

## OmniTurn Bar Feed Interface Option G4 CNC C-Axis or 5hp

This option provides a simple way to connect the OmniTurn GT75 lathe to many different types of bar-loaders. This document applies to machines with printed wiring board (PWB) in the spindle electronics cabinet. If your machine has terminal board wiring (TB1) contact factory for instructions.

*Note that for the 5hp version, special cables are required to carry the necessary M-codes from the CNC to the spindle electronics cabinet.*

To facilitate interfacing with bar loaders, the following M-codes are available:

### Program flow control:

**M95:** Jumps to subroutine #1 at end-of-bar. Typically wired to EoB terminal on barfeeder.

**M94 or M93:** Holds program execution until bar change is finished. Typically wired to FIN terminal on barfeeder.

### Barfeed control:

**M17:** Typically wired to Auto or Feed input on barfeed.

**M21:** Typically wired to Bar Change input on barfeed.

**Collet pressure switch:** Signals barfeed that collet is open (OK to feed).

### Typical programming:

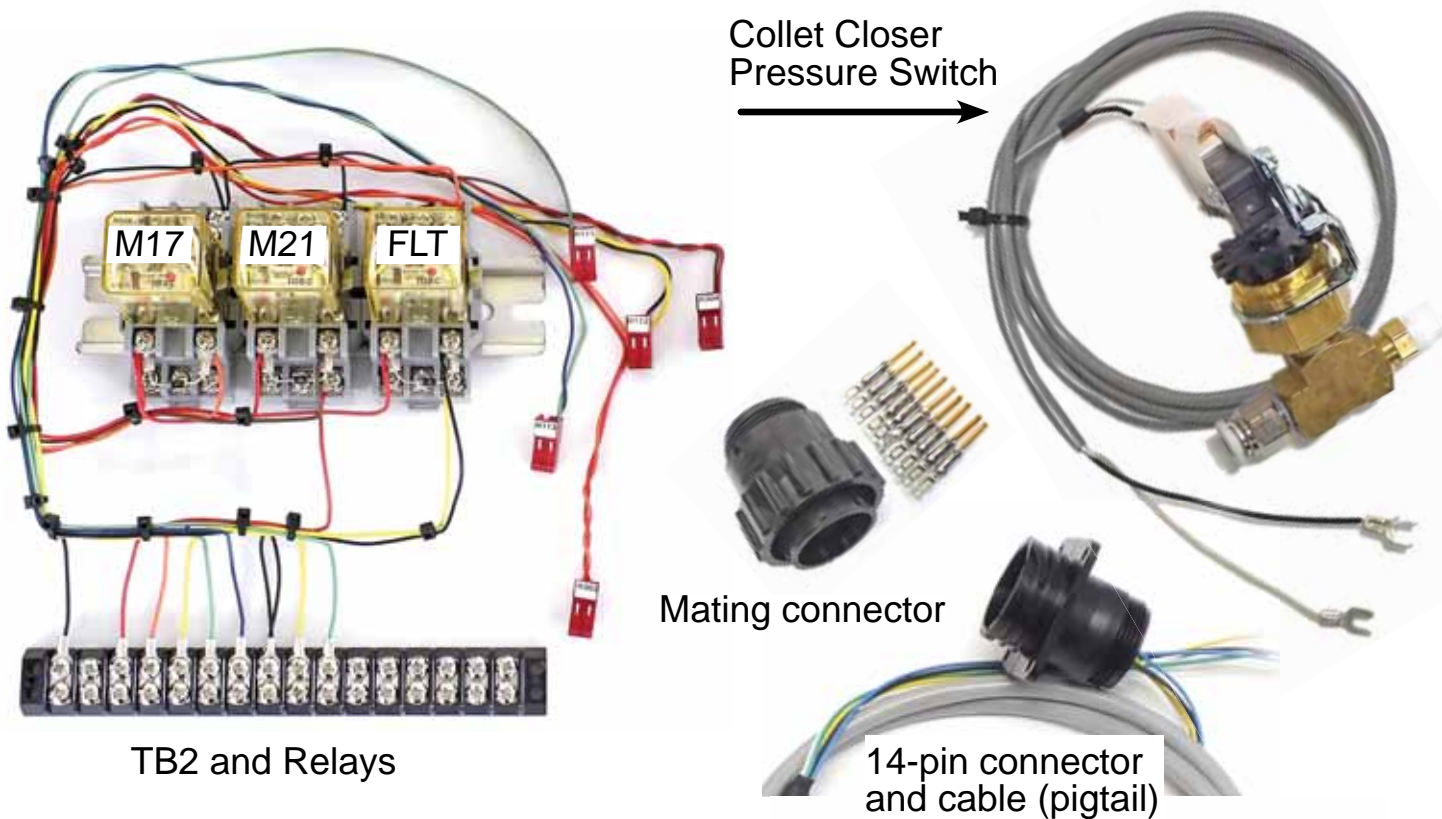
The stock-feeding segment can be anywhere in the machining program, and would consist of something like this:

```
(machining code)
:
:
z0 (move stock stop up to face of bar)
m17 (enable feed)
m13 (open collet (when collet opens barfeed will push stock out))
z1 (stock stop moves to position)
m12 (close collet)
m95 (if end of bar, jump to subroutine #1)
:
:
(more machining code)
m30

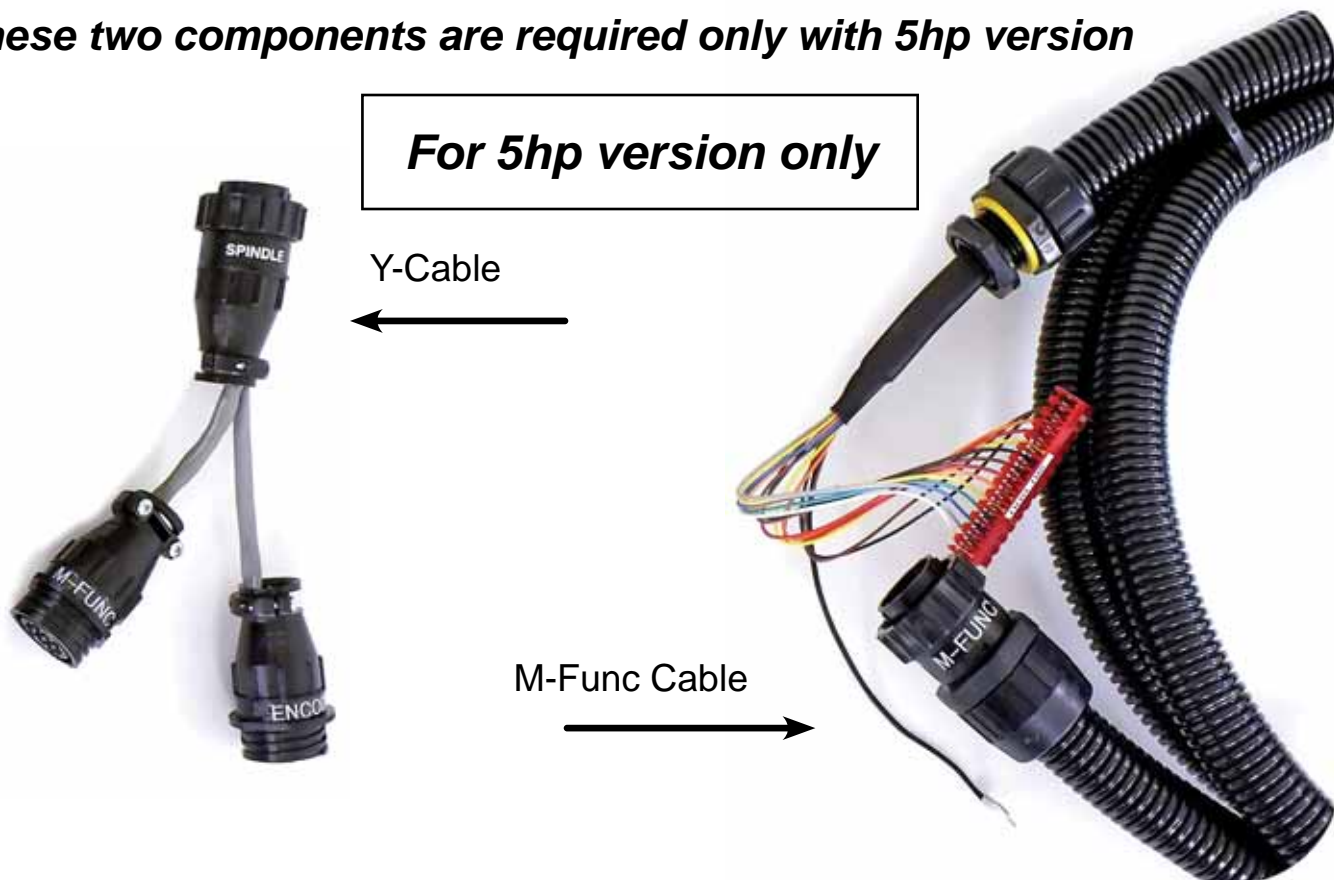
}1 (identifies start of subroutine #1)
m21 (three blocks to pulse bar change signal for 1/2 second)
g04f.5
M22
m94 (wait for barfeed FIN signal)
(code for facing bar)
m99 (return to program block after m95)
```

