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1006387

REVISIONS						
SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
-		INITIAL RELEASE CLASS A PER TDRR 24677			12-14-65	
A		REVISED PER TDRR 25935			3/15/66	WJL
B		REVISED PER TDRR 28430	WPH		5/10/66	WJL
C		REVISED PER TDRR 32577	AF	SW	13JAN67	
D		REVISED PER TDRR 32719	LL	3.4r	26JAN67	

REQUIREMENTS:

1. GENERAL:

- A. INTERPRET DRAWING IN ACCORDANCE WITH THE STANDARDS PRESCRIBED BY MIL-D-70327.
- B. SUPPLIER SHALL CONFORM TO THE QUALITY ASSURANCE PROVISIONS CONTAINED IN ND 1015404, CLASS 2.
- C. UNITS SHALL BE CAPABLE OF MEETING ALL QUALIFICATION REQUIREMENTS OF ND 1002056.
- D. PART MARKING: PARTS SHALL BE PERMANENTLY AND LEGIBLY MARKED, IN ACCORDANCE WITH ND 1002019, WITH THE MANUFACTURER'S NAME AND/OR SYMBOL, LOT CODE OR NUMBER, TERMINAL IDENTIFICATION AND NASA PART NUMBER (DRAWING NUMBER) AND REVISION LETTER.
- E. PREPARATION FOR DELIVERY SHALL BE IN ACCORDANCE WITH ND 1002215, CLASS I, CODE 1.
 - (1) MARKING OF SHIPPING CONTAINERS SHALL CONFORM TO THE MARKING OF UNIT AND INTERMEDIATE PACKAGES AND THE METHODS OF MARKING AS SPECIFIED IN ND 1002215.

- (5) BRIGHTNESS: LEGEND BACKGROUNDS SHALL HAVE A BRIGHTNESS LEVEL OF 15 ± 3 FOOT-LAMBERTS AT $5.0 \pm .05$ VDC. THE LEGENDS MUST BE READABLE (WHEN ILLUMINATED) UNDER AN AMBIENT 50 FOOT-CANDLE ILLUMINATION.
- (6) ISOLATION: THERE SHALL BE NO LIGHT LEAKAGE FROM LIT TO UNLIT LEGEND AREAS. PAINT SHALL NOT BE DEEMED AN ADEQUATE LIGHT BLOCK.

B. ELECTRICAL CHARACTERISTICS:

- (1) POWER DISSIPATION:
 - YELLOW DISPLAYS: 0.180 AMPERES $\pm 15\%$ AT 5.0 ± 0.1 VDC.
 - WHITE DISPLAYS: 0.225 AMPERES $\pm 15\%$ AT 5.0 ± 0.1 VDC.
- (2) DIELECTRIC WITHSTANDING VOLTAGE: 200 ± 25 VRMS AT 60 CPS FOR 5 SECONDS BETWEEN ADJACENT TERMINALS AND BETWEEN ANY TERMINAL AND THE CASE PER MIL-STD-202, METHOD 301.
- (3) INSULATION RESISTANCE: 100 MEGOHMS MINIMUM AT 100 VDC AT SEA LEVEL, $70^\circ \pm 10^\circ$ F, 50% RH MAXIMUM, BETWEEN ADJACENT TERMINALS AND BETWEEN ANY TERMINAL AND CASE PER MIL-STD-202, METHOD 302.

2. ACCEPTANCE AND INSPECTION: (100%)

A. MECHANICAL AND PHYSICAL PROPERTIES:

- (1) DIMENSIONS: AS DELINEATED HEREIN.
- (2) SURFACE ROUGHNESS: 125 UNLESS OTHERWISE SPECIFIED.
- (3) MARKING: AS SPECIFIED IN NOTES 1.D. AND 1.E. NO MARKING SHALL APPEAR ON THE 32 AREA.
- (4) PANEL COLOR AND MARKING:

COLOR, ENERGIZED: CROSS HATCHED LEGEND AREAS TO BE YELLOW, ALL OTHER LEGEND AREAS TO BE WHITE.

COLOR, UNENERGIZED: LEGEND BACKGROUND TO BE LOW REFLECTIVE, DIFFUSE, NEUTRAL GREY WHEN NOT ENERGIZED. CONTRAST BETWEEN BLACK CHARACTERS AND UNLIGHTED BACKGROUND SHALL BE BETWEEN 2 TO 4 UNITS IN ACCORDANCE WITH MIL-P-7788.

