

Document #	TU-FURY20
Revision	1
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Author	Omar Perdomo
Approved By:	Joshua Johnson

ALPHA FURY 20 HYDRAULIC SETTING TOOL

The Fury 20 Hydraulic Setting Tool, engineered to effortlessly set bridge plugs, cement retainers, and packers using the work string, production tubing, or coil tubing. Its versatile design eliminates the need for rotation, making it particularly suitable for coil tubing and horizontal applications. Simply circulate the ball down to the Fury HST, apply the required pressure from the surface, and disconnect. The tubing will automatically drain as it comes out of the hole.

The Fury 20 requires 2,824 PSI at the tool to shear a 50,000-pound stud (for 7" & larger casing). The Fury HST accommodates most wireline adapter kits commonly used on the Baker No. 20 Wireline Pressure Setting Tool.

Applications:

Designed to run and set the Alpha Model B-1 Bridge Plug, Big Boy™ Bridge plugs and Model B Cement Retainer then squeeze or spot cement in two-trip.

CEMENT RETAINERS AND BRIDGE PLUGS

Model "B-1" Bridge Plug				
Bridge Plug	Adapter Rod	Setting Sleeve	Lock Spring	Adjuster Sub
005-3937-003	005-3937-205	005-3937-200	000-3500-203	000-4240-209
005-4312-003	005-3937-205	005-3937-200	000-4240-203	000-4240-209
005-5375-003	005-5687-205	005-5687-200	000-4240-203	000-4240-209
005-5687-003	005-5687-205	005-5687-200	000-4240-203	000-4240-209
005-6312-003	005-5687-205	005-6312-200	000-4240-203	000-4240-209
005-7125-003	005-5687-205	005-7125-200	000-4240-203	000-4240-209
005-8125-003	005-5687-205	005-8125-200	000-4240-203	000-4240-209
005-9437-003	005-5687-205	005-9437-200	000-4240-203	000-4240-209
005-9937-003	005-5687-205	005-9937-200	000-4240-203	000-4240-209
005-1200-003	005-5687-205	000-1200-200	000-4240-203	000-4240-209
005-1425-003	005-1725-205	000-1425-200	000-4240-203	000-4240-209



FURY 20 Hydraulic
Setting Tool
illustration



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Model "B" Cement Retainer						
Cement Retainer	Adapter Rod	Setting Sleeve	Adapter Sub	Lock Spring	Stinger Locator	Stinger Snap Latch
005-3937-002	005-3937-205	005-3937-200	000-4240-209	000-4240-203	017-3593-070	017-3593-080
005-4312-002	005-3937-205	005-3937-200	000-4240-209	000-4240-203	017-3593-070	017-3593-080
005-4750-002	005-3937-205	005-4750-200	000-4240-209	000-4240-203	017-3593-070	017-3593-080
005-5375-002	005-5687-205	005-5687-200	000-4240-209	000-4240-203	017-5687-070	017-5687-080
005-5687-002	005-5687-205	005-5687-200	000-4240-209	000-4240-203	017-5687-070	017-5687-080
005-6312-002	005-5687-205	005-6312-200	000-4240-209	000-4240-203	017-5687-070	017-5687-080
005-7125-005	005-5687-205	005-7125-200	000-4240-209	000-4240-203	017-5687-070	017-5687-080
005-8125-002	005-5687-205	005-8125-200	000-4240-209	000-4240-203	017-5687-070	017-5687-080
005-9000-002	005-5687-205	005-9000-200	000-4240-209	000-4240-203	017-5687-070	017-5687-080
005-9437-002	005-5687-205	005-9437-200	000-4240-209	000-4240-203	017-5687-070	017-5687-080
005-9500-002	005-5687-205	005-9437-200	000-4240-209	000-4240-203	017-5687-070	017-5687-080
005-9937-002	005-5687-205	005-9937-200	000-4240-209	000-4240-203	017-5687-070	017-5687-080
005-1156-002	005-5687-205	005-1156-200	000-4240-209	000-4240-203	017-5687-070	017-5687-080
005-1200-002	005-5687-205	005-1200-200	000-4240-209	000-4240-203	017-5687-070	017-5687-080
005-1425-002	005-1725-205	005-1425-200	000-4240-209	000-4240-203	017-5687-070	017-5687-080
005-1725-002	005-1725-205	005-1725-200	000-4240-209	000-4240-203	017-5687-070	017-5687-080

