

# Maintenance Manual

## W5M51

### MANUAL TRANSMISSION

#### FOREWORD

This manual explains the maintenance procedures for the W5M51 manual transmission on the 2003 Lancer Evolution VIII, but only for points which differ from the following maintenance manual:

- W5M51 Manual Transmission Maintenance Manual (No. 1039M17)

This manual is based on the car as it was in January 2003. Some maintenance procedures may have changed due to subsequent specification changes. International SI standard units are used in the manual; old units are not shown alongside them. (However, old units are used for some figures we have taken from existing documents).

Any opinions, requests, or questions concerning this manual, should be written on the 'Servicing Comment Form' at the end, and sent to us by fax.

January 2003



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## How to Follow this Manual

### Extent of maintenance operation covered in this manual

This manual explains maintenance procedures carried out after the transmission has been removed from the vehicle. Please consult the relevant vehicle maintenance manual if you need to remove the transmission from the vehicle or carry out checks/maintenance without removing it.

### How to follow the explanations

#### Maintenance Procedures

- (1) At the beginning of each section there are component drawings to enable you to grasp how they are fitted.  
 (2) Numbers on these drawings denote the order for maintenance procedures. The drawings also show parts that cannot be re-used, and tightening torques.
- **Removal order:**  
The numbers before the part names given in the removal order correspond to the numbers in the component drawings, and denote the order in which they are removed.
  - **Fitting order:**  
If the order in which they are fitted is simply the reverse of the order in which they were removed, the fitting order is omitted.
  - **Dismantling order:**  
The numbers before the part names given in the dismantling order correspond to the numbers in the component drawings, and denote the order in which they are dismantled.
  - **Assembly order:**  
If the order in which they are assembled is simply the reverse of the dismantling order, the assembly order is omitted.





#### Categorisation of Key Maintenance Points

Key points for maintenance/maintenance standards / use of special tools are explained in detail as key maintenance

- <<A>> = key point concerning removing/dismantling  
 >>A<< = key point concerning fitting/assembling  
 ◀\*▶ = key points concerning removing / dismantling are in '01-1 W5M51 Manual Transmission Maintenance Manual'.  
 ▶\*◀ = key points concerning fitting / removing are in '01-1 W5M51 Manual Transmission Maintenance Manual'.

#### Symbols for Lubricants and Sealants

Lubricant/sealant application/topping-up locations are shown on the component drawing on the following page, by these symbols.

- |   |                                     |
|---|-------------------------------------|
|  | ..... Grease                        |
|  | ..... Sealant, liquid gasket (FIPG) |
|  | ..... Brake fluid                   |
|  | ..... Gear oil                      |

### Checks

The only checks explained in this manual are those for which special tools or measuring instruments are used. General visual checks and cleaning of components are not explained, but this constitutes essential maintenance and must be carried out.

