



INSTRUCTION SHEET FOR
EXTERNAL-MOUNTING OPTION

MASTER RATIO MODULE

MODEL L722 **MODEL L723** **MODEL L777**
(FREQUENCY INPUT) (CURRENT SIGNAL INPUT) (VOLTAGE SIGNAL INPUT)

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

INTRODUCTION

The Master Ratio module, Model L722, converts a (master reference) frequency signal to DC voltage and produces five independent DC voltage (ratio) outputs, each with its own gain and bias adjustments.

The Master Ratio module, Model L723, converts a (master reference) 4-20mA current signal to DC voltage and produces five independent DC voltage (ratio) outputs, each with its own gain and bias adjustments.

The Master Ratio module, Model L777, accepts a master speed signal input, either AC or DC, and produces five independent DC voltage (ratio) outputs, each with its own gain and bias adjustments.

RECEIVING

All equipment is tested against defect at the factory. Report any damages or shortages evident when the equipment is received immediately to the commercial carrier who transported the equipment. Assistance, if required, is available from your MagneTek sales representative.

INSTALLATION

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. If being used with a 460V GPD 602, remove Drive front cover for access to terminals r1 and s1.
3. Verify that voltage has been disconnected by using a voltmeter to check for voltage at incoming power terminals.

IMPORTANT

This instruction sheet describes direct interconnection with GPD drives. Other applications are possible; interconnection should be modified as necessary for the specific installation.

4. Mount the Master Ratio module in the desired location (see dimensions in Figure 1).

CHANGE RECORD			
1	STD-4373	8-14-80	R.R.

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EFF. 3/10/89 (m-df)

Table 1. Specifications and Characteristics of Master Ratio, Model L722 or Model L723

Model		L722	L723
AC Power Supply		220 VAC (180 to 242 VAC), 50/60Hz across term. 2 & 4. 200 VAC (170 to 220 VAC), 50/60Hz across term. 3 & 4.	
AC Power Supply Capacity		Approx. 6VA	
Rated Input Signal		0-2KHz at terminals 7 & 8	4-20mA at terminals 7 & 8
Rated Input Resistance		1.2K Ω	250 Ω
Signal Voltage Level		Hi: 8.4 V min.; Lo: 1.4 V max.	—
Output Characteristics (5 independent outputs)	Rated Output Signal	+10V, 2.5mA	
	Rated Min Load Resistance	4K Ω	
	Ratio Setting Range	0 to 100%	
	Bias Setting Range	$\pm 30\%$	
	Zero-point Offset Voltage	± 30 mV max.	
	Zero-point Temperature Drift	1mV/ $^{\circ}$ C max.	
	Input/Output Linearity	.2% max.	
Operation Temperature		-10 to +55 $^{\circ}$ C	
Storage Temperature		-40 to +85 $^{\circ}$ C	

Table 2. Specifications and Characteristics of Master Ratio, Model L777

AC Power Supply		220 VAC (180 to 242 VAC), 50/60Hz across term. 2 & 4. 200 VAC (170 to 220 VAC), 50/60Hz across term. 3 & 4.	
AC Power Supply Capacity		Approx. 6VA	
Input Signal Characteristics	AC Input Signal	Shunt Selectors	S-1, S-3, S-5 (factory set)
		AC Input Voltage	242 VAC, 60Hz or 220 VAC, 50Hz max. at term. 6 & 8
		AC Input VA	Approx. 0.3 VA (220V, 60Hz)
	AC Tach-Gen Input Signal	Shunt Selectors	S-1, S-3, S-5 (factory set)
		AC Input Voltage	50 VAC max. at term. 7 & 8 (V/F 30V/50Hz)
		AC Input VA	1Approx. 0.1 VA (35V, 540Hz)
	DC Voltage Signal	Shunt Selectors	S-2, S-4, S-6
		Input Voltage	± 10 VDC, 2.5mA
		Input Resistance	Approx. 4K Ω
Output Characteristics (5 independent outputs)	Rated Output Signal	+10V, 2.5mA	
	Rated Min Load Resistance	4K Ω	
	Ratio Setting Range	0 to 100%	
	Bias Setting Range	$\pm 30\%$	
	Zero-point Offset Voltage	± 30 mV max.	
	Zero-point Temperature Drift	1mV/ $^{\circ}$ C max.	
	Input/Output Linearity	1% max.	
Operation Temperature		-10 to +55 $^{\circ}$ C	
Storage Temperature		-40 to +85 $^{\circ}$ C	

Refer to Sheet 1 for latest change.

