USER MANUAL

Tron TR30 AIR

CONTENTS

1   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 important that all products are handled, maintained, serviced and stowed in compliance with this manual.

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 three 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

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

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.

2   IMPORTANT INFORMATION

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).

3   PRODUCT DESCRIPTION

The Tron TR30 AIR is a ruggedly designed radio made for easy operation. It is a portable emergency VHF radio for two-way communication between vessel and aircraft. The radio 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 Tron TR30 AIR 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 AIR is only waterproof when the antenna and jack cover are assembled on the radio correctly.

The Tron TR30 AIR package includes the following components:

- Tron TR30 AIR radio
- TR30 Emergency battery (orange)
- TR30 Test battery (black)
- RH-30 Holder
- Antenna
- Belt clip
- Wrist strap
- User Manual

Part number: 101700 Tron TR30 AIR

4   PRODUCT IMAGES

Figure 1 Tron TR30 AIR

Figure 2 Tron TR30 AIR in RH-30 Holder

5 FUNCTIONAL DESCRIPTION

5.1 Tron TR30 AIR components

An overview of the radio components

1. Antenna TR30 AIR

2. Volume, squelch and monitor control

3. Loudspeaker

4. Up button

5. Down button

6. Backlight button

7. Emergency mode indicator

8. Frequency indicator

9. Microphone

10. Squelch and signal strength indicator

11. Transmitter power indicator (only visible when transmitting)

12. Battery status indicator

13. Volume control indicator

14. Key lock/unlock button

15. Enter button

16. 121.5 button (instant access)

17. PTT transmit button

18. On/off button

19. Jack cover (external accessories connector)

Figure 3 Tron TR30 AIR components

5.2 Antenna

The antenna for the Tron TR30 AIR is fitted with a standard SMA connector. The antenna shall be marked with "JOTRON TR30 AIR".

IMPORTANT:

Be sure to use correct antenna type. Antenna for Tron TR30 AIR, shall be marked with TR30 AIR on side.

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

5.3 Battery endurance

The standby and operation times of the batteries is listed below:

Battery	Standby hours at -20°C	Multi-usage at -20°C *
TR30 Emergency battery	60 hours	>20 hours
TR30 Test battery	60 hours	>20 hours

*Emergency battery lifetime hours have been tested in accordance with 10:10:80 ratio (Send:Listen:Standby).

The two different batteries are shown below:

Figure 4 TR30 Emergency battery

Figure 5 Test battery

5.4   Emergency battery

The Emergency battery (orange) is a lithium battery. This battery is specially designed for use in distress situation and cannot be recharged. Keep the Emergency battery in the RH-30 Holder, then it is easily accessible in a distress situation.

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

See chapter 15 for Battery safety instructions.

> **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.

New Emergency battery can be ordered from your local Jotron dealer or from sale@jotron.com.

5.5   Test battery

Test battery shall be used for test and training.
New Test battery can be ordered from your local Jotron dealer or from sale@jotron.com.

Ensure you check the batteries for damage prior to use.

5.6   RH-30 Holder

The RH-30 Holder is a passive holder without any electronics or any charging possibility. The holder has possibilities to store one radio with or without a Test battery, and an Emergency battery.

Jotron recommend that the Test battery is always mounted on the radio when not in use and stored in the RH-30 Holder. This will not drain the battery when the radio is turned OFF

The RH-30 Holder can both be mounted on a horizontal or a vertical surface, see chapter 7.1 for details.

An overview of the RH-30 Holder components:
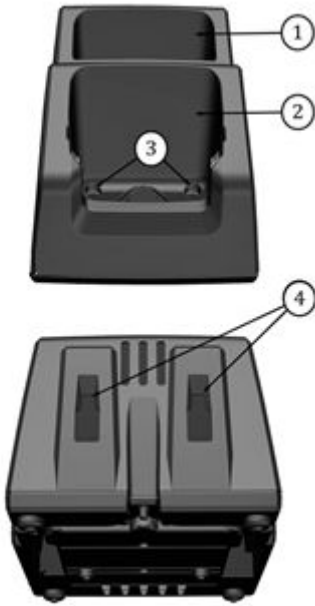

Figure 6 RH-30 Holder components

1. Battery storage bay

2. Radio storage bay

3. Holes for horizontal mounting (43mm spacing)

4. Holes for vertical mounting (36mm spacing)

Figure 7 Tron TR30 AIR radio and Emergency battery in Holder

6   INSTALLATION

6.1   Upon receipt of the radio

Upon receipt of the radio, do the following:

1. Mount the RH-30 Holder. It can be mounted either on a horizontal or vertical surface, using the respectively holes, see chapter 6.6. screw the RH-30 Holder to the desired surface. The RH-30 Holder should be mounded in a place where it can be easily accessible at all times.

