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SPECIAL RE-REVIEW
FINAL DETERMINATION
UNCLASSIFIED, DATE: 3/30/82

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Series A

26 August 1947

This document contains 69 pages.

Z-DIVISION PROGRESS REPORT

18 July 1947 - 18 August 1947

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Per EMS 6-12-79

By Tommygo DB 1-24-96

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This document consists of 9 Page(s)
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INTER-OFFICE MEMORANDUM

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DATE 20 August 1947

TO: Mr. N. E. Bradbury

518

FROM: Mr. R. W. Henderson

SUBJECT: Status Report for Z-Division - Abstract. Period 18 July
to 18 August 1947.

Symbol: LAB-Z

The following comments constitute an abstract of the complete, detailed Progress Report for Z-Division covering the period 18 July 1947 to 18 August 1947. The complete report is available as a separate document.

Group Z-1 : Field Test1. Salton Sea Test Base:

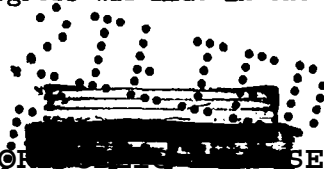
- a. Control System: Good operation during this period. Release and synch lines now isolated from voltage sources, so that one line short will not affect whole system. New Hathaway recorders received. 201 Kc transmitter installed in tower for airport control. Heavy rain brought flood waters which washed out control lines. Work underway to replace them. Overhead line system badly needed.
- b. Cameras and Theodolites: Four completely overhauled Askanias ready for use on next operation. Recording clocks being installed at Mitchell stations. Camera and theodolite operation good for the three drops accomplished in this period.
- c. Range Installations: Remote receiver room coupled to tower over ten field wire lines. East target painted to improve visibility. Roads 60% resurfaced with clay by Base.

2. Sandia Base:

- a. Test Project Office: Three drops accomplished in this period. Procurement of component parts for the units seems to be the biggest source of delay.
- b. Analysis Section: Good progress has been made on the analysis of the records from the drops to date. Trajectories graphed for ST-58, ST-59, ST-68, ST-70.

Group Z-2 : Engineering

1. The first trial assembly of a Mark IV HE mockup was made with inconclusive results.
2. Considerable progress was made in the design of Chicken Pox equipment.



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3. The first Wright Field pneumatic release installed was tested with resultant recommendations for changes.
4. Most of the required drawings for Navy Saddletree (XAJ-1) were completed. However, a question of policy will have to be decided before these are sent out.
5. The preliminary ground work was laid for obtaining smoke generating equipment for use in the aircraft and on the drop models in the Sandy Beach program.
6. Preliminary layouts were laid for new Z-Division Shops.
7. A survey was made of the Salton Sea Test Base for purposes of making renovation plans.
8. An inventory was completed on all fabricated Mark IV half and full scale parts that have been received since Z-2 took over the Mark IV program.
9. The first discussion of all interested parties was held on the electrical section of the drafting standards manual.

Group Z-3 : Assembly Training

1. Road HE Assemblies
Production assembly and packaging of Road HE units.
2. Field Assembly and Surveillance
Field assembly of "M" Division test units and surveillance.
3. New Assembly Equipment Testing
Assembly check of new portable frame.
4. Practice Assemblies, 38th Engineers
Monitoring of practice assemblies and liaison with the 38th Engineer Battalion.
5. Interim Manual Control
Accounting for, and distribution of interim test equipment instruction manuals.
6. Manual Editing
Checking and correcting instruction manuals.
7. Liaison with AAF
Preparation for calibrating air speed on test project B-29's.

Group Z-5 : Production

1. Production drawings and mock-ups of test equipment received the highest priority effort during this report period. Production drawings of the FTB-3 were made available for outside procurement on the first of August.

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2. Additional personnel from other Z-Division groups has been made available to the Industrial Engineering Section of Group Z-5 in order to expedite production drawings. All personnel efforts which can possibly be used in Group Z-5 have been directed toward test equipment work. As of this date, production drawings and/or mock-up work is under way on all outstanding test equipment items. It is expected that the next report period will result in the completion of the X-Unit Tester, R & J Box Tester and Tester-Calibrator, to the end that production drawings will be available for procurement. Production work is being started by Group Z-5 and Group Z-7 on the following test equipment items: Pressure Transmitter Tester, Baro Switch Tester, and Pump Tester. Valves for the Pump Tester and wire meeting our specifications are outstanding production items for these units; the mechanical work will be carried as far as possible during the interim period.
3. The first pilot model of the Mk-IV X-Unit has been received from the manufacturer and has been given a complete mechanical and electrical inspection; simultaneity tests will be run this week.
4. During this report period, Z-5 has received a total of four (4) employees and no terminations have been effected. Two (2) terminations are pending for educational reasons and will be effected approximately September 15. Twenty-six (26) job offers are outstanding as of this date.

Group Z-6 : Mechanical Test Laboratory

1. Five modified pressure transmitters have been received. They will be tested against Air Corps and Signal Corps specifications.
2. Twenty-six V-627 thermistors are now being calibrated.
3. The various types of hydraulic oils tested to date have all failed to remain in a liquid state at -100°F . We intend to test additional oils.
4. The York chamber automatic diving rate control installation is nearing completion.
5. A schedule has been determined to weigh electrical components of 10 units of the F.M. 10 mechanical components have been weighed.
6. The production sample of an Eclipse-Pioneer inverter failed to meet thirteen specifications.
7. A few minor design changes are necessary on the L-2-B storage can before the final order can be placed.
8. After a few minor changes in design on the half scale informer package it will be ready for industry.
9. The volume of air in 1561 was computed and the formal report sent to Z-2.

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Group Z-7 : Production

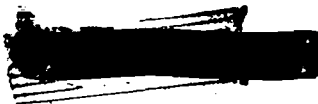
1. In the modification and assembly section work is continuing on 1561 units for the Roads Project and deliveries and transfers have been stepped up considerably. 1563 Spheres are beginning to arrive and are being inert filled. Enough are not yet on hand to replace these taken from SP units for ST drops.
2. All armored units and mechanical components have been returned to the Group Z-7 area and work is continuing to convert them to mild steel.
3. Work on converting PK units to 1561 has again started by the welding and modification sections. This work had been stopped because of the halt in the drop program and to enable the welding sections to complete the new light weight "A" frame.
4. In the Mock-Up section the machine work on the "Wish-bone Trailer" has been continuing; however the pipe has not yet been received.
5. The Mk-IV inert assembly has been turned over to LAB Z-2 for wiring. When completed practice assemblies including pit assemblies will be continued.
6. The last of three 1/2 scale units with revolving fins have been completed.
7. Work has started on a new F.M. Crate and is expected to be completed by the 1st of September 1947.
8. Construction on the extension to the machine shop for plating and heat treat is expected to start the week of 18 August 1947; however, a small silver and copper plating unit has been set up and experiments conducted in electroplating and electroforming and the results are satisfactory. Electroforming of Transmission wave guides will start as soon as the master mold is completed.
9. Vehicle preventative maintenance is still a confused issue. The Post Motor Pool will no longer do our work and the AEC Motor Pool is not yet authorized to take care of vehicles charged to this Group.
10. 1900 hours of miscellaneous work was accomplished by the machine shop during the last period.
11. Clerical Personnel are being cleared.
12. Two persons were cleared and reported for work during the last period.

Group Z-8 : Informers (Telemetering)

1. Telemetering equipment installed in three drops during the week of 21 July.

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2. Drop schedule cancelled on 28 July to design, construct, and put into use new telemetering equipment.
3. New system has numerous advantages over old type. Justification for the change now is based on a few of these advantages.
4. One new system now finished, drops to be resumed at end of month pending procurement.

Group Z-9 : Road

1. Progress - See Road Status Report, Top Secret Document, dated 30 July 1947.
2. F.M. Road Program - All acceptable bomb components on hand required for the Road have been processed and transferred to the custodian except as noted below:
 - 2.1 Lack of complete specifications for procurement is the cause for the major delay of the program.
 - 2.2 Test Equipment - Specifications for test equipment are being processed as rapidly as they are received from Group Z-5. Considerable time will be required for the completion of the specifications and the procurement of the equipment. Specifications for certain items may not be available for seven months.
 - 2.3 Work has been initiated on the modification of the coax cables in order that this problem may be cleared up to the satisfaction of all concerned.
 - 2.4 Failure of the pilot model of the new inverter required for the A-Plates and delays in the actual procurement of the new inverters requires that an alternate and temporary measure be taken. Arrangements are being made to modify certain existing inverters and reprocess the A-Plates.
 - 2.5 Transfer of mechanical assemblies to Road is progressing at a rate which is comparable to the assembly operations. The transfer could be expedited by additional handling equipment.
 - 2.6 Approximately 90% of the standard kit materials are on hand or are in the process of procurement. Items which require re-design or modification must be withheld until specifications are complete.
 - 2.7 Excellent progress has been made on the kit catalogue. The majority of the kits are in final form and are in the process of being typed for the first edition of this publication. The only information not available at this time deals largely with Echelon I and certain items of test equipment.
 - 2.8 Considerable time was devoted to compiling a report in connection with kit equipment for Group Z-3 entitled "Assembly and Testing Equipment for F.M. 2562". This report differs in a

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3. The drawings of the L.B. electronic gear will be completed within a week and will be available for procurement.
4. Surveillance inspection of an F.M. Unit, #41, assembled near the close of the war revealed that the castings were in excellent condition as far as visual examination permitted.
5. Considerable time was devoted to the inventory of equipment in connection with the transfer of property from Post Supply to the AEC accountable officer for Z-9 accountability.

Group Z-10 : Supply

1. The volume of purchase requests processed by this office during the period increased considerably over the previous period. Ten (10) requisitions have been forwarded to Project Roger by this office in line with the new Sandia - Roger channel. The Z-Division still does not have a flexible channel for local emergency purchases which can be used to meet the urgent requirements of the Groups.
2. Sixty-six (66) requests were made to manufacturers and vendors for information and data concerning their products.
3. The physical inventory of Z-Division property is progressing satisfactorily. It is anticipated that all inventories will be completed by 15 September 1947. However, due to insufficient personnel the program of editing inventories, typing receiving reports and issue tickets and posting to stock record cards has lagged, thus creating a "back-log" which will be difficult to overcome until sufficient personnel report for duty. The functions of receiving and shipping of Z-Division property was taken over from the Post Supply Officer on 21 July 1947. Post Supply checkers, laborers and equipment are being utilized until this section receives sufficient personnel.
4. Additional facilities such as bins and shelves are now being constructed in Building T-934 to Building P-500. An adequate building for our metal stock has not yet been provided. At present the bulk of this stock is being stored in the open.

Group Z-11 : Little Boy

1. The general engineering drafting program is proceeding according to plan. Several new drawings have been completed.
2. No assembly work was carried out, due to lack of components, however, a gadget previously assembled was dis-assembled and the Spacer Can removed. The gadget was then re-assembled. Anchor Ranch was cleared of all classified material and useful items transferred to Sandia. Other salvaged or transferred to other Groups.
3. Orders for certain items were submitted to Z-7 for their fabrication. Orders were also submitted to Z-10, and GMR-6. Navy Progress report indicates both Project Marsh and Lakeside are well under way on the production of items ordered from them.

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The Group cooperated with AFSWP in giving general indoctrination lectures to military personnel.

5. R. Mainhardt conferred with Dr. J. Hirschfelder, University of Wisconsin; Capt. McCormick, E. MacDougal, Wm. McElwreath, Project Roger; R. S. Warner, Jr., Commander Hooper, Captain Larkin, Col. J. Butler, Jr., and G. B. Green, Washington, D.C.
6. Other conferences were held here at Sandia with AEC Security, Division Leader, Z-2, Z-5, Z-7, and Z-9. Liaison was continued with Groups on the Hill.
7. Packing and loading experiments of propellant in the silk bags was continued.
8. Preliminary tests and installations were conducted in the Laboratory.
9. A trial loading of an LB unit was conducted in conjunction with Groups Z-2, Z-6, Z-7, and a representative of Wright Field.

Group Z-12 : Manual Preparation

1. Group Z-12 for preparing Technical Manuals was officially established on July 9, 1947, and was actually organized on July 17.
2. Personnel planned for the group include a Group Leader, three Technical Writers, a Draftsman, a Secretary, and a Clerk-typist. Job offers have been made to one Technical Writer and one Secretary.
3. A manual on the "CBT-4 Clock Box Tester" has been completed, and a manual on the "X-Unit Tester" is approximately 40% completed.

Division Administration

1. As mentioned under item 1 of this section last month, Z-Division has experienced considerable difficulty in the hire of new personnel due to loss of interest on their part, during the excessively long security clearance period and also because very few people are financially able to remain unemployed for the period of two months or more now required.

