[redacted] RA-56-31 TL 114-56/07 (See WADCR 53-16)

1. TO (Supporting Orgn): WCLS	2. DATE: 7 June 1956	3. FOR SERVICE IN SUPPORT OF:	4. FILE OR LEDGER NO.
5. DATE COMPLETION REQ: 18 July 1956	6. PRIORITY: 1C	SYSTEM NO.	INITIATING ORGN: RDZSBA
7. SECURITY CLASSIFICATION OF WORK REQUESTED: SECRET	8. PRECEDENCE RATING	PROJECT NO.: 1794	SUPPORTING ORGN: WCLS
9. A/C TYPE, MODEL AND SERIAL NO.		TASK NO.	
WADC FORM 58 ☐ HAS ☒ HAS NOT BEEN INITIATED.		TECH GROUPING	OTHER
		TITLE: (U) Evaluation of Project 1794 Reports	

10. DESCRIPTION OF WORK

1. The inclosed reports have been submitted by AVRO Aircraft Ltd under contract AF33(600)-30161 in connection with USAF Project 1794. The primary purpose of the work accomplished under this contract was to determine the practicability of developing a vertical take-off, supersonic vehicle exploiting the contractor's design concept. The work was limited to studies and tests of those problem areas defined as major ones.

2. It is requested that a technical evaluation be made of the results of the work accomplished under this program as presented in the contractor's reports. The Summary Report and those on Ground Effects, Intake & Exhaust, Performance and the 1/6 Scale Model Test have not yet been received, but should be delivered by the contractor prior to 1 Jul 56 and will be forwarded to you as received.

3. The evaluation should include:

a. Comments on the technical aspects of the program within the scope of responsibility of your laboratory, particularly in defining problem areas and in suggesting solutions to existing problems.

b. A substantiated statement as to the practicability of developing a weapon system based on the design concept proposed by AVRO.

c. The recommendations of your laboratory as to the extent and nature of further USAF support of this program.

4. The Project Office, RDZSBA, will afford any assistance required in the conduct of your evaluation and a Project Review will be given by the contractor at Wright-Patterson AFB following submission of all reports.

CONTINUED ON REVERSE SIDE ☐

FOR USE OF RESPONSIBLE ORGANIZATION

11. INITIATOR	12. SECTION CHIEF	13. CHIEF (Responsible Orgn or Rep)
William R. Stephens W. R. Stephens, Major, USAF ORGN CODE RDZSBA EXT 31324	ORGN CODE EXT	JEWELL C. MAXWELL, Colonel, USAF Chief, Bombardment Aircraft Div Dir of Systems Management

FOR USE OF SUPPORTING ORGANIZATION

14. ESTIMATED COMPLETION	15. PROJECT ENGINEER OR PLANNER	16. CHIEF (Supporting Orgn or Rep)
DATE: 1 Sept 56 MAN-HOURS: 1000	E.A. WEBEK 2nd Lt ORGN CODE WCLSD-2 EXT 34272	

CLOSING ACTION

17. REASON: ☐ COMPLETED ☐ CANCELLED	20. CHIEF (Supporting Orgn or Rep)	21. CHIEF (Responsible Orgn or Rep)
18. DATE COMPL / 19. M/HRS EXP	UNCLASSIFIED [redacted]	

WADC FORM 49 15 SEP 54 (Supersedes WADC FORM 49-10)

McGregor & Werner Midwest Dayton, O. 100M Nov. 1955

56RDZ-18488-23

SECRET

RA-56-3 (See WADCR 53-10)

1. TO (Supporting Orgn)	2. DATE	3. FOR SERVICE IN SUPPORT OF:	4. FILE OR LEDGER NO.
WCLS	7 June 1956	SYSTEM NO.	INITIATING ORGN RDZSBA
5. DATE COMPLETION REQ: 18 July 1956	6. PRIORITY: 1C	PROJECT NO. 1794	SUPPORTING ORGN WCLS
7. SECURITY CLASSIFICATION OF WORK REQUESTED: SECRET	8. PRECEDENCE RATING	TASK NO.	
9. A/C TYPE, MODEL AND SERIAL NO.		TECH GROUPING	OTHER
WADC FORM 56 ☐ HAS ☒ HAS NOT BEEN INITIATED.		TITLE: (U) Evaluation of Project 1794 Reports	

10. DESCRIPTION OF WORK

1. The inclosed reports have been submitted by AVRO Aircraft Ltd under contract AF33(600)-30161 in connection with USAF Project 1794. The primary purpose of the work accomplished under this contract was to determine the practicability of developing a vertical take-off, supersonic vehicle exploiting the contractor's design concept. The work was limited to studies and tests of those problem areas defined as major ones.