Page number

Group Title

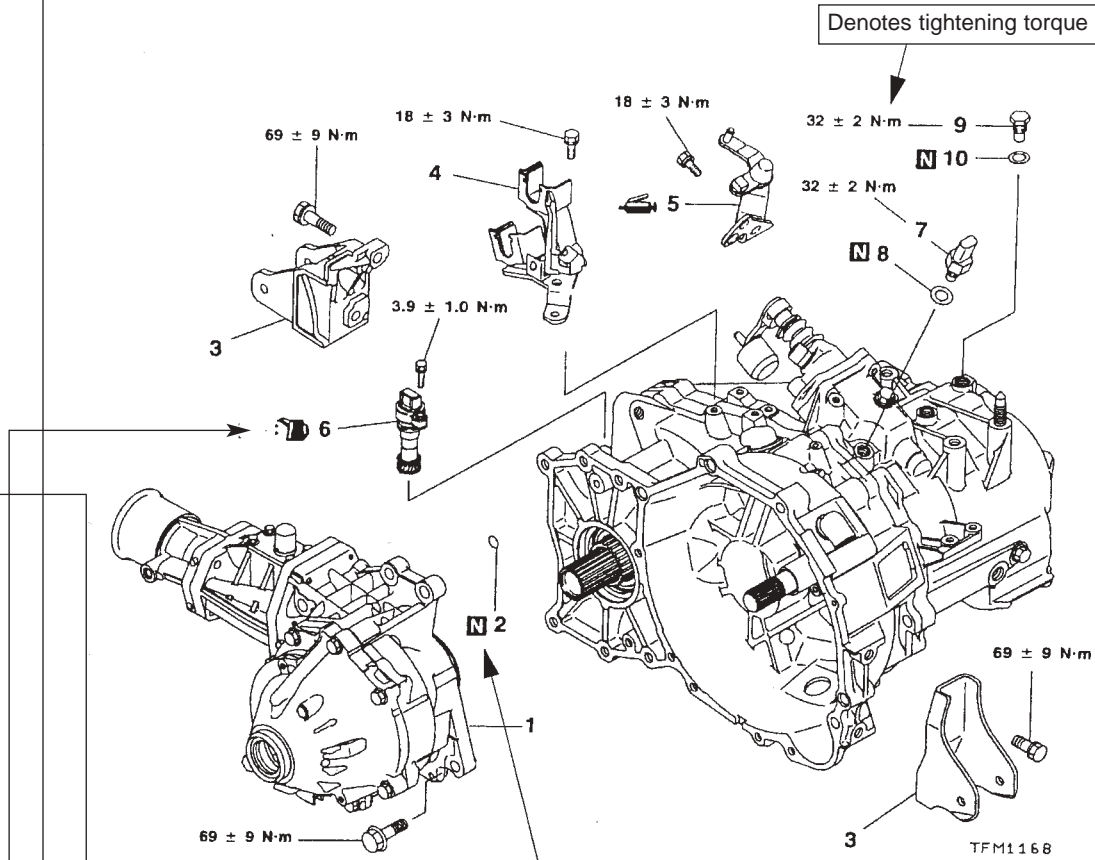
Section Title

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MANUAL TRANSMISSION - TRANSMISSION

Transmission

Dismantling / Assembling



**Dismantling Order**

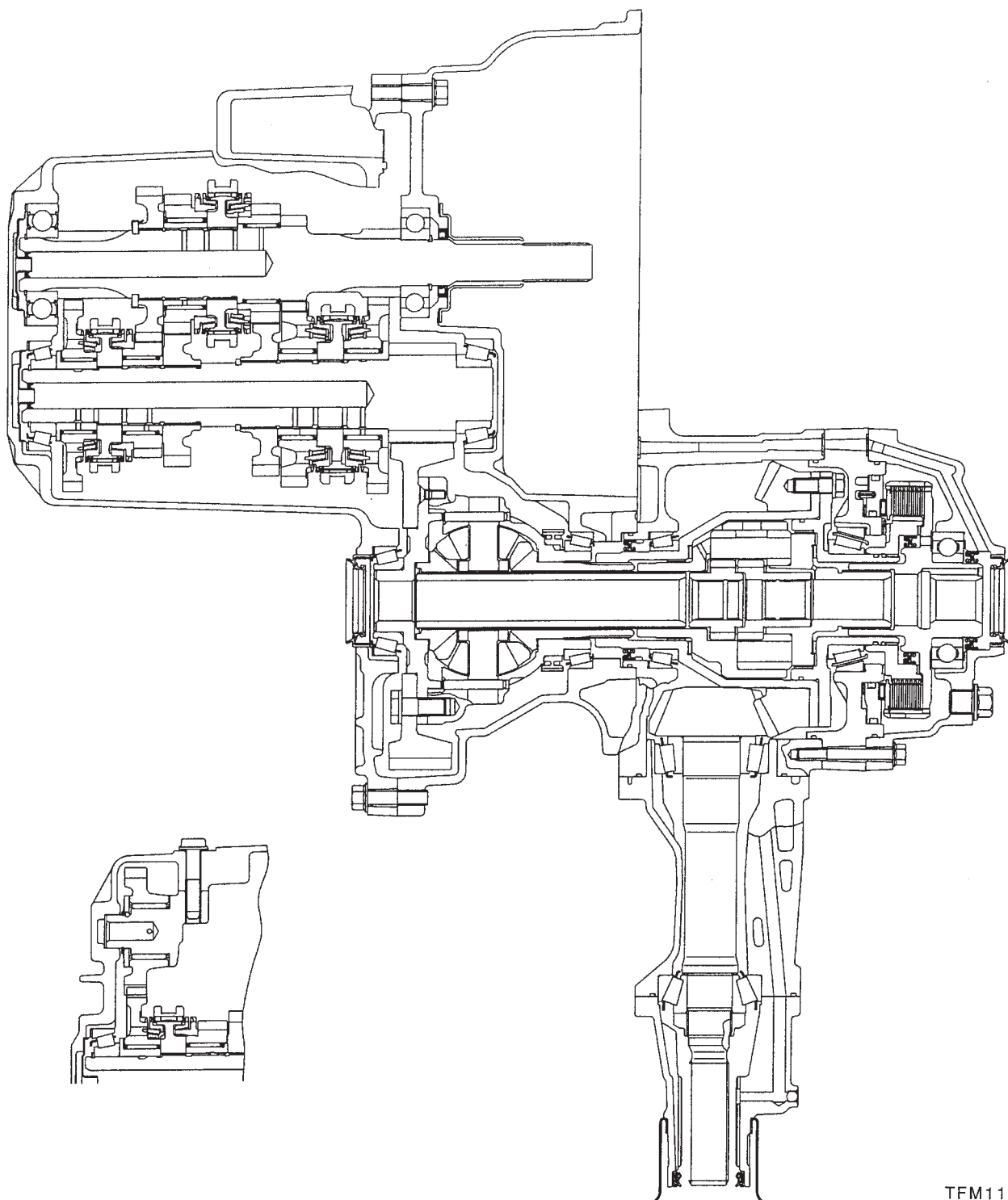
1. Transfer
2. O ring
3. Roll stopper bracket
4. Shift cable bracket
5. Select lever

- ▶\*◀ 6. Speedometer gear
- ▶\*◀ 7. Reversing light switch
- ▶\*◀ 8. Gasket
- ▶\*◀ 9. Poppet spring
- ▶\*◀ 10. Gasket

