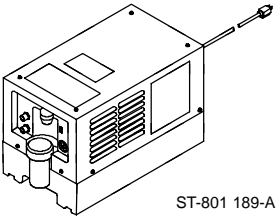

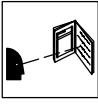






## Coolmate™ 3



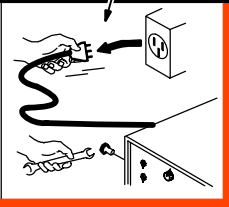

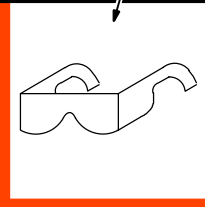
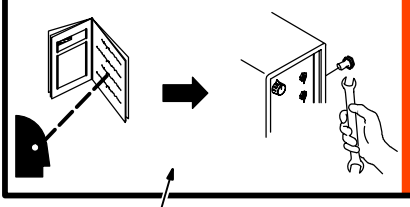
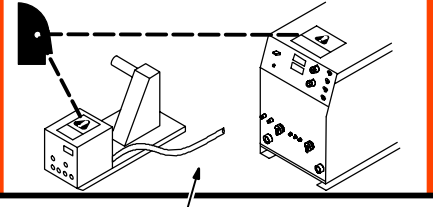
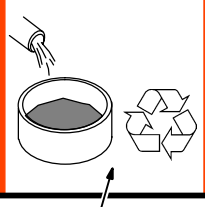
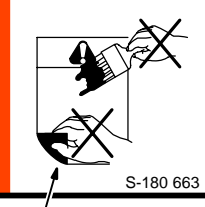
### 1. Specifications

 <p>ST-801 189-A</p>	Recirculating Coolant System For Water-Cooled GTAW Torches And GMAW Guns
	Use With Guns/Torches Rated Up To 600 Amperes
	IP Rating: 23
	3 gal (11.4 L) Coolant Tank Capacity; Maximum Cooling Capacity: 14,000 BTU/hr At 1.25 qt/min (1.2 L/min)
	Dimensions: 23 in (584 mm) Long, 12 in (305 mm) Wide, 13-1/4 in (337 mm) High Weight: 39 lb (18 kg)
	115 Volt Models Use 5.9 Amperes, 50/60 Hertz, Single-Phase Input Power 230 Volt Models Use 3 Amperes, 50/60 Hertz, Single-Phase Input Power

### 2. Safety Symbol Definitions


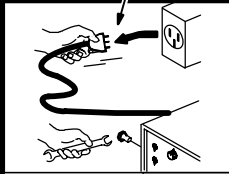
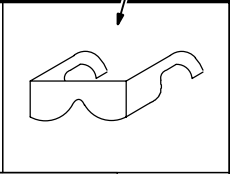
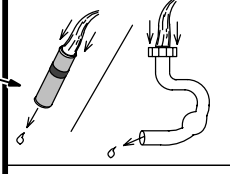
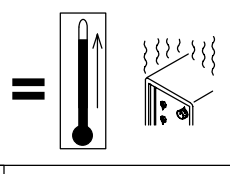
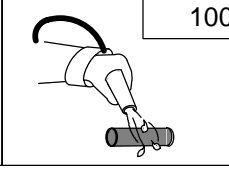
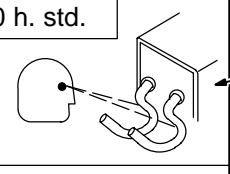
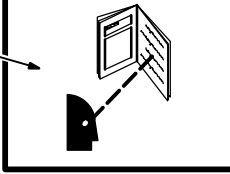
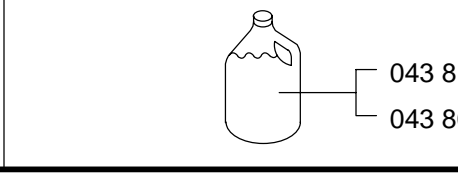
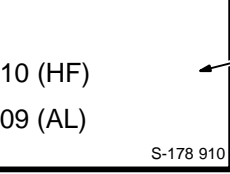
	<p>Means Warning! Watch Out! There are possible hazards with this procedure! The possible hazards are shown in the adjoining symbols.</p> <p>Symbole graphique d'avertissement! Attention! Cette procédure comporte des risques possibles! Les dangers éventuels sont représentés par les symboles graphiques joints.</p>		<p>Have only trained and qualified persons install, operate, or service this unit. Call your distributor if you do not understand the directions. For WELDING SAFETY and EMF information, read wire feeder and welding power source manuals.</p> <p>L'installation, l'exploitation et l'entretien de cet appareil doivent être confiés uniquement à des personnes qualifiées et convenablement formées. S'adresser à un distributeur si l'on ne comprend pas les directives. Pour des renseignements ayant trait à la SÉCURITÉ lors du soudage et aux champs électromagnétiques, consulter les manuels traitant les dévidoirs et les sources de courant pour le soudage.</p>
	<p>Beware of electric shock from wiring. Attention! Risque d'électrocution due au contact avec des fils.</p>		<p>Beware of moving parts. Attention! Pièces en mouvement.</p>
	<p>Wear safety glasses with side shields. Porter des lunettes de sécurité avec protections latérales.</p>		<p>Recycle or dispose of used coolant in an environmentally safe way. Recycler ou éliminer tout liquide de refroidissement utilisé conformément aux méthodes prescrites pour assurer la protection de l'environnement.</p>