We are attempting to counteract this to some extent now by establishing an office outside the restricted area in which we can use uncleared personnel on unclassified tasks. We have been told this is possible and such an arrangement should be working within a week. We feel that if a man has a salary coming in he will be willing to await clearance.



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2. Progress is being made on the overall long range planning of the Z-Division Tech Area through conferences with the Manager of the Santa Fe Directed Operation, his assistants, and the local AFSWP administration. Arrangements have been made for an "industrial engineering" survey of the entire operation preparatory to planning of buildings.
3. The entire housing problem for Z-Division personnel was discussed in a meeting with the Manager of the Santa Fe Directed Operation, the Z-Division Leader, and local administration of AFSWP at which four different proposals were considered and agreement reached on the most feasible one which covered a housing project due west across the road from the Army housing. Following this agreement, the Manager will take action to continue work on the development at high priority.
4. A study is being made to result in a coordinated plan for the complete renovation of the Salton Sea Bombing Range, now used by Z-Division, with an aim toward providing adequate technical facilities, living quarters and recreational facilities. It should be noted that an overall plan for the establishment of a bombing range has been under consideration for some length of time and other locations have been considered and weighed with respect to their effectiveness as far as operations from Kirtland Field are concerned. Discussions with people who have made similar surveys in the last few years have indicated that the Salton Sea range still appears to be the best possible location. We believe that its main drawbacks, namely extreme heat and poor living conditions, can be eliminated by proper planning, and our efforts are being directed along this line.
5. Many Z-Division personnel are now living in the new housing area, but moves from the Kirtland Field housing area are being post-poned as long as possible as it seems clear that once those houses are vacated, they will be lost to Z-Division.
6. It is understood that a new representative of the Manager of the Santa Fe Directed operation will soon take up his duties with Z-Division, relieving Major Kyzer who was temporarily assigned to this function. The establishment of this office on a sound basis should go far toward assisting Z-Division in its activities.
7. Plans are progressing at top priority for the construction of two H₂ Assembly Buildings to be used for the assembly of Road units, inasmuch as AFSWP has indicated its plan to withdraw from this activity as soon as Z-Division can acquire the proper facilities and personnel. When this transfer of responsibilities is completed, Z-Division will be in complete control of the Road assembly work which will be done with its own personnel and will result in our transferring to the Custodian assembled charges completely packaged for storage. This change in responsibility was dictated by an increase in the responsibilities of the military personnel now assisting us in the work, which will preclude their continuing this function in the future.
8. Z-Division has established a personnel department equipped with personnel and authority to handle a major portion of the work-load formerly within the jurisdiction of Los Alamos. This should enable Z-Division to operate on a much more efficient basis.

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9. Z-Division now has a safety organization charged with the responsibility of maintaining safe working conditions throughout our activities and for maintaining close liaison with the similar organization at Los Alamos.

10. Z-Division likewise has established a document room, staffed by members of the Los Alamos Document Division, which is charged with the responsibility of maintaining records and inventories of certain categories of classified material, and with the procurement of reference material from other agencies. The centralization of responsibility in this regard should be of considerable aid in maintaining proper records of current activities as well as those of historical interest.

R. W. Henderson
R. W. Henderson
Acting Leader, Z-Division

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STANDARD FORM NO. 64

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Office Memorandum • UNITED STATES GOVERNMENT

TO : R. W. Henderson

FROM : Glenn A. Fowler

SUBJECT: Group Z-1 Progress Report

DATE: 18 August 1947

1. Communications Section:

A. Type of Work:

1. The work on the Askania control rack wiring clean-up is proceeding on low priority as component units for the racks are completed, (15% completed)
2. One cathode follower input unit for the Hathaway recorder has been completed and is now being tested. If the design is found to be satisfactory, two more units will be constructed--so that each Hathaway will have an electronic input circuit. (40% completed)
3. The clock repeat-back system for the Mitchell and K-24 clocks has been worked out and a model clock has been constructed and tested. The recording clock consists of a standard camera clock modified so that a beam of light excites a photocell once during each revolution of the second hand. The electric pulses from the photocell are recorded on the Hathaway along with the 50 cycle timing wave and the WWV one second pips. This system will provide a method by which the clock error can be determined for each drop and precise time data obtained. (15% completed)
4. A 201 KC transmitter for airport control communications was built for temporary use until a more satisfactory transmitter could be obtained. This unit was completed and flight checked. It was found to have a range of about three miles. (100% completed)
5. A 201 KC antenna system was installed between the tower and No. 3 building. This is a permanent installation for any airport control transmitter used. (100% completed)
6. A new rack-mounted patch panel for the control lines has been designed and is under construction. The panel will accommodate the new stations and the new line requirements that have developed since the panel presently in use was constructed. Work on this job is being held up indefinitely because of a shortage of switchboard wire. (60% completed)
7. New Askania pulse units have been built from components designed and constructed by Z-6. Each unit consists of a synchronous motor-driven micro-switch arrangement sealed into a dust-proof box. Complete standby equipment is available at the throw of a switch. A filter was designed and installed in each unit to help reduce the radio noise level in the control tower. (100% completed)

Z-1 Progress Report, 18 August (1947)

8. Two sonobuoy were received and have been installed in the remote receiver room in the nose hangar. A special sonobuoy receiver antenna was installed on the roof and the complete installation tested. (100%)

9. Ten field wire control lines have been installed between the control tower and the remote receiver room in the nose hangar. These will be used for the release, WWV and sonobuoy receivers. (85% completed)

10. Major maintenance work was done on the BC-610 transmitters that are used for point-to-point and air-to-ground communications. A burned out exciter power supply transformer was replaced and the necessary modifications were accomplished to convert the equipment to operate crystal-controlled on 11.61 megacycles. (100% completed)

11. 110 official messages were handled over the point-to-point circuit between Sandia Base and Salton Sea Test Base between 15 July and 15 August. This does not include radio conferences, air-to-ground contacts on drop days or airport control contacts.

B. Trips, Inspections, Liaison:

1. The Section Leader returned to Sandia Base for a period of approximately two weeks and accomplished the following:

- a. Aided the Camera Service Section in the construction of model recording clocks for the Mitchell and K-24 cameras.
- b. Obtained a BC-191 transmitter, power supply and coils for the permanent airport control installation at Salton Sea.
- c. Obtained spare VHF equipment.
- d. Checked on the procurement of critical items.

C. Administration:

1. The control line situation has become critical, especially since the recent rainstorm and flood. A complete line check has not been made since the storm as it has been necessary to let the insulation dry out. Visual inspection indicates that a large amount of the wiring will have to be replaced. The overhead pole line system proposed on 24 April 1947 is the only practical long range solution to the control line problem.

D. Personnel:

1. This section is short one man. An electrical engineer with several years experience in communications and industrial electronics is needed.

2. Engineering Service Section:

A. Type of Work:

1. The East Target was painted white to improve visibility from the air. (100% completed)

2. All field roads are being covered with a layer of clay and are being graded. A layer of clay is being distributed around each station to stabilize the soil and prevent wind erosion. (60% completed)
3. Designed and built carrying case for each station so that film magazines and clocks can be carried to each station in one container. (100% completed)
4. Encircled all bench marks with one foot lime strip for identification on aerial photographs taken for mosaic by Photo Lab. (100% completed)
5. Plotted eight trial drops for Captain Littlejohn, using South and West Askanias. (100% completed)
6. Checked and repainted reference marks for South and West K-24's. (100%)
7. Assisted Communications Section to string remote receiver lines between Control Tower and Nose Hangar. (100% completed)
8. Set up control cards for all vehicles and generators. Information includes all serial numbers, Army numbers, manufacturer, etc. (100%)
9. Measured and prepared sketches showing exact location of South Two and West Two Askanias for Analysis Section. (100% completed)

B. Trips, Inspections, Liaison:

1. Chisausky and Hollenbeck departed 25 July for Sandia.

C. Administration:

1. The lack of construction materials, such as: paint, lumber, plywood, etc. is delaying the completion of some jobs and the starting of others.

D. Personnel:

1. With the loss of E. S. Morton, the section is short five men.

3. Camera Service Section:

A. Type of Work:

1. Two Askanias were given a complete overhaul. The work consisted of the following:
 - a. Removal of all old grease and relubricating with grease suited to present operating conditions.
 - b. Removal of motor gears, clutches, etc. for inspection and repair where necessary.
 - c. Manufacture and installation of new type of ball-bearing pressure plate.
 - d. Installation of "over-stop" attachment.
 - e. Removal of most of the solid type wiring in each instrument and the replacement with stranded, color-coded wire.

f. The painting of the entire instrument aluminum to aid in heat reflection and in sealing out the sand.

2. Both of the above Askantias were installed at Salton Sea after the completion of the work. Another Askantia was overhauled and shipped to Salton Sea, but developed troubles there--apparently due to vibration in shipment--and was returned for further work.

3. Minor overhaul work was done on another Askantia which will be overhauled completely later.

4. Repaired a Speed Graphic for Army Intelligence.

5. Cleaned and checked lubrication on Fastax camera.

6. Salvaged and reconditioned one Askantia motor and shutter assembly from one of the scrapped Askantias sent to us for parts.

7. Worked with Communications Section to complete an Askantia shutter-checking device which will place a record of the shutter operation on a Heiland recorder.

8. Designed and built a test box for operating the motor and shutter assembly of an Askantia after it has been removed from the camera.

9. A Graflex-made 35 mm camera was repaired and made ready for shipment to Salton Sea.

10. Two Askantia trigger boxes were repaired and shipped to Salton Sea.

11. A report and drawing on a consolidated Photo Section for the new building was prepared and turned in to the Z-1 Office.

12. In cooperation with Z-6, a design was drawn up for a double-brush system for the Askantias. An experimental unit is to be completed by Z-6 during the month of August.

13. Contact was made with Z-2 regarding the installation of the A-5 cameras in the planes to replace the Mitchells now used. The shortage of sheetmetal men at Kirtland is holding up the installations.

B. Trips, Inspections, Liaison:

1. Mr. Fant made two trips to Salton Sea, where he worked on Askantias for a total of eleven days.

C. Administration:

1. No problems

D. Personnel:

1. Section is short on camera and instrument repairman for Salton Sea.

E-1 Progress Report for August 1957 (Cont'd)

4. Photographic Laboratory Section:

A. Type of Work:

1. The new collimating lens assembly for the K-24 clocks has been received from Mr. Brixner. It will be installed at one of the K-24 stations for trial on the next drop.
2. K-17 pictures were taken from the L-5 in order to make up a photo mosaic of the Salton Sea Test Base area. Several attempts have been made to get these pictures from the B-29's without success. The mosaic will be used to prepare a map of the base and field layout.
3. A large volume of work has been handled by the Sandia Base lab-- particularly for group Z-5, during this period.
4. As a result of a study made by the Analysis Section, the Tower Mitchell clock is being replaced because of erratic operation.
5. A study is being made to determine if some other type of camera of a sturdier construction can be used instead of the present K-24 cameras for the purpose of measuring impact velocity.

B. Trips, Inspections, Liaison:

1. The Section Leader spent a period of approximately two weeks at Sandia during this period.

C. Administration:

1. No problems.

D. Personnel:

1. One experienced photographer needed for Salton Sea, and a darkroom technician and clerk-typist are needed for Sandia.

5. Property Section:

A. Type of Work:

1. Field Property Office:

- a. The transfer of accountability of the property at Salton Sea Test Base to the Field Property Office has been completed.
- b. The proper forms for handling property have been received and are now in use. They include: Property Transfer Slips, Report of Shopmade Property, Intra Group Property Transfer Slips, Report of Lost, Damaged or Destroyed Property and Report of Expended Property.
- c. A complete inventory has been made of all property charged to the Field Property Office by Mr. Lefler.

2. Base Property Office:

Z-1 Progress Report, 18 August 1947 (Cont'd)

2. Base Property Office:

a. Shipping and Receiving: The method outlined by the Group Leader for handling shipping has worked out satisfactorily so far. A bill of lading and the necessary property transfer forms now accompany all shipments. The shipments are handled directly between the two property offices as their responsibility. Crews are recruited from the various Z-1 sections to help load and unload at the two points. We also handle--as a favor--the Z-8 shipments between the two bases. A total weight of 10,851 lbs was shipped during the period 15 July to 15 August.

b. Inventory: An inventory of all property will be made as soon as all property has been entered on the Z-1 Property Cards. The typing of the cards probably will take another two weeks. To take the inventory, the Property Office will take a typewriter and the Property Cards to each section. One man will check the property--location and condition--while another man types the entries on the cards. It is expected that two weeks will be required for the inventory.

c. Posting and Filing: A posting and filing system for incoming and outgoing supplies, materials and equipment has been established.

d. Back Requests: All back requests have been processed through the RQT stage.

e. Procurement Follow-up: A monthly procurement follow-up on all RQT's has been set up to operate in the following manner:

- (1) A form is prepared stating date of RQT, number, date requested, and providing a remarks column for Z-10 notations.
- (2) Form is sent to Z-10 for status notations.
- (3) When form is received by Base Property Office, duplicates are prepared and distributed to: Group Leader, Test Project Office, all Section Leaders, Field Property Office and one copy filed by Base Property Office.

