

INCH-POUND

MIL-DTL-9395/31G

12 August 2024

SUPERSEDING

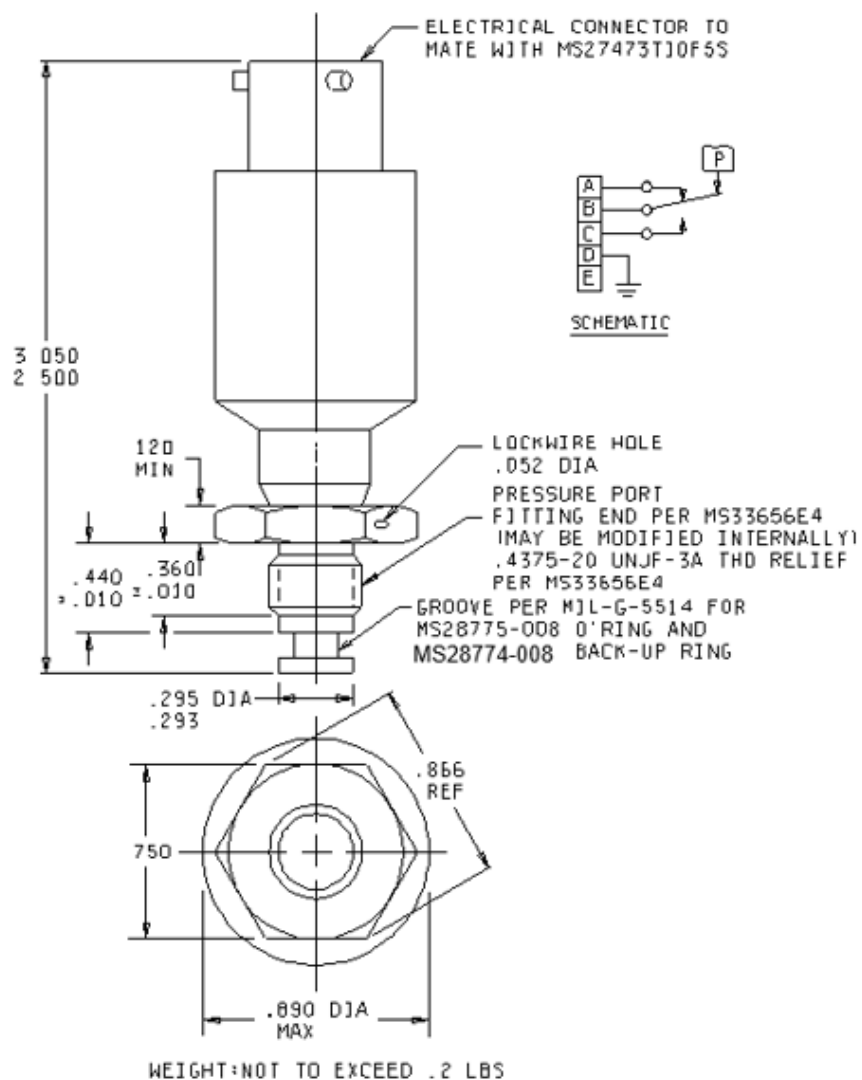
MIL-DTL-9395/31F

18 September 2018

DETAIL SPECIFICATION SHEET
SWITCHES, PRESSURE, (GAGE), TYPE II, 5 AMPERES

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

The requirements for acquiring the switches described herein shall consist of this document and [MIL-DTL-9395](#).



Configuration 1

FIGURE 1. Switches.

