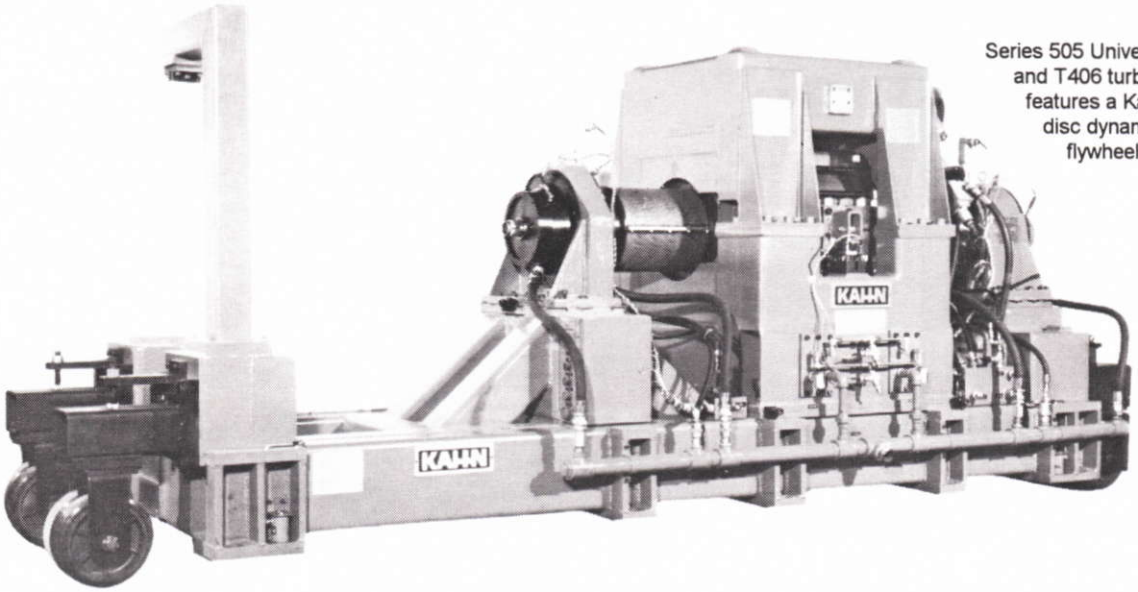
KAHN Dynamometers and Accessories

SERIES 505
AIRCRAFT ENGINE TEST STANDS



Series 505 Universal Engine Test Stand for T64 and T406 turboshaft engines. This test stand features a Kahn Model 406-040 smooth disc dynamometer with an inertia flywheel.

Backed by fifty years of experience in aerospace engine testing, the Kahn Series 505 Engine Test Stands offer a cost-effective, flexible means for achieving high test cell utilization and quick engine turnaround times. Designed specifically for use in engine overhaul facilities, they are available in both stationary and mobile configurations.

Series 505 Engine Test Stands are available for a wide variety of turboshaft and turboprop engines, including:

- Allison 250-C/T63, T56, T406
- Allison/Garrett T800
- Garrett TPE331
- General Electric T58, T64, T700, CT7
- Isotov TV2-117A
- Lycoming T53, T55, LTP101, LTS101
- MTU/Turbomeca/Rolls Royce MTR 390
- Pratt & Whitney PT6A, PT6T, PW100, PW200
- Rolls Royce Gnome, GEM
- Rolls Royce/Turbomeca RTM 322
- Turbomeca Arriel, Artouste, Astazou, Makila, Turmo, TM 319
- And Many Others

DESIGN APPROACH

Designed for use with Kahn hydraulic dynamometers, the Series 505 engine test stands are available in two basic configurations:

- Dedicated Engine Test Stands
- Universal Engine Test Stands

Either type is manufactured from rigid rectangular steel tubing. Computer-aided finite element design techniques are used to assure that the test stand natural frequencies are safely above or below the operating speed ranges of the test engines. To prevent warping and associated misalignment, test stand weldments are stress-relieved prior to machining. Machined pads provided on the underside allow for rigid mounting to a test cell subframe or directly to the test cell foundation.

Depending upon engine configuration, fixed and flexible engine mounts, and/or torque tubes are used to support the engine on the test stand and to allow for thermal expansion of the engine during operation. Engine mounting adapters are designed to permit quick, alignment-free installation and easy removal of the engine from the test stand.

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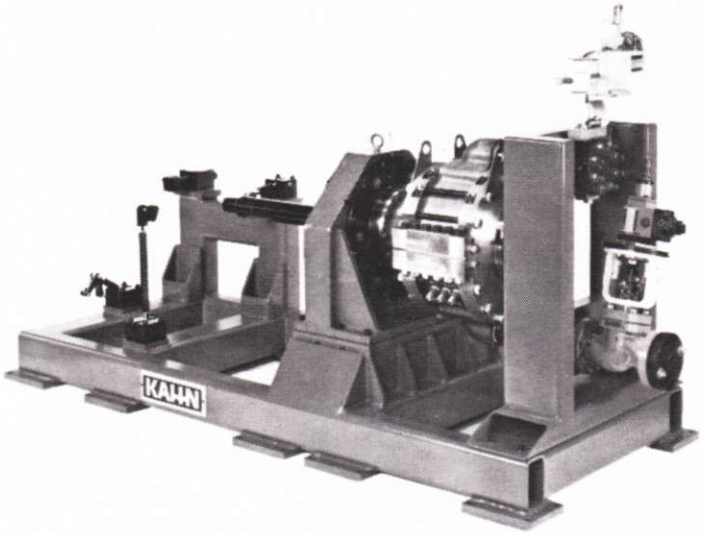


Series 505 Engine Test Stand for T700 turboshaft engines. This test stand features a Kahn Model 404-025 smooth-disc dynamometer with a flywheel.

