ST-23A
Spool-on-gun Mig Welding Torch

Instruction, Operation and Maintenance Manual
Part No. 19164

NOTE: For the original ST-23 torch, P/N 995937, see Form 12-394.
For converting an original torch to the ST-23A, see Section III-B-2.
BE SURE THIS INFORMATION REACHES THE OPERATOR.
YOU CAN GET EXTRA COPIES THROUGH YOUR SUPPLIER.

CAUTION

These INSTRUCTIONS are for experienced operators. If you are not fully familiar with the principles of operation and safe practices for arc welding and cutting equipment, we urge you to read our booklet, “Precautions and Safe Practices for Arc Welding, Cutting, and Gouging,” Form 52-529. Do NOT permit untrained persons to install, operate, or maintain this equipment. Do NOT attempt to install or operate this equipment until you have read and fully understand these instructions. If you do not fully understand these instructions, contact your supplier for further information. Be sure to read the Safety Precautions before installing or operating this equipment.

USER RESPONSIBILITY

This equipment will perform in conformity with the description thereof contained in this manual and accompanying labels and/or inserts when installed, operated, maintained and repaired in accordance with the instructions provided. This equipment must be checked periodically. Malfunctioning or poorly maintained equipment should not be used. Parts that are broken, missing, worn, distorted or contaminated should be replaced immediately. Should such repair or replacement become necessary, the manufacturer recommends that a telephone or written request for service advice be made to the Authorized Distributor from whom it was purchased.

This equipment or any of its parts should not be altered without the prior written approval of the manufacturer. The user of this equipment shall have the sole responsibility for any malfunction which results from improper use, faulty maintenance, damage, improper repair or alteration by anyone other than the manufacturer or a service facility designated by the manufacturer.
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SAFETY PRECAUTIONS

WARNING: These Safety Precautions are for your protection. They summarize precautionary information from the references listed in the Additional Safety Information section. Before performing any installation or operating procedures, be sure to read and follow the safety precautions listed below as well as all other manuals, material safety data sheets, labels, etc. Failure to observe Safety Precautions can result in injury or death.

PROTECT YOURSELF AND OTHERS -- Some welding, cutting, and gouging processes are noisy and require ear protection. The arc, like the sun, emits ultraviolet (UV) and other radiation and can injure skin and eyes. Hot metal can cause burns. Training in the proper use of the processes and equipment is essential to prevent accidents. Therefore:

1. Always wear safety glasses with side shields in any work area, even if welding helmets, face shields, and goggles are also required.
2. Use a face shield fitted with the correct filter and cover plates to protect your eyes, face, neck, and ears from sparks and rays of the arc when operating or observing operations. Warn bystanders not to watch the arc and not to expose themselves to the rays of the electric-arc or hot metal.
3. Wear flameproof gauntlet type gloves, heavy long-sleeve shirt, cuffless trousers, high-topped shoes, and a welding helmet or cap for hair protection, to protect against radiated heat and sparks.
4. Hot sparks or metal can lodge in rolled up sleeves, trouser cuffs, or pockets. Sleeves and collars should be kept buttoned, and open pockets eliminated from the front of clothing.
5. Protect other personnel from arc rays and hot sparks with a suitable non-flammable partition or curtains.
6. Use goggles over safety glasses when chipping slag or grinding. Chipped slag may be hot and can fly far. Bystanders should also wear goggles over safety glasses.

FIRES AND EXPLOSIONS -- Heat from flames and arcs can start fires. Hot slag or sparks can also cause fires and explosions. Therefore:

1. Remove all combustible materials well away from the work area or cover the materials with a protective non-flammable covering. Combustible materials include wood, cloth, sawdust, liquid and gas fuels, solvents, paints and coatings, paper, etc.
2. Hot sparks or hot metal can fall through cracks or crevices in floors or wall openings and cause a hidden smoldering fire or fires on the floor below. Make certain that such openings are protected from hot sparks and metal.
3. Do not weld, cut or perform other hot work until the workpiece has been completely cleaned so that there are no substances on the workpiece which might produce flammable or toxic vapors. Do not do hot work on closed containers. They may explode.
4. Have fire extinguishing equipment handy for instant use, such as a garden hose, water pail, sand bucket, or portable fire extinguisher. Be sure you are trained in its use.
5. Do not use equipment beyond its ratings. For example, overloaded welding cable can overheat and create a fire hazard.
6. After completing operations, inspect the work area to make certain there are no hot sparks or hot metal which could cause a later fire. Use fire watchers when necessary.
7. For additional information, refer to NFPA Standard 51B, “Fire Prevention in Use of Cutting and Welding Processes”, available from the National Fire Protection Association, Batterymarch Park, Quincy, MA 02269.

