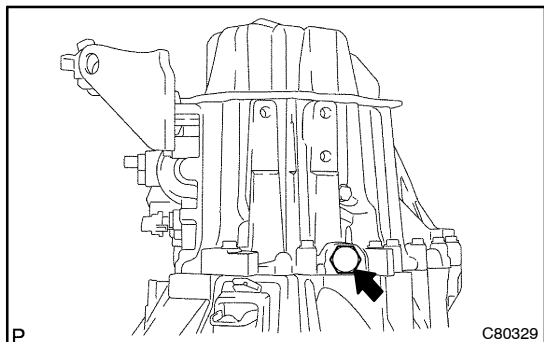


# MANUAL TRANSAXLE ASSY (C150)

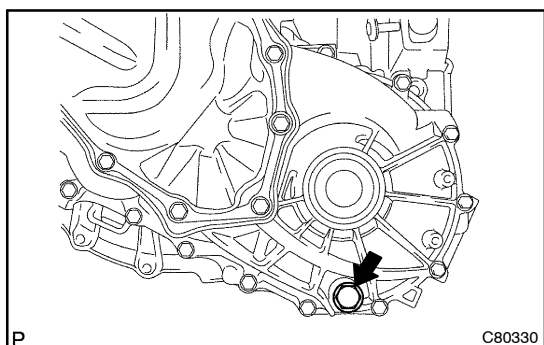
## OVERHAUL

4100X-01



### 1. REMOVE MANUAL TRANSMISSION FILLER PLUG

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

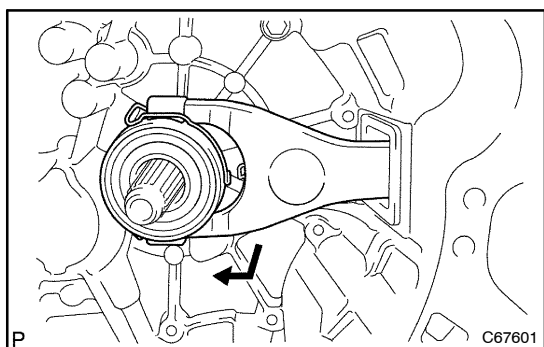


### 2. REMOVE DRAIN (MTM) PLUG SUB-ASSY

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

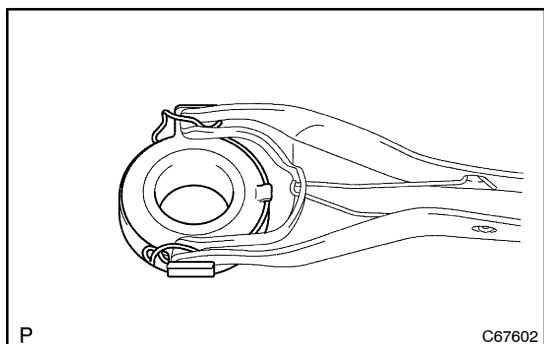
### 3. REMOVE SPEEDOMETER (MTM) SENSOR

- (a) Remove the bolt and speedometer sensor.



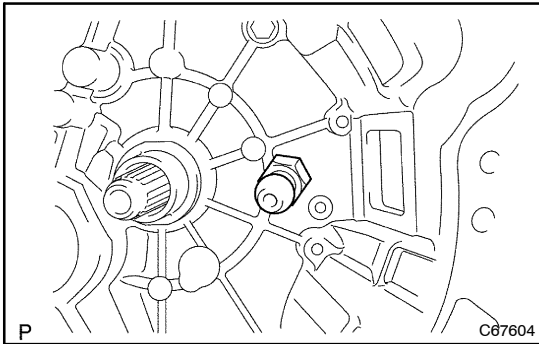
### 4. REMOVE CLUTCH RELEASE FORK SUB-ASSY

- (a) Remove the clutch release fork sub-assy and clutch release bearing assy from the front transaxle case.



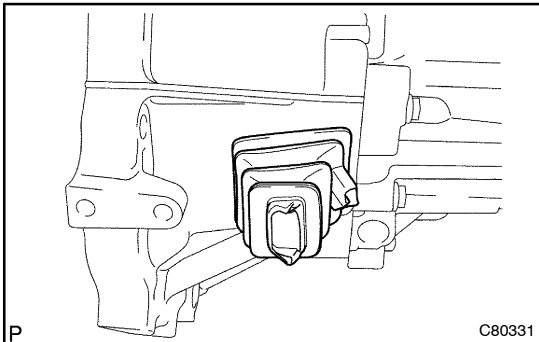
### 5. REMOVE CLUTCH RELEASE BEARING ASSY

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



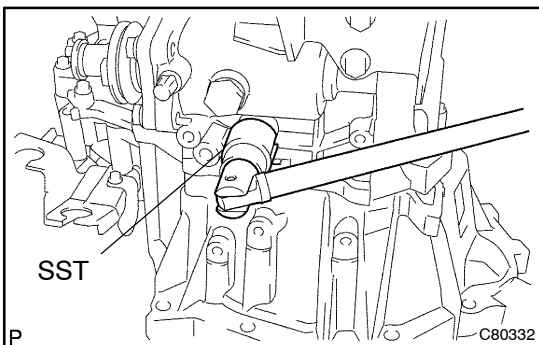
## 6. REMOVE RELEASE FORK SUPPORT

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



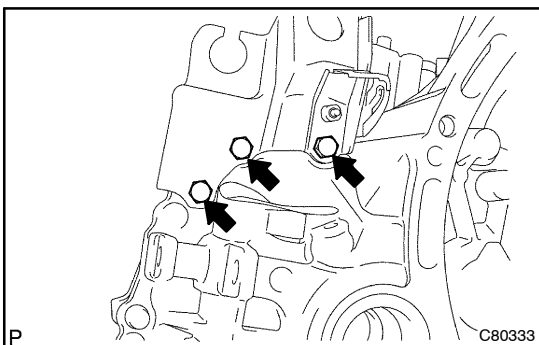
## 7. REMOVE CLUTCH RELEASE FORK BOOT

- (a) Remove the clutch release fork boots from the front transaxle case.



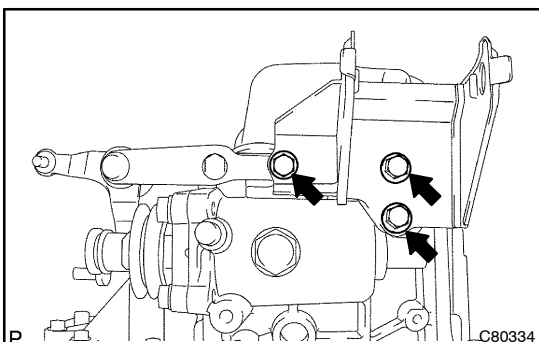
## 8. REMOVE BACK-UP LAMP SWITCH ASSY

- (a) Using SST, remove the back-up lamp switch assy and gasket from the manual transmission case.  
SST 09817-16011



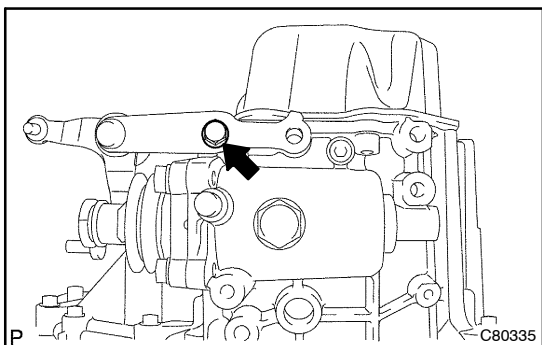
## 9. REMOVE FLOOR SHIFT CONTROL LEVER HOUSING SUPPORT BRACKET

- (a) Remove the 3 bolts and control cable bracket from the front transaxle case.

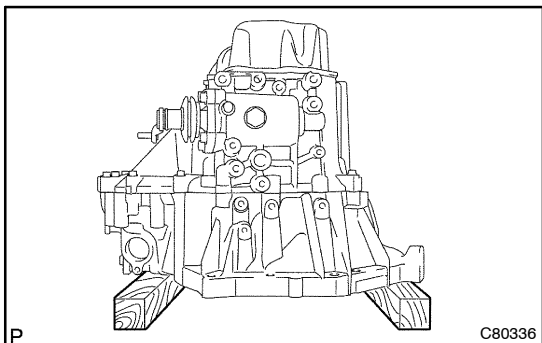


## 10. REMOVE SELECTING BELL CRANK ASSY

- (a) Remove the 3 bolts and engine mounting bracket LH from the manual transmission case.

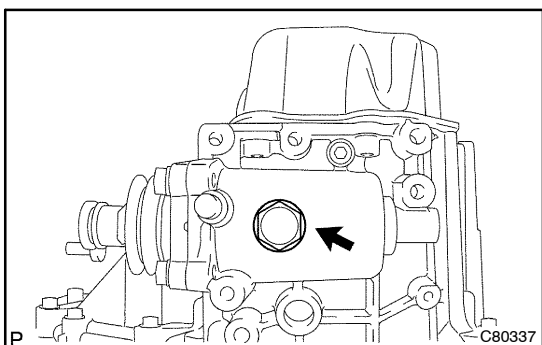


- (b) Remove the bolt and selecting bell crank assy from the manual transmission case.



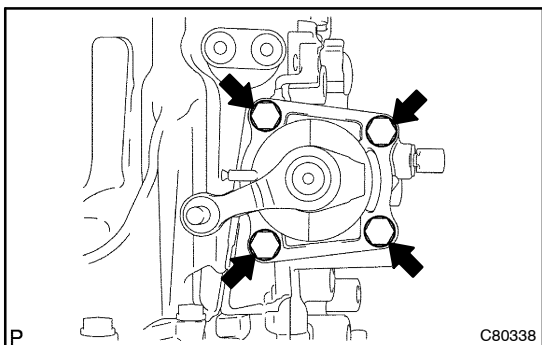
## 11. FIX MANUAL TRANSAXLE ASSY

- (a) Using 2 wood blocks, fixing the manual transaxle assy.



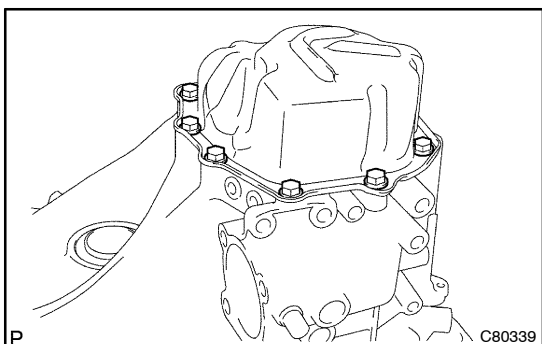
## 12. REMOVE SHIFT INTER LOCK PLATE BOLT

- (a) Remove the shift inter lock plate bolt and gasket from the manual transmission case.



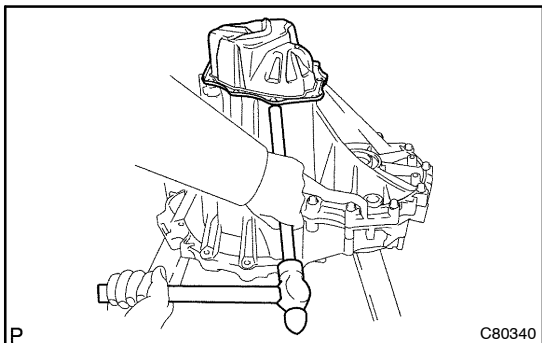
## 13. REMOVE SHIFT & SELECT LEVER SHAFT ASSY

- (a) Remove the 4 bolts, shift & select lever shaft assy and gasket from the manual transmission case.



## 14. REMOVE MANUAL TRANSMISSION CASE COVER SUB-ASSY

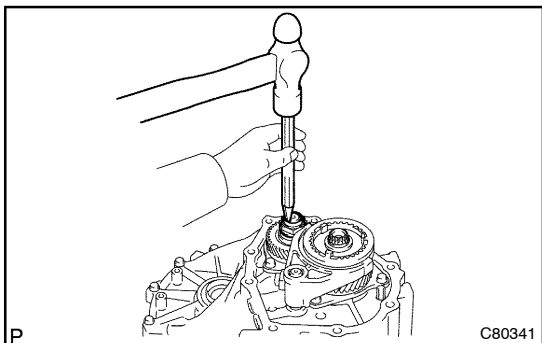
- (a) Remove the 9 bolts.



- (b) Carefully tap the projection of the manual transmission case cover sub-assy with a brass bar and hammer and remove it.

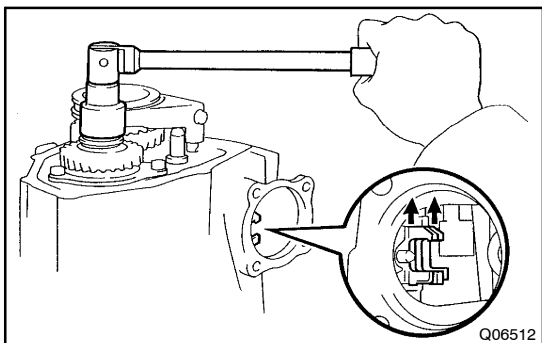
**NOTICE:**

**Do not damage the manual transmission case sub-assy.**

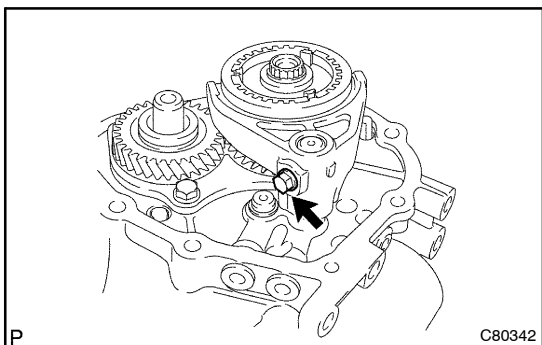


**15. REMOVE MANUAL TRANSMISSION OUTPUT SHAFT REAR SET NUT**

- (a) Using a chisel and hammer, loosen the staked part of the manual transmission output shaft rear set nut.

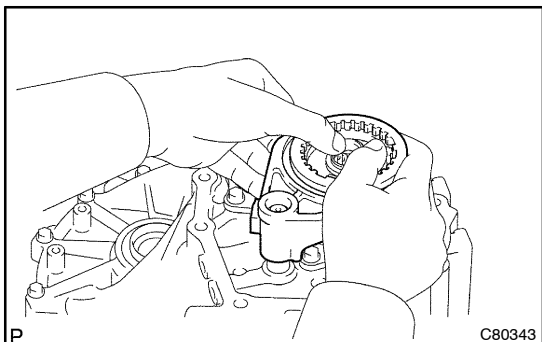


- (b) Engage the gear to the double meshing.  
 (c) Remove the manual transmission output shaft rear set nut.  
 (d) Disengage the double meshing of the gear.

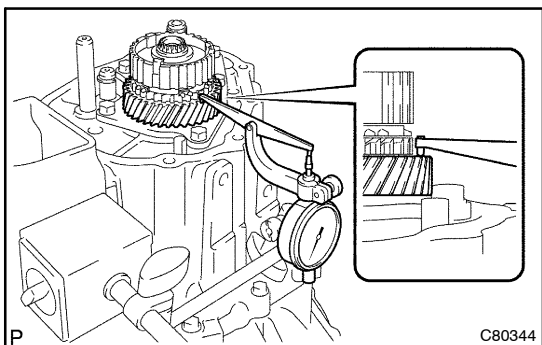


**16. REMOVE GEAR SHIFT FORK NO.3**

- (a) Remove the gear shift fork lock bolt from the gear shift fork No. 3.



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

**17. INSPECT 5TH GEAR THRUST CLEARANCE**

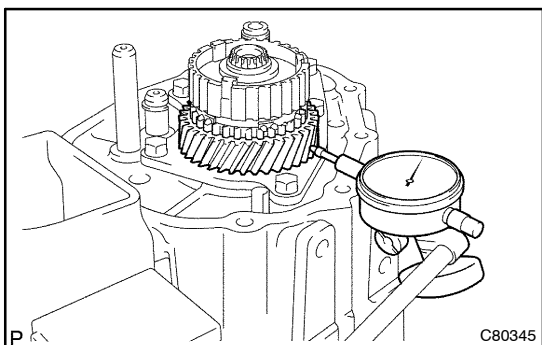
- (a) Using a dial indicator, measure the 5th gear thrust clearance.

