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## Macromodular Computer Design, Part 2, Volume 08, Faceplate Overlays, Overlay Labels, and Faceplate Boxes, Types 1-4

Computer Systems Laboratory, Washington University

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MACROMODULAR  
COMPUTER DESIGN  
PART 2  
MANUFACTURING DESCRIPTION

VOLUME VIII

FACEPLATE OVERLAYS, OVERLAY LABELS AND  
FACEPLATE BOXES, TYPES 1-4

Technical Report No. 37

FINAL REPORT - FEBRUARY, 1974

CONTRACT SD-302 (ARPA)

COMPUTER SYSTEMS LABORATORY

WASHINGTON UNIVERSITY

ST. LOUIS, MISSOURI

MACROMODULAR COMPUTER DESIGN  
FINAL REPORT - CONTRACT SD-302  
FEBRUARY, 1974

Technical Report No. 37

PART 2 - MANUFACTURING DESCRIPTION  
VOL. VIII-FACEPLATE OVERLAYS, OVERLAY LABELS AND  
FACEPLATE BOXES, TYPES 1-4

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The views and conclusions contained in this document are those of the authors and should not be interpreted as necessarily representing the official policies, either expressed or implied, of the Advanced Research Projects Agency or the U.S. Government.

Computer Systems Laboratory  
Washington University  
St. Louis, Missouri

### ABSTRACT

This document is divided into two segments. The first segment, pages 100.1-1 through 100.1-5, contains the information necessary to duplicate Macro-Module Faceplate Overlays and Overlay Labels plus a brief functional description of the Overlay.

The second segment of this volume contains the necessary procedures and wiring lists for the assembly of Macro-Module Faceplate Box types 1 through 4.

## INDEX

### FACEPLATE OVERLAYS AND OVERLAY LABELS

PAGES 100.1-1 thru 100.1-5

### TYPE 1 FACEPLATE BOX

PAGES 301-1 thru 301-16

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### TYPE 2 FACEPLATE BOX

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PAGE	TITLE	CHANGE
100.1-1	TITLE PAGE	155
100.1-2	FUNCTIONAL DESCRIPTION	
100.1-3	OVERLAY PLATES	
100.1-4	OVERLAY LABEL OUTLINE	
100.1-5	MODULE NAMES, NUMBERS, AND COLORS	

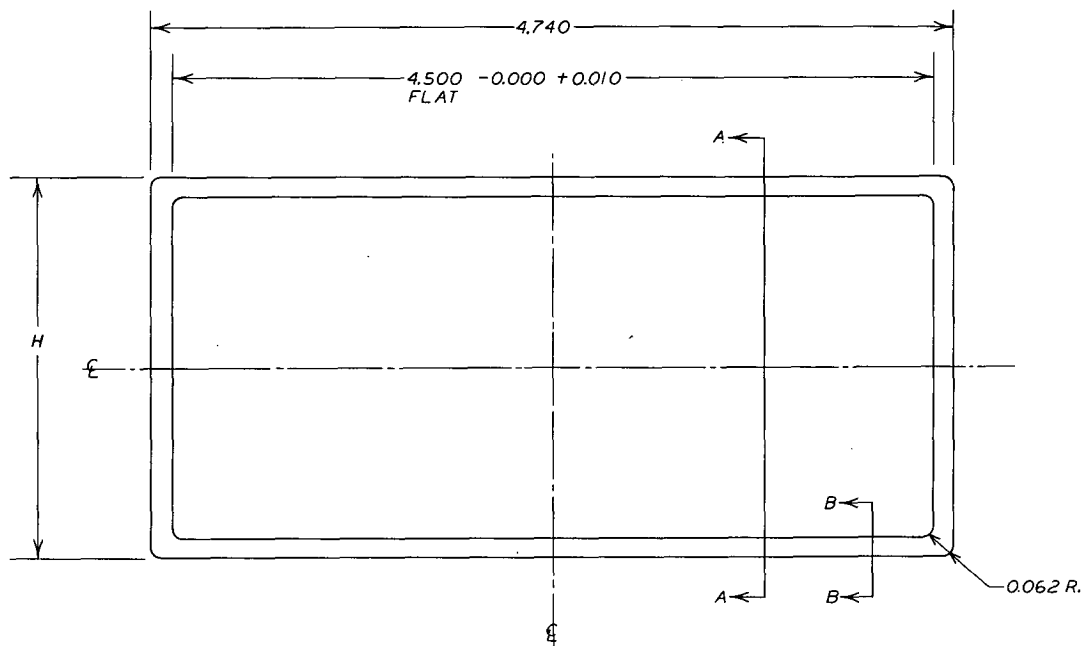
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158	-	12-10-73	GA

100.1-1

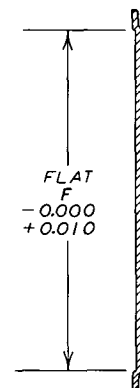
## FUNCTIONAL DESCRIPTION

The overlay is a flat piece of aluminum that snaps onto the front of a faceplate box. (Dwg. 100.1-3) The physical function of the overlay is to supply the module with faceplate code information by depressing some of the code switches on the faceplate box and allowing others to remain extended. A depressed switch corresponds to a 1-bit; a non-depressed switch, a 0-bit. Up to five switch positions are used, the number of positions depending upon the module type and intended use. (Immovable pins, or keys, may be present in unused positions on the faceplate box.) Other holes are punched into it for data cables and the control cables. An adhesive overlay label, color-coded to indicate the module type, may be affixed to the overlay before punching if desired.

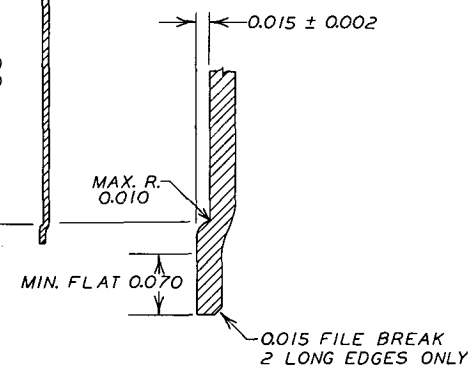
If used, a colored overlay label serves several purposes. (Dwgs. 100.1-4, 100.1-5). Its color code allows easy visual identification of the various module types in a system, and also serves as a key for matching a faceplate box-overlay combination with its proper (also color-labeled) electronics package. It also gives the designer a place to add his own labeling formation.



SECTION A A



SECTION B B

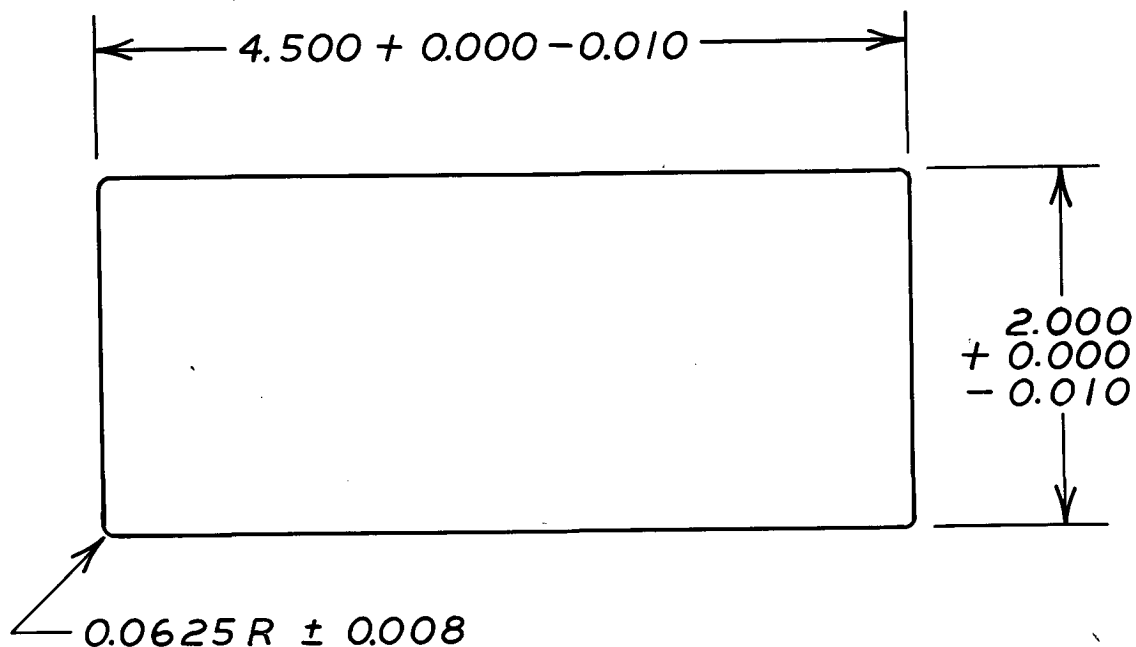


OVERLAY PLATE TYPE	H $\pm 0.005$	F $-0.000 +0.010$
1-CELL OVERLAY PLATE	2.240	2.000
2-CELL OVERLAY PLATE	4.760	4.520
3-CELL OVERLAY PLATE	7.280	7.040
4-CELL OVERLAY PLATE	9.800	9.560

MATERIAL: 0.030 ALUMINUM 3003-H14  
 TOLERANCES:  $\pm 0.005$  U.O.N.  
 FINISH: CSL SPEC. MF 1  
 DEBURR ALL EDGES

CHANGE NO.	DATE	DESCRIPTION
1	11-5-70	ADDED TABLE
<b>COMPUTER SYSTEMS LABORATORY</b> WASHINGTON UNIVERSITY ST. LOUIS, MISSOURI		
<b>MACROMODULAR PROJECT</b>		
TITLE <b>OVERLAY PLATES</b>		
APPROVED	ENG.	DRAWING NO.
BY: <i>NaG</i>	FOR: <i>Production</i>	DATE: <i>11-5-70</i>
CHECKED: <i>Y/Rev</i>	DATE: <i>8-13-70</i>	





MATERIAL: TAG STOCK WITH K-1 ADHESIVE (PEELABLE) ON REMOVABLE BACKING.

FORM: ONE LABEL PER BACKING SHEET WITH  $\frac{1}{4}$  INCH GRIPPER EDGE ON ONE SIDE.

COMPUTER SYSTEMS LABORATORY WASHINGTON UNIVERSITY ST. LOUIS, MISSOURI			<b>MACROMODULAR PROJECT</b>				
			TITLE <b>OVERLAY LABEL OUTLINE</b>				
			APPROVED			ENG <b>MAW</b>	DRAWING NO. <b>100.1-4</b>
			BY <i>MAW</i>	FOR <i>PROD.</i>	DATE <i>11-24-70</i>	DRAWN BY <b>PLL</b>	
			CHECKED <i>MAW</i>			DATE <b>11-24-70</b>	
CHANGE NO.	DATE	DESCRIPTION					

NAME	#	COLOR	PMS#	PRINTING
LOGIC	1	LIGHT BROWN	466	BLACK
ADDITION	2	GREY GREEN	557	BLACK
SHIFT	3	RUST	152	WHITE
COMPARE	4	YELLOW	109	BLACK
REGISTER	5	IVORY	134	BLACK
DECODE	6	LIGHT OLIVE	458	BLACK
LOAD	7	MUSTARD	130	BLACK
CALL	8	GREY BLUE	550	BLACK
MERGE/RENDEZVOUS	9	BLUE	301	WHITE
DATA BRANCH	10	RED	200	WHITE
MEMORY	11	BLACK	433	WHITE
MEMORY CONTROL	12	GREY	428	BLACK
FLAG	13	LIGHT PURPLE	263	BLACK
BIT SENSE	14	TOURQUOISE	325	BLACK
INTERLOCK	15	DEEP PURPLE	260	WHITE
MULTIPLY	16	DARK OLIVE	581	WHITE
D/A	17	LIGHT LIME	346	BLACK
FUNCTION CALLER	18	PINK	183	BLACK

COMPUTER SYSTEMS LABORATORY WASHINGTON UNIVERSITY ST. LOUIS, MISSOURI			MACROMODULAR PROJECT				
			TITLE MODULE NAMES, NUMBERS, AND COLORS				
3	1/4/72	ADD FUNCTION CALLER	APPROVED			ENG MAW	DRAWING NO. 100.1-5
2	1-21-71	ADD D/A	BY	FOR	DATE	DRAWN BY MBP	
1	7/24/70	CHANGE ARITH. TO ADDITION				CHECKED <i>MAW</i>	DATE 6/17/70
CHANGE NO.	DATE	DESCRIPTION					

**COMPUTER SYSTEMS LABORATORY**  
WASHINGTON UNIVERSITY

**301**

TYPE 1 FACEPLATE BOX

PAGE	TITLE	CHANGE
301-1	TITLE PAGE	C
301-2	TYPE 1 FACEPLATE BOX PARTS LIST	
301-3 301-4	TYPE 1 FACEPLATE BOX - INTRODUCTION AND ASSEMBLY PROCEDURE	
301-5	TYPE 1 FPB ASSEMBLY	
301-6	TYPE 1 FPB REAR CONNECTOR BLOCK - ASSEMBLY ORIENTATION	
301-7	TYPE 1 FPB VISCERAL SUBASSEMBLY	B
301-8	TYPE 1 FPB INTERWIRING SUB-SUBASSEMBLY	B
301-9	TYPE 1 FACEPLATE SUB-SUBASSEMBLY	
301-10 thru 301-16	TYPE 1 FACEPLATE BOX WIRING LIST	A, B, C

CHG.	E.C.O.	DATE	APPR.	CHG.	E.C.O.	DATE	APPR.	CHG.	E.C.O.	DATE	APPR.
ISSUE	0028	8-20-70	WAL								
A	0041	10/5/70	RCJ								
B	0229	11-16-71	RJA								
C	0247	1-13-72	RJA								

# TYPE 1 FACEPLATE BOX PARTS LIST

QTY	C.S.L. DOC	PART
1	300.1	1-CELL FPB SHELL
1	300.5-7	TYPE 1 FACEPLATE
2	300.5-3	FPB CONNECTOR BRACKET SCREW
8	300.5-4	ASTRO STANDOFF
1	300.5-5	FPB KEY
1	300.6	V-BUS SUBASSEMBLY
1	300.0	FPB REAR CONNECTOR
2	300.0	ASTRO 348 REAR NUT
2	300.0	ASTRO 348 CONTACT RETENTION DISC
2	300.0	ASTRO 348 INTERFACIAL SEAL
74	300.0	ASTRO 348 MALE CONTACT
2	300.0	ASTRO 348 RECEPTACLE SHELL
1	300.7-3	TYPE 1 FUNCTION CODE SWITCH SUBASSEMBLY
4	300.0	COAXICON
4	300.0	FERRULE
1	-	VLIER #NS-51N SPRING PLUNGER
2	-	NO. 2 SERRATED-HOLE SOLDER LUG
22	-	3/16 x 2-56 FILLISTER HEAD SS MACHINE SCREW
-	300.0	WIRE (SEE 301-10 ff FOR COLOR CODE)
6	-	130 OHM 1/8 WATT 5% CARBON RESISTOR

CHG	E C O	DATE	APPR	CHG	E C O	DATE	APPR	CHG	E C C	DATE	APPR
ISSUE	0028	8-20-70	<i>WRE</i>								

## TYPE 1 FACEPLATE BOX

### INTRODUCTION

This document (301) describes the assembly of the Type 1 Faceplate Box. A summary list of all required parts, including subassemblies specified in other documents, is given on page 301-2. The general specification on wire preparation and wiring procedures (CSL Document 300.0) must be followed, together with the color code information supplied by the Type 1 Faceplate Box Wiring List (pages 301-10 ff).

### ASSEMBLY PROCEDURE

#### A. Type 1 Faceplate Sub-subassembly (see page 301-9)

- 1) Crimp-wire the set of four coaxicon control connectors and press the resulting pre-wired connectors into the faceplate in the locations shown on page 301-9, taking care to assure that after installation the connectors will accept a mating coaxicon plug without binding. NOTE THE ORIENTATION REQUIRED.
- 2) Screw the spring plunger into the faceplate until the tip of the plunger protrudes from the front surface of the faceplate by approximately 0.090 inch.
- 3) Mount the two ASTRO 348 receptacle shells in the ASTRO standoffs to the faceplate as shown on page 301-9 using 2-56 fillister head screws. NOTE THE ORIENTATION REQUIRED.

#### B. Type 1 FPB Interwiring Sub-subassembly (see page 301-8)

- 1) Connectors D1 and D2:  
Following the Type 1 Faceplate Box Wiring List, crimp the wire pairs and the six resistors into the ASTRO 348 male contacts and insert the contacts into the contact retention discs (pin numbering is stamped in the receptacle shell). Apply the interfacial seals and slip on the rear nuts.
- 2) Wire to the FPB rear connector A3, together with two solder-lug leads.
- 3) Jumper the Type 1 Function Code Switch Sub-assembly and wire to the FPB Rear Connector A3.

#### C. Type 1 Visceral Subassembly (see page 301-7)

- 1) Mount the Function Code Switch Subassembly on the faceplate using two 2-56 fillister head screws. The sense pins must operate freely.