2. It is requested that a technical evaluation be made of the results of the work accomplished under this program as presented in the contractor's reports. The Summary Report and those on Ground Effects, Intake & Exhaust, Performance and the 1/6 Scale Model Test have not yet been received, but should be delivered by the contractor prior to 1 Jul 56 and will be forwarded to you as received.

3. The evaluation should include:

a. Comments on the technical aspects of the program within the scope of responsibility of your laboratory, particularly in defining problem areas and in suggesting solutions to existing problems.

b. A substantiated statement as to the practicability of developing a weapon system based on the design concept proposed by AVRO.

c. The recommendations of your laboratory as to the extent and nature of further USAF support of this program.

4. The Project Office, RDZSBA, will afford any assistance required in the conduct of your evaluation and a Project Review will be given by the contractor at Wright-Patterson AFB following submission of all reports.

CONTINUED ON REVERSE SIDE ☐

FOR USE OF RESPONSIBLE ORGANIZATION

11. INITIATOR	12. SECTION CHIEF	13. CHIEF (Responsible Orgn or Rep)
William R. Stephens W. R. Stephens, Major, USAF ORGN CODE RDZSBA EXT 31324	ORGN CODE EXT	JEWELL C. MAXWELL, Colonel, USAF Chief, Bombardment Aircraft Div Dir of Systems Management

FOR USE OF SUPPORTING ORGANIZATION

14. ESTIMATED COMPLETION	15. PROJECT ENGINEER OR PLANNER	16. CHIEF (Supporting Orgn or Rep)
DATE MAN-HOURS	ORGN CODE EXT	DANIEL D. McKEE, Col. USAF Chief, Aircraft Laboratory Directorate of Laboratories

CLOSING ACTION

17. REASON: ☐ COMPLETED ☐ CANCELLED	20. CHIEF (Supporting Orgn or Rep)	21. CHIEF (Responsible Orgn or Rep)
18. DATE COMPL: DOD D...	DANIEL D. McKEE, Col. USAF Chief, Aircraft Laboratory Directorate of Laboratories	UNCLASSIFIED
19. M/HRS EXP		

SECRET

WADC FORM 49
15 SEP 54

McGregor & Werner Midwest
Dayton, O. 100M Nov. 1955

56RDZ-18488-21

376.1

ACTION REQUEST AND COMMENT SHEET

To	From	Date
WCISY ~~1 2 3 4 5 6 7~~	WCESD-2 ~~WCISO-1~~	13 June 56

The following data are in--from EVALUATION AND REQUIREMENTS SECTION for necessary action by your branch:

(U) Evaluation of Project 1794 Reports

DO or SEO No. 1794	Priority 1C	Project Engineer H. E. J. Weber

To WCISO-1	From	Date
Airplane or Missile No.		Prepared by
Report No.	Dated	Branch Chief

COMMENTS

It is requested that comments concerning the evaluation be sent to this office. Copies of the reports can be obtained from (WCESD-2) in Building 5 whenever they are needed.

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WADC-O Form 322
(17 Jul 53)

UNCLASSIFIED

Reg No 2-1

ION REQUEST AND COMMENT SHEET

WCLSJ ~~1 2 3 4 5 6 7~~	From WCLSO-2 ~~WCLSO-1~~	Date 13 June 56

The following data are in--from EVALUATION AND REQUIREMENTS SECTION for necessary action by your branch:

(U) Evaluation of Project 1794 Reports

EDO or SEO No. 1794	Priority 1C	Project Engineer Lt. C. L. Wales
To WCLSO-1	From WCLSJ-1	Date 18 June
Airplane or Missile No. --		Prepared by C. L. Wales USAF
Report No.	Dated	Branch Chief Jan M Parker

COMMENTS

It is requested that comments concerning this evaluation be sent to this office. Copies of the reports can be obtained from WCLSO-2 in Building 52 if copies thy are needed

The subject reports have been reviewed and found to contain nothing pertaining to seat and escape systems.

