



Timing Lights



Auto Analyzers



Compression Testers



Sensor Gauges



Panel-Mount Tachs



Diesel Tachs



Dwell Tachs



A/C Hour Meters



Deluxe Gauges



Fuel Pumps



Hand Tachs



Special Gauges



Stage III Tachs



Drive Joints



Racing Tachs



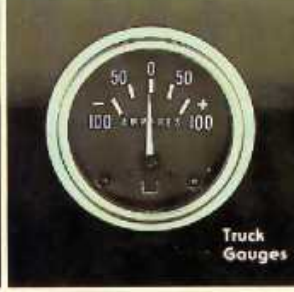
Marine Speedometers



Fuel Pumps



Mounting Accessories



Truck Gauges

CATALOG 2007-3

Stewart-Warner instruments



DC Hour Meters



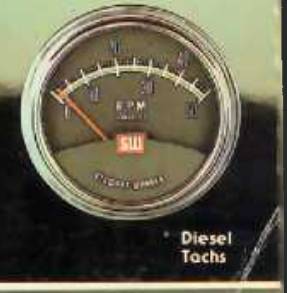
Stage III Gauges



Tank Senders



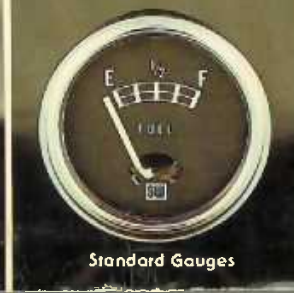
Mechanical Gauges



Diesel Tachs



Assembled Panels



Standard Gauges



Special Speedometers



Mini Hour Meters



Motor Minders

Eight Styles Available...



Deluxe Gauges



Heavy Duty Gauges



Stage III Gauges



Sensor (European)

How to Order Gauges:

- 1** Select style desired from the gauge style guide on this page and on pages 6 and 7.
- 2** Pick an available gauge in the style and Range desired from the application guide on pages 8 and 9.
- 3** Turn to the product page indicated to find the part numbers of other items you may need (senders, light kits, etc.) and any special information.



Sensor (International)



Stage II Gauges



Stage I Gauges



Standard Gauges

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82022

INDUCTIVE AUTO ENGINE ANALYZER Model 82022

Perform all electrical and tune-up tests with one instrument. For use on all 4-6-8 cylinder engines with 12-volt systems. The overload protected, Zener regulated, solid state circuitry is housed in a high impact plastic case. Unit includes long leads, heavy duty clips, universal battery post adapter, test leads, accessories and instruction manual. Scales include:

- | | |
|------------------------------|---------------------|
| High Tachometer (0 - 6000) | Dwell (0 - 90) |
| Low Tachometer (0 - 1200) | Ohms (0 - 100K) |
| Ignition (Go-No go) | Amps (0 - 300) |
| Points Resistance (Good-Bad) | Low Volts (0 - 1.8) |
| | High Volts (0 - 18) |



82010

ENGINE ANALYZER WITH INDUCTIVE PICK-UP—82010

Performs all electrical and tune-up tests. For use on all 4-6-8 cylinder engines with 12 volt systems. Scales include:

- Dual Tachometer Scales (0-1200 and 0-6000)
- Dwell (0-90)
- Volts (0-16)
- Amps (0-250)
- Ohms (0-500K)
- Ignition Spark Output (0-50)
- Point Resistance (Good-bad)

Features overload protected, solid state circuit housed in high impact plastic case. Zener regulated, so no batteries or calibration is required. Unit includes long leads with heavy duty clips, universal battery post adapter, test leads, accessories and instruction manual.



82000



82007

MODEL 82000 COMPRESSION TESTER

Large 2 3/4" dial has 0-300 psi and 0-21 Kg/cm² pressure scales. Includes removable stem and universal rubber tapered cone to fit all spark plug holes.

MODEL 82007 COMPRESSION TESTER

Large 2 3/4" dial has 0-300 psi and 0-21 Kg/cm² pressure scales. Includes flexible hose with spark plug hole adapter.



82001

VACUUM/FUEL PUMP TESTER—82001

Large 2 3/4" dial has dual scales: 0-25" Hg and 0-60 cm Hg on vacuum scale and 0-7 psi and 0-5 Kg/cm² on pressure scale. Includes 3 1/2 foot neoprene tubing.

Stewart-Warner Hand Held Tune-Up Equipment can be used on all current O.E.M. and aftermarket ignition systems. This includes the General Motors HEI systems, the Ford Solid State systems, the Chrysler Electronic systems and the American Motors BID systems.

In addition, this equipment can be used on very nearly all of the ignition systems now being developed.

**DC POWERED TIMING LIGHTS
WITH INDUCTIVE PICKUP**
Models 82011, 82019

For all 12 volt ignition systems. Inductive pickups clamp over spark plug wires for fast and easy hookups. Both lights have sturdy die-cast cases and heavy chrome finish, burnout-proof solid state circuitry with automatic reverse polarity, long leads, and brilliant pre-focused xenon flash. Complete instructions included.



82019

82011

**DC POWERED TIMING LIGHT
WITH INDUCTIVE PICKUP**
Model 82013

For use on all 12-volt systems. Inductive pickup clips over spark plug wire for quick and simple hookup. Brilliant blue-white xenon flash and pre-focused optical glass lens provide ample light for use under any conditions. Solid state circuitry with automatic reverse polarity and overload protection provide years of trouble free use. Lightweight, high impact plastic case has comfortable grip and easy triggering. Complete instructions are included.



82013

DC POWERED TIMING LIGHTS
Models 82020, 82012

For all 12 volt systems. These units have long grease resistant leads and xenon flash which allows use in broad daylight. Both have rugged high impact plastic case, burnout-proof circuitry with automatic reverse polarity and overload protection. Instruction and adapters are included.



82020

82012

TUNE-UP AND TESTING KIT
Model 82021

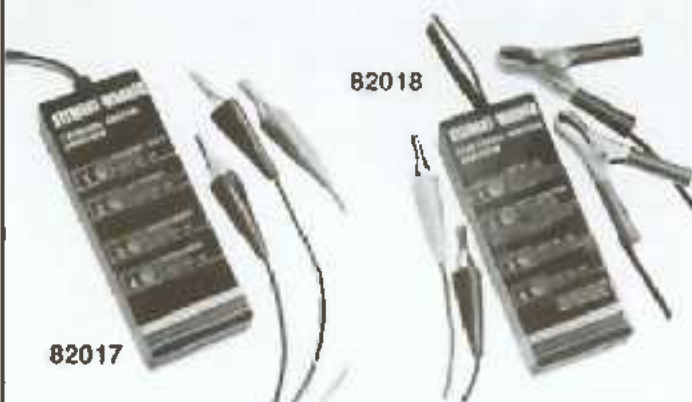
15½" x 12½" x 6" convenient, high impact carrying case contains everything needed for a complete tune-up—Compression Tester, DC Powered Timing Light with Inductive Pickup, Tach/Dwell/Volts Tester, and Vacuum/Fuel Pump Tester. Molded compartments for each instrument keep everything in its place. Instructions for each instrument included.



82021

CHARGING SYSTEM ANALYZER—82017

Light emitting diodes provide easy electronic trouble shooting. Tester isolates problems in the battery, alternator, alternator diodes, and voltage regulator for all 12 volt systems. Complete instructions are included.



ELECTRONIC IGNITION ANALYZER—82018

For all vehicles with 12 volt electronic ignition systems. Check the electronic ignition module, coil pick-up for HEI systems, primary ignition coil where standard coil is used and the battery condition. Light emitting diodes detect and isolate problems at a glance. Complete instructions included.

TACH/DWELL AND VOLTS/OHMS/AMPS TESTERS

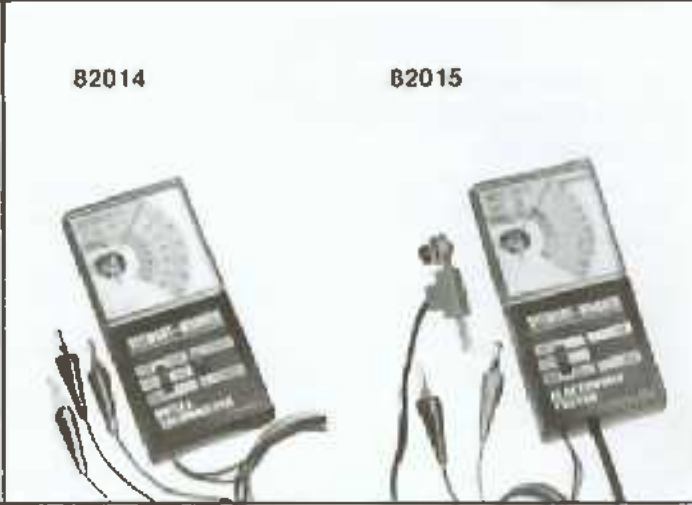
Teamed up, these two testers perform 35 separate tests and provide the same functions of a large sequential auto analyzer. Side reading scales and large numbers make reading the results easy and accurate. Burnout proof solid state circuitry is housed in a durable high impact case. Testers work on any 4-6-8 cylinder, 6 or 12 volt system. Complete instructions included.

Tach/Dwell Tester 82014.

Scales read:
Dual Tach 0—1200
0—6000
Dwell 0—60°

Volts/Ohms/Amps Tester 82015.

Scales read:
Volts 0—1.8V and 0—18V
Ohms 1—500K
Amps 0—35 and 0—100



TACH/DWELL/VOLTS TESTER—82016

This one piece of equipment performs the 31 most often used tune-up and testing functions. It features a durable high impact plastic case and long grease resistant leads. Burnout proof solid state circuits protect the tester from accidents. The tester works with 4-6-8 cylinder, 6 or 12 volt systems. Complete instructions are included.

Scales read: Tach 0—1600 rpm
Dwell 0—60°
Volts 0—16V.

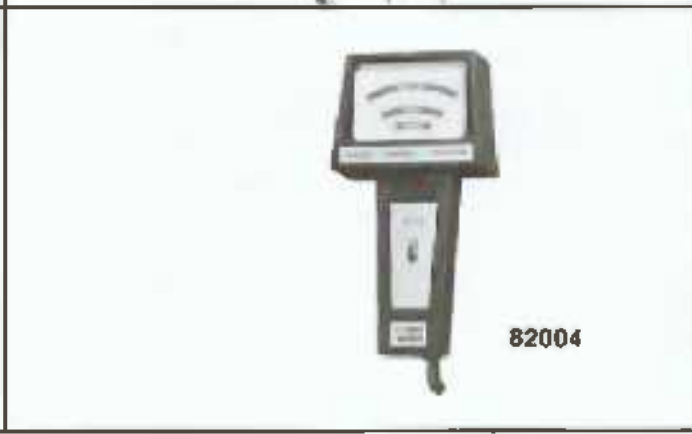


TACH/DWELL/POINTS TESTER—82004

Simple to use with professional results. For use with all 4-6-8 cylinder engines with 6 or 12 volt (positive or negative ground) systems. Scales include:

- Dual Tachometer Scales (0-2250 and 0-3000)
- Dual Dwell Scales (0-45 and 0-60)
- Point Resistance (Good-Bad)

Features burnout proof, solid state circuits in molded, high impact plastic case. No batteries or calibration required. Includes long leads for easy hook-up and instructions.



