

S6290-AQ-MMC-A10/09687

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**OPERATING INSTRUCTIONS
MAINTENANCE INSTRUCTIONS
and
PARTS NOMENCLATURE
for**

THE ARCAIR® SLICE® PECU

PORTABLE EXOTHERMIC CUTTING UNIT

**ARCAIR COMPANY
N00104-92-C-C005**



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I INTRODUCTION

1.1 PURPOSE AND FUNCTION

The Arcair SLICE Fleet Pack is a portable exothermic cutting unit, PECU. Designed to be used by damage control personnel for rescue and providing access to damaged or burning compartments. With the abilities to penetrate steel, aluminum, stainless steel, cast iron, insulated wiring and piping without the aid of a welding power supply or explosive fuel gases.

1.2 THEORY

The SLICE Fleet Pack PECU is a portable, easy to use variation of the oxygen lance used by the steel mills and foundries for many years. It is based on an exothermic, or chemical reaction, between a carbon steel fuel, the rod, heat and oxygen. It is designed to be used by damage control personnel for rescue and for providing access to damaged or burning compartments. It can cut access holes for fire fighting nozzles through bulkheads, deck plates and water tight doors in a minimum amount of time.

When a good balance is achieved between the surface area and weight of the rod, and the flow of oxygen through the rod, the rod will keep burning after the initial heat is introduced. With the oxygen flowing, all that is needed to ignite the rod is a spark from a 12-volt battery. Once the reaction begins the rod will consume itself, creating enough heat to cut or melt most materials. It can cut through steel, aluminum, stainless steel, cast iron, insulated wiring and piping. It does this without the aid of a welding power supply or explosive fuel gases.

1.3 PERFORMANCE/OPERATIONAL CHARACTERISTICS

The Arcair SLICE PECU operates by using a 12-volt battery to ignite a patented SLICE cutting rod. The rod is placed into a torch attached to one side of a battery. The rod is then lightly touched to a copper striker plate attached to the other side of the battery. With the oxygen flowing, this spark is enough to ignite the rod, and once ignited the rod will continue to burn unless the oxygen trigger on the torch is released. Placing the rod on the material to be cut and dragging it along the surface at the right speed cuts the material. Enough heat is produced by the reaction of the oxygen and the steel rod to cut most any material.

1.4 DIMENSIONS

The Arcair SLICE PECU is comprised of three components: the Fleet Pack, the auxiliary oxygen cylinder case, and the spare parts kit. The major unit is the Fleet Pack that contains the torch assembly, striker assembly, one oxygen cylinder, gloves, goggles, the battery assembly with charger, and other miscellaneous parts. These are all contained in a carrying case that is 8 inches deep, 16 inches wide and 25 inches high and weighs approximately 70 pounds.

The auxiliary case contains two extra oxygen cylinders. Dimensions are 8-3/4 inches deep, 16-7/16 inches wide, and 23-3/4 inches high and with the cylinders weighs approximately 64 pounds.

The Spare Parts kit contains a complete set of extra parts and the back pack harness. The container is 7-1/2 inches deep, 15-7/8 inches wide, and 7-3/8 inches high and weighs approximately 14 pounds.

A fourth component contains the twenty five 3/8" diameter rods and is 2-1/4" in diameter and 38" long and weighs approximately 20 pounds.

1.5 POWER AND UTILITY REQUIREMENTS

A 120 volt AC outlet is required to recharge the battery contained with the Arcair SLICE PECU.

1.6 ITEMS FURNISHED

CAUTION



Do not use the SLICE Torch or the SLICE Striker supplied in the SLICE Fleet Pack PECU with a welding power supply. The power cable on the torch and striker cannot carry the current from a welding power supply. It will melt or catch fire.

1.6.1 Torch and Striker

SLICE Torch

This torch provided with the SLICE Fleet Pack PECU must be used with the SLICE battery assembly or other 12-volt battery only.

SLICE Striker

This striker provided with the SLICE Fleet Pack PECU must be used with the SLICE battery assembly or other 12-volt battery only.

1.6.2 Battery and Charger Assembly

NOTICE



Proper care of the Arcair Battery Assembly is outlined in Section 4.1.

This battery assembly is designed to be used with the Arcair SLICE Fleet Pack PECU. It contains a charging unit and quick disconnect for the SLICE Torch and Striker. Do not use any torch that does not have a connection that mates with this battery assembly.

1.6.3 Cutting Rods

Use only Arcair SLICE cutting rods. These rods provide the most efficient cut. They are safe and they ensure the proper oxygen balance.

1.6.4 Oxygen Cylinders

Three 48-cubic-foot oxygen cylinders are supplied with the PECU. These bottles are shipped empty and must be charged with oxygen before placing the PECU in service.

1.6.5 Accessories

Collet Nut Extension and Shield

This extension and shield should be used for all piercing operations. It will enhance torch life and provides greater operator comfort and safety.

Gloves

You should always wear welding gloves. Gloves made for SLICE use are contained in the PECU. These gloves are especially helpful when operators are piercing since they protect the operators from blowback.

Face And Eye Gear

Eye and face protection must be used when cutting with SLICE equipment. When cutting with the PECU as supplied, use a number 5 or higher welding lens. When piercing use a shaded face shield or welding helmet.

1.6.6 Carrying Case

A light weight aluminum carrying case contains all the items listed above to quickly get the unit to the damaged area.

1.6.7 Auxiliary Carrying Case

An aluminum framed carrying case contains two spare oxygen cylinders and also allows them to be safely and easily transported to the damaged area.

1.6.8 Spare Parts Kit

A spare parts kit contains all the critical parts that could be damaged in an emergency situation and the back pack harness.

1.6.9 Tools and Test Equipment

Two special wrenches are with the PECU. These are designed for use on all fittings on the PECU. They are attached to the Fleet Pack carrying case and should not be removed.

The battery assembly is equipped with a battery test circuit. Place the three position switch to the test mode to determine the battery condition.

1.7 WARRANTY INFORMATION

The Arcair Company warrants that all equipment manufactured by it shall be free from defects in material and workmanship for a period of 90 days, provided that such equipment is operated in a proper and normal manner and is maintained and serviced with generally accepted maintenance procedures and in accordance with Arcair's operating instructions. The user is strongly urged to read and understand all safety precautions before operation or use of any product.

For apparatus or accessories not manufactured by Arcair, which are part of the equipment furnished by Arcair, Arcair's only obligation shall be to obtain such warranties or guarantees as are available from the vendors thereof.

Arcair's liability is limited to the repair or replacement of any defective part or to the correction of any manufacturing defect without charge provided notice of such defect is given to Arcair within the applicable warranty period and Arcair's inspection confirms the existence of such defect. Normal replacement will be F.O.B. Arcair's factory or authorized service facility.

The replacement of repair or defective parts, as aforesaid shall be the customer's only remedy for breach of warranty of Arcair. No allowance will be made for repairs or alterations made without the written consent of Arcair, in which event all Arcair's warranties may be void and of no effect.

ARCAIR COMPANY SHALL NOT BE OTHERWISE LIABLE IN CONTRACT OR IN TORT (INCLUDING BUT NOT LIMITED TO NEGLIGENCE OR STRICT LIABILITY) FOR ANY DAMAGES INCLUDING BUT NOT LIMITED TO INCIDENTAL DAMAGES, CONSEQUENTIAL DAMAGES, OR SPECIAL DAMAGES IN ANY WAY RELATED TO THIS EQUIPMENT.

THERE ARE NO EXPRESS OR IMPLIED WARRANTIES WHICH EXTEND BEYOND THE WARRANTIES HERE AND SET FORTH. THE MANUFACTURER MAKES NO WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE WITH RESPECT TO THE EQUIPMENT OR PARTS THEREOF.

II SAFETY PRECAUTIONS

2.1 SPECIAL SAFETY PROCEDURES

The SLICE Torch uses industrial-grade oxygen to produce its extremely effective cut. In using this torch, you should apply military/industrial safety procedures.

The following sections detail these procedures. Be sure to also use ANSI/ASC "Safety in Welding and Cutting" (Z49.1-1983) or other such standards. More cautions are noted in this manual.

2.2 OXYGEN SAFETY

(See ANSI Z 49.1-1983 and other industry/military standards for further details)

2.2.1 Contact With Oil/Grease

Never let oil or grease near oxygen cylinders, valves, regulators, hoses, or fittings. Do not handle oxygen cylinders, valves or regulators with oily hands or oily gloves since oxygen, under pressure, explodes when combined with oil and grease.

2.2.2 Proper Name

Always refer to oxygen by its full name, "OXYGEN," not by the word "air." Improper use of the word could lead to use of compressed air.

2.2.3 Cylinder Storage

Never use oxygen near flammable materials. Oxygen itself is not flammable, but does help other things burn.

Store oxygen and flammable gas cylinders separately. Both should be stored in a dry, cool, well-ventilated, and preferably fire resistant-places. Protect cylinders from high temperatures by storing them away from radiators or other sources of heat, including direct sunlight. Cylinders should always be stored in an upright position.

Oxygen cylinders should be chained to a wall, post, or should be put in a cylinder cart in an upright position.

When opening cylinders, stand to the side and open the oxygen cylinder valve slowly until the regulator is pressurized. Then open the valve fully.

2.2.4 Oxygen Cylinders

Be sure that the cylinder valve is tightly closed before handling the cylinder.

If a leak occurs in a compressed gas cylinder, move the cylinder outdoors away from other cylinders, flammable material, or equipment. A leaking oxygen cylinder will increase oxygen concentration (which can't be seen or smelled), creating a fire hazard in the air.

Never try to transfer oxygen from one cylinder to another or to refill an oxygen cylinder. Never try to mix gases in an oxygen cylinder. Potentially explosive mixtures can result.

2.2.5 Oxygen Enrichment

Never spray oxygen in closed areas or on your clothing. Oxygen should never be used to cool the work or operator.

2.2.6 Electric Arcs And Flames

Keep oxygen cylinders away from electrical connections. Do not let the arc or cutting flame touch cylinders, cylinder safety devices, valves, regulators, or hoses. Fires or explosions could result from such contact.

2.2.7 Oxygen Regulator

Never use oxygen from cylinders or a piping system without a regulator attached to the cylinder valve.

Inspect the oxygen regulator for damage, dirt, dust, or oil. If you see any, return the regulator to the manufacturer for repair.

Never use oxygen regulators, hoses or other pieces of apparatus with any gas other than oxygen.

Never tamper with or attempt to repair oxygen cylinder valves or regulators.

DO NOT TRY TO REPAIR OR MODIFY OXYGEN REGULATORS.

2.3 EQUIPMENT SAFETY

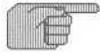
(See ANSI Z49.1-1983 and other military/industry standards for further details)

2.3.1 Installation

Equipment must be installed in a way that meets the requirements of the current ANSI/NFPA 70, NATIONAL ELECTRICAL CODE and all local codes.

After attaching a connection, you should check to be sure it is tight before operating the PECU.

CAUTION



While cutting, operators can prevent electrical shock by using dry gloves, clothing in good condition, and electrical-hazard footwear. Avoid touching all live electrical parts. The operator should **NEVER** connect the positive and negative leads of the system at the same time.

2.3.2 Equipment Maintenance

Cables should be inspected often for damage and wear. They should be wiped clean. Wet, oily, grimy, cracked, abraded, burned or otherwise damaged cables are unsafe to use and must be replaced.

NOTICE



When starting from a battery, be sure to follow the battery manufacturer's care and maintenance procedures. For the proper care of the Arcair battery assembly, see section 4.1 of this manual.

2.4 OTHER SAFETY PRECAUTIONS

(See ANSI Z49.1-1983 and other military/industry standards for further details)

2.4.1 Combustible Materials

Do all work away from combustible materials. Fire extinguishing equipment should be on standby. Containers that have held flammable materials may explode, catch fire, or release toxic vapor. (See American Welding Society publication F4.1-80)

2.4.2 Fumes

Cutting fumes can be toxic. Adequate ventilation is mandatory when cutting. Do not breathe the gases and fumes caused by cutting. Keep your head out of the fume plume (smoke). Know what you are cutting and what the fumes are. Do not work on a container containing unknown contaminants. Remove all galvanized coatings, paints and contaminants **BEFORE** cutting. The air in the cutting area and the ventilation system must be checked if operators feel discomfort. If a problem occurs, an industrial hygienist should inspect the cutting area and the ventilation system.

2.4.3 Protective Clothing

Sparks can cause fires. Wear clothing approved for arc welding/cutting. The operator, helpers and observers must be protected. The following protective clothing should be worn.

Eye Protection

Wear glasses or goggles with side shields and tinted to a number 5 shade filter. Helmets or hand shields add protection. Helpers and others must also wear suitable eye protection.

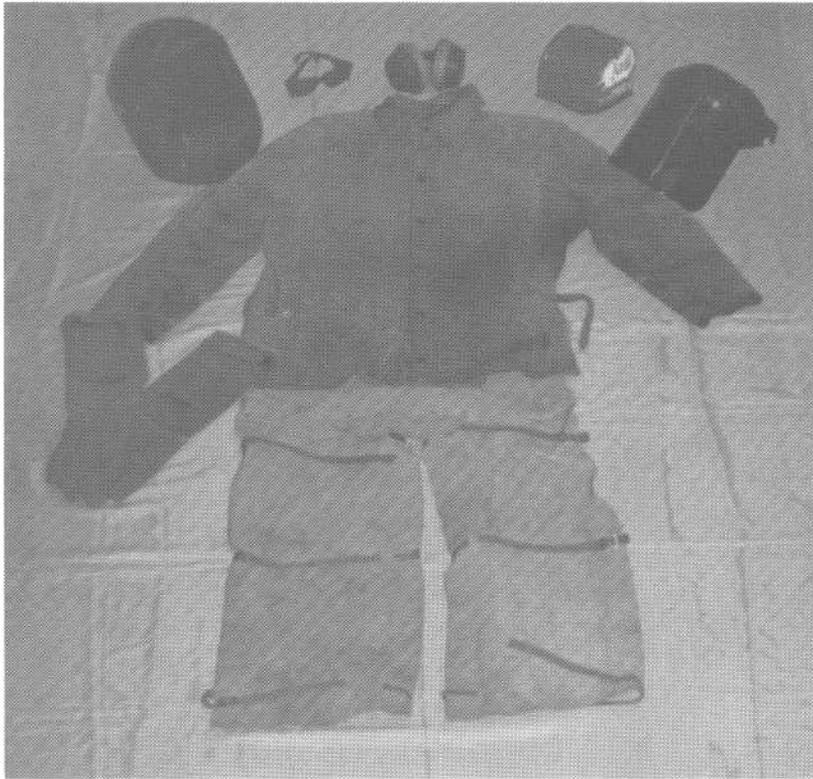
Ear Protection

Wear ear plugs or muffs. Both spatter and noise can cause hearing loss. (See OSHA 29CFR 1919.95)

Body And Head Protection

Leather jackets, gloves, spats and clothing must be worn for body and head protection. Cuffless pants should cover work boots.

FIGURE 1: PROTECTIVE CLOTHING



2.4.4 Material Preparation

Know what you're cutting! Low-melting-point material (such as aluminum) will spatter excessively and the potential for "blow back" is high. Protect yourself and others. Knock or brush free all loose particles, dust, or residue from the material before cutting. Be careful when cutting materials that may deflect the flame or spatter back at you or onto other "unsafe" areas.

Work done in tight spaces requires special care. Proper ventilation is essential. Be very careful.

2.5 PRECAUTIONARY LABELS

Warning labels are on key equipment parts. Do not remove, change, or cover these labels. Should these labels not be visible, contact your Arcair distributor for new ones.

