


CONNECTOR CONTACT POSITIONS	TOOLING ASSEMBLY ONLY	TOOLING ASSEMBLY WITH MANUAL ARBOR FRAME ASSEMBLY
24	230506-6	230506-5
50	230506-3	230506-1

Figure 1

1. INTRODUCTION


Double Stuffer Tooling Assemblies 230506-[] are used with Manual Arbor Frame Assembly 58024-1 to terminate discrete wires to CHAMP back-to-back connectors. The tooling assembly is available separately or includes the manual arbor frame assembly. Refer to Figure 1. For information concerning setup and operation of the arbor frame assembly, refer to instruction sheet 408-6923.

Reasons for reissue of this instruction sheet are provided in Section 10, REVISION SUMMARY.

NOTE  Dimensions in this instruction sheet are in metric units [with U.S. customary units in brackets]. Figures are not drawn to scale.

2. DESCRIPTION (Figure 1)

The tooling assembly features upper tooling and lower tooling. The upper tooling consists of an inserter holder and inserter assembly (which consists of a stuffer and a double stuffer inserter) and is secured to the ram of the arbor frame assembly. The lower tooling consists of a base plate, a cable clamp, a front comb, a rear comb, and a shear blade which is secured to the base plate of the arbor frame assembly.

NOTE  Hardware used to assemble and secure the upper and lower tooling to the arbor frame assembly is included.

The upper tooling provides even pressure on the wires and applies the insulation displacement terminating (IDT) technique to terminate the wires in

the contacts. The lower tooling maintains alignment of the wires and connector. The color bars on the lower tooling provide the sequence for lacing the wires in the tooling.

3. SETUP

1. Secure the arbor frame assembly to a work bench to ensure stability during operation. Refer to 408-6923.

NOTE *The handle of the arbor frame assembly is adjustable for convenient storage. Make sure it is FULLY extended when in use.*

2. Install the stuffer into the double stuffer inserter, and secure it with the slotted spring pins. Install the inserter assembly into the inserter holder, and secure it with the 1/4-in. bolt. Rotate the handle of the arbor frame assembly forward, and install the inserter holder into the ram, then secure it with the flat head screws. See Figure 1.

3. Install the base plate of the lower tooling onto the base plate of the arbor frame assembly using the four socket head cap screws. Tighten the screws just enough to hold the base plate in place. See Figure 1.

4. Position the hole in the terminating block onto the pivot pin of the base plate with the rear comb oriented toward the left side of the arbor frame assembly. See Figure 2. The lower tooling is now in the lacing position.

5. Place a connector into the lower tooling so that the plug section is toward the rear comb and the No. 1 contact position (stamped on mating face of connector) is next to the dowel pin. Push down on the connector until it is seated in the lower tooling. See Figure 3.

6. Check the alignment of the upper and lower tooling by rotating the lower tooling 180° to the terminating position. The lower tooling must be directly under the upper tooling as shown in Figure 4.

NOTE *The lower tooling will drop into place when it is rotated under the upper tooling or when it is rotated into the lacing position.*

7. Place the shear blade over the dowel pins as shown in Figure 4.
8. Slowly rotate the handle forward until the upper tooling is on the shear blade.

