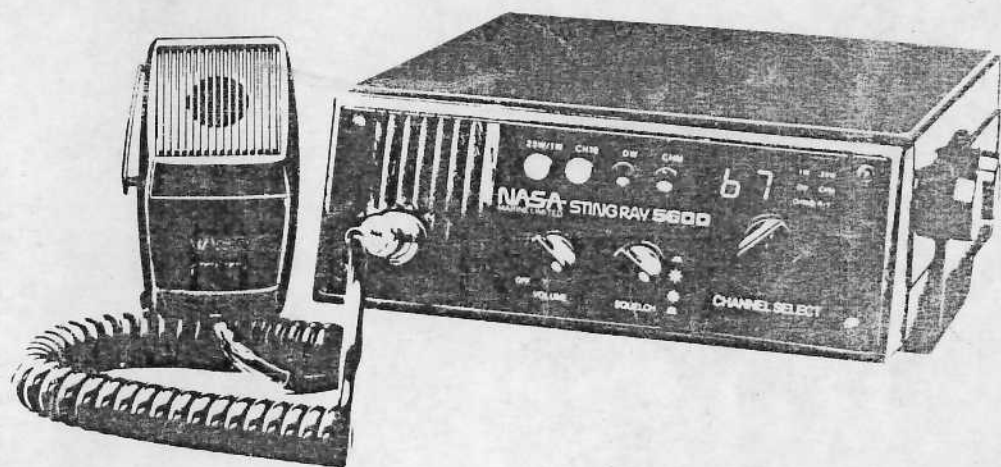


STINGRAY 5600

V H F R A D I O

OWNER'S MANUAL



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GENERAL INFORMATION

Your new STINGRAY 5600 VHF marine radio telephone has been designed to give you a rugged and reliable instrument providing the set is correctly installed. You are therefore encouraged to carefully acquaint yourself with all the points in this handbook to ensure optimum trouble free performance is achieved.

STINGRAY 5600 is a compact, fully synthesised, 55 channel transceiver which includes all International channels allocated for port operation, intership and public correspondence with all the added advantages of "dual watch" on channel 16 and any selected channel.

For the yachtsman the special marine frequency 157.85 Mhz, known as channel "M" is also provided as standard.

STINGRAY 5600 is of solid state design with conservatively rated rugged components and materials. The equipment has been tested and type approved in the UK to Home Office Specification MPT 1251. The transceiver is not regarded as being waterproof and should not therefore be sited in an exposed position or subjected to rain or spray.

INSTALLATION

It is important to carefully determine the most suitable location for your STINGRAY 5600 on your vessel. Electrical, mechanical and environmental considerations must all be taken into account. Avoid siting your VHF set within 1 metre of your steering compass. The microphone, loudspeaker and extension speaker if fitted, all have powerful magnets. You must select the optimum relationship among these considerations.

Keep in mind the flexibility designed into the STINGRAY 5600 so that you can most conveniently use your radio. Features which should be considered are:

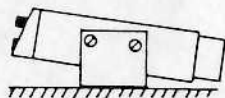
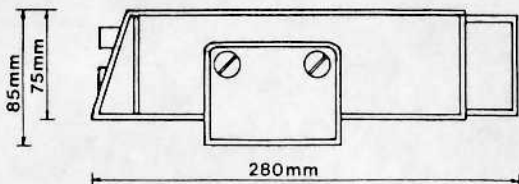
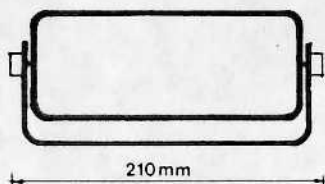
1. The speaker and microphone connector face forward allowing convenient in-dash or "built in" installations.
2. The EXTERNAL speaker jack may be used with an auxiliary speaker in lieu of the built in speaker.
3. All connections are "plug-in" type for easy removal of the radio.

Some of the more important external factors to consider in selecting the location of your STINGRAY 5600 are:

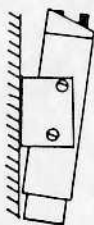
1. Select a sheltered location that is free from spray and splash.
2. Keep the battery leads as short as possible. Connection directly to the battery is most desirable. If direct connection cannot be made with the power leads supplied, extension up to 3 metres should be made with #10 AWG wire. Longer extensions should use larger wire.
3. Keep the antenna leads as short as possible. Long antenna leads can cause substantial loss of performance for both receiving and transmitting.
4. Locate your antenna as high as possible and clear from metal objects. The reliable range of coverage is a direct function of antenna height.
5. Select a location that does not allow the radio to be subjected to direct sunlight (including that coming through windows).
6. Select a location that allows free air flow around the heat sink on the rear of the radio.
7. Select a location well away from the ship's compass. Auxiliary speakers also should be located away from the compass.