### 3. Warning Label Definitions For CE Products

S-180 663

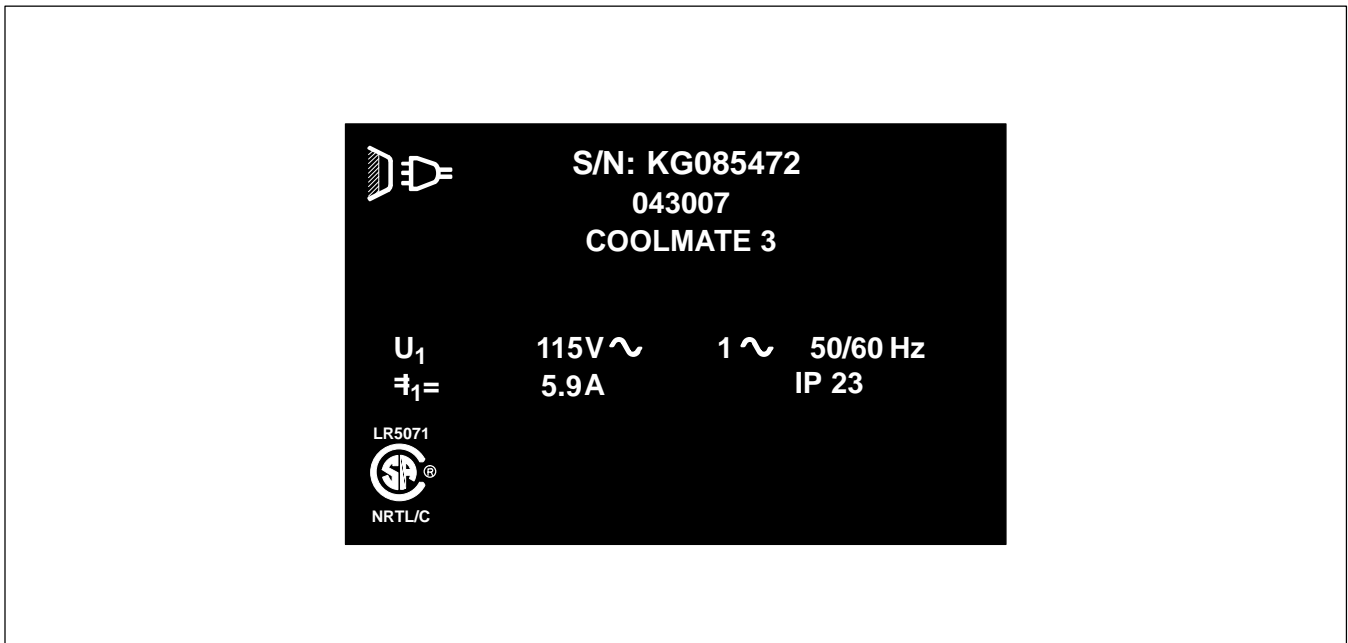
- 1 Warning! Watch Out! There are possible hazards as shown by the symbols.
- 2 Electric shock from wiring can kill.
- 3 Disconnect input plug or power before working on machine.
- 4 Moving parts, such as fans, can cut fingers and hands and cause injury. Keep away from moving parts.
- 5 Wear safety glasses with side shields.
- 6 Read the Owner's Manual before working on this machine.
- 7 Read the labels on the welding power source, wire feeder, or other major equipment for welding safety information.
- 8 Recycle or dispose of used coolant in an environmentally safe way.
- 9 Do not remove or paint over (cover) the label.


