



SYNTHAM 2000

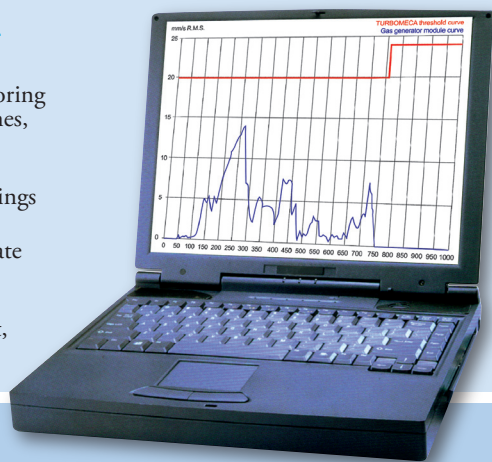
Vibrational Monitoring of Turboshaft Engines in Transiant Operation

Syntham 2000 by SEMIA



▶ A technological gap

- Vibrational monitoring of turboshaft engines, be it on test bench or on board,
- Measurement readings stored on PC,
- High-speed, accurate interpretation of measurements,
- Light and compact,
- Easy to use.

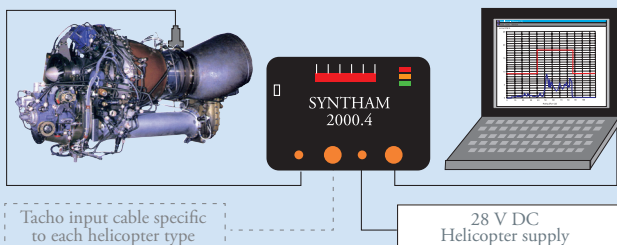


▶ Technical data

- Speed range3,000 to 60,000 rpm (50 to 1,000 Hz)
- Max. vibratory speed50 mm/sec.
- Synchronisation.....3-phase tachymetric pick-up « phonic wheel » pick-up Optical pick-up TTL or sine signal > 2V peak to peak
- Measurement precision.....± 2 %
- Outputs.....RS-232 interfaces for PC
- Power supply28 to 36 V DC / 400 mA protected back-up batteries with over 2 hours autonomy
- DimensionsL: 200 mm, : 70 mm, D: 230 mm
- Weight4 kg
- Climatic conditions.....Storage temperature: -20 to +0°C Service temperature: 0 to +50°C Humidity: 0 to 95 %

▶ For even greater ease of use: permanent on-board cables and accelerometers

- Permanent on-board installation of cables and accelerometers makes the Syntham 2000 even easier to use. All the operator need to is plug the unit into the cockpit and the equipment is immediately operational.



▶ Main advantages

- Vibrational measurement of a turboshaft engine and its differents mobiles,
- Monitoring of all engines types (no additional equipment required),
- Origin of vibrations identified by display of critical speeds,
- Numerous laptop supported functions,
- Enhance diagnosis,
- Contributes to flight safety.

▶ High-performance measuring filters

- The Syntham 2000's monitoring filters can withstand accelerations of up to 330 Hz/sec. (20,000 RPM per second), thus enabling it to monitor all existing turboshaft-driven power plants.

▶ Accurate measurement of vibration levels

- By way of its technology, the Syntham 2000 can measure the vibration level of turboshaft engines to within ± 2 %.

▶ The Syntham is powerful, user-friendly and scaleable via the PC

- Automatic archiving of measurements,
- Report print-out and edit interface,
- Standard PC Pentium, with 32-Mb RAM (64 Mb recommended), Windows 95, 98, NT, 2000, XP ...

▶ Recording of the measurement context

- Engine type, engine No., operator's name, measurement type, bracket serial No., accelerometer type, observations, etc. can all be recorded via pull-down menus.

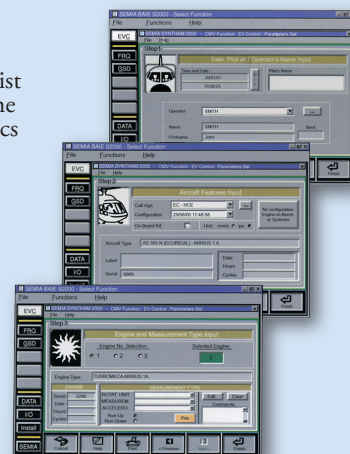
▶ Diversity of its sensors

- Users can call on a large number of commercially available high-precision sensors. The Syntham 2000.4 proposes an open-ended list of sensors, approved by the turbine manufacturer, whose characteristics have been pre-recorded.

▶ An engine maintenance equipment

- The Syntham 2000 is extremely versatile, easy to use, open-ended and covers a wide range of utilisations, thus making it an ideal maintenance instrument.
- The Syntham 2000 covers an entire range of tuning and measuring instruments.

1, 2, 3, the operator is guided during the measurement. He can't miss it.



