# USER MANUAL

## Tron TR30

JOTRON

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# 2 Abbreviations

| | |
|---|---|
| ADR | European Agreement concerning the International Carriage of Dangerous Goods by Road |
| CFR | The Code of Federal Regulations |
| DW | Dual Watch (Receiver altering between two different channels) |
| ECHA | European Chemical Agency |
| EMC | Electromagnetic compatibility |
| ESD | Electrostatic discharge |
| ETS | European Telecommunications Standard |
| ETSI | European Telecommunications Standards Institute |
| GMDSS | Global Maritime Distress and Safety System |
| HW | Hardware |
| IATA | International Air Transport Association |
| ICAO | International Civil Aviation Organization |
| IEC | International Electrotechnical Commission |
| IMDG | International Maritime Dangerous Goods Code |
| MHz | MegaHertz |
| MSDS | Material Safety Data Sheet |
| NC | Noise cancel |
| OSHA | Occupational Safety and Health Admin |
| PTT | Push to talk |
| RES | Radio equipment and systems (technical committee of ETSI) |
| RID | Reglement concernant le transport International ferroviare des merchandises Dangereuses par chemin de fer (Transportation of Dangerous Goods by Train) |

| | |
|---|---|
| RMA | Return Material Authorization number |
| RSS | Radio Standards Specification |
| SDS | Safety Data Sheet |
| SMA | Sub miniature version A connector |
| SOLAS | Safety of Life at Sea (An international maritime safety treaty) |
| STCW | Standards of training, certification and watch keeping for seafarers |
| SW | Software |
| TW | Triple Watch |
| UN | United Nations |
| VAC | Volts, alternating current (AC) |
| VHF | Very High Frequency |

# 3 General

Jotron manufactures safety equipment designed for the search and rescue of human life and property. For safety equipment to be effective according to the design parameters it is imperative that all products are handled, maintained, serviced and stowed in compliance with the manufacturer's instructions.

Copies of all Jotron documentation can be downloaded from our website: www.jotron.com.

All information contained within this manual has been verified and is to our knowledge correct, however, Jotron reserves the right to make changes to any product(s) or module(s) described herein to improve reliability, function or design, without further notice.

The following four symbols are in use throughout this manual:

| | |
|---|---|
|  NOTE | This symbol is used to highlight information. |

| | |
|---|---|
|  IMPORTANT | This symbol is used to draw attention to important details. |

| | |
|---|---|
|  **CAUTION** | This symbol is used to highlight information that if not followed can result in damage to a product or equipment. |

| | |
|---|---|
|  **WARNING** | This symbol is used to highlight information that if not followed can result in personal injury or bodily harm. |

| | |
|---|---|
|  **IMPORTANT** | Jotron is not liable for consequential or special damages and cannot be held responsible for any damages or injury arising either directly or indirectly due to an error or omission of information, misuse of a product, breach of procedures, or for failure of any specific component or other part of the equipment. |

# 4 Standards

Jotron declares that this radio is in compliance with Directive 2014/53/EU. A copy of the declaration of conformity can be downloaded from the Jotron website.

The Tron TR30 (emergency mode - GMDSS) has been verified, tested and meets the following product standards:

| | |
|---|---|
| EN/IEC 60945: 2002 including Corr.1 (Category - Portable) | Maritime navigation and radio communication equipment and systems - General requirements - Methods of testing and required test results |
| ETSI EN 300 225, V1.4.1 (2004-12) | Electromagnetic compatibility and Radio spectrum Matters (ERM); Technical characteristics and methods of measurement for survival craft portable VHF radiotelephone apparatus |
| ETSI EN 301 843-1, V1.2.1 (2004-06) | Electromagnetic compatibility and Radio spectrum Matters (ERM); ElectroMagnetic Compatibility (EMC) standard for marine radio equipment and services; Part 1: Common technical requirements |
| ETSI EN 301 843-2, V1.2.1 (2004-06) | Electromagnetic compatibility and Radio spectrum Matters (ERM); ElectroMagnetic Compatibility (EMC) standard for marine radio equipment and services; Part 2: Specific conditions for VHF radiotelephone transmitters and receivers |
| IEC 61097-12: 1996 | Global maritime distress and safety system (GMDSS) - Part 12: Survival craft portable two-way VHF radiotelephone apparatus - Operational and performance requirements, methods of testing and |

| | |
|---|---|
| | required test results |
| RSS-102, Issue 5: Mar. 2015 | Radio Frequency (RF) Exposure Compliance of Radio communication Apparatus (All Frequency Bands) |
| RSS-182, Issue 5: Jan. 2012 | Maritime Radio Transmitters and Receivers in the Band 156-162.5 MHz |

Tron TR30 (regular mode - VHF) has been verified, tested and meets the following product standards:

| | |
|---|---|
| EN 62479: 2010 | Assessment of the compliance of low power electronic and electrical equipment with the basic restrictions related to human exposure to electromagnetic fields (10 MHz to 300 GHz) |
| ETSI EN 301 178, V2.2.2 (2017-04) | ETSI EN 301 178 V2.2.2 (2017-04) Portable Very High Frequency (VHF) radiotelephone equipment for the maritime mobile service operating in the VHF bands (for non-GMDSS applications only); Harmonised Standard covering the essential requirements of article 3.2 of Directive 2014/53/EU |
| ETSI EN 301 178-1, V1.3.1: 2007-02 | Electromagnetic compatibility and Radio spectrum Matters (ERM); Portable Very High Frequency (VHF) radiotelephone equipment for the maritime mobile service operating in the VHF bands (for non-GMDSS applications only); Part 1: Technical characteristics and methods of measurement |
| ETSI EN 301 178-2, V1.2.2: 2007-02 | Electromagnetic compatibility and Radio spectrum Matters (ERM); Portable Very High Frequency (VHF) radiotelephone equipment for the maritime mobile |

| | |
|---|---|
| | service operating in the VHF bands (for non-GMDSS applications only); Part 2: Harmonized EN covering essential requirements of article 3.2 of the R&TTE Directive |
| ETSI EN 301 843-1, V1.2.1 (2012-08) | Electromagnetic compatibility and Radio spectrum Matters (ERM); ElectroMagnetic Compatibility (EMC) standard for marine radio equipment and services; Part 1: Common technical requirements |
| ETSI EN 301 843-2, V1.2.1 (2004-06) | Electromagnetic compatibility and Radio spectrum Matters (ERM); ElectroMagnetic Compatibility (EMC) standard for marine radio equipment and services; Part 2: Specific conditions for VHF radiotelephone transmitters and receivers |
| IEC 62209-1:2005 | Human exposure to radio frequency fields from hand-held and body-mounted wireless communication devices - Human models, instrumentation, and procedures - Part 1: Procedure to determine the specific absorption rate (SAR) for hand-held devices used in close proximity to the ear (frequency range of 300 MHz to 3 GHz) |
| IEC 62209-2: 2010 | Human exposure to radio frequency fields from hand-held and body-mounted wireless communication devices - Human models, instrumentation, and procedures - Part 2: Procedure to determine the specific absorption rate (SAR) for wireless communication devices used in close proximity to the human body (frequency range of 30 MHz to 6 GHz) |
| IEC 62368-1:2014 | Audio/video, information and communication technology equipment - Part 1: Safety requirements |

| | |
|---|---|
|  IMPORTANT | The use of Tron TR30 radio with the rechargeable LiPo battery may be subject to an operator certificate in accordance with RED 2014/53/EU, Article 10.10.<br><br>Prior to using this equipment, please check with your local national radio license authority. |

| | |
|---|---|
| 47 CFR 2.1093: Oct. 2013 | Radio frequency radiation exposure evaluation: portable devices. |
| 47 CFR 80 to End: Oct. 2015 | Electronic Code of Federal Regulations, Title 47, Telecommunications |

| | |
|---|---|
|  IMPORTANT | This device complies with the GMDSS provision of part 80 of the FCC Rules.<br><br>Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment. |

| | |
|---|---|
|  NOTE | This class 2 CE approved product is available for sale and purchase in the following countries:<br><br>Brazil, Canada, China, Europe, Korea, Russia and the United States of America.<br><br>The relevant CE marking of CE0168! is found on the product and the packaging. |

| | |
|---|---|
|  NOTE | All statements of conformity are available at: www.jotron.com |

# 5 Product description

The Tron TR30 is a ruggedly designed radio made for easy operation. It is a portable survival craft two-way VHF radio which is possible to operate using one hand, even when wearing gloves. The high contrast graphical display including integrated back lighting of the display and keys are very effective for visibility and usage in low light conditions.

It is also resistant to oil, seawater and sunlight. This radio is compact in size with smooth edges to avoid damage to clothing or a raft. The highly visible orange housing is made from glass reinforced polycarbonate.

The Tron TR30 GMDSS (emergency mode) radio is waterproof down to 1 meter and floats in freshwater, battery included. The radio is designed with a self draining loudspeaker. The Tron TR30 is only completely waterproof when the antenna and jack cover are assembled on the radio correctly.

