

PSR-904  
SELECTIVE RINGING MODULE  
METHODS AND PROCEDURES

1. GENERAL

- 1.01 This section is a cover sheet for the PSR-904 Selective Ringing Module. This section is reproduced with permission of KEPTTEL.
- 1.02 Whenever this section is reissued the reason(s) for reissues will be listed in this paragraph.
- 1.03 The PSR-904 is a solid state, field programmable, electronic module. Placed at the subscriber premise, it is designed to allow party line subscribers to connect standard bridged ringer apparatus to the network.
- 1.04 If corrections are required in the attached document, use Form E-3973 as described in Section 000-010-015.
- 1.05 If equipment design and/or manufacturing problems should occur, refer to Section SW 010-522-906 for procedures on filing an Engineering Complaint.

2. ORDERING PROCEDURE

- 2.01 The PSR-904 Selective Ringing Module may be ordered via the Southwestern Inventory Management System (SWIMS).
- 2.02 To order additional copies of this practice, use Section KPTL 501-375-803SW as the section number.

NOTICE  
Not for use or disclosure outside  
Southwestern Bell Telephone Company  
except under written agreement.

3. REPAIR/RETURN

3.01 The PSR-904 is not a repairable unit. For warranty credit, defective products should be returned utilizing existing procedures.

Attachment: PSR-904  
Selective Ringing Module  
Methods and Procedures

# PSR-904

## SELECTIVE RINGING MODULE

### METHODS AND PROCEDURES

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#### 1. GENERAL

1.01 This package is designed to serve as the Methods and Procedures for the Keptel PSR-904 Selective Ringing Module.

1.02 This package is intended for the Technician/Craftperson who is already familiar with completing service orders.

1.03 This package will focus on the Selective Ringing Module when used in conjunction with the Keptel series of Weather-resistant Network Interface Closures.

#### 2. DESCRIPTION

2.01 The PSR-904 is a solid state, field programmable, electronic module. Placed at the subscriber premise, it is designed to allow party line subscribers to connect standard bridged ringer apparatus to the network.

2.02 The PSR-904 will not provide T.P.I. (Tip Party Identification).

2.03 The PSR-904 is intended for installation in the Keptel series of Weather-resistant Network Interface Closures.

2.04 The PSR-904 is connected to the Keptel series of Network Interface Closures via leads terminated with spade connectors.

2.05 The PSR-904 can be used effectively on lines with high induction.

2.06 The PSR-904 will function properly with most electronic ringers. This includes answering machines and cordless phones.

2.07 The PSR-904 is completely encapsulated offering additional mechanical integrity as well as excellent vibration, corrosion and moisture resistance.

2.08 The PSR-904 is not a repairable unit.

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2.09 Anti-chirp/anti-tinkle circuits built into the PSR-904 will generally eliminate any complaints of bell tapping regardless of origin or type of telephone.

2.10 D.C. loop current loss at low loop currents is approximately 0.5 mA, A.C. ring current loss through the unit is zero.

2.11 Two units may be placed at single premise (i.e. off premise extension).

**3. INSTALLATION IN A KEPTEL NETWORK INTERFACE CLOSURE:**

3.01 Remove any existing Ringer Isolator, Ringing Range Extender or Half Ringer devices.

3.02 Verify line quality by taking routine measurements. Use loop treatment as normally required.

 **NOTE:** Positive identification of Tip, Ring and Ground must be made.

3.03 Terminal assignments for the Keptel SNI-2100 Network Interface Closure are as follows:

|                    |                   |
|--------------------|-------------------|
| Terminal 1 . . . . | Tip/C.O. Side     |
| Terminal 2 . . . . | Ring/C.O. Side    |
| Terminal 3 . . . . | Tip Junction      |
| Terminal 4 . . . . | Ring Junction     |
| Terminal 5 . . . . | Tip/Station Side  |
| Terminal 6 . . . . | Ring/Station Side |

3.04 In the Network Interface Closure, move the Green and Red wires on the modular jack from terminals 1 and 2 (C.O. Tip and Ring) to terminals 5 and 6 (Station Tip and Ring).

