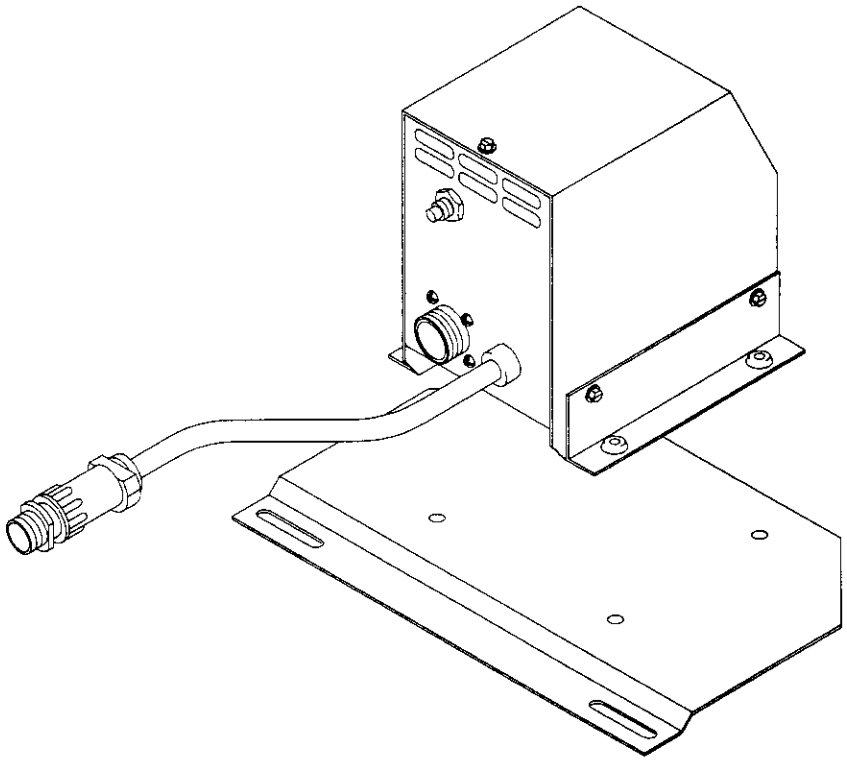
Miller®

November 1991 FORM: OM-542B

Effective With Style No. KB-15

MODEL: PSA-2 115/24 VAC



OWNER'S MANUAL

IMPORTANT: Read and understand the entire contents of both this manual and the power source manual used with this unit, with special emphasis on the safety material throughout both manuals, before installing, operating, or maintaining this equipment. This unit and these instructions are for use only by persons trained and experienced in the safe operation of welding equipment. Do not allow untrained persons to install, operate, or maintain this unit. Contact your distributor if you do not fully understand these instructions.

MILLER ELECTRIC Mfg. Co.
A Miller Group Ltd., Company

P.O. Box 1079
Appleton, WI 54912 USA
Tel. 414-734-9821

Ref. ST-143 353-A

PRINTED IN U.S.A.

LIMITED WARRANTY

EFFECTIVE: AUGUST 6, 1990

This 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 hereof, MILLER Electric Mfg. Co., Appleton, Wisconsin warrants to its Distributor/Dealer that all new and unused Equipment furnished by MILLER is free from defect in workmanship and material as of the time and place of delivery by MILLER. No warranty is made by MILLER with respect to engines, trade accessories or other items manufactured by others. Such engines, trade accessories and other items are sold subject to the warranties of their respective manufacturers, if any. All engines are warrantied by their manufacturer for two years from date of original purchase, except Deutz engines which have a one year, 2000 hour warranty.

Except as specified below, MILLER's warranty does not apply to components having normal useful life of less than one (1) year, such as spot welder tips, relay and contactor points, MILLERMATIC parts that come in contact with the welding wire including nozzles and nozzle insulators where failure does not result from defect in workmanship or material.

MILLER shall be required to honor warranty claims on warranted Equipment in the event of failure resulting from a defect within the following periods from the date of delivery of Equipment to the original user:

1. Arc welders, power sources, robots, and components ..... 1 year
2. Load banks ..... 1 year
3. Original main power rectifiers ..... 3 years (labor – 1 year only)
4. All welding guns, feeder/guns and torches .... 90 days
5. All other MILLERMATIC Feeders ..... 1 year
6. Replacement or repair parts, exclusive of labor 60 days
7. Batteries ..... 6 months

provided that MILLER is notified in writing within thirty (30) days of the date of such failure.

As a matter of general policy only, MILLER may honor claims submitted by the original user within the foregoing periods.

In the case of MILLER's breach of warranty or any other duty with respect to the quality of any goods, the exclusive remedies therefore 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 Appleton, Wisconsin, or F.O.B. at a MILLER authorized service facility, therefore, no compensation for transportation costs of any kind will be allowed. Upon receipt of notice of apparent defect or failure, MILLER shall instruct the claimant on the warranty claim procedures to be followed.

