

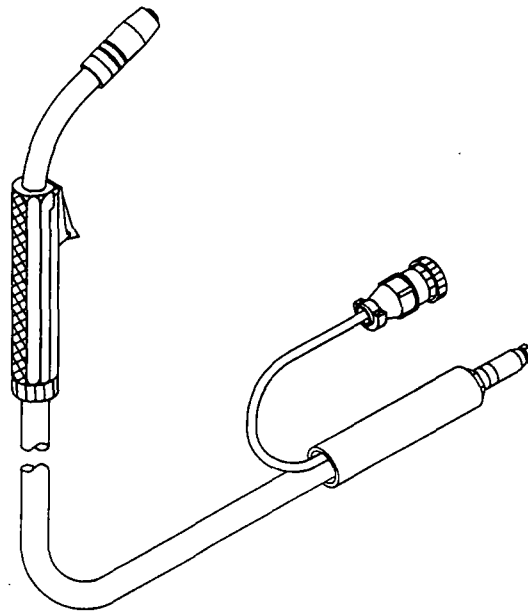


April 1995

Form: OM-112 934A

Effective With Serial No. KE-18

OWNER'S MANUAL



MWG 160

- Air-Cooled Gun For GMAW And FCAW Welding
- 160 Amperes, 60% Duty Cycle Using CO₂ Shielding Gas
- Feeds .023 And .030 in (0.6 And 0.8 mm) Hard Or Flux Cored Wires



- Read and follow these instructions and all safety blocks carefully.
- Have only trained and qualified persons install, operate, or service this unit.
- Call your distributor if you do not understand the directions.



- Give this manual to the operator.



- For help, call your distributor
- or: MILLER Electric Mfg. Co., P.O. Box 1079, Appleton, WI 54912 414-734-9821

LIMITED WARRANTY

Effective January 1, 1992
(Equipment with a serial number preface of "KC" or newer)

This limited warranty supersedes all previous manufacturers warranties and is exclusive with no other guarantees or warranties expressed or implied.

LIMITED WARRANTY - Subject to the terms and conditions below, warrants to its original retail purchaser that new equipment sold after the effective date of this limited warranty is free of defects in material and workmanship at the time it is shipped from factory. THIS WARRANTY IS EXPRESSLY IN LIEU OF ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING THE WARRANTIES OF MERCHANTABILITY AND FITNESS.

Within the warranty periods listed below, manufacturer will repair or replace any warranted parts or components that fail due to such defects in material or workmanship. Manufacturer must be notified in writing within thirty (30) days of such defect or failure, at which time manufacturer will provide instructions on the warranty claim procedures to be followed.

Manufacturer shall honor warranty claims on warranted equipment listed below in the event of such a failure within the warranty time periods. All warranty time periods start on the date that the equipment was delivered to the original retail purchaser, or one year after the equipment is sent to the distributor.

1. 5 Years Parts - 3 Years Labor
 - Original main power rectifiers
2. 3 Years - Parts and Labor
 - Transformer/Rectifier Power Sources
 - Plasma Arc Cutting Power Sources
 - Semi-Automatic and Automatic Wire Feeders
 - Robots
3. 2 Years - Parts and Labor
 - Engine Driven Welding Generators
(NOTE: Engines are warranted separately by the engine manufacturer for a period of two years.)
 - Air Compressors
4. 1 Year - Parts and Labor
 - Motor Driven Guns
 - Process Controllers
 - Water Coolant Systems
 - HF Units
 - Grids
 - Spot Welders
 - Load Banks
 - SDX Transformers
 - Running Gear/Trailers
 - Field Options
(NOTE: Field options are covered under the limited warranty for the remaining warranty period of the product they are installed in, or for a minimum of one year - whichever is greater.)
5. 6 Months - Batteries
6. 90 Days - Parts and Labor
 - MIG Guns/TIG Torches
 - Plasma Cutting Torches

- Remote Controls
- Accessory Kits
- Replacement Parts

Limited Warranty shall not apply to:

1. Items furnished by manufacturer, but manufactured by others, such as engines or trade accessories. These items are covered by the manufacturer's warranty, if any.
2. Consumable components; such as contact tips, cutting nozzles, contactors and relays or parts that fail due to normal wear.
3. Equipment that has been modified by any party other than manufacturer, or equipment that has been improperly installed, improperly operated or misused based upon industry standards, or equipment which has not had reasonable and necessary maintenance, or equipment which has been used for operation outside of the specifications for the equipment.

MANUFACTURER'S PRODUCTS ARE INTENDED FOR PURCHASE AND USE BY COMMERCIAL/INDUSTRIAL USERS AND PERSONS TRAINED AND EXPERIENCED IN THE USE AND MAINTENANCE OF WELDING EQUIPMENT.

In the event of a warranty claim covered by this warranty, the exclusive remedies shall be, at manufacturer's option: (1) repair; or (2) replacement; or, where authorized in writing by manufacturer in appropriate cases, (3) the reasonable cost of repair or replacement at an authorized service station; or (4) payment of or credit for the purchase price (less reasonable depreciation based upon actual use) upon return of the goods at customer's risk and expense. Manufacturer's option of repair or replacement will be F.O.B., Factory at Appleton, Wisconsin, or F.O.B. at an authorized service facility as determined by manufacturer. Therefore no compensation or reimbursement for transportation costs of any kind will be allowed.

TO THE EXTENT PERMITTED BY LAW, THE REMEDIES PROVIDED HEREIN ARE THE SOLE AND EXCLUSIVE REMEDIES. IN NO EVENT SHALL MANUFACTURER BE LIABLE FOR DIRECT, INDIRECT, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES (INCLUDING LOSS OF PROFIT), WHETHER BASED ON CONTRACT, TORT OR ANY OTHER LEGAL THEORY.

ANY EXPRESS WARRANTY NOT PROVIDED HEREIN AND ANY IMPLIED WARRANTY, GUARANTY OR REPRESENTATION AS TO PERFORMANCE, AND ANY REMEDY FOR BREACH OF CONTRACT TORT OR ANY OTHER LEGAL THEORY WHICH, BUT FOR THIS PROVISION, MIGHT ARISE BY IMPLICATION, OPERATION OF LAW, CUSTOM OF TRADE OR COURSE OF DEALING, INCLUDING ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR PARTICULAR PURPOSE, WITH RESPECT TO ANY AND ALL EQUIPMENT FURNISHED BY MANUFACTURER IS EXCLUDED AND DISCLAIMED BY MANUFACTURER.

Some states in the U.S.A. do not allow limitations of how long an implied warranty lasts, or the exclusion of incidental, indirect, special or consequential damages, so the above limitation or exclusion may not apply to you. This warranty provides specific legal rights, and other rights may be available, but may vary from state to state.

In Canada, legislation in some provinces provides for certain additional warranties or remedies other than as stated herein, and to the extent that they may not be waived, the limitations and exclusions set out above may not apply. This Limited Warranty provides specific legal rights, and other rights may be available, but may vary from province to province.

RECEIVING-HANDLING

Before unpacking equipment, check carton for any damage that may have occurred during shipment. File any claims for loss or damage with the delivering carrier. Assistance for filing or settling claims may be obtained from distributor and/or equipment manufacturer's Transportation Department.

