Approved For Release 2000 (19/14) IC ATRICATION 18/10/28/20A000500020041-9

MONTHLY REPORT

1 March - 31 March 1959

RESEARCH AND DEVELOPMENT BRANCH ENGINEERING STAFF

EXTERNAL PROJECTS SECTION

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	1.	PROJECTS	S AND ACTIVITIES		
		2037	AGENT HIGH-SPEED COMMUNICATIONS SYSTEM, RS-16 -	25X1A	
25X1A6a			Successful shots have also been made into the AS-1 base station	1A6b	
25X1A6b			at Delivery of 10 RS-16C field sets from scheduled for 15 April 1959.	25X1A5	
		20117	CACHING AIDS AND TECHNIQUES -	25X1A9	
25X1A5a1	1		Negotiations for a contract with the have been completed and work has begun on the evaluation study for new means of sealing burial containers.		
		2056	HAND CRANK GENERATOR, HG-3 -	25X1A9	
25X1A5a1	I		model of the HG-3 which successfully met the electrical specifications. Difficulty was experienced in the crank mechanism, however, due to slippage of the crank belts. The HG-3 has been returned to the contractor for correction of this slippage; it is now scheduled for delivery early in April. (See Conference Report: Hand Crank Generator, HG-3 dated 20 March 1959)		
		2064	REUSABLE TAPE -	25X1A9	
25X1A5a1			R+D Laboratory evaluation of the reusable tape made by the has been completed. Tests results show the tape to be very satisfactory. R+D activity on this project has now been completed and no further reporting is contemplated.		
		2069	AGENT RADIO SET, RS-11 -	25X1A9	
			An analysis and appraisal of the modified RT-11 has been completed at the R+D Laboratory and results of these tests		

are now being evaluated.

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2070 INFRARED COMMUNICATIONS DEVICES -25X1A9a The production schedule of the IS-5 equipment was threatened 25X1A5a1 makers of the optical system. asked for an intolerable extension of their delivery date has now arranged to have Corporation produce the required optics and expects delivery of the prototype optical units by 15 April 1959. (See Telecon Report: IS-5 Infrared Production Contract dated 30 March 1959) AGENT AUTOMATIC KEYING DEVICES, CK-7 -2082 25X1A9 Production and delivery of 100 CK-7 Coder/Keyers has passed the 50% mark in completed units. Progress on this project is satisfactory and delivery of spare parts will begin next month. (See Telecon Report: Approval to Give Two CK-7's to Signal Corps dated 6 March 1959 and Trip Report: Coder/Keyer, CK-7 dated 1 April 1959) HIGH-SPEED COMMINICATIONS AND PROCESSING SYSTEM, AS-4A -2089A 25X1A9a 25X1A6a AS-4/AS-4A operational testing between and been underway since early February 1959. Test results using 25X1A6I off-line encryption and decryption have been good. Tests of on-line encryption and decryption have only recently been initiated. 2095 AGENT TRANSISTOR RECEIVER, RR/D-11 -25X1A9a Three prototype RR/D-11 receivers were delivered by the contractor. Two of these were forwarded to the field as 25X1A6a part of the AS-3 system, one going to and one to 25X1A6b The third receiver was forwarded to the R+D Laboratory for analysis and appraisal. The remaining nine receivers are scheduled for delivery in April. (See Telecon Report: Delivery Schedule for Production RR/D-11's dated 17 March 1959) 2096 AGENT EQUIPMENT POWER SOURCES -25X1A9a The 25X1A5a1 is presently testing the BC-11X thermoelectric battery charger. Delivery date is given as 3 April 1959. 25X1A5a1 proposal for research on a photogalvanic cell which can be recharged by simple exposure to light has been accepted and forwarded to Logistics for con-

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tractual action.

