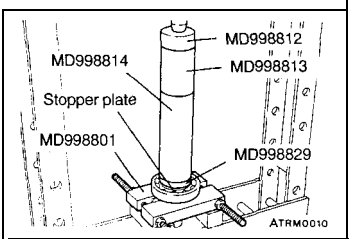


◀D▶ CLUTCH HUB (2-4WD) / BALL BEARING REMOVAL

NOTE
The 2-4WD clutch hub is sometimes removable without using a press.

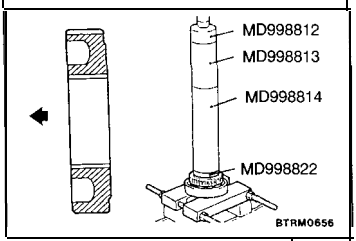
(1) Place the special tool so that the load is applied at the bearing.
(2) Use a press to push at the rear edge of the rear output shaft, and then remove the hub and bearing.

REASSEMBLY SERVICE POINTS



▶A◀ BALL BEARING / STOPPER PLATE INSTALLATION

(1) Place the stopper plate on the bearing.
(2) Use the special tool to install the ball bearing to the rear output shaft.

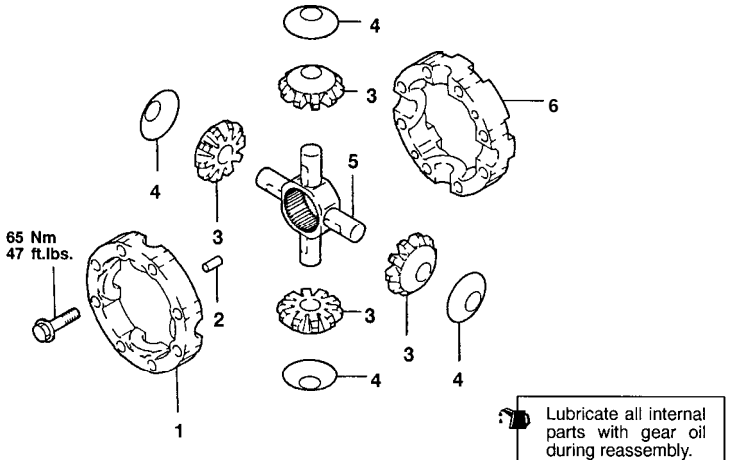


▶B◀ CLUTCH HUB (2-4WD) INSTALLATION

Install the hub to the rear output shaft so that the hub faces in the direction indicated in the illustration.

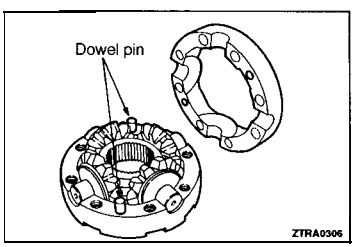
CENTER DIFFERENTIAL CASE (V5MT1-3, V5MT1-6)

DISASSEMBLY AND REASSEMBLY



Disassembly steps

▶A◀ 1. Center differential case front
2. Dowel pin
3. Pinion
4. Thrust washer
5. Pinion shaft
6. Center differential case rear



REASSEMBLY SERVICE POINT

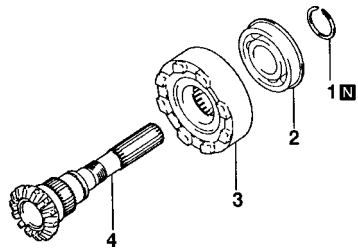
▶A◀ CENTER DIFFERENTIAL CASE FRONT INSTALLATION

Install so that the mating marks on the outside are aligned, being careful of the position of the dowel pin.

REAR OUTPUT SHAFT (V5MT1-3, V5MT1-6)

DISASSEMBLY AND REASSEMBLY

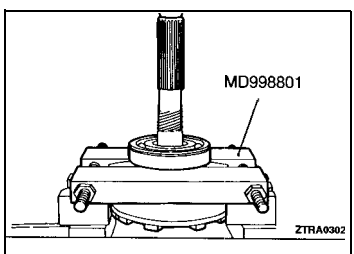
Lubricate all internal parts with gear oil during reassembly.



ZTRA0301

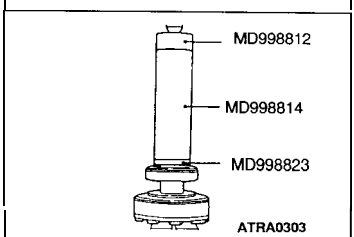
Disassembly steps

▶B◀ 1. Snap ring
◀A▶ ▶A◀ 2. Ball bearing
3. Viscous coupling
4. Rear output shaft



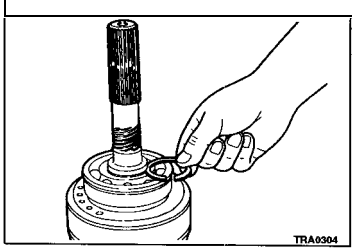
DISASSEMBLY SERVICE POINT

◀A▶ BALL BEARING REMOVAL



REASSEMBLY SERVICE POINTS

▶A◀ BALL BEARING INSTALLATION

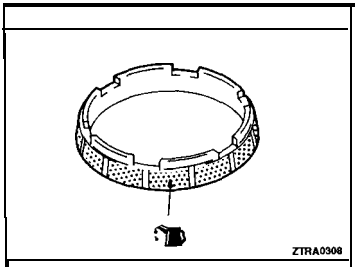


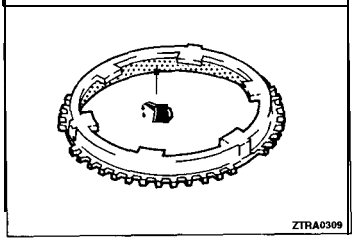
▶B◀ SNAP RING INSTALLATION

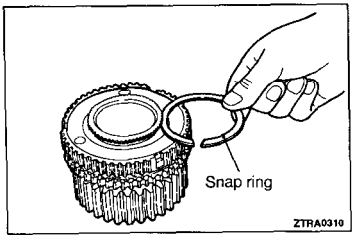
When installing the snap ring, select the one with the maximum thickness that can fit in the groove.

Standard value:
0–0.08 mm (0–.0031 in.)

TSB Revision







REASSEMBLY SERVICE POINTS

▶A◀ INNER SYNCHRONIZER RING INSTALLATION

After applying transmission oil to the surface of the synchronizer ring cone, install the cone.

▶B◀ OUTER SYNCHRONIZER RING INSTALLATION

After applying transmission oil to the surface of the synchronizer ring cone, install the cone.

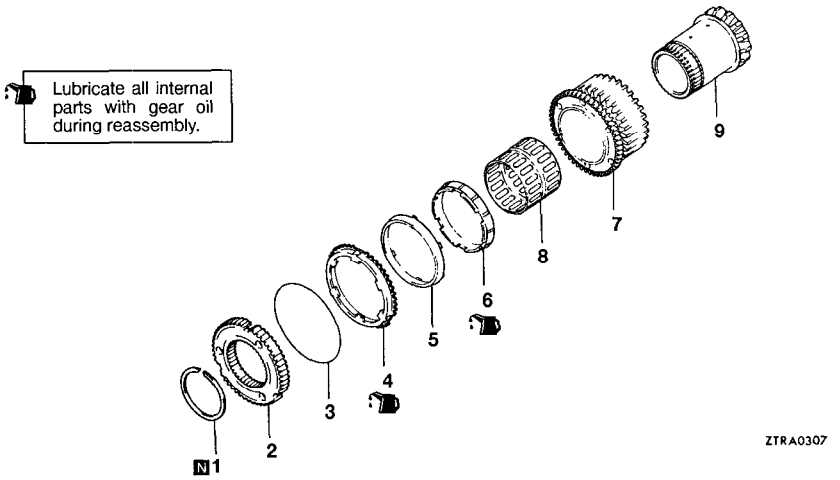
▶C◀ SNAP RING INSTALLATION

When installing the snap ring, select the one with the maximum thickness that can fit in the groove.

Standard value:
0–0.08 mm (0–.0031 in.)

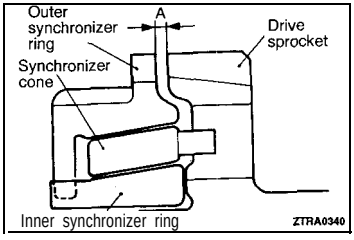
2-4WD SYNCHRONIZER (V5MT1-3, V5MT1-6)

DISASSEMBLY AND REASSEMBLY



Disassembly steps

- ▶C◀ 1. Snap ring
- 2. 2-4WD synchronizer hub
- 3. Synchronizer spring
- ▶B◀ 4. Outer synchronizer ring
- 5. Synchronizer cone
- ▶A◀ 6. Inner synchronizer ring
- 7. Drive sprocket
- 8. Needle bearing
- 9. Front drive pinion



INSPECTION

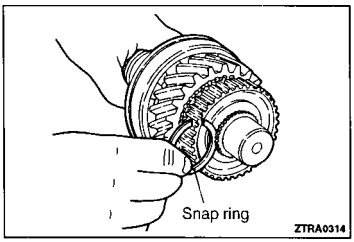
SYNCHRONIZER RING / SYNCHRONIZER CONE

Install the inner and outer synchronizer rings and the cone to the drive sprocket, and measure dimension A shown in the illustration. If dimension A is smaller than the limit, replace the part as a unit.

