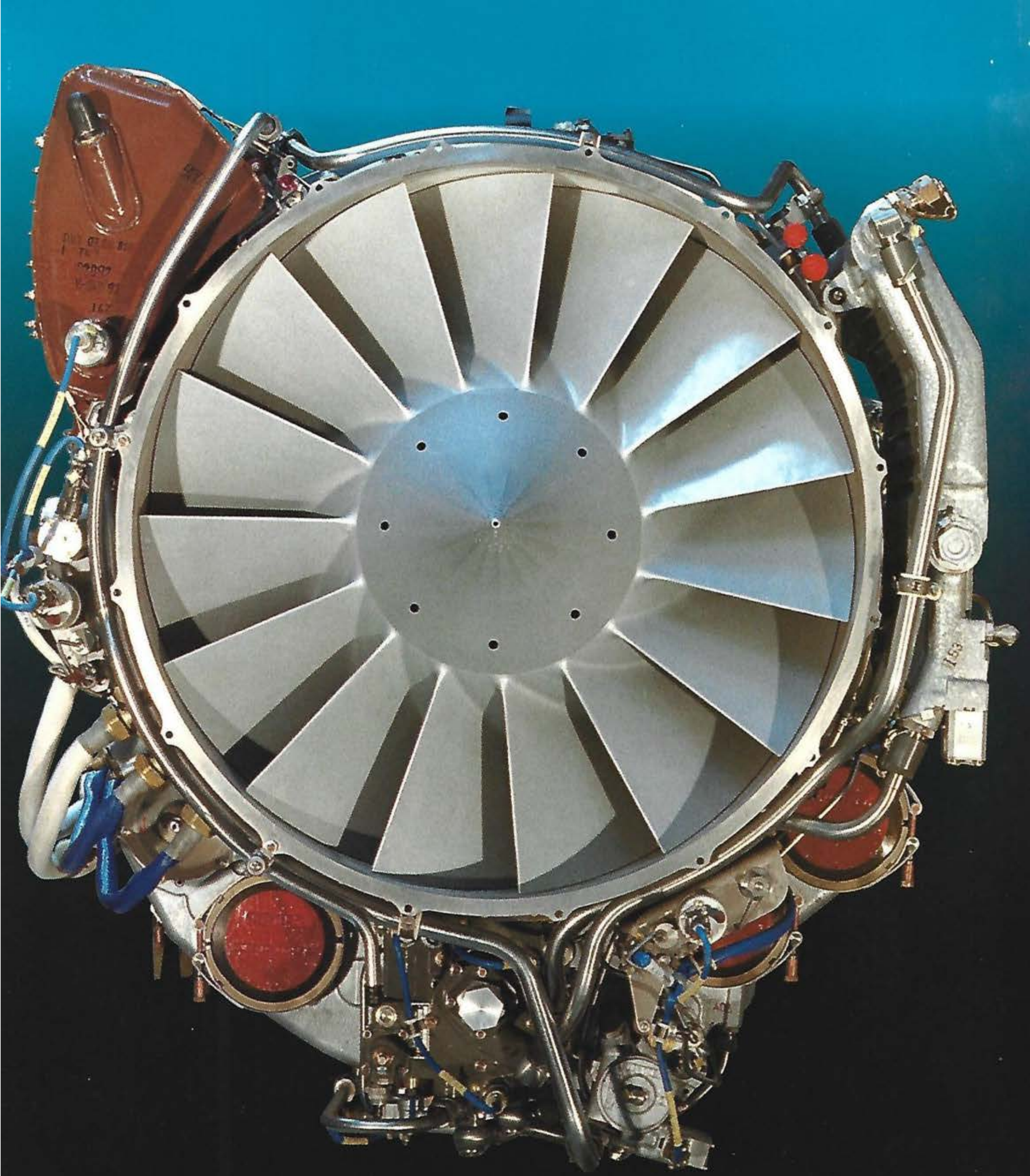

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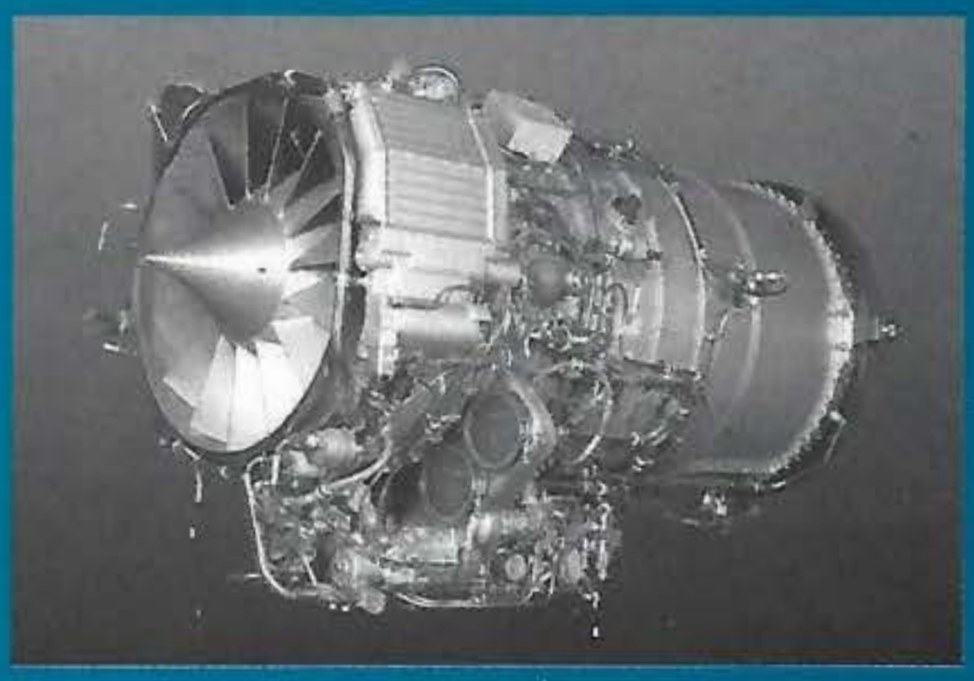
# DV 2

## turbofan



The DV 2 engine is a two-spool low-bypass turbofan aviation engine designed for the extreme conditions of military jet trainers and light attack airplane operation. Demands on the engine for these airplanes are extensive and antagonistic. Therefore requiring a design that is simple, robust, easy to maintain, has a low fuel consumption, low pilot's workload, low operational costs on the one hand and high performance, good operational qualities, resistance to shock landings, surge, high operational load factors and high cycle load on the other hand.
The DV 2 engine suitably meets and fulfils all these requirements. It was originally designed and now is produced for Aero L 59 ( L 39 MS) jet advaced trainer and light attack airplane that entered service in the air forces of Slovak Republic, Czech Republic and of Egypt, in various climatic and operation conditions. High reliability, progressive form of maintenance - modular design and diagnostics system including borescope inspections, tribodiagnostics, vibrodiagnostics and engine monitoring, enables operators to maintain high operational readiness.

## DESIGN FEATURES

TYPE: The DV 2 is a two-shaft low-bypass axial-flow fully aerobatics aviation turbofan engine.

