HARMON PART NUMBERING

HPN	TYPE	NOM. AH CAPACITY	NUMBER OF CELLS	SPECIFIC GRAVITY	DIMENSIONS			WEIGHT		FIGURE (SINGLE CELL SHOWN)
					LENGTH	WIDTH	HEIGHT	UNPACKED	DOMESTIC PACKED	
-000	EMP-9	160	1	1.215	5.16"	10.1"	17.9"	66 LBS.	70 LBS.	SEE FIGURE 1
-001	EMP-7	120	1	1.215	4.34"	10.1"	17.9"	52 LBS.	56 LBS.	SEE FIGURE 1
-002	3EMP-5	80	3	1.215	10.25"	10.1"	17.9"	105 LBS.	114 LBS.	SEE FIGURE 1
-003	EMP-11	200	1	1.215	6.88"	10.1"	17.9"	83 LBS.	94 LBS.	SEE FIGURE 1
-004	EMP-13	240	1	1.215	6.88"	10.1"	17.9"	92 LBS.	98 LBS.	SEE FIGURE 1
-200	EJ-17	750	1	1.215	8.1"	11.0"	18.7"	147 LBS	156 LBS	SEE FIGURE 2
-201	ELM-160	160	1	1.210 –1.220	6.63"	5.42"	18.85"	29 LBS.	--	SEE FIGURE 3
-202	ELM-200	200	1	1.210 –1.220	6.63"	5.42"	18.85"	34 LBS.	--	SEE FIGURE 3
-203	ELM-240	240	1	1.210 –1.220	6.63"	5.42"	18.85"	40 LBS.	--	SEE FIGURE 3
-204	ELM-340	340	1	1.210 –1.220	6.69"	8.42"	18.85"	64 LBS.	--	SEE FIGURE 3
-205	ELM-425	425	1	1.210 –1.220	6.69"	8.42"	18.85"	75 LBS.	--	SEE FIGURE 3
-206	ELM-120	120	1	1.210 –1.220	6.63"	5.42"	13.56"	25 LBS.	--	SEE FIGURE 3
-207	ELM-710	710	1	1.210 –1.220	7.00"	12.50"	19.16"	118 LBS.	--	SEE FIGURE 3

HPN	TYPE	NOM. AH CAPACITY	NUMBER OF CELLS	VOLTAGE	SPECIFIC GRAVITY	DIMENSIONS OF BATTERY			FIGURE	
						LENGTH	WIDTH	HEIGHT		
-100	EI-7	288	6	12 V	1.170 TROPICAL	42.1"	11.0"	18.7"	SEE FIGURE 2 (ONLY ONE CELL SHOWN)	BATTERIES HAVE CONNECTORS, HYD

DESCRIPTION: BATTERY, LEAD ACID

MARKING: MANUFACTURER, MANUFACTURER'S MODEL NUMBER

MATERIAL SPECIFICATION:

SEDIMENT SPACE:
- HPN -00X: 3.0"
- HPN -1XX AND –200: 0.75"

ELECTROLYTE OVER PLATES:
- HPN -00X: 2.3"
- HPN -1XX AND –200: 2.1"

CONTAINER:
- HPN -00X: POLYSTYRENE
- HPN -1XX AND –200: STYRENE ACRYLONITRILE COPOLYMER

COVER:
- HPN -00X: STYRENE BUTADIENE
- HPN -1XX AND –200: FLAME RETARDANT PVC
- HPN –201 THROUGH –207: HI-IMPACT POLYPROPYLENE

SEPARATORS:
- HPN -00X, -1XX, AND –200: MICROPOROUS RUBBER
- HPN –201 THROUGH –207: HIGH POROSITY MICROPOROUS POLYETHYLENE SLEEVE.

POST TYPE:
- HPN -00X, –1XX: SINGLE POST
- HPN –200 THROUGH –203 AND –206: DOUBLE POSTS
- HPN –204, -205 AND –207: FOUR POSTS

POST SEAL TYPE:
- HPN -00X: BURNED RING
- HPN -1XX AND –200: SLIDE-LOCK SEAL

PLATE SUSPENSION TYPE:
- POSITIVE: HPN -00X: LEDGE HUNG
  HPN -1XX AND –200: BRIDGE HUNG
- NEGATIVE: HPN -00X: LEDGE HUNG
  HPN -1XX AND -200: BOTTOM SUPPORTED

PLATES (HPN –201 THROUGH –207)
- POSITIVE: SQUARE TUBULAR, W/LOW ANTIMONY ALLOY SPINES
- NEGATIVE: FLAT PLATE, PASTED, W/ CALCIUM ALLOY GRID

VENT TYPE: FLAME ARRESTOR, FUSED ALUMINA

BOLT CONNECTORS:
- HPN –00X, -1XX, AND –200: STAINLESS STEEL, STANDARD ENGLISH MEASURE, HEX-HEAD

INTERCELL CONNECTORS: LEAD-PLATED COPPER

ELECTRICAL SPECIFICATION:

FLOAT VOLTAGE:
- ACCEPTABLE RANGE: 2.15 - 2.22 VPC
- RECOMMENDED: 2.20 VPC

MAXIMUM PHYSICAL DIMENSION:

PLATE DIMENSIONS:
- POSITIVE:
  - HPN -00X: .44" THICK
  - HPN -1XX AND –200: 10.9"H X 9.2"W X .35"T
- NEGATIVE:
  - HPN -00X: .18" THICK
  - HPN -1XX AND –200: 11.4"H X 9.4"W X .24"T

NOTE:

FOR HPNS –201 THROUGH –207, USE TEMPERATURE-COMPENSATED CHARGING.

FIGURE 1: HPN -00X (SINGLE CELL SHOWN)

FIGURE 2: HPN -1XX AND –200 (SINGLE CELL SHOWN)

FIGURE 3: HPN –201 THRU -207

TranSystems — Vermont Agency of Transportation
Lyndon STPG SGNL(48) Project

- [ ] **Approved** — Fabrication/Installation may be undertaken
- [ ] **Approved as Corrected** — Approval provided comments are incorporated
- [X] **Correct, Revise and Resubmit** — Fabrication/Installation MAY NOT be undertaken — 1
- [ ] **No Action Taken**

Review / approval does not relieve the contractor from complying with all the requirements of the contract

1 - Battery selected shall conform to Special Provision Section 63 ACTIVE WARNING SYSTEM MATERIALS (j) Miscellaneous Products and Components, (28) Batteries and Charging Equipment, (d) Storage Batteries (see attached pgs 56 and 57 of Special Provisions). Batteries shall have a minimum storage capacity of 240 Amp-Hours, and shall be sized for a minimum 24-hour standby capacity at an ambient temperature of 40 degrees Fahrenheit. Contractor shall provide load calculations.

REVISION CONTROL				
REV	ECRN	DATE	BY	APPRV
CA0	90014658	2/4/98	ADH	ADH
CB0	90037354	2/02	ADH	ADH

ENGINEERING	
Approved A. HOWERY	Date 2/4/98
Engineer A. HOWERY	
Drawn By B. KAISER	Date 6/4/99

Harmon Industries
Grain Valley, MO

Title BATT LEAD ACID

Drawing No.	Sheet
017123-XXX	1 of 1