

OM-266361D

2016-09

**Processes** 



TIG (GTAW) Welding



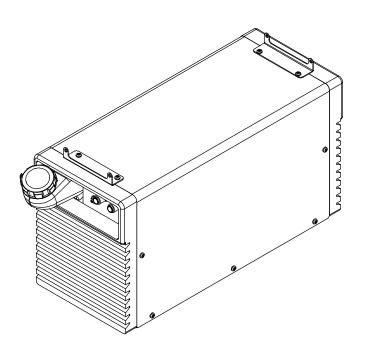
MIG (GMAW) Welding

**Description** 





# Hydracool 270 CE





For product information, Owner's Manual translations, and more, visit

www.MillerWelds.com

**OWNER'S MANUAL** 

# From Miller to You

Thank you and congratulations on choosing Miller. Now you can get the job done and get it done right. We know you don't have time to do it any other way.

That's why when Niels Miller first started building arc welders in 1929, he made sure his products offered long-lasting value and superior quality. Like you, his customers couldn't afford anything less. Miller products had to be more than the best they could be. They had to be the best you could buy.

Today, the people that build and sell Miller products continue the tradition. They're just as committed to providing equipment and service that meets the high standards of quality and value established in 1929.

This Owner's Manual is designed to help you get the most out of your Miller products. Please take time to read the Safety precautions. They will help you protect yourself against potential hazards on the worksite. We've made installation and operation quick and easy. With Miller you can count on years of reliable service with proper maintenance. And if for some reason the unit needs repair, there's a Troubleshooting section that will help you figure out what the problem is. The parts list will then help you to decide which exact part you may need to fix the problem. Warranty and service information for your particular model are also provided.

TPUEBLUE"

Working as hard as you do – every power source from Miller is backed by the most hassle-free warranty in the business.

Miller Electric manufactures a full line of welders and welding related equipment. For

information on other quality Miller products, contact your local Miller distributor to receive the latest full line catalog or individual catalog sheets.



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### **DECLARATION OF CONFORMITY**



for European Community (CE marked) products.

ITW Welding Italy S.r.I Via Privata Iseo 6/E, 20098 San Giuliano M.se, (MI) Italy declares that the product(s) identified in this declaration conform to the essential requirements and provisions of the stated Council Directive(s) and Standard(s).

Product/Apparatus Identification:

Product	Stock Number
HYDRACOOL 270	028042107

### Council Directives:

- ·2006/95/EC Low Voltage
- ·2004/108/EC Electromagnetic Compatibility
- ·2011/65/EU Restriction of the use of certain hazardous substances in electrical and electronic equipment

### Standards:

- ·IEC 60974-1:2012 Arc Welding Equipment Part 1: Welding Power Sources
- ·IEC 60974-2:2013 Arc Welding Equipment Part 2: Liquid cooling systems
- ·IEC 60974-10:2007 Arc Welding Equipment Part 10: Electromagnetic Compatibility Requirements

**EU Signatory**:

June 30<sup>th</sup>, 2015

Massimigliano Lavarini

Date of Declaration

ITW WELDING ITALY PRODUCTION MANAGER

Workoli-

956 172 232

### SECTION 1 - SAFETY PRECAUTIONS - READ BEFORE USING



A Protect yourself and others from injury — read, follow, and save these important safety precautions and operating instructions.

### Symbol Usage



DANGER! - Indicates a hazardous situation which, if not avoided, will result in death or serious injury. The possible hazards are shown in the adjoining symbols or explained in the text.



Indicates a hazardous situation which, if not avoided, could result in death or serious injury. The possible hazards are shown in the adjoining symbols or explained in the text.

**NOTICE** - Indicates statements not related to personal injury.

I Indicates special instructions.







This group of symbols means Warning! Watch Out! ELECTRIC SHOCK, MOVING PARTS, and HOT PARTS hazards. Consult symbols and related instructions below for necessary actions to avoid the

### **Cooling Equipment Hazards**



The symbols shown below are used throughout this manual to call attention to and identify possible hazards. When you see the symbol, watch out, and follow the related instructions to avoid the hazard. The safety information given below is only a summary of the more complete safety information found in the Safety Standards listed in Section 1-5. Read and follow all Safety Standards.



A Only qualified persons should install, operate, maintain, and repair this unit.



During operation, keep everybody, especially children, away.



