

SERVICE INFORMATION LETTER

TO: OWNERS/OPERATORS OF PACIFIC SCIENTIFIC
COMPANY POWER ACTIVATING DEVICES.
(CARTRIDGES)

SUBJECT: INFORMATION REGARDING THE HANDLING AND
TESTING OF CARTRIDGES.

PURPOSE: THIS SERVICE INFORMATION LETTER (SIL)
DESCRIBES THE SUGGESTED PROCEDURE TO
HANDLE AND TEST POWER ACTIVATING DEVICES.

1. INTRODUCTION

The following information describes a suggested procedure of handling and maintaining of power activating devices. (industry known as cartridges) It is not the only accepted procedure for handling these items. Every site must design, develop, and install an acceptable process based on needs and situations.

2. SCOPE

This SIL involves all Pacific Scientific cartridge part numbers only.

3. REFERENCE

CMM's
Pacific Scientific Safety Manual
ATA Regulations
IATA Regulations
DOT Regulations

4. COMPLIANCE

None required. This document is for information only. The information enclosed replaces Technical Bulletin 83-2a and 83-2b.

5. SAFETY

The following precautions are general. They do not apply to any specific procedure but must be followed by persons that handle power device cartridges.

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5. SAFETY -cont-

A. COMMON SENSE

Power device cartridges should be handled only by people who are aware of their function and their potential. They should be handled only when needed. Persons handling power device cartridges should not work alone. Assistance and emergency information should always be considered before accomplishing tasks.

B. SUPERVISOR RESPONSIBILITY

Individuals that supervise people that handle power device cartridges should insure the following:

1. Supervise all individuals handling power device cartridges.
2. Address precautions before any work is accomplished and resolve safety issues that appear during operations.
3. Enforce all safety instructions and regulations.
4. Insure all emergency contact information is researched, displayed, and understood before any work is accomplished.

C. ISOLATE FROM LIVE CIRCUITS

Power device cartridges are activated electrically. Live circuits always have stray currents. Insure they do not contact power device cartridges.

6. DEFINITIONS

The following definitions apply to terms used in this publication.

Bridgewire: A measured wire built into an ignition element that is connected to the electrical leads of a device.

Hermetic Seal: Hermetically sealed devices are welded or solder sealed versus sealed with epoxy resin.

Manufacture Date: Date unit is manufactured. Date is in code and does not affect service life.

Non-hermetic Seal: Devices that are sealed using epoxy resins.

Power Device Cartridge: Explosive device to activate aircraft safety equipment

Service Date: The date in which the cartridge is considered in service.

Service Life: The length of time a cartridge may stay in service.

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6. DEFINITIONS -cont-

Shunt: An insulating or grounding device that shields or grounds cartridges to prevent activation. There are two types:

Shunt Plugs ground each connector pin to the unit case preventing current flow to the bridgewire.

Faraday Cap insulates pins from receiving static current.

Total Life: The length of time a unit may be considered serviceable.

7. SHIPMENT INSPECTION

Follow instructions in specific documents provided by the users organization as to shipment inspections of power device cartridges. Insure that all units are properly identified and packaging is not damaged. If the packaging is damaged inspect the cartridge per specific technical documents.

8. GROUNDING POWER DEVICE CARTRIDGES

Find a location where cartridge handling can be processed without interference. This area must be free of stray electrical currents and a lot of foot traffic. Insure all needed ESD components are available at this station. How ESD components are stationed is left to the station operator. How and why ESD components are used must be clearly understood before any cartridge operations begin. Follow guideline from ANSI or IEEE.

9. DESCRIPTION AND OPERATION

A. Description

Cartridges are power devices that are used to start a pressurized fire extinguisher's flow. Although there are two groups within these devices Pacific Scientific produces only the modern shock wave device.

The shock wave device produces a wave that breaks the enclosure disc or stem holding a plug. They can be found in hermetic or non-hermetic sealed units.

B. Operation

When a fire extinguisher is deployed a specified electrical current is routed to the cartridge. Current flows through the connector pins, into the bridgewire, making the bridgewire hot causing the power to ignite and produce a shock wave that ruptures the disc or housing of the fire extinguisher.