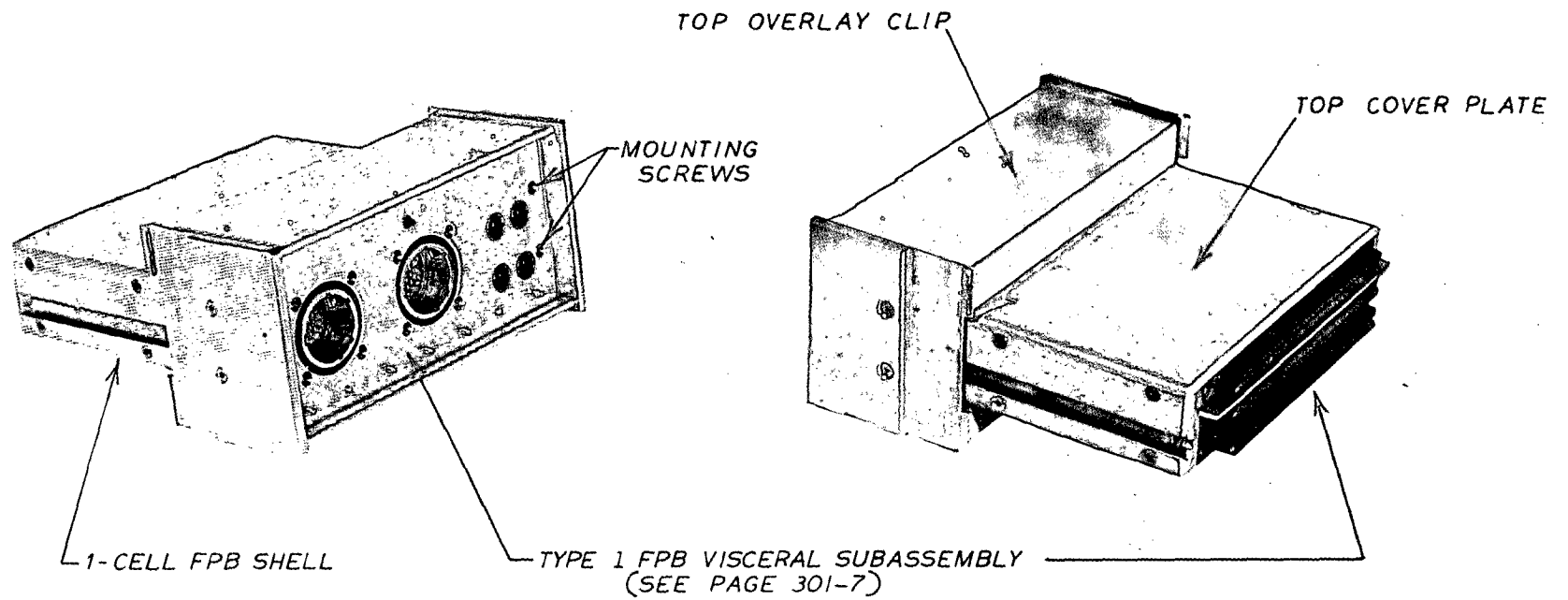
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ISSUE	0028	8/20/70	Wat

- 2) Wire the leads from the coaxicon control connectors to the FPB Rear Connector A3.
- 3) Install the contact retention disc assemblies in the corresponding receptacle shells for D1 and D2 (shown on page 301-9) and hand-tighten the ASTRO 348 Rear Nuts.
- 4) Attach the solder lugs to the receptacle shells as shown.
- 5) Rear connector block:  
Slip the FPB Key onto the V-Bus Subassembly connector brackets, and mount the FPB Rear Connector A3 using the two connector bracket screws. NOTE THE ORIENTATION REQUIRED (page 301-6).

D. Final Assembly (see page 301-5)

- 1) Remove the four screws holding the top cover plate to the 1-cell FPB Shell struts and remove the top cover plate and the top overlay clip.
- 2) Slip the rear connector block of the Visceral Subassembly into the slots provided in the struts for the connector brackets, and attach the Faceplate to the front using the remaining 2-56 fillister head screws. NOTE THE ORIENTATION REQUIRED.
- 3) Reinstall the top overlay clip and attach the top cover plate, taking care to assure that the wires are not pinched.

CHG.	E.C.O.	DATE	APPR.
ISSUE	0028	8-20-70	WAB



NOTE ORIENTATION

**COMPUTER SYSTEMS LABORATORY**  
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**MACROMODULAR PROJECT**

TITLE

TYPE 1 FPB ASSEMBLY

APPROVED		
BY	FOR	DATE
<i>WAB</i>	PROD.	5-23-70

ENG. WAC

DRAWN BY PLL

CHECKED *WAB*

DRAWING NO.

301-5

DATE

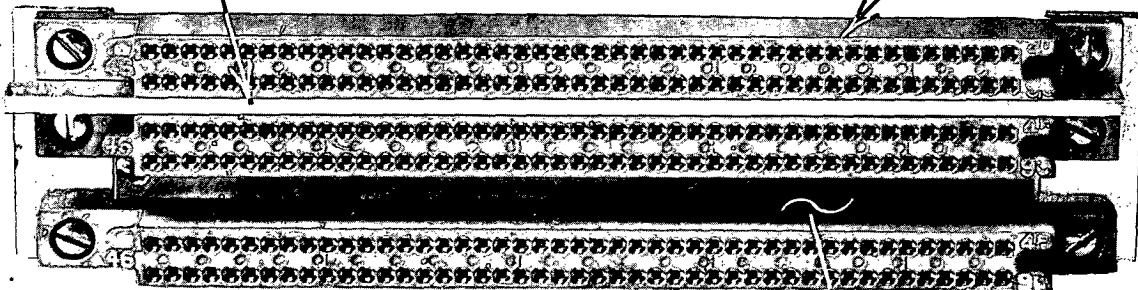
5/22/70

ISSUE	8-20-70	E.C.O. 0028	<i>WAB</i>
CHANGE NO.	DATE	DESCRIPTION	

# FPB REAR CONNECTOR A3

FPB KEY

NOTE ORIENTATION



V-BUS SUBASSEMBLY

NOTE ORIENTATION

(KEY TAB EXTENDS LEFTWARD)

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**MACROMODULAR PROJECT**

TITLE

**TYPE 1 FPB REAR CONNECTOR  
BLOCK-ASSEMBLY ORIENTATION**

ISSUE 8-20-70 E.C.O. 0028

WAC

CHANGE NO. DATE DESCRIPTION

APPROVED

BY

FOR

DATE

WAC

Prod

7/18/70

ENG

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DRAWN BY  
PLL

DRAWING NO.

301-6

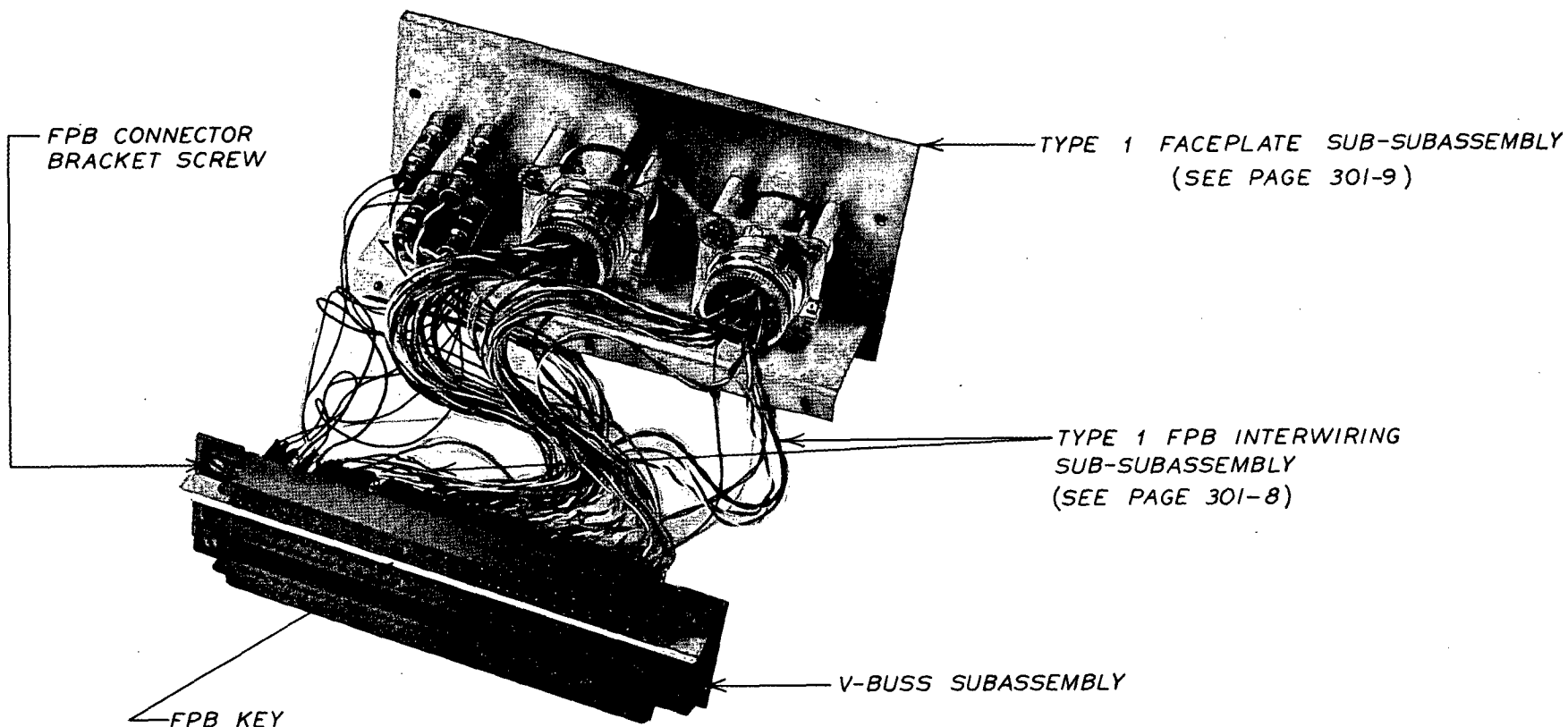
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WAC

DATE

8-20-70





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WASHINGTON UNIVERSITY  
ST. LOUIS, MISSOURI

TITLE  
**TYPE 1 FPB VISCERAL SUBASSEMBLY**

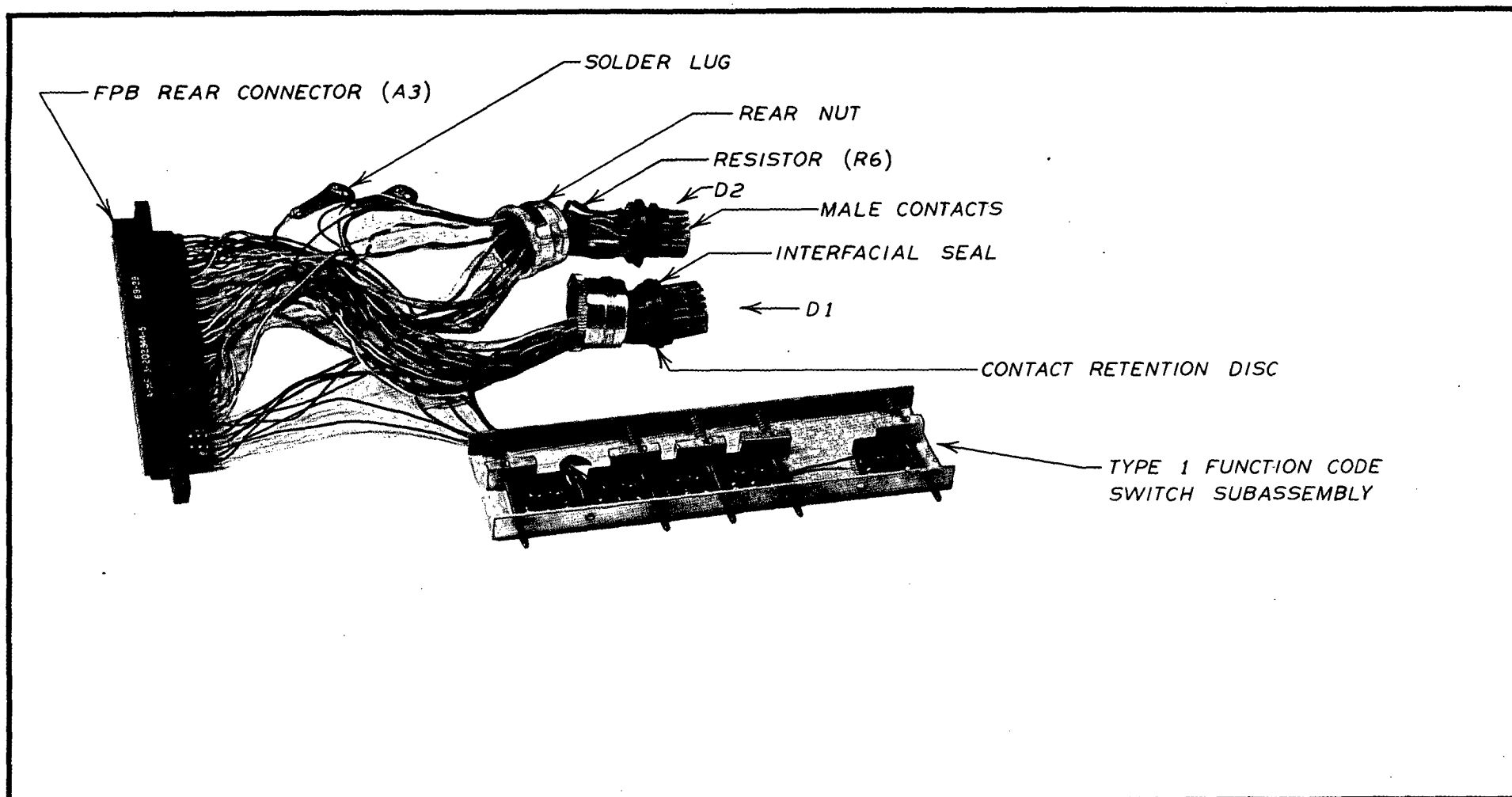
**MACROMODULAR PROJECT**

APPROVED  
BY *gcy* FOR *PROD.* DATE *11-24-71*

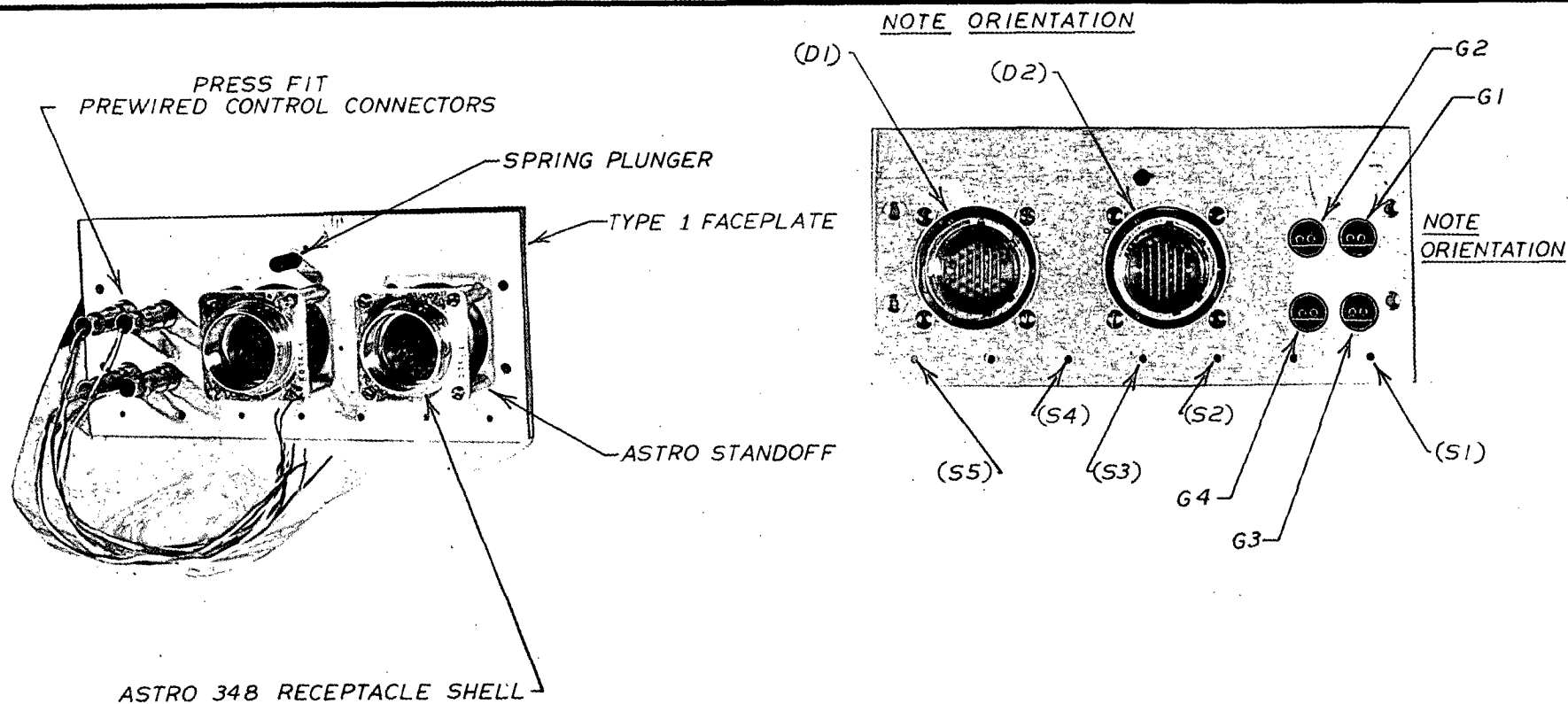
ENG.  
*WAC*  
DRAWN BY  
*PLL*  
CHECKED  
*RJA*