Limit: 0.3 mm (.012 in.)

NOTE

The scratches on the surface of the cone showing the direction of rotation are caused by the liner of the synchronizer ring. Therefore, if the above clearance is sufficient, it is not necessary to replace the parts.



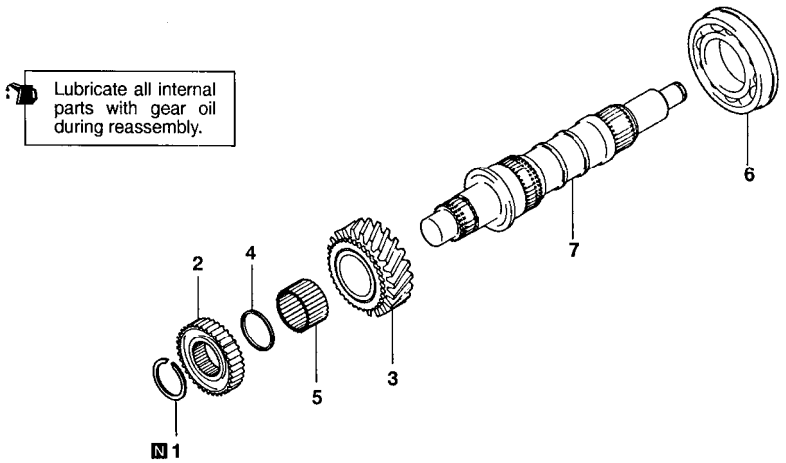
▶B◀ SNAP RING INSTALLATION

When installing the snap ring, select the one with the maximum thickness that can fit in the groove.

Standard value:
0–0.08 mm (0–.0031 in.)

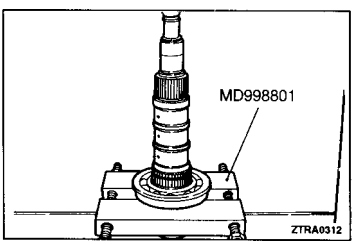
TRANSFER DRIVE SHAFT (V5MT1-3, V5MT1-6)

DISASSEMBLY AND REASSEMBLY



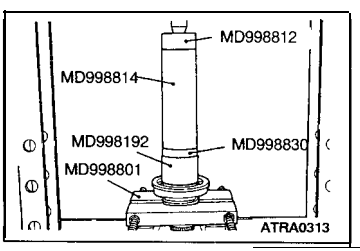
Disassembly steps

▶B◀ 1. Snap ring
2. H-L clutch hub
3. Low speed gear
4. Bearing spacer
5. Needle bearing
◀A▶ ▶A◀ 6. Ball bearing
7. Transfer drive shaft



DISASSEMBLY SERVICE POINT

◀A▶ **BALL BEARING REMOVAL**



REASSEMBLY SERVICE POINT

▶A◀ **BALL BEARING INSTALLATION**

GENERAL INFORMATION

The F5MC1 transaxle internal components can only be serviced by separating the gear case from the bellhousing case. The transaxle output shaft is serviced as a unit, no disassembly and reassembly is possible. Damage to the transaxle may results.

MANUAL TRANSAXLE

F5MC1

CONTENTS

SPECIFICATIONS

GENERAL SPECIFICATIONS

Items		Specifications
Model		F5MC1-1-QPAF
Applicable engine		420A
Type		5-speed floor shift
Gear ratio	1st	3.54
	2nd	2.13
	3rd	1.36
	4th	1.03
	5th	0.81
	Reverse	3.94
Final gear ratio		3.55

SERVICE SPECIFICATIONS

Items	Specifications
Differential side gear end play mm (in.)	0.25–0.33 (.0098–.0130)
Differential case preload mm (in.)	0.18 (.0071)

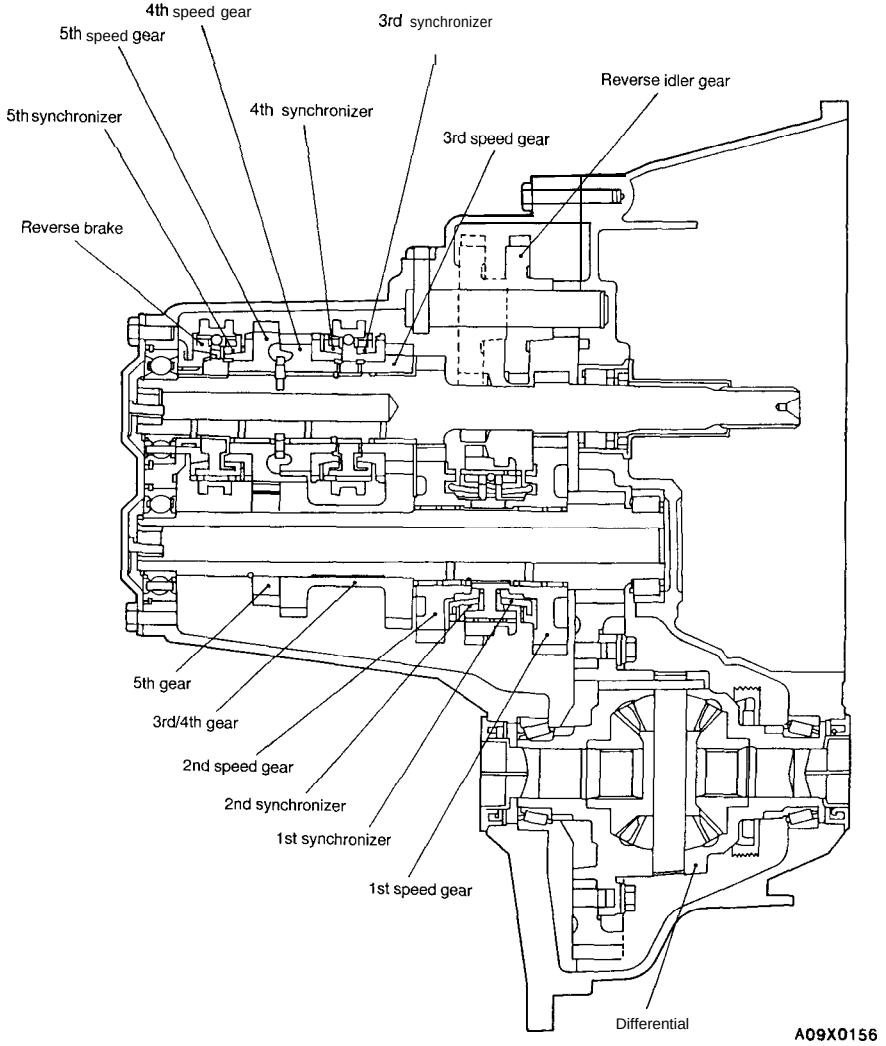
TORQUE SPECIFICATIONS

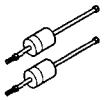
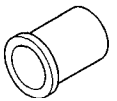
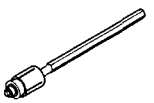
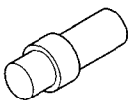
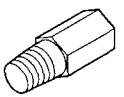
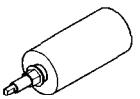
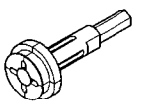
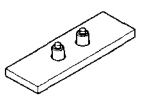
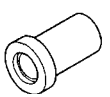
Items	Nm	ft.lbs.
Differential ring gear bolt	81	60
End cover bolt	29	21
Output bearing race retaining strap	11	9.6
Reverse idler gear bolt	26	19
Reverse fork bracket bolt	11	9.6
Transaxle case-clutch housing bolt	29	21

SEALANTS

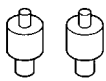
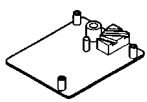
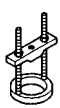
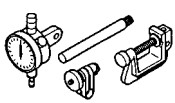
Items	Specified sealant	Quantity
End cover and bolts	Loctite 18718 or equivalent	As required
Clutch housing to transaxle case	Loctite 51817 or equivalent	As required
Clutch housing to transaxle case bolts	Loctite 51817 or equivalent	As required

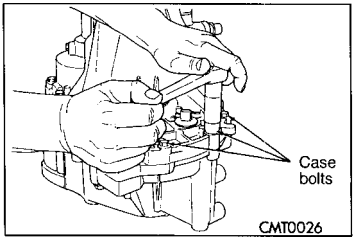
SECTIONAL VIEW



Tool	Tool number and name	Supersession	Application
	MB995031 Puller set	C-3752	Removal of shifter rail bushing, shifter crossover bushing, shifter selector shaft.
	MB995033 Seal installer	C-4680-1	Installation of input shaft bearing and sleeve.
	MB995038 Differential bearing torque tool	C-4995	Checking of differential bearing end play, differential bearing turning torque.
	MB995039 Adapter	C-4996	Removal of differential bearing. Adjustment of differential side gear end play.
	MB995040 Bushing remover	6786	Removal of shifter rail bushing, shifter selector shaft.
	MB995048 Cup remover	L-4518-1	Removal of differential bearing race.
	MB995052 Bearing race remover	6787	Removal of output bearing race.
	MB995056 Bearing remover & installer	6768	Removal of input shaft bearing and output shaft bearing.
	MB995058 Bearing installer	C-4992-1	Installation of input shaft bearing output bearing.

