

Don Lee Broadcasting System
Seventh & Bixel Streets
Los Angeles, California
L. P. Mawhinney - Publicity Director

RECEPTION OF TELEVISION IMAGE NOT DIFFICULT,
ENGINEER DECLARES; TELLS HOW TO MAKE EXPERIMENTAL
SCANNING EQUIPMENT

With the opening of the new Don Lee television transmitter W6XS, Los Angeles, many people are under the impression that reception of the images sent out by the station, is a highly involved and super-technical matter.

Yet such is not actually the case, according to Harry R. Lubcke, Director of Television for the Don Lee Broadcasting System, and in charge of the network's television transmissions.

"Scanning equipment is to the television receiver what the loudspeaker is to the broadcast receiver", Lubcke points out, in describing the mechanical method for image reception. "Since the main requirements on the receiver for tuning in W6XS or W6XAO, are that it tune broadly, and that the audio amplifier be resistance coupled, it may be presumed that construction of the scanning equipment comprises the chief problem."

An eighty line single spiral image, repeated fifteen times per second, and scanned from left to right and top to bottom, is broadcast. An inexpensive scanning disc can be constructed to reproduce the image in the following manner.

A disc of cardboard or aluminum two feet in diameter is required. A circle of exactly $11\frac{3}{4}$ inches radius is drawn on the disc, and divided around its circumference into eighty equal parts. Radial lines are drawn from each of these divisions to the center of the disc.

A small hole, fifteen thousandths of an inch in diameter, is punched or drilled at the intersection of the circle and any one of the radial lines. With cardboard, the hole can be made by pushing a common pin thru the disc until one sixteenth of an inch of the point projects on the further side. The next hole is punched on the next radial line in a counter-clockwise direction, and eleven thousandths of an inch away from the circle toward the center of the disc.

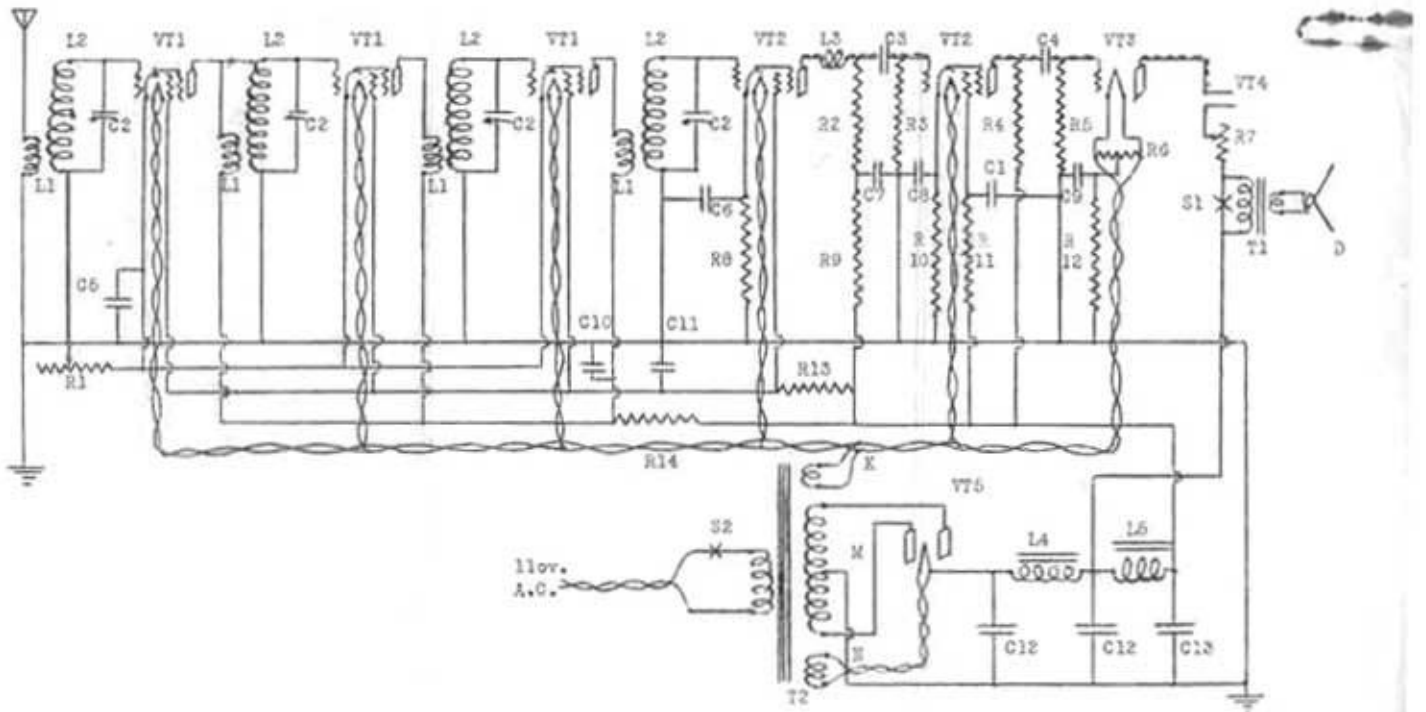
The next hole is punched on the next radial line in a counter-clockwise direction and twenty-two thousandths of an inch from the circle toward the center of disc, and so on around the disc, each hole being eleven thousandths of an inch nearer the center of the disc than the last one. A machinist's micrometer is useful in laying off these distances. The disc is provided with a suitable hub, or means to fasten it securely to the shaft of its driving motor.