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WADC-O Form 322
(17 Jul 53)

Follow-up 6-572
Reg 12 27

ACTION REQUEST • EVALUATIONS AND REQUIREMENTS • OPERATIONS OFFICE

WCLS 1 2 (3) 4 5 6 7	FROM ~~XCLSOXX~~ WCLSD-2	DUE DATE 15 Jul 56	DATE 13 Jun 56

The following data are available for necessary action by your branch:

(U) Evaluation of Project 1794 Reports

ount No. 1794	~~XCLSOX~~ WCLSD Project Engineer	Lt. E. A. Weber

COMMENTS

WCLSO-1	FROM WCLSJ-3	DATE 13 July 56
craft or Missile Designation		Prepared by J. Wohlslagel JWE
port No.	Revised	Branch Chief [signature] Parker

It is requested that comments concerning the evaluation be sent to this office.
pies of the reports can be obtained from WCLSD-2 in Building 52 whenever they are needed.

The cockpit enclosures as depicted are presently not feasible at the stated performances. It is suggested this phase be given further consideration.

[signature]
13 July 56

The subject data have been reviewed and are considered satisfactory insofar as the responsibilities of WCLSJ-3 are concerned.

H. L. Bonsalow 13 July 56
Collaborated w/ WCLS-?
R Abraham

JWE

UNCLASSIFIED

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Follow-up 6-372
Pg 27

ACTION REQUEST ⊕ EVALUATIONS AND REQUIREMENTS ⊕ OPERATIONS OFFICE

WCLS 1 2 3 (4) 5 6 7	FROM WCLSD-2	DUE DATE 15 Jul 56	DATE 13 Jun 56

The following data are available for necessary action by your branch:

(U) Evaluation of Project 1794 Reports

ount No. 1794	WCLSD Project Engineer	Lt. E. A. Weber

COMMENTS

WCLSO-1	FROM WCLSJA	DATE 13 July 56
craft or Missile Designation 1794		Prepared by C K Hudgell
ort No.	Revised	Branch Chief [signature]

It is requested that comments concerning the evaluation be sent to this office. pies of the reports can be obtained from WCLSD-2 in Building 52 whenever they are needed.

NO COMMENT

UNCLASSIFIED

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WADC-0. Form 322

Follow-up 6-572
Pag . 27

ACTION REQUEST = EVALUATIONS AND REQUIREMENTS = OPERATIONS OFFICE

WCLS 1 2 3 4 (5) 6 7	FROM [redacted] WCLSD-2	DUE DATE 15 Jul 56	DATE 13 Jun 56

The following data are available for necessary action by your branch:

(U) Evaluation of Project 1794 Reports

unt No. 1794	[redacted] WCLSD Project Engineer	Lt. E. A. Weber

COMMENTS

WCLSO-1	FROM WCLSJ-5	DATE C-25-5C
raft or Missile Designation PROJ. 1794 REPORTS		Prepared by H. W. HOLDER WSW
rt No.	Revised	Branch Chief Thomas M. Parker

It is requested that comments concerning the evaluation be sent to this office. ies of the reports can be obtained from WCLSD-2 in Building 52 whenever they are needed.

The above reports + data have been reviewed with respect to cockpit design requirements. The data contained little or no information relative to the detail design of the pilot cockpit. It is requested that drawings be forwarded to WCLSJ-5 showing the relative arrangement of the flight controls, console and instrument panel arrangements

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372.11/1

ACTION REQUEST AND COMMENT SHEET

To	From	Date
WCLS W 1 ~~2 3 4 5 6 7~~	WCLSD-2 ~~WCLSO-1~~	13 June 56

The following data are in--from EVALUATION AND REQUIREMENTS SECTION for necessary action by your branch: 01 Evaluation of Project 1794 Reports. It is requested that comments concerning the evaluation be sent to this Office. Four reports and a copy of the evaluation are enclosed.