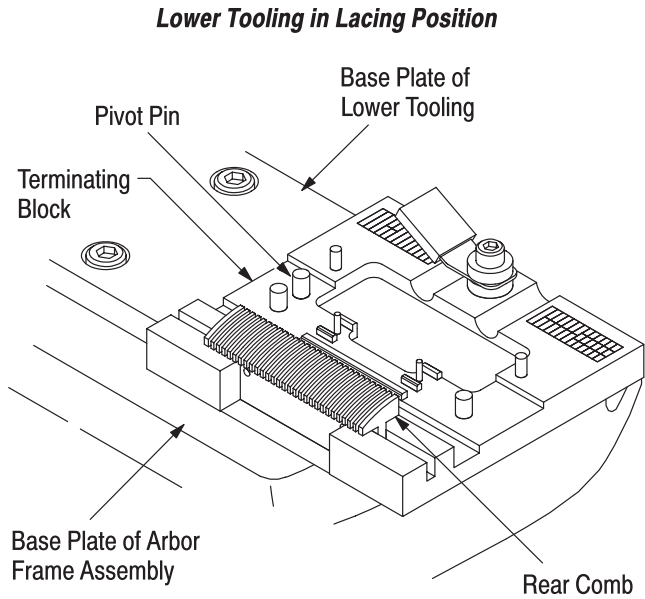


Figure 2

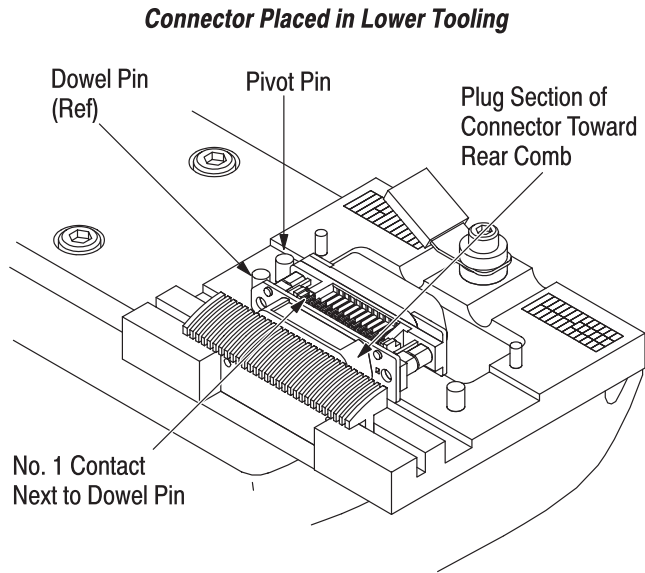


Figure 3

9. Using a plastic or rubber-headed hammer, tap the left side of the base plate of the lower tooling until the stuffers are between the shear blade supports.

10. Tighten the four socket head cap screws which secure the base plate of the lower tooling to the base plate of the frame assembly. Return the handle to its original position.