### HOT PARTS can burn.

- Do not touch hot parts bare handed.
- Allow cooling period before working on equipment.
- To handle hot parts, use proper tools and/or wear heavy, insulated welding gloves and clothing to prevent burns.



### FLYING METAL or DIRT can injure eyes.

Wear approved safety glasses with side shields even under your welding helmet.



### **ELECTRIC SHOCK can kill.**

Touching live electrical parts can cause fatal shocks or severe burns. The input power circuit and machine internal circuits are also live when power is on. Incorrectly installed or improperly grounded equipment is a hazard.

- Do not touch live electrical parts.
- · Disconnect input power or stop engine before installing or servicing this equipment. Lockout/tagout input power according to OSHA 29 CFR 1910.147 (see Safety Standards).
- Properly install, ground, and operate this equipment according to its Owner's Manual and national, state, and local codes.
- Always verify the supply ground check and be sure that input power cord ground wire is properly connected to ground terminal in disconnect box or that cord plug is connected to a properly grounded receptacle outlet.
- Keep cords dry, free of oil and grease, and protected from hot metal and sparks.
- Frequently inspect input power cord and ground conductor for damage or bare wiring - replace immediately if damaged - bare wiring can kill.
- Turn off all equipment when not in use.
- Use only well-maintained equipment. Repair or replace damaged parts at once. Maintain unit according to manual.
- Keep all panels and covers securely in place.

### Additional Symbols For Installation, Operation, And Maintenance



### FALLING EQUIPMENT can injure.

- Use equipment of adequate capacity to lift and support unit.
- If using lift forks to move unit, be sure forks are long enough to extend beyond opposite side of unit.
- Keep equipment (cables and cords) away from moving vehicles when working from an aerial location.
- Follow the guidelines in the Applications Manual for the Revised NIOSH Lifting Equation (Publication No. 94-110) when manually lifting heavy parts or equipment.



### **OVERUSE can cause OVERHEATING**

- Allow cooling period; follow rated duty cycle.
- Do not block or filter airflow to unit.



### **READ INSTRUCTIONS.**

- Read and follow all labels and the Owner's Manual carefully before installing, operating, or servicing unit. Read the safety information at the beginning of the manual and in each
- Use only genuine replacement parts from the manufacturer.
- Perform installation, maintenance, and service according to the Owner's Manuals, industry standards, and national, state, and local codes.
- Read and understand the Safety Data Sheets (SDSs) and the manufacturer's instructions for adhesives, coatings, cleaners. consumables, coolants, degreasers, fluxes, and metals.

### STEAM AND HOT COOLANT can burn.

Hose may rupture if coolant overheats.

- Visually inspect condition of hoses before each use. Do not use damaged hoses.
- Allow cooling period before working on equipment.



### HIGH PRESSURE FLUIDS can injure or kill.

- Coolant can be under high pressure.
- Release pressure before working on cooler.
- If ANY fluid is injected into the skin or body seek medical help immediately.

### MOVING PARTS can injure.

- Keep away from moving parts such as fans.
- Keep all doors, panels, covers, and guards closed and securely in place.
- Have only qualified persons remove doors, panels, covers, or guards for maintenance and troubleshooting as necessary.
- Reinstall doors, panels, covers, or guards when maintenance is finished and before reconnecting input power.

### California Proposition 65 Warnings



⚠ Welding or cutting equipment 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 Section 25249.5 et seq.)



This product contains or produces a chemical known to the state of California to cause cancer or birth defects (or other reproductive harm). (California Health & Safety Code Section 25249.5 et seq.)



This product contains chemicals, including lead, known to the state of California to cause cancer, birth defects, or other reproductive harm. Wash hands after use.

### **Principal Safety Standards**

Safety in Welding, Cutting, and Allied Processes, ANSI Standard Z49.1, is available as a free download from the American Welding Society at http://www.aws.org or purchased from Global Engineering Documents (phone: 1-877-413-5184, website: www.global.ihs.com).

Safe Practices for the Preparation of Containers and Piping for Welding and Cutting, American Welding Society Standard AWS F4.1, from Global Engineering Documents (phone: 1-877-413-5184, website: www.global.ihs.com).

Safe Practices for Welding and Cutting Containers that have Held Combustibles, American Welding Society Standard AWS A6.0, from Global Engineering Documents (phone: 1-877-413-5184, website: www.global.ihs.com).

