HEADQUARTERS
PHILIPPINE ARMY
OFFICE OF THE ARMY CHIEF QUARTERMASTER
Fort Andres Bonifacio, Metro Manila

TEST AND EVALUATION PROCEDURES
Battery, 6TN with QM SPEC NR OE-23B6TN dated 30 May 2017

A. POST QUALIFICATION INSPECTION

SECTION 1A – GENERAL

1.1. AUTHORITY: The Test and Evaluation (T&E) is being conducted in line with the provisions of the RA 9184.

1.2. OBJECTIVES: The objective of this T&E is to determine the responsiveness of the Bidder with the Single/Lowest Calculated Bid (SCB/LCB) to the technical specification as endorsed by the Bids and Awards Committee (BAC).

1.3. SCOPE: This T&E Procedure will be conducted on the samples of Battery, 6TN, test reports, certification and brochures submitted by the Bidder with the SCB/LCB as part of the post qualification procedure by the BAC.

1.4. METHODOLOGY: The tests include physical inspection and evaluation of documents that will support the compliance of the Battery, 6TN to the specification. Records check will also be conducted as appropriate including third party publications.

1.5. REFERENCES:

1.5.1. Philippine National Standard for Lead–acid Storage Batteries - Specification, PNS 06:1987,

1.5.2. Technical Specifications for 6TN Battery, QM SPEC NR OE23B6TN dated 30 May 2017.

1.6. POST QUALIFICATION CRITERIA: Post Qualification evaluation shall be based on a Pass (P) or Fail (F) criteria. Any major defect found shall be evaluated as "Failed" and two (2) or more minor defects found shall be evaluated as "Failed".

SECTION 2A – PROCEDURES

1. Allocation Of Samples

One (1) sample shall be submitted to undergo physical, dimensional and functional test. Previous test results on visual, dimensional and functional test that is within the period of three (3) years and evaluated as passed can be used in lieu of submission of required samples.

2. Physical Inspection

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2.1 Purpose: To determine the conformance of the physical characteristics, external workmanship, symbols, codes and markings of the Battery to the minimum requirements of the specifications.

2.2 Procedure:

2.2.1 Visually inspect the completeness, overall appearance and presence of the required symbols or markings on the battery sample/s.

2.2.2 Standard:

2.1.1.1. With Trademark, Trade Name or Brand Name.
2.1.1.2. With the words "Made in the Philippines" or "Country of Origin if imported/Address of Manufacturer.
2.1.1.3. Date of Manufacture (coded or not).
2.1.1.4. Type of Battery.
2.1.1.5. With authorized Philippine Standard (PS) or Import Commodity Clearance (ICC) Quality Mark.
2.1.1.6. Bottles or Containers of Electrolyte shall bear the mark "Poisonous", "Not for human consumption" or Skull Symbol.
2.1.1.7. Terminal Posts must be provided with color coded circular polarity ring for identification. (Positive Post should be provided with Red colored polarity ring; Negative Post should be provided with any colored polarity ring other than red)
2.1.1.8. Positive Post shall be marked with "Pos", "P" or "+". Negative Post shall be marked with "Neg", "N" or "– ".
2.1.1.9. No evident damage, cracks, bulging, dents, holes or open splices and broken parts during the visual test.

3. Dimensional Test

3.1 Purpose: To determine the actual dimensions of the battery.

3.2. Procedure:

3.2.1. Procedure for the Battery Container:

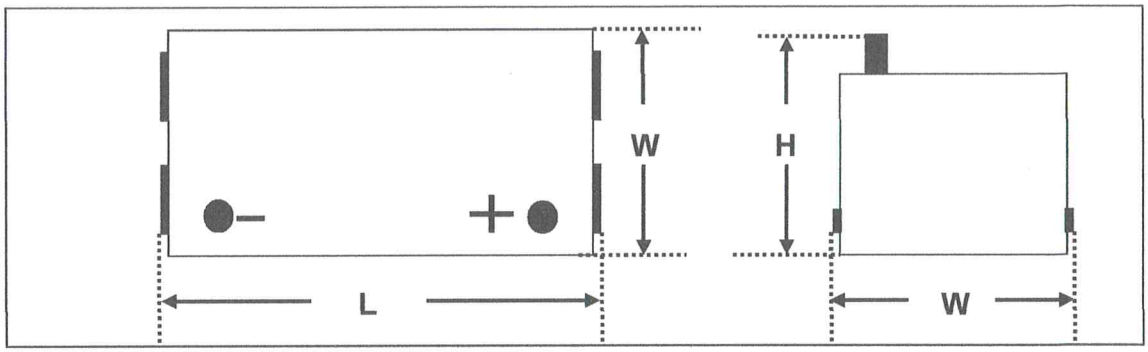
3.2.1.1. Overall height (H) shall be determined by measuring the distance from lowest part of the battery to the highest part when the battery is positioned upright.