Now it is easier than ever to equip cars with instruments. Stewart-Warner's designers have solved the problems of mounting and installation by creating a pre-wired three-gauge cluster in a compact new size.



82459 Mini-Panel
Actual size

GAUGES

82459 Mini-Panel. The world's smallest instrument panel. Voltmeter, water temperature, and oil pressure gauge panel measure only 4½" wide by 2" high, by 2" deep. This mini size allows it to be mounted on top of the dash without obstructing the view of the road. Or, since it mounts with double face tape, it can be mounted anywhere.

The three gauges are completely encased by high impact Cyclofac so the Mini-Panel has no exposed parts to detract from the appearance of the car. The handsome design and rich textured finish will complement the interior of any vehicle.

Bi-Torque mechanisms are temperature and voltage compensated to provide reliable reading under all conditions. Transoptic lighting provides excellent night time illumination without glare or shadows.

Note: These gauges have "floating pointers" and indicate a proper reading only when ignition is "ON". It is not an indication of a defective unit if pointers do not return to zero when ignition is "OFF".

INSTALLATION

Everything needed to install the Mini-Panel on AMC, Chrysler, Ford and GM domestic manufactured cars comes in the box. Metric adapters are available for imports.

The Mini-Panel is solid state, fully electronic and is completely prewired to make installations simple. One cord of ample length contains the five wires needed to connect the Mini-Panel to the car. Just install two senders and make easy wire connections. Complete instructions are included.

ACCESSORIES

- 82508** Oil Temperature Sender Kit.
(Replaces ½"-20 Drain Plug for most U.S. cars).
- 280-EJ** Metric Temperature Sender
(For cars with 14 mm or 16 mm threads).
- 82554** Oil Pressure Adapter Nut.
(½"-28 to fit Japanese vehicles).

SERVICE PARTS

- 279-B** Replacement Oil Pressure Sender Kit.
- 280-ED** Replacement Temperature Sender Kit
- 830051** Three Gauge Replacement Assembly.

Stewart-Warner World Wide Instruments feature color coded dual scales with English and Metric graduations. The functions of the instruments are identified with English nomenclature and international symbols. They provide accurate, easy-to-read information about vital engine functions that can be understood anywhere in the world. Best of all, each instrument has the built-in quality and durability that Stewart-Warner Instruments are famous for world wide.

82616



82617

All of the instruments mount in panels.* The Tachs and Speedometers have 3 1/4" (8.57 cm) diameter cases and the Gauges have 2 1/4" (5.25 cm) diameter cases.

*82615 Tach mounts in pedestal.

TACHOMETERS

82615 Pedestal Mount Tach
 (Elec. — 12 V., Neg. Grd.)
 0-8000 RPM

Adjustable red line for
 4, 6 or 8 cylinders.

82616 (12 V., Neg. Grd.)
 0-6000 RPM

*82617 (Elec. — Any Volt.
 or Grd.) 0-3500 RPM

*REQUIRES SENDER 106-AW and
 APPROPRIATE SIZE DRIVE TIP.
 PLEASE ORDER SEPARATELY.



82615

SPEEDOMETERS

82675 (Mechanical)
 0-90 mph/0-145 kph
 ODOMETER RECORDS IN
 MILES ONLY

82676 (Mechanical)
 0-90 mph/0-140 kph
 ODOMETER RECORDS IN
 KILOMETERS ONLY

82680 (Mechanical)
 0-80 mph/0-130 kph
 ODOMETER RECORDS IN
 MILES ONLY

Meets FMVSS #127

82680



82675



82676

ENGINE OIL TEMP.

82706*
 (12V, Neg Grd)
 150°-350°F

*REQUIRES SENDER
 280-EE or EH, or
 SENDER No. 334-S



82706

TRANS OIL TEMP.

82707*
 (12V, Neg Grd)
 150°-350°F

*REQUIRES SENDER
 290-EE; or
 SENDER No. 334-S



82707

FUEL LEVEL

82712*
 (12V, Neg Grd)
 0-1/2-3/4

*REQUIRES SENDER
 FROM EITHER
 391 or 385 SERIES



82712

AMMETER

82700 — 60-0-60
 82701* — 100-0-100

*REQUIRES SHUNT
 No. 407616



82700



82701



82702



82703

WATER TEMPERATURE

82702*
(12V, Neg Grd)
100°-280°F
82703-72
(Mechanical)
100°-265°F
72" capillary tube
*REQUIRES SENDER No.
334-H -AA, AB or AD;
or SENDER No. 280-ED



82704



82705

OIL PRESSURE

82704*
(Mechanical)
5-100 psi
82705*
(12V, Neg Grd)
0-100 psi
*REQUIRES SENDER No. 279-B



82708

HYDRAULIC OIL TEMP.

82708*
(12V, Neg Grd)
100°-220°F
*REQUIRES SENDER
No. 334-N, -P, or R;
or SENDER No. 280-EC



82709

VOLTMETER

82709
(12V, Neg Grd)
10-16V



82710



82711

AIR PRESSURE

82710
(Mechanical)
10-150 psi
82711*
(12V, Neg Grd)
0-150 psi
*REQUIRES SENDER
No. 279-C, 460-BT
DOES NOT MEET
FED. STAND. FMVSS-121

NOTE: ALL SENDERS SHUNTS, etc. MUST BE ORDERED SEPARATELY.

SENSOR EUROPEAN



FACE DIAL is black with orange pointer and green numerals.
BEZEL is painted black, stainless steel.
CASE is 2-1/16" in diameter (steel) and has protective dichromate coating.
LIGHTING kit is included when ordered as a panel.
ELECTRIC GAUGES are temperature and voltage compensated. Water temperature gauge is 12-volt, zener regulated, bi-metal mechanism, negative ground.
MECHANICAL GAUGES have Bourdon tube mechanisms.
MOUNTING: Gauges come with black polypropylene panel and installation hardware.

SENSOR INTERNATIONAL



FACE DIAL is black with orange pointer and white numerals.
BEZEL is bright stainless steel.
CASE is 2-1/16" in diameter (steel) and has protective dichromate coating.
LIGHTING kit is included when ordered as a panel. If ordered as gauge only, lighting kit must be ordered separately.
ELECTRIC GAUGES are temperature and voltage compensated. Ammeter is direct-reading. Water temperature gauge is thermoelectric.
MECHANICAL GAUGES have heavy-duty mechanical diaphragm mechanisms.
MOUNTING: Gauges come with installation hardware. When ordered as a panel, includes black polypropylene panel and installation hardware.

Gauge Type	Dial Scale	Model No.		Gauge Type	Dial Scale	Model No.	
		Mech.	Elect.			Mech.	Elect.
AMMETER (See page 16)	60-0-60		82450 (kit)	AMMETER (See page 16)	60-0-60 60-0-60		82203 82456 (kit)
VOLTMETER (Pg. 16)				VOLTMETER (Pg. 16)			
PRESSURE (See page 10)	10-90 lbs.	82451 (kit)		PRESSURE (See page 10)	5-100 lbs. 5-100	82204 82457 (kit)	
DUAL AIR PRESSURE (See Page 39)				DUAL AIR PRESSURE (See Page 39)			
TEMPERATURE (See page 12)	120-270		82452 (kit)	TEMPERATURE (See page 12)	100-280 100-280 100-280	82205 82458 (kit) 82206	
CYLINDER HEAD (Pg. 17)				CYLINDER HEAD (Pg. 17)			
PRESS-VACUUM (Pg. 17)				PRESS-VACUUM (Pg. 17)			
PRESS-TEMP. (Pg. 17)				PRESS-TEMP. (Pg. 17)			
VACUUM (Pg. 14)				VACUUM (Pg. 14)			
FUEL (Pg. 15)				FUEL (Pg. 15)			
MOTOR MINDER (Pg. 17)				MOTOR MINDER (Pg. 17)			
CLOCK (Pg. 17)				CLOCK (Pg. 17)			

See Color Photos of Gauge Styles on Inside Front Cover.

DELUXE



FACE DIAL is black with white graduations and pointers.
BEZEL is flat, bright chrome plated and made of brass or steel.
CASE is 2-1/16" (steel or brass) or 2-3/16" (steel) in diameter.
Steel cases have dichromate coating to resist corrosion.
LIGHTING is internal and self-contained on 82000 series gauges.
All gauge models include lighting kits. 2 3/4" gauges do not include lighting.
ELECTRIC GAUGES feature Bi-Torque® mechanisms (90° conventional sweep) on 82000 series gauges. Provide long life under heavy vibration and are not affected by changes in ambient temperatures. Electric pressure, temperature and fuel level gauges require senders—order separately. Pointer on 82000 series gauges will rest at random position.
MECHANICAL GAUGES have Bourdon tube center gear mechanisms. They withstand vibration and are not affected by changes in ambient temperatures. Mechanical pressure and vacuum gauges require tubing kits—order separately. Pointer will rest below first graduation.
MOUNTING: Gauges come with mounting brackets and instructions. They may be installed in all S-W mounting accessory panels etc., as well as in existing panels.

HEAVY DUTY



FACE DIAL is black with white graduations and pointers.
BEZEL is raised, painted satin black and made of steel.
CASE is 2-1/16" (steel) and has dichromate coating to resist corrosion.
LIGHTING is internal and self-contained. Lighting kit is NOT included and must be ordered separately—see page 23.
ELECTRIC GAUGES feature Bi-Torque® mechanisms and can be mounted at any angle. Not affected by car voltage or by changes in ambient temperature. Electric pressure, temperature and fuel level gauges require senders—order separately. Pointer will rest at random position.
MECHANICAL GAUGES have Bourdon tube, Accustat® mechanisms. Silicone damped pointer assures steady readings. Withstands heavy vibration. Mechanical pressure and vacuum gauges require tubing kits—order separately. Pointer will rest below first graduation.
MOUNTING: Gauges come with mounting brackets and instructions. They may be installed in all S-W mounting accessory panels etc., as well as in existing panels.

Gauge Type	Dial Scale	Model No.				Gauge Type	Dial Scale	Model No.	
		2 1/16"		2 3/16"				Mech.	Elect.
		Mech.	Elect.	Mech.	Elect.			Mech.	Elect.
AMMETER (See page 16)	30-0-30 60-0-60 60-0-60 100-0-100		82310 82311		82404	AMMETER (See page 16)	60-0-60 60-0-60 100-0-100 150-0-150		284-A 284-AB 284-AA 284-AD
VOLTMETER (Pg. 16)			82309			VOLTMETER (Pg. 16)	10-16 12V 20-32 24V		284-H 284-AJ
PRESSURE lbs. (See page 10)	1-10 1-15 0-16 2-30 2-30 5-80 5-100 10-150 10-150 10-200 10-200	82319 82320 82321 82322 82323 82329 82324 82325	82333	82405		PRESSURE (See page 10)	1-15 lbs. 0-16 5-80 5-100 10-150 10-200 20-300 25-400	284E 284-D 284-N 284-P 284-R 284-S	284-AM 284-AE 284-L 284-T
DUAL AIR PRESSURE (See Page 39)	5-150/ 5-150	82332				DUAL AIR PRESSURE (See Page 39)	5-150/ 5-150	82331	
TEMPERATURE (See page 12)	100-230° 100-240 100-265 100-280 140-320 140-325	82326 82327	82306 82307 82308	82409	82410	TEMPERATURE (See page 12)	100-230° 100-265 100-280 140-320 140-325	284-B 284-C	284-AF 284-J 284-K
CYLINDER HEAD (17)						CYLINDER HEAD (Pg. 17)	100-600		284-AK
PRESS-VACUUM (17)						PRESS-VACUUM (Pg. 17)	40 PSI-0-30"	82336	
PRESS-TEMP. (Pg. 17)						PRESS-TEMP. (Pg. 17)	0-150, 110-260°	82336	
VACUUM (Pg. 14)	2-30	82328		82411		VACUUM (Pg. 14)	2-30	284-AH	
FUEL (Pg. 15)			82303		616-B	FUEL (Pg. 15)			284-M
MOTOR MINDER (17)						MOTOR MINDER (Pg. 17)		82300	
CLOCK (Pg. 17)						CLOCK (Pg. 17)			284-AL

① For brass gauges, see Marine section, pages 42, 43.