C. Specific Data

See Attachment Information Table 1

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10. UNIT INSPECTION

Visually inspect all areas of the cartridge. Check for distortion on threads and electrical plug case. No cracks or dents allowed on cup area. Insure all pins will allow electrical plugs to engage. There should be no loose parts on the unit.

11. TESTING AND FAULT ISOLATION

WARNING: Insure all shunt devices or safety caps are installed before handling any cartridges.

WARNING: Testing of all cartridges should be accomplished while cartridge is install in the applicable safety fixture. See tool and fixture table for correct application.

Tools and Test Equipment

ITEM	PART NUMBER SPECIFICATION	SOURCE
Digital Multimeter	.10 ohm sensitivity, test current less than 0.04 amps in all switch positions	Commercially Available
Safety Chamber	83330118	Pacific Scientific
Safety Chamber	83330760	Pacific Scientific
Safety Chamber	83330759	Pacific Scientific
Safety Chamber	83330760	Pacific Scientific
Safety Chamber	83330764	Pacific Scientific
Safety Chamber	83330765	Pacific Scientific
Ground Strap and Circuit Tester	-	Commercially Available No Longer Available

A. Electrical Test

Extensive testing is conducted when each unit is manufactured. Pacific Scientific recommends that testing be limited to fault isolation only and only the areas to confirm faults. Connect test equipment to applicable pins and apply values per Electrical Schematic Diagram.

12. REPAIR

Repair is limited to the straightening of electrical pins. Electrical testing must be completed after the pins are corrected not prior to correction.

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13. STORAGE

Cartridges must be stored with shunt plugs or safety caps installed. They should be kept in a sealed anti static bag. New units are received from Pacific Scientific in the correct configuration. Units should be kept in a dry area below 100F and above 70F. see local regulations for Class S explosives.

14. TRANSPORTATION

The following agencies are the regulatory bodies governing the transportation of cartridges. International Air Transport Association (IATA) Dangerous Goods Regulations DOT 49 CFT 173, Subpart C International Maritime Organization (IMO) Also consult any state or local regulatory bodies. Pacific Scientific Cartridge Exemptions EX 0105187, 0105188, and 2002030115 allow 1.4C cartridges to be shipped as 1.4S if packed in the stated manner. Please see the Pacific Scientific web site: www.pacscimiami.com for information and packing supplies.

15. REMOVAL OF OLD OR DEFECTIVE CARTRIDGES

Cartridges are considered HAZMAT material and should be disposed of with that process. Consult certified HAZMAT waste removal companies to remove all cartridges.

16. ATTACHMENT

SB 26-1121 Dated, March 06, 1998

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ELECTRICAL SCHEMATIC DIAGRAMS

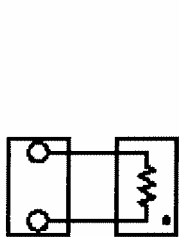


Figure 1

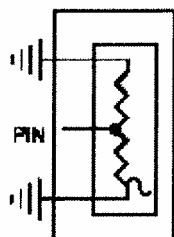


Figure 2

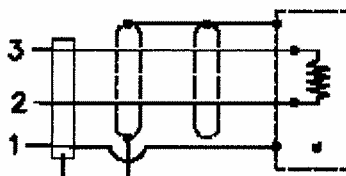


Figure 3

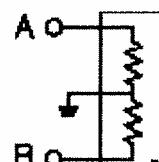


Figure 4

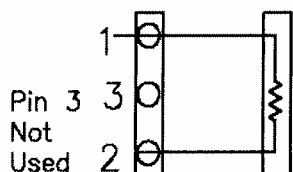


Figure 5

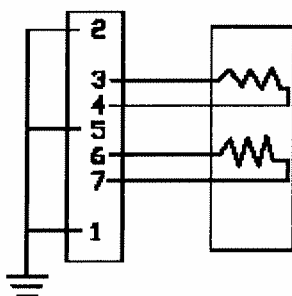


Figure 6

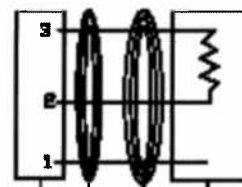


Figure 7

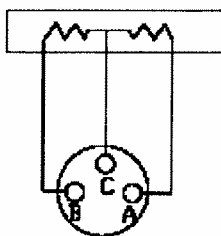


Figure 8

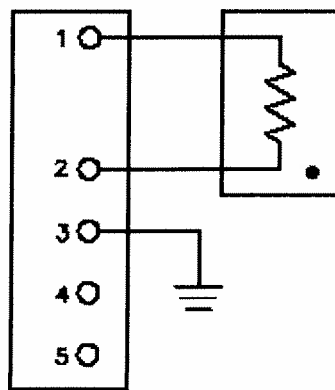


Figure 9

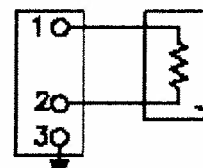


Figure 10

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ELECTRICAL SCHEMATIC DIAGRAMS