ELECTRICAL SHOCK -- Contact with live electrical parts and ground can cause severe injury or death. DO NOT use AC welding current in damp areas, if movement is confined, or if there is danger of falling.

1. Be sure the power source frame (chassis) is connected to the ground system of the input power.
2. Connect the workpiece to a good electrical ground.
3. Connect the work cable to the workpiece. A poor or missing connection can expose you or others to a fatal shock.
4. Use well-maintained equipment. Replace worn or damaged cables.
5. Keep everything dry, including clothing, work area, cables, torch/electrode holder, and power source.
6. Make sure that all parts of your body are insulated from work and from ground.
7. Do not stand directly on metal or the earth while working in tight quarters or a damp area; stand on dry boards or an insulating platform and wear rubber-soled shoes.
8. Put on dry, hole-free gloves before turning on the power.
9. Turn off the power before removing your gloves.
10. Refer to ANSI/ASC Standard Z49.1 (listed on next page) for specific grounding recommendations. Do not mistake the work lead for a ground cable.

ELECTRIC AND MAGNETIC FIELDS — May be dangerous. Electric current flowing through any conductor causes localized Electric and Magnetic Fields (EMF). Welding and cutting current creates EMF around welding cables and welding machines. Therefore:

1. Welders having pacemakers should consult their physician before welding. EMF may interfere with some pacemakers.
2. Exposure to EMF may have other health effects which are unknown.
3. Welders should use the following procedures to minimize exposure to EMF:
   A. Route the electrode and work cables together. Secure them with tape when possible.
   B. Never coil the torch or work cable around your body.
   C. Do not place your body between the torch and work cables. Route cables on the same side of your body.
   D. Connect the work cable to the workpiece as close as possible to the area being welded.
   E. Keep welding power source and cables as far away from your body as possible.
SAFETY PRECAUTIONS

FUMES AND GASES -- Fumes and gases, can cause discomfort or harm, particularly in confined spaces. Do not breathe fumes and gases. Shielding gases can cause asphyxiation. Therefore:

1. Always provide adequate ventilation in the work area by natural or mechanical means. Do not weld, cut, or gouge on materials such as galvanized steel, stainless steel, copper, zinc, lead, beryllium, or cadmium unless positive mechanical ventilation is provided. Do not breathe fumes from these materials.

2. Do not operate near degreasing and spraying operations. The heat or arc rays can react with chlorinated hydrocarbon vapors to form phosgene, a highly toxic gas, and other irritant gases.

3. If you develop momentary eye, nose, or throat irritation while operating, this is an indication that ventilation is not adequate. Stop work and take necessary steps to improve ventilation in the work area. Do not continue to operate if physical discomfort persists.

4. Refer to ANSI/ASC Standard Z49.1 (see listing below) for specific ventilation recommendations.

5. WARNING: This product, when used for welding or cutting, produces fumes or gases which contain chemicals known to the State of California to cause birth defects and, in some cases, cancer. (California Health & Safety Code §25249.5 et seq.)

CYLINDER HANDLING -- Cylinders, if mishandled, can rupture and violently release gas. Sudden rupture of cylinder, valve, or relief device can injure or kill. Therefore:

1. Use the proper gas for the process and use the proper pressure reducing regulator designed to operate from the compressed gas cylinder. Do not use adaptors. Maintain hoses and fittings in good condition. Follow manufacturer's operating instructions for mounting regulator to a compressed gas cylinder.

2. Always secure cylinders in an upright position by chain or strap to suitable hand trucks, undercarriages, benches, walls, post, or racks. Never secure cylinders to work tables or fixtures where they may become part of an electrical circuit.

3. When not in use, keep cylinder valves closed. Have valve protection cap in place if regulator is not connected. Secure and move cylinders by using suitable hand trucks. Avoid rough handling of cylinders.

4. Locate cylinders away from heat, sparks, and flames. Never strike an arc on a cylinder.

5. For additional information, refer to CGA Standard P-1, "Precautions for Safe Handling of Compressed Gases in Cylinders", which is available from Compressed Gas Association, 1235 Jefferson Davis Highway, Arlington, VA 22202.

