

## 47RE & 48RE

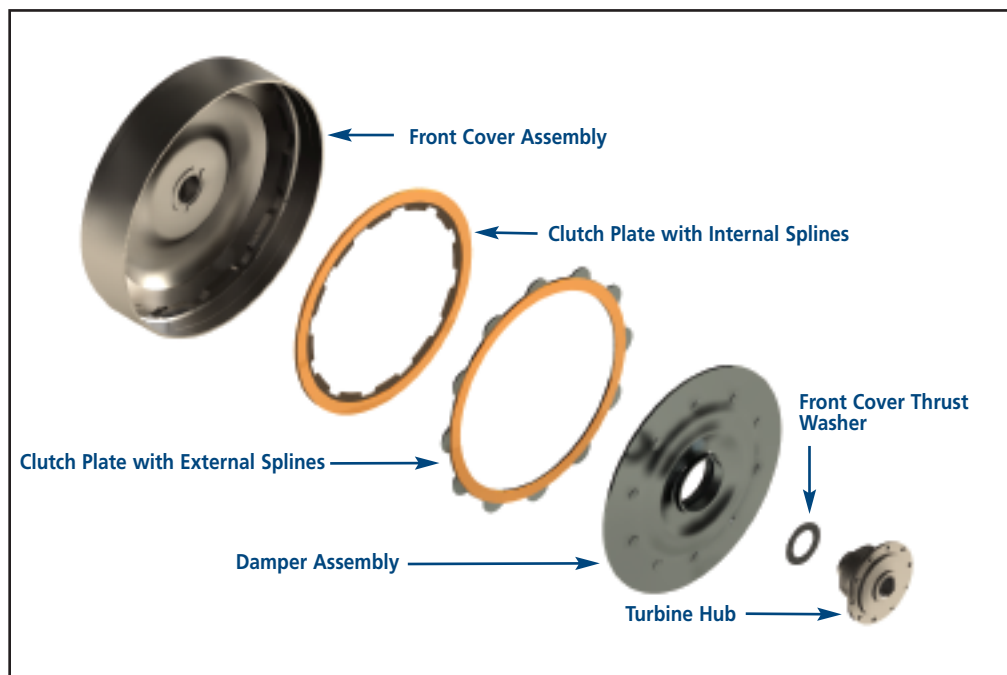
## Multi-Plate Converter Clutch Kit

### Part No.

**BW-RK-1**

- 1 Turbine hub
- 1 Teflon<sup>®</sup> seal
- 1 Energizer ring
- 1 Radial lip seal
- 1 Clutch plate with internal splines
- 1 Clutch plate with external splines
- 1 Front cover thrust washer
- 1 Front cover assembly (with bushing installed)
- 1 Set Damper Assembly Components
  - 1 Clutch Piston
  - 10 Outer damper springs
  - 10 Inner damper springs
  - 20 Spring end caps
  - 2 Drive plates
  - 1 Damper ring gear
  - 1 Spring retainer
  - 1 Clutch hub
  - 10 Damper rivets

Patent Pending



### Instructions:

#### Impeller assembly

1. Clean and inspect the OEM impeller
2. If the blades are loose, either repair by brazing/welding or find a different impeller.
3. If the impeller hub is damaged, replace it (**BW-90-47G** or **BW-90-49G**).

#### Stator assembly

4. Disassemble the OEM stator assembly.
5. Clean and inspect the stator.
6. Replace the rolls, springs, races, bearings and upgrade the stator cap to a bearing adapter (**BW-WA-7**).
7. 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. Otherwise 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 OEM stator or using one of the aftermarket stators available, Sonnax low stall **BW-ST-1**.

#### Turbine assembly

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

**NOTE:** If using an early style turbine reinforcement ring (Sonnax **GM-WS-39**), the OD of the reinforcement ring needs to be turned down to 6.200" or there will be interference with the piston.

10. 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.
11. Install the energizer ring (O-ring) into the groove on the turbine hub. Then install the Teflon ring in the same groove. Install the radial lip seal in the counterbore inside the bushing journal.

#### Measuring and setting the clutch travel

The clutch travel should be measured and adjustments made if necessary.

