INCH-POUND

MIL-L-85314/1B
13 March 1992
SUPERSEDING
MIL-L-85314/1A
30 June 1983

MILITARY SPECIFICATION SHEET

LIGHT SYSTEMS, AIRCRAFT, ANTI-COLLISION, STROBE, DUAL (RED AND WHITE) MODE, FUSELAGE MOUNTED

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

The requirements for acquiring the product described herein shall consist of this specification sheet and the issue of the following specification listed in that issue of the Department of Defense Index of Specifications and Standards (DODISS) specified in the solicitation: MIL-L-85314.

1. SCOPE

* 1.1 Scope. This specification sheet, together with the general specification, covers the requirements for dual (red and white) mode, strobe, anti-collision light systems for 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 and standards. The following specifications and standards form a part of this document to the extent specified herein. Unless otherwise specified, the issues of these documents are those listed in the issue of the Department of Defense Index of Specifications and Standards (DODISS) and supplement thereto, cited in the solicitation.

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

AMSC N/A FSC 6220

SPECIFICATIONS

MILITARY

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

* (Unless otherwise indicated, copies of federal and military specifications, standards and handbooks are available from the DODSSP Standardization Documents Order Desk, 700 Robbins Avenue, Bldg 4D, Philadelphia, PA 19111-5094.)

2.3 Order of precedence. In the event of a conflict between the text of this document and the references cited herein, the text of this document takes precedence. Nothing in this document, however, supersedes applicable laws and regulations unless a specific exemption has been obtained.

3. REQUIREMENTS

3.1 First article. The strobe, anti-collision, aircraft light systems furnished under MIL-L-85314 shall be products which have been inspected and passed first article inspection. Each type shall be inspected separately.

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 (MIL-L-85314) for the strobe, anti-collision, aircraft light systems.

* 3.3 Design and construction. The design and construction of the aircraft light systems shall comply with 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 be as specified in table I. Switches, mating connectors and interconnecting cables shall not be furnished as components of the system.

3.3.3 Power supply.

3.3.3.1 Input power. The power supply shall conform to the general specification and shall be type I or II, as specified (see 3.7.1 and 1.2 of the general specification).

3.3.3.2 Power consumption. Each type system shall require a maximum of 300 watts of electrical power from an aircraft source, averaged over each flash cycle.

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 each type system, shall not exceed 14 inches for each dimension location. The total volume shall not exceed 1120 cubic inches.

3.3.3.4 Mounting. Type I and type II power supplies shall be capable of being mounted using the hole patterns shown on figures 5 and 6, respectively.

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

3.3.3.5.2.2 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 light source shall consist of a red light mode (low, night) and a white light mode (high, day). The red and white modes shall be remotely selectable.

3.3.4.2 Dimensions. The dimensions of each light source shall conform to figure 3.

3.3.4.3 Mounting. Each light source shall be designed and constructed to mate with the mounting flange specified on figure 4. The mounting flange shall not be furnished as a component of the type I or II light system.

* 3.3.4.4 Flash rate for alternating light systems. Alternating light systems as specified in table II shall emit 100 to 120 flashes per minute with each flash alternating sources in either mode shall flash 180 ±5° out of phase. When either light source is deactivated, the flash rate from the remaining single source of either mode shall be 50 to 60 flashes per minute. These flash rates shall be maintained throughout the bands of power inputs specified herein and in the general specification.

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, as specified in table II, shall emit synchronous flashes from both light sources of 50 to 60 flashes per minute or 40 to 45 flashes per minute.

* 3.4.2 Light intensity. The luminous intensity emitted by both the red and white modes shall have, in the vertical field, the hemispherical coverage above and below the horizontal plane of the light source specified in tables III and IV. The minimum light intensity requirement specified in table III may be diminished by 15 percent for a 60 degree (maximum) sector or the 360 degree horizontal plane.

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) (types I and II) shall weigh a maximum of 15 pounds (6818 grams). Maximum weights are exclusive of assembly interconnecting wiring and remote switches.

