



ArcSafe™ Advantage Robotic System

For Models

300 Amp, 500 Amp Air-Cooled & 550 Amp Water-Cooled



INSTALLATION, OPERATIONS AND REPLACEMENT PARTS MANUAL

SERVICE QUALITY SOLUTIONS

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INTRODUCTION

Thank you for purchasing an American Weldquip product. The American Weldquip product you have purchased has been carefully manufactured, assembled, and fully tested. This manual contains information on the installation, operation, maintenance, and replacement part breakdown. Please read, understand, and follow all safety instructions, warnings and procedures. Keep this manual handy for referencing installation, operation, maintenance, and part ordering information. While every precaution has been taken as to the accuracy in this manual, American Weldquip, Inc. assumes no responsibility for errors or omissions. American Weldquip, Inc. assumes no liability for damages resulting from the use of the information contained in this manual. American Weldquip, Inc. shall have no liability to the buyer for consequential damages or expenses by any defect whatsoever.

WARRANTY

AMERICAN WELDQUIP MIG guns and parts are warranted to be free of defects in material and/or workmanship for the period of time listed below. For any product found to be defective under normal use, AMERICAN WELDQUIP, INC. at our option, will repair, replace or issue a credit for the value of the defective product. All warranty claims must be submitted by the original purchaser. Use of non-genuine AMERICAN WELDQUIP parts and/or consumables may damage and/or severely limit the performance of the equipment which may limit or void any warranties. AMERICAN WELDQUIP, INC. will not assume responsibility for incidental damages or expenses related to any defect.

This warranty does not cover damage caused by misuse or abuse, accident, alteration of product, improper installation, misapplication,

lack of reasonable care and maintenance, unauthorized repairs or modifications, loss of use while at a repair facility or other conditions that are beyond the control of American Weldquip, Inc.

A Return Authorization Number (RA#) must be attained from the factory for any product being returned for Warranty Repair or Replacement. All returned product must be shipped freight prepaid by the sender. No- charge replacements, repaired products, or credit will be issued, once the returned product has been evaluated and warranty condition has been verified. If an immediate replacement is required before proper warranty evaluation, a purchase order number is required and the goods will be invoiced. A credit will be issued once it is determined that a warranty condition exists.

STANDARD WARRANTY

All Semi-Automatic, Automatic, Robotic MIG TORCHES and Components	= 120 Days
MIG Torch Trigger Switches (Contacts only) -Excludes Smoke Extraction	= LIFETIME
Robotic Nozzle Cleaning Stations, Wire Cutter	= 90 Days
Robotic Peripherals, ArcSafe, Gun Mounts	= 90 Days
TIG POINT Tungsten Electrode Grinders	= 90 Days

LIMITED EXTENDED WARRANTY PROTECTION

This limited extended warranty protection expands coverage to loyal customers who use all GENUINE American Weldquip consumables. Customers filing a claim under the extended warranty will need to prove, by providing past invoices, that they have been purchasing and using Genuine American Weldquip consumables.

All Semi-Automatic, Automatic, Robotic MIG TORCHES and Components	= 1 YEAR
MIG Torch Trigger Switches (Contacts only) -Excludes Smoke Extraction	= LIFETIME
MIG Torch Handles	= LIFETIME
Robotic Nozzle Cleaning Stations, Wire Cutter	= 90 Days
Robotic Peripherals, ArcSafe, Gun Mounts	= 90 Days
TIG POINT Tungsten Electrode Grinders	= 90 Days

ROHS COMPLIANT

RoHS (Restriction of Hazardous Substances) is an environmental law which addresses the European Union directive 2002/95/EC known as the RoHS Directive. The RoHS directive restricts the use of hazardous substances listed below in electrical and electronic equipment. While it is not a requirement to meet the directive in the United States, at this time, American Weldquip Inc. feels this is an important part of our "Go Green initiative. We have taken all reasonable steps to try to insure the supporting evidence regarding the absence of the restricted substances to support RoHS compliance.

For reference, the maximum concentration values of the restricted substances by weight in homogenous materials are:

Lead/Lead Components	- 0.1%
Mercury	- 0.1%
Hexavalent Chromium	- 0.1%
Polybrominated Biphenyls (PBBs)	- 0.1%
Polybrominated Diphenyl Ethers (PBDEs)	- 0.1%
Cadmium	-0.01%

For RoHS Certification of Compliance Letter on a particular product please visit our website – www.weldquip.com or email us at technical@weldquip.com or call 330-239-0317.



GENERAL SAFETY PRECAUTIONS

Before installing, operating or performing maintenance please read the safety precautions below. Failure to observe safety precautions can result in injury or death.

WARNING – A welding arc emits ultraviolet (UV) and other radiation and can cause serious injury to unprotected skin and eyes.

WARNING – Hot metal produced by welding can cause severe burns. Heat from arcs and hot weld spatter and sparks can start fires and cause explosions of flammable gases.

WARNING – Fumes and gases generated from welding can cause severe injury to respiratory system and even death. DO NOT weld in confined spaces and make sure there is plenty of ventilation. Do not breathe fumes and gases as can cause asphyxiation.

WARNING – Electrical shock can kill. Do not touch live electrical parts and/or use in damp locations.

1. Always wear a welding helmet with the correct filter and cover plate.
2. Always wear safety Glasses with side shields in any work area even if a welding helmet is also required.
3. All exposed skin should be covered with flameproof protective clothing. This includes leather gloves, heavy long sleeve shirt, cuff less pants and high topped shoes. DO NOT WEAR CLOTHING MADE FROM FLAMMABLE SYNTHETIC FIBERS.
4. Protective screens or barriers should be used to protect others from spatter, flash and glare while welding.
5. Make sure work area is free of all combustible materials or cover with a protective non-flammable cover.
6. Remove all flammable gas cylinders as welding sparks can cause explosion in the event of a leak. Take serious precautions if welding in area of flammable gas lines and/or tanks.
7. Know where a fire extinguisher is at all times. The best practice is to have an extinguisher, water pail, fire hose and/or sand bucket available for immediate use.
8. Poorly maintained equipment can cause injury or death
9. Inspect, repair or replace worn or damaged welding cables and torch leads.
10. Insure equipment is properly grounded and installed according to code.
11. Never wrap the weld cable or torch leads around your body.
12. Make sure equipment is turned off when not in use.