See Color Photos of Gauge Styles on Inside Front Cover.

STAGE 3



FACE DIAL is black with white pointer and numerals and with yellow and white accents.

BEZEL is raised, painted satin black and made of stainless steel. **CASE** is 2-1/16" in diameter (steel) and has dichromate coating to resist corrosion.

LIGHTING features patented Transoptic® lighting which combines front and back lighting features for improved night time readability. Lighting kits are included with all gauge models.

ELECTRIC GAUGES have Bi-Torque® mechanisms and can be mounted at any angle. Not affected by car voltage or by changes in ambient temperature. All electric gauges, except ammeters, come with wire and terminals. Senders are required for electric temperature, pressure and fuel level gauges. Pointer will rest at random position.

MECHANICAL GAUGES have Bourdon tube Accustat® mechanisms. Withstands heavy vibration. Silicone damped pointer assures steady readings. Installation material included. Pointer will rest below first graduation.

MOUNTING: Gauges come with mounting brackets and instructions. They may be installed in all S-W mounting accessory panels etc., as well as in existing panels.

STAGE 2



FACE DIAL is black with white pointer and with orange and white numerals and accents.

BEZEL is raised, painted satin black and made of stainless steel. **CASE** is 2-1/16" in diameter (steel) and has dichromate protective coating.

LIGHTING is internal and lighting kits are included with gauge models.

ELECTRIC GAUGES have direct-reading ammeter only. **MECHANICAL GAUGES** have Bourdon tube—link mechanisms. They withstand vibration and changes in ambient temperature. Pointer will rest below first graduation.

MOUNTING: Gauges come with mounting brackets and instructions. They may be installed in all S-W mounting accessory panels etc., as well as in existing panels.

Gauge Type	Dial Scale	Model No.		Gauge Type	Dial Scale	Model No.	
		Mech.	Elect.			Mech.	Elect.
AMMETER (See page 16)	60-0-60		283-A	AMMETER (See page 16)	100-0-100		282-A
VOLTMETER (Pg. 16)			283-H	VOLTMETER (Pg. 16)			
PRESSURE (See page 10)	1-15 lbs. 5-100	283-E 283-D	283-L	PRESSURE (See page 10)	5-80	282-C	
DUAL AIR PRESSURE (See Page 39)				DUAL AIR PRESSURE (See Page 39)			
TEMPERATURE (See page 12)	100-280° 100-280 140-320 140-325	283-B 283-C	283-J 283-K	TEMPERATURE (See page 12)	100-280°		282-B-72
CYLINDER HEAD (Pg. 17)				CYLINDER HEAD (Pg. 17)			
PRESS-VACUUM (Pg. 17)				PRESS-VACUUM (Pg. 17)			
PRESS-TEMP. (Pg. 17)				PRESS-TEMP. (Pg. 17)			
VACUUM (Pg. 14)	2-30	283-F		VACUUM (Pg. 14)			
FUEL (Pg. 15)			283-M	FUEL (Pg. 15)			
MOTOR MINDER (Pg. 17)		82300		MOTOR MINDER (Pg. 17)			
CLOCK (Pg. 17)			284-AL	CLOCK (Pg. 17)			

See Color Photos of Gauge Styles on Inside Front Cover.

STAGE 1



FACE DIAL is black with white pointer and numerals and with yellow accents.
BEZEL is raised, painted black and made of stainless steel.
CASE is 2-1/2" in diameter (steel) and has protective dichromate coating.
LIGHTING is indirect. Lighting kits must be ordered separately—see page 23.
ELECTRIC GAUGES have thermo mechanisms and can be used on positive or negative ground systems. They withstand changes in ambient temperature. Electric pressure and temperature gauges require senders—order separately. Pointer will rest below first graduation.
MECHANICAL GAUGES have heavy duty, diaphragm silicone-damped mechanisms. They withstand vibration and changes in ambient temperature. All mechanical gauges come with installation materials. Pointer will rest below first graduation.
MOUNTING: Gauges come with mounting brackets and instructions. They may be installed in all S-W mounting accessory panels etc., as well as in existing panels.

STANDARD (NON-ILLUMINATED)



FACE DIAL is black with white pointers, graduations, and numerals.
BEZEL is flat and bright chrome plated.
CASE is 2-1/2" in diameter (steel) with dichromate protective coating.
LIGHTING — non-illuminated.
ELECTRIC GAUGES have thermo mechanisms. They withstand vibration and changes in ambient temperature. Electric fuel level gauges require senders—order separately. Pointer will rest below first graduation.
MECHANICAL GAUGES have diaphragm mechanisms. They withstand vibration and changes in ambient temperature. Mechanical pressure gauges require lubing kits—order separately. Pointer will rest below first graduation.
MOUNTING: Gauges come with mounting brackets and instructions.

Gauge Type	Dial Scale	Model No.		Gauge Type	Dial Scale	Model No.	
		Mech.	Elect.			Mech.	Elect.
AMMETER (See page 16)	30-0-30		281-A	AMMETER (See page 16)	20-0-20 30-0-30 60-0-60		82201 82200 82202
VOLTMETER (Pg. 16)			281-H	VOLTMETER (Pg. 16)			
PRESSURE (See page 10)	5-80 lbs.	281-D	281-E	PRESSURE (See page 10)	3-50 lbs. 5-80 5-100	82207 82208 82209	
DUAL AIR PRESSURE (See Page 39)				DUAL AIR PRESSURE (See Page 39)			
TEMPERATURE (See page 12)	100-280° 100-280°	281-B-72	281-C	TEMPERATURE (See page 12)	100-250	82210	
CYLINDER HEAD (Pg. 17)				CYLINDER HEAD (Pg. 17)			
PRESS-VACUUM (Pg. 17)				PRESS-VACUUM (Pg. 17)			
PRESS-TEMP. (Pg. 17)				PRESS-TEMP. (Pg. 17)			
VACUUM (Pg. 14)	2-30	281-F		VACUUM (Pg. 14)			
FUEL (Pg. 15)				FUEL (Pg. 15)		82211	
MOTOR MINDER (Pg. 17)				MOTOR MINDER (Pg. 17)			
CLOCK (Pg. 17)				CLOCK (Pg. 17)			

See Color Photos of Gauge Styles on Inside Front Cover.



DELUXE MECHANICAL

Includes lighting kit, mounting brackets and instructions. Tubing Kits must be ordered separately—see next page.

Type	Dial Scale	2-1/16"	2-3/16" Ⓢ
OIL	5-80	82322 (360-JB)	—
	5-100	82323 (360-JC)	82406 (631-CB)
	10-150	—	82407 (691-DB)
	10-200	82324 (360-JD)	—
FUEL	1-15	82319 (360-HY-1)	—
	1-15	—	82405
	2-30	82320 (360-HZ)	—
AIR	10-150	82325 (360-JE)	—
	10-150	82329 (360-DE)	82408 (691-FB) 368-P
DRIVE OIL	20-300	82120 (360-BX)	—
	25-400	82121 (360-EK)	—
MANIFOLD	2-30	82321 (360-JA)	—

- Ⓢ 3-3/4" Diameter Case
- Ⓢ Brass Case
- Ⓢ Lighting kit not included.

DELUXE ELECTRIC

Includes lighting kit, mounting brackets and instructions. Senders must be ordered separately, see next page.

Type	Dial Scale	Voltage	2-3/16"
OIL	5-80	12V, NG GD	82304
	5-80	12V, NG GD	82113
	5-100	12V, NG GD	82305
	5-100	12V, NG GD	82116
FUEL	0-15	12V, NG GD	82333

Ⓢ Brass Case



HEAVY DUTY ELECTRIC

Includes mounting brackets and instructions. Lighting kits and senders must be ordered separately. See next page for senders. For light kits, see page 23.

Type	Dial Scale	Voltage	2-3/16"
OIL	5-80	12V, NG GD	284-AE
	5-100	12V, NG GD	284-L
AIR	10-150	12V, NG GD	284-T
FUEL	0-15	12V, NG GD	284-AM



STAGE 3 ELECTRIC

Includes lighting kit, mounting brackets, wire & terminals and instructions. Sender must be ordered separately, see next page.

Type	Dial Scale	Voltage	2-1/16"
OIL	5-100	12V, NG GD	283-L



STAGE 2 ELECTRIC

NOT AVAILABLE

STAGE 1 ELECTRIC

Includes mounting brackets and instructions. Senders must be ordered separately, see next page. For light kit, see page 23.

Type	Dial Scale	Voltage	2-1/16"
PRESS.	5-80	12V, PS/NG GD	281-E



STANDARD MECHANICAL

Includes mounting brackets and instructions. Tubing kits must be ordered separately, see next page.

Type	Dial Scale	2-1/16" Gauge
OIL	1-10	352-DA
OIL	5-50	82207 (352-AT)
OIL	5-80	82208 (352-AW)
OIL	5-80	(352-CX) (Reorder 82204)
OIL	5-100	82209 (352-AY)

- Ⓢ Subject to field availability
- Ⓢ Cannot be lighted



SENSOR MECHANICAL

For use as a replacement gauge. Includes mounting brackets. Order installation kit 82553 and light kit separately from page 23. For panels, see pages 18-20.

Type	Dial Scale	2-1/16" Gauge
OIL	5-100	82204



HEAVY DUTY MECHANICAL

Includes mounting brackets and instructions. Tubing kits must be ordered separately, see next page. For light kits, see page 23.

Type	Dial Scale	2-1/16"
OIL	5-100	284-D
	10-200	284-P
TRANS	20-300	284-R
	30-400	284-S
AIR	10-150	284-N
FUEL	1-15	284-E

STAGE 3 MECHANICAL

Includes lighting kit, mounting brackets, 72" of tubing with fittings and instructions

Type	Dial Scale	2-1/16" Gauge
OIL	5-100	283-D
FUEL	1-15	283-E



STAGE 2 MECHANICAL

Includes lighting kit, mounting brackets, 72" of tubing with fittings and instructions

Type	Dial Scale	2-1/16" Gauge
PRESS	5-80	282-C



STAGE 1 MECHANICAL

Includes mounting brackets, 72" of tubing with fittings and instructions. Lighting Kits must be ordered separately, see page 23.

Type	Dial Scale	2-1/16" Gauge
PRESS	5-80	281-D



SENDERS FOR ELECTRIC PRESSURE GAUGES

Dial Scale	Voltage	Part Number
5-80	12V	279-A
	12V	353-Z (Brass)
5-100	12V	279-B
5-150	12V	279-C
0-16	12V	82504

PRESSURE SENDERS CROSS REFERENCE For Replacement of Stewart-Warner O.E.M.

