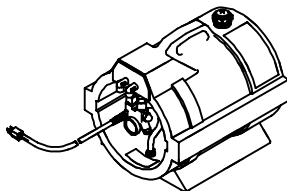








Coolmate™ 4



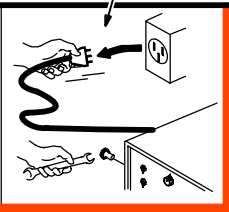

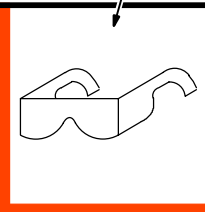
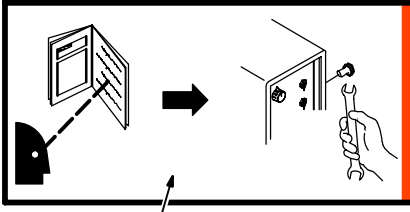
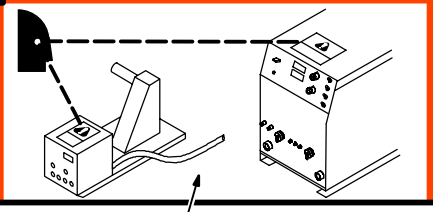

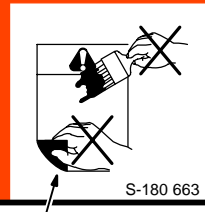
1. Specifications

 <p>Ref. ST-1228 574-A</p>	Recirculating Coolant System For Water-Cooled GTAW Torches And GMAW Guns
	Use With Guns/Torches Rated Up To 600 Amperes
	4 gal (15 L) Coolant Tank Capacity; Maximum Cooling Capacity: 15,000 BTU/hr At 1.3 qt/min (1.2 L/min)
	Dimensions: 18-3/4 in (476 mm) Long, 15-1/4 in (387 mm) Wide, 16-1/4 in (413 mm) Weight: 44 lb (20 kg)
	115 Volts, 5.2 Amperes, 50/60, 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.</p> <p>Attention! Risque d'électrocution due au contact avec des fils.</p>		<p>Beware of moving parts.</p> <p>Attention! Pièces en mouvement.</p>
	<p>Wear safety glasses with side shields.</p> <p>Porter des lunettes de sécurité avec protections latérales.</p>		<p>Recycle or dispose of used coolant in an environmentally safe way.</p> <p>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.


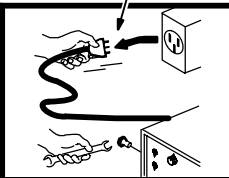
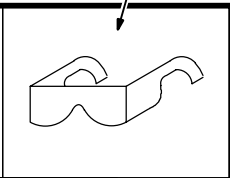
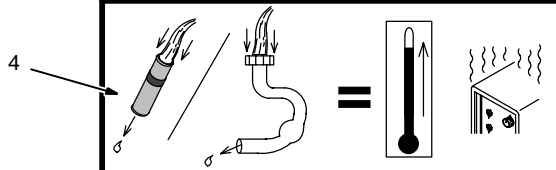
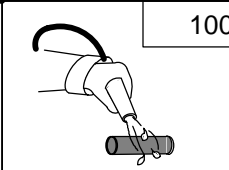
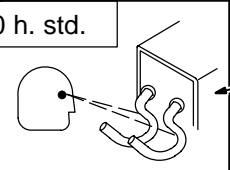
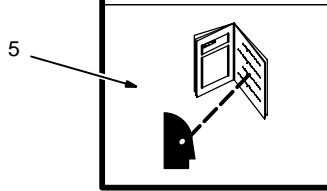
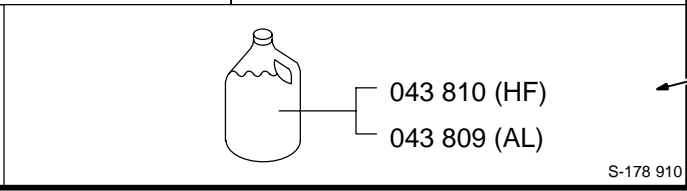
5 Wear safety glasses with side shields.

