

Kilowatt/Hour Meter

Single, Polyphase, Demand, and Non Demand Installation Procedure

**DO NOT DISCARD! WARRANTY ENCLOSED.
LEAVE WITH END USER.**



AMPROBE INSTRUMENT®



3270 Executive Way
Miramar, FL 33025

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Preliminary

- i. Installation must be in accordance with all NEC and local electric codes by qualified personnel.
- ii. Phase sequence must be identified for proper installation of **3 PHASE METERS**. If phase sequence is unknown, obtain an Amprobe model # PSA-1 to identify phase sequence.
- iii. Installation must be done with all power off. Contact your local utility to shut off power before installation. Amprobe and its representatives shall not be responsible or liable with regard to safety, where personal injury, death, or property loss is concerned or any other consequential damages. Buyer assumes responsibility to apply this product with due regard to safety.
- iv. Verify that all power is off.
- v. Fuses are required for installation and are not provided with meter.

Mounting Meter and Flexible Conduit

1. Install a screw, flush to the wall, at the approximate height you want the top of the meter to be, no more than 18" from the panel box.
Note: If meter must be installed more than 18" from panel, flex into a 6" junction box and run conduit to panel. Be sure to follow color code. Refer to Page 14. "Recommended meter to transducer length w/A.W.G."
2. Back the screw out enough so the meter's hanging bracket can slide in securely.
3. Hang the meter on the screw and install lower mounting screws (min 2½" × 10p) in the pre-drilled holes. (see Fig. 1.)

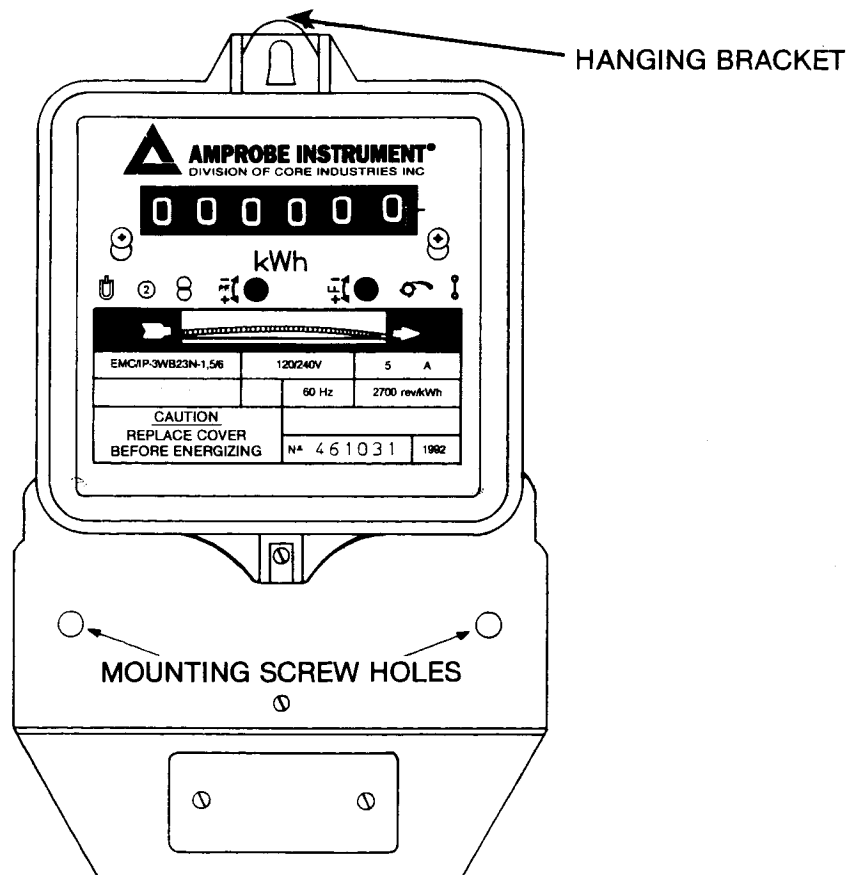


Figure 1

4. Remove plastic nut from threaded end of flexible conduit. (see Figure 2.)

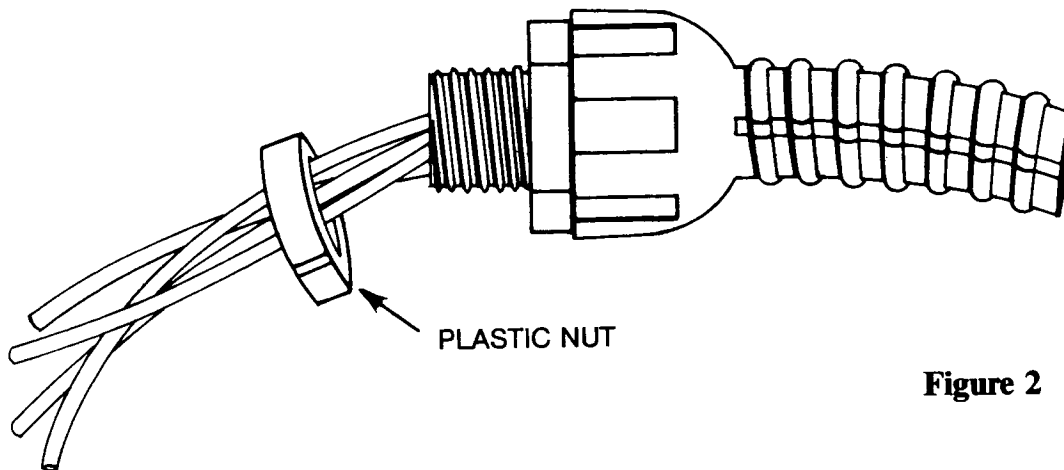


Figure 2

5. Insert threaded end of flexible tubing into a $\frac{1}{2}$ " conduit knock out ($\frac{3}{4}$ " hole) in the panel box and reinstall nut on tubing on the inside of the box. (see Figure 3.)

