

# GROUP 21A

# CLUTCH

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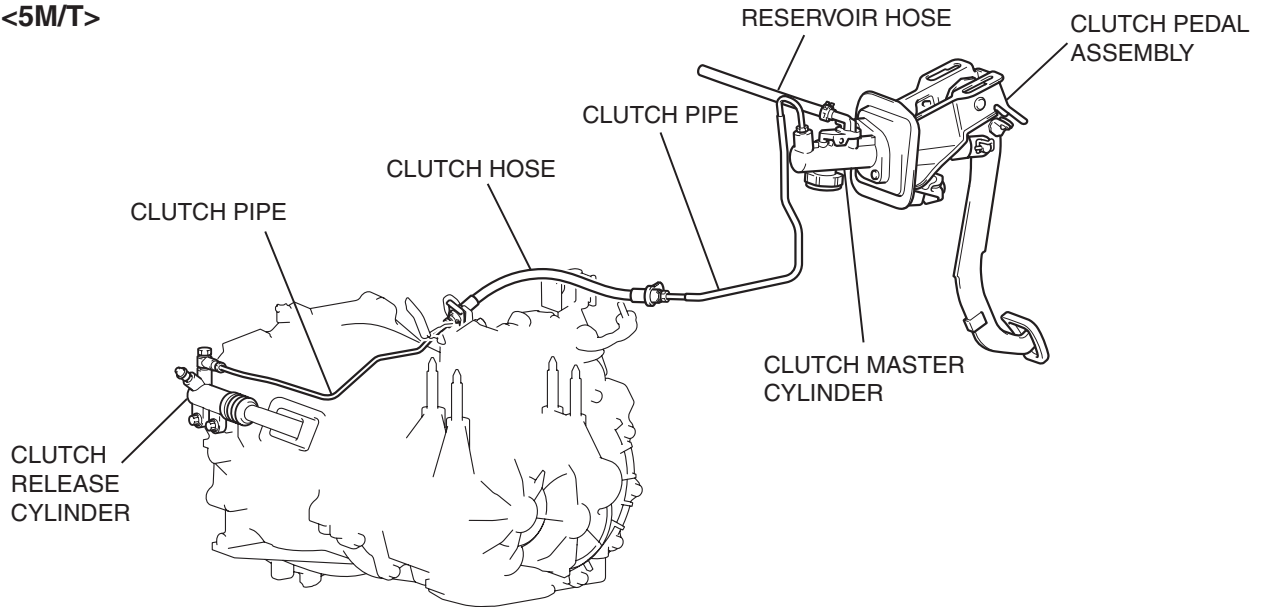
# GENERAL DESCRIPTION

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The clutch is a dry single-disc, diaphragm type; hydraulic pressure is used for the clutch control.

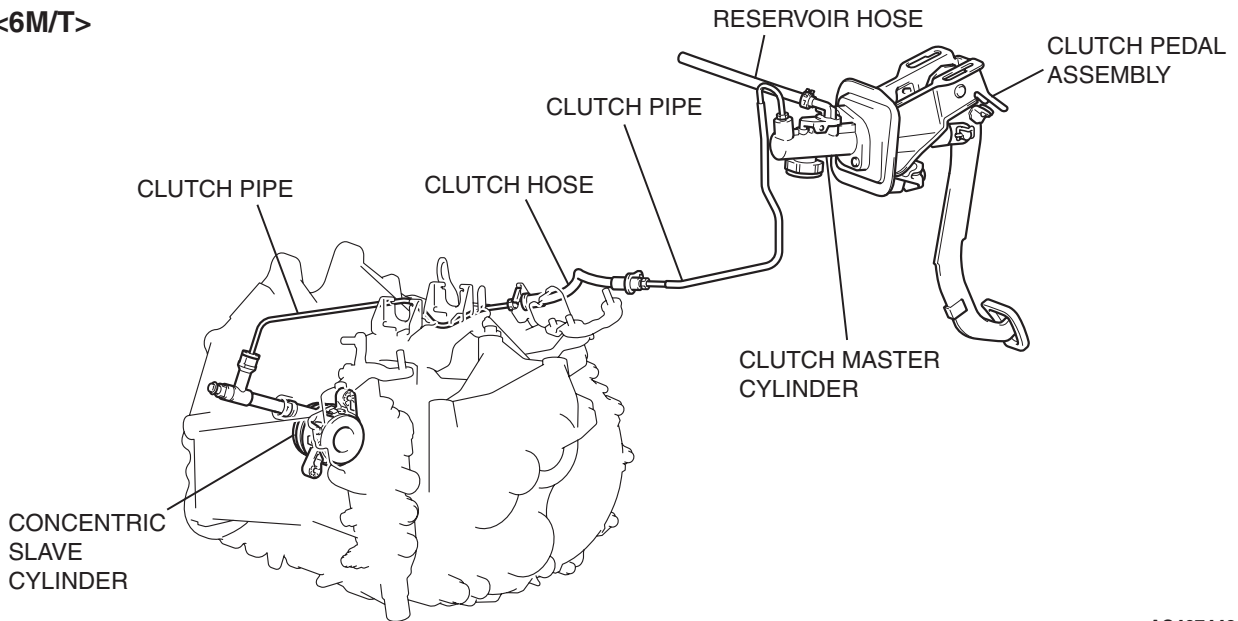
## CONSTRUCTION DIAGRAM

<5M/T>



AC406000AC

<6M/T>



AC407448AC

# CLUTCH DIAGNOSIS

## INTRODUCTION TO CLUTCH DIAGNOSIS

M1211003400160

A defective clutch causes a clutch slippage, resulting in poor torque transmission. The causes for this problem may be a faulty clutch line or disc, or a mis-adjustment of the clutch pedal.

## CLUTCH DIAGNOSIS TROUBLESHOOTING STRATEGY

M1211003500167

Use these steps to plan your diagnostic strategy. If you follow them carefully, you will be sure that you have exhausted most of the possible ways to find a clutch fault.

1. Gather information from the customer.

2. Verify that the condition described by the customer exists.
3. Find the malfunction by following the Symptom Chart.
4. Verify malfunction is eliminated.

## SYMPTOM CHART

M1211003600142

SYMPTOM	INSPECTION PROCEDURE	REFERENCE PAGE
Clutch slips	1	P.21A-3
Clutch cannot be disengaged	2	P.21A-4
Clutch noise	3	P.21A-5
Clutch pedal feels "heavy"	4	P.21A-6
When the clutch is engaged, abnormal vibration occurs.	5	P.21A-7

## SYMPTOM PROCEDURES

### INSPECTION PROCEDURE 1: Clutch Slips

#### DIAGNOSIS

##### STEP 1. Check insufficient clutch pedal play.

Refer to [P.21A-9](#).

