

Upper Completions

9.625 x 3.500 Crest III Packer

Technical Unit: TU1015

REVISION: 3.0
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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]	
9-5/8	32.3 – 43.5	8.562	217.47	3.000	76.20	3-1/2 EU 8 Rd Box x Pin
	36 – 47	8.475	215.27	3.000	76.20	
	43.5 – 53.5	8.250	209.55	3.000	76.20	



C. PRE-JOB INSPECTION PROCEDURE

Below is a Pre-Job Inspection procedure recommended by Innovex, to be performed prior to the field deployment of Crest III Service Packers.

C-1 – General/Visual Inspection

1. Prior to the first deployment after receiving the packer, it is recommended to perform a full disassembly and assembly in order to assess the condition of every component. Refer to the instructions in the following sections in order to properly disassemble and assemble the packer.
2. Inspect general condition of the packer: Ensure that there are no significant external dents, bends, or buckling of components. Pay special attention to internal sealing surfaces, no damage to seal surfaces is acceptable.
3. Inspect hardware: Ensure that there are no missing set screws, shear screws, or other relevant hardware, as per the Bill of Materials.
4. If any damage or missing components are observed during the above steps, replace components accordingly by contacting your Innovex sales representative.
5. Fully assemble the packer.

C-2 – Thread Connection Inspection

1. Inspect thread connections: Ensure that thread protectors are installed. Remove thread protectors and visually inspect thread connections ensuring that there is no damage. Replace thread protectors.

NOTE: Innovex provides Upper Completions packers with internal tool connections made-up hand tight, with labelling on the tool accordingly.

2. Apply the required torque to make-up the internal tool connections, accordingly, refer to the INTERNAL TOOL THREAD CONNECTION TORQUE GUIDE below.

C-3 - Redress Inspection

1. Completely disassemble the packer. Refer to the instructions in the following section in order to properly disassemble and assemble the packer.
2. Clean components, discard and replace all redress components. Redress components include internal seals/O-rings, packer elements, shear screws, etc.
3. Inspect components to ensure that they are in proper working condition. Replace worn or damaged components as necessary.
4. Dimensionally inspect gauge components and ensure that their OD is not below 0.020" of the Maximum OD of the packer.

When making-up internal tool thread connections, refer to the below guide for the recommended make-up torque values:

INTERNAL TOOL THREAD CONNECTION TORQUE GUIDE
STUB ACME THREADS [ft.-lbs.]
1,800

D. OPERATIONAL PROCEDURES

D-1 – Setting Procedure

1. Run packer to setting depth. The fluid bypass will remain open while running, to minimize swabbing of packing elements or dulling of hold down slips.
2. Pick up tubing and rotate (right or left hand, depending on J-Tracks) 1/2 turn at the packer. Slack off weight[^] to close the bypass, set the slips, and pack off the elements. For this size, 19,000 lb. should be sufficient.
3. At this time, pressure work can be performed above or below the packer.
4. 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.

NOTE[^] Slack off weight and run-in-hole speeds are dependent on wellbore conditions and may vary.

D-2 – Releasing Procedure

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. To move further down, the J-Track will have to be re-engaged by rotating 1/2 turn at the packer, in the opposite direction from that used to set the tool.

E. MAINTENANCE INSTRUCTIONS

CAUTION:

- Wear all required Personal Protective Equipment during maintenance procedures.
- Ensure that all maintenance tools are in good working condition.
- Ensure that workplace is clean and free of hazards.
- Use proper lifting techniques and do not use unnecessary force during tool maintenance procedure.

NOTE:

- Internal seal surfaces and seals should be greased prior to assembly and carefully installed onto mating components.
- Thread lubricant should be applied on all STUB ACME internal tool thread connections.
- Prior to installing packing elements, apply grease to the entire external surface of the Packing Sleeve.
- Do not use wrenches on seal surfaces or critical dynamic sections of the tool. Remove any wrench marks using a file after assembly.

