

Integral Mounting Option
3-15 PSI Pressure Transducer Kit
MODEL DS411

Before installing this option, a **TECHNICALLY QUALIFIED INDIVIDUAL**, who is familiar with this type of equipment and hazards involved, should **READ** this **ENTIRE INSTRUCTION SHEET**.

DESCRIPTION

The 3-15 PSI Pressure Transducer Kit converts a 3-15 PSI (pneumatic) speed reference signal to an analog (0 to +5 VDC) input control of the GPD 503 output frequency.

The following parts are included in the kit (see Figure 1):

Qty 2	Brass Female to Male Adapter	Part No. 5P70-0247
Qty 1	Pressure Sensor PCB Assembly	Part No. 46S03103-0010
Qty 5 ft.	1/8" PVC (vinyl) tubing	Part no. 5P70-0245
Qty 1	3/8" flat washer	
Qty 1	Brass Hose Barb to Male Adapter	Part No. 5P70-0246

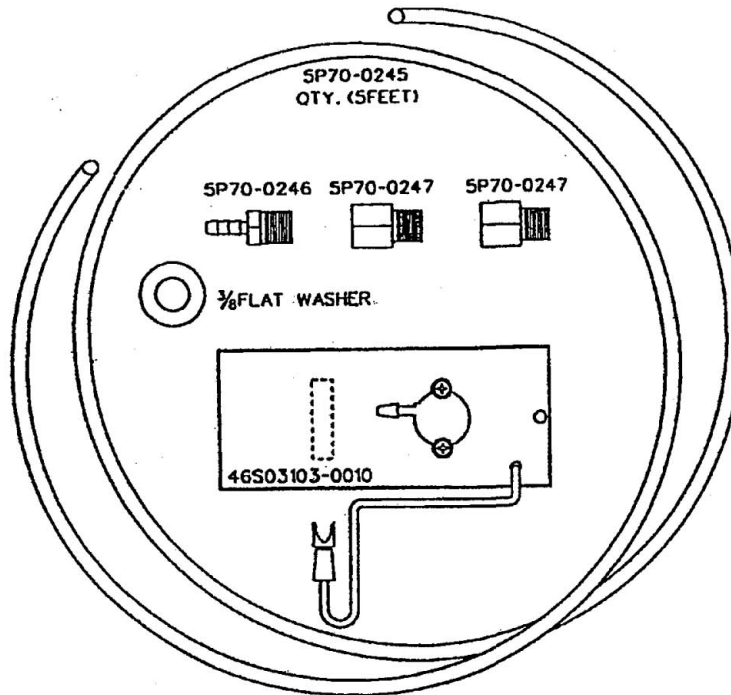


Figure 1. 3-15 PSI Transducer Kit

CHANGE RECORD			
1	STD-6035	4/19/95	

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Issued. 3/30/95 (m-df)

RECEIVING

All equipment is tested against defect at the factory. Report any damages or shortages evident when the equipment is received to the commercial carrier who transported the equipment

INSTALLATION AND WIRING

WARNING

Hazardous voltage can cause severe injury or death. Lock all power sources feeding Drive in "OFF" position.

1. Disconnect all electrical power to Drive.
2. Remove Drive front cover. Check that "CHARGE" indicator lamp inside Drive is off.
3. Verify voltage has been disconnected by using a voltmeter to check for voltage at incoming power terminals (L1, L2, L3).
4. Remove contents from kit package and verify completeness (see Figure 1).
5. See Figure 2. Locate the proper drilling location for your Drive. Being careful not to damage any internal components, drill a 13/32" hole through the Drive enclosure. Remove any burrs from the drilled hole.