Big Boy™ Bridge Plug				
Bridge Plug	Setting Sleeve	Tension Mandrel	Adjuster Sub	Lock Spring
000-4240-002	000-4240-200	000-4240-206	000-4240-209	000-4240-203
000-4750-002	000-4240-200	000-4240-206	000-4240-209	000-4240-203
000-5340-002	000-5610-200	000-5610-206	000-4240-209	000-4240-203
000-5610-002	000-5610-200	000-5610-206	000-4240-209	000-4240-203
000-6090-002	000-6090-200	000-5610-206	000-4240-209	000-4240-203
000-6960-002	000-6960-200	000-5610-206	000-4240-209	000-4240-203
000-7710-002	000-7710-200	000-5610-206	000-4240-209	000-4240-203
000-8690-002	000-8710-200	000-5610-206	000-4240-209	000-4240-203
000-8710-002	000-8710-200	000-5610-206	000-4240-209	000-4240-203
000-9500-002	000-9500-200	000-5610-206	000-4240-209	000-4240-203
000-1156-002	000-1156-200	000-5610-206	000-4240-209	000-4240-203
000-1200-002	000-1200-200	000-5610-206	000-4240-209	000-4240-203
000-1425-002	000-1425-200	000-5610-206	000-4240-209	000-4240-203
000-1725-002	000-1725-200	000-5610-206	000-4240-209	000-4240-203

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GENERAL INFORMATION

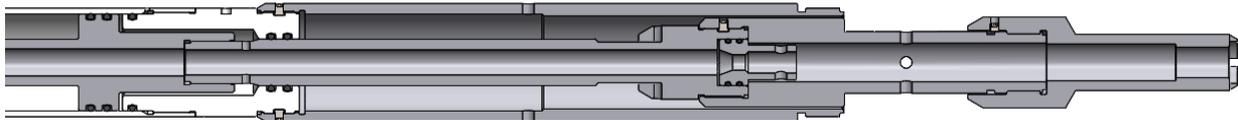
1. Use a casing scraper before running any equipment in the well to remove scale and other materials from the casing wall. Any tool that is expected to grip the casing wall has to first reach the casing wall.
2. Circulate the well to clean the well of debris and junk.
3. Drift the casing ID 80-100 feet below setting depth with a full OD gage ring and junk basket to ensure no restrictions or debris exist.
4. Use the correct Sleeve Valve Cement Retainer for the temperature, pressure, casing size, casing weight and environment.
5. Casing should have 100% cement bond before running the cement retainer in the well.
6. Never set the retainer in a casing collar or a location where milling has occurred.
7. Always set the retainer in static well conditions (no fluid or gas movement).
8. When perforating, the cement retainer should be protected with a minimum of ten feet of cement dumped directly on top of the retainer. Cement should be given sufficient time to harden before perforating.
9. Perforating should not be done closer than fifty feet of cement retainer without putting a minimum of 10 ft. of hard cement on top of retainer.

FIELD ASSEMBLY PROCEDURE

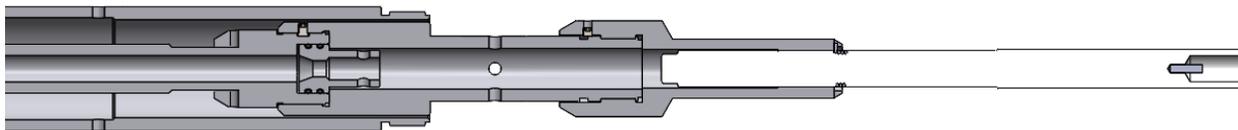
STEP 1: Place the FURY 20 setting tool in vise at the top sub. Place a steady rest under the third Lower Connector for support.



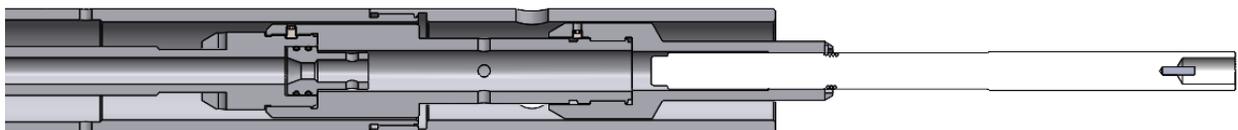
STEP 2: Install and screw the Adjuster Sub on the Bottom Adapter Sub. Install 5/16-18x250 set screw.



STEP 3: Install Lock Spring on Adjuster Sub and screw Adapter Rod on Adjuster Sub.



STEP 4: Install and screw Setting Sleeve on Push Sleeve.



