FOREWORD

This workshop manual covers Disassembly, Inspection and Assembly procedures for the following Manual Transmission:

Manual Transmission: H350

Applicable models: DUTRO

For On−vehicle Servicing (Inspection, Adjustment, Troubleshooting, Removal and installation) of the Manual transmission, refer to the repair manual for the applicable model.

All information in this manual is based on the latest product information at the time of publication. However, specifications and procedures are subject to change without notice.

CAUTION

This manual does not include all the necessary items about repair and service. This manual is made for the purpose of the use for the persons who have special techniques and certifications. In the cases that non–specialized or uncertified technicians perform repair or service only using this manual or without proper equipment or tool, that may cause severe injury to you or other people around and also cause damage to your customer's vehicle.

In order to prevent dangerous operation and damages to your customer's vehicle, be sure to follow the instruction shown below.

- Must read this manual thoroughly. It is especially important to have a good understanding of all the contents written in the PRECAUTION of "IN" section.
- The service method written in this manual is very effective to perform repair and service. When performing the operations following the procedures using this manual, be sure to use tools specified and recommended. If using non–specified or recommended tools and service method, be sure to confirm safety of the technicians and any possibility of causing personal injury or damage to the customer's vehicle before starting the operation.
- If part replacement is necessary, must replace the part with the same part number or equivalent part. Do not replace it with inferior quality.
- It is important to note that this manual contains various "Cautions" and "Notices" that must be carefully observed in order to reduce the risk of personal injury during service or repair, or the possibility that improper service or repair may damage the vehicle or render it unsafe. It is also important to understand that these "Cautions" and "Notices" are not exhaustive, because it is important to warn of all the possible hazardous consequences that might result from failure to follow these instructions.

INTRODUCTION

HOW TO USE THIS MANUAL TRANSMISSION WORKSHOP MANUAL

010CW–01

GENERAL INFORMATION

1. GENERAL DESCRIPTION

(a) This manual is made in accordance with SAE J2008.

(b) Generally repair operations can be separated in the following 3 main processes:
1. Diagnosis
2. Removing and Installing, Replacing, Disassembling, Installing and Checking, Adjusting
3. Final Inspection

(c) This manual explains ”Removing and Installing, Replacing, Disassembling, Installing and Checking, Adjusting”, but ”Final Inspection” is omitted.

(d) The following essential operations are not written in this manual, however these operations must be done in the practical situation.
(1) Operation with a jack or lift
(2) Cleaning of a removed part when necessary
(3) Visual check

2. INDEX

(a) An alphabetical INDEX is provided as a section on the end of the book to guide you to the item to be repaired.

3. PREPARATION

(a) Use of special service tools (SST) and special service materials (SSM) may be required, depending on the repairing condition. Be sure to use SST and SSM when they are required and follow the working procedure properly. A list of SST and SSM is in the Preparation section of this manual.

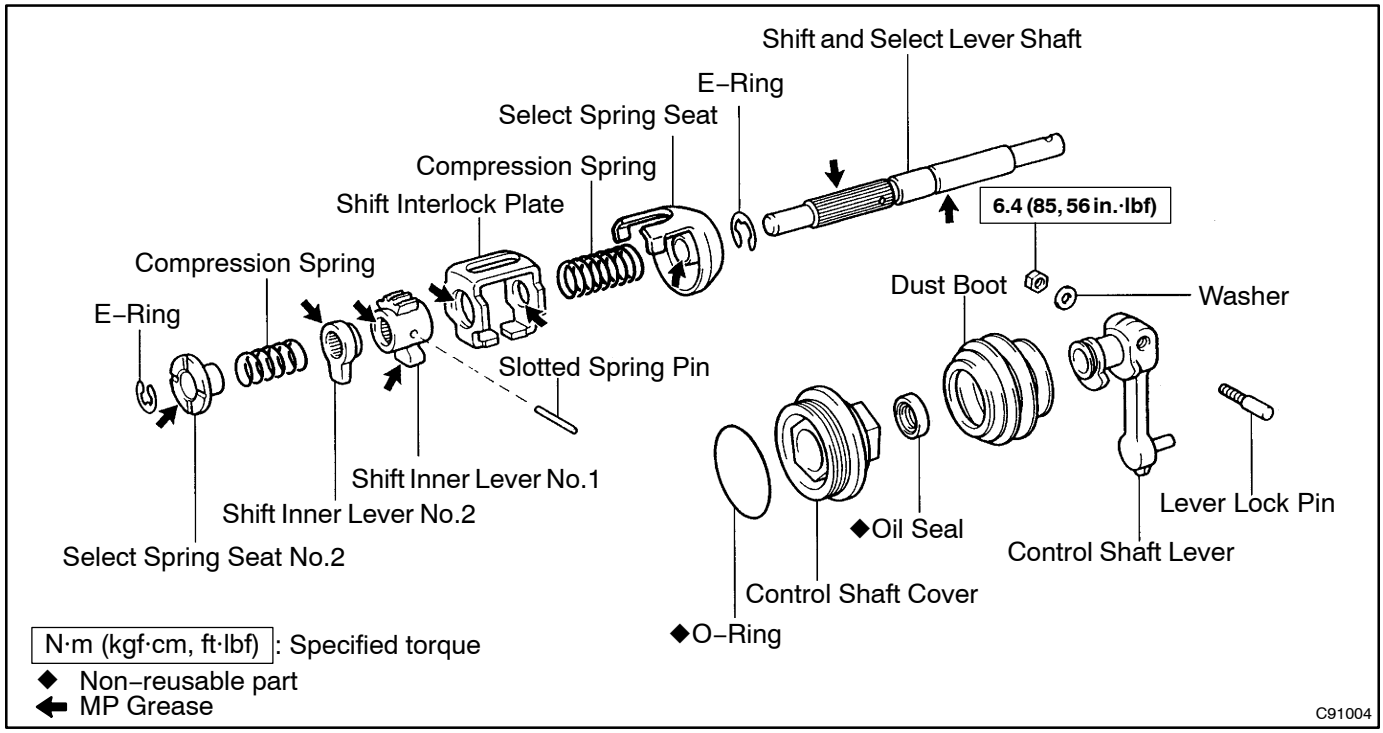
4. REPAIR PROCEDURES

(a) Component drawing is placed as the section or title when necessary.

(b) Illustrations of the parts catalog are placed as the ”disassembled parts drawing” so that it enables you to understand the fitting condition of the components.

(c) Non–reusable parts, grease applied parts, precoated parts and tightening torque are specified in the components drawing.

Example:



(d) Tightening torque, oil applying position, and non–reusable parts are described as important points in the procedure.

NOTICE:

There are cases where such information can only be indicated by an illustration. In that case, all the information such as torque, oil, etc. are described in the illustration.

(e) Installing procedure of operation items is performed in the reverse order of the removing, and only the important points are described.

(f) Only items with points are described in the procedure, and the operational portion and content are placed using an illustration. In the explanations, details of the operational method, standard value and notice are placed.

(g) There may be a case where the illustrations of similar models are used. In that case the details may be different from the actual vehicle.

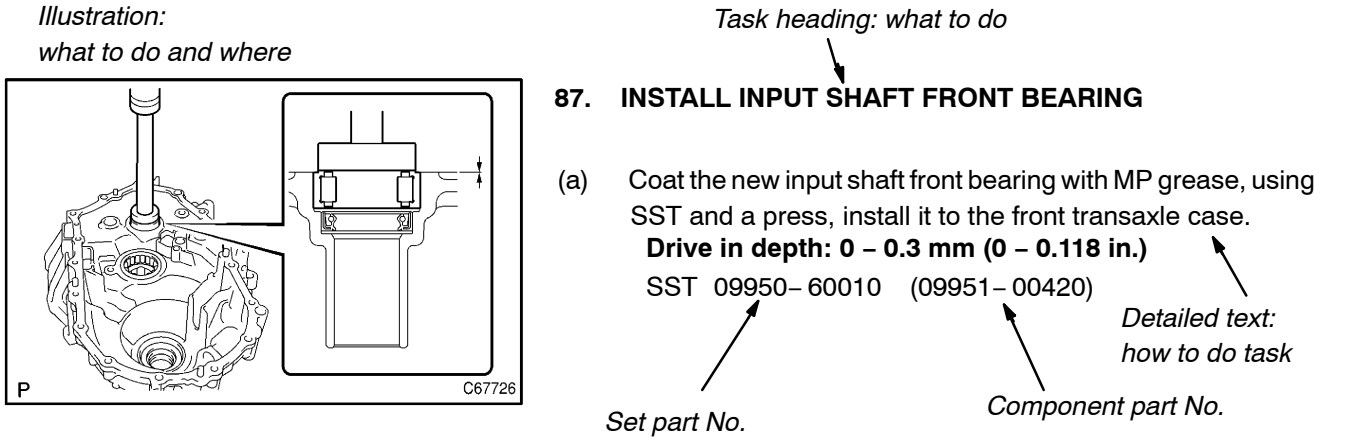
(h) The procedures are presented in a step–by–step format:

(1) The illustration shows what to do and where to do it.

(2) The task heading tells what to do.

(3) The detailed text tells how to perform the task and gives other information such as specifications and warnings.

Example:



HINT:

This format provides an experienced technician with a FAST TRACK to the necessary information. The task heading can be read at a glance when necessary, and the text below provides detailed information. Important specifications and warnings always stand out in bold type.

5. SERVICE SPECIFICATIONS

(a) Specifications are presented in bold type throughout the manual. You never have to leave the procedure to look up your specifications. The specifications are also found in the Service Specifications section for a quick reference.

6. TERMS DEFINITION

CAUTION	Indicate the possibility of injury to you or other people.
NOTICE	Indicate the possibility of damage to the components being repaired.
HINT	Provide additional information to help you perform the repair efficiently.

7. SI UNIT

(a) The UNITS given in this manual are primarily expressed according to the SI UNIT (International System of Unit), and alternately expressed in the metric system and in the English System.

Example:

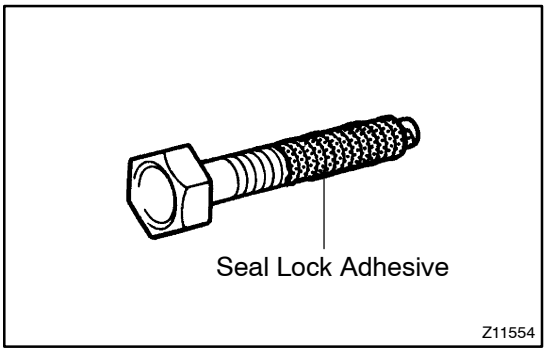
Torque: 30 N·m (310 kgf·cm, 22 ft·lbf)

REPAIR INSTRUCTION FOR MANUAL TRANSMISSION WORKSHOP MANUAL

010CX–01

PRECAUTION

1. BASIC REPAIR HINT



(a) PRECOATED PARTS

(1) Precoated parts are bolts, nuts, etc. that are coated with a seal lock adhesive at the factory.

(2) If a precoated part is retightened, loosened or caused to move in any way, it must be recoated with the specified adhesive.

(3) When reusing precoated parts, clean off the old adhesive and dry with compressed air. Then apply the specified seal lock adhesive to the bolt, nut or threads.

NOTICE:

Do the torque checking with the lower limit value of the torque tolerance.

(4) Depending on the seal lock agent to apply, there may be a case where it is necessary to leave it for a specified time until it hardens.

(b) GASKETS

When necessary, use a sealer on gaskets to prevent leaks.

(c) BOLTS, NUTS AND SCREWS

Carefully observe all specifications for bolt tightening torques. Always use a torque wrench.

TERMS FOR MANUAL TRANSMISSION WORKSHOP MANUAL

ABBREVIATIONS USED IN THIS MANUAL

010CY–01

Abbreviations	Meaning
FIPG	Formed In Plce Gasket
Max	Maximum
Min	Minimum
MP	Multipurpose
No.	Number
RR	Rear
SSM	Special Service Materials
SST	Special service Tools
STD	Standard
1st	First
2nd	Second
3rd	Third
5th	Fifth

010CZ–01

GLOSSARY OF SAE AND HINO TERMS

This glossary lists all SAE–J1930 terms and abbreviations used in this manual in compliance with SAE recommendations, as well as their Hino equivalents.

SAE ABBREVIATIONS	SAE TERMS	HINO TERMS ( )––ABBREVIATIONS
A/C	Air Conditioning	Air Conditioner
ACL	Air Cleaner	Air Cleaner
AIR	Secondary Air Injection	Air Injection (AI)
AP	Accelerator Pedal	–
B+	Battery Positive Voltage	+B, Battery Voltage
BARO	Barometric Pressure	–
CAC	Charge Air Cooler	Inter cooler
CARB	Carburettor	Carburettor
CFI	Continuous Fuel Injection	–
CKP	Crankshaft Position	Crank Angle
CL	Closed Loop	Closed Loop
CMP	Camshaft position	Cam Angle
CPP	Clutch Pedal Position	–
CTOX	Continuous Trap Oxidizer	–
CTP	Closed Throttle Potion	–
DFI	Direct Fuel Injection (Diesel)	Direct Injection (DI)
DI	Distributor Ignition	–
DLC1 DLC2 DLC3	Data Link Connector 1 Data Link Connector 2 Data Link Connector 3	1: Check Connector 2: Total Diagnosis Communication Link (TDCL) 3: OBD II Diagnostic Connector
DTC	Diagnostic Trouble Code	Diagnostic Code
DTM	Diagnostic Test Mode	–
ECL	Engine Control Level	–
ECM	Engine Control Module	Engine ECU (Electronic Control Unit)
ECT	Engine Control Temperature	Coolant Temperature, Water Temperature (THW)
EEPROM	Electrically Erasable Programmable Read Only memory	Electrically Erasable Programmable Read Only memory (EEPROM), Erasable Programmable Read Only memory (EPROM)
EFE	Early Fuel Evaporation	Cold Mixture Heater (CMH), Heat Control Valve (HCV)
EGR	Exhaust Gas Recirculation	Exhaust Gas Recirculation (EGR)
EI	Electronic Ignition	Distributorless Ignition (DI)
EM	Engine Modification	Engine Modification (EM)
EPROM	Erasable Programmable Read Only Memory	Programmable Read Only Memory (PROM)
EVAP	Evaporative Emission	Evaporative Emission Control (EVAP)
FC	Fan Control	–
FEEPROM	Flash Electrically Erasable Programmable Read Only Memory	–
FEPROM	Flash Erasable Programmable Read Only Memory	–
FF	Flexible Fuel	–
FP	Fuel Pump	Fuel Pump
GEN	Generator	Alternator
GND	Ground	Ground (GND)
HO2S	Heated Oxygen Sensor	Heated Oxygen Sensor (HO2S)
IAC	Idol Air Control	Idol Speed Control (ISC)
IAT	Intake Air Temperature	Intake or Inlet Air Temperature
ICM	Ignition Control Module	–
IFI	Indirect Fuel Injection	Indirect Injection
IFS	Inertia Fuel–Shutoff	–

ISC	Idle Speed Control	–
KS	Knock Sensor	Knock Sensor
MAF	Mass Air Flow	Air Flow Meter
MAP	Manifold Absolute Pressure	Manifold Pressure Intake Vacuum
MC	Mixture Control	Electric Bleed Air Control Valve (EBCV) Mixture Control Valve (MCV) Electric Air Control Valve (EACV)
MDP	Manifold Differential Pressure	–
MFI	Multiport Fuel Injection	Electronic Fuel Injection (EFI)
MIL	Malfunction Indicator Lamp	Check Engine Light
MST	Manifold Surface temperature	–
MVZ	Manifold Vacuum Zone	–
NVRAM	Non–Volatile Random Access Memory	–
O2S	Oxygen Sensor	Oxygen Sensor, O_2 Sensor ($O_{2S)}$
OBD	On–Board Diagnostic	On–Board Diagnostic (OBD)
OC	Oxidation Catalytic Converter	Oxidation Catalyst Converter (OC), CC_0
OP	Open Loop	Open Loop
PAIR	Pulsed Secondary Air Injection	Air Suction (AS)
PCM	Powertrain Control Module	–
PNP	Park/Neutral Position	–
PROM	Programmable Read Only Memory	–
PSP	Power Steering Pressure	–
PTOX	Periodic Trap Oxidizer	Diesel Particulate Filter (DPF) Diesel Particulate Trap (DPT)
RAM	Random Access Memory	Random Access Memory (RAM)
RM	Relay Module	–
ROM	Read Only Memory	Read Only Memory (ROM)
RPM	Engine Speed	Engine Speed
SC	Supercharger	Supercharger
SCB	Supercharger Bypass	–
SFI	Sequential Multiport Fuel Injection	Electronic Fuel Injection (EFI), Sequential Injection
SPL	Smoke Puff Limiter	–
SRI	Service Reminder Indicator	–
SRT	System Readiness Test	–
ST	Scan Tool	–
TB	Throttle Body	Throttle Body
TBI	Throttle Body Fuel Injection	Single Point Injection Central Fuel Injection (Ci)
TC	Turbocharger	Turbocharger
TCC	Torque Converter Clutch	Torque Converter
TCM	Transmission Control Module	Transmission ECU (Electronic Control Unit)
TP	Throttle Position	Throttle Position
TR	Transmission Range	–
TVV	Thermal Vacuum Valve	Bimetallic Vacuum Switching Valve (BVSV) Thermostatic Vacuum Switching Valve (TVSV)
TWC	Three–Way Catalytic Converter	Three–Way Catalytic (TWC) CC_{RO}
TWC+OC	Three–Way + Oxidation Catalytic Converter	$CC_R + CC_O$
VAF	Volume Air Flow	Air Flow Meter
VR	Voltage Regulator	Voltage Regulator
VSS	Vehicle Speed Sensor	Vehicle Speed Sensor (Read Switch Type)
WOT	Wide Open Throttle	Full Throttle

WU–OC	Warm Up Oxidation Catalytic Converter	–
WU–TWC	Warm Up Three–Way Catalytic Converter	Manifold Converter
3GR	Third Gear	–
4GR	Fourth Gear	–

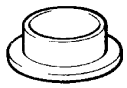
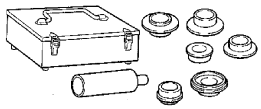
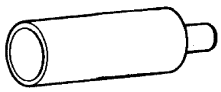
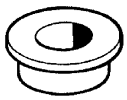
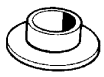
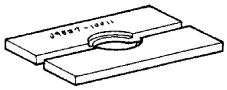
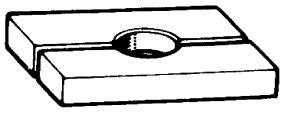
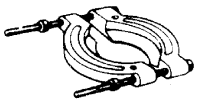
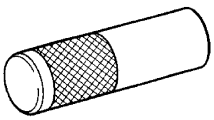
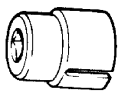
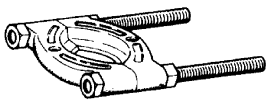
PREPARATION

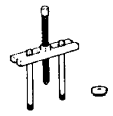
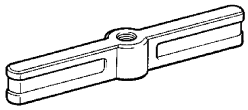
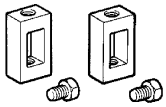
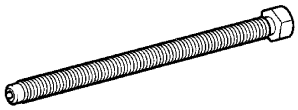
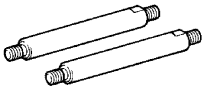
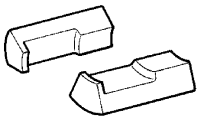
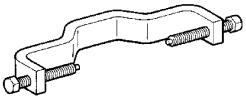
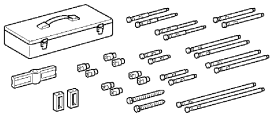
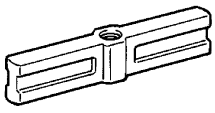
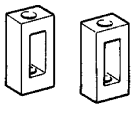
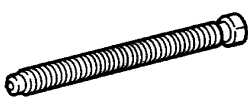
MANUAL TRANSMISSION/TRANSAXLE

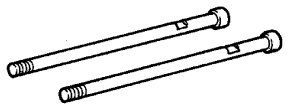
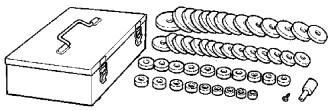
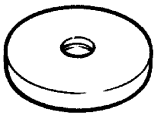
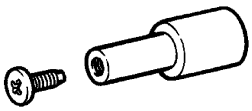
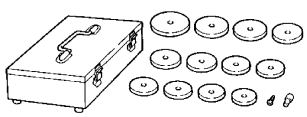
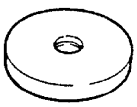
0219K–01

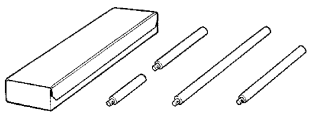
PREPARATION

SST

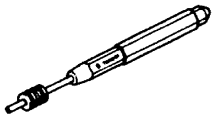
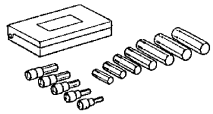
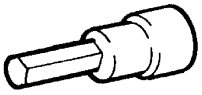
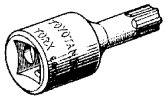
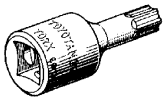
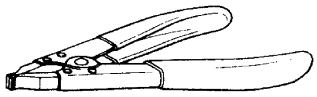
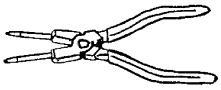
	09316–20011	Transfer Bearing Replacer	MANUAL TRANSMISSION ASSY OUTPUT SHAFT ASSY
	09316–60011	Transmission & Transfer Bearing Replacer	MANUAL TRANSMISSION ASSY OUTPUT SHAFT ASSY COUNTER GEAR ASSY
	(09316–00011)	Replacer Pipe	MANUAL TRANSMISSION ASSY OUTPUT SHAFT ASSY COUNTER GEAR ASSY
	(09316–00021)	Replacer ”A”	MANUAL TRANSMISSION ASSY COUNTER GEAR ASSY
	(09316–00031)	Replacer ”B”	MANUAL TRANSMISSION ASSY
	(09316–00041)	Replacer ”C”	MANUAL TRANSMISSION ASSY
	09527–10011	Rear Axle Shaft Bearing Remover	MANUAL TRANSMISSION ASSY
	09527–20011	Rear Axle Shaft Bearing Remover	OUTPUT SHAFT ASSY
	09555–55010	Differential Drive Pinion Bearing Replacer	OUTPUT SHAFT ASSY
	09608–06041	Front Hub Inner Bearing Cone Replacer	MANUAL TRANSMISSION ASSY
	09817–16011	Back–up Light Switch Tool	MANUAL TRANSMISSION ASSY
	09950–00020	Bearing Remover	MANUAL TRANSMISSION ASSY INPUT SHAFT ASSY COUNTER GEAR ASSY

	09950–00030	Bearing Remover Attachment	MANUAL TRANSMISSION ASSY
	09950–40011	Puller B Set	MANUAL TRANSMISSION ASSY
	(09951–04020)	Hanger 200	MANUAL TRANSMISSION ASSY
	(09952–04010)	Slide Arm	MANUAL TRANSMISSION ASSY
	(09953–04030)	Center Bolt 200	MANUAL TRANSMISSION ASSY
	(09954–04020)	Arm 100	MANUAL TRANSMISSION ASSY
	(09955–04031)	Claw No.3	MANUAL TRANSMISSION ASSY
	(09957–04010)	Attachment	MANUAL TRANSMISSION ASSY
	(09958–04011)	Holder	MANUAL TRANSMISSION ASSY
	09950–50013	Puller C Set	MANUAL TRANSMISSION ASSY
	(09951–05010)	Hanger 150	MANUAL TRANSMISSION ASSY
	(09952–05010)	Slide Arm	MANUAL TRANSMISSION ASSY
	(09953–05020)	Center Bolt 150	MANUAL TRANSMISSION ASSY

	(09954–05040)	Claw No.4	MANUAL TRANSMISSION ASSY
	09950–60010	Replacer Set	MANUAL TRANSMISSION ASSY INPUT SHAFT ASSY COUNTER GEAR ASSY SHIFT LEVER SHAFT HOUSING ASSY
	(09951–00230)	Replacer 23	MANUAL TRANSMISSION ASSY
	(09951–00290)	Replacer 29	COUNTER GEAR ASSY
	(09951–00300)	Replacer 30	MANUAL TRANSMISSION ASSY
	(09951–00310)	Replacer 31	SHIFT LEVER SHAFT HOUSING ASSY
	(09951–00320)	Replacer 32	SHIFT LEVER SHAFT HOUSING ASSY
	(09951–00330)	Replacer 33	MANUAL TRANSMISSION ASSY
	(09951–00480)	Replacer 48	MANUAL TRANSMISSION ASSY
	(09951–00570)	Replacer 57	INPUT SHAFT ASSY
	(09952–06010)	Adapter	MANUAL TRANSMISSION ASSY
	09950–60020	Replacer Set No.2	MANUAL TRANSMISSION ASSY
	(09951–00750)	Replacer 75	MANUAL TRANSMISSION ASSY

	09950–70010	Handle Set	MANUAL TRANSMISSION ASSY INPUT SHAFT ASSY COUNTER GEAR ASSY SHIFT LEVER SHAFT HOUSING ASSY
	(09951–07100)	Handle 100	MANUAL TRANSMISSION ASSY INPUT SHAFT ASSY COUNTER GEAR ASSY SHIFT LEVER SHAFT HOUSING ASSY

Recomended Tools

	09031–00040	Pin Punch .	MANUAL TRANSMISSION ASSY SHIFT LEVER SHAFT HOUSING ASSY
	09040–00011	Hexagon Wrench Set	SHIFT LEVER SHAFT HOUSING ASSY
	(09043–20120)	Socket Hexagon Wrench 12	SHIFT LEVER SHAFT HOUSING ASSY
	09042–00010	Torx Socket T30	MANUAL TRANSMISSION ASSY
	09042–00020	Torx Socket T40	MANUAL TRANSMISSION ASSY
	09905–00012	Snap Ring No.1 Expander	MANUAL TRANSMISSION ASSY INPUT SHAFT ASSY OUTPUT SHAFT ASSY COUNTER GEAR ASSY
	09905–00013	Snap Ring Pliers	INPUT SHAFT ASSY

Equipment

Aluminum plate	
Caliper gauge	
Cylinder gauge	
Dial indicator or dial indicator with magnetic base	
Feeler gauge	
Magnetic finger	
Micrometer	
Plastic hammer	
Press	
Torque wrench	
Vernier calipers	
Wooden block	

Lubricant

Manual transmission oil	4.2 liters (4.4 US qts, 3.7 Imp. qts)	APL GL–4 or GL–5 SAE 75W–90

SSM (Special Service Materials)

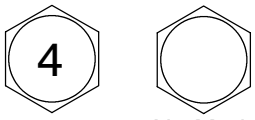
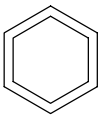
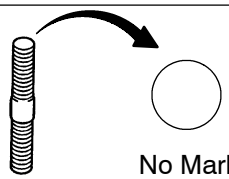
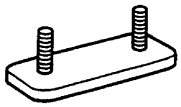
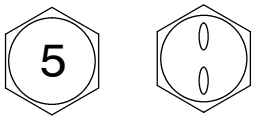
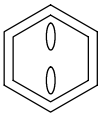
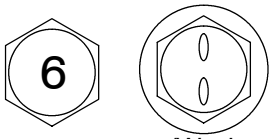
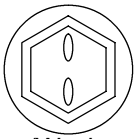
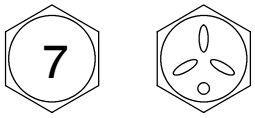
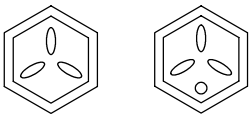
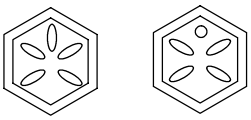
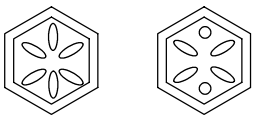
	08826–00090 ”Seal Packing 1281,” THREE BOND 1281 or equivalent (FIPG)	
	08833–00080 Adhesive 1344 THREE BOND 1344 LOCTITE 242 or equivalent	

SERVICE SPECIFICATIONS

STANDARD BOLT

HOW TO DETERMINE BOLT STRENGTH

030OQ-01

Bolt Type				Class
Hexagon Head Bolt		Stud Bolt	Weld Bolt	
Normal Recess Bolt	Deep Recess Bolt			
 No Mark	 No Mark	 No Mark		4T
				5T
 w/Washer	 w/Washer			6T
				7T
				8T
				9T
				10T
				11T

B06431

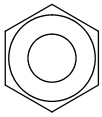
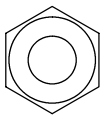
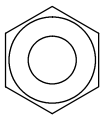
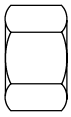
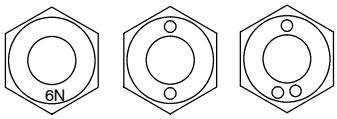
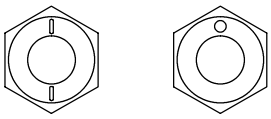
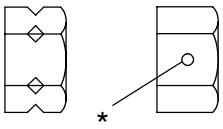
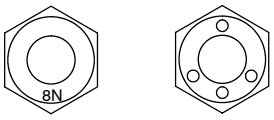
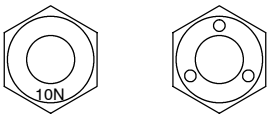
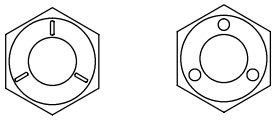
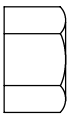
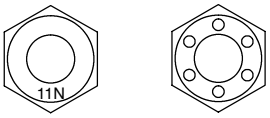
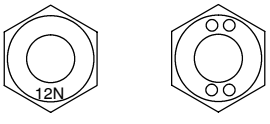
030OR–01

SPECIFIED TORQUE FOR STANDARD BOLTS

Class	Diameter mm	Pitch mm	Specified torque					
			Hexagon head bolt			Hexagon flange bolt		
			N·m	kgf·cm	ft·lbf	N·m	kgf·cm	ft·lbf
4T	6	1	5	55	48 in.·lbf	6	60	52 in.·lbf
	8	1.25	12.5	130	9	14	145	10
	10	1.25	26	260	19	29	290	21
	12	1.25	47	480	35	53	540	39
	14	1.5	74	760	55	84	850	61
	16	1.5	115	1,150	83	–	–	–
5T	6	1	6.5	65	56 in.·lbf	7.5	75	65 in.·lbf
	8	1.25	15.5	160	12	17.5	175	13
	10	1.25	32	330	24	36	360	26
	12	1.25	59	600	43	65	670	48
	14	1.5	91	930	67	100	1,050	76
	16	1.5	140	1,400	101	–	–	–
6T	6	1	8	80	69 in.·lbf	9	90	78 in.·lbf
	8	1.25	19	195	14	21	210	15
	10	1.25	39	400	29	44	440	32
	12	1.25	71	730	53	80	810	59
	14	1.5	110	1,100	80	125	1,250	90
	16	1.5	170	1,750	127	–	–	–
7T	6	1	10.5	110	8	12	120	9
	8	1.25	25	260	19	28	290	21
	10	1.25	52	530	38	58	590	43
	12	1.25	95	970	70	105	1,050	76
	14	1.5	145	1,500	108	165	1,700	123
	16	1.5	230	2,300	166	–	–	–
8T	8	1.25	29	300	22	33	330	24
	10	1.25	61	620	45	68	690	50
	12	1.25	110	1,100	80	120	1,250	90
9T	8	1.25	34	340	25	37	380	27
	10	1.25	70	710	51	78	790	57
	12	1.25	125	1,300	94	140	1,450	105
10T	8	1.25	38	390	28	42	430	31
	10	1.25	78	800	58	88	890	64
	12	1.25	140	1,450	105	155	1,600	116
11T	8	1.25	42	430	31	47	480	35
	10	1.25	87	890	64	97	990	72
	12	1.25	155	1,600	116	175	1,800	130

030OS–01

HOW TO DETERMINE NUT STRENGTH

Nut Type			Class
Present Standard Hexagon Nut	Old Standard Hexagon Nut		
	Cold Forging Nut	Cutting Processed Nut	
 No Mark			4N
 No Mark (w/Washer)	 No Mark (w/Washer)	 No Mark	5N (4T)
 6N			6N
		 *	7N (5T)
 8N			8N
 10N		 No Mark	10N (7T)
 11N			11N
 12N			12N

*: Nut with 1 or more marks on one side surface of the nut.

B06432

HINT:

Use the nut with the same number of the nut strength classification or the greater than the bolt strength classification number when tightening parts with a bolt and nut.

Example: Bolt = 4T

Nut = 4N or more

MANUAL TRANSMISSION / TRANSAXLE

030OO-01

SERVICE DATA

Oil pump driven rotor to pump cover clearance	STD	0.02 – 0.17 mm (0.0008 – 0.0067 in.)
	Max.	0.17 mm (0.0067 in.)
Oil pump drive to driven rotor tip clearance	STD	0.05 – 0.15 mm (0.0020 – 0.0059 in.)
	Max.	0.15 mm (0.0059 in.)
Reverse gear thrust clearance	STD	0.10 – 0.25 mm (0.0039 – 0.0098 in.)
	Max.	0.25 mm (0.0098 in.)
Reverse gear radial clearance	STD	0.015 – 0.067 mm (0.0006 – 0.0026 in.)
	Max.	0.067 mm (0.0026 in.)
1st gear thrust clearance	STD	0.10 – 0.47 mm (0.0039 – 0.0185 in.)
	Max.	0.47 mm (0.0185 in.)
1st gear gear radial clearance	STD	0.015 – 0.068 mm (0.0006 – 0.0027 in.)
	Max.	0.068 mm (0.0027 in.)
Reverse gear inside diameter	STD	54.015 – 54.040 mm (2.1266 – 2.1276 in.)
	Max.	54.040 mm (2.1276 in.)
1st gear inside diameter	STD	51.515 – 51.540 mm (2.0281 – 2.0291 in.)
	Max.	51.540 mm (2.0291 in.)
Reverse idler gear inside diameter	STD	35.015 – 35.036 mm (1.3785 – 1.3793 in.)
	Max.	35.036 mm (1.3793 in.)
Reverse idler gear shaft outside diameter	STD	27.987 – 28.000 mm (1.1018 – 1.1.23 in.)
	Min.	27.987 mm (1.1018 in.)
Reverse idler gear thrust clearance	STD	0.10 – 0.55 mm (0.0039 – 0.0217 in.)
	Max.	0.55 mm (0.0217 in.)
Reverse idler gear radial clearance	STD	0.015 – 0.059 mm (0.0006 – 0.0023 in.)
	Max.	0.059 mm (0.0023 in.)
Synchronizer ring No. 1 clearance	STD	1.15 – 2.05 mm (0.0452 – 0.0807 in.)
	Min.	1.15 mm (0.0452 in.)
Gear shift fork claw thickness	STD	11.75 – 11.85 mm (0.4625 – 0.4665 in.)
	Min.	11.75 mm (0.4625 in.)
Transmission hub sleeve clearance	STD	12.0 – 12.1 mm (0.4724 – 0.4763 in.)
	Max.	12.1 mm (0.4763 in.)
Output shaft center bearing shaft snap ring thickness	Mark A	2.40 – 2.45 mm (0.0945 – 0.0965 in.)
	Mark B	2.45 – 2.50 mm (0.0965 – 0.0984 in.)
	Mark C	2.50 – 2.55 mm (0.0984 – 0.1004 in.)
	Mark D	2.55 – 2.60 mm (0.1004 – 0.1024 in.)
	Mark E	2.60 – 2.65 mm (0.1024 – 0.1044 in.)
	Mark F	2.65 – 2.70 mm (0.1044 – 0.1063 in.)
	Mark G	2.70 – 2.75 mm (0.1063 – 0.1083 in.)
	Mark H	2.75 – 2.80 mm (0.1083 – 0.1102 in.)
Counter gear snap ring thickness	Mark A	2.40 – 2.45 mm (0.0945 – 0.0965 in.)
	Mark B	2.45 – 2.50 mm (0.0965 – 0.0984 in.)
	Mark C	2.50 – 2.55 mm (0.0984 – 0.1004 in.)
	Mark D	2.55 – 2.60 mm (0.1004 – 0.1024 in.)
	Mark E	2.60 – 2.65 mm (0.1024 – 0.1043 in.)
	Mark F	2.65 – 2.70 mm (0.1043 – 0.1063 in.)
	Mark G	2.70 – 2.75 mm (0.1063 – 0.1083 in.)
Oil seal tap in depth		
Output shaft rear bearing retainer		0 – 0.5 mm (0 – 0.020 in.)
Transmission front bearing retainer		15.4 – 16.2 mm (0.606 – 0.638 in.)
Shift lever shaft		–0.2 – 0.6 mm (–0.008 – 0.024 in.)
Shift lever No. 2 shaft		0 – 1.0 mm (0 – 0.039 in.)
5th gear synchronizer ring clearance	STD	0.80 – 1.60 mm (0.0315 – 0.0630 in.)
	Min.	0.80 mm (0.0315 in.)

