BREAK ALL SHARP COR COUNTERSINK ALL N.C., N.F. & BATTERY - SEALED, LEAD-ACID 4 VOLT, 2.5 AH PLASTIC HOUSING UL RECOGNIZED A LY ADDED BY DISTRIBUTER) CINCINNATI MILACRON BATTERY - SEALED, LEAD-ACID NONE LIMITS OF 2 PLACE DECREARS ARE ± .PH AND 3 PLACE DECREARS ARE ± .BM UNLESS OTHERWISE SPECIFIED RATHING WAS ORIGINATED BY AND IN THE EXCLUSIVE PROPERTY OF INCENTIATE MICHAEL PROPERTY OF INCENTIATION OR A CONTROL OF THE PROPERTY OF THE PRO K. BAUGHAN 23DEC86 1-587-0722 ···· 1 · 8

APPROVED MANUFACTURERS: MANUFACTURERS P/N: UL FILE NO .: GATES ENERGY PRODUCTS DENVER, CO. 80217 0819-0010 MH12544 CINCINNATI 3 1-587-0722

CINCINNATI MILACRON INDUSTRIES INC.

ELECTRONIC SYSTEMS DIVISION

Component: BATTERY - SEALED, LEAD-ACID

CMI Inc Part No: 1-587-0722

This specification defines basic chemical, electrical and mechanical parameters which are essential to the application. The vendors' catalog specifications are not necessarily applicable. Scope:

To define chemical, electrical and mechanical component characteristics which shall be used by the vendor and CMI Inc Quality Assurance as criteria for acceptance or rejection. Purpose:

General:

The vendor shall, upon request and after satisfactorily demonstrating component compliance with initial Quality Assurance testing, furnish to CMI Inc, at no additional cost, a certification that the components herein specified, meet or exceed the minimum requirements. Vendor will notify Cincinnati Milacron of fundamental changes in the production process which in any way affect the device.

Note:

SHEET 3 MAY OR MAY NOT BE SUPPLIED WITH THIS DRAWING AND IS ${\underline{\mathtt{NOT}}}$ A PART OF THIS SPECIFICATION.

CINCINNATI A 4

EXPECTED PLOAT LIFE

OPEN CIRCUIT VOLTAGE

SPECIFICATIONS:

CAPACITY RATING

STORAGE TIME

NOMINAL BATTERY VOLTAGE

CELL TEMPERATURE RANGE

BATTERY CHARGING

CYCLE LIFE

8 YEARS

4.0V

TA = 0 DEG. C TA = 23 DEG. C TA = 65 DEG. C

CONSTANT VOLTAGE

FLOAT CONSTANT CURRENT CYCLIC (MAX) FLOAT (MAX)

200-2,000 CYCLES

STORAGE DISCHARGE CHARGE

2.5AH 1.8AH

7,200 DAYS 1,200 DAYS 60 DAYS

-65 DEG. C TO +65 DEG. -65 DEG. C TO +65 DEG. -40 DEG. C TO +65 DEG.

200 CYCLES-100% DEPTH O DISCHARGE, ONE CYCLE PE DAY: 2.45V CONSTANT VOLTAGE-NO CURRENT LIMI DISCHARGE: (C/5 RATE)

2000 CYCLES-25% DEPTH C DISCHARGE (CHARGE: 2.4 V/CELL FOR 7.5 HOURS-2.4 A CURRENT LIMIT: DIS-CHARGE: C/2 RATE FOR E MINUTES.)

MORE CYCLES ARE AVAIL-ABLE WITH SHALLOWER DIS

2.40-2.60V/CELL 2.30-2.40V/CELL

C/3 RATE C/500 RATE

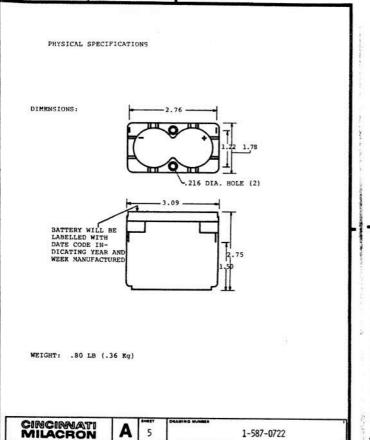
CHARGES.

