GOVERNMENT OF INDIA
CIVIL AVIATION DEPARTMENT

CIVIL AVIATION REQUIREMENTS
SECTION 2 - AIRWORTHINESS
SERIES 'C' PART IV
ISSUE II, DATED 15TH MAY '1978

File No. 8/75/63-AI(1)

EFFECTIVE : 1-7-1978

Subject: **Analytical study of in-flight instrument readings/ recordings of aircraft.**

1. APPLICABILITY:

This part of CAR specifies the manner in which the in-flight instrument readings/recordings of a Public Transport Aircraft (Turbo Jet only) engaged in scheduled services are to be analysed for ensuring continued airworthiness of aircraft.

2. PURPOSE:

Modern transport aircraft are fitted with a number of instruments which continuously indicate the performance of aircraft, its components and systems during the flight. Readings of such instruments, if intelligently monitored, give a clear and early indication of in-service deterioration of engine or airframe performance for taking timely remedial action to ensure continued airworthiness of an aircraft. It is therefore essential to lay down a procedure for evaluating the data so collected on a regular basis. Such programmes are normally given by the airframe and engine manufacturers who also give the method of evaluation and lay down tolerances as well as acceptable deviations from the standard value. Unacceptable deviations from these standards would call for the maintenance action on the part of the operator. Alternatively such programme can be developed by the airline operator themselves with the approval of DGCA.

3. PROCEDURE:

3.1 For each aircraft various instruments readings or deviations from standard recordings as required by the manufacturers/DGCA, available from machmeter, fuel flow meter, air speed indicator, altitude indicator, out side air temperature gauge and engine parameters from N1 and N2 (rpm) indicators, EPR, EGT, AVM gauges etc., shall be regularly plotted on a graph or tabulated.

3.2 The plotted/recorded data shall be evaluated every month against the Alert Values, suggested by an operator and as approved by DGCA, to determine that engine and airframe performance, remains within acceptable limits. For determining the performance of airframe, a relationship between Fuel Flow and TAS (True Air Speed) shall be established. Required corrective action shall be taken for the deterioration observed. This procedure shall be

reflected in the Quality Control/Maintenance System Manual.

*3.3 The operators carrying out regular flight monitoring will not be required to carry out routine test flights, except under the circumstances mentioned in CAR Series 'T' Part II.

4. In event of deterioration being observed in respect:

(i) of engine, Regional Airworthiness Office may require accomplishment of such curative measures as considered necessary or may even require replacement of the deteriorated engine;

(ii) of airframe, Regional Airworthiness Office may require the carrying out of test flights to determine the increase in drag.

Issue of this part of CAR series 'C' dated 24-3-1975 is canceled w.e.f. 1-7-1978.

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* "See "Note" under para 3.1(a) of CAR Series "T" Part II Issue III, dated 1-4-76.

Sd/-
(V. N. Kapur)
Director of Airworthiness
for Director General of Civil Aviation