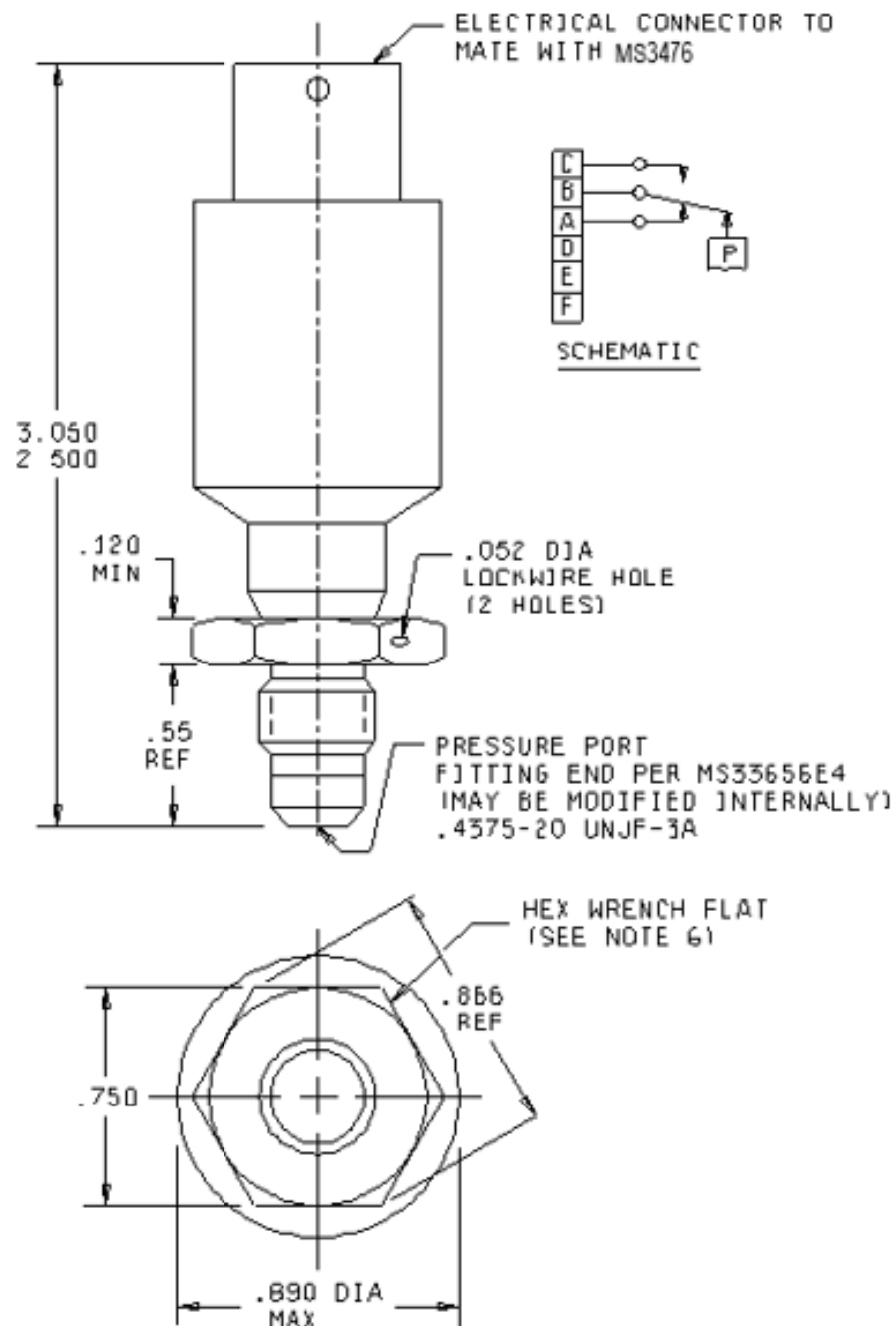
AMSC N/A

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FSC 5930



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