3.2.1.2. Overall width (W) is the maximum width including all the parts of the battery. This is the shorter side of the battery.

3.2.1.3. Overall length (L) is the maximum length including all the parts of the battery. This is the longer side of the battery.

Dimension	Standard Requirement
Overall length, mm	280 (maximum)
Overall width, mm	270 (maximum)
Overall height, mm	232 (maximum)

Point of Measurements

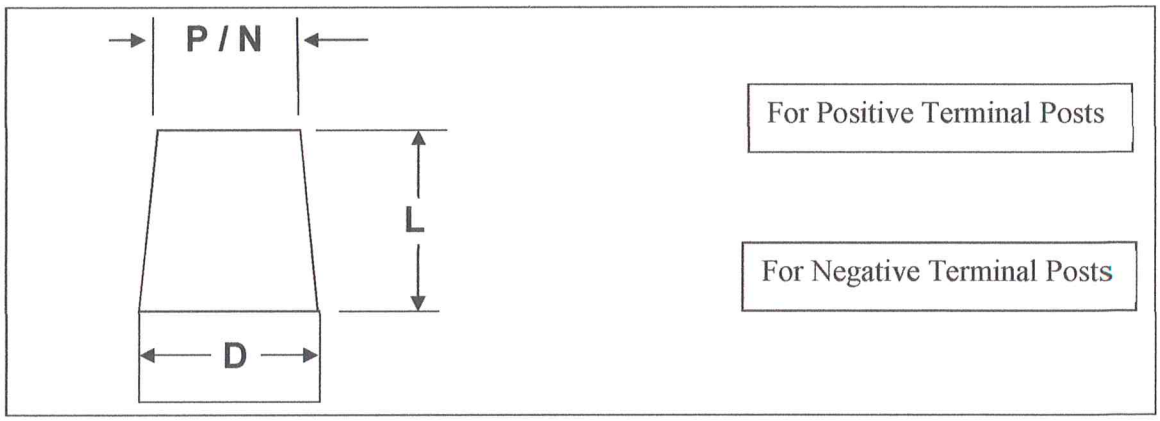


3.2.2. Procedure for the Terminal Posts:

3.2.2.1. Record the data up to the nearest tenths of a millimeter.
3.2.2.2. Measure the top diameter (**N**) of the negative post.
3.2.2.3. Measure the top diameter (**P**) of the positive post.
3.2.2.4. Measure the bottom diameter (**D**) from the base of the positive and negative posts.
3.2.2.5. Measure the length (**L**) of positive and negative posts.

Dimension	**Standard Requirement**
Top diameter of Positive Post (mm)	17.5 to 19.5
Top diameter of Negative Post (mm)	16 to 18
Bottom diameter of Positive Post (mm)	19 to 21
Bottom diameter of Negative Post (mm)	17.5 to 19.5
Minimum Length of Positive and Negative Posts (mm)	16 (minimum)

Point of Measurements



B. PRE-DELIVERY INSPECTION

SECTION 1B – GENERAL

1.1. AUTHORITY: The Test and Evaluation (T&E) is being conducted in line with the provisions of the RA 9184.

1.2. OBJECTIVES: The objective of this T&E is to determine the compliances to the technical specification of the samples selected at random during Pre-delivery Inspection (PDI).

1.3. SCOPE: This T&E Procedure will be conducted on the samples of Battery, 6TN taken at random by the PDI Team.

1.4. METHODOLOGY: The tests include physical inspection; dimensional tests and evaluation of documents that will support the compliance of the Battery, 6TN to the specification. Records check will also be conducted as appropriate including third party publications.

SECTION 2B – PROCEDURES

2.1 The Pre-Delivery Inspection (PDI) Team or its representatives shall ensure that the complete quantity stated in the contract is packed/palletized prior to inspection.

2.2 The PDI team shall conduct random sampling from the lot or lots. The samples shall be properly segregated, packed, marked and secured by the members/representatives of the committee.

