

SECTION 2B

CLUTCH

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GENERAL DESCRIPTION

The clutch is diaphragm spring clutch of dry single plate type and is operated mechanically.

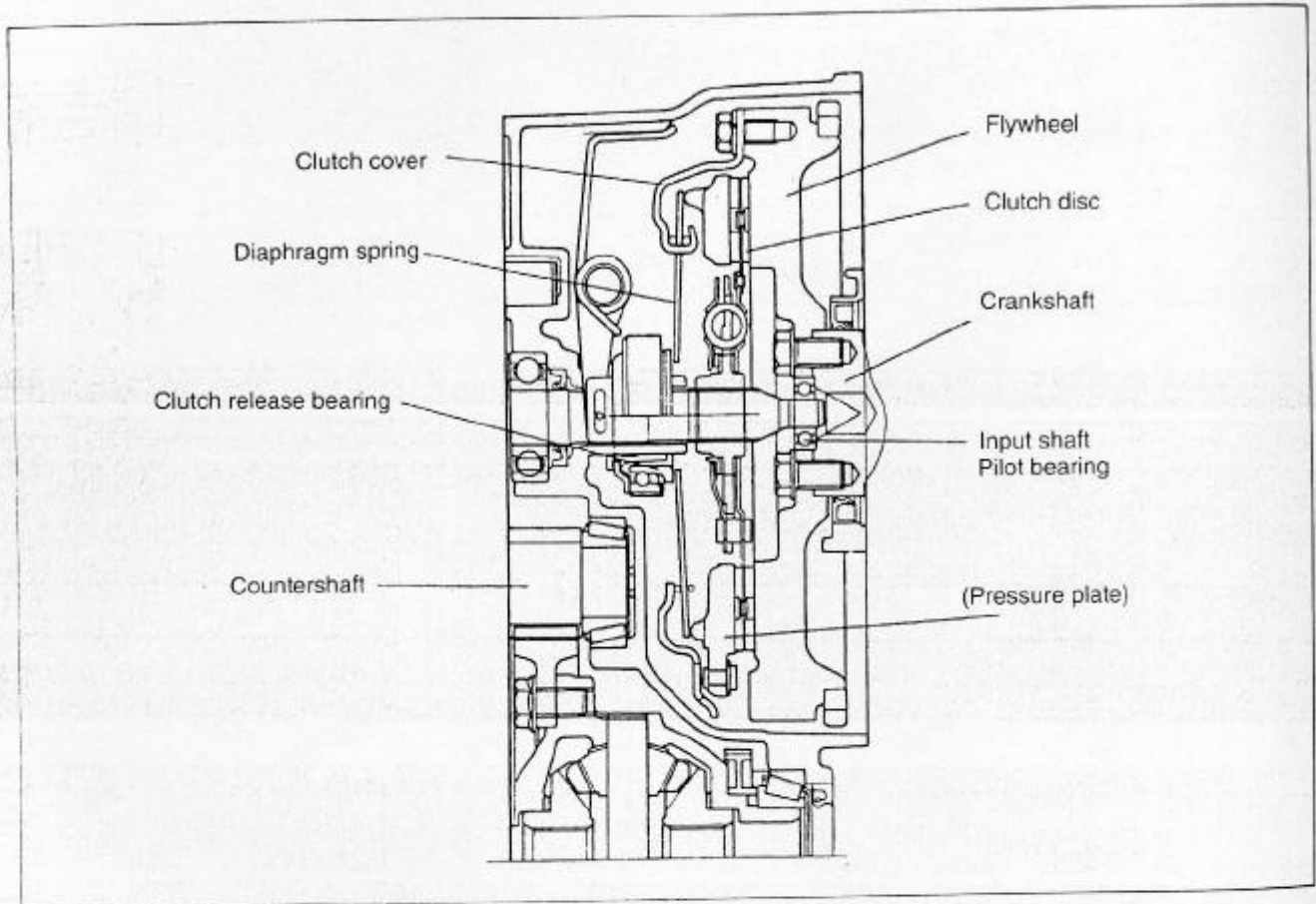


FIG. 2B — 1 SECTIONAL VIEW OF CLUTCH

Disc size(mm)	
Outer diameter × inner diameter × thickness	170 × 110 × 7.9

Clutch intermits power directly. Clutch assembly consists of clutch disc, pressure plate, diaphragm spring, clutch cover, release bearing, etc. Pressure plate presses clutch disc to flywheel by diaphragm spring.

Clutch disc may move in axial direction and is fixed in rotational direction being inserted between pressure plate and flywheel and being installed on input shaft spline and transmits the frictional rotation of flywheel to transmission through input shaft.