DEDICATED ENGINE TEST STANDS

Dedicated engine test stands support specific turboshaft or turboprop engines during performance testing. Their lightweight, compact design permits easy transportation by forklift and/or overhead crane and quick, alignment-free installation in the test cell.

UNIVERSAL ENGINE TEST STANDS

Universal engine test stands can support several different turboshaft or turboprop engines. Equipped with a single Kahn dynamometer and a number of quick-change dedicated engine skids and/or engine adapters, this test stand configuration offers maximum utilization of a test cell. Quick, alignment-free positioning of the engine skids/adapters on the universal test stand is accomplished with a hydraulically operated docking mechanism. Heavy-duty toggle clamps are used to secure the engine skids/adapters in their test position.

Series 505 Universal Engine Test Stands are available for the following applications:

- Low-Speed Turboshafts:
  250-C/T63, T53, LTS101, PT6T, PW200, GEM, Arriel, Artouste, Astazou, TM319
- Medium-Speed Turboshafts:
  T64, T406
- High-Speed Turboshafts:
  T800, T58, T700, Gnome, RTM322, Makila, Turmo
- Light Turboprops:
  PT6A, TPE331, CT7
- Medium/Heavy Turboprops:
  T56, T64, PW100

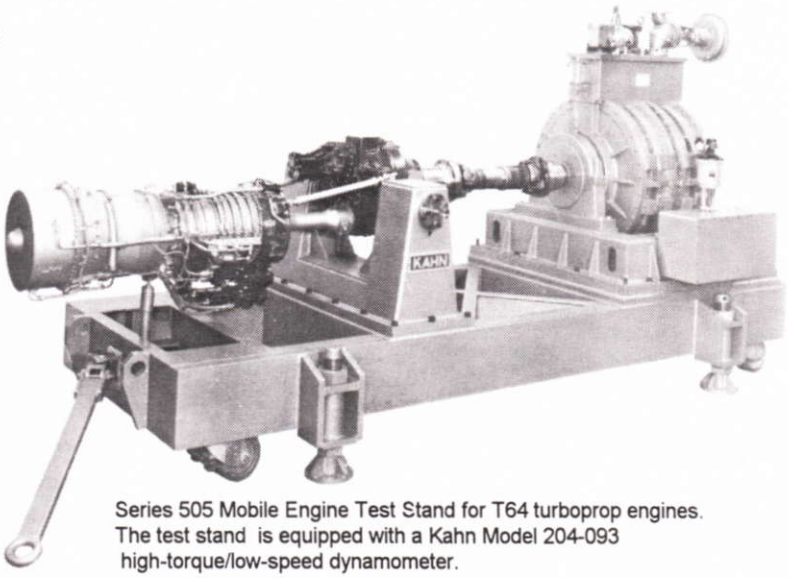
INERTIA FLYWHEELS

Flywheels are used to simulate the the rotating inertia of helicopter rotors and propellers during transient test procedures. Kahn offers standard flywheel designs for all engines with specified inertia requirements. High-speed flywheels, capable of operating at rotational speeds up to 30,000 rpm, are manufactured from one-piece high-strength alloy steel forgings. Equipped with aircraft type high-speed ball bearings, they are available with oil-mist or oil-jet lubrication. All flywheels are dynamically balanced in accordance with ANSI Standard S2.19-1975, Grade 2.5.

In most turboshaft applications, the Kahn dynamometer is mounted via adapters directly to the flywheel housing. Torque is transmitted by a splined quillshaft. This innovative mounting configuration, unique with Kahn flange-mounted dynamometers, saves time-consuming alignment procedures and significantly reduces the complexity of the engine test stand.

COUPLING SHAFTS

Depending upon engine configuration, flexible disc type coupling shafts or splined quillshafts are used to transmit the torque between the engine and the dynamometer. Coupling shafts are equipped with removable center spacers to allow for the initial alignment of dynamometer or flywheel and engine. Splined quillshafts are used primarily for applications in which the engine is supported by a torque tube or where the dynamometer is installed directly to the engine.



Series 505 Mobile Engine Test Stand for T64 turboprop engines. The test stand is equipped with a Kahn Model 204-093 high-torque/low-speed dynamometer.

NOTE: The information included herein was correct at the time of publication and supersedes all previous data. It is our policy to continually improve our products to insure even better performance. Consequently, current Kahn products may incorporate modifications not shown on these pages.

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