EQUIPMENT MAINTENANCE -- Faulty or improperly maintained equipment can cause injury or death. Therefore:

1. Always have qualified personnel perform the installation, troubleshooting, and maintenance work. Do not perform any electrical work unless you are qualified to perform such work.

2. Before performing any maintenance work inside a power source, disconnect the power source from the incoming electrical power.

3. Maintain cables, grounding wire, connections, power cord, and power supply in safe working order. Do not operate any equipment in faulty condition.

4. Do not abuse any equipment or accessories. Keep equipment away from heat sources such as furnaces, wet conditions such as water puddles, oil or grease, corrosive atmospheres and inclement weather.

5. Keep all safety devices and cabinet covers in position and in good repair.

6. Use equipment only for its intended purpose. Do not modify it in any manner.

ADDITIONAL SAFETY INFORMATION -- For more information on safe practices for electric arc welding and cutting equipment, ask your supplier for a copy of "Precautions and Safe Practices for Arc Welding, Cutting and Gouging", Form 52-529.

The following publications, which are available from the American Welding Society, 550 N.W. LeJuene Road, Miami, FL 33126, are recommended to you:

1. ANSI/ASC Z49.1 - "Safety in Welding and Cutting"

2. AWS C5.1 - "Recommended Practices for Plasma Arc Welding"

3. AWS C5.2 - "Recommended Practices for Plasma Arc Cutting"

4. AWS C5.3 - "Recommended Practices for Air Carbon Arc Gouging and Cutting"

5. AWS C5.5 - "Recommended Practices for Gas Tungsten Arc Welding"

6. AWS C5.6 - "Recommended Practices for Gas Metal Arc Welding"


8. ANSI/AWS F4.1, "Recommended Safe Practices for Welding and Cutting of Containers That Have Held Hazardous Substances."

MEANING OF SYMBOLS - As used throughout this manual: Means Attention! Be Alert! Your safety is involved.

DANGER Means immediate hazards which, if not avoided, will result in immediate, serious personal injury or loss of life.

WARNING Means potential hazards which could result in personal injury or loss of life.

CAUTION Means hazards which could result in minor personal injury.
SECTION 1 DESCRIPTION

I. SPECIFICATIONS

Capacity (100% duty cycle) .......................... 250 amps
Wire Feed Speed Range ......................... 80-700 in./min.
Wires Accommodated:
   Hard ........................................ 0.030, 0.035, 0.045-in.
   Soft................................... 0.030, 0.035, 3/64, 1/16-in.
Length ........................................................................15-in.
Width ..................................................................... 3-1/4-in.
Height ...........................................................................8-in.
Handle Dia. ........................................................... 1-3/4-in.
Length of Service Line ................................................30-ft.
Weight, Approx. (less wire & service line) ............... 3 lbs.
Shipping Weight .................................................. 17 lbs.

II. DESCRIPTION

• Rugged, well-balanced spool-on-gun torch.
• Uses durable threaded contact tips — short for spray arc and long for short arc welding applications. Torch is supplied with components required for spray arc welding with 0.045-in. hard or 3/64-in. soft wire. See table 1 for other available contact tips, liners, and feed rolls. Note that MIG-28A, Series A, Package P/N 19163 includes full series of short contact tips.
• Uses standard-duty copper nozzles. No. 10, P/N 999472, is supplied with the torch. Light-duty and other size nozzles also available. See Table 2.
• Powerful gearmotor in handle pulls welding wire from 4-in. dia. spool in molded torch case.
• Partial depression of torch trigger controls gas flow for pre-flow and postflow operations. Full depression provides the wire feeding as well as the gas flow.
• Inchung push-button is mounted on bottom of handle.
• Wire feed control potentiometer mounted on torch case provides precise adjustment of wire feed rate at torch.
• Flame retardant, glass reinforced polyester torch case and low voltage control of trigger switch provide complete operator protection.
• 30-ft. long service lines can be optionally extended another 30-ft.
• Designed for use with the MIG-28A (Series A) and Migmaster 250 Spool-On-Gun packages.

