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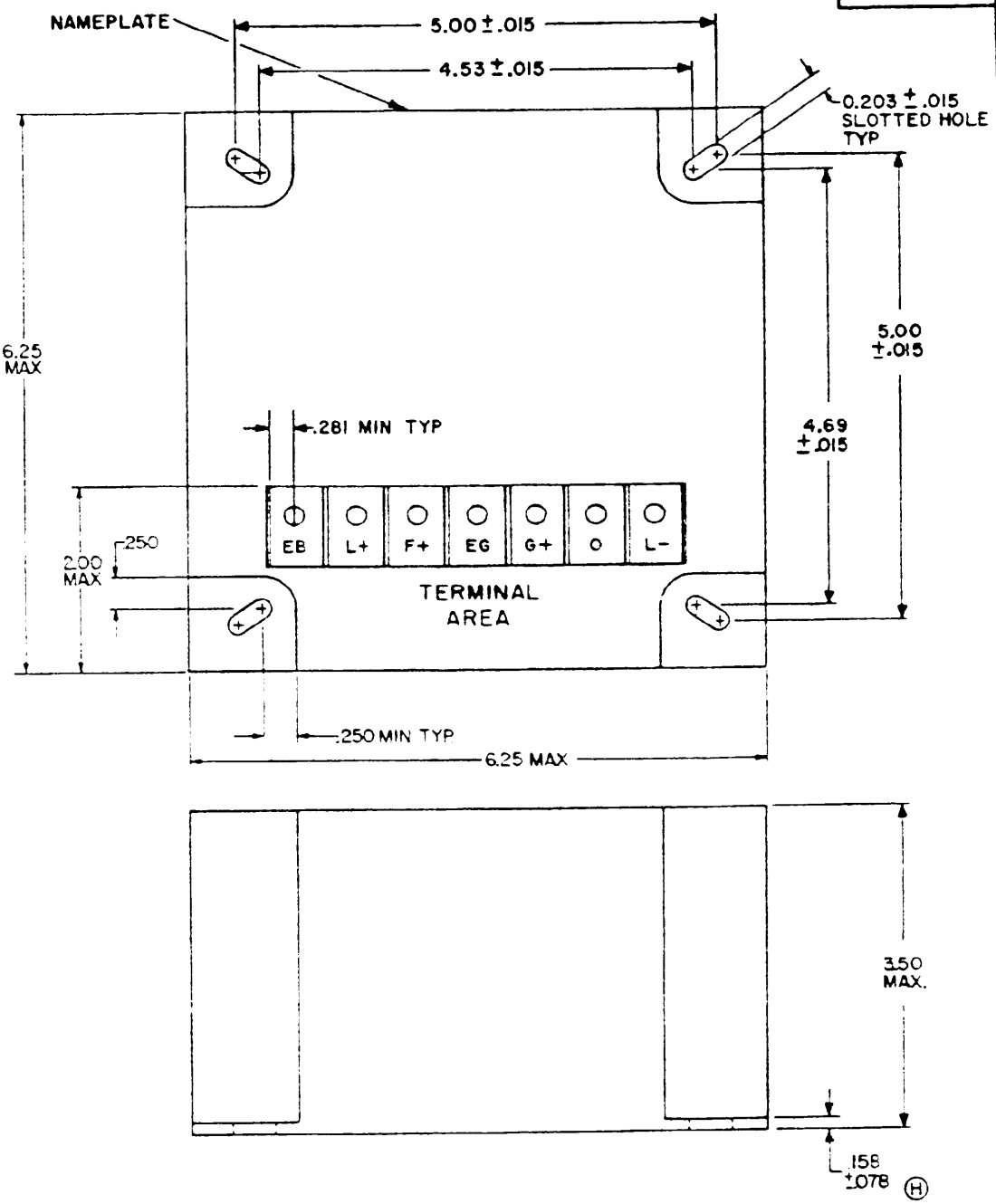

FIGURE 1. REGULATORS WITH MOUNTING HOLES

INACTIVE FOR NEW DESIGN - FOR NEW AIRCRAFT, FOR NAVY AND AIR FORCE APPLICATIONS, USE MIL-R-23761/1.