ANY EXPRESS WARRANTY NOT PROVIDED HEREIN AND ANY IMPLIED WARRANTY, GUARANTY OR REPRESENTATION AS TO PERFORMANCE, AND ANY REMEDY FOR BREACH OF CONTRACT 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 OF FITNESS FOR PARTICULAR PURPOSE, WITH RESPECT TO ANY AND ALL EQUIPMENT FURNISHED BY MILLER IS EXCLUDED AND DISCLAIMED BY MILLER.

EXCEPT AS EXPRESSLY PROVIDED BY MILLER IN WRITING, MILLER PRODUCTS ARE INTENDED FOR ULTIMATE PURCHASE BY COMMERCIAL/INDUSTRIAL USERS AND FOR OPERATION BY PERSONS TRAINED AND EXPERIENCED IN THE USE AND MAINTENANCE OF WELDING EQUIPMENT AND *NOT* FOR CONSUMERS OR CONSUMER USE. MILLER'S WARRANTIES DO NOT EXTEND TO, AND NO RESELLER IS AUTHORIZED TO EXTEND MILLER'S WARRANTIES TO, ANY CONSUMER.

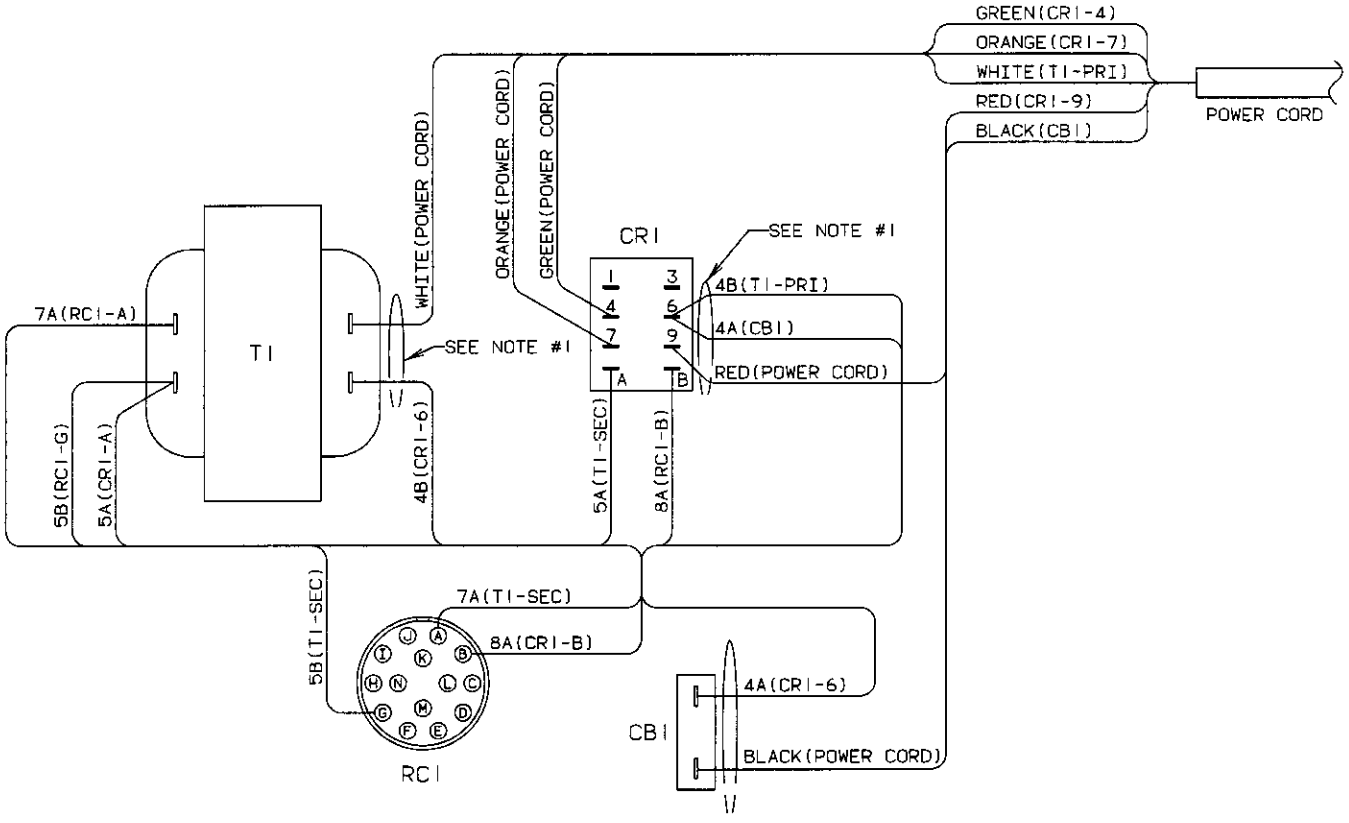
October 26, 1992 FORM: OM-542B

ERRATA SHEET

After this manual was printed, refinements in equipment design occurred. This sheet lists exceptions to data appearing later in this manual.