S-178 910









- 1 Warning! Watch Out! There are possible hazards as shown by the symbols.
- 2 Disconnect input plug or power before working on machine.
- 3 Wear safety glasses with side shields.
- 4 Plugged filter or hoses cause overheating and damage.
- 5 Read Owner's Manual.
- 6 Check and clean filter every 100 hours; also check condition of hoses.
- 7 Use Low Conductivity Coolant No. 043 810 for High-Frequency assisted or Gas Tungsten Arc Welding applications. Use Aluminum Protecting Coolant No. 043 809 where coolant contacts aluminum parts or for Gas Metal Arc Welding applications or where High Frequency is not used.

#### 4. Rating Label

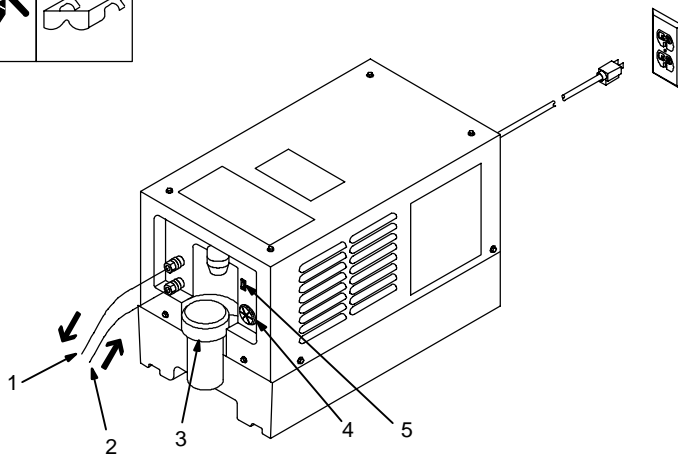


#### 5. Symbols And Definitions

**NOTE**  Some symbols are found only on CE products.

<b>A</b>	Amperes		Alternating Current		Voltage Input		Circulating Unit With Coolant Pump
<b>V</b>	Volts		Water (Coolant) In-put		Water (Coolant) Output		Line Connection
	Protective Earth (Ground)	<b>IP</b>	Degree Of Protection	<b>I<sub>1</sub></b>	Primary Current	<b>Hz</b>	Hertz
<b>I</b>	On		Off	<b>U<sub>1</sub></b>	Primary Voltage	<b>1 ~</b>	Single Phase

## 6. Preparing Cooling Unit For Use



1 Coolant Out Hose

2 Coolant In Hose


Fittings have 5/8-18 left-hand threads. Connect hoses with proper fittings as shown.

3 Coolant Tank Cap

Use table to select proper coolant, and fill tank. Maintain coolant level at approximately 1 in (25 mm) below top of filler neck.

4 Flow Indicator

5 Power Switch

Application	GTAW Or Where HF* Is Used	GMAW Or Where HF* Is Not Used	Where Coolant Contacts Aluminum Parts
 Coolant	Low Conductivity Coolant No. 043 810**; Distilled Or Deionized Water OK Above 32° F (0° C)	Low Conductivity Coolant No. 043 810**; Or Aluminum Protecting Coolant No. 043 809**; Distilled Or Deionized Water OK Above 32° F (0° C)	Aluminum Protecting Coolant No. 043 809**

\*HF: High Frequency Current

\*\*Coolants 043 810 and 043 809 protect to -37° F (-38°C) and resist algae growth.