The Tron TR30 (GMDSS - emergency mode) radio includes the following components:

- Tron TR30 radio
- Emergency GMDSS battery (orange)
- Antenna
- Belt clip
- Wrist strap

Part number: 83446 Tron TR30 GMDSS

The Tron TR30 Maritime VHF radio (regular mode) includes the following components:

- Tron TR30 radio
- Emergency GMDSS battery (orange)
- Rechargeable battery (black)
- Battery charger
- Antenna
- Belt clip
- Wrist strap

Part number: 87950 Tron TR30 GMDSS and Maritime VHF radio

## 5.1 Product image


**Figure 1** Tron TR30


**Figure 2** Tron TR30 in the RCH-30 Battery charger

# 6 Battery safety instructions (GMDSS radio)

Under EC, European Chemical Agency (ECHA) and US, Occupational Safety and Health Admin (OSHA) legislation this product is classified as a manufactured article, which does not release or otherwise result in exposure to a hazardous chemical under the normal conditions of use. Therefore, this product is exempt from the requirement of a dedicated Material Safety Data Sheet (MSDS) or Safety Data Sheet (SDS).

The following information is included in this manual as guided safety instructions.

| | |
|---|---|
| Product name: | Emergency battery |
| Type no.: | FR6 |
| Lithium metal content: | 2 x 1.96 gram lithium pr battery |
| Approximate weight: | 100 grams |
| Chemical system: | Lithium Iron Disulphide |
| Designed for recharge: | No |

Below are instructions for keeping the radio log and the radio operator's obligation according to national and international regulation:

1. The radio log shall be kept in accordance with requirements in the Radio Regulation, SOLAS Convention, national regulations regarding radio installations and the STCW Convention (STCW 95 including the STCW Code) including relevant regulation regarding watch keeping on board passenger and cargo ships.

2. Unauthorized transmissions and incidents harmful interference should, if possible, be identified, recorded in the radio log and brought to the attention of the Administration in compliance with the Radio Regulations, together with an appropriate extract from the radio log (STCW Code BVIII/2 No. 32).

Testing of radio equipment and reserve source of energy should occur:

| | |
|---|---|
|  NOTE | The below safety information is extracted from EVE Energy SDS (sections 4, 5 and 6). |

# 6.1 Hazards identification

The lithium iron disulphide batteries used in the Tron TR30 and described herein are sealed units.

Under normal conditions, the battery is hermetically sealed. These batteries are not hazardous when used as intended and recommended.

| | |
|---|---|
|  WARNING | Do not short circuit, puncture, incinerate, crush, immerse, force discharge or expose to temperatures above the declared operating temperature range of the product, otherwise you risk fire or explosion. |

| | | |
|---|---|---|
|  CAUTION | Ingestion: | Swallowing a battery can be harmful. |
| | Inhalation: | Contents of an open battery can cause respiratory irritation. |
| | Skin contact: | Contents of an open battery can cause skin irritation. |
| | Eye contact: | Contents of an open battery can cause severe irritation. |

## 6.2 First aid measures

| | |
|---|---|
| Ingestion: | Do not induce vomiting or consume food or drink. Seek medical attention immediately. |
| Inhalation: | Provide fresh air and seek medical attention. |
| Skin contact: | Remove contaminated clothing and shoes and wash skin with soap and water. Wash clothing and shoes prior to reuse. If irritation occurs, seek medical attention. |
| Eye contact: | Immediately flush eyes thoroughly with water for at least 15 minutes, lifting upper and lower lids, until no evidence of the chemical remains. Seek medical attention. |

## 6.3 Fire fighting measures

In case of fire where lithium batteries are present, flood area with water or smother with a Class D fire extinguisher appropriate for lithium metal, such as Lith-X. Water may not extinguish burning

batteries but will cool the adjacent batteries and control spreading fire. Burning batteries will burn themselves out.

Virtually all fires involving lithium batteries can be controlled by flooding with water, however, the contents of the battery will react with water and form hydrogen gas. In a confined space, hydrogen gas can form an explosive mixture. In this situation, a smothering agent is recommended. A smothering agent will extinguish burning lithium batteries.

| | |
|---|---|
|  **CAUTION** | Any person responding to such an emergency should wear a self-contained breathing apparatus.<br><br>Burning lithium iron disulphide batteries produces toxic and corrosive lithium hydroxide fumes and sulfur dioxide gas. |

## 6.4 Accidental release measures

To clean up a leaking battery:

| | |
|---|---|
| Ventilation requirements: | Room ventilation may be in areas where there are open or leaking batteries. |
| Respiratory protection: | Avoid exposure to electrolyte fumes from an open or leaking battery. |
| Eye protection: | Wear safety glasses with side shields if handling an open or leaking battery. |
| Gloves: | Use neoprene or natural rubber gloves when handling an open or leaking battery. Battery materials should be disposed of in a leak-proof container. |

## 6.5 Handling and storage

The Tron TR30 should be stored in a cool and well ventilated area. Elevated temperatures can result in a reduction of battery life. In locations that handle large quantities of lithium batteries, such as a warehouse, lithium batteries should be isolated from unnecessary combustibles.

| | |
|---|---|
|  WARNING | A battery that is disassembled or exposed to water, fire or high temperatures can explode or leak causing burns. |

### 6.5.1 Transportation

| | |
|---|---|
|  NOTE | Detailed support documentation regarding transportation regulations for batteries in accordance with ICAO/IATA, IMDG code and/or ADR/RID can be found at www.jotron.com, under Product Safety Information (PSI) and/or statement in accordance with UN test 38.3 |

# 7 Battery safety instructions (Maritime VHF radio)

Under EC, European Chemical Agency (ECHA) and US, Occupational Safety and Health Admin (OSHA) legislation this product is classified as a manufactured article, which does not release or otherwise result in exposure to a hazardous chemical under the normal conditions of use. Therefore, this product is exempt from the requirement of a dedicated Material Safety Data Sheet (MSDS) or Safety Data Sheet (SDS).

The following information is included in this manual as guided safety instructions.

| | |
|---|---|
| Product name: | Rechargeable battery (LiPo 1550 mAh) |
| Type no.: | GEP653759 |
| Lithium metal content: | 0.9 gram lithium pr battery and 11.5 watt-hour rating (Wh) |
| Approximate weight: | 100 grams |
| Chemical system: | Lithium Polymer |
| Designed for recharge: | Yes |

Below are instructions for keeping the radio log and the radio operator's obligation according to national and international regulation:

1. The radio log shall be kept in accordance with requirements in the Radio Regulation, SOLAS Convention, national regulations regarding radio installations and the STCW Convention (STCW 95 including the STCW Code) including relevant regulation regarding watch keeping on board passenger and cargo ships.

2. Unauthorized transmissions and incidents harmful interference should, if possible, be identified, recorded in the radio log and brought to the attention of the Administration in compliance with the Radio Regulations, together with an appropriate extract from the radio log (STCW Code BVIII/2 No. 32).

Testing of radio equipment and reserve source of energy should occur:

Monthly: Handheld VHF transceivers are to be tested using a test or rechargeable battery.

| | |
|---|---|
|  NOTE | The below safety information is extracted from Green Energy Battery and MSDS info from Pony Test Lab's report (sections 4, 5 ξ 6). |

# 7.1 Hazards identification

The lithium polymer batteries used in the Tron TR30 and described herein are sealed units.

Under normal conditions, the battery is hermetically sealed. These batteries are not hazardous when used as intended and recommended.

| | |
|---|---|
|  WARNING | Do not short circuit, puncture, incinerate, crush, immerse, force discharge or expose to temperatures above the declared operating temperature range of the product, otherwise you risk fire or explosion. |

| | | |
|---|---|---|
|  CAUTION | Ingestion: | Swallowing a battery can be harmful. |
| | Inhalation: | Contents of an open battery can cause respiratory irritation. |
| | Skin contact: | Contents of an open battery can cause skin irritation. |
| | Eye contact: | Contents of an open battery can cause severe irritation. |

## 7.2 First aid measures

| | |
|---|---|
| Ingestion: | Do not induce vomiting or consume food or drink. Seek medical attention immediately. |
| Inhalation: | Provide fresh air and seek medical attention. |
| Skin contact: | Remove contaminated clothing and shoes and wash skin with soap and water. Wash clothing and shoes prior to reuse. If irritation occurs, seek medical attention. |
| Eye contact: | Immediately flush eyes thoroughly with water for at least 15 minutes, lifting upper and lower lids, until no evidence of the chemical remains. Seek medical attention. |

## 7.3 Fire fighting measures

In case of fire where lithium batteries are present, use an extinguishing agent suitable for the location and surrounding environment, such as $CO_2$.