INSTALLATION (cont'd)

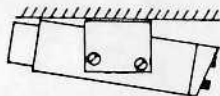
After you have carefully considered the various factors affecting your choice of location, position the radio (with the bracket, microphone, power plug, antenna plug, and any auxiliary plugs installed) into the selected location to assure there is no interference with surrounding items. Mark the location of the mounting bracket. Remove the holes to be drilled for the mounting hardware. Drill the holes and mount the bracket with hardware compatible with the material of the mounting surface. Install the power cable (red is +, black is -), antenna and all other auxiliary cables and accessories. Install the radio into the mounting bracket and connect all cables and accessories to the appropriate jacks and connectors.



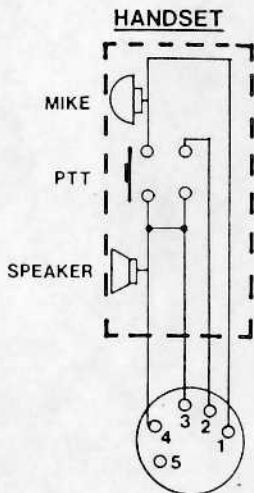
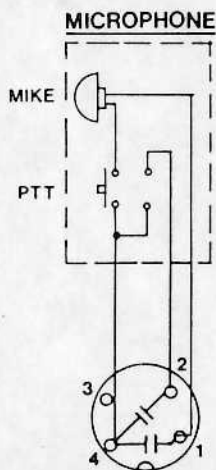
TABLE



BULKHEAD



DECKHEAD



ANTENNA

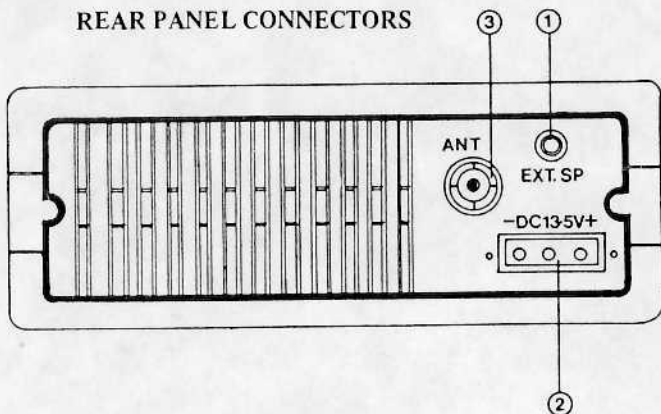
A variety of antennae are available from a number of quality suppliers. It is recommended you draw upon the advice of your NASA Marine Electronics Dealer in determining a suitable antenna for your vessel and range requirements. Details of quality antennae are available upon request.

The general rules for antennae are: The more gain the greater the range and, the higher above the water line the greater the range. Antennae should be located so as not to be in proximity to metal objects. Antennae should not have excessively long coaxial feed cable.

ENGINE NOISE SUPPRESSION

Interference from the impulse noise generated by the electrical systems of engines is sometimes a problem with radios. The STINGRAY 5600 has been designed to be essentially impervious to ignition impulse noise and alternator noise. However, in some installations it may be necessary to take measures to further reduce the effect of noise interference. All DC battery wires, antenna lead, and accessory cables should be routed away from the engine and engine compartment and from power cabling carrying particularly high currents.

REAR PANEL CONNECTORS



1. EXT CONNECTOR – If it is desired to use a speaker other than the one in the radio, a four or eight ohm speaker equipped with a miniature phone plug may be connected to this jack. The internal speaker is disabled when an external speaker is used.
2. DC POWER CONNECTOR – Battery connections are to be made with the cable supplied to mate with this connector. Remember, red is +, black is -! The power cable is equipped with a fuse tp protect the radio. Use only a six (6) AMPERE fast blow fuse for replacement.
3. ANT CONNECTOR – This connector is for connection of the antenna. A type PL259 connector is required to make proper connection.

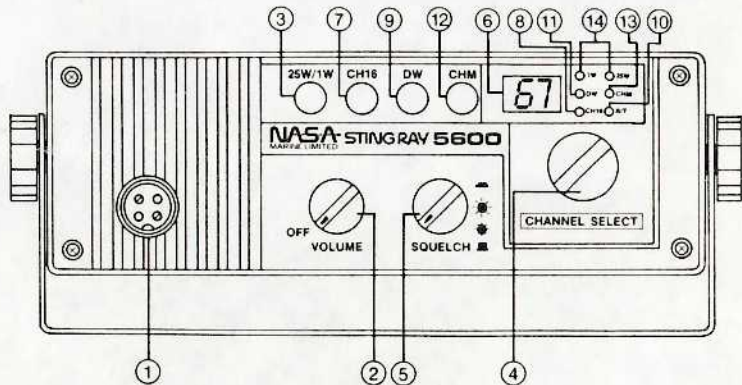
TRANSMITTING AND RECEIVING

Before operating the radiotelephone transmitter you must meet all requirements set up by the local government agency in charge of communications in your country.

