SECTION 5C

CLUTCH

CAUTION: Disconnect the negative battery cable before removing or installing any electrical unit or when a tool or equipment could easily come in contact with exposed electrical terminals. Disconnecting this cable will help prevent personal injury and damage to the vehicle. The ignition must also be in B unless otherwise noted.

TABLE OF CONTENTS

DESCRIPTION AND OPERATION

DRIVING MEMBERS

The driving members consist of two flat surfaces machined to a smooth finish. One of these is the rear face of the engine flywheel, and the other is the pressure plate. The pressure plate is fitted into a steel cover, which is bolted to the flywheel.

DRIVEN MEMBERS

The driven member is the clutch disc with a splined hub which is free to slide lengthwise along the splines of the input shaft, but which drives the input shaft through these same splines.

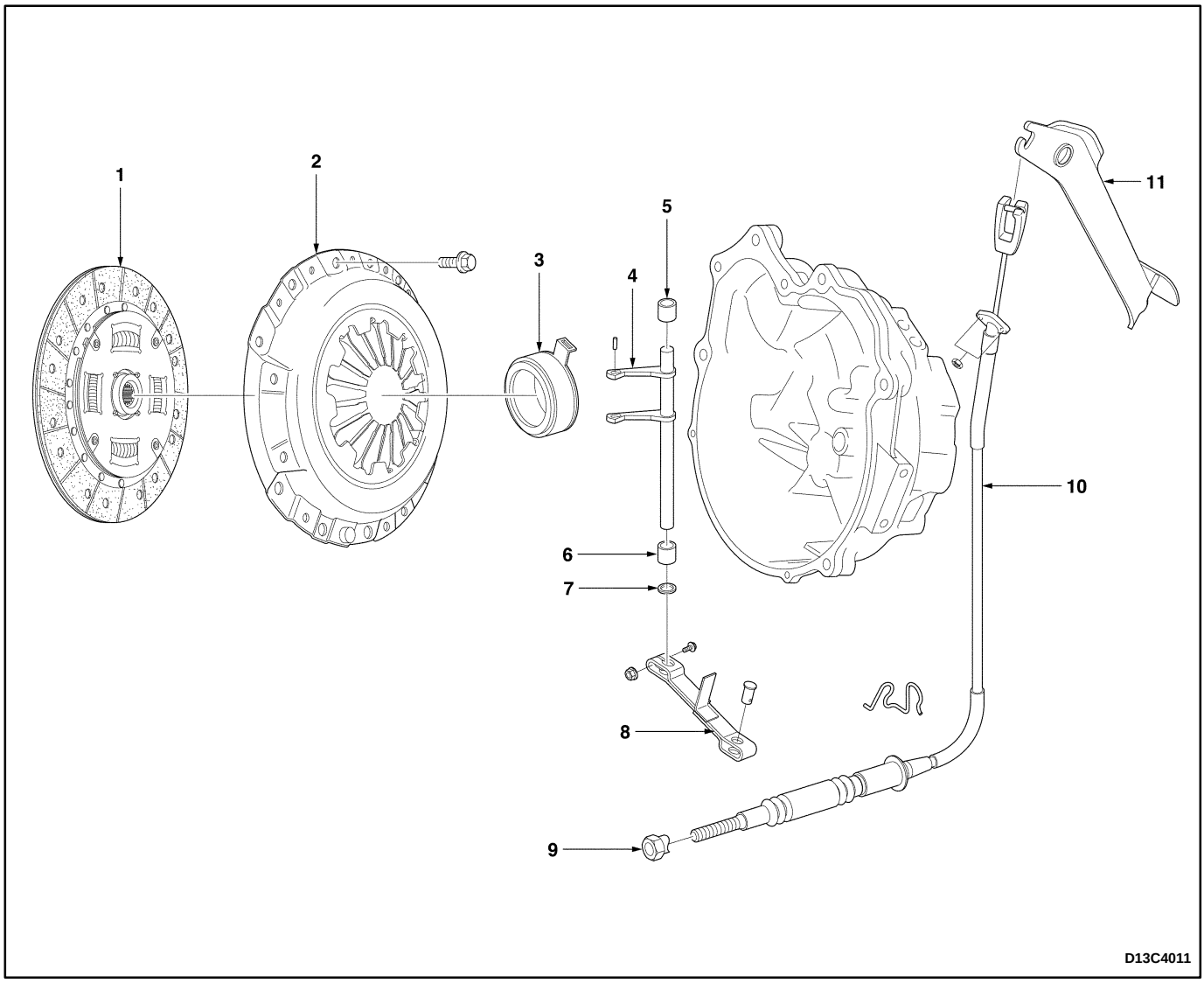
The driving and driven members are held in contact by spring pressure. This pressure is exerted by a diaphragm spring in the pressure plate assembly.

OPERATING MEMBERS

The clutch release system consists of the clutch pedal, the clutch release shaft, the clutch cable, the release arm and the release bearing. When pressure is applied to the clutch pedal, the clutch release shaft pushes against the release bearing by rotating. The bearing then pushes against the diaphragm spring in the pressure plate assembly, thereby releasing the clutch.

