



Centricut[®] Quick-change Torch Upgrade

ESAB[®] PT-36, PT-600, and PT-19XLS

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		<p>WARNING! ELECTRIC SHOCK CAN KILL</p>
		<p>Before working on the plasma torch or system, safely disconnect gases, coolant, and power. Follow your company's safety guidelines for system maintenance.</p>


		<p>CUTTING CAN CAUSE FIRE OR EXPLOSION</p>	
<p>Fire prevention</p>			
<ul style="list-style-type: none"> ▪ Make sure the cutting area is safe before doing any cutting. Keep a fire extinguisher nearby. ▪ Remove all flammables within 35 feet (10 m) of the cutting area. ▪ Quench hot metal or allow it to cool before handling or before letting it touch combustible materials. ▪ Never cut containers with potentially flammable materials inside – they must be emptied and properly cleaned first. ▪ Ventilate potentially flammable atmospheres before cutting. ▪ When cutting with oxygen as the plasma gas, an exhaust ventilation system is required. 		<p>WARNING Explosion Hazard Argon-Hydrogen and Methane</p>	
<p>Explosion prevention</p>			
<ul style="list-style-type: none"> ▪ Do not use the plasma system if explosive dust or vapors may be present. ▪ Do not cut pressurized cylinders, pipes, or any closed containers. ▪ Do not cut containers that have held combustible materials. 		<p>WARNING Explosion Hazard Underwater Cutting with Fuel Gases Containing Hydrogen</p>	
		<p>WARNING Explosion Hazard Hydrogen Detonation with Aluminum Cutting</p>	
<p>When you use a plasma torch to cut aluminum alloys under water or on a water table, a chemical reaction between the water and the workpiece, parts, fine particles, or molten aluminum droplets generates significantly more hydrogen gas than occurs with other metals. This hydrogen gas may get trapped under the workpiece. If exposed to oxygen or air, the plasma arc or a spark from any source can ignite this trapped hydrogen gas, causing an explosion that may result in death, personal injury, loss of property, or equipment damage.</p>		<p>Also, make sure that the water table, fume extraction (ventilation), and other parts of the cutting system have been designed with aluminum cutting in mind.</p>	
<p>Consult with the table manufacturer and other experts prior to cutting aluminum to implement a risk assessment and mitigation plan that eliminates the risk of detonation by preventing hydrogen accumulation.</p>		<p>Do not cut aluminum alloys underwater or on a water table unless you can prevent the accumulation of hydrogen gas.</p>	
		<p>Note: With proper mitigation, most aluminum alloys can be plasma cut on a water table. An exception is aluminum-lithium alloys. Never cut aluminum-lithium alloys in the presence of water. Contact your aluminum supplier for additional safety information regarding hazards associated with aluminum-lithium alloys.</p>	
		<p>Refer to the cutting system manual from the table manufacturer for more information.</p>	


Introduction

 If this torch will be used for underwater cutting and an air assembly is used in the application, remove the OEM air curtain. It will not fit or operate on the Centricut quick-change torch. Please refer to the *Centricut Air Curtain Installation Instructions for Quick-change Torches* (809540) for instructions on installing a Centricut air curtain for a Centricut quick-change torch.


Purpose

This Field Service Bulletin (FSB) describes the procedure for installing a Centricut quick-change torch on ESAB plasma cutting systems and replacing the bullet plugs.

 The Centricut quick-change torch is rated for cutting applications up to 450 A.

 This torch conforms to the requirements referenced in IEC 60974-7.

Tools and materials needed

 Adjustable wrenches may be used, but open-end wrenches are recommended.

- 1/2 inch open-end combination wrench
- 7/16 inch open end-combination wrench
- 1/16 inch hex wrench
- 7/64 inch hex wrench
- 5/32 inch hex wrench
- Black permanent marker
- Flat-blade screwdriver
- Strap wrench or pipe wrench
- Needle nose pliers (if replacing bullet plugs)

Installation video link

To watch a video with step-by-step instructions on installing the Centricut quick-change torch on ESAB PT-36, PT-600 and PT-XLS systems, go to: www.hypertherm.com/Etorchinstall.

