



CAPTAIN AMERICA

RHINO JR HYDRAULIC SPEAR TUBE PULLER

OPERATING PROCEDURES



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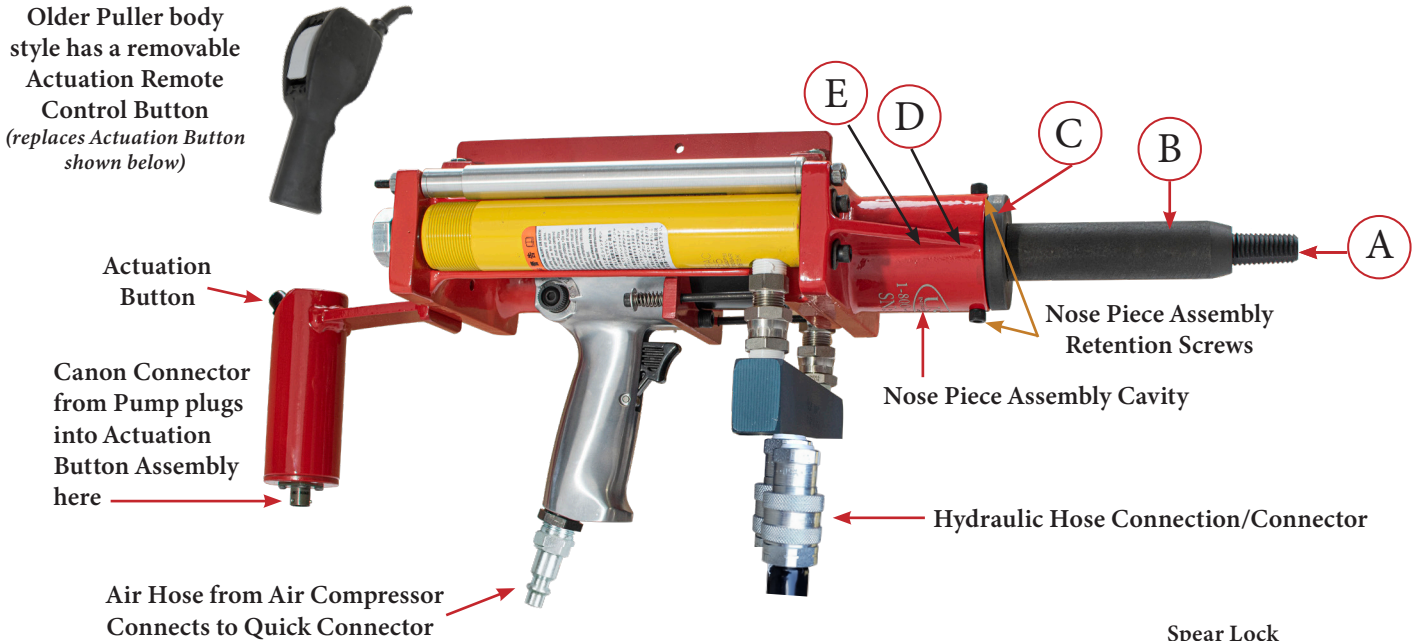
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PLEASE READ THROUGH ALL OPERATING PROCEDURES THOROUGHLY

1. Captain America Gun Parts Guide

Older Puller body style has a removable Actuation Remote Control Button (replaces Actuation Button shown below)



A Spear



B Nose Piece



C Nose Piece Holder



Spear Lock Wrench



D Spear Lock (screws inside Nose Piece Assembly Cavity)



E Square Drive Connector (sits inside Nose Piece Assembly Cavity behind Spear Lock)



Releasing Tool or Vice Grip





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2. Spear and Nose Assembly Removal

- Unscrew *Nose Piece Assembly retention screws* and then remove *Nose Piece* and *Nose Piece Holder* assembly.
- Using *Spear Lock Wrench*, align the two pins on top of the wrench with the two holes on the face of the *Spear Nozzle Holder* and then unscrew and remove the *Spear Nozzle Holder* inside the *Nose Piece Assembly Cavity*.