In most countries this includes obtaining a proper licence and have access to the rules and regulations covering this type of equipment.

1. Properly install radiotelephone in accordance with the installation section in this manual.
2. Turn the radiotelephone on and raise the Volume control until background noise is heard. Be sure to rotate the Squelch control to its fullest counterclockwise position initially.
3. To transmit, press the transmit switch (PTT) on the handset and speak slowly, and in your normal tone of voice.
4. To receive, simply release the switch. During periods of transmission the receiver is silenced and reception is therefore impossible. In the same way, your signal cannot be heard by another station when he is transmitting.

FUNCTIONS AND OPERATION



1. MICROPHONE CONNECTOR – Ensure microphone connector has slight smear of silicon grease or vaseline and tighten (only hand tight).
2. ON/OFF-VOLUME – Control turns power into radio and allows adjustment to the desired listening level with clockwise rotation.
3. 1W/25W SELECTOR – Controls transmitter output power. The 1W (watt) position should be used whenever practical and should always be used for in-port or short range communications.
4. CHANNEL SELECTOR – Selects the desired channel from those programmed into the memory.
5. SQUELCH CONTROL/DIM SWITCH – Used to quiet background noise when no signal is being received. Proper adjustment is such that the control is advanced only slightly beyond the point where the background noise is marginally quietened.
6. NUMERICAL CHANNEL INDICATOR – Indicates selected channel.
7. CH16 SELECTOR – Provides instant channel 16 selection by overriding the CHANNEL SELECTOR, DUAL WATCH SELECTOR, AND CH M SELECTOR.
8. CHANNEL 16 INDICATOR – Operates in conjunction with CH 16 selector to draw attention to the fact that the CHANNEL SELECTOR and DUAL WATCH functions have been overridden.
9. DUAL WATCH SELECTOR – Provides dual watch function when CH 16 is at OFF position. Automatically scans between CH 16 and another channel shown on the numerical indicator, and locks on CH 16 when a signal strong enough to open squelch level exists and will remain there as long as traffic continues.
10. TX/RX INDICATOR – Glows green in the receiving mode. The red transmit lamp is operated from the actual presence of power transmitted to the antenna.
11. DUAL WATCH INDICATOR – Operates in conjunction with the DW switch to draw attention to the fact that the CHANNEL SELECTOR has been overridden.
12. CH M SWITCH – Provides instant channel M selection by overriding the Channel Selector.
13. CH M INDICATOR – Indicates channel M function.
14. 1W/25W INDICATOR – Indicates transmitting power switch selection.

SPECIFICATIONS

GENERAL

Channels	: Transmit 56 Receive 56
Frequency Control Method	: PLL synthesiser
Antenna Impedance	: 50 ohms, nominal
Circuitry	: 26 transistors, 9 IC's 5 FET's 50 diodes
Speaker	: 2½ inch front mounted, 8 ohms
Microphone	: Rugged 600 ohm dynamic element with coiled cord and plug-in connector.
Channel Display	: LED numerical readout
Frequency Stability	: + - 0.0005%
Operating Temperature Range	: -10°C to +50°C
Size	: 280(L) x 210(W) x 85(H) mm
Weight	: 2.0kg
Controls	: On-Off/volume and squelch controls; channel selector; instant Channel 16 selector, 1W/25W power and dimmer switch, dual watch switch, instant Channel M selector.
Connectors	: Antenna, microphone, handset, external speaker, DC power.
Frequency Range	: 156 to 158 MHz transmit 156 to 163 MHz receive
Lights and Indicators	: Red/Green transmit/receive LEDs, Green 7 segment LED channel readout and Channel 16 LED, dual-watch LED, Channel M LED 1W/25W indicator.
Standard Accessories	: Plug-in microphone, mounting bracket and hardware, DC power cord, spare fuse, owner's manual.
Supply Voltage	: 13.8V DC
Oscillator Drop-Out Voltage	: 8V DC nominal

TRANSMITTER

Power Output	: 25 or 1 Watt (switch selectable)
Power Requirement	: 25 Watts output: 4.5A @ 13.8V DC 1 Watt output : 1.0A @ 13.8V DC
Modulation	: FM, ± 5 KHz deviation
Hum and Noise	
Attenuation	: 45 dB
Audio Distortion	: Less than 5% with 3 KHz deviation with 1000Hz modulating frequency.
Spurious Emission	: -75 dB
Output Transistor	
Protection	: Built-in automatic power protection
Output Power	
Stabilization	: Built-in Automatic level control (ALC)