**Q: Does the clutch pedal play meet the standard value?**

**YES :** Go to Step 2.

**NO :** Adjust the clutch pedal play. Then go to Step 8.

##### STEP 2. Check the hydraulic system for clogging.

**Q: Is the hydraulic system clogged?**

**YES :** Repair or replace the hydraulic system (Refer to [P.21A-13](#)). Then go to Step 8.

**NO <5M/T> :** Go to Step 3.

**NO <6M/T> :** Go to Step 4.

##### STEP 3. Check the release fork for sticking.

**Q: Is the release fork stuck?**

**YES :** Repair or replace the release fork (Refer to GROUP 21B, Clutch [P.21B-2](#)). Then go to Step 8.

**NO :** Go to Step 5.

##### STEP 4. Check the concentric slave cylinder for deformation.

**Q: Is deformation found on concentric slave cylinder?**

**YES :** Replace the concentric slave cylinder (Refer to [P.21A-13](#)). Then go to Step 8.

**NO :** Go to Step 5.

**STEP 5. Check the clutch disc facing for excessive wear.****Q: Is the clutch disc facing worn excessively?****YES <5M/T>** : Replace the clutch disc (Refer to GROUP 21B, Clutch P.21B-2). Then go to Step 8.**YES <6M/T>** : Replace the clutch disc and clutch cover assembly (Refer to GROUP 21C, Clutch P.21C-2). Then go to Step 8.**NO** : Go to Step 6.**STEP 6. Check the clutch disc facing for hardening and adhesion of oil.****Q: Is the clutch disc facing hardened or contaminated with oil?****YES <5M/T>** : Replace the clutch disc (Refer to GROUP 21B, Clutch P.21B-2). Then go to Step 8.**YES <6M/T>** : Replace the clutch disc and clutch cover assembly (Refer to GROUP 21C, Clutch P.21C-2). Then go to Step 8.**NO** : Go to Step 7.**STEP 7. Check the diaphragm spring for weakness and damage.****Q: Is the diaphragm spring weakened or damaged?****YES <5M/T>** : Replace the clutch cover assembly (Refer to GROUP 21B, Clutch P.21B-2). Then go to Step 8.**YES <6M/T>** : Replace the clutch disc and clutch cover assembly (Refer to GROUP 21C, Clutch P.21C-2). Then go to Step 8.**NO** : Go to Step 8.**STEP 8. Check again for the symptom.****Q: Is the symptom reproduced?****YES** : Return to Step 1.**NO** : The procedure is complete.**INSPECTION PROCEDURE 2: Clutch Cannot be Disengaged****DIAGNOSIS****STEP 1. Check the excessive clutch pedal play.**

Refer to P.21A-9.

**Q: Does the clutch pedal play meet the standard value?****YES** : Go to Step 2.**NO** : Adjust the clutch pedal play. Then go to Step 11.**STEP 2. Check the hydraulic system for leakage, air mix and clogging.****Q: Is there a leakage, air mix or clogging on the hydraulic system?****YES** : Repair or replace the hydraulic system (Refer to P.21A-13). Then go to Step 11.**NO <5M/T>** : Go to Step 3.**NO <6M/T>** : Go to Step 4.**STEP 3. Check the release fork for sticking.****Q: Is the release fork stuck?****YES** : Repair or replace the release fork (Refer to GROUP 21B, Clutch P.21B-2). Then go to Step 11.**NO** : Go to Step 5.**STEP 4. Check the concentric slave cylinder for deformation.****Q: Is deformation found on concentric slave cylinder?****YES** : Replace the concentric slave cylinder (Refer to P.21A-13). Then go to Step 11.**NO** : Go to Step 5.**STEP 5. Check the clutch disc for distortion and excessive oscillation.****Q: Is the clutch disc distorted or oscillating?****YES <5M/T>** : Replace the clutch disc (Refer to GROUP 21B, Clutch P.21B-2). Then go to Step 11.**YES <6M/T>** : Replace the clutch disc and clutch cover assembly (Refer to GROUP 21C, Clutch P.21C-2). Then go to Step 11.**NO** : Go to Step 6.

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**STEP 6. Check the clutch disc spline for wear and corrosion.**

- Q: Is the clutch disc spline worn or corroded?**  
**YES <5M/T>** : Replace the clutch disc (Refer to GROUP 21B, Clutch [P.21B-2](#)). Then go to Step 11.  
**YES <6M/T>** : Replace the clutch disc and clutch cover assembly (Refer to GROUP 21C, Clutch [P.21C-2](#)). Then go to Step 11.  
**NO** : Go to Step 7.

---

**STEP 7. Check the clutch disc facing for peeling.**

- Q: Is clutch disc facing peeling?**  
**YES <5M/T>** : Replace the clutch disc (Refer to GROUP 21B, Clutch [P.21B-2](#)). Then go to Step 11.  
**YES <6M/T>** : Replace the clutch disc and clutch cover assembly (Refer to GROUP 21C, Clutch [P.21C-2](#)). Then go to Step 11.  
**NO** : Go to Step 8.

---

**STEP 8. Check the clutch cover assembly for wear.**

- Q: Is the clutch cover assembly worn?**  
**YES <5M/T>** : Replace the clutch cover assembly (Refer to GROUP 21B, Clutch [P.21B-2](#)). Then go to Step 11.  
**YES <6M/T>** : Replace the clutch disc and clutch cover assembly (Refer to GROUP 21C, Clutch [P.21C-2](#)). Then go to Step 11.  
**NO** : Go to Step 9.

---

**STEP 9. Check the pressure plate and the flywheel for damage.**

- Q: Is the pressure plate or the flywheel damaged?**  
**YES <5M/T>** : Replace the clutch cover assembly (Refer to GROUP 21B, Clutch [P.21B-2](#)) or the flywheel (Refer to GROUP 11B, Crankshaft and Cylinder Block [P.11B-60](#)). Then go to Step 11.  
**YES <6M/T>** : Replace the clutch disc and clutch cover assembly (Refer to GROUP 21C, Clutch [P.21C-2](#)) or the flywheel (Refer to GROUP 11D, Crankshaft and Cylinder Block [P.11D-58](#)). Then go to Step 11.  
**NO <5M/T>** : Go to Step 10.  
**NO <6M/T>** : Go to Step 11.

---

**STEP 10. Check the clutch release bearing for wear.**

- Q: Is the clutch release bearing worn?**  
**YES** : Replace the clutch release bearing. Then go to Step 11.  
**NO** : Go to Step 11.

---

**STEP 11. Check again for the symptom.**

- Q: Is the symptom reproduced?**  
**YES** : Return to Step 1.  
**NO** : The procedure is complete.

---

**INSPECTION PROCEDURE 3: Clutch Noise**

**DIAGNOSIS**

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**STEP 1. Check insufficient clutch pedal play.**  
Refer to [P.21A-9](#).

- Q: Does the clutch pedal play meet the standard value?**  
**YES <5M/T>** : Go to Step 2.  
**YES <6M/T>** : Go to Step 4.  
**NO** : Adjust the clutch pedal play. Then go to Step 7.

