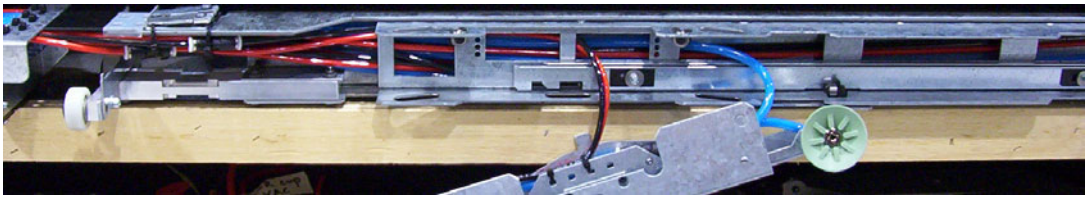
Tubing Routing in MTA Load Table :

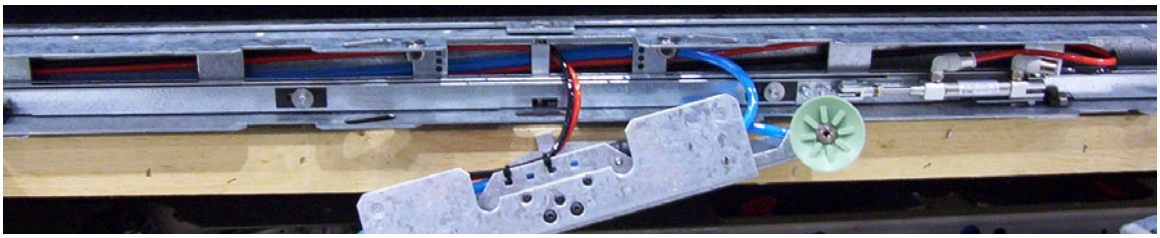
1. Procedure for Assembly and inspection of Pneumatic tubing.

a. Apply UHMW tape to the wiffle and traveler parts at each opening where the hoses rub on the sheetmetal. (see section 4)
b. Hose routing through the wiffle to the virtual center vacuum cups in the traveler:
    i. Cut the hoses to length and label.
    ii. Insert the hoses in the wiffle bar.
    iii. Route the tubing so that the vacuum line [blue] is at the bottom then the cylinder lines [red and black] are above the vacuum line for the cups [left]. Start with the cups farthest from the snorkel.
    iv. Repeat this process for the center cups.
    v. Repeat this process for the right cups.
    vi. Pay close attention to the length of tubing extending out of the wiffle to ensure a good path to the virtual center assembly.
c. Hose routing inspection.
    i. Ensure no interferences in the tubing to the motion of the vacuum cup assembly.
    ii. Check for smooth motion of the virtual center.
    iii. Check for smooth action of the wiffle.
    iv. Check for cable ties in the way and check for kinked hoses.
    v. All hoses mounted as per pictures and assembly drawing.
    vi. Make sure that the hoses do not bind on fasteners in loader.
    vii. Make sure hoses will not touch the belt, home or away sensors, or the idler pulley, or the drive pulley.
d. Hose routing to the snorkel.
    i. Make all hose bundled coming out of the wiffle bar. Use one tie wrap not too tight. As shown.
    ii. [if hole not present] Drill 4mm hole in assembly for another tie wrap to hold the tie wrap bundling the hoses up at the top of the assembly. As shown.
    iii. Route cable through snorkel as shown.
    iv. Use Y fitting to connect the left and right cups up/down cylinder tubes under snorkel.
e. All hoses labeled and connected. See Drawing 500-00351A
    i. at the manifold end of hoses using labeling like the valve label and modified to specify actual action relating to hose.
    ii. at the break point likely used for dis/re-assembly.
    iii. at cylinders where confusion could exist at installation of cylinder.
f. Hose Routing in the Cable Tray:
    i. Check that all hoses secured away from travel of the snorkel (bracket that connects the energy chain to the traveler)
    ii. All connections labeled using naming from valve manifolds. See the manifold drawing 500-00351A.

