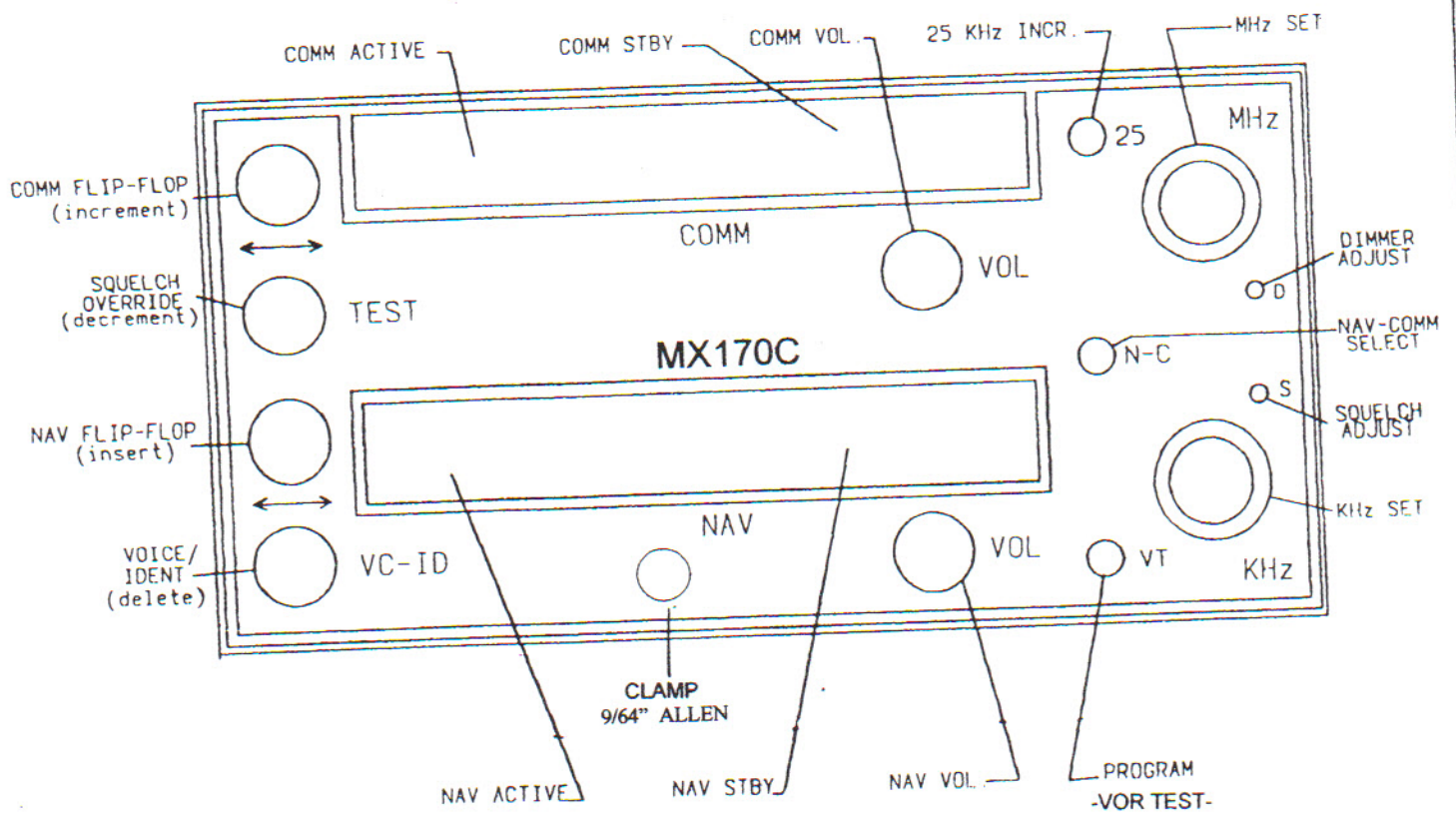


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**MX170C NAV/COMM
OWNERS MANUAL**

**TKM, INC
14811 N. 73RD STREET
SCOTTSDALE, AZ 85260**

PART NUMBER: MN0170C
REVISION: NONE
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MX170(B/C) FRONT PANEL

EQUIPMENT DESCRIPTION

The unit features digital (LED) displays for active (yellow) frequency channel and standby (red) frequency channel for both COMM and NAV.