ADDITIONAL SOURCES FOR SAFETY INFORMATION

ANSI Standard Z49.1 CODE FOR SAFETY IN WELDING AND CUTTING - American National Standards Institute, 1430 Broadway, New York, NY 10018

NFPA Standard 51B, "Fire Prevention in the Use of Cutting and Welding Processes – National Fire Protection Association, Batterymarch Park, Quincy, MA 02269

CSA Standard W117.2 CODE FOR SAFETY IN WELDING AND CUTTING - Canadian Standards Association, Standards Sales, 178 Rexdale Boulevard, Rexdale, Ontario, Canada M9W 1R3.

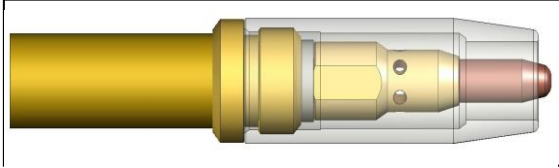
TORCH SPECIFICATIONS

MODEL	AMPERAGE	100% Duty Cycle		60% Duty Cycle	
		CO2	Mixed Gas	CO2	Mixed Gas
300R	300	300A	250A	325A	300A
500R	500	500A	400A	525A	500A
550R	550	550A	425A	575A	550A

Duty Cycle is based on a complete cycle time of 10 minutes. (60% Duty Cycle = 6 minutes weld time, 4 minutes off time).

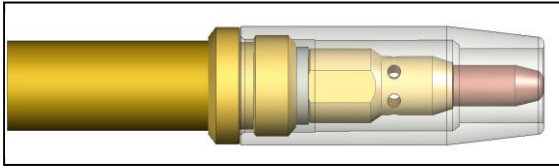
NOZZLE/TIP RELATIONSHIPS

Shown below are typical relationship between the contact tip and nozzle in GMAW Semi-Automatic applications. Nozzles to tip relationships are usually dictated by the process and application but not necessarily the standard. Keep in mind that decreased tip life, increased spatter cleaning cycles may be required if the tip relationship is changed to achieve other objectives.



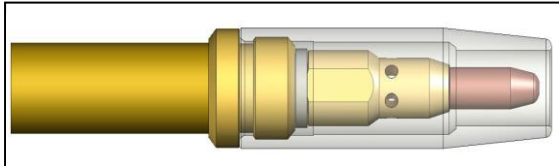
Extended Tip – Short Circuit (Short Arc, Dip Transfer) Welding Applications

The tip stick out is usually 1/8" or 1/4" from the nozzle. Keep in mind that the further the stick out the more susceptible to gas porosity issues. Typically is used in short circuit, lower amperage applications, and/or where you may need to reach in to a corner.



Flush Tip – Higher current Short Circuit (Short Arc, Dip Transfer) Welding Applications

The tip is flush with the end of the nozzle. Typically used in higher current and voltage short circuit applications.



Recessed Tip – Spray Arc, Pulsed, Flux Core Welding Applications

The tip is usually recessed in the nozzle 1/8" or 1/4". Usually, the higher the heat and/or current the further the recess. However, this is also dependant on the wire used and the arc length requirement.

INSTALLATION

The ArcSafe™ Advantage has been engineered to be used on most robot manufacturer's hollow wrist (Thru Arm) model systems. The main rotating/electrical connection of the ArcSafe is designed so it can be installed on any make and model thru arm robot. What differentiates each model of ArcSafe Advantage system for the different robot models are the insulating adaptor disk, the appropriate power cable length and feeder connection.

Positioning

For ease of installation position the robotic arm and wrist extended out straight in relation to the wire feeder.



Adaptor Insulating Disk Installation

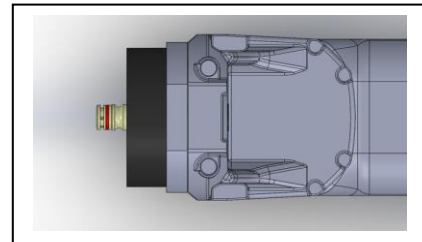
- 1) Install the proper insulating disk with correct mount screws.
- 2) Torque screws to 45 in. lbs. (5 nm).

Verify Correct Power Cable Length

IMPORTANT: HAVING A CABLE THAT IS TOO SHORT OR TOO LONG CAN SIGNIFICANTLY REDUCE CABLE LIFE. In all “Thru Arm” Robotic systems it is EXTREMELY important that the cable is the proper length. In most situations, at the time the order is placed, when the robot manufacturer, model number and feeder type is provided we can manufacture and provide the correct cable length. Unfortunately, there are other variables that might be involved that are beyond our control, such as a different feeder placement than we are aware of, this may result in a cable assembly that is too short or too long. To verify that you have received the correct power cable length see the instructions below. If your cable length is not correct, please contact the factory.

- 1) If not complete already install the proper insulating disk with correct mount screws. If using the Xtra-Gard Collision Deflector Module (AST-2000) install at this time. (See ArcSafe Advantage Main Unit Installation Page 7).
- 2) Feed the cable assembly through the robot arm and make the connection to the wire feeder assembly. You do not need to install the liner at this point.
- 3) Feed the other end of the power cable through the robot wrist, insulating disk, and if necessary, the Xtra-Gard.

