

DNI-910  
DIFFERENTIAL TIP PARTY IDENTIFIER  
METHODS AND PROCEDURES

1. GENERAL

- 1.01 This section is a cover sheet for the DNI-910 Differential Tip Party Identifier.
- 1.02 Whenever this section is reissued the reason(s) for reissue will be listed in this paragraph.
- 1.03 The Keptel DNI-910 is a solid state electronic module. Placed at the subscriber premise, it is used with C.O. based Automatic Number Identification (A.N.I.) systems in order to identify Tip Parties (2nd party) for billing purposes.
- 1.04 If corrections are required in the attached documentation, 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 a complaint.

2. ORDERING PROCEDURES

- 2.01 The DNI-910, Differential Tip Party Identifier may be ordered via the Southwestern Inventory Management System (SWIMS).
- 2.02 To order additional copies of the practice use Section KPTL 501-375-801 as the section number

3. REPAIRS/RETURN

The DNI-910 is not a repairable unit. For warranty credit, defective products should be returned utilizing existing procedures.

Attachment: DNI-910  
Differential Tip Party Identifier  
Methods and Procedures

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

## DNI-910 DIFFERENTIAL TIP PARTY IDENTIFIER 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 DNI-910 Differential Tip Party Identifier (T.P.I.).

**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 Differential Tip Party Identifier when used in conjunction with the Keptel series of Weather-resistant Network Interface Closures.

### 2. DESCRIPTION

**2.01** The Keptel DNI-910 is a solid state electronic module. Placed at the Subscriber premise, it is used with C.O. based Automatic Number Identification (A.N.I.) systems in order to identify Tip Parties (2nd party) for billing purposes.

**2.02** The DNI-910 is to be used on Tip Party (2nd party) applications only.

**2.03** The DNI-910 is not a repairable unit.

**2.04** The DNI-910 is wired into the N.I.Closure via leads terminated with spade connectors.

**2.05** The DNI-910 is intended for installation in a Keptel Weather-resistant Network Interface Closure.

**2.06** The DNI-910 is completely encapsulated offering additional mechanical integrity as well as excellent vibration, corrosion and moisture resistance.

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

**3.01** Remove any existing Half Ringers, T.P.I. devices or ground marks (tubes or diodes) from Subscriber premise equipment.

**3.02** Verify line quality by taking routine measurements.



**NOTE:** It is recommended, when using the DNI-910 or any other type of continuous ground mark Tip Party Identifier, that the following special loop measurement procedures be followed:

- a) If measuring at the protector follow normal procedures.
- b) Measure at the Subscriber Wiring Bridge only after disconnecting ground lead (yellow wire on DNI-910). By definition, a device of this type diverts approx. 4 mA of current to ground, thereby making measurements on subscriber loop misleading. Reconnect ground lead after measurements are made.



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

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**3.03** Terminal assignments for the Keptel SNI-2100 Network Interface Closure is 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
- Terminal G . . . . Ground

**3.04** In the Network Interface, 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). Refer to Figure 2.

**3.05** Slide the DNI-910 into the N.I. Closure and wire to appropriate terminals.

 **NOTE:** On party line installations, using the SNI-2100. If an DNI-910 is installed with a Selective Ringing Module, the DNI-910 is to be installed in slot A, the Selective Ringing Module in slot B or C.

**3.06** Lead designations for the DNI-910 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

**3.07** When installing the DNI-910 in conjunction with a Keptel Selective Ringing Module, refer to Figure 3.

 **IMPORTANT:** The Station Side Tip and Ring leads of the DNI-910 must be connected to the C.O. Side Tip and Ring leads of the Selective Ringing Module at the Tip and Ring Junction terminals.

