

## M628-1™ MODULAR WIRING POWER SUPPLY

### 1. GENERAL

1.01 The M628-1 is a battery operated power supply used in modular station installations. It simulates the central office battery with approximately 45 volts DC and local lamp transformer power with approximately 18 volts AC. The M628-1 also tests for shorts, opens, reversals and continuity in the CO line. When testing station wiring in modular station installations, the M628-1 is used in conjunction with an M-626 or M-627 Station Wiring Checker. When testing CO line conditions, the M628-1 is used alone.

### 2. DESIGN FEATURES

2.01 The M628-1 Power Supply uses two 22.5 volt batteries and is cased in a durable plastic housing.

2.02 A switch, central office loop test jack and two-color LED are provided to test the cable pair from the station installation to the central office. For proper polarity test of CO loop, a diode must be installed in reversed polarity across tip and ring at the central office. (cathode to tip, anode to ring.) The CO LOOP TEST jack provides connection between the M628-1 and the station modular jack. The CO LOOP TEST switch (SW) provides polarity reversal of battery to the tip and ring line. The CO LOOP TEST LED visually indicates the CO line conditions. All possible line conditions are checked for normal, open, shorts, and reversals. CO LOOP TEST conditions indicated by the LED are shown on a small chart on the M628-1.

2.03 The power out (PWR OUT) jack connects the M628-1 Power Supply to the station installation wiring for testing station wiring with the M-626 or M-627 Station Wiring Checker.

2.04 An auxiliary jack labeled, "M-626/M-627 TEST" is provided to test the M-626 and M-627 Station Wiring Checkers and the M628-1 Power Supply batteries. The checkers are tested by connecting a modular cord to the M628-1 TEST jack and to the M-626 or M-627 (see Figure 4). Both tip and ring and lamp LED's on the M-626 or M-627 should illuminate. (M-627 LED's illuminate in both NORMAL and GRD switch positions.)

2.05 The M628-1 will not provide an AC or DC voltage output from the PWR OUT jack until a tip and ring loop is complete through an M-626 or M-627 Modular Wiring Checker. This prolongs the life of the M628-1 batteries.

2.06 An LED on the M628-1 labeled, "T & R SHORTED" illuminates red to indicate a tip and ring short within the station wiring and alerts the user to disconnect the M628-1 to prolong battery life.

2.07 The M628-1 is not designed to provide talk battery for telephones.



Fig. 1

### 3. CONNECTIONS

3.01 Before connecting the M628-1 for station or CO loop testing, test the M-626 or M-627 as described in Paragraph 2.04. Connect the M-626 or M-627 Checker to the station modular jack to assure that no central office power or other source of power is connected to the CO cable pair or inside wiring. Do not connect the M628-1 to the cable pair if there is another source of power.

3.02 To test CO loop: (See Figure 3)

- (a) Connect M628-1 CO LOOP TEST jack to the station modular jack with a Melco M-629 seven-inch modular test cord or a standard modular line cord. The M628-1

may also be connected at the protector with an optional Melco M-621P or M-622P Modular Test Cord (24-inch test cords with modular plug to alligator clips). When the M-622P is used for connection, polarity is reversed. When the M-621P or the M-623J Modular Connector (jack to jack) is used to connect two plugs with the M-622P, no polarity reversal exists.

**NOTE:** When the M628-1 is connected with an M-621P, M-622P, or M-623J, special care must be taken to make connections correctly. Incorrect connections can result in false indications from the M628-1 CO LOOP TEST and the M-626 and M-627 station tests. Refer to Figure 3 for M-621P, M-622P and M-623J connections. (See Paragraph 3.03.)

- (b) Note the status of the CO LOOP TEST LED first with switch (SW) up, then with switch down. Read the results as follows:

CO LOOP SWITCH	CO LOOP LED	CO LOOP CONDITION
UP	OFF	Continuity to CO with proper polarity of diode installed at CO.
DOWN	GREEN	
UP	RED	Short on CO loop.
DOWN	GREEN	
UP	RED	CO loop reversed or CO diode installed reversed.
DOWN	OFF	
UP	OFF	CO loop open or no diode installed at CO.
DOWN	OFF	

- (c) If a problem exists, correct and retest.

3.03 The M-627 station ground test cannot be verified when using the M628-1 Power Supply. The ground test only indicates whether the station wiring is correct.

