



GE Fanuc Automation

Programmable Control Products

Series 90TM Universal Simulator

User's Manual

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Warnings, Cautions, and Notes as Used in this Publication

Warning

Warning notices are used in this publication to emphasize that hazardous voltages, currents, temperatures, or other conditions that could cause personal injury exist in this equipment or may be associated with its use.

In situations where inattention could cause either personal injury or damage to equipment, a Warning notice is used.

Caution

Caution notices are used where equipment might be damaged if care is not taken.

Note

Notes merely call attention to information that is especially significant to understanding and operating the equipment.

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CIMPLICITY 90-ADS	Helpmate	Series Five	Workmaster
CIMSTAR	Logicmaster	Series 90	

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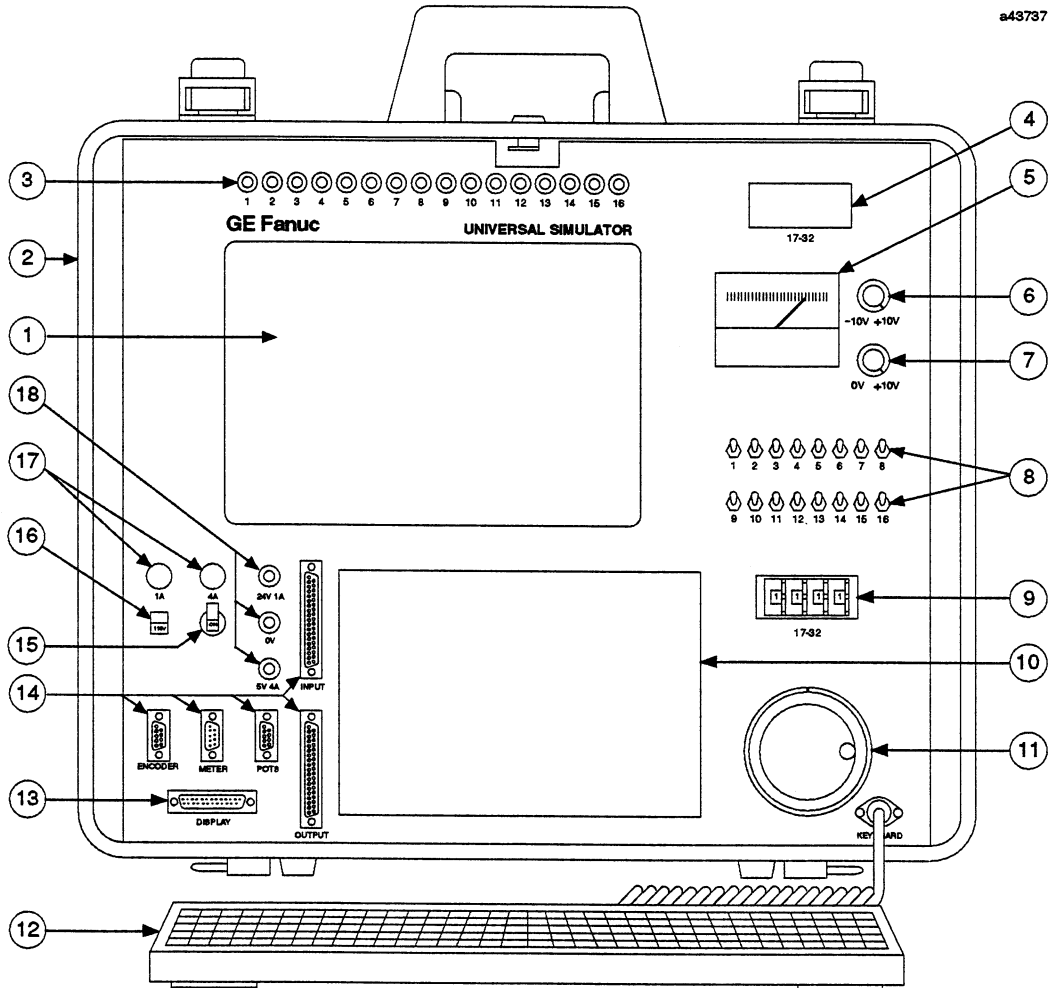
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1. INTRODUCTION

The Universal Simulator is used as a sales aid to better demonstrate the capabilities of GE Fanuc PLC products.

