

PROPER USE GUIDELINES

Cumulative Trauma Disorders can result from the prolonged use of manually powered hand tools. Hand tools are intended for occasional use and low volume applications. A wide selection of powered application equipment for extended-use, production operations is available.

1. INTRODUCTION

This addendum covers the use, service, and maintenance of F-1 AMPACT Tools and is supplementary information to Customer Manual 409-2106 (AMPACT Taps, Stirrups, and Application Tooling). These new AMPACT Tools are identified by the modified power unit as shown in Figure 1.



Figure 1

2. PREPARING THE AMPACT TOOL FOR USE

Select the correct combination of AMPACT Tool, Tap, Stirrup, Shell, and accessory. Ensure the AMPACT Tool breech and breech cap assembly are clean and in good working order. See Customer Manual 409-2106, Section III, TOOL INSPECTION AND MAINTENANCE. Then proceed as follows for the new AMPACT Tool:

DANGER



To avoid personal injury, never prepare an F-1 AMPACT Tool for installation use in any sequence except as described in the following procedure.

NOTE



For red standard tap and stirrup applications only, install red platform on small AMPACT Tool 1443413-1. Hook the platform over the side of the head and slide the platform forward until it butts against the front of the small AMPACT Tool head as shown in Figure 17 in Customer Manual 409-2106. Then tighten the thumbscrew.

Step 1. Rest the coupling nut in your hand with the head of the tool pointing down at approximately a 45° angle, and the locking latch on the breech cap facing up as shown in Figure 2A and 2B.

2A



2B



Figure 2

Step 2. Turn the gas release knob counterclockwise until it stops against the retaining clip.

Step 3. Slide the knurled locking latch (located on the breech nut) back towards the gas release know until it stops (thumb actuation shown in Figure 3).



Figure 3

Step 4. While holding the coupling nut, turn the breech cap assembly 90° counterclockwise as shown in Figure 4.



Figure 4

Step 5. Pull back on the breech cap assembly until it stops and the end of the breech has been cleared. See Figure 5.



Figure 5

Step 6. Rotate the breech cap assembly downward, exposing the opening in the back of the breech. See Figure 6.



Figure 6

Step 7. Select the proper color-coded AMPACT Shell from the chart in Figure 16 in Customer Manual 409-2106.

Step 8. Inspect the inside and outside surfaces of the AMPACT Shell, tool breech, and the breech cap assembly, and remove any foreign particles if present.

Step 9. Rotate the AMPACT Tool to a vertical position (head of tool pointing up), and allow the ram to fully retract. The ram will retract due to gravity if the AMPACT Tool is in good working order.

Step 10. With the ram fully retracted, and holding the AMPACT Tool at approximately a 30° angle, (tool head up), insert the AMPACT Shell into the opening of the breech as shown in Figure 7.



Figure 7

DANGER

To avoid personal injury, keep fingers away from the ram area and never attempt to force the AMPACT Shell into the AMPACT Tool breech by striking the end of the AMPACT Shell. The AMPACT Shell may discharge.

Step 11. Rotate the breech cap assembly up and in-line with the coupling and tool head. Slide the breech cap assembly forward towards the coupling nut. With the breech cap assembly in the full forward position, rotate the breech cap assembly 90° (clockwise) to the closed position.



8A



8B

Figure 8

Step 12. The locking latch on the breech should now be lined up with the small screw in the coupling new as shown in Figure 8A and 8B.

Step 13. Tighten the gas release knob by rotating it clockwise until tight.

NOTE

Supporting ribs on the AMPACT Shell will retain the ram in the retracted position.

DANGER

The ram should be fully retracted and remain retracted. If not, repeat steps 3 through 13 to remove the AMPACT Shell and reload.

Step 14. Mount the AMPACT Tool to the AMPACT Connector as instructed in Paragraph 5.5 in Customer Manual 409-2106.

Step 15. Fire the AMPACT Tool as instructed in Paragraph 5.6 in Customer Manual 409-2106.

3. REMOVING FIRED TOOL FROM THE TAP/STIRRUP AND INSPECTING THE CONNECTION

Step 1. Turn gas release knob counterclockwise to allow gas release. To ensure proper gas release, check piercer pin length regularly and keep the AMPACT Tool clean and lubricated. Refer to Customer Manual 409-2106, Section III, TOOL INSPECTION AND MAINTENANCE.

