SPECIFICATION

BATTERY, DRY (LECLANCHÉ), 90/45/1.5/- 3 V, NO 1, NATO STOCK NO 6135-99-901-2230

(NATO TYPE DESIGNATION NBA 289)

This Supplement supersedes SUPPLEMENT NO 75 to DEF STAN 61 - 3 (PART 1), dated 19 March 1968

1. This Supplement is to be read in conjunction with the General Specification for primary batteries (Leclanché, mercury, and manganese alkaline types) contained in DEF STAN 61 - 3 (PART 1).

2. NOMINAL VOLTAGE

a. Cell.

1.5

b. Battery.

(1) HT 1 section: 45

(2) HT 2 section: 90 (including HT 1 section)

(3) LT section: 1.5

(4) GB section: -3

3. DIMENSIONS

Dimensions shall be in accordance with the requirements of the attached drawing.

4. MASS

Mass shall not exceed 2 pounds 13 ounces (1.275 kilograms).

5. MARKINGS

Marking shall. be in accordance with the requirements of the General Specification contained in DEF STAN 61 - 3 (PART 1), clause 11. and the attached drawing.

6. CONSTRUCTION

a. Assembly.

(1) Two HT sections of 45 volts connected in series to give 90 volts, one LT section of 1.5 volts, and one GB section of 3 volts, combined in a single insulating container.

(a) The HT 1 section (45 volts) normally being 60 to 64 layer-type cells connected in series-parallel.

6. a. (1) (b) The HT 2 section (45 volts) normally being 30 to 36 layer-type cells connected in series.

(c) The LT section normally being eight cylindrical cells connected in parallel.

(2) The GB section normally is two layer-type cells connected in series. Alternatively, cylindrical cells may be used.

(3) Inter-cell connections between cylindrical cells shall be soldered, using wire not thinner than 0.028 in (22 s.w.g.) (0.71 mm).

(4) Inter-stack connections for layer-type cells shall be soldered, using stranded wire. All cell-socket connections shall be soldered, using insulated stranded wire.

(5) The whole assembly shall be blocked securely to prevent internal movement.

(6) The hole in the outer container shall be aligned with the socket and shall be sealed in such a manner that the seal may be removed and replaced effectively to permit testing of the battery during storage.

(7) After sealing, the battery shall be dipped in micro-crystalline wax at a temperature of not less than 100°C, for not less than five seconds, in such a manner that the battery is covered completely with a smooth and continuous protective wax film.

b. Cell details.

(1) Size.

(a) HT 1: 1.1/4 in (31.75mm) (L) x 13/16 in (20.64mm) (W) x 11/64 in (4.37 mm) (H) approx.

(b) HT2: 1.1/4 in (31.75 mm) (L) x 13/16 in (20.64 mm) (W) x 11/64 in (4.37 mm) (H) approx.

(c) LT: 15/16 in (23.81 mm) dia. x 2.1/2 in (63.5 mm) overall height approx.

(d) GB: Normally F30 (BS 397).

(2) Zinc thickness for cylindrical type.

Shall be not less than 0.014 in (0.36mm).

c. Terminations.

Special socket to be in accordance with the requirements of the attached drawing.

7. STORAGE AND PERFORMANCE TESTS

a. Allocation of sample batteries.

(1) For Qualification Approval testing.

Shall be in accordance with the requirements of the General Specification contained in DEF STAN 61 - 3 (PART 1), clause 6.b.

(2) For Quality Assurance testing.

Number of sample batteries supplied shall be in accordance with the requirements of the General Specification contained in DEF STAN 61 - 3 (PART 1), clause 14.b. and shall be divided between the tests shown in the table below as follows:

10% Jungle with the balance divided equally between the other four types of storage.

b. Accuracy of test apparatus.

Shall be in accordance with the requirements of the General Specification contained in DEF STAN 61 - 3 (PART 1), clause 16. except that the voltmeter used for the GB section shall have a resistance of 10 000 ohms per volt of scale with a full scale value of not more than 6 volts. The limit of error of measurement shall be 1% of scale range.

c. Storage conditions and performance requirements.