COMPONENT LOCATOR

CLUTCH COMPONENTS



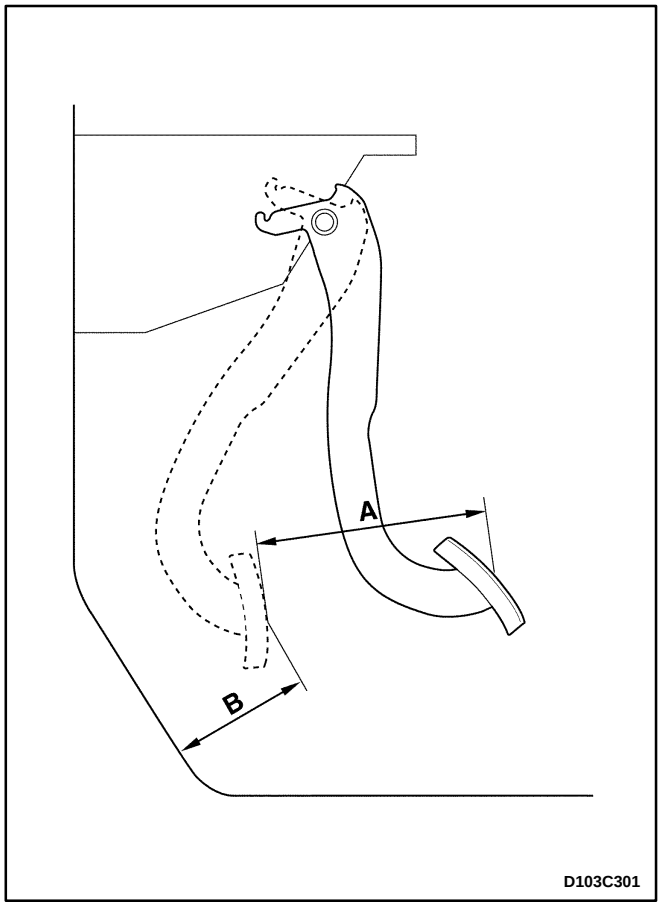
1 Clutch Disc
2 Pressure Plate
3 Release Bearing
4 Release Shaft
5 Release Shaft Bushing (No.1)
6 Release Shaft Bushing (No.2)
7 Release Shaft Seal
8 Release Arm
9 Clutch Cable Adjusting Nut
10 Clutch Cable
11 Clutch Pedal

DIAGNOSTIC INFORMATION AND PROCEDURES

GENERAL DIAGNOSIS

Condition	Probable Cause	Correction
Slipping Clutch	● Improper clutch cable adjustment.	● Adjust clutch cable.
	● Worn or oily contamination on clutch disc surface.	● Replace clutch disc.
	● Worn or oily contamination on pressure plate, flywheel surface.	● Replace pressure plate, flywheel.
	● Damaged or weakened diaphragm spring.	● Replace pressure plate.
	● Rusted clutch cable.	● Replace clutch cable.
Dragging Clutch	● Improper clutch cable adjustment.	● Adjust clutch cable.
	● Worn or weakened diaphragm spring.	● Replace pressure plate.
	● Worn or rusted splines of input shaft or clutch disc.	● Replace input shaft or clutch disc.
	● Excessively wobbly clutch disc.	● Replace clutch disc.
	● Worn clutch disc.	● Replace clutch disc.
Fails to Release	● Bent or damaged clutch disc.	● Replace clutch disc.
	● Worn or rusted splines of input shaft or clutch disc.	● Replace input shaft or clutch disc.
	● Improper operation of clutch release shaft.	● Replace clutch release shaft.
Pedal Stays on Floor When Disengaged	● Interfered clutch release bearing.	● Lubricate and adjust clutch release bearing.
	● Weakened diaphragm spring.	● Replace pressure plate.
Clutch Vibration	● Clutch facing with oily contamination.	● Replace clutch disc.
	● Release bearing slides unsmoothly on input shaft bearing retainer.	● Lubricate retainer release bearing.
	● Wobbly clutch disc or poor facing contact.	● Replace clutch disc.
	● Loose clutch disc rivets.	● Replace clutch disc.
	● Weakened clutch disc torsion spring.	● Replace clutch disc.
	● Distorted pressure plate or flywheel surface.	● Replace pressure plate or flywheel.
	● Weakened engine mounting or loosened installing bolt or nut.	● Retighten or replace mounting.
Clutch Noise	● Worn or broken release bearing.	● Replace release bearing.
	● Worn input shaft bearing.	● Replace input shaft bearing.
	● Cracked clutch disc.	● Replace clutch disc.
	● Pressure plate and diaphragm spring rattling.	● Replace pressure plate.
	● Improper clutch cable adjustment.	● Adjust clutch cable.
Grabbing Clutch	● Clutch disc facing with oily contamination.	● Replace clutch disc.
	● Excessively worn on clutch disc facing.	● Replace clutch disc.
	● Rivet head showing out of facing.	● Replace clutch disc.
	● Weakened clutch torsion spring.	● Replace clutch disc.

CLUTCH PEDAL OPERATION



Clutch pedal free travel

It is designed that there is no clutch pedal free travel.

Clutch pedal travel (A)

Pedal Travel	100–110 mm (3.9–4.3 in.)

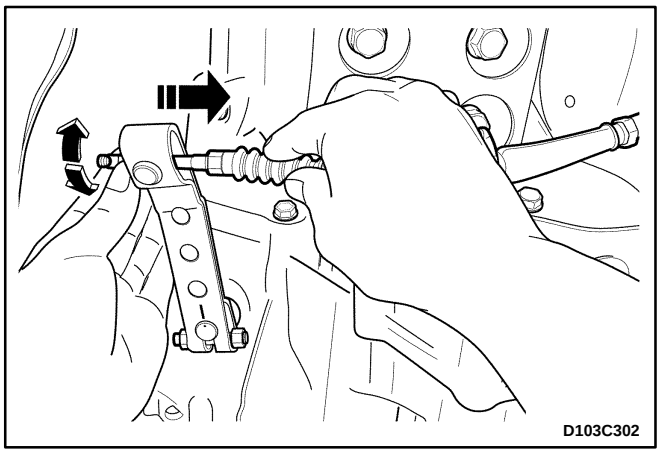
Clearance between pedal and floor just before clutch connection (B)

After starting the 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	30–40 mm (1.2–1.6 in.)

Caution: During inspection, take care on sudden departure.

