

2. Electric Interface Wiring

1. Only qualified personnel should attempt to complete interface wiring.
2. Read all the instruction prior to beginning.
3. Prepare the molding machine for wiring:
 - a. Power off the molding machine.
 - b. Perform lockout tag out on the molding machine.
 - c. Open the electrical control panel.
 - d. Locate the wiring diagram for the I.M.M.
4. Evaluate signal voltages used.
 - a. The picker is setup to receive 24 V DC signals from the I.M.M
 - b. Contacts are used to supply signal from the robot to the I.M.M. A control voltage up to 110 V may be used.

2-1. Mount Interface Box , Terminal Strip (Step 4)

1. Evaluate the control panel and choose an appropriate place to connect the interface cable, mount the interface box and mount the terminal strip. (Note: Interface box should be mounted in an accessible location)
2. Mount interface box.
3. Prepare control panel to accept the cord grip (Drill panel and use 1/2" Knockout)
4. Feed wire and cord grip through hole in the panel and secure with lock nut.
5. Mount terminal strip inside the control panel. (Fig 2-1-1)
6. Do not connect the interface cable to the terminal strip at this time.

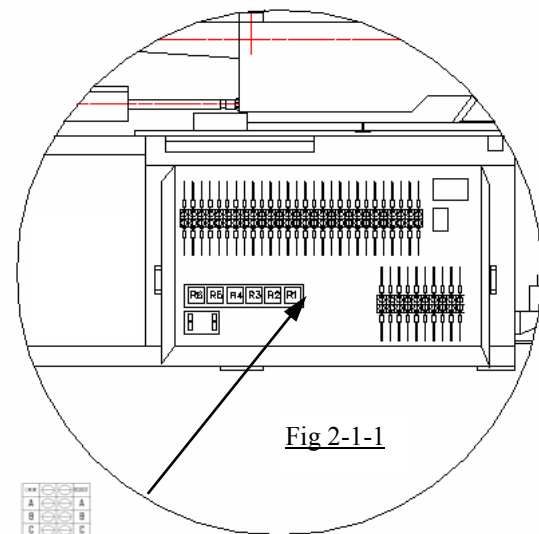
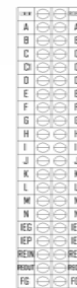


Fig 2-1-1



Terminal Strip

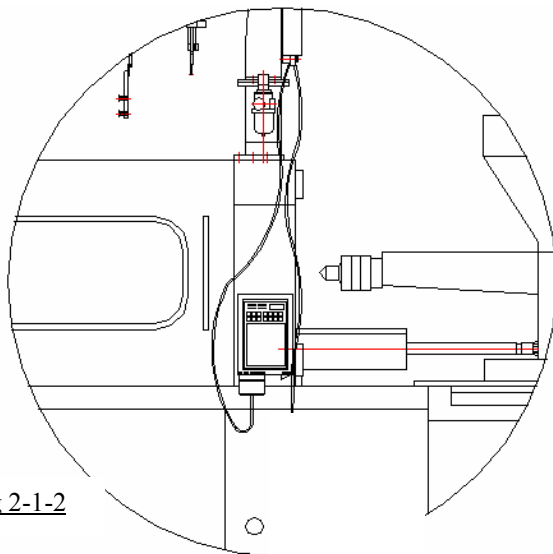



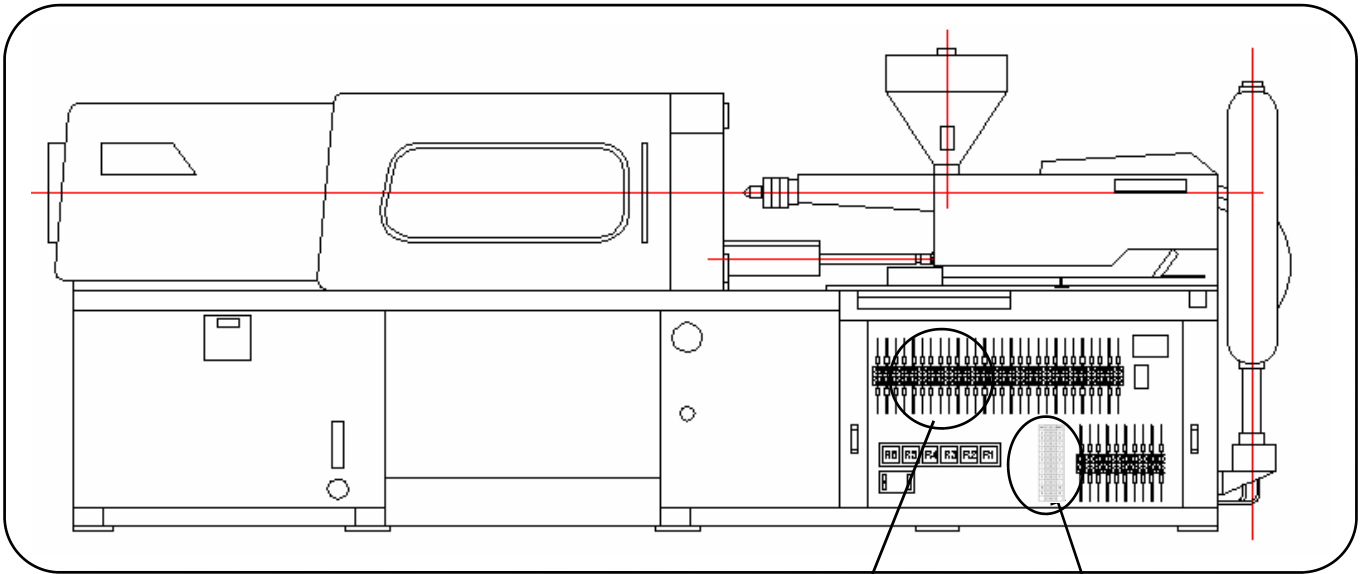
Fig 2-1-2

1. If you desire, mount the hanger for the Handy controller using the hardware that is included.
2. Connect the 38 pin connector from the robot to handy controller.