B. Trips, Inspections, Liaison:

1. Because of shortage of drivers in AEC Motor Pool, Fullerton drove new employee to Los Alamos 5 August.

C. Administration:

1. A memorandum outlining the method of handling group property, shipping, and procurement was prepared by the Group Leader and circulated to all sections.

D. Personnel:

1. No shortages.

C. Field Test Office:

A. Type of Work:

1. Comments of Field Test Operations:

a. Askaniyas: Operation good on all three drops accomplished during this period.

b. Mitchell Cameras: Difficulty with Tower Impact Mitchell clock giving erratic operation. Clock will be replaced with new recording clock before next operation. Cameras operated satisfactorily.

c. K-24 Cameras: Operation good. Impact velocity records obtained on all drops.

d. Control System: Washout of lines in heavy rain causing some difficulty. Lines will be replaced before next drop. Overhead line system requested in April badly needed.

All synch and release lines have been isolated from each other and from the source voltages so that a short on any line will not affect the rest.

2. At the date of this writing, 32 drops have been accomplished at Salton Sea Test Base--three since 18 July.

3. A good 201 KC transmitter has been procured and installed in the tower for contacting passenger and freight flights. Good contacts are obtained at ten miles.

B. Trips, Inspections, Liaison:

1. During this lull--occasioned by procurement difficulties in Z-8 and Z-2--several members of the group were returned to Sandia for duty there.

C. Administration:

1. Telephone still needed for 4-Division use at Salton Sea Test Base. Mr. McKinney, Base Manager, has taken steps to have one installed.

D. Personnel:

1. Short one secretary, but one is being hired as soon as clearance is obtained.

7. Analysis Section:

A. Type of Work:

1. The Askania films for ST-58, ST-59, ST-68 and ST-70 have been completely analyzed--including trajectory graph. ST-71, ST-72 and ST-73 are partially completed.

2. K-24 impact velocity records for ST-54, ST-55, ST-56, ST-58 and ST-59 have been analyzed.



3. Mitchell films from ST-54 through ST-73 have been analyzed. At the request of the Group Leader, a special study was made of the reliability of operation of the clocks. Graphs were drawn showing the variation of each clock from the average time of fall.

B. Trips, Inspections, Liaison:


1. The Section Leader made a trip to Salton Sea to assist in the location of suitable Askania reference points to be used in place of ones previously employed.

C. Administration:

1. Six calculators were requested 26 June on RQT #59620. The last report obtained from Z-10 indicated that the machines have not yet been ordered by Los Alamos. These machines are badly needed now.

D. Personnel:

1. One man transferred back to Los Alamos and four new men have been added to the section--some of them on a part-time basis. Six more are being processed.



Z-1 Progress Report for August, 1947 (con't.)

8. Test Project Office

a. Type of Work:

- (1) Three drops accomplished during this period.

ST-71	22 July	1561 w/Mark III "X" Unit
ST-72	24 July	1/2 Sc. 3B-2C, w/shroud tail.
ST-73	24 July	1/2 Sc. 3B-2C, w/thin fins.

- (2) Drop folders ST-51 through ST-68 were checked and brought to date. This included calculations of Squadron "A" data and checking analysis section reports. It was also necessary to run down some missing reports which are supposed to be a part of this file.
- (3) A chart was set up to record reports as they come in so that a constant record will be available of those missing.
- (4) A chart was set up showing instrumentation and analysis results on each drop so that a running record is always available.
- (5) All Test Project Office files were reviewed, and all dead material was eliminated.
- (6) The Master Plane Chart was partially revised. 50% completed.
- (7) In cooperation with Mr. Fowler and with Mr. V. A. Harris of Z-2, plans were made for improvement of conditions at Salton Sea.
- (8) Assisted in investigation of accidental drowning of E. S. Horton.
- (9) Worked on revisions of test forms. 50% completed.
- (10) Made Coordinator's reports on Drops ST-62 through ST-73.
- (11) Made Pre-analysis reports on Drops ST-62 through ST-73.
- (12) Made Ballistics reports to Z-2 (Ryan) on ST-49, ST-52, ST-53.
- (13) Set up new control charts for Dinsy Doodle flights, cargo flights, and Cutter-Carr flights.
- (14) Set up card index control of travel performed by Z-1 group

Z-1 Progress Report for August, 1947 (Con't.)

b. Trips, Inspection, Liaison

- (1) Three trips made to Salton Sea by section leader: one on 25 July for coordination of drops, the second on 2 August to assist in location of Norton's body, and the third on 12 August to work with Mr. Harris of Z-2 in surveying conditions at Salton Sea.

c. Administration

- (1) No problems.

d. Personnel

- (1) Transfer of Mr. Hepplewhite to this section brings it to full strength.

Wm. A. Fowler



[REDACTED]

INTER-OFFICE MEMORANDUM

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TO: R. W. Henderson

FROM: R. A. Bice

SUBJECT: Progress Report from 18 July 1947 to 18 August 1947

Symbol: LAB-Z-2

DATE 18 August 1947

I Organization

Nothing to report

II Personnel

A. Present Status

At the present there are twenty-nine people in Group Z-2. This includes two new members, Miss Margaret Wessels and Mr. B. N. Smith. A total of five persons, including the three mentioned last month, have given notice of termination, although none terminated during this report period.

B. Future Status

Of eleven prospects who have been sent job offers and whose clearances are now proceeding, nine have accepted. This includes one transfer from the Hill to be effective this week.

III Weapon Development and Design

A. Mark IV FM

1. Sphere Y-6100

The wire installation drawings for the sphere were completed and a new mock-up made, based on these drawings. The final check of wire lengths has been made, and a copy will soon be forwarded to H. Grier from which information can be obtained for the design of their inductance loading coils in the cartridge mounting ring.

The trial assembly of stearic acid blocks was made in the same sphere as was used for checking the detonator wire assembly. As a result, the trial block assembly was not brought to a satisfactory conclusion since both operations could not be performed on the sphere at the same time. Indications are that this assembly will have to be taken apart and re-chimmed for proper fit.

2. Steel & Aluminum Alloy Outer Cases, Y-6200, Y-6250

The revised drawings for the rear portion of these outer cases were completed and sent through the procurement channels to be acted upon by the fabricating agencies.

[REDACTED]
INTER-OFFICE MEMORANDUM

DATE 18 August 1947

TO: R. W. Henderson
FROM: R. A. Bice
SUBJECT: Progress Report from 18 July 1947 to 18 August 1947
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4. Rear Case Dolly, Y-6904 and Ellipsoid Dolly, YS-10600

Six or eight months ago a rear case dolly was designed by Group Z-4 for use with the Mark IV rear case. The first trial model was only recently completed by Group Z-7 and tested out. It seemed to require enough changes so that a complete reconsideration of the problem and possible re-design was contemplated. After a brief study, it was determined that the Chicken Pox dolly, as previously designed for the 1561 unit, might be adapted to this unit with little change. As a result, these few changes are being incorporated in the Chicken Pox ellipsoid dolly, YS-10600. It is contemplated that an order can be placed for trial models of this double-duty dolly during the next report period.

5. H. E. Block Assembly Fixtures

After trying the assembly fixtures previously designed for assembling the H. E. blocks in the Mark IV sphere, several changes were required. These were incorporated in the drawings, keeping in mind as much as possible, the interchangeability of these fixtures with those used in the Y-1561 sphere.

6. Mark IV Front Case Dolly, Y-6903 and Mark IV Split Band Dolly, Y-6901

The design layout for new steering linkage, and other minor modifications were completed and ready for checking on both of these dollies.

B. For Chicken Pox

1. Portable Tool Crib

A set of specification drawings was completed for the portable tool crib. These were incorporated in written specifications sent for ANC final design.

2. X-Cone and A-Plate Mount, YS-10611

Design drawings were completed and sent to ANC for production.

3. Spare X-Unit Mount, YS-10626

A specification drawing was sent together with written specifications to ANC for their action.

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TO: R. W. Henderson

FROM: R. A. Bice

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Synbol: LAE-Z-2

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4. Split Cradle

A split cradle is in the process of design which will be used with the 1561 unit during the Chicken Pox operation. A standard cradle will not serve for this application since the bomb can not be raised up high enough from the deck to allow the cradle to be slid under or removed from beneath the unit.

5. Sphere Rotating Tongs, Y-6910-D1

Because of the weight and bulk limitations imposed on the Chicken Pox handling equipment, a new design was made of the sphere rotating tongs to build a very light, collapsible unit. Drawings were completed and checked. An order will go out within the next few days for a pilot model.

6. Light Weight Sphere Dray, YS-10621

Because of the same limitations noted in the previous item, a new sphere dray was designed using aluminum fabrication techniques. These drawings were completed, and an order for six units was placed.

7. Position of Assembly Equipment for Chicken Pox

A drawing was completed showing the assembly equipment and components during the assembly operations. Another drawing will soon be made showing this equipment in its stowed flight position. Both of these drawings are being prepared for use by AMC in their aircraft weight and balance planning and in their utilities planning.

8. Battery Charge and Discharge Set-up, Including Exhaust Blower System

Functional design data was sent to AMC on the above items for their final design.

9. Equipment Specifications or Designs not yet sent to AMC

- a. Specifications for curtains around assembly unit for use during sealing operation.
- b. Small pans placed on the deck between formers to receive nuts and bolts, etc. during the disassembly operation.
- c. Specifications for temperature and humidity recorder.
- d. Specification drawings for stowage of H.E. trap door blocks during Pit Assembly.
- e. Specifications for fire extinguisher equipment.

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10. AMC Re-design of Z-Division Equipment Received at Sandia for Final Checking.

- a. Sphere jack design
- b. Seat table top
- c. Seat plate mount
- d. Consolidated equipment rack (FTB, Simultaneity Lox, etc.)

C. For Project 76

A set of P-80 wheels without tires and a partially complete set of drawings arrived at this base. From these, sufficient information has been obtained to go ahead with the wheel suspension design of the Wish-bone trailer. The trailer framework is now in the process of being built, but man-power difficulties still make its progress fairly slow.

D. Fat Man Crates

The basic design of the 1561 crate has been completed. It is in the Z-7 shops being built.

V. Aircraft Liaison Design

A. Army Saddletree

1. Pneumatic Release

Test loadings of the Mark IV and L.P. units were made in airplane #447 to ascertain if the pneumatic rack now installed in that plane was satisfactory. Interference between the dust cover on the rack and the surface of the Mark IV was encountered. Another point of interference was encountered in the length of sway braces. They could not be retracted short enough to accomodate the unit as mounted in this rack. Two alternatives are open; one to re-design these sway braces so that they can be retracted further, and two, to drop the rack a bit further on an extension plate.

Extensive changes in the routing of the air valve, air bottle, release box, and pulley rack are necessary in order to install the L.P. mount and sway braces. Some cutting and drilling on the mount itself may also be necessary. It seems apparent that AMC did not design this rack so that it could be used with the L.P.

2. Pull-out Structure Experiments

Tests in P-29's using two different types of pull-out structures were made with a Fastax camera installation in the bomb bay. Results indicate that the present harness using flexible

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TO: R. W. Henderson

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B. Navy Saddletree

A considerable amount of effort was expended to finish the XAJ-1 job. Seven drawings were made covering sway brace locations, pull-out harness locations, antenna placement and wiring, and plane wiring. Upon reaching an agreement as to what our policy is to be concerning the re-design of the bomb bay junction boxes, these drawings will be forwarded to the Navy Department.

C. Miscellaneous**1. Smoke Generator Equipment**

It has been requested that the six B-29's at Kirtland be equipped with smoke generating apparatus to enable them to leave a visible smoke trail over the target at Sandy Beach. It has been requested that the nine smoke pots now at Muroc Lake which were built for early 1961 tests be delivered here for try out on our Mark IV half-scale units.

2. Experimental Flash Unit

We are working on a joint endeavor with Z-1 to equip one airplane with an experimental flash unit which can be picked up by the cameras when the airplane is over the target on drop tests.

3. Aircraft Status

Airplane #818 is now being modified so that a half-scale unit can be carried in the rear bomb bay as well as in the front bomb bay. Airplane #444 is now at Wright Field having a pneumatic rack installed.

The three new airplanes from SNA, #444, #447, and #818 will be of no use to Z-Division on Sandy Beach test drops until the smoke apparatus mentioned above is installed in them. The reason for this is that the black undersides of these three planes makes them practically invisible from the ground when over Sandy Beach.