3.04 To test modular station wiring: (See Figure 2.)

- (a) Connect the M628-1 PWR OUT jack to the station modular jack with one of the cords specified in Paragraph 3.02.

- (b) Connect the M-626 or M-627 checker to all other station modular jacks. Observe the M-626 or M-627 LED indications.

- (c) If a problem exists, correct and retest.

#### 4. MAINTENANCE

- 4.01 Replace batteries when the LED's of the M-626 or M-627 become noticeably dim.
- 4.02 No provisions are made for field maintenance or repair at the factory. If defective, return the unit to the supplier for servicing.
- 4.03 The M628-1 is warranted against manufacturing and material defects for one year. If it fails within that time, it will be repaired or replaced without charge. See the Melco Warranty Service Policy for repair and return details.

#### 5. SPECIFICATIONS

Batteries (2 per unit) .....22.5V

Battery options:

Burgess .....U15  
Eveready .....412  
RCA .....VS084  
NEDA .....215  
Mallory .....RM412  
Western Electric .....KS-14773

Battery life

Normal use .....1 to 2 months  
Continuous use .....5 hours

CO loop .....3000 ohms max

Housing .....plastic

Operating temperature .....0° to 50°C  
32° to 122°F

Operating humidity .....0 to 95%  
(noncondensing)

Dimensions .....4.5" x 3" x 1.5"  
(11.4mm x 7.6mm x 3.8mm)

Weight (less batteries) .....4 oz.

Connection .....modular jacks

## 6. ORDERING

6.01 Order as follows:

(QTY) M628-1 MODULAR WIRING POWER SUPPLY\*

optional:

(QTY) M-629 MODULAR WIRING TEST CORD, 7 INCH

or

(QTY) M-621P MODULAR TEST CORD

or

(QTY) M-622P MODULAR TEST CORD

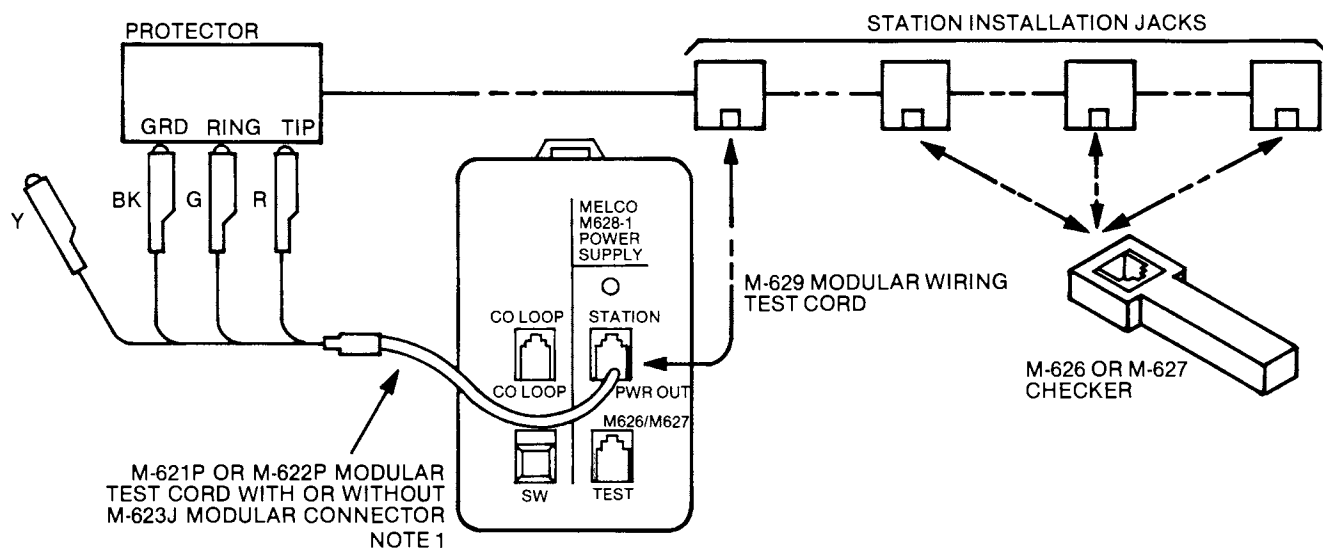
or

(QTY) M-623J MODULAR CONNECTOR  
from your local supplier or distributor.

\*Batteries not included.

