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JAMVIP4 **CONVOY PROTECTION** **1750Watts**



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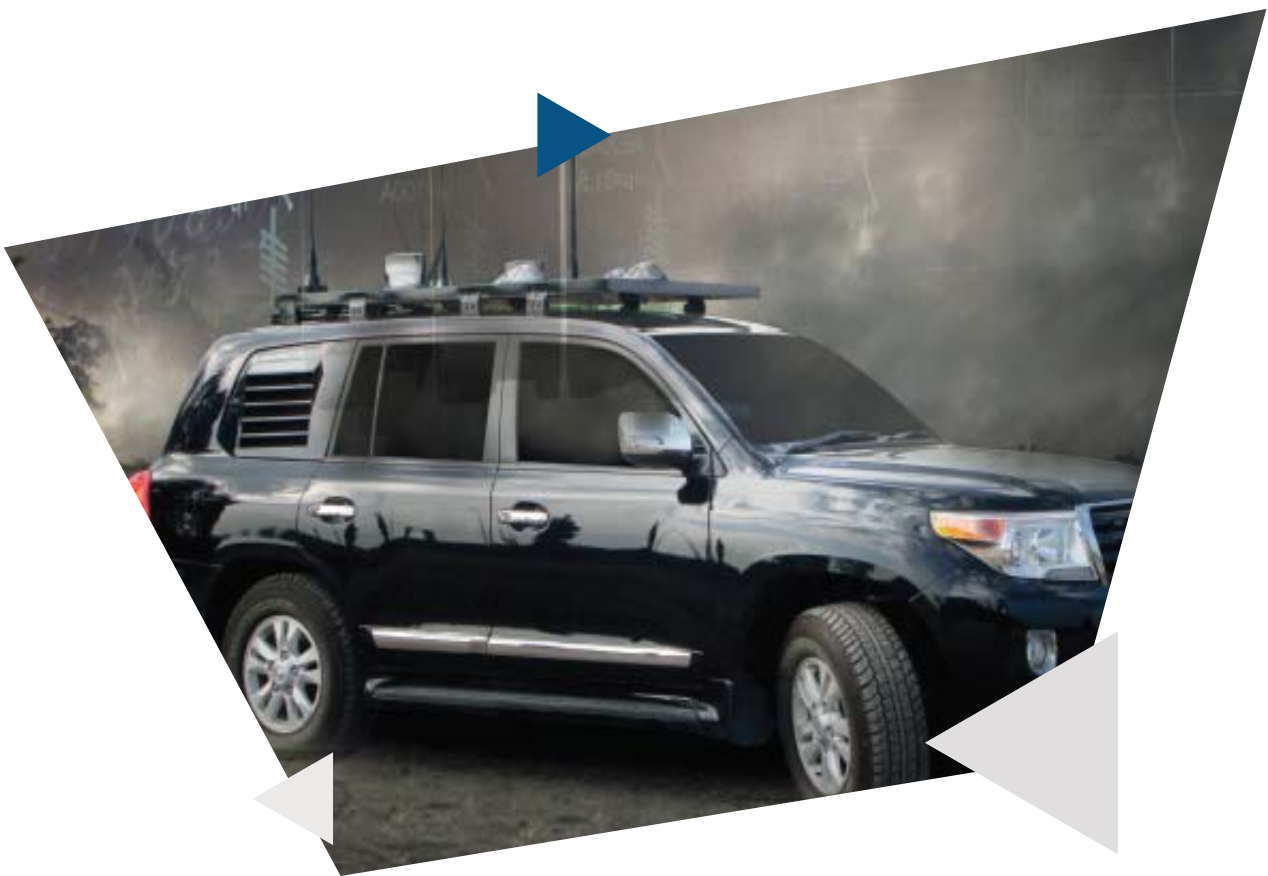
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INTRODUCTION



We developed the JAM-VIP4

We developed the **Jam-VIP4** (hereinafter referred to as the System 11) to provide the ultimate solution for saving lives which are threatened by roadside bombs (IEDs). The latest technology in RF jamming, coupled with state-of-the-art techniques in the specialized armoring and protection of military road transportation, provides our customers with a complete turn-key solution



The **Jam-VIP4** has been specially customized to accommodate a broadband bomb jamming system. The system jams continuously and simultaneously the most commonly used frequencies for roadside bomb detonation from 25MHz to 6000MHz, with a total ultra-high RF transmitting power of more than 1750 watts (more than 5500 watts of E.I.R.P).