---

**STEP 2. Check the clutch release bearing for wear.**

- Q: Is the clutch release bearing worn?**  
**YES** : Replace the clutch release bearing (Refer to GROUP 21B, Clutch [P.21B-2](#)). Then go to Step 7.  
**NO** : Go to Step 3.

---

**STEP 3. Check the clutch release bearing sliding surface for insufficient lubrication.**

- Q: Is the lubrication of the bearing sleeve sliding surface sufficient?**  
**YES** : Go to Step 5.  
**NO** : Repair the clutch release bearing sliding surface. Then go to Step 7.

---

**STEP 4. Check the concentric slave cylinder for deformation.**

- Q: Is deformation found on concentric slave cylinder?**  
**YES :** Replace the concentric slave cylinder (Refer to [P.21A-13](#)). Then go to Step 7.  
**NO :** Go to Step 5.

---

**STEP 5. Check the clutch cover assembly for improper installation.**

- Q: Is the clutch cover assembly installed properly?**  
**YES :** Go to Step 6.  
**NO :** Install the clutch cover assembly properly. Then go to Step 7.

---

**STEP 6. Check the clutch disc facing for excessive wear.**

- Q: Is the clutch disc facing assembly worn excessively?**  
**YES <5M/T> :** Replace the clutch disc (Refer to GROUP 21B, Clutch [P.21B-2](#)). Then go to Step 7.  
**YES <6M/T> :** Replace the clutch disc and clutch cover assembly (Refer to GROUP 21C, Clutch [P.21C-2](#)). Then go to Step 7.  
**NO :** Go to Step 7.

---

**STEP 7. Check again for the symptom.**

- Q: Is the symptom reproduced?**  
**YES :** Return to Step 1.  
**NO :** The procedure is complete.

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## INSPECTION PROCEDURE 4: Clutch Pedal Feels "Heavy"

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### DIAGNOSIS

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**STEP 1. Check the clutch pedal clevis pin for insufficient lubrication.**

- Q: Is the lubrication of the clutch pedal clevis pin sufficient?**  
**YES <5M/T> :** Go to Step 2.  
**YES <6M/T> :** Go to Step 3.  
**NO :** Repair the clutch pedal. Then go to Step 6.

---

**STEP 2. Check the release fork for sticking.**

- Q: Is the release fork stuck?**  
**YES :** Repair or replace the release fork (Refer to GROUP 21B, Clutch [P.21B-2](#)). Then go to Step 6.  
**NO :** Go to Step 5.

---

**STEP 3. Check the concentric slave cylinder for deformation.**

- Q: Is deformation found on concentric slave cylinder?**  
**YES :** Replace the concentric slave cylinder (Refer to [P.21A-13](#)). Then go to Step 6.  
**NO :** Go to Step 5.

---

**STEP 4. Check the clutch disc spline for insufficient lubrication.**

- Q: Is the lubrication of the clutch disc spline sufficient?**  
**YES <5M/T> :** Go to Step 5.  
**YES <6M/T> :** Go to Step 6.  
**NO :** Repair the clutch disc spline. Then go to Step 6.

---

**STEP 5. Check the insufficient lubrication of clutch release bearing sliding surface.**

- Q: Is the lubrication of the bearing sleeve sliding surface sufficient?**  
**YES :** Go to Step 6.  
**NO :** Repair the clutch release bearing sliding surface. Then go to Step 6.

---

**STEP 6. Check again for the symptom.**

- Q: Is the symptom reproduced?**  
**YES :** Return to Step 1.  
**NO :** The procedure is complete.

---

**INSPECTION PROCEDURE 5: When the Clutch is Engaged, Abnormal Vibration Occurs.**

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**DIAGNOSIS**

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**STEP 1. Check the engine and transaxle mounting for loosening and damage.**

**Q: Is the engine and transaxle mounting loosened or damaged?**

**YES :** Tighten or replace the engine and transaxle mounting. Then go to Step 8.

**NO <5M/T> :** Go to Step 2.

**NO <6M/T> :** Go to Step 3.

---

**STEP 2. Check the release fork for sticking.**

**Q: Is the release fork stuck?**

**YES :** Repair or replace the release fork (Refer to GROUP 21B, Clutch [P.21B-2](#)). Then go to Step 8.

**NO :** Go to Step 4.

---

**STEP 3. Check the concentric slave cylinder for deformation.**

**Q: Is deformation found on concentric slave cylinder?**

**YES :** Replace the concentric slave cylinder (Refer to [P.21A-13](#)). Then go to Step 8.

**NO :** Go to Step 4.

---

**STEP 4. Check the diaphragm spring for uneven height.**

**Q: Is the diaphragm spring even height?**

**YES :** Go to Step 5.

**NO <5M/T> :** Replace the clutch cover assembly (Refer to GROUP 21B, Clutch [P.21B-2](#)). Then go to Step 8.

**NO <6M/T> :** Replace the clutch disc and clutch cover assembly (Refer to GROUP 21C, Clutch [P.21C-2](#)). Then go to Step 8.

---

**STEP 5. Check the pressure plate and flywheel for damage.**

**Q: Is the pressure plate or flywheel damaged?**

**YES <5M/T> :** Replace the clutch cover assembly (Refer to GROUP 21B, Clutch [P.21B-2](#)) or the flywheel (Refer to GROUP 11B, Crankshaft and Cylinder Block [P.11B-60](#)). Then go to Step 8.

**YES <6M/T> :** Replace the clutch disc and clutch cover assembly (Refer to GROUP 21C, Clutch [P.21C-2](#)) or the flywheel (Refer to GROUP 11D, Crankshaft and Cylinder Block [P.11D-58](#)). Then go to Step 8.

**NO :** Go to Step 6.

---

**STEP 6. Check the clutch disc facing for wear and damage.**

**Q: Is the clutch disc facing worn or damaged?**

**YES <5M/T> :** Replace the clutch disc (Refer to GROUP 21B, Clutch [P.21B-2](#)). Then go to Step 8.

**YES <6M/T> :** Replace the clutch disc and clutch cover assembly (Refer to GROUP 21C, Clutch [P.21C-2](#)). Then go to Step 8.

**NO :** Go to Step 7.

**STEP 7. Check for grease or oil on the clutch disc facing.****Q: Is there grease or oil on the clutch disc facing?**

**YES <5M/T>** : If the clutch disc facing is contaminated with grease or oil, check that grease is applied to the clutch disc spline. Then check the clutch housing input shaft oil seal (Refer to GROUP 22B, Clutch Housing [P.22B-42](#)) and the crank shaft rear oil seal (Refer to GROUP 11A, Crankshaft Oil Seal [P.11A-38](#)) for leakage, and replace the oil seal(s). Replace the clutch disc (Refer to GROUP 21B, Clutch [P.21B-2](#)). Then go to Step 8.

