

Middle Valve Body Plate

Upper Valve Body Plate

Alignment Hole Key

- Red ● = Alignment Pins/Dowel Pin Holes
- Blue ● = Push Pin Locations
- Black ● = 20mm Bolt Locations
- Green ● = 35mm Bolt & Washer Locations

Vacuum Test Plate Kit

Part No.

47740-VTP



- Middle Plate
- Upper Plate
- Seals (2)
- Push Pins (12)
- Alignment Pins (4)
- Bolts (5)
- Washers (3)

4 Extra

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

- Ensure vacuum test plate and seal are both clean and free of debris.
- Install two alignment pins into each plate at indicated threaded holes. Thread into non-engraved side of plate (**Figure 1**).
- 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.
- Push plastic push pins into seal and plate from seal side, just far enough for head to lightly contact seal.

NOTE: Sonnax recommends starting with only four corner locations. If seal sags away from plate, other push pin locations should also be used.

2. Testing

- Place assembled vacuum test plate over casting, using engraved casting outline as guide. Alignment pins should enter casting bolt holes.

NOTE: For testing middle casting, place casting on foam pad for all test ports unless otherwise specified.

- 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 6. 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.

- Light finger-tip pressure may need to be applied on plate during testing. Included bolts and washers can be used at indicated bolt locations for firmer seal, but are not required.

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.

