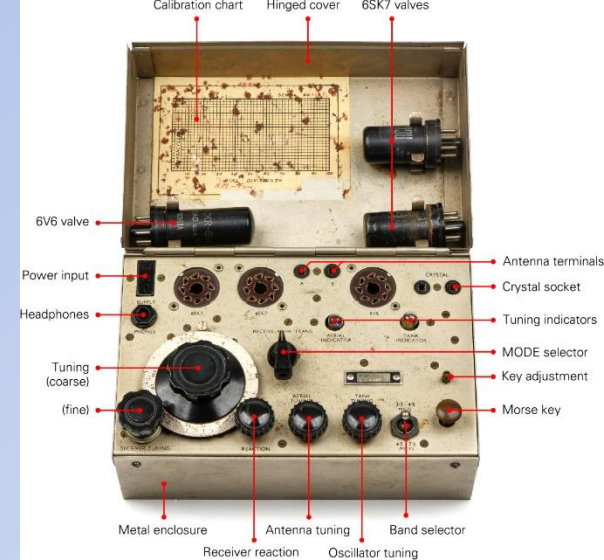


The WWII Paraset



The portable QRP rig that connected WWII
resistance groups in Europe to London

Larry Ryan W7DGP

SEA-PAC June 2022



The WWII Paraset

What we will talk about today:

Who am I?

What exactly was the “paraset?”

What WWII conditions called for such a rig

Who used the Whaddon Mk VII paraset?

Were there other radios used?

Replicas and my paraset-style rig



My humble beginnings

My first transmitter as a 14 year-old novice, WN7DGP, March 1956:

Paraset: 1942

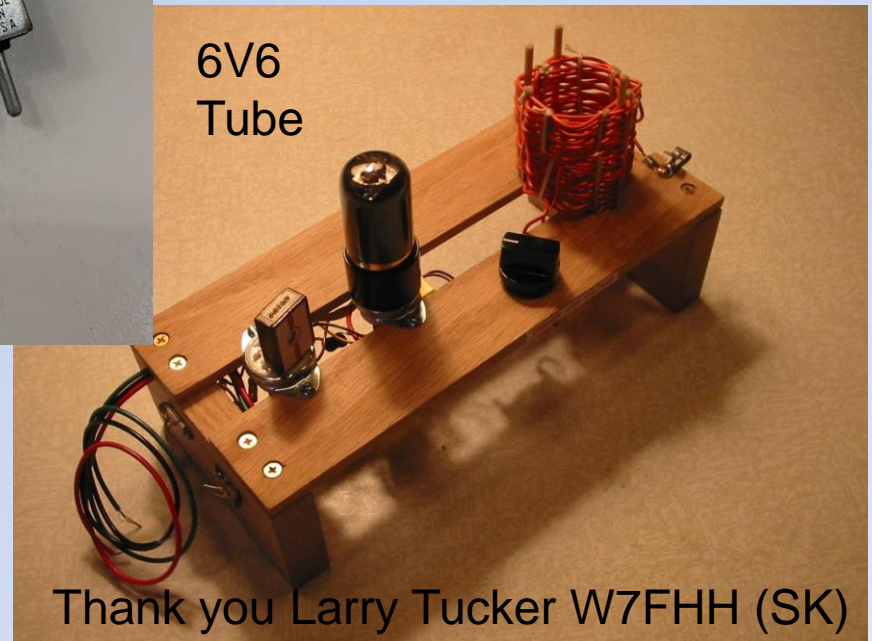
My novice rig: 1956

14 years later!