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.

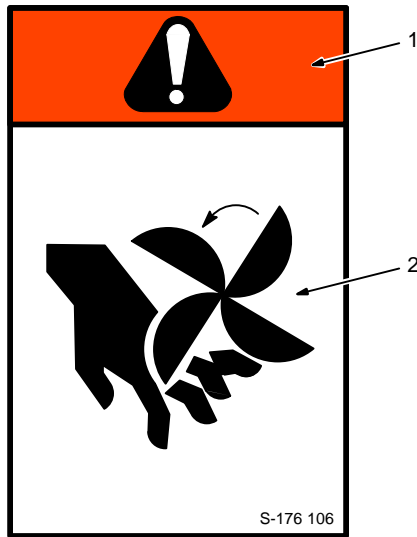
3 Wear safety glasses with side shields.

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.



- 1 Warning! Watch Out! There are possible hazards as shown by the symbols.
- 2 Moving parts, such as fans, can cut fingers and hands and cause injury. Keep away from moving parts.

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4. Rating Label








S-165 371

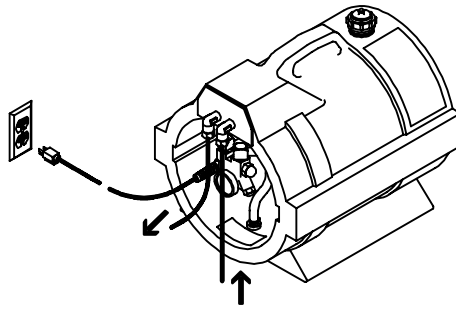
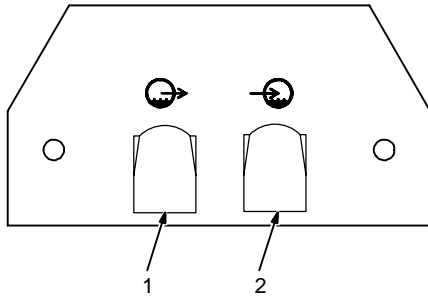
5. Symbols And Definitions

NOTE 

Some symbols are found only on CE products.

A	Amperes		Alternating Current	U₁	Primary Voltage		Single Phase
V	Volts		Water (Coolant) In-put		Water (Coolant) Output		Line Connection
Hz	Hertz	IP	Degree Of Protection	I₁	Primary Current		

6. Preparing Cooling Unit For Use



- 3 Coolant Out Fitting
- 4 Coolant In Fitting

Fittings have 5/8-18 left-hand threads.

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

Unit turns On when plugged in.

Tools Needed:



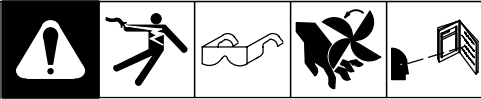
Application	GTAW Or Where HF* Is Used	GMAW Or Where HF* Is Not Used	Where Coolant Contacts Aluminum Parts
 Coolant	Low Conductivity Coolant No. 043 810**; Distilled Or Deionized Water OK Above 32° F (0° C)	Low Conductivity Coolant No. 043 810**; Or Aluminum Protecting Coolant No. 043 809**; Distilled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