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25X1A5a1 has delivered the BC-7 thermoelectric generator which more than meets the specified output of three watts. (See Trip Report: Thermoelectric Generator, BC-7 dated 18 March 1959) 2097 AGENT TRIPHASE COMMUNICATIONS SET, RS-18 -25X1A9a Four RS-18 field sets and an associated base station have been 25X1A6a delivered. One field set will be evaluated by the R+D Laboratory. The three remaining sets will be used early in April for engineer-25X1A6a ing/operational tests from Washington, D.C., to from the A cost estimate covering modifications to be made in the automatic base station proposal has also been received. (See Conference Report: RS-18 at 25X1A5a1 dated 12 March 1959) HIGH-SPEED AGENT TO SUB-BASE COMMUNICATIONS SET, RS-13B -2099 25X1A9a It has been determined that this program should be terminated. The Procurement Division, OL, has been formally requested to initiate termination of the contract and to have residual inventory forwarded to the warehouse for inspection and subsequent disposition. 2103 AUTOMATIC DATA TRANSMISSION SYSTEM, AS-6 -25X1A9 The contractor is progressing satisfactorily with fabrication of the AS-6 equipment. Plans are being made to evaluate the system next month. first from the Washington area and then from 25X1A6a to the base station in 25X1A6a NATCA has been tentatively chosen as the location for the AS-6 base station and appropriate frequencies are being selected for this operation. (See Conference Report: AS-6 Conference dated 19 March 1959) 2104 UNIVERSAL MODULAR SUBASSEMBLIES, TAILOR -25X1A9a R+D Laboratory evaluation of the TAILOR transmitter modules continued. A number of these modules were used quite success-25X1C10b fully before the Technical Requirements Board in a demonstration 25X1C10b of the techniques to be utilized in (See Telecon Report: Production Costs - Project TAILOR dated 10 March 1959) 2104A TAILOR MODULAR RECEIVER, RR-22 -25X1A9 The contractor continues to make satisfactory progress in the

fabrication of the prototype RR-22 Band I and Band II modular

receivers.

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2108 AGENT AUTOMATIC STATION, AS -3 -25X1A9a The two AS-3 systems delivered by the Corporation were returned to the contractor for minor 25X1A5a1 rework and then forwarded to the field along with RR/D-11's 25X1A6a and TP-3's for demonstration and evaluation. One system was sent to and one to the total and accompanied the equipment to the field to demonstrate its operation and to instruct local personnel on maintenance and operating procedures. 2110 RADIO CIRCUIT DEVELOPMENT -25X1A9a R+D Laboratory evaluation of the transmitter, receiver and the selective call system developed under this project has been delayed because of the heavy work load at the laboratory. Priority ratings for this equipment are to be reestablished. 2112 DZ LOCATION SYSTEM, BN-1 -25X1A9 A meeting was held with representatives of the 25X1A5a1 25X1A5a1 to determine the possible use of short pulse racar unit as a DZ beacon system. OC personnel also participated in the testing of a beacon at Eglin AFB. (See Conference Report: Short Pulse Radar System dated 20 March 1959 and Trip Report: Beacon Tests at Eglin AFB dated 12 March 1959) 25X1A5a1 2113 60-DAY PROGRAM TIMER, CU-2 -25X1A9 The contractor has started repair work on the 21 faulty CU-2 units. 2114C SUBMINIATURE RECORDER, CB-7 -25X1A9 has made significant progress in modifying the 25X1A5a1 CB-7 recorder. A completely new tape transport design (using the original motor) is being effected along with improved packaging. A breadboard model of the modified CB-7 is scheduled for demonstration by 15 April 1959. (See Conference Reports: Subminiature Recorder, CB-7 dated 12 and 18 March 1959) 2114E SPECIAL PURPOSE TAPE TRANSPORT -25X1A9 This project was initiated this month in response to an urgent OC-SP requirement for three 6 to 8-hour recorder transports, one to be available before 1 May 1959 and two before 1 June 1959. The contractor's proposal to fabricate the three units within the allowable time schedule by simplifying the original design criteria of the CB-5 recorder (which most nearly meets the requirement) was accepted and work was begun on 24 March 1959. (See Trip Report: Modification of 24-Hour Breakdown Recorder,

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CB-5 dated 26 March 1959)

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2115 TIME AND EVENT MARKER, IN-7 -

25X1A9a

A two to three week delay in delivery of the 15 IN-7 units has been approved to allow the contractor to correct alignment difficulties experienced in the 2nd prototype. No additional funds will be required. The parallel development for a ruggedized version of the TEM prototype is proceeding satisfactorily. Several subassemblies have been fabricated. (See Trip Report: Time and Event Marker, IN-7 dated 19 March 1959)

2116 SIGNAL ACTUATE DEVICE, CU-3 -

25X1A9a

False triggering of the CU-3 prototype by random noise pulses has resulted in a decision to delete the development of electronic activation circuitry from this project. The Agency currently has two other signal actuate devices under development and an electronic package for the CU-3 will be taken from one of these units. The contractor has been requested to submit a technical and cost proposal for the fabrication of 16 SAD units excluding the electronic package. (See Trip Report: Signal Actuate Device, CU-3 dated 19 March 1959)

