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INSTALLATION AND MAINTENANCE INSTRUCTION MANUAL

**TYPE H2 NOM 2”
5M/10M CWP**

**ADJUSTABLE CHOKE
AND
POSITIVE CHOKE ASSEMBLIES**

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	Drawing PN: 207505522 for Reference Only	

I. OPERATION

Your H2 choke uses the needle and seat principle to provide fully adjustable flow. Varying the size of the calibrated orifice is achieved by rotating the hand wheel to obtain the desired flow rate, or downstream pressure. The orifice size is read from the indicator, which is calibrated in the 64ths of an inch and is in line with a V-notch machined into the top of the bonnet.

The positive choke is a fixed orifice version of the adjustable choke. The flow rate or downstream pressure is controlled by the flow bean orifice size selected. Flow beans are available in proration or standard type beans.

II. INSTALLATION

Install your choke so that the flow is in line with the inlet connection, making a 90 degree turn and then exiting through the outlet orifice. Your choke can be mounted in any orientation without affecting its performance; as long as the flow enters the choke at the inlet and exits through the outlet.

III. MAINTENANCE

Inspect your choke regularly for excessive wear. Parts normally replaced at service intervals are choke seat, stem packing, bonnet o-ring and stem. Be sure to lubricate stem threads, o-ring groove, and the inside diameter of the stem packing.

IV. DISASSEMBLY OF ADJUSTABLE CHOKE

1. With choke in the open position, bleed all pressure from system.
2. Loosen bonnet nut by striking the lugs with a hammer in a counter-clockwise direction.



CAUTION: If an excessive amount of pressure escapes between the bonnet and the bonnet nut, stop disassembly procedure and ensure that the system pressure is off the choke.

3. Unscrew bonnet nut from body. Pull bonnet assembly out of body.
4. Remove bonnet o-ring from o-ring groove in choke body.

Disassemble Bonnet Assembly:

1. Remove hand wheel nut and washer.
2. Remove hand wheel.
3. Loosen indicator set screw.
4. Remove indicator from stem.
5. Remove thumb screw.
6. Remove nylon ball from thumb screw hole.
7. Remove bonnet nut.
8. Invert bonnet for easy access to stem packing.
9. Remove retaining ring.
10. Remove junk ring.
11. Grasping the bonnet, rotate the stem counter-clockwise until stem passes through the stem packing.
12. Remove stem packing.
13. Remove bonnet o-ring.

The bonnet assembly is now completely disassembled, make a visual inspection of stem for signs of wear or damage. Required replacement parts are stem packing and bonnet o-ring.

Replacement of the stem may be required if the flow medium has altered or worn the cone shaped point of the stem.

Choke Seat Removal:

Using a bean/seat wrench, remove seat by sliding wrench over the seat hex. Turn wrench counter-clockwise to unscrew seat from body. Normally, the seat can be lifted out of the body with the wrench. Visually inspect seat for excessive wear or damage, replace if necessary. Always replace seat gasket.

V. ASSEMBLY OF ADJUSTABLE CHOKE

Choke Seat Installation:

Make sure choke seat has a new seat gasket before installing choke seat in body.

Holding the choke seat hex with the seat wrench, lubricate the choke seat threads and then place the seat in the choke body. With the seat wrench gripping the seat hex, turn the wrench clockwise to tighten (75-125 ft. lbs.) to seat into position. Remove the seat wrench. Remove seat wrench and store for future use. Lubricate o-ring groove in choke and place the o-ring in groove.

Note: Use of a good anti-seize compound is recommended for seat threads

Bonnet Assembly:

1. Replace any worn or damaged parts.
2. Apply lubricant to stem threads, place stem in bonnet through packing gland. Turn stem clockwise to thread stem into bonnet.
3. Lubricate inside diameter of new stem packing and packing gland. Slide packing down stem into packing gland.
4. Slide junk ring stem into packing gland.

Note: The direction of the “V” type stacked packing is important for proper operation. The “V” shape must be positioned such that the open end of the “V” shape has the internal pressure of the choke acting on it.

5. Slide retaining ring down stem into packing gland.
6. Install bonnet wing nut on bonnet.
7. Drop nylon ball into thumb screw hole and install thumb screw.
8. Install indicator on stem. * See indicator adjustment instructions for proper calibration on (Page 6).
9. Install hand wheel followed by stem washer and nut. Tighten nut on hand wheel to a recommended 30 ft. lbs. of torque.

Note: Bonnet assembly is ready to be installed in the body. Before installing bonnet, check these items:

- i. Choke seat and gasket are installed in body.
- ii. Body bonnet entry end (for bonnet o-ring) is lubricated and o-ring has been installed.
- iii. Stem packing and junk ring are in place with retaining ring inside groove.
- iv. Stem is in the full open position.