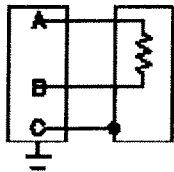


Figure 11

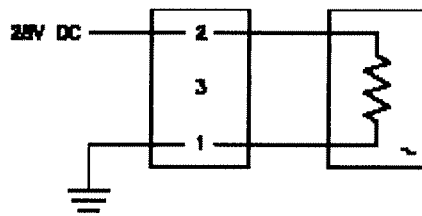


Figure 12

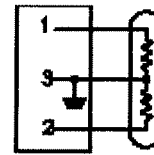


Figure 13

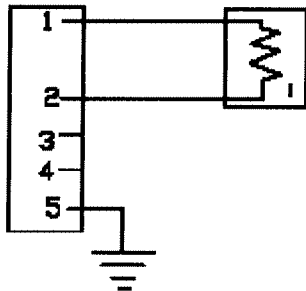


Figure 14

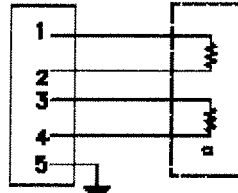


Figure 15

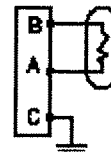


Figure 16

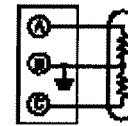


Figure 17

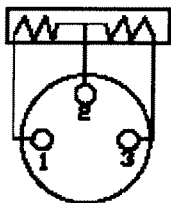


Figure 18

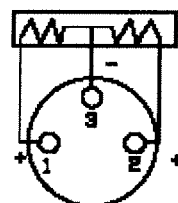


Figure 19

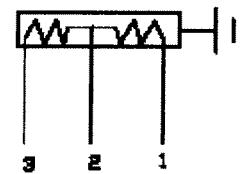


Figure 20

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ELECTRICAL SCHEMATIC DIAGRAMS