DRAWING NO.  
*301-7*  
DATE  
*5-22-70*

<i>B</i>	<i>11-23-71</i>	<i>E.C.O. 0229 RJA</i>
CHANGE NO.	DATE	DESCRIPTION



		<b>COMPUTER SYSTEMS LABORATORY</b> WASHINGTON UNIVERSITY ST. LOUIS, MISSOURI		TITLE <b>TYPE 1 FPB INTERWIRING SUB-SUBASSEMBLY</b>															
				<table border="1"> <tr> <td colspan="3">APPROVED</td> <td>ENG.</td> <td rowspan="2">DRAWING NO. <b>301-8</b></td> </tr> <tr> <td>BY <i>RJA</i></td> <td>FOR <b>PROD.</b></td> <td>DATE <b>11-24-71</b></td> <td>WAC DRAWN BY <b>PLL</b></td> </tr> <tr> <td colspan="3"></td> <td>CHECKED <b>RJA</b></td> <td>DATE <b>5-22-70</b></td> </tr> </table>				APPROVED			ENG.	DRAWING NO. <b>301-8</b>	BY <i>RJA</i>	FOR <b>PROD.</b>	DATE <b>11-24-71</b>	WAC DRAWN BY <b>PLL</b>			
APPROVED			ENG.	DRAWING NO. <b>301-8</b>															
BY <i>RJA</i>	FOR <b>PROD.</b>	DATE <b>11-24-71</b>	WAC DRAWN BY <b>PLL</b>																
			CHECKED <b>RJA</b>	DATE <b>5-22-70</b>															
CHANGE NO. <b>B</b>		DATE <b>11-29-71</b>		DESCRIPTION <b>E.C.O. 0229 RJA</b>		<b>MACROMODULAR PROJECT</b>													



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**MACROMODULAR PROJECT**

TITLE

TYPE 1 FACEPLATE SUB-SUBASSEMBLY

ISSUE 8-20-70 E.C.O. 0028 456

CHANGE NO. DATE DESCRIPTION

APPROVED			ENG. WAC	DRAWING NO.
BY	FOR	DATE	DRAWN BY	
9cf	PROD.	5-23-70	PLL	301-9
CHECKED			DATE	
Wab			5/22/70	

## TYPE ONE FACEPLATE BOX WIRING LIST

>>>>>>>>>>>>>>>>>>>

1A3 (NO CONNECTION

>>>>>>>>>>>>>>>>>>

2A3 (NO CONNECTION

>>>>>>>>>>>>>>>>>>

3A3  
24D1 [ ORANGE

4A3  
23D1 ( RED

>>>>>>>>>>>>>>>>>>>

5A3  
33D1 ( BLUE

6A3  
32D1 ( RED

>>>>>>>>>>>>>>>

7A3  
31D1 [ SLATE

8A3  
30D1 [ YELLOW

>>>>>>>>>>>>>>>>>>>

9A3  
37D1 ( ORANGE

10A3  
36D1 [ YELLOW

>>>>>>>>>>>>>>>>>>>

11A3  
24D2 [ ORANGE

12A3  
23D2 ( RED

>>>>>>>>>>>>>>>>>>

13A3  
33D2 ( BLUE

14A3  
32D2 [ RED

>>>>>>>>>>>>>>>>>>

15A3  
31D2 ( SLATE

301-10



FPT1WL,3 LN=163

32A3  
16D2 [ YELLOW

**>>>>>>>>>>>>>>**

33A3  
28D2 ( SLATE

34A3  
27D2 ( WHITE

>>>>>>>>>>

35A3  
26D2 ( BROWN

**36A3**  
**2SD2 [ RED**  
**>>>>>>>>>>>>>>>>>**

**37A3**  
**361 [ BLUE**  
**>>>>>>>>>>>>>>>>>>**

**38A3**  
**3G2 [ BLUE**  
>>>>>>>>>>>>>>>>>>>>

39A3  
9D1 [ ORANGE

40A3  
8D1 [ WHITE

>>>>>>>>>>>>>>>>>

41A3  
15D1 ( GREEN

#

42A3  
14D1 [ RED

>>>>>>>>>>>>>>>>

43A3  
13D1 ( GREEN

44A3  
12D1 ( WHITE

[illegible]

46A3  
10D1 ( WHITE

[illegible]

4

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**E**

[GERALD C JOHNS

301-16

COMPUTER SYSTEMS LABORATORY  
WASHINGTON UNIVERSITY

**301A**

TYPE 1A FACEPLATE BOX

PAGE	TITLE	CHANGE
301A-1	Title Page	Issue
301A-2	Parts List	
301A-3 thru 301A-4	Introduction and Assembly Procedures	
301A-5	Type 1A FPB Assembly	
301A-6	Type 1A FPB Visceral Subassembly	
301A-7	Type 1A Faceplate Sub-subassembly	
301A-8	Viking Connector: Wiring Instructions	
301A-9	Power Wire for Type 1A FPB	
301A-10 thru 301A-12	Wire List for D1, D2	
301A-13	Wire List for Viking Connector	
301A-14	Wire List for Code Switch	
301A-15 thru 301A-21	Type 1A FPB Wiring List	

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MACROMODULAR SYSTEMS PROJECT

## TYPE 1A FACEPLATE BOX

## PARTS LIST

QTY.	C.S.L. DOC.	PART
1	300.1	1-CELL FPB SHELL
1	300.5-26	TYPE 1A FACEPLATE
2	300.5-3	FPB CONNECTOR BRACKET SCREW
8	300.5-4	ASTRO STANDOFF
1	300.5-5	FPB KEY
1	300.6	V-BUS SUBASSEMBLY
1	300.0	FPB REAR CONNECTOR
74		ASTRO 348 MALE CONTACT
2		ASTRO 348-7012-1 CONNECTOR
1	300.7-5	TYPE 3 FUNCTION CODE SWITCH SUBASSEMBLY
1		VLIER #NS-5IN SPRING PLUNGER
2		H.H. SMITH #1412-4 TERMINAL LUG
28		2-56 x 3/16 FILLISTER HEAD SS MACHINE SCREW
	300.0	WIRE (SEE 301-10 ff FOR COLOR CODE)
6		130 OHM 1/8 WATTS 5% CARBON RESISTOR
1		VIKING CONNECTOR #3VH10/1JN5
2	300.5-19	CONNECTOR STRUTS TYPE 1
2	300.5-21	STRUT COVERS
2		4-40 x 3/8 BINDER HEAD SCREWS
1		VIKING POLARIZING KEY #091-0071-000
1		8-32 HEX NUT

CHG.	E.C.O.	DATE	APPR.	CHG.	E.C.O.	DATE	APPR.	CHG.	E.C.O.	DATE	APPR.
Iss.	---	6-4-73	RJA								

MACROMODULAR SYSTEMS PROJECT

301A-2

## TYPE 1A FACEPLATE BOX

### INTRODUCTION

This document (301A) describes the assembly of the Type 1A Faceplate Box. A summary list of all required parts, including subassemblies specified in other documents, is given on page 301A-2. The general specification on wire preparation and wiring procedures (CSL Document 300.0) must be followed together with the color code information supplied by the wire lists for Type 1A FPB (pages 301A-10 thru 301A-21 ).

### ASSEMBLY PROCEDURE

#### A. Type 1A Faceplate Subassembly

1. Screw the spring plunger into the faceplate until the tip protrudes approximately 0.090 inch from the front surface. Lock the plunger in place with a 8-32 hex nut. See pages 301A-5 and 301A-6.
2. Mount the two Astro 348 connectors using the ASTRO Standoffs and 2-56 fillister head screws as shown on page 301A-7. Note the orientation required.
3. Insert the Polarizing Key between contacts 8 and 9 in the Viking connector. Mount the Viking connector as shown on page 301A-7. Use two 4-40 x 3/8 binder head screws to hold the connector to the Connector Struts. Use six 2-56 fillister head screws to hold the Strut Covers to the Struts and to hold the Struts to the faceplate. NOTE: Insert all eight screws loosely before tightening any of them, then tighten the Strut Covers first. See pages 301A-6 and 301A-7.

#### B. Type 1A Faceplate Wire Preparation

1. Connectors D1 and D2

Following the list on pages 301A-10 thru 301A-12, crimp the wires and resistors into the male contacts and insert into the ASTRO 348 connectors. Each connector has fourteen wire pairs, three single wires, three resistors and one wire soldered to a lug.

CHG.	E.C.O.	DATE	APPR
Issue	—	6 - 4 - 73	RJA

2. Following the list on page 301A-13 solder the seven wire pairs and one single wire to the Viking connector. The wires should not protrude past the ends of the contact pins. See page 301A-6 and 301A-8.
3. Two additional yellow wires are soldered to the Viking connector. Each is combined with a single yellow wire from 5D1 and 5D2 as shown on page 301A-9.
4. Solder two wires to the Type 3 Function Code Sub-assembly according to the list on page 301A-14

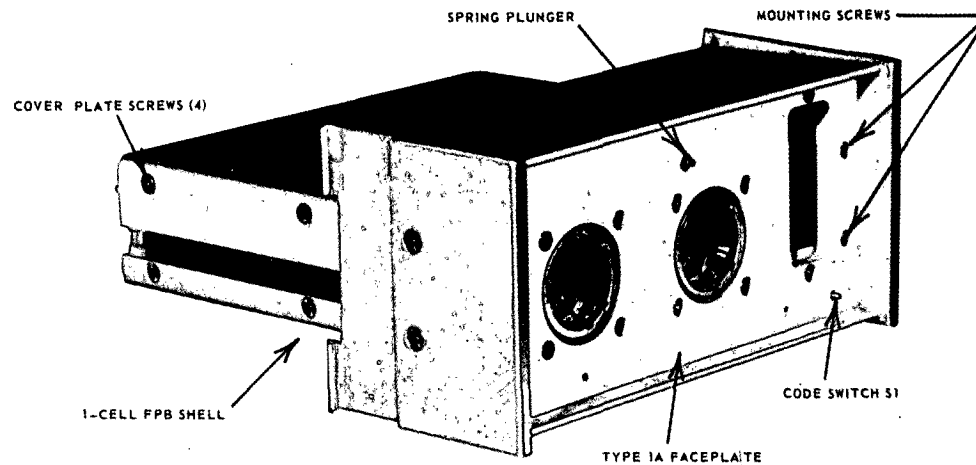
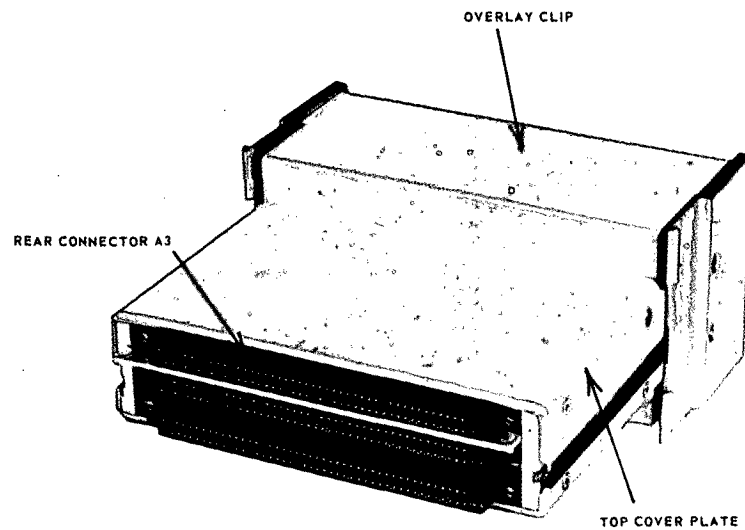
#### C. Type 1A FPB Interwiring Subassembly

1. Mount the code switch subassembly as shown on page 301A-6.
2. Following the type 1A Faceplate Box Wiring List on pages 301A-15 thru 301A-21. Make all connections indicated to the FPB rear connector A3.

#### D. Final Assembly

1. Slip the FPB key onto the V-Bus subassembly connector brackets, and mount the FBP rear connector A3 using using the two connector bracket screws. Note the orientation of the key as shown on page 301A-6.
2. Remove the four screws holding the top cover plate to the 1-cell FPB shell struts and remove the top cover plate and the top overlay clip. See page 301A-5.
3. Slip the rear connector bracket into the slots provided in the struts, and attach the faceplate to the front using four 2-56 fillister head screws.
4. Replace the top cover plate and overlay clip, being careful not to pinch any wires.

CHG	E.C.O.	DATE	APPR
Issue	---	6-4-73	RJA



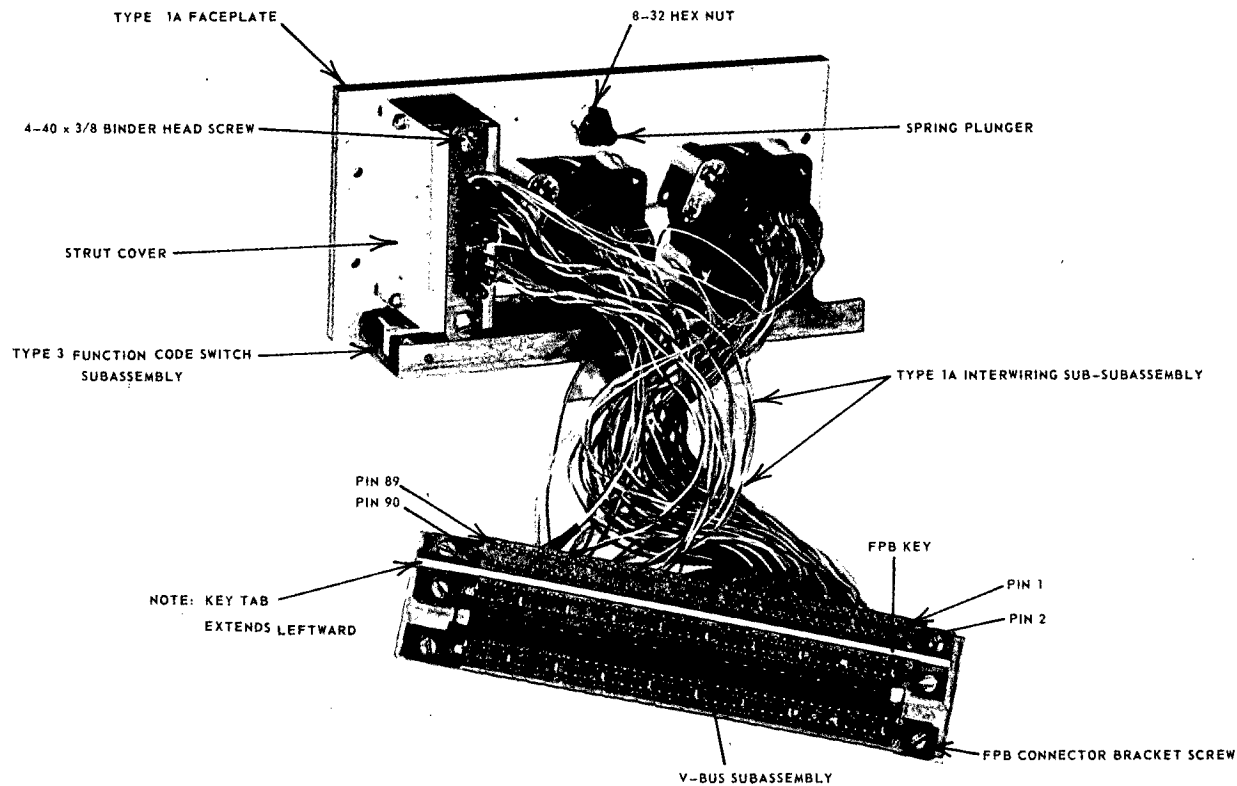
**COMPUTER SYSTEMS LABORATORY**  
WASHINGTON UNIVERSITY  
ST. LOUIS, MISSOURI

**MACROMODULAR PROJECT**

TITLE  
TYPE 1A FPB ASSEMBLY

APPROVED			ENG. MLP	DRAWING NO. 301A-5
BY	FOR	DATE		
RJA	PROD	6-21-73	DRAWN BY PLL	
			CHECKED MLP	DATE 6-13-73

ISSUE	6-13-73	RJA
CHANGE NO.	DATE	DESCRIPTION



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**MACROMODULAR PROJECT**

TITLE  
TYPE 1A FPB VISCERAL SUBASSEMBLY

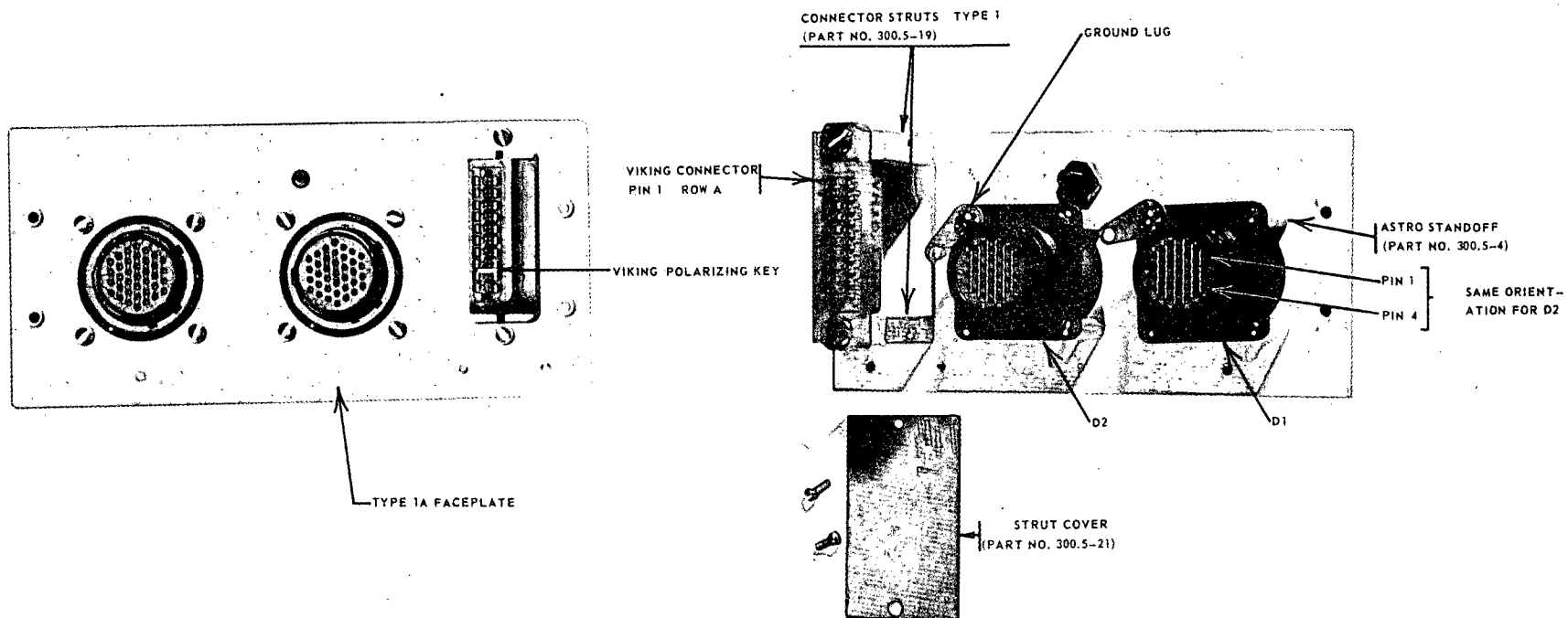
APPROVED			ENG. MLP	DRAWING NO. 301A-6
BY	FOR	DATE		
RJA	PROD	6-21-73	DRAWN BY PLL	
			CHECKED MLP	DATE 6-13-73