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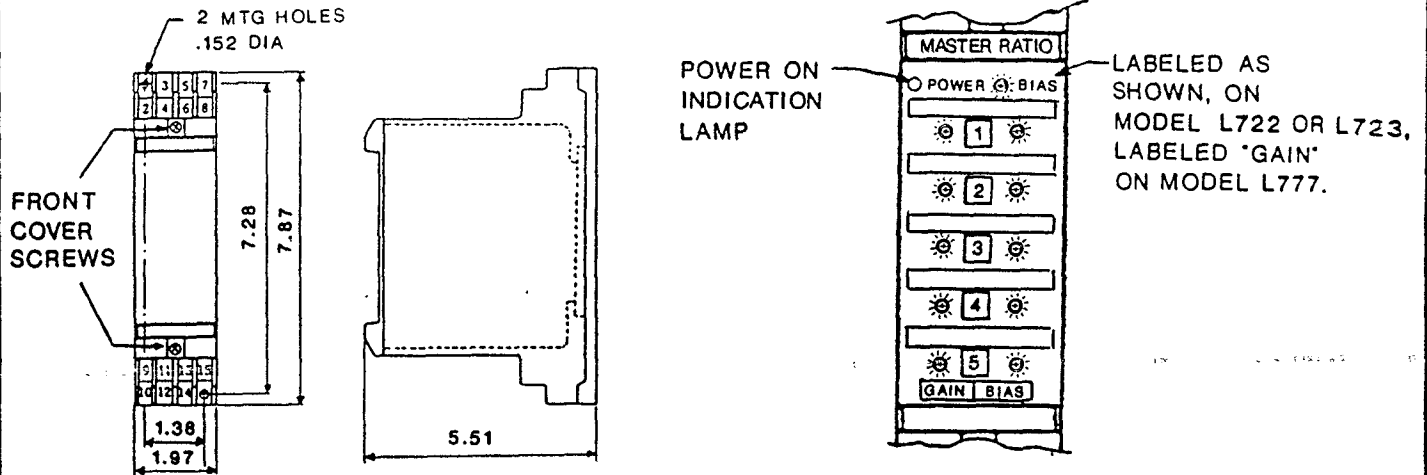


Figure 1. Master Ratio Module

IMPORTANT

If Master Ratio module Model L777 is to be used with a DC voltage signal input, - loosen the front cover screws, pull out the circuit board and switch over the shunt selectors (see Figure 2) from S-1 to S-2, from S-3 to S-4, and from S-5 to S-6. Then secure the module and tighten the front cover screws.

5. Make connections according to the appropriate connection diagram - see Figures 3 thru 6.

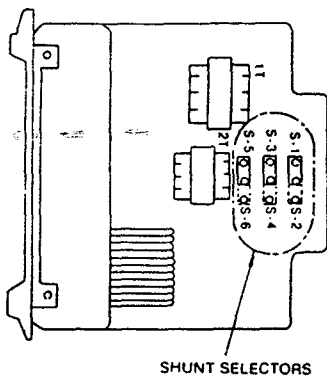
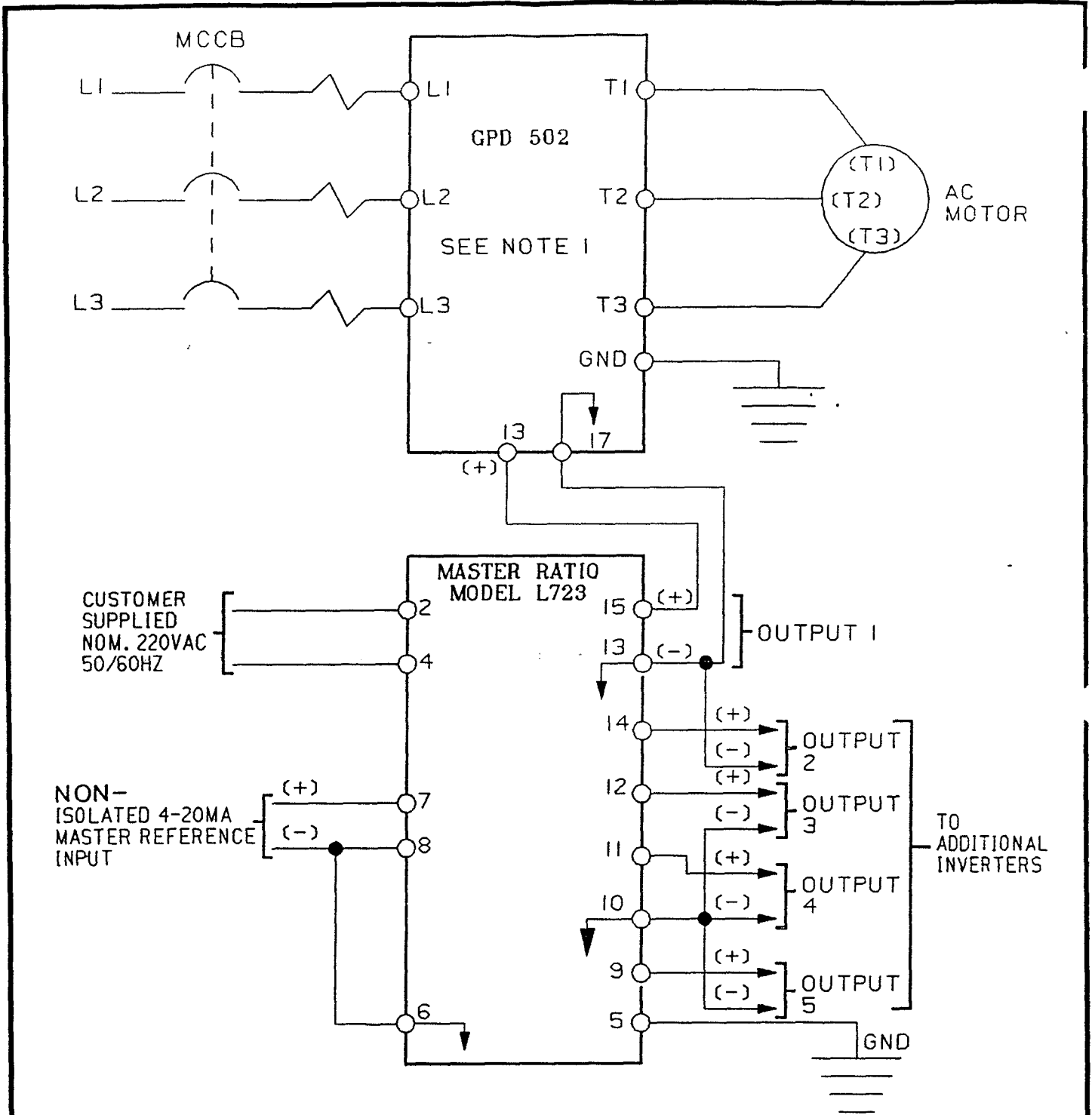