CAUTION: Damage to the stem, choke seat or both will result if the stem is not in the open position while hammering the bonnet nut tightly into position.

10. Carefully slide stem and bonnet into body. Thread wing nut onto body, lock bonnet in place by striking bonnet nut on lugs with hammer.

VI. POSITIVE CHOKE

The positive choke H2 is a fixed orifice version of the adjustable choke. Your choke can easily be converted into a positive choke by replacing the choke seat with a choke bean, and the adjustable bonnet with a blanking cap & nut.

VII. DISASSEMBLY OF POSITIVE CHOKE

1. Bleed all pressure for system in which choke is located.
2. Loosen wing nut by striking the lugs of the nut with a hammer in a counter-clockwise direction.



CAUTION: If an excessive amount of pressure escapes between the blanking cap and wing nut, stop disassembly procedure and ensure that the system pressure is off the choke.

3. Unscrew wing nut from body, remove blanking cap, and wing nut as an assembly.
4. Remove o-ring from o-ring groove in the body and dispose.
5. Refer to the Choke Seat Removal section on (Page 3), for the choke seat and bean removal procedure.

VIII. ASSEMBLY OF POSITIVE CHOKE

1. Refer to the Choke Seat Installation section on (Page 4), for the choke seat installation procedure.
2. Lubricate blanking cap and place o-ring in groove.

Note: Before placing blanking cap and wing nut assembly in place, check to be sure that the choke bean and o-ring are in the body.

3. Place blanking cap and wing nut assembly on choke body and screw tight.
4. To lock blanking cap in place, strike the lugs of the wing nut with a hammer.

The only part that must be replaced at maintenance intervals or whenever blanking cap is removed is the o-ring. The choke bean may need to be replaced, depending upon the amount of wear or damage.

X. INSTRUCTIONS FOR SETTING ADJUSTABLE CHOKE INDICATORS

1. The bonnet features a notch for aligning and reading the indicated orifice size. On the side of the bonnet (usually 180 degrees from the notch), there is a $\frac{3}{4}$ inch hole set screw access hole.

Note: The set screw access hole, as shown on the Indicator Detail Diagram, (Page 7), is not applicable to HH2 chokes

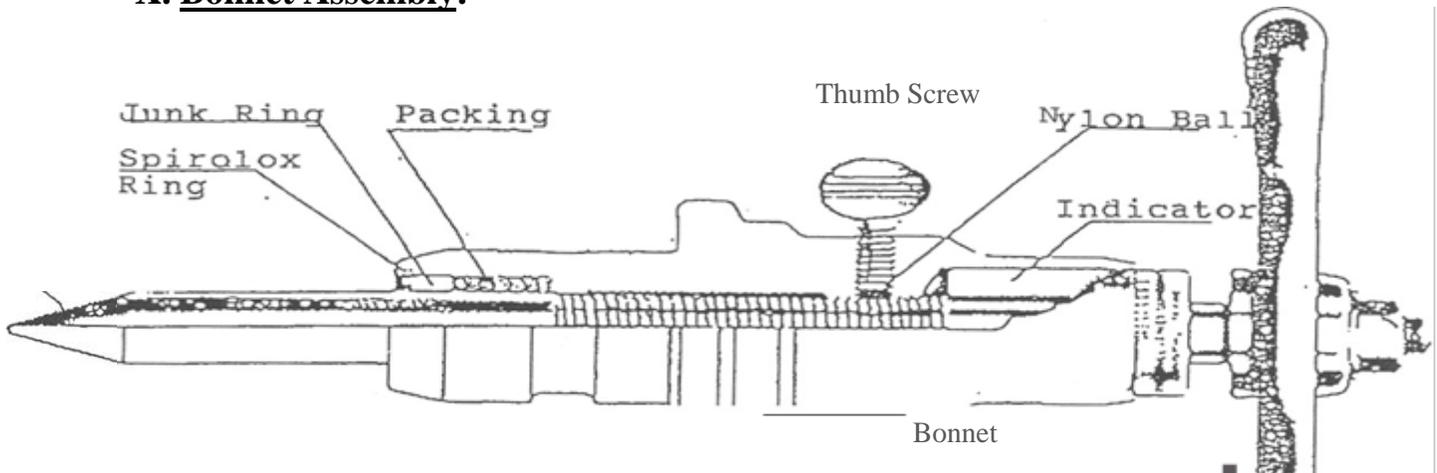
2. Rotate hand wheel until indicator set screw is visible in the $\frac{3}{4}$ inch hole, or at the top of the bonnet.
3. Loosen set screw to allow the indicator to move independently of the stem.
4. Turn hand wheel toward the closed direction until the stem is seated in the seat.