2.6 SAFETY INFORMATION

This manual contains an overview of safety standards. Operators and supervisors must know the standards before using this equipment.

2.7 SPECIAL U.S. NAVY REQUIREMENT

Aboard ship the PECU shall be used in accordance with the requirements of the Naval Ships Technical Manual (NSTM) 079 Volume 2 (NAVSEA S9086-CN-STM-020), Federal Stock Number 0901-LP-079-0020.

III PREPARATION FOR USE AND INSTALLATION

Before using the SLICE Torch, carefully follow the procedures noted in this section.

3.1 READ THIS MANUAL COMPLETELY

NOTICE



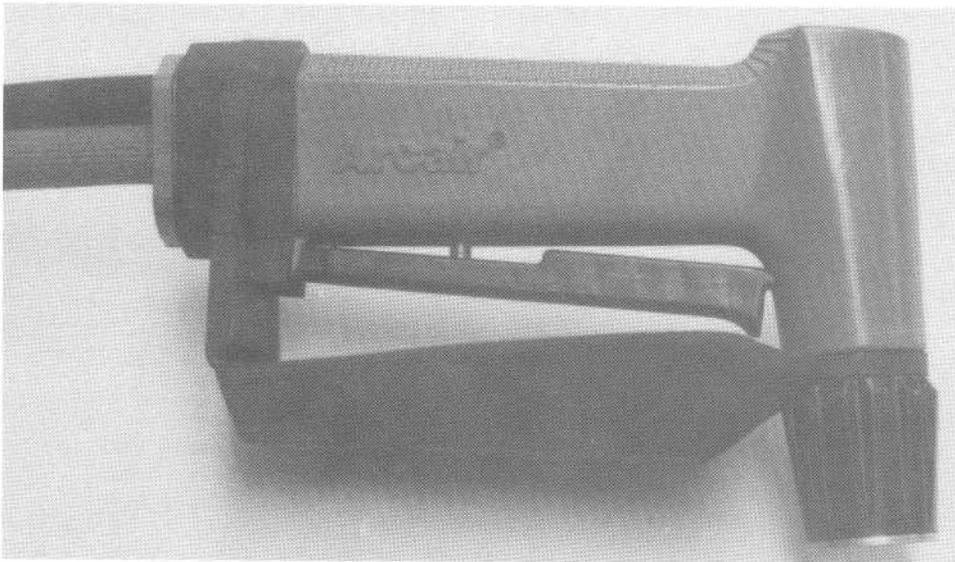
This manual describes for the operators of SLICE equipment and their supervisors the proper and safe operation of SLICE equipment. Before operating this equipment, be sure you are familiar with this manual's contents.

3.2 UNPACKING THE SLICE TORCH

3.2.1 Unpacking Your SLICE Fleet Pack PECU

Save the boxes so you can store or ship the PECU. It has been shipped fully assembled (oxygen cylinders are not charged). Check the cartons for parts that may have come loose in packing or shipping. See the parts lists in the rear of this manual to identify parts. Any loose parts should be re-assembled by an Arcair distributor unless the user is fully familiar with parts placement. Your assembled torch should look like this:

FIGURE 2: SLICE TORCH



3.3 OUT-OF-CARTON INSPECTION

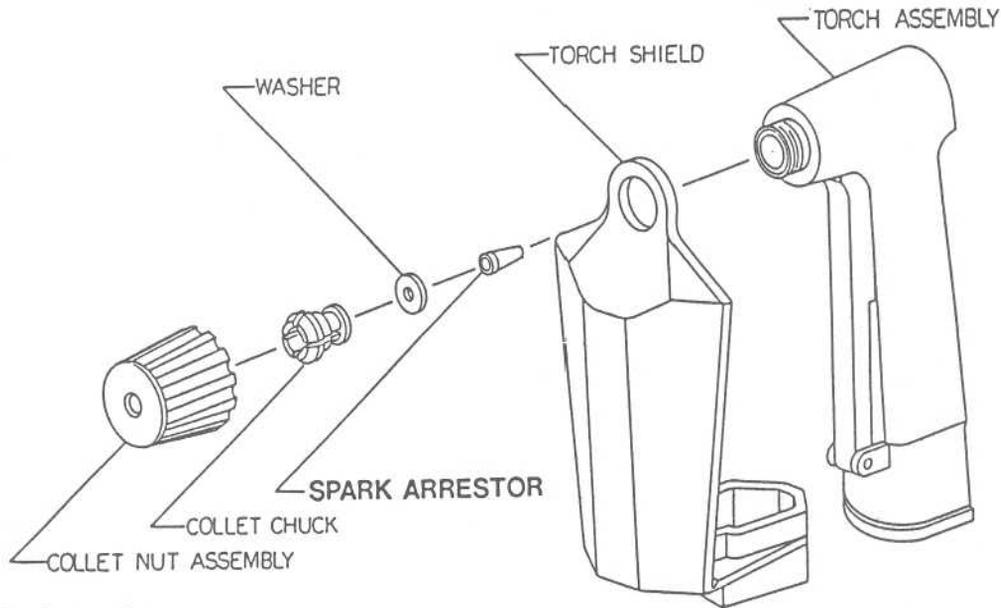
3.3.1 Inspections

Inspect torch, striker, electric cables, and oxygen supply hose. Check to see that electric cables to the torch and striker are tightly attached. Check to see that the oxygen line is tight in the torch. Also be sure the protective hose end cap is intact. **DO NOT REMOVE CAP NOW!**

Inspect to ensure that the spark arrestor is properly positioned as follows: (SEE FIGURE 3)

- 1) Remove collet nut assembly (over bench or work surface).
- 2) Remove collet chuck and washer
- 3) Inspect for presence of spark arrestor (need not remove)

FIGURE 3: SPARK ARRESTOR INSPECTION



3.3.2 Post Inspection

Once the spark arrester's presence is verified, reassemble the torch as follows:

- 1) If removed, replace arrester, pointed end in first.
- 2) Seat washer in torch body.
- 3) Replace collet chuck.
- 4) **HAND TIGHTEN** Collet Nut Assembly.

CAUTION



Never use this torch without the spark arrester in place. The torch body, hose, and oxygen regulator may be damaged if the spark arrester isn't in place.

3.4 MATERIAL REQUIREMENTS

The following is a description of the equipment used with the SLICE Torch.

3.4.1 Cutting Rods

Use only Arcair SLICE cutting rods. Always store unused SLICE cutting rods separate from other cutting rods.

Inspect all cutting rods for damage. Do not use a cutting rod that is cut or has holes in the sides of the outer steel wall.

3.4.2 Oxygen Supply

WARNING



As with any oxygen cutting system, **NEVER** connect the SLICE torch to anything other than oxygen. **Never use air to blow out the oxygen supply lines.**

Never connect the SLICE Torch to air or other gas lines. An oxygen regulator must be used. It must supply at least 60 psi. Do not change hose fittings. Always keep the tank end of the oxygen hose capped when the SLICE torch isn't in use.

3.4.3 Electricity

Use an Arcair Battery Assembly or other 12-volt battery capable of a 100A surge (e. g., auto, motorcycle or similar lead-acid battery).

3.5 COMPONENTS

3.5.1 Battery

When using the SLICE Torch, use the SLICE Battery Assembly. This battery assembly is designed to be used with the SLICE Fleet Pack PECU. It contains a charging unit and quick disconnect for the SLICE Torch and Striker. Do not use any torch that does not have a connection that mates with this battery assembly.

IV OPERATING INSTRUCTIONS

4.1 CARE AND USE OF THE SLICE BATTERY ASSEMBLY

Use the charger/battery assembly for brief emergency repairs or rescue operations. If you need to cut daily on construction or production operations, use a heavier duty battery, such as a car battery. An appropriate charger and jumper cable are recommended.

NOTICE



The casual user will average between 30 and 40 strikes from a fully charged battery. If attempts to ignite a rod are continued after the battery won't ignite one, the battery will be over-discharged, resulting in shorter battery life and a longer recharge time. (UP TO 24 HOURS)

4.1.1 Charging The New Battery

The battery assembly is tested and fully charged before it is shipped. However, to ensure that the battery is at peak performance, the charger should be connected to 120 volt AC line voltage using the charge cord supplied, and allowed to charge for at least 12 hours before use.

4.1.1.1 Mode Switch Charging Position

Place the mode switch on the face of the battery assembly in the "CHARGE" position.

The RECHARGE/GOOD meter's pointer will read well into the green area while charging. This reading shows the relative output of the charger **not the state of the battery**. It will, however, read higher as the battery becomes fully charged. (*At full charge the meter reads near the "D" in good*). After removing from the charge position and setting for a while the pointer will fall back to the "G" in good.

To check the battery, press the mode switch to "TEST".

The charger will not harm the battery by over-charging if left on for up to 72 hours continuously. However, for general safety purposes, the battery should not be left on the charger for more than sixteen hours. The battery will gradually lose its charge over a period of time, so to ensure peak performance when needed, place the battery on charge 4 to 6 hours per week while inactive.

4.1.2 Battery Assembly Cycle/Float Life

4.1.2.1 Cycle Life

The cycle life of the battery depends on the depth of discharge before recharging. This life can vary widely based on the type of job and skill of the operator. Typically, cycle life will range from approximately 200 cycles if 100 percent discharged (11.0 volts) to 2000 cycles if only 30 percent discharged (12.0 volts). This calculation assumes a 100 percent recharge in each cycle.

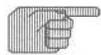
4.1.2.2 Float Life

The float life expectancy is 8 years if held at the manufacturer's recommended 13.6 to 13.8 VDC at 68°F.

4.1.3 Discharged Battery

The meter will read "RECHARGE" when the unit needs recharging. Do not try to ignite a rod if the needle does not read in the green when tested. A normally discharged battery will recover to about 80 percent of capacity after 6 hours on the AC charger.

CAUTION



Repeated attempts to ignite a cutting rod from a discharged battery can result in permanent damage to the battery.

4.1.4 Recharging Criteria

ALWAYS recharge the SLICE battery assembly after use and before storage, even if only one or two rods were ignited, or at any time the meter test indication is at or near the RED recharge area. (*The battery will not develop a "memory", an event typically associated with nickel cadmium cells: In such cases, a battery partially discharged and then recharged many times, develops the capacity of the partially discharged level.*)

4.1.5 Battery Rotation

It is also necessary to replace the battery in the battery assembly with the battery that comes in the spare parts package. Failure to change the batteries around at the quarterly inspection will allow the battery in the spare parts package to fail. By switching these batteries quarterly, you can maintain both at acceptable charge levels. Be sure that both batteries are at full charge before storing. Figure 10 shows how to change the batteries.

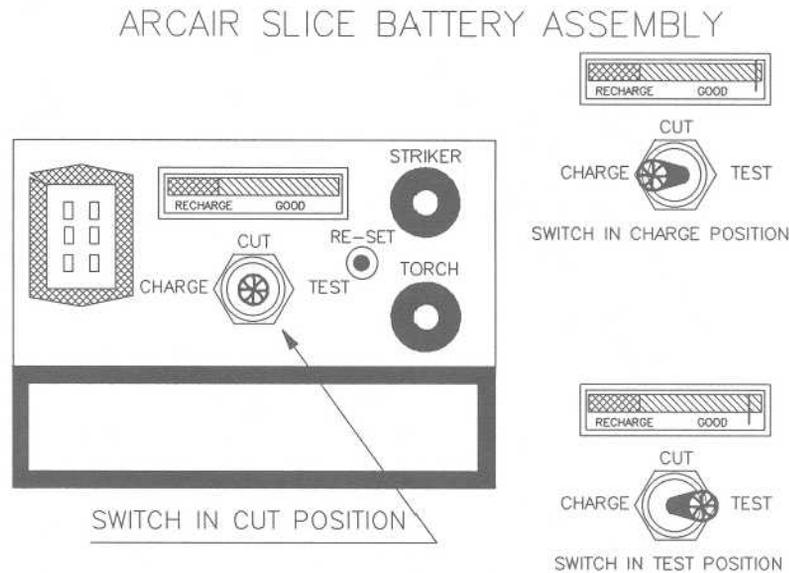
4.1.6 "Cut Mode" Switch Position

Never try to ignite a rod with the mode switch in any position other than "CUT," or with the charging cable connected. An attempt to do so will trip the circuit breaker designed to protect the charge circuit. This prevents the charging system from working when igniting the rod, but does not prevent rod ignition. If this breaker is tripped, reset it prior to attempting to recharge the battery.

Breaker Failure Indication

Failure has occurred when the test meter needle moves in the "CHARGE" mode, but doesn't move in the "TEST" mode.

FIGURE 4 BATTERY ASSEMBLY LAYOUT



4.2 CUTTING

The SLICE Equipment's ability to cut without using a welding power supply means versatility and portability. Because this new cutting system is unlike other methods of cutting, be sure to review the information below before beginning to cut.

4.2.1 Getting Ready To Cut

Connections

To connect the SLICE Cutting Torch and SLICE Striker:

1. Wipe clean all fittings and cables.
2. Connect the oxygen hose to the oxygen regulator provided, checking to see that oxygen is off.
3. Connect the SLICE Torch and SLICE Striker electrical leads to the battery.

CAUTION



The quick disconnects on the SLICE battery assembly are color coded red and black. When using a battery other than the SLICE battery assembly, connect the torch lead to the positive and the striker lead to the negative.

4. Open the oxygen cylinder valve SLOWLY!
5. Regulators supplied with the SLICE Fleet Pack are preset at 60 PSI.

To prepare the Torch and Rod

1. Select proper size collet and collet nut for either 1/4" (as shipped) or 3/8" diameter cutting rods.
2. Loosen collet nut assembly, but do not remove it.
3. Insert a SLICE cutting rod into the hole in the Collet Nut Assembly.
4. Tighten the collet nut by hand.
5. Firmly tap the end of the cutting rod on a hard surface not grounded to the battery. This action will seat the rod against the washer inside the torch.
6. Inspect the cutting rod. If oxygen leaks at collet nut, STOP. NEVER use a damaged cutting rod.

CAUTION



If there is nothing wrong with the rod, tap it again. If the collet nut still leaks replace the seat washer and repeat steps 1 thru 6 above. If it leaks after this remove torch from service immediately for repair.

4.2.2 Igniting The Rod

Holding The Torch And Striker

Hold the torch in your cutting hand and the striker in your opposite hand. (SEE FIGURE 5)

FIGURE 5 IGNITING ROD

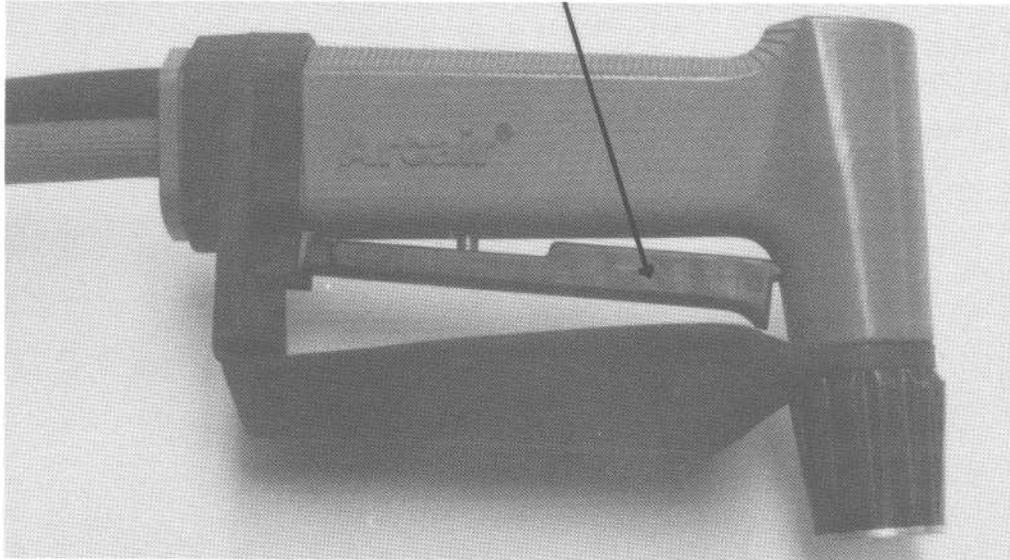


Starting Oxygen Flow

Start oxygen flow by squeezing oxygen lever on the torch handle located behind the hand shield (SEE FIGURE 6). This lever has a two stage operation, low oxygen flow and high flow. When igniting the 1/4" diameter rod the first stage, or low flow, will ignite the rod as readily as full flow. This allows a slower consumption of oxygen. The 3/8" diameter rod requires the second stage or full flow for ignition. This two stage lever also slows oxygen consumption when cutting things that require moving from one cut to another, such as rods, bars etc.. Simply go from the second stage to the first stage while moving from one cut to the other. This reduces rod and oxygen consumption.

