

Communications Power Sources and Vehicle Battery Maintenance



Session 7

Joint Service Power Exposition

25 April 2007



Session 7

- Power for Manpacked Radio Communications Equipment
- Mr. Mark Abelson
 - Battery Basic's for Vehicle Lead Acid Batteries
 - Keeping Batteries in Service
 - 2nd Infantry Division Case Study



Reference Material CD

- BMMP for Lead Acid Batteries
- FY07 Primary & Secondary battery price lists
- POWER 1.2 and Instruction Manual
- Power for Manpacked Radio Systems & QP-1800 (PowerPoint)
- SPC Software Version E
- Zinc-Air battery (PowerPoint)

BENEFICIAL SUGGESTIONS

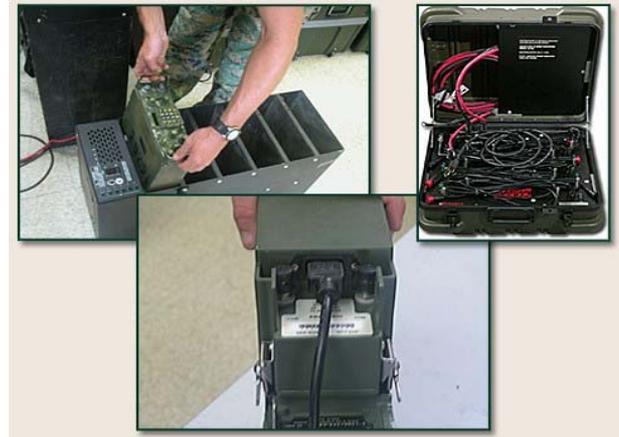
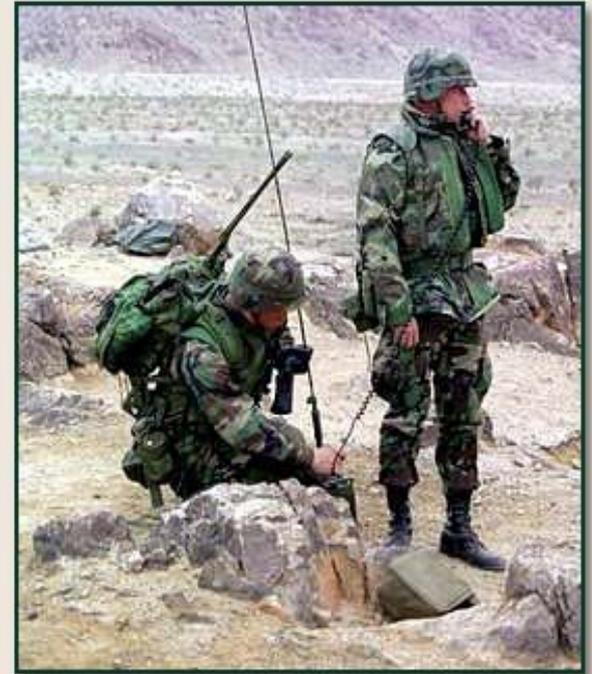


POWER FOR MANPACKED RADIO COMMUNICATIONS EQUIPMENT



PURPOSE

To review the primary, secondary, and alternative power devices used to energize manpacked radio equipment.



12 VOLT RADIO SYSTEMS

SINGGARS RADIOS

BA-5590B/U	TAB B
BA-5590A/U W/SOCI	TAB B
BA-5390/U	TAB B
BA-5390A/U W/SOCI	TAB B
BA-8140	TAB C
BA-8180	TAB C
BB-390B/U	TAB F
BB-2590/U	TAB F

SINGGARS SINGLE POWER ADAPTER (SSPA) AN/PAC-216	TAB K
MULTI-SINGGARS POWER ADAPTER (MSPA) ASAPS-6	TAB K
MULTI-RADIO POWER ADAPTER (MRPA) ASAPS-SC/SNAP 6CC	TAB K

Note: The SSPA will not work with the AN/PRC-119F. The VB-90 (TAB L) is designed for the AN/PRC-119F (ASIP).

AN/PRC-148 (MBITR)

POWER SOURCES

MBITR Battery	TAB L
BA-8140/U	TAB C
BA-8180/U	TAB C
MRC-41	TAB L
Battery Cell Holder	TAB L

The MBITR battery is a unique rechargeable battery manufactured by Thales Inc. When initially fielded the only battery charger to support the MBITR battery was the Thales AC/DC commercial charger. Adapters have been developed to allow use of the SPC and VMC chargers (TAB I) to charge the MBITR battery.