National Electrical Code, NFPA Standard 70, from National Fire Protection Association, Quincy, MA 02269 (phone: 1-800-344-3555, website: www.nfpa.org and www. sparky.org).

Safe Handling of Compressed Gases in Cylinders, CGA Pamphlet P-1, from Compressed Gas Association, 14501 George Carter Way, Suite 103, Chantilly, VA 20151 (phone: 703-788-2700, website: www.cganet.com).

Safety in Welding, Cutting, and Allied Processes, CSA Standard W117.2, from Canadian Standards Association, Standards Sales, 5060 Spectrum Way, Suite 100, Mississauga, Ontario, Canada L4W 5NS (phone: 800-463-6727, website: www.csagroup.org).

Safe Practice For Occupational And Educational Eye And Face Protection, ANSI Standard Z87.1, from American National Standards Institute, 25 West 43rd Street, New York, NY 10036 (phone: 212-642-4900, website: www.ansi.org).

Standard for Fire Prevention During Welding, Cutting, and Other Hot Work, NFPA Standard 51B, from National Fire Protection Association, Quincy, MA 02269 (phone: 1-800-344-3555, website: www.nfpa.org).

OSHA, Occupational Safety and Health Standards for General Industry, Title 29, Code of Federal Regulations (CFR), Part 1910, Subpart Q, and Part 1926, Subpart J, from U.S. Government Printing Office, Superintendent of Documents, P.O. Box 371954, Pittsburgh, PA 15250-7954 (phone: 1-866-512-1800) (there are 10 OSHA Regional Officesphone for Region 5, Chicago, is 312-353-2220, website: www.osha.gov).

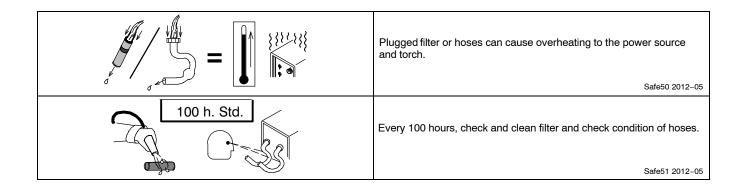
Applications Manual for the Revised NIOSH Lifting Equation, The National Institute for Occupational Safety and Health (NIOSH), 1600 Clifton Rd, Atlanta, GA 30329-4027 (phone: 1-800-232-4636, website: www.cdc.gov/NIOSH).

# **SECTION 2 - DEFINITIONS**

### 2-1. Additional Safety Symbols And Definitions

Some symbols are found only on CE products.

	Warning! Watch Out! There are possible haza	rds as shown by the symbols. Safe1 2012-05
	Do not discard product (where applicable) with Reuse or recycle Waste Electrical and Electrofacility.  Contact your local recycling office or your local	nic Equipment (WEEE) by disposing at a designated collection
	Disconnect input plug or power before working	g on machine. Safe5 2012–05
	Do not remove or paint over (cover) the label.	Safe20 2012-05
	Recycle.	Safe103 2012-09
xxxxx	Use coolant suggested by the manufacturer.	Safe52 2012-05
	Please drain fluid according to instructions.	2012-05
		Read the labels on the welding power source, wire feeder, or other major equipment for welding safety information.  Safe71 2012-06
		Read the Owner's Manual before working on this machine.  Safe70 2012-06



### 2-2. Miscellaneous Symbols And Definitions

Some symbols are found only on CE products.

Α	Amperage
$\sim$	Alternating Current
<b>←</b> ♡	Voltage Input
<b>(1)</b>	Circulating Unit With Coolant Pump
V	Volts
<b>-</b>	Water (Coolant) Input

<b></b>	Water (Coolant) Output
	Line Connection
	Protective Earth (Ground)
IP	Degree Of Protection
I <sub>1</sub>	Primary Current
Hz	Hertz

I	On
0	Off
U₁	Primary Voltage
1~	Single Phase

Notes				

### **SECTION 3 - SPECIFICATIONS**

### 3-1. Serial Number And Rating Label Location

The serial number and rating information for this product is located on the back panel. Use rating label to determine input power requirements and/or rated output. For future reference, write serial number in space provided on cover of this manual.