Figure 2. Model L777 Shunt Selectors



NOTES

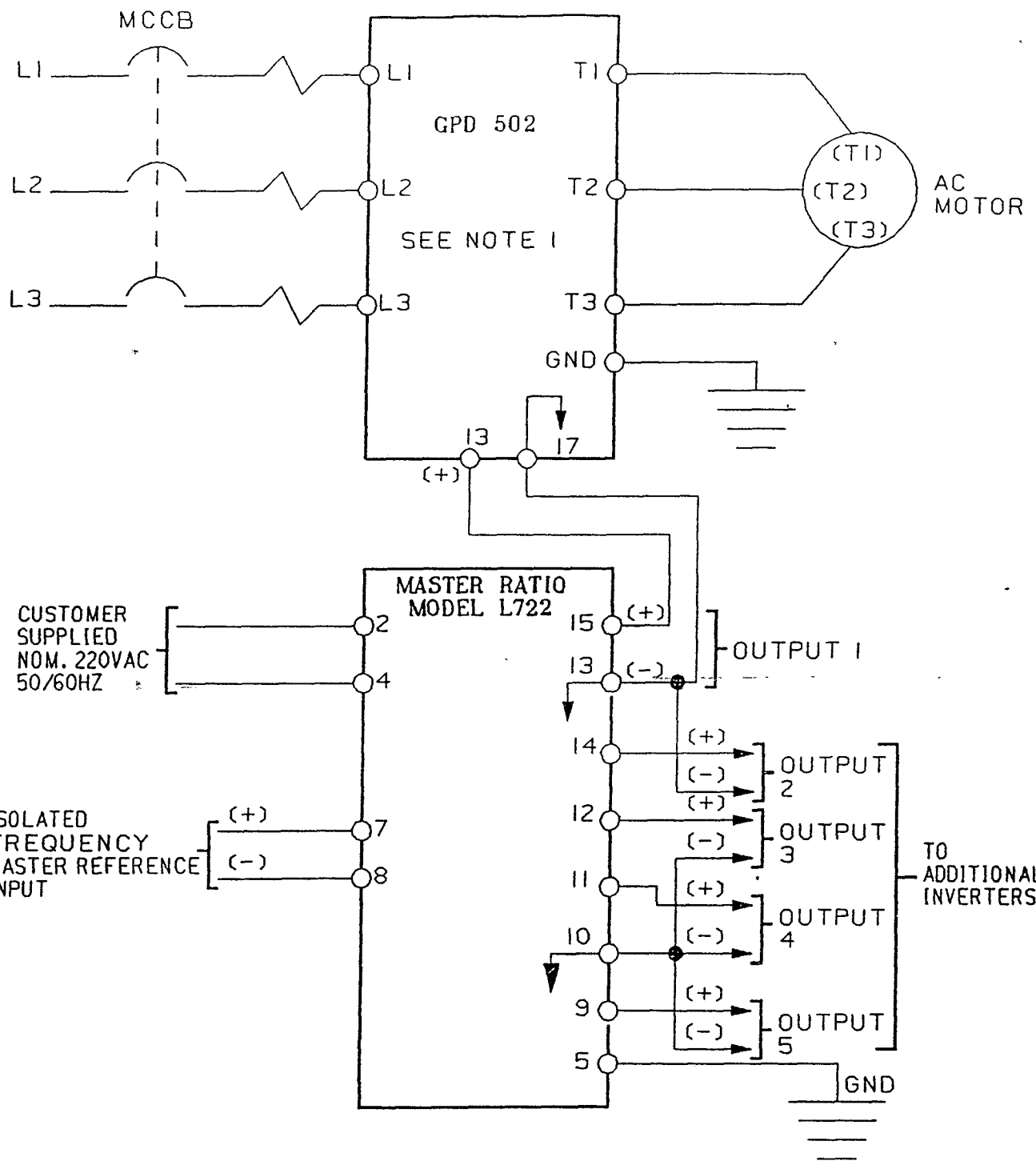
1. FOR REQUIRED CONSTANT SETTING, REFER TO INSTALLATION STEP 6A.