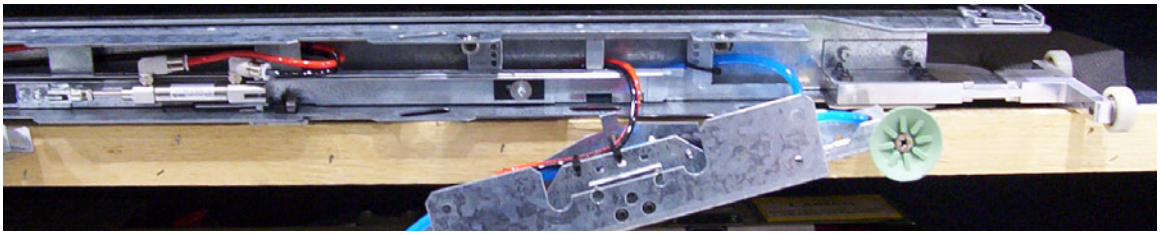
2. Tube routing for vacuum cups thru the wiffle bar of the traveler:



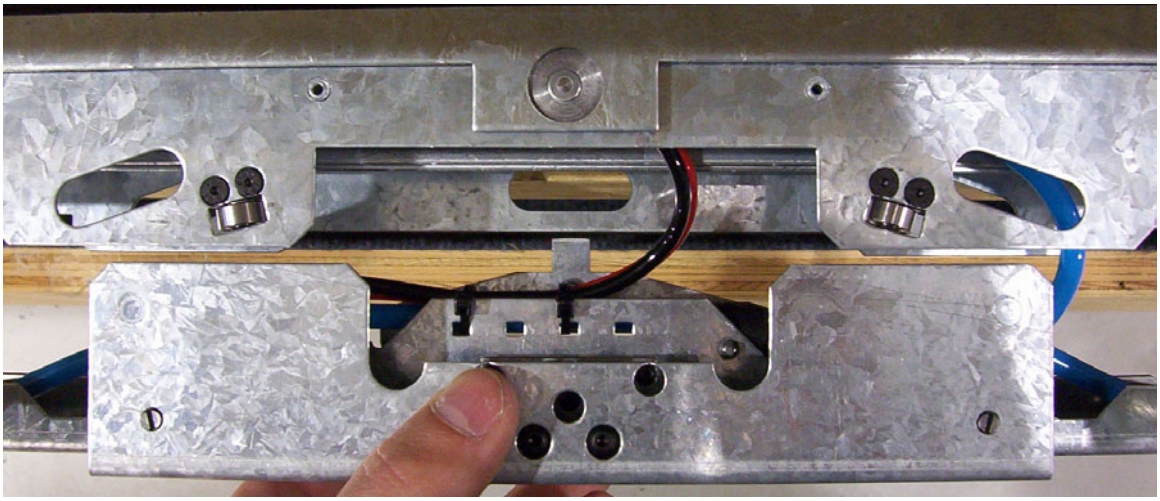
Away side vacuum cup assembly. [Notice the hose routing, the black is at the top, red in the middle, and the blue vacuum hose is at the bottom]



Center section vacuum cup assembly. [Notice the hose routing, the black is at the top, red in the middle, and the blue vacuum hose is at the bottom]