III. ACCESSORY EQUIPMENT

A. REQUIRED
The ST-23A Torch (P/N 19164) is supplied with a knurled feed roll (996112), torch liner (19167), contact tip (996999), and No. 10 standard-duty nozzle (999472) for feeding 0.045-in. hard or 3/64-in. soft wire. Refer to Tables 1 and 2 for complete listing of torch accessories. A 4-in. dia. spool of wire is also required. Check with your ESAB welding equipment distributor for the size and type wire desired.

Table 2 - Nozzles

<table>
<thead>
<tr>
<th>Size No.</th>
<th>Standard Duty P/N</th>
<th>Light Duty P/N</th>
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<tbody>
<tr>
<td>6</td>
<td>998895</td>
<td>998893</td>
</tr>
<tr>
<td>8</td>
<td>999471†</td>
<td>998894</td>
</tr>
<tr>
<td>10</td>
<td>999472*†</td>
<td>998894</td>
</tr>
<tr>
<td>12</td>
<td>999473</td>
<td>—</td>
</tr>
<tr>
<td>12 Brass</td>
<td>17350</td>
<td>—</td>
</tr>
<tr>
<td>12 Spotweld</td>
<td>999625</td>
<td></td>
</tr>
</tbody>
</table>

*Supplied with MIG-28A, Ser. A, Welding Package, P/N 19163
†Supplied with MIG-28A, Ser. A, Welding Package, P/N

B. OPTIONAL

1. ST-23A Cable Extension for (Mig-28A)
   30-ft. Spool Gun Control Cable (Required) 636968
   Power Cable Adaptor (Required) 993457
   ST-23A Cable Extention for (Migmaster 250 & L-225)
   30-ft. Spool Gun Control Cable (Required) 636968
   30-ft. Power Cable Extension (Required) 15626

2. Wire Guide Conversion Assembly - 19168
   This replaces the front end parts on the original ST-23 torch (See Fig. 4). The assembly does not include contact tip, torch liner, and nozzle. Select these accessories from Tables 1 and 2.

Table 1 - Contact Tips, Torch Liners, and Feed Rolls

<table>
<thead>
<tr>
<th>Wire Size</th>
<th>Wire Type</th>
<th>Hard/Soft</th>
<th>Hard/Soft</th>
<th>Hard/Soft</th>
<th>Hard/Soft</th>
</tr>
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<tbody>
<tr>
<td>0.030&quot;</td>
<td>(0.8 mm)</td>
<td>996994†</td>
<td>996995†</td>
<td>996997†</td>
<td></td>
</tr>
<tr>
<td>0.035&quot;</td>
<td>996994†</td>
<td>996995†</td>
<td>996996</td>
<td></td>
<td></td>
</tr>
<tr>
<td>0.045&quot;/364&quot;</td>
<td>(1.2 mm)</td>
<td>996997†</td>
<td>996998</td>
<td>19167*</td>
<td></td>
</tr>
<tr>
<td>1/16&quot;</td>
<td>996997†</td>
<td>19167*</td>
<td>996112*</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Supplied with torch
†Supplied with MIG-28A, Ser. A, Welding Package, P/N 19163
IV. TORCH CONNECTIONS & OPERATIONS

Complete instructions on the ST-23A torch connections, adjustments, and welding operation are included in Form 12-728 - MIG 28A Wire Feeder instruction booklet and Form F-15-087 — Migmaster 250 Welding Package instruction booklet.

V. TORCH CONTROLS

Wire feed power is provided by the permanent-magnet type D.C. shunt motor in the ST-23A. Wire may be inched by pressing the button on the bottom of the torch handle. Wire feed speed during the welding cycle is controlled by the potentiometer on the torch.

In constant potential (CP) welding, the wire begins to feed the instant the torch trigger is fully depressed. This is desirable when welding with CC or CP slope control power. During CP operation, the potentiometer on the torch regulates the welding current by means of the wire feed speed.

Turning the potentiometer in a clockwise direction will increase the welding current (increase wire feed speed); turning counterclockwise will decrease welding current (decrease wire feed speed). An initial setting should be low to reduce the possibility of burning through the plate.

In constant current (CC) welding, the wire only feeds momentarily (length depends on wire feed speed setting) when the torch trigger is fully depressed, and then stops. The arc is established and wire begins to feed when the extended wire is manually scratched on the workpiece. During constant current welding, the torch potentiometer controls the arc voltage. Turning the potentiometer clockwise will decrease the arc voltages by increasing the wire feed speed; turning it counterclockwise will increase the arc voltage by decreasing the wire feed speed. Thus, wire feed speed is regulated the same way in CC as in CP welding. An initial setting should be high to avoid burnbacks.

