



## Coolmate™ 3



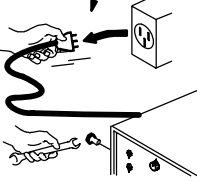

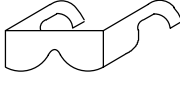
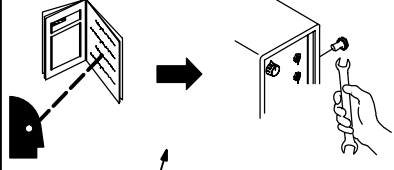
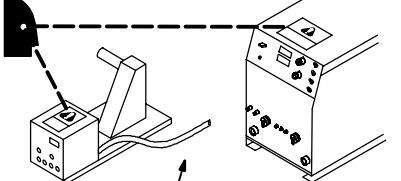

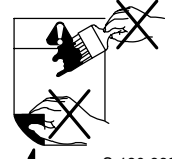
### 1. Specifications


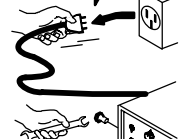
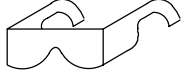
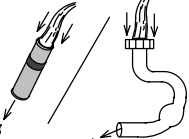
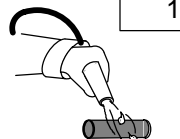

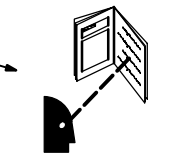
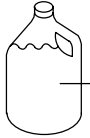

<p>ST-801 189-A</p>	Recirculating Coolant System For Water-Cooled GTAW Torches And GMAW Guns
	Use With Guns/Torches Rated Up To 600 Amperes
	IP Rating: 23
	3 gal (11.4 L) Coolant Tank Capacity; Maximum Cooling Capacity: 14,000 BTU/hr At 1.25 qt/min (1.2 L/min)
	Dimensions: 23 in (584 mm) Long, 12 in (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

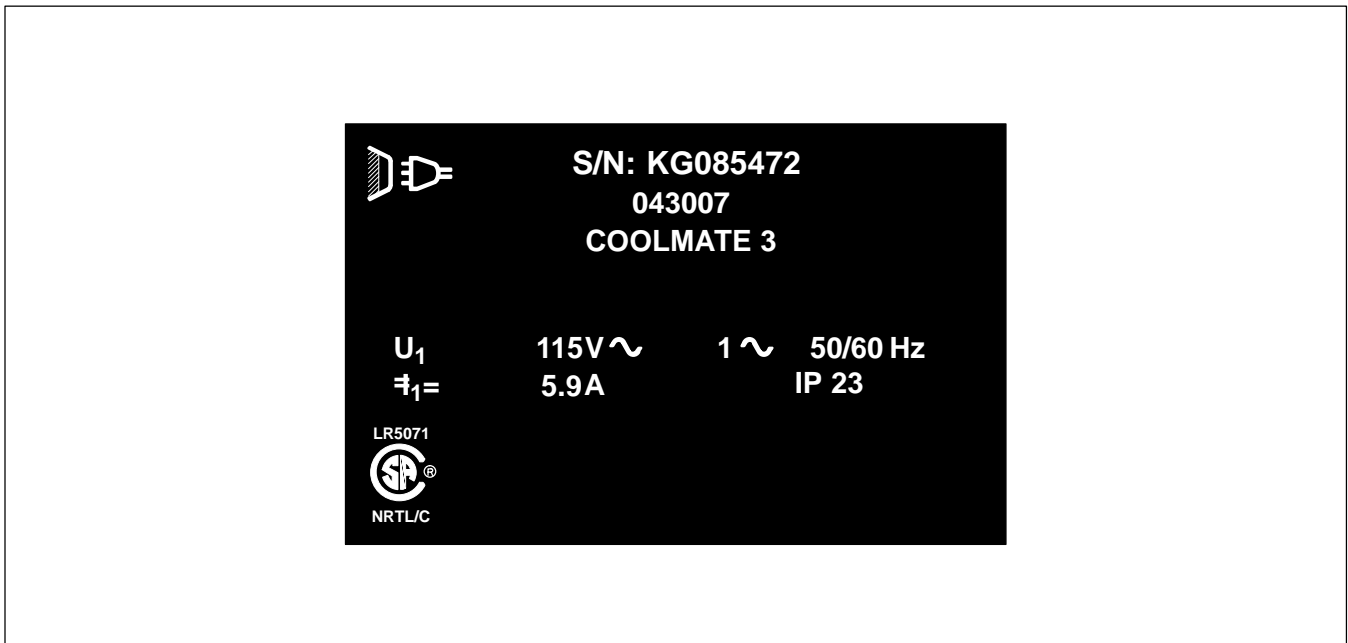
	<p>Means Warning! Watch Out! There are possible hazards with this procedure! The possible hazards are shown in the adjoining symbols.</p> <p>Symbole graphique d'avertissement! Attention! Cette procédure comporte des risques possibles! Les dangers éventuels sont représentés par les symboles graphiques 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