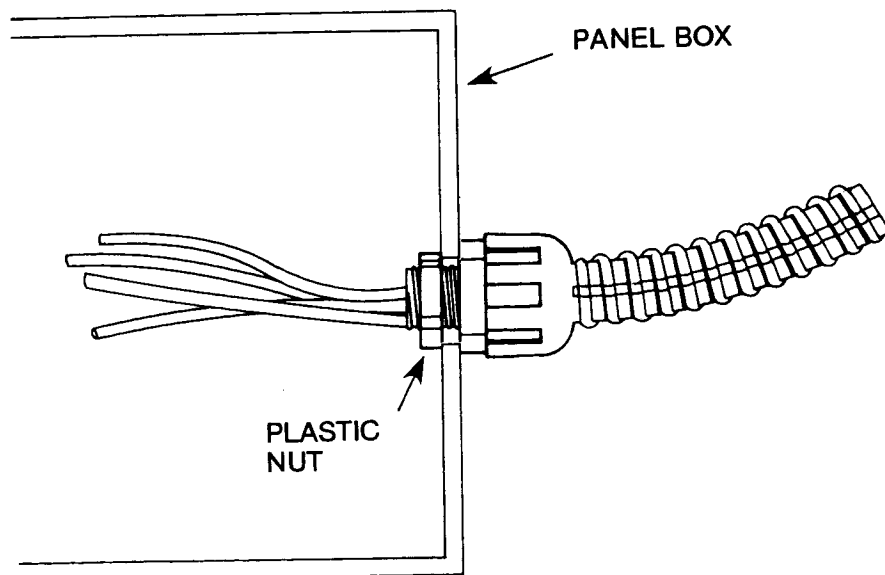


Figure 3

Electrical Connections

1. Hard wire the end of the GREEN wire (piece without slide connect), labeled (\perp), to earth ground.
2. Loosen phase A's terminal block bolt and remove phase A wire from terminal block.
3. Slip current transformer, labeled "PHASE A", on line with marking "HI" and phase A label faced toward the source. (see Figure 4.)

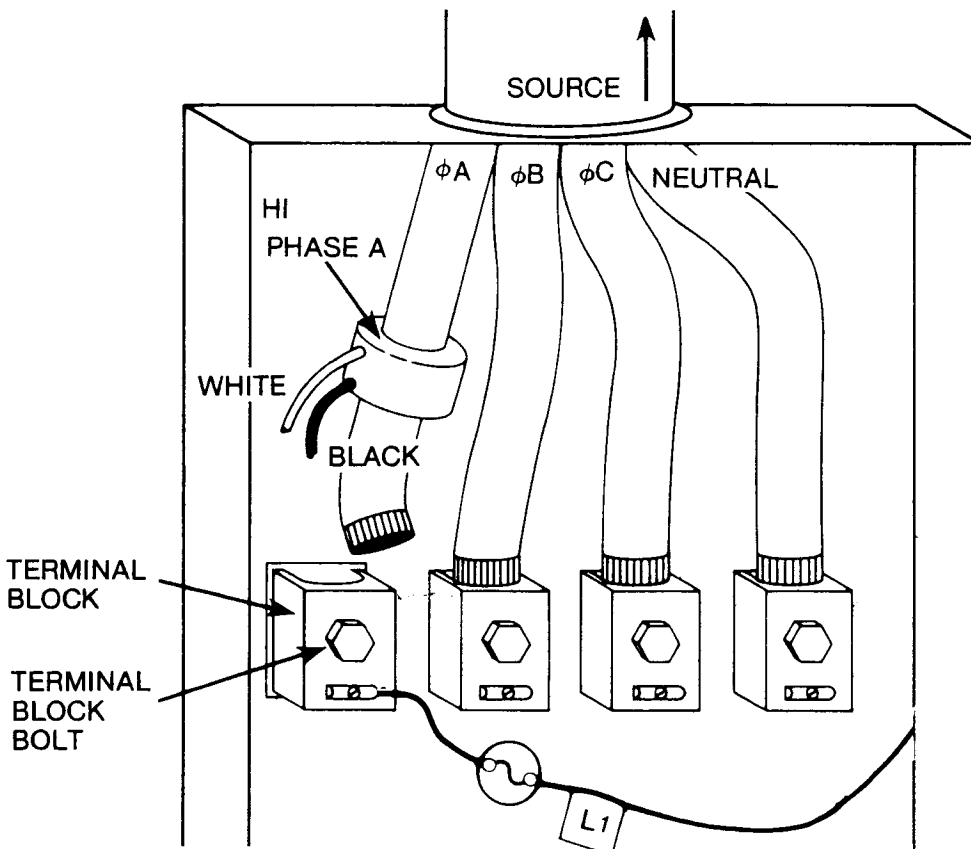


Figure 4 "HI" MUST FACE SOURCE, VOLTAGE LEAD CONNECTION.

4. Reinsert phase A wire into its terminal block and tighten to specified torque.
5. Connect the current transformer leads to their corresponding meter leads by sliding the interconnects together. The color of the label, on the current transformer leads, corresponds to the wire on the meter harness.
6. Connect harness wire labeled "L1", via fused jumper (not included), to phase A's terminal block. Check your local code for correct fuse amp rating and lead termination. We recommend 3A fast blow at rated voltage.
7. Repeat steps 2 through 6 for each additional phase to be metered. **Refer to tables I-III and Figures 5-8, for electrical wiring applicable to your meter.**
8. Double check all wiring before re-energizing.

