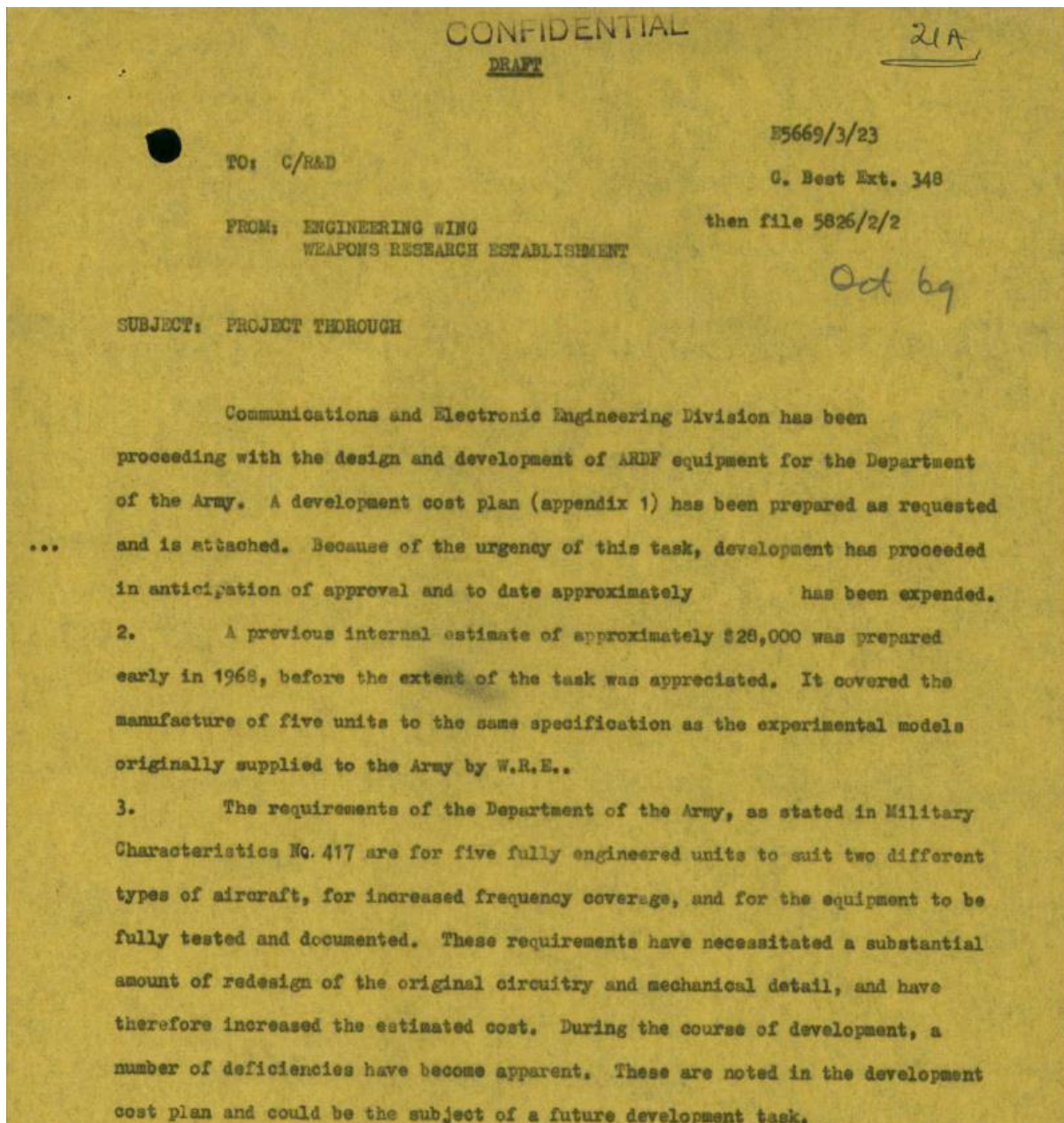


APPENDIX 2

PROJECT THOROUGH REPORTS

The following draft copies of the various reports are presented in full in the order they are filed¹. Some of the pages have been cut to fit pagination.



