

THE E. H. SCOTT SPECIAL COMMUNICATIONS RECEIVER

Bruce Kelley, W2ICE

59 Main St., Bloomfield, NY 14469

John T. Meredith

Marina Cove Drive, Niceville, FL 32587

It was 1939 and the world was drawing close to war. Overseas stations were beaming news and propaganda 24 hours a day and E. H. Scott, ever the DXer, wanted to keep abreast of events. In case of war, too, the electronics market would turn from consumer to professional equipment. The result: the Scott Special 26-tube communications receiver.

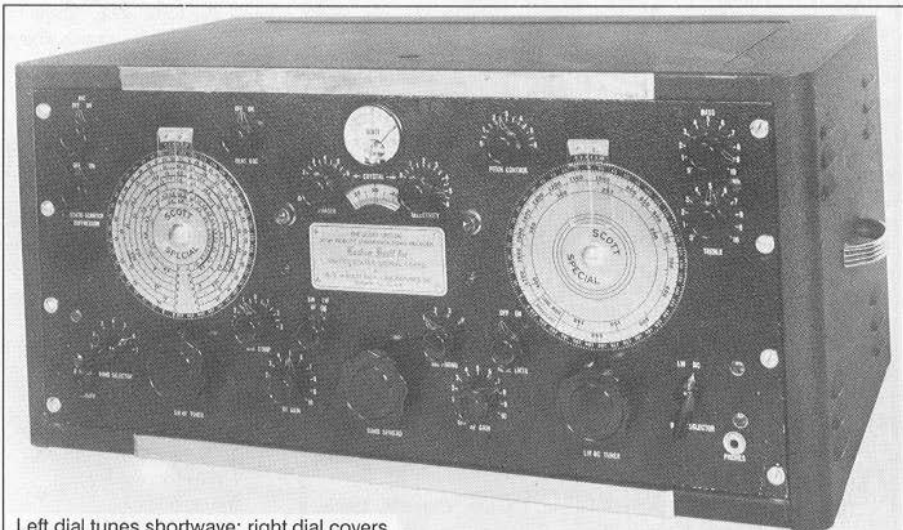
Unlike other receivers of the day, it contains two complete, separate front ends. One tuner, with two bands, covers long-wave and broadcast - 140 kHz to 1710 kHz. The other tunes the shortwave spectrum in seven bands, 1.7 to 64 MHz, for a total of nine tuning ranges. This is a ratio of 460:1, or eight-plus octaves.

Both tuning knobs have flywheels for smooth operation. As with Scott's home receivers, the broadcast-band dial scale is calibrated every 10 kHz. There is calibrated electrical bandspread on the shortwave bands, with a third dial - *vernier bandspread* - visible in the center of the front panel. Individual graphs of the frequency vs. vernier scale were provided for the 5-, 10-, 13-, 16-, 19-, 20-, 25-, 31-, 49-, 80-, and 100-meter bands.

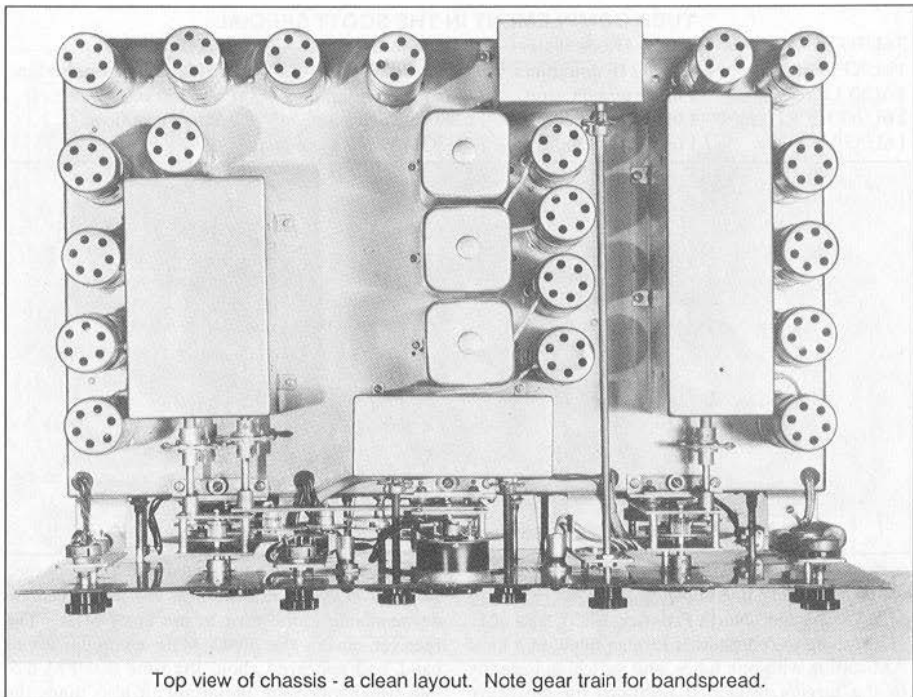
The set provides a BFO for CW reception, crystal filter with phasing control, amplified AVC, variable selectivity, a signal-level meter calibrated in "S"-units and decibels, a send-receive relay (with red and green lights!), and other features found in better communications receivers. A special fea-