Kit C122-8100 contents (Torch upgrade kit, ESAB PT-36)

Part number	Description	Quantity
C122-8050	ESAB Quick-change torch head	1
C122-8000	ESAB Quick-change torch base, PT-36	1
C122-055	Mounting nut, electrode holder, PT-36	1
C122-082	Nozzle retaining cap, quick-change torch	1
C122-924	Electrode holder, PT-36	1
C47-944	Diffuser	1
C47-071	Contact ring assembly (installed)	1
C122-072	O-ring kit, bullet plugs	1
C122-073	O-ring kit, mounting nut	1
C122-087	O-ring kit, torch, and retaining cap	1
027055	Lubricant, 0.25 oz. (7 ml) tube	1
808900	Field Service Bulletin	1

Kit C122-9100 contents (Torch upgrade kit, ESAB PT-36, XC)

Part number	Description	Quantity
C122-8050	ESAB Quick-change torch head	1
C122-8000	ESAB Quick-change torch base, PT-36	1
C122-055	Mounting nut, electrode holder, PT-36	1
C122-948	Nozzle retaining cap, quick-change torch, XC	1
C122-924	Electrode holder, PT-36	1
C47-944	Diffuser	1
C47-071	Contact ring assembly (installed)	1
C122-072	O-ring kit, bullet plugs	1
C122-073	O-ring kit, mounting nut	1
C122-087	O-ring kit, torch, and retaining cap	1
027055	Lubricant, 0.25 oz. (7 ml) tube	1
808900	Field Service Bulletin	1

Kit C96-6100 contents (Torch upgrade kit, ESAB PT-600 & PT-19XLS)

Part number	Description	Quantity
C122-8050	ESAB Quick-change torch head	1
C96-6000	ESAB Quick-change torch base, PT-600	1
C96-042	Mounting nut, electrode holder, PT-600	1
C122-082	Nozzle retaining cap, quick-change torch	1
C96-621	Electrode holder, PT-600	1
C47-944	Diffuser	1
C47-071	Contact ring assembly (installed)	1
C122-072	O-ring kit, bullet plugs	1
C122-073	O-ring kit, mounting nut	1
C122-087	O-ring kit, torch, and retaining cap	1
027055	Lubricant, 0.25 oz. (7 ml) tube	1
808900	Field Service Bulletin	1

Kit C122-088 contents (Bullet plug replacement kit)

