



# Installation Instructions

## CLUTCH INSTALLATION INSTRUCTIONS 14" CAST IRON / TWO PLATE / PULL TYPE CLUTCH

PAI Industries strongly recommends using a clutch installation kit which provides all the necessary components for a complete clutch installation. Ask your reseller for more information.

1. Check the condition of the flywheel. If it is cracked or warped, refer to the manufacturer's recommendations concerning resurfacing or replacement. We recommend resurfacing the flywheel before a clutch installation.
2. **Extremely Important:** this pot style flywheel must be properly resurfaced so that a depth of 2.932" to 2.942" is maintained from the top edge to the friction surface. Failure to do this will have negative consequences.
3. Check pilot bearing condition and fit in flywheel. It is always recommended to replace the pilot bearing.
4. Check the transmission main drive gear spline (input shaft) for excessive wear. Worn splines will prevent clutch discs from sliding freely. Make sure the disc slides back and forth on the splines without any binding.
5. Install two guide studs (3/8-16 thread and 2-1/2" long) at the eleven (11) and one (1) o'clock positions.
6. Insert the alignment tool through the release bearing sleeve in the new clutch. Install the rear disc onto the alignment shaft, making sure that the side marked "Pressure Plate Side" faces the transmission. Note: The long part of the hub on this disc should be facing the transmission.
7. Insert the intermediate plate in the clutch cover and align the drive pins with the slots provided. Rotate the plate to the left and check pin clearance on the left by using a (.006") shim.
8. Install the front disc by sliding onto alignment tool, making sure the side marked "Flywheel Side" faces the engine or (flywheel).
9. 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. Lightly tap the aligning tool to make sure that it is centered and seated into the pilot bearing. **IMPORTANT:** Make sure the adjusting mechanism is at the bottom, where you can get to it after the transmission is installed.
10. Tighten the bolts to 40–50 lbs. ft. (54–68 N•m), in an even, modified star pattern. Make sure that the cover assembly seats properly on the flywheel. Replace the two guide studs with bolts and tighten bolts to spec.
11. The two wooden blocks or plastic spacer should fall out from in between the release bearing housing and the clutch cover as the clutch is tightened to the flywheel. Save the two wooden blocks or plastic spacer as they should be reinserted back into position if the clutch is to be removed from the flywheel for inspection.
12. Remove the alignment tool.
13. Position the clutch brake, if needed, on the main drive gear.
14. Install the transmission using extreme care not to hang the weight of the transmission on the clutch. The disc paddles will bend causing a dragging condition and poor release. Locate the release fork in the proper position to the release bearing housing as the transmission is moved into place.
15. The release bearing housing has been pre-packed with grease, however it must still be lubricated when the clutch is installed or premature failure may occur. Do not over grease, as the excess grease will find its way to the clutch friction material. Must only use Lithium Soap Grease that is specified as "NLGI 2".

**If for some reason the clutch is to be removed, be sure to reinsert the wooden blocks or plastic spacer in between the release bearing housing and the top of the cover.**

- See next page for Adjustment and Maintenance Procedures



## CLUTCH ADJUSTMENT INSTRUCTIONS 14" CAST IRON / TWO PLATE / PULL TYPE CLUTCH

1. Remove the inspection cover at the bottom of the bell housing and reattach it once maintenance is completed.
2. Initial Adjustment: Check and measure the adjustment dimensions of the clutch. If a clutch brake is installed, clearance between the top (the cover) of the release bearing housing and the clutch brake when the clutch brake is positioned against the transmission should be a minimum of  $\frac{1}{2}$ ". When a clutch brake is not used, this dimension should be  $\frac{3}{4}$ " from the top (the cover) of the release bearing housing to the transmission bearing cover. On original installation, adjust the pedal linkage to insure approximately  $\frac{1}{8}$ " clearance between the fork tips and the contact pads. All future adjustments should be made by rotating the clutch adjusting ring and not on the pedal linkage. If the amount of pedal free-play is excessive, adjust with the pedal adjusting screw. Do not alter the  $\frac{1}{8}$ " dimension.
3. Routine Adjustment: Clutch adjustment is necessary once the clutch pedal free-play begins to diminish. Check and measure the distance between the release fork tips and the contact pads on the underside of the release bearing housing. This dimension must be set to  $\frac{1}{8}$ ". This  $\frac{1}{8}$ " dimension will diminish as the friction surfaces wear in the clutch. The adjusting ring must be rotated in the CW direction to reestablish this  $\frac{1}{8}$ " dimension between the fork and contact pads.
4. Turn flywheel until the adjustment lock is lined up with the inspection hole. Remove cap screw and lock.
5. Release clutch by depressing the pedal. The adjusting ring will rotate only while the pedal is depressed and the clutch is in the released position.
6. Rotate the adjusting ring in clockwise direction to move the bearing cage towards the transmission. Rotate the adjusting ring in counter-clockwise direction to move the bearing cage towards the flywheel. Note: normal clutch adjustment is performed by rotating the adjusting ring in the CW direction.
7. Replace the adjustment lock after verifying that the  $\frac{1}{8}$ " clearance between the fork and contact pads is achieved and the release bearing is moving a full  $\frac{1}{2}$ " as the pedal is depressed. This observation regarding the  $\frac{1}{8}$ " clearance must be made while the clutch is in the engaged (pedal up) position.

### Maintenance Tips

1. Lubricate the clutch release bearing at each chassis lubrication period, using high temperature grease that meets the following specification (NLGI 2 or 3). Do not over grease, as the excess will find its way onto the clutch friction material.
2. Adjust the clutch before the pedal free-play has disappeared. Failure to do this will result in slippage and possible internal damage to the clutch components.
3. If the clutch is hydraulically assisted, make sure the slave and master cylinder are functioning properly. For hydraulic linkage adjustment, refer to the specific vehicle manufacturers' procedures