ture is electrostatic shielding between the primary and secondary windings of each antenna transformer, minimizing transfer of unbalanced noise voltages arriving on the balanced antenna line. Promoted as "Super Shield," this feature had been developed by Murray Clay, one of Scott's chief engineers. There are separate unbalanced antenna inputs for the 20.1-37.0 and 33.3-64 MHz bands. The set has two tuned RF stages on all nine bands and a total of 19 panel knobs plus accessory indicators. The chromed chassis is housed in a 19" rack cabinet, with external amplifier-power chassis.

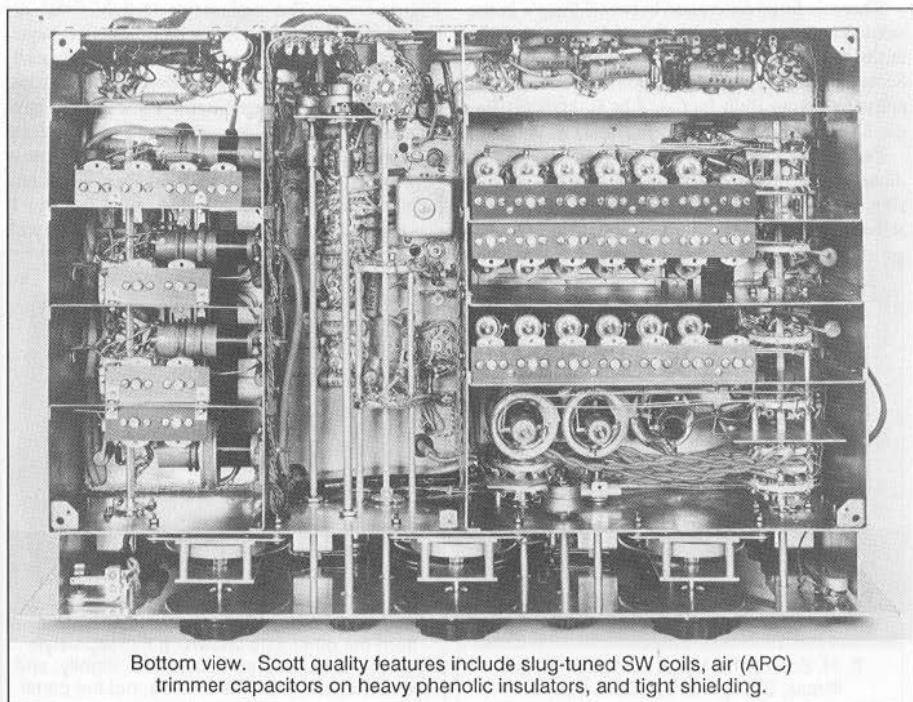
Although not a prerequisite for a communications receiver, the famous Scott high-fidelity audio system is employed, consisting of a pair of 6J5s driving push-pull 6L6Gs (ca. 35 watts output) with feedback. Treble and bass controls are included. To enhance listening pleasure, the receiver has a phono input with a scratch suppressor (usable, in radio operation, in addition to a conventional noise limiter). The receiver manual does not specify audio frequency response but does show selectivity curves (3 to 16 kHz wide at 6 dB down, or 250 Hz wide with the crystal filter). As with the home sets, a high-frequency equalizer "brings back" the treble response despite the IF selectivity. Circuit-wise, the power chassis shows origins in the Phantom and Sixteen home receivers, and is very close to that of the Phantom Deluxe FM. The set could be used with headphones, or with a Scott 12-



Left dial tunes shortwave; right dial covers the low bands. Note "transmit" and "receive" lights at upper corners of the nameplate.