**YES <6M/T>** : If the clutch disc facing is contaminated with grease or oil, check that grease is applied to the clutch disc spline. Then check the clutch housing input shaft oil seal (Refer to GROUP 22C, Clutch Housing [P.22C-47](#)) and the crank shaft rear oil seal (Refer to GROUP 11C, Crankshaft Rear Oil Seal [P.11C-53](#)) for leakage, and replace the oil seal(s). Replace the clutch disc and clutch cover assembly (Refer to GROUP 21C, Clutch [P.21C-2](#)). Then go to Step 8.

**NO** : Go to Step 8.

**STEP 8. Check again for the symptom.****Q: Is the symptom reproduced?**

**YES** : Return to Step 1.

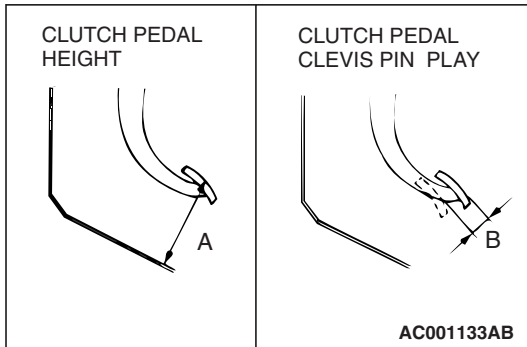
**NO** : The procedure is complete.



## ON-VEHICLE SERVICE

### CLUTCH PEDAL CHECK AND ADJUSTMENT

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1. Turn back the carpet etc. under the clutch pedal.
2. Measure the clutch pedal height. If the height is outside the standard value, go to step 4.

**Standard value (A):**

**<5M/T> 169.4 mm (6.67 inches) [From the surface of dash panel to the face of pedal pad]**

**<6M/T> 178.2 mm (7.02 inches) [From the surface of dash panel to the face of pedal pad]**

3. Measure the clutch pedal clevis pin play. If the play is outside the standard value, go to Step 5.

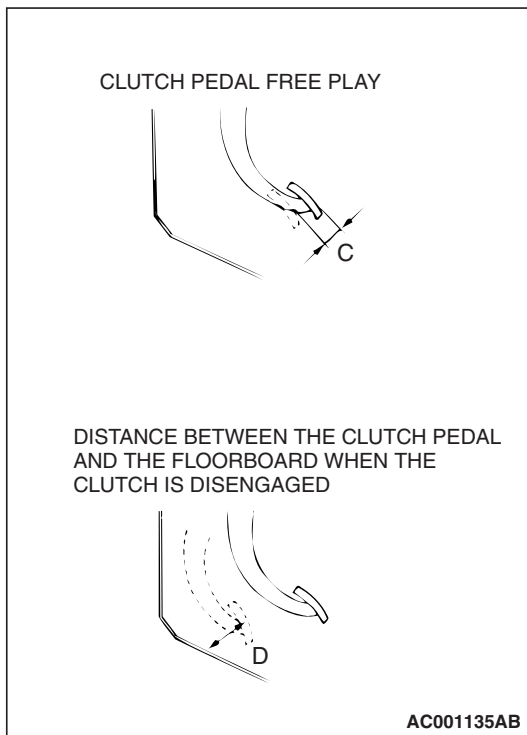
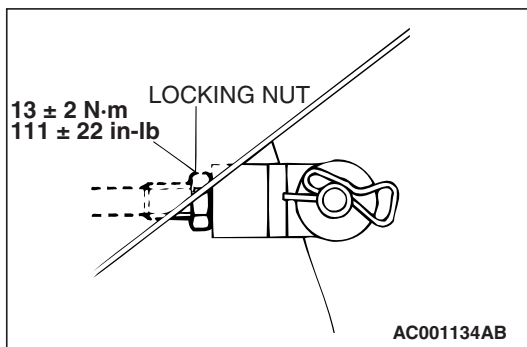
**Standard value (B): 1 – 3 mm (0.04 – 0.12 inch)**

4. If the height of the clutch pedal is not within the standard value, loosen the locking nut and adjust the pedal height to the standard value using the adjusting bolt or push rod.

**⚠ CAUTION**

**Do not push in the master cylinder push rod at this time.**

5. If the clutch pedal play is not within the standard value, loosen the locking nut and move the push rod to adjust.



6. After the adjustments, confirm that the clutch pedal free play (measured at the face of the pedal pad) and the distance between the clutch pedal (the face of the pedal pad) and the floorboard when the clutch is disengaged are within the standard value ranges.

**Standard value (C): 6 –13 mm (0.2 –0.5 inch)**

**Standard value (D): 72.0 mm (2.83 inches) or more**

7. If the measured free play and distance do not agree with the standard value ranges, it is probably the result of either air in the hydraulic system or a faulty master cylinder or clutch. Bleed the air, or disassemble and inspect the master cylinder or clutch.
8. Reinstall the carpet, etc.

## CLUTCH BLEEDING

M1211001400261

**⚠ CAUTION**

Use the specified brake fluid. Do not mix brake fluid.

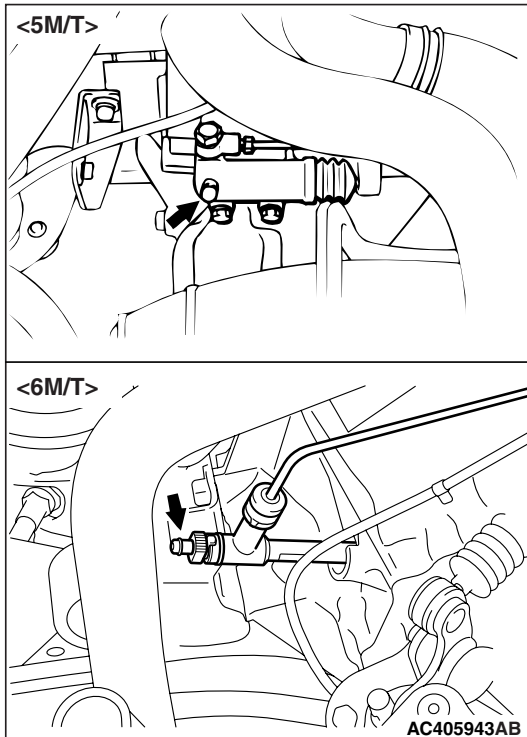
Specified fluid: Brake Fluid DOT 3 or DOT 4

1. Connect a hose with a bottle to the bleeder screw.
2. Open the bleed nipple.

**⚠ CAUTION**

For bleeding, never “pump” the clutch pedal. This may cause an oil leak at the clutch cylinder.

3. Depress the clutch pedal slowly. Open the bleeder screw to let air and brake fluid out. Close the bleeder screw. Release the clutch pedal. Repeat until only brake fluid and no air comes out.
4. Check that the brake fluid reservoir level stays between “MAX” and “MIN” marks throughout the clutch bleeding process.



