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APRIL 1957  
ARROW I INSTRUMENTATION  
AIRCRAFT 4 and 5 - ISSUE I

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F.A.R./C-105/2

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ARROW I INSTRUMENTATION

AIRCRAFT 4 AND 5

ISSUE I

ARROW I INSTRUMENTATION

AIRCRAFT 4 and 5

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April 5, 1957.

F.A.R./C-105/2

ARROW I

AIRCRAFT 4 and 5

INSTRUMENTATION

ISSUE 1

Preliminary requirements for aircraft 4 and 5 have been formulated and are given in this report. These are based mainly on instrumentation already provided in Aircraft 1, 2 and 3, together with estimates of wiring requirements for the Astra I system.

Reference will be made to F.A.R./C-105/1 where similar instrumentation programmes are required.

F.A.R./C-105/2

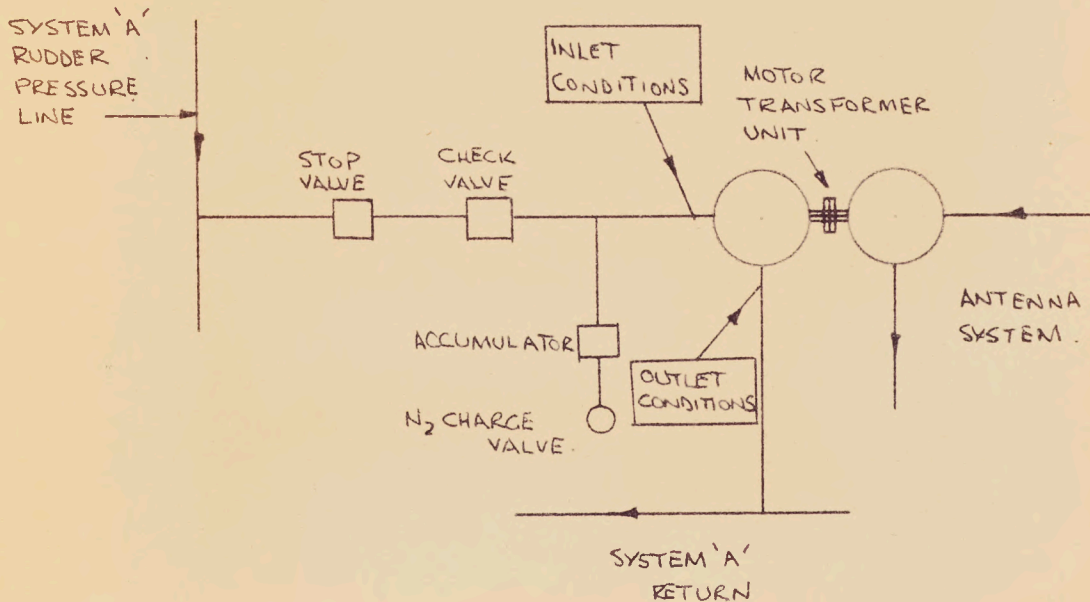
SECTION 1    STABILITY AND CONTROL

Complete instrumentation as given in F.A.R./C-105/1, Sheets 1, 2, 3 and 4, Issue 7 plus revision as detailed in Memo 4510/02B/J, December 21st, 1956.

SECTION 2 FLYING CONTROL HYDRAULICS

No instrumentation as given in F.A.R./C-105/1 will be required. However, pressures are required in the pressure and return lines to the motor transformer unit, in system 'A' (see sketch).

| <u>ITEM</u>           | <u>SYSTEM</u> | <u>RANGE</u><br><u>LB./IN.<sup>2</sup></u> | <u>ACCURACY</u><br><u>LB./IN.<sup>2</sup></u> | <u>ACCURACY</u><br><u>% OF</u><br><u>FULL SCALE</u> | <u>SAMPLING</u><br><u>FREQUENCY</u> |
|-----------------------|---------------|--------------------------------------------|-----------------------------------------------|-----------------------------------------------------|-------------------------------------|
| Motor Inlet Pressure  | A             | 0 - 5000                                   | ± 100                                         | ± 3%                                                | 1/Sec.                              |
| Motor Outlet Pressure | A             | 0 - 200                                    | ± 5                                           | ± 2%                                                | 1/Sec.                              |



SECTION 3    ENGINE INSTALLATION

All wiring for instrumentation as given in F.A.R./C-105/1, Issue 8, will be provided from the patch panel to the forward end of the engine bay. Any other wiring, which is inaccessible after build will also be provided. No transducers will be fitted except those inaccessible after build.