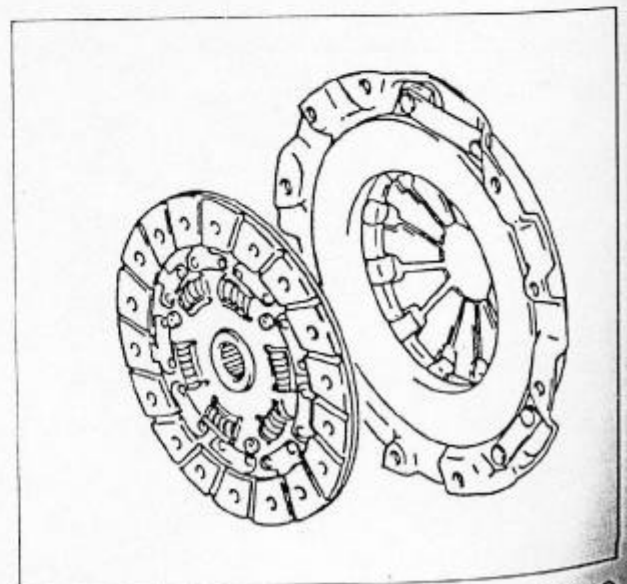


FIG. 2B — 2 CLUTCH PRESSURE PLATE AND DISC

TROUBLESHOOTING

Condition	Probable Cause	Correction
Slipping clutch	<ul style="list-style-type: none"> • Improper clutch pedal free travel • Worn or oily contamination on clutch disc surface • Worn or oily contamination on pressure plate, disc or flywheel surface • Damaged or weakened diaphragm spring • Rusted clutch cable 	<ul style="list-style-type: none"> • Adjust free travel • Replace • Replace pressure plate, disc or flywheel • Replace pressure plate • Replace cable
Dragging clutch	<ul style="list-style-type: none"> • Improper clutch pedal free travel • Weakened diaphragm spring or worn spring tip • Rusted input shaft splines • Damaged or worn splines of transmission input shaft • Excessively wobbly clutch disc • Clutch facing broken or oily contamination 	<ul style="list-style-type: none"> • Adjust free travel • Replace pressure plate • Lubricate • Replace input shaft • Replace disc • Replace disc
Clutch vibration	<ul style="list-style-type: none"> • Clutch facing with oily contamination • Release bearing slides unsmoothly on input shaft bearing retainer • Wobbly clutch disc or poor facing contact • Loose clutch disc rivets • Weakened torsion spring • Distorted pressure plate or flywheel surface • Weakened engine mounting or loosened installing bolt or nut 	<ul style="list-style-type: none"> • Replace disc • Lubricate or replace retainer • Replace disc • Replace disc • Replace disc • Replace pressure plate or flywheel • Retighten or replace mounting
Clutch noise	<ul style="list-style-type: none"> • Worn or broken release bearing • Input shaft front bearing worn down • Excessive rattle of clutch disc hub • Cracked clutch disc • Pressure plate and diaphragm spring rattling 	<ul style="list-style-type: none"> • Replace release bearing • Replace input shaft bearing • Replace disc • Replace disc • Replace pressure plate
Grabbing clutch	<ul style="list-style-type: none"> • Oily contamination on clutch disc facing • Excessively worn on clutch disc facing • Rivet head showing out of facing • Weakened torsion spring 	<ul style="list-style-type: none"> • Replace disc • Replace disc • Replace disc • Replace disc

ON-CAR SERVICE

INSPECTION

Clutch Pedal Free Travel

Clutch pedal free travel(mm)	20 — 30
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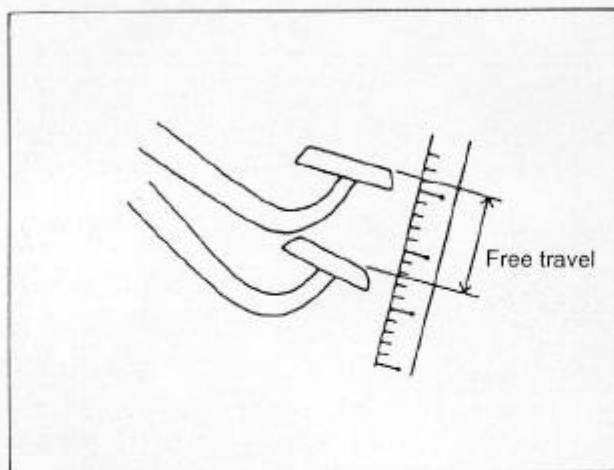


FIG. 2B — 3 CLUTCH PEDAL FREE TRAVEL

Clutch Release Arm Free Travel

When the clutch pedal free travel is over specified limit, adjust as shown in figure.