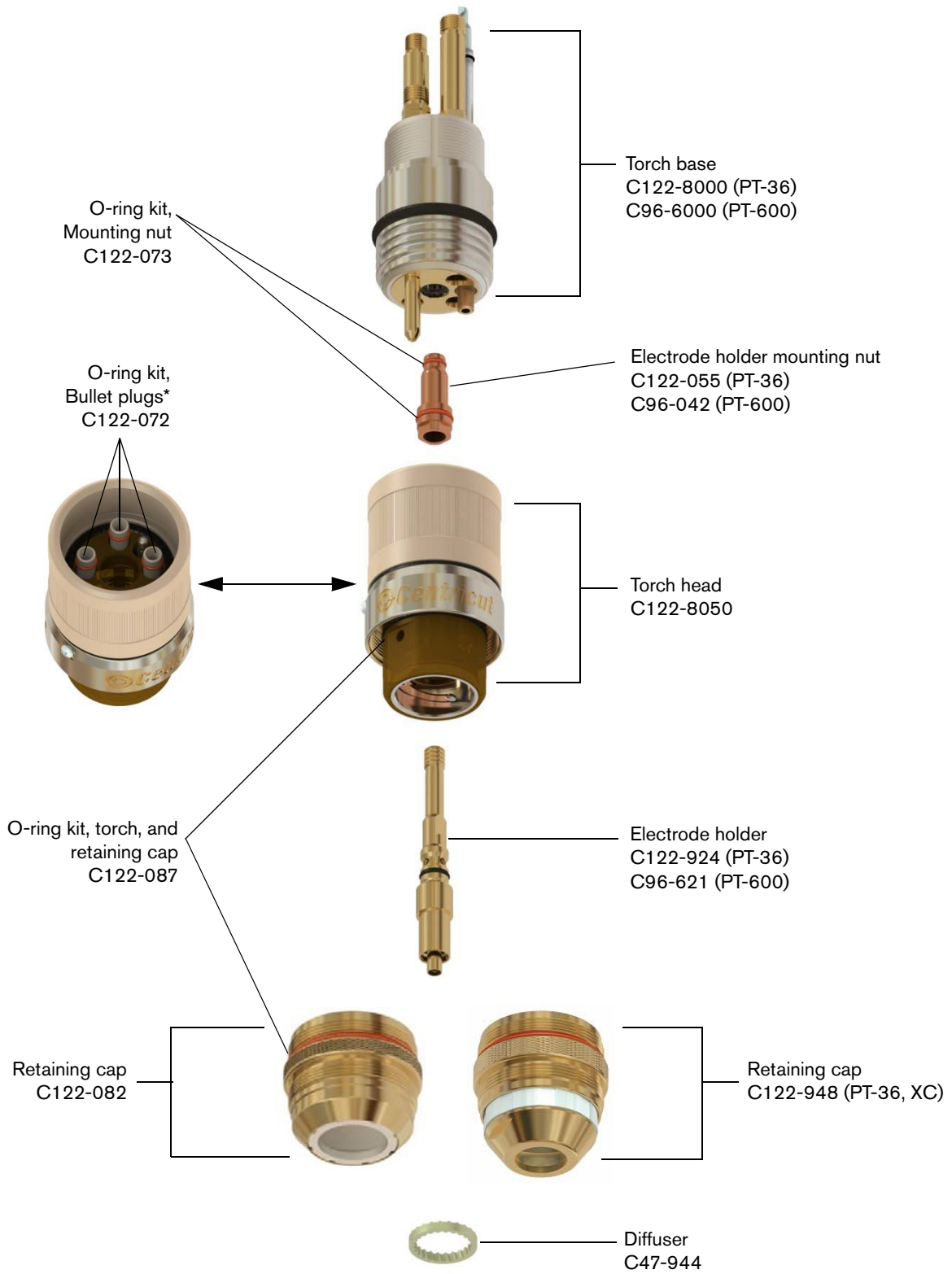
Description	Quantity
ESAB Quick-change torch bullet plugs	3



O-ring kits are provided for periodic maintenance of torch components.



Lubricate all visible O-rings before torch installation.



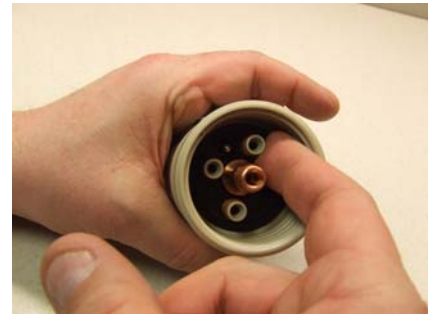
* To replace bullet plugs with kit C122-088, see page 19.

Lubricate the O-rings

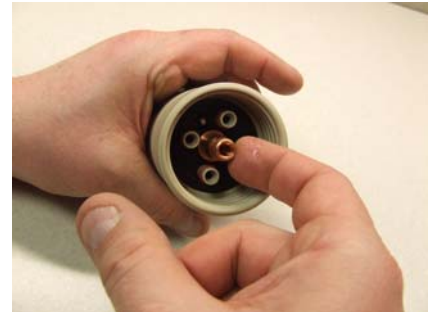
1. Apply a thin layer of lubricant to the O-rings on the back of the torch head.



