

N2 transmitter.

N2
Country of origin: Poland



N2 receiver (above and below).



DATA SUMMARY

Organisation: Polish Army.

Design/Manufacturer: Państwowe Zakłady Tele i Radiotechniczne (PZTiR), Warsaw.

Year of Introduction: 1937.

Purpose: Communication at Battalion/Regimental level.

Transmitter:

Circuit Features: MO, RF PA; control grid modulation.

Frequency Coverage: 2250-6750 kHz into two ranges: 2250-3875kHz and 3875-6750kHz.

Valves: DET9 X (Marconi); PC 05/15 (Philips).

RF output: R/T 2W; CW 6W.

Receiver: Superheterodyne.

Circuit Features: RF, mixer, LO, reg. IF/det, AF.

Frequency Coverage: 2250-6750 kHz into two ranges: 2250-3875kHz and 3875-6750kHz.

Valves: KK2, KF4 (3x) (Philips).

Aerial: 2 types of bamboo rods: 2.5 and 3.5m for operation on the move; at the halt connected together 6m; sloping 8m wire and earth rods for static operation.

Working range (km):	R/T	CW
Rod aerial 6m	10	25
Rod aerial 3.5m	8	18

Power Supply:

- **Transmitter:** Type WR-37 triple voltage hand generator delivering 400-440V DC at 65mA, 4.6V DC at 1.2A, and 15VDC at 150mA. The generator was mounted in the plywood transmitter man pack enclosure.

- **Receiver:** LT two type NON1 1½V dry batteries and two 72V HT dry batteries carried in a plywood back pack. Consumption: HT 5mA; LT 300mA.

Size receiver (cm): Height 12, length 20.3, width 26.2.

Weight: Transmitter: 14kg; mast 12kg; batteries in box: 12.3kg; receiver and hand generator 16.1kg.

REMARKS

The N2 was a short wave radio station developed for wireless communication in the field at lower level command of the Polish Army Battalions and Regiments of infantry, Regiments of cavalry and Regiments of light artillery. The prototype, based on an earlier wireless set type RKB of which only 12 prototypes were made, was designed in 1935; the transmitter by Biuro Badan Technicznych Wojsk Lacznosci (BBTWLacz.), and the receiver by eng. Wilhelm Rotkiewicz from Państwowe Zakłady Tele i Radiotechniczne (PZT or PZTiR) in Warsaw. The first production model, with the maker's designation AN1 and military designation N2 wz. 37, was built at the end of 1936. Until September 1939 approximately 1400 sets were produced by PZTiR.

A station was comprised of a transmitter, hand generator, two identical receivers (main and auxiliary) each with a battery back pack, wireless remote control units and accessories. An interesting feature was a built-in Morse key on the transmitter front panel. The auxiliary receiver could be carried on the chest and operated on the move.

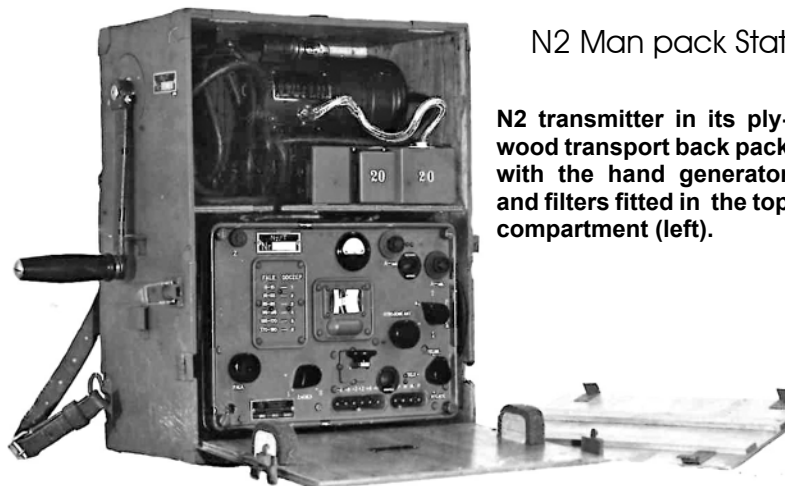
There were three variants of a N2 station:

- N2/B for infantry, installed in two wheeled limber (Polish 'Biedka')
- N2/T for cavalry, installed in a limber and cart (Polish 'Taczanka')
- N2/S installed in a Polski Fiat 508/518 car ('Samochod').

The frequency dials of both transmitter and receiver were calibrated in standard channels with 25kHz spacing: Channel 0=6750kHz and Channel 180=2250kHz.