RECEIVER

Sensitivity	: 0.25 μ V for 12 dB SINAD 0.50 μ V for 20 dB quieting
Threshold Squelch	
Sensitivity	: 0.15 μ V
Tight Squelch	
Sensitivity	: 1.0 μ V
Spurious REsponse	
Attenuation	: 75 dB
Image Response	
Attenuation	: 70 dB @ 0.3 μ V desired 35 dB @ 300 μ V desired 50 dB @ 30 μ V desired
Adjacent Channel	
Rejection	: 75 dB
Selectivity	: ± 7.5 KHz @ 6 dB down ± 15 KHz @ 60 dB down
Audio Output	
Power	: 3.0 Watts minimum at 10% distortion at 1KHz modulation and ± 3.0 KHz deviation (8 Ohm speaker).
Power Requirement	: 0.45A @ 13.8V DC, squelched 0.70A @ 13.8V DC at rated audio output
IF Frequencies	: 1st - 21.4MHz 2nd - 455KHz
Hum and Noise Level	: -50 dB

VHF FM MARINE RADIOTELEPHONE CHANNELS (INTERNATIONAL CHANNEL)

CHANNEL NUMBER	FREQUENCY (MHZ)		TYPE TRAFFIC	FUNCTION	
	SHIP	SHORE		SHIP TO SHIP	SHIP TO SHORE
1	156.050	160.650	Int'l only	-	Yes
2	156.100	160.700	Int'l only	-	Yes
3	156.150	160.750	Int'l only	-	Yes
4	156.200	160.800	Int'l only	-	Yes
5	156.250	160.850	Int'l only	-	Yes
6	156.300	156.300	Safety	Yes	No
7	156.350	160.950	Int'l only	Yes	Yes
8	156.400	156.400	Com'l	Yes	No
9	156.450	156.450	Com'l	Yes	Yes
10	156.500	156.500	Com'l	Yes	Yes
11	156.550	156.550	Com'l	Yes	Yes
12	156.600	156.600	Port Op.	Yes	Yes
13	156.650	156.650	Nav.	Yes	Yes
14	156.700	156.700	Port Op.	Yes	Yes
15		156.750	Weth P.	Receive Only	Receive Only
16	156.800	156.800	Safety C.	Yes	Yes
17	156.850	156.850	State Cont.	Yes	Yes
18	156.900	161.500	Int'l only	Yes	Yes
19	156.950	161.550	Int'l only	Yes	Yes
20	157.000	161.600	Port Op.	Yes	Yes
21	157.050	161.650	Int'l only	-	Yes
22	157.100	161.700	Coast Ga'd	Yes	Yes
23	157.150	161.750	Int'l only	-	Yes
24	157.200	161.800	Public C.	No	Yes
25	157.250	161.850	Public C.	No	Yes
26	157.300	161.900	Public C.	No	Yes
27	157.350	161.950	Public C.	No	Yes
28	157.400	162.000	Public C.	No	Yes
60	156.025	160.625	Int'l only	Yes	Yes
61	156.075	160.675	Int'l only	Yes	Yes
62	156.125	160.725	Int'l only	Yes	Yes
63	156.175	160.775	Int'l only	Yes	Yes
64	156.225	160.825	Int'l only	Yes	Yes
65	156.275	160.875	Int'l only	Yes	Yes
66	156.325	160.925	Int'l only	Yes	Yes
67	156.375	156.375	Sml crit safety	Yes	No
68	156.425	156.425	Non Com'l	No	Yes
69	156.475	156.475	Non Com'l	No	Yes
70	156.525	156.525	Non Com'l	Yes	No
71	156.575	156.575	Non Com'l	No	Yes
72	156.625	156.625	Non Com'l	Yes	No
73	156.675	156.675	Port Op.	Yes	Yes
74	156.725	156.725	Port Op.	Yes	Yes
77	156.875	156.875	Com'l	Yes	No
78	156.925	161.525	Int'l only	Yes	Yes
79	156.975	161.575	Int'l only	Yes	Yes
80	157.025	161.625	Int'l only	Yes	Yes
81	157.075	161.675	Int'l only	-	Yes
82	157.125	161.725	Int'l only	-	Yes
83	157.175	161.775	Int'l only	-	Yes
84	157.225	161.825	Public C.	No	Yes
85	157.275	161.875	Public C.	No	Yes
86	157.325	161.925	Public C.	No	Yes
87	157.375	161.975	Public C.	No	Yes
88	157.425	162.025	Int'l only	Yes	Yes
M	157.850	157.850	Marina only	Yes	Yes

MARINAS NOW CHANNEL 80