2. Apply a small amount of lubricant to the bullet plug O-rings.



3. Apply lubricant also to the O-ring on the electrode holder mounting nut.



4. Apply lubricant to the inside bottom and top edges of the retaining cap insulator.



Remove the torch

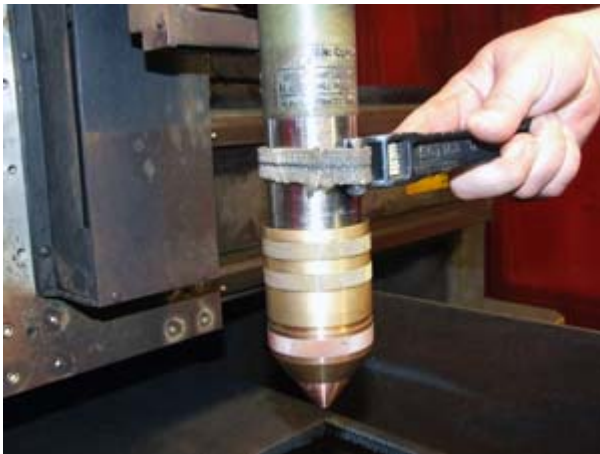
1. Mark the mounting tube location in the clamp holder so it can be returned to the same height when remounted.

Figure 1 – Mark the mounting tube location



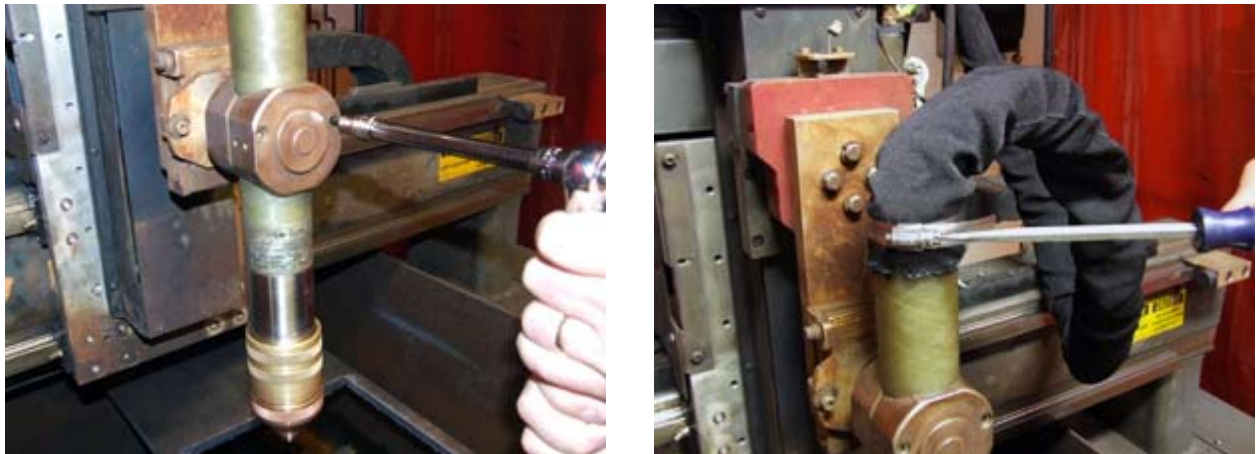
2. Use a strap wrench or pipe wrench to loosen the torch in the clamped mounting tube. Turn the stainless steel part of the torch to the left until it breaks free, and then stop.

Figure 2 – Loosen the torch



3. Loosen the 5/32 inch hex screw/screws and hose-covering clamp, and remove the torch from the holder by pulling up on the torch leads.

Figure 3 - Loosen the screws (left) and clamp (right)



4. Hold the torch and turn the mounting tube counterclockwise until it separates from the torch. Slide the mounting tube up the leads to expose the fittings and pilot arc connection.