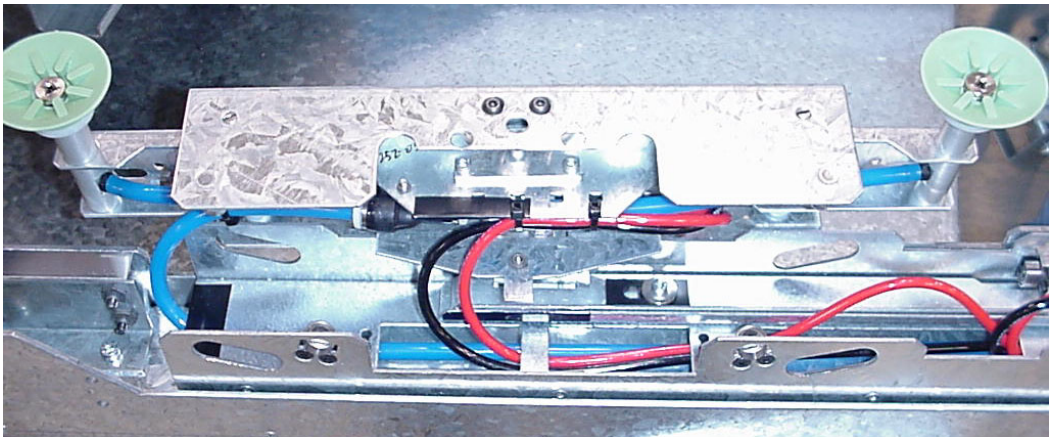


Home side vacuum cup assembly. [Notice the hose routing, the black is at the top, red in the middle, and the blue vacuum hose is at the bottom]

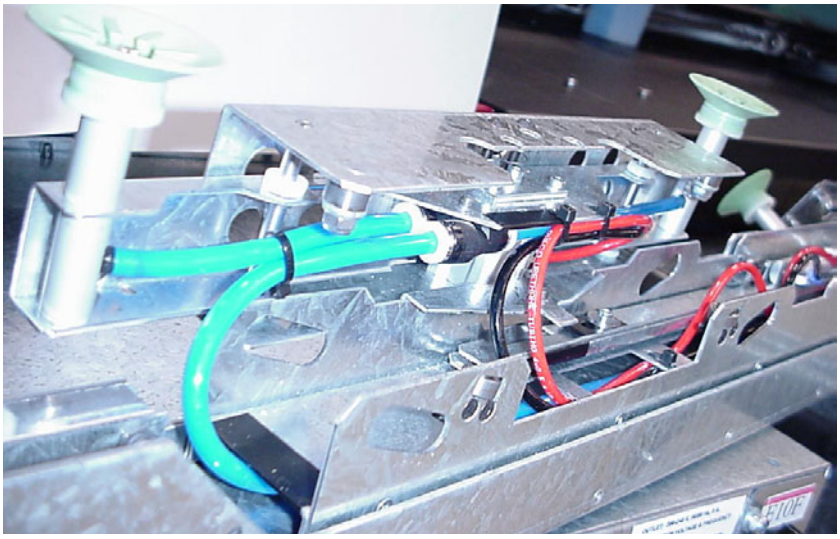


Top view close disassembled. [Notice the orientation of the hoses]

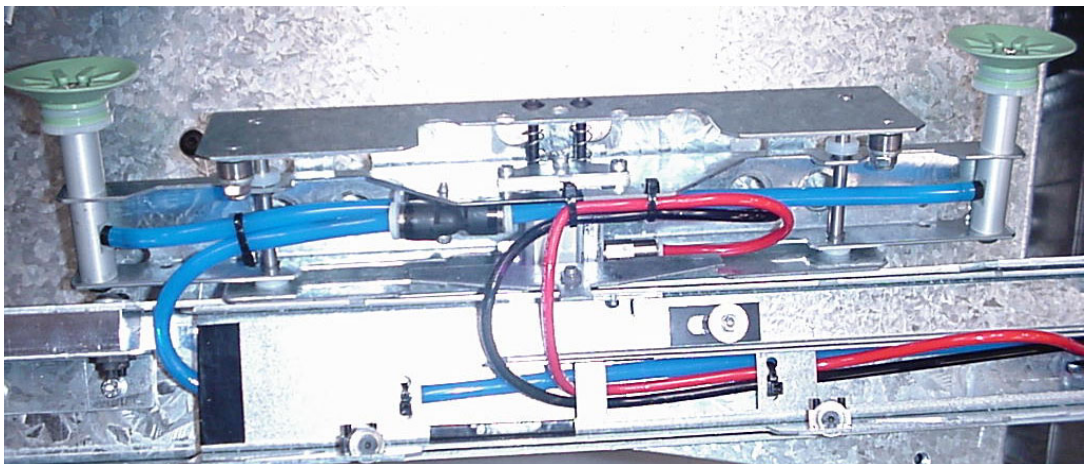
3. Left side vacuum cup assembly and wiffle bar:



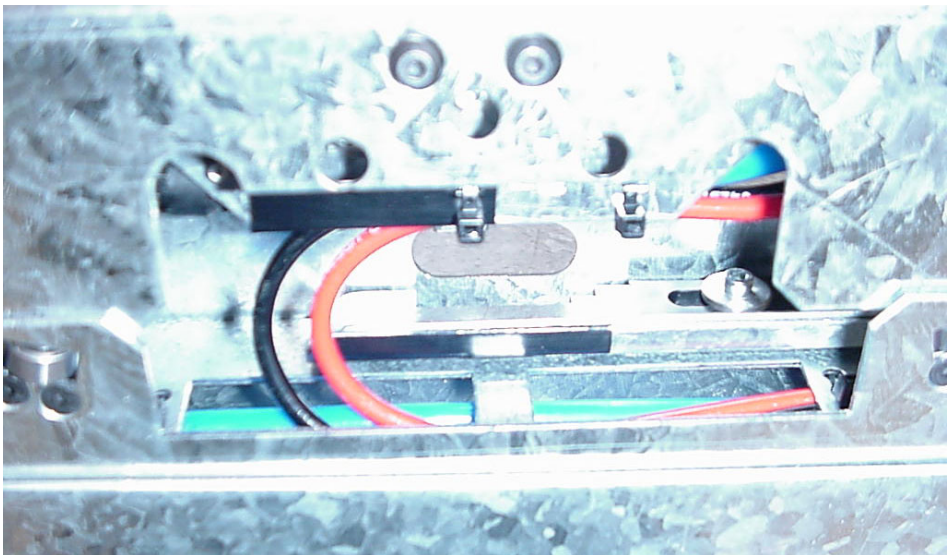
left virtual center cups top open



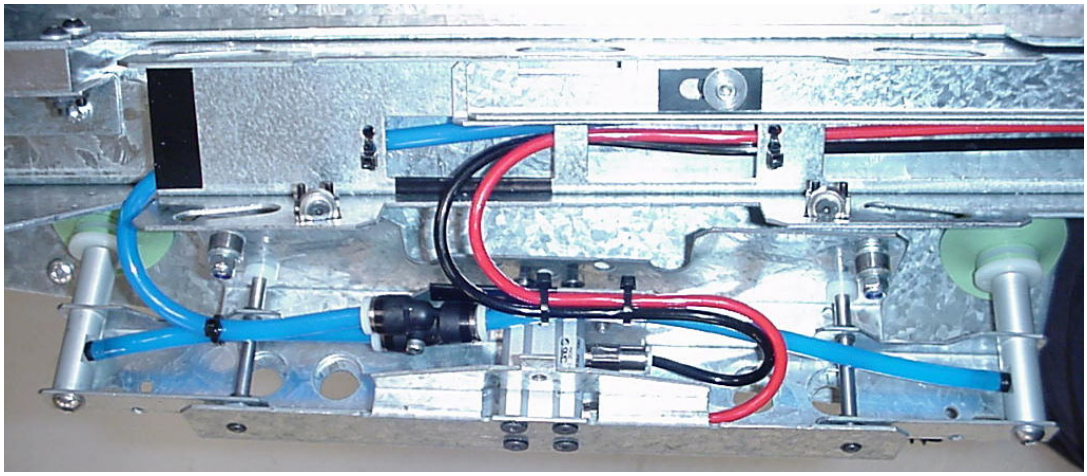
left virtual center cups top open isometric



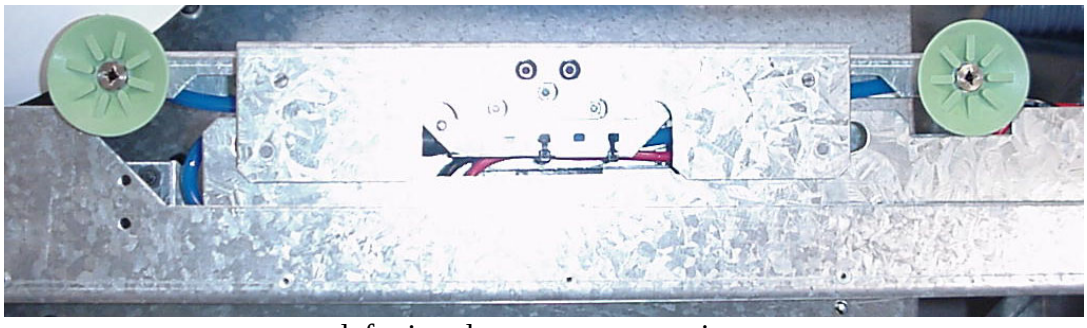
left virtual center cups top open extra wide