2.3 Technical inspection and test shall be conducted on the representative samples of the lot by visual, dimensional and functional test to determine the over-all workmanship, markings, size and appropriate packaging of the items.

2.4 Functional Test will be done to determine the functional performance of the battery.

2.5 Results obtained shall be recorded and evaluated to determine the compliance of the items to Technical Specifications and as basis for acceptance or rejection of the lot or lots.

SECTION 3B - TEST PARAMETERS

1. Allocation Of Samples

Six (6) samples shall be picked at random from the delivery to undergo dimensional and functional test. If one (1) battery fails on the test, the other one may be substituted to the failed battery. Number of samples to be selected for Visual Inspection shall be based on Mil Std 105E dated 10 May 1989.

2. Physical Inspection

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2.1 Purpose: To determine the conformance of the physical characteristics, external workmanship, symbols, codes and markings of the Battery to the minimum requirements of the specifications.

2.2 Procedure:

2.2.1 Visually inspect the completeness, overall appearance and presence of the required symbols or markings on the battery sample/s.

2.2.2 Standard:

2.2.2.1 With Trademark, Trade Name or Brand Name.
2.2.2.2 With the words "Made in the Philippines" or "Country of Origin if imported/Address of Manufacturer.
2.2.2.3 Date of Manufacture (coded or not).
2.2.2.4 Type of Battery.
2.2.2.5 Bottles or Containers of Electrolyte shall bear the mark "Poisonous", "Not for human consumption" or Skull Symbol.
2.2.2.6 Terminal Posts must be provided with color coded circular polarity ring for identification. (Positive Post should be provided with Red colored polarity ring; Negative Post should be provided with any colored polarity ring other than red)
2.2.2.7 Positive Post shall be marked with "Pos", "P" or "+". Negative Post shall be marked with "Neg", "N" or "– ".
2.2.2.8 No evident damage, cracks, bulging, dents, holes or open splices and broken parts during the visual test.

3. Dimensional Test

3.1 Purpose: To determine the actual dimensions of the battery.

3.2 Procedure:

3.2.2. Procedure for the Battery Container:

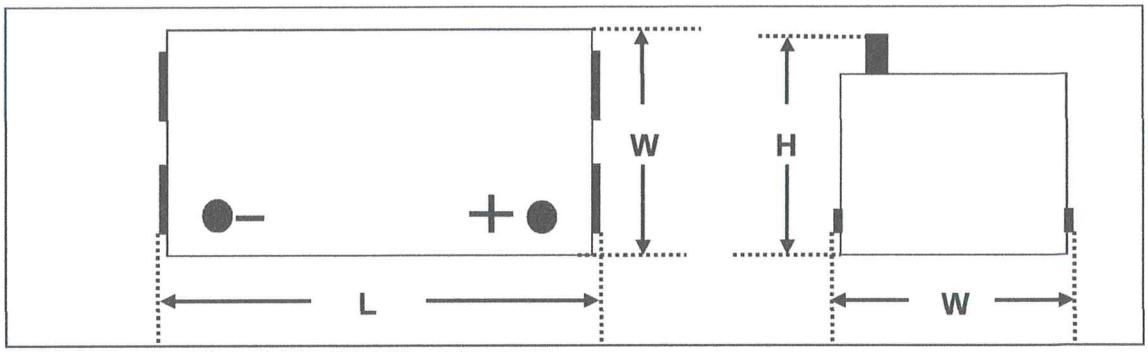
3.2.2.1. Overall height (H) shall be determined by measuring the distance from lowest part of the battery to the highest part when the battery is positioned upright.

3.2.2.2. Overall width (W) is the maximum width including all the parts of the battery. This is the shorter side of the battery.

3.2.2.3. Overall length (L) is the maximum length including all the parts of the battery. This is the longer side of the battery.

Dimension	Standard Requirement
Overall length, mm	508 (maximum)
Overall width, mm	222 (maximum)
Overall height, mm	210 (maximum)