E-1 - Recommended Maintenance Tools

Impact Resistant Gloves
Safety Glasses
Floor-Mounted Vise
Pipe Wrenches X 2
Chain Wrenches X 2
Adjustable Wrench

Screwdrivers
O-Ring Pick
Assembly Dowel (Steel) 1/2" X 12" Long (X2)
Drag Block Assembly Tool (PN TF-70HALO)
Hold-Down Slip Removal Tool

E-2 - Disassembly Instructions

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, unscrew control body nut (38) from control body (33), slide off control lug retainer (37), and remove two set screws (39) from control body. Then remove control lugs (40). Remove two set screws (39) from j-slot bottom sub (42), then unscrew sub from mandrel (2) and set aside.
2. Unscrew control body cap (28) from control body and slide control body off bottom end of tool. Lower slips (30) will fall inside control body at this time.
3. Unscrew cone (27) from element retainer (26) and remove. With pin through holes in element retainer and slots in packing sleeve (24), unscrew packing sleeve from hold down receptacle and slide off packing elements (22), element spacers (23) and element retainer.
4. Break mandrel out of top sub then, with balance piston housing (9) in vise, break off hold down receptacle and slide off bottom end of mandrel.
5. Unscrew seal retainer cap (3) from seal retainer (6) and remove. Then remove split ring (4), seal retainer and balance piston housing. Remove balance piston from housing.
6. Unscrew top gage (13) and upper element gage (21) (left hand thread) from hold down receptacle, then slide off both strap retainers (14).
7. Remove hold down screws (17), then hold down straps (16), hold down springs (19) and hold down slips (15) from hold down receptacle.
8. Slide drag block retainer (36) from control body, freeing drag blocks (34) and drag block springs (35).

E-3 - Assembly Instructions

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 (2) 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 (10) with O-ring (8) installed, into balance piston housing (9) and slide onto upper end of mandrel (2).

2. Install bypass seal (7) and O-ring (5) into seal retainer (6), slide onto mandrel just beyond groove at top end, then install split ring (4) into groove and screw seal retainer cap (3) onto seal retainer. Screw top (1) onto mandrel and clamp in vise.
3. Install hold down slips (15), with O-rings (18) installed, into holes in the side of hold down receptacle (12). Install hold down springs (19) into counterbores in hold down slips and retain with hold down straps (16) and hold down screws (17). Screw upper element gage (21) (left hand thread) onto receptacle and install O-rings (11 & 20) inside.
4. Screw lower element gage (25) onto element retainer (26), then slide the following items on the top end of packing mandrel (24): element retainer, packing elements (22) and element spacers (23).
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 (34) and drag block springs (35) into control body (33) and retain with drag block retainer (36).
7. Assemble lower slips (30), with slips springs (32) attached with slip spring screws (31), into windows in control body. Screw cone extension (29) into cone (27) and slide assembly into upper end of control body and inside slips.
8. Screw control body cap (28) onto control body, then slide this slip/drag block assembly onto lower end of mandrel and screw cone into element retainer.
9. Screw j-slot bottom sub (42), with O-ring (41) installed, onto lower end of mandrel. Install control lugs (40) through holes in control body and into J-Tracks and lock in place with two set screws (39). Slide on control lug retainer (37) and screw on control body nut (38).
10. Tighten all threads and install two set screws (39) in bottom sub.