MBITR Battery



Thales
AC/DC Charger

24 VOLT RADIO SYSTEMS

AN/PRC-117F, AN/PSC-5, AN/PRC-113 and AN/PRC-150

POWER SOURCES

BA-5590B/U	TAB B
BA-5590A/U W/SOCI	TAB B
BA-8180/U	TAB C
BB-390B/U	TAB F
BB-2590/U	TAB F
MRC-93 Single Radio Power Adapter	TAB K

REMARKS

Although the MRC-93 will operate from AC or DC power, the QP-1800 (TAB M) can be used to convert VEH DC power to AC power and energize the MRC-93.



QP-1800

BA-8180/U with J-6687/U
24V radio adapter (TAB C)



The BA-5390 has not been approved for use
in any 24V radio system (refer to TAB B).

PRIMARY BATTERIES (ONE TIME USE)

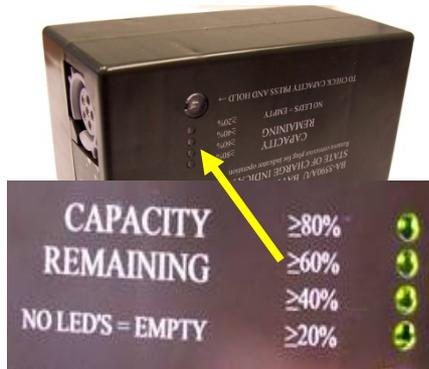
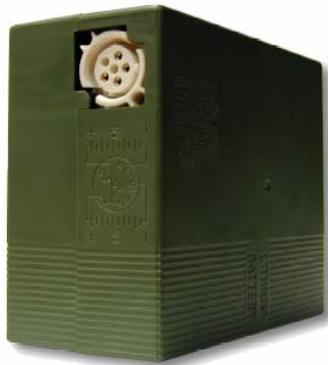
NEW TYPE	NEW NSN	U/I	FY07 PRICE	OLD TYPE	OLD NSN	OLD U/I
BA-5093/U	6135-01-216-9771	EA	\$111.42	N/A	N/A	N/A
BA-5372/U	6135-01-214-6441	PG (10ea)	\$91.05	BA-1372	6135-00-801-3493	PG
BA-5112A/U	6135-01-439-6229	PG (4ea)	\$196.43	BA-5112	6135-01-235-4168	EA
BA-5557A/U	6135-01-448-4680	PG (4ea)	\$370.35	BA-5557	6135-01-088-2707	EA
BA-5567A/U	6135-01-447-5082	PG (12ea)	\$63.53	BA-5567	6135-01-090-5365	PG
BA-5567A/U	6135-01-447-5082	PG (12ea)	\$63.53	BA-1567	6135-00-485-7402	EA
BA-5588A/U	6135-01-447-5083	PG (5ea)	\$198.35	BA-5588	6135-01-088-2708	EA
BA-5590B/U	6135-01-438-9450	PG (4ea)	\$293.15	BA-5590	6135-01-036-3495	EA
BA-5590A/U	6135-01-523-3037	PG (4ea)	\$348.08	N/A	N/A WITH SOC LED	N/A
BA-5390/U	6135-01-501-0833	PG (4ea)	\$446.03	N/A	N/A	N/A
BA-5390A/U	6135-01-517-6060	PG (4ea)	\$480.27	N/A	N/A WITH SOC LED	N/A
BA-5598A/U	6135-01-447-5081	PG (4ea)	\$176.40	BA-5598	6135-01-034-2239	EA
BA-5599A/U	6135-01-447-4001	PG (4ea)	\$163.27	BA-5599	6135-01-069-8575	EA
BA-5600A/U	6135-01-441-0402	PG (8ea)	\$286.57	BA-5600	6135-01-168-2944	EA
BA-5800A	6135-01-440-7774	PG (8ea)	\$182.25	BA-5800	6665-99-760-9742	EA
BA-5347/U	6135-01-455-7946	EA	\$45.07	BA-5347	N/A	N/A
BA-5368/U	6135-01-455-7947	PG (10ea)	\$294.65	BA-1568	6135-00-838-0706	EA
BA-5374/U	6135-01-455-9646	PG (10ea)	\$131.30	BA-1574	6135-00-073-8939	EA
BA-8140/U	6135-01-517-0952	EA	\$275.00	N/A	REQ ADAPTERS	N/A
BA-8180/U	6135-01-500-0572	EA	\$355.58	N/A	REQ ADAPTERS	N/A

**WARNING – ensure personnel are using the correct NSN’s and units of issue.
Many units of issue changed from EA (1) to PG (4), (5), (8), (10) or (12).**

TAB A

PRIMARY BATTERIES (ONE TIME USE)

The most widely used primary battery is the BA-5590B/U Lithium Sulfur Dioxide battery. An alternative to the BA-5590B/U is the BA-5390/U Lithium Manganese battery. The BA-5390/U has a 16.5/33.0 VDC maximum voltage, higher than the BA-5590B/U at 16.0/33.0 VDC. This higher voltage can cause equipment damage. The BA-5390/U has been approved for use in SINGARS radios (MCSC 101842Z MAR 03). The BA-5390/U thermal switch will trip if exposed to temperatures greater than 190 Degrees Fahrenheit. The BA-5390/U provides approximately 40 percent more run time than the BA-5590B/U. DLA has recently stocked new models of the BA-5590B/U and BA-5390/U. These new models, shown below, have State of Charge (SOC) LED indicators.



