VLF Trendsetter AL
Table Active Cups Upgrade Procedure

1. SCOPE

This document describes the installation of table active cups and replacement of arborite for both new and retrofitted Trendsetter VLF Autoloader machines in production and in the field.

2. TOOLS

Use standard tools for assembly. Special tools are listed in kit 512-00018A-A.

3. INSTALLATION OF TABLE ACTIVE CUP COMPONENTS

1. Remove the drum panel beneath the table.
2. Mask off the drum using 1” masking tape and old slipsheets. See Fig.3.1-1

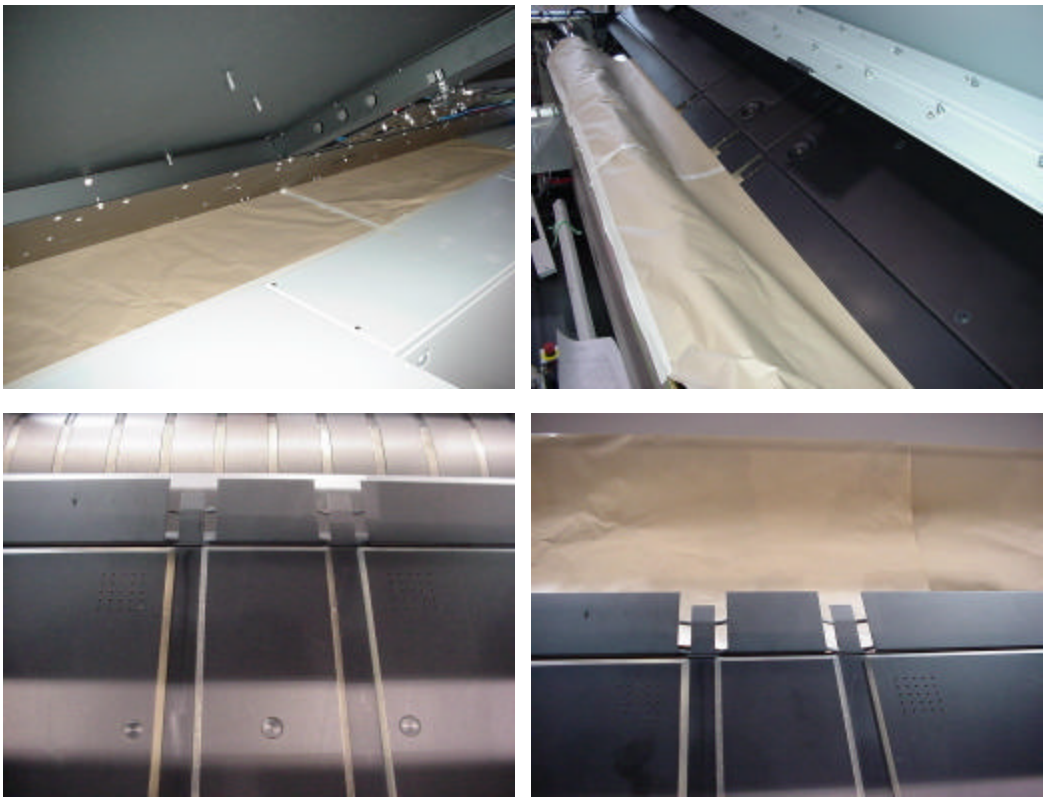


Fig.3.1-1

3. Remove the front arborite panels from the main table section that have hole patterns. These are located close to the table leading edge. See Fig.3.2-1

4. Pull out the darts.
5. Cut, but **do not remove** the black static tape in the groove in the arborite. This tape will be removed at the end of the upgrade.
6. Clean the surface of the table.

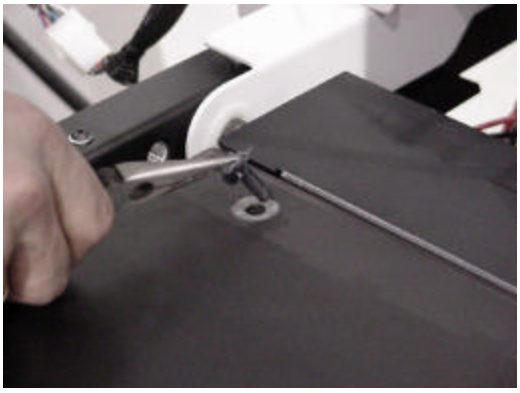
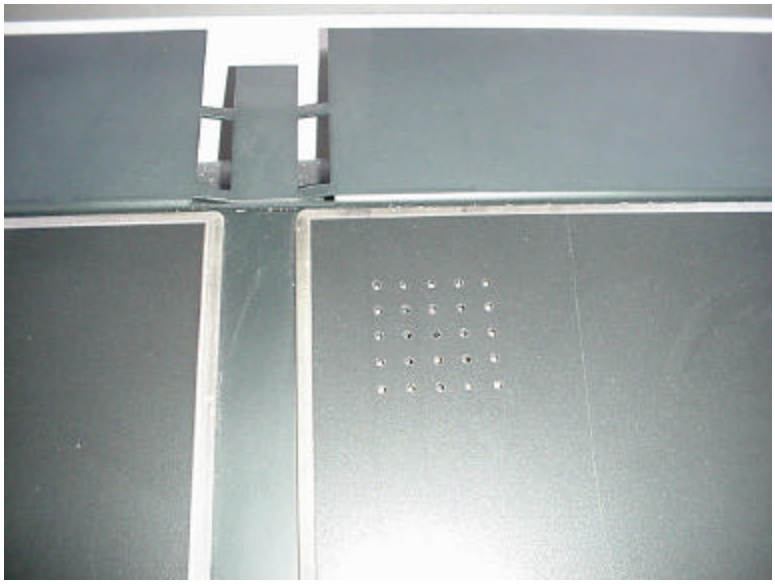


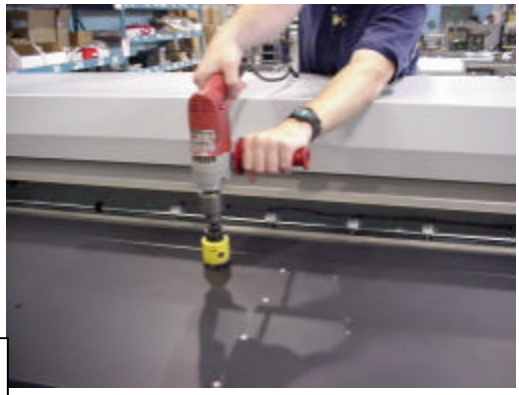


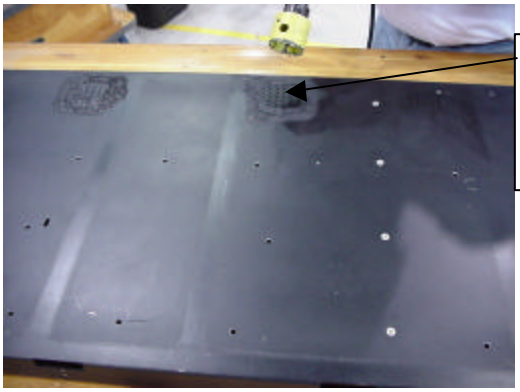
Fig.3.2-1

7. Drill the middle port of the table first. See Fig.3.3-1
    a. Position the pilot drill bit of the hole cutter in the center of the hole pattern.
    b. Use slow speed and WD 40 as a cutting fluid.
    c. Cut through the top surface and the internal vacuum cup only.

    Note: The bottom table skin will be upgraded later.