**Standard clearance:**

**0.10 – 0.57 mm (0.0039 – 0.0224 in.)**

**Maximum clearance:**

**0.57 mm (0.0224 in.)**

**18. INSPECT 5TH GEAR RADIAL CLEARANCE**

- (a) Using a dial indicator, measure the 5th gear radial clearance.

**Standard clearance:**

**KOYO made:**

**0.015 – 0.058 mm (0.0006 – 0.0023 in.)**

**NSK made:**

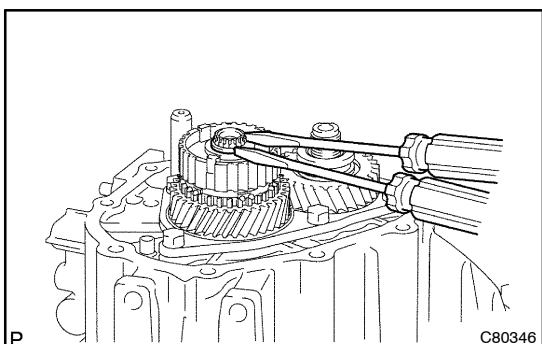
**0.015 – 0.056 mm (0.0006 – 0.0022 in.)**

**Maximum clearance:**

**KOYO made: 0.058 mm (0.0023 in.)**

**NSK made: 0.056 mm (0.0022 in.)**

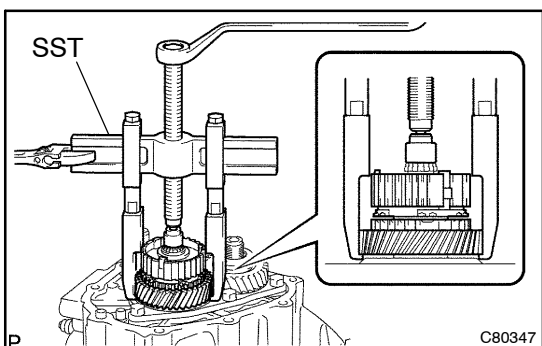
If the clearance exceeds the maximum, replace the gear needle roller bearing or shaft.

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

- (a) Using 2 screwdrivers and a hammer, tap out the snap ring.

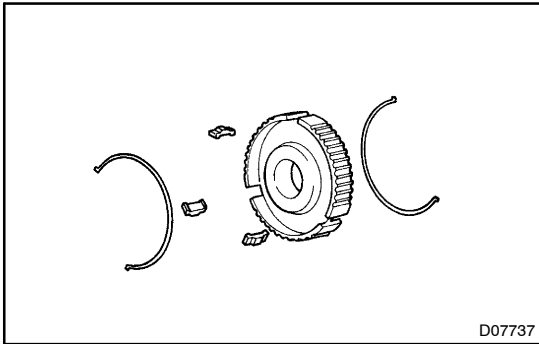
**HINT:**

Using a waste to prevent the snap ring from being scattered.

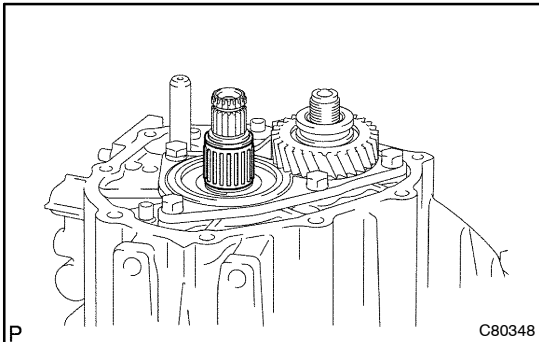


- (b) Using SST, remove the transmission clutch hub No. 3, 5th gear and synchronizer ring from the input shaft.

**SST** 09950-40011 (09951-04020, 09952-04010, 09953-04030, 09954-04010, 09955-04071, 09957-04010), 09950-60010 (09951-00200)

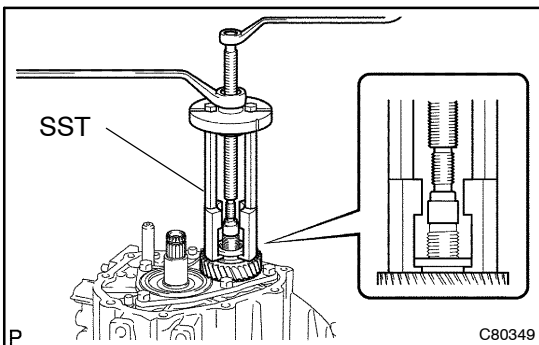


- (c) Remove the 3 synchromesh shifting keys and 2 synchromesh shifting key springs from the transmission clutch hub No. 3.



## 20. REMOVE 5TH GEAR NEEDLE ROLLER BEARING

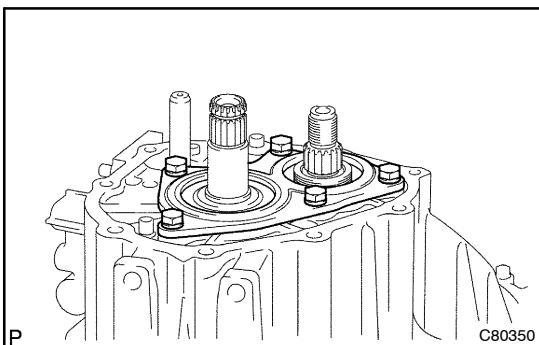
- (a) Remove the 5th gear needle roller bearing and 5th gear bearing spacer from the input shaft.



## 21. REMOVE 5TH DRIVEN GEAR

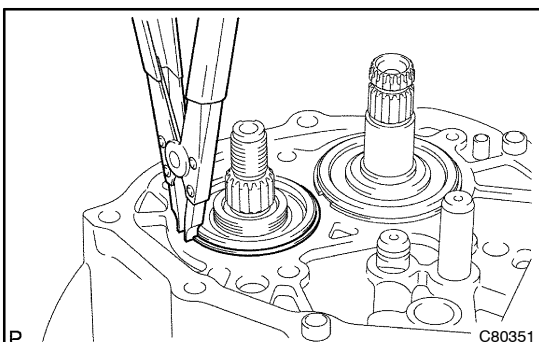
- (a) Using SST, remove the 5th driven gear from the output shaft.

SST 09950-30012 (09951-03010, 09953-03010, 09954-03010, 09955-03011, 09957-04010), 09950-60010 (09951-00190)



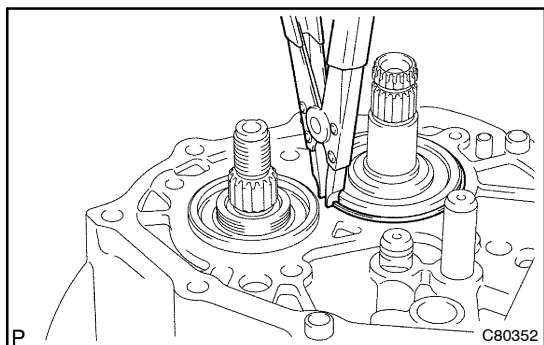
## 22. REMOVE BEARING RETAINER REAR (MTM)

- (a) Remove the 5 bolts and bearing retainer rear from the manual transmission case.



## 23. REMOVE OUTPUT SHAFT REAR BEARING HOLE SNAP RING

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



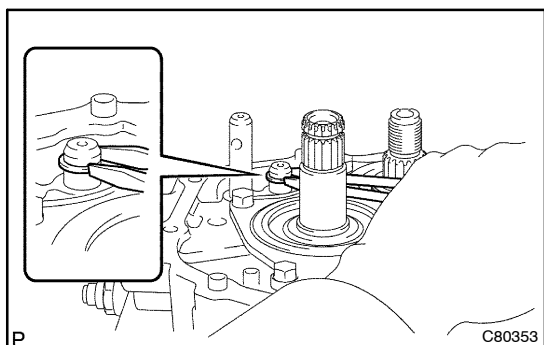
## 24. REMOVE INPUT SHAFT REAR BEARING HOLE SNAP RING

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



## 25. REMOVE REVERSE IDLER GEAR SHAFT BOLT

- (a) Remove the reverse idler gear shaft bolt and reverse idler gear shaft gasket from the manual transmission case.

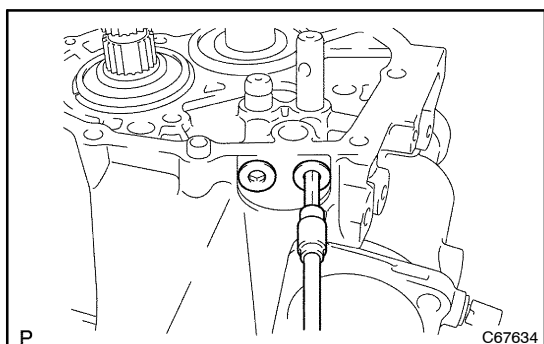


## 26. REMOVE SHIFT FORK SHAFT SHAFT SNAP RING

- (a) Using 2 screwdrivers and a hammer, tap out the snap ring from the shift fork shaft No. 2.

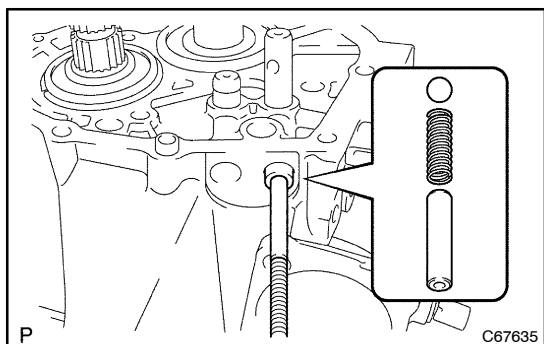
### HINT:

Using a waste to the shifting key spring from being scattered.

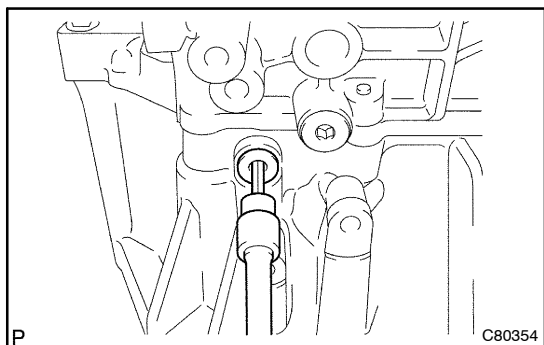


## 27. REMOVE SHIFT DETENT BALL

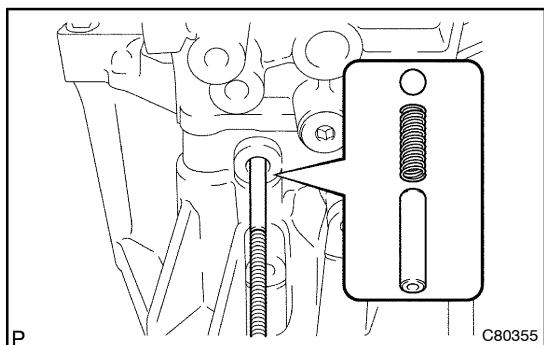
- (a) Using a hexagon wrench, remove the 2 shift detent ball plugs from the manual transmission case.



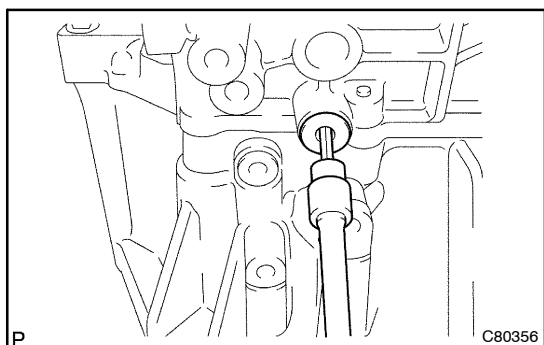
- (b) Using a magnetic finger, remove the 2 seats, springs and balls from the manual transmission case.



- (c) Using a hexagon wrench, remove the shift detent ball plug from the front transaxle case.

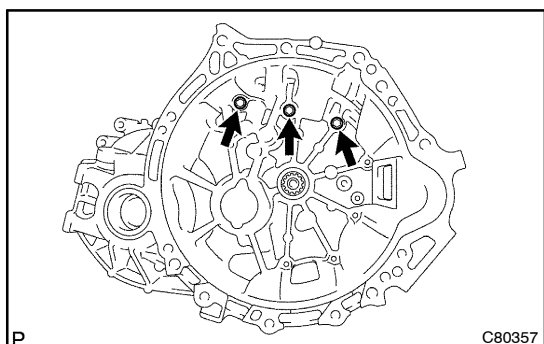


- (d) Using a magnetic finger, remove the seat, spring and ball from the front transaxle case.



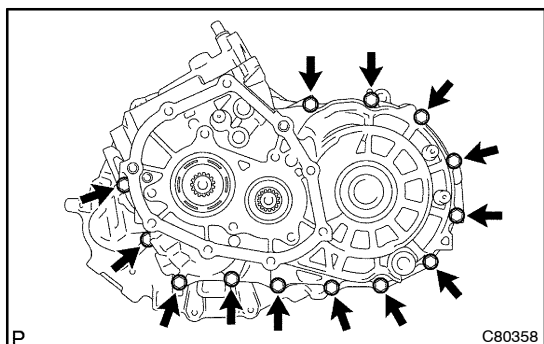
## 28. REMOVE LOCK BALL ASSY NO.1

- (a) Using a hexagon wrench, remove the lock ball assy No. 1 from the manual transmission case.



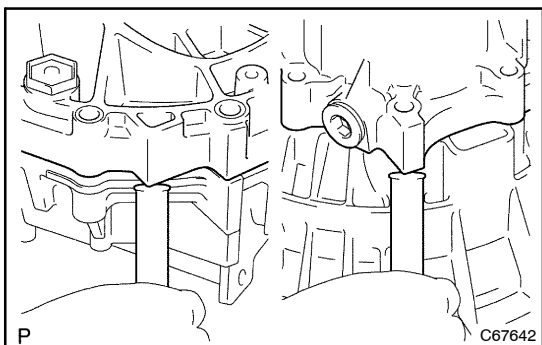
## 29. REMOVE MANUAL TRANSMISSION CASE

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

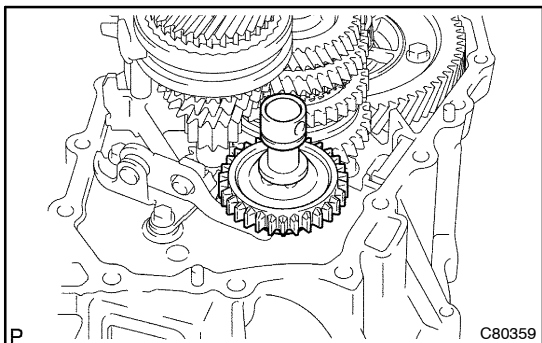


- (b) Remove the 13 bolts from the manual transmission case.



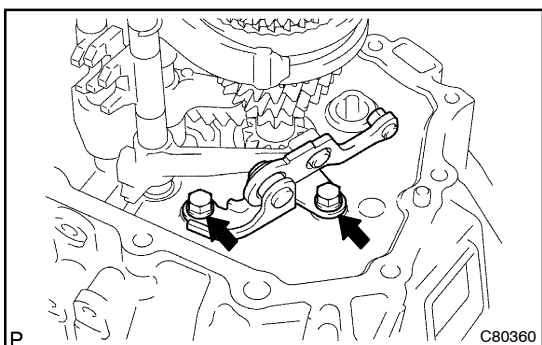


- (c) Carefully tap the transmission case with a brass bar and hammer and remove it from the transaxle case.



