



# JAF Hydraulic Disconnect

## MAN-TTT-700 (R02)

### Thru-Tubing Technology

A division of Core Laboratories

402 Machine Loop  
Scott, Louisiana, 70583 USA  
Phone: +1 (337) 984-1181

[www.corelab.com/owen](http://www.corelab.com/owen)

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## Description

The JAF Hydraulic Disconnect tool is essential in releasing the coil tubing from the tool string, if the string has become stuck while in the wellbore. The JAF Hydraulic Disconnect is designed to achieve this requirement, but is also designed to give the ultimate resistance in tensional and torsional stresses that occur while jarring or milling.

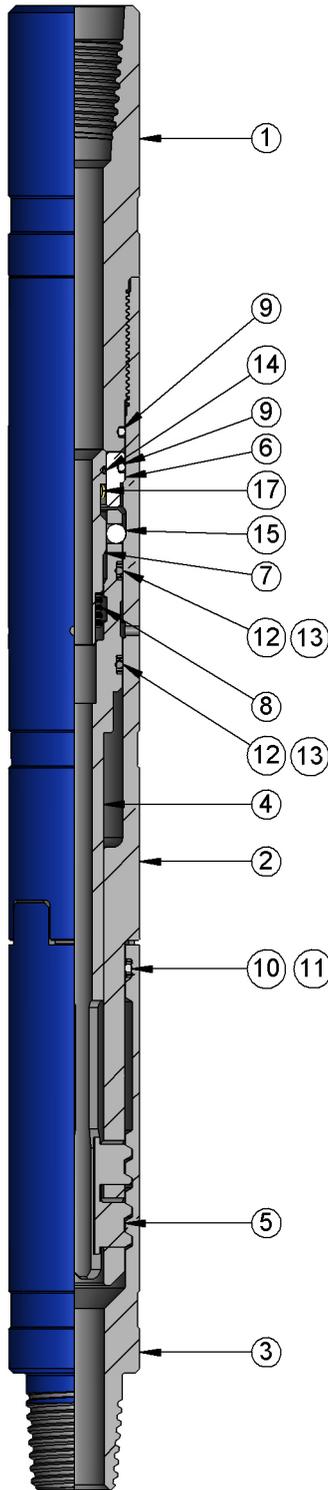
## Operation

If it becomes necessary to disconnect, a ball is pumped to the disconnect, then an increase in pump pressure allows the locking piston to shift, shearing the brass shear screws and allowing the load piston to move out from under the dogs. After a drop in the pump pressure, retrieval from the stuck string is possible. The bottom sub is the only part of the disconnect that is left in the hole and it has an internal “B & W” fishing neck for future fishing procedures.



**Note:** *Unless otherwise indicated, all the strength figures given in this manual, are the result of calculations based on the yield strength of the material used in the manufacture of this product. These strength calculations are considered accurate within plus or minus 20% and are to be used only as a guide. They do not constitute a guarantee, actual or implied. In use, appropriate allowance should be made as a safety factor.*

TT0700-168B BOM, Schematic and Specs



ITEM	QTY	TOOL PARTS DESCRIPTION	PART NUMBER
1	1	Top Sub	TT0700-168B-001
2	1	Body	TT0700-168B-002
3	1	Bottom Sub	TT0700-168B-003
4	1	Piston	TT0700-168B-004
5	3	Dogs (3 - Per Set)	TT0700-168B-005
6	1	Shear Ring	TT0700-168B-006
7	1	Locking Piston	TT0700-168B-007
8	1	Smalley Wave Spring C075-L6	PUR-TWS1048-048
9	2	2-122 O-Rings 3/32" x 1 5/16" x 1 1/8"	PUR-TORV000-122
10	1	2-125 O-Ring 3/32" x 1 5/16" x 1 1/2"	PUR-TORV000-125
11	2	8-125 Back-Up Rings 3/32" x 1 5/16" x 1 1/2"	PUR-TOBU000-125
12	2	2-121 O-Rings 3/32" x 1 1/16" x 1 1/4"	PUR-TORV000-121
13	4	8-121 Back-Up Rings 3/32" x 1 1/16" x 1 1/4"	PUR-TOBU000-121
14	1	2-017 O-Ring 1/16" x 11/16" x 13/16"	PUR-TORV000-017
15	8	Steel Ball Bearings 1/4"	PUR-TSBC000-016
16	1	Steel Ball Bearing 1/2" (Not Shown)	PUR-TSBC000-032
17	6	Brass Slotted Shear Screws 8-32 x 1/4"	PUR-TBSS100-016