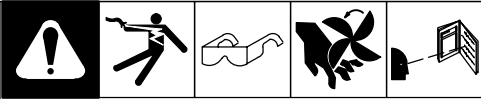
**▲ Use of any coolant other than those listed in the table voids the warranty on any parts that come in contact with the coolant (pump, radiator, etc.).**

Tools Needed:

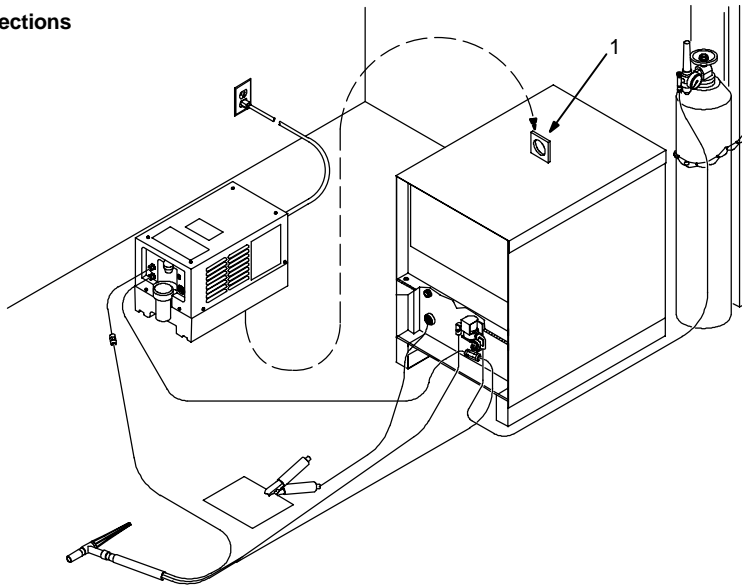


ST-801 193-B

## 7. Connections



### GTAW Connections



#### 1 Lift -Eye

If placing cooling unit on welding power source, slots are provided in bottom of unit so it fits over lift-eye.

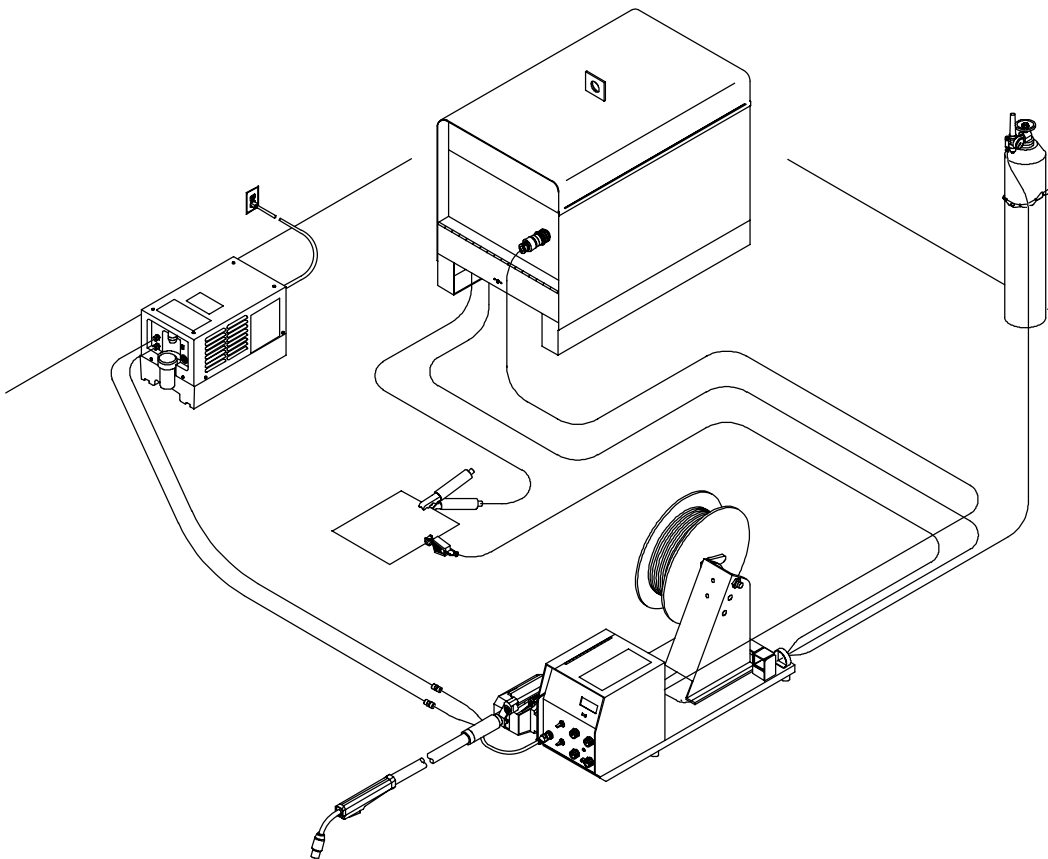
To prevent overheating, make sure cooling unit is positioned so airflow is not restricted.

