NARCO AVIONICS MK 12D+ TSO NAV/COM
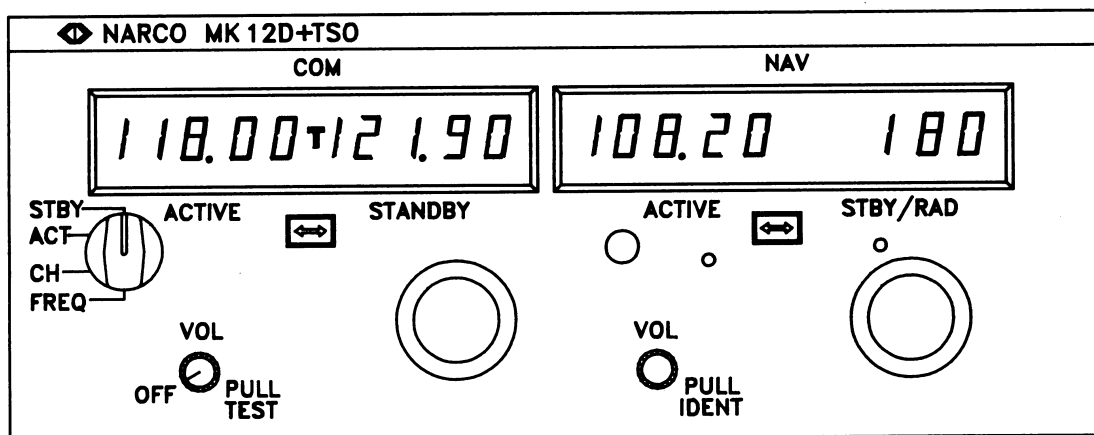
**ADDENDUM
INSTALLATION MANUAL
03118-0620P**

1.0   INTRODUCTION

1.1   FEATURES

The MKl2D+ is an upgraded version of the MK12D. It has a number of new improved features.

*   Internal ACTIVE and STANDBY Frequency Keep-Alive
*   Digital VOR (DVOR)
*   COM Frequency Presets - 10 Channels
*   COM ACTIVE or STANDBY Frequency Entry
*   NAV ACTIVE and Radial Simultaneous Display
*   Through panel CDI Centering Adjustment

1.2   GENERAL

Refer to Section 1 of the MKl2D Installation Manual (03118-0620) for information relative to features, TSO, and License Requirements.

2.0   INSTALLATION

2.1   INTRODUCTION

The MK12D+ installation is interchangeable with the MK12D. Refer to Section 2 of the MKl2D Installation Manual (03118-0620).

NOTE : Paragraph 2.2.3, Keep-Alive Memory Option is not applicable to the MKl2D+. The MK12D+ has internal keep-alive capability. Damage will not occur if the external keep-alive wire as shown is connected.

2.2   UNIT PART NUMBERS

*MKl2D+, 14V W/O GS, W/Installation Kit & Tray   03118-0317
*MKl2D+, 14V W/GS, W/Installation Kit & Tray   03118-0318
*MKl2D+, 28V W/O GS, W/Installation Kit & Tray   03118-0319
*MKl2D+, 28V W/GS, W/ Installation Kit & Tray   03118-0320

2.2.1   ACCESSORIES, OPTIONAL EQUIPMENT & KITS

Refer to tables 2.1, 2.2, and 2.3

Item	Order Number	Description	Accessory Part No.
1	03118-0317	MK-12D+ 14V (without GS) with:	
		Tray	01372-0106
		Installation Kit	03118-0500
2	03118-0318	MK-l2D+ 14V (with GS) with:	
		Tray	01372-0107
		Installation Kit	03118-0500
3	03118-0319	MK-l2D+ 28V (without GS) with:	
		Tray and Installation Kit	
4	03118-0320	MK-l2D+ 28V (with GS) with Tray and Installation Kit	
5	03118-0321	MK-l2D+ 14V Radio only (without GS)	
6	03118-0322	MK-l2D+ 14V Radio only (with GS)	
7	03118-0323	MK-l2D+ 28V Radio only (without GS)	
8	03118-0324	MK-l2D+ 28V Radio only (with GS)	

Table 2.1 Units and Accessories Supplied

Item	Order Number	Description	Accessory Part No.
1	03749-0300	Indicator, ID824 TSO (No G/S-sine/cosine OBS)	
		with : Installation kit	03749-0500
2	03749-0303	Indicator, ID824A TSO (No G/S-sine/cosine OBS)	
		with : Installation kit	03749-0500
3	03749-0301	Indicator, 1D825 TSO (w/GS-sine/cosine OBS)	
		with : Installation kit	03749-0500
4	01372-0106	Tray MK12D (w/o GS)	
5	01372-0107	Tray MK12D (w/GS)	
6	56912-0001	Key, Spring Release	
7	03749-0304	Indicator, ID825A TSO (w/GS - sine/cosine OBS)	
		with : Installation kit	03749-0500