¹ NAA D174 E5669/3/23 PART 2 Development and manufacture of an airborne direction finding system for department of the army. F21A

4. The cost estimate has been prepared for three phases of the project and is as follows: (Centre Costs)

Phase 1:	Development of Mechanical and Electrical Circuitry, environmental testing, drawing and documentation, and the production of one prototype to suit a Cessna aircraft	\$74,620
Phase 2:	Manufacture of two subsequent Cessna models and spares	\$24,668
Phase 3:	Manufacture of two subsequent models to suit Porter aircraft including minor design changes	

DRAFT

-2-

These costs include W.R.E. salaries and overhead, materials and expenses, but exclude the cost of the commercial components of the system (which have been supplied in-aid by the Department of the Army) and any RAAF charges for assistance with installation.

5. The additional costs arise approximately as follows:-

- | | |
|---|----------|
| (a) Design to military specifications,
incorporating increased frequency coverage,
elapsed time indicator, concealed cabling,
and other army requirements. | \$60,000 |
| (b) Environmental test program | \$25,000 |
| (c) Additional cost of military specification
components over and above cost of components
originally used (5 units and spares total) | \$ 7,000 |
| (d) Additional cost of manufacture of hardware | |
| (c) Additional cost of military specification
components over and above cost of components
originally used (5 units and spares total) | \$ 7,000 |
| (d) Additional cost of manufacture of hardware
of new design (5 units total) | \$ 8,000 |
| (e) Additional design and testing to adapt
equipment for both Cessna and Porter aircraft | \$ 2,000 |
| (f) Salary increases | \$ 2,000 |

6. A summary of progress of this project to October 1969 is attached as Appendix II. The project has been financed to date using W.R.E. Development cost codes and the appropriate funds will be transferred when funding is approved.

DEPUTY DIRECTOR/ENGINEERING

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APPENDIX I

PROJECT THOROUGH L379

DRAFT DEVELOPMENT COST PLAN

1. Introduction

The Department of the Army urgently require five airborne radio direction finding (ARDF) sets; three to suit Cessna, and two to suit Pilatus Porter aircraft.

Two experimental models to suit Cessna aircraft were produced by the Chemistry and Physics Division of W.R.E. in 1967 and these have been found to operate satisfactorily. These are described in reference 4. The five models now required are to be based on the design of the experimental model B, but the sets are to be fully engineered and tested, *and documented*, and the frequency range is to be extended. The requirement is stated in reference 1.

2. Description of Equipment

The ARDF system consists of an antenna system mounted externally to the aircraft by means of a column which may be rotated by the operator, and a rack of electronic equipment mounted inside the aircraft within reach of the operator. The rack houses two receivers, a cathode ray oscilloscope, a tape recorder, a chart recorder, and a chassis of control equipment. The above items of equipment are of commercial origin except for the control chassis which is being developed by W.R.E. The commercial equipment is being supplied in-aid by the Department of the Army.

The equipment is operated by rotating the antenna system until two signals are balanced. The operator may then read the bearing of the selected transmitter, relative to the heading of the aircraft, from a scale on the column. The location of the aircraft can be established by measuring elapsed time from an initial map reference; the elapsed time being displayed on the control rack.

3. Design of Equipment

Although the basic system of operation ^{is} ~~will be~~ that of the W.R.E. experimental model, it ^{has been} ~~will be~~ necessary to redesign the mechanical equipment and the electronic control equipment of W.R.E. origin. The changes in design

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-2-

have been necessitated by the requirement to engineer the system to meet military environmental specifications and to provide increased frequency coverage. The equipment is being designed to fit either the Cessna or Porter aircraft with the minimum number of changes.

In addition, the system is to be approved as an aircraft modification kit by the R.A.A.F. This may necessitate certain deviations from the original design in the interests of air safety.

A feasibility study has not been carried out for this project by C.&E.E. Division because of the difficulty of assessing the effects of the aircraft structure on the radio frequency field pattern, and the fact that the experimental models are known to ^{function satisfactorily.} ~~work.~~ Any changes in the location of the aerial system to conform to air safety regulations or to suit an aeroplane other than the Cessna ^{will alter the performance characteristics of the} ~~may cause the performance of the system to be~~ ^{system and may ~~make it unusable.~~} ~~seriously degraded.~~ Therefore the practical feasibility of the program cannot be determined until the equipment is built and experimental measure-

ments are made. Tests have been carried out using ~~the~~ ^{an} experimental model in a Cassia aircraft and it is known that the modification proposed for the engineered version for the Cassia is feasible.