**Tool Name:** 1.688 OD JAF Hydraulic Disconnect

**Product Code:** TT0700-168B      **Tool OD:** 1.688 in. **Tool ID:** 0.469 in.

**Material:** AISI 4140 HT 285-341 Bhn **Tool Length:** 17.75 in. w/ 1 in. MT

**Minimum Yield:** 100,000 psi

**Strength Properties of Tool:**

**Minimum Yield Point and Load to Yield:** 44,500 lbs Yield at Bottom Sub Fishing Neck and Lug Grooves.

**Burst Point and Burst Pressure:** 11,400 psi at Bottom Sub Fishing Neck and Lug Grooves.

**Torsional Weak Point and Ft-Lbs to Yield:** 616 ft-lbs at Stub Acme connection between Top Sub and Body.

**Recommended Make Up Torque:**

**1st Connection:** Top Sub and Body Connection -154 ft-lbs.

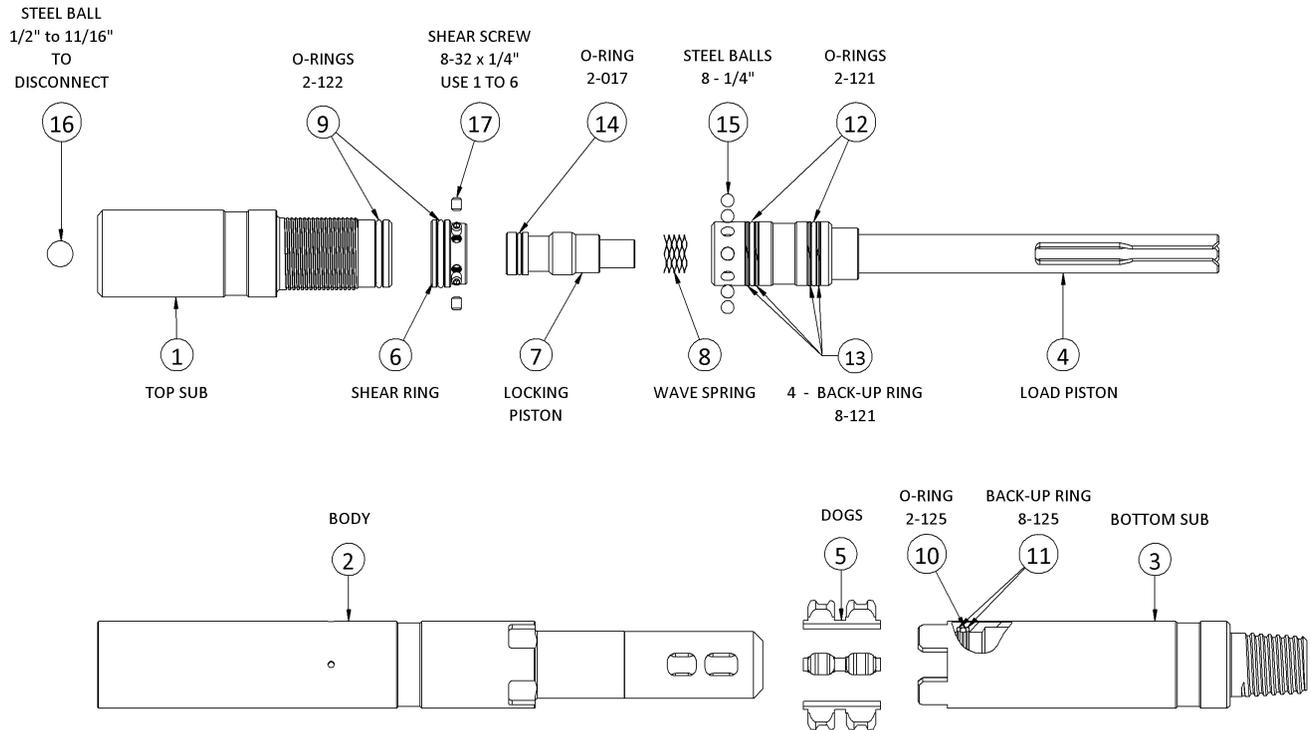
**Shear Screw Value:** 8-32 NC Brass, 1,150 psi (plus or minus 15%) per screw.

**Ball Size Range to Release / Fishing Profile:**

1/2 in. - 11/16 in. Steel Ball Bearing/When disconnected, the tool leaves a 2 in. B&W internal fishing neck looking up.