11. Lift and rotate the lower tooling 180° to the lacing position.

Tooling Assembly in Terminating Position

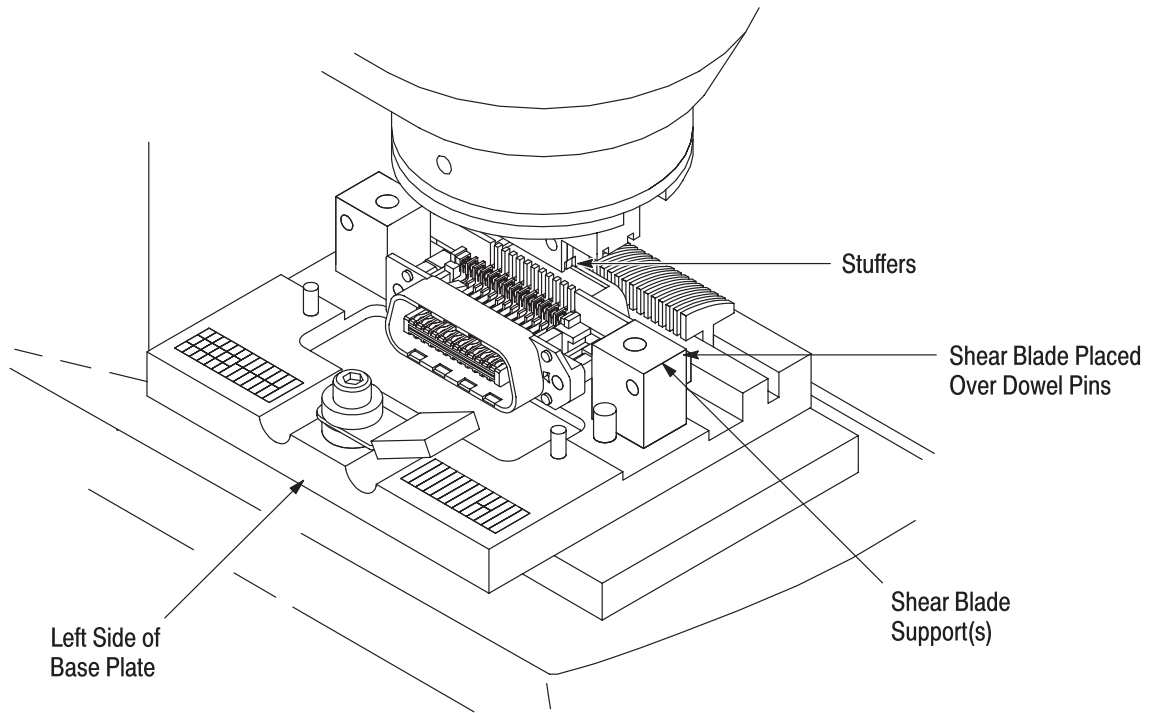


Figure 4

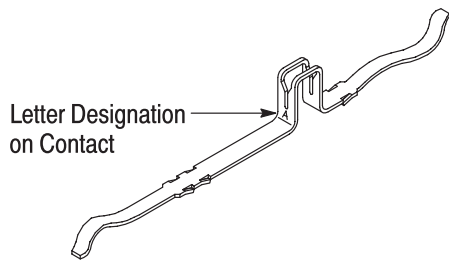
4. WIRE PREPARATION AND LACING

1. Refer to Figure 5 for the appropriate wire size using the letter designation stamped on the contact termination section of the connector. For 24-position connectors, refer to Figure 6 for color code cable dressing according to IEEE 488-1978.

2. Remove the cable jacket to the dimension given in Figure 7. No other wire preparation is required.



Before lacing the wires into the comb, make sure that the tooling assembly, connector, and wire size are compatible.



3. Place the comb support over the dowel pins as shown in Figure 8.

4. Place the cable into the cable slot, and secure it with the cable clamp. See Figure 8.



The cable jacket must be aligned with the milled surface of the lower tooling. See Figure 8.

WIRE SIZE (AWG)		LETTER DESIGNATION
SOLID	7-STRAND	
22	22	C
24	—	A
26	24	B
—	26, 27, 28	E

Figure 5

5. Separate the wires into two groups (according to color code). Pull one group of wires away from the lacing area, and twist the wires. Refer to Figure 9.

6. Lace the wires into the front comb, shear blade, and rear comb according to the color code of the wire and the color bar on the lower tooling. The color code of the wire should correspond with the color bar on the lower tooling. Secure each wire in the rear comb by pulling down on the wire; then twist the wires together as shown in Figure 10.

IEEE 488-1978 COLOR CODE			
POSITION	COLOR CODE CABLE DRESSING	POSITION	COLOR CODE CABLE DRESSING
12	Shield Drain	24	White/Black/Blue
11	White/Brown	23	White/Black/Green
10	White/Black	22	White/Black/Yellow
9	White	21	White/Black/Orange
8	Gray	20	White/Black/Red
7	Violet	19	White/Black/Brown
6	Blue	18	White/Gray
5	Green	17	White/Violet
4	Yellow	16	White/Blue
3	Orange	15	White/Green
2	Red	14	White/Yellow
1	Brown	13	White/Orange