Since complete performance details of the experimental models are not available, some difficulties were experienced in designing equivalent equipment. To assist, the Department of the Army ~~has~~ agreed to carry out certain tests specified by W.R.E. on the experimental models now in the field, and a limited number of tests were made by W.R.E. engineers on one of the experimental models which was returned to W.R.E. for repairs in August.

4. The Development Task

4.1 Electronic Circuitry

The aerial tuning and preamplifier circuitry have to be redesigned to provide the extended frequency coverage required, and to provide for manufacturing tolerances. The ^{Control} control, timing, switching, and display circuits require ^d redevelopment using full temperature range components to meet the environmental specifications. The power supply and distribution system ^{have} will therefore be redesigned to suit the above changes.

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4.2 Mechanical Design

The aerial column assembly and equipment rack required redesign to provide greater strength, to meet air safety requirements, and to improve operating convenience. A number of additional features such as scale illumination, scale adjustment, and a "counter freeze" button ^{have been} will be included. The new design will permit ease of removal from the aircraft and ease of removal of individual units for maintenance. ^{Parts which are likely to wear have been made replaceable}

4.3 Testing

The complete system with the exception of the commercial equipment will be tested to DEF(AUST)247 table A1 as required by reference 1, attachment (b). In addition, full operational and safety tests will be carried out.

4.4 Documentation

Unit boards ~~have been~~ completed by November. Cards will take place expected to be available by December, and a rack and aerial assembly

Preparation of circuit diagrams and printed circuit boards is in progress and is expected to be completed by the end of November. The boards are expected for sub assembly in late December. Testing is for installation in late December.

4.4 Documentation

A set of standard W.R.E. manuals will be produced and they will include a full engineering specification and reliability estimate for the equipment. Drawings and manuals will be to normal W.R.E. standards and not to Specification Army (Aust.)606 in view of the urgency of this project. Draft manuals will be submitted to Department of the Army for comments before final publication. A draft modification order of lower security classification will also be produced by W.R.E. for the R.A.A.F. who require this for modification of aircraft handbooks, service manuals, etc.

5. Development Plan

Development of the electronic circuitry and mechanical components *is now in progress, nearing completion and has been* financed by W.R.E. ~~Development cost codes.~~

The mechanical design was submitted to R.A.A.F. for approval before starting manufacture. *RAAF approval was received on 1/7/69 and manufacture of the first prototype is expected to be completed approximately 6 months from receipt of approval (i.e. from 1/7/69) by January 1970. During the preparation of detailed drawings it was found necessary to vary the design slightly for improved operator convenience, and to ~~shorten~~ shorten the aerial tube (subsequent to tests) to satisfy a RAAF requirement.*

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The first unit for the Comna aircraft will be subjected to full environmental tests which are scheduled for January and are expected to take approximately one month. ~~The subsequent two Comna units will~~ Any damage resulting from these tests will be repaired and the first unit will be available for ~~operational and acceptance tests~~ flight tests by RAAF and operational and acceptance tests by WRE and the Department of the Army

~~Subsequent units~~ The subsequent two units for the Cassna aircraft will be modified if found necessary by the environmental tests and subjected to an abbreviated test schedule ^(burn-in tests) to confirm that ~~they~~ their performance is equal to the design proven first model. These two units will be available progressively at approximately one month intervals after the first unit.

~~During the manufacture of the hardware the electronic design will be completed, and the electronic sub assemblies will be manufactured and environmentally tested.~~

The first two complete (Cassna) ^{units} prototypes will be subjected to an abbreviated test schedule similar to that proposed for the burn-in tests on subsequent prototypes. The third prototype will be subjected to the full environmental tests specified and any modifications found necessary will be incorporated in the first prototypes at a later date. This procedure has been adopted because of the urgent operational requirement for the first two prototypes. It is considered safe because the experience gained from the operation of the two experimental models in the field for two years has revealed the major weaknesses in the design and these will be corrected.

Operational tests will be carried out on the first prototype to determine the feasibility of mounting this equipment in Porter aircraft. If the results of these tests show that the performance is satisfactory, the manufacture of the two Porter prototypes will proceed.