2117 MINIATURE COAXIAL CABLE TRANSMISSION SYSTEM, WS-1 -

25X1A9a

The first WS-l prototype was delivered this month. Delivery of the second prototype has been delayed pending test results from the first which may point up the need for minor modification work. OC-SP testing of the first prototype is scheduled to begin next month. (See Trip Report: WS-l Miniature Coaxial Cable System dated 26 March 1959)

2121 MINIATURE AGENT VFO, OS-4 -

25X1A9a

The contractor has delivered the first OS-4 prototype which will be forwarded to the R+D Laboratory for evaluation prior to fabrication of additional OS-4 units.

21.22 AGENT SHORT-RANGE COMMUNICATIONS SET, RS-19 -

25X1A9a

The contract for the development of the RS-19 has been amended to increase available funds by \$20,550. Delivery date for the equipment has been extended to 1 August 1959. (See Telecon Report: RS-19 Production dated 18 March 1959 and Trip Report: RS-19 Development dated 31 March 1959)

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2123 100-WATT FIELD STATION TRANSMITTER, RT-27 -

25X1A9a

The variable frequency oscillator of the prototype transmitter has been finished and successfully tested by the contractor. The complete RT-27 is now ready for delivery and will be shipped 2 April 1959. Initial tests made by the contractor indicate that the RT-27 meets specifications in all respects.

2124 RADIO RELAY SYSTEM, RS-23 -

25X1A9

The twelve monitor receivers and accessories have been completed and the system instruction books have been written. The contractor is experiencing some difficulty in optimizing operation of the relay transmitter because of the wide manufacturing tolerances found in the GA 53194 transistors. The experimental relay unit was reshipped to the Agency in working condition and has been forwarded to the field.

2127 SEARCH RECEIVING SYSTEM, CS-8 -

25X1A

The working breadboard of the CS-8 is now being transformed into a production prototype. The weight of the equipment presents a major problem and considerable effort is being devoted to weight reduction. Lightweight alloy materials and subminiature components are being used wherever possible. (See Trip Report: CS-4 and CS-8 Collection Systems dated 16 March 1959)

2131 MINIATURE 3-CHANNEL DATA RECORDER, CB-3 -

25X1A

25X1A5a1

25X1A5a1

5X1A5a1

25X1A5a1

has started repair work on the CB-4 playback recorder which was damaged in shipment to the Agency. R+D Laboratory evaluation of the CB-3 and CB-4 recorders and the Elgin CB-3 continued. (See Trip Report: Playback Recorder, CB-4 dated 19 March 1959)

2132 CARRIER RECEIVING SYSTEM, WR-1 -

25X1A

The WR-1 prototypes are approximately 95% completed but may have to be held at the contractor's plant for final test. A belated delivery of mechanical filters is causing the delay in completion. Preliminary copies of the bill of material, operating spare parts list and maintenance spare parts list have been received for approval prior to finalization.

2133 HIGH-SPEED FIELD STATION, AS-5 - 25X1A9

The contractor's proposal for an AS-5 test program and the purchase of an additional AS-5 system has been received and is under evaluation. The contractor is also requesting a time extension of two months to complete the AS-5 development. This extension is required to compensate for the extra time devoted to the AS-6 and RS-16A programs.

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2136 VISUAL DISPLAY SYSTEM, DS-1 -

25X1A9

The DS-1 equipment is scheduled to be shipped from on 1 April 1959. Preparation of the final report will take another month. (See Trip Report: DS-1 Display System dated 31 March 1959)

25X1A5

2137 MAGNETIC CODER/KEYER, CK-8 -

25X1/

The contractor has submitted the first quarterly progress report covering the period from contract initiation to December 1958. The size reduction of the CK-8 requested by the Agency has been accomplished. The keyer is presently 3-5/16 by 3-15/16 by 2-3/8 inches and the coder is 4-1/4 by 3-3/8 by 1-9/16 inches. (See Trip Report: Coder/Keyer, CK-8 dated 31 March 1959)

25X9A2 2138

ANTENNAS -

25X1/

Necessary steps have been taken to correct the technical difficulties reported from the field. Procurement of some essential components may cause a short delay in effecting corrective measures, but no delays greater than 2 or 3 weeks are anticipated. (See Trip Report:

Antennas dated 31 March 1959)

25X1

2139

AUTOMATIC DATA STORAGE AND READOUT SYSTEM, CS-11 -

25X1A9a

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Progress on the receiving and transmitting portions of the CS-11 system is on schedule. Approximately 85% of the work on the first prototype modules has been completed. The subcontract for development of the CS-11 recorder has been awarded to California.

