

THE AT5 TRANSMITTER

T. O. Wooler
1 Glenrock Ave., Wahroonga, NSW, 2076

The AT5 transmitter and its companion receiver the AR8 were produced by AWA for Hudson and Catalina aircraft. This unit is available in Sydney for around 15 dollars at disposal stores and as such is an ideal start for a new Novice. It is already crystal locked and operational on 80m and without much alteration, could be made operational on 15m. All that would be necessary would be a receiver, which provides some scope for home construction. The following is useful information to get an AT5 operational on 160m, 80m, 40m, 20m; AM and CW with minimal expense.

BRIEF SPECIFICATIONS:

Weight: Transmitter 35 lbs; Aerial Coupling Unit 22 lbs; Power Supply 58-73 lbs.

Electrical: 12 or 24V DC Heaters; 550V DC at 160mA; 300V DC at 250mA.

OPERATION:

For medium frequency a Master Oscillator (VFO) is used providing a range of 140-500 kHz. On high frequency there is provision for both crystal locked and VFO operation, covering 2-5 MHz. Using doubling in the Buffer Amplifier (BA) and in the Power Amplifier (PA) total coverage is 2-20 MHz. Input to the finals (2 x 807) on CW is approx. 90 watts, AM and MCW 30 watts. Power output into a 100 ohm load is approximately 50 watts CW at the fundamental frequency and is somewhat reduced when doubling is used in the BA or PA. Three modes of transmission are possible: CW, MCW, and AM (R/T).

DETAILS:

Medium frequency operation.

The VFO used one 807 (V3) covering 140-500 kHz in four bands. This drives the PA (2 x 807; V4, V5). On MCW and AM, the PA is grid modulated by a 6V6-GT(VI). VI is a tone oscillator on MCW, also providing a side-tone on CW. Freq approx. 950 Hz: on AM it is a microphone amplifier. The MCW modulation varies between 40-80 per cent depending on carrier frequency.

High frequency operation

The H/F VFO uses a 6V6-GT(V2) covering 2-5 MHz in four bands. On H/F there is also provision for crystal locked operation using the same 6V6-GT for an oscillator. The signal then goes to an 807 (V3) operating as a BA or frequency doubler. This drives the PA (2 x 807; V4, V5), which can also be used as a frequency doubler. The PA is modulated by 6V6-GT(VI) in the MCW and AM modes. The modulation level may be increased by detuning the BA.

M/F H/F changeover

Two mechanically ganged switches S5 and S3 perform all the necessary changeovers.

Contacts are also provided for operation of a relay in the ACU to changeover antennae tuning circuits.

Keying

All valves are controlled including the modulator. The cathodes are passed to ground by 1M resistor R20, the key "shorts out" R20 thus closing the cathode return.

Metering

A meter is switched by S2 to monitor various currents to help in tuning up and to check operation of the set. Typical Currents:

H/F oscillator	xtal	2-4mA
	VFO	4-5mA
H/F BA w/out drive		45-50mA
with drive		25-35mA
H/F PA Grid 10-2MHz		6-14mA
Anode		
w/out drive		90-110mA
at BA Freq		40-50mA
2x BA Freq		60-70mA
Mod. Anode		25-35mA

Interwiring connections

All connections to the transmitter are made through the two outlet sockets on the front: as below—

Junction Box (Top)

Pin No.	Purpose
1	Keying relay connection
2	CW remote control
3	LT supply 26V neg
4	Sidetone output
5	Intercommunication microphone input
6	Remote control unit microphone
7	Pulse sender connection
8	RCU Send/Receive switch
9	Operator's microphone
10	Cathode return
11	RCU generator switch
12	M/F H/F relay

Power Supply (Bottom)

Pin No.	Purpose
1	LT supply 12V pos.
2	Earth
3	LT supply 26V neg. 12V neg.
4	LT supply 26V pos. 12V neg.
5	
6	
7	Earth
8	Generator starting relay
9	HT supply 550V pos.
10	HT supply 300V pos.

CONVERSION TO 160m

An AT5 was converted to 160m by the author and Sam VK2BVS and was used for the 160m broadcast relay in Sydney, Christmas 1975. The conversions themselves involved lowering the VFO range and lowering the BA and PA tuning range.

The VFO range 2-2.5MHz is controlled by coil L101 and trimmer C101 to lower the tuning range L101 is adjusted using the slug inside.

To lower the BA range extra capacitance across C210 was added; if AM operation only is desired, this is not necessary as the detuned BA increases the modulation level. Extra capacitance must also be added across C32 and PA tuning.

Anyone who requires more information should contact the author. I have schematic diagrams for AT5, AR8, Power supply unit, Aerial coupling unit, Relay test unit; as well as a complete interwiring diagram and ACU wiring diagram; service and instruction manual for AT5, AR8, PSU, ACU.

LETTERS TO THE EDITOR

Any opinion expressed under this heading is the individual opinion of the writer and does not necessarily coincide with that of the publishers.

The Editor,
Amateur Radio
Dear Sir,

I was motivated to write this letter by the letter written by Roy VK3AOH in August's AR. In one section he advises against discriminating against the new Novice Licensees by the WIA. In this letter I do not wish to take up the cause of the Novice but that of the associate member of the Institute. Some might dismiss this letter as a disgruntled Associate but it was not written in that light. I do hope within the near future that I might have a call. Hence it would be easy not to say anything about the Associate's position but I will say what I feel needs to be said.

It would appear that an Associate is considered as a second class citizen compared to a full member (this assumes that other States work along the same lines as Victoria does) I say this because an Associate is ineligible to stand for, or even vote in the elections for the Local Divisional Council. Yet associates make up just under 24 per cent of the members of the WIA (this assumes that the figure under 'Other WIA members' (AR July 76, p. 22) equals Associate members). From these figures no State has less than 19 per cent of its members as associates. Yet 24 per cent of the members of the WIA are unable to vote or have any real say in the running of their Institute. My contention is that Associate members should have the same rights as those experienced by Licensed members and hence be able to have a say in the running of the Institute.

The age old cry is that if we do this then we will be flooded with associates. If this is the case then I say great. Look at all these who are interested in our hobby. Yet I would doubt if such a change would cause an enormous influx of Associates or a takeover of the Institute by associate members.

In these days where there is a great emphasis on equal rights for all it seems both a pity and quite wrong that those who have not passed the "PMG Exam" either through lack of knowledge at the present, or no desire to sit the exam, or, the inability to pass, should be discriminated against and be classed as second class citizens of our Institute. You might say all this is a bit rich and we never said it. In the long run it is not what you say that counts, but how you say it and then how you live it out.

R. A. Lenthall L30482.

QSP

10 GHz BAND

In the Microwaves column of Sept. '76 Radio Communication, a new 10 GHz record was claimed of 521 km between G4BRS in Cornwall, England and GM30XX/P in Scotland. The previous known record was between two W stations in 1960 over a 426 km path.