Point of Measurements

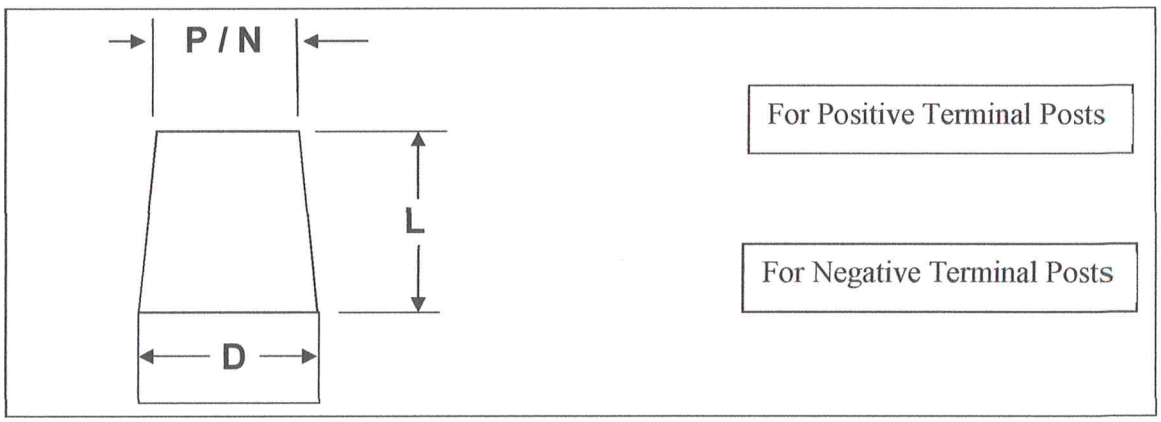


3.2.3. Procedure for the Terminal Posts:

3.2.3.1. Record the data up to the nearest tenths of a millimeter.
3.2.3.2. Measure the top diameter (**N**) of the negative post.
3.2.3.3. Measure the top diameter (**P**) of the positive post.
3.2.3.4. Measure the bottom diameter (**D**) from the base of the positive and negative posts.
3.2.3.5. Measure the length (**L**) of positive and negative posts.

Dimension	**Standard Requirement**
Top diameter of Positive Post (mm)	17.5 to 19.5
Top diameter of Negative Post (mm)	16 to 18
Bottom diameter of Positive Post (mm)	19 to 21
Bottom diameter of Negative Post (mm)	17.5 to 19.5
Minimum Length of Positive and Negative Posts (mm)	16 (minimum)

Point of Measurements



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4. Functional Test

4.1. Container/Material Test, Electrolyte Solution Test, Vibration Tests and Electrical Performance Tests shall be conducted by DTI Authorized Testing Center or Manufacturer's facility. Testing shall be in accordance with the parameters set in the PNS 06:1987- Lead- Acid Storage Batteries- Specification. For the Electrical Performance Test, the values to be used for the Minimum Reserve Capacity in minutes and Minimum AH Capacity at 20h Rate shall be as stated in the approved PA Technical Specification for Battery, 6TN.

4.2. Should there be a Pre Delivery Inspection at the country of origin, all the required functional Tests and Inspections should be conducted through a capable independent third party entity, or in the absence thereof, at the manufacturer's test facilities.

4.3. Testing – A maximum of six (6) batteries are required to assess compliance with this standard with only five (5) batteries that shall be subjected through a series of functional tests. Five batteries shall be subjected to tests listed in the table below. If one (1) battery fails any of the tests below, the sixth battery may be substituted for the failed battery. The batteries shall be deemed to comply with this standard if all five batteries pass the test specification. When the sixth battery is substituted for a failed battery and passes the entire test, the battery shall be deemed to comply with the standard.

Performance/Functional Test	
1. Reserve Capacity (minutes)	300 (minimum)
2. AH Capacity at 20h Rate (AH)	160 (minimum)
3. Container Material	Hard Plastic or Hard Rubber
4. Vibration Test	Conducted by DTI or Manufacturer's facilities
5. Electrolyte Solution Test	

C. FINAL INSPECTION

SECTION 1C - GENERAL

1.1. AUTHORITY: The Test and Evaluation (T&E) is being conducted in line with the provisions of the RA 9184.

1.2. OBJECTIVES: The objective of this procedure is to ensure the completeness of the delivery at the delivery site and that the items deliver are the one and the same from those that were inspected during the Pre-delivery inspection.

1.3. SCOPE: This procedure will be conducted on the delivered Battery, 6TN which were previously inspected during the Pre-delivery inspection.

1.4. METHODOLOGY: The procedure will involve visual inspection and accounting of the completeness of the item delivered.

1.5. Samples: 100% of items delivered

1.6. The result of the test based on the above criteria shall be the basis for evaluation of the Acceptance Committee in the acceptance/rejection of the above item for use of the PA.

SECTION 2C – PROCEDURES

1. Physical Count

To determine the completeness of the items delivered, its consistency of the items inspected during Pre-Delivery Inspection vis-à-vis the actual Battery delivered, and physical state of the delivered items.

