

# Transmission Dynamometers



*Transmission Dynamometers and Testing Equipment  
ELECT Heavy-Duty Transmission Dynamometers*

**“The LAST THING I want is a transmission that undergoes its first real test after it’s installed.”**

- SuperFlow was **FIRST** to use electric drives on transmission dynos.
- **FIRST** to introduce a solenoid tester.
- **FIRST** to install eddy current load units on transmission dynos.
- **FIRST** with data acquisition and control.

### SuperFlow is a pioneer in transmission testing.

SuperFlow Technologies Group offers the widest range of transmission testers in the world. We’re constantly looking for ways to increase customer capabilities and pioneer new technologies. Today, with more than 20 U.S. and foreign patents registered, SuperFlow is the leading edge in the art and science of testing and rebuilding.

The reason? Focus ... from the engine to the transmission, from the driveshaft to the axles, and throughout the entire drive train rebuilding and testing process. We never lose sight of our commitment to improve the bottom line for our

customers and offering the latest, most efficient products across a wide range of sizes and configurations, then backing it up with superb service.

### SuperFlow transmission testers are used worldwide.

Hicklin and Axiline equipment is installed at over 1000 customer sites in 52 countries around the world, including the “big three” U.S. automakers. These state-of-the-art test stands provide simulated load with cutting-edge computer control and data acquisition and analysis ... plus the ability to upgrade any time your needs change.

## SuperFlow’s Transmission Data Acquisition and Control System Performs Repeatable, Automated Tests.

### Automated testing improves throughput and helps eliminate human error.

Improve your productivity with faster test sequences. Instill customer confidence and loyalty; then back it up with warranties you can confidently stand behind. Record and compile all test results and identify any failure patterns or trends before they escalate into bigger problems. Modify test parameters. With TDAC, you can do it.

- Provides on-screen graphing of up-shifts and downshifts and analysis of electrical accessories, including solenoid amperage, pressure switches, PRNDL switch and temperature sensor.
- Available on all Axiline and Hicklin electric dynamometers and valve body testers.
- Housed in a sturdy console and comes with Windows-based PC, printer and monitor.

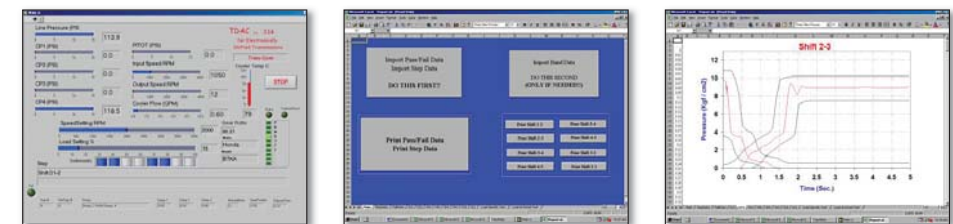
#### MONITORING POINTS:

- Real Time Display
- Various Line Pressures
- Input Speed
- Output Speed
- Gear Ratios
- Cooler Flow
- Temperature
- Stall Pressures
- Converter Lockup
- Solenoid Function

TDAC is an exclusive, proprietary testing software system that controls input speed, output load, features a proprietary anti-stacking mode for testing hydraulic transmissions and commands and controls up to eight pulse-width modulated (PWM) solenoids. The duty cycle can be set at 1 percent increments; frequency can be specified from 4 to 2,000 Hz. Shift timing reports are also available.

### SuperFlow’s TDAC ...

- Gives you complete test cycling with hands-off option.
- Provides a “virtual birth certificate” printed with test results.
- Commands and controls an entire suite of tests tailored to each transmission type and user specification.
- Features a proprietary anti-stacking mode.
- Commands and controls up to sixteen pulse width modulated (PWM) solenoids.
- Automates programming for electrically shifted transmissions.
- Semi-automates programming for manually shifted transmissions.
- Ensures precision computerized control of input speed and output loading.
- Continuously monitors all critical parameters.
- Delivers data acquisition of critical parameters with tabular and graph reports of test procedures and results.