The Porter models, being identical electrically to the Cessna models will be subjected to burn in tests and full mechanical environmental tests to test the new mounting arrangements and control rack layout.

The two Porter models can be expected to be available progressively in 3-4 months after completion of the Cessna models.

The first ~~and third~~ Cessna models and the first Porter models will be installed in ~~the~~ aircraft at ~~Edinburgh~~ by W.R.E. with assistance from aircraft tradesmen. RAAF will be responsible for all work involving R.A.A.F. No. 2 ARDU Squadron. One modified aircraft of each type will be flight tested by a representative of R.A.A.F. ARDU for official certification of the modification. Final operational and calibration and acceptance checks will be carried out by W.R.E. in association with the Department of the Army (DMI). The remaining models will be assembled by W.R.E. as modification kits and installed by the Department of the Army.

*fitting
adjustment or connections to the
aircraft or ~~to its~~ wiring
to its wiring.*

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6. Future Developments

The design of the present unit has been subject to certain constraints in order to produce equipment urgently to meet an operational need. The system design therefore has been virtually that of the experimental models. During the development of the engineered models, a number of ^{design} deficiencies ~~in design~~ have become apparent which could not be corrected ^{or fully investigated} in the time ~~and~~ available. The deficiencies are concerned with accuracy, size and weight, reliability, and the operating procedure. ~~and these should be corrected in~~ These should be investigated further ~~with the form~~ and an ^{improved} mark II version should be produced. ~~to implement them~~

It has been found that the accuracy ~~of~~ of the equipment is related to the accuracy of fixing of the equipment in the aircraft, ~~and~~ the drift angle of the aircraft in flight, and the ability of the pilot to fly a straight path. Assuming the accuracy of fixing is known, ~~the~~ errors of $\pm 5^\circ$ ~~could~~ be attributed to pilot error and atmospheric turbulence, whilst drift errors, which are not compensated at present could be $\pm 15^\circ$ or more. These errors could only be completely removed by using the equipment with some form of navigational equipment which would give instantaneous aircraft headings, but a simple form of drift compensation could readily be incorporated to reduce the errors. With greater accuracy worthwhile results

In addition CEE Division has produced an experimental version of a meter display system ~~which~~ and aural display system ~~which could be developed~~ to indicate the direction of the transmitter. This display, which is very simple and reliable could be developed to replace the oscilloscope and would result in considerable ^{savings in} space, weight and power dissipation. The meter display is considerably more sensitive than the oscilloscope and is capable of resolving signals approximately 30db lower in level. This would permit the pilot to fly further away from the target provided other errors could be reduced. The Rascal receivers are not the most suitable ^{and has obvious advantages} receivers for the task and should be replaced with smaller, lighter and more reliable sets.

The design of the antenna head, although theoretically optimum, ~~to facilitate operation in accuracy~~ the accuracy which it provides is optimum and capable of better than $\pm 1/2^\circ$ accuracy, is not suitable ^{and} because of the other system inaccuracies it ~~is~~ is an unnecessary complication of the operating procedure. The design should

The use, ^{accuracy,} and ~~effectiveness~~ effectiveness of the signal strength measurement recorded on the ~~the~~ Rustrak recorder should also be investigated.

The investigated and flight tests should be made on several alternative heads. ~~the~~ ~~being~~ (eg, with ~~the~~ ferrite rods crossed at 90° or ~~the~~ a combination of ferrite rod and whip.

Further possibilities exist in an automated system. With a continuously rotating ~~the~~ antenna, ~~continuously~~ and automatically recording the times and directions of ~~cuts~~ ^{operator} errors could be ~~be~~ eliminated and more cuts could be obtained. could be automatically recorded, and thus

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APPENDIX II

PROJECT THOROUGH - SUMMARY OF PROGRESS

10/2/70

During the period the idea of a feasibility study was requested and detailed design to meet military specification commenced.