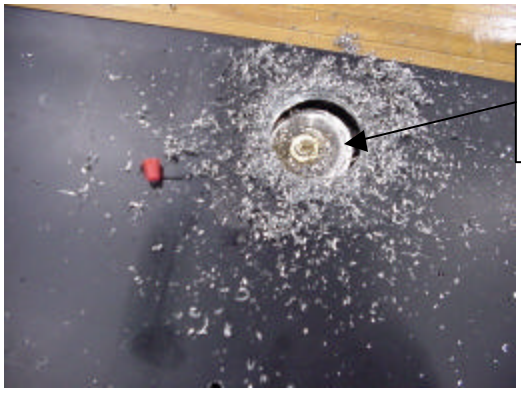
Center of the hole pattern

Table sensor side port

Table middle port

Table pulley/motor side port





Internal vacuum cup

Fig.3.3-1

8. Disconnect the first vacuum cup. See Fig.3.4-1.

9. Deburr the sharp edges of the new hole.

10. Vacuum and remove the old cup.

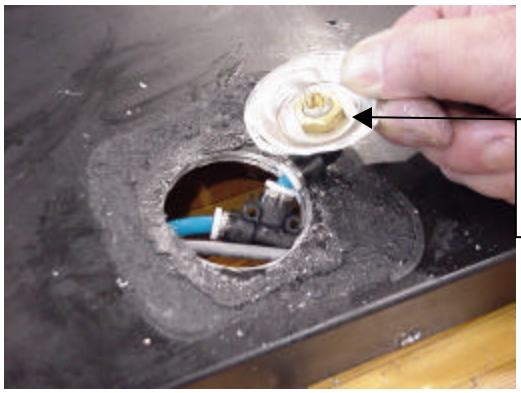
Note: Be careful! The edges of the old cup will be sharp.

11. Disconnect the tubing from the Tee.

12. Tape a temporary ¼" tube to the top of the table (pulley/motor side).

Note: The ¼" blue tube from the pulley side will be reused. Be careful not to damage the table sensor cable while pulling the blue tube.





Internal vacuum cup

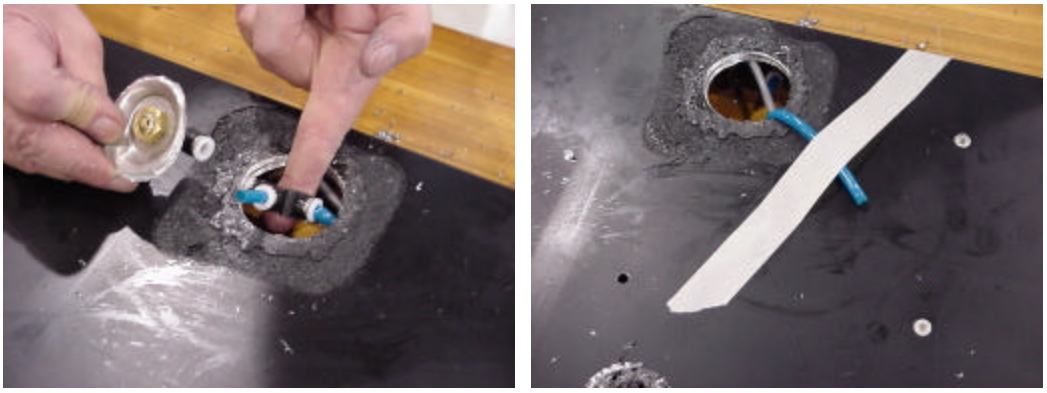


Fig.3.4-1

13. Drill a second hole on the left side of the table (table sensor side). See Fig.3.5-1

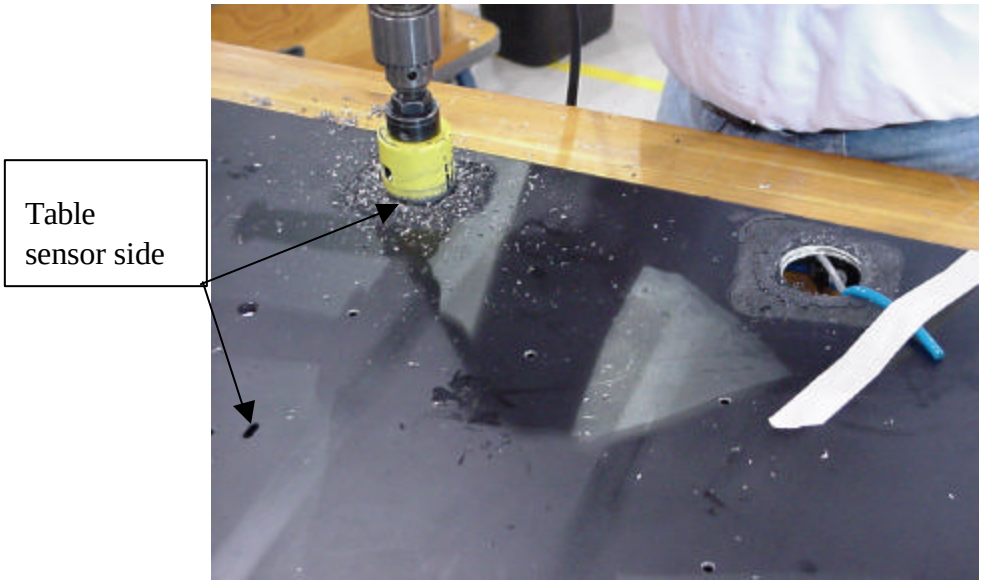


Fig.3.5-1

a. Position the pilot drill bit of the hole cutter in the center of the hole pattern.

b. Use slow speed and WD 40 as a cutting fluid.

c. Cut through the top surface and the internal vacuum cup only.

Note: The bottom table skin will be upgraded later.

15. Disconnect the second vacuum cup. See Fig.3.6-1

16. Deburr the sharp edges of the new hole.

17. Vacuum and remove the old cup.

Note: Be careful! The edges of the old cup will be sharp.

18. Cut the cable ties and pull the old tubing out through the newly cut hole.

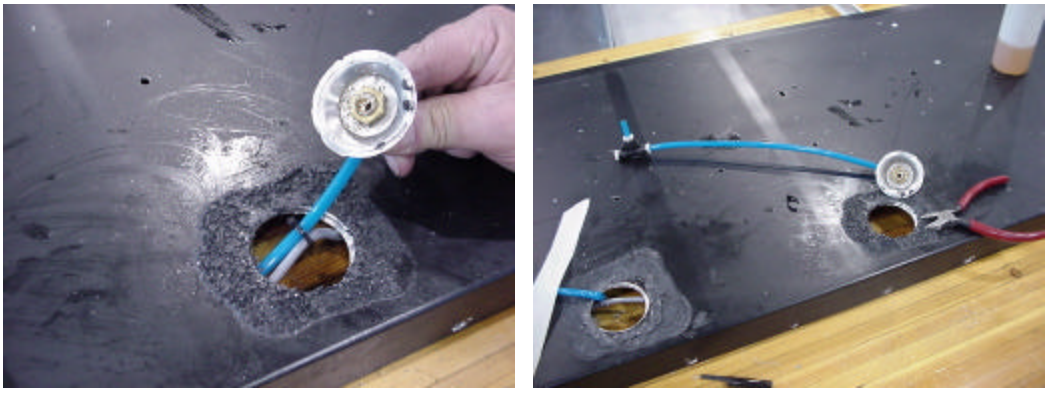


Fig.3.6-1

19. Clean the surface of the table. Remove grease and old silicon using alcohol or glass cleaner. A knife can be used for removing silicon, but be careful not to scratch the table surface. If needed, use a black marker for touch up.

20. Drill 5mm mounting holes on the bottom table skin for the new active cups, using a drilling jig. See Fig.3.8-1.

    a. Align the jig in the new hole on the table sensor side. The straight edge of the jig should face the pulley/motor side. See Fig.3.8-1.

    b. Hold the jig by hand and drill the first 5 mm hole.

    c. Place a M5X30 screw in the new 5 mm hole to prevent the jig from twisting when you drill the second 5mm hole.

    d. Drill a second 5mm hole

    e. Remove the jig and place it in the new hole on the table pulley side. The straight edge of the jig should face the pulley/motor side. See Fig.3.8-1.

    f. Vacuum and clean the entire table surface.