12. First take the turbine hub and thrust washer and measure from the shoulder that the clutch rides on to the thrust face of the washer (the "A" measurement in Figure 1).
13. Then place the clutch plates and piston into the front cover (Figure 2). Measure from the inner lip of the piston to the thrust face of the front cover ("B" measurement from Figure 2).
14. The difference between the two measurements (A-B) is the amount of clutch travel. It is recommended to set clutch travel between .040"-.060".
15. If there is too much clutch travel, machine the thrust surface of the front cover by the amount that you want to reduce the clutch travel (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 travel,

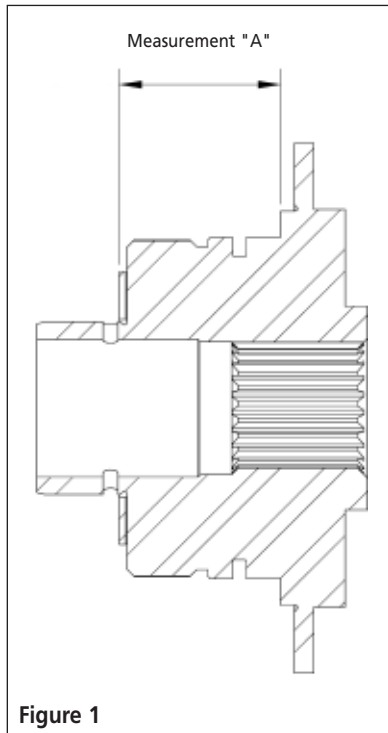


Figure 1

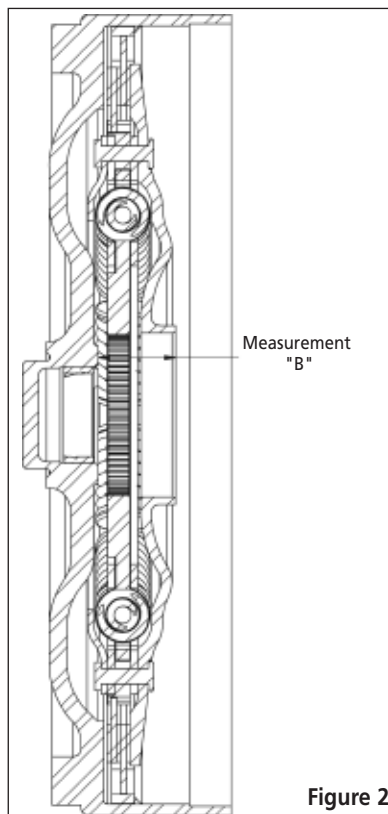


Figure 2

the lockup surface of the front cover by the amount you want to increase the travel (Figure 3). Make sure to keep the surface finish better than RA 20 micro-inches and parallel to the mounting pads within .003". Clutch travel and overall height can also be increased by changing to a thicker thrust washer. Use **BW-WP-5** (+.030" clutch travel and overall converter height) or **BW-WP-6** (+.045" clutch travel and overall converter height).

