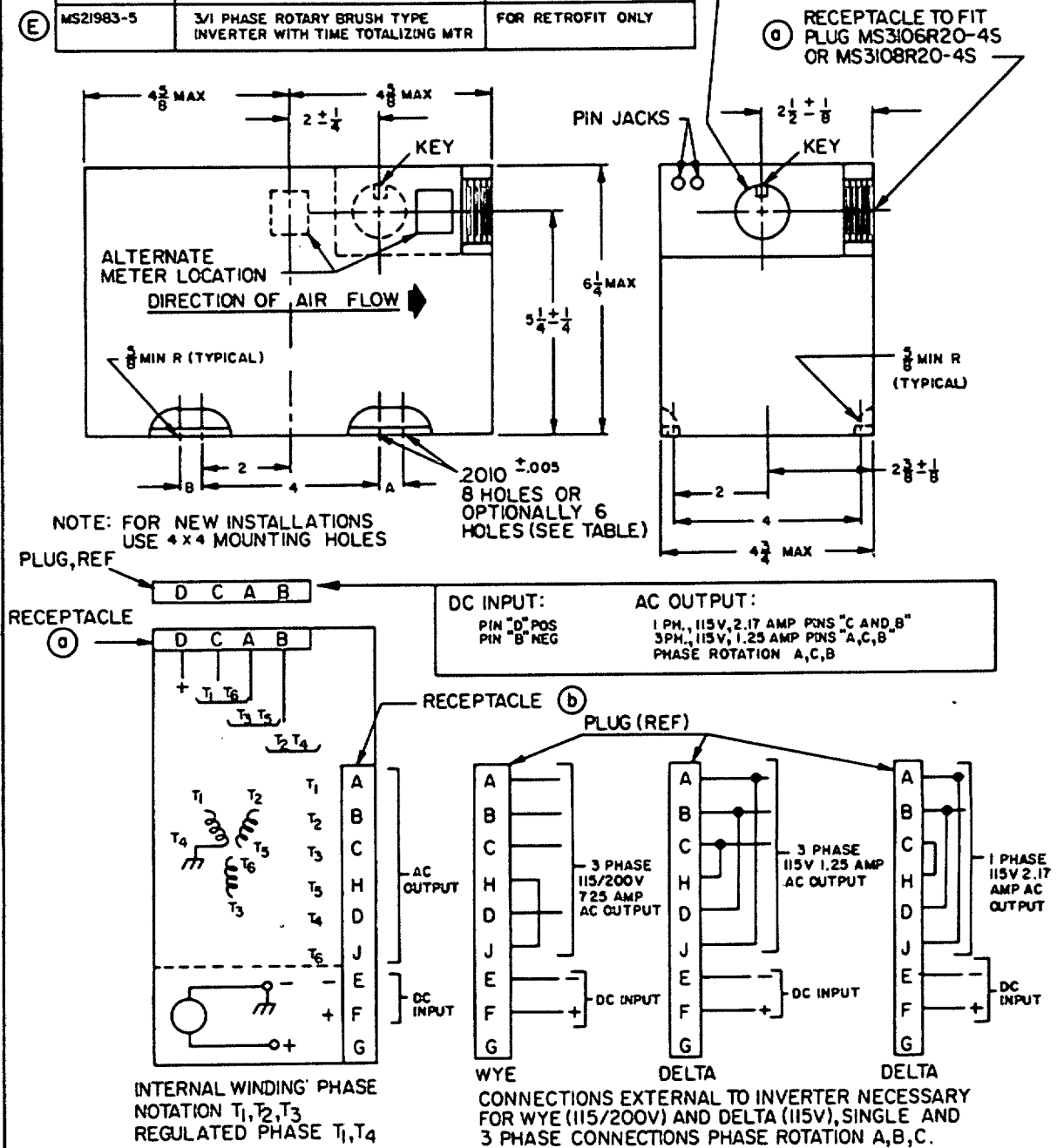


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PART NO	DESCRIPTION	USE
MS21983-1	3/1 PHASE ROTARY BRUSH TYPE INVERTER	FOR RETROFIT ONLY
MS21983-3	3/1 PHASE STATIC INVERTER	FOR NEW APPLICATIONS AND RETROFIT
MS21983-4	SINGLE PHASE STATIC INVERTER	FOR NEW APPLICATIONS AND SINGLE PHASE RETROFIT
(E) MS21983-5	3/1 PHASE ROTARY BRUSH TYPE INVERTER WITH TIME TOTALIZING MTR	FOR RETROFIT ONLY

