Technical Support Bulletin:
Testing Service Loop Sensors

Technical Support Bulletin (Last update 8-2-6)

Abstract: Magnetic sensors control operation of DFS service loops. Malfunctioning sensors will cause erratic operation. See sensor trouble shooting guide in this document to diagnose sensor problems. The document covers both 3 and 5 sensor machines.

See also the 5 sensors document Web Site Copy / CD Copy.

Trouble shooting guide

Symptom	Theory	Problem	Potential causes
Input stepper keeps running after it hits bottom of input sensor track after pressing load button. F2 and F3 buttons properly turn on and off the stepper motors.	When you press load the DFS turns on the input stepper until the bottom magnetic sensor is seen. As soon as it sees the bottom sensor the stepper turns off and the load light comes on.	The firmware in the DFS is not seeing the bottom input sensor being tripped.	1) the sensor cable is unplugged (align the red strips on the ribbon cable) 2) The wrong bar or wrong end of bar is being used on the input sensor track. Only one bar on 3 sensor machines have magnets. You can determine which bar has a magnet by trying to pick up a paper clip with the bar. Try flipping bar end for end incase magnet has come out. 3) The magnetic sensor is mispositioned. Try moving the input bar at the bottom of the track after pressing load key. If it goes into load then you have a work around to wiggle the bar at the bottom when it does not stop. 4) The sensor cable is unplugged or plugged in backward on web amp board. Remove back cover of DFS. The red wire goes to left end of connector to pin 1 as shown on board silkscreen. This board p/n DF-00-07-101 resides on the left end of machine. Ribbon cable is plugged into the connector shown above. Pin 1 as shown on the silkscreen on the left end of the connector. The red wire of the 16 pin ribbon goes to this end. 5) The sensor ribbon or the sensor circuitry is broken

Symptom	Theory	Problem	Potential causes
Steppers do not start when input bar reaches middle position on the input track	After loading the DFS enters a state where it is waiting for the middle input sensor. When the firmware sees the sensor it turns on the stepper motors to feed and takeup both service loops	The firmware in the DFS is not seeing the middle input sensor being tripped.	1) The sensor cable is only partially plugged in on web amp board or at disconnect at top of input sensor track.. Remove back cover of DFS. This board p/n DF-00-07-101 resides on the left end of machine. Ribbon cable is plugged into the connector shown above. Pin 1 as shown on the silkscreen on the left end of the connector. The red wire of the 16 pin ribbon goes to this end. 2) The sensor ribbon or the sensor circuitry is broken
Machine does not go into pause when material gets to the top of the input track.	While processing material if the cut process is faster that the feed process the cut head will cause the input track to run out of material. When the top sensor is hit the machine is paused to wait for more material.	The firmware in the DFS is not seeing the top input sensor being tripped.	1) The sensor cable is only partially plugged in on web amp board or at disconnect at top of input sensor track.. Remove back cover of DFS. This board p/n DF-00-07-101 resides on the left end of machine. Ribbon cable is plugged into the connector shown above. Pin 1 as shown on the silkscreen on the left end of the connector. The red wire of the 16 pin ribbon goes to this end. 2) The sensor ribbon or the sensor circuitry is broken
Machine runs out of material in takeup track. Three sensor machine do not have a check for this	If you have the weed motor or takeup motor at too high a torque setting the mandrels will pull a little bit more material out of the takeup track than is fed into the input track. The end result is over time the takeup loop shrinks. In order to add more material to the takeup track we have to add material to the input track. The machine enters FILL mode with machine paused when the takeup sensor is hit.	The firmware in the DFS is not seeing the middle or fill sensor in the takeup track being tripped.	1) The sensor cable is only partially plugged in on web amp board or at disconnect at top of input sensor track.. Remove back cover of DFS. This board p/n DF-00-07-101 resides on the left end of machine. Ribbon cable is plugged into the connector shown above. Pin 1 as shown on the silkscreen on the left end of the connector. The red wire of the 16 pin ribbon goes to this end. 2) The sensor ribbon or the sensor circuitry is broken
Machine runs out of material in takeup track and starts banging at the top. Three sensor	If you are running label frames that are very long. It is possible to miss the FILL sensor above. The loop sensor cause the machine to pause and wait for operator intervention to recover	The firmware in the DFS is not seeing the top or loop sensor in	1) The sensor cable is only partially plugged in on web amp board or at disconnect at top of input sensor track.. Remove back cover of DFS. This board p/n DF-00-07-101 resides on the left end of machine. Ribbon cable is plugged into the connector shown above. Pin 1 as shown on the silkscreen on the left end of the connector. The red wire of the 16 pin

machine do not have a check for this	from this error.	the takeup track being tripped.	ribbon goes to this end. 2) The sensor ribbon or the sensor circuitry is broken

If you have determined that you have a malfunctioning sensor cable or sensor circuitry the solution is to send the sensor ribbon cable and web amp in for repair or order a new board/cable.

Location of where service loop sensor cable plugs into web amp. Board p/n is DF-00-05-101, Location of board is left side of machine. Pin 1 (red stripe on cable) go to left. Note pin numbers written in white on board.