

Performance Converter Kit

Part No.

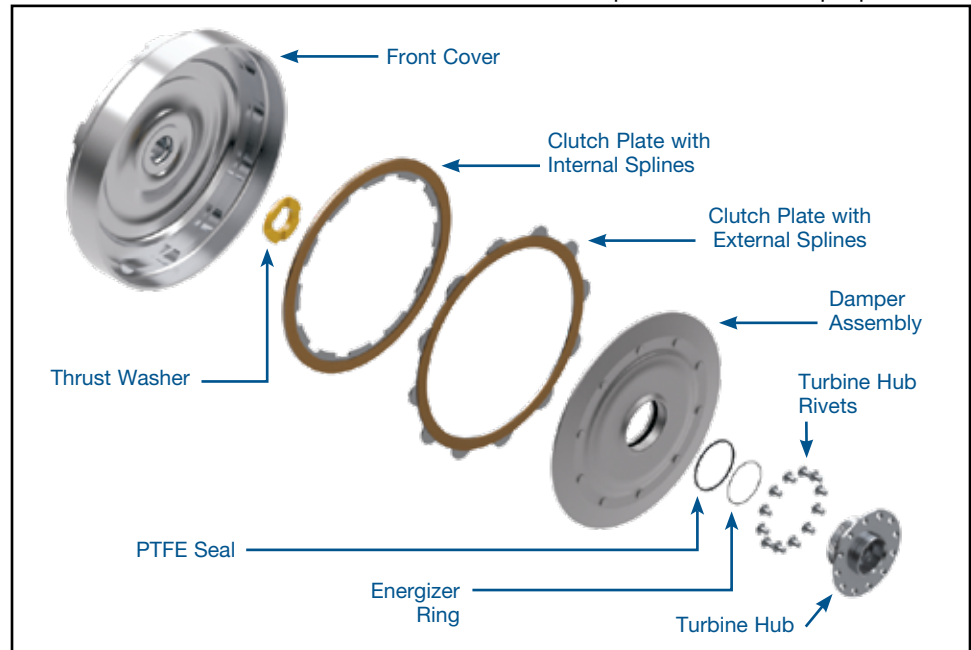
AL-RK-2A

- Turbine Hub
- Turbine Hub Rivets (12)
- PTFE Seal
- Energizer Ring
- Clutch Plate with Internal Splines
- Clutch Plate with External Splines
- Thrust Washer
- Front Cover
- Complete Damper Assembly

Patent No. 7,770,704

Allison[®] 1000/2000/2400 Early & '06-Later Multi-Plate

Unit Size: 13.5" • Core: Allison 1000/2000/2400 • Dampened: Yes • Turbine Hub Input Spline Count: 25



This performance converter kit combines the OE fluid coupling (impeller, stator and turbine) with all-new front cover, clutch plates, piston damper assembly and turbine hub to boost the converter capacity. The lockup clutch is not a salvaged OE clutch, it is a new and unique design.

1. Impeller Assembly

- Clean and inspect the OE impeller.
- If the blades are loose, either repair by brazing/welding or find a different impeller.
- Replace OE impeller hub:
 - 2005-Earlier Cores: Replace the OE impeller hub with **AL-90-2G** or the modified version **AL-90-3G**. This allows the later **AL-N-1** enclosed impeller stator bearing to be used with the **AL-WA-2** bearing adapter to update the early problematic open bearing and race.
 - 2006-Later Cores: Replace the OE impeller hub with **AL-90-4G** if needed.

NOTE: For 2005-earlier cores it is recommended that they be converted to use the **AL-N-1** (impeller-side) and **AL-N-2** (stator-side) enclosed stator bearings. 2006-Later cores use the **AL-N-1** and **AL-N-2** enclosed stator bearings.

2. Stator Assembly

- Disassemble the OE stator assembly.
- Clean and inspect the stator.
- No machining is required for 2006-later cores. For 2006 and 2007 cores, the stator cap and bearing race will need to be replaced with **AL-WA-3**. For 2008-later cores, the stator cap, bearing race and partially enclosed bearing will need to be replaced with an **AL-WA-3** or **AL-WA-4** stator cap and **AL-N-2** enclosed bearing. To determine which stator cap is needed, measure the total thickness of the OE stator cap and bearing race. Replace with **AL-WA-3** if total thickness is .482" and replace with **AL-WA-4** if total thickness is .513".

2. Stator Assembly (continued)

For 2005-earlier cores, the stator is machined as follows (**Figure 1**):

- Remove retaining pocket wall by machining flush with surface "C".
- Machine the stator I.D. to 2.417"-2.409" to accept **AL-WS-3**. Remove any burrs.

NOTE: When installing stamped version **AL-WS-3**, ensure the bearing spacer is seated flat on the mating machined stator mounting surface. Due to die-cast stator slot variations, it may be necessary to rotate the bearing spacer into adjacent slots until spacer tabs fit freely and bearing surface is flat.

d. Replace the rolls, springs, races and bearings.