A battery may burst and release hazardous decomposition products when exposed to fire. Lithium polymer batteries contain flammable electrolyte that may vent, ignite and produce sparks when subjected to high temperatures (>150°C/302°F), when damaged or abused (e.g. mechanical damage or electrical overcharging), may burn rapidly with flare-burning effect; may ignite other batteries in close proximity.

| | |
|---|---|
|  **CAUTION** | Any person responding to such an emergency should wear a self-contained breathing apparatus.<br><br>Burning lithium polymer batteries produces toxic and corrosive lithium hydroxide fumes and sulfur dioxide gas. |

## 7.4 Accidental release measures

| | |
|---|---|
| Personal precautions: | Wear the proper personal protective equipment. Keep unprotected individuals away. Ensure adequate ventilation. |
| Emergency procedures: | Remove ignition sources, evacuate the area. Sweep up using a method that does not generate dust. Collect as much of the spilled material as possible, place the spilled material into an appropriate disposal container. Keep spilled material out of sewers, ditches and bodies of water. |
| Environmental precautions: | Do not allow material to be released into the environment without proper governmental permits. |
| Methods and materials for containment and cleaning up: | All waste must refer to the United Nations, the national and local regulations for disposal. |

## 7.5 Handling and storage

The Tron TR30 should be stored in a cool and well ventilated area. Elevated temperatures can result in a reduction of battery life. In locations that handle large quantities of lithium batteries, such as a warehouse, lithium batteries should be isolated from unnecessary combustibles.

| | |
|---|---|
|  WARNING | A battery that is disassembled or is exposed to water, fire or high temperatures can explode or leak causing burns. |

### 7.5.1 Transportation

| | |
|---|---|
|  NOTE | Detailed support documentation regarding transportation regulations for batteries in accordance with ICAO/IATA, IMDG code and/or ADR/RID can be found at www.jotron.com, under Product Safety Information (PSI) and/or statement in accordance with UN test 38.3 |

# 8 Functional description

## 8.1 Tron TR30 components

An overview of the radio components.

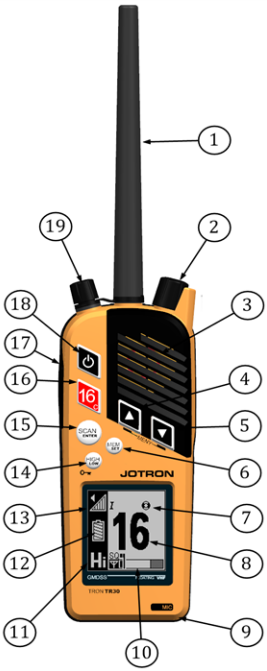



**Figure 3** Tron TR30 components

| | |
|---|---|
| 1 | Antenna |
| 2 | Volume, squelch and monitor control |
| 3 | Loudspeaker |
| 4 | Up arrow button |
| 5 | Down arrow button |
| 6 | Mem set (memory button) |
| 7 | Emergency mode indicator |
| 8 | Channel designator |
| 9 | Microphone |
| 10 | Squelch and signal strength indicator |
| 11 | Hi/medium/low (transmitter power indicator) |
| 12 | Battery charge indicator |
| 13 | Volume control indicator |
| 14 | Transmitter power adjustment |
| 15 | Scan/Enter button |
| 16 | Channel 16 / Call channel button (instant access) |
| 17 | PTT Transmit button |
| 18 | On/off button |
| 19 | Jack cover (external accessories connector) |

## 8.2 Antenna

The antenna for the Tron TR30 is fitted with a standard SMA connector. You can also connect a remote antenna for a fixed application.

| | |
|---|---|
|  CAUTION | The Tron TR30 unit is not waterproof when the standard antenna is not attached or if the antenna is not assembled correctly. |

## 8.3 Battery endurance

Below is a list of the operation times of the battery and usage.

| | |
|---|---|
|  NOTE | Use medium or low power when possible in order to maximize the operational time of the battery. |

| Battery type | Hours of usage* | |
|---|---|---|
| | Standby time | Multi-usage ** |
| Emergency battery | 70 | 12 |
| Rechargeable battery | 50 | 12 |

| | |
|---|---|
|  NOTE | * The hours indicated are based on 2W (tested at -20 degrees celsius).<br><br>** Emergency battery multi-usage hours have been tested in accordance with 10:10:80 ratio (Send:Listen: Standby).<br><br>** Rechargeable battery multi-usage hours have been tested in accordance with 5:5:90 ratio (Send:Listen: Standby).<br><br>For more information refer to the ETS 300 225 standard. |

## 8.4 Emergency battery

The emergency battery (orange) is a lithium battery. This battery is specially designed for GMDSS emergency use and cannot be recharged. Keep the emergency battery in the battery storage bay, then it is easily accessible in a distress situation,

| | |
|---|---|
|  IMPORTANT | The emergency battery is a single use item. You must replace the battery before the battery expiry date and/or if the protective seal on the battery is broken. |

| | |
|---|---|
|  NOTE | Always bring a sealed emergency battery with the radio when boarding a lifeboat or raft. |

| | |
|---|---|
|  WARNING | Doing any of the following could result in sever burn hazard or fire explosion:<br>• Heating a lithium battery over 70 degrees celsius<br>• Attempting to recharge the battery.<br>• Crushing, disassembling or attempting to ignite or set flame to the battery. |

## 8.5 Rechargeable battery

The Tron TR30 can also be delivered with a rechargeable lithium polymer battery (black). When using the rechargeable battery, additional functionality intended for regular radio usage is enabled. This battery can be recharged either while mounted to the radio or while standing alone in the RCH-30 Battery charger. The battery capacity is 7.4V/1550mAh.

| | |
|---|---|
|  NOTE | Ensure you check the battery for damage prior to use. |

| | |
|---|---|
|  IMPORTANT | Always use the Jotron RCH-30 Battery charger to recharge this battery. |

| | |
|---|---|
|  CAUTION | This battery must be charged prior to use.<br><br>Charge a discharged battery within 1 week as the life of a battery diminishes greatly when stored in a discharged state. |

## 8.6 RCH-30 Battery charger

The RCH-30 Battery charger can charge either a single rechargeable battery or a Tron TR30 with a rechargeable battery. In addition, this charger also has one extra battery storage bay for storing an emergency battery.

The charger will not charge a battery if the battery temperature is below 0 degrees celsius or above 40 degrees celisus, however, charging will automatically occur when the temperature is within the correct range.

| | |
|---|---|
|  CAUTION | The recommended charging temperature range is between 15-25 degrees celsius. |

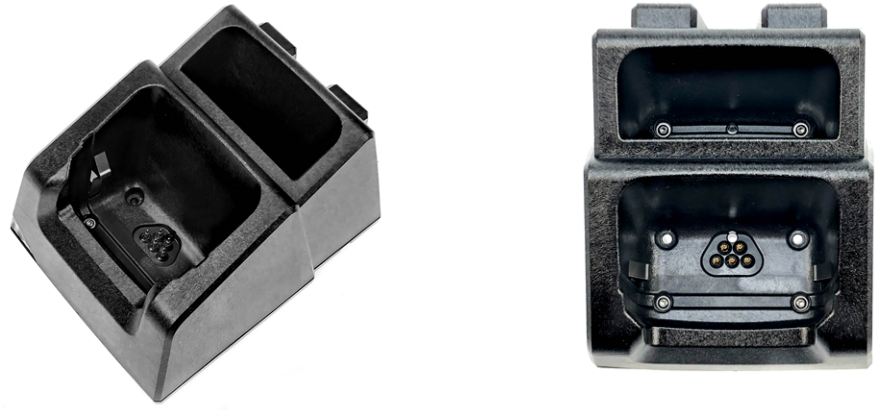


**Figure 4** RCH-30 Battery charger - charging and storage bays

**Figure 5** Radio in the charging bay and GMDSS battery in the storage bay

| | |
|---|---|
|  IMPORTANT | The battery charger is not waterproof and must therefore be protected from elements. |

| | |
|---|---|
|  NOTE | Leaving the radio switched on during charging will increase the charging time. |

### 8.6.1 RCH-30 Battery charger components

An overview of the RCH-30 Battery charger components.

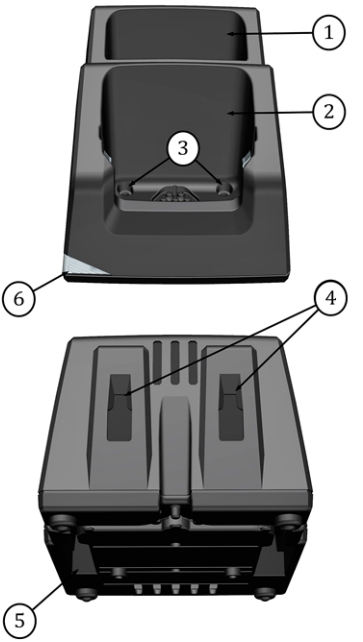



**Figure 6** RCH-30 Battery charger components

| | |
|---|---|
| 1 | Battery storage bay |
| 2 | Battery charger bay |
| 3 | Table mounting holes (42.7mm spacing) |
| 4 | Wall mounting holes (36.0mm spacing) |
| 5 | Power input |
| 6 | LED indicator |

## 8.6.2 Mounting the RCH-30 Battery charger

The RCH-30 Battery charger can be securely mounted on a flat surface in one of two ways:

- Table mounting
- Wall mounting

To mount the Tron TR30 (GMDSS radio), do the following:

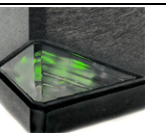
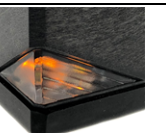
1. Using either the two table mounting holes or the wall mounting holes, screw the RCH-30 Battery charger to the desired surface.

| | |
|---|---|
|  CAUTION | Place the radio in a location away from direct sea spray, chemicals, oil and vibration. |

| | |
|---|---|
|  NOTE | The Tron TR30 must be easily accessible at all times for testing and maintenance. |

### 8.6.3 LED indicator

The LED indicator on the RCH-30 Battery charger displays the current battery status.

| Indicator colour: | Status: | Colour: |
|---|---|---|
| Green* | The battery is fully charged |  |
| Yellow | The battery is charging |  |
| Red | There is a fault with charging |  |

*A green light combined with a yellow blinking light also indicates the battery is fully charged.

