



A UNIVERSAL SOLUTION FOR REAMING VALVE BODIES

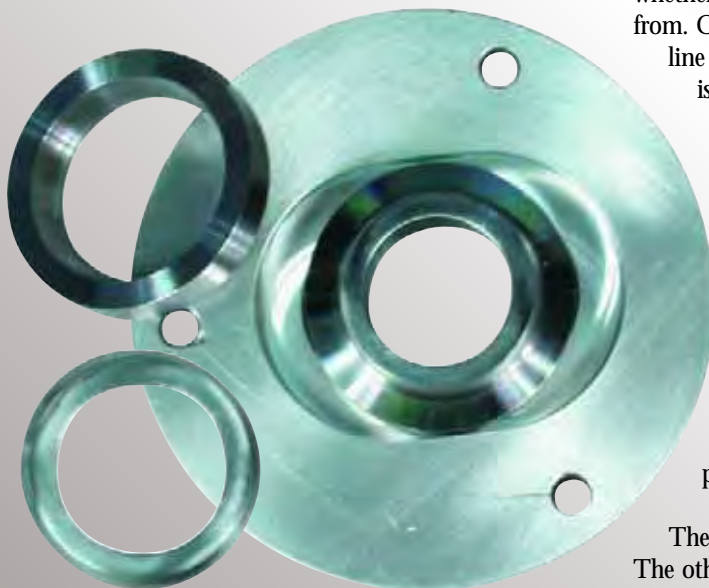
Reaming valve body bores back to OEM quality specifications is no easy task. At the OEM level, multi-million-dollar machining centers are carefully designed to do just that. These machines are uniquely designed for each and every application. Although hand reaming to the same tolerances can be very difficult, it is not impossible. For the last eight years Sonnax has led the way in the refurbishing of valve body bores using custom-designed reamers and replacement valves and sleeves.

The development of these tool kits has been an evolutionary process, with many hurdles to overcome. At Sonnax we constantly strive to make our tool kits user-friendly with the ability to consistently ream valve body bores back to within OEM specifications with regard to size, roundness and surface finish. Now, with our valve body reaming fixture, you can refurbish those valve body bores more easily and with more consistent results.

There are many variables that come into play when designing the proper tool kit: the type of material being reamed, the amount of material to be removed, the number of diameters, the length of the bores, the available areas for chip removal and also



Tool kit for the VB-FIX



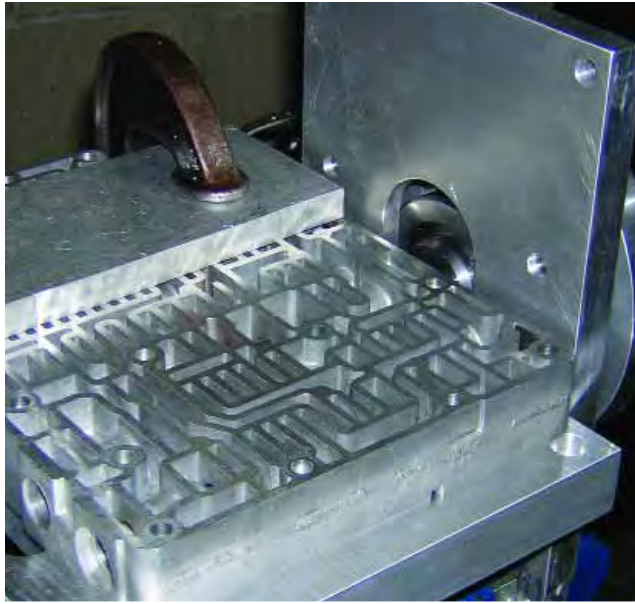
Detail of Swivel

whether there is a concentric bore that the reamer can be guided from. One of the biggest concerns is keeping the reamer centerline concentric with the centerline of the bore. If the reamer is not started concentric to the bore, or if the reamer starts to wander from the bore centerline, the results will be less than desirable. Either the reamer will get so far off track that the bore will not clean up entirely, or the bore will be very out of round.