3.05 Slide the PSR-904 into the Network Interface Closure and wire to appropriate

terminals. Lead designations for the PSR-904 module are as follows:

|                   |                   |
|-------------------|-------------------|
| Green . . . . .   | Tip/C.O. Side     |
| Red . . . . .     | Ring/C.O. Side    |
| Green/White . . . | Tip/Station Side  |
| Red/White . . . . | Ring/Station Side |
| Yellow . . . . .  | Ground            |

Refer to Figure 1.

 **NOTE:** On installations where the PSR-904 is installed with a Tip Party Identifier device (such as the Keptel ANI-911 or DNI-910), the PSR-904 is installed in slot B or C, the Tip party Identifier in slot A.

 **NOTE:** When bridging station apparatus in the Network Interface Closure by connecting the Yellow I/W ground wire to either Tip or Ring, the following steps should be taken:

1. Connect I/W to Subscriber Wiring Bridge in normal fashion (Green to Green, Red to Red, etc.).

2. Move the Yellow wire on the modular jack to either terminal 5 or 6 (Station Side Tip or Ring) in the Network Interface. Refer to Table C.

 **IMPORTANT:** It is recommended that the Yellow ground wire on the modular jack be disconnected from ground if:

1. All station sets are wired for bridged ringing at the set.

2. The Yellow wire of the I/W is no longer in use.

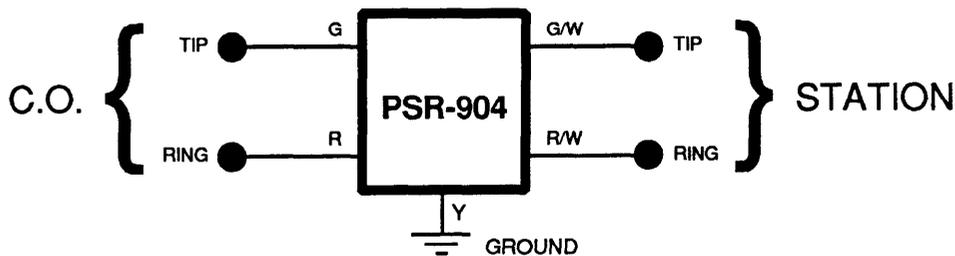


Fig. 1—PSR-904 Lead designations and connections

**3.06** If installing the PSR-904 in conjunction with a Tip Party Identifier device (such as the Keptel ANI-911 or DNI-910), refer to Figure 2.



**IMPORTANT:** The C.O. Side Tip and Ring leads of the PSR-904 module must be connected the Station Side Tip and Ring leads of the ANI-911 or DNI-910 (or any compatible device made by another manufacturer) at the Tip and Ring Junction terminals in the Network Interface Closure.

**3.07** For PSR-904 D.I.P. switch programming tables, see Tables A and B.

**3.08** Test unit for operation (refer to paragraph 4). If problem is found, refer to paragraph 5 on Troubleshooting.

**3.09** Insure all terminals are tight and wiring is routed properly (no shorts).

**3.10** Close covers completely and secure using 216 tool. Make sure Subscriber cover is securely fastened to Telco cover.

#### 4. TESTING

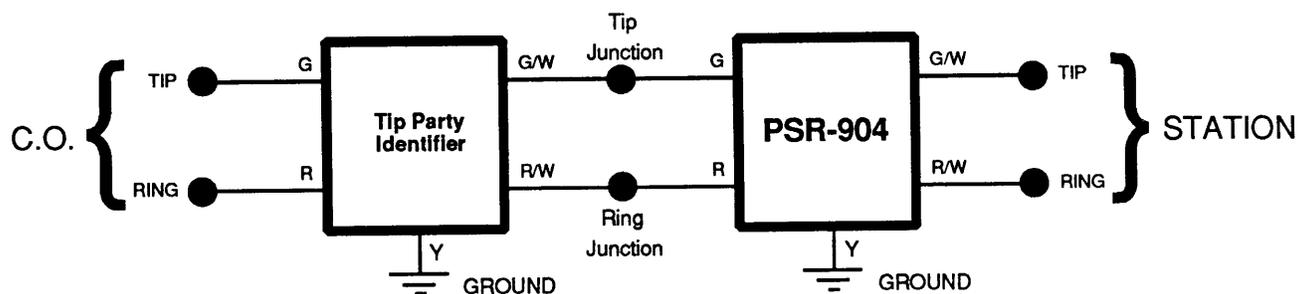
**4.01** Check operation by revertive calling code using subscriber's telephone (with bridged ringer).