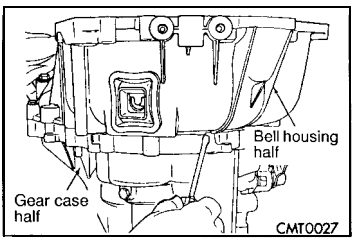
SPECIAL TOOLS

Tool	Tool number and name	Supersession	Application
	MB990927 Installer adapter		Removal of input shaft bearing and sleeve.
	MB990933 Installer adapter		Installation of output bearing race and differential bearing race.
	MB990938 Installer bar	MB990938-01	Use with MB990926, MB990933.
	MB995023 Bearing remover & installer	6785-1	Installation and removal of input shaft bearing, output shaft bearing.
	MB995024 Bearing remover & installer	6785-2	
	MB995025 Bearing remover & installer	6785-3	
	MB995028 Puller press	C-293	Removal of differential bearing.
	MB995029 Puller blocks adapter	C-293-45	Removal of differential bearing.
	MB995030 Dial indicator set	C-3339	Adjustment of differential side gear.

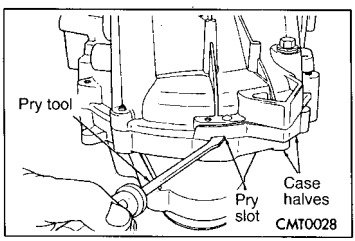


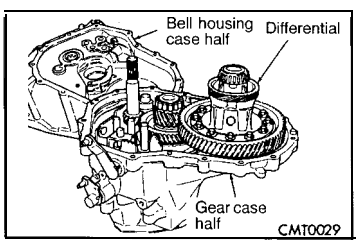
CASE DISASSEMBLY

(1) Place transaxle on bench.
(2) Remove shift levers. Remove transaxle case half bolts.

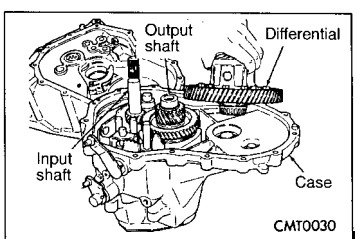


(3) Place two screwdrivers in the slots provided in the case halves near the dowels. Separate the case halves.

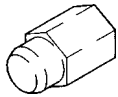
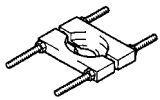
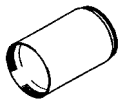


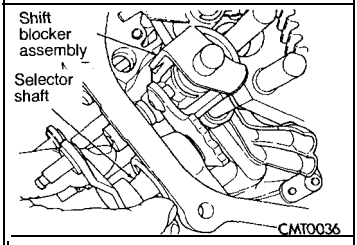


(4) Remove bell housing case half, from gear case half.

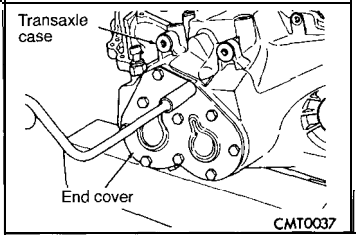


(5) Remove output shaft roller bearing from output shaft.
(6) Remove differential assembly.

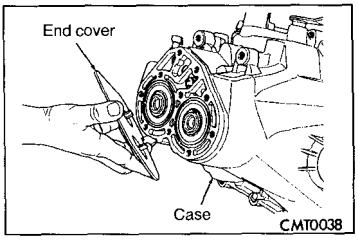
Tool	Tool number and name	Supersession	Application
	MD998343 Adapter	MD998343-01	Installation of shifter rail bushing, shifter selector shaft.
	MD998801 Bearing remover	MD998348-01	Installation and removal of each bearing, synchronizer.
	MD998812 Installer cap	GENERAL SERVICE TOOL	Use with MD998813, MD998821, MD998826.
	MD998813 Installer –100	GENERAL SERVICE TOOL	Use with MD998812, MD998821.
	MD998821 Installer adapter (44)		Installation of 3-4 speed synchronizer, 5 speed synchronizer and differential bearing cone.
	MD998826 Installer adapter (54)		Installation of axle shaft oil seal.

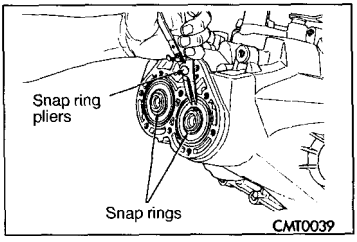


(10) Pull the selector shaft shift pin out of the slot in the blocker assembly. Turn selector shaft up and out of the way.

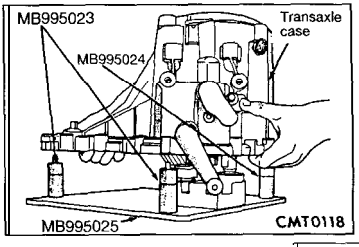


(11) Remove transaxle end cover.

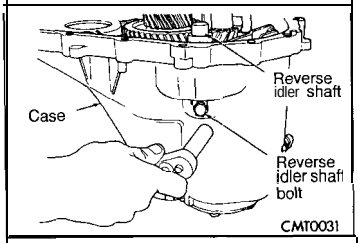




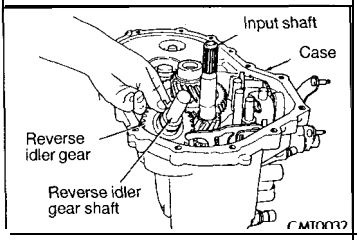
(12) Remove two snap rings retaining the output shaft and the input shaft to the bearing.



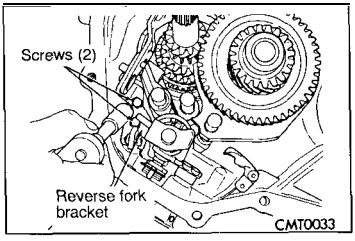
(13) Using bench fixture and shims provided (MB995023, MB995024, MB995025), turn transaxle over. Install transaxle onto bench fixture. Verify shim spacers are in position on bench fixture. Install transaxle into shop press.



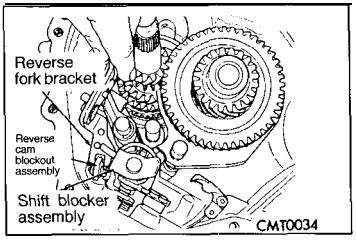
(7) Remove reverse idler shaft bolt.



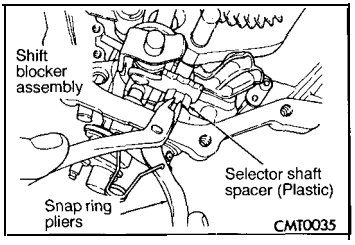
Remove reverse idler gear.



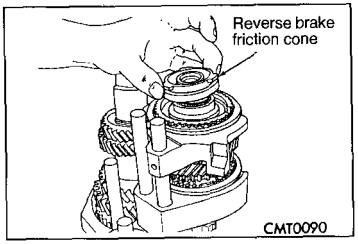
(8) Remove two screws retaining reverse fork bracket.

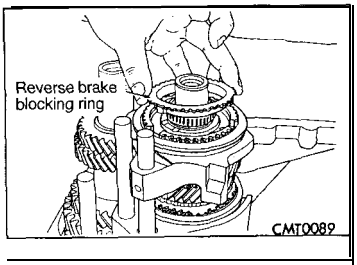


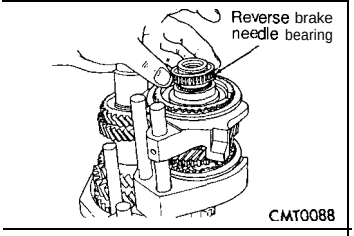
Remove reverse fork bracket and reverse cam blockout assembly.

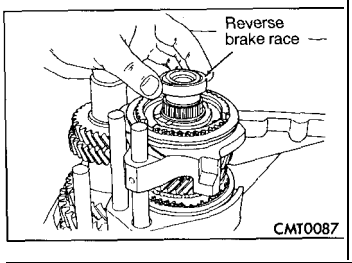


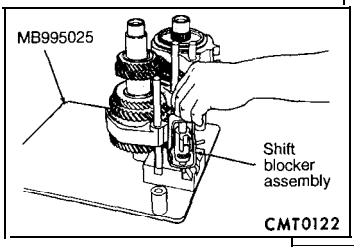
(9) Using snap ring pliers, remove selector shaft spacer.