When requesting information about this equipment, always provide Model Designation and Serial or Style Number.


Use the following spaces to record Model Designation and Serial or Style Number of your unit. The information is located on the rating label or nameplate.








Model _____

Serial or Style No. _____


Date of Purchase _____

SAFETY PRECAUTIONS FOR GMAW GUNS

 <b style="font-size: 1.2em;">WARNING	GMAW WELDING can be hazardous.
<p>PROTECT YOURSELF AND OTHERS FROM POSSIBLE SERIOUS INJURY OR DEATH. KEEP CHILDREN AWAY. PACEMAKER WEARERS KEEP AWAY UNTIL CONSULTING YOUR DOCTOR.</p> <p>In welding, as in most jobs, exposure to certain hazards occurs. Welding is safe when precautions are taken. The safety information given below is only a summary of the more complete safety information found in the wire feeder and welding power source Owner's Manuals. Read and follow all safety precautions.</p> <p>HAVE ALL INSTALLATION, OPERATION, MAINTENANCE, AND REPAIR WORK PERFORMED ONLY BY QUALIFIED PEOPLE.</p>	

	<p>ELECTRIC SHOCK can kill.</p> <ol style="list-style-type: none"> 1. Always wear dry insulating gloves. 2. Insulate yourself from work and ground. 3. Do not touch live electrode or electrical parts. 4. Repair or replace worn, damaged, or cracked gun or cable insulation. 5. Turn off welding power source before changing contact tip or gun parts. 6. Keep all covers and handle securely in place. 		<p>ARC RAYS can burn eyes and skin.</p> <ol style="list-style-type: none"> 1. Wear welding helmet with correct shade of filter. 2. Wear correct eye and body protection. 3. Cover exposed skin with spatter-resistant clothing.
	<p>HOT SURFACES can burn skin.</p> <ol style="list-style-type: none"> 1. Allow gun to cool before touching. 2. Do not touch hot metal. 3. Protect hot metal from contact by others. 		<p>NOISE can damage hearing; SOME APPLICATIONS, SUCH AS PULSING, are noisy.</p> <ol style="list-style-type: none"> 1. Check for noise level limits exceeding those specified by OSHA. 2. Use approved ear plugs or ear muffs if noise level is high. 3. Warn others nearby about noise hazard.
	<p>FUMES AND GASES can be hazardous to your health.</p> <ol style="list-style-type: none"> 1. Keep your head out of the fumes. 2. Ventilate area, or use breathing device. 3. Read Material Safety Data Sheets (MSDSs) and manufacturer's instructions for material used. 		<p>WELDING WIRE can cause puncture wounds.</p> <ol style="list-style-type: none"> 1. Keep hands and body away from gun tip when trigger is pressed.
	<p>WELDING can cause fire or explosion.</p> <ol style="list-style-type: none"> 1. Do not weld near flammable material. 2. Do not weld on closed containers. 3. Watch for fire; keep extinguisher nearby. 		

EMF INFORMATION

<p>NOTE </p>	<p style="text-align: center;"><i>Considerations About Welding And The Effects Of Low Frequency Electric And Magnetic Fields</i></p>
<p>The following is a quotation from the General Conclusions Section of the U.S. Congress, Office of Technology Assessment, <i>Biological Effects of Power Frequency Electric & Magnetic Fields - Background Paper</i>, OTA-BP-E-53 (Washington, DC: U.S. Government Printing Office, May 1989): "... there is now a very large volume of scientific findings based on experiments at the cellular level and from studies with animals and people which clearly establish that low frequency magnetic fields can interact with, and produce changes in, biological systems. While most of this work is of very high quality, the results are complex. Current scientific understanding does not yet allow us to interpret the evidence in a single coherent framework. Even more frustrating, it does not yet allow us to draw definite conclusions about questions of possible risk or to offer clear science-based advice on strategies to minimize or avoid potential risks."</p>	<p>To reduce magnetic fields in the workplace, use the following procedures:</p> <ol style="list-style-type: none"> 1. Keep cables close together by twisting or taping them. 2. Arrange cables to one side and away from the operator. 3. Do not coil or drape cables around the body. 4. Keep welding power source and cables as far away as practical. 5. Connect work clamp to workpiece as close to the weld as possible. <p>About Pacemakers:</p> <p>The above procedures are among those also normally recommended for pacemaker wearers. Consult your doctor for complete information.</p>

mod10.1 4/93

SECTION 1 – SAFETY INFORMATION

mod1.1 2/93



- Read all safety messages throughout this manual.
- Obey all safety messages to avoid injury.
- Learn the meaning of WARNING and CAUTION.

1 Safety Alert Symbol
2 Signal Word
WARNING means possible death or serious injury can happen.
CAUTION means possible minor injury or equipment damage can happen.
3 Statement Of Hazard And Result
4 Safety Instructions To Avoid Hazard
5 Hazard Symbol (If Available)
6 Safety Banner
 Read safety blocks for each symbol shown.
7 NOTE
 Special instructions for best operation – not related to safety.

Figure 1-1. Safety Information

SECTION 2 – SPECIFICATIONS

Table 2-1. Welding Gun

Specifications	Description
Rated Output	160 Amperes Using CO ₂ Shielding Gas – Air-Cooled
Duty Cycle	See Figure 2-1
Wire Diameter	.023 And .030 in (0.6 And 0.8 mm) Hard Or Flux-Cored Wires
Weight	10 ft Gun – Net: 2.8 lb (1.3 kg); Ship: 5.4 lb (2.4 kg)

2-1. Duty Cycle

CAUTION

WELDING LONGER THAN RATED DUTY CYCLE can damage gun and void warranty.

- Do not weld at rated load longer than shown below.

wfwarn8.1 8/93

Definition
 Duty Cycle is percentage of 10 minutes that gun can weld at rated load without overheating.

