

# Upper Completions

## 4.500 x 2.375 Crest III Packer

### Technical Unit: TU1004

REVISION: 2022 Aug  
August 9, 2022

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## A. INTRODUCTION

The Crest III Packer is a weight set service packer for high pressure remedial work such as acidizing, fracturing, and squeeze cementing. It sets with minimal tubing manipulation and will withstand differential pressure from above or below.

A large integral fluid bypass allows the packer to be run quickly with minimal chance of swabbing off packing elements or dulling hold down slips. No rotation is required to retrieve the tool, and it equalizes via the fluid bypass with the first upward movement.

When set, a balance piston is actuated as pressure increases, exerting downward force on the inner mandrel, thus ensuring the integral fluid bypass is not pumped open. Standard equipment includes carbide tipped hold down slips, lower slips and drag blocks.

### FEATURES

- High pressure service grade packer
- Large integral fluid bypass
- Straight pull to release

### J-SLOT CONFIGURATIONS

- Right Hand Auto
- Left Hand Auto
- Right Hand Manual
- Left Hand Manual

## B. SPECIFICATIONS

DIMENSIONAL SPECIFICATION						
CASING		TOOL				CONNECTIONS
SIZE	WEIGHT	MAX OD		MIN ID		
[in]	[#]	[in]	[mm]	[in]	[mm]	
4-1/2	9.5 -13.5	3.771	95.78	1.875	47.63	2-3/8 EUE 8 Rd Box x Pin
5	15 – 18	4.125	104.78	1.875	47.63	
	11.5 – 15	4.250	107.95	1.875	47.63	



## C. OPERATIONAL PROCEDURES

### C-1 – Setting Procedures

1. Run packer to setting depth.
2. The fluid bypass will remain open while running, to minimize swabbing of packing elements or dulling of hold down slips.
3. Pick up tubing and rotate (right or left hand, depending on J-slots) 1/2 turn at the packer.
4. Slack off weight to close the bypass, set the slips, and pack off the elements. For this size, 9,000 lb. should be sufficient.
5. At this time, pressure work can be performed above or below the packer.
6. Tubing pressure will activate the hold down slips to prevent upward movement, and the balance piston will hold the mandrel down and the bypass closed.

### C-2 – Releasing Procedures

1. To release the Crest Packer, simply pick up the tubing string slowly. The bypass will open immediately, causing the tubing and annulus pressures to begin to equalize, and releasing the hold down slips.
2. The packer can now be pulled from the well or re-set in another location. With automatic J-slots, the packer can now be moved downhole. With manual J-slots, the packer will have to be re-engaged by rotating 1/2 turn in the opposite direction from that used to set the tool.

### C-3 - Assembly Procedures

The following instructions do not list steps that are obvious to a trained tool hand, such as application of grease or being careful with seal surfaces.

**CAUTION: THE TOP END OF THE MANDREL (4) MUST BE FILED SMOOTH ABOVE THE SPLIT RING GROOVE BEFORE BEGINNING.**

**THE SHORT LENGTH BELOW THE GROOVE IS A SEAL SURFACE.**

1. Assemble balance piston (12) with O-ring (11) installed, into balance piston housing (10) and slide onto upper end of mandrel (4).
2. Install bypass seal (8) and O-ring (7) into seal retainer (9), slide onto mandrel just beyond groove at top end, then install split ring (6) into groove and screw seal retainer cap (5) onto seal retainer. Screw top (1), with O-ring (2) onto mandrel and clamp in vise.
3. Install hold down slips (18), with O-rings (16) installed, into holes in the side of hold down receptacle (14). Install hold down springs (17) into counterbores in hold down slips and retain with hold down straps (40) and hold down screws (15). Screw upper element gage (20) (left hand thread) onto receptacle and install O-rings (13 & 19) inside.
4. Slide the following items on the top end of packing mandrel (23): element retainer (24), packing elements (21) and element spacers (22).
5. Screw element assembly from step above into bottom end of hold down receptacle, then slide this assembly onto lower end of mandrel and screw into balance piston housing.