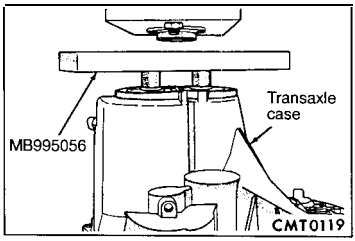






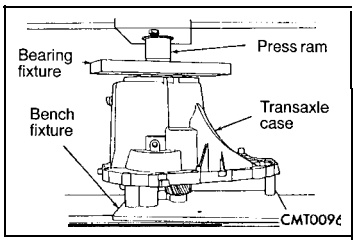
(19) Remove the shift blocker assembly from the bench fixture

TSB Revision



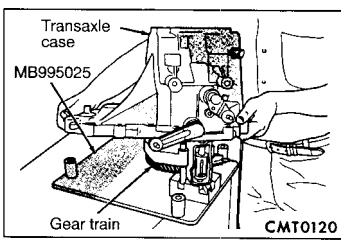
(14) Install bearing fixture (MB995056) onto transaxle end bearings. Verify tool is properly aligned to input and output shaft.

Caution
The oil dams in the input and output shaft can be damaged while pressing on the shafts if the bearing fixture is not properly used.

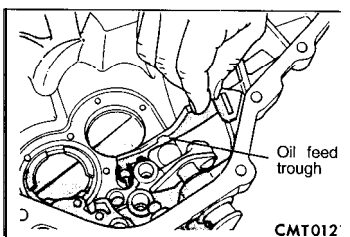


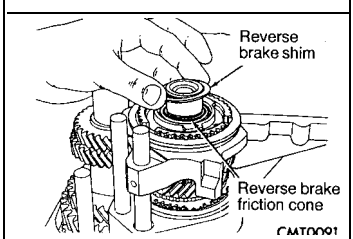
(15) Install transaxle gear case and bench fixture onto shop press. Press output and input shaft assemblies out of case.

(16) Remove transaxle from press.

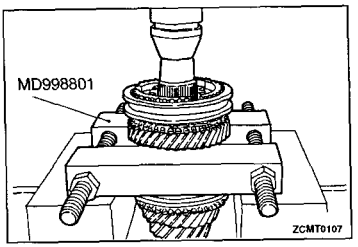


(17) Carefully remove transaxle case from the shaft assemblies and bench fixture.
Make sure the oil feed trough to end bearings is not damaged.

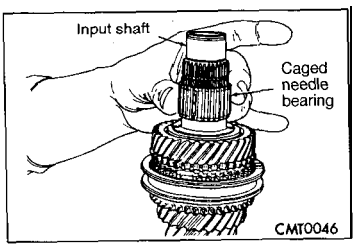




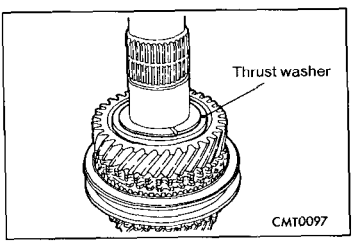
(18) Remove the reverse brake blocking ring, shim, reverse brake friction cone, bearing and race from the input shaft assembly.



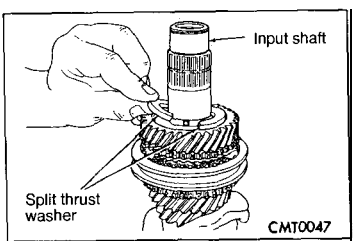
(2) Remove synchronizer and gear using shop press.



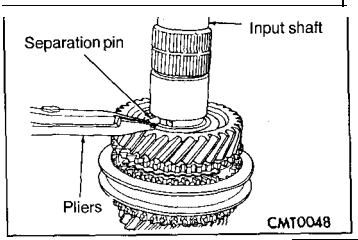
(3) Remove caged needle bearing.



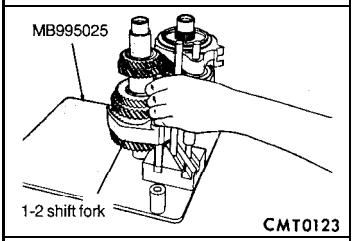
(4) Remove 4-5 gears split thrust washer ring.



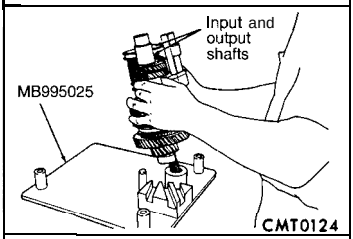
(5) Remove split thrust washer.



(6) Remove split thrust washer separation pin.

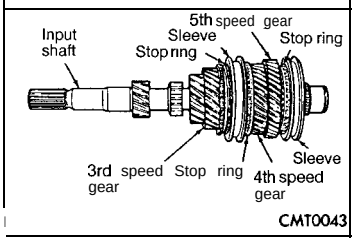


(20) Remove the 1-2 shift fork from the output shaft.



(21) Remove input and output shaft assemblies from bench fixture.

Caution
The output shaft assembly is serviced as an assembly. Do not try to repair any component on the output shaft. If the 1/2 synchronizer or gear fails, it is necessary to replace the complete output shaft assembly.

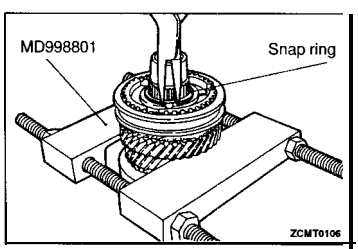


INPUT SHAFT DISASSEMBLY

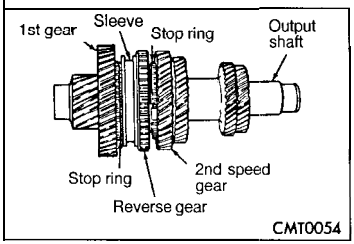
Before disassembly of the input shaft, it is necessary to check the synchronizer stop ring gap. Use a feeler gauge to measure the gaps between the stop rings and the speed gears. The correct gaps are listed below:

1st 1.04–1.72 mm (.0409–.0677 in.)
2nd 0.94–1.72 mm (.0370–.0677 in.)
3rd 1.37-1.93 mm (.0539–.0760 in.)
4th 1.41-1.97 mm (.0555–.0776 in.)
5th 1.37-1.93 mm (.0539–.0760 in.)

If a stop ring gap does not fall within the specifications it must be insepcted for wear and replaced. If the 1st or 2nd synchronizer stop ring is worn beyond specifications, the complete output shaft assembly must be replaced.
The input shaft incorporates the 3rd, 4th, and 5th speed gears and synchronizers on the assembly.



(1) Install MD998801 behind 5th speed gear. Remove snap ring at 5th synchronizer hub on input shaft.



OUTPUT GEAR DISASSEMBLY

Caution
The output shaft assembly is serviced as an assembly. Do not try to repair any component on the output shaft. If the 1/2 synchronizer or gear fails, it is necessary to replace the complete output shaft assembly.

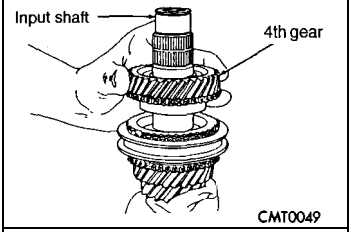
It is necessary to check the synchronizer stop ring gap. Use a feeler gauge to measure the gaps between the stop rings and the speed gears.
The correct gaps are listed below:

1st 1.04–1.72 mm (.0409–.0677 in.)
2nd 0.94–1.72 mm (.0370–.0677 in.)
3rd 1.37-1.93 mm (.0539–.0760 in.)
4th 1.41-1.97 mm (.0555–.0776 in.)
5th 1.37-1.93 mm (.0539–.0760 in.)

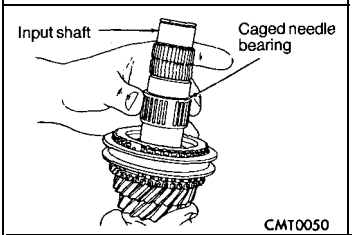
If a stop ring gap does not fall within the specifications it must be inspected for wear and replaced. If the 1st and 2nd synchronizer stop ring is worn beyond specifications, the complete output shaft assembly must be replaced.
The output shaft incorporates the 1st and 2nd gears and synchronizers on the assembly.

