

Upper Completions

5.500 x 2.375 Crest III Packer

Technical Unit: TU-101-5520

REVISION E
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

RE-DRESS KITS AND RUBBER GOODS KITS

- 101-5520-4XXX – RDK
- 101-5520-8XXX – RGK

B. SPECIFICATIONS

DIMENSIONAL SPECIFICATION							
CASING			TOOL				
SIZE	WEIGHT	OD		ID		CONNECTIONS	PART NUMBER
[in]	[#]	[in]	[mm]	[in]	[mm]		
5-1/2	13.5 – 15.5	4.781	121.44	1.94	49.28	2-3/8 EUE 8 Rd	101-5520-XXXX
	14 – 20	4.641	117.88	1.94	49.28		
	20 - 23	4.500	114.30	1.94	49.28		



ATTRIBUTE	VALUE	
Maximum OD ¹	4.515 in	114.7 mm
Minimum ID	1.923 in	48.8 mm
Overall Length	88.63 in	2,251.2 mm
Piston Pressure Affected Area	3.69 in ²	23.81 cm ²
Mandrel Pressure Affected Area	2.94 in ²	18.97 cm ²
Fluid Bypass Area	1.245 in ²	8.03 cm ²
Approximate Weight	129.7 lb.	58.8 kg
External Working Pressure	10,000 psi	48,263 KPa
Internal Working Pressure	10,000 psi	48,263 KPa
Max Working Temperature ²	275 °F	135 °C
Min Working Temperature	70 °F	21 °C
Elastomer Material	NBR (Buna-Nitrile)	
Tensile Rating	77,000 lbf.	34,251 DaN
NACE Service	No	

- (1) Mandrel PAA acts to unset the tool while the Piston PAA holds the tool set.
 (2) Other elastomer materials available upon request.
 (3) Base tool max diameter only. Gage diameters could be larger.

C. OPERATIONAL PROCEDURES

Precautions

- Ensure all connection are correctly tightened.

C-1 – Setting Procedures

1. Run packer to desired 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-slots) 1/2 turn at the packer.
3. Slack off weight to close the bypass, set the slips, and pack off the elements. For this, 9,000 lb. should be sufficient.
4. At this time, pressure work can be performed above or below the packer. Tubing pressure will activate the hold down slips to prevent upward movement, and the Balance Piston will hold the Mandrel down at 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 ½ turn in the opposite direction from that used to set the tool.

C-3 - Assembly Instructions

NOTE: CARE SHOULD BE TAKEN DURING ASSEMBLY TO ENSURE ALL THREADS ARE GREASED ADEQUATELY.

CAUTION: THE TOP END OF THE MANDREL 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 (11) with O-Ring (10) installed into Balance Piston Housing (12) and slide onto upper end of Mandrel (4).
2. Install Bypass Seal (9) and O-Ring (8) into Seal Retainer (6), slide onto Mandrel (4) just beyond groove at top end, then install Split Ring (7) into groove and screw Seal Retainer Cap (5) onto Seal Retainer (6).
3. Screw Top (1), with O-Ring (2) onto Mandrel (4) and clamp in vise.
4. Install Hold Down Slips (16), with O-Rings (15) installed, into holes in the side of Hold Down Receptacle (17). Install Hold Down Springs (18) into counterbores in Hold Down Slips (16) and retain with Hold Down Straps (20) and Hold Down Screws (19).
5. Screw Upper Element Gage (21) [**LEFT HAND THREAD**] onto Receptacle (17) and install O-Rings (13 & 22) inside Receptacle (17).
6. Slide the following items on the top end of Packing Mandrel (25): Element Retainer (26), Packing Elements (24), and Element Spacers (23).
7. Screw Element Assembly from previous step above into bottom end of Hold Down Receptacle (17), then slide this assembly onto lower end of Mandrel (4) and screw into Balance Piston Housing (12).

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

8. Assemble Drag Blocks (36) and Drag Block Springs (35) into Control Body (37) and retain with Drag Block Retainer (34). Screw Slip Housing (29) onto Control Body (37) [**LEFT HAND THREAD**].
9. Slide Recover Sleeve (33) through bottom of Control Body (37) part way and install Lower Slips (32), with Slip Springs (30) installed, into Slip Housing windows. Then push Recovery Sleeve (33) in to stop.
10. Slide Cone (27) into top end of Control Body (37) and over Recover Sleeve (33), then screw Recovery Sleeve Cap (28) onto Recovery Sleeve (33). Tighten this thread now, with one pin inserted through holes in Cone (27) and Cap (28), and another through holes in Control Body (between slips) and in Recovery Sleeve (33).
11. Slide Assembly from previous step over lower end of Mandrel (4). Screw Cone (27) into Element Retainer (21), then Bottom Sub (39), with O-Ring (2) installed, onto bottom end of Mandrel (4).
12. Install all 9 Thread Lock Set Screws (3, 40, 38) in Top Sub (1), Slip Housing (29), and Bottom Sub (39), then tighten all threads. To tighten Packing Mandrel (25) to Hold Down Receptacle (17), insert pin through holes in Element Retainer (26) and in Packing Mandrel (25)