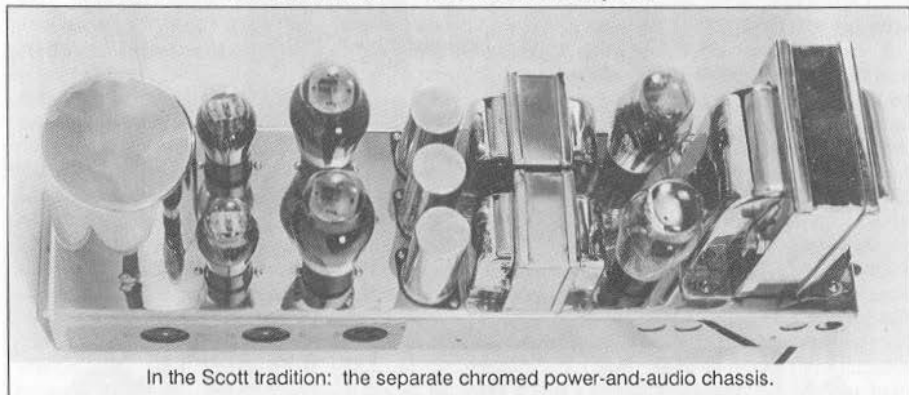
Top view of chassis - a clean layout. Note gear train for bandspread.



Bottom view. Scott quality features include slug-tuned SW coils, air (APC) trimmer capacitors on heavy phenolic insulators, and tight shielding.

TUBE COMPLEMENT IN THE SCOTT SPECIAL

2 6U7G LF RF amps	1 6J5G HF oscillator	1 6J5G phase inverter	1 6J5G meter amp.
1 6L7G LF mixer	3 6K7G IF amplifiers	2 6J5G audio drivers	1 6H6G Dickert noise lim.
1 6J5G LF oscillator	1 6J7G scratch supp.	2 6L6G audio output	1 VR-150 voltage reg.
2 6U7G HF RF amps	1 6B8G detector-BFO	1 6B8G scratch supp.	2 5U4G rectifiers
1 6L7G HF mixer	1 6K7G first audio	1 6U8G AVC IF amp.-rect.	



In the Scott tradition: the separate chromed power-and-audio chassis.

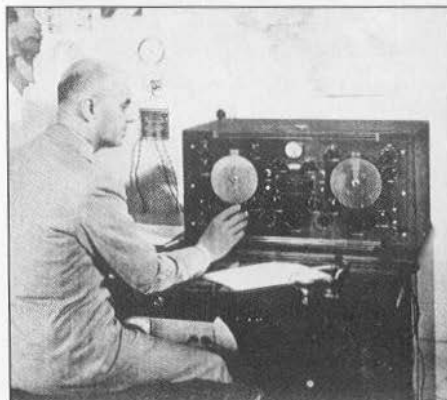
inch speaker and crossover network.

Marvin Hobbs' fine book, *E. H. Scott, The Dean of DX* (Chicago: North Frontier, 1985), tells of E. H. listening to rebroadcast foreign news on a local AM station with one tuner, and switching instantly to the foreign broadcast pretuned on shortwave with the other tuner for comparison.

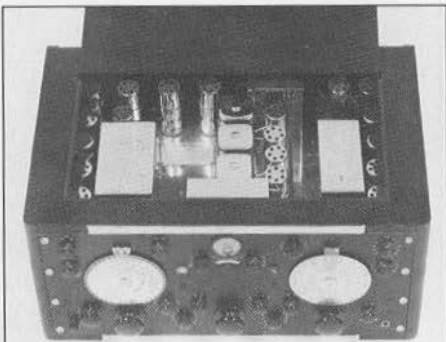
There is little difference between Scott's home version and the military model. A large nameplate in the center of each set bears the engraving: "The Scott Special/ High Fidelity Communications Receiver/ Custom Built for/ --- / by E. H. Scott Radio Laboratories, Inc./ Chicago, Ill. U. S. A."

Technically the set is a bit quirky. The extraordinarily wide frequency range, in a single-conversion superhet, overstresses the balance between selectivity and image-ratio performance. The RF

stages use the 6U7G tube, basically a repackaged 78 from 1933 and not the best low-noise technology available at the time to use at 64 MHz. The receiver covers the 30-42 MHz communications band, and appeared about the time that FM mobile systems became important; it also tunes the 42-48 MHz FM broadcast band. Yet it lacks an FM detector. The explanation is that it was designed in July-August 1939, with production beginning in September and extending into the early spring of 1940. (The first set was Scott's personal one.) At the time, Scott Radio Labs did not have a chief engineer. Murray Clay had left the company in April, and Marvin Hobbs came to Scott in September. Mr. Hobbs recalls seeing the first unit being assembled on his first visit to the factory. It was Clifford Coon, Chief of Production, along with



E. H. Scott at his home in Highland Park, Illinois, DXing with the Scott Special.



A Special today. This one varies in details from the other sets shown. It has RCA-style knobs; the bandspread dial differs slightly; and the nameplate is on the chassis, not the panel.

