



# Nipple Locator

## MAN-TTT-920 (R01)

### Thru-Tubing Technology

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# Nipple Locator

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## Description

The Thru-Tubing Nipple Locator is a simple means of locating a known position downhole, allowing for a more accurate positioning of the coiled tubing toolstring. This is especially important when running on coiled tubing where the depth indicator the coiled tubing unit is unlikely to be accurate.

## Operation

The nipple locator has three leaf-type springs retained in the Housing. An upset in the middle of the springs is at a diameter greater than the maximum ID of the nipple profile it is intended to locate, but the spring can deflect inwards enough to allow the spring to pass through the nipple. The contour shape of the spring is such that the tool moves down through restrictions easily but creates a drag force that can be detected at the surface when moving up through a restriction. Adjustment Rings under the Spring allows changing the force required to pull the locator through a nipple. These nuts effectively change the length of the leaf spring. The mechanical Nipple Locator will locate most nipples, but will not locate the end of the tubing.

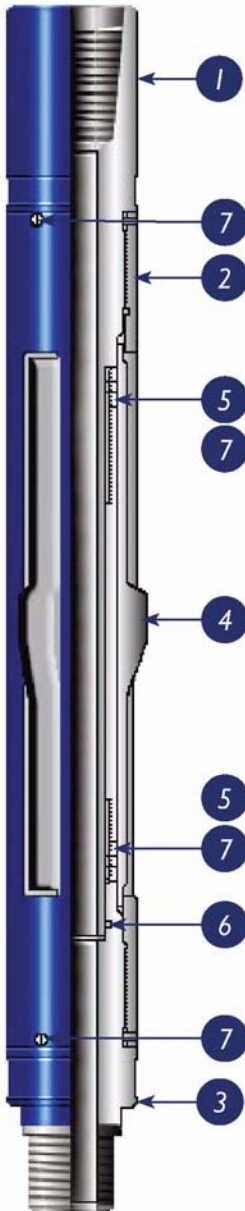


*Note: Unless otherwise indicated, all the strength figures given in this manual, are the result of calculations based on the yield strength of the material used in the manufacture of this product. These strength calculations are considered accurate within plus or minus 20% and are to be used only as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

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## TT0920-169A BOM, Schematic and Specs



ITEM	QTY	TOOL PARTS DESCRIPTION	PART NUMBER
1	1	Top Sub	TT0920-169A-001
2	1	Housing	TT0920-169A-002
3	1	Bottom Sub	TT0920-169A-003
4	3	Spring	
5	2	Adjustment Ring	TT0920-169A-005
6	1	O-ring 2-118	PUR-TORV000-118
7	2	Socket Set Screw W/CP 10-32 x 3/16"	PUR-TSAS121-012
8	6	Socket Set Screw W/CP 8-32 X 1/8"	PUR-TSAS100-008

**Tool Name:** 1.688 in. OD Nipple Locator f/ 2-3/8 in. Tubing

**Product Code:** TT0920-169A    **Tool OD:** 1.688 in.    **Tool ID:** 0.688 in.

**Material:** AISI 4140 HT 285-341 BHN    **Tool Length:** 20.9 in. w/ 1 in. MT

**Minimum Yield:** 105,000 psi

**Strength Properties of Tool:**

**Minimum Yield Point and Load to Yield:** The slotted section of the Housing, 49,100 lbs.

**Burst Point and Burst Pressure:** The O-ring groove of the Bottom Sub, 27,200 psi.

**Torsional Weak Point and Ft-Lbs to Yield:** 1,340 ft-lbs as a function of torsional yield of either box end of the Housing, **without** the three 8-32 Steel Allen set screws tightened to 19.4 in-lbs; 1,420 ft-lbs as a function of torsional yield of either box end of the Housing, **with** the three 8-32 Steel Allen set screws tightened to 19.4 in-lbs; 1,760 ft-lbs as a function of torsional yield of the slotted section of the Housing.

**Recommended Make Up Torque:**

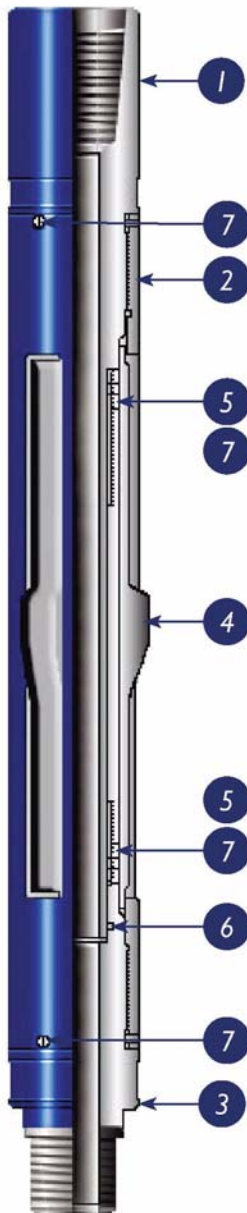
**1st Connection:** The Top Sub - Housing Stub Acme connection – 400 ft-lbs, then tighten the 8-32 Steel Allen set screws.

**2nd Connection:** The Housing - Bottom Sub Stub Acme connection - 400 ft-lbs, then tighten the 8-32 Steel Allen set screws.