CAUTION

Before removing the fired tool from the AMPACT Connector, always ensure that a gas release has occurred. Operator should detect a sulfur-like smell and/or hissing sound. If gas was not released, refer to instructions in "DANGER" notes after this section.

CAUTION

When using a yellow AMPACT Shell, wait twenty seconds after firing before releasing the gas release knob. This delay allows the gas to cool and prevents a buildup of foreign material in the breech cap assembly. If gas pressure does not release when the gas release knob is loosened, retighten and again strike the gas release knob sharply with a hammer. Then loosen the gas release knob.

Step 2. Turn coupling nut counterclockwise to retract power unit and remove AMPACT Tool from AMPACT Connector.

Step 3. Rest the coupling nut in ;your hand with tool pointing downward at approximately a 45° angle, and the locking latch on the breech cup facing upward as shown in Figure 9.

*Figure 9*

Step 4. Turn the gas release knob counterclockwise until it stops against the retaining clip.

Step 5. Direct the breech cap end of the AMPACT Tool away from yourself and other personnel. Slide the locking latch, located on the breech nut, back towards the gas release knob until it stops (thumb actuation shown in Figure 10).

*Figure 10*

Step 6. While still holding the coupling nut, turn the breech cap assembly 90° counterclockwise as shown in Figure 11.

*Figure 11*

Step 7. Pull back on the breech cap assembly with a snapping action until it stops, and the end of the breech has been cleared. See Figure 12. This will partially eject the AMPACT Shell.

*Figure 12*

Step 8. Rotate the breech cap assembly downward, exposing the rear of the breech and the partially ejected AMPACT Shell. See Figure 13.



Figure 13

Step 9. While holding the breech cap assembly at 90° to the AMPACT Tool, rotate the AMPACT Tool to a vertical position and manually remove the spent AMPACT Shell as shown in Figure 14.



Figure 14

Step 10. Inspect the connection for proper lock (good lance in Figure 25 of Customer Manual 409-2106). If there is no lock, the wedge was not driven far enough into the “C” member. In the event of improper lock or wedge travel, refer to the troubleshooting table in Figure 25 of Customer Manual 409-2106 for possible causes and corrective actions.

DANGER

In the event that the gas does not release after firing, retighten the gas release knob and strike sharply with a hammer in an attempt to release the gas. Loosen the gas release knob and recheck. If the gas still does not release, remaining gas pressure may cause the AMPACT Shell to stick in the breech. Keep fingers out of the ram area. Ram may extend without warning if the AMPACT Shell contains gas pressure.

DANGER

Never look into the opening of an ejected AMPACT Shell. If the AMPACT Shell contains pressurized gas, components could be expelled with considerable force.

DANGER

After shell removal, check the breech and make certain that the primer or primer cap is not lodged in the tool. If the primer or primer cap is lodged in the breech, remove. Be certain to check the piercer pin length and clean the tool according to the instructions in the maintenance section.

DANGER

If the shell cannot be ejected properly, contact your Tyco Electronics Field Representative.

4. AMPACT TOOL INSPECTION AND MAINTENANCE (WEEKLY SERVICING)

DANGER

To avoid personal injury, ensure that the AMPACT Tool is not loaded before performing any maintenance or inspection procedure.

Use Browning Gun Oil (or equivalent lubricant), and Tyco Electronics Cleaning Tool 1443442-1.

Carbon and plastic deposits caused by “blow by” may on occasion collect inside the breech cap assembly. If deposits build up, the gas release knob will not seat against the breech cap sleeve and the piercer pin will not penetrate the shell properly.

4.1. Cleaning and Lubricating the Gas Release Knob with Cleaning Tool 1443442-1

Step 1. Unscrew the gas release knob one full turn. Pry one end of the retaining spring (refer to Figure 15) out of the slot with the screwdriver or corner of the cleaning tool.