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STEP 5: Align Plug/Retainer with Adapter Rod and screw it into the Adapter Rod. Screw until the Top Slip touch the Setting Sleeve.

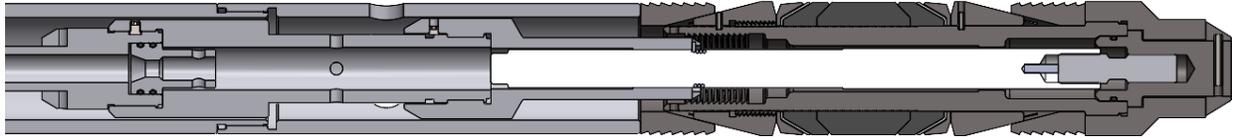


Illustration with 3937 Model "B" Bridge Plug.



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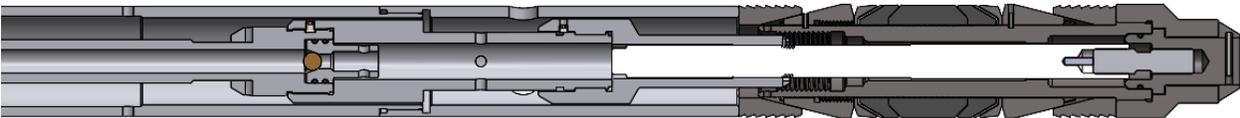
OPERATION PROCEDURE

1. Run the Alpha Fury 20 Hydraulic Setting Tool and BP/CR several feet below the setting depth. Note: The Fury circulation ports are located below the ball seat. These ports will allow the tubing to fill going in the hole or for circulating a maximum rate of ¼ BPM while going in the hole. Well fluid must clean and free of debris (sand) for the HST to work properly. Warning: The setting sequence will begin at 1,355 psi differential pressure in the tubing “at the tool”.



2. Pick up slowly to setting depth to remove slack from tubing string.

3. Drop a 5/8” diameter brass ball and slowly pump down until it has seated (pressure increase).



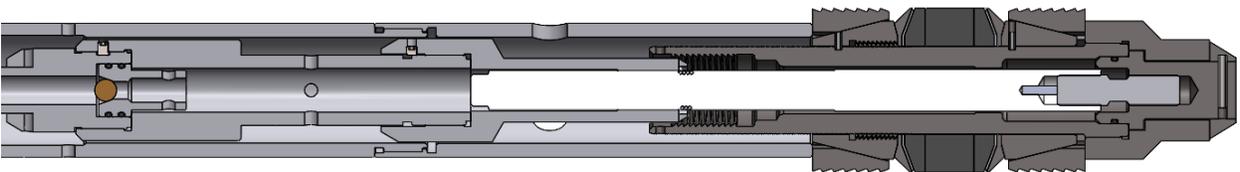
4. Slowly pressure workstring to establish a 1,355 psi (1,855 psi max) differential pressure inside the tubing “at the tool” to begin the setting sequence.

To Shear a 30,000 Pound Shear Stud (5-1/2” – 6” Casing)

5. Continue pressuring workstring to establish a 1,400 psi differential pressure inside the tubing “at the tool” to anchor the BP/CR against the casing wall. Pick up tubing to the neutral position. Hold pressure for 5 minutes.



6. Continue pressuring workstring to establish a 1,695 psi (2,195 psi max) differential pressure inside the tubing “at the tool” to complete the set. Pick up on tubing to determine if disconnected from BP/CR. If the HST has not disconnected from BP/CR then Pick up 1,000 pounds over tubing weight and pressuring workstring again to establish 1,695 psi (2,195 psi max) inside the tubing “at the tool” to complete set. Over pressuring HST will cause damage to tool.

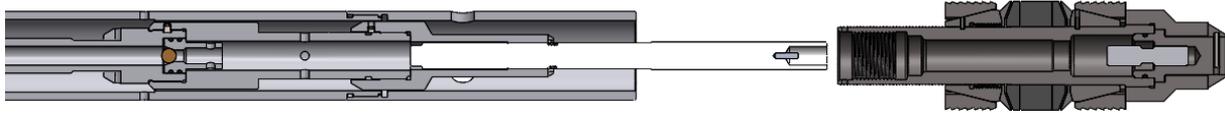


To Shear a 55,000 Pound Shear Stud (7” & Larger Casing)

7. Continue pressuring workstring to establish 1,800 psi differential pressure inside the tubing “at the tool” to anchor the BP/CR against the casing wall. Pick up tubing to the neutral position. Hold pressure for 5 minutes.