*Illustrated parts list, installation instructions and wiring diagrams on following pages.*

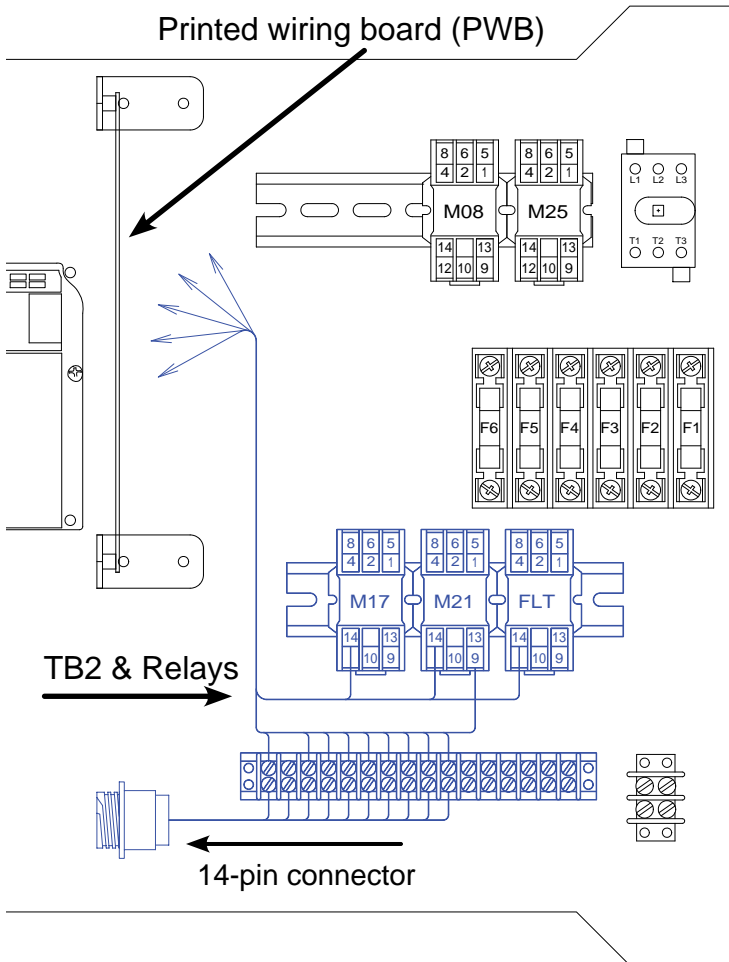
**These three components are used with both C-Axis and 5hp versions**



**These two components are required only with 5hp version**



### To install TB2 and Relays



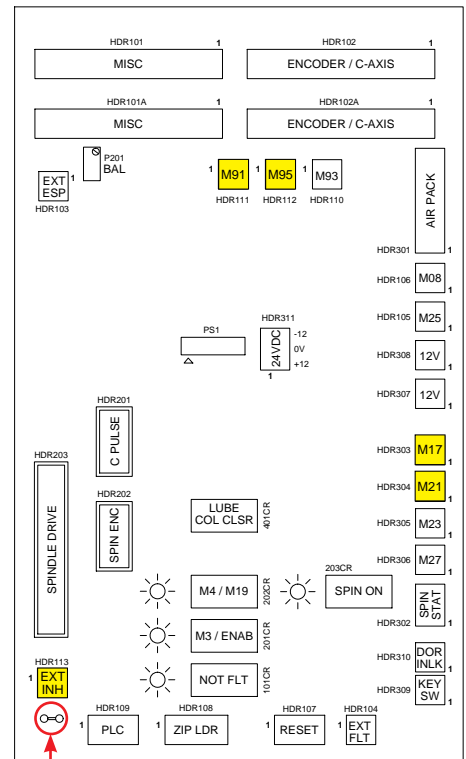
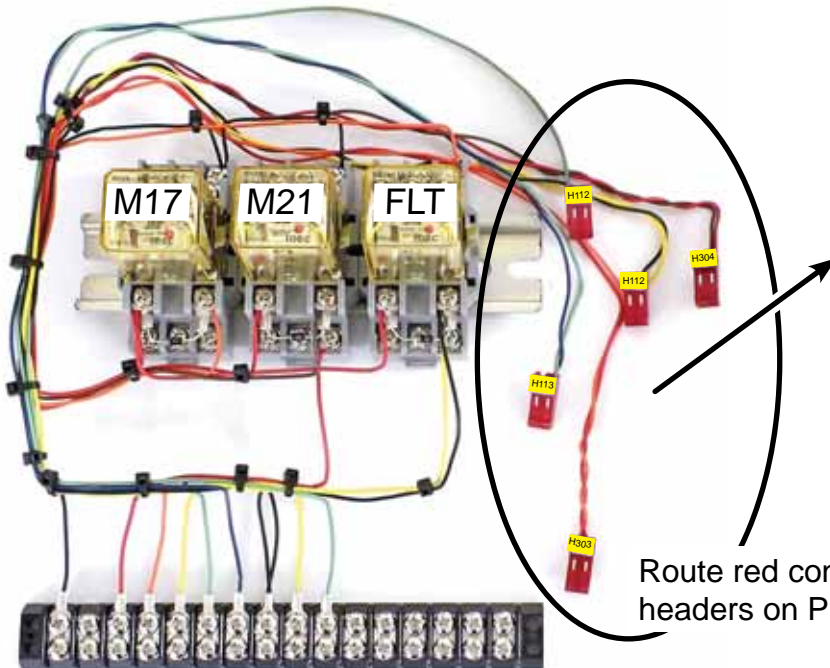
Mount TB2 & Relays assembly on spindle electronics panel as shown at left.