6.02 For further information contact:

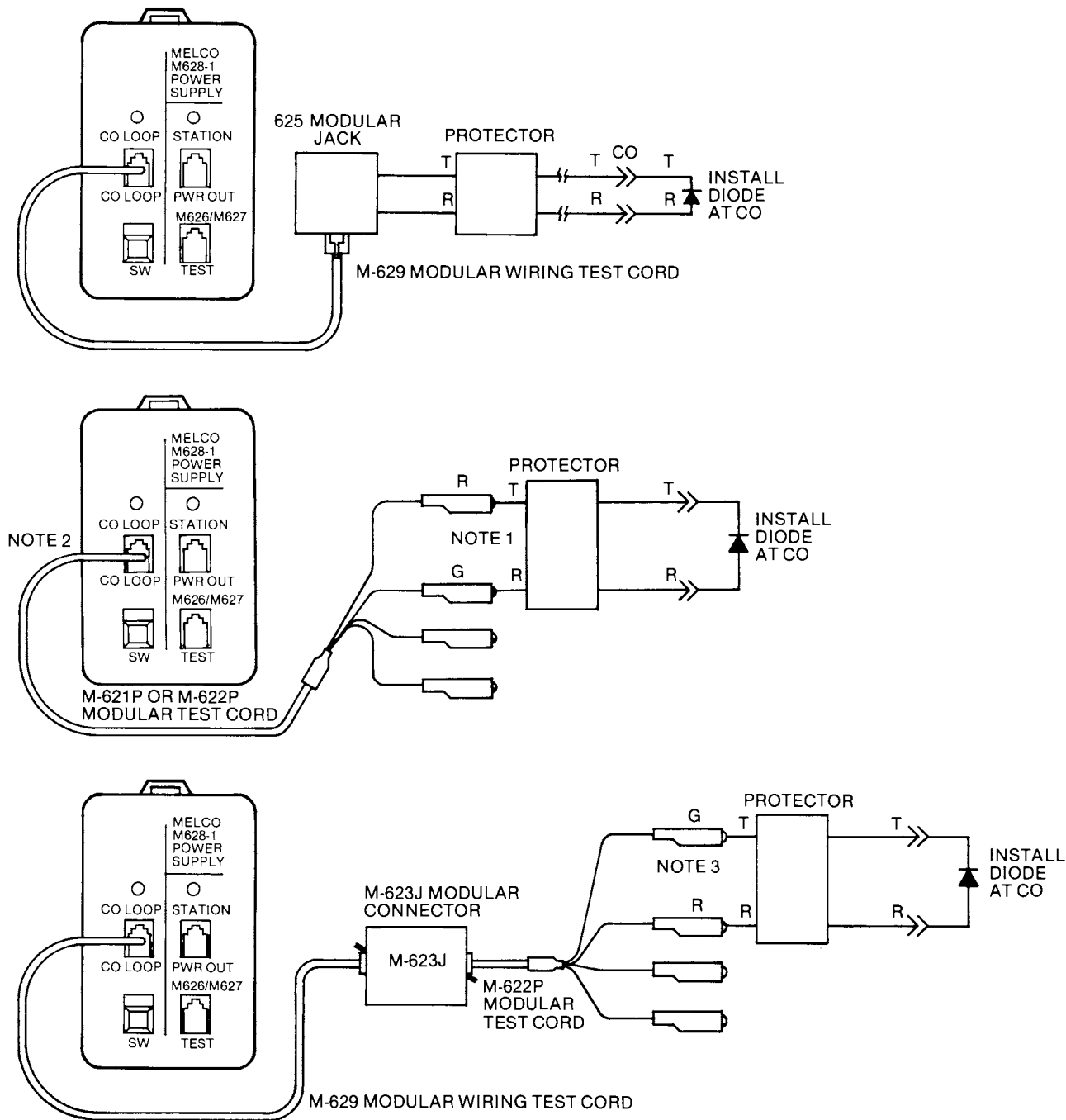
MELCO LABS, INC.  
14408 N.E. 20th Street  
Bellevue, WA 98007  
(206) 643-3400  
TWX: 910-443-3040



### NOTES:

1. WHEN USING THE M-622P ALONE, POLARITY IS REVERSED. WHEN USED WITH THE M-623J, POLARITY IS NOT REVERSED. THE M621P DOES NOT REVERSE POLARITY.

Fig. 2 — Applications Schematic of Station Wiring Test.