60% Duty Cycle At 160 Amperes Using CO₂ Gas

6 min → 4 min

30% Duty Cycle At 160 Amperes Using Mixed Gases

3 min → 7 min

sb1.5 8/93

Figure 2-1. Duty Cycle

SECTION 3 – INSTALLATION

3-1. Preparing And Installing Gun

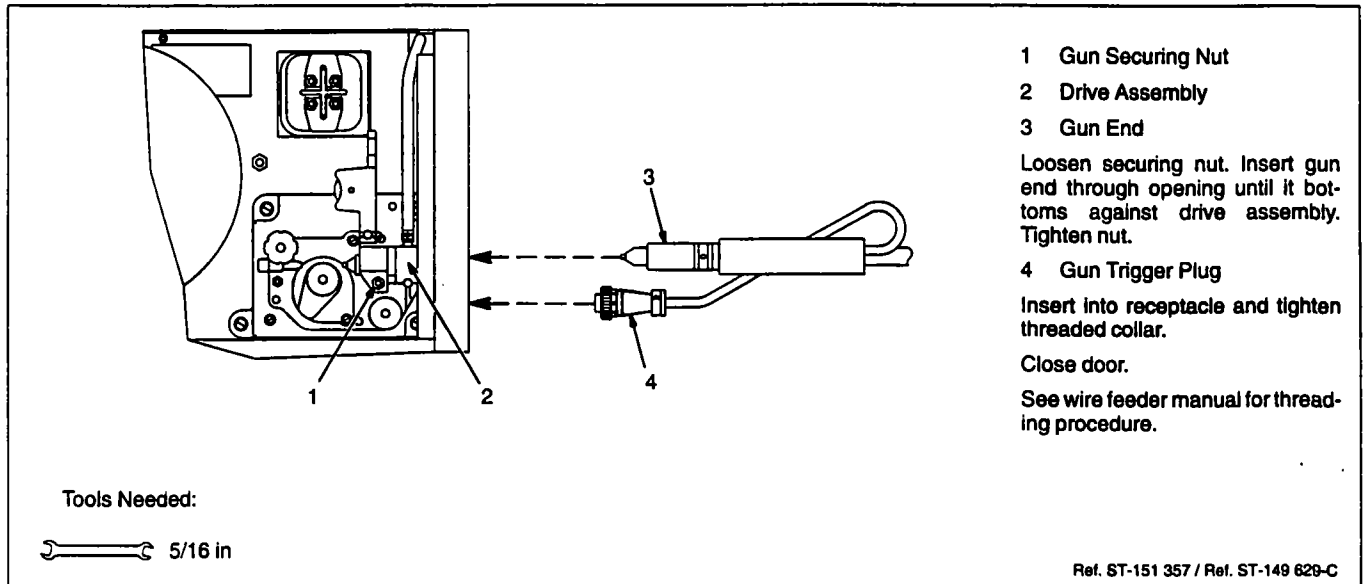


Figure 3-1. Installing Gun

SECTION 4 – OPERATION



4-1. Operating The Gun

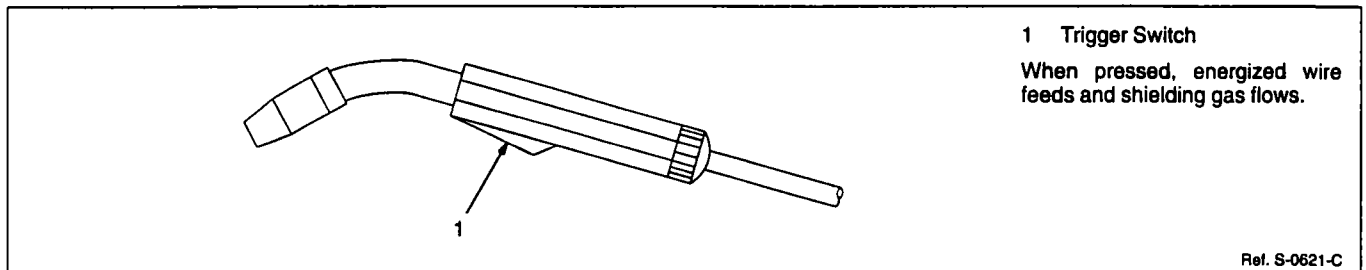


Figure 4-1. Using Gun Switch

SECTION 5 – MAINTENANCE & TROUBLESHOOTING

 WARNING		READ SAFETY BLOCKS at beginning of manual before proceeding.
--	---	---

5-1. Maintenance And Troubleshooting



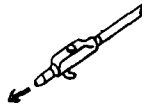
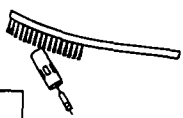

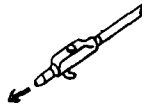
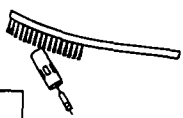



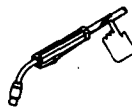



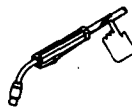

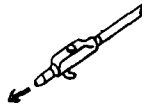
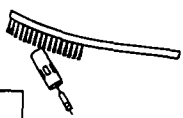



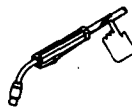
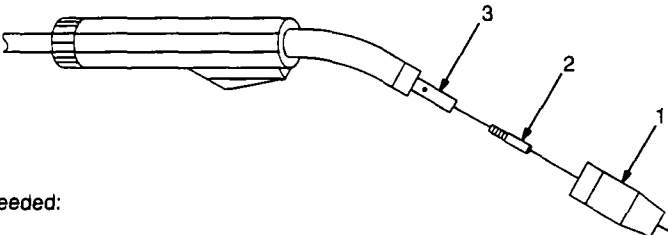
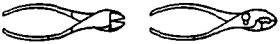
 Turn Off all power before maintaining.	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th colspan="2" style="text-align: center; padding: 5px;">Each Spool Of Wire</th> </tr> <tr> <td style="width: 50%; padding: 5px; text-align: center;">  See Section 5-2 </td> <td style="width: 50%; padding: 5px; text-align: center;">  Blow Out Gun Casing </td> </tr> <tr> <td style="padding: 5px; text-align: center;">  Clean Nozzle And Check Contact Tip </td> <td style="padding: 5px;"></td> </tr> </table>	Each Spool Of Wire		 See Section 5-2	 Blow Out Gun Casing	 Clean Nozzle And Check Contact Tip		<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th colspan="2" style="text-align: center; padding: 5px;">3 Months</th> </tr> <tr> <td style="width: 50%; padding: 5px; text-align: center;">  Replace Cracked Parts </td> <td style="width: 50%; padding: 5px; text-align: center;">  Control Cord </td> </tr> <tr> <td style="padding: 5px; text-align: center;">  Gas Hose </td> <td style="padding: 5px; text-align: center;">  Gun Cable </td> </tr> </table>	3 Months		 Replace Cracked Parts	 Control Cord	 Gas Hose	 Gun Cable
Each Spool Of Wire														
 See Section 5-2	 Blow Out Gun Casing													
 Clean Nozzle And Check Contact Tip														
3 Months														
 Replace Cracked Parts	 Control Cord													
 Gas Hose	 Gun Cable													

Figure 5-1. Routine Maintenance

Table 5-1. Troubleshooting

Trouble	Remedy
Wire does not feed.	Check contact tip. Check for kinks in gun cable. Check trigger connection at welding power source/wire feeder. Have nearest Factory Authorized Service Station/Service Distributor check gun trigger switch.
Wire is not energized.	Check contact tip. Check trigger connection at welding power source/wire feeder. Have nearest Factory Authorized Service Station/Service Distributor check gun trigger switch.
Wire feeds unevenly.	Check contact tip. Check for kinks in gun cable. Blow out liner and gun casing.