****BE SURE HAND SHIELD IS IN PLACE****

FIGURE 6: OXYGEN LEVER



Getting Rod Ignition

Ignite the cutting rod by touching it to the exposed metal surface (striker bar) on the striker. At the same time, rotate your wrist and use a slight back-and-forth motion against the metal surface. This technique promotes fast ignition of the rod and increases the number of strikes between battery charges. THE RESULTING ARC WILL IGNITE THE CUTTING ROD.

4.2.3 Restart Procedures

You may need to restart the SLICE SYSTEM:

- 1) After replacing the cutting rod
- 2) After experiencing cutting rod "Blow Out" (Igniting Side of Cutting Rod)
- 3) After experiencing cutting flame "Blow Out".
- 4) When restarting a job.
- 5) After replacing the oxygen supply

Replacing The Cutting Rod

1. Rod Is Consumed.

If the cutting rod is shorter than three inches (7.5 cm) or is defective, it must be replaced. After the cutting rod cools loosen the collet nut by hand until the old cutting rod can be pulled free. (Do not use bare hand) Insert a new cutting rod and push it firmly into the collet (inside handle) and tighten the collet nut. Tap cutting rod on hard ungrounded surface to seat cutting rod on washer.

Follow standard ignition procedure.

2. Side Of Cutting Rod Blow Out.

If the side of a cutting rod is struck against a grounded surface, it may ignite. Oxygen flow should be stopped right away. This damaged cutting rod **MUST** be replaced. **DO NOT** reuse a damaged cutting rod.

3. Sealed Cutting Rod.

A cutting rod may seal shut during use, especially if oxygen flow is stopped before removing the cutting rod from the work piece. To correct this problem, touch the tip of the rod to the striker. When the arcing begins, turn on the oxygen flow. You may need to repeat this procedure to completely clear the cutting rod.

4. Blow Out Of Cutting Flame.

The flame may go out while you're cutting, especially on ungrounded materials. To restart the rod, simply follow standard ignition procedures. If the cutting rod continues to go out during use:

A. Try a slower cutting speed. Moving the torch too fast may create an incomplete cut which can result in blowing out the flame.

B. Be sure there is oxygen in the cylinder.

5. Need To Replace Oxygen Supply.

If the oxygen supply must be replaced:

A. Turn off the oxygen at torch by releasing the lever in the handle.

B. Shut off the oxygen line pressure at the supply valve.

C. Blow off the oxygen line pressure by squeezing oxygen lever in the handle of the torch.

D. Replace empty cylinder with full cylinder.

4.2.4 Beginning The Cut

IMMEDIATELY remove the cutting rod from the striker. Rest the striker on a safe surface away from the work piece AND MOVE THE ROD QUICKLY TO THE CUTTING SURFACE.

4.2.5 Cutting Technique

Cutting procedures will vary from job to job. Normal cutting is done by using a drag technique. Once the rod is in contact with the piece to be cut, drag the rod in the direction of the cut. If the operator can't see the kerf, the speed of cut is too fast. If the rod is being used too rapidly the progress of the cut is too slow and the rod is being used without cutting. REMEMBER, the cutting rods consume as long as the oxygen is flowing. Maintain the proper travel speed at all times. NOTE: Use a sawing motion when material to be cut is thicker than 1-1/2 to 2 inches to ensure a complete melt through.

Use a smooth motion to complete the cut. Be careful not to hit nearby material with the rod when cutting in "close quarters." After completing the cut, release the oxygen control lever in the handle. THE CUTTING ROD WILL CONTINUE TO BURN AS LONG AS OXYGEN IS SUPPLIED. Hold the torch safely away from you until the rod cools.

4.2.6 Piercing Techniques

The SLICE Torch can be used to pierce solids. Special procedures must be used when piercing. When piercing, use a collet extension (and shield). This extension adds life to the torch and hand shield, and greatly improves operator safety and comfort.

Special Precautions

Always hold the torch at arm's length and wear protective clothing, eye and ear protection. Cutting rods can get stuck inside the pierced hole. If possible, remove the cutting rod from the hole before releasing the oxygen lever. Ensure the safety of whatever is being pierced.

Pierce Procedure

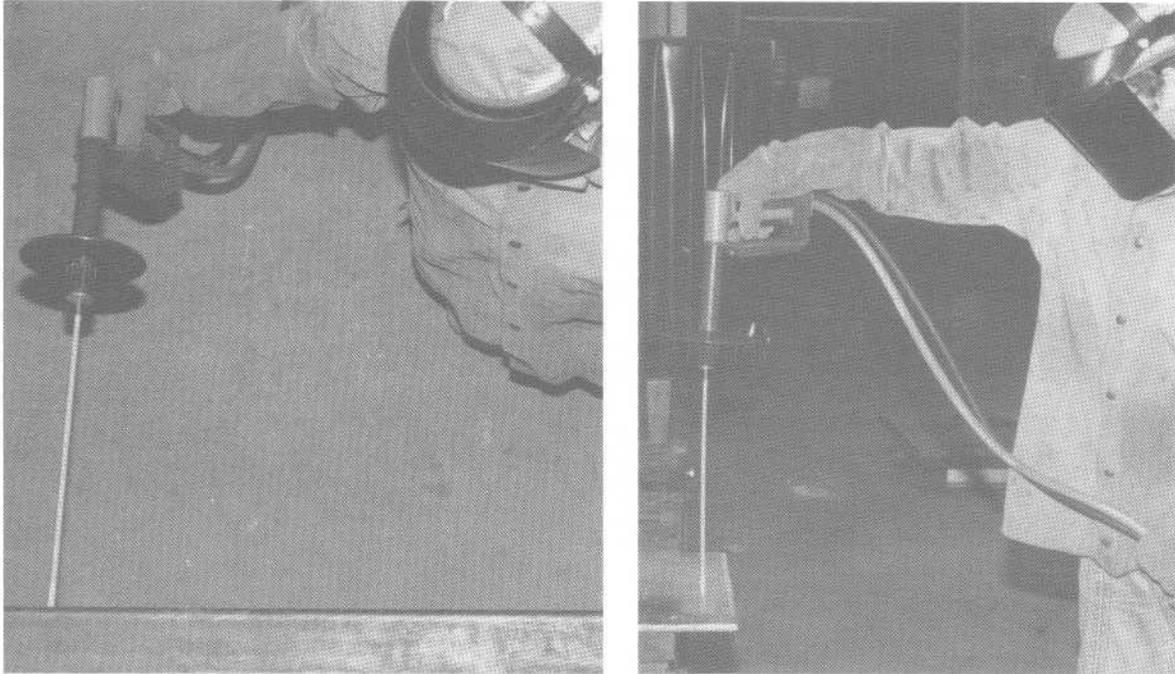
WARNING



With any thermal cutting equipment blowback is most likely to occur when the user's piercing holes. Cutting rods may burn unevenly, burn out the side or get stuck in the hole. Slowly swirl the cutting rod as it enters a pierced hole to help avoid these problems. Correct any problem by removing the cutting rod from the pierce point, shut the oxygen off, and replace the cutting rod.

Follow these procedures when piercing. Strike cutting rod on striker igniting the rod. Hold torch at arm's length. (SEE FIGURE 7)

FIGURE 7: PIERCE PROCEDURE



Keep the cutting rod at a 90° angle (perpendicular) to the pierce point. Slowly push cutting rod in at pierce point until you're at proper depth or until you've achieved burn through.

Stuck Cutting Rod

The cutting rod may get stuck in the hole. If it does, try to swirl the rod loose. If the cutting rod won't come out, stop the burn. Remove the cutting rod from the torch, and pull the cutting rod free from the hole. If necessary, leave the cutting rod in the hole and cut it free with another cutting rod.

Completing The Pierce

****DO NOT SHUT OFF THE OXYGEN WHILE THE CUTTING ROD IS INSIDE THE PIERCED HOLE****

Carefully pull the cutting rod out of the pierced hole WHILE IT IS STILL BURNING. STOP CUTTING (REMOVE FROM WORK PIECE) AND RELEASE OXYGEN. DO NOT TRY TO RE-START THE CUTTING ROD WHILE IT IS STILL INSIDE THE HOLE.

4.3 NORMAL SHUT DOWN

Follow these procedures after using the PECU:

Oxygen Shut Down

1. Shut off oxygen at the bottle.
2. Clear the oxygen lines to the torch turning the torch away from you and squeezing the oxygen lever.

****NEVER BLOW OXYGEN TOWARDS HEAT OR FLAMES****

CAUTION



Never keep oxygen pressure on a portable torch when it is not attended.

3. Always remove the cutting rod by loosening the collet nut and pulling the rod free. **WEAR PROTECTIVE GLOVES!**
Re-tighten collet nut by hand.

4. Put all PECU parts back in carrying case.

After Use Inspection

Inspect the torch for:

1. Contaminants
Dirt, oil or grease on cables or hoses. Wipe clean.

Inspect striker (or ground clamp) for any build up of slag, ash, or dirt. Clean with a wire brush or tap off the loose material.

2. Damage

Check the torch and striker for burned or worn cables or fittings.

Inspect the shield for burns or other damage.

4.4 EMERGENCY SHUT DOWN

****STOP OXYGEN FLOW**** In case of an emergency or error, do these things:

Basic Fault - Standard Shut Off

Possible faults

1. Cutting rod blows out of torch.
2. Cutting rod sticks to work piece
3. Side of cutting rod blows out.

Release the oxygen lever on the handle, disconnect the battery. Locate and correct the fault.

Failure In Oxygen Shut Off (Lever) - Internal Burn.

In the unlikely event that the oxygen lever fails to stop the flow of oxygen or a fire develops in the handle of the oxygen hose, do the following.

1. Shut down the oxygen supply at the cylinder.
2. Remove the rod from the work piece.
3. Find the cause of the problem and correct it.
4. Replace all damaged parts.

V INSPECTION AND MAINTENANCE INSTRUCTIONS

5.1 DAILY MAINTENANCE

The equipment should be inspected daily so it is ready when needed.

5.1.1 Oxygen Supply System Inspection

Check these items daily:

1. Be sure there is a full cylinder of oxygen.
2. Inspect connections to make sure there are no leaks.
3. Verify that cutting rods are available.

5.1.2 Battery Assembly Inspection

Push the mode switch on the face of the battery box assembly to the "TEST" position and note that the meter indicates an acceptable charge level.

NOTICE



The heart of the SLICE cutting system is a properly charged battery. Be sure to establish procedures to inspect the battery's charge.

In cold climates, keep the unit at room temperature during the winter months. Like the battery in your car, the SLICE battery's efficiency is reduced in cold weather.

5.2 INSPECTION AND CLEANING AFTER NORMAL USE

The system should be cleaned and inspected for any damage that may have occurred in the field.

Follow these steps:

1. Inspect the hoses and cables for cuts or burns.
2. Be sure the unit is dry before storing.
3. Remove the collet nut and inspect the collet for damage.
4. Be sure the washer that seats the rod is not cut or worn. If it shows signs of cutting or wear, replace the washer. A worn washer can block the oxygen flow preventing the rod from burning properly. A cut washer can allow oxygen to leak around the rod preventing proper operation.
5. Inspect the spark arrestor to be sure it is clean. Smoke, dirty water, ash and debris can plug the spark arrestor. If plugged the rod won't get enough oxygen to burn right. If the spark arrestor is damaged or dirty, replace it.

5.3 INSPECTION AND CLEANING THE TORCH AFTER HEAVY USE

The SLICE unit is in "heavy use" when it is exposed to mud, dirty water, salt water or if the unit is dropped, left in a fire, or exposed to other possible harm.

CAUTION



Do not use soap or solvents to clean the parts. Use only clean, fresh water and be sure the parts are dry before re-assembly.

Do the steps in 5.2 and also:

1. Disconnect the torch from the battery assembly.
2. Remove the collet nut, collet, washer, spark arrestor and the extension if in place. Wash in clean water and dry. Inspect for damage. If the spark arrestor is coated with mud or other substance replace it with a new arrestor. A plugged spark arrestor could keep your unit from working right.
3. Remove the hand shield from the torch handle and wash in clean fresh water.
4. Disassemble the torch handle and wash in clean fresh water.
5. Before removing the oxygen hose, clean the remaining parts in plain water and dry well.
6. Remove the oxygen hose and inspect it to ensure there is no water, soot, mud etc. in the hose or oxygen valve. If the hose shows signs of contamination remove it from the regulator and replace it with a new hose. There is no way to clean the inside of this hose. If mud or soot remains in the hose it could plug the spark arrestor and prevent the rod from burning well.
7. If you see any dirt during your inspection of the oxygen valve assembly replace the torch head assembly.
8. After all components have been cleaned or replaced put the torch back together. Be sure all parts are dry before re-assembly.

5.4 INSPECTION AND CLEANING THE BATTERY ASSEMBLY AFTER HEAVY USE.

If the Battery Assembly has been subjected to heavy use, inspect and clean as follows:

1. Disconnect the torch and striker leads from the battery assembly.
2. Remove the cover or top half of the case and look for dirt or water.
3. If the unit is wet or dirty, flush with clean, fresh water to remove the dirt. Allow the unit to dry thoroughly.
4. After drying the battery box assembly, reassemble the halves and ignite at least one rod to ensure proper operation.

5.5 RETURNING TO SERVICE

After the complete unit has been cleaned and inspected, reassemble the system and test it. Be sure the oxygen cylinder is full, the charger is functional, and the rods are in place.

Battery Charge

Before placing unit back in service recharge the battery in the battery box assembly. If it is time for rotation of the batteries replace recharged battery with the battery from the spare parts box and charge this battery before placing PECU back in service.

5.6 QUARTERLY INSPECTIONS

Operational Inspection

Your SLICE system should be operated once every three months if it has not been used. This procedure ensures that the battery has maintained its charge and will enable operators to practice cutting.

It is also necessary to replace the battery in the battery assembly with the battery that comes in the spare parts package. Failure to change the batteries at the quarterly inspection will allow the battery in the spare parts package to fail. By switching these batteries quarterly, you can maintain both at acceptable charge levels. Be sure that both batteries are at full charge before storing. Figure 10 shows how to change the batteries.

5.7 U.S. NAVY PLANNED MAINTENANCE REQUIREMENTS (PMS)

The above maintenance requirements apply until planned maintenance system (PMS) requirements are received.