3736 KHz
Crystal



6V6
Tube



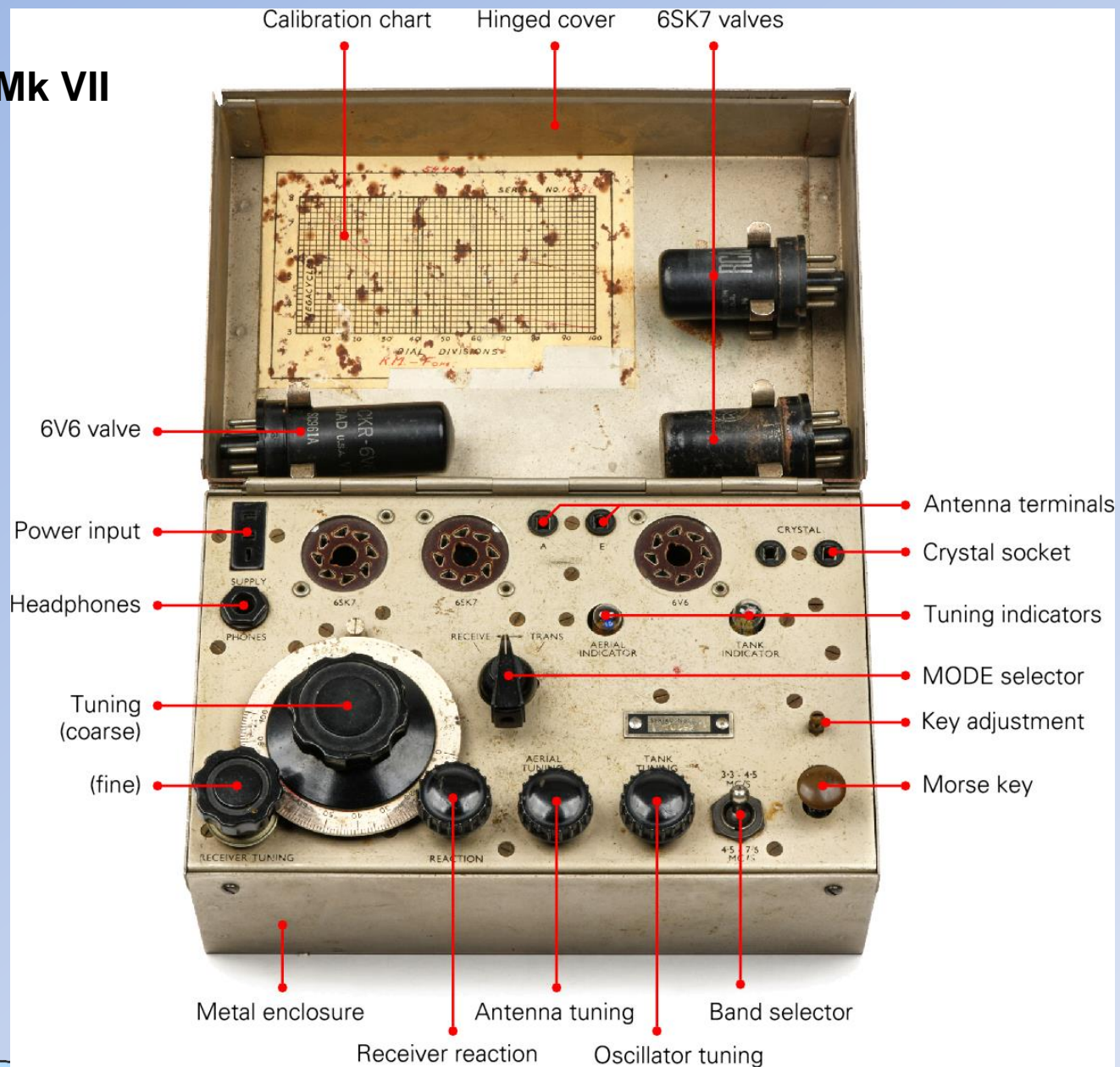
Thank you Larry Tucker W7FHH (SK)

