

TN 200
NAVIGATIONAL RECEIVER
OPERATOR'S/INSTALLATION MANUAL



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PART NUMBER 1900-0200-00
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TERRA CORPORATION

TN 200

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OWNER/INSTALLATION MANUAL

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SECTION I

1. INTRODUCTION

1.1. SCOPE

This manual provides installation and operating instructions for the Terra TN 200 Navigation Receiver manufactured by Terra Corporation of Albuquerque, New Mexico.

1.2. DESCRIPTION

The Terra TN 200 is a small, lightweight, all solidstate navigation receiver with provisions for an optional glideslope receiver. The digital frequency synthesizer provides 200 channels from 108.00 to 117.95 MHz with 50 KHz spacing. The optional glideslope receiver completes the ILS capability. Remote DME channeling is also provided with the glideslope option.

The receiver mounts in a single or dual mounting tray supplied with the unit. All power, control and antenna connections are made to connectors installed on the mounting tray. Prewired cable assemblies are available as optional items.

The receiver is locked securely to the mounting tray by a positive locking cam accessible through the front panel.

SECTION II

2. SPECIFICATIONS

2.1. MECHANICAL SPECIFICATIONS

Mounting: Panel mounted using mounting tray
supplied with unit.
Overall Dimensions: 10.62" long, 3.20" wide, 1.62"
high.
(27 cm long, 8.1 cm wide.
4.1 cm high)
Mounting Dimensions: See Figure 1
Weight: TN 200 with glideslope, 1.22 lb. (.55kg)
TN 200 without glideslope,
.93 lb. (.42kg)
Tray: TN 200 with glideslope, .37 lb.
(.16kg)
TN 200 without glideslope, .32 lb.
(.14kg)

2.2. POWER REQUIREMENTS

13.75 VDC Input
TN 200 with glideslope, 320 MA
TN 200 without glideslope, 220 MA
Dimmer, 300 MA

2.3. ELECTRICAL SPECIFICATIONS

VOR LOC Rec.
Frequency Range: 200 channels, 108.00 to
117.95 MHz
Sensitivity: 1.0 uV for 6dB S+N/N ratio
Selectivity: Typical 6dB at + 17 kHz, 50dB at
+50kHz
Audio Output: 100mW into a 500 ohm load

2.4. ELECTRICAL SPECIFICATIONS - GLIDESLOPE

Frequency Range: 40 channels, 329.150 to
335.00 MHz
Sensitivity: 20 uV hard
DME channeling: 2x5 code
External glideslope meter loading capabilities:
Flag & up/down=one
1 K load with internal load installed.
Two 1 K loads with internal load removed.

SECTION III

3. INSTALLATION AND OPERATION

3.1. EQUIPMENT SUPPLIED

1. Mounting tray assembly
2. Prewired cable assembly (optional)
 - without glideslope.....1
 - each
 - with glideslope.....2
 - each
3. Screw, 6-32 x 7/16", FH.....4
- each
4. Lock washer, #6.....4
- each
5. Nut, #6, Hex.....4
- each

3.2. MECHANICAL INSTALLATION

1. Select a location that provides ease of operation.
2. Avoid installing the system near heat sources unless forced air cooling is provided.
3. Insure that adequate clearance exists behind the panel for mounting tray and cable assemblies.
4. Refer to the outline drawing, (Figure 1), for panel cut-out and mounting dimensions.
5. Install the tray assembly on the instrument panel supports with the open side of the mounting trays towards the top.
6. A rear support bracket should be utilized to prevent resonant vibrations.

3.3. ELECTRICAL INSTALLATION

1. Fabricate the necessary cable assemblies per Figure 2. (May be purchased from Terra Corporation.)
2. Install the cable assemblies to their proper connector bracket and then mount the assembly on the rear of the mounting tray assembly.
3. Complete the interconnecting wiring to the panel dimmer and the aircraft bus.