VI DISASSEMBLY, REPAIR, REPLACEMENT, AND RE-ASSEMBLY

It will be necessary to disassemble components from time to time for repairing or replacing parts. This section will show you how to do the disassembly and re-assembly on those components that should be changed in the field. Some components, such as the torch body, oxygen valve, regulator and oxygen hoses should not be repaired by field personnel. These should be replaced only and the damaged parts sent to a qualified oxygen components repair center.

6.1 REPAIRING THE STRIKER (FIGURE 8)

All of the parts that make up the striker assembly can be replaced or repaired in the field.

1. Disconnect the striker from the battery assembly.
2. To disassemble the striker remove the screws (items 8 and 9) that hold the handle halves (items 1 and 2) together. If the handle halves are the parts being replaced, get the new parts and reassemble.
3. If the striker plate (item 3) or the cable (item 4) need replaced, remove the nut and bolt (item 5 and 7) get the new part and reassemble the striker plate and cable. Then reassemble the handle halves.

See the parts lists at the back of this manual for the proper numbers to get replacement parts. Anytime parts are taken out of the spare parts package they should be replaced as soon as possible.

FIGURE 8: REPAIRING THE STRIKER

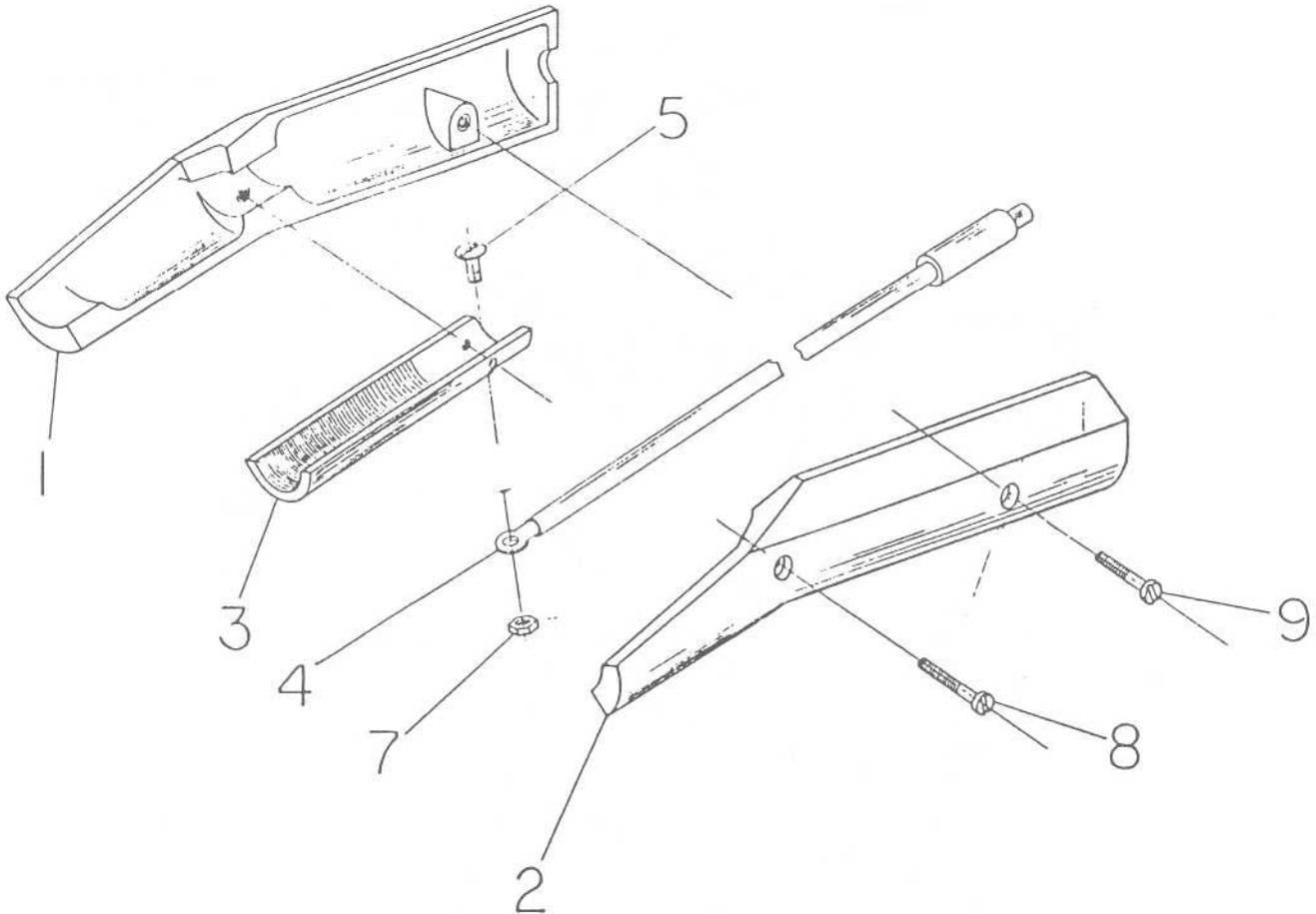
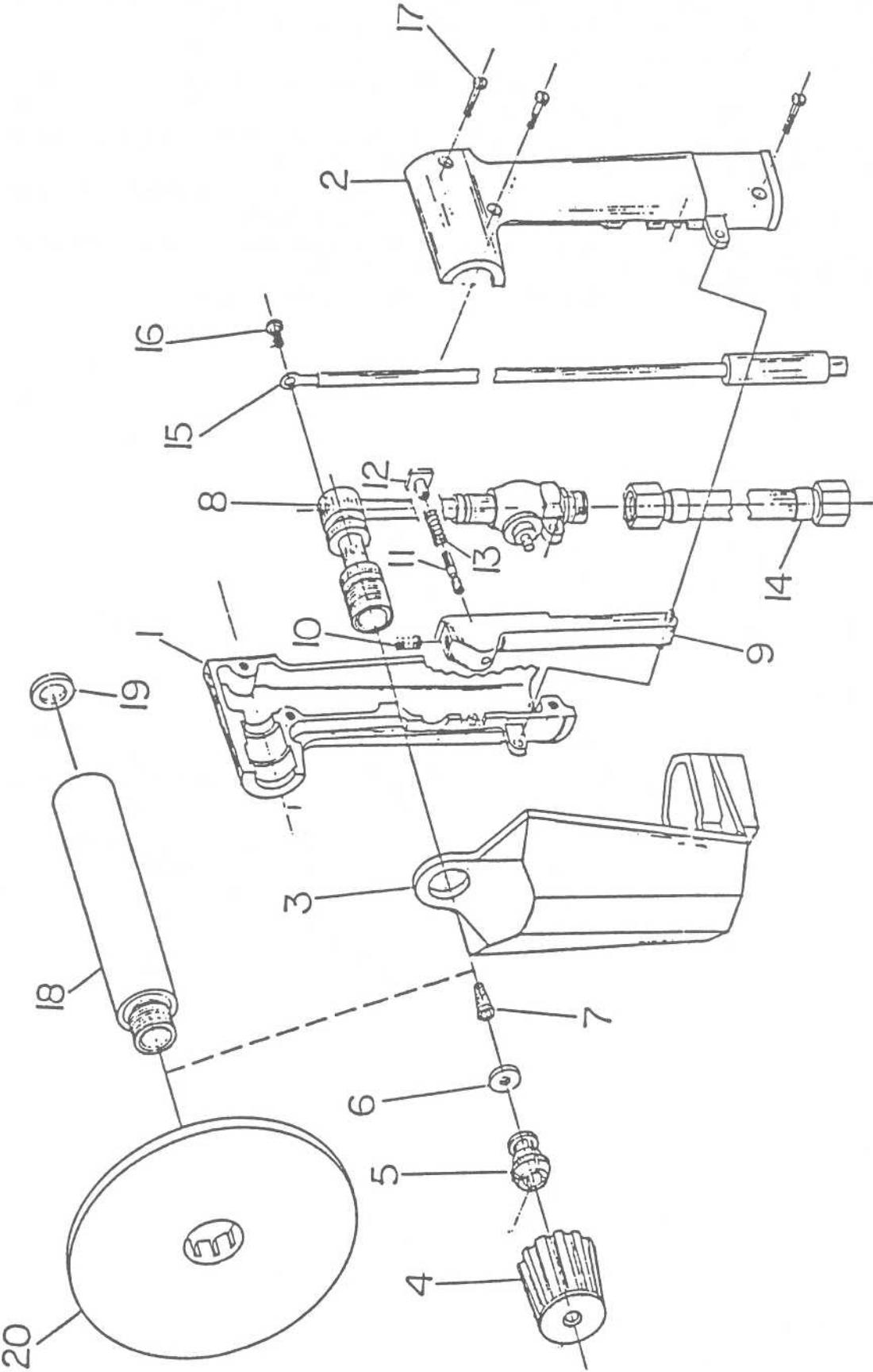


FIGURE 9: REPAIRING THE TORCH



6.2 REPAIRING THE TORCH (FIGURE 9)

Only those parts of the torch mentioned in this section should be replaced or repaired in the field.

CAUTION



If the head assembly (item 8) is damaged or worn replace the complete assembly; do not attempt to replace or repair the oxygen valve or any other component of the head assembly. Send it to an authorized oxygen repair center.

1. Disconnect the torch from the battery and the oxygen cylinder.
2. To replace the collet nut assembly (item 4) simply unscrew it and replace.
3. To replace the collet chuck (item 5), remove the collet nut (item 4), pull out the collet chuck, replace it and put the collet nut back on the torch.
4. To replace the washer (item 6) remove the collet nut (item 4) and pull out the collet chuck (item 5). Turn the torch and *lightly* tap on a hard surface to remove the washer. If this does not work use a small wire (straightened paper clip) to pull out the washer. Replace the washer, put the collet chuck and collet nut back on the torch.
5. To replace the spark arrestor (item 7) remove the collet nut (item 4) and pull out the collet chuck (item 5). Turn the torch and *lightly* tap on a hard surface to remove the washer. If this does not work use a small wire (straightened paper clip) to pull out the washer. *Lightly* tap on a hard surface to remove the spark arrestor. If this does not work use a small wire (straighten paper clip) to pull the spark arrestor out. Replace the spark arrestor and washer, replace the collet chuck and collet nut.
6. To replace the shield (item 3) remove the extension assembly (item 18) and all parts in front of it by unscrewing the extension assembly. Slide the top of the shield over the threads, pull the bottom off the handle and slide the shield down and over the oxygen hose and power cable. Put the new shield on by reversing the procedure.

NOTICE



To make shield replacement easier preheat shield using heat gun, heat lamp or similar heat source 30 seconds to 1 minute prior to slipping new shield on torch.

7. To replace the handle (items 1 & 2) follow step 6. In addition, remove three screws (item 17) and separate the halves. When the halves are separated items 9, 11, 12, and 13 will be loose. Be sure you don't lose these parts. Get the new handle halves, and reverse the procedure being sure to replace items 9, 11, 12, and 13 properly.
8. To replace the oxygen hose assembly (item 14) follow steps 6 and 7. In addition, unscrew the oxygen hose from the head assembly. Get the new hose, and reverse the procedure.

WARNING

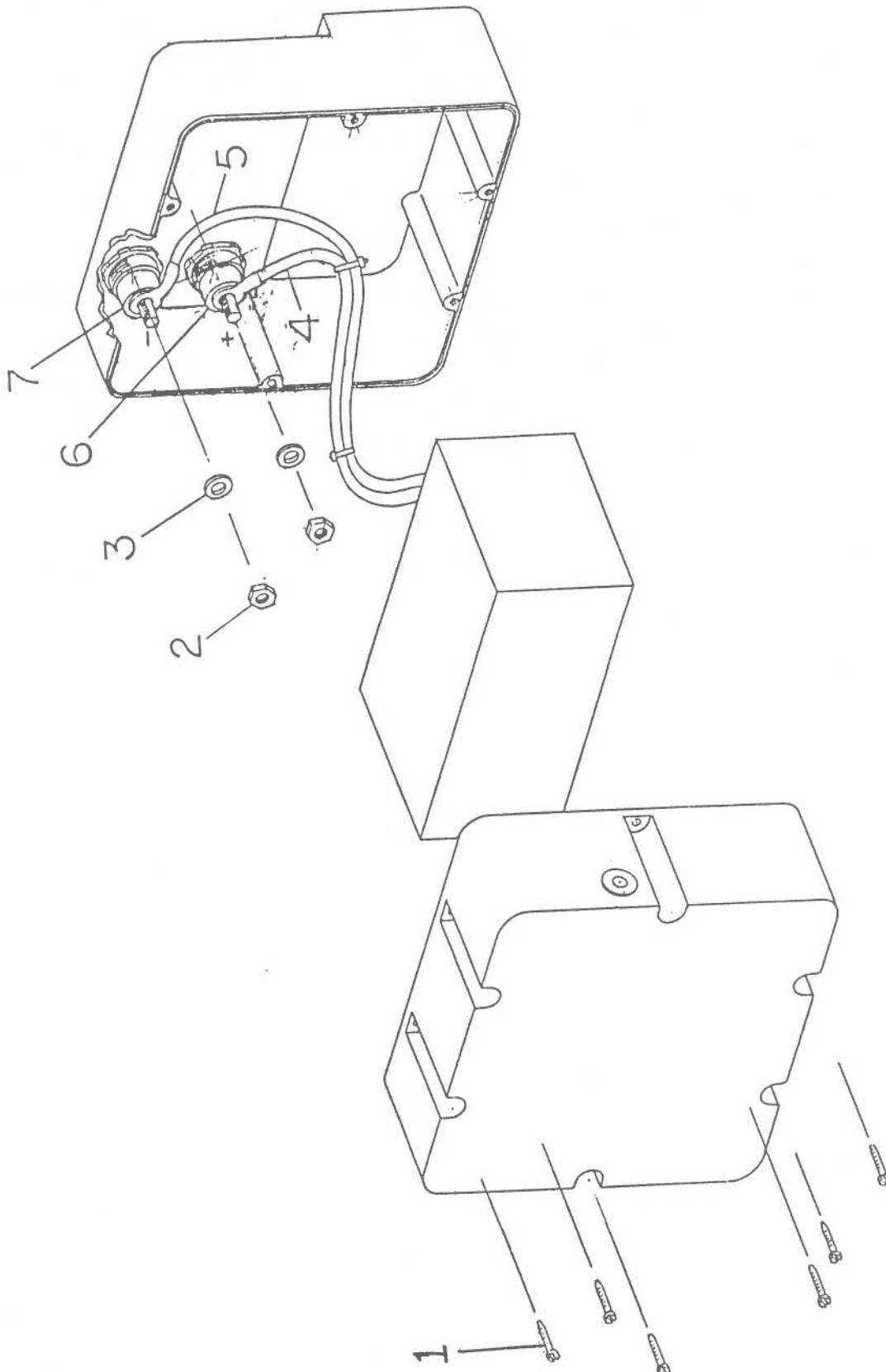


Do not repair worn or damaged oxygen hose assemblies (item 14). Replace only.

9. To replace the cable assembly (item 15) follow steps 6 and 7. In addition, remove screw (item 16). Get the new cable, and reverse the procedure.
10. To replace the lever assembly (item 9) follow steps 6 and 7. Remove the ball plunger (item 10) from the old lever. Get the new lever, install the ball plunger, insert items 11, 12, and 13 and reverse the disassembly procedure.
11. To replace the adjuster stem (item 11), adjuster nut, and spring see step 7.

See parts lists at the back of this manual for catalog numbers for parts reorder.

FIGURE 10: REPLACING THE BATTERY



6.3 REPLACING THE BATTERY IN THE BATTERY PACK ASSEMBLY

The Battery Pack Assembly is protected to help prevent damage from moisture. Do not repair or replace any parts but the battery contained in the Battery Pack. Return to a qualified electrical repair center or electrician for any other work necessary. Improper repair will ruin the water protection of this unit.