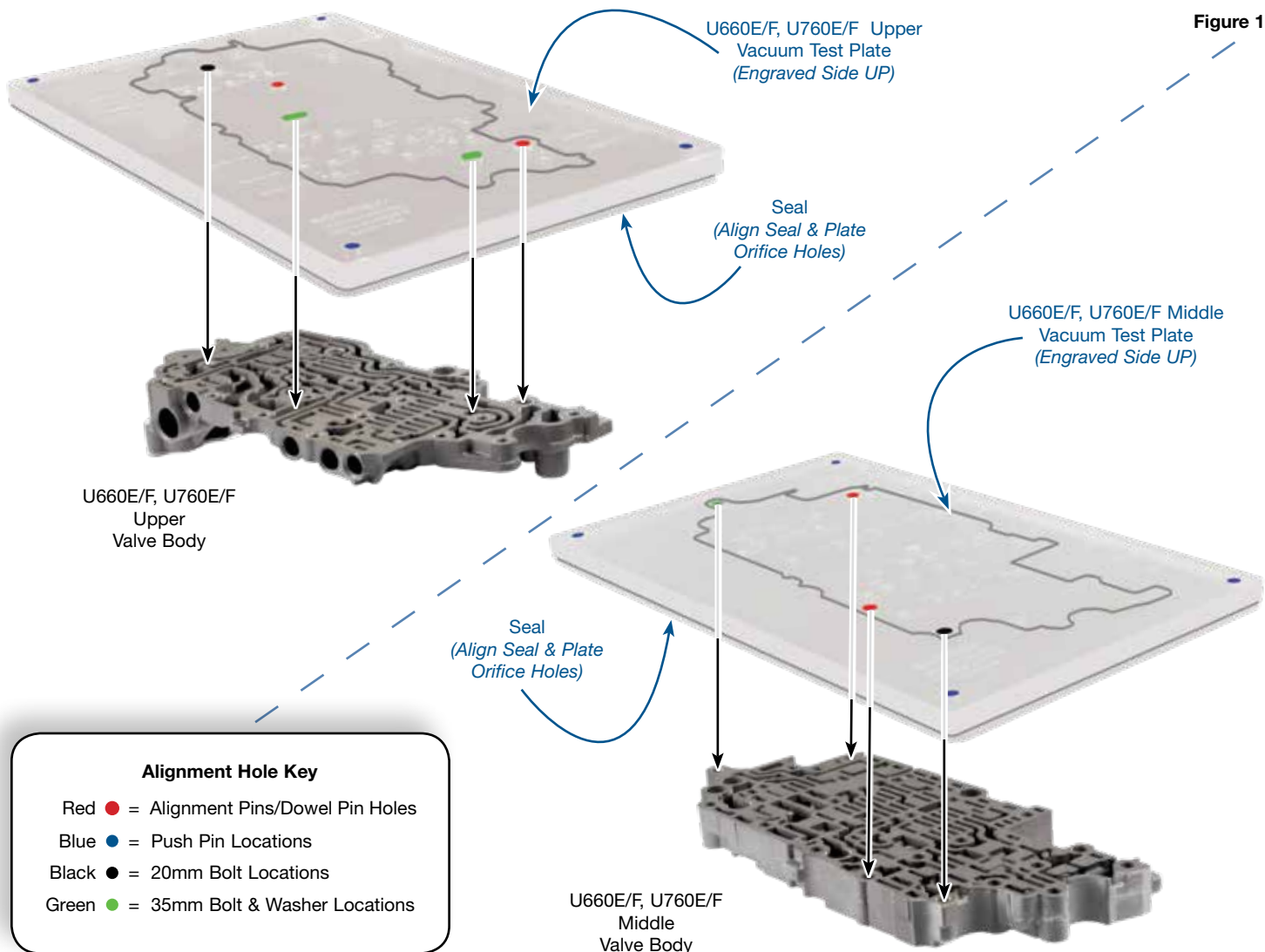


Figure 1

Vacuum Test Stand Kit

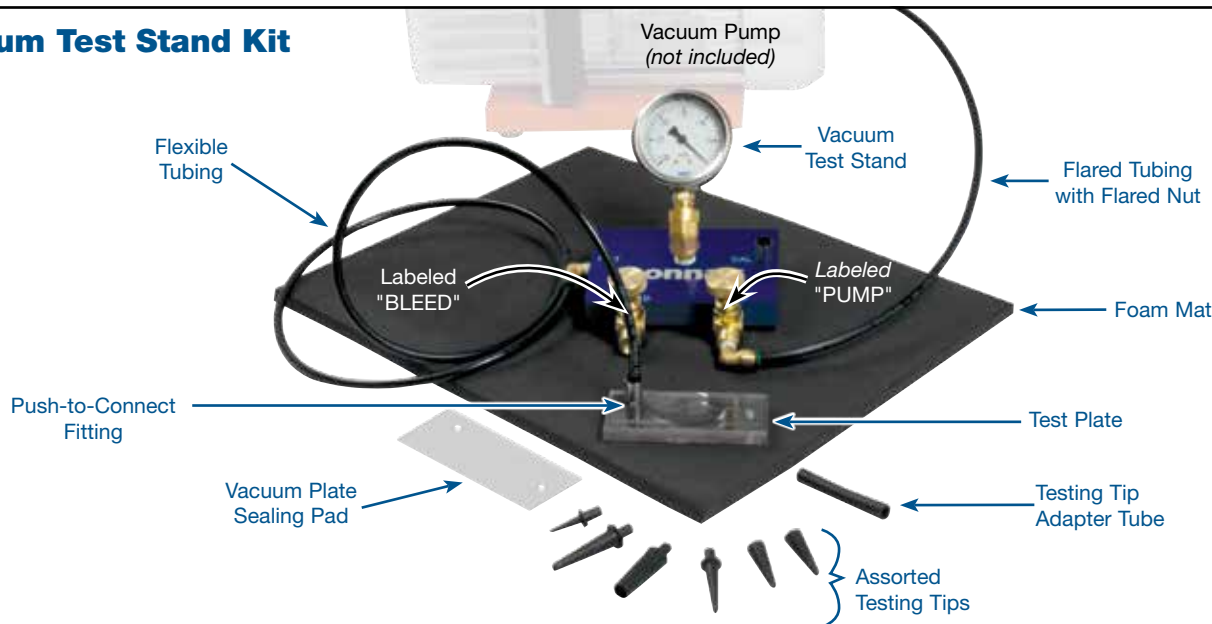


Figure 2

Critical Wear Areas & Vacuum Test Locations



Drop-In Zip Valve™
Parts Available



U660E-ZIP & U760E-ZIP
Zip Kit® Available

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.

Upper Valve Body (U660E Shown)



For specific vacuum test information, refer to individual part instructions included in kits and available at www.sonnax.com.

