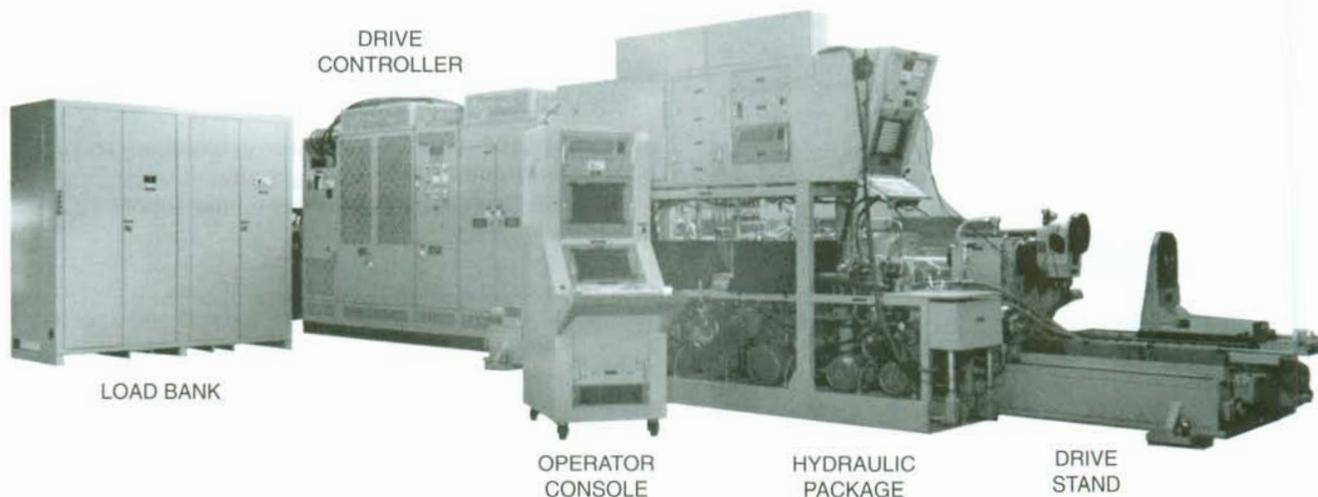


## TEST FACILITY FOR SYSTEM INTEGRATION/TESTING AIRCRAFT ELECTRICAL POWER GENERATION SYSTEM

MODEL 101579



### SYSTEM APPLICATION

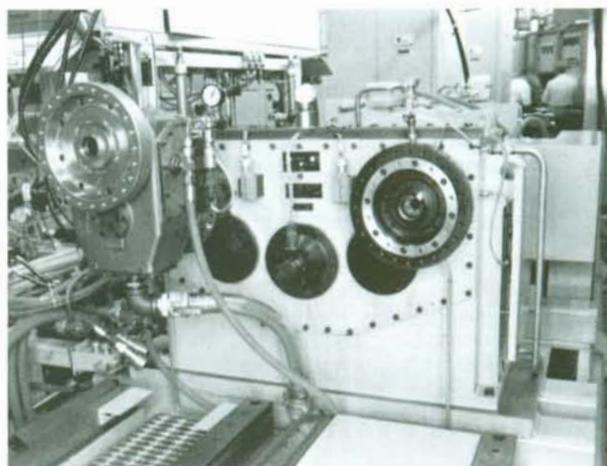
This test system is designed to operate in an aircraft electrical power systems laboratory. It simulates aircraft operating conditions to facilitate the testing and certification of aircraft electrical power systems.

The generator units are driven by a motorgear-box arrangement and electrical loads are applied through an external load bank system.

#### Equipment Provided Includes:

- Host computer and LAN
- (6) Drive stands - 1320 hp, 13,000/39,000 rpm
- (24) AC load banks, 0 - 150 kw, 0 - 150 kvar
- (4) Control consoles for remote operation

This system is configured to operate IDG, CSD and generators used on the following aircraft: 707, 727, 737, 747, 757, 767 and 777.



Dual pad main gearbox with accessory speed increaser mounted on left pad.