SURFACE GLOSS: THE DISPLAY AREAS SHALL HAVE A SURFACE GLOSS OF 5 UNITS OR LESS AS MEASURED PER MIL-P-7788 WHEN IN THE UNENERGIZED CONDITION.

MARKING, LEGEND: LEGENDS SHALL BE AS SHOWN ON DRAWING. CHARACTERS SHALL BE GORTON CONDENSED WITH PROPORTIONS PER ND 1002122, TYPE II, CLASS 2. THE OVERALL HEIGHT OF CHARACTERS SHALL BE .156. THE LINE STROKE WIDTH SHALL BE .025/.030. LEGEND SHALL BE CENTERED ON DISPLAY FACE PLATE. FILL SHALL BE BLACK COLOR NO. 37038 PER FED-STD-595 AND SHALL BE OPAQUE WHEN LEGEND IS ENERGIZED.

PROCURE ONLY FROM APPROVED SOURCES LISTED IN ND 1002034 FOR THIS DRAWING.

-003	1 THRU 6 EXCEPT 3.C.(3)
-002	1 THRU 4 EXCEPT 3.C.(3)
-001	1 THRU 4 EXCEPT 3.C.(4)
-000	1 THRU 4 EXCEPT 3.C.(3) & 3.C.(4)
DASH NO.	APPLICABLE NOTES
NOTE APPLICATION	

QTY REQD	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION	FIND NO.
LIST OF MATERIALS				
MIT INSTRUMENTATION LAB CAMBRIDGE, MASS.		MANNED SPACECRAFT CENTER HOUSTON, TEXAS		
DRAWN <i>W. Wong</i> 17 NOV 65		INDICATOR, ALARM SPECIFICATION CONTROL DRAWING		
CHECKED <i>J. Jones</i> 22 NOV 65				
APPROVED <i>Elden C. Hall</i> 11 Dec 65		CODE IDENT NO.	SIZE	DRAWING NO.
APPROVED MIT <i>A. F. Metzger</i>		80230	C	1006387
APPROVED MSC		DATE	SCALE NONE	SHEET 1 OF 3

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES	
CAPACITOR VALUES ARE IN μ F	
RESISTOR VALUES ARE IN OHMS	
TOLERANCES ON FRACTIONS DECIMALS ANGLES	
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DO NOT SCALE THIS DRAWING	
MATERIAL	
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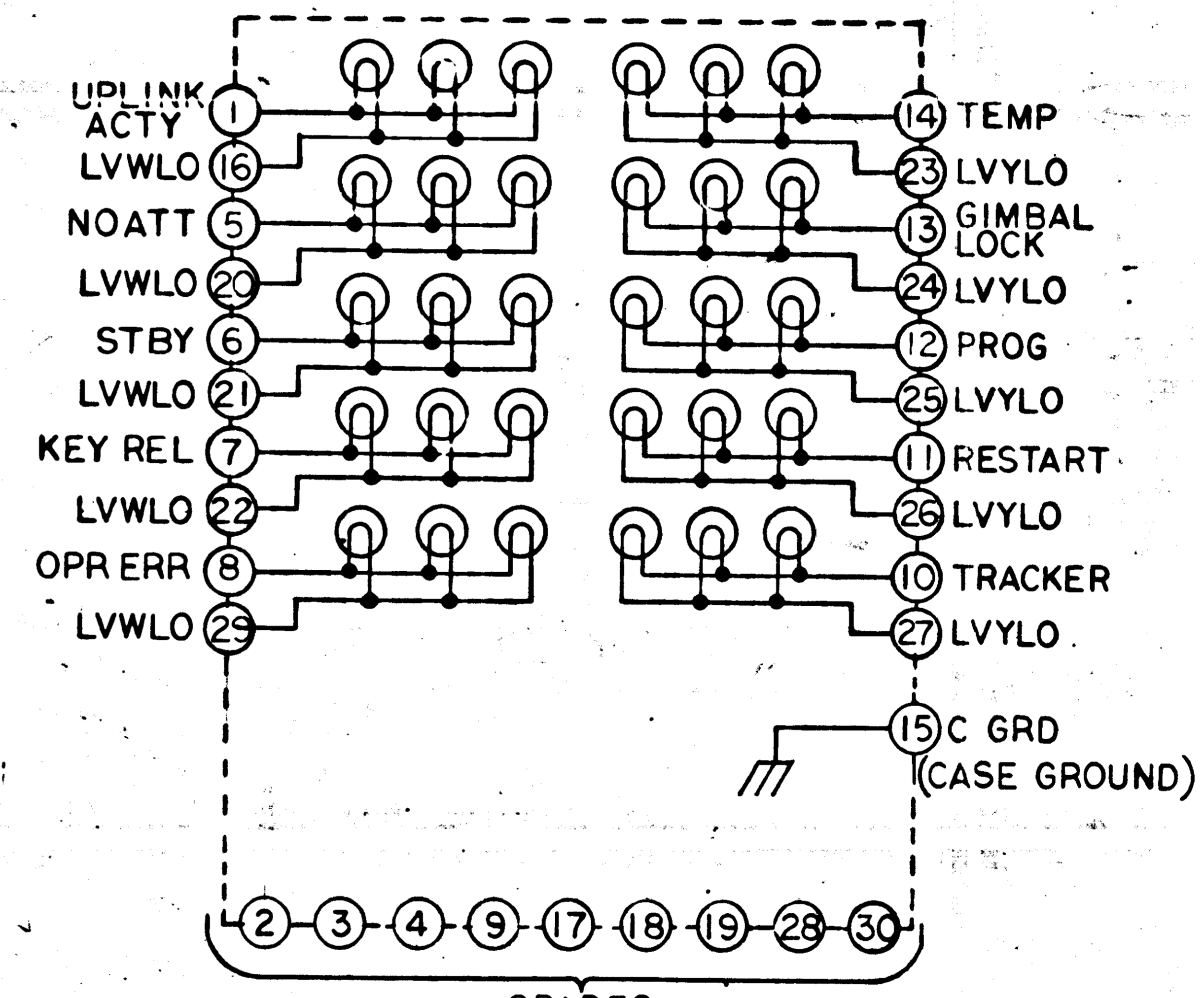
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A		REVISED PER TDRR 25935			4/26/66	WJK
B		REVISED PER TDRR 28430			5/10/66	JUTMA
C		REVISED PER TDRR 32577	AF	BW	13JAN67	
D		REVISED PER TDRR 32719	LL	W.H.	26JAN67	