TYPE OF STORAGE	GENERAL SPECIFICATION CLAUSE	STORAGE PERIOD (WEEKS)	MINIMUM DISCHARGE LIFE AFTER STORAGE (HOURS)
Temperate (Short term)	17.a.	4	20
Temperate (Long term)	17.a.	52	16
≠ Jungle	17.c.	8	18
Ø Desert	17.b.	26	12
Temperate (Spare)	18.d.	-	-

Notes:

1. ≠ indicates insulation resistance after Jungle storage (General Specification DEF STAN 61 - 3 (PART 1), clause 19.) to be not less than 2 megohms.

2. Ø indicates batteries stored singly.

7. d. Examination and tests during storage.

The requirements of the General Specification contained in DEF STAN 61 - 3 (PART 1), clause 18. shall apply except that in the case of the HT sections, the off-load voltage shall be not more than 40% over the nominal voltage of each HT section of the battery.

e. Discharge test conditions.

(1) Resistance loads.

(a) -HT to HT 1: R1 5171 ohms.)
R2 3125 ohms.)

(b) - HT to HT 2: R1 3000 ohms.)
R2 30 000 ohms.)

(c) LT section: R1 1.39 ohms.)
R2 2.27 ohms.)

(d) GB section: Open circuit.

(2) Discharge cycle.

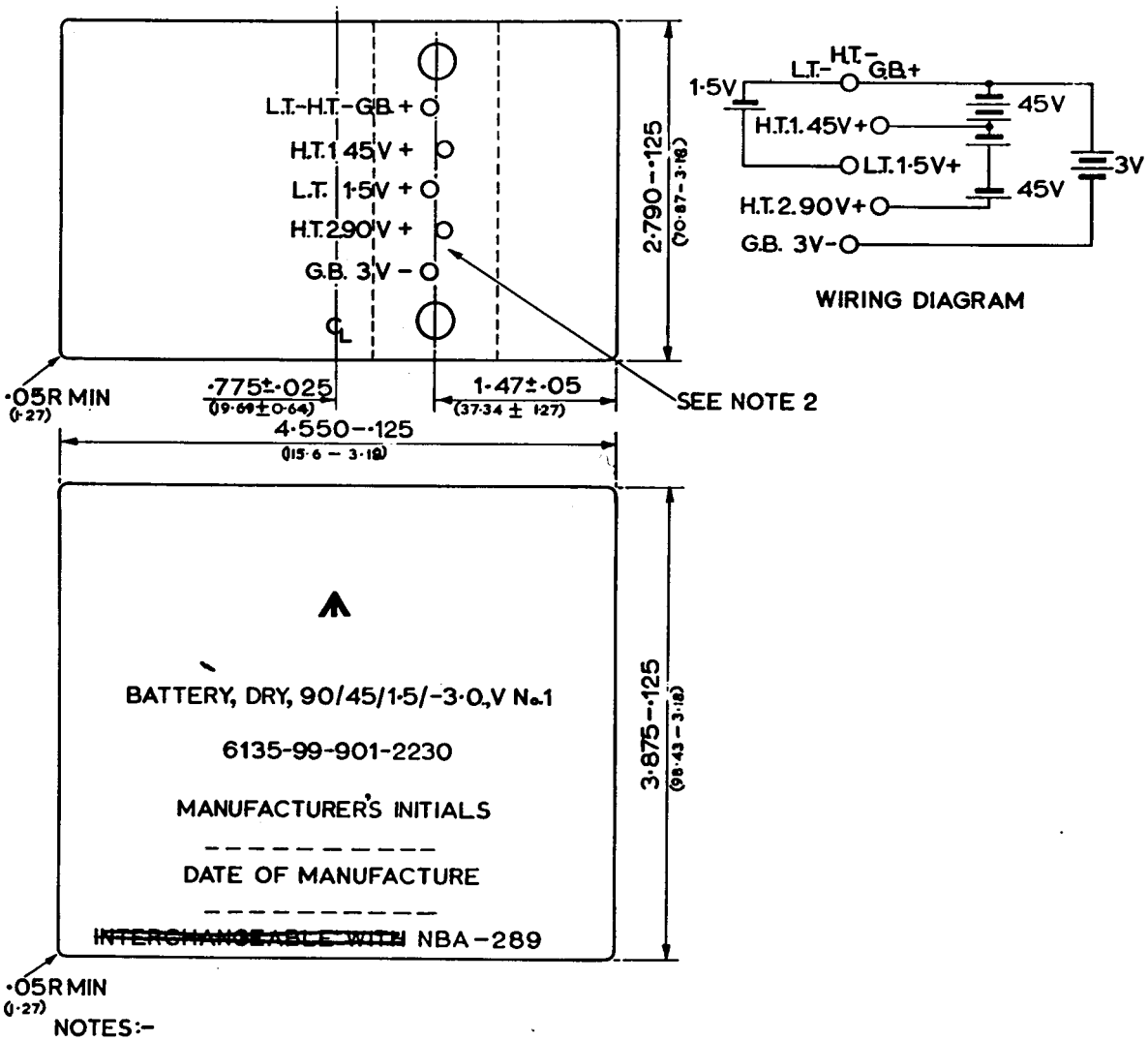
Two minutes discharge through R1 followed by 18 minutes discharge through R2. This cycle to be repeated continuously.