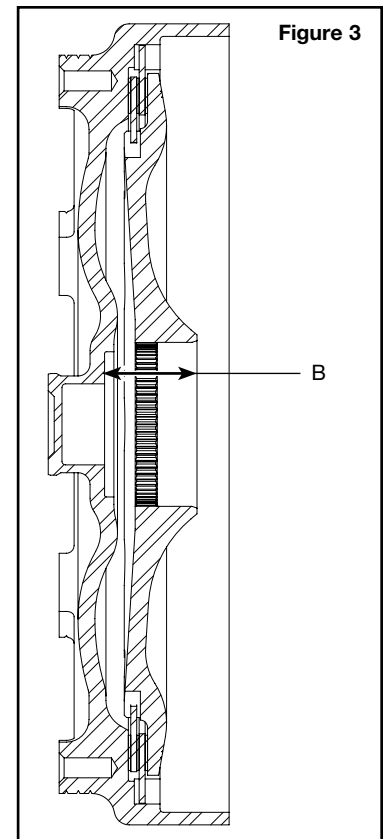
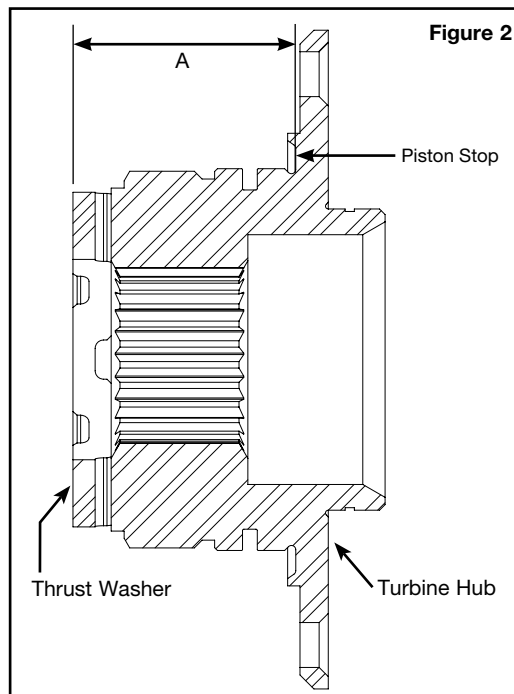
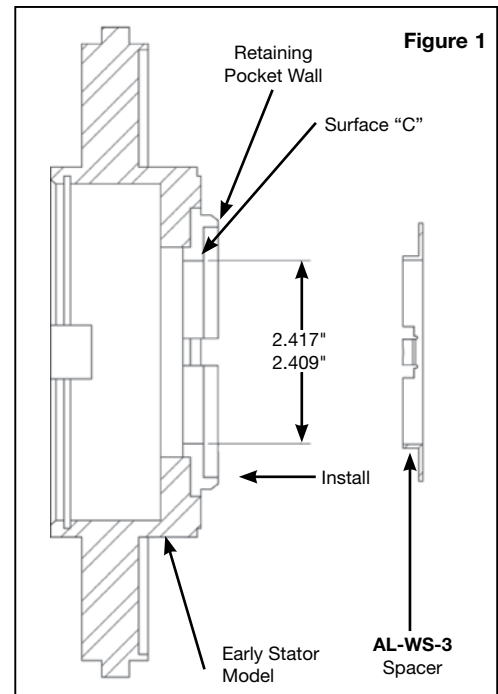
3. Turbine Assembly

- Remove the OE rivets and separate the turbine hub from the turbine.
- Clean and inspect the turbine. If any blades are loose, repair by brazing/welding or find a different turbine to use.
- Install the new turbine hub from the stator side and install new rivets. Weld the turbine hub in on high torque applications for extra security.
- Install the energizer ring (O-ring) into the groove on the turbine hub, then the PTFE ring in the same groove.

4. Measure & Set Clutch Release Clearance

The clutch release clearance should be measured and adjusted as necessary.

- Measure from the piston stop of the turbine hub to the thrust face of the washer (Measurement "A" in **Figure 2**).
- Place the clutch plates and piston into the front cover (**Figure 3**). Measure from the inner lip of the piston to the thrust face of the front cover (Measurement "B" in **Figure 3**). The difference between the two measurements (A minus B) is the amount of clutch release clearance. It is recommended to set clutch release clearance between .040"-.060".
- If there is too much clutch release clearance, machine the thrust surface of the front cover by the amount that you want to reduce the clutch release clearance (**Figure 4**). Make sure to maintain a RA 16 micro-inches surface finish and keep the thrust surface parallel to the mounting pads within .002". If you want to increase the amount of clutch release clearance, machine the lockup surface of the front cover by the amount you want to increase the travel. Make sure to keep the surface finish better than RA 20 micro-inches and parallel to the mounting pads (see "A" in **Figure 4**) within .003".



4. Measure & Set Clutch Release Clearance (continued)

- d. After machining the front cover, re-measure **A** and **B** measurements and verify clutch release clearance.

5. Final Assembly

- a. Drop the internally splined (dual friction) clutch plate into the front cover (**Figure 5**).
- b. With the steel side towards the cover and the friction side towards the piston, install the externally splined (single friction) clutch plate into the front cover, rotating to engage the splines (**Figure 5**). Be sure this clutch plate fits freely without any binding in the cover.
- c. Install the piston and rotate it to engage the internally splined clutch plate.
- d. From this point on, assemble the converter as normal.
- e. Continue converter assembly. Endplay should be between zero and .010" and internal clearance should be between .100"–.110" for maximum efficiency after welding. The stator should be able to turn freely. Pressure check, then balance finished unit.

