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Traffic Safety and Security Division

High Intensity Cone Sheeting Applicator Instructions

Information Folder 3.1
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Replaces IF 3.1 dated May 2006

Description

3M™ High Intensity Cone Sheeting Applicator is designed to apply pre-cut Reflective Sheeting Series 3840 to polyvinyl chloride cones. The cone is placed on a mandrel that is operated by air pressure. When engaged, the cone is lowered to the application table, where there are two sleeves pre-positioned. The sleeves have pressure sensitive adhesive, and are positioned on the application table with the liner removed, adhesive side up. As the cone touches the table, the mandrel will rotate 1¼ turns, thereby applying both sleeves simultaneously. The mandrel will return to its original position for the removal of the wrapped cone. See detailed instructions below:

Initial Set Up

a. Remove machine from pallet or crate.

b. Position the machine appropriately in the work area leaving enough room for an adequate supply of cones and a finished cone stacking area.

c. Approximately 2 feet clearance should be allowed on both right and left side for operator access to adjustments.

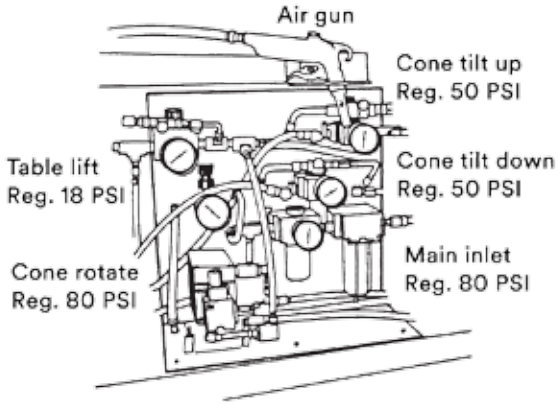


Figure 1

d. Adjust and lock the leveling feet so that all four corners are firmly supported.

e. Connect an 80 PSI minimum air supply to the inlet of the air filter at the rear of the machine.

f. The quick disconnect fitting supplied with the machine should be used since it is necessary to disconnect the air supply before making adjustments.

g. With the air supply connected, check the settings on the 5 air regulators. Settings should be approximately as follows: (See Figure 1 for location of regulators).

- Main Inlet: 80 PSI
- Cone Rotate: 80 PSI
- Cone Tilt Down: 50 PSI (See Note)
- Cone Tilt Up: 50 PSI
- Table Lift: 18 PSI

Note: The foot pedal must be pressed to read the pressure setting for the "Cone Tilt Down" regulator. The foot pedal must be held down for a sufficient time for the gauge needle to come to a complete stop (approximately ½ minute).

h. Cycle the machine by stepping on the foot pedal and holding the pedal down. The following should happen in sequence:
   - The mandrel should pivot down towards the table and stop.
   - The table should rise approximately ½ inch.
   - The mandrel should rotate 1¼ turns.

i. Release the foot pedal and the following should happen:
   - The mandrel should rise while rotating back to its original position.
   - The table should lower to its original position.

Adjustment Procedure for Running a Specific Size Cone

1. Connect air source.
2. Select correct mandrel for the cone size needed.
3. Install mandrel parts on mandrel shaft (See Figure 2 for correct assembly of mandrel to shaft).

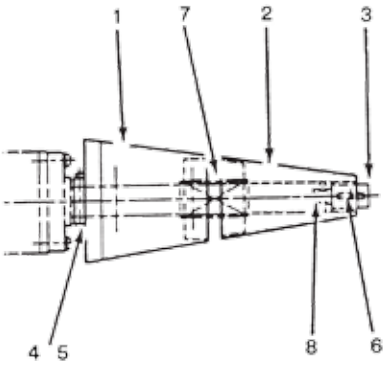


Figure 2

The bolt (4) holding the large end of the mandrel (1) to the shaft must be tightened securely with the self locking nut (5). The two set screws (8) in the front end of the shaft must be inserted after the shaft extension (3) is installed. Both set screws should be inserted to loosely touch the flat spots on the mandrel extension.