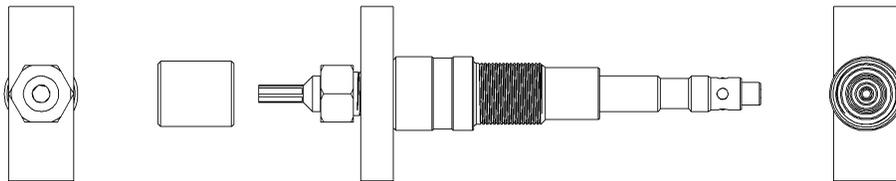
## Tool Part ID

### 1-11/16" JAF HYDRAULIC DISCONNECT PART IDENTIFICATION SHEET

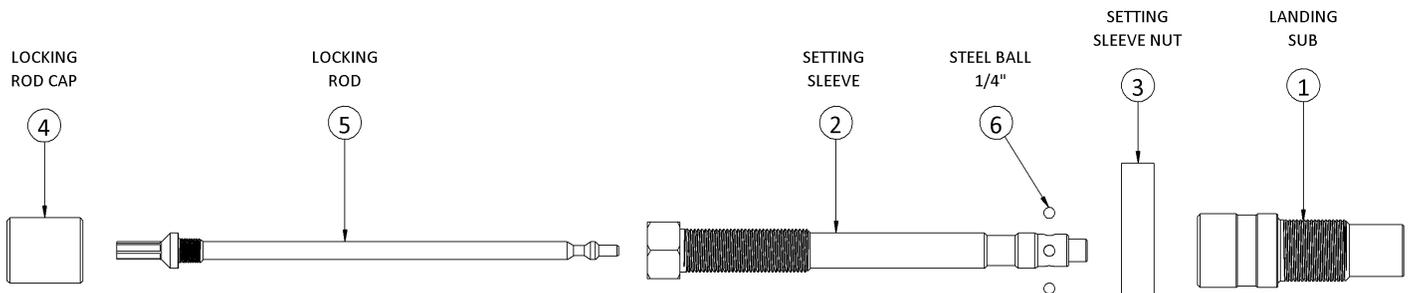


Redress Tool Part ID

REDRESS TOOL FOR  
1-11/16" JAF HYDRAULIC DISCONNECT  
PART IDENTIFICATION LIST

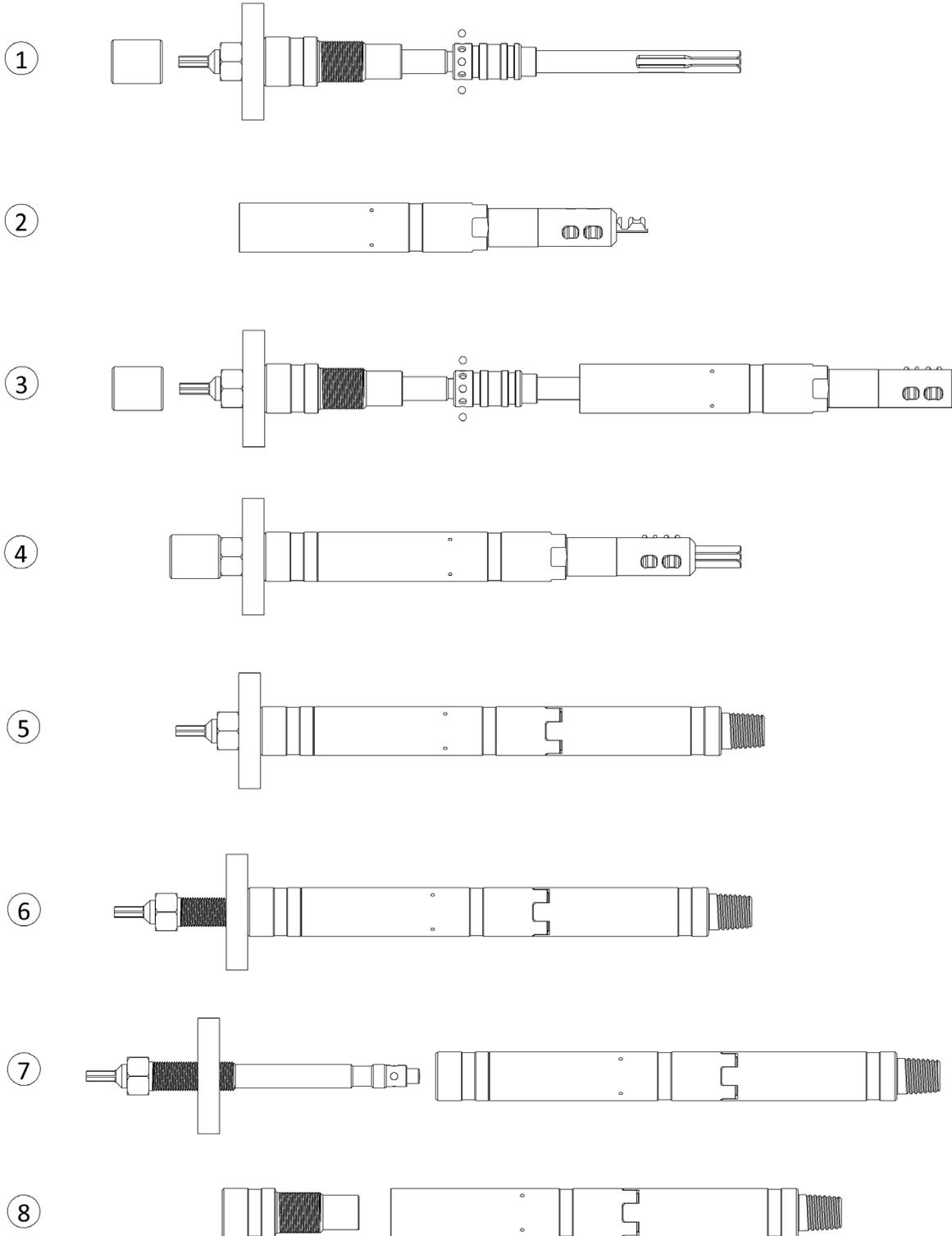


ASSEMBLED VIEW

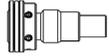


DISASSEMBLED VIEW

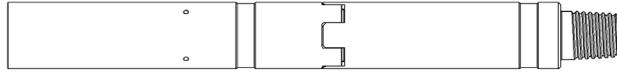
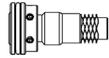
## Assembly Instructions



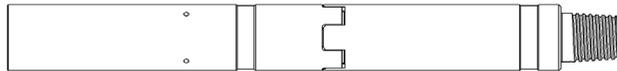
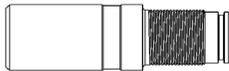
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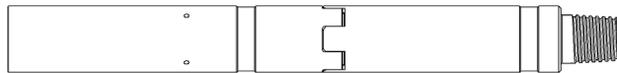
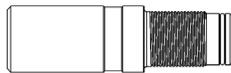
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## 1.0 Pre-Assembly



**Warning:** *Make sure all tool parts and components have been thoroughly cleaned or serious damage and/or injury could occur!*



**Note:** *Verify that the correct O-ring redress kit and quantities are used as specified on the Bill Of Materials (for example, 5 each etc....). Lay out all redress kit components on a clean surface.*



**Note:** *Make sure to lubricate all O-rings and threaded surfaces.*



**Note:** *Visually inspect all parts for damage or wear. Thread parts together without the O-rings to check fit. Repair or replace damaged parts.*



**Caution:** *Always file wrench marks or burrs and clean off debris!*

## JAF Redress Tool Assembly

1. First lubricate the threads on the Setting Sleeve (item #2), then screw on the Setting Sleeve Nut (item #3). Do not tighten.
