

**POP-A-PLUG REMOVAL TOOL PROCEDURES**

*Note: The Pop-A-Plug Removal Tool is designed for use in CPI/Perma Plugs. It may be used to remove P2 Plugs as long as they have not become permanently bonded to the tube by decades of service at high temperatures. See reverse for part numbers and size ranges.*

**WARNING! TUBE MAY CONTAIN PRESSURE. WHEN HAMMERING PIN, KEEP FACE AND BODY AWAY FROM TUBE OPENING.**

1. Remove broken end of breakaway with needle nose pliers or by using a pencil eraser. (Figure 1). (See alternate procedure 1 below, if breakaway cannot be removed).
2. Fully engage the male thread on the spear tip into Pop-A-Plug pin.(Figure 2)
3. Hit the end of Removal Tool or use the slide hammer to drive pin back into tube (Figure 3).
4. Thread spear into ring using 3/4" hex cap on rod end (about 4-6 turns). Use slide hammer to remove ring (Figure 4) or use hydraulic ram as shown below. (Figure 5)
5. If spear pulls out of the ring, repeat step 4 using additional turns when threading spear into ring.

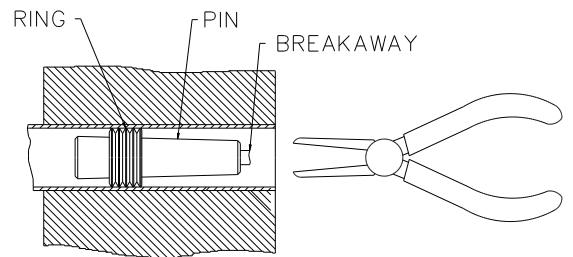


FIGURE 1

**ALTERNATE PROCEDURE 1: IF BREAKAWAY CANNOT BE REMOVED**

1. Lightly strike the front of the plug using a hammer and rod to disengage the pin from the ring (Figure 6). Follow step 4 above and retrieve pin with magnet (available from EST, part number PRT-MAGNET) or other means.

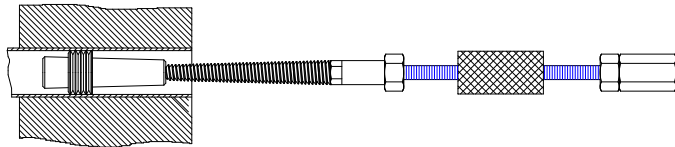


FIGURE 2

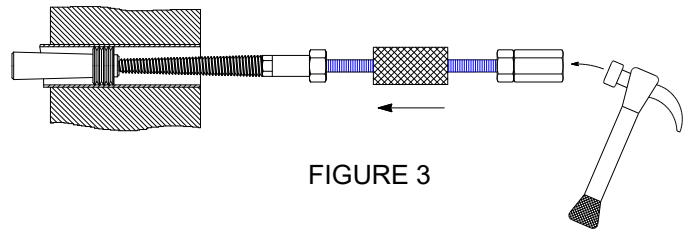


FIGURE 3

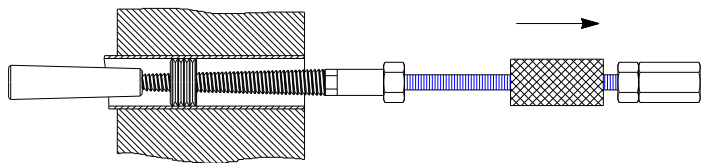


FIGURE 4

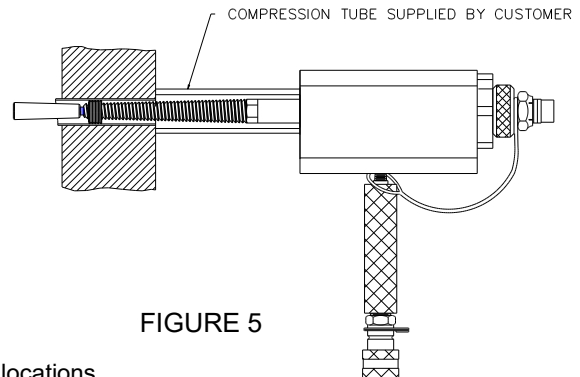


FIGURE 5

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



EST Group  
[www.cw-estgroup.com](http://www.cw-estgroup.com)