# 9 Technical specifications

## 9.1 Product specification

| Overall: | Emergency mode (emergency battery) | Regular mode (rechargeable battery) |
|---|---|---|
| Operating temperature range | -20 to +55 | -20 to +55 |
| Size (W/H/D) | 61mm x 157mm x 40mm (Dept with belt clip 47mm) | 61mm x 157mm x 40mm (Dept with belt clip 47mm) |
| Full buoyancy | Yes | Yes |
| Weight | Approximately 300 g | Approximately 295 g |

| Receiver: | Emergency mode (emergency battery) | Regular mode (rechargeable battery) |
|---|---|---|
| Frequency range | 154-157.425 MHz | 154-162 MHz |
| Channel spacing | 25 kHz | 25 kHz |
| Maximum usable sensitivity | < 1 µ V for 20dB SINAD | < 1 µ V for 20dB SINAD |
| Adjacent channel rejection | > 70dB | > 70dB |
| Blocking | > 90dB | > 90dB |
| Spurious response | > 70dB | > 70dB |
| Harmonic distortion* | < 5% | < 5% |
| Inter-modulation rejection | > 68dB | > 68dB |
| Channel monitoring | DW | DW/TW/Scan |

| Transmitter: | Emergency mode (emergency battery) | Regular mode (rechargeable battery) |
|---|---|---|
| Frequency range | 154-157.425MHz | 154-161.875MHz |
| Channel spacing | 25 kHz | 25 kHz |
| Transmitter output power (fully charged battery) | Low: 1W, High: 2W | Low: 1W, Medium: 2W (default), High: 4W |
| Harmonics and spurious | < 0.25 µW | < 0.25 µW |
| Frequency error | < +1.5 kHz | < +1.5 kHz |
| Adjacent channel power | < -70dB | < -70dBc |

| Charger: | Emergency mode (emergency battery) | Regular mode (rechargeable battery) |
|---|---|---|
| Power source | Not applicable | 12-24 VDC |
| Wall adapter | Not applicable | 115-240 VAC |
| Mounting option | Not applicable | Table or wall mount |

| | |
|---|---|
| NOTE | The nominal viewing distance is 0.8m. |

# 10 Installation

Since the Tron TR30 can be supplied as a GMDSS or a Maritime VHF radio and each radio uses a different battery, ensure you install the batteries appropriately.

Following the applicable installation process according to the battery you will use; either the emergency battery or the rechargeable battery.

| | |
|---|---|
|  **IMPORTANT** | The Emergency battery should only be installed on the GMDSS radio in the event of an emergency. |

## 10.1 Upon receipt of the radio

Upon receipt of the radio, do the following:

1. Connect the antenna.

| | |
|---|---|
|  **CAUTION** | When assembling the antenna to the radio, ensure you hold it at the base while turning it clockwise. When the antenna starts to resist turning, turn it another 90 degrees.<br><br>Holding the antenna anywhere but at the base during assembly will damage it. |

# 10.2 In an emergency situation

| | |
|---|---|
| **IMPORTANT** | The emergency seal sticker must not be removed from the battery unless an emergency situation occurs. |

To install the emergency battery on the Tron TR30 , do the following:

2. Pull back and remove the emergency seal sticker on the battery.


| | |
|---|---|
| **NOTE** | Rip the sticker off at the perforated edge.<br>  |

3. Using the fixing track, mount the GMDSS battery onto the back of the radio.

| | |
|---|---|
| NOTE | Do not force the battery.<br><br>Ensure you enter the bottom edge of the battery into the bottom edge of the radio. |

4. Squeeze in the black finger grips on either side of the battery to lock the battery into place.

## 10.3 Replacing the emergency battery

If the emergency battery has expired or the battery has been used, it must be replaced with a new one. The emergency seal sticker must not be removed as only a sealed battery can be used in the case of an emergency. The battery and radio should always be stored together.

## 10.4 Installing the rechargeable battery

To install the rechargeable battery on the Tron TR30 (Maritime VHF radio), do the following:

1. Using the fixing track, mount the rechargeable battery onto the back of the radio.

2. Squeeze in the black finger grips on either side of the battery to lock the battery into place.
3. Insert the wall adapter into the power input located on the under side of the charger.
4. Plug in the wall adapter.
5. Insert the radio into the RCH-30 Battery charger.

| | |
|---|---|
| NOTE | Do not force the radio into position in the charging bay. |

6. Ensure that the radio is sitting properly in the RCH-30 Battery charger.

## 10.5 Changing the rechargeable battery

To change the rechargeable battery, do the following:

1. Press the ON/OFF button to turn off the radio.
2. Press both battery release clips at the same time, to release the battery.
3. Gently pull the top of the battery backwards and away from the radio.

4. Put the lower end of the new battery into the fixing track at the bottom of the radio.
5. Make sure both battery clips are fully engaged.

| | |
|---|---|
|  **CAUTION** | Changing the battery must be done in a dry environment or under shelter as the radio is only waterproof when the battery, antenna and jack cover are correctly assembled. |

# 11 Operation instructions (GMDSS radio)

## 11.1 Emergency mode

When the emergency battery is connected, the radio starts in the emergency mode. Only basic functionality is available to the user in this mode. This battery is for use in a distress situation.

| | |
|---|---|
| CAUTION | If the jack cover is removed, for example when using an accessory, the radio is no longer waterproof.<br><br>The antenna and jack cover must be correctly assembled on the radio in order for it to be completely waterproof. |

Function:
Turning on a radio using an emergency battery. The circle in the top right corner appears when the radio is in the emergency mode.

Display screen:


1. Press and hold the power button for approximately 3 seconds to turn the radio on.

| | |
|---|---|
|  NOTE | The radio loads the following settings:<br>• Channel 16<br>• Max power level (2W)<br>• High volume<br>• Low squelch |

## 11.2 Channel selection

Function:
Channel selection

1. Press or press and hold the up/down arrow buttons to change the channel.

| | |
|---|---|
|  NOTE | When an emergency battery is connected, only GMDSS channels are available. |

| | |
|---|---|
|  IMPORTANT | For information regarding available and active VHF marine radio channels and frequencies, please refer to ITU standards, with reference to the current World Radio Conference (WRC) agreement.<br><br>For an overview, refer to the Navigation Center website (www.navcen.uscg.gov, under Maritime Information, Maritime Telecommunications) |

## 11.3 Channel 16 button

Function:
Channel 16

Display screen:


1. Press the 16 button to jump directly to channel 16.

| | |
|---|---|
| NOTE | The transmit power will always be set to Hi power when using the channel 16 button. |

## 11.4 Volume adjustment

Function:
Volume adjustment

Display screen:

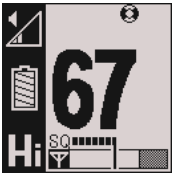
1. Turn the volume control to adjust the volume.

| | |
|---|---|
| NOTE | The volume symbol in the display indicates the volume level.<br><br>Ensure that you do not press down the volume control while adjusting the volume. |

# 11.5 Squelch adjustment

Function:
Squelch adjustment

Display screen:




The squelch bar appears on the screen display indicating the current active sensitivity level. When adjusted fully to the left, the squelch is completely open. Adjusting to the right lowers the receiver sensitivity.

The signal strength of the current channel appears on the bar below the squelch bar. If the received signal is strong enough, the squelch opens and voice is received. This is indicated by the Rx symbol.

When the squelch control is pressed twice, it opens the squelch immediately. Press twice again to recall the previous squelch setting.

1. Press and turn the squelch control anti-clockwise to increase receiver sensitivity.

| | |
|---|---|
| NOTE | When the receiver signal is too distorted (by radio noise) to be readable, the loudspeaker or speaker mic is automatically muted. This is indicated by the Noise Cancel (NC) symbol that appears in the display.<br>  |

# 11.6 Key lock and unlock

Function:
Key lock/unlock

Display screen:


1. Press and hold the HI/LO button for 2 seconds to lock or unlock the buttons on the front.

| | |
|---|---|
| NOTE | A key symbol appears when the radio is locked.<br><br>PTT, Channel 16, volume and squelch are still available when the radio is locked. |

# 11.7 Watch

When the radio is in the emergency mode, it can only check for signals or watch in one way:

1. Dual watch

DW listens to the active channel and channel 16.

| | |
|---|---|
| IMPORTANT | The radio will continue to watch channel 16 while receiving on other channels. |

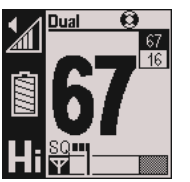
| | |
|---|---|
| NOTE | When you press PTT the radio will transmit on the active channel.<br><br>In addition, the watch function will be deactivated. |

## 11.7.1 Dual watch

Function:
Dual watch (DW)

The DW function allows the user to monitor channel 16 and the active channel alternately.

