



## Full-scale airframe testing

Extending the service life of aircraft structures

Aircraft in service are constantly subjected to fluctuating loads of varying severity, leading to airframe fatigue. NAL's well-planned full-scale fatigue test facility provides inputs that can lead to a substantial increase in the structural life of airframes. Static testing of airframe components to the ultimate design load is also undertaken.

A test rig has been specially designed for static testing of airframe components at suitable locations till the ultimate design load is reached.



Static test of the SARAS wing



Test set-up of the SARAS fuselage

Several innovative schemes were evolved for the structural testing of the SARAS aircraft.

The full-scale fatigue test facility subjects airframes to a load environment history that closely simulates the actual service experience.



MiG-21 airframe testing

## Ground Vibration Testing

Ground Vibration Tests (GVT) to characterize vehicle dynamics

	<b>Technical Specifications of Vibrator</b> Sine Force (PK) 35.6 kN Random Force (rms) 35.6 kN Half Sine Peak Bump Force 106.8 kN Armature Resonance 2650 Hz Frequency Range d.c to 3000 Hz Displacement (PK-PK) 50.8 mm Velocity, Sine (PK) 1.8 m/s Acceleration, Sine (PK) 110 gn Acceleration Random rms 75 gn Chucker Armature Diameter 440 mm Slip Table Dimension 750x750 mm	<b>Test Features:</b> Random Swept Sine Resonance Dwell Classical Shock Sine on Random
	<b>Technical Specifications of Head Expander</b> Upper dimension 812 mm Height 252 mm Weight 73.4 kg Usable range 2000 Hz PCO options 101.6, 152.4, 203.2, 204.8, 406.4 mm	

Computer Controlled Vibration Test Facility