(3) On-load voltage end-points.

(a) HT 1 section: 34 volts.

(b) HT 2 section: 76 volts.

(c) LT section: 1.05 volts.

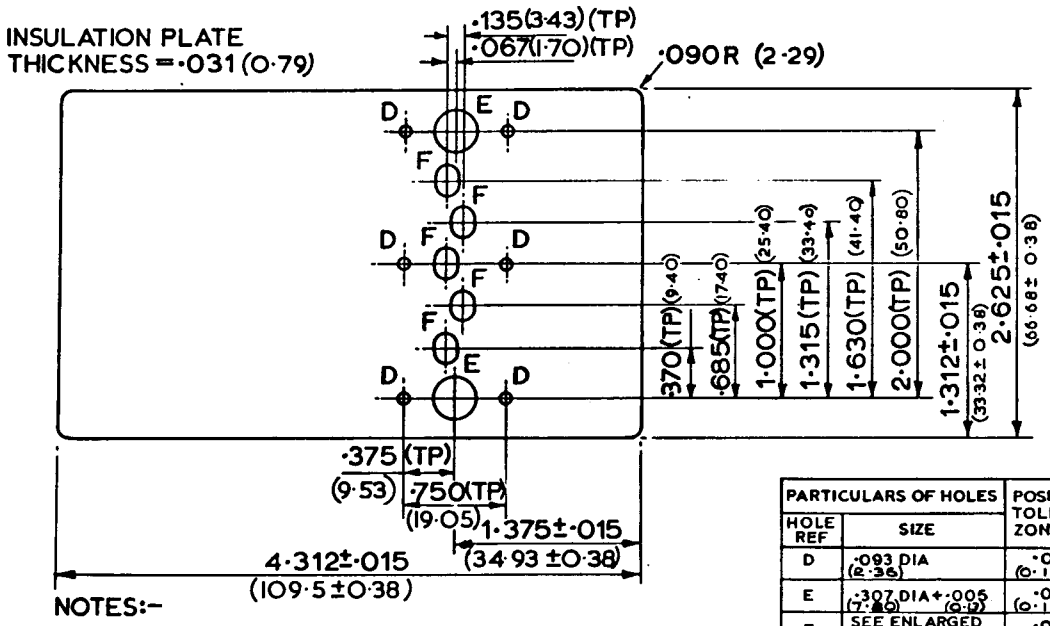


NOTES:-

1. ALL DIMENSIONS ARE IN INCHES WITH mm EQUIVALENTS AND SHALL INCLUDE THICKNESS OF MICRO-CRYSTALLINE WAX COATING
2. FOR DETAILS OF SOCKET ASSEMBLY SEE DRAWING 6135-99-901-2230 SHEETS No.2&3
3. SOCKET SHALL NOT BE RECESSED MORE THAN $\frac{1}{16}$ (1·59) BELOW SURFACE OF CONTAINER WHEN THE MATING PLUG IS INSERTED
4. SATISFACTORY ELECTRICAL AND PHYSICAL CONTACT SHALL BE MADE BETWEEN SOCKET AND MATING PLUG WHEN THE LATTER IS FULLY ENGAGED