2. Connect the antenna to the radio. 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 ¼ turn.

3. Mount the Test battery on the radio, preferable in dry environment.

4. Place emergency battery in the battery storage bay in the RH-30 Holder and the radio in the radio bay.

> **IMPORTANT:**   The emergency battery should only be installed on the radio in a Distress situation.

7 EMERGENCY USE

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

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

NOTE: Rip the sticker off at the perforated edge.

---

2. Using the fixing track, mount the GMDSS battery onto the back of the radio.
   Ensure you enter the bottom edge of the battery into the bottom edge of the radio. Do not force the battery

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

4. Turn on radio

5. Push PTT to transmit.

8 OPERATION INSTRUCTIONS

The TR30 AIR shall only be used with Emergency battery, or Test battery. The Emergency battery is for use in a distress situation. In case of a test or training, use a Test battery.

If the jack cover is removed, for example when using an accessory, the radio is no longer waterproof.

The antenna, battery and jack cover must be correctly assembled on the radio in order for it to be waterproof.

8.1 Turning on the radio
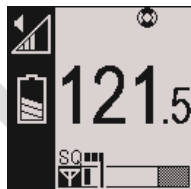
Press and hold the **On/off button** for approximately 3 seconds to turn the radio on.

The radio loads the following settings:

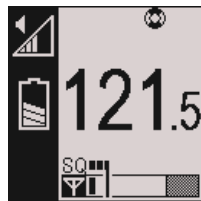- Frequency 121.5MHz

- High volume

- Low squelch

8.2 Channel selection

Press the **Up-** or **Down arrow buttons** to change the frequency.

8.3 Channel 121.5MHz button

Press the **121.5 button** to jump directly to 121.5MHz operating frequency.

8.4 Volume adjustment

Turn the **volume control** to adjust the volume.

The volume symbol in the display indicates the volume level.

Ensure that you do not press down the volume control while adjusting the volume.

8.5 Squelch adjustment

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

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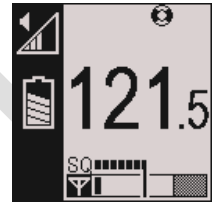
The signal strength of the current channel appears on the bar below the squelch bar. If the received signal is strong enough, the squelch opens and voice is received. This is indicated by the Rx symbol.

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

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
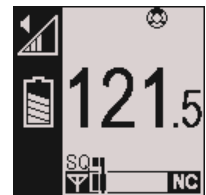
8.6 Key lock and unlock

Press and hold the **Key lock/unlock button** for 2 seconds to lock or unlock the buttons on the front

A key symbol appears when the radio is locked

PTT, Instant access 121.5MHz, volume and squelch are still available when the radio is locked.
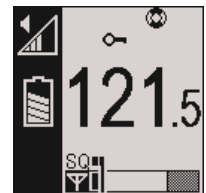
8.7   Menus

Press the **Up-** and **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 Enter button.

Display screen: Menu number:

Exit:

Use this menu option to exit the menu system.

Menu number:

Settings:

Use this menu option to adjust the following settings:

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

1
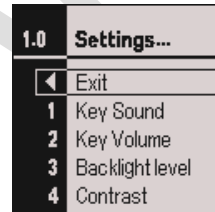
Key sound:

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.

1.1

1.1	Settings...
◀	Exit
1	Key Sound
2	Key Volume
3	Backlight level
4	Contrast

Key volume:

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

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

1.2

1.2	Settings...
◀	Exit
1	Key Sound
2	Key Volume
3	Backlight level
4	Contrast

Backlight level:

Use this menu option to set the display backlight level.

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

1.3

1.3	Settings...
◀	Exit
1	Key Sound
2	Key Volume
3	Backlight level
4	Contrast

Contrast:

Use this menu option to set the display

contrast level

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

1.4

1.4	Settings...
◀	Exit
1	Key Sound
2	Key Volume
3	Backlight level
4	Contrast

	Menu number:

System:

Use this menu option to access the following information:

Serial Number

SW version

HW version

Menu number: **2**

2	**MENU**
◄	Exit
1	Emergency test
2	System...

Serial Number:

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

Menu number: **2.1**

2.1	**System...**
◄	Exit
1	Serial No
2	SW version
3	HW version

SW Version:

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

Menu number: **2.2**

2.2	**System...**
◄	Exit
1	Serial No
2	SW version
3	HW version

HW Version:

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

Menu number: **2.3**

2.3	**System...**
◄	Exit
1	Serial No
2	SW version
3	HW version

9 MAINTENANCE

The following maintenance should be completed.