This is simply the best way to defend your VIP from the threat of radio-activated bombs. This state-of-the-art RF jamming system is installed in the trunk of the vehicle. The system is supported by a fully integrated active smart cooling system and powered by a dedicated DC alternator installed in the engine of the vehicle. A set of high gain directional and Omni-directional antennas is mounted on the roof of the vehicle. System management (activation, control and operation) is carried out via a remote control unit that is installed inside near the driver's side console unit.

JAM-VIP4 +IMPROVEMENTS

- Increase total RF power up to 1750 Watt.
- Increased total EIRP power up to 5500 Watt
- Upgraded jamming signal source to provide utmost efficiency.
- Double power source: High power (7KW) DC alternator and high capacity batteries.
- New design of modular ALL-IN system construction with totally upgraded RF power amplifier modules with built-in protection against high VSWR. over-burning, over-current, and over voltage.
- Additional high efficiency active "smart" cooling systems dedicated to the jamming system unit.
- New antenna design and configuration with increased gain to enhance neld coverage which installed on the easy replaceable metal roof panel.
- Full vehicle RF shielding and EMI protection.



TECHNICAL SPECIFICATION

MAIN SYSTEM SPEC

Frequency Ranger	20 -6000 MHz
Channel Number	15
Total RF Output Power (CW)	1750 Watt
Total E.I.R.P.	-5500 Watt
Jamming Source	FM white noise (barrage+)
Remote Control	Wired (full system and alternator operation control): -Alternator ON/OFF+ status -Alternator / Battery status -Frequency channel ON/OFF+ status -Full system ON/OFF
Cooling System	Dual Independent Active "Smart" (Jamming system units)
System Protection	VSWR, over-burning (temperature), over-Voltage, over-Current, L level RF shielding (System Metal Box), EMI
Antenna Type	High Gain Omni directional
Power Supply Source	Dual Power Supply: 1) Independent DC Alternator (300A @ +28VDC) 2) Battery Backup (480AH@+24VDC)
Total Maximum Power Consumption (+28VDC)	Max 7000VA
Total System Weight	Approx. 150kg
Humidity	up to 80%
Operating Temperature Range	-10 °C ... +60°C

