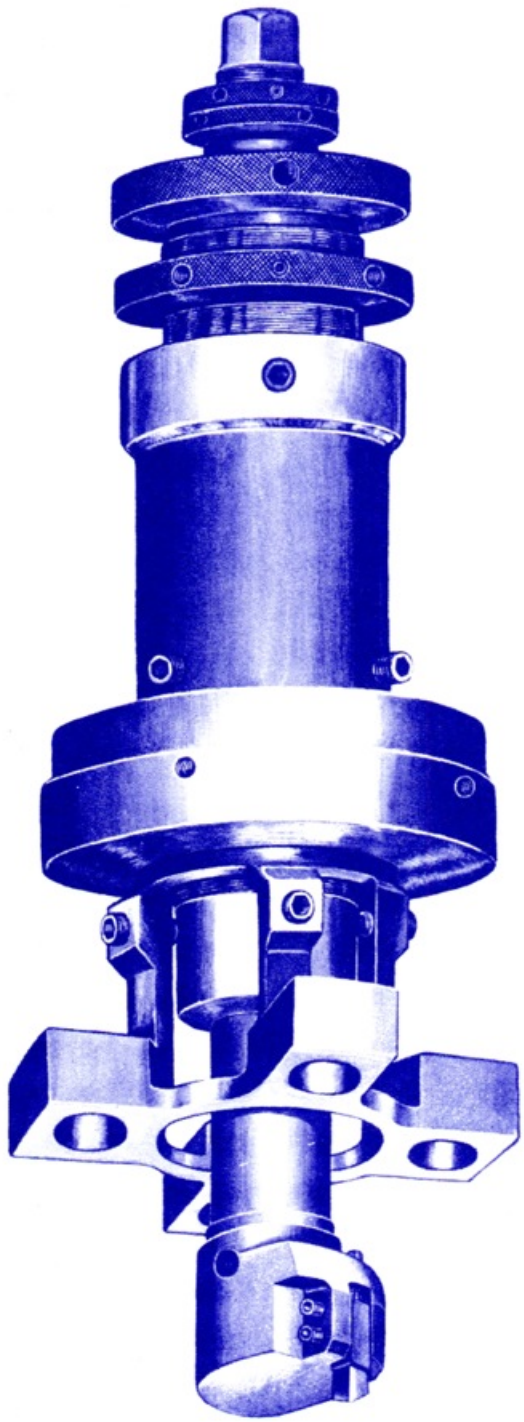
GRIMSLEY'S PORTABLE BORING BAR FOR REMOVING STEAM ADMISSION VALVE SEATS FROM FORCED DRAFT BLOWERS.

MODEL NO. VBB 500

PATENT NO. 4,090,805



GRIMSLEY'S HOUSE OF TOOLS, INC.

Specializing in Portable Tools

GRIMSLEY'S PORTABLE BORING BAR
For Removing Steam Admission Valve Seats From Forced Draft Blowers.
Model No. VBB 500 Patent No. 4,090,805

Description

Specifications on Grimsley's Portable Boring Bar for removing steam admission valve seats from forced draft blowers.

The VBB 500 Machine was designed especially for removing the weld metal from around the seat of the valve.

The machine is capable of removing the weld and the seat in approximately 45 minutes after set-up which should not take more than 15 minutes atter the operating mechanism and bonnet have been removed.