Input shaft snap ring thickness	Mark A	2.50 – 2.55 mm (0.0984 – 0.1004 in.)
	Mark B	2.55 – 2.60 mm (0.1004 – 0.1024 in.)
	Mark C	2.60 – 2.65 mm (0.1024 – 0.1044 in.)
	Mark D	2.65 – 2.70 mm (0.1044 – 0.1063 in.)
	Mark E	2.70 – 2.75 mm (0.1063 – 0.1083 in.)
	Mark F	2.75 – 2.80 mm (0.1083 – 0.1102 in.)
Gear thrust clearance		
2nd	STD	0.10 – 0.55 mm (0.0039 – 0.0217 in.)
3rd and 5th	STD	0.10 – 0.35 mm (0.0039 – 0.0138 in.)
Gear radial clearance		
3rd	STD	0.015 – 0.068 mm (0.0006 – 0.0027 in.)
2nd and 5th	STD	0.020 – 0.073 mm (0.0008 – 0.0029 in.)
Output shaft gear journal diameter		
1st gear	Min.	44.484 mm (1.7513 in.)
2nd gear	Min.	49.979 mm (1.9677 in.)
3rd gear	Min.	57.984 mm (2.2828 in.)
5th gear	Min.	37.979 mm (1.4952 in.)
Synchronizer ring No. 2 clearance	STD	1.25 – 2.15 mm (0.0492 – 0.0846 in.)
Synchronizer ring No. 3 clearance	STD	1.23 – 2.13 mm (0.0484 – 0.0839 in.)
2nd gear inside diameter	STD	57.015 – 57.040 mm (2.2447 – 2.2457 in.)
	Max.	57.040 mm (2.2457 in.)
3rd gear inside diameter	STD	65.015 – 65.040 mm (2.5596 – 2.5606 in.)
	Max.	65.040 mm (2.5606 in.)
5th gear inside diameter	STD	44.015 – 44.040 mm (1.7329 – 1.7339 in.)
	Max.	44.040 mm (1.7339 in.)
Output shaft snap ring thickness for clutch hub No. 2	Mark 4	1.90 – 1.95 mm (0.0748 – 0.0768 in.)
	Mark 5	1.95 – 2.00 mm (0.0768 – 0.0787 in.)
	Mark 6	2.00 – 2.05 mm (0.0787 – 0.0807 in.)
	Mark 7	2.05 – 2.10 mm (0.0807 – 0.0827 in.)
	Mark 8	2.10 – 2.15 mm (0.0827 – 0.0847 in.)
	Mark 9	2.15 – 2.20 mm (0.0847 – 0.0866 in.)
Output shaft snap ring thickness for clutch hub No. 1	Mark A	2.90 – 2.95 mm (0.1142 – 0.1161 in.)
	Mark B	2.95 – 3.00 mm (0.1161 – 0.1181 in.)
	Mark C	3.00 – 3.05 mm (0.1181 – 0.1201 in.)
	Mark D	3.05 – 3.10 mm (0.1201 – 0.1220 in.)
	Mark E	3.10 – 3.15 mm (0.1220 – 0.1240 in.)
	Mark F	3.15 – 3.20 mm (0.1240 – 0.1260 in.)
Output shaft snap ring thickness	Mark A	2.40 – 2.45 mm (0.0945 – 0.0965 in.)
	Mark B	2.45 – 2.50 mm (0.0965 – 0.0984 in.)
	Mark C	2.50 – 2.55 mm (0.0984 – 0.1004 in.)
	Mark D	2.55 – 2.60 mm (0.1004 – 0.1024 in.)
	Mark E	2.60 – 2.65 mm (0.1024 – 0.1044 in.)
	Mark F	2.65 – 2.70 mm (0.1044 – 0.1063 in.)
	Mark G	2.70 – 2.75 mm (0.1063 – 0.1083 in.)
	Mark H	2.75 – 2.80 mm (0.1083 – 0.1102 in.)
Counter gear roller bearing journal diameter	STD	35.957 – 35.970 mm (1.4156 – 1.4161 in.)
	Min.	35.957 mm (1.4156 in.)
Counter gear front bearing snap ring thickness	Mark A	2.45 – 2.50 mm (0.0970 – 0.0984 in.)
	Mark B	2.50 – 2.55 mm (0.0984 – 0.1004 in.)
	Mark C	2.55 – 2.60 mm (0.1004 – 0.1024 in.)
	Mark D	2.60 – 2.65 mm (0.1024 – 0.1044 in.)
	Mark E	2.65 – 2.70 mm (0.1044 – 0.1063 in.)
	Mark F	2.70 – 2.75 mm (0.1063 – 0.1083 in.)
Shift lever shaft plug tap in depth		1.7 – 2.5 mm (0.067 – 0.098 in.)

030OP–01

TORQUE SPECIFICATION

Part Tightened	N·m	kgf·cm	ft·lbf
Bearing retainer CTR x Intermediate plate	18	185	13
No. 2 shift fork x No. 3 shift fork shaft	36	370	27
No. 1 front shift fork x No. 2 shift fork shaft	36	370	27
No. 1 rear shift fork x No. 1 shift fork shaft	34	350	25
Inter lock hole plug	18.6	190	14
Case receiver x Transmission	18	185	13
Rear case oil strainer sub–assy x Transmission case RR	11.7	120	9
Oil receiver pipe No. 1 x Transmission case RR	11.7	120	9
Transmission oil filter plate x Transmission case (Front)	12	122	8.9
Transmission case RR x Transmission case (Front)	37	380	27
Oil pump cover x Rear bearing retainer	3.9	40	35 in.·lbf
Plug x Rear bearing retainer	19	190	14
Rear bearing retainer x Transmission case RR	37	380	27
Front bearing retainer x Transmission case (Front)	17	170	12
Power take–off cover x Transmission case (Front)	14	145	10
Shift lever shaft housing x Transmission case (Front)	17	170	12
Clutch housing x Transmission	37	380	27
Speedometer driven gear x Rear bearing retainer	11	115	8
Exhaust brake neutral switch assy x Shift lever shaft housing	39	400	29
Shift position switch x Shift lever shaft housing	39	400	29
Back–up light switch x Transmission case (Front)	44	450	33
Clutch release fork support x Transmission case (Front)	39	400	29
Filler, Drain plug x Transmission	37	380	27
Shift outer lever set nut	20	204	15
Select outer lever set nut	7.8	80	69 in.·lbf

MANUAL TRANSMISSION/TRANSAXLE

MANUAL TRANSMISSION SYSTEM

4106T–01

PROBLEM SYMPTOMS TABLE

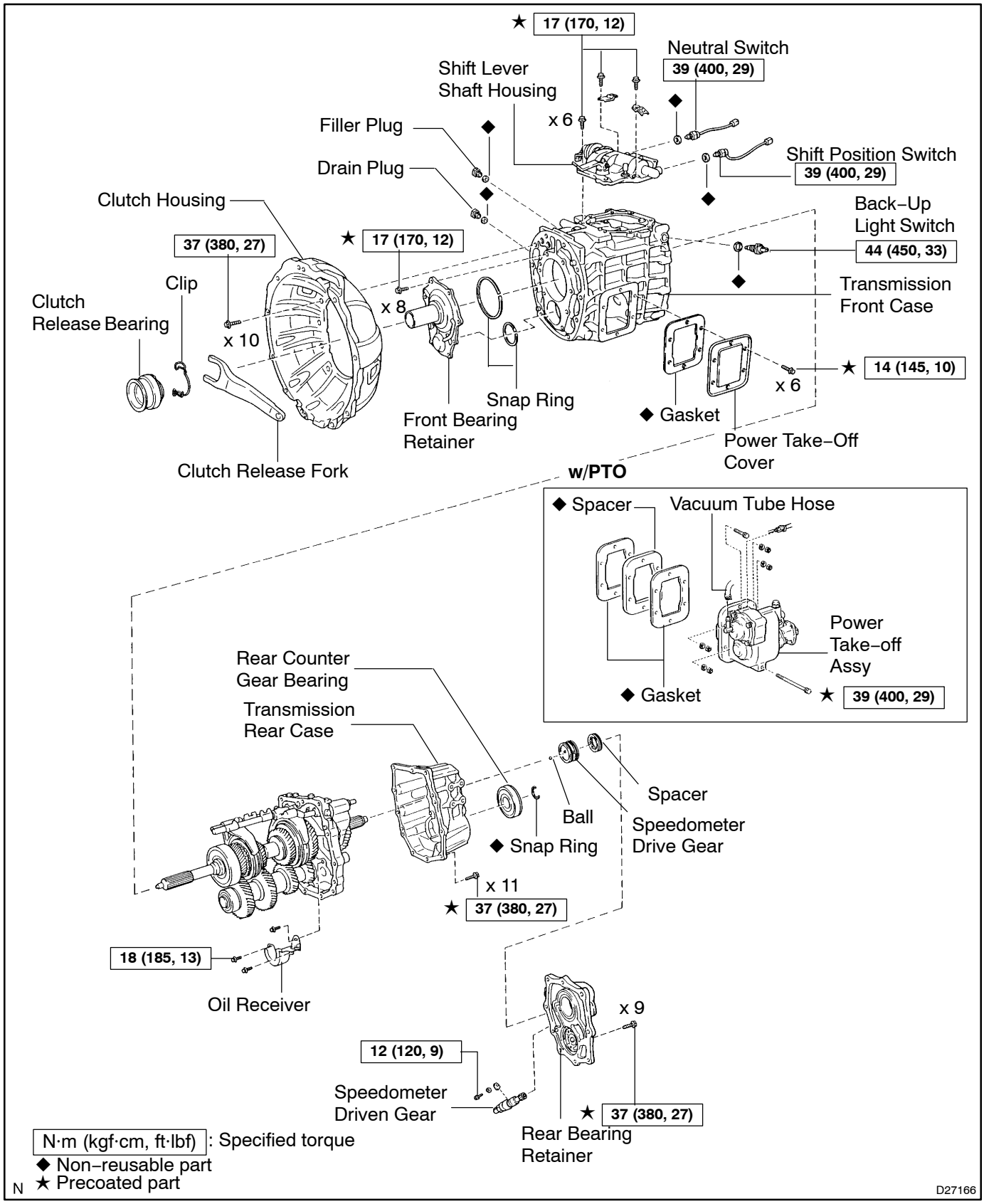
Use the table below to help you find the cause of the problem. The numbers indicate the priority of the likely cause of the problem. Check each part in order. If necessary, replace these parts.

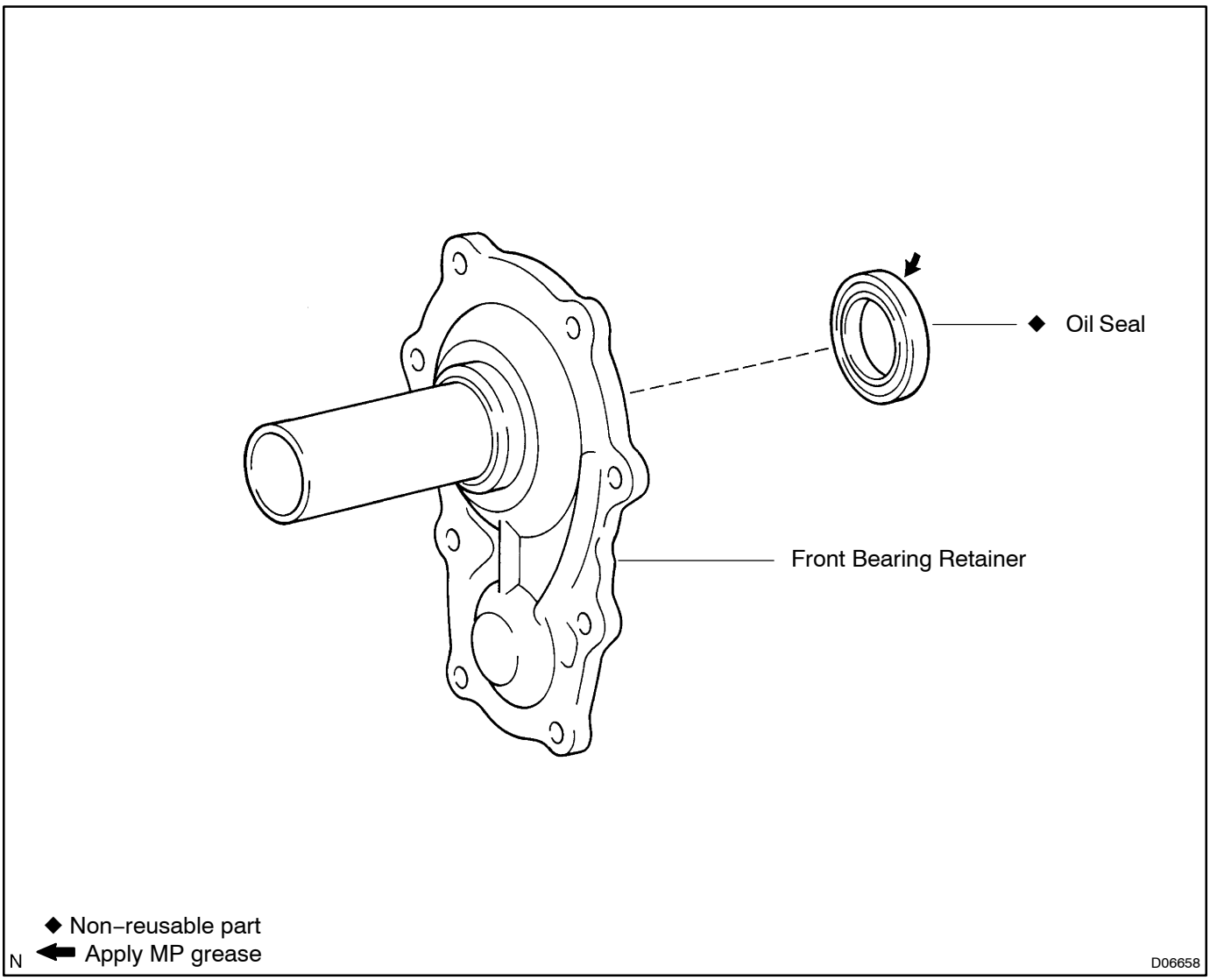
Symptom	Suspect Area	See page
Noise	1. Oil (Level low)	★
	2. Oil (Wrong)	★
	3. Gear (Worn or damaged)	41–6 41–39 41–43 41–55
	4. Bearing (Worn or damaged)	41–6 41–39 41–43 41–55
Oil leakage	1. Oil (Level too high)	★
	2. Gasket (Damaged)	41–6
	3. Oil seal (Worn or damaged)	41–6
	4. O–Ring (Worn or damaged)	★
Hard to shift or will not shift	1. Synchronizer ring (Worn or damaged)	41–6
	2. Shift key spring (Damaged)	41–6
Jumps out of gear	1. Locking ball spring (Damaged)	41–6
	2. Shift fork (Worn)	41–6 41–39 41–43
	3. Gear (Worn or damaged)	41–6 41–39 41–43 41–55
	4. Bearing (Worn or damaged)	41–6 41–39 41–43 41–55

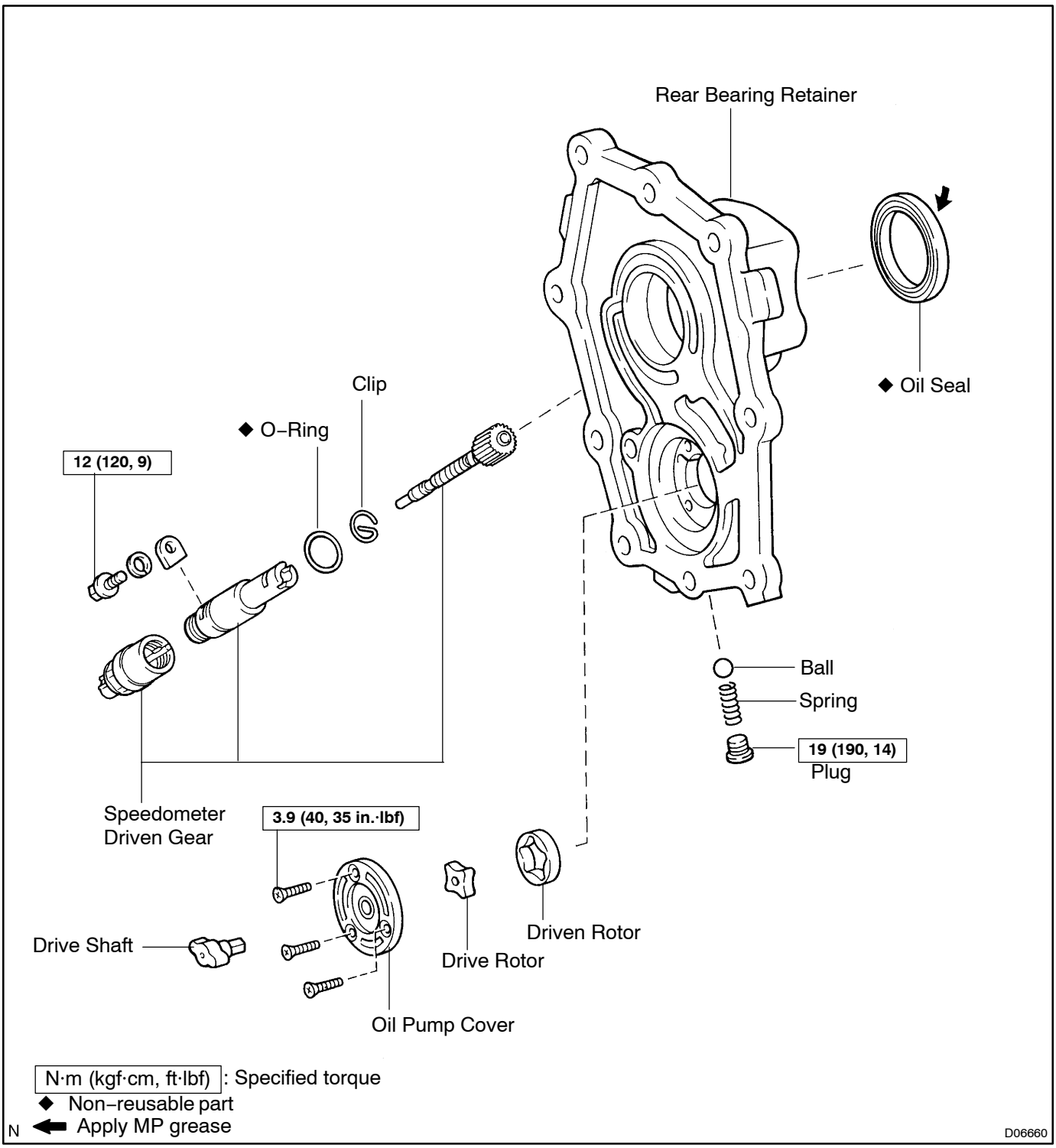
MANUAL TRANSMISSION ASSY

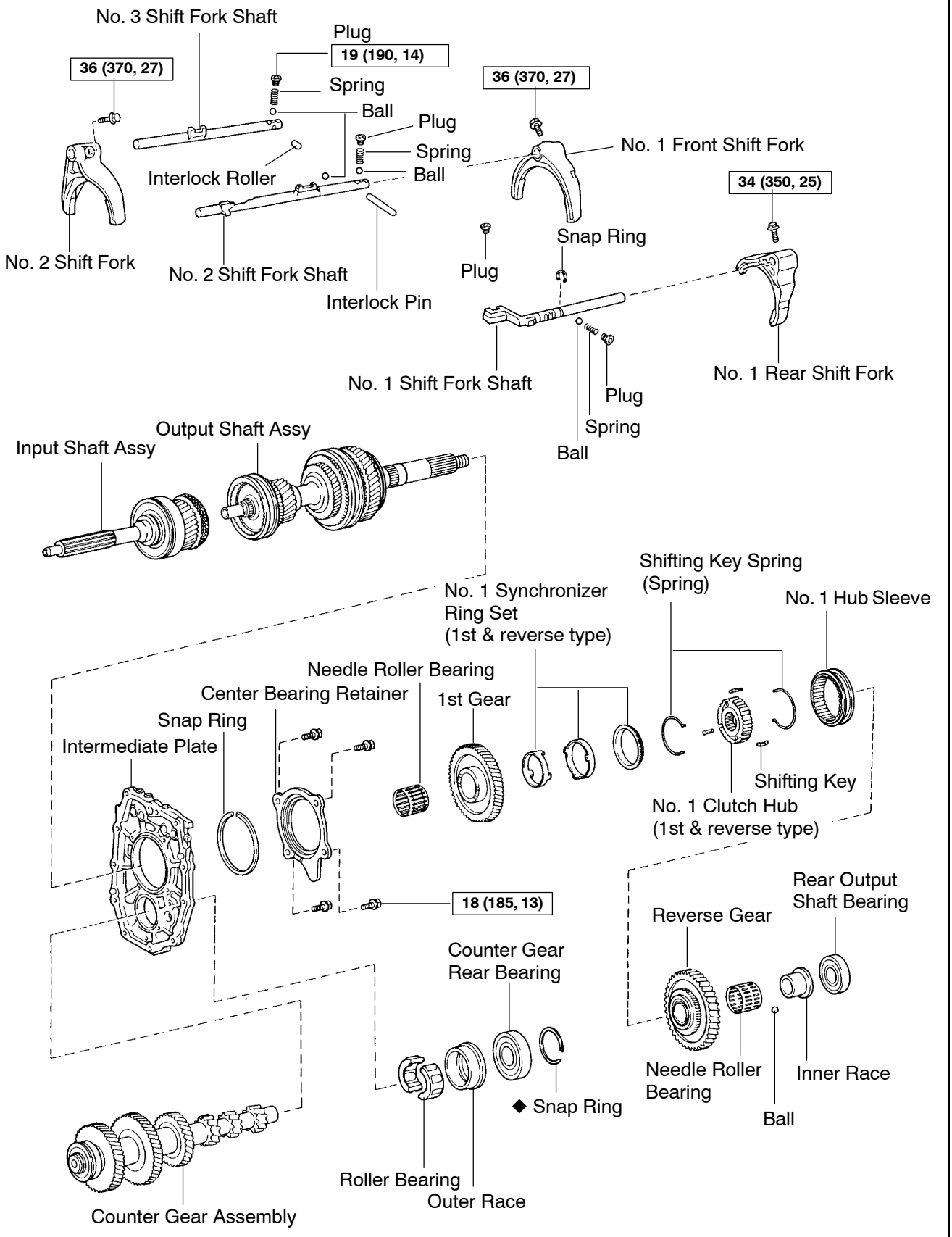
COMPONENTS

4106U–01




◆ Oil Seal
Front Bearing Retainer
◆ Non–reusable part
N Apply MP grease
D06658


Rear Bearing Retainer
◆ Oil Seal
Clip
◆ O–Ring
12 (120, 9)
Ball
Spring
19 (190, 14)
Plug
Speedometer
Driven Gear
3.9 (40, 35 in.·lbf)
Drive Shaft
Drive Rotor
Driven Rotor
Oil Pump Cover
N·m (kgf·cm, ft·lbf) : Specified torque
◆ Non–reusable part
N Apply MP grease
D06660



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

N ◆Non–reusable part

D07293

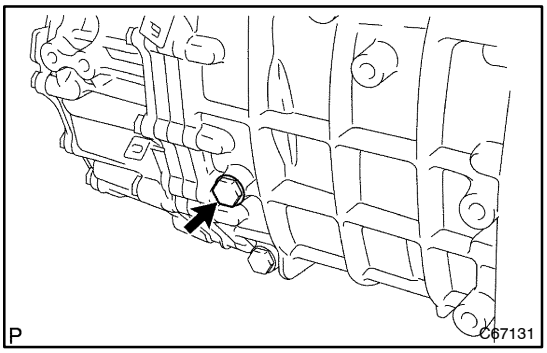
4106V–01

OVERHAUL

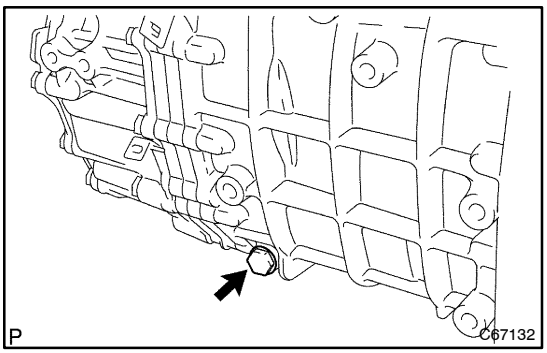
NOTICE:

When working with FIPG (seal packing) material, you must observe the following items.

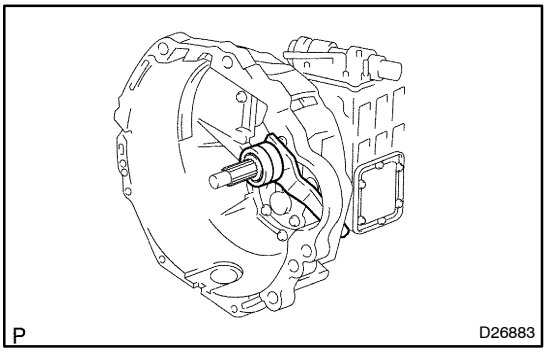
- **Using a razor blade and gasket scraper, remove all the old FIPG material from the gasket surfaces.**
- **Thoroughly clean all components to remove all the loose material.**
- **Clean both sealing surfaces with a non–residue solvent.**
- **Apply FIPG in an approx. 1.2 mm (0.05 in.) wide bead along the sealing surface.**
- **Parts must be assembled within 10 minutes of application. Otherwise, the FIPG material must be removed and reapplied.**



1. REMOVE FILLER PLUG

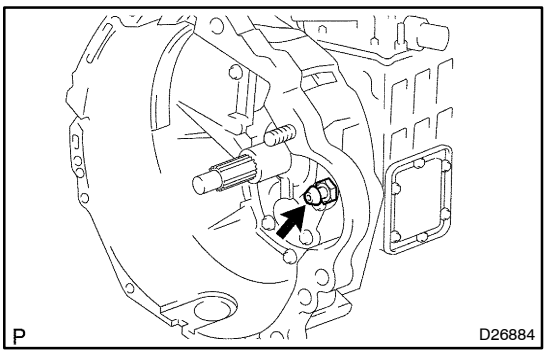


2. REMOVE DRAIN PLUG



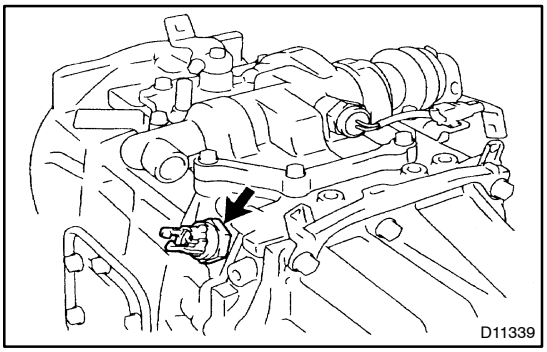
3. REMOVE CLUTCH RELEASE FORK SUB–ASSY

4. REMOVE CLUTCH RELEASE BEARING ASSY



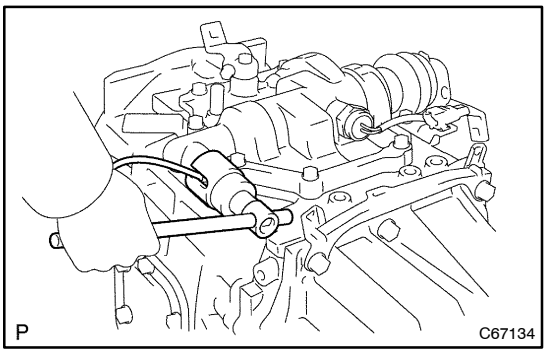
5. REMOVE RELEASE FORK SUPPORT

6. REMOVE CLUTCH RELEASE FORK BOOT



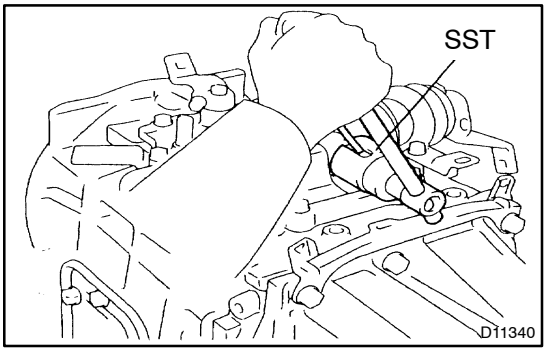
7. REMOVE BACK UP LAMP SWITCH ASSY

(a) Remove the back up lamp switch assy and gasket.



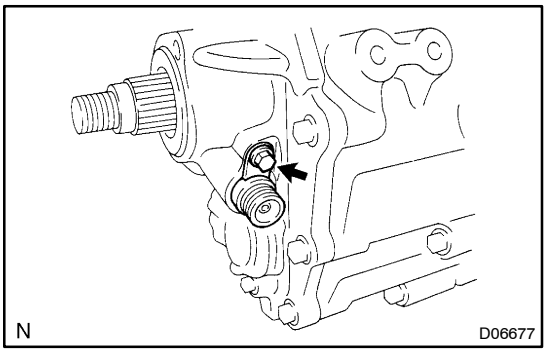
8. REMOVE SHIFT POSITION SWITCH

(a) Using SST, remove the shift position switch and gasket.
SST 09817–16011



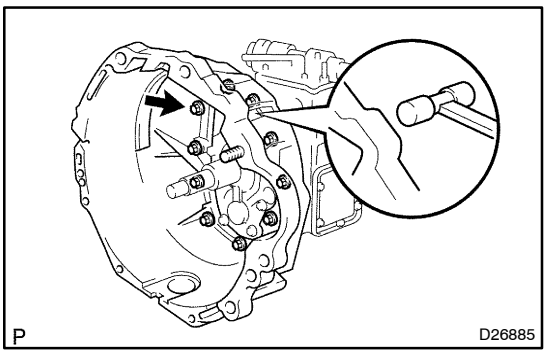
9. REMOVE EXHAUST BRAKE NEUTRAL SWITCH ASSY

(a) Using SST, remove the neutral switch and gasket.
SST 09817–16011



10. REMOVE SPEEDOMETER DRIVEN (MTM) GEAR SUB–ASSY

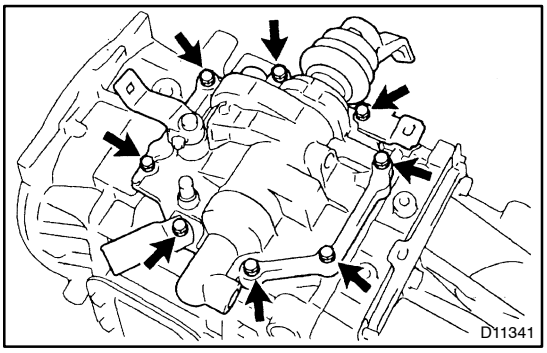
(a) Remove the bolt, lock plate driven gear sub–assy and O–ring.



11. REMOVE CLUTCH HOUSING

(a) Remove the 10 bolts.

(b) Using a plastic hammer, tap out the clutch housing.



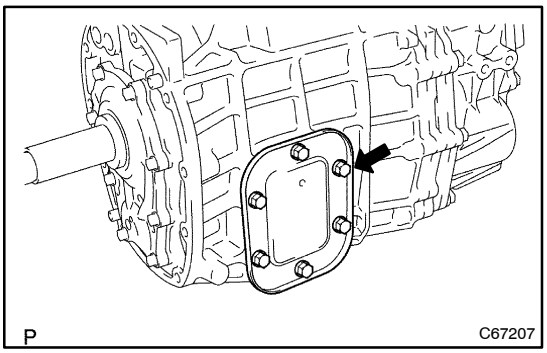
12. REMOVE SHIFT LEVER SHAFT HOUSING ASSY

HINT:

The lever must be removed after shifting it in the neutral position.

(a) Remove the 8 bolts and 2 clamps.

(b) Using a plastic hammer, carefully tap out the shift lever shaft housing.

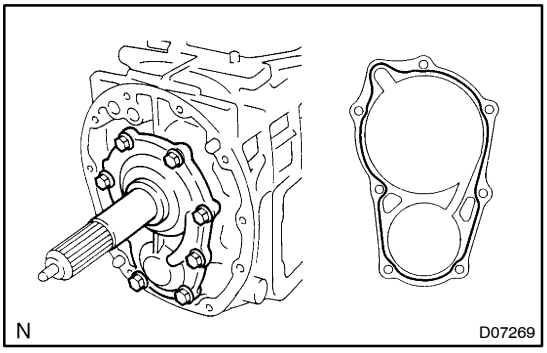


13. REMOVE MANUAL TRANSMISSION POWER TAKE–OFF COVER (W/O POWER TAKE OFF)

(a) Remove the 6 bolts, cover and gasket.

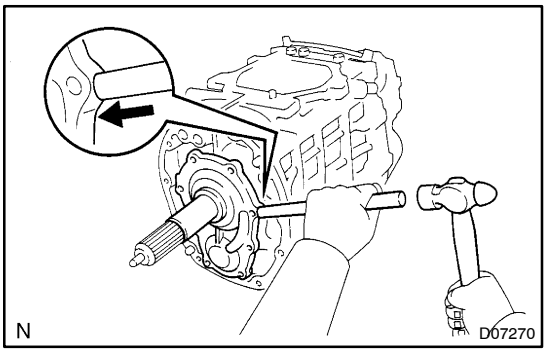
14. REMOVE POWER TAKE–OFF ASSY (W/ POWER TAKE OFF)

(See pub. No. RM931E on page 87 – 2)

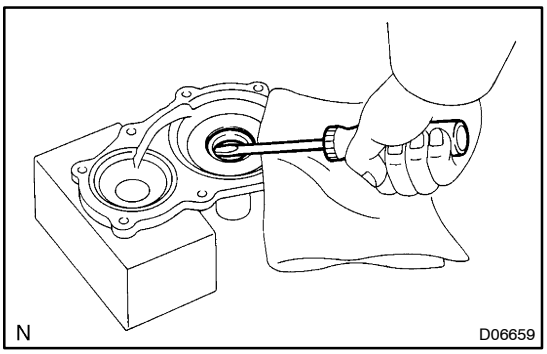


15. REMOVE BEARING RETAINER FRONT (MTM)

(a) Remove the 8 bolts.



(b) Using a brass bar and hammer, carefully tap out the front bearing retainer.

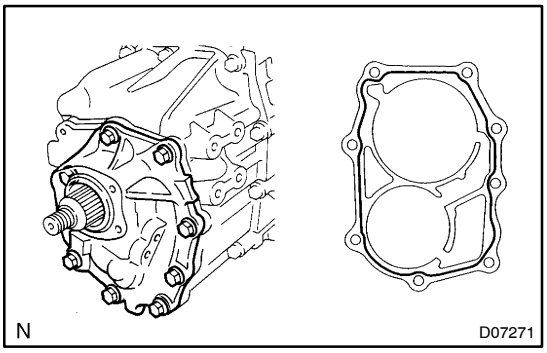


16. REMOVE TRANSMISSION FRONT BEARING RETAINER OIL SEAL

(a) Using a screwdriver, pry out the oil seal.