*Specifications are subject to change without prior notice

SYSTEM DESCRIPTION

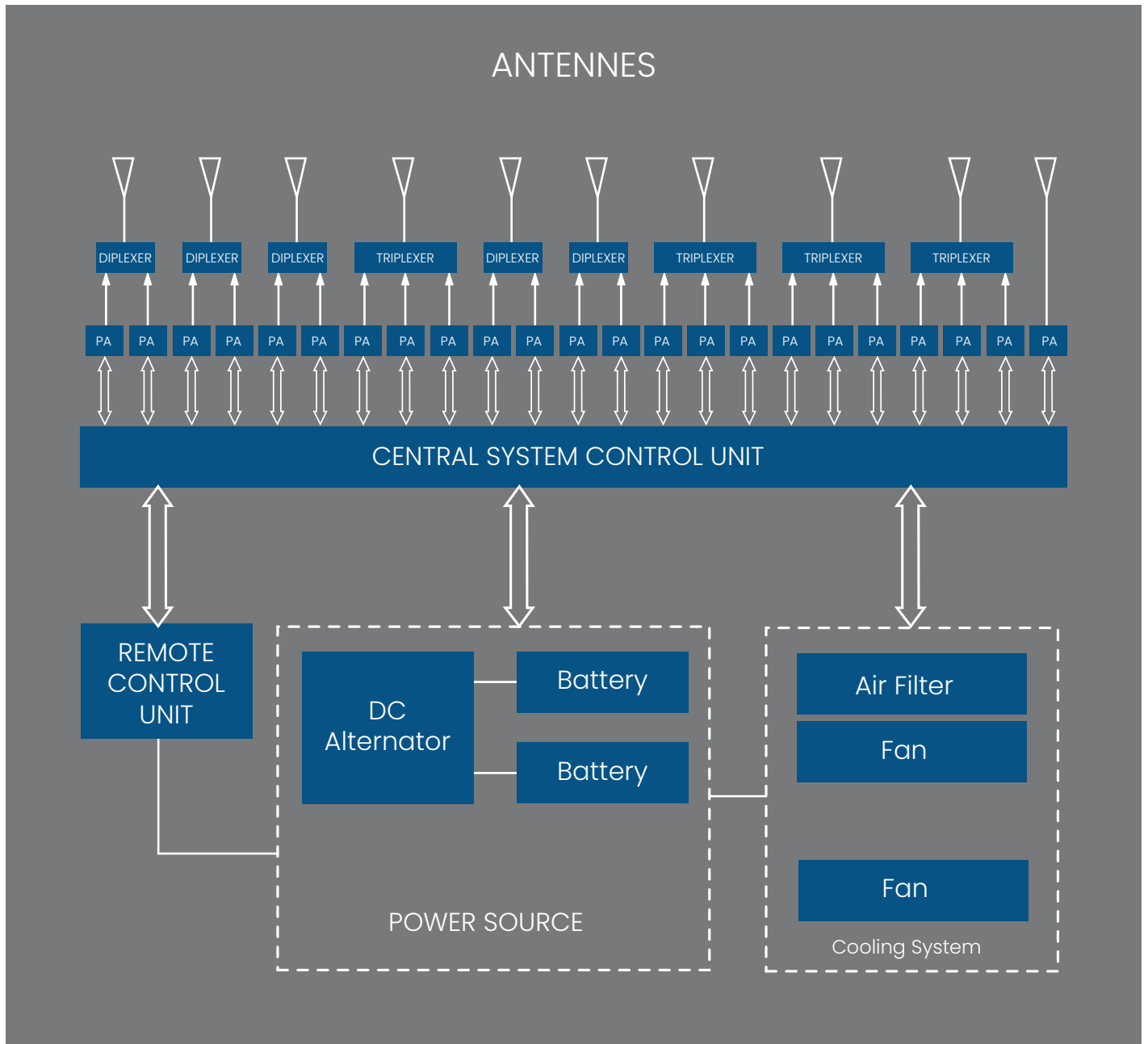


Band No.	Frequency Band (MHz)	Applications	RF Power (Watt)
1	25-88	CB-HF Walkie-Talkie Radio, Remote Controls, RF Bugs	100
2	135-175	VHF Walkie-Talkie Radio, Amateur Radio	70
3	300-400	UHF Walkie-Talkie , TETRA	120
4	400-520	Cellular CDMA450, UHF Walkie-Talkie 4G LTE	180
5	791-850	Cellular 4G/LTE-FDD (#20), UHF Walkie-Talkie (700/800MHz Band), TETRA	150
6	850-895	Cellular CDMA800/WLL	120
7	925-960	Cellular GSM900/E-GSM, Cordless Phones	150
8	1520-1670	GPS (L1), Satellite (Thuraya, Iridium, Odyssey, Global Star, Inmarsat)	100
9	1805-1880	Cellular HGSM/GSM18DCS	150
10	1930-1990	PCS	100
11	2110-2170	Cellular 3G/UNTS/WCDMA/HSDPA	150
12	2400-2500	Cellular 4G/LTE-TDD (#40), WLAN IEEE802.11, Blue-Tooth, WiFi2.4	20
13	2620-2690	Cellular 4G/UNTS/WCDMA/HSDPA	150
14	3400-3800	WLAN IEEE802.16, WiMAX	20
15	5400-5800	WLAN IEEE802.11	20

*Specifications are subject to change without prior notice



4.1 SYSTEM DIAGRAM



*Picture is for demonstration only

4.2 SYSTEM FUNCTIONALITY

This system is based on the following principle:

RF signal with high-density FM white noise, generated continuously by using several RF jamming exciters (per table of bands above) and based on VCO/PLL stabilization.