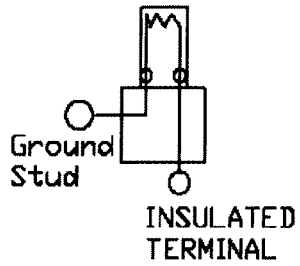


Figure 21

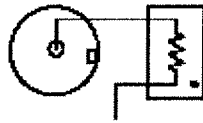


Figure 22

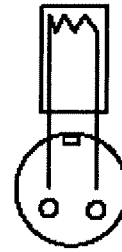


Figure 23

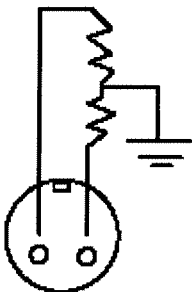


Figure 24

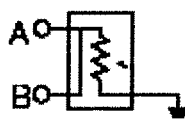


Figure 25

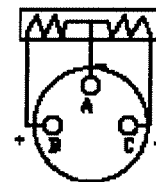


Figure 26

**PACIFIC SCIENTIFIC
CARTRIDGE POWER DEVICE**

TABLE 1

P/N / SUBSTITUTE	SUGGESTED YRS IN SVC	PROTECTIVE CAP or EQUIVALENT	SAFETY CHAMBER	OPERATING VOLTAGE	BRIDGEWIRE RESISTANCE	SEE FIG	COMPONENT AUTHORITY/ EXEMPTION	PROPER SHIPPING NAME	UN NO.	CLASS	
13083-5	-	Shunt Tag 31575600	83330118	18-30 VDC	1.15 +/- 0.25 OHMS	21	CA-861204	EX-8611120	Cartridge, Power Device	UN0323	1.4S
13083-10	-	Shunt Tag 31575600	83330118	18-30 VDC	0.9 - 1.4 OHMS	22	CA-900233	EX-8701156	Cartridge, Power Device	UN0323	1.4S
13083-25	-	90802020	83330118	18-30 VDC	1.5 +/- 0.25 OHMS	23	CA-870133	EX-8701111	Cartridge, Power Device	UN0323	1.4S
13083-45	-	90802020	83330118	18-30 VDC	0.9 - 1.4 OHMS	24	CA-900233	EX-8701157	Cartridge, Power Device	UN0323	1.4S
13083-50	-	31040015	83330118	18-30 VDC	0.9 - 1.4 OHMS	18	CA-910322	EX-9012166	Cartridge, Power Device	UN0323	1.4S
30900000M	30903930	10-101950-81	83330118	18-36 VDC	1.0 +/- 0.1 OHMS	1	NONE	EX-0106015	Cartridge, Power Device	UN0276	1.4C **
30900400	-	Shunt Tag 31575600	83330118	18-30 VDC	0.9 - 1.4 OHMS	21	CA-900233	EX-8701158	Cartridge, Power Device	UN0323	1.4S
30903801	30903951	MS25043-10DA	83330118	18-36 VDC	1.0 +/- 0.1 OHMS	2	NONE	EX-0106015	Cartridge, Power Device	UN0276	1.4C *
30903819	-	Shunt Tag 31575600	83330118	18-30 VDC	1.15 +/- 0.25 OHMS	21	CA-910322	EX-9012167	Cartridge, Power Device	UN0323	1.4S
30903822	30903927	M83723/59-112AN OR -112AC	83330118	18 - 36 VDC	1.0 +/- 0.1 OHMS	3	NONE	EX-0106015	Cartridge, Power Device	UN0276	1.4C *
30903823	-	Shunt Tag 31575600	83330118	18 - 30 VDC	1.15 +/- 0.25 OHMS	21	CA-900233	EX-8701159	Cartridge, Power Device	UN0323	1.4S
30903824	-	Shunt Tag 31575600	83330118	18 - 30 VDC	1.15 +/- 0.25 OHMS	21	CA-870428	EX-8704025	Cartridge, Power Device	UN0323	1.4S
30903824-1	-	Shunt Tag 31575600	83330118	18 - 30 VDC	1.15 +/- 0.25 OHMS	21	CA-910322	EX-9012168	Cartridge, Power Device	UN0323	1.4S
30903827	-	MS25043-10DA	83330118	17 - 36 VDC	1.00 +/- .10 OHM	4	NONE	EX-0106015	Cartridge, Power Device	UN0276	1.4C *
30903827-1	30903827-2	MS25043-10DA	83330118	17 - 36 VDC	1.00 +/- .10 OHM	25	NONE	EX-0106015	Cartridge, Power Device	UN0276	1.4C *
30903827-2	30903827-1	MS25043-10DA	83330118	17 - 36 VDC	1.00 +/- .10 OHM	25	NONE	EX-0106015	Cartridge, Power Device	UN0276	1.4C *
30903828	30903931	M83723/60-212AN OR-212 AN	83330760	18 - 36 VDC	1.0 +/- 0.1 OHMS	5	NONE	EX-0106015	Cartridge, Power Device	UN0276	1.4C *
30903836	30903932	M83723/60-114 AN OR -114 AC	83330759	18 - 36 VDC	1.0 +/- 0.1 OHMS	6	NONE	EX-0106015	Cartridge, Power Device	UN0276	1.4C *
30903845	-	M83723/59-112AN OR -112AC	83330118	18 - 36 VDC	1.0 +/- 0.1 OHMS	7	NONE	EX-0106015	Cartridge, Power Device	UN0276	1.4C *
30903849	-	MS3181-8C	83330118	18 - 30 VDC	1.15 +/- 0.25 OHMS	8	CA-871122	EX-8711182	Cartridge, Power Device	UN0323	1.4S

