Doc Name	5.5” Casing SharkTAC™ Tubing Anchor Casing-Scraper SOP		
Date	September 18, 2025	Revision	12

1. Transportation

1.1. Transport the SharkTAC tubing anchor tool with it appropriately tied down to wooden surface (as a minimum). Orient the tool such that the slips are not taking the weight of the tool during transport. Cover tool such that debris can not accumulate on or in the tool.

2. Preparation

2.1. Always use an appropriate tubing hanger tension calculator (download and use the Q2 ALS app at https://apps.apple.com/bw/app/q2-als/id1586498929) to calculate required tubing hanger tension over string weight and associated tubing stretch (at surface) requirements from the following stretch table and equation (note, this is a basic equation for vertical wellbore sections; contact Oilify for using a more complex calculation if wellbore deviations are involved).

Stretch **ΔL = F x L x SC**

where,

ΔL = stretch, in inches

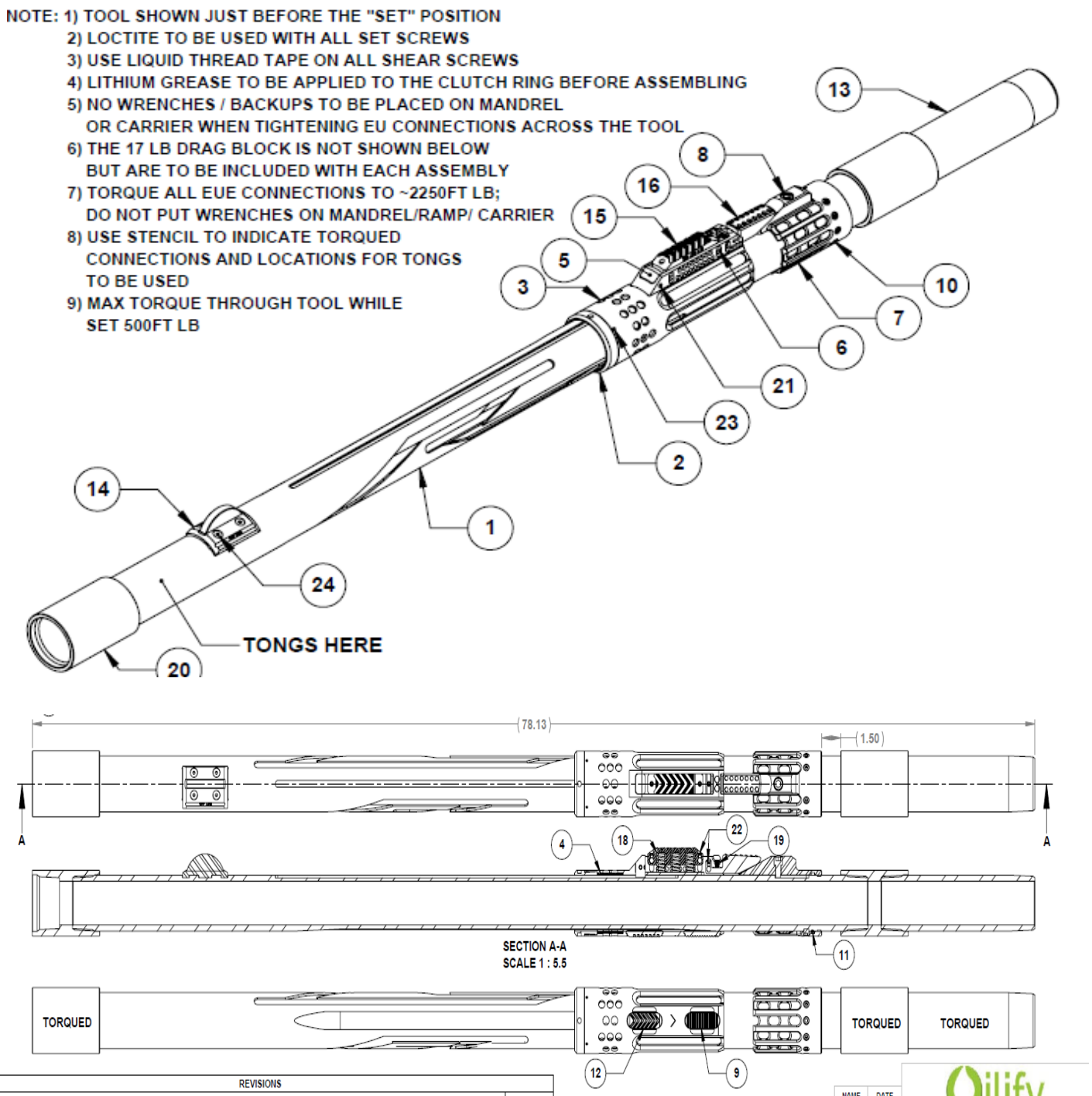
F = pull force, in thousands of pounds

L = tubing length, in thousands of feet

SC = stretch constant, in inches of stretch per thousand pounds of pull per thousand feet of tubing length

