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INSTALLATION AND MAINTENANCE INSTRUCTION MANUAL

2" 5M-CWP H-JWA & H-PC

**ADJUSTABLE CHOKE
AND
POSITIVE CHOKE ASSEMBLIES**

Table of Contents

		Page
I.	Operational	2
II.	Installation	2
III.	Maintenance	2
IV.	Disassembly of Adjustable Choke	2
	Disassemble Bonnet Assembly	3
	Choke Seat Removal	3
V.	Assembly of Adjustable Choke	4
	Choke Seat Installation	4
	Bonnet Assembly	4/5
VI.	Positive Choke	5
VII.	Disassembly of Positive Choke	5
VIII.	Assembly of Positive Choke	6
IX.	Instructions for Setting Adjustable Choke Indicators	6
X.	Bonnet Assembly and Indicator Diagram	7
XI.	Recommended Spare Parts	8
XII.	Disclaimer	9
	Drawing PN:203505521 for Reference Only	

I. OPERATION

Your H-JWA adjustable 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 64ths of an inch and is in line with a V-notch machined into the top of the bonnet.

The HP-C 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.



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. Grasping the bonnet, rotate the stem counter-clockwise until stem passes through the stem packing.
11. Remove junk ring.
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.

If the flow medium has worn the cone shaped part of the stem, replacement of the stem will be required.

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.

V. ASSEMBLY OF ADJUSTABLE CHOKE

Choke Seat Installation:

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.

Bonnet Assembly:

1. Replace any worn or damaged parts.
2. Lightly lubricate inside of bonnet packing gland area.
3. Lubricate stem threads, insert top of stem into bonnet packing gland and turn stem clockwise to thread stem into bonnet.

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.

4. Lubricate outside diameter of new stem where packing will be positioned.
5. Slide packing one (1) or two (2) rings at a time over the tip of stem and press into packing gland until all rings are installed.
6. Slide junk ring over stem tip end and flat against packing adapter. Slight tapping may be necessary.
7. Place retaining ring over stem tip end and relocate into the retaining ring groove in the end of packing box.
8. Lubricate bonnet o-ring groove and install o-ring on bonnet.
9. Rotate stem to ensure smooth operation of stem. Next, install wing nut and retainer spring on bonnet.
10. Drop the nylon ball into thumb screw hole and install thumb screw.
11. Install indicator on stem *See Indicator Adjustment Instructions for proper calibration on (Page 6).
12. Install hand wheel followed by stem washer and nut.

Note: Bonnet assembly is ready to be installed on the body. Before installing bonnet check the following items:

- i. Choke seat is in the body.
- ii. Body o-ring is installed and lubricated.
- 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.

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

VI. POSITIVE CHOKE

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

VII. DISASSEMBLY OF POSITIVE CHOKE

1. Bleed all pressure from system in which choke is located.
2. Loosen wing nut by striking the lugs of the nut with a hammer.



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, wing nut and o-ring
4. Refer to Choke Seat Removal section on (Page 3), for the removal procedure for choke seats or beans.

VIII. ASSEMBLY OF POSITIVE CHOKE

1. Refer to the Choke Seat Installation section on (Page 4), for the seat installation instructions.
2. Lubricate blanking cap o-ring groove and install oring.

Note: Before installing blanking cap and wing nut, make sure that the choke bean is tight in the body.

3. Place blanking cap and wing nut assembly on choke body and thread tightly.
4. Lock blanking cap into place by striking 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.