**TDAC**  
Transmission Data Acquisition and Control

# HICKLIN EDECT

Transmission Dynamometers

## For Heavy-Duty Applications

Medium and Heavy-Duty Trucks, Mass-Transit, Off-Road, Construction, Military, Production Line & Cross Drive Applications



(Shown with optional equipment)



### OPTIONS:

- Axiline Electronic Shifter (AES)
- Data Acquisition and Control (TDAC)
- Prime Mover Input Torque Measurement
- Output Torque Load Measurement
- Auto Brake / Auto Stall Test
- Auto Shift
- Parking Pawl Tester
- Power Indexing
- Air Assist Load Unit Vertical Adjustment

The Hicklin EDECT transmission tester is designed for heavy-duty transmissions, including all in-line, v-drive and angle drive configurations — i.e., Voith, ZF, Renk, the entire family of Allison transmissions — plus many military and off-road applications. The Hicklin EDECT accommodates all sizes of off-highway transmissions, powershift and manual shift, including drop-box and remote mounted con-

figurations and comes with a standard 150 hp (112 kW) direct drive motor with a variable frequency drive controller. The motor delivers full torque capacity from 0 to 4000 RPM bi-directionally and can be outfitted with higher hp motors as needed.

It's controlled by several transmission-family-specific consoles or by TDAC software incorporated into the SuperFlow console. With just a single console, you can test the shift, set the shift points for that particular transmission, check and monitor pressures, temperatures, cooler flows, output torques and leaks on both older and newer drive systems ... and know how it's going to perform BEFORE it goes into the vehicle.

Power absorption is managed by an air-cooled eddy current load unit, which can absorb up

to 1500 lbs-ft (2034 N-m) ... three times more than standard hydrostatic load units. With the eddy current load unit, the entire operation is virtually maintenance free. (No hydrostatic oil ... no filters ... no leaks.) And it's extremely reliable with just one moving part ... the flywheel assembly. The EC Load Unit absorbs up to 800 hp (596 kW) on an intermittent basis, up to 200 hp (149 kW) on a continuous basis ... allowing you to perform true full throttle, load-induced downshifts. (In fact, the load unit can push test transmissions into first gear and hold them there, even with the drive system set at full throttle. This creates a test integrity never before possible in service level test equipment.) A simple control knob allows you to infinitely select everything from no-load to full-load with unmatched precision and stability to perform pinpoint shift detection.

### And, it's extremely quiet.

Listen to the transmission (under test) at a level never thought possible. The economical, air-cooled unit requires just a single-phase, 110 v, 30 amp circuit for operation. Connection from control enclosure to load unit consists of a single, two-conductor-plus-ground (#10 wire size) cable. A volt meter is used to indicate relative load. Air-cooling eliminates the need for heat exchangers and water sourcing.

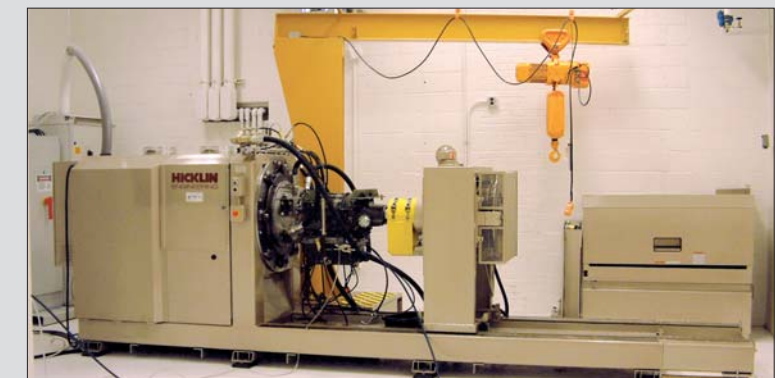
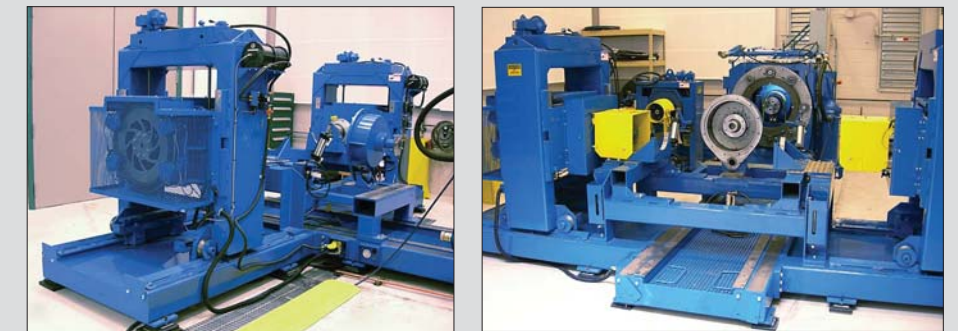
A clean, compact design ensures greater operator maneuverability around the test stand. Overall height and weight is greatly reduced to improve access and ease of engagement to the transmission output. A power indexing option allows the transmission to be rotated for easy access to all sides; an air assist lift motor is optional. Larger drives, up to 1500 hp (1118 kW) and above, are also available along with their compatible load units.