Denotes part that cannot be re-used

## OVERVIEW

### Cross Section



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## Specifications

### Transmission Type

Transmission Type	Speedometer Gear Ratio	Final Reduction Gear Ratio	Front LSD?	Vehicle Type	Engine Type
W5M51-2-X5BA	28/36	4.529	Yes	CT9A	4G63-I/C-T/C

### Gear Ratio Table

1st gear	2.785
2nd gear	1.950
3rd gear	1.444
4th gear	1.096
5th gear	0.825
Reverse	3.416
Transfer gear ratio	0.3023

### Maintenance Standards

Item	Standard (mm)	Limit (mm)
Clearance between rear surface of synchroniser ring and gear	-	0.5

## Tightening Torques

### Transmission

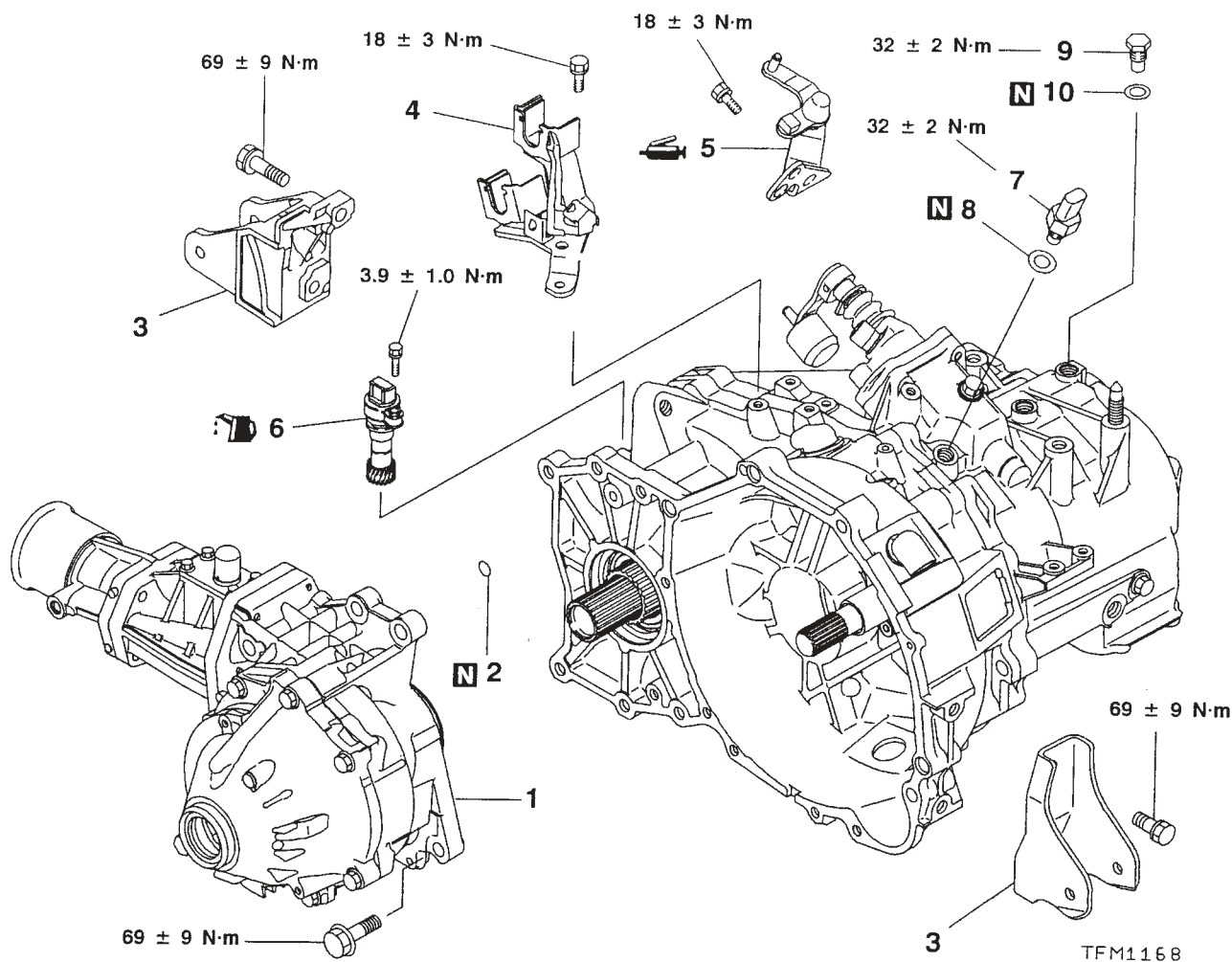
Item	Tightening Torque (N•m)
Cover fitting bolts	6.9 ± 1.0
Interlock plate bolts	30 ± 3
Clutch housing and transmission case tightening bolts	44 ± 5
Control housing fitting bolts	18 ± 3
Shift cable bracket fitting bolts	18 ± 3
Speedometer gear fitting bolts	3.9 ± 1.0
Stopper bracket fitting bolts	18 ± 3
Select lever fitting bolts	18 ± 3
Reversing light switch	32 ± 2
Poppet spring	32 ± 2
Reverse idler gear shaft fitting bolts	48 ± 5
Roll stopper bracket fitting bolts	69 ± 9

