

Upper Completions

7.000" x 2.875" CPW Packer

Technical Unit: TU1003

REVISION B
August 8th, 2023

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A. INTRODUCTION

CPW Retrievable Squeeze Packer is designed to perform all the tasks required of a retrievable stimulation and work over packer and withstand high pressures from above or below. It can be used in all types of squeeze cementing, fracturing, and acidizing with subsequent testing.

The hydraulically actuated hold down slips and mechanical lower slips are carbide tipped for long and dependable service. The CPW's packing element system is the proven three-section type, but it is heavier and more reliable than packer systems with an integral bypass.

This packer runs with a separate unloader, such as the Locking Compression Unloader, eliminating the possibility of pumping open that can occur with many equalizing valves.

B. SPECIFICATIONS

DIMENSIONAL SPECIFICATION						
CASING		TOOL				CONNECTIONS
SIZE	WEIGHT	OD		ID		
inches	#	inches	mm	inches	mm	
7	17 to 23	6.219	157.96	2.50	63.50	2-7/8 EU8RD
	20 to 29	5.969	151.61	2.50	63.50	
	32 to 38	5.750	146.05	2.50	63.50	
6-5/8	20 to 24	5.750	146.05	2.50	63.50	



C. OPERATIONAL PROCEDURES

Precautions

- Ensure all connections are correctly tightened.

C-1 Setting Procedures

1. Make up packer onto bottom end of tubing string and run packer to depth desired.
2. Pick up slack in tubing string, rotate left or right $\frac{1}{4}$ turn at the packer (depending on J-slot configuration) and set weight down on packer.
3. Set sufficient weight to pack off elements and keep weight on packer while performing remedial or other operations. As a guide, the weight required should be no more than twice the casing O.D. in points (14,000 lb. in 7" casing). Various factors, such as temperature and rubber durometer, can affect this.
4. Pressure in the tubing string will be directed around the volume tube, and act on the hold down slips, preventing the tubing from being pumped up the hole.

C-2 Retrieving Instructions

1. Pick up tubing string. Packer should be free to move up the hole. If the J-slot is automatic, the packer will latch back in the run-in position and can be run down hole as well.
2. If resetting a manual J-slot configuration at a lower depth, rotate tubing the opposite direction from that used to set the packer. The packer will then latch back in the run-in position and can be run down hole.

C-3 Assembly Instructions

NOTE: The following instructions don't list obvious steps, such as application of grease or taking care with seal surfaces. It is important, however, to pack grease in the area between the outside of the volume tube and the inside of the hold down receptacle, to ensure cement or acids can't damage the hold down slips.

1. Assemble hold down slips (8), with O-rings (6, 9 & 13) installed, into hold down receptacle (2). Install hold down springs (11) and retain with hold down straps (12) and hold down screws (10). Screw cap (5) and upper gage (16) (LEFT HAND THREAD) onto hold down receptacle. Slide volume tube (10), with O-ring (4) installed, into upper end of hold down receptacle. Retain ends of hold down straps with upper strap retainer (4) and lower strap retainer (14). Ensure that set screw holes in receptacle can be accessed through holes in the lower retainer.
2. Screw top gage (3) and upper gage (15) (LEFT HAND THREAD) onto hold down receptacle. Slide volume tube (33), with O-ring (7) installed, into upper end of hold down receptacle.

3. With tool top (1) in vise, screw hold down assembly onto its lower end. Install lower slips (22), with slip springs (23) and slip spring screws (24) installed, into windows in control body, and retain in a partially expanded position.
4. Install drag blocks (26), with drag block springs (27) underneath them, into control body (25). Retain blocks with drag block retainer (28).
5. Install lower slips (22), with slip springs (23) and slip spring screws (24) installed, into windows in control body, and retain in a partially expanded position.
6. Slide cone (20) over lower end of mandrel (19) and slide element retainer (20) over top end of mandrel and screw onto cone. Screw lower gage (18) onto element retainer.
7. Slide elements (16) and element spacers (17) onto top end of mandrel, then screw mandrel into lower end of hold down receptacle.
8. Tighten thread connecting cone and element retainer, then slide control body/lower slip assembly onto lower end of mandrel.
9. Install control lugs (31) into holes in bottom end of control body and into J-slots in mandrel. Retain control lugs with control lug set screws (32), and slide control lug retainer (29) over lower end of control body, covering lugs. Screw control body nut (30) onto bottom end of control body, retaining control lug retainer.
10. Tighten all threads and install thread lock set screws (5) into upper and lower ends of hold down receptacle.

C-4 Disassembly Instructions

1. With tool top (1) in vise, break control body nut (30) off control body (25) and slide off control lug retainer (29). Remove control lug set screws (32), and control lugs (31).
2. Slide control body off bottom end of mandrel (19). Lower slips (22) will fall inside the control body at this time and can be removed.
3. Break cone (21) out of element retainer (20) and slide off lower end of mandrel.
4. Remove all seven thread lock screws (5) from top & bottom ends of hold down receptacle (2), then unscrew mandrel from hold down receptacle and receptacle from tool top.
5. Slide volume tube (33) out top end of receptacle, then slide elements (16), element spacers (17) and element retainer off top end of mandrel.
6. Unscrew top gage (3) and upper gage (15) (LEFT HAND THREAD) from top & bottom ends of hold down receptacle, then slide off strap retainers (4 & 14).
7. Remove hold down screws (10), hold down straps (12), hold down springs (11) and hold down slips (8).

8. Retain drag blocks (26) with a suitable device and slide drag block retainer (28) off control body. Remove device, allowing drag blocks and drag block springs (27) to be removed.