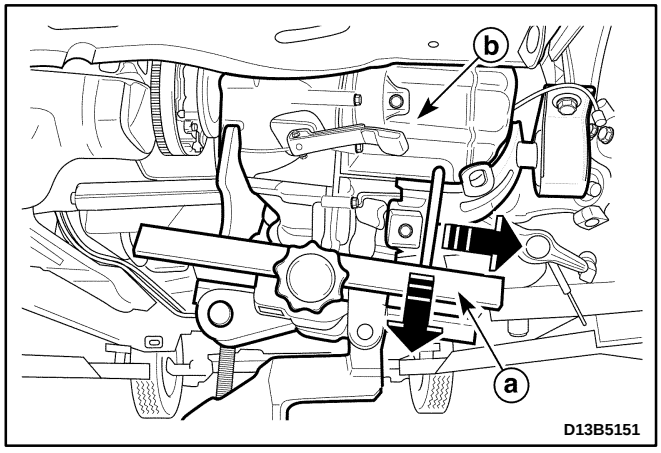
CLUTCH CABLE ADJUSTMENT

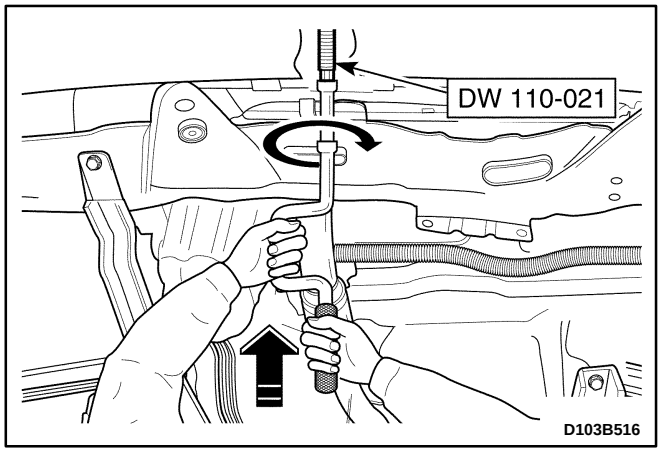


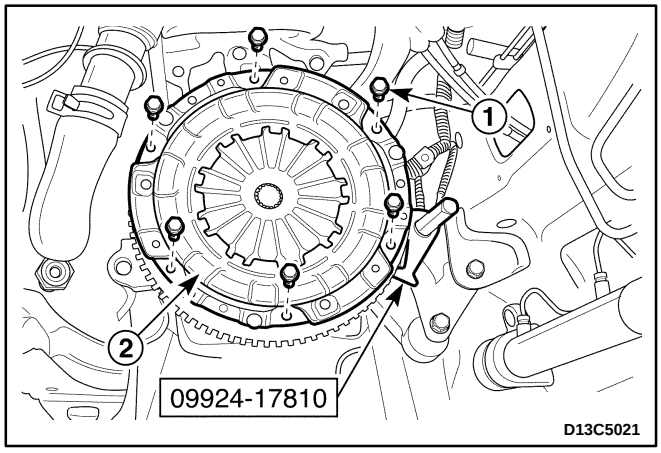
If clutch connection / disconnection is operated unsmoothly, adjust the clutch cable by adjusting clutch cable adjust nut.

INSTRUCTION REPAIR

ON–VEHICLE SERVICE







PRESSURE PLATE, CLUTCH DISC AND INPUT SHAFT BEARING

Tools Required

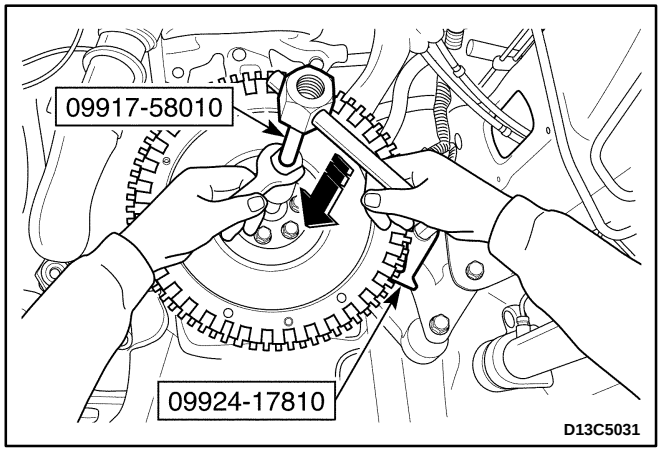
09917–58010	Input Shaft Bearing Remover
09924–17810	Flywheel Holder
09925–98210	Input Shaft Bearing Installer
DW110–021	Engine Fixture
DW210–010	Clutch Center Guide

Removal Procedure

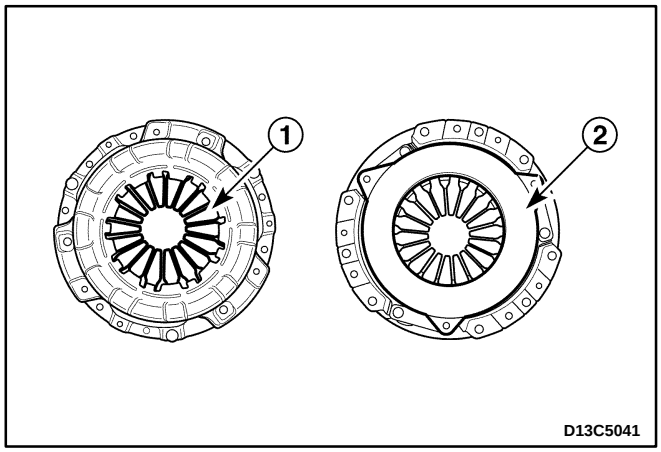
1. Remove the transaxle from the vehicle. Refer to *Section 5B, Manual Transaxle.*
2. Support the engine to normal position using the engine fixture DW110–021.

Notice: The abnormal position of the engine may damage to the related parts and interfere with them. You must support the engine to normal position after removing the transaxle.

3. Remove the pressure plate and the clutch disc.
   - Fix the fly wheel using the fly wheel holder 09924–17810.
   - Remove the pressure plate bolts (1).
   - Remove the pressure plate and the clutch disc (2).

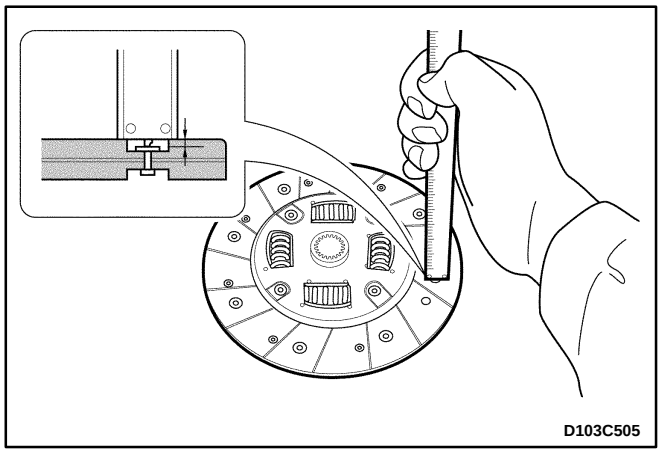


4. Remove the transaxle input shaft bearing using the input shaft bearing remover 09917–58010, the flywheel holder 09924–17810 and a spanner.