FED SUP CLASS
6125



(E) DENOTES CHANGES

PART NO
MS21983-1 & MS21983-5

OPTION	A (IN INCHES)	B (IN INCHES)
SIX HOLES	1.000	0
EIGHT HOLES	.500	.500

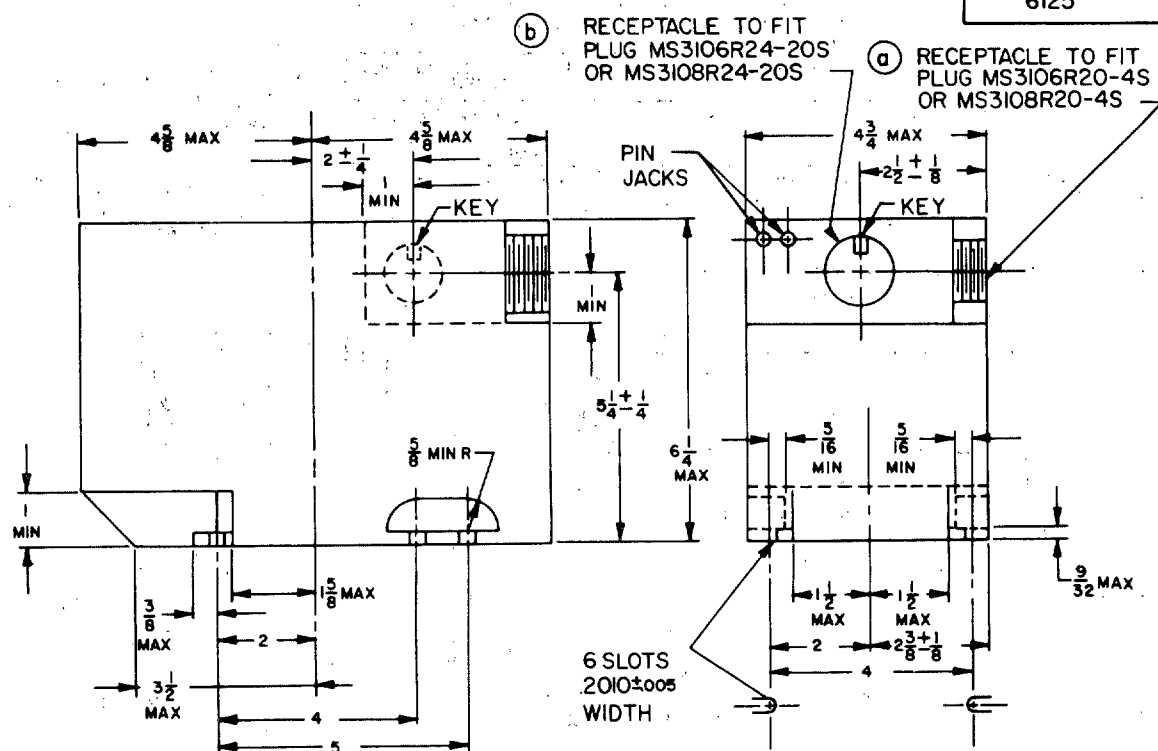
P.A. NAVY-AS	TITLE INVERTER, 250 VA, 3/1 PHASE & 1 PHASE, CLASS B, MULTIPURPOSE	MILITARY STANDARY
Other Cust AF-II ARMY-ME		MS21983
Procurement Specification MIL-I-7032	SUPERSEDES MS25093, MS16058, E 1617, 5IAIA 9 (E-5109)	SHEET 1 OF 6