## CLUTCH PEDAL POSITION SWITCH CHECK

M1211003100170

Refer to GROUP 17, Auto-cruise Control System –On-vehicle Service –Auto-cruise Control Component Check [P.17-87](#).

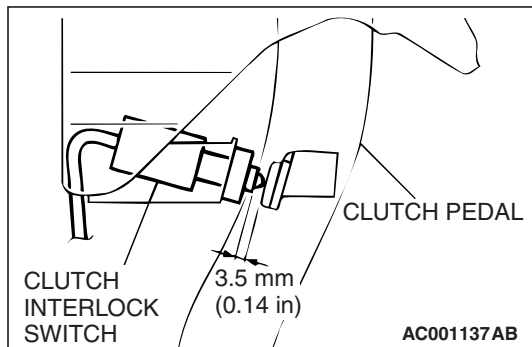
## CLUTCH INTERLOCK SWITCH OPERATING CHECK

M1211001000177

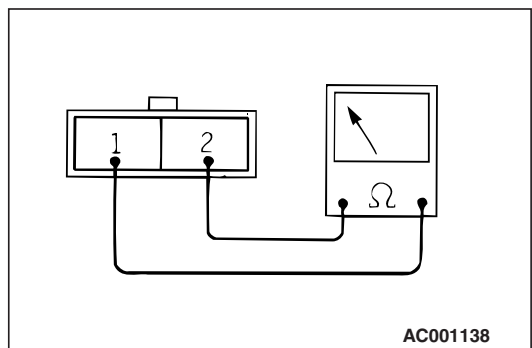
1. Lock the front wheels, apply the parking brake.
2. After normally adjusting the clutch pedal, check the interlock switch operation as follows:
  - (1) The engine should not start even if the ignition switch is turned to the "START" position with the clutch pedal released. If the engine should start, check the interlock switch and the harness.
  - (2) The engine should start after the clutch pedal is depressed and the ignition switch turned to the "START" position. If the engine should start before the clutch is disengaged or the engine does not start even if the clutch pedal is depressed, check and adjust the interlock switch.

## CLUTCH INTERLOCK SWITCH CHECK AND ADJUSTMENT

M1211001100215



1. Check to be sure that the interlock switch is as shown in the illustration when the clutch pedal is depressed at its full stroke 135 mm (5.3 inches) <5M/T> or 145 mm (5.7 inches) <6M/T>. If not at the specified dimension, loosen the clutch interlock switch 1/4 turn counterclockwise. Then slide the switch to the specified dimension, and turn the switch 1/4 turn clockwise to lock.



2. Connect an ohmmeter to the interlock switch connector, and then check for continuity when the clutch pedal is fully depressed and when it is released outward. If the interlock switch is not as it should be, replace it.

TESTER CONNECTION	PEDAL POSITION	SPECIFIED CONDITION
1 – 2	FULLY DEPRESSED	Less than 2 ohms
	RELEASED	Open circuit

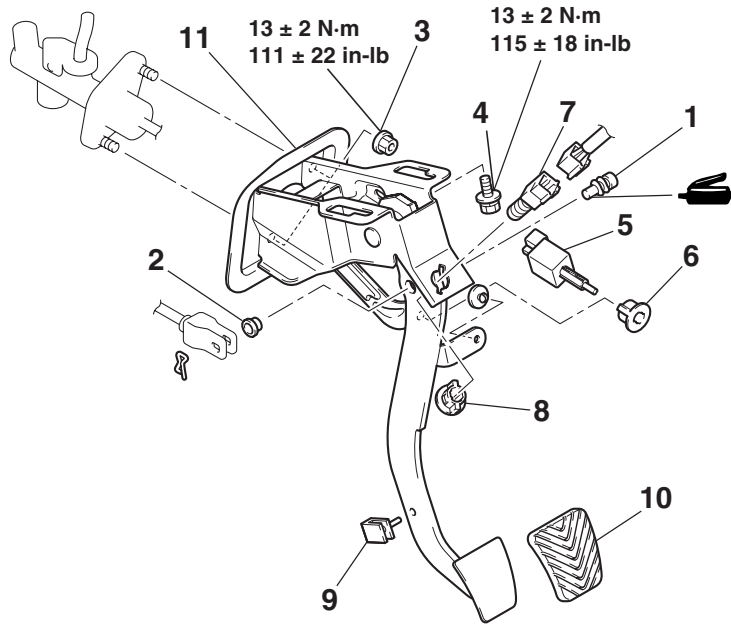
# CLUTCH PEDAL

## REMOVAL AND INSTALLATION

M1211001600317

**Post-installation Operation**

- Clutch Pedal Adjustment (Refer to P.21A-9).
- Clutch Interlock Switch Adjustment (Refer to P.21A-11).



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**REMOVAL STEPS**

1. CLEVIS PIN
2. BUSHING
3. NUT
4. BOLT
5. CLUTCH INTERLOCK SWITCH
6. CLIP

**REMOVAL STEPS (Continued)**

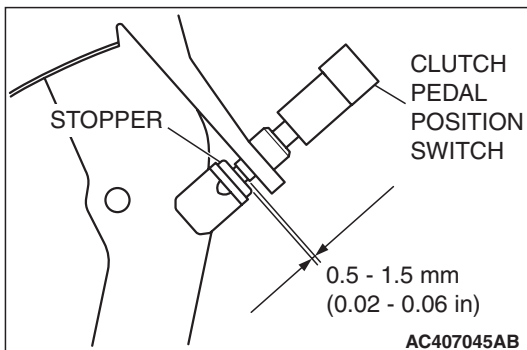
- >>A<<
7. CLUTCH PEDAL POSITION SWITCH
  8. CLIP
  9. PEDAL STOPPER
  10. PEDAL PAD
  11. CLUTCH PEDAL AND PEDAL SUPPORT MEMBER

### INSTALLATION SERVICE POINTS

#### >>A<< CLUTCH PEDAL POSITION SWITCH INSTALLATION

Install the clutch pedal position switch so that the clearance between the stopper and switch is as shown when the clutch pedal is not depressed.

*NOTE: If not at the specified dimension, loosen the clutch interlock switch 1/4 turn counterclockwise. Then slide the switch to the specified dimension, and turn the switch 1/4 turn clockwise to lock.*



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INSPECTION

M1211001700206

- Check the bushing for wear.
- Check the clutch pedal for bending or twisting.
- Check the pedal pad for damage or wear.