CAUTION: Chokes with tungsten carbide trim may crack or break if the stem is forced into the seat with excessive force. Chokes by design, are not to be used as shut-off valves.

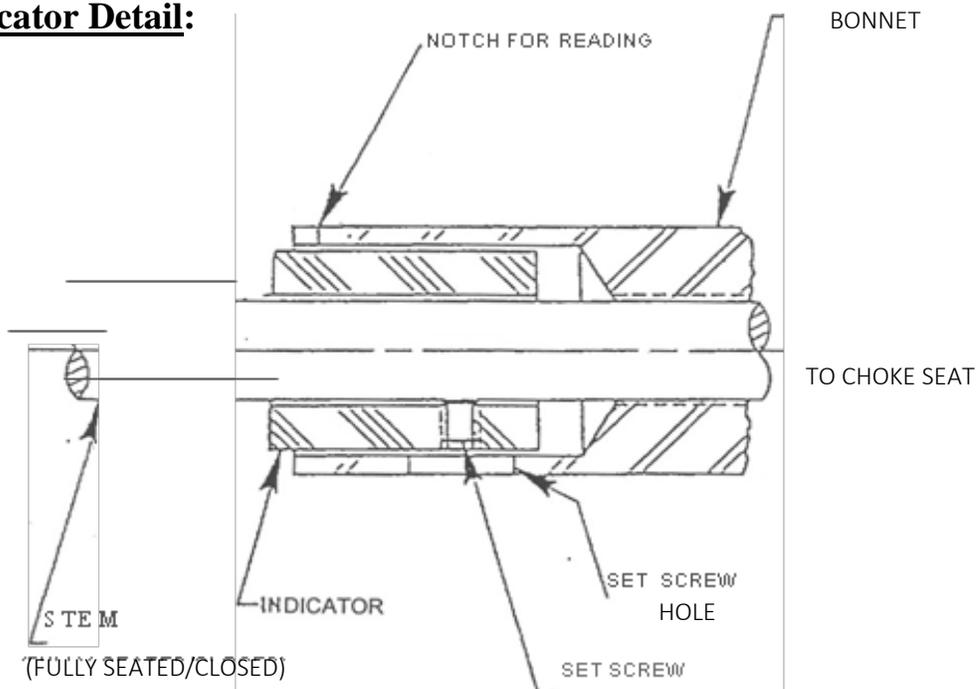
5. With the stem seated in the choke seat, make indicator adjustment. Using a $\frac{5}{32}$ inch Allen wrench in the set screw, move the indicator so the zero (0) reading is lined up with the notch. Tighten set screw.
6. The indicator should be set to the proper corresponding orifice size. To check, rotate hand wheel to the full open position, then back to the seated position. The indicator should read zero (0). If not, readjust by repeating step numbers (2) through (5).

X. Bonnet Assembly:



Note: Apply a generous coating of anti-seize compound to stem threads to prevent galling.

Indicator Detail:



Procedure for Setting Indicator:

With choke in fully closed position align mark (64ths increments) on indicator with notch on bonnet. Tighten set screw. Indicator is now set in proper calibration.

Note: Indicator must match the seat size, (i.e. $\frac{3}{4}$ inch indicator with $\frac{3}{4}$ inch seat, 1 inch indicator with 1 inch seat).

