

MANUAL TRANSAXLE SYSTEM

PROBLEM SYMPTOMS TABLE

Use the table below to help you find the cause of the problem. The numbers indicate the ranked order of probability of each of the possible causes. Check each part in order. Replace parts as necessary.

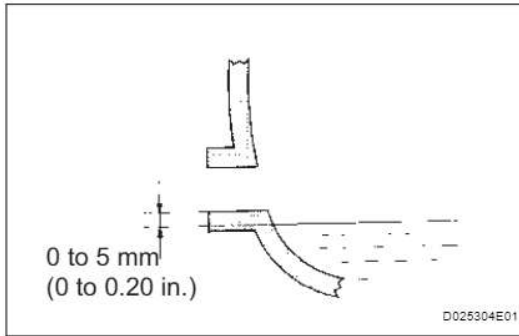
Manual transaxle system (MTM)

Symptom	Suspected area	See page
Noise	1. Oil (Level low)	MX-2
	2. Oil (Wrong)	MX-2
	3. Gear (Worn or damaged)	MX-54
	-	MX-79
	-	MX-89
	4. Bearing (Worn or damaged)	MX-40
	-	MX-79
	-	MX-89
Oil leakage	1. Oil (Level too high)	MX-2
	2. Gasket (Damaged)	MX-40
	3. Oil seal (Worn or damaged)	MX-5
	-	MX-99
	4. O-Ring (Worn or damaged)	MX-40
Hard to shift or will not shift	1. Control cable assembly	MX-13
	2. Synchronizer ring (Worn or damaged)	MX-54
	-	MX-79
	-	MX-89
	3. Shift key spring (Damaged)	MX-40
	-	MX-77
	-	MX-87
Jumps out of gear	1. Locking ball spring (Damaged)	MX-40
	2. Shift fork (Worn)	MX-54
	-	MX-79
	-	MX-89
	3. Gear (Worn or damaged)	MX-54
	-	MX-79
	-	MX-89
	4. Bearing (Worn or damaged)	MX-40
	-	MX-79
	-	MX-89

MX

MX-2

E351 MANUAL TRANSAXLE – MANUAL TRANSAXLE OIL



MANUAL TRANSAXLE OIL

ON-VEHICLE INSPECTION

1. INSPECT MANUAL TRANSAXLE OIL

- Stop the vehicle on a level surface.
- Remove the transmission filler plug and gasket.
- Check that the oil surface is within 5 mm (0.20 in.) of the bottom of the transmission filler plug opening.

NOTICE:

- Excessively large or small amounts of oil may cause trouble.**
- After replacing the oil, drive the vehicle and check the oil level again.**

HINT:

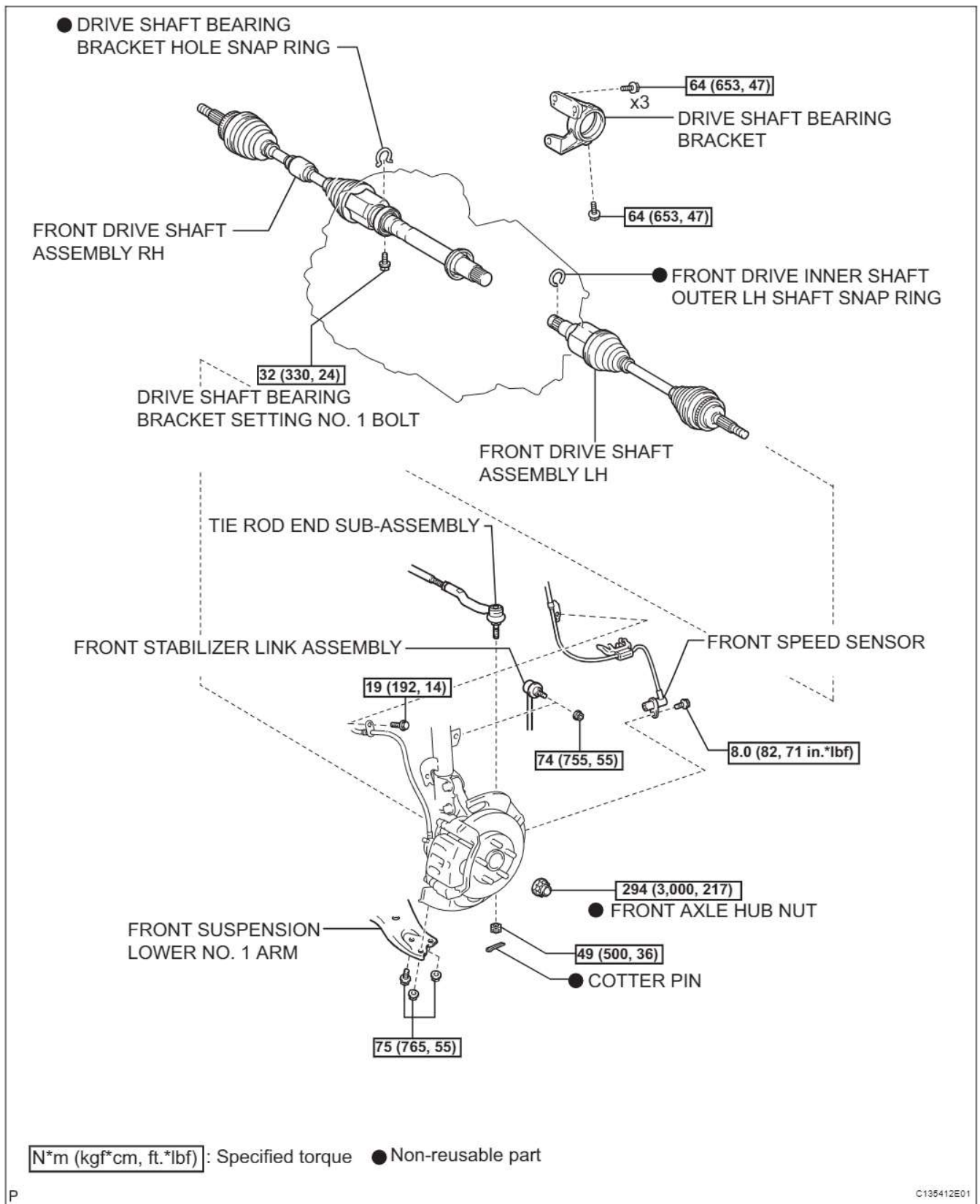
Insert your finger into the filler plug hole. You should be able to just touch the surface of the oil if the oil is at the correct level.

- Check for oil leakage if the oil level is low.
- Install the transmission filler plug and a new gasket.

Torque: 49 N*m (500 kgf*cm, 36 ft.*lbf)

DIFFERENTIAL OIL SEAL

COMPONENTS



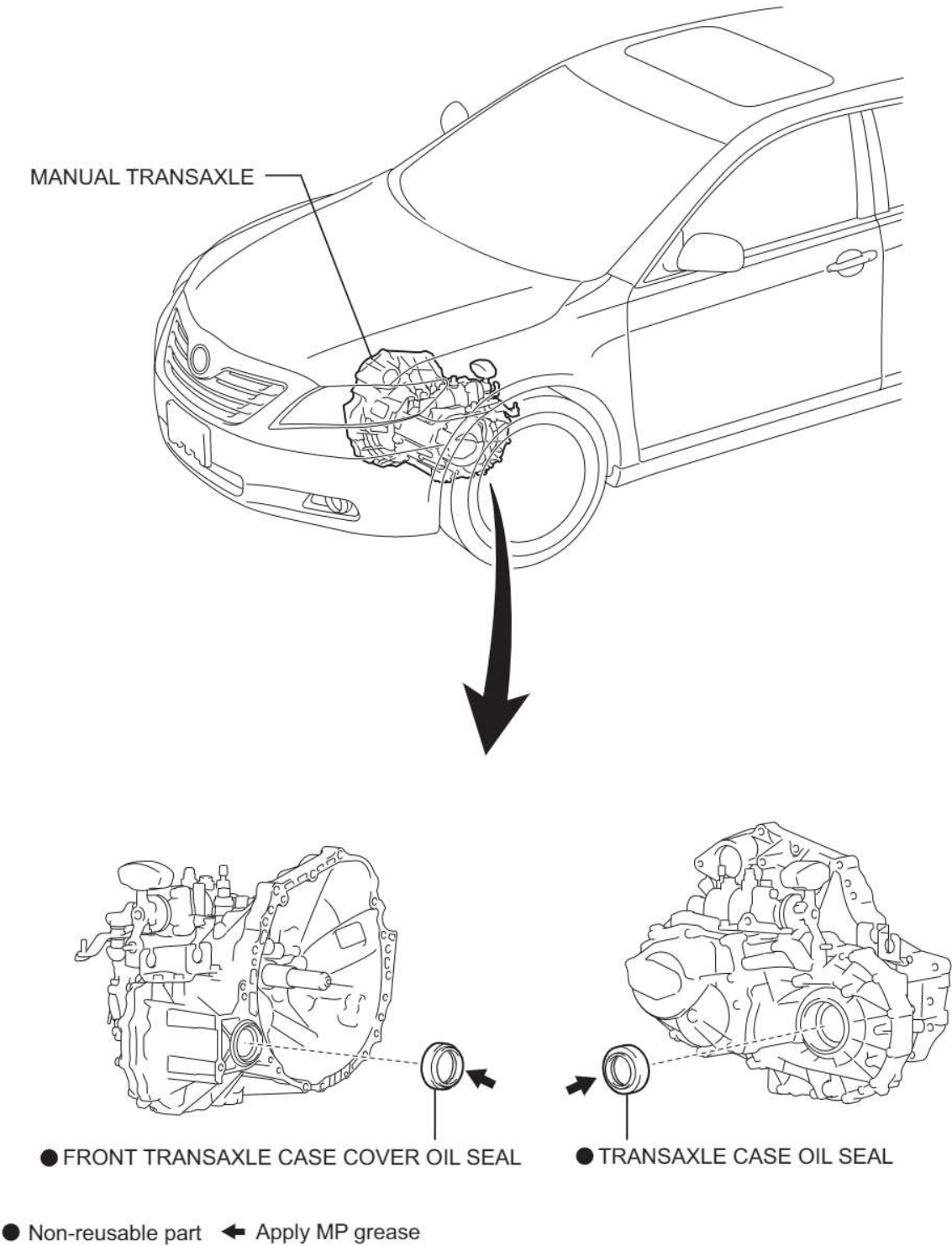
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MX-4

E351 MANUAL TRANSAXLE – DIFFERENTIAL OIL SEAL

MX

MANUAL TRANSAXLE



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E351 MANUAL TRANSAXLE – DIFFERENTIAL OIL SEAL**MX-5****REMOVAL****HINT:**

- Use the same procedures for the RH side (transaxle case oil seal) and LH side (transaxle case cover oil seal).
- The procedures listed below are for the LH side (transaxle case cover oil seal).

1. DRAIN MANUAL TRANSAXLE OIL

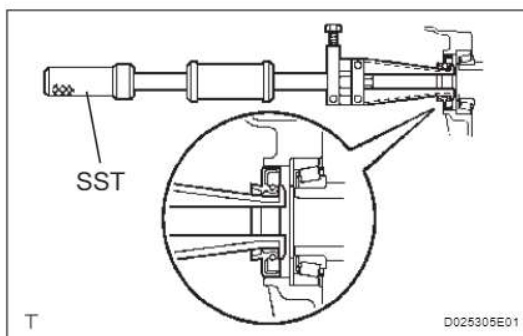
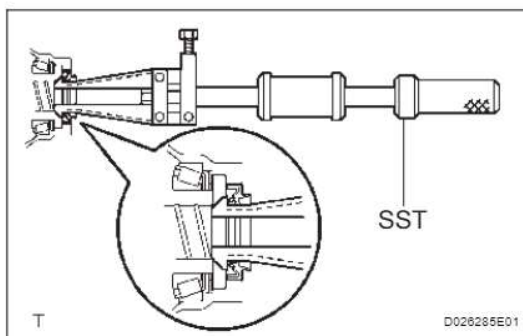
- Remove the filler plug and the gasket.
- Remove the drain plug and gasket, and drain the manual transaxle oil.
- Install a new gasket and the drain plug.
Torque: 49 N*m (500 kgf*cm, 36 ft.*lbf)

2. REMOVE FRONT WHEELS**3. REMOVE FRONT DRIVE SHAFT ASSEMBLY LH**TMC made: (See page [DS-7](#)).TMMK made: (See page [DS-25](#)).**4. REMOVE FRONT DRIVE SHAFT ASSEMBLY RH****HINT:**

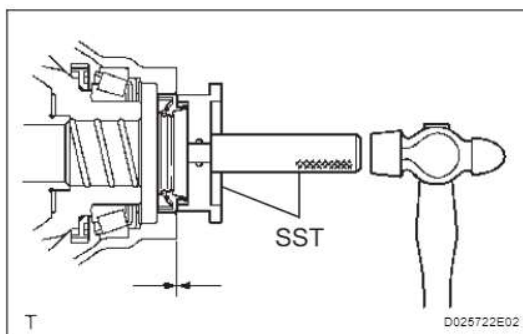
Use the same procedures described for the LH side.

5. REMOVE FRONT TRANSAXLE CASE COVER OIL SEAL

- Using SST, remove the oil seal.
SST 09308-00010

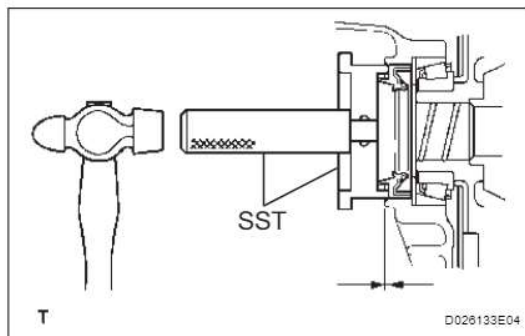
**6. REMOVE TRANSAXLE CASE OIL SEAL**

- Using SST, remove the oil seal.
SST 09308-00010

**INSTALLATION****1. INSTALL FRONT TRANSAXLE CASE COVER OIL SEAL**

- Coat a new oil seal lip with MP grease.
- Using SST and a hammer, install the oil seal.
SST 09608-10010, 09950-70010 (09951-07200)
Installation depth:
-0.5 to 0.5 mm (-0.020 to 0.020 in.)

NOTICE:**Be careful not to damage the oil seal lip.**

MX-6**E351 MANUAL TRANSAXLE – DIFFERENTIAL OIL SEAL****2. INSTALL TRANSAXLE CASE OIL SEAL**

- (a) Coat a new oil seal lip with MP grease.
- (b) Using SST and a hammer, install the oil seal.

SST 09608-32010, 09950-70010 (09951-07200)

Installation depth:

3.0 to 4.0 mm (0.1181 to 0.1575 in.)

NOTICE:

Be careful not to damage the oil seal lip.

3. INSTALL FRONT DRIVE SHAFT ASSEMBLY LH

TMC made: (See page [DS-20](#)).

TMMK made: (See page [DS-34](#)).

4. INSTALL FRONT DRIVE SHAFT ASSEMBLY RH

HINT:

Use the same procedures described for the LH side.

5. INSTALL FRONT WHEELS

Torque: 103 N*m (1,050 kgf*cm, 76 ft.*lbf)

6. ADD MANUAL TRANSAXLE OIL

- (a) Park the vehicle on a level place.
- (b) Remove the filler plug and gasket.
- (c) Check that the oil surface is within 5 mm (0.20 in.) below the lowest point of the filler plug opening.

Oil grade:

API GL-4 or GL-5

Viscosity:

SAE 75W-90

NOTICE:

- Problems may occur if the oil level is too high or too low.
- After replacing the oil, drive the vehicle and check the oil level again.

(d) Check for oil leakage if the oil level is low.

(e) Install the filler plug and a new gasket.

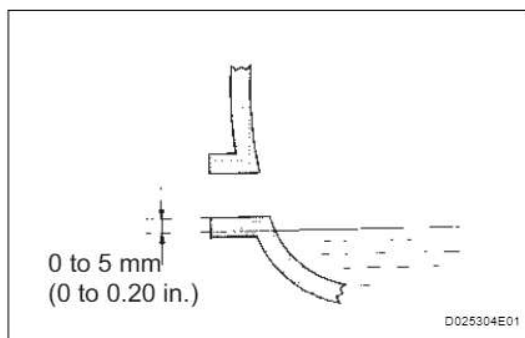
Torque: 49 N*m (500 kgf*cm, 36 ft.*lbf)

7. INSPECT MANUAL TRANSAXLE OIL**8. INSPECT AND ADJUST FRONT WHEEL ALIGNMENT**

See page [SP-4](#).

9. CHECK ABS SPEED SENSOR SIGNAL

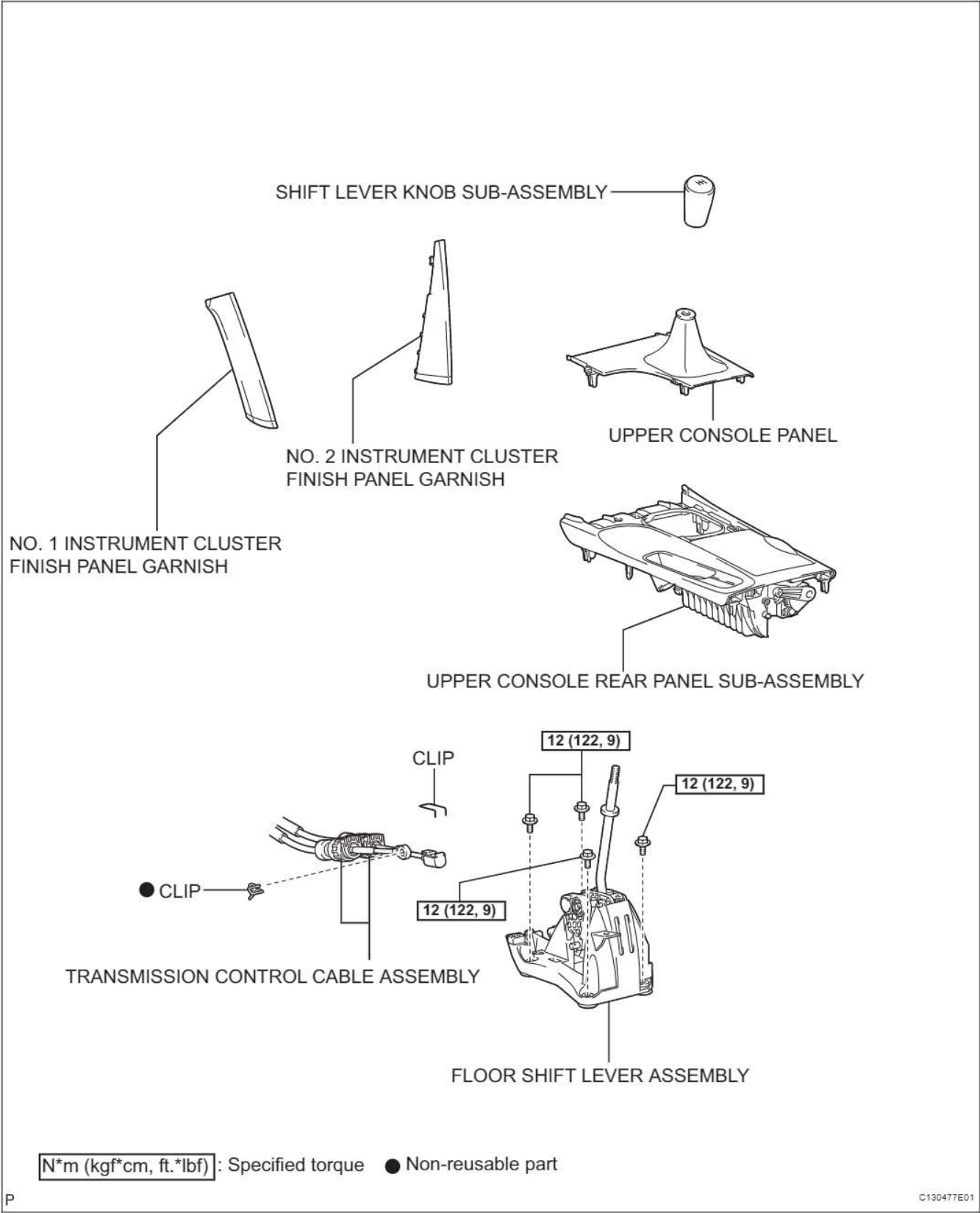
See page [BC-11](#).

**MX**

FLOOR SHIFT LEVER ASSEMBLY

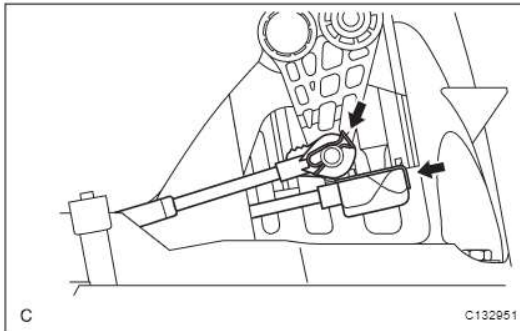
COMPONENTS

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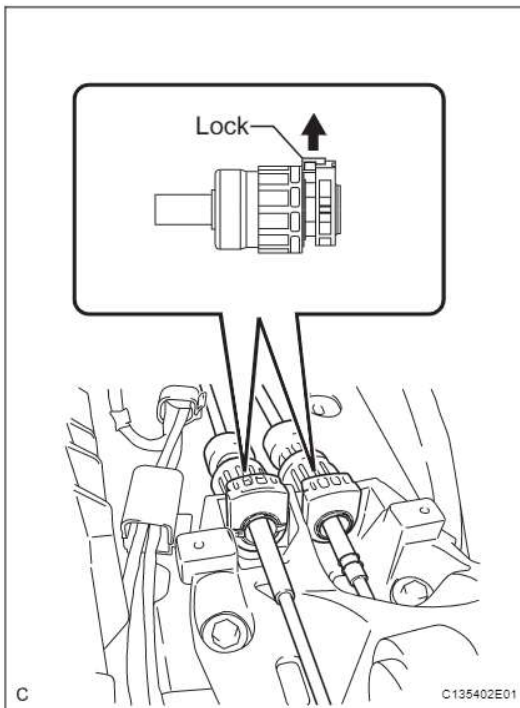


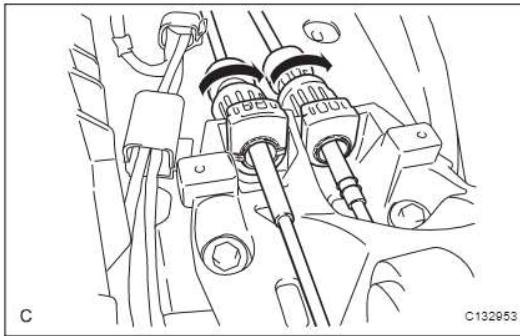
MX-8**E351 MANUAL TRANSAXLE – FLOOR SHIFT LEVER ASSEMBLY****REMOVAL**

1. REMOVE NO. 1 INSTRUMENT CLUSTER FINISH PANEL GARNISH (See page [IP-24](#))
2. REMOVE NO. 2 INSTRUMENT CLUSTER FINISH PANEL GARNISH (See page [IP-25](#))
3. REMOVE SHIFT LEVER KNOB SUB-ASSEMBLY (See page [IP-24](#))
4. REMOVE UPPER CONSOLE PANEL (See page [IP-25](#))
5. REMOVE UPPER CONSOLE REAR PANEL SUB-ASSEMBLY (See page [IP-26](#))
6. **DISCONNECT TRANSMISSION CONTROL CABLE ASSEMBLY**
 - (a) Remove the 2 clips and disconnect the end of the transmission control cable.

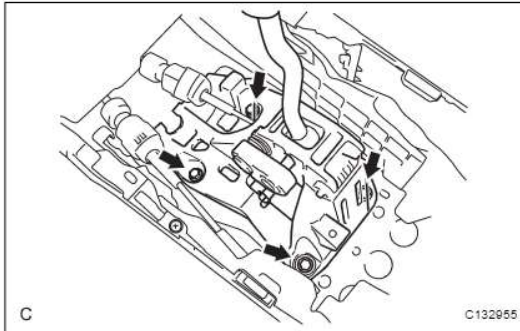


- (b) Pull out the control cable assembly locks.

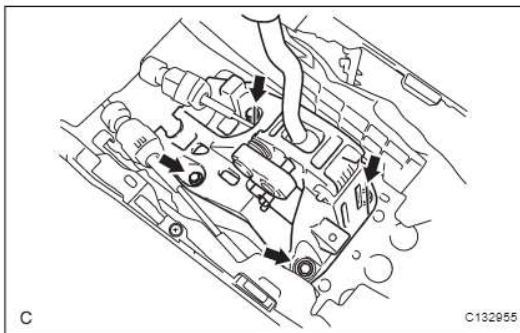


E351 MANUAL TRANSAXLE – FLOOR SHIFT LEVER ASSEMBLY**MX-9****MX**

- (c) Turn the adjust nut 180° clockwise. While holding the adjust nut, separate the control cable assembly.

**7. REMOVE FLOOR SHIFT LEVER ASSEMBLY**

- (a) Remove the 4 bolts and shift lever assembly.

**INSTALLATION****1. INSTALL FLOOR SHIFT LEVER ASSEMBLY**

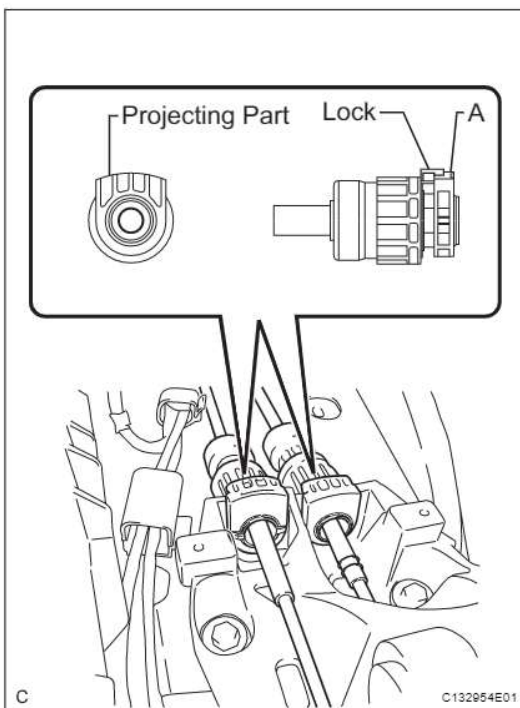
- (a) Install the shift lever assembly with the 4 bolts.
Torque: 12 N*m (122 kgf*cm, 9 ft.*lbf)

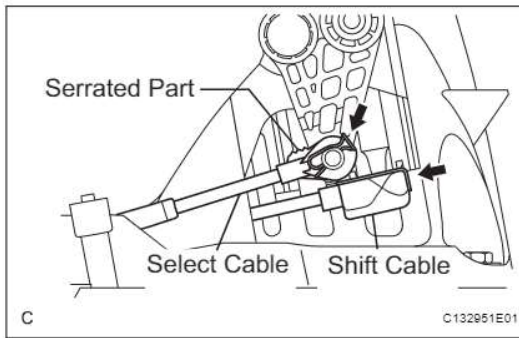
2. INSTALL TRANSMISSION CONTROL CABLE ASSEMBLY

- (a) Connect the control cable to the shift lever retainer.

NOTICE:

- The projecting part of the cable outer should face upward when the shift cable is connected.
- After installation, make sure that the cable outer lock is projecting from A as shown in the illustration.



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- (b) Connect the end of the shift cable to the shift lever assembly with the clip.
- (c) Connect the end of the select cable to the shift lever assembly with a new clip.

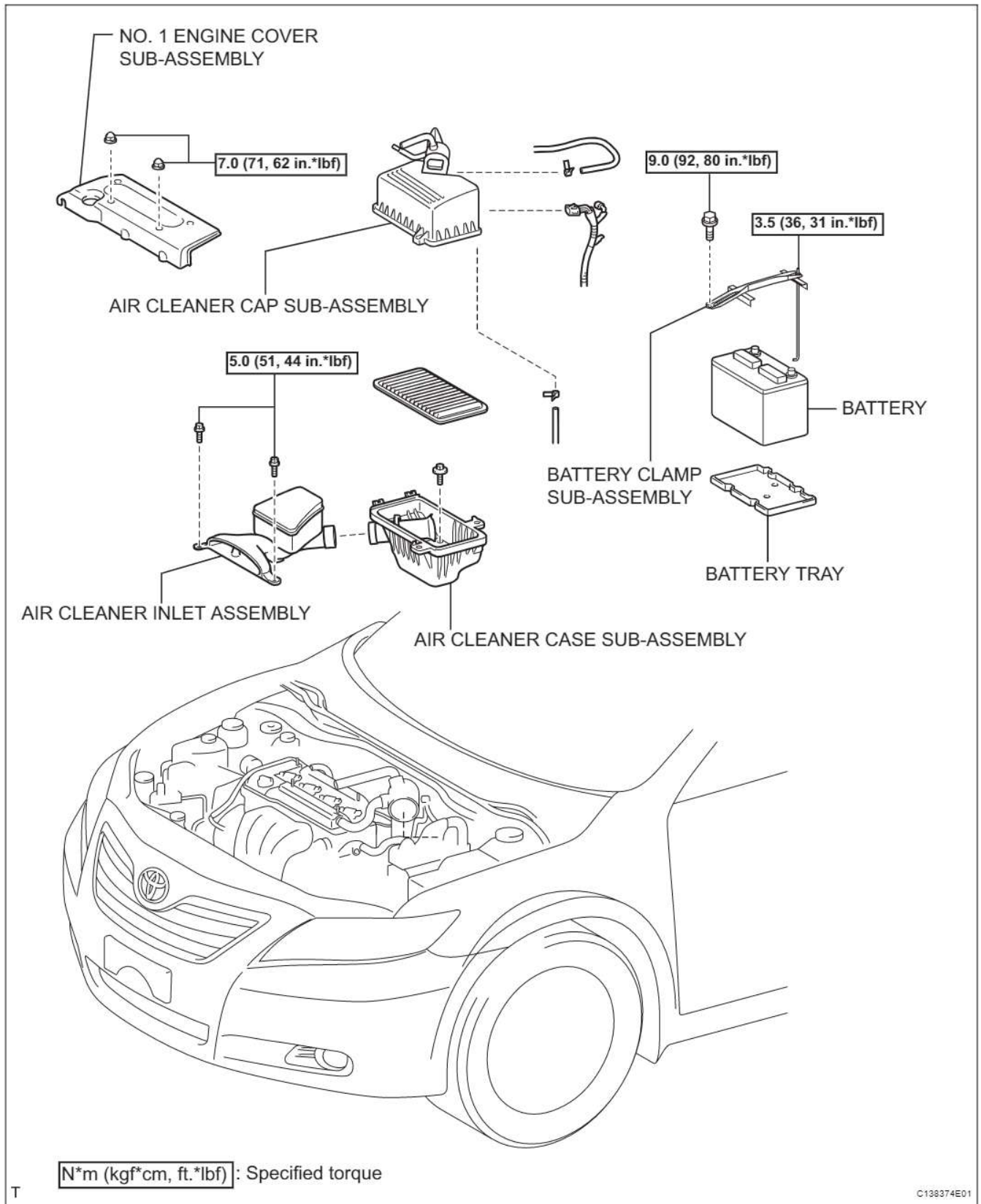
NOTICE:

- The serrated part of the select cable point should face upward when the select cable point is connected.
- The clip should be installed in the direction as shown in the illustration.

3. INSTALL UPPER CONSOLE REAR PANEL SUB-ASSEMBLY (See page [IP-53](#))
4. INSTALL UPPER CONSOLE PANEL (See page [IP-53](#))
5. INSTALL NO. 2 INSTRUMENT CLUSTER FINISH PANEL GARNISH (See page [IP-54](#))
6. INSTALL NO. 1 INSTRUMENT CLUSTER FINISH PANEL GARNISH (See page [IP-55](#))
7. INSTALL SHIFT LEVER KNOB SUB-ASSEMBLY (See page [IP-55](#))

TRANSMISSION CONTROL CABLE

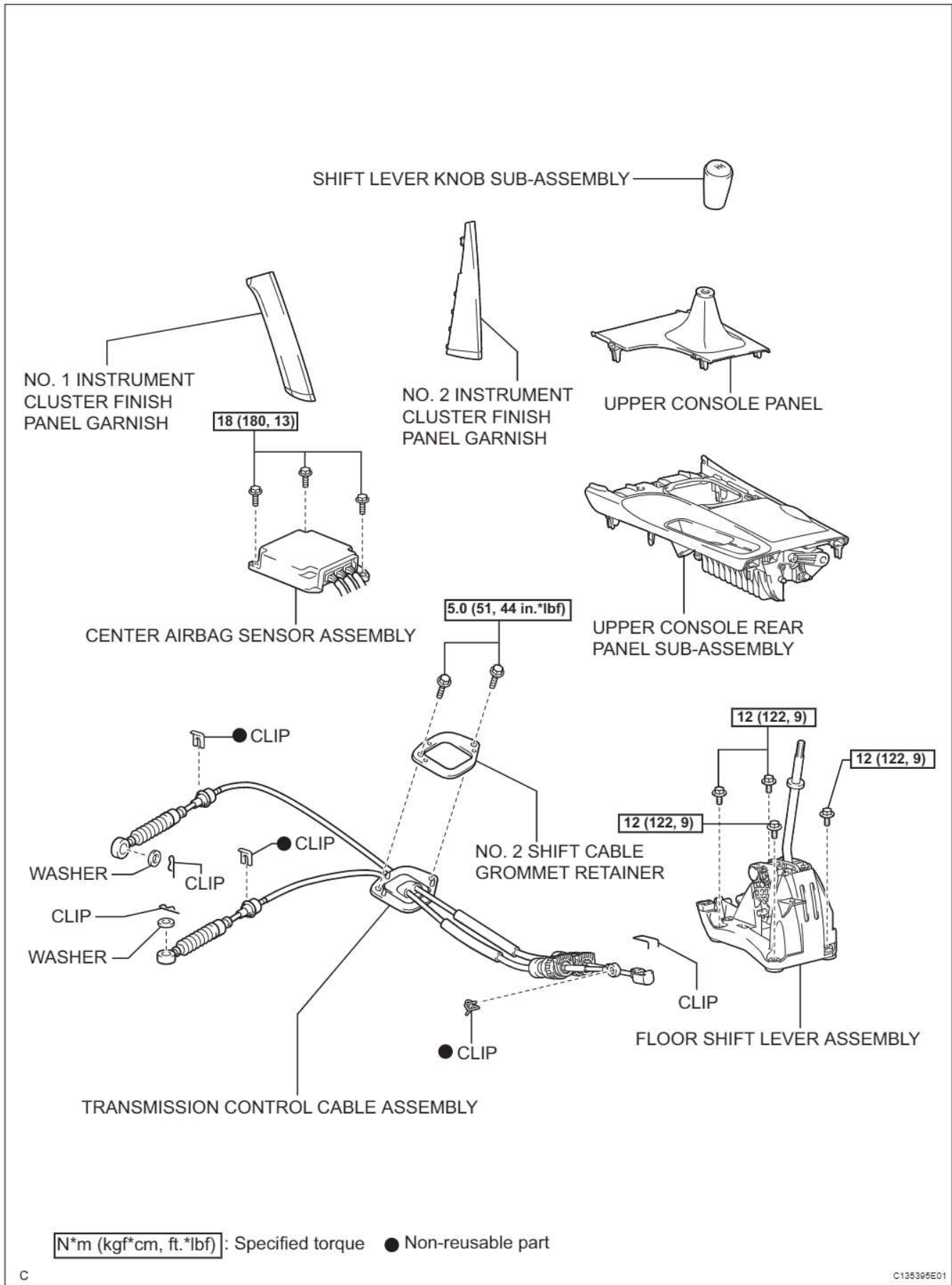
COMPONENTS



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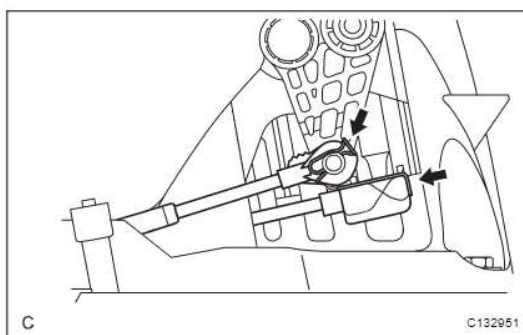
E351 MANUAL TRANSAXLE – TRANSMISSION CONTROL CABLE



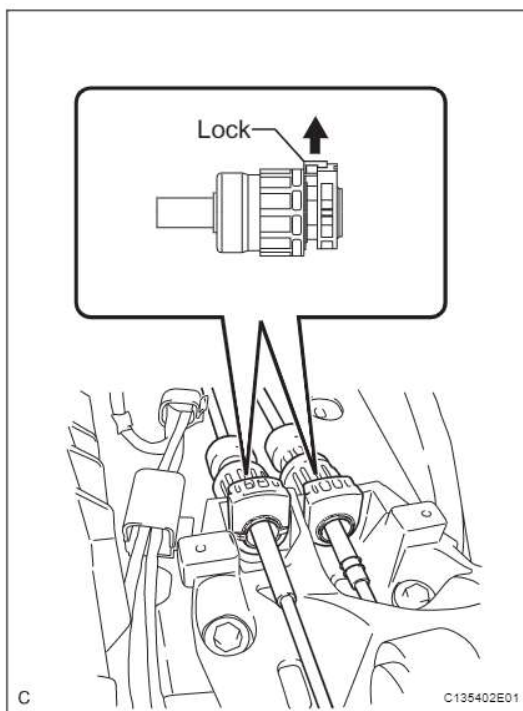
REMOVAL

1. DISCONNECT CABLE FROM NEGATIVE BATTERY TERMINAL
2. REMOVE NO. 1 INSTRUMENT CLUSTER FINISH PANEL GARNISH (See page [IP-24](#))
3. REMOVE NO. 2 INSTRUMENT CLUSTER FINISH PANEL GARNISH (See page [IP-25](#))
4. REMOVE SHIFT LEVER KNOB SUB-ASSEMBLY (See page [IP-24](#))
5. REMOVE UPPER CONSOLE PANEL (See page [IP-25](#))
6. REMOVE UPPER CONSOLE REAR PANEL SUB-ASSEMBLY (See page [IP-53](#))
7. SEPARATE TRANSMISSION CONTROL CABLE ASSEMBLY

(a) Remove the 2 clips and disconnect the end of the transmission control cable.



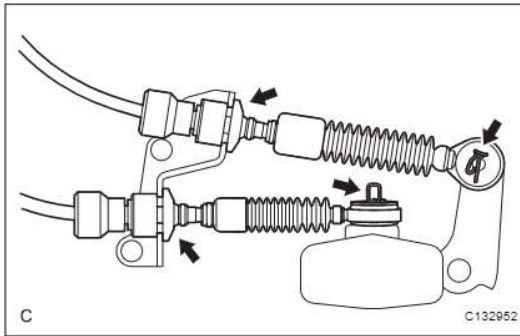
(b) Pull out the control cable assembly locks.
 (c) Turn the adjust nut 180° clockwise. While holding the adjust nut, separate the control cable assembly.



8. REMOVE INSTRUMENT PANEL SAFETY PAD SUB-ASSEMBLY
See page [IP-20](#).
9. REMOVE AIR CONDITIONER UNIT ASSEMBLY
See page [AC-151](#).
10. REMOVE CENTER AIRBAG SENSOR ASSEMBLY
(See page [RS-442](#))
11. REMOVE NO. 1 ENGINE COVER SUB-ASSEMBLY
(See page [EM-94](#))
12. REMOVE AIR CLEANER INLET ASSEMBLY (See page [EM-94](#))
13. REMOVE AIR CLEANER CAP SUB-ASSEMBLY (See page [ES-416](#))
14. REMOVE AIR CLEANER CASE SUB-ASSEMBLY (See page [EM-95](#))
15. REMOVE BATTERY (See page [EM-95](#))

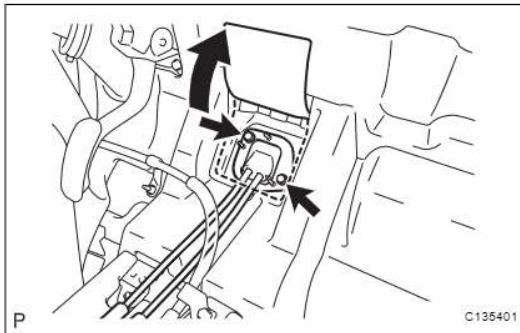
MX-14

E351 MANUAL TRANSAXLE – TRANSMISSION CONTROL CABLE

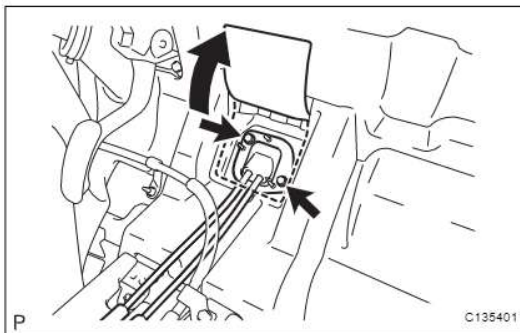


16. REMOVE TRANSMISSION CONTROL CABLE ASSEMBLY

- (a) Remove the 2 clips and 2 washers and disconnect the 2 cables from the transaxle.
- (b) Remove the 2 clips and disconnect the 2 cables from the control cable bracket.



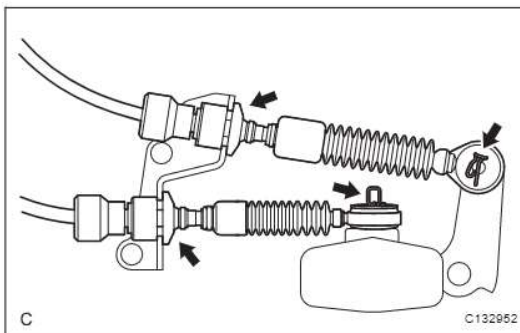
- (c) Remove the 2 bolts and control cable assembly.
- (d) Remove the No. 2 shift cable grommet retainer from the control cable assembly.

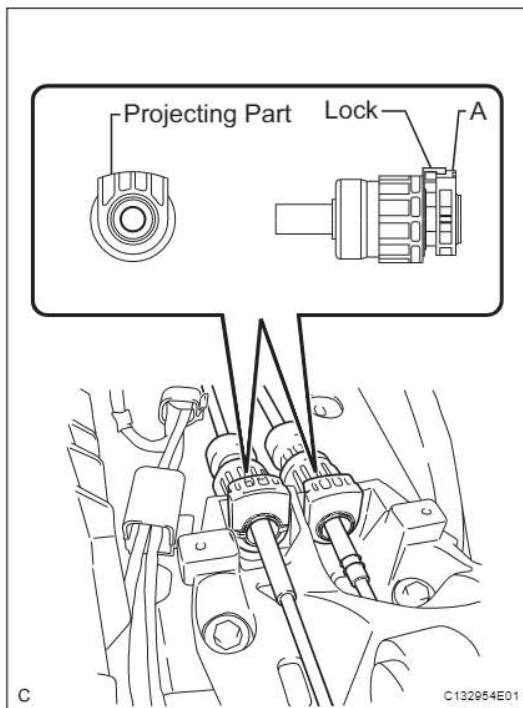


INSTALLATION

1. INSTALL TRANSMISSION CONTROL CABLE ASSEMBLY

- (a) Install the No. 2 shift cable grommet retainer to the transmission control cable assembly.
- (b) Install the control cable assembly through the floor hole.
- (c) Install the control cable assembly with the 2 bolts.
Torque: 5.0 N*m (51 kgf*cm, 44 in.*lbf)
- (d) Connect the ends of the 2 cables and install the 2 washers and 2 clips.
- (e) Install 2 new clips to the control cable bracket.

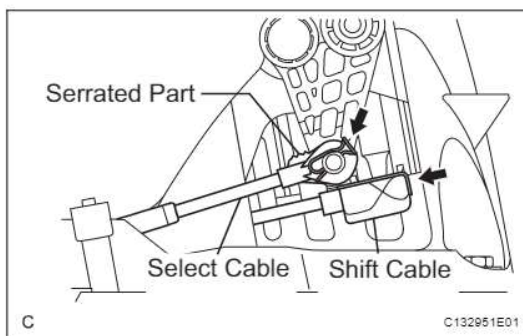


E351 MANUAL TRANSAXLE – TRANSMISSION CONTROL CABLE**MX-15****2. INSTALL TRANSMISSION CONTROL CABLE ASSEMBLY**

- (a) Connect the control cable to the shift lever retainer.

NOTICE:

- The projecting part of the cable outer should face upward when the shift cable is connected.
- After installation, make sure that the cable outer lock is projecting from A as shown in the illustration.

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- (b) Connect the end of the shift cable to the shift lever assembly with the clip.

- (c) Connect the end of the select cable to the shift lever assembly with a new clip.

NOTICE:

- The serrated part of the select cable point should face upward when the select cable point is connected.
- The clip should be installed in the direction as shown in the illustration.

