

~~SECRET-SPECIAL HANDLING~~

AW00767

Handwritten notes:
07/24
[unclear]

OPPOCKNOCKITY SYSTEM
TECHNICAL DESCRIPTION

- PRELIMINARY -

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408-28-004

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AWG0757

The Opporknockity system scans the 66 to 72 MC band in 256 steps, taking two seconds, stopping for 0.5 seconds on all carriers in the band that satisfy the PRIMARY HOLD conditions, i.e. only one tone present in at least one of the two TT channels. During the 0.5 second hold, L HOLD, the signal is tested by the secondary recognition for tone switching in either or both channels. If tone switching is present during the first 300 msec of the L hold the receiver remains locked for two seconds (M HOLD). After two seconds the receiver is allowed to scan. During the first 40 msec after the hold the receiver is force scanned to prevent AFC action from causing another hold on the same signal. If the signal should fade or drop out after the system has gone into a two second (M) hold the system will remain locked and not sweep for three seconds (N HOLD). After three seconds the system will be force scanned and allowed to continue the sweep. The mode of operation just described is designated MODE A.

In the MODE B operation the receiver stops for 0.5 seconds on any signal in the band that satisfies the PRIMARY HOLD conditions. During the L HOLD the signal is tested by the secondary recognition for tone switching as described for Mode A. If tone switching is present the system remains locked as long as the signal is present. When the signal fades or drops out the receiver will remain locked for an additional three seconds (N HOLD). If the signal returns within the three second hold period the receiver remains locked. However, if the signal does not return within the three second hold period the receiver will be force scanned and allowed to sweep.

~~SECRET~~-SPECIAL HANDLING

~~SECRET-SPECIAL HANDLING~~

Amended

In the MODE C operation the unit stays for 0.5 seconds on all carriers in the band that satisfy the Primary Hold conditions. During the L HOLD the signal is tested by the Secondary Recognition for tone switching as described for Mode A. If tone switching is present the receiver will remain locked as long as the signal is present. When the signal fades or drops out the receiver will remain locked for an additional 60 seconds. The receiver will remain locked if the signal returns within the 60 second hold period. If the signal does not return within the 60 second hold period the receiver is force scanned and allowed to sweep.

The receiver system contains an rf calibrator that operates six seconds out of every minute thus giving 54 seconds of video data and six seconds of calibration data. The calibration signal is injected into the front end of the receiver. During this time the signal from the antenna is attenuated. The frequency of the calibration signal is 67.4 mc modulated by a continuous C tone.

During the MODE C operation the calibration signal is disabled. Mode A, B, or C operation is selected from the ground by real time command. The receiver has a sensitivity of one microvolt or -107 dbm. The receiver system contains a solid state commutator.

The commutator has eight segments which are designated as follows:

| <u>Segment</u> | <u>Designation</u> | <u>Normal Output @ 70°F</u> |
|----------------|--------------------|-----------------------------|
| 1 | Ground | Ground Ref. Zero Volts |
| 2 | Reference Voltage | 1.6 Volts |
| 3 | +18 V Monitor | 2.7 Volts |
| 4 | +15 V Monitor | 3.6 Volts |
| 5 | Temperature Sensor | 1.42 Volts |

~~SECRET-SPECIAL HANDLING~~

~~SECRET-SPECIAL HANDLING~~

100-270-1

- 3 -

| | | |
|---|-----------------------------|---|
| 6 | \bar{M} or \bar{I} Hold | No Hold = Zero Volts With Hold = 1.5 Volts |
| 7 | \bar{N} Hold | No Hold = Zero Volts With Hold = 3.1 Volts |
| 8 | Receiver Sweep | 2.0 to 4.0 Volts |