* Unit may be shipped as 1.4S, UN0323 with EX 2002030115. see paragraph 14

** Unit may be shipped as 1.4S, UN0323 with EX 0105187. see paragraph 14

*** Unit may be shipped as 1.4S, UN0323 with EX 0105188. see paragraph 14

**PACIFIC SCIENTIFIC
CARTRIDGE POWER DEVICE**

TABLE 1

P/N / SUBSTITUTE	SUGGESTED YRS IN SVC	PROTECTIVE CAP or EQUIVALENT	SAFETY CHAMBER	OPERATING VOLTAGE	BRIDGE RESISTANCE	SEE FIG	COMPONENT AUTHORITY/ EXEMPTION	PROPER SHIPPING NAME	UN NO.	CLASS	
30903850	-	M83723/60-1 8AN	83330118	18 - 30 VDC	1.15 +/- 0.25 OHMS	19	CA-871122	EX-8711183	Cartridge, Power Device	UN0323	1.4S
30903852	30903933	M83723/60-210AN OR-210 AN	83330118	18 - 36 VDC	1.0 +/-0.1 OHMS	9	NONE	EX-0106015	Cartridge, Power Device	UN0276	1.4C*
30903855	-	90802020	83330118	18 - 30 VDC	1.15 +/- 0.25 OHMS	21	CA-910322	EX-9012168	Cartridge, Power Device	UN0323	1.4S
30903856	30903934	M83723/60-110AN OR -110AC	83330118	18 - 36 VDC	1.0 +/-0.1 OHMS	9	NONE	EX-0106015	Cartridge, Power Device	UN0276	1.4C*
30903857	30903935	M83723/60-110AN OR -110AC	83330118	18 - 36 VDC	1.0 +/-0.1 OHMS	9	NONE	EX-0106015	Cartridge, Power Device	UN0276	1.4C*
30903859	30903936	M83723/60-18AN OR -18AC	83330118	18 - 36 VDC	1.0 +/-0.1 OHMS	10	NONE	EX-0106015	Cartridge, Power Device	UN0276	1.4C*
30903860	-	M83723/60-18AN OR -18AC	83330118	25 - 29 VDC	1.0 +/-0.1 OHMS	5	NONE	EX-9905040	Cartridge, Power Device	UN0323	1.4S
30903870	30903964	MS3181-8RA	83330118	18 - 36 VDC	1.0 +/-0.1 OHMS	11	NONE	EX-0106015	Cartridge, Power Device	UN0276	1.4C**
30903871	30903937	M83723/60-114AN OR -114AC	83330764	18 - 36 VDC	1.0 +/-0.1 OHMS	6	NONE	EX-0106015	Cartridge, Power Device	UN0276	1.4C*
30903872	30903938	M83723/60-114 AN	83330765	18 - 36 VDC	1.0 +/-0.1 OHMS	6	NONE	EX-0106015	Cartridge, Power Device	UN0276	1.4C***
30903872-1	30903938-1	M83723/60-114 AC	83330765	18 - 36 VDC	1.0 +/-0.1 OHMS	6	NONE	EX-0106015	Cartridge, Power Device	UN0276	1.4C*
30903874	30903939	M83723/60-110AN OR -110AC	83330118	18 - 36 VDC	1.0 +/-0.1 OHMS	9	NONE	EX-0106015	Cartridge, Power Device	UN0276	1.4C*
30903875	30903940	M83723/60-212AN OR-212 AC	83330764	18 - 36 VDC	1.0 +/-0.1 OHMS	12	NONE	EX-0106015	Cartridge, Power Device	UN0276	1.4C*
30903876	30903959	M83723/60-212AN OR-212 AC	83330765	18 - 36 VDC	1.0 +/-0.1 OHMS	12	NONE	EX-0106015	Cartridge, Power Device	UN0276	1.4C*
30903886	-	M83723/60-18AN	83330118	17 - 31 VDC	1.0 +/-0.1 OHMS	13	NONE	EX-0106015	Cartridge, Power Device	UN0276	1.4C**
30903889	30903941	M83723/60-28AN OR -28AC	83330760	18 - 36 VDC	1.0 +/-0.1 OHMS	10	NONE	EX-0106015	Cartridge, Power Device	UN0276	1.4C*
30903890	30903942	M83723/60-18AN OR -18AC	83330759	18 - 36 VDC	1.0 +/-0.1 OHMS	10	NONE	EX-0106015	Cartridge, Power Device	UN0276	1.4C*
30903891	30903943	M83723/60-210AN OR-210 AN	83330760	18 - 36 VDC	1.0 +/-0.1 OHMS	14	NONE	EX-0106015	Cartridge, Power Device	UN0276	1.4C*
30903894	30903944	M83723/60-112AN OR -112AC	83330760	18 - 36 VDC	1.0 +/-0.1 OHMS	10	NONE	EX-0106015	Cartridge, Power Device	UN0276	1.4C*
30903895	30903945	M83723/60-112AN OR -112AC	83330760	18 - 36 VDC	1.0 +/-0.1 OHMS	10	NONE	EX-0106015	Cartridge, Power Device	UN0276	1.4C*