O.E.M. No.	S-W No.	O.E.M. No.	S-W No.
353-D	353-K	353-AW	279-A
353-R	279-A	353-BE	279-B
353-S	279-B	353-BY	279-A
353-AG	353-K	353-CE	279-C

IMPORTANT NOTICE: The senders on this page are for use with gauges manufactured by Stewart-Warner. They are not for use with gauges made by any other company. Stewart-Warner manufactured instruments will provide system accuracy only when used with Stewart-Warner Senders. Do not use Stewart-Warner Instruments with senders of other than Stewart-Warner origin as accuracy will be adversely affected.

For Light Kits, see page 23.

PRESSURE SENSITIVE LABELS

Allow you to change the nomenclature of pressure gauges. For use on Heavy Duty and Deluxe models. Cover gauge with appropriate sticker for the application required. Each kit consists of four labels.

MODEL 823705

For 2- $\frac{5}{8}$ " Pressure Gauges. Labels included: Water P.S.I., Oil P.S.I., Trans. P.S.I., Fuel P.S.I.

MODEL 823708

For 2- $\frac{1}{4}$ " Pressure Gauges. Labels included: Water P.S.I., Oil P.S.I., Trans. P.S.I., Fuel P.S.I.

MODEL 824587

For 2- $\frac{1}{4}$ " Pressure Gauges. Labels included: Oil P.S.I., Fuel P.S.I., Clutch P.S.I., Torque Converter P.S.I.

TUBING KITS FOR MECHANICAL PRESSURE GAUGES

No. 82553 (formerly 366-FF) — For installing mechanical oil pressure and vacuum gauges with $\frac{1}{8}$ " p.t. connection.

Contents of Kit:

- A. Coupling with $\frac{1}{8}$ " Int. P.T.
- B. Six feet $\frac{1}{8}$ " nylon tubing
- C. Coupling with $\frac{1}{8}$ " Ext. P.T.
- D. Adapter for $\frac{1}{4}$ " P.T. oil gallery
- E. Instruction sheet

No. 366-HM — Same as No. 82553 above, except with 16' of tubing for rear engine cars.

METRIC PRESSURE ADAPTER NUT—82555

For use with Piping Kits 82553 (formerly 366-FF) or 366-HM or Electric (12V) Pressure Sender Series 279 listed on this page.

Kit includes: Adapter nuts to convert threads on domestic kits or sender to M10 x 1K threads.

Used on Alpha Romeo, Audi, BMW, Porsche, Volkswagen and other cars using 10M x 1K threads.

METRIC PRESSURE ADAPTER KIT — 366-ST

For use with Piping Kits 82553 (formerly 366-FF) or 366-HM or Electric (12V) Pressure Sender Series 279 listed on this page.

Kit includes: Adapter nuts to convert threads on domestic kits or sender to M10 x 1K, M12 x 1.5 and M14 x 1.5 threads.

Used on: Alfa Romeo, Audi, BMW, Fiat, Mercedes-Benz, Opel, Peugeot, Porsche, Renault, Volkswagen, Volvo and all others using M10 x 1K, M12 x 1.5 or M14 x 1.5 threads.

JAPANESE PRESSURE ADAPTER NUT — 82554 (formerly 825612)

For use with Piping Kits 82553 (formerly 366-FF) or 366-HM or Electric (12V) Pressure Sender Series 279 listed on this page.

Adapter nut converts threads to $\frac{1}{8}$ -28 threads.

Used on: Chevy L.U.V., Datsun, Dodge Colt, Ford Courier, Honda, Mazda, Subaru, Toyota and all others using $\frac{1}{8}$ -28 threads.

OTHERS

English, German, Ford, Volkswagen Type 4, Porsche 914 and Saab engines have oil pressure and water temperature connections utilizing Dryseal American Standard Taper Pipe Threads (NPTF) the same as Domestic Cars. For these applications, use appropriate Universal Kits to match range, thread size and gauge style.

DELUXE MECHANICAL

Includes lighting kit, mounting brackets, instructions. 1/2" adapter nut and a length of tubing. The number after the base model number equals the length of tubing supplied with gauge. See next page for adapter nuts.

Type	Dial Scale	Case Dia.	Gauge Nos.
WATER	100-265	2-1/16"	82325 (361-CB) -48°, -60°, -72°, -96°, -120°, -144°, -218°, -288°, -360°
			82408 (692-E) -60°, -72°, or -144°
OIL	140-325	2-1/16"	82327 (361-CC) -60°, -72°, -96°, -144° or -218°
			82410 (442057) -60° or -72°

Ⓢ Does not include lighting kit.

HEAVY DUTY MECHANICAL

Includes mounting brackets, instructions, 1/2" adapter nut and a length of tubing. The number after the base model number equals the length of tubing supplied with gauge. See next page for adapter nuts. Lighting Kit must be ordered separately, see page 23.

Type	Dial Scale	Case Dia.	Gauge Nos.
WATER	100-265	2-1/16"	284-B-36°, -72° or -144°
OIL	140-325	2-1/16"	284-C-36°, -72° or -144°

STAGE 3 MECHANICAL

Includes lighting kit, mounting brackets, instructions, 1/2" adapter nut and 72" of tubing. See next page for adapter nuts.

Type	Dial Scale	2-1/16" Gauge
WATER	100-280	283-B-72
OIL	140-325	283-C-72

STAGE 2 MECHANICAL

Includes lighting kit, mounting brackets, instructions, 1/2" adapter nut and 72" of tubing. See next page for adapter nuts.

Type	Dial Scale	2-1/16" Gauge
TEMP.	100-280	282-B-72

STAGE 1 MECHANICAL

Includes mounting brackets, instructions, 1/2" adapter nut and 72" of tubing. See next page for adapter nuts. Lighting Kit must be ordered separately, see page 23.

Type	Dial Scale	2-1/16" Gauge
TEMP.	100-280	281-B-72

SENSOR MECHANICAL AND ELECTRIC

For use as a replacement gauge Model 82205 includes mounting brackets only. Lighting and sender kits must be ordered separately—see next page. Model 82206 includes mounting brackets. Lighting kit must be ordered separately, see page 23. For panel, see pages 18-20.

Type	Dial Scale	Gauge
ELECTRIC	100-280	82205
MECHANICAL	120-280	82206

DELUXE ELECTRIC

Includes lighting kit, mounting brackets and instructions. Senders must be ordered separately, see next page.

Type	Dial Scale	Voltage	2-1/16"
WATER	100-240	12V. NG GD	82336
	100-230	12V. NG GD	82114
	100-280	12V. NG GD	82307
OIL	100-280	12V. NG GD	82115
	140-320	12V. NG GD	82308

Ⓢ Brass Case.

HEAVY DUTY ELECTRIC

Includes mounting brackets and instructions. Sender must be ordered separately, see next page. For light kits, see page 23.

Type	Dial Scale	Voltage	2-1/16"
WATER	100-230	12V. NG GD	284-AF
	100-280	12V. NG GD	284-J
OIL	140-320	12V. NG GD	284-K

STAGE 3 ELECTRIC

Includes lighting kit, mounting brackets, wire & terminals and instructions. Senders must be ordered separately, see next page.

Type	Dial Scale	Voltage	2-1/16"
WATER	100-280	12V. NG GD	283-J
OIL	140-320	12V. NG GD	283-K

STAGE 2 ELECTRIC

NOT AVAILABLE

STAGE 1 ELECTRIC

Includes mounting brackets and instructions. Sender must be ordered separately, see next page. For light kits, see page 23.

Type	Dial Scale	Voltage	2-1/16"
TEMP.	100-280	12V. P5/NG GD	281-C

STANDARD MECHANICAL

Includes mounting brackets, instructions, 1/2" adapter nut and a length of tubing. The number after the base model number equals the length of tubing supplied with gauge. See next page for adapter nut. Lighting kit must be ordered separately, see page 23.

Type	Dial Scale	Gauge
TEMP.	100-250	82210Ⓢ (356-AJ)-36°, -48°, -60°, -72° or -144°
TEMP.	100-250	366-C-48° —includes radiator hose connection & fitting

Ⓢ Cannot be lighted

ELECTRIC TEMPERATURE SENDERS SELECTION CHART

Gauge Number	Style	Range—Type	Univ. (1/4, 1/2 or 3/4 PT)	1/4 PT	1/2 PT	3/4 PT	1 1/2 PT	Drain Plug 1/2-20	Univ. Metric
261-C	Stg 1	100-280 O or W	280-EA	362-CZ	362-AN	362-AJ	362-AH	—	—
283-J	Stg 3	100-280 Water	280-ED	334-H	334-AA	334-AB	334-AD	—	280-EJ
283-K	Stg 3	140-320 Oil	280-EE	—	—	—	—	280-EH	—
284-J	HD	100-280 Water	280-ED	334-H	334-AA	334-AB	334-AD	—	280-EJ
284-K	HD	140-320 Oil	280-EE	—	—	—	—	280-EH	—
284-AF	HD	100-230 Water	280-EC	—	334-N	334-P	334-R	—	—
284-AK	HD	100-320 Cyl Hd	280-EK	—	—	—	—	—	—
310-F	Deluxe	60-270 Water	—	—	362-AM	362-B	362-J	—	—
311-HC	Truck	100-325 Oil	280-EB	—	—	—	362-DA	—	—
311-HF	Truck	100-240 Water	280-EA	362-CZ	362-AN	362-AJ	362-AH	—	—
82114	Deluxe	100-230 Water	280-EA	362-CZ	362-AN	362-AJ	362-AH	—	—
82115	Deluxe	100-280 Oil	280-ED	334-H	334-AA	334-AB	334-AD	—	280-EJ
82205	Sensor	100-280 Water	280-EA (1)	362-CZ	362-AN	362-AJ	362-AH	—	—
82306	Deluxe	100-240 Water	280-EA	362-CZ	362-AN	362-AJ	362-AH	—	—
82307	Deluxe	100-280 Water	280-ED	334-H	334-AA	334-AB	334-AD	—	280-EJ
82308	Deluxe	140-320 Oil	280-EE	—	—	—	—	280-EH	—

(1) No. 82552, same as 280-EA, but with 1/4", 3/4" and 1/2" adapters only.

TEMPERATURE GAUGE SENDER ADAPTER NUTS FOR MECHANICAL GAUGES

Outside Thread	Min. I.D.	Part Number
1/4" P.T.	3860"	428819 (Steel) *
3/8" P.T.	4375"	408550 (Brass) *
1/2" P.T.	4375"	72446 (Steel) *
3/4" P.T.	4375"	90567 (Brass) *
1" P.T.	5000"	412208 (Brass) *
1 1/8" - 10	4531"	95527 (Brass) *

* For tubing less than 120" in length.
* The above nuts are found in 306-NK Kit.

IMPORTED CAR ADAPTERS—

Metric Electric Sender Kit—280-EJ

For use in conjunction with 284-J (HD) or 283-J (Stage 3) 100°-280°F. Water Temperature Gauges.

Kit includes: 12 volt electric sender with 14 MM threads and adapters for 16 MM and 18MM threads.

Used on: Alfa-Romeo, Audi, BMW, Datsun, Dodge Colt, Fiat, Mazda, Mercedes-Benz, Opel, Peugeot, Renault, Toyota, Volkswagen, Volvo and all others using 14MM, 16MM or 18MM threads and 100°-280°F. range.