Table 2.2 Optional Available Accessories

Item	Part Number	Description	03118-0500
1	41407-0002	Pin, Terminal, Gold Plated (72 contacts)	1
		(Contact, Individual, Crimp Type Order	
		No. - 41407-0001)	
2	56912-0001	Key, Spring Release	1
3	50043-0001	Shim, Side Rail Tray	2
4	50042-0001	Tool, Tray Side Rail Spacing	1
5	66516-0010	Fuse, 1/2 Amp (F2601 or F2602). Not used	2
		for installation. Fuses provided are	
		spares for the 5 and 16V A+ lines located	
		on the Main PC Board.	
6	50436-0001	Tool, Vertical Spacer, MK-12D	1
7	57704-0002	Heat sink	
8	84536-0704	Screw, Mach., 4-40 x 5/16	

Table 2.3 Installation Kit's Parts List

2.3   PRODUCT SPECIFICATIONS

    NOTE: Refer to paragraph 2.3 in the MK12D manual. Please note that the MKI2D and the MKl2D+ now have 760 COM channels and tune to 136.975 MHz. The digital VOR accuracy is ±1°.

2.4   POST INSTALLATION TESTS

    Refer to paragraph 2.10 in the MK12D Installation Manual and the following Operation paragraph (2.5).

2.5   OPERATION

    The Internal Keep-Alive maintains the last set COM and NAV frequencies and preset channels. When the Unit is turned ON, these frequencies and/or channels will be seen in the displays.
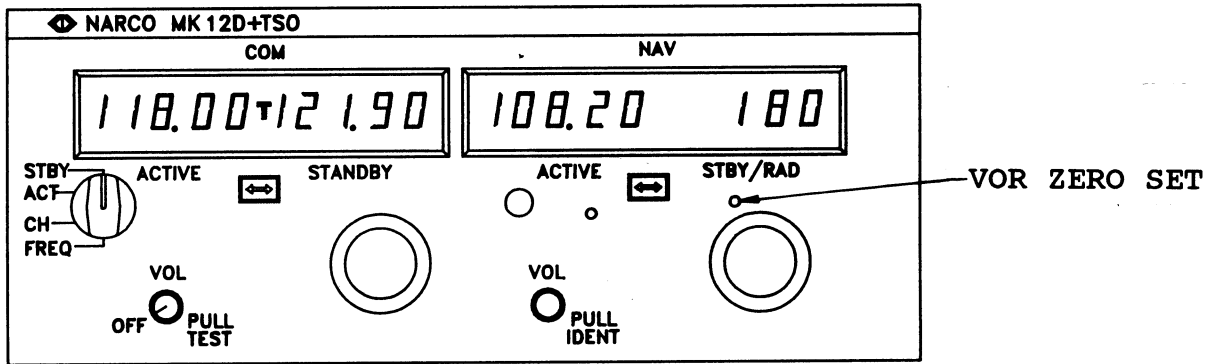

FIGURE 2-1 MKl2D+ FRONT PANEL

2.5.1   COM Section Operation

COM: DISPLAY

    The left side of the display identifies the COM Active communications frequency, and the letter "T" (when lit) to indicate that the Mike Key is depressed and the Unit is transmitting.

    The right side of the display identifies the COM Standby frequency, or channel number.

COM: OFF-VOL-PULL TEST

    OFF is the maximum counterclockwise rotation of this control. Clockwise rotation past the "click" turns both the COM and NAV Sections ON.

    VOL, once the Unit is turned ON, continued clockwise rotation increases the COM audio volume.

    PULL TEST when pulled deactivates the squelch circuit.

COM: MHz/KHz AND CHANNEL SELECT KNOBS

Both these controls allow for continuous CW or CCW rotation. MHz frequency readout, in Active or Standby display, changes at a rate of 1 MHz per detent. Rotation of the KHz knob steps the standby frequency readout at a change rate of 25 KHz per detent.

Clockwise rotation increments the frequency or channel number, counterclockwise decrements the frequency or channel number.

COM: ACTIVE FREQUENCY ENTRY

With the "ACT" position selected, the MHz and KHz select knobs will change the active frequency. The transfer button will exchange the active and standby frequencies.

COM: STANDBY FREQUENCY ENTRY

With the "STBY" position selected the MHz and KHz select knobs will change the standby frequency. The transfer button will exchange the active and standby frequencies.

COM: PRESET CHANNEL SELECTION

In the "CH" position, the MHz and KHz select will select which of the stored channels the MKl2D+ is tuned to. The Standby window displays the channel number (0 to 9). Upon entering this mode from the active position the current Active frequency will be stored as the Standby frequency for easy recall. The transfer button would be disabled in this mode.