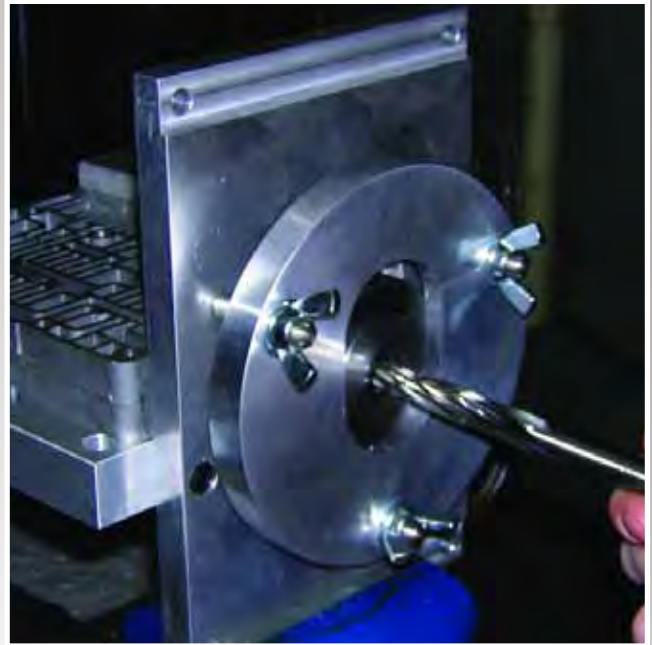
Proper alignment starts out with making sure that any solenoid or end plug bore being used to guide the reamer is on the same centerline with the bore that is going to be reamed. Since proper alignment is so crucial to reamer performance, the new Sonnax valve body reaming fixture **VB-FIX** allows the reamer to be precisely aligned with the bore that is going to be reamed.

The system uses an alignment pin that fits into the OE bore. The other end of the pin fits into the reamer guide of the valve body fixture. The reamer guide can be moved up and down and can also swivel to take into account any angular misalignment. Once this pin slides freely within both the valve bore and the

reamer guide, the reamer guide is clamped in position. Now the valve bore and reamer guide are lined up and concentric to each other. The guide pin is removed and replaced with a reamer.



Clamping the valve body



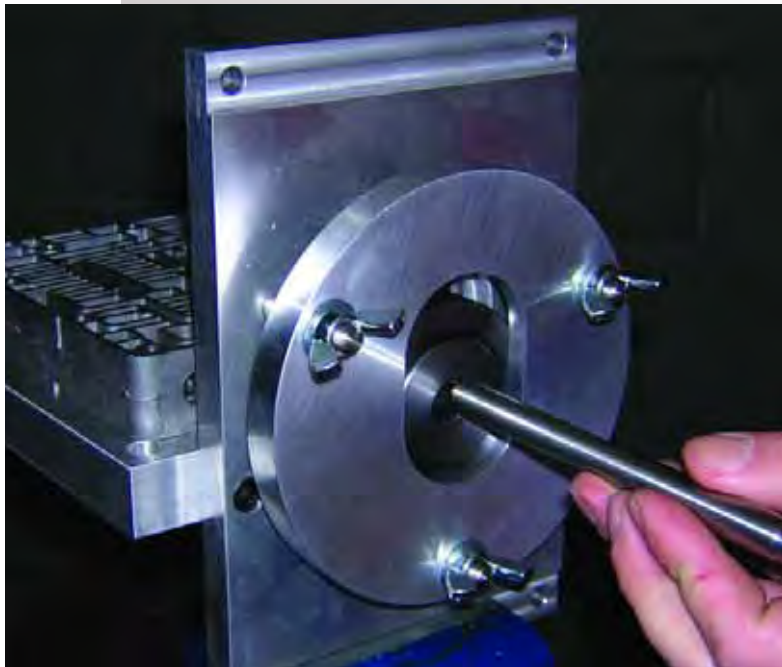
Reaming

Now we have a reamer that is lined up with the bore it is going to ream, the first step in the process.

Once the reamer is lined up, it is very important to keep it tracking straight. This is the most difficult aspect of the job, but our valve body fixture makes it much easier to keep the reamer on the right path. With minor modifications, this fixture will work on many different kinds of valve bodies, and takes out much of the guesswork involved. We know some rebuilders are reluctant to tackle reaming, but the fixture makes it much easier to ream out worn valve bodies while ensuring consistent results, time after time, in a multitude of units.

In fact, the valve body reaming fixture will allow rebuilders to ream valve bodies they did not have the ability to do before. Some valve bodies could not be refurbished because of the inherent difficulty in getting the centerline of the bore concentric with the reamer centerline. The valve body fixture solves this problem. As the industry comes up with new valve body designs, this fixture will become even more useful.