It is also necessary to replace the battery in the battery assembly with the battery that comes in the spare parts package. Failure to change the batteries at the quarterly inspection will allow the battery in the spare parts package to fail. By switching these batteries quarterly, you can maintain both at acceptable charge levels. Be sure that both batteries are at full charge before storing. Figure 10 shows how to change the batteries.

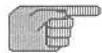
1. Charge the PECU Battery Pack Assembly before changing the batteries.

2. To replace the battery in this unit remove the six screws (item 1) that hold the two sides of the case together. Separate the two halves and lift out the battery.

3. Remove the nut and washer (items 2 and 3) from the female connectors (items 6 and 7).

4. Lift off the connector wires (items 4 and 5) from the battery and remove the battery. Get the battery from the spare parts kit.

CAUTION



Do not allow the leads (items 4 and 5) on the batteries to touch at any time during removal or installation of the battery assembly. This could cause arcing and loss of charge on the battery.

5. Remove the protective cover from the battery taken from the spare parts kit and place it on the battery you just removed from the PECU. Place this battery in the spare parts kit.

6. Take the battery from the spare parts kit and place it in the PECU Battery Pack Assembly by placing the positive lead (item 4) onto the lower female connector (item 6). Place the negative lead (item 5) on the top female connector (item 7).

7. Reverse step 1 through 3 to reassemble the Battery Pack Assembly.

8. Seal the connector terminals (6 & 7), wire lugs, etc. with Urethane Spar Varnish or similar protective coating.

9. Charge this system before placing in the storage locker.

See the parts lists at the back of this manual for part numbers for reorder of the parts.

VII TROUBLE SHOOTING

PROBLEM	REASON
ROD BURNS BUT NO CUT PROGRESSION	TOO MUCH GAP BETWEEN THE BURNING ROD AND THE WORKPIECE. MAINTAIN SLIGHT PRESSURE AGAINST THE WORK. TRAVEL SPEED TOO SLOW OXYGEN PRESSURE TOO LOW
MOLTEN MATERIAL NOT BEING BLOWN OUT OF THE CUT AREA.	OXYGEN PRESSURE TOO LOW RUBBER WASHER BEHIND THE COLLET AND/OR COLLET CHUCK NEEDS REPLACEMENT TRAVEL SPEED TOO FAST
BATTERY WILL ONLY START A FEW RODS BEFORE BEING DEPLETED	BATTERY EXPOSED TO SUB-FREEZING WEATHER BATTERY NEEDS REPLACEMENT BATTERY NOT BEING RECHARGED PROPERLY. (SEE SECTION 4.1.1)
TORCH SHIELD BURNING OFF AT THE COLLET NUT	ROD NOT SEATED PROPERLY IN THE TORCH COLLET EXTENSION (<i>and shield</i>) NOT USED WHEN PIERCING HOLES.
OXYGEN LEAKING AROUND COLLET NUT	ROD NOT SEATED PROPERLY IN TORCH RUBBER WASHER BEHIND THE COLLET AND/OR COLLET CHUCK NEEDS REPLACEMENT
WHEN PIERCING ANYTHING BUT COPPER AND ITS ALLOYS, THE ROD CONSUMES TOO FAST.	PIERCING WITH AN ELECTRICAL ARC. WORK SHOULD BE DONE WITHOUT AN ELECTRICAL ARC.
ARCED COLLET OR COLLET CHUCK AND/OR ROD BURNED OFF AT THE COLLET CHUCK	USING A CONSTANT VOLTAGE (CP) POWER SUP- PLY. USE CONSTANT CURRENT ONLY

VIII PREPARATION FOR RE-SHIPMENT

8.1 GENERAL SHIPPING REQUIREMENTS

Prepare the PECU for shipping by removing oxygen cylinder(s) and stowing other components in the proper compartments. Be sure that all braces, doors and guards are in place before packaging. The original shipping container would be the best way to ship the unit. If the original shipping container has not been kept, pack the unit in a heavy duty cardboard or wooden container and foam all sides of the package.

IX STORAGE

As with any fine tool, SLICE equipment should be stored properly when not in use.

****NEVER LEAVE A CUTTING ROD IN THE COLLET DURING STORAGE****

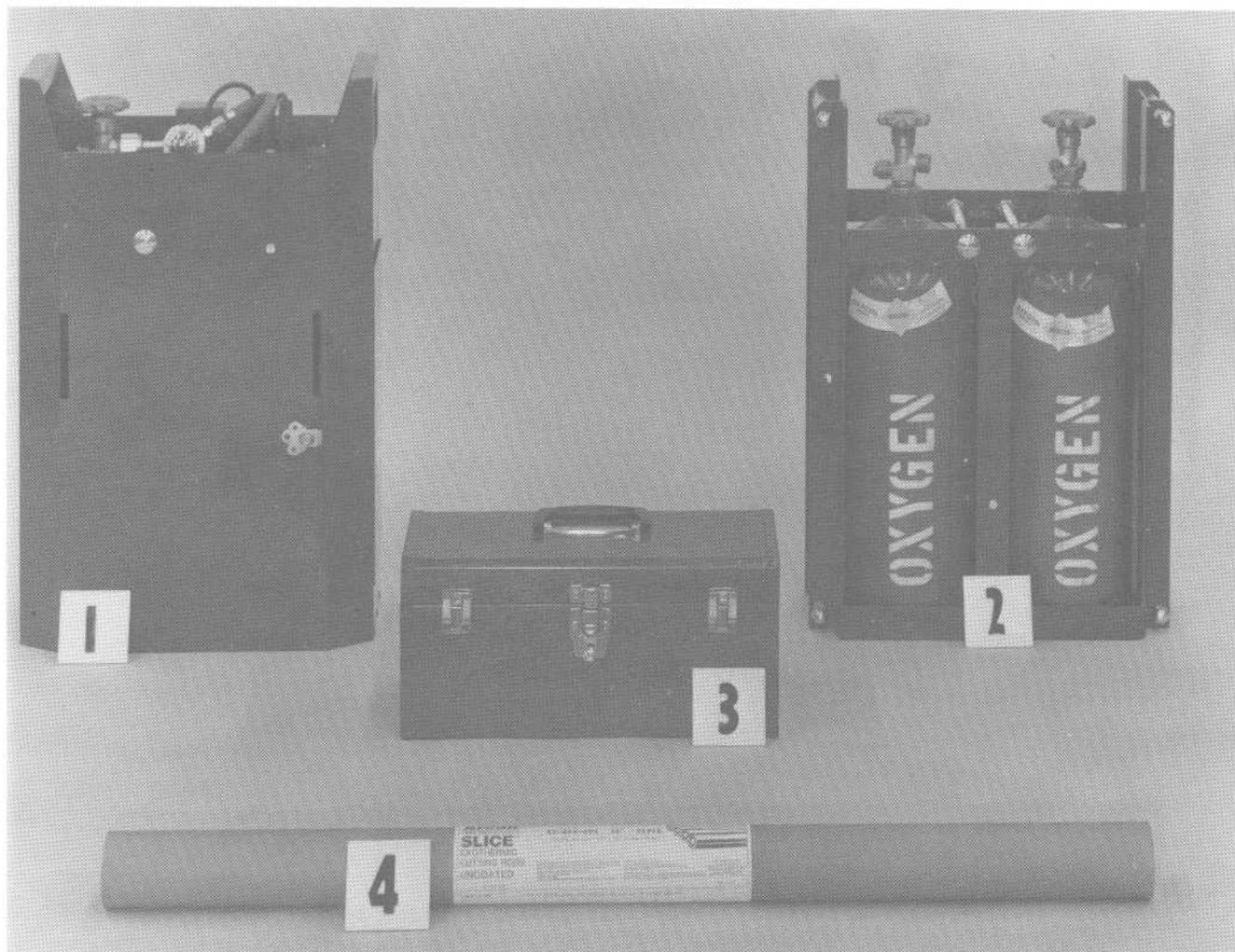
The SLICE Fleet Pack PECU is supplied with four containers. The Fleet Pack carrying case, the auxiliary carrying case, the Spare parts case, and the 3/8" diameter rod package. These cases are supplied to provide portability, but they are also to be used for storage. Before placing the PECU into storage be sure to clean and dry all components. Do not place a wet or dirty unit into the damage control locker, or other storage areas. (See Section 5 for proper cleaning and maintenance instructions. The PECU should be stored in a clean, dry area. The rust inhibiting paper supplied in the 3/8" rod container should remain in the container until all the rods are used. Tape the open end with duct tape or masking tape for storage.

For long term storage, use a clean, covered container. Do not expose the units to chemicals, water, grease, oil, or excess heat. Always wipe the torch clean prior to storage. (Use a clean, dry cloth). Slightly loosen the collet nut before storing the torch to prevent damage to the internal washer.

X PARTS LISTS

	- 43-049-009, Rods 3/8" x 36"		
	- 94 463-041, Spare Parts		
63-991-024,	- 94-134-044, Aux. Case & Bottles	- 94-208-001, Oxygen Bottles	
PECU		- 94-134-039, Auxiliary Case Only	
	- 63-991-029 SLICE Fleet Pack	- 94-208-001, Oxygen Bottles	
		- 94-351-004, Gloves	
		- 96-076-028, Battery/Charger	- 96-076-026, Battery
			- 96-130-318, Charge Cable
		- 94-134-037, Cable Assembly	
		- 96-130-313, Cable/Hose Extension	
		- 94-349-002, Goggles	
		- 94-960-065, Wrench Set	
		- 94-698-086, Regulator Assembly	
		- 94-777-111, Extension Shield	
		- 94-168-023, Collet Extension	
		- 43-049-003, 1/4" Cutting Rods	
		- 72-012-004, Striker Assembly	- 94-370-181, Handle Kit
			- 96-130-320, Cable Assembly
		- 03-003-005 SLICE Torch	- 94-370-182, Handle Kit
			- 94-168-022, Collet Nut 1/4"
			- 94-168-024, Collet Nut 3/8"
			- 94-158-048, Collet Chuck 1/4"
			- 94-158-045, Collet Chuck 3/8"
			- 94-378-338, Head Assembly
			- 94-305-009, Spark Arrestor
			- 94-940-109, Washer
			- 94-476-078, Lever Assembly
			- 94-777-109, Torch Shield
			- 94-396-199, Cable/Hose Assembly

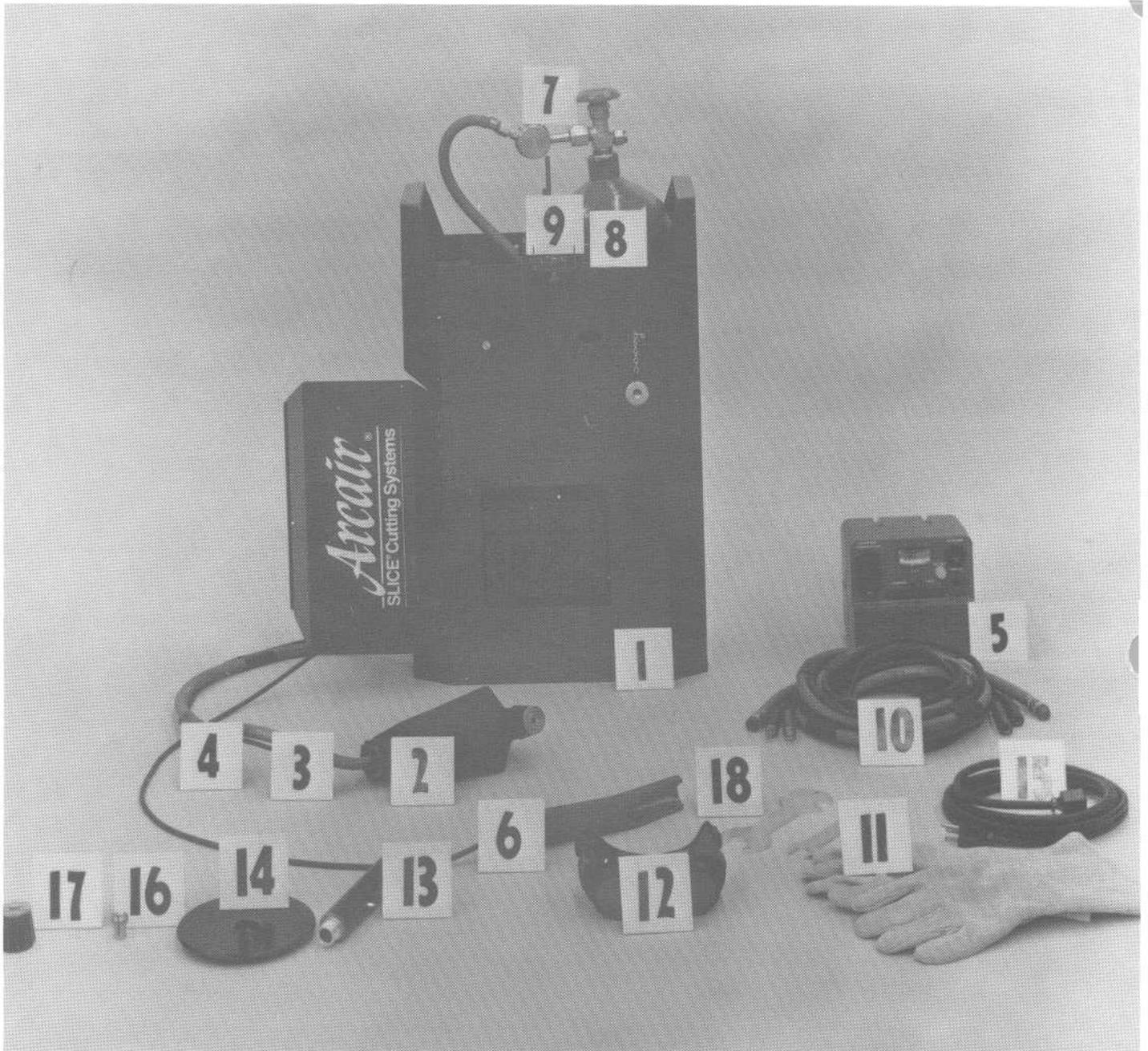
10.1 ARCAIR SLICE PECU ASSEMBLY



ARCAIR SLICE PECU ASSEMBLY
63-991-024

REF. NO.	DESCRIPTION	CATALOG NO.	NSN NUMBER
1	Arcair SLICE Fleet Pack	63-991-029	
2	Auxiliary case with 2 cylinders	94-134-044	
3	Spare parts package	94-463-041	
4	25-pcs. 3/8" x 36" cutting rods	43-049-009	