WDC or SEO No.	Priority	Project Engineer

To	From	Date
WCLSO-1	WCLSW-1	25 July 56
Airplane or Missile No. Project 1794		Prepared by R. F. Hansen.
Report No. As below.	Dated As below	Branch Chief

COMMENTS

1. Reference is made to WCLSW-1 Disposition Form of 17 July 1956 to WCLSD-2. Comments on the inclosed reports are as follows:

a. ID No. 56RDZ-13714 - No comment

~~b. ID No. 54 RDZ-13717 - No comment~~

c. ID No. 56RDZ-13716 - There are indications tht considerable difficulty was experienced in the measurement and definition of air flow into the model intake and in the static calibration of the propulsive jet. This directly influences certain definitions of drag. Interpretation of this data should be compared with that made by the MIT Naval Supersonic Laboratory. As yet their data have not been received by WCLSW.

d. ID No. 56RDZ-13711 (Page 1.7 paragraph 4) - ~~The large nose-down moments produced~~ during transition with positive lift (J_e = 1.0) are shown in Figure F4 of AVRO Tech Report No. 12, Volume 2. Note that a more complete discussion of the hovering to transition control problem is contained in the Performance Summary Report ID No. 56RDZ-13713, under takeoff and landing procedures. However the performance is described only for the ~~type of transition control used during the test. In the review of the reports to date,~~ no discussion of the "hysteresis" in the pitching moments and lift for the hovering condition has been found. It seems that a statement on the control of this condition, during the beginning of transition, should be made. The basic wind tunnel data presented by the contractor in support of the control analysis appears to be correct when ~~spot checked against similar data computed by WCLSW.~~

H. K. Doetsch

HANS K. DOETSCH
Chief, Subsonic Projects Section
Wind Tunnel Branch
Aircraft Laboratory

[redacted]

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WADC-O Form 322
(17 Jul 53)

WCLS-62552

56 ~~RDZ-13714~~

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[redacted]

ACTION REQUEST [redacted]EMENTS - OPERATIONS OFFICE

WCLSD-2

WC 1 2 3 4 5 6 7 FROM ~~WCLSC-1~~ DUE DATE DATE 5 June 56

Following data are available for necessary action by your branch:

Wind Evaluation of Proj 1794 Flight

Count Nr 1794 [redacted] Project Engineer Lt E. A. Irvine

COMMENTS

WCLSC-IX WCLSD-2 FROM WCLSR-1 DATE 20 JULY 1956

Craft or Missile Designation Prepared by J. Platt P. L. Davis

Report Nr Revised Branch Chief H. L. Anderson

1. The Aerodynamic Design of Project 1794 has been reviewed from the standpoints of design potential and technical feasibility.

I Potential

In essence, the design consists of a circular planform lifting surface with a large ducted fan after-burning engine. The configuration has no aerodynamic stabilization or control surfaces. Stability and control are provided through directional orientation of the propulsive jets distributed around the periphery of the wing. In considering the aerodynamic design, and of necessity the overall design, emphasis has been placed on those factors which primarily determine performance capability - namely, lift-drag ratio, specific fuel consumption and thrust-weight ratio.

P 2 of D/F ~~Lift-drag ratio~~

The L/D of a circular planform wing at supersonic speeds would not be expected to be as good as a properly designed swept wing. Wind tunnel tests of the wing alone at MIT (AVRO Report 22) show this to be the case with L/D max (wing alone) being in the order of 7. A properly designed swept wing should be higher, theoretically about 10, for an aspect ratio of 3.5 with the same C_{D_o}.

Based on the MIT supersonic wind tunnel tests, with and without airflow simulation, the overall AVRO design shows a maximum L/D value (untrimmed) of 6.3

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WADC-0 Form 322 UNCLASSIFIED [redacted]

This value was obtained by making extensive assumptions and corrections to the wind tunnel data.. The procedures used are open to considerable doubt, particularly as concerns momentum and base drags. This will be discussed in more detail under the internal flow comments.