AMENDMENT TO SECTION 5 – ELECTRICAL DIAGRAMS

Amend Section 5-2. Wiring Diagram



Wiring Diagram No. SB-157 252

Diagram 5-2. Wiring Diagram For Units Effective With Serial No. KC314555

RECEIVING-HANDLING

Before unpacking equipment, check carton for any damage that may have occurred during shipment. File any claims for loss or damage **with the delivering carrier**. Assistance for filing or settling claims may be obtained from the distributor and/or the equipment manufacturer's Transportation Department.

When requesting information about this equipment, always provide the Model Description and Serial or Style Number.

Use the following spaces to record the Model Designation and Serial or Style Number of your unit. The information is located on the rating label or nameplate.

Model _____

Serial or Style No. _____

Date of Purchase _____

TABLE OF CONTENTS

SECTION 1 – SAFETY PRECAUTIONS AND SIGNAL WORDS

1-1. GENERAL INFORMATION AND SAFETY

A. General

Information presented in this manual and on various labels, tags, and plates on the unit pertains to equipment design, installation, operation, maintenance, and troubleshooting which should be read, understood, and followed for the safe and effective use of this equipment.

B. Safety

The installation, operation, maintenance, and troubleshooting of arc welding equipment requires practices and procedures which ensure personal safety and the safety of others. Therefore, this equipment is to be installed, operated, and maintained only by qualified persons in accordance with this manual and all applicable codes such as, but not limited to, those listed at the end of Section 1 – Safety Rules For Operation Of Arc Welding Power Source in the welding power source Owner's Manual.

1-2. SAFETY ALERT SYMBOL AND SIGNAL WORDS

The following safety alert symbol and signal words are used throughout this manual to call attention to and identify different levels of hazard and special instructions.

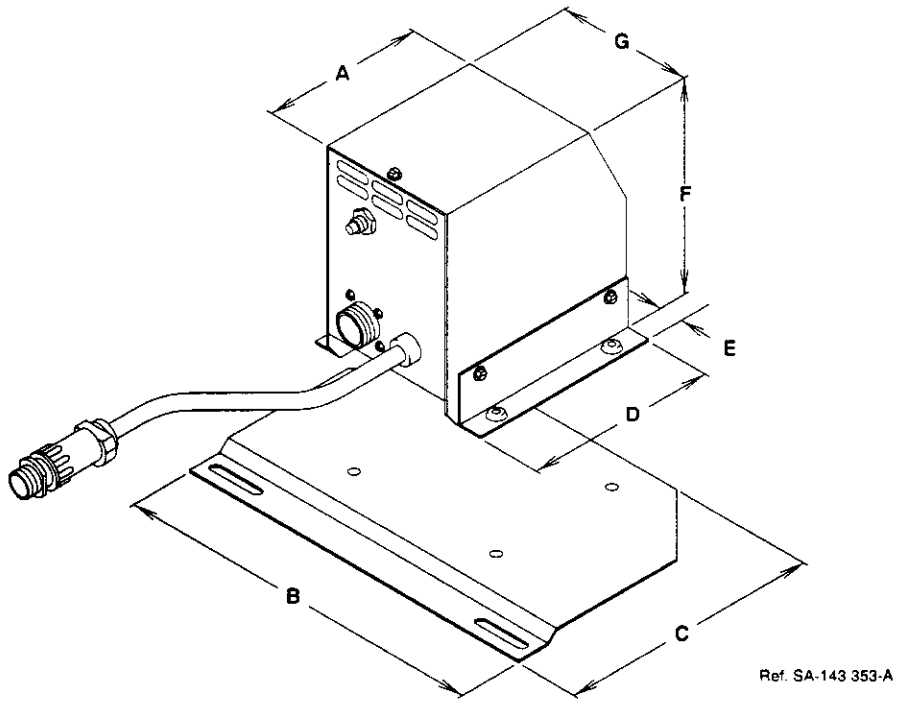
This safety alert symbol is used with the signal words WARNING and CAUTION to call attention to the safety statements.

WARNING statements identify procedures or practices which must be followed to avoid serious personal injury or loss of life.

CAUTION statements identify procedures or practices which must be followed to avoid minor personal injury or damage to this equipment.

IMPORTANT *statements identify special instructions necessary for the most efficient operation of this equipment.*

SECTION 2 – SPECIFICATIONS



	Inches	Millimeters
A	4-3/4	119
B	11	279
C	7-3/8	187
D	6	150
E	3/4	19
F	7	175
G	4	100

Figure 2-1. Overall Dimensions And Bracket Mounting Hole Layout

2-1. SPECIFICATIONS

The PSA-2 power supply adapter is rated at 24 volts at 8 amperes, with a nominal 110 volts input power and a nominal 24 volts output. The adapter weighs 10 lbs. (4.7 kg), and the mounting bracket weighs 1-1/2 lbs. (0.7 kg).