OTHERS

English, German Ford, Volkswagen Type 4, Porsche 914 and Saab engines have oil pressure and water temperature connections utilizing Dryseal American Standard Taper Pipe Threads (NPTF) the same as Domestic Cars. For these applications, use appropriate Universal Kits to match range, thread size and gauge style.

For light kits, see page 23.

TEMPERATURE SENDER CROSS REFERENCE

For Replacement of Stewart-Warner O.E.M.

O.E.M. No.	S-W No.	O.E.M. No.	S-W No.	O.E.M. No.	S-W No.
334-F	280-EC	362-AE	362-AJ	362-DC	362-BK
334-J	280-EE	362-AK	362-AJ	362-DD	362-AN
334-S	280-EE	362-AL	362-DA	362-DK	362-AH
334-T	280-EH	362-AP	362-BH	362-DL	362-AJ
334-W	280-EC	362-AS	362-BK	362-DM	362-AD
334-Z	280-ED	362-AU	362-AH	362-DT	362-AD
334-AE	280-ED	362-AX	362-AD	362-DW	362-AD
334-AH	334-R	362-AY	362-W	362-DX	362-ED
334-AM	334-L	362-BE	362-DA	362-EH	362-DA
334-AR	280-ED	362-BL	362-AN	362-EJ	280-EB
362-P	362-AH	362-BM	362-BH	362-ER	280-EA
362-S	362-AM	362-BR	362-BH	362-ES	280-EA
362-V	362-BH	362-BX	362-AH	362-ET	280-EB
362-X	362-AH	362-CK	362-BK	362-FB	280-EB
362-Y	362-AD	362-CT	362-AH	362-FH	280-ED
362-Z	362-W	362-CW	362-CZ	—	—
362-AA	362-DA	362-DB	362-CL	—	—

PRESSURE SENSITIVE LABELS

Allow you to change the nomenclature of temperature gauges. For use on Heavy Duty and Deluxe models. Cover gauge with appropriate sticker for the application required. Each kit consists of four labels.

MODEL 823706

For 2-3/8" Temperature Gauges. Labels included: Water °F, Oil °F, Trans. °F, Axle °F.

MODEL 823707

For 2-1/2" Temperature Gauges. Labels included: Water °F, Oil °F, Trans. °F, Axle °F.

IMPORTANT NOTE:

The senders in this catalog are for use with gauges manufactured by Stewart-Warner. They are not for use with gauges made by any other company.

Stewart-Warner manufactured instruments will provide system accuracy only when used with Stewart-Warner Senders. Do not use Stewart-Warner Instruments with senders of other than Stewart-Warner origin as accuracy will be adversely affected.

DELUXE MECHANICAL



Includes lighting kit, mounting brackets and instructions. Measures vacuum in inches of mercury. Tubing kit must be ordered separately, see below. Adapter tee 826956 can be used to splice into vacuum hose—order separately.

Dial Scale	2-1/16"	2-5/8"
2-30	82328 (355-BM) 82117Ⓞ	82411 (355-B)

Ⓞ Brass Case.

See Motor Minder Gauges on Page 17.

HEAVY DUTY MECHANICAL



Includes mounting brackets and instructions. Measures vacuum in inches of mercury. Order tubing kits separately from below. Order light kits separately, see page 23. Adapter tee 826956 can be used to splice into vacuum hose—order separately.

Dial Scale	2-1/16"
2-30	284-AH

See Motor Minder Gauges on Page 17.

STAGE 3 MECHANICAL



Includes light kit, mounting brackets, instructions and 72" of tubing with fittings. Adapter tee 826956 can be used to splice into vacuum hose—order separately.

Dial Scale	2-1/16" Gauge
2-30	283-F

See Motor Minder Gauges on Page 17.

STAGE 1 MECHANICAL



Includes mounting brackets, instructions and 72" of tubing with fittings. Light kit must be ordered separately, see page 23. Adapter tee 826956 can be used to splice into vacuum hose—order separately.

Dial Scale	2-1/32" Gauge
0-30	281-F

TUBING KITS FOR VACUUM GAUGES

No. 82553 (formerly 366-FF) — For installing mechanical vacuum and oil pressure gauges with 1/8" p.t. connection.

Contents of Kit:

- A. Coupling with 1/8" Int. P.T.
- B. Six feet 1/8" nylon tubing
- C. Coupling with 1/8" Ext. P.T.
- D. Adapter for 1/4" P.T. oil gallery
- E. Instruction sheet

No. 366-HM — Same as No. 82553, except with 16" of tubing for rear engine cars.

NOTE: Adapter Tee No. 826956 can be used to splice into vacuum hose—order separately.

METRIC VACUUM ADAPTER KIT—366-ST

For use with Piping Kits 82553 (formerly 366-FF) or 366-HM (see page for description) or Electric (12V) Pressure Sender Series 279.

Kit includes: Adapter nuts to convert threads on domestic kits or sender M10 x 1K, M12 x 1.5 and M14 x 1.5 threads.

Used on: Alfa Romeo, Audi, BMW, Fiat, Mercedes-Benz, Opel, Peugeot, Porsche, Renault, Volkswagen, Volvo and all others using M10 x 1K, M12 x 1.5 or M14 x 1.5 threads.

JAPANESE VACUUM ADAPTER NUT—82554 (formerly 825612)

For use with Piping Kits 82553 (formerly 366-FF) or 366-HM or Electric (12V) Pressure Sender Series 279 listed on this page.

Adapter nut converts threads to 1/8-28 threads.

Used on: Chevy-L.U.V., Datsun, Dodge Colt, Ford Courier, Honda, Mazda, Subaru, Toyota and all others using 1/8-28 threads.

For light kits, see page 23.

SENDERS FOR FUEL LEVEL GAUGES

Choosing Fuel Level Senders

The holes in the tank unit bracket plate are not evenly spaced. The distance between two of the holes is greater than between any other two. When viewing the bracket plate, with the widely separated holes nearest you, the float arm will swing left if it is a left hand tank unit or right if it is a right hand tank unit. If there is more room in the tank to the left of the tank unit mounting location, use a tank unit that swings to the left and vice versa.



For 10"-24" Depth

Description	12-Volt
6"-12" depth; LH arm	385-B
6"-12" depth; RH arm	385-C
10"-15" depth; LH arm	391-A
10"-15" depth; RH arm	391-B
15½"-24" depth; LH arm	391-C
15½"-24" depth; RH arm	391-D

Replacement Floats:

- 411290 Brass (for 391 Series)
- 427410 Plastic (for 385 Series)



For 6"-12" Depth

NOTE: Order Fuel Level Sender (Tank Unit) Installation Kit No. 388-LP separately, if needed. Kit contains

- 1—No. 93310 Flange
- 5—No. 79295 Screws
- 1—No. 72030 Gasket
- 5—No. 61463 Washers.

IMPORTANT NOTE: The senders on this page are for use with gauges manufactured by Stewart-Warner. They are not for use with gauges made by any other company.

Stewart-Warner Manufactured Instruments will provide system accuracy only when used with Stewart-Warner Senders. Do not use Stewart-Warner Instruments with senders of other than Stewart-Warner origin as accuracy will be adversely affected.

For lighting kits, see page 23.

DELUXE ELECTRIC

Includes lighting kit, mounting brackets and instructions. Senders must be ordered separately, see below.

Voltage	2-1/16"	2-3/16"
12V, PS, NG GD	—	616-B
12V, NG GD	82303 82111	—

Ⓢ Brass case.



HEAVY DUTY ELECTRIC

Includes mounting brackets and instructions. Order senders separately, see below. For light kits, see page 23.

Voltage	2-1/16" Gauge
12V, NG GD	284-M



STAGE 3 ELECTRIC

Includes lighting kit, mounting brackets, instructions and wire & terminals. Senders must be ordered separately, see below.

Voltage	2-1/16" Gauge
12V, NG GD	283-M



STANDARD ELECTRIC

Includes mounting brackets and instructions. Sender must be ordered separately, see below.

Voltage	2-1/16" Gauge
12V	82211 (378-P)Ⓢ

Ⓢ Cannot be lighted





DELUXE AMMETERS

Includes lighting kit, mounting brackets and instructions.

Dial Scale	2-1/16" Steel	2-1/16" Brass	2-1/4" Steel
30-0-30	82310	—	—
60-0-60	82311	82108 82109	82404
100-0-100	82313	82110	—

- 1 Requires Remote Shunt 813489—please order separately
- 2 Requires Remote Shunt 407616—please order separately

DELUXE VOLTMETERS

Includes lighting kit, mounting bracket and instructions

Dial Scale	Voltage	2-1/16" Gauge
10-16	12V, NG GD 12V, NG GD	82309 82112

- 1 Brass case



HEAVY DUTY AMMETERS

Includes mounting brackets and instructions. Lighting kit must be ordered separately—see page 23.

Dial Scale	2-1/16"
60-0-60	284-A 284-AB
100-0-100	284-AA
150-0-150	284-AD

- 1 Requires Remote Shunt 813489—please order separately.
- 2 Requires Remote Shunt 407616—please order separately
- 3 Requires Remote Shunt 413717—please order separately.

HEAVY DUTY VOLTMETERS

Includes mounting bracket and instructions. Meters Volts D.C. Lighting kit must be ordered separately—see page 23.

Dial Scale	Voltage	2-1/16" Gauge
10-16	12V, NG GD	284-H
20-32	24V, NG GD	284-AJ



STAGE 3 AMMETERS

Includes lighting kit, mounting brackets and instructions.

Dial Scale	2-1/16" Gauge
60-0-60	283-A

STAGE 3 VOLTMETER

Includes lighting kit, mounting brackets, instructions and wire & terminals.

Dial Scale	Voltage	2-1/16" Gauge
10-16	12V, NG GD	283-H



STAGE 2 AMMETER

Includes lighting kit, mounting brackets and instructions.

Dial Scale	2-1/16" Gauge
60-0-60	282-A

STAGE 2 VOLTMETER

NOT AVAILABLE



STAGE 1 AMMETER

Includes mounting bracket and instructions. Lighting kit must be ordered separately—see page 23.

Dial Scale	2-1/16" Gauge
60-0-60	281-A

STAGE 1 VOLTMETER

Includes mounting brackets and instructions. Lighting kit must be ordered separately—see page 23.

Dial Scale	Voltage	2-1/12" Gauge
10-16	12V, PS/NS GD	281-H



SENSOR AMMETER

For use as a replacement gauge. Includes mounting brackets. Order light kit separately, see page 23. For panels, see pages 18-20.

Dial Scale	Gauge
60-0-60	82203






STANDARD AMMETERS

Includes mounting bracket and instructions. Light kit must be ordered separately, see page 23.

Dial Scale	Gauge
30-0-30	82201 357-W
30-0-30	82200 357-N 357-DB
60-0-60	357-BL 82202 357-X

- 1 Cannot be lighted
- 2 Overlay decals available—see page 17.