* Unit may be shipped as 1.4S, UN0323 with EX 2002030115. see paragraph 14

** Unit may be shipped as 1.4S, UN0323 with EX 0105187. see paragraph 14

*** Unit may be shipped as 1.4S, UN0323 with EX 0105188. see paragraph 14

**PACIFIC SCIENTIFIC
CARTRIDGE POWER DEVICE**

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30903896	30903949	15/10 M83723/60-112AN OR -112AC	83330760	18 - 36 VDC	1.0 +/-0.1 OHMS	10	NONE	EX-0106015 Cartridge, Power Device	UN0276	1.4C*
30303898	-	15/10 M83723/60-110AN OR -110AC	83330118	4 - 36 VDC	1.0 +/-0.1 OHMS	15	NONE	EX-0106015 Cartridge, Power Device	UN0276	1.4C**
30903899	-	15/10 M83723/60-110AN OR -110AC	83330118	4 - 36 VDC	1.0 +/-0.1 OHMS	15	NONE	EX-0106015 Cartridge, Power Device	UN0276	1.4C*
30903912	30903928	15/10 M83723/60-112AC	83330765	4 - 36 VDC	1.0 +/-0.1 OHMS	10	NONE	EX-0106015 Cartridge, Power Device	UN0276	1.4C*
30903913	30903929	15/10 M83723/60-114 AC	83330764	18 - 36 VDC	1.0 +/-0.1 OHMS	10	NONE	EX-0106015 Cartridge, Power Device	UN0276	1.4C*
30903914-1	-	15/10 S2453-9A-8	83331601	1.0-3.5 AMP	1.0 +/-0.1 OHMS	1	NONE	TBA		
30903915-1	-	15/10 S2453-9A-8	83331601		1.0 +/-0.1 OHMS	1	NONE	TBA		
30903920	-	9/6 MS3181-8C	83330118	18 - 30 VDC	1.15 +/- 0.25 OHMS	26	NONE	EX-9507054 Cartridge, Power Device	UN0276	1.4C
30903924-1	30903965	9/6 MS21044C06	83330118	18 - 30 VDC	1.15 +/- 0.25 OHMS	21	NONE	EX-9703145 Cartridge, Power Device	UN0276	1.4C
30903925-1	52000735-1	15/10 AE83723/60-28RN	83330118	4 - 36 VDC	1.0 +/-0.1 OHMS	20	CA-850402	EX-8502243 Igniters	UN0454	1.4S
30903927	30903822	15/10 M83723/59-112AN OR -112AC	83330118	18 - 36 VDC	1.0 +/-0.1 OHMS	3	NONE	EX-0106015 Cartridge, Power Device	UN0276	1.4C*
30903928	30903912	15/10 M83723/60-112AC	83330765	4 - 36 VDC	1.0 +/-0.1 OHMS	10	NONE	EX-0106015 Cartridge, Power Device	UN0276	1.4C*
30903929	30903913	15/10 M83723/60-114 AC	83330764	18 - 36 VDC	1.0 +/-0.1 OHMS	10	NONE	EX-0106015 Cartridge, Power Device	UN0276	1.4C*
30903930	30900000M	15/10 10-101950-81	83330118	18 - 36 VDC	1.0 +/-0.1 OHMS	1	NONE	EX-0106015 Cartridge, Power Device	UN0276	1.4C*
30903931	30903828	15/10 M83723/60-212AN OR-212 AN	83330760	18 - 36 VDC	1.0 +/-0.1 OHMS	5	NONE	EX-0106015 Cartridge, Power Device	UN0276	1.4C*
30903932	30903836	15/10 AC M83723/60-114 AN OR -114	83330759	18 - 36 VDC	1.0 +/-0.1 OHMS	6	NONE	EX-0106015 Cartridge, Power Device	UN0276	1.4C*
30903933	30903852	15/10 MIL-C-83723/60-210AN OR-210 AN	83330118	18 - 36 VDC	1.0 +/-0.1 OHMS	9	NONE	EX-0106015 Cartridge, Power Device	UN0276	1.4C*
30903934	30903856	15/10 M83723/60-110AN OR -110AC	83330118	18 - 36 VDC	1.0 +/-0.1 OHMS	9	NONE	EX-0106015 Cartridge, Power Device	UN0276	1.4C*
30903935	30903857	15/10 M83723/60-110AN OR -110AC	83330118	18 - 36 VDC	1.0 +/-0.1 OHMS	9	NONE	EX-0106015 Cartridge, Power Device	UN0276	1.4C*
30903936	30903859	15/10 M83723/60-18AN OR -18AC	83330118	18 - 36 VDC	1.0 +/-0.1 OHMS	10	NONE	EX-0106015 Cartridge, Power Device	UN0276	1.4C*