VI Special Assembly Areas Problems**A. CVB**

Some drawings were received from the DuShips showing the special bomb cradle to be used in the CVB installation. With the drawings was a letter

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requesting an entire check of these drawings to determine whether they meet Sandia requirements, and if not, asking for comments. These are now being studied and comments will be sent through in due time.

B. Project 76

The complete set of final plans for this project as promised by the design agency have not been forwarded to Z-Division as yet. Action is being taken to determine the hold-up since several important changes may be requested.

C. AV-4

Drawings were received from Terminal Island showing a new arrangement for holding down items stowed on the third deck. This arrangement seemed perfectly satisfactory so that no revisions will be requested by this group.

D. Chicken Fox

1. Air Conditioning

A question has been raised concerning the power required in meeting our air conditioning specifications during the sealing operation. It does not seem to be a weighty problem by our own preliminary analysis; however, it will be taken up by Mr. DeSelm with AKC on his trip to Wright Field this week.

2. Weight and Balance Information

A drawing is being prepared which gives the location, size, and weight of all equipment in their stowed flight positions.

VII Architectural Design

A. New Z-Division Building

It is understood that action will soon be forthcoming to get this building started.

B. New Z-Division Shops

Two preliminary layouts of this shop building have been made. As soon as practicable, they will be discussed with interested persons so that further work can proceed.

C. Salton Sea Test Base Inspection

Form 25

DATE 18 August 1947

TO: R. W. Henderson

FROM: R. A. Bice

SUBJECT: Progress Report from 18 July 1947 to 18 August 1947

Symbol: LAB-Z-2

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A survey was made of the Candy Beach Test Base to determine what will be necessary in terms of renovation and new construction to make the place habitable on a long term basis.

1. Water System

The entire piping system in the building areas needs immediate replacement due to rusting and corrosion.

2. Sewage Disposal

Only minor repairs and expansion will be necessary for this utility.

3. Housing

A small housing project (approximately 24 houses) is recommended for family use. New facilities should be developed for dormitory use by twenty-five to thirty men.

4. Recreation

New recreation facilities, such as swimming pool and club facilities are recommended.

5. Operations Building

The operations building will require either extensive overhauling or re-building with adequate dust proofing and air conditioning to serve as an instrumentation laboratory.

6. Services

Services, such as dispensary, fire protection, gas station, transportation, cook, and janitor need overhauling.

D. Z-2 Building #912

Due to the anticipated increase in personnel for Group Z-2, an addition to our present space will be required long before the new Z-Division building is ready for occupancy. As a result, a work order has been placed asking for a fifty foot extension on building T-912. This will allow the building to adequately house a group of approximately forty people.

[REDACTED]

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TO: R. W. Henderson

FROM: R. A. Bice

SUBJECT: Progress Report from 18 July 1947 to 18 August 1947

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VIII Office and Shop AdministrationA. Classified Material Records

As noted in the previous report, a channel was set up in group Z-2 for keeping records of all incoming and outgoing classified material from this group. This system has worked quite well, but it seems to be in conflict with a few points in the system recently set up by the Z-Division office for their mail and records section. These points of question can be easily handled by discussion with the interested parties.

B. Procurement and Receiving

An inventory of all fabricated Mark IV half and full scale parts that have been received since Z-2 took over the Mark IV program has been completed. However, there are a number of questions of accuracy in this inventory which cannot be answered until such time that sufficient personnel is available to uncrate and give a serial number to all parts.

The record system as set up will keep a running inventory of all items as they come in and as they are expended in the drop schedule.

C. Drawing Standards Manual

The mechanical section of this manual is in the process of final revision as agreed upon by all the design groups of the Los Alamos Project. It should be ready for presentation to the Tech Board in the near future.

The electrical portion of the manual is in its semi-final round of changes. All major questions of policy have been agreed upon. As soon as these revisions are completed, it will require at least one more group discussion before being presented as a final draft.

IX Ballistic and Field TestsA. Gun Firing Range Models

Progress on the fabrication of new models for Aberdeen range tests has been slow at Project Roger. However, they seem to feel now that most of the fabrication techniques involved in building both bodies and fins have been perfected. It is anticipated that the first complete model will be finished within two weeks.

B. Sandy Beach Mark IV Tail Fin Program

The following 3b-2c half-scale models were dropped at Sandy Beach during the report period.

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TO: R. W. Henderson

FROM: R. A. Bice

SUBJECT: Progress Report from 18 July 1947 to 18 August 1947

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25 July	ST-72	Shroud
25 July	ST-73	Thin Fin

Both bombs appeared to fall nicely from observation and preliminary analysis.

As determined by analysis, ST-69 and ST-70, (noted in the previous report), both lost some data due to tone failure and central control power failure respectively.

The final analysis of ST-43 through ST-47 is practically completed. The data on two of these drops was very difficult to analyze and thus took an inordinate amount of time.

C. Consultation Services

Dr. J. L. Kelley, who has been on consulting agreement with the Los Alamos Laboratories, was contacted and asked to come to Sandia for consultation for a week or more. He agreed to do this approximately the first week in September when he will be travelling through to accept a new position with the University of California on the West Coast.

R. A. Bice
R. A. Bice
LAB-Z-2

RAB/mjb

Dist: #1, #2 - Z-Division Office
#3, File

[REDACTED]
INTER-OFFICE MEMORANDUMDATE 18 August 1947 31

TO: Mr. R. W. Henderson

FROM: A. B. Machen, Group Leader, Z-3

SUBJECT: Z-3 PROGRESS REPORT FOR PERIOD ENDING 18 AUGUST 1947

SYMBOL: LAB-Z-3

1. F.M.I. production assemblies have progressed at the normal rate prescribed for this period. All work was carried out under the supervision of this group and was certified correct. Preparations have been made to hire and train civilian personnel for this work. The Z-Division Personnel Office now has a man in the field recruiting men with H.E. handling experience.

2. FM 41 was delivered to the Hill where it was disassembled, inspected, and reassembled by representatives of Group Z-3. This operation was performed for M Division tests and was of considerable interest to Z-Division from a surveillance standpoint.

3. The new tubular assembly frame was delivered to the 38th Engineers. This piece of apparatus checked out to everyone's complete satisfaction in actual assembly. A few refinements can be added at the time production drawings are made but design-wise it is entirely adequate.

4. The 38th Engineers assembly team is now in operation with the completion of one practice assembly. Henceforth Group Z-3 will not provide full-time monitoring of this operation. Contact with the 38th Engineers will be on a consulting basis. Technical material will continue to clear through this office as in the past and will be received by a single agency of the 38th Engineers.

5. The entire circulation of interim manuals concerning recently issued test equipment has been collected by this group. This measure was necessary to assure proper distribution and removal from circulation at such time as the information concerning the test equipment has been incorporated into the regular series of manuals. These temporary publications will not be assigned an IA number, nor will they be given full manual status.

6. The interim manual on the CBT-4 was sent to Group Z-3 from Group Z-12 for additional proofreading and was returned with suggested corrections. The completed manuals were returned to Group Z-3 for distribution but are being held temporarily for final changes being made on the tester.

[REDACTED]
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FROM:

SUBJECT:


7. In general discussion Group Z-3 learned of the difference in ground speed between the airplane and the Askanias. It was suggested to Mr. Runyan that he write a memorandum to Squadron "A", W-47 requesting that all air speeds and free air temperatures be calibrated. W-47 was not able to help in this matter because of a personnel shortage. The matter was further discussed in a meeting with Col. Sutherland and Major Lucich, wherein Col. Sutherland agreed to send out a special modified P-51 from Wright Field to calibrate all test B-29's. It has been suggested that this work be done at Sandy Beach and the Askanias be checked against the P-51 instruments.

A. B. Machen

A. B. Machen
Group Leader
Z-3

ABM/pbb

Distr: #1 and #2 of 3A, Mr. Henderson
#3 of 3A, Z-3 files

 THIS DOCUMENT CONSISTS OF 10 PAGE(S)
 NO. 1 OF 3 COPIES, SERIES A
 INTER-OFFICE MEMORANDUM 1265

DATE 18 August 1947

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TO: R. W. Henderson
FROM: O. L. Wright
SUBJECT: Z-5 Progress Report for Period 18 July 1947 to 18 August 1947.
SYMBOL: LAB-2-5

I. SECTIONS

A. X-LABORATORY

1. Work Completed:

- a. Inspected and tested Mk-III coax harness as received from Grier.
- b. Test and inspection of three (3) Mk-III X-Units completed; one of these was sent to X-7 at Site Y.
- c. Checked wiring installation on Planes 818, 386 and 384 with Tester-Calibrator (Kilroy).
- d. Constructed and tested one Mk-III Tester-Calibrator (Kilroy) for use with FTB-4.
- e. Modified and tested two (2) FTB-2's; three (3) FTB-3's.
- f. Assembled and tested one (1) Bowen Camera for Road.
- g. Coordinated with Z-7 in determining c.g. of Mk-III X-Unit.
- h. Coordinated with Z-6 in determining c.g. for FTB-4.
- i. Assembled eight (8) special cables for Assembly Test Unit to permit assembly tests with FTB-4.
- j. Assembled five (5) sets of power and informing cables for Mk-III X-Unit.
- k. Worked with Development Section in obtaining oscillographic pictures of the informer and gap pulses of Mk-III X-Unit.
- l. Completed photographic work in connection with the Z-5 test equipment program.

2. Work in Progress:

- a. First pilot model of the Mk-IV X-Unit has been received and inspected. Simultaneity tests will be run this week.

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Page 2

- b. Design is under way on a tester with remote control panel to be used in camera tests of the Mk-III X-Unit.
- c. Two (2) members of this section are assisting the Industrial Engineering Section on test equipment drawings.

3. Future Problems:

- a. Further tests on the Mk-IV X-Unit.
- b. Construction of test equipment for Mk-III X-Unit.
- c. Control system for testing of the Bowen Camera now being designed by Z-6.
- d. Firing assemblies when field test operations are resumed.

B. E-LABORATORY

1. Work Completed:

- a. Thirty-five (35) pump sets removed from pressurizing units; sets to be used in the construction of Mk-IV Pump Tester.
- b. Two hundred thirty (230) AB-2L2 Battery Trays repaired, tested and packaged for Z-9.
- c. Forty-seven (47) CB-12L2 Clock Boxes tested for Z-9.
- d. Eighteen (18) original units modified to Archie.
- e. Constructed latest model of Baro Switch Tester, Mk-III.
- f. Constructed one (1) Pressure Transmitter Tester, Mk-I.
- g. Constructed mock-up of Assembly Tester Mechanical (ATM) Mk-I, Mod. O.
- h. Completed one mock-up Clock Box for the Mk-IV X-Unit Cartridge.

2. Work in Progress:

- a. Assembly Test Unit (ATU) to be used with FTB-4 in Mk-III X-Unit assemblies; 50% complete.
- b. Second mock-up of ATM Mk-I, Mod. O; 20% complete.
- c. Personnel in this section assisting Industrial Engineering Section with production drawings.

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d. Constructing two (2) mock-ups of low range Detonator Ohmmeter (DO).

3. Future Problems:

- a. Modification of original units to Archie.
- b. Completion of ATE mock-ups.
- c. Completion of second ATM mock-up.
- d. Completion of Detonator Ohmmeter (DO) mock-ups.
- e. Construction and testing of thirty-five (35) Mk-I Pressure Transmitter Tester.
- f. Fuzing assemblies when field test operations are resumed.

C. INDUSTRIAL ENGINEERING SECTION

1. Work Completed:

- a. FTB-3 production drawings and specifications.
- b. Name plate and switch drawing revisions for Battery Panel prints.
- c. CBT-4 and CB-12L2 manual drawings for Z-12.
- d. Coax cable modification specifications for Z-9.

2. Work in Progress:

NOTE: The following test equipment information is based on a weighted percentage as set up by Mr. Funk of the Industrial Engineering Section: Preliminary design and drawings, 20%; Production drawings, 20%; Checking, 20%; Revision, 10%; Final checking, 10%; Specifications, 10%; Organization, Typing, Final prints and Foils, 10%. Total, 100%. For approximate dates on Status of Test Equipment refer to Memo, Wright to Henderson, same subject, dated 11 August 1947.

- a. X-Unit Tester (XUT), 75% complete.
- b. R & J Box Tester (R&JBT), 80% complete.
- c. Tester-Calibrator (TC), 85% complete.
- d. Pressure Transmitter Tester (PTT), 80% complete.
- e. Baro Switch Tester (BST), 70% complete.