F.A.R./C-105/2

SECTION 4 FUEL SYSTEM

All instrumentation for fuel tank contents as given in F.A.R./C-105/1 Issue 7, will be provided. Wiring only for fuel mass flow measurements will be provided. No instrumentation is required for fuel tank pressures and temperatures.

F.A.R./C-105/2

SECTION 5    UTILITY HYDRAULICS

Complete wiring for instrumentation as given in F.A.R./C-105/1  
Sheet 21, Issue 7. No transducers will be fitted at this stage.

SECTION 6 AIR CONDITIONING SYSTEM

Monitoring only, is required for the air conditioning system on Aircraft 4 and 5.

The following measurements will be necessary in each compartment which is serviced (including the cabin).

| MEASUREMENT        | RANGE           | ACCURACY   | ACCURACY<br>% OF<br>FULL RANGE | SAMPLING<br>FREQUENCY |
|--------------------|-----------------|------------|--------------------------------|-----------------------|
| Inlet Temperature  | -20°F to +130°F | ± 5°F      | ± 3%                           | 5/min.                |
| Inlet Pressure     | 0 to 20 psia    | ± 0.2 psi  | ± 1%                           | 5/min.                |
| Mass Flow (ΔP)     | 0 to 1 psi      | ± 0.05 psi | ± 5%                           | 5/min.                |
| Outlet Temperature | 0°F to 200°F    | ± 5°F      | ± 3%                           | 5/min.                |

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SECTION 7   ELECTRICS

Complete instrumentation as given in F.A.R./C-105/1, Sheet 26,  
Issue 7.

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SECTION 8 STRUCTURAL INTEGRITY

The following accelerometers are required as given in FAR/C105/1  
Issue 7, page 34.

Accelerometers 61, 62, 63, 64 and 65.

No other structural integrity instrumentation is required.

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SECTION 8    STRUCTURAL INTEGRITY

No instrumentation will be fitted for structural integrity.

SECTION 9    UNDERCARRIAGE

Wiring only for instrumentation as given in F.A.R./C-105/1, Sheet 35, Issue 7, will be provided.

SECTION 10 ASTRA I SYSTEM

The following is a preliminary list of shielded leads and co-axial cables required for in-flight monitoring of the Astra I electronics system.

No transducers are required.

| <u>Location</u>               | <u>Component</u>        | <u>NO. OF CABLES</u> |              |
|-------------------------------|-------------------------|----------------------|--------------|
|                               |                         | <u>Shielded</u>      | <u>Co-ax</u> |
| Forward Nose                  | Antenna                 | 30                   | -            |
|                               | Transmitter Receiver    | 40                   | 10           |
|                               | IFF Equipment           | 20                   | 5            |
| Aft Nose                      | Computer                | 40                   | -            |
|                               | Antenna Servo           | 20                   | -            |
|                               | Radar L.V. Power Supply | 5                    | -            |
|                               | Synchronizer            | 20                   | 10           |
|                               | AMTI Unit               | 20                   | 10           |
|                               |                         |                      |              |
| Dorsal Fin                    | IFF                     | 15                   | 5            |
| Cockpits Forward              |                         | 20                   |              |
| Cockpits Rear                 |                         | 50                   |              |
| Fuselage Elec-<br>tronics Bay | AN/ARR-48 Data Link     | 12                   | 2            |
|                               | Air Data Computer       | 20                   | 4            |
|                               | AFCS Coupler            | 24                   | 4            |
|                               | Miscellaneous           | 40                   |              |
| Missile Bay                   | Missile Auxiliaries     | 60                   | 20           |
|                               | Firing circuits and     |                      |              |
|                               | Missile Lowering        | 20                   |              |

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