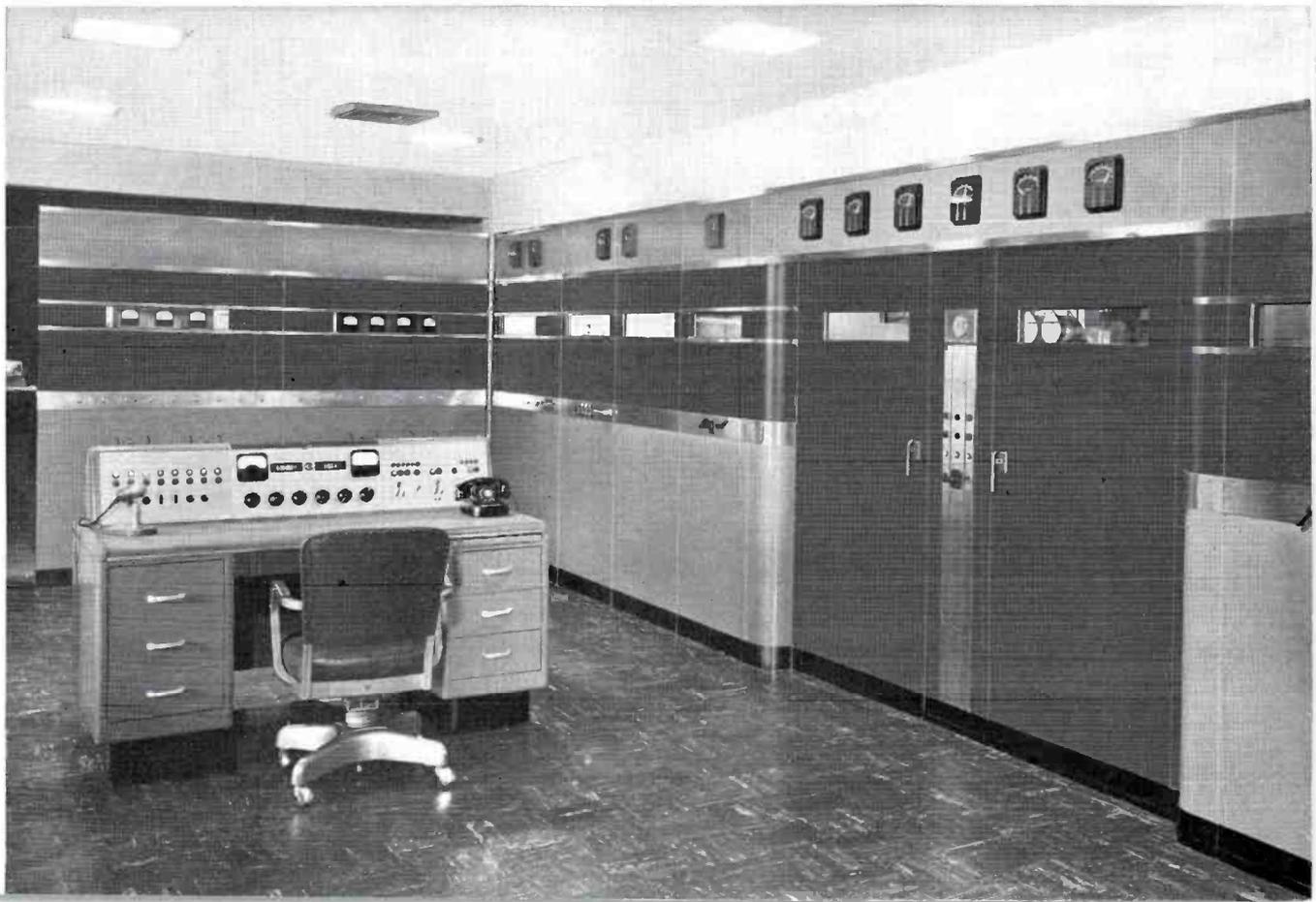


FIG. 1. 100-acre transmitting site of KRMG which is ideally located on a plateau not far from Tulsa. The land required no work prior to installation of the six-tower antenna system. Shown below is KRMG's new RCA 50 KW transmitter. Phasing equipment is built into the wall facing the supervisory console. Speech, monitoring and STL equipment is to the left of the console.