DD FORM 672-1 (COORDINATED)
SEP 57

PROJECT NO. 6125-0207

APPROVED 18 NOV 60 REVISED (D) 23 JUNE 71 (E) 31 Dec. 87

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6125

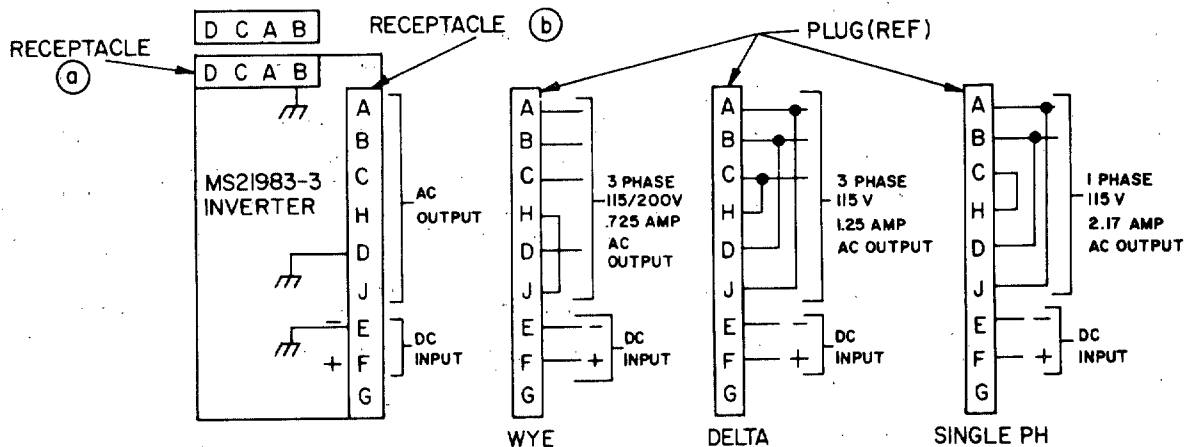


DC INPUT:

PIN "D" POS
PIN "B" NEG

AC OUTPUT:

1 PHASE., 115 V, 2.17 AMP PINS "C & B"
3 PHASE., 115 V, 1.25 AMP, PINS "A, C, B"
PHASE ROTATION A, C, B



CONNECTIONS EXTERNAL TO INVERTER NECESSARY
FOR WYE (115/200V), DELTA (115V), AND SINGLE
PHASE CONNECTIONS, PHASE ROTATION A,B,C