COM: MEMORY CHANNEL EDIT

In the "FREQ" position, the MHz and KHz select knobs will be used to alter the frequency of the previously selected channel. The Active window will display the frequency and the Standby window would show the previously selected channel number (0 to 9). The transfer button would be disabled in this mode. The channel frequency is automatically stored at the cessation of frequency selection (approx. 1 sec).

COM: TRANSFER

Pressing the white arrowed momentary switch exchanges the Active and Standby frequencies.

COM: KEEP ALIVE

The last stored active, standby, and preset frequencies will be recalled at power turn ON.

2.5.2   NAV Section Operation

NAV: DISPLAY

The left side of the display identifies the NAV Active frequency.

The right side of the display identifies the NAV Standby frequency or Radial FROM the station.

The Standby frequency will momentarily be displayed upon turn ON, or frequency selection. After several seconds, the radial FROM the station (3 bars if no received signal) will be displayed. To recall the Standby frequency, rotate the frequency select knob one (1) position, or press the Transfer button twice.

NAV: VOL-PULL IDENT

Minimum volume is the maximum counterclockwise rotation of this control.

VOL, continued clockwise rotation increases the NAV audio volume.

PULL-IDENT when pulled activates the IDENT circuit.

NAV: MHz/KHz CHANNEL SET KNOBS

Both these controls allow for continuous CW or CCW rotation. MHz frequency readout, in Standby display, changes at a rate of 1 MHz per detent. Rotation of the KHz Knob steps the Standby Frequency readout at a change rate of 50 KHz per detent.

Clockwise rotation increments the frequency, counterclockwise decrements the frequency. Rotate one position to recall the standby frequency or press the transfer button (2) times.

NAV: HOW TO ENTER A FREQUENCY

All frequencies entered into the NAV Section enter via the Standby route; that is, the frequency is entered (seen in the Standby displays) and then transferred to the Active by depressing the "arrowed" transfer push button. The next frequency entered is the Standby frequency.

The Active frequency and its resultant data are not affected by the rotation of either of the MHz or Khz knobs.

NAV: TRANSFER

Pressing the white arrowed momentary switch exchanges the Active and Standby frequencies.

NAV: KEEP-ALIVE

The last stored Active and Standby frequencies will be recalled at power turn ON.

2.6   MECHANICAL INSTALLATION

This Section provides the mechanical installation steps for mounting the tray and rear connector.

2.6.1   Tray Lock

The tray has a built-in spring locking device. When the Unit is positioned into the tray's track and slid into the tray the tension (lock) spring contacts the Unit. When the Unit's connectors touch the tray connectors an additional set of tension springs can be felt holding back the inward direction of the Unit. At this point using firm pressure the Unit will continue inward approximately a half-inch stopping as the forward tension/locking spring clicks into position. The Unit is now locked in place.

Removal of the Unit requires the use of an extraction key. There are two holes located on either side of the display (Figure 2-3). Place the key alternately in each hole to release the Unit from the tray.

2.6.2   Mechanical - Tray

Upon removing the MK12D+ Tray Assembly from its shipping container, the Unit must be removed from the mounting Tray Assembly.

Position the assemblies on a flat surface; place a block behind it as shown in Figure 2-3. Insert the key straight into the keyhole in the trim panel; exert sufficient pressure to release the spring lock. Upon release the tension (eject) springs will pop the Unit outward, freeing it. <u>SAVE THE KEY.</u>
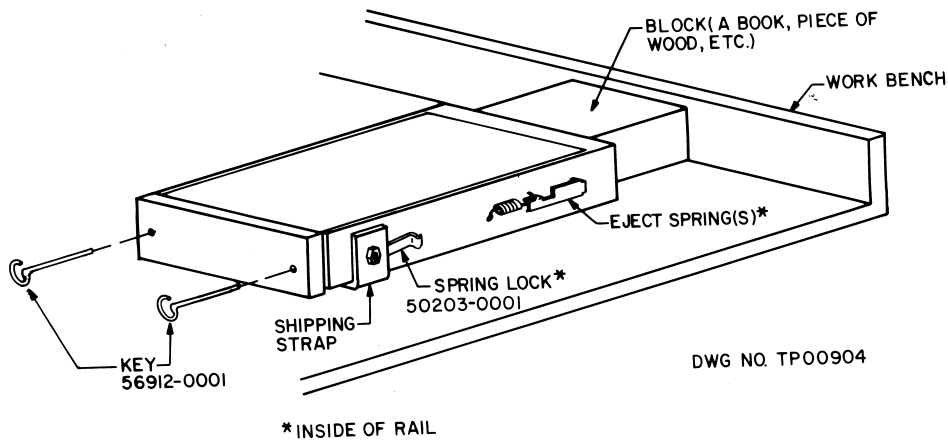

FIGURE 2-3 TYPICAL TRAY LOCK OPERATION