It contains the following:



- | | | |
|----------------------------------|--|--|
| ① VT220 OR VT100
TERMINAL | ⑦ 0V to +10V THREE TURN POT | ⑬ TERMINAL INTERFACE
RS-232 |
| ② CARRY CASE | ⑧ DOUBLE THROW SWITCHES
(QTY 16) | ⑭ INPUT / OUTPUT
CONNECTORS (QTY 5) |
| ③ 24V LED's (QTY 16) | ⑨ 4 DIGIT BCD THUMBWHEEL | ⑮ CIRCUIT BREAKER
POWER PROTECTION |
| ④ 4 DIGIT BCD DISPLAY | ⑩ BLANK PANEL
(FOR CUSTOM ADDITIONS) | ⑯ DUAL VOLTAGE INPUT
(115V AND 230V AC) |
| ⑤ -10V to +10V
ANALOG METER | ⑪ HANDWHEEL CONTROLLED
A QUAD B ENCODER | ⑰ FUSES FOR
VOLTAGE JACKS |
| ⑥ -10V to +10V
THREE TURN POT | ⑫ KEYBOARD | ⑱ VOLTAGE OUTPUTS
+24V, +5V, 0VDC |

When teamed up with the Series 90-30 or Series 90-70 Demonstration Case, this simulator provides the tools to put on a very effective sales presentation. The Series 90-30 and 90-70 Demonstration Cases each contain predesigned demonstration programs specifically designed to operate with this simulator.

For permanent installations in a Demonstration Room or Class Room, the simulator may be removed from the case and rack mounted in a 19 inch rack.

This simulator can also be effectively used with any GE Fanuc PLC that can be fitted with 24v DC source input and output modules and an ASCII basic module with an RS-232 interface port.

2. UNPACK/INSTALL

2.1. Packing List

The Simulator package contains:

- Fully assembled and tested Universal Simulator
- Keyboard stored in case lid.
- This instruction manual

2.2. Minimum Requirements

To make effective use of this simulator, it is assumed that it will be connected to a Series 90-30 PLC or 90-70 PLC Demonstration Case using the prewired cables.

To effectively use this simulator with other GE Fanuc PLCs, the plc should contain the following modules:

- Ascii basic module with RS-232 port
- 32 points of 24v DC source output
- 32 points of 24v DC source input
- -10v to +10v DC analog output
- -10v to +10v DC analog input
- 0 to 10v DC analog input
- A quad B high speed counter input

2.3. Physical Description

The Universal Simulator is contained in an aluminum case for easy portability. All the features listed in the introduction are mounted on a removable panel which can be mounted in a 19 inch rack for permanent installations. In the lower center of the Simulator is an option panel which can be used to mount custom hardware. The specifications for this panel are included in this manual for anyone who may want to make additional option panels. A keyboard is also supplied which is stored in a compartment in the case lid for transportability.

2.4. Pre-Installation Setup/Checkout

There are no pre-installation setup requirements. It is however recommended that the complete simulator be inspected for shipping damage before it is first powered up.

2.5. Installation

2.5.1. Portable Use

- Open and remove the case lid.
- Remove the keyboard from the lid and plug the keyboard into the keyboard connector.
- Make sure the 115/230 volt switch is set to the proper setting
- Plug the simulator into a power source.
- Plug in the PLC interface cables as needed.
- Turn the simulator on.

2.5.2. Permanent Installation

- Open and remove the case lid.
- Remove the simulator from the case and save the panel extensions for possible future use.
- Mount the simulator in a 19 inch rack.
- Remove the keyboard from the lid and plug the keyboard into the keyboard connector.
- Make sure the 115/230 volt switch is set properly.
- Plug the simulator into a power source.
- Plug in the PLC interface cables as needed.
- Turn the simulator on.