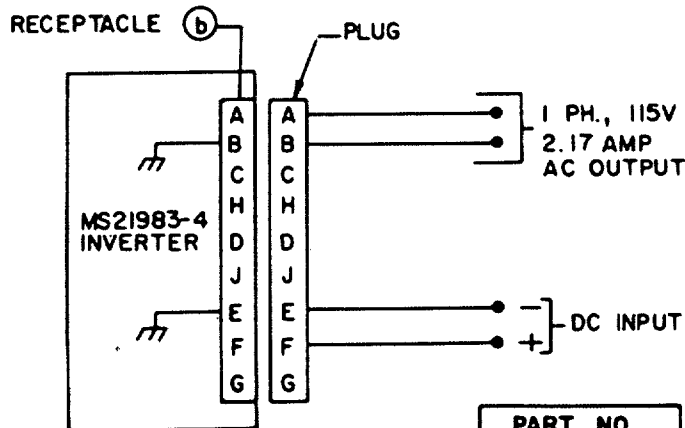
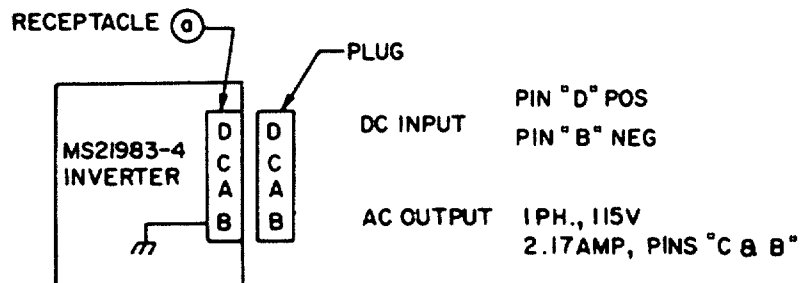
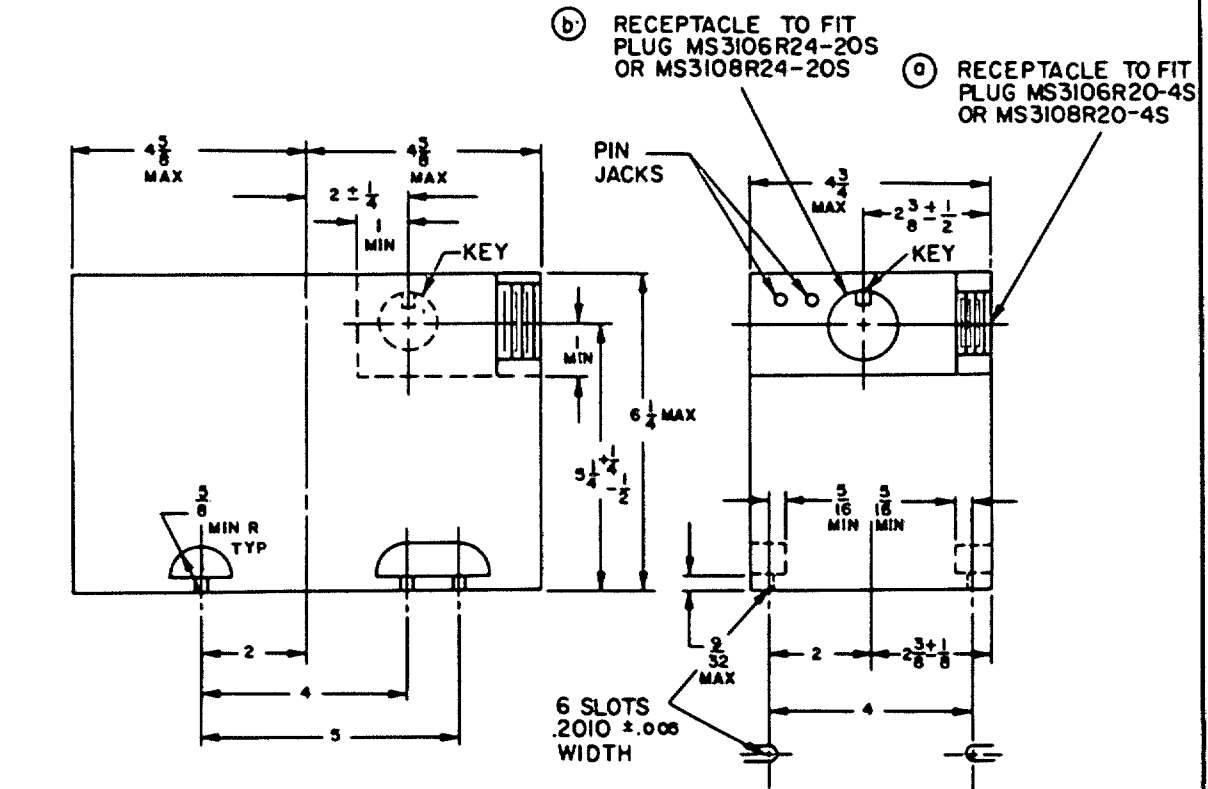
PART NO.

MS21983-3

THIS STANDARD HAS BEEN APPROVED BY THE DEPARTMENT OF DEFENSE AND IS MANDATORY ON ALL ACTIVITIES. SELECTION FOR ALL NEW ENGINEERING AND DESIGN APPLICATIONS AND FOR REPETITIVE USE SHALL BE MADE FROM THIS DOCUMENT.

APPROVED 18 NOV. 60 REVISED (E) FOR CHANGES SEE SHEET 1

P.A. NAVY-AS	TITLE INVERTER, 250 VA, 3/I PHASE &	MILITARY STANDARD
Other Cust AF-II	I PHASE, CLASS B, MULTIPURPOSE	MS2I983
ARMY-ME		
Procurement Specification MIL-T-7032	SUPERSEDES MS25093, MS16058, E-1617, 51ATA9 (E-5109)	SHEET 2 OF 6

FED. SUP CLASS
6125

PART NO.

MS21983-4

APPROVED 18 NOV 60 REVISED (E) FOR CHANGES SEE SHEET 1

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THIS DOCUMENT.