MOTOR MINDER	SPECIAL GAUGES
<p>An accurate and reliable vacuum gauge which helps drivers maximize fuel economy. Color segmented dial tells driver when he is wasting gas and also tells him when he is maximizing fuel economy.</p>	<p>PRESSURE/VACUUM 40PSI-0-30" Hg, internal lighting, mounting clamp 2 1/16" dia. 284-F</p> 
<p>MODEL 82300</p>  <p>Includes 2 1/16" diameter gauge with black bezel, installation kit, light kit and instructions.</p>	<p>CYLINDER HEAD TEMP. 100°-600°, Internal lighting mount clamp 284-AK 2 1/16" dia. Requires Sender 280-EK (For use only with 14mm spark plug)</p> 
SPECIAL GAUGES	CLOCK
<p>PRESSURE/TEMPERATURE MODEL 82336-96™</p>  <p>82336</p> <p>Heavy Duty gauge with 2 1/16" diameter case. 0-150 lbs. pressure scale and 110°-260° temperature range. Mounting bracket, 96" of temperature tubing with 1/2" adapter nut, and instructions included. Light kit and pressure tubing kit must be ordered separately.</p>	<p>12VDC Clock, light kit. 2 1/16" dia. 284-AL</p> 

INTERNATIONAL



MODEL 82456

Ammeter with illuminated face dial. Direct reading from -60 amps to +60 amps. Chrome bezel. Includes adjustable black polypropylene panel, lighting kit and instructions. Modules can be clipped together side-by-side. Living hinge allows 50° movement for better visibility and safety.



MODEL 82457

Oil Pressure Gauge with illuminated face dial. Reads from 0-100 psi oil pressure. Heavy-duty silicone dampened diaphragm mechanism soldered into a steel case. Will withstand severe shock, and up to 100 per cent overload without damage. Chrome bezel. Includes adjustable black polypropylene panel, installation kit, lighting kit and complete instructions. Modules can be clipped together side-by-side. Living hinge allows 50° movement for better visibility and safety.



MODEL 82458

Water temperature gauge with illuminated face dial. Reads from 100°-280° F. 12-volt, thermal-regulated, bi-metal mechanism. Works with positive or negative ground systems. Chrome bezel. Includes adjustable black polypropylene panel, 1/8" temperature sender, with adapters for 1/2" and 3/8" p.t. temperature connections, lighting kit and complete instructions. Modules can be clipped together side-by-side. Living hinge allows 50° movement for better visibility and safety.

EUROPEAN



MODEL 82450

Ammeter with illuminated face dial. Direct reading from -60 amps to +60 amps. Includes adjustable black polypropylene panel, lighting kit and complete instructions. Modules can be clipped together side-by-side. Living hinge allows 50° movement for better visibility and safety.



MODEL 82451

Oil Pressure Gauge with illuminated face dial. Heavy-duty link-Bourdon tube mechanism. Reads from 10-90 psi. Includes adjustable black polypropylene panel, installation kit, lighting kit and complete instructions. Modules can be clipped together side-by-side. Living hinge allows 50° movement for better visibility and safety.



MODEL 82452

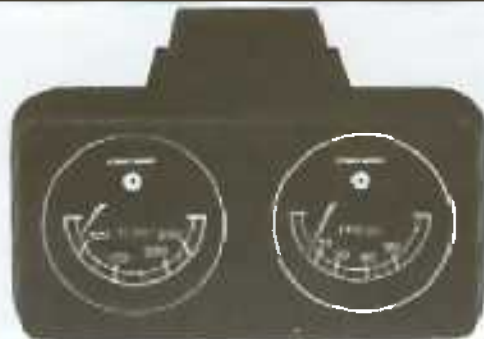
Water temperature gauge with illuminated face dial. Reads from 120°-270° F. A 12-volt zener diode regulated bi-metal mechanism works with negative ground system only. Includes adjustable black polypropylene panel, 1/8" temperature sender, with adapters for 1/2" and 3/8" p.t. temperature connections, lighting kit and complete instructions. Modules can be clipped together side-by-side. Living hinge allows 50° movement for better visibility and safety.

SENSOR EUROPEAN



MODEL 82453

Gauge housing kit including 60-0-60 Ammeter and 10-90 psi Oil Pressure Gauge with installation kit, 2-hole housing, light and mounting kits. Gauges can be rotated 360° and modules mounted in any direction.



MODEL 82454

Gauge housing kit including 10-90 psi Mechanical Oil Pressure Gauge and 120°-270°F Water Temperature Gauges. Includes installation kit, lighting and mounting kits. Gauges can be rotated 360° and modules mounted in any direction.

STAGE 2



MODEL 287-B

Gauge-Housing Kit including 60-0-60 Ammeter, 0-80 psi Mechanical Pressure Gauge with Installation Kit, Lighting Kits, Two-Hole Housing, Mounting Kit. Gauges can be rotated 360° and modules mounted in any direction.



MODEL 287-C

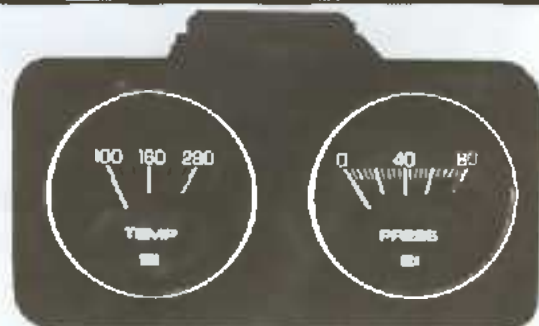
Gauge-Housing Kit including 0-80 psi Mechanical Pressure Gauge with Installation Kit, 100°-280° Mechanical Temperature Gauge with 72" Tubing and 1/2" Adapter, Two-Hole Housing, Mounting and Light Kit. Gauges can be rotated 360° and modules mounted in any direction.

STAGE 1



MODEL 286-B

Gauge-Housing Kit including 60-0-60 Ammeter, 0-80 psi Mechanical Pressure Gauge with Installation Kit, Two-Hole Housing, Light & Mounting Kits. Gauges can be rotated 360° and modules mounted in any direction.



MODEL 286-C

Gauge-Housing Kit including 0-80 psi Mechanical Pressure Gauge with Installation Kit, 12V 100°-280° Electric Temperature Gauge for 12V Neg/Pos Ground, Temperature Sender, Two-Hole Housing, Light & Mounting Kits. Gauges can be rotated 360° and modules mounted in any direction.

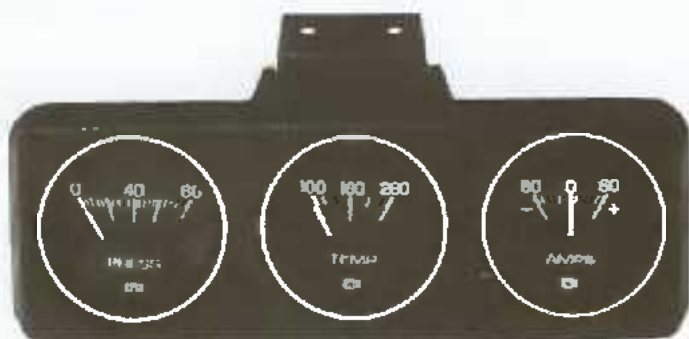
STAGE 2



MODEL 287-D

Gauge-Housing kit including 60-0-60 Ammeter, 0-80 psi Mechanical Pressure Gauge with Installation Kit, 100°-280° Mechanical Temperature Gauge with 72" tubing and 1/2" Adapter, Three-Hole Housing, Light & Mounting Kits. Gauges can be rotated 360° and modules mounted in any direction.

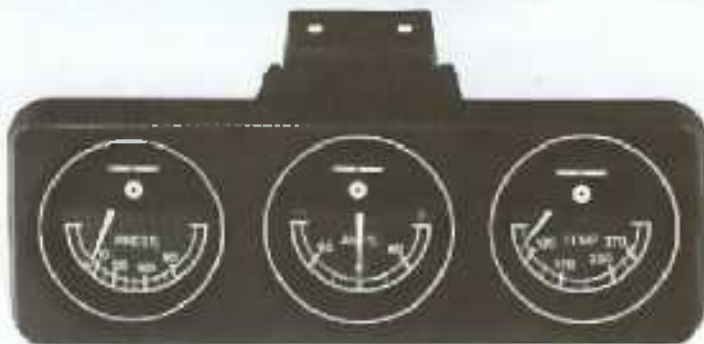
STAGE 1



MODEL 286-D

Gauge-Housing Kit including 60-0-60 Ammeter, 0-80 psi Mechanical Pressure Gauge and Installation Kit, 100°-280° Electric Water Temperature Gauge, 12V Neg/Pos Ground, Temperature Sender Kit, Three-Hole Housing, Light & Mounting Kits. Gauges can be rotated 360° and modules mounted in any direction.

SENSOR EUROPEAN



MODEL 82455

Gauge-Housing Kit including 60-0-60 Ammeter, 10-90 psi Mechanical Oil Pressure Gauge and 120-270°F Water Temperature Gauge. With three-hole housing, light and mounting kits and installation kit. Gauges can be rotated 360° and modules mounted in any direction.

NOTE. No. 824425—Replacement brace bracket for two- and three-hole panels.

NORYL® PANELS

High impact Noryl® black plastic. Minimum flat area required for mounting.

Module Mounting Kit

Used with Stage 3, Stage 2, Heavy Duty, 2 1/4" Dia. Deluxe gauges.

Includes mounting foot 288-A

Module as above less mounting foot 288-F

2 Hole Housing

Used with all gauge lines except Standard/Custom 2 1/2" dia. gauges. Gauges can be rotated 360° and modules mounted in any direction.

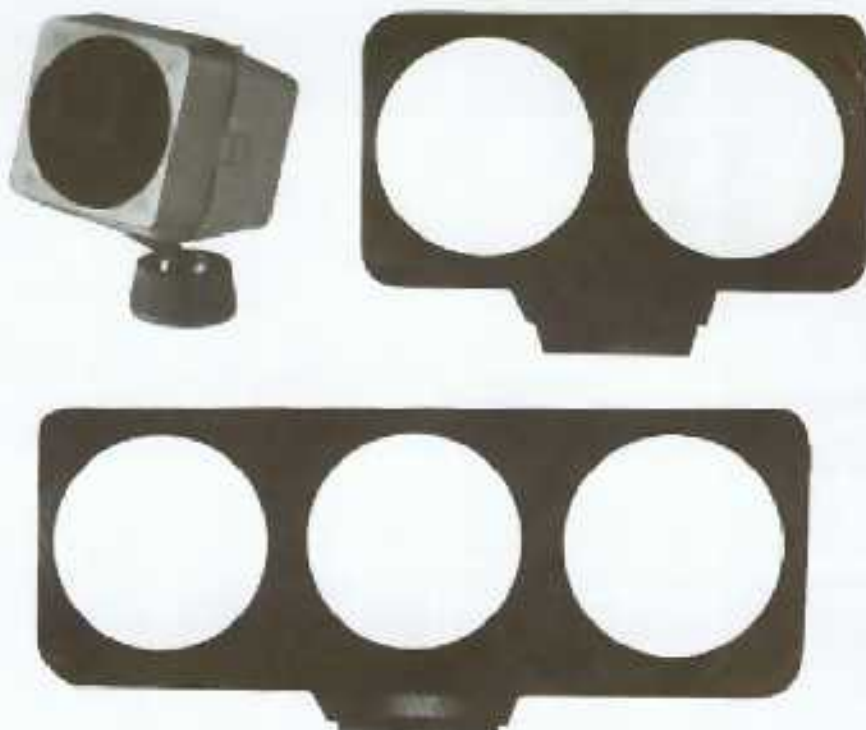
[Stage 1 gauges requires lamp/socket kit 366-SW] 287-A

3 Hole Housing

Used with all gauge lines except Standard/Custom 2 1/2" and 2 3/4" diameter gauges. Gauges can be rotated 360° and modules mounted in any direction. (Stage 1 gauges requires lamp/socket kit 366-SW)

..... 286-A

No. 824425: Replacement brace bracket for two- and three-hole panels.