3.3. ELECTRICAL INSTALLATION (Continued)

4. The Terra Nav system nominal operating voltage is 13.75 VDC. If the aircraft electrical system is 214.28 VDC, it will be necessary to utilize a converter rated at 5 amps to reduce the aircraft bus voltage to 13.75 VDC. The Terra MLC 28-5 converter is specifically designed for this purpose.
5. Install the TN 200 in the mounting tray assembly. Use caution as the rear connectors mate. After the float mounts are positioned correctly, (a little twisting at the front panel may be necessary), the unit will fully engage the connectors with light to medium pressure on the front panel.
6. Insert a 7/64" Allen wrench in the front panel hole and engage the locking screw. Turn clockwise until the cam has engaged itself in the tray and moderately tightened. Use caution to prevent stripping the threads on the locking cam or screw.
7. To remove the unit from the mounting tray, insert the 7/64" Allen wrench in the locking screw and turn counterclockwise. The cam will move the unit outward about 1/4" and disengage the connectors. The unit may now be pulled out of the mounting tray by hand.

3.4. OPERATION

3.4.1. Volume Control

Rotate volume control clockwise to turn on the TN 200 Navigation Receiver. Power will also be supplied to optional glideslope receiver if installed and to the TRI NAV indicator.

3.4. OPERATION (Continued)

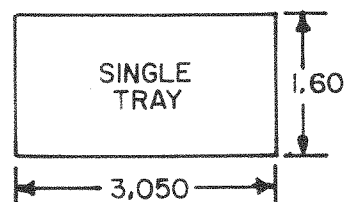
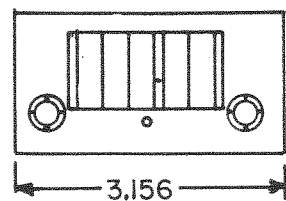
3.4.2. Frequency Selector

Set desired navigation frequency. If an operational ILS frequency is selected, both localizer and glideslope receivers are channeled to the displayed frequency. DME channeling outputs, available with the glideslope option only, are also channeled to the displayed frequency.

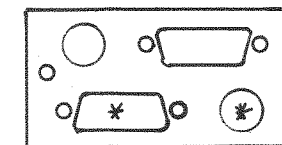
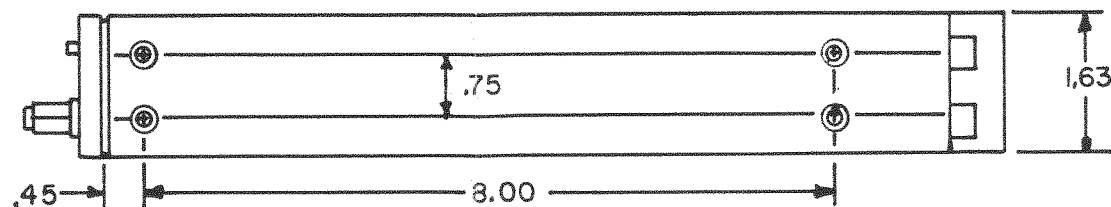
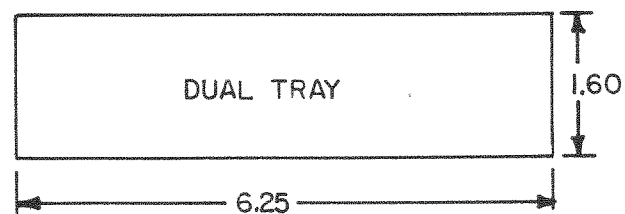
3.4.3. Ident. Switch

Counterclockwise "VOICE" - clockwise "IDENT"