APPROVED 7 MAY 1963 REVISED (H) 12 OCTOBER 1982

P.A. NAVY - AS Other Cust ARMY - AV AIR FORCE - 99	TITLE REGULATOR - VOLTAGE, DIRECT CURRENT GENERATOR, 28 VOLTS, SOLID STATE	MILITARY STANDARD MS18071
PROCUREMENT SPECIFICATION MIL-R-23761	SUPERSEDES AN3204 and AN3206 for NAVAIR use; E-1597	SHEET 1 OF 4

DD FORM 1 MAR 72 672-1 (COORDINATED)

PREVIOUS EDITIONS OF THIS FORM ARE OBSOLETE.

PLATE NO. 23071

PROJECT NO. 6110-0235

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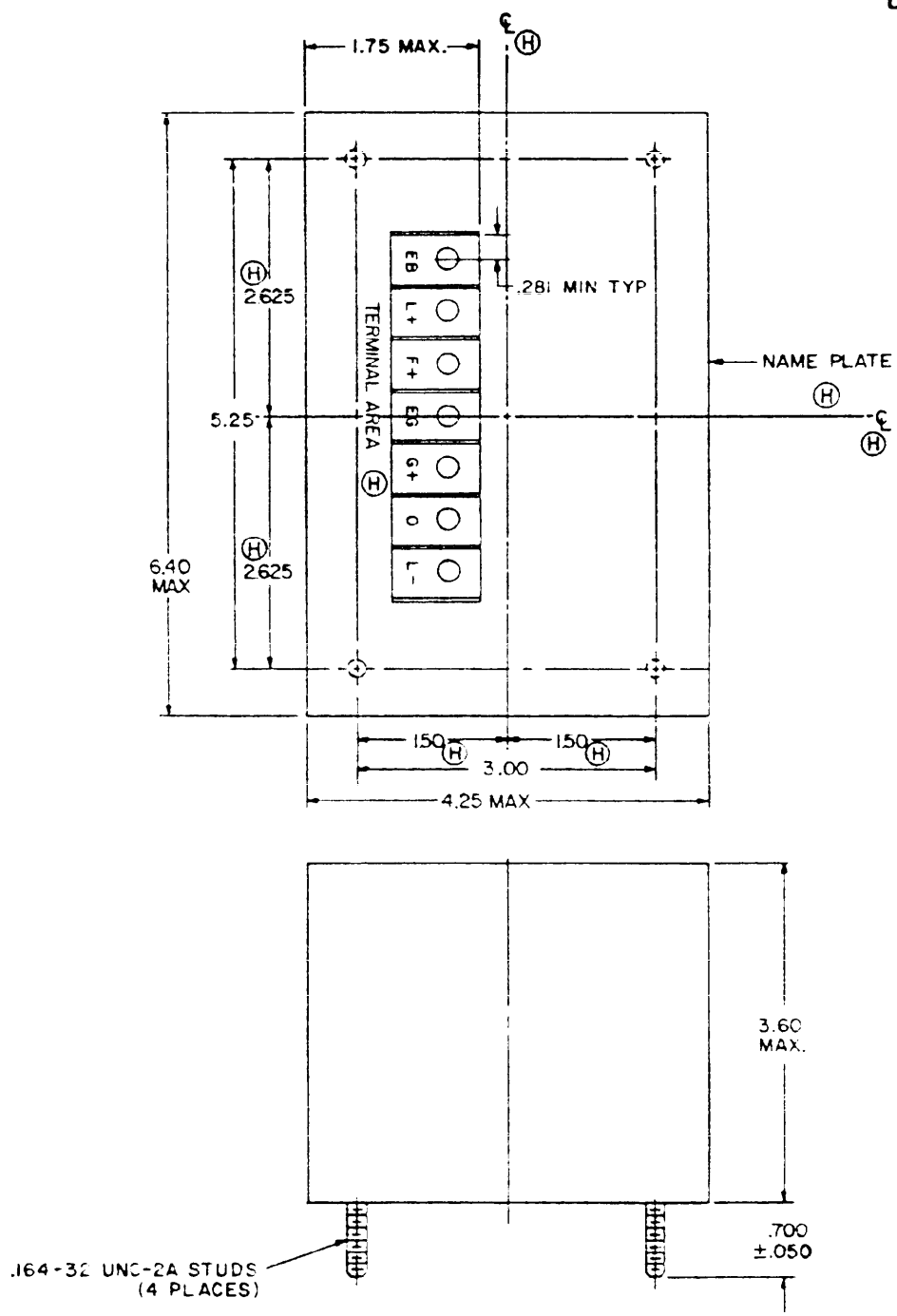