If the radio is immersed in seawater, rinse it with fresh water immediately.

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.

IMPORTANT: This radio must never be opened by anyone other than an authorized Jotron agent. Unauthorized disassembly will void your warranty.

9.1 Regular inspection

The lifetime of any equipment depends on how well you take care of it. The Tron TR30 AIR 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. This is important as defects can affect water sealing.

3. Ensure that the antenna and jack cover are assembled correctly, to keep the radio waterproof.

9.2   Regular testing

It is important to perform regular testing to ensure proper operation. This ensures that the radio is in good working order and ready for use in a potential distress situation.

IMPORTANT: Ensure you have a Test battery available for use during testing. The Emergency battery should only be used in distress situations.
Testing should occur according to the requirements indicated in the on-board radio log.

To test, do the following:

1. Use the Test battery.

2. Turn the radio on and choose 123.1MHz. If you use test equipment connected through the antenna connector, you may use 121.5MHZ.

3. Verify by sending and receiving a transmission. Use another radio, or your test equipment.

4. Turn off the radio. Mount the antenna, if antenna has been removed during test.

5. Verify that the Emergency battery is still valid. The expiry date is located on the top

    of the battery.

6. Verify that the Emergency battery is still sealed. If the seal is broken, replace the battery immediately.

10 WARRANTY

The warranty period for a new Tron TR30 AIR is valid for 24 months from the date the product is shipped from Jotron. If you have a product and are unclear about your warranty period contact your sales partner.

All Jotron products are warranted against factory defects in materials and/or workmanship during the warranty period, unless otherwise stated in writing. Please refer to the terms and conditions of your sales agreement for additional information. During this warranty period Jotron will repair or when necessary replace the product.

For updated warranty and service details see www.jotron.com or contact Jotron Support team at support@jotron.com

> **NOTE:**   Keep the original packaging, as it is required if the product is shipped for servicing. There are UN requirements in place for packaging and labelling when shipping certain batteries as hazardous goods.

10.1 COUNTERFEIT SPARE PARTS

Jotron is aware of extended counterfeit spare parts being marketed and sold to fit GMDSS safety products. It is of extreme importance that any spare parts being fitted to this product are original spare parts, manufactured or approved by Jotron. Any use of counterfeit spare parts will invalidate the product type-approval certificates and warranty will not apply. Radio surveyor will also not approve and sign annual performance tests for radios with counterfeit spare parts.

10.2   Service agents

Please look at: www.jotron.com for Maritime Service Agents.

Jotron Group Head Office:
Jotron AS
Østbyveien 1
NO-3280 Tjodalyng
Norway
Tel: +47 3313 9700
Fax: +47 3312 6780
E-mail: sales@jotron.com

From 2020:
Jotron AS
Ringdalskogen
NO-3270 Larvik
Norway
Tel: +47 3313 9700
Fax: +47 3312 6780
E-mail: sales@jotron.com

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

Jotron Asia Pte. Ltd.
19 Loyang Way, Changi
Logistics Centre
Rear Office Block #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

11   ACCESSORIES AND SPAREPARTS

11.1   Optional accessories

For an overview of the available optional accessories for the Tron TR30 AIR, please refer to our website.

11.2   Spare parts

For an overview of the available spare parts for the Tron TR30 AIR, please refer to our website.

IMPORTANT: Ensure that all spare parts being fitted to the Tron TR30 AIR are original spare parts manufactured or approved by Jotron.

Any use of counterfeit spare parts will deviate from the product type approval certificates and warranty.

12 RECYCLING AND DISPOSAL

Tron TR30 AIR 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.

13   BATTERY SAFETY INSTRUCTIONS

Product name: TR30 Emergency battery/TR30 Test battery

Type no.:   FR6

Lithium metal content: Below 1g per cell

Approximate weight: 100 grams

Chemical system: Lithium/Iron Disulfide (Li/FeS$_2$)

Designed for recharge: No

13.1   HAZARD IDENTIFICATION

The Lithium/Iron Disulfide batteries used in this product are sealed units which are not hazardous when used according to the recommendations of the manufacturer. Under normal conditions of use, the batteries are hermetically sealed.

For complete Product Safety Data Sheet for battery cells, see
http://data.energizer.com/pdfs/lithiumirondisulfide_psds.pdf

WARNING: **Do not short circuit, charge, 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.**

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.

13.2   FIRST AID MEASURES

Ingestion: Do not induce vomiting or give food or drink. Seek medical attention immediately.
               In USA:
               call National Battery Ingestion Hotline (202-625-3333).
               For other countries:
               http://www.who.int/gho/phe/chemical_safety/poisons_centres
               to find the contact information.