OD	Weight	ID	Wall Area	Stretch Constant
in.	lb/ft	in.	in2	in./1,000 lb/1,000 ft
2.375	3.10	2.125	0.884	0.45249
	3.32	2.107	0.943	0.42418
	4.00	2.041	1.158	0.34542
	4.60	1.995	1.304	0.30675
	4.70			
	5.30	1.939	1.477	0.27082
	5.80	1.867	1.692	0.23641
	5.95			
	6.20	1.853	1.733	0.23081
	7.70	1.703	2.152	0.18587
2.875	4.36	2.579	1.268	0.31546
	4.64	2.563	1.333	0.30008
	6.40	2.441	1.812	0.22075
	6.50			
	7.90	2.323	2.254	0.17746
	8.60	2.259	2.484	0.16103
	8.70			
	8.90	2.243	2.540	0.15748
	9.50	2.195	2.708	0.14771
	10.40	2.151	2.858	0.13996
	11.00	2.065	3.143	0.12727
	11.65	1.995	3.366	0.11884
3.500	5.63	3.188	1.639	0.24405
	5.75			
	7.70	3.068	2.228	0.17953
	9.20	2.992	2.590	0.15444
	9.30			
	10.20	2.922	2.915	0.13722
	10.30			
	12.80	2.764	3.621	0.11047
	12.95	2.750	3.682	0.10864
	13.70	2.673	4.010	0.09975
	14.70	2.601	4.308	0.09285
	15.10	2.602	4.304	0.09294
	15.80	2.524	4.618	0.08662
	17.05	2.440	4.945	0.08089

2.2. Review and inspect all the assembled components. Following diagram shows the component parts and descriptions (5.5” casing SharkTAC shown below):



REVISIONS		
REV.	DESCRIPTION	DATE
3	UPDATES MADE TO THE MANDREL,THE SLIP, RETAINER NUT, SLIP CARRIER, RAMP, CARRIER FIXED KEY, RAMP LOCATOR PIN AND THE SLIP PIVOT PIN & NEW SPRINGS IN THE ASSEMBLY	2023-04-21
4	SLIP AND DRAG BLOCK SEPARATED, ADDITION OF SHARKFIN CENTRALIZER, NEW 17LB DRAG BLOCK AND 23LB DRAG BLOCK SPRINGS & UPDATES TO SLIP CARRIER	2023-09-20
5	MANDREL MADE LONGER, SHARKFIN MADE INTO 2 PIECES AND INCORPORATED INTO THE MANDREL, J-TRACK UPDATED TO ALLOW MORE TRAVEL BETWEEN THE ANCHOR AND RELEASE POSITIONS	2023-11-17
6	CLEANOUT HOLES ADDED TO THE CLUTCH RING AND CARRIER & CAP LINE GROOVE ADDED TO SHARKFIN & UPDATES TO MANDREL J-TRACK & SLIP SPRINGS UPDATED	2024-04-29

INTERPRET GEOMETRIC TOLERANCING PER:
MATERIAL: SEE COMPONENT DWGS
FINISH: SEE COMPONENT DWGS
DO NOT SCALE DRAWING

UNLESS OTHERWISE SPECIFIED:
DIMENSIONS ARE IN INCHES
TOLERANCES:
FRACTIONAL ±1/32
ANGULAR: ± 0.5° BEND ±0.5°
ONE PLACE DECIMAL ±0.125
TWO PLACE DECIMAL ±0.010"
THREE PLACE DECIMAL ±0.005"

	NAME	DATE
DRAWN BY:	SGL	05MAY22
REVIEWED BY:	CS	06MAY22

Oilify
TITLE: 5.5 17-23LB SHARKTAC GENERAL ASSEMBLY
SIZE B | DWG. NO. OLY-TAAS-2875-G-1 | REV 6
SCALE: 1:10 | WEIGHT: 83.86 | SHEET 1 OF 1

ITEM NO.	PART NUMBER	DESCRIPTION	WEIGHT (LB)	QTY.
1	OLY-TAAS-2875-MP-01	ANCHOR MANDREL	47.76	1
2	OLY-TAAS-2875-MP-02	CLUTCH RING RETAINER NUT	1.09	1
3	OLY-TAAS-2875-A-05	SLIP AND DRAG BLOCK CARRIER ASSEMBLY	4.22	1
4	OLY-TAAS-2875-A-01	CLUTCH RING ASSEMBLY	0.50	1
5	OLY-TAAS-2875-MP-08	CARRIER FIXED GUIDE KEY	0.18	1
6	OLY-TAAS-2875-MP-10	RETAINER PIN	0.03	3
7	OLY-TAAS-2875-MP-11	ANCHOR SET RAMP SLEEVE	3.39	1
8	OLY-TAAS-2875-MP-12	ANCHOR SET RAMP SLEEVE LOCATE PIN	0.06	1
9	OLY-TAAS-2875-MP-13	ANCHOR BACK SLIP PAD	0.19	1
10	OLY-TAAS-2875-MP-14	ANCHOR SHEAR SCREW	0.01	11
11	OLY-TAAS-2875-MP-15	ANCHOR LOCK RING	0.07	1
12	OLY-TAAS-2875-MP-16	ANCHOR BACK DRAG PAD	0.17	1
13	OLY-TAAS-2875-MP-20	2.875 EU STANDARD NIPPLE, 12 INCH LONG	9.70	1
14	OLY-TAAS-2875-WA-02	SHARK FIN WELDED ASSEMBLY	1.05	1
15	OLY-TAAS-2875-MP-25	20-23 LB CASING DRAG BLOCK	0.77	1
16	OLY-TAAS-2875-A-04	SLIP ASSEMBLY	0.86	1
17	OLY-TAAS-2875-MP-28	17 LB CASING DRAG BLOCK	0.94	1
18	DRAG BLOCK SPRING	0.75 OD X 0.105 COIL X 1.42" LONG INCONEL X750 COMPRESSION SPRING, VICTORY SPRING #V8958	0.042	3
19	SLIP SPRING	COMPRESSION SPRING, 0.313 OD X 0.243 ID X 1 LONG, VICTORY SPRING #V9714	0.003	2
20	2.875 EUE COUPLER	2.875 EU STANDARD L80 COUPLER	6.22	2
21	0.25 SPRING PIN	SLOTTED SPRING PIN, 0.25 X 1.5 INCH LONG, MCMASTER-CARR #90209A163	0.01	1
22	0.25-28 SET SCREW	SET SCREW, CUP POINT, 0.25-28, 0.25 LONG, MCMASTER-CARR#92313A100	0.002	3
23	10-32 SET SCREW	SET SCREW, CUP POINT, 10-32 X 0.125" LONG, MCMASTER-CARR #92313A820	0.001	4
24	FLAT HEAD SCREW	FLAT HEAD SCREW, 0.25-28 X 0.375 LONG, MCMASTER-CARR#91263A715	0.008	4
25	3.5 EU THREAD PROTECTOR	2.875 EU PIN THREAD PROTECTOR	0.01	1
26	2.875 EU THREAD PROTECTOR	2.875 EU BOX THREAD PROTECTOR	0.01	1