Scott, who designed the receiver (Coon's signature is on the factory schematic diagram.) It was Scott's idea to put two receivers together as the Special. By contrast, Hobbs was hired specifically to put FM in Scott radios. This explains why Coon employed the obsolete 6U7G, whereas Hobbs used the new, "hot" 1853/6AB7 in the FM tuner he designed. The tuner was designed in late 1939 and produced in 1940. (For a discussion of Hobbs' design for the FM Philharmonic receiver, see his article "FM Receivers - Design and Performance" in the August 1940 issue of *Electronics*.)

Only 20 of these remarkable receivers were made, at a price of \$650. One could buy four of Hallicrafters' top-of-the-line SX-28s for that sum. The Signal Corps was offered a set, which was tested in early 1941. For obvious reasons, the Government wanted a less expensive, scaled-down version for military use, like the Navy's RBO.

Of the seven receivers known to exist today, the serial numbers are assigned between JJ 251 (Scott's personal set) and JJ 271. Several sets were exported; one was used at one of New Zealand's consulates for communication work.

Looking at this treasure of the past, one can visualize, in the same cabinet, a modern amateur SSB transceiver with a 1-kW linear. Such is progress.

ACKNOWLEDGEMENTS

Both of E. H. Scott's chief engineers, Marvin Hobbs and Murray Clay, contributed invaluable assistance. Jim Clark and Kent King provided further support.

REFERENCES

- Scott News*, Vol. 11, No. 6, 1939, pp. 14-15.
E. H. Scott, in *Radio & Television*, Sept. 1940.
E. H. Scott and M. Hobbs, "Technical Data on the Scott Communications Receiver," 1939.

DOCUMENTATION ON SCOTT RECEIVERS

The following listing covers repair information on Scott radio receivers in Rider's binders and Sams' Photofacts, from the start up to "the end" in 1955, after the Scott line had been acquired by Meck Industries. It omits the television receivers made beginning in 1948.

This list may be helpful because the Rider's indexes are in error in some cases, and because Scott's inconsistent naming of models is a source of confusion. In many cases the Rider's documentation of a model is exhaustive, being essentially a reprint of the full service manual.

The Rider's information was published in an odd sequence: early Scott sets were documented in Vols. 1 and 3. Then silence set in for some years - perhaps Scott preferred to protect its service-representative network by withholding information from the general service trade. Then a policy change may have occurred: Vols. 14 and 15 retroactively document models of the intervening years.

Collectors having a Navy RBO receiver but no manual can use the Rider's coverage of the SLR-12-A; it is very close to the Navy instruction book. Likewise for owners of the SLRM: the "Export" material in Rider's Vol. 18 serves nicely.

Postwar sets were covered by both Rider's and Sams until the demise of Rider in 1954. As given here, the numbers refer to the Rider volume and page (in the Scott section). Photofact sets and folders are shown as "Sams."

16.....	14-65	1933 Deluxe AVC Super.....	3-2	Metropolitan.....	18-81
16A.....	18-81	2000.....	Sams 229-13	Musicale (phono amp.)	
18.....	14-65	2510.....	Sams 233-10		Sams 44-20
145 Power Pack.....	1-4	9052.....	Sams 265-12	Phantom.....	14-37
150 Power Pack.....	1-5	All-Wave Super.....	1-3	Phantom rev. (1939).....	15-9
310 (AM-FM RP).....	21-1;	All-Wave 2-V Battery.....	15-20	Phantom Deluxe.....	14-2
	Sams 154-11	All-Wave 15.....	15-23	Phantom Deluxe rev.....	15-13
500 (AM-FM RP).....	19-1	Dynamic Noise Suppressor		Philharmonic.....	14-43
510 Kenilworth and Sheffield			Sams 46-21	Philharmonic Combo.....	14-5
(AM-FM RPs)		Export.....	18-1	RBO.....	18-42
21-11; Sams 165-4		FM.....	14-8	Shield Grid 9.....	1-1
515 (AM-FM RP).....	22-1	FM Converter.....	15-1	SLR-12-A.....	18-42
800-B (S/N < 2000).....	15-31;	FM Tuner.....	14-1	SLRM.....	18-1
	Sams 165-11	Imperial 1933 Super.....	3-2	Super XII.....	14-63
800-B (S/N > 2000).....	15-35;	Imperial All-Wave.....	16-1	Symphony AC.....	3-1
	Sams 14-27	Imperial All-Wave (revised		World's Record 10.....	1-1
800-B6 whistle filter.....	16-2	volume expander).....	16-1	World's Record Screen Grid 10	
1000.....	Sams 180-8	Laureate.....	14-29		3-1
1510.....	Sams 181-11	Laureate rev. (1941).....	15-5		
1933 Deluxe.....	3-2	Masterpiece.....	14-35		