- 4) Measure the brass cable fitting protruding out the insulating disk/Xtra-Gard. The ideal stick out is .750” (19mm) +/- .250” (6.5mm)

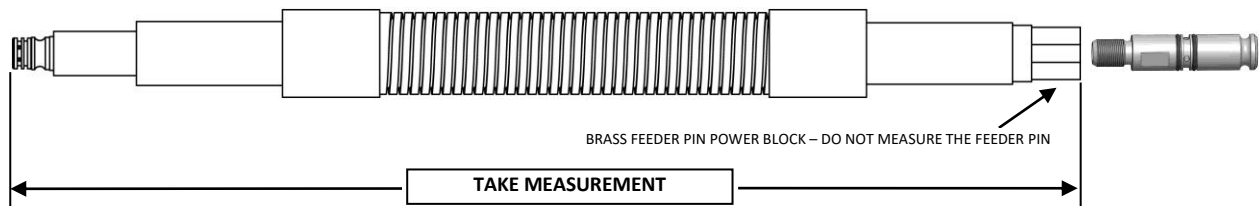


- 5) To adjust to the proper length you might be able to do this by moving the wire feeder forward or rearward. In some cases there might not be enough adjustment to insure the proper length. **Contact American Weldquip IF YOU CANNOT attain the proper cable length adjustment.**
- 6) If correct, remove the power cable from the wire feeder and install the liner. Insert the liner into power cable and secure with set screw or liner retaining cap. **Do not trim liner at this time.**
- 7) Proceed with the rest of the installation.

How To Determine The Proper Replacement Cable Length

It is important when ordering a replacement cable to calculate the proper length.

- 1) Take a measurement from the brass cable connector where it plugs into the AST module to the feeder pin power block on the other end of the cable. **DO NOT INCLUDE THE FEEDER PIN** in the measurement.



- 2) Subtract 2.50” (63.5mm) from the overall measurement. This will be the cable length you will need to order.

i.e. Total length measured 34” (863.6mm) = 34” (863.6mm) – 2.50” (63.5mm) = 31.5” (800mm) cable length to order.

ArcSafe Advantage Main Unit Installation

- 3) Make sure the gooseneck is not installed in the main unit.
- 4) Feed the power cable assembly with the feeder pin side through the robotic arm toward the wire feeder. **DO NOT CONNECT TO THE FEEDER AT THIS TIME.**
- 5) Insert the other end of the cable with the AST main unit power connection fitting, with the liner installed, through the robotic arm and feed all the way through the insulating disc.
- 6) Insert the power cable end with the liner exposed through the center of ArcSafe unit.
- 7) Make sure to fully seat the power cable end fitting into the power cable rotary block on the back of the ArcSafe and secure the two (2) set screws with a 3mm hex wrench.
 - a. **WARNING: MAKE SURE THE POWER CABLE IS FULLY SEATED INTO THE ROTARY BLOCK ASSEMBLY AND THAT THE TWO SETSCREWS ARE TIGHT. FAILURE TO DO WILL RESULT IN DAMAGE TO THE CABLE AND HEAD ASSEMBLY.**
- 8) Mount ArcSafe Advantage Series Unit to the insulating disk using screws provided.
- 9) Torque screws to 45 in. lbs. (5 nm).
- 10) If installing a water-cooled unit feed the water lines through the two access holes in the insulating disk. Continue to feed through the robotic wrist, through the arm and out to the water circulator.
- 11) If not installed push the hose into the push-to-connect elbows on the main unit.

Feeder Connection Installation

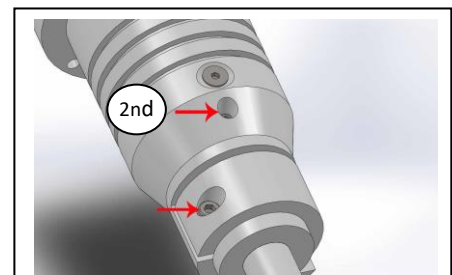
Depending on how your American Weldquip torch was ordered it was supplied with either a EURO type feeder connection or a DIRECT wire feeder connection. The torch is supplied (depending on the torch configuration ordered) with a feeder connection plug (Euro or other type) at the rear of the torch and, if required, a gas connection.

- 1) For ease of installation loosen the bolts securing the wire feed unit to the bracket on the robot and move rearward.
- 2) If not already done, insert the liner into power cable and secure with set screw or liner retaining cap. **Do not trim liner at this time.**
- 3) Feed the power cable, feeder pin first, rearward through the arm of the robot. **NOTE:** If your feeder pin required a gas hose you must feed the power cable from the rear of the arm by the feeder through the hole and push forward towards the wrist. Make sure that the cable connection to at ArcSafe main unit is fed though first.
- 4) Fully insert the feeder pin into wire feeder and secure.
- 5) If required, connect power supply cable to power lug (i.e. OTC/Daihen).
- 6) If required, connect the gas hose from the feeder plug to the gas connection on the feeder or other supply means.
- 7) A voltage sensing wire (BLUE) is integrated into the cable design which exits the rear support. If your system requires make your voltage sensing connection here.
- 8) Slide the wire feeder forward or rearward so there is a slight arc in the cable assembly towards the front of the robot arm and tighten the bolts to secure to the bracket.

WARNING: WHEN FEEDING WELD WIRE THROUGH THE TORCH KEEP THE FRONT END OF THE TORCH POINTED AWAY FROM ANY PERSON OR OBJECT. DO NOT POINT AT FACE, HANDS ETC. FAILURE TO DO SO WILL RESULT IN BODILY INJURY AND POSSIBLY DEATH.

Gooseneck Installation

- 1) Remove dust boot from ArcSafe Advantage Series Unit.
- 2) Remove all consumables from gooseneck.
- 3) Feed the liner through the gooseneck.
- 4) Align torch and aluminum housing flats and make sure to insert the gooseneck completely into ArcSafe Advantage Series Unit.



- 5) Tighten first the front gooseneck securing screw with a 3mm hex wrench to secure neck.
- 6) Tighten the rear gooseneck securing screw with a 3mm hex wrench.
- 7) Trim liner to proper length (approx. 3/4") and reinstall all consumables.
- 8) Reinstall dust boot.