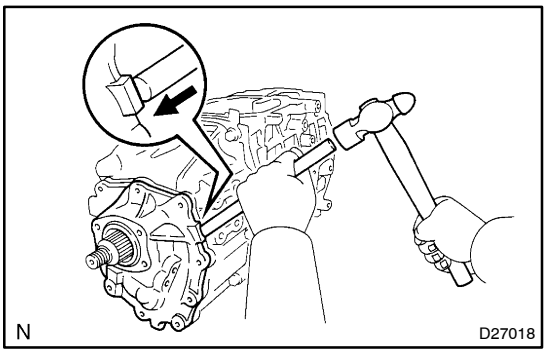
NOTICE:

Protect the bearing retainer with a shop rag to prevent damage.



17. REMOVE OUTPUT SHAFT REAR BEARING (MTM) RETAINER

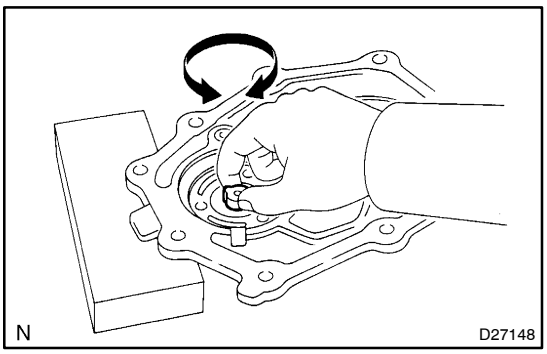
(a) Remove the 9 bolts.



(b) Using a brass bar and hammer, carefully tap out the bearing retainer.

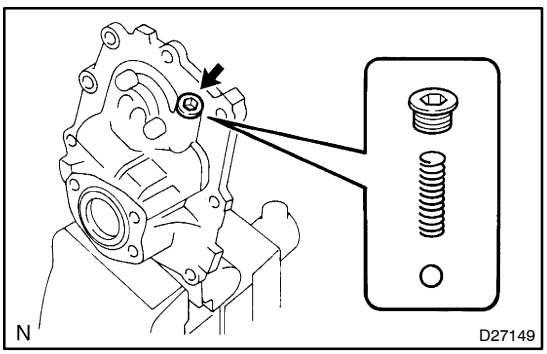
HINT:

Make the brass bar touched the lib portion of the case.



18. INSPECT OIL PUMP

(a) Rotate the oil pump drive shaft lightly and check that the drive rotor turns smoothly.



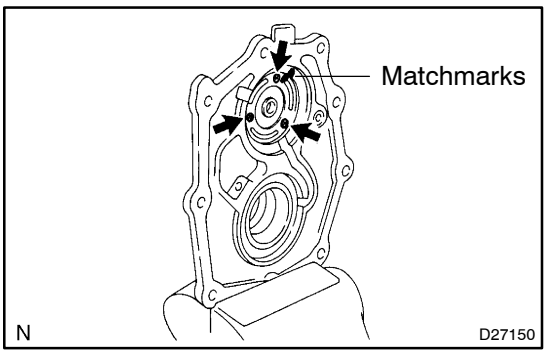
19. REMOVE OIL PUMP ASSY

(a) Remove the plug, compression spring and ball.

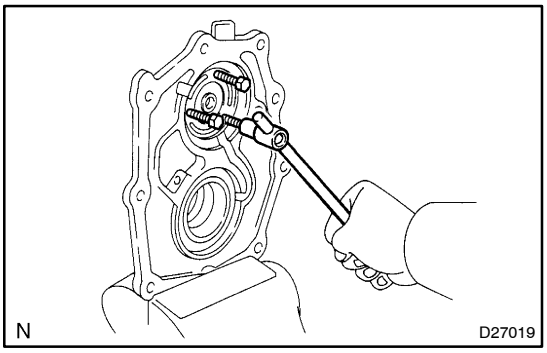
(1) Fix the rear bearing retainer onto a vise through the aluminum plate.

(2) Using a torx socket wrench (T40), remove the plug.

(3) Using a magnetic finger, remove the spring and ball.

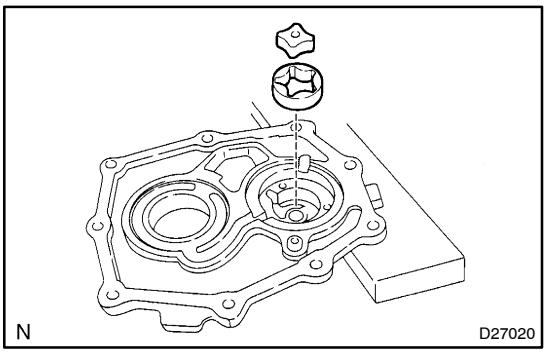


(b) Remove the oil pump cover.
(1) Remove the oil pump drive shaft.
(2) Place matchmarks on the oil pump cover and rear bearing retainer.
(3) Using a torx socket wrench (T30), remove the 3 screws.



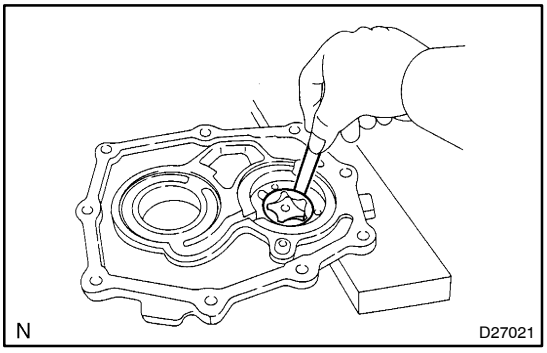
(4) Install 3 bolts (normal diameter 8 mm, pitch 1.25 mm, length under the neck 35 mm) on the oil pump cover and tighten them equally, and then remove the oil pump cover.

NOTICE:
Do not force in the bolts.



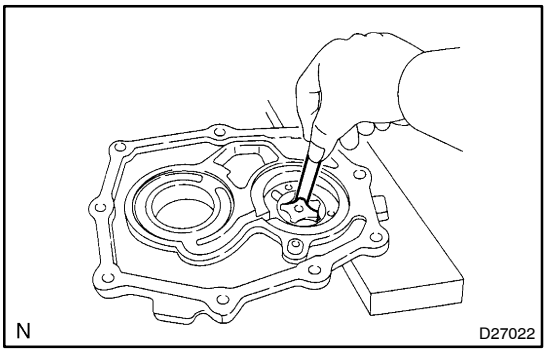
(c) Remove the drive and driven rotors.

HINT:
If the teeth section of the drive and driven rotors have scratches, replace them with the new ones.

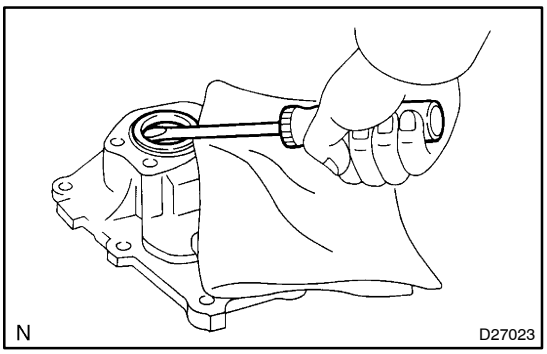


20. INSPECT ROTOR

(a) Inspect the driven rotor for body clearance.
Using a feeler gauge, measure the clearance between the driven rotor and body.
Standard body clearance:
0.02 – 0.17 mm (0.0008 – 0.0067 in.)
Maximum body clearance: 0.17 mm (0.0067 in.)



(b) Inspect the rotors for tip clearance.
Using a feeler gauge, measure the clearance between the drive rotor and driven rotor.
Standard tip clearance:
0.05 – 0.15 mm (0.0020 – 0.0059 in.)
Maximum tip clearance: 0.15 mm (0.0059 in.)

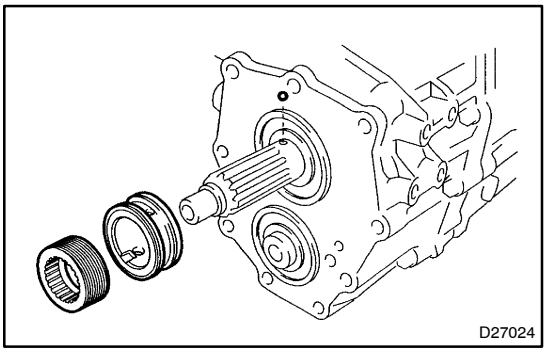


21. REMOVE TYPE T OIL SEAL

(a) Using a screwdriver, pry out the oil seal.

NOTICE:

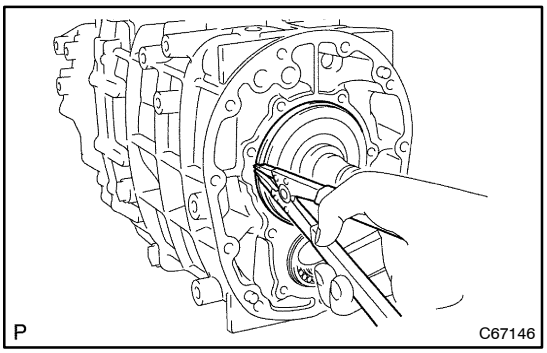
Protect the bearing retainer with a shop rag not to damage it.



22. REMOVE SPEEDOMETER DRIVE (MTM) GEAR

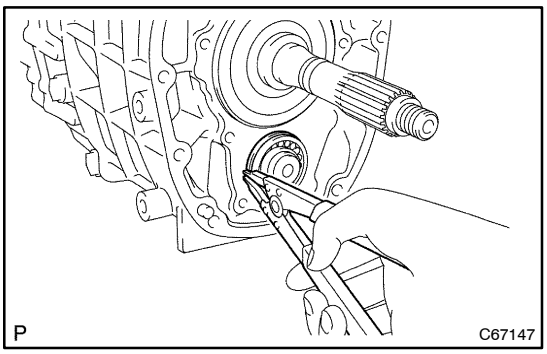
23. REMOVE SPEEDOMETER DRIVE GEAR SPACER

24. REMOVE SPEEDOMETER DRIVE GEAR (MTM) KEY OR BALL



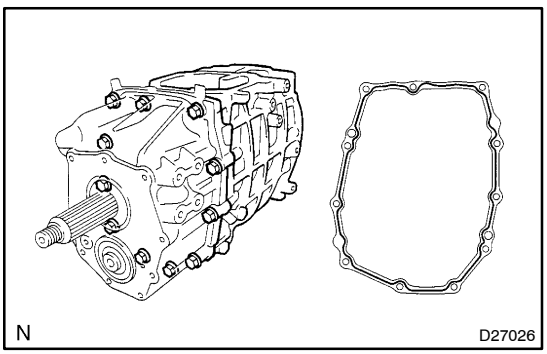
25. REMOVE FRONT BEARING SHAFT SNAP RING

(a) Using snap ring pliers (expander), remove the snap ring.



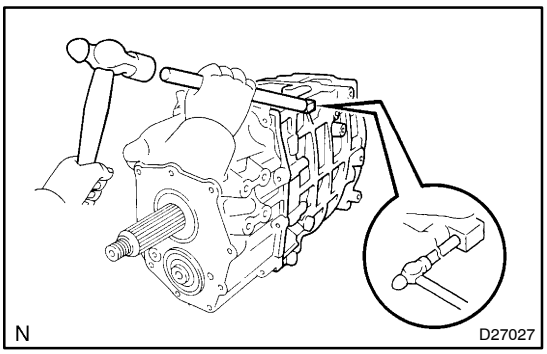
26. REMOVE COUNTER GEAR FRONT BEARING SNAP RING NO.2

(a) Using snap ring pliers (expander), remove the snap ring.



27. REMOVE MANUAL TRANSMISSION CASE

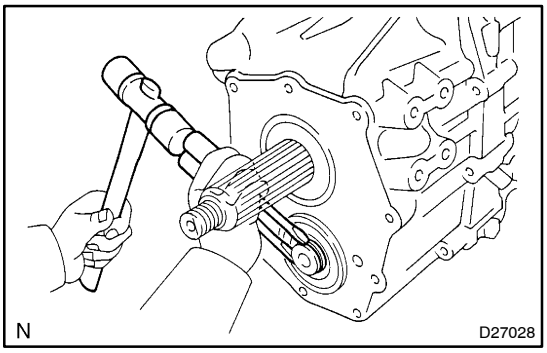
(a) Remove the 11 bolts and 2 clamps.



(b) Using a brass bar and hammer, carefully tap out the transmission case.

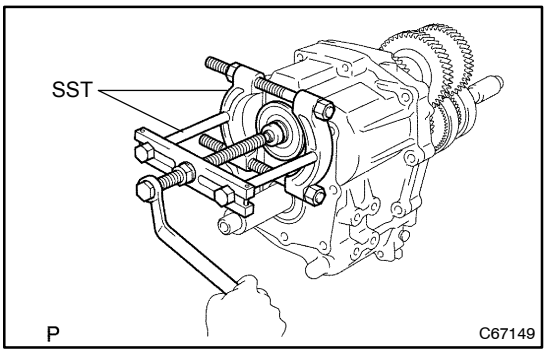
HINT:

Make the brass bar touched the lib portion of the case.



28. REMOVE SNAP RING COUNTER GEAR REAR BEARING

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



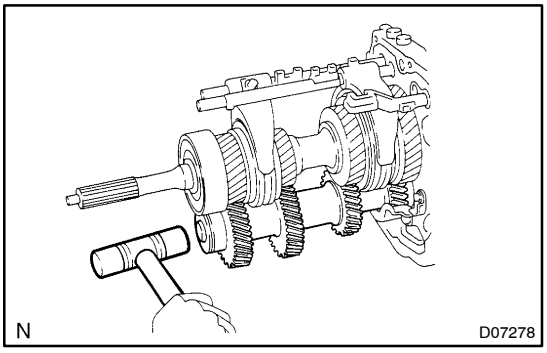
29. REMOVE COUNTER SHAFT REAR BEARING

(a) Using SST, remove the bearing.

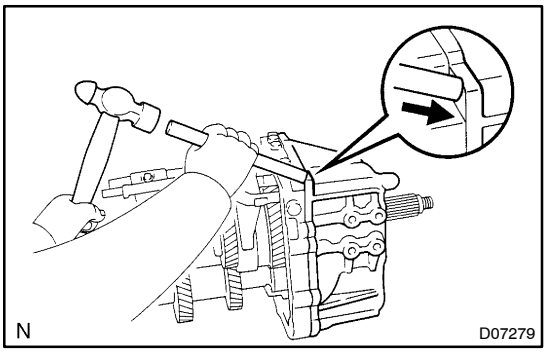
SST 09950–00020, 09950–00030, 09950–40011 (09957–04010), 09950–60010 (09951–00300)

HINT:

- Use it after applying the gear oil to the screw of SST center bolt and the attachment.



- Remove the bearing while tapping the tip of the counter gear with a plastic hammer to prevent the counter gear from being pushed to the front and attaching to the side of the gear.

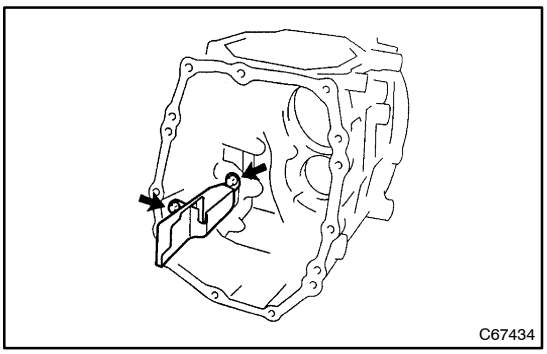


30. REMOVE TRANSMISSION CASE RR

(a) Using a brass bar and hammer, tap out the transmission case.

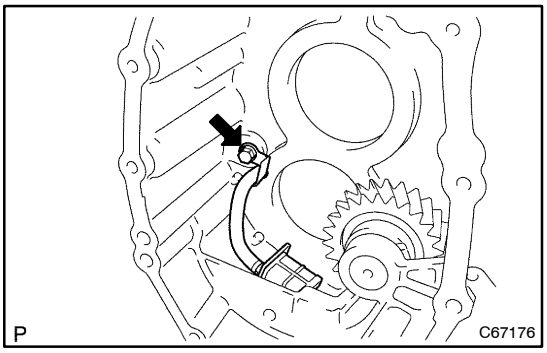
NOTICE:

Attach the brass bar to the rib of the case.



31. REMOVE OIL RECEIVER PIPE NO.1 (MTM)

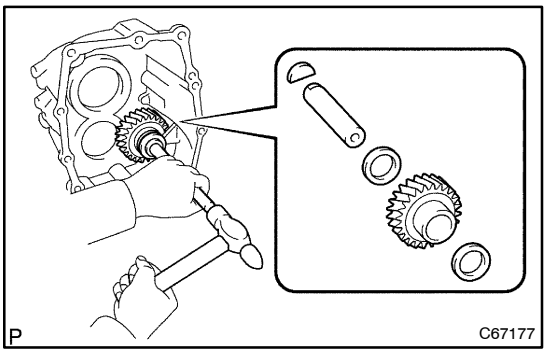
(a) Remove the 2 bolts and oil receiver pipe from the rear case.



32. REMOVE REAR CASE MANUAL TRANSMISSION OIL STRAINER SUB–ASSY

(a) Remove the bolt and oil strainer.

(b) Remove the O–ring from the oil strainer.

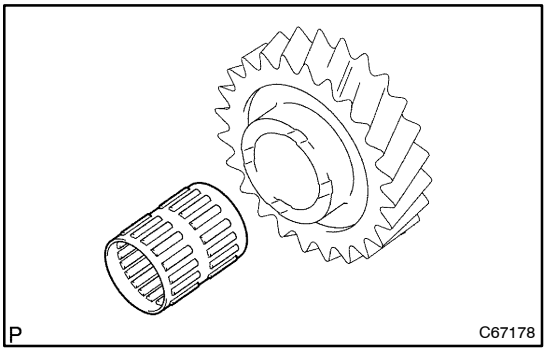


33. REMOVE REVERSE IDLER GEAR

(a) Remove the woodruff key from the reverse idler gear shaft.

(b) Using a brass bar and hammer, tap out the reverse idler gear shaft.

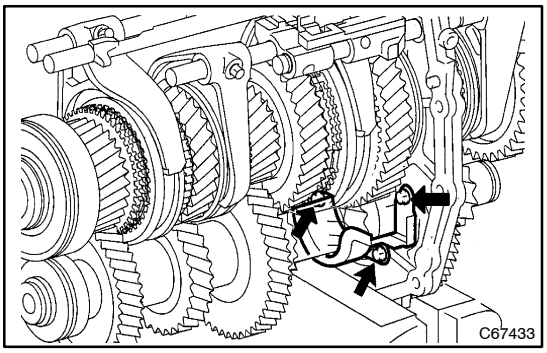
(c) Remove the reverse idler gear, 2 thrust washers.



34. REMOVE REVERSE IDLER GEAR BEARING

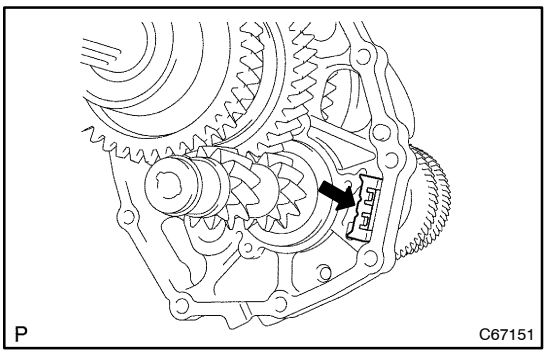
(a) Remove the reverse idler gear bearing from the reverse idler gear.

35. FIX TRANSMISSION INTERMEDIATE PLATE

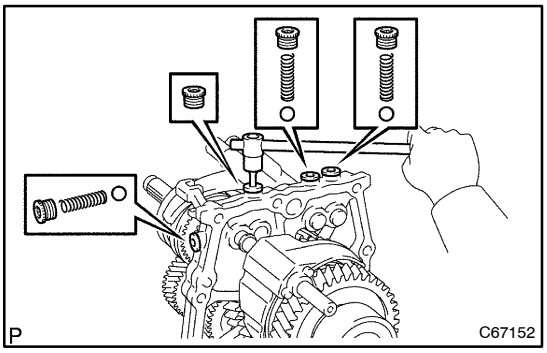


36. REMOVE MANUAL TRANSMISSION CASE RECEIVER

(a) Remove the 3 bolts and case receiver.



37. REMOVE TRANSMISSION MAGNET



38. REMOVE INTER LOCK HOLE PLUG

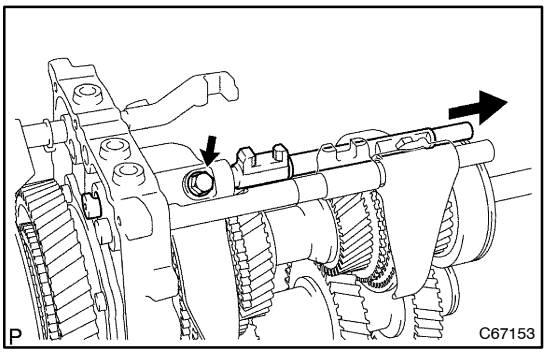
(a) Using a torx socket wrench (T40), remove the 4 plugs.

39. REMOVE SHIFT DETENT BALL LOW SIDE COMPRESSION SPRING

(a) Using a magnetic finger, remove the 3 springs.

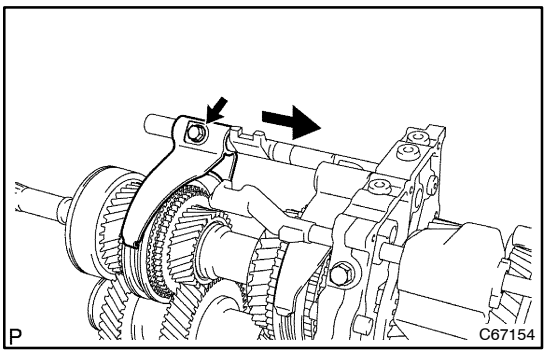
40. REMOVE SHIFT INTER LOCK BALL

(a) Using a magnetic finger, remove the 3 balls.



41. REMOVE GEAR SHIFT FORK SHAFT NO.2

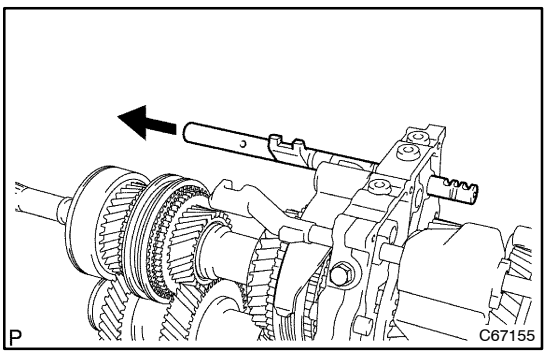
(a) Remove the bolt and gear shift fork shaft No. 2.



42. REMOVE GEAR SHIFT FORK NO.2

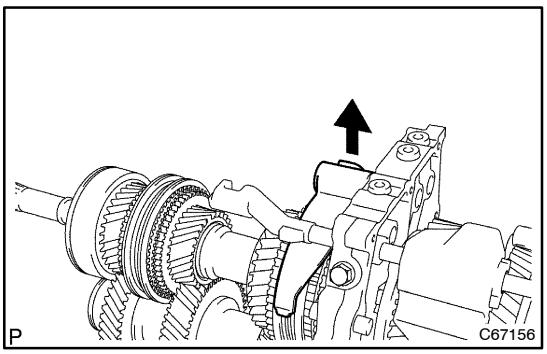
(a) Remove the bolt.

(b) Slide the gear shift fork shaft No. 3, and remove the gear shift fork No.2.



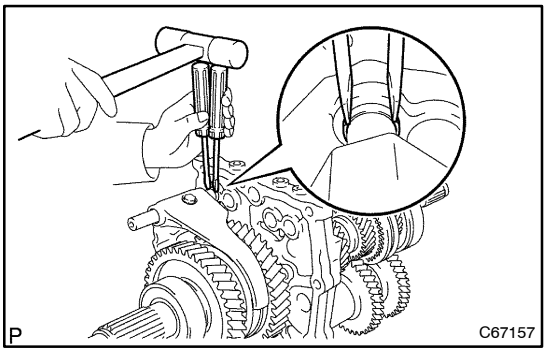
43. REMOVE GEAR SHIFT FORK SHAFT NO.3

(a) Remove the gear shift fork shaft No. 3 from the intermediate plate.



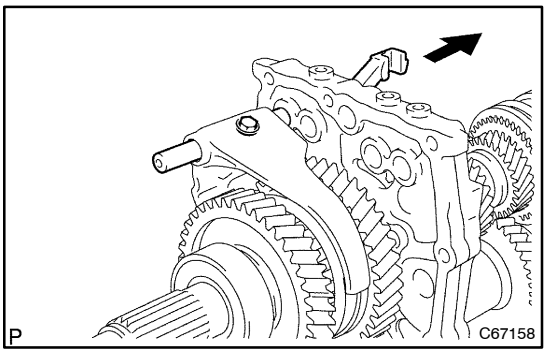
44. REMOVE GEAR SHIFT FORK NO.1 (FRONT)

(a) Remove the front gear shift fork.



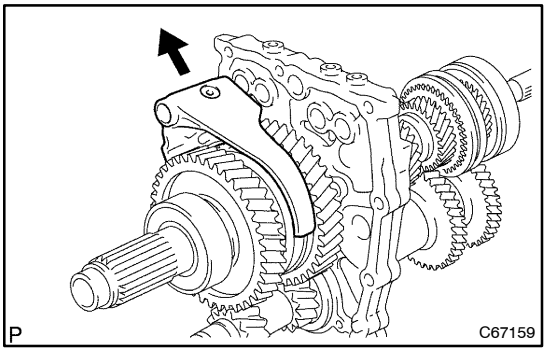
45. REMOVE 3RD & 4TH SHIFT FORK SHAFT SHAFT SNAP RING

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



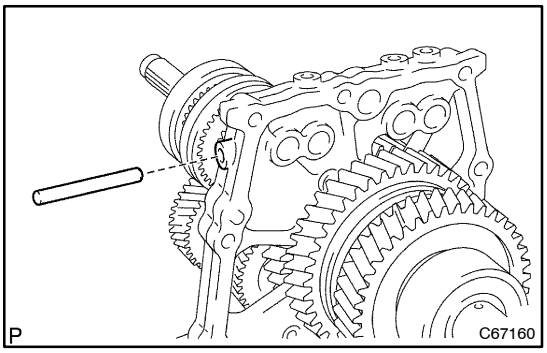
46. REMOVE GEAR SHIFT FORK SHAFT NO.1

(a) Remove the bolt and gear shift fork shaft No. 1.



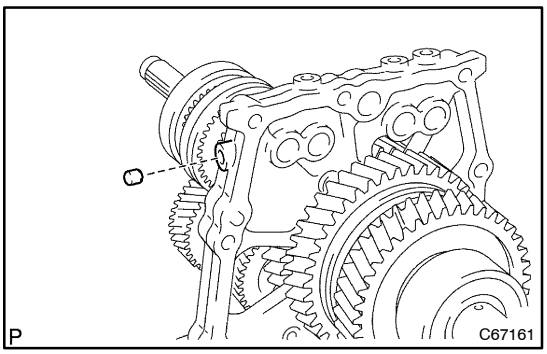
47. REMOVE GEAR SHIFT FORK NO.1 (REAR)

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



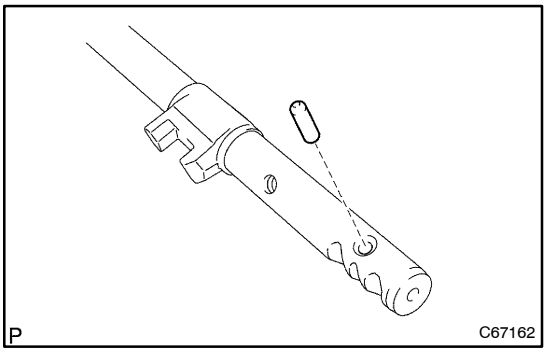
48. REMOVE SHIFT INTER LOCK PIN NO.2

(a) Using a magnetic finger, remove the inter lock pin No. 2 from the intermediate plate.



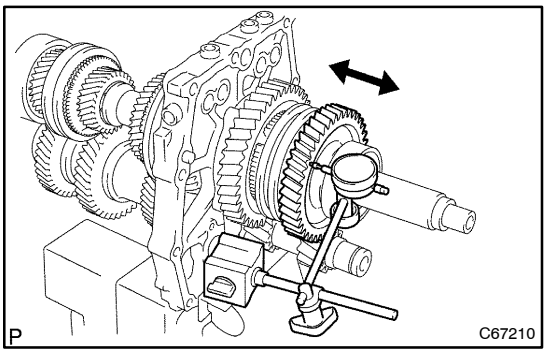
49. REMOVE SHIFT INTER LOCK NO.1 ROLLER

(a) Using a magnetic finger, remove the shift inter lock No. 1 roller from the intermediate plate.



50. REMOVE SHIFT INTER LOCK PIN

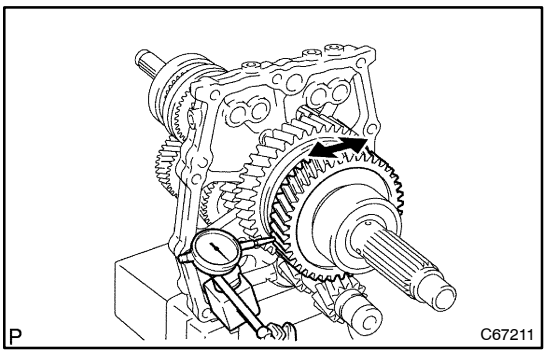
(a) Remove the shift inter lock pin from the shift fork shaft No. 2.



51. INSPECT REVERSE GEAR THRUST CLEARANCE

(a) Using a dial indicator, measure the thrust clearance.

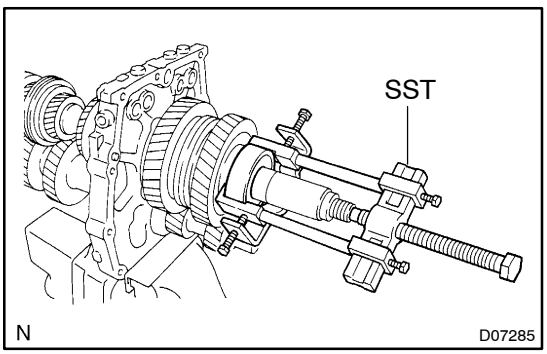
Standard thrust clearance:
0.10 – 0.25 mm (0.0039 – 0.0098 in.)
Maximum thrust clearance: 0.25 mm (0.0098 in.)



52. INSPECT REVERSE GEAR RADIAL CLEARANCE

(a) Using a dial indicator, measure the radial clearance.

Standard radial clearance:
0.015 – 0.067 mm (0.0006 – 0.0026 in.)
Maximum radial clearance: 0.067 mm (0.0026 in.)

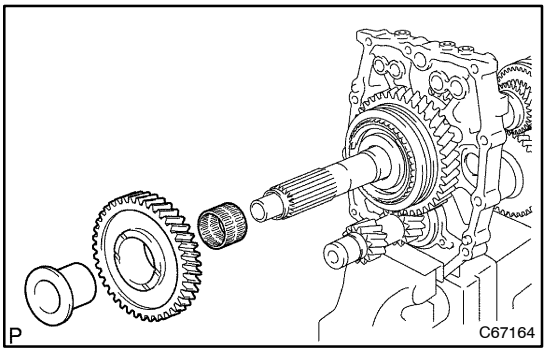


53. REMOVE OUTPUT SHAFT REAR BEARING

(a) Using SST, remove the bearing.

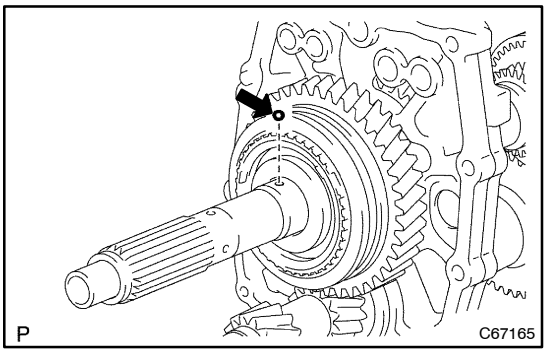
SST 09950–40011 (09951–04020, 09952–04010, 09953–04030, 09954–04020, 09955–04031, 09957–04010, 09958–04011), 09950–60010 (09951–00230)

HINT:
Use it after applying the gear oil to the screw of SST center bolt and the attachment.

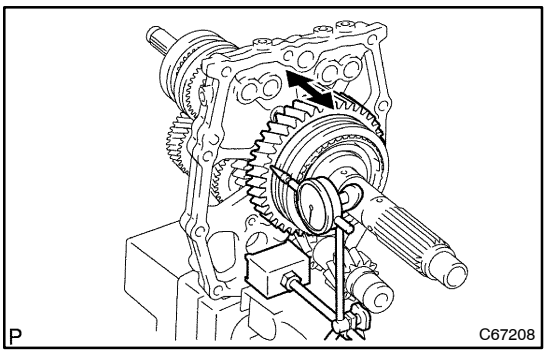


54. REMOVE REVERSE GEAR

(a) Remove the bearing inner race, reverse gear, and needle roller bearing.

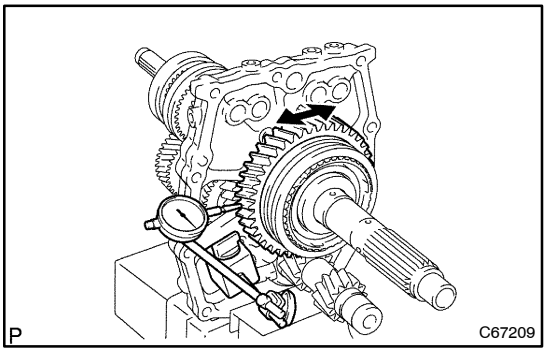


55. REMOVE SPEEDOMETER DRIVE GEAR (MTM) KEY OR BALL



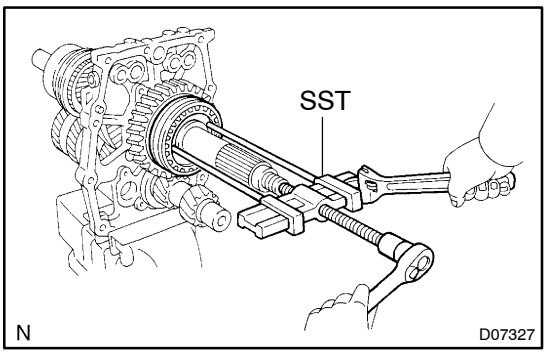
56. INSPECT 1ST GEAR THRUST CLEARANCE

(a) Using a dial indicator, measure the thrust clearance.
Standard thrust clearance:
0.10 – 0.47 mm (0.0039 – 0.0185 in.)
Maximum thrust clearance: 0.47 mm (0.0185 in.)



57. INSPECT 1ST GEAR RADIAL CLEARANCE

(a) Using a dial indicator, measure the radial clearance.
Standard radial clearance:
0.015 – 0.068 mm (0.0006 – 0.0027 in.)
Maximum radial clearance: 0.068 mm (0.0027 in.)

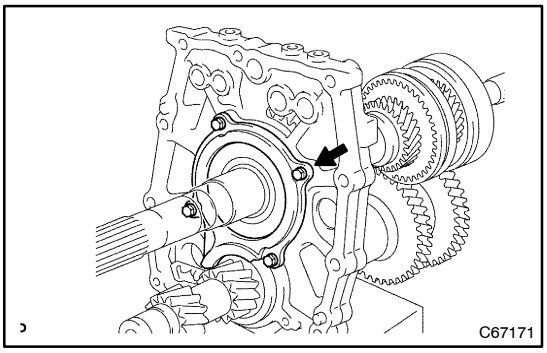


58. REMOVE TRANSMISSION CLUTCH HUB ASSY NO.1 AND 1ST GEAR

(a) Using SST, remove the hub sleeve No. 1 assy, synchronizer ring set No. 1 and 1st gear.

