APPROVED SOURCE(S) OF SUPPLY		
CAGE CODE	PART NO.	VENDOR
60177	SEE TABLE	TECHNOLOGY RESEARCH CORP 5250 140TH AVE N CLEARWATER, FL 33760-3728

TABLE		
DASH NO.	VENDOR PART NO.	FREQUENCY
01	29350	60 HZ
02	29340	400 HZ

REVISIONS				
ZONE	LTR	DESCRIPTION	DATE	APPROVED
	F	SERVICE SIGN OFF	00-08-09	MTP
	G	SEE ECP 01CE610300	02-05-13	DEP
	H	SEE ECP 23HE001600	23-06-26	SDE
	J	SEE ECP 24HE000100	24-01-18	SDE

CAD MAINTAINED. CHANGES SHALL BE INCORPORATED BY THE DESIGN ACTIVITY.

NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH ASME Y14.100.

2. RATED OUTPUT:
   A. 120 VAC, 2 WIRE – 3 KW @ 0.8 POWER FACTOR
      120/240 VAC, 3 WIRE – 3 KW @ 0.8 POWER FACTOR,
      (1.5 KW @ 0.8 POWER FACTOR L1 TO NEUTRAL AND
      L2 TO NEUTRAL).

   B. RE-CONNECTABLE:
      FROM 120 VAC, 2 WIRE, TO 120/240 VAC, 3 WIRE, VIA ACCESSIBLE TOGGLE SWITCH IN INVERTER. ACCESS DOOR ON INVERTER IS INTERLOCKED TO PREVENT CHANGING CONNECTION WITH THE INVERTER ON.

   C. VOLTAGE ADJUSTMENT RANGE:
      1. >114 TO 126 VOLTS FOR 120-VOLT CONNECTION.
      2. >228 TO 252 VOLTS FOR 240-VOLT CONNECTION.
      NOTE: INVERTER WITH 5K VOLTAGE ADJUST POTENTIOMETER ON GENERATOR SET.

   D. VOLTAGE WAVE FORM:
      1. THE DEVIATION FACTOR SHALL NOT EXCEED 7%.
      2. SINGLE FREQUENCY HARMONICS SHALL NOT EXCEED 4%. THERE SHALL BE NO EVIDENT DISCONTINUITIES, SPIKES OR NOTCHES IN THE WAVE FORM WHEN VIEWED WITH AN OSCILLOSCOPE HAVING A BANDWIDTH OF DC TO 1.5 MHZ. ADJUST SUCH THAT ONE CYCLE OF VOLTAGE WAVE COVERS APPROXIMATELY THE ENTIRE SCREEN.

   E. VOLTAGE BALANCE:
      THE MAXIMUM DIFFERENCE BETWEEN 120-VOLT OUTPUTS IS 1% OF RATED VOLTAGE AT RATED FREQUENCY AND NO LOAD.

   F. VOLTAGE REGULATION:
      1. NO LOAD TO RATED LOAD = <2% OF RATED VOLTAGE.
      2. RATED LOAD TO NO LOAD = <2% OF RATED VOLTAGE. (FOR ALL VOLTAGE CONNECTIONS AND RANGES).

   G. VOLTAGE STABILITY:
      1. SHORT TERM (30 SECONDS) = <1.5 % OF RATED VOLTAGE AT ANY CONSTANT LOAD FROM NO LOAD TO RATED LOAD.
      2. LONG TERM (4 HOURS) = <3% OF RATED VOLTAGE AT ANY CONSTANT LOAD FROM NO LOAD TO RATED LOAD.

   H. VOLTAGE DRIFT:
      <4% OF RATED VOLTAGE WITH A CONSTANT LOAD AND FREQUENCY AND AN AMBIENT TEMPERATURE CHANGE OF 60°F IN AN 8 HOUR PERIOD.

   I. VOLTAGE DIP AND RISE:
      1. DIP, NO LOAD TO RATED LOAD = <10% OF RATED VOLTAGE. RECOVERY TIME = <1 SECONDS.
      2. RISE, RATED LOAD TO NO LOAD = <10% OF RATED VOLTAGE. RECOVERY TIME = <1 SECONDS.