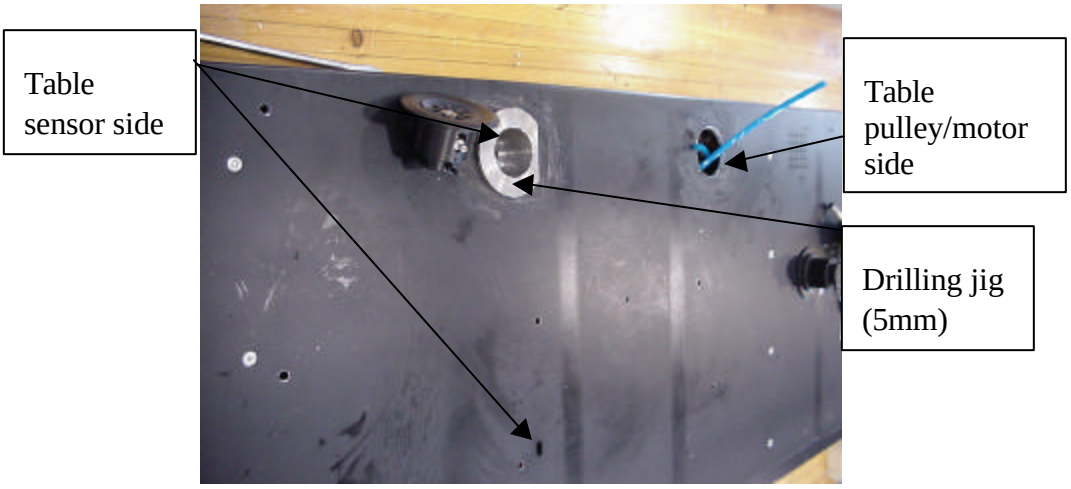




Fig.3.8-1

g. Drill a third 5mm hole in the center of the new cup opening on the table leading edge panel.(pulley/motor side). Access it from the drum side. See Fig.3.9-1

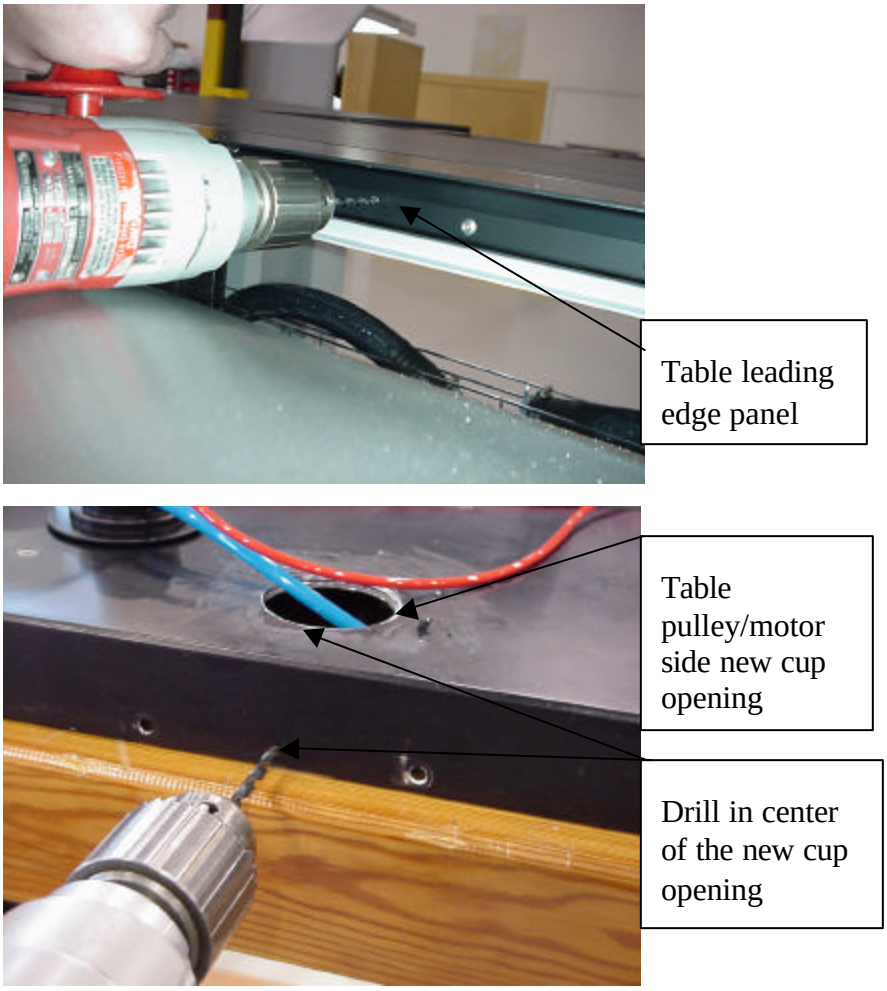


Fig.3.9-1

21. Enlarge all the dart holes on the top table surface from 6.35mm to 7.0 mm, using a 7.0mm drill bit.

22. Vacuum the entire table surface.

23. Check that all 29 dart holes are now 7.0mm. These new holes will be used for aligning the new darts. See Fig. 3.10-1

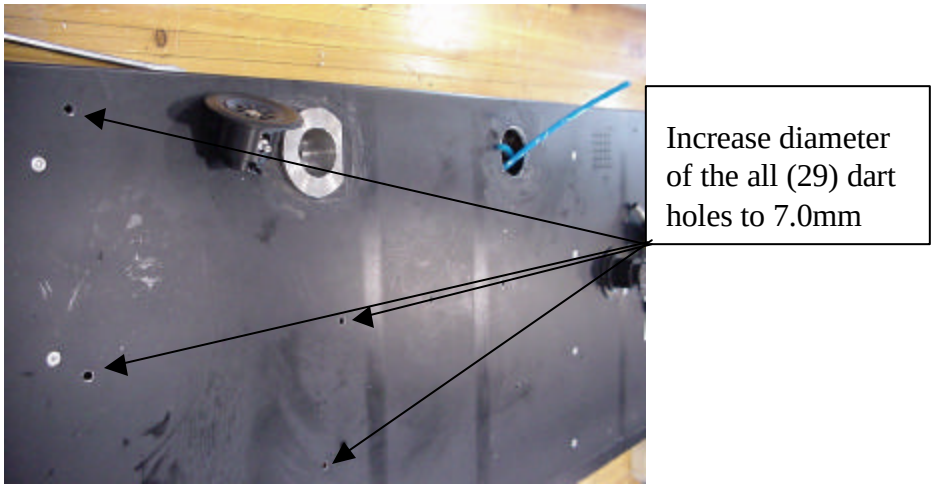


Fig.3.10-1

24. Feed the new ¼" blue assembled vacuum tube through the new opening on the table sensor side. Connect a ¼" coupling to the existing ¼" blue tube from the pulley/motor side (the tube that was taped). See Fig 3.11-1.