With the extension centered evenly between the set screws, tighten each set screw alternately until both are tight. Install spring (7) and front end of mandrel (2) on shaft. Insert both (6) through front of mandrel and through slot in shaft extension. Tighten firmly.

The front half of mandrel should be free to slide back and forth on the mandrel shaft.

4. Place a cone on the mandrel by bumping with palm of hand until the cone bulges slightly over the abrasive strip on the rear section of the mandrel so as to stretch the top end of the cone.
5. Disconnect the air source and let the mandrel with cone drop to its lowest position.
6. Adjust the table height until there is approximately ¼ to ⅜ inch clearance between the cone and the carpet strip on the table top. This is accomplished by loosening the table clamping screws and adjusting the table height screws. (See Figure 3.) Retighten the table clamping screws.

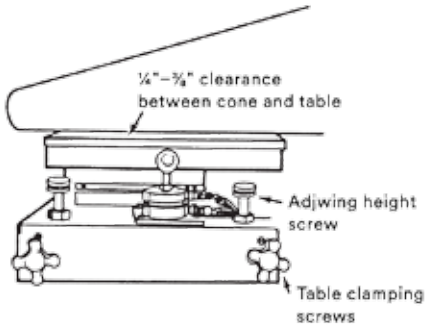


Figure 3

7. Without removing the liner paper, place a 6" wide sleeve on the table top against the stop. (See Figure 4.)

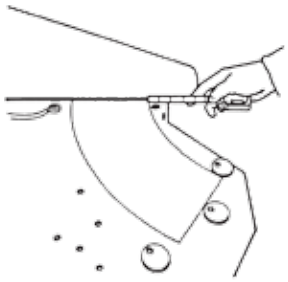


Figure 4

8. Measure the distance from the top (small end) of the cone to the nearest edge of the sleeve.

   This distance should be approximately 3½ inches (consult chart for preferred dimensions).

   Adjust spacing by loosening the table frame screws and sliding the table frame forward or backward until the spacing is correct. (See Figure 5.) Retighten the table frame screws.

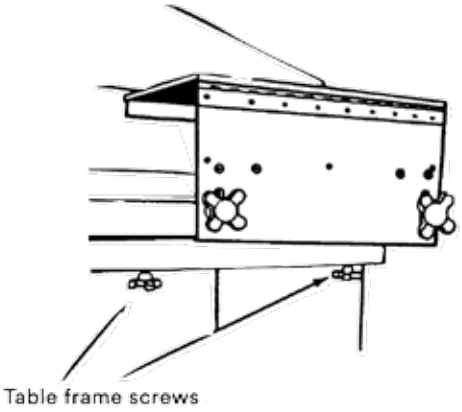


Figure 5

9. Readjust the table height at the air cylinder edge if required.

10. Carefully adjust the angle of the table top by loosening the table clamp screws and adjusting the table height screws at the hinge edge.

    The gap between the cone and table must be equal at both front and back edges of the table. Retighten the table clamp screws.

11. Test for equal pressure of the cone against the table.
    a. Reconnect air supply.
    b. Be sure the cone is firmly on the mandrel.
    c. With no sleeves on the table, place two half sheets of paper (approximately 4" x 11") on the carpet strip positioned to simulate the reflective sleeves.
    d. Firmly grasp the left ends of the paper (one in each hand) and press the foot pedal to move the mandrel down. (See Figure 6.)

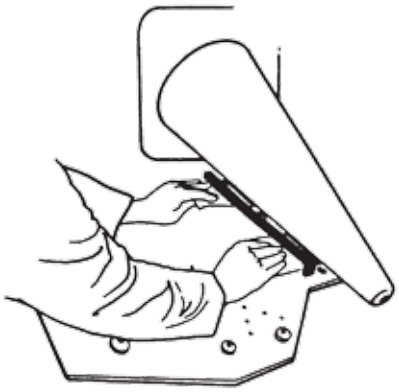


Figure 6

    e. When the cone rotates on the table top, estimate which strip of paper is tighter under the cone by the amount of pull the cone puts on the paper strips.
    f. Remove foot from pedal.
    g. Readjust the table angle if necessary and repeat until the pull feels the same on both sheets of paper.