2.3. Add or remove shear pins (11 pins x 5,000 lbs/pin) as specified for the planned well. See Item No. 10 in the diagram. Equally space pins on tool and torque shear pins to _____ft.lbs.

Note: The minimum recommended shear tension is 5,000 lbs above the calculated tubing overpull to set and unset rig's table slips and install a tubing hanger or bonnet. Short / low lying slips may be necessary if calculated overpull stretch exceeds 85% of shear pinned value or running of a tension tool (e.g., Progressive Completions Safe Set Tension Tool).

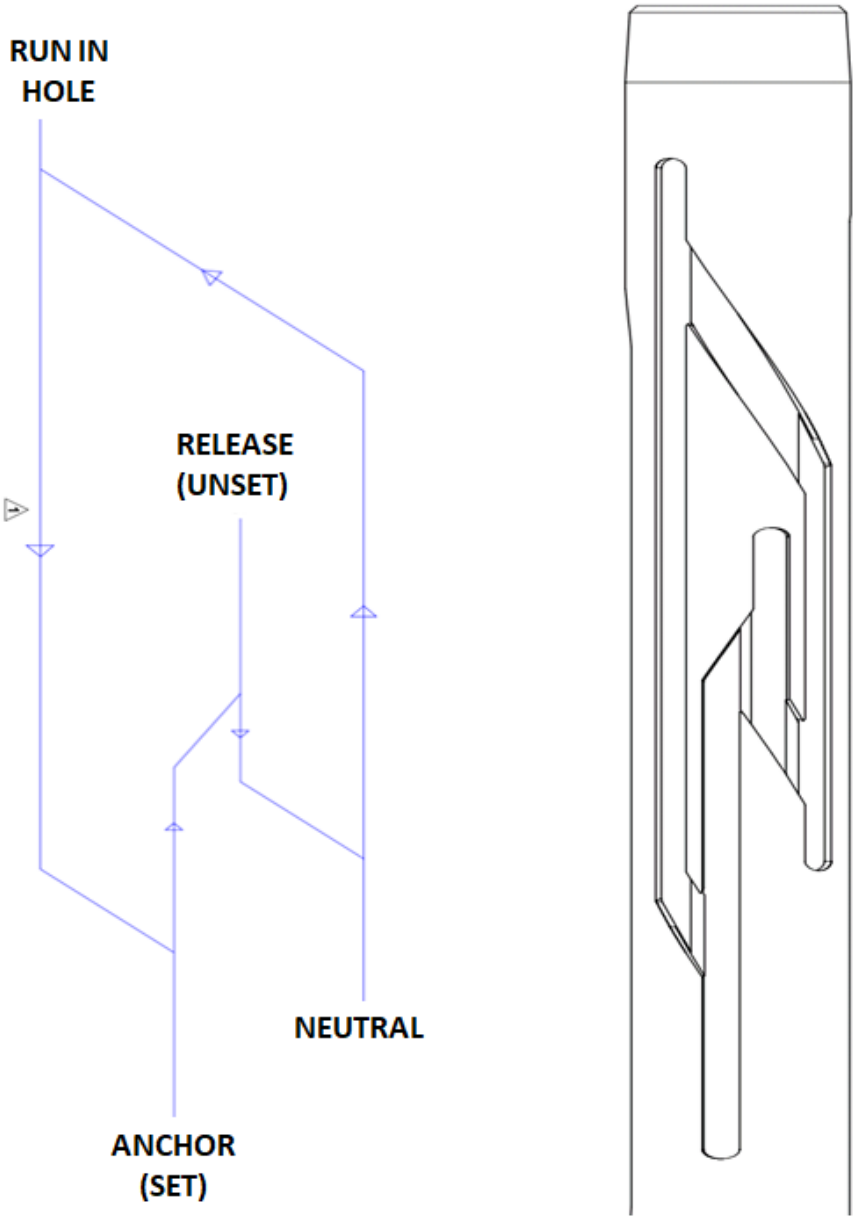
2.4. Confirm the planned well's casing size and weight are compatible for the SharkTAC's design. If required, dress the tool's drag block for the well's casing weight:

<u>5.5 inch casing SharkTAC is compatible for 17 lb/ft to 26 lb/ft casing weight range:</u>

17 lb/ft (25.3kg/m) 5.5" (139.7mm) casing use 17 lb/ft Drag Block and Grey Compression Springs
20 lb/ft (29.76kg/m) 5.5" (139.7mm) casing use 20-23 lb/ft Drag Block and Grey Compression Spring
23 lb/ft (34.23kg/m) 5.5" (139.7mm) casing use 20-23 lb/ft Drag Block and Grey Compression Springs

2.5. All SharkTAC's are Quench Polish Quench (QPQ) surface treated for improving corrosion tolerance and reducing friction. Spray White Lithium grease (lightly) on 2.875" Autoset Slide Ring Retainer (Item No. 4) inside/outside and the Auto-J track. Regular grease can be used but is not recommended.

2.6. The SharkTAC only functions with tubing movement up or down. No rotation is required for setting or unsetting. DO NOT attempt to rotate the SharkTAC while setting or unsetting. Auto-J (Auto-Set) track functional diagrams are as follows:



2.7. Check that the SharkTAC has no visible damage. Function and cycle test the SharkTAC's travelling Slip/Drag Block Carrier Assembly (Item Number 3 in the diagram) up/down multiple times though the **RIH**, **Anchor** (set), **Release** (unset) and **Neutral** auto-J track positions.

2.8. Remove thread protectors and visually inspect threads, reinstall thread protectors.

3. Make-up and Running in Hole

3.1. For wells expected to have a high risk of scaling and/or debris accumulated on the casing wall (such as wax, solids and/or scale), it is recommended to perform a dedicated casing scraper run with a standard casing scraper (per good oilfield practices). The SharkTAC has a casing scraper feature on its drag blocks and is designed for low to medium risk casing scraper requirements.

3.2. Run bottomhole assembly (BHA) that is planned below the SharkTAC and hang off in rig table slips.

3.3. Make-up SharkTAC as follows:

a. Lift a handling joint of 2-7/8" EUE tubing above the rig floor using the elevators.

b. Screw in, by hand, the SharkTAC tool's 2-7/8" EUE top collar/box (Item No. 14 in the diagram, described as Sharkfin Centralizing Coupling Assembly) into the handling tubing joint's pin connection.

c. Set the SharkTAC's Slip/Drag Block Carrier Assembly in its **Neutral** position on the Auto-J track. See rendering below. **NOTE:** Running down through BOP's and into the well without the SharkTAC's Slip/Drag Block Carrier Assembly set in its **Neutral** position can result in slip damage.

d. Lower the SharkTAC down outside adjacent to BOP's. Using power tongs tighten the SharkTAC's top connection to the handling pup joint to API specifications using the backup tong on the SharkTAC's top collar/box.

NOTE: Torque up using top collar/box on SharkTAC without applying any forces or torque directly on or through the SharkTAC's Autoset Mandrel (Item Number 1). DO NOT place back-up tongs or pipe wrenches on this mandrel, as they can damage the auto-J track.

NOTE: SharkTAC's Top Collar and Lower Pin Sub should be API specification torqued in the shop prior to being brought to the wellsite.