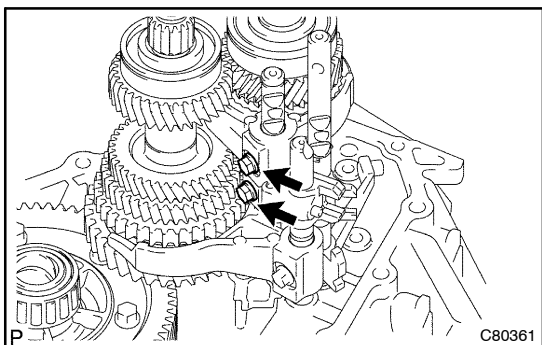
### 30. REMOVE REVERSE IDLER GEAR SUB-ASSY

- (a) Remove the reverse idler gear, thrust washer and reverse idler gear shaft from the front transaxle case.



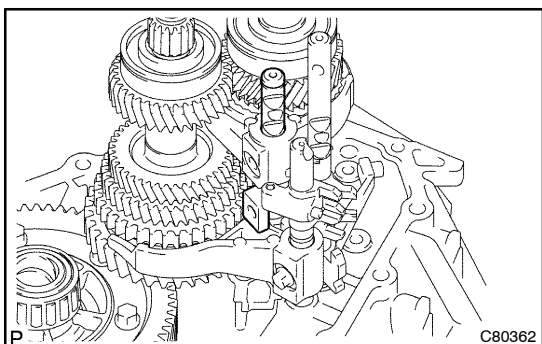
### 31. REMOVE REVERSE SHIFT ARM BRACKET ASSY

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

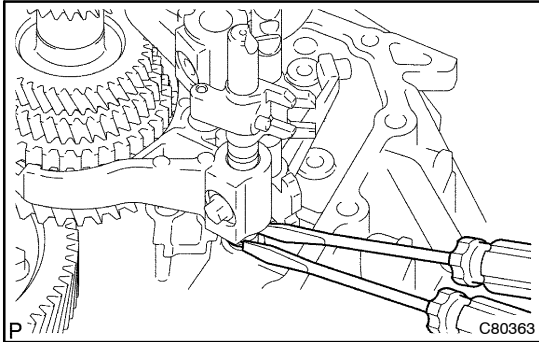


### 32. REMOVE GEAR SHIFT FORK SHAFT NO.2

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



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

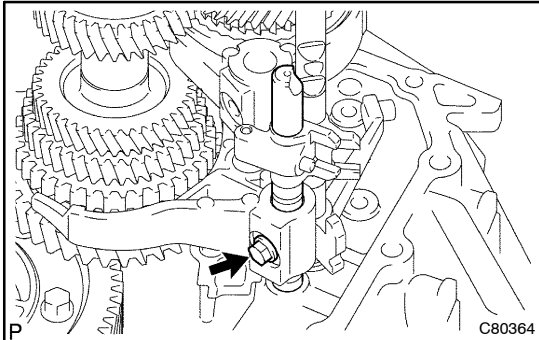


### 33. REMOVE GEAR SHIFT FORK SHAFT NO.1

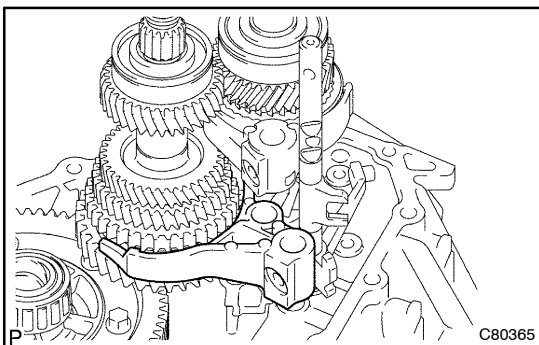
- (a) Using 2 screwdrivers and a hammer, tap out the snap rings.

HINT:

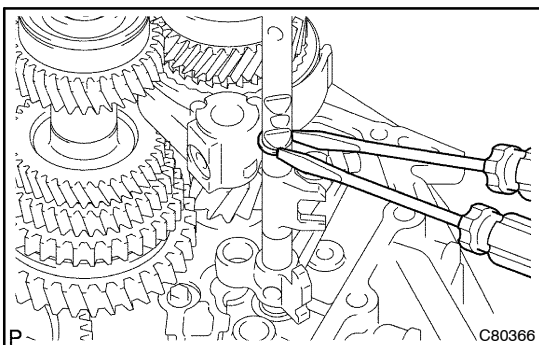
Using a waste to prevent the snap ring from being scattered.



- (b) Remove the gear shift fork lock bolt and gear shift fork shaft No. 1 from the gear shift fork No. 1.



- (c) Remove the shift fork No. 1.

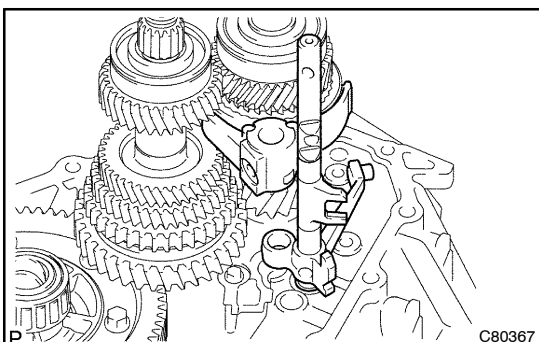


### 34. REMOVE GEAR SHIFT FORK SHAFT NO.3

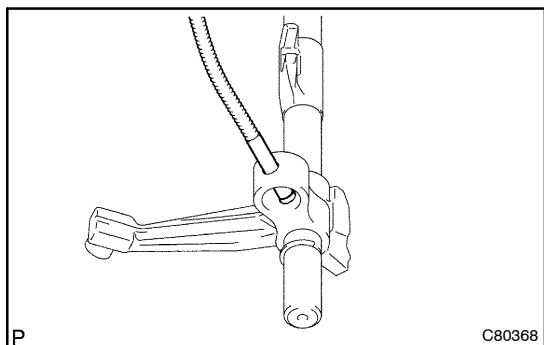
- (a) Using 2 screwdrivers and a hammer, tap out the snap ring from the gear shift fork shaft No. 3.

HINT:

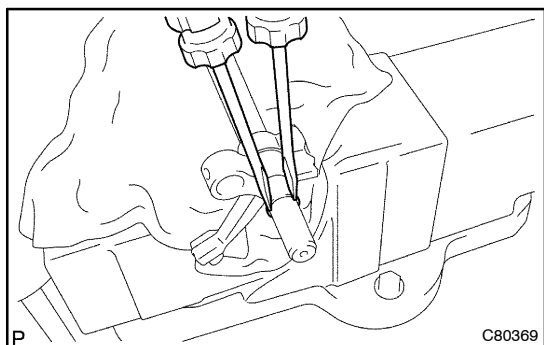
Using a waste to prevent the snap ring from being scattered.



- (b) Remove the shift fork shaft No. 3, reverse shift fork and gear shift fork No. 2 from the front transaxle case.



- (c) Using a magnetic finger, remove the 2 reverse shift fork balls from the reverse shift fork.

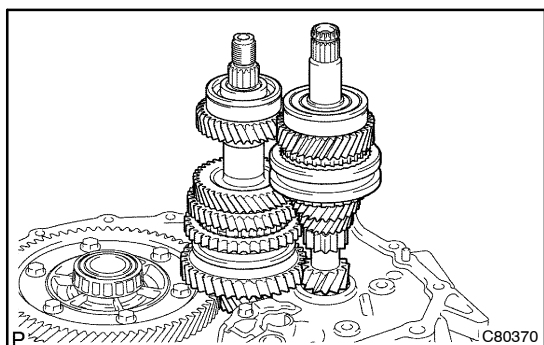


- (d) Using 2 screwdrivers and hammer, tap out the snap ring from the shift fork shaft No. 3.

**HINT:**

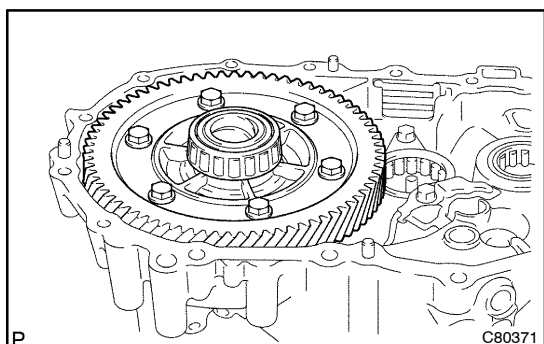
Using a waste to prevent the snap ring from being scattered.

- (e) Remove the reverse shift fork from the gear shift fork shaft No. 3.



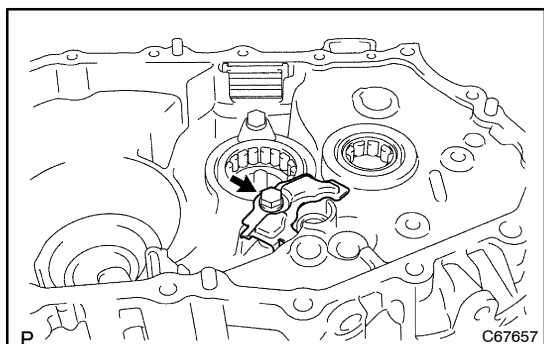
**35. REMOVE INPUT SHAFT ASSY**

- (a) Remove the input shaft assy and output shaft assy from the front transaxle case.



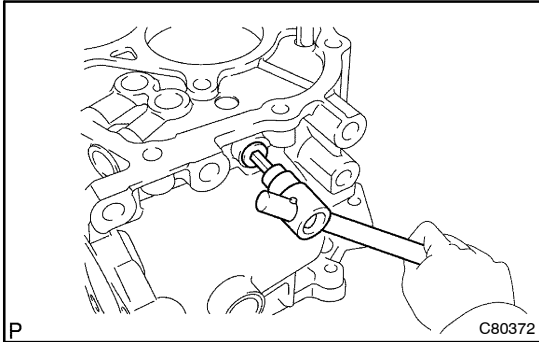
**36. REMOVE DIFFERENTIAL CASE ASSY**

- (a) Remove the differential case assy from the front transaxle case.



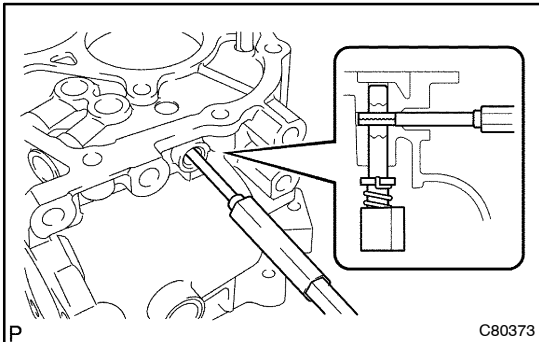
**37. REMOVE MANUAL TRANSAXLE CASE RECEIVER**

- (a) Remove the bolt and manual transaxle case receiver from the front transaxle case.

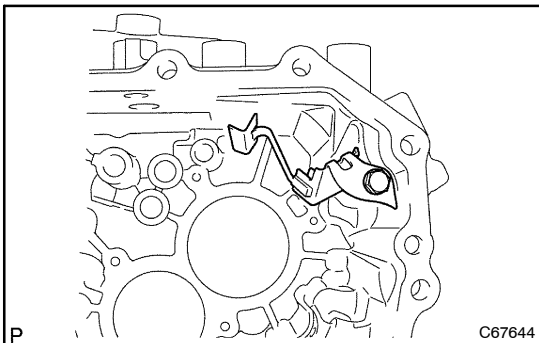


### 38. REMOVE REVERSE RESTRICT PIN ASSY

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



- (b) Using a pin punch ( $\phi$  5 mm) and hammer, drive out the slotted spring pin and reverse restrict pin assy from the manual transmission case.

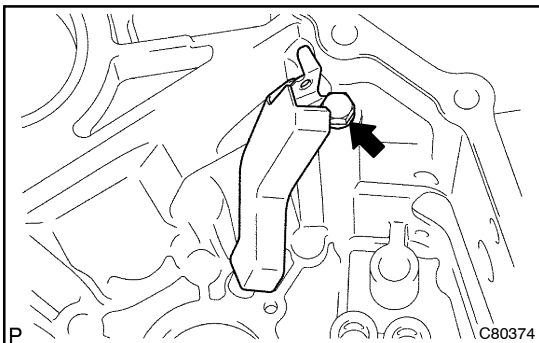


### 39. REMOVE OIL RECEIVER PIPE NO.1 (MTM)

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

#### NOTICE:

**Be careful not to damage the oil receiver pipe No. 1.**

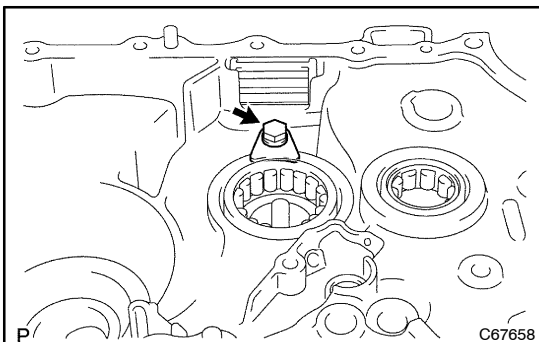


### 40. REMOVE OIL RECEIVER PIPE NO.2 (MTM)

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

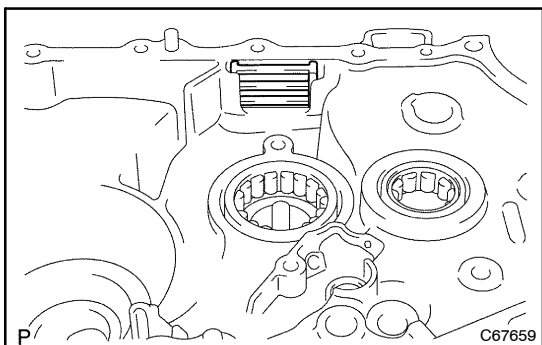
#### NOTICE:

**Be careful not to damage the oil receiver pipe No. 2.**

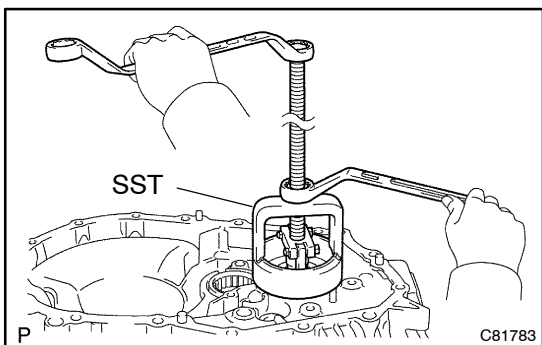


### 41. REMOVE BEARING LOCK PLATE

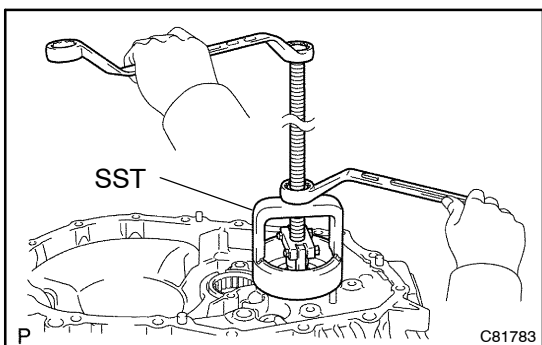
- (a) Remove the Bolt and bearing lock plate from the front transaxle case.

**42. REMOVE TRANSMISSION MAGNET**

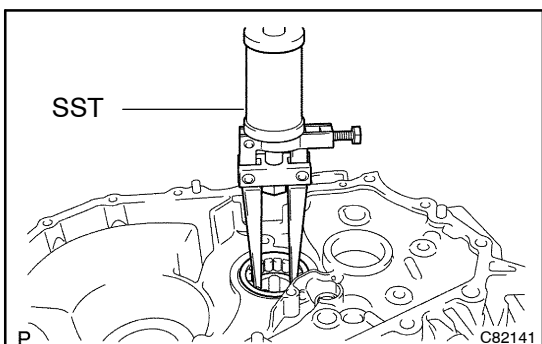
- (a) Remove the transmission magnet from the front transaxle case.