TRANSAXLE CLEANING AND INSPECTION

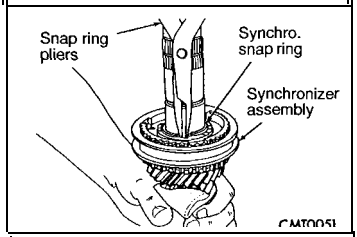
Clean the gears, bearings, shafts, synchronizers, thrust washers, oil feeder, shifter mechanism, gear case, and bellhousing with solvent. Dry all parts except the bearings with compressed air. Allow the bearings to either air dry or wipe them dry with clean shop towels.
Inspect the gears, bearings, shafts and thrust washers. Replace the bearings and cups if the rollers are worn, chipped, cracked, flat spotted or brinnelled, or if the bearing cage is damaged or distorted. Replace the thrust washers if cracked, chipped, or worn. Replace the gears if the teeth are chipped, cracked, or wore thin. Inspect the synchronizers. Replace the sleeve if worn or damaged in any way. Replace the stop rings if the friction material is burned, flaking off, or worn. Check the condition of the synchronizer keys and springs. Replace these parts if worn, cracked, or distorted.



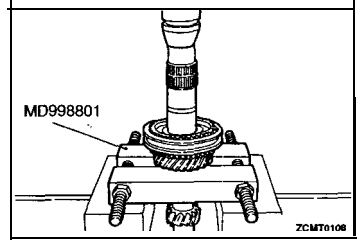
(7) Remove 4th gear.



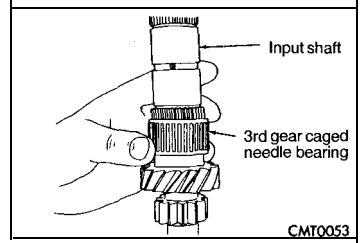
(8) Remove 4th gear caged needle bearing. Check the caged needle bearing for a broken retention spring.



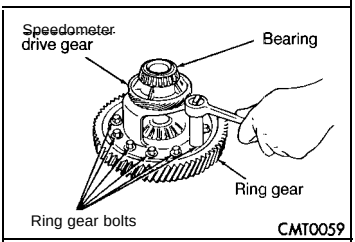
(9) Remove blocking ring. Remove 3/4 synchronizer hub retaining snap ring.



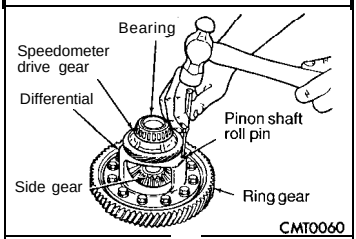
(10) Install input shaft in shop press. Using MD998801 to remove 3/4 synchronizer and 3rd gear.



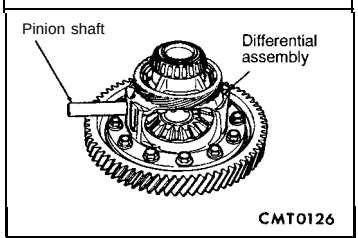
(11) Remove 3rd gear caged needle bearing. Check the caged needle bearing for a broken retention spring.
(12) Inspect the input shaft for worn or damaged bearing races or chipped gear teeth. Replace as necessary.



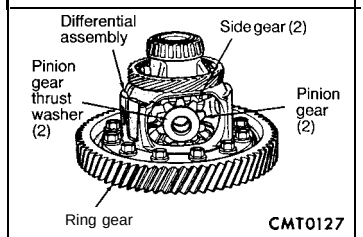
Caution
Always install new ring gear bolts. Tighten ring gear bolts to 81 Nm (80 ft.lbs.) torque.



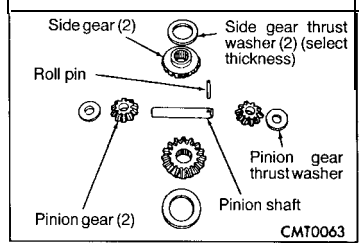
Remove the roll pin using a pin punch, etc.



Remove the pinion shaft.



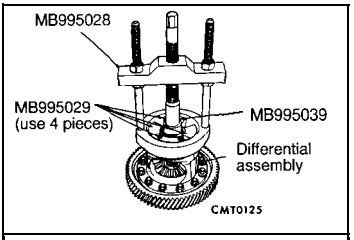
Remove the pinion gear, side gear and thrust washer.



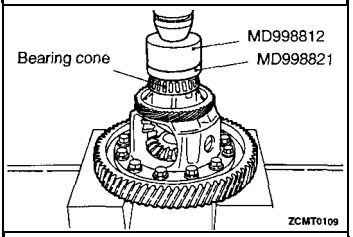
Assemble the differential side gears, pinion gears and pinion gears with the pinion gear washers. Rotate the assembly two full revolutions both clockwise and counterclockwise.

DIFFERENTIAL OVERHAUL

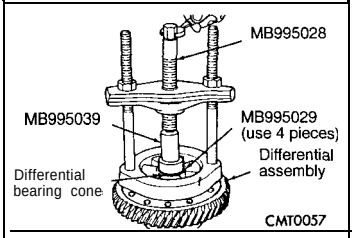
Shim thickness need only be determined if any of the following parts are replaced:
Transaxle gear case
Clutch bellhousing case
Differential case
Differential bearing



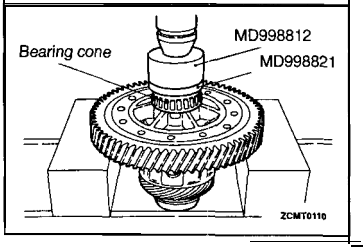
Refer to Bearing Adjustment Procedure at the end of this section to determine proper shim thickness. This will provide correct bearing preload and proper bearing turning torque.



Install the bearing cone using the special tool.

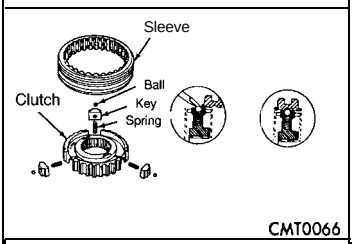


Install the differential bearing cone using the special tool.



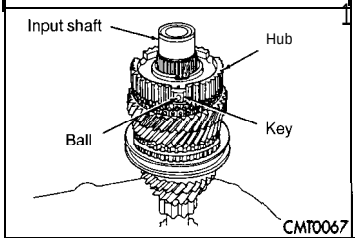
Install the bearing cone using the special tool.

TSB Revision

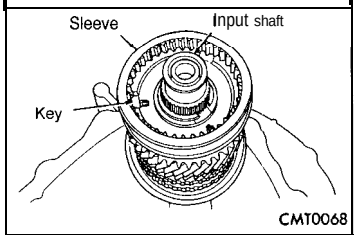


ASSEMBLY

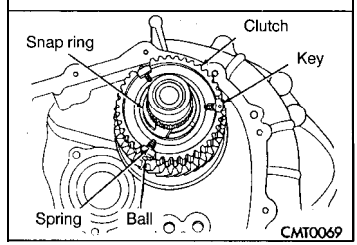
(1) Position synchronizer hub onto a suitable holding fixture (input shaft). The synchronizer hubs are directional. The hubs must be installed with the U facing upward.
(2) Install springs into hub slot
(3) Insert key into hub and spring.



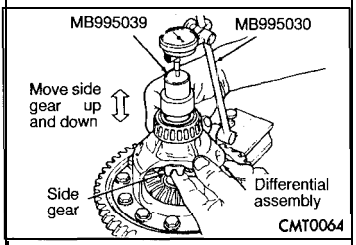
(4) Apply petroleum jelly to the hole in the key. Insert balls into each key.

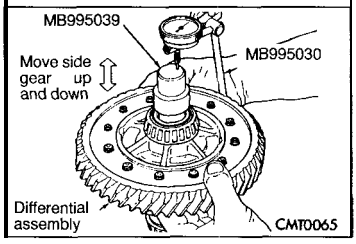


(5) Slide sleeve over the hub and depress balls as you carefully slip the sleeve into position.



(6) Line up stop ring tang over the keys in the hub. Install stop rings. Center the keys and balls by pushing on both stop rings.





Set up dial indicator as shown and record end play. Rotate side gear 90 degrees and record another end play. Again, rotate side gear 90 degrees and record final end play.
Using the smallest end play recorded, shim that side gear to within 0.25 mm (.0098 in.) to 0.33 mm (.0130 in.). The other side gear should be checked using the same procedure.

Caution
Side gear end play must be within 0.25–0.33 mm (.0098–.0130 in.). Five select thrust washers are available: 0.69 mm (.0272 in.), 0.81 mm (.0319 in.), 0.94 mm (.0370 in.), 1.07 mm (.0421 in.) and 1.19 mm (.0469 in.).

SYNCHRONIZER OVERHAUL

DISASSEMBLY

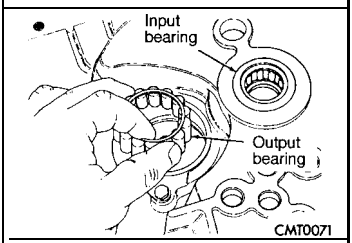
Place synchronizer in a clean shop towel and wrap. Press on inner hub. Carefully open up shop towel and remove springs, balls, keys, hub, and sleeve.