3. INSTALL CENTER AIRBAG SENSOR ASSEMBLY
(See page [RS-442](#))**4. INSTALL AIR CONDITIONER UNIT ASSEMBLY**
See page [AC-173](#).**5. INSTALL INSTRUMENT PANEL SAFETY PAD SUB-ASSEMBLY**
See page [IP-43](#).**6. INSTALL UPPER CONSOLE REAR PANEL SUB-ASSEMBLY** (See page [IP-53](#))**7. INSTALL UPPER CONSOLE PANEL** (See page [IP-54](#))**8. INSTALL NO. 2 INSTRUMENT CLUSTER FINISH PANEL GARNISH** (See page [IP-54](#))**9. INSTALL NO. 1 INSTRUMENT CLUSTER FINISH PANEL GARNISH** (See page [IP-55](#))**10. INSTALL SHIFT LEVER KNOB SUB-ASSEMBLY** (See page [IP-55](#))**11. INSTALL BATTERY** (See page [EM-119](#))

MX-16**E351 MANUAL TRANSAXLE – TRANSMISSION CONTROL CABLE**

12. **INSTALL AIR CLEANER CASE SUB-ASSEMBLY** (See page [EM-120](#))
13. **INSTALL AIR CLEANER CAP SUB-ASSEMBLY** (See page [ES-419](#))
14. **INSTALL AIR CLEANER INLET ASSEMBLY** (See page [EM-120](#))
15. **INSTALL NO. 1 ENGINE COVER SUB-ASSEMBLY** (See page [EM-121](#))
16. **CONNECT CABLE TO NEGATIVE BATTERY TERMINAL** (See page [EM-120](#))

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REMOVAL

1. DISCHARGE FUEL SYSTEM PRESSURE
See page [FU-1](#).
2. DISCONNECT CABLE FROM NEGATIVE BATTERY TERMINAL
3. PLACE FRONT WHEELS FACING STRAIGHT AHEAD
4. REMOVE FRONT WHEELS
5. REMOVE ENGINE UNDER COVER LH
6. REMOVE ENGINE UNDER COVER RH
7. REMOVE FRONT FENDER APRON SEAL RH
8. DRAIN ENGINE OIL (See page [LU-4](#))
9. DRAIN ENGINE COOLANT (See page [CO-5](#))
10. DRAIN MANUAL TRANSAXLE OIL (See page [MX-5](#))
11. DRAIN BRAKE FLUID (See page [BR-28](#))
12. REMOVE WINDSHIELD WIPER MOTOR ASSEMBLY
See page [WW-9](#).
13. REMOVE COWL TOP PANEL OUTER SUB-ASSEMBLY (See page [ES-424](#))
14. REMOVE NO. 1 ENGINE COVER SUB-ASSEMBLY
(See page [EM-94](#))
15. REMOVE V-RIBBED BELT (See page [EM-6](#))
16. REMOVE AIR CLEANER INLET ASSEMBLY (See page [EM-94](#))
17. REMOVE AIR CLEANER CAP SUB-ASSEMBLY (See page [ES-416](#))
18. REMOVE AIR CLEANER CASE SUB-ASSEMBLY (See page [EM-95](#))
19. REMOVE BATTERY (See page [EM-95](#))
20. REMOVE NO. 2 ENGINE MOUNTING STAY RH (See page [EM-95](#))
21. REMOVE ENGINE MOVING CONTROL ROD SUB-ASSEMBLY (See page [EM-95](#))
22. REMOVE NO. 2 ENGINE MOUNTING BRACKET RH
(See page [EM-96](#))
23. DISCONNECT NO. 1 VACUUM HOSE CONNECTOR
(See page [EM-96](#))
24. DISCONNECT RADIATOR HOSE INLET (See page [EM-96](#))
25. DISCONNECT RADIATOR HOSE OUTLET (See page [EM-96](#))
26. DISCONNECT HEATER INLET WATER HOSE (See page [EM-97](#))

27. DISCONNECT HEATER OUTLET WATER HOSE (See page [EM-97](#))
28. REMOVE ECM
See page [ES-432](#).
29. DISCONNECT ENGINE WIRE (See page [EM-97](#))
30. DISCONNECT TRANSMISSION CONTROL CABLE ASSEMBLY (See page [EM-98](#))
31. DISCONNECT NO. 1 OIL RESERVOIR TO PUMP HOSE (See page [EM-98](#))
32. DISCONNECT RETURN TUBE SUB-ASSEMBLY (See page [EM-99](#))
33. REMOVE CLUTCH ACCUMULATOR ASSEMBLY
See page [CL-15](#).
34. REMOVE CLUTCH RELEASE CYLINDER ASSEMBLY
See page [CL-23](#).
35. DISCONNECT FUEL TUBE SUB-ASSEMBLY (See page [EM-99](#))
36. REMOVE GENERATOR ASSEMBLY (See page [CH-11](#))
37. SEPARATE COMPRESSOR AND MAGNETIC CLUTCH (See page [EM-99](#))
38. REMOVE FRONT EXHAUST PIPE ASSEMBLY
See page [EX-2](#).
39. REMOVE FRONT AXLE HUB NUT LH (See page [DS-7](#))
40. REMOVE FRONT AXLE HUB NUT RH
HINT:
Use the same procedures described for the LH side.
41. REMOVE FRONT STABILIZER LINK ASSEMBLY LH (See page [DS-7](#))
42. REMOVE FRONT STABILIZER LINK ASSEMBLY RH
HINT:
Use the same procedures described for the LH side.
43. REMOVE FRONT SPEED SENSOR LH (See page [DS-7](#))
44. REMOVE FRONT SPEED SENSOR RH
HINT:
Use the same procedures described for the LH side.
45. DISCONNECT TIE ROD ASSEMBLY LH (See page [DS-8](#))
46. DISCONNECT TIE ROD ASSEMBLY RH
47. DISCONNECT FRONT SUSPENSION LOWER NO. 1 ARM LH (See page [DS-8](#))

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E351 MANUAL TRANSAXLE – MANUAL TRANSAXLE ASSEMBLY

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48. DISCONNECT FRONT SUSPENSION LOWER NO. 1 ARM RH

HINT:

Use the same procedures described for the LH side.

49. SEPARATE FRONT AXLE ASSEMBLY LH (See page DS-8)**50. SEPARATE FRONT AXLE ASSEMBLY RH**

HINT:

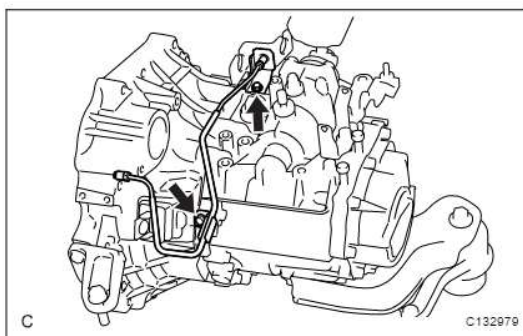
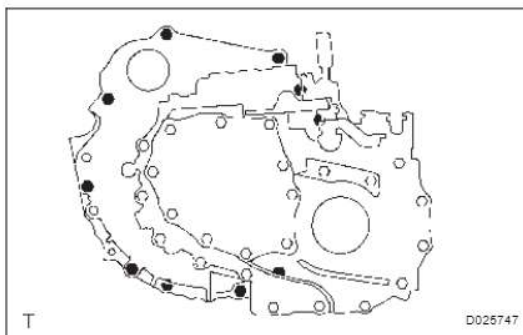
Use the same procedures described for the LH side.

51. SEPARATE STEERING SLIDING YOKE (See page PS-40)**52. REMOVE ENGINE ASSEMBLY WITH TRANSAXLE (See page EM-100)****53. REMOVE VANE PUMP ASSEMBLY (See page EM-101)****54. REMOVE FRONT FRAME ASSEMBLY (See page EM-101)****55. REMOVE FRONT DRIVE SHAFT ASSEMBLY LH (See page DS-9)****56. REMOVE FRONT DRIVE SHAFT ASSEMBLY RH (See page DS-9)****57. REMOVE STARTER ASSEMBLY (See page ST-5)****58. DISCONNECT WIRE HARNESS**

- (a) Remove the bolt and separate the ground cable.
- (b) Disconnect the back-up light switch connector.
- (c) Disconnect the wire harness.

59. REMOVE MANUAL TRANSAXLE ASSEMBLY

- (a) Remove the 10 bolts.
- (b) Separate and remove the transaxle from the engine.

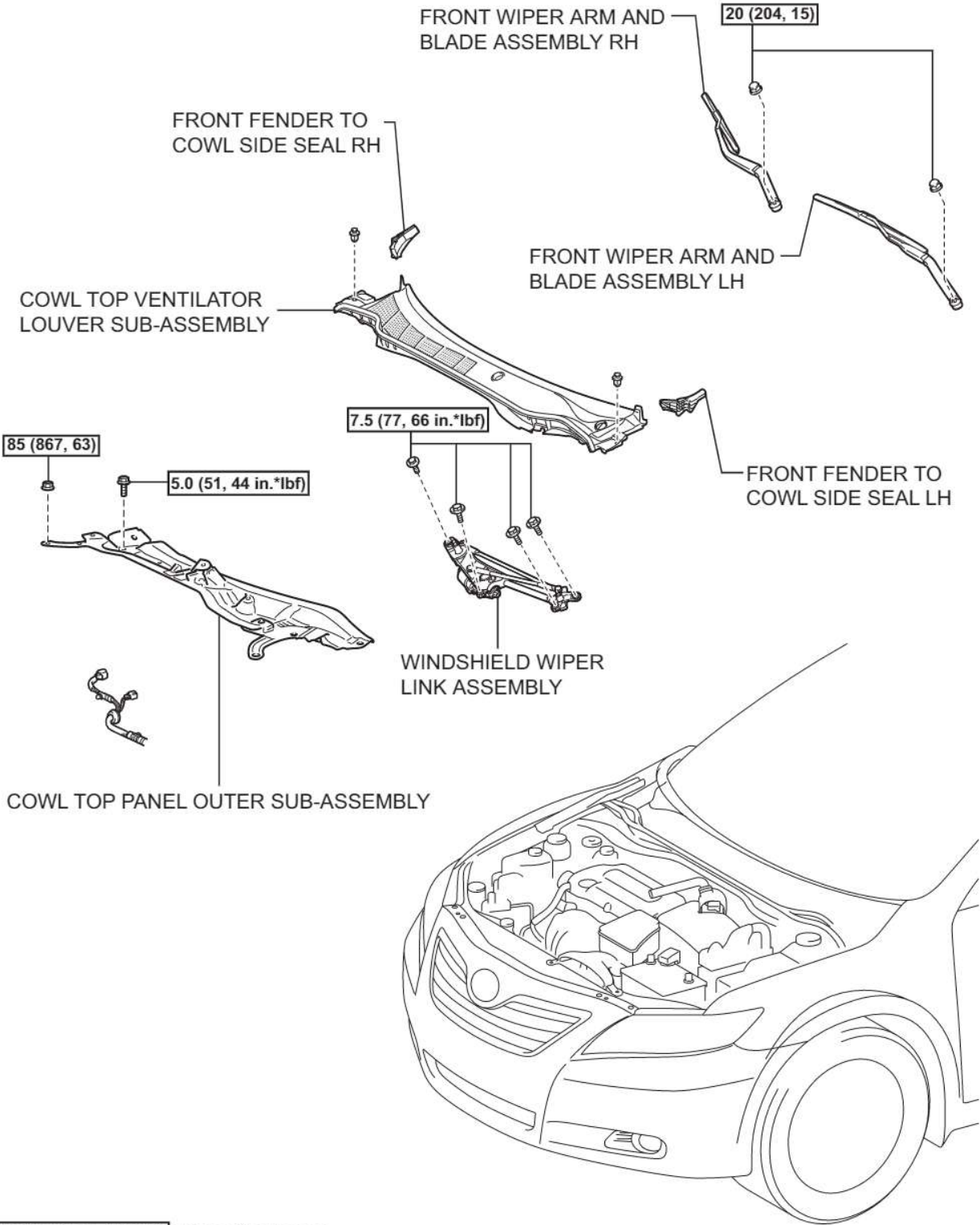
**60. REMOVE CLUTCH LINE**

- (a) Remove the 2 bolts, clutch line and bracket.

MANUAL TRANSAXLE ASSEMBLY

COMPONENTS

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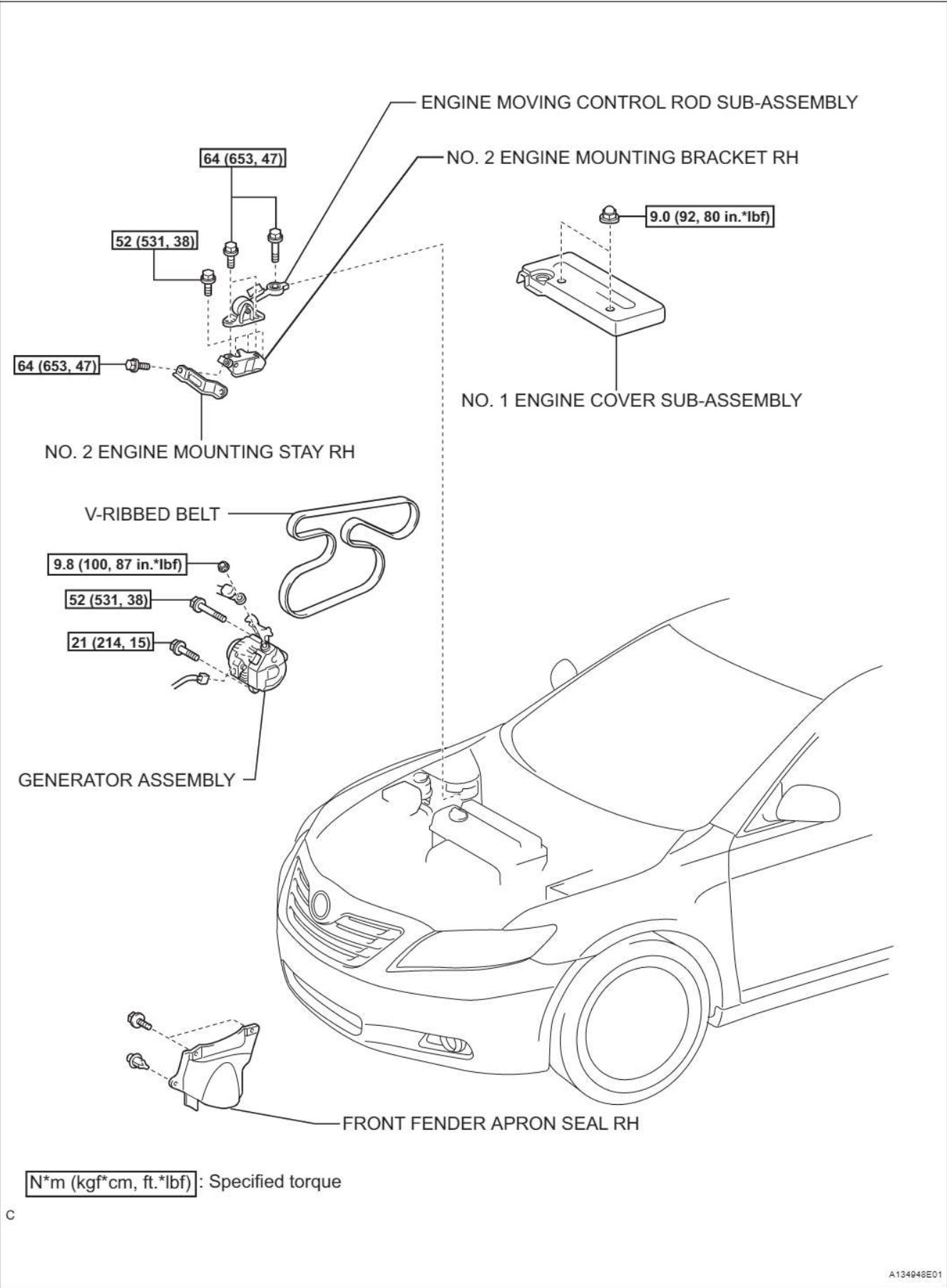


[N*m (kgf*cm, ft.*lbf)]: Specified torque

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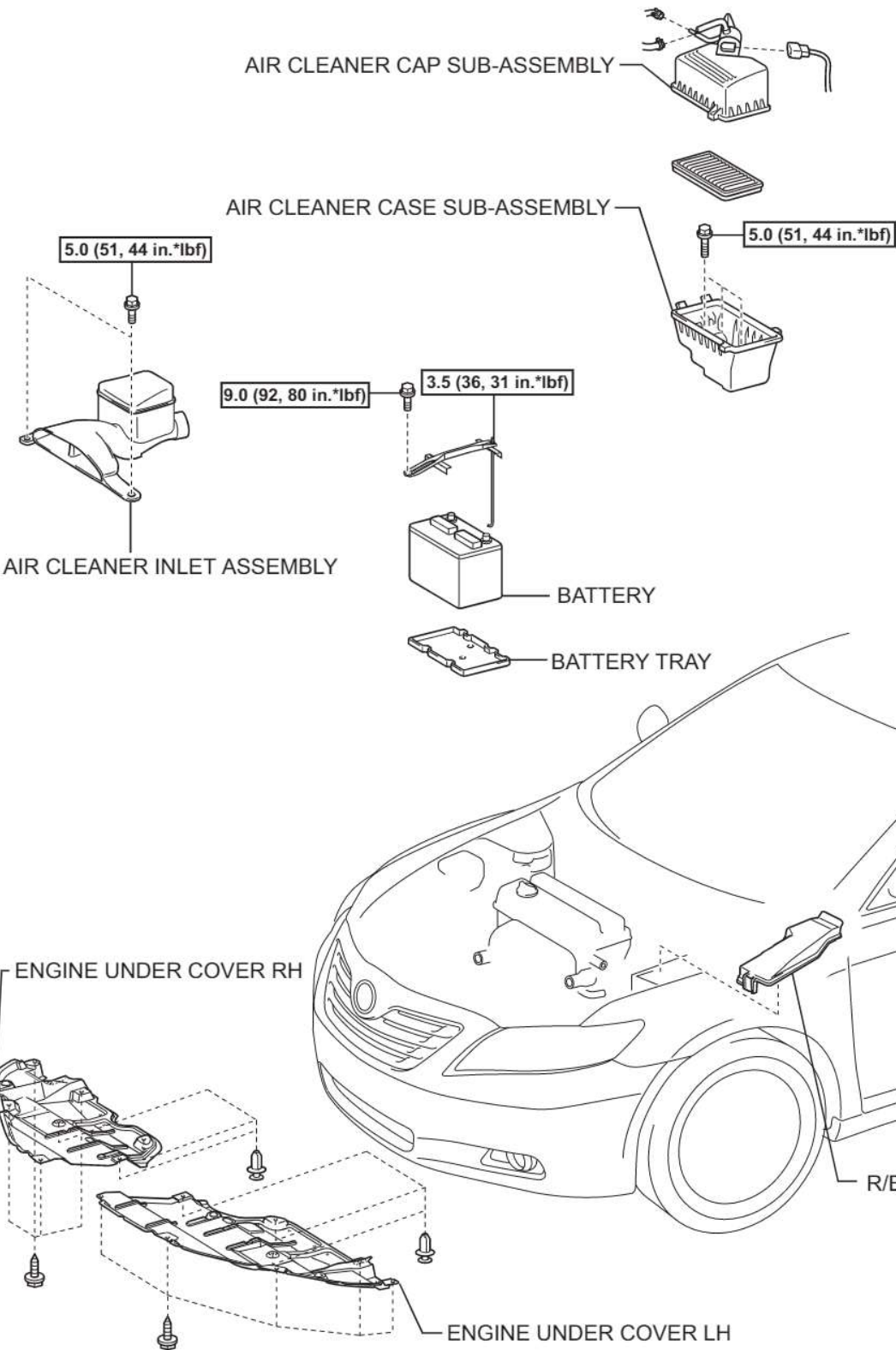
MX-18

E351 MANUAL TRANSAXLE – MANUAL TRANSAXLE ASSEMBLY



E351 MANUAL TRANSAXLE – MANUAL TRANSAXLE ASSEMBLY

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N*m (kgf*cm, ft.*lbf) : Specified torque

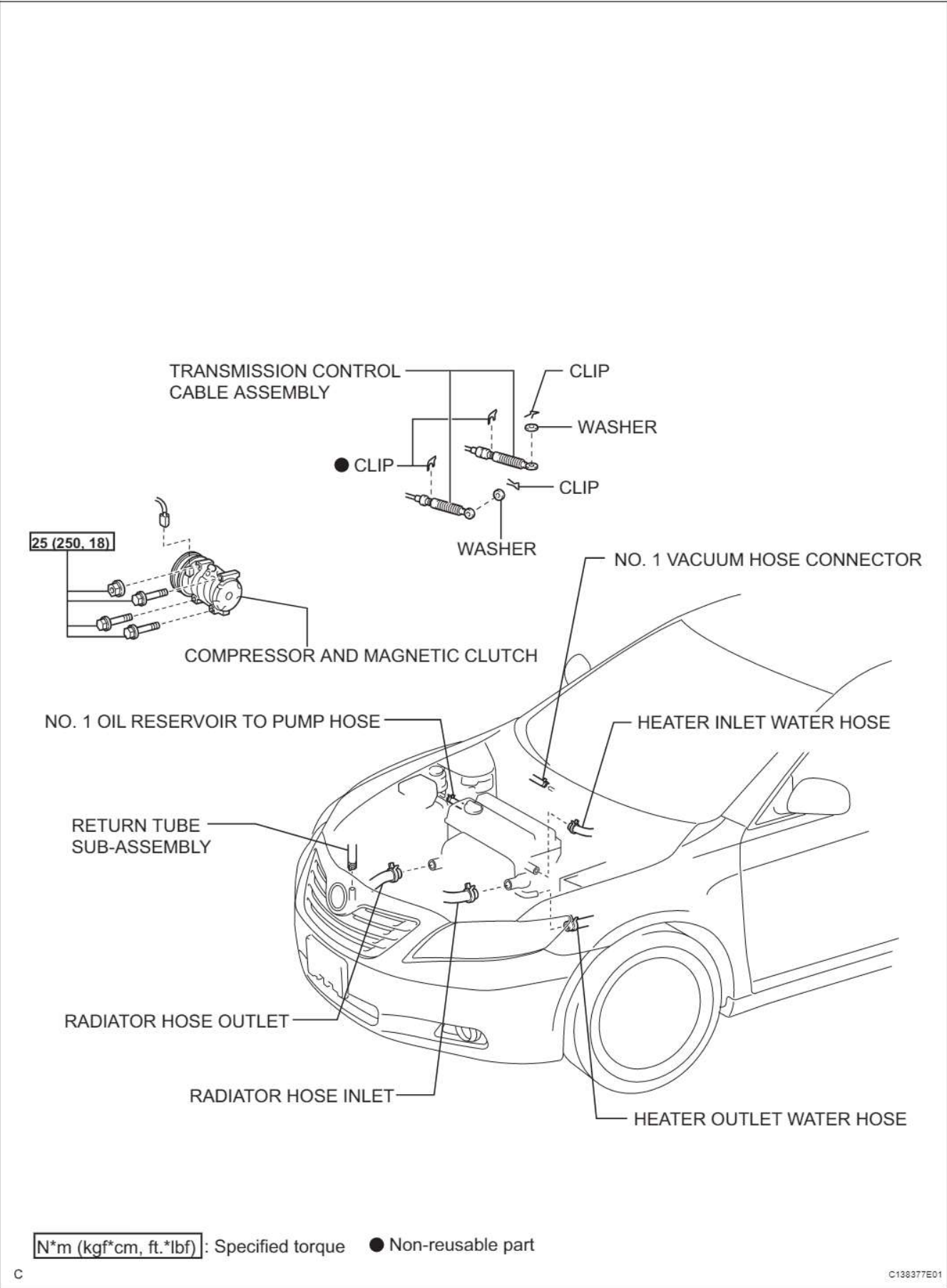
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A134915E01

MX-20

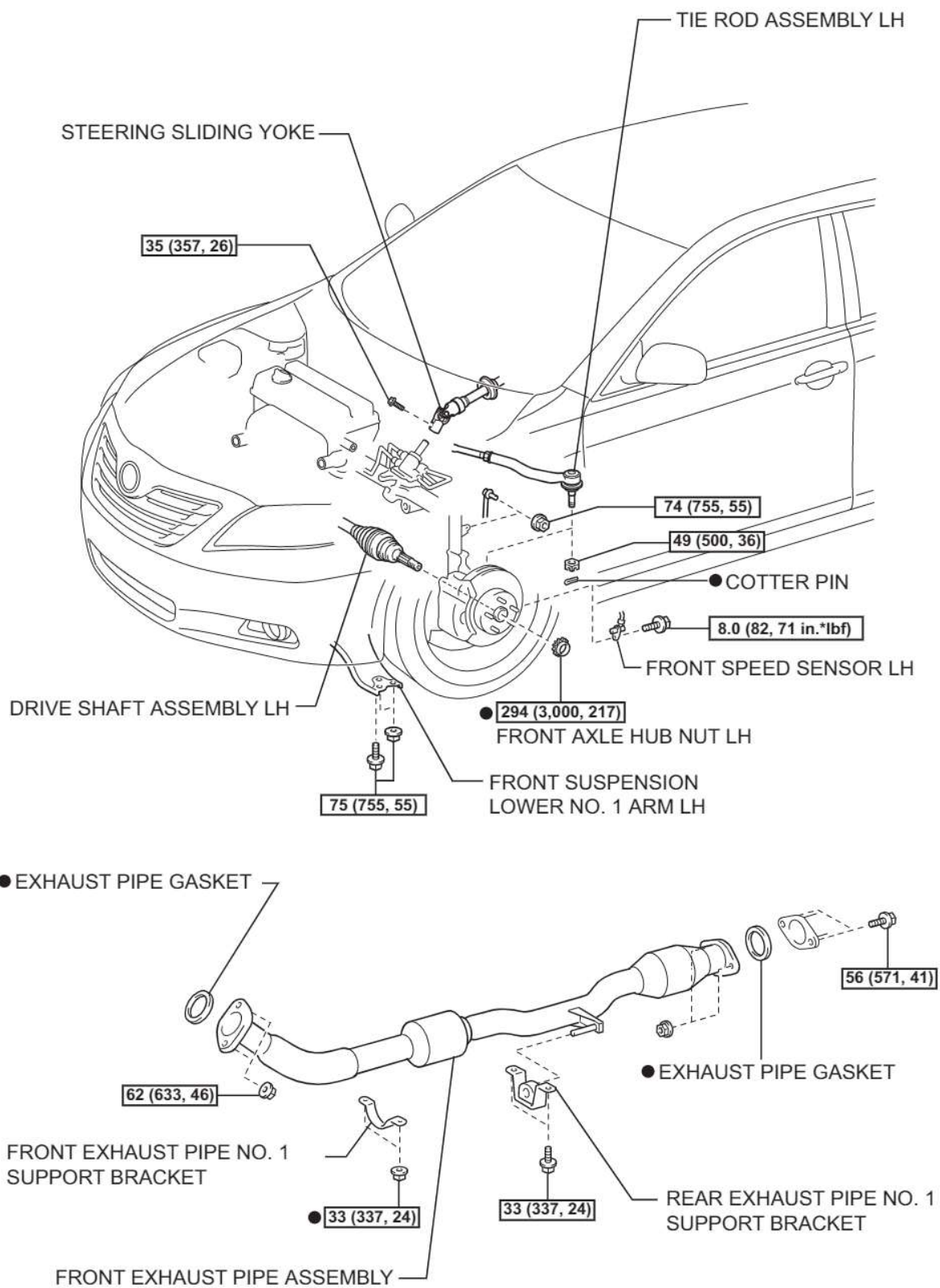
E351 MANUAL TRANSAXLE – MANUAL TRANSAXLE ASSEMBLY

MX



E351 MANUAL TRANSAXLE – MANUAL TRANSAXLE ASSEMBLY

MX-21



N*m (kgf*cm, ft.*lbf): Specified torque ● Non-reusable part

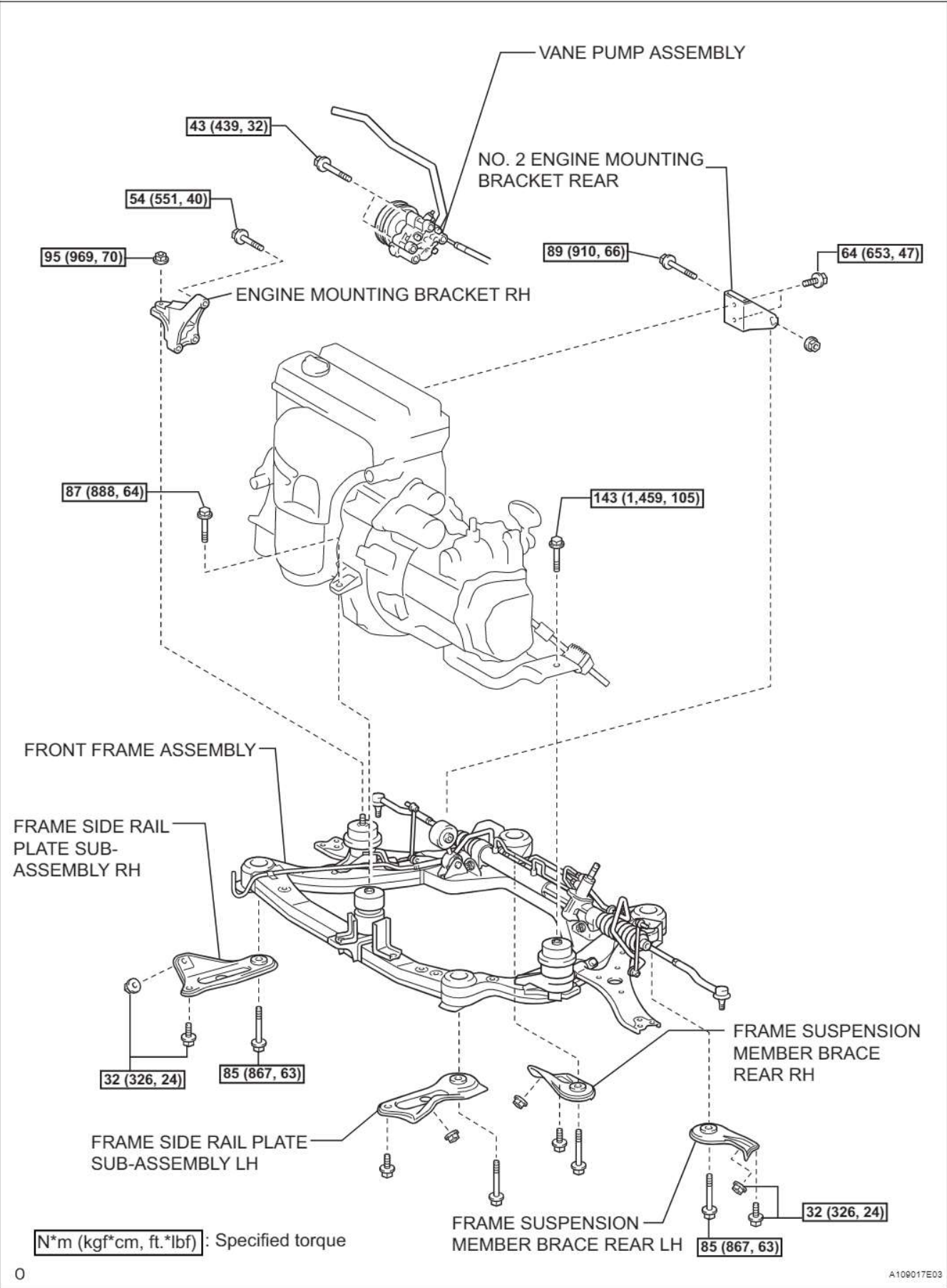
C

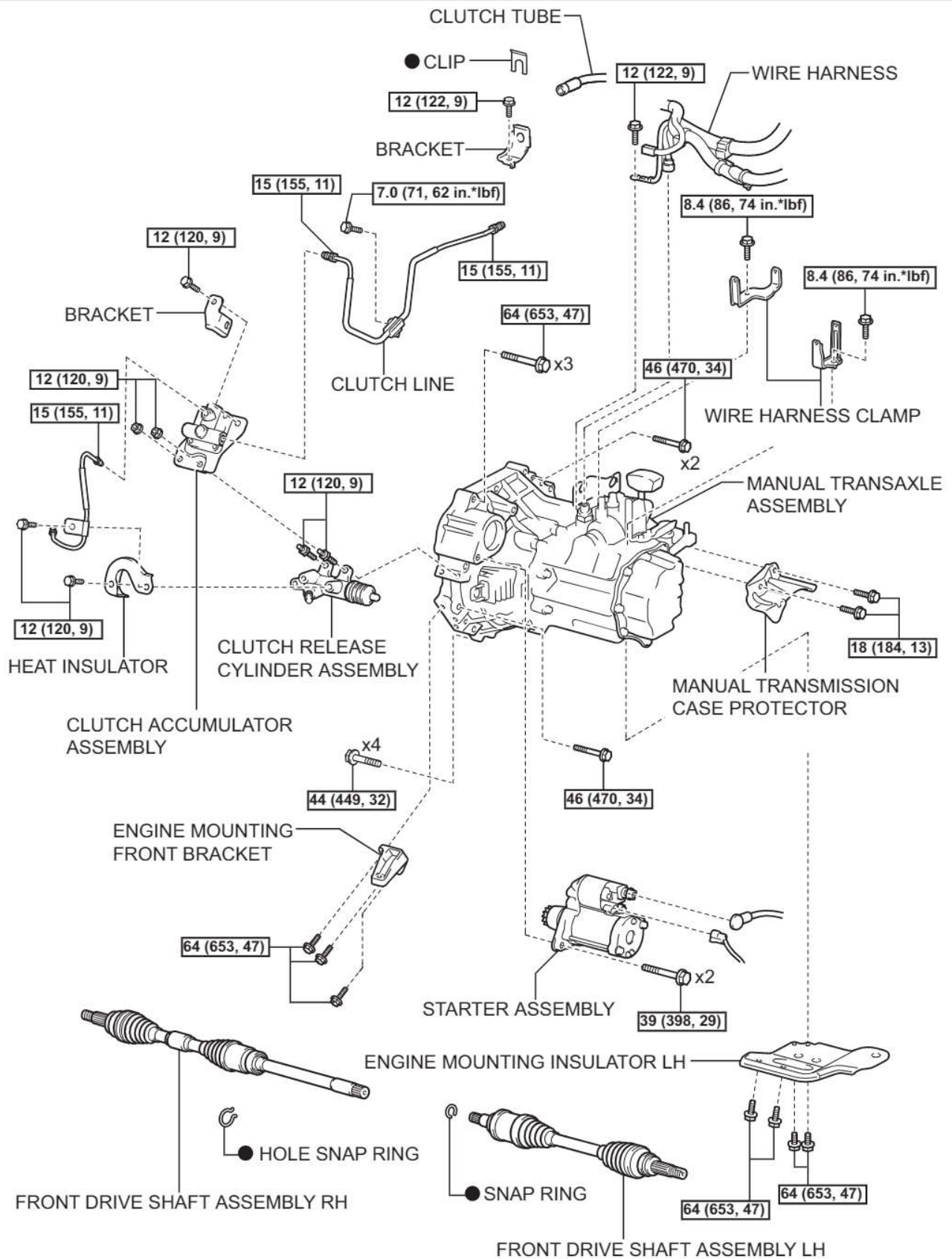
C143322E01

MX

MX-22

E351 MANUAL TRANSAXLE – MANUAL TRANSAXLE ASSEMBLY

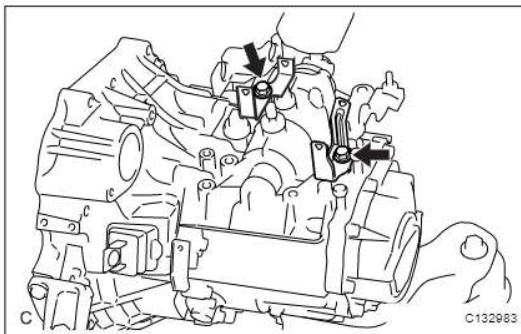




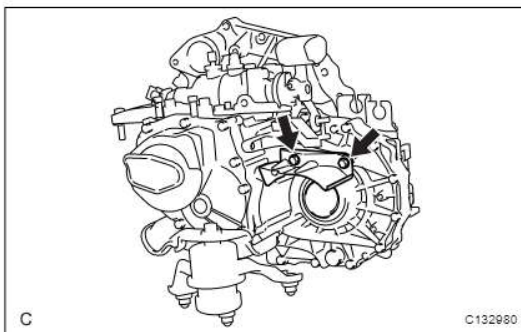
[N*m (kgf*cm, ft.*lbf)]: Specified torque **●** Non-reusable part

P

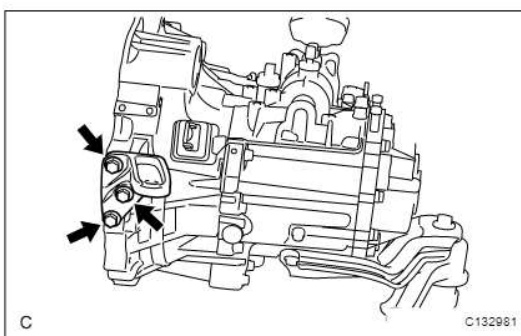
C132978E01

E351 MANUAL TRANSAXLE – MANUAL TRANSAXLE ASSEMBLY**MX-27****61. REMOVE WIRE HARNESS CLAMP**

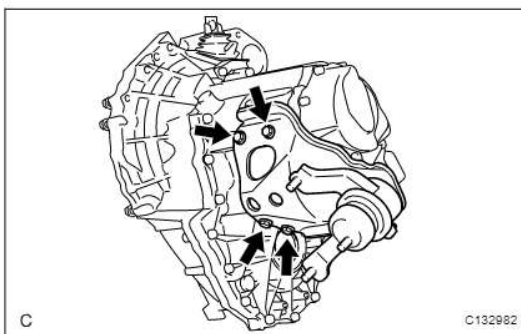
- (a) Remove the 2 bolts and wire harness clamps.

**62. REMOVE MANUAL TRANSMISSION CASE PROTECTOR**

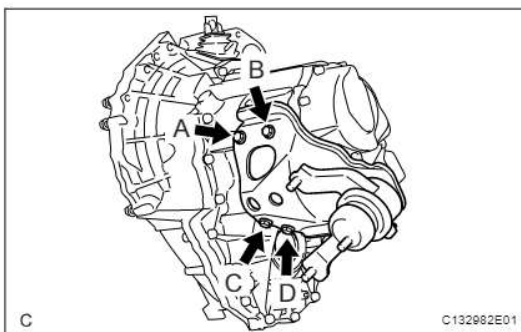
- (a) Remove the 2 bolts and manual transmission case protector.

**63. REMOVE ENGINE MOUNTING FRONT BRACKET**

- (a) Remove the 3 bolts and engine mounting front bracket.

**64. REMOVE ENGINE MOUNTING INSULATOR LH**

- (a) Remove the 4 bolts and engine mounting insulator LH.

**INSTALLATION****1. INSTALL ENGINE MOUNTING INSULATOR LH**

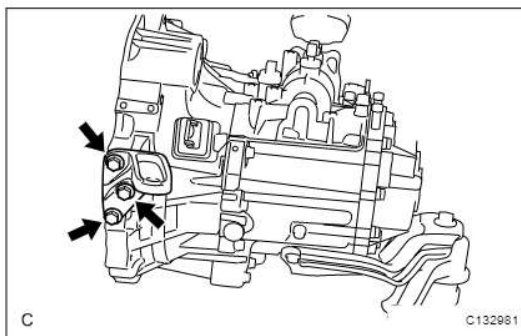
- (a) Install the engine mounting insulator LH with the 4 bolts.

Torque: 64 N*m (653 kgf*cm, 47 ft.*lbf)

HINT:

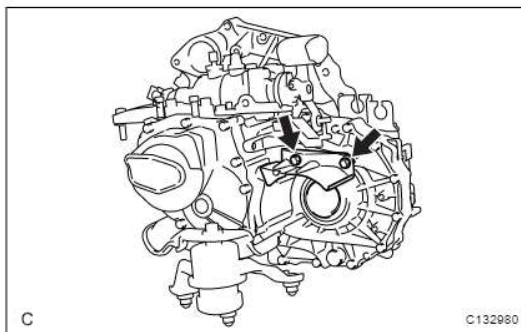
Tighten the bolts in order: A, B, C and D.

MX

MX-28**E351 MANUAL TRANSAXLE – MANUAL TRANSAXLE ASSEMBLY****MX****2. INSTALL ENGINE MOUNTING FRONT BRACKET**

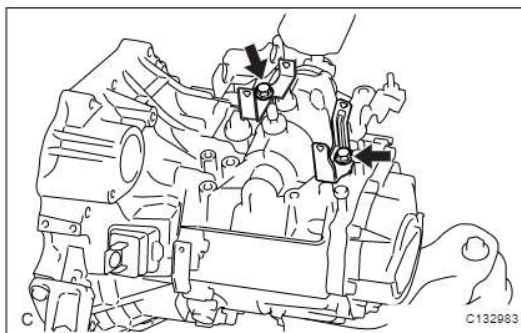
- (a) Install the engine mounting front bracket with the 3 bolts.

Torque: 64 N*m (653 kgf*cm, 47 ft.*lbf)

**3. INSTALL MANUAL TRANSMISSION CASE PROTECTOR**

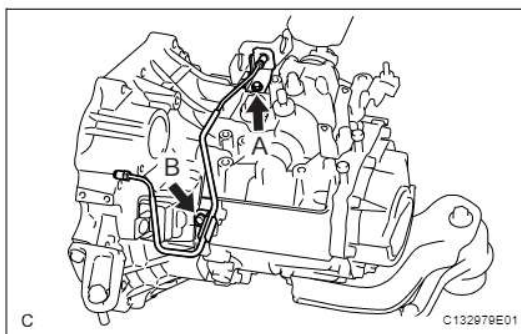
- (a) Install the manual transmission case protector with the 2 bolts.

Torque: 18 N*m (184 kgf*cm, 13 ft.*lbf)

**4. INSTALL WIRE HARNESS CLAMP**

- (a) Install the 2 wire harness clamps with the 2 bolts.

Torque: 8.4 N*m (86 kgf*cm, 74 in.*lbf)

**5. INSTALL CLUTCH LINE**

- (a) Install the clutch line and bracket with the 2 bolts.

Torque: Bolt A

12 N*m (122 kgf*cm, 9 ft.*lbf)

Bolt B

7.0 N*m (71 kgf*cm, 62 in.*lbf)

6. INSTALL MANUAL TRANSAXLE ASSEMBLY

- (a) Align the input shaft with the clutch disc and install the transaxle to the engine.

- (b) Install the 10 bolts.

Torque: Bolt A

64 N*m (653 kgf*cm, 47 ft.*lbf)

Bolt B

46 N*m (470 kgf*cm, 34 ft.*lbf)

Bolt C

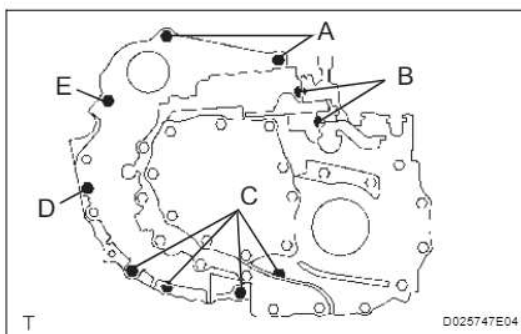
44 N*m (449 kgf*cm, 32 ft.*lbf)

Bolt D

46 N*m (470 kgf*cm, 34 ft.*lbf)

Bolt E

64 N*m (653 kgf*cm, 47 ft.*lbf)



Bolt length:**Bolt A:**

60 mm (2.3622 in.)

Bolt B:

60 mm (2.3622 in.)

Bolt C:

32 mm (1.2598 in.)

Bolt D:

65 mm (2.5591 in.)

Bolt E:

74.5 mm (2.9331 in.)

MX**7. CONNECT WIRE HARNESS**

- (a) Install the wire harness.
- (b) Connect the back-up light switch connector.
- (c) Install the ground cable with the bolt.

Torque: 12 N*m (122 kgf*cm, 9 ft.*lbf)**8. INSTALL STARTER ASSEMBLY (See page [ST-13](#))****9. INSTALL FRONT DRIVE SHAFT ASSEMBLY LH (See page [DS-20](#))****10. INSTALL FRONT DRIVE SHAFT ASSEMBLY RH (See page [DS-21](#))****11. INSTALL FRONT FRAME ASSEMBLY (See page [EM-112](#))****12. INSTALL VANE PUMP ASSEMBLY (See page [EM-113](#))****13. INSTALL ENGINE ASSEMBLY WITH TRANSAXLE (See page [EM-114](#))****14. INSTALL STEERING SLIDING YOKE (See page [PS-65](#))****15. INSTALL FRONT AXLE ASSEMBLY LH (See page [DS-21](#))****16. INSTALL FRONT AXLE ASSEMBLY RH****HINT:**

Use the same procedures described for the LH side.

17. INSTALL FRONT SUSPENSION LOWER NO. 1 ARM LH (See page [DS-21](#))**18. INSTALL FRONT SUSPENSION LOWER NO. 1 ARM RH****HINT:**

Use the same procedures described for the LH side.

19. INSTALL TIE ROD ASSEMBLY LH (See page [DS-21](#))**20. INSTALL TIE ROD ASSEMBLY RH****HINT:**

Use the same procedures described for the LH side.

21. INSTALL FRONT SPEED SENSOR LH (See page [DS-21](#))

MX-30**E351 MANUAL TRANSAXLE – MANUAL TRANSAXLE ASSEMBLY**

MX**22. INSTALL FRONT SPEED SENSOR RH**

HINT:

Use the same procedures described for the LH side.

23. INSTALL FRONT STABILIZER LINK ASSEMBLY LH
(See page [DS-22](#))**24. INSTALL FRONT STABILIZER LINK ASSEMBLY RH**

HINT:

Use the same procedures described for the LH side.

25. INSTALL FRONT AXLE HUB NUT LH (See page [DS-7](#))**26. INSTALL FRONT AXLE HUB NUT RH**

HINT:

Use the same procedures described for the LH side.

27. INSTALL FRONT EXHAUST PIPE ASSEMBLYSee page [EX-3](#).**28. INSTALL COMPRESSOR AND MAGNETIC CLUTCH**
(See page [EM-115](#))**29. INSTALL GENERATOR ASSEMBLY** (See page [CH-19](#))**30. CONNECT FUEL TUBE SUB-ASSEMBLY** (See page [EM-115](#))**31. INSTALL CLUTCH RELEASE CYLINDER ASSEMBLY**
See page [CL-25](#).**32. INSTALL CLUTCH ACCUMULATOR ASSEMBLY**
See page [CL-29](#).**33. CONNECT RETURN TUBE SUB-ASSEMBLY** (See page [EM-116](#))**34. CONNECT NO. 1 OIL RESERVOIR TO PUMP HOSE**
(See page [EM-116](#))**35. INSTALL TRANSMISSION CONTROL CABLE ASSEMBLY** (See page [EM-116](#))**36. CONNECT ENGINE WIRE** (See page [EM-117](#))**37. INSTALL ECM**See page [ES-433](#).**38. CONNECT HEATER INLET WATER HOSE** (See page [EM-117](#))**39. CONNECT HEATER OUTLET WATER HOSE** (See page [EM-118](#))**40. CONNECT OIL COOLER INLET HOSE** (See page [CO-30](#))**41. CONNECT OIL COOLER OUTLET HOSE** (See page [CO-30](#))**42. CONNECT RADIATOR HOSE INLET** (See page [EM-118](#))**43. CONNECT RADIATOR HOSE OUTLET** (See page [EM-118](#))

44. CONNECT NO. 1 VACUUM HOSE CONNECTOR (See page [EM-118](#))
45. INSTALL NO. 2 ENGINE MOUNTING BRACKET RH (See page [EM-118](#))
46. INSTALL ENGINE MOVING CONTROL ROD SUB-ASSEMBLY (See page [EM-119](#))
47. INSTALL NO. 2 ENGINE MOUNTING STAY RH (See page [EM-119](#))
48. INSTALL BATTERY (See page [EM-119](#))
49. INSTALL AIR CLEANER CASE SUB-ASSEMBLY (See page [EM-120](#))
50. REMOVE AIR CLEANER CAP SUB-ASSEMBLY (See page [ES-419](#))
51. INSTALL AIR CLEANER INLET ASSEMBLY (See page [EM-120](#))
52. INSTALL V-RIBBED BELT (See page [EM-6](#))
53. INSTALL COWL TOP PANEL OUTER SUB-ASSEMBLY (See page [ES-426](#))
54. INSTALL WINDSHIELD WIPER LINK ASSEMBLY
See page [WW-13](#).
55. INSTALL FRONT WHEEL (See page [EM-120](#))
56. ADD ENGINE OIL
57. CONNECT CABLE TO NEGATIVE BATTERY TERMINAL (See page [EM-120](#))
58. BLEED CLUTCH LINE (See page [CL-25](#))
59. ADD ENGINE COOLANT (See page [CO-5](#))
60. ADD MANUAL TRANSAXLE OIL (See page [MX-6](#))
61. ADD POWER STEERING FLUID
62. BLEED POWER STEERING FLUID (See page [PS-7](#))
63. CHECK FOR FUEL LEAKS (See page [FU-9](#))
64. CHECK FOR ENGINE OIL LEAKS
65. CHECK FOR ENGINE COOLANT LEAKS (See page [CO-1](#))
66. CHECK FOR EXHAUST GAS LEAKS
67. ADJUST FRONT WHEEL ALIGNMENT
See page [SP-4](#).
68. CHECK IGNITION TIMING (See page [EM-1](#))
69. CHECK ENGINE IDLE SPEED (See page [EM-2](#))
70. INSPECT CO/HC (See page [EM-3](#))
71. INSTALL FRONT FENDER APRON SEAL RH
72. INSTALL ENGINE UNDER COVER LH

MX

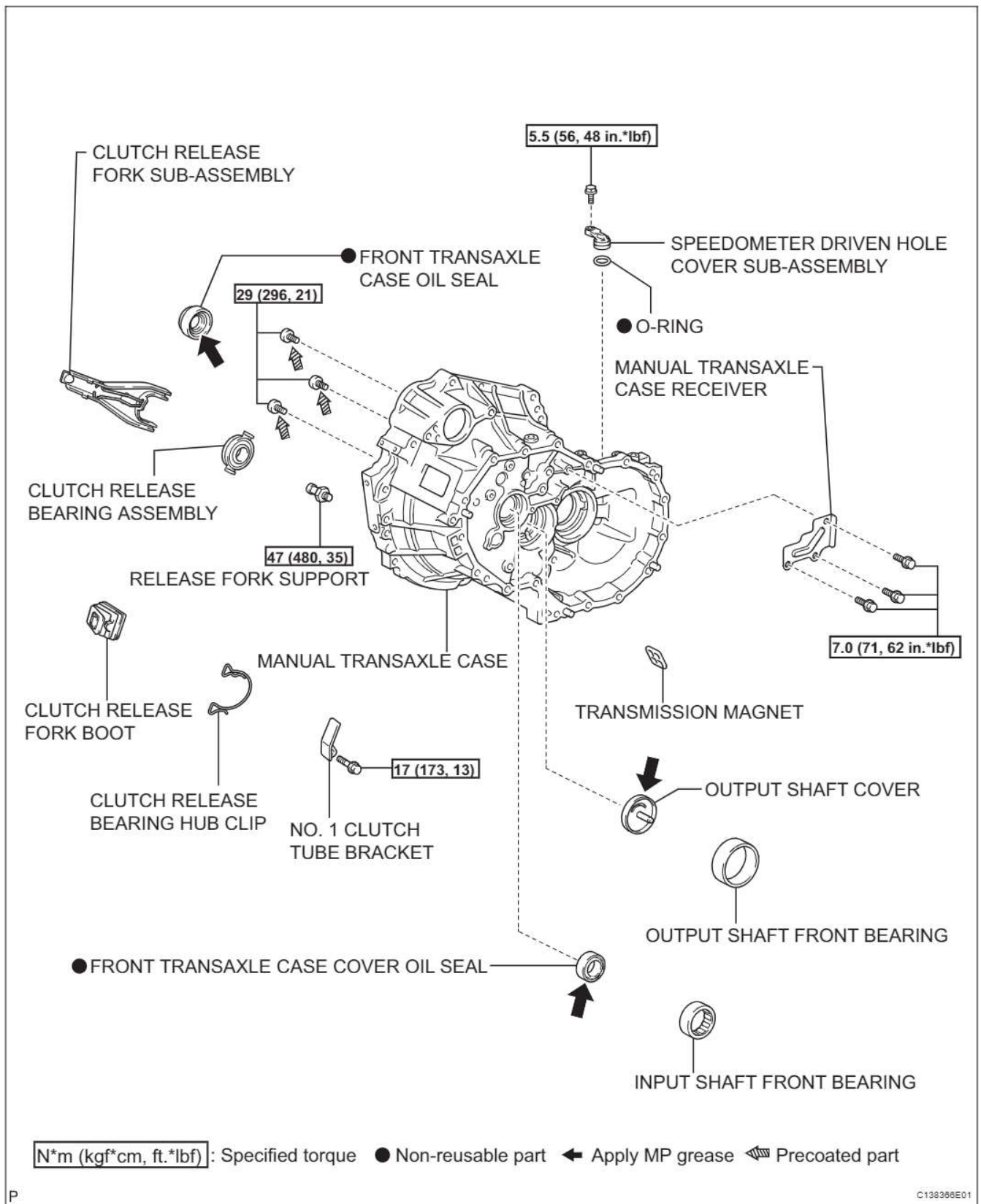
MX-32**E351 MANUAL TRANSAXLE – MANUAL TRANSAXLE ASSEMBLY**

- 73. INSTALL ENGINE UNDER COVER RH**
- 74. INSTALL NO. 1 ENGINE COVER SUB-ASSEMBLY**
(See page [EM-121](#))
- 75. CHECK ABS SPEED SENSOR SIGNAL**
See page [BC-11](#).