25X1A5a

2140

AGENT TRANSMITTER, RT-21 -

25X1A9a

The electronic control circuity for the RT-21 has been constructed and "debugged". This circuitry will now be combined with the oscillator and amplifier stages of the transmitter. The problem of automatically matching antenna impedances from 25 to 1300±j1000 ohms remains unresolved.

2141 STUDY FOR UNCONVENTIONAL AGENT SET, RS-24 -

25X1

The contractor is making satisfactory progress on the RS-24 study. Basic modulation techniques and storage methods have been tentatively firmed up and effort is presently being concentrated on final configuration and packaging recommendations.

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2141A STUDY FOR NOISE-MODULATED AGENT SET -

25X1A

The contractor is presently reviewing final parameters for the noise modulated agent set. An extension of time in which to complete the final report was requested and granted.

2142 CIANDESTINE ELINT ANTENNAS -

25X1A9

The final report covering development of a clandestine ELINT antenna system has been received. Negotiations based on the results of this study are now in progress for the design and construction of two complete antenna systems.

2143 TRAVELING WAVE TUBE AMPLIFIERS -

25X1A9

The contractor reports satisfactory progress on this task. Delivery of two of the tube types (0.5 to 1.0 kmc PM and LO-NOISE) will commence in two weeks. Completed development of the other three types (4 to 8 kmc LO-NOISE, 12 to 16 kmc LO-NOISE, and 12 to 16 kmc PM) is expected within 1 to 2 months.

2145

PORTABLE MAGNETIC TAPE RECORDER/REPRODUCER, CB-9 -

25X1A9a

The transistorized circuitry for this unit was tested over the specified temperature range of -20° to +55° C. Although harmonic distortion remained within the 0.5% specified, the amplifier gain varied directly with the temperature. Sample capstan drive motors are being received and tested for speed stability, and the special record and reproduce heads are being fabricated.

2146 LONG-RANGE ELINT DATA TRANSMITTER, CS-15 -

25X1A9

Effort on this task has been temporarily suspended by the contractor pending an Agency decision on the future course of action to be followed in development of the CS-15 Collection System. It is expected that these questions will be settled within the next two weeks.

2147

SPECIAL PURPOSE RECORDERS, CB-12, CB-13 and CB-14 -

25X1A9a

25X1A5a1

These recorders are being designed and built by the under Task Order 1, Contract 602. From preliminary Agency testing of the CB-12 and CB-13 recorders, the contractor's performance appeared to be unsatisfactory and work was interrupted on the CB-14 equipment. Final evaluation of the tests, however, determined satisfactory

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accomplishment and design effort on the CB-14 was continued. A contract amendment has been requested which will increase the funds and extend the time of this project.

2148 SEARCH RECEIVER, CS-5 -

25X1A9a

Specifications for the CS-5 have been submitted to five potential contractors. A conference will be held with each contractor prior to submission of proposals to assure that the contractor's design philosophy will be based on a sound understanding of system requirements.

2149 TRAVELING WAVE MASER -

25X1A9a

A niobium solenoid has been constructed which retains superconductivity during sudden small changes in current while furnishing the desired field of approximately 2000 oersteds. The ruby has been lapped and matched to the waveguide section. First tests of the assembled maser are expected to begin during the next reporting period. (See Trip Report: Traveling Wave Maser dated 31 March 1959)

2150 CLOSED CIRCUIT TELEVISION, TV/CC-1 -

25X1A9

A technical and cost proposal for development of the TV/CC-l is expected from the next week or two.

25X1A5a1

2151 CONDUCTING GLASS ANTENNAS -

25X1A9

25X1A

Four sample conducting glass antennas in the form of dipoles have been received from and forwarded to the R+D Laboratory for a Class B evaluation of their characteristics. When the results of this evaluation are made available, a meeting will be scheduled with project engineers of to discuss possible applications of this glass and a second glass which they make (which is conducting throughout its entire volume) to our immediate and future requirements. (See Conference Report: dated 17 March 1959)

25X1A5a1

2152 MINIATURE MICROWAVE COMMUNICATIONS SYSTEM -

25X1A5

25X1Ase for Development of a Miniature

25X1A5a1

A rough draft of the Task Outline for Development of a Miniature Microwave Communications System has been completed. This outline will be finalized, reviewed and then submitted to the for a firm price quotation.