The motor to drive the disc must revolve at 900 rpm. An eight pole synchronous motor operating on 60 cycles revolves at this speed. An induction or direct current motor of a higher normal speed than 900 rpm can be reduced to 900 rpm by inserting a reostat in series with it and the line and used where 50 cycle current or batteries must be the power supply.

A neon plate lamp, as can be secured from the larger radio supply houses, is mounted on a simple support on the motor. It is positioned above the motor and behind the spiral of the disc, in such a way that it can be seen through the holes of the disc when the disc is revolving. The neon lamp takes the place of the loudspeaker of a radio set, and is similarly connected, according to the instructions furnished by the manufacturer.

ELECTRICAL SCANNING: A cathode ray tube capable of being modulated on its anode or grid is required, and scanning sources of 1200 cycles per second and 16 cycles per second of sawtooth wave form are required. The output

W6XS TELEVISION RECEIVER



LIST OF PARTS FOR W6XS TELEVISION RECEIVER

- R1 10,000 ohm volume control
R2 75,000 ohm wire wound resistor
R3 1 Megohm carbon resistor
R4 50,000 ohm wirewound resistor
R5 1/2 Megohm carbon resistor
R6 Center-tapped filament resistor
R7 0-5,000 ohm w.w. variable resistor
R8 100,000 ohm carbon resistor
R9 50,000 ohm carbon resistor
R10 1,000 ohm carbon resistor
R11 250,000 ohm carbon resistor
R12 1,200 ohm wire wound resistor
R13 300,000 ohm carbon resistor
R14 25,000 ohm carbon resistor
- C1 8 mfd. 450 volt electrolytic filter condenser
C2 .00025 or .00035 mfd. 4 gang variable condenser
C3 .1 mfd. 400 volt bakelite case paper condenser
C4 .1 mfd. 400 volt bakelite case paper condenser
C5 1. mfd. 200 volt paper bypass condenser
C6 8 mfd. 200 volt electrolytic filter condenser
C7 8 mfd. 450 volt electrolytic filter condenser
C8 8 mfd. 200 volt electrolytic filter condenser
C9 100 mfd. 50 volt electrolytic filter condenser
C10 1 mfd. 400 volt paper filter condenser
C11 1 mfd. 400 volt paper filter condenser
C12 8 mfd. 450 volt electrolytic filter condenser
C13 8 mfd. 450 volt electrolytic filter condenser
- L1 25 turn primary, 1/32 inch separation from secondary, (same form)
L2 41 turn secondary, 1 1/4 inch diameter threaded form, #30 enameled wire
L3 Short wave radio frequency choke, 2 1/2 millihenries
L4 30 henry 100 m.a. or higher rating.
L5 2500 ohm dynamic speaker field
- T1 Dynamic speaker transformer, 2A3 tube to voice coil
T2 110v. power transformer with secondaries:
 X 2.5 volt 10 amp.
 M 800 volt center-tapped, 100 m.a., (delivering 450 volts D.C. to rectifier filter)
 N 5.0 volt 2. amp for 80, or 2.5 volt 3 amp for 82
- VT1 RCA 58 or 24A tube
VT2 RCA 57 or 24A tube
VT3 RCA 2A3 tube
VT4 Neon plate lamp (for hole disk), or Neon orator lamp (for lens disk)
VT5 RCA '80; or 82, shielded, and with r.f. choke unit
- S1 S.P.S.T. snap switch
S2 S.P.S.T. 110V. ditto
D Dynamic loudspeaker

All tubes except 2A3 and 80 must be shielded.
Coils L1 - L2 must be shielded, 2 3/4 inch diameter aluminum cans.
Connections shown as must be run in a short and direct manner, and kept away from the chassis.