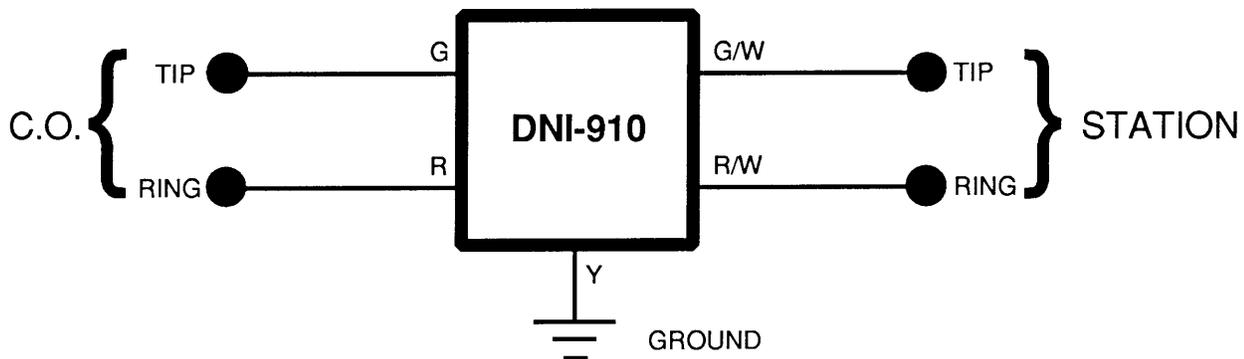
**3.08** If installing the DNI-910 in conjunction with a Selective Ringing Module or Ringer Isolator, made by a manufacturer other than Keptel, refer to Figure 3.

 **IMPORTANT:** The Station Side Tip and Ring leads of the DNI-910 must be connected to the C.O. Side Tip and Ring leads of the Selective Ringing Module or Ringer Isolator at the Tip and Ring Junction terminals (regardless of manufacturer).