2-2. DESCRIPTION

This PSA-2 power supply adapter is designed specifically for use with a 24 volts ac wire feeder when only 115 volts ac power is available at the installation site. The adapter will not power equipment requiring 115 volts ac.

SECTION 3 – INSTALLATION

WARNING: ELECTRIC SHOCK can kill.

- *Do not touch live electrical parts.*
- *Shut down wire feeder and welding power source, and disconnect input power employing lockout/tagging procedures before installing the power supply adapter.*

Lockout/tagging procedures for the wire feeder consist of disconnecting input power plug, and for welding power source consist of padlocking line disconnect switch in open position, removing fuses from fuse box, or shutting off and red-tagging circuit breaker or other disconnecting device. Stop engine, and disconnect negative (-) battery cable from battery on welding generators.

3-1. SELECTING THE MOUNTING LOCATION

The PSA-2 power supply adapter can be mounted to either the top or side of the welding power source depending on the arrangement of available mounting screws and air louvers. The PSA-2 can also be secured to the floor, or directly to the spool support bracket of a 60 Series wire feeder.

3-2. MOUNTING THE PSA-2 TO WELDING POWER SOURCE (Figure 3-1)

Follow these recommendations when mounting the PSA-2:

1. Do not mount PSA-2 on top of the welding power source if a wire feeder is already mounted on top of the unit.
2. Do not mount the PSA-2 so it will cover any air louvers or safety labels on the welding power source.

A. Mounting To Top Of Welding Power Source

1. Remove one or two existing screws from top front of the welding power source.
2. Position and secure PSA-2 to the welding power source by inserting screws removed in Step 1 through grommet holes in front sides of the PSA-2, and back into the original holes in the welding power source cover.
3. Tighten screws.

B. Mounting PSA-2 To Bracket

When mounting the adapter to the side of a welding power source, the adapter should first be attached to the mounting bracket provided.

1. Remove four grommets from the mounting holes in the bottom of the adapter.
2. Position PSA-2 over the mounting holes on the bracket. Be sure bracket bends away from the PSA-2.
3. Use supplied screws and self-locking nuts to attach the PSA-2 to the bracket. Insert screws from underneath the bracket.