left virtual center cups top open partially

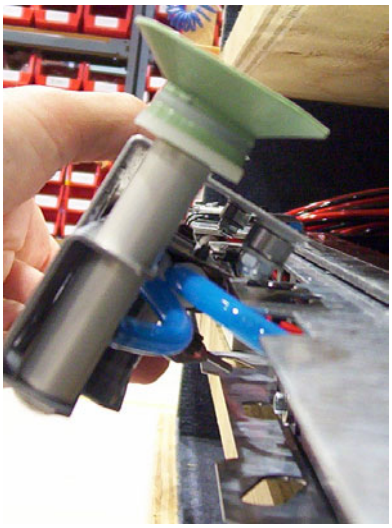


left virtual center cups bottom open



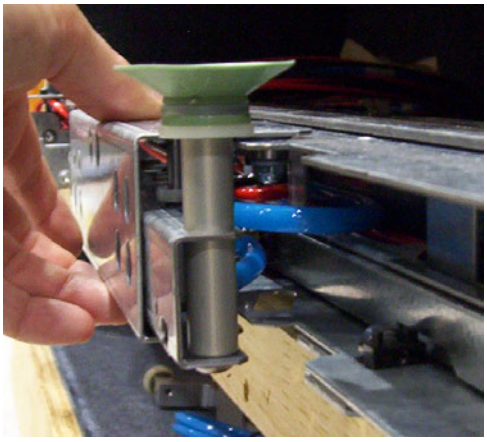
left virtual center cups top view

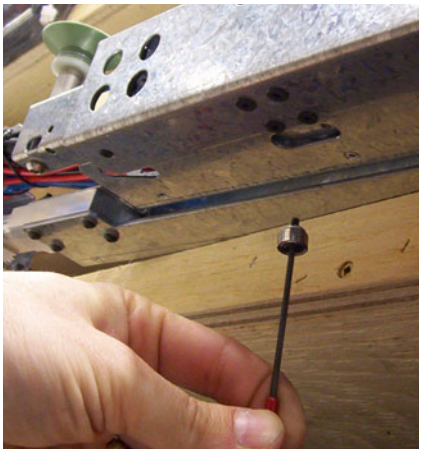
4. Assembly/removal of vacuum cup assembly: Step 1 to 6:

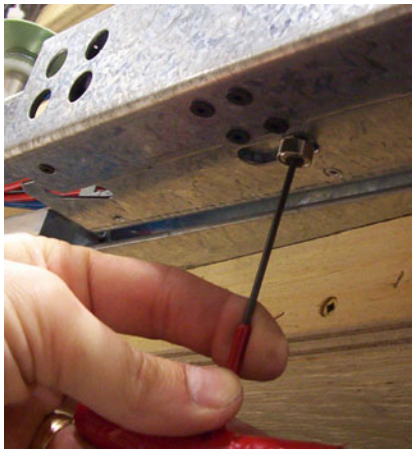

Step1 [tilt and align bearing]


Step 2[lower bearing in slot]