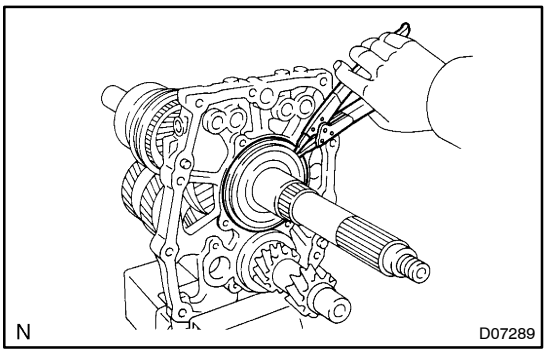
SST 09950–40011 (09957–04010), 09950–50013 (09951–05010, 09952–05010, 09953–05020, 09954–05040), 09950–60010 (09951–00230)

(b) Remove the needle roller bearing.



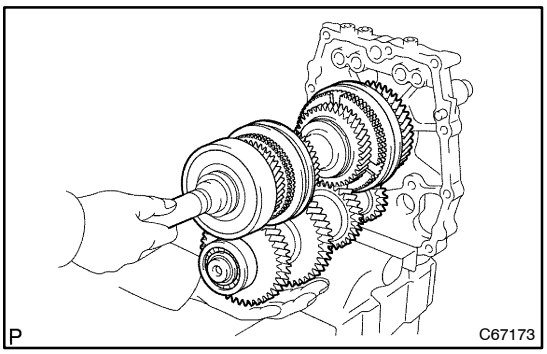
59. REMOVE BEARING RETAINER CTR

(a) Remove the 4 bolts and bearing retainer from the intermediate plate.



60. REMOVE OUTPUT SHAFT CENTER BEARING SHAFT SNAP RING

(a) Using snap ring pliers (expander), remove the snap ring.

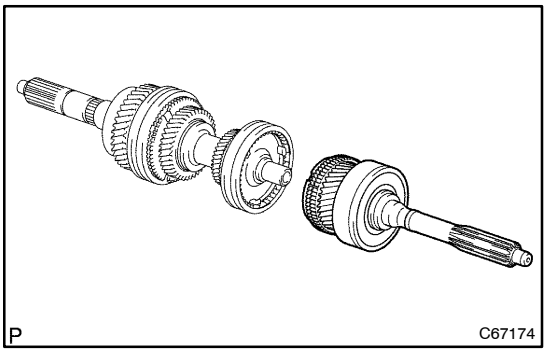


61. REMOVE OUTPUT SHAFT ASSY AND COUNTER GEAR ASSY

(a) Holding up the input shaft assy, output shaft assy and counter gear assy, and pull out.

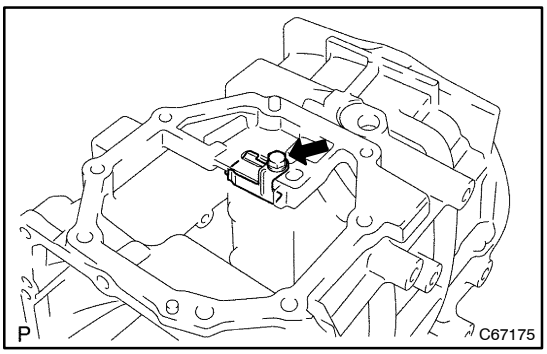
HINT:

For dust prevention, cover your arms with shop rags and the likes.



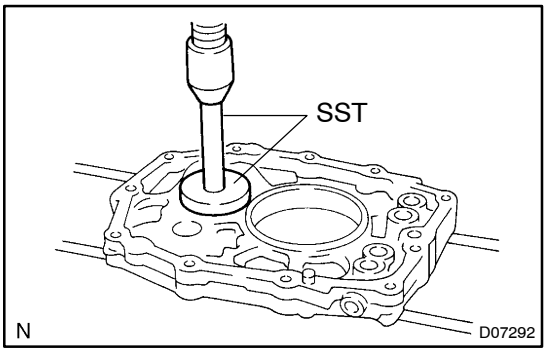
62. REMOVE INPUT SHAFT ASSY

(a) Remove the input shaft assy from the output shaft assy.



63. REMOVE TRANSMISSION OIL FILTER PLATE

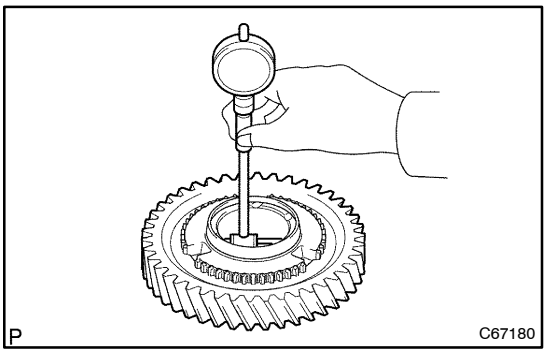
(a) Remove the bolt and oil filter plate from the transmission case.



64. REMOVE COUNTER GEAR CENTER BEARING OUTER RACE

(a) Using SST and a press, press out the outer race from the intermediate plate.

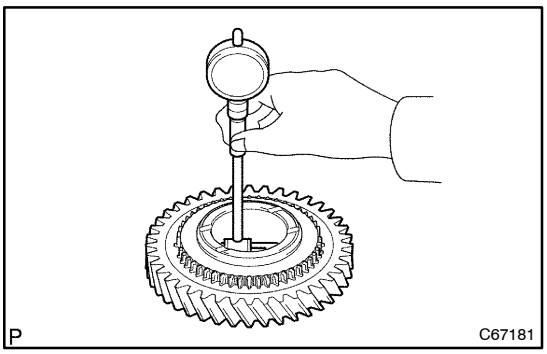
SST 09950–60020 (09951–00750), 09950–70010 (09951–07100)



65. INSPECT REVERSE GEAR

(a) Using a cylinder gauge, measure the inside diameter of the reverse gear.

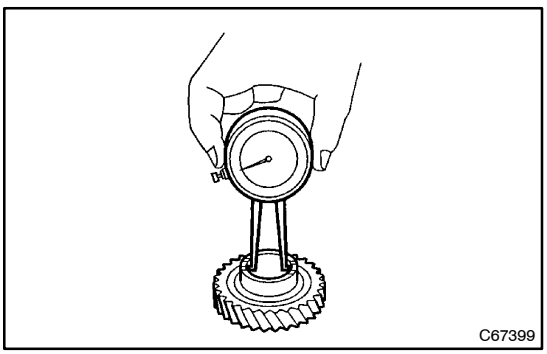
Standard inside diameter:
54.015 – 54.040 mm (2.1266 – 2.1276 in.)
Maximum inside diameter: 54.040 mm (2.1276 in.)



66. INSPECT 1ST GEAR

(a) Using a cylinder gauge, measure the inside diameter of the 1st gear.

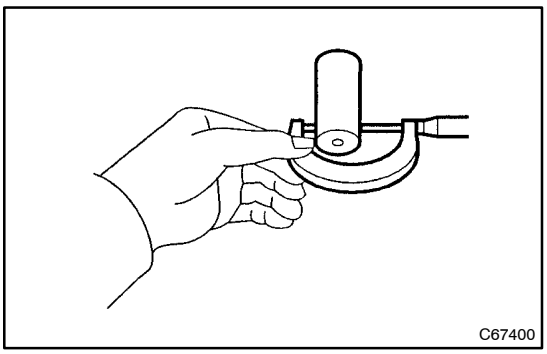
Standard inside diameter:
51.515 – 51.540 mm (2.0281 – 2.0291 in.)
Maximum inside diameter: 51.540 mm (2.0291 in.)



67. INSPECT REVERSE IDLER GEAR

(a) Using a caliper gauge, measure the inside diameter of the gear.

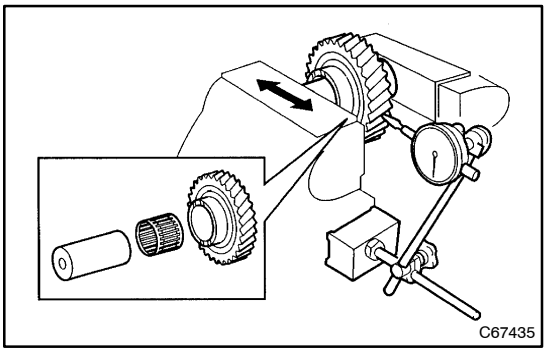
Standard inside diameter:
35.015 – 35.036 mm (1.3785 – 1.3793 in.)
Maximum inside diameter: 35.036 mm (1.3793 in.)



68. INSPECT REVERSE IDLER GEAR SHAFT

(a) Using a micrometer, measure the outside diameter of the shaft.

Standard outside diameter:
27.987 – 28.000 mm (1.1018 – 1.1023 in.)
Minimum outside diameter: 27.987 mm (1.1018 in.)

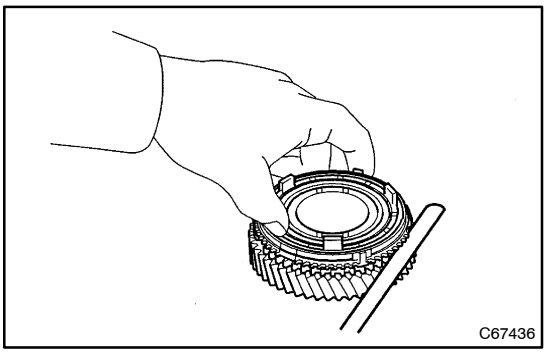


69. INSPECT REVERSE IDLER GEAR RADIAL CLEARANCE

(a) Install the reverse idler gear on the reverse idler gear shaft, and fix to the vise.

(b) Using a dial indicator, check the radial clearance of the reverse idler gear.

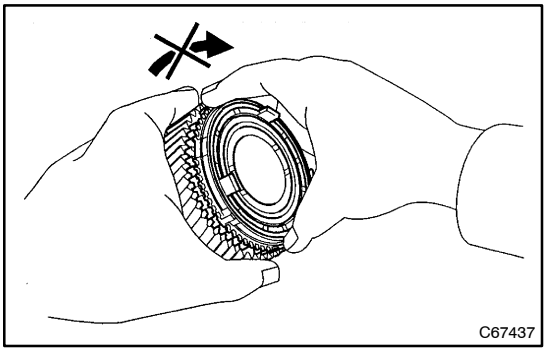
Standard radial clearance:
0.015 – 0.059 mm (0.0006 – 0.0023 in.)
Maximum radial clearance: 0.059 mm (0.0023 in.)



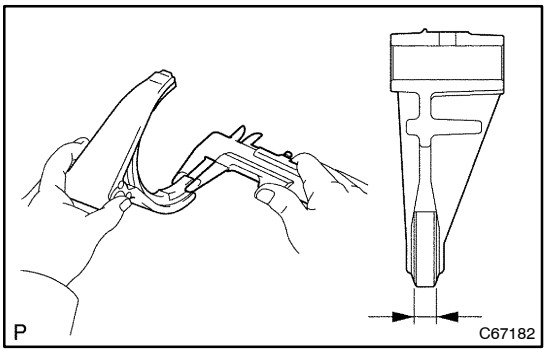
70. INSPECT SYNCHRONIZER RING SET NO.1

(a) Using a feeler gauge, measure the clearance between the synchronizer ring No. 1 and the 1st gear while synchronizer ring No. 1 is pushed to the cone of the 1st gear.

Standard clearance:
1.15 – 2.05 mm (0.0452 – 0.0807 in.)
Minimum clearance: 1.15 mm (0.0452 in.)



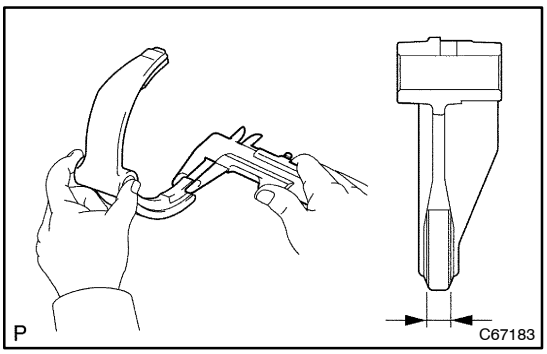
(b) Apply gear oil to the taper cone of the 1st gear, and check that it dose not rotate to the circumference direction while No. 1 synchronizer ring is pushed.



71. INSPECT GEAR SHIFT FORK NO.2

(a) Using vernier calipers, measure the claw thickness of the gear shift fork No. 2.

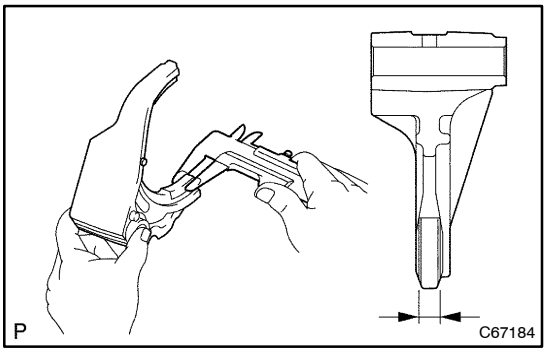
Standard thickness:
11.75 – 11.85 mm (0.4625 – 0.4665 in.)
Minimum thickness: 11.75 mm (0.4625 in.)



72. INSPECT GEAR SHIFT FORK NO.1 (FRONT)

(a) Using vernier calipers, measure the claw thickness of the gear shift fork front.

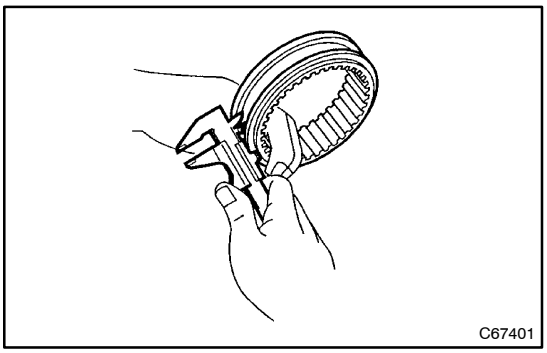
Standard thickness:
11.75 – 11.85 mm (0.4625 – 0.4665 in.)
Minimum thickness: 11.75 mm (0.4625 in.)



73. INSPECT GEAR SHIFT FORK NO.1(REAR)

(a) Using vernier calipers, measure the claw thickness of the gear shift fork rear.

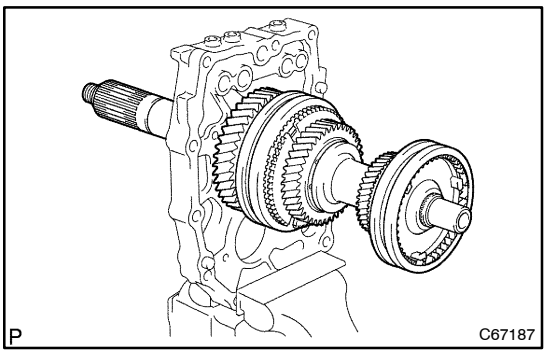
Standard thickness:
11.75 – 11.85 mm (0.4625 – 0.4665 in.)
Minimum thickness: 11.75 mm (0.4625 in.)



74. INSPECT TRANSMISSION HUB SLEEVE NO.1

(a) Using vernier calipers, measure the clearance of the hub sleeve No. 1.

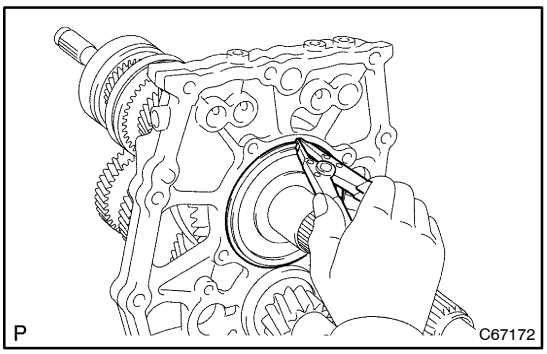
Standard clearance:
12.0 – 12.1 mm (0.4724 – 0.4763 in.)
Maximum clearance: 12.1 mm (0.4763 in.)



75. INSTALL OUTPUT SHAFT ASSY

(a) Apply gear oil to the sliding part of the output assy.

(b) Using a plastic hammer, install the output shaft assy with tapping the intermediate plate.

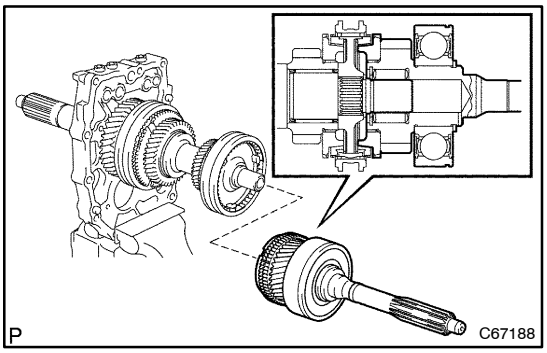


76. INSTALL OUTPUT SHAFT CENTER BEARING SHAFT SNAP RING

(a) Select a snap ring by making the thrust clearance of the bearing by 0 to 0.1 mm (0.004 in.).

Mark	Thickness mm (in.)
A	2.40 – 2.45 (0.0945 – 0.0965)
B	2.45 – 2.50 (0.0965 – 0.0984)
C	2.50 – 2.55 (0.0984 – 0.1004)
D	2.55 – 2.60 (0.1004 – 0.1024)
E	2.60 – 2.65 (0.1024 – 0.1043)
F	2.65 – 2.70 (0.1043 – 0.1063)
G	2.70 – 2.75 (0.1063 – 0.1083)
H	2.75 – 2.80 (0.1083 – 0.1102)

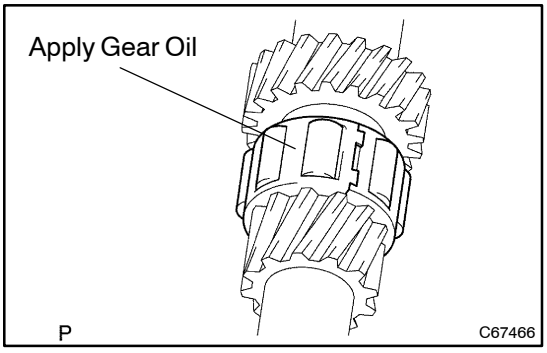
(b) Using snap ring pliers (expander), install the snap ring.



77. INSTALL INPUT SHAFT ASSY

(a) Install the input shaft assy to the output shaft assy.

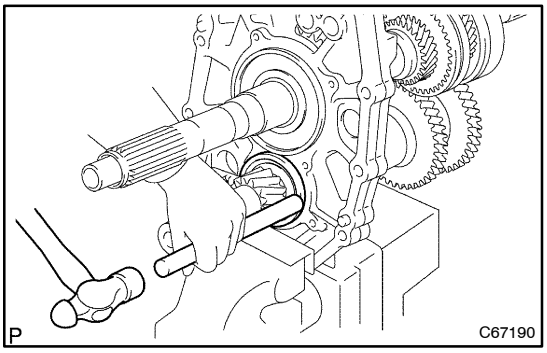
(b) Check that the input shaft assy rotates smoothly.



78. INSTALL COUNTER SHAFT ASSY

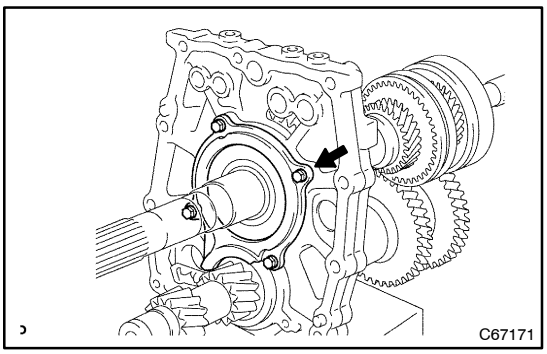
(a) Apply gear oil to the counter shaft center bearing.

(b) Temporarily install the counter gear assy to the intermediate plate.



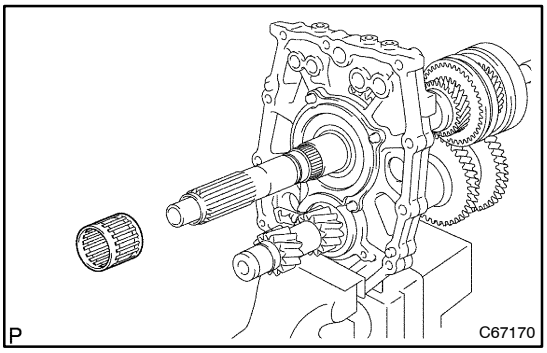
79. INSTALL COUNTER GEAR CENTER BEARING OUTER RACE

(a) Using a brass bar and hammer, tap in the bearing outer race.



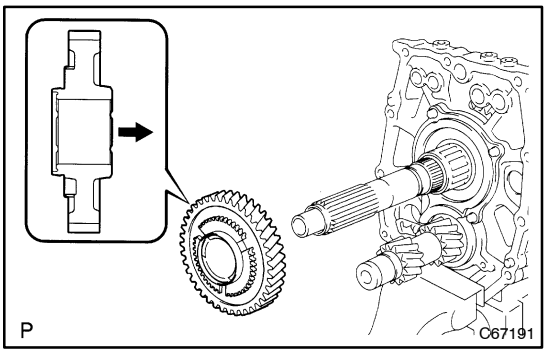
80. INSTALL BEARING RETAINER CTR

(a) Install the bearing retainer with the 4 bolts.
Torque: 18 N·m (185 kgf·cm, 13 ft·lbf)

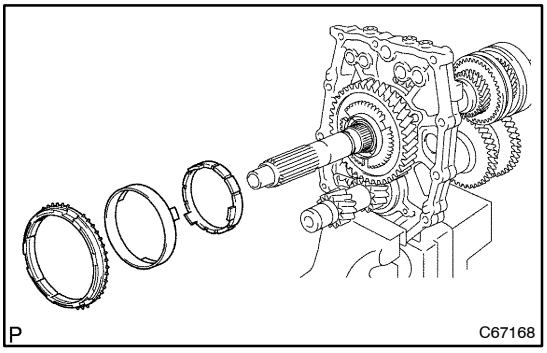


81. INSTALL 1ST GEAR

(a) Apply gear oil to the 1st gear needle roller bearing.
(b) Install the 1st gear needle roller bearing to the output shaft.



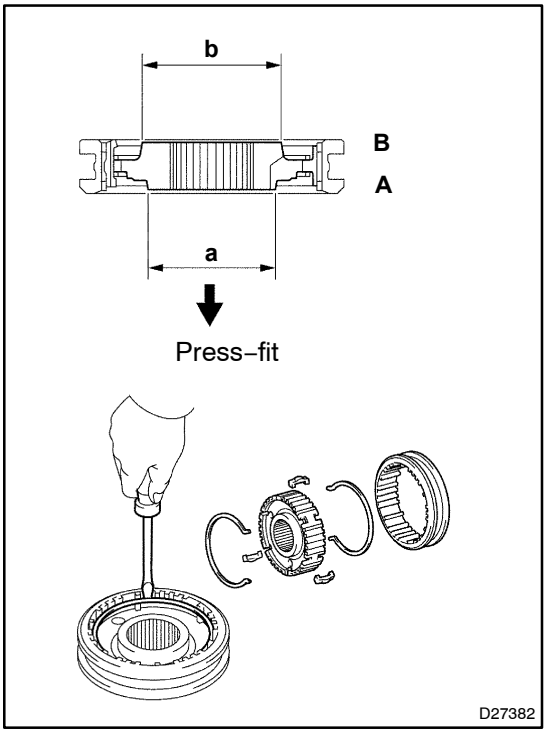
(c) Apply gear oil to the inside and thrust of the 1st gear.
(d) Install the 1st gear to the output shaft.



82. INSTALL SYNCHRONIZER RING SET NO.1

(a) Apply gear oil to the taper cone of the synchronizer ring set No.1.
(b) Install the synchronizer ring set No. 1 to the 1st gear.

NOTICE:
Align the claw of the middle ring with the cut–out of the 1st gear.
Align the claw of the inner ring with the key groove of the outer ring.



83. INSTALL TRANSMISSION CLUTCH HUB NO.1

(a) Install the hub sleeve No. 1 to the clutch hub No. 1.

NOTICE:

The orientation of the clutch hub can be recognized by the dimensions (a, b) of the boss part.

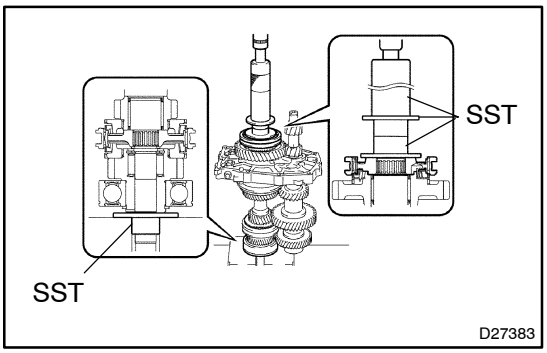
The orientation of the hub sleeve can be recognized by the shape (A, B) of the outer circumference.

(b) Install the 3 shifting keys.

(c) Using a screwdriver, install the 2 shifting key springs.

NOTICE:

The opening part of the key spring must not be placed in the same direction.



(d) Using SST and a press, press in the clutch hub No. 1 assy.
SST 09316–60011 (09316–00011, 09316–00021, 09316–00031, 09316–00041)

NOTICE:

Take care not to install the clutch hub No. 1 assembly in the wrong direction.

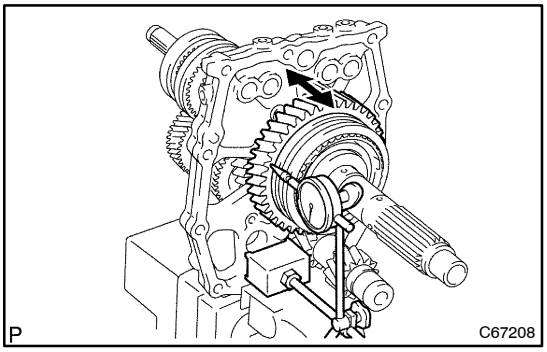
Aligning the key groove of the outer ring with synchromesh shifting key, install them.

(e) Check that the 1st gear rotates smoothly and that the synchronizer ring set No. 1 is not stuck.

84. INSPECT 1ST GEAR THRUST CLEARANCE

(a) Using a dial indicator,measure the thrust clearance of the 1st gear.

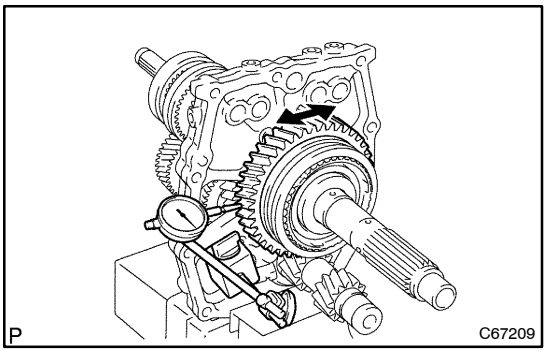
Standard thrust clearance:
0.10 – 0.47 mm (0.0039 – 0.0185 in.)
Maximum thrust clearance: 0.47 mm (0.0185 in.)

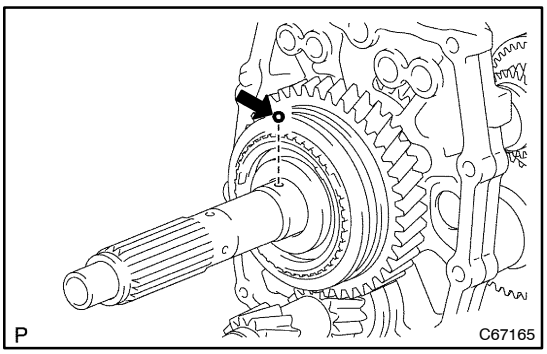


85. INSPECT 1ST GEAR RADIAL CLEARANCE

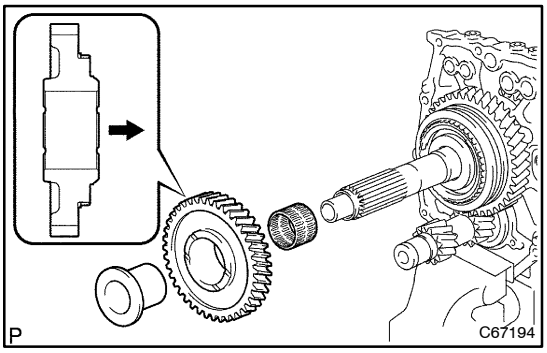
(a) Using a dial indicator, measure the radial clearance of the 1st gear.

Standard radial clearance:
0.015 – 0.068 mm (0.0006 – 0.0027 in.)
Maximum radial clearance: 0.068 mm (0.0027 in.)





86. INSTALL SPEEDOMETER DRIVE GEAR (MTM) KEY OR BALL

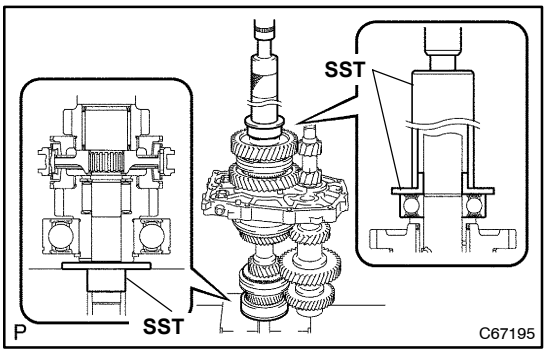


87. INSTALL REVERSE GEAR

(a) Apply gear oil to the reverse gear bearing and reverse gear.

(b) Install the reverse gear bearing and inner race to the reverse gear.

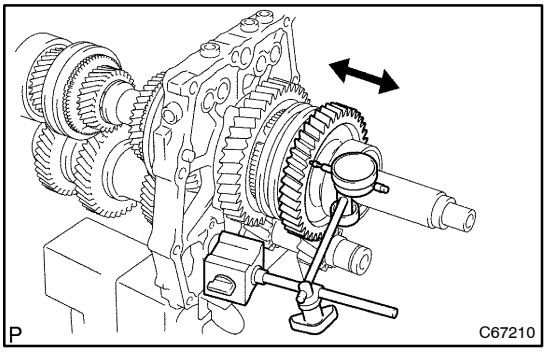
(c) Install the reverse gear to the output shaft.



88. INSTALL OUTPUT SHAFT REAR BEARING

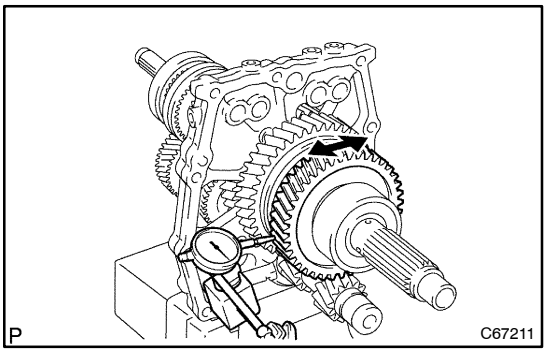
(a) Using SST and a press, press in the bearing.
SST 09316–20011, 09316–60011 (09316–00011, 09316–00041), 09527–10011

(b) Check that the reverse gear and bearing rotates smoothly.



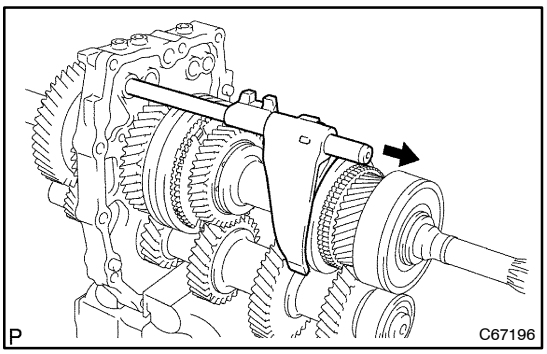
89. INSPECT REVERSE GEAR THRUST CLEARANCE

(a) Using a dial indicator, measure the thrust clearance of the reverse gear.
Standard thrust clearance:
0.10 – 0.25 mm (0.0039 – 0.0098 in.)
Maximum thrust clearance: 0.25 mm (0.0098 in.)



90. INSPECT REVERSE GEAR RADIAL CLEARANCE

(a) Using a dial indicator, measure the radial clearance of the reverse gear.
Standard radial clearance:
0.015 – 0.067 mm (0.0006 – 0.0026 in.)
Maximum radial clearance: 0.067 mm (0.0026 in.)

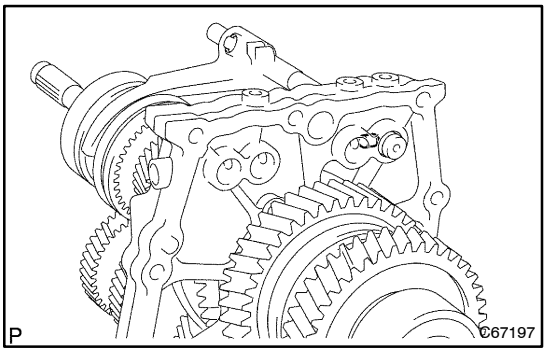


91. INSTALL GEAR SHIFT FORK SHAFT NO.3

(a) Install the shift fork shaft No. 3 and shift fork No. 2.

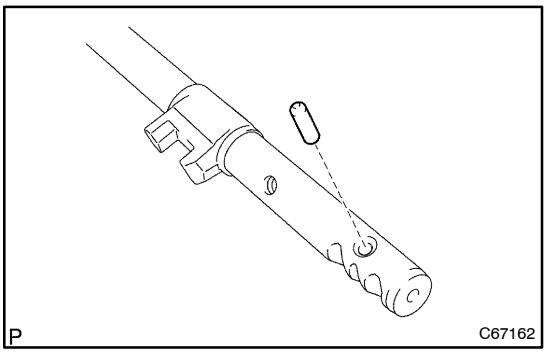
(b) Install the bolt.

Torque: 36 N·m (370 kgf·cm, 27 ft·lbf)



92. INSTALL SHIFT INTER LOCK NO.1 ROLLER

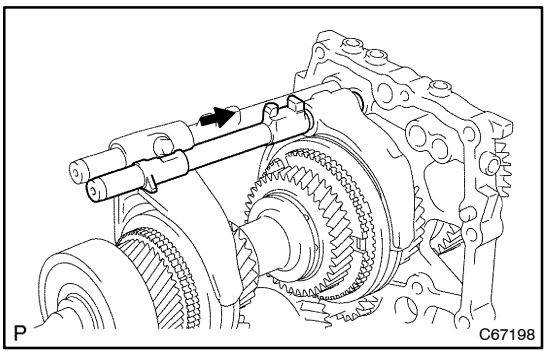
(a) Using a screw driver, push in the inter lock roller.



93. INSTALL SHIFT INTER LOCK PIN

(a) Apply MP grease to the shift inter lock pin.

(b) Install the shift inter lock pin to the shift fork shaft No. 2.

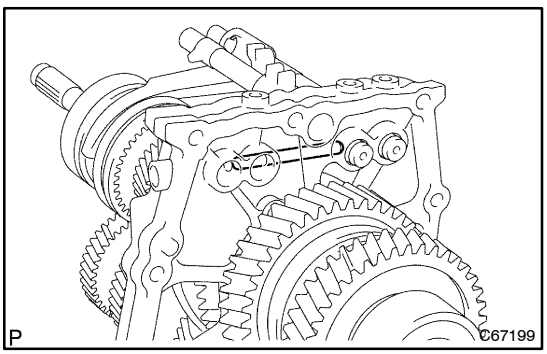


94. INSTALL GEAR SHIFT FORK SHAFT NO.2

(a) Install the shift fork shaft No. 2 and front shift fork No. 1.

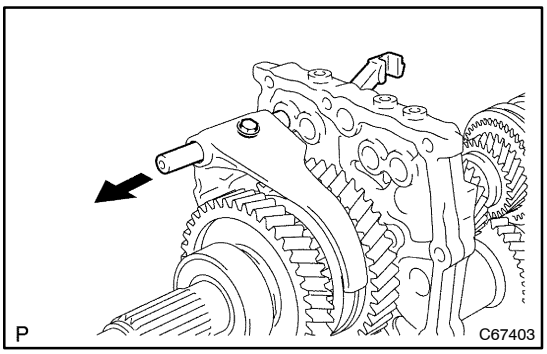
(b) Install the bolt.