ST-137 378-A / ST-160 554

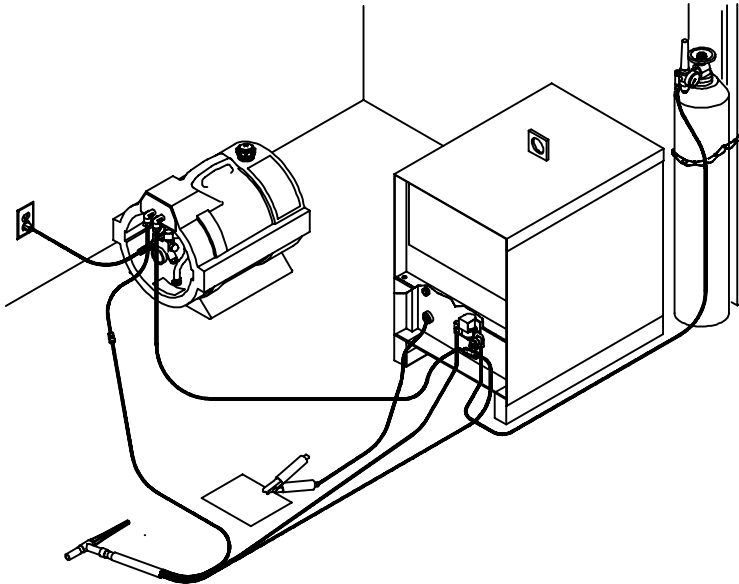
7. Connections



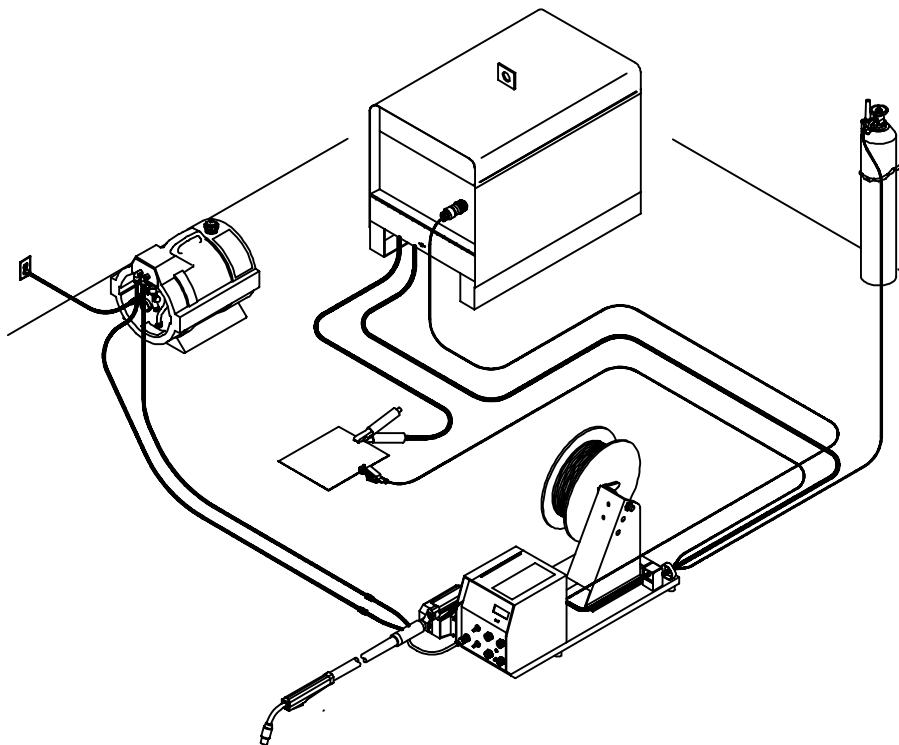
To prevent overheating, make sure cooling unit is positioned so airflow is not restricted.

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

GTAW Connections

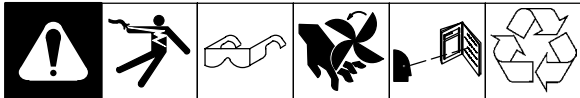


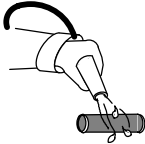
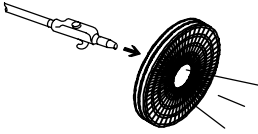

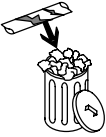
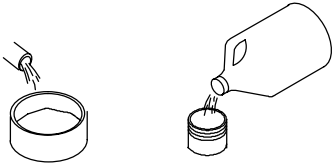
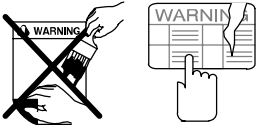

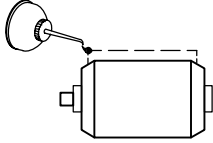
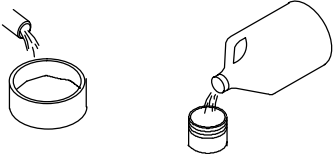