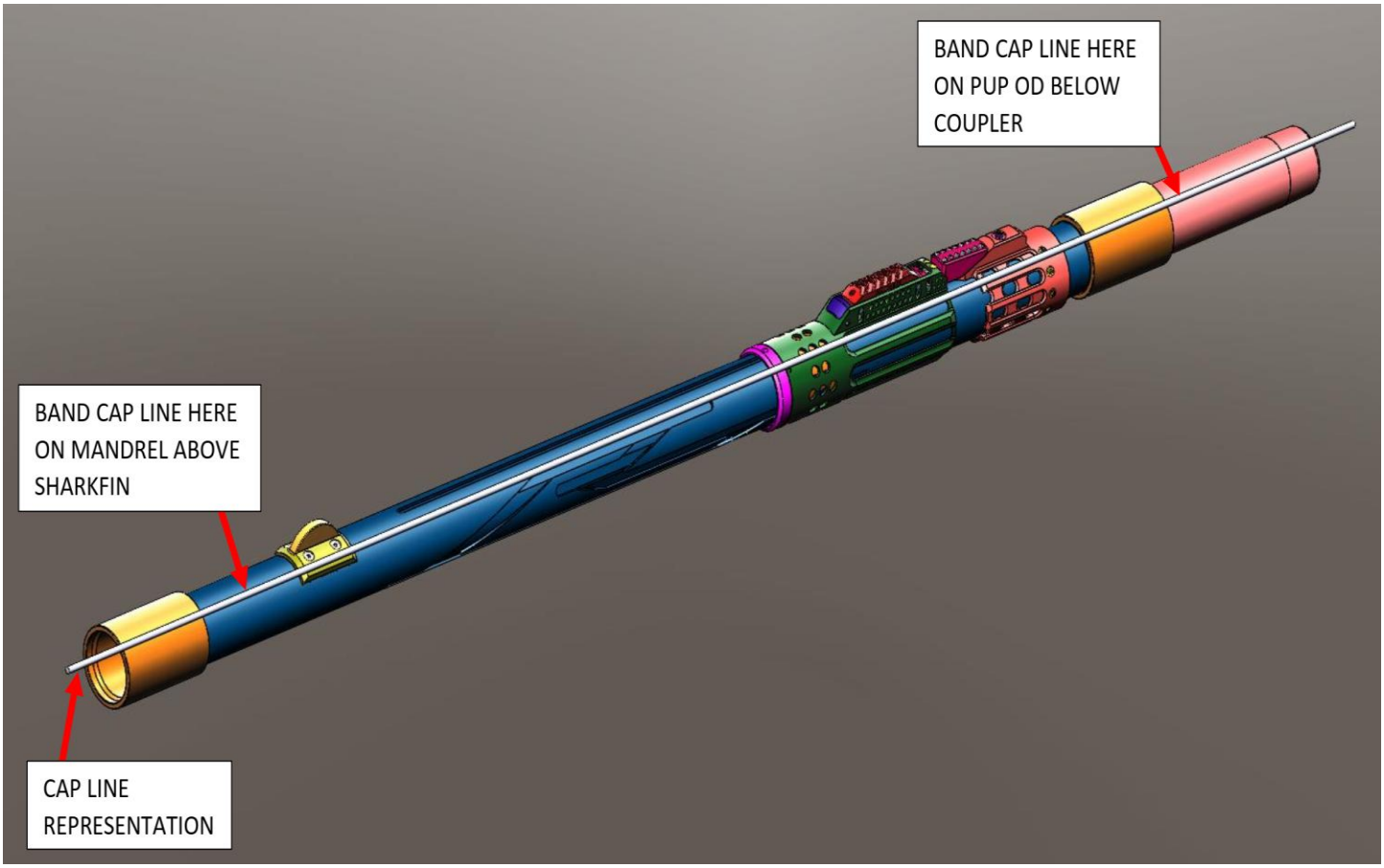
e. Pick up and stab SharkTAC's 2-7/8" EUE Lower Pin Sub connection (Item No. 13 in the diagram) into the 2-7/8" EUE box of the lower BHA portion in table slips. Using the power tongs placed on the SharkTAC's Lower Pin Sub, tighten this connection to API specifications.

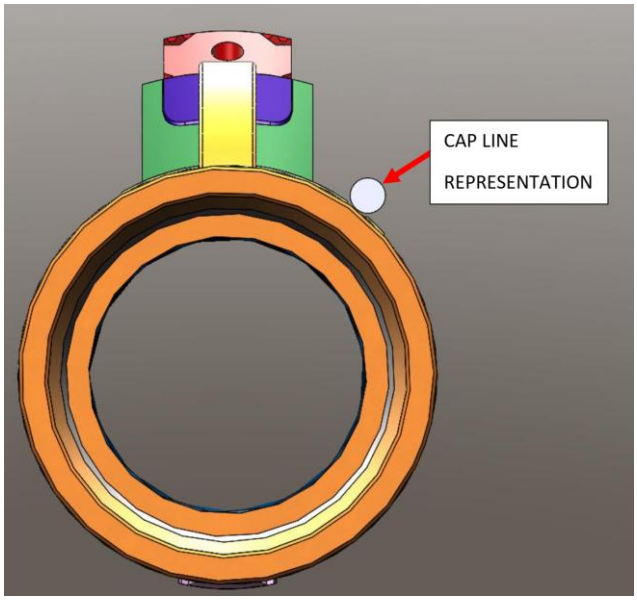
3.4. Confirm the SharkTAC's travelling Slip/Drag Block Carrier Assembly in the **NEUTRAL Position** on the Auto-J Track prior to lowering it into the well through the BOP's and into the casing. Lower the SharkTAC slowly through BOP's and do not let it take weight as it passes through the BOP's or wellhead. When the travelling Slip/Drag Block Carrier Assembly encounters the top of the casing it will drag itself automatically up into the **RIH Position (see renderings below)**.

NOTE: if SharkTAC takes any weight while running through the BOP's wellhead, immediately pull it back up to the rig floor and inspect for damage. If no damage, rotate the tool 90 degrees and attempt to re-run through wellhead.

3.5. If running a **capillary** chemical injection string or electrical cabling past and alongside the SharkTAC, proceed as follows:

a. Position the capillary line such that is does not impede the movement of the SharkTAC's slip travelling cage. See following rendering for capillary line positioning and banding:





b. Band the capillary on either side of the SharkTAC such the bands hold the capillary line's position alongside the Shark TAC, but do not impede the travelling Slip/Drag Block Carrier Assembly's movement (see pictures above).

c. Function the SharkTAC's travelling Slip/Drag Block Carrier Assembly multiple times through its entire cycle of four positions (RIH, Anchor, Release, and Neutral), to confirm the capillary line or cable does not impede its function.

d. Consider a shallow depth test set (see Section 4 for setting procedure) of the SharkTAC, for confirming the capillary line does not impede setting action.

3.6. RIH per good oilfield practice. While RIH, **do not** pull-upwards out of the workover rig's table slips more than 12 inches. If excessive upward travel applied, more than 20 inches, the tool will cycle into its **Anchor Position** (i.e., tool will set).

a. If SharkTAC tool accidentally sets during RIH, lower it down at least 15 inches (0.4 meters) to cycle it into the **Release Position**. Pick up at least 12 inches (0.3 meters) on SharkTAC and cycle the tool into its **Neutral Position.** Then run SharkTAC downwards to continue RIH, as the tool will automatically cycle back into its **RIH Position**.