On most panels, there are 8-32 holes to accommodate the DIN rail, but not for the terminal board (TB2).

Route the five red connectors to the printed wiring board (PWB) according to the labels on each connector.

Cut trace on PWB at HDR113 to enable E-Stop from barfeeder.

Mount the 14-pin connector on the spindle cabinet door, and route the wires to TB2.



Cut trace on PWB to enable E-Stop

Route red connectors to appropriate headers on Printed wiring board (PWB)



## To install Collet Closer Pressure Switch

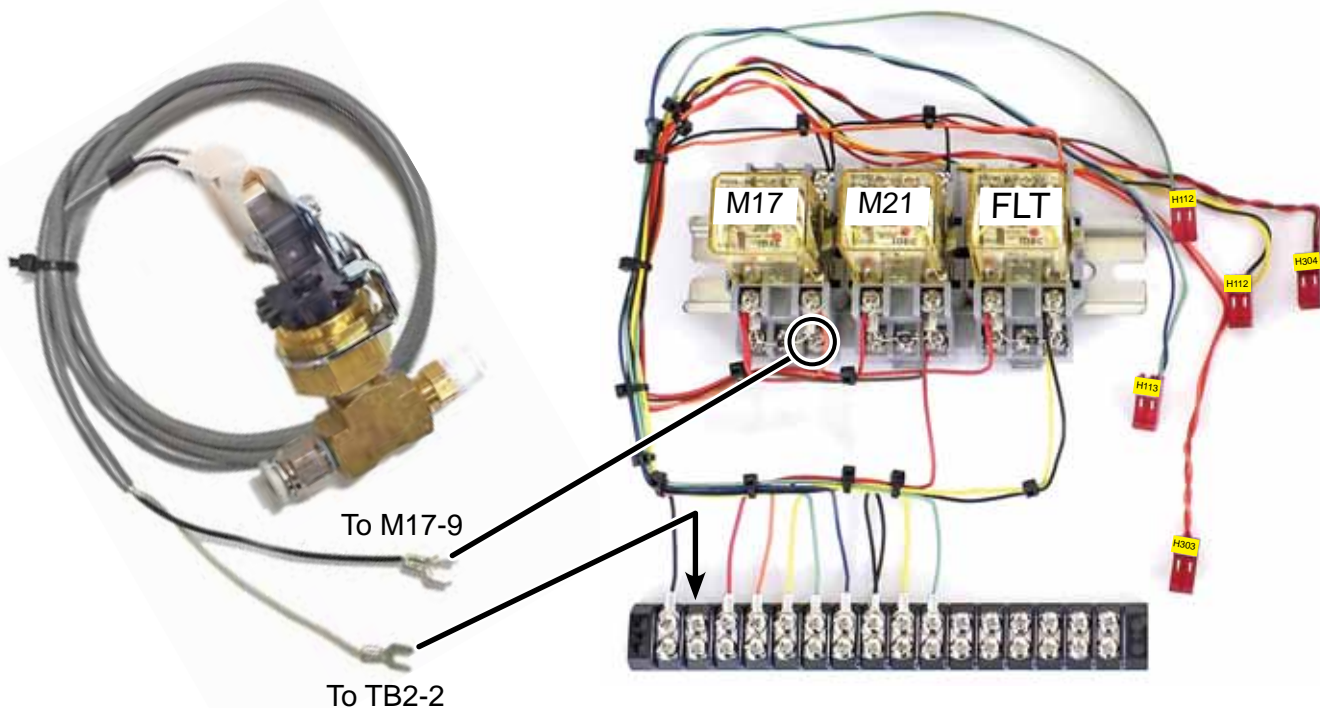
Disconnect air from machine (or set main regulator to zero).  
Temporarily remove air-line from push-lock fitting at left side of collet pressure regulator (this is line to "collet clamp")  
Temporarily remove collet closer regulator from panel. Remove push-lock fitting from left-hand side and thread pressure switch assembly in place as shown immediately below. Re-connect air line to tee on pressure switch.