Inspection Procedure – Pressure Plate and Clutch Disc

1. Pressure plate inspection .
   - Check the weak and damaged diaphragm spring (1).
   - Check the polluted face by the oil, grease (2).

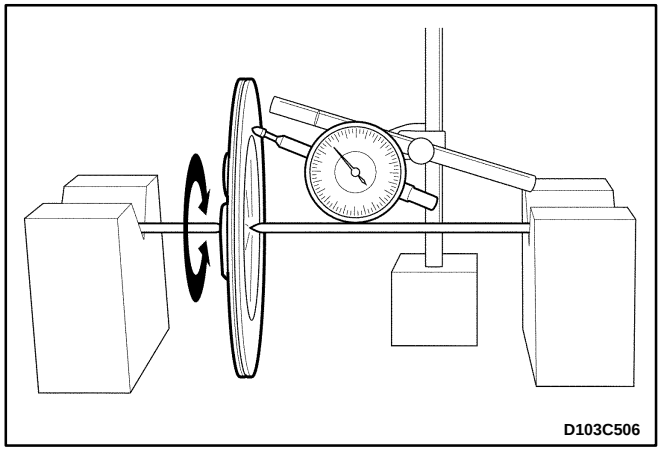


2. Clutch disc inspection
   - Measure rivet head depth from clutch disc surface and replace if below limit.

Unit : mm (in.)

	Standard	Limit
Rivet Head Depth	1.2 (0.047)	0.5 (0.02)

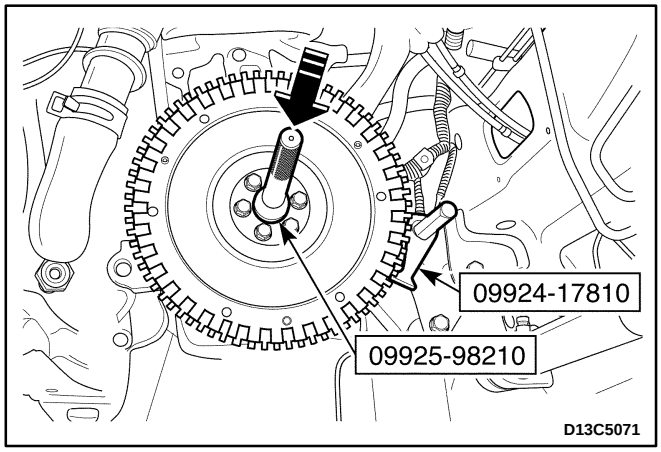
   - Replace the clutch disc if clutch disc surface is contaminated or clutch disc rivets are loosen.



3. Clutch disc runout in rotational direction inspection.
   - Measure runout in rotational direction and replace if runout exceeds limit.

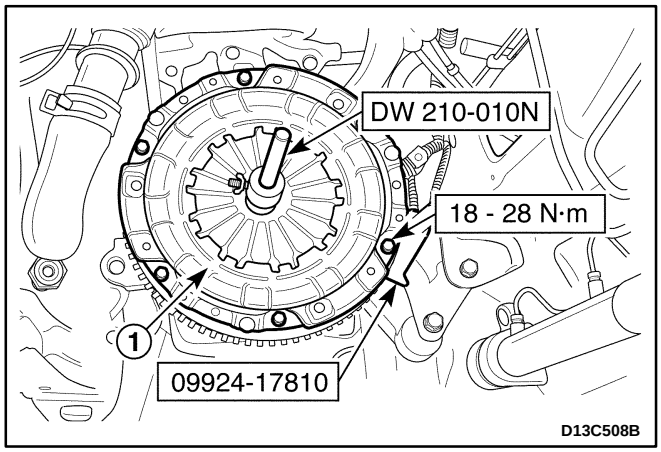
Unit : mm (in.)

Disc Runout Limit in Rotational Direction (Periphery)	0.7 (0.028)



Installation Procedure

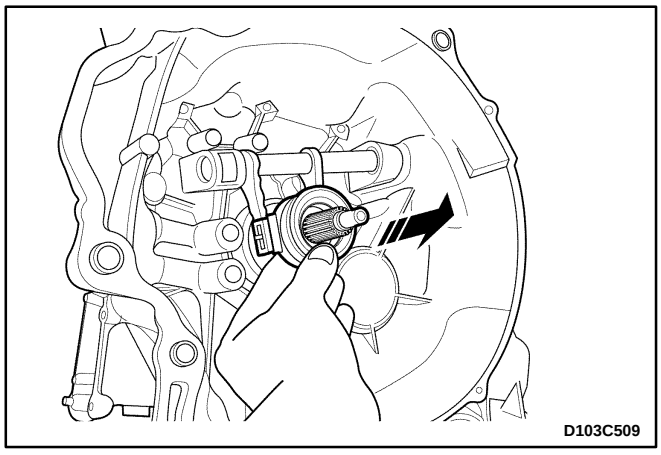
1. Install in the reverse order of removal.
2. Install the input shaft bearing using the input shaft bearing installer 09925–98210 and the flywheel holder 09924–17810.

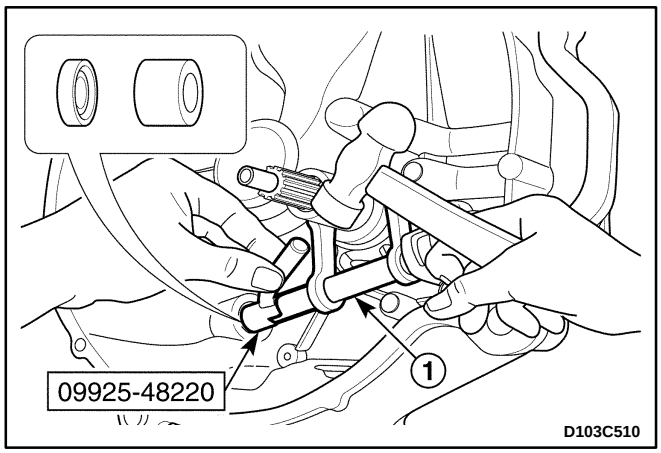


3. Install the pressure plate and the clutch disc.
   - Install the clutch disc.
   - Install the pressure plate (1).
   - Align the pressure plate and the clutch disc onto the flywheel using the clutch center guide DW210–010 and the flywheel holder 09924–17810.
   - Install the pressure plate bolts.