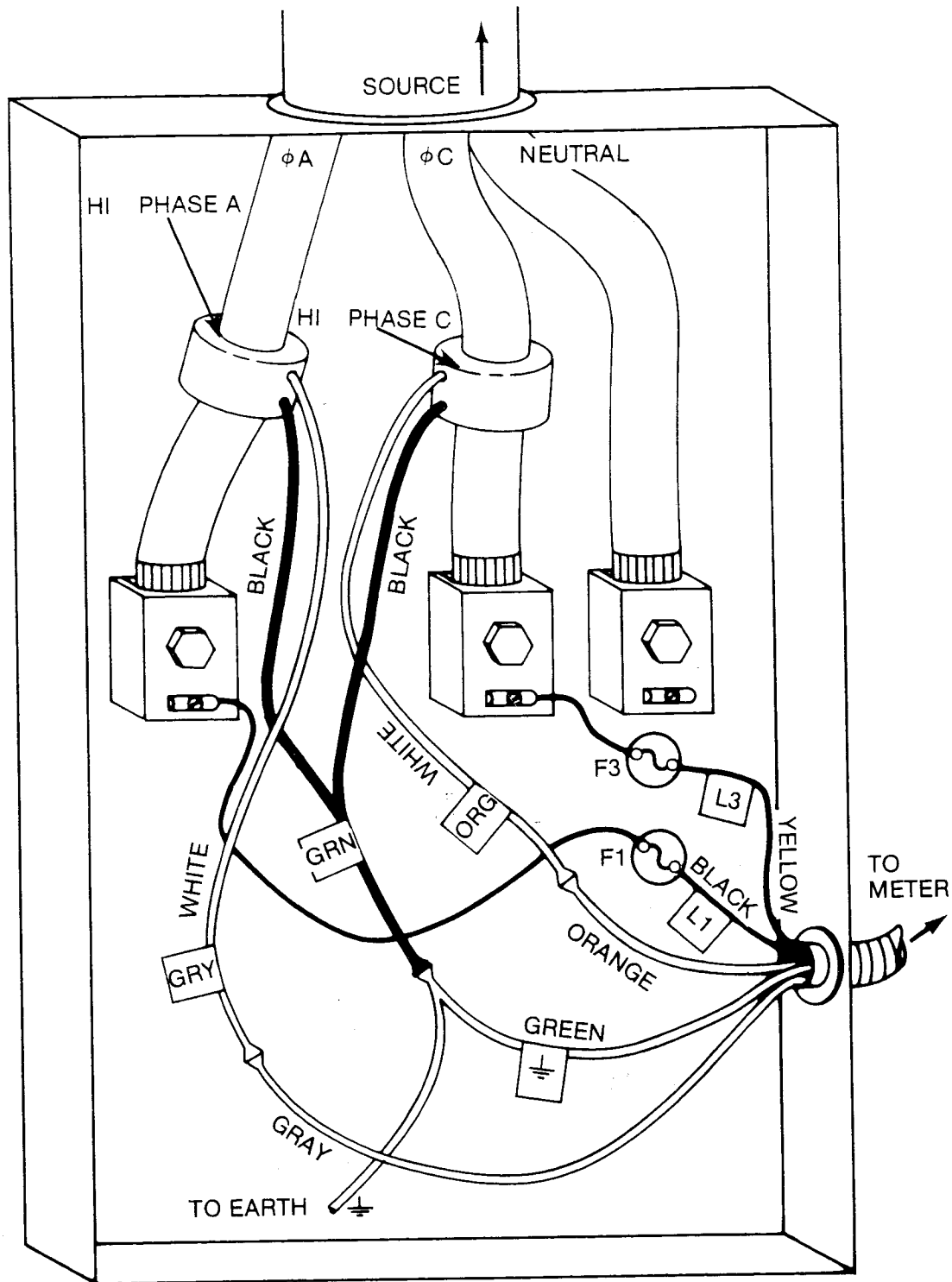


Figure 5 120/240V 1 PHASE 3 WIRE

TABLE 1 (120/240V 1 PHASE 3 WIRE WIRING)

CURRENT TRANSFORMER LEADS		METER BUS LEADS		PANEL TERMINATIONS	
PHASE A: WHITE w/GRAY INDICATOR	goes to GRAY				
BLACK w/GREEN INDICATOR	goes to GREEN(⊥)			goes to EARTH GROUND(⊥)	
		BLACK w/L1 INDICATOR		goes to PHASE A VOLTAGE(FUSED)	
PHASE C: WHITE w/ORANGE INDICATOR	goes to ORANGE				
BLACK w/GREEN INDICATOR	goes to GREEN(⊥)			goes to EARTH GROUND(⊥)	
		YELLOW w/L3 INDICATOR		goes to PHASE C VOLTAGE(FUSED)	