3.7. Reduce the RIH speed to more than 15-30 seconds per standard tubing joint just prior to well's **Fluid Level** is encountered or before any known casing tight spots or high dogleg severity intervals greater than 10 degrees per 100 feet (10 degrees per 30 meters).

4. Setting / Anchoring SharkTAC

4.1. Run SharkTAC downwards past the planned setting depth by 30 inches (0.8 meters) and calculated landed stretch for required final set tension.

a. The SharkTAC can be repeatedly set/unset for tubing hanger tension spacing out requirements.

4.2. Set SharkTAC by pulling upwards 30 inches (0.8 meters) into its **Anchor Position**. The SharkTAC should commence taking tension weight after pulling 30 inches (0.8 meters) upwards.

a. If the SharkTAC does not take tension weight when pulling upwards (more than 36 inches or 1.0 meters), then repeat step 4.1. Note, consider increasing the speed/rate of pulling upwards in attempt to get the SharkTAC to set.

b. If SharkTAC repeatedly does not set, pump a 50 bbl load fluid flush down the tubing to casing annulus. Repeat step 4.1. Pumping flush simultaneously while attempting to set SharkTAC has proven beneficial.

c. If SharkTAC repeatedly does not set, put a full turn to the right in tubing string at surface. Repeat step 4.1.

4.3. Pull SharkTAC taking upwards until overpull tension weight of approximately 5000 lbs is observed. Stop and nipple down BOPs then continue to pull upwards as required to install slips below BOPs. Do not exceed tension load over string weight that exceeds 85% of the SharkTAC's shear pin setting.

4.4. With BOP off, lower tubing to pin connection at set depth. Install tubing hanger or adaptor flange and land tubing hanger.

5. Releasing SharkTAC

5.1. Lower tubing downwards at least 24 inches plus calculated stretch to release tension. SharkTAC should cycle into its **Release Position**. Pull upwards for at least 36 inches to confirm the travelling Slip/Drag Block Carrier Assembly is in its **Neutral Position (and is no longer taking tension over the string weight).**

5.2. Continue to pull out of the hole. Do not lower tubing more than 12 inches (0.3 meters) while POOH, as the SharkTAC will cycle into its **RIH Position** and on the next upward movement will cycle the SharkTAC into its **Anchor Position**. Always pull the first 3 feet slowly to ensure SharkTAC has not cycled into its Anchor Position. If this happens, cycle SharkTAC back to its **POOH Position** and continue out of the well.

5.3. If SharkTAC will not unset after repeated attempts, proceed in sequence as follows. DO NOT place any rotational torque on the SharkTAC while it is set, as rotational torque above 500 ftlbs will damage the SharkTAC.

a. Pump a 50 bbl load fluid flush down the tubing to casing annulus. Repeat step 5.2. Pumping flush simultaneously while attempting to unset SharkTAC has proven beneficial.

b. If SharkTAC will still not unset, pump a lubricant down the tubing to casing annulus in attempt to reduce friction in the SharkTAC. Repeat step 5.2.

c. If SharkTAC will still not unset, spot acid down the tubing to casing annulus in attempt to dissolve any scale deposits around the SharkTAC. Repeat step 5.2.

d. If SharkTAC will still not unset after repeated attempts, it can be **Emergency Shear Released**. Emergency Shear Release the SharkTAC by pulling upwards to a tension amount that is greater than the string weight plus the shear pinned setting. Once shear action is seen at surface, RIH downward at least 17 inches (0.43 meters) to cycle the SharkTAC to its **Release Position**. Pull upwards to cycle the SharkTAC into its **Neutral Position**.

NOTE: once sheared, the SharkTAC will not be able to be cycled to its **Set position** again until redressed at surface.

Oilify SharkTAC Disassembly and Assembly Redress Procedure

Tools Required:

- Allen Key Set (3/32” for set screws, 3/16” for shear screws & 3/8” for Ramp Locate Pin)
- Pipe Wrench (for use on couplers only, do not use on Mandrel / other components)
- Strap Wrench
- Rubber Mallet (to be used on body / components to assist assembly/disassembly if needed)
- Hammer (to only be used on Slotted Spring Pin; do not use on body/components)
- Small Punch / Pin (~0.188”-0.25” diameter)
- Blue Loctite

Disassembly

Note:

- No pipe wrenches / backups to be placed on the Mandrel (1) or Carrier (3) when loosening EU connections