CLEAN

Do not attempt to clean the blocking rings in solvent. The friction material will become contaminated. Place synchronizer components in a suitable holder and clean with solvent. Then let them air, dry.

INSPECT

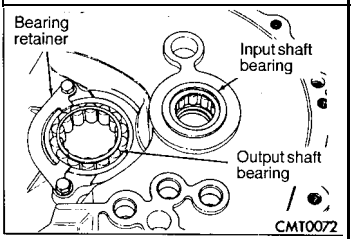
Proper inspections of components involved:
Teeth, for wear, scuffed, nicked, burred or broken teeth keys, for wear or distortion
Balls and springs, for distortion, cracks or wear
If any of these conditions exists in these components, replace as necessary.



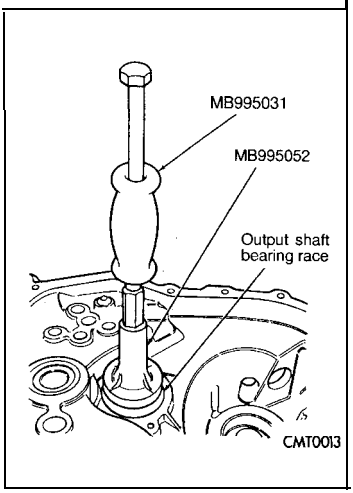
OUTPUT BEARING

REMOVAL

(1) Note the position of the output shaft bearing.
The bearing is not identical end to end.
Remove caged roller bearing from output bearing race.



(2) Remove screws at output bearing retainer strap.



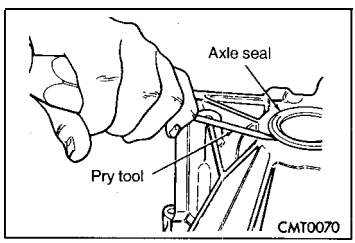
(3) Install tool MB995031,MB995052. Tighten tool to output bearing race.

SHIFTER RAILS OVERHAUL

(1) Disassemble the transaxle case using the procedures provided in this group.
(2) Remove shifter rails from the geartrain.
(3) To service the 5/R shift rail, remove the C-clip retaining the reverse shift lever arm. Remove the 5th shift fork roll pin and remove the 5th shift fork.
Remove the shift lug roll pin and remove the shift lug. Replace parts as necessary.
(4) To service the 3/4 shift rail, remove the roll pin retaining the 3/4 shift fork. Remove the shift fork. Remove the shift lug roll pin and remove shift lug. Replace parts as necessary.
(5) To service the 1/2 shift rail, remove the roll pin retaining the 1/2 shift fork. Remove the shift fork and replace parts as necessary.

GEAR CASE OVERHAUL

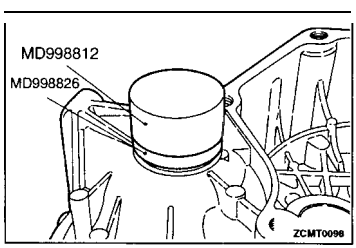
The sealant used to seal the transaxle case halves is Loctite 51817 or equivalent. The sealant used for the bearing end plate cover is Loctite 18718 or equivalent.
The components that are left in the gear cases when the gear train is pulled out are the:
Axle shaft seals
Output bearing race and retainer
Input bearing and sleeve
Differential bearing cones
Shifter rail bushings
Shifter shafts
Shifter shaft seals
Shifter shaft bushings
Rear bearing oil feed trough



AXLE SHAFT SEALS

REMOVAL

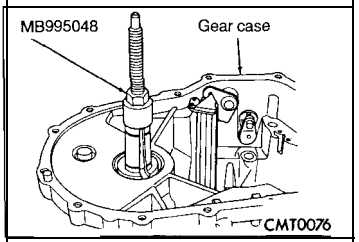
(1) Insert a flat blade pry tool at outer edge of axle shaft seal.
(2) Tap on the pry tool with a small hammer and remove axle shaft seal.



INSTALLATION

(1) Clean axle shaft seal bore of any excess sealant.
(2) Align axle shaft seal with axle shaft seal bore.
(3) Install axle seal on tool MD998812,MD998826 and insert into axle shaft seal bore.
(4) Tap seal into position.

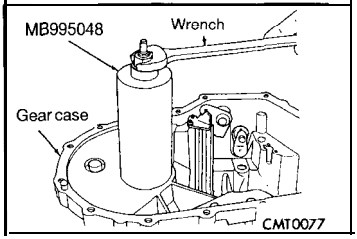
TSB Revision



DIFFERENTIAL BEARING CUPS

REMOVAL

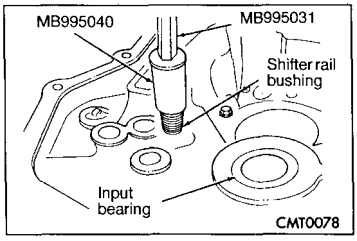
(1) Install MB995048 into the differential bearing cup.



(2) Install the tool cup over the tool.
(3) Tighten the tool until the race is removed from the case.

INSTALLATION

(1) Position the bearing cup into the case.
(2) Install the bearing cup onto MB990933.
(3) Using MB990933, MB990938 driver, install differential bearing cup into the transaxle case.



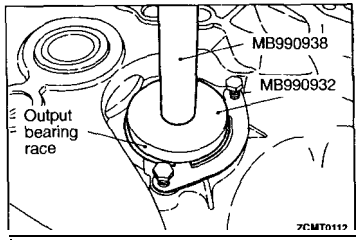
SHIFTER RAIL BUSHINGS

REMOVAL

(1) Thread tool MB995040 into shifter rail bushing.
(2) Install MB995031 onto tool.
(3) Remove bushing using slide hammer and tool assembly.

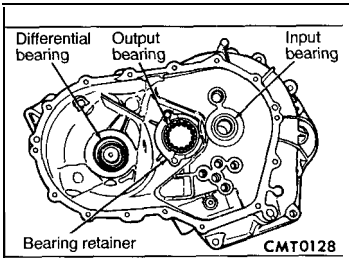
INSTALLATION

(1) Line up replacement bushing in bore.
(2) Using tool MD998343, tap bushing into bore until flush with the chamfer in the case.



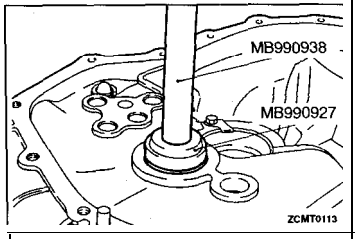
INSTALLATION

(1) Line up output bearing race to race bore.
(2) Insert tool MB990933, MB990938 into output bearing race. Tap race into bore. Position bearing retaining stlap. Tighten bolts to 11 Nm (96 in.lbs.).



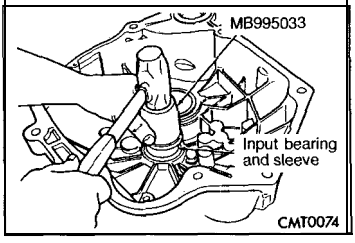
INPUT BEARING AND SLEEVE

The input bearing is a one-piece bearing and sleeve unit. The sleeve is the slide point for the clutch release bearing and lever.



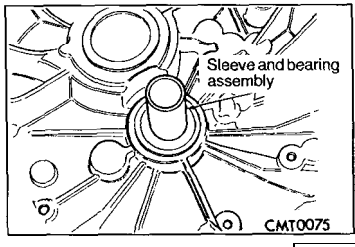
REMOVAL

(1) Install tool MB990927, MB990938 over input bearing on the gear case side of the transaxle clutch housing.
(2) Tap the input bearing out of the housing.

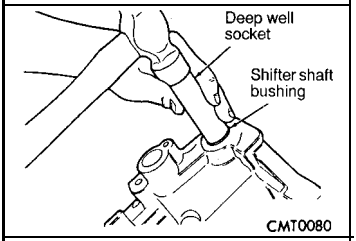


INSTALLATION

(1) Apply coating of Loctite sealant on bearing outer diameter. Position sleeve and bearing assembly at input bearing bore.
(2) Install tool MB995033 over input bearing.

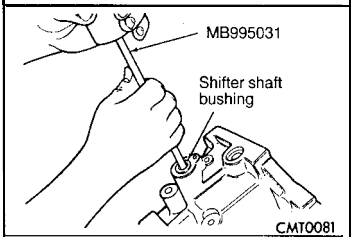


(3) Using the spacer tool and shop press, install input bearing into bore until it is fully seated.



INSTALLATION

(1) Position replacement bushing over selector shaft bore.
(2) Using an appropriate size deep well socket, install bushing in selector shaft bore.



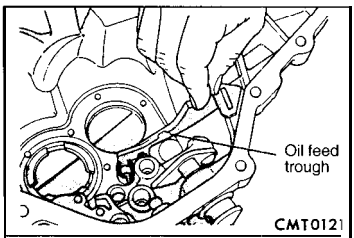
SHIFTER CROSSOVER SHAFT BUSHING

REMOVAL

(1) Install MB995031 through the crossover bushing.
(2) Thread nut and washer onto MB995031.
(3) Using the MB995031, remove the crossover shaft bushing.