**3rd Connection:** The 8-32 Steel Allen set screws - 19.4 in-lbs.

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## TT0920-213A BOM, Schematic and Specs



ITEM	QTY	TOOL PARTS DESCRIPTION	PART NUMBER
1	1	Top Sub	920-213A-001
2	1	Housing	920-213A-002
3	1	Bottom Sub	920-213A-003
4	3	Spring ( 2.312" Nipple Only )	920-213A-004
5	2	Adjustment Ring	920-213A-005
6	1	O-Ring 1-1/8" x 1-5/16" x 3/32" 2-122	PUR-TORV000-122
7	6	Steel Allen Set Screw 8-32 x 3/16"	PUR-TSAS100-012
8	2	Steel Allen Set Screw 10-32 x 3/16"	PUR-TSAS121-012

**Tool Name:** 2.125 in. OD Nipple Locator f/ 2-7/8 in. Tubing w/ 2.313 in. Nipple

**Product Code:** TT0920-213A    **Tool OD:** 2.125 in.    **Tool ID:** 0.81 in.

**Material:** AISI 4140 HT 285-341 Bhn    **Tool Length:** 24.0 in. w/ 1-1/2 in. MT

**Minimum Yield:** 100,000 psi

**Strength Properties of Tool:**

**Minimum Yield Point and Load to Yield:** The slotted section of the Housing, 31,000 lbs.

**Burst Point and Burst Pressure:** The O-ring groove of the Bottom Sub, 23,400 psi.

**Torsional Weak Point and Ft-Lbs to Yield:** 1,320 ft-lbs as a function of torsional yield of either box end of the Housing, **without** the three 8-32 Steel Allen set screws tightened to 19.4 in-lbs; 1,390 ft-lbs as a function of torsional yield of either box end of the Housing, **with** the three 8-32 Steel Allen set screws tightened to 19.4 in-lbs; 1,680 ft-lbs as a function of torsional yield of the slotted section of the Housing.

**Recommended Make Up Torque:**

**1st Connection:** The Top Sub - Housing Stub Acme connection - 390 ft-lbs, then tighten the 8-32 Steel Allen set screws.

**2nd Connection:** The Housing - Bottom Sub Stub Acme connection - 390 ft-lbs, then tighten the 8-32 Steel Allen set screws.

**3rd Connection:** The 8-32 Steel Allen set screws - 19.4 in/lbs.

## 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!*

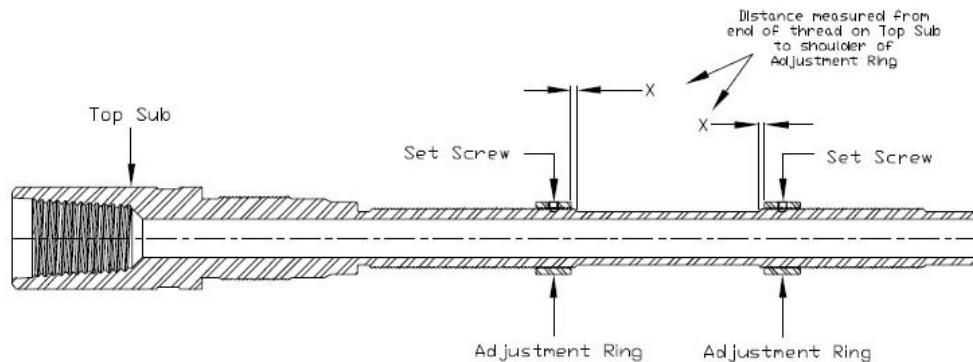


**Caution:** *This tool should always be disassembled, cleaned thoroughly, inspected and reassembled after each job!*

## 2.0 Assembly

**2.1** Grease the entire Id and the OD threads of the Top Sub (item #1) and put into a vise.

**2.2** Screw on the Adjustment Rings (item #5) as shown below, then insert the 2 Set Screws (item #8) and tighten.



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With both of the Adjustment Rings set a distance "X", measured from the end of the thread on the Top Sub to the shoulder of the Adjustment Ring, overpull through a 2.313 Nipple is found below.

"X" (inches)	Overpull (lbs)
0	2000
0.25	1200

**2.3** Grease the entire ID of the Housing (item #2), slide onto the Top Sub and screw on half way.

**2.4** Put a Spring (item #4), smallest beveled shoulder up, into the bottom of a slot, then bend the other end and push into place. Repeat this process for the other 2 Springs.

**2.5** Put an O-ring (item #6) into the ID of the greased Bottom Sub (item #3), then screw onto the Housing wrench tight. This will also tighten the Housing/Top Sub connection. Finally, install the 6 Set Screws (item #7).

## 3.0 Disassembly

**3.1** Remove and discard the 6 Set Screws (item #7). Then, remove the Bottom Sub/Housing (item #3 and #2) from the Top Sub (item #1). The Springs (item #4) should come out during this step.

**3.2** Remove the 2 Set Screws (item #8) from the Adjustment Rings (item #5).

**3.3** Remove the Adjustment Rings from the Top Sub. Finally, remove Top Sub from vise.



*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: Visually inspect tool for swelling after each use. Damaged or swelled components must be replaced.*



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