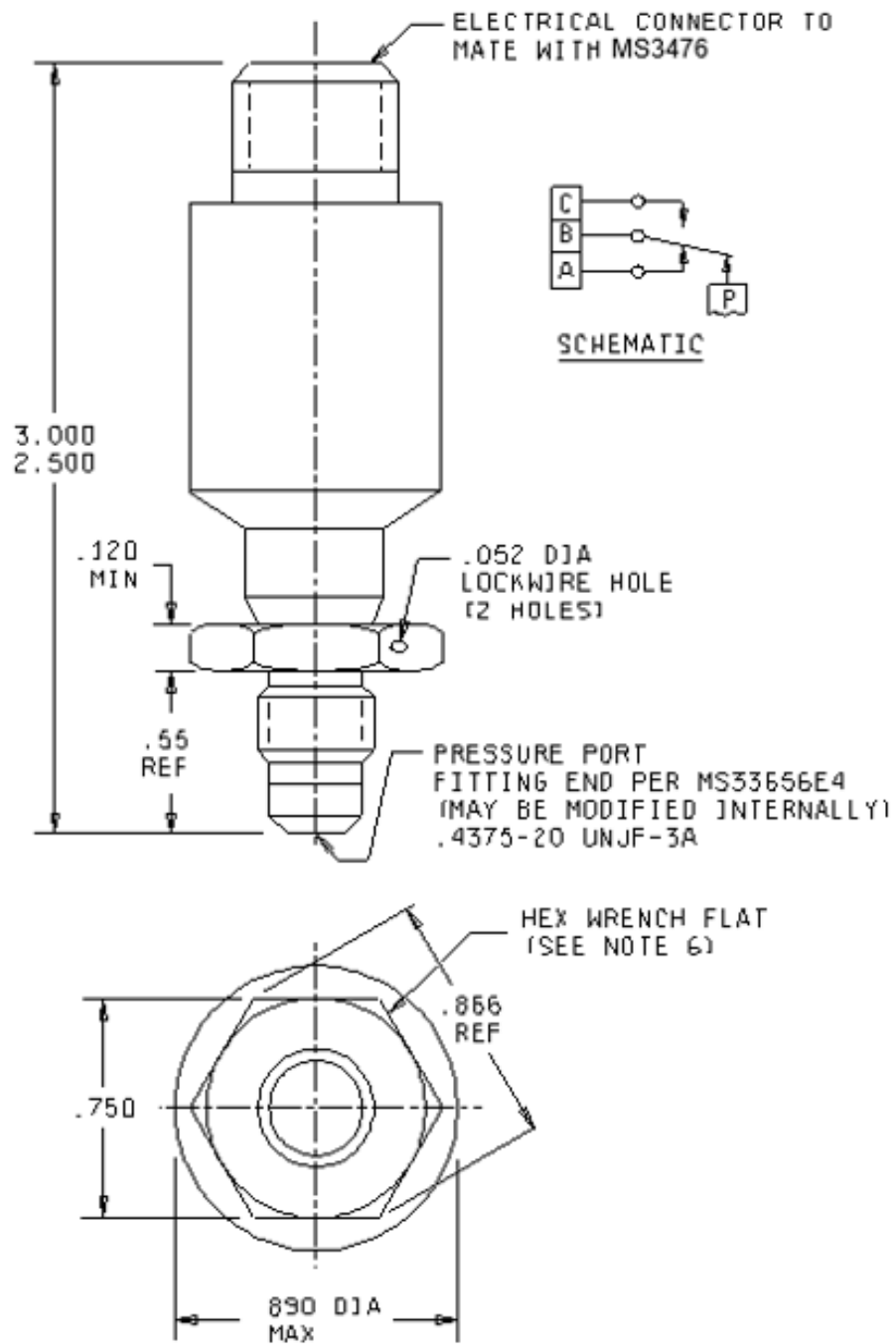


WEIGHT: NOT TO EXCEED .2 lbs.

Configuration 2

FIGURE 1. Switches - Continued.