\* Includes Allison 1000/2000 and front wheel drive transverse transmissions, Honda and Mitsubishi, and longitudinal 42LE Transmission such as Chrysler 606.

## SuperFlow Provides Custom Solutions for Heavy-Duty Transmission Applications.

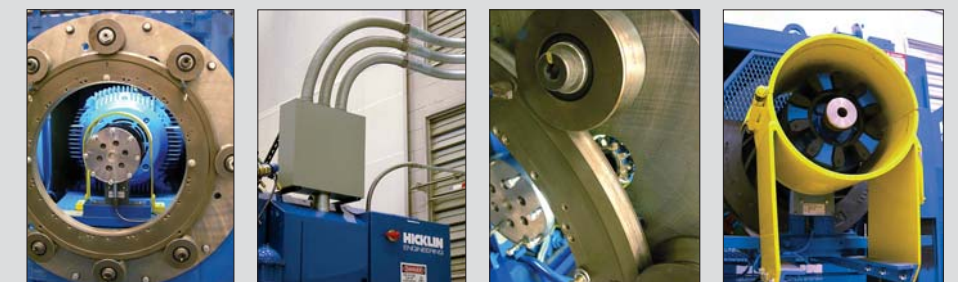
### Hicklin EDECT Dynamometers

Available in many custom-testing configurations for off-road, military, and even one-of-a-kind heavy-duty commercial applications. And with it, we offer the expertise and experience to custom-design, build and provide complete shop layout expertise for a wide range of projects.



### HTDE Transmission Dynamometers

This inline/cross drive dyno, for military applications, tests a wide range of transmissions from GM400s to Allison X1100s. A remote power unit, using a 575 hp (429 kW) Detroit Diesel engine over hydrostatic drive, powers the transmissions. Hydrostatic load units (in inline and cross drive positions) are used to absorb the power.



# AXILINE

## Transmission Dynamometers

### For Automotive and Light-Duty Truck Applications



97000 ECRH with TDAC Option

Dayton Hoist and jib chain option – holds up to 500 lbs (227 kg).

18 plates are available, from domestic models to foreign, including front and rear-wheel drive.

Quick-disconnect hose couplings are used for cooler lines and pressure ports.

Shown with optional equipment.

Oil cooler hooks up to the cooler lines of a dynamometer to maintain the proper oil temperature during long test runs or endurance tests.

Hoses for filling and draining automatic transmission fluid connect to a self-contained tank.

## 97000 ECRH

The most advanced dynamometer available today for testing automatic car and light-truck transmissions.

Front-wheel-drive. Rear-wheel-drive. Transverse. Manuals. CVT. The 97000 ECRH adapts to most domestic and foreign rear-wheel transmissions, including the Allison 1000/2000 and front-wheel-drive transverse transmissions, Honda, Mitsubishi, and longitudinal 42LE front-wheel drive transmissions such as the Chrysler 606. Conversion from front-wheel drive to rear-wheel drive transmissions is easy.