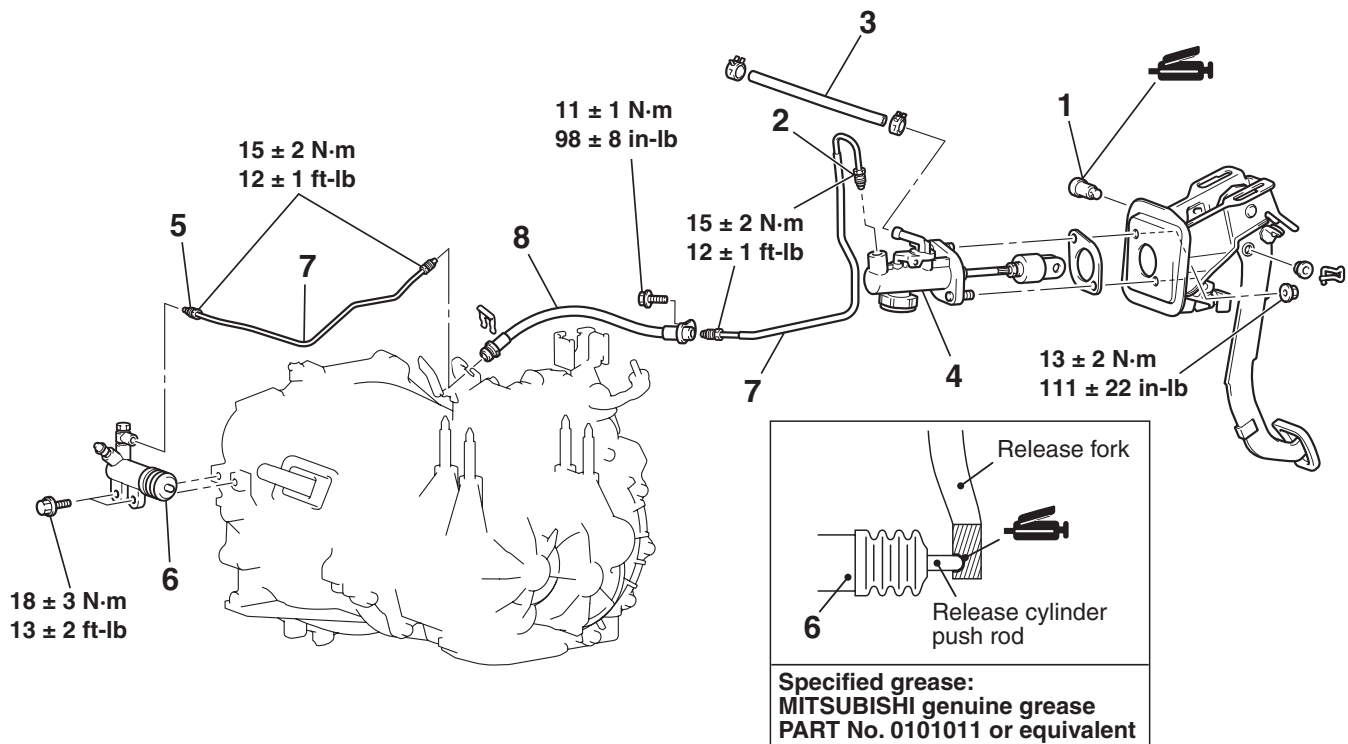
CLUTCH CONTROL

REMOVAL AND INSTALLATION

M1211001900330

Pre-removal Operation	Post-installation Operation
<ul style="list-style-type: none"> <li>• Air Cleaner Assembly Removal (Refer to GROUP 15, Air Cleaner P.15-4 &lt;2.4L Engine&gt; or P.15-5 &lt;3.8L Engine&gt;).</li> <li>• Battery and Battery Tray Removal.</li> <li>• Strut Tower Bar Removal &lt;3.8L Engine&gt; (Refer to GROUP 42 P.42-12).</li> <li>• Engine Control Module Removal (Refer to GROUP 13A, Engine Control Module (ECM) and Powertrain Control Module (PCM) P.13A-1214 &lt;2.4L Engine&gt; or GROUP 13B, Engine Control Module (ECM) and Powertrain Control Module (PCM) P.13B-1295 &lt;3.8L Engine&gt;).</li> <li>• Clutch Fluid Draining.</li> </ul>	<ul style="list-style-type: none"> <li>• Engine Control Module Installation (Refer to GROUP 13A, Engine Control Module (ECM) and Powertrain Control Module (PCM) P.13A-1214 &lt;2.4L Engine&gt; or GROUP 13B, Engine Control Module (ECM) and Powertrain Control Module (PCM) P.13B-1295 &lt;3.8L Engine&gt;).</li> <li>• Strut Tower Bar Installation &lt;3.8L Engine&gt; (Refer to GROUP 42 P.42-12).</li> <li>• Battery and Battery Tray Installation.</li> <li>• Air Cleaner Assembly Installation (Refer to GROUP 15, Air Cleaner P.15-4 &lt;2.4L Engine&gt; or P.15-5 &lt;3.8L Engine&gt;).</li> <li>• Clutch Fluid Supplying</li> <li>• Clutch Line Bleeding (Refer to P.21A-10).</li> <li>• Clutch Pedal Adjustment (Refer to P.21A-9).</li> </ul>

<5M/T>



AC405999AF

CLUTCH MASTER CYLINDER  
REMOVAL STEPS

1. CLEVIS PIN
2. CLUTCH PIPE CONNECTION

CLUTCH MASTER CYLINDER  
REMOVAL STEPS (Continued)

- >>C<<
3. RESERVOIR HOSE
  4. CLUTCH MASTER CYLINDER

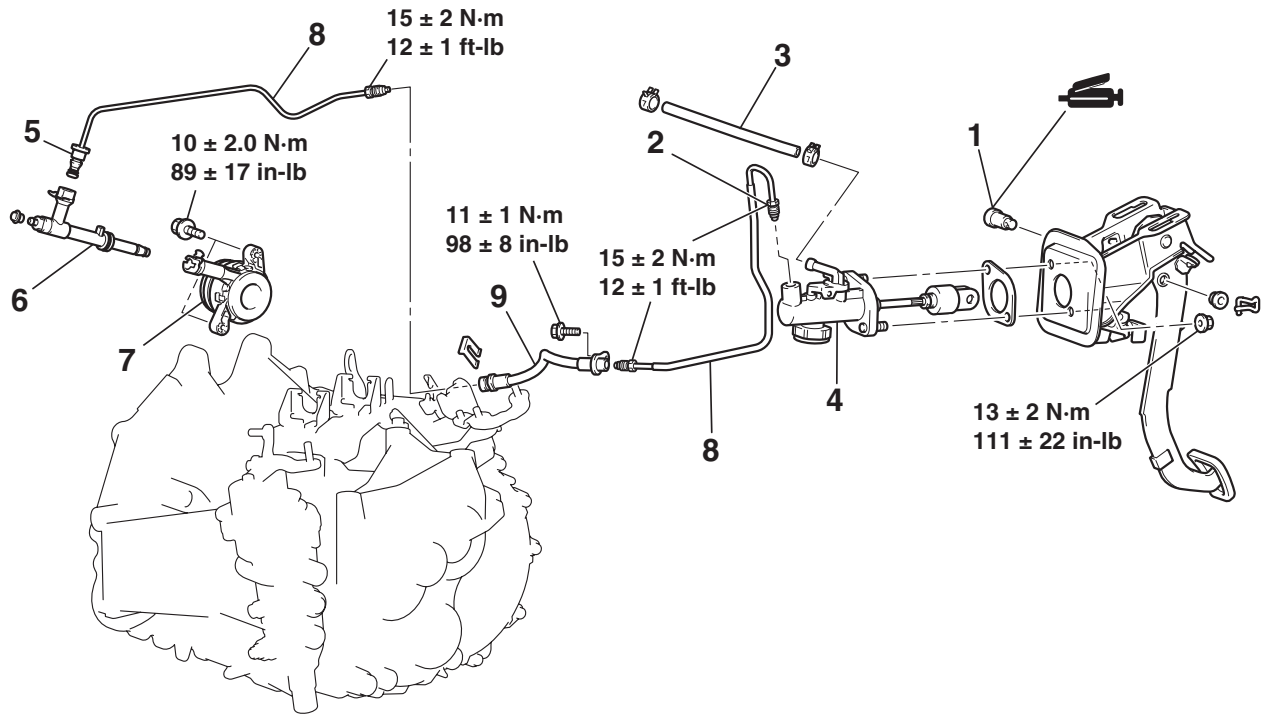
**CLUTCH RELEASE CYLINDER  
REMOVAL STEPS**