2.6. Power Up / Verification

When the simulator is first turned on the following should happen:

- The screen should flash on and then go blank for a few seconds and then a cursor should appear in the upper left corner.
- The BCD display should show 0000 or some other number.

If both of these things do not happen, you may have trouble. Refer to the section - In Case of Trouble.

3. SETUP

There is no further setup required.

4. OPERATION

Follow the demonstration program instructions for operation of the simulator. There are no special additional requirements.

5. IN CASE OF TROUBLE

Refer to the wiring diagrams that follow if troubleshooting is required.

Also included are all the connector pinouts.

5.1 RS-232 Port Setup

The RS-232 port on the PCM is setup as follows:

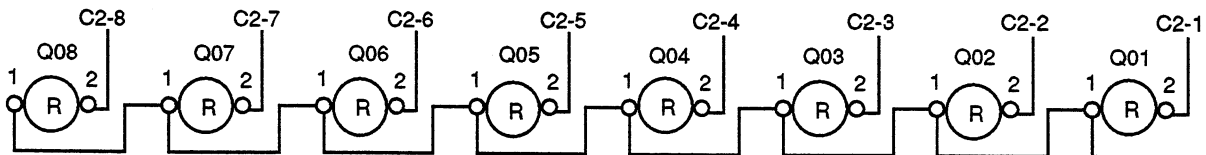
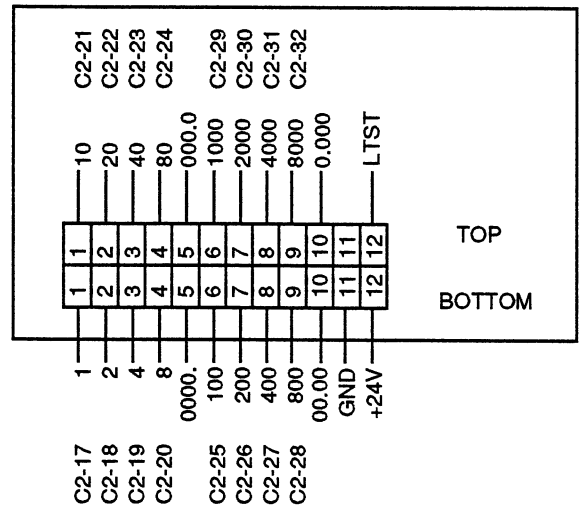
- Full duplex
- 19.2k baud
- 8 bit
- No parity
- 1 stop bit
- Software flow control

5.2 Wiring Diagrams

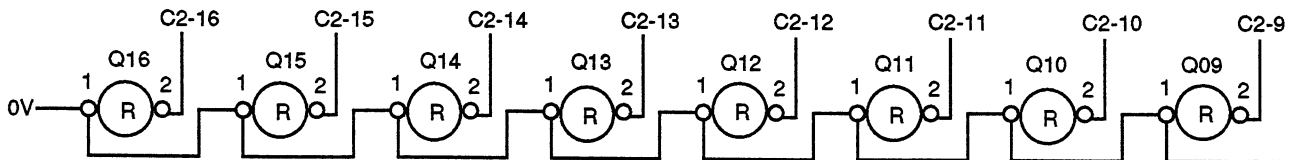
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C2	OUTPUT	37	PIN	F
1	Q01	17	1	
2	Q02	18	2	
3	Q03	19	4	
4	Q04	20	8	
5	Q05	21	10	
6	Q06	22	20	
7	Q07	23	40	
8	Q08	24	80	
9	Q09	25	100	
10	Q10	26	200	
11	Q11	27	400	
12	Q12	28	800	
13	Q13	29	1000	
14	Q14	30	2000	
15	Q15	31	4000	
16	Q16	32	8000	
		33	24V	
		34		
		35		
		36	0V	
		37		

