

# **COMMAND VEHICLE FR-21A**

# WD FR-21A

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# PURPOSE AND CAPABILITIES

## WD FR-21A

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It is a component of the modular communication system supporting command posts created for the needs of various types of troops.



### WD FR-21A

It is a component of the modular communication system supporting command

posts created for the needs of various types of troops.

It provides radio communication and additionally - during a standstill,

connection to wired communication systems using the latest telecommunication

standards.

## PGZ WZ

# WD FR-21A

It cooperates with other communication systems used so far in the Polish Army, such as:

- WD KTO ROSOMAK
- BWR 1D oraz BWR 1S
- ZWD-3 i H-400

#### The main idea is to

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design a light Command Vehicle

on a chassis with a GVM up to 3.5 tons,

cooperating with the "ROSOMAK BMS System".

Panasonic

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# Command Vehicle FR-21A







#### **Basic functional capabilities**

Automatic connections between subscribers of different radio networks

Automatic connection between radio network subscribers and wired network subscribers

Remote configuration and control of radio devices

#### Equipment Components / Technical Data:

HF- AN/PRC-150C (frequency range: from 1.6 MHz to 30 MHz, power 150 W)

VHF - RRC-9311AP (frequency range: from 30 MHz to 88 MHz, power 50 W), AN/PRC-117G (frequency range: from 30 MHz to 225 MHz, power 50 W)

- UHF AN/PRC-117G (frequency range: from 225 MHz to 450 MHz, power 50 W; from 450 MHz to 2000 MHz, power 20 W)
- SAT-COM AN/PRC-117G (frequency range: RX from 243 MHz to 270 MHz, TX from 292 MHz to 318 MHz, power 50 W)

SYSTEM INTEGRATOR CV12r - VoIP PBX

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# WD FR-21A

# COMMUNICATION SYSTEM



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#### **Radio Communication System - Command vehicleFR-21A**







### AN/PRC-117G

The AN/PRC-117G multi-band manpack radio is part of the L3Harris Falcon III product family. It ensures reliable communication during tactical operations in various conditions.

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ISB/KDU

### AN/PRC-117G

Works in many bands and many modes.

It enables ground-to-ground, ground-to-air communications

and tactical satellite system (TACSAT).

These links enable voice and data transmission for command and control (C2) applications on the battlefield.

Since much of this data is classified, the Type-1 encryption available here is critical.

FALCON III®

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# AN/PRC-117G

The radio supports the following operating modes:

- VHF/UHF communication with Line of Sight (LOS) mode on FM and AM fixed frequency
- Dedicated UHF tactical satellite communication channel (SATCOM)
- Single Channel Ground and Airborne Radio System (SINCGARS) operating in frequency hopping (FH) and single-channel (SC) modes

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- HAVEQUICK frequency hopping mode.
- SATURN frequency hopping mode.
- HPW improved data transmission performance over noisy UHF TACSAT channels and LOS nets
- ANW2 and ANW2C protocol for broadband IP data transmission over the radio network
- Built-in communication protocol (IW)
- Demand Assigned Multiple Access (DAMA) mode.
- Project 25 (P25)



### AN/PRC-150C

The advanced AN/PRC-150C radio is a part of the L3Harris Falcon II product family. Operating in the HF band from 1.6 MHz to 29.9999 MHz using USB, LSB, CW, AME modulations and FM modulation in the VHF band from 20.0000 MHz to 59.9999 MHz.



### AN/PRC-150C



The radio offers the following functions:

- The encryption mode with the highest level of security (compliant with the Type I level).
- Digital voice transmission under extremely unfavorable conditions (LDV).
- ALE mode (Automatic Link Establishment) automatic connections established according to MIL-STD-188-141-A.
- 3G STANAG 4538 mode, meeting the requirements of NATO standards, automatic radio control system ARCS (Automatic Radio Control System) protocols for connection settings and data transmission.
- HOP mode the function of step frequency in the HF band, which is an element of electronic counter-counteraction (ECCM) (narrowband, wideband and frequency list).
- Supports network operation functions via PPP or Ethernet LAN.
- Provides the external interface of the Precision Lightweight GPS Receiver (PLGR) to perform automatic TOD (Time-of-Day) synchronization.
- Supports the optional enhanced Low Probability of Intercept (LPI) and Low Probability of Detection (LPD) functions by fast forwarding of messages using low power level.