Figure 6

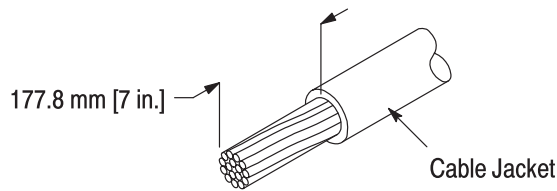


Figure 7

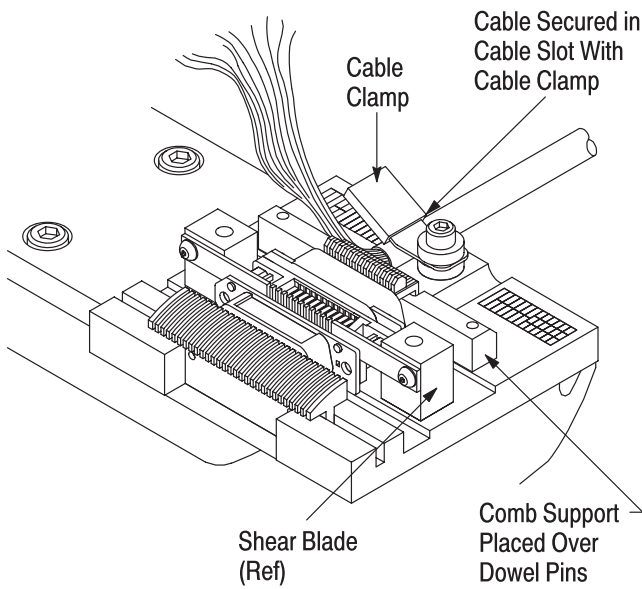


Figure 8

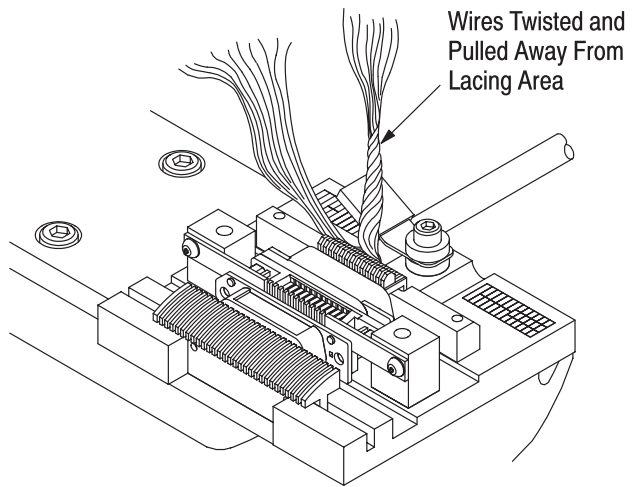


Figure 9

5. TERMINATION

1. Lift and rotate the lower tooling 180° so that it is under the ram as shown in Figure 11.
2. Rotate the handle forward to lower the upper tooling against the shear blade as shown in Figure 11. When the ram is FULLY bottomed, hold down on the lower tooling, and return the handle to its original position.
3. Lift and rotate the lower tooling 180° to the lacing position. Remove the sheared wires from the rear comb.
4. Remove the shear blade from the lower tooling. Rotate the cable clamp away from the cable. Lift the connector with the cable and the front comb out of the lower tooling.

