the coil was trimmed to twenty seven and one half turns, with the cathode tapped at the ninth turn and the grid tapped at the seventeenth turn from the bottom. For eighty the output is mixed with a 1 mc crystal oscillator, for forty with 4.5 mc and for twenty with 11.5 mc. Of course the purpose of this heterodyning is to extend the level-headed virtues of three megacycles to the upper bands, and the coil pruning data is supplied in the event that this approach interests you. Should you prefer trying eighty or forty with another unit of the series, and without voiding the warranty unnecessarily, tapping the grid down, adding a parasitic-choker and separating the coil and the cathode current will help an old friend do a good job.

. . . W7ATK

The AN/ARC-5 Command Receivers

Roy Pafenberg W4WKM
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The AN/ARC-5 Command Set Receivers are widely available on the surplus market and, for sheer utility, they cannot be equaled at the going prices. Although more has been written on the Command Set receivers [1] than on any other surplus electronic equipment, there is a distinct lack of information on the AN/ARC-5 version.

Many published articles on the Command Set receivers describe an application or conversion of the SCR-274-N components and then wind up with the statement that the instructions are generally applicable to the AN/ARC-5 equivalent. Let's face it—the AN/ARC-5 is different. Also, the AN/ARC-5 receivers are better in several respects. Increased audio output in the navigational receivers and the inclusion of AVC in all models are two of the significant improvements. Wiring in many models is improved by use of plastic insulated wire. Also, the black crackle finish of the AN/ARC-5 components is a distinct improvement over the bare aluminum used in many of the SCR-274-N models.

To provide a ready reference, a brief rundown on the characteristics of the AN/ARC-5 Command Set receivers is in order:

These units, along with the SCR-274-N receivers, all have certain features in common. All were designed for operation from a 24 volt dc aircraft power system and contained a dynamotor to supply the required plate voltage. All units were designed for remote operation and so no tuning knob, rf gain control, BFO or power switch were provided. All the receivers are equipped with a rear-chassis connector which established power and control connections when installed in the aircraft equipment mounting racks. In addition, most of these terminations are duplicated at a recessed front panel connector. This cutout was normally filled with a blank remote control adaptor panel although various special purpose adaptor panels are available. Among these is the type C-24/ARC-5 local control unit.

It is impossible to list, in the available space, all amateur uses of the Command Set receivers or to describe any conversion in detail. These units have been used for everything from Novice receivers to *if* elements in successful amateur moon-bounce experiments. The basic conversion consists of installing a tuning knob and the C-24/ARC-5 local control unit or home-brew

Type	Frequency Coverage	*IF* Frequency	Sensitivity*	Selectivity** 6 db	20 db	40 db	60 db
R-23/ARC-5	19 - 550 kc	85 kc	5 μv	2.2	4.4	6.6	9
R-24/ARC-5	.52 - 1.5 mc	239 kc	7 μv	4.2	8	12	16
R-25/ARC-5	1.5 - 3.0 mc	705 kc	7 μv	6.4	12	18	26
R-26/ARC-5	3.0 - 6.0 mc	1.415 mc	6 μv	14.6	26	38	52
R-27/ARC-5	6.0 - 9.1 mc	2.830 mc	6 μv	26	52	80	112

* Signal level in microvolts, modulated 30% at 400 cycles, required to produce 10 mw audio power into a matched 300 ohm load.
** Selectivity is defined as the separation in kilocycles of the two points on the overall rf-*if* response curve where the signal level is down the specified amount.

1 "Index to Surplus," available from 73 Magazine for $1.50, lists 82 articles on Command Set receivers that have been published since 1946.

equivalent. A phone jack and connection of 28 volts ac and B+ to the back connector completes the job.

The high frequency units may be used as complete amateur band receivers and the low frequency navigation receiver works wonders in the famous "Q5-er" application. In this use, the antenna of the Command Set receiver is coupled to the last *if* stage of the normal station receiver and tuned to the *if* frequency. The greatly increased selectivity of this outboard unit will improve the performance of older or less expensive current production receivers. The reference lists a host of magazine articles citing numerous other applications along with full conversion details.

This just scratches the surface. Accumulate the references, buy a receiver, and dig in. You can scarcely go wrong and nowhere can you get so much performance, along with practical experience, for so little money. . . . W4WKM

Letters

Dear Wayne,

I dropped my subscription to CQ because of the OLD MAN. I can't see how he turns out so much garbage on a "part-time" basis. The following may be interesting to Apache-SB-10 owners: I've found out that I get a little better operation and a lot cooler transmitter when I use a separate power supply for the SB-10. The 140 ma voice peaks are quite a strain on the Apache.

. . . Neil Lilien K2MRB

Dear Wayne,

Here is an idea for converting 6-volt car radios to twelve volt operation. The conventional method is to use a ballast resistor in series with the radio. My approach is to use the filaments themselves for the series resistor, and to connect the vibrator supply in series with the paralleled filaments. The average set draws two amperes in the vibrator supply and two in the filament supply. This makes them draw close to six volts when connected in series, and no current is wasted on a ballast resistor, hence, total power drain is less.

. . . Lee Tomes K1IFK

Dear Wayne,

Many thanks for the excellent article "432 mc Gallon" by K2TKN. However a word of caution should be exercised by all amateurs when experimenting with high power in the UHF region.

Since the low end of the microwave region (300-1000 mc) has the deepest penetration of the skin, it can destroy or damage internal living organs of the body with prolonged exposure. Power outputs of 200 watts or more at 400 mc can be dangerous if not handled properly.

. . . Arnold J. Carmody K2BZC

Hey, wait'll you take a look in my new 420 mc slot antenna!