3.6 Changes from previous issue. The margins of this specification sheet are marked with asterisks (or vertical lines) to indicate where changes from the previous issue were made. This was done as a convenience only and the Government assumes no liability whatsoever for any inaccuracies in these notations. Bidders and contractors are cautioned to evaluate the requirements of this document based on the entire content irrespective of the marginal notations and relationship to the last previous issue.

Custodians:
Army - AV
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Preparing activity:
Navy - AS

(Project 6220-1052)

TABLE I. System configuration.

Applicable figure	Configuration	Quantity	
		Power supply	Light source
1	A	1	2
2	B	2	2

*TABLE II. Applicable light system combinations.

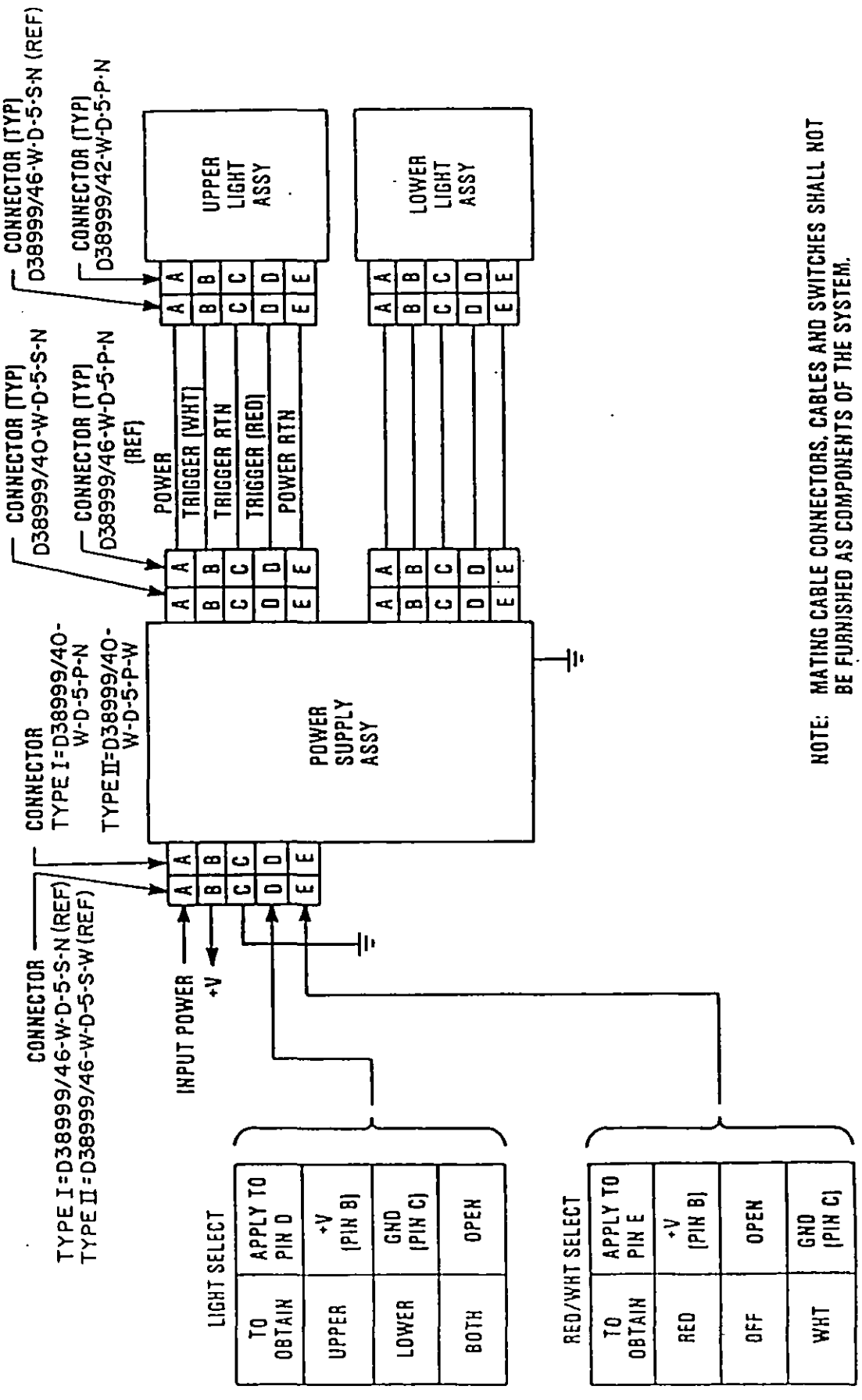
System type	Configuration	Figure	Flash rate		Flash frequency	Quantity		
						Power supply		Light source
			Syn	Alternate	Type I Alternate	Type I	Type II	
I	A	1	X	X	120/min	2	-	2
II	A	1	-	X	-	-	1	2
I	B	2	X	X	30/min	2	-	2
II	B	2	Optional		-	-	2	2