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8. Continue pressuring workstring to establish a 3,107 psi (3,607 psi max) differential pressure inside the tubing “at the tool” to complete the set. Pick up on tubing to determine if disconnected from BP/CR. If the HST has not disconnected from BP/CR then Pick up 1,000 pounds over tubing weight and pressuring workstring again to establish 3,107 psi (3,607 psi max) inside the tubing “at the tool” to complete set. Over pressuring HST will cause damage to tool.



9. Apply 1,000 pounds of set down weight to determine if BP/CR is securely set.

10. The Fury 20 HST will automatically dump pressure when fully stroked out. Clean and re-dress Hydraulic Setting Tool and Setting Adapter Kit. Over pressuring HST will cause damage to tool.

TROUBLESHOOTING:

If HST does not disconnect from BP/CR.

30,000 Pound Shear Stud (5-1/2” – 6” Casing)

Pull 1,000 pounds over tubing weight and pressure workstring again to establish a 1,695 psi (2,195 psi max) inside the tubing “at the tool” to disconnect from BP/CR.

If unsuccessful, then bleed off pressure, return tubing to the neutral point and reverse circulate capacity of the tubing (+10 BBL) to remove debris that may be inside the tubing and tool. Circulate Ball back to the Ball Seat then pull 1,000 pounds over tubing weight and pressure workstring again to establish a 1,695 psi (2,195 psi max) inside the tubing “at the tool” to disconnect from BP/CR.

If unsuccessful, then bleed off pressure and pull 30,000 pounds over tubing weight to disconnect from BP/CR. Over pressuring HST will cause damage to tool.

55,000 Pound Shear Stud (7” & Larger Casing)

Pull 1,000 pounds over tubing weight and pressure workstring again to establish a 3,107 psi (3,607 psi max) inside the tubing “at the tool” to disconnect from BP/CR.

If unsuccessful, then bleed off pressure, return tubing to the neutral point and reverse circulate capacity of the tubing (+10 BBL) to remove debris that may be inside the tubing and tool. Circulate Ball back to the Ball Seat then pull 1,000 pounds over tubing weight and pressure workstring again to establish a 3,107 psi (3,607 psi max) inside the tubing “at the tool” to disconnect from BP/CR.

If unsuccessful, then bleed off pressure and pull 55,000 pounds over tubing weight to disconnect from BP/CR. Over pressuring HST will cause damage to tool.

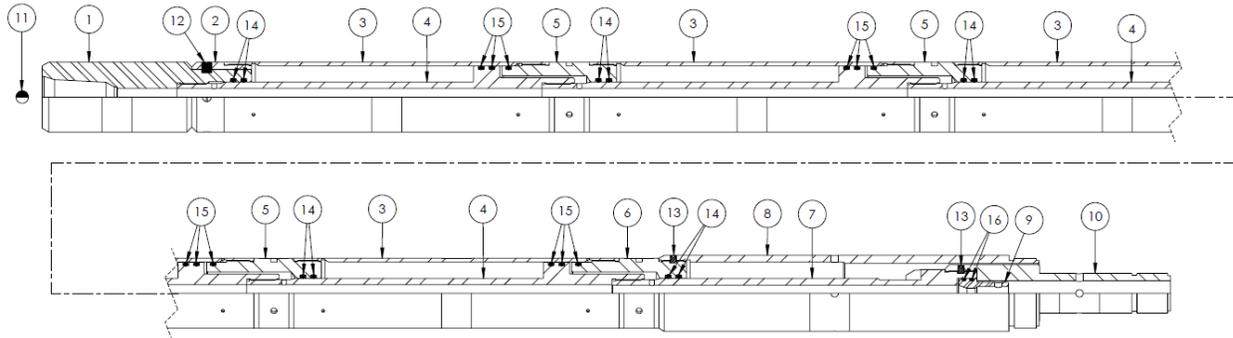
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ASSEMBLY INSTRUCTIONS FOR FURY 20 HYDRAULIC SETTING TOOL

Anti-galling compound should be used on all threads. Downhole grease should be used on all O-rings. To avoid damage to parts, use a soft jaw vise and strap wrenches when tightening connections. Wrench on knurled areas or utilize spanner holes. File away wrench marks.

NOTE: Wrench tight means putting your weight on the end of a 24" pipe wrench. Screwdriver tight means hand tight with a medium blade 6" long screwdriver.