B1 Accumulator Piston ZIP

- Burnt B1 brake clutches • Forward Slip
- Flare/Harsh shifts • Burnt clutches

Replace with Sonnax Part No. **47740-11K**

B2 Accumulator Piston ZIP

- Burnt B2 brake clutches • Flare/Harsh shifts
- Delayed Reverse with harsh engagement
- Burnt clutches

Replace with Sonnax Part No. **47740-11K**

End Plugs ZIP

- Burnt brake clutches • Shift concerns
- Lockup concerns • Burnt clutches

Replace with Sonnax Part No. **47740-21K** NOTE: Several Locations = ★

B3 Accumulator Piston ZIP

- Burnt B3 brake clutches
- Flare/Harsh shifts • Burnt clutches
- Delayed Reverse with harsh engagement

Replace with Sonnax Part No. **47740-11K**

C1 Accumulator Piston ZIP

- Delayed Forward • Forward slip
- C1 Clutch burned • Harsh Forward
- Flare shifts

Replace with Sonnax Part No. **47740-12K**

Secondary Pressure Regulator Valve

- TCC codes • TCC shudder • Lube failures
- TCC apply & release concerns
- Bearing/Bushing failure

Replace with Sonnax Part No. **47740-26K** Requires F-47740-TL26 & VB-FIX

C2 Accumulator Piston ZIP

- Burnt C2 brake clutches • Forward Slip
- Flare/Harsh shifts • Burnt clutches

Replace with Sonnax Part No. **47740-11K**

Reverse Sequence Valve

- Delayed Reverse
- Low Reverse pressure
- Burnt B2 or B3 brake

Test: Test this port with valve blocked inboard .125" with OE retainer.

Test: Test this port with valve blocked outboard .125" with OE retainer and sealing port on back with thumb.

Test: Test each port with valve blocked outboard .125" with OE retainer.

Lockup Relay Valve

- TCC apply & release concerns
- TCC slip codes
- Overheated transmission

Lockup Control Valve

- TCC slip codes • RPM fluctuation
- TCC apply & release concerns
- Harsh downshifts

Replace with Sonnax Part Nos. **47740-30K** (U660E, U660F) or **47740-31K** (U760E, U760F)
Requires F-47740-TL30 & VB-FIX

Lockup Control Boost Assembly ZIP

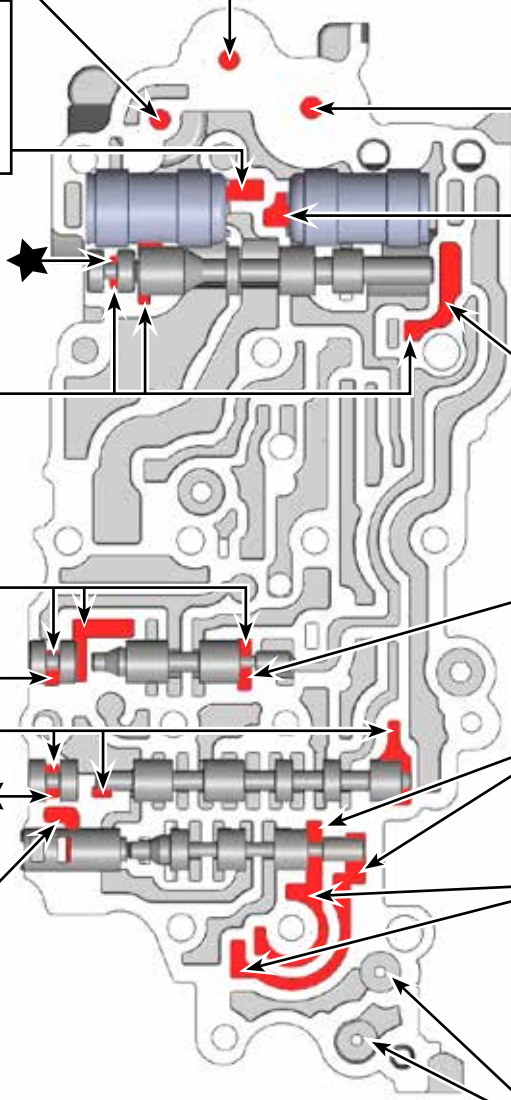
- TCC apply & release concerns
- TCC slip codes • Burnt converter
- Overheated Fluid

Replace with Sonnax Part No. **47740-06K**

Converter & Lube Relief Valve

- Overheating • Repeated converter failure
- TCC slip • TCC slip codes

Replace with Sonnax Part No. **47740-60K** Requires 47740-TL60



Middle Valve Body • Lower Side (U660E Shown)

B1 Apply Control Valve

- 1-2 Long slide • Clutch failure
- B1 brake clutches burned
- Low line pressure

Replace with **Sonnax Part No. 47740-44K** Requires F-47740-TL44 & VB-FIX (U760E, U760F only)

Note: Seal port on back when testing.

