

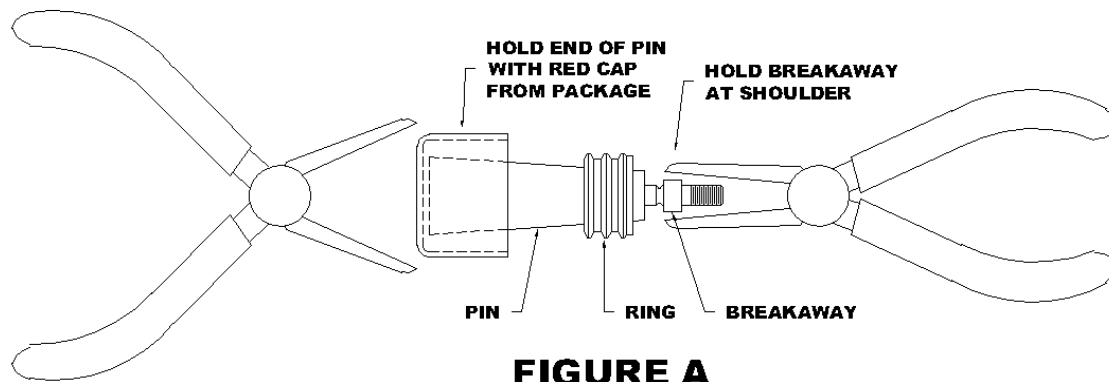
## POP-A-PLUG® MANUAL INSTALLATION TOOL INSTRUCTIONS

### WARNING!

- **IMPORTANT: FOLLOW ALL INSTRUCTIONS FOR TUBE PREPARATION AND PLUG SIZING THAT ACCOMPANY THE CPI/PERMA OR P2 POP-A-PLUG TO BE INSTALLED.**
- **FAILURE TO PROPERLY PREPARE THE TUBE AND USE THE CORRECT SIZE PLUG WILL RESULT IN PLUG FAILURE.**
- **BEFORE USING THESE INSTRUCTIONS REFER TO EITHER EST DOCUMENTS DC4010 (NOTES 1-5) OR DC4000 (NOTES 1-10) WHEN INSTALLING P2 POP-A-PLUGS., OR EST DOCUMENT DC1220 (NOTES 1-4) WHEN INSTALLING CPI/PERMA PLUGS.**
- **IF YOU DO NOT HAVE THE ABOVE INSTRUCTIONS, PLEASE CONTACT EST CUSTOMER SERVICE.**

### P2 & CPI/PERMA MANUAL TOOL ASSEMBLY & OPERATION

1. Carefully remove Breakaway from Pop-A-Plug to be installed: Hold plug with pliers on shoulder of Breakaway and at the end of the pin placing the red cap from plug packaging on the pin to avoid damage by pliers. (See Figure A). **Never use pliers on ring serrations or on pin surface.**



2. Thread Breakaway fully into both the plug pull rod and nut pull rod (See Figure B). For P2 sizes .400-.440 and CPI/Perma sizes .471 & .491 the side of the breakaway with the smaller diameter thread must be engaged into the plug pull rod. Slip antigall washer over nut pull rod threads and engage hex nut onto pull rod by several turns (See Figure B). Insert this assembly into the back end of the tool body. Place large end of plug positioner into recess on the front of the tool body. Fully engage the Pop-A-Plug onto the exposed stud on the plug pull rod. Hand-tighten hex nut to remove slack in assembly (See Figure C).

Questions? Contact EST Group Customer Service at any of the following locations.

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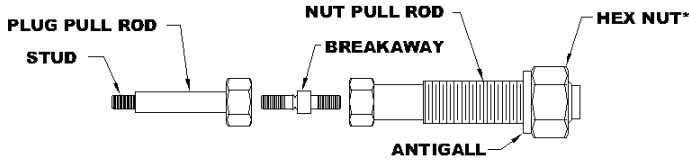
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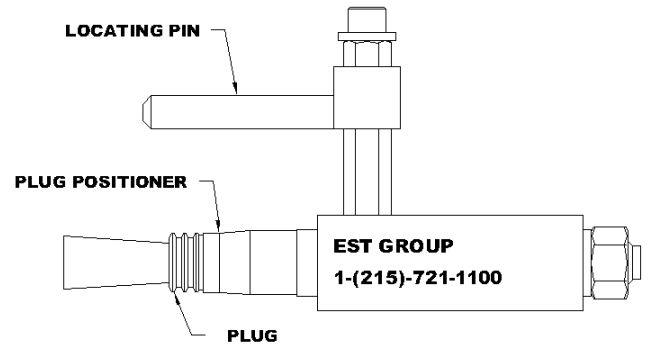
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**NOTE: ENSURE THREADS ARE PROPERLY LUBRICATED. RECOMMEND LUBRICATION BEFORE EVERY PLUG INSTALLATION.**



