

## Complex of the FM radio communication means R-163 «ARBALET»



«R-163-50U» MOBILE RADIO SET

The R-163-50U vehicular radio set with frequency modulation is intended for radio communication between ground objects at stop and in motion. The radio set provides 24-hour two-way communication with instant selection of preset stations with the radio sets of the same type as well as the other radio sets with compatible operating frequency range and modulation type.

Keeping up the traditions we are ahead of the time





## Constant communication!

*JSC «Sarapulsky Radiozavod» is a unique page in the history of the Russian radio industry.*

For more than hundred years our enterprise works for increasing the defense potential of the country. During this time the enterprise gained popularity as manufacturer of the high-quality radio equipment for commercial purpose and for special appointment.

Today experience and united work of the staff allow designing and producing of radio facilities, which do not have analogs in Russia, with whole new level of data processing, delivery and protection. Effective systems and complexes of communication are demanded not only in the Russian Defense Ministry, but also in other institutions.

Products of new generations for us are guarantee of execution of difficult tactical tasks in providing safety of the country and protecting the lives of staff of special squads.

In the work we rely on responsible partners and always are open for mutually profitable business relationship.



Kirill R. Abdrakhmanov,  
CEO of the JSC «Sarapulsky Radiozavod»





# JSC «SARAPULSKY RADIOZAVOD»

Being one of the oldest enterprises of Russian radio industry, the JSC "Sarapulsky Radiozavod" has travelled a long way from manufacture of telegraph to a batch production of military communication means of new generation.



In history of formation and development of the Russian radio industry surprising pages belong to the JSC "Sarapulsky Radiozavod". The enterprise worked at ground zero of radio creation and for about a century works for increasing of defensibility of the country. For more than a century history the factory has acquired distinction as the developer and the manufacturer of high-quality radio equipment.

We are proud not only of our glorious past. Today, huge experience and selfless work of the team-oriented staff allow to develop and produce the equipment, which does not have analogues in Russia with qualitatively new possibilities on processing, operative delivery and information protection, to create highly effective systems and complexes of radio-electronic communication for power departments. New-generation equipment provides not only enterprise loading, financial and social stability of its staff. First of all it guarantees execution of difficult tactical problems of national security precautions and the saves lives of the staff of Special forces.



At the present time at the factory manufacture of the complicated intellectual components for unmanned aerial vehicle is developed and extends; there are also some other projects attractive to investors. We take a course on sharp increase of production volume, as well as expansion of market and the nomenclature of serial products and facilities under design. In the job we bear on reliable partners as in sphere of material support, so in the course of creation of difficult modern complexes of defence equipment. Thanks to our constant partners we face the future with confidence and are always open for new beneficial co-operation.

The factory was based in St.. Petersburg as branch of a Berlin firm - factory of telegraph and telephone equipment "K. Lorentz"	1900 г.
"K. Lorentz" factory was transformed in «Petrograd Electrotechnic factory of Military Engineering Department »	1917 г.
The factory was transferred to Moscow and transformed into "The First State electrotechnic factory".	1918 г.
The factory was renamed in "Moselectric". It played a definite role in development of broadcast networks of cities and villages.	1926 г.
The factory has been awarded with the Order of Lenin for fulfillment of the first five years' plan for 2..5 years.	1931 г.
The factory has been evacuated to the city of Sarapul; during the Great Patriotic War manufactured radio equipment for aircraft and tanks	1941 г.
In May, 1943, the factory has got an Order of the Labour Red Banner	1945 г.
The enterprise has been privatised and transformed in the joint-stock company "Sarapulsky Radiozavod "	1992 г.
Since 2010 - Joint-stock company «Sarapulsky radio factory» (JSC "CP3")	2016 г.





# «R-163-50U» RADIO SET



R-163-50U



## Purpose

The R-163-50U is transceiving FM vehicular radio set with frequency modulation intended for radio communication between ground objects at stop and in motion. The radio set provides 24-hour two-way communication with instant selection with the radio sets of the same type as well as the other radio sets with compatible operating frequency range and modulation type. The radio set ensures 24-hour operation at 1:5 receive to transmit ratio (at continuous transmit operation for 3 minutes maximum and heat sink availability).