SHEET No.1

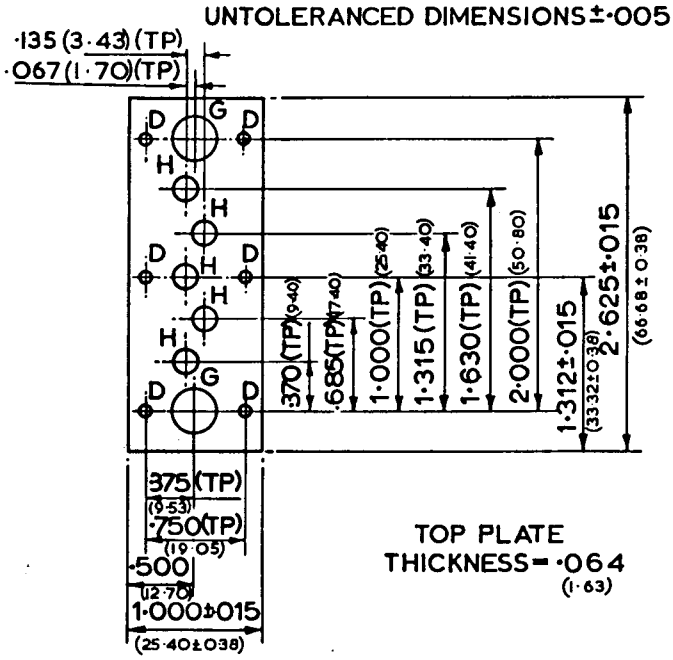
THIRD ANGLE PROJECTION



PARTICULARS OF HOLES		POSITIONAL TOLERANCE ZONE DIA
HOLE REF	SIZE	
D	·093 DIA (2·36)	·004 (0·10)
E	·307 DIA +·005 (7·80) (0·12)	·004 (0·10)
F	SEE ENLARGED VIEW	·006 (0·15)

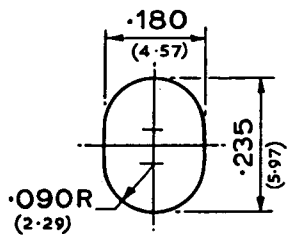
NOTES:-

1. MATERIAL:- SYNTHETIC RESIN BONDED PAPER LAMINATE TO B.S.2076
2. ALL DIMENSIONS ARE IN INCHES WITH mm EQUIVALENTS UNTOLERANCED DIMENSIONS ±·005 (0·127)



TOP PLATE
THICKNESS = ·064
(1·63)

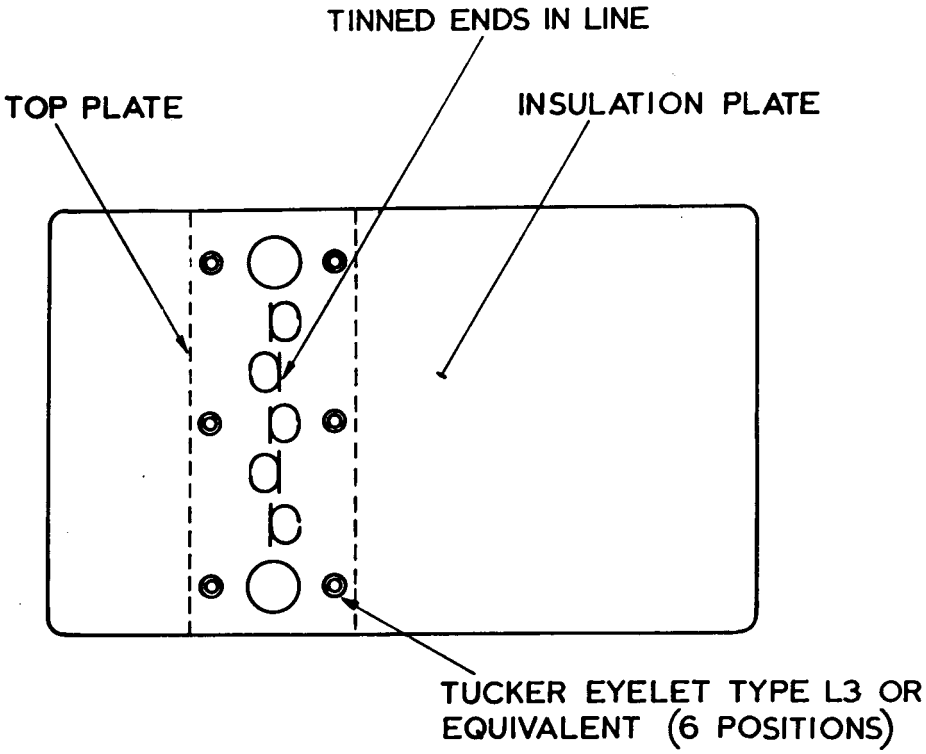
PARTICULARS OF HOLES		POSITIONAL TOLERANCE ZONE DIA
HOLE REF	SIZE	
D	·093 DIA (2·36)	·004 (0·10)
G	·343 DIA (8·71)	·006 (0·15)
H	·187 DIA (4·75)	·005 (0·13)