BS 2000 software

Versatile Maintenance Device



BS 2000 software

- The same instrument installation can be used for other measurements (vibration level, Governor's Static Droop, frequency meter, ...) and it saves on maintenance time
- The calculations are instantaneous and more precise
- The errors made by manual calculations are avoided
- The measurement procedure follows the engine maintenance manual
- The measured values are archived; this allows the operator to observe and follow any drifts that may occur.

Governor static droop

Arriel 1

ENGINE: Serial 301, Part REF REG 1A, B Angle in deg, Serial 302, F C U

NR (rpm) = 328.0, NG (%) = 89.0

NR (rpm) scale: 317.5 to 342.5, GSD... scale: -10.0 to 15.0

OK : SAVING MEASUREMENT

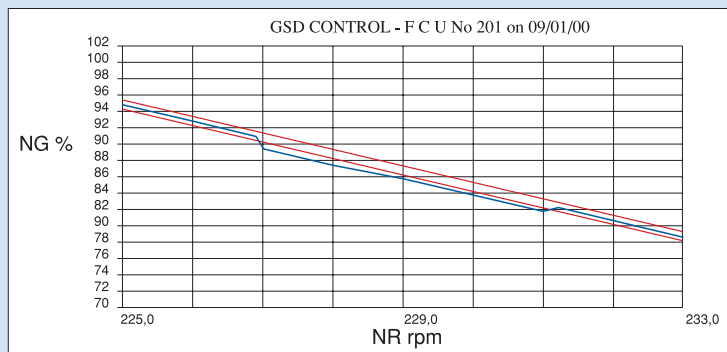
Makila 1A2

Engine Type: TURBOMECA - MAKILA 1 A 2

Measurement	NG %	NR rpm
21/05/99 14:17:12	80.0	232.0
2	82.0	231.0
3	84.0	230.0
4	87.0	229.0
5	91.8	226.0

Part: REF REG 1A2, Serial: 201, S: 4, P: 9

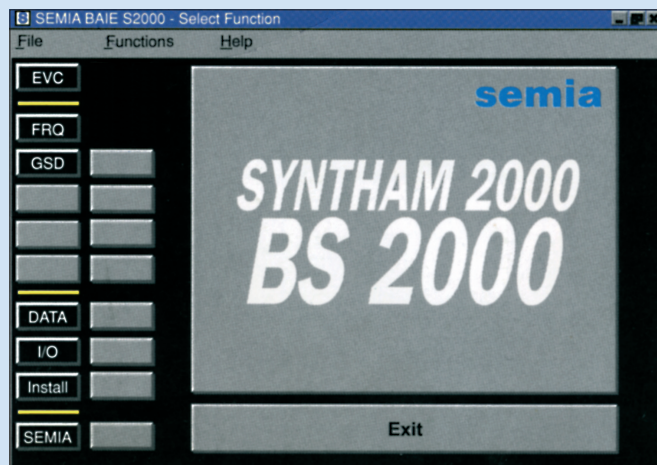
Comments upon the Measurement:
S Screw: Correction = +1
P Screw: Correction = +2
S Screw: CORRECTION LIMIT REACHED **
P Screw: CORRECTION LIMIT REACHED **



- S and P screws are automatically computed
- It saves the operator having to return to his workshop to manually perform his calculations.

Additional Syntham software

- These programmes replace a ranch of tuning equipment such as frequency meter, max. gas generator rpm, power in flight, governor static droop unit,...



Frequency meter

SEMIA SYNTHAM 2000.4 - FRQ Function Frequency Measurement

AS 350 B3 (ECUREUIL) : MAIN ROTOR

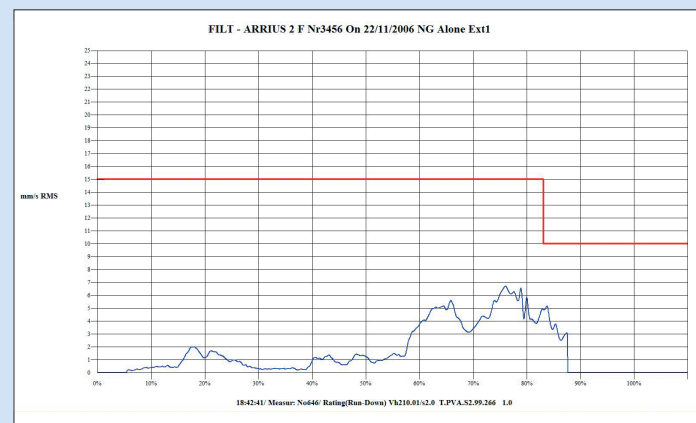
AIRCRAFT: Identif. 2B33, ROTATING UNIT: Freq. of 100 % (Hz) 6.43, R. Ratio 31.53966, Phonic Wheel 1 / 32 FT

rpm = 385,80

OK : SAVING MEASUREMENT

Cancel Help Print < Previous Next > Finish

Vibration control



BS 2000 Software have been developed in three different languages: english, french and spanish. Suitable for standard PC Pentium with 32-Mb RAM (Windows 95, 98, NT, 2000, XP, ...)