3. OUTPUT FREQUENCY:
   A. FREQUENCY STABILITY, SHORT TERM, STEADY STATE: NO LOAD TO RATED LOAD, FREQUENCY BANDWIDTH IS <0.3% OF RATED FREQUENCY.

   B. FREQUENCY STABILITY, LONG TERM, STEADY STATE: FREQUENCY BANDWIDTH OF<0.5% OF RATED FREQUENCY AT CONSTANT AMBIENT TEMPERATURE, BAROMETRIC PRESSURE, VOLTAGE AND AT ANY LOAD FROM NO LOAD TO RATED LOAD IN A 4 HOUR PERIOD.

   C. FREQUENCY TRANSIENT PERFORMANCE: FOR ANY CHANGE IN LOAD, INCLUDING FROM NO LOAD TO RATED LOAD AND RATED LOAD TO NO LOAD, THE MAXIMUM TRANSIENT FREQUENCY CHANGE IS, (UNDERSHOOT OR OVERSHOOT), <1% OF RATED FREQUENCY AND THE MAXIMUM RECOVERY TIME IS <0.1 SECONDS.

   D. FREQUENCY ADJUSTMENT: ±3% MINIMUM VIA CALIBRATION TRIMPOT IN INVERTER, ACCESSIBLE THROUGH ACCESS HOLE.

4. INVERTER INPUT VOLTAGE REQUIREMENTS:
   A. FOUR SEPARATE 3 PHASE, 3 WIRE SUPPLIES 200 TO 300 HZ, 5 AMPERES.

   B. MINIMUM PHASE TO PHASE INPUT VOLTAGE IS:
      NO LOAD = 165 VAC
      RATED LOAD = 180 VAC
      (WITH INVERTER OUTPUT AT 120 VAC)

   C. MAXIMUM VAC INPUT TO INVERTER IS: 280 VAC PHASE TO PHASE.

5. D.C. CONTROL VOLTAGE TO INVERTER:
   18 – 32 VDC @ 0.5 AMPS.

6. PROTECTIVE AND OTHER FUNCTIONS:
   A. OVERLOAD/SHORT CIRCUIT:

      1. OVERLOAD OUTPUT CONTACTS: 1 FORM A, NORMALLY OPEN
         1 FORM B, NORMALLY CLOSED.

         NOTE: THESE CONTACTS TRANSFER ON OVERLOAD, (KW OR CURRENT) AND SHORT CIRCUIT.

      2. SHORT CIRCUIT: 1 FORM A, NORMALLY OPEN.
         NOTE: THESE CONTACTS TRANSFER ON SHORT CIRCUIT ONLY.

   3. CONTACT RATING: PEAK LOAD CURRENT = 1.8A
      CONTINUOUS LOAD CURRENT = 0.5A
      VOLTAGE RATING = 40V (TRANSIENT VOLTAGE PROTECTED)

   B. OVERLOAD TRIP THRESHOLD:
      1. KW OVERLOAD-FACTORY ADJUSTABLE
         MUST NOT TRIP = 105% OR LESS.
         MUST TRIP = 115% AND HIGHER.
         (PERCENT OF RATED KW)

      2. TIME DELAY – FACTORY ADJUSTABLE, SET TO 2 TO 3 MINUTES AT 110% KW, INVERSE TIME PRINCIPLE.

         NOTE: WILL CARRY 110% KW LOAD FOR 2 MINUTES.

      3. CURRENT OVERLOAD – FACTORY ADJUSTABLE,
         SETTING IS: 110% MUST NOT TRIP.
         120% MUST TRIP.
         (PERCENT OF RATED CURRENT)

         NOTE: TRIPS ON HIGHEST PHASE CURRENT.