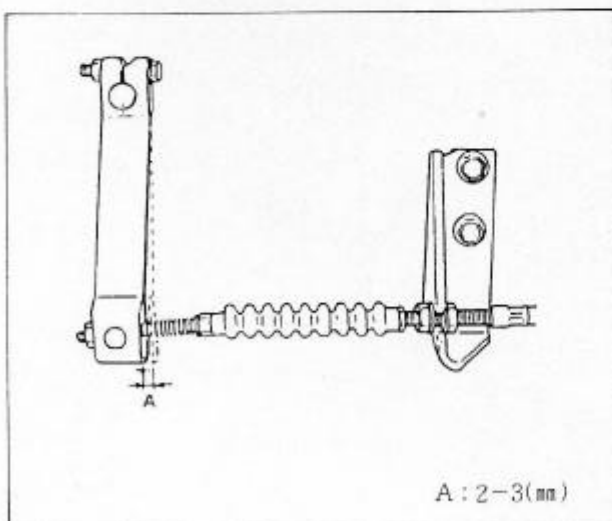


FIG. 2B — 4 CLUTCH RELEASE ARM FREE TRAVEL

Clearance Between Pedal and Floor Just Before Clutch Connection.

After starting engine, check if the clearance between pedal and floor is within specified range in condition of idling, lifting parking brake and drawing out clutch pedal.

Clearance between pedal and floor just before clutch connection(mm)	60 and more
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CAUTION

During inspection, take care on sudden departure.

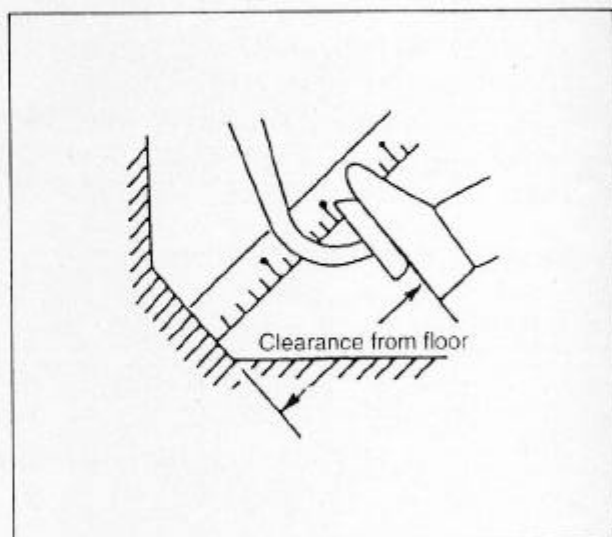


FIG. 2B — 5 CLEARANCE BETWEEN PEDAL AND FLOOR JUST BEFORE CLUTCH CONNECTION

Clutch Cable

Check clutch cable and replace it any of followings exists.

- Excessively worn cable
- Loose cable
- Bent or distorted cable
- Damaged boot
- Worn end