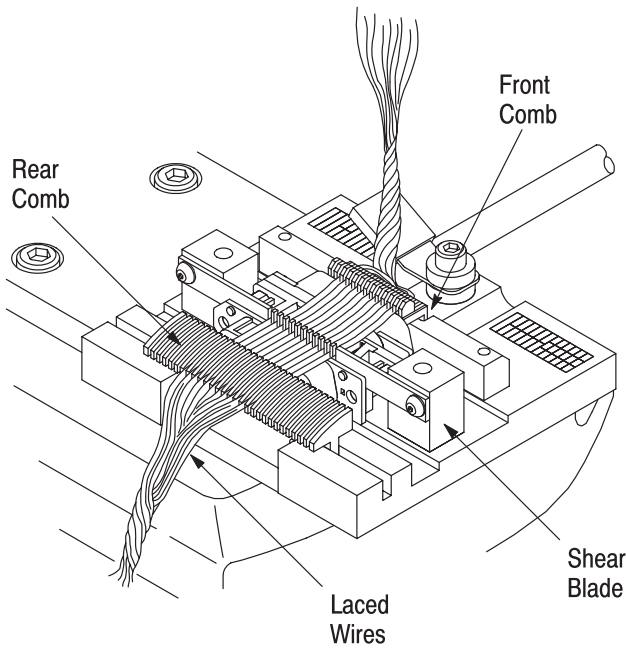


Figure 10

5. While pushing down on the connector, remove the front comb from the wires and the connector.
6. Place the unterminated side of the connector into the pocket of the lower tooling. Place the cable into the cable slot, and secure it with the cable clamp. See Figure 12.

NOTE *The end of the cable jacket must be aligned with the milled surface of the lower tooling as shown in Figure 12.*



7. Reposition the shear blade and comb support over the dowel pins. See Figure 12.
8. Untwist the wires; then lace the wires into the front comb, shear blade, and rear comb. Pull down on each wire to secure it into the rear comb. After the wires are secured in the rear comb, twist the wires together.
9. Lift and rotate the lower tooling 180° so that it is under the ram.
10. Rotate the handle forward to lower the upper tooling against the shear blade (refer to Figure 11). When the ram is FULLY bottomed, hold down the lower tooling, and return the handle to its original position.
11. Lift and rotate the lower tooling 180° to the lacing position. Remove the sheared wires from the rear comb.
12. Remove the shear blade from the lower tooling. Rotate the cable clamp away from the cable; then lift the connector with cable and front comb from the lower tooling.
13. While pushing down on the connector, remove the front comb from the wires and connector.

6. TERMINATION INSPECTION

- Check the wires to ensure that the insulation is below the V-shaped lead-in on both the contact slot and strain-relief slot.
- Make sure that all wires are sheared to the proper length and that no exposed conductor strands are visible.