FURY 20 HYDRAULIC SETTING TOOL ASSEMBLY ILLUSTRATION

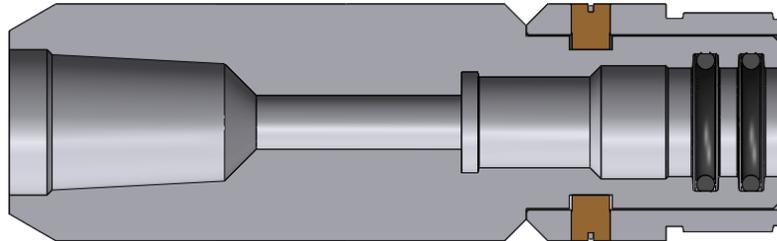


ITEM NO.	PART NUMBER	PART NAME	QTY.
1	019-3500-220	TOP SUB	1
2	019-3500-221	CYLINDER CAP	1
3	019-3500-222	CYLINDER	3
4	019-3500-223	PISTON	3
5	019-3500-225	LOWER CONNECTOR	2
6	019-3500-225	LOWER CONNECTOR	1
7	060-3812-227	BALL SEAT HOUSING	1
8	060-3812-226	PUSH SLEEVE	1
9	060-3812-228	BALL SEAT	1
10	060-3812-235	BOTTOM ADAPTER SUB	1
11	019-3500-236	.625 BRASS BALL	1
12	062-4500-128	SHEAR SCREW	4
13	313S18X375	5/16-18 X .375 SET SCREW	3
14	000-325-N090	325 O-RING	8
15	000-335N-090	335 O-RING	9
16	000-218N-070	218 O-RING	2

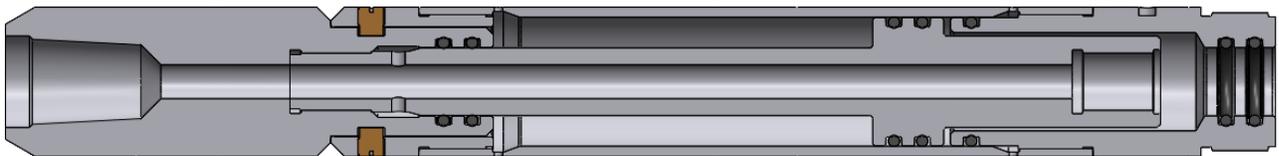
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FURY 20 HYDRAULIC SETTING TOOL ASSEMBLY STEPS

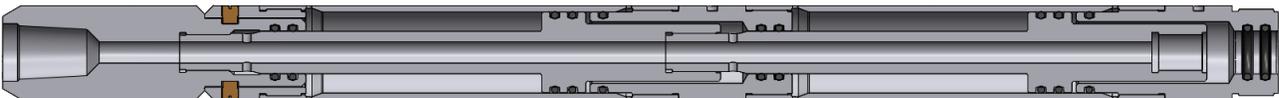
1. Grease all threads and O-ring surfaces.
2. Install O-rings (item 14) inside Top Sub (item 1). Place Top Sub in vise at box connection. Slide Cylinder Cap (item 2) on Top Sub. Install (4) Brass Shear Screws (item 12) in groove screwdriver tight then back-off 1/8 turn.



3. Install O-rings (item 15) on Piston (item 4). Screw first Piston in Top Sub wrench tight. Lubricate entire ID of first Cylinder (item 3) with Mobil Grease HP. Slide Cylinder (item 3) over Piston and screw to Cylinder Cap (item 2). Make strap wrench tight by holding back up at Cylinder Cap with spanner wrench. Install O-rings (item 15 and 14) on Upper Connector (item 5). Screw first Upper Connector in Cylinder and make spanner wrench tight.



4. Screw second Piston (item 4) with installed O-rings (item 15) in previous Piston wrench tight. Lubricate entire ID of second Cylinder (item 3) with Mobil Grease HP. Slide Cylinder (item 3) over Piston and screw to Upper Connector (item 5). Make strap wrench tight by holding back up at Cylinder Cap with spanner wrench. Screw second Upper Connector (item 5) with installed O-rings (item 15 and 14) in Cylinder and make spanner wrench tight.