10.2 ARCAIR SLICE FLEET PACK ASSEMBLY
63-991-029



**ARCAIR SLICE FLEET PACK ASSEMBLY
63-991-029**

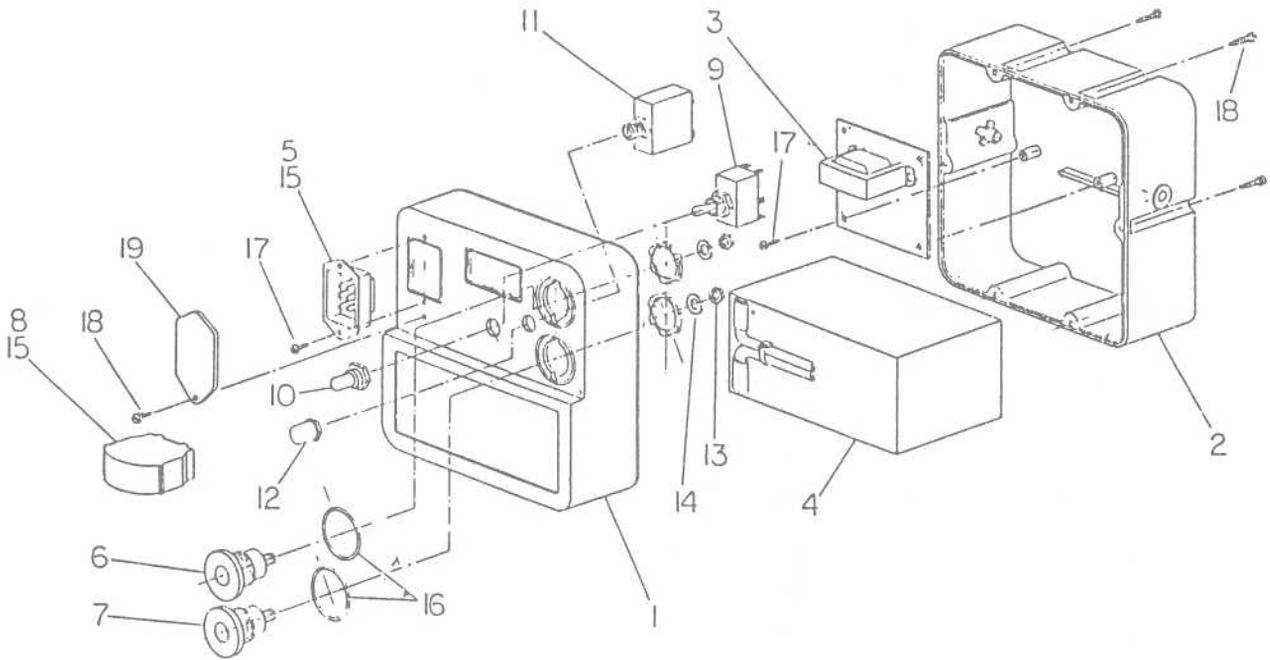
REF. NO.	DESCRIPTION	CATALOG NO.	NSN NUMBER
1	Aluminum carrying case	94-134-037	
2	Torch assembly	03-003-005	
3	Oxygen hose assembly	94-396-197	
4	Power cable assembly	96-130-319	
5	Battery box assembly	96-076-024	
6	Striker assembly	72-012-004	
7	Oxygen regulator assembly	94-698-086	
8	Oxygen cylinder	94-208-001	
9	25 ea. 1/4" x 22" cutting rods	43-049-004	
10	Oxy. hose, ignition cables extension	96-130-313	
11	Gloves	94-351-004	9D-8415-00-268-7860
12	Goggles	94-349-002	9Q-4240-00-203-3804
13	Collet extension	94-168-023	
14	Collet extension shield	94-777-111	
15	Charging cable assembly	96-130-318	
16	3/8" collet nut	94-168-024	
17	3/8" collet chuck	94-158-045	
18	Wrench set	94-960-065	

OTHER REPLACEMENT PARTS

	Replacement 1/4" x 22" cutting rods	43-049-003	
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10.2.1 SLICE BATTERY AND CHARGING SYSTEM
96-076-028

REF. NO.	DESCRIPTION	CATALOG NO.	NSN NUMBER
PHOTO	Battery box assembly	96-076-024	
NS	1/4-20 pan head mach. screw (2-req'd)	97-192-158	
NS	Spacer (2-req'd)	94-802-209	
PAGE 32	Charging cable assembly	96-130-318	



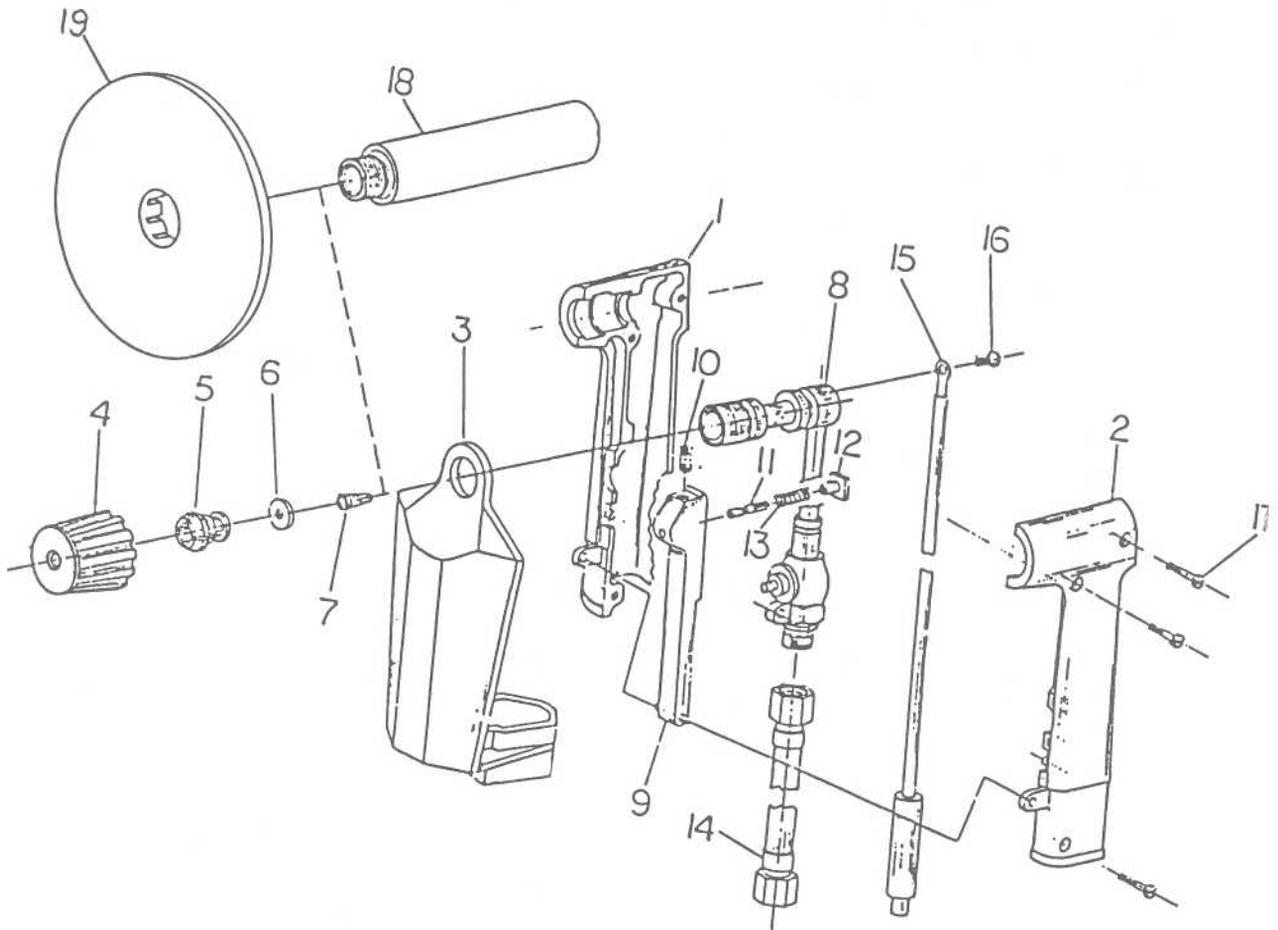
**SLICE BATTERY AND CHARGING SYSTEM
96-076-024**

REF. NO.	DESCRIPTION	CATALOG NO.	NSN NUMBER
1	Battery case front half	94-134-043	
2	Battery case back half	94-134-032	
3	Circuit board assembly	96-162-753	
4	Battery assembly	96-076-026	
5	Male connector	96-169-382	
6	Red female connector	96-169-374	
7	Black female connector	96-169-375	
8	Meter	96-508-041	
9	Toggle switch	96-834-347	
10	Toggle switch seal	94-776-052	
11	Circuit breaker	96-110-012	
12	Circuit breaker seal	94-766-053	
13	1/4"-20 brass nut 2 req'd	Com.	
14	1/4" brass washer 2 req'd	Com.	
15	O-ring 2 req'd	94-710-057	
16	O-ring 2 req'd	94-710-071	
17	#6-32 x 3/8" lg. Type "F" self tapping, 6 req'd	Com.	
18	#6-32 x 1/2" lg. Type "F" self tapping, 7 req'd	Com.	
19	Cover for item 5	94-171-285	

**10.2.1.1 110 VOLT AC CHARGING CABLE ASSEMBLY
96-130-318**

REF. NO.	DESCRIPTION	CATALOG NO.
1	Connector cinch #S-306-CCT six pin socket with cable clamps	96-169-381
2	Alpha #789 cable with molded PVC grounding plug PH-173, cord length 10 ft. per Fed-Spec J-C-175	96-130-321

10.2.2 SLICE TORCH ASSEMBLY
03-003-005



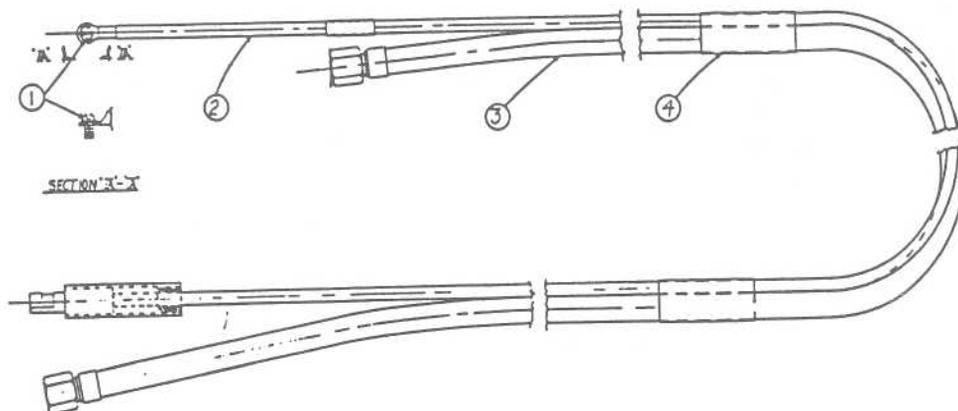
SLICE TORCH ASSEMBLY
03-003-005

REF. NO.	DESCRIPTION	CATALOG NO.	NSN NUMBER
1	Handle assembly, Right half	94-370-166	
2	Handle assembly, left half	94-370-167	
3	Shield	94-777-109	
4	Collect nut assembly	94-168-022	
5	1/4" collet chuck	94-158-048	
6	Washer	94-940-109	
7	Spark Arrestor	94-305-009	
8	Head assembly	94-378-338	
9	Lever assembly	94-476-071	
10	Ball plunger	94-637-028	
11	Stem, adjuster	94-826-021	
12	Nut, adjuster	94-565-097	
13	Spring	94-800-190	
14	Oxygen hose assembly	94-396-197	
15	Power cable assembly	96-130-319	
16	#10-32 x 3/8" lg. screw	97-192-137	
17	#6-32 x 9/16" lg. Pan Hd. Mach. screw, 3 req'd	Com.	

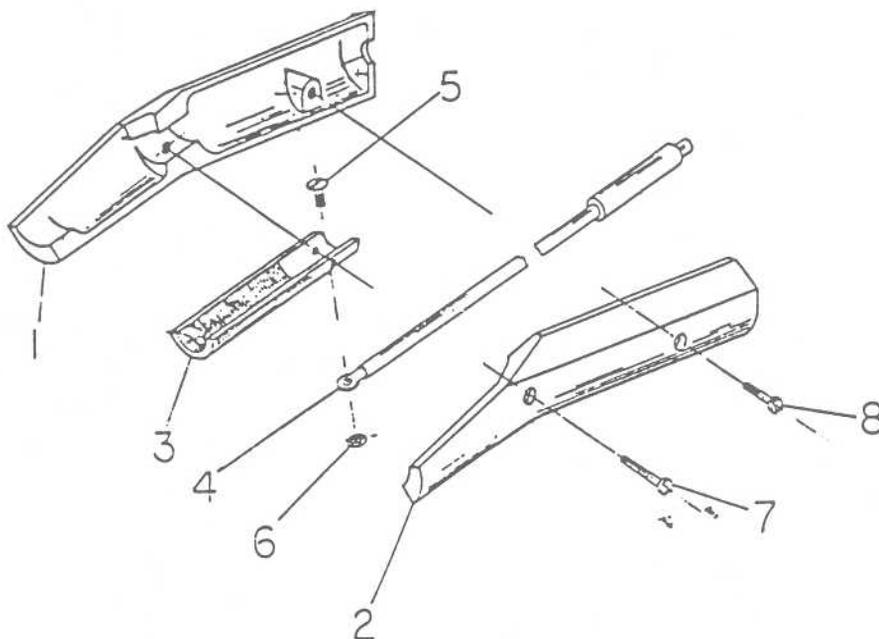
OTHER REPLACEMENT PARTS

REF. NO.	DESCRIPTION	CATALOG NO.	NSN NUMBER
	Handle repair kit	94-370-182	
	3/8" collet nut	94-168-024	
	3/8" collet chuck	94-158-045	
	Lever assembly	94-476-078	
	Cable/hose assembly	94-396-199	
18	Extension assembly	94-168-023	
19	Shield, extension	94-777-111	

CABLE/HOSE ASSEMBLY
94-396-199



10.2.3 SLICE STRIKER ASSEMBLY
72-012-004



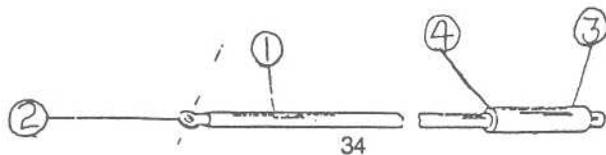
REF. NO.	DESCRIPTION	CATALOG NO.	NSN NUMBER
1	Handle assembly, right half	94-370-168	
2	Handle assembly, left half	94-370-169	
3	Striker bar	96-070-031	
4	Power cable assembly	96-130-320	
5	#10-32 x 3/8" lg. Rnd. Hd. Mach screw	Com.	
6	#10-32 nut	Com.	
7	#6-32 x 1 1/4" lg. Pan Hd. Mach. screw	Com.	
8	#6-32 x 3/4" lg. Pan Hd. Mach. screw	Com.	