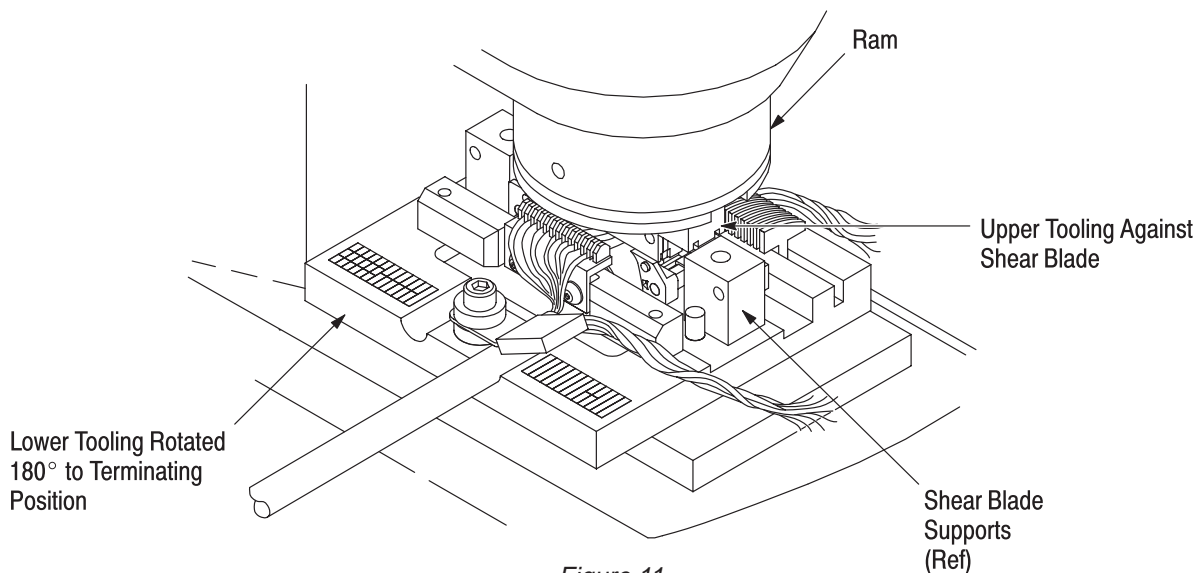


Figure 11

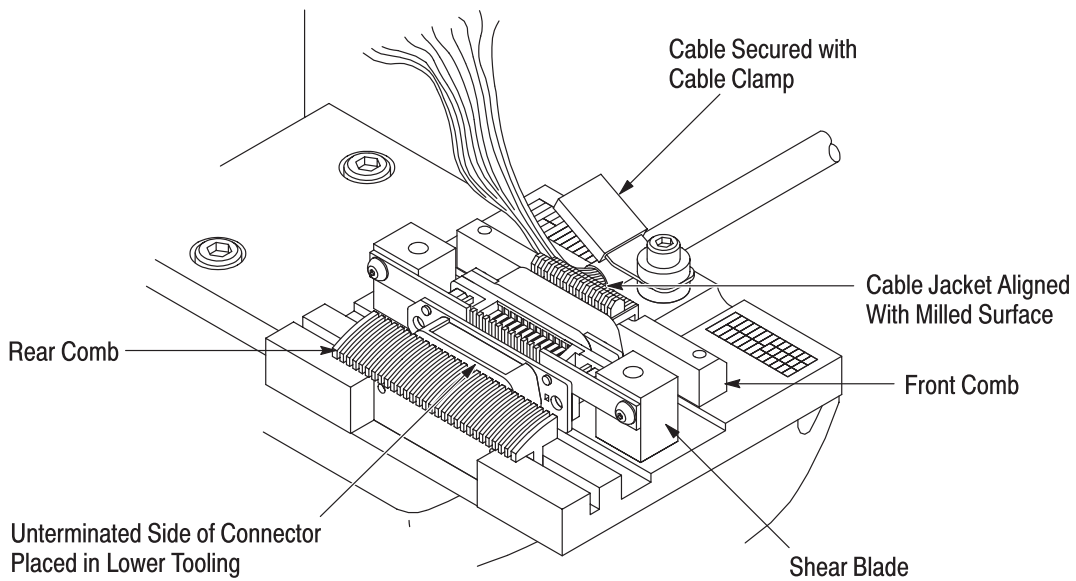


Figure 12

- Make sure that the wire insulation is NOT cut in any area other than the slot insertion area.
- Check the contacts to ensure that they are not deformed or crushed.
- Make sure conductors have not been cut above the strain-relief slot in the contacts.

If any of the wires are not properly terminated, re-insert them using T-Handle Insertion Tool 229384-1 according to 408-7558.

7. COVER INSTALLATION

The two-piece plastic cover features four locking latches and a strain-relief cable opening. To install the cover, refer to Figure 13, and proceed as follows:

1. Orient the wires as shown in Figure 13.
2. Place one half of the cover onto the connector. The cable opening side of the cover must be toward the cable jacket. See Figure 13.
3. Place the other half of the cover onto the connector as shown in Figure 13. After the cover is properly aligned, squeeze the cover halves together until they snap together.

8. MAINTENANCE AND INSPECTION

The tooling assemblies are inspected prior to shipment to ensure the tooling meets all required quality standards and performances. However, it is recommended to inspect the tooling immediately upon its arrival to ensure that the tooling has not been damaged during handling.