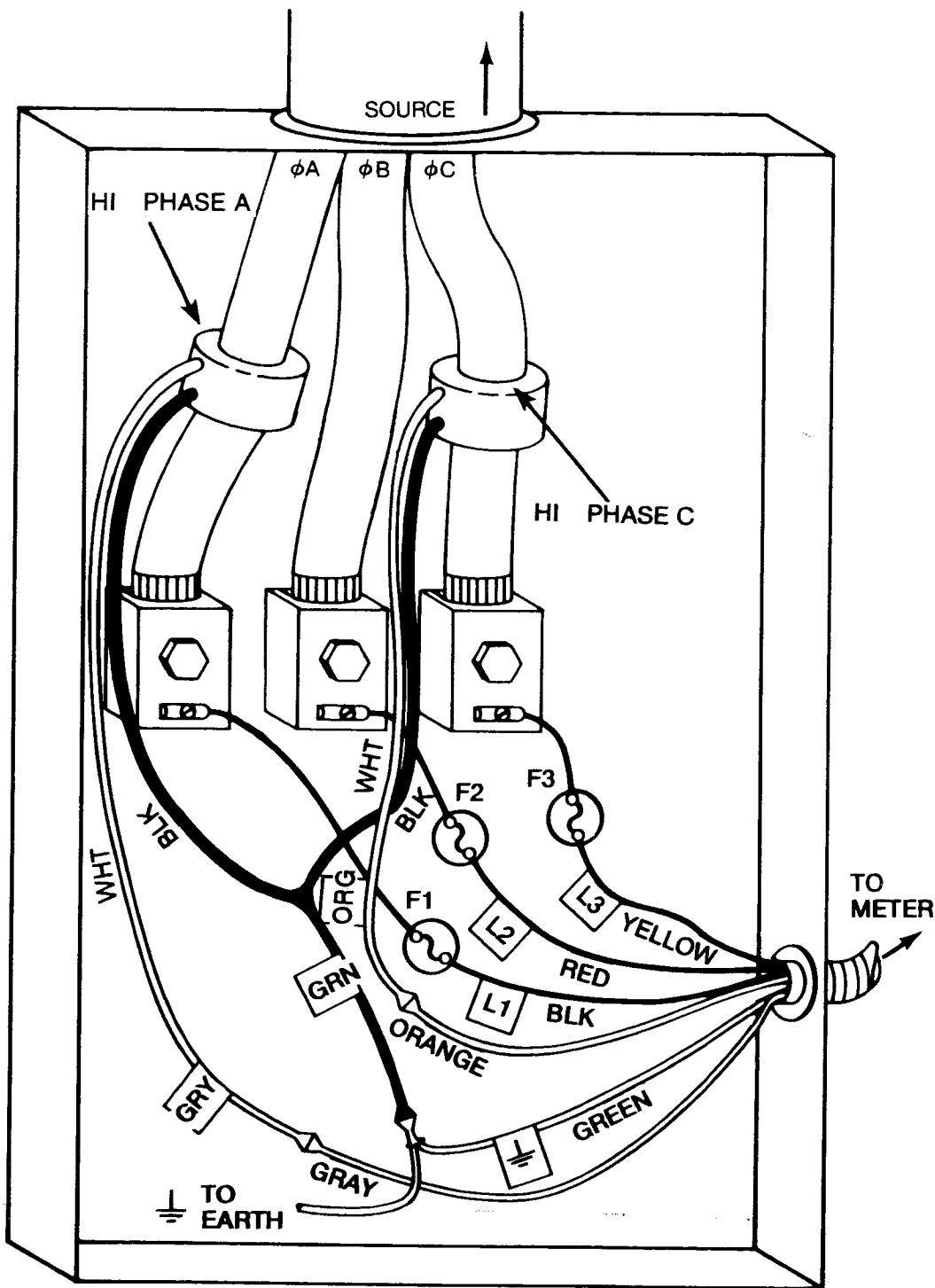


Figure 6 480v 3 WIRE DELTA

TABLE II (480V 3 WIRE DELTA WIRING)

CURRENT TRANSFORMER LEADS		METER BUS LEADS		PANEL TERMINATIONS	
PHASE A: WHITE w/GRAY INDICATOR	goes to GRAY				
BLACK w/GREEN INDICATOR	goes to GREEN(⊥)			goes to EARTH GROUND(⊥)	
		BLACK w/L1 INDICATOR		goes to PHASE A VOLTAGE(FUSED)	
PHASE C: WHITE w/ORANGE INDICATOR	goes to ORANGE				
BLACK w/GREEN INDICATOR	goes to GREEN(⊥)			goes to EARTH GROUND(⊥)	
		YELLOW w/L3 INDICATOR		goes to PHASE C VOLTAGE(FUSED)	

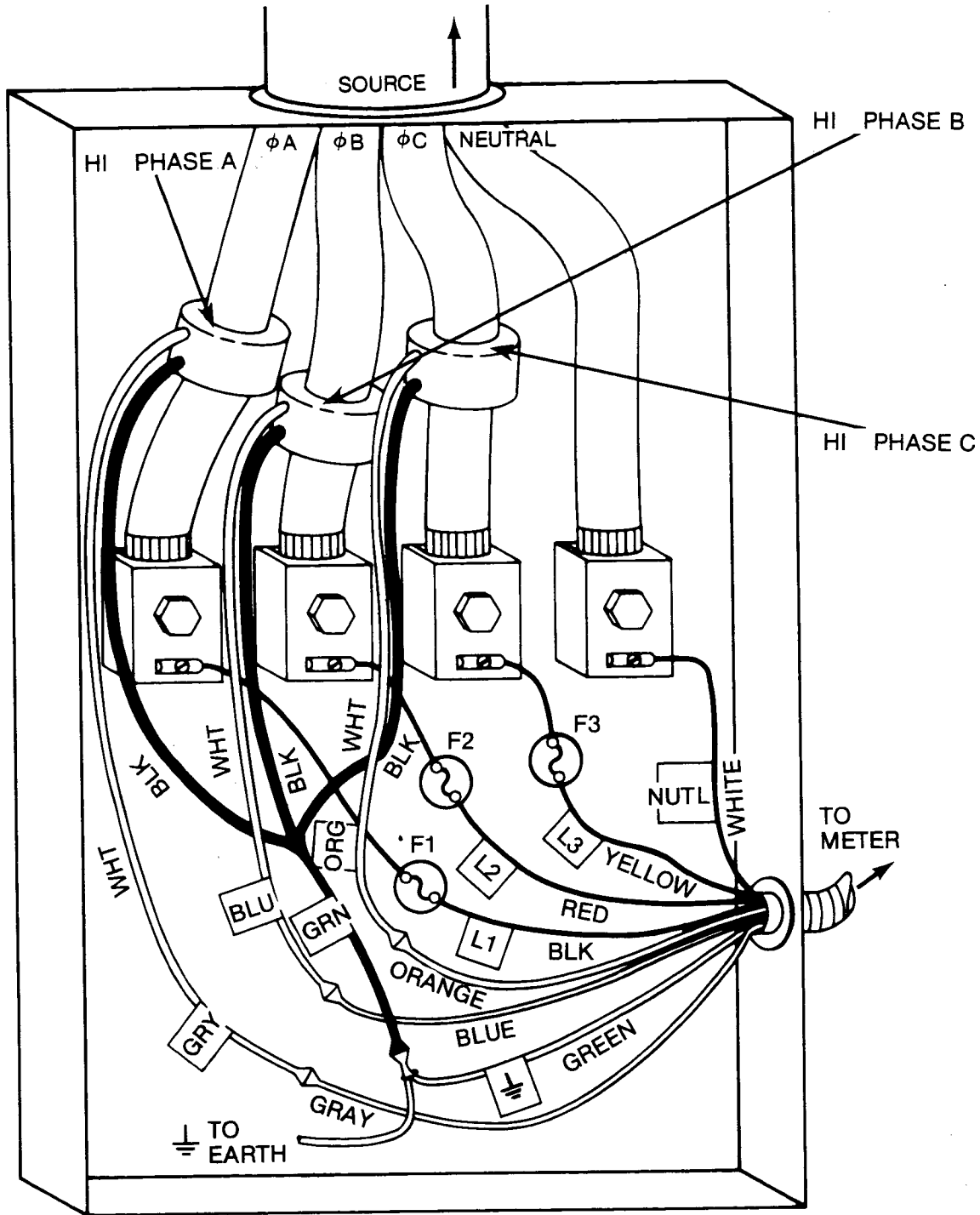


Figure 7 120/208v, 277/480v 4 WIRE Y AND 120/240v 4 WIRE DELTA

TABLE III (120/208V,277/480V 4 WIRE Y) and (120/240V 4 WIRE DELTA)