**43. REMOVE INPUT SHAFT FRONT BEARING**

- (a) Using SST, remove the input shaft front bearing from the front transaxle case.  
SST 09612-65014 (09612-01050, 09612-01060)

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

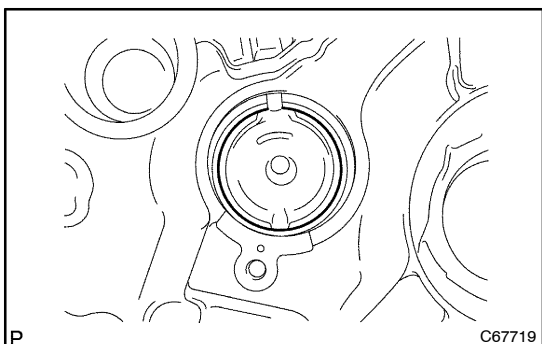
- (a) Using SST, remove the front transaxle case oil seal from the front transaxle case.  
SST 09612-65014 (09612-01040, 09612-01050)

**45. REMOVE OUTPUT SHAFT FRONT BEARING**

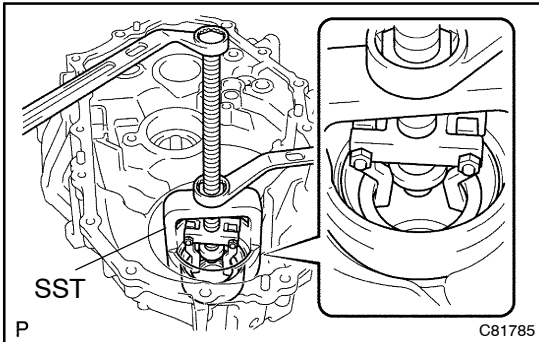
- (a) Using SST, remove the output shaft front bearing from the front transaxle case.  
SST 09308-00010

**NOTICE:**

**Do not apply unreasonable force to the front transaxle case when installing it.**

**46. REMOVE OUTPUT SHAFT (MTM) COVER**

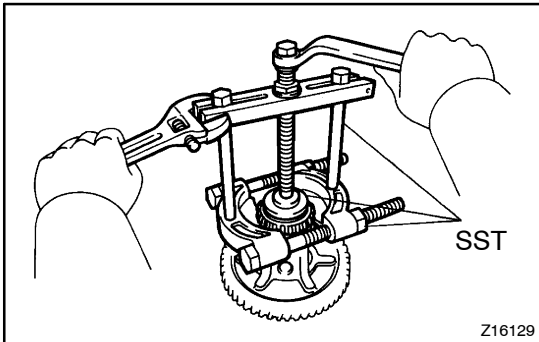
- (a) Remove the output shaft cover from the front transaxle case.



#### 47. REMOVE FR DIFFERENTIAL CASE FRONT TAPERED ROLLER BEARING

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

SST 09612-65014 (09612-01040, 09612-01050)

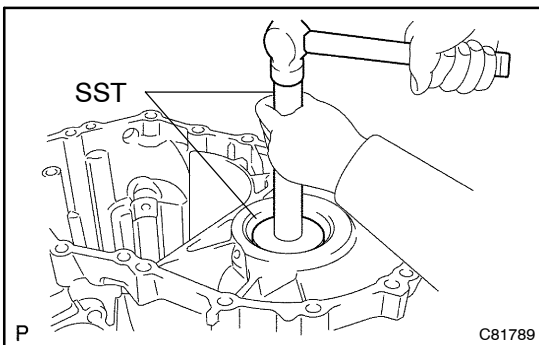


- (b) Using SST, remove front differential case front tapered roller bearing (inner race) from the front differential case.

SST 09950-00020, 09950-00030, 09950-40011 (09957-04010), 09950-60010 (09951-00360)

#### NOTICE:

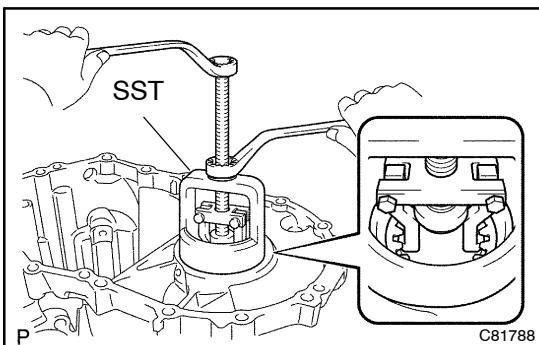
**Be careful not to damage bearing.**



#### 48. REMOVE TRANSAXLE CASE OIL SEAL

- (a) Using SST and a hammer, drive out the transaxle case oil seal from the front transaxle case.

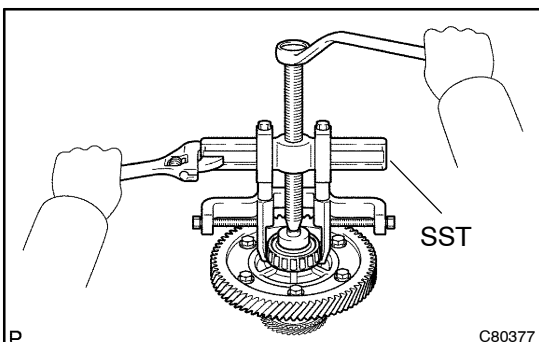
SST 09950-60010 (09951-00530), 09950-70010 (09951-07150)



#### 49. REMOVE FR DIFFERENTIAL CASE REAR TAPERED ROLLER BEARING

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

SST 09612-65014 (09612-01040, 09612-01050)

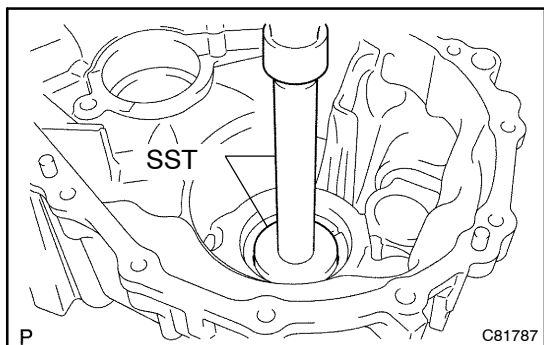


- (b) Using SST and a hammer, remove the front differential case rear tapered roller bearing (inner race) from the front differential case.

SST 09950-40011 (09951-04010, 09952-04010, 09953-04020, 09954-04010, 09955-04061, 09957-04010, 09958-04011), 09950-60010 (09951-00360)

#### NOTICE:

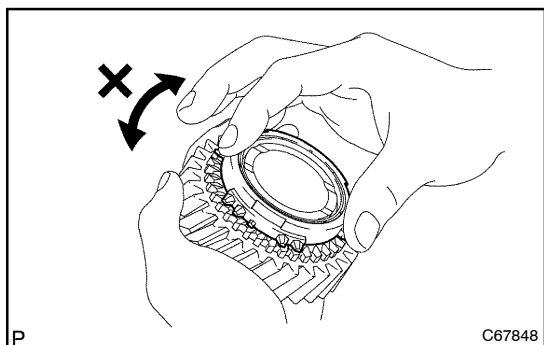
**Do not to damage the bearing.**



## 50. REMOVE TRANSMISSION CASE OIL SEAL

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

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



## 51. INSPECT SYNCHRONIZER RING NO.3

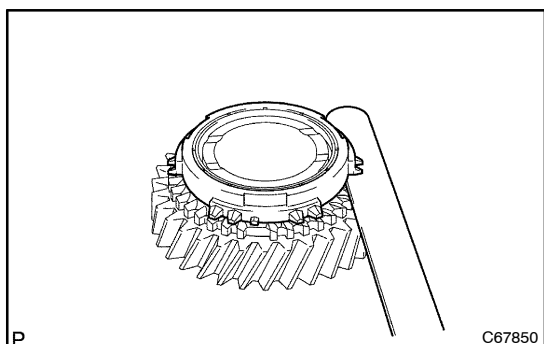
- (a) Check for wear or damage.  
 (b) Check the braking effect of the synchronizer ring. Turn the synchronizer ring in one direction while pushing it to the gear cone, check that the ring locks.

If the braking effect is insufficient, apply a small amount of the fine lapping compound between the synchronizer ring and gear cone. Lightly rub the synchronizer ring and gear cone together.

### NOTICE:

**Ensure the file lapping compound is completely washed off after rubbing.**

- (c) Check again the braking effect of the synchronizer ring.



- (d) Using a feeler gauge, measure the clearance between the synchronizer ring back and gear spline end.

### Standard clearance:

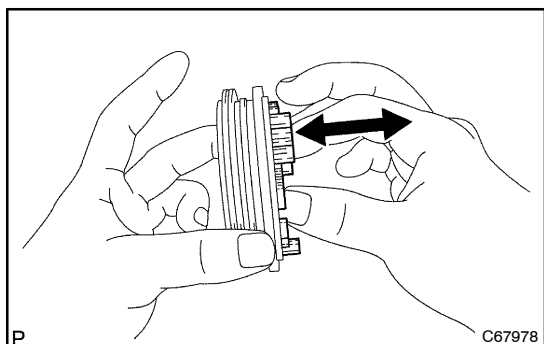
**0.75 – 1.65 mm (0.0295 – 0.0649 in.)**

**Minimum clearance: 0.75 mm (0.0295 in.)**

If the clearance is less than minimum, replace the synchronizer ring and gear cone by applying a small amount of the fine lapping compound.

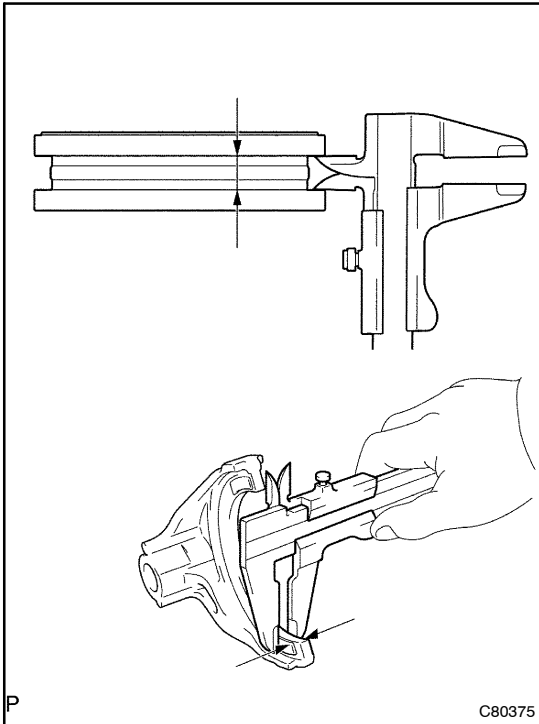
### NOTICE:

**Ensure the fine lapping compound is completely washed off after rubbing.**



## 52. INSPECT TRANSMISSION HUB SLEEVE NO.3

- (a) Check the sliding condition between the transmission hub sleeve No. 3 and transmission clutch hub No. 3.  
 (b) Check that spline gear's of the transmission hub sleeve No. 3 is not worn down.

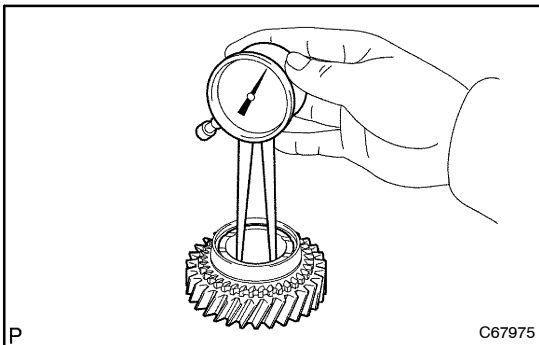


- (c) Using a vernier calipers, inspect the transmission hub sleeve No. 3 and gear shift fork No. 3 as shown in the illustration.

**Standard clearance:**

**0.3 – 0.5 mm (0.0012 – 0.0020 in.)**

If the clearance exceeds the standard clearance, replace the transmission hub sleeve No. 3 and gear shift fork No. 3.



### 53. INSPECT 5TH GEAR

- (a) Using a caliper gauge, inspect 5th gear as shown in the illustration.

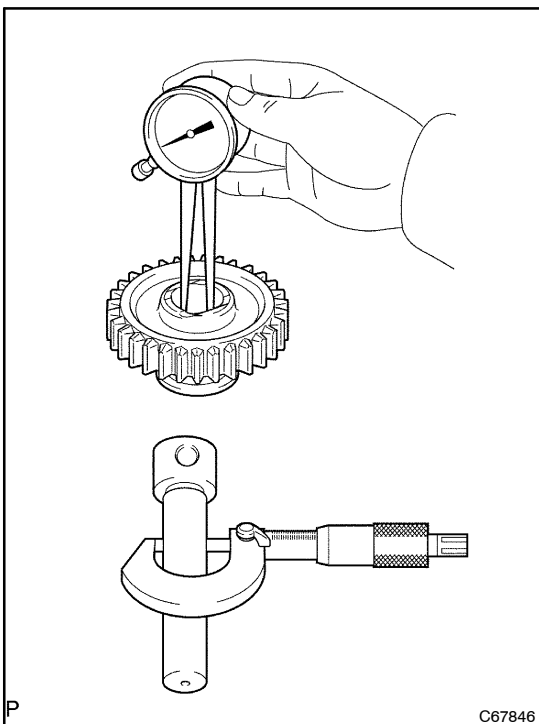
**Standard clearance:**

**29.915 – 29.931 mm (1.1778 – 1.1783 in.)**

**Maximum clearance:**

**29.931 mm (1.1783 in.)**

If the clearance exceeds the maximum, replace the 5th gear.



### 54. INSPECT REVERSE IDLER GEAR SUB-ASSY

- (a) Using a caliper gauge, inspect the reverse idler gear sub-assy as shown in the illustration.

**Standard clearance:**

**18.040 – 18.058 mm (0.7102 – 0.7109 in.)**

**Maximum clearance:**

**18.058 mm (0.7109 in.)**

If the clearance exceeds the maximum, replace the reverse idler gear.

- (b) Using a micrometer, inspect the reverse idler gear shaft as shown in the illustration.

**Standard outer diameter:**

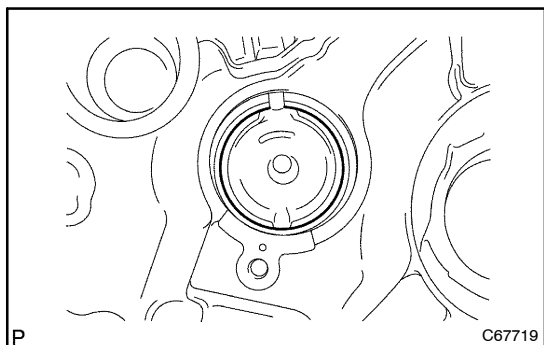
**17.966 – 17.984 mm (0.7073 – 0.7080 in.)**

**Minimum outer diameter:**

**17.966 mm (0.7073 in.)**

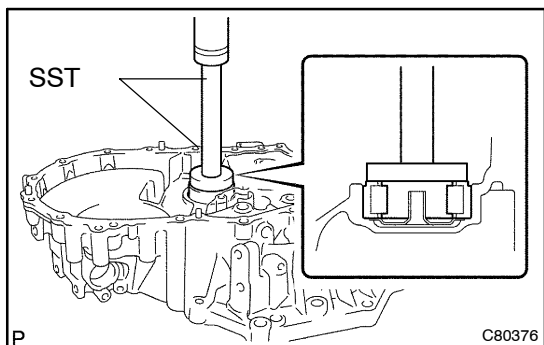
If the outer diameter exceeds the minimum, replace the reverse idler gear shaft.





### 55. INSTALL OUTPUT SHAFT (MTM) COVER

- (a) Coat the output shaft cover with MP grease, to the front transaxle case.



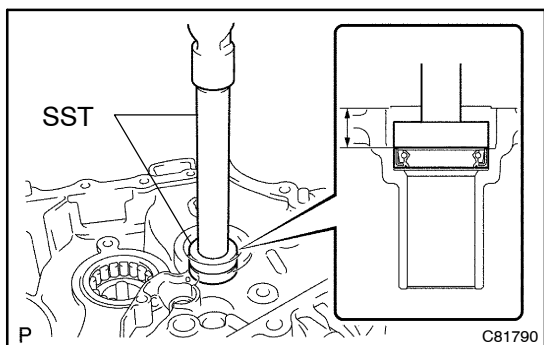
### 56. INSTALL OUTPUT SHAFT FRONT BEARING

- (a) Coat the new output shaft front bearing with gear oil, using SST and a press, install it.