P.A. NAVY-AS	TITLE INVERTER, 250VA, 3/1 PHASE & 1 PHASE, CLASS B, MULTIPURPOSE	MILITARY STANDARD
Other Cust AF-II ARMY-ME		MS21983
Procurement Specification MIL-1-7032	SUPERSEDES MS25093, MS16058, E-1617, 5 I A I A 9 (E-5109)	SHEET 3 OF 6

FED. SUP CLASS
6125

(E)

PARAMETERS AND CONDITIONS	NOMINAL VALUES				
	MS21983-1 & MS21983-5		MS21983-3		MS21983-4
	3 ϕ	1 ϕ	3 ϕ	1 ϕ	1 ϕ
INPUT VOLTS DC	28	28	28	28	28
OUTPUT VOLTS, AC (A) RECEPTACLE	115	115	115	115	115
(B) RECEPTACLE	115/200	115	115/200	115	115
FREQUENCY, Hz	400	400	400	400	400
VA TO 50,000 FT ALTITUDE	250	250	250	250	250
VA TO 65,000 FT ALTITUDE	125	125	250	250	250
PF MIN LAG	.80	.80	.75	.75	.75
PF MIN LEAD	.95	.95	.95	.95	.95
MIN OUTPUT VOLTAGE AT 200% RATED					
OUTPUT CURRENT	50/85	50	50/85	50	50
MIN EFFICIENCY PERCENT AT FULL LOAD, UNITY PF, 28 VOLT INPUT, SEA LEVEL AND 25°C \pm 15°C	40	35	65	65	65
MAX WEIGHT, POUNDS	13.8	13.8	13.8	13.8	12

(E)

OPERATING CONDITIONS	OUTPUT LIMITS (LIMITS APPLY TO EACH PHASE FOR THREE PHASE OPERATION)			
	MS21983-1 & MS21983-5		MS21983-3 & -4	
	RMS PHASE VOLTAGE	FREQ (Hz)	RMS PHASE VOLTAGE	FREQ (Hz)
(1) INPUT VOLTAGE VARIED BETWEEN 26 AND 29 VOLTS				
(2) LOAD VARIED BETWEEN ZERO AND FULL LOAD.	LOW 112.5	LOW 390	LOW 112.5	LOW 393
(3) AMBIENT TEMPERATURE-ALTITUDE VARIED WITHIN THE RANGE ESTABLISHED BY CURVE 1 OF MS33543 EXCEPT THAT THE AMBIENT TEMPERATURE SHALL NEVER EXCEED 85°C. THE MS21983-1 & MS21983-5 INVERTERS SHALL DELIVER RATED POWER TO 50,000 FT AND 50 PERCENT RATED POWER TO 65,000 FT. THE MS21983-3 AND -4 INVERTERS SHALL DELIVER RATED POWER TO 65,000 FT ALTITUDE.	HIGH 117.5	HIGH 410	HIGH 117.5	HIGH 407
(4) LOAD PF VARIED FROM .75 LAG OR .80 LAG (AS APPLICABLE) TO .95 LEAD.				
(5) UNIT MOUNTED IN ANY POSITION.				
(6) ALL VARIATIONS ABOVE EXCEPT WITH THE INPUT VOLTAGE VARIED BETWEEN 20 AND 26 VOLTS FOR THE MS21983-1 & MS21983-5 UNITS, AND BETWEEN 18 AND 26 VOLTS FOR THE MS21983-3 AND -4 UNITS.	LOW 100 (a) HIGH 117.5 (a)	LOW 380 (a) HIGH 410 (a)	LOW 100 (a) HIGH 117.5 (a)	LOW 380 (a) HIGH 407 (a)

(a) FOR THIS CONDITION, THE FREQUENCY/VOLTAGE RATIO SHALL REMAIN BETWEEN 3.0 AND 4.0

P.A. NAVY A	TITLE INVERTER, 250VA, 3/1 PHASE & 1 PHASE, CLASS B, MULTIPURPOSE	MILITARY STANDARD
Other Cust AF-11 ARMY-ME		MS21983
Procurement Specification MIL-I-7032	SUPERSEDES MS25093, MS16058, E-1617, 5IAIA9 (E-5109)	SHEET 4 OF 6

THIS STANDARD HAS BEEN APPROVED BY THE DEPARTMENT
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SELECTION FOR ALL NEW ENGINEERING AND DESIGN APPLICATION
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APPROVED 18 NOV 60 REVISED (E) FOR CHANGES SEE SHEET 1