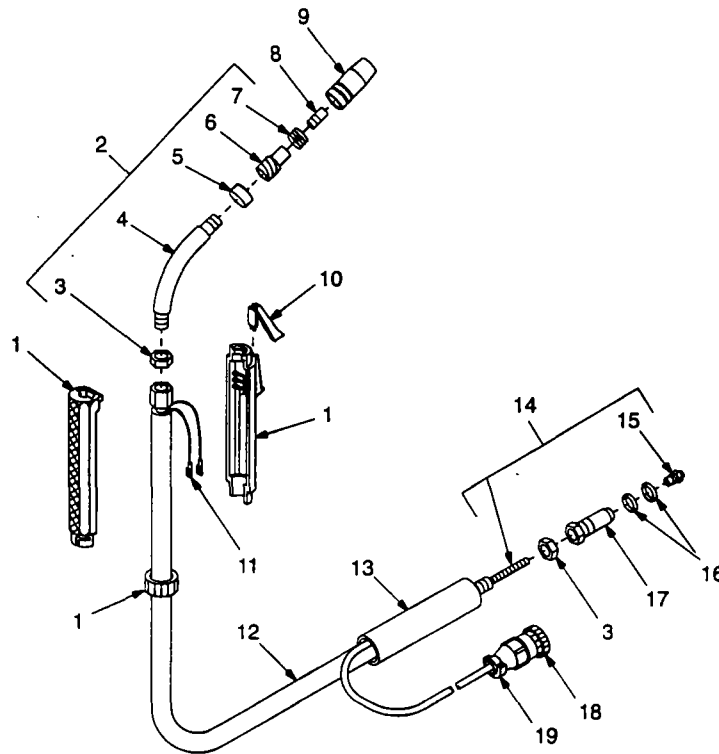
5-2. Changing Contact Tip And Liner

 <p style="margin-top: 10px;">Tools Needed:</p> 	<p>Turn off welding power source/wire feeder. Cut off wire at nozzle.</p> <ol style="list-style-type: none"> 1 Nozzle 2 Contact Tip 3 Contact Tip Adapter
---	--

Ref. ST-149 326-A

Figure 5-2. Changing Contact Tip

SECTION 6 – PARTS LIST



Ref. ST-110 832-D

Figure 6-1. Complete Assembly

Item No.	Part No.	Description	Quantity
Figure 6-1. Complete Assembly			
...	1	HANDLE ASSEMBLY	1
...	2	TUBE, head (consisting of)	1
...	3	NUT, M 10 x 1	2
...	4	JACKET, head tube	1
...	5	STOP, nozzle	1
...	6	ADAPTER, head tube nozzle	1
...	7	SPRING, nozzle	1
...	8	TIP, contact .024 (.6 mm)	1
...	8	TIP, contact .030 (.8 mm)	1
...	9	NOZZLE, slip type 1/2 orifice	1
...	9	◆ 113 018 NOZZLE, slip type 3/8 orifice	1
...	9	◆ 113 022 NOZZLE, spot flat	1
...	9	◆ 113 020 NOZZLE, spot	1
...	10	TRIGGER SWITCH ASSEMBLY	1
...	11	TERMINAL, frict uninsul fem 22-18ga	2
...	12	CABLE, 10ft	1
...	13	SLEEVE, rubber	1
...	14	LINER, monocoil .023-.035 wire 10ft (consisting of)	1
...	15	COLLET, liner .023-.030 wire	1
...	16	O-RING, 1/2 ID x .103	2
...	17	CONNECTOR, gun/feeder	1
...	18	CONNECTOR & PINS, (consisting of)	1
...	18	CONNECTOR, circ pin push-in 14-18ga Amp 66359-6	4
...	19	CONNECTOR, circ clamp str rlf sz 11 Amp 206062-4	1

◆OPTIONAL

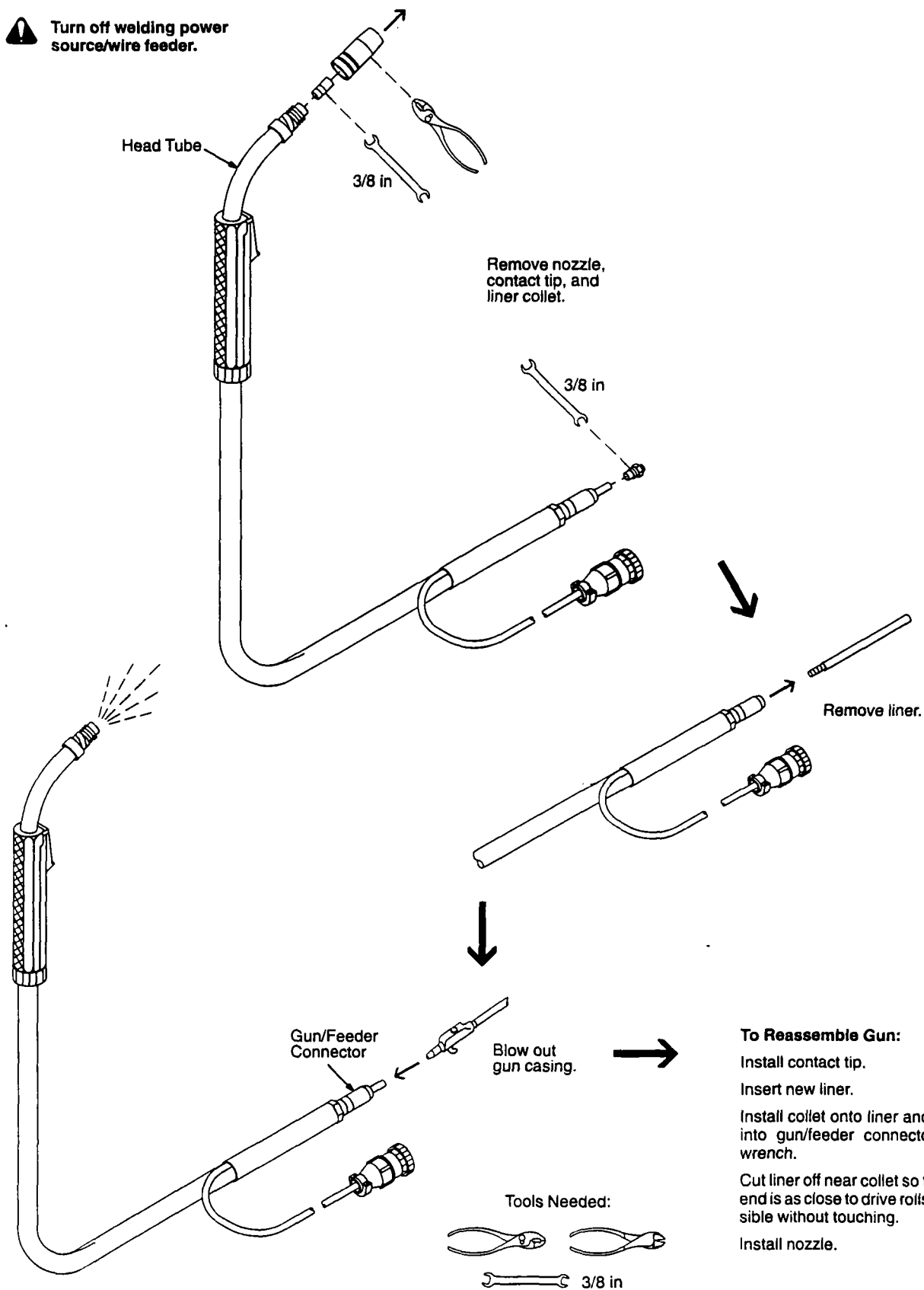
BE SURE TO PROVIDE MODEL AND SERIAL NUMBER WHEN ORDERING REPLACEMENT PARTS.

CAUTION

FLYING METAL CHIPS AND DIRT can cause injury and damage equipment.

- Point gun away from people and in a safe direction when blowing out with compressed air.

Turn off welding power source/wire feeder.