REQUIREMENTS: (CONTINUED)

3. DESIGN:
- A. OPERATING LIFE: 4000 HOURS MINIMUM AT POWER DISSIPATION PER NOTE 2.B.(1) AT 70° ± 10°F AMBIENT TEMPERATURE.
 - B. MATERIAL: ALL MATERIAL SHALL BE CAPABLE OF MEETING THE REQUIREMENTS OF THIS DRAWING AND EXHIBIT NO TOXICITY.
 - (1) PLASTIC FACE PLATE: ACRYLIC SHEET PLASTIC PER MIL-P-5425, FINISH A.
 - (2) CASE: ALUMINUM ALLOY.
 - C. FINISHES:
 - (1) ALUMINUM CASE: CHROMATE TREAT PER MIL-C-5541.
 - (2) PAINT SURFACES MARKED "A" AND TOP BORDER AREA (EXCLUDING THE SURFACE OF PANELS) GRAY EPOXY ENAMEL PER ND 1002279 USING 1008809-1
 - (3) FINAL COAT SURFACES MARKED "A" PER ND1002277 USING 1012543-003
 - (4) FINAL COAT SURFACES MARKED "A" AND TOP BORDER AREA (EXCLUDING THE SURFACE OF PANELS) PER ND1002277 USING 1012543-003.
 - D. TERMINALS AND INSULATORS: SHALL MEET THE REQUIREMENTS OF ND 1002136.
 - E. PANEL COLORS: [REF NOTE 2.A.(4)] YELLOW COLOR TO BE AVIATION YELLOW AND WHITE COLOR TO BE AVIATION WHITE PER MIL-C-25050. COLOR COORDINATES SHALL REMAIN WITHIN THE LIMITS OF THE SPECIFIED AVIATION COLORS WHEN ENERGIZED FROM 5.0 THRU 3.0 VDC. THE X - COORDINATE FOR THE AVIATION WHITE DISPLAYS SHALL NOT EXCEED X = .560 WHEN ENERGIZED FROM 5.0 THRU 2.0 VDC.
 - F. LAMPS: EACH OF THE 10 LEGEND AREAS SHALL BE ILLUMINATED BY 3 LAMPS, PARALLEL WIRED AS SHOWN IN THE SCHEMATIC. YELLOW DISPLAY LAMPS TO BE MS 24367-600. WHITE DISPLAY LAMPS TO BE MS 24367-713.
 - G. WHEN MOUNTED ON A SUITABLE FIXTURE, THE UNIT SHALL BE CAPABLE OF WITHSTANDING A PRESSURE OF 15 PSIA OF HELIUM, APPLIED AGAINST THE 3/4" AREA, WHEN THE EXTERNAL PRESSURE IS REDUCED TO 1" HG EQUIVALENT PRESSURE; WHEN SUBJECTED TO THIS DIFFERENTIAL PRESSURE, THE UNIT SHALL EXHIBIT A LEAK RATE OF NO MORE THAN 1 X 10⁻⁵ ATM CC/SEC OVER THE TEMPERATURE RANGE OF -10°C TO +82°C.
4. NOTE: THIS UNIT IS TO BE MOUNTED ON A HEAT SINK WHEN LEGENDS ARE ENERGIZED FOR PERIODS LONGER THAN TWO (2) MINUTES. A SATISFACTORY HEAT SINK CAN BE AN ALUMINUM OR BRASS PLATE 10" X 10" X 1/8" WITH A CENTERED RECTANGULAR OPENING FOR MOUNTING THE UNIT.
5. CONSTRUCTION: (-003 ONLY)
- A. BULBS TO BE USED SHALL MEET THE REQUIREMENTS OF MS 24367, AND SHALL BE SCREENED FOR THE FOLLOWING DEFECTS:
 - (1) SURFACE CRACKS.
 - (2) SCRATCHES AND TOOL MARKS.
 - (3) RAW UNPOLISHED GLASS EDGES IN FINAL SEAL AREA
 - BULBS WHICH EXHIBIT THESE DEFECTS SHALL NOT BE USED IN DISPLAYS SUPPLIED TO THIS SPECIFICATION.