**4.02** It is recommended that line measurement tests be made before and after installation.

**4.03** With both the drop and I/W disconnected from the PSR-904, take readings (with an ohmmeter) from Tip to Ground and from Ring to Ground. Both measurements should read nearly infinite resistance.



**NOTE:** These readings may be taken in an any valid programmed state with the meter leads in either polarity.



**Fig. 2—Block diagram showing PSR-904 wired in conjunction with a Tip Party Identifier**

**Table A**  
D.I.P. switch programming for full selective service

| PARTY POSITION | PARTY DESIGNATION | D.I.P. SWITCH NUMBER |     |     |     |
|----------------|-------------------|----------------------|-----|-----|-----|
|                |                   | 1                    | 2   | 3   | 4   |
| PARTY 1, 5     | NEG. RING         | ON                   | OFF | OFF | ON  |
| PARTY 2, 6     | NEG. TIP          | OFF                  | ON  | OFF | ON  |
| PARTY 3, 7     | POS. RING         | OFF                  | ON  | ON  | OFF |
| PARTY 4, 8     | POS. TIP          | ON                   | OFF | ON  | OFF |

**Table B**  
D.I.P. switch programming for semi-selective service

| PARTY POSITION | PARTY DESIGNATION | D.I.P. SWITCH NUMBER |     |     |    |
|----------------|-------------------|----------------------|-----|-----|----|
|                |                   | 1                    | 2   | 3   | 4  |
| PARTY 1        | NEG. RING         | ON                   | OFF | OFF | ON |
| PARTY 2        | NEG. TIP          | OFF                  | ON  | OFF | ON |
| PARTY 3        | NEG. RING         | ON                   | OFF | OFF | ON |
| PARTY 4        | NEG. TIP          | OFF                  | ON  | OFF | ON |

**Table C**  
Connections for external bridging of ringers

| PARTY POSITION | PARTY DESIGNATION | STATION WIRE COLOR CODES<br>(connect at Subscriber Wiring Bridge) |
|----------------|-------------------|---|
| 1 1 5          | NEG. RING         | GREEN TO YELLOW   |
| 2 2 6          | NEG. TIP          | RED TO YELLOW   |
| 3 7            | POS. RING         | GREEN TO YELLOW   |
| 4 8            | POS. TIP          | RED TO YELLOW   |

## 6. TROUBLESHOOTING REFERENCE

| SYMPTOM   | TEST   | PROBABLE CAUSE/REPAIR   |
|---|--|---|
| NO RING OR LOW RING VOLTAGE TO SUBSCRIBER EQUIPMENT | Use 145A Loop Measurement Test Set or equivalent to read A.C. ring voltage at subscriber wiring bridge.  | <ol style="list-style-type: none"> <li>1. Wiring error</li> <li>2. Programming error</li> <li>3. Telephone sets not bridged</li> <li>4. Poor ground</li> <li>5. Remove Ringer Isolator</li> <li>6. Excessive ringer load for given loop length</li> <li>7. Defective Protector</li> </ol> |
| BELL TAP  | <p>Look for electronic ringer (Does telephone set "chirp" when rotary dialing from another bridged set?)</p> <p>Check ringer bias spring</p> <p>Use an ohmmeter to check leakage to ground on I/W &amp; CPE (with Network disconnected).</p> | <ol style="list-style-type: none"> <li>1. Defective or inadequate ringer circuitry design in electronic telephone set</li> <li>2. Adjust bias spring</li> <li>3. Bad wiring (I/W)</li> <li>4. P.R.D. at premise; replace with PSR-904</li> </ol>  |
| CROSS-RING OR INCORRECT RING                        | <p>Check Line Records, use standard methods to verify proper party position.</p> <p>Refer to section on "Bell Tap"</p>   | <ol style="list-style-type: none"> <li>1. Programming error</li> <li>2. Tip and Ring reversed (wiring error)</li> <li>3. Damaged or defective circuitry in electronic telephone set</li> </ol>  |