Figure 4 - Expose the fittings and pilot arc connection




5. Slide the pilot arc wire insulator away from the torch and disconnect the connector using the 1/16 inch hex wrench (PT-600), or fold up the knife connector and disconnect (PT-36). When disconnected, bend the pilot arc wire out of the way for easier access to the fittings.

Figure 5 – Disconnect the connector



6. Use the 1/2 inch wrench to disconnect the shield gas line (the longest pipe with 1/2 inch nut) and then the coolant-in and coolant-out lines (the shortest pipes).

 The coolant-in nut and pipe have grooves to indicate that they are left-hand threads. The water-in nut has grooves cut into the wrench flat corners. The coolant-out fitting is a standard right-hand fitting.

Lastly, disconnect the plasma fitting with the 7/16 inch wrench.

Figure 6 – Disconnect the shield gas line and coolant lines



Install the torch base

1. Connect the quick-change torch base to the lead set.
 - a. Adjust the hose stagger and align to match the pipes on the back of the torch base. Use electrical tape to keep the hoses lined up.
 - b. Loosely attach the coolant-in fitting (left-hand thread) and the coolant-out fitting (right-hand thread) to the quick-change torch base.
 - c. Loosely attach the shield gas and plasma gas hose fittings.



All hoses should be loose at this point.

- d. While holding the torch base with one hand, tighten each fitting. Do not over-tighten. Over-tightening can cause the nut to split or the center to break.

Figure 7 - Connect the quick-change torch base to the lead set



2. Connect the pilot arc wire to the quick-change torch base using the connector and tighten the set screws with the 1/16 inch hex wrench (PT-600), or connect the knife connector (PT-36) and slide the insulator over this connection.

Figure 8 – Connect the pilot arc wire to the quick-change torch base



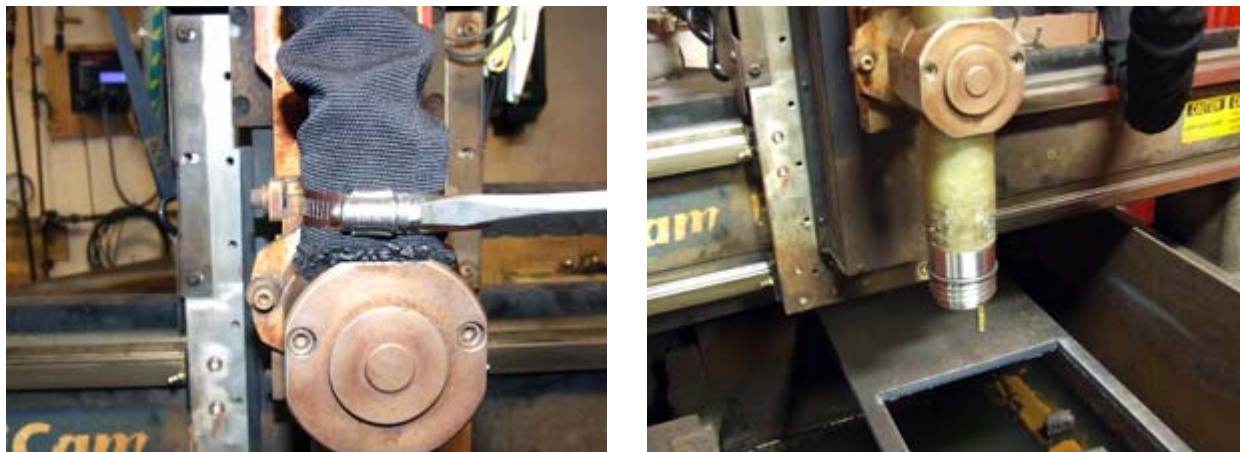
3. Slide the mounting tube down to the torch base and thread it on by holding the torch base and turning the tube clockwise. Be careful not to cross-thread either item.