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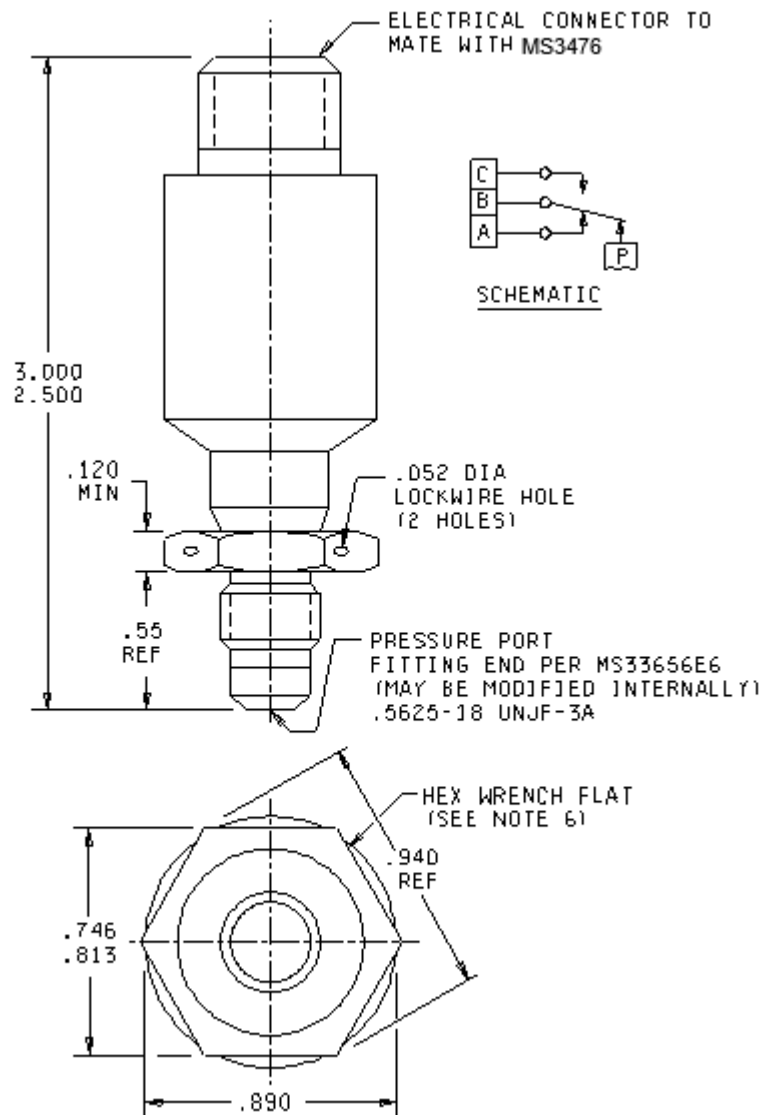


WEIGHT: NOT TO EXCEED .2 lbs.

Configuration 3

FIGURE 1. Switches - Continued.

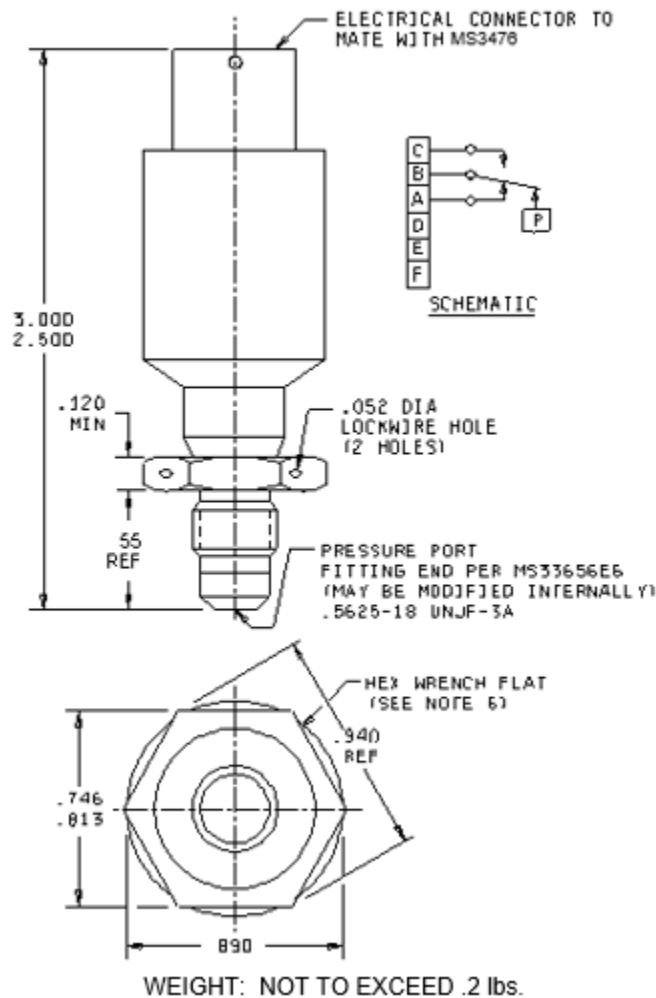
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WEIGHT: NOT TO EXCEED .2 lbs.

Configuration 4

FIGURE 1. Switches - Continued.