#### NOTICE:

**Be careful not to damage the output shaft front bearing.**

SST 09950-60010 (09951-00550), 09950-70010 (09951-07150)



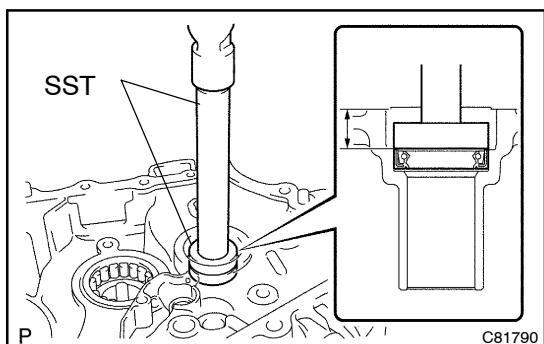
### 57. INSTALL FRONT TRANSAXLE CASE OIL SEAL

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

SST 09950-60010 (09951-00370), 09950-70010 (09951-07150)

**Drive in depth: 15.6 – 16.0 mm (0.6142 – 0.6299 in.)**

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

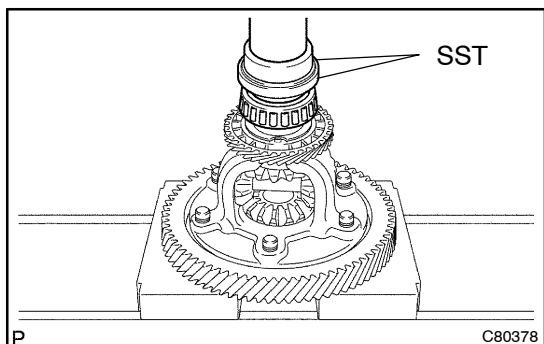


### 58. INSTALL INPUT SHAFT FRONT BEARING

- (a) Coat the new input shaft front bearing with MP grease, using SST and a press, install it to the front transaxle case.

SST 09950-60010 (09951-00420), 09950-70010 (09951-07150)

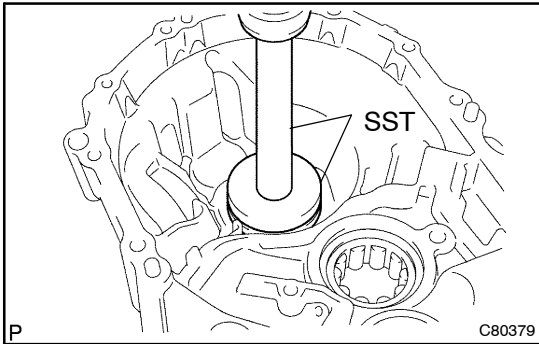
**Drive in depth: 0 – 0.3 mm (0 – 0.0118 in.)**



### 59. INSTALL FR DIFFERENTIAL CASE FRONT TAPERED ROLLER BEARING

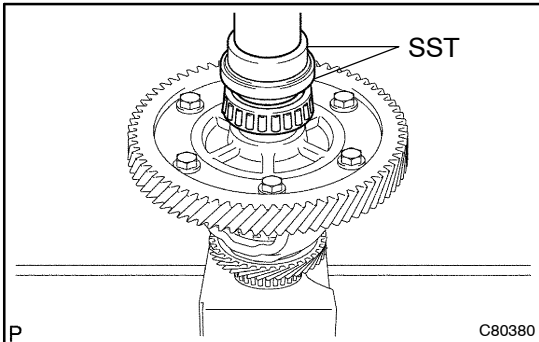
- (a) Using SST and a press, install the front differential case front tapered roller bearing (inner race) to the front differential case.

SST 09350-32014 (09351-32120), 09950-60010 (09951-00530)



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

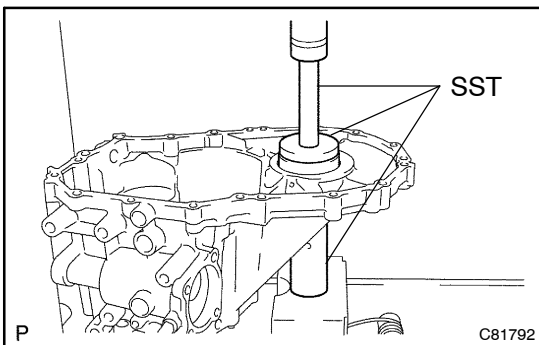
SST 09950-60020 (09951-00680), 09950-70010 (09951-07150)



## 60. INSTALL FR DIFFERENTIAL CASE REAR TAPERED ROLLER BEARING

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

SST 09350-32014 (09351-32120), 09950-60010 (09951-00530)

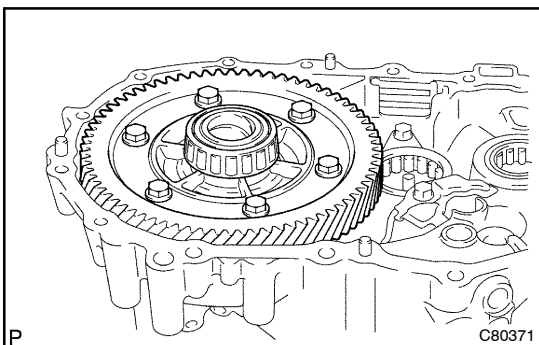


- (b) Using SST and a press, front differential case rear tapered roller bearing (outer race) with shim to the transmission case.

SST 09309-36010, 09950-60020 (09951-00710), 09950-70010 (09951-07150)

### HINT:

Use a front differential case washer rear of the same thickness with the removed one.

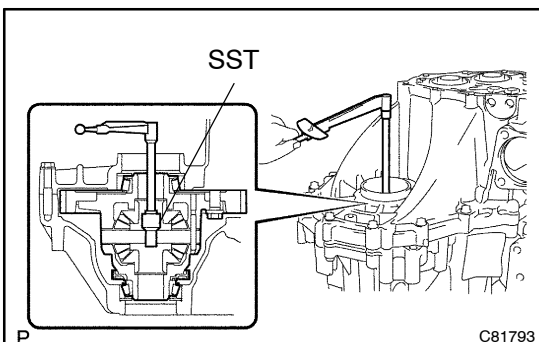


## 61. ADJUST DIFFERENTIAL SIDE BEARING RRELOAD

- (a) Coat the differential case assy with gear oil, install it to the front transaxle case.

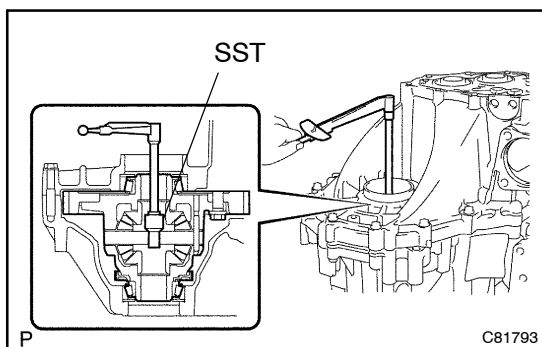
- (b) Install the manual transmission case with 16 bolts.

**Torque: 29.4 N·m (300 kgf·cm, 22 ft·lbf)**



- (c) Using SST and a torque wrench, turn the differential case assy right and left 2 or 3 times to allow the bearings to settle.

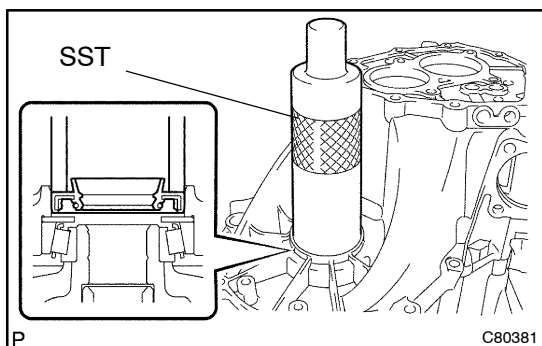
SST 09564-32011



- (d) Using SST and a torque wrench, measure the preload.  
SST 09564-32011  
**Preload (at starting):**  
**New bearing:**  
**0.78 – 1.57 N·m (7.95 – 16.0 kgf·cm, 6.9 – 13.89 in·lbf)**
- (e) Select another shim.

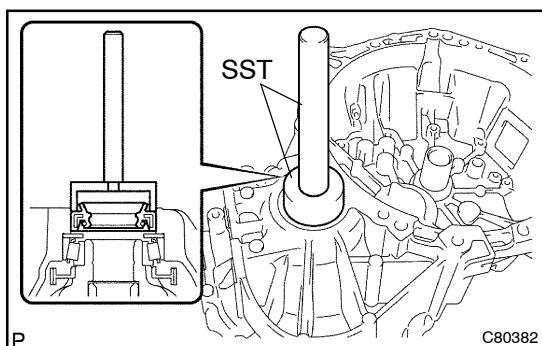
Mark	Thickness mm (in.)	Mark	Thickness mm (in.)
AA	2.10 (0.0827)	LL	2.60 (0.1024)
BB	2.15 (0.0846)	MM	2.65 (0.1043)
CC	2.20 (0.0866)	NN	2.70 (0.1063)
DD	2.25 (0.0886)	PP	2.75 (0.1083)
EE	2.30 (0.0906)	QQ	2.80 (0.1102)
FF	2.35 (0.0925)	RR	2.85 (0.1122)
GG	2.40 (0.0945)	SS	2.90 (0.1142)
HH	2.45 (0.0965)	TT	2.95 (0.1161)
JJ	2.50 (0.0984)	UU	3.00 (0.1181)
KK	2.55 (0.1004)	-	-

- (f) Remove the 16 bolts and manual transmission case from the front transaxle case.
- (g) Remove the differential case assy from the front transaxle case.



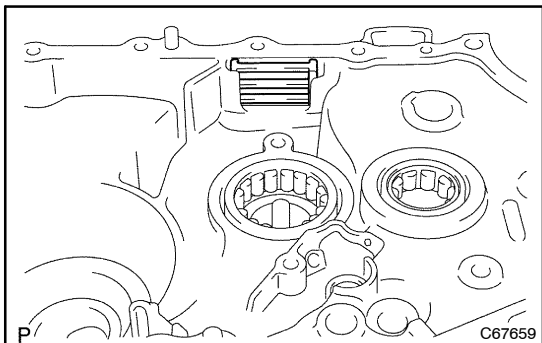
## 62. INSTALL TRANSMISSION CASE OIL SEAL

- (a) Using SST and a hammer, install the transmission case oil seal to the manual transmission case.  
SST 09316-60011 (09316-00011)  
**Drive in depth: 2.1 – 2.7 mm (0.0827 – 0.1063 in.)**
- (b) Coat the lip of the front transmission case manual transmission case oil seal with MP grease.

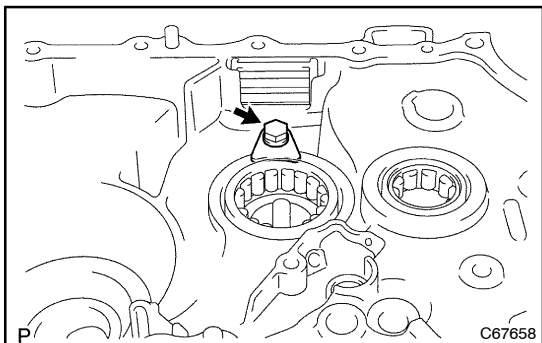


## 63. INSTALL TRANSAXLE CASE OIL SEAL

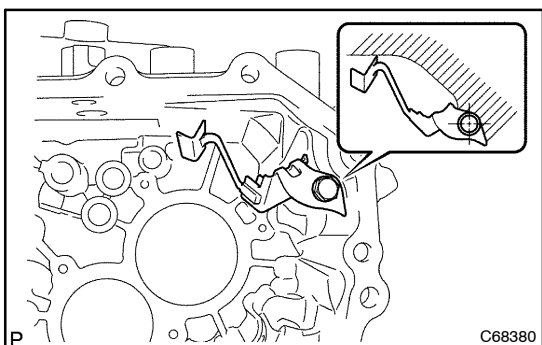
- (a) Using SST and a hammer, install the transaxle case oil seal in the front transaxle case.  
SST 09710-20011 (09710-06071), 09950-70010 (09951-07150)  
**Drive in depth: 1.6 – 2.2 mm (0.0629 – 0.0866 in.)**
- (b) Coat the lip of the front transaxle case oil seal with MP grease.

**64. INSTALL TRANSMISSION MAGNET**

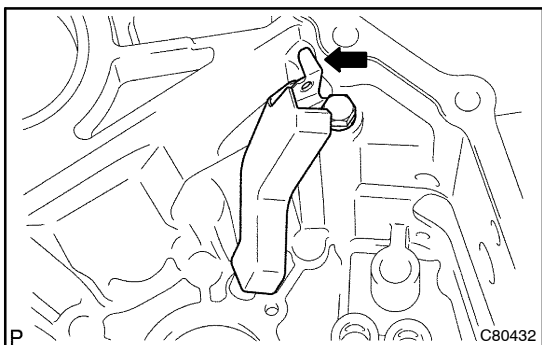
- (a) Clean the transmission magnet to the front transmission case.

**65. INSTALL BEARING LOCK PLATE**

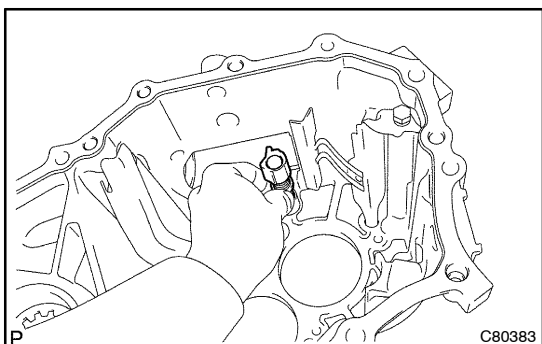
- (a) Install the bearing lock plate with bolt.  
**Torque: 11.3 N·m (115 kgf·cm, 8.3 ft·lbf)**

**66. INSTALL OIL RECEIVER PIPE NO.1 (MTM)**

- (a) Install the oil receiver pipe No. 1 with bolt to the manual transmission case.  
**Torque: 17.2 N·m (175 kgf·cm, 13 ft·lbf)**

**67. INSTALL OIL RECEIVER PIPE NO.2 (MTM)**

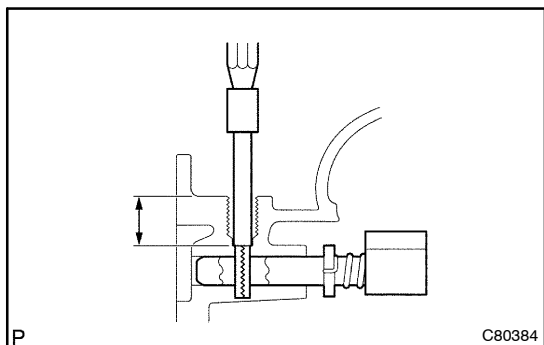
- (a) Install the oil receiver pipe No. 2 with bolt to the manual transmission case.  
**Torque: 17.2 N·m (175 kgf·cm, 13 ft·lbf)**

**68. INSTALL REVERSE RESTRICT PIN ASSY**

- (a) Install the reverse restrict pin assy to the manual transmission case.

**HINT:**

Do not set the reverse restrict pin assy in incorrect orientation.



- (b) Using a pin punch ( $\phi$  5 mm) and hammer, install the slotted pin to the reverse restrict pin assy.

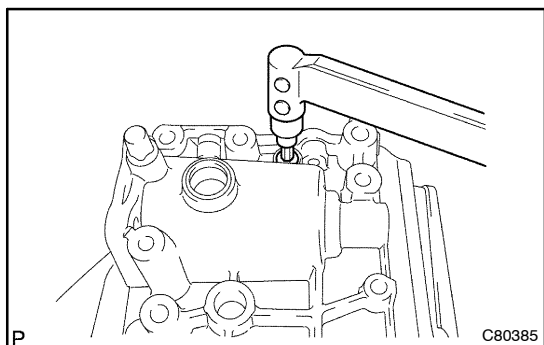
**Standard clearance:**

**16.0 – 17.0 mm (0.6299 – 0.6692 in.)**

- (c) apply sealant to the reverse restrict pin plug.