IX. INSTRUCTIONS FOR SETTING ADJUSTABLE CHOKE INDICATORS

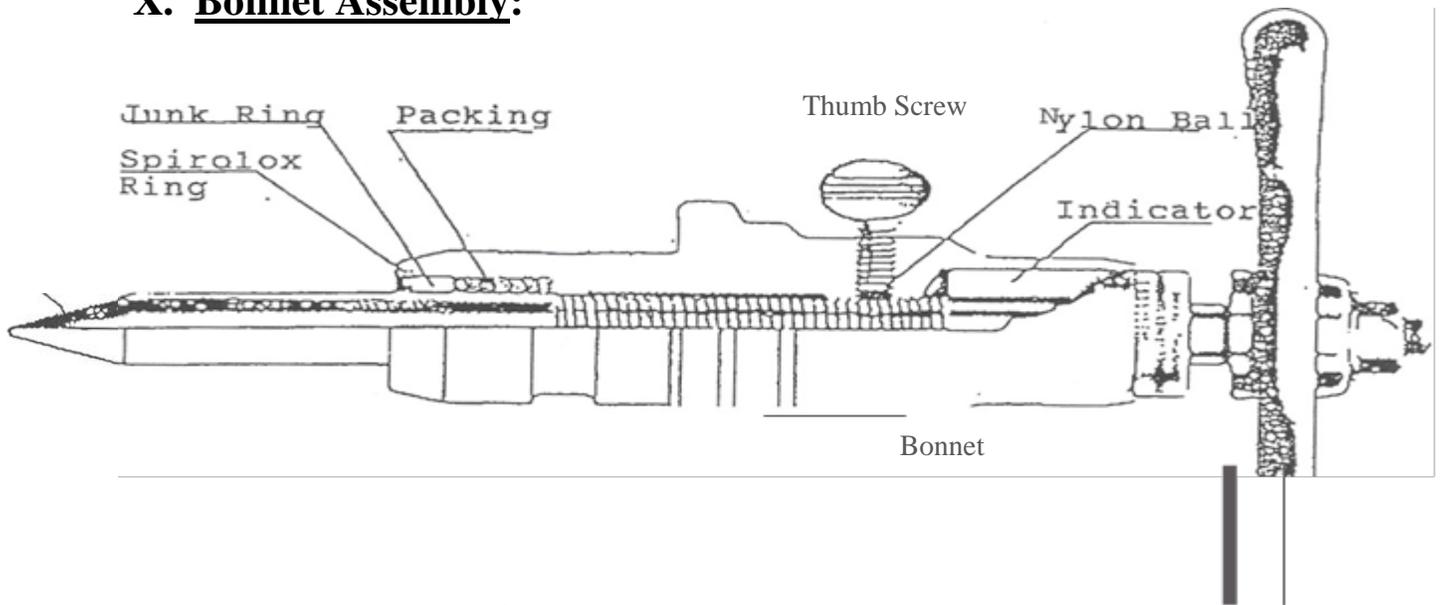
1. The bonnet features a notch for aligning and reading the indicated orifice size. On the side of the bonnet (usually 180 degrees from the notch) there is a $\frac{3}{4}$ in. set screw access hole.
2. Rotate hand wheel until indicator set screw is visible in the $\frac{3}{4}$ in. hole, or at the top of 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.

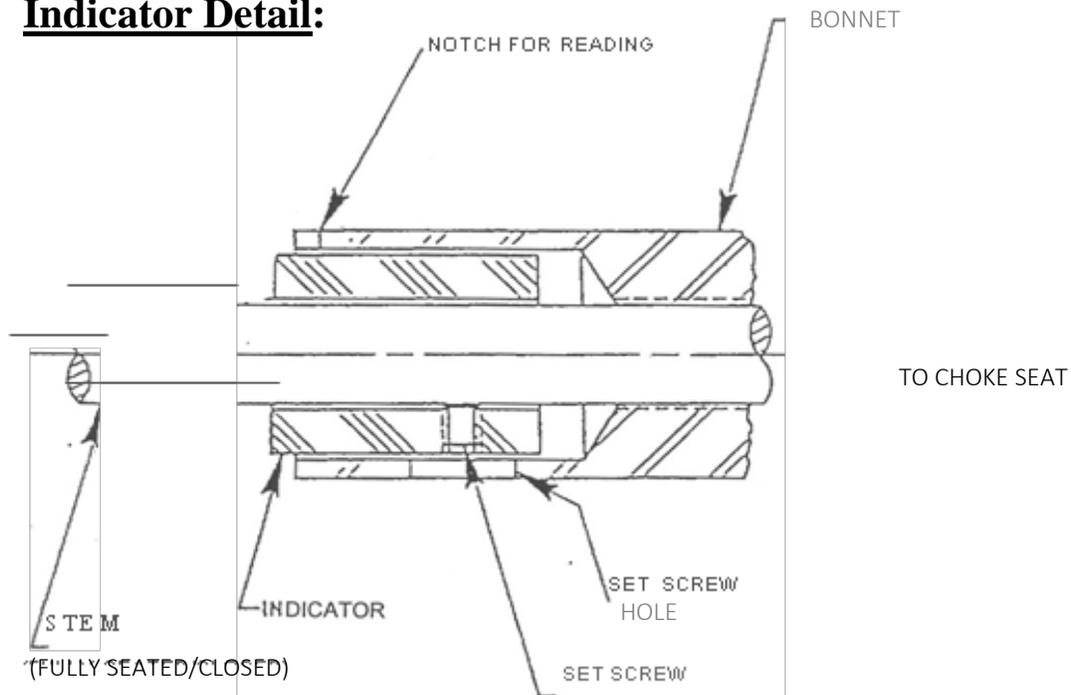
5. With the stem seated in the choke seat, make indicator adjustment. Using a $\frac{5}{32}$ in. Allen wrench in the set screw, move the indicator so that the zero (0) reading is lined up with the notch. Tighten set screw.
6. The indicator should be set to the proper corresponding orifice size. To check, 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: The indicator must match the seat size, (i. e. $\frac{3}{4}$ inch indicator- $\frac{3}{4}$ inch seat).