## FEATURES/PARAMETERS

- Reversible dual shaft drive motor rated 1320 hp with front and rear mounted dual pad main gearboxes for a speed range of 500 - 13,000 rpm
- Accessory speed increaser adaptable to the main gearboxes to provide speeds up to 39,000 rpm.
- Standard AS or AND mounting pads
- Two self-contained hydraulic systems with 26 gallon tanks, cooler, filters, temperature controls, gauges, thermocouples and valves for open or closed loop operation
- One dedicated closed loop hydraulic system for CSD or IDG operation only
- Fixed and variable speed scavenge pumps provided with each hydraulic system
- Digital measurement of oil flow, pressures, temperatures and rpm displayed on CRT. Flowmeters accurate to  $\pm 0.50\%$  O.R. and pressure transducers accurate to 0.50% of F.S.
- Equipped with appropriate protective shutdown systems and fault annunciators
- Oil lubrication system for motor and gearbox bearings with thermocouple and pressure switch protection
- Cooling air blower for air-cooled generators
- Scavenge air flowmeters for oil-cooled generators
- Computer-controlled, automatic test system with the following computer-managed subsystems:
  - a. Stationary host computer console
  - b. Stationary load bank computer console
  - c. Portable computer-controlled operator's console
- Dual load bank systems providing up to 150 kw resistive loading and 150 kvar reactive loading. System is designed to provide balanced/unbalanced variable loading within these ranges by remote computer selection. Units have overtemperature and cooling air loss protection
- Printout of test results and calibration data with graphics provided at host computer station via laser printer
- Computers - IBM PC-AT compatible with 80486DX CPU and 33 MHz clock
- 14 inch CRT displays with color graphics and liquid spill and dust proof keyboards throughout. Dual displays for operator and programmer supplied on operator's console
- Windows-based user friendly software, easy to make changes in test profiles without needing a programmer

## OPTIONS

1. Supply voltages and frequencies in user's facility
2. Lower hp ratings
3. Isolation transformers
4. Other options are available as required

## FIELD SUPPORT

Testek provides full field support on an as required basis. This support includes operator training and field service.

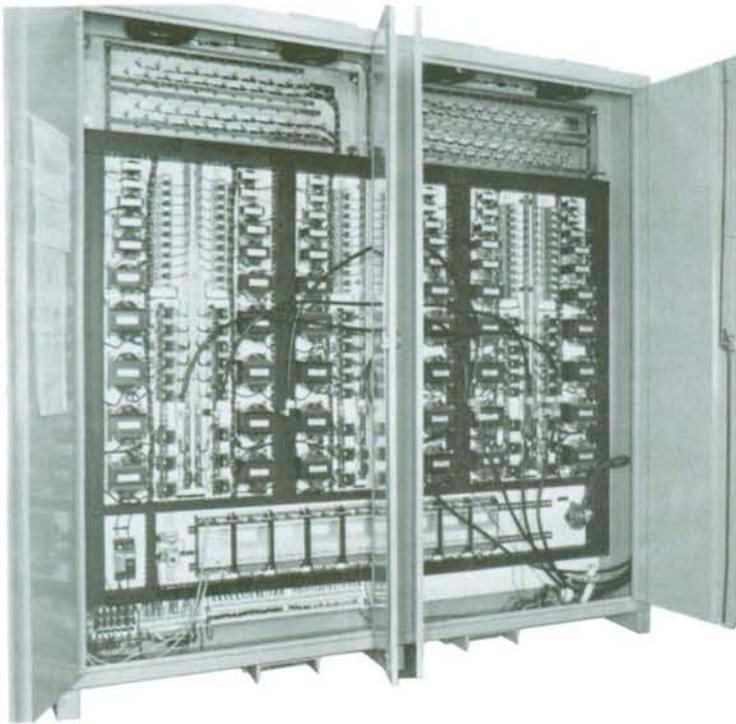
Testek has acquired all design and manufacturing rights for Test Stands manufactured by George L. Nankervis, Cox Instruments and American Avitron. Testek offers necessary support and spare parts for equipment produced by these companies.

## OTHER TEST SYSTEMS

Testek custom designs test stands for aircraft engine and airframe accessories to match our customer's requirements.

## AC LOADBANK ASSEMBLY

MODEL 101579-22



### APPLICATION

The Testek Model 101579-22 AC Loadbank Assembly is designed to assist in the testing and exercising of aircraft ac power generating units by providing the desired electrical load to the component (IDG, CSD or generator) on test.

## FEATURES/PARAMETERS

- This assembly is a floor standing unit 102" L x 46" W x 102" H incorporating heavy duty industrial construction with built-in fork lift channels for ease of transportation and installation
- 200 volt, three-phase, 400 hertz, load 0/150 kW, 0/150 kvar, expandable to 0/250 kW, 0/250 kVA
- Remotely controlled from an operator's console via an inter bus control cable to provide balanced or unbalanced variable loading within these ranges by computer selection
- Three 24-inch diameter fans are supplied for forced air cooling when the loadbank is turned on. The fans will run for an additional 10 minutes after the loads are turned off
- Safety interlocks are provided to shut off the load in case of overtemperature or loss of cooling air flow
- Status lights are provided to monitor power and blower motor on functions

## SERVICES REQUIRED

120 volt ac, single-phase, 50/60 Hz, 30 amp power source

## OPTIONS

1. Indoor or outdoor construction
2. Proven existing user friendly software easily adaptable to user's test profiles
3. kW and kvar ranges can be altered to meet individual requirements
4. Portable or stationary loadbank computer consoles designed to meet your requirements
5. Other options are available as required