### Transfer

Item	Tightening Torque (N•m)
Transmission and transfer tightening bolts	69 ± 9

## Transmission

### Dismantling / Assembling

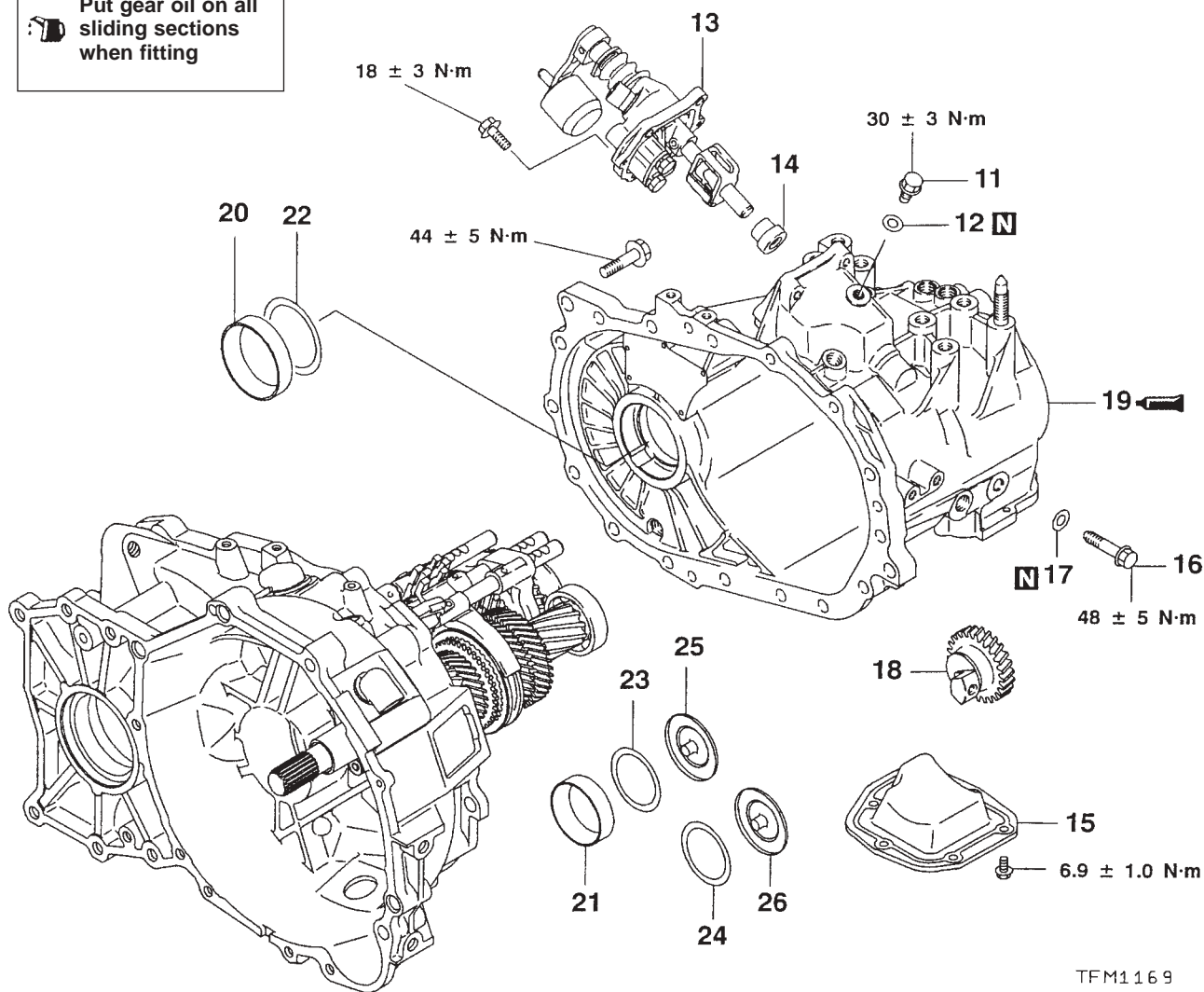


#### Dismantling Order

1. Transfer
2. O ring
3. Roll stopper bracket
4. Shift cable bracket
5. Select lever

- \*◄ 6. Speedometer gear
7. Reversing light switch
8. Gasket
- \*◄ 9. Poppet spring
- \*◄ 10. Gasket