Remove this nut to remove regulator

After mounting the pressure switch, route the grey cable into spindle electronics cabinet, and connect black wire to relay M17-9, and route the white wire to TB2-2 as shown below.

On some cabinets there is plastic plug near where main air comes in. On all cabinets there is plastic plug on back side, at corner by collet regulator. Cut a slot in the plug and push the cable through.



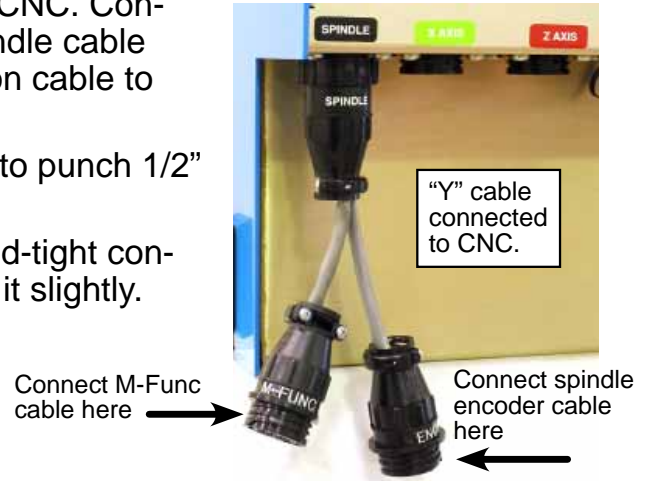
### To install Y-Cable and M-Function Cable (5HP Version Only)

The M-Function cable routes from Y-Cable on CNC to HDR102 on printed wiring board (PWB) in spindle electronics cabinet.

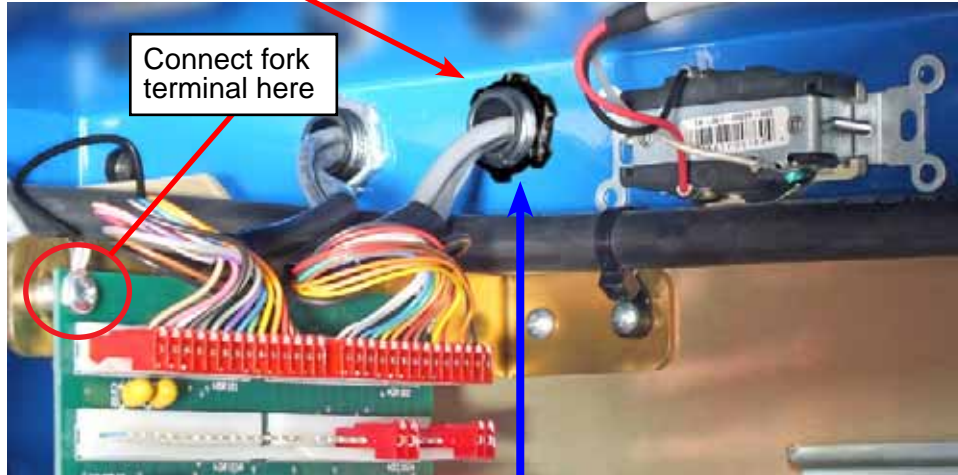
Temporarily disconnect Spindle cable from back of CNC. Connect Y-cable to Spindle connection. Reconnect Spindle cable to Spindle connector on Y-cable. Connect M-Function cable to M-Func connector on "Y" cable.

At spindle electronics cabinet, it may be necessary to punch 1/2" knock-out in cabinet at location shown below.