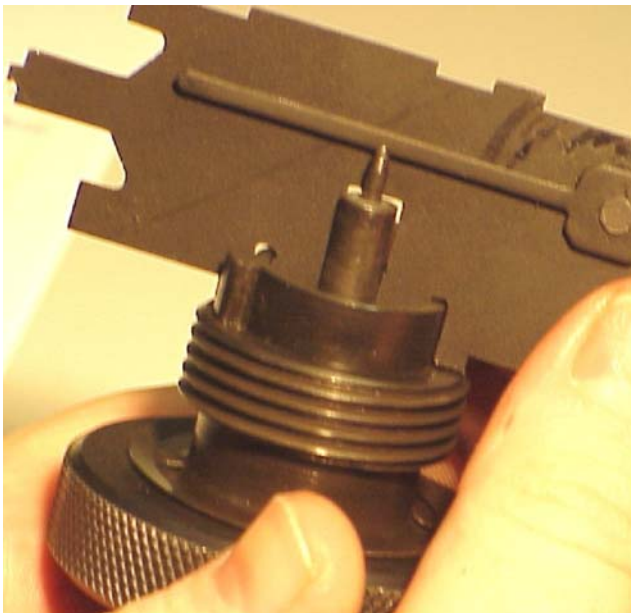
Figure 15

Step 2. Hold the AMPACT Tool in the vertical position (tool head down), and unscrew the gas release knob and piercer pin guide assembly. Press lightly on top of the gas release knob when unscrewing to ensure both the gas release knob and piercer pin guide are retrieved from the breech sleeve simultaneously as shown in Figure 16.

*Figure 16*

Step 3. Separate the gas release knob from the piercer pin guide.

Step 4. Dislodge compressed deposits in the gas release knob by positioning the cleaning tool against the counterbore and piercer pin as shown in Figure 17. Be sure to clean the shoulder of the piercer pin with proper section of the cleaning tool. See Figure 18. Rotate the cleaning tool until all surfaces are clean.

*Figure 17**Figure 18*

Step 5. Clean the exterior threads on the gas release knob. See Figure 19. Make sure that the cleaning tool grooves are aligned with the threads in the gas release knob.

*Figure 19*

Step 6. Unfold the cleaning tool rod and clean the carbon deposits from the holes in the gas release knob by rotating the rod several times in each hole. See Figure 20. If the holes are reduced in size or blocked from the peening action of hammer blows, return the gas release knob to Tyco Electronics for repairs.

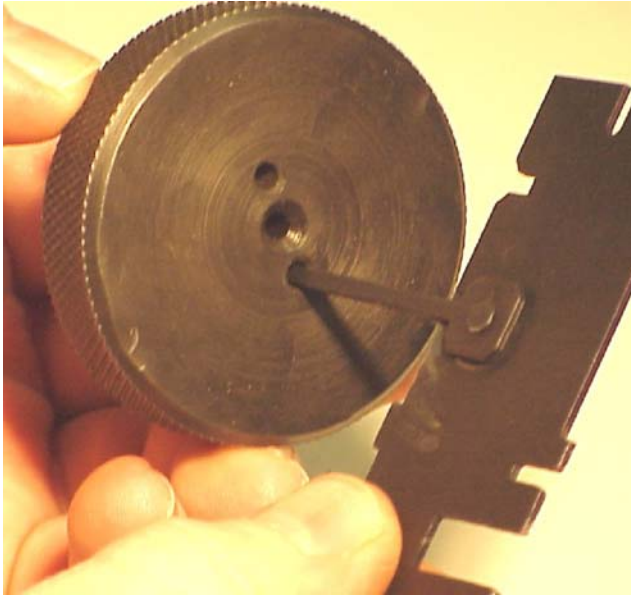


Figure 20

Step 7. Gage the length of the piercer pin as shown in Figure 21. If the pin passes through the slot in the gage, return the piercer pin and piercer pin guide to Tyco Electronics for replacement.

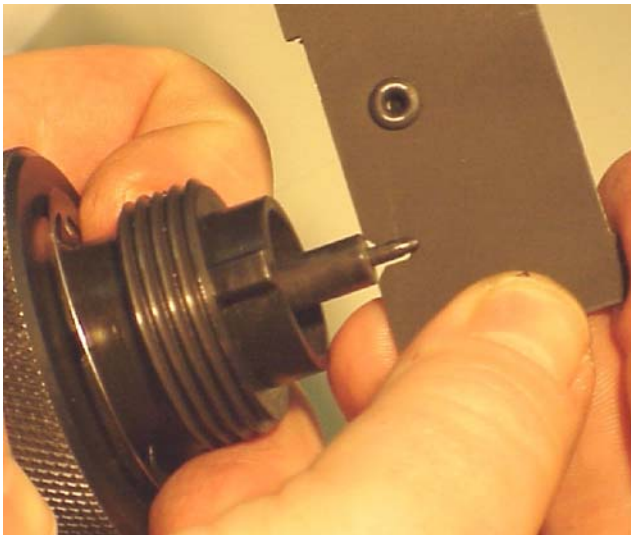


Figure 21

Step 8. Clean piercer pin guide and surfaces indicated in Figures 22 and 23. Rotate the cleaning tool several times to ensure all surfaces are clean. If the piercer pin guide hole is oval or worn, replace the piercer pin guide.



