

Upper Completions

3.500 x 1.900 Crest III Packer

Technical Unit: TU1017

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 | | | | |
| SIZE | WEIGHT | MAX OD | | MIN ID | | CONNECTIONS |
| [in] | [#] | [in] | [mm] | [in] | [mm] | |
| 3-1/2 | 7.7 – 9.3 | 2.844 | 72.24 | 1.250 | 31.75 | 1.900" EU10RD THREAD |



C. OPERATIONAL PROCEDURES

C-1 – Setting Procedures

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-slots) 1/2 turn at the packer. Slack off weight to close the bypass, set the slips, and pack off the elements. For this size 7,000 lb. should be sufficient.
3. 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 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. 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.

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 LARGE O.D. OF THE MANDREL (6) BELOW THE UPPER THREAD IS A SEAL SURFACE.

1. Assemble balance piston (8) with O-ring (7) installed, into balance piston housing (9) and slide onto upper end of mandrel.
2. Install bypass seal (5) and O-rings (2 & 5) into top sub (1) and screw onto mandrel. Clamp top sub in vise.
3. Install hold down slips (15), with O-rings (16) installed, into holes in the side of hold down receptacle (12). Install hold down springs (14) into grooves in hold down slips and retain with hold down straps (17) and the two strap retainers (13). Screw upper gage (20) onto receptacle and install O-rings (10 & 18) 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 (35) and drag block springs (34) into control body (36) and retain with drag block retainer (33). Screw slip housing (27) onto control body.

7. Slide recovery sleeve (32) through bottom of control body part of the 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 J-slots in control body and holes in recovery sleeve.
9. Slide assembly from step above over lower end of mandrel. Screw cone into element retainer, then bottom sub (38), with O-ring (37) installed, onto bottom end of mandrel.
10. Install all 6 thread lock set screws (3 & 31) 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 slots 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 (36) up as far as possible. Remove all 6 thread lock set screws (3 & 31). While backing up on top end of mandrel (6), remove bottom sub (38).
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 (12). Slide this sub-assembly off bottom end of mandrel and set aside.
4. Break mandrel out of top sub.
5. With piston housing (9) in vise, break off hold down receptacle and slide off bottom end of mandrel. Slide piston housing off top end of mandrel and remove balance piston (8) from inside.

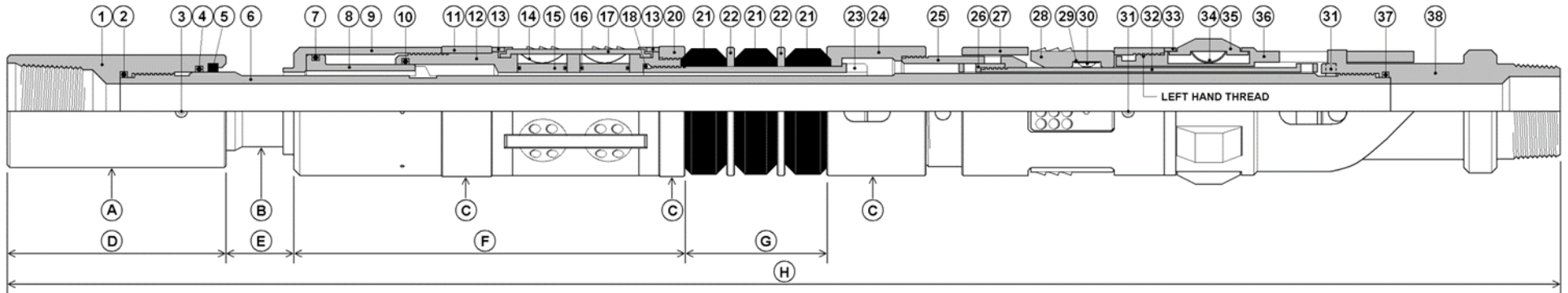
D. STORAGE & HANDLING GUIDELINES

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 | 40521 | TOP SUB | 13 | 2 | 55840 | STRAP RETAINER | 26 | 1 | 55910 | RECOVERY SLEEVE CAP |
| 2 | 1 | 19222 | O-RING | 14 | 12 | 50370 | HOLD DOWN SPRING | 27 | 1 | 55930 | SLIP HOUSING |
| 3 | 2 | 11156C | THREAD LOCK SET SCREW | 15 | 6 | 50302 | HOLD DOWN SLIP | 28 | 4 | 035PK | LOWER SLIP |
| 4 | 1 | 19224 | O-RING | 16 | 6 | 19024 | O-RING | 29 | 4 | 51790 | LOWER SLIP SPRING |
| 5 | 1 | 609-35-523 | BYPASS SEAL | 17 | 3 | 55850 | HOLD DOWN STRAP | 30 | 4 | 11334C | LOWER SLIP SCREW |
| 6 | 1 | 40542 | MANDREL | 18 | 1 | 19032 | O-RING | 31 | 4 | 11144C | THREAD LOCK SET SCREW |
| 7 | 1 | 19228 | O-RING | 20 | 1 | 55860 | UPPER ELEMENT GAGE | 32 | 1 | 40590 | RECOVERY SLEEVE |
| 8 | 1 | 40570 | BALANCE PISTON | 21 | 3 | 603-34-51X * | PACKING ELEMENT | 33 | 1 | 40560 | DRAG BLOCK RETAINER |
| 9 | 1 | 40580 | BALANCE PISTON HOUSING | 22 | 2 | 55580 | ELEMENT SPACER | 34 | 18 | 50120 | DRAG BLOCK SPRING |
| 10 | 1 | 19227 | O-RING | 23 | 1 | 55870 | PACKING SLEEVE | 35 | 6 | 50353 | DRAG BLOCK |
| 11 | 1 | 40530 | TOP SPACER | 24 | 1 | 55890 | ELEMENT RETAINER | 36 | 1 | SEE CHART BELOW | CONTROL BODY |
| 12 | 1 | 40550 | HOLD DOWN RECEPTACLE | 25 | 1 | 55900 | CONE | 37 | 1 | 19128 | O-RING |
| | | | | | | | | 38 | 1 | 55952 | BOTTOM SUB |

* Replace the x in part number with 0 for 60 D., 1 for 70 D., 2 for 80 D. or 3 for 90 d.

| CONTROL BODY SELECTION CHART | |
|------------------------------|-------------|
| J-TRACK CONFIGURATION | PART NUMBER |
| RIGHT HAND MANUAL | 55942 |
| LEFT HAND MANUAL | 55940 |
| RIGHT HAND AUTOMATIC | 55941 |
| LEFT HAND AUTOMATIC | 55945 |

FLUID BYPASS AREA: .341 SQ. IN.
 AFFECTED AREA OF BALANCE PISTON: 1.478 SQ. IN.

| DIMENSIONS (IN.) | | | | | | |
|------------------|------|------|------|------|-------|------|
| A | B | C | D | E* | F | G |
| 2.50 | 1.59 | 2.84 | 6.38 | 2.03 | 11.69 | 4.25 |

*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 | |