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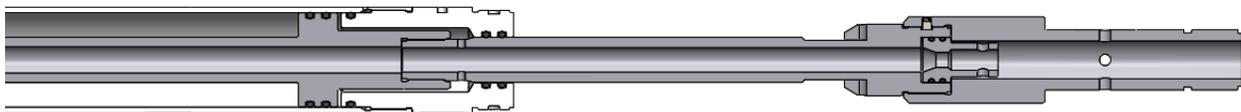
- Screw third Piston (item 4) with installed O-rings (item 15) in previous Piston wrench tight. Lubricate entire ID of third Cylinder (item 3) with Mobil Grease HP. Slide Cylinder (item 3) over Piston and screw to Upper Connector (item 5). Make strap wrench tight by holding back up at Cylinder Cap with spanner wrench. Screw Lower Connector (item 6) with installed O-rings (item 15 and 14) in Cylinder and make spanner wrench tight. Note: The Lower Connector (item 6) differs from the Upper Connector (item 5) with a spot face/tapped hole in the lower thread and the OD is knurled.



- Slide upper end of Ball Seat Housing (item 7) through Lower Connector (item 6) then screw to lower end of previous Piston wrench tight. Wrench at knurled area on Ball Seat Housing.



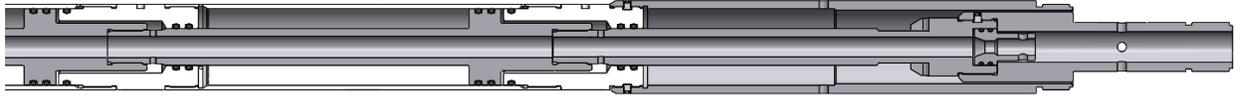
- Internally test 3-hydraulic chambers with air to check for cut or missing O-rings. Temporally install solid ball seat (060-3812-248) in lower end of Ball Seat Housing (item 7). Screw Bottom Adapter Sub (item 10) on Ball Seat Housing (item 7) wrench tight. Wrench at knurled area on Ball Seat Housing. **Make sure Top Sub (item 1) is secure in pipe vise, tighten both brass shear screws (item 12) then connect air test fixture.** Make 1-1/2" MT connection wrench tight and close on/off valve. Connect airline, open on/off valve and allow air to fill HST, then close valve. If gage is steady for 2-minutes and no flow of air can be heard then HST is tested. If a steady air test cannot be achieved then HST must be disassembled to find the cause. Bled air pressure to zero and remove Bottom Adapter Sub (item 10) by placing a back up at knurled area on Ball Seat Housing. Remove Solid Ball Seat (item 060-3812-248). Install Ball Seat (item 9) with O-rings (item 16) in lower end of Ball Seat Housing (item 7). Screw Bottom Adapter Sub (item 10) on Ball Seat Housing (item 7) wrench tight. Install Socket Head Set Screw (item 13).



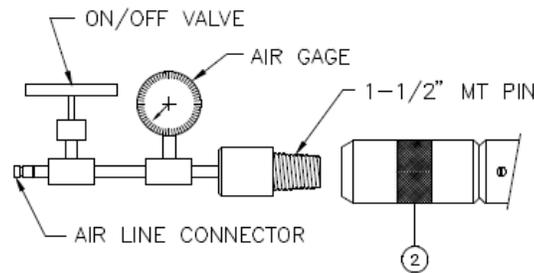
- If it is desired to run HST with a solid seat "no ball" then install Optional Solid Seat (060-3812-248) in lower end of Ball Seat Housing and replace Ball Seat (item 9).

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- Screw Push Sleeve (item 8) to Lower Connector (item 6). Make spanner wrench tight. Install (2) Low Head Socket Cap Screws (item 13).



- Re-tighten Brass Shear Screws (item 12). Connect airline, open on/off valve and allow air to flow through HST to ensure the internal flow path is free and clear (no ball is in place). File away all wrench marks. Remove air test fixture.



Air Test Fixture

DISASSEMBLY OF THE MECHANICAL SETTING TOOL

- Drain all well fluids from Hydraulic Setting Tool and dispose of properly. Place Top Sub (item 1) in pipe vise and close setting stroke gap between Top Sub (item 1) and Cylinder Cap (item 2) by pushing outer components upward towards pipe vise. Keep hands clear of this area during procedure.
- Disassembly is basically the reverse operation of the assembly with the exception of the Pistons (item 4), Cylinders (item 3) and Connectors (item 5 & 6). Occasionally these items break at locations other than intended. If this occurs remove Lower Connector and slide down enough to place a wrench on the previous pistons knurled area.
- Visually inspect each component for wear especially the Ball Seat area. Remove all O-rings and discard properly. Clean all parts thoroughly then re-assembly Hydraulic Setting Tool complete with new O-rings. Label outside of Hydraulic Setting Tool with the description, part number, ball size and type O-ring kit.

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FURY 20 HYDRAULIC SETTING TOOL DIMENSIONAL DATA