DIE CAST PANELS

Black or Wood Grain

Suede black finish, die-cast panel used with all gauge lines except 2 3/4" diameter gauges. Woodgrain adhesive panel overlay is provided.

1-Hole Panel and Overlay .. 289-B

2-Hole Panel, and Overlay ... 289-C

3-Hole Panel, and Overlay 289-D



BRIGHT CHROME & STRIPED CHROME STEEL PANELS

No. of Gauges	Panel Finish	Lighting Bracket	Catalog No.
---------------	--------------	------------------	-------------

For 2 1/4 & 2 1/2 Dia. Gauges

1	bright	no	817825
2	bright	yes	814143
3	bright	yes	811653
4	bright	yes	813878

For 2 3/4 Dia. Gauges

1	striped	no	811659
2	bright	no	813877
3	bright	no	813642



Cup Mounting Kit

Black crinkle finish. Includes Cup, Base, Clamp, Strap and Hardware. For 2-3/4" dia. gauges 366-MP

Model Year	Thread Size in Inches			Pressure		Temperature							
	Oil PSI	Water Temp	Std. Drain Plug	306 Series (Std.)	281 Series (Stage 1)	280-284 Series NG, GD, (Stage 3) (HD) 82000 Series				82000 Series			
				281/283-284 Series 82000 Series CH PSI	Water Temp 100-280*	Water Temp Univ. Kit 100-280*	Indiv. Water Temp 100-280*	Temp Univ. Kit 100-280*	Temp Univ. Kit 140-320*	Drain Plug 1/8" 5/16" 3/8" 1/2"	Temp 100-280*	Temp Univ. Kit 100-280*	
				0-80	0-100								

General Motors

Buick 1977-1987 1966-1963	1/4-18 1/4-18 3/8-27 1/4-27	1/2-14 1/2-14	1/2 Std 1/2 Std	279-A 279-A 279-A 279-A	279-B 279-B 279-B 279-B	362-AH 362-AH 362-AH 362-AH	280-EA 280-EA 280-EA 280-EA	334-AD 334-AD 334-AD 334-AD	280-ED 280-ED 280-ED 280-ED	280-EE 280-EE 280-EE 280-EE	280-EH 280-EH 280-EH 280-EH	362-AH 362-AH 362-AH 362-AH	280-EA 280-EA 280-EA 280-EA
Cadillac 1972-1982	1/4-18	1/2-14	3/8 Std	279-A	279-B	362-AH	280-EA	334-AD	280-ED	280-EE	—	362-AH	280-EA
Chevrolet 1977-1984 1963-1962	1/4-27 1/4-18 1/4-27	1/2-14 1/2-14	1/2 Std 1/2 Std	279-A 279-A 279-A	279-B 279-B 279-B	362-AH 362-AH 362-AH	280-EA 280-EA 280-EA	334-AD 334-AD 334-AD	280-ED 280-ED 280-ED	280-EE 280-EE 280-EE	280-EH 280-EH 280-EH	362-AH 362-AH 362-AH	280-EA 280-EA 280-EA
Oldsmobile 1977-1962	1/4-27	1/2-14	1/2 Std	279-A	279-B	362-AH	280-EA	334-AD	280-ED	280-EE	280-EH	362-AH	280-EA
Pontiac	1/4-27	1/2-14	1/2 Std	279-A	279-B	362-AH	280-EA	334-AD	280-ED	280-EE	280-EH	362-AH	280-EA

Ford Motor Co.

Ford 1977-1967 1966-1965	1/4-18 1/4-18	3/8-18 3/8-18 1/4-27	1/2 Std 1/2 Std	279-A 279-A 279-A	279-B 279-B 279-B	362-AJ 362-AJ 362-CZ	280-EA 280-EA 280-EA	334-AB 334-AB 334-H	280-ED 280-ED 280-ED	280-EE 280-EE 280-EE	280-EH 280-EH 280-EH	362-AJ 362-AJ 362-CZ	280-EA 280-EA 280-EA
1964-1963	1/4-18	1/4-27 1/4-18	1/2 Std	279-A 279-A	279-B 279-B	362-CZ 362-AN	280-EA 280-EA	334-H 334-AA	280-ED 280-ED	280-EE 280-EE	280-EH 280-EH	362-CZ 362-AN	280-EA —
1962	1/4-18	1/4-18	1/2 Std	279-A	279-B	362-AN	280-EA	334-AA	280-ED	280-EE	280-EH	362-AN	280-EA
Mustang 1973-1967 1966	1/4-18 1/4-18	3/8-18 3/8-18 1/4-27	1/2 Std 1/2 Std	279-A 279-A 279-A	279-B 279-B 279-B	362-AJ 362-AJ 362-CZ	280-EA 280-EA 280-EA	334-AB 334-AB 334-H	280-ED 280-ED 280-ED	280-EE 280-EE 280-EE	280-EH 280-EH 280-EH	362-AJ 362-AJ 362-CZ	280-EA 280-EA —
1965	1/4-18	1/4-27	1/2 Std	279-A	279-B	362-CZ	280-EA	334-H	280-ED	280-EE	280-EH	362-CZ	280-EA
T-Bird 1977-1967 1965-1964	1/4-18 1/4-18	3/8-18 3/8-18	1/2 Std 1/2 Std	279-A 279-A	279-B 279-BN	362-AJ 362-AJ	280-EA 280-EA	334-AB 334-AB	280-ED 280-ED	280-EE 280-EE	280-EH 280-EH	362-AJ 362-AJ	280-EA 280-EA
1963	1/4-19	1/4-27 1/4-18	1/2 Std	279-A 279-A	279-BN 279-BN	362-CZ 362-AN	280-EA 280-EA	334-H 334-AA	280-ED 280-ED	280-EE 280-EE	280-EH 280-EH	362-CZ 362-AN	280-EA —
1962	1/4-19	1/4-18	1/2 Std	279-A	279-BN	362-AN	280-EA	334-AA	280-ED	280-EE	280-EH	362-AN	280-EA
Lincoln-Mercury 1977-1968 1965-1964 1963	1/4-18 1/4-18 1/4-18	3/8-18 1/4-27 1/4-18	1/2 Std 1/2 Std 1/2 Std	279-A 279-A 279-A	279-B 279-B 279-B	362-AJ 362-CZ 362-CZ	280-EA 280-EA 280-EA	334-AB 334-H 334-AA	280-ED 280-ED 280-ED	280-EE 280-EE 280-EE	280-EH 280-EH 280-EH	362-AJ 362-CZ 362-CZ	280-EA 280-EA 280-EA
1962	1/4-18	1/4-18	1/2 Std	279-A	279-B	362-AN	280-EA	334-AA	280-ED	280-EE	280-EH	362-AN	280-EA
Capri & Pinto 1800 2000	1/4-27 1/4-27	1/4-27 3/8-18	1/2 Std 1/2 Std	279-A 279-A	279-B 279-B	362-CZ 362-AJ	280-EA 280-EA	334-H 334-AB	280-ED 280-ED	280-EE 280-EE	280-EH 280-EH	362-CZ —	280-EA —
Maverick	1/4-18	3/8-18	1/2 Std	279-A	279-B	362-AJ	280-EA	334-AB	280-ED	280-EE	280-EH	362-CZ	280-EA

Chrysler Corp.

Chrysler 1977-1964	1/4-27	Light 1/2-14 Gauge 1/4-27	1/2 Std	279-A	279-B	362-AH	280-EA	334-AD	280-ED	280-EE	280-EH	362-AH	280-EE
1963-1962	1/4-27	1/4-18	1/2 Std	279-A	279-B	362-CZ 362-AN	280-EA 280-EA	334-H 334-AA	280-ED 280-ED	280-EE 280-EE	280-EH 280-EH	— 362-AH	— 280-EE
Dodge Dart 1977-1965	1/4-27	Light 1/2-14 Gauge 1/4-27	1/2 Std	279-A 279A	279-B 279B	362-AH	280-EA	334-AD	280-ED	280-EE	280-EH	362-AH 362-CZ	280-EE —
1964-1962	1/4-27	1/4-27 1/4-18	1/2 Std	279-A 279-A	279-B 279-B	362-CZ 362-AN	280-EA 280-EA	334-H 334-AA	280-ED 280-ED	280-EE 280-EE	280-EH 280-EH	362-CZ 362-AN	280-EE —
Plymouth 1977-1964 1963-1962	1/4-27 1/4-27	1/4-27 1/4-18	1/2 Std 1/2 Std	279-A 279-A	279-B 279-B	362-CZ 362-AN	280-EA 280-EA	334-H 334-AA	280-ED 280-ED	280-EE 280-EE	280-EH 280-EH	362-CZ 362-AN	280-EE 280-EE

American Motors

1977-1965 (8 Cyl) (6 Cyl)	1/4-27 1/4-27	1/4-27 1/4-18	3/4 Std 1/2 Std	279-A 279-A	279-B 279-B	362-CZ 362-CZ	280-EA 280-EA	334-H 334-H	280-ED 280-ED	280-EE 280-EE	— 280-EH	362-CZ 362-AN	280-EA 280-EA
1964-1962	1/4-27	1/4-18	1/2 Std	279-A	279-B	362-AN	280-EA	334-AA	280-ED	280-EE	280-EH	—	—

① 6 cylinder engine requires 1/2" P.T. Adapter for oil.

Warning Note: Many engines incorporate anti-pollution devices which are actuated by the O.E.M. water temperature switch. Do Not Replace That Switch. We suggest oil temp gauge and drain plug 280-EH (see above).

Temperatures				Adaptors
31 Series (Std.)				Wat Temp Mechanical Adaptor Nut Where Needed 1/2 PT Std
Temp. No. 170	Temp. Univ. Kit 60-270°	Temp. 1/2-14 100-325°	Temp. Univ. Kit 100-325°	
362-AH	280-EA	362-DA	280-EB	not needed
362-AH	280-EA	362-DA	280-EB	not needed
362-AH	280-EA	362-DA	280-EB	not needed
362-AH	280-EA	362-DA	280-EB	not needed
362-AH	280-EA	362-DA	280-EB	not needed
362-AH	280-EA	362-DA	280-EB	not needed
362-AH	280-EA	362-DA	280-EB	not needed
362-AH	280-EA	362-DA	280-EB	not needed
362-AH	280-EA	362-DA	280-EB	not needed

362-AJ	280-EA	362-DA	280-EB	72446
362-AJ	280-EA	362-DA	280-EB	72446
362-CZ	280-EA	362-DA	280-EB	—
362-CZ	280-EA	362-DA	280-EB	—
362-AN	280-EA	362-DA	280-EB	428819
362-AN	280-EA	362-DA	280-EB	428819
362-AJ	280-EA	362-DA	280-EB	72446
362-AJ	280-EA	362-DA	280-EB	72446
362-CZ	280-EA	362-DA	280-EB	—
362-CZ	280-EA	362-DA	280-EB	—
362-AN	280-EA	362-DA	280-EB	428819
362-AN	280-EA	362-DA	280-EB	428819
362-AJ	280-EA	362-DA	280-EB	72446
362-CZ	280-EA	362-DA	280-EB	—
362-CZ	280-EA	362-DA	280-EB	—
362-AN	280-EA	362-DA	280-EB	428819
362-AN	280-EA	362-DA	280-EB	428819
362-CZ	280-EA	362-DA	280-EB	—
362-CZ	280-EA	362-DA	280-EB	—