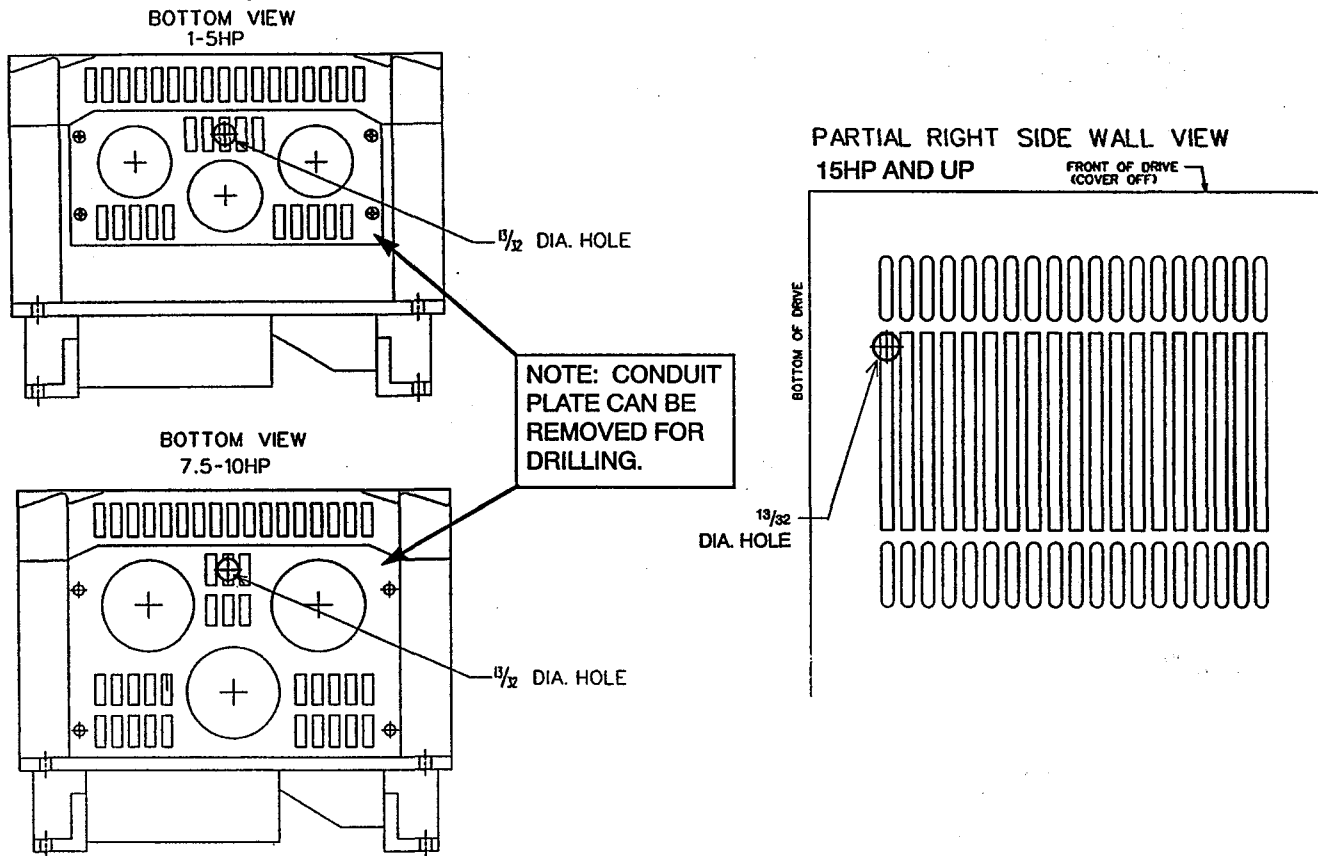


Figure 2. Drilling For Pneumatic Connection

Refer to Sheet 1 for latest change.

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6. See Figure 3. Thread the hose barb adapter into the inner adapter and tighten securely. Then insert the assembled hose barb and adapter, with flat washer, through the drilled hole from inside the Drive enclosure, and thread the second adapter on from the outside. Tighten securely.