The RF output power from frequency band amplifiers installed inside the jamming system modules is combined on special RF diplexers/combiners and transmitted through especially designed and tuned low profile high gain Omni-directional antennas installed on the top (roof) of the vehicle.

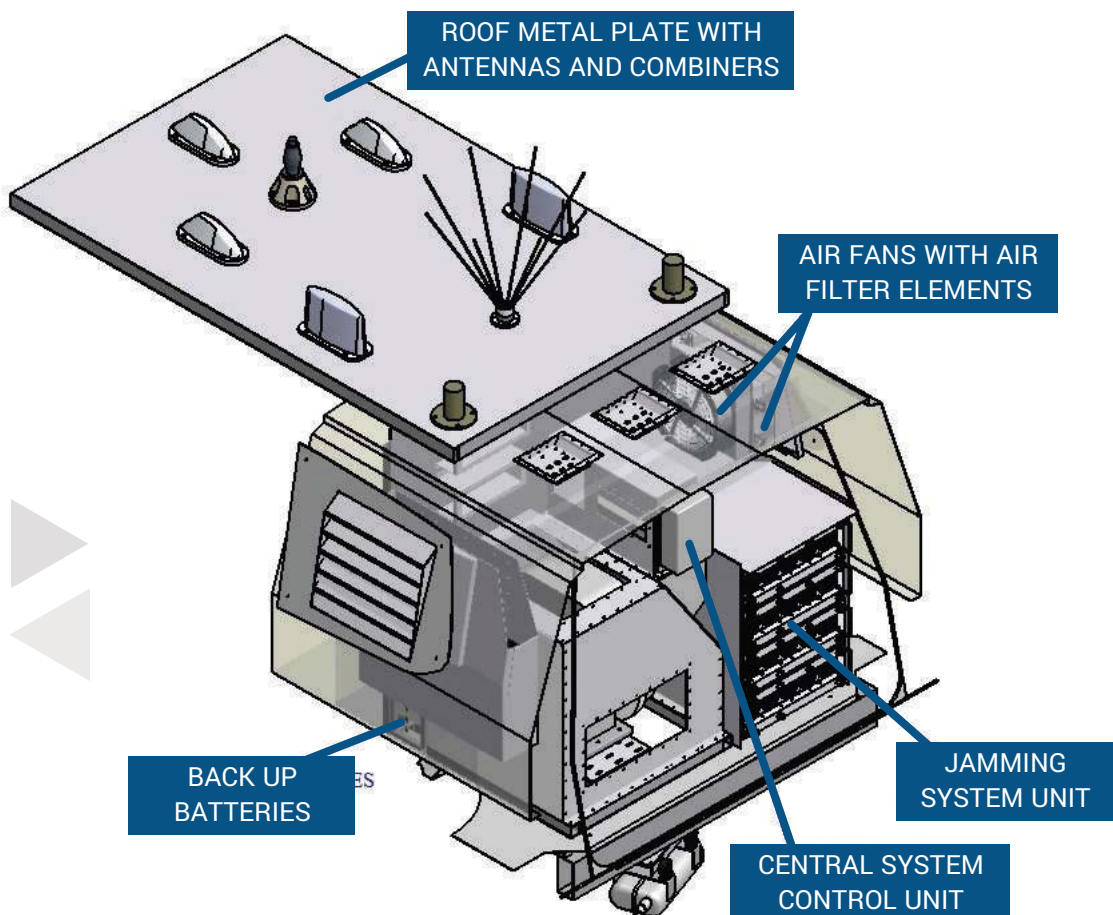
The Remote Control Unit installed in the Personnel Cabin, enables the control of the jamming transmitters and system operation/check. The Central System Control Unit is installed inside the vehicle's trunk.

Heat dissipation is controlled by an active "smart" air-cooling system. Air flows through the air vent into the Jammer Unit Enclosure through a special air filter elements and a high efficiency fans positioned on the right hand side rear window. Forced cooled air then passes through to the jammer transmitter heat sinks, and it is then forced out via an additional high power fans installed on the base of the trunk area.

The system main DC power sources: the DC Alternator, which has a total DC output power of 8.0kVA and voltage +28VDC. The Central System Control Unit inside the Jamming System Unit (modules) carries out the power control and switching.