CURRENT TRANSFORMER LEADS	METER BUS LEADS	PANEL TERMINATIONS
PHASE A: WHITE w/GRAY INDICATOR	goes to GRAY	
BLACK w/GREEN INDICATOR	goes to GREEN(⊥)	goes to EARTH GROUND(⊥)
	BLACK w/L1 INDICATOR	goes to PHASE A VOLTAGE(FUSED)
PHASE B: WHITE w/BLUE INDICATOR	goes to BLUE	
BLACK w/GREEN INDICATOR	goes to GREEN(⊥)	goes to EARTH GROUND(⊥)
	RED w/L2 INDICATOR	goes to PHASE B VOLTAGE (FUSED)
PHASE C: WHITE w/ORANGE INDICATOR	goes to ORANGE	
BLACK w/GREEN INDICATOR	goes to GREEN(⊥)	goes to EARTH GROUND(⊥)
	YELLOW w/L3 INDICATOR	goes to PHASE C VOLTAGE(FUSED)
	WHITE/NUTL FLAG	goes to NEUTRAL BAR

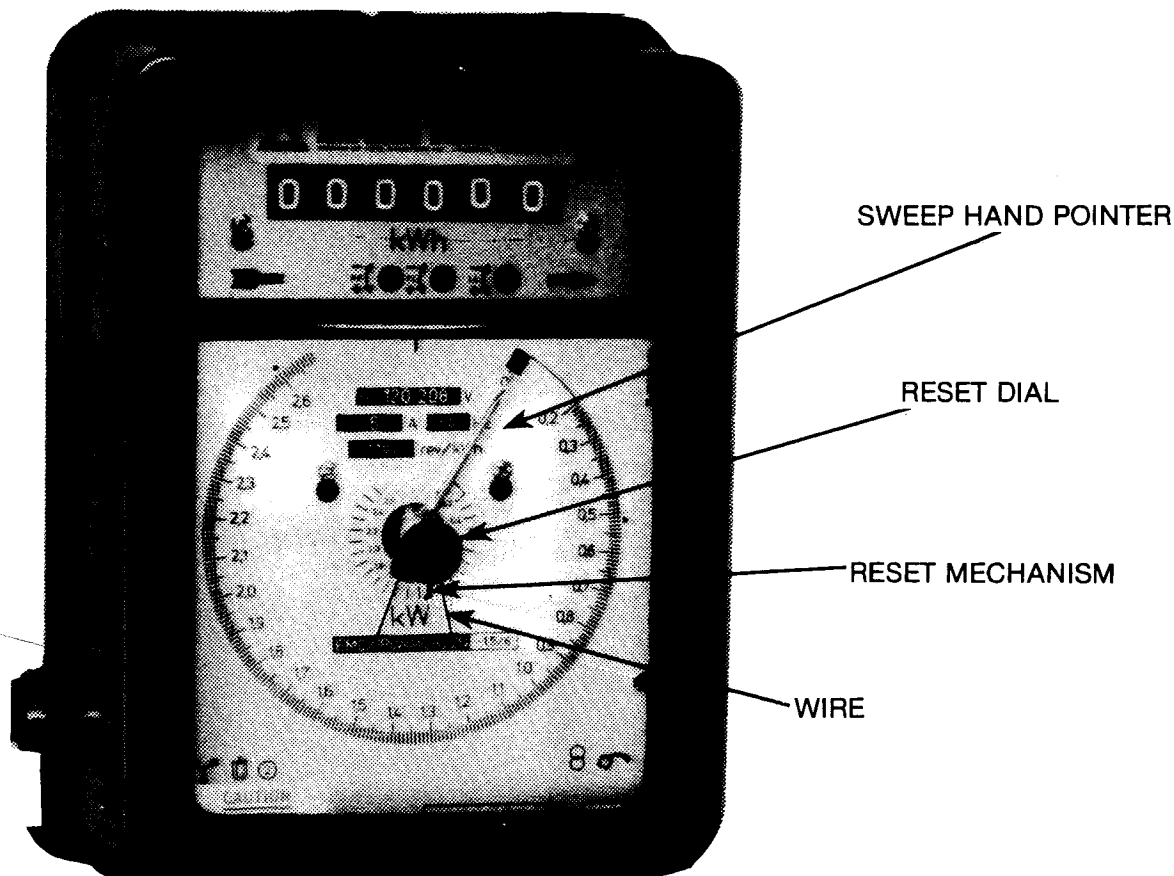
Resetting Demand Meter's Sweep Hand Pointer

Demand meters are shipped with a wire inserted through the eye of the sweep hand pointer reset dial. The purpose of this wire is to lock the reset dial and prevent the reset mechanism from interfering with normal operation.

To reset the demand pointer:

1. Remove the wire from the reset dial.
2. Turn the reset dial *counterclockwise* until the mechanism drags the pointer to 0. **DO NOT FORCE THE POINTER PAST 0 OR METER DAMAGE WILL RESULT!!**
3. Turn the reset dial clockwise to the original position.
4. Reinsert wire back into the eyes of the reset dial.

To seal and prevent unauthorized resetting of the sweep hand pointer, obtain an Amprobe Part # WH134, containing 50 lead seals and Galvanized wire.



Totalization

It is possible to measure the combined power of two or more panels with one meter. Figure 8 is a typical wiring diagram which incorporates an Amprobe totalization package. Totalization packages includes additional current transformers and a special wiring harness.

WARNING: Meter damage and/or fire could result if more than three (3) CTs are wired in parallel to the 12 AWG wire in the meter harness. Consult factory if more than three (3) panels need to be totalized.