BA-5590B/U
6135-01-438-9450
PG (4) \$293.15

BA-5590A/U W/SOC
6135-01-523-3037
PG (4) \$348.08

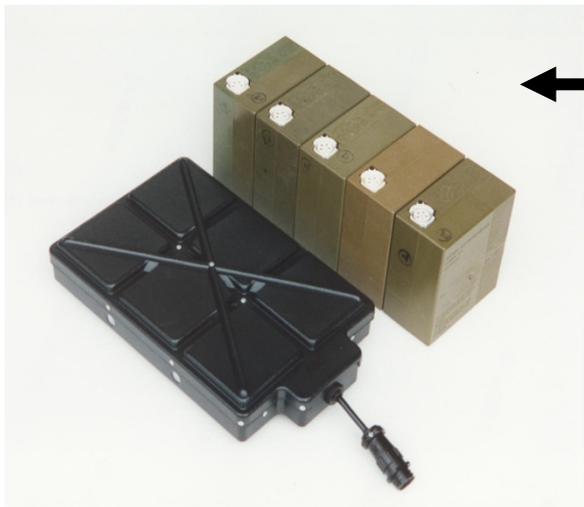
BA-5390/U
6135-01-501-0833
PG (4) \$446.03

BA-5390A/U W/SOC
6135-01-517-6060
PG (4) \$480.27

State of Charge (SOC) indicators allow users to fully utilize battery capacity by displaying the remaining battery SOC in segments from 20% to 80%.

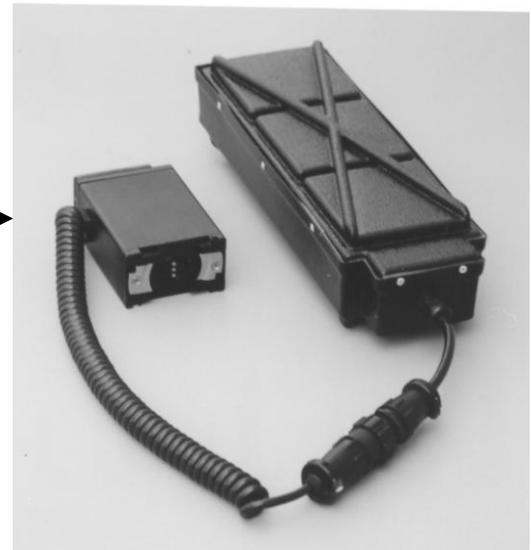
TAB B

ZINC-AIR PRIMARY BATTERIES AND ADAPTERS



BA-8180/U
12/24 VOLT
800 watts
Six pounds

BA-8140/U
12 VOLT
400 watts
Three pounds



BA-8140/U with J-6686/U MBITR adapter

Zinc-air batteries require special adapters. These adapters are re-usable.

Zinc-air batteries must be exposed to air and will not work if submerged.

SAMPLE PERFORMANCE TIMES

EQUIPMENT	BA-8180/U	BA-8140/U
AN/PRC-119F	5-10 Days	4-6 Days
SINGGARS (A-E)	5-9 Days	4-6 Days
SATCOM HF	5-7 Days	N/A
MBITR (PRC-148)	14 Days	7 Days

ADAPTER	APPLICATION	NSN	PRICE	U/I
J-6687/U	SATCOM/HF	5940-01-516-9787	\$505.00	EA
J-6686/U	MBITR (PRC-148)	5940-01-517-3990	\$233.00	EA
J-6633/U	AN/PRC-119F ASIP	5940-01-504-3218	\$113.78	EA
J-6634/U	SINGGARS (A-E)	5940-01-504-5597	\$51.46	EA



J-6633/U



J-6634/U

Zinc-air batteries react with air and experience continual discharge once removed from their packaging.

TAB C

RECHARGEABLE BATTERY OPERATING & STORAGE TEMPERATURE PLANNING INFORMATION

Rechargeable batteries are designed to operate and accept a recharge cycle from -4 degrees F to +122 degrees F (-20 degrees C to +50 degrees C). At low temperatures, they may operate, but will not accept a recharge cycle. Use primary batteries when temperatures outside these specifications are encountered.