C-4 - Disassembly Instructions

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 (37) up as far as possible. Remove all 9 Thread Lock Set Screws (3, 38, & 40). While backing up on top end of Mandrel (4), remove Bottom Sub (39).
2. Unscrew Cone (27) from Element Retainer (26) and slide the Slip/Drag Block sub-assembly off bottom of Mandrel (4) and set aside.
3. With pin through holes in Element Retainer (26) and Packing Mandrel (25), unscrew Packing Mandrel from Hold Down Receptacle (17). Slide this sub-assembly off bottom end of Mandrel (4) and set aside.
4. Break Mandrel (4) out of Top Sub (1), then unscrew Seal Retainer Cap (5) from Seal Retainer (6) and remove these parts and Split Ring (7).
5. With Balance Piston Housing (12) in vise, break off Hold Down Receptacle (17) and slide off bottom end of Mandrel (4). Slide Balance Piston Housing (12) off top end of Mandrel (4) and remove Balance Piston (11) from inside.

D. STORAGE & HANDLING GUIDELINES

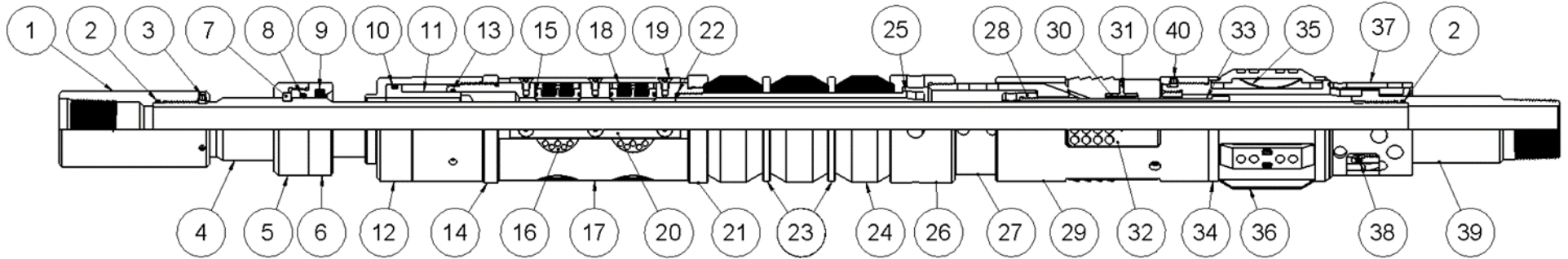
All Upper Completions products from Innovex should at all times be stored in a manner which prevents exposure to natural elements: wind, water, excessive temperatures (hot or cold), and stored in a clean environment to prevent contamination by elements which might adversely affect proper function (i.e.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

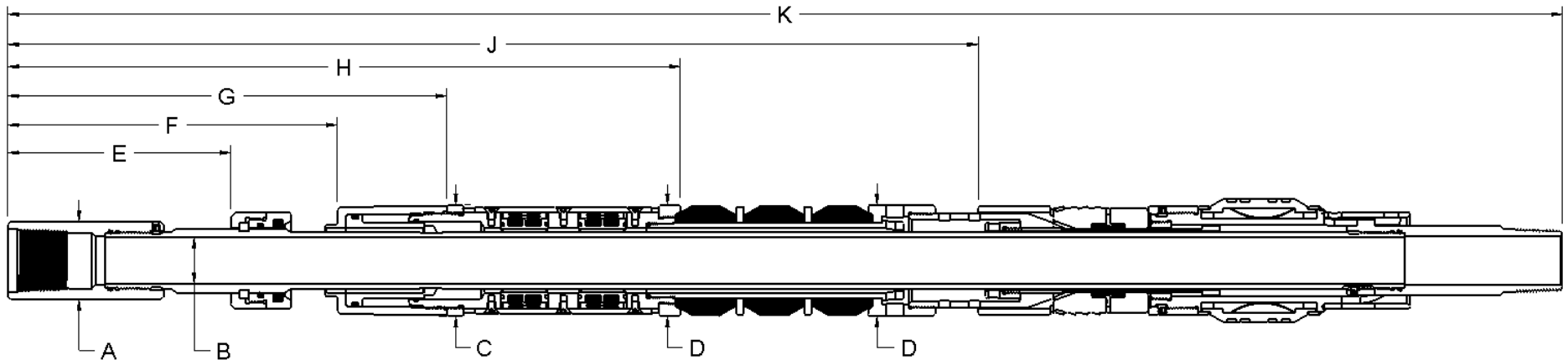
Prior to storage, the packer should be assembled with internal thread connections made-up hand tight. Handle and store the tool in the running position with the lugs in the appropriate J-slot section which prevents undesired compression and deformation of packing elements. Store the tool in a manner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