* TABLE III. Light intensity distribution per light assembly.

Angle above (+) and below (-) horizontal plane (degrees)	Intensity (effective candelas)			
	Day mode (white)		Night mode (aviation red)	
	Min	Max	Min	Max
+80	150	-	35	90
+45	800	-	20	180
+20	1000	-	200	350
+10	1300	-	250	400
+5	1600	-	250	400
0	2000	-	250	400
-5	1600	-	100	300
-10	1300	-	20	250
-20	800	-	-	150

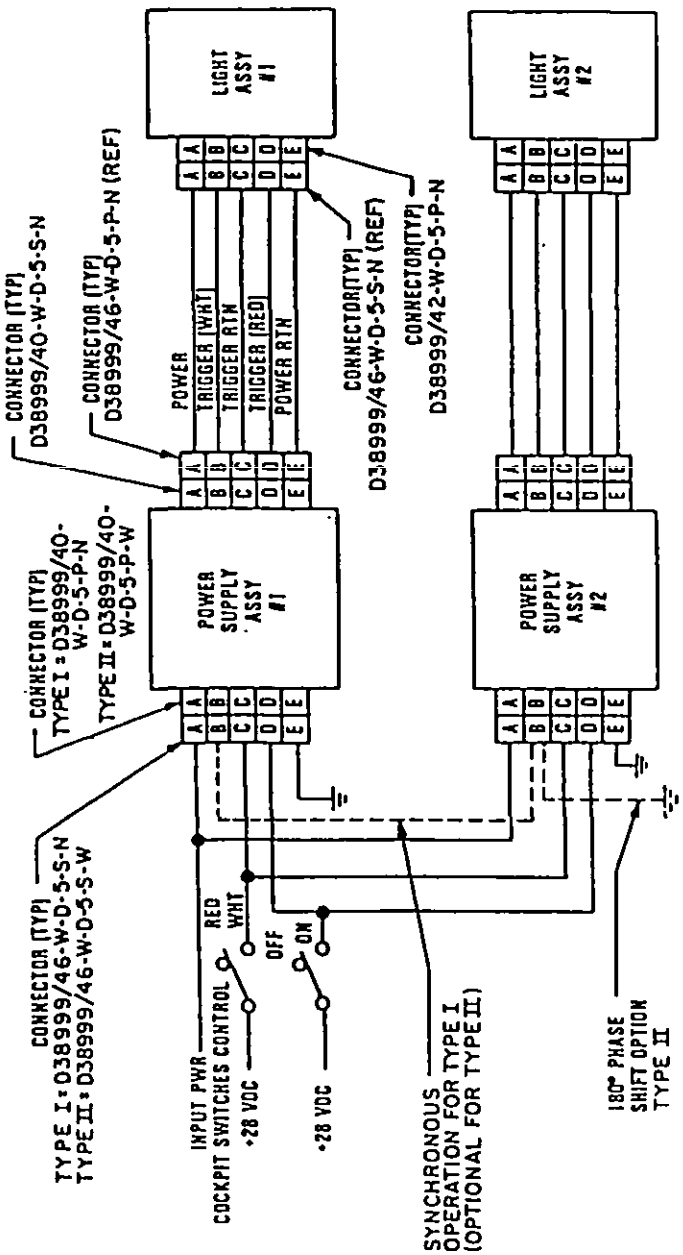
*TABLE IV. Light intensity distribution per light system in synchronous mode.