REQUIREMENTS CONT.

- B. BULBS SHALL BE CONFORMALLY COATED WITH A SOFT SETTING PLASTIC BEFORE EMBEDMENT TO RELIEVE POTTING STRESS ON BULBS. THE PLASTIC AND/OR SOLVENTS SHALL BE APPROVED BY RAYTHEON RELIABILITY.
- G. VENDOR SUPPLIED DOCUMENTATION: THE VENDOR SHALL RECORD AND SUPPLY CERTIFICATES OF COMPLIANCE FOR THE FOLLOWING READINGS ON EACH DISPLAY.
 - A. BRIGHTNESS PER PARA 2.A.(5)
 - B. POWER DISSIPATION PER PARA 2.B.(1)



SPARES
FIGURE 1 - SCHEMATIC

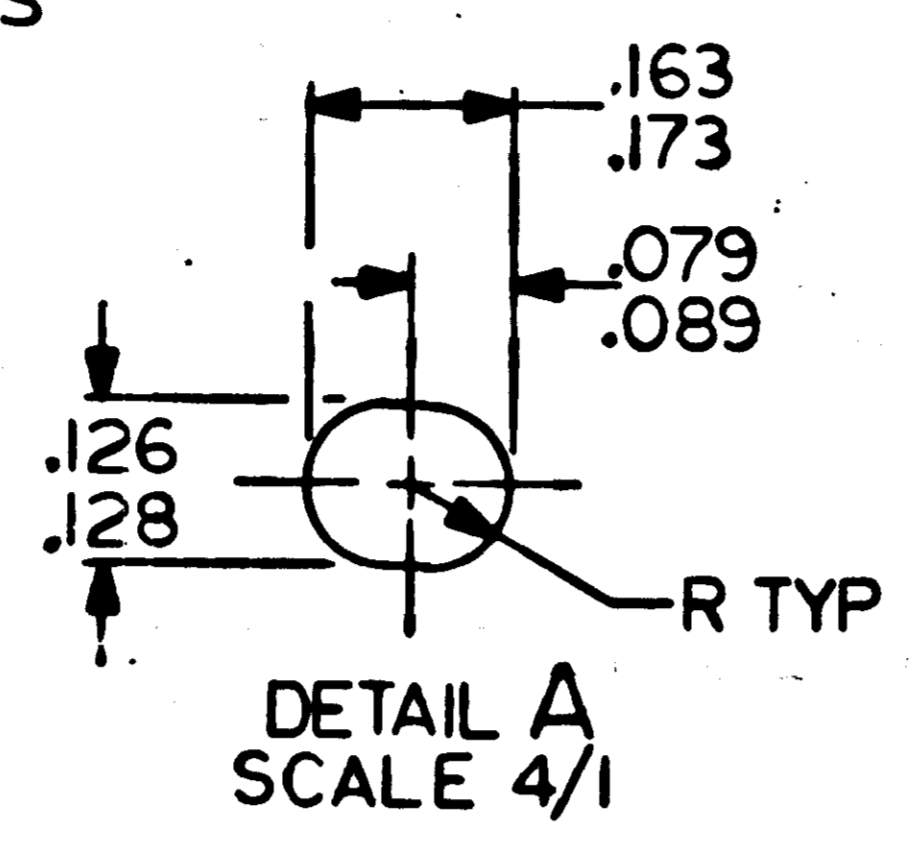
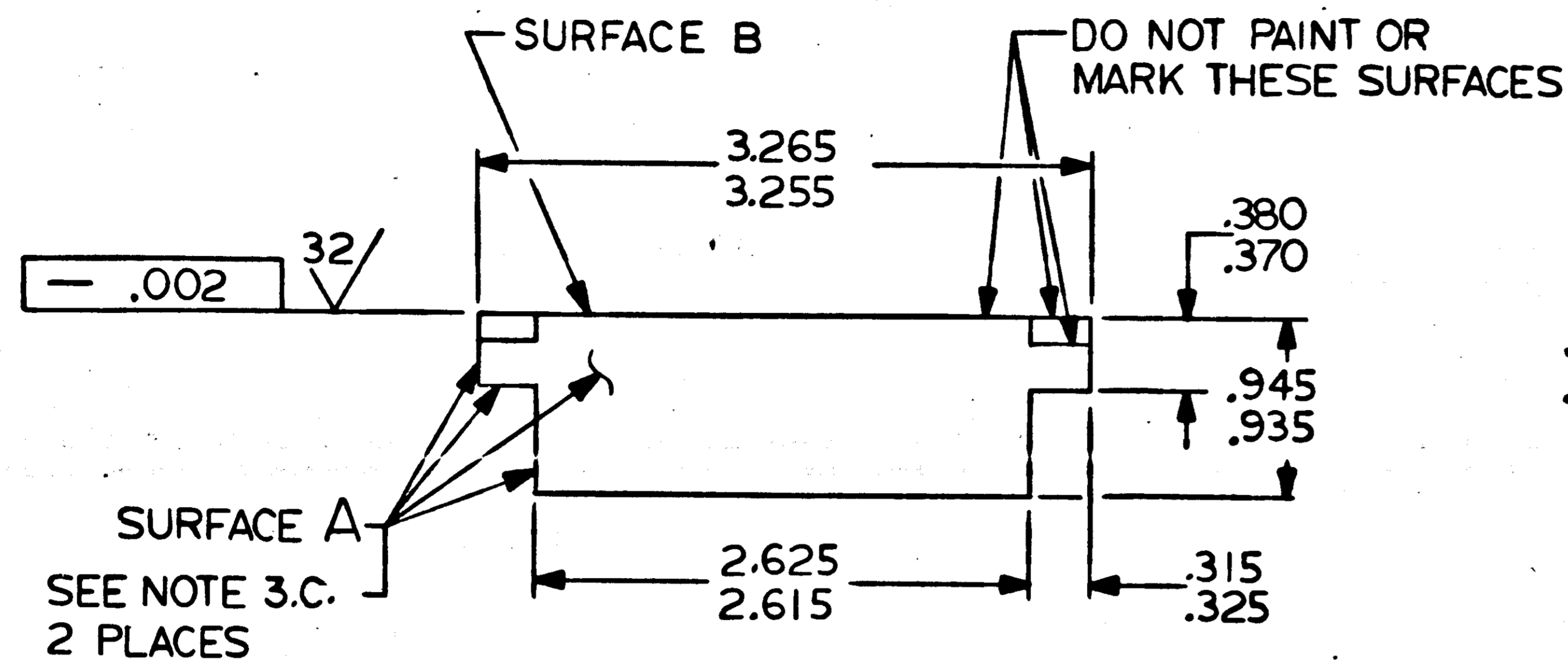
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MATERIAL	SEE NOTE
NEXT ASSY	USED ON
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MIT INSTRUMENTATION LAB CAMBRIDGE, MASS.		MANNED SPACECRAFT CENTER HOUSTON, TEXAS		
DRAWN <i>H. Wong</i> 17 NOV 65		INDICATOR, ALARM SPECIFICATION CONTROL DRAWING		
CHECKED <i>P. J. ...</i> 22 NOV 65				
APPROVED <i>Edna C. Hill</i> 14 Dec 65				
APPROVED MIT <i>W. ...</i> 14 Dec 65				
APPROVED MSC <i>A. C. METZGER</i>		CODE IDENT NO. 80230	SIZE C	DRAWING NO. 1006387
DATE		SCALE NONE	SHEET 2 OF 3	