OTHER REPLACEMENT PARTS

REF. NO.	DESCRIPTION	CATALOG NO.	NSN NUMBER
	Handle repair kit	94-370-181	

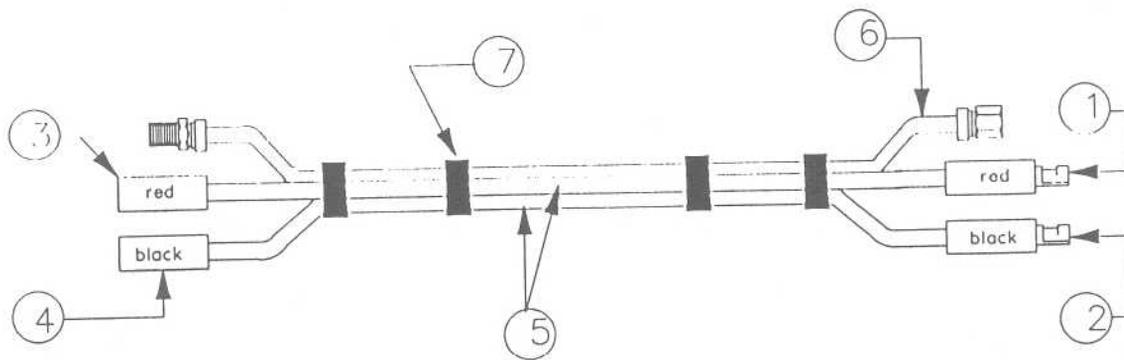
STRIKER CABLE ASSEMBLY
96-130-320

REF. NO.	DESCRIPTION	CATALOG NO.
1	Bronco neoprene lead wire; AWG size 10, 105 strands, 600 volts	92-383-185 also Com.
2	T-B STA-KON terminal; non insulated series "C" cat. # C26	96-854-078
3	Red male connector; (Com. = Cam-Lok# E1010-61) for striker	96-169-365
4	Bushing #E1010-62	94-122-058

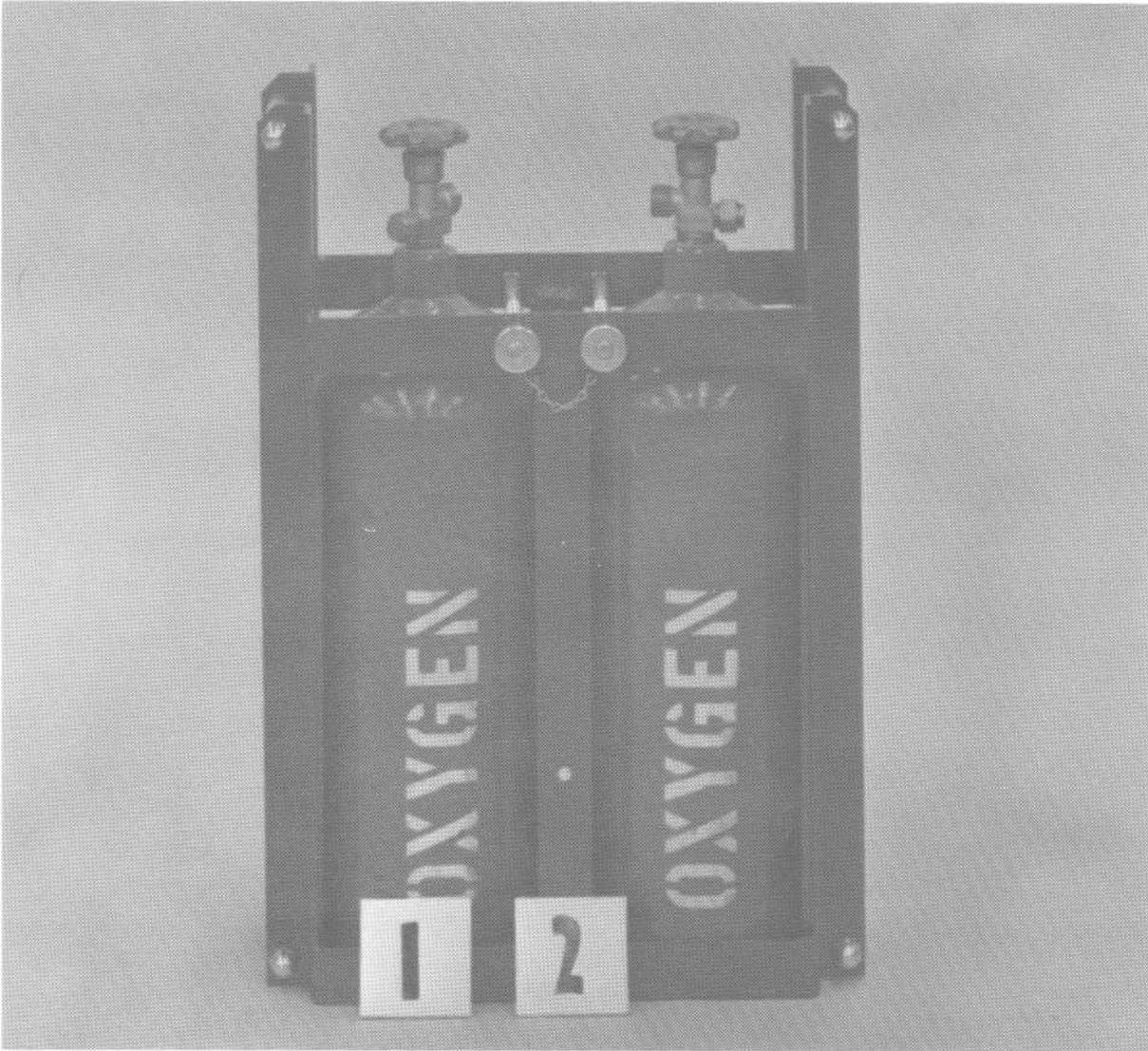


10.2.4 POWER CABLE AND OXY. HOSE EXTENSION ASSEMBLY
96-130-313

REF. NO.	DESCRIPTION	CATALOG NO.
1	Red male connector, (Com. = Cam-Lok #E1010-61)	96-169-365
2	Black male connector, (Com. = Cam-Lok #E1010-62)	96-169-366
3	Red female connector, (Com. = Cam-Lok #E1010-71)	96-169-383
4	Black female connector, (Com. = Cam-Lok #E1010-72)	96-169-384
5	Black neoprene weld cable #6 AWG	Com.
6	Oxygen hose assembly	94-396-198
7	Shrink tubing (Alpha # FIT221-1 1/2)	Com.



10.3 AUXILIARY CASE WITH OXYGEN CYLINDERS
94-134-044



AUXILIARY CASE WITH OXYGEN CYLINDERS
94-134-044

REF. NO.	DESCRIPTION	CATALOG NO.	NSN NUMBER
1	Oxygen cylinder	94-208-001	
2	Auxiliary carrying case	94-134-039	

10.4 SPARE PARTS PACKAGE
94-463-041



SPARE PARTS PACKAGE
94-463-041

REF. NO.	DESCRIPTION	CATALOG NO.	NSN NUMBER
1	1 ea. Spare parts box	94-134-036	
2	1 ea. Striker handle, RH	94-370-168	
3	1 ea. Striker handle, LH	94-370-169	
4	1 ea. Battery assembly	96-076-026	
5	1 ea. Torch shield	94-777-109	
6	3 ea. Striker bars	96-070-031	
7	2 ea. Spark arrestors	94-305-009	
8	10 ea. Washers	94-940-109	
9	1 ea. 3/8" collet chuck	94-158-045	
10	1 ea. 3/8" collet nut	94-168-024	
11	1 ea. 1/4" collet chuck	94-158-048	
12	1 ea. 1/4" collet nut	94-168-022	
13	1 ea. Collet extension	94-168-023	
14	1 ea. Collet extension shield	94-777-111	
15	1 ea. Technical manual	89-250-902	
16	1 ea. Harness assembly	94-463-042	

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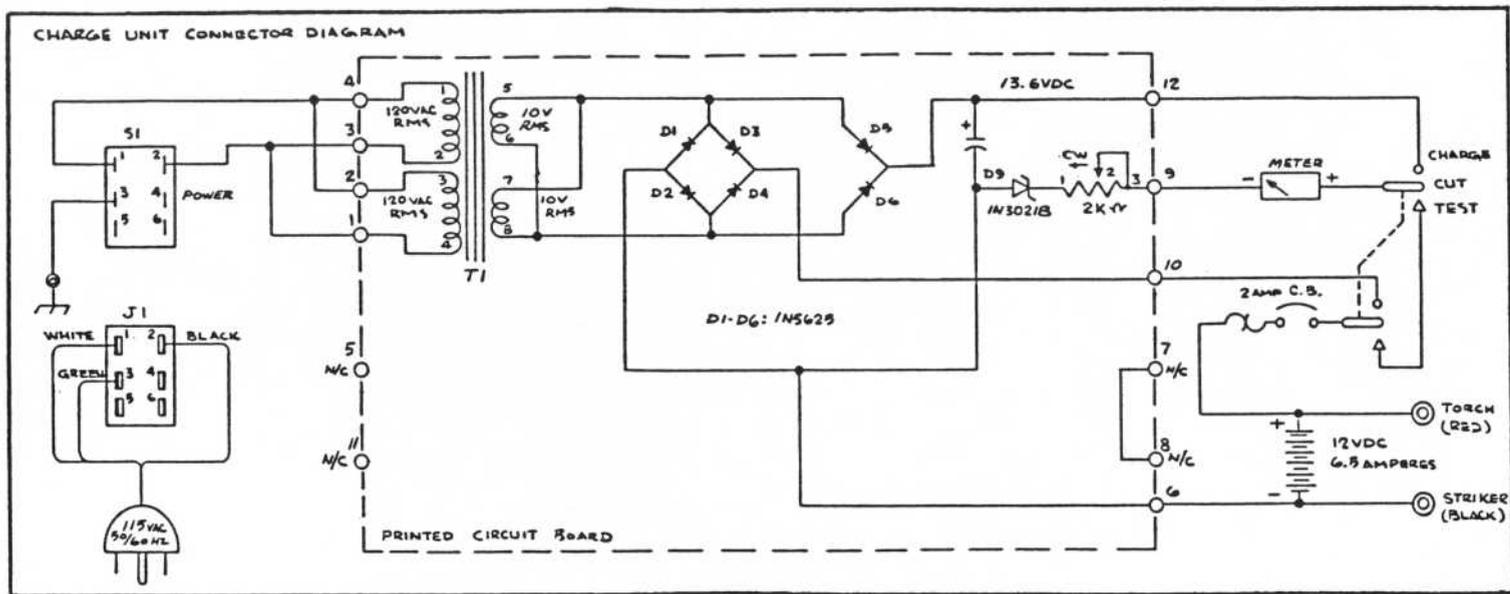
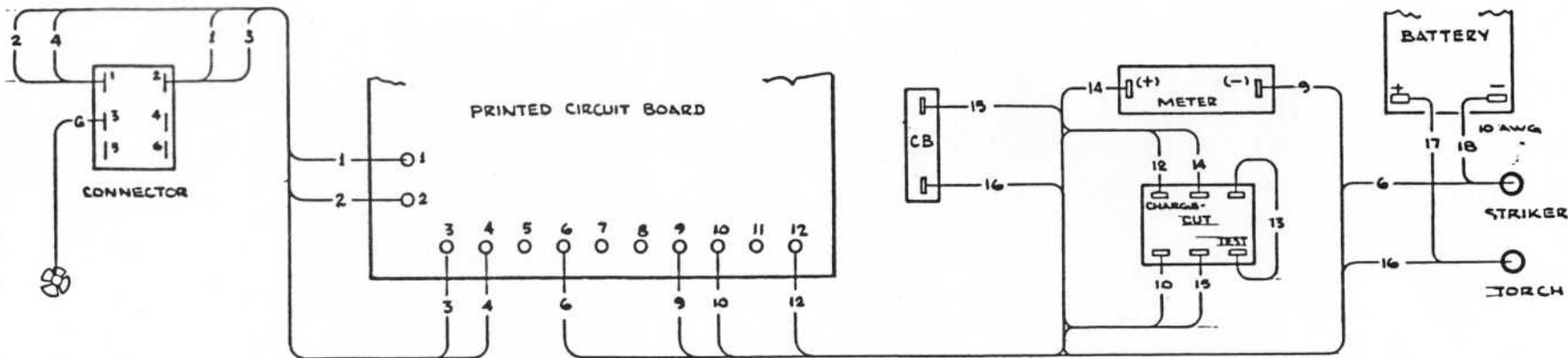
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FSCM #09687
Contract #N00104-88-C-1233

REV	K0174) REVISED	DATE	BY	TOLERANCES	MATERIAL	COMPANY
	A					
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TITLE BATTERY CHARGER (PGU) CONNECTION DIAGRAM						SCALE: NONE DATE: 10-10-88 DW: A.T. APPD: [Signature] 89-250-913-23

**NAVSEA (USER) TECHNICAL MANUAL DEFICIENCY/EVALUATION REPORT (TMDER)
(NAVSEA S0005-AA-GYD-030/TMMP & NAVSEAINST 4160.3)**

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1. NAVSEA NO. ★ S6290-AQ-MMC-010/09687	2. VOL. PART ★ 1	3. TITLE ★ Operating, Maintenance Instructions and Parts List
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4. REV. DATE OR TM CH. DATE 30 May 1989	5. SYSTEM/EQUIPMENT Exothermic Cutting Unit	6. IDENTIFICATION/NOMENCLATURE (MK/MOD/AN) PECU
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7. USER'S EVALUATION OF MANUAL (Check Appropriate blocks)

A. EXCEL-LENT		B. GOOD		C. FAIR		D. POOR		E. COM- PLETE		F. INCOM- PLETE
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8. GENERAL COMMENTS

9. RECOMMENDED CHANGES TO PUBLICATION

PAGE NO. A.	PARA- GRAPH B.	LINE NO. C.	FIG. NO. D.	TABLE E.	F. RECOMMENDED CHANGES AND REASONS

10. ORIGINATOR AND WORK CENTER (PRINT)	11. ORIGINATOR'S RANK, RATE OR GRADE, AND TITLE	12. DATE SIGNED
13. SIGNATURE OF WORK CENTER HEAD	14. SIGNATURE OF DEPARTMENT OFFICER	15. AUTOVON/COMM. NO.

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4. REV. DATE OR TM CH. DATE 30 May 1989		5. SYSTEM/EQUIPMENT Exothermic Cutting Unit		6. IDENTIFICATION/NOMENCLATURE (MK/MOD/AN) PECU		
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				E. COM- PLETE		F. INCOM- PLETE
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SHIP SYSTEM Working Spaces 660	SUBSYSTEM Damage Control Stations 6641	MRC CODE 6641 W-4	
SYSTEM Damage Control Stations 664	EQUIPMENT Portable Exothermic Cutting Unit (PECU)	RATES DC/HT/ MM3	M/H 0.5
MAINTENANCE REQUIREMENT DESCRIPTION 1. Test PECU installed battery. 2. Charge installed battery.		TOTAL M/H 0.5 ELAPSED TIME 0.5	
SAFETY PRECAUTIONS 1. Forces afloat comply with NAVOSH Program Manual for Forces Afloat, OPNAVINST 5100.19 series. 2. Lead acid battery will produce hydrogen gas during charging operations. Charge only in a well ventilated space and post "NO SMOKING" and "BATTERY ON CHARGE" sign in space. 3. Do not store PECU and/or spare cylinders in a confined space where ambient temperature exceeds 125° Fahrenheit. Do not store cylinders where they may form a part of an electrical circuit.			
TOOLS, PARTS, MATERIALS, TEST EQUIPMENT TEST EQUIPMENT 1. [3632] Multimeter, digital, SCAT-4245, Model 77/AN MISCELLANEOUS 1. [1365] Technical manuals/drawings (Exothermic cutting unit Portable (PECU) ARCAIR, Operating Instructions, Maintenance Instructions, and Parts List.) (NSN: 0910-LP-343-1700) NOTE: Numbers in brackets can be referenced to Standard PMS Materials Identification Guide (SPMIG) for stock number identification.			
PROCEDURE NOTE 1: Consult PECU operating instructions supplied with PECU for operating procedures.			
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LOCATION Equipment Guide List Recommended		DATE June 1993	

PROCEDURE (Contd) 1. Test PECU Installed Battery. a. Place CHARGER/CUT/TEST switch in TEST position. Observe RECHARGE/GOOD meter. Pointer should indicate well into green area. If pointer does not indicate well into green, 1/4 to 1/2, proceed to step 2.f. If reading is less than 11.6 VDC, proceed to step 2. and charge installed battery. 2. Charge Installed Battery. WARNING: Lead acid battery will produce hydrogen gas during charging operations. Charge only in a well ventilated space and post "NO SMOKING" and "BATTERY ON CHARGE" sign in space. NOTE 2: Battery should not be left on charger for more than 16 continuous hours. Battery may require additional charging if unable to ignite a rod. NOTE 3: Battery will gradually lose its charge over a period of time. To ensure peak performance when needed, place battery on charge 4 to 6 hours per week while inactive. a. Connect charging cord (supplied with PECU) to charger, and then to a 120 volt AC outlet. NOTE 4: If needle indicates in or near red recharge area, charging time will be longer than 4 to 6 hours required. b. Place CHARGER/CUT/TEST switch in CHARGE position and charge for 4 to 6 hours or until battery is fully charged. NOTE 5: RECHARGE/GOOD meter reading shows relative output of charger, not state of battery, when CHARGER/CUT/TEST switch is placed in CHARGE position. c. After battery has been fully charged, place CHARGER/CUT/TEST switch in TEST position, if indicated reading is higher than reading in step 1.a., omit steps 2.f. through 2.g. d. Place CHARGER/CUT/TEST switch in CUT position. e. Disconnect charging cord first from 120 volt AC outlet and then from charger. Restow cord in PECU. NOTE 6: Multimeter reading on a recently charged battery may be as high as 13.6 VDC, approximately 30 minutes after unplugging charger; retest battery. Readings should be between 12.6 to 12.8 VDC. f. Test battery using multimeter as follows: (1) Place POSITIVE lead in TORCH connection. (2) Place NEGATIVE lead in STRIKER connection. (3) Meter should be between 12.6 to 12.8 VDC. g. If reading is less than 11.6 VDC notify work center supervisor and recharge battery. CAUTION: Stow PECU in an upright position. Secure properly to avoid tipping or dropping.	PAGE 2 OF 3
	B6CG
	N

PROCEDURE (Cont.)