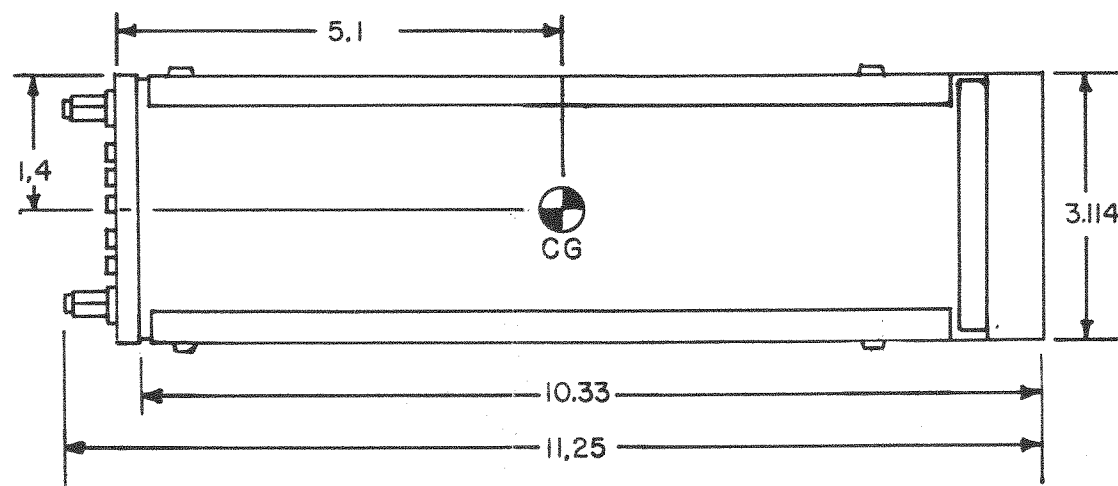
NOTE: Nav audio is routed through the TX 720 audio system or other auxiliary audio amp systems, as per wiring diagram. If no aux. audio amp is available, connect Pin 13 of P 1 directly to headphone jack for headphone audio only.



PANEL CUTOUT DIMENSIONS



* USED FOR TN200 WITH GLIDESLOPE ONLY



PART NUMBER	DESCRIPTION	ITEM
-------------	-------------	------

DASH NO.	PART NUMBER	SCHEDULE
----------	-------------	----------

terra corporation ALBUQUERQUE, NEW MEXICO

SCALE Tolerance Unless Noted;
 .XX ±.01 Fractions ±1/64
 .XXX ±.005 Angles ± 1/2°