MX

MANUAL TRANSAXLE UNIT

COMPONENTS

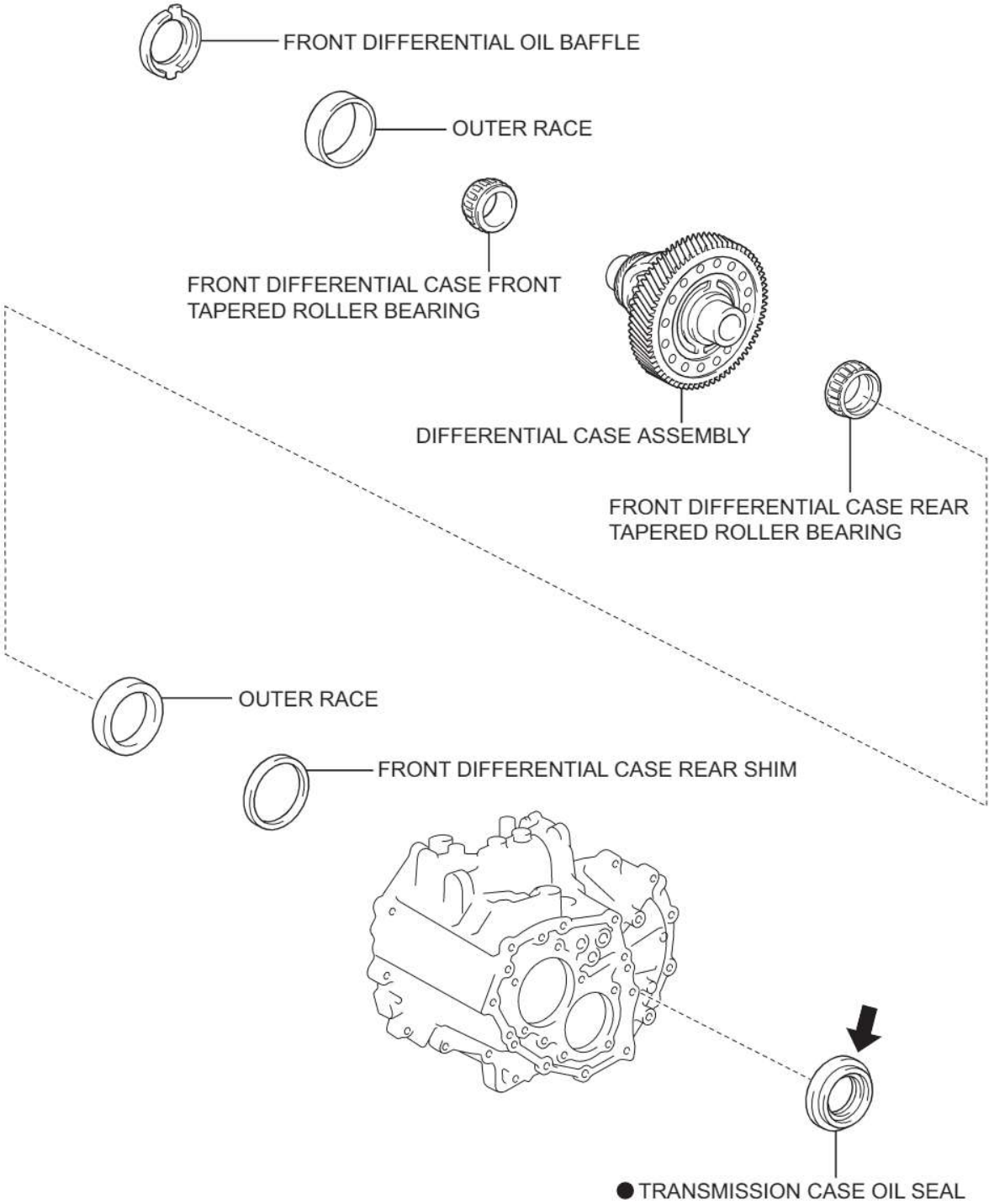


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MX-34

E351 MANUAL TRANSAXLE – MANUAL TRANSAXLE UNIT

MX



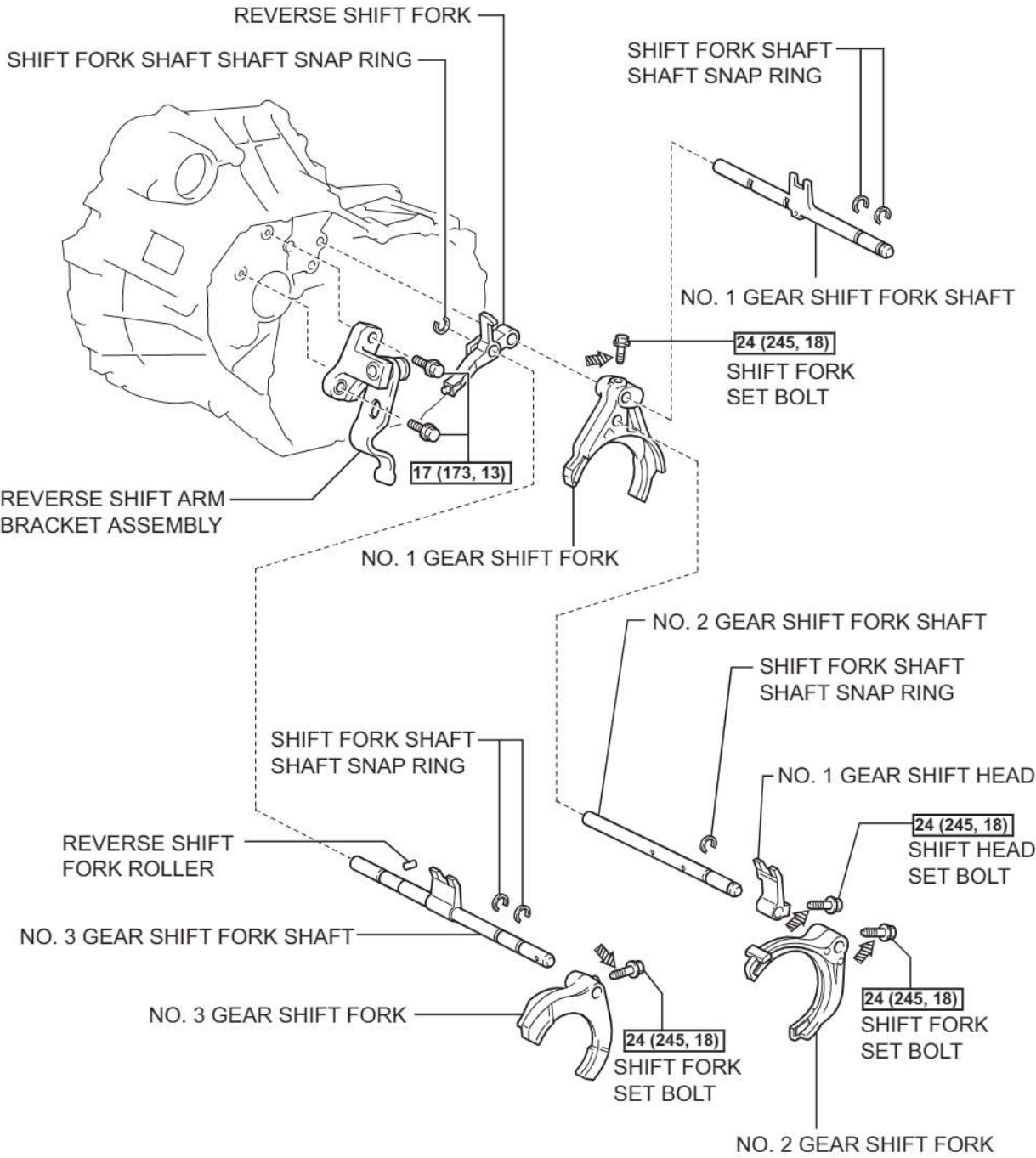
● Non-reusable part ← Apply MP grease

P

C138367E01

E351 MANUAL TRANSAXLE – MANUAL TRANSAXLE UNIT

MX



N*m (kgf*cm, ft.*lbf) : Specified torque ◀ Precoated part

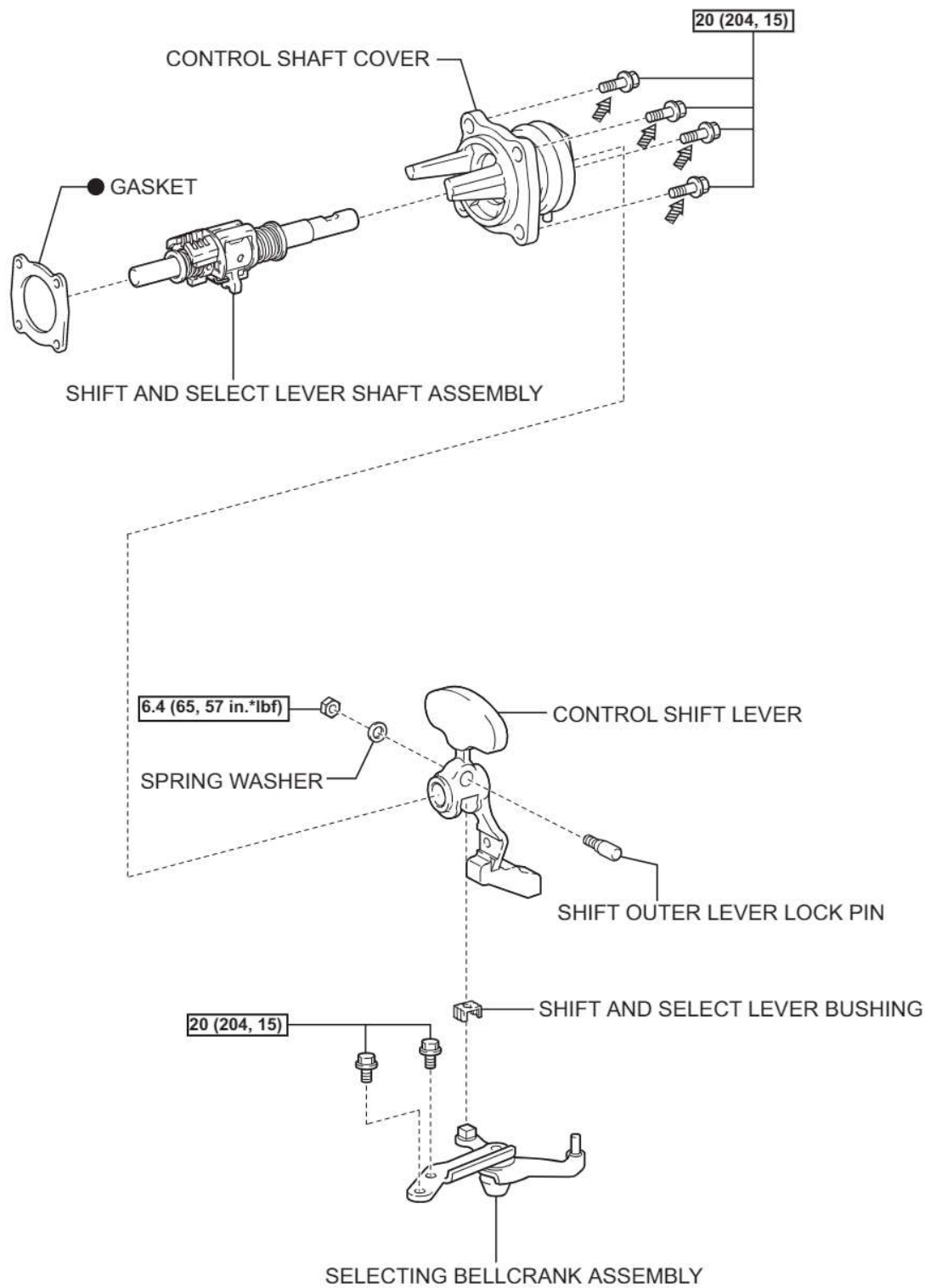
P

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E351 MANUAL TRANSAXLE – MANUAL TRANSAXLE UNIT

MX



N*m (kgf*cm, ft.*lbf) : Specified torque ● Non-reusable part ▧ Precoated part

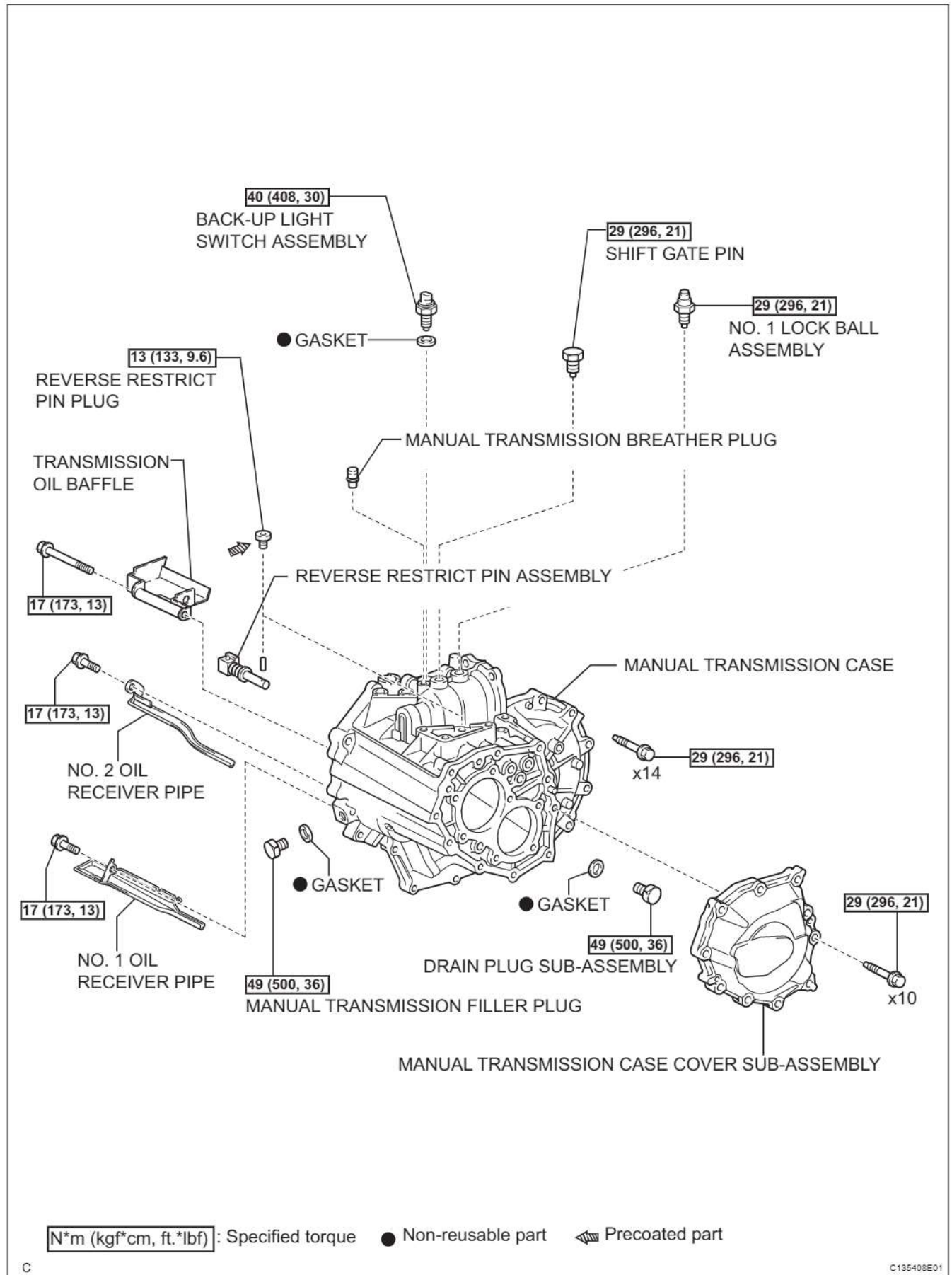
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E351 MANUAL TRANSAXLE – MANUAL TRANSAXLE UNIT

MX-37

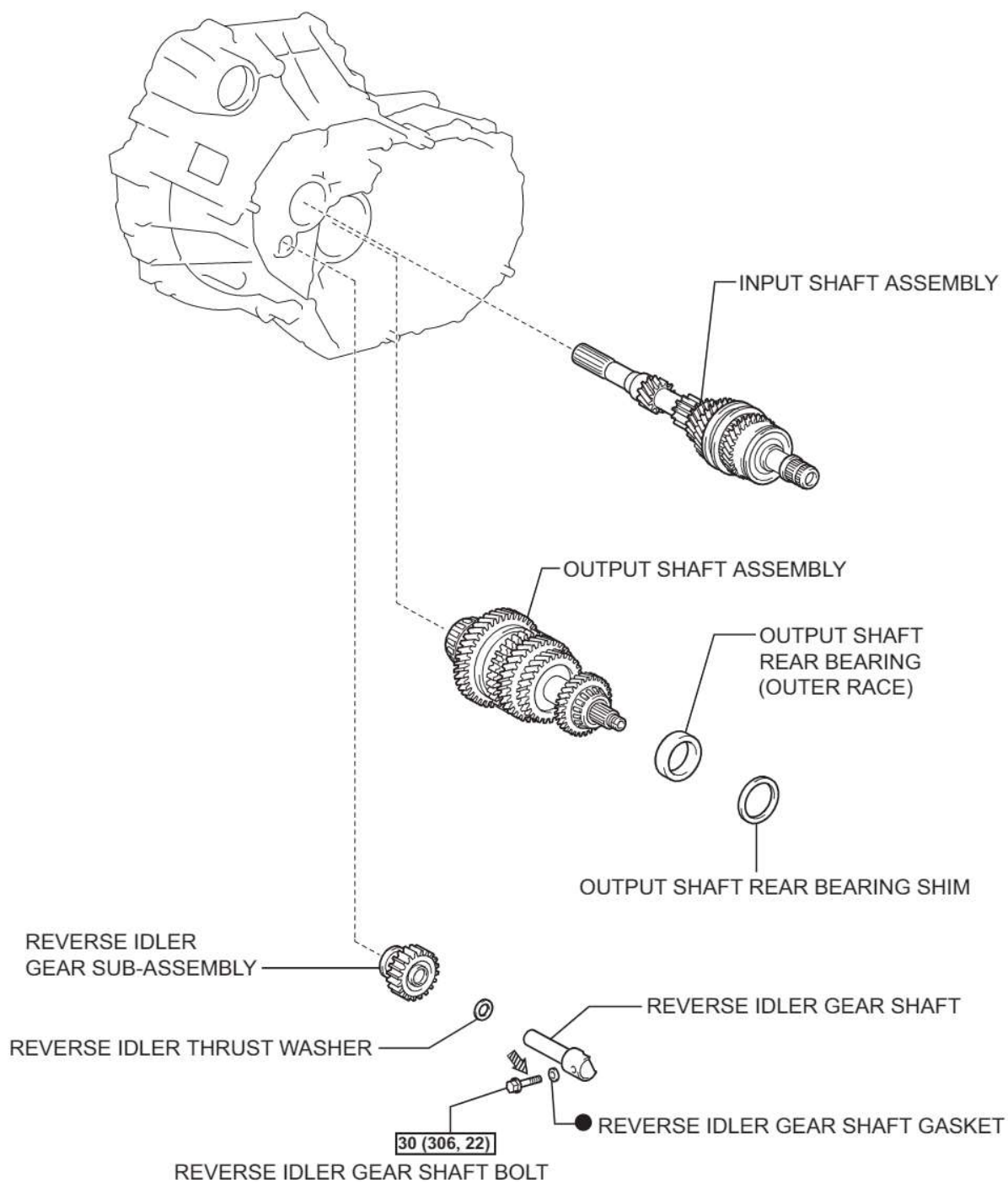
MX



MX-38

E351 MANUAL TRANSAXLE – MANUAL TRANSAXLE UNIT

MX



N*m (kgf*cm, ft.*lbf) : Specified torque ● Non-reusable part ◀ Precoated part

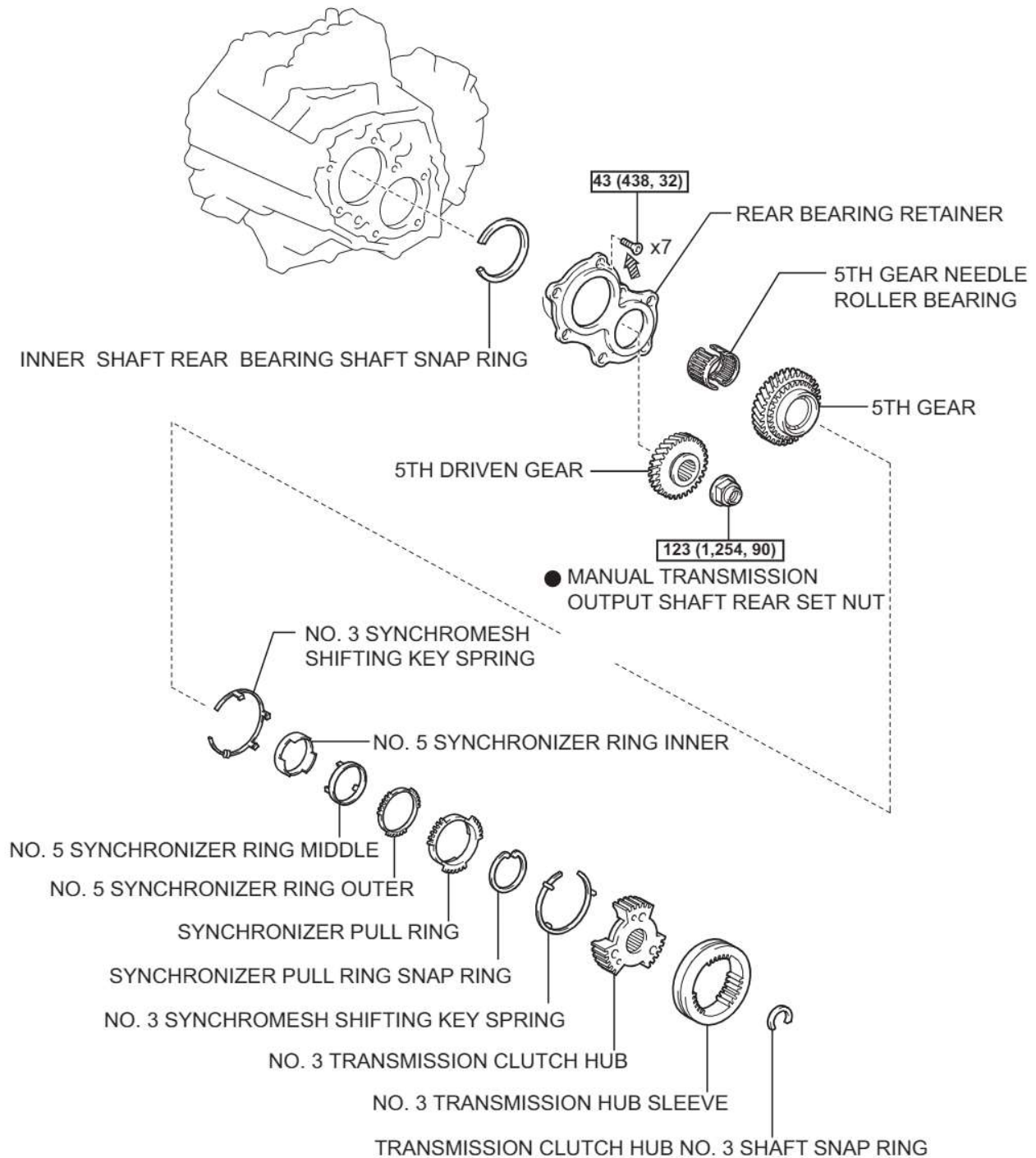
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E351 MANUAL TRANSAXLE – MANUAL TRANSAXLE UNIT

MX-39

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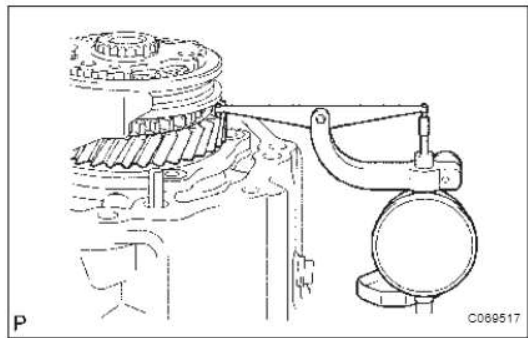


N*m (kgf*cm, ft.*lbf): Specified torque ● Non-reusable part ≡ Precoated part

P

C138370E01

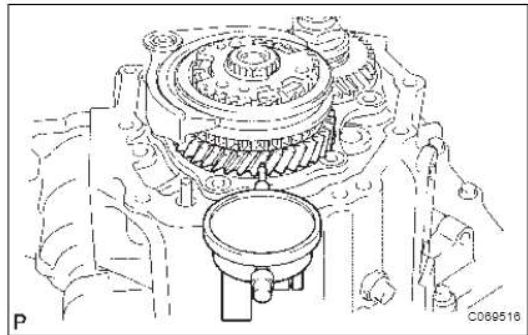
MX



INSPECTION

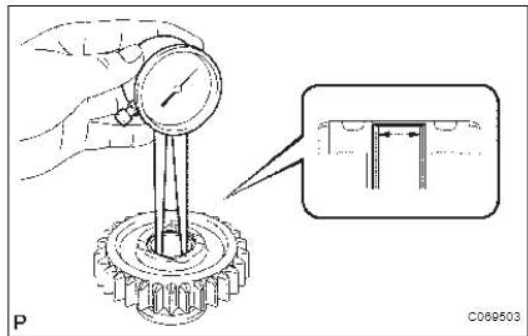
1. INSPECT 5TH GEAR THRUST CLEARANCE

- (a) Using a dial indicator, inspect the 5th gear thrust clearance.
- Standard clearance:**
0.10 to 0.65 mm (0.0039 to 0.0256 in.)
- If clearance is out of specification, replace the No. 3 transmission clutch hub, 5th gear, or input shaft rear radial ball bearing.



2. INSPECT 5TH GEAR RADIAL CLEARANCE

- (a) Using a dial indicator, inspect the 5th gear radial clearance.
- Standard clearance:**
0.009 to 0.050 mm (0.0004 to 0.0020 in.)
- If clearance is out of specification, replace the 5th gear, 5th gear needle roller bearing, or input shaft.

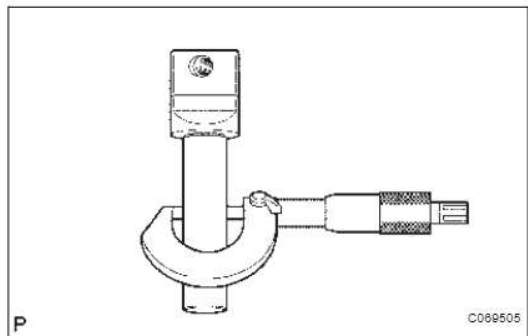


3. INSPECT REVERSE IDLER GEAR SUB-ASSEMBLY

- (a) Using a caliper gauge, measure the inside diameter of the reverse idler gear.
- Inside diameter: mm (in.)**

Standard inside diameter	Maximum inside diameter
20.056 to 20.074 (0.7896 to 0.7903)	20.074 (0.7903)

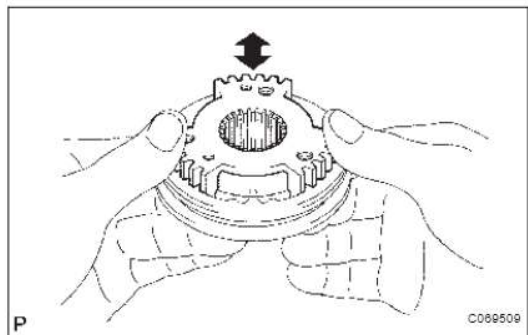
If the inside diameter exceeds the maximum, replace the reverse idler gear.



- (b) Using a micrometer, measure the outside diameter of the reverse idler gear shaft.
- Outside diameter: mm (in.)**

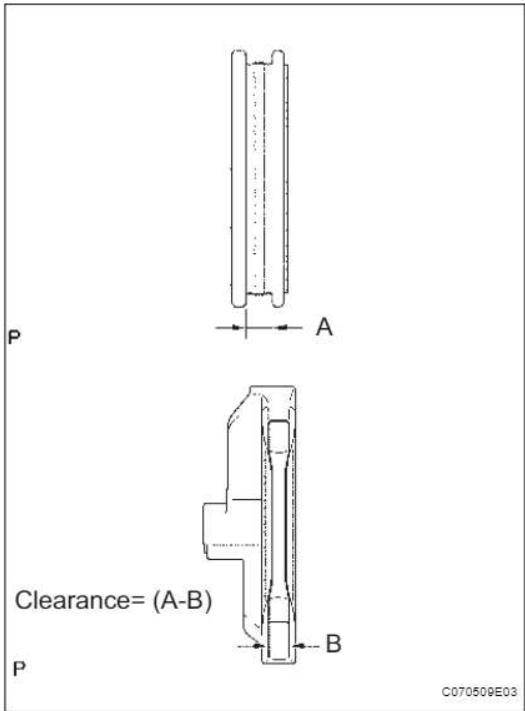
Standard outside diameter	Minimum outside diameter
19.984 to 20.000 (0.7868 to 0.7874)	19.984 (0.7868)

If the outside diameter is less than the minimum, replace the reverse idler gear shaft.

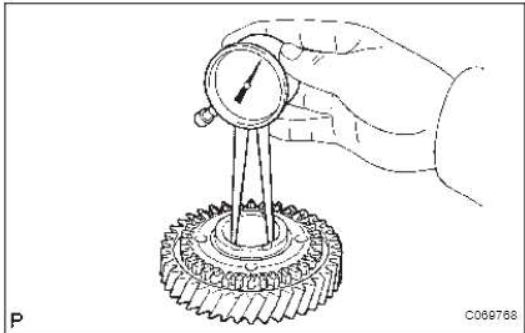


4. INSPECT NO. 3 TRANSMISSION CLUTCH HUB

- (a) Inspect the sliding condition between the No. 3 transmission clutch hub and the No. 3 transmission hub sleeve.
- (b) Inspect the tip of the spline gear on the No. 3 transmission hub sleeve for wear.



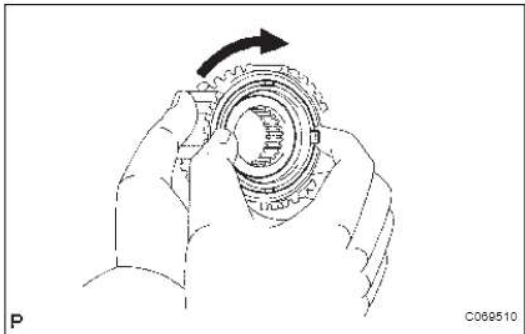
5. **INSPECT NO. 3 TRANSMISSION HUB SLEEVE**
- (a) Using vernier calipers, measure the width of the No. 3 transmission hub sleeve groove and the thickness of the claw part on the No. 3 gear shift fork, and calculate the clearance.
- Standard clearance:**
0.15 to 0.35 mm (0.0059 to 0.0138 in.) {A - B}
- If clearance is out of specification, replace the No. 3 transmission hub sleeve and No. 3 gear shift fork with new ones.



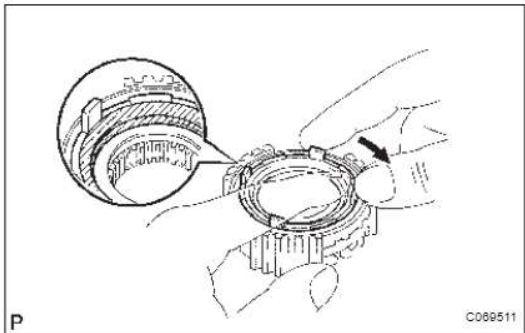
6. **INSPECT 5TH GEAR**
- (a) Using a caliper gauge, measure the inside diameter of the 5th gear.
- Inside diameter mm (in.)**

Standard inside diameter	Maximum inside diameter
34.981 to 34.997 (1.3772 to 1.3778)	34.997 (1.3778)

If the inside diameter exceeds the maximum, replace the 5th gear.



7. **INSPECT NO. 5 SYNCHRONIZER RING MIDDLE**
- (a) Check that the No. 5 synchronizer ring middle rotates smoothly.



- (b) Check that the No. 5 synchronizer ring middle does not rotate while being pushed against the No. 3 clutch hub.

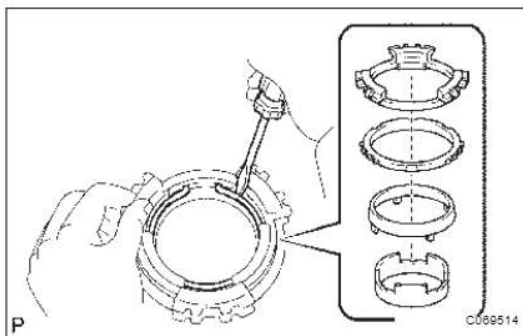
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E351 MANUAL TRANSAXLE – MANUAL TRANSAXLE UNIT

REASSEMBLY

1. INSTALL SYNCHRONIZER PULL RING

- (a) Install the No. 5 synchronizer middle ring, No. 5 synchronizer ring outer, and synchronizer pull ring to the No. 5 synchronizer ring inner. Using a screwdriver, fix them with the snap ring.



2. INSTALL NO. 3 SYNCHROMESH SHIFTING KEY SPRING

- (a) Install the No. 3 synchromesh shifting key spring to the No. 3 transmission clutch hub.

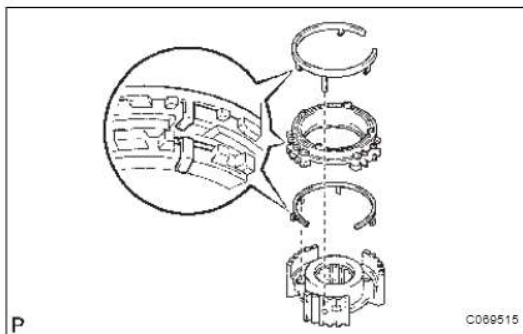
NOTICE:

Align the projection of the shifting key spring with the No. 3 hole of the clutch hub.

- (b) Install the synchronizer ring set and No. 3 synchromesh shifting key spring to the No. 3 transmission clutch hub.

NOTICE:

- Engage the shifting key spring claw to the center of the teeth of the synchronizer ring.
- Align the projection of the shifting key spring with the hole of the No. 3 clutch hub.



3. INSTALL FRONT TRANSAXLE CASE COVER OIL SEAL

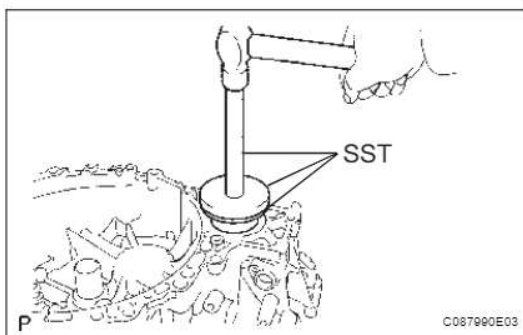
- (a) Using SST and a hammer, install a new front transaxle case cover oil seal.

SST 09316-20011, 09950-60020 (09951-00910), 09950-70010 (09951-07150)

Oil seal installation depth:

- 0.5 to 0.5 mm (- 0.020 to 0.020 in.)

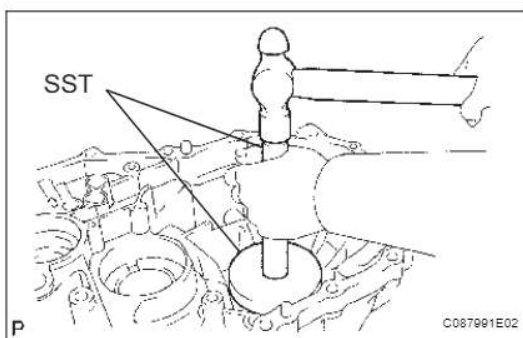
- (b) Coat the front transaxle case cover oil seal lip with MP grease.

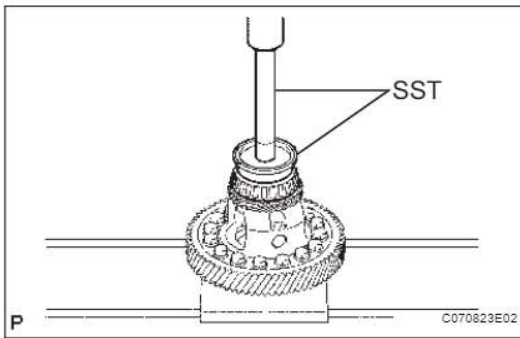


4. INSTALL FRONT DIFFERENTIAL CASE FRONT TAPERED ROLLER BEARING

- (a) Using SST and a hammer, install the front differential case front tapered roller bearing (outer race) to the front transaxle case.

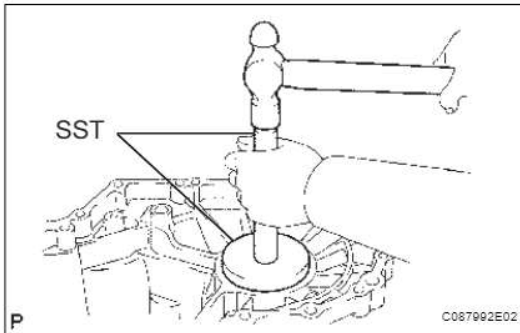
SST 09950-60020 (09951-00910), 09950-70010 (09951-07100)



E351 MANUAL TRANSAXLE – MANUAL TRANSAXLE UNIT**MX-57**

- (b) Using SST and a press, install the front differential case front tapered roller bearing (inner race) to the front differential case.

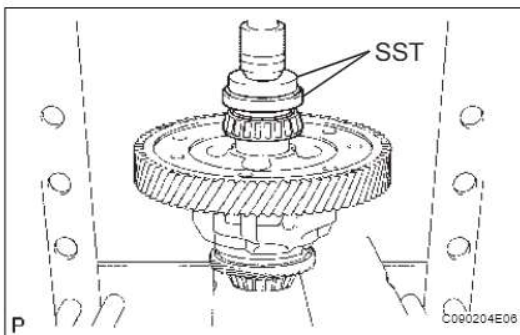
SST 09950-70010 (09951-07100, 09951-07150), 09608-10010



5. INSTALL FRONT DIFFERENTIAL CASE REAR TAPERED ROLLER BEARING

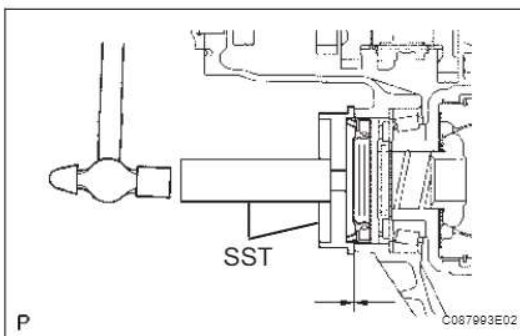
- (a) Install the front differential case shim rear.
(b) Using SST and a hammer, install the front differential case rear tapered roller bearing (outer race).

SST 09950-60020 (09951-00890), 09950-70010 (09951-07100)



- (c) Using SST and a press, install the front differential case rear tapered roller bearing (inner race).

SST 09631-12090, 09950-60010 (09951-00600), 09950-70010 (09951-07100)



6. INSTALL TRANSMISSION CASE OIL SEAL

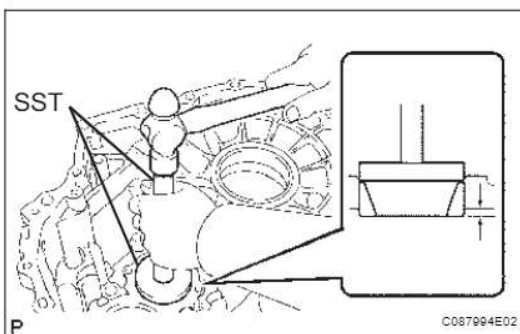
- (a) Using SST and a hammer, install a transmission case oil seal to the manual transmission case.

SST 09608-32010, 09950-70010 (09951-07150)

Oil seal installation depth:

3.0 to 4.0 mm (0.1181 to 0.1575 in.)

- (b) Coat the transmission case oil seal lip with MP grease.



7. INSTALL OUTPUT SHAFT REAR BEARING

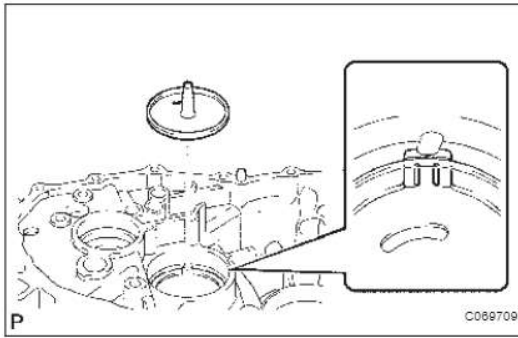
- (a) Using SST and a hammer, install the output shaft rear bearing (outer race) to the manual transmission case.

SST 09950-60020 (09951-00680), 09950-70010 (09951-07100)

Clearance:

3.8 to 4.4 mm (0.150 to 0.173 in.)

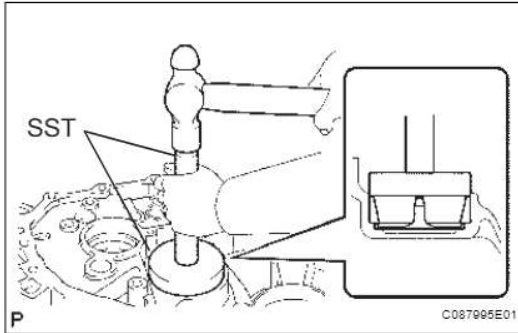
MX

MX-58**E351 MANUAL TRANSAXLE – MANUAL TRANSAXLE UNIT****8. INSTALL OUTPUT SHAFT COVER**

- (a) Coat the output shaft cover with MP grease, and install it to the manual transaxle case.

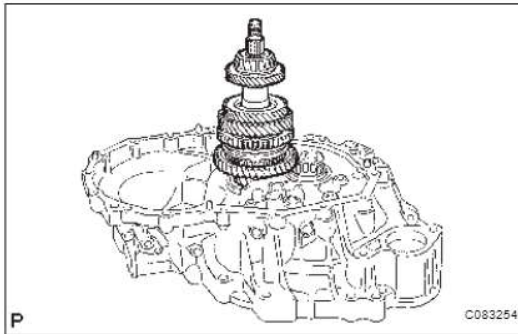
NOTICE:

Align the projection of the output shaft with the transmission groove.

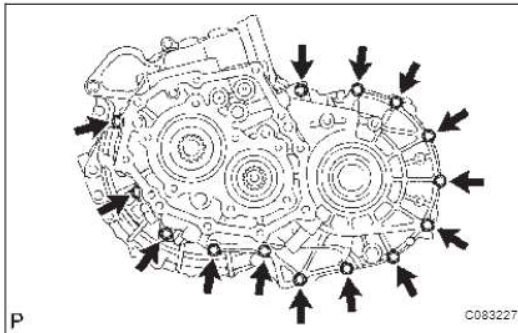
**9. INSTALL OUTPUT SHAFT FRONT BEARING**

- (a) Using SST and a hammer, install the output shaft front bearing (outer race).

SST 09950-60020 (09951-00730), 09950-70010 (09951-07100)

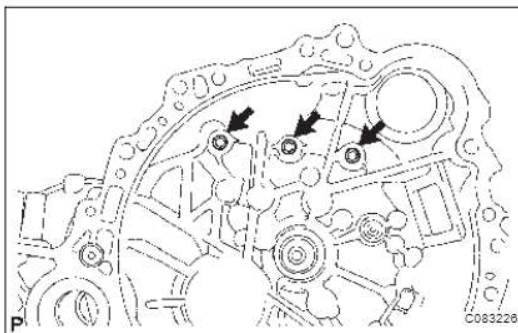
**10. ADJUST OUTPUT SHAFT BEARING PRELOAD**

- (a) Install the output shaft to the manual transaxle case.