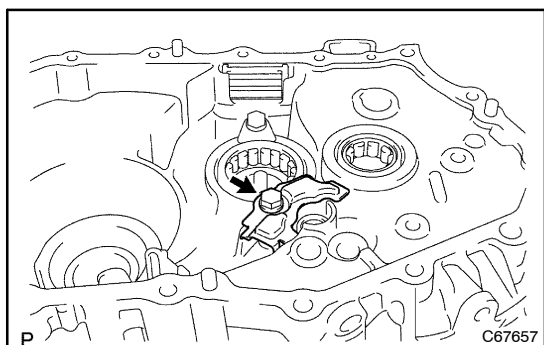
**Sealant:**

**Part No. 08833-00080, THREE BOND 1344, LOCTITE 242 or equivalent**



- (d) Using a hexagon wrench and torque wrench install the reverse restrict pin plug to the manual transmission case.

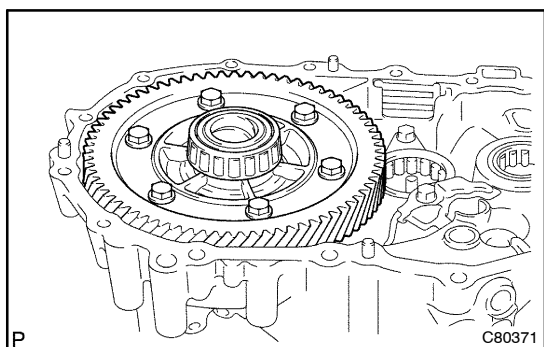
**Torque: 12.7 N·m (130 kgf·cm, 9.3 ft·lbf)**



#### 69. INSTALL MANUAL TRANSAXLE CASE RECEIVER

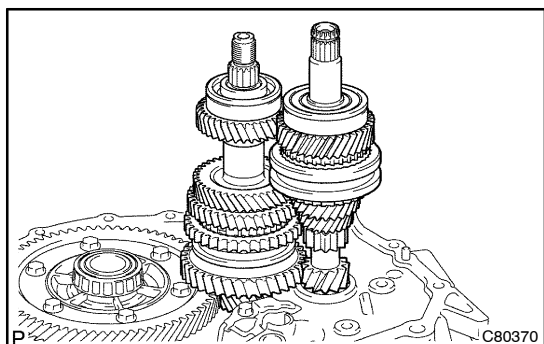
- (a) Install the manual transaxle case receiver with bolt to the front transaxle case.

**Torque: 11.3 N·m (115 kgf·cm, 8.3 ft·lbf)**



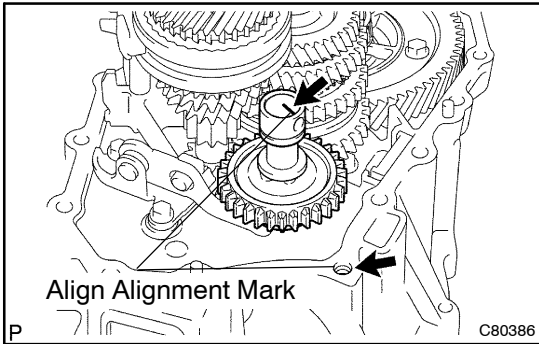
#### 70. INSTALL DIFFERENTIAL CASE ASSY

- (a) Coat the differential case tapered roller bearing with gear oil, install them to the front transaxle case.



#### 71. INSTALL INPUT SHAFT ASSY

- (a) Coat sliding and rotating surface of the input and out put shafts with gear oil, install them to the transaxle case.

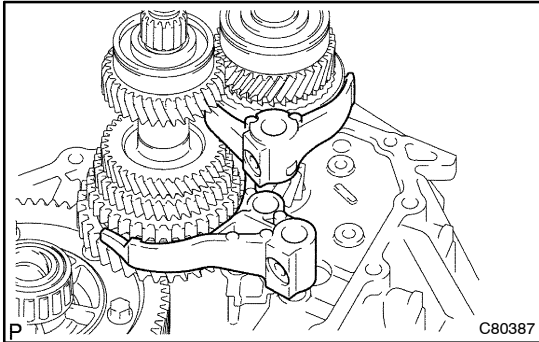


## 72. INSTALL REVERSE IDLER GEAR SUB-ASSY

- (a) Coat the reverse idler gear, shim and reverse idler gear shaft with gear oil, install them as shown.

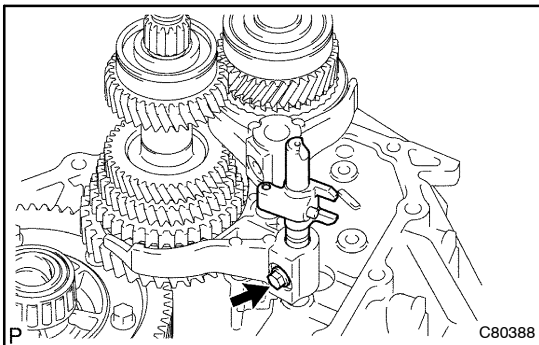
### HINT:

Align the mark on the reverse idler gear shaft with the bolt hole shown in the illustration.



## 73. INSTALL GEAR SHIFT FORK SHAFT NO.1

- (a) Coat the gear shift fork No. 1 and gear shift fork No. 2 with gear oil, install them.



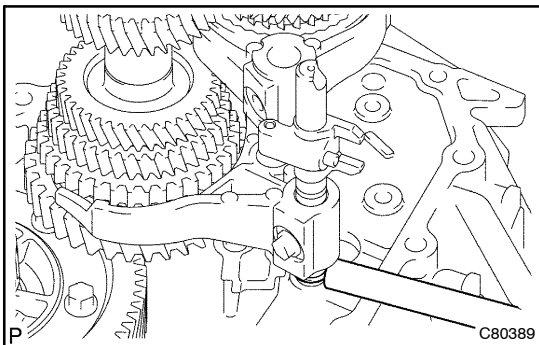
- (b) Coat the gear shift fork shaft No. 1 with gear oil, install it.  
(c) Apply sealant to the shift fork lock bolt.

### Sealant:

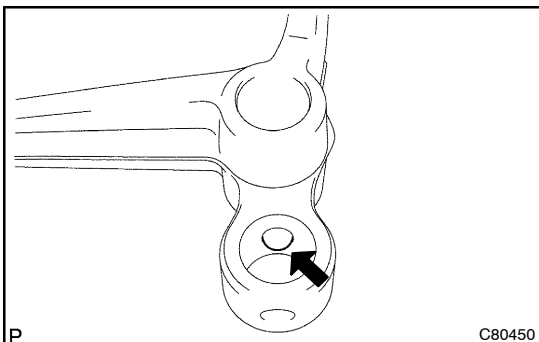
**Part No. 08833-00080, THREE BOND 1344, LOCTITE 242 or equivalent**

- (d) Install the gear shift fork lock bolt.

**Torque: 15.7 N·m (160 kgf·cm, 11.6 ft·lbf)**

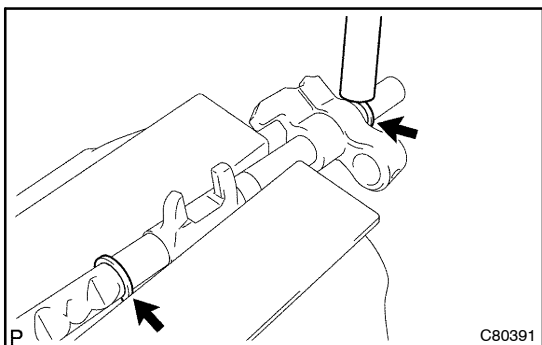


- (e) Using a brass bar and hammer, install the shaft snap ring to the gear shift fork shaft No. 1.

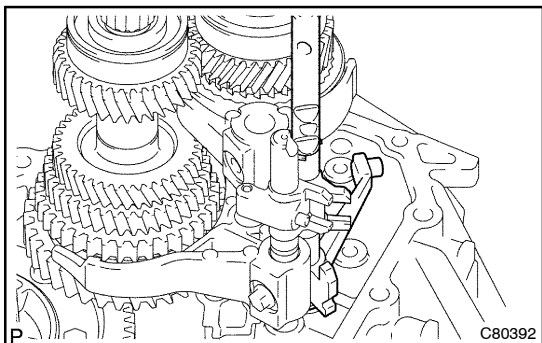


## 74. INSTALL GEAR SHIFT FORK SHAFT NO.3

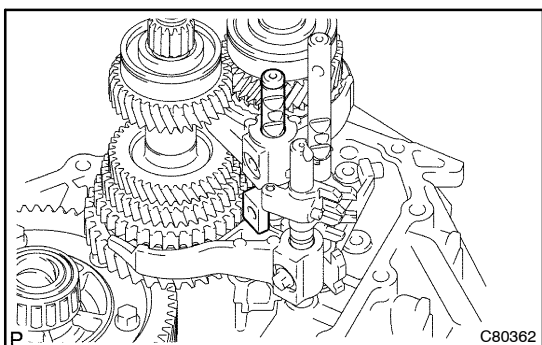
- (a) Coat the 2 shift fork balls with MP grease, install them to the reverse shift fork.  
(b) Install reverse shift fork to the shift fork shaft No. 3.



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

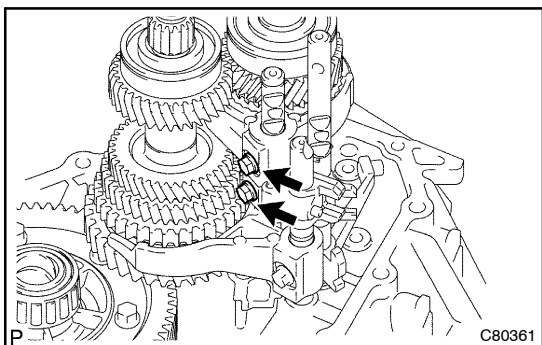


- (d) Coat the shift fork shaft No. 3 with gear oil, install it.



## 75. INSTALL GEAR SHIFT FORK SHAFT NO.2

- (a) Coat the gear shift head No. 1 and gear shift fork shaft No. 2 with gear oil, install them.

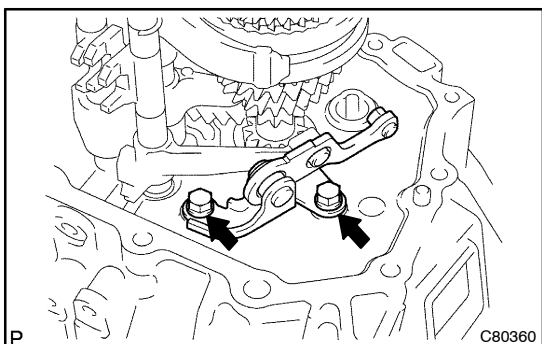


- (b) Coat the 2 shift lock bolts with sealant, install it to the gear shift fork No. 2 and shift head No. 1.

**Sealant:**

**Part No. 08833-00080, THREE BOND 1344, LOCTITE 242 or equivalent**

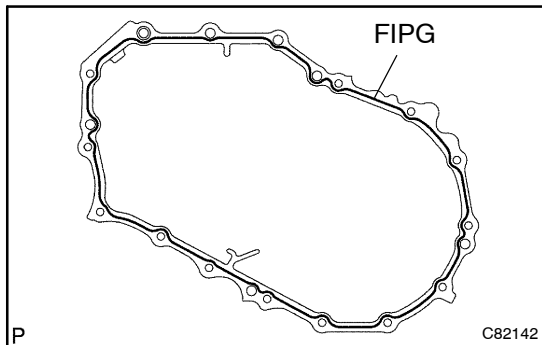
**Torque: 15.7 N·m (160 kgf·cm, 11.6 ft·lbf)**



## 76. INSTALL REVERSE SHIFT ARM BRACKET ASSY

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

**Torque: 17.2 N·m (175 kgf·cm, 12.7 ft·lbf)**



## 77. INSTALL MANUAL TRANSMISSION CASE

- (a) Apply FIPG to the manual transmission case, as shown to the illustration.

**FIPG:**

**Part No. 08826-00090, THREE BOND 1281 or equivalent**

**NOTICE:**

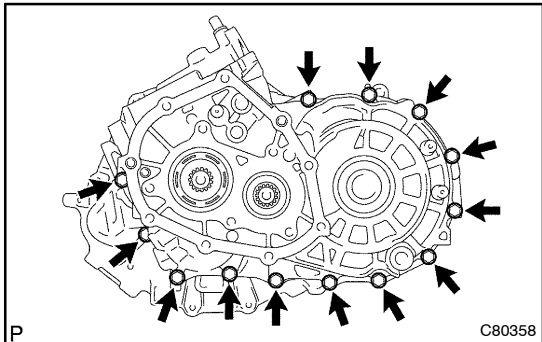
**Parts must be assembled within 10 minutes of application. Otherwise, the packing (FIPG) material.**

- (b) Coat the 13 bolts with sealant, install to the manual transmission case.

**Sealant:**

**Part No. 08833-00080, THREE BOND 1344, LOCTITE 242 or equivalent**

**Torque: 29.4 N·m (300 kgf·cm, 21.7 ft·lbf)**

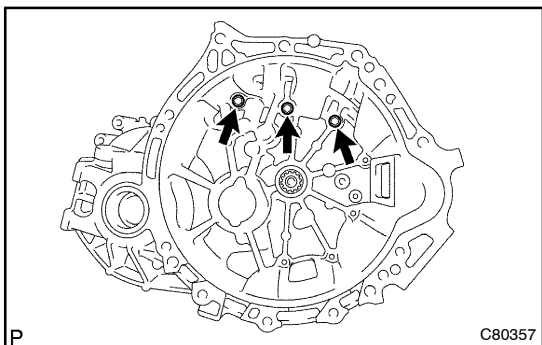


- (c) Coat the 3 bolts with sealant, install to the front transaxle case.

**Sealant:**

**Part No. 08833-00080, THREE BOND 1344, LOCTITE 242 or equivalent**

**Torque: 29.4 N·m (300 kgf·cm, 21.7 ft·lbf)**



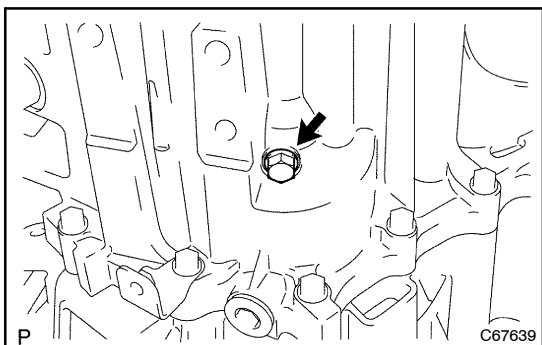
## 78. INSTALL REVERSE IDLER GEAR SHAFT BOLT

- (a) Coat the reverse idler gear shaft bolt with sealant, install it with new gasket.

**Sealant:**

**Part No. 08833-00080, THREE BOND 1344, LOCTITE 242 or equivalent**

**Torque: 29.4 N·m (300 kgf·cm, 21.7 ft·lbf)**



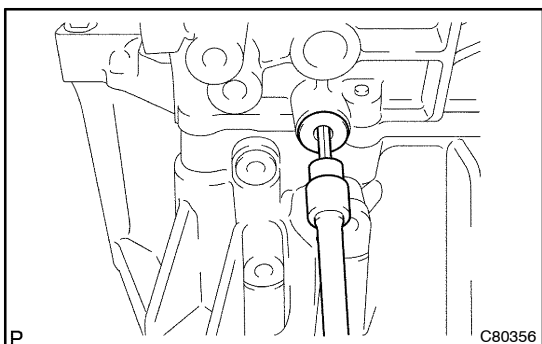
## 79. INSTALL LOCK BALL ASSY NO.1

- (a) Coat the lock ball assy No. 1 with sealant, install it with a hexagon wrench.