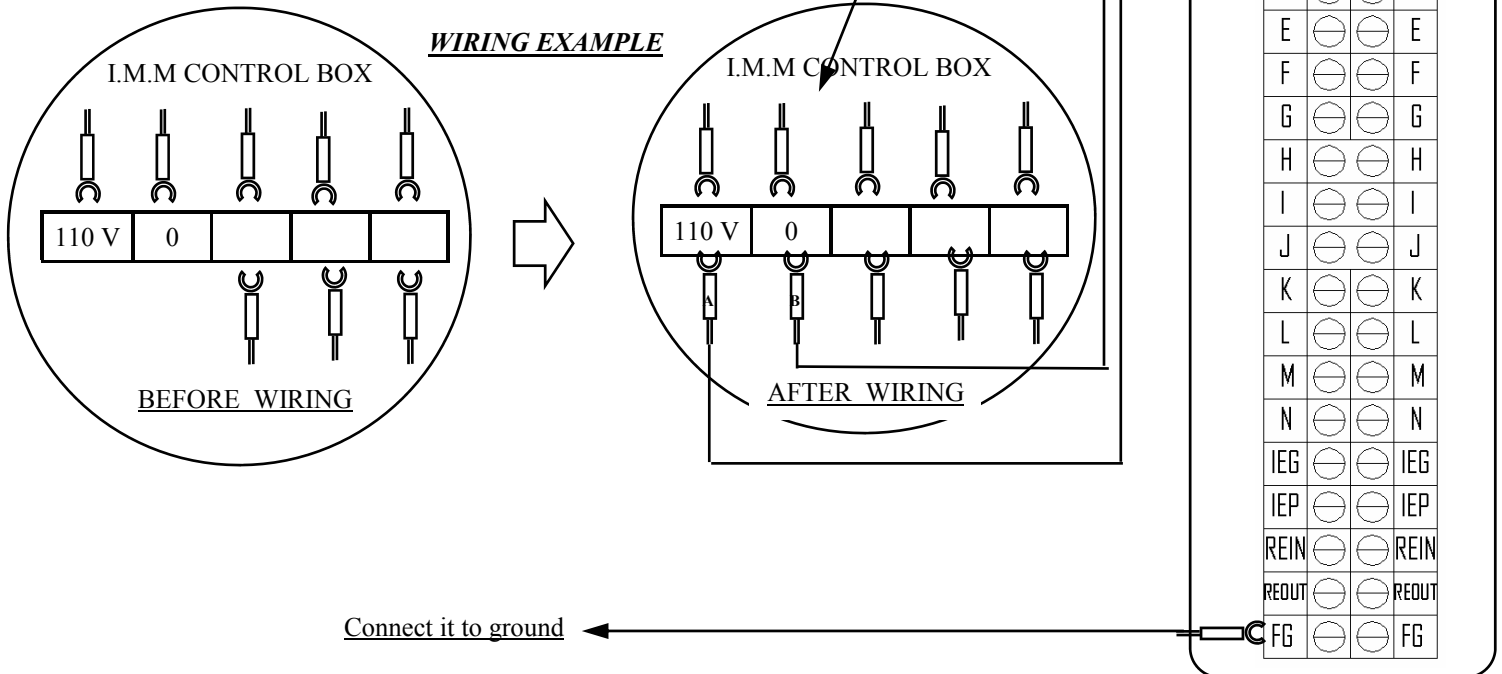
Supplied	1/2 "Cord Grip (1 Pc), 8-32 Round head screws (8 Pc) , Terminal Strip (1 Pc), Hanger	
Required	Hand drill, Drill and Tap for 8-32, Knock out 1/2" , Punch, Hammer	

2-2. Wiring Power Source (Step 5)

1. Locate correct voltage power source. (110 Volt)
2. Connect terminal A and B of the I.M.M side of the terminal strip to the supply voltage as shown below.
3. Connect machine ground to the FG.



Note : Your wiring may look different



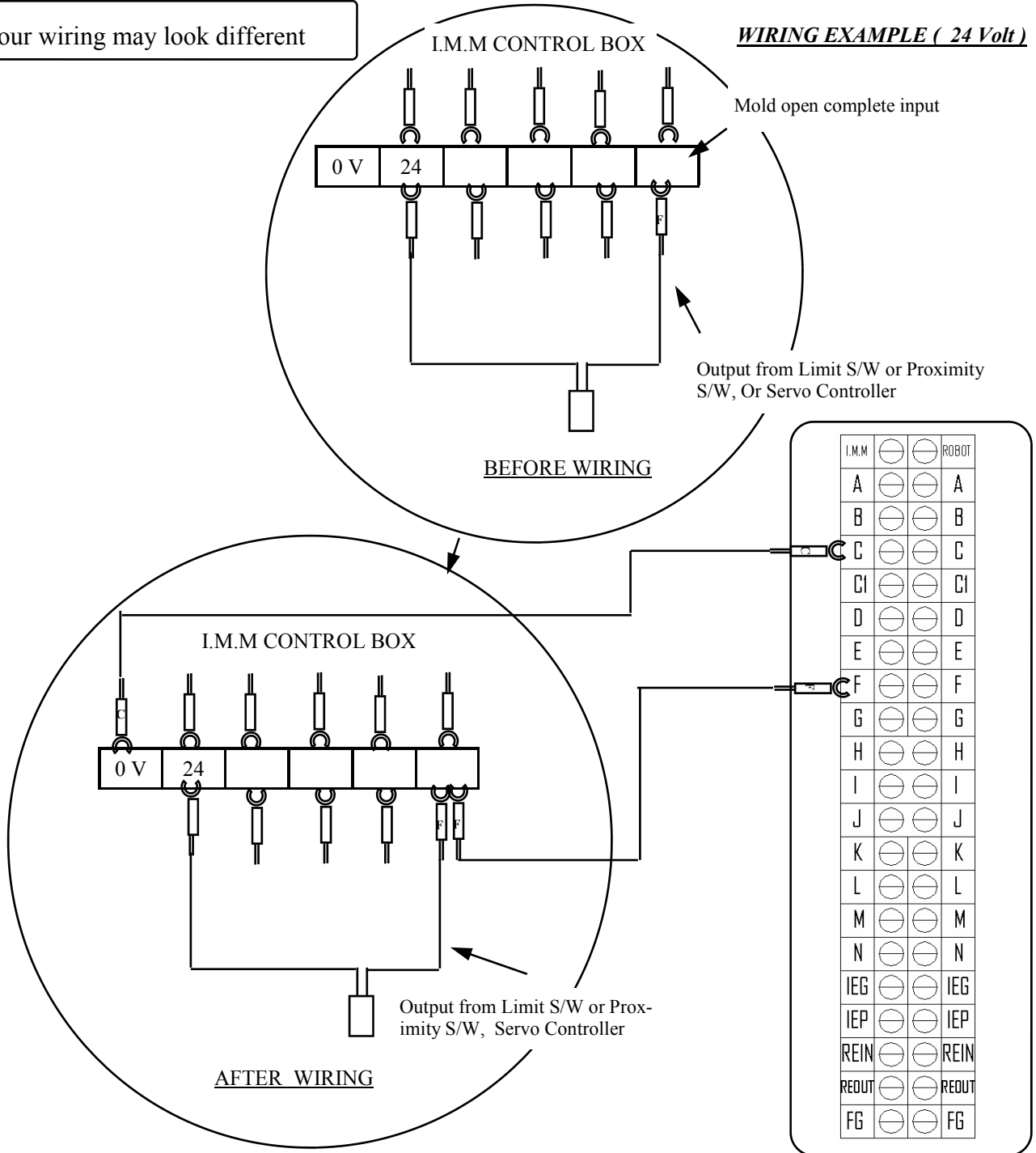
2-3. Mold Open Complete Signal (Step 6) (From IMM to Robot)

1. The mold open complete signal indicates that the mold is fully open and it is safe for the picker to remove product. This signal must be maintained during product removal.
3. Locate this signal and confirm the signal voltage is 24 V DC
4. Connect 0 V (Common) on terminal C and signal on terminal F as shown below.
Note : the 0 V common will be used on two inputs. (Mold Open Complete, Door Safety Signal)
5. This signal may be a direct PLC output.

Note : If polarity is reversed the LED on the relay may not light

Note : Your wiring may look different

WIRING EXAMPLE (24 Volt)