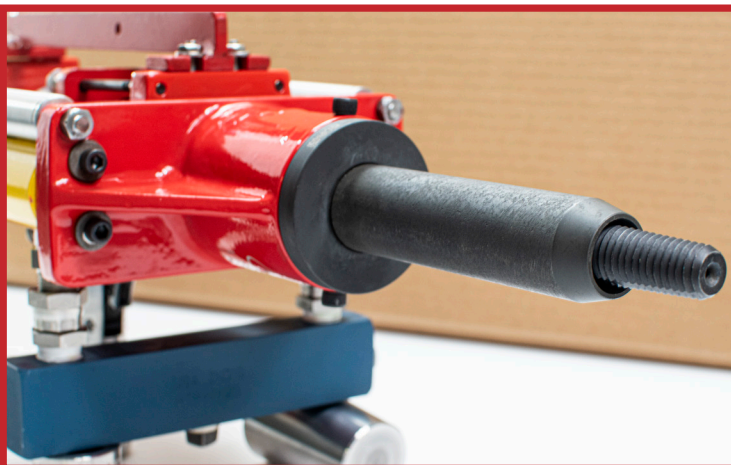


CAUTION: Take care when placing the two pins inside the *Spear Nozzle Holder* holes and also when unscrewing the *Holder* to ensure that pins do not become bent from over torquing or misalignment when being placed in the holes. The *Spear Nozzle Holder* should uncrew relatively easily since it should only have been hand tightened originally.

- Remove *Spear* being held in place by the *Square Drive Connector* that sits inside the *Nose Piece Assembly Cavity*.

3. Installing New Spear (to replace original Spear received with the Captain America or to change Spear size to fit larger or smaller tubes)

- Reverse all steps illustrated in *Spear and Nose Assembly Removal*. As previously stated, take care when placing the two pins inside the *Spear Nozzle Holder* holes and also when screwing the *Holder* in place, ensuring that the pins do not become bent from over torquing. The *Holder* only needs hand tightening and no more.



Shown in picture:

- *Tip of the Spear*
- *Nose Piece*
- *Nose Piece Holder*
- *Nose Piece Assembly Cavity*



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4. Pump





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5. Pump Operation and Tube Removal

- Plug air hose from air compressor to **Quick Connector** on the RAM.
- Connect larger **Hydraulic Hose** from **Pump** to the **Hydraulic Hose Connector** on the RAM.
- Plug **Canon Connector** from **Pump** into the bottom of the **Actuation Button** assembly.
- Plug **Power Cord** from **Pump** into an electric outlet.
- Place **Spear** into the tube and press **Impact Gun Trigger** to firmly screw **Spear** into the tube.



CAUTION: Over tightening can cause the spear to strip out the tube or wedge too tightly into the tube causing deformation of tube sheet ligaments. Using a lubricant such as antiseize or grease can help extend the life of the spear.

- Push **Actuation Button** on rear of the gun handle to turn **Pump** on and begin process of removing the tube.

Press Actuation Button



RAMs in Retracted Position
(beginning state)

- Hold down **Actuation Button** until RAMs have reached full stroke (approx. 4”).



RAMs at Full Stroke

- Release **Actuation Button** - RAMs will return to their fully retracted position (beginning state)
- Using **Vice Grips** or USA Industries' **Releasing Tool**, hold tube while reversing the **Impact Wrench** to remove **Spear** from tube.
- If metal debris is found on end of **Spear**, use a hand held steel brush to remove debris.
- Repeat each step to remove additional tubes from the tube sheet.



CAUTION: When operating RAM, there are several mechanical moving parts in motion. Be sure to clear all cables or other materials from the body of the RAM to avoid pinching equipment that can cause mechanical failure.