### Types of Operation:

- FM telephony;
- voice frequency telegraph;
- signal-coded communication;
- digital communication.

### Modes of Operation:

- transceiving at all types of operation;
- simplex;
- two-frequency simplex;
- duplex in case of presence of an additional receiver;
- automated transfer onto alternate interference-free frequency;
- listening watch;
- repeating of signals of simplex FM and similar radio sets in two-frequency simplex jointly with R-163UP radio receiver;
- remote control and control of the radio sets of alieni generis.



## Basic Specifications:

Frequency range, kHz	30 000...79 999
Spacing of discrete frequency tuning	1
Transceiver power at rated onboard voltage on active load of 75 Ohm, W	
- in full power mode	30
- in low power mode	1
Frequency deviation of the transmitter, kHz	4.4...8
Relative frequency deviation of the radio set, max	$\pm 4.5 \times 10^{-6}$
Receiver sensitivity, $\mu V$ , max	
- in telephone channel	1.2
- in telegraph channel (at s/n ratio of 10 dB)	0.6
- in digital channel (at error index of $10^{-2}$ )	1.7
- at digital codogram reception with 80% confidence	0.9
Power supply from board mains with negative earth, V	22.1...29.7
Consumption current of the radio set, A, max	
- in receive mode	2.3
- in transmit mode	10
Operating temperature range, °C	minus 50...+ 60
Dimensions of the transceiver, mm	428x239x222
Weight of the transceiver with shock mount frame, kg, max	27

RADIO SET FOR COMBAT VEHICLES







## «R-163UP» RADIO RECEIVER

R-163-UP



### Purpose

The R-163UP is FM radio receiver with band and crystal control providing searchless and tuningless reception of FM signals with discrete adjustment at 1kHz spacing in the range from 30 000 to 79 999 kHz. The radio receiver ensures reception at installation in land vehicles.

#### Types of Operation:

- FM telephony;
- voice frequency telegraph;
- signal-coded communication;
- digital communication at the rate of 16 Kbps;

#### Modes of Operation:

- reception at all types of operation;
- automated transfer onto alternate interference-free frequency;
- listening watch;
- repeating of signals of simplex FM radio sets jointly with the P-163-50Y radio set;
- remote control.



### Basic Specifications:

Operating frequency range, kHz	30 000...79 999
Spacing of discrete frequency tuning	1
Relative deviation of adjustment frequency of the radio receiver, max	$\pm 4.5 \times 10^{-6}$
Receiver sensitivity, $\mu V$ , better than	
- in telephone channel	1.2
- in telegraph channel (at s/n ratio of 10 dB)	0.6
- in digital channel (at error index of $10^{-2}$ )	1.7
- at digital codogram reception with 80% confidence	0.9
Power supply from DC board mains with negative earth, V	22.1...29.7
Consumption current at rated board mains voltage, A, min	1.3
Operating temperature range, °C	minus 50...+ 60
Dimensions of the radio receiver with shock mount frame, mm	200x239x222
Weight of the radio receiver with shock mount frame, kg, less than	14

RADIO RECEIVER



## AUXILIARY DEVICES

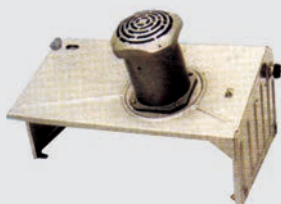


### PU-50U CONTROL PANEL



PU-50U control panel is intended for the remote control of R-163-50U radio set and R-163UP radio receiver via the cable of up to 10 m length

### Unit B 11



Unit B 11 is intended for cooling the radio set R-163-50U at long-term transmit operation

### Unit R-173-14



The R-173-14 antenna filters unit provides joint operation of two FM radio means R-163-50U and R-163UP in any combination on common antenna

### Unit R-173-16



The R-173-16 laryngophone amplifier unit is intended for amplifying of LF signals coming from headset laryngophone to the level of 520mV.









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