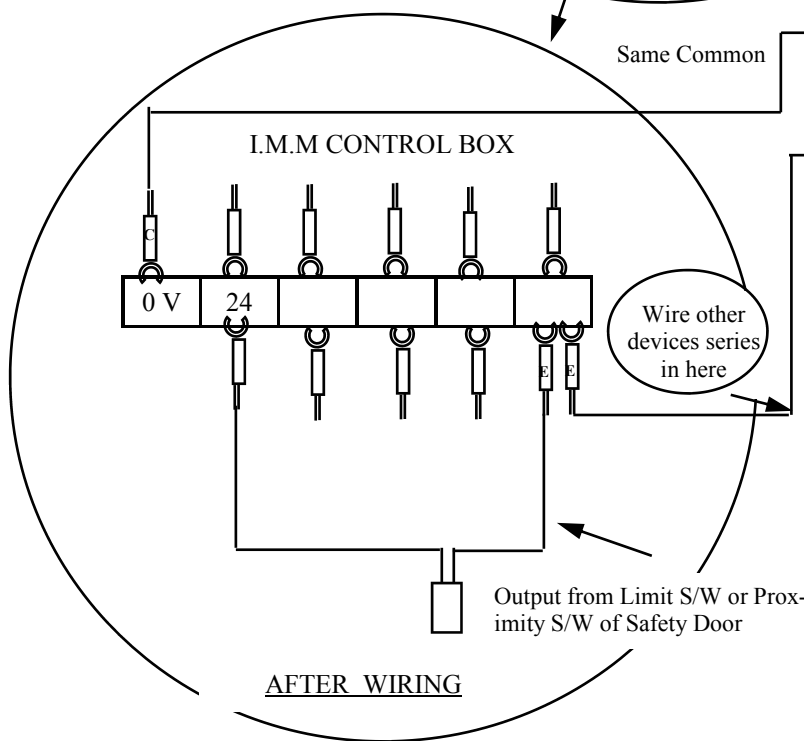
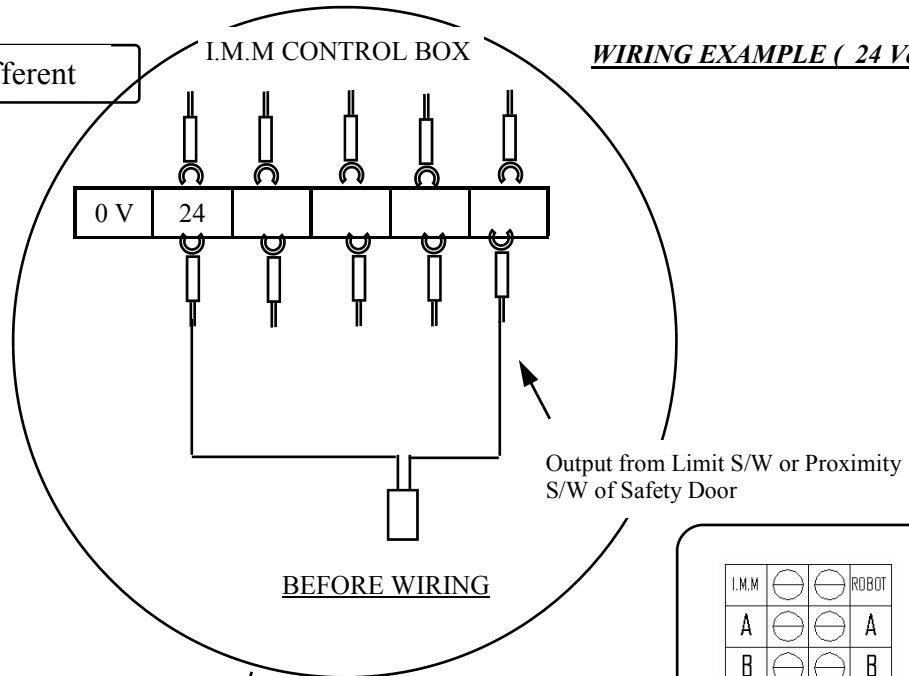


2-4. Door safety Signal (Step 7) (From IMM to Robot)

1. This signal indicates the safety door is closed. The picker will not operate automatically without this signal.
2. Locate Door safety signal on the I.M.M. and confirm the signal Voltage is 24 V DC
3. This signal should have the same common as the mold open complete signal.
4. Connect the signal (24V DC) to terminal "E".
5. If you are unable to locate the signal or the signal voltage is not 24 V DC , contact the factory.
6. This signal may be a direct PLC output.
7. Other normally closed safety devices may be wired in series on this circuit (E.g. Safety mats or door interlocks) , If polarity is reversed the LED on the relay may not light

Note : Your wiring may look different

WIRING EXAMPLE (24 Volt)



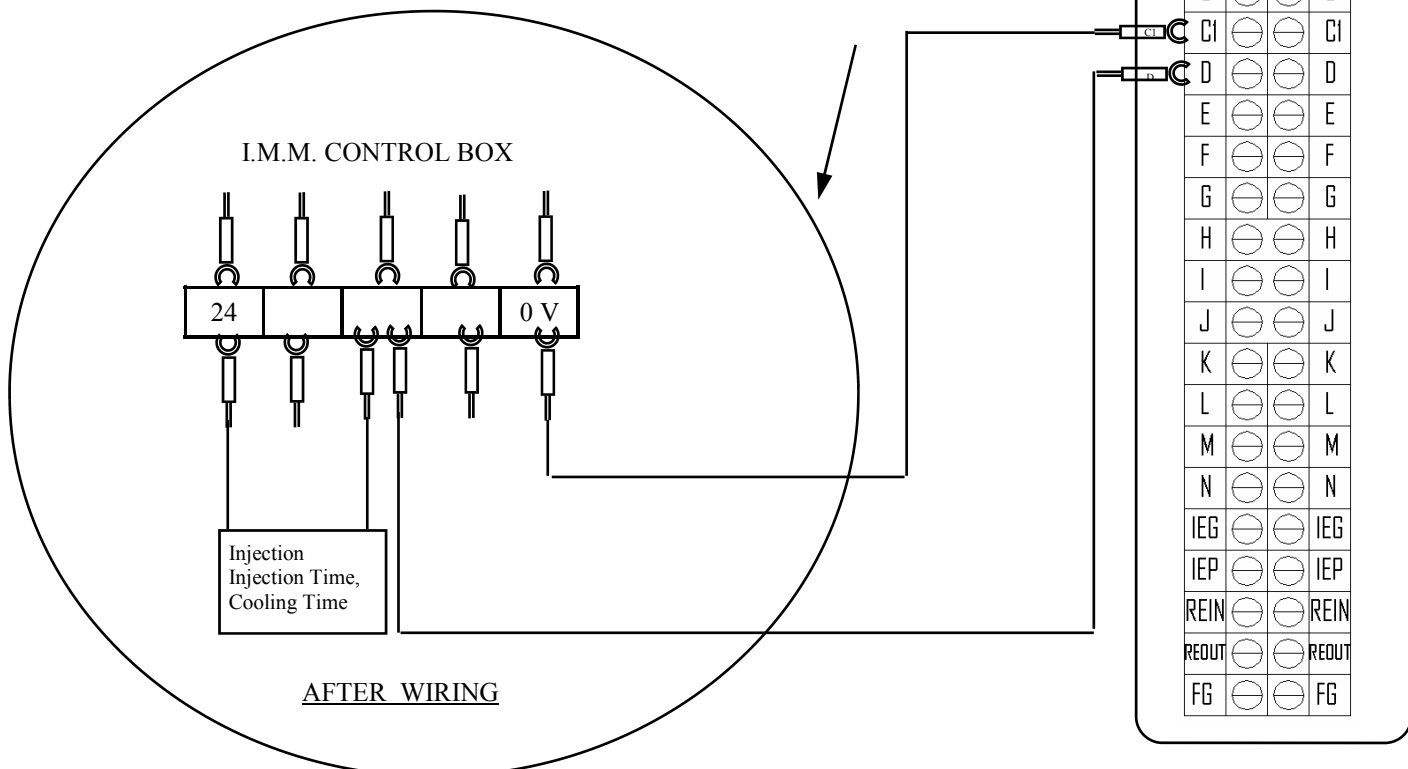
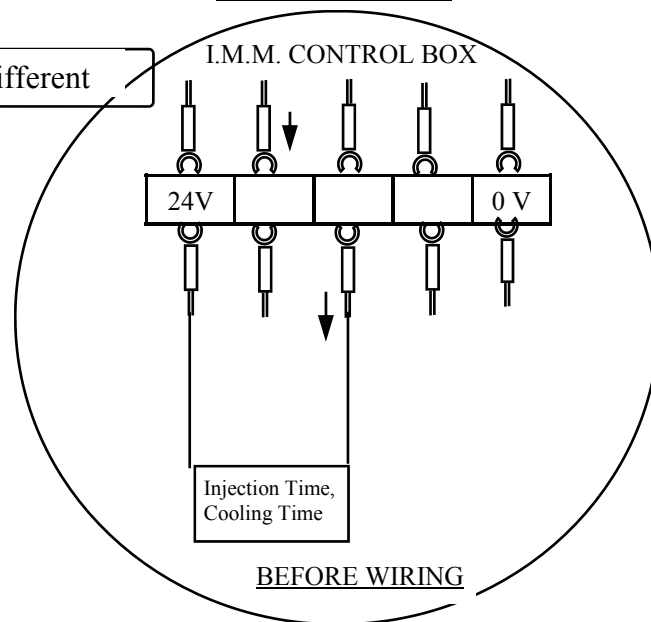
I.M.M	⊖	⊖	ROBOT
A	⊖	⊖	A
B	⊖	⊖	B
C	⊖	⊖	C
CI	⊖	⊖	CI
D	⊖	⊖	D
E	⊖	⊖	E
F	⊖	⊖	F
G	⊖	⊖	G
H	⊖	⊖	H
I	⊖	⊖	I
J	⊖	⊖	J
K	⊖	⊖	K
L	⊖	⊖	L
M	⊖	⊖	M
N	⊖	⊖	N
IEG	⊖	⊖	IEG
IEP	⊖	⊖	IEP
REIN	⊖	⊖	REIN
REOUT	⊖	⊖	REOUT
FG	⊖	⊖	FG