DISASSEMBLY

CLUTCH COVER, CLUTCH DISC AND FLYWHEEL

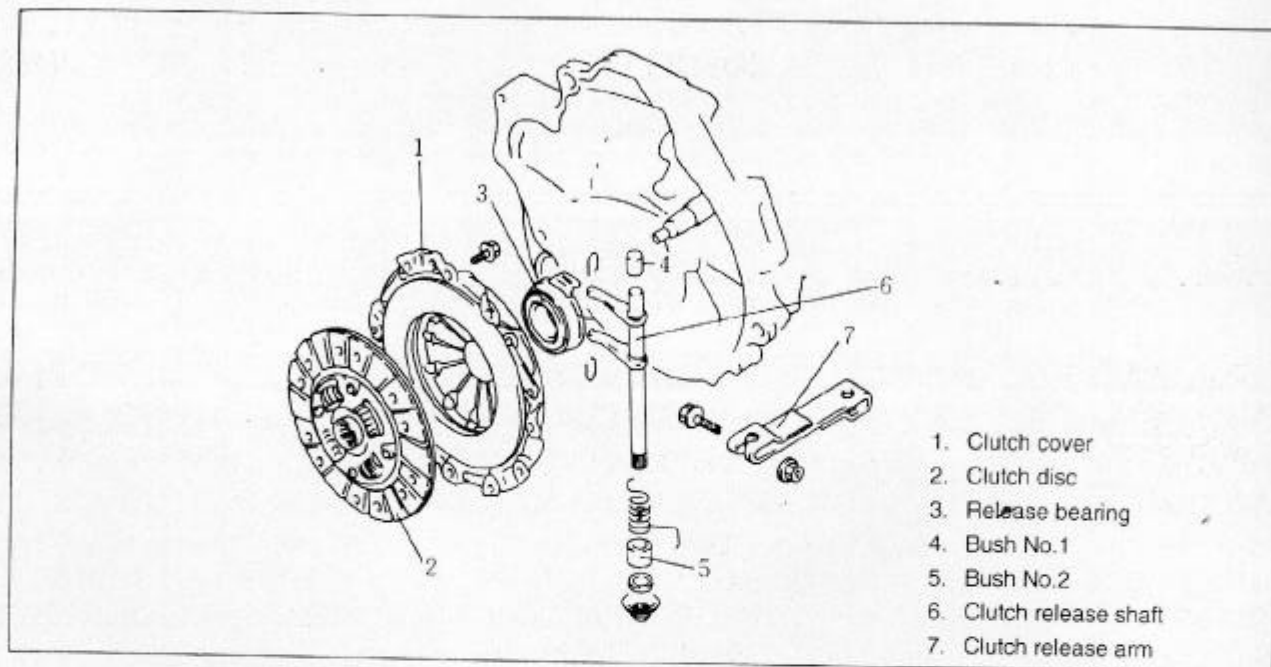


FIG. 2B — 6 CLUTCH

DISASSEMBLY

1. Using special tool(flywheel holder), fix flywheel and remove clutch cover bolt, clutch cover and clutch disc.
2. Using special tool, remove input shaft bearing.

