

## Performance Converter Kit

### Part No.

**BW-RK-4**

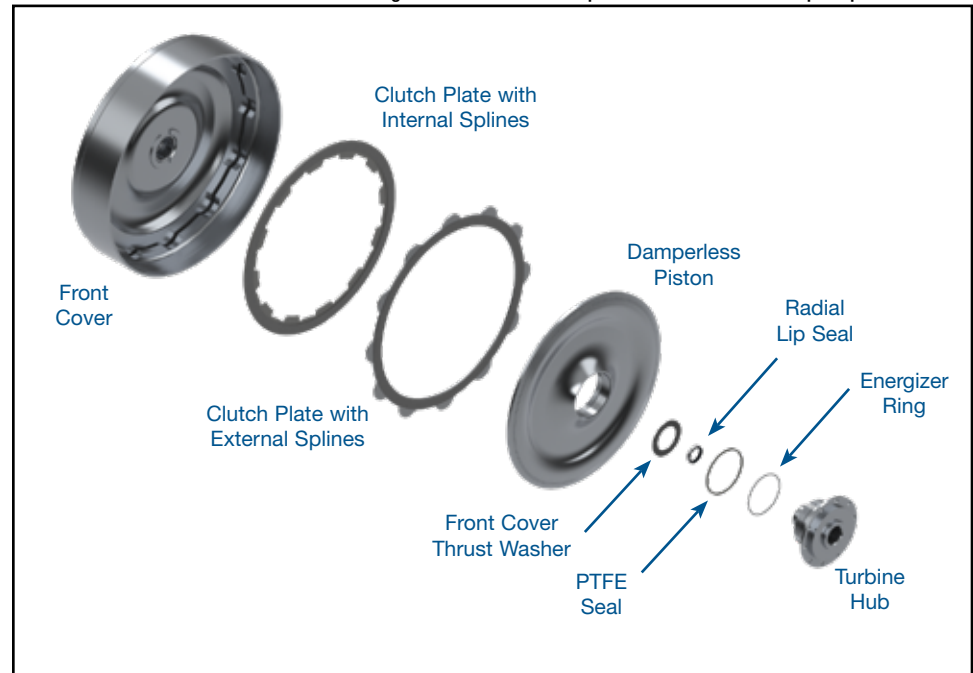
- Turbine Hub
- Energizer Ring
- Seal, PTFE
- Radial Lip Seal
- Front Cover Thrust Washer
- Damperless Piston
- Clutch Plate with External Splines
- Clutch Plate with Internal Splines
- Front Cover



**NOTE:** This unit requires the use of Sonnax Smart-Tech® big input shaft kit **22121B-08K**.

## BorgWarner 310 mm LU (A618, 47RH/RE, 48RE), Multi-Plate

Unit Size: 13.5" • Core: BorgWarner 310mm • Damped: No • Turbine Hub Input Spline Count: 35



### 1. Impeller Assembly

- a. Clean and inspect the OE impeller.
- b. If the blades are loose, either repair by brazing/welding or find a different impeller.
- c. Remove the OE impeller hub and replace it with **BW-90-47G** in 47RH/RE applications or **BW-90-49G** in 48RE applications.

### 2. Stator Assembly

- a. Disassemble the OE stator assembly.
- b. Clean and inspect the stator.
- c. Replace the rolls, springs, races, bearings and upgrade the stator cap to a bearing adapter **BW-WA-7** and bearing **GM-N-8HLT**.
- d. If the vehicle has a significantly higher amount of torque than the original configuration, it is necessary to reduce the K-factor and torque multiplication. If this is not done, the stall speed will be too high and the excessive transmission input torque can cause serious transmission and driveline damage. The K-factor and torque multiplication rate can be changed by modifying the OE stator or using one of the aftermarket stators available, such as Sonnax low stall **BW-ST-1S**.

### 3. Turbine Assembly

- a. Start by removing the OE rivets and separate the turbine hub from the turbine.
- b. Clean and inspect the turbine. If any blades are loose, repair by brazing/welding or find a different turbine to use.



**NOTE:** When using turbine reinforcement ring **GM-WS-39**, instructions are available online at [www.sonnax.com](http://www.sonnax.com) or from your sales representative.