7. Press one end of the vinyl tubing onto the hose barb of the transducer on the Pressure Sensor PCB.

8. See Figure 4. Install the Pressure Sensor PCB on the Main Control PCB, 1PCB, and ensure 3CN is properly connected. Connect the lead wire from the Pressure Sensor PCB to terminal 13 of the Drive.

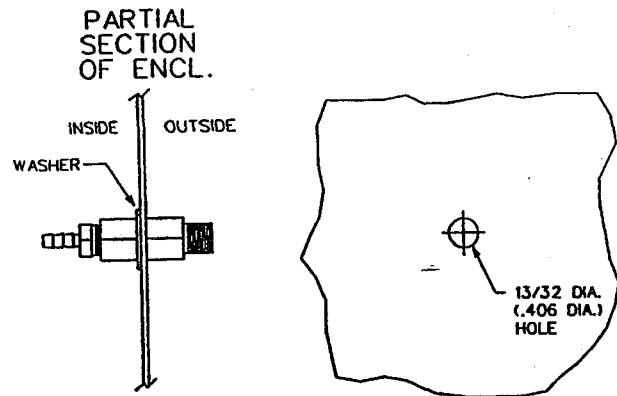


Figure 3. Installing Adapters

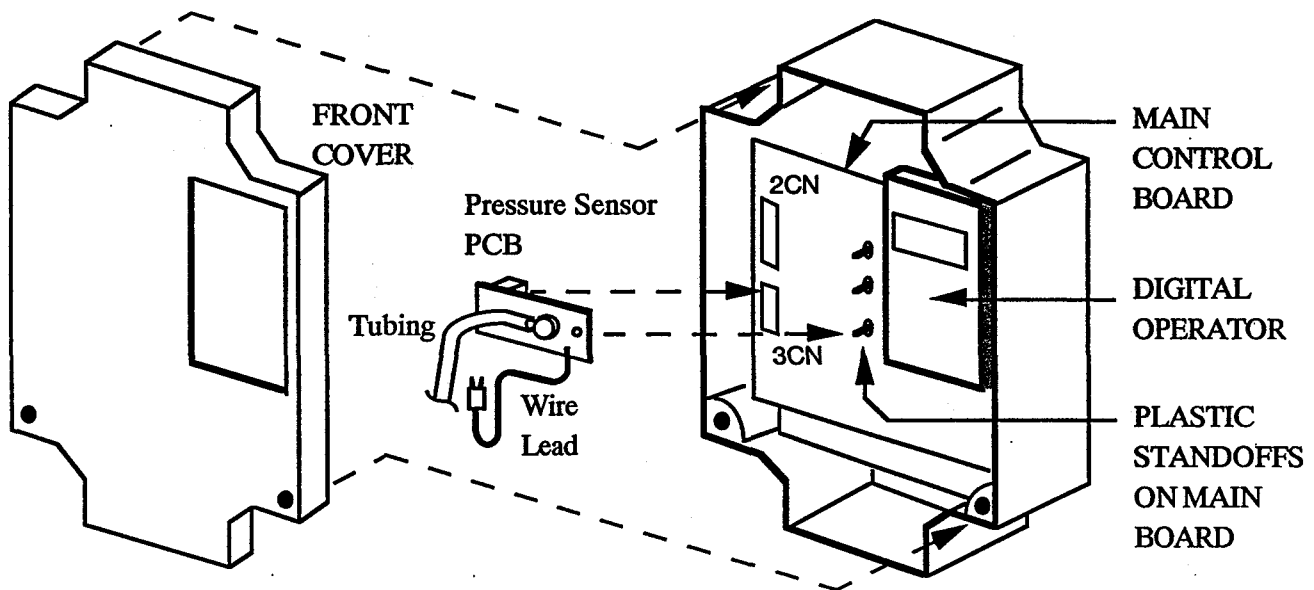


Figure 4. Installing Pressure Sensor PCB

9. Route tubing the best way to the barb fitting, cut off excess length and press onto the barb.

10. Connect the 3-15 PSI pneumatic signal to the adapter on the outside of the Drive enclosure.

11. Reapply power to the Drive.

12. Program the Drive to accept auto speed reference at terminal 13 by setting Sn-04 to **XXX0**. Preset bn-05 to **200.0 %** so that when the pneumatic input is at 15 PSI, the 5VDC maximum output of the transducer (i.e. 10VDC + 2) should command Fmax Drive output.