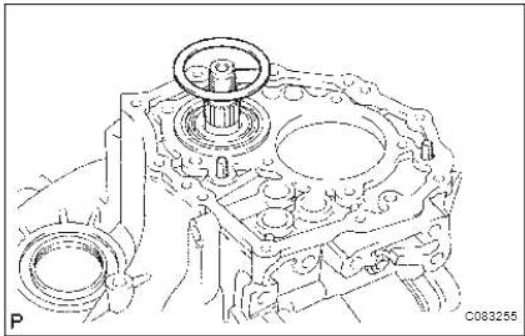
- (b) Install the transmission case to the manual transaxle case with the 14 bolts.

Torque: 29 N*m (296 kgf*cm, 21 ft.*lbf)

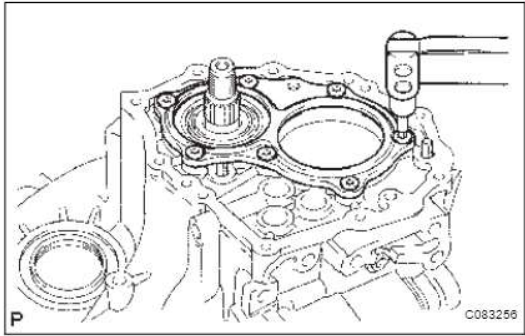


- (c) Install the 3 bolts to the manual transaxle case.

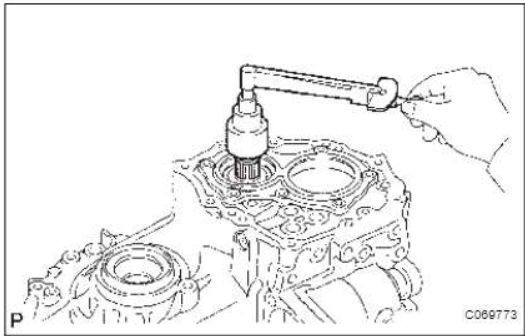
Torque: 29 N*m (296 kgf*cm, 21 ft.*lbf)



(d) Install the output shaft rear bearing case shim to the output shaft.



(e) Using a "TORX" socket wrench (T45), install the bearing retainer rear to the manual transmission case with the 7 screws.
Torque: 43 N*m (438 kgf*cm, 32 ft.*lbf)



(f) Turn the output shaft in both directions to make sure that it starts to turn smoothly.
(g) Using a socket wrench and torque wrench, inspect the preload.
Preload: N*m (kgf*cm, in.*lbf)

Bearing	Preload
New	0.8 to 1.6 (8.16 to 16.32, 7.1 to 14.2)
Used	0.5 to 1.0 (5.10 to 10.20, 4.4 to 8.9)

(h) If preload is out of specification, select a proper output shaft rear bearing shim and adjust it.
HINT:
The preload of all the output shaft rear bearing shim varies in torque from about 0.04 to 0.06 N*m (0.408 to 0.612 kgf*cm, 0.35 to 0.53 in.*lbf).

Shim

Part No.	Thickness: mm (in.)	Mark
90564-59001	1.30 (0.0512)	0
90564-59002	1.35 (0.0531)	1
90564-59003	1.40 (0.0551)	2
90564-59004	1.45 (0.0571)	3
90564-59005	1.50 (0.0591)	4
90564-59006	1.55 (0.0610)	5
90564-59007	1.60 (0.0630)	6
90564-59008	1.65 (0.0650)	7
90564-59009	1.70 (0.0669)	8
90564-59010	1.75 (0.0689)	9
90564-59011	1.80 (0.0709)	A
90564-59012	1.85 (0.0728)	B
90564-59013	1.90 (0.0748)	C
90564-59014	1.95 (0.0768)	D

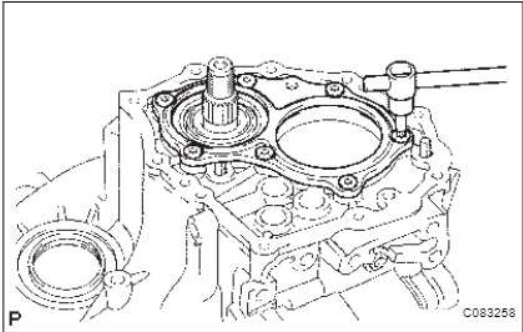
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E351 MANUAL TRANSAXLE – MANUAL TRANSAXLE UNIT

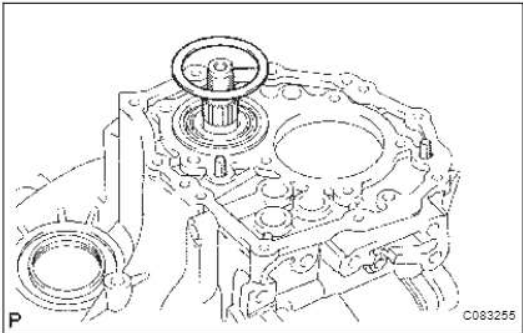
MX

Part No.	Thickness: mm (in.)	Mark
90564-59015	2.00 (0.0787)	E
90564-59016	2.05 (0.0807)	F
90564-59017	2.10 (0.0827)	G
90564-59018	2.15 (0.0846)	H
90564-59019	2.20 (0.0866)	J
90564-59020	2.25 (0.0886)	K
90564-59021	2.30 (0.0906)	L
90564-59022	2.35 (0.0925)	M
90564-59023	2.40 (0.0945)	N
90564-59024	2.45 (0.0965)	P
90564-59025	2.50 (0.0984)	Q

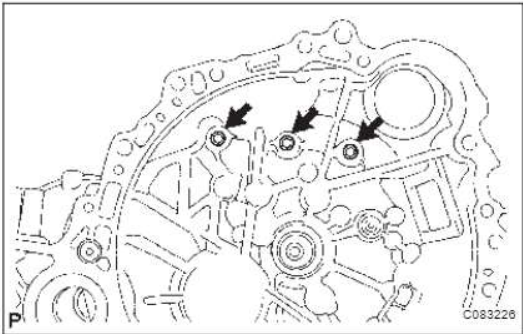
- (i) Remove the output shaft rear set nut from the output shaft.
- (j) Using a "TORX" socket wrench (T45), remove the 7 screws and bearing retainer rear from the manual transmission case.



- (k) Remove the output shaft rear bearing shim from the output shaft.



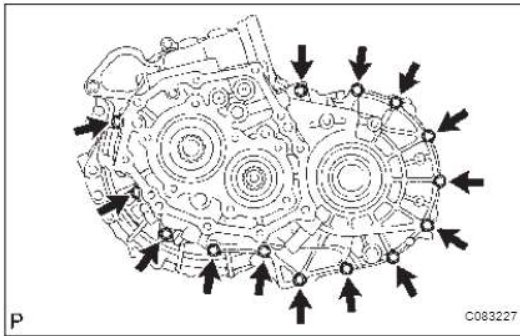
- (l) Remove the 3 bolts.



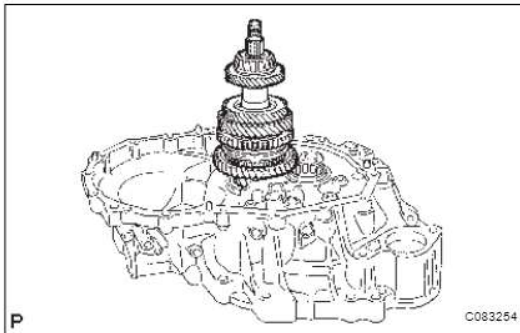
E351 MANUAL TRANSAXLE – MANUAL TRANSAXLE UNIT

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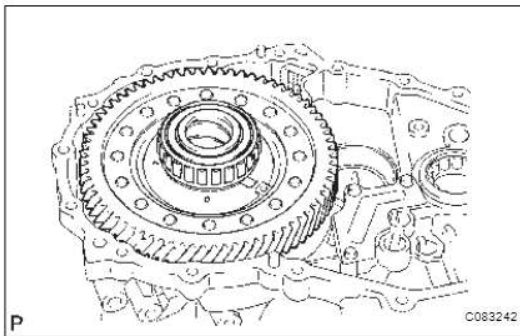
MX



- (m) Remove the 14 bolts and manual transmission case from the manual transaxle case.

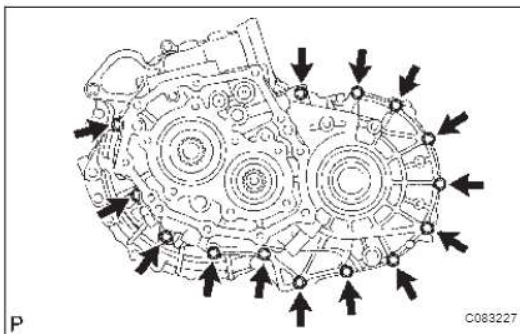


- (n) Remove the output shaft assembly from the front manual transaxle case.



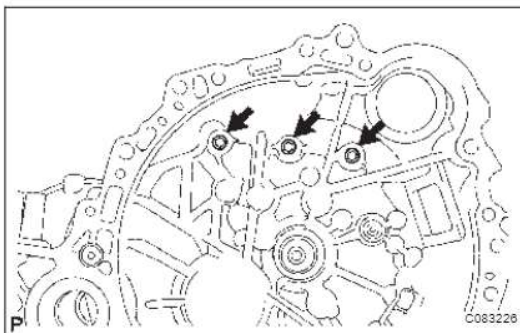
11. ADJUST TAPERED ROLLER BEARING PRELOAD

- (a) Install the differential case assembly to the manual transaxle case.



- (b) Install the 14 bolts and manual transmission case to the manual transaxle case.

Torque: 29 N*m (296 kgf*cm, 21 ft.*lbf)

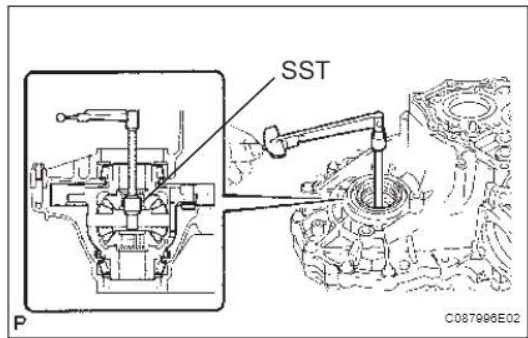


- (c) Install the 3 bolts to the front manual transaxle case.
Torque: 29 N*m (296 kgf*cm, 21 ft.*lbf)

- (d) Turn the differential case in both directions to make sure that it starts to turn smoothly.

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E351 MANUAL TRANSAXLE – MANUAL TRANSAXLE UNIT



- (e) Using SST and a torque wrench, inspect preload.
SST 09564-32011
Preload: N*m (kgf*cm, in.*lbf)

Bearing	Preload
New	0.8 to 1.6 (8.16 to 16.32, 7.1 to 14.2)
Used	0.5 to 1.0 (5.10 to 10.2, 4.4 to 8.9)

If preload is out of specification, select a proper front differential case rear shim and adjust it.

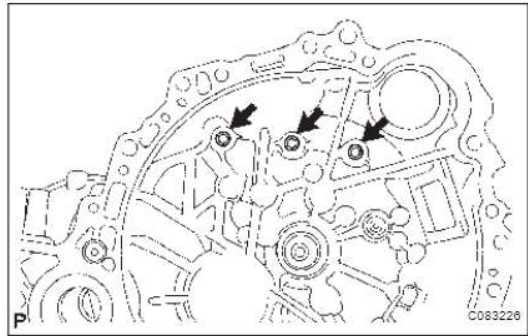
HINT:

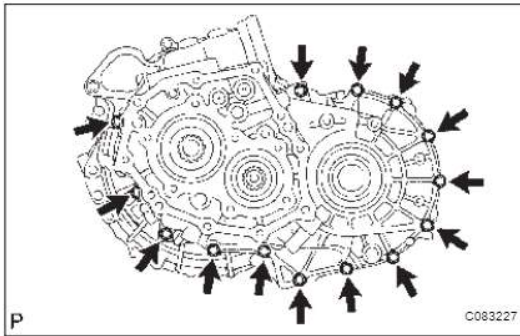
The preload of all the front differential case rear shims varies in torque from about 0.04 to 0.06 N*m (0.408 to 0.612 kgf*cm, 0.35 to 0.53 in.*lbf).

Shim

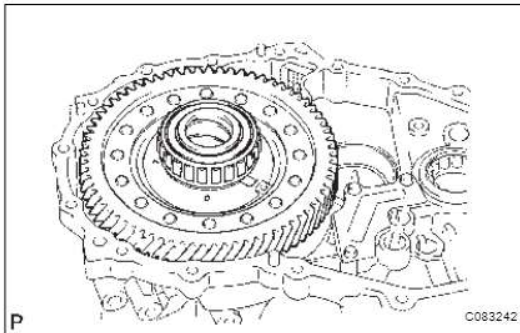
Part No.	Thickness: mm (in.)	Mark
90564-56055	2.00 (0.0787)	0
90564-56056	2.05 (0.0807)	1
90564-56057	2.10 (0.0827)	2
90564-56058	2.15 (0.0846)	3
90564-56059	2.20 (0.0866)	4
90564-56060	2.25 (0.0886)	5
90564-56061	2.30 (0.0906)	6
90564-56062	2.35 (0.0925)	7
90564-56063	2.40 (0.0945)	8
90564-56064	2.45 (0.0965)	9
90564-56065	2.50 (0.0984)	A
90564-56066	2.55 (0.1004)	B
90564-56067	2.60 (0.1024)	C
90564-56068	2.65 (0.1043)	D
90564-56069	2.70 (0.1063)	E
90564-56070	2.75 (0.1083)	F
90564-56071	2.80 (0.1102)	G
90564-56072	2.85 (0.1122)	H

- (f) Remove the 3 bolts.

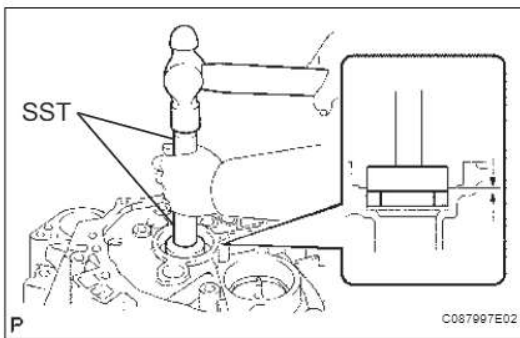


E351 MANUAL TRANSAXLE – MANUAL TRANSAXLE UNIT**MX-63****MX**

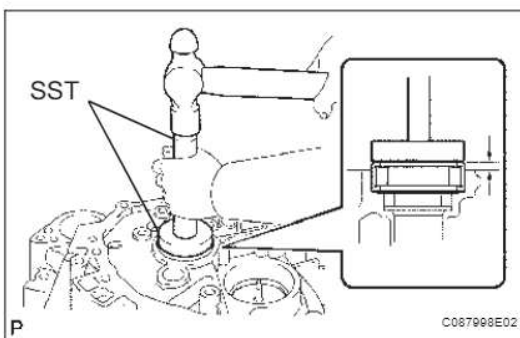
- (g) Remove the 14 bolts and manual transmission case from the manual transaxle case.



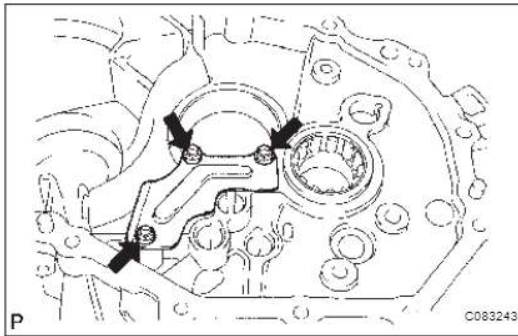
- (h) Remove the differential case assembly from the manual transaxle case.

**12. INSTALL FRONT TRANSAXLE CASE OIL SEAL**

- (a) Using SST and a hammer, install a new front transaxle case oil seal to the manual transaxle case.
SST 09950-60010 (09951-00420), 09950-70010 (09951-07150)
 (b) Coat the lip of the front transaxle case oil seal with MP grease.
Clearance:
 1.0 to 2.0 mm (0.0394 to 0.0787 in.)

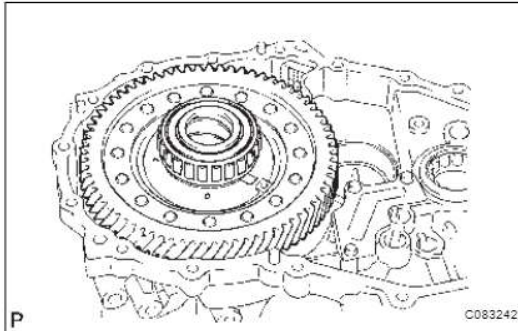
**13. INSTALL INPUT SHAFT FRONT BEARING**

- (a) Coat the input shaft front bearing with gear oil.
 (b) Using SST and a hammer, install the oil seal to the manual transaxle case.
SST 09950-60010 (09951-00570), 09950-70010 (09951-07150)
Clearance:
 4.28 to 4.60 mm (0.1685 to 0.1811 in.)

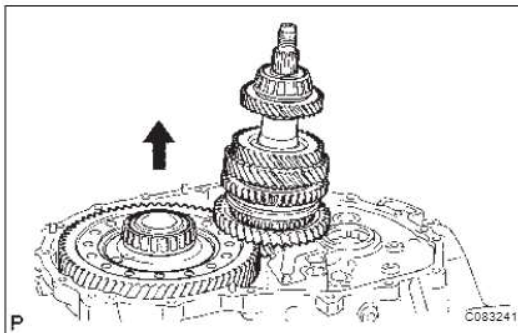
MX-64**E351 MANUAL TRANSAXLE – MANUAL TRANSAXLE UNIT****14. INSTALL MANUAL TRANSAXLE CASE RECEIVER**

- (a) Install the manual transaxle case receiver to the manual transaxle case with the 3 bolts.

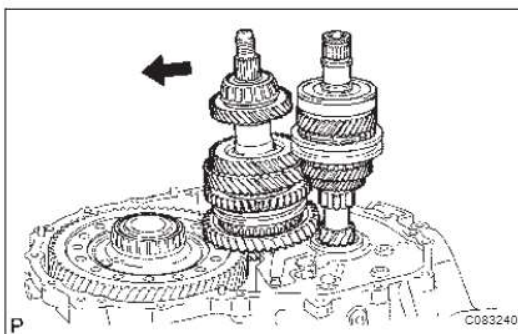
Torque: 7.0 N*m (71 kgf*cm, 62 in.*lbf)

**15. INSTALL DIFFERENTIAL CASE ASSEMBLY**

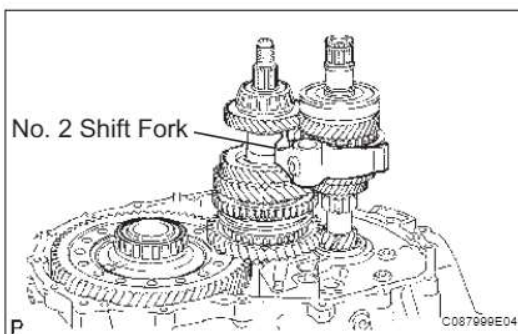
- (a) Coat the differential case tapered roller bearing with gear oil, and install the differential case assembly to the manual transaxle case.

**16. INSTALL OUTPUT SHAFT ASSEMBLY**

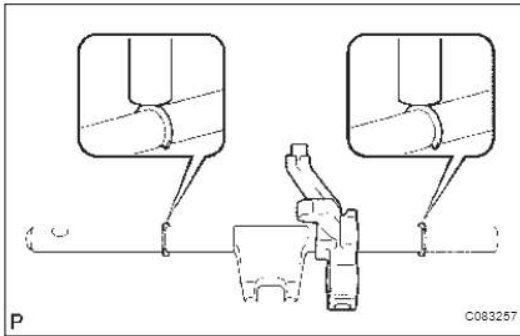
- (a) Apply gear oil to each sliding part of the output shaft assembly.
- (b) Lift the differential case assembly with the output shaft assembly leaned, and install it to the manual transaxle case.

**17. INSTALL INPUT SHAFT ASSEMBLY**

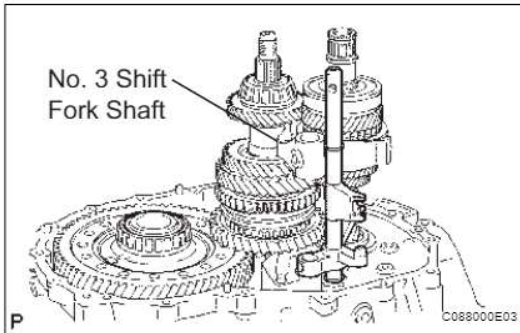
- (a) Apply gear oil to each sliding part of the input shaft assembly.
- (b) Install the input shaft assembly to the manual transaxle case while tilting the output shaft assembly.

**18. INSTALL NO. 2 GEAR SHIFT FORK**

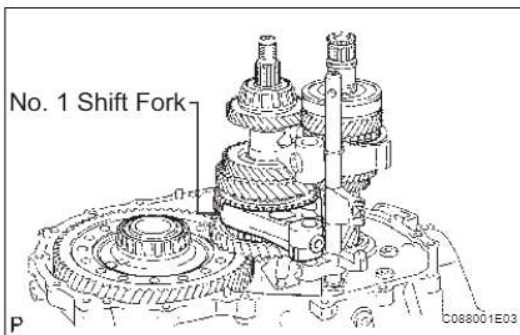
- (a) Coat the No. 2 gear shift fork with gear oil, and install it to the input shaft assembly.

E351 MANUAL TRANSAXLE – MANUAL TRANSAXLE UNIT**MX-65****19. INSTALL NO. 3 GEAR SHIFT FORK**

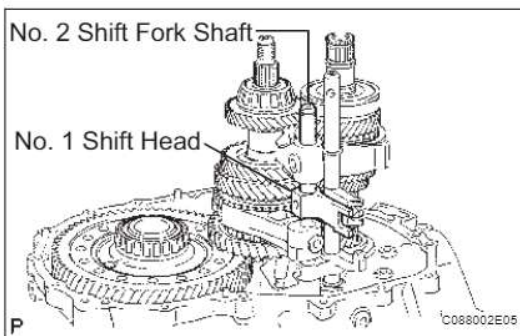
- (a) Install the No. 3 gear shift fork to the No. 3 gear shift fork shaft.
- (b) Using a brass bar and hammer, install the 2 shift fork shaft snap rings to the gear shift fork shaft.



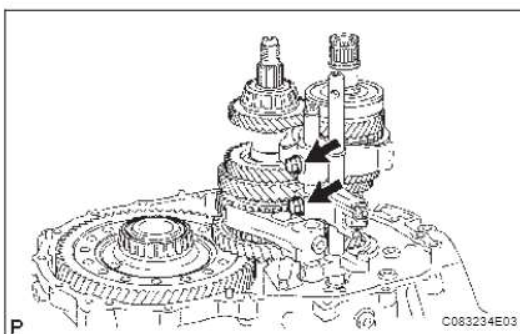
- (c) Apply gear oil to each sliding part of the No. 3 gear shift fork shaft, and install it to the manual transaxle case.

**20. INSTALL NO. 1 GEAR SHIFT FORK**

- (a) Apply gear oil to each sliding part of the No. 1 gear shift fork, and install it to the output shaft assembly.

**21. INSTALL NO. 2 GEAR SHIFT FORK SHAFT**

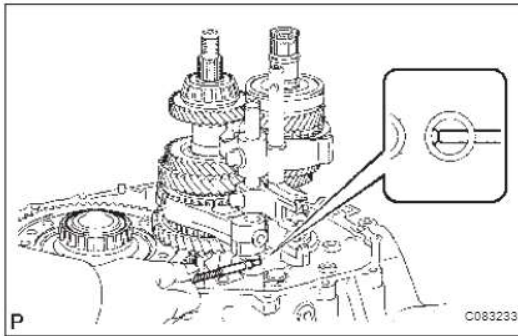
- (a) Install the No. 1 gear shift head to the No. 2 gear shift fork shaft.
- (b) Apply gear oil to each sliding part of the No. 2 gear shift fork shaft, and install it to the manual transaxle case.



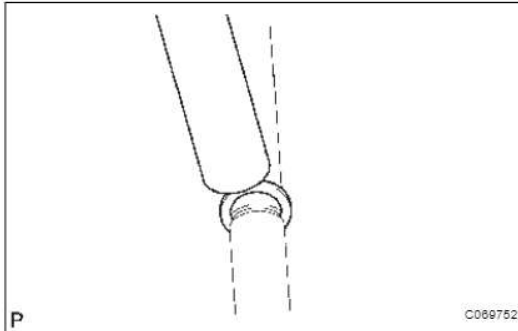
- (c) Install the shift fork set bolt and shift head set bolt to the No. 1 gear shift head.

Torque: 24 N*m (245 kgf*cm, 18 ft.*lbf)

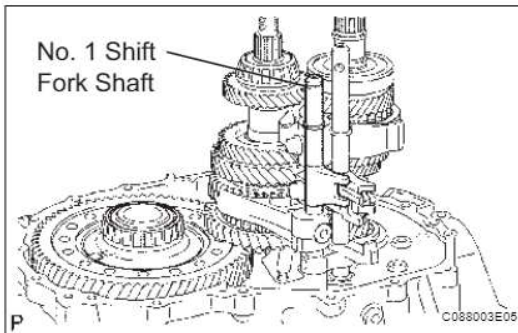
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MX-66**E351 MANUAL TRANSAXLE – MANUAL TRANSAXLE UNIT****22. INSTALL REVERSE SHIFT FORK ROLLER**

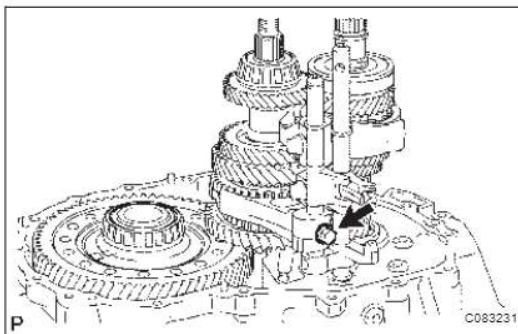
- (a) Using a magnetic finger, install the reverse shift fork roller to the reverse shift fork.

**23. INSTALL NO. 1 GEAR SHIFT FORK SHAFT**

- (a) Using a brass bar and hammer, install the shift fork shaft snap ring to the No. 1 shift fork shaft.

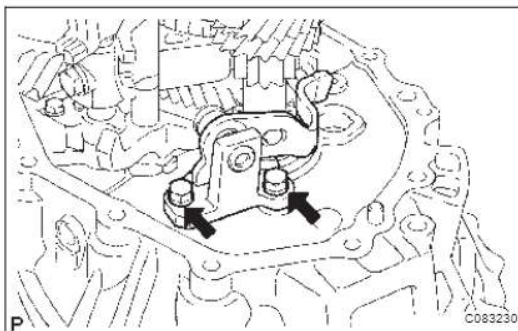


- (b) Install the No. 1 gear shift fork shaft to the manual transaxle case.



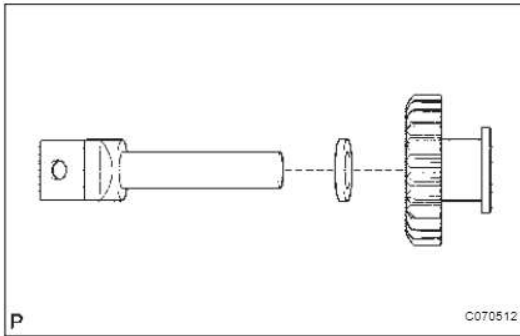
- (c) Install the shift fork set bolt to the No. 1 gear shift fork.

Torque: 24 N*m (245 kgf*cm, 18 ft.*lbf)

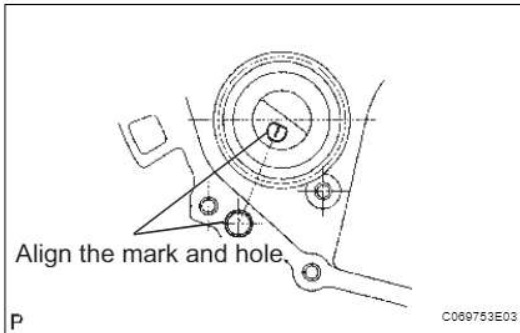
**24. INSTALL REVERSE SHIFT ARM BRACKET ASSEMBLY**

- (a) Install the reverse shift arm bracket assembly to the manual transaxle case with the 2 bolts.

Torque: 17 N*m (173 kgf*cm, 13 ft.*lbf)

E351 MANUAL TRANSAXLE – MANUAL TRANSAXLE UNIT**MX-67****25. INSTALL REVERSE IDLER GEAR SUB-ASSEMBLY**

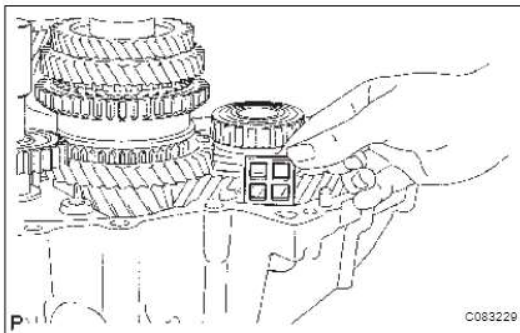
- (a) Coat the reverse idler gear and reverse idler thrust washer with MP grease, and install them to the reverse idler gear shaft.



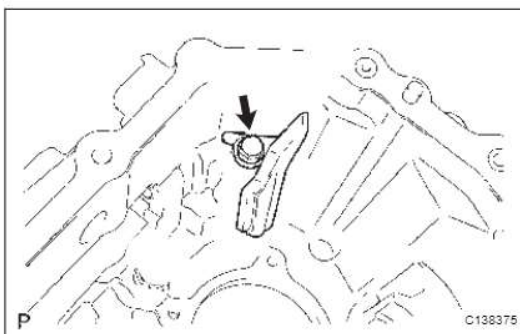
- (b) Install the reverse idler gear to the manual transaxle case.

HINT:

Align the mark of the reverse idler gear shaft with the hole of the bolt.

**26. INSTALL TRANSMISSION MAGNET**

- (a) Clean the transmission magnet and install it to the manual transaxle case.

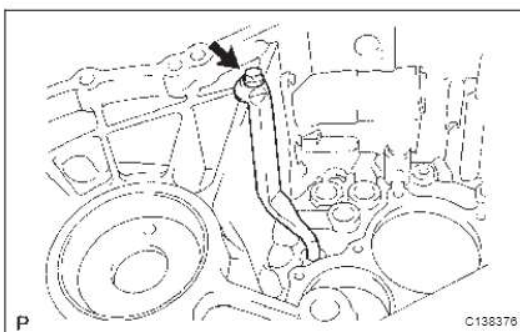
**27. INSTALL NO. 1 OIL RECEIVER PIPE**

- (a) Install the No. 1 oil receiver pipe to the manual transmission case with the bolt.

Torque: 17 N*m (173 kgf*cm, 13 ft.*lbf)

NOTICE:

Do not damage the pipe.

**28. INSTALL NO. 2 OIL RECEIVER PIPE**

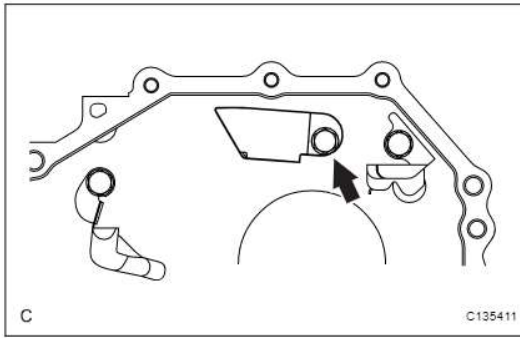
- (a) Install the No. 2 oil receiver pipe to the manual transmission case with the bolt.

Torque: 17 N*m (173 kgf*cm, 13 ft.*lbf)

NOTICE:

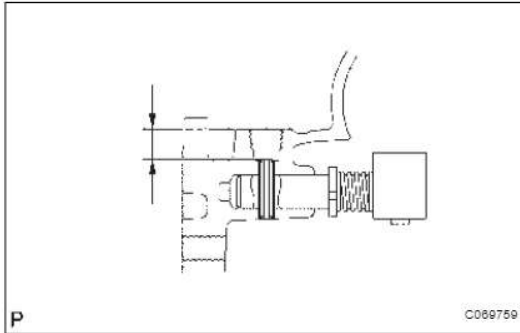
Do not damage the pipe.

MX

MX-68**E351 MANUAL TRANSAXLE – MANUAL TRANSAXLE UNIT****MX****29. INSTALL REVERSE RESTRICT PIN ASSEMBLY**

- (a) Install the transmission oil baffle and reverse restrict pin with the bolt.

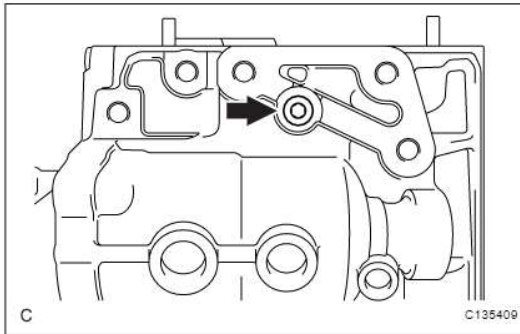
Torque: 17 N*m (173 kgf*cm, 13 ft.*lbf)



- (b) Using a pin punch (ϕ 5 mm), install the slotted pin to the reverse restrict pin assembly.

Clearance:

12.5 to 13.5 mm (0.492 to 0.531 in.)

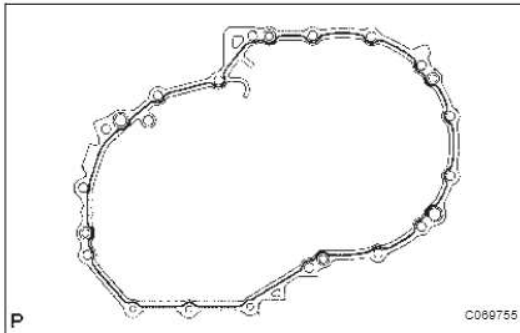


- (c) Coat the reverse restrict pin plug with adhesive. Using a hexagon wrench (6 mm), install the manual transmission case.

Torque: 13 N*m (133 kgf*cm, 9.6 ft.*lbf)

Adhesive:

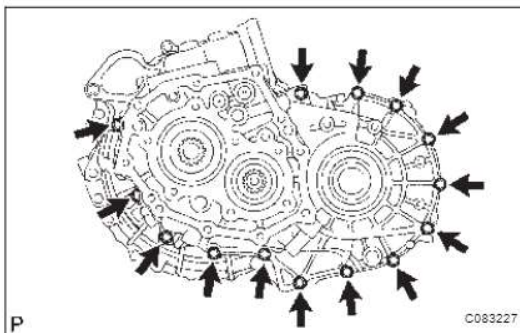
Toyota Genuine Adhesive 1324, Three Bond 1324 or equivalent

**30. INSTALL MANUAL TRANSMISSION CASE**

- (a) Apply a bead of FIPG to the manual transmission case as shown in the illustration.

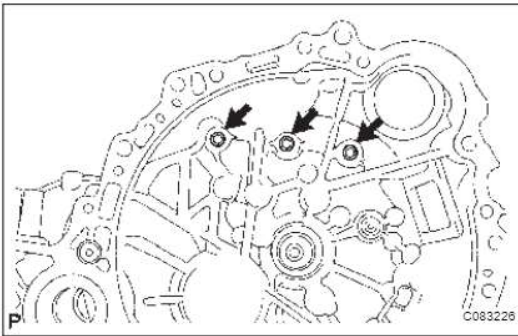
HINT:

Install the manual transmission case within 10 minutes after applying FIPG.



- (b) Install the manual transmission case to the manual transaxle case with the 14 bolts.

Torque: 29 N*m (296 kgf*cm, 21 ft.*lbf)

E351 MANUAL TRANSAXLE – MANUAL TRANSAXLE UNIT**MX-69**

- (c) Coat the 3 bolts with adhesive.

Adhesive:

Toyota Genuine Adhesive 1324, Three Bond 1324 or equivalent

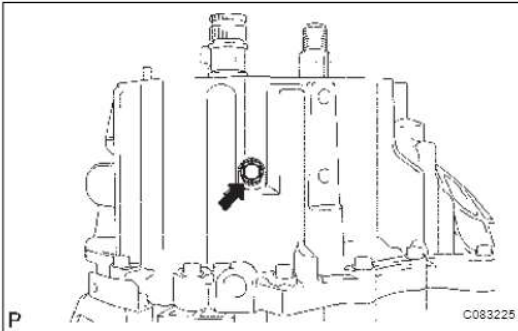
- (d) Install the 3 bolts to the manual transaxle case.

Torque: 29 N*m (296 kgf*cm, 21 ft.*lbf)

31. INSTALL NO. 1 CLUTCH TUBE BRACKET

- (a) Install the clutch tube bracket with the bolt.

Torque: 17 N*m (173 kgf*cm, 13 ft.*lbf)

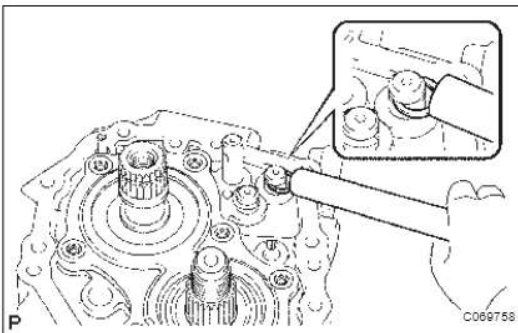
**32. INSTALL REVERSE IDLER GEAR SHAFT BOLT**

- (a) Coat the bolt with adhesive. Install a new gasket to the manual transmission case with the bolt.

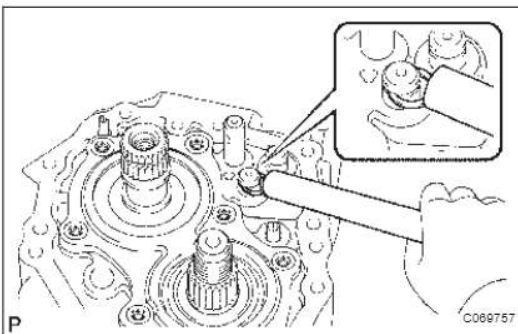
Torque: 30 N*m (306 kgf*cm, 22 ft.*lbf)

Adhesive:

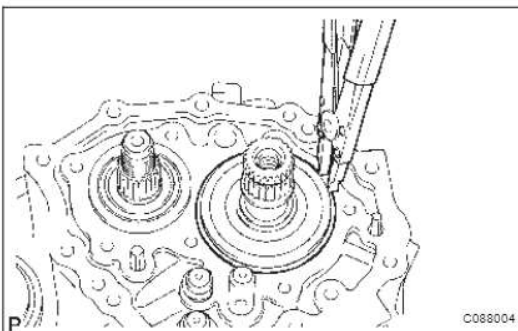
Toyota Genuine Adhesive 1344, Three Bond 1344 or equivalent

**33. INSTALL SHIFT FORK SHAFT SHAFT SNAP RING**

- (a) Using a brass bar and hammer, install the shift fork shaft snap ring to the No. 1 gear shift fork shaft.

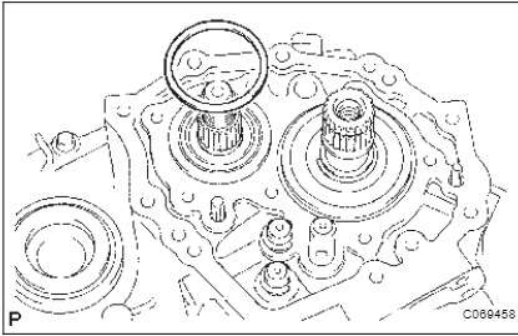


- (b) Using a brass bar and hammer, install the shift fork shaft snap ring to the No. 2 gear shift fork shaft.

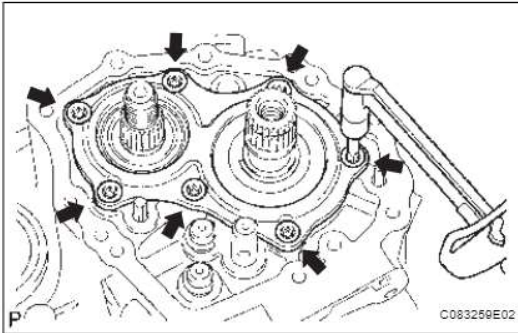
**34. INSTALL INPUT SHAFT REAR BEARING SHAFT SNAP RING**

- (a) Using a snap ring expander, install the input shaft rear bearing shaft snap ring.

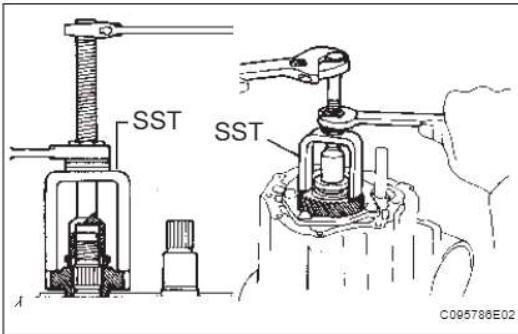
MX

MX-70**E351 MANUAL TRANSAXLE – MANUAL TRANSAXLE UNIT****MX****35. INSTALL OUTPUT SHAFT REAR BEARING SHIM**

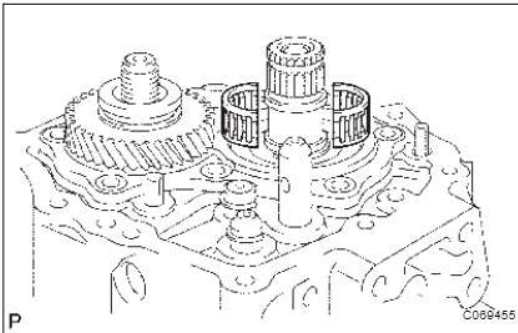
- (a) Install the output shaft rear bearing shim to the output shaft.

**36. INSTALL REAR BEARING RETAINER**

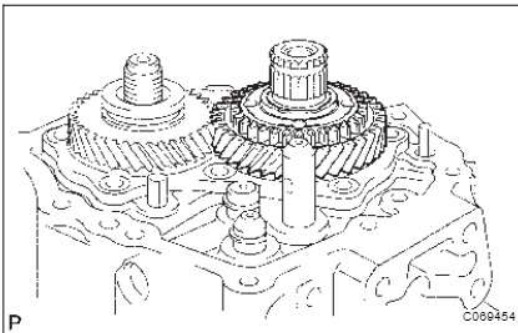
- (a) Coat the rear bearing retainer with sealant and install it with a "TORX" wrench (T45).
- (b) Install a new output rear set nut to the output shaft.
Torque: 43 N*m (438 kgf*cm, 32 ft.*lbf)

**37. INSTALL 5TH DRIVEN GEAR**

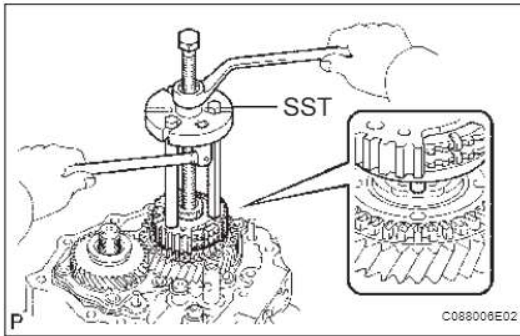
- (a) Using SST, install the 5th driven gear to the output shaft.
SST 09309-12020

**38. INSTALL 5TH GEAR NEEDLE ROLLER BEARING**

- (a) Coat the 5th gear needle roller bearing with gear oil and install it to the input shaft.

**39. INSTALL 5TH GEAR**

- (a) Coat the 5th gear with gear oil and install it to the input shaft.

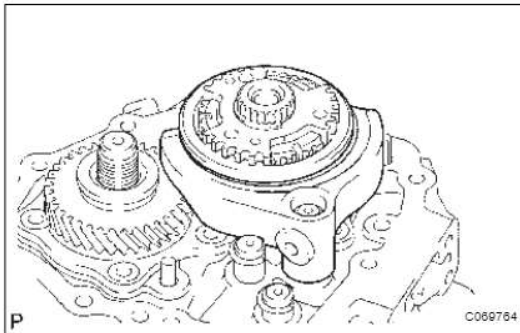
E351 MANUAL TRANSAXLE – MANUAL TRANSAXLE UNIT**MX-71****40. INSTALL NO. 3 TRANSMISSION CLUTCH HUB**

- (a) Using SST, install the No. 3 transmission clutch hub to the input shaft.

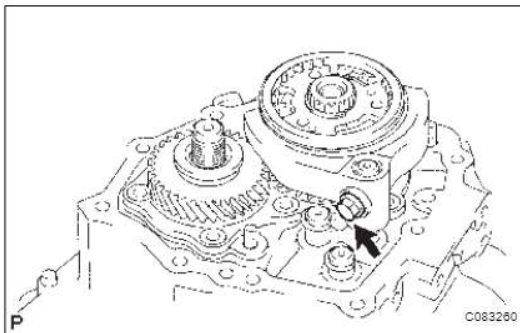
SST 09950-30012 (09951-03010, 09953-03010, 09954-03010)

NOTICE:

Align the projection of the synchronizer ring with the hole of the 5th gear.



- (b) Install the No. 3 transmission hub sleeve and No. 3 gear shift fork to the No. 3 transmission clutch hub.

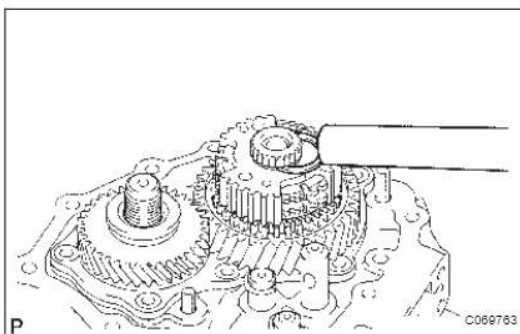


- (c) Coat the shift fork set bolt with adhesive and install it to the No. 3 gear shift fork.

Torque: 24 N*m (245 kgf*cm, 18 ft.*lbf)

Adhesive:

Toyota Genuine Adhesive 1344, Three Bond 1344 or equivalent



- (d) Select a snap ring that will allow minimum axial play. Using a brass bar and a hammer, install the shaft snap ring.

Clearance:

0.1 mm (0.004 in.) or less

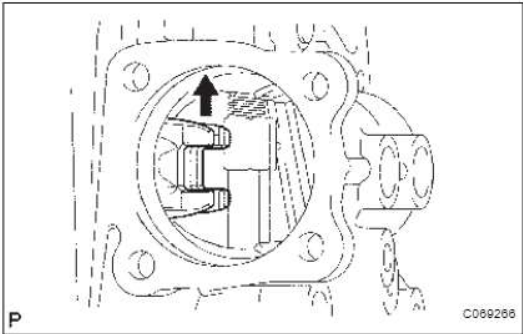
Snap ring

Part No.	Thickness: mm (in.)	Mark
90520-27061	1.75 to 1.80 (0.0689 to 0.0709)	a
90520-27062	1.80 to 1.85 (0.0709 to 0.0728)	b
90520-27063	1.85 to 1.90 (0.0728 to 0.0748)	c
90520-27064	1.90 to 1.95 (0.0748 to 0.0768)	d
90520-27065	1.95 to 2.00 (0.0768 to 0.0787)	e
90520-27066	2.00 to 2.05 (0.0787 to 0.0807)	f
90520-27067	2.05 to 2.10 (0.0807 to 0.0827)	g
90520-27068	2.10 to 2.15 (0.0827 to 0.0846)	h

MX-72

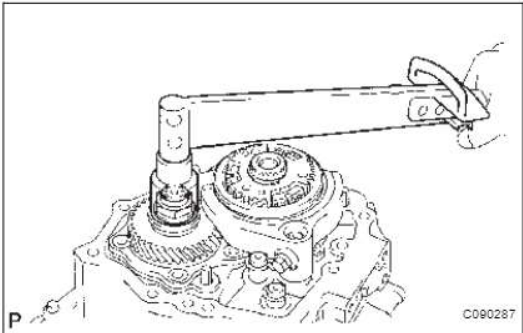
E351 MANUAL TRANSAXLE – MANUAL TRANSAXLE UNIT

Part No.	Thickness: mm (in.)	Mark
90520-27069	2.15 to 2.20 (0.0846 to 0.0866)	j



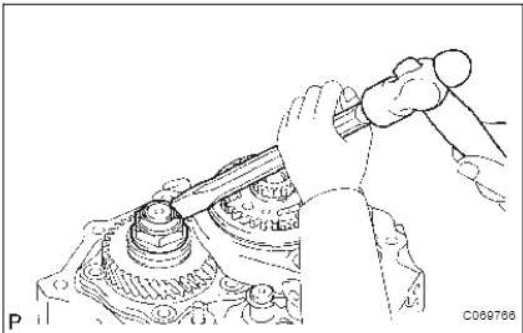
41. INSTALL MANUAL TRANSMISSION OUTPUT SHAFT REAR SET NUT

(a) Engage the 1st and 2nd gears simultaneously.