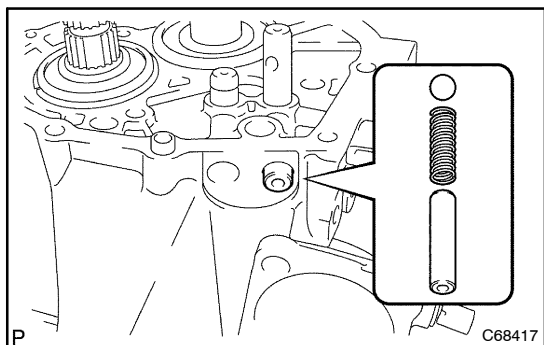
**Sealant:**

**Part No. 08833-00080, THREE BOND 1344, LOCTITE 242 or equivalent**

**Torque: 39.2 N·m (400 kgf·cm, 29 ft·lbf)**

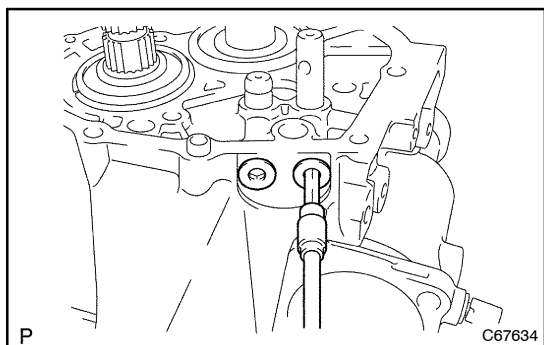






## 80. INSTALL SHIFT DETENT BALL

- (a) Install the 2 shift detent balls, 2 shift detent ball springs with 2 shift detent ball spring seat No.1 to the manual transmission case.

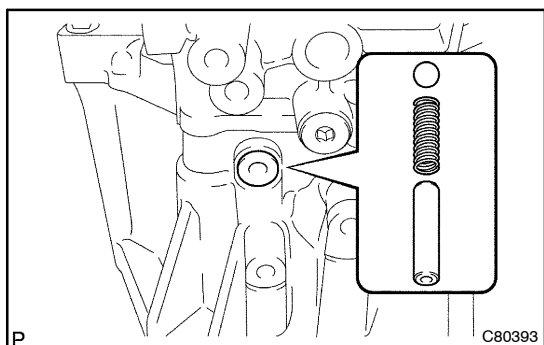


- (b) Coat the 2 shift detent ball plugs with sealant, install them with a hexagon wrench.

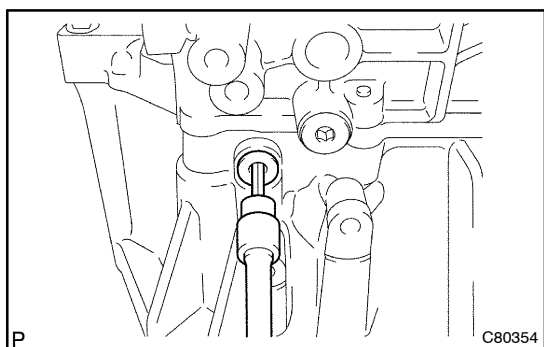
**Sealant:**

**Part No. 08833-00080, THREE BOND 1344, LOCTITE 242 or equivalent**

**Torque: 24.5 N·m (250 kgf·cm, 18 ft·lbf)**



- (c) Install the shift detent ball, shift detent ball compression spring and shift detent ball spring seat No.1 to the front transaxle case.

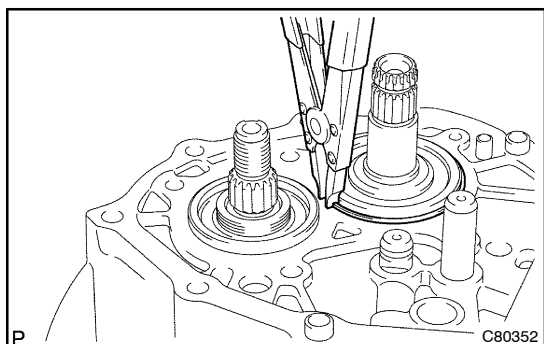


- (d) Coat the shift detent ball plug with sealant, install it with using a hexagon wrench.

**Sealant:**

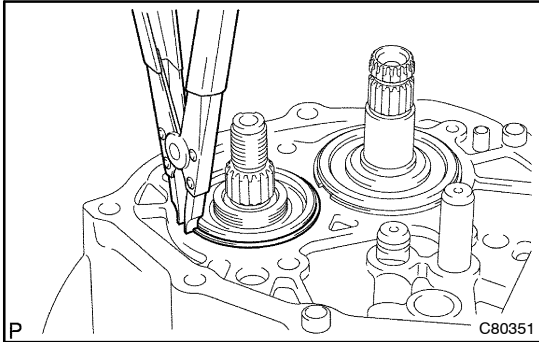
**Part No. 08833-00080, THREE BOND 1344, LOCTITE 242 or equivalent**

**Torque: 24.5 N·m (250 kgf·cm, 18 ft·lbf)**



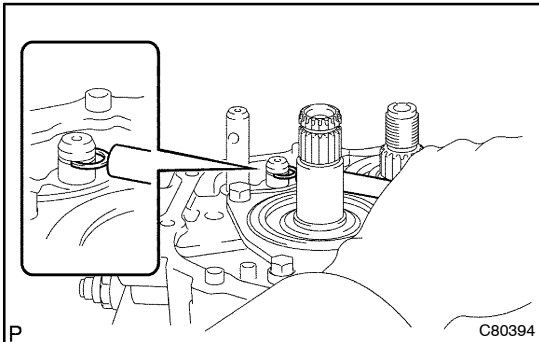
## 81. INSTALL INPUT SHAFT REAR BEARING HOLE SNAP RING

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



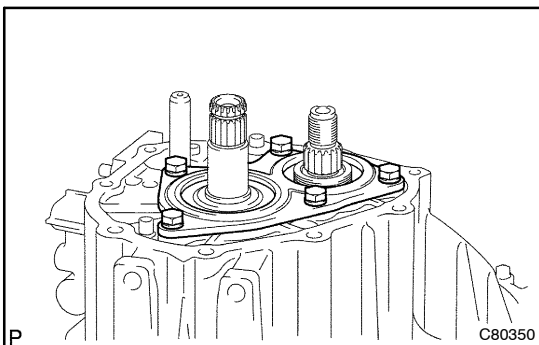
## 82. INSTALL OUTPUT SHAFT REAR BEARING HOLE SNAP RING

- (a) Using a snap ring expander, install the output shaft rear bearing hole snap ring to the output shaft.



## 83. INSTALL SHIFT FORK SHAFT SHAFT SNAP RING

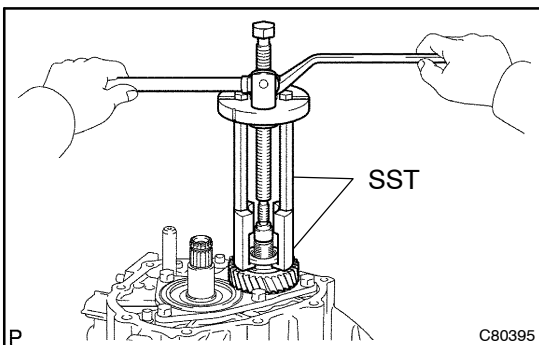
- (a) Using a brass bar and hammer, install shift fork shaft snap ring to the shift fork shaft No. 2.



## 84. INSTALL BEARING RETAINER REAR (MTM)

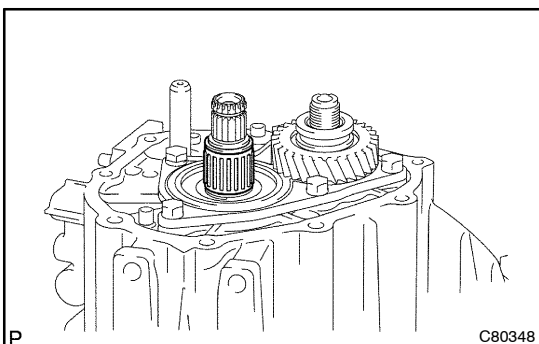
- (a) Coat the 5 bolts with sealant, install them and bearing retainer rear to the manual transmission case.

**Torque: 27.4 N·m (280 kgf·cm, 20 ft·lbf)**



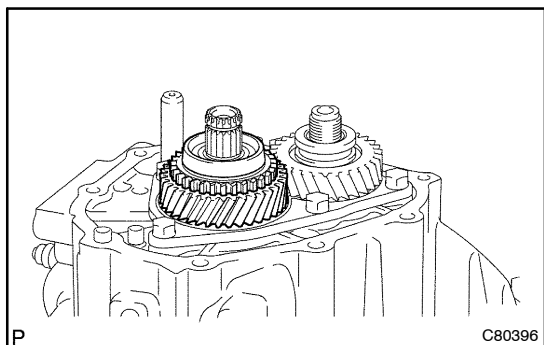
## 85. INSTALL 5TH DRIVEN GEAR

- (a) Using SST, install the 5th driven gear to the output shaft.  
SST 09950-30012 (09951-03010, 09953-03010, 09954-03010, 09955-03011, 09956-03020)

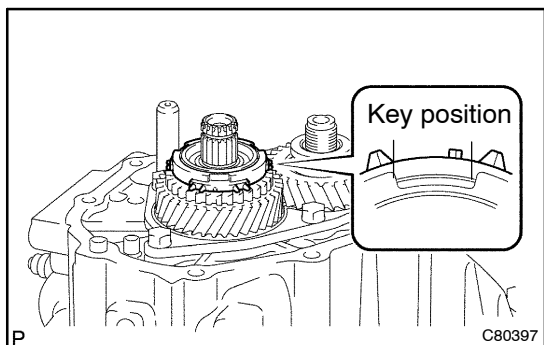


## 86. INSTALL 5TH GEAR NEEDLE ROLLER BEARING

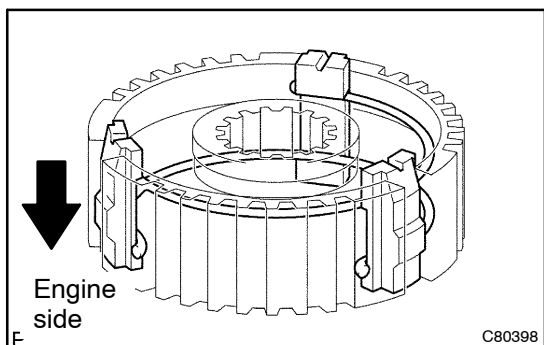
- (a) Coat the 5th gear needle roller bearing and spacer with gear oil, install them to the input shaft.

**87. INSTALL 5TH GEAR**

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

**88. INSTALL SYNCHRONIZER RING NO.3**

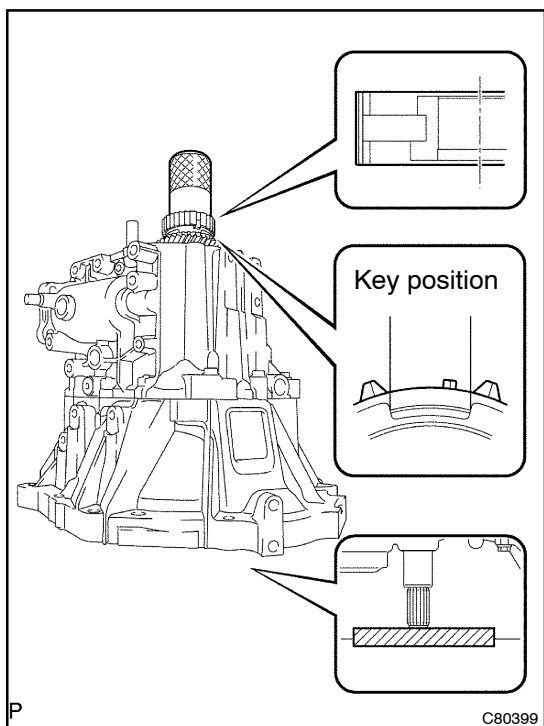
- (a) Coat the synchronizer ring No. 3 with gear oil, install it to the 5th gear.

**89. INSTALL TRANSMISSION CLUTCH HUB NO.3**

- (a) Install the 3 synchromesh shifting keys and 2 synchromesh shifting key springs to the transmission clutch hub No. 3.

**HINT:**

Do not set both openings of the shifting key springs in the same position.

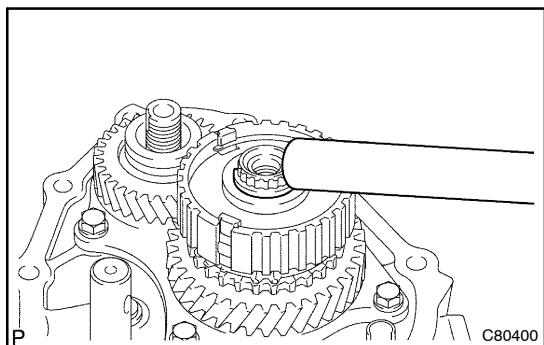


- (b) Using SST and a hammer, install the transmission clutch hub No. 3 to the input shaft.

SST 09636-20010

**HINT:**

- Before driving in the No. 3 clutch hub assy, place the suitable sized wooden block on the rear side of the input shaft, as shown in the illustration.
- When driving it in, fix the input shaft firmly so that it is not pushed downward. Otherwise the input shaft rear bearing is over loaded, it might be damaged.

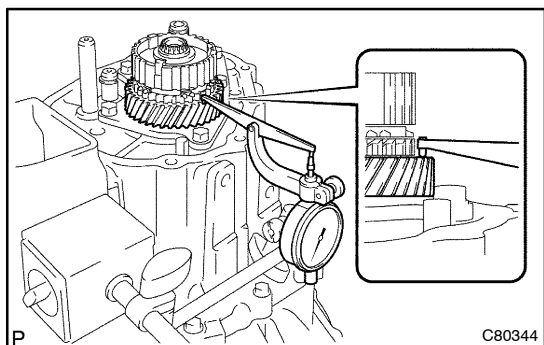


- (c) Select a snap ring that will minimum axial play.

**Clearance: 0.1mm or less**

Mark	Thickness mm (in.)	Mark	Thickness mm (in.)
A	2.25 (0.0886)	E	2.49 (0.0980)
B	2.31 (0.0909)	F	2.55 (0.1004)
C	2.37 (0.0933)	G	2.61 (0.1028)
D	2.43 (0.0957)		

- (d) Using a brass bar and hammer, install the snap ring to the input shaft.



## 90. INSPECT 5TH GEAR THRUST CLEARANCE

- (a) Using a dial indicator, inspect the 5th gear thrust clearance.

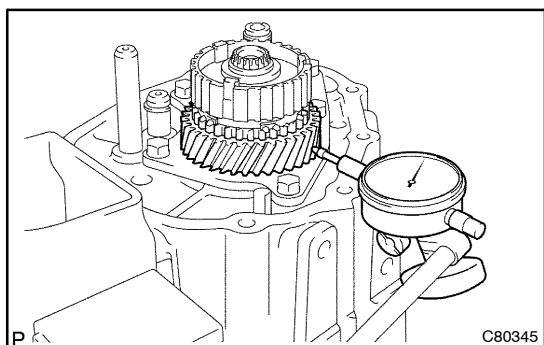
**Standard clearance:**

**0.1 – 0.57 mm (0.0039 – 0.0224 in.)**

**Maximum clearance:**

**0.57 mm (0.0224 in.)**

If the clearance exceeds the maximum, replace the gear, needle roller bearing or shaft.



## 91. INSPECT 5TH GEAR RADIAL CLEARANCE

- (a) Using a dial indicator, inspect the 5th gear radial clearance.