- 5. CLUTCH PIPE CONNECTION
- 6. CLUTCH RELEASE CYLINDER

**CLUTCH LINE REMOVAL  
STEPS**

- >>A<< 7. CLUTCH PIPE
- <<B>> >>A<< 8. CLUTCH HOSE

<6M/T>



AC500068AB

**CLUTCH MASTER CYLINDER  
REMOVAL STEPS**

- 1. CLEVIS PIN
- >>C<< 2. CLUTCH PIPE CONNECTION
- 3. RESERVOIR HOSE
- 4. CLUTCH MASTER CYLINDER

**CONCENTRIC SLAVE  
CYLINDER REMOVAL STEPS**

- <<A>> >>B<< 5. CLUTCH PIPE CONNECTION
- TRANSAXLE ASSEMBLY (REFER TO GROUP 22A, TRANSAXLE ASSEMBLY P.22A-20).

**CONCENTRIC SLAVE  
CYLINDER REMOVAL STEPS**

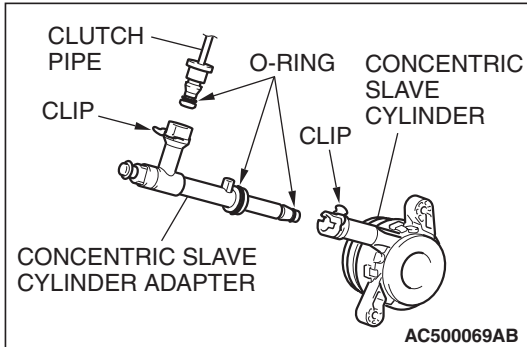
- <<A>> >>B<< 6. CONCENTRIC SLAVE CYLINDER ADAPTER
- <<A>> >>B<< 7. CONCENTRIC SLAVE CYLINDER
- >>A<< 8. CLUTCH PIPE
- <<B>> >>A<< 9. CLUTCH HOSE

**REMOVAL SERVICE POINT**

**<<A>> CLUTCH PIPE CONNECTION/CONCENTRIC SLAVE CYLINDER ADAPTER/CONCENTRIC SLAVE CYLINDER REMOVAL**

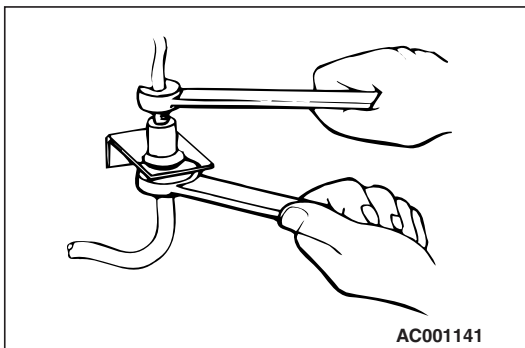
**⚠ CAUTION**

- Do not remove the O-rings and the clips from the clutch pipe, the concentric slave cylinder adapter and the concentric slave cylinder.
- If the O-rings or the clips of the clutch pipe, the concentric slave cylinder adapter and the concentric slave cylinder are damaged, replace each assembly.



**<<B>> CLUTCH HOSE REMOVAL**

Holding the nut at the clutch hose side, loosen the flare nut on the clutch pipe.



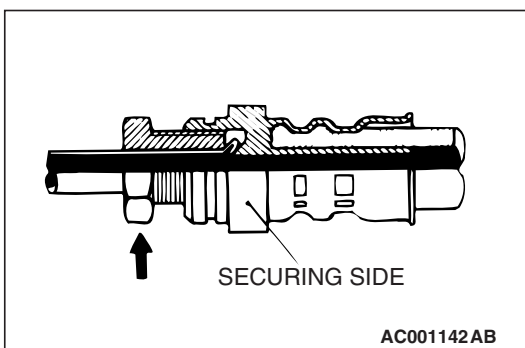
**INSTALLATION SERVICE POINT**

**>>A<< CLUTCH HOSE/CLUTCH PIPE INSTALLATION**

1. Temporarily tighten the clutch pipe flare nut by hand, and then tighten it to the specified torque, being careful that the clutch hose does not become twisted.

**Tightening torque: 15 ± 2 N·m (12 ± 1 ft-lb)**

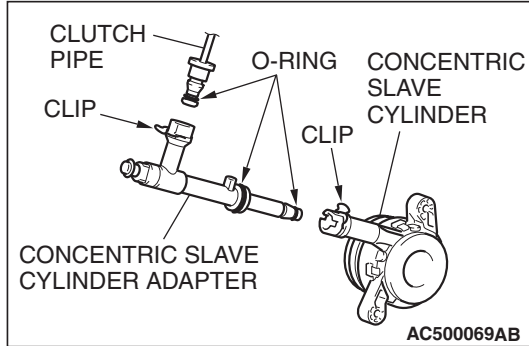
2. After tightening the clutch pipe flare nut, check to be sure there is no leakage of the clutch fluid.



## >>B<< CONCENTRIC SLAVE CYLINDER/CONCENTRIC SLAVE CYLINDER ADAPTER/CLUTCH PIPE CONNECTION INSTALLATION

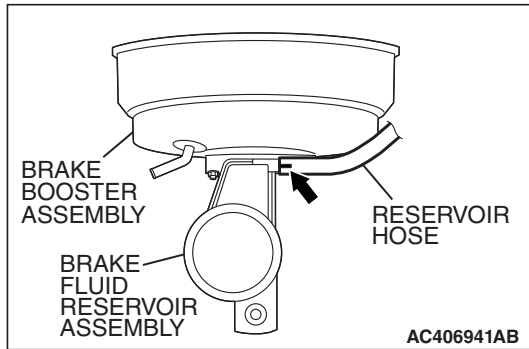
### ⚠ CAUTION

- Check that the O-rings and the clips are not damaged before installing the clutch pipe, the concentric slave cylinder adapter and the concentric slave cylinder.
- If the O-rings of the clutch pipe, the concentric slave cylinder adapter and the concentric slave cylinder and their installation positions are contaminated, clean with the clutch fluid before installation.