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Figure 3. Connection of Master Ratio Model L723 With GPD 502

Refer to Sheet 1 for latest change.

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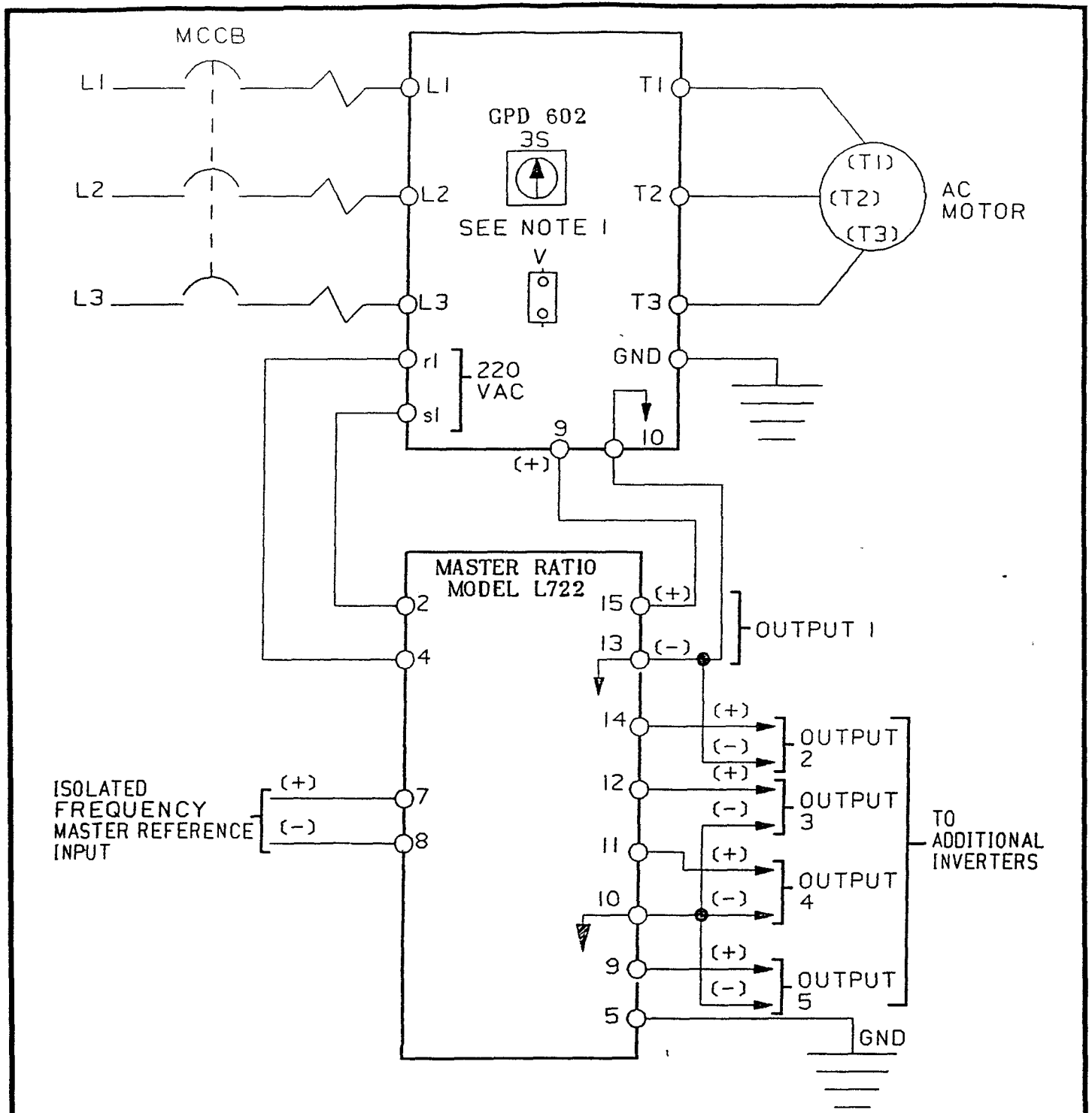
NOTES