## FIELD SUPPORT

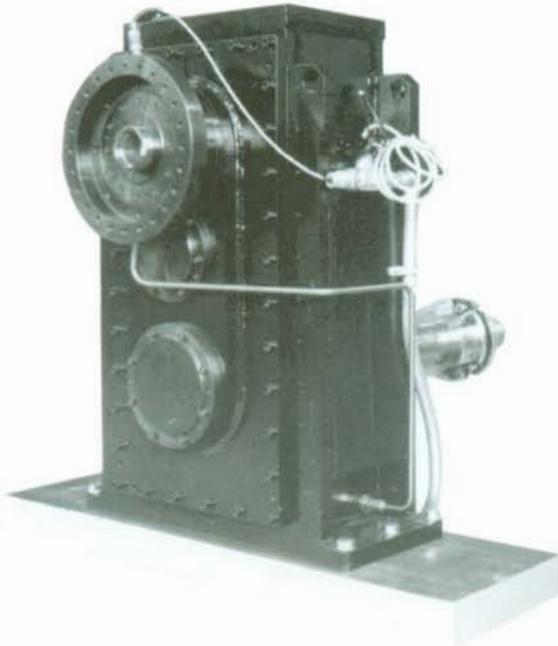
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## OTHER TEST SYSTEMS

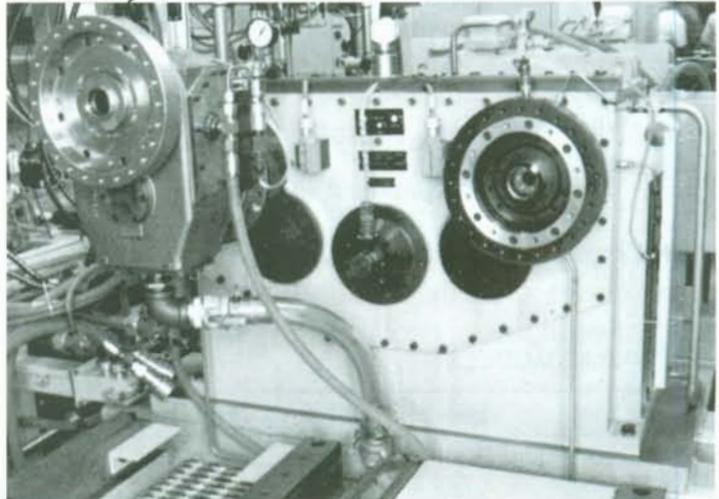
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## **SPEED INCREASERS FOR TEST STAND APPLICATIONS**



MODEL 101534

ACCESSORY  
SPEED INCREASER  
MODEL 101579-8



MODEL 101579-30

### **SYSTEM APPLICATIONS**

Testek standard precision high speed gearboxes are available to meet your test stand needs. Ratings of 300 horsepower are typical on standard foot mounted units, capacities to 1300 horsepower are available. Speeds to 40,000 rpm required for some aircraft component testing can be achieved with the addition of Testek's compact accessory speed increaser coupled to a standard foot mounted transmission. Coaxial pads are available for testing CSDs and generators. Special or standard gearboxes are made for other applications such as pump test stands, transmission test stands, etc.

## FEATURES/PARAMETERS

- Standard AS or AND mounting pads are available to meet your requirements
- Single or multiple output pads
- Rotation - bi-directional
- Precision ground gears per AGMA Q-12
- Accessory speed increasers are adaptable to the main gearboxes to provide speeds up to 40,000 rpm
- Construction Features:
  - Main gearbox-welded case
  - Accessory increaser - cast case
  - “O” ring cover gaskets
  - Viton seals
  - Lifting eyes or holes
  - Easily replaceable output splines
- Coaxial test pads available

## OPTIONS

1. Lubrication systems
2. Speed sensor (rpm pickup)
3. Bearing temperature sensing on output shafts

## TYPICAL MODELS

Model	HP	Ratio	Rotation	Mounting	Output Pads	Max RPM
101579-30	1300	3.6911	Same as Input	Foot Mtd.	Dual	13,500
101534	500	5.741	Same as Input	Foot Mtd.	Single*	16,000
101579-8	190	2.9583	Same as Input	Pad Mtd.	Single	40,000
* Coaxial Pad Available for CSD Testing						

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## **CALIBRATOR - AIR FLOW AND FUEL FLOW**

MODEL 101439



### **FUNCTION**

This portable computer-based calibrator can be connected to existing test equipment to provide in-line air or fuel flowmeter calibration verification. No fuel pumping system is provided, it uses the fuel source, pressure and temperature controls on the equipment being checked. A network of sonic nozzles is used for airflow measurement. Turbine flowmeters are used for fuel flow measurement.