BASED ON ACCELERATED TEST METHODS, 2.35 VOL' CONSTANT VOLTAGE CHARGE AT 23 DEG. C AMBIENT TEMPERATURE.

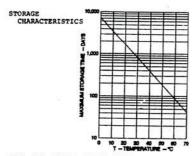
4.15-4.40 VOLTS

1-587-0722

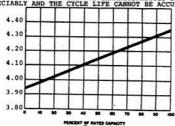
CINCINNATI A 2 1-587-0722



OPERATIONAL CHARACTERISTICS 뿔 FLOAT I 8 20 30 40 50 60 T - TEMPERATURE -°C GRAPH DERIVED FROM STANDARD PRODUCTION SAMPLING; 90% OF ALL CELLS MEET OR EXCRED THESE DISCHARGE CAPACITIES. NEW CELLS MUST BE CYCLED OR FLOATED APPROPRIATELY BEFORE FULL RATED CAPACITY AS SHOWN ON THESE CURVES IS REACHED. THESE DISCHARGE TIMES REPRESENT THE CAPACITY AVAILABLE TO THE KNEE OF THE DISCHARGE CURVE. CINCINNATI A



THE CELL SHOULD NOT BE ALLOWED TO SELF-DISCHARGE BELOW 1.81 VOLTS, BECAUSE THE RECHARGE CHARACTERISTICS OF THE CELL CHANGE APPRECIABLY AND THE CYCLE LIFE CANNOT BE ACCURATELY PREDICTED.



THIS CURVE IS ACCURATE TO WITHIN 20% OF THE CAPACITY OF THE CELL BEING MEASURED, IF IT HAS NOT BEEN CHARGED OR DISCHARGED WITHIN THE PAST 24 HOURS. THE CURVE IS ACCURATE TO WITHIN 5%, IF THE CELL HAS NOT BEEN CHARGED OR DISCHARGED WITHIN THE PAST 5 DAYS. THE CAPACITY, AS TAKEN FROM FIGURE 1, IS THE CAPACITY AVAILABLE AT THE C/10 RATE OF DISCHARGE.

CINCINNATI Α 6 1-587-0722 SAFETY PRECAUTIONS

GASSING - THE BATTERY SHOULD NEVER BE OPERATED IN A GAS-TIGHT CONTAINER OR TOTALLY ENCASED IN A POTTING COMPOUND.

EXTERNAL SHORTING WILL PRODUCE HEAT WHICH CAN CAUSE SEVERE BURNS AND IS A POTENTIAL FIRE HAZARD. IMADVERTENT PLACEMENT OF METAL ARRICLES SUCH AS METAL RINGS OR NATCH BANDS ACROSS BATTERY TERMINALS COULD RESULT IN SEVERE SKIN BURNS.

1-587-0722

CARE SHOULD ALSO BE EXERCISED WHILE SHIPPING CELLS AND BATTERIES WHEN THE TERMINALS ARE NOT COVERED IN A PLASTIC CASE. THE CELLS SHOULD BE PACKED TIGHTLY, PREFERABLY WITH SEPARATIONS BETWEEN EACH CELL, SO THAT THEY CANNOT FALL OVER AND SHOPT OUT AGAINST EACH OTHER. THESE BATTERIES ARE EXTREMELY HEAVY AND REQUIRE SUBSTANTIAL PACKAGING MATERIALS IN ORDER TO KEEP THE PACKAGE INTACT DURING SHIPMENT. IF THERE IS ANY DOUBT AS TO THE SAFETY OF THE PRODUCT DURING SHIPMENT, THE OPEN TABS SHOULD BE COVERED WITH AN INSULATING MATERIAL REUSE OF MANUFACTURER'S PACKAGING MATERIAL IS RECOMMENDED.

CINCINNATI MILACRON A 1-587-0722 8