

MIL-L-85314/4A
 30 June 1983
 SUPERSEDING
 MIL-L-85314/4
 27 December 1982

MILITARY SPECIFICATION SHEET

LIGHT SYSTEMS, SUBSONIC AIRCRAFT, ANTI-COLLISION, STROBE, FUSELAGE MOUNTED RED SOURCE AND WING TIP MOUNTED WHITE SOURCE

This specification is approved for use by all Departments and Agencies of the Department of Defense.

The complete requirements for acquiring the light systems described herein shall consist of this document and the latest issue of Specification MIL-L-85314.

1. SCOPE

1.1 Scope. This detail specification together with the general specification cover the requirements for a fuselage mounted, red, strobe anti-collision light system, and a wing tip mounted, white, strobe, anti-collision light system, for large subsonic aircraft.

1.2 Classification. The classification (types) of the light systems shall be as specified in the general specification.

2. APPLICABLE DOCUMENTS

2.1 Government documents.

2.1.1 Specifications, standards, and handbooks. Unless otherwise specified, the following specifications, standards, and handbooks of the issue listed in that issue of the Department of Defense Index of Specifications and Standards (DoDISS) specified in the solicitation, form a part of this specification to the extent specified herein.

SPECIFICATIONS

Military

DOD-C-38999/40	Connectors, Electrical, Circular, Miniature, High Density, Quick Disconnect (Bayonet, Threaded, and Breech Coupling), Environment Resistant, Removable Crimp and Hermetic Solder Contacts, Receptacle, Wall Mounting Flange, Breech Coupling, Removable Crimp Contacts, Series IV, Metric
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FSC 6220

MIL-L-85314/4A

SPECIFICATIONS (Continued)

Military (Continued)

DOD-C-38999/42	Connectors, Electrical, Circular, Miniature, High Density, Quick Disconnect (Bayonet, Threaded, and Breech Coupling), Environment Resistant, Removable Crimp and Hermetic Solder Contacts, Receptacle, Box Mounting Flange, Breech Coupling, Removable Crimp Contacts, Series IV, Metric
DOD-C-38999/46	Connectors, Electrical, Circular, Miniature, High Density, Quick Disconnect (Bayonet, Threaded and Breech Coupling), Environment Resistant, Removable Crimp and Hermetic Solder Contacts, Plug, Breech Coupling, EMI Grounding, Removable Crimp Contacts, Series IV, Metric
MIL-L-85314	Light Systems, Aircraft, Anti-Collision, Strobe, General Specification for

(Copies of specifications, standards, drawings, and publications required by contractors in connection with specific acquisition functions should be obtained from the contracting activity or as directed by the contracting officer.)

3. REQUIREMENTS

3.1 First article. The strobe, anti-collision, aircraft light systems furnished under this specification shall be products which have been inspected and passed first article inspection.

3.2 Materials and components. Materials and components shall conform to applicable specifications, standards and figures as listed or required herein and unless modified herein to the general specification for the strobe, anti-collision, aircraft light system, MIL-L-85314.

3.3 Design and construction. The design and construction of large subsonic aircraft light systems shall conform to that specified in the general specification, except as otherwise specified herein.

3.3.1 Operation. The operation of the light systems shall be as specified in the general specification and as specified herein.

3.3.2 System configuration. The system configuration shall consist of one specified in Table I. Switches, mating connectors and interconnecting cables shall not be furnished as components of the system.

MIL-L-85314/4A

3.3.3 Power supply.

3.3.3.1 Input power. The power supply shall conform to the general specification and shall be Type II.

3.3.3.2 Power consumption. Type II system either configuration A or B shall require a maximum of 230 watts of electrical power from an aircraft source, averaged over each flash cycle. Type AB system shall require no more than 460 watts averaged over each flash.

3.3.3.3 Dimensions. The length, width and height of the power supply assembly, including mounting provisions and connectors inherent in the design of either configuration A, B, or AB are typically depicted in Figure 8.

3.3.3.4 Mounting. Typical mounting for configurations A, B or AB power supplies is shown in Figure 9.

3.3.3.5 Interface connectors.

3.3.3.5.1 Output. The power supply shall provide interface to each light source assembly through separate D38999/40-W-D-5-S-N connectors.

3.3.3.5.2 Input.

3.3.3.5.2.1 Type II. The Type II system power supplies shall provide a D38999/40-W-D-5-P-W connector to interface input power and cockpit control signals.

3.3.4 Light source.

3.3.4.1 Mode. Each fuselage mounted light source shall emit red light (night mode) and each wing tip mounted light source shall emit white light (day mode). For Type AB system, red and white modes shall be remotely selectable.

3.3.4.2 Dimensions. The dimensions of each light source are typically depicted in Figure 4 (fuselage mounted) and Figure 6 (wing tip mounted).

3.3.4.3 Mounting. Typical mounting configuration for each light source is depicted in Figures 5 and 7.

3.4 Performance characteristics. The light systems shall conform to all the performance characteristic requirements specified in the general specification and as specified herein.

3.4.1 Flash rate for synchronous light systems. Synchronous light systems shall emit synchronous flashes from both light sources of 50 to 60 flashes per minute. For Type AB light system, synchronization

MIL-L-85314/4A

will be maintained for light sources for the red fuselage system and white wing tip system. Wing tip system, however, shall flash alternately with respect to the fuselage system with the addition of optional system wiring shown in Figure 3.

3.4.2 Light intensity. The luminous intensity emitted by each red light source shall have, in the vertical field, the hemispherical coverage above and below the horizontal plane of the light source specified in Table II. The luminous intensity emitted by each white light source, shall have 180⁰ horizontal coverage with the vertical coverage specified in Table II.