Display screen:




To activate or deactivate DW, do the following:

1. Press Scan to activate dual watch.
2. Press the up/down buttons to watch a second channel.
3. Press Scan a second time to deactivate dual watch.

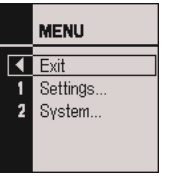
# 11.8 Menus

Press the up/down arrow buttons at the same time to enter or exit the menu system. Use the up/down arrow buttons to navigate and select using Scan/Enter.

Menus:

Exit:
Use this menu option to exit the menu system.

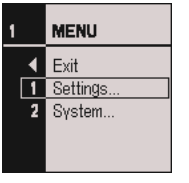
Display screen:




Settings:
Use this menu option to adjust the following settings:

- Key sound
- Key volume
- Backlight time
- Backlight level
- Contrast
- Key lock time

Display screen:



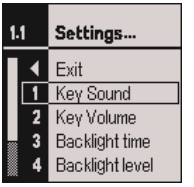

Menu number:
1

Key sound:

Use this menu option to choose an audio tone. You can choose between four different tones.

Using the up/down arrow keys, select from 1-4.

Display screen:




Menu number:

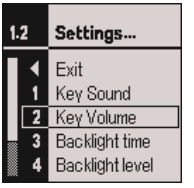
1.1

Key volume:

Use this menu option to set the volume of the key sound.

(Off=0, low to high=1-6)

Display screen:



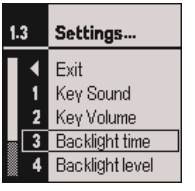

Menu number:

1.2

Backlight time:

Use this menu option to set the time while the backlight is on (1-10 seconds). The backlight will go off automatically.

Display screen:




Menu number:

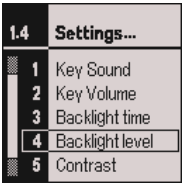
1.3

Backlight level:

Use this menu option to set the display backlight level.

(Off=0, low=1 or high=2)

Display screen:




Menu number:

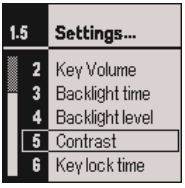
1.4

Contrast:

Use this menu option to set the display contrast level

(Low=1, medium= 2 or high=3)

Display screen:




Menu number:

1.5

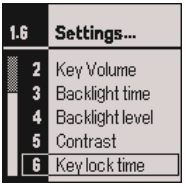
Key lock time:

Use this menu option to set the time before the key lock automatically turns on.

This can be adjusted from 5-60 (in increments of five seconds).

(0=keylock time turned off)

Display screen:




Menu number:

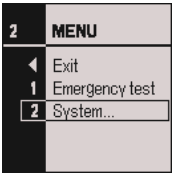
1.6

System:

Use this menu option to access the following information:

- Serial Number
- SW version
- HW version

Display screen:



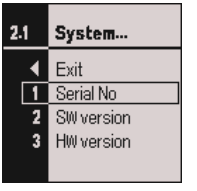

Menu number:

2

Serial Number:

Use this menu option to find the serial number of the radio.

Display screen:



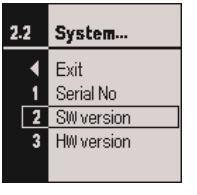

Menu number:

2.1

SW Version:

Use this menu option to find the software version of this radio.

Display screen:




Menu number:

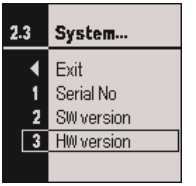
2.2

HW Version:

Display screen:

Menu number:

Use this menu option to find the hardware version of this radio.




2.3

# 12 Operation instructions (Maritime VHF radio)

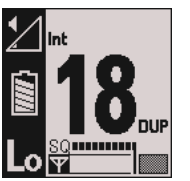
## 12.1 Regular radio mode

When the rechargeable battery is connected additional functionality is available. All VHF channels are available with triple watch and custom channel scan. In addition, three transmit power levels are also available.

Function

Turning on a radio using a rechargeable battery.

Display screen:




1. Press and hold the power button for approximately 3 seconds to turn the radio on.

| | |
|---|---|
| NOTE | The radio loads settings based on previous usage. |

## 12.2 Channel selection

Function:
Channel selection

1. Press or press and hold the up/down arrow buttons to change the channel.

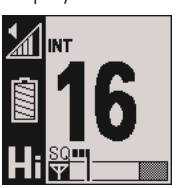
| | |
|---|---|
| NOTE | When a rechargeable battery is connected, all VHF maritime channels are available. |

| | |
|---|---|
| IMPORTANT | For information regarding available and active VHF marine radio channels and frequencies, please refer to ITU standards, with reference to the current World Radio Conference (WRC) agreement.<br><br>For an overview, refer to the Navigation Center website (www.navcen.uscg.gov, under Maritime Information, Maritime Telecommunications) |

## 12.3 Channel 16 button

Function:
Channel 16

Display screen:



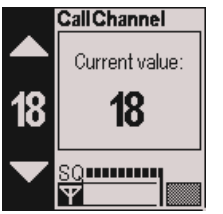
1. Press the 16 button to jump directly to channel 16.

| | |
|---|---|
| NOTE | The transmit power will always be set to Hi power when using the channel 16 button, even if you switch from another channel. |

## 12.4 Call channel

Function:
Call channel

Display screen:




To program a call channel, do the following:

1. Press and hold the channel 16 button for 2 seconds to enter the call channel.

| | |
|---|---|
| NOTE | The radio will go to the programmed call channel. The default call channel is Channel 9. |

2. Press and hold the channel 16 button again to change the call channel.

3. Press up/down arrow buttons to select the desired channel.
4. Press and hold Mem in for 2 seconds to save the channel.

| | |
|---|---|
|  NOTE | The current value updates within approximately 2 seconds.<br><br>The desired call channel is marked with a C that appears on the radio display. |

5. Press the channel 16 button to close the menu.

| | |
|---|---|
|  NOTE | To recall the desired channel, press the channel 16 button for 2 seconds.<br><br>You can also press Scan to exit the programming mode. |

# 12.5 Custom channels

In the regular radio mode the Tron TR30 is capable of storing up to 20 custom channels, which must be programmed by a radio supplier.

To view the pre-programmed custom channels, select the Custom channel menu (Refer to the Menus section under the operation instructions for the maritime VHF radio).

All custom channels are identified by a letter followed by a number. The letters can be any of the following:

| Channel letter: | Channel ID: | Channel type: |
|---|---|---|
| F | "F" | Fishing channel |
| L | "L" | Leisure channel |
| M | "M" | Yacht and leisure channels (UK only) |
| P | "P" | Private channel |
| W | "W" | Weather channel |

## 12.6 Volume adjustment

Function:
Volume adjustment

Display screen:

1. Turn the volume control to adjust the volume.

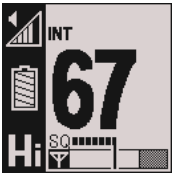
| | |
|---|---|
|  NOTE | The volume symbol in the display indicates the volume level.<br><br>Ensure that you do not press down the volume control while adjusting the volume. |

## 12.7 Squelch adjustment

Function:

Display screen:

Squelch adjustment




The squelch bar appears on the screen display indicating the current active sensitivity level. When adjusted fully to the left, the squelch is completely open. Adjusting to the right lowers the receiver sensitivity.

The signal strength of the current channel appears on the bar below the squelch bar. If the received signal is strong enough, the squelch opens and voice is received. This is indicated by the Rx symbol.

When the squelch control is pressed twice, it opens the squelch immediately. Press twice again to recall the previous squelch setting.

1. Press and turn the squelch control anti-clockwise to increase receiver sensitivity.

| | |
|---|---|
| NOTE | When the receiver signal is too distorted (by radio noise) to be readable, the loudspeaker or speaker mic is automatically muted. This is indicated by the Noise Cancel (NC) symbol that appears in the display.<br>  |

## 12.8 Key lock and unlock

Function:
Key lock/unlock

Display screen:


1. Press and hold the HI/LO button for 2 seconds to lock or unlock buttons on the front.

| | |
|---|---|
| NOTE | A key symbol appears when the radio is locked.<br><br>PTT, volume and squelch are still available when the radio is locked. |

## 12.9 Watch

When the radio is in the regular VHF mode, it can check for signals or watch in three ways:

1. Dual watch
2. Triple watch
3. Scan

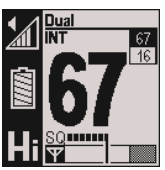
| | |
|---|---|
| IMPORTANT | The radio will continue to watch channel 16 while receiving on other channels. |

| | |
|---|---|
| NOTE | When you press PTT the radio will transmit on the active channel.<br><br>In addition, the watch function you are currently in (DW, TW or Scan) will be deactivated. |

## 12.9.1 Dual watch

Function:
Dual watch (DW)

Display screen:




The DW function allows the user to monitor channel 16 and the active channel alternately.