INSTALLATION

(1) Position the replacement crossover shaft bushing over the crossover shaft bushing bore.
(2) Using an appropriate size deep well socket, install the crossover shaft bushing into the bushing bore.



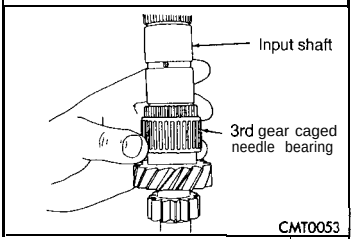
REAR BEARING OIL FEED TROUGH

REMOVAL

The bearing oil feed trough is retained in the case by a pin that is molded into the case and clips that are part of the trough.

(1) Using light plier pressure, squeeze the clips together at the rear of the trough.
(2) Slide the trough over the retaining pin that locates the trough in the case.

Reverse removal procedure to install oil feed trough.



INPUT SHAFT REASSEMBLY

The snap rings that are used on the input shaft are available in select fit sizes. Use the thicknest snap ring that will fit in each snap ring groove.

(1) Place input shaft into shop press.
(2) Install 3rd gear caged needle bearing on input shaft.

SHIFTER SHAFT SEALS

It is not necessary to remove the shifter shafts from the transaxle to service the shifter shaft seals.

REMOVAL

(1) Using a pick tool, pry up on the shifter shaft seal and remove seal from bore.

INSTALLATION

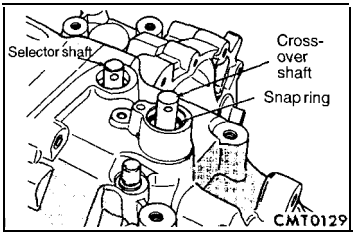
(1) Position new shifter shaft seal in bore.
(2) Install shifter shaft seal into bore using an appropriate size deep well socket.

SHIFTER SELECTOR SHAFT

REMOVAL

(1) With the transaxle disassembled, remove the selector shaft by pushing on the shaft from the outside and pulling shaft out from the inside.

Reverse removal procedure to install selector shaft.

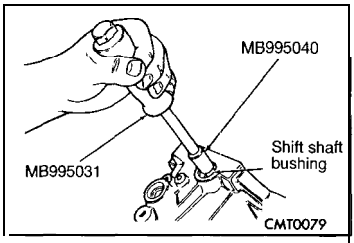


SHIFTER CROSSOVER SHAFT

REMOVAL

(1) With the transaxle disassembled, remove the crossover shaft seal.
(2) Using snap ring pliers, remove the snap ring at the crossover shaft bore.
(3) Push the crossover shaft in the case and remove the crossover assembly.

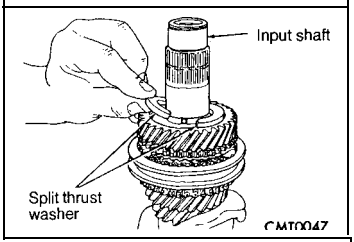
Reverse removal procedure **to** install crossover shaft.



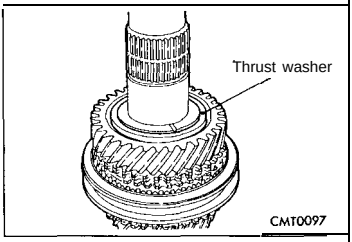
SHIFTER SELECTOR SHAFT BUSHING

REMOVAL

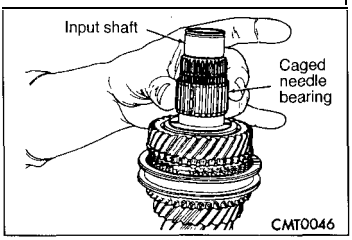
(1) Thread MB995040 into bushing.
(2) Install MB995031 onto tool and remove bushing using slide hammer.



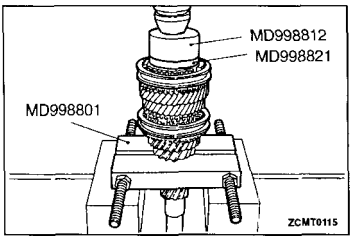
(8) Install split thrust washer onto input shaft.



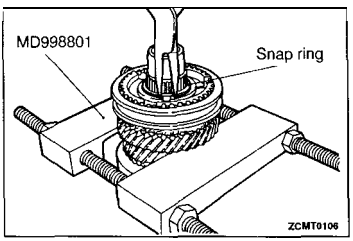
(9) Install split thrust washer retaining ring.



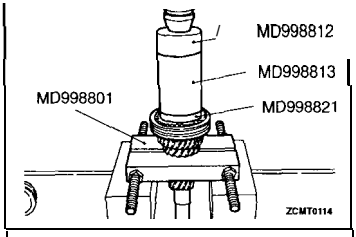
(10) Install 5th gear caged needle bearing.



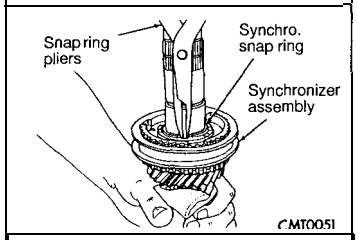
(11) Using MD998812, MD998821, install 5th speed gear and synchronizer. The 5th gear synchronizer hub has the letter "S" stamped on the top face of the hub. This designates that hub must be installed with the "S" facing upward.



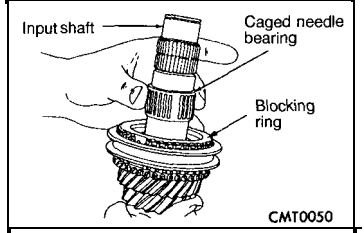
(12) Install 5th gear synchronizer snap ring.



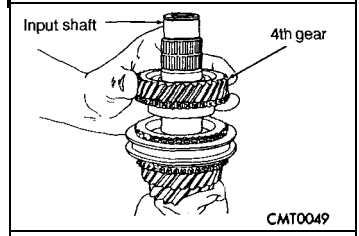
(3) Install 3rd gear and 3/4 synchronizer onto input shaft. Install MD998812, MD998813, MD998821 over input shaft and press on synchronizer hub and 3rd gear. The synchronizer hub has the letter "U" stamped on the top face of the hub.
This designates that the hub must be installed with the "U" facing upward.



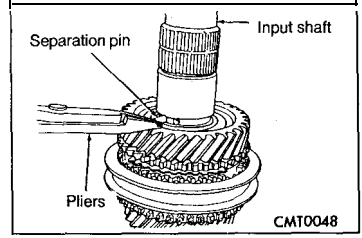
(4) Install 3/4 synchronizer snap ring into slot on input shaft.



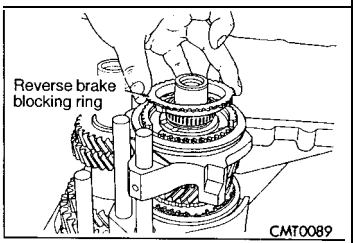
(5) Install blocking ring into 3/4 synchronizer. Install 4th gear caged needle bearing.



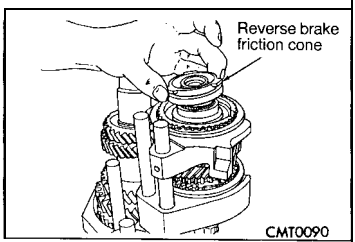
(6) Install 4th gear onto input shaft.



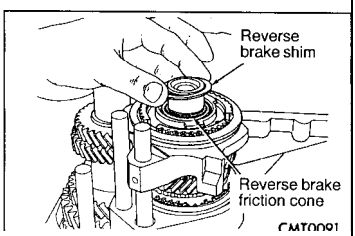
(7) Install 4/5 split thrust washer separation pin.



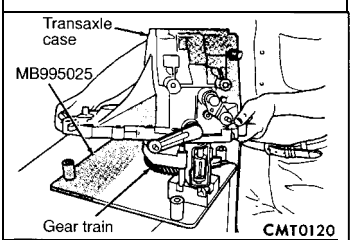
(6) Install reverse brake blocking ring.



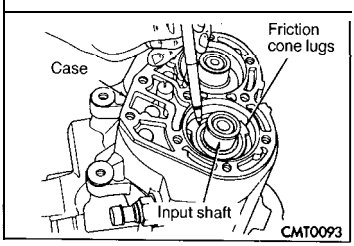
(7) Install reverse brake friction cone.



(8) Install reverse brake shim. Apply petroleum jelly to shim to hold in place.



(9) Install gear case half over pallet fixture. Line up shift finger over 3/4 lug.