This fixture has been tested and approved by the TASC Force™ (Technical Automotive Specialties Committee), a group of recognized industry technical specialists, transmission rebuilders and Sonnax Industries Inc. technicians. The fixture is made from wear-resistant materials, does not require maintenance, and will make it possible to refurbish a multitude of valve bodies to OEM specifications for size, roundness and smoothness and save rebuilders thousands of dollars in valve body replacement costs.



Alignment

COMPLAINT

Some worn valve bodies cannot be salvaged

CAUSE

Due to the complexity of some valve bodies, existing reaming processes cannot be used to repair worn bores.

CORRECTION

The new Sonnax valve body reaming fixture allows for consistent reaming results, ease of use, and access to bores previously unserviceable with standard bench-style tool kits.



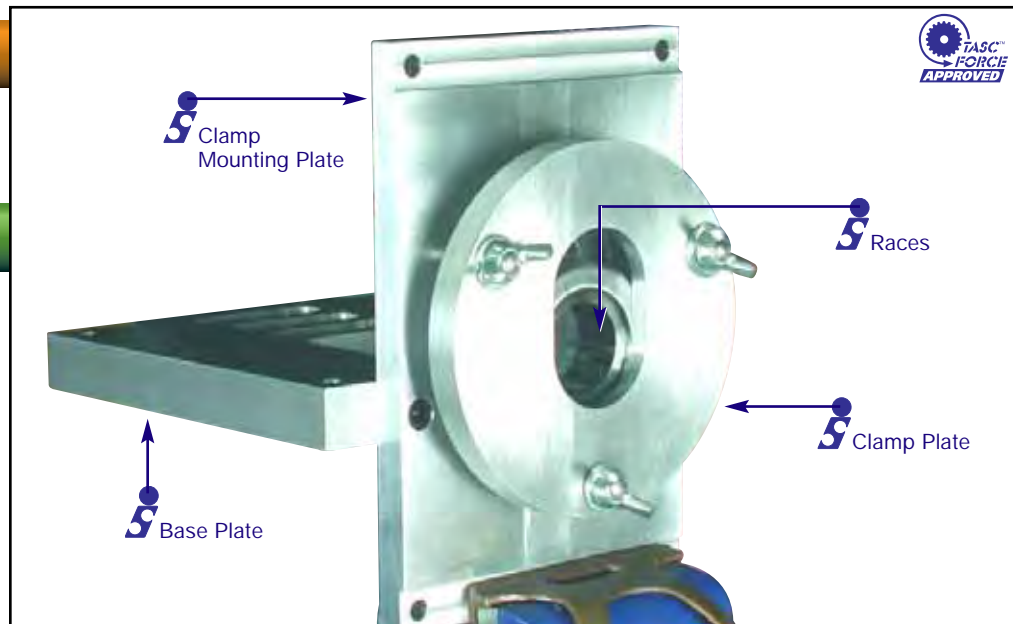
Valve Body Reaming Fixture

VB-FIX

- 1 Base Plate
- 1 Clamp Mounting Plate
- 1 Clamp Plate
- 2 Outer Races
- 1 Inner Race
- 3 Studs
- 3 Washers
- 3 Wing Nuts
- 4 Socket Cap Screws

Patent Pending

Throughout this catalog, this icon is used to identify those tool kits that are designed to work with this fixture. These tools will not work as standalone tooling but require the use of the Valve Body Reaming Fixture VB-FIX.



Sonnax Part Summary

In certain applications there is no way of piloting a reamer to repair a worn valve body, forcing rebuilders to purchase new ones. This self-aligning fixture with specially designed tool kits allows these valve bodies to be repaired. The fixture provides an external rigid pilot bore for a reamer and guide pin. The self-aligning feature allows the fixture to be used on multiple valve bodies and valve bores. The fixture base is large enough to provide ample support for the valve body.

Features & Benefits

- Patent-pending unique self-aligning device for reaming valve bores can be used for multiple applications.