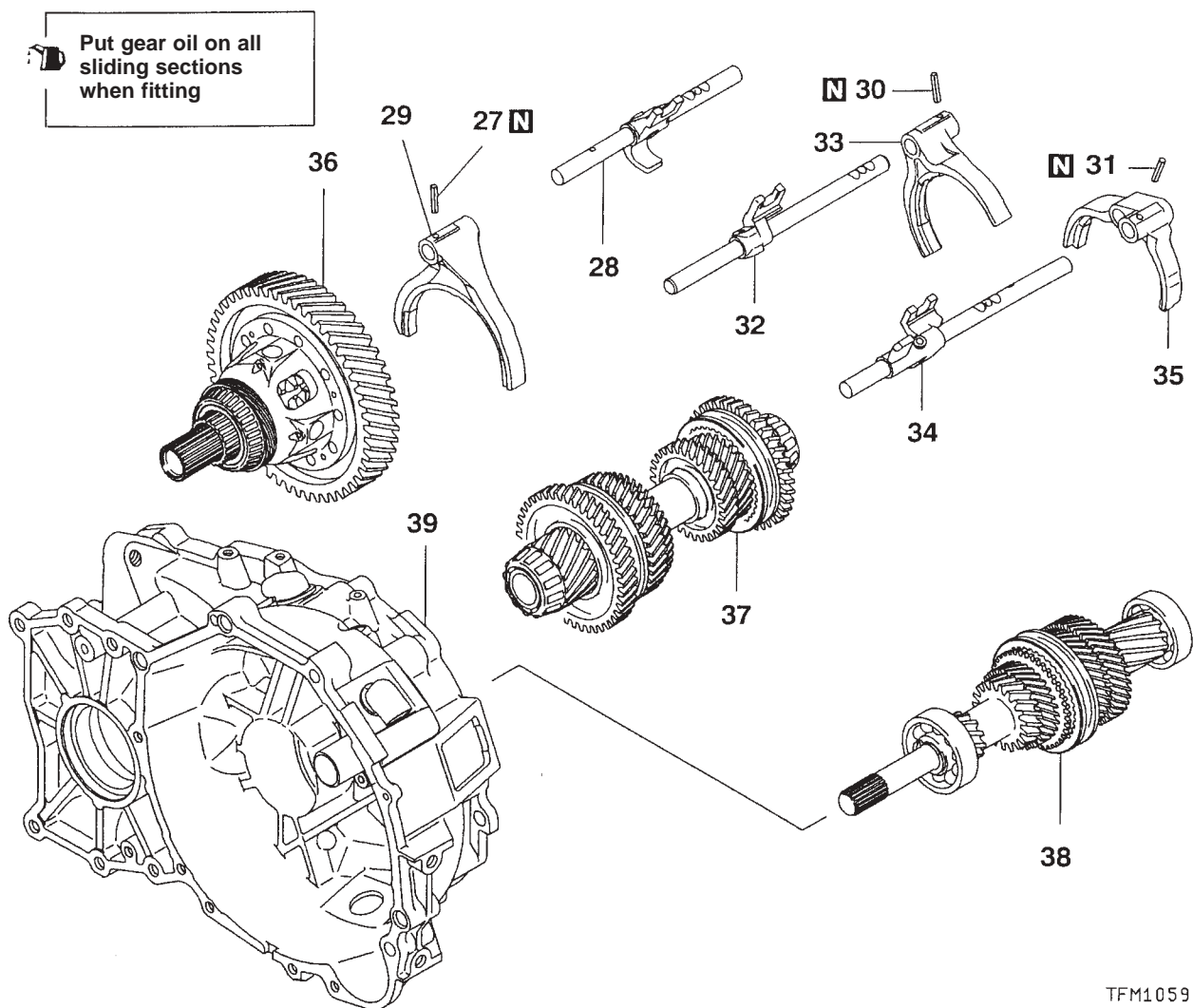
Put gear oil on all sliding sections when fitting



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### Dismantling Order

- |     |                      |                          |     |                   |           |
|-----|----------------------|--------------------------|-----|-------------------|-----------|
| 11. | Interlock plate bolt | ▶*◀                      | 19. | Transmission case |           |
| 12. | Gasket               |                          | 20. | Outer race        |           |
| ▶*◀ | 13.                  | Control housing          | 21. | Outer race        |           |
|     | 14.                  | Neutral return spring    | ▶*◀ | 22.               | Spacer    |
| ▶*◀ | 15.                  | Cover                    | ▶*◀ | 23.               | Spacer    |
|     | 16.                  | Reverse idler shaft bolt | ▶*◀ | 24.               | Spacer    |
|     | 17.                  | Gasket                   |     | 25.               | Oil guide |
|     | 18.                  | Reverse idler gear       |     | 26.               | Oil guide |