1. Place the Top Coupler(15 T) of the tool in a vice and remove the bottom Nipple(14) and Bottom Coupler(15 B)
2. Remove all Shear Pins(11) and the Ramp Sleeve Locate Pin(9) from the Ramp Sleeve(8)
3. Remove the Ramp Sleeve(8) from the Mandrel(1)
4. Remove the Lock Ring(12) from the Ramp Sleeve(8)
5. If the tool was sheared; Remove any pieces of the shear pins that may be still inside the shear pockets on the Mandrel(1)
6. Loosen and remove the Slip Set Screws(17)
7. Remove the Slip Pivot Pins(7) and remove the Slip(5) and Compression Springs(19) from the Carrier(3)
8. Remove the Slotted Spring Pin(16) by tapping it out with a hammer and a punch/pin
9. Remove the Slip Guide Fixed Key(6) from the Carrier(3) by using a small pin in the hole on the flat side of the key and lifting it out
10. Loosen and remove the Retainer Ring Set Screws(18) and unthread the Retainer Nut(2) from the Carrier(3)
11. Slide the Carrier(3) down the Mandrel(1) so that the Slide Ring(4) comes out of the Carrier
12. Remove the two Slide Keys(20) from the Slide Ring(4)
13. Slide the Carrier(3) off of the Mandrel(1)
14. Remove the Slip Pad(10) and the Drag Pad(13) from inside the Carrier(3)
15. Remove the Slide Ring(4) and the Retainer Nut(2) off of the Mandrel(1)
16. Remove the Top EU Coupler(15 T) using a strap wrench

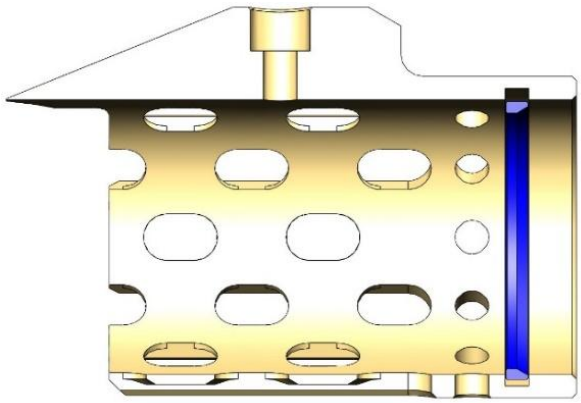
Assembly

NOTES:

- Ensure that all threads are properly lubricated prior to assembly. All set screws should be installed with Blue Loctite applied on them.
- No pipe wrenches / backups to be placed on the Mandrel(1) or Carrier(3) when loosening EU connections

1. Install the Lock Ring (12) in the groove in the Ramp Sleeve (8).

   Note: the Lock Ring must be installed with the tapered profile pointing downward and the shouldered profile facing upward (as shown below)



2. Slide the Ramp Sleeve (8) onto the Mandrel (1) slowly from the top of the tool down until the shear pin holes are aligned with the pockets on the Mandrel (1).

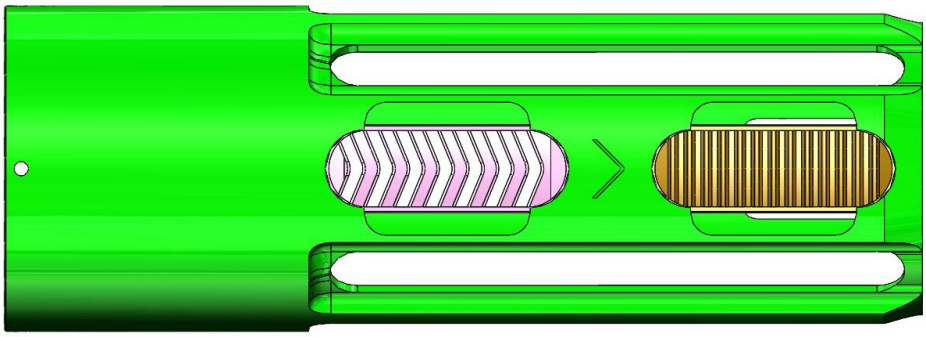
   Note: Do not slide the Ramp Sleeve past the shear pin pockets on the Mandrel as this will cause the Lock Ring to engage on the Mandrel and the Ramp Sleeve will not be able to slide back up; you will have to slide the Ramp Sleeve off the bottom of the Mandrel and reinstall on the top.