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2153 X1A9a 25X1A5 HIGH-SPEED FIELD STATION, AS-9 -2154 25X1A9a A comprehensive comparison of the four proposals for this system has been made and the final choice of contractors for this one-year study program will be made in the near future. 2155 COLD CATHODE TUBES -25X1A9a Some interest has been expressed in the possible application 25X1A5a1 of cold cathode techniques in special requirements where low power consumption is mandatory. Liaison has been established with representatives of discuss future developments and applications of the cold cathode tube. (See Trip Report: IRE National Convention dated 31 March 1959) 2627 VARIABLE SPEED TAPE RECORDER/REPRODUCER, BT-7 -Approximately 50% of the modification work on the tape deck

25X1A9a

25X1A5a1

portion of this equipment has been completed. 1 May 1959 is tentatively given as the delivery date of the prototype unit. (See Trip Report: Variable Speed Tape Recorder/Reproducer, BT-7 dated 26 March 1959)

2638 AUTOMATIC DIGITAL TRANSMISSION SYSTEM, AS-8 -

> A conference was held with representatives from Wright-Patterson Air Force Base and Andrews Air Force Base to discuss the use and availability of the original System II equipment for a reconnaissance application. A conference was also held with representatives of to discuss correction of the AS-8 system deficiencies. (See Conference Reports: Air Force Representatives dated 18 March 1959 and dated 12 March 1959 and Trip Report: Visit to ARDC with Reference to System II Requirement dated 25 March 1959)

25X1A

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	2639	VHF COLLECTION RECEIVER, CR-2 -	25X1A9a
		The CR-2 engineering model was received from the contractor this period. A visual inspection and preliminary operational test predict complete satisfaction with the mechanical design. A Class A evaluation by the R+D Laboratory has been requested. The contractor is fabricating four additional prototype units.	20/(1/(0.2)
	2640	SIGNAL DELAY DEVICE -	25X1A9
		Specifications for the fabrication of 20 signal delay devices were forwarded to three prospective contractors. Technical and cost proposals have been received from all three and are currently being evaluated.	
	2642	PHOTOGRAPHIC DATA RECORDING TECHNIQUES - (25X1A9
		A sales representative of the Corporation, Anaheim, California, was contacted at the IRE show. Although he was not able to discuss optical recording on a technical basis, he did express the company's interst in Government R+D in the field.	
	26143	TRANSISTOR ADAPTER FABRICATION, TA-LC -	25X1 <i>A</i>
25X1A6a		The TA-IC is presently being reworked in The prototype unit will then be resubmitted to Headquarters for evaluation. Upon acceptance of the prototype, 57 units will be fabricated by the foreign contractor.	
	2644	INFLATABLE HIGH-GAIN POUCHABLE ANTENNAS -	25X1 <i>A</i>
		Model shop work by the contractor is almost completed. Delivery of the completed antenna systems is expected by 1 April 1959.	20/(1/
	2648	CS-8 BROADBAND ANTENNA REQUIREMENT, AN-20 -	25X1.
		This antenna has been returned to for minor mechanical modification, photography, and an evaluation of its electrical characteristics from 30 to 60 mc. Negotiations have been initiated to purchase five additional 30 to 600 mc antennas.	25X1A
	2649	GUARDBAND RECEIVER, CR-16 -	25X1,
		The contractor has reported considerable success in developing a single band tuner covering the range of 30 to 260 mc. An investigation of harmonic crystals is in process to determine the feasibility of also providing fixed frequency operation.	
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25X9A2	2651	ONE-TIME PAD,	25X1A9a
		The required repairs on the printing platform of the equipment have been completed and the equipment was delivered to NSA on 27 March 1959. Arrangements are now being made for an Agency demonstration of the device.	25X9A2
25X1A9a	2652	SECTIONALIZED METAL PARABOLIC REFLECTORS AND FEEDS -	
		Work on most of the units is nearing completion. Delivery of the equipment is expected 1 April 1959.	
	2653	SEARCH RECEIVING SYSTEM MODIFICATION, CS-4 -	25X1A
		The refurbished CS-4 equipment has been tested and evaluated. Performance is considered entirely satisfactory. This task is now being closed out. (See Trip Report: CS-4 and CS-8 Collection Systems dated 16 March 1959)	
	2655	MINIATURIZED TEST EQUIPMENT -	25X1/
25X1A9a		Three competitive proposals for miniaturized pulse analyzers are currently under evaluation. Familiarization discussions were held at prior to submission of an proposal for 25 miniaturized signal generator equipment. (See Trip Report: Miniaturized Test Equipment dated 26 March 1959)	X1A5a1 25X1 <i>A</i>
	2656	TELEMETRY BAND COLLECTION RECEIVER, CR-17 -	25X1A
		Further action on the CR-17 has been postponed pending a reaffirmation of the operational requirement from the sponsoring division.	
	2657	RADIO RELAY SYSTEM, RS-28 -	25X1A9
		The engineering model of this four-channel relay system is approximately 95% complete. Further testing of the ultrasonic microphone input channel will be necessary. Instruction books to assist Agency technical evaluation of this system are approximately 50% complete.	
	2660	RADIO RELAY REPEATER SYSTEM -	25X1
		Development of a repeater unit compatible with both the RS-23 and the RS-25 relay systems was begun this period. Basic	