### 3-2. Specifications\*

Model	Coolant Tank Capacity	Maximum Cooling Capacity	Input Power	Dimensions	Weight
Hydracool 270	5 L	1470 Watts (5020 BTU/hr) 1.0 L/min (1.1 qt/min)	Three Phase 400 VAC 50/60 Hz 0.5 Amperes	Length: 620 mm Height: 320 mm Width: 227 mm	23.2 kg

<sup>\*</sup>IEC Cooling Capacity States That The Water Inlet Temperature Can Not Exceed 40° C Above Ambient Temperature At A 11/ Min Flow Rate.

Recirculating Coolant System For Water-Cooled GTAW Torches And GMAW Guns.

Use With Guns/Torches Rated Up To 280 Amperes

### 3-3. Coolant Specifications



Do not use conductive coolant.

Application	Coolant
GTAW Or Where High Frequency Current Is Used	Coolant 050024004
	Low Conductivity Coolant 043810*
	Distilled Or Deionized Water Okay Above 32°F (0°C)
GMAW Or Where High Frequency Current Is Not Used	Coolant 050024004
	Low Conductivity Coolant 043810*
	Aluminum Protecting Coolant 043809*
	Distilled Or Deionized Water Okay Above 32°F (0°C)
Where Coolant Contacts Aluminum Parts	Aluminum Protecting Coolant 043809*

\*Coolants 043810 and 043809 protect to -37°F (-38°C) and resist algae growth.

NOTICE - Use of any coolant other than those listed in the table voids the warranty on any parts that come in contact with the coolant (pump, radiator, etc.).

### 3-4. Environmental Specifications

### A. IP Rating

### IP Rating

Hydracool 270 - IP23S

This equipment is designed for outdoor use. It may be stored, but is not intended to be used for welding outside during precipitation unless sheltered.

### B. Information On Electromagnetic Compatibility (EMC)



This Class A equipment is not intended for use in residential locations where the electrical power is provided by the public lowvoltage supply system. There can be potential difficulties in ensuring electromagnetic compatibility in those locations, due to conducted as well as radiated disturbances.

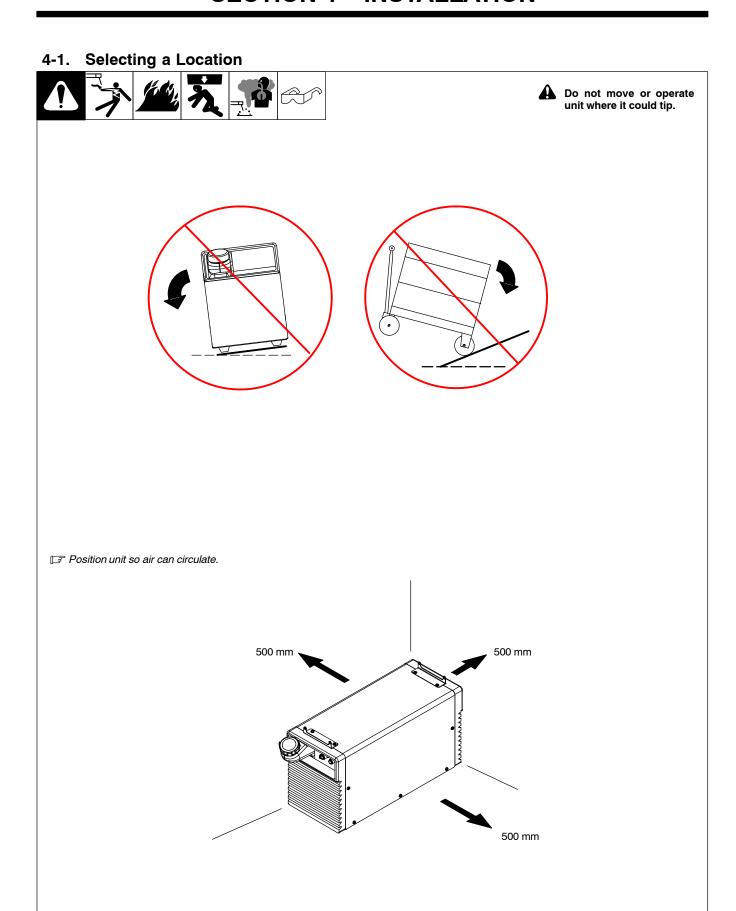
This equipment complies with IEC 61000-3-11 and IEC 61000-3-12.