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

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

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



**Fig. 1—DNI-910 Lead designations and connections**

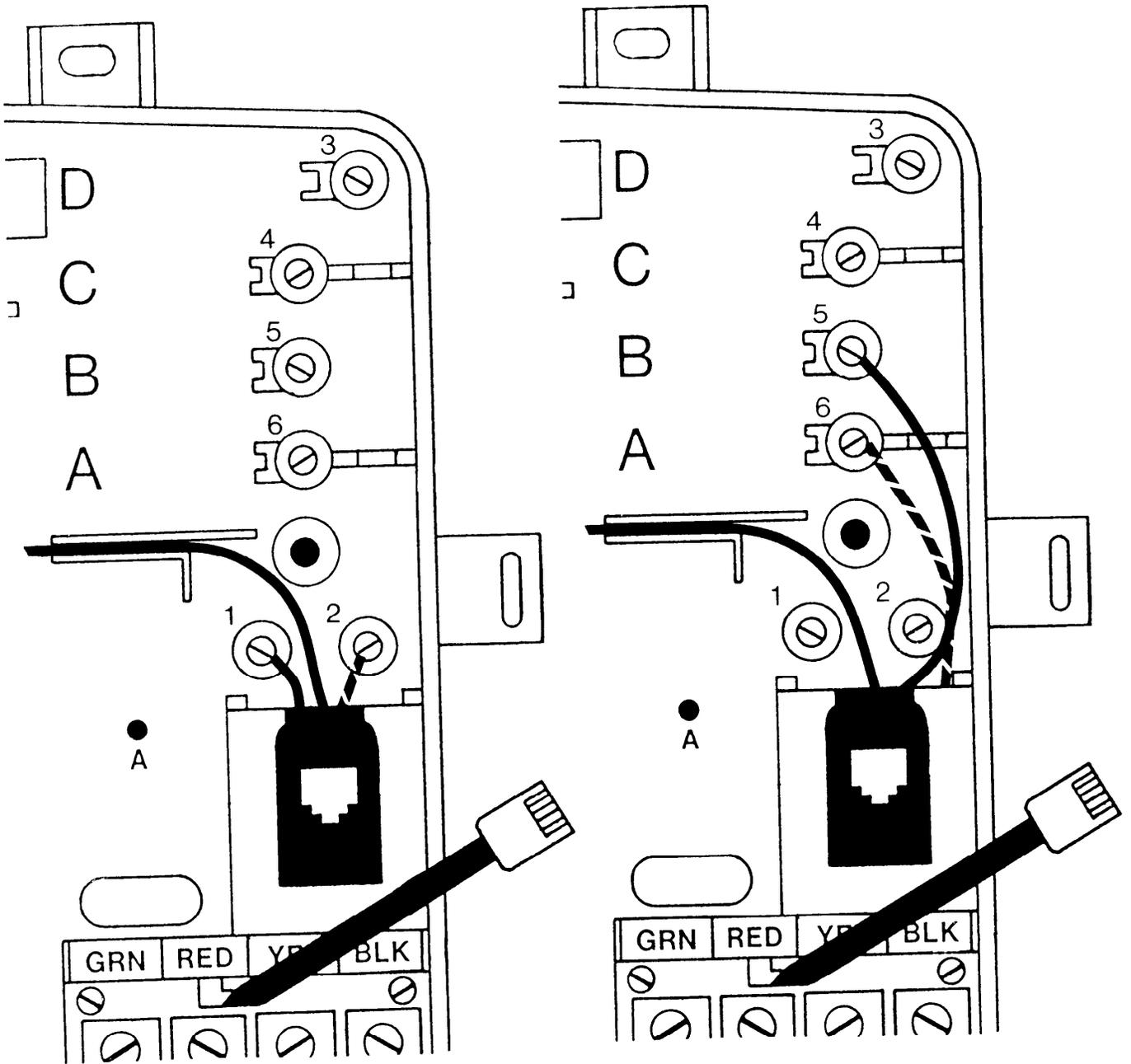


Fig. 2—Wiring the modular jack when installing the DNI-910 in an SNI-2100

#### 4. TESTING

4.01 Verify system operation of the DNI-910 by A.N.A.C. (or any other compatible automatic number identification service). If not available, see paragraph 4.02. .

4.02 Verify system operation of the DNI-910 by O.N.I. (operator number identification). If not available, see paragraph 4.03.

 **NOTE:** This test may not be valid with some types of A.N.I. systems.

4.03 Verify DNI-910 module operation using a Keptel S.P.S. Tip Party Identification Verifier

(Available from Keptel or from authorized distributors) or similiar piece of equipment.

#### 5. COMPATIBILITY

5.01 The DNI-910 is compatible with all F.C.C. registered station sets.

5.02 The DNI-910 will function with 1,000 and 2,650 ohm Longitudinal and Differential A.N.I. systems (including loop treatment and DTMF to Dial Pulse converters operating at standard loop current).

5.03 The DNI-910 will function with both selective ringing modules and ringer isolators as long as the DNI-910 is installed on the C.O. side.

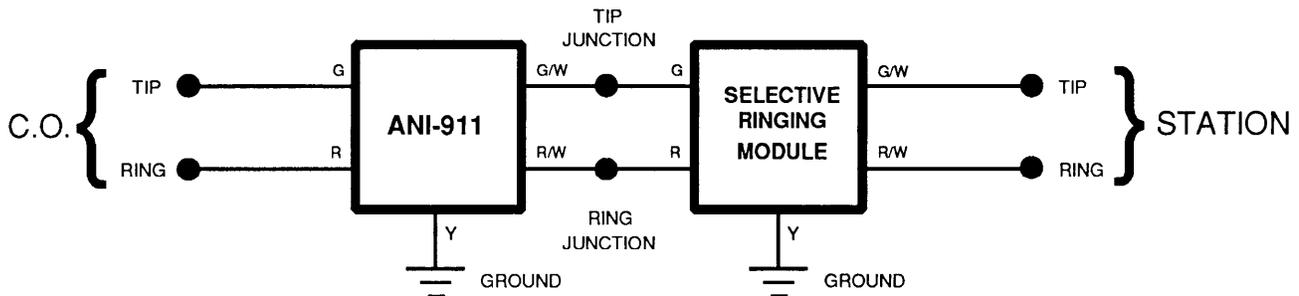


Fig. 3—Block Diagram showing DNI-910 wired in conjunction with a selective ringing module

