Self-Adjusting - Installation Instructions

1. Measurements of the Flywheel and Flywheel Housing prior to Clutch installation

Use a Dial Indicator, mounted to a magnetic base and measure the following:

A. Measure runout of Flywheel Face

Mount the indicator base to the base of the flywheel housing. Adjust the indicator base so that the indicating tip is in contact with the flywheel face, out near the ridge. Rotate the flywheel 1 revolution. The maximum allowable runout is (0.008") or [.20 mm].

B. Measure runout of Pilot Bearing Bore

Mount the indicator base to the base of the flywheel housing. Adjust the indicator base so that the indicating tip is in contact with the pilot bearing bore ID. Rotate the flywheel 1 revolution. The maximum allowable runout is (0.008") or [.20 mm].

C. Measure runout of the Flywheel Housing ID

Mount the indicator base to crankshaft area. Adjust the indicator base so that the indicating tip is in contact with the flywheel housing ID. Rotate the flywheel 1 revolution. The maximum allowable runout is (0.008") or [.20 mm].

D. Measure runout of Flywheel Housing Mating Face

Mount the indicator base to the flywheel surface near the ridge. Adjust the indicator base so that the indicating tip is in contact with the mating face of the flywheel housing. The maximum allowable runout is (0.008") or [.20 mm].

E. **Measure the distance between the flywheel housing and the friction surface of the flywheel to determine dimension "A". Use two straight edge pieces of metal to take this measurement. Use the Clutch Brake Measurement instructions included in the box to determine if a thicker clutch brake is necessary. This outcome is based on the amount of material removed from the flywheel during resurfacing(s).**

2. Install clutch onto the flywheel (use of a Clutch Jack is recommended)

A. Measure the ID of the bore in the center of the flywheel. The result will be 7", 8-1/2" or 10". Compare this measurement to the OD of the disc damper from the clutch that is to be installed. The disc damper OD is noted on the product label on the box. The disc damper OD must not be greater than the flywheel bore ID, otherwise the clutch will not install properly.
B. Insert the proper size alignment shaft through the center opening of the release bearing.
C. Insert the disc to be positioned as the "rear" disc onto the shaft. Before doing so, check for positional labels attached to the discs. These labels will read either "Pressure Plate Side", "Intermediate Plate Side" or there will be no positional label attached to the disc. The discs **must** be orientated per the positional labels for the clutch to operate properly. In the case where no positional label is present, the disc can be installed without attention to positional orientation.
D. Insert the intermediate plate in the clutch cover and align the 4 drive lugs with the slots provided in the cover.
E. Insert the disc to be positioned as the "front" disc onto the shaft. Before doing so, check for positional labels attached to the discs. These labels will read either "Flywheel Side", "Intermediate Plate Side" or there will be no positional label attached to the disc. The discs must be orientated per the positional labels for the clutch to operate properly. In the case where no label is present, the disc can be installed without attention to positional orientation.

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F. The unit is now ready to be installed on to the flywheel. Position the clutch over the guide studs and slide it forward until contact is made with the flywheel surface. Start six bolts with lock washers and tighten finger tight. Remove guide stubs and start the 2 remaining bolts with lock washers and tighten finger tight. Tap the aligning tool to make sure that it is centered and seated into the pilot bearing.
G. Tighten the bolts to 40–50 lbs. ft. (54–68 N•m), in an even, modified crossing star pattern. Make sure that the cover assembly seats properly onto the flywheel.
H. Remove the 4 shipping bolts, which are marked with tags, from the cover in an even pattern. These 4 bolts will be **yellow** in color. Keep these bolts as they could be needed during reset process. Do not remove any other bolts from the cover assembly.
I. Remove the alignment tool from the clutch.

3. Install the transmission

A. Install a new clutch brake onto the input shaft. Select the correct clutch brake based on the dimension "A" that you determined in step 1 A.
B. Shift transmission into gear.
C. Position transmission jack so that the bell housing flange is visually in-line with the engine housing.
D. Verify that the fork tips are raised upward until the fork clears the release bearing housing. Then rotate the fork downward using the cross-shafts. Failure to do so will result in clutch cover damage.
E. Move the transmission forward while rotating the output shaft so that the input shaft aligns with the disc hubs and enters properly. Do not apply excessive force to move the transmission into place. This will result in damage to the clutch.
F. Once the transmission is in position fasten into place per the manufactures torque specifications.