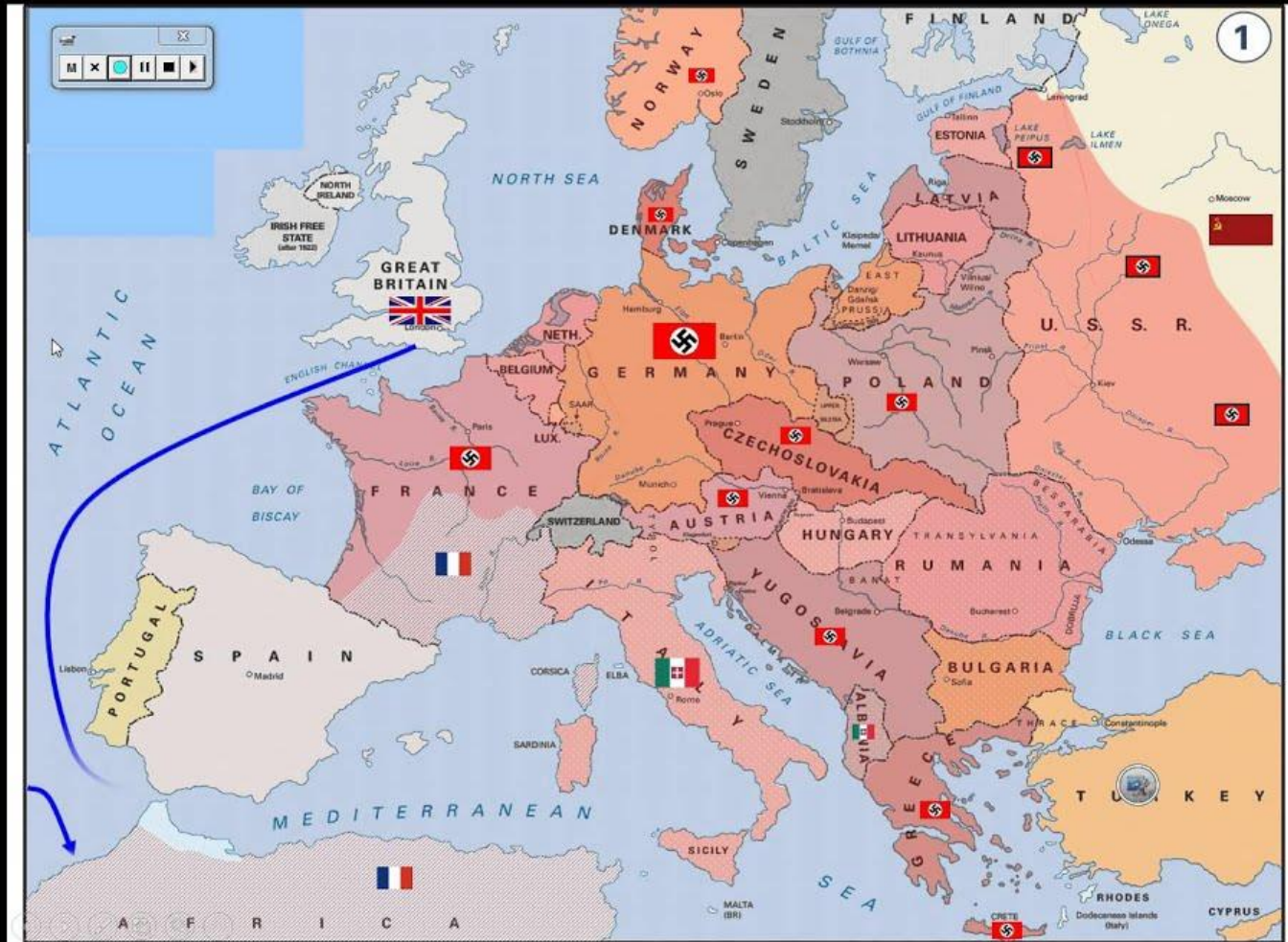
My big upgrade: 6L6 in the output

My upgrade! Heathkit AT-1



Whaddon Mk VII





Hitlers dream: Operation Sea Lion

1940: the British were prepping for an invasion – massive callup for troops – recovery from Dunkirk – formation of many new organizations for intelligence gathering – pressure on US to join war – “Lend Lease” – Enigma code cracked - Radar invented - Battle of Britain pushed back the Luftwaffe – Germany starts the “Blitz” which ended in May 1941.

New organizations: Volunteer Interceptors, SIS (Secret Intelligence Service MI5 and **MI6**, **SOE** (Special Operations Executive)



Two main British organizations dealing with communications during WWII

SOE

Special Operations Executive

SOE's objectives were to conduct espionage, sabotage and reconnaissance in occupied Europe (and later, also in occupied Southeast Asia) against the Axis powers, and to aid local resistance movements.