Torque: 36 N·m (370 kgf·cm, 27 ft·lbf)



95. INSTALL SHIFT INTER LOCK PIN NO.2

(a) Using a screw driver, install the inter lock pin No. 2 to the intermediate plate.

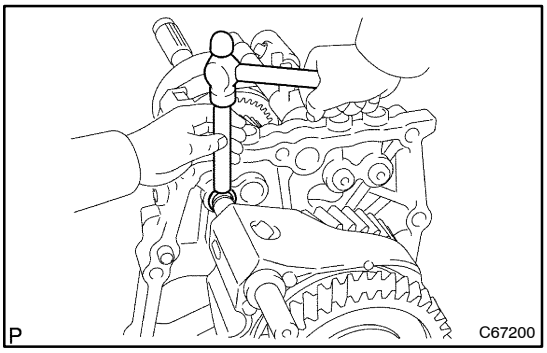


96. INSTALL GEAR SHIFT FORK SHAFT NO.1

(a) Install the shift fork shaft No. 1 and rear shift fork No. 1.

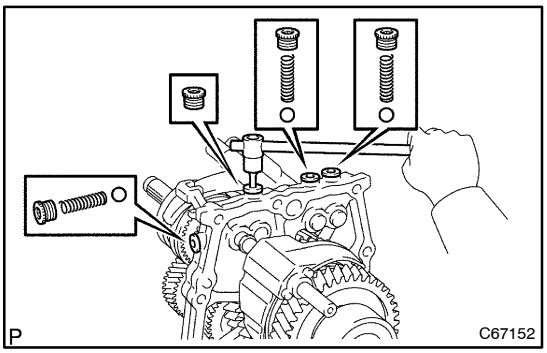
(b) Install the bolt.

Torque: 34 N·m (350 kgf·cm, 25 ft·lbf)



97. INSTALL 3RD & 4TH SHIFT FORK SHAFT SHAFT SNAP RING

(a) Using a brass bar and hammer, tap in a new snap ring.



98. INSTALL SHIFT INTER LOCK BALL

(a) Install the 3 balls.

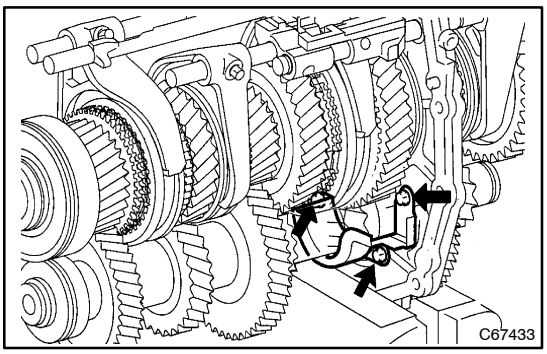
99. INSTALL SHIFT DETENT BALL LOW SIDE COMPRESSION SPRING

(a) Install the 3 springs.

100. INSTALL INTER LOCK HOLE PLUG

(a) Using a torx socket wrench (T40), install the 4 plugs.

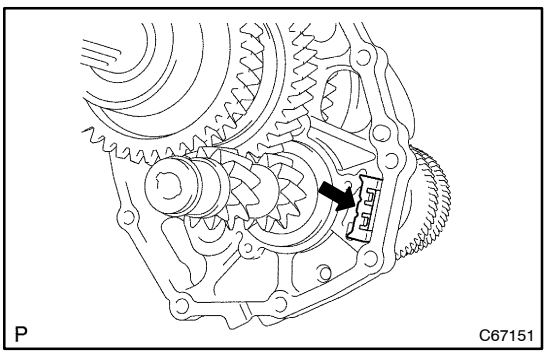
Torque: 18.6 N·m (190 kgf·cm, 14 ft·lbf)



101. INSTALL MANUAL TRANSMISSION CASE RECEIVER

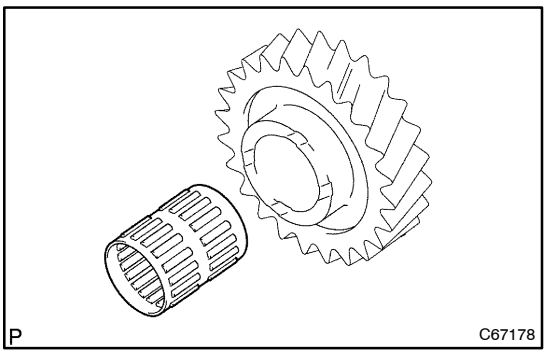
(a) Install the case receiver to the intermediate plate with the 3 bolts.

Torque: 18 N·m (185 kgf·cm, 13 ft·lbf)



102. INSTALL TRANSMISSION MAGNET

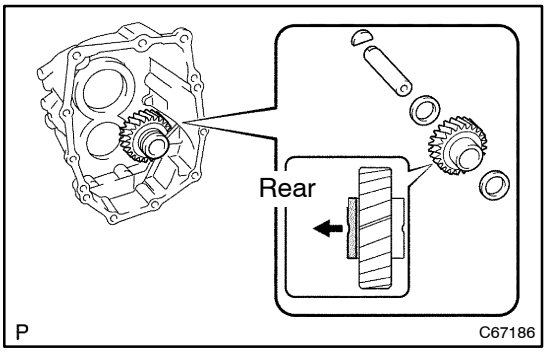
(a) Install the transmission magnet to the intermediate plate.



103. INSTALL REVERSE IDLER GEAR BEARING

(a) Apply gear oil to the reverse idler gear bearing.

(b) Install the reverse idler gear bearing to the reverse idler gear.



104. INSTALL REVERSE IDLER GEAR

(a) Apply MP grease to the 2 thrust washers.

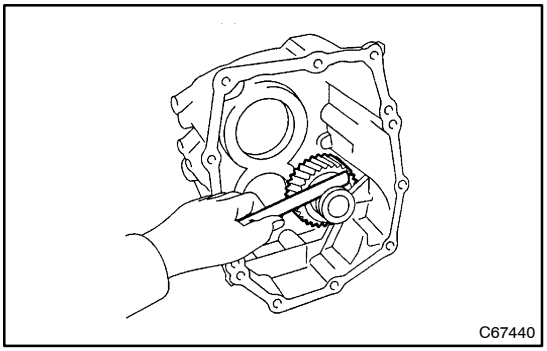
(b) Install the reverse idler gear and 2 thrust washers to the rear case, and then insert the reverse idler gear shaft into the rear case.

NOTICE:

When assembling the washers, the washers must be assembled with dimple facing to the thrust side of the gear.

(c) Install the reverse idler gear shaft woodruff key with the rear case.

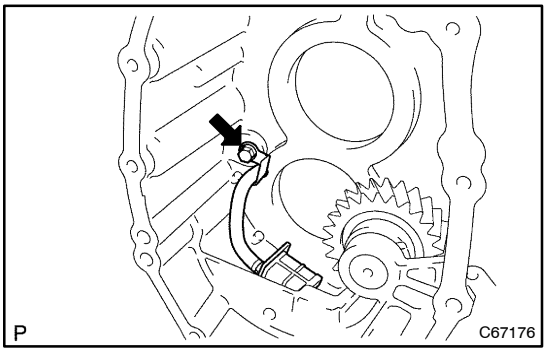
(d) Check that the reverse idler gear rotates smoothly.



105. INSPECT REVERSE IDLER GEAR THRUST CLEARANCE

(a) Using a feeler gauge, measure the thrust clearance of the reverse idler gear.

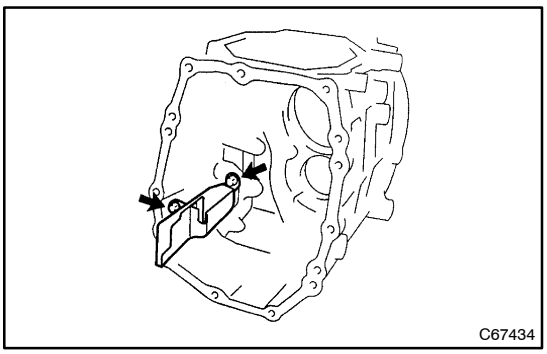
Standard thrust clearance:
0.10 – 0.55 mm (0.0039 – 0.0217 in.)
Maximum thrust clearance: 0.55 mm (0.0217 in.)



106. INSTALL REAR CASE MANUAL TRANSMISSION OIL STRAINER SUB–ASSY

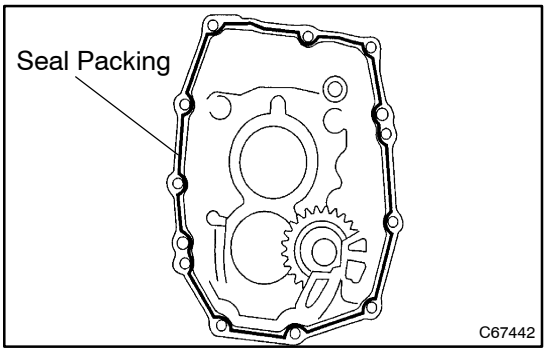
(a) Install the oil strainer to the rear case with the bolt.

Torque: 11.7 N·m (120 kgf·cm, 9 ft·lbf)



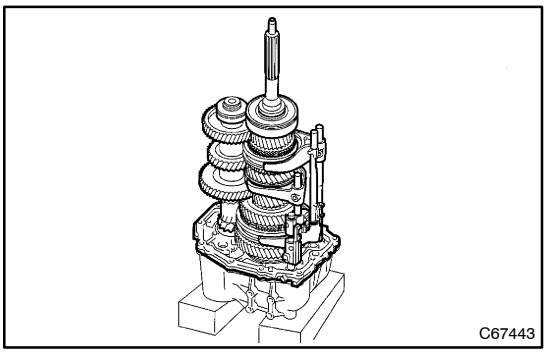
107. INSTALL OIL RECEIVER PIPE NO.1 (MTM)

(a) Install the oil receiver pipe to the rear case with the 2 bolts.
Torque: 11.7 N·m (120 kgf·cm, 9 ft·lbf)



108. INSTALL TRANSMISSION CASE RR

(a) Apply seal packing to the rear transmission case as shown.
Seal packing:
Part No. 08826 – 00090, THREE BOND 1281 or equivalent

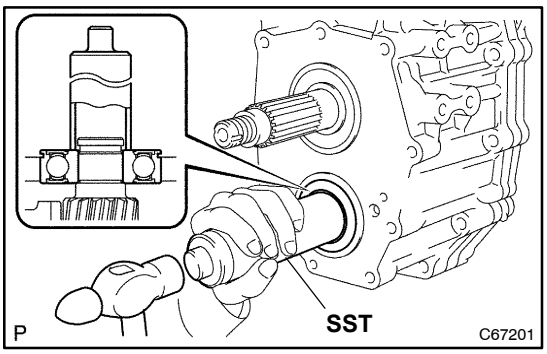


(b) Fix the transmission case onto a vise through a wooden block.

(c) Using a plastic hammer, lightly tap the intermediate plate to press–fit the plate with the case.

NOTICE:
Install the intermediate plate straight so as not to put excessive force onto the bearing.

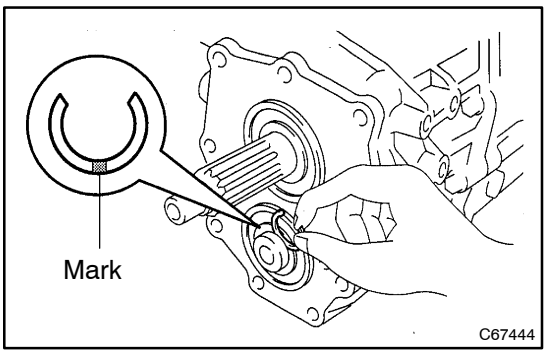
(d) Lay down the transmission.



109. INSTALL COUNTER SHAFT REAR BEARING

(a) Using SST and a hammer, tap in the bearing to the rear case.
SST 09608–06041

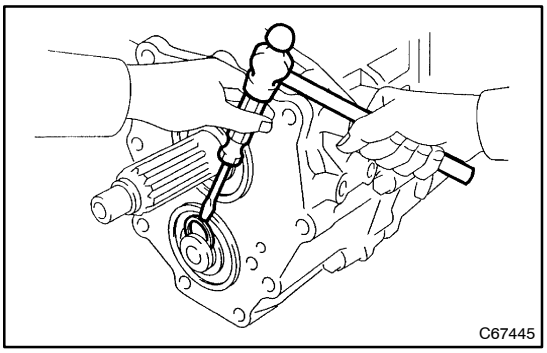
HINT:
Fit a press to the inner race of the bearing.



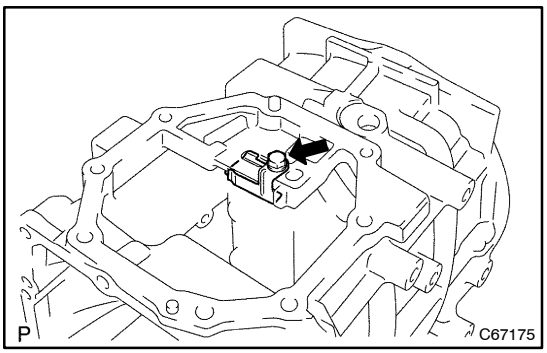
110. INSTALL SNAP RING COUNTER GEAR REAR BEARING

(a) Select a snap ring by making the thrust clearance of the bearing by 0 to 0.1mm (0.004 in.).

Mark	Thickness mm (in.)
A	2.40 – 2.45 (0.0945 – 0.0965)
B	2.45 – 2.50 (0.0965 – 0.0984)
C	2.50 – 2.55 (0.0984 – 0.1004)
D	2.55 – 2.60 (0.1004 – 0.1024)
E	2.60 – 2.65 (0.1024 – 0.1043)
F	2.65 – 2.70 (0.1043 – 0.1063)
G	2.70 – 2.75 (0.1063 – 0.1083)

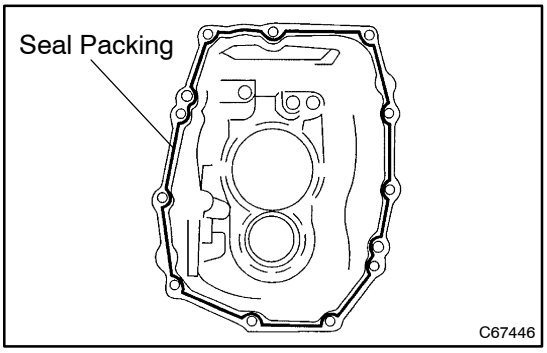


(b) Using a screwdriver and a hammer, tap in the snap ring.



111. INSTALL TRANSMISSION OIL FILTER PLATE

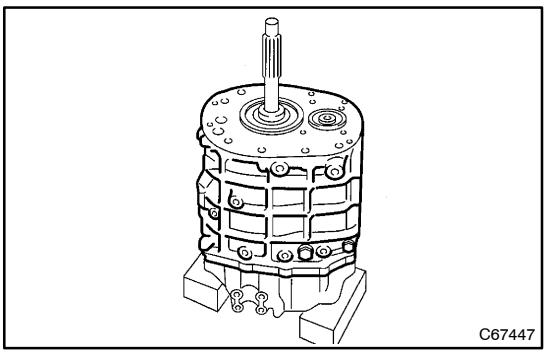
(a) Install the oil filter plate with the bolt.
Torque: 12 N·m (122 kgf·cm, 8.9 ft·lbf)



112. INSTALL MANUAL TRANSMISSION CASE

(a) Apply adhesive to the 11 bolts.
Adhesive:
Part No. 08833 – 00080, THREE BOND 1344, LOCTITE 242 or equivalent

(b) Apply seal packing to the transmission case as shown.
Seal packing:
Part No. 08826 – 00090, THREE BOND 1281 or equivalent

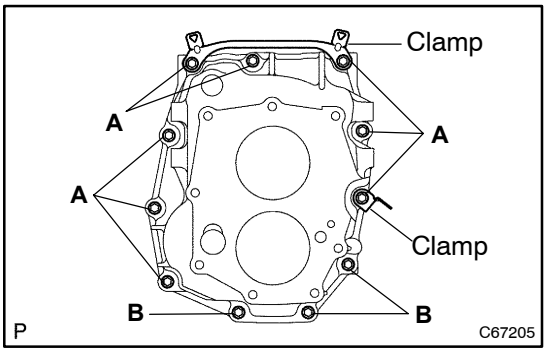


(c) Fix the transmission case onto a vise through a wooden block.

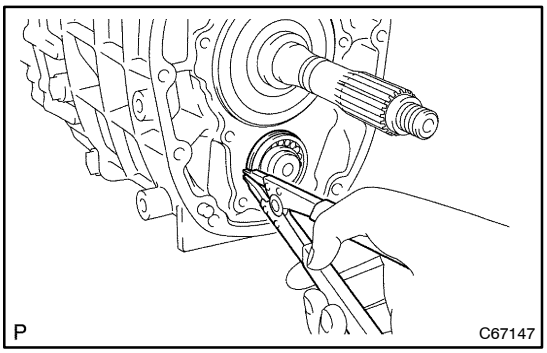
(d) Using a plastic hammer, pat the transmission case to attach to the intermediate plate.

NOTICE:

Install the transmission case straight so as not to put excessive force onto the bearing.

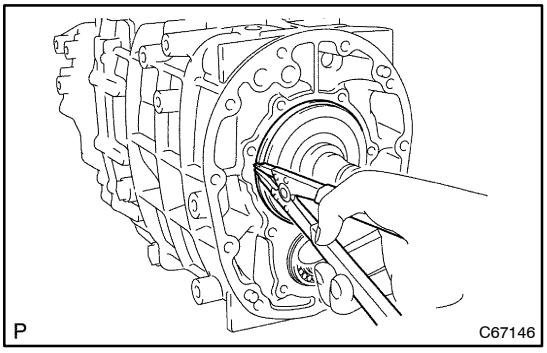


(e) Install the 11 bolts and 2 clamps.
Bolt A: 70 mm (2.76 in.)x 8
Bolt B: 100 mm (3.94 in.)x 3
Torque: 37 N·m (380 kgf·cm, 27 ft·lbf)



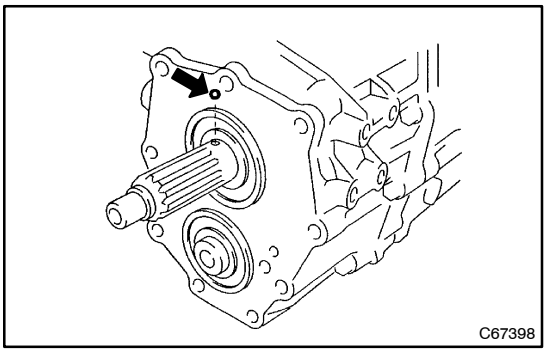
113. INSTALL FRONT BEARING SHAFT SNAP RING

(a) Using snap ring pliers (expander), install the snap ring.

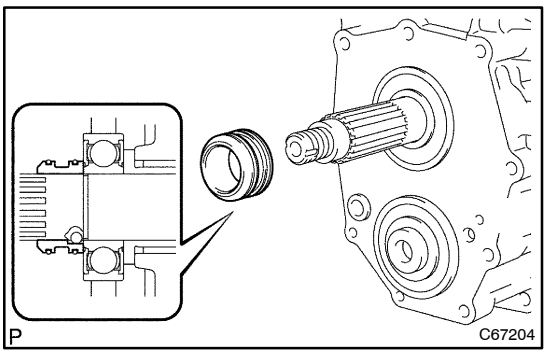


114. INSTALL COUNTER GEAR FRONT BEARING SNAP RING NO.1

(a) Using snap ring pliers (expander), install the snap ring.



115. INSTALL SPEEDOMETER DRIVE GEAR (MTM) KEY OR BALL

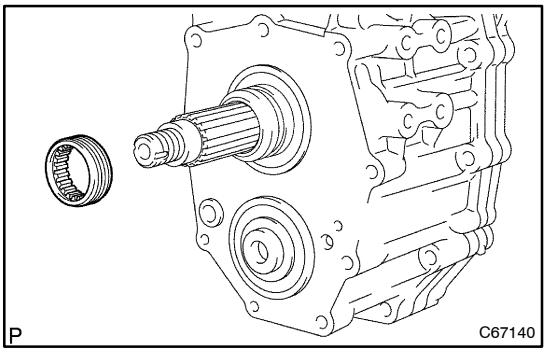


116. INSTALL SPEEDOMETER DRIVE GEAR SPACER

(a) Apply gear oil to 2 new oil seal rings and speedometer drive gear spacer.

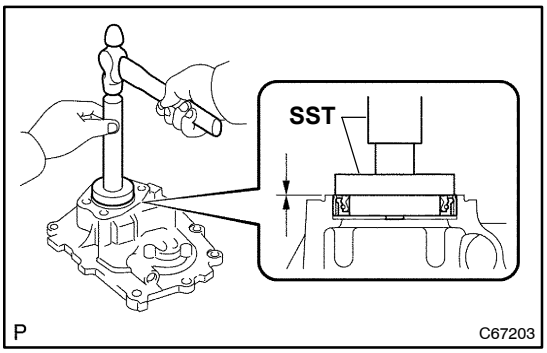
(b) Install the 2 oil seal rings to the speedometer drive gear spacer.

(c) Install the speedometer drive gear spacer to the output shaft.



117. INSTALL SPEEDOMETER DRIVE (MTM) GEAR

(a) Install the speedometer drive gear to the output shaft.



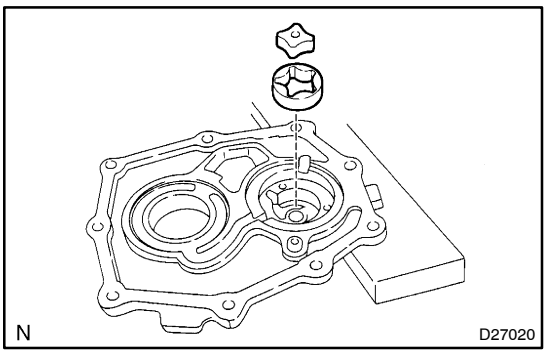
118. INSTALL TYPE T OIL SEAL

(a) Using SST and a hammer, tap in a new oil seal.

SST 09950–60010 (09951–00330, 09951–00480, 09952–06010), 09950–70010 (09951–07100)

Standard protrusion: 0 – 0.5 mm (0 – 0.020 in.)

(b) Apply MP grease to the seal lip.

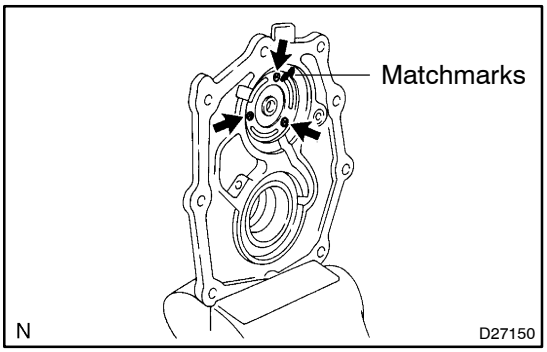


119. INSTALL OIL PUMP ASSY

(a) Install the drive and driven rotors.

(1) Apply gear oil to the rear bearing retainer, drive and driven rotors.

(2) Install the drive and driven rotors.



(b) Install the oil pump cover.

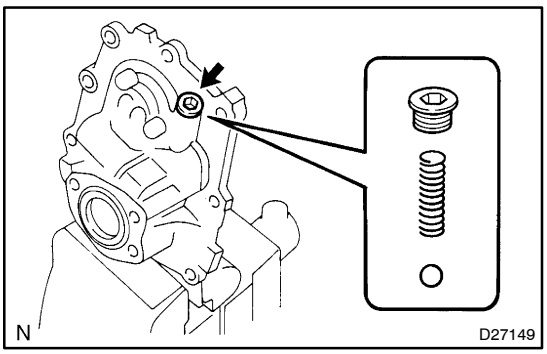
(1) Align the matchmarks and install the oil pump cover.

(2) Fix the rear bearing retainer onto a vise through the aluminum plate.

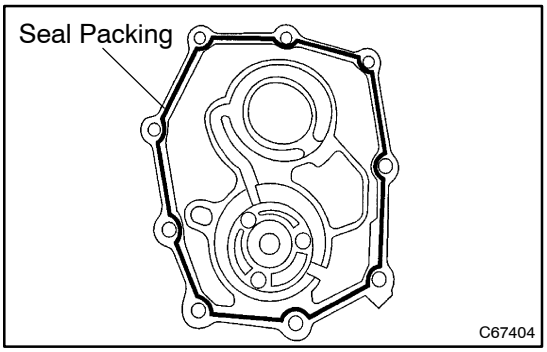
(3) Using a torx socket wrench (T30), install the 3 bolts.

Torque: 3.9 N·m (40 kgf·cm, 35 in.·lbf)

(4) Install the oil pump drive shaft.



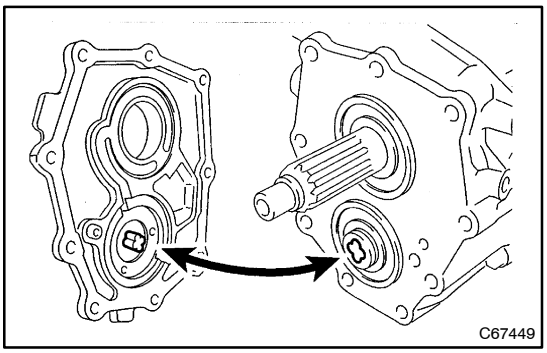
(c) Install the ball, compression spring and plug.
(1) Insert the ball and spring into the rear bearing retainer.
(2) Using a torx socket wrench (T40), install the plug.
Torque: 19 N·m (190 kgf·cm, 14 ft·lbf)
(3) Rotate the oil pump drive shaft lightly and check that the drive rotor turns smoothly.



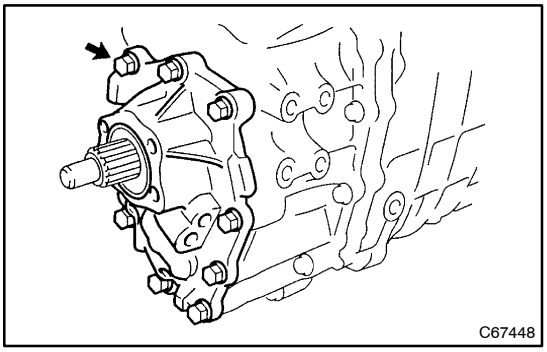
120. INSTALL OUTPUT SHAFT REAR BEARING (MTM) RETAINER

(a) Apply adhesive to the 9 bolts.
Adhesive:
Part No. 08833 – 00080, THREE BOND 1344, LOCTITE 242 or equivalent

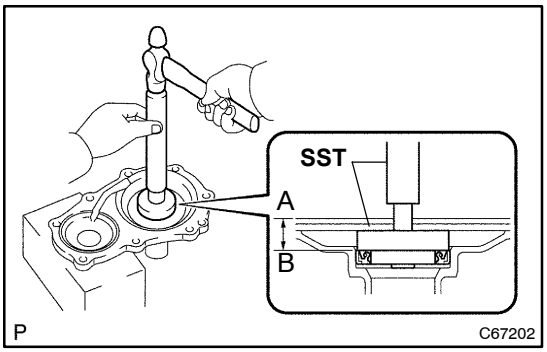
(b) Apply seal packing to the bearing retainer as shown.
Seal packing:
Part No. 08826 – 00090, THREE BOND 1281 or equivalent



(c) Install the rear bearing retainer to the rear case.



(d) Install the 9 bolts.
Torque: 37 N·m (380 kgf·cm, 27 ft·lbf)



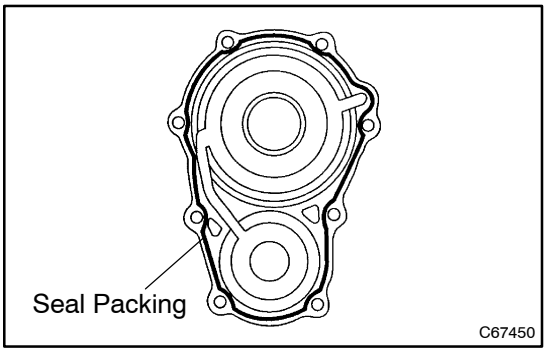
121. INSTALL TRANSMISSION FRONT BEARING RETAINER OIL SEAL

(a) Using SST and a hammer, tap in a new oil seal.
Standard clearance (A – B):
15.4 – 16.2 mm (0.606 – 0.638 in.)

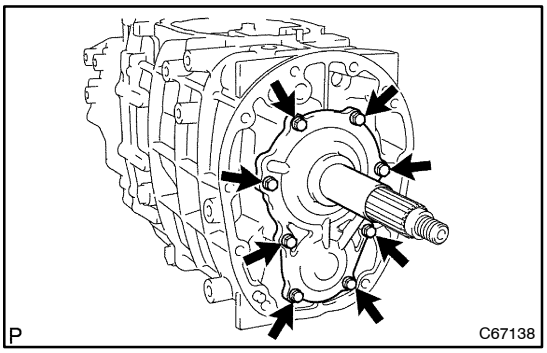
(b) Apply MP grease to the seal lip.
SST 09950–60010 (09951–00330, 09951–00480, 09952–06010), 09950–70010 (09951–07100)

122. INSTALL BEARING RETAINER FRONT (MTM)

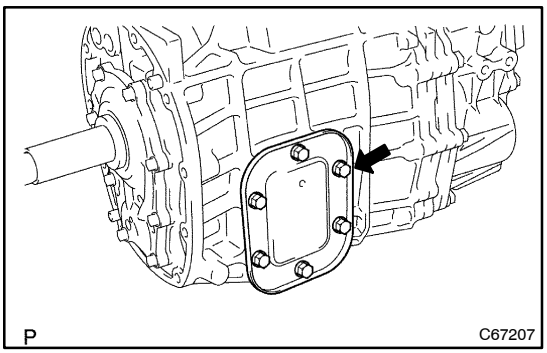
(a) Apply adhesive to the 8 bolts.
Adhesive:
Part No. 08833–00080, THREE BOND 1344, LOCTITE 242 or equivalent



(b) Apply seal packing to the output shaft front bearing retainer as shown.
Seal packing:
Part No. 08826–00090, THREE BOND 1281 or equivalent



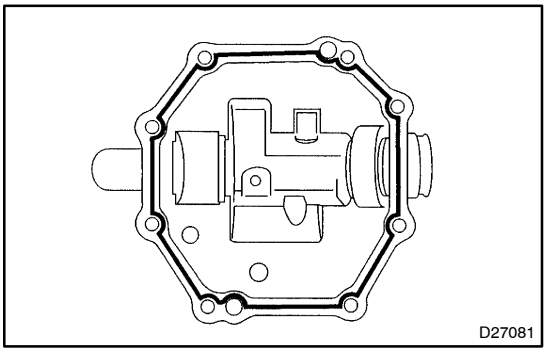
(c) Install the bearing retainer to the transmission case with the 8 bolts.
Torque: 17 N·m (170 kgf·cm, 12 ft·lbf)



123. INSTALL MANUAL TRANSMISSION POWER TAKE–OFF COVER (W/O POWER TAKE OFF)

(a) Install the 6 bolts, cover and gasket.
Torque: 14 N·m (145 kgf·cm, 10 ft·lbf)

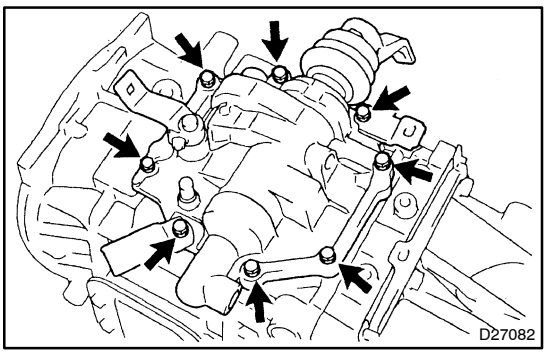
124. INSTALL POWER TAKE–OFF ASSY (W/ POWER TAKE OFF)
(See pub. No. RM931E on page 87 – 2)



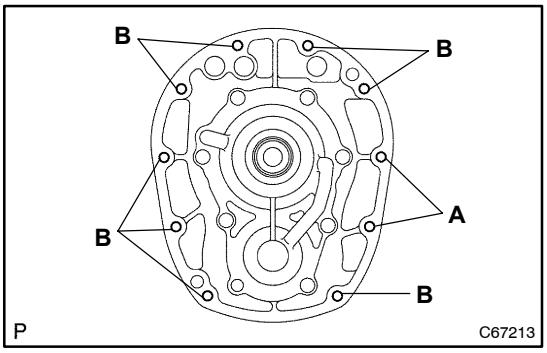
125. INSTALL SHIFT LEVER SHAFT HOUSING ASSY

(a) Apply adhesive to the 8 bolts.
Adhesive:
Part No. 08833 – 00080, THREE BOND 1344, LOCTITE 242 or equivalent

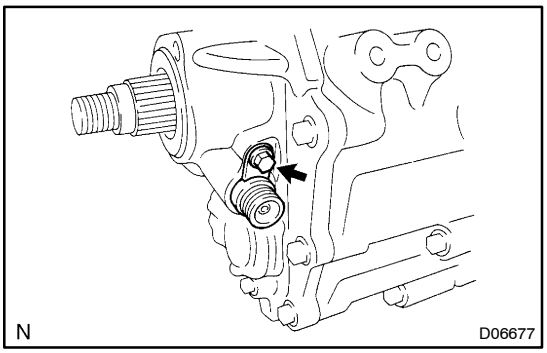
(b) Apply seal packing to the shift lever shaft housing as shown.
Seal packing:
Part No. 08826 – 00090, THREE BOND 1281 or equivalent



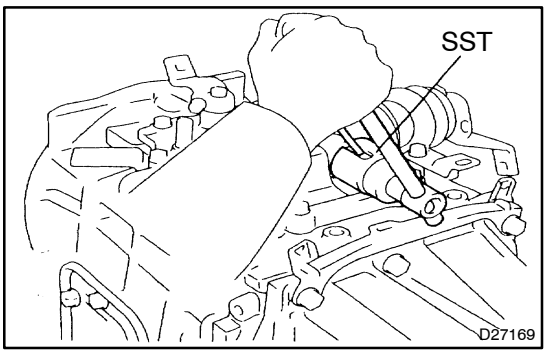
(c) Install the 2 clamps and housing assy to the transmission case with the 8 bolts.
Torque: 17 N·m (170 kgf·cm, 12 ft·lbf)



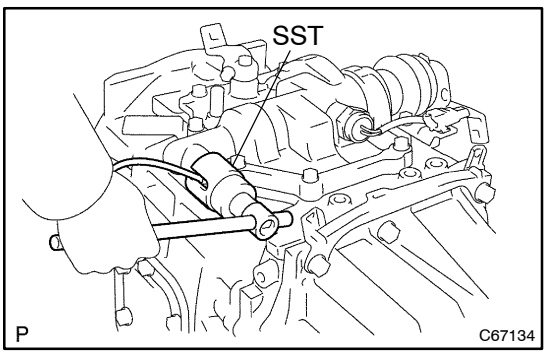
126. INSTALL CLUTCH HOUSING
(a) Install the clutch housing to the transmission case with the 10 bolts.
Bolt A: 35 mm (1.38 in.) x 2
Bolt B: 45 mm (1.77 in.) x 8
Torque: 37 N·m (380 kgf·cm, 27 ft·lbf)



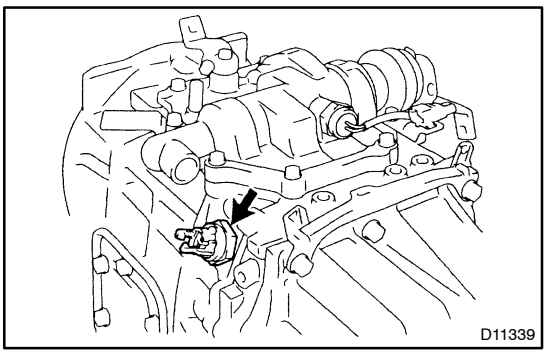
127. INSTALL SPEEDOMETER DRIVEN (MTM) GEAR SUB–ASSY
(a) Apply gear oil to a new O–ring.
(b) Install the O–ring to the driven gear sub–assy.
(c) Install the driven gear sub–assy with the lock plate and bolt.
Torque: 11 N·m (115 kgf·cm, 8 ft·lbf)



128. INSTALL EXHAUST BRAKE NEUTRAL SWITCH ASSY
(a) Install a new gasket to the neutral switch.
(b) Using SST, install the neutral switch.
SST 09817–16011
Torque: 39 N·m (400 kgf·cm, 29 ft·lbf)



129. INSTALL SHIFT POSITION SWITCH
(a) Install a new gasket to the shift position switch.
(b) Using SST, install the switch.
SST 09817–16011
Torque: 39 N·m (400 kgf·cm, 29 ft·lbf)

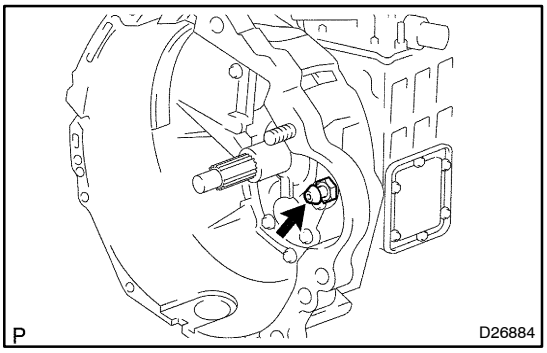


130. INSTALL BACK UP LAMP SWITCH ASSY

(a) Install a new gasket to the back up lamp switch.