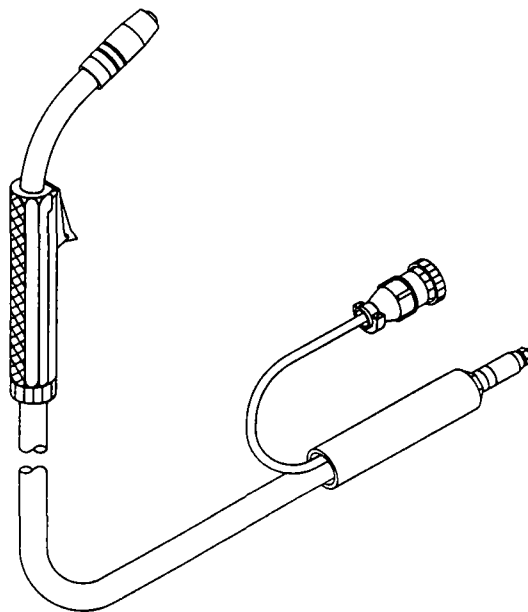
Ref. ST-155 509

Figure 5-3. Changing Liner



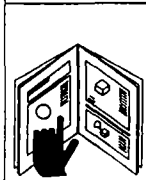
April 1995 Form: OM-112 934A
 Effective With Serial No. KE-18

OWNER'S MANUAL



MWG 160

- Air-Cooled Gun For GMAW And FCAW Welding
- 160 Amperes, 60% Duty Cycle Using CO₂ Shielding Gas
- Feeds .023 And .030 in (0.6 And 0.8 mm) Hard Or Flux Cored Wires



- Read and follow these instructions and all safety blocks carefully.
- Have only trained and qualified persons install, operate, or service this unit.
- Call your distributor if you do not understand the directions.



- Give this manual to the operator.



- For help, call your distributor
- or: MILLER Electric Mfg. Co., P.O. Box 1079, Appleton, WI 54912 414-734-9821

LIMITED WARRANTY

Effective January 1, 1992
(Equipment with a serial number preface of "KC" or newer)

This limited warranty supersedes all previous manufacturers warranties and is exclusive with no other guarantees or warranties expressed or implied.

LIMITED WARRANTY – Subject to the terms and conditions below, warrants to its original retail purchaser that new equipment sold after the effective date of this limited warranty is free of defects in material and workmanship at the time it is shipped from factory. THIS WARRANTY IS EXPRESSLY IN LIEU OF ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING THE WARRANTIES OF MERCHANTABILITY AND FITNESS.

Within the warranty periods listed below, manufacturer will repair or replace any warranted parts or components that fail due to such defects in material or workmanship. Manufacturer must be notified in writing within thirty (30) days of such defect or failure, at which time manufacturer will provide instructions on the warranty claim procedures to be followed.

Manufacturer shall honor warranty claims on warranted equipment listed below in the event of such a failure within the warranty time periods. All warranty time periods start on the date that the equipment was delivered to the original retail purchaser, or one year after the equipment is sent to the distributor.

1. 5 Years Parts – 3 Years Labor
 - Original main power rectifiers
2. 3 Years — Parts and Labor
 - Transformer/Rectifier Power Sources
 - Plasma Arc Cutting Power Sources
 - Semi-Automatic and Automatic Wire Feeders
 - Robots
3. 2 Years — Parts and Labor
 - Engine Driven Welding Generators
(NOTE: Engines are warranted separately by the engine manufacturer for a period of two years.)
 - Air Compressors
4. 1 Year — Parts and Labor
 - Motor Driven Guns
 - Process Controllers
 - Water Coolant Systems
 - HF Units
 - Grids
 - Spot Welders
 - Load Banks
 - SDX Transformers
 - Running Gear/Trailers
 - Field Options
(NOTE: Field options are covered under the limited warranty for the remaining warranty period of the product they are installed in, or for a minimum of one year — whichever is greater.)
5. 6 Months — Batteries
6. 90 Days — Parts and Labor
 - MIG Guns/TIG Torches
 - Plasma Cutting Torches

- Remote Controls
- Accessory Kits
- Replacement Parts

Limited Warranty shall not apply to:

1. Items furnished by manufacturer, but manufactured by others, such as engines or trade accessories. These items are covered by the manufacturer's warranty, if any.
2. Consumable components; such as contact tips, cutting nozzles, contactors and relays or parts that fail due to normal wear.
3. Equipment that has been modified by any party other than manufacturer, or equipment that has been improperly installed, improperly operated or misused based upon industry standards, or equipment which has not had reasonable and necessary maintenance, or equipment which has been used for operation outside of the specifications for the equipment.

MANUFACTURER'S PRODUCTS ARE INTENDED FOR PURCHASE AND USE BY COMMERCIAL/INDUSTRIAL USERS AND PERSONS TRAINED AND EXPERIENCED IN THE USE AND MAINTENANCE OF WELDING EQUIPMENT.

In the event of a warranty claim covered by this warranty, the exclusive remedies shall be, at manufacturer's option: (1) repair; or (2) replacement; or, where authorized in writing by manufacturer in appropriate cases, (3) the reasonable cost of repair or replacement at an authorized service station; or (4) payment of or credit for the purchase price (less reasonable depreciation based upon actual use) upon return of the goods at customer's risk and expense. Manufacturer's option of repair or replacement will be F.O.B., Factory at Appleton, Wisconsin, or F.O.B. at an authorized service facility as determined by manufacturer. Therefore no compensation or reimbursement for transportation costs of any kind will be allowed.

TO THE EXTENT PERMITTED BY LAW, THE REMEDIES PROVIDED HEREIN ARE THE SOLE AND EXCLUSIVE REMEDIES. IN NO EVENT SHALL MANUFACTURER BE LIABLE FOR DIRECT, INDIRECT, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES (INCLUDING LOSS OF PROFIT), WHETHER BASED ON CONTRACT, TORT OR ANY OTHER LEGAL THEORY.

ANY EXPRESS WARRANTY NOT PROVIDED HEREIN AND ANY IMPLIED WARRANTY, GUARANTY OR REPRESENTATION AS TO PERFORMANCE, AND ANY REMEDY FOR BREACH OF CONTRACT TORT OR ANY OTHER LEGAL THEORY WHICH, BUT FOR THIS PROVISION, MIGHT ARISE BY IMPLICATION, OPERATION OF LAW, CUSTOM OF TRADE OR COURSE OF DEALING, INCLUDING ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR PARTICULAR PURPOSE, WITH RESPECT TO ANY AND ALL EQUIPMENT FURNISHED BY MANUFACTURER IS EXCLUDED AND DISCLAIMED BY MANUFACTURER.

Some states in the U.S.A. do not allow limitations of how long an implied warranty lasts, or the exclusion of incidental, indirect, special or consequential damages, so the above limitation or exclusion may not apply to you. This warranty provides specific legal rights, and other rights may be available, but may vary from state to state.

In Canada, legislation in some provinces provides for certain additional warranties or remedies other than as stated herein, and to the extent that they may not be waived, the limitations and exclusions set out above may not apply. This Limited Warranty provides specific legal rights, and other rights may be available, but may vary from province to province.

RECEIVING-HANDLING

Before unpacking equipment, check carton for any damage that may have occurred during shipment. File any claims for loss or damage with the delivering carrier. Assistance for filing or settling claims may be obtained from distributor and/or equipment manufacturer's Transportation Department.

When requesting information about this equipment, always provide Model Designation and Serial or Style Number.