1st

MAINTENANCE

Complete Liner Replacement

Warnings – To avoid accidental injury ensure power supply and wire feed unit is turned off.

The ArcSafe Advantage System is supplied standard with a front loading gooseneck liner. This liner system consist of three items – cable liner, floating dual liner collet, and gooseneck liner.

- 1) Trim the end of the weld wire at contact tip.
- 2) Retract or completely remove weld wire so torch can be removed from the wire feeder.
- 3) Remove the nozzle, contact tip and diffuser.
- 4) Remove the gooseneck from the ArcSafe Advantage unit.
- 5) While looking through the access hole in the adaptor insulating disk grab the power cable and twist to align the setscrew with the hole. Using a 3mm Allen Wrench loosen the setscrew and remove the power cable. Be careful not to lose the floating dual liner collet which is in the front of the power cable connection.
- 6) Remove the torch cable from the wire feed unit.
- 7) Loosen the set screw at the torch feeder connection using a 5/64" Allen wrench.
- 8) Making sure the torch cable is straight, grasp the liner at the rear of the torch with a pair of pliers and remove.

INSTALLATION

- 9) Remove the dual liner collet from the power cable assembly. (FIG. 1)
- 10) Carefully feed the new liner into the torch using short strokes to avoid kinking fully seating the liner at the rear of the cable.
- 11) Cut the liner flush with the end fitting on the front of the cable assembly. (Fig. 2)
- 12) Remove the liner from the cable and carefully cut 6 (SIX) turns off the front of the liner.
- 13) Reinstall the liner and tighten the set screw to secure the liner in the torch cable. **IMPORTANT: Install the Floating Liner Collet and make sure it is flush or slightly recessed in the cable fitting. (FIG 3)**
- 14) Reinstall the torch to the wire feed unit.
- 15) Insert and/or make sure the Floating Liner Collet is in the front of the cable assembly.
- 16) Insert the cable assembly into the rear of the ArcSafe unit and secure in place by tightening the 3mm setscrew.
- 17) Reinstall the gooseneck.
- 18) Using the previous trimmed liner piece or a new gooseneck liner install into the front of the gooseneck making sure it is seated into the liner collet.
- 19) Trim the liner to 3/8" stick out from the end of the gooseneck. (FIG. 4)
- 20) Replace the diffuser, contact tip and nozzle.
- 21) Feed welding wire into the torch and tighten drive rolls.

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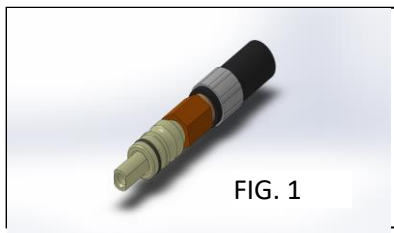


FIG. 1

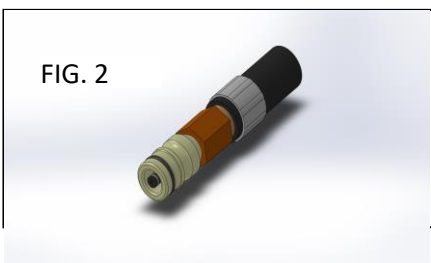


FIG. 2



FIG. 3

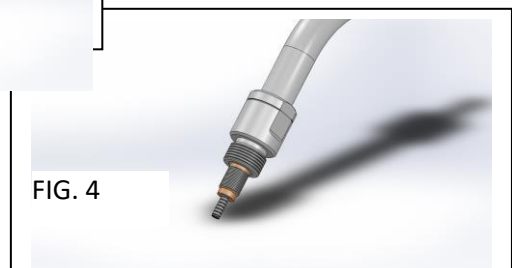


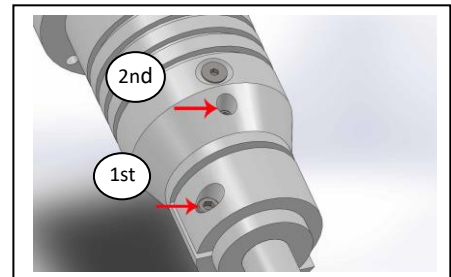
FIG. 4

Gooseneck Jump Liner Replacement

- 1) Trim the end of the weld wire at contact tip.
- 2) Remove the nozzle, contact tip and diffuser.
- 3) DO NOT retract the weld wire as it is used to guide the gooseneck jump liner into position.
- 4) Remove the jump liner from the front of the torch using a pair of pliers.
- 5) Insert the weld wire into the new gooseneck jump liner and then push the liner into the front of the gooseneck making sure it is seated into the liner collet.
- 6) Trim the liner to $\frac{3}{4}$ " stick out from the end of the gooseneck. (FIG 4)
- 7) Replace the diffuser, contact tip and nozzle.

Gooseneck Replacement

- 1) Remove dust boot from ArcSafe Advantage Series Unit.
- 2) Trim the end of the weld wire and/or remove all consumables from gooseneck.
- 3) Loosen both the 3mm hex screws securing the gooseneck in the ArcSafe housing.
- 4) Remove the gooseneck.
- 5) Align torch and aluminum housing flats and make sure to insert the gooseneck completely into ArcSafe Advantage Series Unit.
- 6) Tighten first the front gooseneck securing screw(1st) with a 3mm hex wrench to secure neck.
- 7) Tighten the rear gooseneck securing screw(2nd) with a 3mm hex wrench.
- 8) Reinstall the gooseneck jump liner and trim to $\frac{3}{4}$ " stickout.
- 9) Reinstall dust boot.
- 10) Reinstall the diffuser, contact tip and nozzle.



Unicable Replacement

While it is not necessary to remove the main ArcSafe unit from the face of the robot it is recommended to insure that when reinstalling the cable connection to the main unit that it is fully seated and secure.