DRAWN BY **A.S.** TITLE TX720 / TN200
 MECH ENGR APPROVAL
 ELECT ENGR APPROVAL
 PROJ ENGR APPROVAL **HGB**

SHEET 1 OF 1 SIZE B NUMBER 9-1120-0006-02

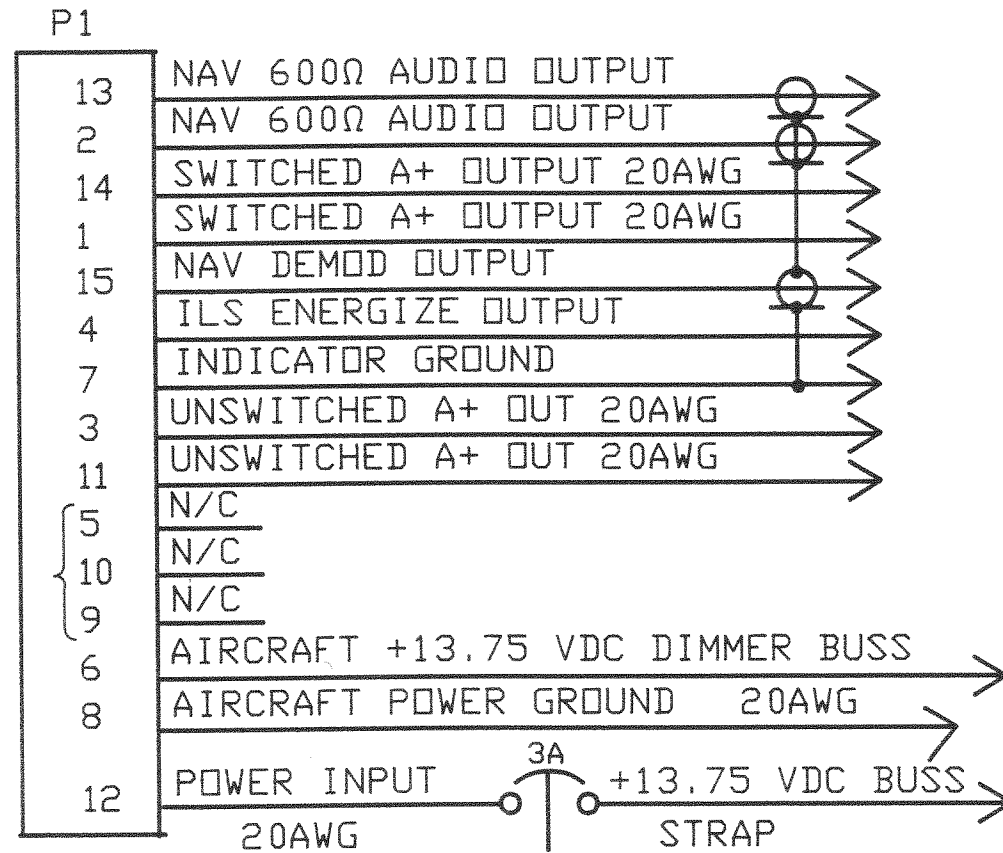
REV	C.O. Number	DATE
A		8-12-85

REVISIONS

LTR.	DESCRIPTION	DATE	CHG'D.BY	APPR.
A	ORIGINAL RELEASE	5/2/90		
B	ECD #651	6/22/90		
C	ECD #670	8/20/90	JRG	

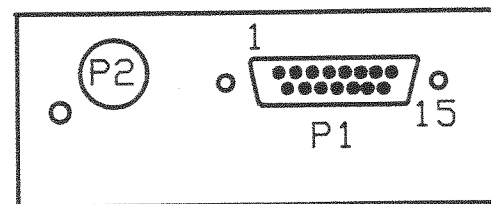


AMPHENOL
TYPE DB-15S

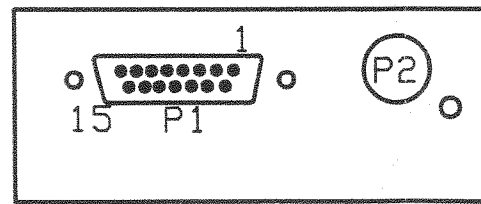


NOTES:

1. UNLESS OTHERWISE SPECIFIED, USE AWG #22 WIRE.
2. UTILIZE MIL 22759/16 WIRE OR EQUIVALENT.
3. ALLOW FOR SERVICE LOOP AS REQUIRED.



REAR VIEW
OF TRAY



FRONT VIEW
OF TRAY

UNLESS SPECIFIED:
DIMENSIONS ARE IN INCHES.
TOLERANCES:

.XX ± .015
.XXX ± .005
ANGLES ± 1/2°

TERRA
CORP.

ALBQ. N.M. U.S.A.

TITLE:
INTERCONNECT DIAGRAM
TN-200 WO/GLIDESLOPE

DR. BY: JRG

DATE:
05-02-90

DWG. NO.
9-1130-0028-02

REV
C

CHK'D: *MHB*

APPR.: *JPG*

USED ON:

SHEET 1 OF 1

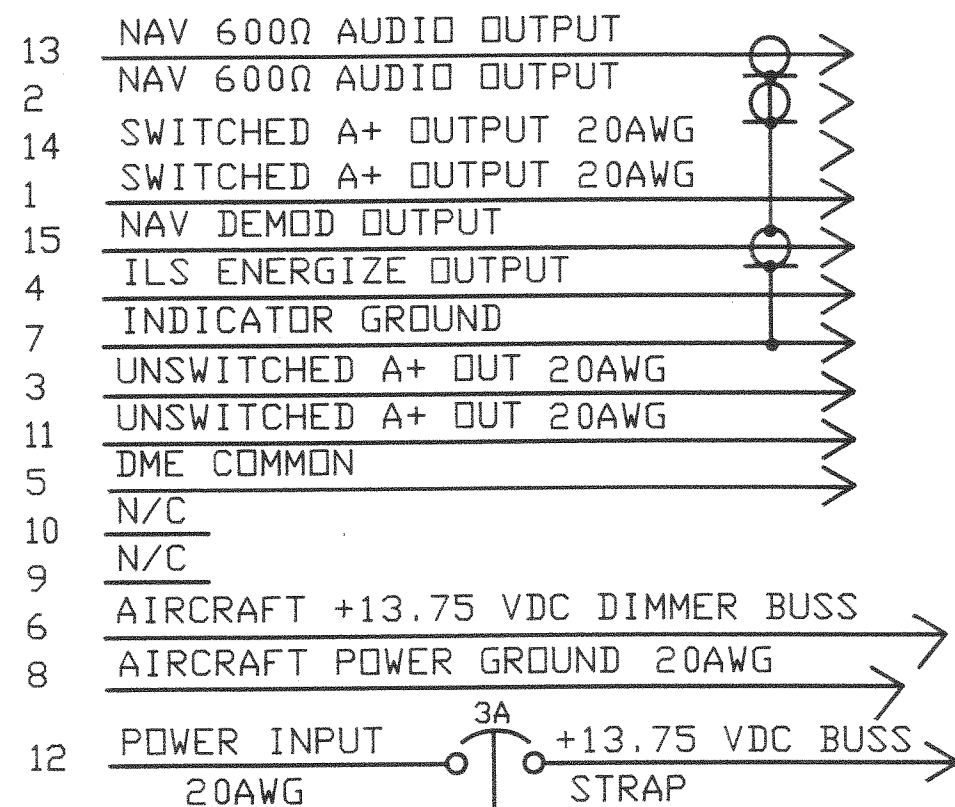
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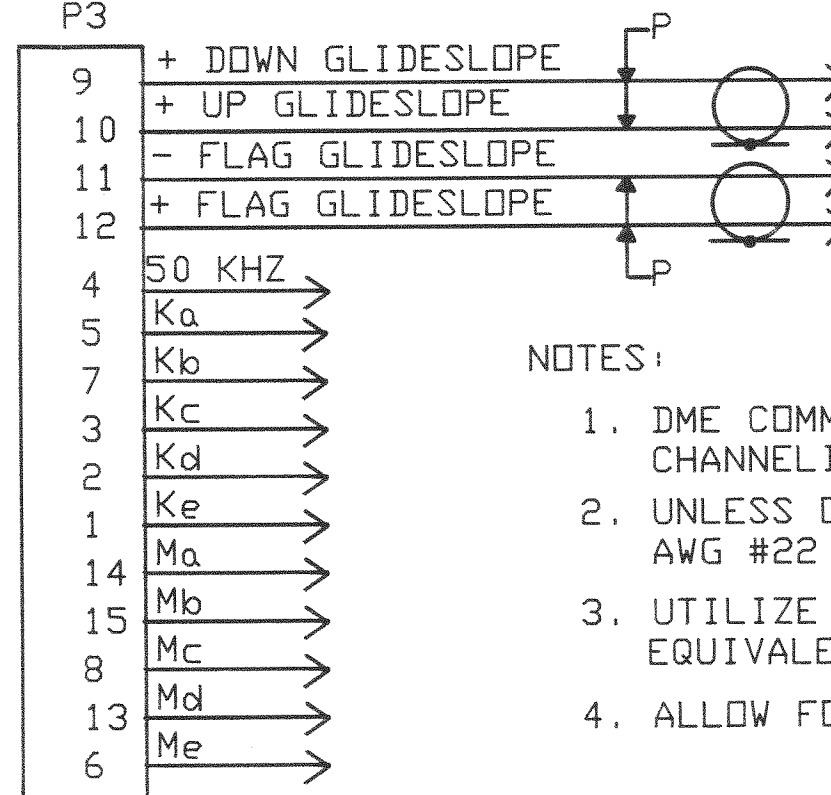
AMPHENOL TYPE DB-15S