GMAW Connections

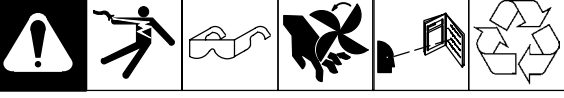

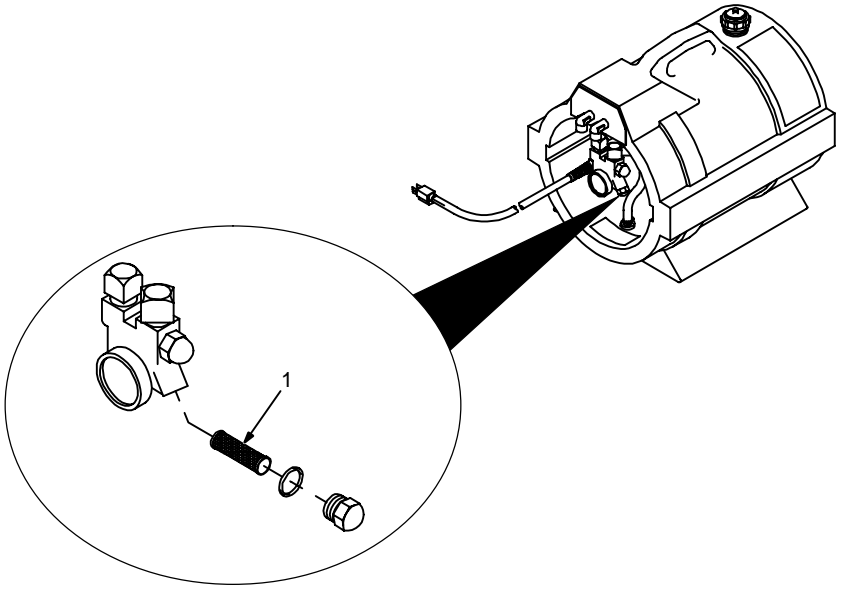
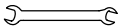


ST-160 556 / ST-160 555-B

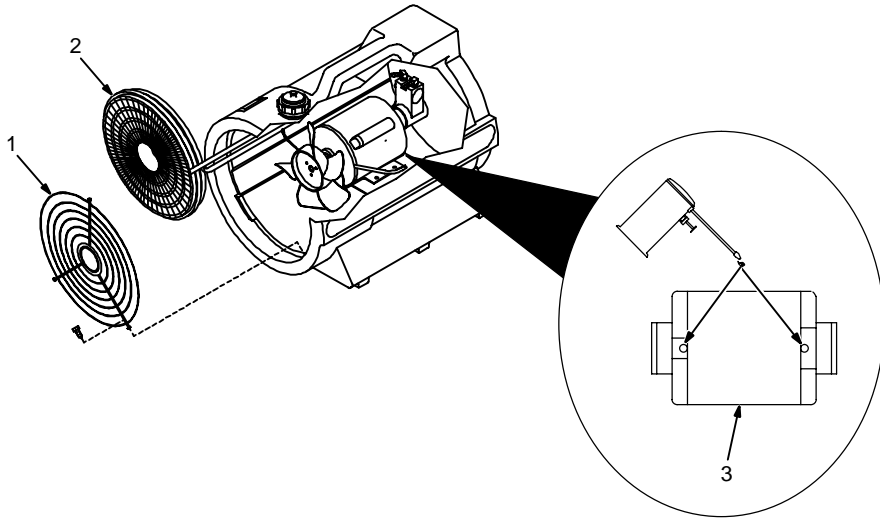
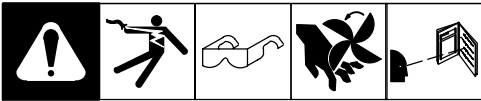
8. Routine Maintenance

						 Disconnect power before maintaining.	
 1 Month							
 Clean Coolant Filter				 Blow Out Radiator Fins			
 6 Months							
 Replace Cracked Hoses		 Change Coolant (If Using Water)		 Replace Unreadable Labels			
 12 Months							
 Oil Motor				 Change Coolant (If Using 043 810 Or 043 809 Coolant)			

