



APPLICATION NOTE

Scrambler Type:

App. Note #:

Make:

Date:

Model:

Prepared By:

Description:

Default Clear / Code Switch

Notes:

Default Clear / Code Indicator

Additional Installation Parts:

SCRAMBLER INFORMATION

The scrambler provided has been programmed and modified specifically for this radio and should not be used for another type of radio without proper modifications. Specific modifications to the scrambler are listed below.

SCRAMBLER MODIFICATION PARTS

Scrambler Modifications
Completed By: _____
Date: ___/___/___

SCRAMBLER HARDWARE MODIFICATIONS

TX Modifications			RX Modifications		
R2: 39 kΩ	R4: 30 kΩ	C32: 1 μF	R1: 39 kΩ	R3: 30 kΩ	C35: 0.1 μF

SCRAMBLER SOFTWARE MODIFICATIONS

IMPORTANT NOTICE

Before and after installation of a scrambler into any radio, the operation of the radio should be checked to verify it is operating normally. Refer to the appropriate radio service manual(s) for more details.

This installation should only be attempted by a qualified two-way technician with proper tools and radio documentation.

- Due to static sensitivity, installation should be performed at an ESD work station.
- Place scrambler as far away from RF power components as possible.
- Keep all wires as short as possible.
- Insulate the scrambler, if needed; secure it in the radio.

Questions should be directed to Transcrypt International at (800) 228-0226 or (402) 474-4800.



APPLICATION NOTE

RADIO INFORMATION

RADIO MODIFICATION PARTS NEEDED

1 ea. Red LED.
1 ea. 470 Ω resistor, SMT 1206 size.

RADIO MODIFICATIONS

TX Cut Location: Program Radio:
Each Channel:
Program Encryption Enchr for "v".

RX Cut Location: Modification done on TX Cut Location also opens RX audio path.

ADDITIONAL RADIO HARDWARE MODIFICATIONS

Install a white wire jumper between the collector of Q1084 and J1004 PIN 3.
Mount red LED on Front Panel Assembly.
Install a jumper between the red LED, cathode side, and TP3016.
Install a 470 Ω resistor between the red LED, anode side, and TP3028.

ADDITIONAL RADIO SOFTWARE MODIFICATIONS

On Common - Key Function, program a key for "AUX TOGGLE".
On Common - Option, program Encryption Unit for "ON".
On Common - System, program MICGain for "NORMAL". (Vertex Standard default setting.)

Code Select (Optional):
Each Channel:
Program Encryption Code for a number. Encryption Code "1" selects individual code 0,
Encryption Code "2" selects individual code 1... Encryption Code "15" selects individual code 14,
Encryption Code "16" selects individual code 15. Program Encryption Code for "16" for default applications.

Measured Audio Levels:

TX: 500 mV P-P

RX: 650 mV P-P



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SCRAMBLER INSTALLATION POINTS

PIN #	Function	Wire Color	Descriptions
J1 PIN 1	TX In	Orange	Solder to TP1061.
J1 PIN 2	RX In	Green	Solder to TP1060.
J1 PIN 3	On / Off Indicator		
J1 PIN 4	Binary Code Select 8	White / Brown	Code Select (Optional): Solder to TP1058.
J1 PIN 5	Binary Code Select 4	Pink	Code Select (Optional): Solder to TP1057.
J1 PIN 6	Binary Code Select 2	Tan	Code Select (Optional): Solder to TP1056.
J1 PIN 7	Binary Code Select 1	White / Blue	Code Select (Optional): Solder to TP1055.
J1 PIN 8	RX Out	Blue	Solder to TP1054.
J1 PIN 9	Clear / Code	Violet	Solder to D1061, cathode side.
J1 PIN 10	PTT	Gray	Solder to TP1052.
J1 PIN 11	Power	Red	Solder to TP1051 (Sw. +8 V).
J1 PIN 12	Ground	Black	Solder to TP1050.
J1 PIN 13	TX Out	Yellow	Solder to TP1049.

GENERAL

GENERAL INSTRUCTIONS

RX audio at TP1003 measured to be 875 mV P-P, at full volume.

Default Location of Red LED:
On Front Panel Assembly, between "CH" and speaker.

DIAGRAMS / PICTURES (if applicable)

<None Available>

APPLICATION NOTE REVISION HISTORY

Date	Rev #	By	ACO / REF #	Description