- f. Pump Tester (PT), 25% complete.
- g. Clock Box, CB-12L2, 60% complete.
- h. Archie Battery Tray, AB-2L2, 50% complete.
- i. Delay Relay Tester, DR-2, 22 % complete.
- j. Assembly Tester Mechanical, ATM, 20% complete.
- k. High Voltage Meter, HVM, 20% complete.
- l. Archie Plane Test Box, ATP-2, 20% complete.
- m. Clock Box Tester, CBT-4, 25% complete.
- n. Detonator Ohmmeter, DO, 20% complete.
- o. High Pot Tester, HPT, 20% complete.
- p. Assembly Tester Electrical, ATE, 15% complete.
- q. Assembly Test Rack, ASTR, approximately 2% complete.
(Work just started on revision of ATB-4 to remove Brode informing circuits.)
- r. Cable Tester, CT, 22% complete
- s. Work on the following units has been started in the last two (2) weeks: ATE, DO, APT-2, Pump Tester, Baro Switch Tester, and Pressure Transmitter Tester.

3. Future Problems:

- a. Completion of production drawings and specifications for all electronic test equipment.
- b. Drawings for Z-5 manuals.
- c. Supplying information for production inquiries.

D. DEVELOPMENT LABORATORY

1. Work Completed:

- a. The Vibration Analyser is complete, except for the report; Mr. Clarke is assigned to the Abee project. Z-6 has the unit with operating information.
 - b. The High Voltage Vacuum Tube Voltmeter has been turned over to the X-Unit Laboratory. Mr. Dawson of this section will write the report after completion of work on production drawings of test equipment with the Industrial Engineering Section.
-

- c. The special tests on samples of Polystyrene submitted by Project Roger, results in Report No. 653, dated 4 August 1947.
- d. Revision of the FTB-4 being completed by X-Lab; Dawson will complete report after test equipment drawing assignment with Industrial Engineering Section.

2. Work in Progress:

- a. The overall Abee project is estimated to be approximately 12% complete. Abee specifications are practically complete, except for space and weight information. Mechanical specifications have been received from Z-6. The probability study on the number of units to be used has been completed. Desired reliability figures were derived from a set of detonation probabilities supplied by Mr. Bradbury through Z Division. Modulator designs for two (2) magnetrons are complete. Two (2) other modulator designs are pending procurement of pulse transformers which have been ordered. Final choice of magnetron and modulator is pending battery power data.

The preliminary design for the Abee Receiver is complete; however, concrete progress depends upon information regarding the returned signal. A 60 degree horn radiator has been designed and tested. Effect of nose plate mounting has not, as yet, been determined. Further propagation information is needed and it is expected that preliminary tests will be made with a suitable type aircraft, as requested by this section.

The Standards Laboratory is assisting the Development Laboratory in making tests on Willard ER-11-2A Battery Cells, in order to determine their suitability in connection with the Abee project. Mr. Grier has been advised of our need in regard to battery information and it is expected that the Willard Battery Company will be brought into the picture in this regard to the extent of making further tests on the ER-11-2A and any other cells which may be appropriate for this application.

- b. The Radiograph Timer project is considered approximately 27% complete. The priority has been decreased on this project in view of the much higher priority work in connection with Abee and test equipment drawings. Both Mr. Hicks and Mr. Dawson of this section are now working with Mr. Funk of the Industrial Engineering Section on procurement drawings for test equipment.



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- c. The Range Unit is considered approximately 20% complete. It has been determined experimentally that this project is feasible, including the present 9A1 Archie modification.
 - d. Investigation of Mk-III X-Unit Firing Phenomenon, approximately 75% complete. This project was initiated in order to determine the peak voltage of the informing signal delivered to the Z-8 equipment in field test operations.
 - e. The Assembly Test Unit, ATU, was designed by Mr. Dawson of this section and a mock-up is under construction in the E Laboratory. This unit will make possible assembly tests using the FTB-4 for field test work when the Mk-III X-Unit is used.
3. Future Problems:
- a. Completion of the Abee project will carry highest priority as far as development work is concerned. Certain Development Section personnel may, however, be needed for some time by the Industrial Engineering Section in order to expedite test equipment production drawings.
 - b. The Range Unit experimental work will be continued.
 - c. Pending suitable equipment and adequate personnel, some type of simultaneity tester for replacing the Bowen Camera should be developed. A parallel program is under way by Signal Corps Engineers at Ft. Monmouth.
 - d. Completion of reports on FTB-4, ATU, and the High Voltage Vacuum Tube Voltmeter.
 - e. Further work will be carried out on the Radiograph Timer when personnel is available from higher priority work on production test equipment drawings and the Abee project.

E. SERVICE SECTION

1. Work Completed:
- a. The Standards Laboratory repaired thirty-five (35) panel instruments during this report period.
 - b. Five (5) tests have been run on the Willard ER-11-2A Battery Cells for the Development Section in connection with the Abee project.

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Page 7

- c. Complete mechanical and electrical tests were made on the Marion Panel Instrument in order to determine the quality of the manufacturer's product in connection with our work.
 - d. Four (4) recorders were repaired for Mr. Keller of Z-1.
 - e. Considerable review and revision of the files and records in the Z-5 front office has been completed.
 - f. A considerable number of procurement requests have been handled, including justification in case of orders of \$2,000.00 or more and where "no substitutes" are requested.
2. Work in Progress:
- a. Revision of the Z-5 drawing and document files is under way.
 - b. The AEC inventory is in progress at this time.
 - c. Special requests regarding equipment for the Abee project are being handled.
3. Future Problems:
- a. Further revision and improvement in drawing and document files.
 - b. Completion of inventory and transfer of property records in view of pending termination in this section.
 - c. Special tests and instrument calibration for the Development Section.
 - d. Instrument repair for all sections of the group.
 - e. Procurements problems involved in test equipment to be constructed at this Base and usual component orders for normal activities.

F. EDITORIAL SECTION

1. Work Completed:
- a. Reviewing of rough draft of the revised Fuzing Manual and tentative outline for Introduction, Volume I.
 - b. Supervision of photographic work on test equipment mock-ups for the manuals.

- c. Review of Clock Box Tester, CBT-4, Manual as returned by Z-12.
 - d. Rough draft of interim instruction manual for Assembly Tester Mechanical, ATM, Mk-I, Mod. O. The first model of the ATM was tested on a mock-up.
 - e. Review and editorial work on interim manuals for R & J Box Tester, Pump Tester and X-Unit Tester.
 - f. Circuit design completed for Tester-Calibrator Mk-III, Mod. O, to be used with the Mk-III X-Unit.
 - g. Wiring schematic for the new Fuzing Assembly Test Box, ATB Mk-IV, Mod. 1, which eliminates the Brode informing circuits and will be used in the new ASTR.
2. Work in Progress:
 - a. Fuzing Manual drawings are being made by Mr. Mandell and Mr. Barnes due to lack of draftsman personnel.
 - b. Liaison and consultation on all test equipment designs.
 - c. Editorial and general liaison assistance to Z-12.
 3. Future Problems:
 - a. Final editing of the revised Fuzing Manual.
 - b. Consultation on design of firing test equipment effecting completion of Firing Manual revision.

II. TRIPS, INSPECTION, LIAISON

- A. Field observation trips were made to Salton Sea by Z-5 personnel until the field test program was temporarily discontinued for Z-5 equipment.
 - B. Mr. Palmer and Mr. O'Connell (X-Laboratory) contacted X Division (Group X-7) in regard to the Mk-III X-Unit operation detonator tests at Site Y.
 - C. Mr. Palmer contacted manufacturers through the New York office in regard to the Inverters, Inverter Tester, and 14F2 Clock Box.
 - D. Mr. Grier and Mr. Fussell of the Division of Industrial Cooperation, M.I.T., visited Group Z-5 during this report period, discussing current development problems.
-


- E. Dr. Beller of the Health Division, Site Y, and Mr. Goodell of the Z Division Safety Group visited the Z-5 office during this period for the purpose of setting up a standard procedure in handling the radioactive gaps for the Mk-III X-Unit.

III. ADMINISTRATION

- A. As a result of a Group Leaders Meeting in the Z Division Conference Room, Groups Z-2, Z-6, Z-9 and Z-11 have made available to Z-5 the services of one (1) or more employees for the purpose of expediting electronic test equipment production drawings. This work continues to receive highest priority. Drawing and/or mock-up work is under way on all outstanding test equipment items at this time. The CBT-3 production drawings were completed and turned over to Z-9, via Z Division, for procurement. The general status of all test equipment is shown in Memo, Wright to Henderson (Status of Test Equipment) dated 11 August 1947. One correction should be made in this report in connection with the Pressure Transmitter Tester; Question No. 3 should be changed to read "Battalion has item".

All possible effort is being directed toward the completion of production drawings and mock-ups for test equipment. The services of five (5) employees of other sections in Z-5 is now available to the Industrial Engineering Section. Personnel from other Z Division groups has also been made available and their work is under way.

Since all manual work is so closely related and will eventually determine the final revision of the Fuzing and Firing Manuals, Mr. Mandell and Mr. Barnes of the Z-5 office are rendering any possible assistance in this connection to Group Z-12.

- B. Field test work in connection with Z-5 equipment has been temporarily delayed until records can be analyzed and additional equipment is available for securing needed information. A total of ten (10) Mk-III X-Unit test drops have been successfully accomplished as far as sequence of electrical operation is concerned.
- C. Procurement remains one of the most difficult problems and special equipment for the Abee project is slow because of delays resulting from justification and the "red tape" involved in securing delivery and price information.
- D. Another problem common to all groups is that of space. Z-5 has obtained two (2) hutments, which have been erected between buildings T-932 and T-919, making additional space available for storing packaged and/or unclassified equipment. Mr. Goodell moved to Building T-934, making available space for Mr. Funk's office adjacent to the Industrial Engineering Section drafting room in building T-919.
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Page 10

E. Air conditioning installations for Buildings T-932 and T-919 have been completed.

IV. PERSONNEL

A. Although the personnel situation remains critical because of security clearance time, the following have been added to the Z-5 Roster during this report period:

- Mr. W. O. McCord
- Mr. F. J. Fortine
- Mr. D. D. Wader
- Mrs. Maxine Rhien

B. No terminations have been effected during this period. The following terminations are pending for educational reasons:

- Mr. Jerome A. Hinman
- Mr. William P. Thomas

C. Z-5 has twenty-six (26) outstanding job offers as of this date.

O. L. Wright
O. L. Wright

OLW:fw

cc: Z Division
File



[REDACTED] 3
[REDACTED] 3
[REDACTED] 2
INTER-OFFICE MEMORANDUM

DATE August 18, 1947 43

TO: R. W. Henderson
FROM: Alan V. Ayers
SUBJECT: Progress Report for the Period from July 19 to August 18 Inclusive
Symbol: LAB-Z-6

I. TEST SECTION

Five informer pressure transmitters were received August 14 from Giannini & Co. The twenty transmitters previously received were tested and did not meet specifications. Giannini & Co. has stated that the defect will be eliminated in future units. The five received on August 14 are supposed to be free of all defects; they will be shake tested and calibrated as soon as practicable.

Preliminary tests have been completed to prove-in the cold test box to be used in determining thermal lags in F.M.

Several types of thermostats are now on order. They will be given performance tests to determine which type would be most reliable for F.M. heater control.

Twenty-six V-627 thermistors have been received and are being calibrated. They are to be used as informer temperature pickups.

Various types of hydraulic oils have been tested at low temperatures but none have remained in a liquid state at -100°F . Additional oils are on order for future testing.

The York chamber automatic diving rate control installation will be completed this month.

[REDACTED]

- 2 -

Ten complete mechanical components of the 1561 F.M. have been weighed. A schedule has been set up to weigh the electrical components of ten units.

A hydraulic hoist has been tested for use on the mechanical assembly airborne "A" frame and was found to be satisfactory.

A test of the production sample of an Eclipse-Pioneer Inverter, X-4, has been completed. The inverter failed to meet thirteen specifications.

A method of cleaning the corroded pins of the sub-miniature vacuum tubes was developed for Z-8.

II. DESIGN SECTION

Changes were made on the design of L-2-B storage can; the can is to be returned immediately to MacDougall for re-working according to the changes, then returned and checked before the placing of the final order.

The initial design and pilot model of the half-scale informer package was made. The pilot model, as built by the shop, was accepted as being satisfactory by Group Z-8. Those changes deemed advisable are being made by the design section to ready the package for industry.

Computations were completed to ascertain the volume of air in 1561. The final report was submitted to Group Z-2.



II. DESIGN SECTION CONT'D.

Several sets of drawings were corrected or redrawn for Group Z-5 for the production of test equipment.

The layout of the experimental shop equipment for the proposed shop building was completed.

Several drawings for the Askania theodolite system were completed for Z-1.

Experimental determination of the center of gravity of the FTB-4 was completed for Z-5.

Additional inspection and testing was performed on cans for Road and on Road units.

Moment of inertia, weight, and C.G. were taken on several units dropped at Salton Sea Target Area.


III. MACHINE SHOP SECTION

A jig for locating equipment on "D" plates was completed. This is to be used on assembly work from Group Z-8.