ISSUE 6-13-73

RJA

CHANGE NO.	DATE	DESCRIPTION





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**MACROMODULAR PROJECT**

TITLE  
TYPE 1A FACEPLATE SUB-SUBASSEMBLY

APPROVED		
BY	FOR	DATE
RJA	PROD	6-21-73

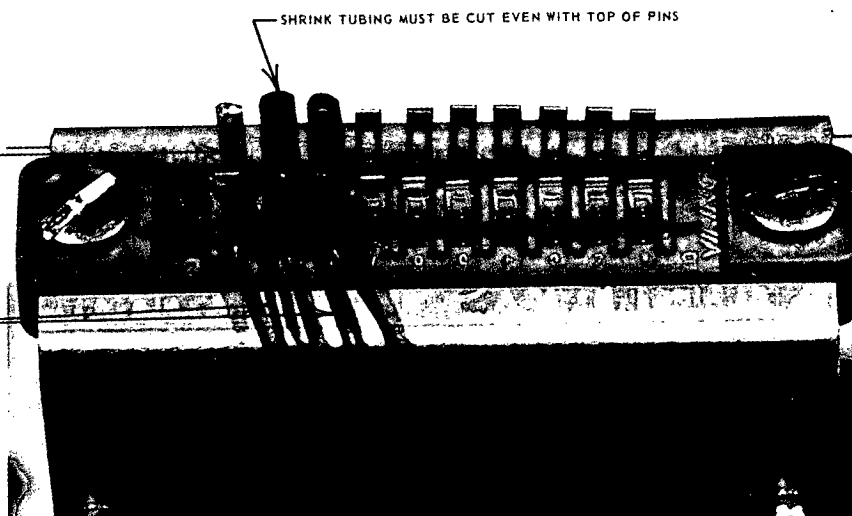
ENG. MLP
DRAWN BY GWP
CHECKED MLP

DRAWING NO. 301A-7
DATE 6-13-73

ISSUE 6-13-73	DESCRIPTION RJA
CHANGE NO.	DATE

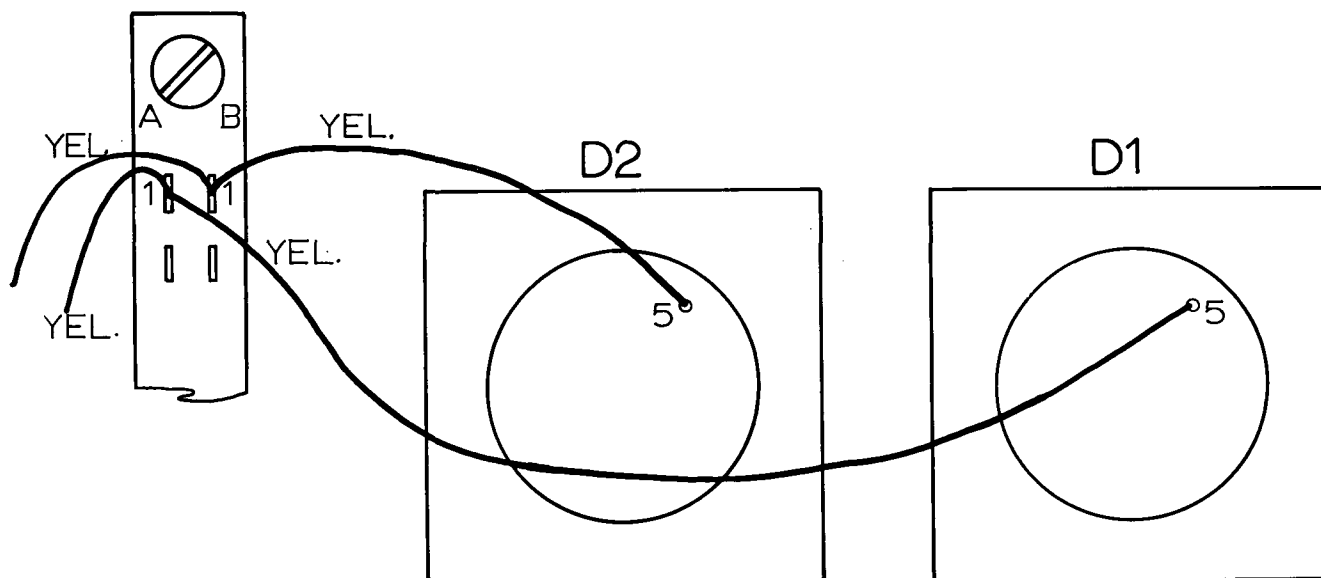
AFTER SOLDERING WIRES MUST BE  
PLACED DOWN THE PIN AND BROUGHT  
OUT LYING FLAT ON THE CONNECTOR

WIRES FROM PINS ON ROW A MUST BE  
PLACED BETWEEN PINS ON ROW B



NOTE:  
WHEN SOLDERING CARE MUST BE TAKEN NOT TO  
INJURE THE WIRE INSULATION PLACED BETWEEN  
THE PINS ON ROW B.

			<b>COMPUTER SYSTEMS LABORATORY</b> WASHINGTON UNIVERSITY ST. LOUIS, MISSOURI	TITLE VIKING CONNECTOR: WIRING INSTRUCTIONS			
ISSUE	6-6-73	RJA	<b>MACROMODULAR PROJECT</b>	APPROVED BY <i>RJA</i> FOR PROD	DATE 6-21-73	ENG. MLP DRAWN BY DLS	DRAWING NO. 301A-B
CHANGE NO.	DATE	DESCRIPTION			CHECKED <i>MLP</i>	DATE 6-6-73	



COMPUTER SYSTEMS LABORATORY  
WASHINGTON UNIVERSITY  
ST. LOUIS, MISSOURI

# **MACROMODULAR PROJECT**

TITLE POWER WIRE FOR  
TYPE IA FPB

ISSUE	6-8-73	RJA	APPROVED			ENG	DRAWING NO.
			BY	FOR	DATE	MLP	
CHANGE NO.	DATE	DESCRIPTION	RJA	PROD	6-21-73	DRAWN BY	301A-9
						MAC	
						CHECKED	DATE
						MLP	6-8-73

D1D2LIST,1 LN=1

[WIRE LIST FOR D1 AND D2  
[

[illegible]

CHG.	E.C.O.	DATE	APPR.
Issue	---	6-4-73	RJA



```
>>>>>>>>>>>>
3D2
    [RESISTOR
4D2
>>>>>>>>>>>>
34D1
    [RESISTOR
35D1
>>>>>>>>>>>>
34D2
    [RESISTOR
35D2
>>>>>>>>>>>>
[
CD1D2LIST
```



**E**

[illegible]

1S1 [YELLOW

COMMON

CLABELLED "C"

>>>>>>>>>>>>>>>>

2S1 [BLUE

CNORMALLY OPEN

CLABELLED "NO"

>>>>>>>>>>>>>>>>

[

CSWLIST

CHG.	E.C.O.	DATE	APPR
Issue	—	6-4-73	RJA



TYPE 1A FACEPLATE BOX WIRING LIST

[illegible]

1A3 CNO CONNECTION

[illegible]

2A3    ENO CONNECTION

>>>>>>>>>>>>>>>>>>

3A3

24D1 C ORANGE

4A3

2301 [ RED

[illegible]

5A3

3301 C BLUE

6A3

3201° C RED

[illegible]

7A3

31D1 C SLATE

8A3

3001 C YELLOW

>>>>>>>>>>>>>>>

9A3

37D1 C ORANGE

10A3

36D1 C YELLOW

[illegible]

11A3

24D2 C ORANGE

12A3

2302 C RED

[illegible]

13A3

33D2 C BLUE

14A3

3202 C RED

[illegible]

15A3

31D2 [ SLATE

301A-15



```
#      32A3  
      16D2 C YELLOW  
  
#      >>>>>>>>>>>>  
      33A3  
      28D2 C SLATE  
  
#      34A3  
      27D2 C WHITE  
  
#      >>>>>>>>>>>>  
      35A3  
      26D2 C BROWN  
  
#      36A3  
      25D2 C RED  
      >>>>>>>>>>>>  
  
#      37A3          [NO CONNECTION]  
#      38A3          [NO CONNECTION]  
#      >>>>>>>>>>>>  
  
#      39A3  
      9D1 C ORANGE  
  
#      40A3  
      8D1 C WHITE  
  
#      >>>>>>>>>>>>  
      41A3  
      15D1 C GREEN  
  
#      42A3  
      14D1 C RED  
  
#      >>>>>>>>>>>>  
      43A3  
      13D1 C GREEN  
  
#      44A3  
      12D1 C WHITE  
  
#      >>>>>>>>>>>>  
      45A3  
      11D1 C BROWN  
  
#      46A3  
      10D1 C WHITE  
  
#      >>>>>>>>>>>>  
      47A3  
      9D2 C ORANGE  
  
#      48A3  
      8D2 C WHITE
```

```
# >>>>>>>>>>>>
# 49A3
# 15D2 C GREEN
#
# 50A3
# 14D2 C RED
# >>>>>>>>>>>>
#
# 51A3      CNO CONNECTION
#
# 52A3      CNO CONNECTION
#
# >>>>>>>>>>>>
# 53A3
# 13D2 C GREEN
#
# 54A3
# 12D2 C WHITE
#
# >>>>>>>>>>>>
# 55A3
# 11D2 C BROWN
#
# 56A3
# 10D2 C WHITE
#
# >>>>>>>>>>>>
# 57A3
# 9BF C BLUE
#
# 58A3
# 9AF C WHITE
#
# >>>>>>>>>>>>
# 59A3
# 10BF C GREEN
#
# 60A3
# 10AF C WHITE
#
# >>>>>>>>>>>>
# 61A3
# 18D2 C VIOLET
#
# 62A3
# 19D2 C BLUE
#
# >>>>>>>>>>>>
# 63A3
# 18D1 C VIOLET
#
# 64A3
# 19D1 C BLUE
#
# >>>>>>>>>>>>
# 65A3      CNO CONNECTION
```

```
#      66A3          [NO CONNECTION  
#      67A3          [NO CONNECTION  
#      68A3          [NO CONNECTION  
  
>>>>>>>>>>  
69A3  
8BF C SLATE  
#  
70A3  
8AF C WHITE  
#  
>>>>>>>>>>  
71A3  
6D1 C VIOLET  
#  
72A3  
7D1 C ORANGE  
#  
>>>>>>>>>>  
73A3  
6D2 C VIOLET  
#  
74A3  
7C2 C ORANGE  
#  
>>>>>>>>>>  
75A3  
29D2 C GREEN  
#  
>>>>>>>>>>  
76A3  
29D1 C GREEN  
#  
>>>>>>>>>>  
[ TWO WIRES ARE SOLDERED TO PIN 77A3. ONE TO 1AF AND THE OTHER  
TO 1BF.  
[ THERE IS A WIRE FROM 1AF TO 5D1 AND A WIRE FROM 1BF TO 5D2  
[  
    77A3  
[  
    1AF CYELLOW  
    5D1 C YELLOW  
[  
    1BF CYELLOW  
    5D2 C YELLOW  
#  
    >>>>>>>>>> /  
    78A3 C SIX INCH BLUE WIRE WITH GROUND LUG  
CONNECT TO D1  
#  
    >>>>>>>>>>  
    79A3  
    1S1 CYELLOW
```



```
#      2D2 [ SLATE  
      2P602  
  
#      >>>>>>>>>>>>>>>  
      3D1 [ YELLOW  
      1R603  
  
#      4D1 [ BLUE  
      2R603  
  
#      >>>>>>>>>>>>>>>  
      3D2 [ YELLOW  
      1R604  
  
#      4D2 [ BLUE  
      2R604  
  
#      >>>>>>>>>>>>>>>  
      34D1 [ WHITE  
      1R605  
  
#      35D1 [ BLUE  
      2P605  
  
#      >>>>>>>>>>>>>>>  
      34D2 [ WHITE  
      1R606  
  
#      35D2 [ BLUE  
      2R606  
  
#  
[END OF CONNECTION LIST  
[  
CFPT1AWL
```

TYPE 2 FACEPLATE BOX

PAGE	TITLE	CHANGE
302-1	TITLE PAGE	<b>B</b>
302-2	TYPE 2 FACEPLATE BOX PARTS LIST	A
302-3	TYPE 2 FACEPLATE BOX - INTRODUCTION AND ASSEMBLY PROCEDURE	A
302-4		
302-5	TYPE 2 FPB ASSEMBLY	A
302-6	TYPE 2 FPB REAR CONNECTOR BLOCK-ASSEMBLY ORIENTATION	A
302-7	TYPE 2 FPB VISCERAL SUBASSEMBLY	A B
302-8	TYPE 2 FPB FUNCTION CODE WIRING SUB-SUBASSEMBLY	B
302-9	TYPE 2 FACEPLATE SUB-SUBASSEMBLY	
302-10 thru 302-15	TYPE 2 FACEPLATE BOX WIRING LIST	B

CHG.	E.C.O.	DATE	APPR.	CHG.	E.C.O.	DATE	APPR.	CHG.	E.C.O.	DATE	APPR.
ISSUE	—	9/15/70	WAG								
A	0059	10-20-70	WAG								
B	0229	11-16-71	RJA								



TYPE 2 FACEPLATE BOX

## PARTS LIST

QTY.	C.S.L. DOC.	PART
1	300.1	1-CELL FPB SHELL
1	300.5-8	TYPE 2 FACEPLATE
2	300.5-2	FPB CONNECTOR BRACKET
6	300.5-3	FPB CONNECTOR BRACKET SCREW
1	300.5-5	FPB KEY
2	300.0	FPB REAR CONNECTOR
24	300.0	COAXICON
24	300.0	FERRULE
-	300.0	WIRE (SEE 302-10 ff FOR COLOR CODE)
1	-	1/16 X 1/4 CADMIUM PLATED STEEL ROLL PIN
1	300.7-4	TYPE-2 FUNCTION CODE SWITCH SUBASSEMBLY
1	-	VLIER #N5-5IN SPRING PLUNGERS
6	-	3/16 X 2-56 FILLISTER HEAD SS MACHINE SCREW
1	300.5-12	FPB REAR CONNECTOR FILLER STRIP

CHG.	E.C.O.	DATE	APPR.	CHG.	E.C.O.	DATE	APPR.	CHG.	E.C.O.	DATE	APPR.
ISSUE	-	8-23-70	WAG								
A	0059	10-20-70	WAG								

## TYPE 2 FACEPLATE BOX

### INTRODUCTION

This document (302) describes the assembly of the Type 2 Faceplate Box. A list of all required parts, including sub-assemblies specified in other documents, is given on page 302-2. The general specification on wire preparation and wiring procedures (CSL Document 300.0) must be followed, together with the color code information supplied by the Type 2 Faceplate Box Wiring List (pages 302-10 ff).

### ASSEMBLY PROCEDURE

#### A. Type 2 Faceplate Sub-subassembly (see page 302-9)

1. Crimp-wire the set of twenty-four coaxicon control connectors and press the resulting pre-wired connectors into the faceplate in the locations shown on page 302-9 taking care to assure that after installation the connectors will accept a mating coaxicon plug without binding. NOTE THE ORIENTATION REQUIRED.
2. Screw the spring plunger into the faceplate until the tip of the plunger protrudes from the front surface of the faceplate by approximately 0.090 inch.
3. Install the roll pin in the lower right corner hole as shown, flush with the rear surface of the faceplate (protruding from the front surface approximately 1/16 inch).
4. Following the Type 2 Faceplate box wiring list, wire the leads from the coaxicon control connectors to one of the FPB rear connectors (A3).