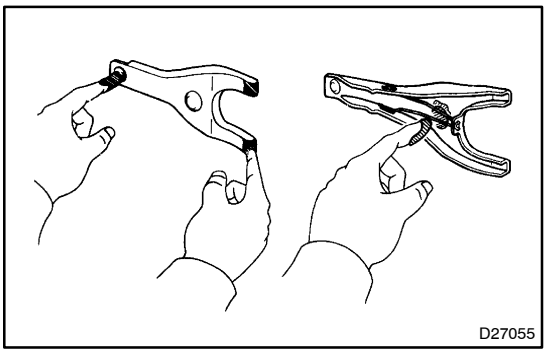
(b) Install the back up lamp switch to the transmission case.
Torque: 44 N·m (450 kgf·cm, 33 ft·lbf)

131. INSTALL CLUTCH RELEASE FORK BOOT



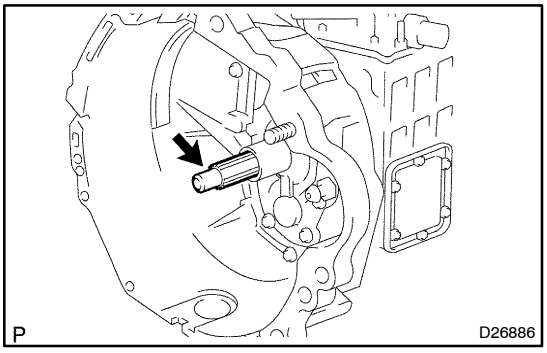
132. INSTALL RELEASE FORK SUPPORT

(a) Using a socket wrench (19 mm), install the release fork support.
Torque: 39 N·m (400 kgf·cm, 29 ft·lbf)



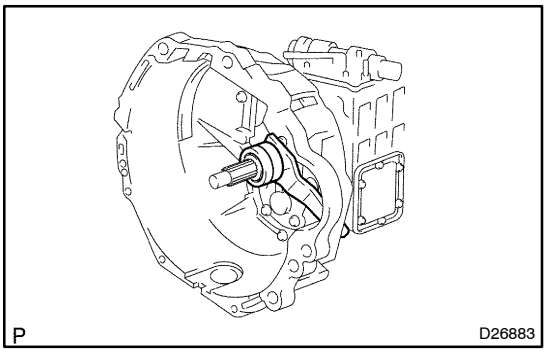
133. INSTALL CLUTCH RELEASE FORK SUB–ASSY

(a) Apply release hub grease to the release fork and hub contact, release fork and push rod contact and release fork pivot points.
Grease:
Part No. 08887–01806, RELEASE HUB GREASE or equivalent

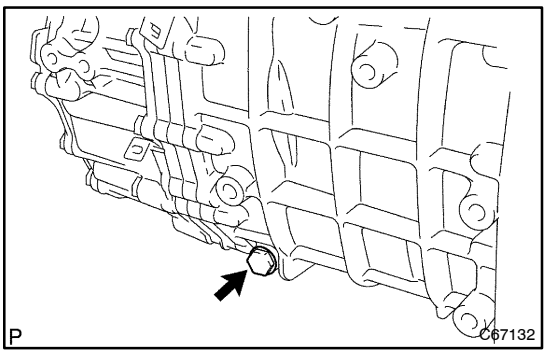


134. INSTALL CLUTCH RELEASE BEARING ASSY

(a) Apply clutch spline grease to the input shaft spline.
Grease:
Part No. 08887–01706, CLUTCH SPLINE GREASE or equivalent

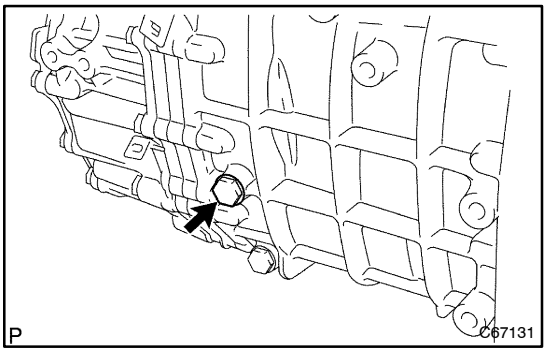


(b) Install the bearing to the release fork, and then install them to the transmission.



135. INSTALL DRAIN PLUG

(a) Install the drain plug to the transmission case through a new gasket.
Torque: 37 N·m (380 kgf·cm, 27 ft·lbf)



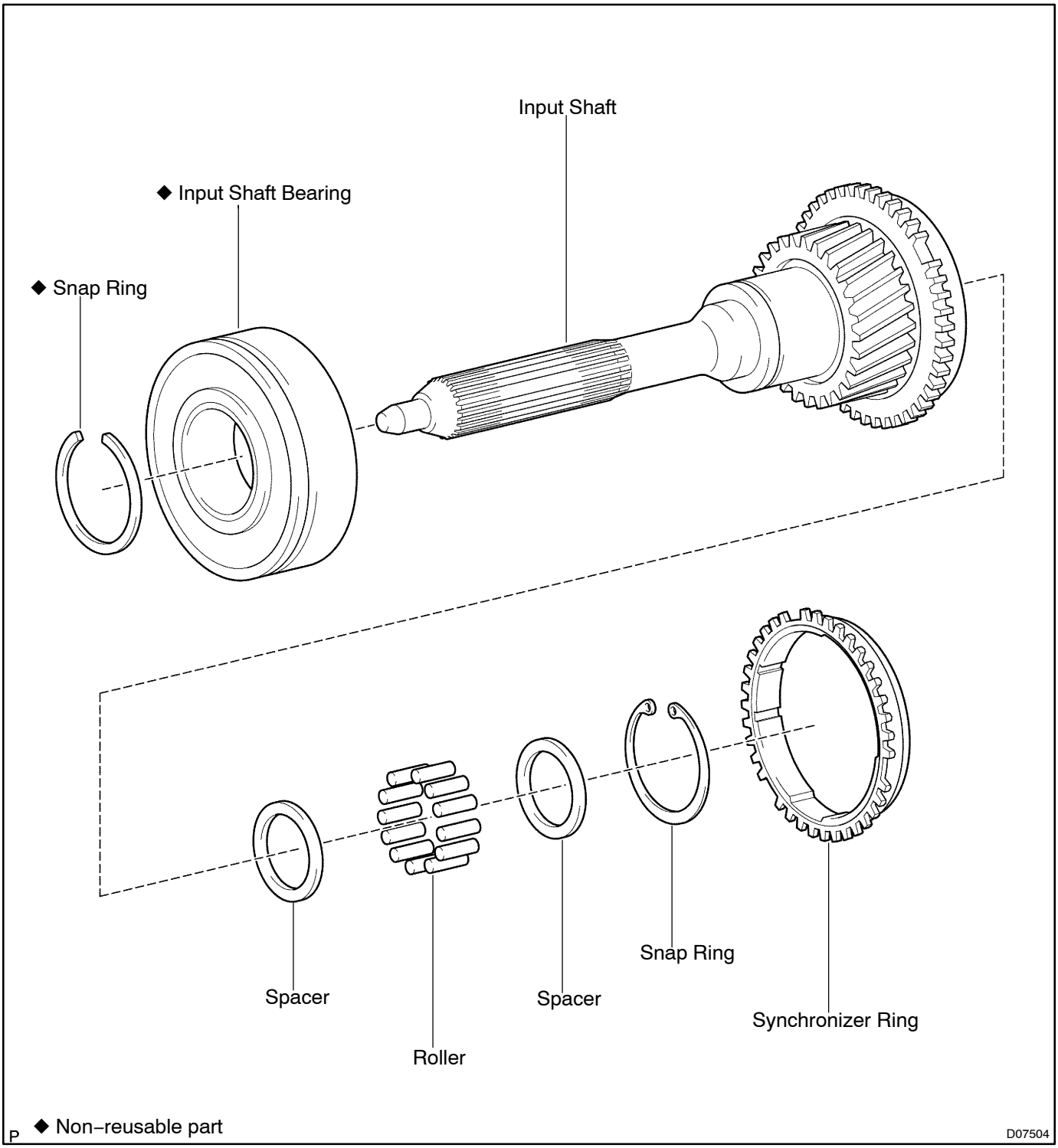
136. INSTALL FILLER PLUG

(a) Install the filler plug to the transmission case through a new gasket.
Torque: 37 N·m (380 kgf·cm, 27 ft·lbf)

INPUT SHAFT ASSY

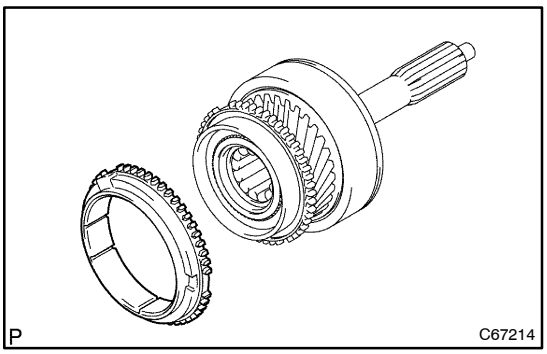
COMPONENTS

4106W–01

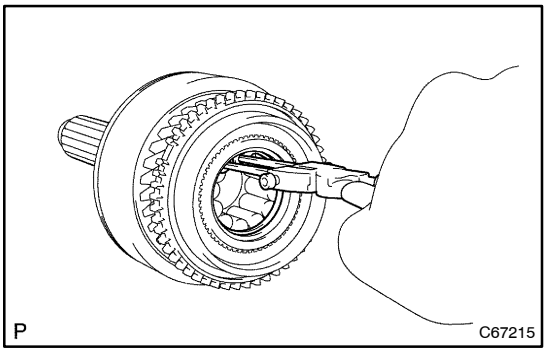


4106X–01

OVERHAUL

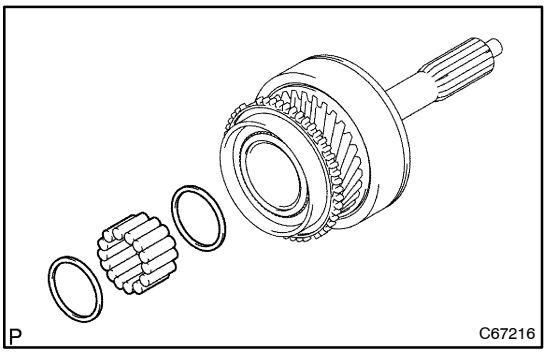


1. REMOVE 5TH GEAR SYNCHRONIZER RING



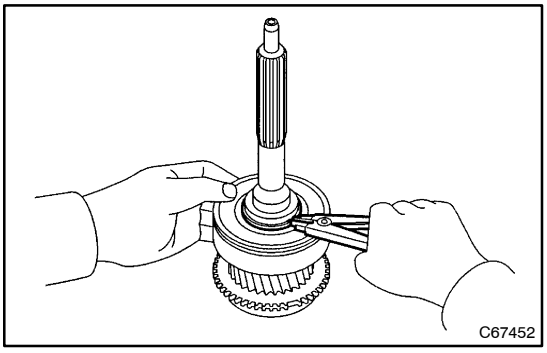
2. REMOVE NEEDLE ROLLER HOLE SNAP RING

(a) Using snap ring pliers (expander), remove the snap ring.



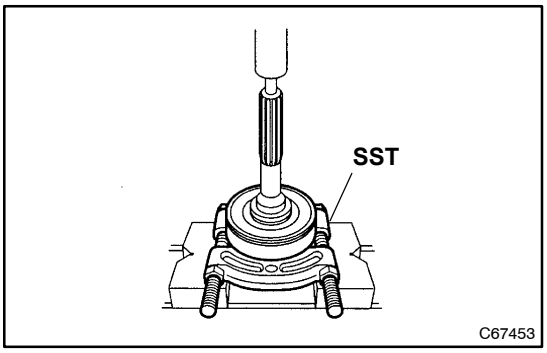
3. REMOVE INPUT SHAFT BEARING

(a) Remove the 12 rollers and 2 spacers.



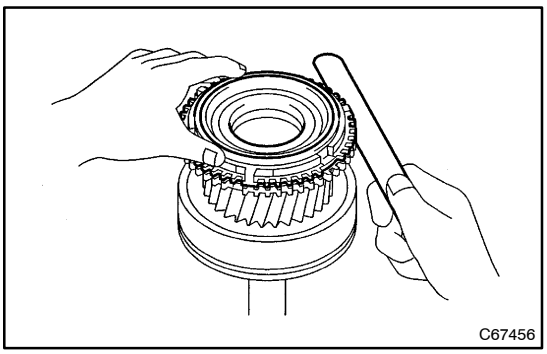
4. REMOVE INPUT SHAFT REAR BEARING SHAFT SNAP RING

(a) Using snap ring pliers (expander), remove the snap ring.



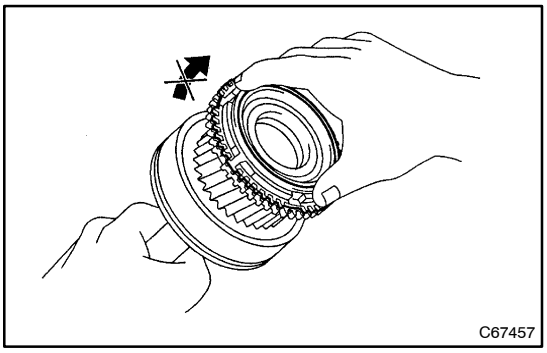
5. REMOVE INPUT SHAFT FRONT BEARING

(a) Using SST and a press, press out the front bearing.
SST 09950–00020

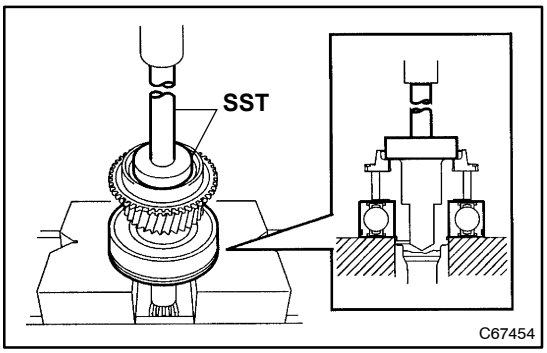


6. INSPECT 5TH GEAR SYNCHRONIZER RING

(a) Using a feeler gauge, measure the clearance between synchronizer ring and input shaft while the synchronizer ring is pushed to the taper cone of the input shaft.
Standard clearance:
0.80 – 1.60 mm (0.0315 – 0.0630 in.)
Minimum clearance: 0.80 mm (0.0315 in.)



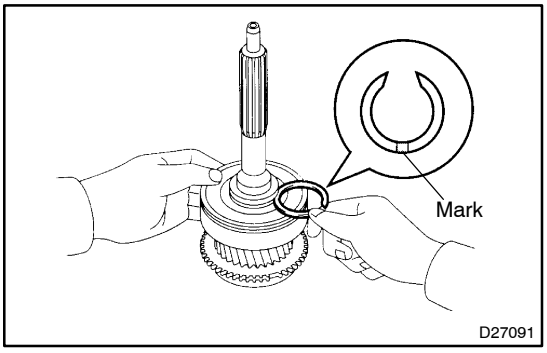
(b) Apply the gear oil to the taper cone of the input shaft, and check that it dose not rotate to the circumference direction while synchronizer ring is pushed.



7. INSTALL INPUT SHAFT FRONT BEARING

(a) Using SST and a press, press in the new bearing to the input shaft.
SST 09950–60010 (09951–00570), 09950–70010 (09951–07100)

(b) Check that the bearing rotates smoothly.

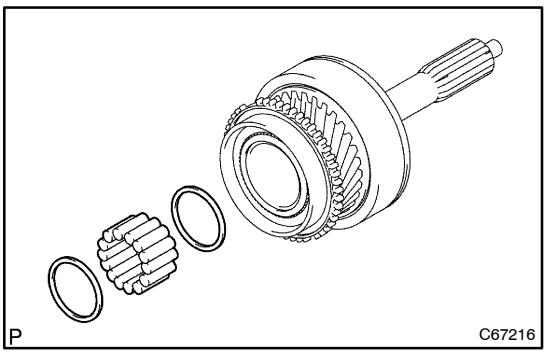


8. INSTALL INPUT SHAFT REAR BEARING SHAFT SNAP RING

(a) Select a snap ring that allows the minimum axial play.

Mark	Thickness mm (in.)
A	2.50 – 2.55 (0.0984 – 0.1004)
B	2.55 – 2.60 (0.1004 – 0.1024)
C	2.60 – 2.65 (0.1024 – 0.1044)
D	2.65 – 2.70 (0.1044 – 0.1063)
E	2.70 – 2.75 (0.1063 – 0.1083)
F	2.75 – 2.80 (0.1083 – 0.1102)

(b) Using snap ring pliers (expander), install the snap ring.

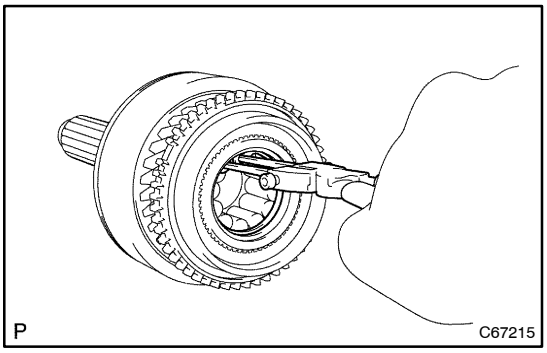


9. INSTALL INPUT SHAFT BEARING

(a) Install the 12 rollers and 2 spacers.

HINT:

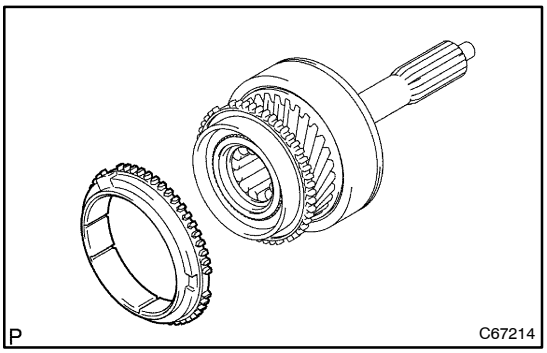
Apply MP grease to the 12 rollers and install it into the input shaft.



10. INSTALL NEEDLE ROLLER HOLE SNAP RING

(a) Using snap ring pliers (expander), install the snap ring.

(b) Check that the input shaft needle roller bearing rotates smoothly and that it is not stuck.



11. INSTALL 5TH GEAR SYNCHRONIZER RING

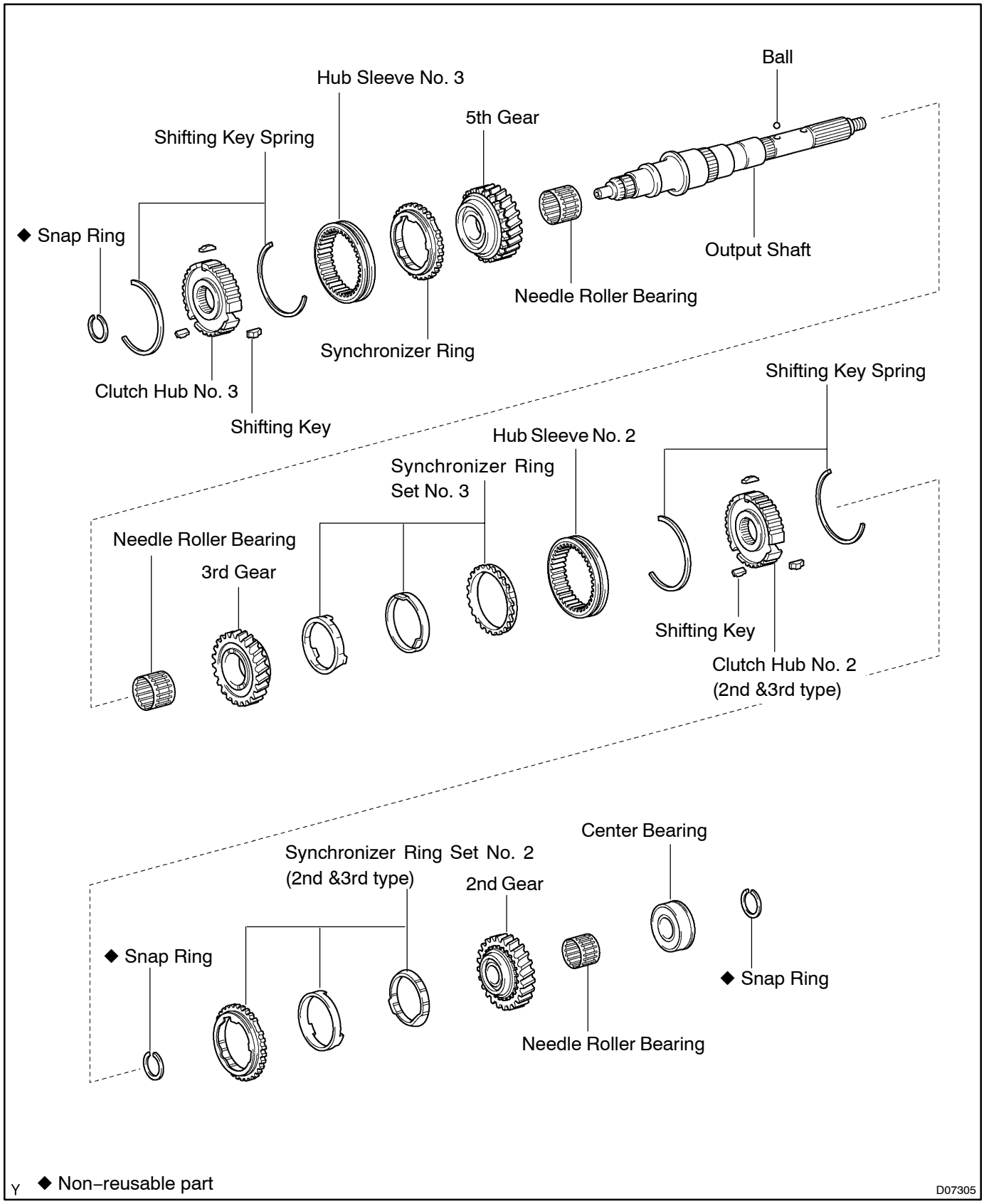
(a) Apply gear oil to the taper cone of the input shaft.

(b) Install the 5th gear synchronizer ring to the input shaft.

OUTPUT SHAFT ASSY

COMPONENTS

4106Y–01

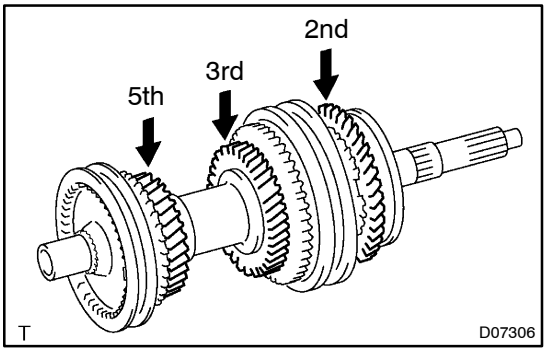


Y ◆ Non–reusable part

D07305

4106Z–01

OVERHAUL

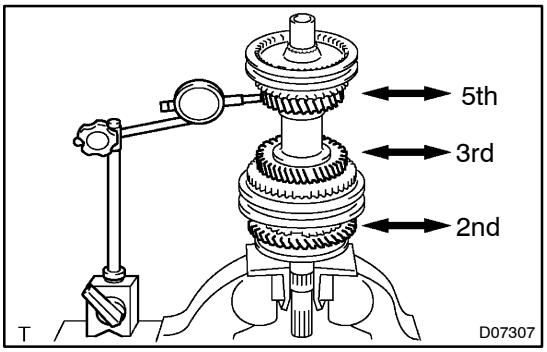


1. INSPECT EACH GEAR THRUST CLEARANCE

(a) Using a feeler gauge, measure the thrust clearance of each gear.

Standard thrust clearance:

Gear	Clearance mm (in.)
2nd	0.10 – 0.55 (0.0039 – 0.0217)
3rd and 5th	0.10 – 0.35 (0.0039 – 0.0138)



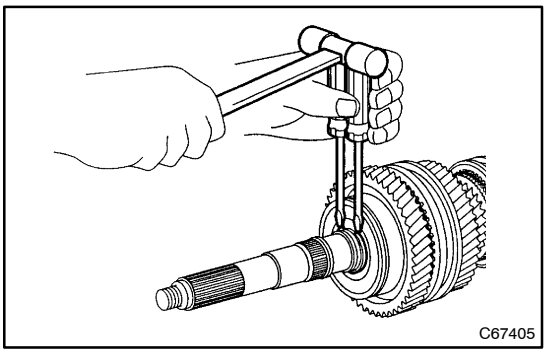
2. INSPECT EACH GEAR RADIAL CLEARANCE

(a) Using a dial indicator, measure the radial clearance of each gear.

Standard radial clearance:

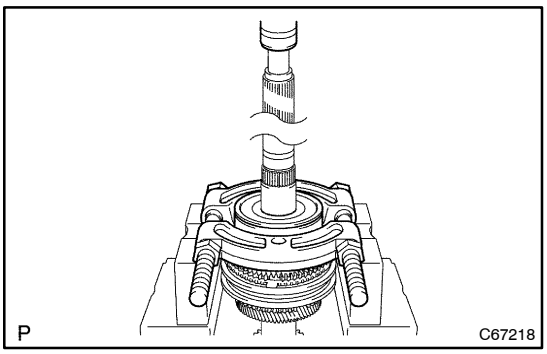
Gear	Clearance mm (in.)
3rd	0.015 – 0.068 (0.0006 – 0.0027)
2nd and 5th	0.020 – 0.073 (0.0008 – 0.0029)

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



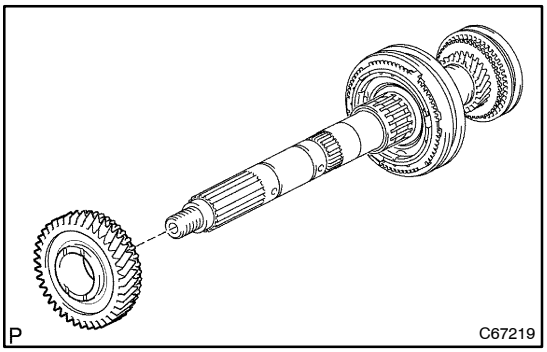
3. REMOVE OUTPUT SHAFT CENTER BEARING SHAFT SNAP RING

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



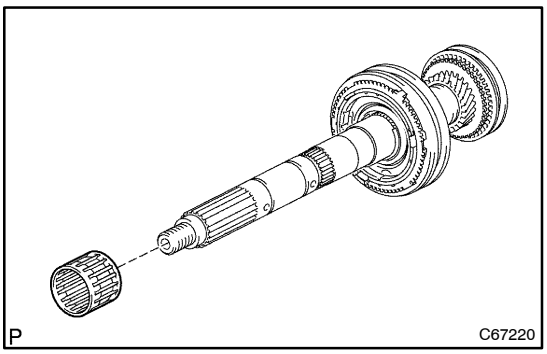
4. REMOVE OUTPUT SHAFT CENTER BEARING

(a) Using SST and a press, press out the center bearing.
SST 09555–55010



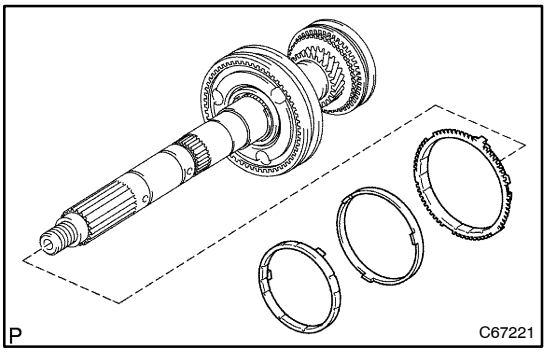
5. REMOVE 2ND GEAR

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



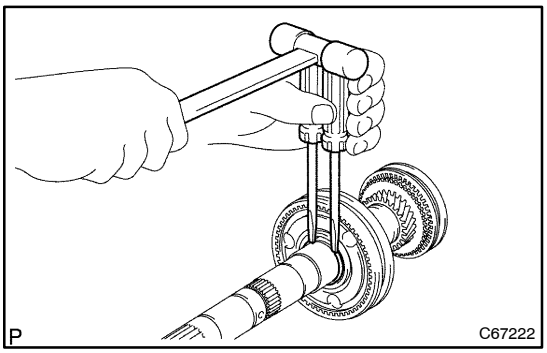
6. REMOVE 2ND GEAR NEEDLE ROLLER BEARING

(a) Remove the needle roller bearing from the output shaft.



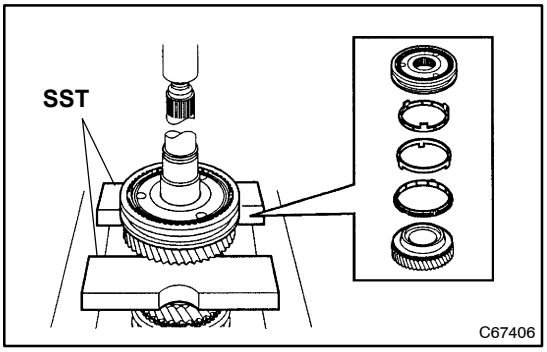
7. REMOVE SYNCHRONIZER RING SET NO.2

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



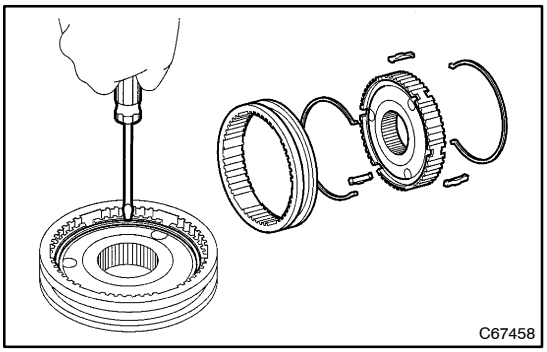
8. REMOVE CLUTCH HUB NO.1 SHAFT SNAP RING

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



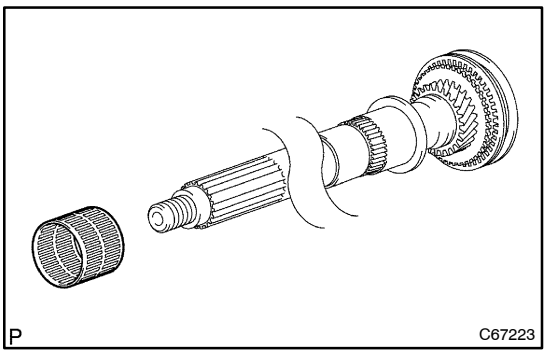
9. REMOVE 3RD GEAR

(a) Using SST and a press, press out the clutch hub No. 2 assy, synchronizer ring set No. 3 and 3rd gear.
SST 09527–20011



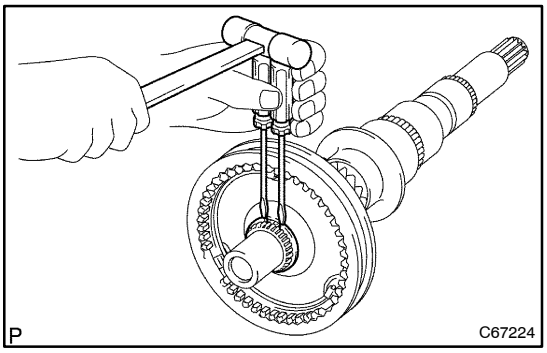
10. REMOVE TRANSMISSION CLUTCH HUB NO.2

(a) Using a screwdriver, remove the 3 shifting keys, 2 springs and clutch hub No. 2 from the hub sleeve No. 2.



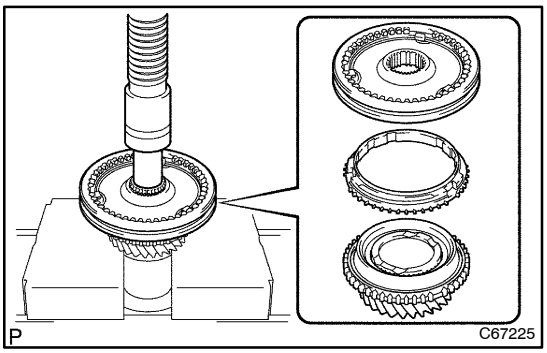
11. REMOVE 3RD GEAR NEEDLE ROLLER BEARING

(a) Remove the needle roller bearing from the output shaft.



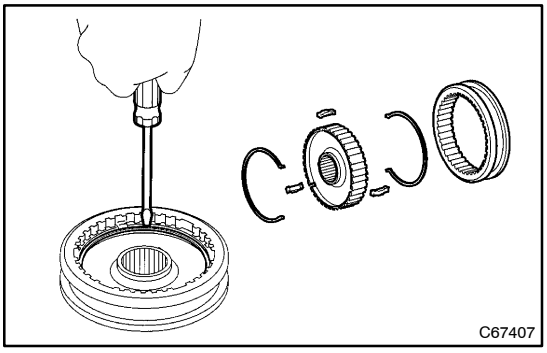
12. REMOVE CLUTCH HUB NO.2 SETTING SHAFT SNAP RING

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



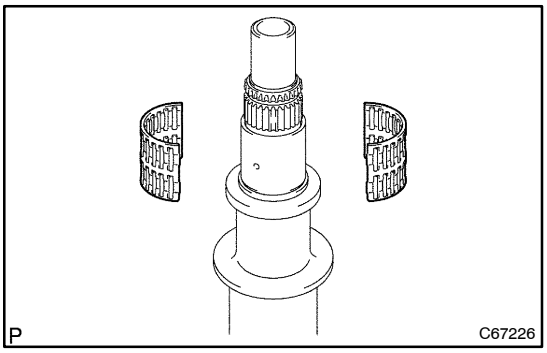
13. REMOVE 5TH GEAR

(a) Using a press, press out the clutch hub No. 3 assy, 5th gear synchronizer ring and 5th gear.



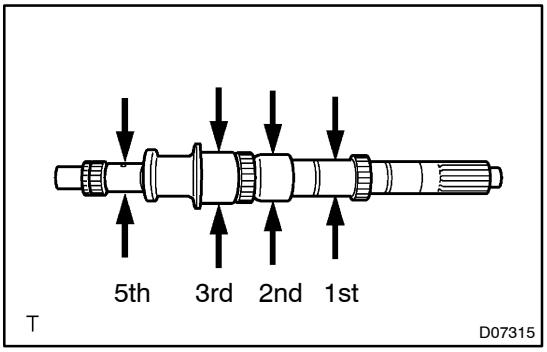
14. REMOVE TRANSMISSION CLUTCH HUB NO.3

(a) Using a screwdriver, remove the 3 shifting keys, 2 springs and clutch hub No. 3 from the hub sleeve No. 3.