Figure 9 – Thread on the mounting tube



4. Reinstall the torch base and mounting tube into the clamp holder, making sure to clamp on the line marked earlier. Tighten the 5/32 inch hex screws, slide the covering back over the top of the tube, and tighten the clamp.
Using the strap wrench, pipe wrench, or a C spanner, securely tighten the torch base in the mounting tube (approximately 1/8 inch turn beyond hand tightening) to prevent loosening during operation.

Figure 10 – Reinstall and tighten the torch base



Install the electrode holder mounting nut

1. Install the mounting nut into the back of the lower torch head.
 - a. Note that the wider end of the mounting nut has a square shape.
 - b. Note that the insert in the center of the back of the torch head has the same shape as the wide end of the mounting nut.
 - c. Insert the mounting nut into the back end of the torch head. Turn and wiggle the nut until you feel it seat in the torch head. The O-ring on the mounting nut should hold the nut in place.

Mounting nut




Torch head



Installed mounting nut



Lubricate all visible O-rings on torch head and mounting nut before initial installation.

 When the mounting nut is installed properly, the torch head will sit flat on any flat surface when turned upside down. See the following pictures:

Properly installed mounting nut



Improperly installed mounting nut



Install the torch head

1. With the torch head resting on a flat surface, thread the electrode holder in with the gas baffle installed, and tighten by hand. Do not over-tighten, as this can crack the ceramic gas baffle. (PT-600 electrode holder shown.)

Figure 11 – Thread the electrode holder



2. Install the remaining consumables into the torch head on the bench top.


 The nozzle-retaining cap for the Centricut quick-change torch has a different appearance from the cap used with standard one-piece torches.

Figure 12 – Centricut torch head



3. Align the long brass pin on the torch base with the hole in the back of the torch head, and slide it up to engage the threads of the coupler ring with the threads on the base. Tighten by turning the plastic ring to the right (counterclockwise) until the top edge of the plastic comes to the bottom of the black rubber O-ring.



This O-ring is supposed to sit above the plastic ring to keep metal dust and debris from getting down into the threads.


Figure 13 – Connect the torch base to the torch head



Install the ohmic contact sensor

If your torch has a clamp with a wire attached for ohmic contact sensing, you will need to purchase and install the Centricut IHS wire kit (C122-081).

1. Remove the screw or nut from the original clamp, slide the ring terminal of the Centricut white wire onto the screw, and tighten the clamp using the original nut.


 Make sure that the clamp is on the metal part of the torch base.

2. On the bench, remove the screw on the torch head. Align the metal tab provided with the Centricut IHS tab, and attach with the screw removed from the torch head. Tighten the screw.

 The tab should be angled away from the torch body.

3. Attach the torch head to the torch base as explained in the *Torch head installation procedure* topic on page 15.

4. Slide the red connector (on the Centricut white wire) onto the tab.

 During normal operation, simply slide the red connector off the tab to easily remove the torch head for consumable change-over.

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 Multiple screws are provided in case of loss. Multiple tabs are provided in case you are using multiple torch heads in production. Each head will need a tab. Screw thread is #5-40.

Figure 14 – Centricut IHS wire kit (C122-081)



Replace the bullet plugs

If the bullet plugs on your torch need to be replaced, purchase kit C122-088.

 The images in this procedure are shown with the electrode holder mounting nut removed.

1. Use needle nose pliers to grasp the bullet plug below the O-ring.



2. Push down on the plier handles and pry up the bullet plug to remove it. Repeat to remove the other two bullet plugs.



3. With bullet plugs removed, notice that the alignment pin hole (hole shown in bottom-right) is smaller than the bullet plug holes.



4. Apply a small amount of lubricant to the bullet plug O-rings.



ESAB Torch Upgrade

5. Install either end of the bullet plug by hand. Leave the smaller alignment pin hole on the bottom-right open.

