Alignment Hole Key

- **Red** • = Alignment Pins
- **Black** • = Push Pin Locations
- **Blue** • = Optional Bolt Locations
Vacuum Test Plate

**Part No.**
76948-VTP
- Plate
- Seal
- Push Pins (4)
- Alignment Pins (2)
- Bolts (2)
- Washers (2)
- Wing Nuts (2)

**Vacuum Test Stand Kit**

**Part No.**
VACTEST-01K
- Vacuum Test Stand
- Test Plate
- Vacuum Plate Sealing Pad
- Vacuum Test Foam Pad
- Push-to-Connect Fitting
- Assorted Testing Tips (6)
- Testing Tip Adapter Tube
- Flexible Tubing
- Flared Tubing with Flared Nut

**Instructions**

1. **Assembly**
   a. Ensure vacuum test plate and seal are both clean and free of debris.
   b. Install two alignment pins into plate at indicated threaded holes. Thread into non-engraved side of plate (Figure 1).
   c. Place seal onto non-engraved side of plate, aligning orifice holes. Remove any entrapped air between plate and seal by peeling seal up at plate edge. Gradually place seal back on plate from center toward edge.
   d. Push plastic push pins into seal and plate from seal side, just far enough for head to lightly contact seal.

2. **Testing**
   a. Place assembled vacuum test plate over casting, using engraved casting outline as guide. Alignment pins should enter casting bolt holes.
   b. Using Sonnax vacuum test stand kit VACTEST-01K (sold separately, Figure 2) and small vacuum tip, vacuum test at numbered orifices on plate. These numbers correspond to the bore numbers called out in the exploded view of the valve body on page 5. The chart on page 8 provides descriptions of individual circuit checked and space to document actual vacuum readings and minimum vacuum standards.

   **NOTE:** Vacuum Test Data Sheet on page 7 can be used to establish minimum vacuum standards at individual bore locations.

   c. Light finger-tip pressure may need to be applied on plate during testing. Included bolts, washers and wing nuts can be used at indicated bolt locations for firmer seal, but are not required. If used, place bolts through casting, seal and plate from the back of casting. Tighten wing-nut against plate, finger-tight only.

3. **Cleaning**
Seal and plate can be cleaned as needed with mild soap and water to remove debris.

4. **What should my vacuum test results be?**
While a properly calibrated and maintained test stand will give consistent vacuum reading results for a specific circuit and amount of wear, evaluating these results requires establishing your own pass/fail criteria. Variables which influence vacuum readings are the number of spools tested in a captive circuit, spool diameter size and contact length of the spool within the bore.

Pass/Fail standards are specific to your setup and process, but they also must be based on your experience, quality sensitivity, warranty concerns and cost/pricing structure. Sonnax recommends that you keep a record of vacuum results for each valve body at each tested circuit/port location. This lets you compare results over time to help determine for your shop what an acceptable vacuum reading is for each circuit/port location.

A chart specific to this application is provided in this booklet indicating valve and circuit checked at each orifice location. Room is provided to record results and compare to your minimum vacuum standard. A generic vacuum test data sheet also is provided that can be used to evaluate multiple cores to establish your minimum vacuum standard. These documents can be printed or downloaded and stored on your computer.
Figure 1

Alignment Hole Key
- Red = Alignment Pins
- Blue = Optional Bolt Locations
- Black = Push Pin Locations

4R70E/W, 4R75E/W & AODE Vacuum Test Plate (Engraved Side UP)

Figure 2

Vacuum Pump (not included)

Flexible Tubing

Flared Tubing with Flared Nut

Vacuum Test Stand

Labeled “PUMP”

Labeled “BLEED”

Push-to-Connect Fitting

Vacuum Plate Sealing Pad

Foam Mat

Test Plate

Assorted Testing Tips

Testing Tip Adapter Tube
Critical Wear Areas & Vacuum Test Locations

NOTE: OE valves are shown in rest position and should be tested in rest position unless otherwise indicated. Test locations are pointed to with an arrow. Springs are not shown for visual clarity. Low vacuum reading indicates wear and Sonnax parts are noted for replacement.

4R75E Valve Body

**Boost Valve**
- Low Reverse boost • Reverse slip • No Reverse
- Delayed Reverse • Low line rise in Reverse
- Burnt Reverse clutch
Replace with Sonnax Part No. 76948-02K
NOTE: Fits all ’91-later applications.