Tighten

Tighten the bolts to 18–28 N•m (13–21 lb-ft).





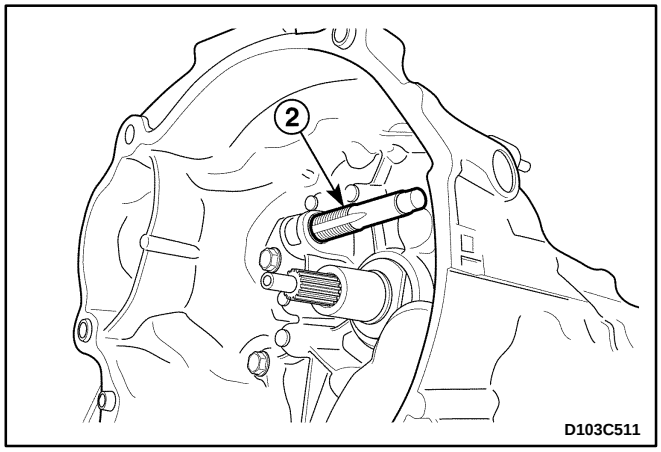
CLUTCH RELEASE BEARING, SHAFT AND BUSHING

Tools Required

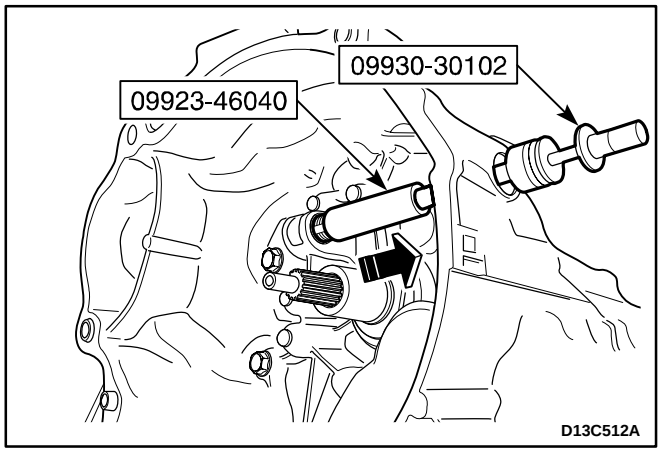
09923–46040	Bushing Joint Pipe
09925–48220	Bushing Remover/Installer
09930–30102	Sliding Shaft
09943–88211	Bushing, Bearing Installer

Removal Procedure

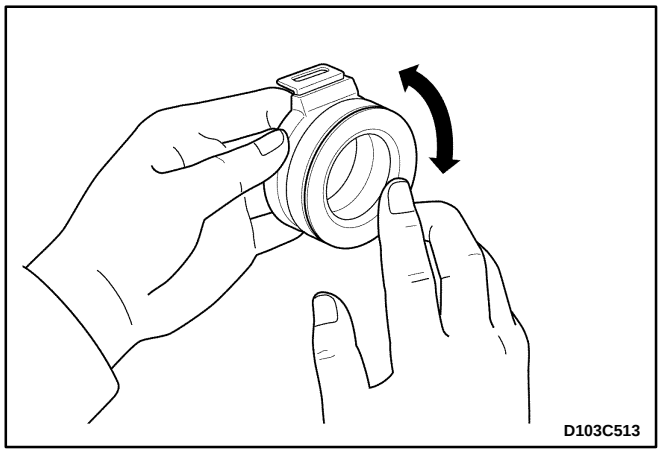
1. Remove the transaxle from the vehicle. Refer to *Section 5B, Manual Transaxle.*
2. Remove the release arm. Refer to “Clutch Release Arm” in this section.
3. Remove the release bearing.
4. Remove the release shaft and bushing.
   - Remove the bushing (No.2) and seal using the bushing remover 09925–48220 and hammer.
   - Remove the release shaft (1).



- Insert the tap (M14X1.5) to the busing (No.1) (2).

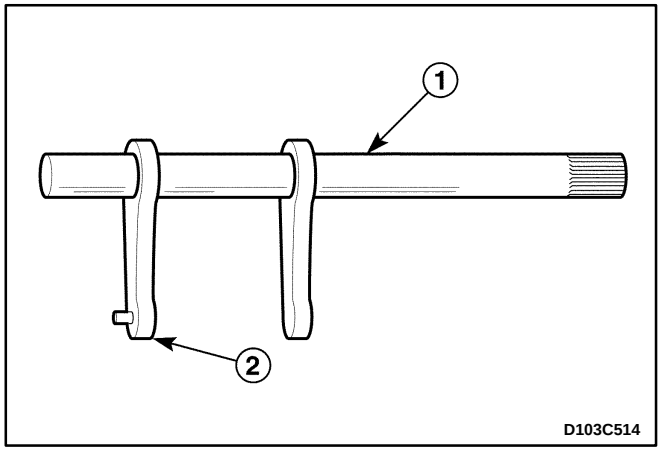


- Insert the bushing joint pipe 09923–46040 to the tab.
- Connect the sliding shaft 09930–30102 to the end of the bushing joint pipe 09923–46040.
- Remove the bushing (No.1) by pulling.

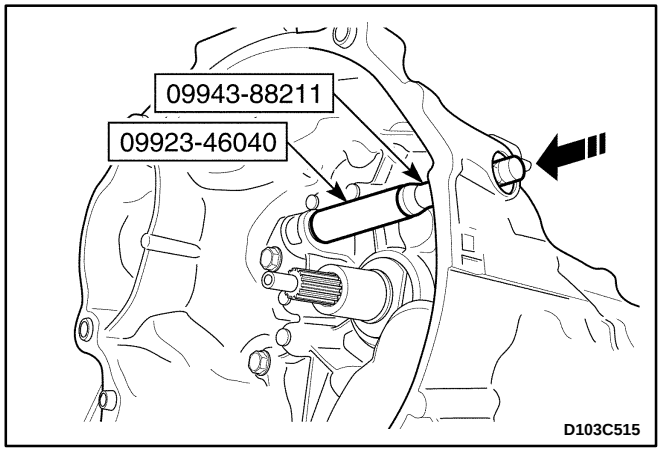


Inspection Procedure – Release Bearing and Shaft

1. Release bearing inspection
   - Check for noisy, worn and damaged release bearing.
   - Check for a grabbing rotation of release bearing.
   - Replace the release bearing if necessary.