#### B. Type 2 FPB Function Code wiring Sub-subassembly (see page 302-8).

1. Jumper the Type 2 Function Code Switch Sub-assembly and wire it to a second FPB Rear Connector (A4).

CHG.	E.C.O.	DATE	APPR.
ISSUE	-	7/15/70	WAB

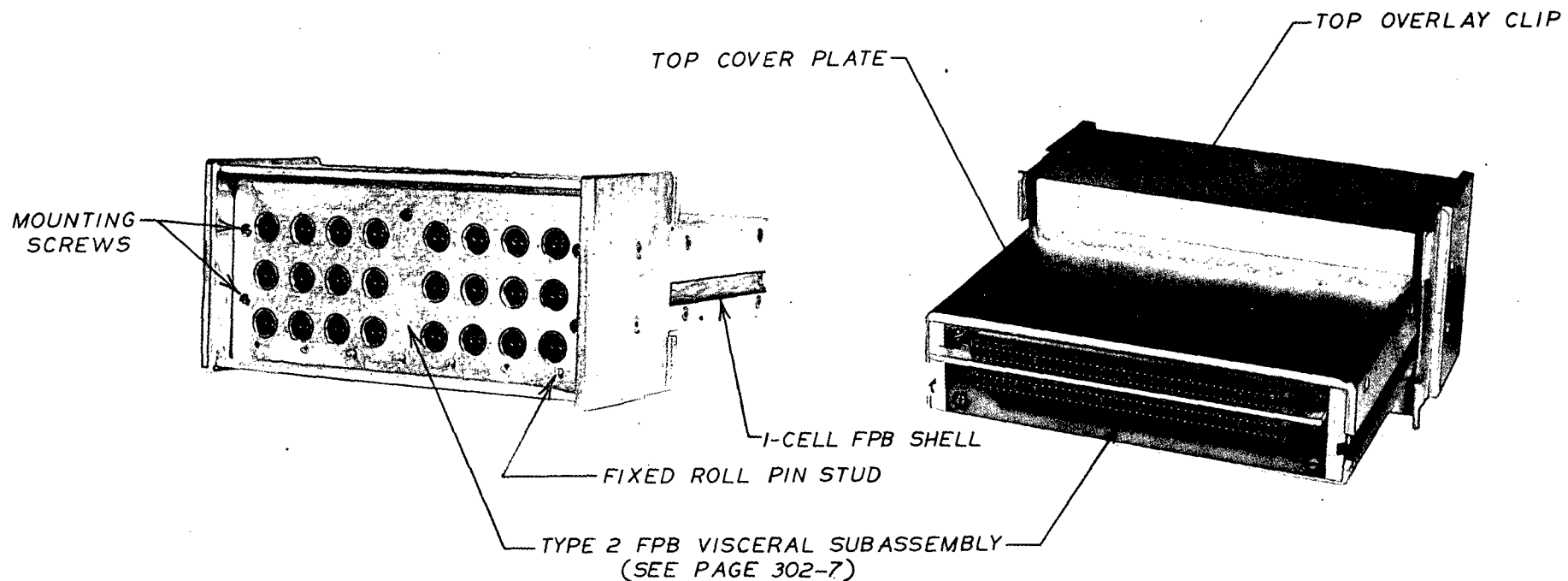
C. Type 2 Visceral Subassembly (see page 302-7)

1. Mount the FPB rear connector Filler Strip on the two connector brackets with connector bracket screws, as shown on page (302-6). Note that the row of holes is not centered on the bracket. The bracket edge closest to the row of holes must face inward (towards the connector pins). NOTE CONNECTOR ORIENTATION REQUIRED.
2. Mount the Function Code Switch Subassembly on the faceplate using two 2-56 fillister head screws. The sense pins must operate freely.
3. Mount FPB Rear Connector A4 to the connector brackets using connector bracket screws. NOTE CONNECTOR ORIENTATION REQUIRED.
4. Slip the FPB Key onto the connector brackets, and mount the FPB Rear Connector A3 using the two remaining connector bracket screws. NOTE THE ORIENTATION REQUIRED.

D. Final Assembly (see page 302-5)

1. Remove the four screws holding the top cover plate to the 1-cell FPB Shell struts and remove the top cover plate and the top overlay clip.
2. Slip the rear connector block of the Visceral Subassembly into the slots provided in the struts for the connector brackets, and attach the Faceplate to the front using the remaining 2-56 fillister head screws. NOTE THE ORIENTATION REQUIRED.
3. Reinstall the top overlay clip and attach the top cover plate, taking care to assure that the wires are not pinched.

CHG.	E.C.O.	DATE	APPR.
ISSUE	-	9/15/70	WAB
A	0059	10-20-70	WAB



NOTE ORIENTATION

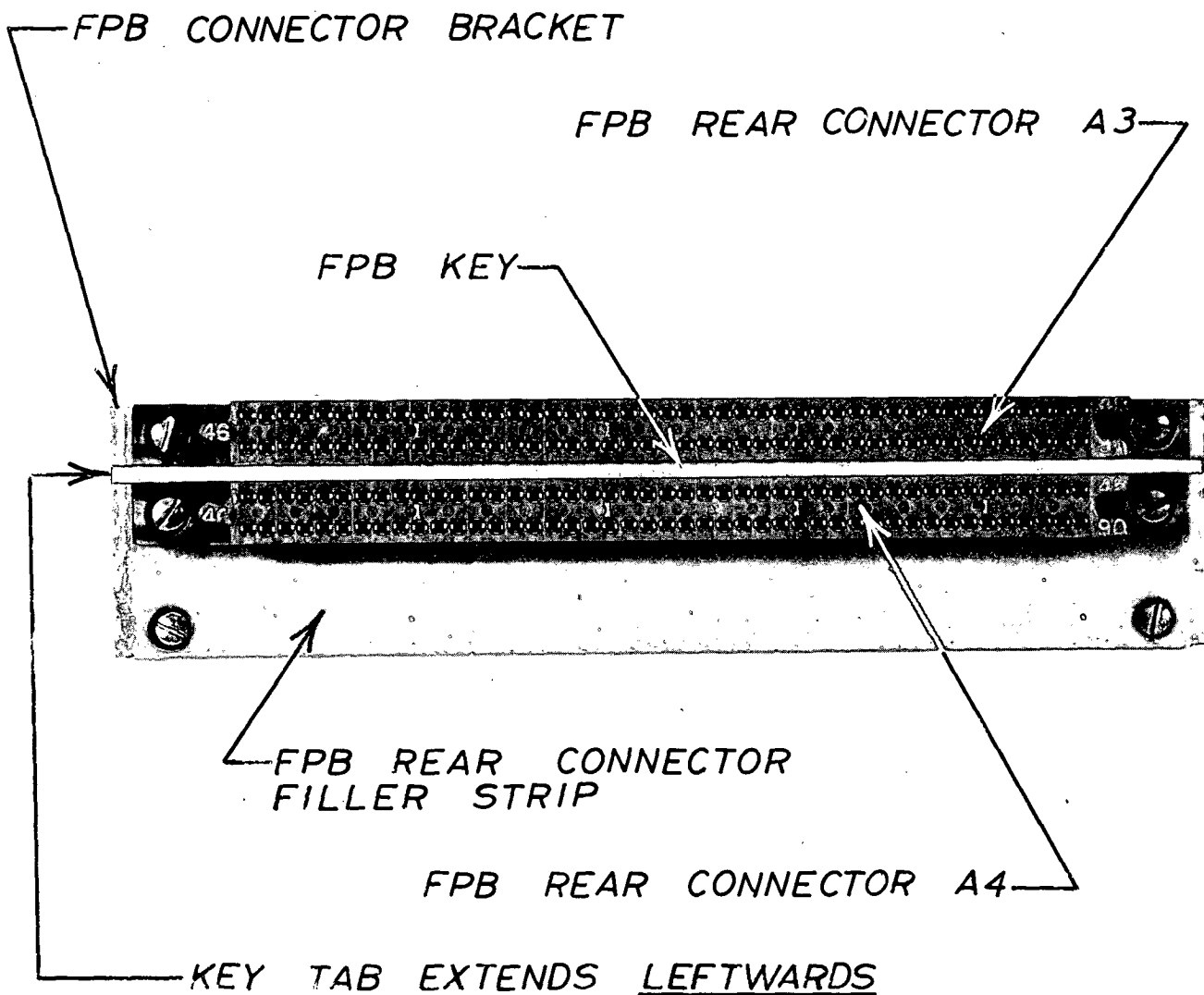
**COMPUTER SYSTEMS LABORATORY**  
WASHINGTON UNIVERSITY  
ST. LOUIS, MISSOURI

**MACROMODULAR PROJECT**

TITLE  
**TYPE 2 FPB ASSEMBLY**

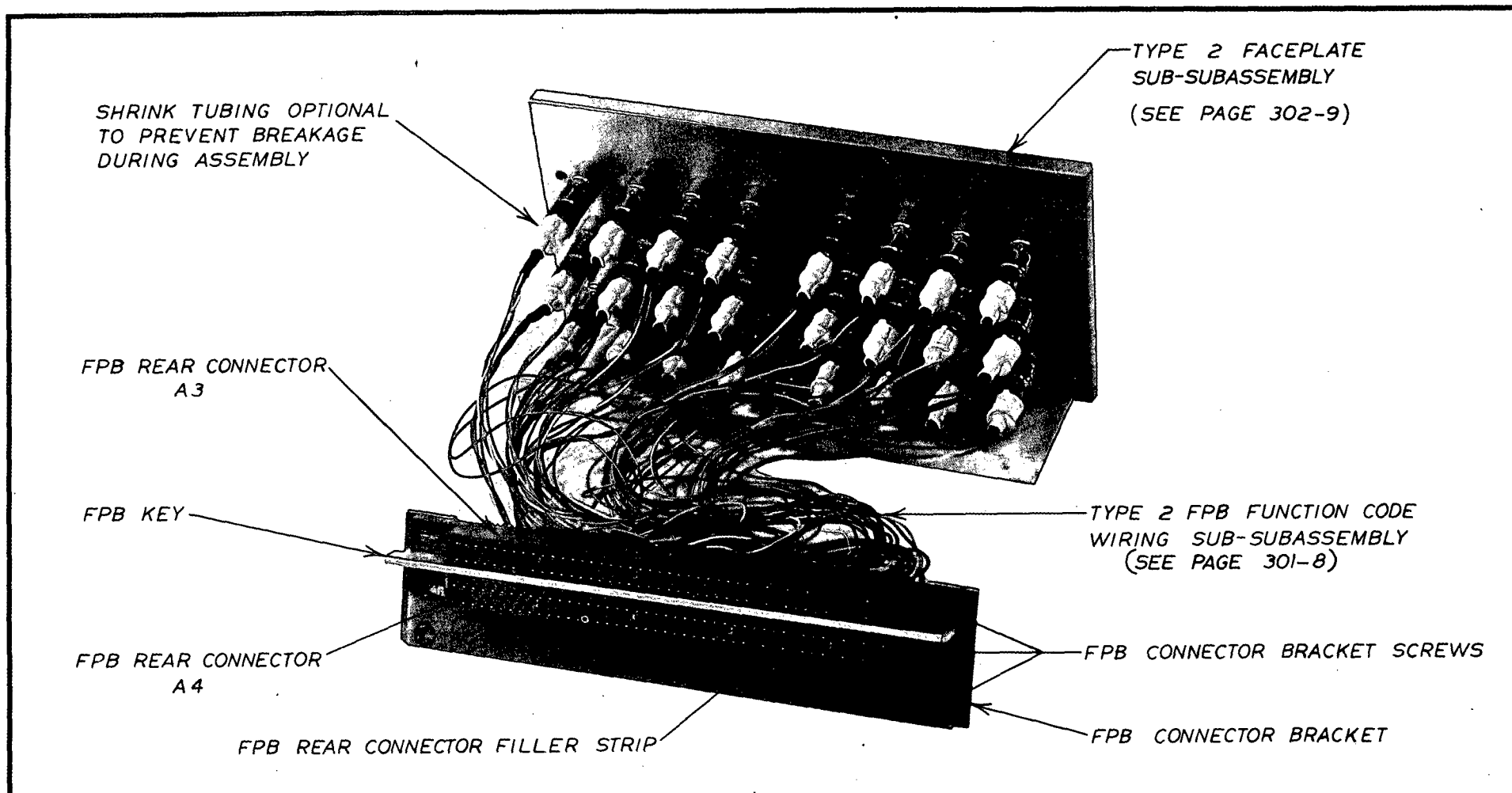
APPROVED			BY	FOR	DATE	DRN	WAC	DRAWING NO
WAC	PROD	10/20/70	WAC	PROD	10/20/70	DRN	PLL	302-5
WAC							DATE	10-20-70

CHANGE NO	DATE	DESCRIPTION
A	10-20-70	E.C.O. 0059 WAC



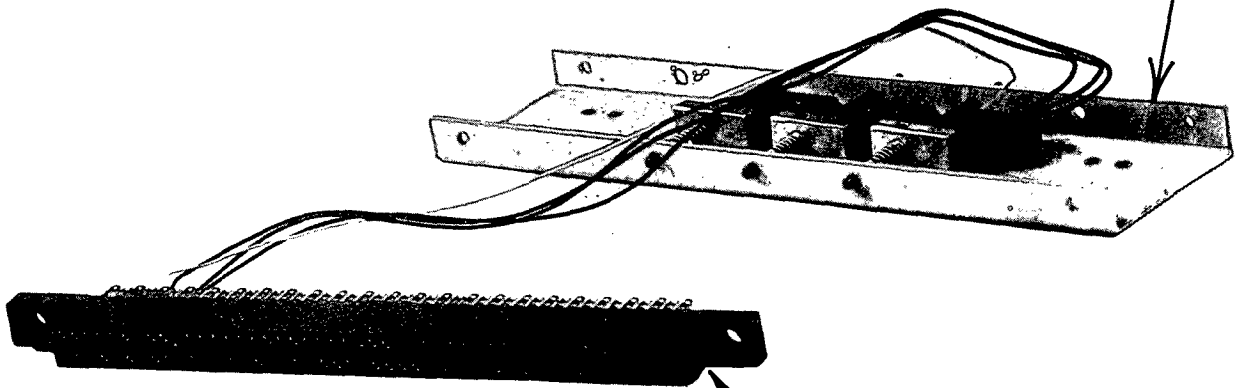
NOTE ORIENTATION OF EACH PART

COMPUTER SYSTEMS LABORATORY WASHINGTON UNIVERSITY ST. LOUIS, MISSOURI			MACROMODULAR PROJECT			
			TITLE TYPE 2 FPB REAR CONNECTOR BLOCK ASSEMBLY ORIENTATION			
			APPROVED			
			BY	FOR	DATE	
			WAB	PROD	10-20-70	
			ENG WAC			
			DRAWING NO. 302-6			
			DRAWN BY DHO			
			CHECKED WAB			
			DATE 10-20-70			
CHANGE NO.	DATE	DESCRIPTION				
A	10-20-70	E.C.O. 0059 WAB				



			<b>COMPUTER SYSTEMS LABORATORY</b> WASHINGTON UNIVERSITY ST. LOUIS, MISSOURI		TITLE <b>TYPE 2 FPB VISCERAL SUBASSEMBLY</b>				
			<b>MACROMODULAR PROJECT</b>		APPROVED BY <i>WJ</i> FOR <i>PROD.</i> DATE <i>11-24-71</i>			ENG. <b>WAC</b>	DRAWING NO. <b>302-7</b>
B 11-23-71 E.C.O. 0229 RJA					CHECKED <b>RJA</b>			DATE <b>10-20-70</b>	
CHANGE NO.	DATE	DESCRIPTION							

# TYPE 2 FPB FUNCTION CODE SWITCH SUBASSEMBLY



FPB REAR CONNECTOR  
A4

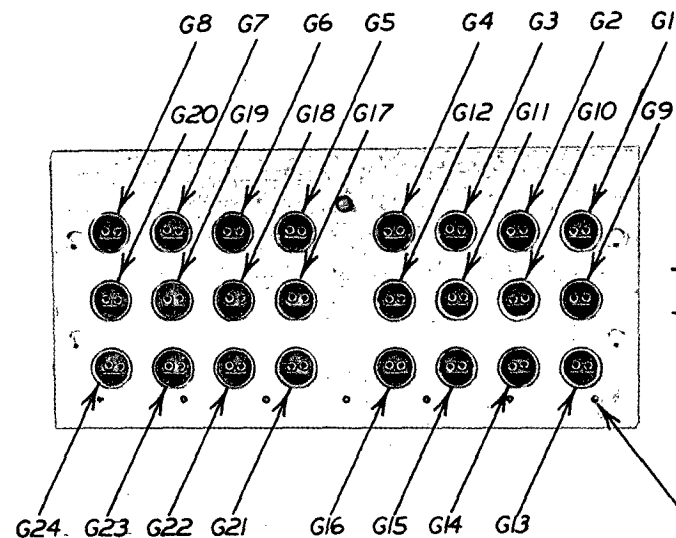
COMPUTER SYSTEMS LABORATORY WASHINGTON UNIVERSITY ST. LOUIS, MISSOURI			MACROMODULAR PROJECT			
			TITLE TYPE 2 FPB FUNCTION CODE WIRING SUB-SUBASSEMBLY			
			APPROVED		ENG WAC	
			BY	FOR	DATE	
			mcj	PROD.	11-24-71	
					DRAWN BY PLL	
					CHECKED RJA	
					DATE 8-24-70	
CHANGE NO	DATE	DESCRIPTION				
B	11-21-71	E.C.O. 0229 RJA				

PRESS-FIT PREWIRED  
COAXICONS

SPRING PLUNGER

TYPE 2 FACEPLATE

FPB REAR CONNECTOR A3



NOTE  
ORIENTATION

ROLL PIN SUNK FLUSH  
WITH REAR SURFACE

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MACROMODULAR PROJECT

TITLE  
TYPE 2 FACEPLATE SUB-SUBASSEMBLY

APPROVED			ENG. WAC	DRAWING NO. 302-9
BY WAC	FOR Prod	DATE 9/15/70	DRAWN BY DHO	
CHECKED			WAC	DATE 8-24-70

ISSUE	9/15/70	WAC
CHANGE NO.	DATE	DESCRIPTION



[FPT2C  
[  
[WIRING LIST FOR TYPE TWO FACEPLATE BOX  
[  
[  
[  
[

if

并

44

15

44

24

4.