An inter-light disc, synchronous light cap, and housing for a photo-electric cell for the K-24 camera were made for Group Z-1.

The machine shop performed development jobs and necessary engraving for various groups as well as for our own mechanical lab.

rah
cc 142 - Henderson
cc 8 - Felt


Alan N. Ayers
Alan N. Ayers
Group Leader, Z-6

Office Memorandum • UNITED STATES GOVERNMENT

TO : Z-Division Office

DATE: 18 August 47

FROM : LAB Z-7

SUBJECT: Progress Report

The following is the Progress Report of Group Z-7 covering the period 21 July 1947 to 18 August 1947.

In the modification and assembly section work is continuing on 1561 units for the Roads Project and deliveries and transfers have been stepped up considerably. 1563 Spheres are beginning to arrive and are being inert filled. Enough are not yet on hand to replace these taken from SP units for ST dropps.

All armored units and mechanical components have been returned to the Group Z-7 area and work is continuing to convert them to mild steel.

Work on converting PK units to 1561 has again started by the welding and modification sections. This work had been stopped because of the halt in the drop program and to enable the welding sections to complete the new light weight "A" Frame.

In the Mock-Up section the machine work on the "Wish-bone Trailer" has been continuing, however the pipe has not yet been received.

The MK IV inert assembly has been turned over to LAB Z-2 for wiring. When completed practice assemblies including pit assemblies will be continued.

The last of three $\frac{1}{2}$ scale units with revolving fins have been completed.

Work has started on a new F. M. Crate and is expected to be completed by 1 st of Sept 47.

Construction on the extension to the machine shop for plating and heat treat is expected to start the week of 18 August 47, however a small silver and copper plating unit has been set up and experiments conducted in electroplating and electroforming and the results are satisfactory. Electroforming of Transmission wave guides start as soon as the master mold is completed.

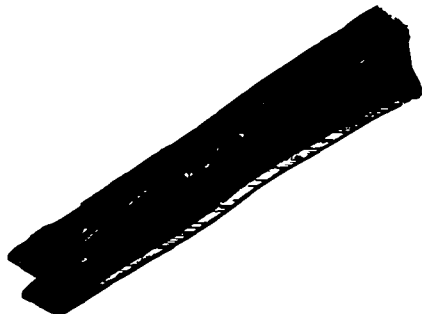
THIS DOCUMENT CONSISTS OF 8 PAGE(S)
NO OF COPIES, SERIES

Vehicle preventative maintenance is still a confused issue. The post motor pool will no longer do our work and the A E C motor pool is not yet authorized to take care of vehicles charged to this Group.

1900 hrs. of miscellaneous work was accomplished by the machine shop during the last period.

Clerical Personnel are being cleared .

Two persons were cleared and reported for work during the last period.



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Machine Shop Section
21 July to 19 August 1947

Jobs Started last period and completed this period.

1. Make 75 ea Fuse Wells Dwg #Y-1560
for Z-7 Assy. 48 Man Hrs
2. Make 68 ea Antena Pads
for Z-7 Assy. 192 Man Hrs

Jobs started this period and completed this period.

For Z-2

1. Make 1 ea Pull-out wire bracket.
 2. Make 1 ea Full Scale Hook as instructed.
 3. Modify 2 ea Half-Scale hook assys. Dwg. #115B
- TOTAL MAN HRS. 20

For Z-5

1. Make 1 ea Film filing Cabinet
 2. Make master mold for H&E Bend transmission Elbows
 3. Make 1 ea Pressure tank assy per Dwg. #YS11034
- TOTAL MAN HRS. 62

For Z-7 (Assy)

1. Modify 4 ea Special lifting lugs for packing crates
 2. Make 300 ea. Closing plugs per Dwg. #YS-11088
 3. Elongate holes in 64 ea ~~tail~~ tail brackets Dwg. #YS
 4. Elongate holes in 32 ea tail brackets
 5. Make 1 ea Jack base plate
 6. Make 1 ea special fly cutter
 7. Make 1 ea clevis assy for scales
 8. Make 25 ea special pins per Dwg. F-Z-B 1560
 9. Make 1 ea Special clevis assy for "A" frame
 10. Make gussets, mill tubing and modify trollies for "A" frame
- TOTAL MAN HRS. 253

For Z-7 (Mch. Shop)

1. Make 1 ea tapered shank for turret lathe
 2. Make 1 ea wheel for utility table
 3. Make jigs, and grind tools as needed.
- TOTAL MAN HRS. 17

For Z-9

- Make 24 ea "X" Unit dollies per Dwg. YS-1022
- Make 1 ea Door-lock assy
- Make 2 ea special micrometer calipers
- Make 12 ea elipsoid aligning assembly Dwg. #-Y-1739
- TOTAL MAN HRS. [REDACTED]

For Z-10

1. Repair 1 ea adjustable drafting stool
 2. Make 24 ea brackets for air conditioners
- TOTAL MAN HRS. 13

(Mch. Cont.)

For Z-11

1. Make 1 ea Aluminum spool per Dwg. #Y-3910
 2. Check thd. dimensions on 2 ea test projectiles
 3. Make 1 ea Strap assy. per Dwg. Y-3910
 4. Make 1 ea safe stand per sketch
 5. Make 4 ea Ram Rods per sketch
 6. Make 2 special Plug wrenches per Dwg. #01-358
 7. Make 100 ea Anvil Shims per Dwg. #Y-3954
 8. Make 76 ea Gripping Knobs per Dwg. #Y-3954
 9. Make 11 ea Cabinet partitions per Sketch.
- TOTAL MAN HRS. 262

For Z-8

1. Make 4 ea junction Boxes

TOTAL MAN HRS. 4

For Post Engineers

1. Construct 1 ea Nozzle Spray assy. Insectide
- TOTAL MAN HRS 38

For Safety Section

1. Make and install 1 ea lock for filing cabinet
- TOTAL MAN HRS. 4

For S-4 38 th Eng. BN

1. Make footplate for Portable monorail
- TOTAL MAN HRS. 18

For Intelligence (Post)

1. Make 6 ea strip boards
- TOTAL MAN HRS. 14

For D-8 (Document Room)

1. Make 2 ea special safe washers
- TOTAL MAN HRS 1

For Road material Control Office

1. Make 1 ea platform 10' x 7½' x 4"
- TOTAL MAN HRS. 16

WORK STARTED THIS PERIOD TO BE COMPLETED NEXT PERIOD

1. Make 600 ea Conduit collars per Dwg #Y3956
 2. Make 8 ea Desicator assys per dwg #Y-81 (for Z-11)
 3. Make 11 ea Battery Bxcs per dwg. #Y-3954 (for Z-8)
 4. Make 600 ea Dehydrator mounts per Dwg. #Y-3955 (for Z-11)
 5. Make 76 ea Rear case covers per Dwg. #Y-3954 (for Z-11)
 6. Make 50 ea Informer boxes per Dwg. #YS-12864 (for Z-8)
- TOTAL MAN HRS. 263

One man spent 209 hrs as Machine shop foreman supervising work and handling paper work for mch. shop.

TOTAL HRS UTILIZED BY MCH. SHOP 1900

Assembly Section
21 June to 19 July 1947

TOTAL MAN HRS USED BY ASSEY. SECTION 2,309

1. Units completed for Roads:
SP 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25,
26, 27, 28, 29, 30, and 40
Consisting of:
Dissassemble units, locate and check all button holes in
sphere, Check all detinator safing clip holes, replace all
washers and necessary bolts in sphere assembly, lug test,
modify rear support cone, install cleaned barro ring, check
all holes in ellipsoids, install ellipsoids, modify and al-
ign tail with unit, repair unit and tail boxes, crate and
deliver units.
MAN HRS 1,817
2. Units Completed for stock:
SP 119 (These units have been converted from
units ASP 34 and 35)
Consisting of:
Dissassemble units, locate and check all button holes in sphere,
Check all detinator safing clip retainers, replace all washers
and necessary bolts in sphere assembly, lug test, modify new
support cone, install cleaned barro ring, modify and install
mild steel ellipsoids, modify and align tail with units, repair
unit and tail boxes, crate and store units in storage.
MAN HRS 225
3. Modify one set of mild steel ellipsoids for drop test unit
MAN HRS 18
4. Paint and transport two (3B-2C) $\frac{1}{2}$ scale units to pit and assist
in pit loadings.
MAN HRS 20
5. Transport one MK IV unit to pit and assist in pit loading
MAN HRS 12
6. Assemble and cement fill two spheres for drop test units
MAN HRS 30
7. Clean and paint "A" Frame
MAN HRS 49
8. Repair and balance two 2500# scales for Z-6
MAN HRS 6
9. Operating crane and moving units
MAN HRS 90
10. Cut cork, assemble sphere and deliver to Ord. A
MAN HRS 20
11. Building Maintenance and clean up
MAN HRS 20

MOCK-UP SECTION
21 July to 19 August 47

1.	Wishbone Trailer-----	430	Man Hrs.
2.	MK IV (Assy of blocks & Handling--	72	" "
3.	Half Scale Revolving Tail-----	200	" "
4.	F. M. Shipping Crate-----	330	" "
5.	Maintenance and Machine set up----	110	" "
		TOTAL MAN HRS. UTILIZED 1042	

WELDING SECTION

21 July to 19 August

1.	Construct Portable "A" Frame-----	402	Man Hrs	(for Z-9)
2.	Construct 24 ea "X" unit Dollies--	270	" "	(for Z-9)
3.	Modification of 12 ea ellipsoids--	165	" "	(for Z-7)
4.	Weld tubing for Aeroplane spray tank, insectide-----	6	" "	(for Post Eng.)
5.	Weld 1 Safe stand-----	4	" "	(For Z-11)
6.	Weld steel for monorail Jack Pad--	4	" "	(for Tng. Gp.)
7.	Burn out 3 sections of boiler Pl.	3½	" "	(for Z-9)
8.	Cleaning up and bldg. maint.-----	48	" "	(for Z-7)
		TOTAL MAN HRS UTILIZED 902½		

HEAT TREAT AND ELECTROPLATING SECTION
21 July to 19 August 1947

Heat Treating -----	65	man hrs.
Electroplating and forming Development	30	man hrs
Production	15	man hrs
Layout and eng.	72	man hrs
Roads, (Ordering and Inventorying	20	man hrs
Maintenance	24	man hrs

TOTAL MAN HRS UTILIZED 226

MATERIALS (CONT.)

Brass Tubing
 3½" Dia. 5 ft.

C. R. S. Flats
 1½ x 6" 2 ft.
 3" x 3# 2½ ft.
 2½ x 8" 12 ft.

Machinery Steel Rounds
 1½" dia 50 ft.

Chromoly Steel Rounds
 1/2" dia 24 ft.

Stainless Steel Sheets
 1 .064" thick 30 Sq. ft.

Aluminum Sheet 24 So
 1/16" thick 4 Sq. Ft.

Boiler Plate
 1/2" thick 85 Sq. ft.
 3/8" thick 5 Sq. ft.
 1/8" thick 2 Sq. Ft.
 1" thick 5 sq. ft.

Welding Electrodes	100 lbs
Acetylene Weld. Rod	15 lbs
Aluminum Weld. Rod	5 lbs
Brazing Rod	5 lbs

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MATERIAL USED BY LAB-Z-7
21 July to 19 August 1947

Cold Rolled Steel Rounds

3" Dia	40 ft.
2" Dia	2 ft.
1½" Dia	5 ft.
7/8" Dia	5 ft.
1" Dia	3 ft.
5/16" Dia	12 ft.

Steel Tubing

3½" Dia	30 ft.
1½" Dia	12 ft.
3" Dia	2 ft.

Aluminum Tubing 24 st

2" Dia	5 ft.
1" Dia	2 ft.

Aluminum Rounds 24 st

3" Dia	5 ft.
3½" Dia	7 ft.
½" Dia	12 ft.

Aluminum Sheet 24 st

.064" thick	55 Sq ft.
1/16" thick	31 Sq ft.
1/8" thick	22 Sq ft.
1/4" thick	12 Sq ft.
1/2" thick	50 Sq ft.
5/8" thick	37 sq ft.

Steel Strap

1/8 x 1"	1 ft.
1-1/8" x 1-1/2"	36 ft.
1-1/2" x 3/8"	72 ft.

Steel Angle Iron

2"	30 ft.
1½"	10 ft.

Aluminum Angle 24 st

1/16" x 1"	16 ft.
1/2" x 1/8"	66 ft.

Steel sheets Cold Rolled

1/16" thick	8 Sq ft.
1" thick	1 Sq ft.
.051 thick	35 sq ft.
1/2" thick	75 sq ft.

[REDACTED]
INTER-OFFICE MEMORANDUM

54

TO: Mr. R.W. Henderson

DATE 18 August 1947

FROM: William Caldes

SUBJECT: Progress Report for period 18 July to 18 August 1947.