Save

Hundreds of dollars in valve body replacement costs every time the fixture is used

Special tool kits have been designed for use with this fixture for numerous new applications featured in this catalog:

- GM 4T40-E TCC Valve: **33000-03** & **F-33000-TL**
- 42/46/47RH/RE, A904, A727 Oversized Throttle Valve Kit: **22771-02K**, **F-22771-TL**
- Chrysler RWD Oversized Pressure Regulator Valve: **22771A-07K** & **F-22771A-TL7**
- Ford CD4E Oversized Pressure Regulator Valve: **73840-RK** & **F-73840-TL**
- VW/Audi 01M, 01N, 01P Main Regulator Valve Kit: **119940-03K** & **F-119940-TL3**
- VW/Audi 01M, 01N, 01P Boost Regulator Valve Kit: **119940-05K** & **F-119940-TL5**
- VW/Audi 096, 097, 098 Boost Regulator Valve Kit: **119940-07K** & **F-119940-TL7**
- VW/Audi 096, 097, 098 Main Regulator Valve Kit: **119940-08K** & **F-119940-TL8**
- VW/Audi 096, 097, 098, 01M, 01N, 01P Solenoid Regulator Valve Kit: **119940-06K** & **F-119940-TL6**

MULTIPLE APPLICATIONS

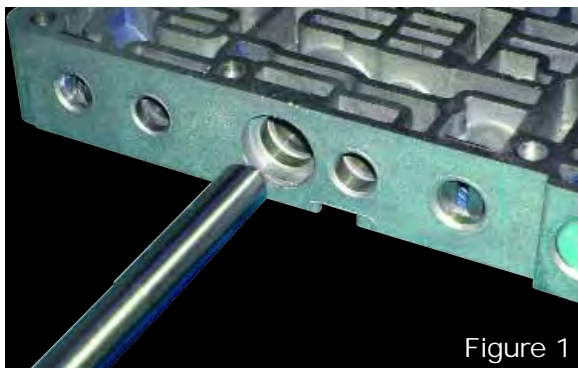


Figure 1

The F series tool kit for each bore comes with a closely toleranced guide pin that has been designed to accurately fit the bore and establish perfect alignment for the reamer guide to the bore.

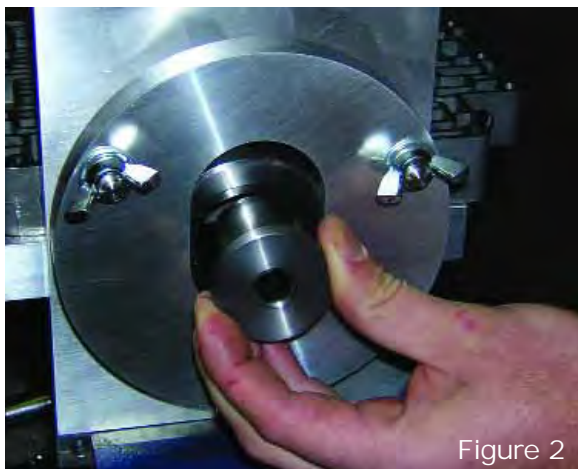


Figure 2

Each kit contains a reamer guide sized to match the shank of the guide pin and reamer for that bore. The outside configuration of each guide has been mated to the race of the fixture.



Figure 3

With the clamp plate and races still loose, pass the guide pin through the guide and into the bore. The valve body is clamped and held by the fixture.



Figure 4

The reamer guide can then be centered up and the clamp plate secured using the pin to establish its position. When all hardware is tightened, easy removal and installation of the guide pin verifies that the guide and bore are perfectly aligned.

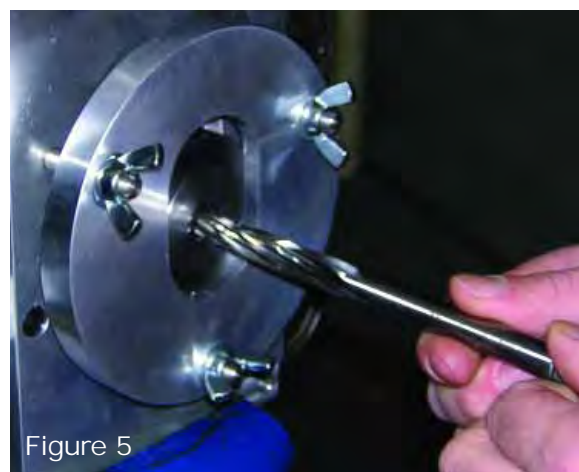


Figure 5

The specially designed reamer is then supported by the same guide, allowing you to ream accurately on the bore centerline.



Special tool kits have been designed to service a specific bore and were created to be used in conjunction with the Valve Body Reaming Fixture. Part numbers for these specially designed tool kits begin with an F-, to distinguish them from traditional Sonnax special tools that can be used as standalone tools.