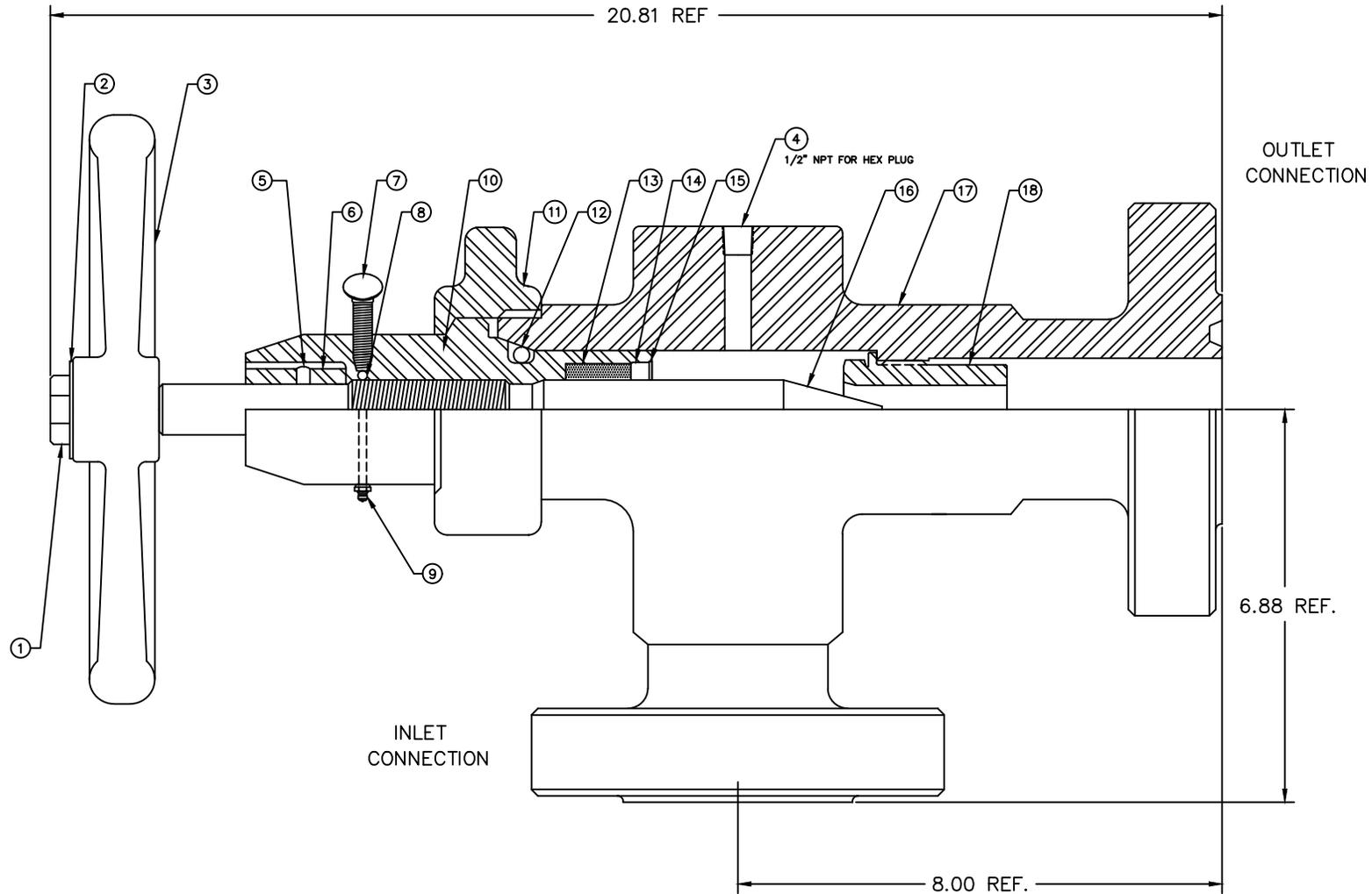
XI. RECOMMENDED SPARE PARTS FOR TWO YEARS SERVICE

Part No.	Description	Quantity
1208	Stem, Hardened Steel 1”	2
1209	Stem, SSTC 1”	2
1202	Stem Packing	6 Sets
1590	Internal Retaining Ring	6
1205	Bonnet O-ring	10
1415	Seat, Hardened Steel 1”	2
1204	Seat, SSTC 1”	2

Note: When in severe and critical service, with highly abrasive flow medium, the above items will require more frequent inspection and replacement.

XII. DISCLAIMER

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PARTS LIST

ITEM	QTY.	NAME OF PART	PART NO.	ITEM	QTY.	NAME OF PART	PART NO.
1	1	HEX BOLT	1542	10	1	BONNET	1538
2	1	WASHER	1011	11	1	WING NUT	1536
3	1	HANDWHEEL	1522	12	1	O-RING	1205
4	1	HEX PLUG (NOT SHOWN)	1212	13	1	PACKING SET	1202
5	1	SET SCREW	1007	14	1	JUNK RING	1206
6	1	INDICATOR 1"	1207	15	1	RETAINING RING	1590
7	1	THUMB SCREW	1003	16	1	STEM SSTC	1209
8	1	NYLON BALL	1004	17	1	BODY 2 1/16 FLG.	1539
9	1	GREASE FITTING	1013	18	1	SEAT SSTC 1"	1204

MAX. 1" ORIFICE

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HOUSTON OILFIELD EQUIPMENT, INC.

HOUSTON, TEXAS

		6/17	
		DATE	
Drawn	MPW	STANDARD TOLERANCES	
Chk'd.	OTB	.X = ±.06 FRAC = 1/32	
Appd.	OTB	.XX = ±.02 ANGLE = ±1/2°	
		.XXX = ±.005 FINISH = 125√	
TYPE HH2 ADJ CHOKE			
2 1/16 5M CWP FLANGED			
W/ 1" SSTC TRIM			
SIZE	DWG.	207505522	REV.
A	NO.		