Trim drag for this design at supersonic speeds should be low compared to conventional arrangements since the aerodynamic center nearly coincides with the center of gravity at the geometrical center of the airplane. Values of trimmed L/D max for current supersonic designs at the same Mach number (M = 2) are in the order of 3.5 to 4.5. Assuming that the zero lift drag measurements were as much as 100% in error because of questionable assumptions and data reduction procedures, the max L/D for the AVRO design would still be 4.5. It is concluded, therefore, that the max L/D max of the 1794 configuration should be at least equal to that of the best conventional designs. Apparently, although the circular wing itself is not as good as the conventional wing alone, the additional drag items such as fuselage, tail surfaces, etc. are sufficiently detrimental to conventional designs to reduce the L/D max to less than 1/2 of the wing alone values whereas the 1794 design does not suffer as badly with the addition of only the inlet islands. It should be noted that because of the low wing loading inherent with this type of design that the high L/D can be obtained only at very high altitudes.

Subsonic L/D has not been evaluated but would undoubtedly be very poor compared to conventional arrangements due to the low aspect ratio ($\frac{\bar{b}}{m}$).

~~B. Specific Fuel Consumption~~

~~SFC~~ values of approximately 2.5 at 35,000 ft and M = 2.0 have been estimated for this design. These values are slightly higher than current afterburning engines and offer no potential in this area. The higher values are due mainly to lower tailpipe temperatures and should be roughly comparable to conventional engines at the same exhaust temperature.

~~C. Thrust/Weight Ratio~~

The manner in which the engine is arranged in this vehicle is such that a large percentage of the internal volume is used for the engine. With the horizontal fan arrangement, large engine mass flows can be handled for less frontal area than required for conventional ducted fan engines. The structural unit wing weight is estimated to be some 20% lower than conventional wings because of the circular arrangement and distributed weight. The result is that thrust/weight ratio should be very high compared to normal arrangements. It is felt that this factor is the one outstanding advantage that this design has as a supersonic vehicle and should permit much better altitude capability than is possible with normal designs. Contractor's performance estimates (unvalidated) indicate ceilings of over 85,000 ft, at M = 2.0. With the crude nature of data available, a quantitative performance evaluation is not possible. The altitude capability, however, appears to be in right order of magnitude.

~~D. VTOL Capability~~

The large thrust/weight ratio permits VTOL capability. The ground cushion effect wherin lift is actually greater than thrust has been demonstrated on a model basis and is considered realistic.

In summary, this type of design is considered comparable to contemporary arrangements as concerns supersonic L/D ratio and specific fuel consumption and superior in thrust/weight ratio. As an aircraft, then, it should have comparable range potential, higher altitude and speed capability plus the horizontal VTOL feature. Overall, it is considered to represent, potentially, a sizeable step forward in state of the art.

~~H. Technical Feasibility~~

The AVRO design, although sound in concept from a mechanics standpoint, poses some rather severe development problems and requires that certain currently accepted

[redacted]

design principles be revised. The two major development problems (aside from the propulsion unit which is not treated here) are expected to be the artificial stability and control and the internal flow systems.

6 A. Conventional design practice to date has not accepted the complete artificial stability concept for man carrying vehicles. Assuming, however, that this change in philosophy is acceptable, it is envisioned that a major effort will be required on stability to satisfy the entire flight regime. It must be recognized that detail problems may evolve during development that cannot be solved in a practical manner. * SEE NEXT PAGE

B. - See enclosed yellow sheet for P 6 B

6 C A major factor in the performance capability of this design is the efficiency of the internal flow system - inlet, diffuser, jet exit and the external drag considerations associated with these items. Although AVRO Report 22 indicates a fairly optimistic picture of the internal flow considerations, detail examination of the data raises several questions.

(1) The determination of the inlet ram drag is in question because of the rather severe pressure distributions at the measuring station during some of the runs. Reverse flow in one of the inlets is also a possibility for some of the runs. Errors in inlet mass flow cause errors in the aircraft drag..

(2.) Although no data are presented to show the inlet capture area ratio, it appears that the maximum capture area ratio of the tests is considerably below the estimated value. The accuracy of the inlet spillage drag is therefore in question.

out (3) ~~The intake pressure recovery curve shown on page 135 is misleading since~~ (a) ~~The measuring station is well ahead of the engine face,~~ (b) not all the tube readings were included, and (c) the data appear to be presented for no mass flow going through the inlet.

3 B It is not understood how the jet thrust values were measured during the actual tunnel test. Apparently they were obtained by differences in drags with and

[redacted]

without external airflow. This method might yield considerable error.

