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FROM: Bob Killackey



PIONEER OF EARTH CAR RADIO RECEIVER
NOW PROVIDES FIRST S-BAND RECEIVER FOR LUNAR
COMMUNICATIONS RELAY UNIT USED ON LUNAR ROVER VEHICLE

Motorola, a company that pioneered automobile radio receiver on Earth more than 40 years ago has supplied a receiver for the first car on the moon.

J. Paul Jones, Motorola Vice President and General Manager of the company's Government Electronics Division in Scottsdale, Arizona, said the S-band receiver his company built is to be used for the first time on the Apollo 15 mission, installed in the Lunar Communications Relay Unit (LCRU) on the Lunar Rover Vehicle (LRV) which is scheduled to take astronauts David R. Scott and James B. Irwin on two seven-hour and one six-hour exploratory drives around the moon's surface.

The Motorola S-band receiver, in conjunction with the RCA VHF transmitter, receives signals from Earth carrying voice messages to the astronauts on the moon. In addition, the S-band receiver unit receives digital commands from Earth sent up to control the television camera mounted on the front of the rover.

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The receiver built by Motorola in Scottsdale was supplied to RCA and is a vital part of the entire communications system called the Lunar Communications Relay Unit (LCRU) produced for the moon vehicle.

Elmer H. Wavering, presently Vice Chairman of Motorola, and one of the original designers of the company's original car radio, said the S-band receiver is one of the 15 major electronic units his company produced for the Apollo program.

"This S-band receiver on the LRV," Wavering said, "is the modern culmination and representation of our more than 40 years experience in producing communications equipment for vehicles."

He explained, however, that the receiver provided for the LCRU is a departure from the huge, bulky, unsophisticated car radio first developed by Motorola more than 40 years ago.

The company's original car radio was a large three-part unit that included a speaker measuring one foot across and six inches thick, a receiver unit about the size of an automobile battery that used five large vacuum tubes, and a control mechanism roughly the size of a slice of bread that had to be mounted on the steering column. All of this equipment weighed approximately 20 pounds.

The Motorola LCRU S-band receiver by contrast is a very small all-solid-state (no vacuum tubes) unit that occupies about as much space as two packages of cigarettes. It weighs 1-1/2 pounds and requires no more power than that used to illuminate a Christmas tree light bulb.

"The installation of the old car radios," Wavering said, "required one to two days if all went well, and when the installation was completed, hopefully the car radio would play even with the engine running and the car in motion."

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Wavering also noted that the original car radios would usually receive broadcasts beamed from a few miles away. The LCRU S-band receiver is designed to receive signals sent from approximately 240,000 miles away.

The auto radio problems in the early days were as big and awkward as the radio equipment, Wavering said, but they were gradually overcome, and in 1932 Motorola was the first to use the vibrator power supply to power the radio solely from the car's battery. This unique innovation paved the way for the mass acceptance of such radios.

The cross-fertilization of electronics expertise throughout all five of the company's operating divisions also has aided Motorola in asserting leadership in semiconductor products, communications equipment, home entertainment products, and defense and space electronics equipment.

"The Motorola car radio has come a long way," Wavering said, "and as a result of our years of experience, today we produce thousands of quality automobile radios a day for use on the highways of the world.

"We are extremely proud now to witness the Motorola S-band receiver being used on the first roadway on the moon."