## >>C<< RESERVOIR HOSE INSTALLATION

Install the reservoir hose to the brake fluid reservoir assembly so that the marking faces upward.



## INSPECTION

- Check the master cylinder or clutch hose for fluid leakage.
- Check the clutch hose or tube for cracks or clogging.

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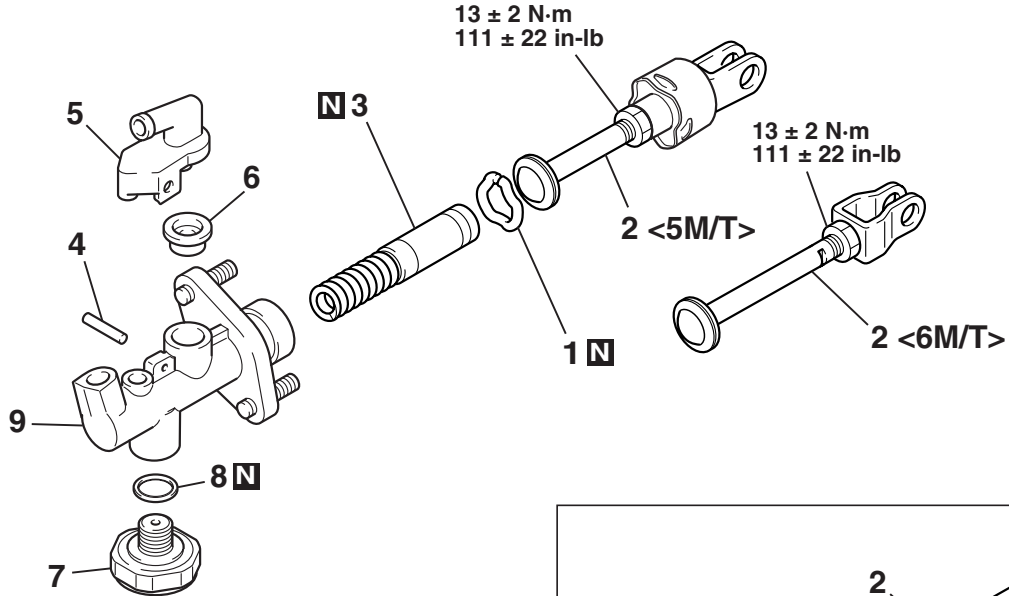


**CLUTCH MASTER CYLINDER  
DISASSEMBLY AND ASSEMBLY**

M1211002100274

**CAUTION**

Do not disassemble the piston assembly.



**CLUTCH FLUID:  
BRAKE FLUID  
DOT 3 OR DOT 4**

**PISTON REPAIR KIT**

**GREASE: RUBBER GREASE**

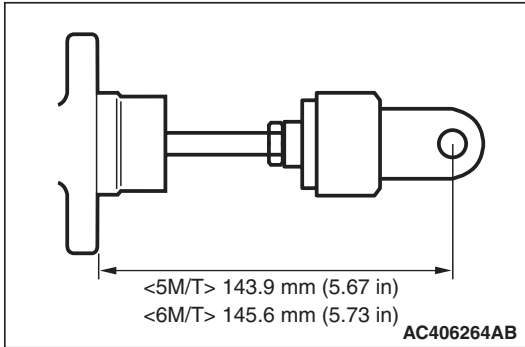
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- DISASSEMBLY STEPS**
- >>A<<
1. PISTON STOPPER RING
  2. PUSHROD
  3. PISTON ASSEMBLY
  4. SPRING PIN
  5. NIPPLE

- DISASSEMBLY STEPS**
6. RESERVOIR SEAL
  7. DAMPER ASSEMBLY
  8. GASKET
  9. CLUTCH MASTER CYLINDER ASSEMBLY

**ASSEMBLY SERVICE POINT****>>A<< DAMPER AND PUSHROD INSTALLATION**

Set the length of the push rod assembly to the dimension shown to make the adjustment of the clutch pedal easier.

**INSPECTION**

M1211002200185

- Check inside the cylinder body for rust and scars.
- Check the piston cup for wear and deformation.
- Check the piston for rust and scars.
- Check the pipe connection for clogging.

## SPECIFICATIONS

### FASTENER TIGHTENING SPECIFICATIONS

M1211003300185

ITEM		SPECIFICATION
Clutch control	Clutch hose connecting bolt	11 ± 1 N· m (98 ± 8 in-lb)
	Clutch master cylinder mounting nut	13 ± 2 N· m (111 ± 22 in-lb)
	Clutch pipe flare nut	15 ± 2 N· m (12 ± 1 ft-lb)
	Clutch release concentric cylinder mounting bolt <6M/T>	10 ± 2.0 N· m (89 ± 17 in-lb)
	Clutch release cylinder mounting bolt <5M/T>	18 ± 3 N· m (13 ± 2 ft-lb)
	Push rod locking nut	13 ± 2 N· m (111 ± 22 in-lb)
Clutch pedal	Clutch master cylinder mounting nut	13 ± 2 N· m (111 ± 22 in-lb)
	Pedal support member mounting bolt	13 ± 2 N· m (115 ± 18 in-lb)

### GENERAL SPECIFICATION

M1211000200178

ITEM	SPECIFICATION	
Engine model	2.4L Engine	3.8L Engine
Transmission model	F5M42 (5M/T)	F6MBA (6M/T)
Release cylinder ID mm (in)	20.64 (0.81)	–
Master cylinder ID mm (in)	17.46 (0.69)	17.46 (0.69)

### SERVICE SPECIFICATIONS

M1211000300302

ITEM	STANDARD VALUE	
Clutch pedal height mm (in)	5M/T	169.4 (6.67)
	6M/T	178.2 (7.02)
Clutch pedal clevis pin play mm (in)	1 – 3 (0.04 – 0.12)	
Clutch pedal free play mm (in)	6 – 13 (0.2 – 0.5)	
Distance between the clutch pedal and the floorboard when the clutch is disengaged mm (in)	72.0 (2.83) or more	

### LUBRICANTS

M1211000400224

ITEM	SPECIFIED LUBRICANT	QUANTITY
Clutch fluid	Brake Fluid DOT 3 or DOT 4	As required
Push rod assembly	Rubber grease	As required
Release cylinder push rod	mitsubishi genuine grease Part No.0101011 or equivalent	As required

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## NOTES