FIGURE 2. REGULATORS WITH MOUNTING STUDS

APPROVED 7 MAY 1963 REVISED (H) FOR CHANGES SEE SHEETS 1 THRU 4

P.A. NAVY - AS Other Cust ARMY - AV AIR FORCE - 99	TITLE REGULATOR - VOLTAGE, DIRECT CURRENT GENERATOR, 28 VOLTS, SOLID STATE	MILITARY STANDARD MS18071
PROCUREMENT SPECIFICATION MIL-R-23761	SUPERSEDES: AN3204 and AN3206 for NAVAIR use; E-1597	SHEET 2 OF 4

DD FORM 1 MAR 72 672-1 (COORDINATED) PREVIOUS EDITIONS OF THIS FORM ARE OBSOLETE. PLATE NO. 23871

USER 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.

REQUIREMENTS:

(H) 1. CONNECTIONS: THE REGULATOR WIRING SHALL BE TERMINATED IN A SUITABLY DESIGNED TERMINAL BLOCK COMPLETE WITH INSULATING COVER. THE TERMINALS SHALL CONSIST OF SEVEN (7) 10-32 UNF-2A STUDS. EACH STUD SHALL BE CAPABLE OF ACCOMMODATING TWO TERMINAL LUGS CONFORMING TO MIL-T-7928. ONE EACH MS14151-2 FLAT WASHER, MS35338-157 LOCK WASHER AND MS35650-304 NUT SHALL BE FURNISHED FOR EACH STUD. THE TERMINAL BLOCK SHALL BE DESIGNED SO THAT THE THREADED PORTION IS NOT USED AS A CONDUCTOR. THE TERMINAL BLOCK SHALL BE DESIGNED SUCH THAT THE INTERNAL REGULATOR CIRCUIT CONNECTIONS SHALL BE CONFINED WITHIN THE REGULATOR HOUSING OR IF EXTERNAL, CONNECTED TO THE STUDS IN SUCH A MANNER THAT INADVERTENT CONNECTION OF ANY WIRE TO THE INCORRECT STUD CANNOT OCCUR. TERMINAL FUNCTIONS USING THE ORDER AND THE DESIGNATIONS SHOWN IN FIGURES 1 AND 2 SHALL BE PERMANENTLY AND PROMINENTLY MARKED ON THE TERMINAL BLOCK OR IN THE AREA ON THE REGULATOR HOUSING ADJACENT TO THE TERMINAL BLOCK. THE TERMINAL BLOCK INSULATING MATERIAL AND STUD MATERIAL SHALL CONFORM TO THE REQUIREMENTS OF MS27212. THE MOLDED INTEGRAL STUDS SHALL NOT BREAK, DISTORT, OR PULL OUT OF THE TERMINAL BLOCK WHEN TORQUES UP TO 40 INCH-POUNDS ARE APPLIED.

(H) 2. TEST JACKS: TWO TEST JACKS SHALL BE LOCATED IN AN ACCESSIBLE AREA ON THE TOP SURFACE OF THE REGULATOR BEHIND THE TERMINAL AREA. ONE JACK SHALL BE BLACK, MARKED WITH AN ADJACENT MINUS (-) SIGN AND CONNECTED INTERNALLY TO TERMINAL L-. THE OTHER JACK SHALL BE RED, MARKED WITH AN ADJACENT PLUS (+) SIGN, AND CONNECTED INTERNALLY TO TERMINAL L+. THE JACKS SHALL ACCOMMODATE .078 + .002 DIAMETER BY 1/2 LONG TEST PROBES. THE TEST JACKS SHALL BE IN ACCORDANCE WITH MIL-C-39024/10. THE TEST JACKS SHALL BE SPACED ON .750 INCH CENTERS.