Configuration 5

NOTES:

1. Dimensions are in inches.
2. Exact shape of switch is optional provided outline dimensions specified are not exceeded and mounting holes and connector locations are as specified.
3. Schematics shown are for switches with pressure ports exposed to room ambient.
4. Unless otherwise specified, tolerance is $\pm .005$.
5. A minimum of two wrenches are needed.
6. MS33656E6 and MS33656E4 details are found in [SAE-AS4395](#). MS27473TI0F5S details are found in [MS27473](#). MS28774-008 details are found in [MS28774](#). MS28775-008 details are found in [SAE-AS28775](#).

FIGURE 1. Switches - Continued.

REQUIREMENTS:

Dimensions, weight, and electrical schematic: See figure 1.

Materials: All external parts including pressure port, housing, and electrical connector shall be fabricated from corrosion-resistant (stainless) steel suitable for welding. External parts shall be joined by welding; solder joints shall not be allowed.

Calibration: See tables I, II, III, and IV.

Proof pressure: 4,500 lb_f/in^2 . The electrical chamber shall withstand 4500 lb_f/in^2 without rupture.

System pressure: 3,000 lb_f/in^2 .

Burst pressure: 7,500 lb_f/in^2 .

Electrical ratings:

Operating voltage: 28 V dc.

Current rating: 5 amperes resistive.
2 amperes inductive.

Seal:

Pressure chamber: Media proof. Subject switches to proof pressure for 2 minutes using hydraulic fluid in accordance with [MIL-PRF-6083](#) with chamber pressure continuously being monitored. Isolate the chamber at proof pressure, with the chamber disconnected from the pressure source. Under that condition, the pressure shall not drop more than 5 lb_f/in^2 for the first 30 seconds to allow for stabilization of test equipment. No pressure loss is allowed thereafter for the remainder of the 2 minutes.

Electrical chamber: See table I.

Electrical connector: See figure 1.

Pressure port: See figure 1.

Media: Hydraulic fluid in accordance with [MIL-PRF-6083](#) or [MIL-PRF-83282](#); fuel in accordance with [MIL-DTL-5624](#); lubricating oil in accordance with [MIL-PRF-7808](#).

High temperature (operating and nonoperating): B (+275°F).

Low temperature (operating and nonoperating): D (-65°F).

Altitude: C (except 80,000 feet).

Shock: C (100 g).

Vibration: S (test condition D of [MIL-STD-202-204](#)).

Life (mechanical): A (100,000 cycles).

Life (electrical): C (50,000 cycles).

Acceleration: C (8 g).

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Pulsation amplitude: E (10 percent).

Pulsation frequency: D (500 $\pm$ 50 Hz).

Pressure rise: F (500,000 lb_f/in²/s).

Dielectric withstanding voltage (at reduced barometric pressure): Applicable.

Connector torque: Applicable.

Part or Identifying Number (PIN): Consists of the prefix "M9395/31-" followed by a five-character code. The code identifies the configuration, seal, and pressure setting mode (code from table I); high-pressure setting to within 100 lb_f/in² (code from table II) followed by high-pressure setting to within 25 lb_f/in² and applicable tolerance (code from table III); and low-pressure setting to within 100 lb_f/in² (code from table II) followed by low-pressure to within 25 lb_f/in² and applicable tolerance (code from table III). When a pressure differential is used for one of the actuation values, two codes from table IV are selected to define the differential spread.

EXAMPLE:

	<u>M9395/31-</u>	<u>V</u>	<u>DB</u>	<u>FH</u>
Prefix.				
Configuration, seal, and pressure setting mode Code "V" of table I.				
High-pressure setting. Code "D" of table II (400 lb _f /in ²) and Code "B" of table III (+25, $\pm$ 25 lb _f /in ²).				
Low-pressure setting differential. Code "F" of table IV (125 lb _f /in ²) and Code "H" of table IV (+175 lb _f /in ²).				

PIN M9395/31-VDBFH describes a switch of configuration "4" which actuates on increasing pressure at 400 $\pm$ 25 lb_f/in² and with a deadband value of 125 to 175 lb_f/in².

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TABLE I. Codes for combinations of configurations and pressure setting modes.

