

Helicopter Main Gearbox Load Test Rig

CAPABILITY SHEET - BACK-TO-BACK TORQUE LOOP - MAST LOADING - LUBRICATION AND RUN-DRY SYSTEMS

THE SYSTEM

WHAT	Load test rigs for helicopter main, intermediate and tail gearboxes - torque loop, mast loading, lubrication, run-dry, acquisition and record.
OUR ROLE	Rig architecture and bedplate, torque-loop mechanicals, loading frames, lube and run-dry systems, drives integration, DAQ, protection, containment.
STATUS	Engineered to order; quoted across gearbox and transmission-rig requirements, beside delivered vehicle rigs. No delivered helicopter gearbox rig is claimed.

THE GOVERNING IDEA

THE WHOLE HELICOPTER HANGS FROM IT	Over 100 inputs near 20,000 rpm geared to a rotor's few hundred, while all lift and hub moments pass through the case. Engines are duplicated; the gearbox is one.
CIRCULATE THE POWER, PAY ONLY THE LOSSES	Test a slave gearbox in a closed torque loop; megawatts circulate and the drive supplies the few percent lost.
ANALYSE THE LOOP FIRST	The torque loop is a torsional system of its own - detuned by analysis, or the rig resonates at the mesh orders it measures.

THE MACHINE

LOAD EVERY PATH AT ONCE	Lift, hub moments and side loads hung on a dummy mast while the loop runs - case distortion is what moves tooth contact.
THE CERTIFICATION CASE IS LOSING THE OIL	During the test, keep every channel recording, stay turning on the order of thirty minutes, contain the outcome.
LUBRICATION IS A TEST ARTICLE	Flow and jet pressure per bearing and mesh, temperature rise as a losses map, chip detection as the health signal, calorimetry for efficiency.

DISTINCT & HONEST

FAST ENOUGH FOR MESH	Gear health lives at kilohertz mesh frequencies and their sidebands - acquisition is specified to resolve it, not average it away.
RECORDS FOR DECADES	Mission-spectrum endurance and overhaul substantiation only work if every run enters a record an engineer can open twenty years later.
ENGAGEMENT	Send the power class, the gearbox envelope and the test programme to sales@neometrixgroup.com for a compliance matrix in two working days.

DEFENCE PROGRAMMES DESK

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