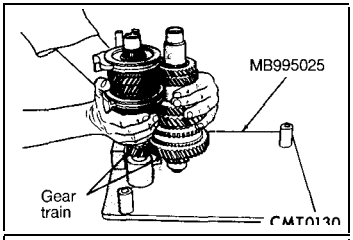


(10) Line up reverse brake friction cone lug to the slots in the gear case. Verify reverse brake shim is in position.

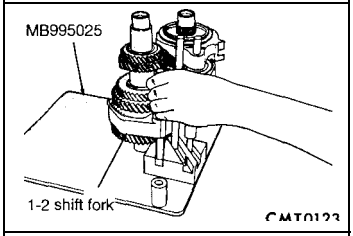
CASE REASSEMBLY

The sealant used to seal the transaxle case halves is Loctite 51817 or equivalent.
The sealant used for the bearing end plate cover is Loctite 18718 or equivalent.

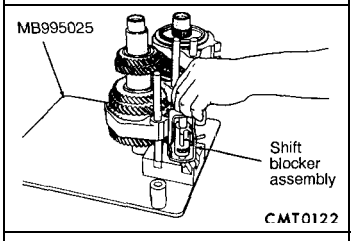
(1) Verify bench fixture shims are removed from bench fixture. Install output and input gear into pallet fixture (MB995025).



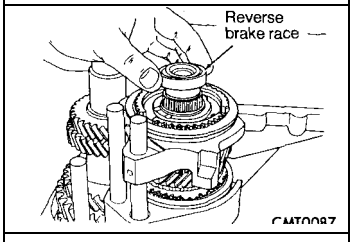
(2) Install shift rails and forks into bench fixture.



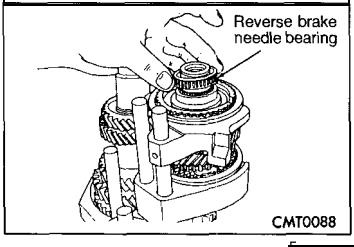
(3) Install shift blocker assembly into bench fixture.

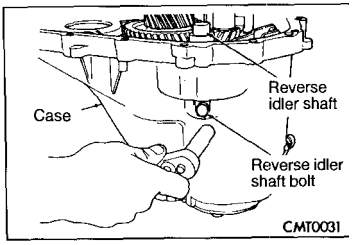


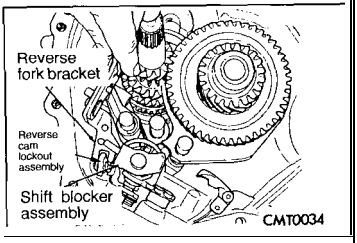
(4) Install reverse brake race onto input gear.



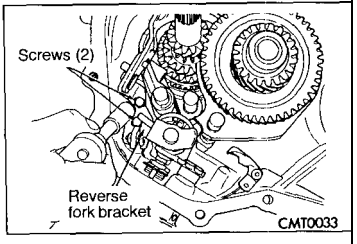
(5) Install reverse brake needle bearing.

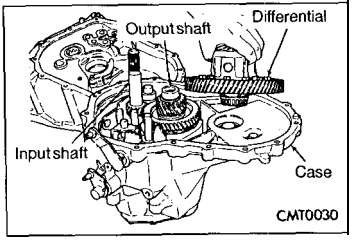






(19) Install reverse fork bracket and reverse cam lockout assembly. Tighten screws to 11 Nm (96 in. lbs.) torque.



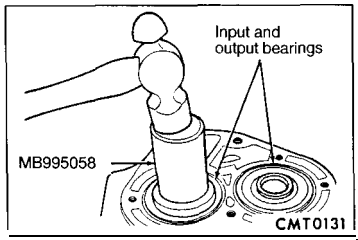


(20) Install differential into gear case.

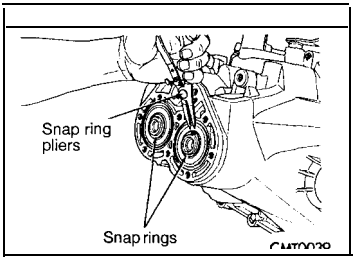
BEARING ADJUSTMENT PROCEDURE

GENERAL RULES ON SERVICING BEARINGS

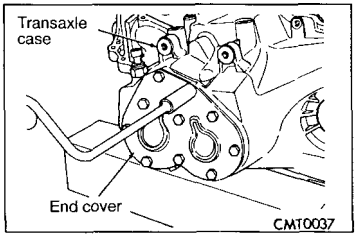
(1) Take extreme care when removing and installing bearing cups and cones. Use only an arbor press for installation, as a hammer may not properly align the bearing cup or cone.
Burrs or nicks on the bearing seat will give a false end play reading while gauging for proper shims. Improperly seated bearing cups and cones are subject to low mileage failure.



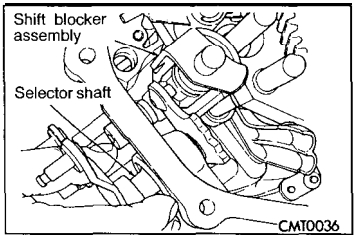
(11) Position input and output bearings on the shafts. Using MB995058, press input and output shaft bearings until they bottom into the case and against the shafts.



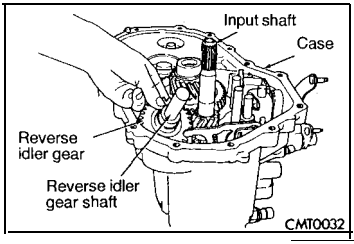
(12) Install shaft snap rings at input and output bearings.



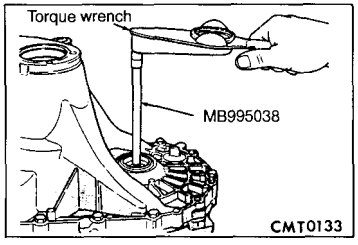
(13) Apply Loctite 18718 or equivalent to end cover outer edge and around bolt holes. Install end cover onto gear case. Tighten end cover bolts to 29 Nm (21 ft.lbs.) torque.
(14) Remove gear case from bench fixture.
(15) Install gear case in a holding fixture with end cover facing down.



(16) Turn selector shaft into slot on shift blocker assembly.
(17) Push selector shaft spacer clip onto selector shaft. Install shift levers.



(18) Install reverse idler gear and shaft. Install bolt into shaft. Tighten bolt on shaft to 26 Nm (19 ft.lbs.) torque.



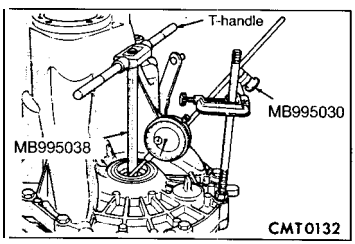
(10) Using MB995038 and an inch-pound torque wrench, check turning torque of the differential assembly clockwise and counterclockwise. The turning torque should be 68 to 136 Ncm (6 to 12 in.lbs). If the turning torque is too high, install a 0.5 mm (.020 in.) thinner shim. If the turning torque is too low, install a 0.5 mm (.020 in.) thicker shim.
(11) Recheck turning torque. Repeat Step (10) until the proper turning torque is obtained.

(2) Bearing cups and cones should be replaced if they show signs of pitting or heat distress. If distress is seen on either the cup or bearing rollers, both cup and cone must be replaced.
(3) Bearing preload and drag torque specifications must be maintained to avoid premature bearing failures. Used (original) bearing may lose up to 50% of the original drag torque offer break in. All bearing adjustments must be made with no other component interference or gear intermesh.
(4) Replace bearings as a pair. For example, if one differential bearing is defective, replace both differential bearings. If one input shaft bearing is defective, replace both input shaft bearings.
(5) Bearing cones must not be reused if removed.
(6) Turning torque readings should be obtained while smoothly rotating in either direction.

DIFFERENTIAL BEARING PRELOAD ADJUSTMENT

True bearing turning torque readings can only be obtained with the gear train removed from the case.

(1) Remove bearing cup and existing shim from clutch bell-housing case.
(2) Press in new bearing cup into bell housing case (or use a cup that has been ground down on the outer edge for ease of measurement).
(3) Press in new bearing cup into gear case side.
(4) Lubricate differential bearings with SAE 5W-30 engine oil. Install differential assembly in transaxle gear case. Install clutch bell housing over gear case. Install and torque case bolts to 29 Nm (21 ft.lbs.).
(5) Position transaxle with bell housing facing down on workbench with C-clamps. Position dial indicator.



(6) Apply a medium load to differential with MB995038 and a T-Handle, in the downward direction. Roll differential assembly back and forth many times. This will settle the bearings. Zero dial indicator. To obtain end play readings, apply a medium load in the upward direction while rolling differential assembly back and forth. Record end play.
(7) The shim required for proper bearing preload is total of end play and (constant) preload of 0.18 mm (.0071 in.).
(8) Remove case bolts. Remove clutch bell housing differential bearing cup. Install shim(s) selected in step (7). Then press the bearing cup into clutch bell housing.
(9) Install and torque case bolts to 26 Nm (19 ft.lbs.).