3.4.3 Electromagnetic interference. The system shall conform to the electromagnetic interference requirements of the general specification.

3.5 Weight. System configurations A and B, Figures 1 and 2, shall weigh a maximum of 23 pounds (10432 grams). System configuration AB, Figure 3, shall weigh a maximum of 46 pounds (20,864 grams). Maximum weights are exclusive of assembly interconnecting wiring and remote switches.

NOTE: Revision letters are not used to denote changes due to the extensiveness of the changes.

Custodians:
Army - AV
Air Force - 11

Preparing Activity:
Navy - AS
(Project No. 6220-0317-4)

MIL-L-85314/4A

TABLE I. System configuration.

Applicable Figure	Configuration	Quantity		
		Power Supply	Light Source	
			Red	White
1	A	2	2	-
2	B	2	-	2
3	AB	4	2	2

TABLE II. Light intensity distribution per light assembly.

Angle above (+) and below (-) horizontal plane (degrees)	Intensity (effective candelas)	
	Day mode (white) min	Night mode (aviation red) min
+75	120	20
+30	250	40
+20	500	80
+10	1600	240
+5	2500	400
0	2500	400
-5	2500	-
-10	1600	-
-20	500	-
-30	250	-
-75	120	-

MIL-L-85314/4A

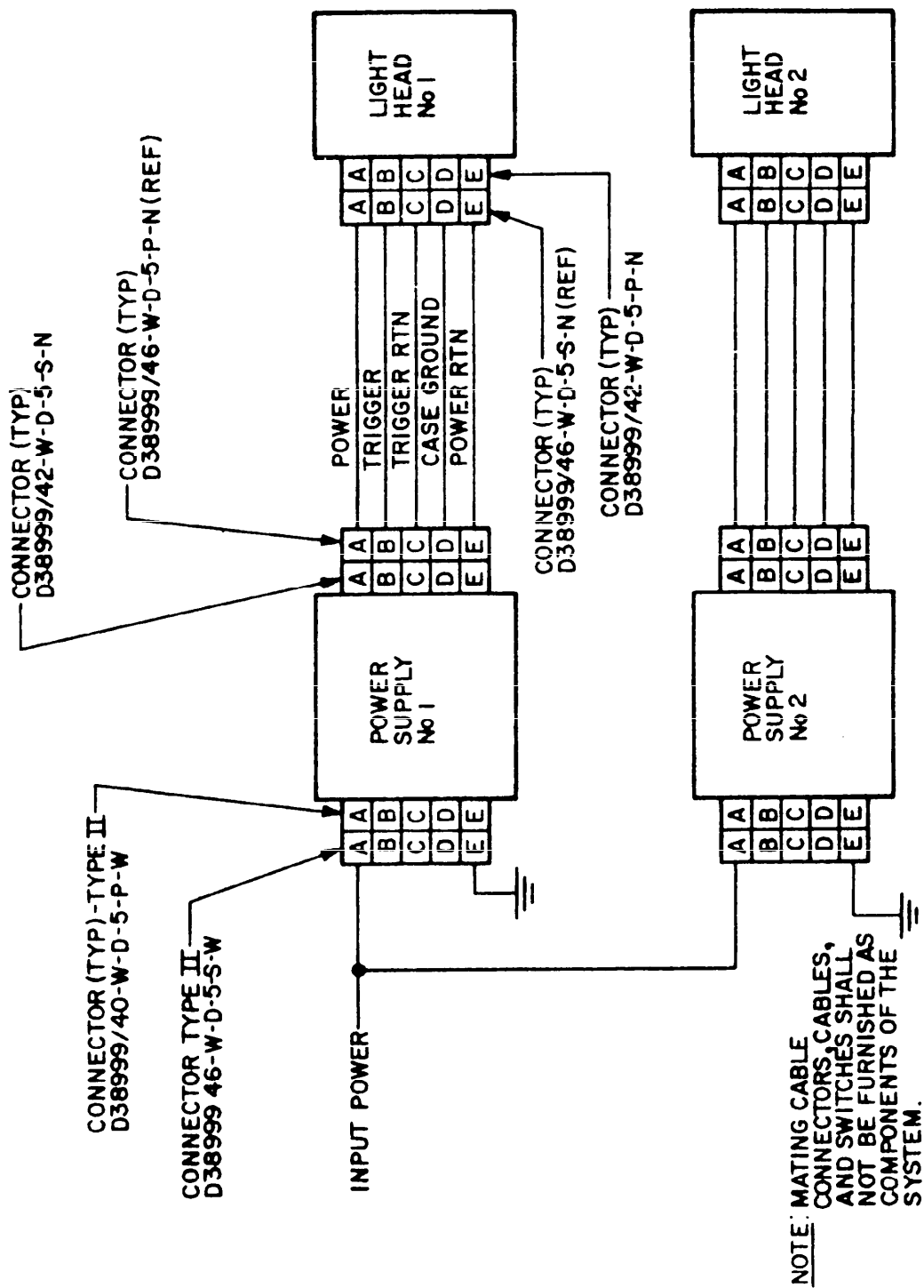


FIGURE 1. System configuration A (red fuselage).