Symbol: LAB-Z-8

During the week of 21 July, telemetering equipment was installed in three drops with very good results. At that time, 28 July, the present drop schedule was cancelled to allow this group time to construct and put into use the new telemetering equipment mentioned recently.

The reasons for such a change at this time are as follows:

1. I am satisfied all troubles encountered in the past can be corrected with the new system.
2. High priority information, namely vibration, can neither be accurately nor consistently obtained with the old system.
3. All circuits for the old system were being constructed in this group to meet drop schedules. It seemed wise that the new design be constructed rather than the design we knew to be faulty.
4. Persons requesting telemetering information were not getting reduced data fast enough. The new system will enable us to obtain immediate data reduction.
5. The operational use of the new system is greatly simplified. A saving of manpower can be realized, and at the same time an increase in drops.

Although numerous other reasons can be mentioned for such a change, I believe the few above reasons are justification for an immediate change.

During the period of July 28 to now, the following jobs have been accomplished.

1. A new package was designed. One has already been received. This job will be turned over to industry for production after a sufficient "prove in" period.
2. New circuits for the plane wiring have been drawn up and all necessary cables constructed.
3. A new flight test box was designed and one completed. Others are now under construction.
4. Over a dozen R.F. units have been completed and tested. These units have a factor of eight more power than the old circuit.
5. Four dozen modulators are being constructed, of which two dozen are already completed. This job is also in industry for production.


INTER-OFFICE MEMORANDUM

55

TO: Mr. R.W. Henderson

DATE 18 August 1947

FROM: William Caldes

SUBJECT: Progress Report for period 18 July to 18 August Con't.

6. Over a dozen sets of gyros have been modified.
7. The E.R.P.I. reproducer has been set up and tested with good results. The possibility of accurate vibration analysis seems excellent.

The above listed jobs give an overall picture of the work. Obviously, numerous small jobs have been completed to accomplish the proper workability of the new system.

The major factor now as to when we will resume drops is entirely dependent on procurement.

One complete system is undergoing tests at present, and without any unforeseen delays in procurement, drops can certainly be resumed around the end of this month.

Although this report gives only a general picture of the work accomplished during the month, I am sure the numerous number of jobs and problems which were encountered are realized. I would like to commend, at this time, all the personnel in this group through whose efforts only was this accomplished.

William Caldes
William Caldes
Z-8 Grp Ldr

WEC/hg

Doc 7-64

[REDACTED]

THIS DOCUMENT CONSISTS OF 3 PAGES
NO. 7 OF 3 COPIES, SERIES 2

INTER-OFFICE MEMORANDUM

DATE 18 August 1947 56

TO: Z-Division Office

FROM: W. F. Schaffer, Jr.

SUBJECT: Monthly Progress Report

Symbol: LAB Z-9

1. Progress - See Road Status Report, Top Secret Document, dated July 30, 1947.

2. F.M. Road Program - All acceptable bomb components on hand required for the Road have been processed and transferred to the custodian except as noted below:

2.1 Completion of this project in its present scope is being detained by lack of completed specifications for procurement and the time delay in deliveries of material.

2.2 Consummation of specifications and acquisitions of test equipment - The specifications of the FTB-3 have been received from Group Z-5 and procurement has been initiated for the quantity desired. Specifications for certain cables have also been received from Z-5 and have been processed by this group. The specifications for the X-Unit Tester, Tester Calibrator and R & J Box Tester are expected within the next two weeks.

2.3 Modification of Coax Cables in X-Unit Auxiliary Parts Box - All the cables which were not transferred to Road have been sent to Raytheon for rework to the proper length. An order for fifty additional sets of coax cables (cable supplied by the project) was also sent to Raytheon.

2.4 Reprocessing of A-Plates - Delays encountered by small parts manufacturers for Bendix Inverters are deferring procurement of the new inverter; further, the test of the pilot model was far from satisfactory. Z-5 has informed this office that the carbon pile trouble has been rectified and is preparing a full report on the subject. At the present time no delivery date can be estimated. As a temporary measure, arrangements are being made to modify certain existing inverters and thereby reprocess a large number of A-Plates.

2.5 Mechanical Assemblies - The transfer of mechanical assemblies to Road is progressing at a rather stable rate of three (3) units per week. Group Z-7 can process 5 or 6 units per week, however, on various occasions Mr. Rowe has had to delay shipment as long as four (4) days because the Army Motor Pool could not supply him with the required equipment to complete the transfer. The AFC Motor Pool, to this date, does not have adequate facilities to supply Mr. Rowe with this type of equipment.

2.6 Group Z-5 has practically discontinued the testing of electronic components. This production job has come to a temporary stand still due to the urgency of designing Test Equipment which has depleted the staff of ordinarily available personnel who perform this job. This is not serious since the only FM components which remain are in excess of the present Road requirements.

2.7 Kit Material - Orders are continually being placed for material which is scheduled for the Kits. Approximately ninety percent (90%) of the standard materials have been ordered. Items which require redesign or modification are being held up pending completion of specifications.

2.8 Kit Catalogue - Publication of the kit catalogue containing the lists of all tools, equipment and expendable supplies necessary for the assembly of the Road bomb was delayed until all questionable nomenclature was checked and revised. The majority of the kits are in the final form for the first edition of this catalogue and are in the process of being typed. Certain information will not be available when the first edition is published. This information deals largely with the Echelon I type kits and certain items of test equipment.

2.9 Considerable work was spent in compiling a report for Group Z-3. This report is titled "Assembly and Testing Equipment for FM 1561" and was compiled at Mr. Machen's request; it is to be used as a guide to furnish the Training Group and Battalion with the materials required to assemble a unit. The report should in no way be confused with any of the kit lists as they were compiled on an entirely different basis.

3. The drawings of the L.B. electronic gear (Clock Box and Battery Box) will be completed within a week, at this time the order will be transmitted to the procurement office.

Procurement has also been initiated on the L. B. Hardware Kit which was compiled by this organization for Group Z-11 sometime ago. Most of the items listed in this kit have been ordered. Here again several specifications are inadequate and for safety reasons will be redesigned.

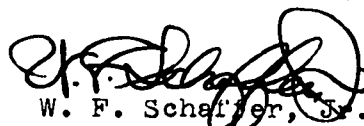
4. A business trip to Los Alamos was made by three members of the group to obtain pertinent information regarding:

a. Surveillance data of FM Unit #41 - The results of this test were excellent, except for corrosion of the dummy plug. However, this was expected as previous examinations of similarly constructed units revealed the same fault. This is not at all serious as the use of the old type dummy plug has been discontinued. A report of the entire proceedings has been compiled and is available in the Z-9 file.

b. Procurement of Kit Material - Past experience has shown certain procurement buyers of Los Alamos have permitted substitutions of orders without our authorization. The purpose of this visit was to impress the buyers of the need of standardization of Kit items.

Inasmuch as all these materials will have to be processed and packaged the procurement buyers were impressed with the necessity of obtaining and maintaining scheduled delivery dates. It is hoped that satisfactory relations between procurement and Z-9 will be effected.

5. Inventory - Several men in the group devoted almost three weeks of their time to assist in the transfer of property from Post Supply to the AEC accountable officer. This property has in turn been transferred to Group Z-9's accountability.


W. F. Schaffer, Jr.
Group Leader, Z-9

WFS/dg

cc 1 of 3A, Z-Division Office
2 of 3A, Z-Division Office
3 of 3A, Z-9 File

Office Memorandum • UNITED STATES GOVERNMENT

TO : R. W. Henderson, Acting
Z-Division Leader

FROM : Henry W. Moeding, Group Z-10

SUBJECT: Z-10 Group Progress Report for period
of 17 July to 17 August, inclusive

SYMBOL: LAB-Z-10

DATE: August 18, 1947

1-A PROCUREMENT

Purchase requests were processed for period from 17 July to 15 August, inclusive, by Group Z-10 as follows:

Group	Total Purchase Requests	Total Items Requested
Z-1	314	56
Z-2	95	24
Z-3	20	4
Z-5	116	26
Z-6	428	91
Z-7	167	50
Z-8	75	26
Z-9	96	27
Z-10	470	64
Z-11	29	10
Z-12	17	3
D-8	26	3
Z-Division	10	4
	<u>1863</u>	<u>388</u>

The matter of procurement expediting of items through Los Alamos has been discussed at length with Mr. B. H. Shaffer, and the general conclusion has been reached that considerable delay, red tape and uncertainty occurs after requests leave Sandia, with particular reference to items requested from Los Alamos Stock, and items which it is felt should or could be procured locally.

The procurement office at Los Alamos has indicated that these problems will be eliminated and that we should encounter no further delays in obtaining items which are available from Hill Stock.

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1-B PROPERTY SECTION

The following is a summary of the progress of the Property Section during the period July 19th to August 18, 1947 and also an outline of future anticipated work and the status of work started but not completed.

Your attention is called to the attached progress chart which is self-explanatory. It will be noted that the work of physical inventory and marking and numbering of property is progressing very satisfactorily. Inventory of all groups with exception of Z-7 has been started. It is anticipated that inventory of Z-7 will be started by September 1, 1947 and that all inventories will be completed by September 15, 1947. However, due to insufficient personnel the program of editing inventories, typing receiving reports and issue tickets and posting to stock record cards has lagged, thus creating a "back-log" which will be difficult to overcome until sufficient personnel report for duty.

The functions of receiving and shipping of Z-Division property was taken over from the Post Supply Officer on July 21, 1947. Post Supply checkers, laborers and equipment are being utilized until this section receives sufficient personnel. Checking is being supervised by an employee of this section. We are pleased to report that deliveries to the groups have been greatly expedited. Items are in most cases delivered within twenty four (24) hours from time of receipt. It is estimated that 300,000 pounds of property have cleared through the Receiving Department since it was activated. All accounting phases in connection with Receiving and Shipping are being kept current with exception of posting to Class "C" records.

Lack of personnel has seriously handicapped the progress of the property accounting program. Sufficient personnel has been requisitioned in some cases, as much as sixty (60) to ninety (90) days. During the past

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thirty (30) days one employee has been cleared and reported for duty on August 13, 1947. One clerk typist and one Administrative Aide are cleared and scheduled to report for work on August 18, 1947.

The Property Section will lose two employees in the near future. One Secretary, Mrs. Louvern Copeland and one Administrative Aide, Mr. William F. McKelvey. Mr. McKelvey is unable to obtain housing in Albuquerque and is forced to move his family to another city in order to enroll his children in school at the beginning of the current term. This loss of personnel will again retard progress of accounting functions.

There are considerable minor phases of work now in progress which are too numerous to mention in this report. However, we feel that a good showing is being made by the section and that we should arrive at a normalcy of operation in a relative short time after receiving personnel now in process of being cleared.

1-C STOCKROOM

The stockroom has reported increased demands for stock items, and at present is being compelled to work under somewhat adverse conditions due to new stock rolling in and no adequate way to handle it until the new warehouse with additional space is ready. Work is progressing on construction of bins and shelving in Building P-500. Upon completion of this construction the Stock Room will be moved from Building T-934 to Building P-500.

2. TRIPS

No trips.

3. ADMINISTRATION

Preliminary work has been started on repackaging of towers ordered on AL-10 (collection of data, planning

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of work.) The packaging and tropicalization equipment located at Sandia Base is available for use. The erection of a fenced enclosure has been decided upon as a protective measure to prevent cannibalizing of tower parts from open storage.

New stock record cards are being prepared for all stock in the Z-10 stock rooms. These cards will replace the records used under the former War Department procedure which were required while operating through the Post Accountable Officer.