(BACK VIEW)
BCD DISPLAY



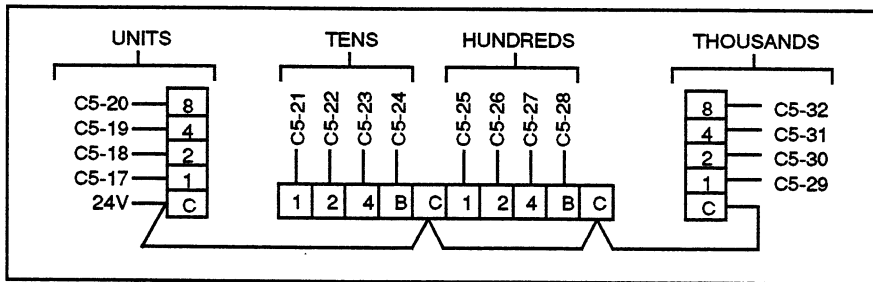
(BACK VIEW)
LEDs



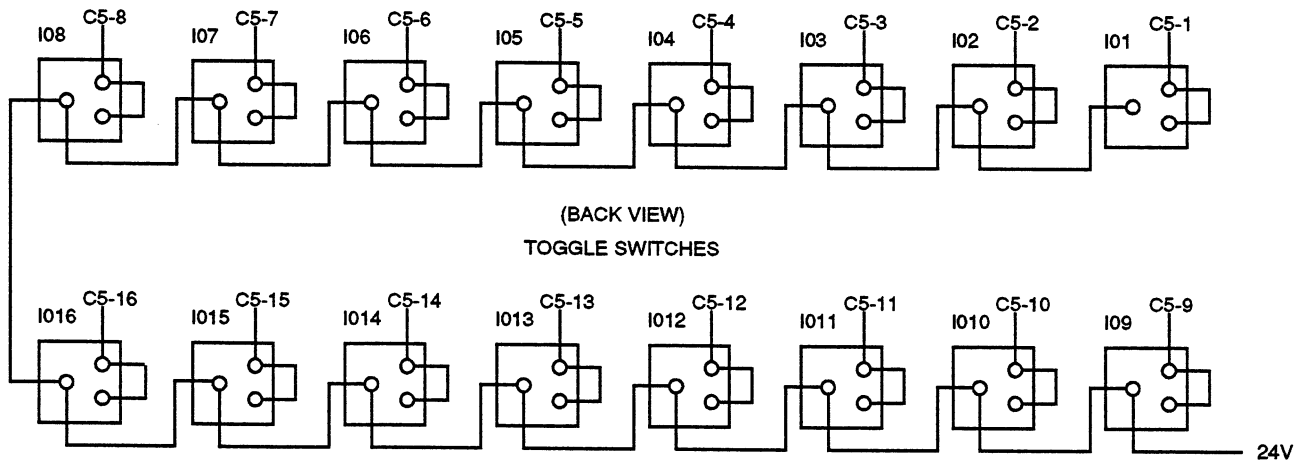
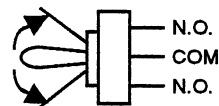
C5 INPUT
37 PIN F

1	I01	17	TW1
2	I02	18	TW2
3	I03	19	TW4
4	I04	20	TW8
5	I05	21	TW10
6	I06	22	TW20
7	I07	23	TW40
8	I08	24	TW80
9	I09	25	TW100
10	I10	26	TW200
11	I11	27	TW400
12	I12	28	TW800
13	I13	29	TW1000
14	I14	30	TW2000
15	I15	31	TW4000
16	I16	32	TW8000
		33	
		34	24V
		35	0V
		36	
		37	

