MONTHLY REPORT

1 December 1958 - 31 December 1958

RESEARCH AND DEVELOPMENT BRANCH
ENGINEERING STAFF

RESEARCH AND DEVELOPMENT LABORATORY

PROJECTS AND ACTIVITIES

2001 - MECHANICAL LABORATORY PROJECTS

The following is a status report of Mechanical Laboratory assignments other than the support given to regularly assigned numbered projects:

2001-55 Encipher Tape Notching Unit - 1 required by SEB. The building of the prototype is in the final stages. Estimated completion date is 12 January 1959.

2001-57 OTP Plastic Molds - 4 required by OC-S. One mold complete. The additional three molds are near completion. Estimated completion date is 9 January 1959.

2001-66 TINY TOT T.D. Shelves - 100 required by SEB. No activity this period. This project is being carried on a fill-in basis.

2001-69 Distributor Rings for OTP-3 - 5 required by SEB. Completed 31 December 1958.

2001-70 Microswitch Modification - 256 required by SEB. 90 switches completed. The balance will be completed on a fill-in basis.

2001-71 KW-26 Stand-off Boxes - 8 required by IMB. These boxes have been started and will be completed by 6 January 1959.

2004-118 R 744/PRD RADIO RECEIVER
Project Engineer: Unassigned

Awaiting receipt of equipment. If no activity develops on this project within the next 30 days, no further reports will be made until the equipment arrives.

2004-133 TINY TOT RADIATION INVESTIGATION
Project Engineer: [redacted] 25X1A9a

All of the tests have been completed on this project. The report is in process of being published.

2004-135 PROJECT TAILOR
Project Engineer: [redacted] 25X1A9a

A prototype plug-in version of the 0.5 and 5.0 watt A-1 emission system was tested. Tests indicated that the RF power output was not satisfactory and the units were returned to the manufacturer.

2004-141 JOHNSON THUNDERBOLT LINEAR AMPLIFIER
Project Engineer: [redacted] 25X1A9a

This amplifier was tested to determine its suitability for FSK (teletype) operation. Tests indicated that the unit was not rated for continuous duty and would overheat if used continually. Emergency operation for 2 or 3 hours can be tolerated.

2004-142 ALERT RECEIVER, [redacted]
Project Engineer [redacted] 25X1A9a

Tests have indicated that the sensitivity of this receiver is not as good as the manufacturer stated. It is, however, useable for the purpose it was intended. The report is in process of being published.

2007-1 RADIOLOGICAL SURVEY AND RADIATION DETECTION EQUIPMENT
Project Engineer: [redacted] 25X1A9a

25X1A6a The units stored at [redacted] were tested for operational ability. Three units were found inoperative and they were repaired. A quarterly report was prepared and forwarded to the Chief of Medical Staff. Batteries and repair components were ordered in preparation for calibrating all units.

2007-20 KEYER FABRICATION AND RT-6 TRANSMITTER MODIFICATION 25X1A9a
Project Engineer: [redacted]

The modification kit developed under this project is being assembled by an external contractor. Instructions for field installation have been prepared. Radiation tests were performed on the German manufactured Distler motor and the U. S. manufactured Reflectone PM-1 motor. Results of these tests showed that the radiation from the Distler motor was consistently higher than the Reflectone. It was concluded, however, that radiation from both motors produced noise of a nuisance value only.

2007-30 TINY TOT MODIFICATION KITS
Project Engineer: [redacted] 25X1A9a

Six kits have been completed and forwarded to SEB. Two kits completed and will be held by Laboratory.

2007-33 EVEREADY ENERGIZER AND GULTON BATTERIES
Project Engineer: [redacted] 25X1A9a

The report on the Eveready Energizer batteries was forwarded this month. The Gulton NiCad Battery report is held pending receipt of photographs to complete the report.

2007-39 KX-3 (AS-4A TRANSMIT DATA TERMINAL) RADIATION MEASUREMENTS
Project Engineer: [redacted] 25X1A9a

Work will be resumed sometime during the next reporting period.

2007-40 TRIX TAPE RECORDER EVALUATION
Project Engineer: [redacted] 25X1A9a

Tests indicate that this device is useable if high distortion, wow and flutter can be tolerated. The report is in process of being published.

2007-43 RF ATTENUATION MEASUREMENTS ON PLASTIC AND CLOTH
Project Engineer: [redacted] 25X1A9a

Attenuation measurements of a specified piece of plastic (provided by SPS) varied from 0.1 db at 4 kmc to 1 db at 20 kmc in the dry condition. Attenuation varied from 0.4 db at 4 kmc to 1.2 db at 20 kmc in the wet condition. Tests on the metallic cloth are being conducted.

2037 AGENT HIGH-SPEED COMMUNICATIONS SYSTEM, RS-16A 25X1A9a
Project Engineer: [redacted]

A two-week training course was given on the theory of operation, care and maintenance of the RS-16A to [redacted] 25X1A9a
25X1A9a [redacted]

25X1A9a

2044-6 URT-11 POWER SUPPLY INVESTIGATION
Project Engineer: [redacted]

The preliminary investigation is complete. Tests indicated that the transient reduction circuit designed by [redacted] reduced 25X1A
the transient that was troublesome. This same circuit, however, reduced the B plus voltage by approximately 100 volts. We are seeking a method to reduce the transient without reducing the B plus voltage.