NOTES:

1. WHEN USING THE M-622P, POLARITY IS REVERSED DUE TO MODULAR JACK CONNECTION. THE M-621P DOES NOT REVERSE POLARITY.
2. THE M-621P IS IDENTIFIED BY A SHORT LENGTH OF RED SHRINK TUBING ON THE PLUG END.
3. POLARITY IS NOT REVERSED WHEN CONNECTION IS MADE WITH THE M-623J.

Fig. 3 — Applications Schematic of CO Loop Test. (Shown connected with M-629 and M-621P or M-622P Modular Test Cords and M-623J Modular Connector.)

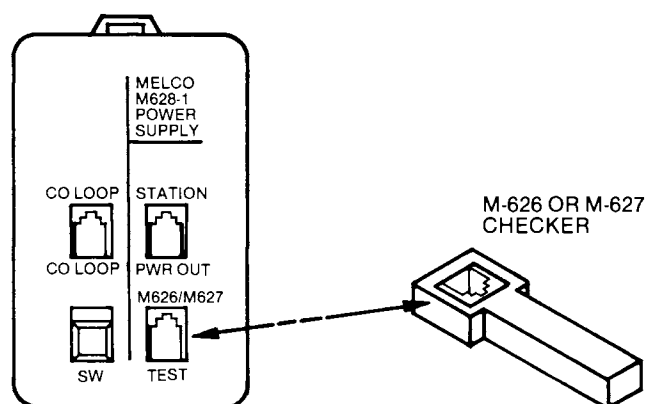


Fig. 4 — Applications Schematic of Battery and M-626 or M-627 Test.