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**Dismantling Order**

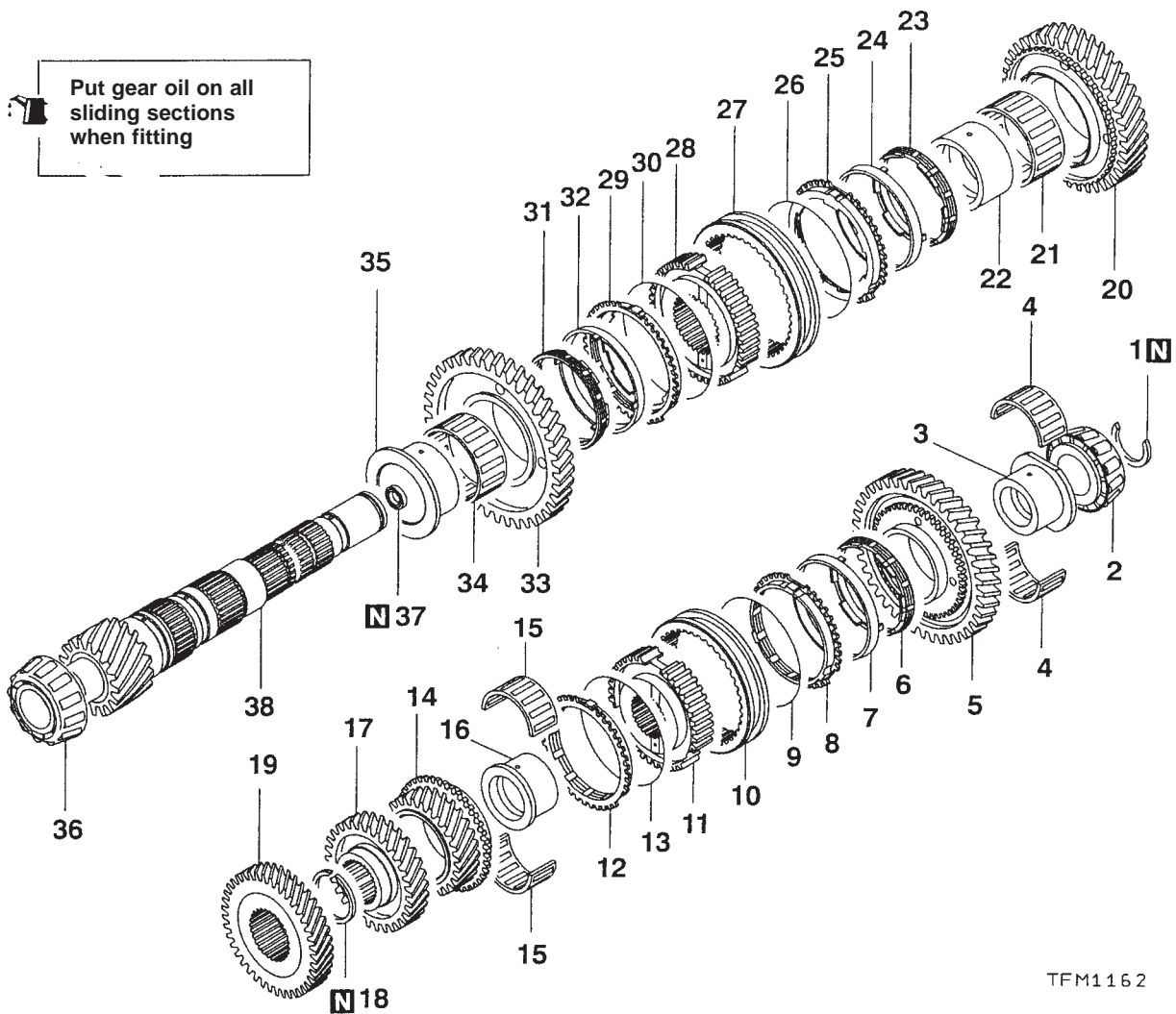
- \*◄ 27. Spring pin
- ◄\*► ►\*◄ 28. 1st-2nd gear shift rail
- ◄\*► ►\*◄ 29. 1st-2nd gear shift fork
- ◄\*► ►\*◄ 30. Spring pin
- ◄\*► ►\*◄ 31. Spring pin
- ◄\*► ►\*◄ 32. 3rd-4th gear shift rail
- ◄\*► ►\*◄ 33. 3rd-4th gear shift fork

- ◄\*► ►\*◄ 34. 5th gear-Reverse shift rail
- ◄\*► ►\*◄ 35. 5th gear-Reverse shift fork
- ◄\*► ►\*◄ 36. Centre differential
- ◄\*► ►\*◄ 37. Output shaft
- ◄\*► ►\*◄ 38. Input shaft
- ◄\*► ►\*◄ 39. Clutch housing



## Output Shaft

### Dismantling / Assembling



#### Dismantling Order

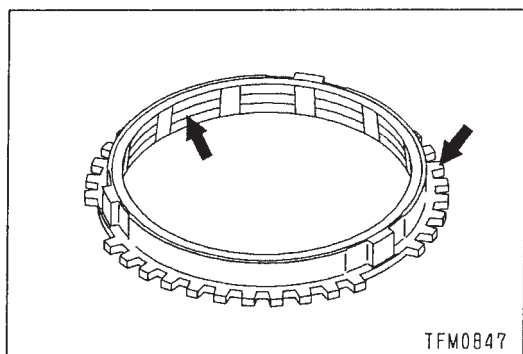
- |     |                                       |     |                                   |
|-----|---------------------------------------|-----|-----------------------------------|
| ▶*◀ | 1. Snap ring                          | ▶*◀ | 18. Snap ring                     |
| ◀*▶ | 2. Tapered roller bearing             | ◀*▶ | 19. 3rd gear                      |
| ◀*▶ | 3. Reverse gear sleeve                |     | 20. 2nd gear                      |
| ▶*◀ | 4. Needle roller bearing              |     | 21. Needle roller bearing         |
| ▶*◀ | 5. Reverse gear                       |     | 22. 2nd gear sleeve               |
|     | 6. Inner synchroniser ring            |     | 23. Inner synchroniser ring       |
|     | 7. Synchroniser cone                  |     | 24. Synchroniser cone             |
|     | 8. Outer synchroniser ring            |     | 25. Outer synchroniser ring       |
| ▶*◀ | 9. Synchroniser spring                | ▶*◀ | 26. Synchroniser spring           |
| ▶*◀ | 10. Synchroniser sleeve               | ▶*◀ | 27. Synchroniser sleeve           |
| ◀*▶ | 11. 5th gear-Reverse synchroniser hub | ▶*◀ | 28. 1st-2nd gear synchroniser hub |
|     | 12. Synchroniser ring                 |     | 29. Outer synchroniser ring       |
| ▶*◀ | 13. Synchroniser spring               | ▶*◀ | 30. Synchroniser spring           |
|     | 14. 5th gear                          |     | 31. Inner synchroniser ring       |
|     | 15. Needle roller bearing             |     | 32. Synchroniser cone             |
| ▶*◀ | 16. 5th gear sleeve                   |     | 33. 1st gear                      |
| ▶*◀ | 17. 4th gear                          |     | 34. Needle roller bearing         |