**Bypass Clutch Control Plunger Valve & Sleeve**
- Shudder • Code 628 • No lockup
- TCC apply & release concerns
- Delayed lockup
Replace with Sonnax Part No. 76948-04K

**Converter Pressure Limit Valve**
- Low converter pressure
- Lube failures
Replace with Sonnax Part No. 76948-58K

**2-3 Shift Valve**
- Erratic shift timing
- Oil leaks
Center this valve land in the passage as indicated.

**Manual Valve**
- Delayed engagement
- Low line pressure
- Burnt bands/clutches
Replace with Sonnax Part No. 76948-46

**Solenoid Regulator Valve**
- Erratic shifts • 2-3 Neutral • Neutral after 4th
- 3rd & Reverse only • No 2nd
- Loss Forward under hard acceleration from a stop
Replace with Sonnax Part Nos. 76948-14K & 76948-47K Requires F-76948-TL & VB-FIX

**Main Pressure Regulator Valve**
- Poor shift quality • Soft shifts • Low line rise
- Erratic buzz • Premature clutch/band failure
- Uncontrolled pressure in Reverse • Low Reverse boost
Replace with Sonnax Part No. 76948-09 or 76948-17K (1996-Later)
76948-17K Requires F-76948-TL & VB-FIX

**Bypass Clutch Control Valve**
- Code 628, 741, 1741, 1744
- No lockup • TCC slip
- Low cooler flow
Replace with Sonnax Part No. 76948-31

**Overdrive Servo Regulator Valve**
- No 4th
- Burnt OD band
- 4-3 Neutral

**Overdrive Servo Regulator Valve & Sleeve**
- 4-3 Neutral • No 4th
- Burnt OD band
Replace with Sonnax Part No. 76948-29K

**1-2 Shift Valve**
- No 2nd
- Wrong gear starts
- Gear ratio codes

**3-4 Capacity Modulator Valve**
- 3-4 Flare
- Slips in manual Low

**2-3 Backout Valve**
- No 2-3 • 2-3 Quality poor
- Gear ratio codes

**2-3 Capacity Modulator Valve**
- 2-3 Flare • No 3rd & 4th
NOTE: Not used in ’01–Later

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Page 4

Finding lots of problems?
See page 6 for shift repair kits and remanufactured valve bodies.
OE Exploded View

4R75E Valve Body

Valve Body Descriptions

<table>
<thead>
<tr>
<th>I.D. No.</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>101</td>
<td>Overdrive Servo Regulator Valve (Inboard), Overdrive Servo Regulator Valve &amp; Sleeve (Outboard)</td>
</tr>
<tr>
<td>102</td>
<td>3-4 Capacity Modulator Valve (Inboard), 2-1 Capacity Modulator Valve (Outboard)</td>
</tr>
<tr>
<td>103</td>
<td>3-4 Shift Valve</td>
</tr>
<tr>
<td>104</td>
<td>2-3 Capacity Modulator Valve</td>
</tr>
<tr>
<td>105</td>
<td>2-3 Backout Valve</td>
</tr>
<tr>
<td>106</td>
<td>Solenoid Regulator Valve</td>
</tr>
<tr>
<td>107</td>
<td>Manual Valve</td>
</tr>
<tr>
<td>108</td>
<td>1-2 Shift Valve (Inboard), 2-3 Shift Valve (Outboard)</td>
</tr>
<tr>
<td>109</td>
<td>Converter Pressure Limit Valve</td>
</tr>
<tr>
<td>110</td>
<td>Bypass Clutch Control Valve (Inboard), Bypass Clutch Control Plunger Valve &amp; Sleeve (Outboard)</td>
</tr>
<tr>
<td>111</td>
<td>Main Pressure Regulator Valve (Inboard), Boost Valve &amp; Sleeve (Outboard)</td>
</tr>
</tbody>
</table>
**Zip Kit®**
The First Step in Correcting Common Shift Problems

**The Sure Cure®**
Comprehensive Kit for Big Problems You Don’t Want Back

### Remanufactured Valve Bodies
**Great for Getting Big Jobs Done Fast, Done Right**

Every valve body is completely disassembled, cleaned, updated, solenoids tested and replaced as needed. Each is then hydraulically and electronically tested so it’s ready to install. That’s guaranteed Sonnax quality you can trust, backed by a limited lifetime warranty.

#### Part No. ‘96-Later Only
**AODE-4R75E-ZIP**
- Input Shaft Seals (2)
- Main Pressure Regulator Valve
- Boost Valve Kit
- Bypass Clutch Control Plunger Valve Kit
- 2-3 Shift Valve O-Ringed End Plug
- Solenoid Regulator Valve Retainer
- Overdrive Servo Regulator Valve Kit
- Checkballs (8)
- Valve Body Retainer Plate Kit
- Overdrive Servo Pin Kit
- Pump Cover Seals (2) Early
- Output Shaft Seals (2)
- Intermediate Clutch Spiral Retaining Ring Kit
- Pump Cover Seals (2) Late