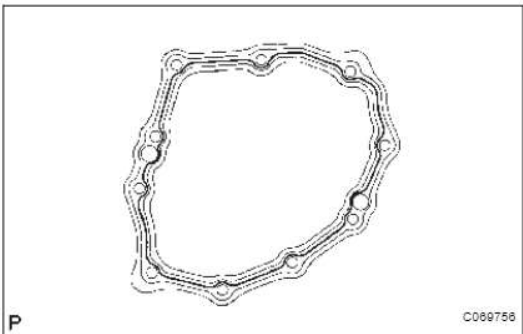
(b) Install a new manual transmission output shaft rear set nut.

Torque: 123 N*m (1,254 kgf*cm, 90 ft.*lbf)



(c) Using a chisel and a hammer, stake the manual transmission output shaft rear set nut.

(d) Disengage the gears.



42. INSTALL MANUAL TRANSMISSION CASE COVER SUB-ASSEMBLY

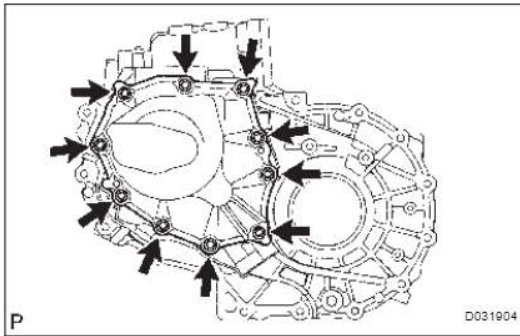
(a) Apply FIPG to the transaxle case cover sub-assembly as shown in the installation.

FIPG:

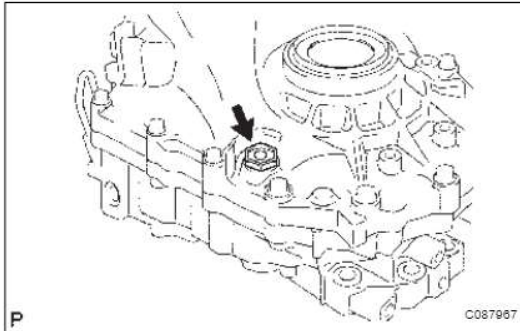
Toyota Genuine Seal Packing 1281, Three Bond 1281 or equivalent

NOTICE:

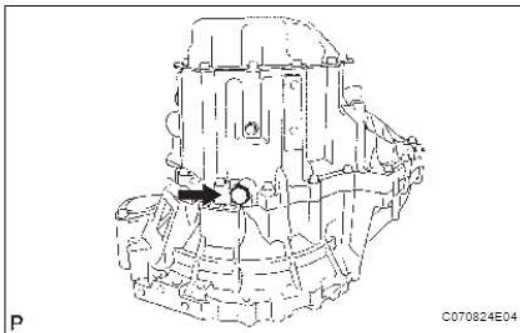
Install the part within 10 minutes after applying the packing material (FIPG).

E351 MANUAL TRANSAXLE – MANUAL TRANSAXLE UNIT**MX-73****MX**

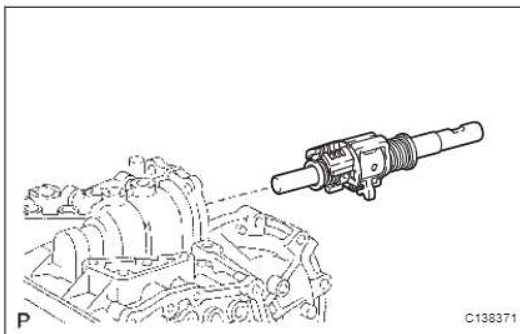
- (b) Install the transmission case cover sub-assembly to the manual transaxle case with the 10 bolts.

**43. INSTALL DRAIN PLUG SUB-ASSEMBLY**

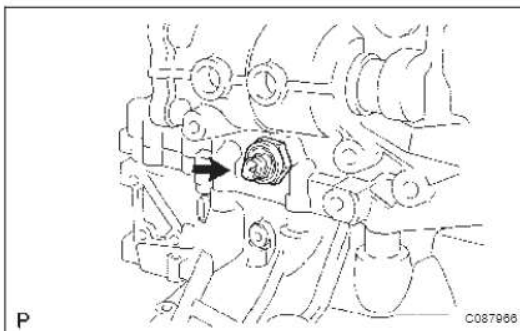
- (a) Install the drain plug sub-assembly to the manual transmission case with a new gasket.
Torque: 49 N*m (500 kgf*cm, 36 ft.*lbf)

**44. INSTALL MANUAL TRANSMISSION FILLER PLUG**

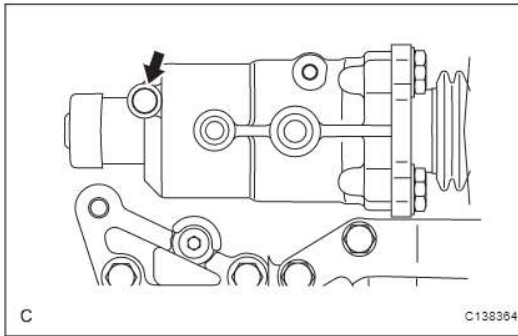
- (a) Install the manual transmission filler plug to the transaxle case with a new gasket.
Torque: 49 N*m (500 kgf*cm, 36 ft.*lbf)

**45. INSTALL SHIFT AND SELECT LEVER SHAFT ASSEMBLY**

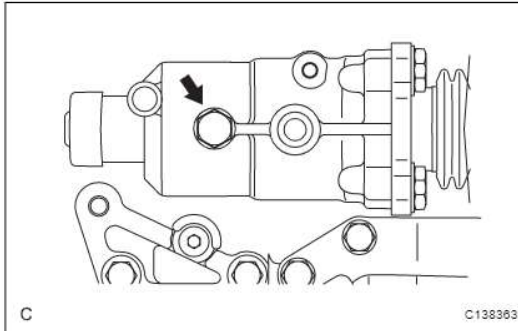
- (a) Coat the shift and select lever shaft assembly with gear oil, and install it to the manual transmission case.

**46. INSTALL BACK-UP LIGHT SWITCH ASSEMBLY**

- (a) Install the back-up light switch assembly to the manual transmission case with a new gasket.
Torque: 40 N*m (408 kgf*cm, 30 ft.*lbf)

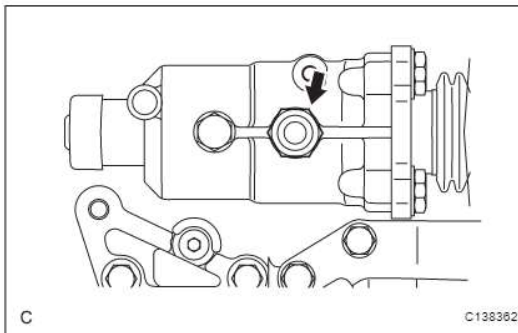
MX-74**E351 MANUAL TRANSAXLE – MANUAL TRANSAXLE UNIT****MX****47. INSTALL MANUAL TRANSMISSION BREATHER PLUG**

- (a) Install the manual transmission breather plug to the manual transmission case.

**48. INSTALL SHIFT GATE PIN**

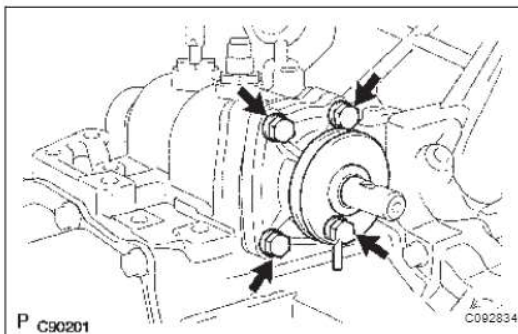
- (a) Install the shift gate pin to the manual transmission case.

Torque: 29 N*m (296 kgf*cm, 21 ft.*lbf)

**49. INSTALL NO. 1 LOCK BALL ASSEMBLY**

- (a) Install the lock ball assembly No. 1 to the manual transmission case.

Torque: 29 N*m (296 kgf*cm, 21 ft.*lbf)

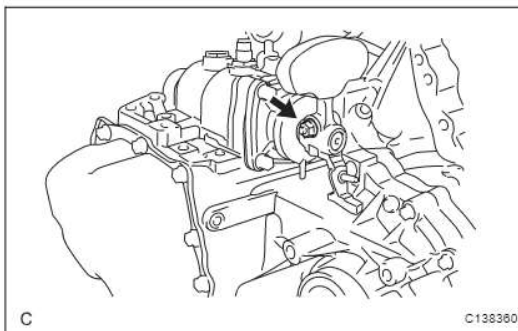
**50. INSTALL CONTROL SHAFT COVER**

- (a) Coat the 4 bolts with adhesive. Install a new gasket and the control shaft cover with the bolts.

Torque: 20 N*m (204 kgf*cm, 15 ft.*lbf)

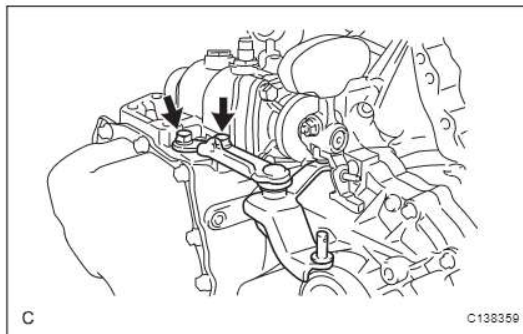
Adhesive:

Toyota Genuine Adhesive 1344, Three Bond 1344 or equivalent

**51. INSTALL CONTROL SHIFT LEVER**

- (a) Install the control shift lever with the shift outer lever lock pin to the shift and select lever shaft.
(b) Install the spring washer with the nut.

Torque: 6.4 N*m (65 kgf*cm, 57 in.*lbf)

E351 MANUAL TRANSAXLE – MANUAL TRANSAXLE UNIT**MX-75****52. INSTALL SELECTING BELLCRANK ASSEMBLY**

- (a) Coat the 2 bolts with adhesive. Install the selecting bellcrank assembly to the manual transmission case with the bolts.

Torque: 20 N*m (204 kgf*cm, 15 ft.*lbf)

Adhesive:

Toyota Genuine Adhesive 1344, Three Bond 1344 or equivalent

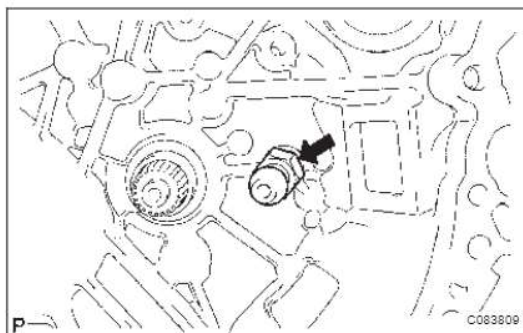
53. INSTALL SPEEDOMETER DRIVEN HOLE COVER SUB-ASSEMBLY

- (a) Install a new O-ring and the speedometer driven hole cover sub-assembly to the transmission case with the bolt.

Torque: 5.5 N*m (56 kgf*cm, 48 in.*lbf)

54. INSTALL CLUTCH RELEASE FORK BOOT

- (a) Install the clutch release fork boot to the manual transaxle case.

**55. INSTALL RELEASE FORK SUPPORT**

- (a) Using a deep socket wrench, install the release fork support to the manual transaxle case.

Torque: 47 N*m (480 kgf*cm, 36 ft.*lbf)

56. INSTALL CLUTCH RELEASE BEARING ASSEMBLY

- (a) Coat the clutch release bearing assembly with release hub grease, and install it to the clutch release fork sub-assembly.

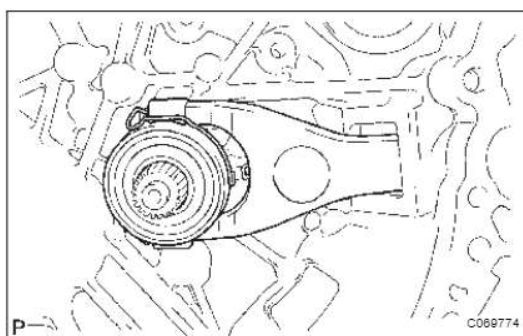
Sealant:

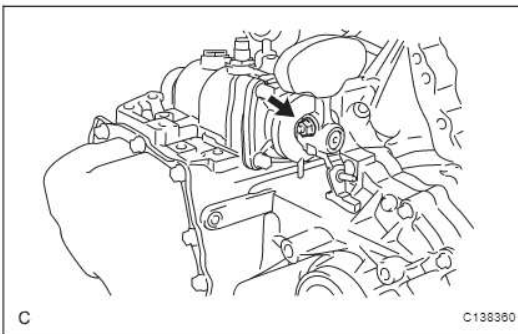
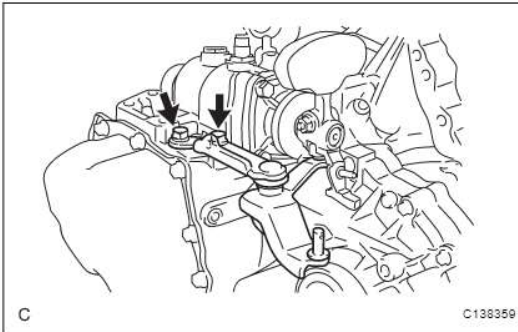
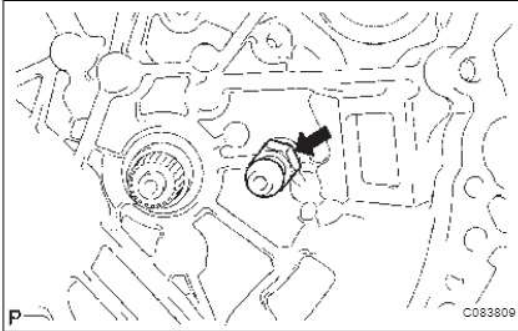
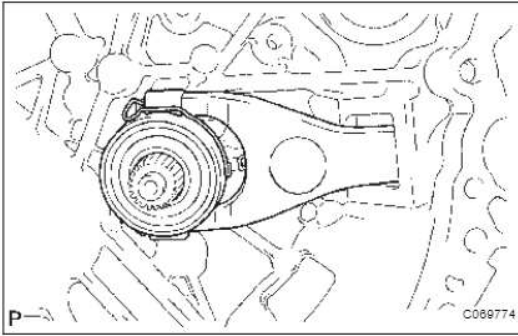
Part No. 08887-01806, Release Hub Grease or equivalent

- (b) Apply clutch spline grease to the input shaft spline.

57. INSTALL CLUTCH RELEASE FORK SUB-ASSEMBLY

- (a) Install the clutch release fork sub-assembly to the input shaft.

**MX**

MX-40**E351 MANUAL TRANSAXLE – MANUAL TRANSAXLE UNIT****MX****DISASSEMBLY****1. REMOVE CLUTCH RELEASE FORK SUB-ASSEMBLY**

- (a) Remove the clutch release fork sub-assembly together with the clutch release bearing assembly from the manual transaxle case.

2. REMOVE CLUTCH RELEASE BEARING ASSEMBLY

- (a) Remove the clutch release bearing assembly and release bearing hub clip from the clutch release fork sub-assembly.

3. REMOVE RELEASE FORK SUPPORT

- (a) Remove the release fork support from the manual transaxle case.

4. REMOVE CLUTCH RELEASE FORK BOOT

- (a) Remove the clutch release fork boot from the manual transaxle case.

5. REMOVE SPEEDOMETER DRIVEN HOLE COVER SUB-ASSEMBLY

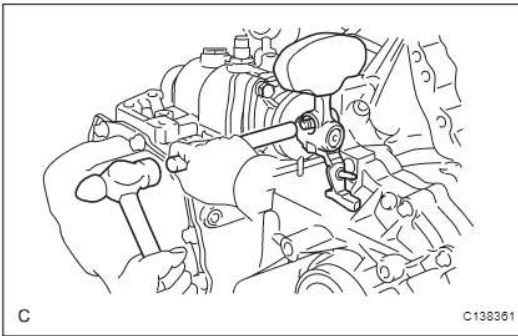
- (a) Remove the bolt and speedometer driven hole cover sub-assembly.
(b) Remove the O-ring.

6. REMOVE SELECTING BELLCRANK ASSEMBLY

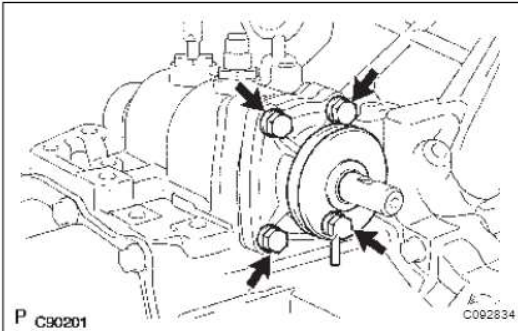
- (a) Remove the 2 bolts and selecting bellcrank assembly from the manual transmission case.

7. REMOVE CONTROL SHIFT LEVER

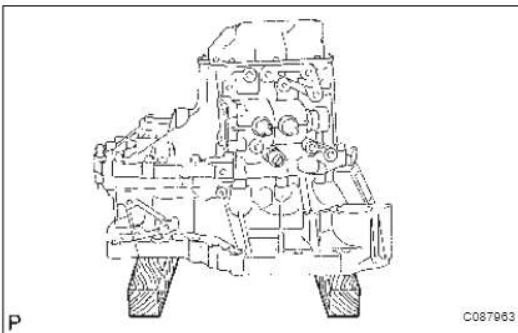
- (a) Remove the nut and spring washer.

E351 MANUAL TRANSAXLE – MANUAL TRANSAXLE UNIT**MX-41****MX**

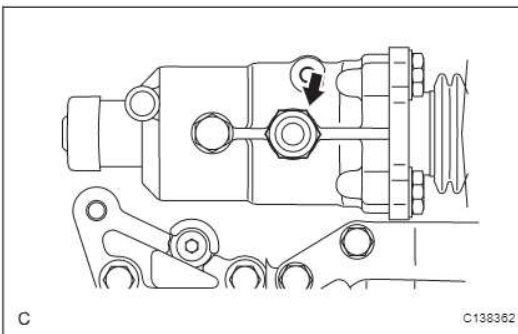
- (b) Using a brass bar and hammer, remove the shift outer lever lock pin.
- (c) Remove the control shift lever.

**8. REMOVE CONTROL SHAFT COVER**

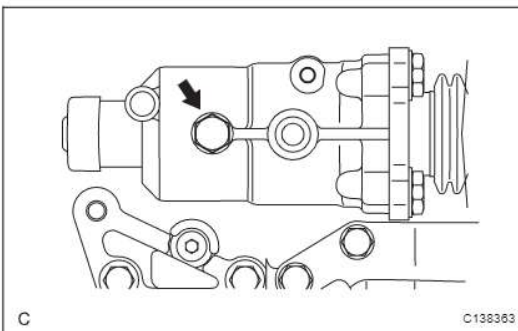
- (a) Remove the 4 bolts and control shaft cover from the manual transmission case.

**9. SECURE MANUAL TRANSAXLE ASSEMBLY**

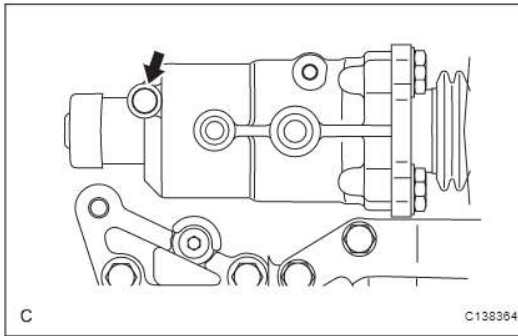
- (a) Place the manual transaxle assembly on wooden blocks.

**10. REMOVE NO. 1 LOCK BALL ASSEMBLY**

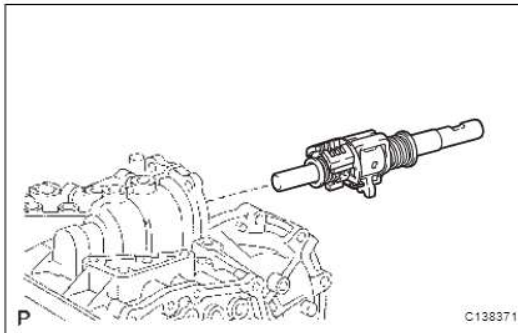
- (a) Remove the No. 1 lock ball assembly from the manual transmission case.

**11. REMOVE SHIFT GATE PIN**

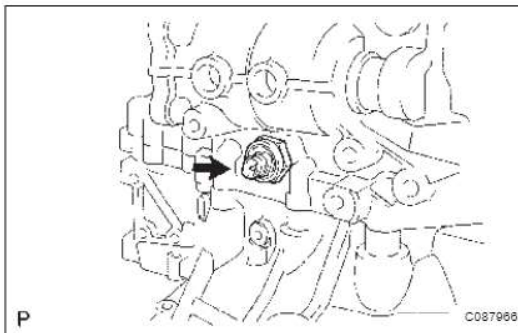
- (a) Remove the shift gate pin from the manual transmission case.

MX-42**E351 MANUAL TRANSAXLE – MANUAL TRANSAXLE UNIT****12. REMOVE MANUAL TRANSMISSION BREATHER PLUG**

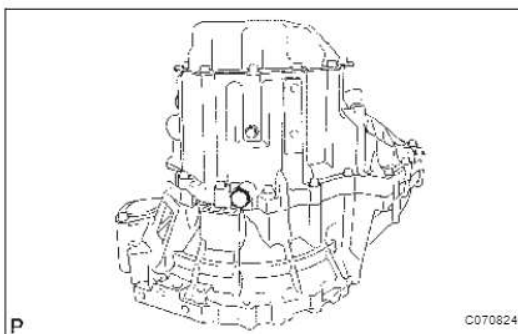
- (a) Remove the manual transmission breather plug.

**13. REMOVE SHIFT AND SELECT LEVER SHAFT ASSEMBLY**

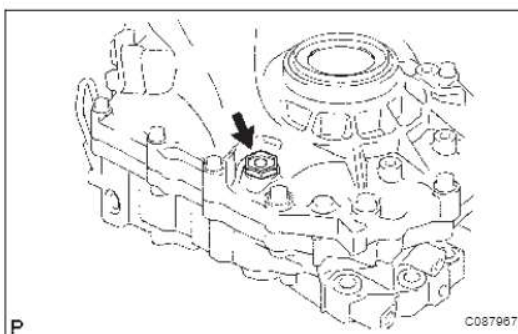
- (a) Remove the shift and select lever shaft assembly from the manual transmission case.

**14. REMOVE BACK-UP LIGHT SWITCH ASSEMBLY**

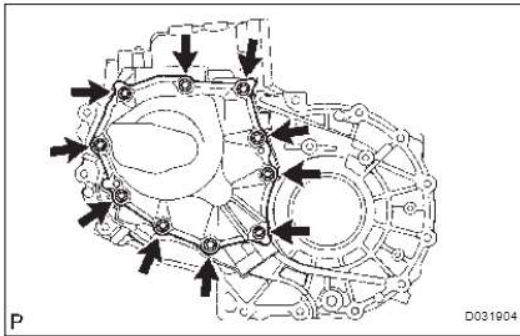
- (a) Remove the back-up light switch assembly and gasket from the manual transmission case.

**15. REMOVE MANUAL TRANSMISSION FILLER PLUG**

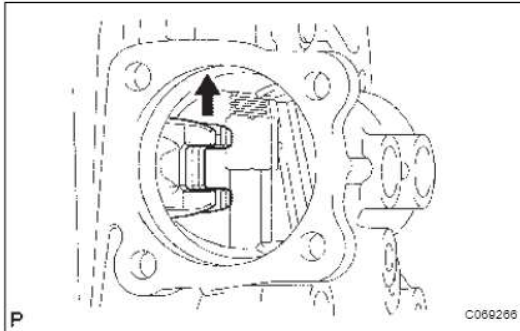
- (a) Remove the manual transmission filler plug and gasket from the manual transmission case.

**16. REMOVE DRAIN PLUG SUB-ASSEMBLY**

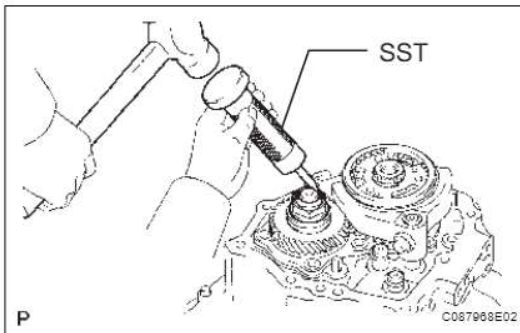
- (a) Remove the drain plug sub-assembly and gasket from the manual transmission case.

E351 MANUAL TRANSAXLE – MANUAL TRANSAXLE UNIT**MX-43****MX****17. REMOVE MANUAL TRANSMISSION CASE COVER SUB-ASSEMBLY**

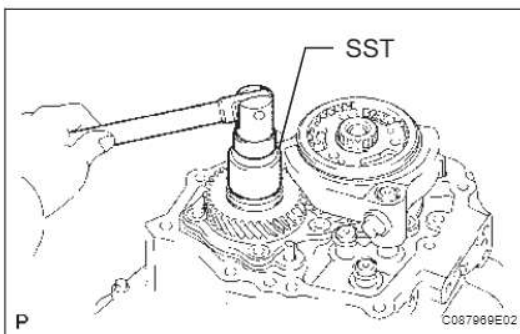
- (a) Remove the 10 bolts and manual transmission case cover from the manual transmission case.

**18. REMOVE MANUAL TRANSMISSION OUTPUT SHAFT REAR SET NUT**

- (a) Engage the 1st and 2nd gears simultaneously.



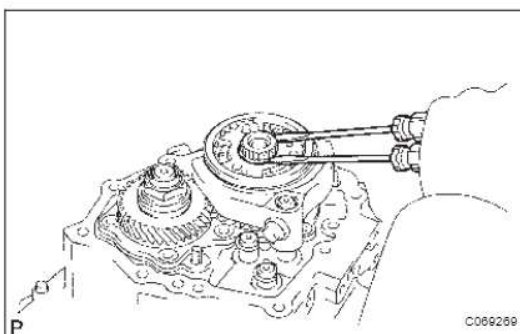
- (b) Using SST and a hammer, unstick the manual transmission output shaft rear set nut.

SST 09930-00010

- (c) Using SST, remove the manual transmission output shaft rear set nut from the output shaft.

SST 09229-55010

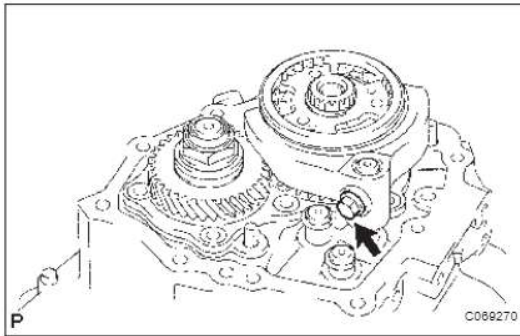
- (d) Disengage the gears.

**19. REMOVE NO. 3 TRANSMISSION CLUTCH HUB**

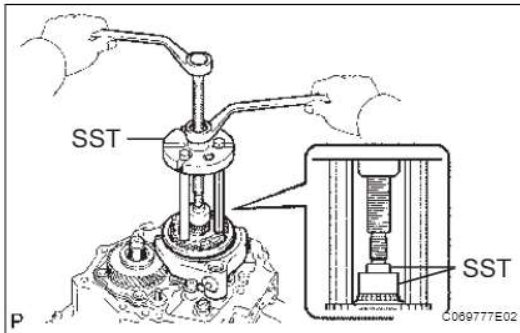
- (a) Using 2 screwdrivers and a hammer, remove the transmission clutch hub No. 3 shaft snap ring from the input shaft.

HINT:

Use a shop rag or a piece of cloth to keep the snap ring from flying.

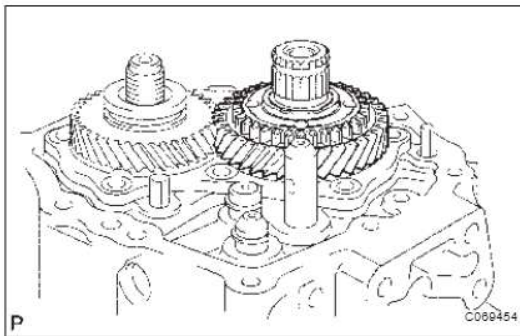
MX-44**E351 MANUAL TRANSAXLE – MANUAL TRANSAXLE UNIT**

- (b) Remove the shift fork set bolt from the No. 3 gear shift fork.

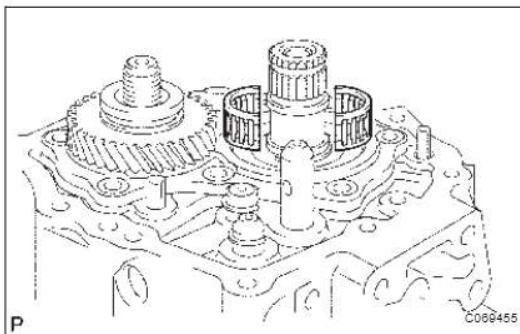


- (c) Using SST, remove the No. 3 transmission clutch hub and No. 3 gear shift fork from the input shaft.

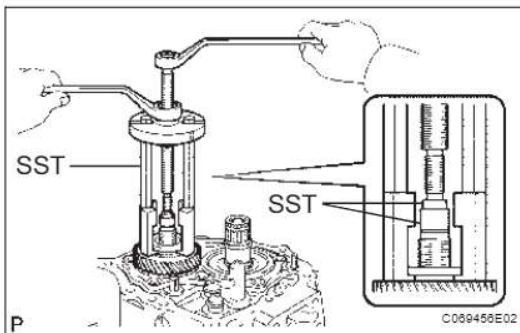
SST 09950-30012 (09951-03010, 09953-03010, 09954-03010), 09950-50013 (09957-04010), 09950-60010 (09951-00280)

**20. REMOVE 5TH GEAR**

- (a) Remove the 5th gear from the input shaft.

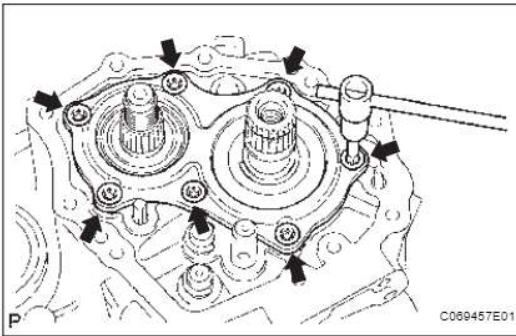
**21. REMOVE 5TH GEAR NEEDLE ROLLER BEARING**

- (a) Remove the 5th gear needle roller bearing from the input shaft.

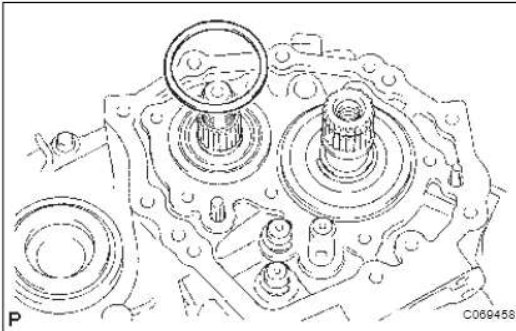
**22. REMOVE 5TH DRIVEN GEAR**

- (a) Using SST, remove the 5th driven gear from the output shaft.

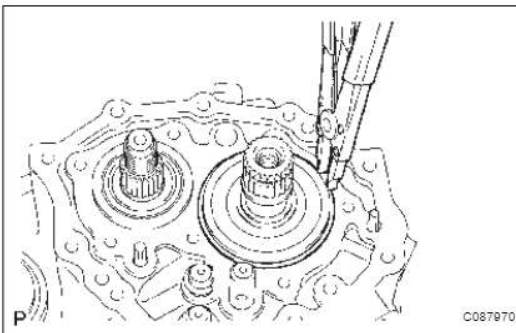
SST 09950-30012 (09951-03010, 09953-03010, 09954-03010, 09957-04010), 09950-60010 (09951-00180, 09955-03011), 09950-50013

E351 MANUAL TRANSAXLE – MANUAL TRANSAXLE UNIT**MX-45****MX****23. REMOVE REAR BEARING RETAINER**

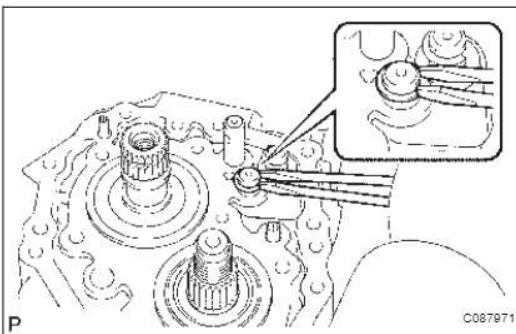
- (a) Using a "TORX" socket wrench (T45), remove the 7 "TORX" screws and rear bearing retainer from the manual transmission case.

**24. REMOVE OUTPUT SHAFT REAR BEARING SHIM**

- (a) Remove the output shaft rear bearing shim from the output shaft.

**25. REMOVE INPUT SHAFT REAR BEARING SHAFT SNAP RING**

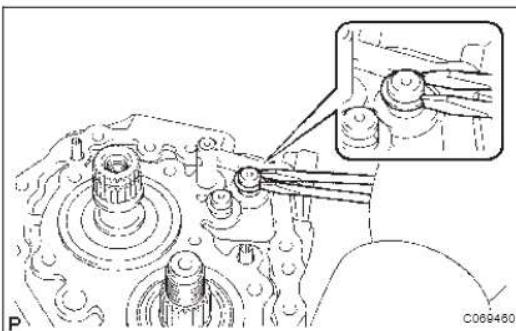
- (a) Using a snap ring expander, remove the input shaft rear bearing shaft snap ring from the input shaft.

**26. REMOVE SHIFT FORK SHAFT SHAFT SNAP RING**

- (a) Using 2 screwdrivers and a hammer, remove the shift fork shaft shaft snap ring from the No. 1 gear shift fork shaft.

HINT:

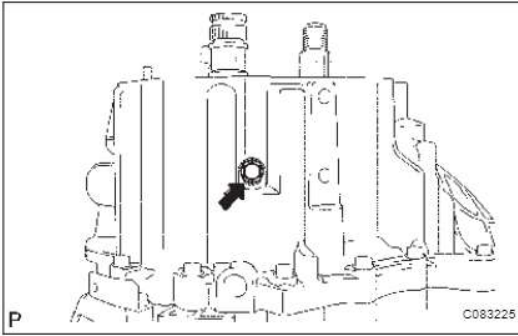
Use a shop rag or a piece of cloth to keep the snap ring from flying.



- (b) Using 2 screwdrivers and a hammer, remove the shift fork shaft shaft snap ring from the No. 2 gear shift fork shaft.

HINT:

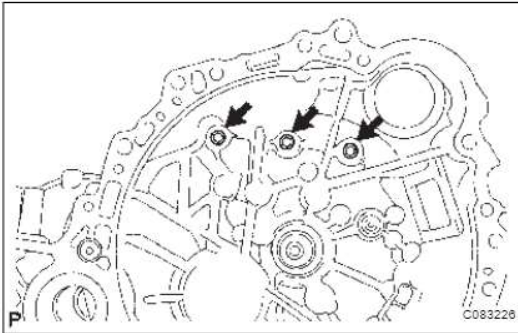
Use a shop rag or a piece of cloth to keep the snap ring from flying.

MX-46**E351 MANUAL TRANSAXLE – MANUAL TRANSAXLE UNIT****MX****27. REMOVE REVERSE IDLER GEAR SHAFT BOLT**

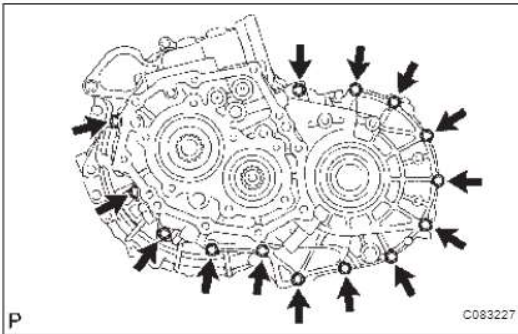
- (a) Remove the reverse idler gear shaft bolt and gasket.

28. REMOVE NO. 1 CLUTCH TUBE BRACKET

- (a) Remove the bolt and clutch tube bracket.

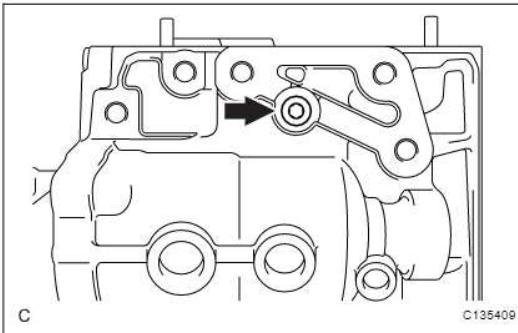
**29. REMOVE MANUAL TRANSMISSION CASE**

- (a) Remove the 3 bolts from the manual transaxle case.

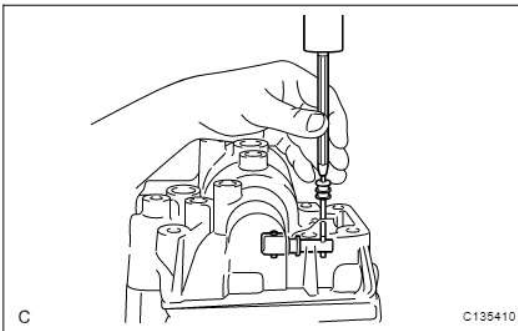


- (b) Remove the 14 bolts from the manual transmission case.

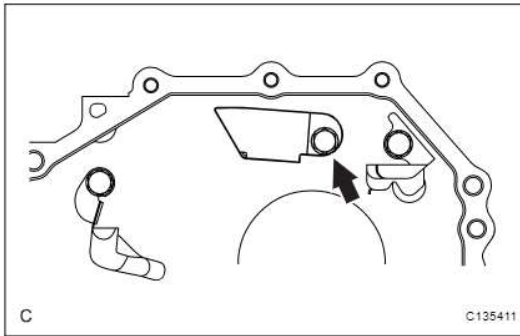
- (c) Tapping with a plastic hammer, remove the manual transmission case.

**30. REMOVE REVERSE RESTRICT PIN ASSEMBLY**

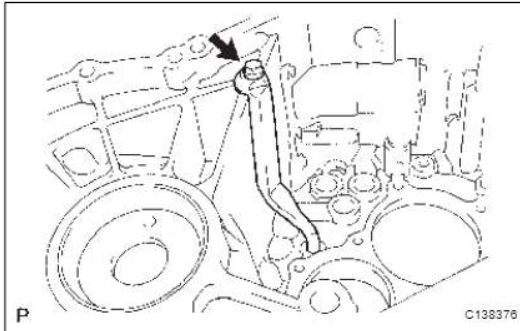
- (a) Using a hexagon wrench (6 mm), remove the reverse restrict pin plug from the manual transmission case.



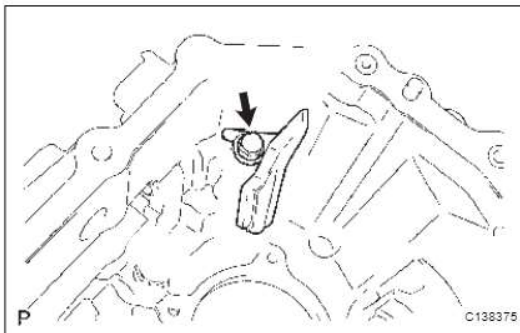
- (b) Using a pin punch (ϕ 5 mm) and hammer, remove the slotted pin.

E351 MANUAL TRANSAXLE – MANUAL TRANSAXLE UNIT**MX-47****MX**

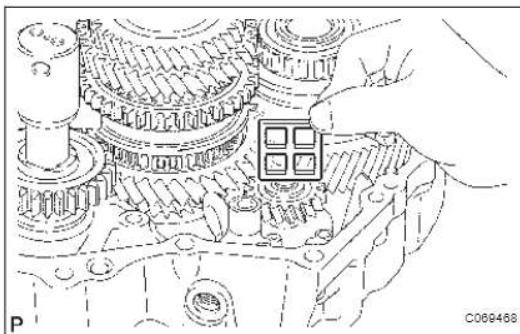
- (c) Remove the bolt, transmission oil baffle and reverse restrict pin assembly.

**31. REMOVE NO. 2 OIL RECEIVER PIPE**

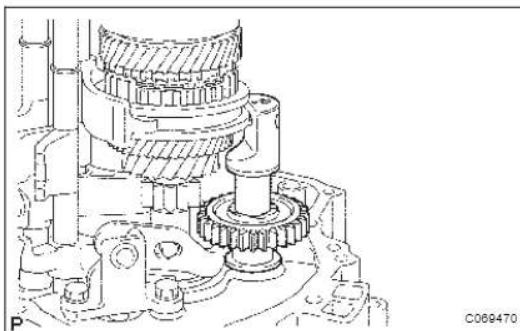
- (a) Remove the bolt and No. 2 oil receiver pipe from the manual transmission case.

NOTICE:**Do not damage the pipe.****32. REMOVE NO. 1 OIL RECEIVER PIPE**

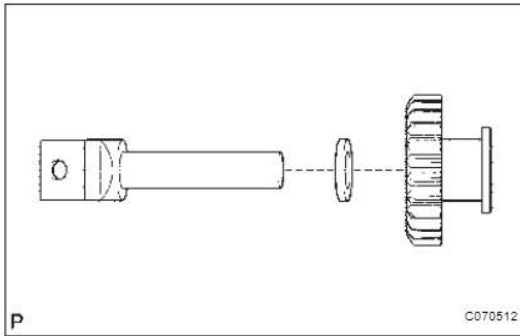
- (a) Remove the bolt and No. 1 oil receiver pipe from the manual transmission case.

NOTICE:**Do not damage the pipe.****33. REMOVE TRANSMISSION MAGNET**

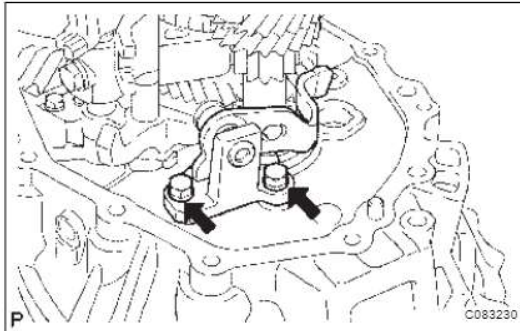
- (a) Remove the transmission magnet from the manual transaxle case.

**34. REMOVE REVERSE IDLER GEAR SUB-ASSEMBLY**

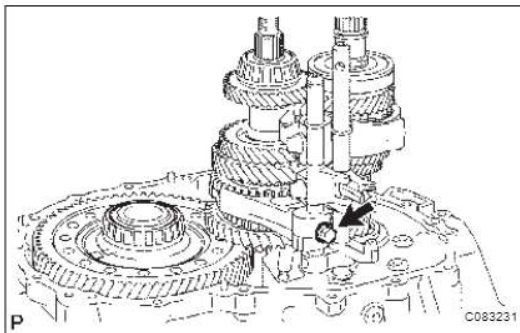
- (a) Remove the reverse idler gear sub-assembly from the manual transaxle case.

MX-48**E351 MANUAL TRANSAXLE – MANUAL TRANSAXLE UNIT**

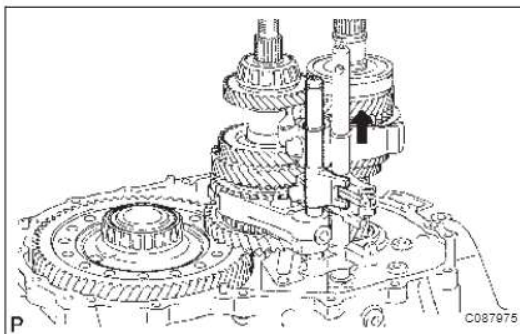
- (b) Remove the reverse gear and reverse idler thrust washer from the reverse idler gear shaft.

**35. REMOVE REVERSE SHIFT ARM BRACKET ASSEMBLY**

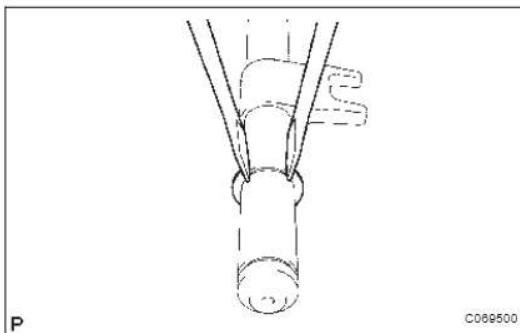
- (a) Remove the 2 bolts and reverse shift arm bracket assembly from the manual transaxle case.

**36. REMOVE NO. 1 GEAR SHIFT FORK SHAFT**

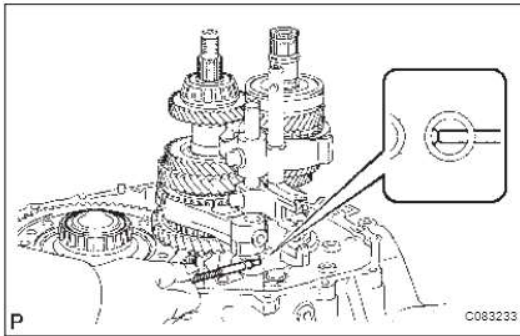
- (a) Remove the shift fork set bolt from the No. 1 gear shift fork.



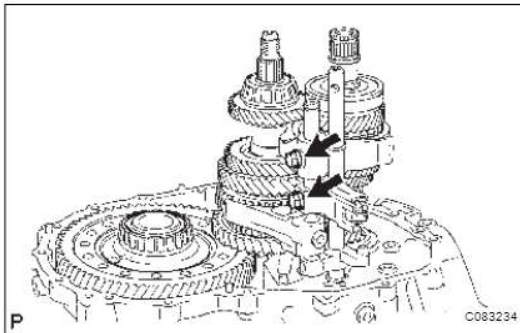
- (b) Pull out the No. 1 gear shift fork shaft while the No. 3 gear shift fork shaft is pulled up.



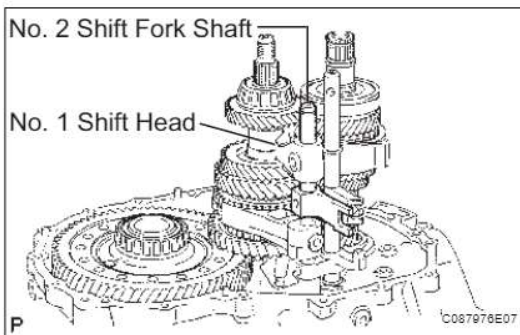
- (c) Using 2 screwdrivers and a hammer, remove the shift fork shaft snap ring from the No. 1 gear shift fork shaft.
HINT:
 Use a shop rag or a piece of cloth to keep the snap ring from flying.