The channel search indicator is visible on the display, however, the channels do not appear in real time.

To select DW setup, do the following:

1. Press the up/down arrow buttons at the same time to enter the menu.
2. Using the arrow buttons, select Settings.
3. Using the arrow buttons, select DW/TW.

4. Using the arrow buttons, select DW.
5. If the radio is not already set to DW, then select SAVE.

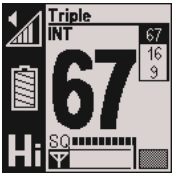
To activate or deactivate DW, do the following:

1. Press Scan to activate dual watch.
2. Press the up/down buttons to watch a second channel.
3. Press Scan a second time to deactivate dual watch.

## 12.9.2 Triple watch

Function:
Triple watch

Display:




The TW function allows the user to monitor channel 16, the chosen call channel and the active channel alternately.

The channel search indicator is visible on the display, however, the channels do not appear in real time.

To select TW setup, do the following:

1. Press the up/down arrow buttons at the same time to enter the menu.
2. Using the arrow buttons, select Settings.
3. Using the arrow buttons, select DW/TW.
4. Using the arrow buttons, select TW.

5. If the radio is not already set to TW, then select SAVE.

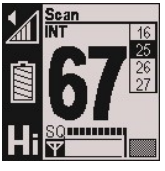
To activate or deactivate TW, do the following:

1. Press Scan to activate triple watch.
2. Press the up/down buttons to watch a third channel.
3. Press Scan a second time to deactivated triple watch.

## 12.9.3 Scan

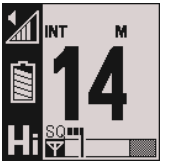
Function:
Scan

Display screen:




The scan function allows the radio can scan up to 12 memory channels (Channel 16 and the active channel are automatically included).

| | |
|---|---|
| IMPORTANT | The radio is supplied without any pre-programmed channels, therefore, until a channel is added into the memory you will not have a channel available to scan.<br><br>In this case, when you press Scan you will automatically go directly to the Scan Prog screen.<br><br>All stored channels can be browsed by pressing the Mem button. Stored channels are displayed with an M. |

| | |
|---|---|
| |  |

To activate or deactivate Scan, do the following:

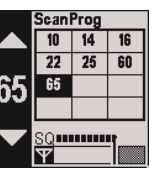
1. Press and hold Scan for 2 seconds to activate and short click to deactivate.

| | |
|---|---|
|  | The scan indicator is visible on the display, however, the channels do not appear in real time. |

### 12.9.3.1 Scan Prog

Function:
Scan Prog

Display screen:




You can store and delete memory channels for scanning in two ways, do one of the following:

- Quick method, to be done when scan is not active.
- Visual method, to be done when scan is active.

Quick method:

1. Navigate to the channel you want to store or delete from the memory.
2. Press and hold Mem for 2 seconds to store or delete the selected channel from memory.

Visual method:

1. Press and hold the Scan button for 2 seconds to activate Scan.
2. Press and hold the Scan button for 2 seconds again to enter the scan program screen.
3. Use the up/down arrow buttons to select the desired channel.
4. Press and hold the Mem button in for 2 seconds to add or remove the current channel.
5. Press Scan to exit Scan Prog.

| | |
|---|---|
|  NOTE | The signal strength of the selected channel appears on the signal strength bar. |

## 12.10 Menus

Press the up/down arrow buttons at the same time to enter or exit the menu system. Use the up/down arrow buttons to navigate and select using Scan/Enter.

Menus:

Exit:

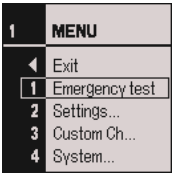
Use this menu option to exit the menu system.

Display screen:


Emergency test:

Use this menu option for drills/testing or when you want the radio to behave like a GMDSS radio

Display screen:




Menu number:

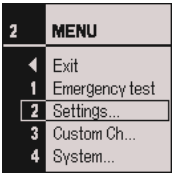
1

Settings:

Use this menu option to adjust the following settings:

- Key sound
- Key volume
- DW/TW
- Backlight time
- Backlight level

Display screen:




Menu number:

2

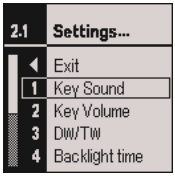
- Contrast
- Key lock time
- Channel set
- Speaker/Mic

Key sound:

Use this menu option to choose an audio tone. You can choose between four different tones.

Using the up/down arrow keys, select from 1-4.

Display screen:




Menu number:

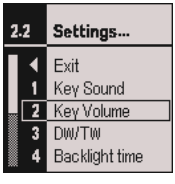
2.1

Key volume:

Use this menu option to set the volume of the key sound.

(Off=0, low to high= 1-6)

Display screen:




Menu number:

2.2

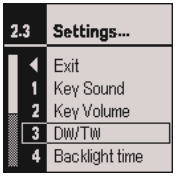
DW/TW:

Display screen:

Menu number:

Use this menu option to choose if you want to use dual watch or triple watch.

Use the up/down arrow keys, select either DW or TW.




2.3

Backlight time:

Display screen:

Menu number:

Use this menu option to set the time while the backlight is on (1-10 seconds). The backlight will go off automatically.


2.4

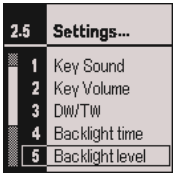
Backlight level:

Display screen:

Menu number:

Use this menu option to set the display backlight level.

(Off=0, low=1 or high=2)




2.5

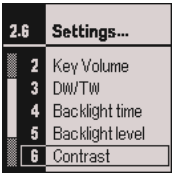
Contrast:

Display screen:

Menu number:

Use this menu option to set the display contrast level

(Low=1, medium= 2 or high=3)




2.6

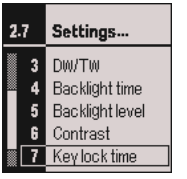
Key lock time:

Use this menu option to set the time before the key lock automatically turns on.

This can be adjusted from 5-60 (in increments of five seconds).

(0=keylock time turned off)

Display screen:



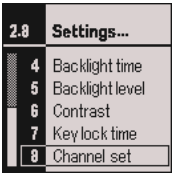

Menu number:

2.7

Channel set:

Use this menu option to change the channel set according to the region where the radio will be in use.

Display screen:




Menu number:

2.8

Speaker/Mic:

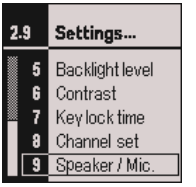
Use this menu option when connecting an external speaker/mic. This option allows you to select where the sound comes from, either the internal loudspeaker or the external speaker mic.

You need to restart the radio after you configure it in order for the changes to take effect.

Mic. Only: The sound comes from the internal loudspeaker of the radio when the microphone in the speaker/mic is in use.

Loudsp. +mic: The sound comes from the external speaker mic.

Display screen:




Menu number:

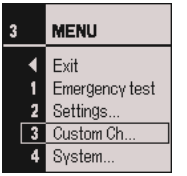
2.9

Custom channel:

Use this menu option to view the pre-programmed custom channel.

To view transmitting and receiving frequencies press enter on the selected custom channel.

Display screen:




Menu number:

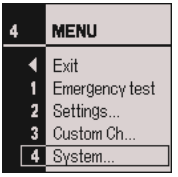
3

System:

Use this menu to access the following additional menu options:

- Serial Number
- SW version
- HW version
- Factory reset

Display screen:



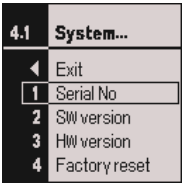

Menu number:

4

Serial Number:

Use this menu option to find the serial number of the radio.

Display screen:



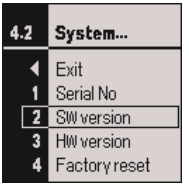

Menu number:

4.1

SW Version:

Use this menu option to find the software version of this radio.

Display screen:



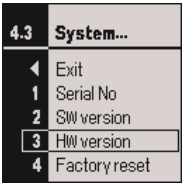

Menu number:

4.2

HW Version:

Use this menu option to find the hardware version of this radio.

Display screen:



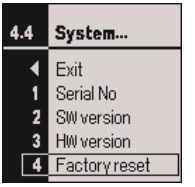

Menu number:

4.3

Factory reset:

Use this menu option to reset all user settings.

Display screen:




Menu number:

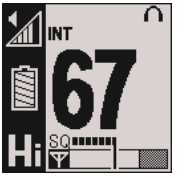
4.4

## 12.11 External accessories

Function:

External accessories

Display screen:



The headphone symbol appears in the display screen when you connect an external accessory, such as a headphone, microphone or external PTT. It is also possible to choose the internal loudspeaker when using an external speaker mic.