E. DIMENSIONAL DATA & BILL OF MATERIALS

10A-5520-XXXX ASSEMBLY DRAWING



10A-5520-XXXX ASSEMBLY DRAWING



DIMENSION	MEASUREMENT		DIMENSION	MEASUREMENT	
	[inches]	[mm]		[inches]	[mm]
A	3.250	82.55	F	13.750	349.25
B	19.23	47.63	G	18.313	465.15
C	See Gage Chart	See Gage Chart	H	28.063	712.80
D	See Gage Chart	See Gage Chart	J	40.500	1,028.70
E	9.298	236.17	K	64.875	1,647.83

BILL OF MATERIALS – 10A-5520-XXXX					
ITEM	QTY	DESCRIPTION	PART NUMBER		
			13.5-15.5# (4.781" OD)	14-20# (4.641" OD)	20-23# (4.500" OD)
1	1	TOP		00025	
2	2	O-RING		19228	
3	3	5/16"-18 NC X 1/2" SOCKET SET SCREW		11158C	
4	1	MANDREL ACME X ACME		41262	
5	1	SEAL RETAINER CAP		41350	
6	1	SEAL RETAINER		41360	
7	1	SPLIT RING		41370	
8	1	O-RING		19335	
9	1	BYPASS SEAL		609-55-523	
10	1	O-RING		19341	
11	1	BALANCE PISTON		60920	
12	1	BALANCE PISTON HOUSING		41340	
13	1	O-RING		19236	
14	1	PISTON GAGE	40942	40940	40941
15	8	O-RING		19224	
16	8	HOLD DOWN SLIP	50323	50322	50321
17	1	HOLD DOWN RECEPTACLE		41270	
18	16	HOLD DOWN SLIP SPRING		50329	
19	12	HOLD DOWN SCREW		11458C	
20	4	HOLD DOWN STRAP		41290	
21	1	UPPER GAGE RING	40952	40950	40951
22	1	O-RING		19233	
23	2	RUBBER SPACER		80600	
24	3	ELEMENT	602-58T-51X	602-55-51X	602-57-51X
25	1	PACKING SLEEVE		41310	
26	1	ELEMENT RETAINER	53780	53781	53782
27	1	CONE		53801	
28	1	RECOVERY SLEEVE CAP		41330	
29	1	SLIP HOUSING		53830	
30	4	SLIP SPRING		51789	
31	4	#10-24 NC X 1/4" SOCKET CAP SCREW		11236C	
32	4	CARBIDE BUTTON SLIP		055CJ	
33	1	RECOVERY SLEEVE		41320	41321
34	1	DRAG BLOCK RETAINER		61690	
35	30	DRAG BLOCK SPRING		50100	
36	6	DRAG BLOCK	50560	50550	50450
37	1	CONTROL BODY ASSEMBLY		SEE CHART	
38	3	5/16"-18 NC X 5/16" SOCKET SET SCREW		11155C	
39	1	ACME BOTTOM		41230	
40	2	3/8"-16 NC X 3/8" SOCKET SET SCREW		11166C	

CONTROL BODY SELECTION CHART	
J-SLOT CONFIGURATION	PART NUMBER
RIGHT HAND MANUAL	61614-K
LEFT HAND MANUAL	62615-K
RIGHT HAND AUTO	62612-K
LEFT HAND AUTO	62613-K

F. REVISION HISTORY

DATE	REVISION	DESCRIPTION OF CHANGES	REVISED BY	CHECKED BY
07/31/2017	A	NEW RELEASE		
06/19/2018	B	Added 20-23# Recovery Sleeve to Item List (P/N 41321)	NRL	
07/06/2020	C	11166c Quantity Changed from 3 to 2	NRL	
07/31/2017	D	BOM Item 24 For 13.5-15.5# Changed to 602-587-51X	BCG	
08/09/2022	E	Updated Format	N. Alexander	