Exporting in Washington

- Early 1967 Army requested Telecom to build several units to July, 1969 (engineered) for field use.
- 27.9.68 AHQ Design Study request and military characteristics issued. (Because of the delay in producing the original spec. this job is urgent)
- 2.12.68 Letter from Secretary, Department of the Army to Secretary, Department of Supply, requesting Supply to undertake task. Please commence development in advance of an official order. Prepare DCP.
- 13.12.68 Letter from C/R&D to DD/E. covering letter from Secretary
- 23/1/69 Five In-aid C.R.O.'s received.
- 3/2/69 Letter from DD/E to C/R&D accepting task. OK DCP will be produced.
- 6/3/69 First meeting arranged between representative of Department of Army and W.R.E. for detailed discussion of project.
- 1/3/69 to 27/3/69 Cessna and Porter aircraft stationed at Edinburgh to allow Mechanical design work to proceed.
- 26/3/69 & 27/3/69 Meeting between representatives of Department of Army, R.A.A.F., and W.R.E. for further discussions.
- 30/4/69 Design of Timing circuitry completed.
- 30/4/69 Design of Timing circuitry completed.
- 8/5/69 Five In-aid AKAI X-V tape recorders received.
- 9/5/69 Unofficial meeting with Major Catanagh for discussions on Operation aspects.
- 23/5/69 Two In-aid Racal Receivers received.
- 26/5/69 Mechanical design drawings despatched to RAAF for approval.
- 12/6/69 Major Gower visited W.R.E. to discuss progress and difficulties in supply of Rustrak recorder.
- 1/7/69 Approval of mechanical design drawings received from R.A.A.F. Preparation of detailed drawings commenced by W.R.E.

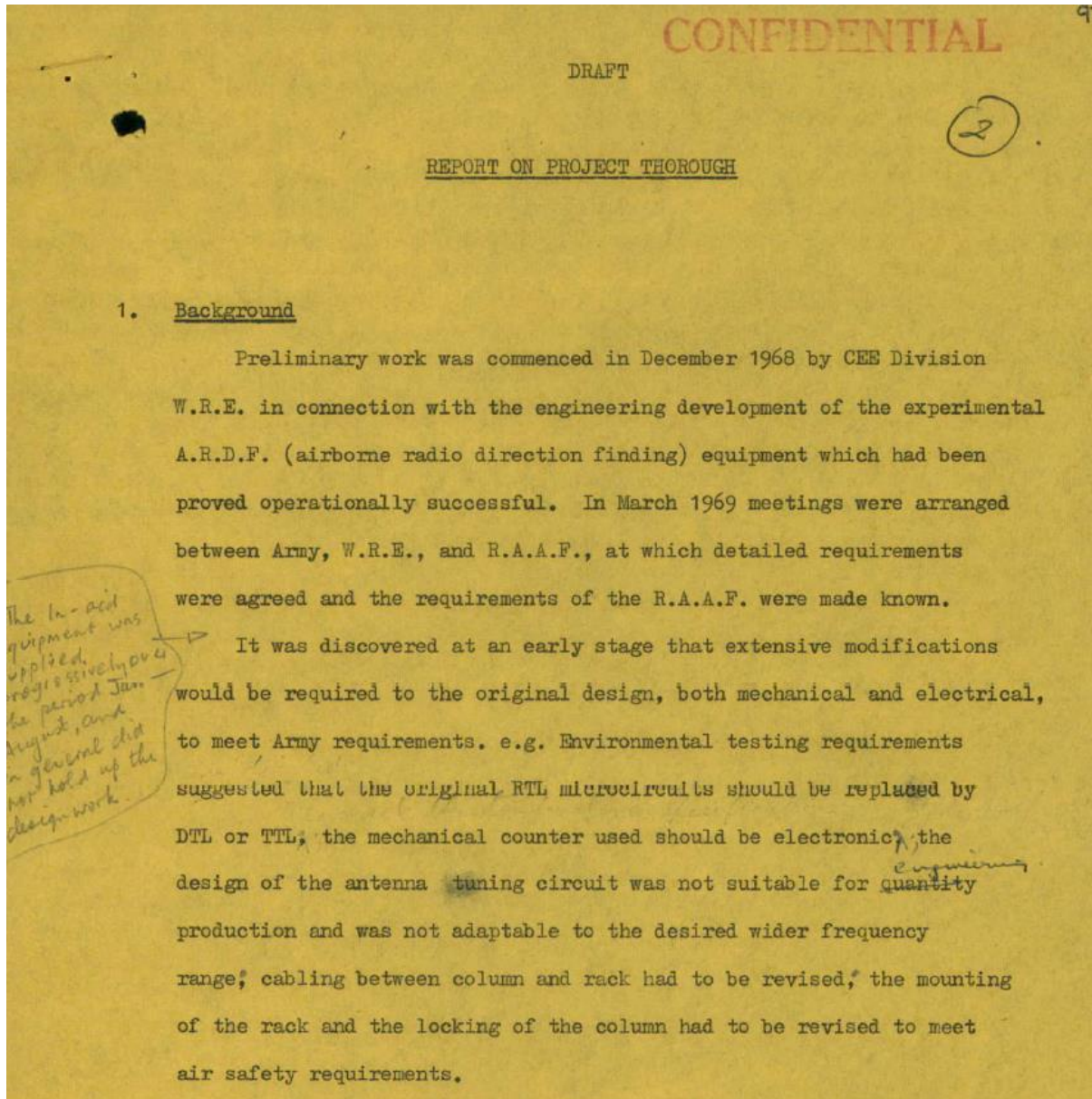
First draft DCP produced by G but frequently the committee jobs quite far from completed