16. After machining the front cover, remeasure A and B measurements and verify clutch travel.

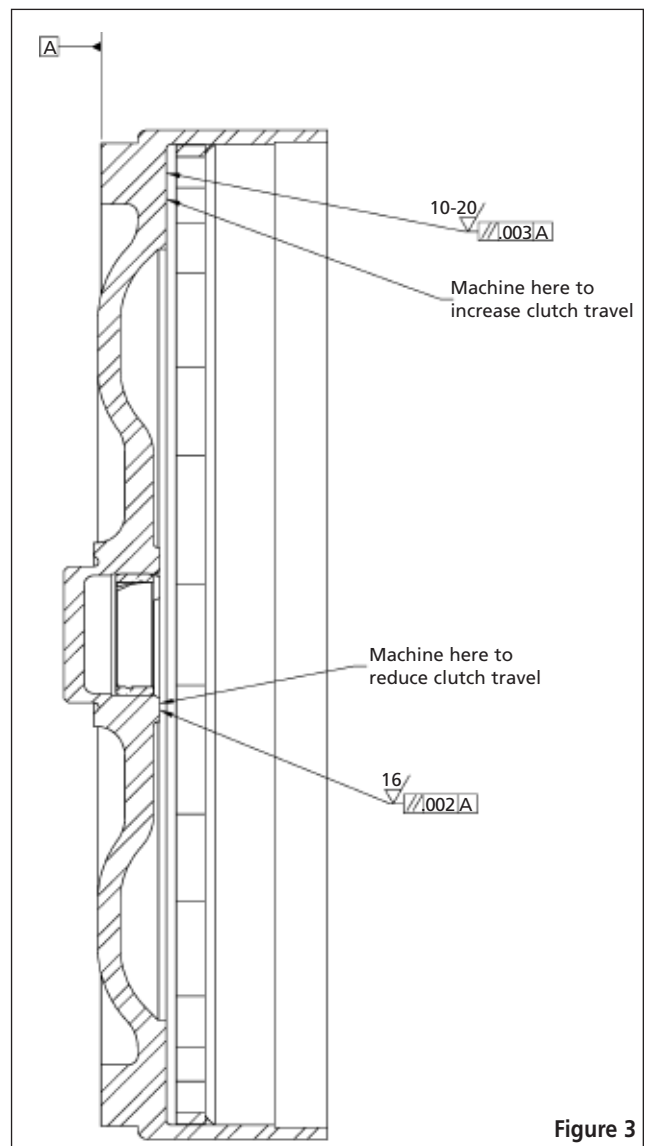


Figure 3

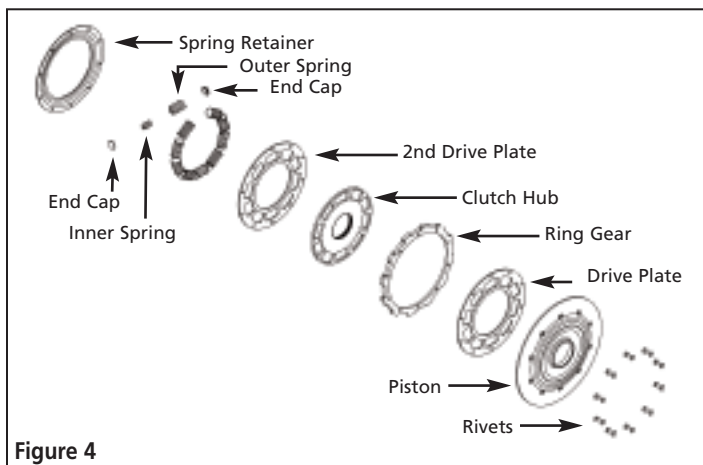


Figure 4

#### Piston damper assembly

The piston/damper unit (Figure 4) comes unassembled so it can be tuned to match the amount of engine torque. The damper can be tuned to work with engines producing 625 ft-lb up to 1250 ft-lb of torque.

17. Place the piston with the lock-up surface facing up. Stack up in this order: drive plate, ring gear with the counter bore facing up, clutch hub with the neck of the hub face up (see Figure 4 and Figure 6 located on page 4), and the second drive plate. Make sure to line up the rivet holes and spring pockets. (It might be helpful to use a pair of long 1/4" bolts to aid lining up the rivet holes.)

18. Install the number of springs required as per chart with end caps in the spring pockets.

Peak Engine Torque	# of Outer Springs	# of Inner Springs
625 ft-lb	10	0
750 ft-lb	10	2
875 ft-lb	10	4
1000 ft-lb	10	6
1125 ft-lb	10	8
1250 ft-lb	10	10

**NOTE:** Always use an even number of springs and place the springs in a symmetrical pattern (in other words always have a nested pair 180° opposite another nested pair and have just an outer spring 180° from another outer spring). This will prevent binding of the damper and imbalance of unit.

19. Once the springs are installed in the pockets place the spring retainer onto the assembly.

20. Install the 10 rivets from the turbine side of the piston all the way through all the components and then peen the heads.

**NOTE:** it is suggested to use a sealant or threadlocking compound between the base of the rivet and piston to insure hydraulic integrity.

#### Final assembly

21. Start by dropping the internally splined (dual friction) clutch plate into the front cover (Figure 5).

22. 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).

23. Then install the piston and rotate it to engage the internally splined clutch plate.

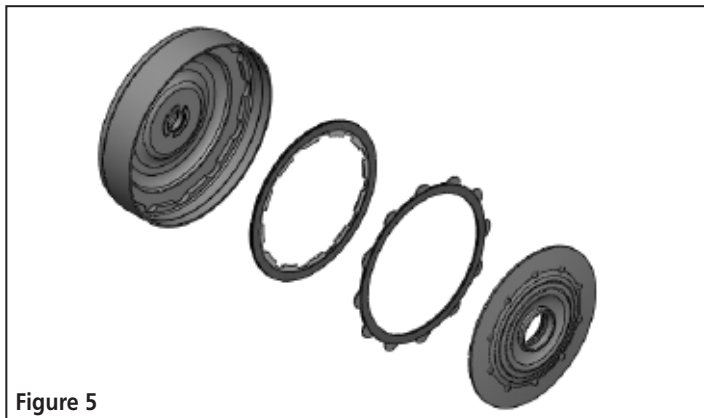


Figure 5

24. From this point on assemble the converter as normal.

25. Internal endplay should be between zero and .010" after welding. The stator should be able to turn freely. Pressure check the unit. Then balance finished unit.