INTAKE: Direct annular inlet with no inlet guide vanes of a 645 mm diameter. Connical spinner is air-heated with hot LP compressor bleed air for antiicing.

FAN: The DV 2 has a single-stage supersonic fan with 15 wide-chord blades providing a high pressure ratio.
It has a high resistance to bird strike and foreign object ingestion damage. Material and coating are designed for maximum resistance to corrosion and erosion.

COMPRESSOR: A two-stage subsonic axial-flow LP compressor is of disc-drum design and is connected to the fan disc by a common shaft and is followed by a seven-stage disc-drum HP compressor equipped with variable inlet guide vanes. Compressor is eguipped with efficient antisurging system.

COMBUSTOR: Annular type, ceramic coated.

TURBINE: A single-stage axial-flow highly efficient HP turbine with air-cooled vanes and blades drives HP compressor while two-stage LP turbine with uncooled blades drives LP compressor and the fan by concentric shafting. Maximum TET is 1 464 K.

ACCESSORIES: Accessory drive gearbox, mounted under the intermediate casing, is driven from HP compressor shaft. Mounting pads are provided for two hydraulic pumps, generator, oil and fuel pumps and fuel control unit.

FUEL SYSTEM: Consists of electronic-hydromechanical primary channel and two hydromechanical and mechanical back-up channels.

OIL SYSTEM: It is circular, closed, self-contained, aerobatics type.