Use the following spaces to record Model Designation and Serial or Style Number of your unit. The information is located on the rating label or nameplate.








Model _____

Serial or Style No. _____


Date of Purchase _____

SAFETY PRECAUTIONS FOR GMAW GUNS

 WARNING	GMAW WELDING can be hazardous.
PROTECT YOURSELF AND OTHERS FROM POSSIBLE SERIOUS INJURY OR DEATH. KEEP CHILDREN AWAY. PACEMAKER WEARERS KEEP AWAY UNTIL CONSULTING YOUR DOCTOR.	
<p>In welding, as in most jobs, exposure to certain hazards occurs. Welding is safe when precautions are taken. The safety information given below is only a summary of the more complete safety information found in the wire feeder and welding power source Owner's Manuals. Read and follow all safety precautions.</p>	
HAVE ALL INSTALLATION, OPERATION, MAINTENANCE, AND REPAIR WORK PERFORMED ONLY BY QUALIFIED PEOPLE.	

	<p>ELECTRIC SHOCK can kill.</p> <ol style="list-style-type: none"> 1. Always wear dry insulating gloves. 2. Insulate yourself from work and ground. 3. Do not touch live electrode or electrical parts. 4. Repair or replace worn, damaged, or cracked gun or cable insulation. 5. Turn off welding power source before changing contact tip or gun parts. 6. Keep all covers and handle securely in place. 		<p>ARC RAYS can burn eyes and skin.</p> <ol style="list-style-type: none"> 1. Wear welding helmet with correct shade of filter. 2. Wear correct eye and body protection. 3. Cover exposed skin with spatter-resistant clothing.
	<p>HOT SURFACES can burn skin.</p> <ol style="list-style-type: none"> 1. Allow gun to cool before touching. 2. Do not touch hot metal. 3. Protect hot metal from contact by others. 		<p>NOISE can damage hearing; SOME APPLICATIONS, SUCH AS PULSING, are noisy.</p> <ol style="list-style-type: none"> 1. Check for noise level limits exceeding those specified by OSHA. 2. Use approved ear plugs or ear muffs if noise level is high. 3. Warn others nearby about noise hazard.
	<p>FUMES AND GASES can be hazardous to your health.</p> <ol style="list-style-type: none"> 1. Keep your head out of the fumes. 2. Ventilate area, or use breathing device. 3. Read Material Safety Data Sheets (MSDSs) and manufacturer's instructions for material used. 		<p>WELDING WIRE can cause puncture wounds.</p> <ol style="list-style-type: none"> 1. Keep hands and body away from gun tip when trigger is pressed.
	<p>WELDING can cause fire or explosion.</p> <ol style="list-style-type: none"> 1. Do not weld near flammable material. 2. Do not weld on closed containers. 3. Watch for fire; keep extinguisher nearby. 		

EMF INFORMATION

<p>NOTE </p>	<p><i>Considerations About Welding And The Effects Of Low Frequency Electric And Magnetic Fields</i></p>
<p>The following is a quotation from the General Conclusions Section of the U.S. Congress, Office of Technology Assessment, <i>Biological Effects of Power Frequency Electric & Magnetic Fields - Background Paper</i>, OTA-BP-E-53 (Washington, DC: U.S. Government Printing Office, May 1989): "... there is now a very large volume of scientific findings based on experiments at the cellular level and from studies with animals and people which clearly establish that low frequency magnetic fields can interact with, and produce changes in, biological systems. While most of this work is of very high quality, the results are complex. Current scientific understanding does not yet allow us to interpret the evidence in a single coherent framework. Even more frustrating, it does not yet allow us to draw definite conclusions about questions of possible risk or to offer clear science-based advice on strategies to minimize or avoid potential risks."</p>	<p>To reduce magnetic fields in the workplace, use the following procedures:</p> <ol style="list-style-type: none"> 1. Keep cables close together by twisting or taping them. 2. Arrange cables to one side and away from the operator. 3. Do not coil or drape cables around the body. 4. Keep welding power source and cables as far away as practical. 5. Connect work clamp to workpiece as close to the weld as possible. <p>About Pacemakers: The above procedures are among those also normally recommended for pacemaker wearers. Consult your doctor for complete information.</p> <p style="text-align: right; font-size: small;">mod10.1 4/93</p>

SECTION 1 – SAFETY INFORMATION

mod1.1 2/93



- Read all safety messages throughout this manual.
- Obey all safety messages to avoid injury.
- Learn the meaning of WARNING and CAUTION.

1 **WARNING**

2 **ELECTRIC SHOCK can kill.**

3

4

5

- Do not touch live electrical parts.
- Disconnect input power before installing or servicing.

2 **CAUTION**

3 **MOVING PARTS can injure.**

4

- Keep away from moving parts.
- Keep all panels and covers closed when operating.

6 **WARNING** **READ SAFETY BLOCKS at start of Section 3-1 before proceeding.**

7 **NOTE** *Turn Off switch when using high frequency.*

1 Safety Alert Symbol

2 Signal Word

WARNING means possible death or serious injury can happen.

CAUTION means possible minor injury or equipment damage can happen.

3 Statement Of Hazard And Result

4 Safety Instructions To Avoid Hazard

5 Hazard Symbol (If Available)

6 Safety Banner

Read safety blocks for each symbol shown.

7 NOTE

Special instructions for best operation – not related to safety.

Figure 1-1. Safety Information

SECTION 2 – SPECIFICATIONS

Table 2-1. Welding Gun

Specifications	Description
Rated Output	160 Amperes Using CO ₂ Shielding Gas – Air-Cooled
Duty Cycle	See Figure 2-1
Wire Diameter	.023 And .030 in (0.6 And 0.8 mm) Hard Or Flux-Cored Wires
Weight	10 ft Gun – Net: 2.8 lb (1.3 kg); Ship: 5.4 lb (2.4 kg)

2-1. Duty Cycle

CAUTION

WELDING LONGER THAN RATED DUTY CYCLE can damage gun and void warranty.

- Do not weld at rated load longer than shown below.

wfwam8.1 8/93

Minutes

Definition

Duty Cycle is percentage of 10 minutes that gun can weld at rated load without overheating.