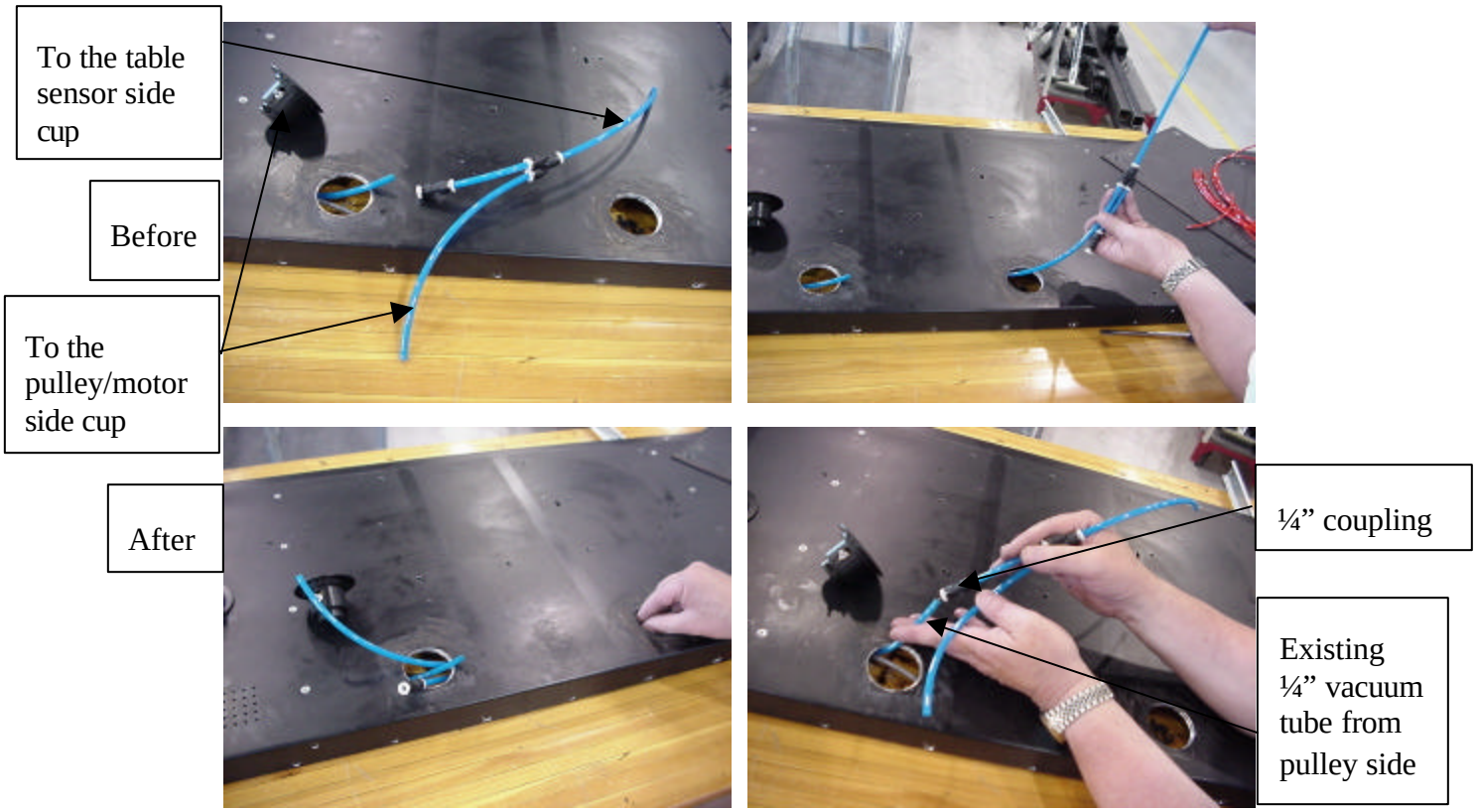


Fig.3.11-1

25. Connect the new active cups to the ¼” blue vacuum tubes. See Fig.3.12-1.

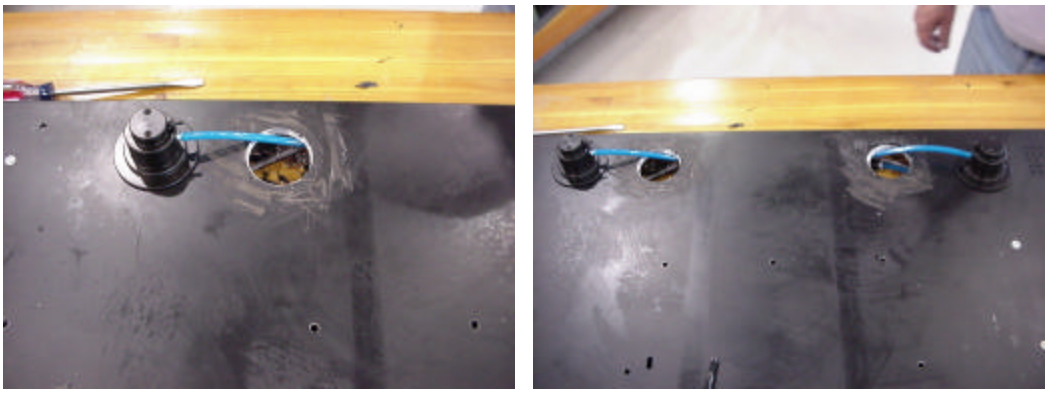


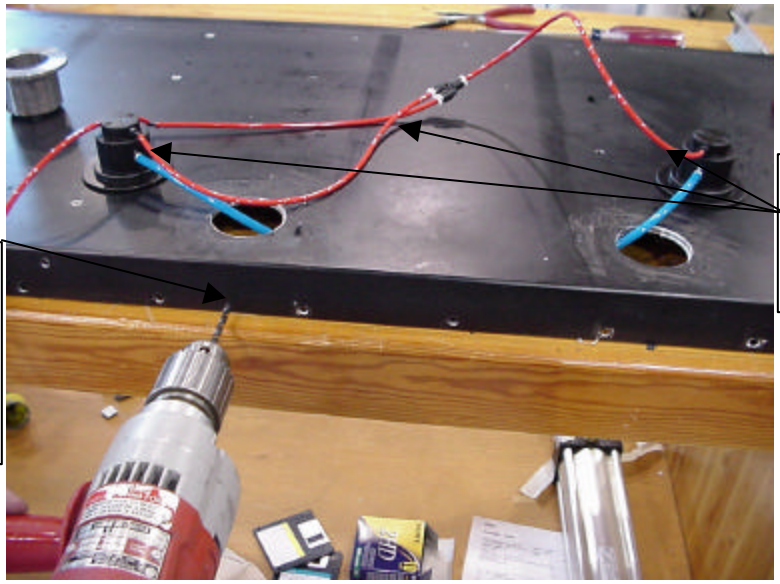
Fig.3.12-1

26. Connect the 5/32” red tubes (positive air pressure) to the new active cups. See Fig.3.13-1.

    a. Connect one 5/32” red tube to the first active cup. Feed the rest of the tube through the table sensor side hole.

    b. Connect the second active cup (pulley/motor side) to another 5/32” red tube.

    c. Feed the last 5/32” red tube through the 5mm hole in the center of the table leading edge. It will later be connected to a 5/32” elbow. Push the rest of the 5/32” tube inside the table. See Fig 3.9-1 and Fig 3.13-1.



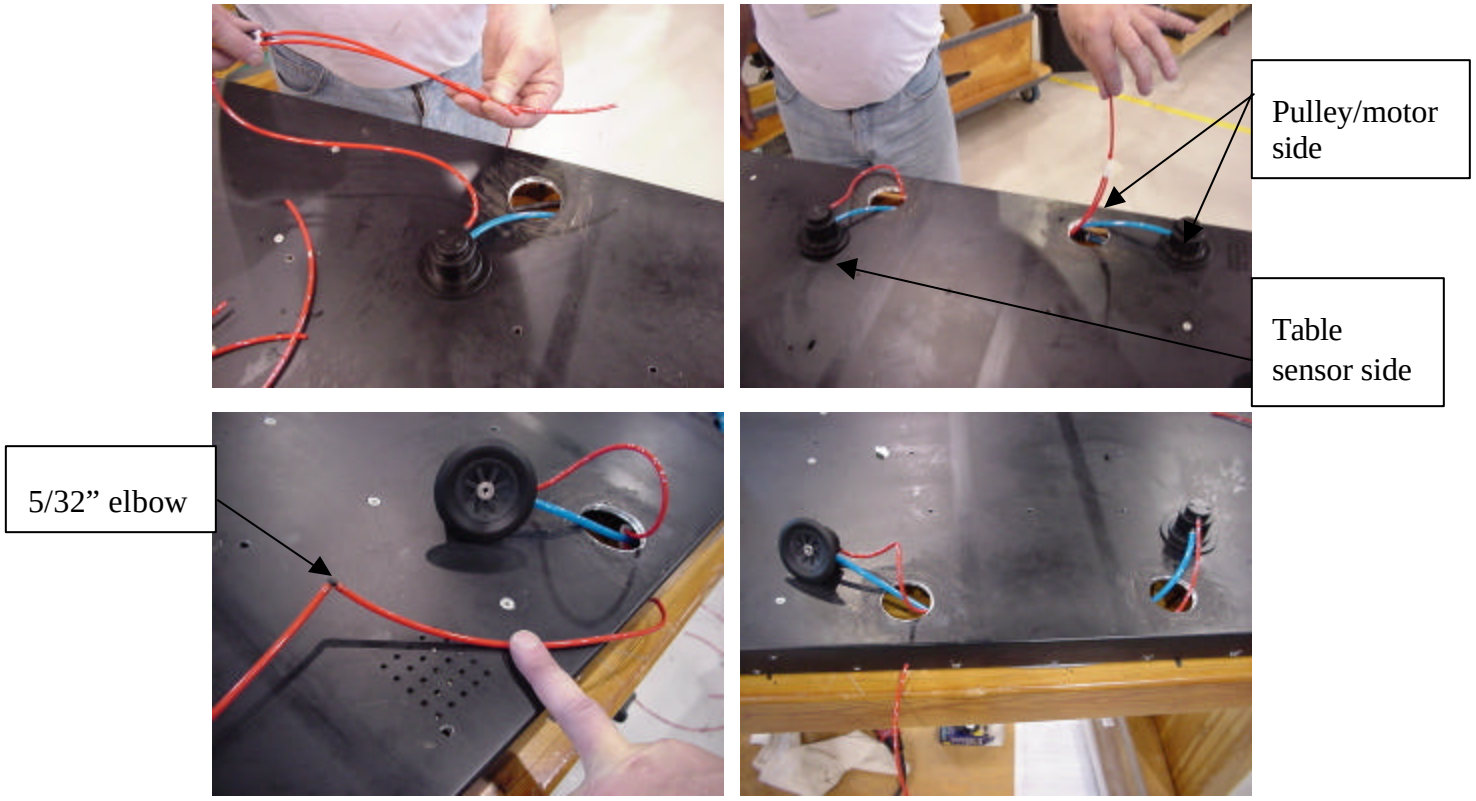


Fig.3.13-1

27. Place the active cups inside the new holes. See Fig.3.14-1.

Note: For ease of alignment, mark the position of the M4 mounting holes on the new active cups.