E351 MANUAL TRANSAXLE – MANUAL TRANSAXLE UNIT**MX-49****MX****37. REMOVE REVERSE SHIFT FORK ROLLER**

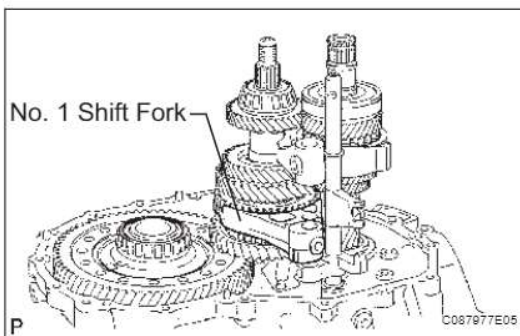
- (a) Using a magnetic finger, remove the reverse shift fork roller from the reverse shift fork.

**38. REMOVE NO. 2 GEAR SHIFT FORK SHAFT**

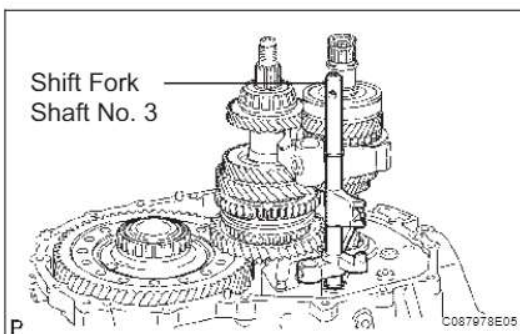
- (a) Remove the shift fork set bolt and shift head set bolt from the No. 2 gear shift fork and No. 1 gear shift head.



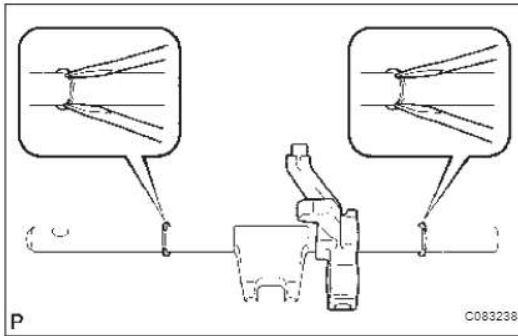
- (b) Remove the No. 2 gear shift fork shaft and No. 1 gear shift head from the manual transaxle case.

**39. REMOVE NO. 1 GEAR SHIFT FORK**

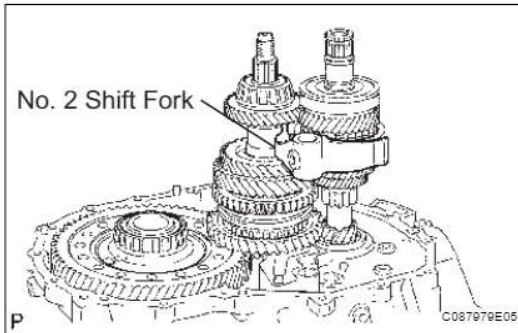
- (a) Remove the No. 1 gear shift fork.

**40. REMOVE NO. 3 GEAR SHIFT FORK SHAFT**

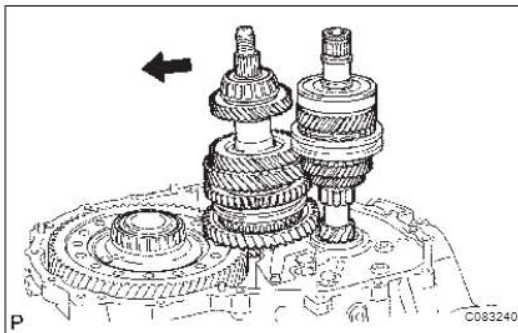
- (a) Remove the No. 3 gear shift fork shaft from the manual transaxle case.

MX-50**E351 MANUAL TRANSAXLE – MANUAL TRANSAXLE UNIT**

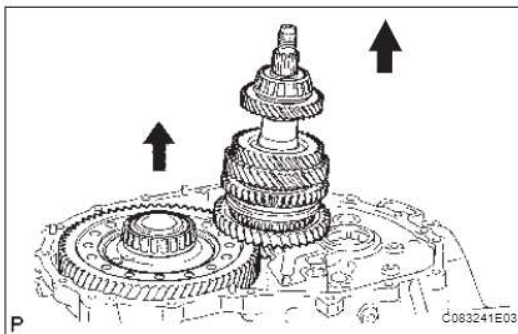
- (b) Using 2 screwdrivers and a hammer, remove the 2 shift fork shaft snap rings from the No. 3 gear shift fork shaft.
- (c) Remove the reverse shift fork from the No. 3 gear shift fork shaft.

**41. REMOVE NO. 2 GEAR SHIFT FORK**

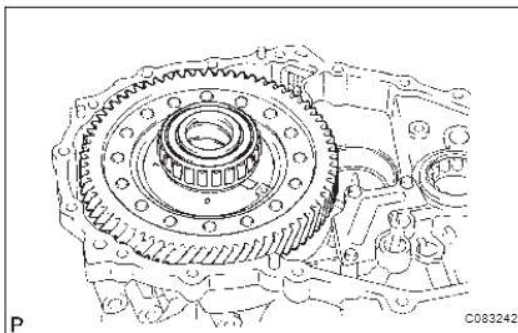
- (a) Remove the No. 2 gear shift fork from the input shaft assembly.

**42. REMOVE INPUT SHAFT ASSEMBLY**

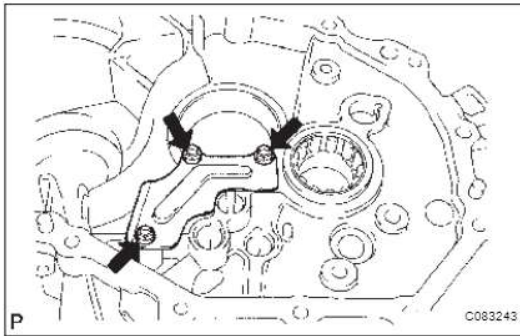
- (a) Tilt the output shaft, then remove the input shaft from the manual transaxle case.

**43. REMOVE OUTPUT SHAFT ASSEMBLY**

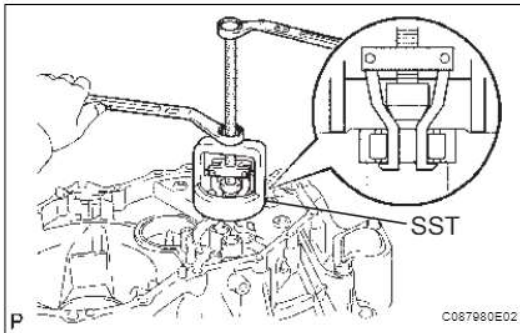
- (a) Lift the differential case assembly with the output shaft assembly leaned.
- (b) Remove the output shaft assembly from the manual transaxle case.

**44. REMOVE DIFFERENTIAL CASE ASSEMBLY**

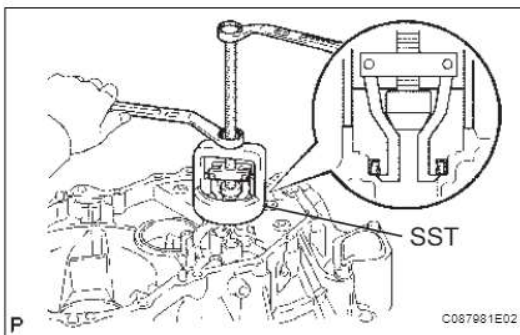
- (a) Remove the differential case assembly from the manual transaxle case.

E351 MANUAL TRANSAXLE – MANUAL TRANSAXLE UNIT**MX-51****MX****45. REMOVE MANUAL TRANSAXLE CASE RECEIVER**

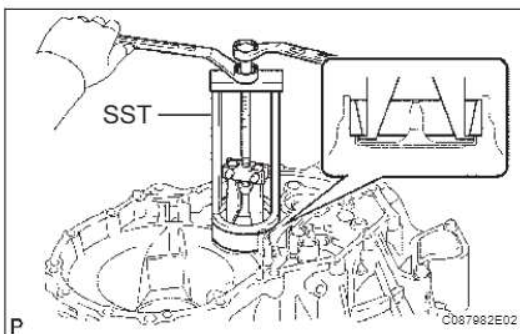
- (a) Remove the 3 bolts and manual transaxle case receiver from the manual transaxle case.

**46. REMOVE INPUT SHAFT FRONT BEARING**

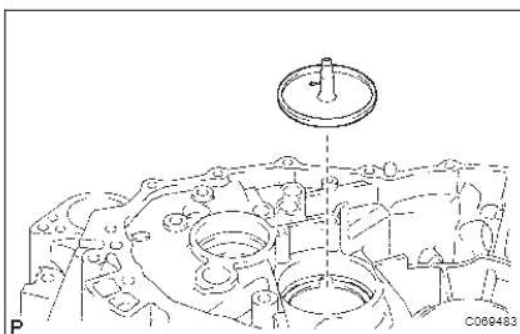
- (a) Using SST, remove the input shaft front bearing (outer race) from the manual transaxle case.
SST 09612-65014 (09612-01040, 09612-01050)

**47. REMOVE FRONT TRANSAXLE CASE OIL SEAL**

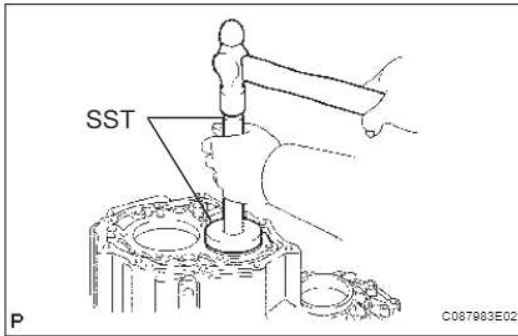
- (a) Using SST, remove the manual transaxle case oil seal from the manual transaxle case.
SST 09612-65014 (09612-01040, 09612-01050)

**48. REMOVE OUTPUT SHAFT FRONT BEARING**

- (a) Using SST, remove the output shaft front bearing (outer race) from the manual transaxle case.
SST 09387-00041 (09387-02020, 09387-02010)

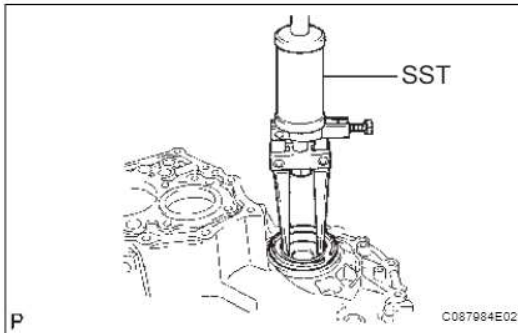
**49. REMOVE OUTPUT SHAFT COVER**

- (a) Remove the output shaft cover from the manual transaxle case.

MX-52**E351 MANUAL TRANSAXLE – MANUAL TRANSAXLE UNIT****MX****50. REMOVE OUTPUT SHAFT REAR BEARING**

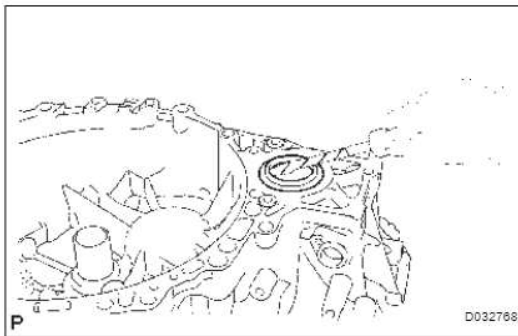
- (a) Using SST and a hammer, remove the output shaft rear bearing from the manual transmission case (outer race).

SST 09950-60010 (09951-00680), 09950-70010 (09951-07100)

**51. REMOVE TRANSMISSION CASE OIL SEAL**

- (a) Using SST, remove the transmission case oil seal from the manual transmission case.

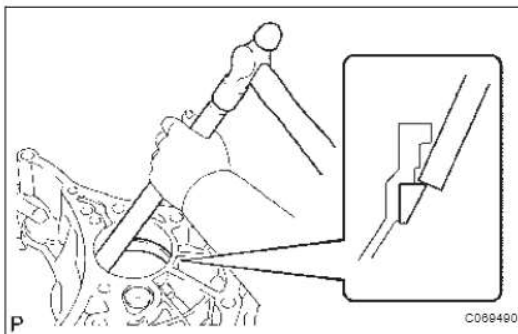
SST 09308-00010

**52. REMOVE FRONT TRANSAXLE CASE COVER OIL SEAL**

- (a) Using a screwdriver, remove the front transaxle case cover oil seal.

HINT:

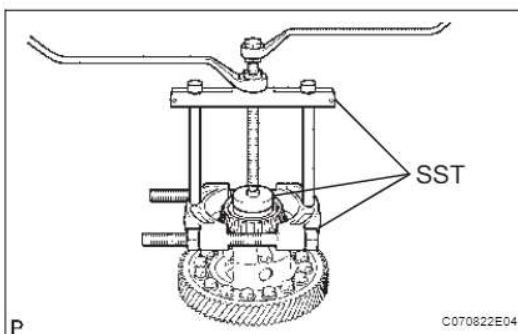
Tape the screwdriver tip before use to avoid damage.

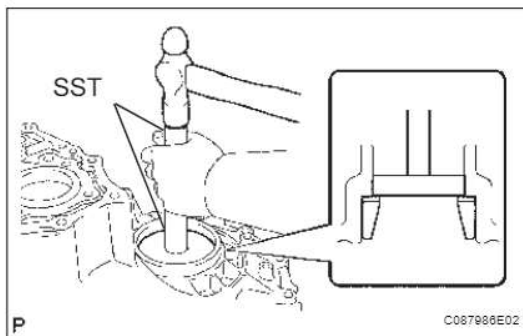
**53. REMOVE FRONT DIFFERENTIAL CASE FRONT TAPERED ROLLER BEARING**

- (a) Using a brass bar and a hammer, remove the front differential case front tapered roller bearing (outer race) from the manual transaxle case.

- (b) Using SST, remove the front differential case front tapered roller bearing from the front differential case.

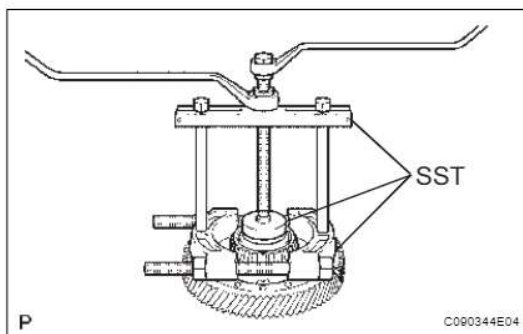
SST 09950-00020, 09950-00030, 09950-40011 (09957-04010), 09950-60010 (09951-00560)



E351 MANUAL TRANSAXLE – MANUAL TRANSAXLE UNIT**MX-53****54. REMOVE FRONT DIFFERENTIAL CASE REAR TAPERED ROLLER BEARING**

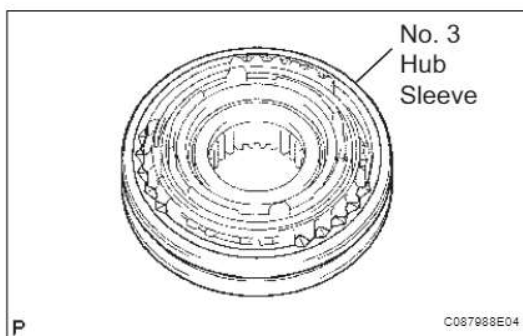
- (a) Using SST and a hammer, remove the front differential case rear tapered roller bearing (outer race) and front differential case rear shim from the manual transmission case.

SST 09950-60020 (09951-00790), 09950-70010 (09951-07100)

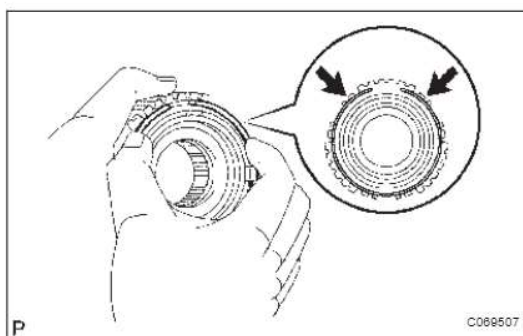


- (b) Using SST, remove the front differential case rear tapered roller bearing (inner race) from the front differential case.

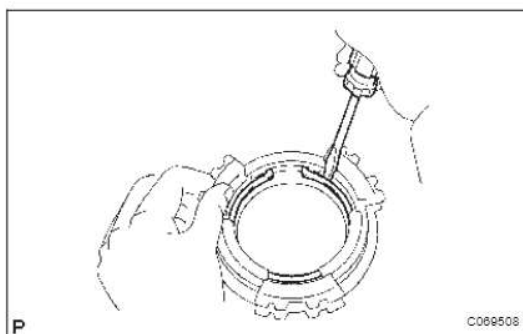
SST 09950-60020, 09950-00030, 09950-40011 (09957-04010), 09950-60010 (09951-00490)

**55. REMOVE NO. 3 TRANSMISSION HUB SLEEVE**

- (a) Remove the No. 3 transmission hub sleeve from the No. 3 transmission clutch hub.

**56. REMOVE NO. 3 SYNCHROMESH SHIFTING KEY SPRING**

- (a) Remove the 2 No. 3 synchromesh shifting key springs from the No. 3 transmission clutch hub while pushing on the No. 3 synchromesh shifting key spring.

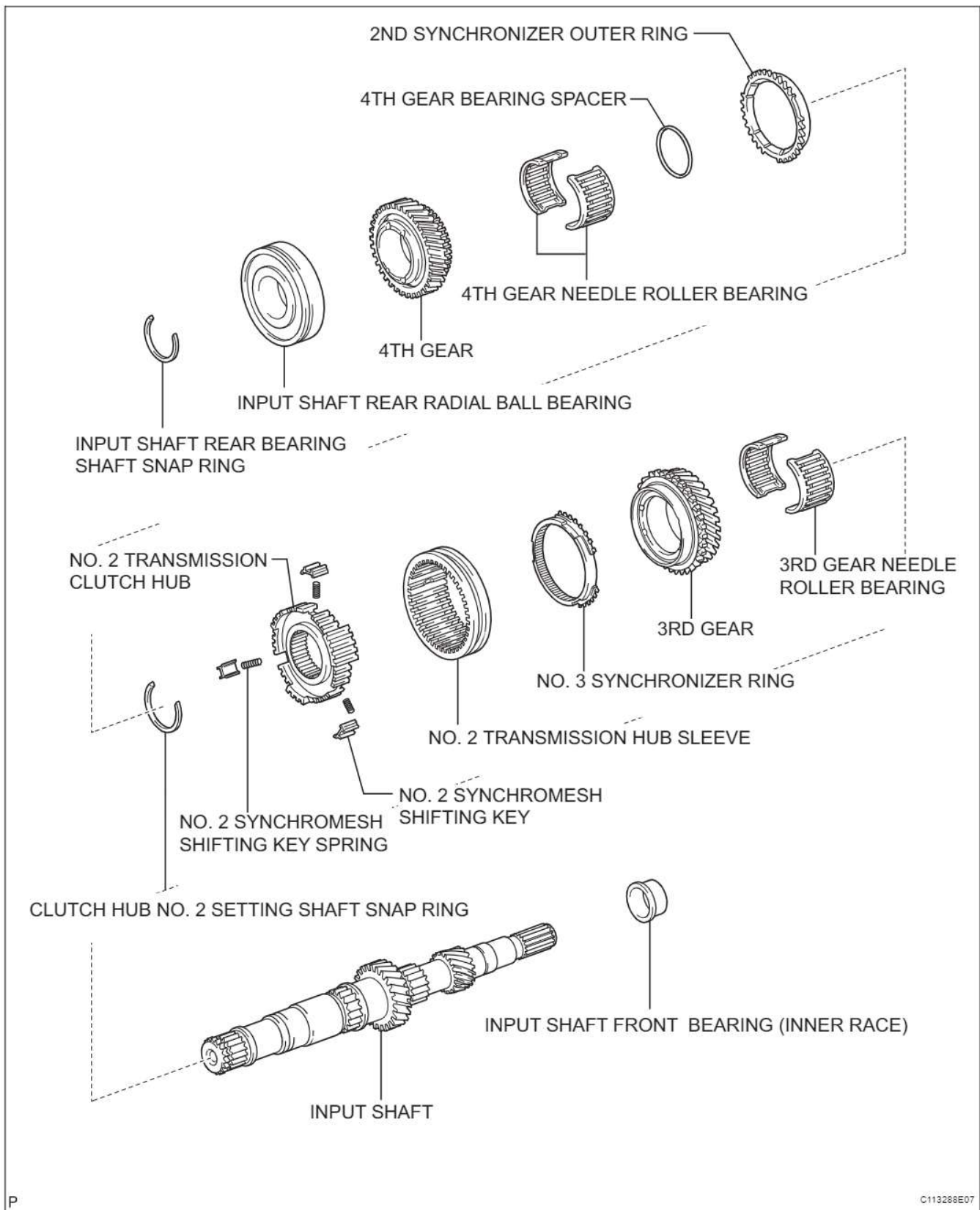
**57. REMOVE SYNCHRONIZER PULL RING**

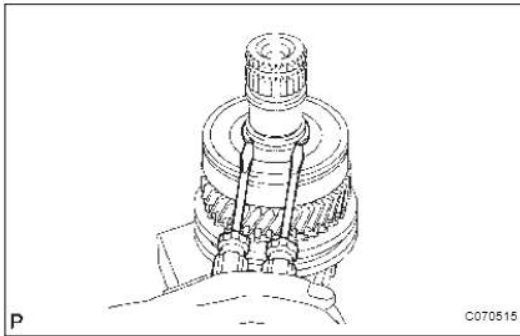
- (a) Using a screwdriver, remove the synchronizer pull ring snap ring.
- (b) Remove the synchronizer pull ring, No. 5 synchronizer outer ring, No. 5 synchronizer inner ring, and No. 5 synchronizer ring middle from the No. 5 synchronizer ring inner.

MX-76

E351 MANUAL TRANSAXLE – INPUT SHAFT

INPUT SHAFT COMPONENTS

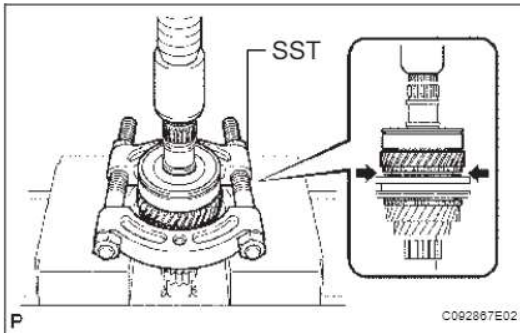


E351 MANUAL TRANSAXLE – INPUT SHAFT**MX-77****DISASSEMBLY****1. REMOVE 4TH GEAR**

- (a) Hold the input shaft assembly in a vise using aluminum plates.
- (b) Using 2 screwdrivers and a hammer, remove the input shaft rear bearing shaft snap ring from the input shaft.

HINT:

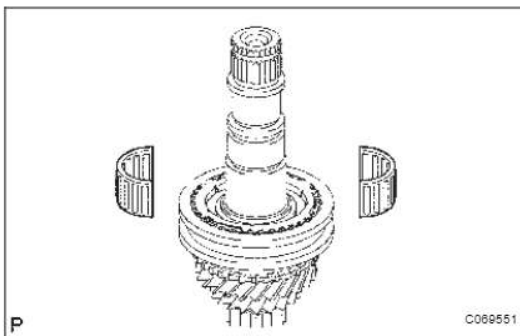
Use a shop rag or a piece of cloth to keep the snap ring from flying.



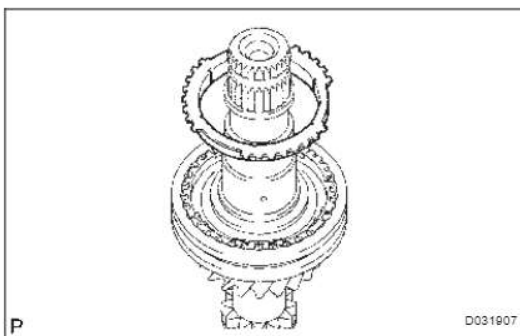
- (c) Using SST and a press, remove the input shaft rear bearing and 4th gear.

SST 09950-00020**NOTICE:**

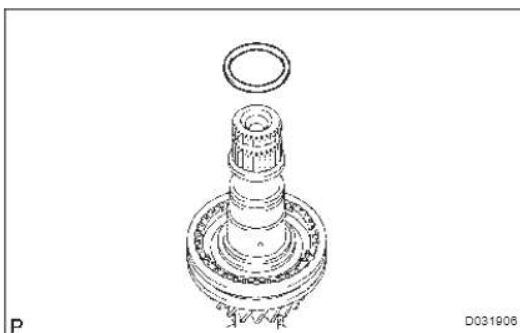
Do not overtighten the SST.

**2. REMOVE 4TH GEAR NEEDLE ROLLER BEARING**

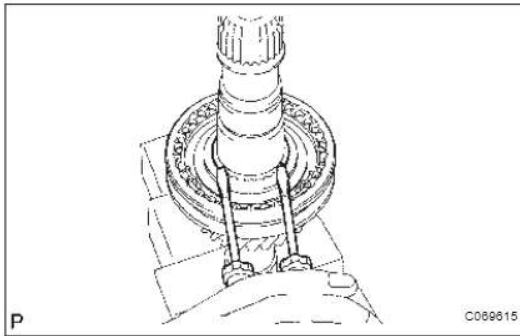
- (a) Remove the 4th gear needle roller bearing from the input shaft.

**3. REMOVE 2ND SYNCHRONIZER OUTER RING**

- (a) Remove the 2nd synchronizer outer ring (No. 4 synchronizer ring) from the No. 2 transmission clutch hub.

**4. REMOVE 4TH GEAR BEARING SPACER**

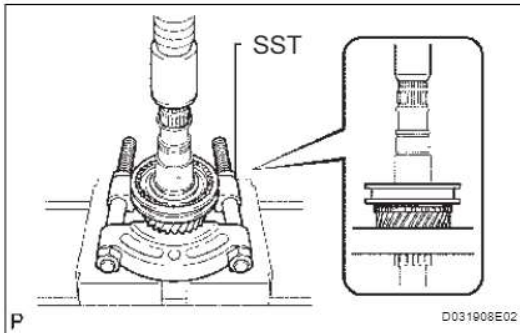
- (a) Remove the 4th gear bearing spacer from the No. 2 transmission clutch hub.

MX-78**E351 MANUAL TRANSAXLE – INPUT SHAFT****MX****5. REMOVE 3RD GEAR**

- (a) Using 2 screwdrivers and a hammer, remove the No. 2 clutch hub setting shaft snap ring from the input shaft.

HINT:

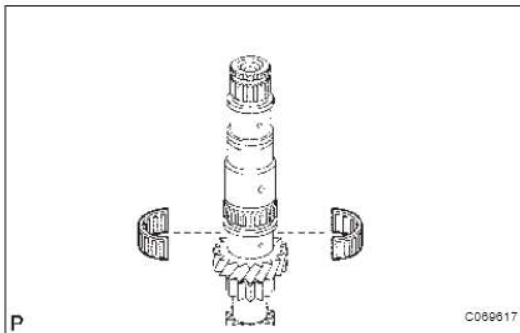
Use a shop rag or a piece of cloth to keep the snap ring from flying.



- (b) Using SST and a press, remove the No. 2 transmission clutch hub and 3rd gear from the input shaft.

SST 09950-00020**NOTICE:**

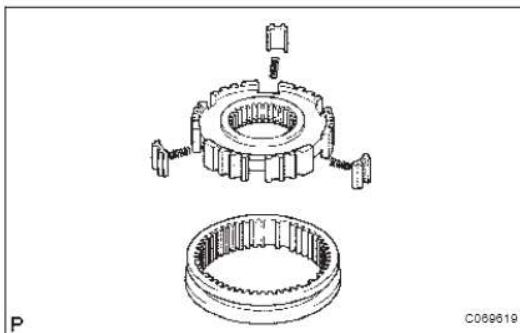
Do not overtighten the SST.

**6. REMOVE 3RD GEAR NEEDLE ROLLER BEARING**

- (a) Remove the 3rd gear needle roller bearing from the input shaft.

**7. REMOVE NO. 3 SYNCHRONIZER RING**

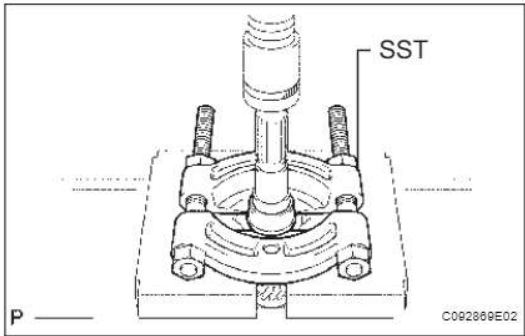
- (a) Remove the No. 3 synchronizer ring from the 3rd gear.

**8. REMOVE NO. 2 TRANSMISSION HUB SLEEVE**

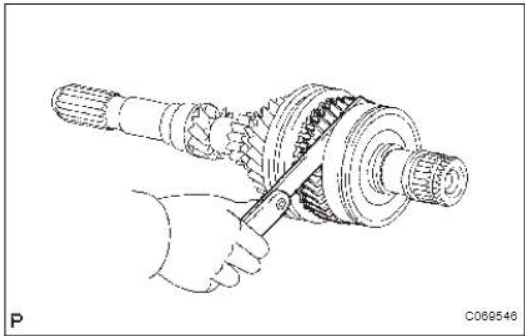
- (a) Remove the No. 2 transmission hub sleeve, 3 No. 2 synchromesh shifting keys, and 3 No. 2 synchromesh shifting key springs from the No. 2 transmission clutch hub.

HINT:

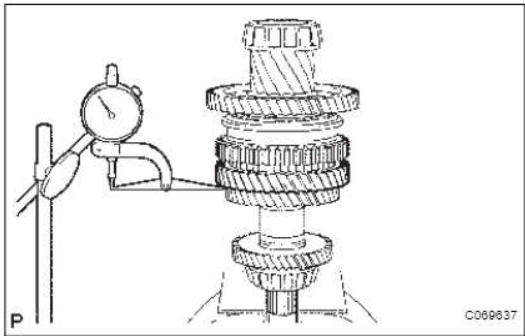
Use a shop rag or a piece of cloth to keep the shifting keys and shifting key springs from flying.



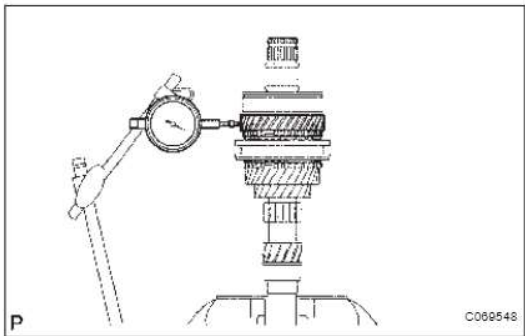
- 9. REMOVE INPUT SHAFT FRONT BEARING**
- (a) Using SST and a press, remove the input shaft front bearing (inner race) from the input shaft.
SST 09950-00020
NOTICE:
Do not overtighten the SST.



- INSPECTION**
- 1. INSPECT 4TH GEAR THRUST CLEARANCE**
- (a) Using a feeler gauge, measure the 4th gear thrust clearance.
Standard clearance:
0.10 to 0.57 mm (0.0039 to 0.0224 in.)
If clearance is out of specification, replace the No. 2 transmission clutch hub, 4th gear, or input shaft rear radial ball bearing.



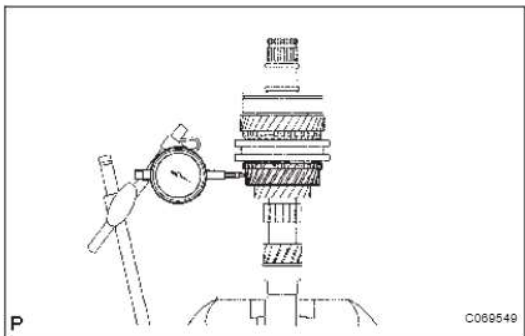
- 2. INSPECT 3RD GEAR THRUST CLEARANCE**
- (a) Using a dial indicator, measure the 3rd gear thrust clearance.
Standard clearance:
0.10 to 0.35 mm (0.0039 to 0.0138 in.)
If clearance is out of specification, replace the No. 2 transmission clutch hub, 3rd gear, or input shaft.



- 3. INSPECT 4TH GEAR RADIAL CLEARANCE**
- (a) Using a dial indicator, measure the 4th gear radial clearance.
Standard clearance mm (in.)

Bearing	Standard clearance
KOYO made	0.009 to 0.053 (0.0004 to 0.0021)
NSK made	0.009 to 0.051 (0.0004 to 0.0020)

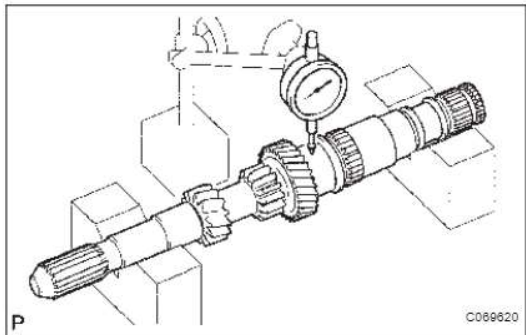
If clearance is out of specification, replace the 4th gear, needle roller bearing, or input shaft.



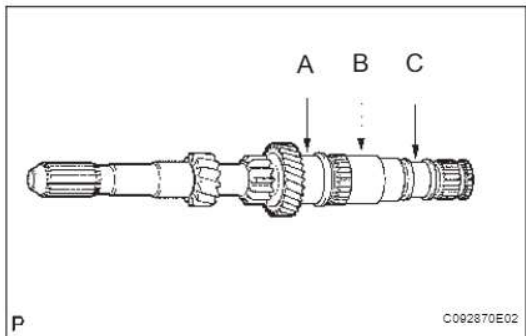
- 4. INSPECT 3RD GEAR RADIAL CLEARANCE**
- (a) Using a dial indicator, measure the 3rd gear radial clearance.
Standard clearance mm (in.)

Bearing	Standard clearance
KOYO made	0.009 to 0.053 (0.0004 to 0.0021)
NSK made	0.009 to 0.051 (0.0004 to 0.0020)

MX



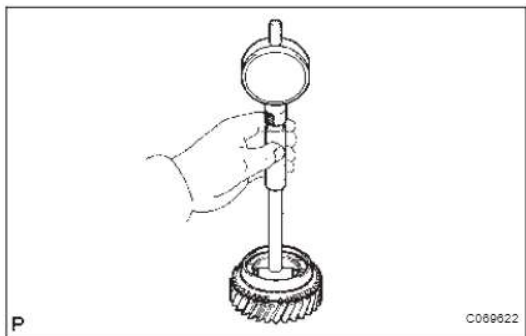
- If clearance is out of specification, replace the 3rd gear, needle roller bearing, or input shaft.
- 5. INSPECT INPUT SHAFT**
- (a) Using a V-block and dial indicator, inspect the shaft for runout.
Maximum runout:
0.03 mm (0.0012 in.)
If runout exceeds the maximum, replace the input shaft.



- (b) Using a micrometer, measure the outside diameter of the input shaft journal surface.
Outside diameter mm (in.)

Part	Standard outside diameter	Minimum outside diameter
A	35.984 to 36.000 (1.4167 to 1.4173)	35.984 (1.4167)
B	35.984 to 36.000 (1.4167 to 1.4173)	35.984 (1.4167)
C	27.957 to 27.972 (1.1007 to 1.1013)	27.957 (1.1007)

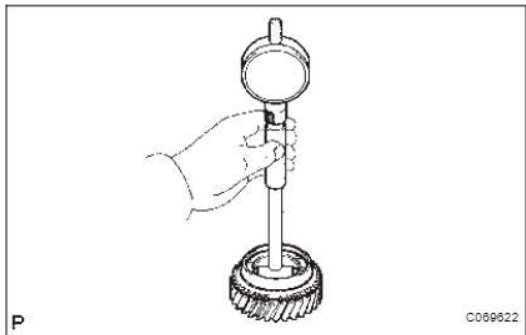
If the outside diameter is less than the minimum, replace the input shaft.



- 6. INSPECT 4TH GEAR**
- (a) Using a cylinder gauge, measure the inside diameter of the 4th gear.
Inside diameter:
mm (in.)

Standard inside diameter	Maximum inside diameter
42.009 to 42.025 (1.6539 to 1.6545)	42.025 (1.6545)

If the inside diameter exceeds the maximum, replace the 4th gear.



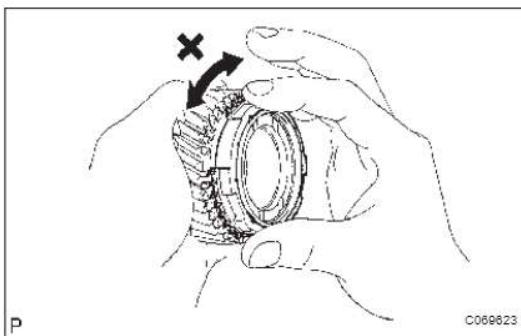
- 7. INSPECT 3RD GEAR**
- (a) Using a cylinder gauge, measure the inside diameter of the 3rd gear.
Inside diameter:
mm (in.)

Standard inside diameter	Maximum inside diameter
43.009 to 43.025 (1.6933 to 1.6939)	43.025 (1.6939)

If the inside diameter exceeds the maximum, replace the 3rd gear.

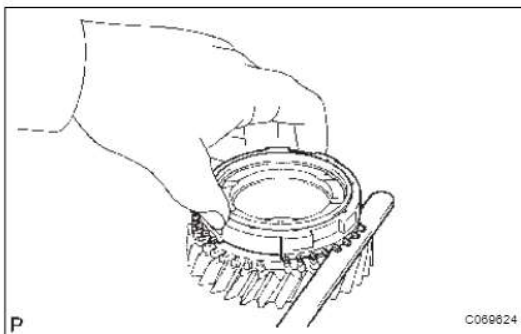
E351 MANUAL TRANSAXLE – INPUT SHAFT

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**8. INSPECT 2ND SYNCHRONIZER OUTER RING**

- (a) Coat the 4th gear cone with gear oil. Turn the 2nd synchronizer outer ring (No. 4 synchronizer ring) in one direction while pushing it against the 4th gear cone. Check that the ring locks.

If the 2nd synchronizer outer ring does not lock, replace the ring or the 4th gear.

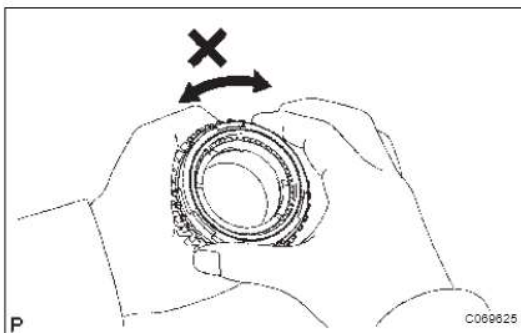


- (b) Using a feeler gauge, measure the clearance between the synchronizer outer ring (No. 4 synchronizer ring) back and 4th gear spline end.

Standard clearance:

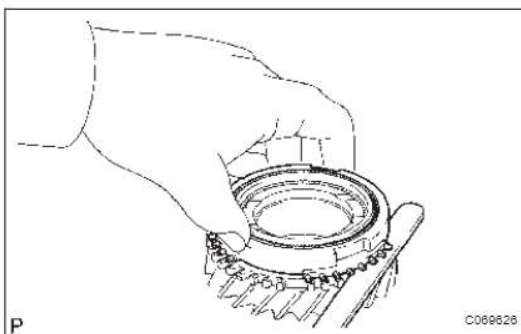
0.75 to 1.65 mm (0.0295 to 0.0650 in.)

If clearance is out of specification, replace the synchronizer ring.

**9. INSPECT NO. 3 SYNCHRONIZER RING**

- (a) Coat the 3rd gear cone with gear oil. Turn the synchronizer outer ring in one direction while pushing it against the 3rd gear cone. Check that the ring locks.

If the synchronizer outer ring does not lock, replace the ring or the 3rd gear.

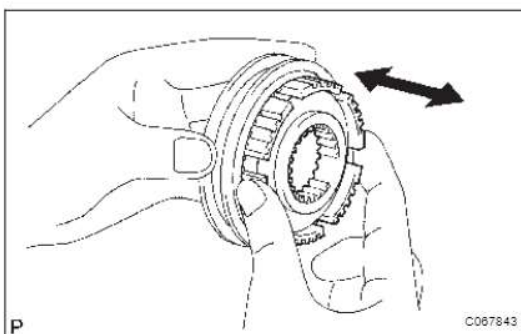


- (b) Using a feeler gauge, measure the clearance between the No. 3 synchronizer ring back and 3rd gear spline end.

Standard clearance:

0.65 to 1.75 mm (0.0256 to 0.0689 in.)

If clearance is out of specification, replace the No. 3 synchronizer ring.

**10. INSPECT NO. 2 TRANSMISSION HUB SLEEVE**

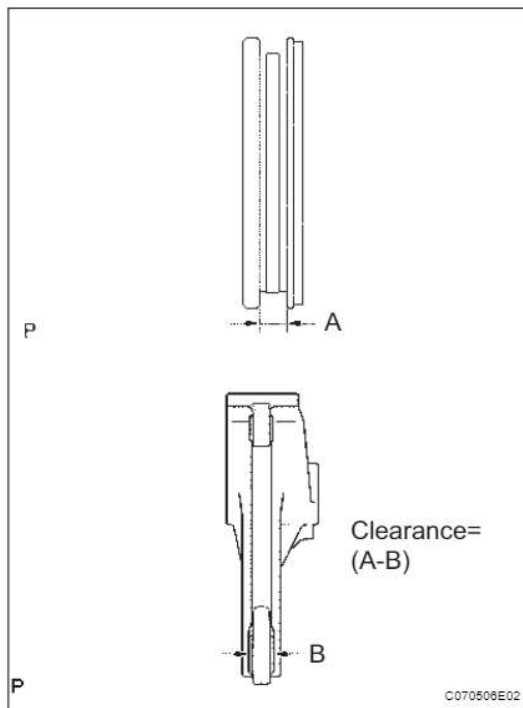
- (a) Inspect the sliding condition between the No. 2 transmission hub sleeve and No. 2 transmission clutch hub.

- (b) Inspect the tip of the spline gear on the No. 2 transmission hub sleeve for wear. If any defects are found, replace the transmission hub sleeve or the transmission clutch hub.

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E351 MANUAL TRANSAXLE – INPUT SHAFT



- (c) Using vernier calipers, measure the width of the No. 3 transmission hub sleeve groove and the thickness of the claw part on the No. 1 gear shift fork, and calculate the clearance.

Standard clearance:

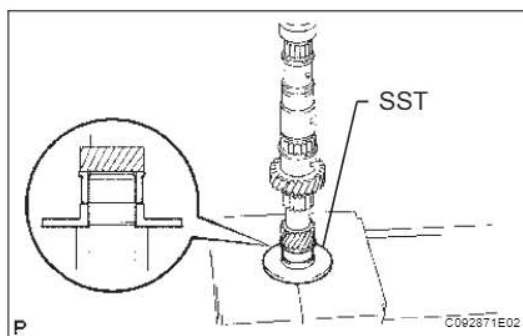
0.11 to 0.69 mm (0.0043 to 0.0272 in.) {A - B}

If clearance is out of specification, replace the No. 2 transmission hub sleeve and No. 2 gear shift fork with new ones.

REASSEMBLY**1. INSTALL INPUT SHAFT FRONT BEARING**

- (a) Using SST and a press, install the input shaft front bearing (inner race).

SST 09608-00071

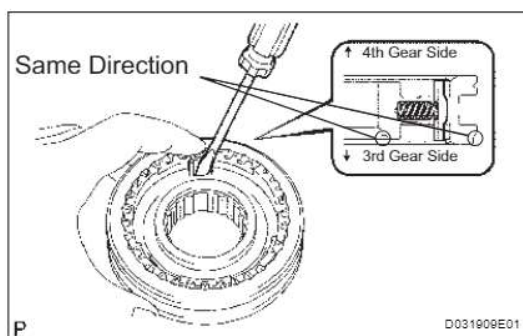
**2. INSTALL NO. 2 TRANSMISSION HUB SLEEVE**

- (a) Coat the transmission No. 2 hub sleeve with gear oil.
(b) Install the 3 synchromesh key springs with the No. 2 transmission hub sleeve.

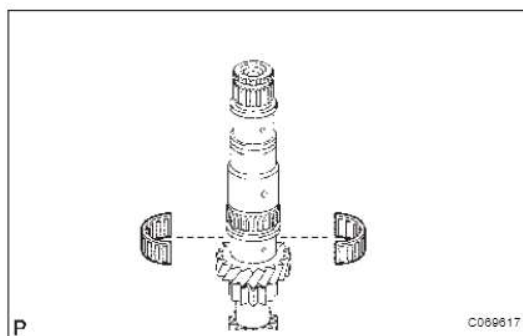
NOTICE:

Install the No. 2 transmission clutch hub sleeve and the No. 2 transmission clutch hub in the correct direction.

- (c) Using a screwdriver, install the synchromesh shifting key to the input shaft.

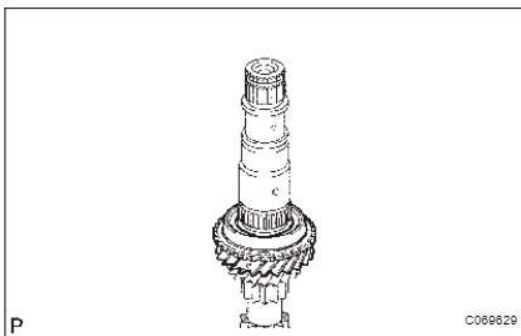
**3. INSTALL 3RD GEAR NEEDLE ROLLER BEARING**

- (a) Coat the 3rd gear bearing with gear oil and install it to the input shaft.

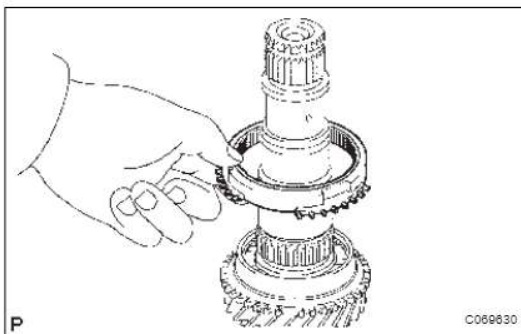


E351 MANUAL TRANSAXLE – INPUT SHAFT

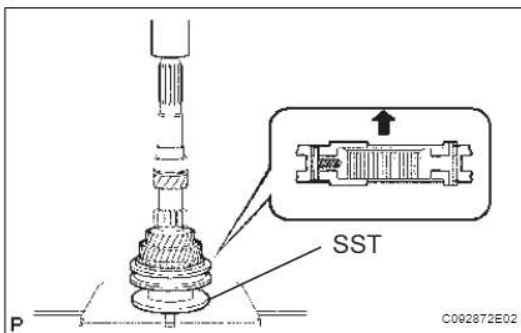
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**4. INSTALL 3RD GEAR**

- (a) Coat the 3rd gear with gear oil and install it to the input shaft.

**5. INSTALL NO. 3 SYNCHRONIZER RING**

- (a) Coat the No. 3 synchronizer ring with gear oil and install it to the 3rd gear.