4

172

去

4

3

..

302-10

[illegible]

#

#

>>>>>>>>>>>>>>

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096

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7

>>>>>>>>>>>>>>>>

i

CHG.	E.C.O.	DATE	APPR.
ISSUE	-	9/15/70	WAG







82A3 [NO CONNECTION  
 #  
 83A3 [NO CONNECTION  
 #  
 84A3 [NO CONNECTION  
 #  
 85A3 [NO CONNECTION  
 #  
 86A3 [NO CONNECTION  
 #  
 87A3 [NO CONNECTION  
 #  
 88A3 [NO CONNECTION  
 #  
 89A3 [NO CONNECTION  
 #  
 90A3 [NO CONNECTION  
 #  
 [ SWITCHES ARE WIRED WITH SINGLE WIRES  
 [ 79A4 [NO CONNECTION  
 #  
 80A4  
 2S1 [RED  
 #  
 81A4 [NO CONNECTION  
 #  
 82A4  
 2S2 [RED  
 #  
 83A4 [NO CONNECTION  
 #  
 84A4  
 2S3 [RED  
 #  
 86A4 [NO CONNECTION  
 #  
 87A4 [NO CONNECTION  
 #  
 88A4  
 1S1 [YELLOW  
 1S2 [YELLOW  
 1S3 [YELLOW  
 #  
 89A4 [NO CONNECTION  
 #  
 [ END OF WIRING LIST  
 [ FPT2WL  
 [ GERALD C JOHNS

CHG.	E.C.O.	DATE	APPR.
ISSUE	-	9/15/70	WAB
B	0229	11/71	RJA

**COMPUTER SYSTEMS LABORATORY**  
WASHINGTON UNIVERSITY

**303**

**TYPE 3 FACEPLATE BOX**

PAGE	TITLE	CHANGE
303-1	TITLE PAGE	<b>A</b>
303-2	TYPE 3 FACEPLATE BOX PARTS LIST	
303-3	TYPE 3 FACEPLATE BOX - INTRODUCTION AND ASSEMBLY PROCEDURE	
303-4		
303-5	TYPE 3 FPB ASSEMBLY	
303-6	TYPE 3 FPB REAR CONNECTOR BLOCK - ASSEMBLY ORIENTATION	
303-7	TYPE 3 VISCERAL SUBASSEMBLY	
303-8	TYPE 3 INTERWIRING SUB-SUBASSEMBLY	
303-9	TYPE 3 FACEPLATE SUB-SUBASSEMBLY	
303-10 thru 303-16	TYPE 3 FACEPLATE BOX WIRING LIST	A

CHG.	E.C.O.	DATE	APPR.	CHG.	E.C.O.	DATE	APPR.	CHG.	E.C.O.	DATE	APPR.
ISSUE	-	9/15/70	WAG								
A	0041	10/5/70	SCJ								

MACROMODULAR SYSTEMS PROJECT

## PARTS LIST

QTY.	C.S.L. DOC.	PART
1	300.1	1-CELL FPB SHELL
1	300.5-9	TYPE 3 FACEPLATE
2	300.5-3	FPB CONNECTOR BRACKET SCREW
12	300.5-4	ASTRO STANDOFF
1	300.5-5	FPB KEY
1	300.6	V-BUS SUBASSEMBLY
1	300.0	FPB REAR CONNECTOR
3	300.0	ASTRO 348 REAR NUT
3	300.0	ASTRO 348 CONTACT RETENTION DISC
3	300.0	ASTRO 348 INTERFACIAL SEAL
108	300.0	ASTRO 348 MALE CONTACT
3	300.0	ASTRO 348 RECEPTACLE SHELL
1	-	VLIER #NS- 51N SPRING PLUNGER
3	-	NO. 2 SERRATED-HOLE SOLDER LUG
28	-	3/16 X 2-56 FILLISTER HEAD SS MACHINE SCREW
-	300.0	WIRE (SEE 303-10 ff FOR COLOR CODE)
6	-	130 OHM 1/8 WATT 5% CARBON RESISTOR

[illegible]



## TYPE 3 FACEPLATE BOX

### INTRODUCTION

This document (303) describes the assembly of the Type 3 Faceplate Box. A list of all required parts, including subassemblies specified in other documents, is given on page 303-2. The general specification on wire preparation and wiring procedures (CSL Document 300.0) must be followed, together with the color code information supplied by the Type 3 Faceplate Box Wiring List (pages 303-10 ff).

### ASSEMBLY PROCEDURE

#### A. Type 3 Faceplate Sub-subassembly (see page 303-9)

1. Screw the spring plunger into the faceplate until the tip of the plunger protrudes from the front surface of the faceplate by approximately 0.090 inch.
2. Mount the three ASTRO 348 receptacle shells via the ASTRO standoffs to the faceplate as shown on page 303-9 using 2-56 fillister head screws. NOTE THE ORIENTATION REQUIRED.

#### B. Type 3 FPB Interwiring Sub-subassembly (see page 303-8)

1. Connectors D1, D2 and D3  
Following the Type 3 Faceplate Box Wiring List, crimp the wire pairs and the six resistors into the ASTRO 348 male contacts and insert the contacts into designated contact retention discs (pin numbering is stamped in the receptacle shell). Apply the interfacial seals and slip on the rear nuts.
2. Wire to the FPB rear connector A3, together with three solder-lug leads.

#### C. Type 3 Visceral Subassembly (see page 303-7)

1. Install the contact retention disc assemblies in the corresponding receptacle shells for D1, D2 and D3 (shown on page 303-9) and hand-tighten the ASTRO 348 Rear Nuts.

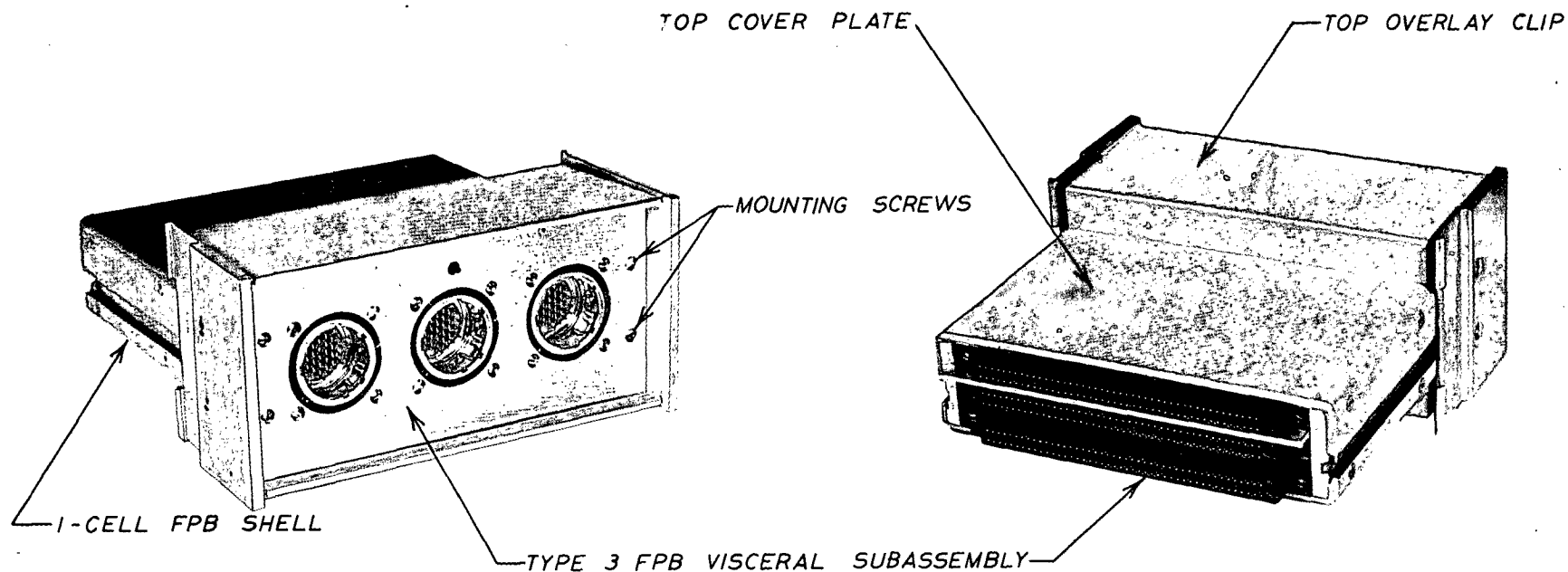
CHG.	E.C.O.	DATE	APPR.
ISSUE	-	9/15/70	WAG

2. Attach the solder lugs to the receptacle shells as shown.
3. Rear connector block:  
Slip the FPB Key onto the V-Bus Subassembly connector brackets, and mount the FPB Rear Connector A3 using the two connector bracket screws. NOTE THE ORIENTATION REQUIRED. (page 303-6).

D. Final Assembly (see page 303-5)

1. Remove the four screws holding the top cover plate to the 1-cell FPB Shell struts and remove the top cover plate and the top overlay clip.
2. Slip the rear connector block of the Visceral Subassembly into the slots provided in the struts for the connector bracket, and attach the Face-plate to the front using the remaining 2-56 fillister head screws. NOTE THE ORIENTATION REQUIRED.
3. Reinstall the top overlay clip and attach the top cover plate, taking care to assure that the wires are not pinched.

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NOTE ORIENTATION

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TITLE

**TYPE 3 FPB ASSEMBLY**

APPROVED

BY FOR DATE  
WAG Prod 9/15/70

ENG.

WAC  
DRAWN BY  
DHO

DRAWING NO.

303-5

CHECKED

WAG

DATE

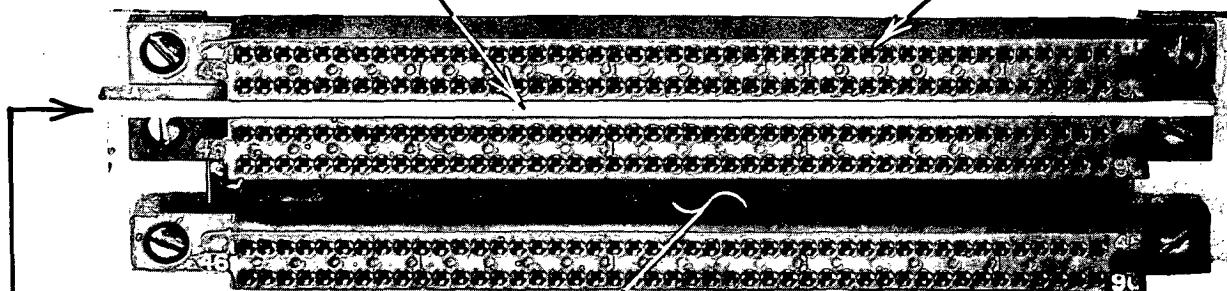
8-24-70

ISSUE 9/15/70 WAG

CHANGE NO.	DATE	DESCRIPTION

FPB REAR CONNECTOR A3

FPB KEY



V-BUS SUBASSEMBLY

KEY TAB EXTENDS LEFTWARDS

NOTE ORIENTATION OF EACH PART

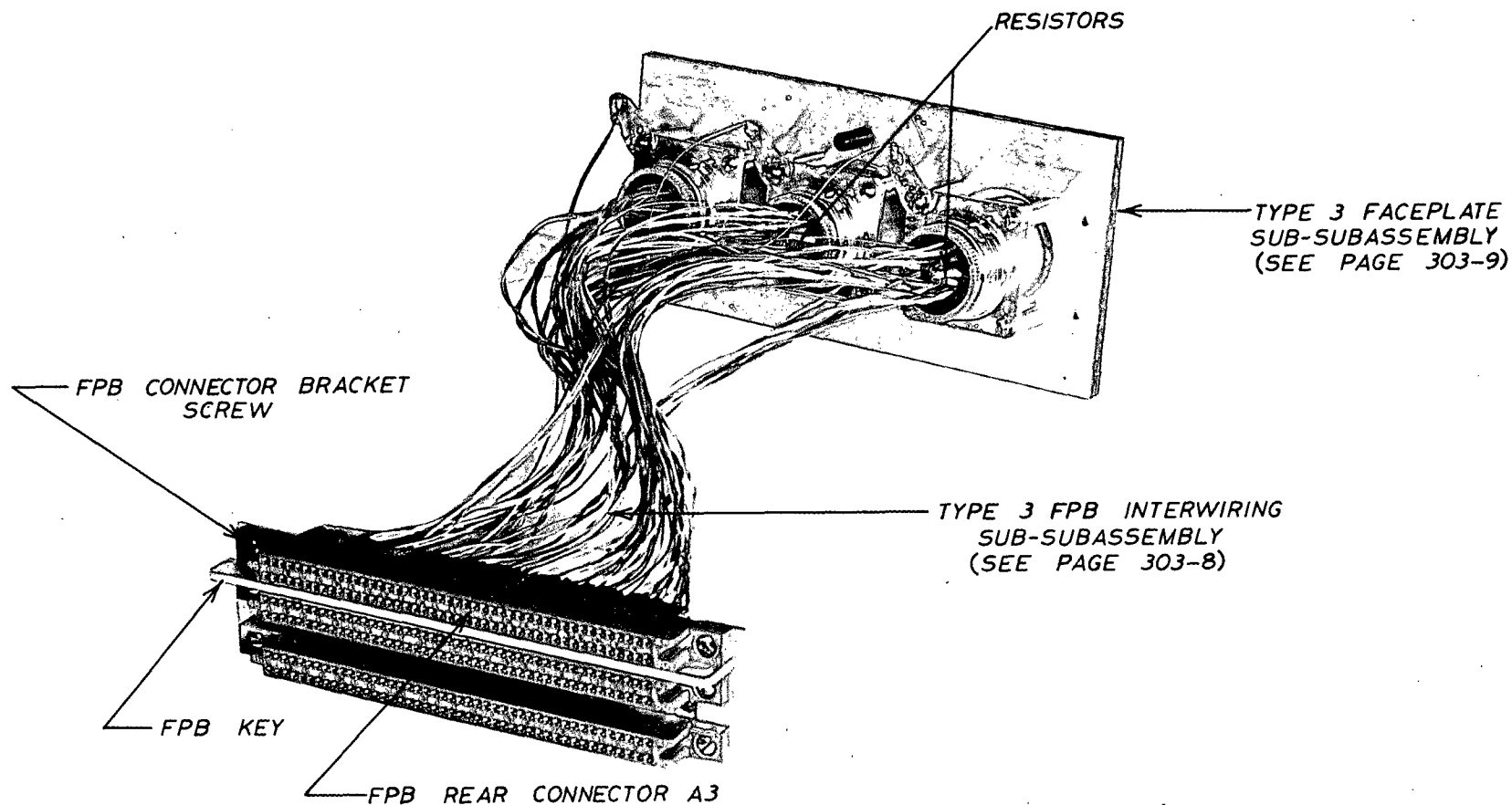
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**MACROMODULAR PROJECT**

TITLE  
**TYPE 3 FPB REAR CONNECTOR  
BLOCK-ASSEMBLY ORIENTATION**

			APPROVED			ENG <b>WAC</b>	DRAWING NO. <b>303-6</b>
			BY <i>Wab</i>	FOR <i>Prod</i>	DATE <i>9/15/70</i>	DRAWN BY <b>DHO</b>	
<b>ISSUE</b>	<i>9/15/70</i>	<i>Wab</i>				CHECKED <i>Wab</i>	DATE <b>8-24-70</b>
CHANGE NO.	DATE	DESCRIPTION					