9. Coolant Maintenance

						<p>1 Coolant Filter Remove nut to remove filter. Clean filter and reinstall.</p> <p>Changing coolant: Drain coolant by tipping unit. Fill with clean water and run for 10 minutes. Drain and refill.</p> <p> <i>If replacing hoses, use hoses compatible with ethylene glycol, such as Buna-n, Neoprene, or Hypalon. NOTE: Oxy-acetylene hoses are not compatible with any product containing ethylene glycol.</i></p>	
						<p>Tools Needed:</p>  15/16 in	
<p>ST-160 559</p>							

10. Oiling Motor



- 1 Wire Form
- 2 Radiator

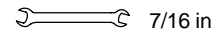
Wear gloves when handling radiator.

Remove wire form. Pull radiator out far enough to turn it to the side as shown.

- 3 Motor

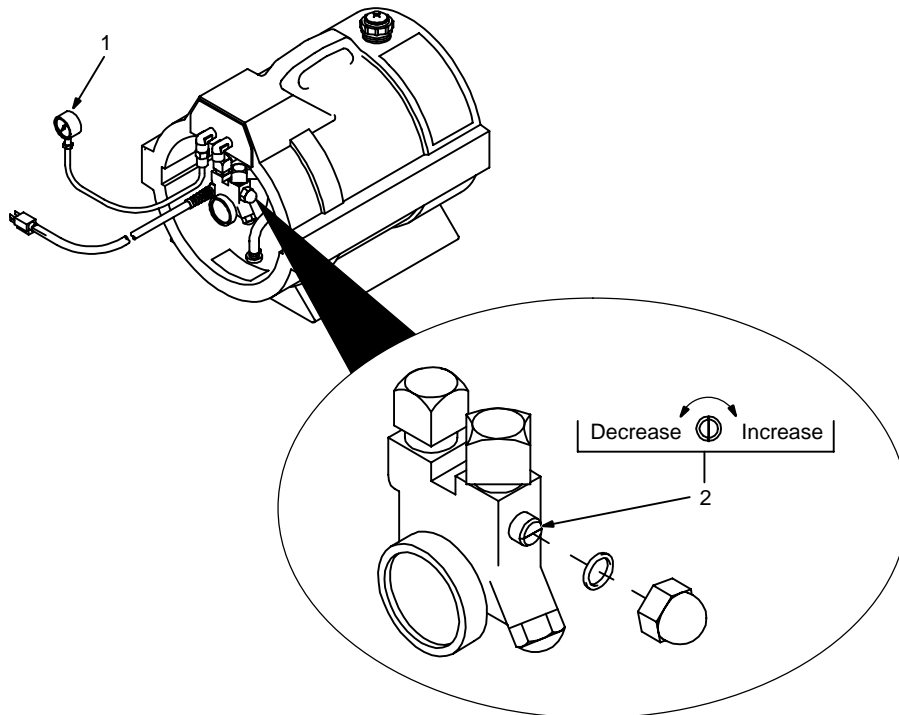
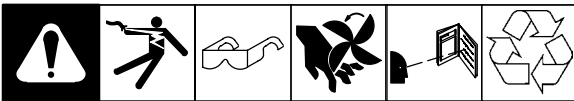
Remove plugs and put about 15 drops of SAE 20 motor oil into each oil port. Replace plugs, and reassemble unit.

Tools Needed:



Ref. ST-160 557 / Ref. ST-801 195-A

11. Adjusting Relief Valve



Relief valve is factory set at 60 psi (414 kPa), and normally needs no adjustment. Only adjust if replacing motor.

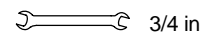
- 1 Pressure gauge
- 2 Relief Valve Adjustment Screw

Connect gauge to Coolant Out fitting as shown. Block or plug any output fitting on gauge.

Turn On power, and adjust pressure adjustment screw as needed.

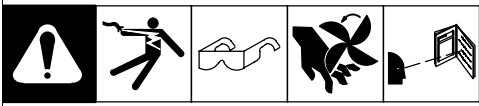
Turn Off power. Disconnect gauge and reinstall nut.