B1 Apply Boost Assembly ZIP

- 2nd and 6th Gear shift concerns
- B1 brake clutches burned

Replace with **Sonnax Part Nos. 47740-19K** (U660E, U660F) or **47740-40K** (U760E, U760F)

Test: Block this port and port on back when testing.

Test: Test this port with valve blocked inboard .218" dia. checkball.

Primary Pressure Regulator Valve

- Erratic/Soft/Harsh shifts
- Low line pressure/rise
- Clutch slippage
- High line pressure in Reverse
- Burnt brake clutches/Clutches

Replace with **Sonnax Part No. 47740-02K** Requires F-47740-TL2 & VB-FIX

Note: Seal port on back when testing.

Clutch Control Valve

- 4-5 Flare/Harsh
- Delayed Neutral to Drive
- Delayed Reverse

Replace with **Sonnax Part No. 47740-22K** Requires F-47740-TL22 & VB-FIX

Sequence Valve

- Shift concerns
- Burnt clutches/brakes

Note: Seal port on back when testing.

C2 Clutch Apply Control Valve

- Slipping 4th, 5th, 6th
- Burnt C2 clutch

B2 Apply Control Valve

- B2 Clutch burned • No Reverse
- Delayed Reverse • Reverse slip

Replace with **Sonnax Part No. 47740-27K** Requires F-47740-TL27 & VB-FIX

B2 Control Valve

- Delayed/Harsh Reverse
- Double bump Reverse engagement
- No Manual 1st • B2 Clutches burned

Replace with **Sonnax Part No. 47740-35K** Requires F-47740-TL35 & VB-FIX

Solenoid Modulator Valve ZIP

- Shift concerns • Solenoid performance codes
- TCC apply & release concerns

Replace with **Sonnax Part Nos. 47740-41K or 47740-24K** (U660E, U660F) **47740-42K or 47740-25K** (U760E, U760F) **47740-24K & 47740-25K** Requires F-47740-TL24 & VB-FIX

Note: Seal when testing B1 apply boost assembly.

Reverse Boost Assembly ZIP

- Delayed Reverse
- Low line rise in Reverse
- B2 Brake clutches burned

Replace with **Sonnax Part Nos. 47740-17K** (U660E, U660F) or **47740-38K** (U760E, U760F)

End Plugs ZIP

- Burnt brake clutches • Shift concerns
- Lockup concerns • Burnt clutches

Replace with **Sonnax Part No. 47740-21K** **NOTE:** Several Locations = ★

Middle Valve Body Upper Side (U660E Shown)

Note: Seal when testing B1 apply control valve.

