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ARROW 2

72/FAR/14
Issue 3

STANDARD INSTRUMENTATION
AIRCRAFT 25210 THROUGH 25220

Oct. 1958

Inter-Departmental Memorandum

Ref 5323/01/J
Date October 29, 1958
To Mr. S.E. Harper
From T. Roberts
Subject ARROW INSTRUMENTATION - 72/FAR/14

Delete

The telemetry requirements of 72/FAR/14, issue 3, sheet 1, for aircraft 25210 to 25220 inclusive. These aircraft will have oscillograph recording only.

T. Roberts

/b

T. Roberts
Technical Design Coordinator
FLIGHT TEST

PROJECT APPROVAL

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Inter-Departmental Memorandum

Ref 4927/02A/J
Date October 17, 1958
To Mr. S. E. Harper
From T. Roberts
Subject ARROW 2 - STANDARD INSTRUMENTATION

Report No. 72/FAR/14, Issue 3, covering standard instrumentation to be installed in aircraft 25210 through 25220, is attached.

T. Roberts
Technical Design Coordinator
FLIGHT TEST

Project Approval

FORM 1749 A

AVRO AIRCRAFT LIMITED

MALTON - ONTARIO

TECHNICAL DEPARTMENT (Aircraft)

AIRCRAFT: Arrow 2

REPORT NO: 72/FAR/14 Issue 3

FILE NO:

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TITLE:

ARROW 2

STANDARD INSTRUMENTATION

AIRCRAFT 25210 THROUGH 25220

PREPARED BY W.C. Etherington DATE October/58

CHECKED BY T Roberts DATE

SUPERVISED BY DATE

APPROVED BY DATE

ISSUE NO.	REVISION NO.	REVISED BY	APPROVED BY	DATE	REMARKS

AVRO EA 1316 A

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STANDARD INSTRUMENTATION - ARROW 2

This report is issued to cover standard instrumentation requirements for aircraft 25210 through 25220. Oscillograph recording will be utilized, and telemetry will be installed to cover the measurements listed in IDM 4547/01/J.

Wiring provision and any transducers inaccessible after build should be installed. The parameters to be recorded on a particular flight will be specified in the appropriate R.F.T.'s.

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Section 1 - Telemetry

The following accident investigation parameters are to be telemetered:

Altitude
Indicated Airspeed
Normal Acceleration
Lateral Acceleration
Elevator Angle
Aileron Angle
Rudder Angle
Roll Rate
Pitch Rate
Yaw Rate
Damper Configuration

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Section 2 - Stability and Control

1. Ambient Conditions

ITEM	RANGE	ACCURACY	ACCURACY % OF FULL RANGE
Aircraft Static Pressure	0 to 2160	± 15	± 0.75%
Limited Range	0 to 720	± 5	± 0.75%
Limited Range	0 to 288	± 2	± 0.75%
Differential Pressure	0 to 2880	± 20	± 0.75%
Limited Range	0 to 1440	± 10	± 0.75%
Limited Range	0 to 720	± 5	± 0.75%
Free Air Total Temperature	-65 to +350°F	± 2°F	± 0.5%

2. Motion of Aircraft

Angle of Pitch θ	-60° to +60°	± 0.6°	± 0.5%
Angle of Bank ϕ	-85° to +85°	± 0.8°	± 0.5%
Angle of Sideslip β	-15° to +15°	± 0.1°	± 0.5%
Angle of Attack α	-6° to +30°	± 0.1°	± 0.3%
Lateral Acceleration $\ddot{Y}$	-1 to +1g	± 0.01g	± 0.5%
Normal Acceleration $\ddot{Z}$	-3 to +8g	± 0.06g	± 0.5%
Longitudinal Acceleration $\ddot{X}$	-1 to +1g	± 0.01g	± 0.5%
Rate of Pitch $\dot{\theta}$	-30 to +30°/sec	± 0.3°/sec	± 0.5%
Heading Reference	0 to 360°	± 3°	

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Section 3 - Electrics

ITEM	RANGE	ACCURACY	ACCURACY % OF FULL RANGE
Voltage A Ø left alternator	0 to 130V AC	± 0.75V	± 0.5%
Voltage B Ø left alternator	0 to 130V AC	± 0.75V	± 0.5%
Voltage C Ø left alternator	0 to 130V AC	± 0.75V	± 0.5%
Current A Ø left Alternator	0 to 120 A	± 0.6 A	± 0.5%
Current B Ø left alternator	0 to 120 A	± 0.6 A	± 0.5%
Current C Ø left alternator	0 to 120 A	± 0.6 A	± 0.5%
Frequency left alternator (any one phase)	350 to 450 cps	± 1 cps	± 1%

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Section 4 - Air Conditioning

(a) Static Pressure (psia):

ITEM	RANGE	ACCURACY	ACCURACY % OF FULL RANGE
Out of Turbine	0 to 20	± 0.4	± 2%
Into Armament Bay	0 to 20	± 0.4	± 2%
Into Nose Radar	0 to 20	± 0.4	± 2%
Inside Nose Wheel Well	0 to 20	± 0.4	± 2%
Into Oxygen Converter	0 to 20	± 0.4	± 2%
Into Dorsal Radar	0 to 20	± 0.4	± 2%
Into Transformer Rectifier Unit	0 to 20	± 0.4	± 2%

(b) Temperature (°F)

Into Cockpit	0 to 300	± 6	± 2%
Into Armament Bay	32 to 140	± 2	± 2%
Into Nosewheel Well	50 to 200	± 3	± 2%
Into Nose Radar	40 to 120	± 1.6	± 2%
Into Transformer Rectifier Unit	40 to 120	± 1.6	± 2%
Into Dorsal Radar	40 to 120	± 1.6	± 2%
Out of Dorsal Radar	50 to 200	± 3	± 2%

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Section 5 - Cameras

Wiring and space provision should be made for strike cameras as per A/C 25203 (71/FAR/49, to be issued), and missile launch cameras as per A/C 25205, (71/FAR/46). Time correlation between cameras and oscillograph recorders should be provided for.