2045 AUTOMATIC TAPE PRINTER, TP-3

Project Engineer: [redacted] 25X1A9a

One TP-3 printer has been modified for use with the AS-3. Since this unit is to be used in checking the AS-3 system, a speed control rheostat and hash suppression circuitry was installed, although this circuitry has not been optimized for operation over the full temperature range.

The sample motors scheduled for 31 December shipment have not been received from the contractor. No additional motor checks or TP-3 fabrication was processed during this period.

2069 AGENT RADIO TRANSMITTER, RT-11P

Project Engineer: [redacted] 25X1A9a

Circuit modifications for the RT-11A and B transmitters and the packaging of the 12-volt DC-to-DC converter have been completed. Delay in delivery of the NiCad batteries held up construction of the battery pack which is now scheduled for completion on 9 Jan. The battery pack for the prototype unit will use Sonotone S-107 sealed 2.4 AH cells. This cell is approximately the same size as the standard "D" flashlight cell. An analysis and appraisal of this cell is now in process.

2089A HIGH-SPEED COMMUNICATIONS AND PROCESSING SYSTEM, AS-4A

Project Engineer: [redacted] 25X1A9a

The tests are complete on the Transmit Data Terminal. No compromising interference was detected. The high noise level at the equipment site, however, could have covered low level radiation. The report is in process of being published.

2099 AGENT COMMUNICATIONS SYSTEM RS-13B AND BASE STATION CONVERTER 25X1A9a

Project Engineer: [redacted]

Gears for the RT-13 tuning mechanism have been received. Layout work is now being processed for this portion of the transmitter. Radio interference tests have been made on the RP/DC-13B power supply. Tests indicate that the interference level was acceptable. The report is in process of being published.

2110 SPECIAL COMPONENTS INVESTIGATION [redacted] 25X1A5a1
Project Engineer: [redacted] 25X1A9a

Awaiting parts for Selective Calling System [redacted] 25X1A5a1

2147 RECORDER/REPRODUCER MAGNETIC TAPE CB-12
Project Engineer: [redacted] 25X1A9a

An analysis of the subject equipment was attempted. A number of mechanical and electrical deficiencies became apparent and the tests were discontinued. The equipment was returned to the manufacturer.

2510 VARIABLE FREQUENCY AUDIO OSCILLATOR, IN-1
Project Engineer: [redacted] 25X1A9a

Evaluation of the IN-1 has been completed. Nine units are required. Although the recent availability of a smaller frequency determining potentiometer would make possible some reduction in size, it is believed that the size reduction achieved would not justify the cost of redesign. Therefore, nine units based upon the present prototype will be fabricated.

2512 TRANSISTORIZED CONVERTER FABRICATION, CV-2A
Project Engineer: [redacted] 25X1A9a

The modified Stoddart capacitors required for fabrication of ten additional CV-2A Converters are on hand. The capacitors will be checked, and if satisfactory, the fabrication of additional converters scheduled as soon as the workload permits.

2515 MODULATOR FOR TA-1A TRANSMITTER ADAPTER
Project Engineer: [redacted] 25X1A9a

The final report was delivered to Design Unit this month.

2523 APERIODIC RECEIVER SYSTEM, CS-24
Project Engineer: [redacted] 25X1A9a

The CR-4 Receiver has been evaluated and accepted by SPS. Two comments have been received as a result of the evaluation. One, a guard should be placed over the toggle of the AM-CW switch and two, an inquiry concerning the noise associated with operation of the threshold control. Either a guard will be placed over the toggle switch or the toggle reduced in height. The latter will be simpler and reduce the over-all height. This point will be rechecked for suitability. The noisy threshold control has been discussed before and the solution here is not as simple. Filtering or noise suppression

2523 Continued

circuitry has the effect of making the control too "sluggish" to be useable. Several approaches are envisioned as possible solutions; however, all require more study and development than current required dates permit. The sponsor, cognizant of this fact, decided to forego this refinement until time is available for thorough investigation.

The fabrication of twenty units is progressing satisfactorily. There will be a delay in delivery of the coax switches with 10 February now indicated as the earliest expected shipping date. However, all additional work, including final testing, can be accomplished prior to receipt of the switches. Switch installation will not require more than 2-3 days.

Cabling and mounting plates will be provided to permit five receivers to be "flat-packaged" for briefcase transport.

Although no additional work has been done during this period on the remaining components of the CS-24 System, emphasis will now be placed on the completion of the design and testing of these units. Sample Haliburton aluminum cases in two sizes have been obtained for preliminary layout study.

Two additional aspects of CR-4 operation will be examined during the course of this program; namely, the characteristics of the receiver when operated "wide open", that is, without restrictive filtering, and determination of the useable upper frequency.

2525 TWT/CRYSTAL-VIDEO RECEIVER, CR-21

Project Engineer: [redacted] 25X1A9a

The instruction manual for the CR-21 Receiver has been distributed. This project will be terminated as soon as all engineering drawings are in order.

2526 PORTABLE ELECTRONIC KEYER, PROTOTYPES KE/A-9P and KE/B-9P

Project Engineer: [redacted] 25X1A9a

Both prototype keyers are expected to be ready for delivery early in January. Upon acceptance of the prototypes, work will continue on the fabrication of two additional units of each type.

KE-6 MANUFACTURED BY [redacted].

25X1A5a1

Project Engineer: [redacted]

25X1A9a

Tests are currently in process. Preliminary investigation indicated that the unit is mechanically deficient.

[redacted]

25X1A9a

Chief, Research & Development Laboratory