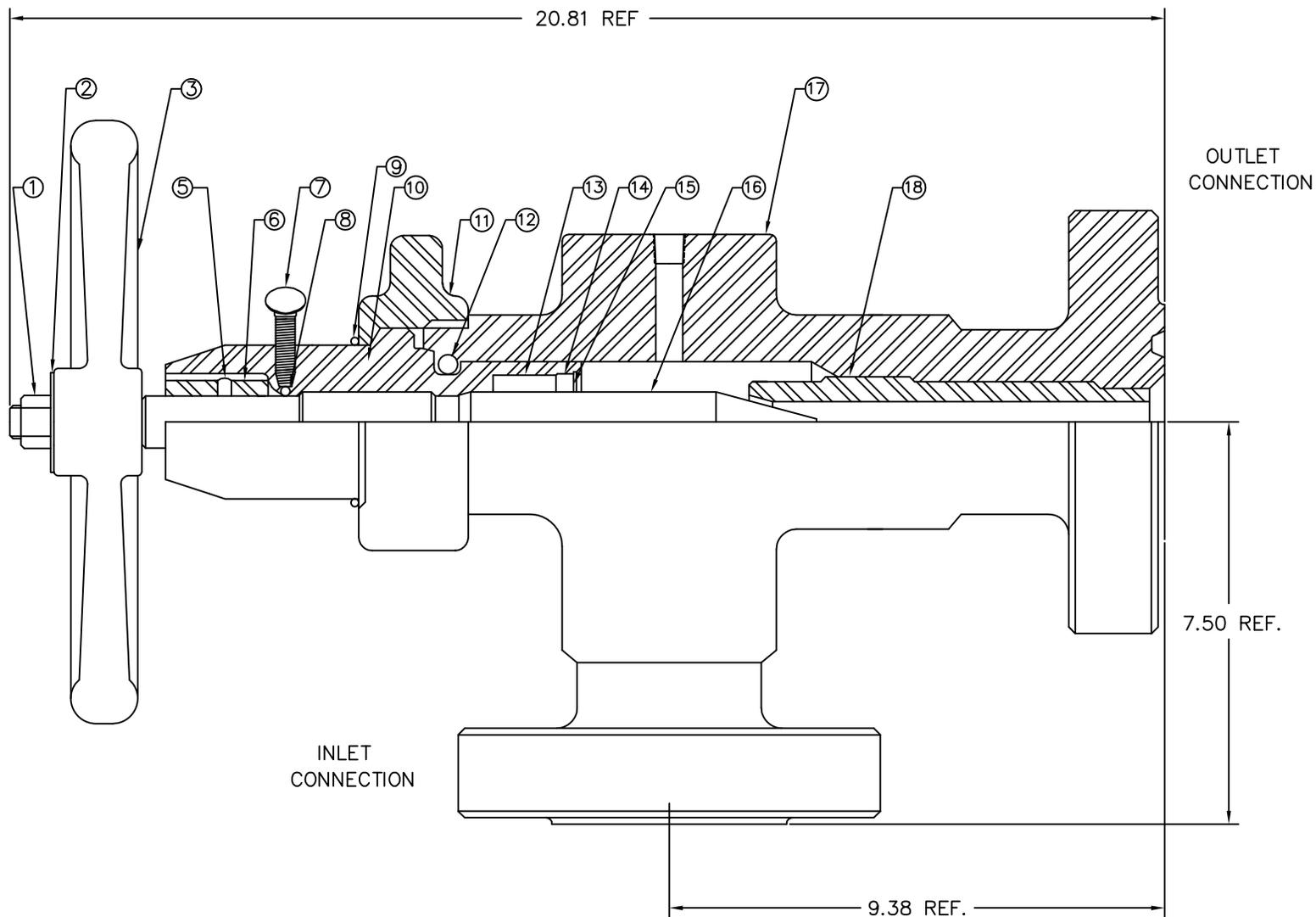
XI. RECOMMENDED SPARE PARTS FOR TWO YEARS SERVICE

Part No.	Description	Quantity
1068	Stem, Hardened Steel ¾"	2
1070	Stem, Stainless Steel TC ¾"	2
1079	Stem Packing	6 Sets
1080	Retaining Ring	6
1134	Bonnet O-ring	10
1030	Seat, Hardened Steel ¾"	2
1032	Seat, Stainless Steel TC ¾"	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 NUT	1024	10	1	BONNET	1132
2	1	WASHER	1023	11	1	WING NUT	1137
3	1	HANDWHEEL	1044	12	1	O-RING	1134
4	1	HEX PLUG	1212	13	1	PACKING SET	1079
5	1	SET SCREW	1007	14	1	JUNK RING	1081
6	1	INDICATOR 3/4"	1009	15	1	RETAINING RING	1224
7	1	THUMB SCREW	1003	16	1	STEM SSTC 3/4"	1070
8	1	NYLON BALL	1004	17	1	BODY 2 1/16 FLG.	1139
9	1	SPRING RETAINER	1039	18	1	SEAT SSTC 3/4"	1032

1/2" N.P.T. TEST PORT
STANDARD ON ALL MODELS
UNLESS STATED OTHERWISE

MAX. 1" ORIFICE

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Drawn	MPW	STANDARD TOLERANCES	
Chk'd.	OTB	.X = ±.06	FRAC = 1/32
Appd.	OTB	.XX = ±.02	ANGLE = ±1/2°
		.XXX = ±.005	FINISH = 125



**HOUSTON OILFIELD
EQUIPMENT, INC.**

HOUSTON, TEXAS

ADJUSTABLE CHOKE HJWA
5M CWP FLANGED 2 1/16
W/ 3/4" SSTC TRIM

DATE	7/97	REV.	A
SIZE	DWG. NO.	203505521	REV. A