To change the power cable without removing the main unit process as follows:

- 1) Remove all consumables and the gooseneck from the ArcSafe Advantage system.
- 2) While looking through the access hole in the adaptor insulating disk grab the cable and twist to align the setscrew with the hole.
- 3) Loosen the setscrew with a 3mm hex wrench and pull the power cable out from its connection.
- 4) Loosen the bolts securing the wire feed unit to the bracket on the robot and move rearward.
- 5) If required remove the gas hose and/or power supply cable connection from the feeder plug. Loosen the cable connection from the feeder and remove the cable assembly from the robotic arm.
- 6) When replacing the cable assembly you may be required to swap the feeder connection plug to the new cable.
- 7) To install new cable assembly first install liner – See COMPLETE LINER REPLACEMENT on Page 7.

- 8) Feed the power cable, feeder pin first, rearward through the arm of the robot. **NOTE:** If your feeder pin required a gas hose you must feed the power cable from the rear of the arm by the feeder through the hole and push forward towards the wrist. Make sure that the cable connection to at ArcSafe main unit is fed though first.
- 9) Fully insert the feeder pin into wire feeder and secure.
- 10) If required, connect power supply cable to power lug (i.e. OTC/Daihen).
- 11) If required, connect the gas hose from the feeder plug to the gas connection on the feeder or other supply means.
- 12) A voltage sensing wire (BLUE) is integrated into the cable design which exits the rear support. If your system requires make your voltage sensing connection here.
- 13) Slide the wire feeder forward and tighten the bolts to secure to the bracket.
- 14) Insert the power cable end with the liner through the robotic arm wrist and the ArcSafe main unit.
- 15) Make sure to fully insert and seat the power cable end fitting into the power cable rotary block on the back of the ArcSafe and secure the set screw with a 3mm hex wrench.
- 16) Reinstall the gooseneck and trim the liner to $\frac{3}{4}$ ".
- 17) Reinstall the consumables.

WARNING: WHEN FEEDING WELD WIRE THROUGH THE TORCH KEEP THE FRONT END OF THE TORCH POINTED AWAY FROM ANY PERSON OR OBJECT. DO NOT POINT AT FACE, HANDS ETC. FAILURE TO DO SO WILL RESULT IN BODILY INJURY AND POSSIBLY DEATH.

DAILY MAINTENANCE

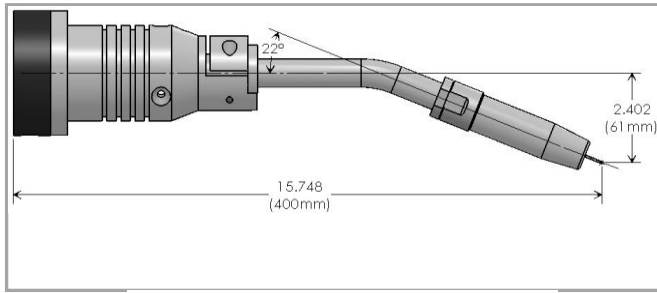
A few minutes per day performing a quick check of your mig torch will help to decrease weld problems, minimize downtime, and help increase consumable life.

At Beginning of Shift

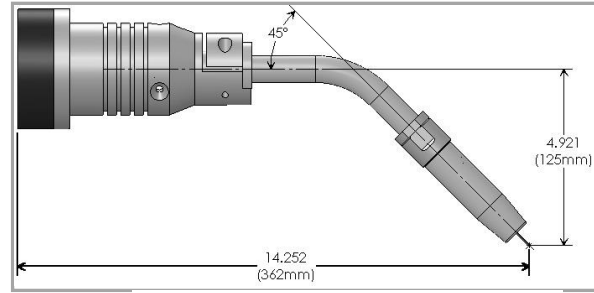
- Inspect the cable for cuts, nicks or tears. If you can see bare copper return for maintenance.
- Inspect the front end consumables. Clean weld spatter and inspect the nozzle insulator. If nozzle insulation is damaged is should be replaced.
- Check that the gas diffuser is tight on the gooseneck.
- Check the gas holes on the diffuser and clean if necessary.
- Check and tighten the contact tip.
- Check all electrical connections including the power cable from the power supply, torch/feeder connections, and control cables for loose connections. Tighten if necessary. Loose connections can cause overheating of cables and/or loss of electrical power.

SPECIFICATIONS

GOOSENECK SELECTION	DESCRIPTION	100% Duty Cycle		60% Duty Cycle		TIP SIZE	TIP PART #	DIFFUSER	NOZZLE SIZE	NOZZLE PART #	FEEDER CONNECTION	GOOSENECK ANGLE
		CO2	MIXED GAS AR/CO2	CO2	MIXED GAS AR/CO2							
300 Series	300A Air-Cooled	350A	300A	375A	350A	.035" (1.2mm) M6	75035511	75002007	9/16" (15.1mm)	75135601-I	EURO	Specify 22 or 45
500 Series	500A Air-Cooled	500A	400A	550A	500A	.045" (1.2mm) M8	75045014	75004033	5/8" (15.9mm)	75146202	EURO	Specify 22 or 45
550 Series	550A Air-Cooled	550A	425A	575A	550A	.045" (1.2mm) M8	75045014	75004033	5/8" (15.9mm)	75146202	EURO	Specify 22 or 45