* Unit may be shipped as 1.4S, UN0323 with EX 2002030115. see paragraph 14

** Unit may be shipped as 1.4S, UN0323 with EX 0105187. see paragraph 14

*** Unit may be shipped as 1.4S, UN0323 with EX 0105188. see paragraph 14

**PACIFIC SCIENTIFIC
CARTRIDGE POWER DEVICE**

TABLE 1

PIN / SUBSTITUTE	SUGGESTED YRS IN SVC	PROTECTIVE CAP or EQUIVALENT	SAFETY CHAMBER	OPERATING VOLTAGE	BRIDGEWIRE RESISTANCE	SEE FIG	COMPONENT AUTHORITY/ EXEMPTION	PROPER SHIPPING NAME	UN NO.	CLASS
30903937	30903871	15/10 M83723/60-114AN OR -114AC	83330764	18 - 36 VDC	1.0 +/-0.1 OHMS	6	NONE	EX-0106015 Cartridge, Power Device	UN0276	1.4C *
30903938	30903872	15/10 M83723/60-114 AN	83330765	18 - 36 VDC	1.0 +/-0.1 OHMS	6	NONE	EX-0106015 Cartridge, Power Device	UN0276	1.4C *
30903938-1	30903872-1	15/10 M83723/60-114 AC	83330765	18 - 36 VDC	1.0 +/-0.1 OHMS	6	NONE	EX-0106015 Cartridge, Power Device	UN0276	1.4C *
30903939	30903874	15/10 M83723/60-110AN OR -110AC	83330118	18 - 36 VDC	1.0 +/-0.1 OHMS	9	NONE	EX-0106015 Cartridge, Power Device	UN0276	1.4C *
30903940	30903875	15/10 M83723/60-212AN OR-212 AC	83330764	18 - 36 VDC	1.0 +/-0.1 OHMS	12	NONE	EX-0106015 Cartridge, Power Device	UN0276	1.4C *
30903941	30903889	15/10 M83723/60-28AN OR -28AC	83330760	18 - 36 VDC	1.0 +/-0.1 OHMS	10	NONE	EX-0106015 Cartridge, Power Device	UN0276	1.4C *
30903942	30903890	15/10 M83723/60-18AN OR -18AC	83330759	18 - 36 VDC	1.0 +/-0.1 OHMS	10	NONE	EX-0106015 Cartridge, Power Device	UN0276	1.4C *
30903943	30903891	15/10 M83723/60-210AN OR-210 AC	83330760	18 - 36 VDC	1.0 +/-0.1 OHMS	14	NONE	EX-0106015 Cartridge, Power Device	UN0276	1.4C *
30903944	30903894	15/10 M83723/60-112AN OR -112AC	83330760	18 - 36 VDC	1.0 +/-0.1 OHMS	10	NONE	EX-0106015 Cartridge, Power Device	UN0276	1.4C *
30903945	30903895	15/10 M83723/60-112AN OR -112AC	83330760	18 - 36 VDC	1.0 +/-0.1 OHMS	10	NONE	EX-0106015 Cartridge, Power Device	UN0276	1.4C *
30903949	30903896	15/10 M83723/60-112AN OR -112AC	83330760	18 - 36 VDC	1.0 +/-0.1 OHMS	10	NONE	EX-0106015 Cartridge, Power Device	UN0276	1.4C *
30903951	30903801	15/10 MS25043-10DA	83330118	18 - 36 VDC	1.0 +/-0.1 OHMS	2	NONE	EX-0106015 Cartridge, Power Device	UN0276	1.4C *
30903955	-	15/10 M38999/33	83330118	18 - 36 VDC	1.0 +/-0.1 OHMS	16	NONE	EX-0106015 Cartridge, Power Device	UN0276	1.4C *
30903956	-	15/10 MS25043-10A	83330118	18 - 36 VDC	1.0 +/-0.1 OHMS	1	NONE	EX-0106015 Cartridge, Power Device	UN0276	1.4C *
30903959	30903876	15/10 M83723/60-212AN OR-212 AC	83330765	18 - 36 VDC	1.0 +/-0.1 OHMS	12	NONE	EX-0106015 Cartridge, Power Device	UN0276	1.4C *
30903962	-	15/10 M38999/33	83330118	18 - 36 VDC	1.0 +/-0.1 OHMS	17	NONE	EX-0106015 Cartridge, Power Device	UN0276	1.4C *
30903963	-	15/10 M38999/33	83330118	18 - 36 VDC	1.0 +/-0.1 OHMS	17	NONE	EX-0106015 Cartridge, Power Device	UN0276	1.4C *
30903963-1	-	15/10 M38999/33	83330118	18 - 36 VDC	1.0 +/-0.1 OHMS	17	NONE	EX-0106015 Cartridge, Power Device	UN0276	1.4C *
30903963-2	-	15/10 M38999/33	83330118	18 - 36 VDC	1.0 +/-0.1 OHMS	17	NONE	EX-0106015 Cartridge, Power Device	UN0276	1.4C *
30903964	30903870	15/10 MS3181-8FA	83330118	18 - 36 VDC	1.0 +/-0.1 OHMS	11	NONE	EX-0106015 Cartridge, Power Device	UN0276	1.4C *