Connector type: 3,5mm 4 pole jack.

| | |
|---|---|
|  **CAUTION** | When using an accessory, the radio will no longer be waterproof.<br><br>The antenna and jack cover must be correctly assembled on the radio in order for it to be completely waterproof.<br><br>Accessories should not be used when using the Tron TR30 in the emergency mode. |

# 13 Maintenance

The following maintenance should be completed.

| | |
|---|---|
|  CAUTION | The Tron TR30 is a sealed waterproof radio, and does not contain any user serviceable parts inside.<br><br>This radio must never be opened by anyone other than an authorized Jotron agent. Unauthorized disassembly will void your warranty. |

If the radio is immersed in seawater, rinse it with fresh water immediately, otherwise, wash away dirt and oil from the radio with warm water (no higher than 45 degrees celsius) and mild dish soap. Finish by rinsing with fresh water and drying.

| | |
|---|---|
|  CAUTION | Only wash the exterior of the radio. |

## 13.1 Regular inspection

The lifetime of any equipment depends on how well you take care of it. The Tron TR30 is constructed to endure in a rough maritime environment. Regular inspection is important to detect error symptoms and prevent potentially serious problems.

To inspect, do the following:

1. Inspect the battery connection pins, the gasket and the lock/release device.
2. Inspect the housing for defects regularly. This is important as defects can affect water sealing.

| | |
|---|---|
|  **CAUTION** | Ensure that the antenna and jack cover are assembled correctly, if not the radio is not waterproof. |

## 13.2 Regular testing

It is important to perform regular testing of equipment to ensure proper operation. This also ensures the radio is in good working order and therefore ready for use in a potential emergency situation.

| | |
|---|---|
|  **IMPORTANT** | Ensure you have a test battery available for use during testing to avoid using a sealed lithium battery.<br><br>Testing should occur according to the requirements indicated in the on board radio log. |

To test, do the following:

1. Use the rechargeable battery or a lithium test battery.
2. Turn the radio on and choose an appropriate channel.

| | |
|---|---|
|  CAUTION | Do not use Channel 16 |

3. Verify sending a transmission to another radio.
4. Verify receiving a transmission from another radio.
5. Turn off the radio.
6. Verify that the emergency battery is still valid.

| | |
|---|---|
|  NOTE | The expiry date is located on the top of the battery. |

7. Verify that the emergency battery is still sealed.

| | |
|---|---|
|  NOTE | If the seal on the emergency battery is broken, replace the battery immediately. |

# 14 Test and maintenance records

Below is an overview of all test and control details.

| Date | B/N/T* | Signature | Insp |
|---|---|---|---|
| | | | |
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*B=New battery, N=New Tron TR30 , T=Test.

# 15 Channels and frequencies

| | |
|---|---|
|  IMPORTANT | Regulations for the use of VHF radios varies from country to country. Check the national radio requirements for VHF radio operators and ensure this radio conforms to all the local regulations, prior to use.<br><br>The channel frequencies listed in this manual reflect only as they are available and displayed on the radio. |

| | |
|---|---|
|  NOTE | Some previously available channels may not be available for use in your region.<br><br>For example, Channel 23, 84 and 86 are no longer used for either Maritime Safety Information (MSI) or Radio Medical Advice. |

| | |
|---|---|
|  IMPORTANT | Due to the introduction of new services on frequencies that were previously used by maritime voice communications, you must refer to your local regulations to find out which channels you can use.<br><br>These maritime frequency channel changes commenced 1 January 2017. This will be a gradual and ongoing process, with different regulations around the world.<br><br>The new four digit channel number format is not available on this radio.<br><br>Simplex use of the ship station (transmit side) of what was the international duplex channel is marked as "A" on the radio. The new channel format adds the number 10 in front of the channel (for example, channel 5A will be the |

| | |
|---|---|
| | same as channel 1005).<br><br>Simplex use of the coast station (transmit side) of what the international duplex channel is marked as "B" on the radio. The new channel format adds the number 20 in front of the channel (for example, channel 5B will be the same as 2005). |

# 15.1 GMDSS

| Channel Number | TX/RX (MHz) | Channel number | TX/RX (MHz) | Channel number | TX/RX (MHz) |
|---|---|---|---|---|---|
| 6 | 156.300 | 14 | 156.700 | 71 | 156.575 |
| 8 | 156.400 | 15 | 156.750* | 72 | 156.625 |
| 9 | 156.450 | 16 | 156.800 | 73 | 156.675 |
| 10 | 156.500* | 17 | 156.850* | 74 | 156.725 |
| 11 | 156.550* | 67 | 156.375 | 77 | 156.875 |
| 12 | 156.600 | 68 | 156.425 | 87 | 157.375 |
| 13 | 156.650 | 69 | 156.475 | 88 | 157.425 |

* Low power mode with TX transmit power limited to 1W

## 15.2 Canada

| Channel Number | TX (MHz) | RX (MHz) | Channel Number | TX (MHz) | RX (MHz) | Channel number | TX (MHz) | RX (MHz) |
|---|---|---|---|---|---|---|---|---|
| 1 | 156.050 | 160.650 | 20 | 157.000* | 161.600 | 67 | 156.375 | 156.375 |
| 2 | 156.100 | 160.700 | 21B | ** | 161.650 | 68 | 156.425 | 156.425 |
| 3 | 156.150 | 160.750 | 23 | 157.150 | 161.750 | 69 | 156.475 | 156.475 |
| 4A | 156.200 | 156.200 | 23B | ** | 161.750 | 71 | 156.575 | 156.575 |
| 5A | 156.250 | 156.250 | 24 | 157.200 | 161.800 | 72 | 156.625 | 156.625 |
| 6 | 156.300 | 156.300 | 25 | 157.250 | 161.850 | 73 | 156.675 | 156.675 |
| 7A | 156.350 | 156.350 | 25B | ** | 161.850 | 74 | 156.725 | 156.725 |
| 8 | 156.400 | 156.400 | 26 | 157.300 | 161.900 | 75 | 156.775* | 156.775 |
| 9 | 156.450 | 156.450 | 27 | 157.350 | 161.950 | 76 | 156.825* | 156.825 |
| 10 | 156.500* | 156.500 | 28 | 157.400 | 162.000 | 77 | 156.875 | 156.875 |
| 11 | 156.550* | 156.550 | 28B | ** | 162.000 | 78A | 156.925 | 156.925 |
| 12 | 156.600 | 156.600 | 60 | 156.025 | 160.625 | 79A | 156.975 | 156.975 |
| 13 | 156.650 | 156.650 | 61A | 156.075 | 156.075 | 80A | 157.025 | 157.025 |
| 14 | 156.700 | 156.700 | 62A | 156.125 | 156.125 | 83B | ** | 161.775 |
| 15 | 156.750* | 156.750 | 63A | 156.175 | 156.175 | 84 | 157.225 | 161.825 |
| 16 | 156.800 | 156.800 | 64 | 156.225 | 160.825 | 85 | 157.275 | 161.875 |
| 17 | 156.850* | 156.850 | 64A | 156.225 | 156.225 | 86 | 157.325 | 161.925 |
| 18A | 156.900 | 156.900 | 65A | 156.275 | 156.275 | 87 | 157.375 | 157.375 |
| 19A | 156.950 | 156.950 | 66A | 156.325 | 156.325 | 88 | 157.425 | 157.425 |

* Low power mode with TX transmit power limited to 1W

** RX only

# 15.3 International

| Channel Number | TX (MHz) | RX (MHz) | Channel Number | TX (MHz) | RX (MHz) | Channel number | TX (MHz) | RX (MHz) |
|---|---|---|---|---|---|---|---|---|
| 1 | 156.050 | 160.650 | 19 | 156.950 | 161.550 | 68 | 156.425 | 156.425 |
| 2 | 156.100 | 160.700 | 20 | 157.000 | 161.600 | 69 | 156.475 | 156.475 |
| 3 | 156.150 | 160.750 | 21 | 157.050 | 161.650 | 71 | 156.575 | 156.575 |
| 4 | 156.200 | 160.800 | 22 | 157.100 | 161.700 | 72 | 156.625 | 156.625 |
| 5 | 156.250 | 160.850 | 23 | 157.150 | 161.750 | 73 | 156.675 | 156.675 |
| 6 | 156.300 | 156.300 | 24 | 157.200 | 161.800 | 74 | 156.725 | 156.725 |
| 7 | 156.350 | 160.950 | 25 | 157.250 | 161.850 | 77 | 156.875 | 156.875 |
| 8 | 156.400 | 156.400 | 26 | 157.300 | 161.900 | 78 | 156.925 | 161.525 |
| 9 | 156.450 | 156.450 | 27 | 157.350 | 161.950 | 79 | 156.975 | 161.575 |
| 10 | 156.500* | 156.500 | 28 | 157.400 | 162.000 | 80 | 157.025 | 161.625 |
| 11 | 156.550* | 156.550 | 60 | 156.025 | 160.625 | 81 | 157.075 | 161.675 |
| 12 | 156.600 | 156.600 | 61 | 156.075 | 160.675 | 82 | 157.125 | 161.675 |
| 13 | 156.650 | 156.650 | 62 | 156.125 | 160.725 | 83 | 157.175 | 161.775 |
| 14 | 156.700 | 156.700 | 63 | 156.175 | 160.775 | 84 | 157.225 | 161.825 |
| 15 | 156.750* | 156.750 | 64 | 156.225 | 160.825 | 85 | 157.275 | 161.875 |
| 16 | 156.800 | 156.800 | 65 | 156.275 | 160.975 | 86 | 157.325 | 161.925 |
| 17 | 156.850* | 156.850 | 66 | 156.325 | 160.925 | 87 | 157.375 | 157.375 |
| 18 | 156.900 | 161.500 | 67 | 156.375 | 156.375 | 88 | 157.425 | 157.425 |