Angle above (+) and below (-) horizontal plane (degrees)	Intensity (effective candelas)			
	Day mode (white)		Night mode (aviation red)	
	Min	Max	Min	Max
+80	150	-	35	70
+45	800	-	70	180
+20	1800	-	250	400
+10	2800	-	400	700
+5	3300	-	400	700
0	3800	-	400	800
-5	3300	-	400	700
-10	2800	-	400	700
-20	1800	-	250	400
-45	300	-	70	180
-80	150	-	35	70



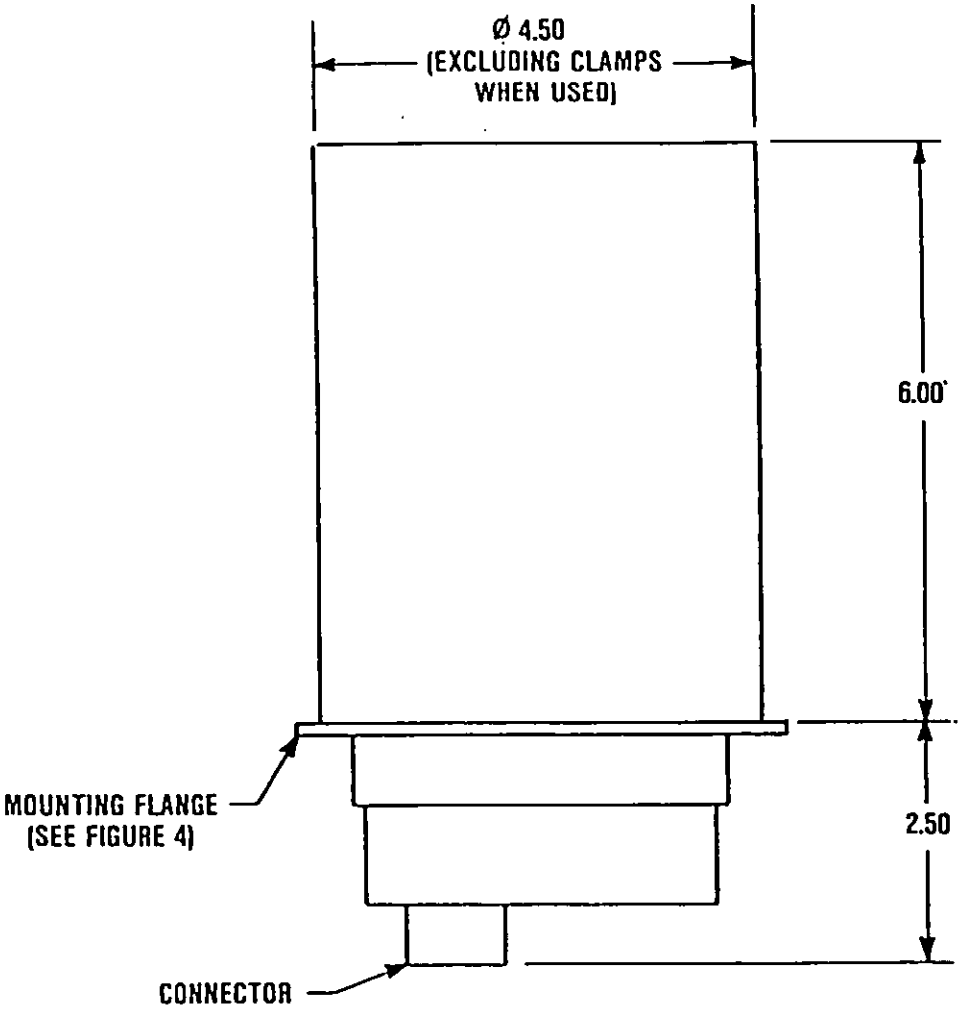
NOTE: MATING CABLE CONNECTORS, CABLES AND SWITCHES SHALL NOT BE FURNISHED AS COMPONENTS OF THE SYSTEM.

FIGURE 1. System configuration A.



NOTE: MATING CABLE CONNECTORS, CABLES AND SWITCHES SHALL NOT BE FURNISHED AS COMPONENTS OF THE SYSTEM.

