ACTIVE-FLAPERON TEST DEMONSTRATES SIGNIFICANT REDUCTIONS IN TILTROTOR WING VIBRATORY LOADS

Effect of the Bell Multipoint Active Vibration Suppression System (MAVSS) on 3P Loads as a Function of Airspeed at 950 Rpm
UMARC FINITE ELEMENT ANALYSIS ACCURATELY REPRESENTS VDTR MULTIPLE LOAD PATHS

Torque tube and blade loads in helicopter style forward flight

VDTR model blade design

Torque tube
Nut
Straps
Outboard blade
Jackscrew
ACTIVE-SWASHPLATE/FLAPERON TEST DEMONSTRATES SIGNIFICANT REDUCTIONS IN TILTROTOR WING VIBRATORY LOADS

Simultaneous Effect of the Bell Multipoint Active Vibration Suppression System (MAVSS) on 3P Loads as a Function of Airspeed at 742 Rpm

- Wing Beam
- Wing Chord
- Wing Torsion

3P Wing Loads, in-lbs

MAVSS: Off, On

Airspeed, knots: 75, 100, 125, 150
BASIC RESEARCH ROTOR SUCCESSFULLY TESTED IN THE TDT

Components of the Basic Research Rotor

CAMRAD II Predictions vs Test Data
PRELIMINARY VERIFICATION OF ANALYSIS CAPABILITY FOR USE IN THE DESIGN OF LOW VIBRATION HELICOPTER ROTORS

Blade Bending Moments
\( r/R = 0.37 \)

- **Flap**
- **Torsion**

**Rotor Performance**

- **Chord**
HSR ACTIVE CONTROLS TESTBED SUCCESSFULLY TESTED ON CABLE-MOUNT SYSTEM IN TDT

Configurations
- Forward cg, stiff nacelle springs
- Mid cg, stiff nacelle springs
- Mid cg, soft nacelle springs
- Aft cg, stiff nacelle springs

Flutter Results

![Graph showing flutter results with Mach number on the x-axis and Dynamic Pressure, psf on the y-axis. The graph includes a TDT Air Boundary and an Atmospheric Pressure Line.](image-url)
HSR AEROELASTICITY PROGRAM
BASELINE SEMI-SPAN MODEL TESTING COMPLETED
IN THE TRANSONIC DYNAMICS TUNNEL

Rigid Semi-Span Model (RSM)   Flexible Semi-Span Model (FSM)

Lift Curve Slope vs. Mach Number

$C_{L\alpha}$ vs. $M$

RSM
FSM
EFFECTS OF ANGLE-OF-ATTACK ON THE STABILITY BOUNDARY FOR AN HSR RIGID SEMISPAN MODEL MEASURED IN THE TDT