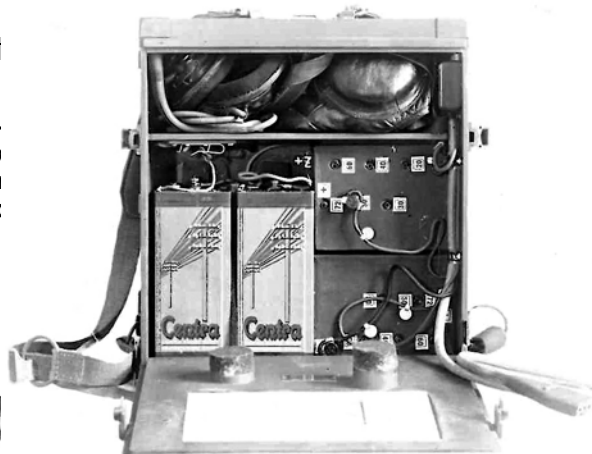
The N2 could be operated on the move but with a much reduced range. A portable N2 ground station, carried by three men, comprised a minimum amount of equipment for establishing communication such as the transmitter and hand generator pack, one receiver with battery back pack, aerial gear and a small tent.

Remote control units, a local and remote unit, provided R/T communication via a four wire line of up to 200m away from the N2 station



N2 Man pack Stat

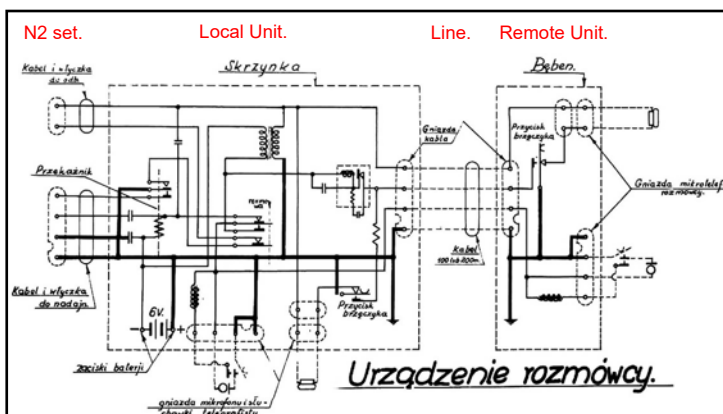
N2 transmitter in its plywood transport back pack with the hand generator and filters fitted in the top compartment (left).



NZ receiver batteries and accessories back pack.



A N2 man pack (ground) station comprised the most essential components for establishing communication in the field. It was carried by three men; a small tent provided protection against adverse weather conditions.



Remote control units allowed R/T communication of the N2 from e.g. an observation location under cover, with the N2 still located at a more favourite site for wireless. The system consisted of a Remote Unit, connected via a (up to 200m long) 4 wire line to the Local Unit near the N2.

N2/T and N2/B Limber Station

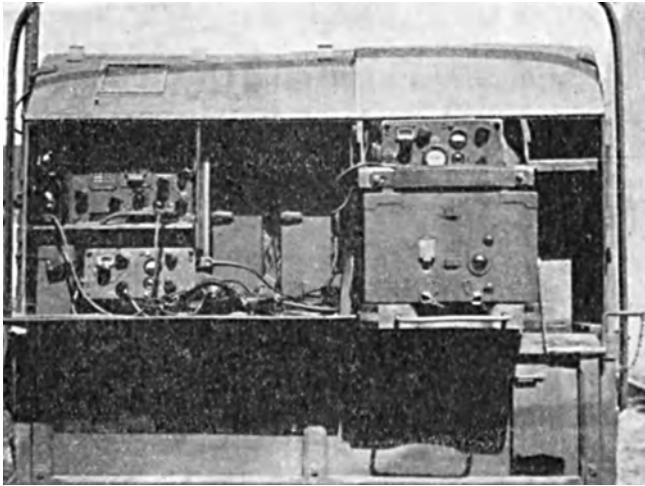
A N2/T limber and cart station was primarily used for communication within Regiments of Cavalry (below). It was towed by two horses or a motor vehicle.