Storage temperatures for rechargeable batteries should not exceed -4 degrees F to 122 degrees F. In hot climates, keep storage temperatures as low as possible. High storage temperatures will ruin a battery. Generally, the cooler the better.

Charging should occur above 40 degrees F. In temperatures below 40 degrees F, the batteries will take much longer to charge and may not charge fully. Batteries left in temperatures below -4 degrees F must be thawed before charging or they may vent. Allow batteries to thaw for at least six hours.

Stored rechargeable batteries will permanently lose capacity . . . even faster in HOT environments . . . so . . . charge them at least every six months or better yet . . . **USE THEM!**

WHEN WORKING WITH RECHARGEABLES

USE THEM OR LOSE THEM

TAB D

SECONDARY BATTERIES (RECHARGEABLE)

					ADAPTER REQ	ADAPTER REQ
BATTERY NAME	EQUIVALENT	BATTERY NSN	U/I	FY-07 PRICE	FOR SPC	FOR VMC
BB-2590/U	BA-5590	6140-01-490-4316	EA	\$295.18	J-6358B/P	J-6520A/U J-6581/U
BB-390B/U	BA-5590	6140-01-490-4317	EA	\$242.59	J-6358B/P	J-6520A/U J-6581/U
BB-388A/U	BA-5588	6140-01-490-4313	EA	\$68.23	J-6357A/P	J-6520A/U
BB-326/U	BB-516A/U	6140-01-533-7674	EA	\$91.07	J-6356/P	J-6520A/U
BB-503A/U	N/A	6140-01-419-8193	EA	\$80.10	J-6355/P	
BB-2847A/U	BA-5347	6140-01-493-8092	EA	\$94.75	J-6354/P	J-6520A/U
BB-557/U	BA-5557	6140-01-071-5070	EA	\$93.63	J-6523A/P	J-6584/U
BB-2557	BA-5557	6140-01-490-5387	EA	\$160.45	J-6523A/P	J-6584/U
BB-2600A/U	BA-5600	6140-01-490-4311	EA	\$139.92	J-6521/P	J-6584/U
BB-2800/U	BA-5800	6140-01-490-5372	EA	\$117.82	J-6587/P	J-6520A/U
AA Rechargeables			EA		J-6589/P	
MBITR Battery		6140-01-487-1153	EA	\$174.25	J-6588/P	J-6584/U



J-6589/P



SPC with various battery adapters



TAB E

SECONDARY BATTERIES (RECHARGEABLE)

The most widely used secondary (rechargeable) batteries are the BB-390B/U and the BB-2590/U.



BB-390B/U

Nickel Metal Hydride.
4 year warranty.
Lasts 16 to 20 hours
in SINCGARS radios.
Life cycle 3 – 5 years.
Requires periodic
conditioning.

Lithium-Ion. Desert
tan. Weighs one
pound less than the
BB-390B/U and has
a higher capacity.
Does not require
conditioning.
4 year warranty.



BB-2590/U

The BB-390B/U and the BB-2590/U are warranted for four years. Check the manufacturing date (7/03) to the left of the S/N. The first digit is the month, the second is the year. This date starts the warranty clock.

The BB-2590/U is approved for use in the AN/PRC-104, AN/PRC-113, AN/PRC-117, AN/PRC-150, AN/PSC-5, KY-57, KY-99, and all SINCGARS models.

Note: The BB-2590/U is NOT APPROVED for use in the Javelin Command Launch Unit. The higher voltage of the BB-2590/U will damage the CLU control unit.

ALTERNATIVE POWER EQUIPMENT DATA CHART

NOMENCLATURE	MODEL	TAMCN	NSN	FY-07 PRICE
BATTERY CHARGER/ANALYZER CASP 2000H(M)	PP-8333/U	A7700	6130-01-341-2073	
VEHICLE MOUNTED CHARGER (VMC)	PP-8481B/U	H6002	6130-01-527-2726	\$2,272.00
SUITCASE PORTABLE CHARGER (SPC)	PP-8498/U	A0012	6130-01-495-2839	\$2,028.00
SINGLE RADIO POWER ADAPTER 24V	MRC-93	H7706	6130-01-520-8178	\$1,994.85
SINGGARS SINGLE POWER ADAPTER (SSPA)	PAC-216/U	H7710	5985-01-465-2867	\$2,495.00
MULTI-SINGGARS POWER ADAPTER (MSPA)	ASAPS-6 / SNAP 6	H7715	6130-01-458-4041	\$2,375.00
MULTI-RADIO POWER ADAPTER (MRPA)	ASAPS-SC / SNAP 6CC	H7705	6130-01-473-0349	\$2,260.00
QP-1800 System W/NATO Slave cable and case	QP-1800	H0004	TBA	\$2,555.00
DISCHARGE CAP	PP-8497/U	N/A	6130-01-490-4310	\$66.54
SPC SLAVE CABLE	J-6362A/U	N/A	5940-01-501-6714	\$172.09
SPC NATO SLAVE Y-CABLE	CX-13560/G	N/A	5995-01-505-7883	\$65.05
MBITR BATTERY BOX for AN/PRC-148	MRC-41	N/A	McDowell Corp	\$1,371.46
MBITR BATTERY CELL HOLDER for AN/PRC-148		N/A	6160-01-487-1151	\$157.00
SCAVENGER		N/A	6130-01-539-0646	\$308.00
AN/PRC-119F (ASIP) POWER ADAPTER	VB-90		IRIS Technology	\$2,045.00