25X1

design work is in process at the

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2661 TRANSISTORIZED VHF MONITOR RECEIVER -25X1A5a Development of this refined monitor receiver will permit portable operation at the receiving end of the RS-23 and RS-25 relay systems. Design work was initiated this period. 2662 DATA REDUCTION CONSOLE -25X1A5a Clearances are being processed to permit the study of an existing data reduction system built by Following 25X1A5a1 receipt of proper clearances, a meeting will be arranged with representatives of various government agencies to discuss different data reduction requirements. Investigation still continues to find an interim solution to the problem of high-speed data reduction. (See Trip Report: IRE Mational Convention dated 31 March 1959) 2663 MODIFIED NEMS-CLARKE 1302-A VHF RECEIVER -25X1A5a The Office of Logistics is currently working out contract negotiations for this program with 25X1A5a 2664 25X1A5a EQUIPMENT DEMONSTRATIONS -On 9 March 1959 an electronic one-way dead letter drop was demonstrated to representatives of the Technical Requirements Board. All equipment operated satisfactorily. On 23 March 1959 two two-way-team agent radio sets were shown, including the RS-19 and the repackaged AN/PRC-34/36 Helmet Radios. Also shown were the RS-9, the RS-25A and the CR-2, and the CV-2. All equipment performed satisfactorily. SERVICE CONTRACTS -25X1A5a Α. - (RD)XG-1604, Task Order C and D Work Orders Completed During March 1959: Fabricate Teletype Parts Fabricate Tight Tape Arm (Teletype Part) 2,500.00 175.00 U Modify Motor Generator Set 919.00 Work Orders Outstanding: Design and Fabricate 30 to 260 MC Receiver (T.O. C) 6,000.00 D Design and Fabricate VA-9 10,300.00 Ι Signal Operated Relay, CU-6 6,080.00 N RS-1 Modification Kits 1,000.00 \mathbf{R} Antenna Mounts 3,136.00 V Fabricate 20 Teletype Modification Kits 1,174.00 W Fabricate an Audio Carrier Interrupting Device,

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Fabricate 231-D Indicator Panels

450.00

72.00

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25X1A5a1

25X1A5a1

25X1A5a1

	Dollar Balance Remaining, T.O. C	\$ 3,561.28				
	Dollar Balance Remaining, T.O. D	9,030.35				
В•	RD-79, T.O. 15					
	Work Orders Completed During March 1959:					
	None					
	Work Orders Outstanding:					
	1 Evaluate Frequency Shift Converters 3 Speech Clipper for 231-D 14 Frequency Extension Kits for 231-D	14,441.00 6,910.00 856.00				
	Dollar Balance Remaining, T.O. 15	33,597.42				
C.	RD-145, T.O. 5					
	Work Orders Completed During March 1959:					
	4 Fabricate KE-6 Keyers	8,945.59				
	Work Orders Outstanding:					
	<pre>1 Fabricate Filter Traps 6 Fabricate Transistorized RP-6 Power Supplies</pre>	2,420.17 14,954.00				
	Dollar Balance Remaining, T.O. 5	27,019.65				
D.	, RD-128,T.O. 3					
	Work Orders Completed During March 1959:					
	None					
	Work Orders Outstanding:					
	3 Measurement of a Reflex Slot Antenna b Design and Fabrication of a Receiving Antenna	3,300.25				
	Design and Fabrication of a Receiving Antenna Group	24,397.03				
	Dollar Balance Remaining, T.O. 3	512.84				

25X1A9a

Chier, Excernar Projects Section/R+D