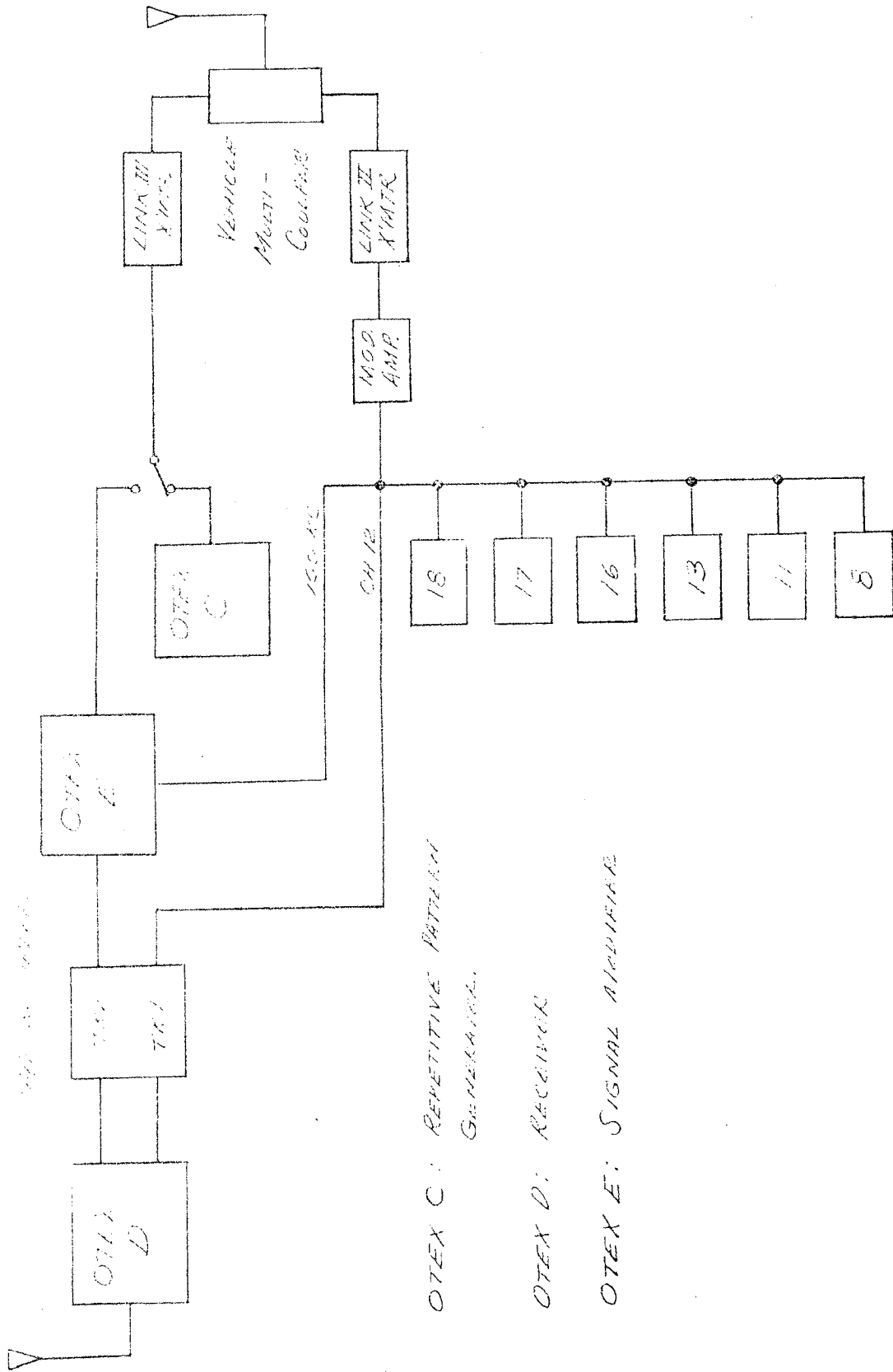
The commutator has a frame rate of six frames per second. The resulting output, 48 samples/second, drives a channel 12 VCO. The VCO output is recorded on a tape recorder.

During the read-in mode of the system operation the signal is processed by the receiver (LMSC designation - OTEX D) OTEX D being previously selected to be in MODE A, B, or C. The video output and the channel 12 VCO output are recorded on the six minute 1:1 tape recorder.

In the read-out mode of operation a 100 K Bit test pattern generator (designated OTEX C) is turned on when the transmitters are turned on. The 64 bit repetitive pattern is transmitted until the recorder and delta modulator - signal modifier (designated OTEX E) are turned on whereupon the video from the recorder is fed into OTEX E to be modified and then transmitted on LINK III. The other track of the recorder which has the channel 12 VCO recorded on it is fed into the modulation buss of LINK II as is a 100 KC reference tone from the signal modifier OTEX E. After six minutes the tape recorder is played out and the output of OTEX E is disabled. At this time the output of OTEX C is put on LINK III and this data will be transmitted until the transmitters are turned off.

~~SECRET-SPECIAL HANDLING~~

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OTEX C : REPETITIVE PATTERN GENERATOR.

OTEX D: RECEIVER

OTEX E: SIGNAL ALPHABET

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