

For use with Saber DC Drives.

**POSITION REGULATED SPEED FOLLOWER (PRSF)  
OPTION ASSEMBLY**

**46S02371-0150 SCHEMATIC 45S02371-0150**

DESCRIPTION

This option is one of a series available for Louis Allis Saber DC drives. It monitors the difference between a position pot feedback and a machine mounted dancer pot feedback, and helps to trim the normal speed regulating function by generating current into the speed regulating node (comparator node).

The option provides relay logic ON/OFF control with 115 VAC/24 VDC interfacing, supply and connections for customer's external 10K ohm position and 1K ohm dancer potentiometers.

The position pot sets the neutral point about which the dancer pot operates. The response pot provides an anticipatory action during the time the dancer pot is making a change, i.e., it helps the system to regain its stability quickly.

The sensitivity pot determines the gain of the system, and the trim adjustment pot determines the levels of the trimming function, when 115 VAC/24 VDC is applied.

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.

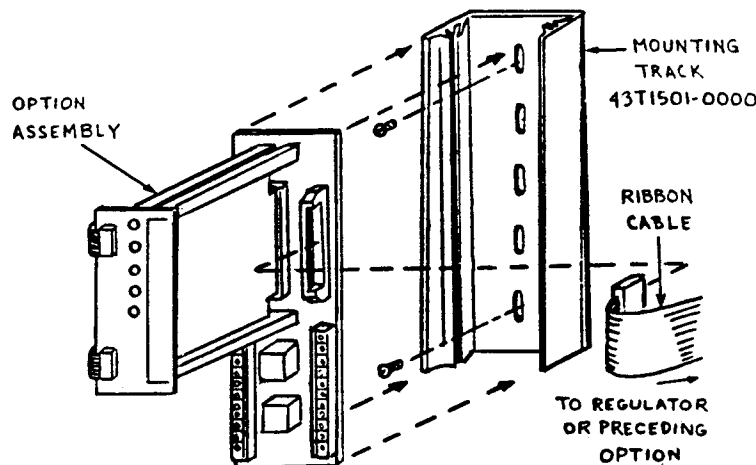


Figure 1.

**CHANGE RECORD**

1	STD-1383	1/13/82
2	STD-2666	2-5-82 R.R.

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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 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

This modification requires that a DANCER potentiometer be installed to the machinery for process control. The ohmic value of the DANCER potentiometer should be 1K ohms. Louis Allis part 05P00040-0192 is recommended.

An external POSITION potentiometer may be remotely installed to operate in place of 1RH on the Option assembly. This external potentiometer should be 10K ohms. Louis Allis part no. 43T00572-1033 is recommended. When installing this external pot, 2SS on the option MUST BE OPENED by turning the screw CCW.

Wire pots as follows:

FROM		TO
DANCER POT	CW	I/O PCB 1TB <b>1</b>
	WIPER	I/O PCB 1TB <b>2</b>
	CCW	I/O PCB 1TB <b>3</b>
EXTERNAL POSITION POT	CW	I/O PCB 1TB <b>4</b>
	WIPER	I/O PCB 1TB <b>5</b>
	CCW	I/O PCB 1TB <b>6</b>

CAUTION

INSURE THAT ELECTRICAL PARTS OF THE DANCER POTENTIOMETER AND POSITION POTENTIOMETER WHEN EXTERNALLY MOUNTED ARE ELECTRICALLY ISOLATED FROM THE CASE AND EARTH GROUND TO PREVENT DAMAGE TO THE EQUIPMENT.

DO NOT INSTALL A POTENTIOMETER HAVING MECHANICAL ROTATIONAL STOPS AS THE DANCER POTENTIOMETER.

Connect the ON/OFF control signal and install jumpers as listed below:

ON/OFF CONTROL	JUMPERS
115 VAC ±15% between 1TB <b>7</b> and 1TB <b>8</b>	Not Required
24 VDC ±15% between 1TB <b>7</b> (+) and 1TB <b>8</b> (-)	Across 7R and 8R on I/O PCB

ADJUSTMENTS

1. Set DANCER potentiometer to its center of travel.
2. Set POSITION pot (1RH or external) for zero volts at 12TP.
3. Set DANCER potentiometer at maximum travel.
4. Set SENSITIVITY potentiometer (3RH) for ±5V at 13TP.
5. With system running, adjust TRIM pot (4RH) for correct steady state Dancer movement.
6. Adjust RESPONSE pot (2RH) for damped transient response.

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#### NOTE

To increase the capability of response circuit, a proper capacitor can be mounted across 2TB [1] and 2TB [3], or a custom response circuit can be connected across 2TB [1] and 2TB [2].

#### TROUBLESHOOTING

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

If the desired action can not be obtained, perform the following troubleshooting steps:

1. With power applied to the drive, measure the following voltages with respect to common, 3TP.

±15 VDC ±5% at 1TP

-15 VDC ±5% at 2TP

2. As DANCER pot is moving from 0% to 100%, the voltage at 10TP should vary from 0 to +10 VDC ±15%.

3. As POSITION pot is moving from 0% to 100%, the voltage at 11TP should vary from 0 to +10 VDC ±15%.

4. Set POSITION pot at 0%, DANCER pot at 100%, and SENSITIVITY (3RH) at 0%. Voltage at 12TP should be -9.0 VDC ±15% and voltage at 13TP should be +7.94 ±15%.

#### OPTION RECORDS

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

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