300/500/550 SERIES – 22



300/500/550 SERIES – 45

NOZZLE SELECTION CHART

300 SERIES NOZZLES

PART #	DESCRIPTION	TYPE	BORE SIZE	MATERIAL	BORE ID DIMENSION	O.A.L.	INSULATOR REQUIRED
75133801	NOZZLE - CONICAL	A	3/8" (9.5mm)	NI PLATED BRASS	.375"(9.5mm)	2.820" (71.6mm)	NONE REQ.
75133802	NOZZLE - BOTTLE NOSE	C	3/8" (9.5mm)	NI PLATED BRASS	.375"(9.5mm)	2.820" (71.6mm)	NONE REQ.
75135601-I	NOZZLE - CONICAL	A	9/16" (14.2mm)	NI PLATED BRASS	.593"(15.1mm)	2.820" (71.6mm)	INSTALLED
75135002-I	NOZZLE - TAPERED	B	1/2" (12.7mm)	NI PLATED BRASS	.500"(12.7mm)	2.820" (71.6mm)	INSTALLED
75135003-I	NOZZLE - TAPERED	C	1/2" (12.7mm)	NI PLATED BRASS	.500"(12.7mm)	2.672" (67.96mm)	INSTALLED
75135602-I	NOZZLE - CONICAL	A	9/16" (14.2mm)	NI PLATED BRASS	.593"(15.1mm)	2.545" (64.6mm)	INSTALLED
75135004	NOZZLE - CONICAL SHORT	G	1/2" (12.7mm)	NI PLATED BRASS	.500"(12.7mm)	1.937" (49.2mm)	NONE REQ.

400 SERIES NOZZLES

PART #	DESCRIPTION	TYPE	BORE SIZE	MATERIAL	BORE ID DIMENSION	O.A.L.	INSULATOR REQUIRED
75146201-I	NOZZLE - BOTTLE NOSE	E	5/8" (15.9mm)	NI PLATED BRASS	.625"(15.9mm)	3.125" (79.4mm)	INSTALLED
75145001	NOZZLE - BOTTLE NOSE	C	1/2" (12.7mm)	NI PLATED BRASS	.500"(12.7mm)	3.031" (77.0mm)	75001733
75146202	NOZZLE - CONICAL	A	5/8" (15.9mm)	NI PLATED BRASS	.625"(15.9mm)	3.125" (79.4mm)	75001738
75146202C	NOZZLE - CONICAL	A	5/8" (15.9mm)	NI PLATED COPPER	.625"(15.9mm)	3.125" (79.4mm)	75001738
75146202CU	NOZZLE - CONICAL	A	5/8" (15.9mm)	BARE COPPER	.625"(15.9mm)	3.125" (79.4mm)	75001738
75145601-I	NOZZLE - TAPERED	B	9/16" (14.2mm)	NI PLATED BRASS	.563"(14.2mm)	3.125" (79.4mm)	INSTALLED
75145002C	NOZZLE - TAPERED	B	1/2" (12.7mm)	NI PLATED COPPER	.531"(13.5mm)	3.125" (79.4mm)	75001738
75145002CU	NOZZLE - TAPERED	B	1/2" (12.7mm)	BARE COPPER	.531"(13.5mm)	3.125" (79.4mm)	75001738
75145003	NOZZLE - TAPERED (LONG)	B	1/2" (12.7mm)	NI PLATED BRASS	.500"(12.7mm)	3.915" (99.4mm)	NONE REQ.
75146501S	NOZZLE - SPOT	H	5/8" (15.9mm)	NI PLATED BRASS	.656"(16.7mm)	3.437" (87.3mm)	75001738
75146204-I	NOZZLE - CONICAL	A	5/8" (15.9mm)	NI PLATED BRASS	.625"(15.9mm)	2.820" (71.6mm)	INSTALLED
75146204CU	NOZZLE - CONICAL	A	5/8" (15.9mm)	BARE COPPER	.625"(15.9mm)	2.820" (71.6mm)	75001738
75145602-I	NOZZLE - SMALL CONICAL	D	9/16" (14.2mm)	NI PLATED BRASS	.593"(15.1mm)	2.820" (71.6mm)	INSTALLED
75144301-I	NOZZLE - TAPERED	D	7/16" (11.1mm)	NI PLATED BRASS	.438"(11.1mm)	2.820" (71.6mm)	INSTALLED
75145004	NOZZLE - BOTTLE NOSE	C	1/2" (12.7mm)	NI PLATED BRASS	.500"(12.7mm)	3.125" (79.4mm)	75001733
75146205-I	NOZZLE - CONICAL	A	5/8" (15.9mm)	NI PLATED BRASS	.625"(15.9mm)	3.031" (77.0mm)	INSTALLED
75146205CU	NOZZLE - TAPERED	B	5/8" (15.9mm)	BARE COPPER	.625"(15.9mm)	3.031" (77.0mm)	75001738
75146206-I	NOZZLE - SHORT CONICAL	G	5/8" (15.9mm)	NI PLATED BRASS	.625"(15.9mm)	1.875" (47.6mm)	INSTALLED
75146207-I	NOZZLE - SHORT CONICAL	G	5/8" (15.9mm)	NI PLATED BRASS	.625"(15.9mm)	2.187" (55.6mm)	INSTALLED
75146209-I	NOZZLE - BOTTLE NOSE	E	5/8" (15.9mm)	NI PLATED BRASS	.625"(15.9mm)	3.125" (79.4mm)	INSTALLED
75147501	NOZZLE - CYLINDRICAL	F	3/4" (19.0mm)	NI PLATED BRASS	.703" (17.9mm)	3.125" (79.4mm)	75001738
75147501CU	NOZZLE - CYLINDRICAL	F	3/4" (19.0mm)	BARE COPPER	.703" (17.9mm)	3.125" (79.4mm)	75001738

CONTACT TIP SELECTION CHART

M6 STANDARD CONTACT TIPS

PART #	WIRE SIZE	NOMINAL I.D.	DESCRIPTION
COPPER (CU)			
75023511	.023" (.6mm)	.034"	CONTACT TIP (STANDARD)
75030511	.030" (.8mm)	.038"	CONTACT TIP (STANDARD)
75035511	.035" (.9mm)	.044"	CONTACT TIP (STANDARD)
75035512	.040" (1mm)	.048"	CONTACT TIP (STANDARD)
75045511	.045" (3/64") (1.2mm)	.053"	CONTACT TIP (STANDARD)
75045512	.045" (3/64") (1.2mm)	.059"	