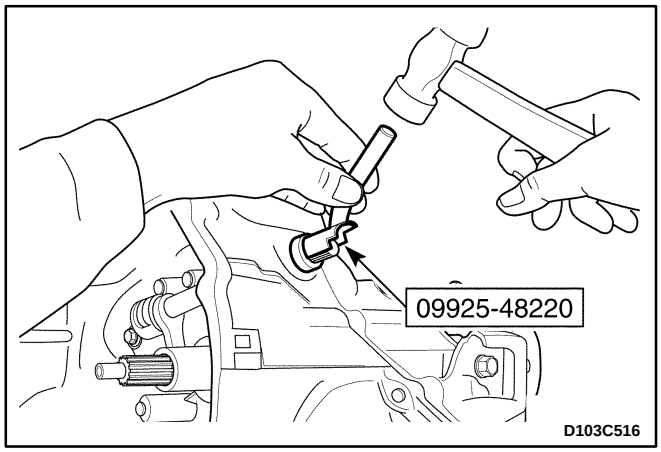


2. Release shaft inspection
   - Check for a warped shaft (1).
   - Check for a worn fork (2).
   - Replace the shaft if necessary.

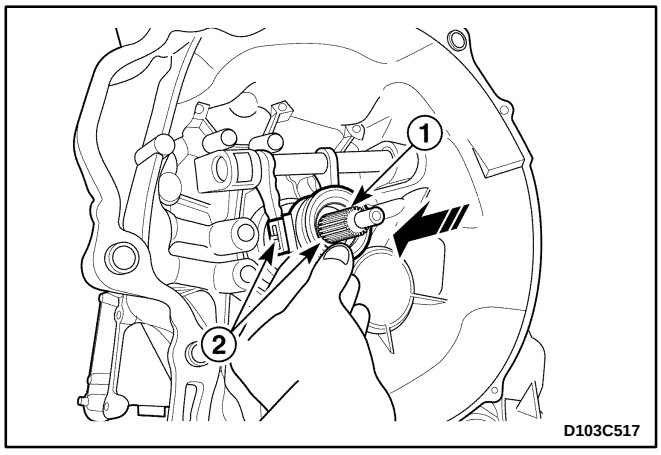


Installation Procedure

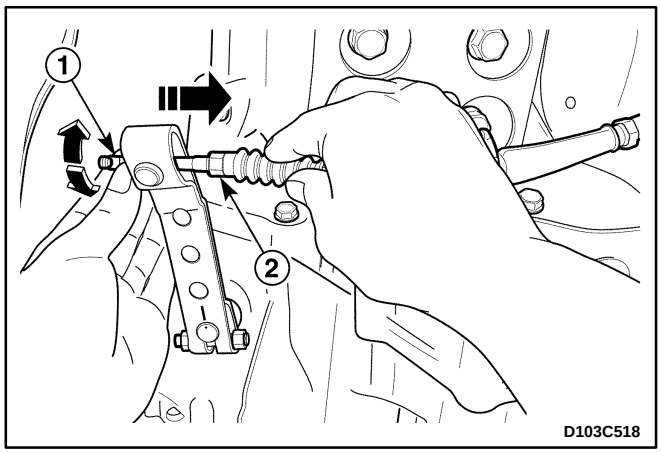
1. Install in the reverse order of removal.
2. Install the release shaft bushing (No.1) using the bushing joint pipe 09923–46040, bushing, bearing installer 09943–88211 and a hammer.



3. Install the release shaft bushing (No.2) and seal using the bushing remover/installer 09925–48220 and a hammer.



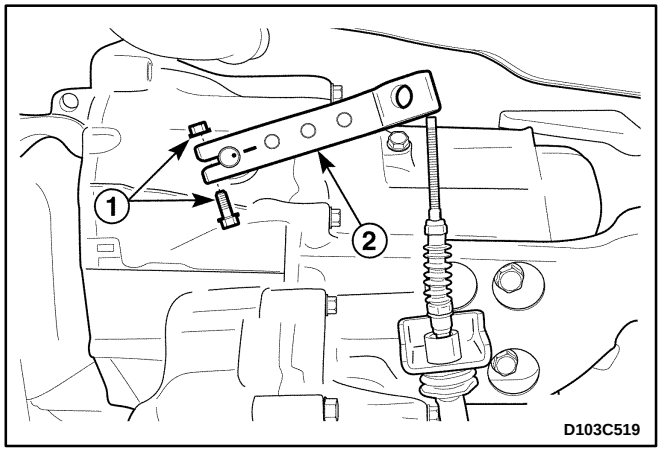
4. Install the release bearing.
   - Coat the spline of transaxle input shaft with multi–purpose grease (1).
   - Coat the release bearing bore and the connecting of release shaft with multi–purpose grease (2).
   - Install the release bearing.