2-5. Injection Signal(Step 8) (From IMM to Robot)

1. This signal confirms the Auto operation of the I.M.M and ensures the correct sequence during the first product removal. Any 24 V signal that is momentarily on during the automatic cycle may be used. Some possible signals are : Auto Injection Signal, Injection Time Complete, Cooling time complete. When the picker is placed in auto mode, it will begin operation after the first molding cycle. After completing the first automatic molding cycle, the picker will operate .
2. Locate this signal and confirm the signal voltage is 24 V DC.
3. This signal uses a separate common for input.
4. Connect the signal (24 V DC) to terminal “D”. Connect 0 V (Common) on terminal “C1”
5. If you are unable to locate signal or the signal voltage is not 24 V DC contact the factory.
6. This signal may be a direct PLC output. If polarity is reversed the LED on the relay may not light

WIRING EXAMPLE

Note : Your wiring may look different

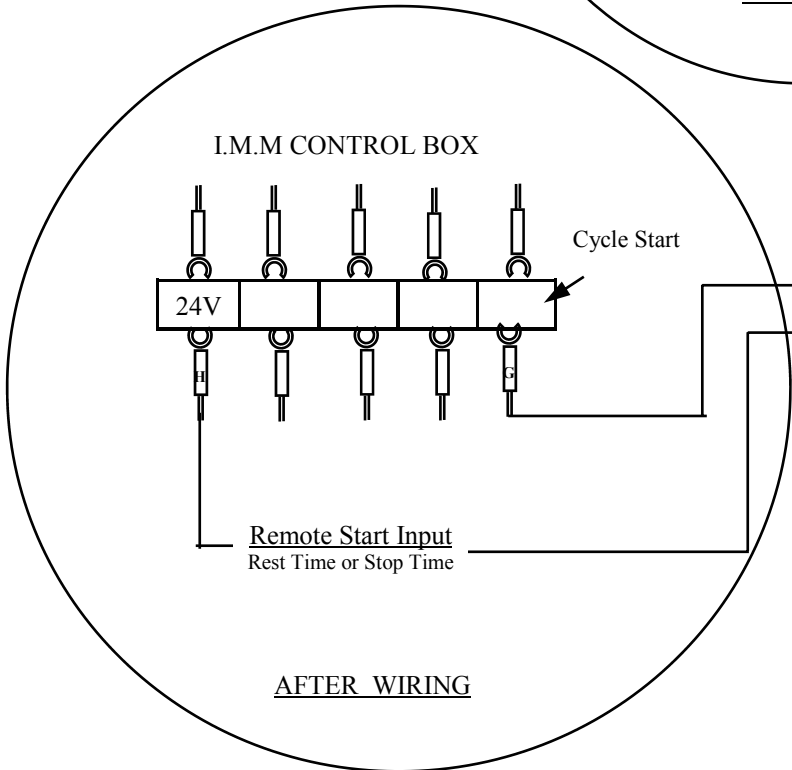
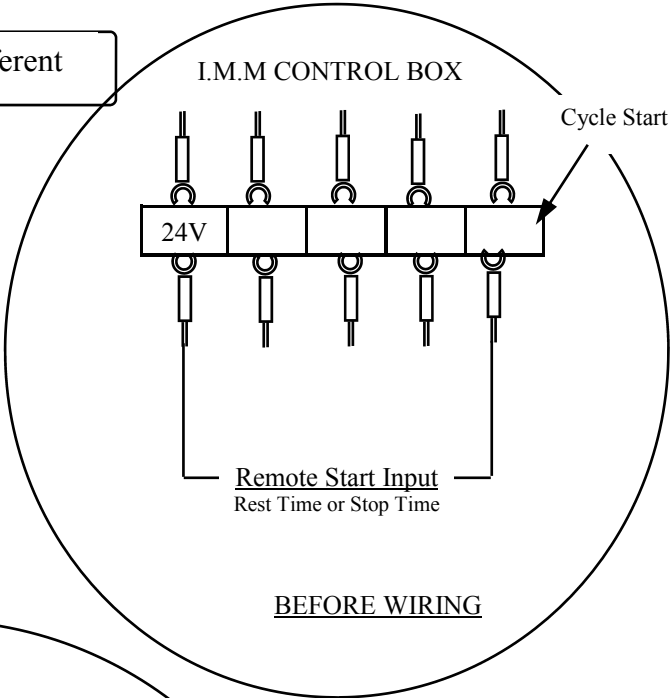


2-6 Cycle Start Signal (Step 9) (From Robot to IMM)

1. The Picker initiates the molding cycle by momentarily closing a normally open contact.
2. Using the I.M.M schematic locate the correct place to wire cycle start contact.
3. It may be necessary to contact the machine builder for information.
4. Connect terminal G and H for cycle start signal. (Depending on the injection molding machine, there may be different name for the cycle start. For example : Rest Time, Stop Time , Cycle Start)
5. Some machine doesn't required to receive this signal from Robot for Auto Operation