The Battery backup provides for fast start, silent operation or in case of DC alternator failure. The backup includes 4 batteries with a total capacity of 200Ah for +24VDC.

4.3 MAIN SYSTEM PARTS



*Picture is for demonstration only

4.3.1 JAMMING SYSTEM UNIT



JAMMING SYSTEM MODULES



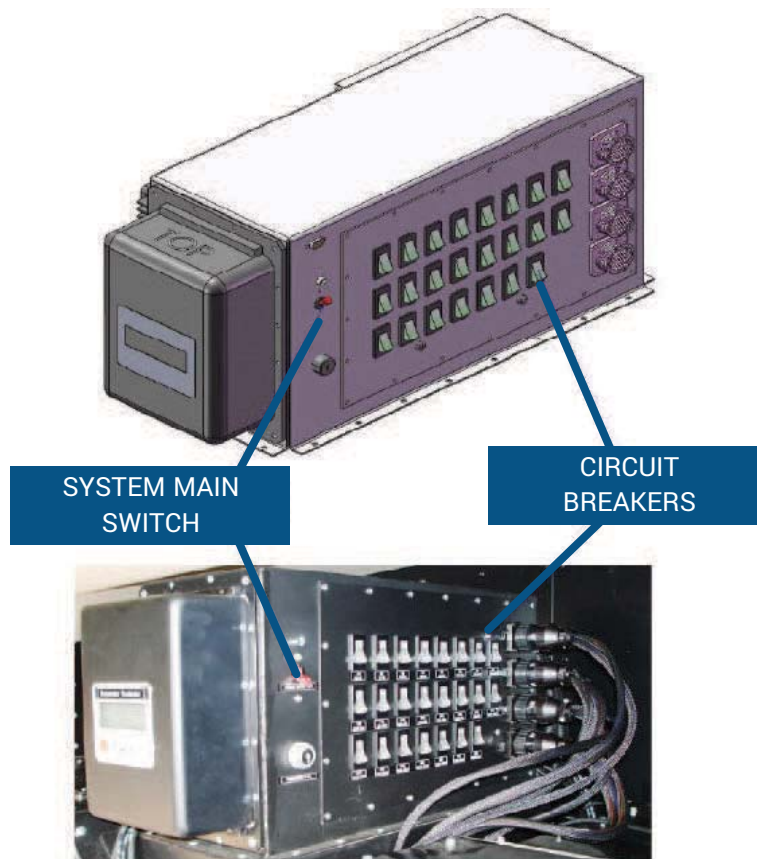
SYSTEM MODULE ALL-IN TECHNOLOGY

4.3.2 CENTRAL SYSTEM CONTROL UNIT

The system is fully controlled by Central System Control Unit installed inside Equipment Compartment in the trunk of the vehicle.

The main Central System Control Unit functions are:

- **System fan control**
- **System operation control** (through Remote Control unit).
- **Full electrical protection from circuit shortage and voltage instability in three stages:**
 - Main battery electronic fuse located in the Central System Control Unit - to avoid direct circuit shortages from battery.
 - One system main switch to protect over-current, in case of voltage drop or shortage on the Remote Control Unit.
 - One circuit breaker per frequency band power amplifier - to protect internal elements of module.



4.3.3 POWER SOURCE (DC ALTERNATOR)

The **Jam-VIP4** is independently powered by a specially designed high power dedicated DC alternator attached to the engine of the vehicle, which has several very important advantages::

- No maintenance.
- High degree of corrosion resistance.
- Permanently attached to the vehicle engine and does not need any mechanical adjustments and additional cooling.
- Compact and lightweight design.
- High quality low deviation electrical output.
- Up to 97% efficiency





4.3.4 POWER SOURCE (BATERRY BACKUP)

There are four Lithium Ion batteries used with the system:

- Eight Lithium Ion 60Ah system backup batteries

These batteries are placed behind the rear seats inside special protection box.