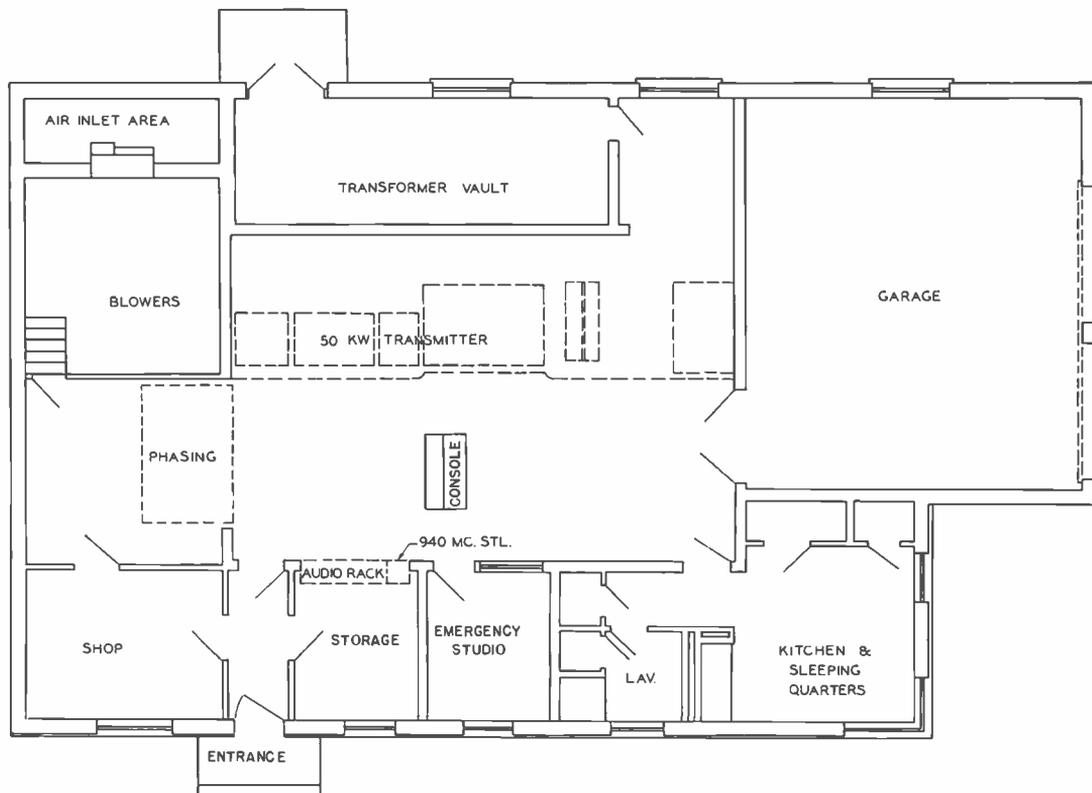
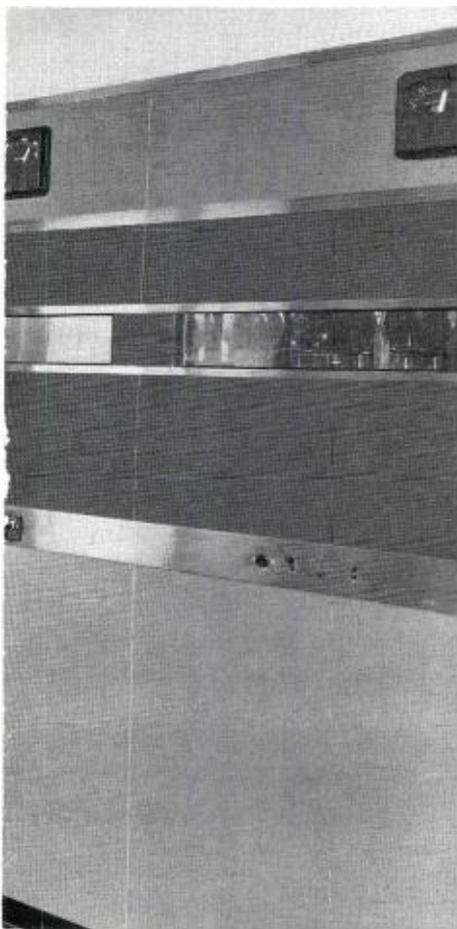