60% Duty Cycle At 160 Amperes Using CO₂ Gas

6 min 4 min

30% Duty Cycle At 160 Amperes Using Mixed Gases

3 min 7 min

sb1.5 8/93

Figure 2-1. Duty Cycle

SECTION 3 – INSTALLATION

3-1. Preparing And Installing Gun

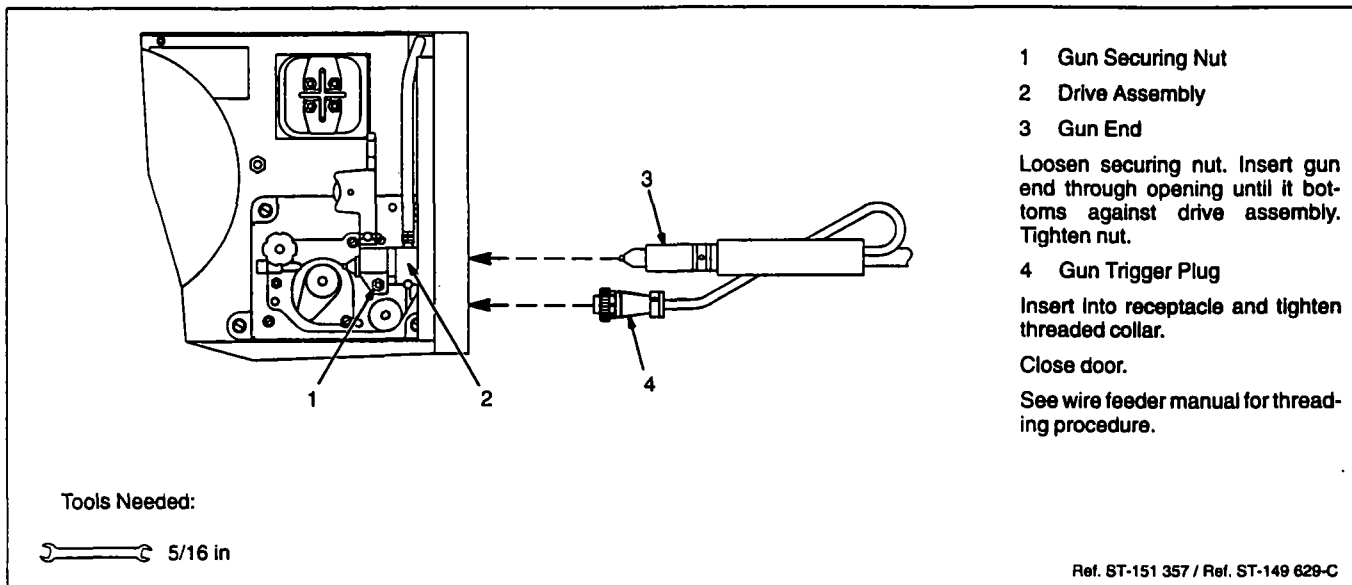


Figure 3-1. Installing Gun

SECTION 4 – OPERATION



4-1. Operating The Gun

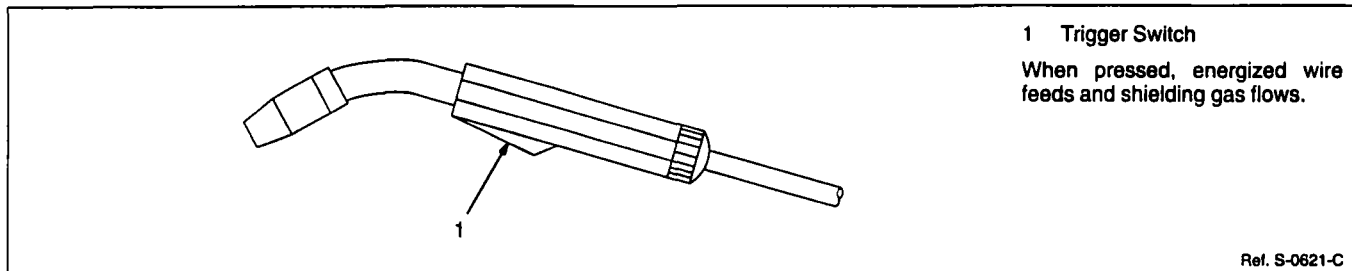


Figure 4-1. Using Gun Switch

SECTION 5 – MAINTENANCE & TROUBLESHOOTING

 WARNING		READ SAFETY BLOCKS at beginning of manual before proceeding.
--	---	---

5-1. Maintenance And Troubleshooting




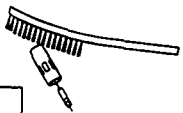


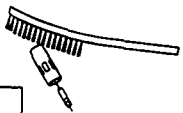

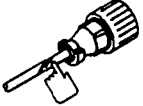



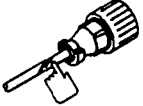




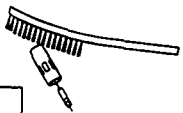

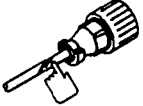


 Turn Off all power before maintaining.	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th colspan="2" style="text-align: center;">Each Spool Of Wire</th> </tr> <tr> <td style="width: 50%; padding: 5px;">  See Section 5-2 </td> <td style="width: 50%; padding: 5px;">  Blow Out Gun Casing </td> </tr> <tr> <td style="padding: 5px;">  Clean Nozzle And Check Contact Tip </td> <td style="padding: 5px;"></td> </tr> </table>	Each Spool Of Wire		 See Section 5-2	 Blow Out Gun Casing	 Clean Nozzle And Check Contact Tip		<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th colspan="2" style="text-align: center;">3 Months</th> </tr> <tr> <td style="width: 50%; padding: 5px;">  Replace Cracked Parts </td> <td style="width: 50%; padding: 5px;">  Control Cord </td> </tr> <tr> <td style="padding: 5px;">  Gas Hose </td> <td style="padding: 5px;">  Gun Cable </td> </tr> </table>	3 Months		 Replace Cracked Parts	 Control Cord	 Gas Hose	 Gun Cable
Each Spool Of Wire														
 See Section 5-2	 Blow Out Gun Casing													
 Clean Nozzle And Check Contact Tip														
3 Months														
 Replace Cracked Parts	 Control Cord													
 Gas Hose	 Gun Cable													

Figure 5-1. Routine Maintenance

Table 5-1. Troubleshooting

Trouble	Remedy
Wire does not feed.	Check contact tip. Check for kinks in gun cable. Check trigger connection at welding power source/wire feeder. Have nearest Factory Authorized Service Station/Service Distributor check gun trigger switch.
Wire is not energized.	Check contact tip. Check trigger connection at welding power source/wire feeder. Have nearest Factory Authorized Service Station/Service Distributor check gun trigger switch.
Wire feeds unevenly.	Check contact tip. Check for kinks in gun cable. Blow out liner and gun casing.

5-2. Changing Contact Tip And Liner

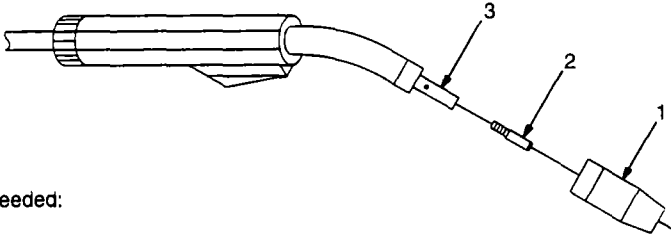
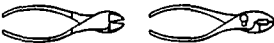
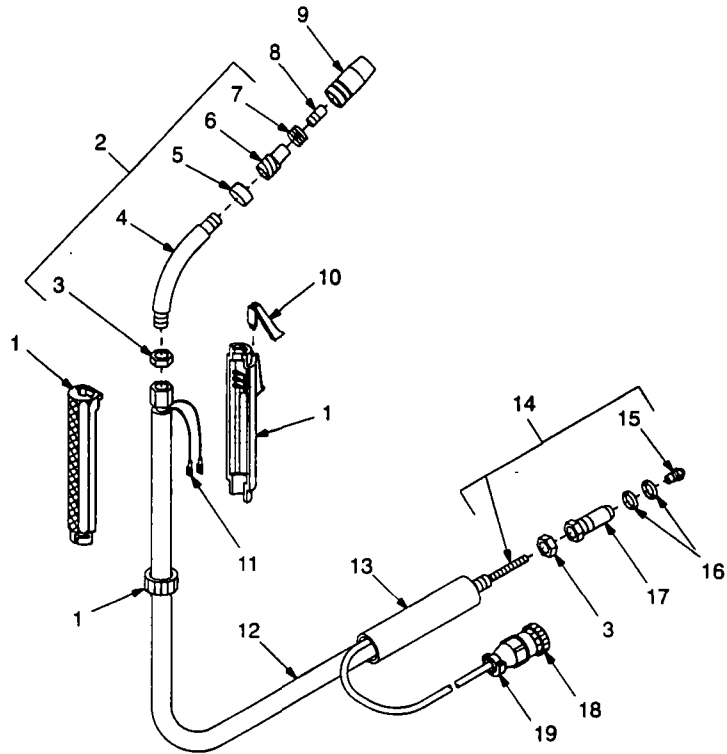
 <p style="margin-top: 20px;">Tools Needed:</p> 	<p>Turn off welding power source/wire feeder. Cut off wire at nozzle.</p> <ul style="list-style-type: none"> 1 Nozzle 2 Contact Tip 3 Contact Tip Adapter
---	--