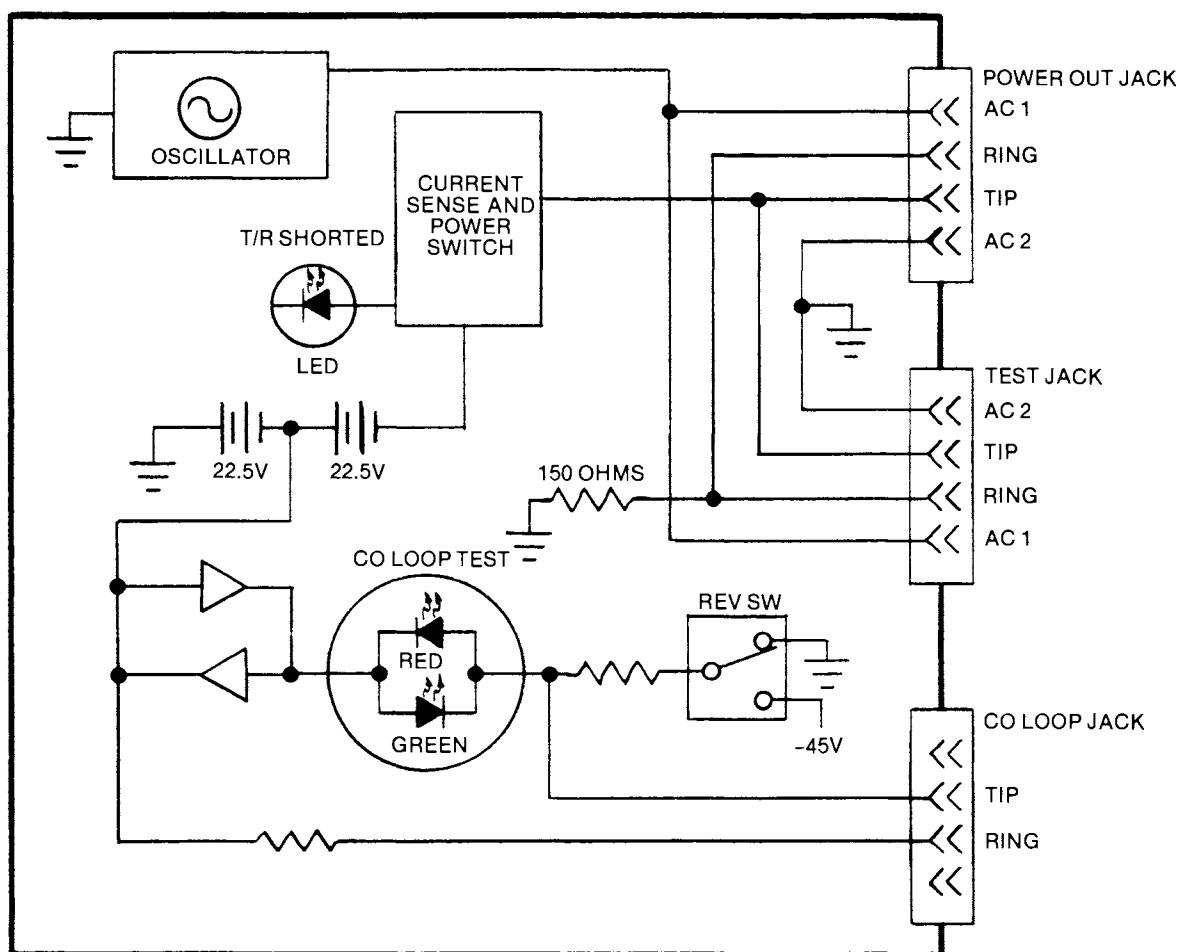


Fig. 5 — Functional Schematic of M628-1.

MELCO® TECHNICAL PRACTICE

M-629™ MODULAR WIRING TEST CORD  
M-622P™ MODULAR TEST CORD  
M-623J™ MODULAR CONNECTOR

1. GENERAL

1.01 The M-629 is a male modular to male modular cord, the M-622P is a male modular plug to alligator clip cord and the M-623J is a female modular to female modular connector/adaptor. All are designed to provide a convenient connection between the Melco M-628 or M628-1 Power Supply and the modular wall jack. Other applications of the M-629, M-622P and M-623J are described in the following section.

- can be used to connect the M-628 or M628-1 to the station protector. In this application, polarity reversal of the leads occurs. (See Figure 4 and refer to M-628 or M628-1 instructions for connections.)
- can be used in any other application where connection by means of alligator clips from a female modular connector is required.

2. DESIGN FEATURES

2.01 The M-629 Modular Wiring Test Cord:

- is a seven-inch standard modular line cord that eliminates the need to carry longer telephone cords.
- provides connection between the modular wall jack and the Melco M-628 or M628-1 Power Supply or the Melco M-626 or M-627 Station Wiring Checkers. (See Figure 4 and refer to M628-1 instructions for connections).
- is used to connect the Melco M-626 or M-627 Station Wiring Checker to the M-628 or M628-1 Power Supply for testing.
- can be used in any other application where a seven-inch male modular to male modular cord is required.

2.02 The M-622P Modular Test Cord:

- is a 24" male modular plug to alligator clip cord.

2.03 The M-623J Modular Connector:

- is a female modular to female modular connector/adaptor.
- provides connection between the M-629 and M-622P modular cords when used to connect the M-628 or M628-1 to the station protector. In this application, polarity reversal of the leads does not occur. (See Figure 4 and refer to M-628 or M628-1 instructions for connections).
- can be used in any other application where connections between male modular plugs is required.

3. MAINTENANCE

3.01 The M-629, M-622P and M-623J are warranted against manufacturing and material defects for one year. If they fail within that time, they will be replaced without charge. See the Melco Warranty Service Policy for return and repair details.



M-629  
M-622P  
M-623J  
490037  
MARCH 1982  
REV A

#### 4. ORDERING

4.02 Technical assistance on the M-629, M-622P and M-623J is available from:

4.01 Order the M-629, M-622P or M-623J as follows:

(QTY) M-629 MODULAR WIRING TEST CORD

(QTY) M-622P MODULAR TEST CORD

(QTY) M-623J MODULAR CONNECTOR

from your local supplier or distributor.

MELCO LABS, INC.  
14408 N.E. 20th Street  
Bellevue, WA 98007  
(206) 643-3400  
TWX: 910-443-3040