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**MACROMODULAR PROJECT**

TITLE  
**TYPE 3 FPB VISCERAL SUBASSEMBLY**

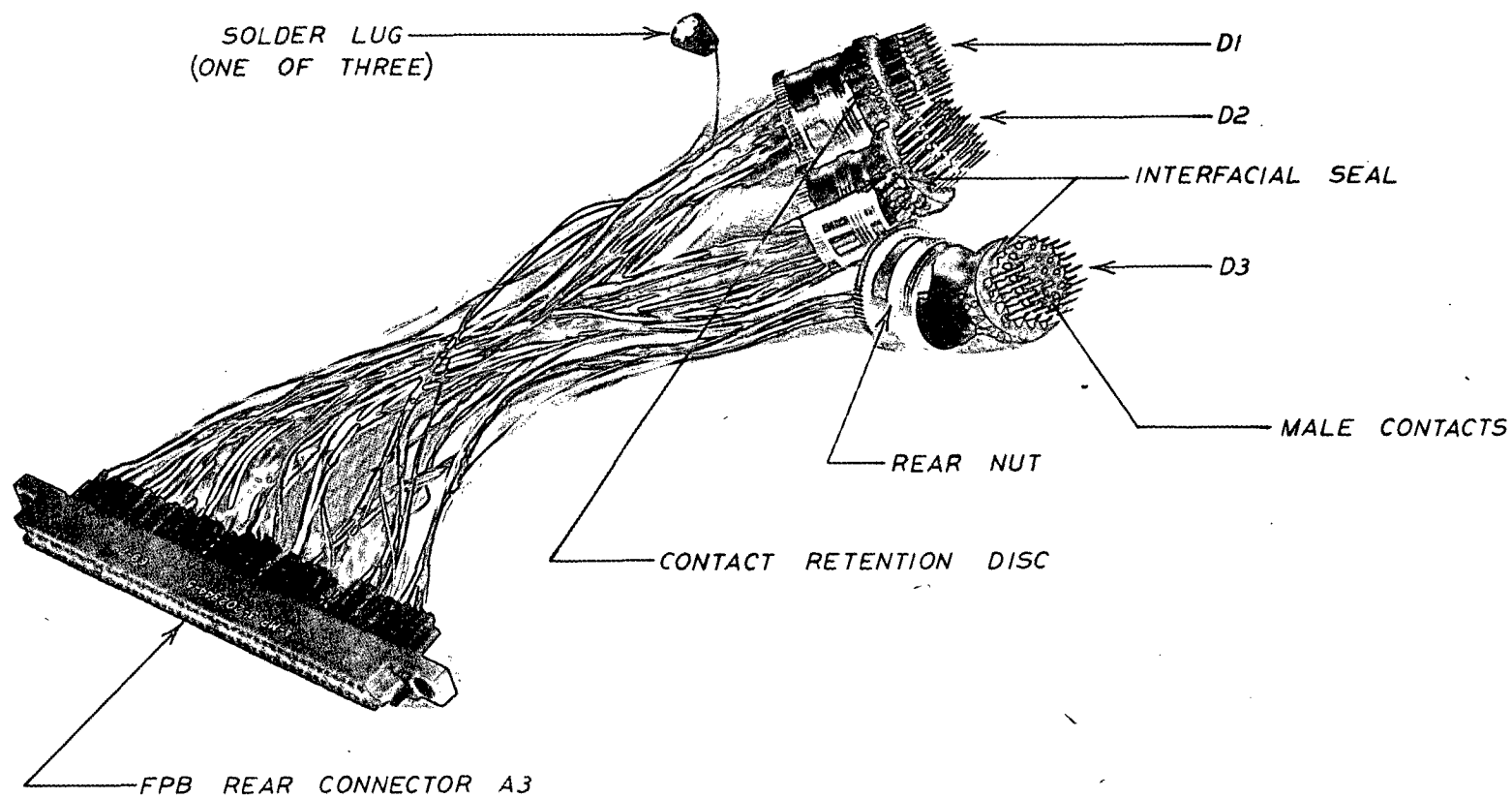
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BY	FOR	DATE
Wab	Prod	9/15/70

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Wab

DRAWING NO.
303-7
DATE
8-24-70

ISSUE 9/15/70 Wab

CHANGE NO.	DATE	DESCRIPTION
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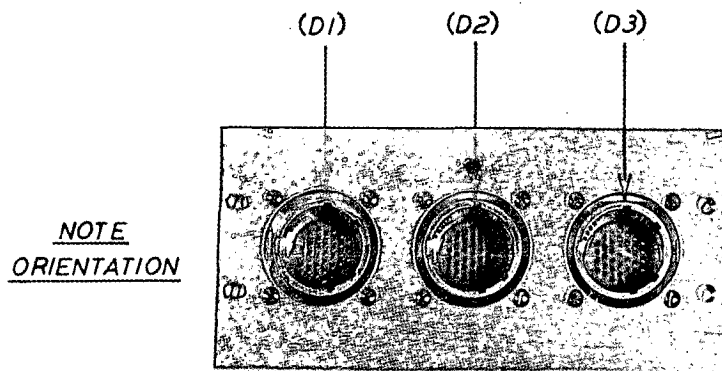
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TITLE  
**TYPE 3 FPB INTERWIRING SUB-SUBASSEMBLY**

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BY <b>Wab</b>	FOR <b>And</b>	DATE <b>9/15/70</b>	DRAWN BY <b>DHO</b>	
			CHECKED <b>Wab</b>	DATE <b>8-24-70</b>

ISSUE **9/15/70** **Wab**

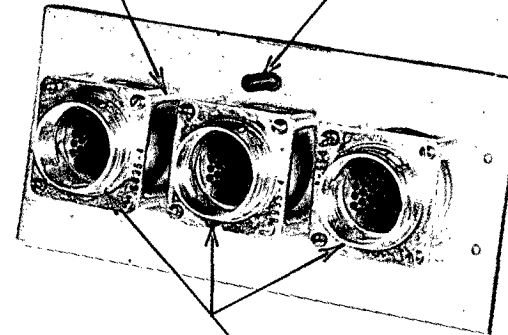
CHANGE NO.	DATE	DESCRIPTION
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TYPE 3 FACEPLATE

ASTRO STANDOFF

SPRING PLUNGER



ASTRO 348 RECEPTACLE SHELLS

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**MACROMODULAR PROJECT**

TITLE

TYPE 3 FACEPLATE SUB-SUBASSEMBLY

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CHECKED WAG

DRAWING NO.

303-9

DATE 8-24-70

ISSUE 9/15/70 WAG

CHANGE NO.	DATE	DESCRIPTION





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#

1

13

10

1

2

4

1

1

1



```
# 15D2 [ GREEN
#
50A3
14D2 [ RED
#
>>>>>>>>>>>>>>
51A3 [NO CONNECTION
#
52A3 [NO CONNECTION
#
>>>>>>>>>>>>>>
53A3
13D2 [ GREEN
#
54A3
12D2 [ WHITE
#
>>>>>>>>>>>>>>
55A3
11D2 [ BROWN
#
56A3
10D2 [ WHITE
#
>>>>>>>>>>>>>>
57A3
18D3 [ VIOLET
#
58A3
19D3 [ BLUE
#
>>>>>>>>>>>>>>
59A3
6D3 [ VIOLET
#
60A3
7D3 [ ORANGE
#
>>>>>>>>>>>>>>
61A3
18D2 [ VIOLET
#
62A3
19D2 [ BLUE
#
>>>>>>>>>>>>>>
63A3
18D1 [ VIOLET
#
64A3
19D1 [ BLUE
#
>>>>>>>>>>>>>>
65A3 [NO CONNECTION
#
66A3 [SIX INCH WIRE WITH GROUND LUG
[CONNECT TO D1
```

#

4

#

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**71A3**

10

7D1 [ ORANGE

**73A3**

10

7D2 ( ORANGE

75A3



2901 GREEN

**C**

**77A3**

5D2 C YELLOW

●

●

●

4

疾

22D3 (BLUE

83A3

●

23D3 ( RED

>>>>>>>>>>>>>>>>  
85A3  
33D3 [ BLUE

#

86A3  
32D3 [ RED

#

>>>>>>>>>>>>>>>>  
87A3  
31D3 [ SLATE

#

88A3  
30D3 [ YELLOW

#

>>>>>>>>>>>>>>>>  
89A3  
37D3 [ ORANGE

#

90A3  
36D3 [ YELLOW

#

>>>>>>>>>>>>>>>>

```
[
    1D1 [ RED
    1R601

#

    2D1 [ SLATE
    2R601

#

    >>>>>>>>>>>>>>
    1D2 [ RED
    1R602

#

    2D2 [ SLATE
    2R602

#

    >>>>>>>>>>>>>>
    3D1 [ YELLOW
    1R603

#

    4D1 [ BLUE
    2R603

#

    >>>>>>>>>>>>>>
    3D2 [ YELLOW
    1R604

#

    4D2 [ BLUE
    2R604

#

    >>>>>>>>>>>>>>
    34D1 [ WHITE
```

```
#
1R605
35D1 [ BLUE
2R605

#
>>>>>>>>>>>>>>
34D2 [ WHITE
1R606

#
35D2 [ BLUE
2R606

#
>>>>>>>>>>>>>>

[
[END OF WIRING LIST
[
[
[TYPE THREE FACEPLATE COPPER LIST
[
[
[FPT3WL
[GERALD C JOHNS
[22 JULY 1970
```

**COMPUTER SYSTEMS LABORATORY**  
WASHINGTON UNIVERSITY

**304**

**TYPE 4 FACEPLATE BOX**

PAGE	TITLE	CHANGE
304-1	TITLE PAGE	<b>A</b>
304-2	TYPE 4 FACEPLATE BOX PARTS LIST	
304-3	TYPE 4 FACEPLATE BOX - INTRODUCTION AND ASSEMBLY PROCEDURE	
304-4		
304-5	TYPE 4 FPB ASSEMBLY	
304-6	TYPE 4 FPB REAR CONNECTOR BLOCK-ASSEMBLY ORIENTATION	
304-7	TYPE 4 FPB VISCERAL SUBASSEMBLY	
304-8	TYPE 4 FPB INTERWIRING SUB-SUBASSEMBLY	
304-9	TYPE 4 FACEPLATE SUB-SUBASSEMBLY	
304-10 thru 304-15	TYPE 4 FACEPLATE BOX WIRING LIST	A

CHG.	E.C.O.	DATE	APPR.	CHG.	E.C.O.	DATE	APPR.	CHG.	E.C.O.	DATE	APPR.
ISSUE	—	9-17-70	<i>WAB</i>								
A	0041	10/5/70	<i>9107</i>								

# TYPE 4 FACEPLATE BOX

## PARTS LIST

QTY.	C.S.L. DOC.	PART
1	300.1	1-CELL FPB SHELL
1	300.5-10	TYPE 4 FACEPLATE
2	300.5-3	FPB CONNECTOR BRACKET SCREW
4	300.5-4	ASTRO STANDOFF
1	300.5-5	FPB KEY
1	300.6	V-BUS SUBASSEMBLY
1	300.0	FPB REAR CONNECTOR
1	300.0	ASTRO 348 REAR NUT
1	300.0	ASTRO 348 CONTACT RETENTION DISC
1	300.0	ASTRO 348 INTERFACIAL SEAL
37	300.0	ASTRO 348 MALE CONTACT
1	300.0	ASTRO 348 RECEPTACLE SHELL
9	300.0	COAXICON
9	300.0	FERRULE
1	-	VLIER #NS-5IN SPRING PLUNGER
1	-	NO. 2 SERRATED-HOLE SOLDER LUG
12	-	3/16 X 2-56 FILLISTER HEAD SS MACHINE SCREW
-	300.0	WIRE (SEE 3 04-10 ff FOR COLOR CODE)
3	-	130 OHM 1/8 WATT 5% CARBON RESISTOR

CHG.	E.C.O.	DATE	APPR.	CHG.	E.C.O.	DATE	APPR.	CHG.	E.C.O.	DATE	APPR.
ISSUE	-	9-17-70	406								



## TYPE 4 FACEPLATE BOX

### INTRODUCTION

This document (304) describes the assembly of the Type 4 Faceplate Box. A list of all required parts, including sub-assemblies specified in other documents, is given on page 304-2. The general specification on wire preparation and wiring procedures (CSL Document 300.0) must be followed, together with the color code information supplied by the Type 4 Faceplate Box Wiring List (pages 304-10 ff).

### ASSEMBLY PROCEDURE

#### A. Type 4 Faceplate Sub-subassembly (see page 304-9)

1. Crimp-wire the set of nine coaxicon control connectors and press the resulting pre-wired connectors into the faceplate in the locations shown on page 304-9, taking care to assure that after installation the connectors will accept a mating coaxicon plug without binding. NOTE THE ORIENTATION REQUIRED.
2. Screw the spring plunger into the faceplate until the tip of the plunger protrudes from the front surface of the faceplate by approximately 0.090 inch.
3. Mount the ASTRO 348 receptacle shell via the ASTRO standoffs to the faceplate as shown on page 304-9 using 2-56 fillister head screws. NOTE THE ORIENTATION REQUIRED.

#### B. Type 4 FPB Interwiring Sub-subassembly (see page 304-8)

1. Connector D1:  
Following the Type 4 Faceplate Box Wiring List, crimp the wire pairs and the three resistors into the ASTRO 348 male contacts and insert the contacts into the contact retention disc (pin numbering is stamped in the receptacle shell). Apply the interfacial seal and slip on the rear nut.
2. Wire to the FPB rear connector A3, together with solder-lug lead.

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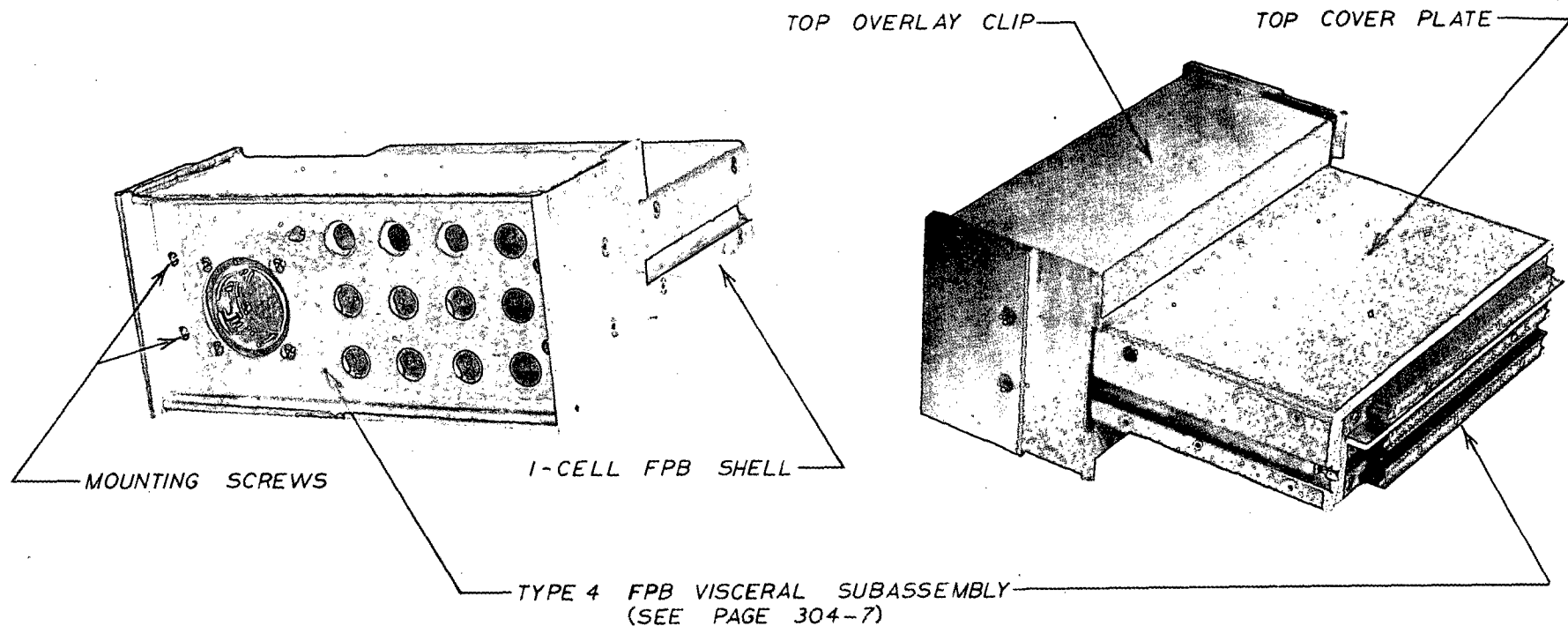
C. Type 4 Visceral Subassembly (see page 304-7)

1. Wire the leads from the coaxicon control connectors to the FPB Rear Connector A3.
2. Install the contact retention disc assembly in the corresponding receptacle shell of D1 (shown on page 304-9) and hand-tighten the ASTRO 348 Rear Nut.
3. Attach the solder lug to the receptacle shell as shown.
4. Rear connector block:  
Slip the FPB Key onto the V-Bus Subassembly connector brackets, and mount the FPB Rear Connector A3 using the two connector bracket screws. NOTE THE ORIENTATION REQUIRED (page 304-6).

D. Final Assembly (see page 304-5)

1. Remove the four screws holding the top cover plate to the 1-cell FPB Shell struts and remove the top cover plate and the top overlay clip.
2. Slip the rear connector block of the Visceral Subassembly into the slots provided in the struts for the connector brackets, and attach the Faceplate to the front using the remaining 2-56 fillister head screws. NOTE THE ORIENTATION REQUIRED.
3. Reinstall the top overlay clip and attach the top cover plate, taking care to assure that the wires are not pinched.