**CAUTION: BE CAREFUL TO TIGHTEN THIS THREAD WITH THE BALANCE PISTON HOUSING IN VISE, NOT THE MANDREL.**

6. Assemble drag blocks (33) and drag block springs (34) into control body (35) and retain with drag block retainer (32). Screw slip housing (27) onto control body (left hand thread).
7. Slide recovery sleeve (36) through bottom of control body part way and install lower slips (28), with slip springs (29) installed, into slip housing windows. Then push recovery sleeve in to stop.
8. Slide cone (25) into top end of control body and over recovery sleeve, then screw recovery sleeve cap (26) onto recovery sleeve. Tighten this thread now, with one pin inserted through holes in cone and cap, and another through holes in control body (between slips) and in recovery sleeve.
9. Slide assembly from step above over lower end of mandrel. Screw cone into element retainer, then bottom sub (39), with O-ring (38) installed, onto bottom end of mandrel.
10. Install all 9 thread lock set screws (3, 31, 37) in top sub, slip housing and bottom sub, then tighten all threads. To tighten packing mandrel to hold down receptacle, insert pin through holes in element retainer and in packing mandrel.

## C-4 - Disassembly Procedures

**NOTE: The following steps will break packer into sub-assemblies. Refer to assembly instructions to disassemble sub-assemblies, noting the left-hand threads indicated on drawing.**

1. With top sub (1) in vise, un-jay packer and slide control body (35) up as far as possible. Remove all 9 thread lock set screws (3, 31, 37). While backing up on top end of mandrel (4), remove bottom sub (39).
2. Unscrew cone (25) from element retainer (24) and slide the slip/drag block sub-assembly off bottom of mandrel and set aside.
3. With pin through holes in element retainer and packing mandrel (23), unscrew packing mandrel from hold down receptacle (14). Slide this sub-assembly of bottom end of mandrel and set aside.
4. Break mandrel out of top sub, then unscrew seal retainer cap (5) from seal retainer (9) and remove these parts and split ring (6).
5. With balance piston housing (10) in vise, break off hold down receptacle and slide off bottom end of mandrel. Slide balance piston housing off top end of mandrel and remove balance piston (12) from inside.

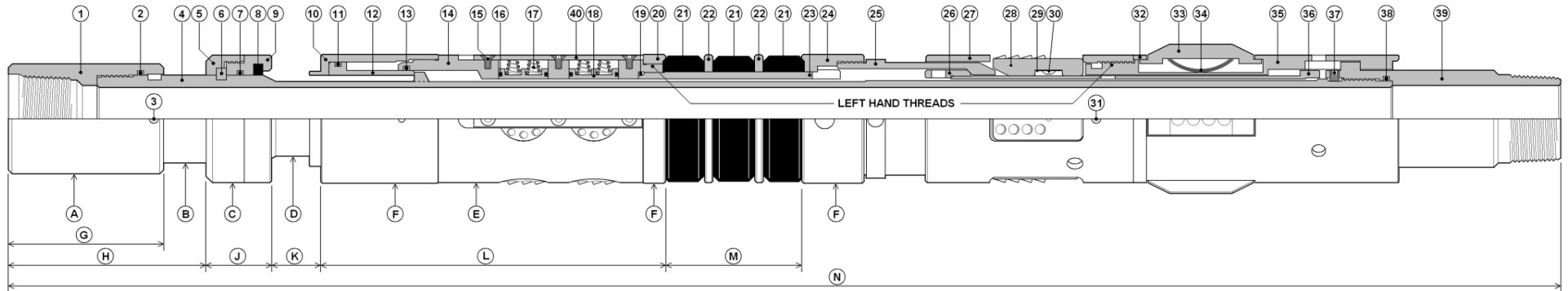
## D. STORAGE & HANDLING GUIDELINES

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 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