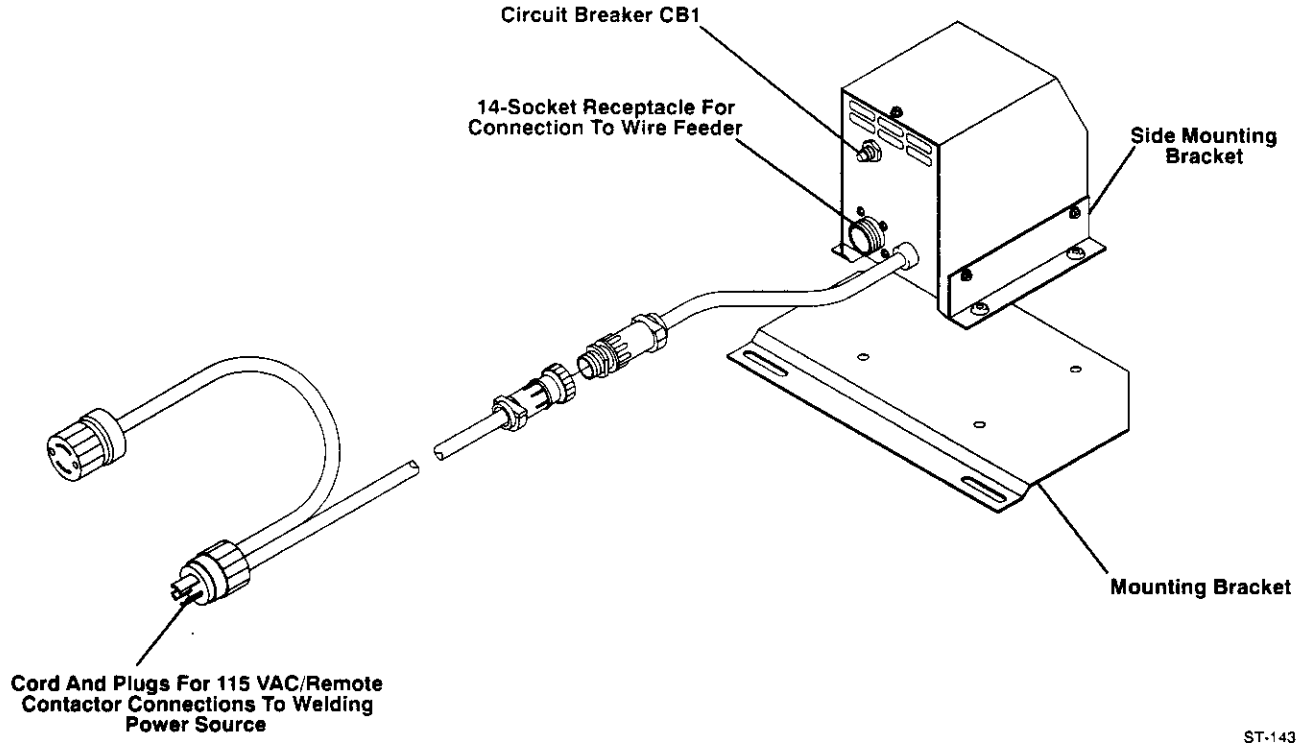


Figure 3-1. Front View

C. Mounting To The Side Of A Welding Power Source

1. Remove the appropriate screws from the front or rear (if louvers are on the front) of the left side of the welding power source.
2. Position and secure with the screws removed in Step 1.

3-3. MOUNTING THE PSA-2 TO 60 SERIES WIRE FEEDER (Figures 3-1 And 3-2)

WARNING: ELECTRIC SHOCK can kill.

- *Do not touch live electrical parts.*
- *Shut down wire feeder and welding power source, and disconnect input power employing lockout/tagging procedures before beginning this installation.*

Lockout/tagging procedures consist of padlocking line disconnect switch in open position, removing fuses from fuse box, or shutting off and red-tagging circuit breaker or other disconnecting device.

To mount PSA-2 to 60 Series wire feeder, refer to Figure 3-2 and proceed as follows:

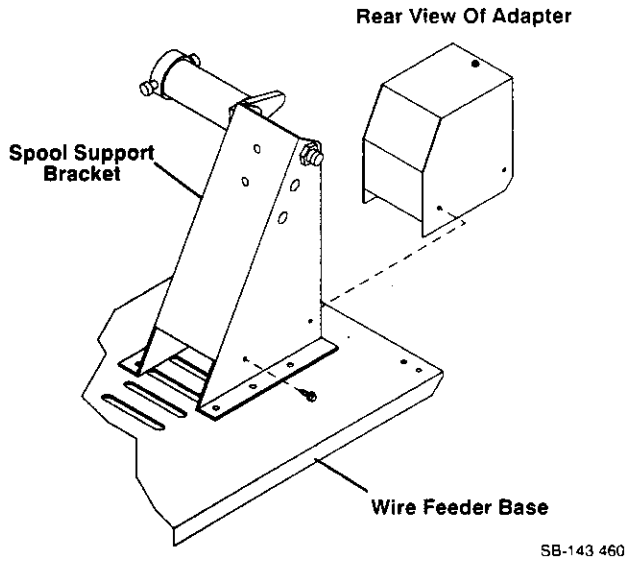


Figure 3-2. Installation To 60 Series Wire Feeder

1. Remove two side mounting brackets from PSA-2; they are not used in this installation (see Figure 3-1).
2. Position PSA-2 inside wire feeder spool support bracket so that the receptacle faces rear of wire feeder. Align side mounting holes in PSA-2 with matching holes in wire feeder spool support arm.
3. Secure PSA-2 to wire feeder spool support arm with screws removed in Step 1.

3-4. CONNECTING TO THE 14-SOCKET RECEPTACLE (Figure 3-1)

The 14-socket receptacle provides a means of connecting the PSA-2 to a 24 volts ac wire feeder.

To make connections, align keyway, insert plug, and rotate threaded collar fully clockwise.

The sockets on the 14-socket receptacle are as follows:

Socket A: Up to 8 amperes of 24 volts ac, 60 Hz, with respect to socket G (circuit common).

Socket B: Input control to energize contactor for 24 volts ac wire feeder. When socket A is connected to socket B, relay CR1 in the adapter is activated, energizing the welding power source contactor.

Socket G: 24 volts ac circuit common.

IMPORTANT: *The remaining sockets in the receptacle are not used.*

3-5. CONNECTIONS TO 115 VOLTS AC POWER/ REMOTE CONTACTOR PLUG (Figure 3-1)

An Amp plug is provided from the PSA-2 for making 115 volts ac power and remote contactor connections to the welding power source.

An interconnecting cord is provided for making connections between the PSA-2 and welding power source. To make connections, proceed as follows:

1. Connect 4-socket Amp receptacle on interconnecting cord to PSA-2 unit as follows: align keyways, insert Amp plug on 115 volts ac/contactor control cord from PSA-2 unit into receptacle, and rotate threaded collar fully clockwise.
2. Connect 2-pole plug on interconnecting cord to welding power source as follows: connect twistlock plug on interconnecting cord to matching remote contactor receptacle on welding power source, and rotate plug fully clockwise.
3. Connect 3-pole plug on interconnecting cord to welding power source as follows: insert twistlock plug from cord into matching 115 volts ac power receptacle on welding power source, and rotate plug fully clockwise.