**Quiet. Efficient. Reliable. Repeatable. Easy to use.**

The 97000 ECRH tests transmission line pressure, shift point and response, downshift, converter lock-up and stall speed — all under simulated load conditions and enables operators to spot oil and pressure leaks, check hydraulic and system controls and make minor adjustments while the transmission is mounted on the

tester. The low-maintenance unit includes a 40 hp (30 kW), 120 lbs-ft (163 N-m) electric input drive motor, eddy current load unit, cross slide and rotating head stock. It is electronically controlled, adjustable through all speed ranges, and it absorbs up to 800 lbs-ft (1085 N-m).

**User-friendly. Environmentally friendly. A vibration-free operation. And versatile.**

Precision dowel pins ensure fast alignment of transmissions. Conversion between front-wheel drive and rear-wheel drive transmissions is easy. Alignment and mounting of transmissions is quick, thanks to the jib crane and hoist. Choose any of seven adapter packages to suit your needs; custom adapter packages are also available upon request.

- **SuperFlow Axline Third Load Unit** permits AWD Transmission testing on Axiline electronic transmission dynos.



- **SuperFlow's Axiline Manual Control (AMAC)** This user-friendly console package gives you all the readings, gauges, controls, switches, pumps and CONTROL you need in a standard-equipped manual control console for your Axiline Transmission Dynamometer. PLUS, it allows you to quickly and easily upgrade, later on, to the exclusive Axiline TDAC data acquisition and control system. With the newer, more compact AMAC design, you have complete functionality and a lot less complexity to deal with.

- **Parking Pawl External Unit**

The parking pawl turns output to 90° testing on the locking of the park gear. It is run with a hydraulic pump up to 450 lbs-ft (610 N-m). Parking Pawl uses second brake attached to load unit.



#### OPTIONS:

- Axiline Electronic Shifter (AES)
- Data Acquisition and Control (TDAC)
- Input Torque
- Output Torque Load Measurement
- Auto Brake / Auto Stall Test
- Auto Shift
- Parking Pawl
- Third Load Cell Option for Testing AWDs

Test all-wheel-drive transmissions with any electric Axiline transmission dynamometer. This floor-mounted unit, equipped with an eddy current absorber, provides operator interface with load percentage adjustment potentiometer, digital tach, RPM display, load power on/off switch and emergency stop. With a separate potentiometer, it can also set the same load percentage or be modified to check the differential. An adjustable side-to-side and up/down table shuttle moves 10" (25 cm) side-to-side from center and 3½" (9 cm) up/down from center. (Customer will need to supply a center-line measurement from floor height.)

#### With 97000 ECRH and TDAC, you can test

- All Gears – Planetary, Sun, etc.
- Noise – Mechanical Hydrosonic
- Hot & cold testing
- All available pressure ports
- Shift points
- Front pump capacity – flow pressure
- Leaks – internal, external
- Stall speed – forward, reverse
- Throttle valve pressure
- Automatic & manual upshift, downshift
- Vacuum pressure modulator
- Solenoid functions
- Converter – lockup types, non-lockup types
- Output & internal loading
- RPM test – left and right outputs
- Converter and cooling line temperature
- Flow metering of cooler line temp
- Hydraulic function of the governor, clutch valve body and overdrive
- Kick down
- And more!!

97000 ECRH With Manual Controls



# AXILINE

## Transmission Dynamometers

### For Automotive and Light-Duty Truck Applications



#### 97000 EC

Great value.  
Easily upgradable.

State-of-the-art design at an affordable price. The tester adapts to most domestic and foreign rear-wheel transmissions, including the Allison 1000/2000 and front-wheel drive transverse transmissions, including Honda and Mitsubishi. Conversion between front-wheel and rear-wheel drive transmissions is easy. It tests transmission line pressure, shift point and response, downshift, converter lock-up and stall speed – all under simulated vehicle load conditions. The operator can spot oil leaks and pressure leaks, check hydraulic and system controls and make minor adjustments while the transmission is mounted on the tester. The unit includes a 40 hp (30 kW), 120 lbs-ft (163 N-m) electric input drive motor, eddy current loading and cross slide. Alignment and mounting of transmissions is quick, thanks to the jib crane and hoist. Choice of seven adapter packages allows shops to select the adapters appropriate for their needs. Custom adapter packages are available upon request.