MIL-L-85314/4A

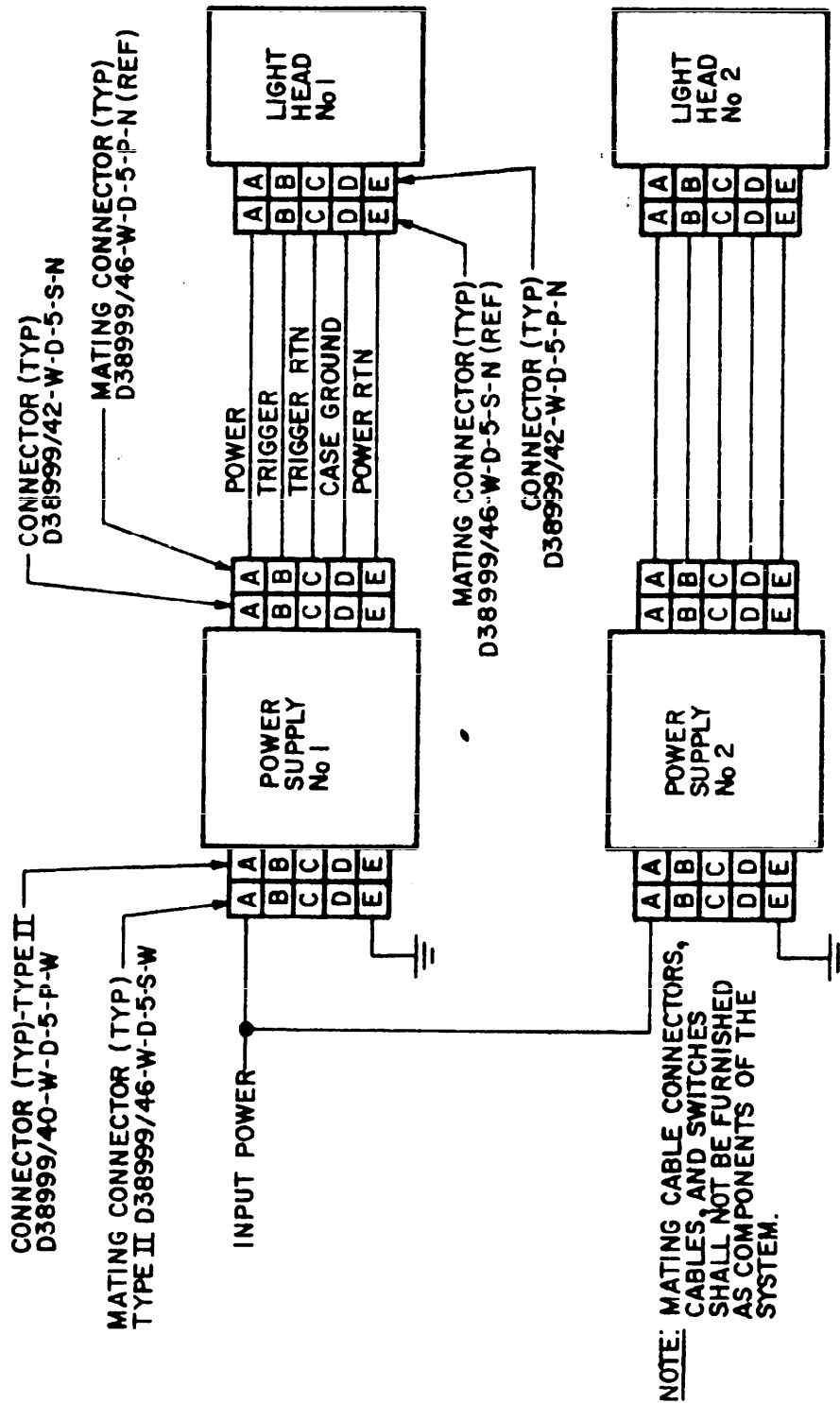
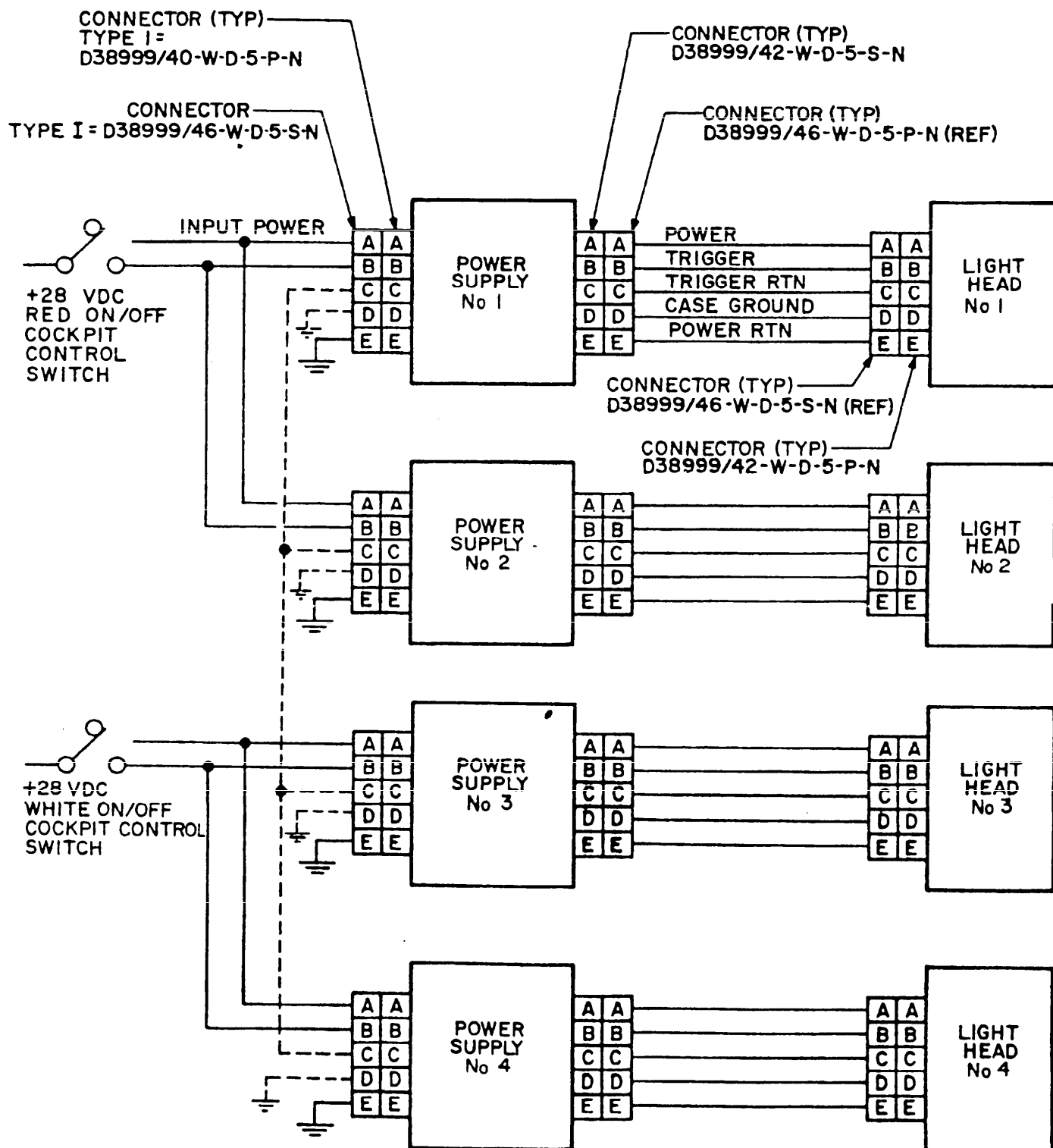