* Unit may be shipped as 1.4S, UN0323 with EX 2002030115. see paragraph 14

** Unit may be shipped as 1.4S, UN0323 with EX 0105187. see paragraph 14

*** Unit may be shipped as 1.4S, UN0323 with EX 0105188. see paragraph 14

**PACIFIC SCIENTIFIC
CARTRIDGE POWER DEVICE**

TABLE 1

P/N / SUBSTITUTE	SUGGESTED YRS IN SVC	PROTECTIVE CAP or EQUIVALENT	SAFETY CHAMBER	OPERATING VOLTAGE	BRIDGEWIRE RESISTANCE	SEE FIG	COMPONENT AUTHORITY/ EXEMPTION	PROPER SHIPPING NAME	UN NO.	CLASS	
30903965	30903965	9/6 MS21044C06 NUTS	83330118	18-30 VDC	1.5 +/- 0.25 OHMS	21	CA-861204	EX-8611120	Cartridge, Power Device	UN0323	1.4S
30903966	INERT	10 MS25043-10DA	N/A	UNIT USED FOR HERO TESTING		N/A	N/A	N/A	N/A	N/A	N/A
30903975	-	15/10 MIL-C-83723/60-110 AN or AC	83331602	18 - 36 VDC	1.0 +/- 0.1 OHMS	15	TBA	TBA	Cartridge, Power Device	UN0276	1.4C *
30903976	-	15/10 MIL-C-83723/60-110 AN or AC	83331603	18 - 36 VDC	1.0 +/- 0.1 OHMS	15	TBA	TBA	Cartridge, Power Device	UN0276	1.4C *
52000735-1	30903925-1	10 AE83723/60-28RN	83330118	4 - 36 VDC	1.0 +/- 0.1 OHMS	20	CA-850402	EX-8502243	Igniters	UN0454	1.4S
52000735-2	30903973	10 AE83723/60-28RN	83330118	4 - 36 VDC	1.0 +/- 0.1 OHMS	20	CA-850402	EX-8502243	Igniters	UN0454	1.4S
53000399-1	-	10 M83723/60-28AN	59000067	4 - 36 VDC	1.0 +/- 0.1 OHMS	1	NONE	EX-9303236	Cutters, Cable, Explosive	UN0070	1.4S
END											

* Unit may be shipped as 1.4S, UN0323 with EX 2002030115. see paragraph 14

** Unit may be shipped as 1.4S, UN0323 with EX 0105187. see paragraph 14

*** Unit may be shipped as 1.4S, UN0323 with EX 0105188. see paragraph 14