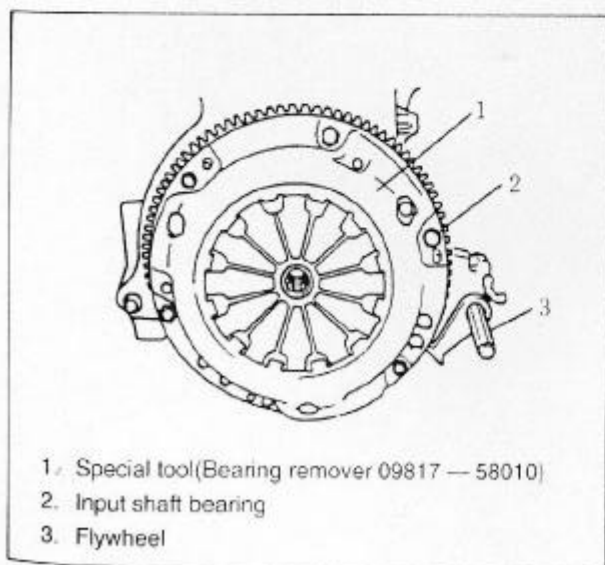


FIG. 2B — 7 DISASSEMBLING CLUTCH COVER

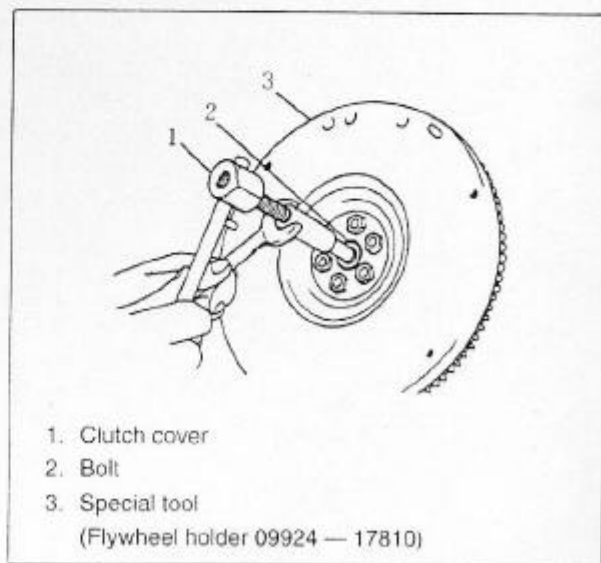


FIG. 2B — 8 REMOVING INPUT SHAFT BEARING

3. Remove release bearing by rotating release shaft.
4. Remove No.2 bush using special tool(bush remover).

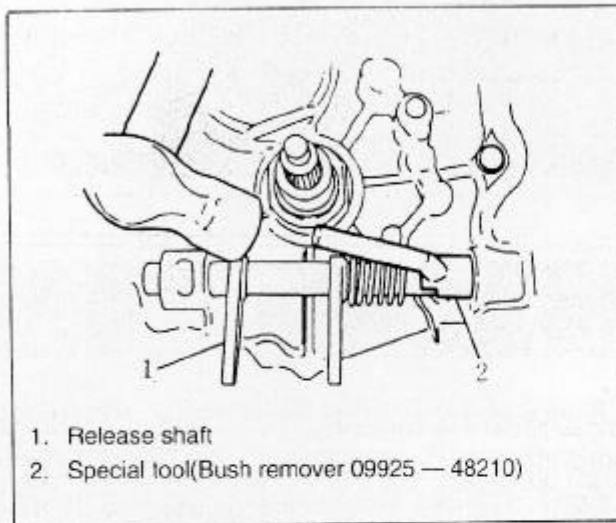


FIG. 2B — 9 REMOVING NO.2 BUSH

5. Release shaft
6. Remove No.1 busing using tab of M14 X 1.5.

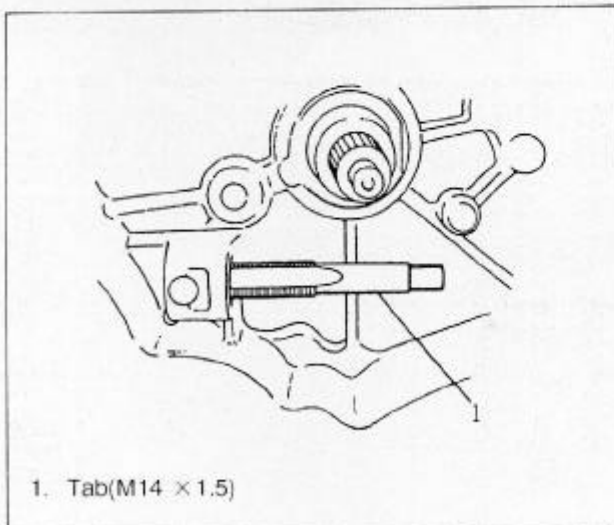


FIG. 2B — 10 INSTALLING TAB

7. Pull out bush installing special tool (joint pipe) on tap and mount special tool(sliding shaft) on joint pipe.

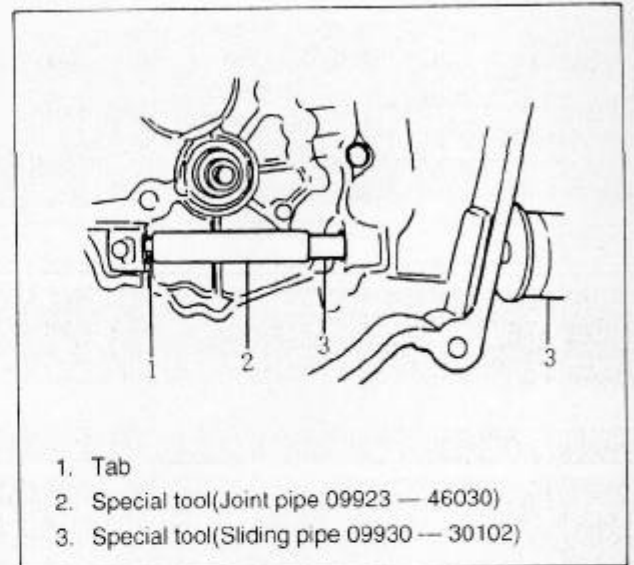


FIG. 2B — 11 REMOVING BUSH

INSPECTION

Input Shaft Bearing

Check if rotation is smooth and replace if abnormality is found.

Clutch Disc

Measure rivet head depth from clutch disc surface and replace if below limit.

Rivet head depth(mm)	Standard	Limit
	1.2	0.5

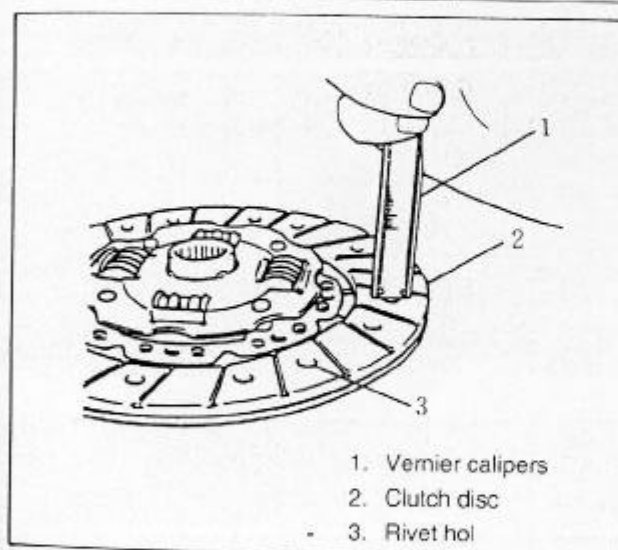


FIG. 2B — 12 MEASURING RIVET HEAD DEPTH

Clutch Disc Free Travel in Rotational Direction

Check free travel in rotational direction with clutch inserted disc on input shaft spline.