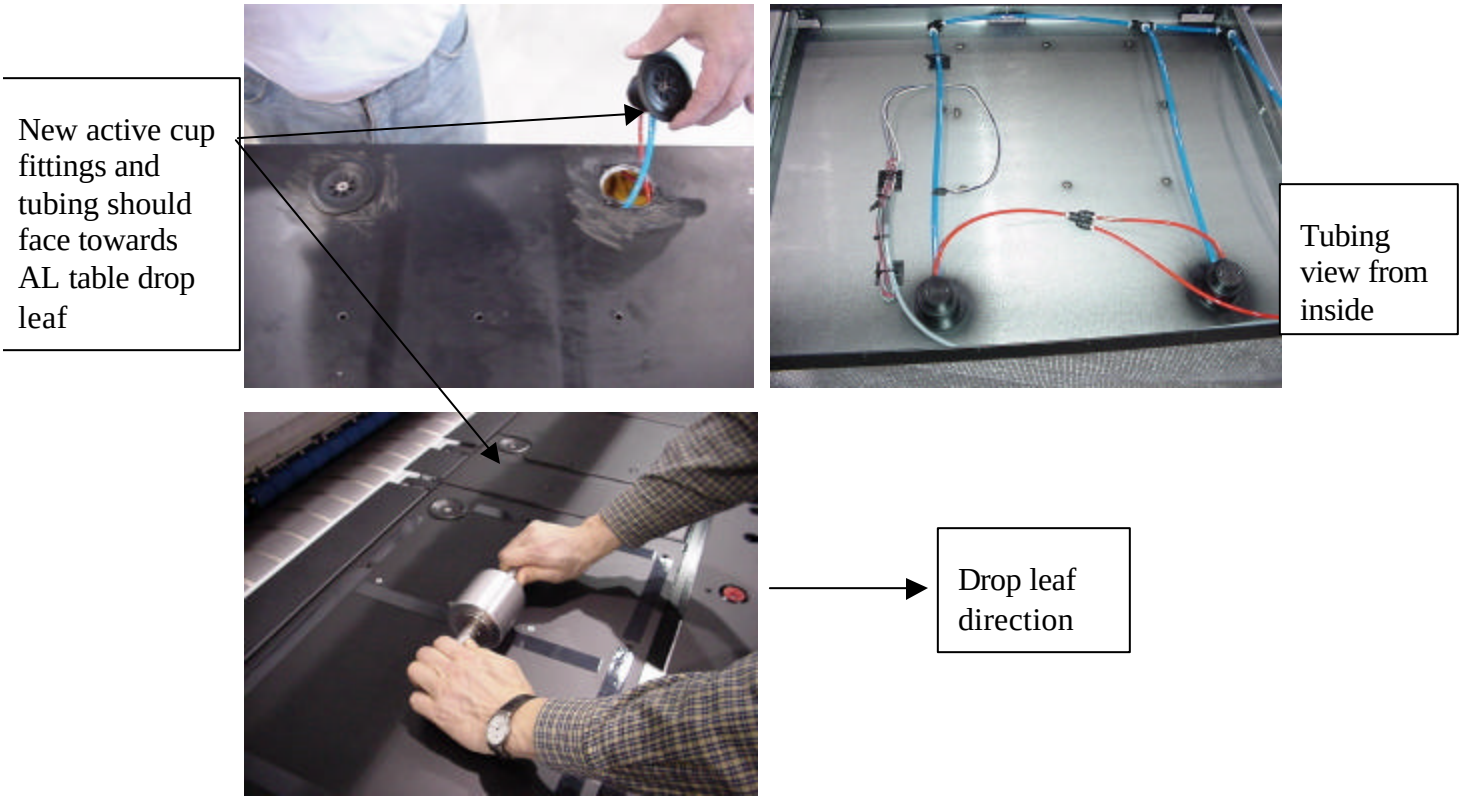


Fig.3.14-1

28. Check by hand that the active cups are moving freely up and down. See Fig.3.15-1.

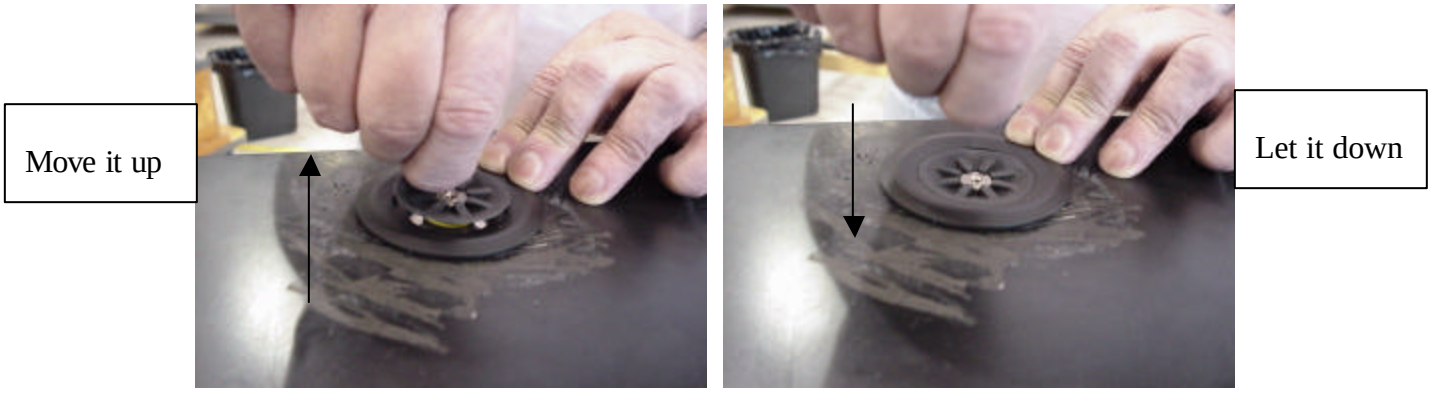


Fig.3.15-1

29. Screw the new active cups to the bottom Autoloader-table skin. See Fig.3.16-1.

    a. Move the Autloader table up.

    b. Apply M3x16 screws with washers. Finger tighten them only.

    Note: If the screws are tightened too much, the active cups will not work. They will not move freely up and down.



Fig.3.16-1

30. Recheck by hand that the active cups are moving freely up and down. See Fig.3.15-1.

4. REPLACEMENT OF ARBORITE PANELS

4.1 Installing Double Sided Tape and Darts

Note: If ready-to-install arborite panels have been sent to you (with darts preinstalled), you may go directly to Section 4.2: Installing the Arborite Panels.

1. Clean the arborite panels with alcohol.

2. Apply the double-sided tape, following the layout drawing 50-1814E (shown below) closely. Be particularly careful along the perimeter of the panels. The recommended distance from the edge is 2-5mm). See Fig 3.18-1.

   Note: Do not peel off the protective plastic tape yet.