FIGURE 2. System configuration B.

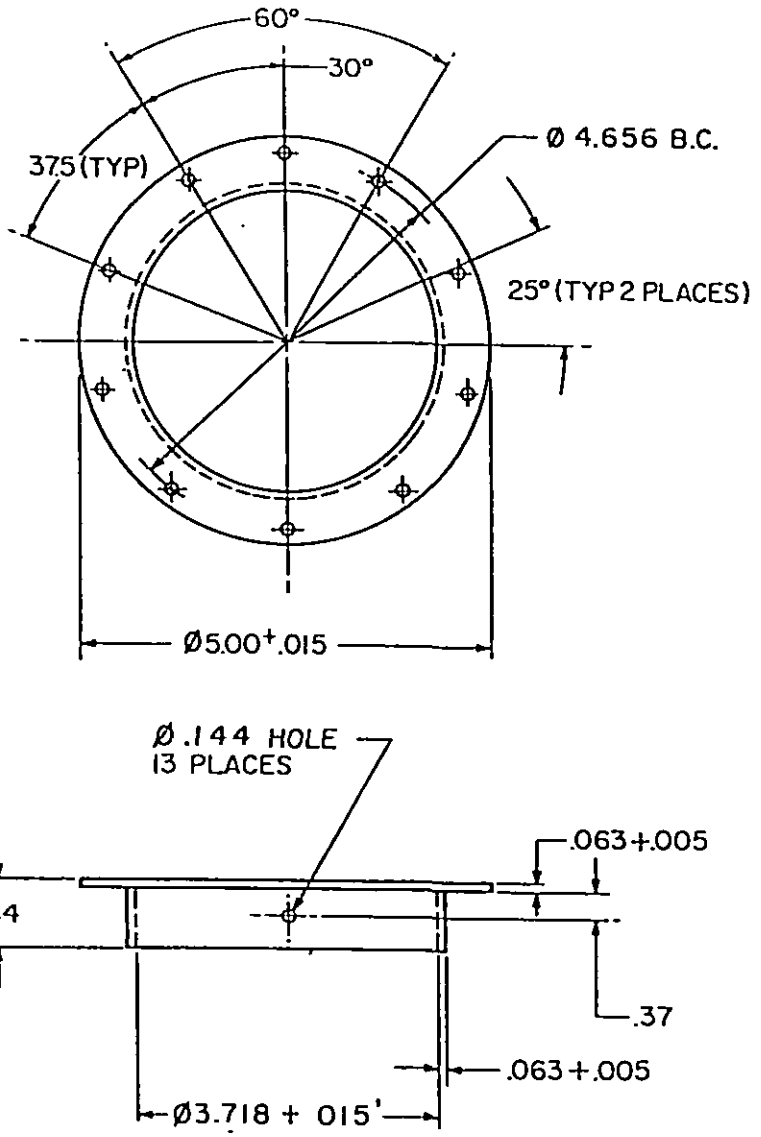


NOTES:

1. Dimensions are in inches.
   Tolerance: .XX ± .03
2. Metric equivalents are given for information only and are based on 1 inch = 25.4 mm
3. Weight: 2.20 lbs (1.00 KG)

Inches	mm
6.00	152.40
4.50	114.30
2.50	63.50

FIGURE 3. Typical light source envelope dimensions.