Whether or not the internal flow problems can be solved in a reasonable manner cannot be definitely ascertained at this time. Considerable detail testing will be required particularly as regards inlet pressure recovery and losses in the labynrinth type diffuser. Here again, as in the case for stability and control, detail problems may arise that cannot be solved in a practical manner even though the fundamental concept is sound.

The success of the 1794 configuration is dependent to a large extent upon its relative aerodynamic cleanliness. Addition of any protuberance or external stores would be expected to have large detrimental effects on the supersonic L/D. No consideration has been given to armament, equipment or external fuel capacity as yet. If these items must be carried externally because of the limited available internal volume, performance potential would suffer. Downward visibility, with the present arrangement, is poor and a periscope will probably be necessary.

Make this part of P 6A

Because of the aircraft's dependence on power for stability and control, should a complete power failure or exhaustion of fuel occur, it would be impossible to make a forced landing. Whether sufficient controllability would exist, even with ram air at high forward speeds, to enable the pilot to establish favorable ejection conditions is questionable.

A. Project 1794 has significant potential as a supersonic high altitude vehicle and, when combined with the VTOL capability, represents a sizable step forward in airplane design state-of-the-art.

B. The major questionable development areas are stability and control and internal flow. The feasibility of the 1794 approach will hinge, to a large extent, on the successful resolution of the problems in these areas.

373 M1

ACTION REQUEST AND COMMENT SHEET

To	From	Date
WCLSM (1) ~~2 3 4 5 6 7~~	WCLSD-2 ~~WCLSO-1~~	13 June 56

The following data are in--from EVALUATION AND REQUIREMENTS SECTION for necessary action by your branch:

(U) Evaluation of Project 1794 Reports

RDO or SEO No.	Priority	Project Engineer
1794	1C	Lt. C. A. Weber

To	From	Date
WCLSO-1	WCLSM-3	19 June 56

Airplane or Missile No.	Prepared by Lt. J. H. Heil
Report No. / Dated	Branch Chief Emfleh

COMMENTS

It is requested that comments concerning the evaluation of the reports be sent to this office. Copies of these reports can be obtained from WCLSD-2 in Building 52 whenever they are needed.

In view of the VTOL and non-taxi requirements of this system, tires will not be required. It is anticipated that lighter, more compact landing ~~gear can be obtained with retractable, shock-absorbing "feet" than with~~ conventional aircraft tires and wheels. ~~However, ground-handling requirements must be considered.~~

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WADC-O Form 322
(17 Jul 53)

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ACTION REQUEST AND COMMENT SHEET

1 WCLSM ~~2 3 4 5 6 7~~	From WCLSD-2 ~~WCLSO-1~~	Date 13 June 56

The following data are in--from EVALUATION AND REQUIREMENTS SECTION for necessary action by your branch:

(U) Evaluation of Project 1794 Reports

RDO or SEO No. 1794	Priority 1C	Project Engineer H. C. A. Hahn

To WCLSO-1	From WCLSM-11	Date 19 JUN 56
Airplane or Missile No. Proj 1794		Prepared by R. E. LONGYEAR
Report No.	Dated	Branch Chief Em Polk

COMMENTS

It is requested that comments concerning the evaluation be sent to this office. Copies of the reports may be obtained from WCLSD-2 in Building 52 whenever they are needed.

Sufficient information to permit comments on wheels and brakes for Proj 1794 is not contained in the reports. No problem areas are anticipated at this phase of development.

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WADC-O Form 322
(17 Jul 53)

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ACTION REQUEST - EVALUATIONS AND REQUIREMENTS - OPERATIONS OFFICE

TO WCLS 1 2 3 4 5 6 7 FROM WCLSD-2 DUE DATE 15 Jul 56 DATE 14 Jun 56

The following data are available for necessary action by your branch:

Evaluation of Project 1794 Report s — It is requested that comments concerning the evaluation be sent to this office. Copies of report can be obtained from WCLSD

Account Nr. 1794 (1-C) WCLSO Project Engineer Lt R. A. Weber

COMMENTS

TO WCLSO-1 FROM WCLSM-1 DATE 11 July 56

Aircraft or Missile Designation Prepared by Saunders

Report Nr. Revised Branch Chief Ens Polsby

1. The Project 1794 reports reviewed contain no landing gear information.

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WADC-0 Form 322 (17 Jul 53)