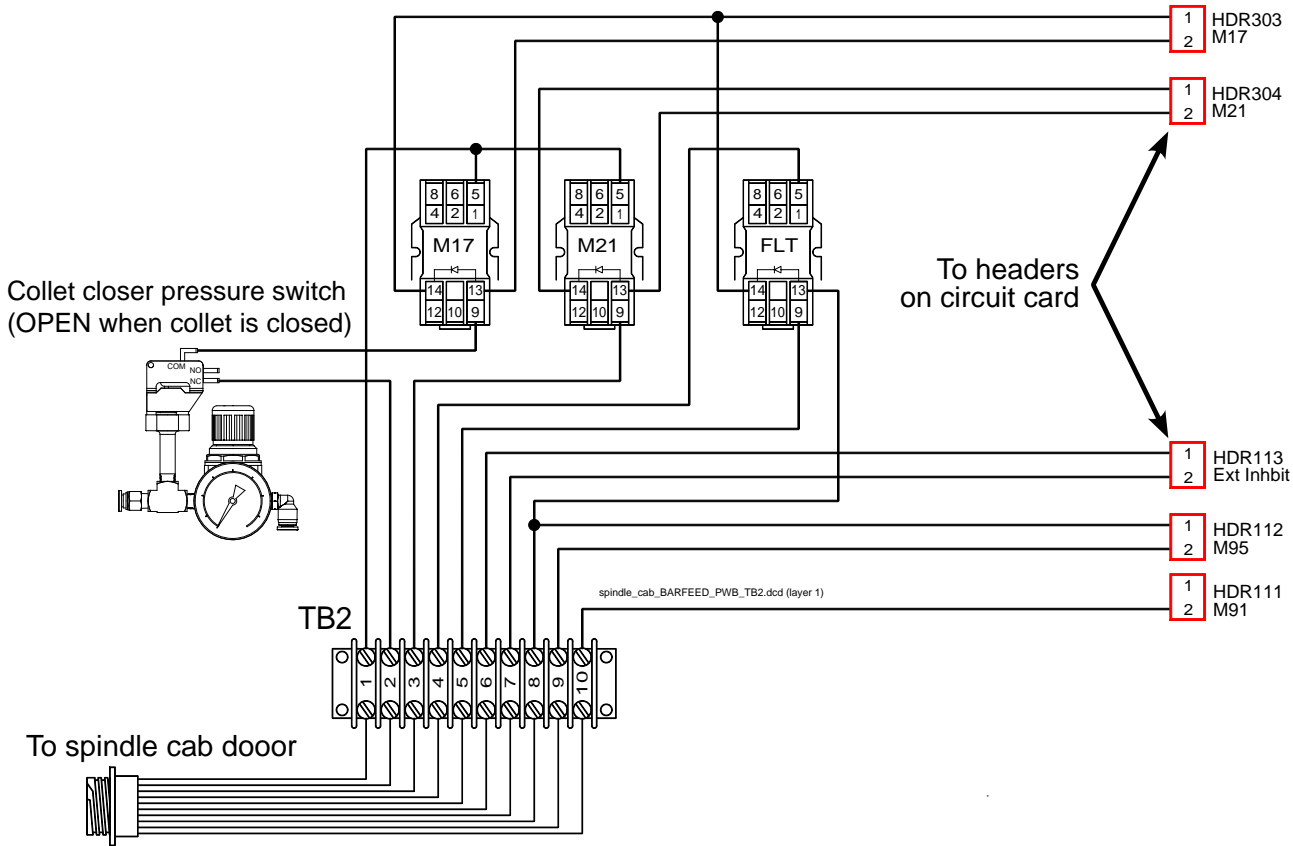
Red connector *will* pass through the nut for the liquid-tight connector, you may have to squeeze the nut to deform it slightly.



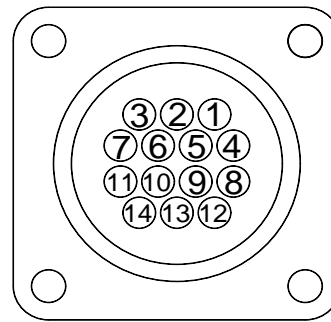
Latest spindle-drive cabinets have pre-punched hole at this location; if there is no hole, punch 1/2" knock-out (7/8" diameter) to provide access.