   If the welding power source is not equipped with the matching 115 volts ac receptacle, a qualified electrician can remove the power plug and rewire it to adapt to a different 115 volts ac receptacle. If plug is changed, observe the following safety precautions:

WARNING: ELECTRIC SHOCK can kill; INCORRECT CONNECTIONS can result in an electrically hot (energized) chassis.

- *Connect green conductor to ground terminal only of circuit plug to be used.*
- *Do not use a plug without a ground terminal.*

- *Do not remove ground terminal from plug.*
- *Do not connect plug to an ungrounded receptacle or circuit.*

3-6. OPTIONAL CONTACT CLOSURE CONNECTION FOR CONTACTOR CONTROL

WARNING: ELECTRIC SHOCK can kill.

- *Do not touch live electrical parts.*
- *Shut down wire feeder and welding power source, and disconnect input power employing lockout/tagging procedures before making internal reconnections.*

Lockout/tagging procedures for the wire feeder consist of disconnecting input power plug, and for welding power source consist of padlocking line disconnect switch in open position, removing fuses from fuse box, or shutting off and red-tagging circuit breaker or other disconnecting device. Stop engine, and disconnect negative (-) battery cable from battery on welding generators.

CAUTION: INCORRECT CONNECTIONS will damage welding power source.

- *Determine method required to energize contactor in welding power source BEFORE making connections.*
- *Do not apply 115 volts ac to welding power sources requiring only a contact closure for contactor operation.*
- *If only a contact closure is required for contactor operation, make connection according to the procedure in this section.*

In standard PSA-2 installation, the contactor control conductors are energized with 115 vac to activate the contactor control circuitry in the welding power source.

If the welding power source requires only a contact closure to activate the contactor control circuitry, it is necessary to remove the supplied plug from the 115 volts ac power/remote contactor cord, and rewire to a customer-supplied plug.

If the method of contact closure is in doubt, contact the welding power source manufacturer before proceeding with this installation.

To make optional contact closure connections proceed as follows:

1. Remove Plug PLG 1 from 115 volts ac power/remote contactor control cord.
2. Strip cord jacket back only enough to separate conductors.
3. Strip black, white, orange, and green conductors back only enough to make good contacts with terminals on customer-supplied plug, and make connections as follows:
   a. Black lead to 115 volts ac (hot).
   b. White lead to 115 volts ac (cold).
   c. Use orange and green leads for the continuity closure for contactor control.
4. The red lead is not used in this application. Insulate lead from the other connections.

SECTION 4 – MAINTENANCE & TROUBLESHOOTING

4-1. TROUBLESHOOTING

WARNING: ELECTRIC SHOCK can kill.

- *Do not touch live electrical parts.*
- *Shut down wire feeder and welding power source, and disconnect input power employing lockout/tagging procedures before making internal reconnections.*

Lockout/tagging procedures for the adapter consist of removing 115 vac plug from receptacle, for the wire feeder consist of disconnecting input power plug, and for welding power source consist of padlocking line disconnect switch in open position, removing fuses from fuse box, or shutting off and red-tagging circuit breaker or other disconnecting device. Stop engine, and disconnect negative (-) battery cable from battery on welding generators.

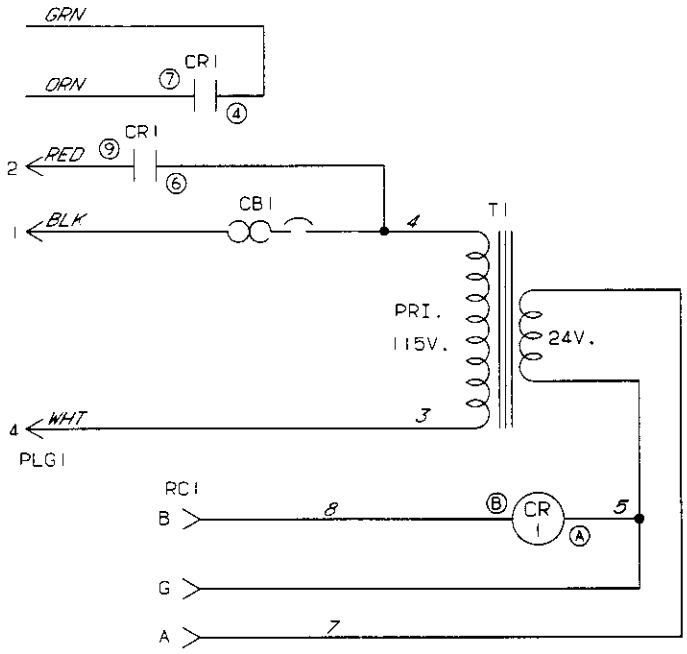
Always disconnect power before doing any internal work on this unit.

4-2. OVERLOAD PROTECTION

Circuit Breaker CB1 protects the PSA-2 from damage due to overload. If CB1 should trip, power to the wire feeder will stop. If CB1 trips, locate and correct overload problem and manually reset circuit breaker.