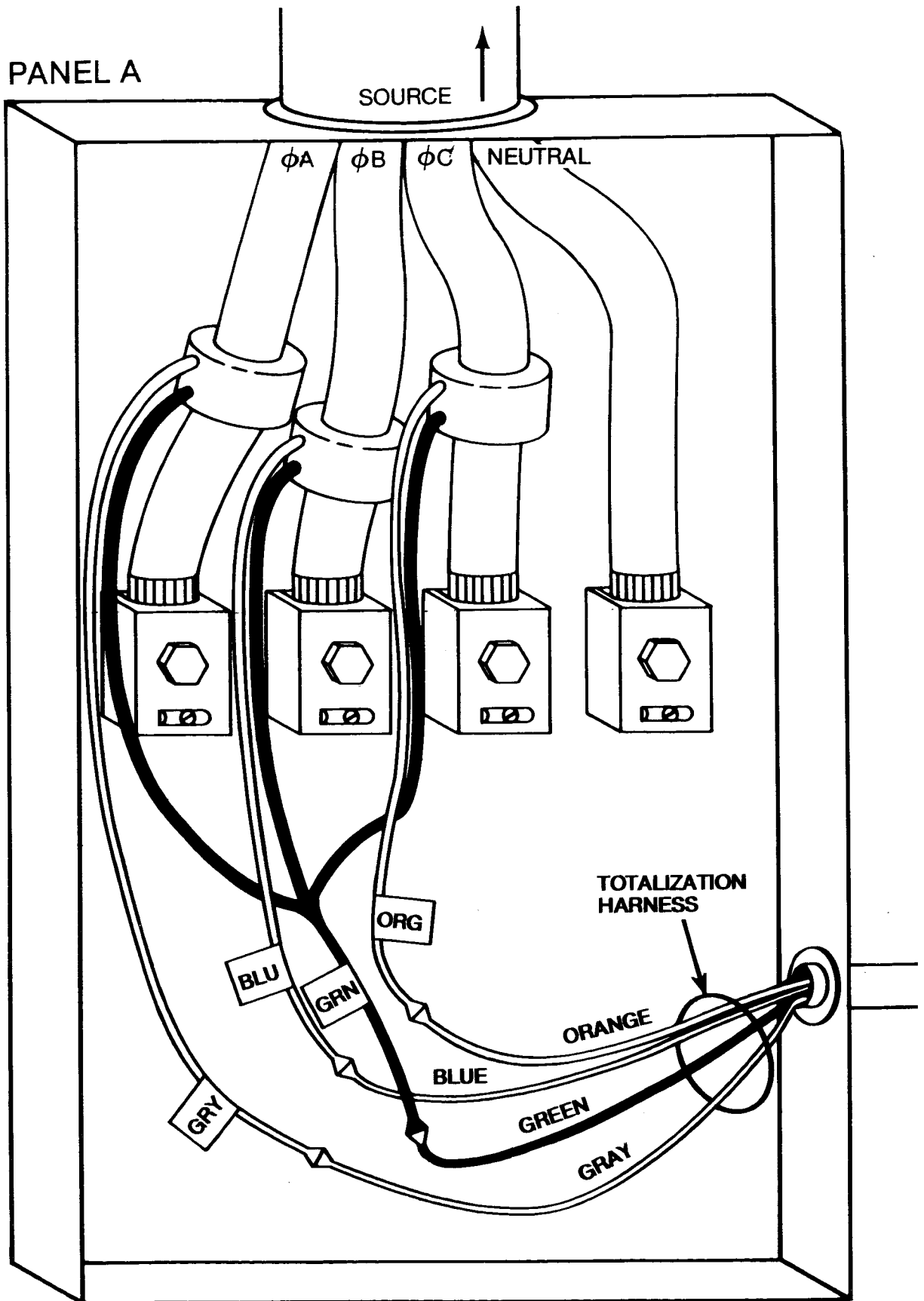


Figure 8 TOTALIZATION (120/208v 277/480v 4 WIRE Y AND 120/240v 4 WIRE DELTA).

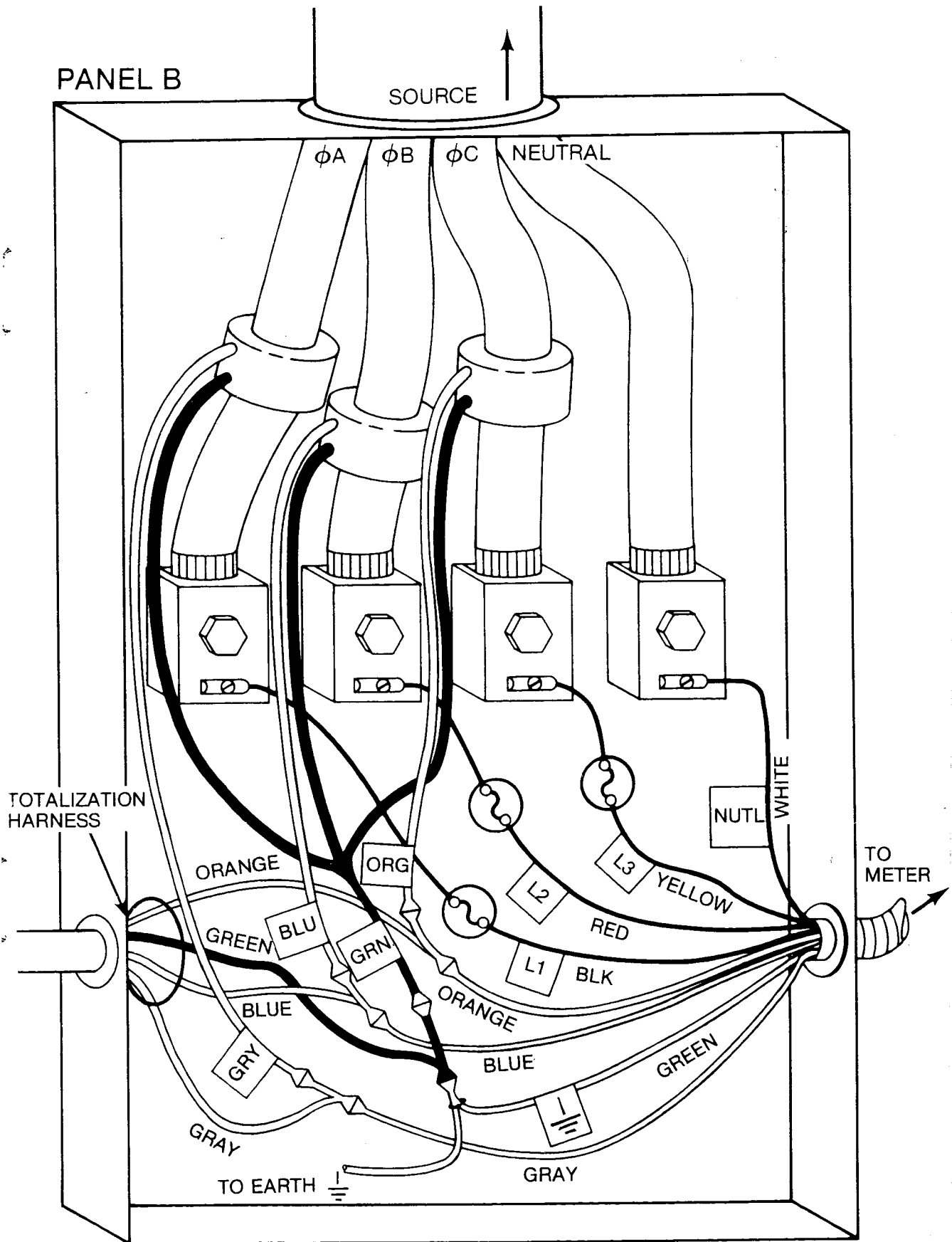


Figure 8 (CONTINUED)

READING YOUR METER

Kilowatt/Hours (Non Demand and Demand Meters)

To determine the amount of Kilowatt/Hours used, use the following formula:

$$\text{Kilowatt/Hours} = \text{Meter Reading Change} \times \text{Multiplier.}$$

For example,

Today the meter reads:

0	0	3	1	.	8	5
0	0	2	0	.	1	0

Last month the meter read: -

Meter Change =

0011.75

If your Multiplier number is 40: ×

40

Kilowatt/Hours used =

470.00

Note: Your Multiplier number is stamped on the label at the bottom of the meter. See Figure 9.