FIGURE 2. System configuration B (white wing tip).

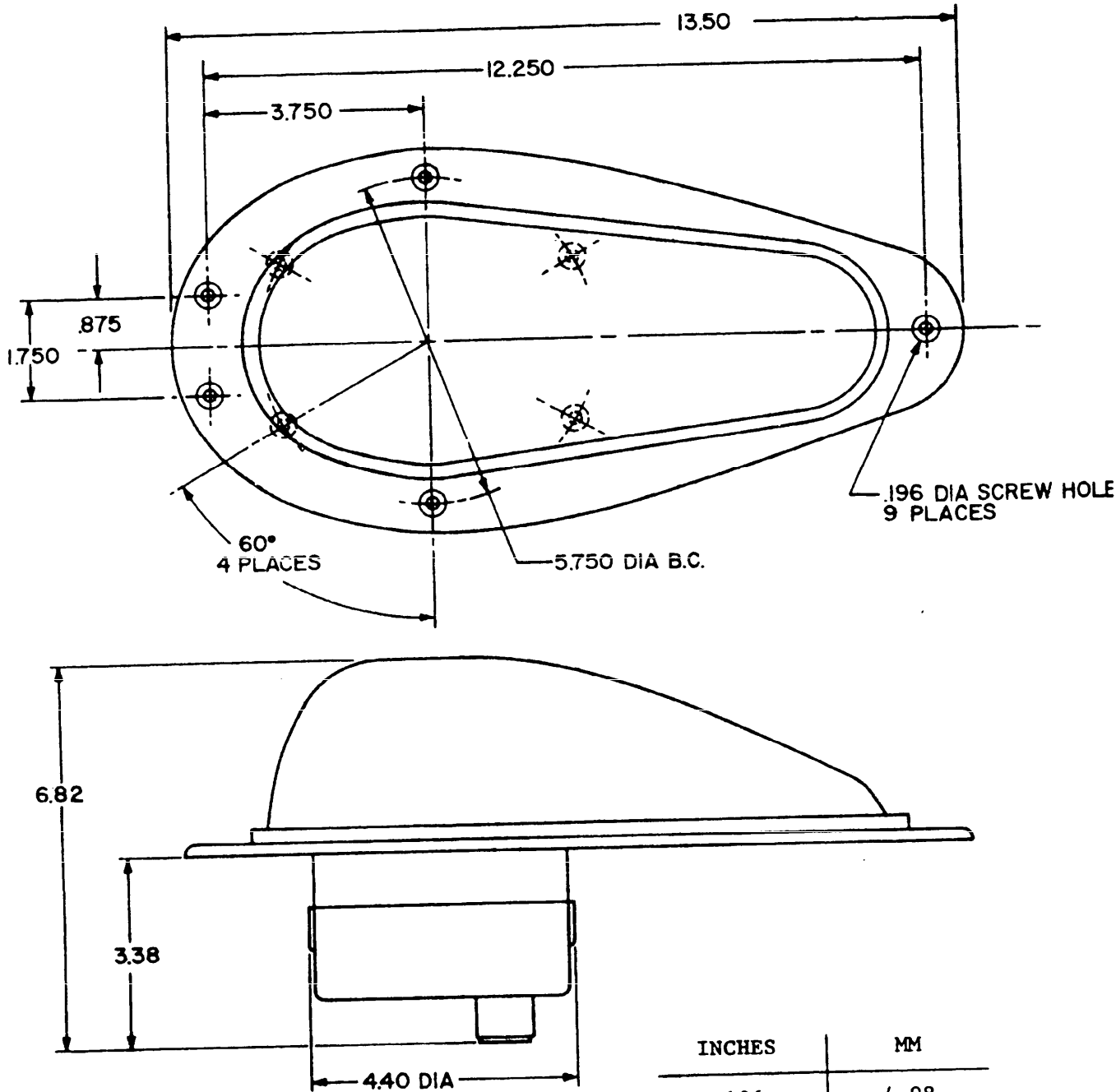
MIL-L-85314/4A



- NOTES: 1. MATING CABLE CONNECTORS, CABLES AND SWITCHES SHALL NOT BE FURNISHED AS COMPONENTS OF THE SYSTEM.
2. DASHED CONNECTIONS DENOTE OPTIONAL ALTERNATE FLASH CAPABILITY BETWEEN RED AND WHITE SYSTEMS.