Double sided tape layout (Refer to drawing 50-1814E (shown below)

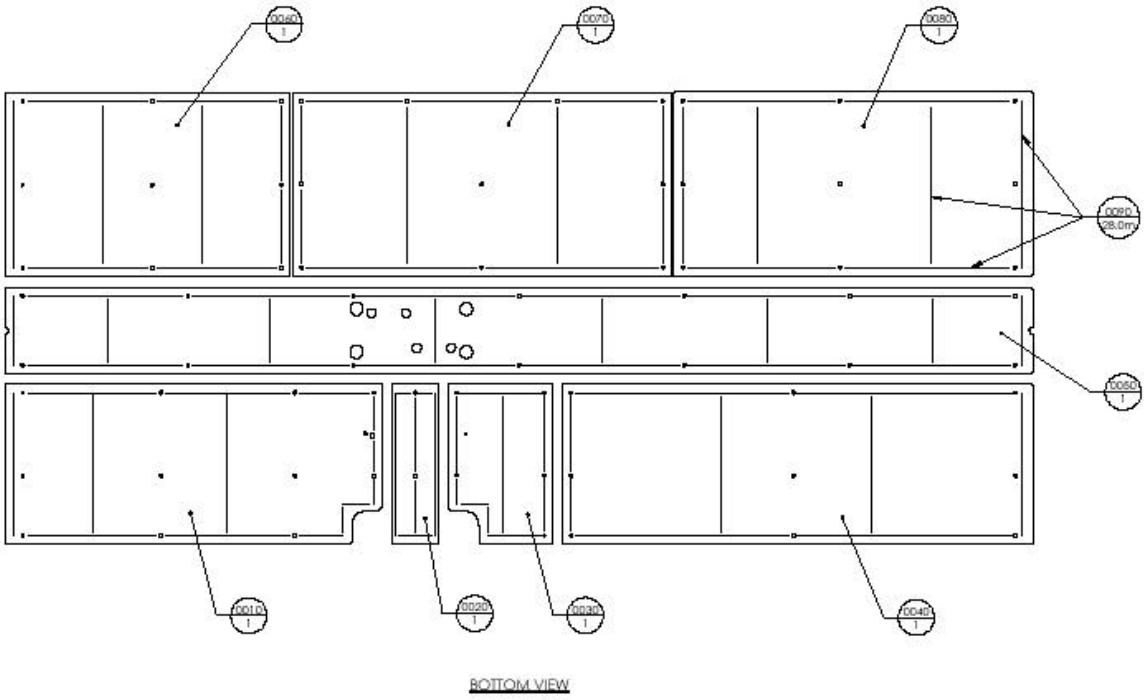




Fig 3.18-1

3. Press the tape onto the panels with a roller as shown in Fig.3.18-2.

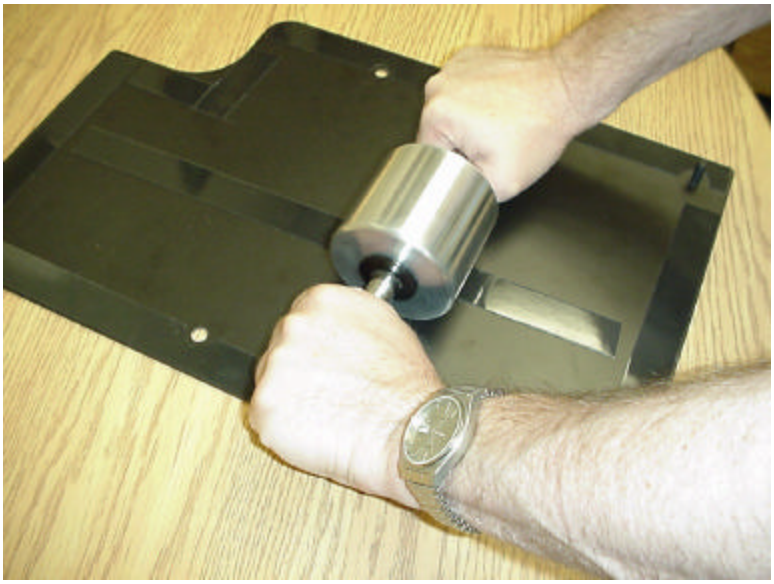


Fig 3.18-2

4. Remove any air bubbles that may have been caught under the tape by poking them with a needle. Use the roller again to smooth the tape out.
5. Put the UHMW darts through the holes in the arborite holes, with their heads up.
6. Apply ¼" spring clips, using pliers as shown in Fig 3.18-3.

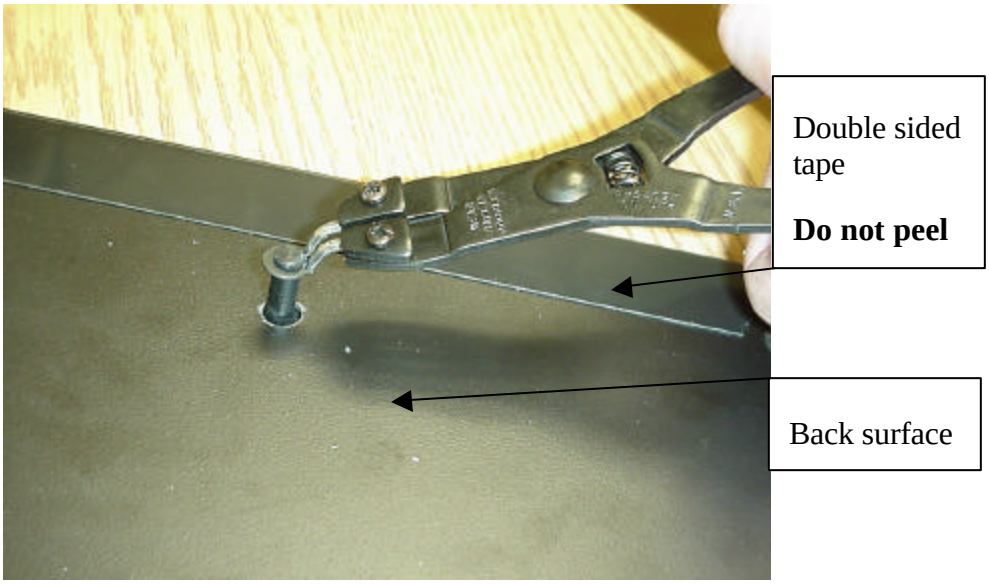
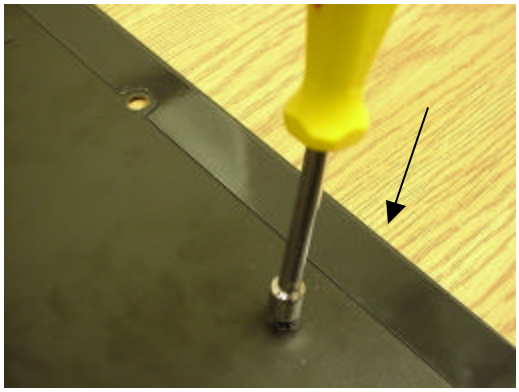
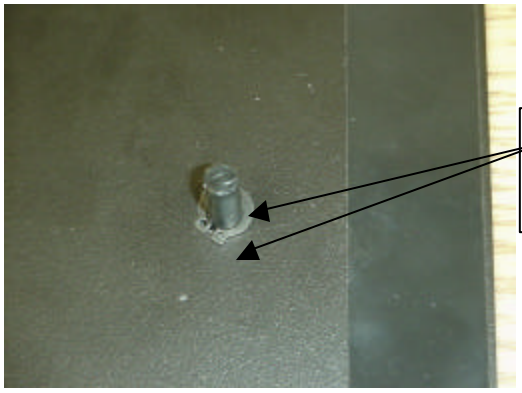


Fig 3.18-3

Push the spring clips all the way down to the bottom of the arborite, using the drive nut tool. Make sure that the clips are tight to the arborite back surface as shown in Fig 3.18-4.



Push spring clips down



Spring clip tight to arborite surface

Fig 3.18-4

4.2 Installing the Arborite Panels

1. Clean the table top with alcohol.
2. Place the rods on the table as shown in Fig.3.19-1

   Tip: Start installation along the leading edge side of the table and work your way out towards the drop leaf.