Kilowatt Peak Demand (Demand Meters only)

To determine the Kilowatt Peak Demand, use the following formula:

$$\text{Kilowatt Peak Demand} = \text{Pointer Reading} \times \text{Multiplier}$$

For example:

The Sweep Hand Pointer is pointing to: 2 . 4 3

If your Multiplier number is 40: ×

40

Kilowatt Peak Demand =

97.2

Note: Your Multiplier number is stamped on the label at the bottom of the meter. See Figure 10.

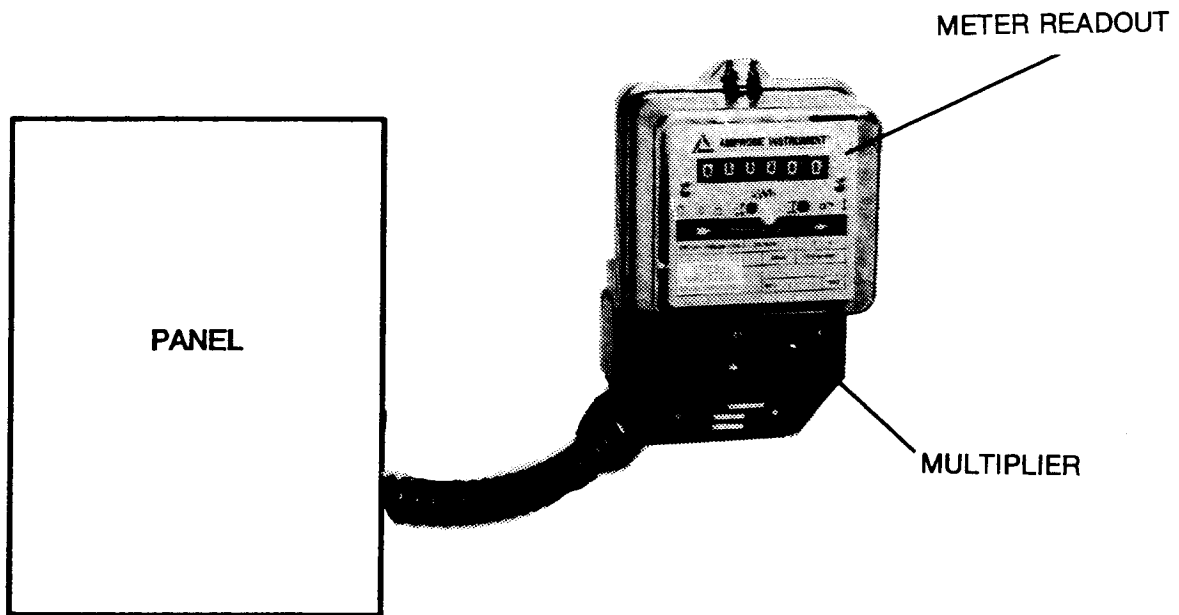


Figure 9

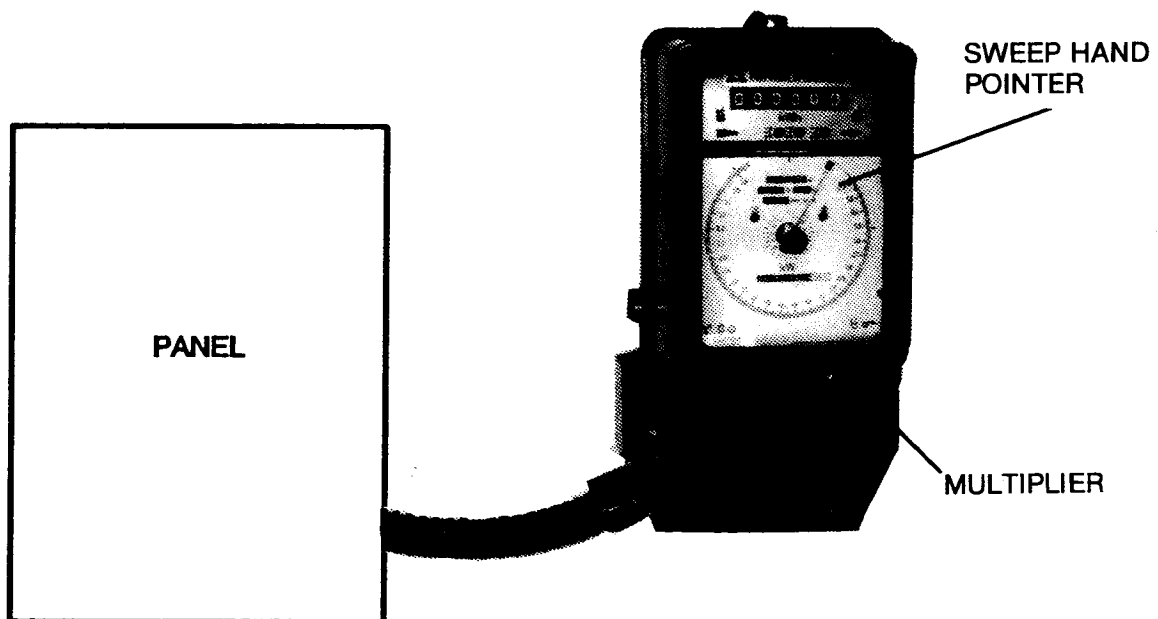


Figure 10

AMPROBE kW/hr SUBMETERS

★ ★ ★ ★ ★ ★ 25 YEAR WARRANTY ★ ★ ★ ★ ★ ★ ★

★
★ Amprobe Instrument, division of Core Industries, 630 Merrick Road, Lynbrook, NY 11563, warrants its kW/hr submeters to the original purchaser to be free from manufacturer's defects in materials and workmanship for a period of 25 years, provided the following criteria has been met:

★ The product has been stored, handled, installed by qualified personnel, with all power off, and used under proper conditions in an environment conducive to this product. All installations must be in accordance with all national and local electrical codes. Meters installed outdoors must be equipped with a NEMA 3R, or equivalent, enclosure.

