

# Upper Completions

## 4.500” Drill Pipe CPW Packer

### Technical Unit: TU1002

REVISION B  
August 8<sup>th</sup>, 2023

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## CONTENTS

<b>A. INTRODUCTION .....</b>	<b>3</b>
<b>B. SPECIFICATIONS .....</b>	<b>3</b>
<b>C. OPERATIONAL PROCEDURES .....</b>	<b>4</b>
<b>C-1 Setting Procedures .....</b>	<b>4</b>
<b>C-2 Retrieving Instructions .....</b>	<b>4</b>
<b>C-3 Assembly Instructions.....</b>	<b>4</b>
<b>C-4 Disassembly Instructions.....</b>	<b>5</b>
<b>D. STORAGE &amp; HANDLING GUIDELINES .....</b>	<b>6</b>
<b>E. DIMENSIONAL DATA &amp; BILL OF MATERIALS.....</b>	<b>7</b>
<b>F. REVISION HISTORY .....</b>	<b>9</b>

## 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				
SIZE	WEIGHT	OD		ID		CONNECTIONS
inches	#	inches	mm	inches	mm	
4-1/2	13.5 to 16.6	3.640	92.46	1.94	49.28	2-3/8 EU8RD



## 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 (9,000 lb. in 4-1/2" casing). A range of 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 (11) installed, into hold down receptacle (3). Install hold down springs (12) and retain with hold down straps (7) and hold down screws (9). Retain ends of hold down straps with upper strap retainer (6) and lower strap retainer (14). Slide on hold down spacer (15) and ensure that set screw holes in receptacle can be accessed through holes in the spacer.

2. 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.
3. With tool top (1) in vise, and O-ring (4) installed, screw hold down assembly to its lower end.
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 control body/lower slip assembly over upper end of mandrel (20), followed by cone (21), packing elements (17) and element spacers (18).
7. Screw mandrel into lower end of hold down receptacle.
8. 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 (30), and slide control lug retainer (29) over lower end of control body, covering lugs. Screw cap (32) onto bottom end of control body, retaining control lug retainer.
9. Tighten all threads. Install thread lock set screws (2 & 33) into upper and lower ends of hold down receptacle.

#### C-4 Disassembly Instructions

1. With tool top (1) in vise, remove all thread lock set screws (2 & 33) from top & bottom ends of hold down receptacle (3), then unscrew receptacle from tool top and mandrel (20) from receptacle.
2. Slide volume tube (10) out top end of receptacle, and slide elements (17), element spacers (18) and cone (21) off top end of mandrel.
3. Unscrew cap (5) and upper gage (16) (LEFT HAND THREAD) from top & bottom ends of hold down receptacle, then slide off upper strap retainer (6), hold down spacer (15) and lower strap retainer (14) and remove hold down screws (9), hold down straps (7), hold down springs (12) and hold down slips (8).
4. Break cap (32) off control body (25), slide off control lug retainer (29), remove control lug set screws (30), and control lugs (31). Slide control body off top end of mandrel. Lower slips (22) will fall inside the control body at this time.
5. 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

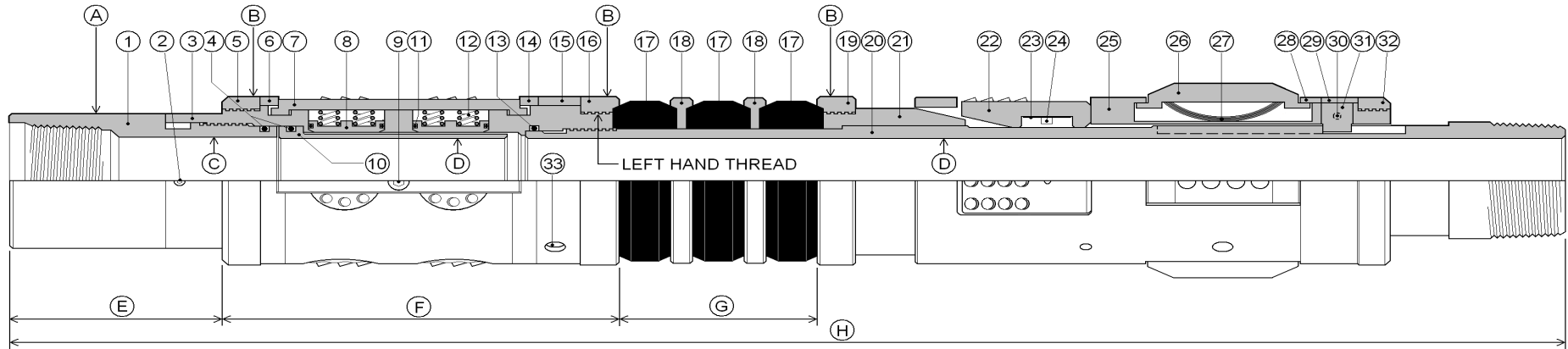
All Upper Completions products from Innovex should at all times be stored in a manner which prevents exposure to natural elements: wind, water, excessive temperatures (hot or cold), and stored in a clean environment to prevent contamination by elements which might adversely affect proper function (i.e., 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	63880	TOOL TOP	12	16	50319	HOLD DOWN SPRING	23	4	50725	LOWER SLIP SPRING
2	4	11155C	SET SCREW	13	1	19228	O-RING	24	4	11336C	SLIP SPRING SCREW
3	1	63911	H.D. RECEPTACLE	14	1	63595	LOWER STRAP RETAINER	25	1	63985	CONTROL BODY
4	2	19228	O-RING	15	1	63961	HOLD DOWN SPACER	26	4	50440	DRAG BLOCK
5	1	63890	CAP	16	1	61360	UPPER GAGE	27	16	50100	DRAG BLOCK SPRING
6	1	63595	UPPER STRAP RETAINER	17	3	720-45-51X*	PACKING ELEMENT	28	1	56523	DRAG BLOCK RETAINER
7	4	63951	HOLD DOWN STRAP	18	2	53930	ELEMENT SPACER	29	1	56543	CONTROL LUG RETAINER
8	8	50311	HOLD DOWN SLIP	19	1	63940	LOWER GAGE	30	2	11133C	CONTROL LUG SET SCREW
9	4	11436F	HOLD DOWN SCREW	20	1	SEE BELOW	MANDREL	31	2	56555	CONTROL LUG
10	1	63920	VOLUME TUBE	21	1	63970	CONE	32	1	63890	CAP
11	8	19125	O-RING	22	4	045PK	LOWER SLIP	33	4	11158C	SET SCREW

DIMENSIONS							
A	B	C	D	E	F	G	H
3.12"	SEE SPECS	2.00"	1.94"	5.81"	10.06"	5.31"	40.94"

MANDREL CHART				
CONFIGURATION	L/H/AUTOMATIC	R/H AUTOMATIC	L/H MANUAL	R/H MANUAL
PART NUMBER	63906	63907	63908	63909

\*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