NOTE: MIG-28A Controls have a slow inch potentiometer included on the PC board. This trimpot (in CC welding) controls the wire feed speed during slow inch. When the torch trigger is fully depressed, the wire feeds at slow inch speed (depending on trimpot setting) then will switch over to wire feed speed after the arc is established.

WARNING

The contactor is energized the moment the torch trigger is depressed.

VI. CHANGING FEED ROLL AND TORCH LINER

The torch is supplied with feed roll (996112) and liner (19167) for use with .045, 3/64, and 1/16 wire sizes. If welding with .030 or .035 wire, refer to Fig. 1 and change to the fine knurled feed roll 636343 and liner 19166 (supplied with the MIG-28A Wire Feeder) by doing the following:

1. Remove the torch cover (996458).
2. Release and swing out the pressure roll assembly (995944).
3. While holding the feed roll, unscrew the nylon locknut (636250).
4. Remove the 996112 feed roll from the shaft and then install the 636343 feed roll in reverse order of the above steps.
5. Replace 19167 liner with 19166 following the steps outlined in Section VII-C.
VII. MAINTENANCE

If this equipment does not operate properly, stop work immediately and investigate the cause of the malfunction. Maintenance work must be performed by experienced person, and electrical work by a trained electrician. Do not permit untrained persons to inspect, clean, or repair this equipment. Use only recommended replacements parts.

A. CONTACT TIPS
In order to make trouble-free welds consistently, the wire feed system must be maintained in good condition. Using worn out contact tips is one of the principal causes of erratic welding. Check the contact tip periodically for wear or spatter adherence in the tip and replace when necessary.

B. FEED ROLL
Eventually, the hardened knurls will wear and the feed roll should be replaced. Replace the feed roll by following the steps under Section VI.

C. TORCH LINER
Torch liners (19166 for .030 and .035-in. wire and 19167 for 3/64 to 1/16-in. wire) are made of mineral-filled Teflon and should not require replacement for a considerable amount of time. If replacement becomes necessary, remove the nozzle/tip adaptor and push the liner out the front end of the torch. To install a new liner, reverse the procedure. Be sure the liner seats fully into the deepest counterbore of the nozzle/tip adaptor. (See Fig. 4.) Shielding gas distribution and the end weld result will be affected if not fully seated.

D. METAL NOZZLE
Remove spatter from the inside of the metal nozzle, when necessary, with a hand reamer or file, exercising care that it does not drop back into the front end gas ports, or preferably remove the nozzle from the torch.

E. REPLACING MOTOR BRUSHES
Brushes (950581) in the gearmotor assembly (995482) should last about 1000 hours under normal conditions. Please note that this miniature gearmotor should be handled more carefully than larger motors. If the brushes have worn down through normal wear and there is no damage other than a burned out brush shunt, it is relatively easy to replace the brushes. Where there is some damage to the commutator surface or the windings, it is doubtful if proper repairs can be made.

The work should be done by a qualified repairman on a clean, well-lighted workbench since the slightest trace of foreign material can damage the motor. The repairman should have on hand tools such as screwdrivers (Phillips and conventional), pliers, soldering iron, solder, flux, etc.

To replace brush set P/N 950581, refer to Fig. 3 and proceed as follows:

1. Remove the motor (contained in the handle assembly) from the torch assembly as follows:
   a. Remove the torch cover by loosening the knob.
   b. Detach the torch housing from the torch body frame, by removing three mounting screws at the nozzle end of the housing.

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**Fig. 2 - Wiring Diagram of the ST-23A Torch**
c. Unscrew the four No. 8—32 x 1/2-in. retaining screws which secure the handle flange to the torch body frame.
d. Release the pressure roll assembly and gently extract the handle/gearmotor assembly out of the bottom of the torch frame.
e. Grasp the knurled feed roll attached to the gearmotor and gently pull the entire assembly out of the torch handle enclosure.
f. Disconnect the black and red motor leads from the torch by separating the miniature in-line connectors provided.

2. Prior to removing the two screws (Item 1), mark both the end bell assembly (Item 2) and the frame (Item 10) to insure proper end bell positioning. Remove screws (Item 1).

3. Gently pull on the end bell until it is free of the frame and the armature (Item 9). Be careful not to lose Items 7 and 8.