For channel selection a MHz knob and a KHz knob are provided. For 25 KHz increments in COMM, a 25 KHz button is provided. To activate COMM or NAV frequency selection, an N/C button is provided; a "tic" appears in the selected standby channel display.

Channel selection operates on the standby channel only. When the desired channel is indicated in the standby display it may be placed into the active position by depressing the "Flip-flop" button located to the left of the displays (labeled COMM and NAV); the active channel is then placed into the standby position.

The NAV receiver features a VC/ID button to permit selection of voice or ident reception. In the Ident condition a "tic" is displayed on the active NAV channel display.

The COMM transceiver features a test button which overrides the squelch to verify proper receiver operation and to allow reception of weak signals. Also provided on the active COMM display, is a "tic" to indicate transmitter power output.

The master power switch is included with the COMM volume control.

The adjustment hole by the MHz switch permits operator adjustment of the display dimmer range for optimum nighttime brightness.

- The "tic" is the upper half of "1" and is found to the left of the 100's digit.

NOTICE TO INSTALLER

The TKM MX170C NAV/COMM is authorized by the FAA to TSO C34e, C36e, C37d, C38d, and C40c. The product is an incomplete system. In order to achieve a complete TSO quality system, the MX170C **must** be installed to configure in conjunction with a TSO C37/C38 authorized antenna and a TSO C34e authorized navigation receiver. It is the responsibility of the installer to ensure proper installation.

CONTINUED AIRWORTHINESS (HBA 98-18)

Permission is hereby given to installers approved by the recognized aviation authority to reference relevant excerpts from the installation instructions provided by TKM, Inc. in order to fulfill documentation requirements for Instructions for Continued Airworthiness. Adequacy of the documents should not be assumed by this permission. ICA documentation rests solely with the ICA applicant. The MX170C product is 'Repair on Condition Only'

The active COMM "Tic" indicates the presence of transmitter power.
The standby COMM "Tic" indicates that the Frequency Selection knobs will control COMM standby frequency.

The active NAV "Tic" indicates that the NAV receiver is in the Ident Mode.

The standby NAV "Tic" indicates that the Frequency Selector knobs will control NAV standby frequency.

Power Application. The COMM volume control contains the master power switch and activates both the NAV and COMM functions. The NAV control contains a power switch for the remote NAV units.

Frequency Selection. The N/C button is used to activate either the COMM or the NAV frequency selection as indicated by the appropriate "Tic" display. The MHz and KHz controls can then be used to select a desired standby channel. In COMM the "25" button is used to advance the frequency by 25 KHz.

After the desired standby frequency is selected it may be transferred to the active position by pressing the flip-flop button to the left of the ACTIVE display. The active and standby channels will be interchanged each time the button is pressed.

Ident / Voice Selection. The ID / VC button can be used to select a tone filter in order to receive voice signals on the NAV receiver. The switch is also used for frequency storage as described below.

Test. The TEST button is a dual function switch. In normal operation, it is used to override the squelch to verify receiver operation and to receive weak signals. The switch is also used for frequency storage as described below.

Frequency Storage. The MX170C NAV COMM allows up to 50 NAV and 50 COMM preset frequencies to be stored in the memory for recall. The use of memory presets is described in the following sections.

Clear all frequency presets. To erase all frequency presets with one operation, simply turn on the power to the radio while holding the TEST button depressed.

Examining / Changing / Inserting / Deleting frequency presets. These operations on individual frequency presets are accomplished in EDIT mode. To enter EDIT mode, turn on the power to the radio while holding VT button depressed. When the radio is in EDIT mode, the ACTIVE displays show the reference number of the preset and the STBY displays show the actual preset frequency. After a CLEAR operation as described above, the only presets of 121.5 and the default NAV preset of 112.0.