| SYMPTOM<br>(CONT.)   | TEST<br>(CONT.)  | PROBABLE CAUSE/REPAIR<br>(CONT.)  |
|--|--|---|
| NO DIAL TONE   | Use 1011B or equivalent Line-man's Test Set (butt-in) first at protector, then at subscriber wiring bridge.                        | <ol style="list-style-type: none"> <li>1. Wiring error</li> <li>2. Network problem ††</li> <li>3. Defective unit; replace</li> </ol>  |
|  | †† Use 145A or equivalent Loop Measurement Test Set to verify loop current.  | Low loop current, check or add loop treatment if low or borderline  |
| NO DIAL TONE<br>(OCCASIONALLY)<br>OR ON REVERTIVE<br>CALLS | Use 145A or equivalent Loop Measurement Test Set to measure loop current.  | Low loop current, check or add loop treatment if low or borderline  |
| IMBALANCED LINE<br>OR NOISE ON LINE                        | <p>Look for wired sets to ground at other party positions.</p> <p>Look for high power influence or abnormal leakage to ground.</p> | <ol style="list-style-type: none"> <li>1. Number of ringers to ground on opposite sides loop unequal</li> <li>2. Loop measurements out of specification</li> <li>3. If all sets have ringers bridged internally, disconnect yellow wire in I/W</li> <li>4. Install PSR-904 at other party position</li> </ol> |

**NOTES:**

1. It is recommended that final loop measurements are taken on the subscriber side of any electronics modules at the subscriber premise. This will account for losses (if any) through added equipment.

Exception: If a Differential type of Tip Party Identifier (eg. DNI-910) is used at party two position, refer to Practice KPTL 501-375-801 for special loop measuring procedures.

2. When using a 8455 Line Test Set, it is possible that a 10 to 20K $\Omega$  metallic short may be encountered. This reading is caused by the the PSR-904 interacting with the 8455 Line Test Set and is not a valid fault. In order to clear the short, simply push the "+10" button on the 8455 Line Test Set.
3. The three digit date code on the back side of the Keptel series of Station Electronics modules is read as:

Date code "435" is week 43 (43) of the year 1985 (5)

Therefore, a module with a date code of "236" was manufactured at a later date than that of a module with a date code of "435".

## 6. COMPATIBILITY

**6.01** The PSR-904 is not compatible with 2 party Anaconda S6A applications (consult factory).

**6.02** The PSR-904 is not compatible with Step-by-Step offices where a positive ringing board is wired in place for two (2) party service. Consult factory.

**6.03** The PSR-904 is not compatible with a Western Electric #97 Step-by-Step office.

**6.04** The PSR-904 is compatible with all Bell System Ringing where 20 Hz ringing is applied with the D.C. ring trip battery.

**6.05** The PSR-904 is compatible with both AC-DC and superimposed ringing for single party, two party (including A.N.I.—Automatic Number

Identification), four party semi-selective, four party full selective and eight party semi-selective or divided code service.

**6.06** The PSR-904 is compatible with most carrier and "floating" systems such as a RSS C.O..

**6.07** The PSR-904 will not work with some revertive call selectors or trunk circuits without modification. Revertive call selectors SD-31831-01 (4 party, semi-selective) and SD-31762-01 (10 party, divided code) in some 355A step-by-step offices apply the same ringing voltage to the Tip and Ring simultaneously and therefore do not provide a voltage difference between Tip and Ring to trigger the unit. Revertive call trunk circuits SD-26068-01 in No. 5 crossbar offices and SD-26068-05 in No. 5A crossbar offices require option S to ground the called party side of the line while the calling party phone is ringing.