**CAUTION:** Make sure that the armature is not pulled out of the frame with the end bell. Under no circumstances should the armature assembly be removed even part way from the motor frame. To do so will demagnetize the field magnet and allow the motor speed to increase far beyond tolerances. The only way to correct a demagnetized motor is to return it to the factory.

4. Carefully move the brush spring outward from the brush while insuring that the spring does not unwind, then lift the brush/lead assembly out of the brush holder. Use this procedure for both sides, red and black.

5. Examine the commutator surface. It should present a polished surface with the usual dark color of a good commutator. The commutator insulation is normally undercut. If brush replacement is to be successful, the commutator should not have worn to the extent that it is flush with the insulation. If the commutator surface is burned from flashover, the new brushes will have a relatively short life. It is necessary to remove the armature from the field assembly in order to polish and properly undercut a worn or damaged commutator and this will result in demagnetizing the field magnet as mentioned above.

If the commutator surface is found to be in good condition, then proceed with the replacement of the brushes.

6. Insert the crimp connection of the brush/lead assembly into the respective hole in the brush holder, then dress the lead wire into the proper channel as shown in detail “A-A” Do both sides.

7. Insert the brush into the brush slot on top of the spring. While holding the brush down in the proper position, move the spring outward until the bend on the end will position in the slot on top of the brush. Note: Make sure the angle is facing away from the spring.

8. Dress the brush shunt as shown in detail “A-A.”

9. Replace the end bell assembly and check for the proper alignment of the guide pins on the brush holder. Insert the flathead screws and torque to 3-4 in.-lbf.

10. It is recommended that the motor then be connected to any suitable source of DC voltage ranging from 12 to 18 VDC and allowed to run for a minimum of 1/2 hour to at least partly seat the brushed.

11. Reassemble the motor in the torch assembly by reversing procedure outline in Step 1.

**F. CONTROL CABLE PLUG ASSEMBLY**

If necessary to remove a pin from the plastic housing of the control plug, a pin extracting tool will be required.

This tool, P/N 455822-2, can be obtained from AMP, Inc., Box 3608, Harrisburg, PA 17105.
Fig. 4 - Wire Guide Conversion Assembly - P/N 19168 for converting original ST-23 Torch to ST-23A. (Select desired torch liner, contact tip, and nozzle from Tables 1 and 2.)

Fig. 5 - Wiring of Control Cable Assembly P/N 18316
REVISION HISTORY

1. REVISION F - 11/2003 - Made revisions to Figure 1 per DNECO # 033254. Various editorial changes have been made. Section VII, step 10, changed 15 to 24 VDC to 12 to 18 VDC per correction insert of August 21, 1997.

2. REVISION G - 03/2004 - Made revisions to Figure 1 per Cynthia Gurley inputs.
ESAB Welding & Cutting Products, Florence, SC Welding Equipment
COMMUNICATION GUIDE - CUSTOMER SERVICES

A. CUSTOMER SERVICE QUESTIONS:
   Telephone: (800)362-7080 / Fax: (800) 634-7548
   Hours: 8:00 AM to 7:00 PM EST
   Order Entry  Product Availability  Pricing  Order Information  Returns

B. ENGINEERING SERVICE:
   Telephone: (843) 664-4416 / Fax: (800) 446-5693
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   Warranty Returns  Authorized Repair Stations  Welding Equipment Troubleshooting

C. TECHNICAL SERVICE:
   Telephone: (800) ESAB-123/ Fax: (843) 664-4452
   Part Numbers  Technical Applications  Specifications  Equipment Recommendations
   Hours: 8:00 AM to 5:00 PM EST

D. LITERATURE REQUESTS:
   Telephone: (843) 664-5562 / Fax: (843) 664-5548
   Hours: 7:30 AM to 4:00 PM EST

E. WELDING EQUIPMENT REPAIRS:
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   Telephone: (843)664-4428 / Fax: (843) 679-5864
   Training School Information and Registrations
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G. WELDING PROCESS ASSISTANCE:
   Telephone: (800) ESAB-123
   Hours: 7:30 AM to 4:00 PM EST

H. TECHNICAL ASST. CONSUMABLES:
   Telephone: (800) 933-7070
   Hours: 7:30 AM to 5:00 PM EST

IF YOU DO NOT KNOW WHOM TO CALL

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