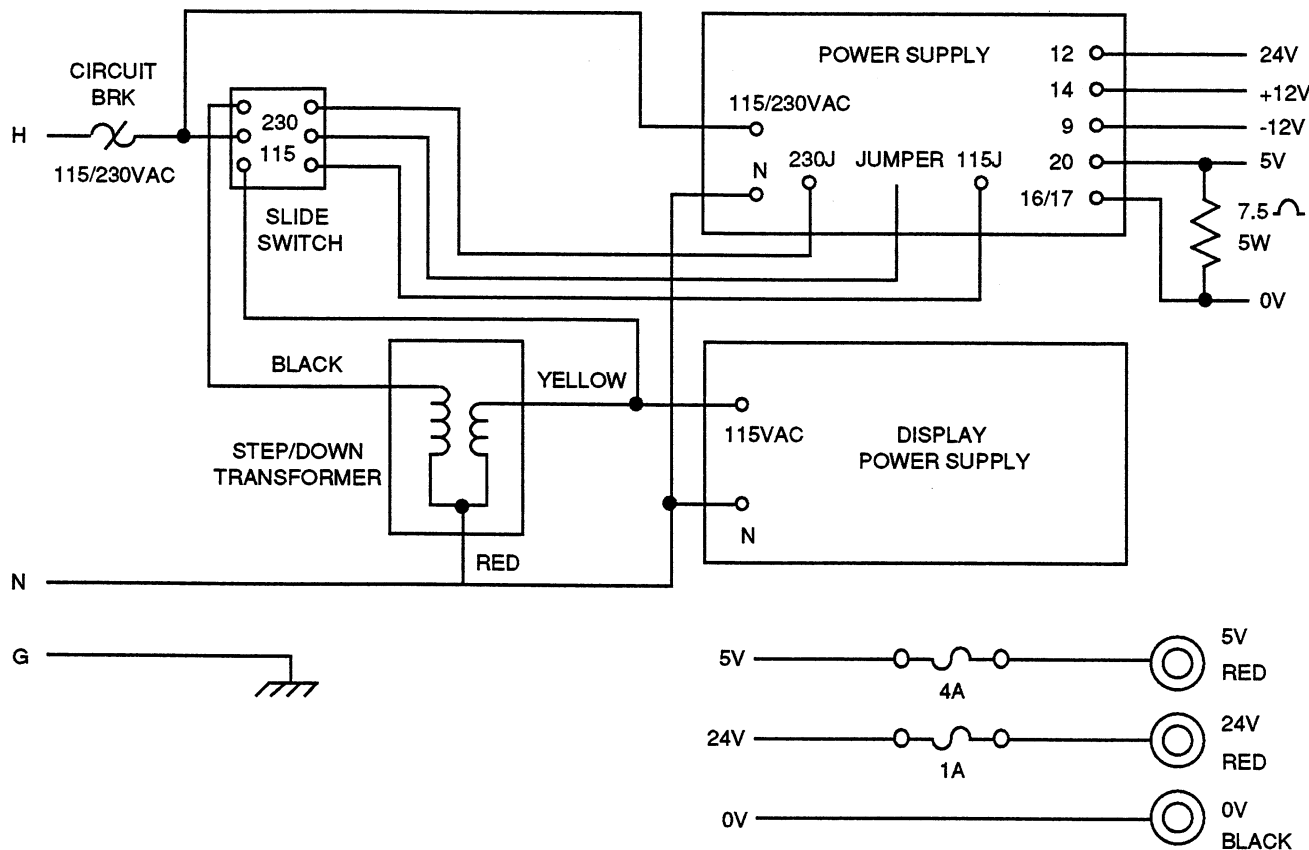
(BACK VIEW)
THUMBWHEEL SWITCH



TOGGLE SWITCH TO
BE MOUNTED WITH
MOMENTARY IN
LOWER POSITION



a43867



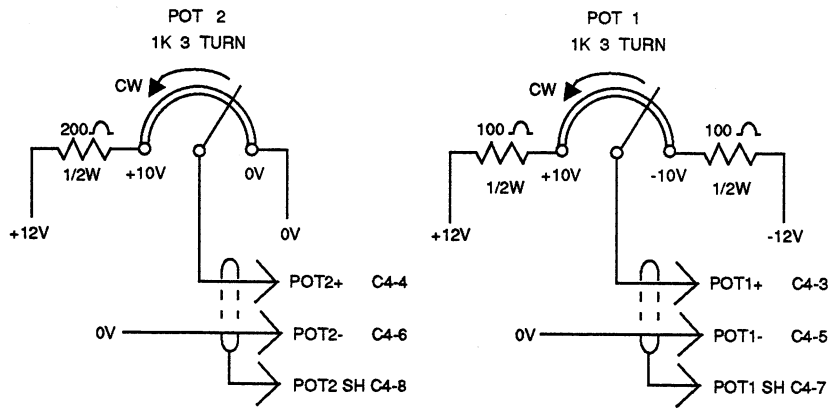
C1 DISPLAY
25 PIN M

C1	DISPLAY
2	TXD
3	RXD
4	RTS
5	CTS
6	DSR
7	GND
8	DCD
20	DTR

C4 POTS
9 PIN F

C4	P1	P2
1		
2		
3	POT 1+	+/-10V
4	POT 2+	+10V
5	POT 1-	0V
6	POT 2-	0V
7	POT 1SHIELD	
8	POT 2SHIELD	
9		

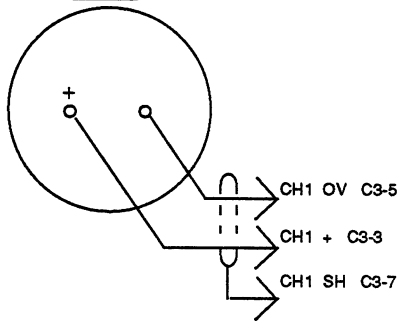
(BACK VIEW)



C3 METER
9 PIN M

C3	METER
1	
2	
3	CH1 +
4	0V -
5	
6	SHIELD
7	
8	
9	

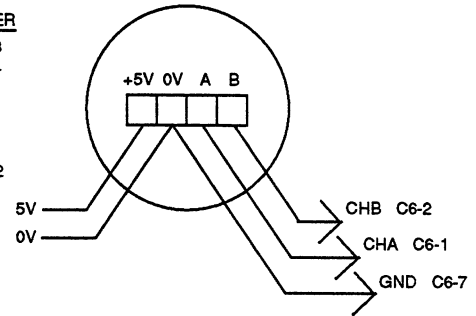
(BACK VIEW)
METER



C6 ENCODER
9 PIN F

C6	ENCODER
1	CHA 3
2	CHB 4
3	
4	
5	
6	
7	GND 2
8	
9	

(BACK VIEW)
ENCODER



5.3 VT220 Setup Instructions

(Look at the keyboard connector. If it is labeled KEYBOARD, you have a VT220; if it is labeled KEYBOARD-2, you have a VT100.)

It should not be necessary to change any of the VT220 settings. If the display is not working, you may find it necessary to verify that no one has changed any of the setup parameters.

- A. Connect the keyboard to the keyboard connector.
- B. Hold down the ALT key and press the CAP LOCK key.