## FEATURES/PARAMETERS

- Fuel flow range 0.1 to 110,000 pph of MIL-C-7024C, Type II
- Fuel flow accuracies 0.1-150 pph,  $\pm 0.5\%$  of reading, 50-110,000 pph,  $\pm 0.25\%$  of reading
- Air flow ranges:  
5 to 259 pph at 25 psia nozzle pressure and sonic conditions  
  
18 to 933 pph at 90 psia nozzle pressure and sonic conditions
- Computer system IBM PC-AT compatible with 80386 CPU, 25 MHz clock, and math coprocessor for data acquisition and control
- Operator display 14 inch CRT with color graphics and membrane-type keyboard
- Easily portable assembly
- User friendly on-screen operating instructions
- Air flow accuracies  $\pm 1\%$  of reading
- Air purging for explosion-proof operation per Class I Group D
- Under/over voltage protection
- Automatic or manual selection of flow rates

## SERVICES REQUIRED

1. 110 volt, 50/60 Hz, 10 amp power source
2. 50 scfm clean air at 80-110 psig and 35 °F dew point

## FIELD SUPPORT

Testek provides full field support on an as required basis. This support includes operator training and field service.

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## OTHER TEST SYSTEMS

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## **LUBE AND SCAVENGE PUMP TEST STAND**

**MODEL 101543**



### **APPLICATION**

The Model 101543 Test Stand is designed to test the lube and scavenge pumps used on 737, 747, 757, 767 and MD11 aircraft engines. Components for other engines/aircraft can be added.

## FEATURES/PARAMETERS

- Designed for use in a non-hazardous environment
- Variable speed drive 25 hp, 100-8500 rpm reversible, with  $\pm 1$  rpm speed regulation
- Industrial IBM PC-AT compatible computer system with 80387 CPU, 25 MHz clock and math coprocessor for data acquisition and control
- Operator display 16 inch color CRT and membrane-type keyboard
- Printout of test results and calibration data with graphics
- Hydraulic system - 100 gallon reservoir with operating level 36 inches above drive centerline, 24 kw heater, pump, cooler, thermocouples and valves for 50 gpm at 200 psig oil supply
- Six turbine flowmeter systems with accuracies of  $\pm 0.50\%$  of reading
- Eleven pressure transducers for psia, psig, and psid applications with accuracies of  $\pm 0.50\%$  of full scale
- Automatic sink salvage system returns filtered oil to main reservoir
- Return ports with throttle valves and open return features
- Static high-pressure oil supply for 1000 psig service
- 3 foot static head fixture
- Overhead hoist mounted over sink section
- Panel-mounted annunciator for system fault indication
- Retractable sound enclosure over sink section
- Separate remotely mounted electrical enclosure for ac drive control

## SERVICES REQUIRED

1. 460 volt, 60 Hz, three-phase, 50 kva power source
2. 10 scfm of instrument quality air at 100 psig
3. 20 gpm clean water at 60 °0F (15.6 °C) maximum and 40 psig minimum
4. Suitable water return system
5. Exhaust air duct 4 inch diameter for 350 scfm to outside

## FIELD SUPPORT

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## **AUTOMATIC EEC SIMULATOR CART**

**MODEL 101642**



### **APPLICATION**

The Model 101642 EEC Simulator Cart is designed to provide the electronic signals necessary to operate the resolver, LVDT, RVT and torque motor current functions required for testing the following PW 4460 engine components: FMU, stator vane actuator, inter-compressor bleed actuators, air/oil heat exchanger valves and TCC air valve actuator. In addition fuel components for CFM56, JT9D, CF6-80C2 and APU engines can also be tested.

## FEATURES/PARAMETERS

- The EEC Simulator Cart is designed to be used with other test stands that provide the hydraulic and pneumatic systems required for effective part testing
- Easily portable assembly
- Air purging for explosion-proof operation per Class I, Group D
- Computer system IBM PC-AT compatible 80486DX CPU, 33 MHz clock, printer port and user-friendly Microsoft Windows-based software
- Operator display 15 inch CRT with touch screen (soft keyboard) and light pen input features and sealed-type keyboard for calibration data input
- Automatic close-loop control
- Control parameters include:
  - a. Torque motor current ( $\pm 250$  ma) open/close-loop
  - b. Solenoid volts #1 (0-30 vdc)
  - c. Solenoid volts #2 (0-30 vdc)
  - d. Resolver angle
  - e. LVDT/RVDT volts
  - f. Slew time measurement
  - g. Solenoid on/off

- Built-in diagnostics for self-check

## SERVICES REQUIRED

1. 100/120 volt ac, single-phase, 50/60 Hz 10 amp power source
2. 10 scfm of instrument quality air at 80-100 psig
3. External grounding to lug provided

## FIELD SUPPORT

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## OTHER TEST SYSTEMS

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