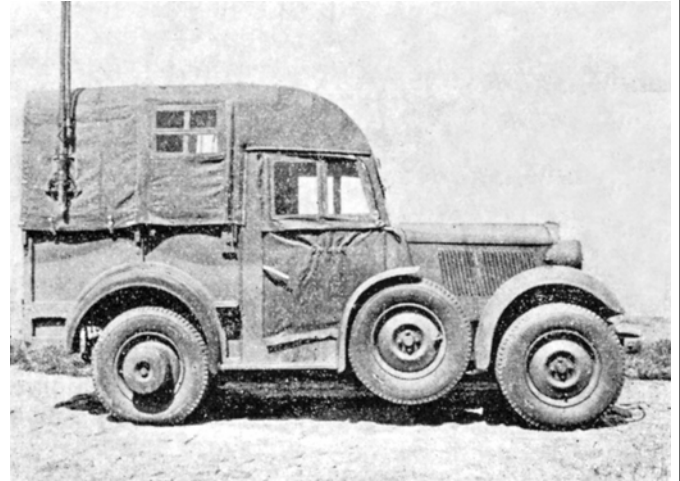
The N2/B Battalion-Regiment of infantry station was fitted in a two wheeled limber (Below).



N2/S vehicle Station



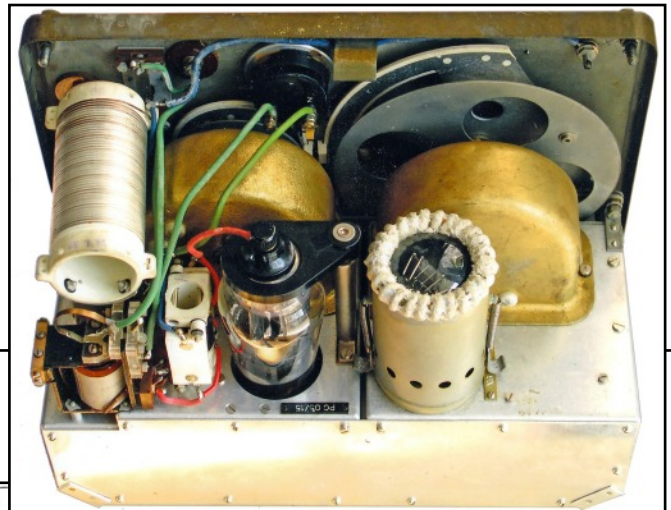
View of N2/S equipment in a Polish Fiat 508/518. Transmitter top left, receiver and local remote control unit bottom left, two receiver battery boxes centre, second receiver (with watch) top right, and transmitter back pack below right.



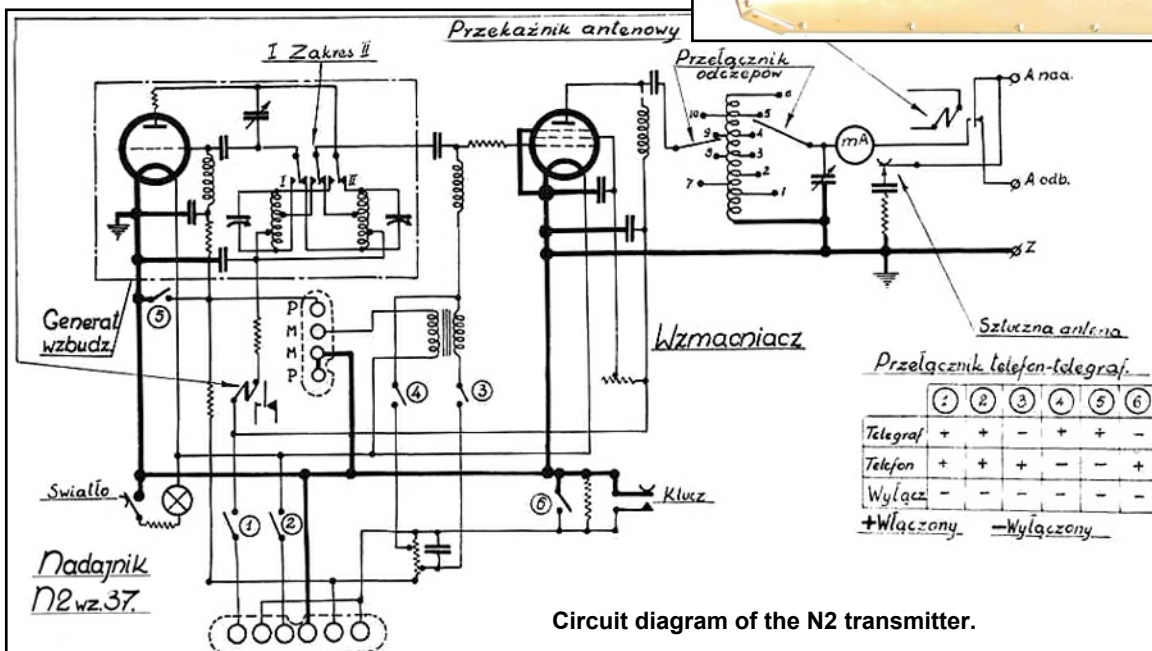
A Polish Fiat 508/518 wireless vehicle fitted with a N2/S station.