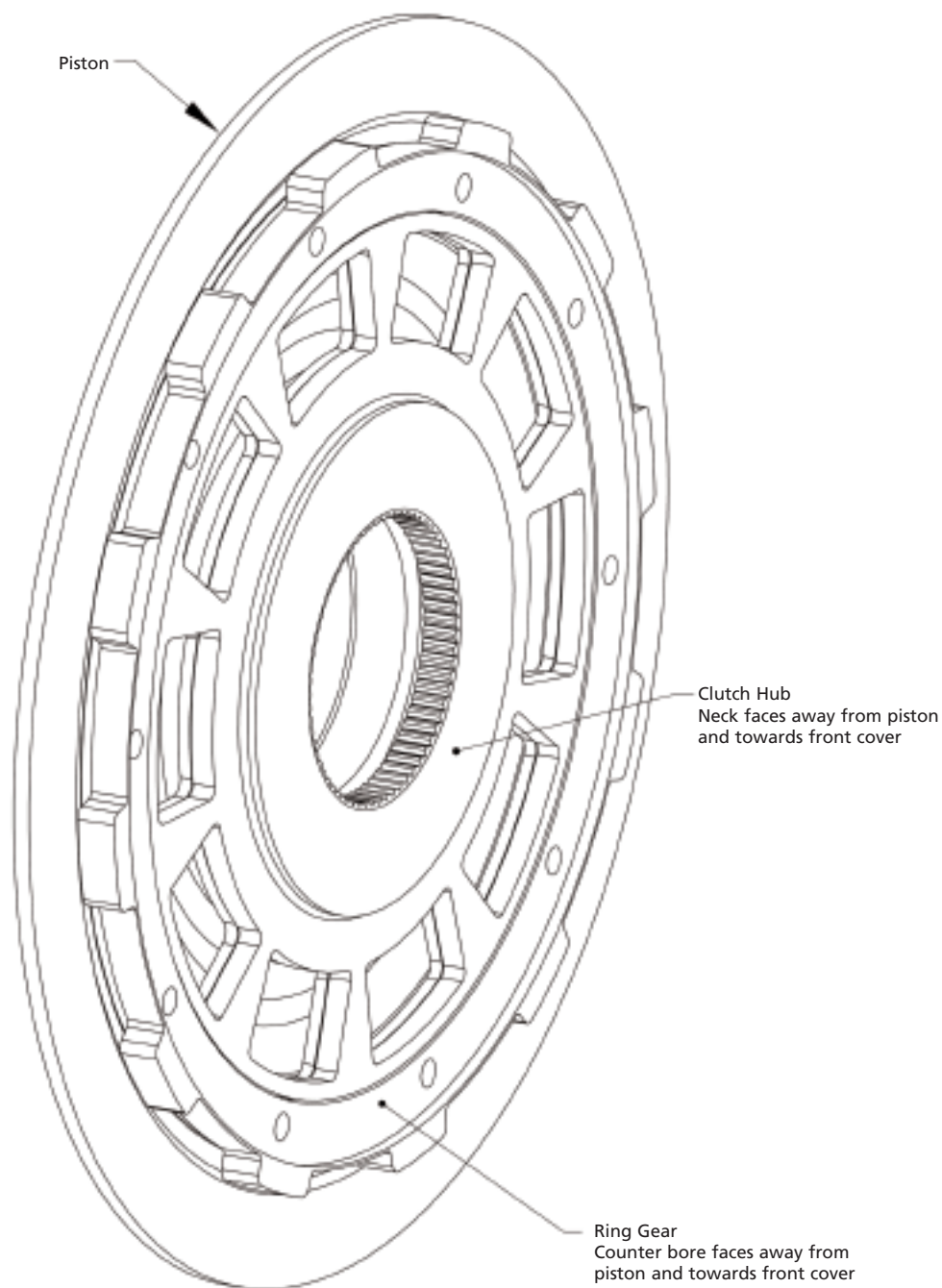


Figure 6