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**ALTERNATE PROCEDURE 2: IF RING DOES NOT DISENGAGE FROM TUBE ID**

1. Leave broken end of breakaway in the installed plug. If it has been removed, re-install the breakaway piece (or pulling stud) back into the plug.
2. Lightly strike the front of plug using a hammer and rod to disengage pin from the ring. (Figure 6)
3. Break the bond between the ring and tube ID by placing a rod or the plug positioner with the same OD as the ring OD against the ring and hitting with a hammer to move the ring approximately 1/2" deeper. (Figure 7)
4. It may be necessary to brush the tube area in front of the ring to remove any fouling/scale that may have accumulated during service using a tube prep brush (available from EST). This will allow the ring to be removed from the tube with less obstruction. (Figure 8)
5. Choose the appropriately sized spear (See Table) and thread spear into ring using 3/4" hex cap on rod end (about 4-6 turns). Use slide hammer to remove ring (Figure 4) or use ram as shown below. (Figure 5)

**WARNING! USING THE WRONG SIZED SPEAR MAY CAUSE THE SPEAR TIP TO FRACTURE DURING USE**

6. If spear pulls out of the ring, repeat step 5 using additional turns when threading spear into ring.
7. Retrieve pin with a magnet (available from EST, part number PRT-MAGNET) or other means.