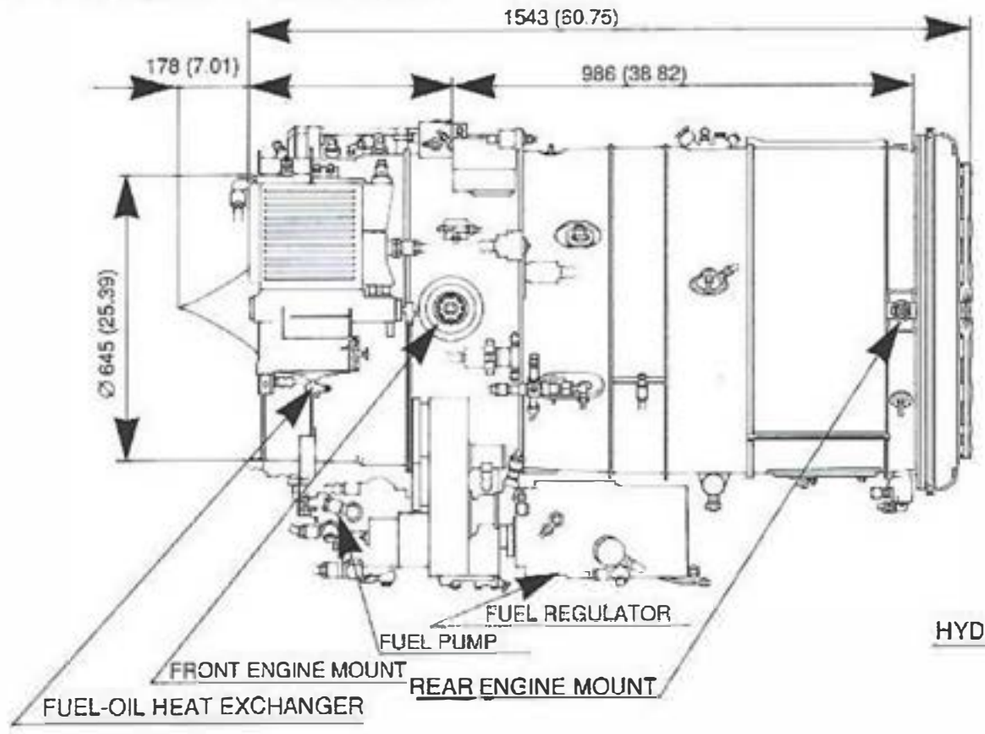
STARTING SYSTEM: Starting is autonomous and automatized with wide range of ambient temperature and altitude starting and relight capability. The engine is started using an air starting turbine driven by compressed air from aircraft APU.

