

Turbine Stiffener Plate

Part No.

GM-WS-39

NOTE: The BW 310mm LU (A618) and Allison® AT 540/545 units need modifications to fit.

GM TH400 (3L80); Allison® AT-540; BorgWarner 310mm LU (A618, 47RH/RE, 48RE), BorgWarner 310mm NLU



Sonnax turbine stiffener plate **GM-WS-39** was designed to fit the profile of GM 13" turbines, but not all of these turbines are the same size. This problem is easy to overcome. With a little care and minimal effort, the **GM-WS-39** can be modified to fit all GM 13" turbines including those found in other manufactures including Jaguar, Rolls Royce, Cummins Diesel (BW310mm) and Allison 540/545.

1. Modifying Plate for BW 310mm LU (A618)

- a. In its unmodified form, the I.D. of **GM-WS-39** will contact the turbine first and will leave a gap at the O.D. of the plate. (**Figure 1**) This gap will make it difficult to obtain a good weld at the O.D. of the stiffener plate. For a better fit, the **GM-WS-39** needs to be flattened a small amount.
- b. Sonnax turbine stiffener plate **GM-WS-39** is shown in a hydraulic press (**Figure 2**), with an arbor press base plate on top of it. This press is powered by a 20-ton bottle jack. After contacting the plate, the handle of the jack only needs to move about one third of its stroke to achieve the desired flatness. When the plate has been properly flattened, the O.D. will have grown by .025–.030". The stock O.D. is 6.260" and the correct modified O.D. is 6.285–6.290". The modified **GM-WS-39** should fit the turbine like the plate in **Figure 3**.

NOTE: The O.D. gap has been reduced for easy welding.

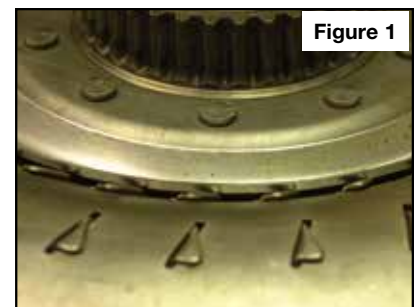


Figure 1

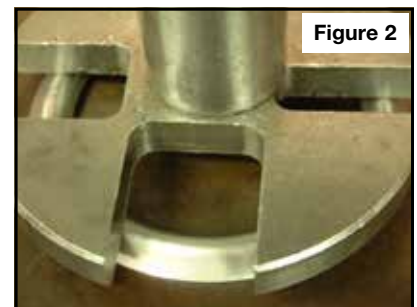


Figure 2

2. Modifying the Plate for Allison AT 540/545

- a. In its unmodified form, the O.D. of the **GM-WS-39** will sit on top of the first row of turbine vanes in an Allison 540/545 (**Figure 4**).
- b. For a better fit, the O.D. of **GM-WS-39** needs to be machined, decreasing its diameter by .080" and leaving a modified plate diameter of 6.180".
- c. After machining, the modified plate needs to be flattened as described in the BW 310mm LU modification.
- d. When the plate has been properly flattened, the O.D. will have grown by .025–.030". The stock O.D. is 6.180" and the correct modified O.D. is 6.205–6.210". The modified plate should fit like the plate in **Figure 5**. The modified plate should click into place and be held by the vanes.

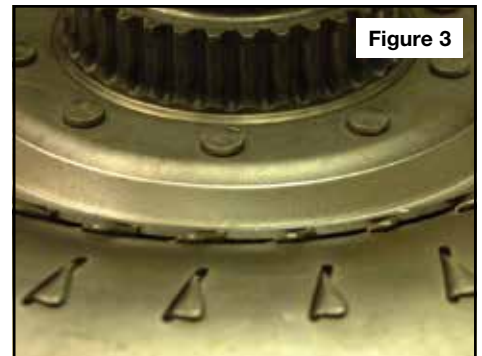


Figure 3

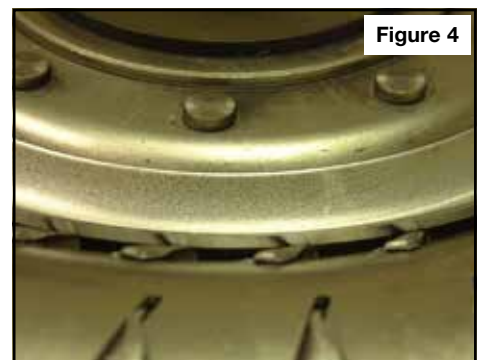


Figure 4

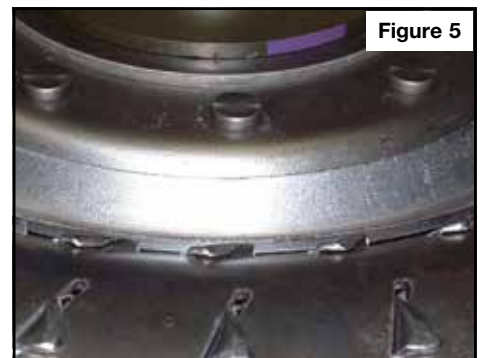


Figure 5