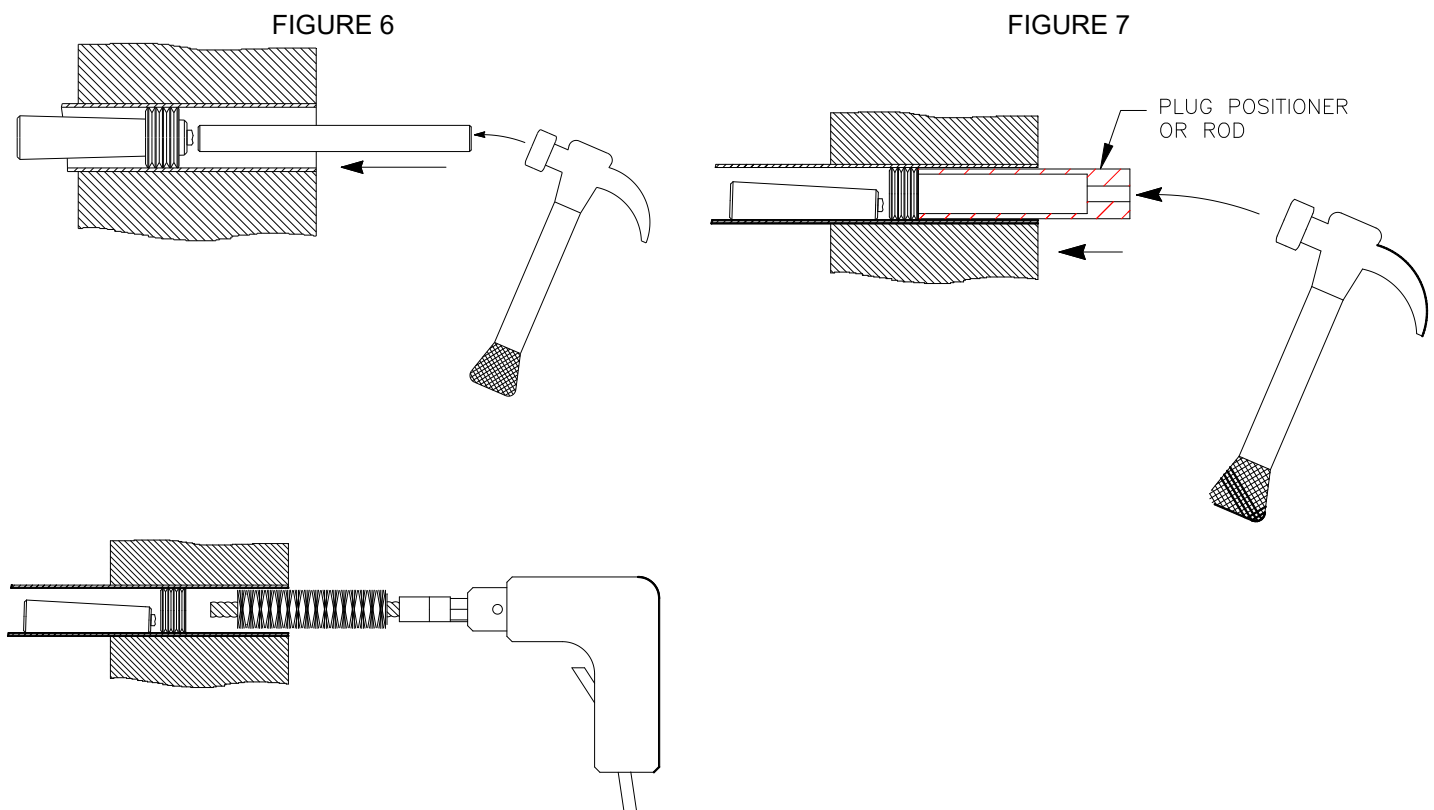


FIGURE 8

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

**CURTISS-  
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EST Group  
[www.cw-estgroup.com](http://www.cw-estgroup.com)

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[est-info@curtisswright.com](mailto:est-info@curtisswright.com)

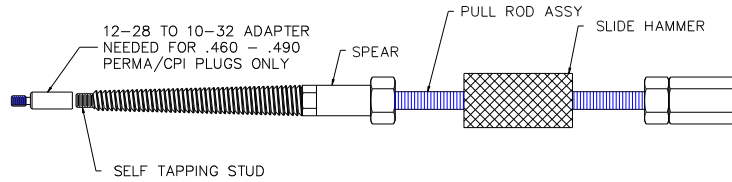
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**POP-A-PLUG REMOVAL TOOL PARTS LIST**

Use CPI or P2 Pop-A-Plug sizes to order removal equipment. An extra spear and stud are recommended for all orders. Consult factory if removing large quantities of plugs.



PLUG REMOVAL TOOL (INCLUDES PULL ROD ASSEMBLY, SLIDE HAMMER, SPEAR AND SELF TAPPING STUD & ADAPTER)		
PART NUMBER	CPI/PERMA PLUG SIZE	P2 SIZE RANGE
PRT-001	N/A	.400 – .440
PRT-002	.471	.460 – .500
PRT-003	.491 TO .555	.520 – .580
PRT-004	.584	.600 – .680
PRT-005	.621 TO .670	.700 – .780
PRT-006	.712 TO .735	.800 – .860
PRT-007	.774 TO .853	N/A
PRT-008	.899 TO .962	.880 – .960
PRT-009	.979 TO 1.087	.980 – 1.060
PRT-010	1.103 TO 1.149	1.080 – 1.160
PRT-011	1.171 TO 1.212	1.180 – 1.240

SPEAR		
PART NUMBER	CPI/PERMA PLUG SIZE	P2 PLUG RANGE
PRTS-001	N/A	.400 – .440
PRTS-002	.471	.460 – .500
PRTS-003	.491 TO .555	.520 – .580
PRTS-004	.584	.600 – .680
PRTS-005	.621 TO .670	.700 – .780
PRTS-006	.712 TO .735	.800 – .860
PRTS-007	.774 TO .853	N/A
PRTS-008	.899 TO .962	.880 – .960
PRTS-009	.979 TO 1.087	.980 – 1.060
PRTS-010	1.103 TO 1.149	1.080 – 1.160
PRTS-011	1.171 TO 1.212	1.180 – 1.240

SLIDE HAMMER		
PART NUMBER	CPI/PERMA PLUG SIZE	P2 PLUG RANGE
PRH-001	.471 TO 1.212	.400 – 1.240

PULL ROD ASSEMBLY (INCLUDES PULL ROD, NUTS AND THREAD CAP)		
PART NUMBER	CPI/PERMA PLUG SIZE	P2 PLUG RANGE
PRPR-001	.471 TO 1.212	.400 – 1.240

SELF TAPPING SPEAR STUDS & THREAD ADAPTER		
PART NUMBER	CPI/PERMA PLUG SIZE	P2 PLUG RANGE
PRS-1032	N/A	.400 – .440
TA-1032-1228	.471	N/A
PRS-1228	.491 TO .555	.460 – .580
PRS-0428	.584 TO .735	.600 – .860
PRS-0524	.774 TO 1.212	.880 – 1.240

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