D. STORAGE & HANDLING GUIDELINES

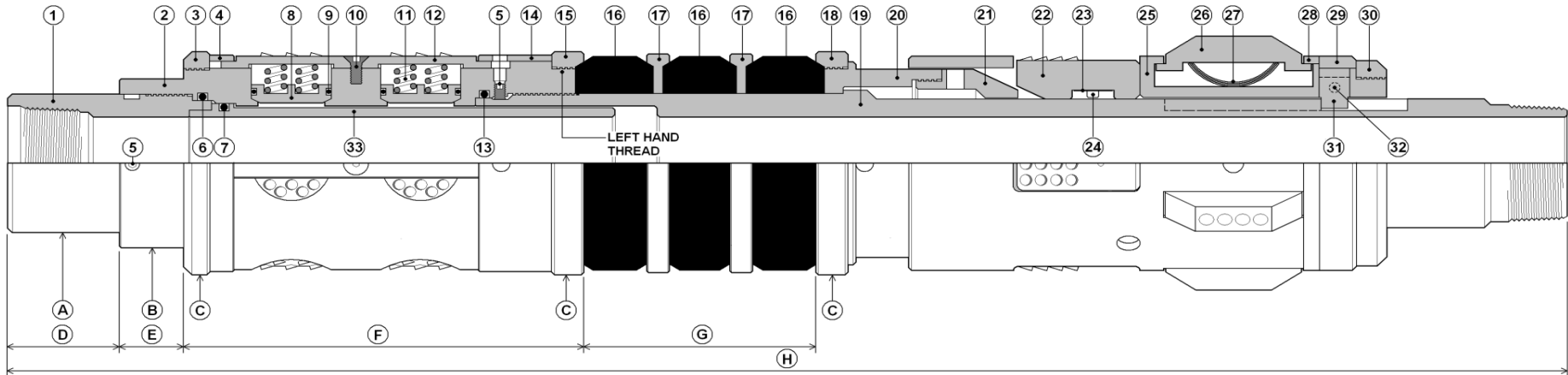
All Upper Completions products from Innovex should at all times be stored in a manner which prevents exposure to natural elements: wind, water, excessive temperatures (hot or cold), and stored in a clean environment to prevent contamination by elements which might adversely affect proper function (i.e., sand, loose soil, dust).

- Storage temperature should remain below 80°F for any packers with elastomeric components (O-rings, packing elements, etc.) installed.
- Storage location for any packers with elastomeric components installed should have no direct exposure to sunlight. Packing elements should be shielded from ultraviolet light by covering them in a protective material.
- Store in a dry area, no rain, seawater, or condensation.

Prior to storage, the packer should be assembled with internal thread connections made-up hand tight. Handle and store the tool in the running position with the lugs in the appropriate J-slot section which prevents undesired compression and deformation of packing elements. Store the tool in a manner which prevents undesired stresses on dynamic components such as Slips, Drag Block, and Sleeves.

E. DIMENSIONAL DATA & BILL OF MATERIALS

ASSEMBLY DRAWING



PART NUMBERS

KEY #	QTY	PART #	NAME	KEY#	QTY	PART #	NAME	KEY#	QTY	PART#	NAME
1	1	64460	TOOL TOP	12	4	64490	HOLD DOWN STRAP	23	8	51778	LOWER SLIP SPRING
2	1	64830	H.D. RECEPTACLE	13	1	19341	O-RING	24	4	11236C	SLIP SPRING SCREW
3	1	SEE BELOW	TOP GAGE	14	1	64410	LOWER STRAP RETAINER	25	1	64440	CONTROL BODY
4	1	64400	UPPER STRAP RETAINER	15	1	SEE BELOW	UPPER GAGE	26	6	SEE BELOW	DRAG BLOCK
5	7	11168C	THREAD LOCK SET SCREW	16	3	SEE BELOW	PACKING ELEMENT	27	36	50110	DRAG BLOCK SPRING
6	1	19340	O-RING	17	2	64390	ELEMENT SPACER	28	1	70760	DRAG BLOCK RETAINER
7	1	19336	O-RING	18	1	SEE BELOW	LOWER GAGE	29	1	70770	CONTROL LUG RETAINER
8	8	SEE BELOW	HOLD DOWN SLIP	19	1	SEE BELOW	MANDREL	30	1	70270	CONTROL BODY NUT
9	8	19230	O-RING	20	1	64480	ELEMENT RETAINER	31	2	70402	CONTROL LUG
10	4	11458C	HOLD DOWN SCREW	21	1	64470	CONE	32	2	11158C	CONTROL LUG SET SCREW
11	16	50409	HOLD DOWN SPRING	22	4	070CJ	LOWER SLIP	33	1	64450	VOLUME TUBE

DIMENSIONS							
A	B	C	D	E	F	G	H
3.75"	4.56"	SEE SPECS	3.75"	2.19"	12.25"	7.88"	51.06"

MANDREL CHART				
CONFIGURATION	L/H/AUTOMATIC	R/H AUTOMATIC	L/H MANUAL	R/H MANUAL
PART NUMBER	64423	64424	64421	64422

DRESSING CHART PART NUMBERS							
CASING WT	GAGE O.D.	TOP GAGE	H.D. SLIP	UPPER GAGE	ELEMENT* PART#	LOWER GAGE RING	DRAG BLOCK
17-23#	6.219"	70968	50403	70816	721-72-51X	70866	50800
20-29#	5.969"	70961	50402	70811	721-70-51X	70861	50700
32-38#	5.750"	70963	50401	70812	721-65-51X	70862	50700

*REPLACE X WITH 1 FOR 70D., 2 FOR 80D., 3 FOR 90D.

F. REVISION HISTORY

DATE	REVISION	DESCRIPTION OF CHANGES	REVISED BY
	A	Original Document	
08/08/2023	B	Updated Format	N. Alexander