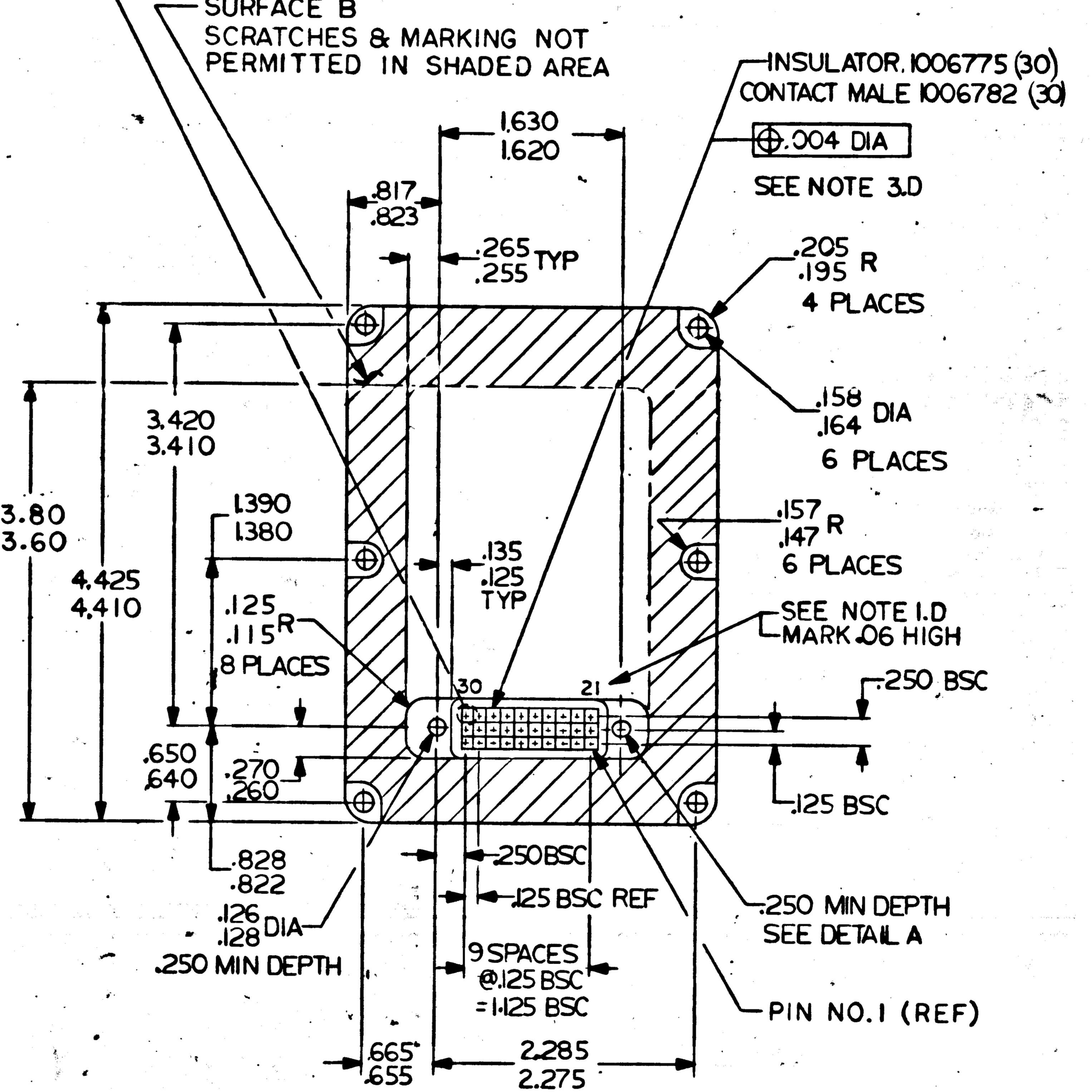
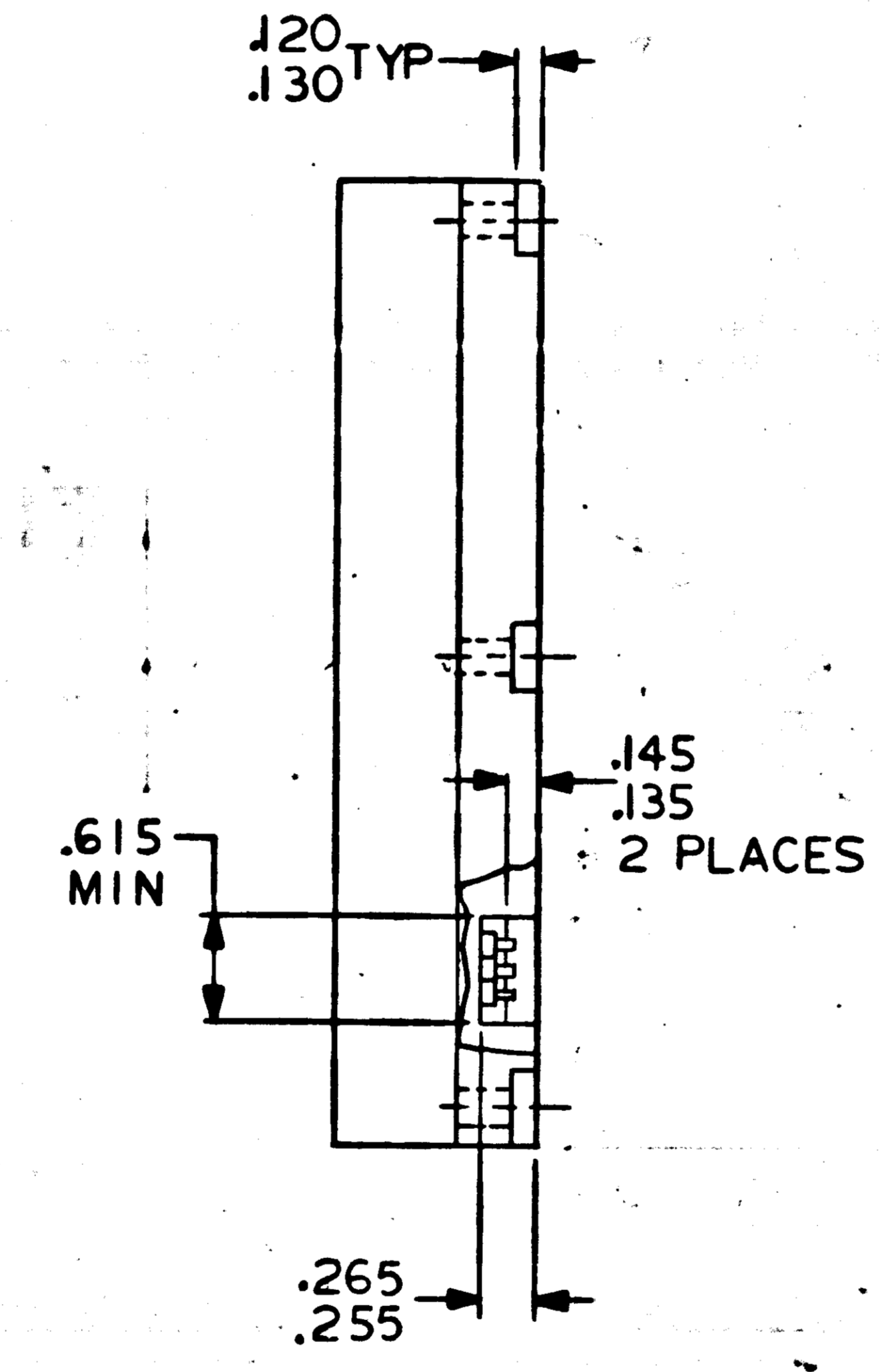
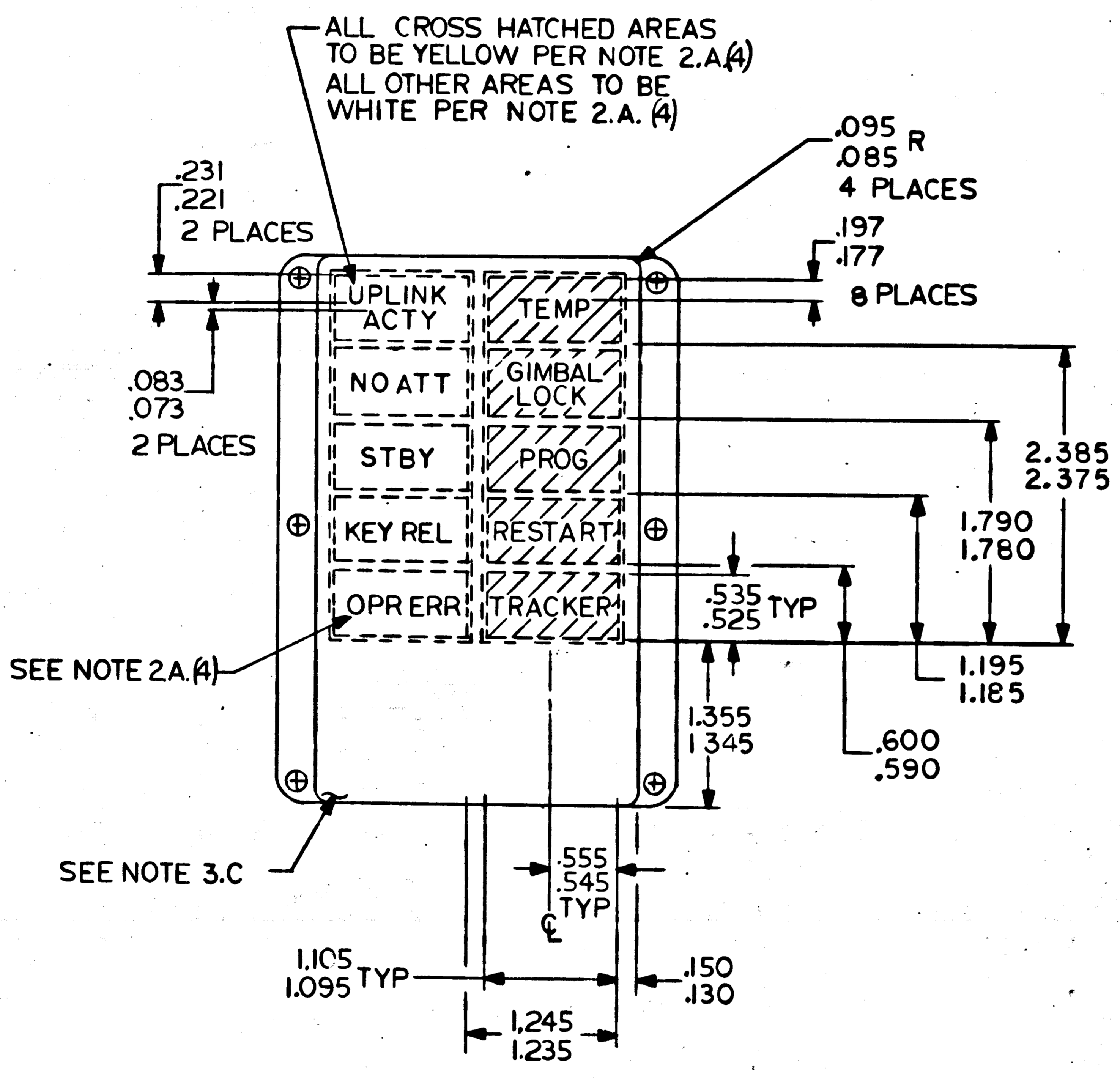
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C		REVISION STATUS CHANGED	AF	AW	13JAN67	
D		REVISION STATUS CHANGED	LL	AW	26JAN67	



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DRAWN <i>John D. ...</i> 13 NOV 65		INDICATOR, ALARM SPECIFICATION CONTROL DRAWING							
CHECKED <i>P. ...</i> 16 NOV 65									
APPROVED <i>Edwin C. Hall</i> 14 DEC 65		<table border="1"> <tr> <td>CODE IDENT NO.</td> <td>SIZE</td> <td>DRAWING NO.</td> </tr> <tr> <td>80230</td> <td>C</td> <td>1006387</td> </tr> </table>		CODE IDENT NO.	SIZE	DRAWING NO.	80230	C	1006387
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