12. Positioning Reflective Sleeves. Remove the paper liner from a 6" sleeve and a 4" sleeve.

    Lay sleeves, adhesive side up, against the 2 smaller stops closest to the carpet strip. (See Figure 7.)

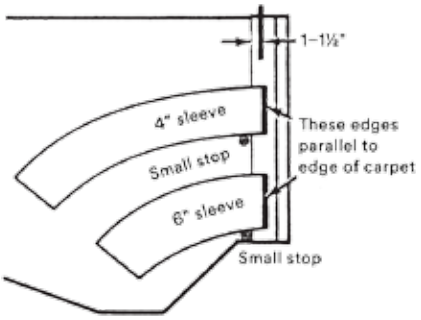


Figure 7

    Reposition the larger stops against the edges of the sleeves. (See Figure 8.) Choose the screw holes most appropriate to position the stops as shown.

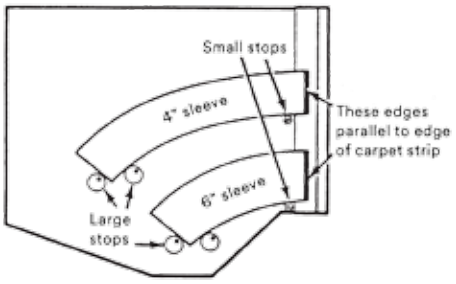
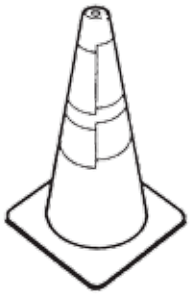


Figure 8

13. Test the location of the sleeves by winding them onto the cone, (pressing the foot pedal and holding it down until the cone stops rotating). Remove foot from pedal and cone from mandrel. Inspect cone for alignment of the ends of the sleeves.

    If the cone sleeves are not correctly aligned on the cone (See Figure 9), adjust the large stops which position the edge of the sleeves (not the ends) by loosening the screws and turning the stops to move the sleeve in the direction needed to align the ends of the sleeves. (See Figure 10.)



If the cone sleeves are not correctly aligned on the cone adjust the large stops which position the edge of the sleeves (not the ends) by loosening the screws and turning the stops, moving the sleeve in the direction needed to align the ends of the sleeves (See figure 10).

Figure 9

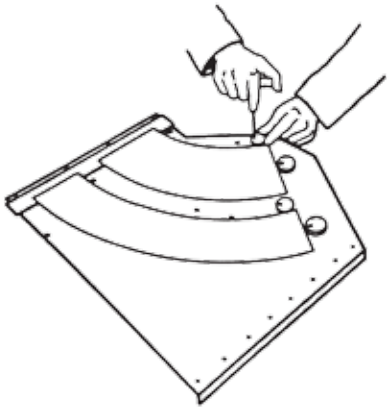


Figure 10

    Remove the reflective sleeves from the cone and replace the cone on the mandrel being sure to bump the cone on until it bulges over the abrasive strip. (Note: Cone will be loose on the mandrel after each application cycle and must be repositioned tightly on mandrel before attempting to rotate a second time.)

    If the sleeves have not been distorted by removing them, they may be used again to check alignment after adjusting the stops. After the alignment is satisfactory, remove the old used sleeves and apply new ones.

    During a product run, small variations (up to ± ⅛") may occur in the alignment of the sleeve ends due to the variation in cone thickness or sleeve positioning. If a misalignment occurs and persists for several cones in a row, it may be necessary to make slight adjustments to the stops. However, do not adjust the stops if the misalignment is random.

14. Use the air gun provided (See Figure 1) to periodically clean off the surface of the carpet and to fluff the nap.

Health and Safety Information

Read all health hazard, precautionary, and first aid statements found in the Material Safety Data Sheet, and/or product label of chemicals prior to handling or use.

3M recommends the standard practices outlined in this information folder, to the exclusion of deviations or procedures and materials which do not literally conform to these instructions. See terms and conditions of Loaner Contract.

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