M8 HEAVY DUTY STANDARD CONTACT TIPS

PART #	WIRE SIZE	NOMINAL I.D.	DESCRIPTION
COPPER (CU)			
75030014	.030" (.8mm)	.038"	CONTACT TIP (STANDARD)
75035014	.035" (.9mm)	.044"	CONTACT TIP (STANDARD)
75040014	.040" (1.0mm)	.050"	CONTACT TIP (STANDARD)
75045014	.045" (3/64") (1.2mm)	.054"	CONTACT TIP (STANDARD)
75052014	.052" (1.3mm)	.061"	CONTACT TIP (STANDARD)
75062014	.062" (1/16") (1.6mm)	.073"	CONTACT TIP (STANDARD)
75062015	.062" (1/16") (1.6mm)	.076"	CONTACT TIP (STANDARD)
75078014	.078" (5/64") (2.0 mm)	.087"	CONTACT TIP (STANDARD)
75093014	.093" (3/32") (2.4mm)	.106"	CONTACT TIP (STANDARD)

M8 HRT EXTENDED LIFE CONTACT TIPS

20030400	.030" (.8mm)	.038"	CONTACT TIP (HRT)
20035400	.035" (.9mm)	.044"	CONTACT TIP (HRT)
20040400	.040" (1.0mm)	.050"	CONTACT TIP (HRT)
20045400	.045" (3/64") (1.2mm)	.054"	CONTACT TIP (HRT)
20035500	.035" (.9mm)	.044"	CONTACT TIP (HRT)
20035500T	.035" (.9mm)	.044"	TAPERED CONTACT TIP (HRT)
20040500	.040" (1.0mm)	.050"	CONTACT TIP (HRT)
20040500T	.040" (1.0mm)	.050"	TAPERED CONTACT TIP (HRT)
20045500	.045" (3/64") (1.2mm)	.054"	CONTACT TIP (HRT)
20045500T	.045" (3/64") (1.2mm)	.054"	TAPERED CONTACT TIP (HRT)
20052500	.052" (1.3mm)	.061"	CONTACT TIP (HRT)
20052500T	.052" (1.3mm)	.061"	TAPERED CONTACT TIP (HRT)
20062500	.062" (1/16") (1.6mm)	.076"	CONTACT TIP (HRT)

ROBOTIC TEACH TIPS

750TT014-.500	ROBOTIC TEACH TIP (014 SERIES TIP WITH .500" WIRE STICKOUT)
750TT014-.625	ROBOTIC TEACH TIP (014 SERIES TIP WITH .625" WIRE STICKOUT)
750TT014-.750	ROBOTIC TEACH TIP (014 SERIES TIP WITH .750" WIRE STICKOUT)
750TT230-.625	ROBOTIC TEACH TIP (230 SERIES TIP WITH .625" WIRE STICKOUT)
750TT511-.625	ROBOTIC TEACH TIP (511 SERIES TIP WITH .625" WIRE STICKOUT)

GAS DIFFUSER SELECTION CHART

300 SERIES TORCH – M6 TIP

THREAD

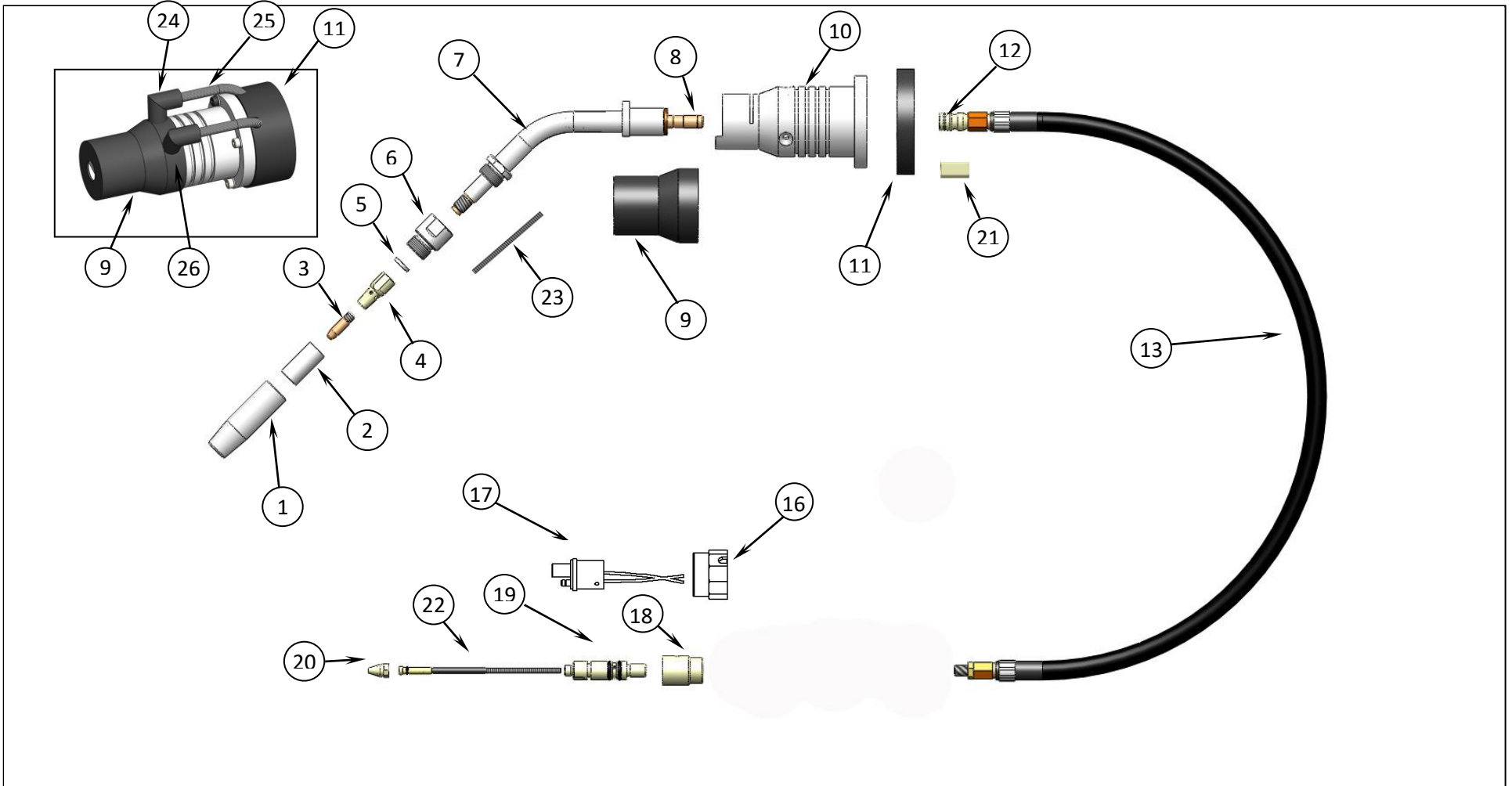
PART #	DESCRIPTION	OVERALL LENGTH
75002007	GAS DIFFUSER – STANDARD	1.220"(31.0MM)
75002007S	GAS DIFFUSER – SHORT	1.160"(29.5MM)
75002007L	GAS DIFFUSER – LONG	1.340"(34.0MM)
75002007XL	GAS DIFFUSER – x-LONG	1.385"(35.2MM)
75002033A	GAS DIFFUSER – 300 SERIES TO M8 THREAD	1.195"(30.4MM)