Figure 22

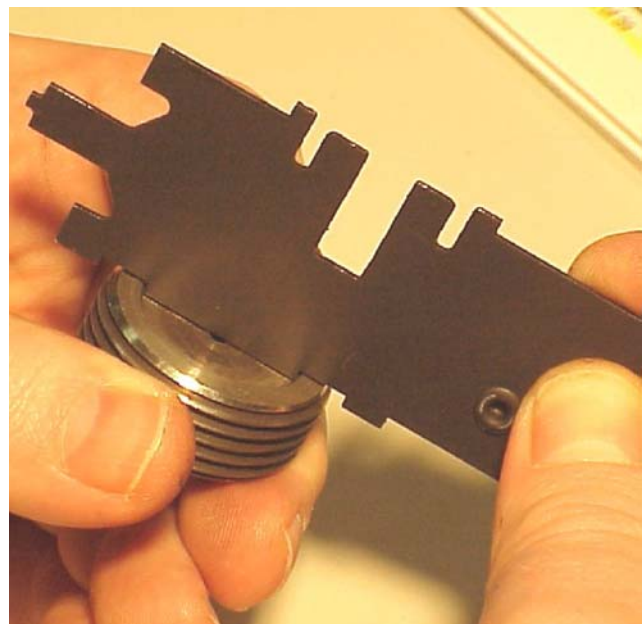


Figure 23

Step 9. Coat all cleaned surfaces and threads with lubricant.

4.2. Cleaning the Breech Cap Sleeve with Cleaning Tool 1443442-1

Step 1. Clean the interior threads in the gas release end of the breech sleeve. Insert the grooved end of the cleaning tool until it bottoms in the breech sleeve as shown in Figure 24. Make sure that the grooves in the cleaning tool are aligned with the breech sleeve threads. Rotate the cleaning tool until the threaded surfaces are clean.

*Figure 24*

Step 2. Coat all the cleaned surfaces and threads with lubricant.

4.3. Breech Cap Sleeve Reassembly

Step 1. Hold the AMPACT Tool in the vertical position (tool head down), and thread the piercer pin guide two turns into the breech nut. Make sure the stop pin is above the edge of the breech sleeve as shown in Figure 25.

*Figure 25*

Step 2. Place the gas release knob onto the piercer pin guide as shown in Figure 16, and rotate clockwise until the gas release knob bottoms.

Step 3. Install the retaining spring on the side opposite to the locking latch mechanism as shown in Figure 15.

4.4. Cleaning the Ram

Step 1. The ram must slide freely in the coupling. Check the ram movement as shown in Figure 26. If the ram travel is more than 51 mm [2.0 in.], the AMPACT Tool should be returned to Tyco Electronics for repairs.

*Figure 26*

Step 2. Clean the ram by first opening the breech cap assembly and pouring a few drops of solvent into the breech. Work the ram up and down as shown in Figures 27 and 28.

*Figure 27*



Figure 28

Step 3. Continue flushing the solvent and working the ram until it moves freely. (The ram will fall from its own weight if the AMPACT Tool is in good working condition).

Step 4. Wire all surfaces clean. Coat the ram and inside of the breech with lubricant.

5. REPAIR/REPLACEMENT

5.1. Tool Replacement Parts

The Tyco Electronics Tool Replacement Kit 1443448-1 contains:

- Piercer Pin 1443405-1
- Piercer Pin Guide 1443410-1
- Setscrew 1-24144-7

5.2. Tool Repair Kit

If the piercer pin guide or piercer pin are worn, both components must be replaced.

1. Scrap the piercer pin guide, as it is not repairable.
2. Using a 3/32 in. hex key, remove the setscrew from the gas release knob.
3. Remove the piercer pin and discard. Clean the piercer pin hole using the rod of the cleaning tool. Lubricate and insert a new piercer pin so that the flat portion of the piercer pin is aligned with the setscrew opening.
4. Install and tighten the new setscrew.

6. REVISION SUMMARY

- Initial release of document