15. REMOVE 5TH GEAR NEEDLE ROLLER BEARING

(a) Remove the needle roller bearing from the output shaft.

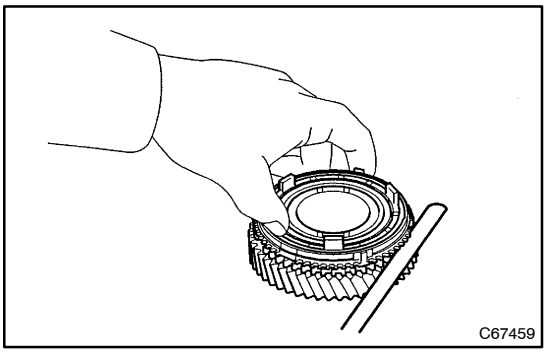


16. INSPECT OUTPUT SHAFT

(a) Using a micrometer, measure the journal diameter.
Minimum journal diameter:

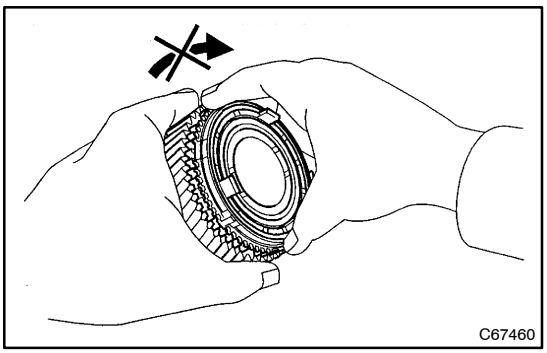
Journal	Diameter mm (in.)
1st	44.484 (1.7513)
2nd	49.979 (1.9677)
3rd	57.984 (2.2828)
5th	37.979 (1.4952)

If the journal diameter is less than the minimum, replace the output shaft.

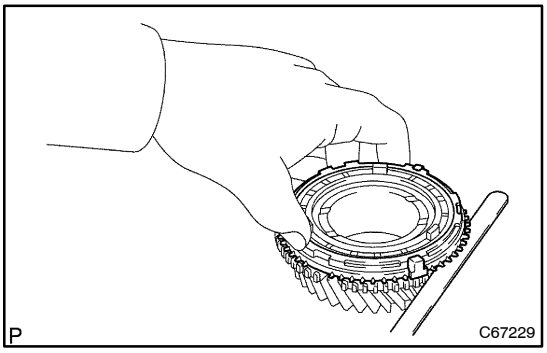


17. INSPECT SYNCHRONIZER RING SET NO.2

(a) Check the synchronizer ring for wear or damage.
(b) Using a feeler gauge, measure the clearance between the synchronizer ring No. 2 and the 2nd gear.
Standard clearance:
1.25 – 2.15 mm (0.0492 – 0.0846 in.)

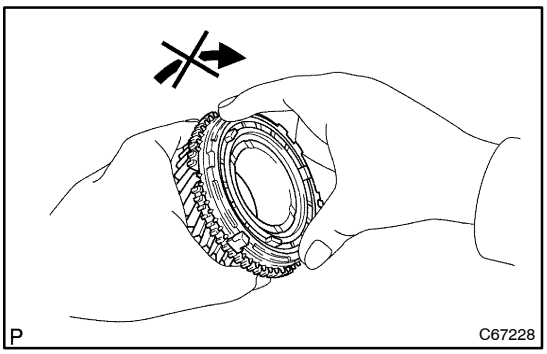


(c) Check the braking effect of the synchronizer ring, turn the synchronizer ring in one direction while pushing it to the gear cone, and then check that the ring locks.

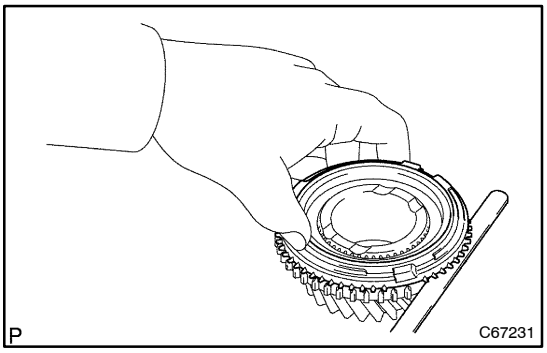


18. INSPECT SYNCHRONIZER RING SET NO.3

(a) Check for wear or damage.
(b) Using a feeler gauge, measure the clearance between the synchronizer ring back and the gear spline end.
Standard clearance:
1.23 – 2.13 mm (0.0484 – 0.0839 in.)



(c) Check the braking effect of the synchronizer ring, turn the synchronizer ring in one direction while pushing it to the gear cone, and then check that the ring locks.

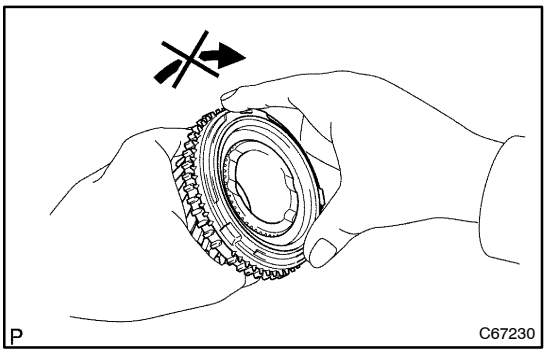


19. INSPECT 5TH GEAR SYNCHRONIZER RING

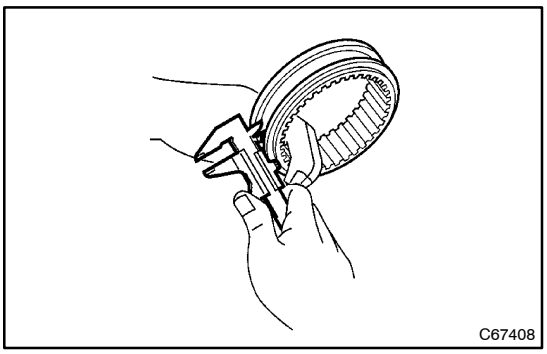
(a) Check for wear or damage.

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

Standard clearance:
0.8 – 1.6 mm (0.0315 – 0.0630 in.)



(c) Check the braking effect of the synchronizer ring, turn the synchronizer ring in one direction while pushing it to the gear cone, and then check that the ring locks.

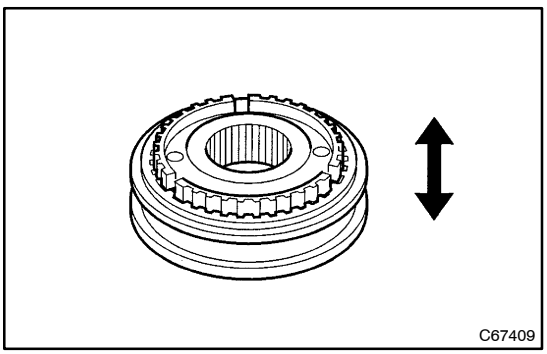


20. INSPECT TRANSMISSION HUB SLEEVE NO.2

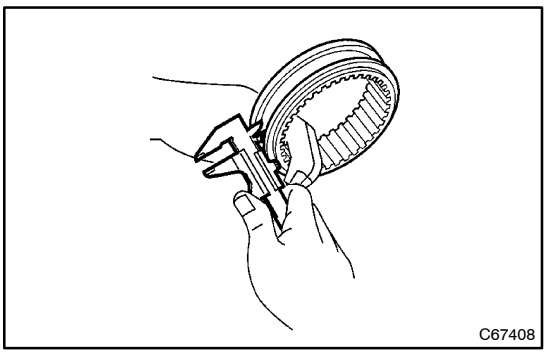
(a) Using vernier calipers, measure the hub sleeve No. 2.

Standard clearance:
12.0 – 12.1 mm (0.4724 – 0.4764 in.)
Maximum clearance: 12.1 mm (0.4764 in.)

(b) Check the tip of the spline gear of the hub sleeve No. 2 for wear.



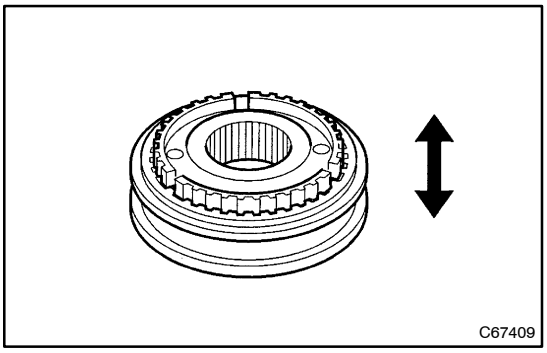
(c) Check the sliding condition between the clutch hub No .2 and the hub sleeve No. 2.



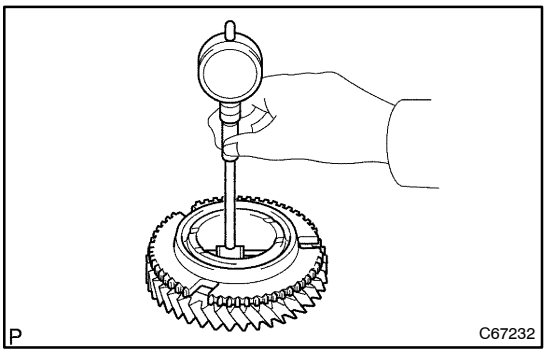
21. INSPECT TRANSMISSION HUB SLEEVE NO.3

(a) Using vernier calipers, measure the hub sleeve No. 3.
Standard clearance:
12.0 – 12.1 mm (0.4724 – 0.4764 in.)
Maximum clearance: 12.1 mm (0.4764 in.)

(b) Check the tip of the spline gear of the hub sleeve No. 3 for wear.

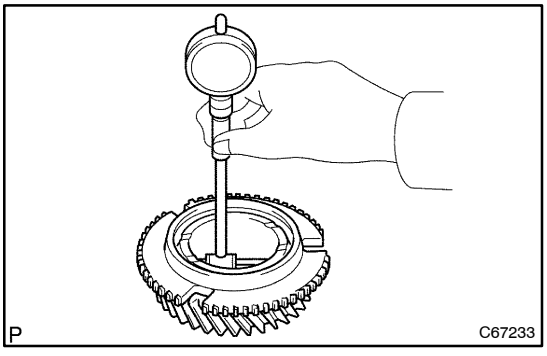


(c) Check the sliding condition between the clutch hub No. 3 and the hub sleeve No. 3.



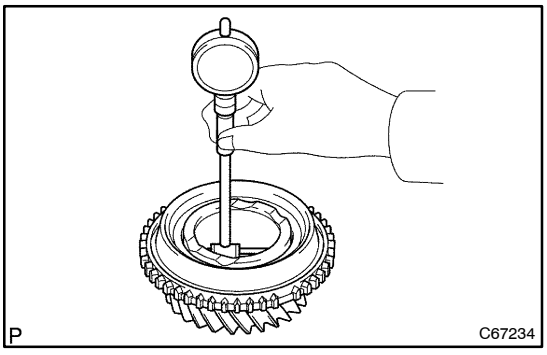
22. INSPECT 2ND GEAR

(a) Using a cylinder gauge, measure the inside diameter of the 2nd gear.
Standard inside clearance:
57.015 – 57.040 mm (2.2447 – 2.2457 in.)
Maximum inside clearance: 57.040 mm (2.2457 in.)



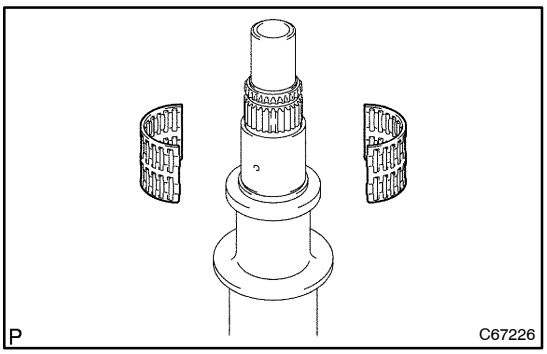
23. INSPECT 3RD GEAR

(a) Using a cylinder gauge, measure the inside diameter of the 3rd gear.
Standard inside clearance:
65.015 – 65.040 mm (2.5596 – 2.5606 in.)
Maximum inside clearance: 65.040 mm (2.5606 in.)



24. INSPECT 5TH GEAR

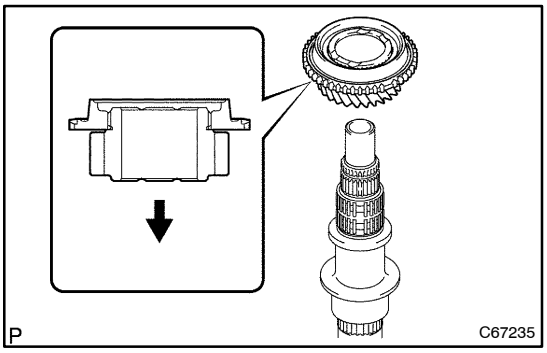
(a) Using a cylinder gauge, measure the inside diameter of the 3rd gear.
Standard inside clearance:
44.015 – 44.040 mm (1.7329 – 1.7339 in.)
Maximum inside clearance: 44.040 mm (1.7339 in.)



25. INSTALL 5TH GEAR NEEDLE ROLLER BEARING

(a) Apply gear oil to the needle roller bearing.

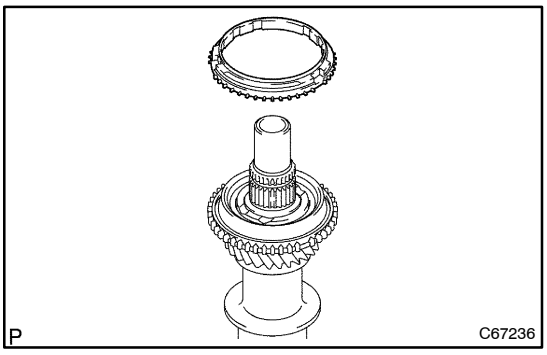
(b) Install the needle roller bearing to the output shaft.



26. INSTALL 5TH GEAR

(a) Apply gear oil to the 5 th gear.

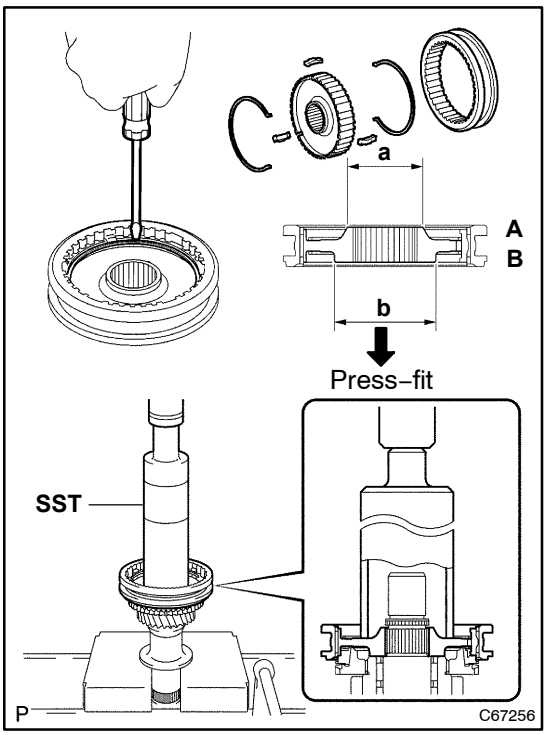
(b) Install the 5 th gear to the output shaft.



27. INSTALL 5TH GEAR SYNCHRONIZER RING

(a) Apply gear oil to the synchronizer ring.

(b) Install the synchronizer ring to the 5th gear.



28. INSTALL TRANSMISSION CLUTCH HUB NO.3

(a) Install the hub sleeve No. 3 to the clutch hub No. 3.

NOTICE:

The orientation of the clutch hub can be recognized by the dimensions (a, b) of the boss part.

The orientation of the hub sleeve can be recognized by the shape (A, B) of the outer circumference.

(b) Using a screwdriver, install the 3 shifting keys and 2 shifting key springs.

NOTICE:

The opening part of the key spring must not be placed in the same direction.

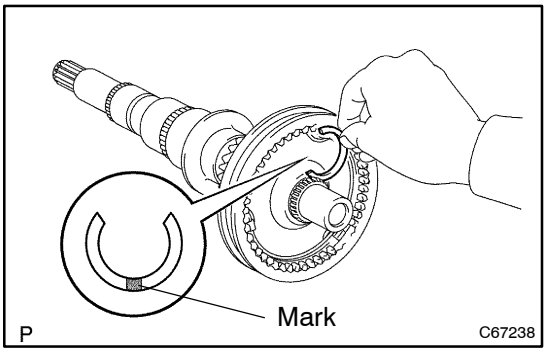
(c) Using SST and a press, press in the clutch hub No. 3 assy.
SST 09316–60011 (09316–00011)

NOTICE:

Take care not to install the clutch hub No. 3 assembly in the wrong direction.

Aligning the key groove of the 5th gear synchronizer ring with synchromesh shifting key, install them.

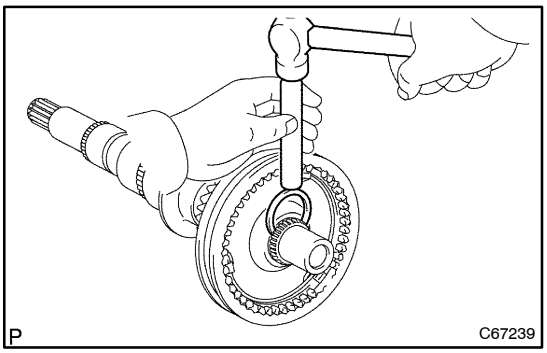
(d) Check that the 5 th gear rotates smoothly and that the 5th gear synchronizer ring is not stuck.



29. INSTALL CLUTCH HUB NO.2 SETTING SHAFT SNAP RING

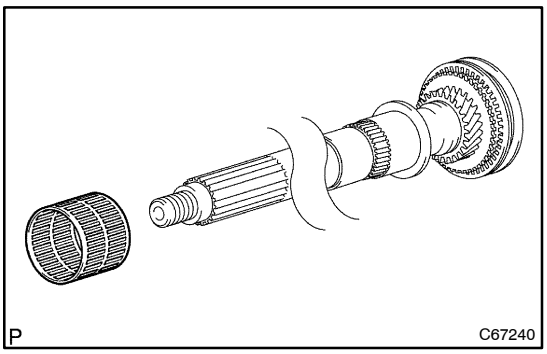
(a) Select a snap ring that allows the minimum axial play.

Mark	Thickness mm (in.)
4	1.90 – 1.95 (0.0748 – 0.0768)
5	1.95 – 2.00 (0.0768 – 0.0787)
6	2.00 – 2.05 (0.0787 – 0.0807)
7	2.05 – 2.10 (0.0807 – 0.0827)
8	2.10 – 2.15 (0.0827 – 0.0846)
9	2.15 – 2.20 (0.0846 – 0.0866)



(b) Using a brass bar and hammer, tap in a new snap ring.

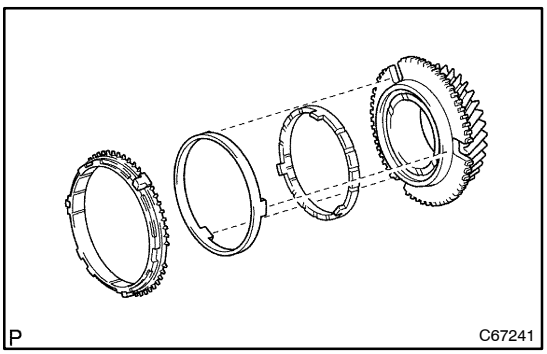
30. INSPECT 5TH GEAR THRUST CLEARANCE (See step 1)



31. INSTALL 3RD GEAR NEEDLE ROLLER BEARING

(a) Apply gear oil to the needle roller bearing.

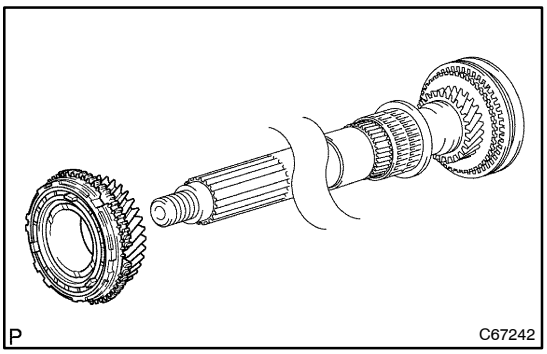
(b) Install the needle roller bearing to the output shaft.



32. INSTALL SYNCHRONIZER RING SET NO.3

(a) Apply gear oil to the taper cone of the synchronizer ring set No. 3.

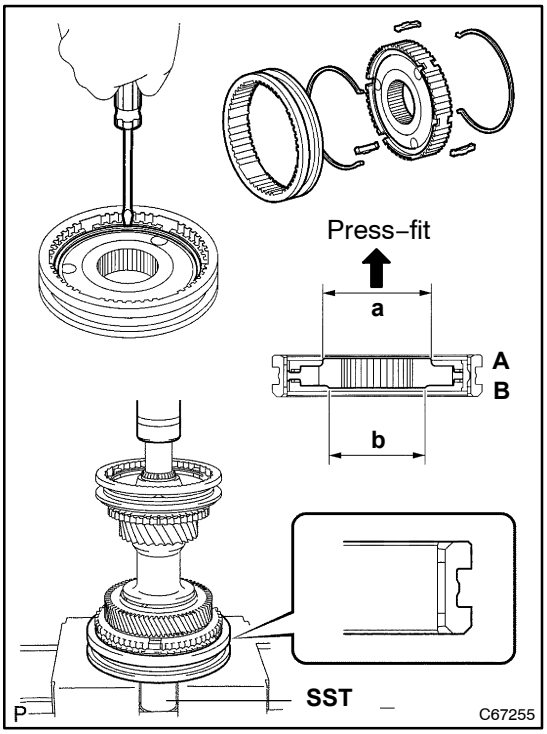
(b) Install the synchronizer ring on the gear and align the ring slots with the shifting keys.



33. INSTALL 3RD GEAR

(a) Apply gear oil to the 3rd gear.

(b) Install the 3rd gear to the output shaft.



34. INSTALL TRANSMISSION CLUTCH HUB NO.2

(a) Install the hub sleeve No. 2 to the clutch hub No. 2.

NOTICE:

The orientation of the clutch hub can be recognized by the dimensions (a, b) of the boss part.

The orientation of the hub sleeve can be recognized by the shape (A, B) of the outer circumference.

(b) Using a screwdriver, install the 3 shifting keys and 2 shifting key springs.

NOTICE:

The opening part of the key spring must not be placed in the same direction.

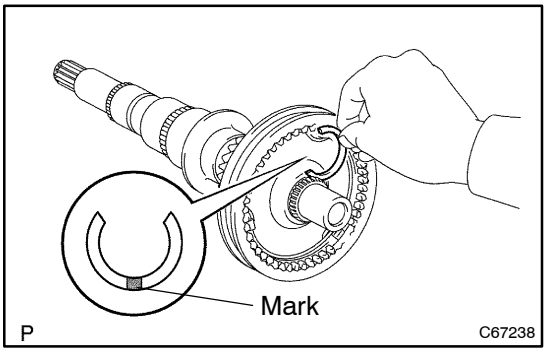
(c) Using SST and a press, press in the clutch hub No. 2 assy.
SST 09316–20011

NOTICE:

Take care not to install the clutch hub No. 2 assembly in the wrong direction.

Aligning the key groove of the synchronizer ring set No. 3 outer ring with synchromesh shifting key, install them.

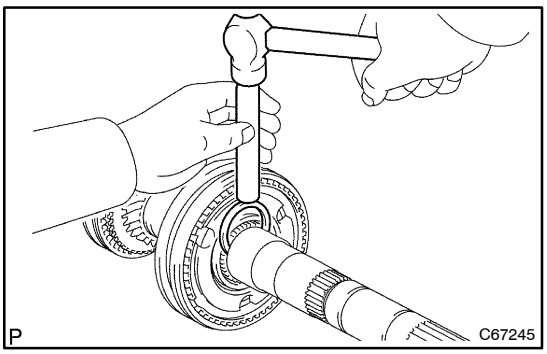
(d) Check that the 3rd gear rotates smoothly and that the synchronizer ring is not stuck.



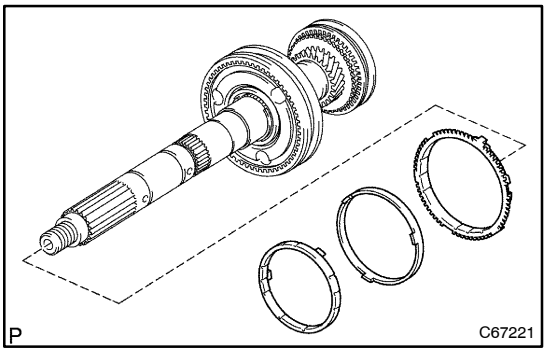
35. INSTALL CLUTCH HUB NO.1 SHAFT SNAP RING

(a) Select a snap ring that allows the minimum axial play.

Mark	Thickness mm (in.)
A	2.90 – 2.95 (0.1142 – 0.1161)
B	2.95 – 3.00 (0.1161 – 0.1181)
C	3.00 – 3.05 (0.1181 – 0.1201)
D	3.05 – 3.10 (0.1201 – 0.1220)
E	3.10 – 3.15 (0.1220 – 0.1240)
F	3.15 – 3.20 (0.1240 – 0.1260)

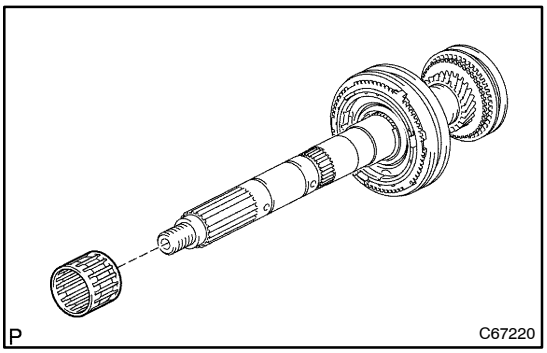


(b) Using a brass bar and hammer, tap in the snap ring.



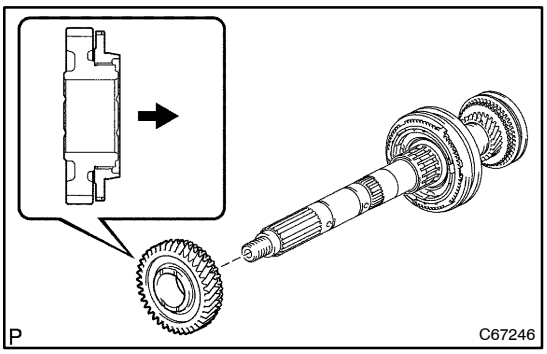
36. INSTALL SYNCHRONIZER RING SET NO.2

(a) Apply gear oil to the taper cone of the synchronizer ring.
(b) Install the synchronizer ring set No. 2 to the clutch hub No. 2 assy and align the ring slots with the shifting keys.



37. INSTALL 2ND GEAR NEEDLE ROLLER BEARING

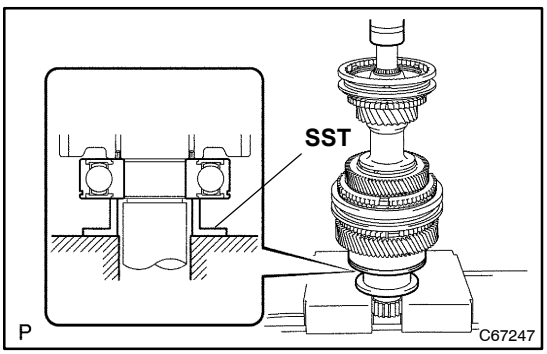
(a) Apply gear oil to the needle roller bearing.
(b) Install the needle roller bearing to the output shaft.



38. INSTALL 2ND GEAR

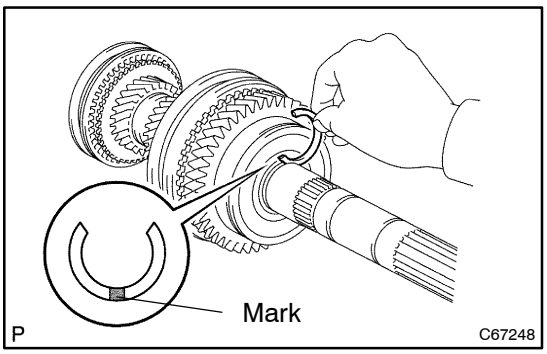
(a) Apply gear oil to the 2 nd gear.
(b) Install the 2 nd gear to the output shaft.

HINT:
Align the cut–out of the second gear with the claw of the middle ring of the synchronizer ring set No. 2.



39. INSTALL OUTPUT SHAFT CENTER BEARING

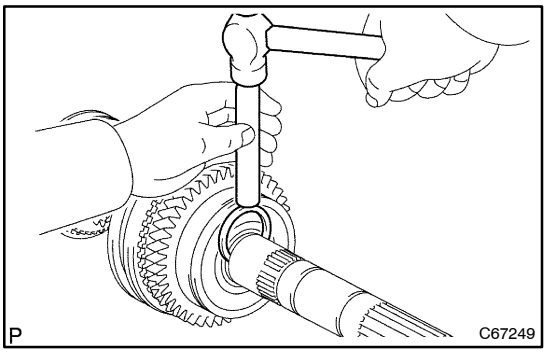
(a) Using SST and a press, press in a new bearing.
(b) Check that the bearing and 2nd gear rotates smoothly and that the synchronizer ring is not stuck.



40. INSTALL OUTPUT SHAFT CENTER BEARING SHAFT SNAP RING

(a) Select a snap ring that allows the minimum axial play.

Mark	Thickness mm (in.)
A	2.40 – 2.45 (0.0945 – 0.0965)
B	2.45 – 2.50 (0.0965 – 0.0984)
C	2.50 – 2.55 (0.0984 – 0.1004)
D	2.55 – 2.60 (0.1004 – 0.1024)
E	2.60 – 2.65 (0.1024 – 0.1044)
F	2.65 – 2.70 (0.1044 – 0.1063)
G	2.70 – 2.75 (0.1063 – 0.1083)
H	2.75 – 2.80 (0.1083 – 0.1102)



(b) Using a brass bar and hammer, tap in the snap ring.

41. INSPECT 3RD GEAR THRUST CLEARANCE (See step 1)

42. INSPECT 2ND GEAR THRUST CLEARANCE (See step 1)

43. INSPECT 5TH GEAR RADIAL CLEARANCE (See step 2)

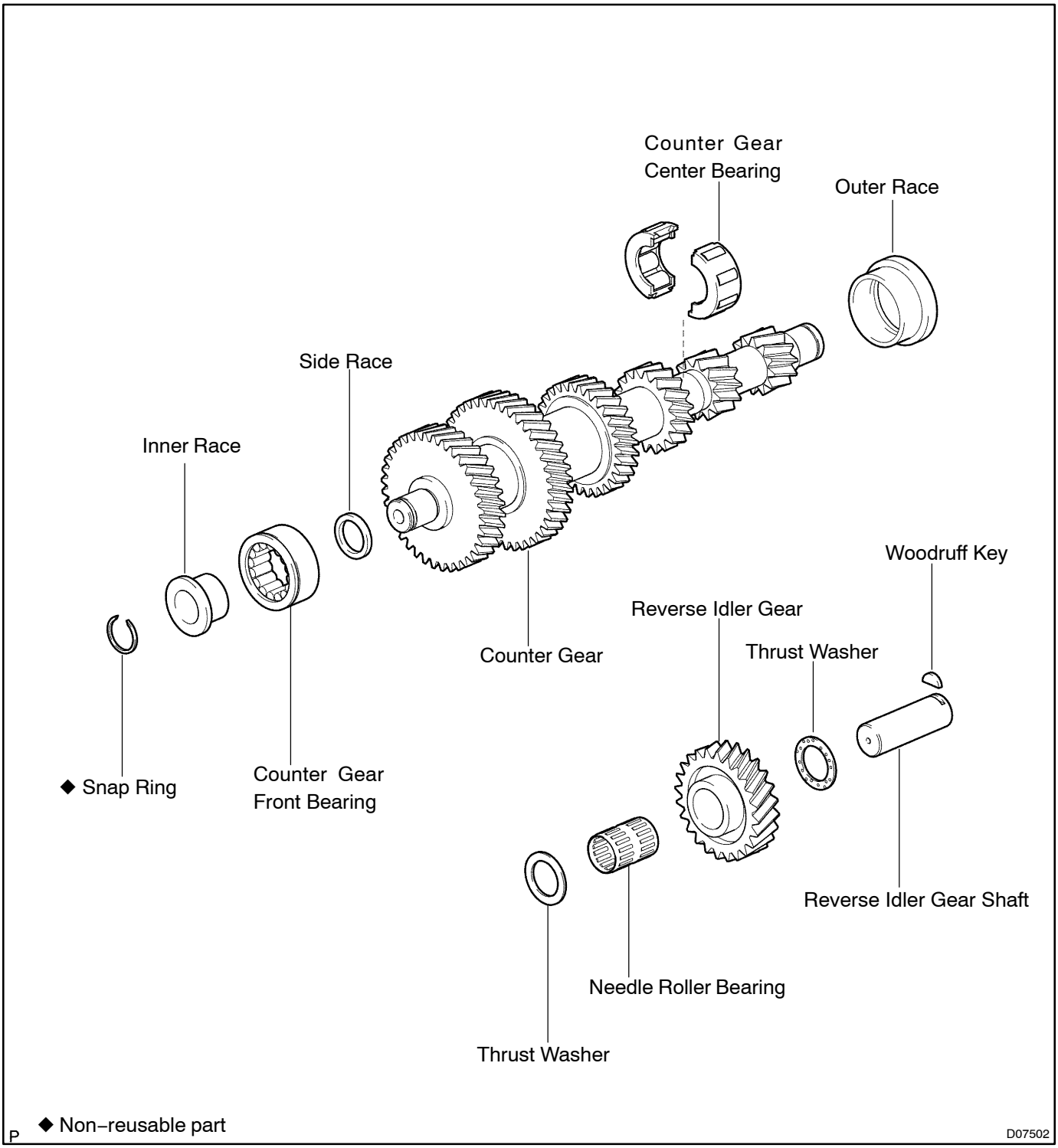
44. INSPECT 3RD GEAR RADIAL CLEARANCE (See step 2)

45. INSPECT 2ND GEAR RADIAL CLEARANCE (See step 2)

COUNTER GEAR ASSY

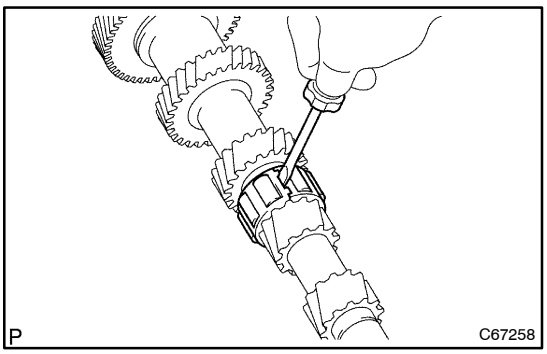
COMPONENTS

41070–01



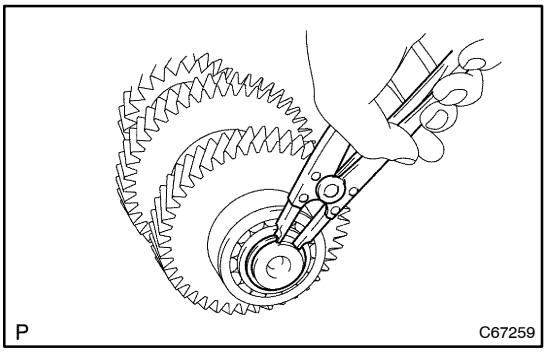
41071–01

OVERHAUL



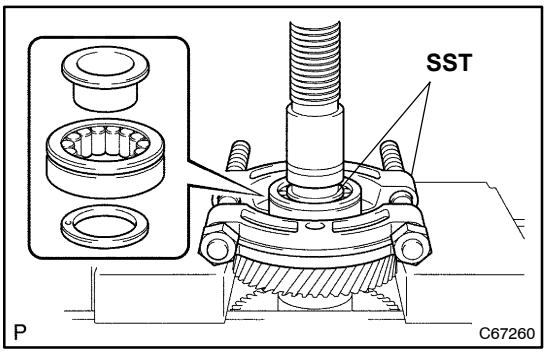
1. REMOVE COUNTER SHAFT CENTER BEARING

(a) Using a screwdriver, remove the bearing.