**Standard clearance:**

**KOYO made:**

**0.015 – 0.058 mm (0.0006 – 0.0023 in.)**

**NSK made:**

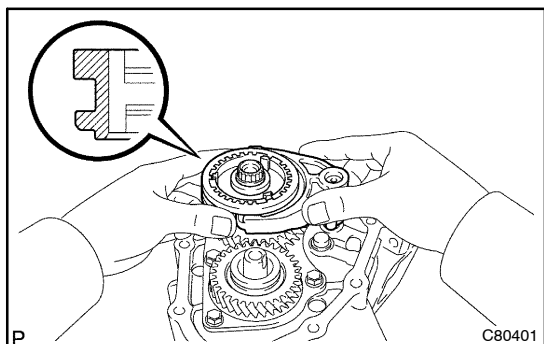
**0.015 – 0.056 mm (0.0006 – 0.0022 in.)**

**Maximum clearance:**

**KOYO made: 0.058 mm (0.0023 in.)**

**NSK made: 0.056 mm (0.0022 in.)**

If the clearance exceeds the maximum, replace the gear, needle roller bearing or shaft.

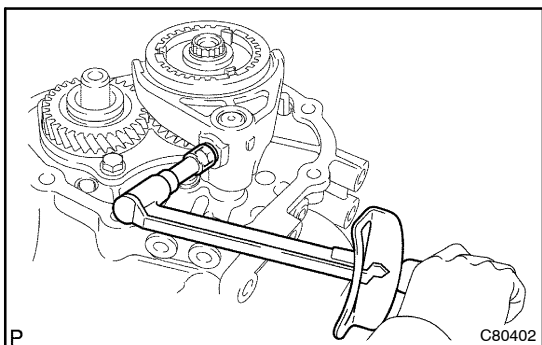


## 92. INSTALL GEAR SHIFT FORK NO.3

- (a) Coat the transmission clutch hub sleeve No. 3 with gear oil, install it and gear shift fork No. 3 to the transmission clutch hub No. 3.

**HINT:**

Do not set the transmission clutch hub No.3 in incorrect orientation.

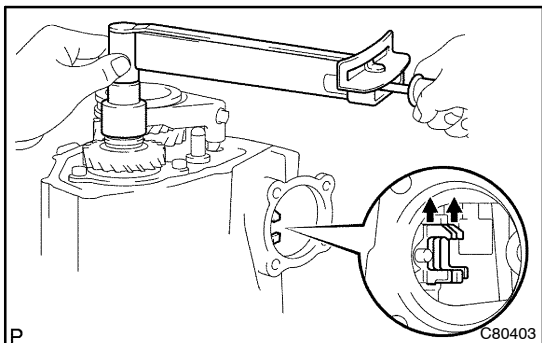


- (b) Coat the gear shift lock fork bolt with sealant, install it to the gear shift fork No. 3.

**Sealant:**

**Part No. 08833-00080, THREE BOND 1344, LOCTITE 242 or equivalent**

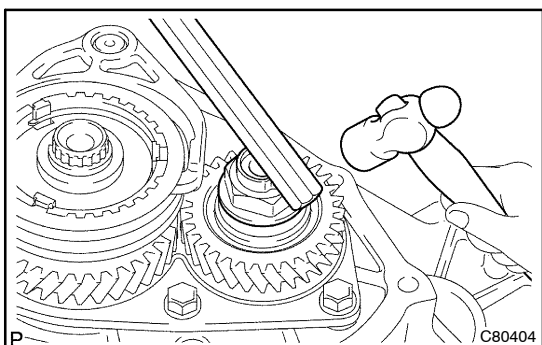
**Torque: 15.7 N·m (160 kgf·cm, 11.6 ft·lbf)**



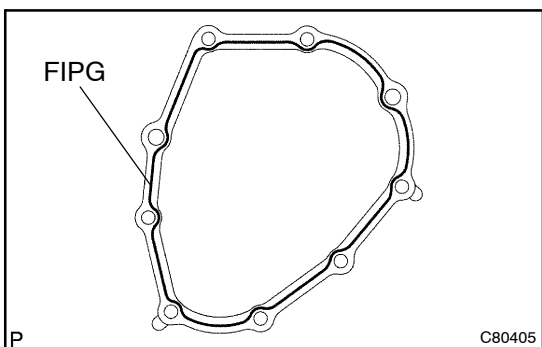
### 93. INSTALL MANUAL TRANSMISSION OUTPUT SHAFT REAR SET NUT

- (a) Engage the gear double meshing.  
(b) Install the new manual transmission output shaft rear set nut.

**Torque: 117.6 N·m (1200 kgf·cm, 87 ft·lbf)**



- (c) Using a chisel and hammer, stake the manual transmission output shaft rear set nut.  
(d) Disengage the gear double meshing.



### 94. INSTALL MANUAL TRANSMISSION CASE COVER SUB-ASSY

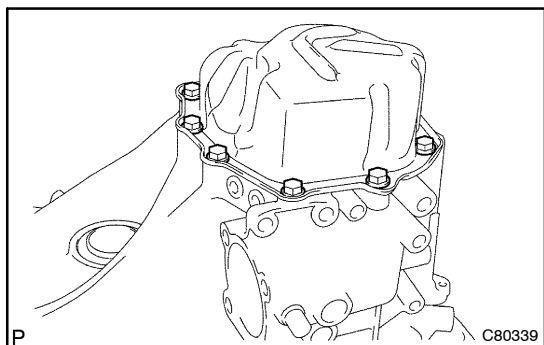
- (a) Apply FIPG to the manual transmission case cover, as shown to the illustration.

**FIPG:**

**Part No. 08826-00090, THREE BOND 1281 or equivalent**

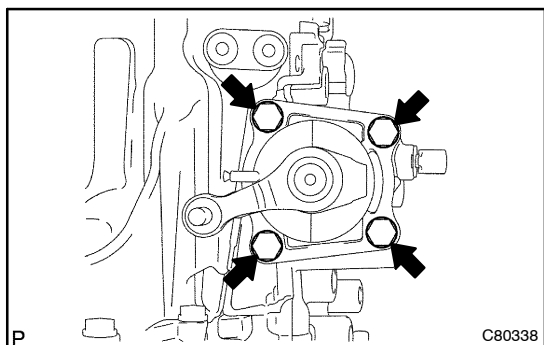
**NOTICE:**

**Parts must be assembled within 10 minutes of application. Otherwise, the packing (FIPG) material.**



- (b) Install the 9 bolts with manual transmission case cover to the manual transmission case.

**Torque: 18.1 N·m (185 kgf·cm, 13.5 ft·lbf)**



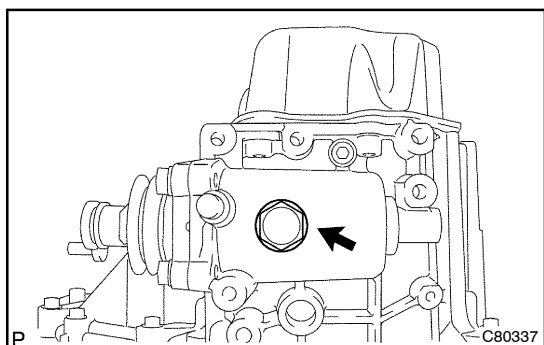
#### 95. INSTALL SHIFT & SELECT LEVER SHAFT ASSY

- (a) Coat the 4 bolts with sealant, install it, new gasket and shift & select lever shaft assy to the manual transmission case.

**Sealant:**

**Part No. 08833-00080, THREE BOND 1344, LOCTITE 242 or equivalent**

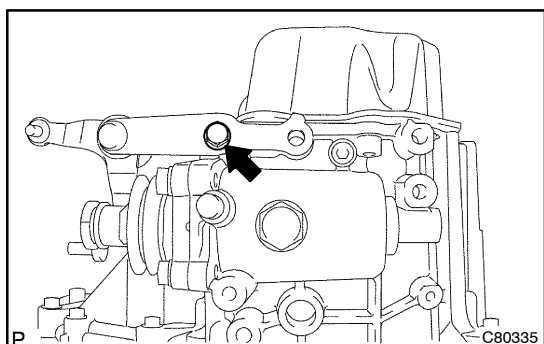
**Torque: 19.6 N·m (200 kgf·cm, 14 ft·lbf)**



#### 96. INSTALL SHIFT INTER LOCK PLATE BOLT

- (a) Install the new gasket and shift inter lock plate bolt to the manual transmission case.

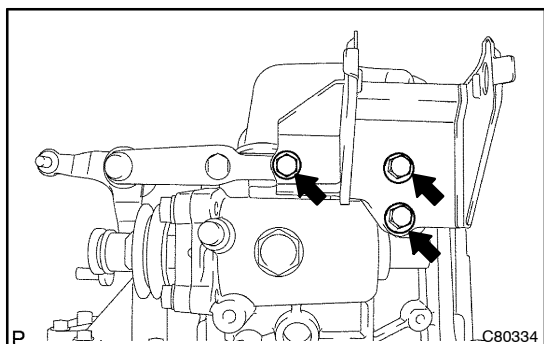
**Torque: 29.4 N·m (300 kgf·cm, 22 ft·lbf)**



#### 97. INSTALL SELECTING BELL CRANK ASSY

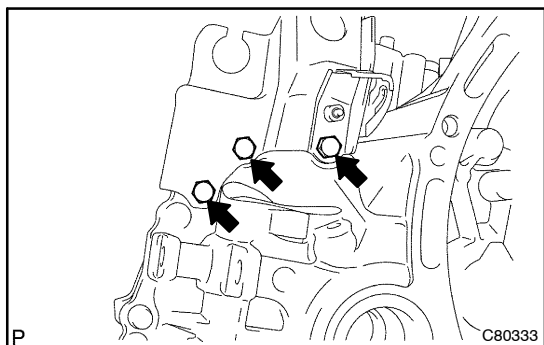
- (a) Install the bolt with selecting bell crank assy to the manual transmission case.

**Torque: 24.5 N·m (250 kgf·cm, 18 ft·lbf)**



- (b) Install the 3 bolts the engine mounting bracket LH to the manual transmission case.

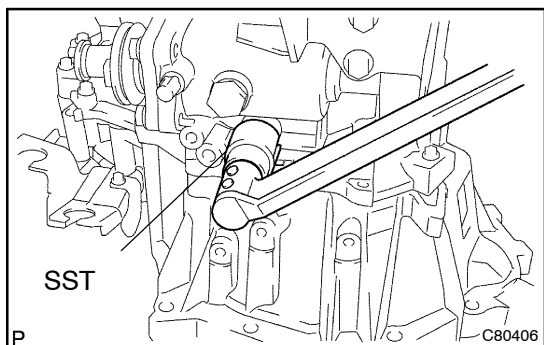
**Torque: 52.0 N·m (530 kgf·cm, 38 ft·lbf)**



### 98. INSTALL FLOOR SHIFT CONTROL LEVER HOUSING SUPPORT BRACKET

- (a) Install the 3 bolts with control cable bracket to the front transaxle case.

**Torque: 11.3 N·m (115 kgf·cm, 8.3 ft·lbf)**



### 99. INSTALL BACK-UP LAMP SWITCH ASSY

- (a) Using SST, install the back-up lamp switch assy with new gasket to the manual transmission case.

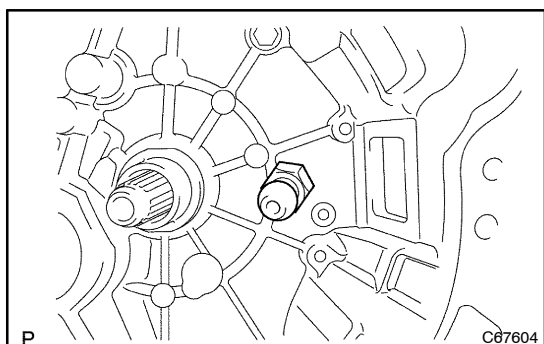
**Torque: 40.2 N·m (410 kgf·cm, 30 ft·lbf)**

SST 09817-16011

### 100. INSTALL SPEEDOMETER (MTM) SENSOR

- (a) Install the bolt and speedometer sensor cover to the manual transaxle case.

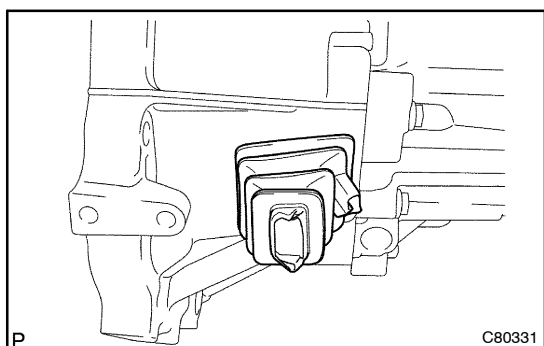
**Torque: 11.3 N·m (115 kgf·cm, 8.3 ft·lbf)**



### 101. INSTALL RELEASE FORK SUPPORT

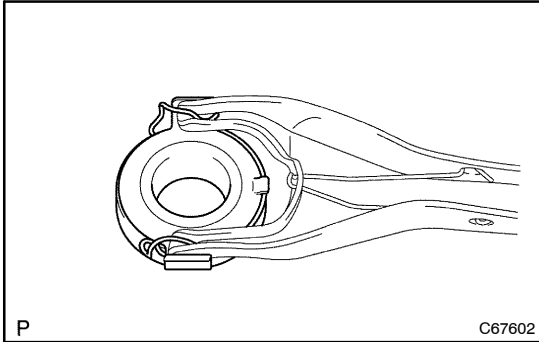
- (a) Install the release fork support to the front transaxle case.

**Torque: 36.8 N·m (375 kgf·cm, 25 ft·lbf)**



### 102. INSTALL CLUTCH RELEASE FORK BOOT

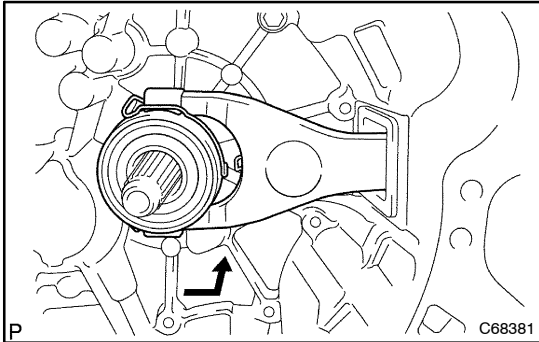
- (a) Install the clutch release fork boot to the front transaxle case.

**103. INSTALL CLUTCH RELEASE BEARING ASSY**

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

**Sealant:**

**Part No. 08887-01806, RELEASE HUB GREASE or equivalent**

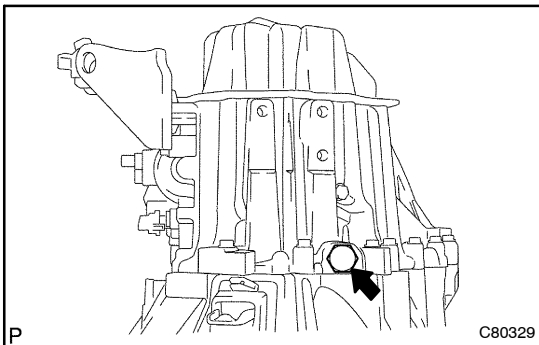
**104. INSTALL CLUTCH RELEASE FORK SUB-ASSY**

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

**Sealant:**

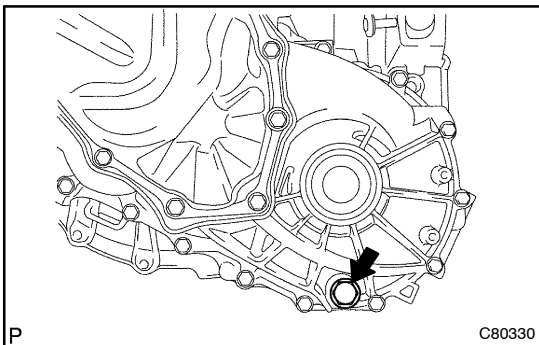
**Part No. 08887-01806, CLUTCH SPLINE GREASE or equivalent**

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

**105. INSTALL MANUAL TRANSMISSION FILLER PLUG**

- (a) Install the manual transmission filler plug with new gasket to the manual transmission case.

**Torque: 39.2 N·m (400 kgf·cm, 29 ft·lbf)**

**106. INSTALL DRAIN (MTM) PLUG SUB-ASSY**

- (a) Install the drain plug with new gasket to the manual transmission case.

**Torque: 39.2 N·m (400 kgf·cm, 29 ft·lbf)**