Inhalation: Provide fresh air and seek medical attention.

Skin Contact: Remove contaminated clothing and wash skin with soap and water.

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.

13.3 FIRE FIGHTING MEASURES

In case of fire where lithium batteries are present, flood area with water or smother with a Class D fire extinguishant appropriate for lithium metal, such as Lith-X. Water may not extinguish burning batteries but will cool the adjacent batteries and control the spread of 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, smothering agents are recommended. A smothering agent will extinguish burning lithium batteries.

Emergency Responders should wear self-contained breathing apparatus. Burning lithium-iron disulfide batteries produce toxic and corrosive lithium hydroxide fumes and sulfur dioxide gas.

13.4 Handling and storage

The Tron TR30 AIR 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.**

13.5 Transportation

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

14   STANDARDS

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

The Tron TR30 AIR 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 301 688 V1.2.1	Technical characteristics and methods of measurement for fixed and portable VHF equipment operating on 121,5 MHz and 123,1 MHz.
ETSI EN 301 489-22	Electromagnetic compatibility and Radio spectrum Matters (ERM);
	Electromagnetic Compatibility (EMC) standard for radio equipment and services;
	Part 22: Specific conditions for ground based VHF aeronautical mobile and fixed radio equipment.
FCC 47 CFR Part 2. 87	Aviation Services
FCC 47 CFR Part 2. 1093	Radiofrequency radiation exposure evaluation: portable devices.
	Part 2 - Frequency allocations and radio treaty matters; general rules and regulations
IEC 60529:1989	Degrees of protection provided by enclosures (IP Code).
IEC 62368-1:2018	Audio/video, information and communication technology equipment - Part 1: Safety requirements.
ANSI/IEEE Std. C95.1 (1999)	Standard for Safety Levels with Respect to Human Exposure to Radio Frequency Electromagnetic Fields, 3 kHz to 300 GHz
IEEE 1528 (2013)	Recommended Practice for Determining the Peak Spatial-Average Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques.

47 CFR 80 to End: Mar. 2019	Electronic Code of Federal Regulations, Title 47, Telecommunications.
47 CFR 2: Mar. 2019	Electronic Code of Federal Regulations, Title 47, Telecommunications.
EN 50566:2017	Product standard to demonstrate the compliance of wireless communication devices with the basic restrictions and exposure limit values related to human exposure to electromagnetic fields in the frequency range from 30 MHz to 6 GHz: hand-held and body mounted...
EN/IEC 62209-1:2016	Measurement procedure for the assessment of specific absorption rate of human exposure to radio frequency fields from hand-held and body-mounted wireless communication devices - Part 1: Devices used next to the ear (Frequency range of 300 MHz to 6 GHz).
EN/IEC 62209-2 Ed.1(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).
RSS-102 Issue 5 Safety Code (2015)	Radio Frequency (RF) Exposure Compliance of Radiocommunication Apparatus (All Frequency Bands)

This device complies part 80 of the FCC Rules.

Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment.

This class 2 CE approved product is available for sale and purchase in the following countries: Brazil, Canada, China, Europe, Korea, Russia and the United States of America.

The relevant CE marking of CE0470 is found on the product and the packaging.

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

---

IMPORTANT: Regulations for VHF radios varies from country to country. Prior to using this equipment check the national requirements for VHF radio operators and ensure that the radio conforms to all local regulations.

---

15 ABBREVIATIONS

ADR	European Agreement concerning the International Carriage of Dangerous Goods by Road
AM	Amplitude Modulation
CE	Conformité Européenne (European Conformity)
CFR	The Code of Federal Regulations
DC	Direct Current
EMC	Electromagnetic compatibility
ERM	Electromagnetic compatibility and Radio spectrum Matters
ETS	European Telecommunications Standard
ETSI	European Telecommunications Standards Institute
FCC	Federal Communications Commission
FM	Frequency Modulation
GHz	Giga Hertz
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
IP Code	International Protection Marking, IEC standard 60529
kHz	Kilo Hertz
LiFeS2	Lithium Iron Disulfide
MHz	Mega Hertz
MSDS	Material Safety Data Sheet
OSHA	Occupational Safety and Health Admin
PTT	Push to talk
RF	Radio Frequency
RID	Règlement concernant le transport International ferroviaire des merchandises Dangereuses par chemin de fer (Transportation of Dangerous Goods by Train)
SDS	Safety Data Sheet
SINAD	SIgnal-to-(Noise And Distortion) ratio
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
UN	United Nations
VHF	Very High Frequency