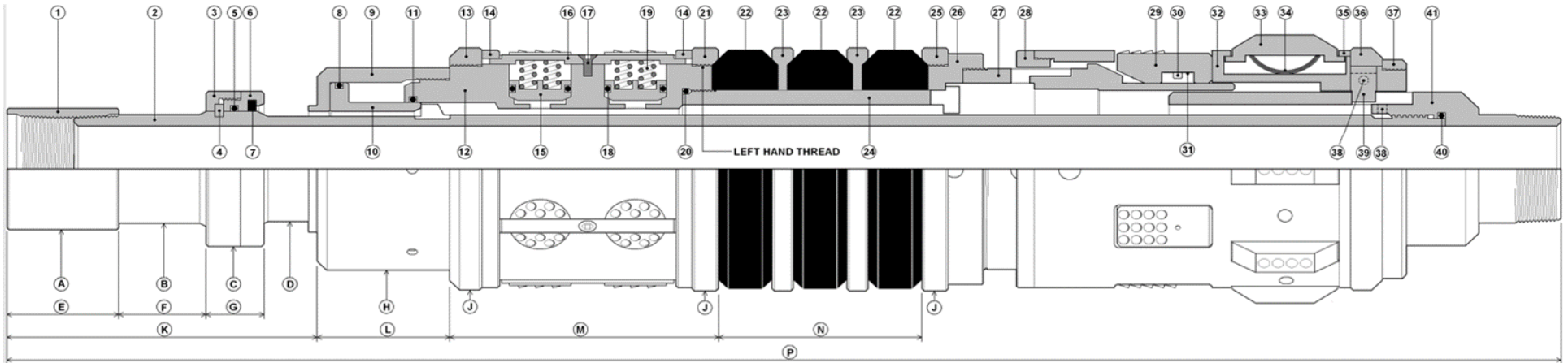
E-4 - Storage & Handling Guidelines

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.

F. DIMENSIONAL DATA & BILL OF MATERIALS



G. BILL OF MATERIALS

PART NUMBERS											
KEY #	QTY	PART #	NAME	KEY#	QTY	PART #	NAME	KEY#	QTY	PART#	NAME
1	1	1G2G2P	Top Sub	15	12	SEE CHARTS	Hold Down Slip	29	6	090PP	Lower Slip
2	1	40600	Mandrel	16	6	64490	Hold Down Strap	30	6	11236C	Slip Spring Screw
3	1	40620	Seal Retainer Cap	17	6	11458C	Hold Down Screw	31	12	51789	Lower Slip Spring
4	1	40660	Split Ring	18	12	19230	O-Ring	32	1	70540	Control Body
5	1	19345	O-Ring	19	24	50409	Hold Down Spring	33	8	SEE CHARTS	Drag Block
6	1	40670	Seal Retainer	20	1	19355	O-Ring	34	48	50110	Drag Block Spring
7	1	31240	Bypass Seal	21	1	SEE CHARTS	Upper Element Gage	35	1	70570	Drag Block Retainer
8	1	19358	O-Ring	22	3	SEE CHARTS	Packing Element	36	1	SEE CHARTS	Control Lug Retainer
9	1	60820	Balance Piston Housing	23	2	SEE CHARTS	Element Spacer	37	1	70580	Control Body Nut
10	1	60810	Balance Piston	24	1	40630-K	Packing Sleeve	38	4	11168C	Set Screw
11	1	19350	O-Ring	25	1	SEE CHARTS	Lower Element Gage	39	2	64000	Control Lug
12	1	40650	Hold Down Receptacle	26	1	70500	Element Retainer	40	1	19341	O-Ring
13	1	SEE CHARTS	Top Gage	27	1	70515	Cone	41	1	SEE CHARTS	J-Slot Bottom Sub
14	2	40640	Strap Retainer	28	1	70530	Control Body Cap				

DRESSING CHART			
ITEM	32.3 - 43.5#	36 - 47#	43.5 - 53.5#
TOP GAGE	70591	70597	70592
HOLD DOWN SLIP	50403		50402
UPPER ELEMENT GAGE	70441	70447	70442
PACKING ELEMENT *	602-96-51X	602-97-51X	602-95-51X
ELEMENT SPACER	70481	70487	70482
LOWER ELEMENT GAGE	70491	70497	70492
DRAG BLOCK	50800		50700
CONTROL LUG RETAINER	70560		70561

* 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-TRACK CONFIGURATION	PART NUMBER
RIGHT HAND MANUAL	40612
LEFT HAND MANUAL	40611

FLUID BYPASS AREA: 2.28 SQ. IN.
AFFECTED AREA OF BALANCE PISTON: 11.5 SQ. IN.

DIMENSIONS (IN.)													
A	B	C	D	E	F	G	H	J	K*	L	M	N	P
4.50	3.75	1.75	3.62	5.75	3.81	2.50	7.00	SEE SPECIFICATIONS	14.38	5.75	10.78	8.88	67.38

*WITH PACKER IN POSITION SHOWN

H. REVISION HISTORY

DATE	REVISION	DESCRIPTION OF CHANGES	REVISED BY	CHECKED BY
		NEW RELEASE		
08/09/2022	2022 Aug	Updated Format	N. Alexander	
12/27/2022	3.0	Updated Layout and TOC	N. Alexander	