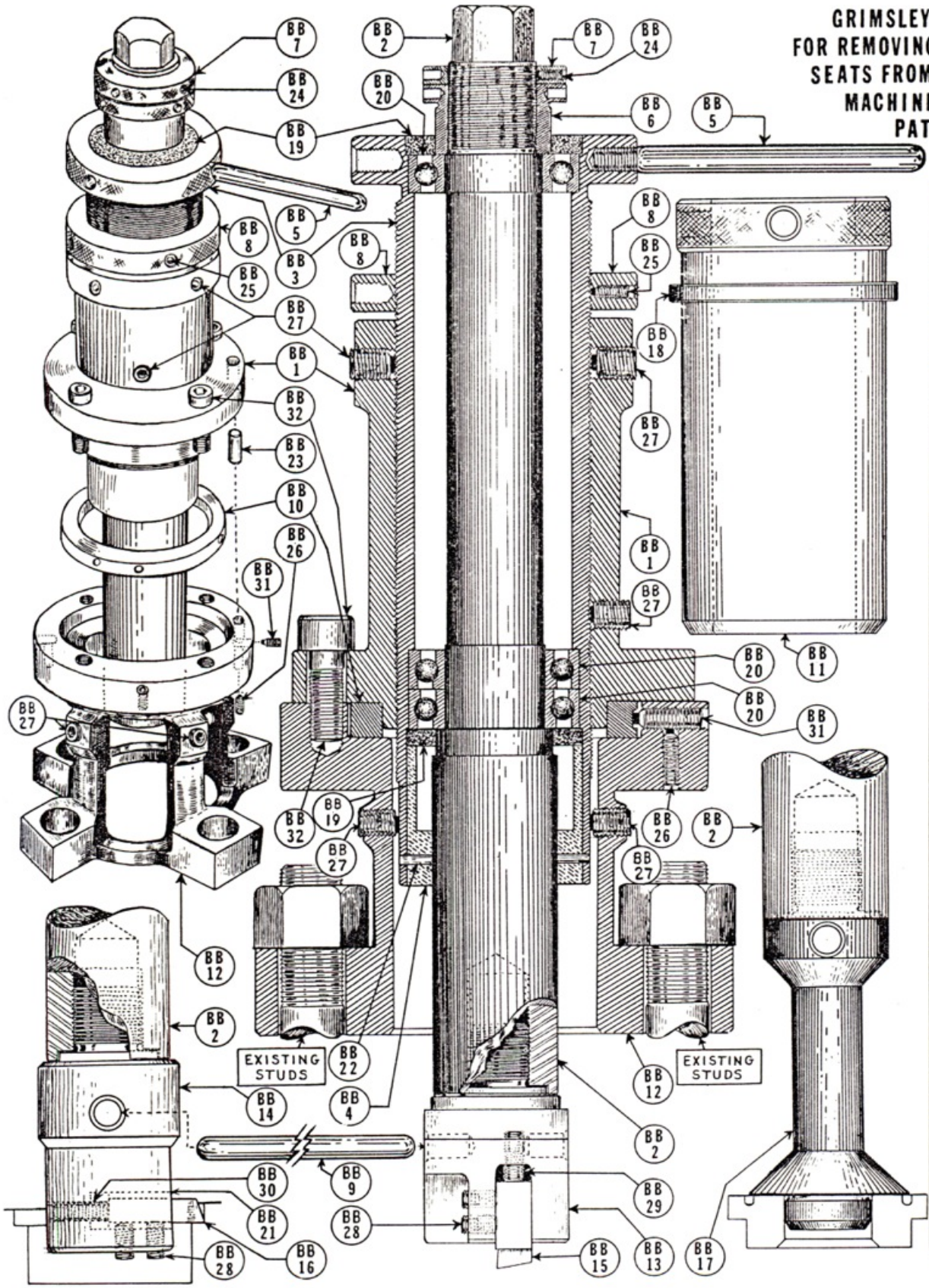
The Boring Bar is equipped with a special adapter and cutter head PC-No.BB-13 for cutting out the seat; one adapter and boring head for facing the packing or seal ring seat in the valve flange; one adapter (retainer head) for holding down the new valve seat while spot welding in place; one adapter plug for aligning adapter for boring bar; the necessary socket head screws, drive pins and handle pins; 4 tool bits and the carrying case.

Weight of bar, including adapter and boring head: 51½ lbs.
Weight of extra adapter: 5 lbs.
Weight of CWL-1609A Drive Motor: 5½ lbs.
Weight of complete kit including carrying case: 80 lbs.

Instructions for Removing Emission Valve Seats

1. Securing Forced Draft Blowers (making sure there is no steam pressure up-stream and that system is secure before opening valve).
2. Remove operating gear, valve bonnet, including stem and plug.
3. Thoroughly clean the valve flange removing flange packing and wire brush flange face.
4. Measure throat of valve to determine if the bore has been modified or ground out of round, and if the bore is within tollerance, i.e., close enough to align the boring bar with the bottom bore.
5. Install adapter piece BB-12 to the valve by using existing studs. Do not tighten nuts other than finger tight, until adapter locater (alignment plug) piece No. BB-11 is inserted through the adapter into the throat of the valve. Turn the alignment plug back and forth to make sure the plug does not bind while securing the adapter in place.
6. Tighten nuts to assure there is no movement of the adapter while boring or cutting away the weld to remove the seat.
7. Remove alignment plug and prepare the boring bar for insertion into the adapter and valve. After boring head with tool bit adjusted to remove the necessary amount of weld metal from the seat and valve body is ready for action, lower the bar into the adapter until flange on boring bar is aligned to and down flat all around. Install socket head screws, piece BB-32, and tighten.
8. Turn boring bar in clockwise motion making sure that the bar is not binding and that the tool bit is not hanging up on some high weld spot.
9. Boring bar is now in alignment and while drive motor is running at full speed start feed and feed gently until you feel the tool bit hitting the weld then gently feed cutter head down until you have machined off all high spots and you feel the tool bit cutting all around the seat, set the stop ring for cutting to a depth of .140 thousandths of an inch. When this depth has been reached, remove the bar and check the seat to see if seat has been freed or if there is a predominate line between the seat and the seat bore. If so, try the