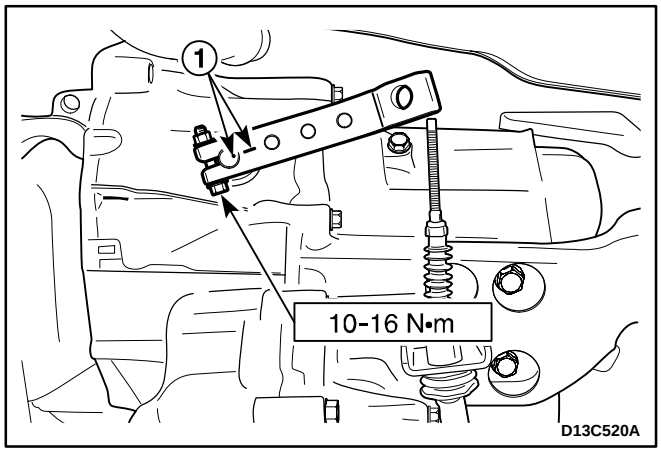
CLUTCH RELEASE ARM

Removal Procedure

1. Disconnect the clutch cable.
   - Remove the adjusting nut (1).
   - Disconnect the cable (2).



2. Remove the clutch release arm.
   - Remove the bolt and nut (1).
   - Remove the release arm (2).

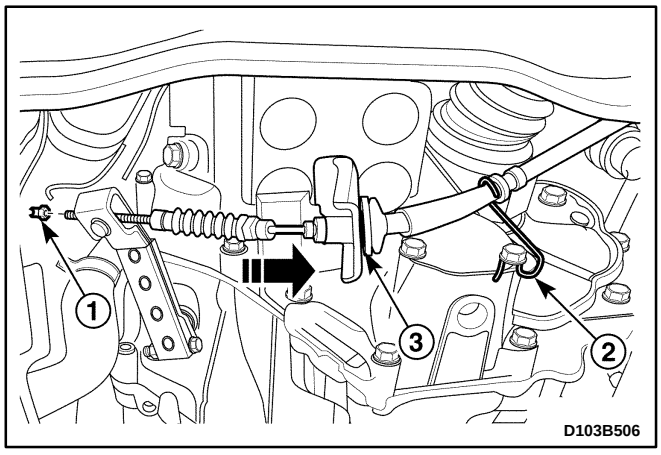


Installation Procedure

1. Install in the reverse order of removal.
2. Install the clutch release arm.
   - Install the clutch release arm matching to punched mark (1).

   Tighten

   Tighten the bolt and nut to 10–16 N•m (7.5–12 lb-ft).
3. Adjust the clutch cable. Refer to “Diagnosis” in this section.

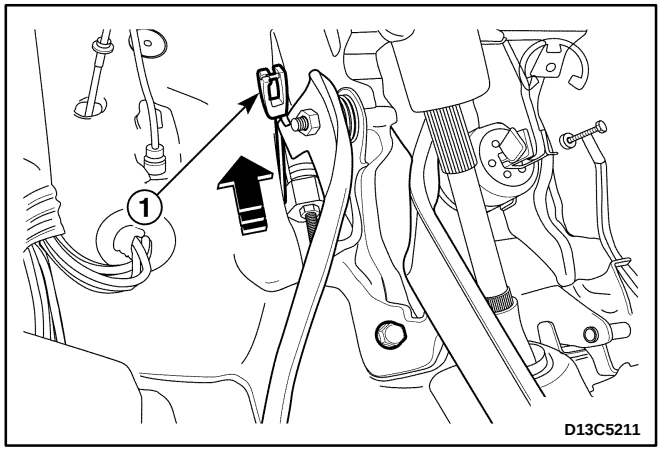


CLUTCH CABLE

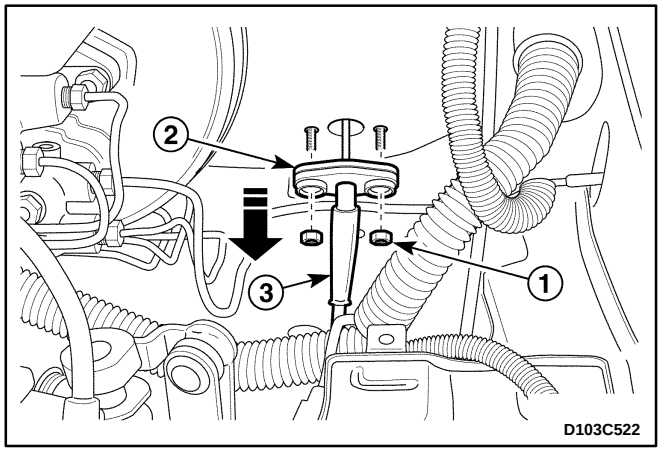
(Left–Hand Drive Shown, Right–Hand Drive Similar)

Removal Procedure

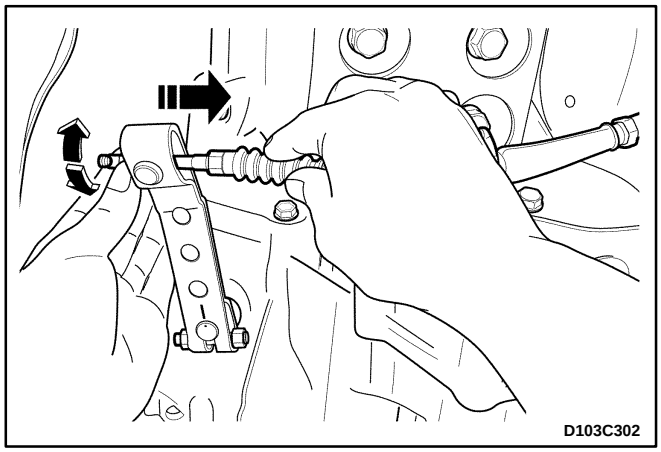
1. Disconnect the clutch cable from the transaxle.
   - Remove the adjusting nut (1).
   - Disconnect the cable from the wire clip (2).
   - Pull and remove the cable from the transaxle mount hole (3).



2. Disconnect the clutch cable from the pedal.
   - Pull upward and disconnect the cable from the pedal hook (1).

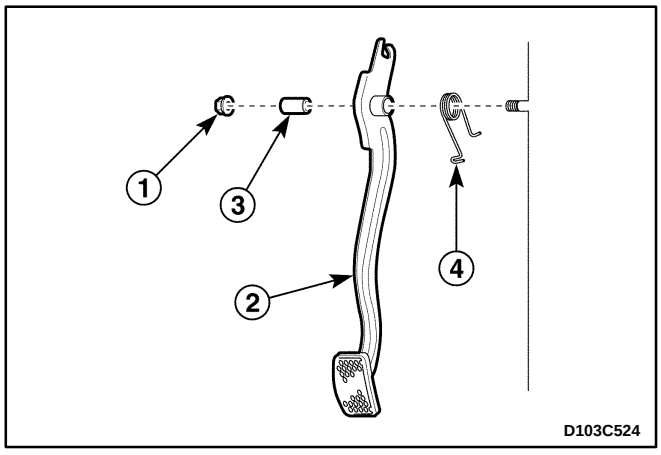


3. Remove the battery. Refer to *Section 1E, Engine Electrical.*
4. Remove the clutch cable.
   - Remove the nuts (1).
   - Remove the cable grommet (2).
   - Remove the cable from the pedal (3).