In order to be effective on the battlefield, a unit must be able to Move, Shoot and Communicate. Early into the invasion of Iraq, severe shortages of BA-5590/U batteries almost delayed combat operations. Units can mitigate future problems by training with and employing alternative power. Become BATTERY INDEPENDENT.

TAB G

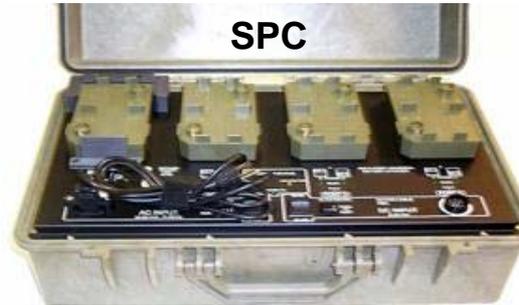
BATTERY CHARGERS

PP-8333/U CHRISTIE BATTERY CHARGER/ANALYZER



Programmable.
Requires periodic calibration.
SL-3 cables support the BB-516, BB-586, BB-557, BB-590, BB-390B/U, BB-588, and BB-699. Other cables are available (refer to PP-8333/U data sheet in TM-12359A-OD located in the Electronic Tool Box).
Will not charge the BB-2590/U.
Requires MI-09591A-25/1B for the BB-390B/U.

PP-8498/U SUITCASE PORTABLE CHARGER



Sequentially charges up to eight batteries (two at a time) in approx. 8 hours.
Operates from AC or DC.
Comes with AC cable, DC cable must be ordered.
Will charge the BB-2590/U.
Will not charge the BB-590.
Software upgradeable.

PP-8481B/U VEHICLE MOUNTED CHARGER



Mounts in a tactical vehicle.
Charges two batteries at a time and moves to the next two in queue. Operates from DC or AC. Comes with AC & DC Cable. Will charge the BB-2590/U. Will not charge the BB-590. Software upgradeable.

See TAB I for SPC/VMC adapter chart.

See TAB J for SPC/VMC software updates.

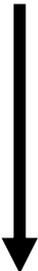
Both the SPC & VMC are equipped with VEH battery low voltage detection & cutoff protection.

TAB H

SPC/VMC CHARGER TO ADAPTER REF TABLE

ADAPTER	ADAPTER NSN	FY-07 PRICE	U/I	RECHARGEABLE BATTERY	SPC	VMC
J-6358B/P	5940-01-501-3312	\$79.62	EA	BB-2590/U BB-390B/U	X	
J-6357A/P	5940-01-493-6388	\$28.14	EA	BB-388A/U	X	
J-6356/P	5940-01-427-9183	\$28.14	EA	BB-326/U (old BB-516A/U)	X	
J-6355/P	5940-04-427-9247	\$44.96	EA	BB-503A/U	X	
J-5354/P	5940-01-427-9278	\$60.47	EA	BB-2847A/U	X	
J-6523A/P	5940-01-492-7238	\$46.25	EA	BB-557/U BB-2557	X	
J-6521/P	5940-01-467-8813	\$44.96	EA	BB-2600A/U	X	
J-6587/P	5940-01-493-6750	\$43.66	EA	BB-2800/U	X	
J-6589/P	5940-01-493-7622	\$84.39	EA	AA BATTERIES	X	
J-6588/P	5940-01-493-6751	\$68.88	EA	MBITR BATTERY (PRC-148)	X	
J-6520A/U	5940-01-493-8744	\$331.64	EA	BB-2590/U BB-390B/U		X
J-6520A/U	5940-01-493-8744	\$331.64	EA	BB-388A/U BB-2800/U		X
J-6520A/U	5940-01-493-8744	\$331.64	EA	BB-516A/U BB-326		X
J-6520A/U	5940-01-493-8744	\$331.64	EA	BB-2847A/U		X
J-6581/U	5940-01-494-7116	\$312.31	EA	BB-2590/U BB-390B/U		X
J-6584/U	5940-01-494-7120	\$312.31	EA	BB-2557B/U BB-557/U		X
J-6584/U	5940-01-494-7120	\$312.31	EA	BB-2600A/U MBITR		X

Red indicates UNIVERSAL ADAPTERS which are designed to hold various different types of batteries at the same time.