- C. Observe the Set-up Directory on the display screen.
- D. Follow the screen instructions and set up each menu as shown below.

For example:

- Press ALT to go to the Host Port Set-up.
- Press the left SHIFT to move from line to line.
- When on a line, press ALT to scroll through the selections for that line.
- When the desired selection is found, press the right SHIFT to save the selection. (Each selection must be saved in turn.)
- Press the SPACE BAR to exit the menu.

5.4 VT220 Setup Screens

HOST PORT SET-UP

Communication Mode	FDX
Transmit Baud Rate	19200
Receive Baud Rate	19200
Character and Parity Bits	8+NONE
Number of Stop Bits	ONE
Parity Error Bell	NO
Parity Error Character	NO
Reduced Character Transmit Rate	NO
Transmit Flow Control	XONF
Receive Flow Control	XONF
Break	YES

PRINTER PORT SET-UP

Printer Control Mode (Disregard the other items on this page.)	OFF
---	-----

DISPLAY SET-UP

Cursor Enabled	YES
Cursor Type	BLOCK
Cursor Blink	YES
Scrolling Type	SMOOTH
Origin Mode	ABSOLUTE
Screen Background	NORMAL
Auto Screen Blank	NO
End of Line Wrap	WRAP
Control Codes	INTERPRET