**OPTIONS:**

- Axiline Electronic Shifter (AES)
- Data Acquisition and Control (TDAC)
- Input Torque
- Output Torque Load Measurement
- Auto Brake / Auto Stall Test
- Auto Shift
- Parking Pawl
- Speed/Pressure/PRNDL
- Manual Transmission Clutch Mechanism



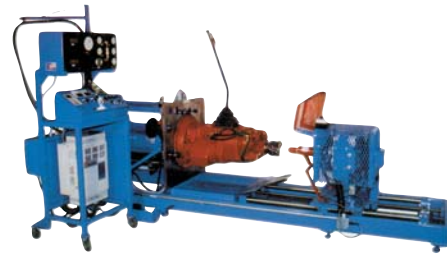
#### 87000 GE

Pivot gas-engine driven model.

Powered by a 3800 cc V6 GM gas engine, the 87000 GE has the capacity to adapt to most domestic and foreign rear-wheel transmissions, including the Allison 1000/2000 and front-wheel drive transverse transmissions, excluding Honda and Mitsubishi. Conversion between front-wheel drive and rear-wheel drive transmissions is easy. It tests transmission line pressure, shift point and response, downshift and converter lock-up and stall speed – all under simulated vehicle load conditions. The operator can spot oil leaks and pressure leaks, check hydraulic and system controls and make minor adjustments while the transmission is mounted on the tester. The unit includes eddy current loading. Alignment and mounting of transmissions is quick, thanks to the jib crane and hoist. Choose any of five adapter packages to suit your needs; custom adapter packages are also available upon request.

**OPTIONS:**

- Axiline Electronic Shifter (AES)



#### 84000 E

For manual transmissions.

The perfect manual-shift test system for light- and heavy-duty truck transmissions; used with Fuller, Rockwell, Spicer, ZF and other small transmissions. The 84000 E uses a 30 hp (22 kW), 90 lbs-ft (122 N-m) input drive motor and tests from 0 to 2700 RPM. The eddy current load unit features variable control to simulate road conditions. One push of the button, and the transmission gets a fresh-filtered fill of lube fluid from the tester's reservoir. The unit comes with three adapter rings that quick-connect to virtually all manual truck transmissions. Standard motor interruption for shifting operation.

**OPTIONS:**

- Shift on-the-fly

BRAND	Hicklin	Axiline	Axiline	Axiline	Axiline
MODEL	EDECT 2000	87000 GE	97000 ECRH	97000 EC	84000 E
PRIME MOVER - GAS ENGINE V6 3800 cc		x			
PRIME MOVER - ELECTRIC MOTOR					
30 hp (22 kW), 40 hp (30 kW)			x	x	x
1500 hp (1118 kW)	x				
EDDY CURRENT LOAD UNITS	x	x	x	x	x
TRANSMISSION TYPE					
Passenger Car - Front-Wheel Drive		x	x	x	
Honda & Mitsubishi			x	x	
606 - 42 LE			x		
Passenger Car - Rear Wheel Drive		x	x	x	
Light-Truck	x	x	x	x	x
Heavy-Truck – Manual	x				x
Heavy-Truck – Auto	x				
Military and Off-Road Equipment	x				
Industrial Equipment	x				
COMPUTER OPTION AVAILABLE	x	x	x	x	
ON-SITE TRAINING	x	x	x	x	x
DIMENSIONS	162"L x 40"W x 74"H (411cm x 102cm x 188cm)	138"L x 43"W x 95"H (351cm x 109cm x 241cm)	160"L x 63"W x 95"H (406cm x 160cm x 241cm)	160"L x 63"W x 95"H (406cm x 160cm x 241cm)	138"L x 43"W x 41"H (351cm x 109cm x 104cm)
WEIGHT	7,200 lbs (3,265 kg)	3,600 lbs (1,633 kg)	3,900 lbs (1,769 kg)	3,900 lbs (1,769 kg)	3,500 lbs (1,588 kg)
ELECTRICAL	460 volt 3-Phase 60 Hz (3 wire) 140 amp draw at full load	110/120 volt 60 Hz single phase or 220 volt 50 Hz single phase	240 volt 3-Phase 60 Hz and 110/120 v single phase or 480 volt. 50/60 Hz and 110/120 v single phase (200 v and 380 v available)	240 volt 3-Phase 60 Hz and 110/120 v single phase or 480 volt. 50/60 Hz and 110/120 v single phase (200 v and 380 v available)	240 volt 3-Phase 60 Hz and 110/120 v single phase or 480 volt. 50/60 Hz and 110/120 v single phase (200 v and 380 v available)