EDIT mode operations are performed on either the COMM or NAV preset list, according to where the tuning tic indicator is displayed. The tuning tic appears immediately to the left of the COMM or NAV STBY displays. Pressing the N / C button toggles between NAV and COMM preset editing.

Examining presets (EDIT MODE). Pressing the COMM F-F button will step to the next frequency in the preset list. Pressing the TEST button will step to the previous frequency in the preset list.

Pressing COMM F-F when the last preset is displayed will cause the first preset to display. Similarly, pressing TEST when the first preset is displayed will cause the last preset to display. WARNING: When there is only one preset in the list, the radio will not appear to "do anything" when COMM F-F or TEST is pressed. This is because the current, previous, and next presets are all the same preset.

Changing a preset (EDIT MODE). Press COMM F-F or TEST until the preset to be changed is displayed. Dial in the new preset frequency using the tuning controls and press either COMM F-F or TEST.

Inserting (Adding) a preset (EDIT MODE). Press COMM F-F or TEST until the desired insert point is displayed (the new preset will be inserted AFTER this insert point). Dial in the desired frequency using the tuning controls and press NAV F-F. Remember that a preset list may contain a maximum of 50 entries, insert commands that would cause this limit to be exceeded are ignored.

Deleting a preset (EDIT MODE). Press COMM F-F or TEST until the preset to be deleted is displayed. Then press the VC-ID switch to delete. If the deleted preset was not at the end of the list, all the presets that followed it are renumbered. Each preset list (NAV and COMM) must always contain at least one entry. If there is only one entry remaining in a preset list, it may not be deleted (It can be changed to another frequency).

Frequency preset normal operation. At any time the radio is in normal operation (Not EDIT MODE), COMM preset frequencies may be called into the STBY frequency display by pressing COMM F-F while the TEST button is depressed. During the time that both buttons are held simultaneously depressed, the reference number for the preset appears in the ACTIVE window. Each time this operation is repeated, it will copy the "next" preset to the COMM STBY frequency.

NAV preset operation is similar, with the exception that presets are retrieved by pressing NAV F-F while the VD-ID button is depressed.

Transmit. The transmit mode on the transceiver is selected by pressing the transmit button on the microphone.

Channel Reset. If it is desired to clear memory, a system reset may be accomplished by turning off the main power switch, pressing and holding both flip-flop buttons and then

turning on the main power switch; after reset both the COMM Active and the COMM Standby frequencies will be set to 121.500 MHz.

Display Dimmer Adjustment. The dark end of the automatic display dimmer range is adjustable through the front panel hole by the Mhz switch marked "D"

ENVIRONMENTAL QUALIFICATION FORM

MODEL MX170C NAV / COMM as specified in MX170C Specification manufactured by TKM, Inc., 14811 NORTH 73rd STREET, SCOTTSDALE, AZ 85260.

Conditions	D0160C para.	Description of Test
Temperature and Alt.	4.0	Category C1
Low Temperature	4.5.1	Category C1
High Temperature	4.5.2	Category C1
Altitude	4.6.1	Category C1
Decompression	4.6.2	Not Tested
Overpressure	4.6.3	Not Tested
Temperature Variation	5.0	Category C
Humidity	6.0	Category A
Shock	7.0	Tested for all Conditions
Vibration	8.0	Category S (no shock mts)
Explosion	9.0	X: Not tested
Water – Resistance	10.0	X: Not tested
Fluid Susceptibility	11.0	X: Not tested
Sand and Dust	12.0	X: Not tested
Fungus	13.0	X: Not tested
Salt Spray	14.0	X: Not tested
Magnetic Effect	15.0	Category A

Power Input	16.0	Category B
Voltage Spike Suscept.	17.0	Category B
Audio Cond. Suscept.	18.0	Category B
Induced Sig. Suscept.	19.0	Category B
RF Susceptibility	20.0	Category B
RF Emission	21.0	Category B

Installation Instruction: The MX170C is designed to be a slide in replacement for KING radios and, as such, shall be installed with all of the original equipment precautions.