Churchill's order: "Set Europe Ablaze"

MI6

MI6, formally Secret Intelligence Service, British government agency responsible for the collection, analysis, and appropriate dissemination of foreign intelligence. MI6 is also charged with the conduct of espionage activities outside British territory. MI6, Section VIII designed and built the Whaddon Mk VII

Type 3, Mk II

"B2"



Mk VII

Two main German and American organizations dealing with communications during WWII

Abwehr

The German Abwehr was an intelligence-gathering agency and dealt exclusively with human intelligence, especially raw intelligence reports from field agents and other sources. They spent much of their time attempting to “DF” British and American agent’s radios. They also infiltrated into the UK with various successes and huge failures.



OSS

The Office of Strategic Services was the intelligence agency of the US during the war. They coordinated espionage activities behind enemy lines for all branches of the US military. Famous for “Jedburgh” teams that parachuted into France to aid the resistance movement against German occupiers.

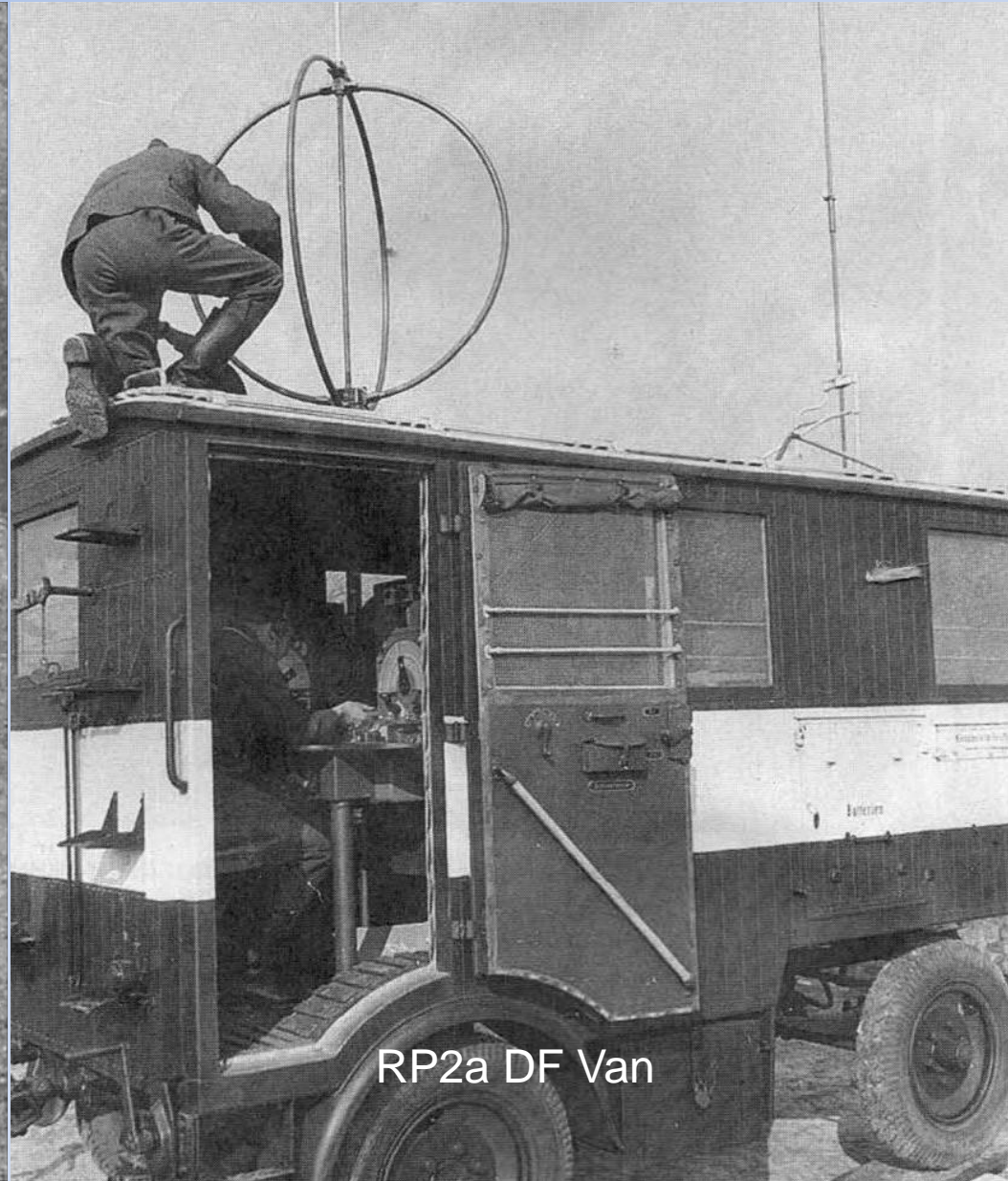


German Abwehr Direction Finding

Gürtelpeiler: Mag loop around the neck!



A 7-tube superhet RX inside



RP2a DF Van



Inside a mobile RP2a station. The dial on the right is the frequency-selector. The operator's hand is on the wheel that rotates the antenna until he hears the signal die. He can then read off the bearing from the scale above the wheel.



An Fu.NP.E RDF set being operated from a fixed base. Note the shape of the antenna.