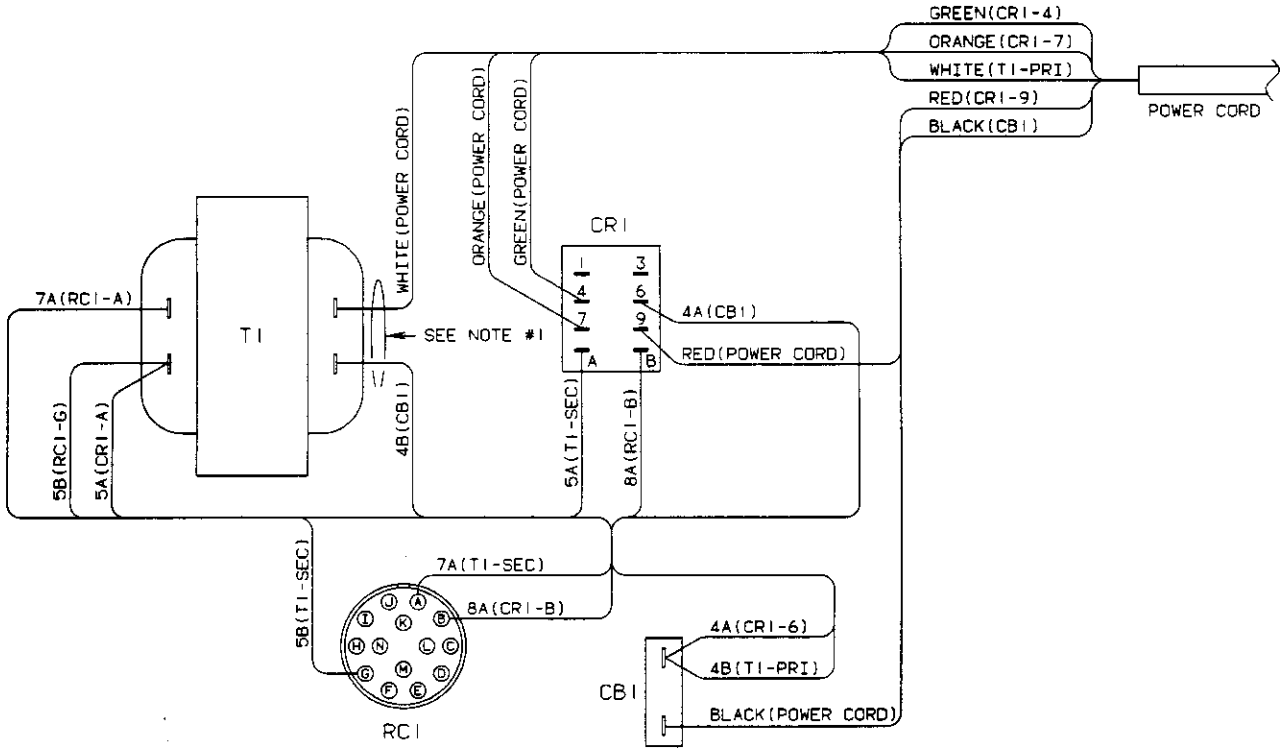
4-3. CHECKING INTERCONNECTIONS

If the PSA-2, or other attached equipment fails to function, check all interconnecting cords to ensure that the units are properly and securely connected.



