ATTACHMENT 4

TO

SYSTEM SAFETY & CERTIFICATION GROUP
CHAIRMAN'S FACTUAL REPORT

ERA14MA271

Gulfstream G-IV

Qualification Test Plan

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REPORT

NO: GAC-CR-161 DATE: Sept. 10, 1985

QUALIFICATION TEST PLAN

FOR

GULFSTREAM GIV

SECTOR, CONTROL HEAD AND PEDESTAL ASSEMBLIES

DEPARTMENT: ENGINEERING

SECTION: CREW & EQUIPMENT

PREPARED BY: SARGENT INDUSTRIES

CHECKED BY: [redacted]

TECHNICAL APPROVAL: [redacted]

APPROVED BY: [redacted]

REVISIONS

REV LTR	REV BY	APPROVAL	DATE	REVISIONS AND/OR ADDITIONS

TITLE

Qualification Test Plan

QUALIFICATION TEST PLAN

FOR

GULFSTREAM GIV
SECTOR, CONTROL HEAD AND PEDESTAL ASSEMBLIES

Sargent Part Numbers: 43083-001
43084-001
43087-001

Gulfstream Part Numbers: 1159SCF450
1159SCF451

1.0 PLAN

1.1 This qualification test plan is the overall blueprint for the quality assurance program to be conducted on the Gulfstream GIV Pedestal, Control Head and Sector Assembly by Sargent Industries, Huntington Park Division, to comply with GAC SCD 1159SCF450 and GAC SCD 1159SCF451, paragraph 4, "Quality Assurance Provisions".

1.2 We propose to conduct the qualification tests on one Pedestal, Control Head and Sector Assembly assembled as a unit, unless otherwise stated herein.

1.3 Requests will be submitted on some requirements, such as High Temperature and Humidity for example, to be qualified by similarity to previous designs proven both in qualification testing and service use.

1.3.1 The applicable designs and testing programs will be cited for each such request.

1.3.2 These types of tests have been accepted as qualified by similarity on other programs, because it is recognized that given the same Sargent detail design principles and the continued use of qualified aircraft materials and processes, the successful previous tests may be confidently projected for the Gulfstream GIV.

1.4 Unless otherwise specified in the contract, Sargent will be responsible for all tests and verifications and will obtain prior GAC approval of any commercial laboratory used in addition to our own facilities.

1.5 No testing will be undertaken until the applicable Qualification Test Plan has been approved by GAC.

1.6 In order to verify that the materials, construction, design, workmanship and performance meet the requirements specified in GAC SCD 1159SCF450 and GAC SCD 1159SCF451, the testing program includes but is not limited to:

a. QTP

b. Applicable ATP's

c. Sargent drawings 43083, 43084 and 43087

d. Gulfstream SCD's 1159SCF450 and 1159SCF451

e. All quality assurance and inspection documents relating to the above drawings

f. Qualification Test Report (QTR) which will document verification of all tests specified in the QTP

2.0 QUALIFICATION TEST PROCEDURE (QTP)

2.1 A QTP will be prepared detailing all the tests to be performed.

2.1.1 All paragraph numbers referred to in parentheses such as (4.2.1) relate to the applicable paragraph of SCD 1159SCF450.

2.2 All environmental testing will be in accordance with MIL-STD-810D.

2.3 Test conditions will be in accordance with paragraph 4.4 of MIL-I-83294 unless otherwise specified.

2.4 All laboratory equipment used in the test program and calibration details will be listed.

2.4.1 This would consist of environmental chambers, laboratory gages and measuring instruments, etc. This list will be detailed in the Qualification Test Report (QTR).

2.5 The special equipment to be used, which is peculiar to the GIV Pedestal, Control Head and Sector Assembly will be listed and is proposed to consist of:

a. Protractor fixtures to measure the power and speed brake sector angles versus switch timing.

b. Switch continuity light box to verify switch actuation and timing.

c. Holding fixtures to mount the Pedestal, Sector and Control Head Assembly to simulate actual aircraft installation.

2.6 Before and after each test during the Qualification Test Program, the test unit shall be subjected to and pass the applicable acceptance test procedures.

2.7 The QTP will specify the disassembly and inspection of the test unit after exposure to tests for harmful or undue deterioration, which if present shall constitute a failure.

2.8 The QTP will specify:

- o Examination of Product (4.2.1)
- o Functional Tests (4.2.4)
- o Vibration Test (4.2.6.3)
- o Mechanical Shock Test (4.2.6.4)
- o Proof Load Test (4.2.3)
- o Ultimate Load Test (4.2.2)
- o Endurance Test (4.2.6.9)
- o High Temperature Test (4.2.6.1)
- o Humidity Test (4.2.6.5)
- o Fungus Resistance Test (4.2.6.6)
- o Salt Spray Test (4.2.6.7)
- o Sand and Dust Test (4.2.6.8)

3.0 ACCEPTANCE TEST PROCEDURE (ATP)

3.1 An ATP will be prepared in accordance with paragraph 4.1(c) of GAC SCD 1159SCF450 to individually inspect each Pedestal, Control Head and Sector Assembly to be shipped. These ATP's will include (if applicable):

Examination of Product
Functional Tests
Friction Control
Electrical Components (All switches will be checked for continuity through the connectors)

4.0 QUALIFICATION TESTS

4.1 Examination of Product (4.2.1)

The Pedestal, Control Head and Sector Assembly submitted for qualification testing shall each be carefully examined for conformance to SIHP drawings 43083, 43084 and 43087.

4.2 Functional Tests (4.2.4)

4.2.1 Power Levers -

[redacted]

[redacted]

4.2.2 High Pressure Fuel Cock Levers -

[redacted]

4.2.3 Power Lever Friction Control -

[redacted]

4.3 Vibration Test (4.2.6.3)

[redacted]

4.4 Mechanical Shock Test (4.2.6.4)

[redacted]

[redacted]

4.5 Proof Load Test (4.2.3)

[redacted]

[redacted]

4.6 Ultimate Load Test (4.2.2)

[redacted]

[redacted]

4.7 Endurance Test (4.2.6.9)

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]