13. Adjustments. There are no adjustments to be made on the Sensor PCB; however, bn-05 and bn-06 must be programmed to achieve the proper auto speed reference signal from the 3-15 PSI pneumatic input. See Table 1 and Figures 5, and the flowchart of Sheet 5.

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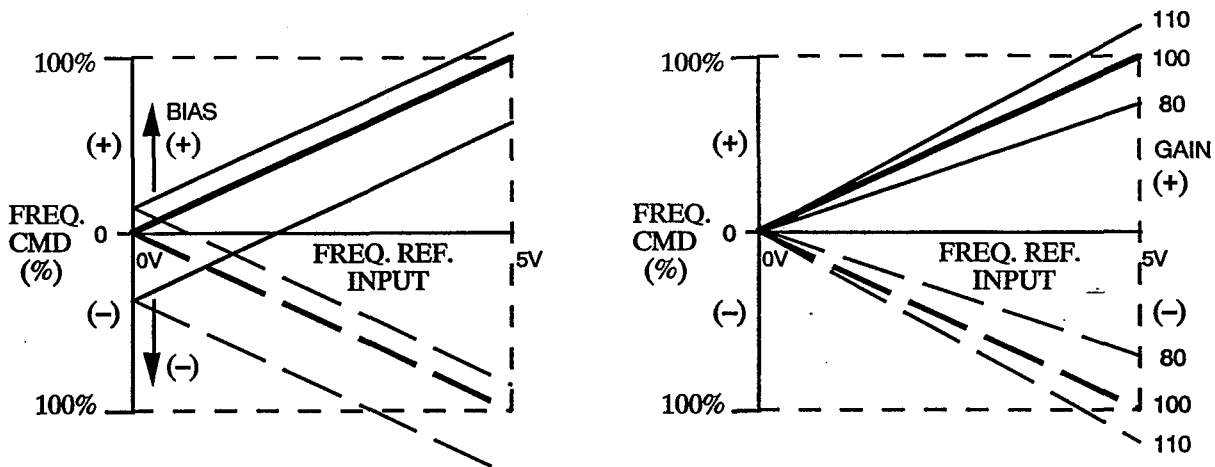


Figure 5. Frequency Command Gain and Bias for 3-15 PSI Sensor

Table 1. Setting Bias and Gain of Frequency Command

Constant No.	Description	Setting Range	Increment	Factory Setting
bn-05	Freq. Reference Gain	0.0 to 1000.0 (%)	1.0	100.0
bn-06	Freq. Reference Bias	-100 to 100 (%)	1	0