Excessive free travel results in clutch shock and abnormal noise. Replace if free travel exceeds limit.

Disc free travel Limit in rotational Direction(periphery mm)	1.0
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Release Bearing

Check release bearing on abnormal touching and grabbing rotating by hand in thrust direction. Replace with new one if abnormality is found.

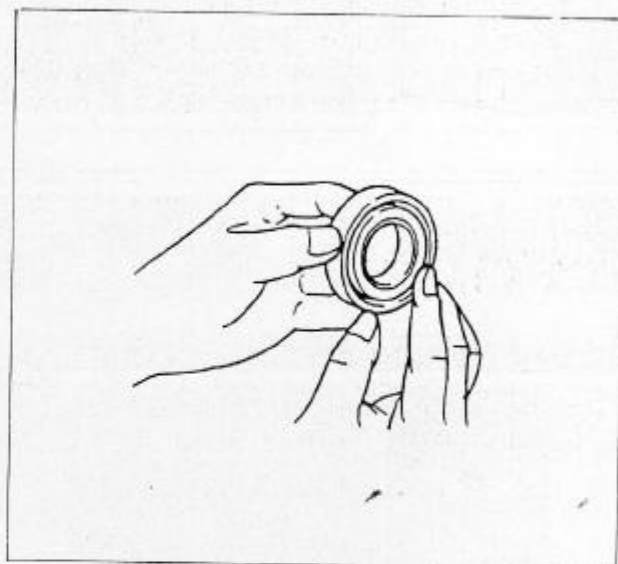


FIG. 2B — 13 CHECKING RELEASE BEARING

Clutch Release Shaft

Check shaft for distortion and damage and especially for wear and damage of shaft bush.

ASSEMBLY

It is the reverse of disassembly procedures. Take care of the followings.

- Install bush No.1 using special tool.

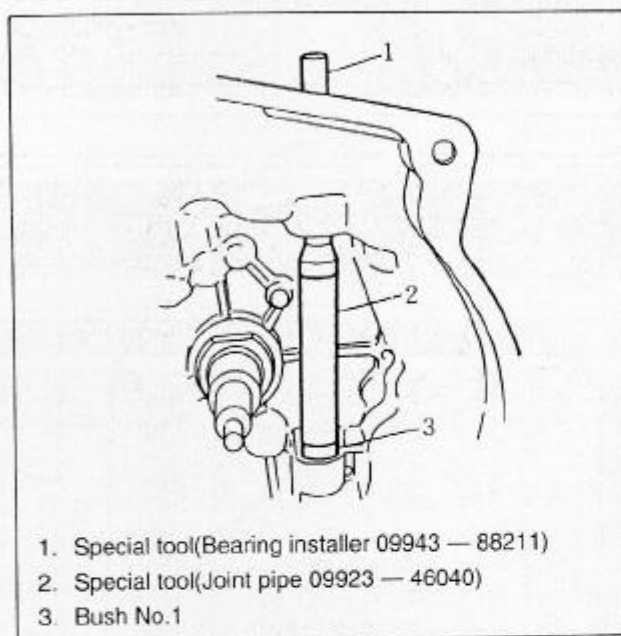


FIG. 2B — 14 INSTALLING BUSH NO.1

- Insert and caulk bush No.2 using special tool.

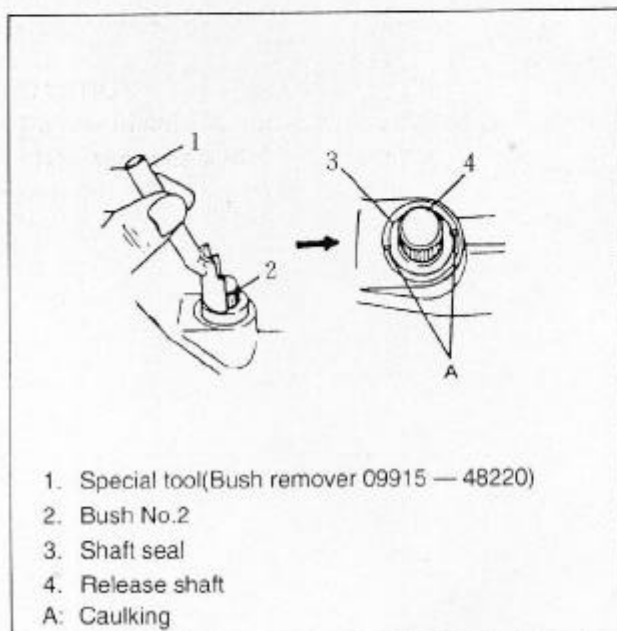


FIG. 2B — 15 INSTALLING BUSH NO.2 AND SHAFT SEAL

When installing clutch disc, match centers of crank shaft and disc using special tool(center guide).