SPECIFICATIONS

Mounting:	Panel mounted, no shock mounting required.
Size:	6.312 x 2.600 x 14.15 inches w/ connectors (16.03 x 6.60 x 35.94 cm)
Weight:	6.0 lbs excluding external connector and harness.
Power Requirements: NAV and COMM Recv'r Transmit (Tone)	13.75 Vdc (or 27.5 v w/conv) 1.8A 7.1A (6.2A unmodulated)

COMM TRANSCEIVER

Crystal Controlled:	760 Channel
Frequency Range:	118.00 to 136.975 MHz
Frequency Stability:	+/- .003%. -20 to 50 C
VHF Power Output:	8 watts minimum, 50 ohm
Modulation:	85% capability with 90% limiting
Microphone:	Dynamic mike containing transistorized pre-amp or carbon (must provide at least 120 mV rms into 500 ohm load).
Sidetone:	Adjustable up to 40 mw into 500 ohm headphone.
Duty Cycle:	1 minute on, 4 minutes off (20%)

RECEIVER

Sensitivity:	1.5uv (soft) will provide a 6 db minimum signal plus noise ratio (KHz, 30% mod).
Selectivity:	Typical 6 db at + 7.5 KHz, 65 db at + 17.5 KHz, 90 db at + 25 KHz.

Spurious Responses:	Down at least 70 db.
Squelch:	Noise adaptive squelch with manual override.
AGC Characteristics:	From 2 to 100.000 uV audio output will not vary more than 1 db.

NAV RECEIVER

Crystal Controlled:	200 channels
Frequency Range:	108.00 to 117.95 MHz
Sensitivity:	1.5 uv (soft) will provide a half-flag indication.
Selectivity:	Typical 6 db at + 15 KHz, 60 db at +35 KHz, 80 db at + 50 KHz.
Spurious Responses:	Down at least 70 db.
Ident Filter:	15 db minimum
AGC Characteristics:	From 2 to 100.000 uV audio output will not vary more than 1 db.
NAV Receiver Accuracy:	Two sigma limit, + 1 degree.
NAV Output:	With LOC adjusted for 0.35 Vrms VOR = 0.5 Vrms (Typical) into 20K ohms or greater load impedance.

DME Channeling:

	M0	M1	M2	M3		K0	K1	K2	K3	50 KHz	
108	-	-	0	-	.0X	0	0	-	-	.X0	-
109	-	-	-	0	.1X	0	0	0	-	.X5	0
110	0	-	-	-	.2X	0	0	0	0		
111	0	-	-	-	.3X	-	0	0	0		
112	0	0	0	-	.4X	-	-	0	0		
113	-	0	0	0	.5X	0	-	-	0		
114	0	-	0	0	.6X	-	0	-	-		
115	-	0	-	-	.7X	-	-	0	-		
116	0	-	0	-	.8X	-	-	-	0		
117	0	0	-	0	.9X	0	-	-	-		

NOTE: (-) = OPEN, (0) = GROUND

	ILS Energize:				OPEN FOR VOR,					GROUND FOR ILS				
	GS 108	GS 109	GS 110	GS 111		GS 0.1	GS 0.3	GS 0.5	GS 0.7	GS 0.9				
108	0	-	-	-	.0X	-	-	-	-	-				
109	-	0	-	-	.1X	1	-	-	-	-				
110	-	-	0	-	.2X	-	-	-	-	-				
111	-	-	-	0	.3X	-	1	-	-	-				
112	-	-	-	-	.4X	-	-	-	-	-				
113	-	-	-	-	.5X	-	-	1	-	-				
114	-	-	-	-	.6X	-	-	-	-	-				
115	-	-	-	-	.7X	-	-	-	1	-				
116	-	-	-	-	.8X	-	-	-	-	-				
117	-	-	-	-	.9X	-	-	-	-	1				

NOTE: (-) = OPEN, (0) = GROUND, (1) = CONNECTED TO G/S

AUDIO

Auxiliary Audio Inputs:

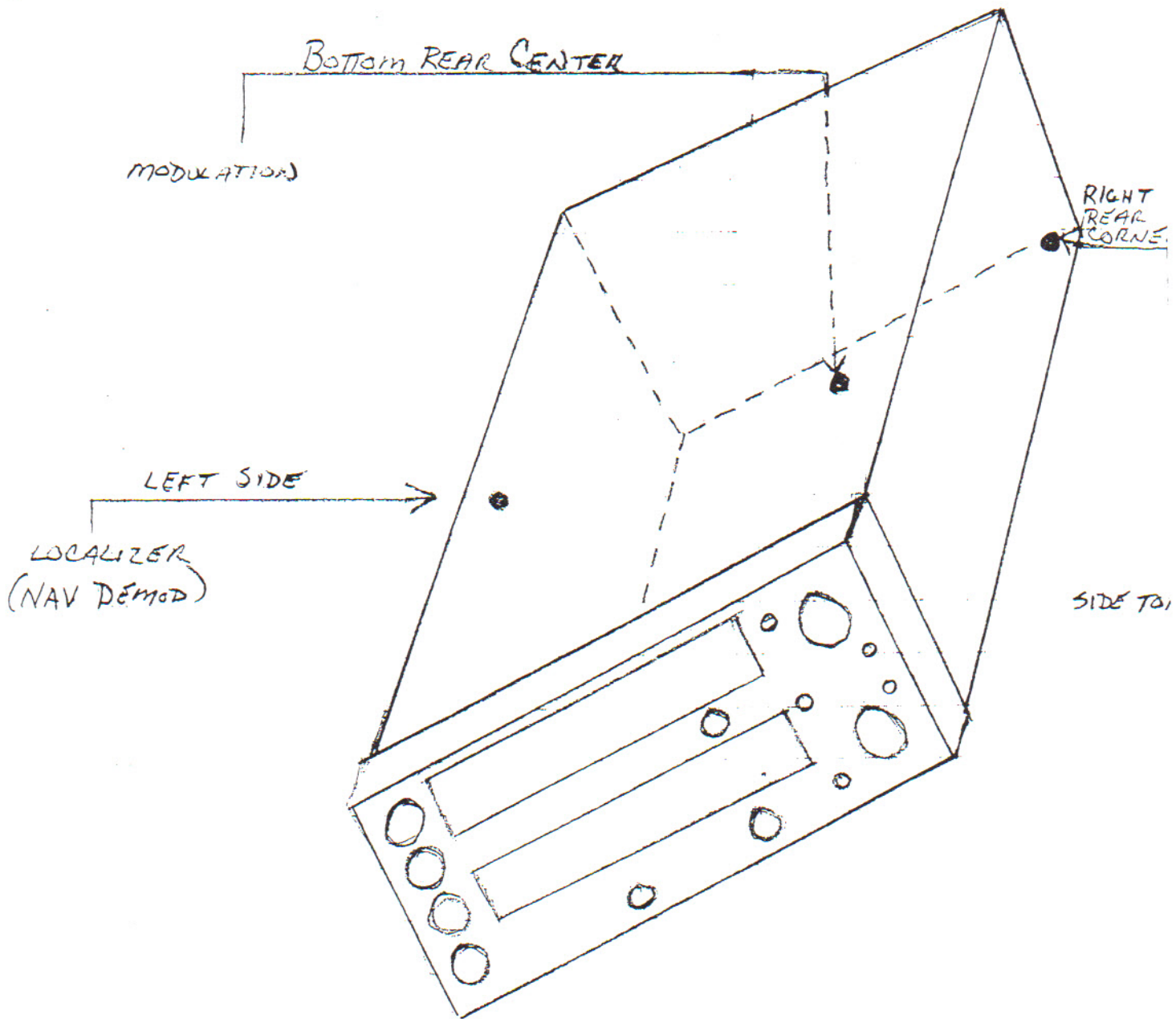
Three (3) 500 ohms with 30 db isolation between any two.

Frequency Response:

Within 6 db from 350 Hz to 2500 Hz.

Headphone Output:

50 mw into 500 ohm



MX170(B/C)