I. FOR REQUIRED CONSTANT SETTING, REFER TO INSTALLATION STEP 6A.

Figure 4.1. Connection of Master Ratio Model L722 With GPD 502

Refer to Sheet 1 for latest change.

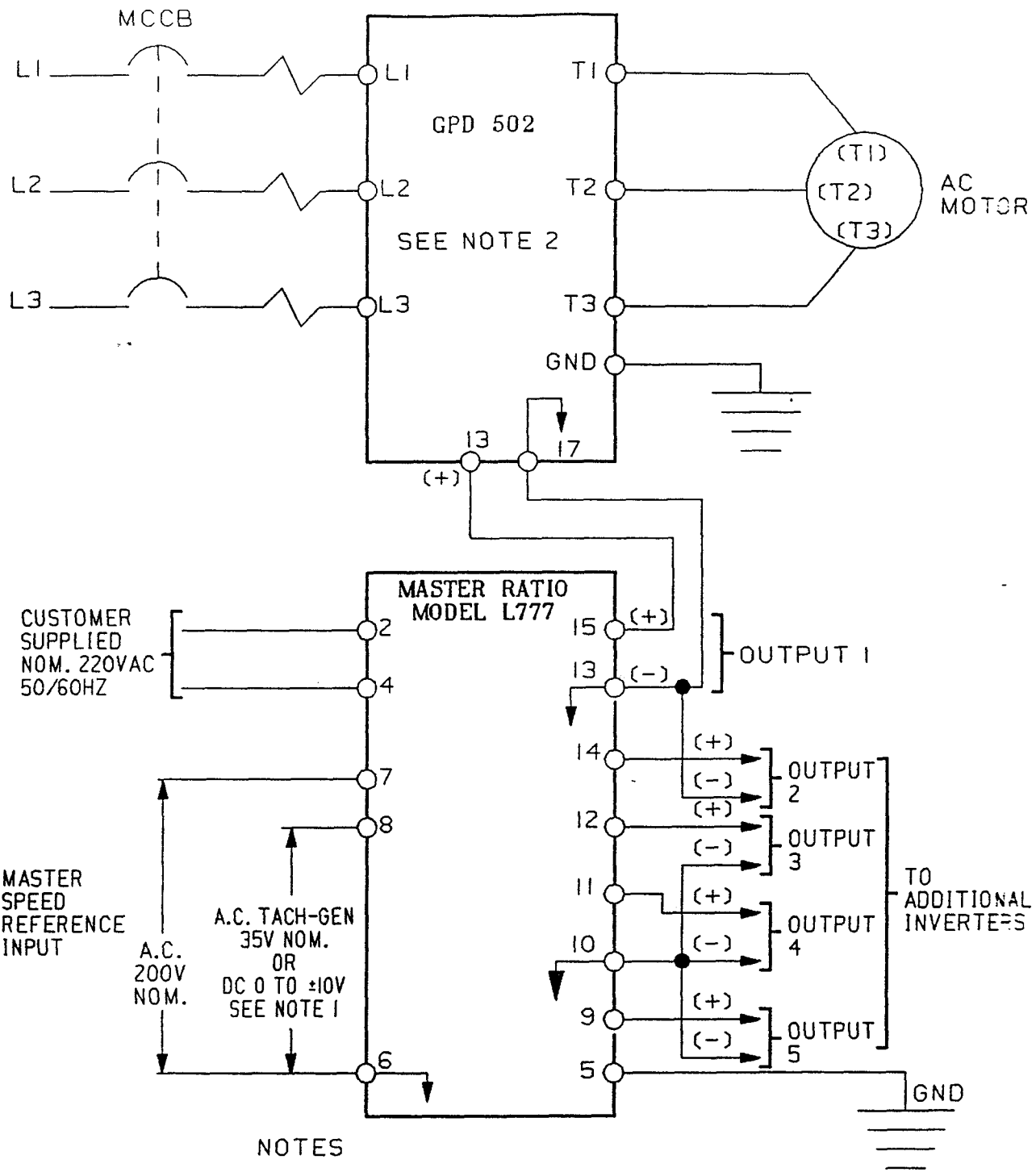
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NOTES