FIGURE 3. System configuration AB (white wing tip and red fuselage).

MIL-L-85314/4A



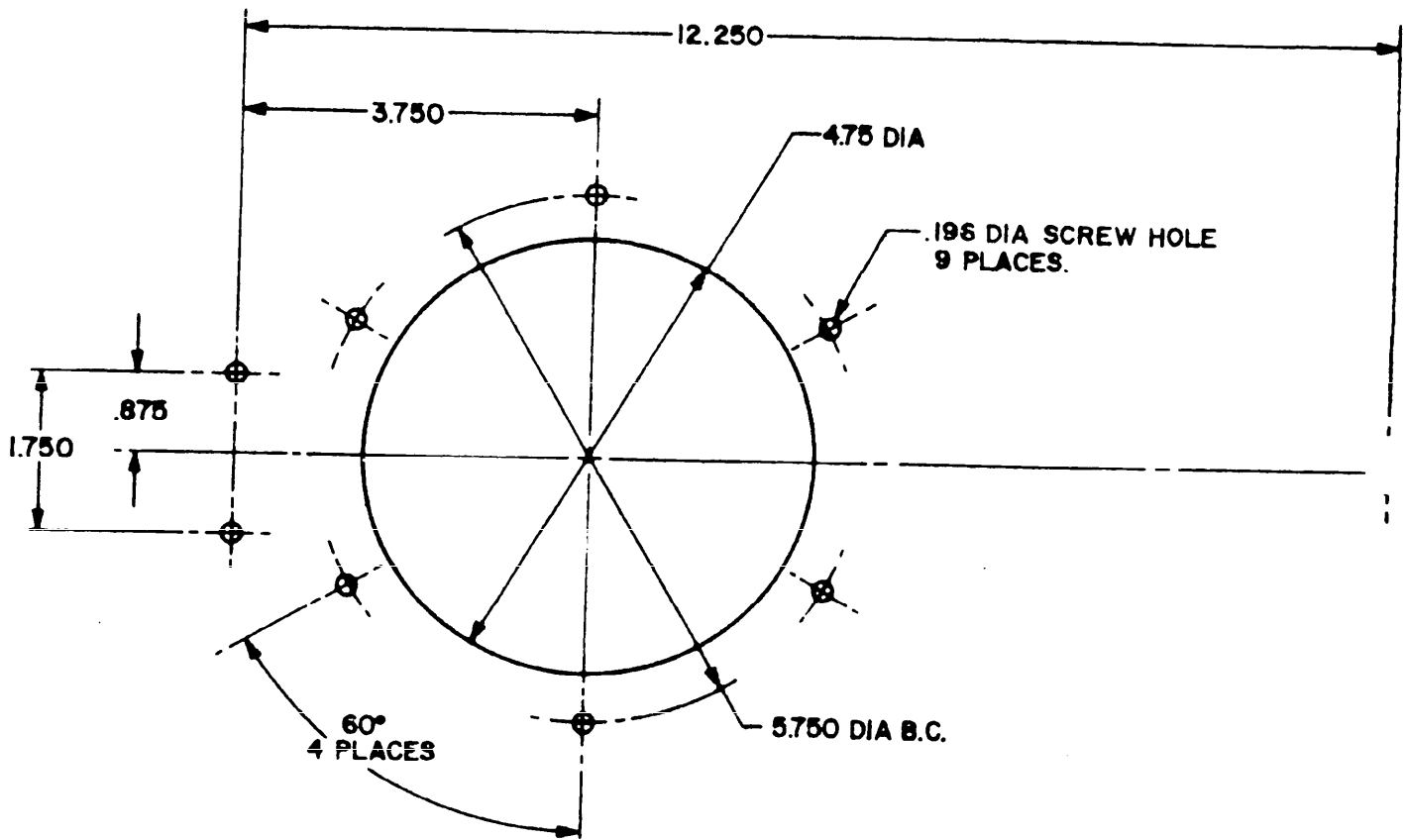
NOTES:

1. DIMENSIONS ARE IN INCHES.
TOLERANCE: .XX ± .03
.XXX ± .010
2. METRIC EQUIVALENTS ARE GIVEN FOR INFORMATION ONLY AND ARE BASED ON 1 INCH = 25.4MM.

INCHES	MM
.196	4.98
.875	22.23
1.750	44.45
3.38	85.85
3.750	95.25
4.40	111.76
5.750	146.05
6.82	173.23
12.250	311.15
13.50	342.90

FIGURE 4. Typical light source envelope dimensions (red fuselage) (360° light coverage).

