

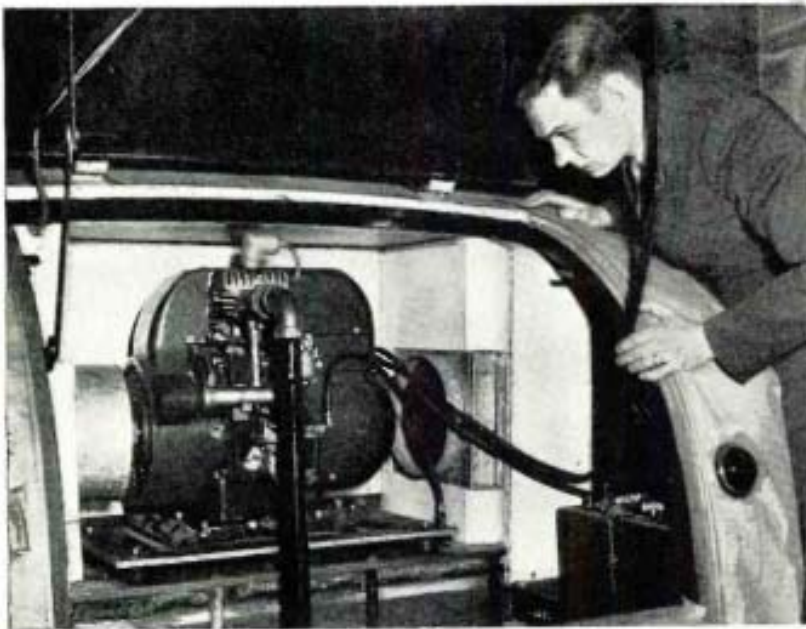


Demonstrating the mobile broadcaster to our Army. Similar units are used by the various branches of our militia.

MOBILE BROADCAST UNIT

By **JACK RYAN**
NBC, Chicago, Illinois.

A complete station on wheels, entirely self powered, is the dream of every ham. The broadcasters have realized it with the unit described here by the author.



IN RADIO, when you go out to handle one of those field jobs, you can't monkey around with any panty-waist equipment. You've got to get out there on the line with the kind of stuff that will punch a signal through regardless of what the weatherman thinks up to plague you with. That need for stamina was the basis for most of the design behind the equipment with which the NBC Chicago staff takes its studio on wheels out into the backwoods to shoot "on the spot" broadcasts out to the radio audience.

The chief item of equipment on which M. W. "Joe" Rife depends to hold up his end of the special events jobs is a NBC Mobile Unit that's half greyhound and half elephant. Joe is NBC field supervisor for the Central Division under Howard C. Luttgens, NBC Central Division engineer, and when specs were drawn for the unit a good part of the emphasis was placed

A kilowatt gas-driven motor-generator supplies all necessary power.

on durability. Engineers who have had to handle field jobs appreciate the fact that equipment stamina is absolutely vital. The framework for this flying broadcast transmitter is a heavy duty passenger coach with a specially reinforced chassis and a fast, high powered engine.

Starting with the power supply, the reinforced trunk at the back is fitted with a 1,000 watt, 110v. 60 cycle single phase generator driven by a gasoline engine. Intake ventilating ducts were let into the body at each end of the power unit, and exhaust ports were let through the floor. The entire compartment was lined with rock wool and sheathed down with perforated metal plates to act as a guard against heat and excess noise. The compartment was also fitted with a starting battery for the gasoline motor.

Immediately behind the front seat, in the elongated coach compartment, the control console is installed. This nerve center of the Mobile Unit houses an ultra-high-frequency superhet, a high-gain audio amplifier and power supply, control panel, monitoring amplifier, automatic audio gain control unit, spare receiver power supply, low voltage packs for the receivers and drawers for miscellaneous equipment.

In order to lick the weight problem, the metal frames and facings for the layout were built of Dowmetal, which is about $\frac{1}{4}$ the weight of aluminum, with rubber compression stops wherever necessary to stop possible rattles when the unit was in action.

The rear equipment console, built against the back of the car's interior, is the spot where most of the working apparatus is located. The setup includes a 50-watt intermediate frequency transmitter operating in the 1600-3000 kc. band, a 40-watt ultra high frequency crystal control relay broadcast transmitter operating in the 31-41 mc. band, an intermediate frequency receiver with a range of 550-30,000 kc., and a high voltage power pack for both transmitters.

But, though the circuit features are of undoubted interest, the equipment drawers are a spot that would delight the housewifely instincts of any radio man. The equipment that the drawers contain includes the monitoring amplifier, local battery telephone, automatic audio gain control and low voltage a.c. power pack for the receivers. All of this equipment is mounted to sub bases securely bolted down to the drawer bottoms, with the connections routed in and out through twist-lock plugs. The arrangement of extra drawer space is an example of neatness par excellence. Eliminating the usual drawerful of junk, sub bases with anchored sockets hold the spare tunes and crystals, a rack carries coils for the intermediate frequency receiver, and all other accessories are buttoned down tight. The orderliness is a boon for a number of reasons, it

saves time hunting for spares, it stops rattles and it makes the job of taking inventory dead easy. Carrying out this order of things, the console control panel has all of its equipment hinged so that adjustments or repairs can be made with a minimum of digging around.

Getting up into the driver's compartment, the dash carries equipment permitting headset monitoring for the announcer and driver, a meter for measuring field strength, a compass, and the controls for a regular RCA automobile radio. Two transmitter antennas and five receiving antennas are included, one of them a 30-foot sleeve tube top-loaded intermediate frequency transmitting antenna, another ultra high frequency quarter wave antenna located on the trunk lid, two conventional buggy whips on the sides, a running board job and two concealed receiving antennas inside the roof of the car.

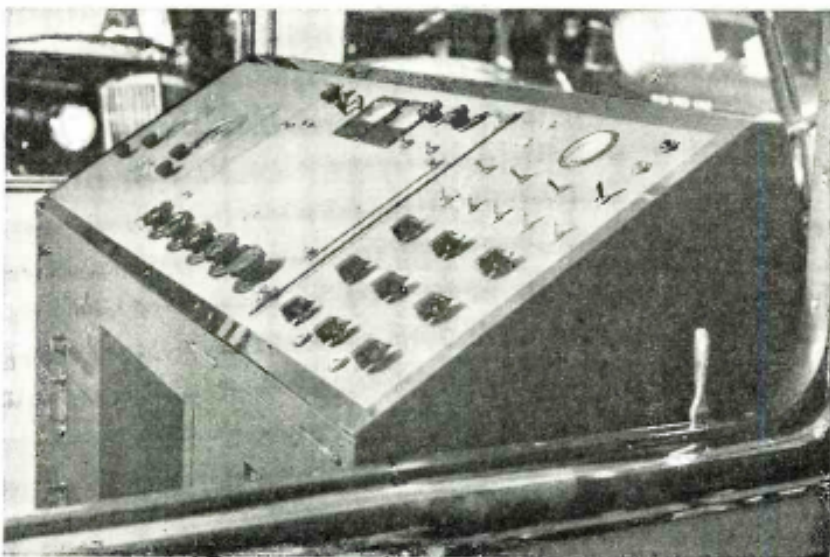
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Everything tied down and within reach to insure efficient operation.



By standing on the front seat the announcer has a clear view all-around.



The control panel which is the nerve center of the whole mobile unit.