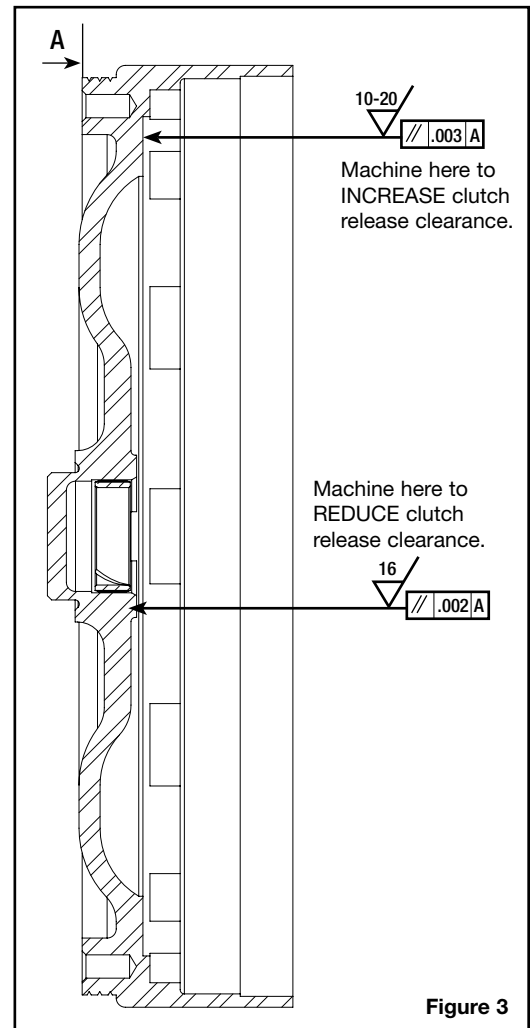
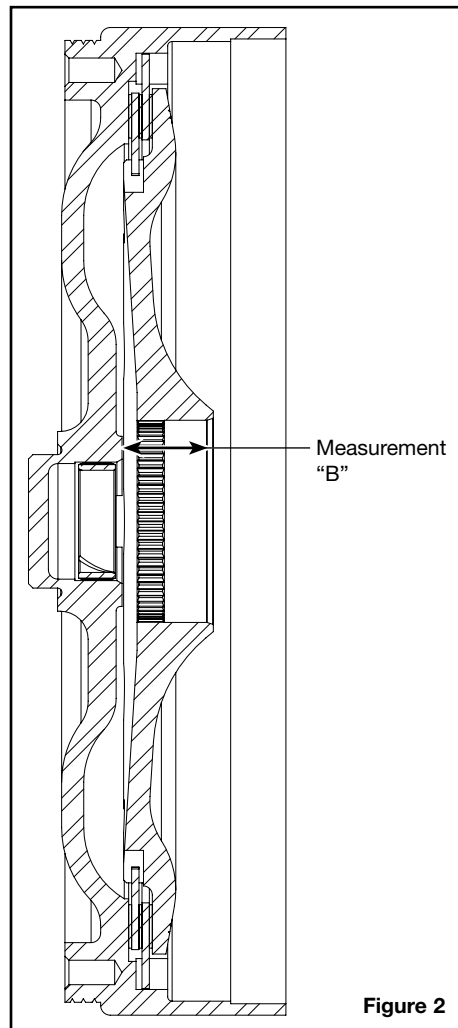
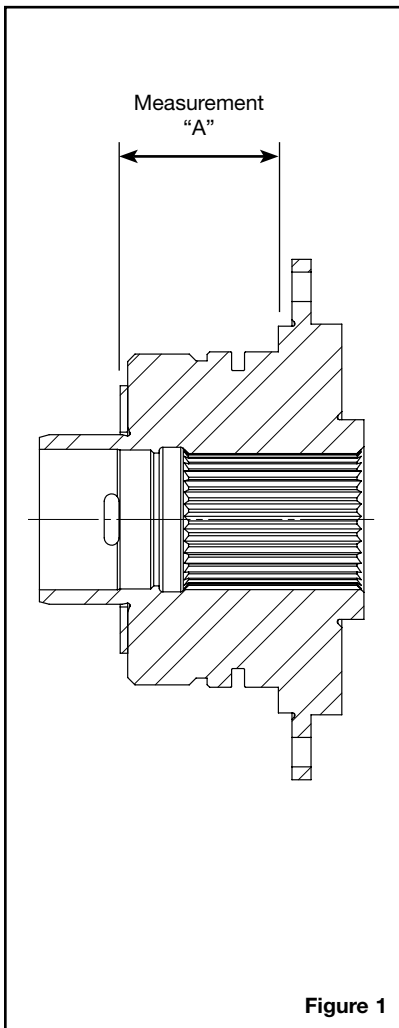
### 3. Turbine Assembly (continued)

- c. 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.
- d. Install the energizer ring (O-ring) into the groove on the turbine hub. Then install the PTFE ring in the same groove.
- e. Install the radial lip seal with the metal clad side out toward the front cover, until it bottoms in the turbine hub bore.

### 4. Measure & Set Clutch Release Clearance

The clutch release clearance should be measured and adjustments made if necessary.

- a. Measure from the piston stop of the turbine hub to the thrust face of the washer (Measurement "A" in **Figure 1**).
- b. Place the clutch plates and piston into the front cover, (see section **5. Final Assembly**) to ensure these are properly aligned (**Figure 2**). Measure from the inner lip of the piston bore to the thrust face on the front cover (Measurement "B" in **Figure 2**).
- c. The difference between the two measurements (A-B) is the amount of clutch release clearance. It is recommended to set clutch release clearance between .040-.060".



#### 4. Measure & Set Clutch Release Clearance (continued)

- d. 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 3**). 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 lock-up surface of the front cover by the amount you want to increase the clearance (**Figure 3**). Make sure to keep the surface finish better than RA 20 micro-inches and parallel to the mounting pads within .003". A poor lock-up surface will greatly compromise friction paper life. Clutch release clearance and overall height can also be increased by changing to a thicker thrust washer (use **BW-WP-5** +.030" clutch release clearance and overall converter height).
- e. 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 4**).
- 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 4**). 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.
- f. Pressure check the unit.
- g. Balance finished unit.