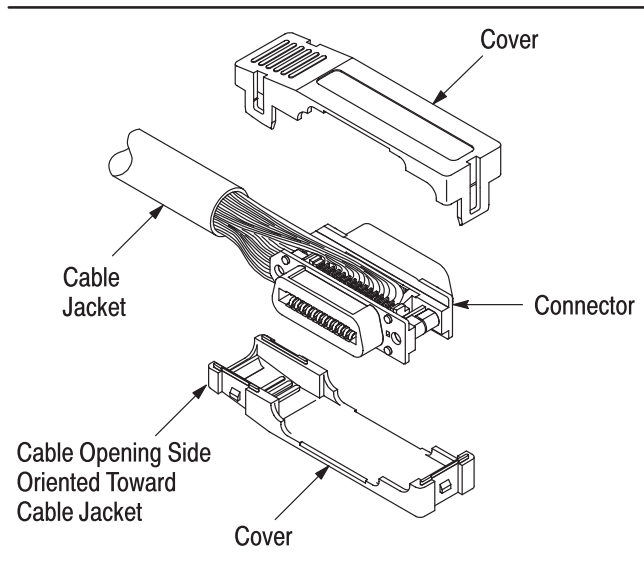


Figure 13

To ensure the tooling assembly functions properly, the following daily maintenance program is recommended:

1. Clean the tooling assembly with an air hose to remove dust and cable debris.



Compressed air used for cleaning must be reduced to less than 206.8 kPa [30 psi], and effective chip guarding and personal protective equipment (including eye protection) must be used.

2. Lubricate all locating and pivot pins with a light oil. Remove any excess oil from tooling assembly with a clean, dry, lint-free cloth.

9. REPLACEMENT AND REPAIR

Customer-replaceable parts are listed in Figure 14. A complete inventory should be stocked and controlled to prevent lost time when replacement of parts is necessary. Parts other than those listed should be replaced by Tyco Electronics Corporation to ensure quality and reliability. Order replacement parts through your representative, or call 1-800-526-5142, or send a facsimile of your purchase order to 717-986-7605, or write to:

CUSTOMER SERVICE (038-035)
TYCO ELECTRONICS CORPORATION
PO BOX 3608
HARRISBURG PA 17105-3608

For customer repair service, call 1-800-526-5136.

9.1. Replacing Rear Comb

1. Remove the rear comb by driving the two $\frac{3}{32}$ -in. diameter roll pins into the holes in the slot of the terminating block.
2. Lift the rear comb out of the slot, and insert the new rear comb.
3. Align the holes in the rear comb with the holes in the terminating block, and re-insert the roll pins.

9.2. Replacing Front Comb

1. Remove the two No. 6 button head cap screws from the front comb support, and lift the front comb from the front comb support.
2. Place the new front comb into position, and secure it with the screws.

9.3. Replacing Inserter Assembly

1. Lower the ram of the arbor frame, then remove the flat head screws. Remove the inserter holder from the ram.
2. Remove the bolt; then lift the inserter assembly out of the inserter holder.
3. Insert the new inserter assembly into the inserter holder, and secure it with the bolt. Install the inserter holder into the ram, and secure it with the flat head screws.