WIRING EXAMPLE

Note : Your wiring may look different



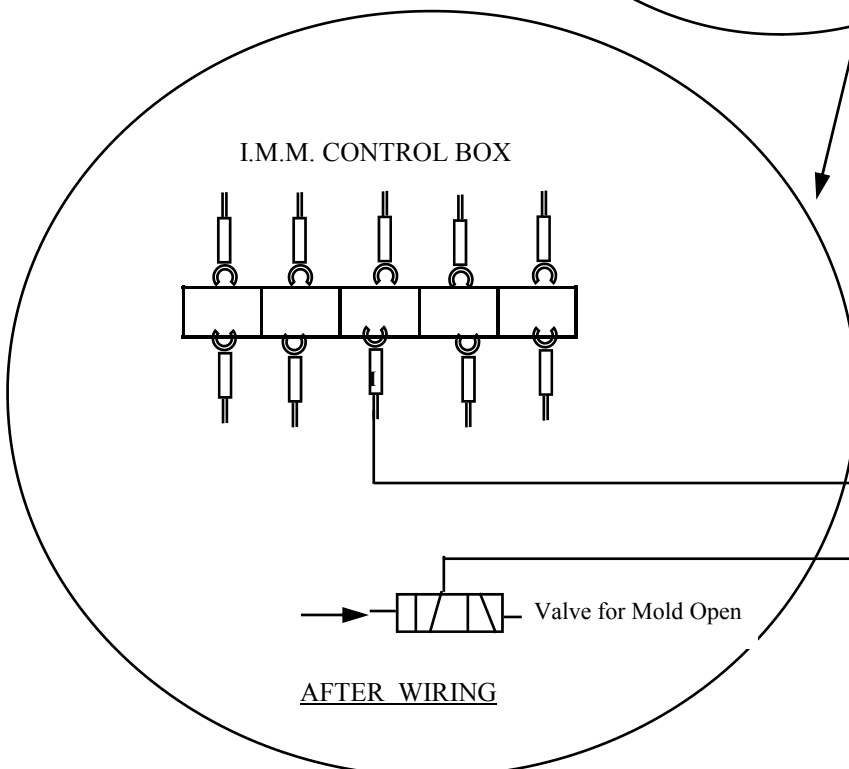
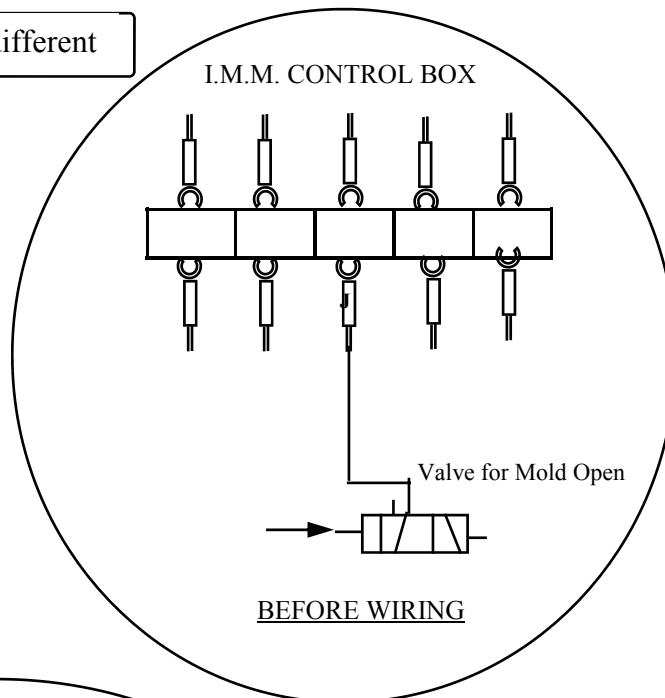
I.M.M	⊖	⊖	ROBOT
A	⊖	⊖	A
B	⊖	⊖	B
C	⊖	⊖	C
CI	⊖	⊖	CI
D	⊖	⊖	D
E	⊖	⊖	E
F	⊖	⊖	F
G	⊖	⊖	G
H	⊖	⊖	H
I	⊖	⊖	I
J	⊖	⊖	J
K	⊖	⊖	K
L	⊖	⊖	L
M	⊖	⊖	M
N	⊖	⊖	N
IEG	⊖	⊖	IEG
IEP	⊖	⊖	IEP
REIN	⊖	⊖	REIN
REOUT	⊖	⊖	REOUT
FG	⊖	⊖	FG

2-7. Mold Open Interlock (Step 10) (From Robot to IMM)

1. This circuit prevents the mold from opening if the picker arm is not fully retracted. (e.g. Loss of air pressure and failure of safety lock pin)
2. A normally open contact when wired correctly prevents mold open valve from being activated.
3. Locate the wiring to the mold open valve.
4. Wire in series as shown.

WIRING EXAMPLE

Note : Your wiring may look different



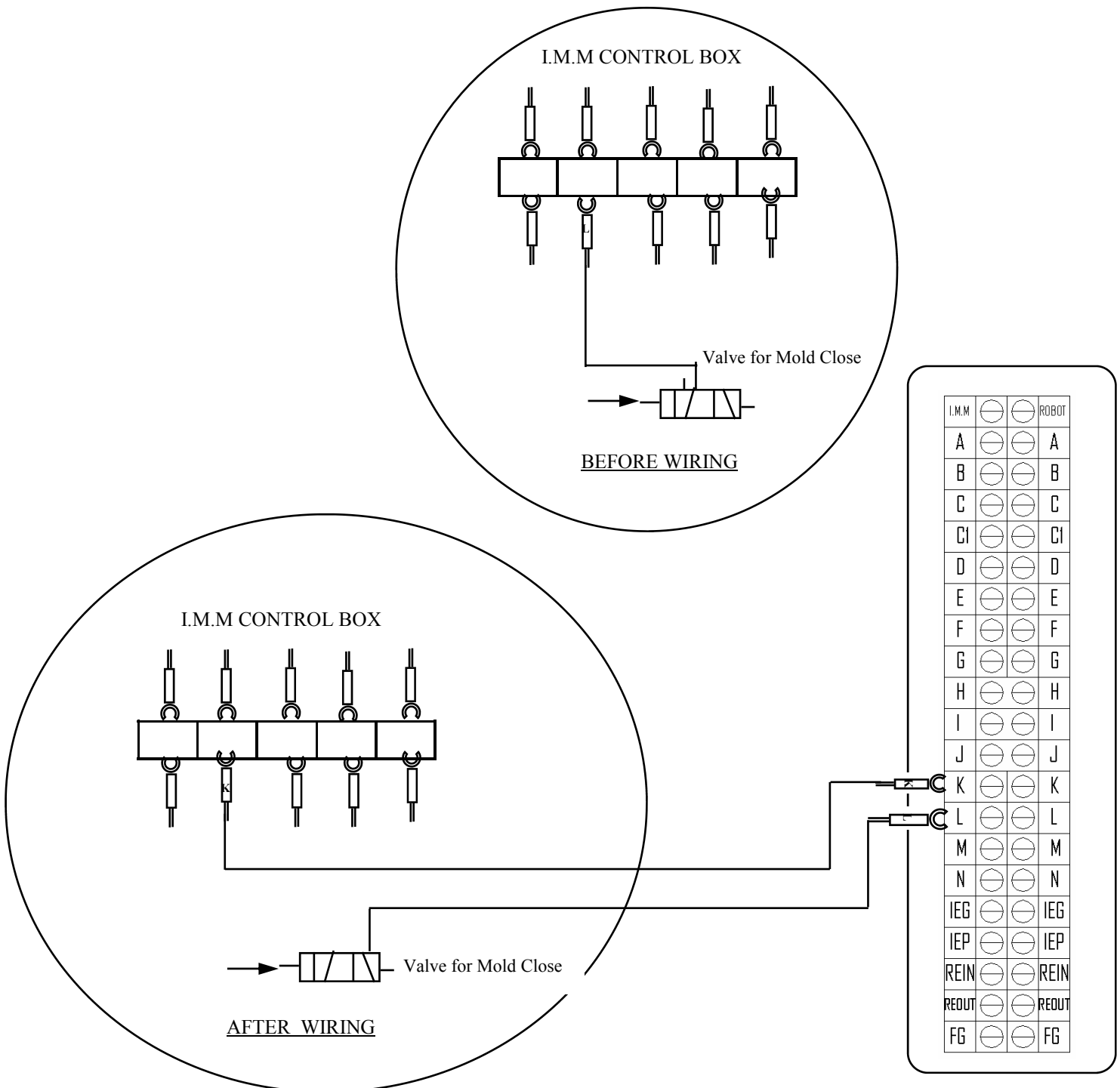
I.M.M	⊖	⊖	ROBOT
A	⊖	⊖	A
B	⊖	⊖	B
C	⊖	⊖	C
CI	⊖	⊖	CI
D	⊖	⊖	D
E	⊖	⊖	E
F	⊖	⊖	F
G	⊖	⊖	G
H	⊖	⊖	H
I	⊖	⊖	I
J	⊖	⊖	J
K	⊖	⊖	K
L	⊖	⊖	L
M	⊖	⊖	M
N	⊖	⊖	N
IEG	⊖	⊖	IEG
IEP	⊖	⊖	IEP
REIN	⊖	⊖	REIN
REOUT	⊖	⊖	REOUT
FG	⊖	⊖	FG

2-8. Mold Close Interlock (Step 11) (From Robot to IMM)

- This circuit prevents the mold from closing while the picker arm is down.
- A Normally open contact when wired correctly prevents the mold close valve from being activated.
- Locate the wiring to the mold close valve.
- Wire in series as shown below.