FED. SUP CLASS
6125

NOTES: MS21983-1, -3, -4, -5

1. DIMENSIONS IN INCHES. UNLESS OTHERWISE SPECIFIED, FRACTIONS $\pm 1/64$, DECIMALS $\pm .015$.
2. THE INVERTER DESIGN SHALL BE SUCH THAT IT MAY BE LOADED ON EITHER RECEPTACLE (a) OR (b) BUT NOT SIMULTANEOUSLY. THIS MAY BE ACCOMPLISHED BY A SIMPLE, EASILY ACCESSIBLE MEANS WITHIN THE INVERTER TO ELECTRICALLY DISCONNECT THE UNUSED RECEPTACLE, OR BY PROVIDING A SUITABLE PROTECTIVE COVER WHICH WILL AUTOMATICALLY COVER THE UNUSED RECEPTACLE. THE COVER, IF USED, SHALL BE DESIGNED SO THAT IT CANNOT BE SEPARATED FROM THE UNIT.
3. THE INVERTER DESIGN SHALL BE SUCH THAT EITHER THREE PHASE DELTA OR SINGLE PHASE POWER WILL BE AVAILABLE FROM RECEPTACLE (a) AND THAT EITHER THREE PHASE WYE, THREE PHASE DELTA, OR SINGLE PHASE POWER WILL BE AVAILABLE FROM RECEPTACLE (b). THERE SHALL BE A SIMPLE, EASILY ACCESSIBLE MEANS WITHIN THE INVERTER TO SELECT THE TYPE OF CONNECTION DESIRED. THE INVERTER SHALL THEN DELIVER SPECIFIED POWER WHEN THE APPROPRIATE EXTERNAL CONNECTIONS ARE MADE.
4. THE AIRCRAFT MANUFACTURER SHALL ALLOW CLEARANCE OF AT LEAST ONE INCH AT EACH END OF THE INVERTER IN ADDITION TO THE MAXIMUM DIMENSIONS SHOWN ON THIS DRAWING, FOR INSTALLATION AND VENTILATION.
5. THE WEIGHT AND DIMENSIONS SHOWN ON THIS DRAWING SHALL INCLUDE THE WEIGHT AND DIMENSIONS OF ALL AUXILIARY APPARATUS NECESSARY TO MAKE THIS PRODUCT CONFORM TO THIS DRAWING AND THE PROCUREMENT SPECIFICATION.
6. FOR THREE PHASE AIRCRAFT APPLICATIONS, THE LOAD ON ANY ONE PHASE SHALL NOT EXCEED ONE THIRD OF THE TOTAL THREE PHASE INVERTER RATING.

(E)

NOTES: MS21983-1, & -5 ONLY

7. A STATIC, SEMICONDUCTOR-TYPE VOLTAGE AND FREQUENCY REGULATOR SHALL BE DESIGNED IN THIS INVERTER IN LIEU OF A CARBON PILE REGULATOR.
8. A VOLTAGE ADJUSTMENT MEANS SHALL BE ON THE (b) CONNECTOR END AND ABOVE THE HORIZONTAL CENTERLINE OF THE INVERTER.
9. TWO PLACARDED PIN JACKS SHALL BE PROVIDED ON THE (b) CONNECTOR END AND ABOVE THE HORIZONTAL CENTERLINE OF THE UNIT, BETWEEN WHICH THE VOLTAGE, (T_1) AND (T_2) OF THE REGULATED PHASE CAN BE MEASURED. THESE PIN JACKS SHALL ACCEPT A "PROD PIN" .078 \pm .002 INCHES IN DIAMETER.
10. THE INVERTER SHALL REQUIRE NO CONDUCTION COOLING UNDER ANY RATED OPERATING CONDITION.

NOTE: MS21983-5 ONLY

11. THE INVERTER SHALL BE PROVIDED WITH A METER, TIME TOTALIZER P/N M7793/6-022. THE METER SHALL BE LOCATED ON EITHER SIDE OF THE CONTROL BOX ADJACENT TO OR OPPOSITE THE SIDE CONNECTOR.