J-6584/U Universal Adapter for the VMC.

BATTERY CHARGER ANCILLARY DEVICES



J-6362A/U DC slave cable for the PP-8498A/U (SPC). Disregard the smaller cable (attached), it is only used with the legacy PP-8444A/U.



CX-13560/G connects two SPC's to one DC slave cable (J-6362A/U).



PP-8497/U Self-Discharge Device (CAP), black, tan or dual colored, is used to discharge (condition) the BB-390B/U or "Quick Check" that both 12-volt sections of the battery are working. When used with the BB-2590/U, it is only used to provide a "Quick Check". The BB-2590/U does not require conditioning.

SPC/VMC SOFTWARE UPDATES

The current version of software for the SPC is 3_30_.00.exe program E. Software updates can be downloaded from the U.S. Army rechargeable battery web site (TAB N) or call your supporting FSR (TAB Q). As new SPC adapters are developed supporting software updates will be published. The VMC, although software upgradeable, does not require a software upgrade at this time.



TAB J

12/24V RADIO POWER ADAPTERS

SINGGARS SINGLE POWER ADAPTER (SSPA) or AN/PAC-216



Replaces battery box. Energizes one SINGGARS radio using AC input. Built in UPS. Does not operate off DC power.

12V

POWER ADAPTER, 24V MRC-93



24V

Replaces battery box. Energizes one 24V radio using AC or DC input.

The MRC-93 is UPS capable when any BA-5590 equivalent battery is inserted into the adapter. Will not charge batteries used in this configuration. Warranted for 4-years.

MULTI-SINGGARS POWER ADAPTER (MSPA) or ASAPS-6



Energizes up to six SINGGARS radios using AC or DC power.

12V

MULTI-RADIO POWER ADAPTER (MRPA) or ASAPS-SC/SNAP 6CC



Energizes up to six 12V radios using AC or DC power. Supplied with six 12-foot radio power cables.

12V

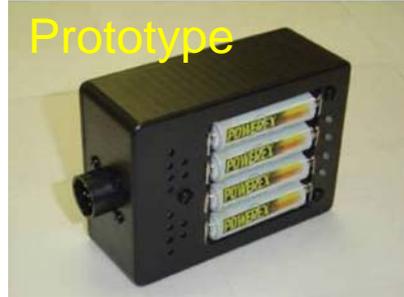
The MSPA & MRPA are more effective when connected to both AC & VEH DC. While operating from the AC source, the VEH battery acts as an UPS. The AC power also maintains the VEH battery SOC.

TAB K

COMMERCIAL-OFF-THE-SHELF (COTS)



VB-90 Power Adapter for the AN/PRC-119F (ASIP).



SCAVENGER – recharge AAs in 100 minutes scavenging unused energy from BA-5590 equivalent batteries.



MRC-41 – holds primary or rechargeable battery, powers the AN/PRC-148.



Products pictured (TAB L) have not been tested to MIL SPEC standards.

Buyer beware, many vendors will attempt to sell products they claim to meet military specifications. They may or may not fail at high or low operating temperatures or in field environments.

Any product containing Lithium must be tested and approved for Marine Corps use under the Navy Lithium Battery Safety Program.

AN/PRC-148 (MBITR) Battery Cell Holder, holds DL2/3A, provides ten hours of operation.



TAB L

DC TO AC INVERTERS



The QP-1800 is a semi-ruggedized 1800W DC to AC (True Sine Wave) inverter that enables operation of 115 VAC powered devices from vehicle power (24 VDC). The QP-1800 connects to the vehicle using a supplied NATO SLAVE cable.

BATTERY SAFETY



When used incorrectly or mishandled, batteries can be hazardous. Be familiar with the material safety data sheets for all battery types.