Installation Procedure

1. Install the clutch cable.
2 Install the battery.
3. Connect the clutch cable to the pedal.
4. Connect the clutch cable to the transaxle.
5. Adjust the clutch cable. Refer to “Diagnosis” in this section.

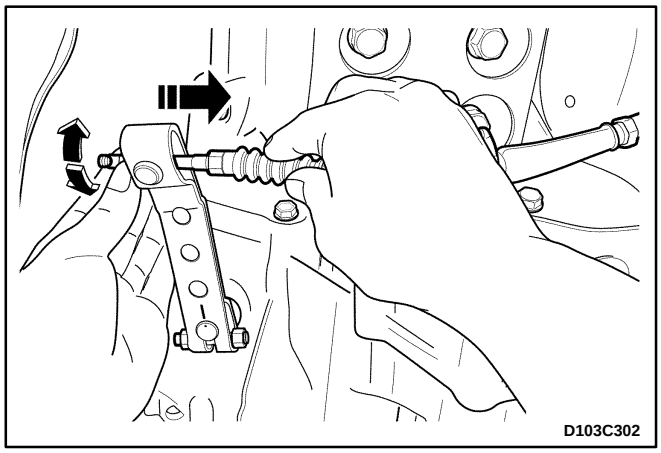


CLUTCH PEDAL

(Left–Hand Drive Shown, Right–Hand Drive Similar)

Removal Procedure

1. Disconnect the clutch cable. Refer to “Clutch Cable” in this section.
2. Remove the clutch pedal.
   - Release the pedal return spring.
   - Remove the nut (1).
   - Remove the clutch pedal (2).
   - Remove the bushing (3).
   - Remove the pedal return spring (4).



Installation Procedure

1. Install the pedal return spring.
2. Install the bushings.
3. Install the clutch pedal.
4. Install the nut.
5. Fix the pedal return spring.
6. Connect the clutch cable.
7. Adjust the clutch cable. Refer to “Diagnosis” in this section.

SPECIFICATIONS

GENERAL SPECIFICATIONS

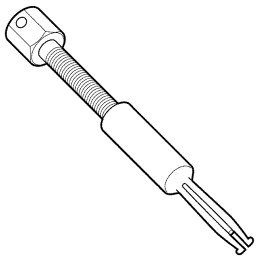
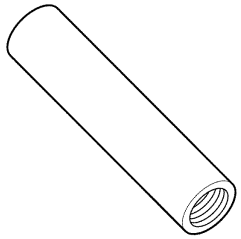
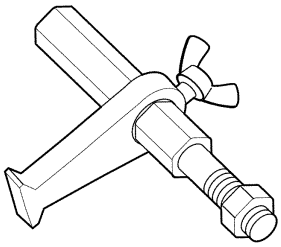
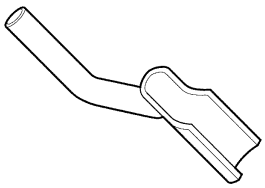
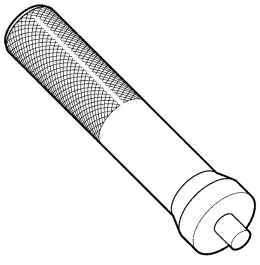
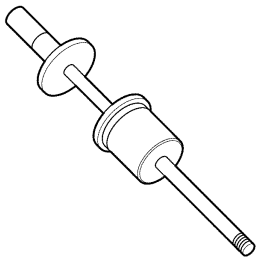
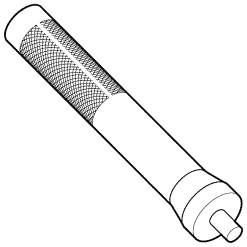
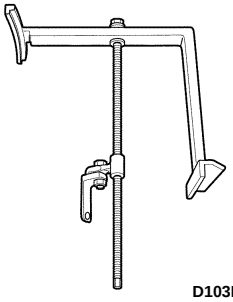
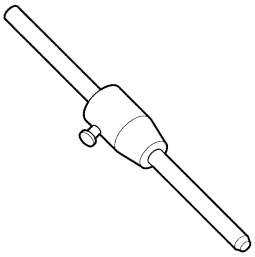
Application	Description	Unit	Standard	Limit
Clutch Disc	Type	–	Single Dry Plate	–
	Outside Diameter	mm (in.)	170 (6.7)	–
	Inside Diameter	mm (in.)	110 (4.3)	–
	Thickness	mm (in.)	7.15 (0.281)	–
	Rivet Head Depth	mm (in.)	1.2 (0.047)	0.5 (0.020)
	Disc Runout Limit in Rotational Direction	mm (in.)	–	0.7 (0.028)
Clutch Pedal	Pedal Free Travel	mm (in.)	0 (0)	–
	Pedal Travel	mm (in.)	100 – 110 (3.9 – 4.3)	–
	Clearance between pedal and floor just before clutch connection	mm (in.)	–	30 – 40 (1.2 – 1.6)

FASTENER TIGHTENING SPECIFICATIONS

Application	N•m	Lb-Ft	Lb-In
Pressure Plate Bolt	18 – 28	13 – 21	–
Clutch Release Arm Bolt and Nut	10 – 16	7.5 – 12	–

SPECIAL TOOLS

SPECIAL TOOLS TABLE

 D103C101	**09917–58010 Input Shaft Bearing Remover**
 D103C105	**09923–46040 Bushing Joint Pipe**
 D102B116	**09924–17810 Fly Wheel Holder**
 D103C104	**09925–48220 Bushing Remover/ Installer**
 D103C102	**09925–98210 Input Shaft Bearing Installer**
 D103C106	**09930–30102 Sliding Shaft**
 D103C107	**09943–88211 Bushing, Bearing Installer**
 D103B103	**DW110–021 Engine Assembly Support Fixture**
 D103C103	**DW210–010 Clutch Center Guide**