      4. TIME DELAY, SET TO 2 TO 3 MINUTES AT 120% LOAD, INVERSE TIME PRINCIPLE.

   C. SHORT CIRCUIT TRIP THRESHOLD:

      1. FACTORY ADJUSTABLE, SET TO 350% OF RATED CURRENT.

      2. TIME DELAY, <.05 SECONDS

   D. OVERVOLTAGE:

      1. OVERVOLTAGE OUTPUT CONTACTS: 1 FORM A, NORMALLY OPEN.
         NOTE: CONTACTS TRANSFER WITH OVERVOLTAGE FAULT.

      2. CONTACT RATING: PEAK LOAD CURRENT = 1.8A
         CONTINUOUS LOAD CURRENT = 0.5A
         VOLTAGE RATING = 40V (TRANSIENT VOLTAGE PROTECTED)

      3. OVERVOLTAGE TRIP THRESHOLD: 162 ±3 VAC (FACTORY ADJUSTABLE)

         TIME DELAY = 0.2 TO 1.25 SECONDS

         NOTE: SENSES VOLTAGE OF EACH 120 VAC OUTPUT PHASE. EACH OVERVOLTAGE SENSING INPUT IS BROUGHT OUT TO CONNECTOR J-17, PINS 7 AND 9, FOR OVERVOLTAGE TEST PURPOSES PER TM512.3.

(NOTES CONTINUED ON SHEET 2)

SOURCE CONTROL DRAWING

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U.S. ARMY COMMUNICATION-ELECTRONICS RESEARCH, DEVELOPMENT & ENGINEERING CENTER ABERDEEN, PROVING GROUND, MD. 21005

98-19504	98-832
98-19503	98-831
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ANGLES ± 1°
3 PLACE DECIMALS ± .010
2 PLACE DECIMALS ± .06
FRACTIONS ±

MATERIAL

CONTRACT NO. DAAK01-96-C-0085

DATE 98-03-06

PREPARED	HEF	98-09-24
CHECKED	MAF	98-09-25
ENGINEER	JG	98-09-25

DEPT OF DEFENSE PROJECT MANAGER EXPEDITIONARY ENERGY & SUSTAINMENT SYSTEMS

DONALD E. PETERSON

DOD PROJECT MANAGER, EXPEDITIONARY ENERGY & SUSTAINMENT SYSTEMS WASHINGTON, D.C.

INVERTER/CONVERTER, POWER, 60 HZ AND 400 HZ

SIZE	CAGE CODE	DRAWING NO.
D	30554	98-19604

SCALE 1/2 | REV LETTER J | SHEET 1 OF 4

VP 2/2/2024 10:53 AM

CAD MAINTAINED. CHANGES SHALL BE INCORPORATED BY THE DESIGN ACTIVITY.

NOTES: (CONTINUED FROM SHEET 1)

E. KW METER OUTPUT:

1. OUTPUT: 0.0 ma AT ZERO LOAD ON INVERTER, INCREASING LINEARLY TO 1.00 ma DC AT 3.5 KW LOAD. (RATED LOAD, 3 KW = 0.857 ma)

2. OUTPUT LOAD RESISTANCE: OUTPUT IS A CONSTANT CURRENT THAT WILL OPERATE INTO ANY LOAD RESISTANCE FROM ZERO OHMS TO 7.5K OHMS.

3. TWO ELEMENT DESIGN: OUTPUT IS SUM OF BOTH PHASES (IN 120/240 VOLT 3-WIRE CONNECTION, OR 120 VOLT 2-WIRE CONNECTION).

4. OPERATING VOLTAGE RANGE: 90 TO 162 VAC, RMS PER PHASE.

5. POWER FACTOR RANGE: 0.5 TO 1.0 LEADING, OR LAGGING.

6. ACCURACY: ±3% OF RANGE (.030 ma), AT RATED POWER, (CALIBRATED TO ±1% AT RATED LOAD AND 77°F). ±4% OF RANGE (.040 ma), WITH SPECIFIED RANGE OF POWER FACTOR, LOAD, TEMPERATURE AND FREQUENCY.