2. Procedure:

2.1. Account for the completeness (quantity) of the Battery delivered including its required electrolytes.
2.2. Visually inspect the physical state of the delivered items.
2.3. With PS or ICC Quality Mark or Certificate of Exemption from DTI in case the product offered are beyond the minimum standard of DTI

3. Standard

3.1. The total Battery delivered shall be complete in quantity based on the contract.
3.2. There shall be no damaged that could affect the functionality and appearance of the delivered items.

Prepared by:

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PA SPECIFICATION

QM SPEC NR OE-23B6TN
MAY 30 2017
(Interim)
Supersedes
SPEC NR MB 02-14
Dated 22 Sep 2015

Battery, 6TN

Application: Intended for use of Light/Heavy Duty Trucks and Armored Vehicles.	
Technical Data:	
1. Type	6TN
2. Classification	12 Volts, Low Maintenance
3. Reserve Capacity (minutes)	160 (minimum)
4. AH Capacity at 20h Rate (minutes)	95 (minimum)
5. Container Material	Hard Plastic or Hard Rubber
6. Markings	
• Trademark, Trade Name or Brand Name	Identifiable
• The words "Made in the Philippines" or country of origin if imported / Address of the Manufacturer	Identifiable
• Date of Manufacture (coded or not)	Identifiable
• Type of Battery	Identifiable
• Bottles or Containers of Electrolyte shall bear the mark **"Poisonous"** , **" Not for Human Consumption"** or **Skull Symbol.**	Positively Visible, Non Erasable
7. Dimensions	
a. Overall Length (mm)	280 (maximum)
b. Overall Width (mm)	270 (maximum)
c. Overall Height (mm)	232 (maximum)
d. Terminal Posts	
• Top Diameter of Positive Post (mm)	17.5 to 19.5
• Top Diameter of Negative Post (mm)	16 to 18
• Bottom Diameter of Positive Post (mm)	19 to 21
• Bottom Diameter of Negative Post (mm)	17.5 to 19.5
• Length of Positive and Negative Post (mm)	16 (minimum)
8. Terminal Post must be provided with color coded circular polarity ring for identification. Positive Post shall be marked with **"Pos"**, **"P"** or **"+"**. Negative Post shall be marked with **"Neg"**, **"N"** or **"-"**.	

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NOTED
CG, PA
MAY 30 2017

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TABLE OF CLASSIFICATION OF DEFECTS

BATTERY, 6TN
QM SPEC NR OE-23B6TN dated 30 May 2017

DEFECTS	Classification of Defects	
	Major	Minor
Visual		
1. Container Material is not made with Hard Plastic or Hard Rubber	x	
2. Evident damage, cracks, bulging, dents, holes or open splices and broken parts	x	
Markings on the Battery		
3. Trademark , Trade name or Brand name is **not** identifiable		x
4. Without the words "Made in the Philippines" or country of origin if imported/Address of the Manufacturer.		x
5. Date of Manufacture, either plain or coded, is **not** identifiable		x
6. The Type of battery **cannot** be visually determined		x
7. No authorized Philippine Standard "PS" or Import Commodity Clearance "ICC" Quality Mark	x	
8. Bottles or Containers of Electrolyte shall bear the mark **"Poisonous", "Not for human consumption"** or **Skull Symbol**		x
9. Positive Post is **not** marked with "Pos", "P" or "**+**".		x
10. Positive Post **not** provided with Red colored plastic polarity ring for identification.		x
11. Negative Post is **not** marked with "Neg", "N" or "**-**".		x
12. Negative Post is **not** provided with any colored (other than red) plastic polarity ring for identification.		x
Dimensional		
13. Overall Length is not within the standard requirement		x
14. Overall Width is not within the standard requirement		x
15. Overall Height is not within the standard requirement		x
16. Dimension of terminals		
a. Top diameter of positive post is not within the standard requirement		x
b. Top diameter of negative post is not within the standard requirement		x
c. Bottom diameter of Positive post is not within the standard requirement		x
d. Bottom diameter of Negative post is not within the standard requirement		x
e. Length of Positive Post is not within the standard requirement		x
f. Length of Negative Post is not within the standard requirement		x
Functional		
1. The Reserve Capacity (minutes) is not within the requirement	x	
2. The AH Capacity at 20h Rate (AH) is not within the requirement	x	
Total test point	**5**	**18**

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