Note : Your wiring may look different

WIRING EXAMPLE



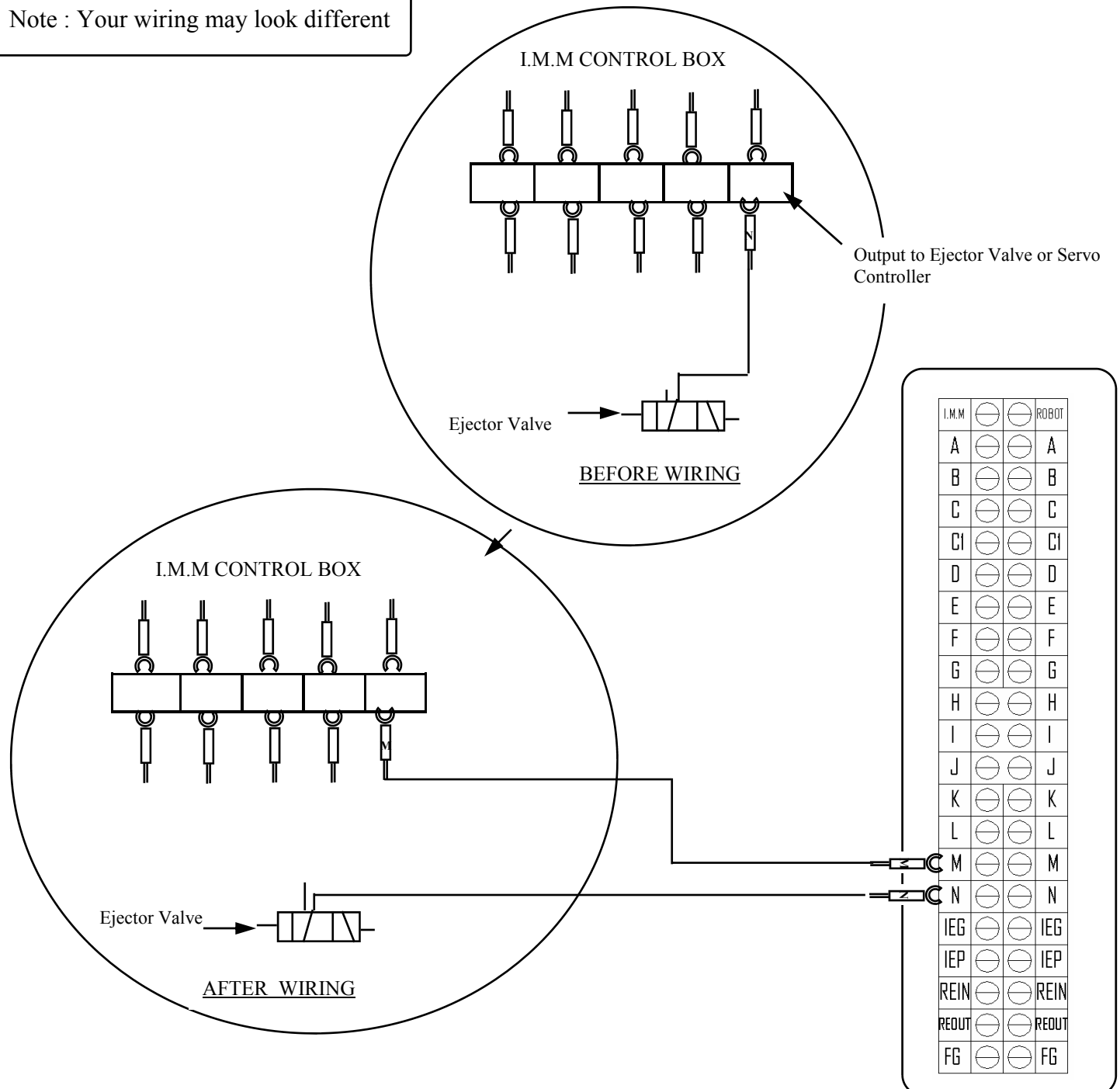
2-9. Ejector Signal (Step 12) (From Robot to IMM)

1. If you do not have an ejector feature you may skip this step.
2. The picker delays the ejector signal until the gripper or Vacuum unit is in place to receive the product.
3. This is accomplished by placing a normally open contact in series with the supply to the ejector valve solenoid.
4. Locate I.M.M signal to ejector solenoid.
5. Wire M and N as shown below.

Note : This feature may be disabled by turning the ejector switch off on the interface box.