MIL-L-85314/4A



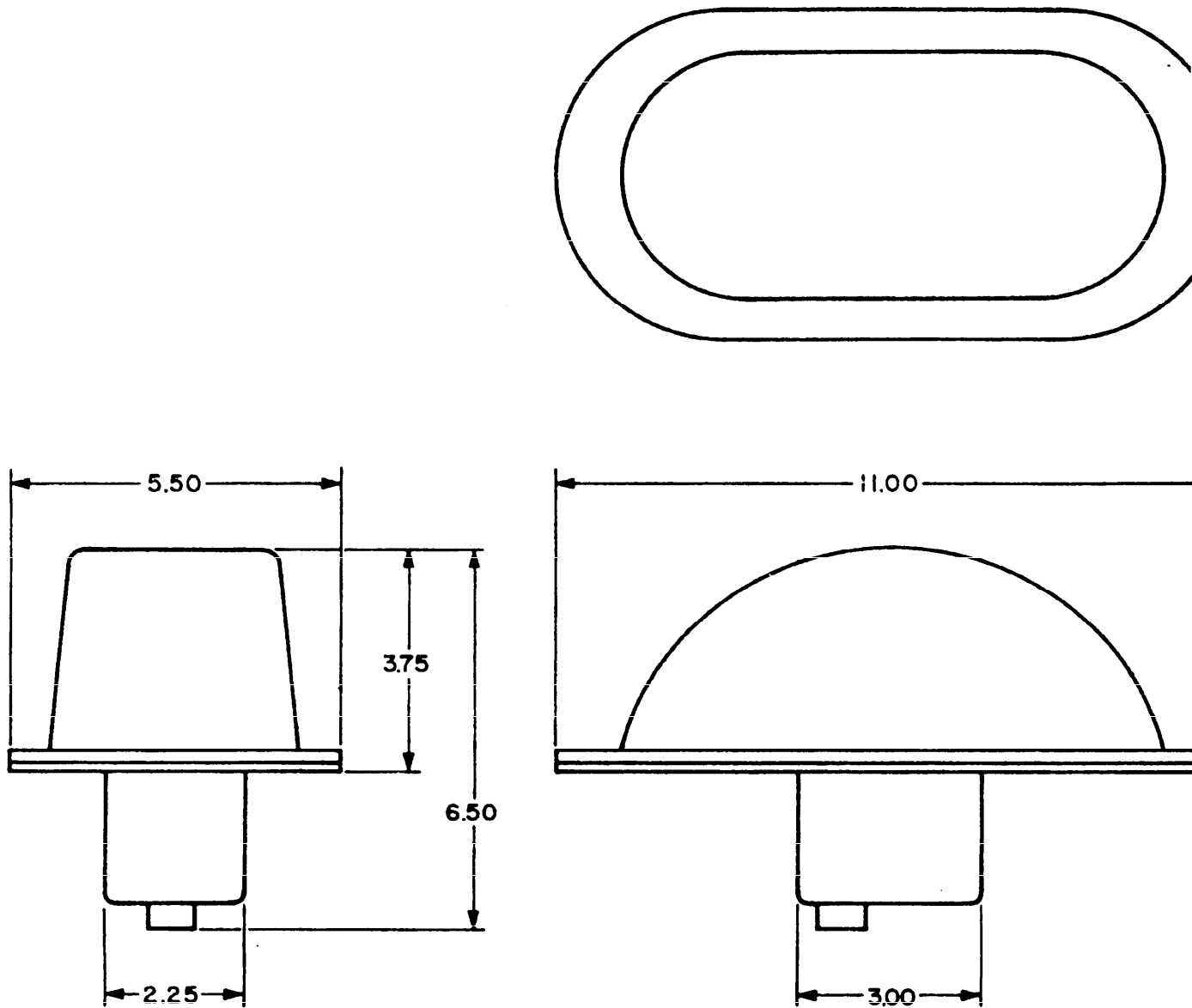
NOTES:

1. DIMENSIONS ARE IN INCHES.
TOLERANCE: .XXX + .010
.XX + .03
2. METRIC EQUIVALENTS ARE GIVEN FOR INFORMATION ONLY AND ARE BASED ON 1 INCH = 25.4MM.

	INCHES	MM
	.196	4.98
	.875	22.23
	1.750	44.45
	3.750	95.25
	4.75	120.65
	5.750	146.05
	12.250	311.15

FIGURE 5. Typical light source mtg configuration (red fuselage).