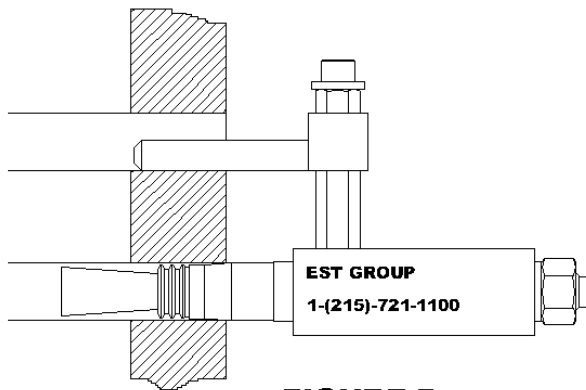
\*ENSURE HEX NUT CAN RUN FREELY BEFORE EVERY INSTALLATION

**FIGURE B**

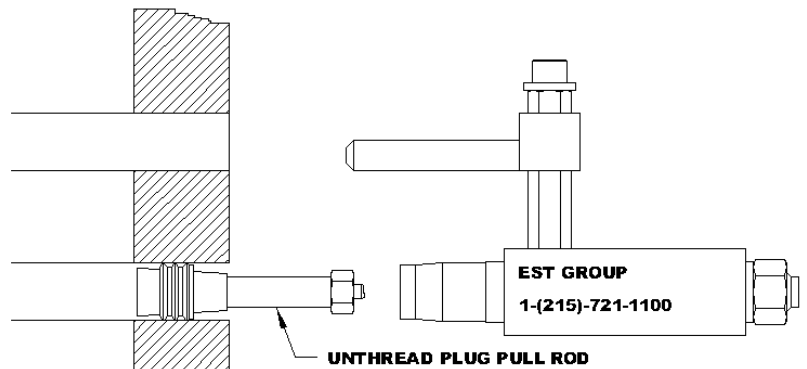


**FIGURE C**

3. The locating pin must be inserted into a tube close to the tube to be plugged. When access to tubes is limited, a plugging sequence should be determined to insure that the locating pin can be inserted into an unplugged tube otherwise another reaction device will need to be used.
4. Insert the plug and locating pin into their respective tubes. **The ring section of the plug must be positioned within the tubesheet area. (See Figure D).** Begin installing plug by tightening hex nut on the back of the tool in a clockwise motion using a wrench, socket or air tool. Continue tightening until the breakaway shears.



**FIGURE D**



**FIGURE E**

5. Pull body of tool straight back from tubesheet separating tool body from the installed plug and plug pull rod (See Figure E). Depending on plug size installed, the positioner may be with plug pull rod. Unthread plug pull rod from the installed Pop-A-Plug. If pin is stuck in positioner after installation, the plug must be removed and a larger plug installed. Remove breakaway sections from pull rods for next installation.

Questions? Contact EST Group Customer Service at any of the following locations.



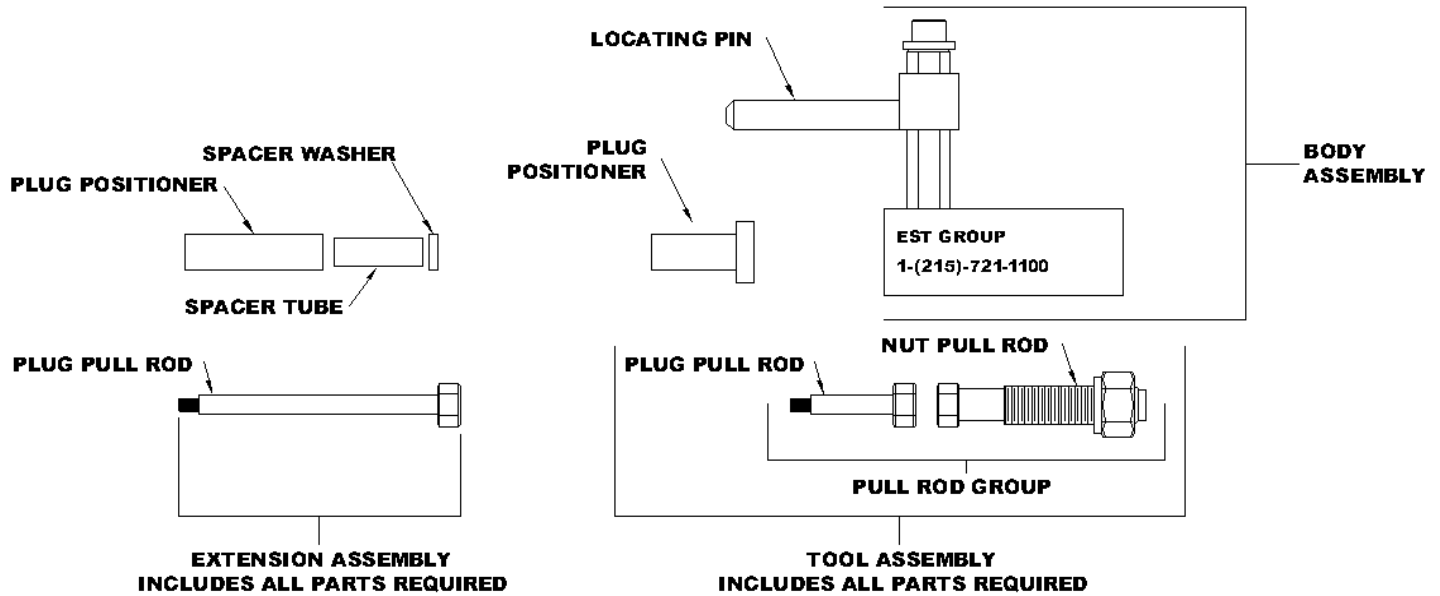
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**FIGURE F**