FIG. 2. Floor plan of the transmitter building which measures approximately 72 x 44 feet. Next to the storage room is an emergency studio which contains an auxiliary control panel with inputs to handle two microphones, two turntables, and the program circuit from the STL equipment. The studio building is located in downtown Tulsa, 18 miles away.



KRMG

TULSA'S NEW "FIFTY"

By

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Chief Engineer

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KRMG's new "fifty" is located eighteen miles west of downtown Tulsa as the crow flies—some twenty-six miles by road. The site was chosen after a great amount of survey work with an eye to the primary coverage of the Tulsa-Oklahoma City areas. The site is a natural one. Surrounded by rugged hills, KRMG's new "fifty" sits on a plateau of some one hundred acres as flat as the proverbial table top.

KRMG, which went on the air December 23, 1949, is owned by the All-Oklahoma Broadcasting Company, principal stockholders of which are Senator Robert

S. Kerr and D. A. McGee of the Kerr-McGee Oil Industries, Incorporated. The "All-Oklahoma station" is all the name implies. KRMG's 0.5 MV/V coverage includes at least a part of 63 of Oklahoma's 77 counties, plus 18 counties in Missouri, 14 in Arkansas, 13 in Kansas and 10 in Texas.

The actual construction period required but four and one-half months. One of the great time savers was the employment of solid di-electric co-ax which along with all the lighting, control, and metering circuits, is buried in sand-filled clay-capped trenches. The assistance of W. B. Fletcher,



RCA Service Company, in the completion of transmitter wiring was greatly helpful in making possible the short construction period. Some hardships were encountered during the construction period, however. At the outset a well had to be drilled to a depth of two hundred feet. The access roads were poor and during the construction fall rains prevailed. Despite the adverse weather the six towers were erected in a period of eleven days.

Antenna System

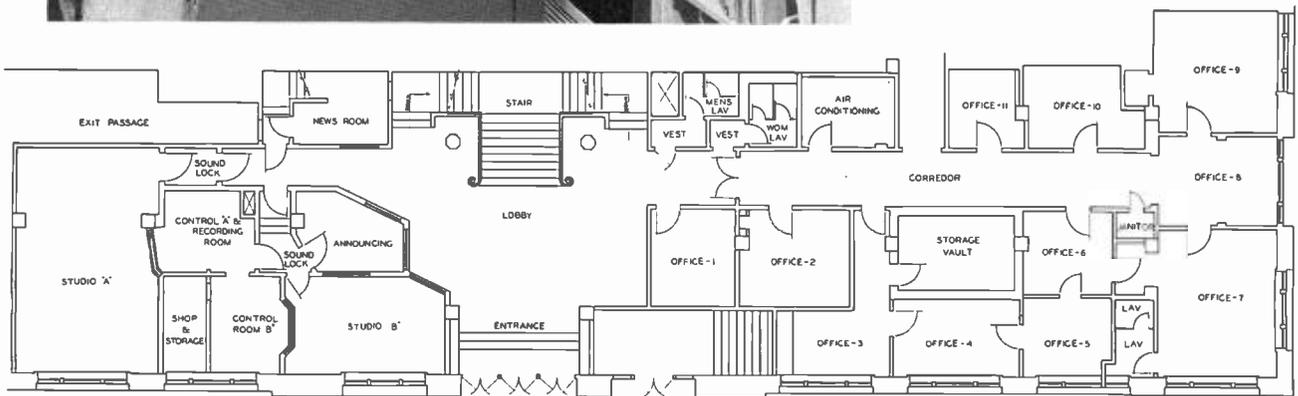
The antenna system employs six 275-foot radiators laid out in a parallelogram, with the in-line elements spaced 195 degrees. The ground system employs 120 radials 332 feet and 120 radials 50 feet. All intersecting radials are bonded on their periphery. The entire one hundred acres is literally planted with copper. The tuning houses are of copper bearing steel, which provides excellent shielding. Special care has been taken in the proper grounding of the tuning houses to prevent any possible shifting of tuning due to changing weather and temperature.