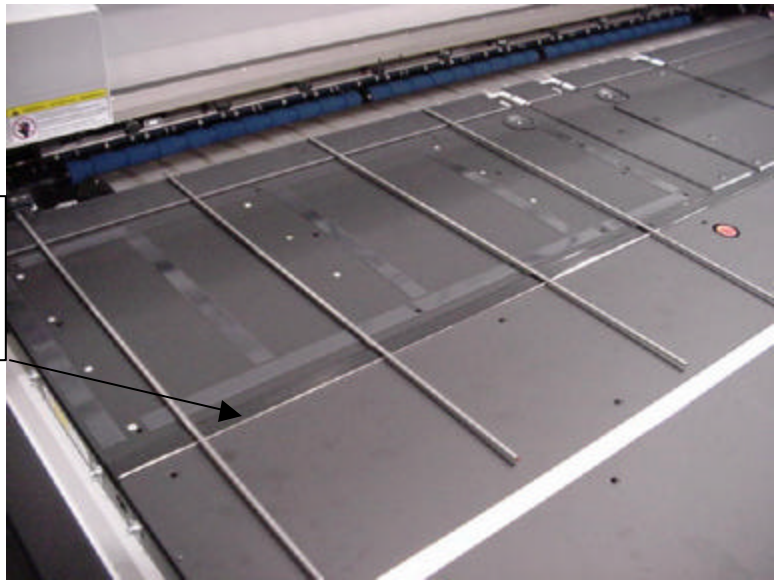


Fig 3.19-1

3. Place one arborite panel on the rods, with the protective covering still on its double-sided tape. Use the UHMW darts to align the panelswith the table top. See Fig.3.19-2.

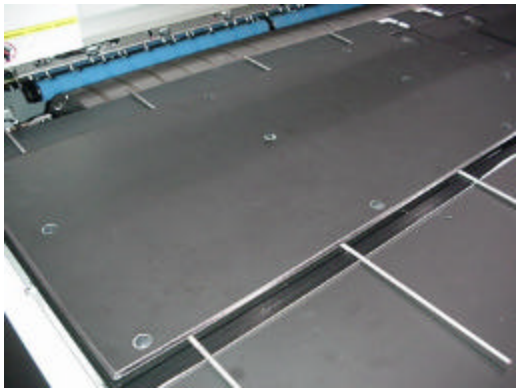




Fig 3.19-2

4. Remove the panel, leaving the rods in place. Peel off the protective covering from the double-sided tape on the panel back.

5. Replace the panel on the rods gently. Realign the darts with the holes in the table top, making sure that the rods do not stick to the exposed tape. See Fig.3.19-2.

6. Lightly secure the panel in place with one hand, while removing the rod closest to the edge from underneath the panel with the other hand. See Fig.3.19-3.



Fig 3.19-3

7. Push the side of the panel down gently until the tape sticks to the table.
8. Remove the rods one at a time as described in Step 6. Press the panel down.
9. Push each dart all the way down.
10. Apply pressure to the panel along the tape strips with a roller. See Fig.3.19-4



Fig 3.19-4

11. Repeat Steps 3 to 10 for all the arborite panels.
12. Apply new black static tape to the pusher finger grooves.

    a. Gently remove all the old tape from the pusher finger groove.

Note : Do not clean the glue off the aluminum strip.

b. Remove the table external side ribs (right and left) and the table bumpers

c. Starting from one side, lay new black static tape in the groove, leaving its protective covering on.

Allow 50mm of the tape to overlap at the bottom of the table

d. Peel a bit of the tape and apply it in the center of the groove. Use fingers and rag for smooth application.. See Fig.3.20-1.

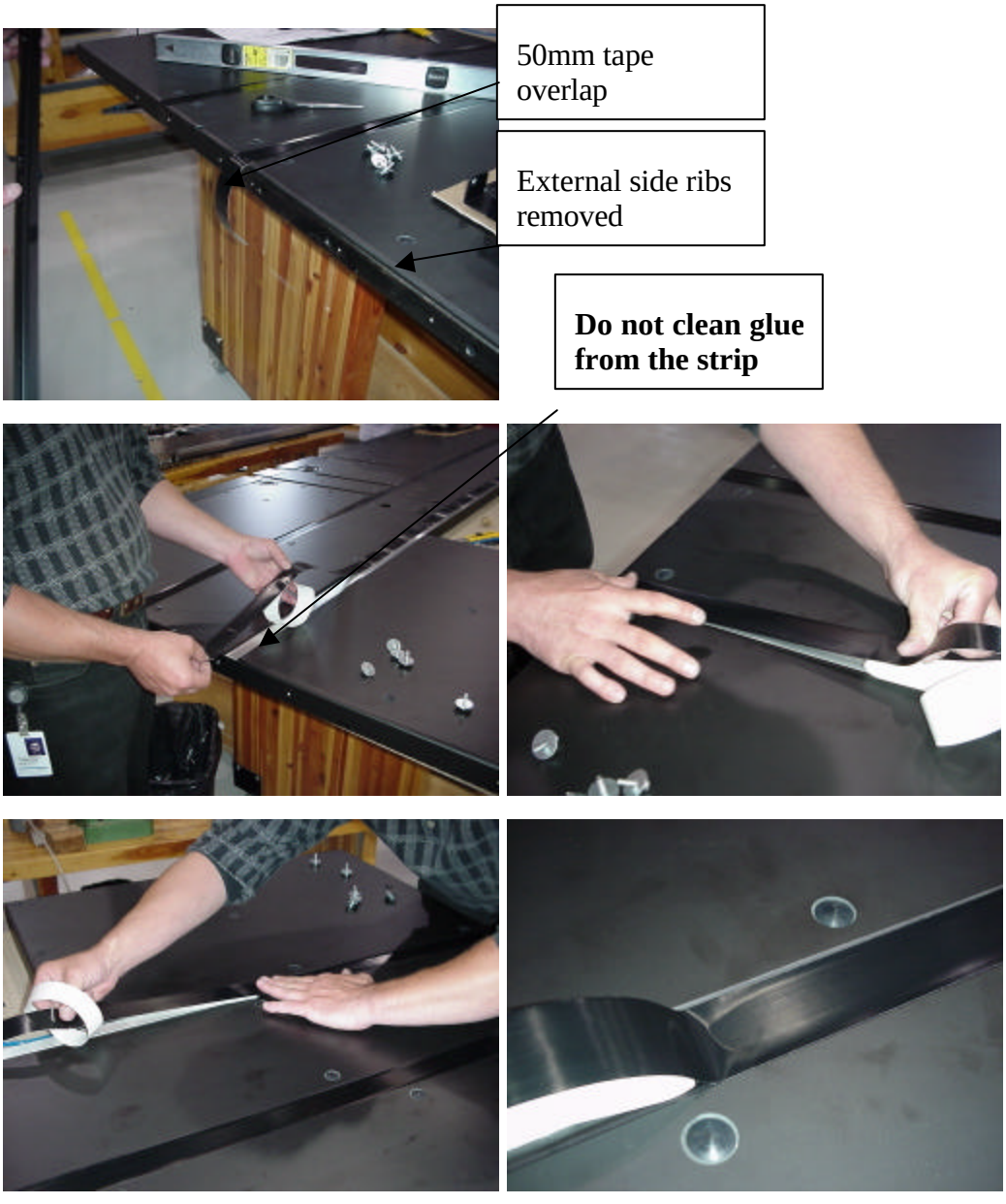




Fig 3.20-1

e. Replace the table external side ribs (right and left) .

f. Level the table as shown in Fig.3.20-2. Make sure that table is flat all the way across, and tighten all screws.

g. Replace the table bumpers.