4. NEW PERSONNEL

New personnel received by the Z-10 Group during the period of this report:

Homer C. Barnwell W-1

William H. Hess W-2

HWM/lc


Henry W. Moeding
Group Z-10

Z-DIVISION PROPERTY SECTION - PROGRESS CHART

POSTED TO AUGUST 14, 1947

GROUP	PROPERTY MAN	INVENTORY TAKEN	B ITEMS NUMBERED	C ITEMS MARKED	INVENTORY EDITED	B CONTROL CARDS POSTED	C CONTROL CARDS POSTED
Z-1	STAMM	ST 6-16-47 [REDACTED] COMP 7-14-47	ST 6-16-47 [REDACTED] COMP 7-14-47	ST 6-16-47 [REDACTED] COMP 7-14-47	ST 6-16-47 [REDACTED] COMP 7-19-47	ST 6-16-47 [REDACTED] COMP 7-22-47	ST 7-1-47 [REDACTED] COMP 7-23-47
Z-1 SALTON SEA	BRASHER	ST 7-7-47 [REDACTED] COMP 7-14-47	ST 7-7-47 [REDACTED] COMP 7-14-47	ST 7-7-47 [REDACTED] COMP 7-14-47	ST 7-9-47 [REDACTED] COMP 7-21-47	ST 7-22-47 [REDACTED] COMP	ST [REDACTED] COMP
Z-2	COLLINS	ST 7-14-47 [REDACTED] COMP	ST 7-14-47 [REDACTED] COMP	ST 7-14-47 [REDACTED] COMP	ST [REDACTED] COMP	ST [REDACTED] COMP	ST [REDACTED] COMP
Z-3	MACHEN	ST 8-13-47 [REDACTED] COMP 8-13-47	ST 8-13-47 [REDACTED] COMP 8-13-47	ST 8-13-47 [REDACTED] COMP 8-13-47	ST [REDACTED] COMP	ST [REDACTED] COMP	ST [REDACTED] COMP
Z-5	KATZENBERGER	ST 7-14-47 [REDACTED] COMP	ST 7-14-47 [REDACTED] COMP	ST 7-14-47 [REDACTED] COMP	ST 7-31-47 [REDACTED] COMP	ST 7-31-47 [REDACTED] COMP	ST [REDACTED] COMP
Z-6	ALLEN	ST 7-31-47 [REDACTED] COMP 7-31-47	ST 7-31-47 [REDACTED] COMP 7-31-47	ST 7-31-47 [REDACTED] COMP 7-31-47	ST [REDACTED] COMP	ST [REDACTED] COMP	ST [REDACTED] COMP
Z-7	HALL	ST [REDACTED] COMP	ST [REDACTED] COMP	ST [REDACTED] COMP	ST [REDACTED] COMP	ST [REDACTED] COMP	ST [REDACTED] COMP
Z-8	MCMILLIN	ST 6-16-47 [REDACTED] COMP 7-14-47	ST 6-16-47 [REDACTED] COMP 7-14-47	ST 6-16-47 [REDACTED] COMP 7-14-47	ST 6-16-47 [REDACTED] COMP 7-18-47	ST 6-16-47 [REDACTED] COMP 7-21-47	ST 6-30-47 [REDACTED] COMP 8-13-47
Z-9	FISHER	ST 7-16-47 [REDACTED] COMP 8-12-47	ST 7-16-47 [REDACTED] COMP 8-12-47	ST 7-16-47 [REDACTED] COMP 8-12-47	ST [REDACTED] COMP	ST [REDACTED] COMP	ST [REDACTED] COMP
Z-10	TAYLOR	ST 7-31-47 [REDACTED] COMP 8-4-47	ST 7-31-47 [REDACTED] COMP 8-4-47	ST 7-31-47 [REDACTED] COMP 8-4-47	ST [REDACTED] COMP	ST [REDACTED] COMP	ST [REDACTED] COMP
Z-10 WAREHOUSE AEC - APA MCGOVERN	MARRA	ST 7-21-47 [REDACTED] COMP 8-11-47	ST 7-21-47 [REDACTED] COMP 8-11-47	ST 7-21-47 [REDACTED] COMP 8-11-47	ST [REDACTED] COMP	ST [REDACTED] COMP	ST [REDACTED] COMP
		ST 7-31-47 [REDACTED] COMP 7-31-47	ST 7-31-47 [REDACTED] COMP 7-31-47	ST 7-31-47 [REDACTED] COMP 7-31-47	ST [REDACTED] COMP	ST [REDACTED] COMP	ST [REDACTED] COMP
SAFETY	GOODELL	ST [REDACTED] COMP	ST [REDACTED] COMP	ST [REDACTED] COMP	ST [REDACTED] COMP	ST [REDACTED] COMP	ST [REDACTED] COMP
Z-DIVISION OFFICE	JAMIESON	ST 8-11-47 [REDACTED] COMP 8-11-47	ST 8-11-47 [REDACTED] COMP 8-11-47	ST 8-11-47 [REDACTED] COMP 8-11-47	ST [REDACTED] COMP	ST [REDACTED] COMP	ST [REDACTED] COMP
Z-11		ST 8-13-47 [REDACTED] COMP	ST 8-13-47 [REDACTED] COMP	ST 8-13-47 [REDACTED] COMP	ST [REDACTED] COMP	ST [REDACTED] COMP	ST [REDACTED] COMP
Z-12		ST 8-12-47 [REDACTED] COMP 8-12-47	ST 8-12-47 [REDACTED] COMP 8-12-47	ST 8-12-47 [REDACTED] COMP 8-12-47	ST [REDACTED] COMP	ST [REDACTED] COMP	ST [REDACTED] COMP
Z-DIVISION PERSONNEL OFFICE	POWELL	ST 8-12-47 [REDACTED] COMP 8-12-47	ST 8-12-47 [REDACTED] COMP 8-12-47	ST 8-12-47 [REDACTED] COMP 8-12-47	ST [REDACTED] COMP	ST [REDACTED] COMP	ST [REDACTED] COMP
D-8	EVANS	ST 8-13-47 [REDACTED] COMP 8-13-47	ST 8-13-47 [REDACTED] COMP 8-13-47	ST 8-13-47 [REDACTED] COMP 8-13-47	ST [REDACTED] COMP	ST [REDACTED] COMP	ST [REDACTED] COMP

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INTER-OFFICE MEMORANDUM

11-487 64
UNCLASSIFIED

DATE 18 August 1947

TO: R. W. Henderson, Z-Division Leader.

FROM: H. W. Russ, Group Leader, Z-11.

SUBJECT: Progress Report for the period 19 July thru 18 August 1947.
Symbol: LAB-Z-11
File No. 8.1
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I. Work accomplished:

(a) The drafting program was continued on the following drawings:

1. Revision of Initiators
2. Plug Wrench
3. Spacer Can
4. Insert Coupling
5. Dehydrator Mount Jig
6. Loading Trays
7. Tube Handling Assembly
8. Nose Nut handling equipment
9. Drawings for Group Z-5
10. Slug Puller
11. Handling Dollies. These were re-submitted by Z-6 and checked by Z-11.

(b) Assembly Program.

1. One gadget was disassembled, the Spacer Can removed, and the gadget re-assembled.

2. The Assembly Lab and outside ramp were cleaned and re-arranged.

3. Anchor Ranch was cleared of all classified material. That which might be useful was transferred to Sandia. Other material not useful to this Group was buried, turned over to salvage or transferred to the other Groups.

(c) Procurement.

1. One Slug Assembly, minus tuballoy, was delivered to M Division for storage of 25.

2. The following orders were given to Z-7 for manufacture at

this Base:

- 2.1 Plug Wrenches (experimental)
- 2.2 Copper Sealing Bands for Test Slugs

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INTER-OFFICE MEMORANDUM

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TO:

DATE

FROM:

SUBJECT: Progress Report for the period 19 July thru 18 August 1947.
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 Symbol: LAB-Z-11
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- 2.3 Base for Field Safe
- 2.4 Nose Nut Handling Pulley (experimental)
- 2.5 Ramrods
- 2.6 Dehydrator and Dehydrator Mounts (experimental)

3. The following were ordered thru Z-10 for procurement from outside sources:

3.1 Spacer Cans (to be delivered direct from Project Roger to Project Marsh)

3.2 Nose Nut Handling Belts

4. The order for tuballoy for Slugs and Inserts was resubmitted to CMR-6.

5. An increase in some items on the Navy Procurement order was made to replace damaged Components.

6. Navy Progress Report indicates that both Project Marsh and Lakeside are well underway as follows:

6.1 Project Marsh. - Assignment of Tasks has been completed, including both manufacturing and test activities. All drawings necessary for manufacturing activities at Point F have been forwarded. About 25% of the material ordered on Contract No. ORD-10015, has been shipped to Point F. Point T has been prepared and is ready for installation of test equipment. Request for shipment of this equipment to Marsh has been received by Z-11. The shipment is being packaged. All items are on hand except Test Slugs, which need new sealing bands. This may delay shipment of this item to some extent due to difficulty in obtaining copper for machining.

6.2 Project Lakeside. - Assignment of Tasks, for this Project has been completed. Preliminary drawings have been forwarded. Final production drawings will be completed and forwarded in September.

II. The following conferences were attended by Z-11 personnel:

- a. R. Mainhardt met with Dr. J. Hirshfelder at University of Wisconsin

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 INTER-OFFICE MEMORANDUM

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DATE

TO:

FROM:

SUBJECT: Progress Report for the period 19 July thru 18 August 1947.
 (Memo from H. W. Russ to R. W. Henderson, Z-Division Leader, dated 18 August 1947.)
 Symbol: LAB-Z-11
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re propellant; with Captain McCormick and E. MacDougal and Wm. McElwreath at Project Roger, re LB jigs and fixtures and production of LB Components; with R. S. Warner, Jr., Commander Hooper, Captain Larkin and Mr. C. B. Green at Washington, D. C., regarding Projects Marsh and Lakeside; with Col. J. Butler, Jr., at Washington, re propellant. For details of these conferences see separate itinerary report dated 11 August 1947.

b. H. Russ with Wm. McElwreath, Mr. O'Brien and Mr. Quirk, AEC Security Agents, on Security for Project Lakeside.

c. H. Russ and R. Mainhardt with Wm. McElwreath and A. A. Walker on Security problems connected with Project Marsh.

d. V. MacNeil with other Z-Division personnel on drafting standards.

e. V. MacNeil and H. Russ with R. Henderson on Initiator revisions.

f. R. Mainhardt and H. Russ with R. W. Henderson on LB Program.

g. H. Russ with Andrew A. Walker and Phil Belcher on shipments to Marsh.

h. Captain R. H. Meyer conducted classes on LB for Bomb Commanders.

i. W. Lawrence maintained liaison at Los Alamos with C. Shop, GMR-6, M-1, and M-2, and A-3 and A-4.

j. Routine conferences were held with various Z-Division Groups.

III. Miscellaneous Activities:

a. Preliminary primer tests were made in the laboratory.

b. A bare installation test was made.

c. Experiments on cutting, bagging, and loading of propellant have been made. These are being continued.

d. A trial loading of an LB unit using standard transport and hoist was made for the purpose of checking out the new bomb shackle. This test was made in conjunction with Groups Z-2, Z-6, Z-7, with Col. Jack Sutherland representing Wright Field. No difficulties were encountered.

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TO :

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SUBJECT: Progress Report for the period 19 July thru 18 August 1947.
 (Memo from H. W. Russ to R. W. Henderson, Z-Division Leader, dated 18 August 1947.)
 Symbol: IAB-2-11
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IV. Personnel.

- a. William Bernard, who has accepted our job offer, is still awaiting clearance.
- b. George Armijo did not accept our job offer.
- c. A request was made to Z-Division Personnel Office to hire a full time group property man.
- d. Two PSQ's were sent out.

V. Administrative and General.

- a. The Group obtained a fork lift for the Lab and air conditioning and a new door for the offices.
- b. The offices are very crowded. Also storage space for assembled units could be utilized to a good advantage.

H. W. Russ

H. W. Russ,
 Group Leader, Z-11

cc: R. W. Henderson (2)
 File.

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Office Memorandum • UNITED STATES GOVERNMENT

TO : R. W. Henderson, Z-Division DATE: 18 August 1947

FROM : E. L. Cheeseman, Z-12

SUBJECT: Z-12 Progress Report for Period 18 July to 17 Aug. 1947.

Symbol: LAB-Z-12

1. Group Z-12, a Technical Manual writing and editing group, was officially established by a memorandum dated July 9, 1947, and became an organized reality on July 17.
2. Office space, facilities, and equipment have been obtained, and considerable additional material for a drafting set-up, etc. has been ordered.
3. A number of prospective employees have been interviewed, and job offers have been made to one technical writer and one secretary. PSQ's are still outstanding to another writer and to a draftsman.
4. Plans for the Group Z-12 organization are as follows:
 - a. Group Leader
 - b. Three Technical Writers, two with an Electrical and one with a Mechanical Engineering background. The best of these ~~two~~ will be Alternate Group Leader.
 - c. A Draftsman with both electrical and mechanical drawing experience, and preferably having some artistic ability as well.
 - d. One secretary.
 - e. One clerk-typist.
5. A manual on the "CBT-4 Clock Box Tester" has been completed and delivered to Training. A second manual, the "X-Unit Tester", is approximately 40% completed. Manuals for the "R & J Box Tester" and "Cable Tester" will be next in line of priority.

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SUBJECT: Z-12 Progress Report for Period 18 July to 17 Aug. 1947.

6. Additional personnel are urgently needed as there is a tremendous back-log of manual preparation work, and there will be a heavy work load in the future when new equipment designs are completed.

E. L. Cheeseman
E. L. Cheeseman
Group Leader Z-12

Dist: 1 of 3, Z-Div. ✓
2 of 3, Z-Div.
3 of 3, File



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DOCUMENT ROOM

REC. FROM *Ed. Div*

DATE *9-11-47*

REC. NO. REC. _____