Helicopters were used to measure directional patterns. All measurements, with the exception of cross radials and monitor points were accomplished from the helicopters, a method wholly necessary because of the rugged inaccessible terrain surrounding the transmitter site. The tuning of the towers was completed in 13 days, thus many months were saved with the employment of these versatile aircraft. It is



FIG. 3. Photos at left show two views into the combined recording room and studio A control room. Control equipment consists of an RCA Type 76-C Consolette and Type BCS-1A Studio Switching unit. Lower photo shows the Type 73-B Professional Recorder in use.

FIG. 4. Diagram below is a floor plan layout of KRMG's studio building. Overall dimensions are approximately 164 feet by 48 feet.



felt that measurements made in this manner are in fact more accurate than if made from the ground, due to the ever present pipelines so prevalent in the Tulsa oil territory. Austin lighting transformers are used to carry tower lighting voltage across the base insulator of the towers.

The transmitter room contains the RCA BTA 50 F-1 50 KW transmitter, the phasing units, the supervisory console, the speech and monitoring equipment, and the studio-transmitter link program system, which is operated in the 936 megacycle band. Directly in the rear of the transmitter enclosure is the fireproof transformer vault containing the high voltage potential transformers, the filter reactor, modulation transformer and modulation reactor. The vault has a protective fence separating the components from a walkway in such a manner that operating personnel may observe the contents of the vault during operation.

The blower room is located below, on a level with the plenum chamber. The blower room contains the main and the auxiliary blowers, associated motors, con-

stant cleaning oil bath air filters, sump pump, and motor control equipment.

The shop has more than adequate bench space and is complete with the usual tools and equipment. All structural steel, including the steel roof plating, is grounded to the antenna ground system with four-inch copper strap at the strategic points in the building. Care was exercised not to create closed current loops.

The emergency studio room contains a small auxiliary control panel with inputs to handle two microphones, two turntables, and, of course, the program circuit from the S.T.L. In the living quarters, there is a complete galley containing an electric range, refrigerator, garbage disposal unit, sink and cupboard units. The tube and small parts storage room is behind the speech racks. All rooms are provided with large casement type windows, insuring good lighting for trouble-shooting, etc. The garage area accommodates two cars and also houses the heating and air-conditioning plant along with all the primary switching and fuse panels.

The ease with which the transmitter plant is maintained at top efficiency has

pointed out the advantages of RCA's design and walk-in type construction. The circuits are straight-forward and simple, making for ease and speed of maintenance and adjustment. The overall efficiency of the BTA 50 F-1 is so good it is almost unbelievable. The new 5671 Thoriated filament tubes used in the final and modulator stages enable a savings in power that cannot be ignored.

The use of polycylindrical diffusion throughout the KRMG studios and control rooms helps maintain the unusual presence and liveness which the 76C consoles and associated speech equipment with their wide frequency response make possible. The acoustical treatment of the studios was designed by Frank McIntosh of McIntosh and Inglis.

The control room and studio walls are of dry wall construction with completely isolated studding and plates interwoven with the usual roll type insulation applied in overlapping four-inch layers. Isolation has proved to be equal to the most elaborate masonry type construction and resulted in a substantial saving in both construction time and cost.

FIG. 5. View of Master Control Room of KRMG, looking into studio B. A Type BCS-1A Master Switching System is located to the right of the 76-C Console. Note location of LC-1A Speaker above the control room window.