WARNING: Do not store PECU and/or spare cylinders in a confined space where ambient temperature exceeds 125° Fahrenheit. Do not store cylinders where they may form a part of an electrical circuit.

h. Stow PECU.

PAGE 3 OF 3

B6CG

N

SHIP SYSTEM Working Spaces 660	SUBSYSTEM Damage Control Stations 6641	MRC CODE 6641 Q-6	
SYSTEM Damage Control Stations 664	EQUIPMENT Portable Exothermic Cutting Unit (PECU)	RATES DC/HT/ MM3 EM3	M/H 1.0 1.0
MAINTENANCE REQUIREMENT DESCRIPTION 1. Test and inspect PECU.		TOTAL M/H 2.0 ELAPSED TIME 1.0	
SAFETY PRECAUTIONS 1. Forces afloat comply with NAVOSH Program Manual for Forces Afloat, OPNAVINST 5100.19 series. 2. Oil or grease in presence of oxygen under pressure ignites violently. Never direct jet toward any oily or greasy surfaces. Do not handle cylinders, valves, regulators, or any part of PECU with oily hands or oily gloves, or allow any part of PECU to contact oil or grease. 3. Do not let battery leads touch. Insulate each lead as it is removed. 4. Do not store PECU and/or spare cylinders in a confined space where ambient temperature exceeds 125° Fahrenheit. Do not store cylinders where they may form a part of an electric circuit.			
TOOLS, PARTS, MATERIALS, TEST EQUIPMENT			
MATERIALS 1. [1620] Insulating varnish, electrical, Hazardous Material, Group 1 2. [1624] Tape, insulation, electrical, MIL-I-24391		3. Wrench set supplied with PECU	
TOOLS 1. [1198] Screwdriver, flat tip, 6" gen purpose 2. [3433] Wrench, box and open end, combination, 7/16", 5"		MISCELLANEOUS 1. [1365] Technical manuals/drawings (Exothermic cutting unit, portable (PECU) ARCAIR, Operating Instructions, Maintenance Instructions and Parts List.) (NSN 0910-LP-343-1700) 2. [2000] MRC(s) (W-4, R-47)	
NOTE: Numbers in brackets can be referenced to Standard PMS Materials Identification Guide (SPMIG) for stock number identification.			
PROCEDURE NOTE 1: Consult PECU operating instructions supplied with PECU for operating procedures and component diagrams.			
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LOCATION Equipment Guide List Recommended		DATE June 1993	N

PROCEDURE (Contd) 1. Test and Inspect PECU. a. Set up a safe, well ventilated area to operate PECU.	PAGE 2 OF 3
NOTE 2: This procedure ensures that battery has maintained its charge and enables operators to practice cutting.	
WARNING: Oil or grease in presence of oxygen under pressure ignites violently. Never direct jet toward any oily or greasy surfaces. Do not handle cylinders, valves, regulators, or any part of PECU with oily hands or oily gloves, or allow any part of PECU to contact oil or grease.	
b. Operate PECU by igniting a rod at least 3 times. c. Clean and inspect PECU in accordance with MRC R-47.	
NOTE 3: Ensure installed battery has been fully charged before it is replaced.	
NOTE 4: Battery pack is attached to PECU with 2 screws and 2 spacers. Spacer is held in place by screw and will fall out of place when screw is removed.	
d. Remove battery assembly from PECU.	
CAUTION: Battery connections are energized. Exercise extreme caution while removing battery leads.	
e. Disassemble PECU battery pack assembly by removing 6 screws holding case together.	
WARNING: Do not let battery leads touch. Insulate each lead as it is removed.	
f. Remove nut and washer holding each battery lead (one at a time).	
g. Remove protective cover from spare battery in spare parts kit and place it on battery removed in step 1.d.	
h. Install spare battery into PECU battery pack assembly. Ensure uninsulated leads do not touch. Place positive lead on bottom post and secure with washer and nut. Place negative lead on top post and secure with washer and nut. Tighten both nuts.	
i. Seal battery lead and post connections with varnish.	
j. Reassemble PECU battery pack assembly. Do not overtighten screws.	
k. Test operate touch by igniting 1 rod in a well ventilated area.	
1. Charge newly installed battery in accordance with MRC W-4.	
CAUTION: Stow PECU in an upright position. Secure properly to avoid tipping or dropping.	
WARNING: Do not store PECU and/or spare cylinders in a confined space where ambient temperature exceeds 125° Fahrenheit. Do not store cylinders where they may form a part of an electric circuit.	
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PROCEDURE (Contd)

NOTE 5: Ensure collet nut is loose to prevent damage to internal washer.

m. Stow PECU.

Hazardous Material Disposal Instructions

a. Comply with own ship/station procedure for handling/disposal of hazardous materials/waste identified in the Tools, Parts, Material, Test Equipment block. General shipboard disposal procedures follow:

Group 1: Containerize waste in original container, if possible, or use standard container as listed in the Naval Ships' Technical Manual, S9086-T8-STM-000/CH-593 R2 Chapter 593, Pollution Control. Store in accordance with NSTM 670. Mark, label, or tag the container with the specific contents and any information on the contaminants. This information must also be provided on the DD Form 1348-1 at the time of offloading.

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SHIP SYSTEM Working Spaces 660	SUBSYSTEM Damage Control Stations 6641	MRC CODE 6641 R-47	
SYSTEM Damage Control Stations 664	EQUIPMENT Portable Exothermic Cutting Unit (PECU)	RATES DC/HT/ MM3	M/H 2.0
MAINTENANCE REQUIREMENT DESCRIPTION 1. Clean and inspect PECU.		TOTAL M/H 2.0 ELAPSED TIME 2.0	
SAFETY PRECAUTIONS 1. Forces afloat comply with NAVOSH Program Manual for Forces Afloat, OPNAVINST 5100.19 series. 2. Oil or grease in presence of oxygen under pressure ignites violently. Never direct jet toward any oily or greasy surfaces. Do not handle cylinders, valves, regulators, or any part of PECU with oily hands or oily gloves, or allow any part of PECU to contact oil or grease. 3. Never bleed oxygen in confined spaces. Limit bleeding time to 10 seconds. 4. Do not let arc or cutting flame touch cylinders, cylinder safety devices, valve, regulator, or hose. 5. Do not store PECU and/or spare cylinders in a confined space where ambient temperature exceeds 125° Fahrenheit. Do not store cylinders where they may form a part of an electrical circuit.			
TOOLS, PARTS, MATERIALS, TEST EQUIPMENT			
MATERIALS 1. [0294] Cloth, cleaning 2. [0754] Leak test compound, MIL-L-25567, TYPE Hazardous Material User's Guide (HMUG) Group 7, Disposal Method 3		MISCELLANEOUS 1. [2000] MRC(s) (W-4) 2. Exothermic cutting unit Portable (PECU) ARCAIR, Operating Instructions, Maintenance Instructions and Parts List. [NSN 0910-IP-343-1700] 3. Standard shipboard cutting welding combination pressure and regulator gage	
TOOLS 1. [1198] Screwdriver, flat tip, 6", general purpose 2. [3433] Wrench, box and open end, combination, 7/16", 5" 3. Wrench set, supplied with PECU		PAGE 1 OF 5	
DISTRIBUTION STATEMENT D Distribution authorized to DOD components and DOD contractors only; critical technology; June 1993. Other requests for this document shall be referred to Naval Sea Systems Command (SEA 04TD). Destroy by any method that will prevent disclosure of contents or reconstruction of the document.		63	BGCK
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MAINTENANCE REQUIREMENT CARD (MRC)
OPNAV 4790 (REV. 2-82)

HAZARDOUS MATERIALS CONTROL STATEMENT (U) The Hazardous Material Users Guide (HMUG), OPNAV P-45-110-91, provides additional control measures, precautions, personal protective equipment (PPE), and spill controls for the hazardous material(s) identified in the Tools, Parts, Materials, Test Equipment block.
TOOLS, PARTS, MATERIALS, TEST EQUIPMENT (Cont'd) NOTE: Numbers in brackets can be referenced to Standard PMS Materials Identification Guide (SPMIG) for stock number identification.
PROCEDURE NOTE 1: Accomplish after each use. NOTE 2: Consult PECU operating instructions supplied with PECU for operating procedures and component diagrams. 1. Clean and Inspect PECU. a. Disconnect torch from battery assembly (red female cam-lok connector). Ensure oxygen valve on cylinder is shut. WARNING: Oil or grease in presence of oxygen under pressure ignites violently. Never direct jet toward any oily or greasy surfaces. Do not handle cylinders, valves, regulators, or any part of PECU with oily hands or oily gloves, or allow any part of PECU to contact oil or grease. NOTE 3: Ensure washer that seats rod is not cut or worn. If it shows signs of cutting or wear, replace washer. A worn washer can block oxygen flow, preventing rod from burning properly. A cut washer can allow oxygen to leak around rod, preventing proper operation. b. Remove collet nut, collet, washer, spark arrestor, and shield extension if in place. Inspect all components for dirt, damage and uneven wear. Replace damaged or worn parts. CAUTION: Do not use soap or solvents to clean parts. Use only clean fresh water and be sure parts are dry before reassembly. c. Wash dirty parts in clean fresh water and dry with a clean lint-free cloth. If spark arrestor is coated with mud or other substance, replace it with a new spark arrestor. NOTE 4: If dirt or other substance have passed through spark arrestor, they may have contaminated oxygen valve assembly (in torch handle) and/or oxygen hose. Inside of these parts cannot be cleaned and must be replaced if dirt or other substances have contaminated them.
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MAINTENANCE REQUIREMENT CARD (MRC)
OPNAV 4790 (REV. 2-82)

PROCEDURE (Contd)

- d. Inspect torch handle and head assembly for dirt, uneven wear, and damage. If head assembly is dirty, disassemble head assembly, wash with clean fresh water, and dry with a clean lint-free cloth. Replace worn or damaged parts.
- e. Reassemble torch handle, ensuring all parts are dry.
- f. Reassemble spark arrestor, washer, shield extension if used, collet, and collet nut. Ensure spark arrestor is placed into torch head assembly point first.
- g. Disconnect striker lead from battery assembly (black female cam-lock connection).
- h. Inspect striker for dirt and damage. If striker is dirty, disassemble striker, clean with wire brush, then rinse with fresh water and dry with a lint-free cloth. Replace damaged or worn parts.
- i. Reassemble striker if applicable.
- j. Inspect battery assembly:
 - (1) Clean battery assembly with a clean lint-free cloth.

NOTE 5: If battery assembly was subjected to use in harsh conditions (muddy, dirty water, or salt water), then follow steps 1.j.(2) through 1.j.(4). If not, continue to step 1.k.

- (2) Remove cover/top half of case and look for dirt and/or water.
- (3) If battery assembly is wet or dirty, flush with clean fresh water and dry with a lint-free cloth.
- (4) Reassemble battery assembly.

- k. Connect striker to battery assembly (black cam-lok connector to black female connection), and connect torch to battery connection (red cam-lok connector to red female connection).

NOTE 6: Standard shipboard cutting-welding combination pressure and regulator gage will be used as test gage.

CAUTION: Ensure oxygen valve on cylinder is shut.

- 1. Using wrench set supplied with PECU, remove oxygen regulator and install test gage; tighten fitting firmly. Test all oxygen connections for tightness.

WARNING: Never bleed oxygen into confined spaces. Limit bleeding time to 10 seconds.

- m. Open oxygen cylinder valve slowly, observe pressure until maximum psi is indicated on gage. Close cylinder valve. If pressure reading is less than 1500 psig, replace oxygen cylinder.
- n. Using wrench set supplied with PECU, crack open oxygen test gage connection slightly to bleed off pressure. Remove test gage.

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PROCEDURE (Contd)

CAUTION: Cylinder valve and safety device may have or develop leakage or other unsatisfactory conditions for which one should inspect. Cylinder need not be detached from unit. If replacement cylinder is being installed, it is best to perform steps 1.o. and 1.p. before attachment to unit. Steps 1.o. and 1.p. are not necessary for depleted cylinder that is to be replaced.

- o. Test around cylinder valve thread connection and closed valve stem with leak test compound.
- p. Examine oxygen cylinder valve safety device for leakage and fusible metal extrusion out of relief holes.
- q. Perform following steps, as applicable:
 - (1) Remove depleted cylinder and install replacement; tighten fittings firmly.
 - (2) Reinstall oxygen regulator; tighten fitting firmly.
- r. With cylinder attached to unit, open cylinder valve and repeat leak test around valve stem.
- s. Leak test all fittings. Close cylinder valve.
- t. Depress oxygen lever on torch handle to allow pressure to bleed off through torch.
- u. Remove all leak test compound from unit and cylinder valve.

CAUTION: Torch and hose must always be firmly connected.

NOTE 7: If steps 1.j.(2) through 1.j.(4) were performed, at least 1 rod must be ignited to ensure proper operation of PECU.

WARNING: Do not let arc or cutting flame touch cylinders, cylinder safety devices, valve, regulator, or hose.

- v. In a safe, well ventilated area ignite at least 1 rod.
- w. Verify that sufficient rods and oxygen cylinders are available.
- x. Charge battery in accordance with MRC W-4.

CAUTION: Stow PECU in an upright position. Secure properly to avoid tipping or dropping.

WARNING: Do not store PECU and/or spare cylinders in a confined space where ambient temperature exceeds 125° Fahrenheit. Do not store cylinders where they may form a part of an electrical circuit.

NOTE 8: Ensure collet nut is loose to prevent damage to internal washer.

- y. Stow PECU.

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PROCEDURE (Contd)

**DISPOSAL METHODS FOR HAZARDOUS MATERIAL/WASTE IDENTIFIED IN THE
TOOLS, PARTS, MATERIAL, AND TEST EQUIPMENT BLOCK**

Method 3: Discharge overboard outside of 12 nm of U.S. shore. Instructions on discharge in foreign water should be requested from Shipboard Hazardous Waste Coordinator. If material is an acid or alkali, follow neutralization instructions in Naval Ships' Technical Manual (NSTM) S9086-T8-STM-010/CH-593, Pollution Control. Store packaging and containers for reuse or dispose as solid waste, in accordance with NSTM, Chapter 593.

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