**These are the wiring diagrams for both versions**



P101-1	BRN	TB2-1	COM1
P101-2	RED	TB2-2	ENABLE PUSHER
P101-3	ORG	TB2-3	CHANGE BAR
P101-4	YEL	TB2-4	E-STOP TO LOADER
P101-5	GRN	TB2-5	E-STOP TO LOADER
P101-6	BLU	TB2-6	E-STOP FROM LDR
P101-7	VIO	TB2-7	E-STOP FROM LDR
P101-8	GRY	TB2-8	COM2 0V
P101-9	WHT	TB2-9	END OF BAR
P101-10	BLK	TB2-10	LOADER FIN/BUSY

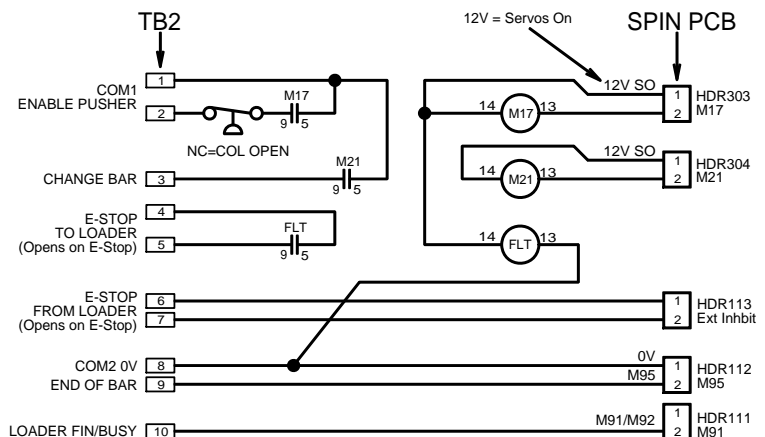


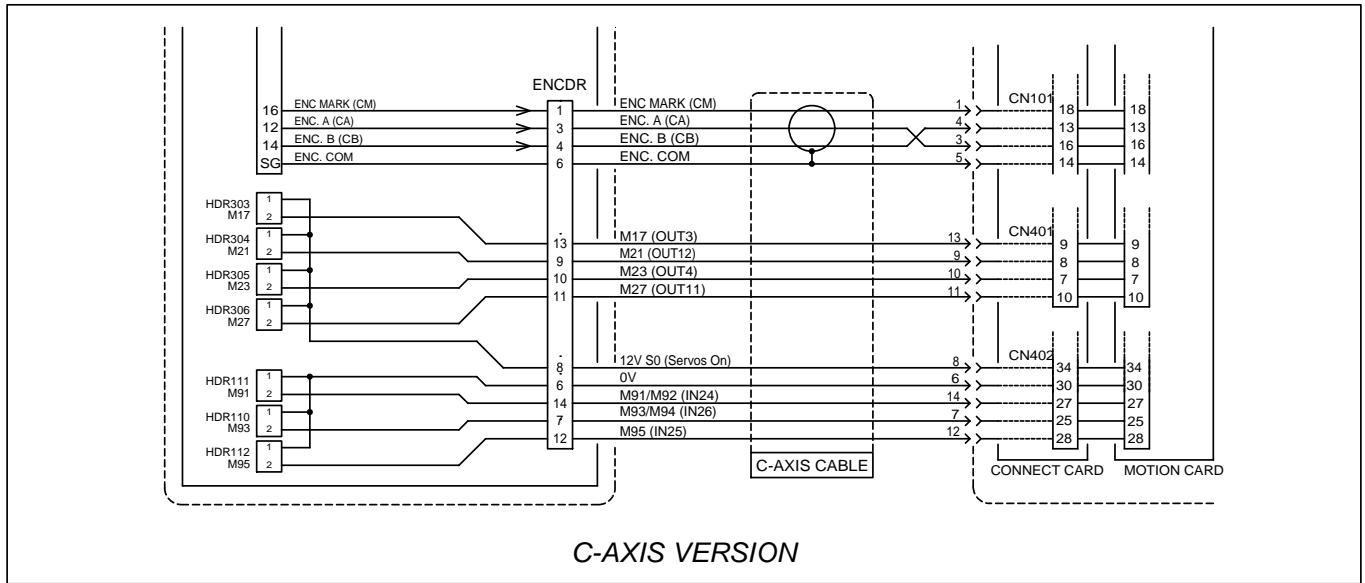
P101 (outside)