ce-emc 4 2014-07

### C. Temperature Specifications

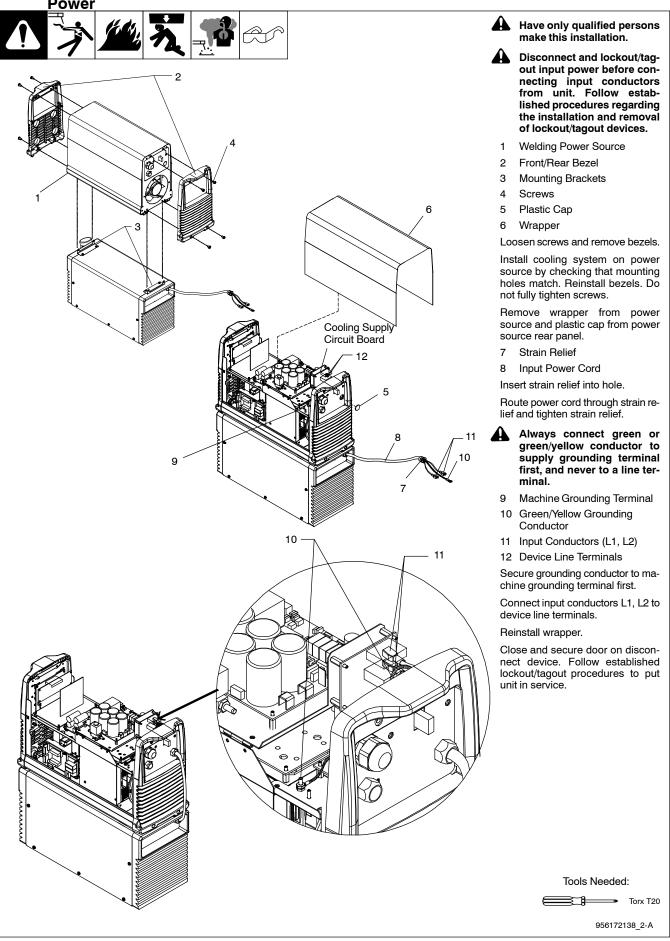
Operating Temperature Range	Storage/Transportation Temperature Range
-10 to 40°C (14 to 104 °F)	20 to 25°C (68 to 77 °F)
	Temp1_016-08

# **SECTION 4 - INSTALLATION**



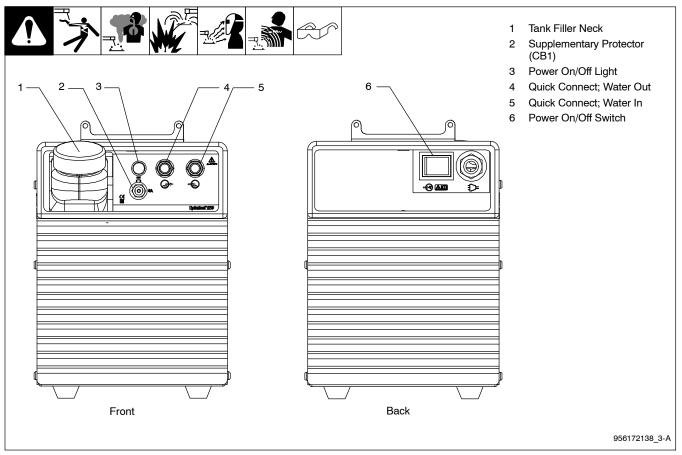
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### 4-2. Installing Unit On A STH 270 Welding Power Source And Connecting 400 VAC Input