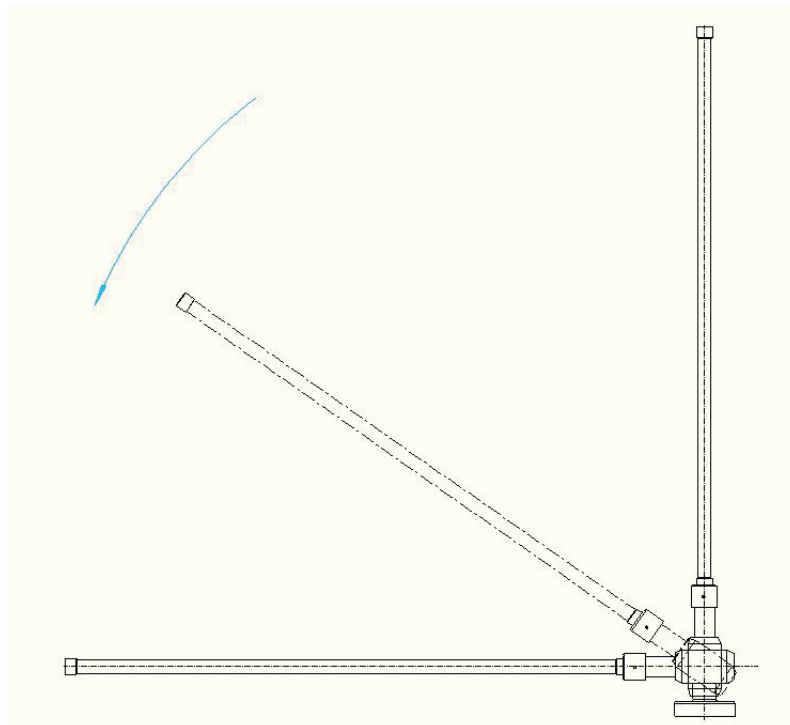
Valve regulated sealed Lithium ion rechargeable battery cells with Ultra high capacity (total of 480Ah @24VDC) are used in **Jam-VIP4** as a backup power source for DC alternator, and can provide more than 60 minutes of continuous system operation with full power.

No maintenance or special test is necessary for this type of battery.

4.3.5 ANTENNAS, DIPLEXERS AND RF CABLES

The system is equipped with set of high gain Omni-directional antennas placed on the roof. Automated folded antennas are used for low frequency bands antennas. There are used several combiners to reduce number of antennas and to filter input signal from Power Amplifier Units as a part of EMI and RF protection.

The combiners are installed inside the special metal roof plate and inside the trunk on the interior separation wall.