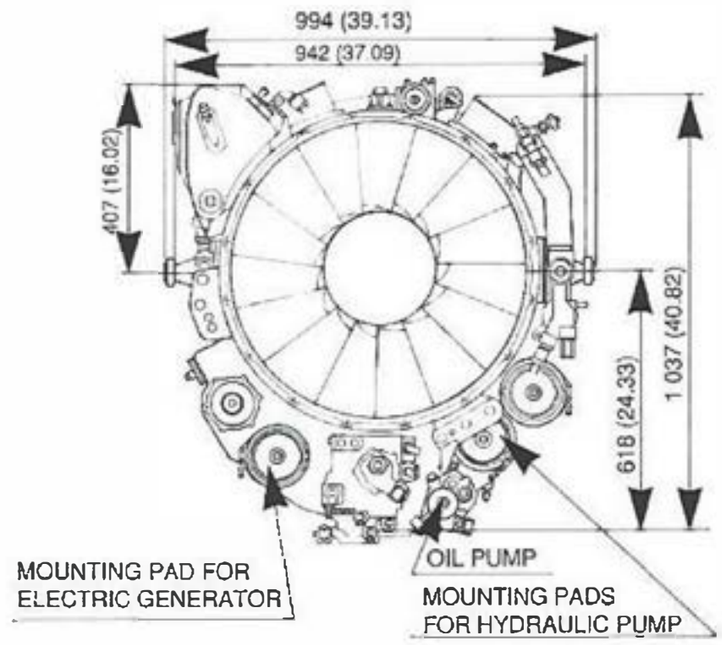
ENGINEERING

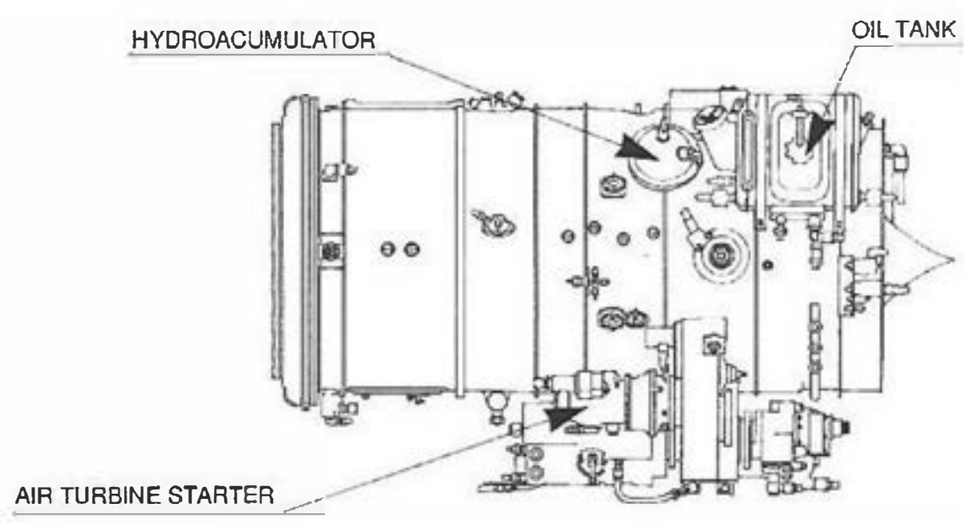
# DV 2

## turbofan

## DIMENSIONS AND INSTALLATION
mm (in)




**STANDART EQUIPMENT**

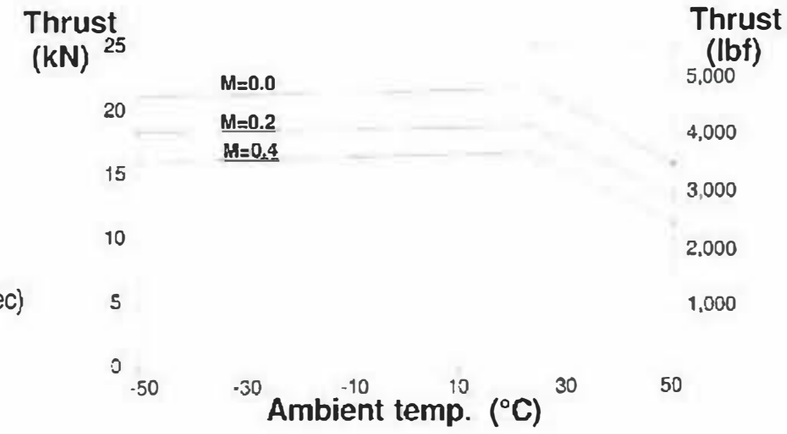
- ✲ Fuel Control System including fuel pump and fuel regulator
- ✲ Engine Ignition Sytem - excluding power source
- ✲ Integral Oil System - including tank
- ✲ Rotor Speed Sensors
- ✲ Oil Temperature Sensors
- ✲ Vibration Sensors
- ✲ Turbine Gas Temperature Thermocouples
- ✲ Tail Pipe and Propelling Nozzle
- ✲ Air Turbine Starter

## DRY WEIGHT - 474 kg (1 045 lb)

## PERFORMANCE

✲ THRUST, SFC /S/L, static, ISA/

| RATING | THRUST, kN (lbf) | TIME LIMIT | SFC, kg/N/hr (lb/lbf/hr) |
|---|---|---|---|
| Take-Off | 21.58 (4850) available to 24°C (75°F) | 20 minutes | .0600 (.588) |
| Nominal | 17.46 (3930) | no limitation | .0594 (.582) |
| Max. Cruise | 14.62 (3290) | no limitation | .0588 (.576) |
| Ground Idle | 1.62 ( 360) | 30 minutes | |
| /H=6 km (19700 ft), v=700 km/hr (378 knot), ISA/ | | | |
| Maximum | 12.75 (2870) | 20 minutes | .0795 (.779) |




✲ TOTAL PRESSURE RATIO ..... 18.3
✲ BYPASS RATIO ..... 1.46
✲ TOTAL AIR MASS FLOW ..... 49.5 kg/sec (109.1lb/sec)
✲ ACCELERATION TIME — Idle to Take -Off — up to H=5 km: 4 to 7sec; over H=5 km: 5 to 8 sec
Max. Cruise to Take - Off ..... 1.0 to 1.2 sec
Nominal to Take - Off ..... .6 to .7 sec

OPERATION LIMITATIONS
✲ MAXIMUM FLIGHT LEVEL ..... 13 000 m (42 700 ft)
✲ MAXIMUM MACH NUMBER ..... .89
✲ MAXIMUM OPERATION LOAD ..... +12/-4g
✲ INVERTED FLIGHT TIME ..... 30 sec max.
with possibility to repeat after 10 seconds of other flight attitude