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TITLE

TYPE 4 FPB ASSEMBLY

ISSUE 9-17-70 *Wag*

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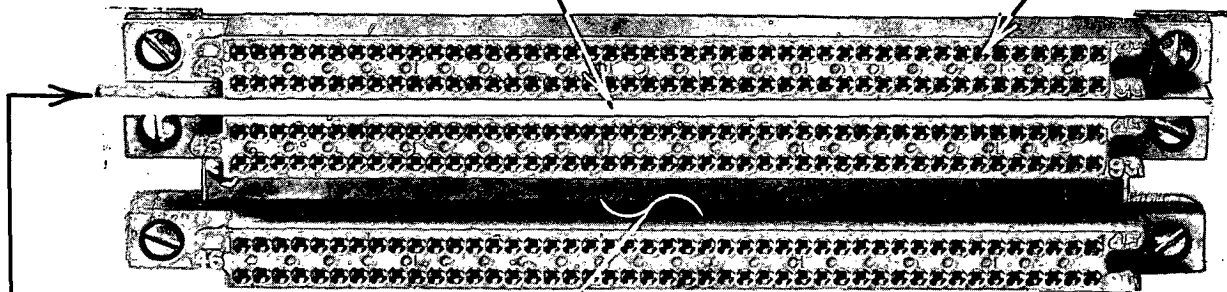
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ENG. <i>WAC</i>
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CHECKED <i>Wag</i>

DRAWING NO. 304-5
DATE 8-28-70

FPB REAR CONNECTOR A3

FPB KEY



V-BUS SUBASSEMBLY

KEY TAB EXTENDS LEFTWARDS

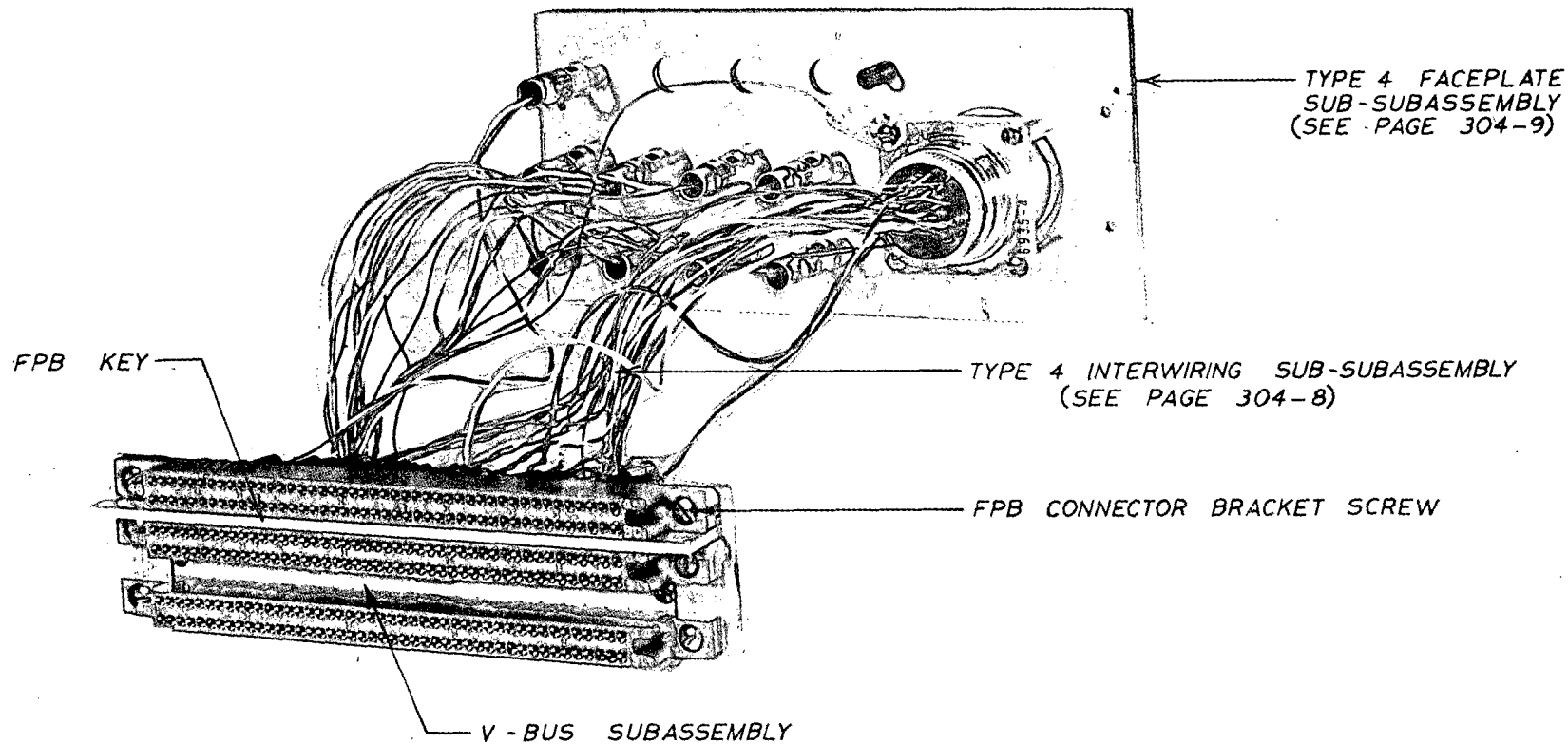
NOTE ORIENTATION OF EACH PART

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# MACROMODULAR PROJECT

TITLE  
TYPE 4 FPB REAR CONNECTOR  
BLOCK-ASSEMBLY ORIENTATION

		APPROVED		ENG WAC	DRAWING NO.
		BY WAC	FOR Prod	DRAWN BY DHO	304-6
		DATE 9/17/70		CHECKED WAC	DATE 8-28-70
ISSUE	9-17-70	WAC			
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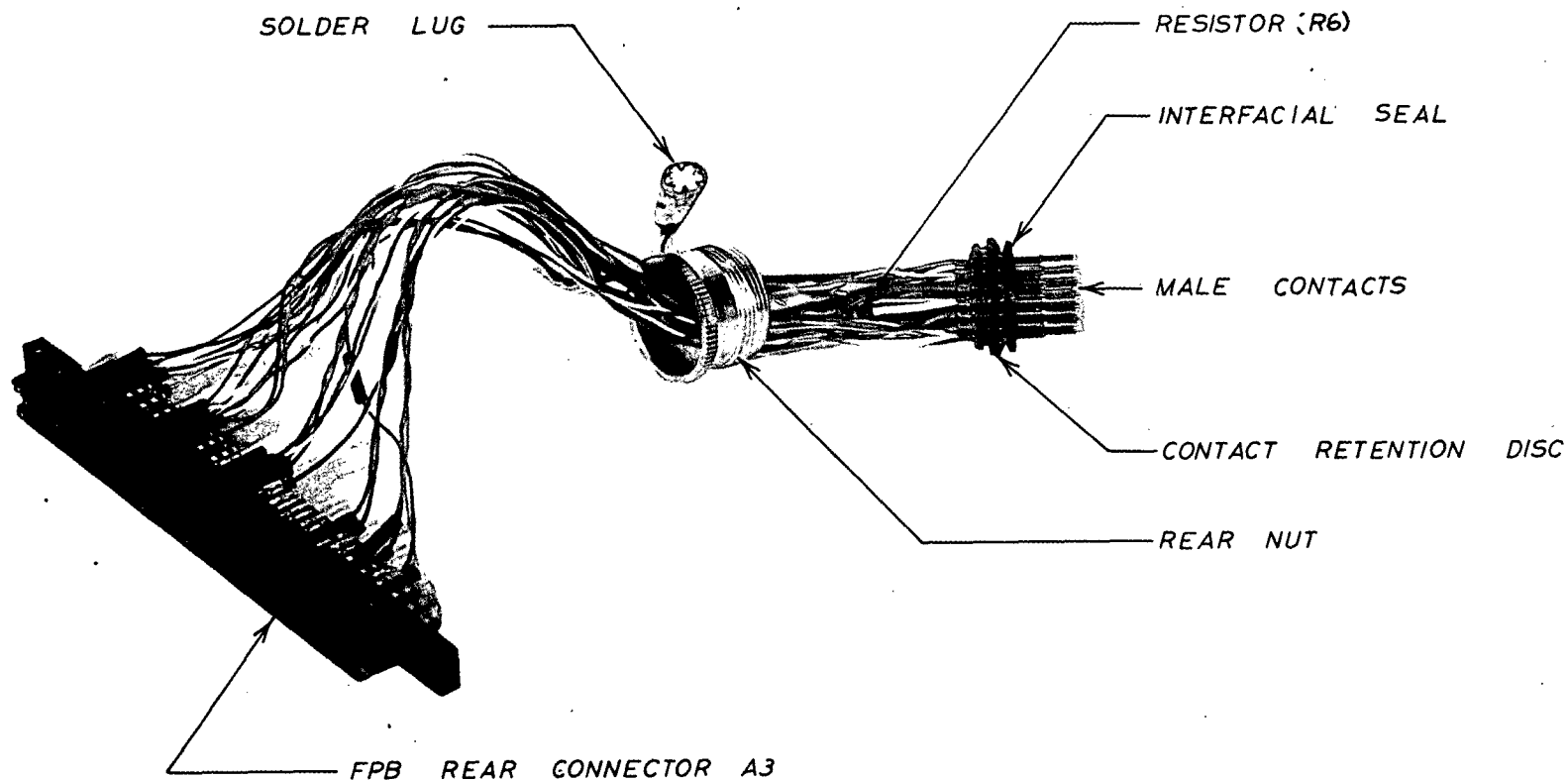
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TITLE  
**TYPE 4 FPB VISCERAL SUBASSEMBLY**

APPROVED			ENG. WAC	DRAWING NO.
BY	FOR	DATE	DRAWN BY	
<i>WAC</i>	<i>Prod</i>	9 17 70	DHO	304-7
CHECKED			<i>WAC</i>	DATE 8-28-70

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CHANGE NO.	DATE	DESCRIPTION



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**MACROMODULAR PROJECT**

TITLE

**TYPE 4 FPB INTERWIRING SUB-SUBASSEMBLY**

APPROVED		
BY	FOR	DATE
<i>WAC</i>	<i>Pod</i>	9-17-70

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DRAWN BY **DHO**  
CHECKED *WAC*

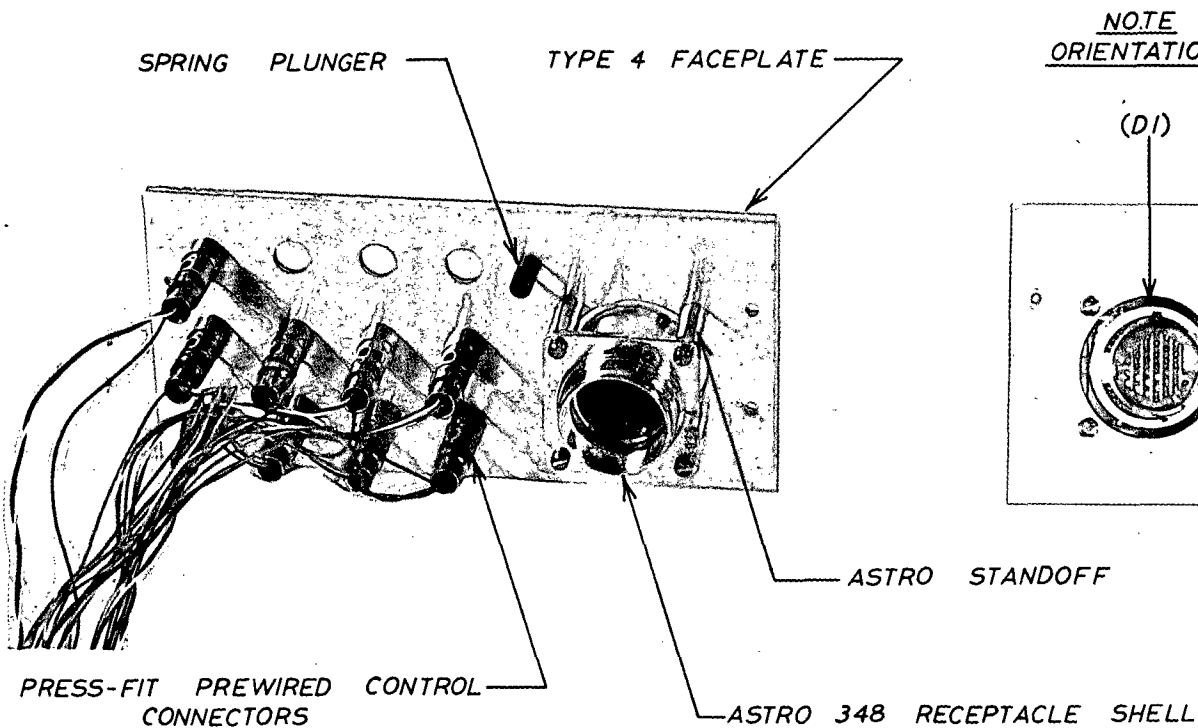
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DATE **8-31-70**

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CHANGE NO.

DATE

DESCRIPTION



				<b>COMPUTER SYSTEMS LABORATORY</b> WASHINGTON UNIVERSITY ST. LOUIS, MISSOURI		TITLE <b>TYPE 4 FACEPLATE SUB-SUBASSEMBLY</b>	
				<b>MACROMODULAR PROJECT</b>		APPROVED BY: <i>DAB</i> FOR: <i>Prod</i> DATE: 9-17-70 ENG. <b>WAC</b> DRAWN BY: <b>DHO</b> CHECKED: <i>WAB</i>	
ISSUE 9-17-70 <i>WAB</i>						DRAWING NO. <b>304-9</b> DATE: <b>8-31-70</b>	
CHANGE NO.	DATE	DESCRIPTION					

## TYPE FOUR FACEPLATE BOX WIRING LIST

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Figure 1

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```
#>>>>>>>>>>>>#
39A3
9D1 [ ORANGE

#40A3
8D1 [ WHITE

#>>>>>>>>>>>>#
41A3
15D1 [ GREEN

#42A3
14D1 [ RED

.#>>>>>>>>>>>>#
43A3
13D1 [ GREEN

#44A3
12D1 [ WHITE

#>>>>>>>>>>>>#
45A3
11D1 [ BROWN

#46A3
10D1 [ WHITE

#>>>>>>>>>>>>#
47A3
1G2 [ WHITE

#48A3
2G2 [ ORANGE

#>>>>>>>>>>>>#
49A3
1G3 [ WHITE

#50A3
2G3 [ GREEN

#>>>>>>>>>>>>#
51A3
3G4 [ BLUE
3G8 [ BLUE

#>>>>>>>>>>>>#
52A3
3G3 [ BLUE
3G7 [ BLUE

#>>>>>>>>>>>>#
53A3
1G4 [ WHITE
```

FPT4WL, 4 LN=254

54A3  
2G4 ( BROWN

>>>>>>>>>>>>>>>>>>

55A3  
1G5 ( WHITE

56A3  
2G5 [ SLATE

>>>>>>>>>>>>>>>>>>>

57A3  
1G6 [ YELLOW

58A3  
2G6 ( BLUE

>>>>>>>>>>>>>>

59A3  
1G7 ( YELLOW

60A3  
2G7 [ ORANGE

>>>>>>>>>>>>>>>>>>>

61A3  
1G8 [ YELLOW

62A3  
2G8 [ GREEN

>>>>>>>>>>>>>>>>>>>

63A3  
18D1 C VIOLET

64A3  
19D1 ( BLUE

>>>>>>>>>>>>>>>>>>>

65A3  
3G2 [ BLUE

>>>>>>>>>>>>>>>>>>>

66A3  
3G6 [ BLUE

>>>>>>>>>>>>>>>>>>>

67A3  
1G9 [ RED

68A3  
2G9 ( BLUE

>>>>>>>>>>>>>>>>>>

69A3  
1G1 [ WHITE

```
#
70A3
2G1 [ BLUE
#
>>>>>>>>>>>>
71A3
6D1 [ VIOLET
#
72A3
7D1 [ ORANGE
#
>>>>>>>>>>>>
73A3 [NO CONNECTION
#
74A3 [NO CONNECTION
#
75A3 [NO CONNECTION
#
>>>>>>>>>>>>
76A3
29D1 [ GREEN
>>>>>>>>>>>>
#
77A3
5D1 [ YELLOW
#
>>>>>>>>>>>>
78A3
3G1 [ BLUE
#
>>>>>>>>>>>>
79A3 [NO CONNECTION
>>>>>>>>>>>>
#
80A3 [ SIX INCH BLUE WIRE WITH GROUND LUG
[CONNECT TO D1
#
>>>>>>>>>>>>
81A3 [NO CONNECTION
#
>>>>>>>>>>>>
82A3 [NO CONNECTION
#
>>>>>>>>>>>>
83A3 [NO CONNECTION
#
>>>>>>>>>>>>
84A3 [NO CONNECTION
#
>>>>>>>>>>>>
85A3 [NO CONNECTION
#
>>>>>>>>>>>>
86A3 [NO CONNECTION
#
>>>>>>>>>>>>
87A3 [NO CONNECTION
#
```



UNCLASSIFIED  
Security Classification

DOCUMENT CONTROL DATA - R & D

(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified)

1. ORIGINATING ACTIVITY (Corporate author) Computer Systems Laboratory Washington University St. Louis, Missouri		2a. REPORT SECURITY CLASSIFICATION UNCLASSIFIED	
		2b. GROUP	
3. REPORT TITLE  FACEPLATE OVERLAYS, OVERLAY LABELS AND FACEPLATE BOXES, TYPES 1 THROUGH 4			
4. DESCRIPTIVE NOTES (Type of report and inclusive dates) Final Report 4/1/65 through 12/31/73			
5. AUTHOR(S) (First name, middle initial, last name)  George L. Bickmore, Editor			
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10. DISTRIBUTION STATEMENT  Distribution of this document is unlimited.			
11. SUPPLEMENTARY NOTES		12. SPONSORING MILITARY ACTIVITY ARPA - Information Processing Techniques, Washington, D.C.	
13. ABSTRACT  This document is divided into two segments. The first segment, pages 100.1-1 through 100.1-5, contains the information necessary to duplicate Macro-module Faceplate Overlays and Overlay Labels plus a brief functional description of the Overlay.  The second segment of this volume contains the necessary procedures and wiring lists for the assembly of Macro-Module Faceplate Box types 1 through 4.			

DD FORM 1473

REPLACES DD FORM 1473, 1 JAN 64, WHICH IS OBSOLETE FOR ARMY USE.

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14. KEY WORDS	LINK A		LINK B		LINK C	
	ROLE	WT	ROLE	WT	ROLE	WT
Macromodule Faceplate						
Macromodule Faceplate						
Macromodule Faceplate Box						
Macromodule Faceplate Overlay						

**UNCLASSIFIED**  
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