▲ **If welding power source has a water valve, do not connect hoses to water valve. Connect hoses as shown.**

#### Operation:

Turn power switch On. Flow indicator spins to indicate that at least 0.53 qt/min (0.5 L/min) of coolant is flowing.

### GMAW Connections



ST-801 190-B / ST-801 191-B

## 8. Routine Maintenance

					<p>▲ Disconnect power before maintaining.</p>
<b>3 Months</b>					
<p>▲ <b>Clean coolant strainer.</b> Severe conditions may require more frequent cleaning (continuous use, high/low temperatures, dirty environment, etc.). <b>Failure to properly clean coolant strainer voids pump warranty.</b></p>	<p>Blow Out Heat Exchanger Fins</p>				
<b>6 Months</b>					
<p>Replace Cracked Hoses</p>	<p>Change Coolant (If Using Water)</p>	<p>Replace Unreadable Labels</p>			
<b>12 Months</b>					
<p>Oil Motor</p>			<p>Change Coolant (If Using 043 809 or 043 810 Coolant)</p>		

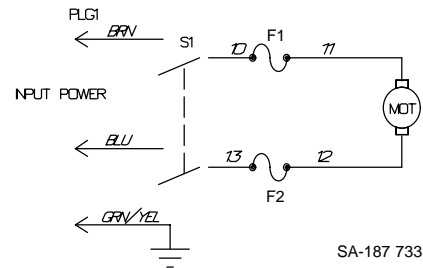
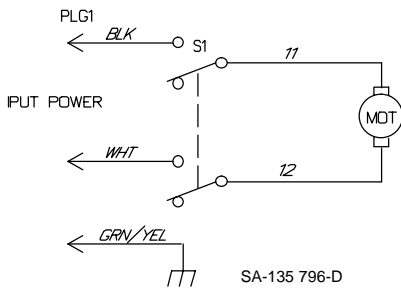
## 9. Coolant Maintenance And Oiling Motor

					<p>1 Coolant Filter Unscrew housing to clean filter.</p> <p>Changing coolant: Drain coolant by tipping unit forward. Fill with clean water and run for 10 minutes. Drain and refill.</p> <p>2 Motor Remove plugs and put about 15 drops of SAE 20 motor oil into each oil port. Replace plugs.</p> <p> If replacing hoses, use hoses compatible with ethylene glycol, such as Buna-n, Neoprene, or Hypalon. <b>NOTE: Oxy-acetylene hoses are not compatible with any product containing ethylene glycol.</b></p>
					<p>Tools Needed:</p> 3/8 in