## 6. TECHNICAL SPECIFICATIONS

<u>DIMENSIONS:</u>	Approximately 1.7" x 3.6" x 0.5"
<u>ENVIRONMENTAL:</u>	Entire unit is sealed in electrical grade epoxy offering additional mechanical integrity as well as excellent vibration, corrosion and moisture resistance.  Plastic potting shell, epoxy and printed circuit board all U.L. listed.
<u>TYPE OF T.P.I. UNIT:</u>	Balanced <i>and</i> Switched Ground
<u>T.P.I. GROUND RESISTANCE:</u> (Active)	1485 ohm [Longitudinal], 2800 ohm [Differential] maximum 1350 ohm [Longitudinal], 2668 ohm [Differential] nominal (Tip and Ring to Ground) NOTE: Compatible with 1000 ohm and 2650 ohm (Differential and Longitudinal)A.N.I. systems.
<u>MINIMUM LOOP RESISTANCE:</u>	No Limitation
<u>MAXIMUM LOOP RESISTANCE:</u>	2125 ohms*, given that a) 42.75 Vdc battery b) Station Resistance = 150 ohms c) Loop Current = 20 mA * Greater with loop treatment as long as 18 mA is maintained
<u>TIMING:</u>	50 mS of minimum loop current necessary for set-up time before activation of Differential ground resistance. Longitudinal ground resistance removed on reapplication of loop current. Longitudinal ground active only during C.O. interrogation and at no other time.
<u>T.P.I. GROUND RESISTANCE:</u> (Inactive)	> 10 megohms
<u>DC LOADING WHILE RINGING:</u>	15 uA dc, given: 88 Vrms/20 Hz ring superimposed on -52.5 Vdc
<u>INDUCTION:</u>	Designed for operation on lines having up to 100 Vrms.
<u>AC LOADING WHILE RINGING:</u>	Approx. 5 megohms Ring to Tip given: a) 52.5 Vdc battery b) 20 - 90 Vrms/20Hz ring
<u>DC SERIES VOLTAGE DROP:</u>	1.37 volt nominal at 20 mA loop current.
<u>DC CURRENT LOSS:</u>	Equivalent loss at 20 mA is 0.56 mA nominal.
<u>DC LEAKAGE RESISTANCE:</u> (Inactive, both polarities)	T to R $\geq$ 4.2 megohms T to G > 10 megohms R to G > 10 megohms T & R to G > 10 megohms NOTE: Test voltages $\pm$ 52.5 Vdc and $\pm$ 100 Vdc with 50 Vrms at 60 Hz

AC IMPEDANCE:  
(Inactive) T to R  $\geq 4.2$  megohms  
T to G  $\geq 10$  megohms  
R to G  $\geq 10$  megohms  
NOTE: Test Voltages; 0 - 100 Vrms for 5 Hz to 200 Hz  
0 - 1 Vrms for 200Hz to 3400 Hz

DIAL PULSE DISTORTION: Insignificant (non-reactive loading and losses).

1 KHZ INSERTION LOSS: 0.35 dB at 600 ohms

ATTENUATION DISTORTION: 0.04 dB at 200 Hz  
(Measured at 900 ohms) 0.00 dB at 3400 Hz

RETURN LOSS (ECHO)\*: 33.4 dB at 20 mA  
\* 500 - 2500 Hz, reference impedance of 600 ohms

LONGITUDINAL BALANCE\*\* 82 dB at 60 Hz  
80 dB at 600 Hz  
76 dB at 4000 Hz  
\*\* 600 ohm termination using IEEE standard 455-1976

TEMPERATURE: - 55° C to +85° C (storage)  
- 40° C to +75° C (operating)

ELECTRICAL PROTECTION

POWER CROSS: In the event of power cross (0 - 600 Vrms ac) to:  
a) T to R and G  
b) R to T and G  
c) T and R to G

Unit shall not cause a fire that is not self-quenching or release toxic fumes or molten material or cause an electrical shock hazard.

Lab tests indicate (with primary lightning protection removed) that the unit survives applications of 220 Vrms in any combination. Within range of 0 - 600 Vrms, sample units failed open with no visible signs of damage.

LIGHTNING: Unit far exceeds any minimum first\* and second\*\* level surge tests typically applied to station apparatus and remains operative.

\*  $\pm 1000$  V peak, 200 amps, 10 uS rise with 1000 uS decay  
Minimum (10) surges in each polarity:  
T to R  
T to R and G  
R to T and G  
T and R to G

\*\*  $\pm 1000$  V peak, 400 amps, 10 mS rise with 2500 uS decay  
Minimum (1) surge in each polarity:  
T to R and G  
R to T and G  
T and R to G

COMPUTED FAILURE RATE†:

FITS=1760  
MTBF=64.9 yrs.

† Per Bell System IP 10425 (black box rel. prediction procedure)