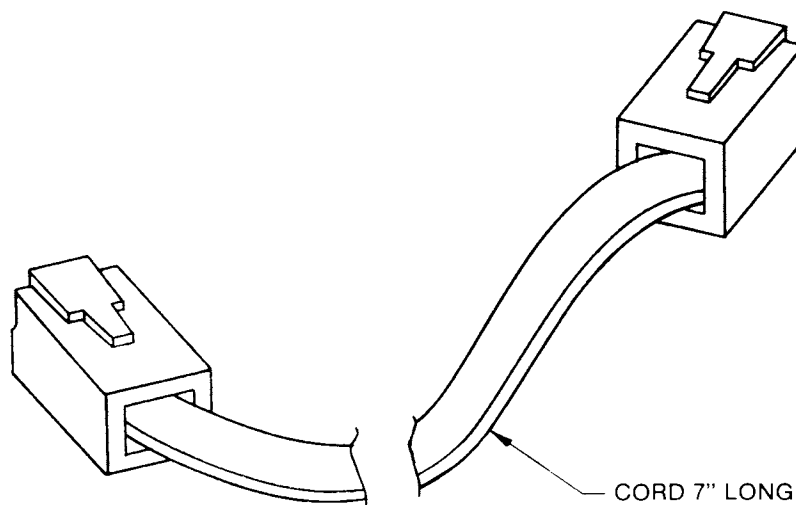


Figure 1—M-629 Modular Wiring Test Cord —  
Male Modular to Male Modular.

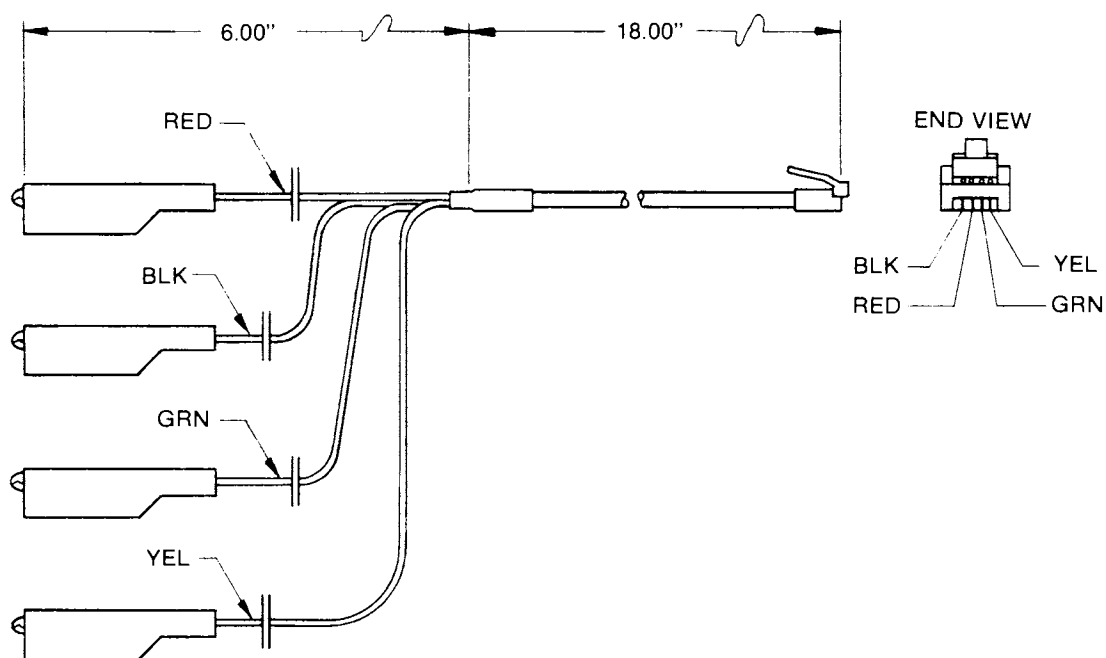


Figure 2—M-622P Modular Test Cord —  
Male Modular Plug to Alligator Clip  
Cord.

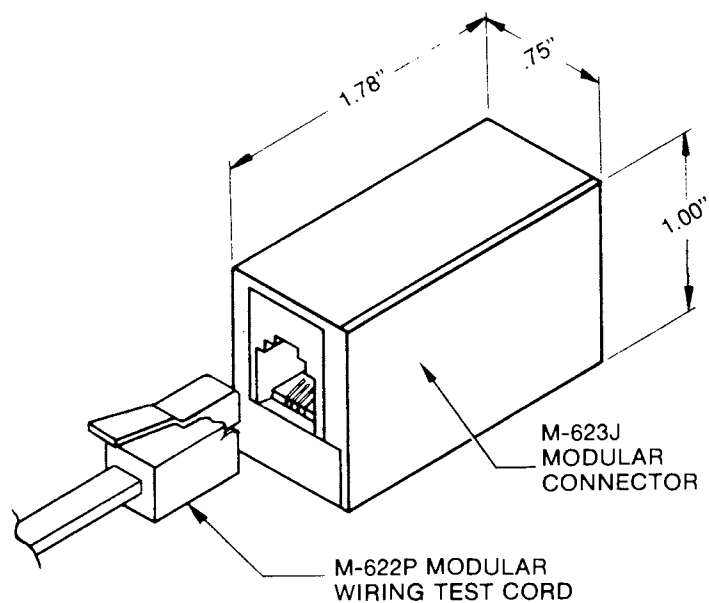


Figure 3—M-623J Modular Connector — Female  
Modular to Female Modular.