2. Next slide the Landing Sub (item #1) onto the Setting Sleeve until it rests on the sleeve nut.
3. Lubricate the Locking Rod (item #5), then insert it into the Setting Sleeve. Secure in place by screwing it in until it shoulders out.
4. Put the Locking Rod Cap (item #4) onto the bottom of the rod and stand tool on end.



**Note:** *The Locking Rod Cap does not secure to the end of the Locking Rod. It acts as protective cover when positioning the Piston.*

5. Finally, liberally grease the holes of the Setting Sleeve, then insert the 4 Steel Balls (item #6). The grease will help hold the balls in the place.

## 2.0 Assembly

- 2.1 Install all O-rings and Backup rings as per the JAF Disconnect schematic. When using Backup rings, the order is; Backup, O-ring, Backup.
- 2.2 Apply thin coat of high quality grease to all internal components including make up threads, ID of Body (item #2) and ID of Bottom Sub (item #3).
- 2.3 Apply grease to the holes in the dog holes in the Body. Install the Dogs (item #5) into the Body (item #2), with tips facing toward bottom of tool, by using needle nose pliers to grab the Dogs. The grease should hold the dogs in place.
- 2.4 Stand the Redress Tool on a sturdy work space or table. Next put the Piston (item #4) onto the top of the Redress Tool. Using a wrench on the top of the Setting Sleeve as a backup, turn the Locking Rod **counter-clockwise** until it is hand tight. This will force the Steel Balls in the Redress Tool to lock into the recess on the Piston.