WIRING EXAMPLE

Note : Your wiring may look different

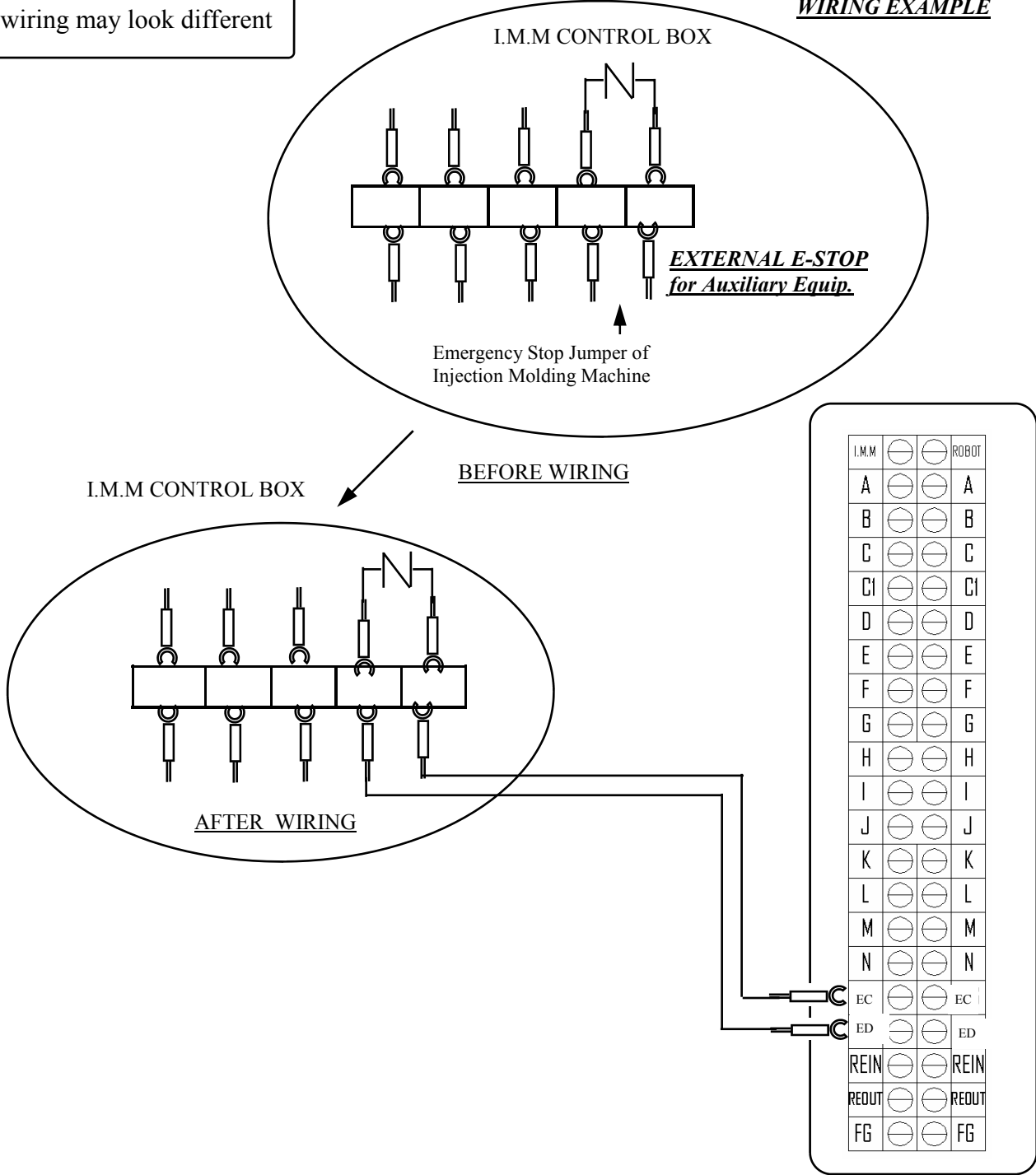


2-9-1. IMM to PICKER Emergency Stop Circuit (Step 12-1)

1. If the IMM has a contact to activate the E-stop on auxiliary equipment it should be wired to the picker
2. The picker requires a 24 V DC or normally closed bare contact or
3. When 24 DC disconnect or the contact opens from IMM, the picker E-stop will be activated.
4. Wire as shown below
5. When IMM have 110Volts output for E-Stop signal, remove 24 VDC relay from Relay and connect 110 V AC relay.

Note : Your wiring may look different

WIRING EXAMPLE

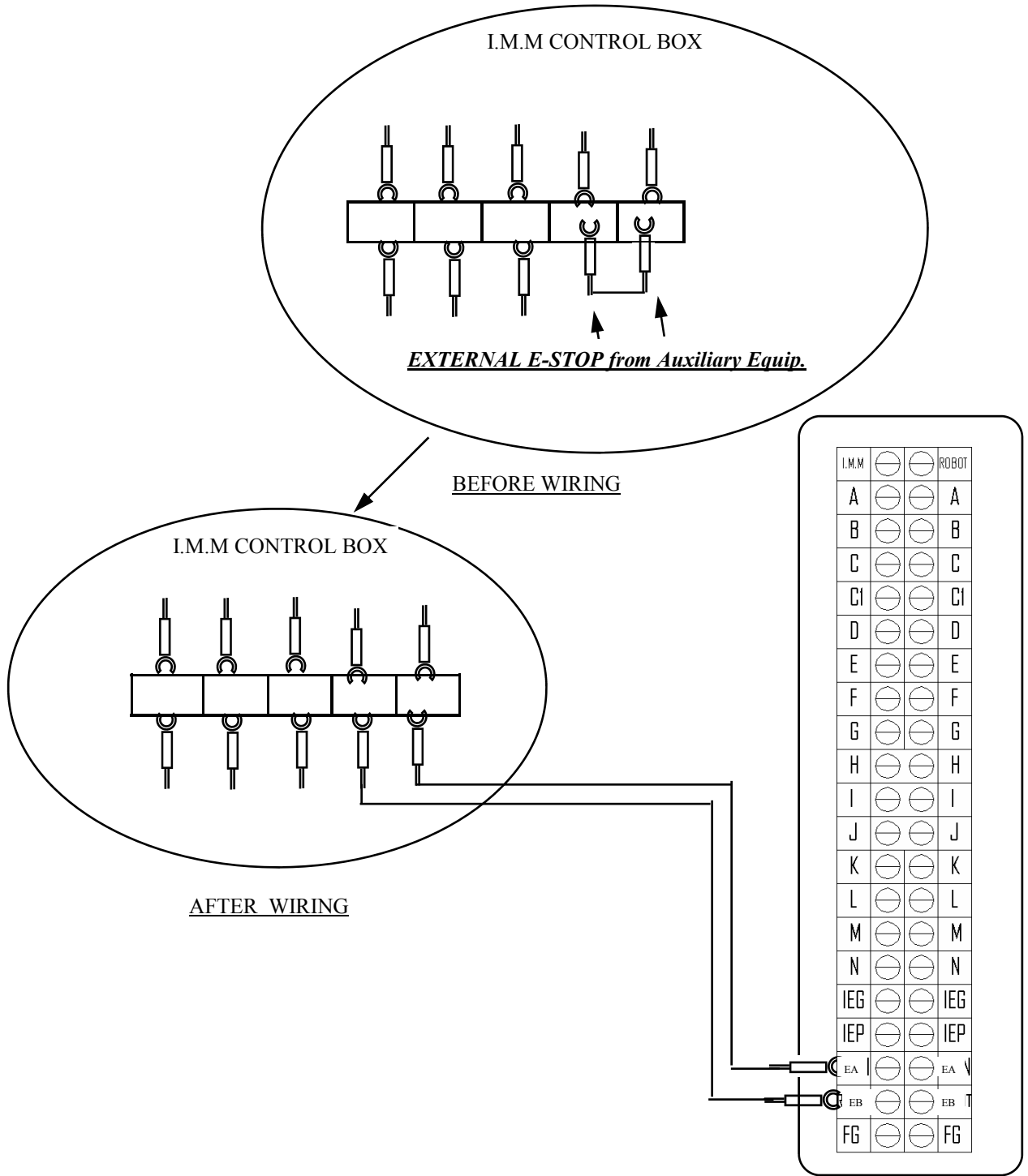


2-9-2. Picker to IMM Emergency Stop Circuit (Step 12-2)

1. The picker has a contact available for use in the IMM's E-Stop circuit
2. This contact is normally closed and will open when the E-stop on the picker's handy control is pressed. When wired correctly the picker E-Stop will trigger the IMM E-Stop
3. Locate the external E-Stop circuit on the I.M.M
4. Wire as shown and remove jumper as required

Note : Your wiring may look different

WIRING EXAMPLE



2-10. Finish Wiring and Test Preparation (Step 13)

1. Double check all wiring connections.
2. Wire interface cable from the interface box to picker side of the terminal strip.
3. Attach the cable from picker to the interface box and secure to prevent damage during operation. (Figure 2-10-1)