4. Clutch Set-up and Preparation

For Mechanical Linkages: Proceed to step 4. A.
For Hydraulic Linkages: Bypass step 4. A. and proceed to step 4. B.

A. Make an adjustment to the linkage so the fork tips are against the pads on the underside of the release bearing housing. This will result in no clutch pedal free-play at this point.
B. Press the clutch pedal down, completely, a total of 5-times. This will move the release bearing housing closer to the clutch brake which will create clutch pedal free-play in the vehicle.
C. Take a measurement of the gap between the **release bearing housing** and the **clutch brake**. This distance should be between (0.490" - 0.560") or [12.70 – 14.22mm].
   - If the distance measured is greater than (0.560") or [14.22mm] return to step **4.A.** and verify that the linkage was adjusted properly.
   - If the distance measured is less than (0.490") or [12.70] then the clutch is not set up correctly. Check the position of the "indicator tab". If the tab indicates "Reset":
     - Then a disc assembly is not installed correctly. Return to step **2.A.**
     - It is also possible that the disc damper OD is greater than the flywheel opening ID.

5. Check and confirm that clutch brake squeeze is correct

A. Use a (.010") or [.25mm] gage and position it against the clutch brake contact surface. Press the clutch pedal to floor until the release bearing contacts the clutch brake. This contact must occur within the last 1" inch of clutch pedal travel. When the pedal is all the way down the gage should not pull out.
   - If the gage does not clamp, the linkage will require adjustment to move the fork tips closer to the release bearing. Take this action by repeating step 5.A.

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B. Gradually allow clutch pedal to return upward while making note of the pedal distance from floor when the (.010") or [.25mm] gage is released from the clamped position.
   - If the gage remains clamped at a distance greater than 1" inch, the linkage will require adjustment so that the fork tips are further away from the release bearing. Take this action by repeating step 5.A.

6. Check and confirm clutch pedal free-play

A. Confirm that the clutch pedal has free-play in the cab. If no free-play is present, the vehicle linkage is not rotating the fork enough.

   - **IMPORTANT NOTE:** AT THIS POINT OF THE INSTALLATION
   - DO NOT RESET THE CLUTCH
   - DO NOT ALTER THE PEDAL FREE-PLAY BY READJUSTMENT OF LINKAGE

7. Lubrication – IMPORTANT: clutch assemblies must be lubricated with Lithium complex grease that meets NLGI 2 or 3 specifications.

A. Insert grease into the release bearing until grease is visible on the lower half of the release bearing and housing cover. This will ensure that the grease will contact the clutch brake and the ID of the center bushing when the clutch is released.
B. Lubricate the visible portion of the input shaft, the fork tips, cross-shaft bushings and all pivot points of the linkage.

8. Reset Instructions – FOR USE WHEN THE CLUTCH IS INSTALLED IN A VEHICLE

A. Have a person press and hold the clutch pedal down.
B. As the clutch pedal is held down, have another person move the wear indicator tab to the left so that it is positioned under the "**Reset**" mark. The wear indicator tab is located on the top of the clutch cover.
   - If the wear indicator tab/cam does not move it will be necessary to loosen the transmission and insert (4) spacers measuring ½" between the bell housing and the engine housing. This action will increase the movement within the clutch.
   - While the ½" spacers are in place, repeat steps **A, B and C**.
   - Remove the ½" spacers and tighten the transmission to the bell housing per manufacture specifications.
C. Let off of the clutch pedal so it will return to normal position. **DO NOT PUSH THE CLUTCH PEDAL DOWN** or the wear indicator tab will move to the incorrect position.
D. Insert the (4) 7/16" shipping bolts into the cover. Tighten these bolts until they stop rotating. This action will remove the space that's present between each sleeve and pin.
E. Have the clutch pedal fully pressed until it contacts the clutch brake. **DO THIS 5 TIMES**. This action will move the release bearing back to the proper position.
F. Remove the (4) 7/16" shipping bolts from the clutch cover.