★ **This warranty is void if seals are not intact.**

★ Warranty does not cover damage due to abuse, neglect, lightning, or any acts of God. Pulse outputs and electronic portions of demand meters are warranted for one year.

★ If this product should fail during the specified period, after Amprobe's inspection and at Amprobe's discretion, we will repair or replace this product free of charge.

★ Buyer is responsible for obtaining a returned goods authorization (RGA) number, from Amprobe's repair department, prior to shipment. No returns will be accepted without RGA numbers. All returns must include a copy of the bill of sale and a brief description of the malfunction. Buyer is responsible for returning the unit(s) undamaged, prepaid, and insured for full value.

★ ★



3270 Executive Way
Miramar, FL 33025

Made In U.S.A.

key: (N)-non demand
(D)-demand

Amprobe kW/Hr Submeter Specifications

Electrical Specs		Mechanical Specs	
PHASE CONFIGURATIONS:	Delta and Y	SIZE (H"xW"xD")	3 Phase(N) 13.5x7x5.5
PHASES OFFERED:	Single and Polyphase	3 Phase(D) 13.5x7x5.5	1 Phase(N) 9x5x5
SELF CONTAINED V(max)	(N) 600 (D) 575	WEIGHT(lbs.)	(N) 10
DIELECTRIC VOLTAGE SURGE:	2500v for 1min.	PREWIRED	yes
ACCURACY OVERLOAD RANGE	+/-1%(1-400%FL)	DISPLAY TYPE:	(N) 6 digit mech.register (D) 6 dig reg w/sweep hand pointer
MEMORY BACKUP SOURCE:	(N) unnecessary (D) unnecessary	DISPLAY RESOLUTION:	(N) 0.001 (D) 0.03
LINE V REGULATION ALLOWED	+/-20%	MULTIPLIER	yes
FREQUENCY (Hz)	50 or 60	METER MOVEMENT PRINCIPLE:	(N) Magnetic Bearing (D) Magnetic Bearing
OPERATING TEMP C	-40 - +70	READOUT DIGIT SIZE(in):	(N) 0.315 (D) 0.15
OPERATING TEMP F	-40 - +158	HOUSING COVER	(N) Polycarbonate (D) Bakelite/Glass
TRANSUCER OFFERED:	(N) *SOLID OR SPLIT I XFMRs (D) *SOLID OR SPLIT I XFMRs *INDUSTRY STD (5A SEC)	BASE	(N) Bakelite (D) Bakelite
CURRENT RANGE (A):	100-10000	OPERATION INDICATOR:	(N) Aluminum disc (D) Aluminum disc
RECOMMENDED METER TO TRANSUCER LENGTH W/A.W.G.	1-4 ft (14 AWG) 4-25ft (12 AWG) 25-100ft (10 AWG)	RESET BUTTON	(N) no (D) yes
UL SPECS	MEETS UL 1244	OUTDOOR USE	*yes *with NEMA 3R enclosure
ANSI	C12.1	NEMA ENCLOSURE SIZE	(H)16"x(W)12"x(L)6"
I.E.C.	521	AVG. INSTALL TIME(min.)	20
General Specs			
MANUFACTURED	USA		
WARRANTY (YRS)	(N) 25 (D) 25(EXCLUDES ELECTRONICS)		
COMPANY ESTABLISHED	1948		

Amprobe kW/Hr Submeter Part Numbers

AMPS (max)	120/200 4 WIRE Y	277/480 4 WIRE Y	480 3 WIRE DELTA	120/240 4 WIRE DELTA	120/240 1PH 3 WIRE
100	WH-1V1A4WY	WH-2V1A4WY	WH-4V1A3WD		WH-2V1A1P3W
200	WH-1V2A4WY	WH-2V2A4WY	WH-4V2A3WD	WH1V2A4WD	WH-2V2A1P3W
400	WH-1V4A4WY	WH-2V4A4WY	WH-4V4A3WD	WH1V4A4WD	WH-2V4A1P3W
600	WH-1V6A4WY	WH-2V6A4WY	WH-4V6A3WD		WH-2V6A1P3W
800	WH-1V8A4WY	WH-2V8A4WY	WH-4V8A3WD		WH-2V8A1P3W
1000	WH-1V10A4WY	WH-2V10A4WY	WH-4V10A3WD		WH-2V10A1P3W
1500	WH-1V15A4WY	WH-2V15A4WY	WH-4V15A3WD		
2000	WH-1V20A4WY	WH-2V20A4WY	WH-4V20A3WD		
3000	WH-1V30A4WY	WH-2V30A4WY	WH-4V30A3WD		
4000	WH-1V40A4WY	WH-2V40A4WY	WH-4V40A3WD		

AMPS (max)	120/200 4 WIRE Y	277/480 4 WIRE Y	480 3 WIRE DELTA	120/240 4 WIRE DELTA	
100	WH-M-1V1A4WY	WH-M-2V1A4WY	WH-M-4V1A3WD		
200	WH-M-1V2A4WY	WH-M-2V2A4WY	WH-M-4V2A3WD	WH-M-1V2A4WD	
400	WH-M-1V4A4WY	WH-M-2V4A4WY	WH-M-4V4A3WD	WH-M-1V4A4WD	
600	WH-M-1V6A4WY	WH-M-2V6A4WY	WH-M-4V6A3WD		
800	WH-M-1V8A4WY	WH-M-2V8A4WY	WH-M-4V8A3WD		
1000	WH-M-1V10A4WY	WH-M-2V10A4WY	WH-M-4V10A3WD		
1500	WH-M-1V15A4WY	WH-M-2V15A4WY	WH-M-4V15A3WD		
2000	WH-M-1V20A4WY	WH-M-2V20A4WY	WH-M-4V20A3WD		
3000	WH-M-1V30A4WY	WH-M-2V30A4WY	WH-M-4V30A3WD		
4000	WH-M-1V40A4WY	WH-M-2V40A4WY	WH-M-4V40A3WD		