GRIMSLEY'S PORTABLE MACHINE FOR REMOVING STEAM ADMISSION VALVE SEATS FROM FORCED DRAFT BLOWERS.
MACHINE MODEL NO. VBB 500
PATENT NO. 4,090,805



PARTS FOR REMOVING STEAM ADMISSION VALVE SEATS FROM FORCED DRAFT BLOWERS
MACHINE NO. BB-500

PARTS NO.	QUAN.	DESCRIPTION	
BB-1	1	HOUSING	
BB-2	1	DRIVE SHAFT	
BB-3	1	ADJUSTMENT SCR.	
BB-4	1	NYLON BEARING	
BB-5	2	HANDLE PIN	
BB-6	1	THRUST RING	
BB-7	1	LOCK RING	
BB-8	1	DEPTH STOP RING	
BB-9	1	DRIVE PIN	
BB-10	1	ADJUSTMENT RING	
BB-11	1	ADAPTOR LOCATOR	
BB-12	1	ADAPTOR	
BB-13	1	CUTTER HEAD	
BB-14	1	BORING HEAD	
BB-15	1	TOOL BIT Nº 1	
BB-16	1	TOOL BIT Nº 2	
BB-17	1	RETAINER HEAD	
BB-18	1	ALIGNMENT RING	
BB-19	2	OIL SEAL	
BB-20	3	ANG. CONT. BEARING	
BB-21	1	SQUARE HOLE SLEEVE	
BB-22	2	ROLL PIN	
BB-23	1	DOWEL PIN	
BB-24	1	SOC. SET SCR. W/NYLON NOSE	
BB-25	1	SOC. SET SCR. W/NYLON NOSE	
BB-26	4	SOC. SET SCR. PIC #CS-30	
BB-27	10	SOC. SET SCR. W/NYLON NOSE	
BB-28	4	SOC. SET SCR. CUP PT. NYLOK	
BB-29	1	SOC. SET SCR. FLT PT. NYLOK	
BB-30	1	SOC. SET SCR. FLT. PT. NYLOK	
BB-31	4	SOC. SET SCR. HALF DOG PT.	
BB-32	4	SOC. SET SCR. 1/2-13 x 1 1/4 LG.	
BB-34	1	HEX WRENCH 1/8" HEX	
BB-35	1	HEX WRENCH 5/32" HEX	
BB-36	1	HEX WRENCH 1/4" HEX	
BB-37	1	HEX WRENCH 3/8" HEX	
BB-38	1	CARRY CASE	

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seat with a reverse type of knocker to determine if loose. If it appears to be loose, remove the seat leaving the adapter in place for use in cleaning up the bore in the valve body and for aligning the new seat for welding.

10. When and if it is determined that the bottom bore in the valve needs welding and refinishing, you can use the small boring head BB-14 to bring the bottom bore in perfect alignment with the valve throat and to true up the counterbore for the valve seat flange.

11. After machining is all finished, take sizes of counter bore and bore. Machine finish the new valve seat to the proper tolerance, insert the new valve seat in valve, take depth mincrometer readings to assure the seat is seated down and flat all around in the counter bore.

12. Install hold down device on top of new seat. This will keep the new seat from cocking up when welding rod makes contact while tacking down seat in three or four places.

13. Remove the alignment adapter for better access to complete the weld. After the seat has been tack welded again, check with depth micrometer to be sure the seat has not moved and then continue weld.

The boring bar is equipped with an adapter to align the machine and a cutter head, PC-No.BB-13, for cutting out the seat. The same cutter head may be used to re-machine the packing grooves in the valve flange.

The boring head, PC-No.BB-14, is used for refinishing the valve seat land and bore in valve body.

There is a second adapter made especially for machining the valve flange packing seat. Use the same method of alignment as outlined in instructions, items 5, 6, and 7.

