

FREQUENCY-TO-VOLTAGE (F/V) CONVERTER OPTION ASSEMBLY

46S02371-0200 SCHEMATIC 45S02371-0200

DESCRIPTION

This option is one of a series available for Louis Allis Saber DC drives. It consists of components necessary to achieve the frequency-to-voltage converter function.

The modification accepts uni-directional or bi-directional, single ended or differential incremental encoder (digital tach) signals and translates these pulse trains to a $\emptyset$ to $\pm 10V$ output signal to be used as a speed indicator. Uni-directional, single ended or differential input should use channel A only. Bi-directional uses both channels A and B. Polarity is such that forward direction (A leads B by 90°) yields positive output volts, and reverse direction (B leads A by 90°) yields negative output volts. The allowable maximum input frequency range is .25kHz to 25kHz.

INSTALLATION

WARNING

REMOVE ALL INPUT POWER TO THE DRIVE BEFORE INSTALLING OPTION COMPONENTS.

See Figure 1. Install the option in the following manner:

1. Install PVC mounting track (L.A. part no. 43T1501-0000) to panel where option is to be mounted, using appropriate hardware.
2. Install option assembly by pressing firmly into mounting track.
3. Using 40 conductor ribbon, fabricate and install a double-ended ribbon cable of sufficient length to fit from 12CONN on the right side of the option to 12CONN on the Main PCB in the regulator power cube, or to 12CONN on the

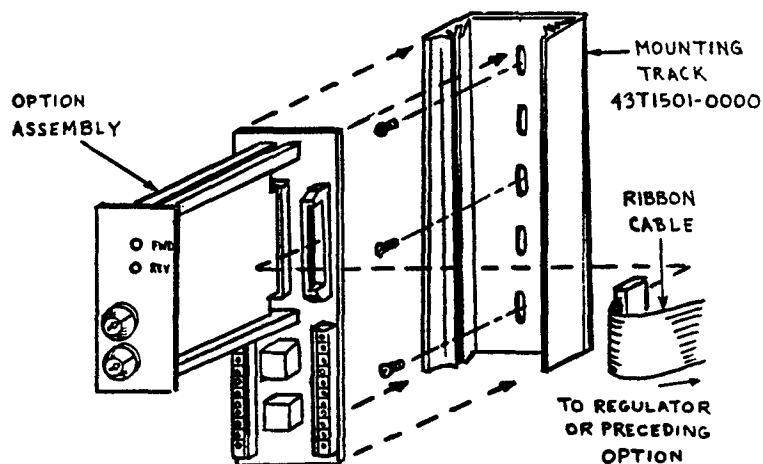


Figure 1.

CHANGE RECORD

STD-2666	2-3-87
2 STD-2718	3-17-87

DWG. NO. 02Y00025-0064
SHEET 1 OF 4
EFF. 8/19/82 (L)

left side of a previously installed option.

Cable 12CONN provides the power and signal interface between this option and the Controller 40 pin data bus.

INTERCONNECTION AND SETUP

Perform interconnection wiring according to Figure 2.

Refer to Table 1 for all setup switches which must be properly selected before using.

Table 1.

SWITCH	ON (CLOSED)	OFF (OPEN)
1SS (3)	Single Ended Input	Differential Input
1SS (4)	Disable Reverse Pulses	Enable Reverse Pulses
1SS (1)	Feed Output Volts To 12CONN (17)	Remove Output Volts From 12CONN (17)
1SS (2)	Disable Reverse Polarity Output	Enable Dual Polarity Output
2SS and 3SS	Use $\pm 15V$ Supply From 12CONN	Use External $\pm 15V$ Supply From 1TB (1)-(4)
4SS	Add 0.1uf Filtering Cap (See Note 1)	Use Internal 0.001uf Filtering Cap
5SS	Add 0.01uf Filtering Cap (See Note 1)	Use Internal 0.001uf Filtering Cap

NOTE 1: The value of the filtering capacitor added is a function of tach frequency input range. See Table 2 for 4SS and 5SS settings vs. tach frequency input ranges.

Table 2.

TACH FREQUENCY INPUT RANGES	4SS	5SS
1HZ - 250HZ	Closed (On)	Closed (On)
1HZ - 2.50HZ	Open (Off)	Closed (On)
1HZ - 25KHZ	Open (Off)	Open (Off)

ADJUSTMENTS

The adjustments provided on this option can be divided into two groups, offset adjustments and full scale adjustments.

A. Offset Adjustments:

1. With zero frequency applied, set F/V OFFSET ADJ (5RH) for 0.000V at 10TP.

2. Close 1SS(2) and set NEGATIVE OFFSET ADJ (3RH) for 0.000V at 11TP. Open 1SS (2).

3. Connect a jumper from 1TB(2) to 5TP (make sure 1SS(2) is open). Adjust POSITIVE OFFSET ADJ (4RH) for 0.000V at 6TP.

B. Full Scale Adjustments:

(Assume $\pm 10.00V$ is a desired full scale output):