#### Part No. ‘95-Earlier
**SC-AODE**
- Main Pressure Regulator Valve
- Boost Valve Kit
- Bypass Clutch Control Plunger Valve Kit
- O-Ringed End Plug Kit
- Solenoid Regulator Valve Retainer Shim
- Overdrive Servo Pin Kit
- Spiral Retaining Ring Kit
- Output Shaft Seals (2) PTFE
- Input Shaft Seals (2) PTFE
- Pump Cover Seals (2) Early
- Overdrive Servo

#### Part No. ‘96-Later Only
**SC-AODE-4R75E**
- Oversized Pressure Regulator & Boost Valve Kit
- Bypass Clutch Control Plunger Valve Kit
- 2-3 Shift Valve O-Ringed End Plug
- 3-4 Shift Valve O-Ringed End Plug
- Overdrive Servo Regulator
- Overdrive Solenoid Regulator Valve Kit
- Valve Body Retainer Plate Kit
- Intermediate Clutch Spiral Retaining Ring Kit
- Output Shaft Seals (2)
- Input Shaft Seals (2)
- Checkballs (8)
- Overdrive Servo Pin Kit
- Pump Cover Seals, Late (2)
- Pump Cover Seals, Early (2)

**NOTE:** These remanufactured valve bodies have three accumulator plates on the valve body. A 2-3 accumulator support plate is added during the remanufacturing process to eliminate separator plate cracking and cross-leaking. Remanufactured valve bodies F098 and F095 are direct replacements. No modifications are needed as they completely interchange with the OE valve body. Shift and lockup solenoids are included with the valve body.

#### Part No. ‘01-’08
**F095**

#### Part No. ‘09-Later
**F098**
**Application:**

<table>
<thead>
<tr>
<th>Bore Locations</th>
<th>Vacuum Readings, in-HG</th>
<th>Calculated Average Vacuum</th>
<th>Minimum Vacuum Standard</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Core 1</td>
<td>Core 2</td>
<td>Core 3</td>
</tr>
<tr>
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</tbody>
</table>

The Sonnax vacuum test data sheet is a document that can be printed or downloaded and stored on your computer. This test data sheet helps to track vacuum readings in critical wear areas from up to 10 cores of the same type. Comparing results from 10 cores aids in wear pattern identification. Recording results allows an average vacuum reading for each bore to be calculated. Your minimum vacuum standard for each bore can be established from this data. These standards should reflect your warranty requirements and customer needs.
<table>
<thead>
<tr>
<th>Orifice Location</th>
<th>Valve/Circuit Checked</th>
<th>Sonnax Part Number</th>
<th>Actual Vacuum Reading</th>
<th>Minimum Vacuum Standard</th>
</tr>
</thead>
<tbody>
<tr>
<td>101A</td>
<td>Overdrive Servo Regulator Valve</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>101B</td>
<td>Overdrive Servo Regulator Valve &amp; Sleeve</td>
<td>76948-29K</td>
<td></td>
<td></td>
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<tr>
<td>102A</td>
<td>3-4 Capacity Modulator Valve</td>
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<td></td>
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<tr>
<td>103A</td>
<td>3-4 Shift Valve</td>
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</tr>
<tr>
<td>103B</td>
<td>3-4 Shift Valve End Plug</td>
<td>76948-49K</td>
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<td></td>
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<tr>
<td>105A</td>
<td>2-3 Backout Valve</td>
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<td></td>
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<tr>
<td>105B</td>
<td>2-3 Backout Valve</td>
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<tr>
<td>106A</td>
<td>Solenoid Regulator Valve</td>
<td>76948-14K or 76948-47K</td>
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<td>106B</td>
<td>Solenoid Regulator Valve</td>
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<td>107A*</td>
<td>Manual Valve</td>
<td>76948-46</td>
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<td>107B*</td>
<td>Manual Valve</td>
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<td>108A</td>
<td>1-2 Shift Valve</td>
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<td>108B</td>
<td>2-3 Shift Valve End Plug</td>
<td>76999-MED</td>
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<tr>
<td>109A</td>
<td>Converter Pressure Limit Valve</td>
<td>76948-58K</td>
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<tr>
<td>110A</td>
<td>Bypass Clutch Control Valve</td>
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<td>110B</td>
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<td>110C</td>
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<td>76948-31</td>
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<tr>
<td>110D</td>
<td>Bypass Clutch Control Valve Plunger Valve &amp; Sleeve</td>
<td>76948-04K</td>
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</tr>
<tr>
<td>111A</td>
<td>Main Pressure Regulator Valve</td>
<td>76948-01, -16K, -09, -17K</td>
<td></td>
<td></td>
</tr>
<tr>
<td>111B</td>
<td>Boost Valve</td>
<td>76948-02K</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*NOTE: When testing these locations, place the manual valve so that the wide spool is centered in the port being tested, as illustrated below.