TAB M

WEB SITE'S

U.S. Marine Corps
Program Manager
Expeditionary Power Systems
Marine Corps Systems Command

www.marcorsyscom.usmc.mil/sites/pmeps

U.S. Army
Rechargeable Battery
Program

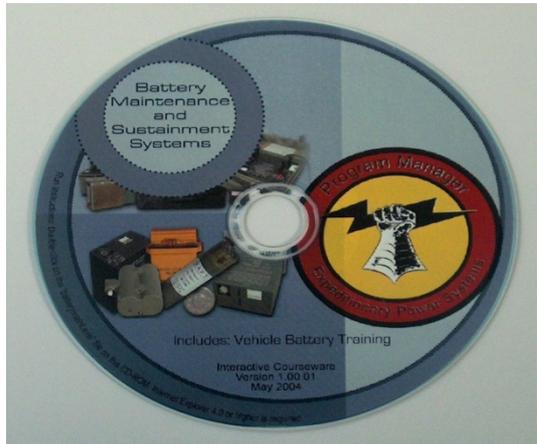
www.monmouth.army.mil/cecom/lrc/lrchq/power/rechargebat.html

The screenshot shows the homepage for Expeditionary Power Systems. At the top left is the Marine Corps logo. The main header reads "Expeditionary Power Systems" with a "Program Manager" badge. The page is divided into several sections: "PM EPS Links" (a list of navigation items), "Popular Links" (a list of key resources), and a central area with various product and service images including "Battery Management", "Lighting & Power Distribution", "Environmental Control Units", "Mobile Electric Power", "Advanced Power Sources", "Field Service Reps", "Future Technology", "PQDR & Warranty", "Safety Messages", "Reference Data", "Policy", and "Computer Based Training". A "HIGH VOLTAGE" warning sign is also visible.

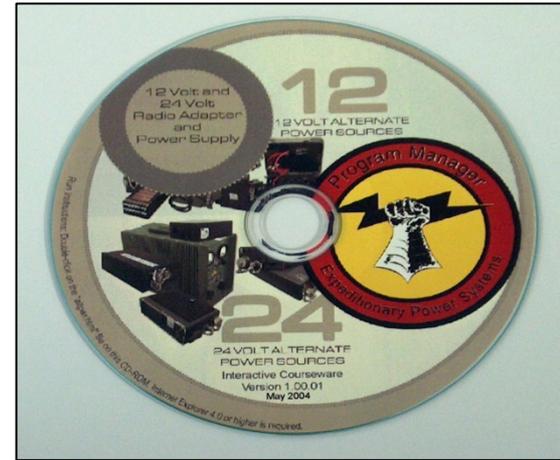
The advertisement features two photographs of battery equipment. The top photo shows a control panel with several battery units. The bottom photo shows a large black battery pack and a smaller unit in a cardboard box. The text reads: "Introduction, NSNs and Prices DA Rechargeable Battery Policy . . . It's Time to get all 'Charged up'".

TAB N

TRAINING



Battery Maintenance and Sustainment Systems (CD is available from FSR's)



12 Volt and 24 Volt Radio Adapter and Power Supply (CD is available from FSR's)

Power Management for Communication Equipment Operators (available at www.marinenet.usmc.mil, course 0612AO)



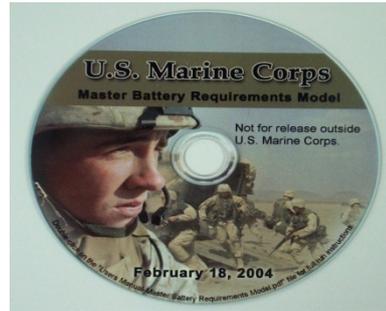
PP-8333/U, Christie Casp 2000H Battery Charger, operator's interactive CD (available from FSR's)



TAB O

BATTERY PLANNING TOOLS

Master Battery Requirements Model



- > Battery planning tool
- > Standard record of T/E equipment that uses batteries
- > Have exercise specific records
- > Standard reports and back-up
- > Run scenario's
- > **MUST BE TRAINED** in use prior to issue
- > Available from your supporting FSR

User Input Form Version: 1.0

Record Name:

Days of Deployment:

Days of Operation:

Operating Environment:

Leeway Factor (Non-Rechargeable): % (Default 5%)

Leeway Factor (Rechargeable): % (Default 5%)

Initial Battery Capacity: % (Default 85%)

Months in Storage: Optional

Environment/Temperature Chart

Storage: 50° to 80° F
Tropical: 91° F and Above
Temperate: 51° to 90° F
Cool: 10° to 50° F
Arctic: 10° F and Below

Equipment Input

TAMCN	Avg Operating Hours per Day	Quantity of Equipment	Chargers Available
<input type="text" value="1"/>	<input type="text" value="1"/>	<input type="text" value="1"/>	<input type="text" value="Yes"/>

Record Navigation

New Delete Copy

View Reports

- Battery Report
- Principal Battery Rollup
- Alternate Battery Rollup

Print Reports

- Battery Report
- Principal Battery Rollup
- Alternate Battery Rollup

Save Reports

- Battery Report
- Principal Battery Rollup
- Alternate Battery Rollup

POWER 1.1 Battery Calculator is an excel data base application developed by the U.S. Army to estimate communications equipment battery requirements. It is available from your FSR or by contacting WebPubEPS@mcsc.usmc.mil.