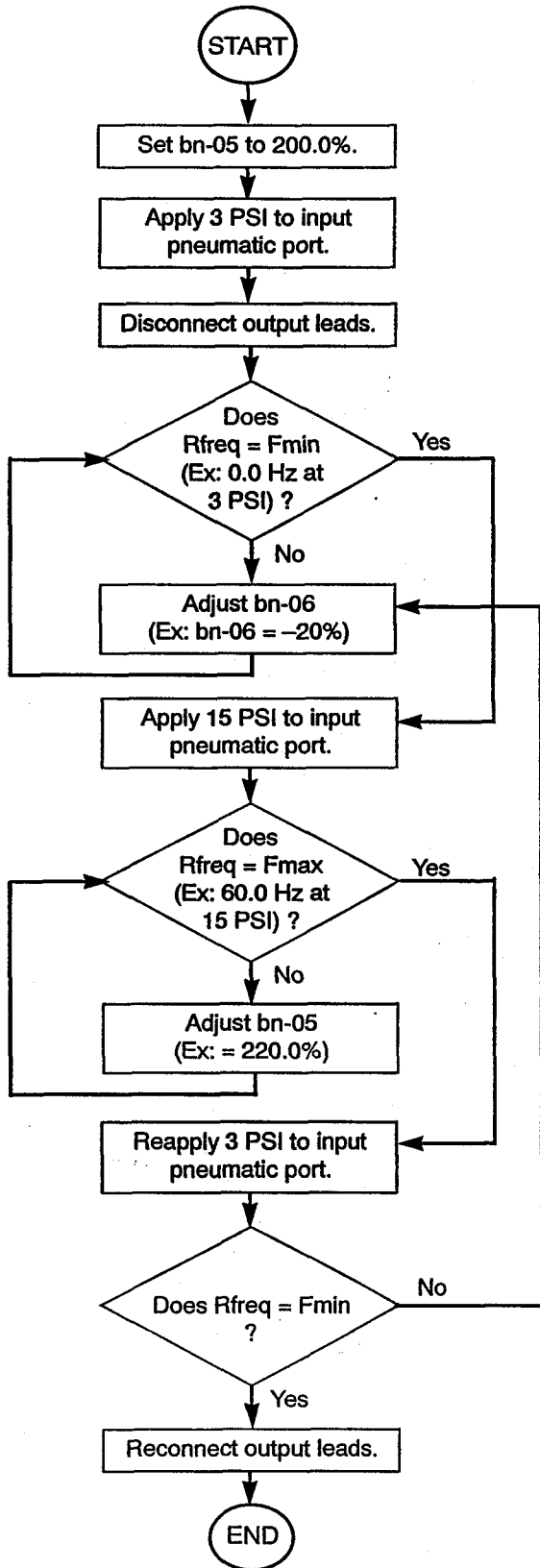
Example:

With pneumatic input signal at maximum (15 PSI), the frequency command (displayed on Digital Monitor) is only 28 Hz. To obtain 60 Hz maximum frequency command, the required correction factor (Gain) is $60 \text{ Hz} / 28 \text{ Hz} = 2.14286 = 214.3\%$. Therefore, program bn-05 setting to **214.3 (%)**. For further reference, see flowchart on Sheet 5.

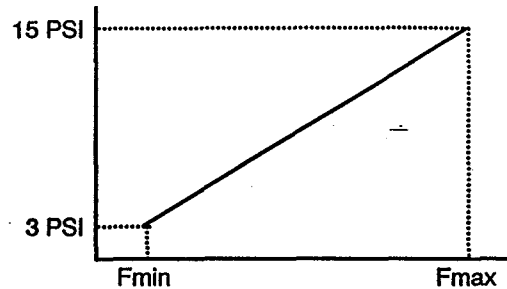
15. Replace and secure the front cover on the Drive.

This completes installation of this option. Place this instruction sheet with your Drive Technical Manual.

Flowchart For Programming Bias and Gain Settings



Input Pressure vs. Output Frequency



bn-05: Frequency Command Gain
 Factory Setting = 100.0 %
 Range = 0.0 to 1000.0 %

bn-06: Frequency Command Bias
 Factory Setting = 0 %
 Range = -100 to 100 %

NOTE: For best performance, do not overcompensate the bn-05 & bn-06 settings. If constants are overcompensated, the result may be reduced performance at Fmin and Fmax.

EXAMPLE:

Applying 3 PSI to the input pneumatic port results in a 1.2 Hz reference frequency. Adjusting bn-06 from 0% to -20% changes the reference frequency from 1.2 Hz to 0.0 Hz. If bn-06 is set to a value between -20% and -100%, the Bias will be overcompensating, and the Drive will not produce Fmin output until the pneumatic input rises to some value above 3 PSI. Similarly, overcompensating bn-05 will cause the Drive output to reach Fmax before the pneumatic input has reached 15 PSI.