MIL-L-85314/4A



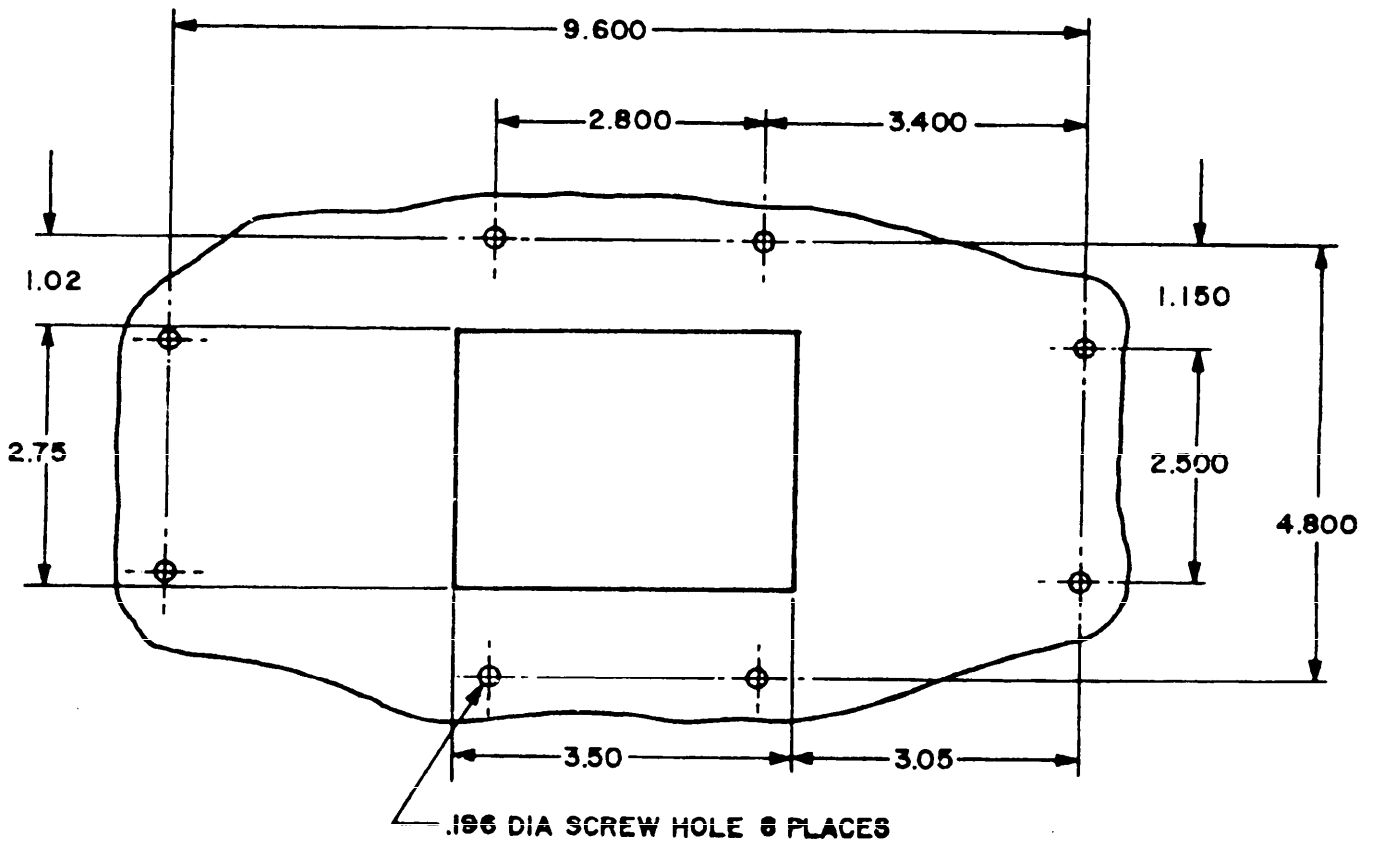
NOTES:

1. DIMENSIONS ARE IN INCHES.
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INCHES	MM
2.25	57.2
3.00	76.2
3.75	95.3
5.50	139.7
6.50	165.1
11.00	279.4

FIGURE 6. Typical light source envelope dimensions
(white wing tip) (180° coverage).

MIL-L-85314/4A



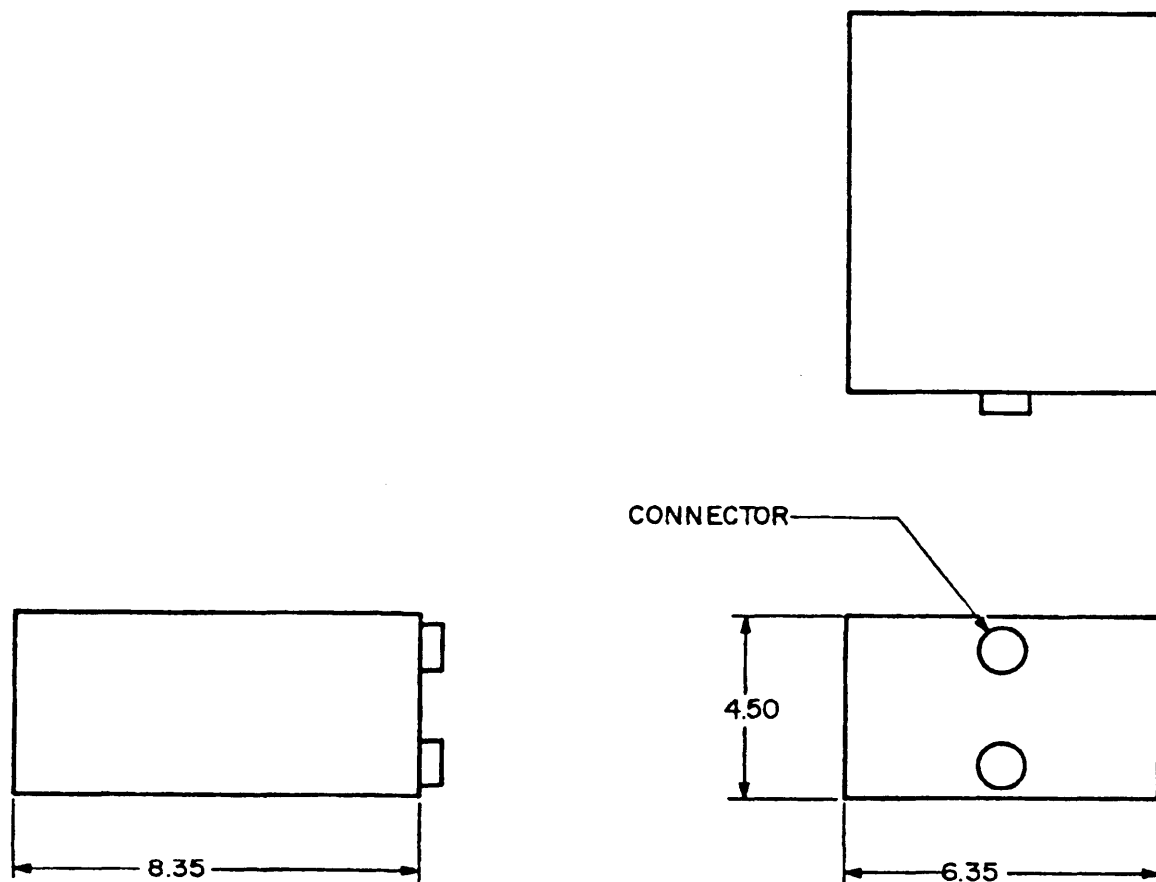
NOTES:

- DIMENSIONS ARE IN INCHES.
TOLERANCE: .XXX + .010
.XX + .03
- METRIC EQUIVALENTS ARE GIVEN FOR GENERAL INFORMATION ONLY AND ARE BASED ON 1 INCH = 25.4MM.