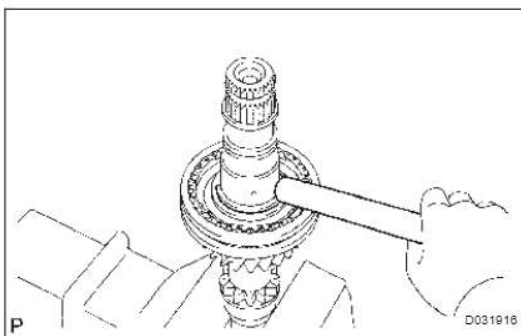
**6. INSTALL NO. 2 TRANSMISSION CLUTCH HUB**

- (a) Using SST and a press, install the No. 2 transmission clutch hub to the input shaft.

SST 09316-60011 (09316-00041)

NOTICE:

- Align the claw of the clutch hub No. 2 with the notch of the synchronizer ring No. 3.
- Make sure that the 3rd gear can rotate.



- (b) Select a snap ring so that clearance between the No. 2 transmission clutch hub and the No. 2 clutch hub shaft snap ring will be within the specified range. Using a brass bar and a hammer, install the snap ring.

Standard clearance:

0.1 mm or less (0.0039 in.) or less

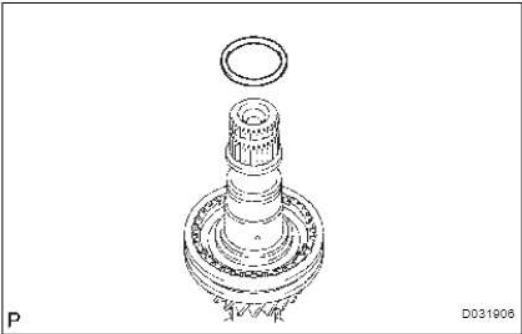
Snap ring thickness

Part No.	Thickness: mm (in.)	Mark
90520-34003	2.30 to 2.35 (0.0906 to 0.0925)	H
90520-34004	2.35 to 2.40 (0.0925 to 0.0945)	J
90520-34005	2.40 to 2.45 (0.0945 to 0.0965)	K
90520-34006	2.45 to 2.50 (0.0965 to 0.0984)	L
90520-34007	2.50 to 2.55 (0.0984 to 0.1004)	M
90520-34008	2.55 to 2.60 (0.1004 to 0.1024)	N

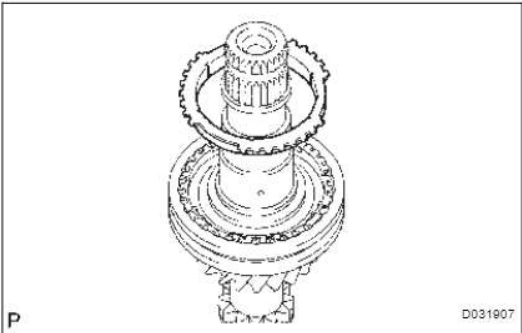
MX-84

E351 MANUAL TRANSAXLE – INPUT SHAFT

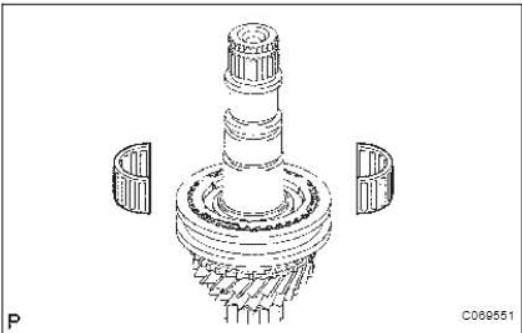
Part No.	Thickness: mm (in.)	Mark
90520-34009	2.60 to 2.65 (0.1024 to 0.1043)	P



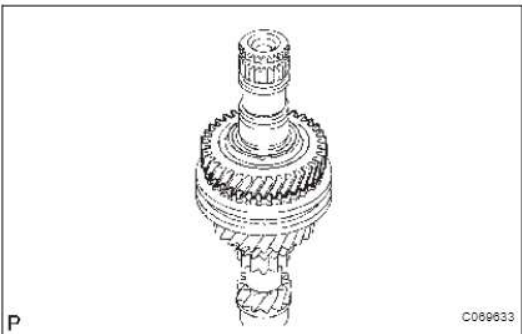
7. **INSTALL 4TH GEAR BEARING SPACER**
- (a) Coat the 4th gear bearing spacer with gear oil and install it to the input shaft.



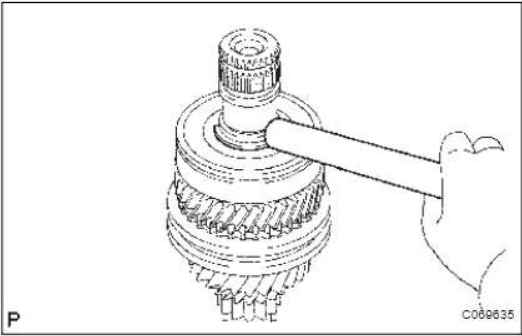
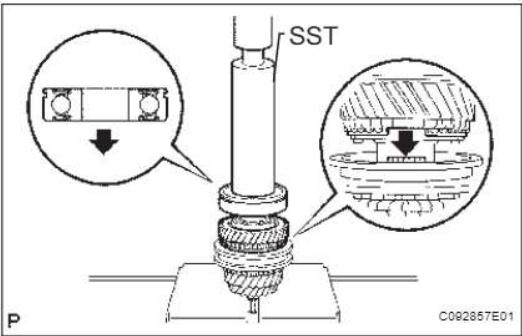
8. **INSTALL 2ND SYNCHRONIZER OUTER RING**
- (a) Coat the 2nd synchronizer outer ring (No. 4 synchronizer ring) with gear oil and install it to the No. 2 transmission clutch hub.
- NOTICE:**
Align the claw of the No. 2 clutch hub with the notch of the 2nd synchronizer outer ring (No. 4 synchronizer ring).



9. **INSTALL 4TH GEAR NEEDLE ROLLER BEARING**
- (a) Coat the 4th gear needle roller bearing with gear oil and install it to the input shaft.



10. **INSTALL 4TH GEAR**
- (a) Coat the 4th gear with gear oil and install it to the input shaft.



11. INSTALL INPUT SHAFT REAR RADIAL BALL BEARING

- (a) Using SST and a press, install the input shaft rear radial ball bearing to the input shaft.

SST 09608-06041

NOTICE:

- Install the bearing with its groove facing rearward.
- Make sure that the 3rd gear rotates.

- (b) Select a snap ring so that the clearance between the input shaft radial ball rear bearing and the input shaft rear bearing snap ring will be within the specified range. Using a brass bar and a hammer, install the snap ring.

Standard clearance:

0.1 mm (0.004 in.) or less

Snap ring

Part No.	Thickness: mm (in.)	Mark
90520-30008	2.35 to 2.40 (0.0925 to 0.0945)	1
90520-30009	2.40 to 2.45 (0.0945 to 0.0965)	2
90520-30010	2.45 to 2.50 (0.0965 to 0.0984)	3
90520-30011	2.50 to 2.55 (0.0984 to 0.1004)	4
90520-30012	2.55 to 2.60 (0.1004 to 0.1024)	5
90520-30013	2.60 to 2.65 (0.1024 to 0.1043)	6
90520-30021	2.65 to 2.70 (0.1043 to 0.1063)	7
90520-30022	2.70 to 2.75 (0.1063 to 0.1083)	8

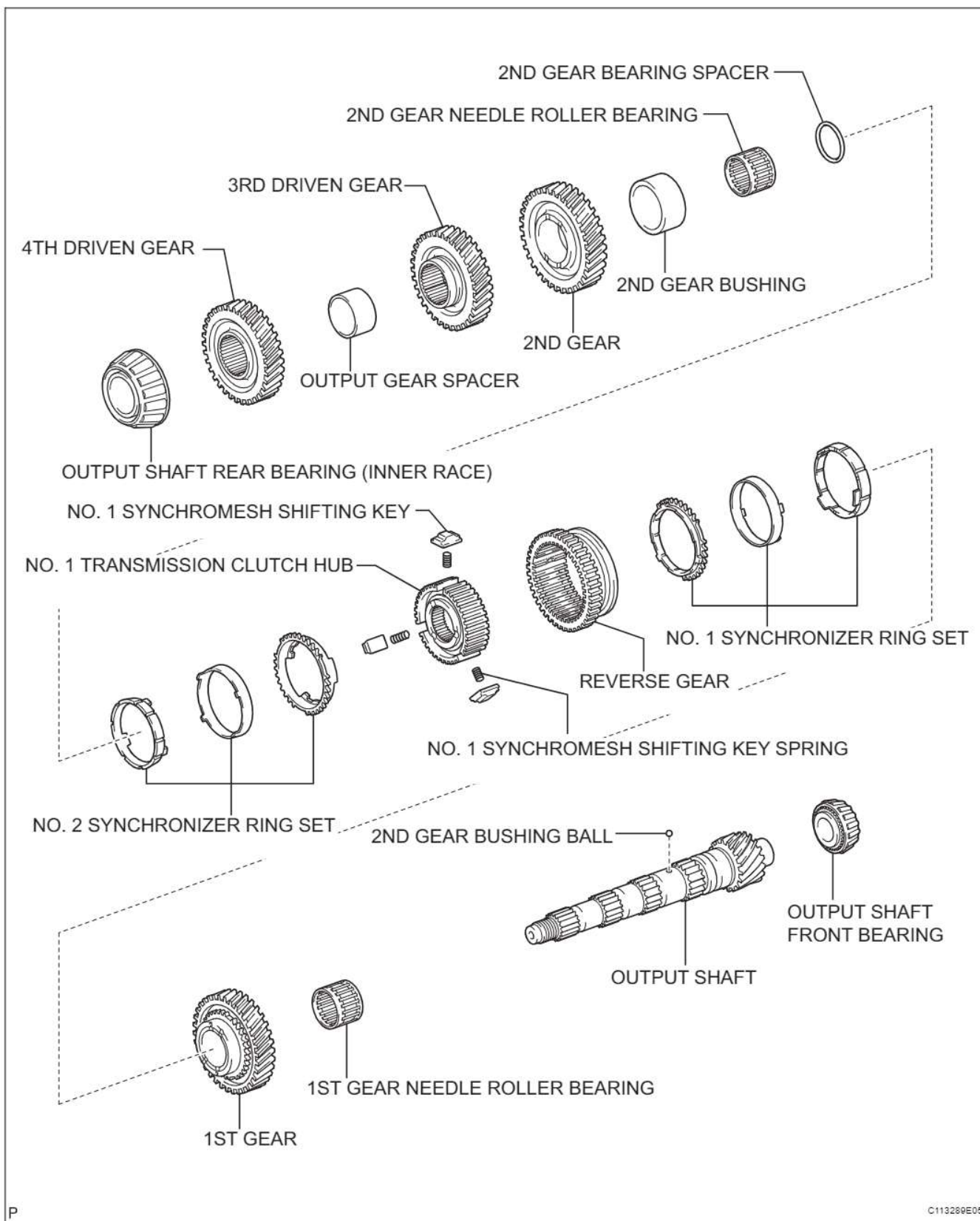


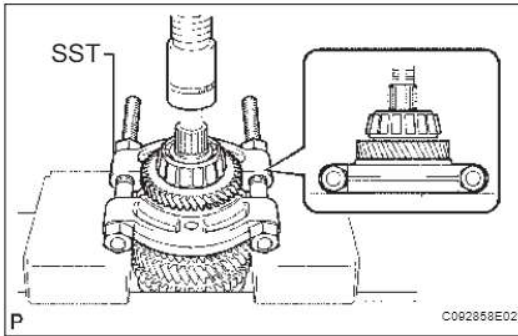
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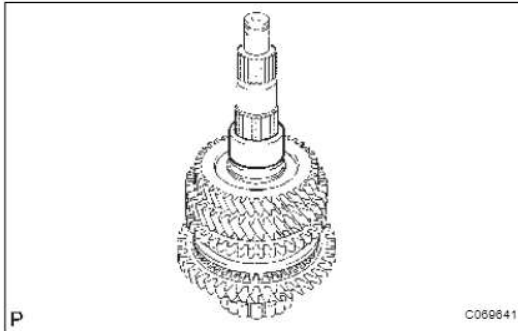
OUTPUT SHAFT

COMPONENTS

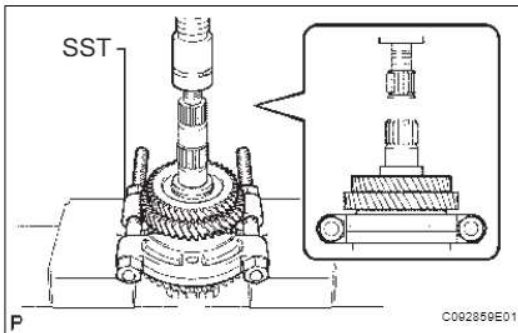


E351 MANUAL TRANSAXLE – OUTPUT SHAFT**MX-87****DISASSEMBLY****1. REMOVE 4TH DRIVEN GEAR**

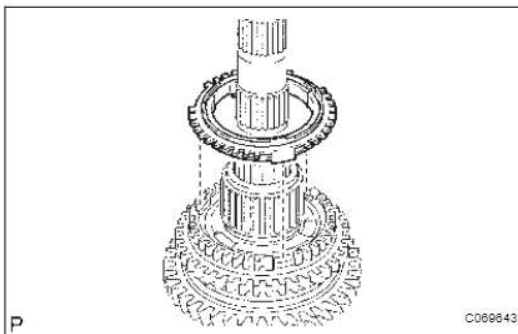
- (a) Using SST and a press, remove the output shaft rear bearing (inner race) and 4th driven gear.
SST 09950-00020

**2. REMOVE OUTPUT GEAR SPACER**

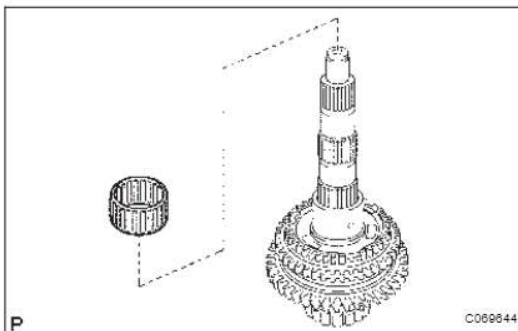
- (a) Remove the output gear spacer from the output shaft.

**3. REMOVE 2ND GEAR**

- (a) Using SST and a press, remove the 3rd driven gear and 2nd gear from the output shaft.
SST 09950-00020

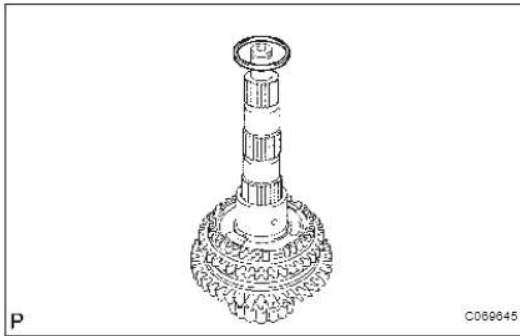
**4. REMOVE NO. 2 SYNCHRONIZER RING SET**

- (a) Remove the No. 2 synchronizer ring set from the No. 1 transmission clutch hub.

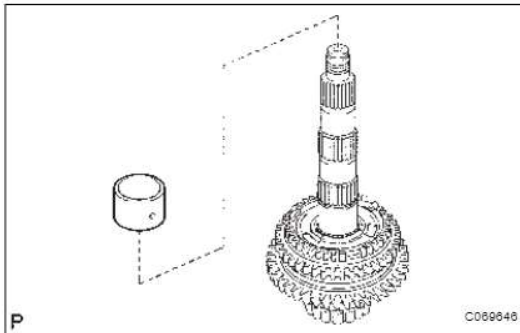
**5. REMOVE 2ND GEAR NEEDLE ROLLER BEARING**

- (a) Remove the 2nd gear needle roller bearing from the output shaft.

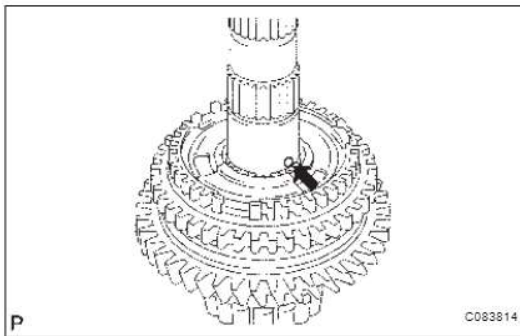
MX

MX-88**E351 MANUAL TRANSAXLE – OUTPUT SHAFT****MX****6. REMOVE 2ND GEAR BEARING SPACER**

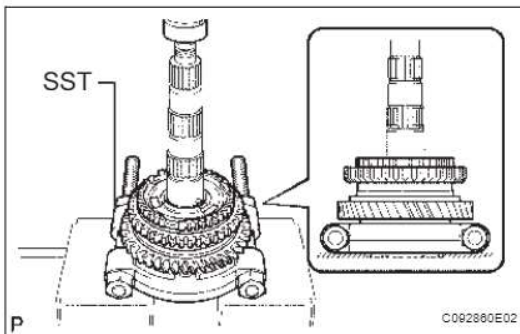
- (a) Remove the 2nd gear bearing spacer from the output shaft.

**7. REMOVE 2ND GEAR BUSHING**

- (a) Remove the 2nd gear bushing from the output shaft.

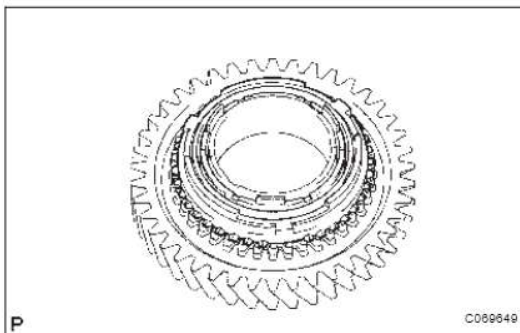
**8. REMOVE 2ND GEAR BUSHING BALL**

- (a) Using a magnetic finger, remove the 2nd gear bush ball from the output shaft.

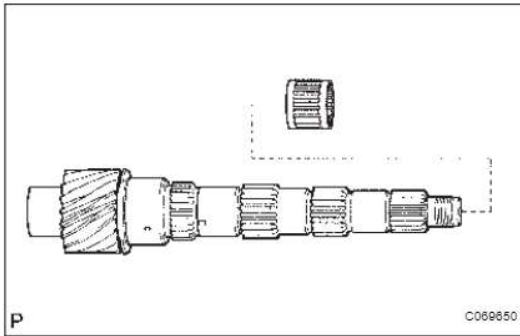
**9. REMOVE 1ST GEAR**

- (a) Using SST and a press, remove the No. 1 transmission clutch hub and 1st gear from the output shaft.

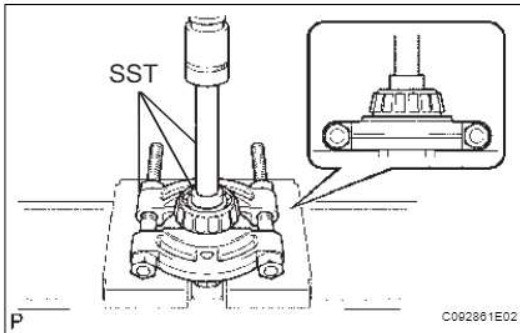
SST 09950-00020

**10. REMOVE NO. 1 SYNCHRONIZER RING SET**

- (a) Remove the No. 1 synchronizer ring set from the 1st gear.

E351 MANUAL TRANSAXLE – OUTPUT SHAFT**MX-89****MX****11. REMOVE 1ST GEAR NEEDLE ROLLER BEARING**

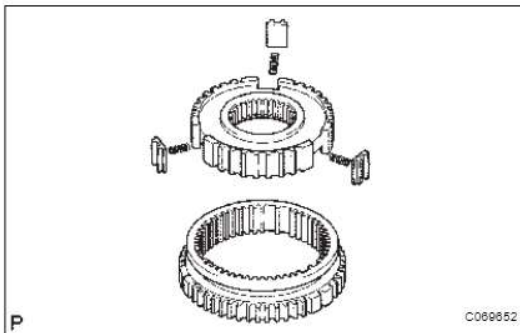
- (a) Remove the 1st gear needle roller bearing from the output shaft.

**12. REMOVE OUTPUT SHAFT FRONT BEARING**

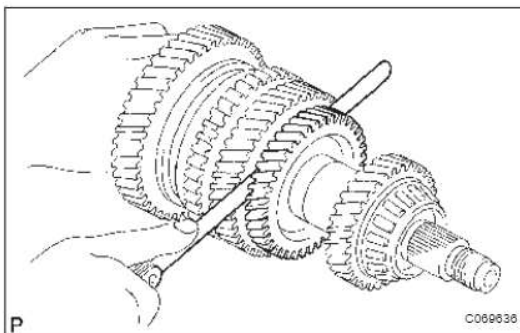
- (a) Using SST and a press, remove the output shaft front bearing (inner race) from the output shaft.
SST 09950-00020, 09950-60010 (09951-00320), 09950-70010 (09951-07150)

NOTICE:

Do not overtighten the SST.

**13. REMOVE REVERSE GEAR**

- (a) Remove the No. 1 transmission clutch hub, 3 No. 1 synchromesh shifting keys, and 3 No. 1 synchromesh shifting key springs from the reverse gear.

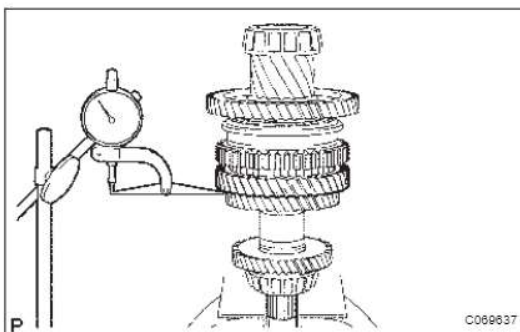
**INSPECTION****1. INSPECT 1ST GEAR THRUST CLEARANCE**

- (a) Using a feeler gauge, measure the 1st gear thrust clearance.

Standard clearance:

0.25 to 0.40 mm (0.0098 to 0.0157 in.)

If clearance is out of specification, replace the 1st gear, thrust washer, 1st gear, or No. 1 transmission clutch hub.

**2. INSPECT 2ND GEAR THRUST CLEARANCE**

- (a) Using a dial indicator, measure the 2nd gear thrust clearance.

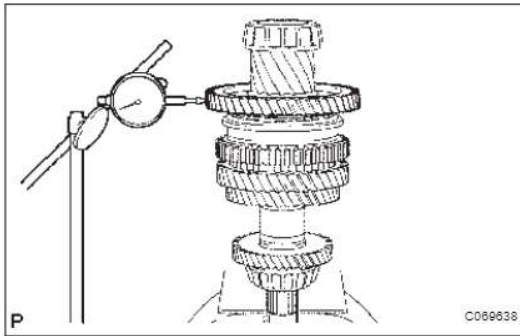
Standard clearance:

0.10 to 0.35 mm (0.0039 to 0.0138 in.)

If clearance is out of specification, replace the No. 1 transmission clutch hub, 2nd gear, or 3rd driven gear.

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E351 MANUAL TRANSAXLE – OUTPUT SHAFT

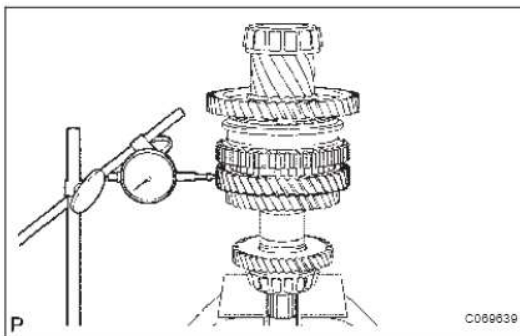
**3. INSPECT 1ST GEAR RADIAL CLEARANCE**

- (a) Using a dial indicator, measure the 1st gear radial clearance.

Standard clearance mm (in.)

Bearing	Standard clearance
KOYO made	0.009 to 0.053 (0.0004 to 0.0021)
NSK made	0.009 to 0.051 (0.0004 to 0.0020)

If clearance is out of specification, replace the 1st gear and 1st gear needle roller bearing.

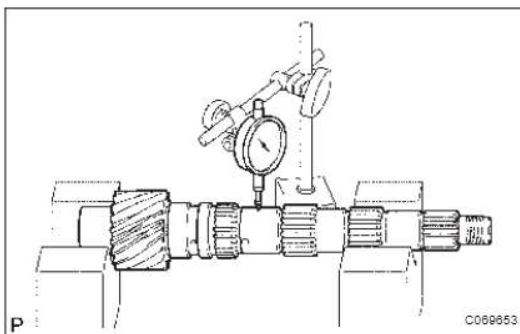
**4. INSPECT 2ND GEAR RADIAL CLEARANCE**

- (a) Using a dial indicator, measure the 2nd gear radial clearance.

Standard clearance mm (in.)

Bearing	Standard clearance
KOYO made	0.009 to 0.053 (0.0004 to 0.0021)
NSK made	0.009 to 0.051 (0.0004 to 0.0020)

If clearance is out of specification, replace the 2nd gear and 2nd gear needle roller bearing.

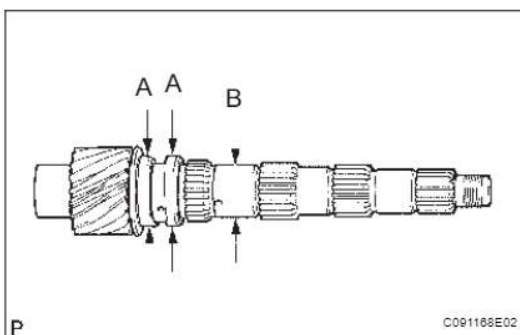
**5. INSPECT OUTPUT SHAFT**

- (a) Using a V-block and a dial indicator, inspect the shaft for runout.

Maximum runout:

0.03 mm (0.0012 in.)

If runout exceeds the maximum, replace the input shaft.

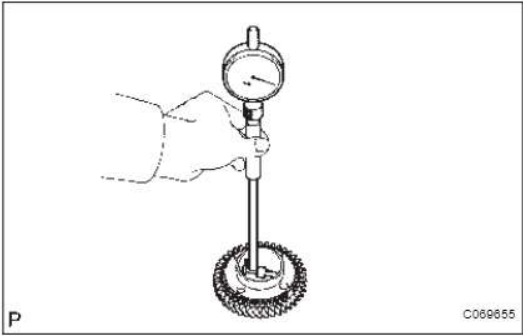


- (b) Using a micrometer, measure the outside diameter of the output shaft journal surface.

Outside diameter mm (in.)

Part	Standard outside diameter	Minimum outside diameter
A	37.610 to 37.626 (1.4807 to 1.4813)	37.610 (1.4807)
B	34.502 to 34.512 (1.3583 to 1.3587)	34.502 (1.3583)

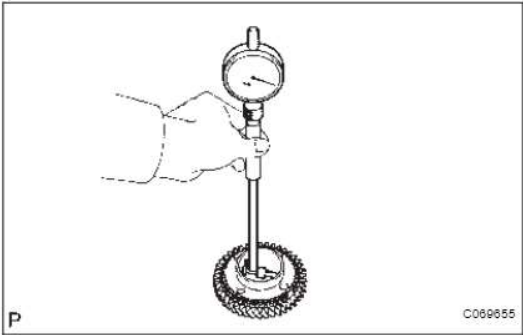
If the outside diameter is less than the minimum, replace the input shaft.



- 6. INSPECT 2ND GEAR**
- (a) Using a cylinder gauge, measure the inside diameter of the 2nd gear.
- Inside diameter:**
mm (in.)

Standard inside diameter	Maximum inside diameter
50.009 to 50.025 (1.9689 to 1.9695)	50.025 (1.9695)

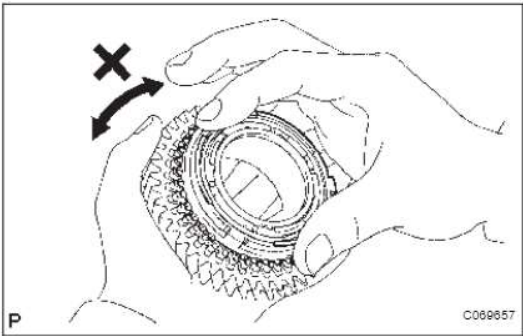
If the inside diameter exceeds the maximum, replace the 2nd gear.



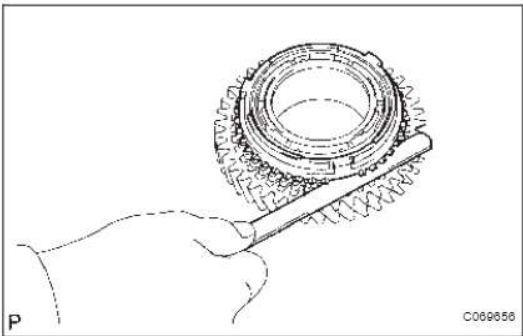
- 7. INSPECT 1ST GEAR**
- (a) Using a cylinder gauge, measure the inside diameter of the 1st gear.
- Inside diameter mm (in.)**

Standard inside diameter	Maximum inside diameter
51.009 to 51.025 (2.0082 to 2.0089)	51.025 (2.0089)

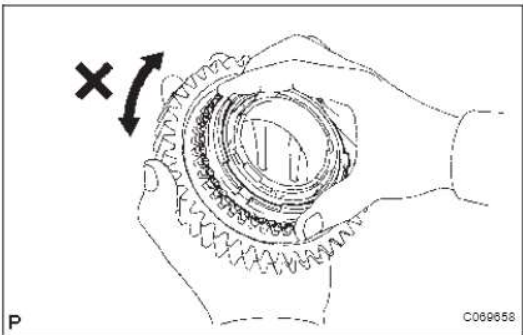
If the inside diameter exceeds the maximum, replace the 1st gear.



- 8. INSPECT NO. 2 SYNCHRONIZER RING SET**
- (a) Coat the 2nd gear cone with gear oil. Turn the No. 2 synchronizer ring set in one direction while pushing it against the No. 2 synchronizer ring. Check that the ring locks.
- If the No. 2 synchronizer ring set does not lock, replace the ring or 2nd gear.



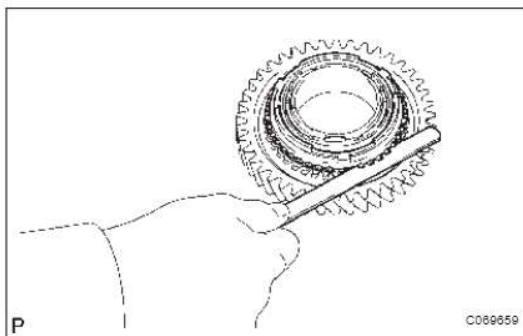
- (b) Check the clearance between the No. 2 synchronizer ring and 2nd gear while pushing the 2nd gear against the No. 2 synchronizer ring.
- Standard clearance:**
0.70 to 1.45 mm (0.0276 to 0.0571 in.)
- If clearance is out of specification, replace the No. 2 synchronizer ring set with a new one.



- 9. INSPECT NO. 1 SYNCHRONIZER RING SET**
- (a) Coat the 1st gear cone with gear oil. Turn the No. 1 synchronizer ring set in one direction while pushing it against the 1st gear cone. Check that the ring locks.
- If the No. 1 synchronizer ring set does not lock, replace the No. 1 synchronizer ring set with a new one.

MX-92

E351 MANUAL TRANSAXLE – OUTPUT SHAFT



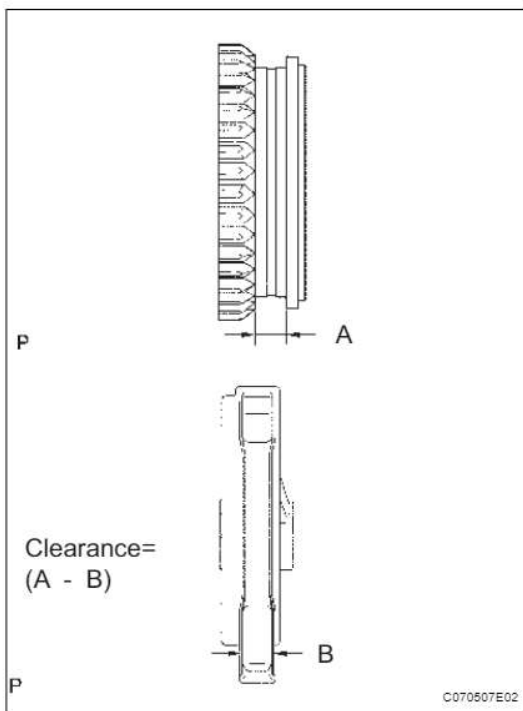
- (b) Check the clearance between the No. 1 synchronizer ring set and 1st gear while pushing the 1st gear against the cone of the No. 1 synchronizer ring set.

Standard clearance:

0.70 to 1.45 mm (0.0276 to 0.0571 in.)

If clearance is out of specification, replace the No. 1 synchronizer ring set with a new one.

MX

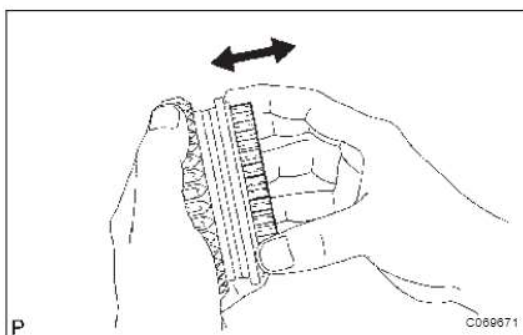
**10. INSPECT REVERSE GEAR**

- (a) Using vernier calipers, measure the width of the reverse gear groove and thickness of the claw part on the No. 1 gear shift fork, and calculate the clearance.

Standard clearance:

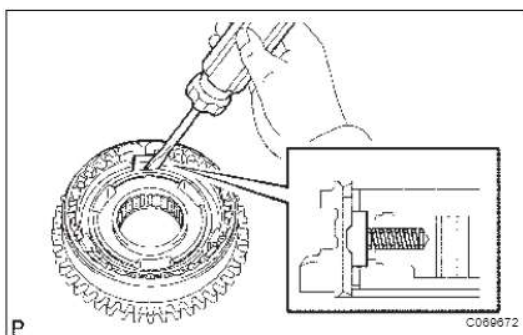
0.15 to 0.35 mm (0.0059 to 0.0138 in.) {A - B}

If clearance is out of specification, replace the reverse gear and No. 1 gear shift fork with new ones.

**11. INSPECT NO. 1 TRANSMISSION CLUTCH HUB**

- (a) Check the sliding condition between the No. 1 transmission clutch hub and the reverse gear.
- (b) Check the tip of the spline gear on the sleeve of the reverse gear for wear.

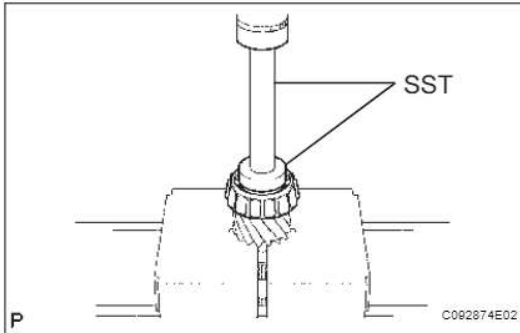
If any defects are found, replace the transmission hub sleeve or the transmission clutch hub.

**REASSEMBLY****1. INSTALL REVERSE GEAR**

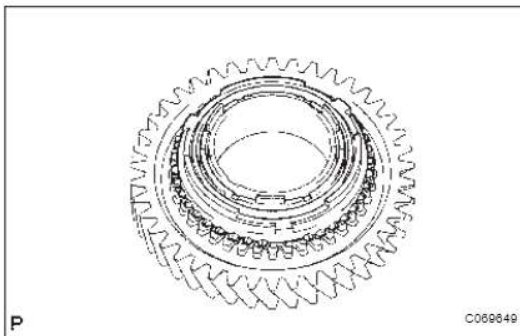
- (a) Coat the reverse gear with gear oil.
- (b) Install the 3 No. 1 synchromesh shifting key springs and No. 1 transmission clutch hub to the reverse gear.

NOTICE:

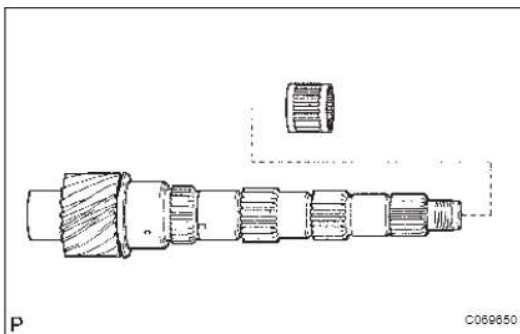
Assemble the reverse gear and the No. 1 transmission clutch hub in the correct direction.

E351 MANUAL TRANSAXLE – OUTPUT SHAFT**MX-93**

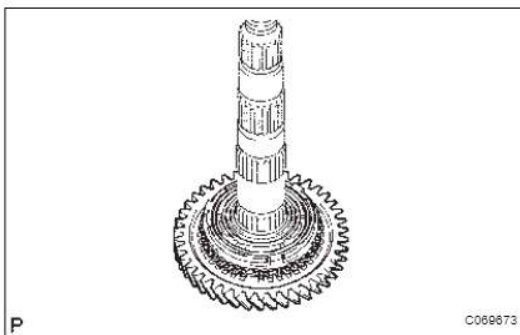
- (c) Using a screwdriver, install the 3 No. 1 synchromesh shifting keys to the reverse gear.
- 2. INSTALL OUTPUT SHAFT FRONT BEARING**
- (a) Using SST and a press, install the output shaft front bearing (inner race) to the output shaft.
SST 09950-60010 (09951-00430), 09950-70010 (09951-07150)



- 3. INSTALL NO. 1 SYNCHRONIZER RING SET**
- (a) Coat the No. 1 synchronizer ring set with gear oil and install it to the 1st gear.
NOTICE:
Align the No. 1 synchronizer ring set with the hole of the 1st gear.

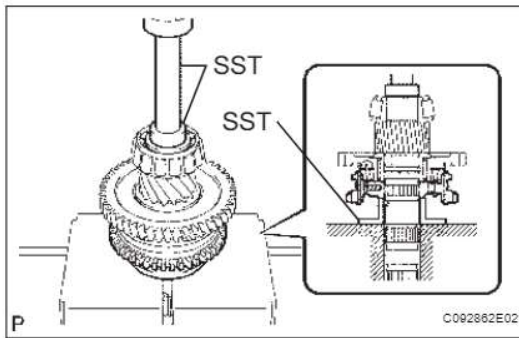


- 4. INSTALL 1ST GEAR NEEDLE ROLLER BEARING**
- (a) Coat the 1st gear needle roller bearing with gear oil and install it to the output shaft.



- 5. INSTALL 1ST GEAR**
- (a) Coat the 1st gear with gear oil and install it to the output shaft.

MX

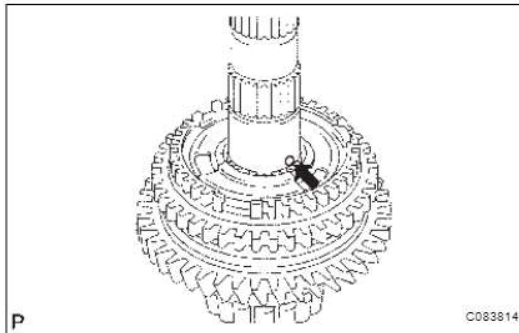
MX-94**E351 MANUAL TRANSAXLE – OUTPUT SHAFT****6. INSTALL NO. 1 TRANSMISSION CLUTCH HUB**

- (a) Using SST and a press, install the No. 1 transmission clutch hub to the output shaft.

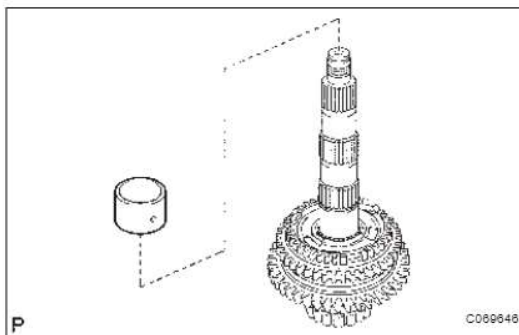
SST 09316-60011 (09316-00031), 09950-60010 (09951-00320), 09950-70010 (09951-07100)

NOTICE:

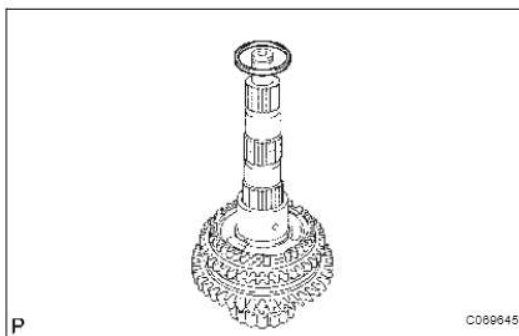
- Align the No. 1 synchronizer ring with the No. 1 synchromesh shifting key.
- Make sure that the 1st gear rotates.

**7. INSTALL 2ND GEAR BUSHING BALL**

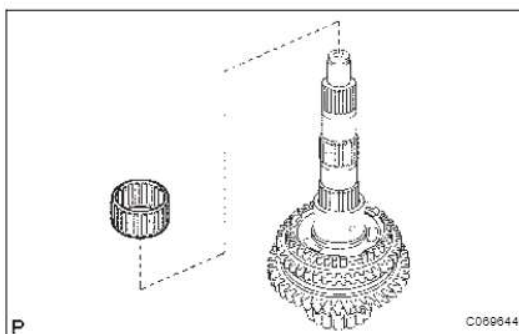
- (a) Coat the gear bushing with MP grease, and install it to the output shaft.

**8. INSTALL 2ND GEAR BUSHING**

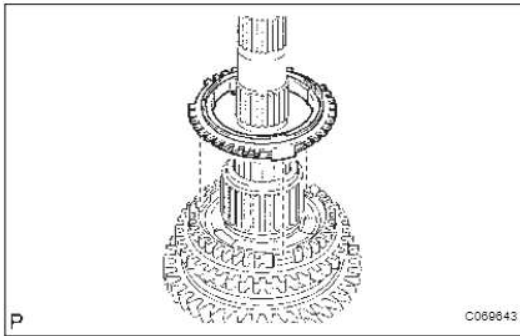
- (a) Coat the 2nd gear bushing with gear oil and install it to the output shaft.

**9. INSTALL 2ND GEAR BEARING SPACER**

- (a) Coat the 2nd gear bearing spacer with gear oil and install it to the output shaft.

**10. INSTALL 2ND GEAR NEEDLE ROLLER BEARING**

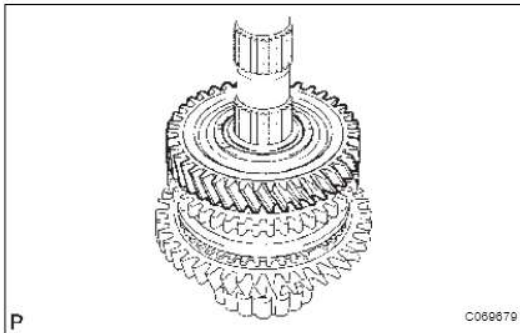
- (a) Coat the 2nd gear needle roller bearing with gear oil and install it to the output shaft.

E351 MANUAL TRANSAXLE – OUTPUT SHAFT**MX-95****11. INSTALL NO. 2 SYNCHRONIZER RING SET**

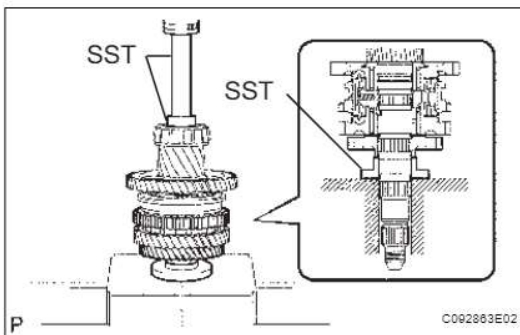
- (a) Coat the No. 2 synchronizer ring set with gear oil and install it to the No. 1 transmission clutch hub.

NOTICE:

Align the key groove on the No. 2 synchronizer ring set with the No. 1 synchromesh shifting key.

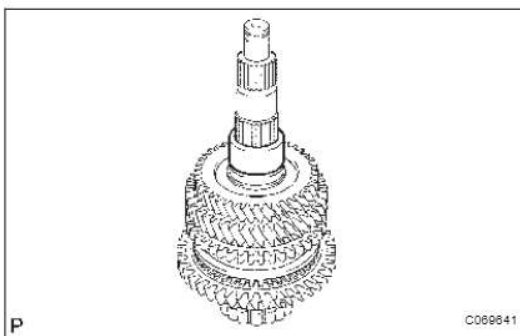
**12. INSTALL 2ND GEAR**

- (a) Coat the 2nd gear with gear oil and install it to the output shaft.

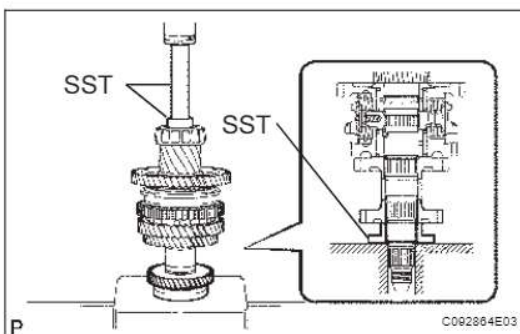
**13. INSTALL 3RD DRIVEN GEAR**

- (a) Using SST and a press, install the 3rd driven gear to the output shaft.

SST 09608-00071, 09950-60010 (09951-00320), 09950-70010 (09951-07100)

**14. INSTALL OUTPUT GEAR SPACER**

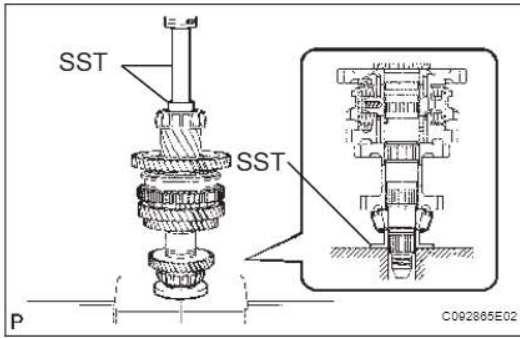
- (a) Install the output gear spacer to the output shaft.

**15. INSTALL 4TH DRIVEN GEAR**

- (a) Using SST and a press, install the 4th driven gear to the output shaft.