Who's listening? (Except for the Abwehr)

Y Stations – Voluntary Interceptors (VIs)

Mostly on their own personal receivers (Transmitters and crystals impounded 1939)

Many listening posts were established throughout the war

Mostly copied enemy traffic and forwarded to Bletchley by
landline TTY

SOE Listening posts (shown below – First Aid Nursing Yeomanry – “FANYs”)
communicated with SOE agents throughout Europe

MI6 Section VIII listening posts

Strictly copied MI6 agent traffic using HRO receivers on the HF frequencies



Radio Security Service – MI6

- Originally set up in 1939 by MI5 to catch German spies infiltrating the UK
- Soon transferred to MI6, Section VIII to intercept all German communications and comm with MI6 agents in the field
- Included all VIs and MI6 listening stations
- Divided up in SCUs, Special Comm Units
- 1943 included DF units
- 3000 intercept operators + 1500 VIs
- 1000s of HRO receivers from US
- All enciphered comm sent to Bletchley



Regio
Group
Sub-

R.S.S. Log Sheet

(1)
BERTIE

(2)
MESSAGE AND REMARKS

QSAO PSE CALL -K -SRI QSAO QRX NEXT NW7 GR

NIL HK ND 22ND 34 QRM (QRM BLOTTED E OUT
NOTED THANKS
QTC (LISTENED TILL 1915 BUT ND)

QTC CT 935/71 = (VY HEAVY ATMOSPHERIC

AOHLC	VUBAK	-NK12	MHPXN	LTUPK
XFGE L	WOFYH	R DZFZ	RZAXP	DFJZL
TYHNW	OPLDU	NECIW	FSTGS	QVY16
DVDQX	WBDMT	MHRWW	NKLFW	UFF -
THZGQ	DOVKW	CZEHQ	MWEKE	HZ - 2
ZQDD	MWPF	VXA04	KQVW	MESKD
RPT	W35	PSG 43Y		CNCX8

IF K

CT T P

MI6 message from Norway: Operation CYGNUS, 24 Oct 1943

OST SECRET

CYGNUS. 24.10.43.