Figure 5-2. Changing Contact Tip

SECTION 6 – PARTS LIST



Ref. ST-110 832-D

Figure 6-1. Complete Assembly

Item No.	Part No.	Description	Quantity
Figure 6-1. Complete Assembly			
... 1	110 793	HANDLE ASSEMBLY	1
... 2	110 795	TUBE, head (consisting of)	1
... 3	110 780	NUT, M 10 x 1	2
... 4	110 779	JACKET, head tube	1
... 5	110 781	STOP, nozzle	1
... 6	128 878	ADAPTER, head tube nozzle	1
... 7	118 571	SPRING, nozzle	1
... 8	112 743	TIP, contact .024 (.6 mm)	1
... 8	112 751	TIP, contact .030 (.8 mm)	1
... 9	112 747	NOZZLE, slip type 1/2 orifice	1
... 9	◆ 113 018	NOZZLE, slip type 3/8 orifice	1
... 9	◆ 113 022	NOZZLE, spot flat	1
... 9	◆ 113 020	NOZZLE, spot	1
... 10	110 794	TRIGGER SWITCH ASSEMBLY	1
... 11	080 565	TERMINAL, frict uninsul fem 22-18ga	2
... 12	110 792	CABLE, 10ft	1
... 13	110 797	SLEEVE, rubber	1
... 14	167 440	LINER, monocoil .023-.035 wire 10ft (consisting of)	1
... 15	110 784	COLLET, liner .023-.030 wire	1
... 16	079 974	O-RING, 1/2 ID x .103	2
... 17	110 796	CONNECTOR, gun/feeder	1
... 18	079 878	CONNECTOR & PINS, (consisting of)	1
... 18	079 535	CONNECTOR, circ pin push-in 14-18ga Amp 66359-6	4
... 19	048 834	CONNECTOR, circ clamp str rlf sz 11 Amp 206062-4	1

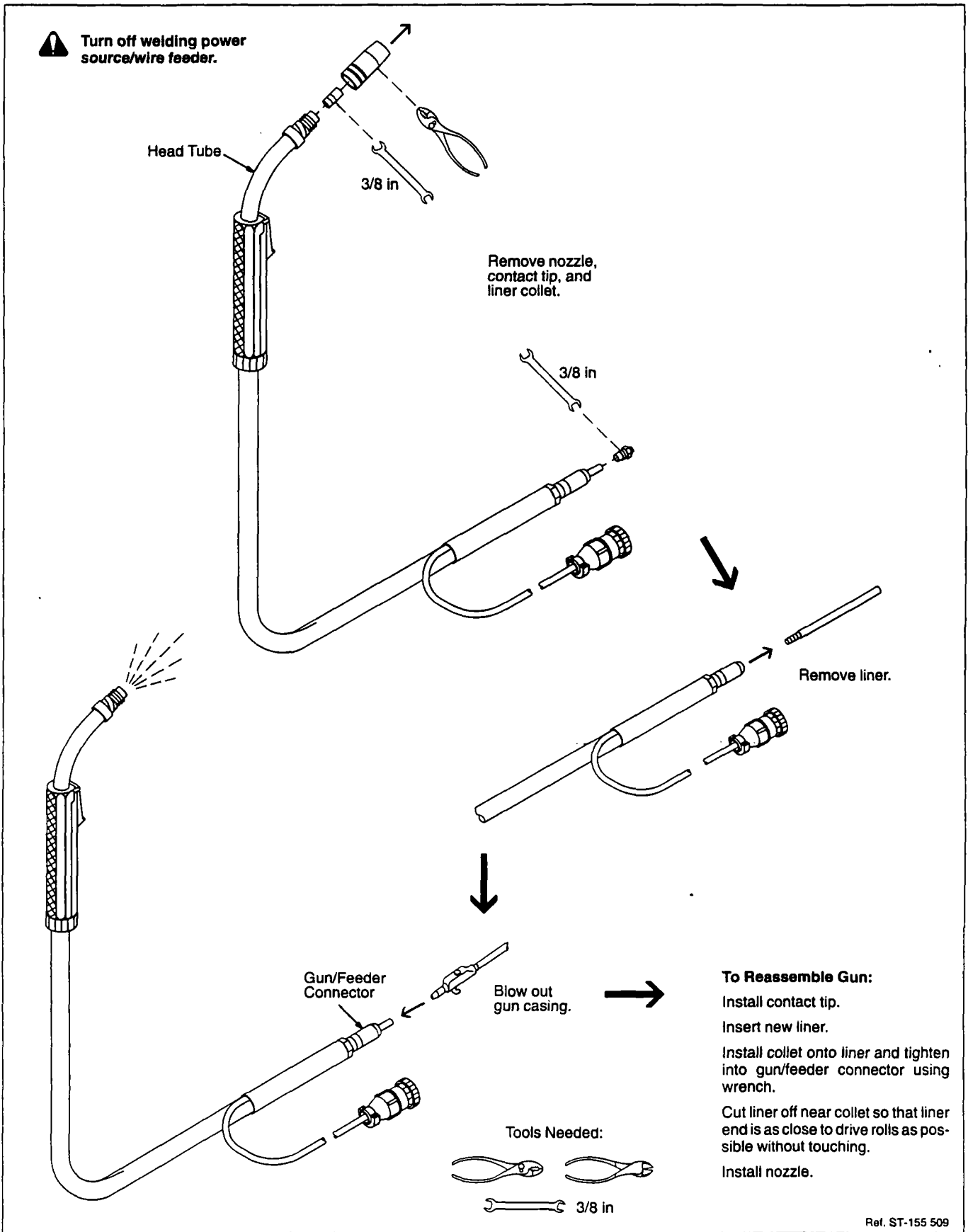
◆ OPTIONAL

BE SURE TO PROVIDE MODEL AND SERIAL NUMBER WHEN ORDERING REPLACEMENT PARTS.

⚠ CAUTION

FLYING METAL CHIPS AND DIRT can cause injury and damage equipment.

- Point gun away from people and in a safe direction when blowing out with compressed air.



Ref. ST-155 509

Figure 5-3. Changing Liner