1. FOR CORRECT SETTING OF 3S, REFER TO INSTALLATION STEP 6B.

Figure 4.2. Connection of Master Ratio Model L722 With GPD 602

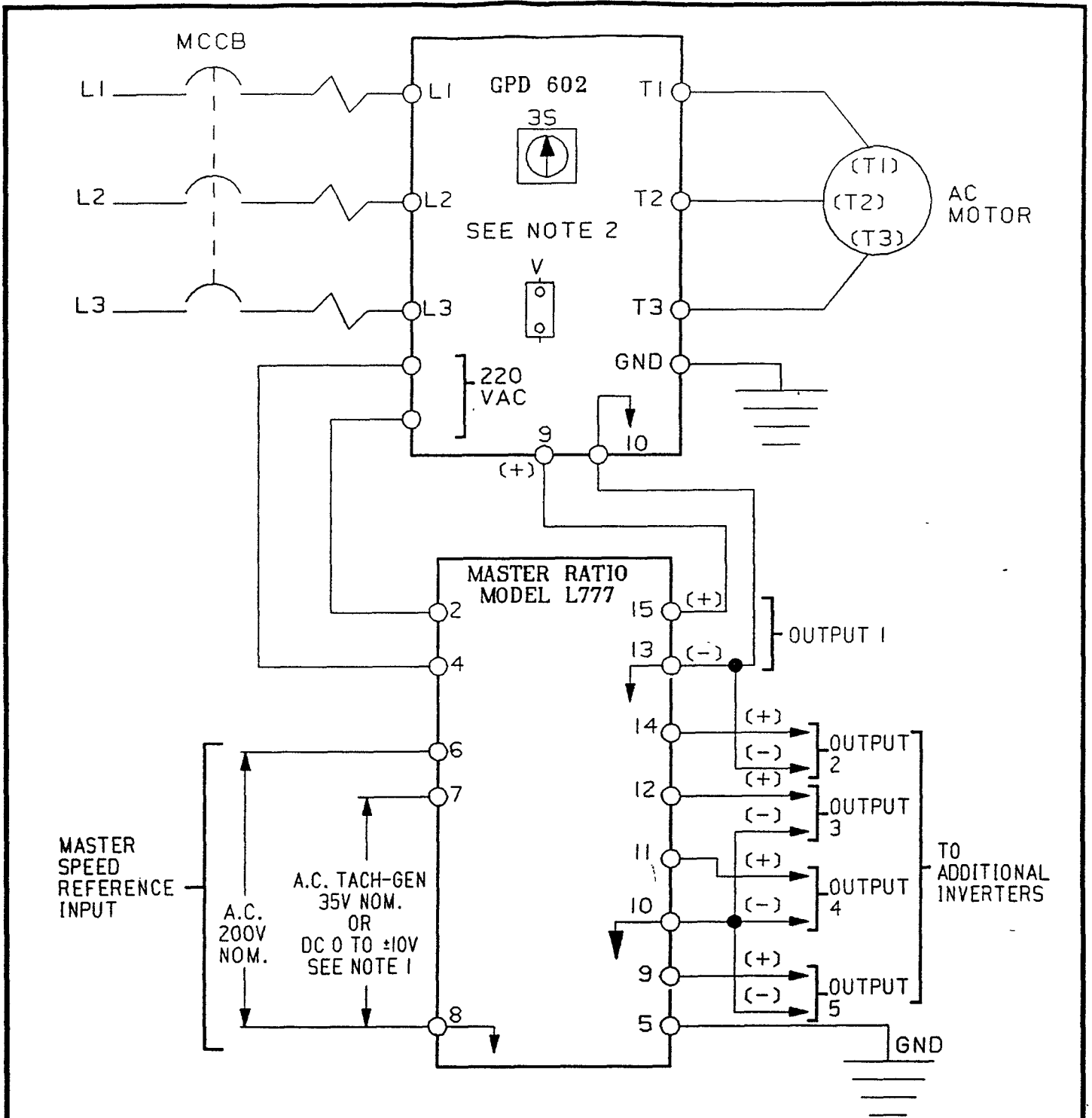


NOTES

1. TO USE INVERTER VOLTAGE SOURCE FOR PRODUCING DC INPUT REFERENCE SEE FIGURE 7.
2. FOR REQUIRED CONSTANT SETTING, REFER TO INSTALLATION STEP 6A.