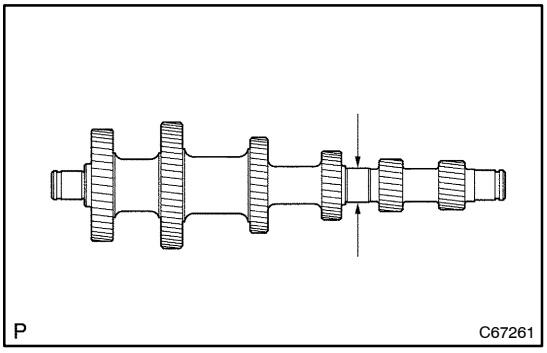
2. REMOVE COUNTER GEAR FRONT BEARING SNAP RING NO.1

(a) Using snap ring pliers (expander), remove the snap ring.



3. REMOVE COUNTER GEAR FRONT BEARING OR ROLLER

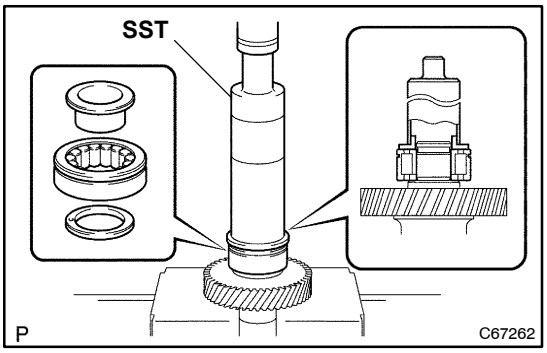
(a) Using SST and a press, press out the front bearing.
SST 09950–00020, 09950–60010 (09951–00290), 09950–70010 (09951–07100)



4. INSPECT COUNTER GEAR ASSY

(a) Using a micrometer, measure the bearing race outside diameter of the counter gear.
Standard outside diameter:
35.957 – 35.970 mm (1.4156 – 1.4161 in.)
Minimum outside diameter: 35.957 mm (1.4156 in.)

If the clearance is less than minimum, replace the gear bearing or shaft.



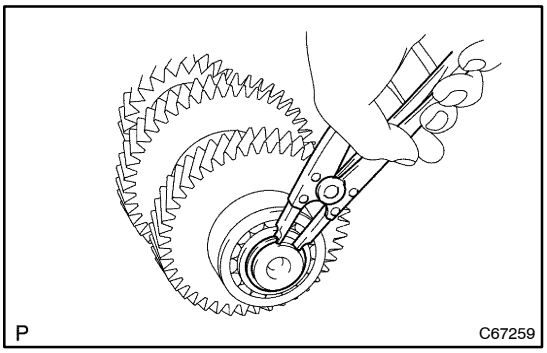
5. INSTALL COUNTER GEAR FRONT BEARING OR ROLLER

(a) Apply gear oil to the side race and bearing.
(b) Install the inner race and side race to the bearing as shown.
(c) Using SST and a press, press in the bearing.
SST 09316–60011 (09316–00011, 09316–00021)

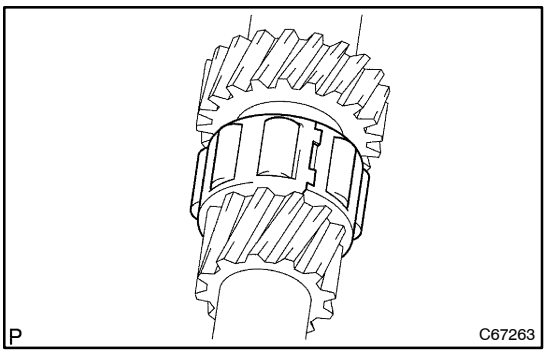
6. INSTALL COUNTER GEAR FRONT BEARING SNAP RING NO.1

(a) Select a snap ring that allows the minimum axial play.

Mark	Thickness mm (in.)
A	2.45 – 2.50 (0.0970 – 0.0984)
B	2.50 – 2.55 (0.0984 – 0.1004)
C	2.55 – 2.60 (0.1004 – 0.1024)
D	2.60 – 2.65 (0.1024 – 0.1044)
E	2.65 – 2.70 (0.1044 – 0.1063)
F	2.70 – 2.75 (0.1063 – 0.1083)



(b) Using snap ring pliers (expander), install the snap ring.



7. INSTALL COUNTER SHAFT CENTER BEARING

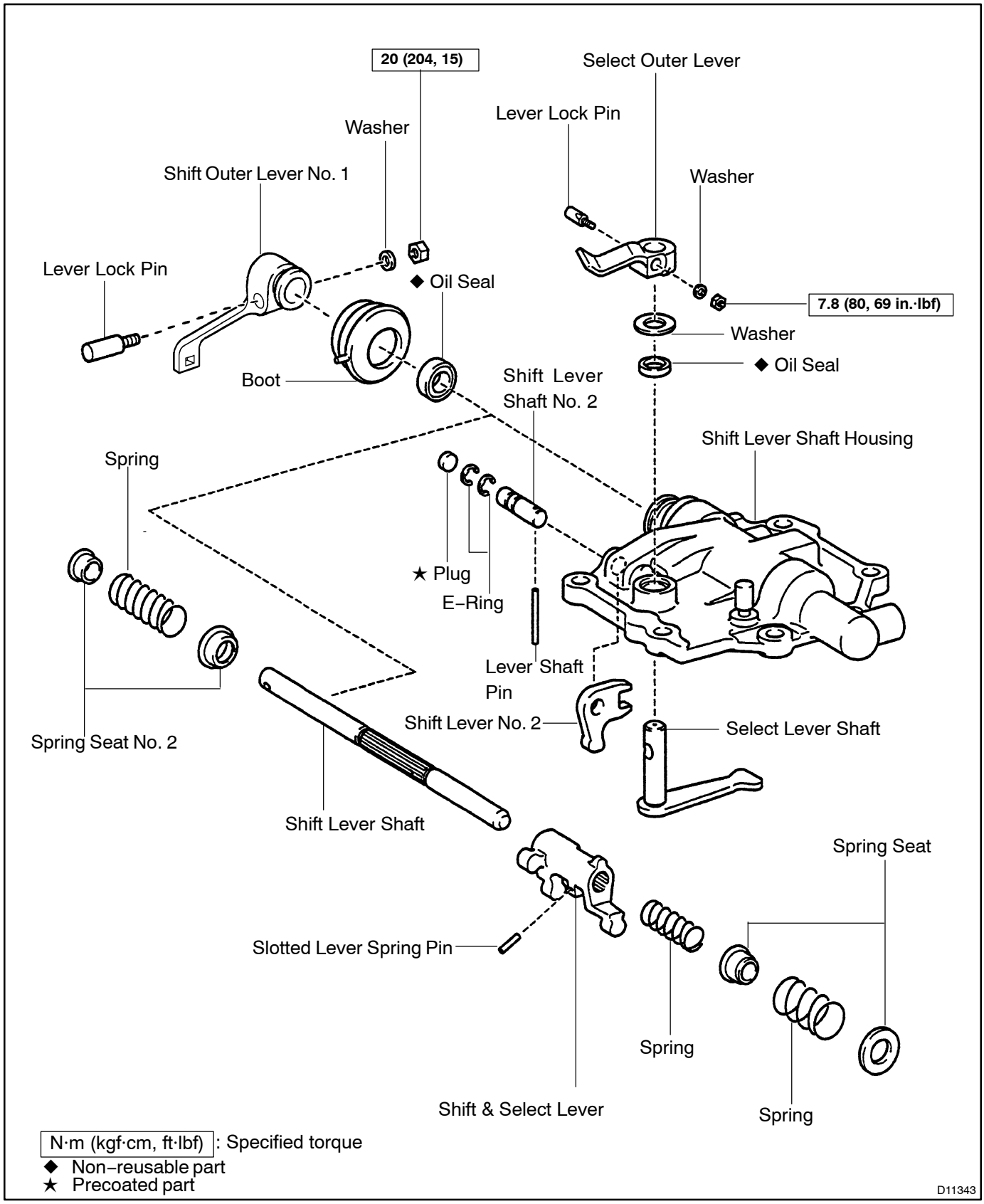
(a) Apply gear oil to the counter shaft center bearing.

(b) Engage the center bearing to the counter gear assy.

SHIFT LEVER SHAFT HOUSING ASSY

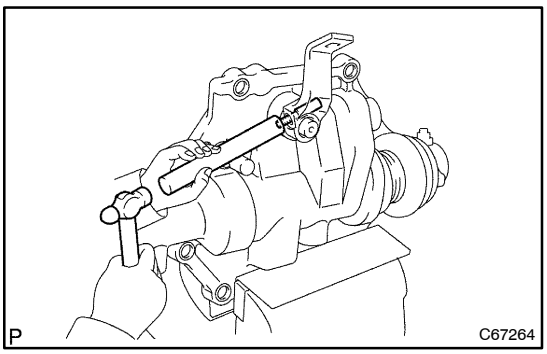
41072–01

COMPONENTS



41073–01

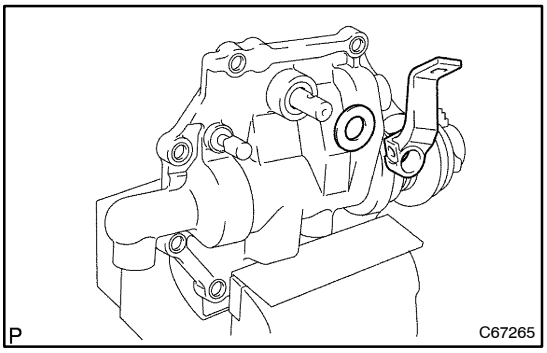
OVERHAUL



1. REMOVE SELECT OUTER LEVER LOCK PIN

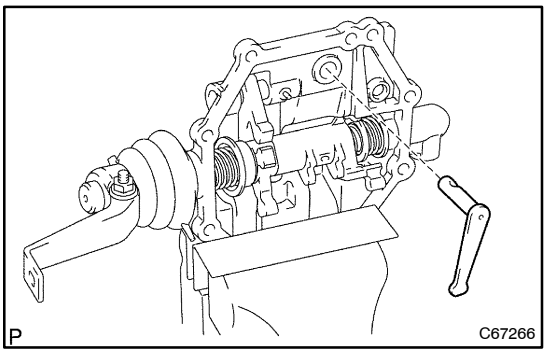
(a) Remove the nut and washer.

(b) Using a brass bar and hammer, tap out the lever lock pin.



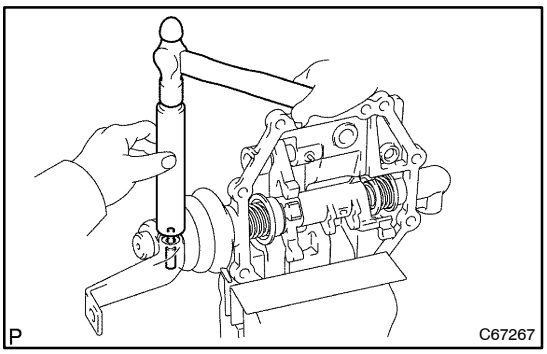
2. REMOVE SELECT OUTER LEVER

(a) Remove the select outer lever and washer from the select lever shaft.



3. REMOVE SELECT LEVER SHAFT SUB–ASSY

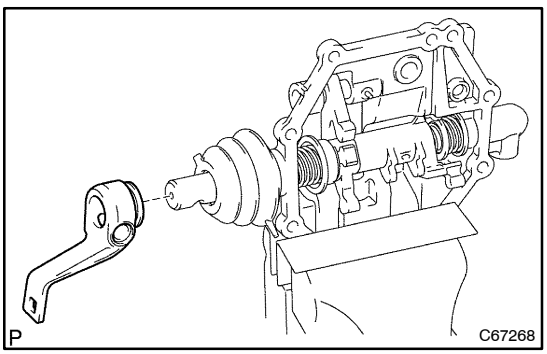
(a) Remove the select lever shaft from the housing.



4. REMOVE SHIFT OUTER LEVER LEVER LOCK PIN

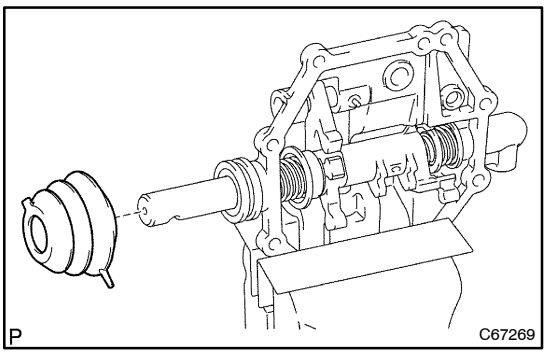
(a) Remove the nut and washer.

(b) Using a brass bar and hammer, tap out the lever lock pin.



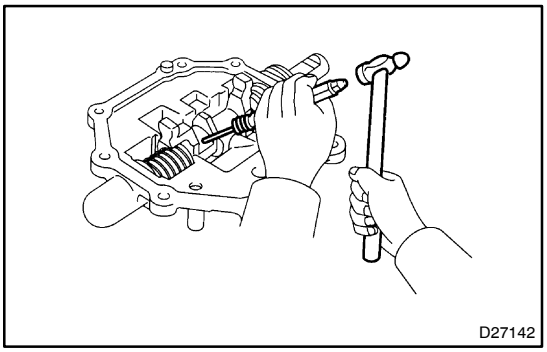
5. REMOVE SHIFT OUTER LEVER NO.1

(a) Remove the shift outer lever No. 1 from the shift lever shaft.



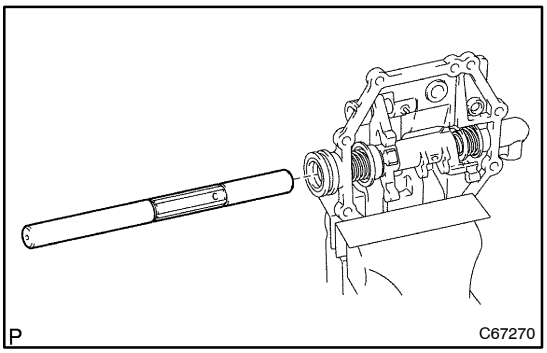
6. REMOVE SHIFT & SELECT LEVER SHAFT DUST BOOT

(a) Remove the dust boot from the housing.



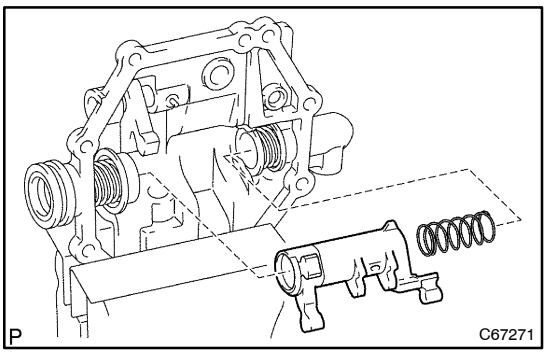
7. REMOVE SHIFT & SELECT LEVER PIN OR BOLT

(a) Using a pin punch (5 mm) and hammer, tap out the shift & select lever pin.



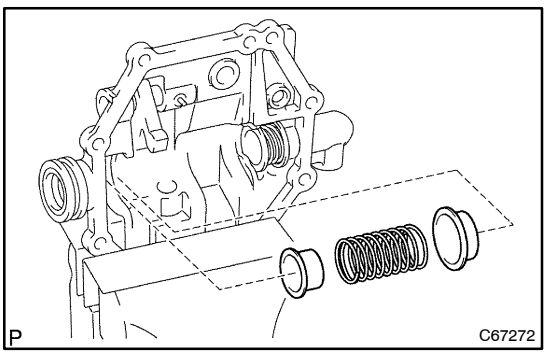
8. REMOVE SHIFT LEVER SHAFT

(a) Remove the shift lever shaft from the housing.



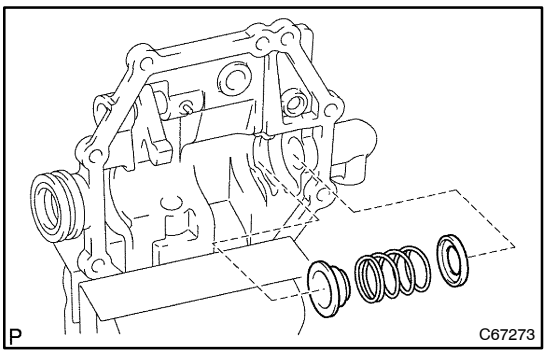
9. REMOVE SHIFT & SELECT LEVER

(a) Remove the shift & select lever and spring from the housing.



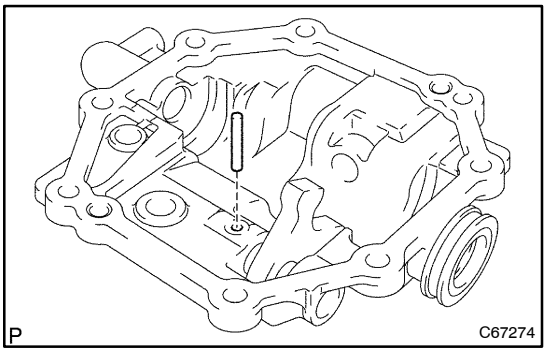
10. REMOVE SELECT SPRING SEAT NO.2

(a) Remove the 2 spring seats and spring from the housing.



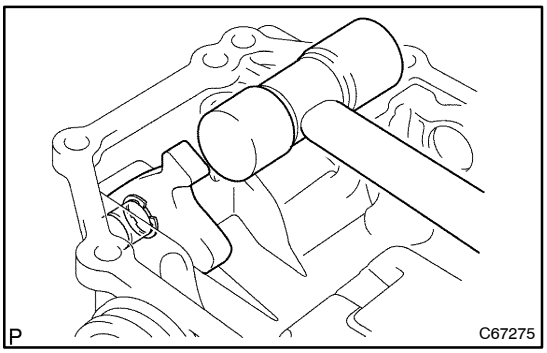
11. REMOVE SELECT SPRING SEAT

(a) Remove the 2 spring seats and spring from the housing.



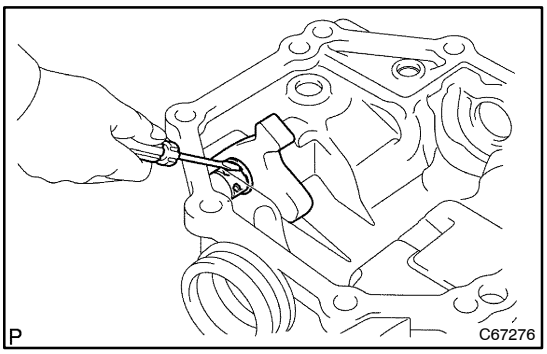
12. REMOVE SHIFT LEVER SHAFT PIN

(a) Remove the shift lever shaft pin from the housing.



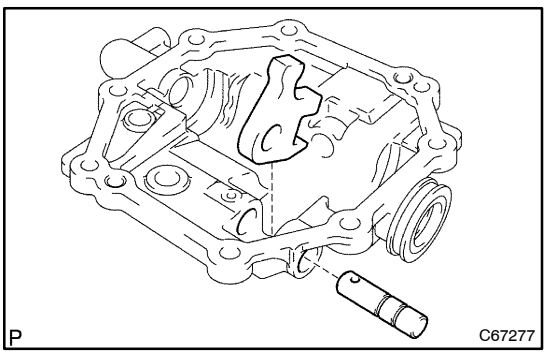
13. REMOVE SHIFT LEVER SHAFT PLUG

(a) Using a plastic hammer, carefully tap the No. 2 shift lever and remove the plug.

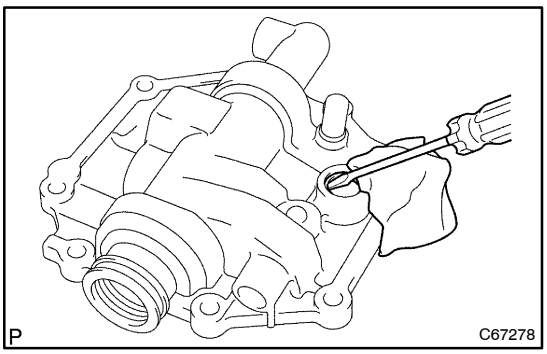


14. REMOVE SHIFT LEVER SHAFT NO.2

(a) Using a screwdriver, pry out the 2 E–rings from the shift lever shaft No. 2.

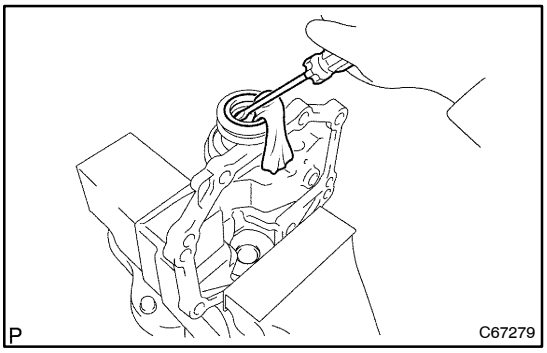


(b) Remove the shift lever shaft No. 2 and shift lever No. 2 from the housing.



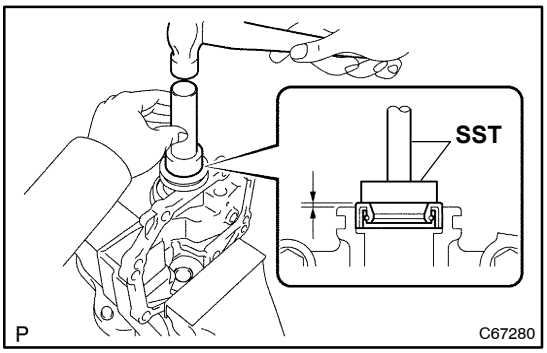
15. REMOVE SHIFT LEVER NO.2 SHAFT OIL SEAL

(a) Using a screwdriver, pry out the oil seal.



16. REMOVE SHIFT LEVER SHAFT OIL SEAL

(a) Using a screwdriver, pry out the oil seal.



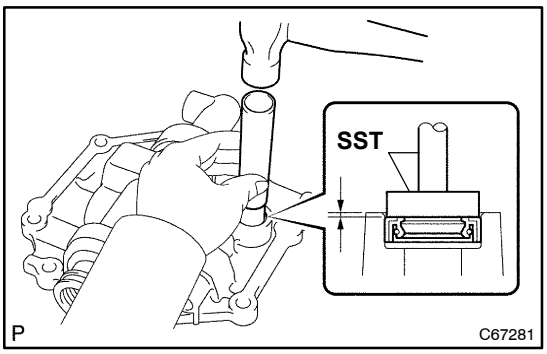
17. INSTALL SHIFT LEVER SHAFT OIL SEAL

(a) Apply MP grease to the lip of a new oil seal.

(b) Using SST and a hammer, tap in the oil seal.

SST 09950–60010 (09951–00310), 09950–70010 (09951–07100)

Drive in depth: –0.2 – 0.6 mm (–0.008 – 0.024 in.)



18. INSTALL SHIFT LEVER NO.2 SHAFT OIL SEAL

(a) Apply MP grease to the lip of the oil seal.

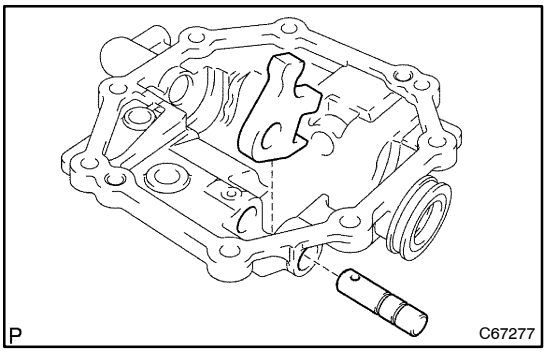
(b) Using SST and a hammer, drive in a new oil seal.

SST 09950–60010 (09951–00320) 09950–70010 (09951–07100)

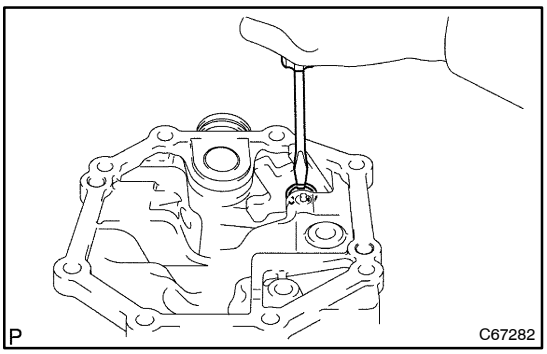
Drive in depth: 0 – 1.0 mm (0 – 0.039 in.)

19. INSTALL SHIFT LEVER SHAFT NO.2

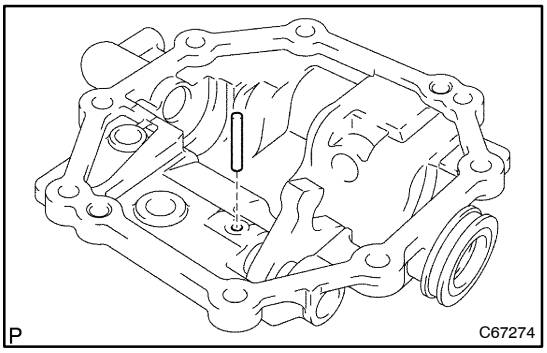
(a) Apply MP grease to the shift lever shaft No. 2.



(b) Install the shift lever No. 2 and shift lever shaft No. 2 to the housing.



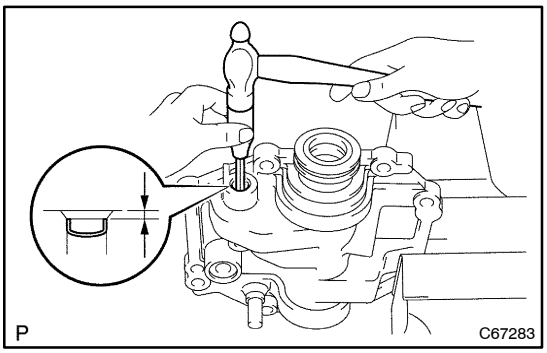
(c) Using a screwdriver and hammer, tap in the 2 E–rings to the shift lever shaft No. 2.



20. INSTALL SHIFT LEVER SHAFT PIN

(a) Apply MP grease to the shift lever shaft pin.

(b) Install the shift lever shaft pin to the housing.



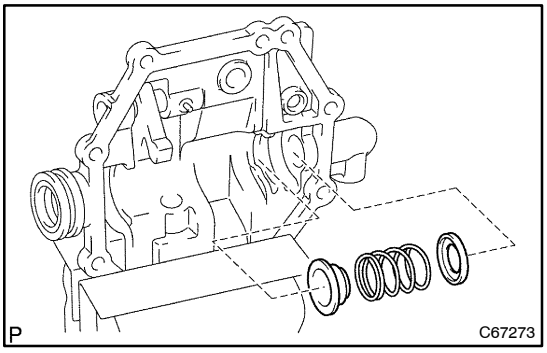
21. INSTALL SHIFT LEVER SHAFT PLUG

(a) Apply adhesive to a new plug.

Adhesive:
Part No. 08833–00070, THREE BOND 1344, LOCTITE 242 or equivalent

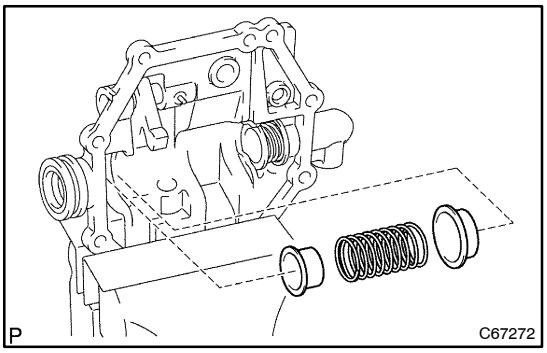
(b) Using a socket hexagon wrench (12 mm) and hammer, tap in the plug to the housing.

Drive in depth: 1.7 – 2.5 mm (0.067 – 0.098 in.)



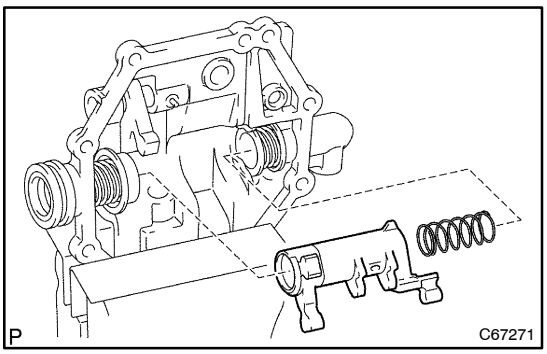
22. INSTALL SELECT SPRING SEAT

(a) Install the 2 spring seats and spring to the housing.



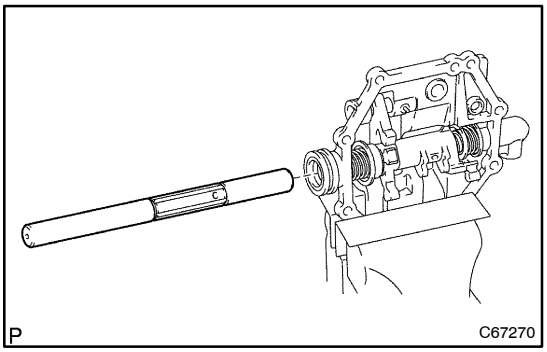
23. INSTALL SELECT SPRING SEAT NO.2

(a) Install the 2 spring seats No.2 and spring to the housing.



24. INSTALL SHIFT & SELECT LEVER

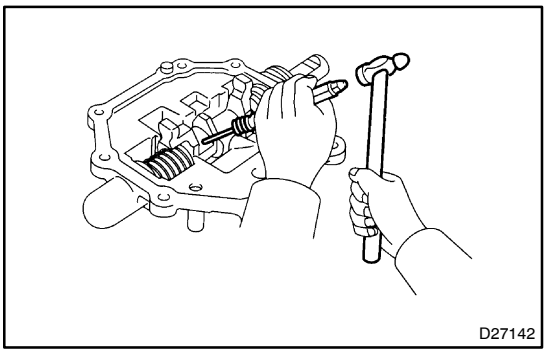
(a) Install the shift & select lever and spring to the housing.



25. INSTALL SHIFT LEVER SHAFT

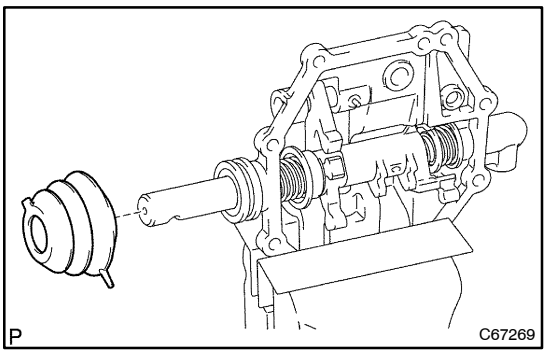
(a) Apply MP grease to the shift lever shaft.

(b) Install the shift lever shaft to the housing, spring seat and shift & select lever.



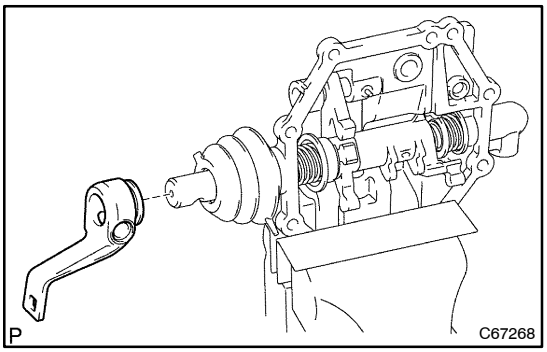
26. INSTALL SHIFT & SELECT LEVER PIN OR BOLT

(a) Using a pin punch (5 mm) and hammer, tap in the shift & select lever pin.



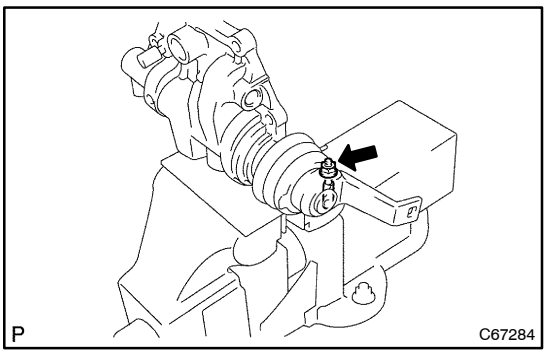
27. INSTALL SHIFT & SELECT LEVER SHAFT DUST BOOT

(a) Install the dust boot to the housing.



28. INSTALL SHIFT OUTER LEVER NO.1

(a) Install the shift outer lever No. 1 to the shift lever shaft.

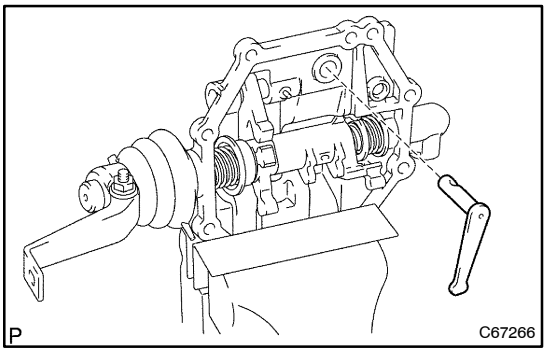


29. INSTALL SHIFT OUTER LEVER LEVER LOCK PIN

(a) Using a brass bar and hammer, tap in the lever lock pin.

(b) Install the nut and washer.

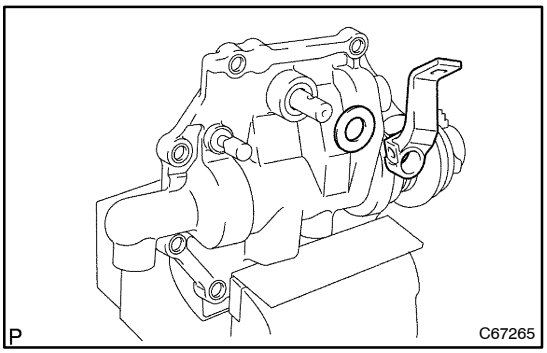
Torque: 20 N·m (204 kgf·cm, 15 ft·lbf)



30. INSTALL SELECT LEVER SHAFT SUB–ASSY

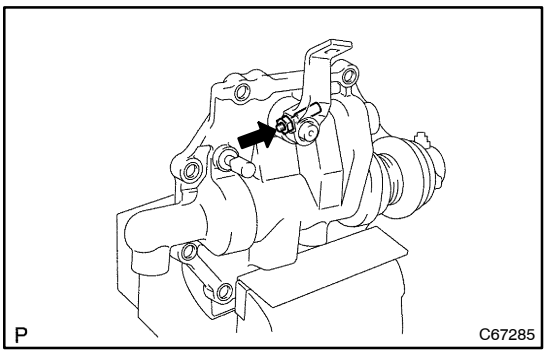
(a) Apply MP grease to the select lever shaft.

(b) Install the select lever shaft to the housing.



31. INSTALL SELECT OUTER LEVER

(a) Install the washer and select outer lever to the select lever shaft.



32. INSTALL SELECT OUTER LEVER LOCK PIN

(a) Using a brass bar and hammer, tap in the lever lock pin.

(b) Install the nut and washer.

Torque: 7.8 N·m (80 kgf·cm, 69 in.·lbf)

ALPHABETICAL INDEX

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