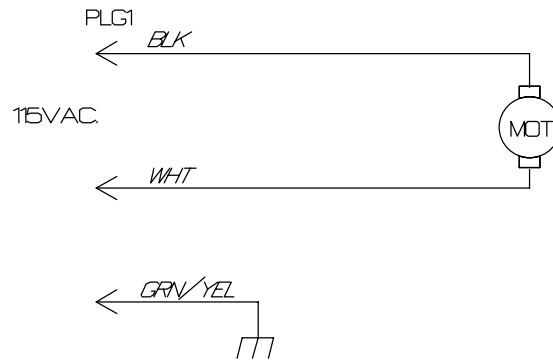
Tools Needed:



ST-160 558-A

12. Troubleshooting

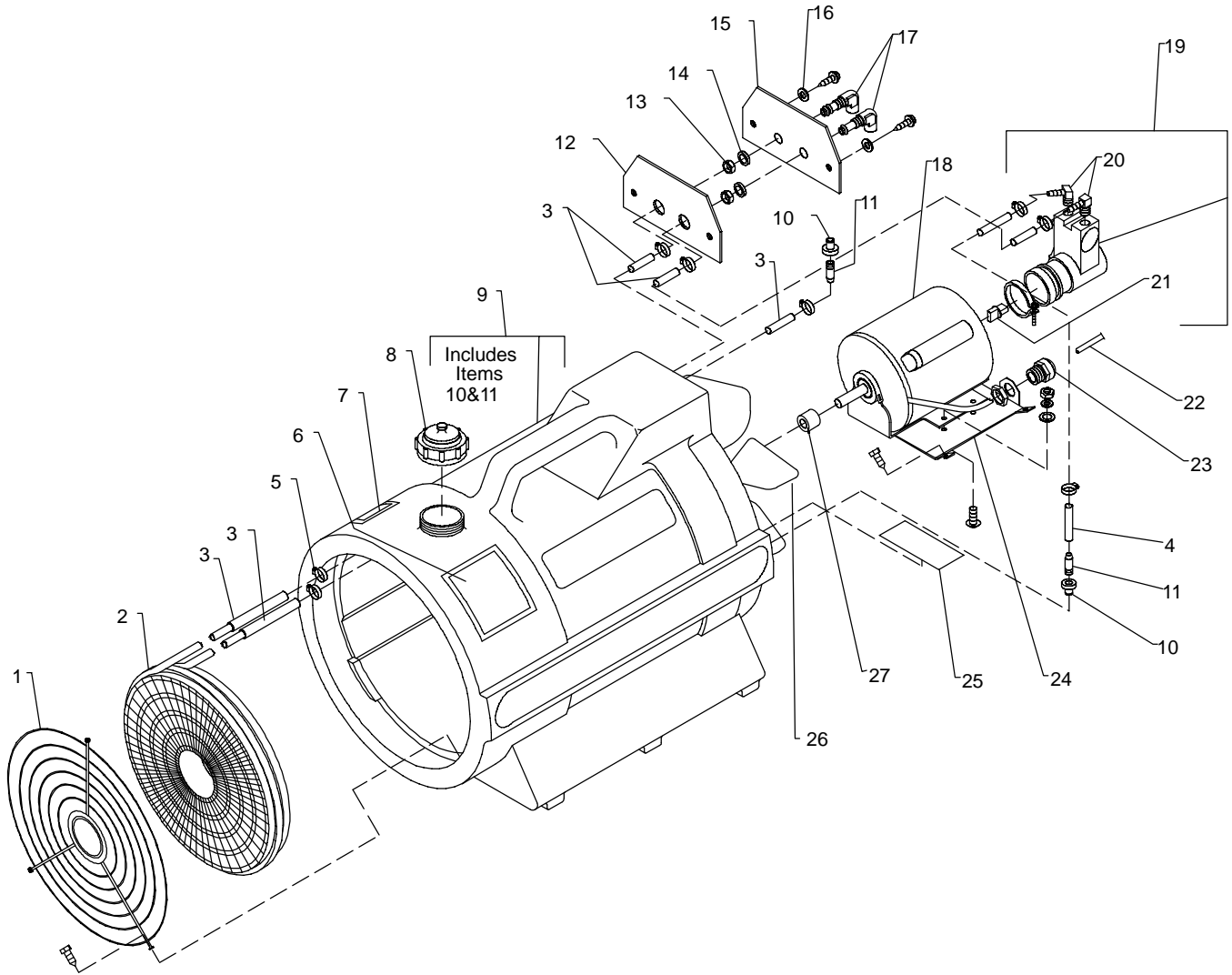
				
Trouble		Remedy		
Coolant system does not work.		Be sure input power cord is plugged in to energized receptacle.		
		Check line fuses or circuit breaker, and replace or reset if necessary.		
		Motor overheated. Unit starts running when motor has cooled.		
		Have Factory Authorized Service Agent check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



SA-187 313

Figure 12-1. Circuit Diagram

13. Parts List



ST-131 764-F

Figure 13-1. Complete Assembly

Item No.	Part No.	Description	Quantity
Figure 13-1. Complete Assembly			
..... 1	124 377 ..	WIRE FORM, radiator end	1
..... 2	124 374 ..	RADIATOR, coolant tank	1
..... 3	159 594 ..	WEATHERSTRIPPING, adh .250 x .750 x 3ft 4 in	1
..... 3	124 955 ..	HOSE, nprn brd No. 1 x .375 ID x 12.000	2
..... 3	136 731 ..	HOSE, nprn brd No. 1 x .375 ID x 10.500	1
..... 4	124 956 ..	TUBING, PVC .375 ID x .625 OD x 11.000	1
..... 5	176 746 ..	CLAMP, .656 x .275 wide	6
..... 5	094 263 ..	CLAMP, .718 x .276 wide	2
..... 6	188 980 ..	LABEL, caution incorrect coolant (non-CE and generic models)	1
..... 6	178 910 ..	LABEL, caution incorrect coolant (CE models only)	1
..... 7	121 316 ..	LABEL, warning general precautionary (non-CE and generic models)	1
..... 7	180 663 ..	LABEL, warning general precautionary (CE models only)	1