(E)

NOTES: MS21983-3, -4 ONLY

12. THE INVERTER SHALL BE A STATIC SEMICONDUCTOR DEVICE EMPLOYING NO MOVING PARTS.
13. TWO PLACARDED PIN JACKS SHALL BE PROVIDED ON THE CONNECTOR END AND ABOVE THE HORIZONTAL CENTERLINE OF THE INVERTER, BETWEEN WHICH THE OUTPUT VOLTAGE MAY BE MEASURED. FOR THREE PHASE OPERATION THE JACK VOLTAGE SHALL BE PIN A TO GROUND WHEN RECEPTACLE (b) IS USED, AND PIN C TO GROUND WHEN RECEPTACLE (a) IS USED. THESE PIN JACKS SHALL ACCEPT A "PROD PIN" .078 \pm .002 INCHES IN DIAMETER.
14. FOR THREE PHASE OPERATION, THE PHASE DISPLACEMENT BETWEEN ADJACENT PHASES SHALL BE $120^\circ \pm 4^\circ$ FOR BOTH BALANCED AND UNBALANCED LOAD CONDITIONS.
15. THE OUTPUT VOLTAGE DURING STARTING SHALL BE AT ITS STEADY STATE CONDITION WITHIN 2 SECONDS AFTER APPLICATION OF INPUT VOLTAGE AND SHALL REMAIN AT THAT CONDITION THEREAFTER. DURING THE TWO SECOND STARTING PERIOD, THE MAXIMUM PEAK VALUE OF THE OUTPUT VOLTAGE SHALL NOT EXCEED 198 VOLTS. THE INVERTER SHALL CONFORM TO THIS REQUIREMENT FROM NO LOAD TO FULL LOAD, FROM 26 VOLTS TO 29 VOLTS INPUT, SEA LEVEL ALTITUDE, AND FROM -55°C TO 85°C AMBIENT TEMPERATURE. FOR THREE PHASE OPERATION, THIS REQUIREMENT SHALL APPLY TO ALL PHASES.
16. WHEN COMPUTING EFFICIENCY, MEAN (AVERAGE) VALUES OF INPUT VOLTAGE AND CURRENT SHALL BE USED AND ROOT MEAN SQUARE (RMS) VALUES OF OUTPUT VOLTAGE AND CURRENT SHALL BE USED.

P.A. NAVY-AS Other Com AF-11 ARMY-ME	TITLE INVERTER, 250VA, 3/1 PHASE & 1 PHASE, CLASS B, MULTIPURPOSE	MILITARY STANDARD MS21983
PROCUREMENT SPECIFICATION MIL-I-7032	SUPERSEDES: MS25093, MS16058, E-1617, SIATA9 (E-5109)	SHEET 5 OF 6

DD FORM 672-1 (Coordinated)

PREVIOUS EDITIONS OF THIS FORM ARE OBSOLETE.

PLATE NO. 17709

"Review/see information is current as of the date of this document.
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This military standard is mandatory for use by all Departments
 & Agencies of the Department of Defense. Selection for all new
 engineering and design applications and for repetitive use shall
 be made from this document.

APPROVED 18 NOV 60 REVISED (E) FOR CHANGES SEE SHEET 1

REVIEWER SYMBOLS:

USER

FED. SUP CLASS
6125

USER SYMBOLS:

REVIEWER SYMBOLS:

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This military standard is approved for use by all Departments
& Agencies of the Department of Defense. Selection for all new
engineering and design applications and for repetitive use shall
be made from this document.