GENERAL SET-UP

Terminal Mode	VT200 8 BIT
Identification Codes	VT 220
User Defined Keys	LOCKED
User Features	LOCKED
Keypad Mode	NUMERIC
Cursor Keys Mode	NORMAL
New Line Mode	ON
Reset Terminal (After exit)	OFF
Clear Display (After exit)	OFF
Clear Communication (After exit)	OFF
Character Set Mode	MULTINATIONAL

KEYBOARD SET-UP

Keys Click	OFF
Auto Keys Repeat	ON
Keys Repeat Rate	NORMAL
Keyboard Map	DATA PROC.
Warning Bell	YES
Margin Bell	NO
Lock Key Function	CAPS
Keyboard Language	NORTH AMERICAN
Auto Answerback	OFF
Answerback Message (After exit)	OFF

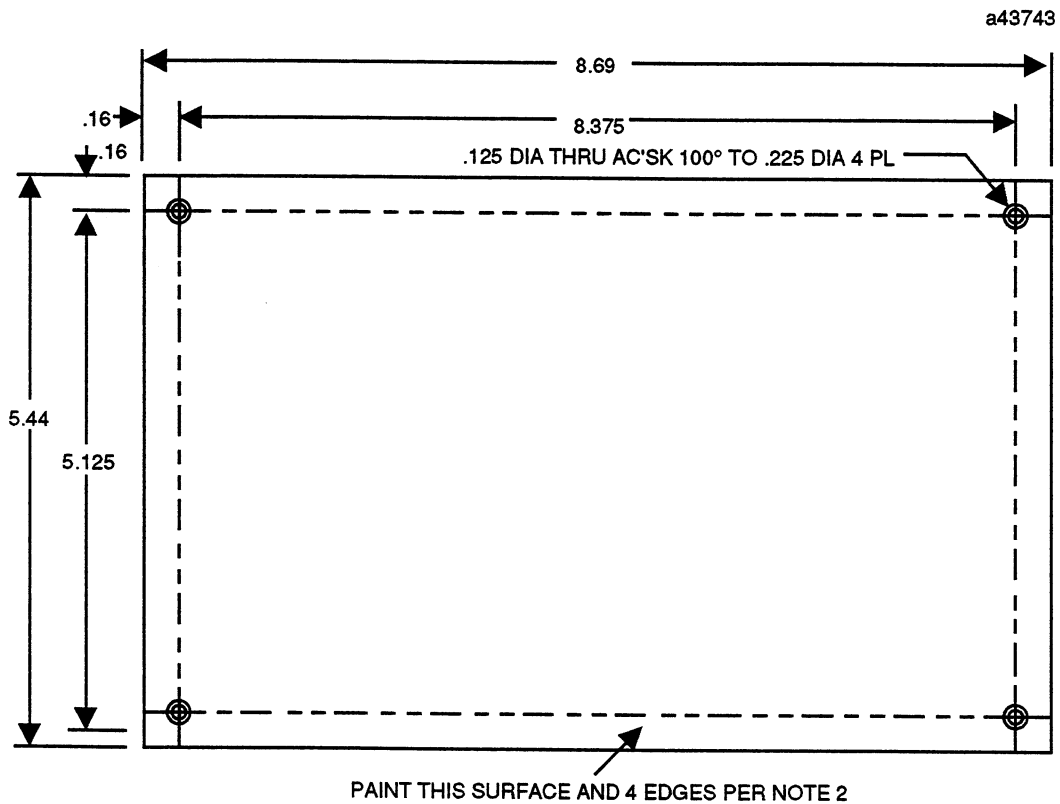
TABSTOP SET-UP

Tab set at first column and every 8th column.

Appendix A OPTION PANEL DRAWING

NOTES:

- 1. FINISH: E513 PER MIL-F-14072. PRIOR TO PAINT.
- 2. PAINT: FIG. 001 - ASM.
COLOR: FRAVEN BLACK (LILLY CO. ENAMEL X-3976-E)
FINISH: SATIN TEXTURE. 60° GLOSS: 6-11 NBS
THICKNESS: .002"-.003" MIN. FRONT AND EDGES ONLY.
- 3. MATERIAL: .125 THK AL ALY SH



CUSTOM PANEL

GFK-0483A