..... 8	166 608 ..	CAP, tank screw-on w/screw type vent	1
..... 9	+139 154 ..	TANK, coolant (consisting of)	1
..... 10	124 253 ..	BUSHING, tank fuel	2
..... 11	124 621 ..	FITTING, hose brs barbed	2
..... 12	130 633 ..	INSULATOR, panel front	1
..... 13	601 881 ..	NUT, stl hex jam .500-20	2
..... 14	605 787 ..	WASHER, tooth .512 ID x .900 OD	2
..... 15	137 378 ..	PLATE, ident	1
..... 16	151 946 ..	WASHER, flat .317 ID x .500 OD x .032thk nyl	2
..... 17	149 356 ..	FITTING, hose brs barbed elb M 3/8tbg	2
..... 18	173 263 ..	MOTOR, 1/4HP 115VAC 50/60 Hz 1425/1725RPM dual sha	1
..... 19	177 246 ..	PUMP, coolant (consisting of)	1
..... 20	5523 ..	FITTING, hose brs barbed elb M 3/8tbg x 3/8NPT	2
..... 21	134 795 ..	COUPLER, drive pump	1
..... 21	146 249 ..	STRAINER, screen 100 x 90 mesh 2.125 lg x .687	1
..... 22	144 649 ..	CABLE, pwr 115V 16ga 3/c 13ft	1
..... 23	144 649 ..	BUSHING, strain relief	1
..... 24	194 099 ..	BRACKET, mtg motor	1
..... 25	129 484 ..	LABEL, warning moving parts can cause serious injury	1
..... 26	132 987 ..	BLADE, fan 10 in 6wg 23deg .500 bore CCW	1
..... 27	026 653 ..	TUBING, phenelic .531 ID x .875 OD x .687	1

+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™ 4**

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: 89/392/EEC, 91/368/EEC, 93/C 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