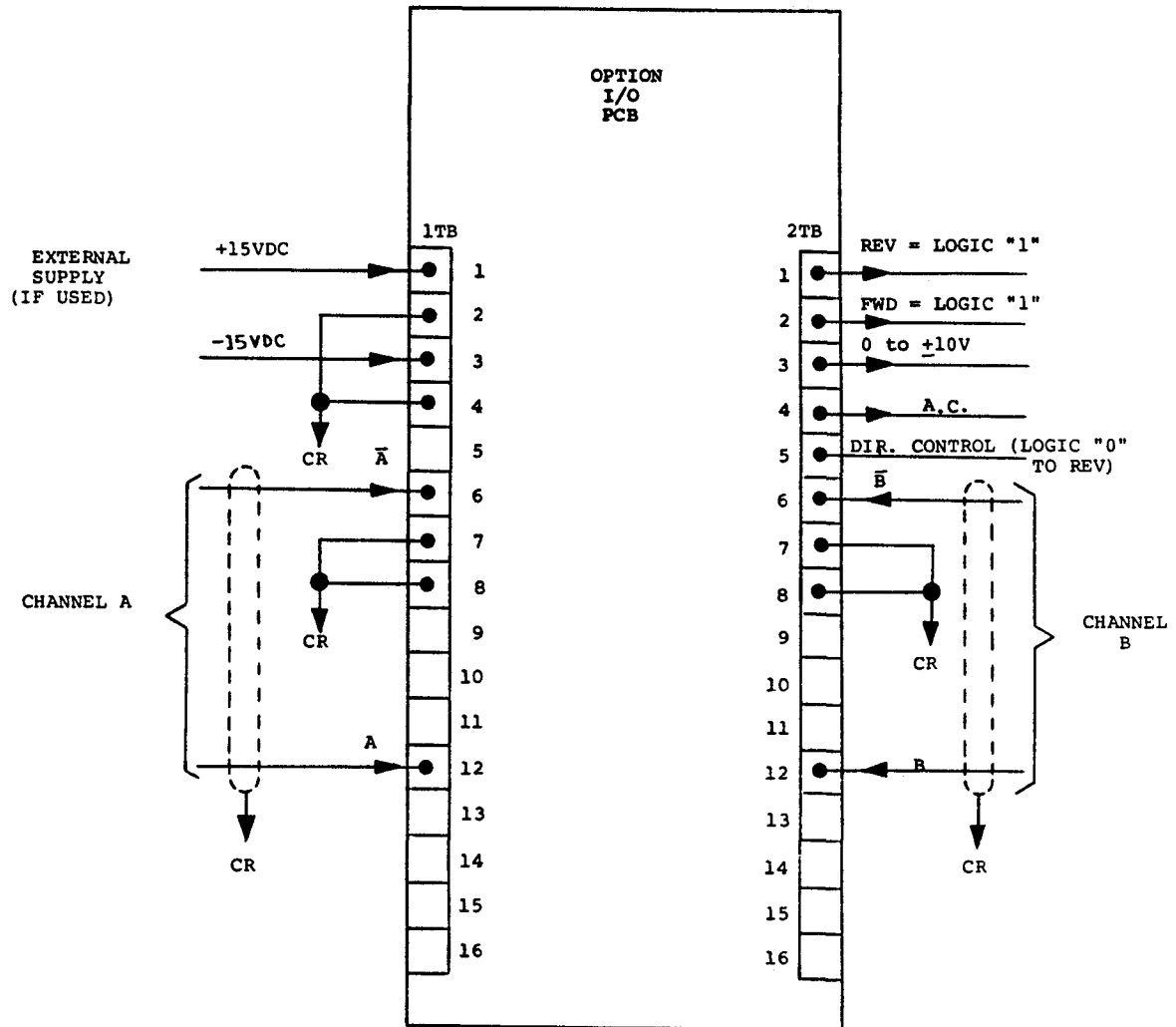
1. Set both COARSE FULL SCALE ADJ (1RH) and FINE FULL SCALE ADJ (2RH) at maximum (100%).

2. Apply maximum input frequency.

3. Turn 1RH counterclockwise until voltage at 6TP is $\pm 10.10V$.

4. Slowly turn 2RH counterclockwise for $\pm 10.000V$ at 6TP.

DWG. NO. 02Y00025-0064
SHEET 2 OF 4
EFF. 8/19/82 (L)



NOTES: CR = Digital Tach Common Return
 A.C. = Analog Common
 Logic "1" $\approx$ +15V
 Logic "0" $\approx$ 0V

Figure 2. Interconnection Diagram

DWG. NO. 02Y00025-0064
 SHEET 3 OF 4
 EFF. 8/19/82 (L)

TROUBLESHOOTING

If other options have been installed, troubleshoot them thoroughly before discarding this option as faulty.

If the frequency-to-voltage converter function can not be obtained, perform the following troubleshooting procedures:

1. Refer to the interconnection section of this instruction sheet and make sure that all connections and switch settings are proper for the application. Correct as required.

2. Make sure 2SS and 3SS are closed (on). If $\pm 15V$ supply is from 12CONN bus with power applied to the drive, measure $+15 VDC \pm 5\%$ at 7TP and $-15 VDC \pm 5\%$ at 9TP with respect to 8TP (common).

3. Uni-directional, single ended or differential tach input should use channel A only. If not, correct as required.

4. Replace the F/V Converter option.

OPTION RECORDS

After completing installation of this option, insert this instruction sheet immediately behind the front cover of the Controller instruction manual.

DWG. NO. 02Y00025-0064
SHEET 4 OF 4
EFF. 8/19/82 (L)