	Configuration 1		Configuration 2		Configuration 3		Pressure setting mode	
	Electrical chamber		Electrical chamber		Electrical chamber		High setting	Low setting
	Hermetic	Unsealed	Hermetic	Unsealed	Hermetic	Unsealed		
Code	A	D	G	K	N	R	At (or max) <u>1/</u>	At (or min) <u>1/</u>
Code	B	E	H	L	P	S	At (or max) <u>1/</u>	Differential <u>2/</u>
Code	C	F	J	M	Q	T	Differential <u>2/</u>	At (or min) <u>1/</u>

	Configuration 4		Configuration 5		Pressure setting mode	
	Electrical chamber		Electrical chamber		High setting	Low setting
	Hermetic	Unsealed	Hermetic	Unsealed		
Code	U	X	1	4	At (or max) <u>1/</u>	At (or min) <u>1/</u>
Code	V	Y	2	5	At (or max) <u>1/</u>	Differential <u>2/</u>
Code	W	Z	3	6	Differential <u>2/</u>	At (or min) <u>1/</u>

1/ Setting values are designated by characters from tables II and III.
2/ Setting values are designated by characters from table IV.

TABLE II. Codes for pressure setting to within 100 lb_f/in².

Code	Pressure (lb _f /in ²)	Code	Pressure (lb _f /in ²)	Code	Pressure (lb _f /in ²)	Code	Pressure (lb _f /in ²)
A	100	J	900	S	1,700	1	2,500
B	200	K	1,000	T	1,800	2	2,600
C	300	L	1,100	U	1,900	3	2,700
D	400	M	1,200	V	2,000	4	2,800
E	500	N	1,300	W	2,100	5	2,900
F	600	P	1,400	X	2,200	6	3,000
G	700	Q	1,500	Y	2,300		
H	800	R	1,600	Z	2,400		

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TABLE III. Codes for pressure settings to within 25 lb_f/in² and tolerances.

	Unit				Tolerance
	0	+25	+50	+75	(lb _f /in ²)
Code	A	B	C	D	±25
Code	E	F	G	H	±50
Code	J	K	L	M	±75
Code	N	P	Q	R	±100
Code	S	T	U	V	±150
Code	W	X	Y	Z	±200
Code	1	2	3	4	±300
Code	5	6	7	8	±400
Code	9	0	+	-	Min or Max

TABLE IV. Codes for differential pressure settings.

Code	Differential value (lb _f /in ²)	Code	Differential value (lb _f /in ²)
A	0	M	275
B	25	N	300
C	50	P	325
D	75	Q	350
E	100	R	375
F	125	S	400
G	150	T	425
H	175	U	450
J	200	V	475
K	225	W	500
L	250		

QUALIFICATION:

Single submission: Restricted to switch submitted.

Group submission: See table V.

TABLE V. Extent of qualification.

Part number	Number of samples required	Tests	Qualifies
M9395/31-AADAA M9395/31-DADAA M9395/31-G4ZXV M9395/31-N4ZXV	2 each resistive 2 each resistive 2 each inductive 2 each inductive	Complete in accordance with qualification inspection of MIL-DTL-9395	ALL configurations

NOTE:

Design limitations (actuation values and tolerances, deadband and deactuation values and tolerances) should be coordination with the manufacturer(s) listed on the QPL for this specification sheet before specifying a particular "M" number. The fact that operating characteristics can be coded does not necessarily mean that it can be manufactured or acquired.

The margins of this specification are marked with 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 previous issue.

Referenced Documents:

MIL-DTL-9395	MIL-DTL-5624
MIL-PRF-6083	MIL-PRF-7808
MIL-PRF-83282	MIL-STD-202-204
MIL-G-5514	MS3476
MS27473	MS28774
SAE-AS4395	SAE-AS28775

Custodians:

Army - CR
Navy - EC
Air Force - 85
DLA - CC

Preparing activity:

DLA - CC

(Project 5930-2024-052)

Review activities:

Army - AT
Navy - AS, MC, SH
Air Force - 19

NOTE: The activities listed above were interested in this document as of the date of this document. Since organizations and responsibilities can change, you should verify the currency of the information above using the ASSIST Online database at <https://assist.dla.mil/>.