Wireless operators with a N2 station mounted in a Polish Fiat 508/518 (left).



Internal view of N2 transmitter (right).



Circuit diagram of the N2 transmitter.

Człon wielk częst i przemiany

Człon pośredniej i małej częstotliwości

Odbiornik N2 wz37

Człon zasilania

Przekształtnik zasilający

Kondensator jednorodnego dostrajania

Światło


Reakcja

Opornik rozrzenia

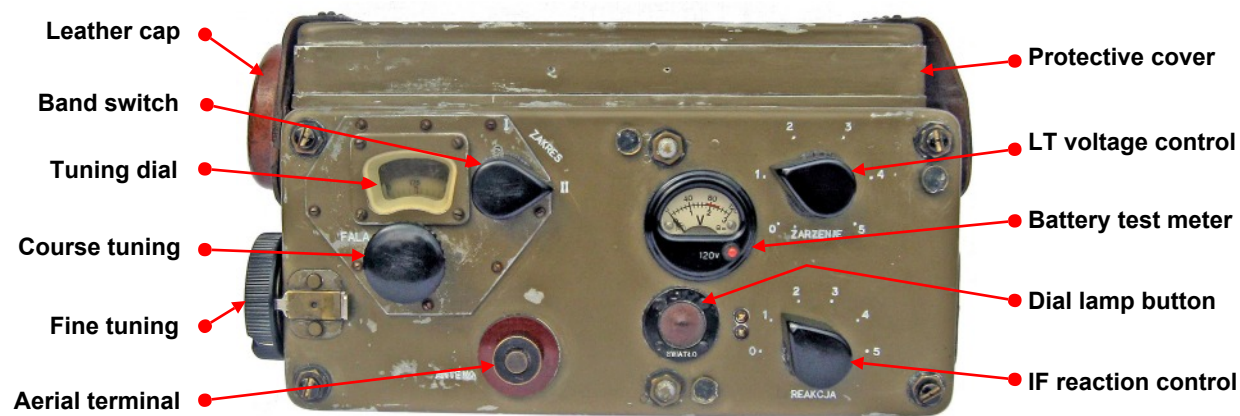
Silniczek

-A -Z +Z +A

Circuit diagram of the N2 receiver.

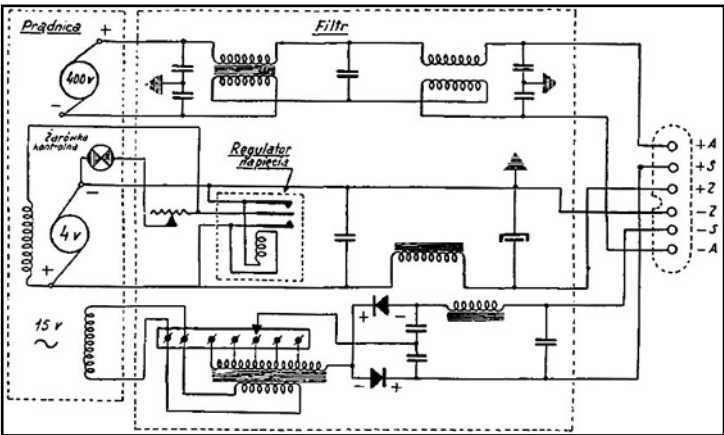


Internal view of the N2 receiver (left).



Leather cap
Band switch
Tuning dial
Course tuning
Fine tuning
Aerial terminal
Protective cover
LT voltage control
Battery test meter
Dial lamp button
IF reaction control

Functions of controls N2 receiver.



Circuit diagram of the N2 triple voltage hand generator (left). The Type WR-37 generator delivered 400-440V DC at 65mA; regulated 4.6V at 1.2A and -15V at 150mA.

References:

- With thanks to Bogdan Szkudlarek, SP3LD, Poland for his scans of the user manuals, and colour photograph of the N2 receiver.
- Roman Buja, Poland, translated the Polish text and permitted the use of photographs from his book 'Radiostacje Polowe'.
- Radiostacje Polowe, Roman Buja, ISBN 978 83 7769 588 3, Edipresse, Warsaw 2014.
- Instrukcja do Radiostacji typu N2 wz. 37 (tymczasowa), n.d.
- Zestaw Radiostacji typu N2, Biuro Badań Technicznych Wojsk Łączności, Warszawa, 1936.