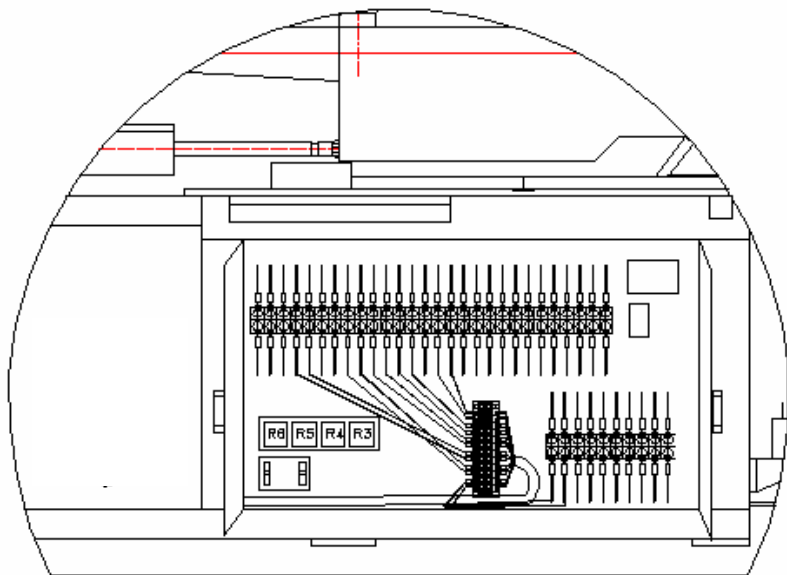


Figure 2-10-1

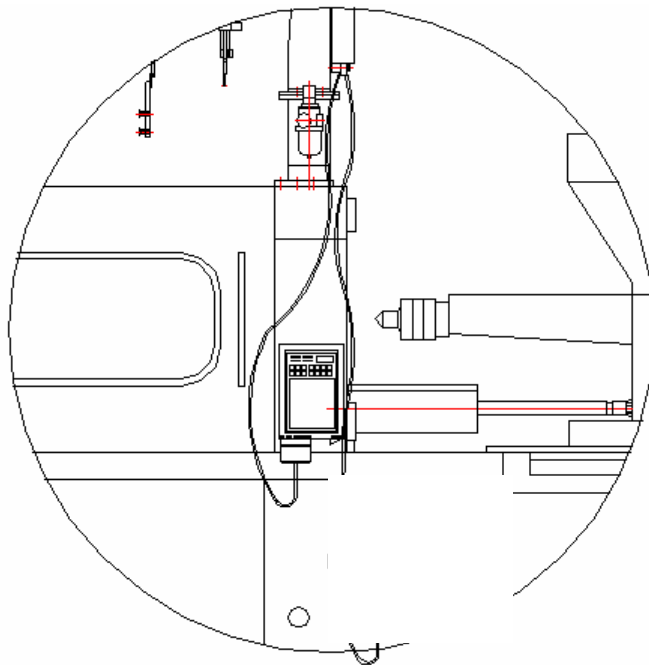


Figure 2-10-2

2-11. Set up for testing (Step 14)

1. Loosen the cap screws on extension cylinder stop and move stop down to till it touches the shock absorber. Tighten cap screws on the stop. (Figure 2-11-1)
2. Check to make sure that picker arm will not enter mold even when fully extended.
3. Now you are ready to check interlocks.

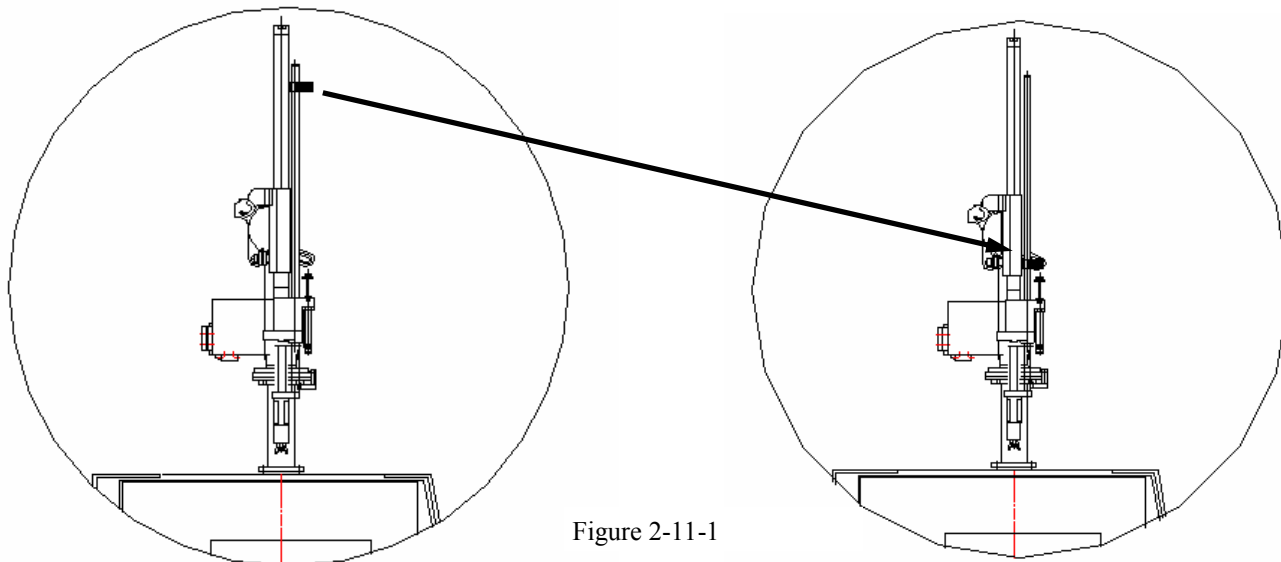


Figure 2-11-1

2-12 Connect Air (Step 15)

1. Make sure the picker arm is retracted and in the vertical position.
2. Beware that the picker may move suddenly as the system is pressurized.
3. Connect the air line to the picker. (Figure 2-12-1)
4. Connect the electric line for Air Shutdown Solenoid Valve
5. Secure the air line to avoid damage.
6. Pull up the adjusting knob and adjust the pressure to 70 psi .(Figure 2-12-2)
7. Air supply should be clean and dry.
8. Check the Emergency Stop button is not pushed.

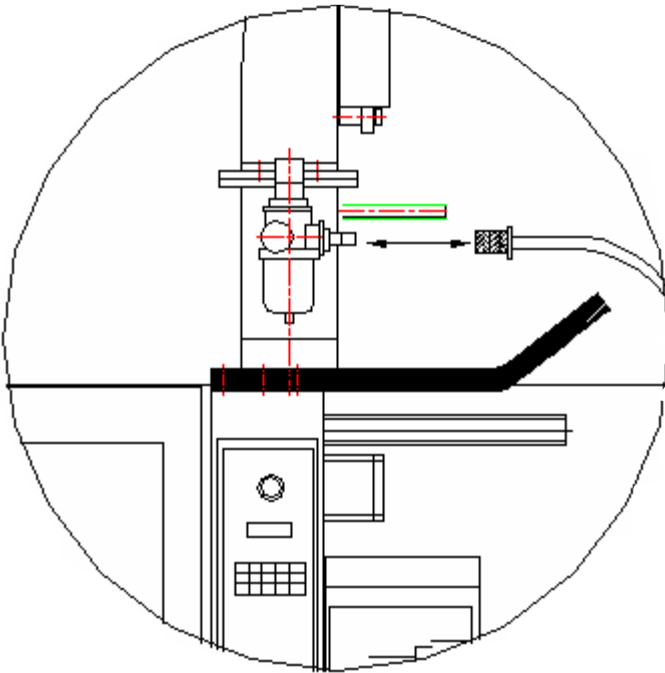


Figure 2-12-1

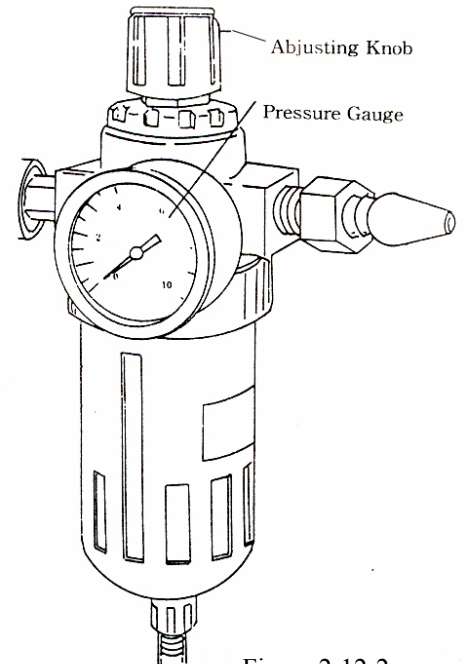


Figure 2-12-2

1. ***Installation is now complete.***
2. ***Before using the robot you must test safety interlocks.***
3. ***Follow the procedure in section 3***