P1



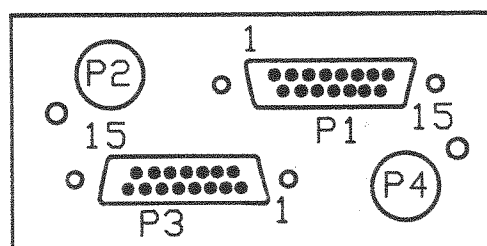
AMPHENOL TYPE DB-15S

P3

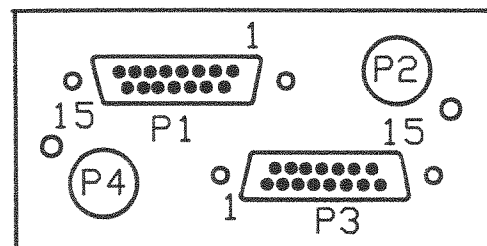


NOTES:

1. DME COMMON IS ON P1 AND DME CHANNELING ON P3.
2. UNLESS OTHERWISE SPECIFIED, USE AWG #22 WIRE.
3. UTILIZE MIL 22759/16 WIRE OR EQUIVALENT.
4. ALLOW FOR SERVICE LOOP AS REQUIRED.



REAR VIEW OF TRAY



FRONT VIEW OF TRAY

UNLESS SPECIFIED:
DIMENSIONS ARE IN INCHES.
TOLERANCES:
.XX ± .015
.XXX ± .005
ANGLES ± 1/2

TERRA CORP. ALBQ. N.M. U.S.A.

TITLE:
INTERCONNECT DIAGRAM
TN-200 W/GLIDESLOPE

DR. BY: JRG	DATE: 05-25-90	DWG. NO. 9-1130-0030-02	REV C
CHK'D: <i>MHH</i>	USED ON:	SHEET 1 OF 1	
APPR.: <i>JPG</i>			

SECTION IV

4. WARRANTY

4.1. LIMITED WARRANTY OF TERRA PRODUCTS

All equipment manufactured by TERRA Corporation is guaranteed against defective materials and workmanship for a period of one year from the date of shipment. An extended second and third year limited warranty becomes valid at the end of the first year, which warrants that the original owner will not pay more than \$100.00 in each of the second and third years should repairs be necessary. Should warranty not be required in the second and only in the third year, then the original owner will not pay more than \$200.00 should repairs be necessary. Any unit found to be defective due to material and workmanship during the warranty period will be repaired and put in original manufactured operating condition. Any labor charges which are incurred as a result of said defects are included in this warranty.

TERRA Corporation's liability under this warranty is limited to servicing, repairing, or adjusting any equipment returned prepaid to the factory by express written or oral authorization for that purpose and to repair or replace defective parts thereof. Fuses and batteries are specifically excluded from any liability.

If, upon examination, it is determined that a malfunction has been caused by misuse of the equipment, installation or operation not in accordance with factory instructions, accident or negligent damage, alternations of any manner, or repair by other than the factory, the repairs will be billed. In such cases, an estimate will be submitted for approval before repair is initiated.

This TERRA Corporation Limited Warranty is void unless the Warranty Registration Card is filled out and returned within 10 days after purchase.

4.1. LIMITED WARRANTY OF TERRA PRODUCTS (Continued)

Warranty Assurance to the aircraft owner/end-user cannot be maintained if the equipment is not installed in a certified aircraft by an authorized TERRA dealer. Exception, to assure warranty for the aircraft owner/end-user, for homebuilt/experimental aircraft without installation by an authorized TERRA dealer, is allowed when the end-user notifies TERRA that the homebuilt/experimental aircraft has been issued a special airworthiness certificate by the FAA.

No warranty will be activated for TERRA products unless the installation is approved and the warranty card is completed by the supplying dealer or upon receipt by TERRA of FAA form(s) 337 or 8130-().

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THE IMPLIED WARRANTY AND ALL OTHER IMPLIED
WARRANTIES ARE HEREBY EXCLUDED