\* International voltages

SPECIFICATIONS

Transmission Dynamometers and Testing Equipment  
EDECT Heavy-Duty Transmission Dynamometers

# AXILINE

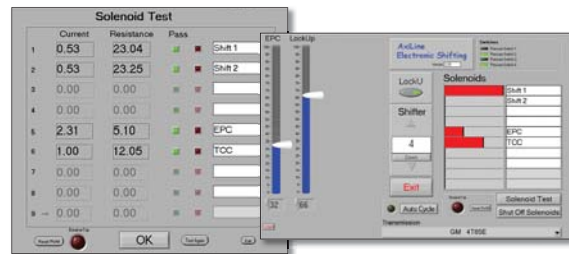
Testing Equipment & Accessories

## Axiline Electronic Shifter (AES)

Why waste valuable time and labor when more than 50% of your vehicles with "shifting problems" have absolutely nothing to do with the transmission? Here's the fastest, easiest and most accurate way to shift and test solenoid current and resistance on electronic transmissions ... domestic and import ... including those with the latest linear and multiple pulse width modulated (PWM) solenoids. Even CVT models.



AES isolates the transmission from the ECU system, simulates and controls transmission, valve body and solenoids — with sequential and/or adaptive process — and eliminates the hassles, inconsistencies and questions raised by cheaper, less reliable hand-held systems using older technology. And, it's easy to operate as a stand alone diagnostic tool ... or, tie into your existing Axiline dyno, valve body or solenoid testing equipment. Pre-programmed software. Easy, instant on-screen read ... up to 16 solenoids at a time ... in any mix of DC or PWM ... cycled in 1% increments ... frequencies from 4 to 2000 HZ (in 1 HZ increments). Test and cable packages available for more than 80 different transmissions.



	Roll-around cart contains latest specification industrial computer, LCD monitor, mouse
	13.8 VDC power supply
DIMENSIONS	30" L x 44" H x 30" W (76 cm x 112 cm x 76 cm)
WEIGHT	180 lbs (81.6 kg)
	D3D External loom – 118" (3 m)
	A large selection of transmission-specific looms are available.

## Valve Body Tester (VBT)



**Precise control.**  
**Easy to operate.**  
**Quick set-up.**

Simulate the toughest driving conditions while testing electronic, hydraulic and vacuum systems. Test valve bodies, solenoids and pressure transducers using actual transmission pressures and heated oil. Easy ID magnetic labels are furnished for the 11 clutch pressure gauges. An integrated unit body tester pressurizes and checks oil flow through the clutch packs on the assembled transmission (less valve body) when appropriate adapters are incorporated. Meets or exceeds highest quality standards. Computerized TDAC System upgrade optional.