POWER OPTIMIZER FOR THE WARFIGHTER'S ENERGY REQUIREMENTS
Created by USA CE-LCMC, Power Sources Team, Ft. Monmouth, NJ

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White Areas require user input

1) Select an End Item

Choose Item By:

Item List: ANPRC-119F, ANPRC-119, ANPRC-119G, ANPRC-119C, ANPRC-119E

POC: USA CE-LCMC, Ft. Monmouth, NJ
Arl Herman
Email: arl119@mcsc.usmc.mil
Phone: (732) 532-6763 DSN: 992-6763
Please Reference: Release Candidate 1.1, 12/19/05

The selected item is the ANPRC-119F, Radio Set (SINGARS), NSN: 5820-01-451-8252

2) Select the temperature conditions in which the end item will be used

Battery option(s)	Qty	Run Time	Units	Note	Total Batt. Weight	Units
BA5390	1	35	hrs		2.3	lbs
BA5390U	1	50	hrs		3.0	lbs
BE2590	1	31	hrs		3.2	lbs
BE590	1	23	hrs		3.0	lbs
BA8180	1	165	hrs		6.0	lbs

*Note: Batteries listed here may differ from those listed in the TM of some other devices. For a list of which batteries are interchangeable, and their replacements, please use the tab labeled "Rechargeable".

3) Given the above options, which battery do you wish to use

Battery	NSN	# per Package	Description	Specific Information
BA-5390AU	6135015170660	4	Battery, Non-Rechargeable, Lithium Manganese Dioxide	With SOCI
BA-5390U	6135015010833	4	Battery, Non-Rechargeable, Lithium Manganese Dioxide	Without SOCI

4) Choose which version you wish to use

5) The BA5390 is estimated to last 49.5 hrs in the ANPRC-119F, Radio Set (SINGARS), at Normal Temperature (10F to 122F).
The battery will be swapped out after... hrs of use
You are using 97% of the battery's total estimated capacity

6) Input the number of ANPRC-119F to be powered devices

7) Input the number of hours per day the end item will be in operation hrs

Steps 6 and 7 are for rechargeable batteries only. For more information on rechargeable batteries and chargers see the tab labeled "Rechargeable Info".

8) How frequently will the warfighter be resupplied with charged batteries? Every days

9) What is the TOTAL number of rechargeable batteries that will be needed to support operations for EACH device? (ie 0, add 1 for the device, 1 for charger, 1 in transit etc.)

Battery	Battery NSN	Batt. per package	# of Devices	Device
BA-5390AU	6135-01-517-0660	4	43	ANPRC-119F

	# of Batteries	# Pkgs to order	Total Weight (lbs)
1 day mission	43	10.8	129.0
3 day mission	86	21.6	258.0
30 day mission	845	161.3	1,935.0

TAB P

POINTS OF CONTACT

PM EPS FIELD SERVICE REPRESENTATIVES

I MEF CAMP PENDELTON

Mr. Talmadge Jackson
talmadge.d.jackson.ctr@usmc.mil
(760) 725-4923

II MEF CAMP LEJUENE

Mr. Ken Copeland
ken.copeland@usmc.mil
(910) 451-1902

III MEF CAMP KINSER

Mr. John O'Brien
john.o'brien@usmc.mil
011-81-611-737-5023 (DSN 637-5023)

MEF FORWARD

Mr. Daryl Wilson
WilsonDK@cssemnf-wiraq.usmc.mil
DSN 302-3640-220 (Iraq)

PM EPS MARINE CORPS SYSTEMS COMMAND

ADVANCED POWER TEAM LEADER

Ms. Joanne Martin
joanne.martin@usmc.mil
(703) 432-3584 (DSN 378-3584)

Send questions to PM EPS MCSC at
WebPubEPS@mcsc.usmc.mil

U.S. ARMY RECHARGEABLE BATTERY PROGRAM

Mr. Don Brockel
donald.brockel@us.army.mil (732) 532-4948

TAB Q

WebPubEPS@mcsc.usmc.mil

**POWER FOR MANPACKED
RADIO COMMUNICATIONS EQUIPMENT**



"IN EVERY CLIME AND PLACE"

**Quiet Power (QP-1800)
DC to AC Power Inverter**



AC POWER FROM A HMMWV

An aerial photograph of a forest with a winding path. The path is a light brown color, contrasting with the green and dark brown of the surrounding trees and undergrowth. The path winds from the bottom left towards the top right of the frame.

QUESTIONS

mbissonnette@mkisystems.com