7. FREQUENCY RANGE: 58 TO 62 HZ FOR 60 HZ INVERTERS.
375 TO 425 HZ FOR 400 HZ INVERTERS.

7. ONLY THE ITEM DESCRIBED ON THIS DRAWING WHEN PROCURED FROM THE VENDOR(S) LISTED HEREON IS APPROVED BY THE PROJECT MANAGER EXPEDITIONARY ENERGY & SUSTAINMENT SYSTEMS, 5850 DELAFIELD ROAD, BUILDING 324, FORT BELVOIR, VA. 22060, FOR USE IN THE APPLICATION SPECIFIED HEREON. A SUBSTITUTE ITEM SHALL NOT BE USED WITHOUT PRIOR APPROVAL BY PROJECT MANAGER EXPEDITIONARY ENERGY & SUSTAINMENT SYSTEMS.

8. IDENTIFICATION OF THE APPROVED SOURCE(S) OF SUPPLY HEREON IS NOT TO BE CONSTRUED AS A GUARANTEE OF PRESENT OR CONTINUED AVAILABILITY AS A SOURCE OF SUPPLY FOR THE ITEM(S) DESCRIBED ON THE DRAWING.

9. ENVIRONMENTAL REQUIREMENTS: THE POWER INVERTER SHALL OPERATE AS SPECIFIED AT TEMPERATURES FROM −25°F TO +140°F AND AT ALTITUDES TO 8,000 FT.

⟨10⟩ IDENTIFY IN ACCORDANCE WITH MIL-STD-130, METHOD OPTIONAL.

12. MANUFACTURER'S TOLERANCES SHALL APPLY UNLESS OTHERWISE SPECIFIED.

13. THE APPROVED SOURCE(S) HEREON HAS BEEN TESTED AND QUALIFIED. USE SOURCE QUALIFICATION PROCEDURE SQ 98-19604 WHEN QUALIFYING ADDITIONAL SOURCES.

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DOD PROJECT MANAGER, EXPEDITIONARY ENERGY & SUSTAINMENT SYSTEMS WASHINGTON, D.C.		
SIZE D	CAGE CODE 30554	DRAWING NO. 98-19604
SCALE 1/2	REV LETTER J	SHEET 2