**INSTALLATION & SCHEMATIC**

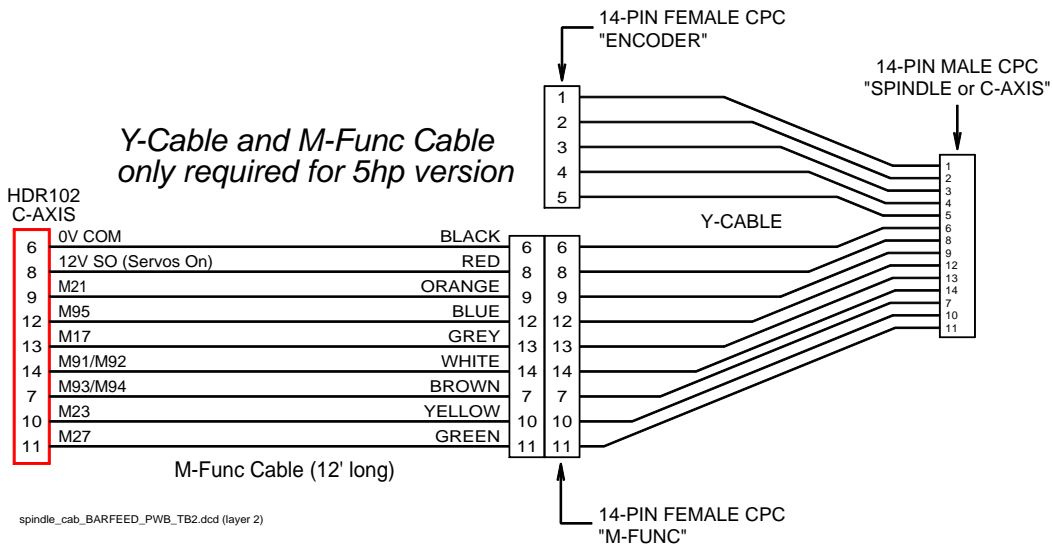
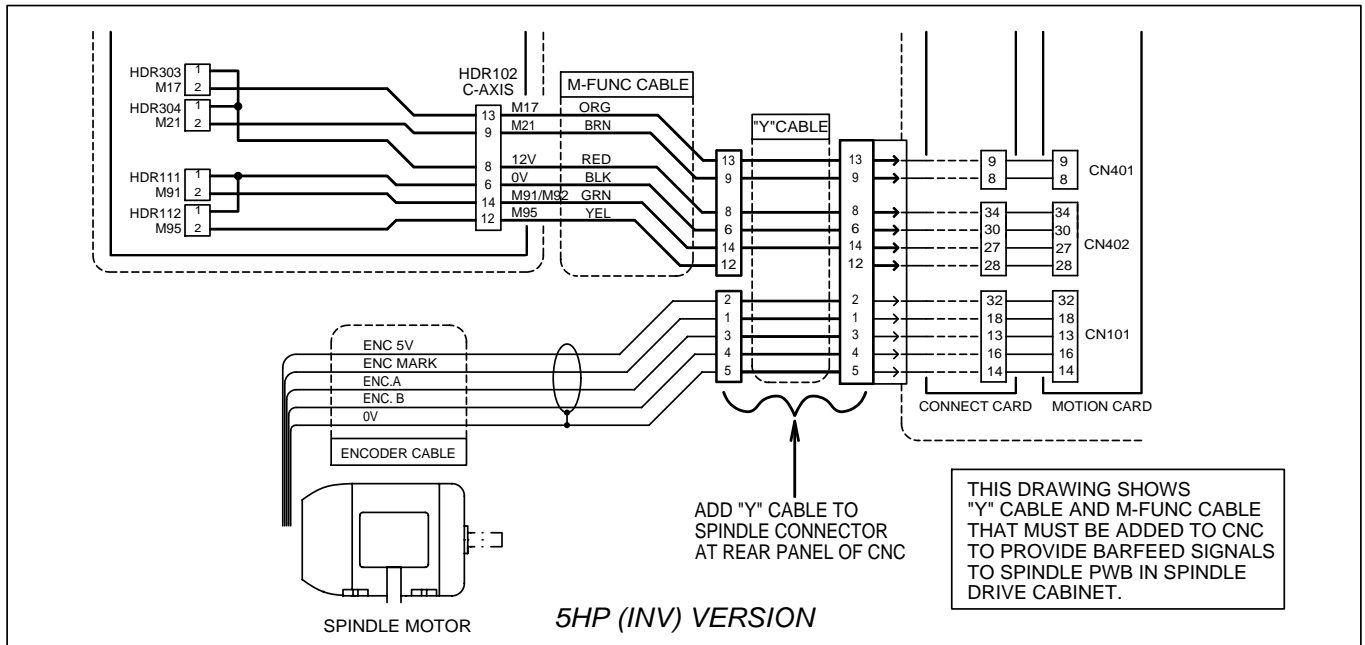
TB2 AND RELAYS M17, M21 & FLT SHIPPED PREWIRED. MOUNT TB2 AND DIN RAIL WITH RELAYS TO CHASSIS.

CONNECT RED CONNECTORS HDR303, HDR304, HDR111, HDR 112 AND HDR113 TO APPROPRIATE HEADERS ON SPINDLE CIRCUIT CARD. (SEE DRAWING ON PAGE 3)





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spindle\_cab\_BARFEED\_PWB\_TB2.dcd (layer 2)