500 SERIES TORCH – M8 TIP

THREAD

75004033	GAS DIFFUSER – STANDARD	1.438"(36.5MM)
75004033S	GAS DIFFUSER – SHORT	1.275"(32.4MM)
75004033L	GAS DIFFUSER – LONG	1.530"(38.9MM)
75004033XL	GAS DIFFUSER – x-LONG	1.656"(42.1MM)

PARTS BREAKDOWN



NUMERICAL PART LIST

NO.	DESCRIPTION	300A	500A	550A
1	NOZZLE	SEE NOZZLE SELECTION TABLE PAGE 10		
2	NOZZLE INSULATOR	SEE NOZZLE SELECTION TABLE PAGE 10		
3	CONTACT TIP	SEE CONTACT TIP SELECTION TABLE PAGE 11		
4	GAS DIFFUSER, STANDARD	SEE CONTACT TIP SELECTION TABLE PAGE 11		
5	INSULATING WASHER	75001003	75001004	
6	REPLACEABLE NOZZLE SEAT	75077800	75077850	
7	GOOSENECK, 22°	AST-322-H	AST-522-H	AST-622-H
	GOOSENECK, 45°	AST-345-H	AST-545-H	AST-645-H
8	O-RING - GOOSENECK	75000026		
9	DUST BOOT	AST-100		AST-100WC
10	ARCSAFE ROTARY UNIT	AST-1500		
11	ADAPTOR INSULATING DISK			
	ABB	AST-A101		AST-A101WC
	FANUC ARCMATE 100IC,120IC	AST-F101		AST-F101WC
	MOTOMAN MA1400, 1900	AST-M101		AST-M101WC
	MOTOMAN MA1440	AST-M102		AST-M102WC
	OTC	AST-O101		AST-O101WC
	PANASONIC	AST-P101		AST-P101WC
12	ORING - CABLE	37677102		
13	CABLE ASSEMBLY Includes Cable Guard	CONTACT FACTORY		
NS	CABLE GUARD (Per Foot)	AST-108		
14	SUPPORT BOOT	AST-110		
15	HANDLE/ADAPTOR SUPPORT 2 PIECE	75077017		
NS	ADAPTOR SCREW	75077011		
16	EURO ADAPT NUT	75077014		
17	EURO ADAPTOR BLOCK	75001148		
18	DIR CON ADAPT BLK	37077000		
19	DIR CON FEEDER PLUGS			
	MILLER	37577705		
	OTC / DAIHEN	37577700		
	OTC DP SERIES	37577701		
	LINCOLN LN7	37577832		
	PANASONIC	37577999		

NO.	DESCRIPTION	300A	500A	550A
	TWECO #4		37577699	
	TWECO #5		37577930	
	MILLER O-RING		37577102	
	TWECO #4 O-RING		37677102	
	TWECO #5 O-RING		75000021	
NS	7/16 HOSE CLAMP		38577108	
NS	GAS HOSE PER FOOT		38577087	
NS	INERT GAS NUT		38677141	
NS	INERT GAS NIPPLE		38677142	
20	CAP - MILLER FEEDER PIN		37577705-N	
	CAP - OTC FEEDER PIN		38277001-N078	
	CAP - EURO		37077005	
21	MATING LINER COLLET		AST-950-228	
22	.023-.030 LINER, 5FT – T STYLE		75005215T	
	.023-.030 LINER, 10FT – T STYLE		75010215T	
	.035-.045 LINER, 5FT – T STYLE		75005222T	
	.035-.045 LINER, 10FT – T STYLE		75010222T	
	.045-1/16 LINER, 5FT – T STYLE		75005228T	
	.045-1/16 LINER, 10FT – T STYLE		75010228T	
NS	LINER ORING		75000001	
23	GOOSENECK JUMP LINER, .023-.030		AST-03215	
	GOOSENECK JUMP LINER, .035-.045		AST-03222	
	GOOSENECK JUMP LINER, .045-.062		AST-03228	
24	ELBOW COVER		AST-132	
25	HOSE / FOOT		38577088	
	SPRING COVER / FOOT		750202011	
26	ELBOW CONNECTION KIT		AST-130A	
NS	WATER-COOLED CONVERSION KIT		AST-WCKIT	



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