Install and attach clutch cover tightening installing bolts(6) with specified torque.

Clutch cover installing bolt tightening torque(kg · cm)	180 — 280
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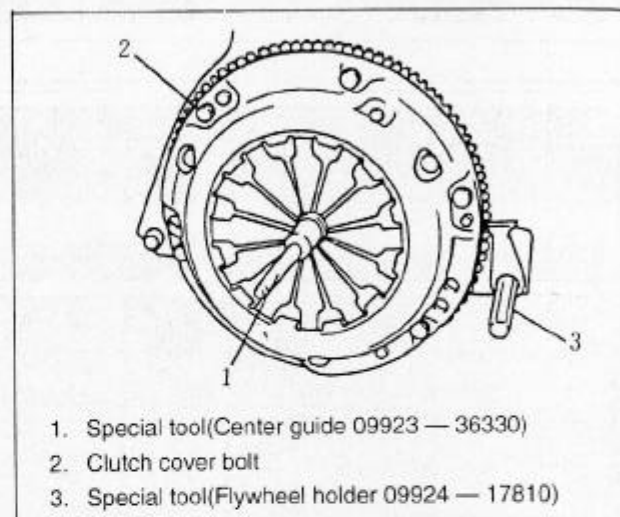


FIG. 2B — 16 ASSEMBLING CLUTCH DISC

- Install flywheel to crankshaft with specified torque.

Flywheel installing bolt tightening torque(kg · cm)	570 — 650
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CAUTION

Before installing, clear flywheel and pressure plate surfaces and dry completely.

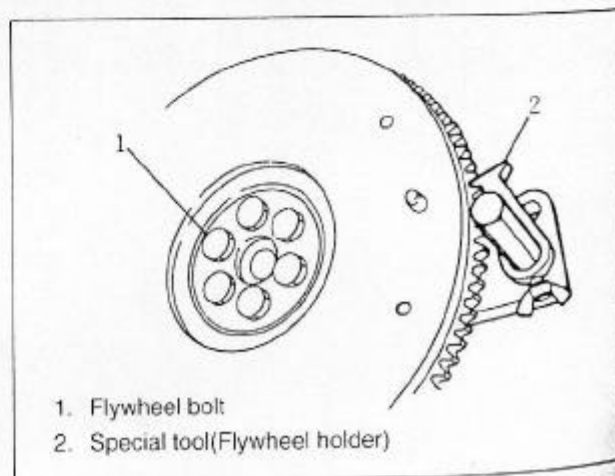


FIG. 2B — 17 INSTALLING FLYWHEEL

- Using special tool(bearing installer), install input shaft bearing on flywheel.

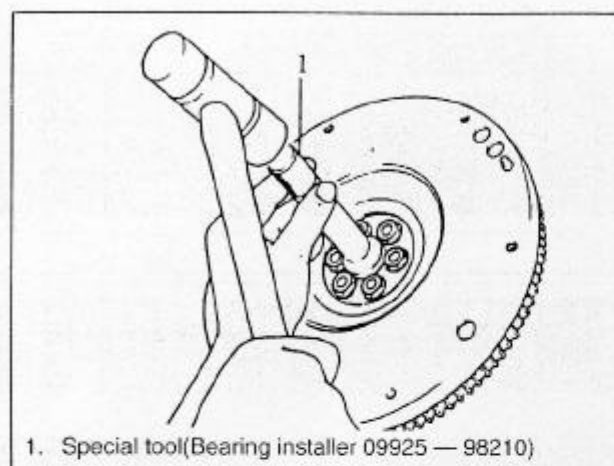


FIG. 2B — 18 INSTALLING INPUT SHAFT BEARING

- Install release shaft and release arm matching to punch mark and tighten to specified torque.