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# RRC9311AP

VHF RRC 9311AP are narrowband programmable radio

- with frequency hopping, characterized by a high degree of protection
- against EPM (ECCM). Digital voice and data transmission is encrypted using
- COMSEC cryptographic keys. Radio transmission is masked with the TRANSEC key.
- Designed for installation on all mobile combat platforms.
- Consists of a RRC 9210 transceiver and a 50 W power amplifier.

Easy to install in vehicles. Can be installed on a mounting base with shock absorbers or without them. The on-board radio also has collocation filters that enable simultaneous operation of two radio stations on one vehicle.

## **RRC9311AP**

Frequency range 30 ÷ 87.975 MHz

2320 channels 25 kHz

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- Output power 0,5 W; 5 W; 50 W
- Power input +18 to +33 VDC
- Dimensions 290 x 139 x 340 mm
- Weight (with booster) <14 kg</li>
- Temp range -40 ° C to + 70 ° C
- Environmental requirements MIL STD 810
- Full interoperability with RRC 9200 and RRC 9500 radios
- Built-in IP interface and GPS receiver



# Centrala VoIP CV-12r-01

Designed to be used as an access point between the digital telephone network and the VoIP telephony network, and above all, as a radio gateway between the IP network and various types of radio stations.

The device cooperates with switch-multiplexers of the STORCZYK system (eg ŁC-240D) through an electrical contact and with data processing devices (eg computers, routers) equipped with a contact compliant with the IEEE 802.3 and IEEE 802.3u standards.



# Centrala VoIP CV-12r-01

#### BASIC FUNCTIONAL CAPABILITIES

- Establishing connections between a packet-switched network (VoIP) and a network channel commutation.
- Connection via ISDN PRI tract with DSS1 signaling
- Connection of up to 12 devices via Ethernet 10/100/1000 Base-T/TX interface.
- Working in both layer 2 and layer 3 of the ISO / OSI model. Supports various types of interfaces (6W, serial links, Ethernet).
- Support for dedicated modes of operation over radio links (including integration with the SCIP protocol for operation in radio modes).

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### **WD FR-21A**

### **POWER SYSTEM**





#### **POWER SUPPLY MODULE FR-21 A**



The power system module is located in the cargo area of the Command Vehicle.

The module includes:

- Control block
- 24V 90 Ah communication system batteries
- TZ power supply board.
- TL line connection board
- 50A overcurrent protection.

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## **Line Connection Board**

Allows to connect four wired subscribers and expand the subscriber network, IP network and local network

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TABLICA LINIOWA TL NR xx/20X>

LAN

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### **Power Supply Board**

Includes: anti-electric shock protection 230 VAC input and output connector

# BASE VEHICLE MODIFICATIONS

NPGZ



14.14.1



#### BUMPER

Combo Bar ARB Ford Ranger PXIII

#### LIGHTING

Halogens and LED daytime running lights inside and outside the bumper

Roof LED halogen - LINEAR LAZER

#### WHINCH

WARN VR 12-S EVO- a rope with a length of 27.4 m and a towing capacity of up to 5443 kg

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### **WD FR-21A**

# **TECHNICAL DATA**







# COMMAND VEHICLE FR-21A DIMENTIONS



#### **BASIC TECHNICAL PARAMETERS**

LINE NO.	PARAMETER WD FR- 21 A	<b>BEFORE ADAPTATION</b>	AFTER ADAPTATION
1	Engine capacity	1996 cm <sup>3</sup>	no changed
2	Power	170 HP/3750 rpm	
3	Torque	420 Nm/1500 rpm	no changed
4	Max speed	180 km/h	no changed
5	Transmission	Manual, Number of Gears 6	no changed
6	Whinch		Rope durability 5443kg/electric
7	Total lenght	5282 mm	5620 mm
8	Total hight (without antennas)	1815 mm	1930 mm
9	Total hight (with antennas)	-	4510 mm
10	Total width (with side mirors)	2160 mm	2160 mm
11	Actual wieight	2321 kg	2700 kg
12	Allowed gross weight	3270 kg	3270 kg
13	Gross weight (crewed i JN)	-	3200 kg
14	Number of people	5	3
15	Driving licence	B	B



#### **Military Communication Works No 2 JSC**

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