(H) 3. ADJUSTMENTS: TWO ROTARY ADJUSTMENTS SHALL BE INCLUDED IN AN ACCESSIBLE AREA ON THE TOP SURFACE OF THE REGULATOR BEHIND THE TERMINAL AREA. THE AXES OF THE ADJUSTMENTS SHALL BE PERPENDICULAR TO THE TOP OF THE REGULATOR AND OPERABLE BY A STANDARD FLAT BLADE SCREWDRIVER. THE ROTARY ADJUSTMENTS SHALL BE LOCKABLE. ONE ADJUSTMENT SHALL VARY THE REGULATED POTENTIAL AND SHALL BE MARKED "VOLTS" AND "INCREASE" (INC). THE REGULATED VOLTAGE SHALL BE SET AT 27.5 VOLTS AT 125 PERCENT MINIMUM SPEED FOR REGULATION AT NO LOAD ON THE GENERATOR. THE REGULATOR SHALL PERMIT THE REGULATED VOLTAGE TO BE SET TO ANY VALUE BETWEEN 25.0 AND 29.0. REGULATION WILL NOT EXCEED 29.5 VOLTS UNDER ANY CONDITION. THE OTHER ADJUSTMENT SHALL VARY THE "EQUALIZER" INPUT SIGNAL FROM THE CONTROLLED GENERATOR AND SHALL BE MARKED "PARALLEL" AND "LOAD INCREASE" (LOAD INC). CLOCKWISE ROTATION SHALL INCREASE THE VALUES OF THE FUNCTIONS ADJUSTED. THE EQUALIZER POT SHALL HAVE A VALUE OF 2.0 OHMS +10% AND A MINIMUM RATING OF 10 WATTS. THE RESISTANCE OF THE EQUALIZER CIRCUIT SHALL BE 0.4 ± 0.04 OHM AT 25°C.

(H) 4. OUTPUT PROTECTION: MS18071-2 AND -12 TYPE VOLTAGE REGULATORS SHALL CONTAIN AN OUTPUT PROTECTIVE DEVICE. IF THE REGULATED POTENTIAL EXCEEDS 30.5 VOLTS DUE TO FAILURE OF THE REGULATOR, THE DEVICE WILL OPEN THE FIELD CIRCUIT OF THE CONTROLLED GENERATOR WITHIN .025 SECONDS. THE FIELD CIRCUIT SHALL REMAIN OPEN UNTIL THE PROTECTIVE DEVICE IS MANUALLY RESET. THE MANUAL RESET DEVICE SHALL BE READILY ACCESSIBLE AND SHALL BE LOCATED ON THE TOP SURFACE OF THE REGULATOR BEHIND THE TERMINAL AREA. THE REGULATOR SHALL BE MARKED TO PROVIDE A VISUAL INDICATION OF THE RESET DEVICE POSITION ("TRIP" - "RESET"). THE RESET DEVICE SHALL BE SO DISIGNED OR PROTECTED TO PREVENT ACCIDENTAL TRIP DURING INSTALLATION OR NORMAL HANDLING.

5. PARALLEL OPERATION: THE REGULATOR SHALL BE CAPABLE OF PARALLEL SYSTEM OPERATION. (TWO OR MORE GENERATOR-REGULATOR COMBINATIONS IN PARALLEL.) IN PARALLEL SYSTEMS WITH OUTPUT PROTECTION, THE DEVICE SHALL SELECTIVELY TRIP THE CONTROLLED SYSTEM ONLY AND SHALL NOT CAUSE NUISANCE TRIPPING OF OTHER SYSTEMS ON THE LINE. THE PROTECTIVE DEVICE SHALL NOT BE DISABLED BY A FAILURE OF THE REGULATOR.

(H) 6. EQUALIZER CIRCUIT: IN ADDITION TO THE REQUIREMENTS OF 4.6.7 OF MIL-R-23761, THE EQUALIZER CIRCUIT SHALL LOWER THE CONTROL VOLTAGE 9 ± 1% WHEN ANY VOLTAGE VALUE BETWEEN 0.165 AND 1.0 VOLTS IS APPLIED BETWEEN TERMINAL "0" AND TERMINAL "EB." THE EQUALIZER CIRCUIT SHALL ALSO LOWER THE CONTROL VOLTAGE BY 12 TO 16.7 TIMES THE VALUE OF ANY INPUT VOLTAGE BETWEEN 0.06 AND 0.165 VOLTS. THIS INPUT VOLTAGE IS APPLIED BETWEEN TERMINAL "0" AND TERMINAL "EB" (IN EACH CASE ABOVE, TERMINAL "0" IS NEGATIVE WITH RESPECT TO TERMINAL "ER"). THE EQUALIZER SHALL NOT INCREASE THE CONTROL VOLTAGE BY MORE THAN 0.3 VOLTS WHEN ANY VOLTAGE VALUE BETWEEN ZERO AND 1.0 VOLT IS APPLIED BETWEEN TERMINAL "ER" AND TERMINAL "0" (WITH TERMINAL "0" POSITIVE WITH RESPECT TO TERMINAL "EB") ALL SPECIFIED INCREASES OR DECREASES IN CONTROL VOLTAGE ARE WITH REFERENCE TO THE EXISTING CONTROL VOLTAGE WITH NO VOLTAGE APPLIED BETWEEN TERMINALS "0" AND "EB."