16   TECHNICAL SPECIFICATIONS

16.1   Product specification

Parameters	TR30 AIR Specification
Operating temperature range:	-20°C to +55°C (-4°F to +131°F)
Size (WxHxD):	61 mm x 157 mm x 40 mm (Depth with belt clip 47 mm)
Full buoyancy:	Yes
Weight:	Approximately 300 g (incl. battery)
Receiver:	
Frequency, 2 channels:	121.5 MHz, 123.1 MHz
Modulation:	AM
Channel spacing:	25 kHz
Maximum usable sensitivity:	< 2 μV for 12dB SINAD (Typ. 1 μV)
Adjacent channel rejection:	> 70 dB
Spurious response:	> 70 dB
Harmonic distortion:	< 5% (Typ. 2%)
Internal speaker output power:	>200 mW (Typ. 350 mW)
Speaker mic output power	15 mW (8 Ω)
Transmitter:	
Frequency, 2 channels:	121.5 MHz, 123.1 MHz
Channel spacing:	25 kHz
Transmitter output power:	0.25 W (DC), PEP<1 W
Modulation AM:	>70%
Harmonics and spurious:	< 0.25 μW
Frequency error:	< +/-500 Hz

17   TEST AND MAINTENANCE RECORDS

Below is an overview of all test and control details.

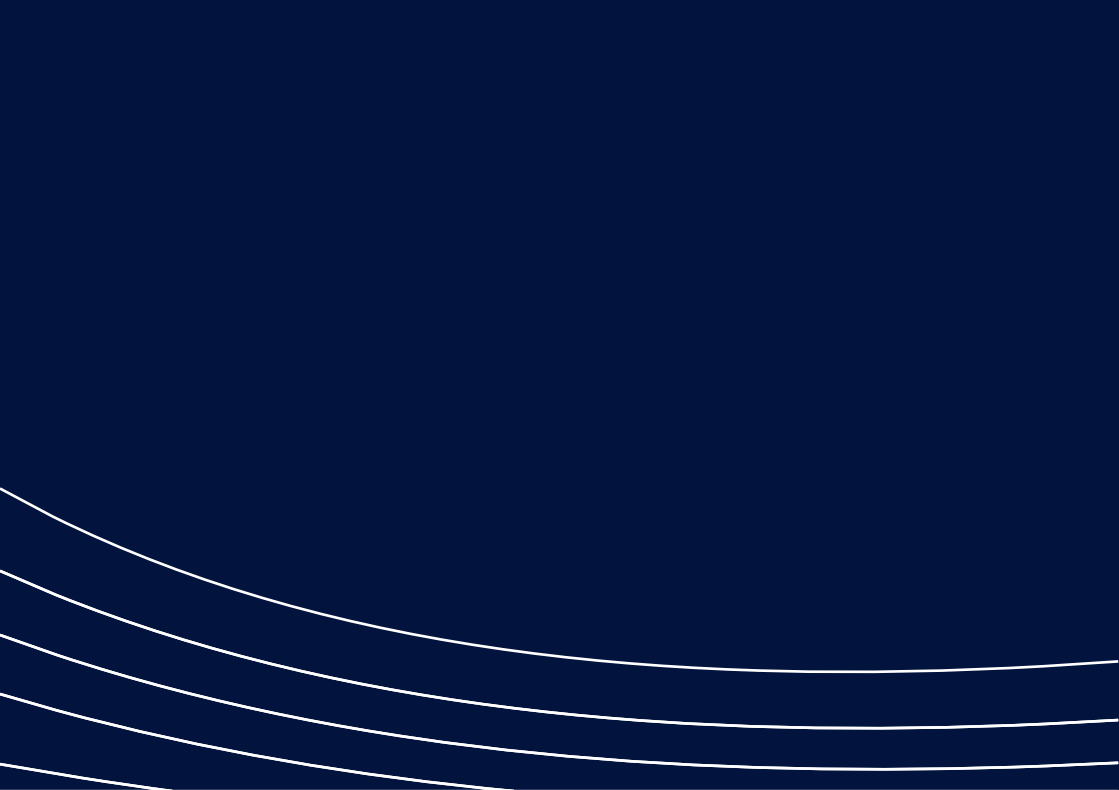| Date	B/N/T*	Signature	Insp

*B=New battery, N=New Tron TR30 AIR, T=Test.

18 EMERGENCY INSTRUCTIONS

19   AMENDMENT RECORDS

Vers	Date	Reason	By
A	20.Mar.2019	First revision of manual.	AF

JOTRON

Tron TR30 AIR