* Low power mode with TX transmit power limited to 1W

# 15.4 USA

| Channel Number | TX (MHz) | RX (MHz) | Channel Number | TX (MHz) | RX (MHz) | Channel number | TX (MHz) | RX (MHz) |
|---|---|---|---|---|---|---|---|---|
| 1A | 156.050 | 156.050 | 19A | 156.950 | 156.950 | 71 | 156.575 | 156.575 |
| 5A | 156.250 | 156.250 | 20 | 157.000 | 161.600 | 72 | 156.625 | 156.625 |
| 6 | 156.300 | 156.300 | 20A | 157.000 | 157.000 | 73 | 156.675 | 156.675 |
| 7A | 156.350 | 156.350 | 22A | ** | 157.100 | 74 | 156.725 | 156.725 |
| 8 | 156.400 | 156.400 | 24 | 157.200 | 161.800 | 75 | 156.775* | 156.775 |
| 9 | 156.450 | 156.450 | 25 | 157.250 | 161.850 | 76 | 156.825* | 156.825 |
| 10 | 156.500* | 156.500 | 26 | 157.300 | 161.900 | 77 | 156.875 | 156.875 |
| 11 | 156.550* | 156.550 | 27 | 157.350 | 161.950 | 78A | 156.925 | 156.925 |
| 12 | 156.600 | 156.600 | 28 | 157.400 | 162.000 | 79A | 156.975 | 156.975 |
| 13 | 156.650 | 156.650 | 63A | 156.175 | 156.175 | 80A | 157.025 | 157.025 |
| 14 | 156.700 | 156.700 | 65A | 156.275 | 156.275 | 84 | 157.225 | 161.825 |
| 15 | ** | 156.750 | 66A | 156.325 | 156.325 | 85 | 157.275 | 161.875 |
| 16 | 156.800 | 156.800 | 67 | 156.375 | 156.375 | 86 | 157.325 | 161.925 |
| 17 | 156.850* | 156.850 | 68 | 156.425 | 156.425 | 87 | 157.375 | 157.375 |
| 18A | 156.900 | 156.900 | 69 | 156.475 | 156.475 | 88 | 157.425 | 157.425 |

* Low power mode with TX transmit power limited to 1W

** RX only

# 16 Warranty

All Jotron products are warranted against factory defects in materials and/or workmanship.

The warranty period for the Tron TR30 radio is valid for 2 years from the date the product is shipped from Jotron.

During this warranty period Jotron will repair or when necessary replace a product at no cost, including the costs of labor, materials and return transportation from Jotron or a Jotron subsidiary (according to delivery terms: DAP Incoterms 2010 by regular freight to "place" (airport)).

Jotron reserves the right to decide whether a defective product falls within the terms and conditions of the warranty.

The warranty is only valid as long as service and battery replacement have been carried out by an authorized Jotron agent or distributor. In addition, the warranty will not apply in the instance that the product has been accidentally damaged, misused, tampered with and/or is dysfunctional as a result of services or modifications performed by and unauthorized person or in an unauthorized facility.

Jotron is not liable for consequential or special damages and cannot be held responsible for any damages caused due to incorrect usage of the equipment, breach of procedures, or the failure of any specific component or other part of the equipment.

For product support contact: support@jotron.com

For repair requirements contact: repair@jotron.com

## 16.1 Warranty claims

Warranty claims can be submitted during the warranty period, all claims will be appropriately handled according to the warranty agreement specified for this product.

Prior to returning your product for repair under a warranty claim, you must do the following:

- Submit a warranty claim in writing to Jotron. Send a claim to: repair@jotron.com.
- If you are required to return a defective product for repair, you must attain a return material authorization (RMA) number. Register to obtain a RMA number under Support/RMA request at: www.jotron.com.
- Return your defective product, your RMA number must be included as a reference within the shipping documentation.

Service agent obligations during a warranty claim:

- Supply a replacement product from own stock, if available.
- When agreed, will return the defective product to Jotron.
- Ensure that all electronic products are shipped individually in an antistatic bag or is covered with a Jotron plastic cover.

## 16.2 Service

All services such as testing, installation, programming, replacement, marking and battery exchange are provided by an authorized Jotron service agent.

| | |
|---|---|
|  **CAUTION** | Improper service or maintenance may destroy the functionality and/or performance of this product |

| | |
|---|---|
|  **NOTE** | Jotron does not accept any responsibility for the dismantling or reassembling of a Tron TR30 that occurs externally from a Jotron authorized facility and/or is handled by someone other than an authorized, trained and certified person. |

| | |
|---|---|
|  **IMPORTANT** | Any costs related to the above mentioned services, including transportation connection with returning and man hours for repairing a product will not be assumed by Jotron and must be covered by the customer. |

Jotron distributors and service agents stock the most commonly required spare parts.

## 16.3 Service agents

Jotron subsidiary companies:

Jotron Asia Pte. Ltd.
Changi Logistics Center
19 Loyang Way # 04-26
Singapore 508724
Tel: +65 65426350
Fax: +65 65429415
E-mail: sales@jotron.com

Jotron USA, Inc.
10645 Richmond Avenue, Suite 170
Houston, TX 77042
USA
Tel: +1 713 268 1061
Fax: +1 713 268 1062
E-mail: sales@jotron.com

Jotron UK Ltd.
Crosland Park
Cramlington
NE23 1LA
United Kingdom
Tel: +44 1670 712000
Fax: +44 1670 590265
E-mail: sales@jotron.com

# 17 Optional accessories

For an overview of the available optional accessories for theTron TR30 , both the GMDSS and Maritime VHF radios, please refer to our website.

# 18 Spare parts

For an overview of the available spare parts for the Tron TR30 , both the GMDSS and Maritime VHF radios, please refer to our website.

| | |
|---|---|
|  IMPORTANT | Ensure that all spare parts being fitted to the Tron TR30 are original spare parts manufactured or approved by Jotron.<br><br>Any use of counterfeit spare parts will deviate from the product type approval certificates and warranty. |

# 19 Recycling and disposal

The Tron TR30 is not to be disposed as normal waste and must be handled in accordance with the applicable federal, state and local waste disposal regulations in the country where the equipment is used.

# 20 Emergency instructions

This is an overview of how to operate a Tron TR30 during an emergency.

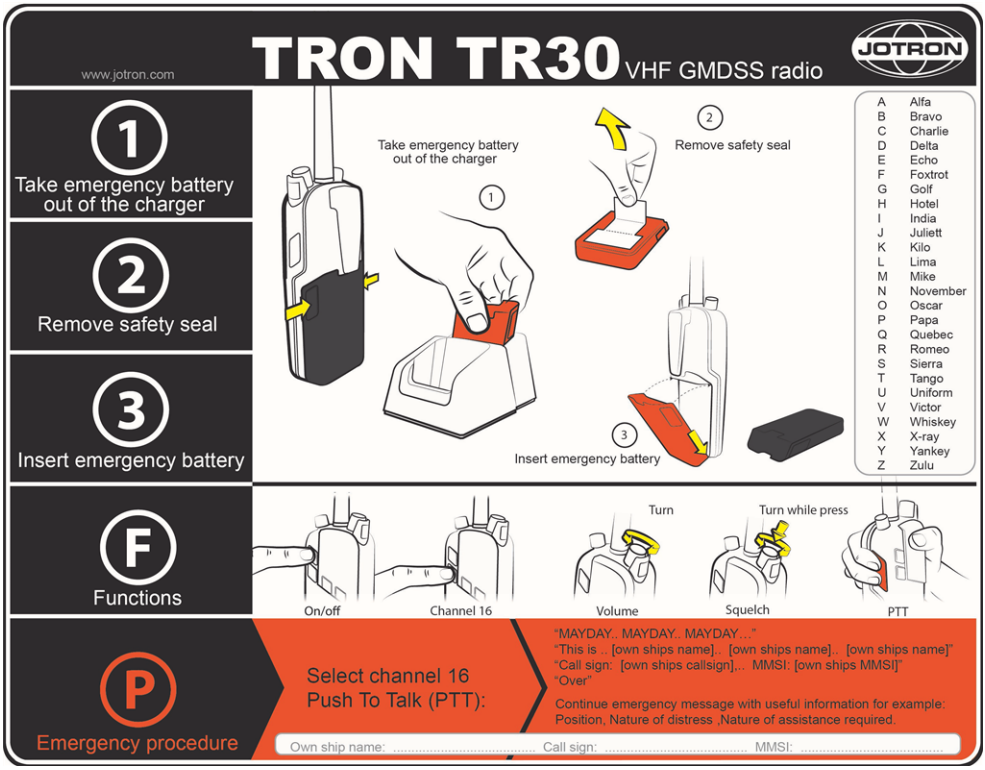


**Figure 7** Emergency instructions overview

JOTRON

www.jotron.com

Tron TR30 - v.B