	Large stainless steel tank
	1000 psi (6900 kPa) system pressure
DIMENSIONS	46.5" L x 54" H x 32.5" W (118 cm x 137 cm x 83 cm)
WEIGHT	400 lbs (181 kg) dry
POWER REQUIREMENTS	220 volt, 3-phase, 11 amps (standard; options available)
AIR REQUIREMENTS	.5 cfm at 80-90 psi (552-621 kPa)
OIL PRESSURE	2 hp (1.49 kW) driving 3 GPM (11.4 LPM) pump

## Solenoid Tester



A must for testing the "weakest link" in the transmission. Easy-to-use. Tests up to six solenoids at a time ... and each separate from the valve body. Choose manual or automatic test modes, transmission or solenoid-specific manifolds. Solenoids can be cycled repeatedly to test their ability to hold pressure. Measures flow and leakage; reads CVI and pressure switches. Infinitely variable duty cycle control allows precise control of the test. Connects to Axiline Electronic Shifter (AES).

	Three user-selectable speeds: 4.5 seconds, 2 seconds and .5 seconds
	Heated oil
DIMENSIONS	27"L x 55"H x 40"W (69 cm x 140 cm x 102 cm)
WEIGHT	301 lbs (137 kg) empty
	Five frequencies: 800 Hz, 500 Hz, 300 Hz, 100 Hz, and 50 Hz

## Unit Tester (UT-1)



Compact, portable, affordable and vital for all transmission shops. Saves valuable time by reducing unnecessary installation and removal, by testing the hydraulic integrity of individual transmission components. With a simple connection, it diagnoses clutch and band operation. Test plate attaches to the transmission; then, using a flow meter, operators can conduct pass/fail tests that determine amount of leakage at piston or servo seals.

## Vacuum Tester

Performs wet air test (WAT) to verify valve body cross leaks. Operates from shop air supply. 0–30 inches (0–76 cm) of mercury.



## Inhibitor Switch Tester

For bench test or in-vehicle applications. Tests both digital-and resistive-style switches ... individually and independent of the transmission. Helps identify potential shift-related problems. Confirms correct logic and resistive readings. Universal power transformer works on 110 v, 220 v, 240 v 50/60 Hz.



## Parking Pawl Tester

Tests the park pawl function on virtually any transmission.



## Throttle Position Sensor Tester

Simple, reliable on- or off-vehicle testing of a throttle position sensor (TPS). Simply remove existing connector and plug in the test loom. Data sheets for most common TPS units show photo of the TPS, indicate which test looms to use and provide appropriate voltage readings for each. Tests track and wiper resistance, wiper voltage, reference voltage and throttle switch function. Use vehicle power via battery clips or connect to a separate 12-volt power supply.



## Overhaul Bench

Indestructible 44" x 77" (112 cm x 196 cm) steel-reinforced workbench with transmission rotator. Capable of offsetting overhang weight of a 1200 lb (544 kg) transmission. Highly functional, double gear-sprocket-,reduction design for 90:1 turn ratio and enough torque load reserve to prevent chatter, even under most unbalanced mounting conditions ... even handles Allison V-drives while retaining a 360° rotational capability.

# KNOWLEDGE

Knowledge gives you the power, control, strength and extra advantage you need to increase speed, save time, improve reliability, increase productivity, enhance value, make smart decisions, create new business opportunities, increase wealth and send the right message.

Knowledge makes you a winner!

At SuperFlow, our job is to give you the information you need to achieve the results you desire. This information will empower you to create winning solutions ... from race car engines and transmission systems to the driveline and axle assembly of a Class 8 semi.

***When you really need to know ...  
SuperFlow.***



AXILINE • HICKLIN • SUPERFLOW • TCRS

For information on **Transmission Dynamometers, Transmission Testers, Torque Converter Rebuilding Systems, Driveshaft Rebuilding Equipment and Brake Dynamometers**, contact:

4060 Dixon Street, Des Moines IA 50313;

ph: (515) 254-1654 or (888) 442-5546 • fax: (515) 254-1656 • e-mail: [products@superflow.com](mailto:products@superflow.com)

For information on **Flowbenches, Engine Dynamometers, Chassis Dynamometers, Towing Dynamometers, Dynamometer Software and Data Acquisition and Control Systems**, contact:

3512 North Tejon, Colorado Springs CO 80907

ph: (719) 471-1746 or (800) 471-7701 • fax: (719) 471-1490 • e-mail: [info@superflow.com](mailto:info@superflow.com)

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