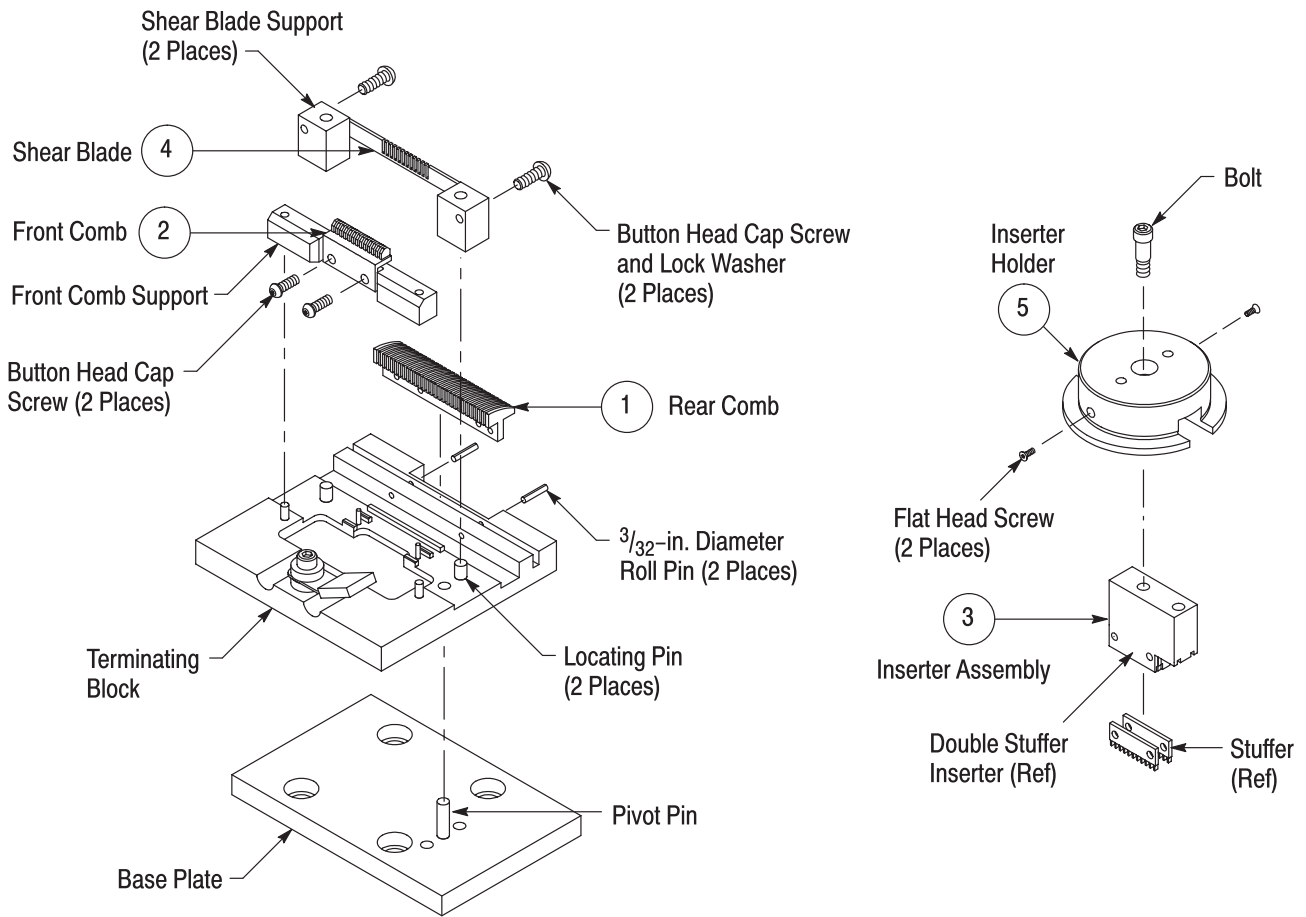
9.4. Replacing Shear Blade

1. Remove the two No. 6 button head cap screws and lockwashers which retain the shear blade to the shear blade supports.
2. Place the new shear blade into position. Re-install the two No. 6 button head cap screws with lockwashers onto the shear blade supports. Tighten the screws just enough to hold the shear blade in place.
3. Place the shear blade supports over the locating pins (of the terminating block). Hold the shear blade supports down, and tighten the two No. 6 button head cap screws.

10. REVISION SUMMARY

Revisions to this instruction sheet include:

- Switched part numbers for positions 24 and 50 in Figure 1
- Changed part number for Item 4 and removed Item 3 of Assemblies -5 and -6



REPLACEMENT PARTS

ITEM	PART NUMBER FOR TOOLING ASSEMBLY		DESCRIPTION	QTY PER TOOLING ASSEMBLY
	-1● AND -3	-5● AND -6		
1	230522-1	230522-1	COMB, Rear	1
2	230521-1	230520-1	COMB, Front	1
3	230508-1	—	INSERTER ASSEMBLY	1
4	230514-1	679849-1	BLADE, Shear	1
5	230519-1	230519-1	INSERTER HOLDER	1

● Replacement parts also include parts for arbor frame assembly listed on 408-6923.

Figure 14