SST 09608-00071, 09950-60010 (09951-00320), 09950-70010 (09951-07100)

MX

MX-96**E351 MANUAL TRANSAXLE – OUTPUT SHAFT****16. INSTALL OUTPUT SHAFT FRONT BEARING**

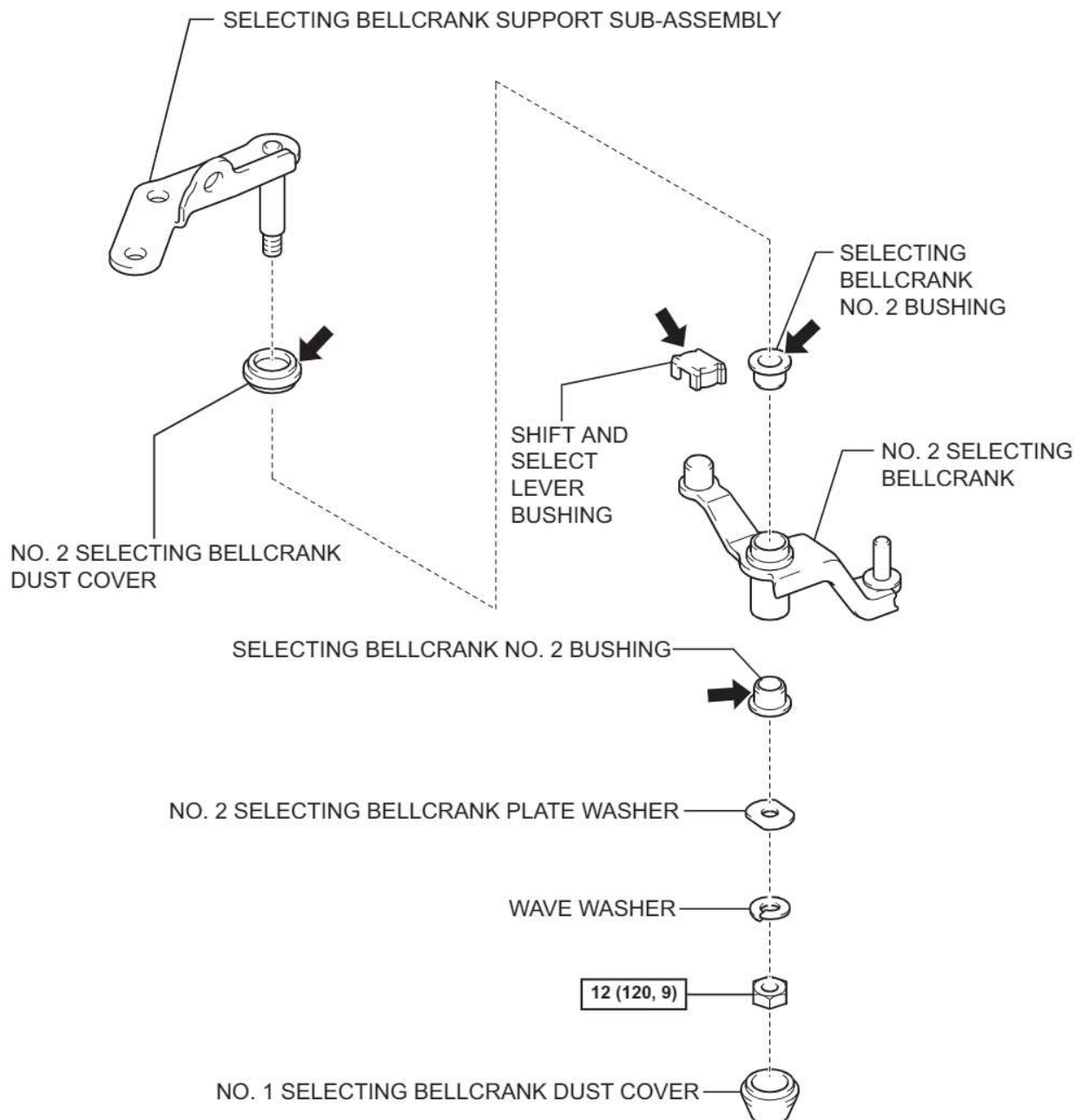
- (a) Using SST and a press, install the output shaft front bearing (inner race) to the output shaft.

**SST 09506-30012, 09950-60010 (09951-00320),
09950-70010 (09951-07100)**

MX

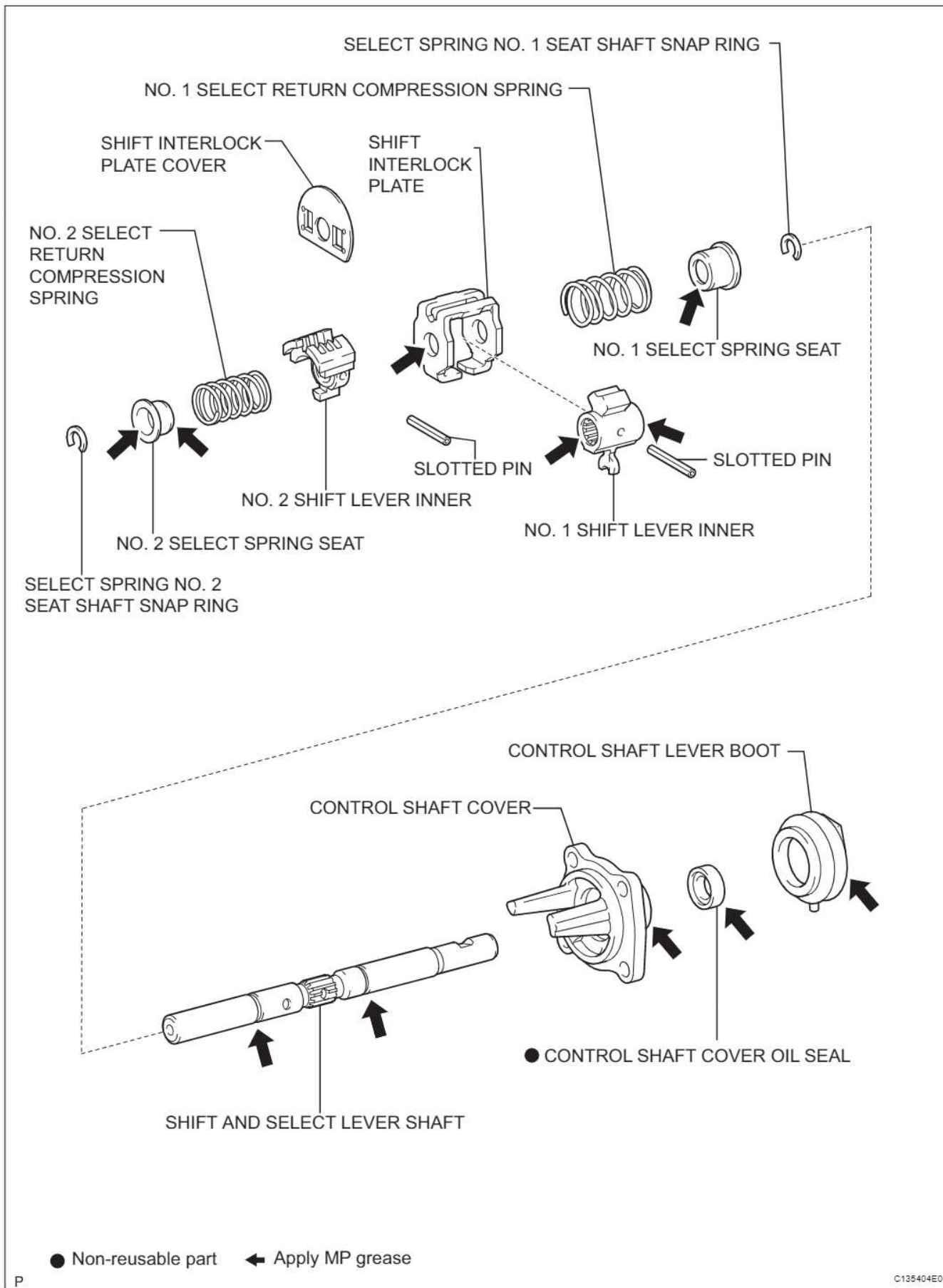
SHIFT AND SELECT LEVER SHAFT

COMPONENTS



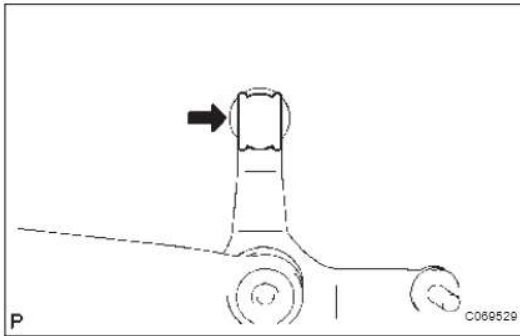
N*m (kgf*cm, ft.*lbf) : Specified torque

← Apply MP grease

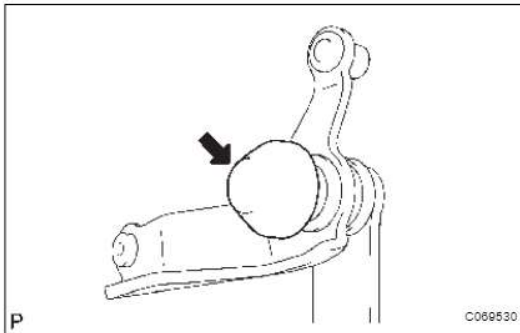
MX-98**E351 MANUAL TRANSAXLE – SHIFT AND SELECT LEVER SHAFT**

E351 MANUAL TRANSAXLE – SHIFT AND SELECT LEVER SHAFT**MX-99****MX****DISASSEMBLY****1. REMOVE CONTROL SHIFT LEVER BUSHING**

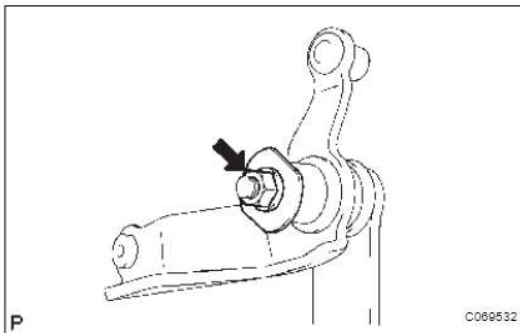
- (a) Remove the control shift lever bushing from the No. 2 selecting bellcrank.

**2. REMOVE NO. 1 SELECTING BELLCRANK DUST COVER**

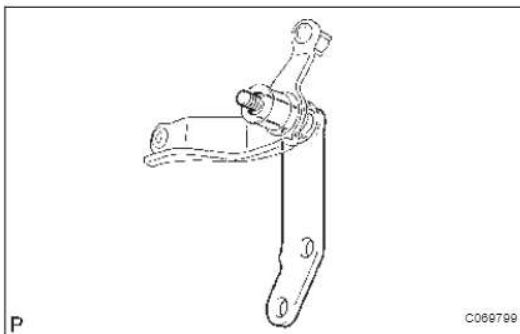
- (a) Remove the No. 1 selecting bellcrank dust cover from the No. 2 selecting bellcrank.

**3. REMOVE SELECTING BELLCRANK SUPPORT SUB-ASSEMBLY**

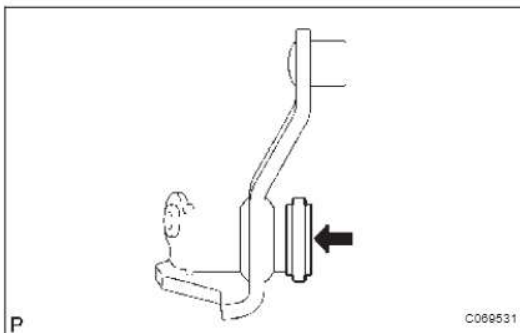
- (a) Remove the nut, wave washer, and selecting bellcrank No. 2 plate washer from the No. 2 selecting bellcrank.



- (b) Remove the selecting bellcrank support sub-assembly from the No. 2 selecting bellcrank.

**4. REMOVE NO. 2 SELECTING BELLCRANK DUST COVER**

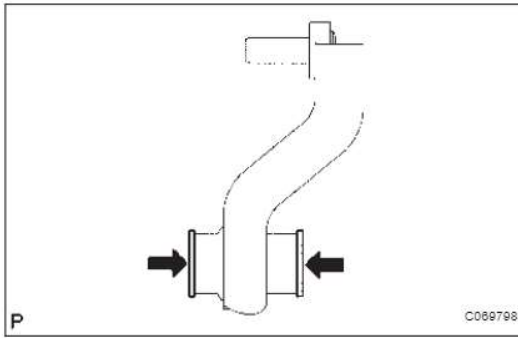
- (a) Remove the No. 2 selecting bellcrank dust cover from the No. 2 selecting bellcrank.



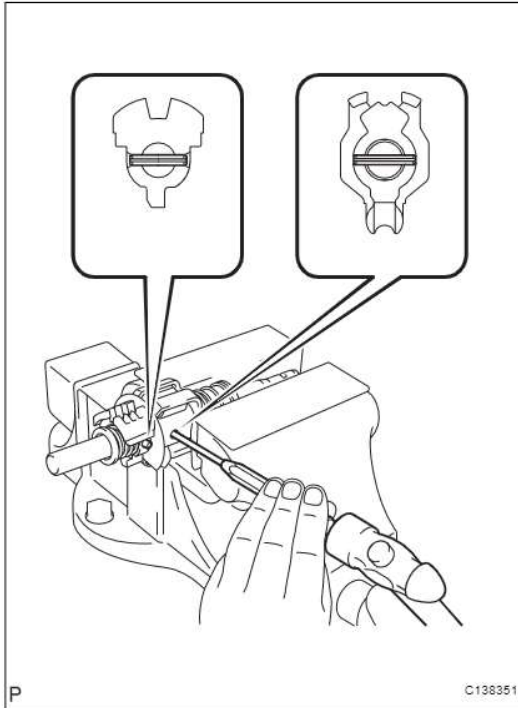
MX-100

E351 MANUAL TRANSAXLE – SHIFT AND SELECT LEVER SHAFT

MX

**5. REMOVE SELECTING BELLCRANK NO. 2 BUSHING**

- (a) Remove the selecting bellcrank bushing from the No. 2 selecting bellcrank.

**6. REMOVE NO. 2 SHIFT LEVER INNER**

- (a) Hold the shift and select lever in a vise using aluminum plates.

NOTICE:

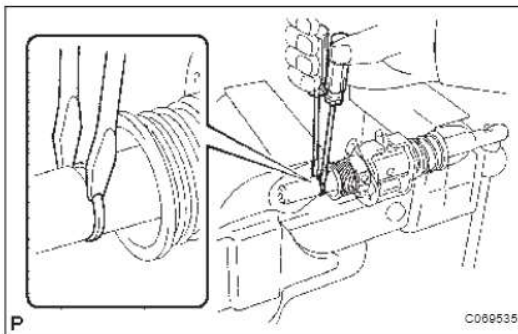
Do not damage the shift and select lever shaft.

- (b) Using a pin punch (ϕ 5 mm), remove the 2 shift inner lever slotted pins.

NOTICE:

Do not damage the shift and select lever shaft.

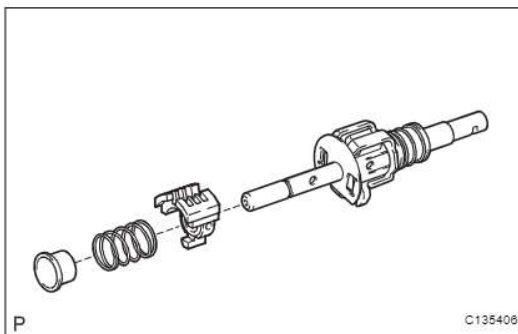
- (c) Apply force to the No. 1 select return compression spring and No. 2 select return compression spring, then hold them in a vise using aluminum plates.



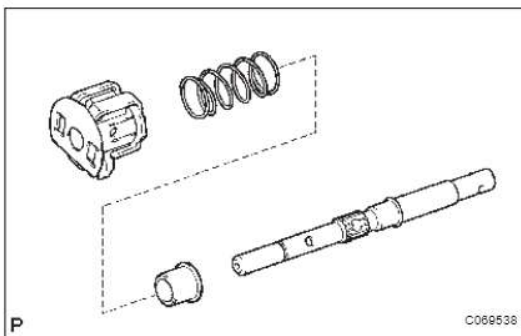
- (d) Using 2 screwdrivers and a hammer, remove the select spring No. 2 seat snap ring from the shift and select lever shaft.

NOTICE:

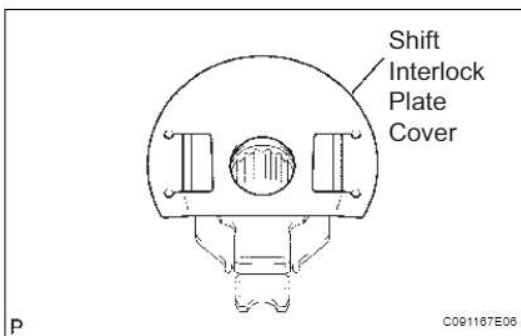
Do not damage the shift and select lever shaft.



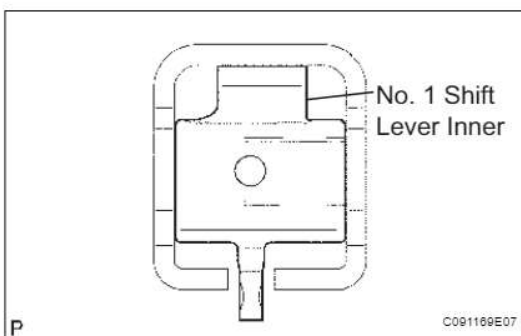
- (e) Remove the No. 2 select spring seat, No. 2 select return compression spring, and No. 2 shift lever inner from the shift and select lever shaft.

E351 MANUAL TRANSAXLE – SHIFT AND SELECT LEVER SHAFT**MX-101****7. REMOVE NO. 1 SELECT SPRING SEAT**

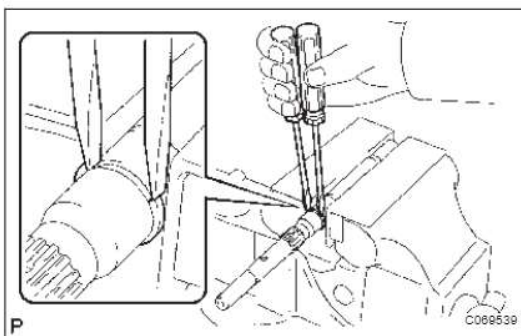
- (a) Remove the shift inter lock plate, No. 1 select return compression spring and No. 1 select spring seat from the shift and select lever shaft.

**8. REMOVE SHIFT INTERLOCK PLATE COVER**

- (a) Remove the shift interlock plate cover from the shift interlock plate.

**9. REMOVE NO. 1 SHIFT LEVER INNER**

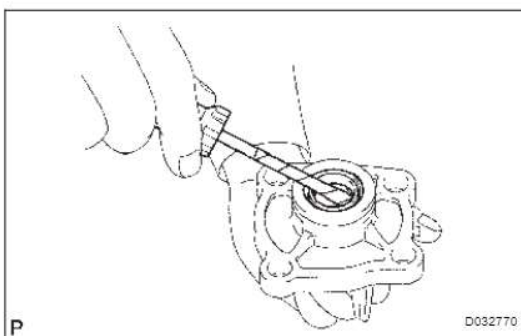
- (a) Remove the No. 1 shift lever inner from the shift interlock plate.

**10. REMOVE SELECT SPRING NO. 1 SEAT SHAFT SNAP RING**

- (a) Using 2 screwdrivers and a hammer, remove the select spring No. 1 seat shaft snap ring.

NOTICE:

Do not damage the shaft.

**11. REMOVE CONTROL SHAFT COVER OIL SEAL**

- (a) Using a screwdriver, remove the control shaft cover oil seal from the control shaft cover.

HINT:

Tape the screwdriver tip before use to avoid damage.

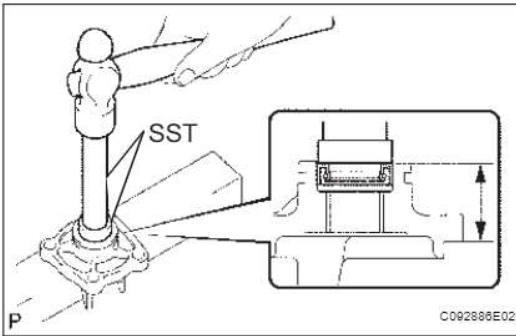
MX

MX-102**E351 MANUAL TRANSAXLE – SHIFT AND SELECT LEVER SHAFT****REASSEMBLY****1. INSTALL CONTROL SHAFT COVER OIL SEAL**

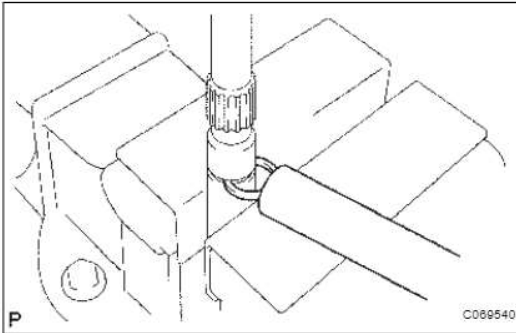
- (a) Using SST and a hammer, install a new control shaft cover oil seal to the control shaft cover.

SST 09950-60010 (09951-00280), 09950-70010 (09951-07100)

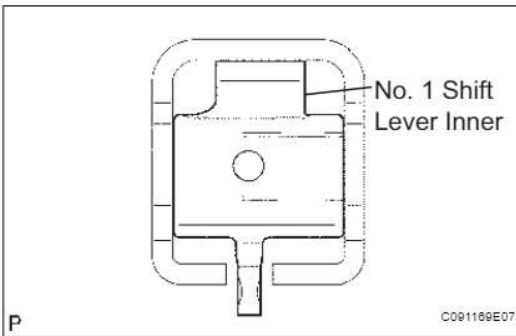
**Oil seal installation depth:
28.0 to 29.0 mm (1.1022 to 1.142 in.)**

**2. INSTALL SELECT SPRING NO. 1 SEAT SHAFT SNAP RING**

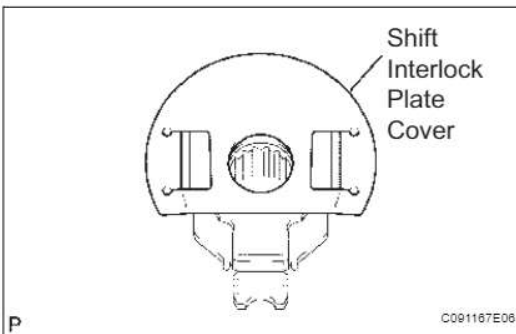
- (a) Using a brass bar and a hammer, install the select spring No. 1 seat shaft snap ring.

**3. INSTALL NO. 1 SHIFT LEVER INNER**

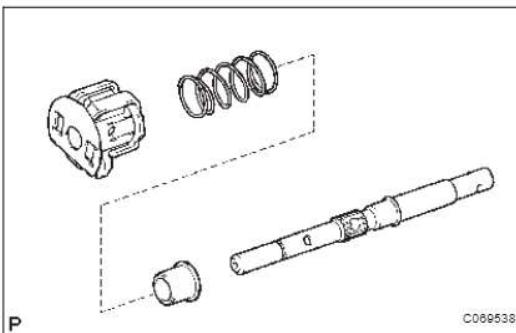
- (a) Install the No. 1 shift lever inner to the shift interlock plate.

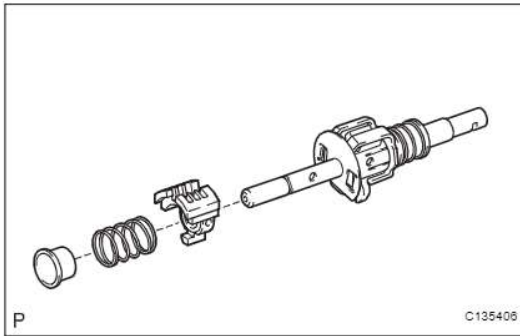
**4. INSTALL SHIFT INTERLOCK PLATE COVER**

- (a) Install the shift interlock plate cover to the shift interlock plate.

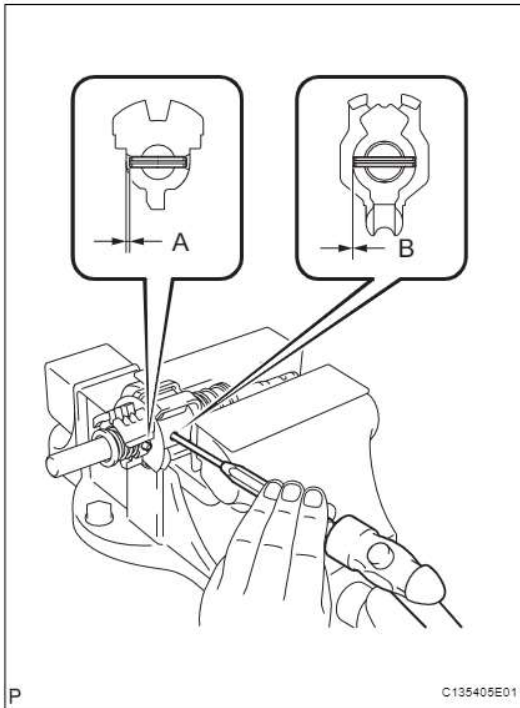
**5. INSTALL NO. 1 SELECT SPRING SEAT**

- (a) Install the No. 1 select spring seat, No. 1 select return compression spring, and shift interlock plate to the shift and select lever shaft.

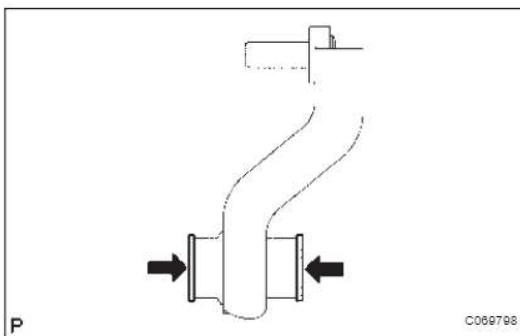


E351 MANUAL TRANSAXLE – SHIFT AND SELECT LEVER SHAFT**MX-103****6. INSTALL NO. 2 SHIFT LEVER INNER**

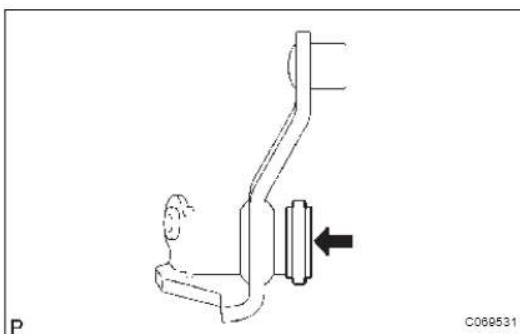
- (a) Install the No. 2 shift lever inner, No. 2 select return compression spring and No. 2 select return spring seat to the shift and select lever shaft.
- (b) Hold the shift and select lever in a vise using aluminum plates.
- (c) Using a brass bar and a hammer, install the select seat snap ring to the shift and select lever shaft.



- (d) Using a pin punch (ϕ 5 mm) and a hammer, install the 2 shift inner lever slotted pins to the shift and select lever shaft.

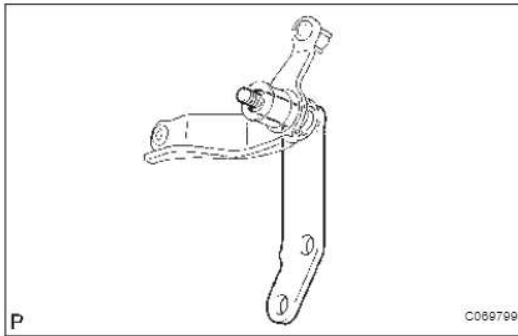
Clearance A:**0.7 to 1.7 mm (0.0276 to 0.0669 in.)****Clearance B:****-0.4 to 0.5 mm (-0.0157 to 0.0197 in.)****7. INSTALL SELECTING BELLCRANK NO. 2 BUSHING**

- (a) Coat the 2 selecting bellcrank No. 2 bushings with MP grease and install them to the No. 2 selecting bellcrank.

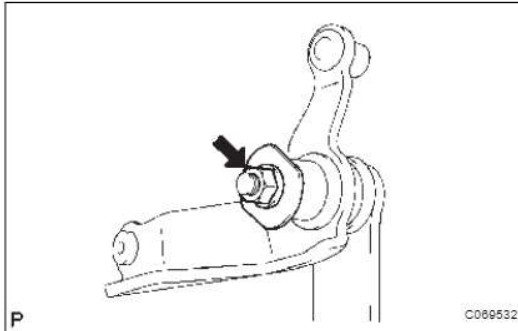
**8. INSTALL NO. 2 SELECTING BELLCRANK DUST COVER**

- (a) Coat the No. 2 selecting bellcrank dust cover with MP grease and install it to the No. 2 selecting bellcrank.

MX

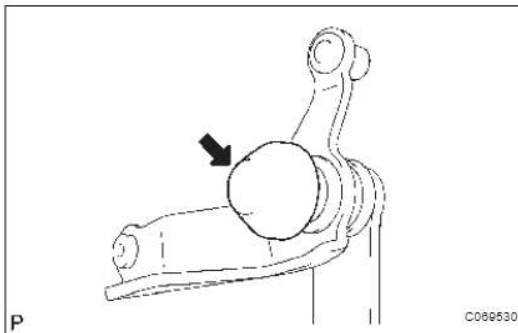
MX-104**E351 MANUAL TRANSAXLE – SHIFT AND SELECT LEVER SHAFT****MX****9. INSTALL SELECTING BELLCRANK SUPPORT SUB-ASSEMBLY**

- (a) Install the selecting bellcrank support sub-assembly to the No. 2 selecting bellcrank.

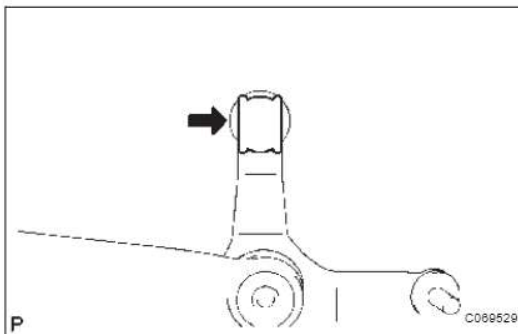


- (b) Install the No. 2 selecting bellcrank plate washer, washer, and nut.

Torque: 12 N*m (122 kgf*cm, 9 ft.*lbf)

**10. INSTALL NO. 1 SELECTING BELLCRANK DUST COVER**

- (a) Install the No. 1 selecting bellcrank dust cover to the No. 2 selecting bellcrank.

**11. INSTALL CONTROL SHIFT LEVER BUSHING**

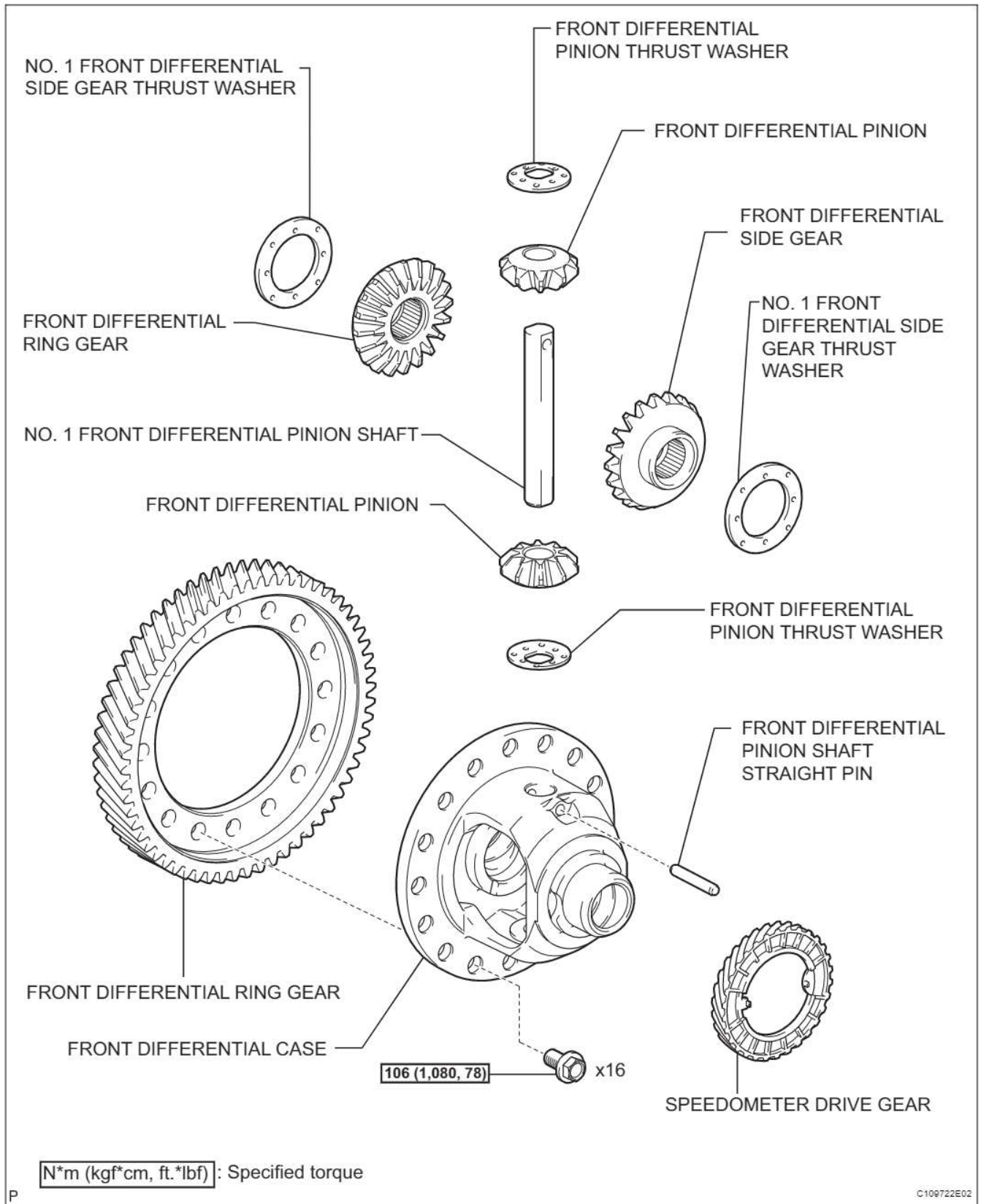
- (a) Install the control shift lever bushing to the No. 2 selecting bellcrank.

E351 MANUAL TRANSAXLE – DIFFERENTIAL CASE

MX-105

DIFFERENTIAL CASE

COMPONENTS

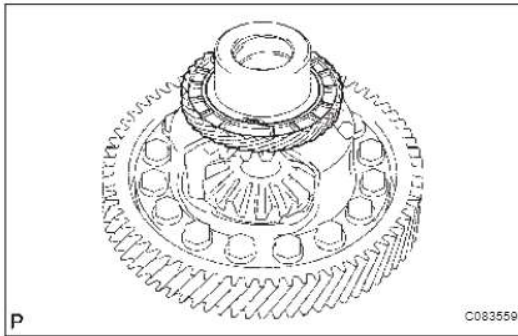


MX-106

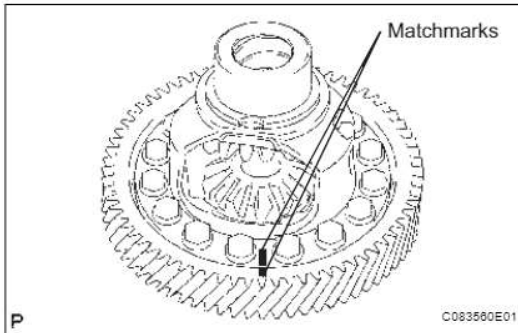
E351 MANUAL TRANSAXLE – DIFFERENTIAL CASE

DISASSEMBLY**1. REMOVE SPEEDOMETER DRIVE GEAR**

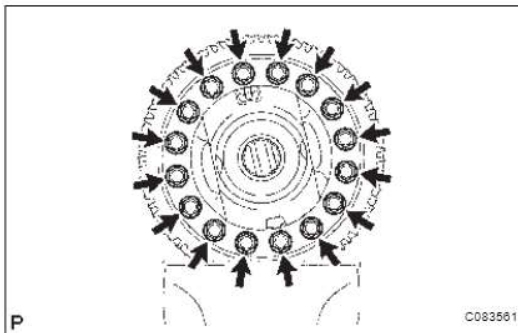
- (a) Remove the speedometer drive gear from the front differential case assembly.

**2. REMOVE FRONT DIFFERENTIAL RING GEAR**

- (a) Put matchmarks on the front differential ring gear and the front differential case.

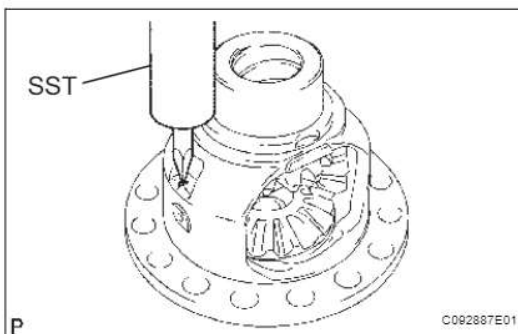


- (b) Remove the 16 bolts.
(c) Using a plastic hammer, remove the front differential case.

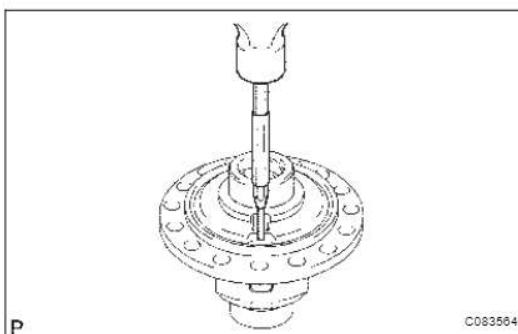
**3. REMOVE FRONT DIFFERENTIAL PINION SHAFT STRAIGHT PIN**

- (a) Using SST and a hammer, unstake the staked part of the front differential case.

SST 09930-00010

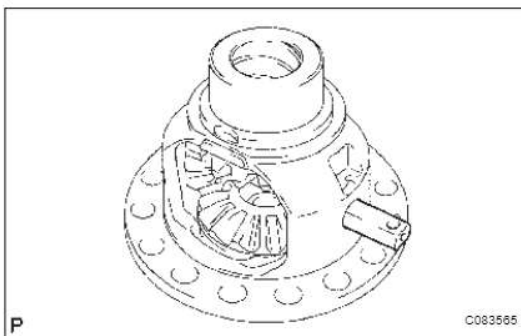


- (b) Using a pin punch and a hammer, remove the front differential pinion shaft straight pin from the front differential case.



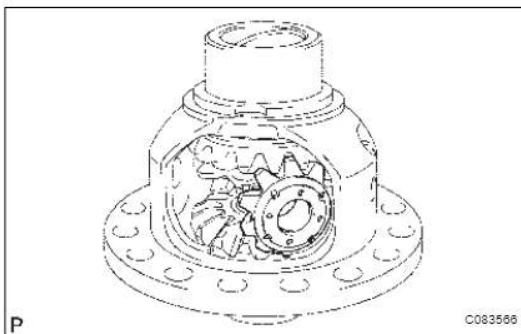
E351 MANUAL TRANSAXLE – DIFFERENTIAL CASE

MX-107



4. REMOVE NO. 1 FRONT DIFFERENTIAL PINION SHAFT

- (a) Remove the No. 1 front differential pinion shaft from the front differential case.

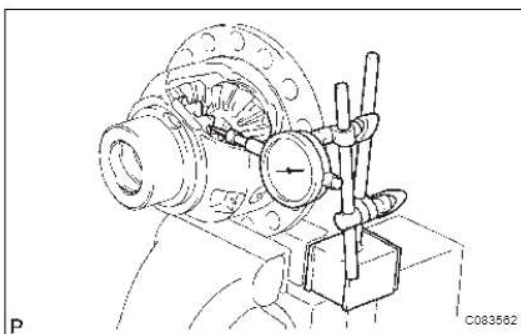


5. REMOVE FRONT DIFFERENTIAL SIDE GEAR

- (a) Remove the 2 front differential pinions, 2 front differential pinion thrust washers, 2 front differential side gears, and 2 front differential side gear thrust washers from the front differential case.

HINT:

Remove the 2 pinion thrust washers and side gear thrust washers while turning the front differential pinion.



INSPECTION

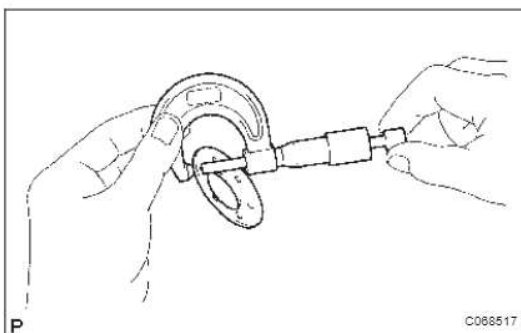
1. INSPECT FRONT DIFFERENTIAL SIDE GEAR BACKLASH

- (a) Hold the front differential pinion to the front differential case side. Using a dial indicator, measure the front differential side gear backlash.

Standard backlash:

0.05 to 0.20 mm (0.002 to 0.0079 in.)

If backlash is out of specification, install proper side gear thrust washers.



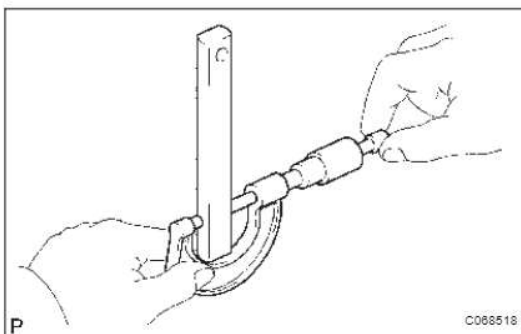
2. INSPECT FRONT DIFFERENTIAL PINION THRUST WASHER

- (a) Using a micrometer, measure the thickness of the front differential pinion thrust washer.

Minimum thickness:

0.9 mm (0.035 in.)

If the thickness is less than the minimum, replace the front differential pinion thrust washer.



3. INSPECT NO. 1 FRONT DIFFERENTIAL PINION SHAFT

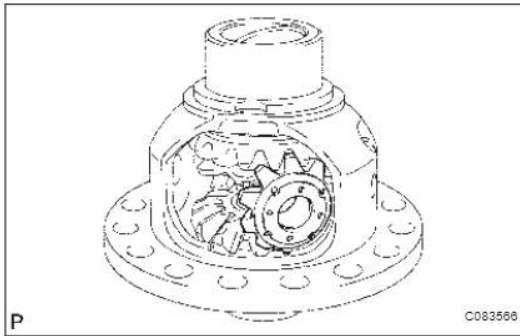
- (a) Using a micrometer, measure the outside diameter of the No. 1 front differential pinion shaft.

Minimum diameter:

17.975 mm (0.70768 in.)

If the outer diameter is less than the minimum, replace the No. 1 front differential pinion shaft.

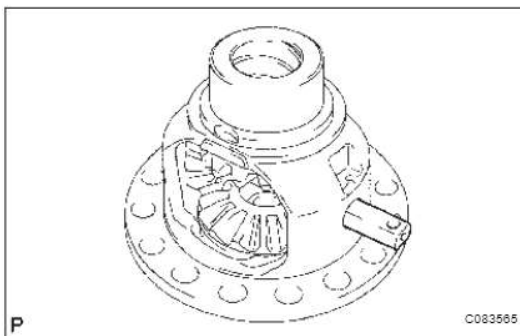
MX

MX-108**E351 MANUAL TRANSAXLE – DIFFERENTIAL CASE****MX****REASSEMBLY****1. INSTALL FRONT DIFFERENTIAL SIDE GEAR**

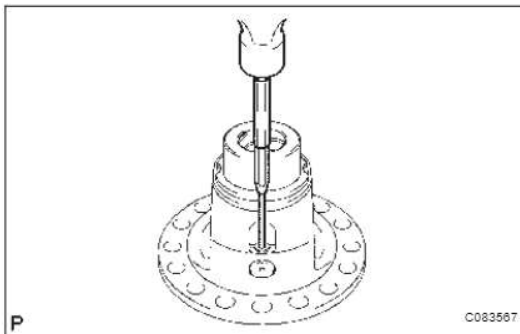
- Coat the rotating surface of the front differential side gear with gear oil.
- Install the 2 front differential side gear thrust washers to the 2 front differential side gears.
- Install the 2 front differential side gears, 2 front differential pinions, and 2 front differential side gear thrust washers to the front differential case.

HINT:

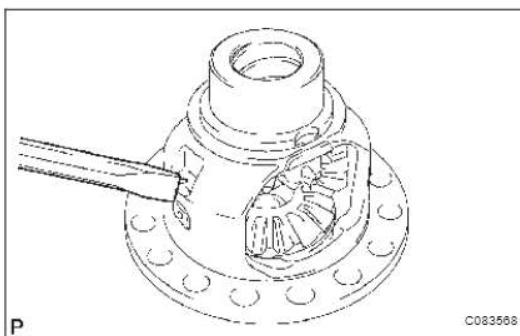
Install the 2 front differential pinions with the front differential washers while turning the front differential pinion.

**2. REMOVE NO. 1 FRONT DIFFERENTIAL PINION SHAFT**

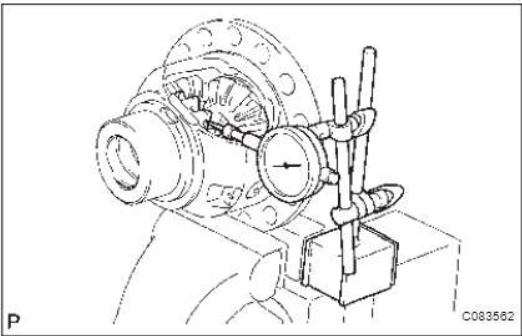
- Coat the rotating surface of the No. 1 front differential pinion shaft with gear oil.
- Install the No. 1 front differential pinion shaft to the front differential case so that the hole for the front differential pinion shaft straight pin is aligned with the hole in the front differential case.

**3. INSTALL FRONT DIFFERENTIAL PINION SHAFT STRAIGHT PIN**

- Using a pin punch and a hammer, install the front differential pinion shaft straight pin to the front differential case.



- Using a chisel and hammer, stake the front differential case hole.



4. ADJUST FRONT DIFFERENTIAL SIDE GEAR BACKLASH

- (a) Hold the front differential pinion to the front differential case side. Using a dial indicator, measure the front differential side gear backlash.

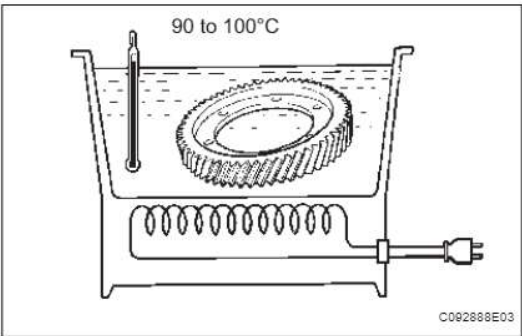
Standard backlash:
0.05 to 0.20 mm (0.002 to 0.0079 in.)

- (b) If backlash is out of specification, select another front differential side gear thrust washer and adjust backlash.

Thrust washer

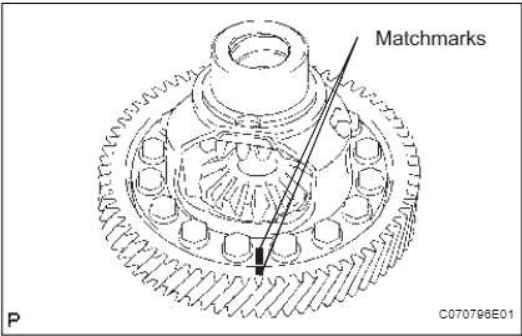
Part No.	Thickness: mm (in.)	Mark
41361-28230	1.00 (0.0394)	1
41361-28240	1.10 (0.0433)	2
41361-28250	1.20 (0.0472)	3
41361-28260	1.30 (0.0512)	4

MX

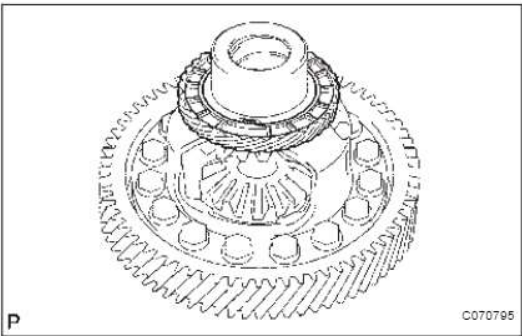


5. INSTALL FRONT DIFFERENTIAL RING GEAR

- (a) Using a heater, heat the front differential ring gear to 90 to 100°C (194.0 to 212.0°F).
- (b) Clean the surface that contacts the differential case.



- (c) Aligning the matchmarks, quickly install the front differential ring gear to the front differential case.
Torque: 106 N*m (1,081 kgf*cm, 78 ft.*lbf)



6. INSTALL SPEEDOMETER DRIVE GEAR

- (a) Install the speedometer drive gear to the front differential case.