# **SECTION 5 - OPERATION**

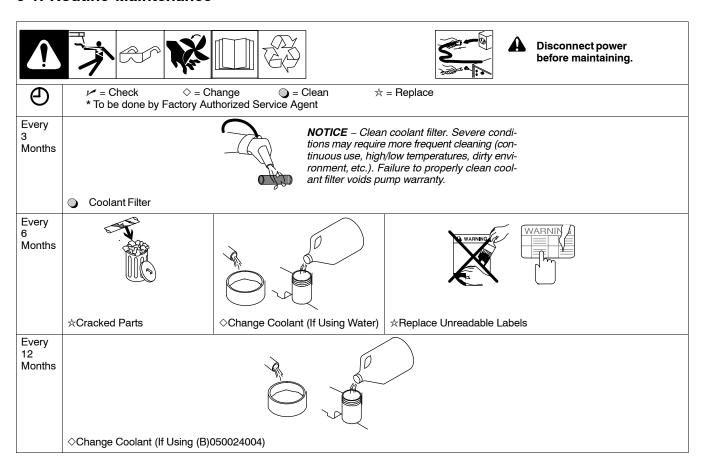
### 5-1. Control Panel



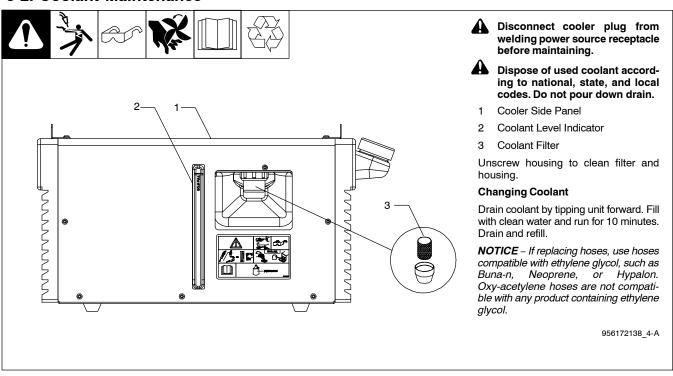
Notes			

### SECTION 6 - MAINTENANCE & TROUBLESHOOTING

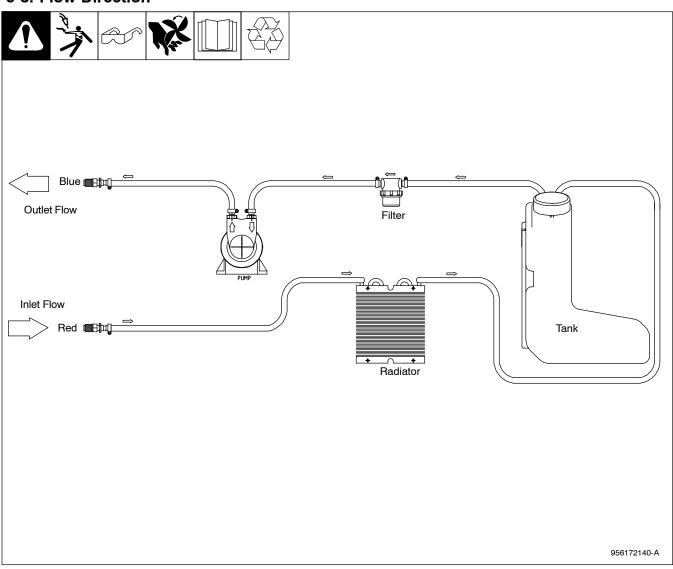
### 6-1. Routine Maintenance



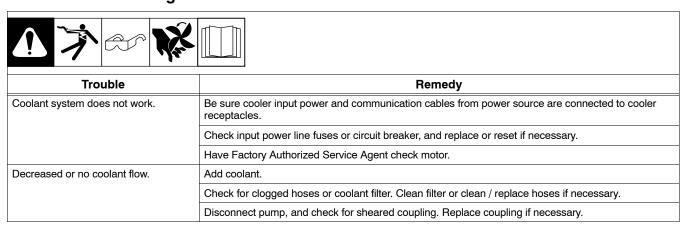
### 6-2. Coolant Maintenance



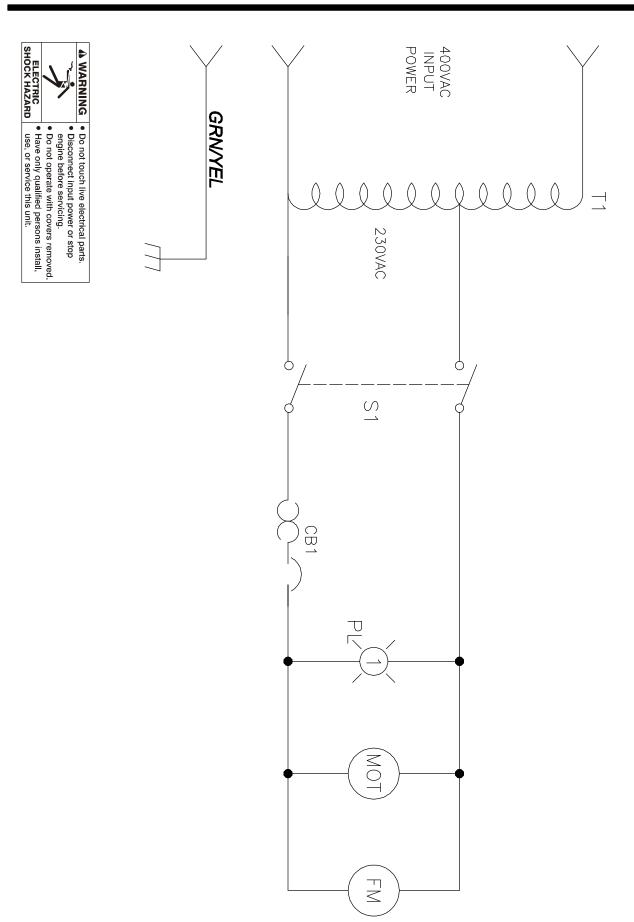
### 6-3. Flow Direction



### 6-4. Troubleshooting

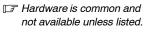


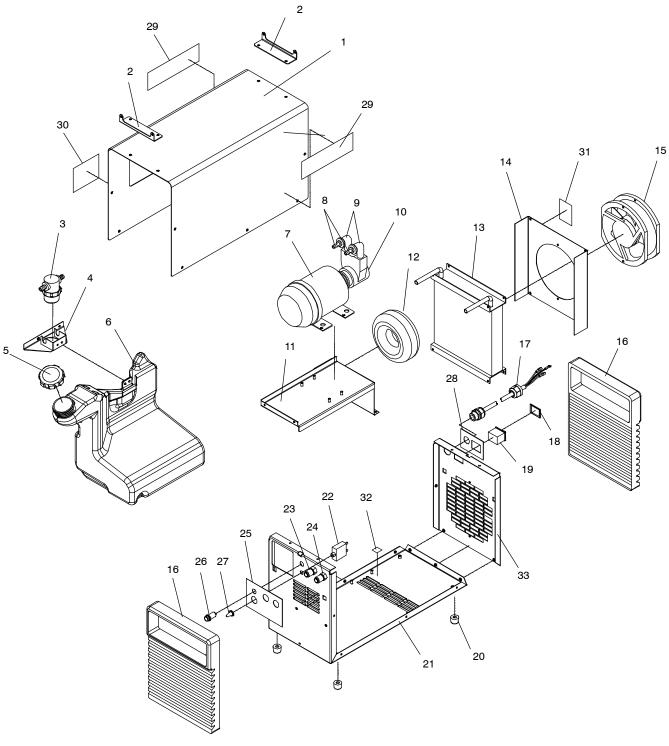
# SECTION 7 - ELECTRICAL DIAGRAM



956172139\_A

## **SECTION 8 - PARTS LIST**





956172138\_5-B

Figure 8-1. Main Assembly, Hydracool 270 CE

Item Dia. Part No. Mkgs. No. Description

### Figure 8-1. Main Assembly, Hydracool 270 CE

1 +116121128 Wrapper 1	
2 156005187 Bracket, Mtg Welding Power Supply 2	
3	
4	
5	
6	
7 MOT 057010060 Motor, 170 W, 230 VAC	
8 556049386 Connector, Male 3/8 D.10	
9 556049419 Elbow Pipe, Male/Female 3/8 2	
10 V57011071 Pump Assy 1	
11 156005186 Mtg Bracket, Motor & Transformer	
12 T1 . 058021161 Transformer, 400/230 VAC	
13 056082104 Radiator Assy	
14 +156005188 Fan Support	
15 FM 235504 Fan Assy, Radiator Cooling 230 V	
16	
17 057014280 Cable, Primary, 400 VAC C/W Strain Relief	
19 S1 . 056067251 Switch, Power On/Off	
20 656110013 Foot, Rubber Mount 4	
22 CB1 083431 Breaker, Circuit 5A	
24 556049409 Water Connection, Quick Connect, Red	
$\mathbf{o}$	
27 156033034 Boot, Rubber	

<sup>+</sup>When ordering a component originally displaying a precautionary label, the label should also be ordered.

To maintain the factory original performance of your equipment, use only Manufacturer's Suggested Replacement Parts. Model and serial number required when ordering parts from your local distributor.

# **Notes**



# Effective January 1, 2016 (Equipment with a serial number preface of MG or newer)

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

LIMITED WARRANTY – Subject to the terms and conditions below, ITW Welding Products Italy warrants to its original retail purchaser that new Miller equipment sold after the effective date of this limited warranty is free of defects in material and workmanship at the time it is shipped by Miller. 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, Miller will repair or replace any warranted parts or components that fail due to such defects in material or workmanship. Miller must be notified in writing within thirty (30) days of such defect or failure, at which time Miller will provide instructions on the warranty claim procedures to be followed. If notification is submitted as an online warranty claim, the claim must include a detailed description of the fault and the troubleshooting steps taken to identify failed components and the cause of their failure.