~~extended to present~~

~~Breadboard models of the redesigned electronic circuitry have been built and functionally tested with satisfactory results. Long lead component items have been ordered. Preparation of manufacturing drawings has commenced. It is expected that the W.R.E. control modules will be available by the time the column and rack are manufactured.~~

22/7/69 - - - - - see next pages

There were several iterations of a draft Interim Project Thorough Report on file. Unfortunately no final copy has been located. It is believed that the Reports may have been tabled at Progress and Technical Meetings.



The design for the column was completed in June 1969 and forwarded to R.A.A.F. for approval, however after discussions with an operator and examination of the space available in a Cessna, and the safety recommendations of the R.A.A.F. a modified design was produced in October. This was subsequently modified slightly on the recommendation of Lt. Calder. Because of expected difficulties in meeting the timescale,

of Army Technical Services Unit

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2.

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the column and radome

the manufacture of this section of the equipment was let to Fairey Aviation by Contract. Faireys expect to complete the first unit for a Cessna on 23rd March, 1970, after which the final assembly will be carried out by W.R.E., who are manufacturing the rack and the electronics.

initial
The design of the electronics and *models* breadboard construction was completed in September (with the exception of the antenna card).

Drawings were then prepared for the circuits and chassis hardware.

Manufacture of the chassis and electronic circuit cards commenced on

3rd
34th February, 1970, and will be complete and functionally tested by

the time they are required for assembly. An antenna card was manufactured with characteristics similar to those of the experimental model A, and used in a refurbished experimental model in Vietnam.

The sensitivity of this circuit, however, proved inadequate and a considerable *amount of* development work has been done to improve performance. *(+10db)*

The new card is also being manufactured and will be completed with the other cards.

subjected to functional tests and then.

After assembly, the first unit will be installed by R.A.A.F. in a Cessna to be stationed (probably at Edinburgh) by the Army, Flight tested by R.A.A.F., and subsequently operationally tested and calibrated by W.R.E.

This unit will not be subjected to environmental testing because it is required urgently for.

The second and third units are expected to be ready for assembly *operation* on 20th April, 1970. Environmental tests will be carried out on the second unit and the third unit will be held in order to incorporate any modifications found necessary.

3.

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Specifications for functional, environmental and operational tests are at present being written. Writing of Handbooks and workshop manuals has been commenced.

Army Inspection Service, Adelaide are ^{inspecting the work at various stages} ~~carrying out surveillance~~ of the manufacture.

K.B.:M.A. 3.3.70

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TO:  CONTROLLER,
RESEARCH & DEVELOPMENT. *JCE*

E5669/3/23

K.B. Breynard, Ext.6335

FROM: WEAPONS RESEARCH ESTABLISHMENT,
SALISBURY.

SUBJECT: PROJECT THOROUGH - COST ANALYSIS

On 1st May, 1969, a cost estimate was provided to the Superintendent, Propulsion and Marine Physics Division, for the manufacture of five ARDF units to a design already produced by the Telecommunications Group of Weapons Research and Development Wing. The cost of the work at that time was estimated to be \$27,382. Subsequent to this original estimate various modifications occurred in the programme and the present estimated cost is \$ 214,151.