Tightening torque for release arm(kg • cm)	100 — 160
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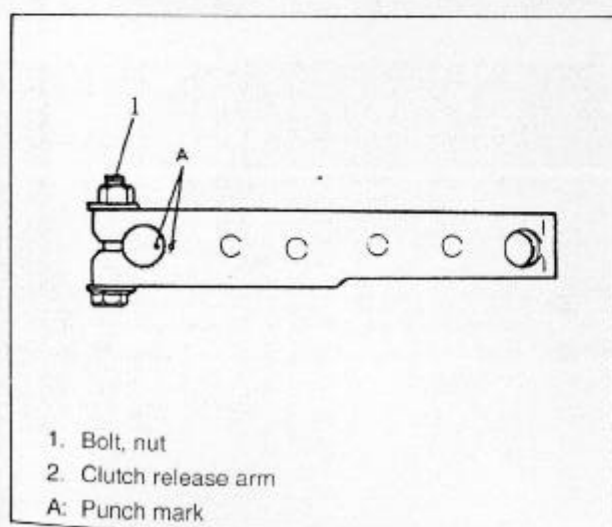


FIG. 2B — 19 RELEASE ARM PUNCH MARK

- After applying grease on release bearing inner side and release shaft arm, install bearing.
- Apply grease on input shaft spline tip.

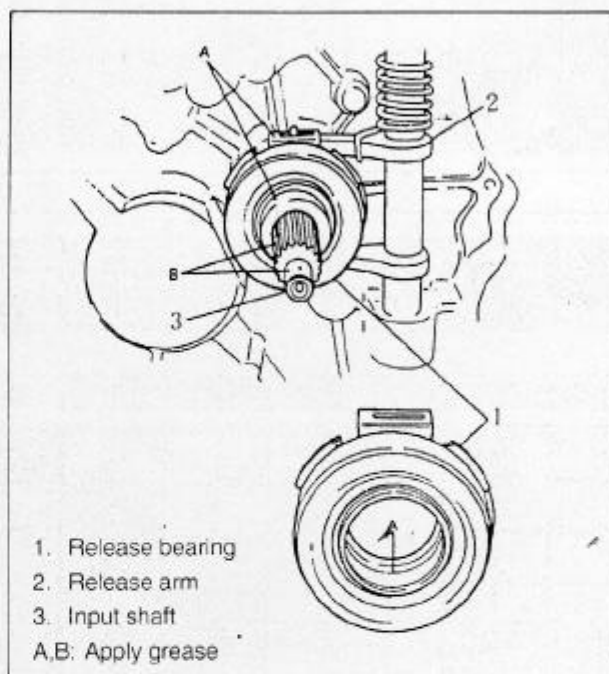
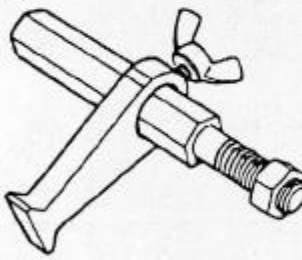

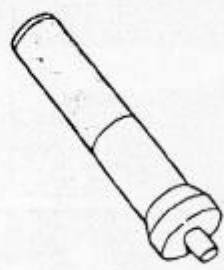
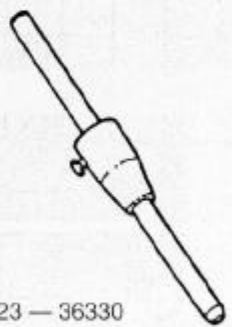
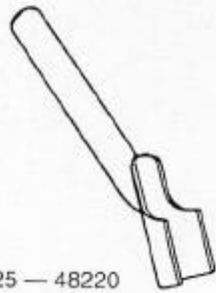
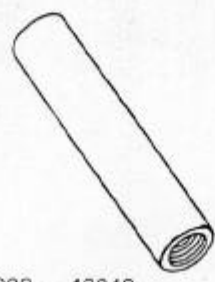
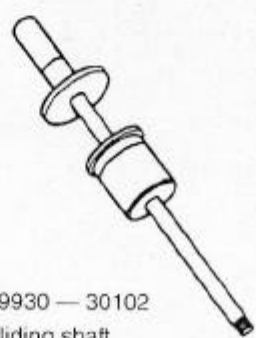



FIG. 2B — 20

TIGHTENING TORQUE

Tightening Parts	Tightening Torque(kg • cm)
• Clutch cable body side bolt	90 — 130
• Cable bracket	180 — 280
• Flywheel bolt	570 — 650
• Clutch cover bolt	180 — 280
• Release arm bolt, nut	100 — 160

SPECIAL TOOLS

<p>1</p>  <p>09924 — 17810 Flywheel holder</p>	<p>2</p>  <p>09917 — 58010 Bearing remover</p>	<p>3</p>  <p>09925 — 98210 Input shaft bearing installer</p>	<p>4</p>  <p>09923 — 36330 Clutch center guide</p>
<p>5</p>  <p>09925 — 48220 Bush remover</p>	<p>6</p>  <p>09923 — 46040 Joint pipe</p>	<p>7</p>  <p>09930 — 30102 Sliding shaft</p>	<p>8</p>  <p>009943 — 88211 Bearing installer</p>