M-629  
M-622P  
M-623J  
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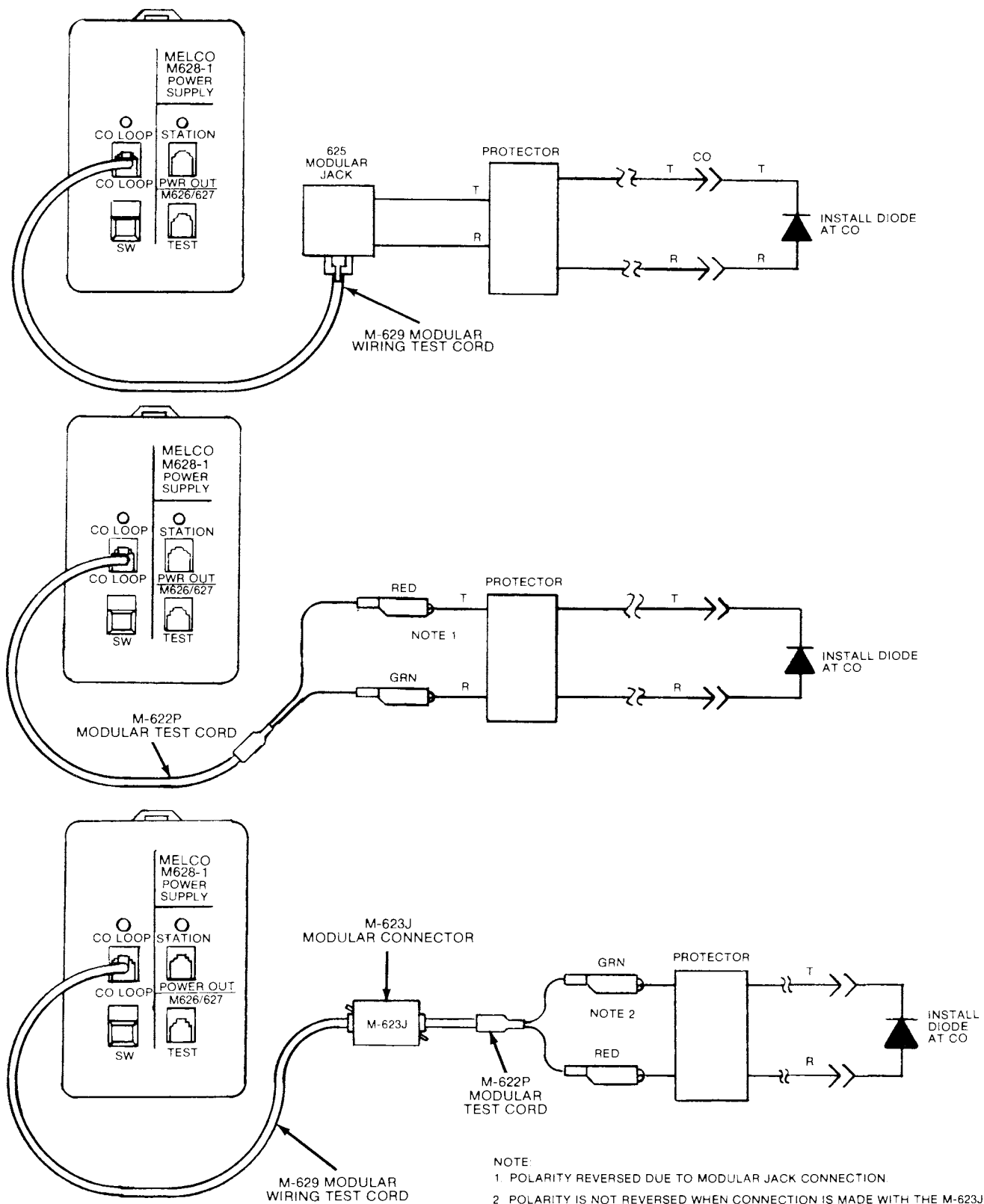


Figure 4—Applications Schematic Showing M-629, M-622P and M-623J Connections with M-628 or M628-1 Power Supply.