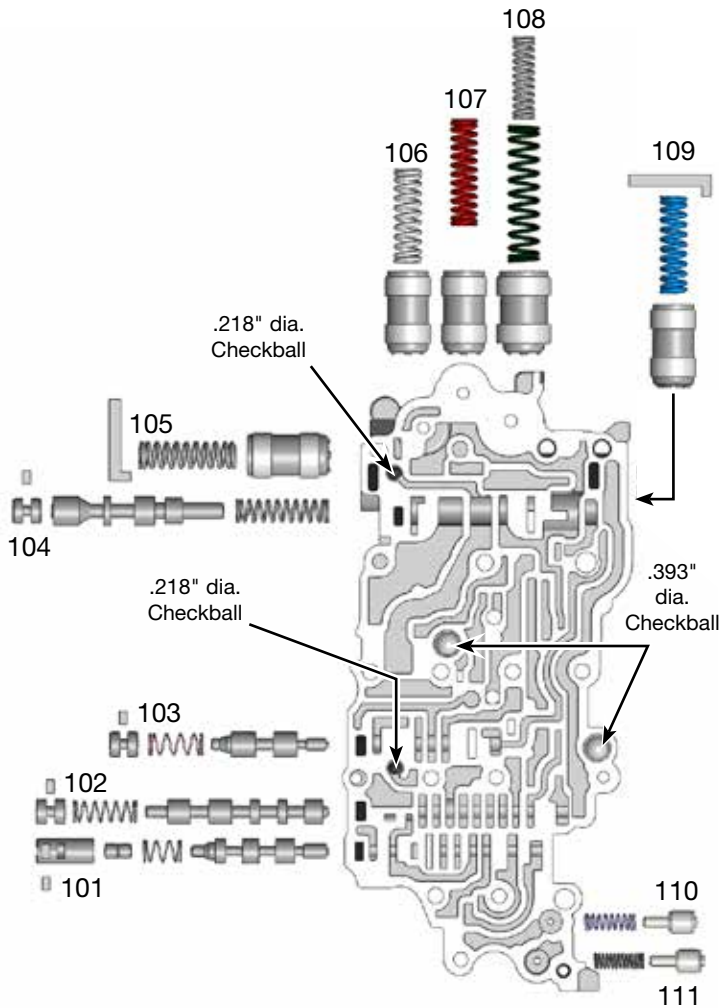
Note: Seal when testing pressure regulator valve.

Note: Seal when testing B2 apply control valve.

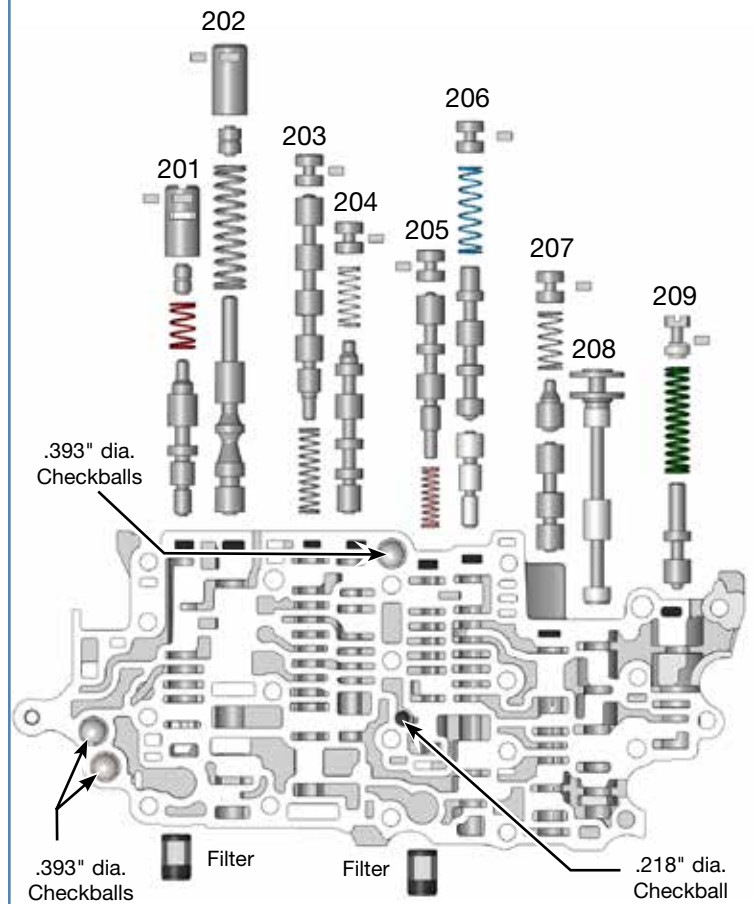
OE Exploded View

NOTE: Depending upon vehicle application, the OE springs shown may not be present.