				
				<p>S-180 663</p>
<p>1 Warning! Watch Out! There are possible hazards as shown by the symbols.</p> <p>2 Electric shock from wiring can kill.</p> <p>3 Disconnect input plug or power before working on machine.</p>	<p>4 Moving parts, such as fans, can cut fingers and hands and cause injury. Keep away from moving parts.</p> <p>5 Wear safety glasses with side shields.</p> <p>6 Read the Owner's Manual before working on this machine.</p> <p>7 Read the labels on the welding power</p>	<p>source, wire feeder, or other major equipment for welding safety information.</p> <p>8 Recycle or dispose of used coolant in an environmentally safe way.</p> <p>9 Do not remove or paint over (cover) the label.</p>		









		
		<p>100 h. std.</p> 
	 <p>043 810 (HF) 043 809 (AL)</p>	
<p>1 Warning! Watch Out! There are possible hazards as shown by the symbols.</p> <p>2 Disconnect input plug or power before working on machine.</p> <p>3 Wear safety glasses with side shields.</p> <p>4 Plugged filter or hoses cause</p>	<p>overheating and damage.</p> <p>5 Read Owner's Manual.</p> <p>6 Check and clean filter every 100 hours; also check condition of hoses.</p> <p>7 Use Low Conductivity Coolant No. 043 810 for High-Frequency assisted or</p>	<p>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.</p>

#### 4. Rating Label

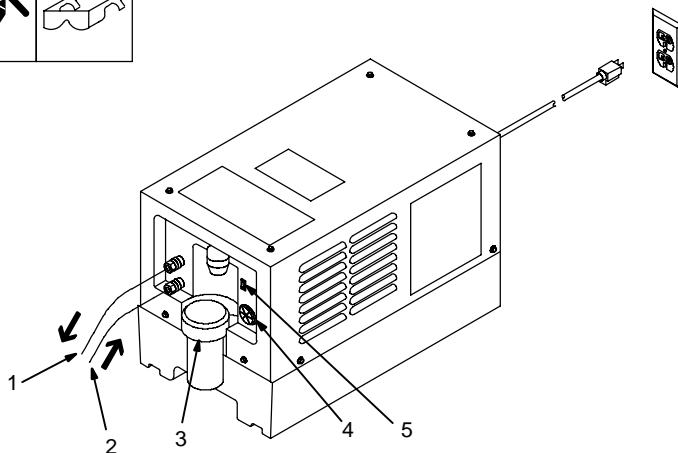


#### 5. Symbols And Definitions

**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.

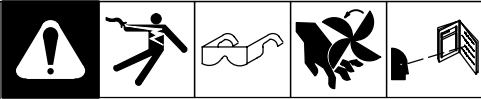
**▲ Use of any coolant other than those listed in the table voids the warranty on any parts that come in contact with the coolant (pump, radiator, etc.).**

Tools Needed:

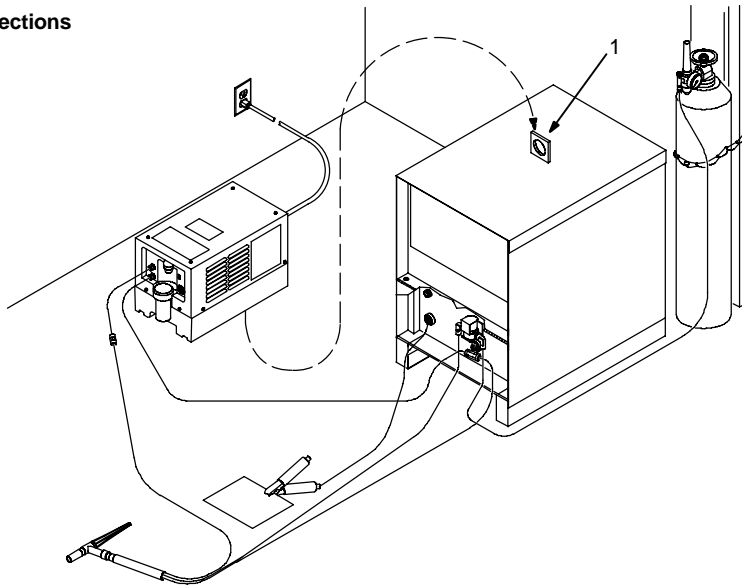


ST-801 193-B

## 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.

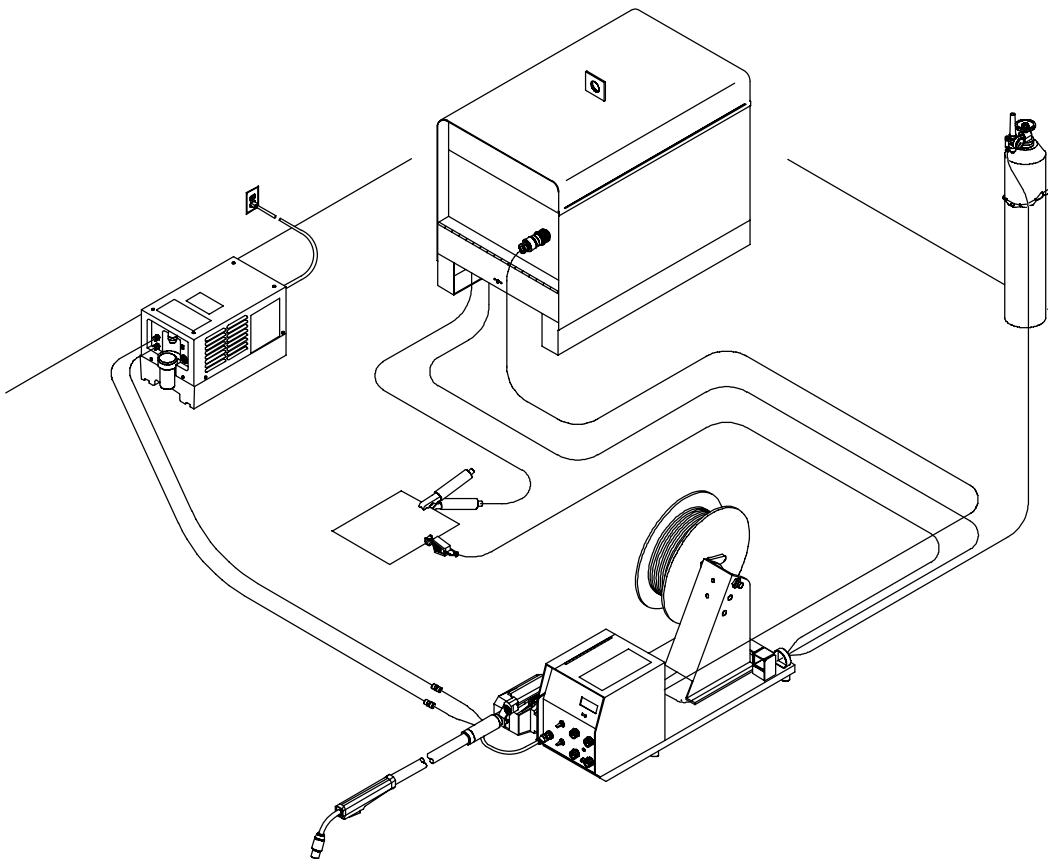
To prevent overheating, make sure cooling unit is positioned so airflow is not restricted.

▲ **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.		