17. THE TOTAL HARMONIC CONTENT OF THE WAVE FORM SHALL NOT EXCEED 5% OF THE FUNDAMENTAL NOR SHALL ANY INDIVIDUAL HARMONIC EXCEED 3% OF THE FUNDAMENTAL UNDER THE CONDITIONS OF THE PARAGRAPH ENTITLED "WAVEFORM" IN MIL-I-7032.
18. THE USEABLE LIFE SHALL BE AT LEAST 2500 HOURS UNDER THE CONDITIONS OF THE "LIFE" TEST SPECIFIED IN MIL-I-7032. AS A DESIGN OBJECTIVE, THE UNIT SHALL HAVE A USEABLE LIFE OF AT LEAST 10,000 HOURS.
19. THE INVERTER SHALL NOT BE DAMAGED WHEN THE INPUT VOLTAGE IS UNIFORMLY VARIED FROM ZERO TO 32 VOLTS AND BACK TO ZERO OVER A FIVE MINUTE PERIOD UNDER ANY RATED LOAD CONDITION. NO OPERATION IS REQUIRED BELOW 18 VOLTS OR ABOVE 29 VOLTS INPUT.
20. AFTER DELIVERING SPECIFIED OVERLOAD OR SHORT CIRCUIT CURRENT FOR AT LEAST 5 SECONDS PER THE "OVERLOAD" TEST OF MIL-I-7032, THE INVERTER SHALL HAVE AUTOMATIC, ELECTRONIC OVERLOAD AND SHORT CIRCUIT PROTECTION. THE INVERTER SHALL THEN OPERATE FOR AT LEAST 15 MINUTES, WITHOUT DAMAGE, INTO THIS OVERLOAD OR SHORT CIRCUIT. OUTPUT VOLTAGE AND/OR CURRENT MAY DROP TO ANY LEVEL AFTER THE INITIAL 5 SECONDS. NORMAL OUTPUT VOLTAGE SHALL OCCUR AUTOMATICALLY WITHIN 2 SECONDS AFTER REMOVAL OF THE OVERLOAD OR SHORT CIRCUIT. FOR THREE PHASE OPERATION, THIS REQUIREMENT SHALL APPLY TO EACH PHASE SEPARATELY OR SIMULTANEOUSLY.
21. DURING THE "RECOVERY TIME" TEST OF MIL-I-7032, THE MAXIMUM PEAK VALUE OF THE OUTPUT VOLTAGE SHALL NOT EXCEED 198 VOLTS.
22. THE INVERTER SHALL NOT INFLUENCE THE DC POWER SUPPLY SYSTEM IN EXCESS OF THE LIMITS SPECIFIED IN THE PARAGRAPH ENTITLED "INFLUENCE ON ELECTRIC SYSTEM" IN MIL-STD-704. THE DC POWER SUPPLY SYSTEM SHALL BE A STANDARD AIRCRAFT SYSTEM RATED 50 AMPERES OR MORE. PEAK TO MEAN RIPPLE CURRENTS SHALL NOT EXCEED 5 AMPERES WHEN THE INVERTER IS OPERATED FROM A ZERO IMPEDANCE SOURCE UNDER THE CONDITIONS OF THE "VOLTAGE AND FREQUENCY REGULATION" TEST OF MIL-I-7032.
23. THE INVERTER SHALL MEET ALL REQUIREMENTS OF THIS DRAWING AND THE PROCUREMENT SPECIFICATION WHEN SUPPLIED WITH POWER CONFORMING TO THE REQUIREMENTS OF MIL-STD-704. THE INVERTER SHALL NOT BE DAMAGED BY INPUT SURGE AND SPIKE VOLTAGES AS DEFINED THEREIN.
24. THE INVERTER SHALL NOT HAVE AN EXTERNAL VOLTAGE OR FREQUENCY ADJUSTMENT.
25. THE INVERTER SHALL NOT REQUIRE ANY WARMUP.
26. THE THREE PHASE INVERTER SHALL MEET ALL THREE PHASE REQUIREMENTS OF THIS DRAWING AND THE PROCUREMENT SPECIFICATION WHEN CONNECTED EITHER IN DELTA OR WYE CONFIGURATIONS.
27. STANDARD TEST MOUNTING SHALL BE AS SPECIFIED BY THE QUALIFYING ACTIVITY.

FOR DESIGN PURPOSES THIS STANDARD TAKES PRECEDENCE OVER PROCUREMENT DOCUMENTS REFERENCED HEREIN.
REFERENCED DOCUMENTS SHALL BE OF THE ISSUE IN EFFECT ON DATE OF INVITATIONS FOR BID.

APPROVED 18 NOV 60  FOR CHANGES SEE SHEET 1

P.A.
NAVY - AS
Other Code
AF-11
ARMY - ME

TITLE
**INVERTER, 250VA, 3/1 PHASE &
1 PHASE, CLASS B, MULTIPURPOSE**

MILITARY STANDARD

MS21983

PROCUREMENT SPECIFICATION
MIL-I-7032

SUPPLEMENT
MS25095, MS16036, E-1617, SIAIA9 (E-5109)

SHEET 6 OF 6

DD FORM 672-1 (Obsoleted)

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