\* MIT-V471 TOOL INCLUDES BOTH PULL ROD GROUPS FOR INSTALLING ALL MATERIAL PLUGS. REPLACEMENT PULL ROD GROUPS ARE PURCHASED SEPERATELY DEPENDING ON MATERIAL APPLICATION

CPI SIZE	TOOL ASSEMBLY	PLUG POSITIONER	BODY ASSEMBLY	PULL ROD GROUP	LOCATING PIN
* .471 (BRASS ONLY)	MIT-V471	MPP-V471	MBY1	MPR-1032	MILTP-01
* .471 (REMAINING MATERIALS)	MIT-V471	MPP-V471	MBY1	MPR-1228	MILTP-01
.491	MIT-V491	MPP-V491	MBY1	MPR-1228	MILTP-01
.512	MIT-V512	MPP-V512	MBY1	MPR-1228	MILTP-01
.524	MIT-V524	MPP-V524	MBY1	MPR-1228	MILTP-02
.555	MIT-V555	MPP-V555	MBY2	MPR-1228	MILTP-02
.584	MIT-V584	MPP-V584	MBY2	MPR-0428	MILTP-02
.621	MIT-V621	MPP-V621	MBY2	MPR-0428	MILTP-02
.649	MIT-V649	MPP-V649	MBY2	MPR-0428	MILTP-02
.670	MIT-V670	MPP-V670	MBY2	MPR-0428	MILTP-02
.712	MIT-V712	MPP-V712	MBY2	MPR-0428	MILTP-02
.735	MIT-V735	MPP-V735	MBY2	MPR-0428	MILTP-02
.774	MIT-V774	MPP-V774	MBY2	MPR-0524	MILTP-02
.804	MIT-V804	MPP-V804	MBY2	MPR-0524	MILTP-02
.837	MIT-V837	MPP-V837	MBY2	MPR-0524	MILTP-02
.853	MIT-V853	MPP-V853	MBY2	MPR-0524	MILTP-02
.899	MIT-V899	MPP-V899	MBY2	MPR-0524	MILTP-02
.919	MIT-V919	MPP-V919	MBY2	MPR-0524	MILTP-02
.962	MIT-V962	MPP-V962	MBY2	MPR-0524	MILTP-02
.979	MIT-V979	MPP-V979	MBY2	MPR-0524	MILTP-02
1.024	MIT-V1024	MPP-V1024	MBY2	MPR-0524	MILTP-02
1.054	MIT-V1054	MPP-V1054	MBY2	MPR-0524	MILTP-02
1.087	MIT-V1087	MPP-V1087	MBY2	MPR-0524	MILTP-02
1.103	MIT-V1103	MPP-V1103	MBY2	MPR-0524	MILTP-02
1.149	MIT-V1149	MPP-V1149	MBY2	MPR-0524	MILTP-02

P2 SIZE	TOOL ASSEMBLY	PLUG POSITIONER	BODY ASSEMBLY	PULL ROD GROUP	LOCATING PIN
.400 - .400	MIT-P2-400-400	MPP-P2-400-440	MBY1	MPR-1032	MILTP-01
.460 - .500	MIT-P2-460-500	MPP-P2-460-500	MBY1	MPR-1228	MILTP-01
.520 - .580	MIT-P2-520-580	MPP-P2-520-580	MBY2	MPR-1228	MILTP-02
.600 - .680	MIT-P2-600-680	MPP-P2-600-680	MBY2	MPR-0428	MILTP-02
.700 - .780	MIT-P2-700-780	MPP-P2-700-780	MBY2	MPR-0428	MILTP-02
.800 - .860	MIT-P2-800-860	MPP-P2-800-860	MBY2	MPR-0428	MILTP-02
.880 - .960	MIT-P2-880-960	MPP-P2-880-960	MBY2	MPR-0524	MILTP-02
.980 - 1.060	MIT-P2-980-1060	MPP-P2-980-1060	MBY2	MPR-0524	MILTP-02
1.080 - 1.160	MIT-P2-1080-1160	MPP-P2-1080-1160	MBY2	MPR-0524	MILTP-02

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