"E" Office	11/527
Mottatt: 25/10-43	24.10.43.
J. Nr. 2290/43/V	Arkiv: Cygnus

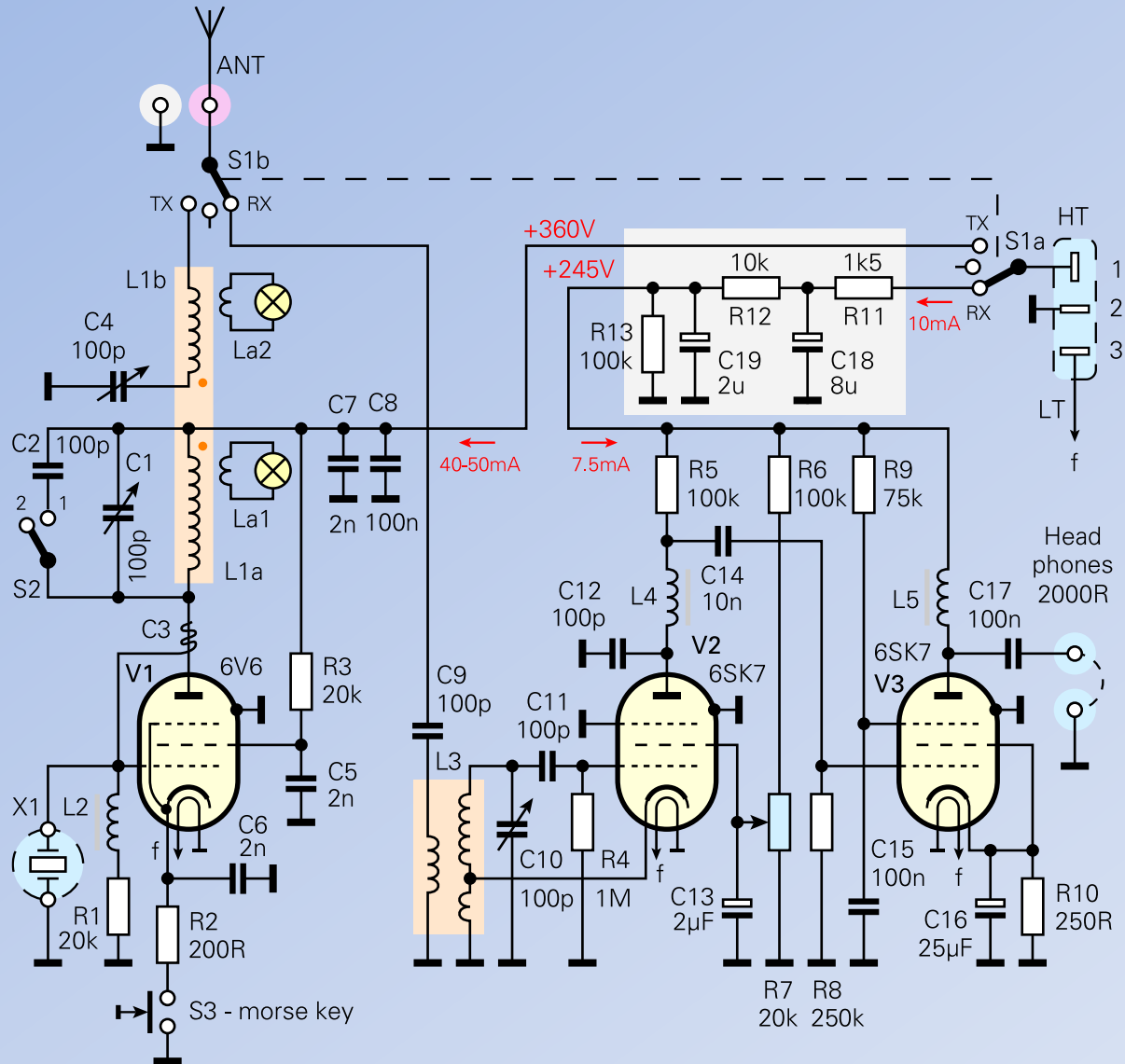
Hour of observation 1230. One tanker over 10,000 tons, loaded, one cargo ship between 2500/5000 tons, and one between 5000/7500 tons, both in ballast, escorted by three torpedo boats of 800 tons, one ahead, one middle and one abaft, and one patrol vessel ahead, passed on a southerly course, speed 9.