9. Reset Instructions using T-106 Reset Tool – FOR USE WHEN THE CLUTCH IS INSTALLED IN A VEHICLE

A. Take a measurement to verify the travel of the release bearing. With the clutch pedal up, take a measurement of the gap between the release bearing and clutch brake. If the distance measured is between (0.490") and (0.590") then the AutoAdjust clutch has reset properly. **NOTE:** Most vehicles equipped with hydraulic linkage will function without this 1/8" space between the fork and release bearing.
B. The AutoAdjust clutch will need to be reset if the release bearing movement is less than (<0.490"). Follow the steps listed below.
C. Position the clutch so that the indicator tab is accessible from the inspection hole.

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D. The clutch pedal must be pushed down to the floor. While the pedal is depressed have a person move the cam tab to a new position by hand or by using the T-106 Reset Tool. After the indicator tab has been moved to a new position the clutch pedal can return to the "up" position. **NOTE:** If the cam tab does not move by hand or with the tool it means that the release bearing is not moving enough to for the internal cams to completely separate. To correct this condition, loosen the transmission bolts and insert ½" spacers between the bell housing and the flywheel housing. While the ½" spacers are installed have the clutch pedal pushed to the floor. While the pedal is depressed have a person move the indicator tab to a new position by hand or by using the T-106 Reset Tool. After the indicator tab has been moved to a new position the clutch pedal can return to the "up" position. Remove the ½" spacers and tighten transmission to manufacture's specifications.

E. Retrieve the 4 "Yellow" shipping bolts that were previously removed from the clutch. Rotate the engine and insert the 4 (7/16-14 UNC x 1-3/4") shipping bolts and uniformly tighten by hand until they bottom out. **NOTE:** this action will reset the separator pins located in the pressure plate. The result will be that the clutch will release after install.

F. Unscrew the 4 "Yellow" shipping bolts and retain them. As these bolts are removed we will observe that the release bearing has moved towards the flywheel and away from the clutch brake. The AutoAdjust clutch has now been reset to a new position.

G. Next, push the clutch pedal all the way down a minimum of 5-times. Visually verify that the top of the release bearing housing makes contact with the clutch brake. As the pedal is depressed repeatedly, it will be noticed that the pedal free-play will increase which is an indication that the AutoAdjust clutch is adjusting properly.

H. Take a measurement to determine the distance between the release bearing and clutch brake. The correct distance must be between (0.490") and (0.590").

I. I the measurement shows that this distance and bearing movement is greater than (>0.590") then it will be mandatory to repeat the steps "G" and "H" listed above.

J. For mechanical linkage, use the linkage adjustment to set a 1/8" gap between the fork and the contact pads on the release bearing housing. Push clutch pedal down to floor and make sure that a (0.010") shim can be held between clutch brake and release bearing cover.

10. Reset Instructions – FOR USE ONLY WHEN THE CLUTCH IS <u>OUT OF THE VEHICLE</u>

A. Begin this process by removing the 4 "yellow" shipping bolts if they are installed.

B. Position the clutch cover with the release bearing downward in an arbor press to safely support the unit. Make sure to verify that there is a minimum of 1" inch of space under the release bearing to allow for movement and access to "yellow" shipping bolts.

C. Make sure that the ram of the press is centered on the spring retainer hub and apply force until a stop is felt. The ram of the press must be locked in place.

D. Reposition the indicator tab to the "reset" position. Hold the indicator tab in this position by using a magnet.

E. Insert the 4 (7/16-14 UNC x 1-3/4") shipping bolts into the correct holes in the cover. Tighten evenly in a star pattern by hand so that the surface of the pressure plate is positioned 1.75" to 1.78" [44.4-45.2 mm] down from the mounting leg surface that contacts the flywheel. **Do not use power tools.**

F. The clutch can now be reinstalled. It is important that the installation instructions are followed during reinstallation after a reset. Proceed to step 2 of this instruction set.