Instructions for Replacing Seat

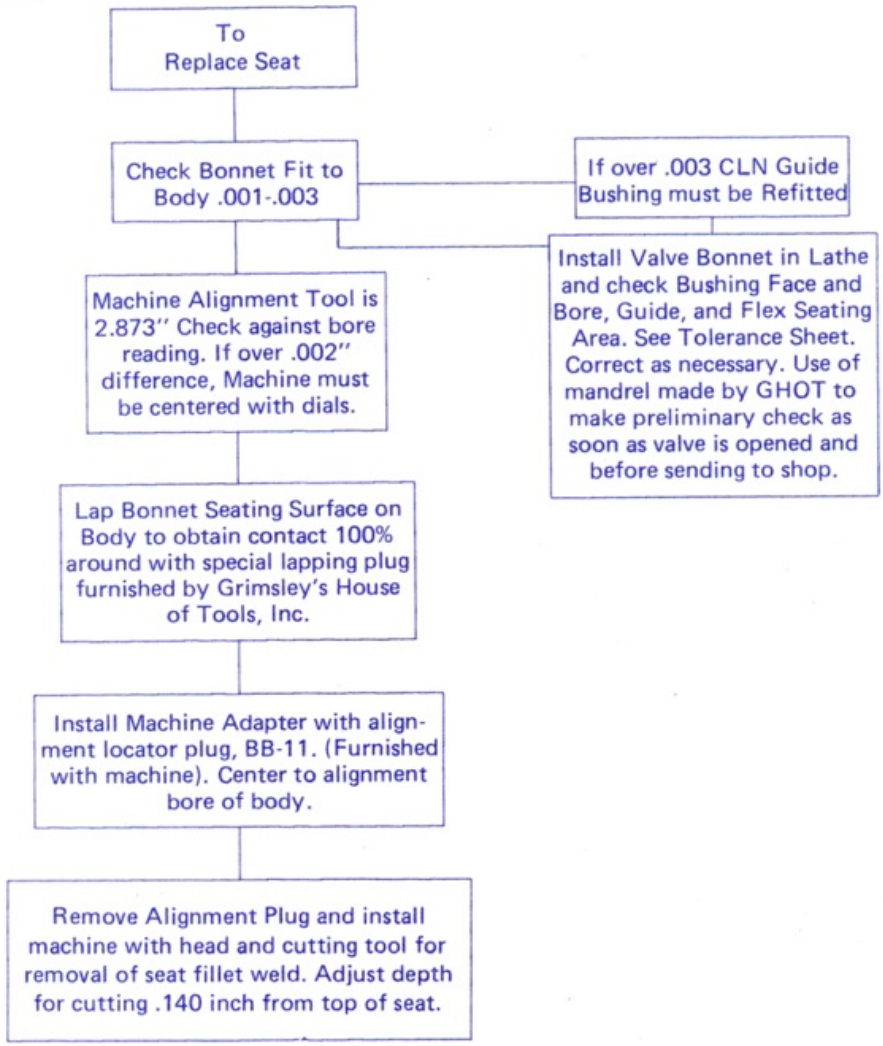
1. Check bonnet. Repair, as necessary.
2. Check bonnet fit to body.
3. Check bonnet bore against alignment tool.
4. Install bonnet and move in bore, taking dial reading to determine clearance.
5. Install machine adapter with alignment plug. Center, using dial indicator.
6. Install adapter head for cutting seal weld. Set machine to cut .140 inch deep from top of seat. Remove seat. If seat cannot be removed, proceed to step 7. Proceed to step 8, if seat comes out.
7. Install head, BB-13, and tool bit, BB-13, for cutting close dia. on seat. Assure dia. is not larger than body alignment bore. Cut seat out.
8. Finish cutting bore down to horizonal surface.
9. Check throat bore for roundness and steam cuts. If out of round, repair, weld and machine.
10. Check horizontal surface for steam cuts and flatness. Repair as necessary. Weld and machine.
11. Machine seat to suit bores (.002" clearance in bottom bore and .005" clearance in top bore for flange fit.)
12. Install new seat in bore. Mike to top of seat outer edge. Tolerance .001" on 4 sides to prove seat is flat and in place.
13. Install hold down fixture and secure to keep seat from cocking up when tack welding.
14. Tack weld seat in a minimum of 3 equal spaces, 4 places if practical, and again check with depth micrometer to be sure seat has not moved.
15. If seat is flat and determined to be perfectly seated, remove hold down fixture, adapter, and proceed to weld seat all around making desired passes with proper welding rod.
16. When welding is finished and valve is cool enough to work, remove safety plug and proceed to check valve bore with valve seat. Use lapping plug with valve plug inserted in lapping plug, blue seating surface of plug. With lapping plug in place, ease the valve plug down to the seating surface in the seat and turn plug lightly. Remove plug and examine to see if plug is seating properly. If found to be in line, proceed to reinstall operating equipment and test.

NOTE: If it is determined that the valve throat is out of round or oversize, use a dial indicator for alignment of the boring bar.
The valve throat bore, valve seat bore and land can all be welded and remachined to bring back to original alignment without removing from blower. See procedure.

Maintenance

Boring Bar and equipment should be thoroughly cleaned after each useage, sprayed with water displacing rust inhibiting chemical before storing in storage case.

Drive motor to be thoroughly cleaned on the outside. Depress throttle valve and pour in approximately one teaspoon of a good light oil, install air hose and run the motor a few revolutions to insure that lubrication has passed through motor before storing.



NOTE: Grimsley's House of Tools will not be responsible for damage caused by erroneous use of this equipment.

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