ST-801 195-B / Ref. ST-801 194

# 10. Troubleshooting

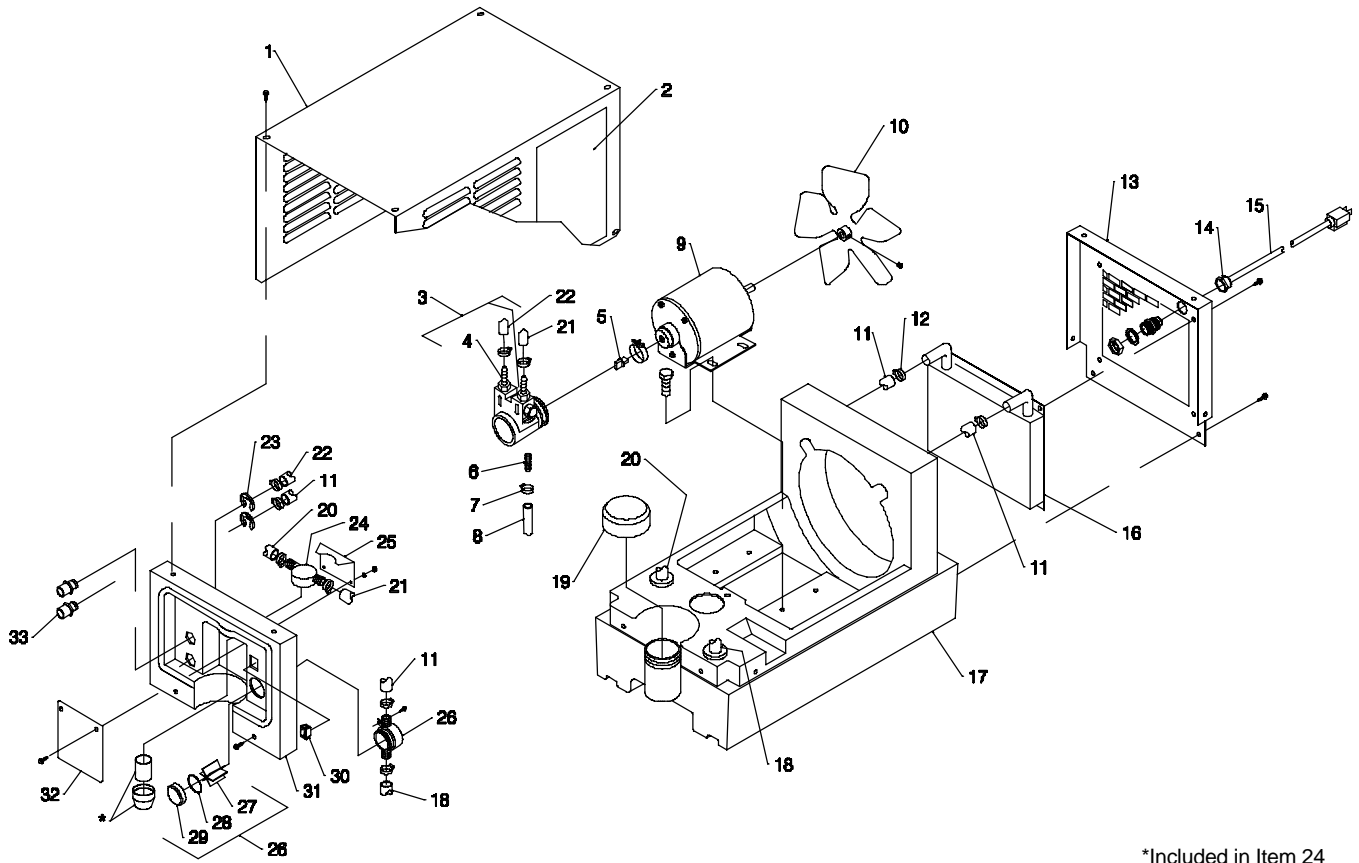
Trouble		Remedy		
Coolant system does not work.		Be sure input power cord is plugged in to energized receptacle.		
		Check line fuses or circuit breaker, and fuses F1, F2 if applicable, and replace or reset if necessary.		
		Motor overheated. Unit starts running when motor has cooled.		
		Have Factory Authorized Service Agent check Power switch S1 and motor Mot.		
Decreased or no coolant flow.		Add coolant.		
		Check for clogged hoses or coolant filter. Clean filter or clean / replace hoses if necessary.		
		Disconnect pump, and check for sheared coupling. Replace coupling if necessary.		