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Figure 5. Connection of Master Ratio Model L777 With GPD 502

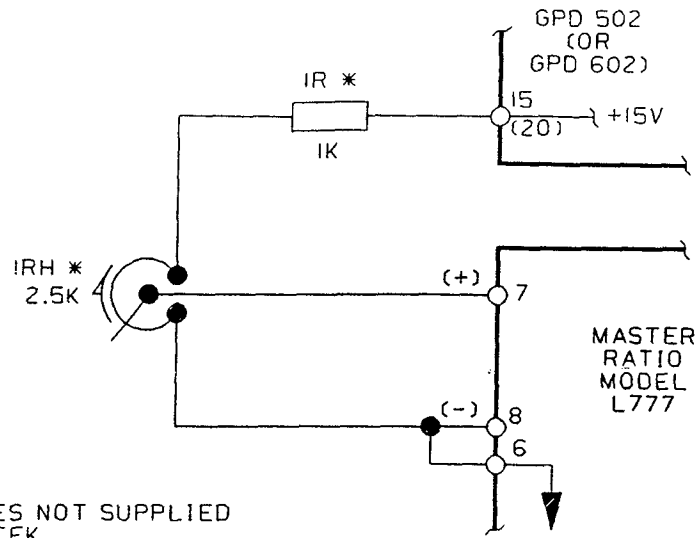


2Y25.285.FIG6

Figure 6. Connection of Master Ratio Model L777 With GPD 602

Refer to Sheet 1 for latest change.

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TD 1.2Y25.285.FIG7

Figure 7. 0 to 10 VDC Master Reference Circuit Using GPD +15V Supply

6. Inverter Setup Requirements

A. GPD 502

If Direct Proportional control is required (Figure 8), set system constant Sn-04 to 0000.

If Inverse Proportional control is required (Figure 8), set Sn-04 to 0100.

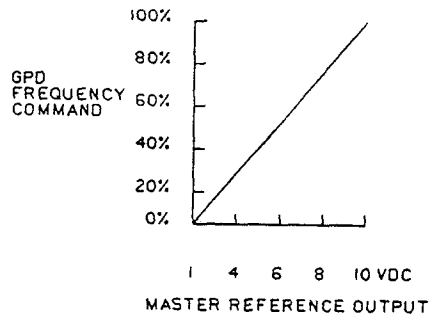
Refer to the GPD 502 Technical Manual for constant setting instructions.

B. GPD 602

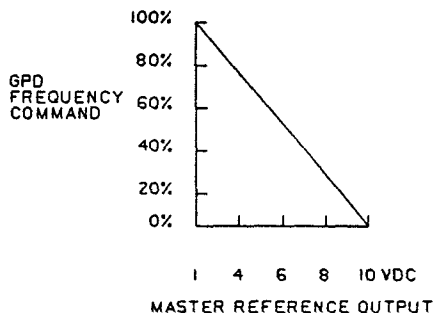
If Direct Proportional control is required, switch 3S on the Control PCB should remain at the factory setting of "0" with EPROM 503302 and above present (e.g NSH503305; P/N 97S01000-0001), or "F" with EPROM 500707 and above (e.g. NSH5a00712; P/N 97S01200-0001).

If Inverse Proportional control is required, set switch 3S to "C" with EPROM 500707 and above. (Inverse Proportional control cannot be used with EPROM 503302 and above.)