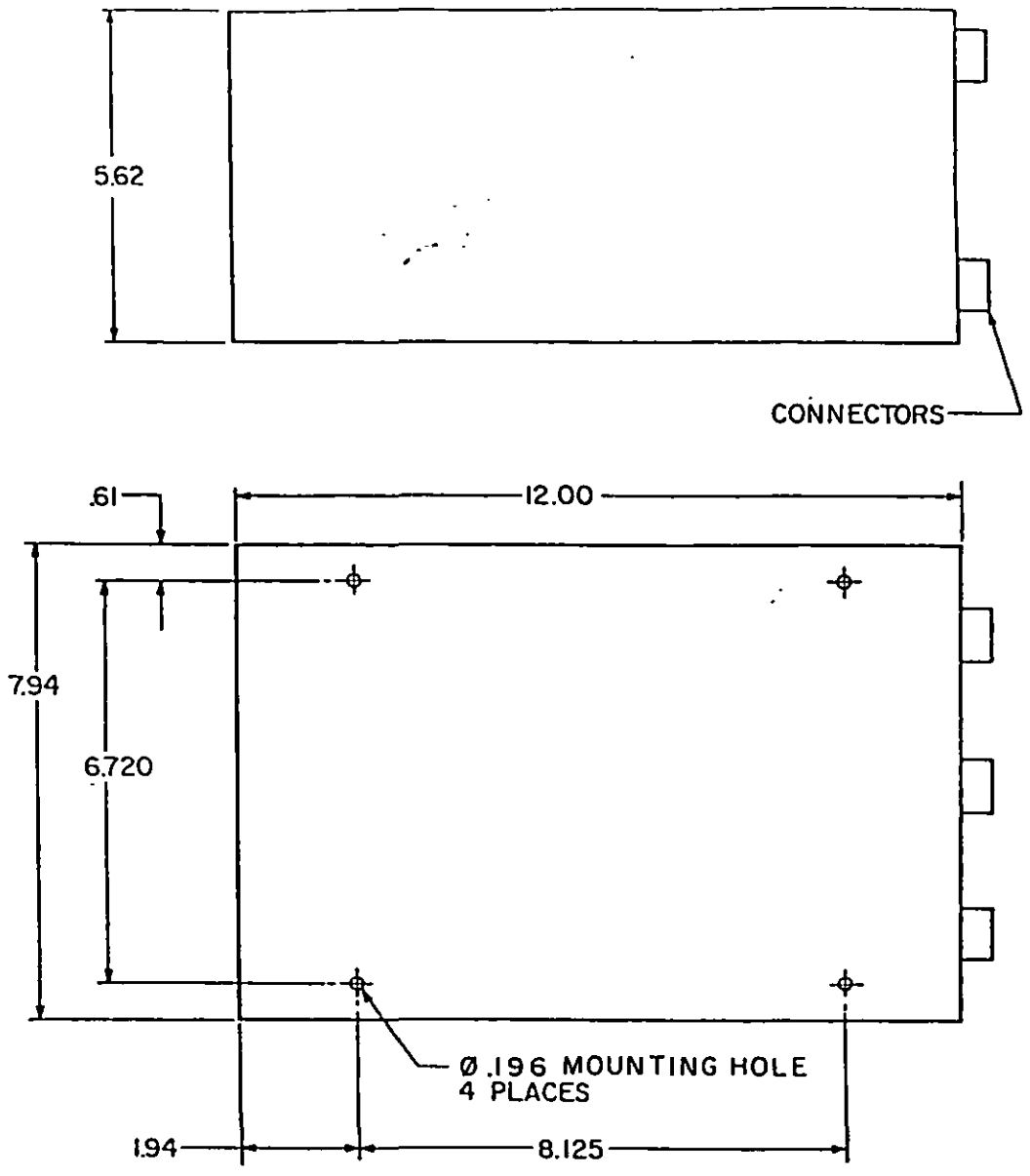
NOTES:

1. Dimensions are in inches.
   Tolerance: .XX ± .03, .XXX ± .010

2. Metric equivalents are given for information only and are based on 1 inch = 25.4 mm

Inches	mm
5.000	127.00
4.656	118.26
3.718	94.44
.840	21.34
.370	9.40
.144	3.66
.063	1.60
.015	.38
.005	.13

FIGURE 4. Typical mounting flange dimensions and configuration.