ACTION REQUEST - EVALUATIONS AND REQUIREMENTS - OPERATIONS OFFICE

WCLSM 1 2 3 (4) 5 6 7 FROM ~~WCLSD-1~~ WCLSD-2 DUE DATE 15 Jul 56 DATE 14 Jun 56

The following data are available for necessary action by your branch:

Evaluation of Project 1794 Report s — It is requested that comments concerning the evaluation be sent to this office. Copies of report can be obtained from WCLSD

Account Nr. 1794 (1-C) WCLSO Project Engineer Lt E. A. Weber

COMMENTS

TO ~~WCLSD-1~~ WCLSD-2 FROM WCLSM-4 DATE 10 JULY 56

Aircraft or Missile Designation — Prepared by L. F. Yancy 7/11

Report Nr. Proj 1794 Revised — Branch Chief Ernest Polk

AER

All bearings, pulleys, universal joints, cables, etc, installations not meeting the requirements of the H1AD and the specifications called out in Bulletin 143, should be submitted to WCLSM-4 for evaluation and approval.

UNCLASSIFIED

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WADC-0 Form 322 (17 Jul 53)

ACTION REQUEST - EVALUATIONS AND REQUIREMENTS - OPERATIONS OFFICE

WCLSD-2

O WCLSM 1 2 3 4 5 6 7 FROM [redacted] DUE DATE 15 Jul 56 DATE 14 Jun 56

he following data are available for necessary action by your branch:

Evaluation of Project 1794 Report s — It is requested that comments concerning the evaluation be sent to this office. Copies of report can be obtained from WCLSD

ccount Nr. 1794 (1-C) WCLSO Project Engineer Lt E. A. Weber

COMMENTS

O WCLSO-1 FROM WCLSM-2 DATE 23 Jul 56

ircraft or Missile Designation 1794 Prepared by J. R. Ling

eport Nr. 13711 and others Revised —— Branch Chief

No comment is required from WCLSM-2.

UNCLASSIFIED

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WADC-O Form 322 (17 Jul 53)

Avro Vertical Take off Aircraft
Project 1794

Maj [illegible] Conference June 19, 1956
RDZSBA

[illegible]

$785,000 . May 55 – July 56

Have instituted a no cost admin. contract.

27,000# 35' DIA

M. 2 PR 87% according to [illegible]
M-3 65%

We [illegible]
air mass flow

Avro A/C	13	13000 / 100
F 104A	70	11269 / 162
B 58	74	47827 / 648

committed to have [illegible] completed by [illegible]

R&D 57 [illegible]

1500 000 [illegible]

UNCLASSIFIED

ACTION REQUEST ☐ EVALUATIONS AND REQUIREMENTS ☐ OPERATIONS OFFICE

WCLS 1 2 3 4 5 6 7	FROM WCLSO-1	DUE DATE	DATE

The following data are available for necessary action by your branch:

ccount No.	WCLSO Project Engineer

COMMENTS SECRET

TO WCLSO-1	FROM WCLSY-5	DATE 27 June 1956
ircraft or Missile Designation 1794		Prepared by Lt. John WCLSY-5. 27 JUN 56
eport No. 56RDZ-13714	Revised 1 Jun 56	Branch Chief H. A. Magrath 6/27/56

1. The referenced report consists of design information for a radical flying saucer type aircraft. The aircraft is to be powered by a Ducted Fan Ram Jet type engine. The power for the compressor (fan) will be produced by a group of turbo jet engines developing a total of 9000 lbs thrust. The output of the Ducted Fan Engine will be between 17,800 and 32,750 lbs thrust. There is no information concerning noise in the report.

2. Since the noise produced will likely be very high, a noise investigation should be carried on during the early planning stages to eliminate costly changes later. If the noise level in the aircraft is high enough it may cause structural failure, equipment malfunction, and be injurious to the occupants. It is therefore recommended that noise estimates be made and steps be taken to qualify the structure and equipment for reliable operation. Also steps should be taken to insure that the cockpit noise level is within the requirements set forth in Part A, Chapter 5, Section 7.1 of HIAD, 10th Edition revised up to and including 1 April 1956.

UNCLASSIFIED

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WADC-O, Form 322