Circuit Diagram No. SA-143 280-C

Diagram 5-1. Circuit Diagram



Wiring Diagram No. SB-143 277-A

Diagram 5-2. Wiring Diagram

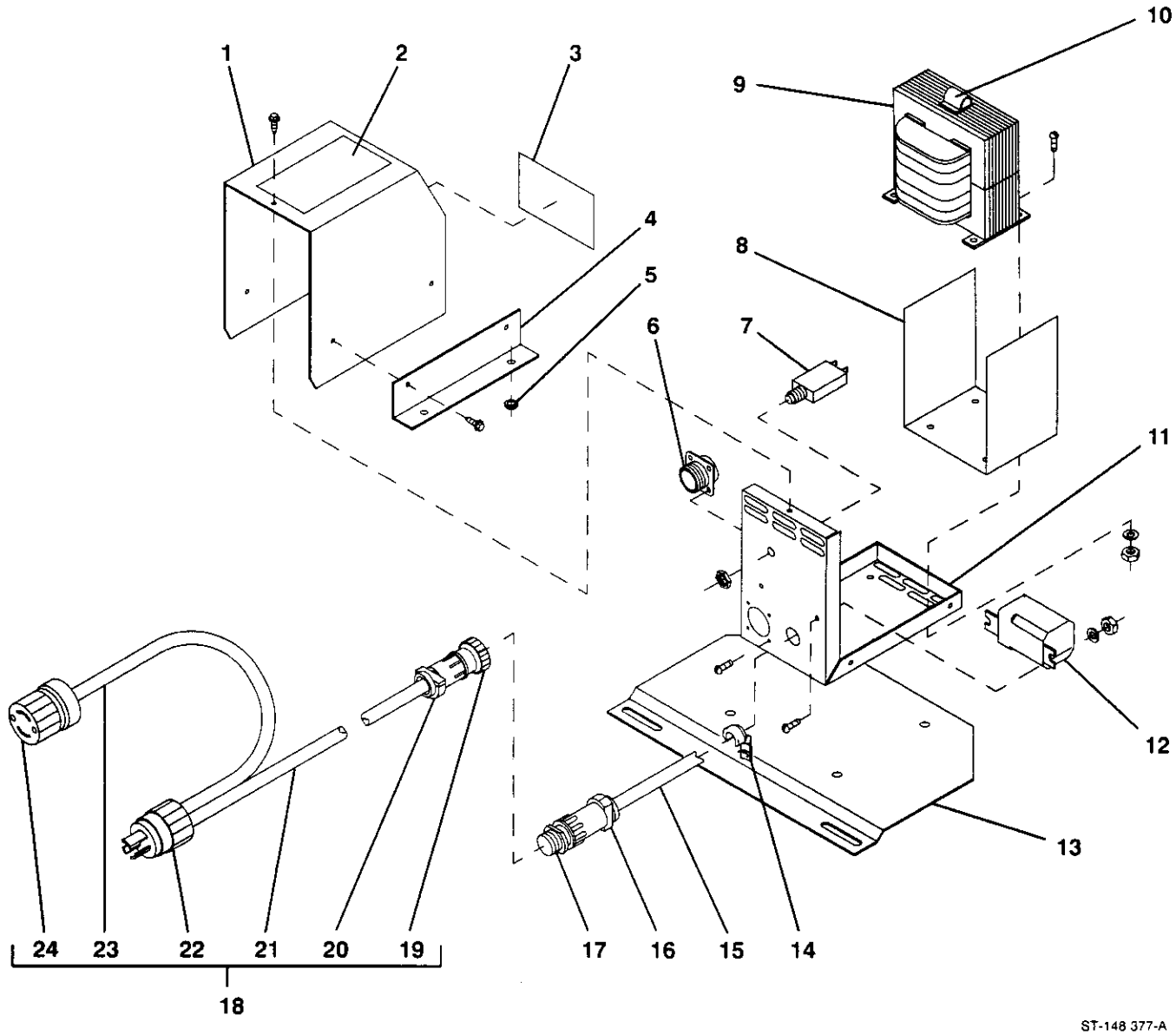


Figure 6-1. Complete Assembly

Item No.	Dia. Mkgs.	Part No.	Description	Quantity

Figure 6-1. Complete Assembly

1		+143 283	WRAPPER	1
2		131 515	LABEL, warning electric shock etc	1
3			NAMEPLATE, (order by model and style number)	1
4		143 282	ANGLE, foot	2
5		604 311	GROMMET, rbr .250 ID x .375mtg hole .062 groove	4
6	RC1	143 976	RECEPTACLE w/TERMINALS, (consisting of)	1
		079 534	TERMINAL, female 1skt 18-14 wire	14
		134 734	HOUSING, term plug 14cont shell sz 20 Amp 213571-2	
		134 731	TERMINAL, male 1 pin .062dia 18-14 wire Amp 213603-1	
		079 739	CLAMP, cable strain relief sz 17 Amp 206322-2	
7	CB1	011 244	CIRCUIT BREAKER, man reset 2A 240VAC	1
8		143 278	INSULATOR, transformer	1
9	T1	143 485	TRANSFORMER, sig 115V pri 24VCT 8A	1
10		059 712	CLIP, component .437dia.mtg adh back	1
11		143 281	ENCLOSURE	1
12	CR1	006 393	RELAY, encl 24VAC DPDT	1
13		123 741	BRACKET, mtg control	1
14		010 325	BUSHING, strain relief .840 ID x .875mtg hole	1
15		600 343	CABLE, port No. 16 5/c (order by ft)	2ft
16		079 531	CLAMP, cable strain relief sz 11 .453 max cable OD	1
17	PLG1	046 958	RECEPTACLE w/PINS, (consisting of)	1
		079 535	TERMINAL, male 1 pin 18-14 wire	4
18		081 964	CABLE, interconnecting (consisting of)	1
19		048 284	HOUSING PLUG & SOCKETS, (consisting of)	1
		079 534	TERMINAL, female 1skt 18-14 wire	4
20		079 531	CLAMP, cable strain relief sz 11 .453 max cable OD	1
21		604 571	CABLE, port No. 18 4/c (order by ft)	10ft
22		039 687	PLUG, twlk grd 2P3W 15A 277V	1
23		049 455	CABLE, port No. 18 2/c (order by ft)	2ft
24		039 635	CONNECTOR BODY, twlk 2P2W 20A 250V	1

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