7. RELIABILITY: IN ADDITION TO THE REQUIREMENTS OF 4.6.17.10 OF MIL-R-23761, THE MANUFACTURER SHALL SUBMIT WITH THE QUALIFICATION TEST SAMPLES A "PART STRESS ANALYSIS" IN CONFORMANCE WITH MIL-HDBK-217. THE "PART STRESS ANALYSIS" SHALL PREDICT A MEAN TIME BETWEEN FAILURE (MTBF) OF AT LEAST 15,000 HOURS. THE ANALYSIS SHALL INCLUDE THE VARIOUS TERMS USED IN THE "PART FAILURE RATE MODEL" FOR EACH COMPONENT DERATED AT THE MOST SEVERE CONDITIONS.

8. NAMEPLATE INFORMATION: THE INFORMATION MARKED ON THE NAMEPLATE OF EACH REGULATOR SHALL INCLUDE THE STATEMENT "SUPERSEDES E-1597."

9. COLOR: EXCEPT FOR TERMINAL BOARD ASSEMBLY, JACKS, ADJUSTMENTS AND IDENTIFICATION MARKING, THE VISIBLE PARTS OF THE REGULATOR SHALL CONFORM TO FED-STD-595, COLOR NUMBER 17878 (WHITE).

10. TEMPERATURE: AMBIENT OPERATION -55°C TO 71°C
-55°C TO 85°C

11. CASE GROUND: CASE GROUND SHALL BE WIRED INTERNALLY TO TERMINAL L-.

NOTES:

1. DIMENSIONS: THE REGULATOR SHALL CONFORM TO THE LIMITS SHOWN HEREON. ALL DIMENSIONS ARE IN INCHES TOLERANCES ARE ± .005 UNLESS OTHERWISE SPECIFIED.

APPROVED 7 MAY 1963 REVISED (H) FOR CHANGES SEE SHEETS 1 THRU 4

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PROCUREMENT SPECIFICATION MIL-R-23761	SUPERSEDES: AN3204 and AN3206 for NAVAIR use; E-1597	SHEET 3 OF 4

DD FORM 1 MAR 72 672-1 (COORDINATED) PREVIOUS EDITIONS OF THIS FORM ARE OBSOLETE. PLATE NO. 25071

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SPECIFICATION DATA	
FUNCTION	VALUE
CONTINUOUS FIELD CURRENT - MINIMUM, AMPERES	8.0
OVERLOAD FIELD CURRENT - MINIMUM, AMPERES	12.0
WEIGHT - MAXIMUM, POUNDS	3.0
LIMITS OF REGULATION VOLTS ALL CONDITIONS 1/	±0.5

(H) 1/ ±0.5 VOLTS FROM THE REGULATED VOLTAGE SET VALUE (SEE REQUIREMENTS #3)

MS PART NUMBER	MEANS FOR MOUNTING	OVERVOLTAGE PROTECTION	SUPERSESSION
MS18071-1A	HOLES	NO	AN3206-1, E-1597-2, AND MS90492-1 PLUG-IN MODULES WITH BASES WITH MOUNTING HOLES IN AIRCRAFT WHERE OVERVOLTAGE PROTECTION IS PROVIDED IN THE AIRCRAFT (REF. MS18071-3)
MS18071-2	HOLES	YES	AN3206-1, E-1597-2, AND MS90492-1 PLUG-IN MODULES WITH BASES WITH MOUNTING HOLES IN AIRCRAFT WHERE OVERVOLTAGE PROTECTION IS NOT PROVIDED IN THE AIRCRAFT.
MS18071-11	STUDS	NO	AN3206-1, E-1597-2, AND MS90492-1 PLUG-IN MODULES WITH AN3204-1 AND -2 BASES IN AIRCRAFT WHERE OVER-VOLTAGE PROTECTION IS PROVIDED IN THE AIRCRAFT.
MS18071-12	STUDS	YES	AN3206-1, E-1597-2, AND MS90492-1 PLUG-IN MODULES WITH AN3204-1 AND -2 BASES IN AIRCRAFT WHERE OVER-VOLTAGE PROTECTION IS NOT PROVIDED IN THE AIRCRAFT.
(I)			MS18071-1A FOR NAVY USE.

FOR NAVY USE

(H) MS37612-1 SUPERSEDES MS18071-1A, MS18071-3

MS37612-2 SUPERSEDES MS18071-12

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