3. Install the required amount of Shear Pins(11) to meet the desired shear value

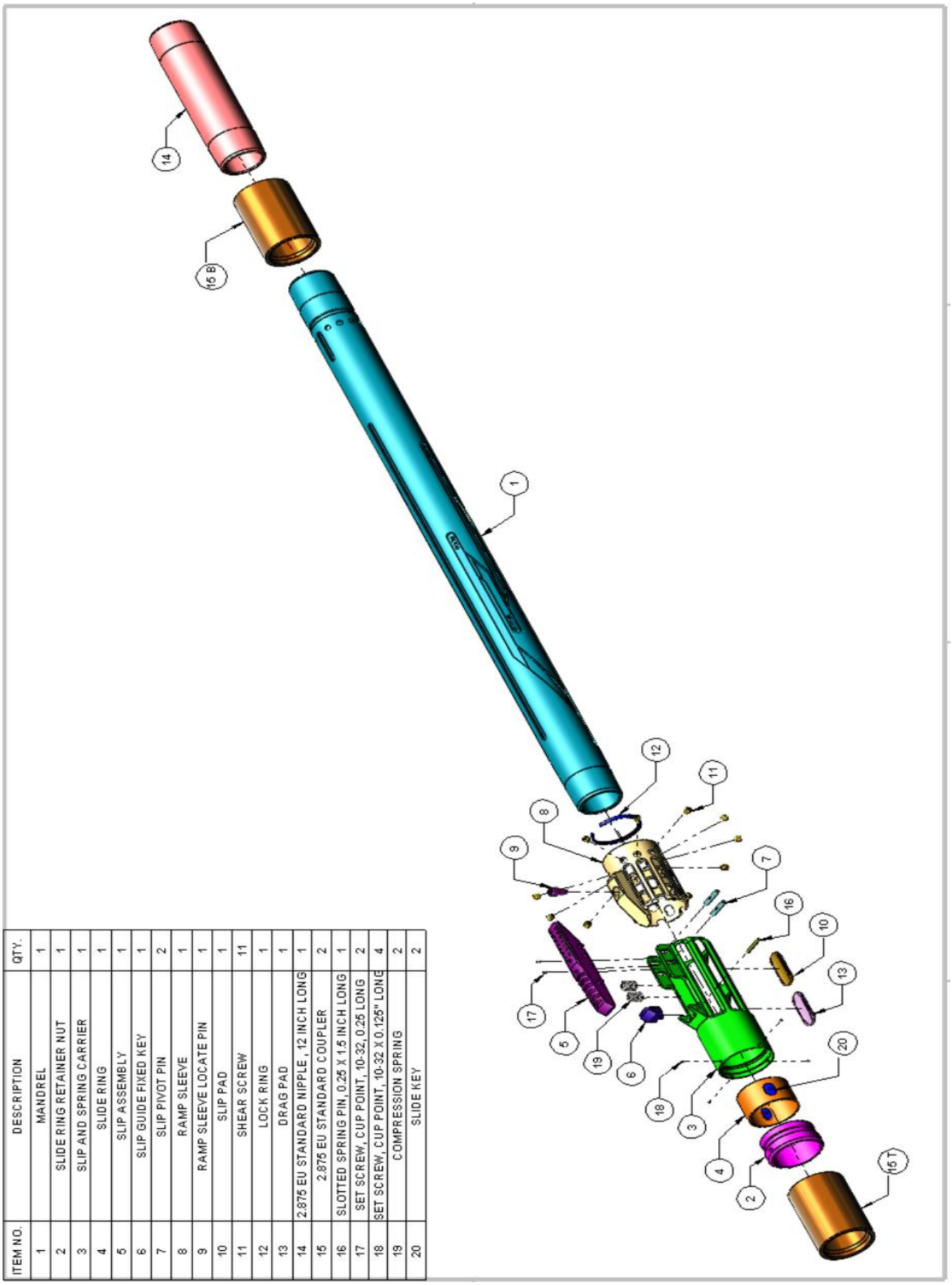
   Note: Pins should be installed in the Ramp as equally spaced as possible. Each Shear Pin is rated for 5600 lbs.

4. Install the Ramp Sleeve Locate Pin(9) within the hole on the top of the Ramp Sleeve (8).
5. Install the Slip Pad (10) and the Drag Pad (13) in the pockets in the ID of the Carrier (3) and slide the Carrier (3) onto the Mandrel (1).

   Note: Ensure that the Drag Pad is installed in the centralized pocket following the etched pattern on the Carrier (as shown below)



6. Install the Slip Guide Fixed Key(6) into the Carrier (3) so that the angled profiles match and the key runs inside the long straight track on the Mandrel (1).
7. Install Slotted Spring Pin (16) through the Carrier (3) & Slip Guide Fixed Key (6).
8. Install the Slide Ring (4) onto the Mandrel (1).
9. Install the two Slide Keys (20) into the pockets on the Slide Ring (4) so that they fit into the J-track on the Mandrel (1) and slide the ring into the Carrier(3) while holding the two Slide Keys (20) in place.
10. Thread the Retainer Nut (2) into the Carrier (3).
11. Install the Retainer Ring Set Screws (18) to lock the Retainer Nut (2) within the Carrier (3)
12. Install Compression Springs (19) inside the Slip (5) pockets.
13. Place Slip (5) into the Carrier (3) so that the slip side (with the carbide buttons) is facing the Ramp Sleeve (8).
14. Install Slip Pivot Pins (7) through the Slip (5) with the flat on the OD of the pins facing up.
15. Install Slip Set Screws (17) to lock the Slip Pivot Pins (7) in place.
16. Install 2.875’ EUE Coupling (15T) on the top of the tool, 2.875 EUE Coupling (15B) and 2.875” EUE Nipple (14) on the bottom of the tool.
17. Place the top 2.875” EUE Coupling (15 T) in a vice and torque the 2.875” EUE connections to specifications.



ITEM NO.	DESCRIPTION	QTY.
1	MANDREL	1
2	SLIDE RING RETAINER NUT	1
3	SLIP AND SPRING CARRIER	1
4	SLIDE RING	1
5	SLIP ASSEMBLY	1
6	SLIP GUIDE FIXED KEY	1
7	SLIP PIVOT PIN	2
8	RAMP SLEEVE	1
9	RAMP SLEEVE LOCATE PIN	1
10	SLIP PAD	1
11	SHEAR SCREW	11
12	LOCK RING	1
13	DRAG PAD	1
14	2.875 EU STANDARD NIPPLE, 12 INCH LONG	1
15	2.875 EU STANDARD COUPLER	2
16	SLOTTED SPRING PIN, 0.25 X 1.5 INCH LONG	1
17	SET SCREW, CUP POINT, 10-32, 0.25 LONG	2
18	SET SCREW, CUP POINT, 10-32 X 0.125" LONG	4
19	COMPRESSION SPRING	2
20	SLIDE KEY	2