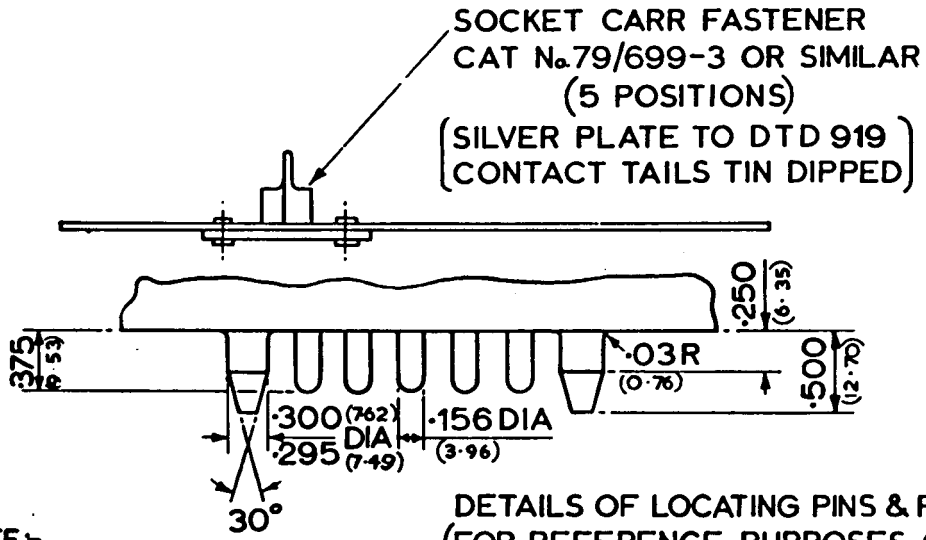
ENLARGED VIEW OF HOLE F

DETAILS OF INSULATION PLATE AND TOP PLATE FOR SOCKET

SHEET No.2



UNDERSIDE VIEW



DETAILS OF LOCATING PINS & PLUG
(FOR REFERENCE PURPOSES ONLY)

NOTE:-
DIMENSIONS ARE IN INCHES WITH mm EQUIVALENTS.
BATTERY PACK TO CLEAR LOCATING PINS ON MATING PLUG
BY AT LEAST $\frac{1}{16}$ (1·59) WHEN THE LATTER IS FULLY ENGAGED

PLUG AND SOCKET FOR
BATTERY, DRY, 90/45/1·5/-3·0 VOLTS No.1
NATO STOCK No. 6135-99-901-2230

THIRD ANGLE PROJECTION

SHEET No. 3

Procurement Executive, Ministry of Defence

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Your Reference :

Our Reference : D/DStan/11/2

Date : 9 November 1998

Removal of Product Qualification Approval

IMPORTANT ANNOUNCEMENT

1. This Standard contains a Product Qualification Approval (PQA) scheme. [i]MOD policy requires that all PQA schemes are removed from Defence Standards called up in contracts placed after 1st January 1998.

2. Users of this Standard are to contact the Project Manager (PM), Equipment Support Manager (ESM) or Technical Service Authority (TSA) named in the contract or order, to identify whether there is a continuing need for an approvals scheme.

3. [ii]Product Conformity Certification (PCC) is a risk based process that replaces PQA. Once a risk has been identified PCC can be included as a contract clause. In exceptional circumstances agreement can be sought from AD/Stan for PCC to be included in a Defence Standard.

4. At the next revision of this Standard the PQA scheme will be removed.

T R Leaver
Head of Standards Programme Management
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[i] Defence Council Instruction (General) 197/97; Quality Temporary Memorandum 5/98; Chief of Defence Procurement Instruction CDPI/TECH/250 (draft)

[ii] PCC is certification that a product meets its specification. When PC is required by the contract, the contractor is responsible for obtaining the necessary PCC. Certification shall be provided from a NAMAS accredited laboratory when appropriate. PCC shall apply where a Risk Assessment has been identified by the PM; ESM or TSA.