WHA

A closer look at the Whaddon Mk VII Paraset



Whaddon Mk VII Schematics

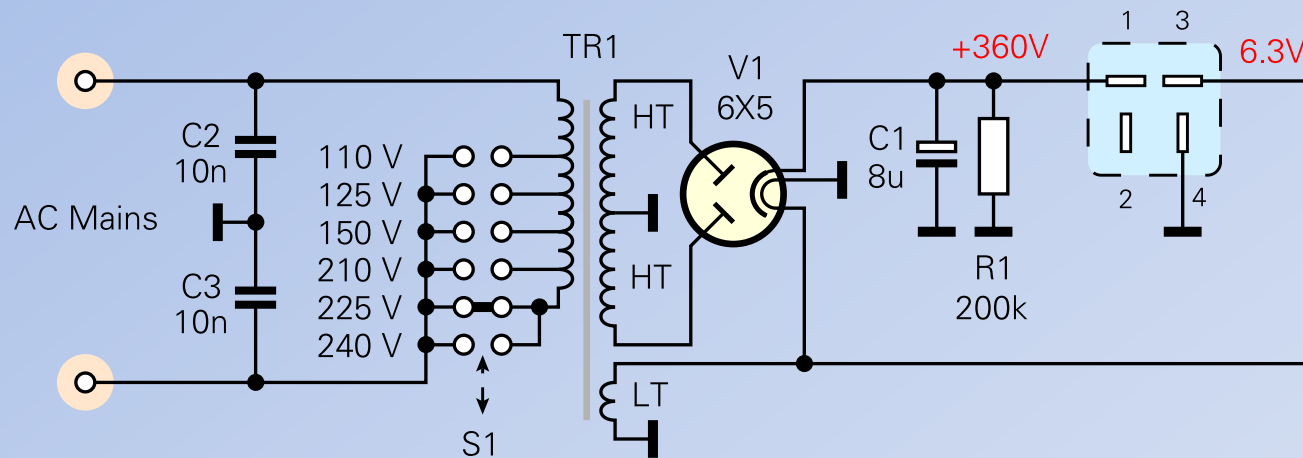


Oscillator/PA

Regenerative detector

AF amplifier

Whaddon Mk VII Schematics – Power Supply



The MK XV radio – QRO version of the paraset:

Developed by MI6, Section VIII at Whaddon Hall in 1943.

It covers a frequency range from 3.5 to 16 MHz in 3 bands, and produces an output power of **15 Watts**.

Used mostly in S. France and Norway where more output power was needed

Superhet Receiver



Note that this RX did not emit the loud signal during receive like the Mk VII

*Power supply (not shown)
100vac to 220vac + 6v
Vibrator power supply

2-tube Transmitter



Paraset Replicas

Photo courtesy of Christopher Fawkes G4UDG



Photo of his Paraset replica courtesy of Christopher Fawkes G4UDG



Whaddon Mark VII replica by Gary Auchard, W0MNA

At Ozarkcon 2022 won "Best in class" plus "Best of Show" in the building contest. This replica was years in the making and is historically accurate. Gary says it puts out 8.5 watts and the receiver is quite sensitive.



Component side of Gary's Whaddon Mk VII replica



My “paraset”: The Bayou Jumper from 4SQRP



My “paraset”: The Bayou Jumper from 4SQRP



Specs:

Regen RX

Varactor tuning

Fine tuning

Preamp

Audio filter

5W TX, IRF-510 MOSFET

Sidetone

EZKeyer Ili with 3 memories

Built-in key

Crystal controlled

My “paraset”: The Bayou Jumper from 4SQRP



Note: The original Paraset used a long wire antenna. I use an EFHW antenna



KOEMT Transformer
Experimentation Board
EFHW 49:1

Paraset must-reads

The Paraset Radio, by Hiroki Kato, AH6CY

The Secret Wireless War – The story of MI6 communications 1939-1945
by Geoffrey Pidgeon

Radio War: The Secret Espionage War of the Radio Security Service 1938 – 1946
by David Abrutat

Between Silk and Cyanide: the story of SOE's code war / Leo Marks. (Also
watch Leo Marks excellent video on You Tube)

MI6: British Secret Intelligence Service Operations, 1909–1945 by Nigel West

Purnell S., A Woman of No Importance (American spy, Virginia Hall)

Reed, Oluf, Two Eggs On My Plate

Hebditch, David, Covert Radio Agents, 1939 - 1945