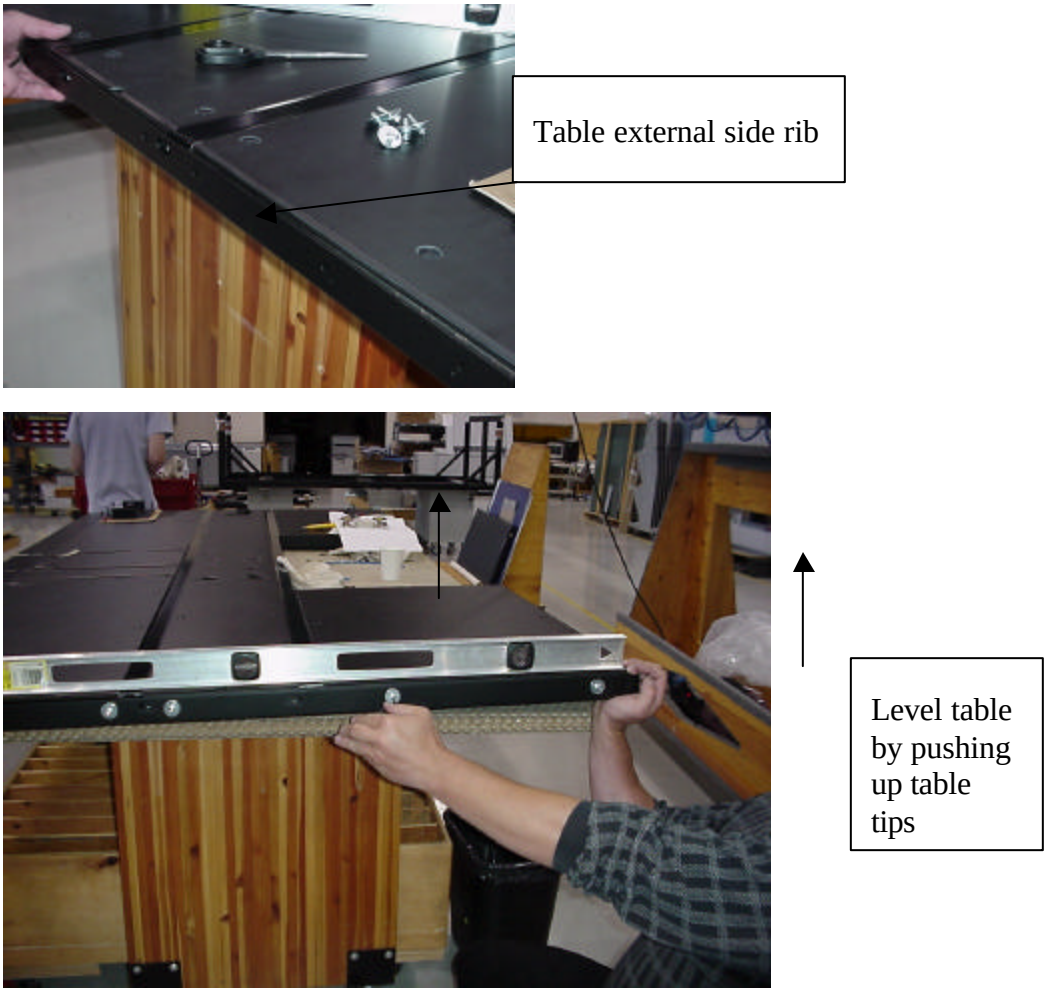


Fig 3.20-2

13. Connect the new 5/32" red air tube (positive air pressure) from the new active cups to the existing pneumatic system.

    Note: Depending on the age of the device, the pneumatic tubing may differ. See Fig 3.21-1.

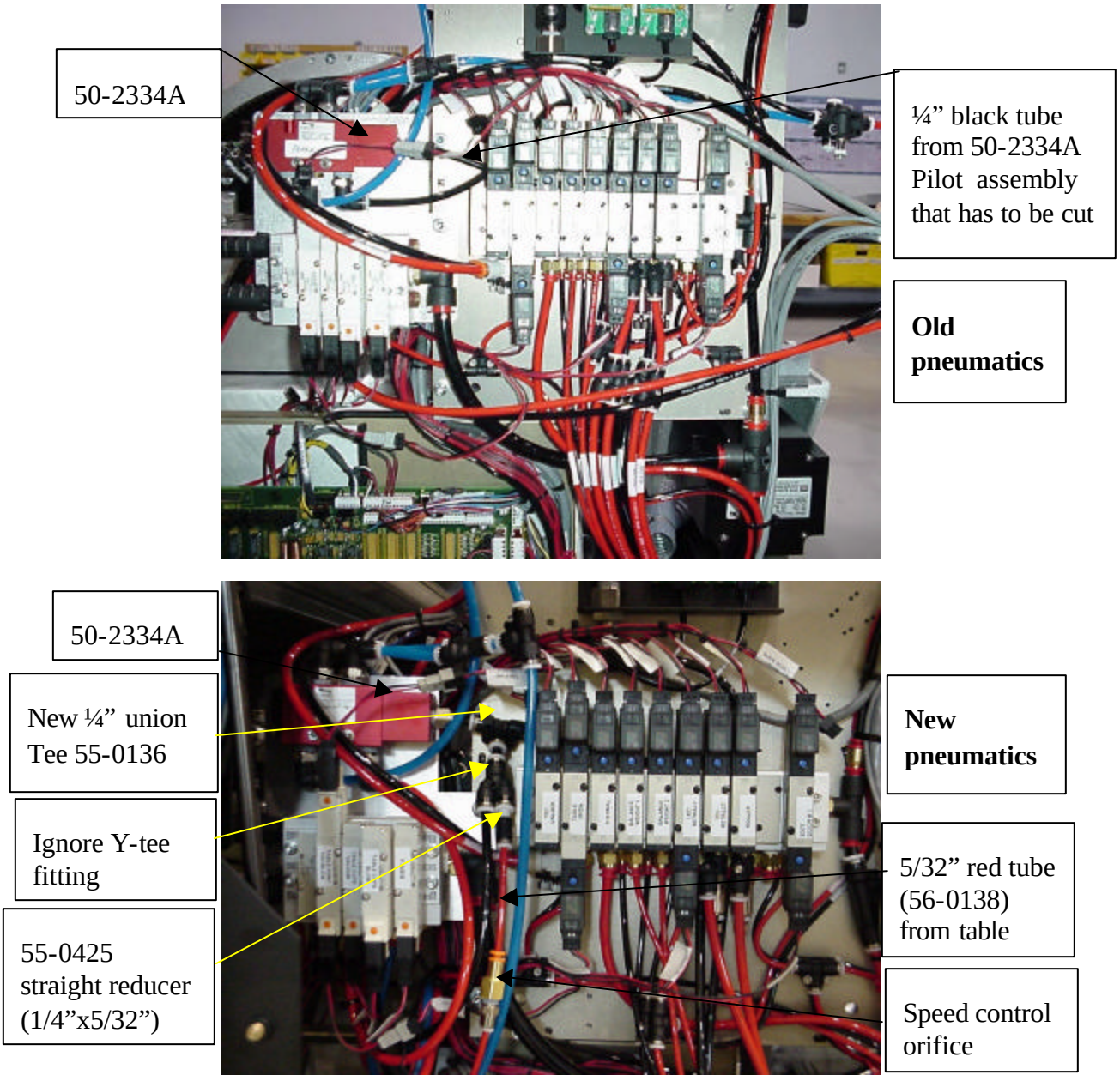


Fig 3.21-1

14. Cut the ¼" black tube from the 50-2334A pilot assembly. Install the ¼"new tee union (55-0136) to the existing line. See Fig. 3.21-1.

15. Connect the ¼"x5/32" straight reducer (55-0425) directly to the new ¼"Tee union. (Ignore the Y-tee fitting shown in this picture)

16. Connect the 5/32" red tube (56-0138), which has a speed control orifice, from the new table active cups to the straight reducer. See Fig.3.21-1 and Fig.3.21-2.

Note: There are two types of speed control orifices: **FIG.3.21-2** below shows the proper orientation of type A and type B orifices in the assembly. The orifice controls speed of the table active cups. If the orifice is installed in the reverse direction, the table active cups will move up too fast because of the full blow of the air to the table cylinder.

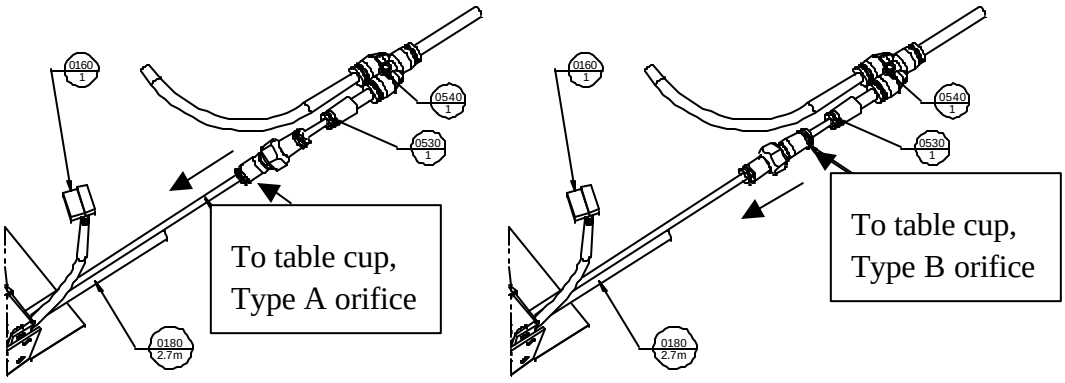


Fig.3.21-2