Upper Valve Body (U660E Shown)



Middle Valve Body (U660E Shown)



Upper Valve Body Descriptions

I.D. No.	Description
101	Lockup Control Valve (inboard) Lockup Control Boost Assembly (outboard)
102	Lockup Relay Valve
103	Reverse Sequence Valve
104	Secondary Pressure Regulator Valve
105	B3 Accumulator Piston
106	B1 Accumulator Piston
107	B2 Accumulator Piston
108	C1 Accumulator Piston
109	C2 Accumulator Piston
110	Lube Relief Check Valve
111	Converter Relief Check Valve

Middle Valve Body Descriptions

I.D. No.	Description
201	B1 Apply Control Valve (inboard) B1 Apply Boost Assembly (outboard)
202	Primary Pressure Regulator Valve (inboard) Reverse Boost Assembly (outboard)
203	Sequence Valve
204	Clutch Control Valve
205	C2 Clutch Apply Control Valve
206	B2 Apply Control Relay Valve (inboard) B2 Apply Control Valve (outboard)
207	B2 Control Valve (inboard) B2 Control Relay Valve (outboard)
208	Manual Valve
209	Solenoid Modulator Valve

Application:

Vacuum Test Data Sheet

Bore Locations	Vacuum Readings, in-HG										Calculated Average Vacuum	Minimum Vacuum Standard
	Core 1	Core 2	Core 3	Core 4	Core 5	Core 6	Core 7	Core 8	Core 9	Core 10		



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.

Orifice Legend

Unit Stock or Tag No.

	Orifice Location	Valve/Circuit Checked	Sonnax Part Number	Special Instructions	Actual Vacuum Reading	Minimum Vacuum Standard
UPPER CASTING	101A	Lockup Control Valve				
	101B	Lockup Control Valve				
	101C	Lockup Control Valve				
	101D	Lockup Control Boost Assembly				
	102A	Lockup Relay Valve				
	102B	Lockup Relay Valve				
	102C	Lockup Relay Valve				
	102D	Lockup Relay Valve				
	102E SI	Lockup Relay Valve		U660E Only		
	102F	Lockup Relay Valve				
	102G	Lockup Relay Valve				
	102H	End Plug @ Lockup Relay Valve				
	103A	Reverse Sequence Valve				
	103B	Reverse Sequence Valve				
	103C	Reverse Sequence Valve				
	103D	Reverse Sequence Valve				
	103E	End Plug @ Reverse Sequence Valve				
	104A	Secondary PR Valve				
	104B	Secondary PR Valve				
	104C	Secondary PR Valve				
	104D	Secondary PR Valve				
104E	Secondary PR Valve					
104F	End Plug @ Secondary PR Valve					
105A	B3 Accumulator Piston					
106A	B1 Accumulator Piston					
107A	B2 Accumulator Piston					
108A	C1 Accumulator Piston					
109A	C2 Accumulator Piston					
111A	Damper					
LOWER CASTING	CBSI	Line Pressure Blow-Off Check Valve		U760E Only		
	201A	B1 Apply Control Valve				
	201B	B1 Apply Control Valve				
	201C	B1 Apply Control Valve				
	201D	B1 Apply Boost Assembly				
	202A	Primary Pressure Regulator Valve				
	202B	Primary Pressure Regulator Valve				
	202C	Primary Pressure Regulator Valve				
	202D	Primary Pressure Regulator Valve				
	203A	Sequence Valve				
	203B	Sequence Valve				
	203C	Sequence Valve		U760E Only		
	203D	Sequence Valve				
	203E	End Plug @ Sequence Valve				
	204B	End Plug @ Clutch Control Valve				
	205A	C2 Clutch Apply Control Valve				
	205B	C2 Clutch Apply Control Valve				
	205C	C2 Clutch Apply Control Valve				
	205D	C2 Clutch Apply Control Valve				
	205E	End Plug @ C2 Clutch Apply Control Valve				
	206A	B2 Apply Control Valve				
	206B	B2 Apply Control Valve				
	206C/204A	B2 Apply Control Valve				
	206D SI	B2 Apply Control Valve		Cover "X" Port Between 207C & 207D		
	206E	B2 Apply Control Valve				
	206F	B2 Apply Control Valve				
	206H	B2 Apply Control Valve				
207A	B2 Control Valve					
207B	B2 Control Valve					
207C	B2 Control Valve					
206G/207D	B2 Control Valve					
207E	End Plug @ B2 Control Valve					
209A	Solenoid Modulator Valve					