**Figure 10-1. Circuit Diagram For 115 And 230 Volt**

**Figure 10-2. Circuit Diagram For 230 Volt (CE Models)**

# 11. Parts List



\*Included in Item 24

ST-801 196-H

**Figure 11-1. Complete Assembly**

Item No.	Dia. Mkgs.	Part No.	Description	Quantity
<b>043 007 Figure 11-1. Complete Assembly</b>				
<b>043 008</b>				
1		+166 562	WRAPPER	1
2		192 449	LABEL, warning general precautionary	1
3		197 361	PUMP COOLANT w/CLAMPS, (consisting of)	1
4		126 978	FITTING, hose brs barbed M 3/8tbg x 3/8	2
5		134 795	COUPLER, drive pump	1
6		196 990	FITTING, hose brs barbed	1
7		089 120	CLAMP, hose .375 - .450 clip	1
8		196 991	HOSE, nprn brd no 1 x .250ID	1
9	MOT	173 264	MOTOR, 1/4hp 230VAC 50/60Hz 1425/1725rpm (230V model)	1
9	MOT	173 263	MOTOR, 1/4hp 115VAC 50/60Hz 1425/1725rpm (115V model)	1
10		166 570	BLADE, fan 9.000 5wg 38deg .500 bore cw (setscrew included)	1
11		174 044	TUBING, PVC .375 x .625 OD X 18.000	2
12		094 263	CLAMP, 1-ear type nom dim .718 x .276 wide	10
13		192 454	PANEL, rear	1
14		139 042	BUSHING, strain relief .270/.480 id x .804 mtg hol	1
15	PLG1	192 458	CABLE, power 16ga 3c (230V model)	1
15	PLG1	192 457	CABLE, power 10ft 16ga (115V model)	1
15	PLG1	192 456	CABLE, pwr 10ft (230V CE Models only)	1
16		196 515	RADIATOR, heat exchanger	1
17		168 267	TANK COOLANT	1
18		174 043	TUBING, PVC .375 ID x .625 OD x 1.250	1
19		166 608	CAP, tank screw-on w/vent	1
20		182 994	TUBE, pick-up coolant	1
21		136 369	TUBING, PVC .375 ID x .625 OD x 10.000	1
22		136 731	HOSE, nprn brd No. 1 x .375 ID x 10.50 black	1
23		166 560	RING, ring ext .500 shaft grv x .042thk	2
24		166 564	FILTER, in-line	1
25		168 254	CLIP, filter mounting	1
	F1, F2	011 116	FUSE, mintr gl slo-blo 7A 250V (230V CE Models only)	2
		098 376	HOLDER, fuse mintr (230V CE Models only)	1



Item No.	Dia. Mkgs.	Part No.	Description	Quantity
		<b>043 007</b>	<b>Figure 11-1. Complete Assembly (Continued)</b>	
		<b>043 008</b>		
.... 26		186 003	INDICATOR, flow (consisting of)	1
.... 27		166 568	PADDLE, flow indicator	1
.... 28		166 566	O-RING, 1.301 ID x .070CS	1
.... 29		186 005	LENS, flow indicator	1
.... 30	S1	177 396	SWITCH, rocker DPST 15A 250VAC	1
.... 31		177 399	PANEL, front	1
.... 32			NAMEPLATE, (order by model and serial number)	1
.... 33		166 571	FITTING, coolant barbed 3/8tbg 5/8-18 female	2

+When ordering a component originally displaying a precautionary label, the label should also be ordered.  
BE SURE TO PROVIDE MODEL AND SERIAL NUMBER WHEN ORDERING REPLACEMENT PARTS.

# Declaration of Conformity for European Community (CE) Products

## NOTE

This information is provided for units with CE certification (see rating label on unit).

Manufacturer's Name: **Miller Electric Mfg. Co.**

Manufacturer's Address: 1635 W. Spencer Street  
Appleton, WI 54914 USA

Declares that the product: **COOLMATE™ 3**

conforms to the following Directives and Standards:

### Directives

*Electromagnetic compatibility Directives: 89/336/EEC, 92/31/EEC*

*Low Voltage Directive: 73/23/EEC*

*Machinery Directives: 898/37/EEC, 91/368/EEC, 92/31/EEC, 133/04, 93/68/EEC*

### Standards

Electromagnetic compatibility (EMC) Product standard for arc welding equipment: EN50199: August 1995

*Safety Requirements for Arc Welding Equipment part 1: EN 60974-1: 1989*

*Arc Welding Equipment Part 1: Welding Power Sources: IEC 974-1 (April 1995 - Draft revision)*

*Degrees of Protection provided by Enclosures (IP code): IEC 529: 1989*

European Contact: Danilo Fedolfi, Managing Director  
ITW WELDING PRODUCTS ITALY S.r.l.  
Via Privata Iseo 6/E  
20098 San Giuliano  
Milanese, Italy

Telephone: 39(02)98290-1  
Fax: 39(02)98290-203