Miller 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 the equipment was delivered to the original retail purchaser or one year after the equipment is shipped to a European distributor or twelve months after the equipment is shipped to an International distributor.

- 1. 5 Years Parts 3 Years Labor
  - \* Original main power rectifiers only to include SCRs, diodes, and discrete rectifier modules with exclusion of STR, Si, STi, STH and MPi series.
- 3 Years Parts and Labor
  - Engine Driven Welding Generators (NOTE: Engines are warranted separately by the engine manufacturer.)
  - \* Inverter Power Sources (Unless Otherwise Stated)
  - \* Process Controllers
  - \* Semi-Automatic and Automatic Wire Feeders
  - \* Transformer/Rectifier Power Sources
- 3. 2 Years Parts
  - \* Auto-Darkening Helmet Lenses (No Labor)
  - \* Migmatic 175
  - \* HF Units
- 4. 1 Year Parts and Labor Unless Specified
  - \* Automatic Motion Devices
  - Field Options

(NOTE: Field options are covered under True Blue® for the remaining warranty period of the product they are installed in, or for a minimum of one year — whichever is greater.)

- \* Induction Heating Power Sources, Coolers, and Electronic Controls/Recorders
- Motor-Driven Guns (w/exception of Spoolmate Spoolguns)
- \* Positioners and Controllers
- Powered Air Purifying Respirator (PAPR) Blower Unit (No Labor)
- \* Racks
- \* Running Gear and Trailers
- Subarc Wire Drive Assemblies
- Water Coolant Systems
- Work Stations/Weld Tables (No Labor)
- 5. 6 Months Parts
  - \* Batteries

- 6. 90 Days Parts
  - \* Accessory (Kits)
  - \* Canvas Covers
  - \* Induction Heating Coils and Blankets
  - MIG Guns
  - \* Remote Controls
  - \* Replacement Parts (No Labor)
  - Spoolmate Spoolguns
  - \* Cables and Non-Electronic Controls

Miller's True Blue® Limited Warranty shall not apply to:

- Consumable components; such as contact tips, cutting nozzles, contactors, brushes, switches, slip rings, relays or parts that fail due to normal wear.
- Items furnished by Miller, but manufactured by others, such as engines or trade accessories. These items are covered by the manufacturer's warranty, if any.
- Equipment that has been modified by any party other than Miller, 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.

MILLER 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 Miller's option: (1) repair; or (2) replacement; or, where authorized in writing by Miller in appropriate cases, (3) the reasonable cost of repair or replacement at an authorized Miller 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. Miller's option of repair or replacement will be F.O.B., Factory at ITW Welding Products Group Europe or F.O.B. at a Miller authorized service facility as determined by Miller. 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 MILLER 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 MILLER IS EXCLUDED AND DISCLAIMED BY MILLER.





Please complete and retain with your personal records.

Model Name	Serial/Style Number
Purchase Date	(Date which equipment was delivered to original customer.)
Distributor	
Address	
City	
State	Zip



### Contact a DISTRIBUTOR or SERVICE AGENCY near you.

### Always provide Model Name and Serial/Style Number.

Contact your Distributor for:	Welding Supplies and Consumables
	Options and Accessories
	Personal Safety Equipment
	Service and Repair
	Replacement Parts
	Training (Schools, Videos, Books)
	Technical Manuals (Servicing Information and Parts)
	Circuit Diagrams
	Welding Process Handbooks
	To locate a Distributor or Service Agency visit www.millerwelds.com or call 1-800-4-A-Miller
Contact the Delivering Carrier to:	File a claim for loss or damage during shipment.
	For assistance in filing or settling claims, contact your distributor and/or equipment manufacturer's Transportation Department.

### Miller Electric Mfg. Co.

An Illinois Tool Works Company 1635 West Spencer Street Appleton, WI 54914 USA

International Headquarters-USA
USA Phone: 920-735-4505 Auto-Attended
USA & Canada FAX: 920-735-4134
International FAX: 920-735-4125

For International Locations Visit www.MillerWelds.com