2. The following significant factors have contributed to the increase in cost over the first estimate :-

- 2.1 The requirement is now for seven units rather than five.
- 2.2 Since the original estimate wages have risen and the establishment overhead rates have been increased. These factors make up 20 percent of the final total 1970 estimate. *increase*
- 2.3 The original unit was to be fitted to a Cessna only. The requirement to fit a Porter has increased design cost and environmental testing cost.
- 2.4 The equipment is now to be designed to meet military specifications whereas the original estimate was based on a laboratory design.

3. DETAILED COST COMPARISON

DESIGN COSTS			
ASPECT	1968 ESTI- MATE	PRESENT ESTIMATE	REASONS FOR VARIATION
1. (1) Mechanical design and drawing for column, rack and radome	\$2,000	\$20,000	Cabling. Ease of installation. Weather sealing. Air safety requirements. Late modification after original lack of knowledge of requirement.
2. (1) Electronics design and drawing (drafting)	\$5,000	\$34,000	Not requested in 1968 estimate. Found to be necessary because of : - Redesign for environment specified in MC417. - Engineering of antenna head for wider frequency range and quantity production. - Late mods. because of lack of specs. for experimental models.
3. (1) Environmental Testing	-	\$23,500	Not requested in 1968, but called for in MC417.

4. Current expenditure and commitments.

4.2 Outstanding commitments to 24/2/70, \$21,800.
This commitment is to M.D. Group and consists of :-

\$16,000 - Manufacture of columns, racks and radomes.
\$8,000 of this is committed externally to
Fairley Aviation.

\$ 5,600 - Manufacture of Electronics.

\$21,600

85

SHEET A

TASK DESCRIPTION

1. TASK DESCRIPTION NO. :

Up to the preparation of this document, work on this Task has been carried out under No. RD71 Task 69/2.

2. TITLE

Development of Airborne Radio Direction Finding Equipment (ARDF), for the Department of the Army - Project Thorough.

3. DEFENCE SIGNIFICANCE AND/OR RELEVANCE TO OTHER R.&D. PROGRAMME ITEMS OF SIMILAR NATURE

This equipment is required for the location of HF transmitting stations.

4. SECURITY CLASSIFICATION

Confidential.

5. SPONSOR

Department of the Army.

This Task has been identified as Task No. L379 by the Department of the Army.

6. ESTABLISHMENTS

Weapons Research Establishment, Engineering Wing.

7. AGREED REQUIREMENTS

Undertake engineering development and manufacture of three pre-production airborne HF direction finding sets for a Cessna aircraft, two pre-production sets for Pilatus Porter aircraft, and the production of one complete set of spare equipment each to suit Cessna and Porter aircraft.

The design is based on an experimental model previously developed in W.R.E. Design of the equipment other than commercial items embodied in the design shall be to the requirements specified in Military Characteristics No. 417.

Documentation for manufacture together with operation and maintenance handbooks will be produced for the pre-production models.

The following items of "in aid" equipment will be provided by the Army:-

1. HF Receiver Racal Type RA217	-10
2. Recorders Rustrak Type 2146	-5
3. Tape Recorders Akai Type X-V	-5
4. Oscilloscope Tektronix Type 422	-5
5. Head Sets including microphone	-5

/2

2.

The detailed requirements for the equipment to be mounted in the Porter Aircraft have not yet been fully specified by the Department of the Army.

8. DESIRED TIMESCALE :

Phase 1 -

Delivery of the first preproduction unit (fully tested) for Cessna by June, 1970.

Phase 2 -

Completion of subsequent two preproduction sets for Cessna by July, 1970.

Phase 3 -

Completion of two preproduction sets for Pilatus Porter, one by August, 1970, the second by September, 1970.

9. ARRANGEMENTS FOR REPORTING :

Progress Meetings with the Sponsor should be held at monthly intervals or more frequently, if significant issues arise. Quarterly reports will be submitted to Controller R&D, in accordance with the requirement of Research & Development Instruction No. 14.

10. FINANCIAL ARRANGEMENTS :

Design, development and testing of existing experimental models together with appropriate documentation for manufacture of preproduction units to be funded by the Department of Supply.

Estimated cost \$99,278.

The cost of the five preproduction models for Cessna and Porter, and the two spare equipments should be borne by the Department of the Army.

