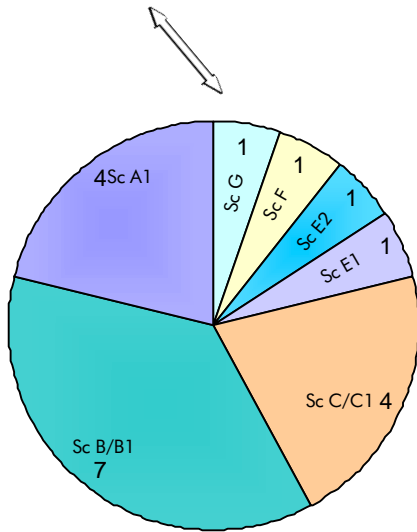
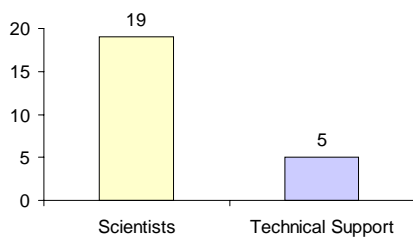


STRUCTURAL INTEGRITY DIVISION

SUMMARY

Dr T S Prahlad, Head



2001-2002 has been an eventful year for the Structural Integrity Division. R & D activities related to structural life extension of ageing fighter airframes and helicopters; damage tolerance evaluation of the SARAS airframe also continued in full swing. Full scale fatigue testing of the MiG-21 Bis was carried out with periodic inspection and repair throughout the year. In-flight data acquisition and analysis for the tail rotor blade (TRB) of the Mi-8 helicopter has been successfully completed. Based on these data a fatigue test load sequence is being finalized. This will be used in evaluating the residual life of the TRB. A setup has been established for this test. Test rigs for the SARAS fuselage and wing have been designed. The test rig for the SARAS fuselage is being set up now. The damage tolerance evaluation workload is being shared with SERC Chennai. Typical structural elements like stiffened panels, panels with large cutouts and integral stiffeners, splice

joints and lugs have been identified for damage tolerance evaluation. A first round of analysis has been completed for all these structural features. A test rig for the 2-bay crack arrest study on a flat stiffened panel of the fuselage has been developed. Other tests are being carried out on the Instron fatigue testing machines.

Our support to the LCA programme continued in terms of wing root fitting box tests and many feature level tests. A significant data generation programme for the civilian version of the Advanced Light Helicopter (ALH) has been initiated to provide 'A' and 'B' level allowables for the composite materials used.

Many components (especially those to be installed in nuclear power plants) underwent successful qualification tests in our shake table facility. This facility is proving to be a very cost-effective test setup for many customers.