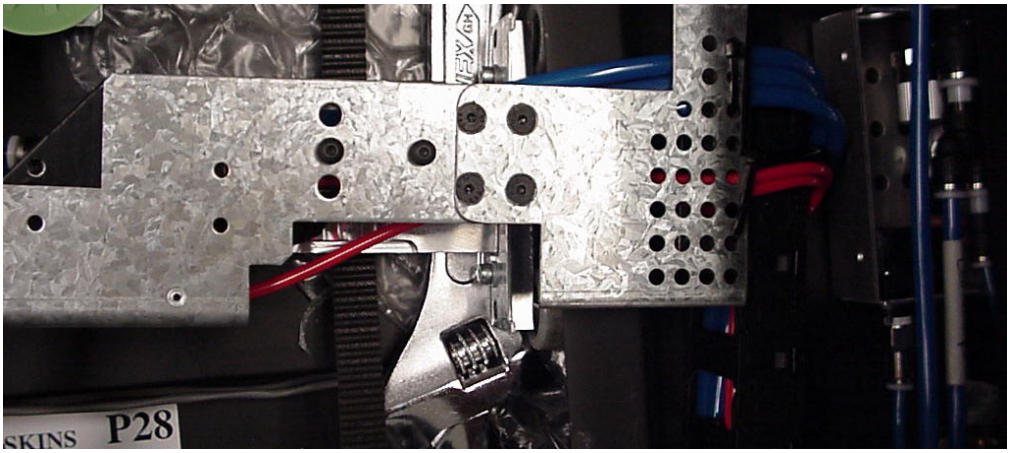

Step 3 [swing in bottom tab]


Step 4 [hold out tab so screw hole accessible]

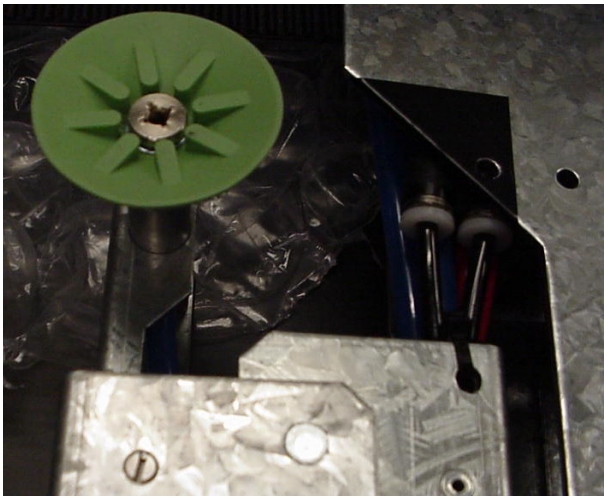

Step 5 [prepare bearing assembly]

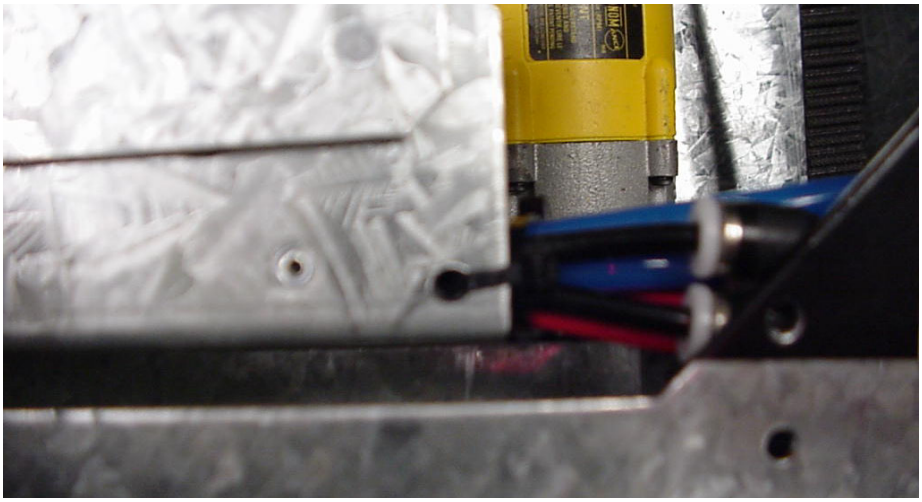

Step 6 [insert bearing assembly and tighten]