INCHES	MM
.196	4.98
1.02	25.91
1.150	29.21
2.500	63.50
2.75	69.85
2.800	71.12
3.05	77.47
3.400	86.36
3.50	88.90
4.800	121.92
9.600	243.84

FIGURE 7. Typical light source mounting configuration
(white wing tip).

MIL-L-85314/4A



NOTES:

1. DIMENSIONS ARE IN INCHES.
TOLERANCE: $.XX \pm .03$
2. METRIC EQUIVALENTS ARE GIVEN
FOR INFORMATION ONLY AND ARE
BASED ON 1 INCH = 25.4MM.

INCHES

MM

8.35

212.1

6.35

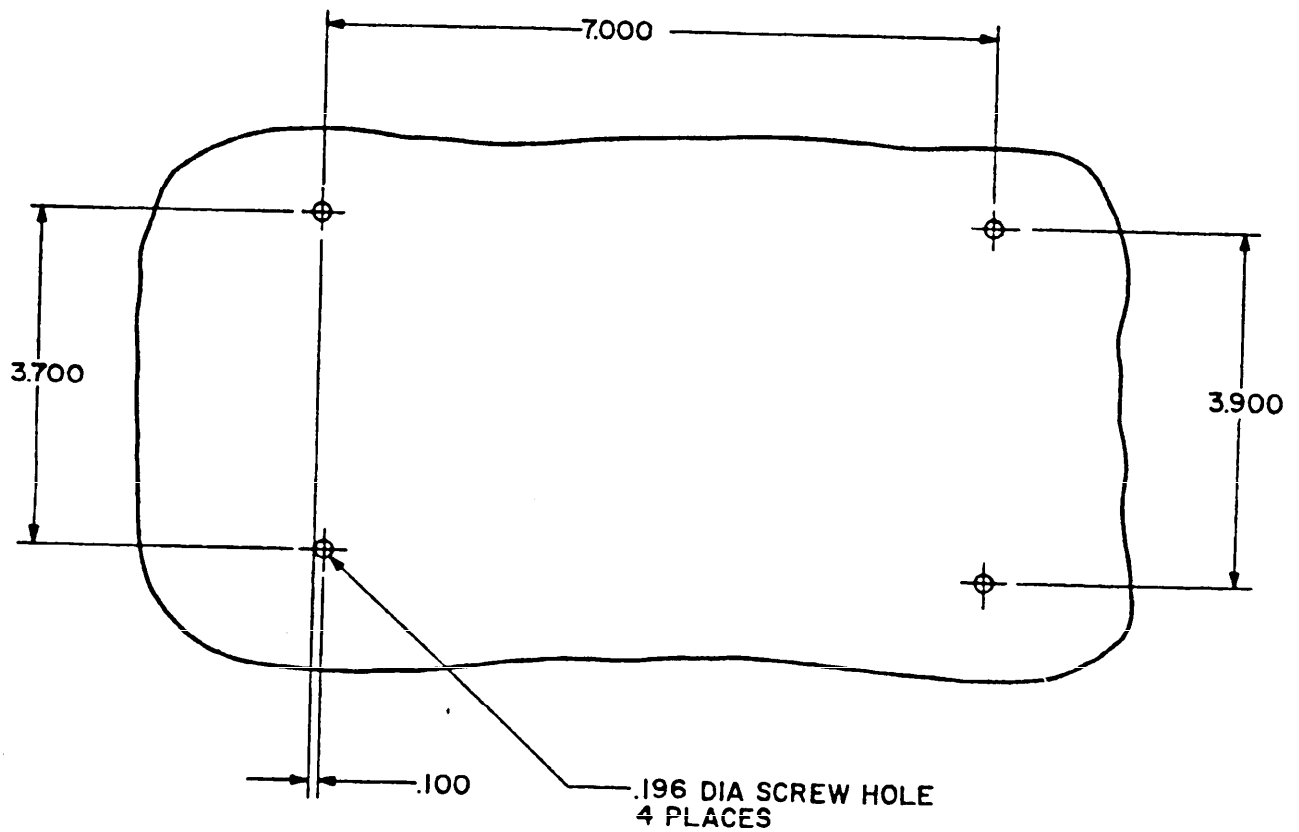
161.3

4.50

114.3

FIGURE 8. Typical power supply envelope dimensions.

MIL-L-85314/4A



NOTES:

1. DIMENSIONS ARE IN INCHES.
TOLERANCE: .XXX \pm .010
2. METRIC EQUIVALENTS ARE GIVEN
FOR INFORMATION ONLY AND ARE
BASED ON 1 INCH = 25.4MM.

INCHES

MM

INCHES	MM
7.000	177.80
3.900	99.06
3.700	93.98
.196	4.98
.100	2.54

FIGURE 9. Typical power supply mounting configuration.