## M-630™ MODULAR WIRING CHECKER

### 1. GENERAL

1.01 The M-630 Modular Wiring Checker visually indicates minimum line and lamp voltages and correct wiring at the station modular connector block. Also, it allows access to individual conductors of the modular cord and wiring. A wiring test can be made in a few seconds without the use of tools or batteries.

1.02 A mini-slide switch provides for testing the station ground wiring (yellow wire). When the switch is on GRD TEST, the T-R lamp will indicate correct, reversed or open ground wiring. See Paragraph 2.06.

### 2. OPERATION

2.01 Insert the plug of the M-630 into the telephone cord receptacle of the line connector block.

2.02 Test tip and ring and lamp voltage with switch in NORMAL position.

2.03 Test for ground on station ground wire with switch in GRD TEST position.

2.04 The M-630 can be used with the Melco M628-1 Modular Wiring Power Supply when the central office cable pair is not yet connected to the station wiring. The M628-1 simulates central office battery and local lamp power and provides a means of testing the M-630 Checker for proper operation. More details on testing modular station wiring is contained in the M628-1 Melco Technical Practice.

#### 2.05 Lamp Indications - Switch on NORMAL

*T-R LED on* - Station line wiring correct. Line voltage 21V or higher.

*L LED on* - Lamp AC is 10V or higher. No DC on AC circuitry. (Dim lamp indicates low AC voltage.)

*T-R LED off* - Line voltage under 21V or line reversed or open. Line interchanged with lamp AC.

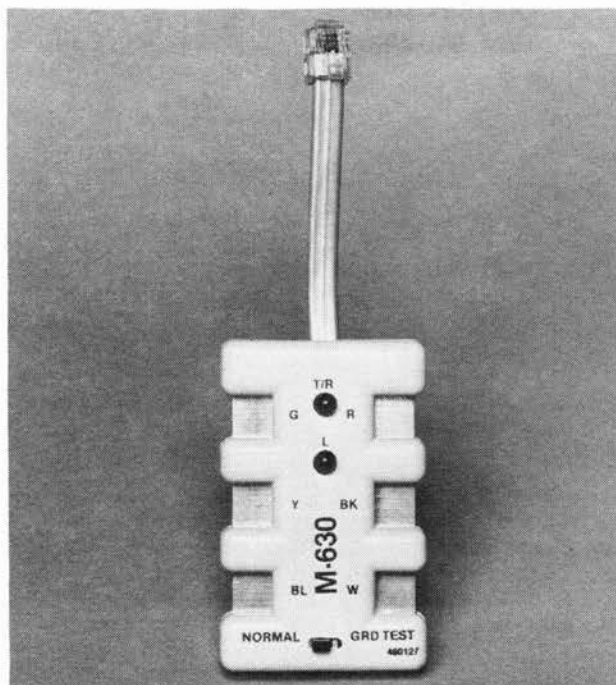
*L LED off* - Lamp AC interchanged with line, or lamp circuit open.

#### 2.06 Lamp indications - Switch on GRD TEST.

*T-R LED on* - Dim; ground connected to lamp lead (black).

*T-R LED off* - No ground connection.

*L LED on* - Lamp AC is 10V or higher. No DC on AC circuitry (dim lamp indicates low AC voltage).



M-630

### 3. MAINTENANCE

3.01 No provision is made for field adjustment or repair. If defective, return the unit to your supplier.

3.02 The M-630 is warranted against manufacturing and material defects. If found to be defective during the warranty period, it will be repaired or replaced at no charge. See the Melco Warranty Service Policy for more details.

### 4. ORDERING GUIDE

4.01 Order as follows:

(QTY) M-630 120303 MODULAR WIRING CHECKER

M-630  
490115  
FEBRUARY 1985  
REV A

optional:

(QTY) M628-1 120057 MODULAR WIRING  
POWER SUPPLY

from your local supplier or distributor.

- 4.02 Technical assistance on these or any  
Melco products is available from:

MELCO LABS, INC.  
P.O. Box 6909  
Bellevue, WA 98008-0909  
(206) 643-3400  
TWX: 910-443-3040