**Dismantling Order**

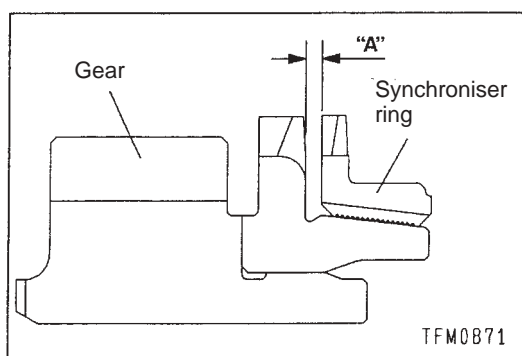
35. 1st gear sleeve  
36. Tapered roller bearing



37. Oil seal  
38. Output shaft

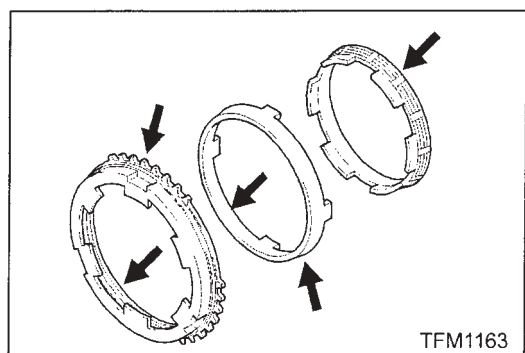
**Checks****Synchroniser ring (for 5th gear)**

1. There must be no scratching / damage on clutch gear teeth surfaces.
2. There must be no scratching / wear / squashed threads on inside diameter of cone.



3. Push synchroniser ring up against gear and check Clearance A. If clearance is below limit, replace ring.

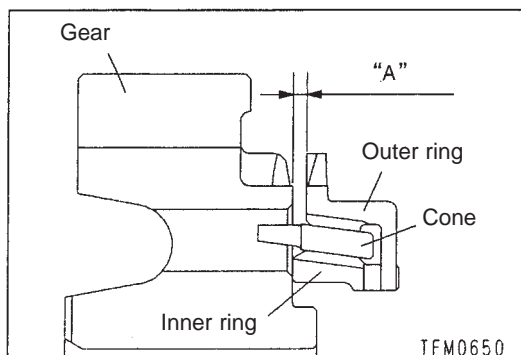
**Limit: 0.5 mm**

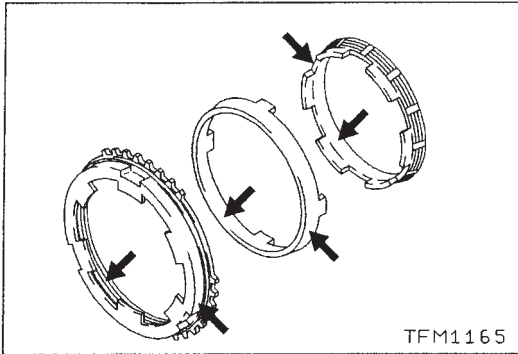
**Outer synchroniser ring, inner synchroniser ring and synchroniser cone (for Reverse)****Note**

**These 3 parts should be replaced as a set, not separately.**

1. There must be no scratching / damage on the gear teeth surfaces or the cone surface.
2. Assemble the outer ring, inner ring and the cone, push them up against the gear and check Clearance A. If it is below the limit, replace them.

**Limit: 0.5 mm**



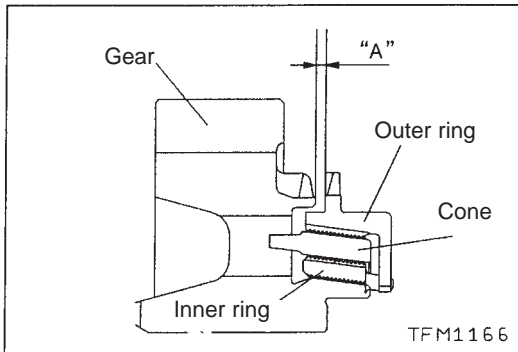


**Outer synchroniser ring, inner synchroniser ring, synchroniser cone (for 1st, 2nd gears)**

**Note**

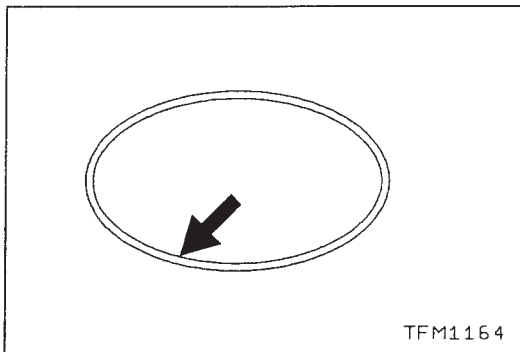
**These 3 parts should be replaced as a set, not separately.**

1. There must be no scratching / damage on the gear teeth surfaces or the cone surface.



2. Assemble the outer ring, inner ring and the cone, push them up against the gear and check Clearance A. If it is below the limit, replace them.