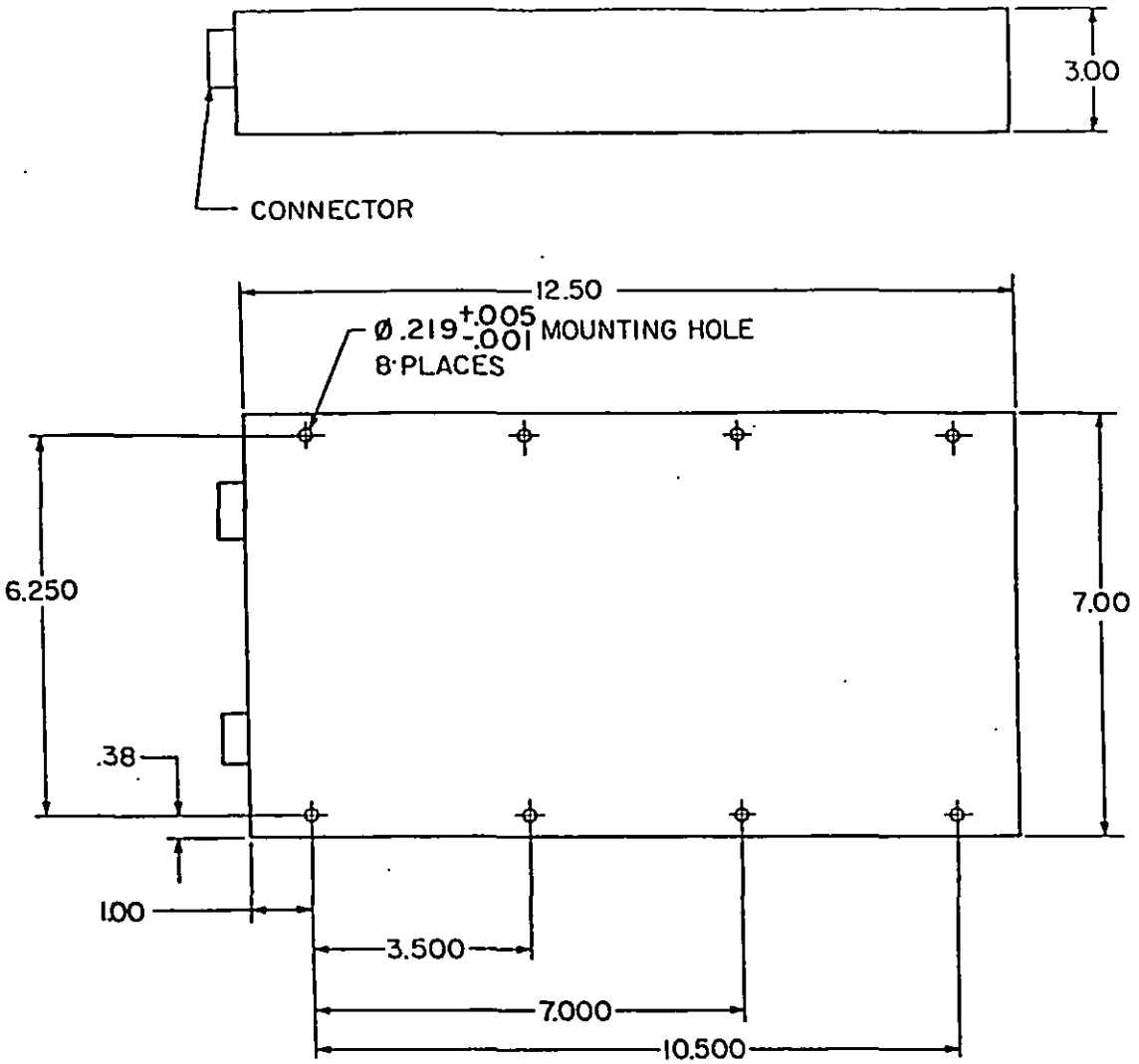


NOTES:

1. Dimensions are in inches.
   Tolerance: .XX ± .03, .XXX ± .010
2. Metric equivalents are given for information only and are based on 1 inch = 25.4 mm

Inches	mm
12.000	304.80
8.125	206.38
7.940	201.67
6.720	170.69
5.620	142.75
1.940	49.28
.610	15.49
.196	4.98

FIGURE 5. Typical power supply dimensions for configuration A.



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 = 25.4 mm

Inches	mm
12.500	317.50
10.500	266.70
7.000	177.80
6.250	158.75
3.500	88.90
3.000	76.20
1.000	25.40
.380	9.65
.219	5.56
.005	0.13
.001	0.03

FIGURE 6. Typical power supply dimensions for configuration B.