5. Hose routing from wiffle bar through snorkel to the cable carrier:

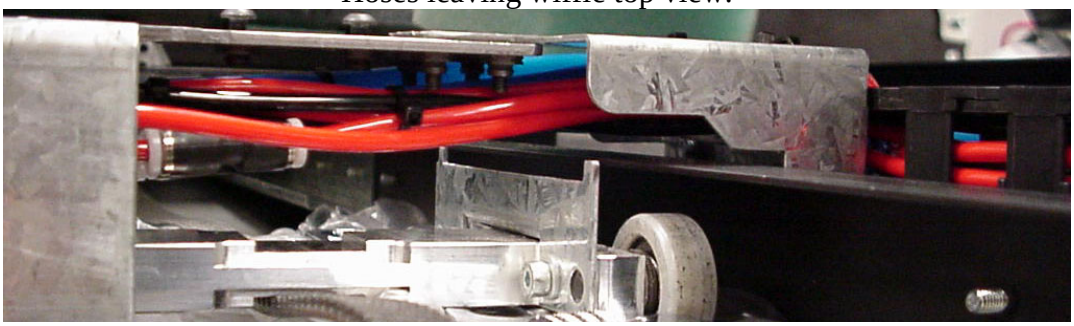


Hose under snorkel top full view.

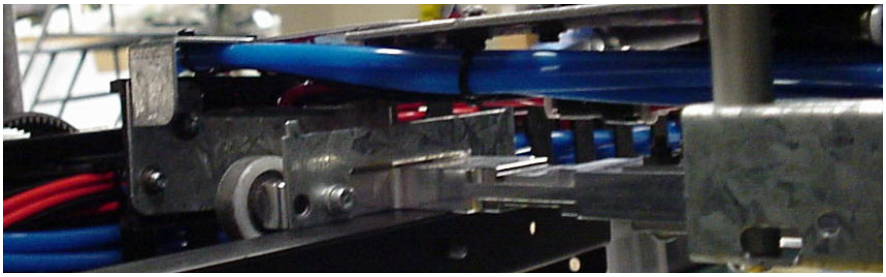

Hoses leaving wiffle top/left view.



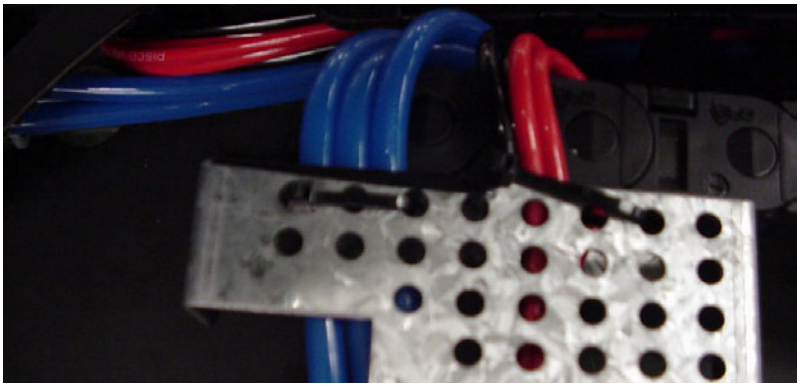
Hoses leaving wiffle top view.



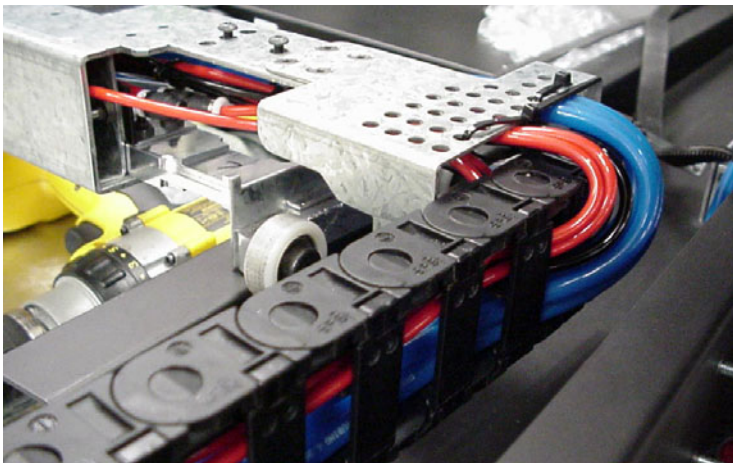
Hoses under snorkel looking from operator side.



Hoses under snorkel looking from drum side.



Hoses leaving snorkel top view.



Hoses leave traveler snorkel and enter cable carrier.