**Limit: 0.5 mm**

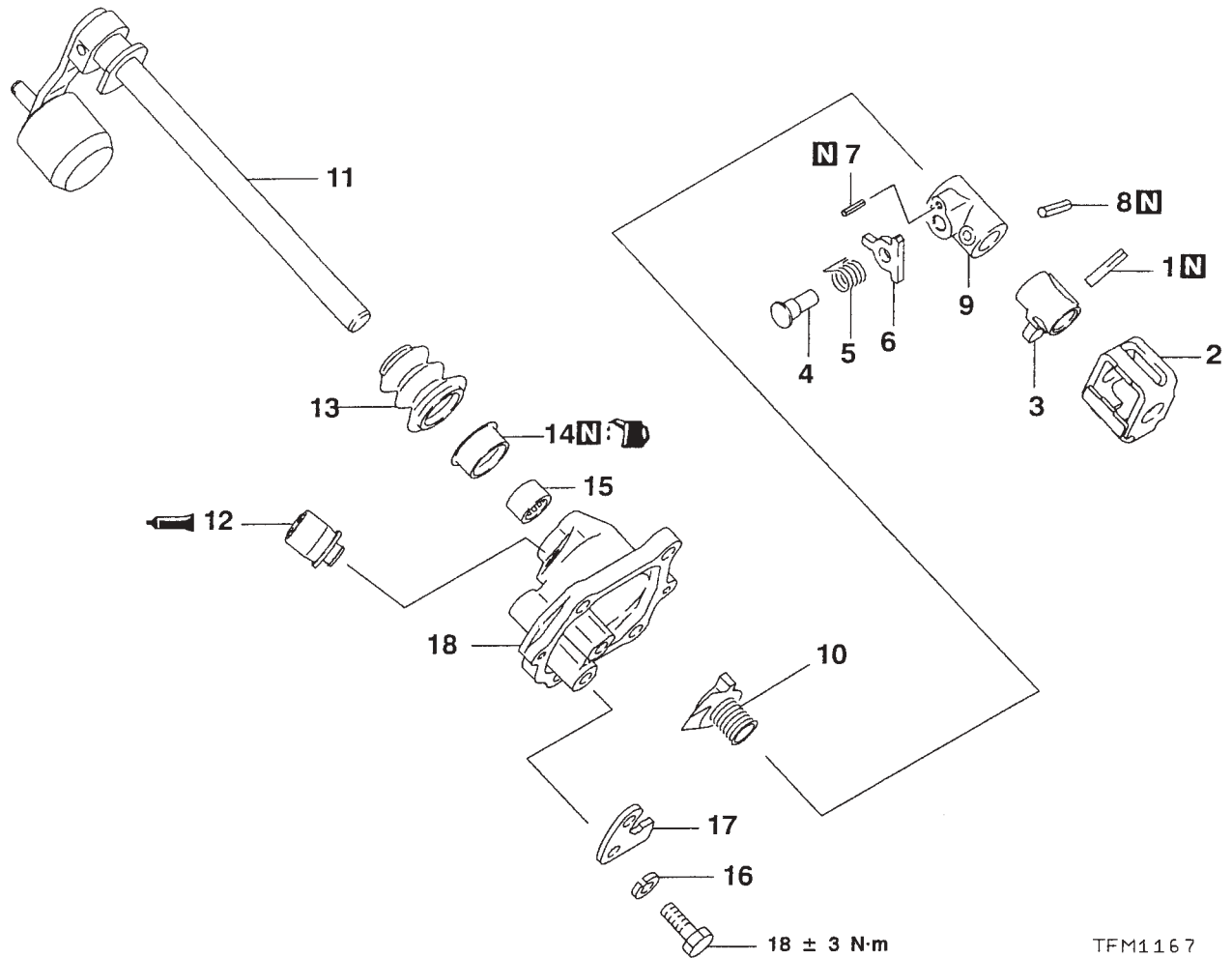


**Synchroniser spring**

Spring must not be weakened, deformed or broken.

## Control Housing

### Dismantling / Assembling



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#### Dismantling Order

◀\*▶ ▶\*◀

1. Lock pin
2. Interlock plate
3. Control finger
4. Pin
5. Return spring
6. Stopper plate
- ▶\*◀ 7. Spring pin
- ▶\*◀ 8. Spring pin
9. Stopper body

▶\*◀

▶\*◀

▶\*◀

10. Neutral return spring
11. Control shaft
12. Air breather
13. Control shaft boot
14. Oil seal
15. Needle bearing
16. Spring washer
17. Stopper bracket
18. Control housing