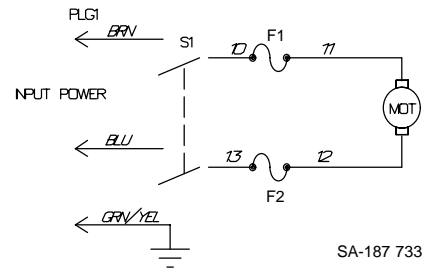
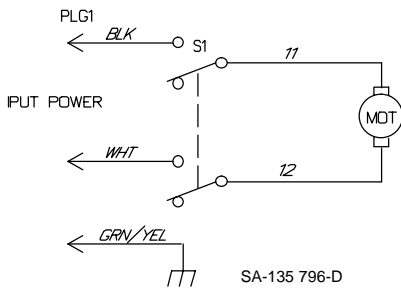
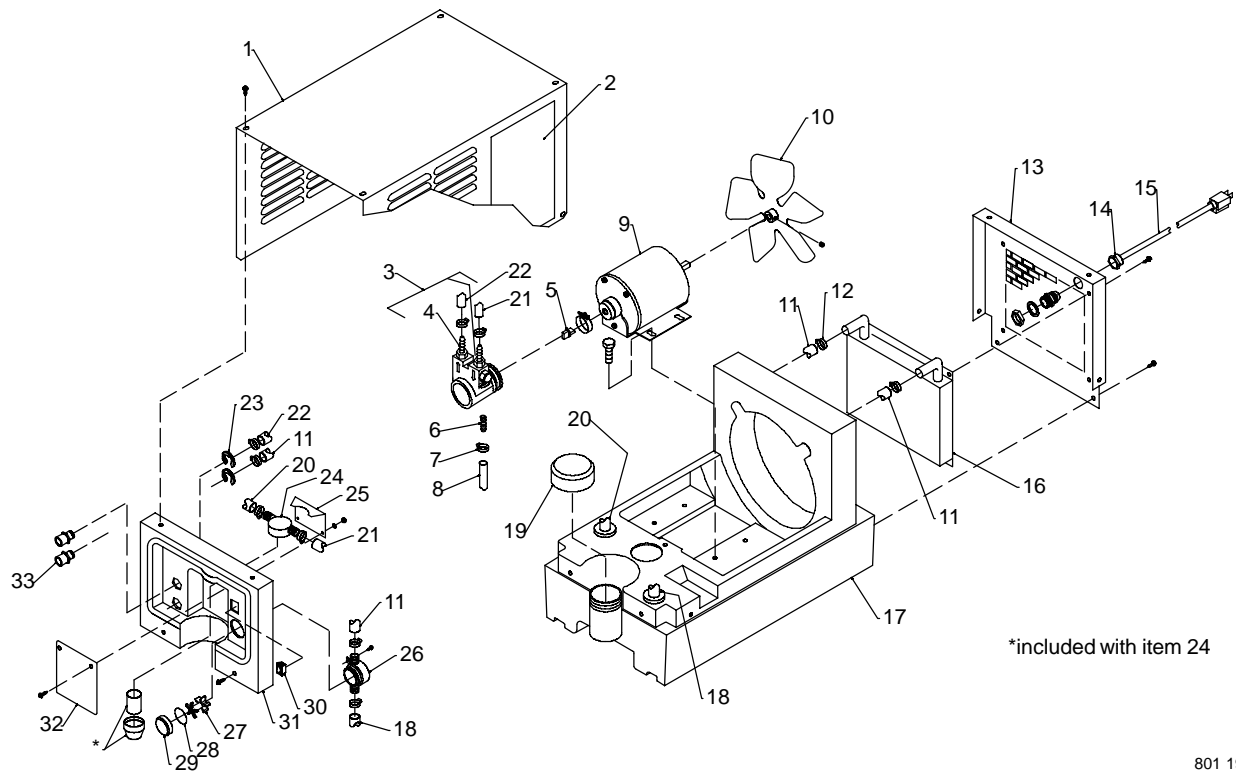


Figure 10-1. Circuit Diagram For 115 And 230 Volt

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

# 11. Parts List



801 196-J

**Figure 11-1. Complete Assembly**

Item No.	Dia. Mkgs.	Part No.	Description	Quantity	
				Model	Model
				<b>043 007</b>	<b>043 008</b>
				115 Volt	230 Volt

**Figure 11-1 Complete Assembly.**

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



Item No.	Dia. Mkgs.	Part No.	Description	Quantity	
				Model	
				043 007 115 Volt	043 008 230 Volt

**Figure 11-1 Complete Assembly (continued).**

... 25		168 254	.. CLIP, filter mounting	1	1
..... F1, F2		011 116	.. FUSE, mintr gl slo-blo 7A 250V (230V CE Models only)	2	2
.....		098 376	.. HOLDER, fuse mintr (230V CE Models only)	1	1
.....		215 279	.. INDICATOR, flow (consisting of)	1	1
... 26		186 004	.. HOUSING, flow indicator	1	1
... 27		215 270	.. PADDLE, flow indicator	1	1
... 28		166 566	.. O-RING, 1.301 ID x .070CS	1	1
... 29		186 005	.. LENS, flow indicator	1	1
... 30	S1	177 396	.. SWITCH, rocker DPST 15A 250VAC	1	1
... 31		177 399	.. PANEL, front	1	1
... 32			NAMEPLATE, (order by model and serial number)	1	1
... 33		166 571	.. FITTING, coolant barbed 3/8tbg 5/8-18 female	2	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: 98/37/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  
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