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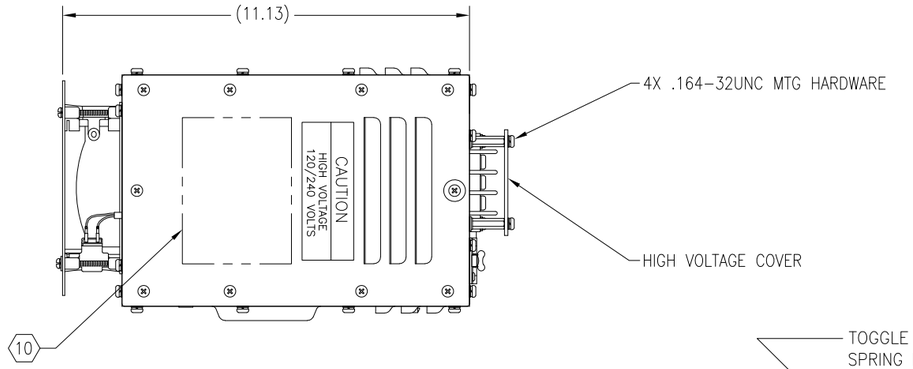
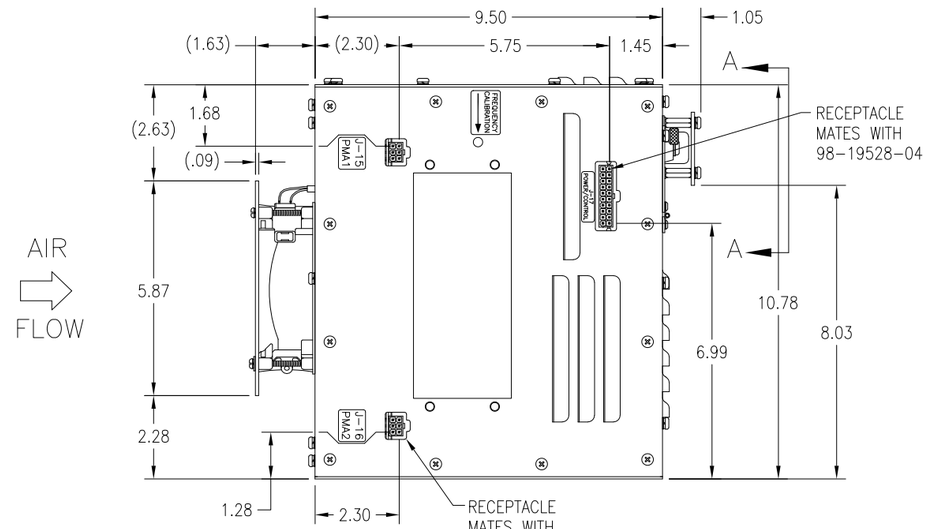
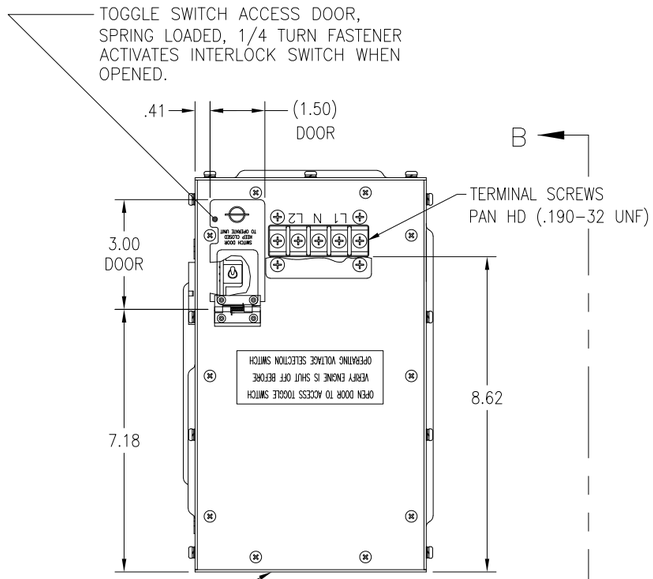
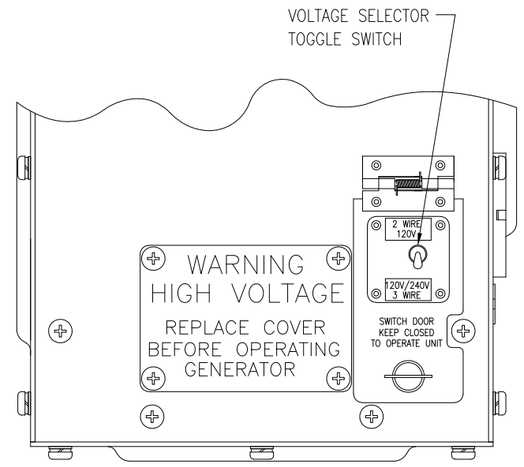
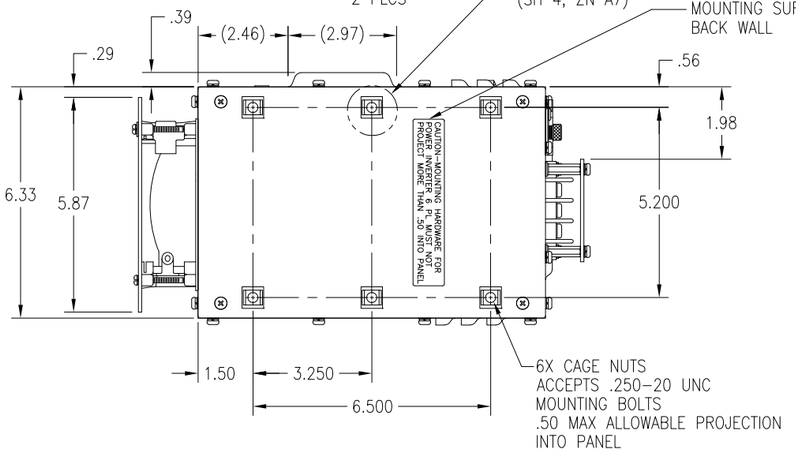








VIEW A–A
SCALE 1/1
ROTATED 180°



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SIZE	CAGE CODE	DRAWING NO.	
D	30554	98–19604	
SCALE 1/2	REV LETTER J	SHEET 3	