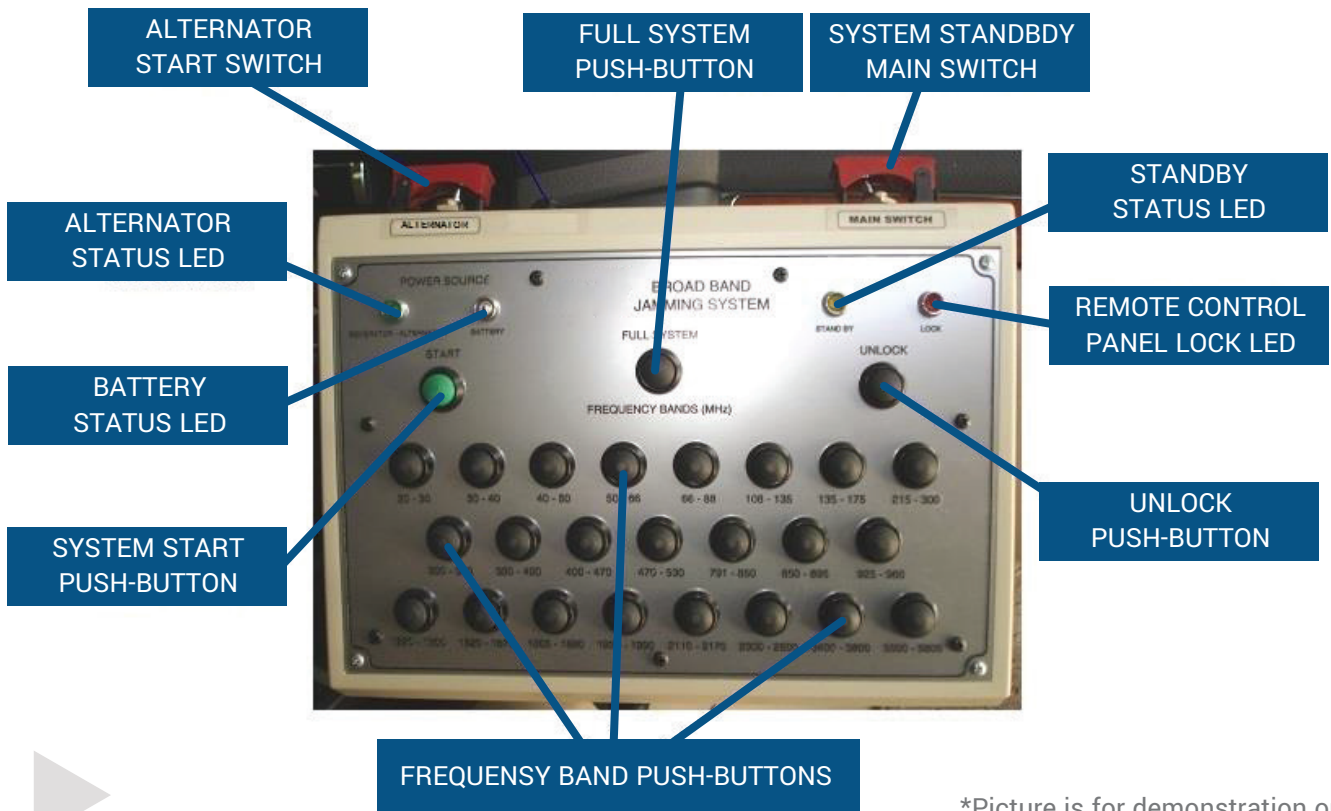


*Automated folded antenna

4.3.6 REMOTE CONTROL UNIT

Buttons, switches and LED's description:

- ALTERNATOR START switch: Alternator main power switch.
- SYSTEM STANDBY (MAIN SWITCH): The main system switch gives power to cooling fans and puts system to standby mode.
- STANDBY LED: System standby LED status.
- ALTERNATOR STATUS LED: Alternator's power status LED.
- BATTERY LED: Battery status LED.
- START PUSH-BUTTON: System start push-button.
- FULL SYSTEM PUSH-BUTTON: Full system operation push- button.
- UNLOCK PUSH-BUTTON: Remote control unit activation.
- LOCK LED: Remote control unit lock status.
- FREQUENCY BAND PUSH-BUTTON: Frequency channel activation buttons.



*Picture is for demonstration only

4.3.7 COOLING SYSTEM

Two fully independent active cooling systems are employed to remove the heat from the system unit to avoid an over burning situation:

System unit cooling with smart active control elements and protection, which include the control box, a pair of a very high efficient and high power electrical fans (incoming and outgoing), plus air filter element and module fans.

AIR VENT



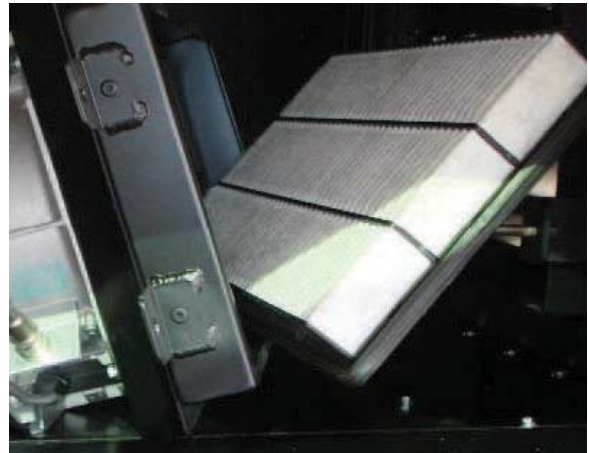
MODULE FANS



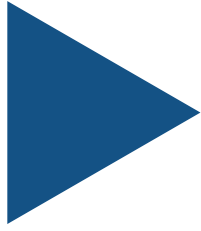
INCOMING HIGH POWER FAN



AIR FILTER ELEMENT



*Picture is for demonstration only



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