### PART NUMBERS

KEY #	QTY	PART #	NAME	KEY#	QTY	PART #	NAME	KEY#	QTY	PART#	NAME
1	1	40510	TOP SUB	14	1	41220	HOLD DOWN RECEPTACLE	27	1	41120	SLIP HOUSING
2	1	19231	O-RING	15	12	11436F	HOLD DOWN SCREW	28	4	SEE CHARTS	LOWER SLIP
3	3	11166C	THREAD LOCK SET SCREW	16	8	19125	O-RING	29	4	50725	LOWER SLIP SPRING
4	1	41242	MANDREL	17	16	50319	HOLD DOWN SPRING	30	4	11336C	LOWER SLIP SCREW
5	1	41170	SEAL RETAINER CAP	18	8	SEE CHARTS	HOLD DOWN SLIP	31	3	11156C	THREAD LOCK SET SCREW
6	1	41150	SPLIT RING	19	1	17146	O-RING	32	1	SEE CHARTS	DRAG BLOCK RETAINER
7	1	19334	O-RING	20	1	SEE CHARTS	UPPER ELEMENT GAGE	33	4	SEE CHARTS	DRAG BLOCK
8	1	60945523	BYPASS SEAL	21	3	SEE CHARTS	PACKING ELEMENT	34	16 *	50100	DRAG BLOCK SPRING
9	1	41160	SEAL RETAINER	22	2	SEE CHARTS	ELEMENT SPACER	35	1	SEE CHARTS	CONTROL BODY
10	1	SEE CHARTS	BALANCE PISTON HOUSING	23	1	41180	PACKING SLEEVE	36	1	41250	RECOVERY SLEEVE
11	1	19337	O-RING	24	1	SEE CHARTS	ELEMENT RETAINER	37	3	11155C	THREAD LOCK SET SCREW
12	1	41210	BALANCE PISTON	25	1	53490	CONE	38	1	19228	O-RING
13	1	19233	O-RING	26	1	41140	RECOVERY SLEEVE CAP	39	1	41230	BOTTOM SUB
								40	4	43200	HOLD DOWN STRAP

\*The 5" size uses 20 Drag Block Springs

DRESSING CHART			
ITEM	4-1/2"	5"(15-18#)	5"(11.5-15#)
UPPER ELEMENT GAGE	41190	41192	41191
PACKING ELEMENT *	602-45-51X	602-50-51X	
ELEMENT SPACER	81640	53475	
ELEMENT RETAINER	53460	44261	44260
LOWER SLIP	045PK	050PK	
HOLD DOWN SLIP	50311	50312	50313
BALANCE PISTON HOUSING	82265	82267	82266
DRAG BLOCK	50450	50560	50570
DRAG BLOCK RETAINER	41130	60970	

\* REPLACE THE X IN PART NUMBER WITH DUROMETER: 0 FOR 60, 1 FOR 70, 2 FOR 80, OR 3 FOR 90.

CONTROL BODY SELECTION CHART	
J-SLOT CONFIGURATION	PART NUMBER
RIGHT HAND MANUAL	62571
LEFT HAND MANUAL	62572
RIGHT HAND AUTO	62574
LEFT HAND AUTO	62573

FLUID BYPASS AREA: 1.000 SQ. IN.  
AFFECTED AREA OF BALANCE PISTON: 2.526 SQ. IN.

DIMENSIONS (IN.)												
A	B	C	D	E	F	G	H	J	K*	L	M	N
3.06	2.50	3.75	2.19	3.75	SEE SPECIFICATIONS	6.00	7.69	2.50	1.94	13.38	5.38	60.31

\* WITH PACKER IN POSITION SHOWN

## F. REVISION HISTORY

DATE	REVISION	DESCRIPTION OF CHANGES	REVISED BY	CHECKED BY
		NEW RELEASE		
08/09/2022	2022 Aug	Updated Format	N. Alexander	