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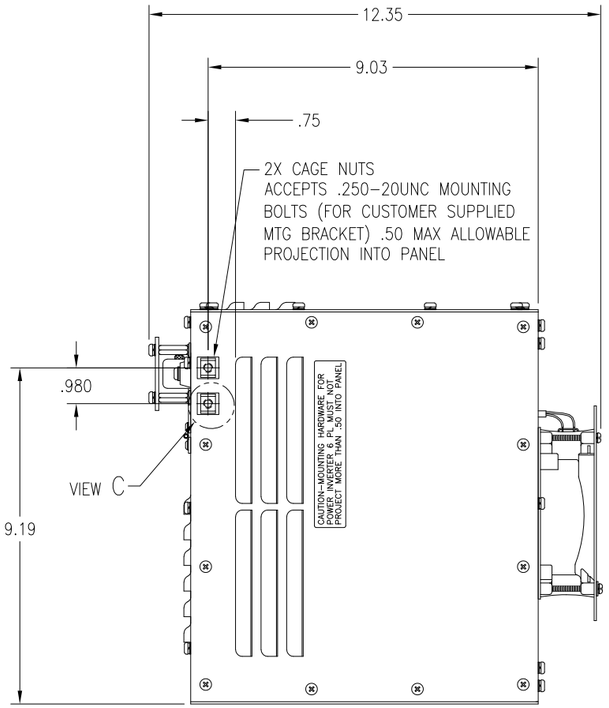
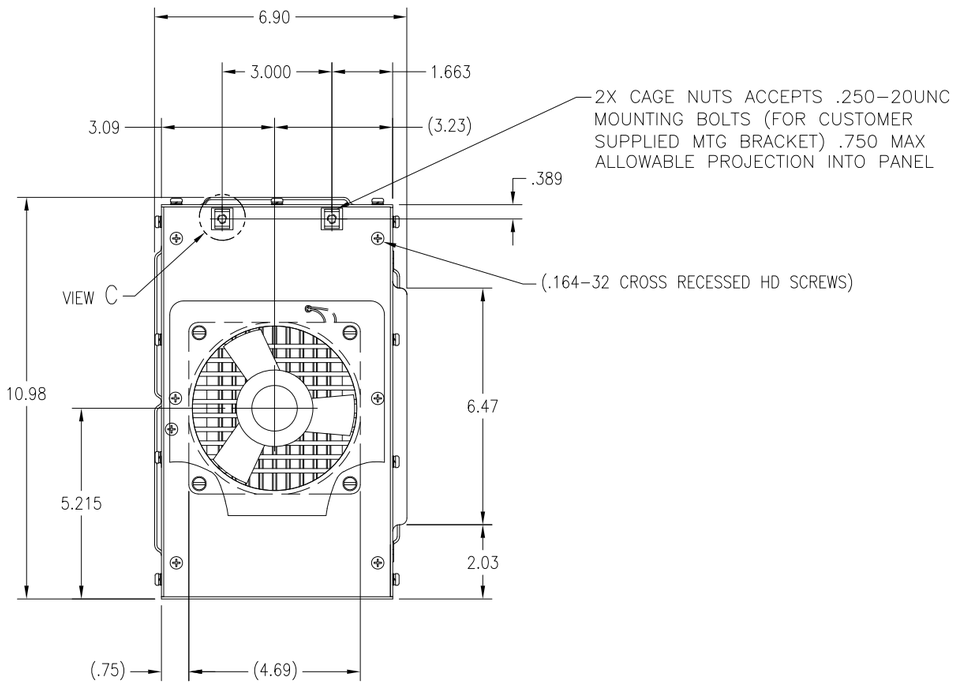
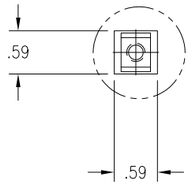


VIEW B–B
(SH 3, ZN B3–4)

AIR FLOW





VIEW C
(SH 3, ZN B6)

HOLE DIMENSIONS IN COVERS OVER .250–20 UNC NUTS
10 PLCS
SCALE: 1/1

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