(A) DIRECT PROPORTIONAL



(B) INVERSE PROPORTIONAL



2Y25.285.FIG8

Figure 8. Master Reference/Inverter Frequency

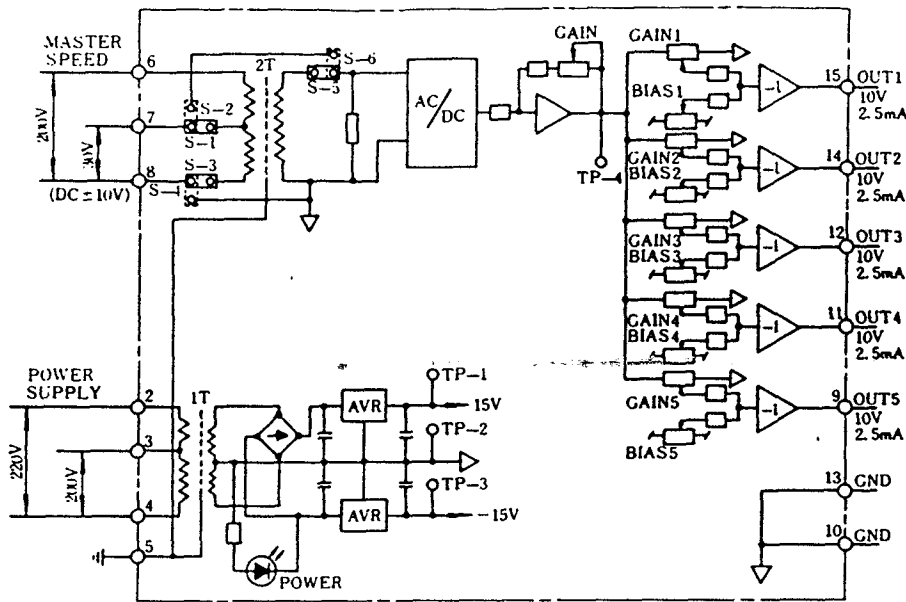


Figure 10. Master Ratio Model L777 Schematic

Regardless of whether the DC input is positive or negative polarity, the output of the AC/DC converter circuit is the same 0 to 10 VDC produced from an AC input signal.

The 0 to 10V signal is then applied to five independent ratio circuits, each with its own GAIN and BIAS adjustments. Each output signal can be adjusted in the range of 0-100% (gain), with $\pm 30\%$ bias.

9. Setting AC/DC Converter Gain (Model L777)
(Ref. Figure 11)

Before making output signal adjustments, check that the AC/DC converter output is correct. With maximum master reference signal applied to the module, measure for +10 VDC from terminal 15 (+) to terminal 10 (-). If necessary, adjust the "GAIN" potentiometer (through access hole next to "POWER" LED) to obtain the correct voltage.

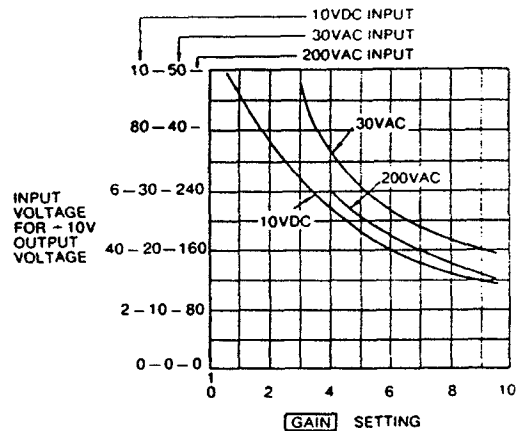


Figure 11. AC/DC Gain Adjustment

10. Setting Bias and Gain of Outputs

NOTE

Master Ratio modules are shipped with all output "GAIN" potentiometers set to maximum and "BIAS" potentiometers adjusted for 0 VDC output at minimum (0%) master speed input.

Refer to Figure 12. Make adjustments for each of the outputs that will be used. With master speed signal at minimum (0%), adjust the output's "BIAS" potentiometer to obtain the desired minimum output voltage.

Then increase the master reference signal to maximum, and adjust the output's "GAIN" potentiometer to obtain the desired maximum (100%) output voltage level and/or ratio profile.

NOTE

Space is provided on the front of the module so that each output can be labeled as desired.

11. Reinstall and secure front cover on GPD 602 drive, if removed per Step 2.

12. Place this instruction sheet with your Drive's Technical Manual.

This completes installation of this module.

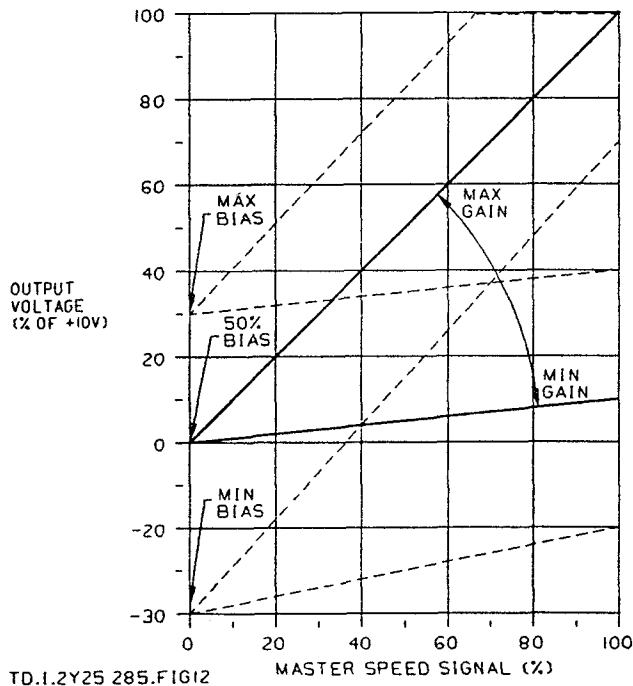


Figure 12. Output Bias and Gain Adjustments