The estimated Cost is \$124,873.

11. RESPONSIBILITIES :

1. Department of the Army will be responsible for providing Military Characteristics for the ARDF equipment and advising the standards of inspection. After prototype installations have been made in the aircraft and approved by the R.A.A.F., the Army will be responsible for the installation of subsequent sets.

2. Deputy Director/Engineering, W.R.E., will be responsible for:-

- (i) Carrying out design and development work.
- (ii) Preparation of production drawings and manuals.
- (iii) In co-operation with the Department of the Army, the preparation of environmental and performance specifications.
- (iv) Manufacturing and testing prototype and preproduction sets.
- (v) Preparing instructions for aircraft modification.
- (vi) With the assistance of the R.A.A.F., fitting one prototype to each type of aircraft.
- (vii) Assisting Army in carrying out operational acceptance tests.

../3

3.

3. The R.A.A.F. will be responsible for carrying out stress analysis associated with the installation of this equipment in both types of aircraft and for the approval and authorisation of aircraft modifications.

12. ARRANGEMENTS FOR LIAISON WITH SPONSOR :

As mentioned in Item 9 above, it is proposed to hold monthly meetings with this Sponsor to follow progress on this Project.

Major P.R. Gower of the Department of the Army has been appointed Project Officer, and is currently carrying out liaison with W.R.E. Engineering Wing.

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SHEET B

TECHNICAL COST PLAN

1. TASK DESCRIPTION :

Development of airborne radio direction finding equipment (ARDF) for the Department of the Army. This Project involves the manufacture of five preproduction airborne HF direction finding sets for installation in light aircraft.

2. PLAN TO MEET THE TASK DESCRIPTION :

Design, development and manufacturing of the preproduction models will be carried out in W.R.E. Engineering Wing except where it is more expedient to have some mechanical work let to outside contract. Fitting of the first of each type of unit to the aircraft will be carried out at Edinburgh by the RAAF with Engineering Wing participation. Subsequent fittings will be carried out by the Army. The original request from Department of Army asked for completion of the Cessna units by September 1969. This timescale was based on the work consisting of the manufacture of a second unit similar to the laboratory model already supplied to the Army. This approach however will not be practical owing to difficulties with the original design and some engineering development is necessary. This model is now expected to be completed by June, 1970. This slip is reflected into the delivery of later units and therefore the whole program has slipped by 6 months. This equipment has an operational role in the field now and therefore the project should be considered as urgent and any effort should be made to avoid further delays. The Army are at present using two experimental models continuously in Vietnam and these are themselves in a poor mechanical state.

A detailed breakdown of activities is shown in the flow chart attached. (C29078)

This figure also shows estimated running costs.

3. ESTIMATED STAFFING REQUIREMENTS :

	RS	E	T	Total
Estimated Effort Man days	-	520	1120	1640
Staff to be deployed	-	2	3	5

4. SPECIAL FACILITIES REQUIRED :

- (a) Buildings and plant Nil
- (b) External facilities Nil

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2.

5. ESTIMATED COSTS :

	Labour, Materials & Capital Expenditure	External Facilities	Travel	Total
(i) Design & Development and testing for existing experimental models together with appropriate documentation for manufacture of pre-production units.	\$89,278	Nil	Nil	\$89,278
(ii) Manufacture of 3 pre-production units for Cessna aircraft and preparation of user handbooks.	\$43,249	\$8,500	Nil	\$51,749
(iii) Production of 2 pre-production models for Porter aircraft including minor design charges from the original system & full environmental testing.	\$37,974	\$5,750	Nil	\$43,724
(iv) Cost of 2 spare equipments (complete units) 1 for Cessna and 1 for Porter. (Method of manufacture uncertain)				\$29,400
TOTAL				\$214,151

6. PROPOSALS FOR MEETING TIME SCHEDULE :

The task has been given urgent priority throughout the design phase and will continue to be treated as urgent.

Co-operation has been established with the RAAF enabling installation and testing to be carried out locally at Edinburgh.

Environmental testing will be carried out on the second unit in parallel with operational testing of the first unit manufactured; any modifications found necessary will be incorporated in the first unit at a later date.

7. REPORTING :

In accordance with RDI instruction No. 14.

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