**Caution:** *Do not over tighten as this may cause damage to the tool!*

- 2.5 Liberally grease the holes in the Piston, then insert the 8 Steel Balls (item # 15). The grease should hold the balls in place.
- 2.6 Insert the Piston (item #4) into the Body (item #2).



**Caution:** *The 3 Dogs in the Body must perfectly align with the 3 slots in the Piston, otherwise it could damage the Piston!*

- 2.7 To seat the Dogs in the Piston slots, hold on to the Body with one hand. Now with a rubber mallet, drive the Body down until it can be made up with the Landing Sub. Make Landing Sub all the way up until it hand tight.
- 2.8 Hold on to the Redress Tool Locking Rod Cap with one hand and the Body (item #2) with the other. Lift the assembly 10-12 in. (25-30 cm) off the work surface, then slam down on to the table or wooden block. Repeat until the Dogs are flush with the Body.

- 2.9 Vise the Bottom Sub (item #3) near the pin end. Take the Body/Piston/Redress Tool assembly and insert the Piston end into the Bottom Sub. Make sure that the grooves in the Bottom Sub and those on the Body, then tap into place by using a rubber mallet.
- 2.10 To lock the Dogs into the Bottom Sub, turn the Setting Sleeve Nut **clockwise** until it stops, then back off 1/4 of a turn.



**Caution:** *The sleeve nut should be able to be turned by hand! If excessive force is needed then something is wrong!*

- 2.11 Turn Locking Rod clockwise until it releases the redress tool. Remove redress tool and check to make sure that the four 1/4 in. Steel Balls are still in the bottom of the redress tool. Also check inside the disconnect to make sure the eight 1/4 in. Steel Balls are still in place. If the Landing Sub did not come off with the rest of the Redress Tool, remove it from the Body.
- 2.12 Slide the Locking Piston (item #7) into the Shear Ring (item #6) and use a rawhide or rubber mallet to tap in until the top of the piston is flush with the top of the Shear Ring.



**Note:** *The Piston may extend a little out of the Shear Ring, so that the Shear Screws can be fully seated.*

- 2.13 Then depending upon your required shear values, insert 1-6 Shear Screws (item #17 1150 psi +/- 15% per screw).
- 2.14 Slide the Wave Spring (item #8) over the Locking Piston (item #7) and insert the assembly into the Body (#2) wave spring end first. Use a brass rod to help centralize.
- 2.15 Move the assembly down in the vise to the middle of the Body just past the weep holes
- 2.16 Make up the Top Sub (item #1) to the Body (item #2) by using a pipe wrench. Recommended make up torque is 154 ft / lbs.
- 2.17 The Disconnect is now complete. Test as per your companies test procedures and requirements.

### 3.0 Disassembly

- 3.1 Put the tool in a vise. The best place to clamp down, is on the middle of the Body. Remove the Top Sub with a strap/pipe wrench.



**Caution:** *Do not vise on the, holes, as this can damage the tool!*



**Caution:** *Clamping down towards the fishing neck could cause damage to the Bottom Sub!*

- 3.2 Remove the assembly from vise and tap on a wood/aluminum block until the Shear Ring (item #6), Locking Piston (item #7), and Wave Spring (item #8) come out of the Body (item #2).
- 3.3 Vise assembly on the Bottom Sub, near the pin end. Insert the Redress Tool into the Body and make up Landing Sub. Turn the Locking Rod **counter-clockwise** until the tool locks into the recess on the Piston (item #4). Do not over torque the Locking Rod.
- 3.4 Put the Locking Rod Cap over the top of the rod and tap down on until the rod bottoms out. This should move the Dogs (item #5) into the retracted or released position.
- 3.5 Clamp the Bottom Sub (item #3) in a vise and pull on the Body (item #2) while shaking or tapping with rubber mallet, until the Body releases from the Bottom Sub (item #3).



**Caution:** *Do not try to stick a rod in the bottom of the tool and beat on the piston (item #4)! This will only force the dogs back into the locked position and could cause damage to the dogs and/or the Piston!*

- 3.6 Once the Body has been removed from the Bottom Sub, slide the Redress Tool along with the Piston out of the Body. Hold backup on the Setting Sleeve while rotating the Locking Rod **clockwise** to release the Redress Tool from the Piston.
- 3.7 Remove and discard O-rings and Shear Screws. Clean tool and inspect as per your company's procedures and requirements.



**Note:** *New O-rings and shear screws should be used when redressing the tool.*



**Note:** *Remove and discard all O-rings. Replace O-rings after each use. Thoroughly clean tool parts in a cleaner approved by state and/or local laws.*



**Note:** *It is recommended that a Magnetic Particle Inspection (MPI) be completed on all components after each job.*