362-AH	280-EE	362-DA	280-EB	not needed
362-AH	280-EE	362-DA	280-EB	428819
362-AH	280-EE	362-DA	280-EB	not needed
362-CZ	280-EE	362-DA	280-EB	—
362-CZ	280-EE	362-DA	280-EB	428819
362-CZ	280-EE	362-DA	280-EB	—
362-AN	280-EE	362-DA	280-EB	428819

362-CZ	280-EA	362-DA	280-EB	—
362-AN	280-EA	362-DA	280-EB	—
362-AN	280-EA	362-DA	280-EB	428819

LIGHTING KITS

Gauge Series	Size	Individual Mount		Non-Metallic Panels		Metal Panels		
		Metal Panel	Non-Metallic Panel	285-A 2 1/2x2 1/2	287-A 2 7/8x2 7/8	Module 288-A 288F	289-B, C, D 814143, 811853, 813878 2 7/8x2 7/8	813877 813842 2 1/2
Stamp 1	2 1/2	366-CH	82550	82551	82551	N/A	366-CH	N/A
Stamp 2 (366-FK inc.)	2 1/4	Std.	Std.	Std.	Std.	366-SY	Std.	N/A
Stamp 3 (366-SY inc.)	2 1/4	Std.	Std.	Std.	Std.	Std.	Std.	N/A
Heavy Duty	2 1/4	366-FK	366-FK	366-FK	366-FK	366-FK	366-FK	N/A
Dezura (366-FK inc.)	2 1/4	—	—	—	—	—	—	—
Amper Gauge	—	Std.	366-SX	366-SX	366-SX	366-SX	Std.	N/A
Oil Gauge	—	Std.	Std.	Std.	Std.	366-SY	Std.	N/A
Deluxe Sensor	2 1/4	366-FK	366-FK	N/A	N/A	N/A	N/A	366-FK
	2 1/4	366-CH	82550	82551	82551	366-CH	366-CH	N/A

For marine usage, Kit 366-SZ is recommended instead of 366-FK
 Ⓞ 366-FK may be used, however, the light socket will protrude from the rear.
 Ⓞ Requires one lighting kit for two gauges.
366-CH — includes 366-FK & bracket
366-FK — one-wire, 3/8 socket & 12-volt bulb #GE57
B2551 (formerly 366-SW) — two-wire, 1/2 socket & 12-volt #GE1891
366-SX — two-wire, 3/8 socket & 12-volt bulb #GE1891
366-SY — one wire, 3/8 socket short & 12-volt bulb #GE158
366-SZ — same as 366-FK, except plastic socket

RESISTORS FOR SPECIAL VOLTAGES

Description	To adapt 12V gauge for use with 24VDC power source.	To adapt 12V gauge for use with 32VDC power source.
For 12V Gauge with 3-Torque mechanisms (including Sig 3, HD and 62000 series Dezura)	829525-2 (408023)	829525-8 (821986)
Gauge in 281 (Std. 306 or 311 Series (including 428899) and Truck).	829525-6 (818210) (428899)	829525-3 (417813)

TEMPERATURE SWITCHES —Series 363—

For warning lights

Temp	Thread W"	1/2"	3/4"
200°	363-D	363-E	363-F
225°	363-AM	—	363-G
250°	—	—	363-W
120°-250° Ⓞ	—	—	363-AD

Ⓞ Double Switch

CROSS REFERENCE FOR REPLACEMENT OF STEWART-WARNER O.E.M.

O.E.M. No.	S-W No.	O.E.M. No.	S-W No.
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TEMPERATURE SWITCHES

363-H	363-F	438031	363-F
363-J	363-F	438031	363-E
363-N	363-E	438054	363-F
363-P	363-F	438070	363-F
363-T	363-F	438098	363-E
363-AL	363-D	—	—

PRESSURE SWITCHES

364-H	364-L	364-AE	364-K
364-N	364-L	364-AF	364-T
364-P	364-L	364-AM	364-K
364-X	364-L	364-AN	364-L
364-Y	364-K	364-AR	364-L
364-AA	364-M	—	—

PRESSURE SWITCHES—Series 364—For Warning Lights

	0 LB.	10 LB.	15 LB.	60 LB.	80 LB.
1/8"	364-L	364-AH	364-K	438076	438071
1/4"	364-M	364-AJ	—	—	—
1/2"	—	364-AL	—	—	—

SIGNAL LIGHT

For use with any Pressure or Temperature Switch
 No. 420125 for 12-volt systems



PASSENGER CARS

Gas: pages 25, 26, 27, 28, 29 (4 cylinder only, see 999K, page 29)
Diesel: page 34



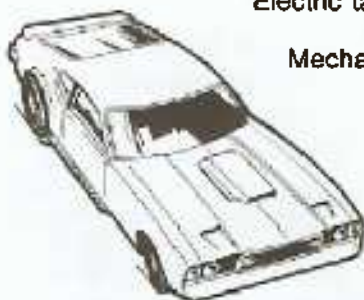
HEAVY-DUTY TRUCKS

Gas: pages 25, 26, 27, 28
Diesel: page 34



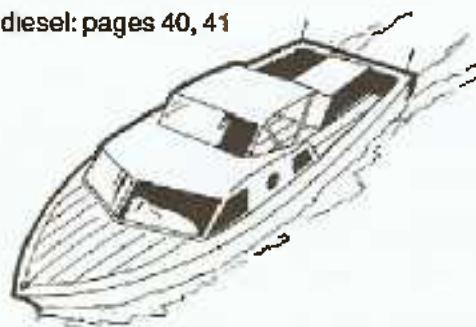
ROD & CUSTOM CARS

Electric tachometers: pages 25, 26, 27, 28, 29
Mechanical tachometers: pages 32, 33



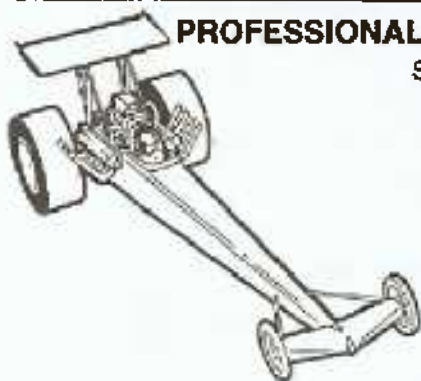
BOATS

Gas and diesel: pages 40, 41



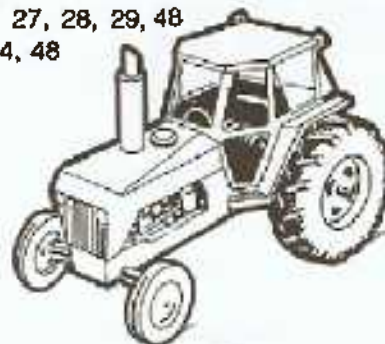
PROFESSIONAL RACE CARS

See pages 32, 33



FARM & CONSTRUCTION EQUIPMENT

Gas: pages 26, 27, 28, 29, 48
Diesel: pages 34, 48



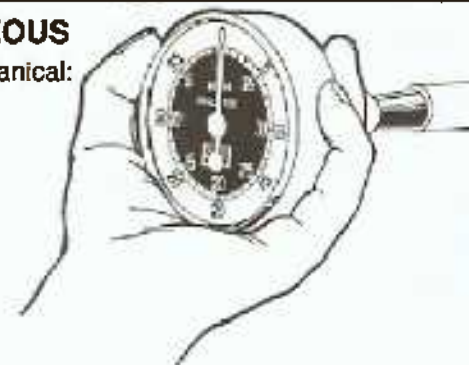
VANS & LIGHT TRUCKS

Gas: pages 25, 26, 27, 28, 29
Diesel: page 34



MISCELLANEOUS

Hand-held, mechanical: page 48



See Color Photos of Tach Styles on Inside Back Cover

DELUXE—Model 997-R

0-8000 RPM, 12 V. Negative Ground. 3 $\frac{3}{8}$ " diameter. Solid state circuit like Stage 3 tach Model 997-A. Has 250° sweep with black background and white numerals and pointer.

Model 82150, same as above, except 0-6000 RPM.

**HEAVY DUTY—Model 997-J**

0-8000 RPM, 12 V. Negative Ground. 3 $\frac{3}{8}$ " diameter. Solid state amplified circuit similar to Stage 3 Model 997-A tach. Has black background with white numerals and pointer, and chrome bezel.

Model 997-K, same as above except 0-6000 RPM.

**STAGE 3—Model 997-A**

0-9000 RPM, 12 V, Negative Ground. 3" diameter. Combines latest in solid state amplified computing circuit with d'Arsonval meter movement. Internal, non-glare lunar blue Transoptic lighting. Adjustable red line. Face dial has 250° sweep, black background, yellow and white numerals and accents and white pointer. Bezel is non-reflective black with satin trim.

Model 997-B, same as above, except 0-7000 RPM





Model 82604

SUPER TACH**Model 82604, 0-9000 RPM, 3 $\frac{3}{4}$ " Case Dia.**

For those who demand the most from their tachometer. This tach uses a meter which will go from zero to full scale in less than $\frac{3}{10}$ of a second. . . with tracking accuracy of $\pm 2\%$

It also withstands repeated shocks in excess of 100 G's as well as vibrations of 20 G's at 80 Hertz!

The face dial is black with white pointer and with white & green graduations. Of course it has an adjustable red line and it features Transoptic[®] lighting for superior nighttime visibility. In addition, it comes in a gleaming chrome case. The 82604 can be used on all 6 or 8 cylinder engines (12V, negative ground) with OEM ignitions and with a wide variety of "high performance" ignition systems (see chart on page 30).



Model 82600, 0-8000 RPM

UNIVERSAL TACH**Model 82600, 0-8000 RPM, 3" Case Dia.**

This unit is very much like the other tachs shown on these two pages, except it is smaller. Fits where others will not! Includes pedestal type housing with black suede finish. Face dial is black with white pointers and graduations. Does not have an adjustable red line.

Can be used on all 4, 6 or 8 cylinder (12V negative ground) engines with OEM ignitions. Can also be used with most "high performance" ignition systems (see chart on page 30).

UNIVERSAL TACH

Model 82601, 0-10000 RPM, 3 $\frac{3}{4}$ " Case Dia.

Model 82602, 0-8000 RPM, 3 $\frac{3}{4}$ " Case Dia.

Model 82603, 0-6000 RPM, 3 $\frac{3}{4}$ " Case Dia.

Computerized, printed circuit boards assure accuracy and reliability. Features solid-state, computing circuits in combination with jeweled d'Arsonval meter movements and Transoptic[®] lighting.

Integral black housing with black face dial and white graduations and pointer. Adjustable red line.

Used on all 4, 6 or 8 cylinder (12V negative ground) engines with OEM ignition systems. Can also be used in conjunction with many "high performance" ignition systems. (See chart on page 30).



Model 82601, 82602, 82603

STAGE 3 TACHS

Model 997-A, 0-9000 RPM, 3" Case Dia.

Model 997-B, 0-7000 RPM, 3" Case Dia.

Stage 3 tachs combine solid state amplified computing circuits with accurate, jeweled d'Arsonval meter movements for quick, steady readings.

Their black face dials have white pointers with white and yellow graduations. They feature adjustable red lines and the exclusive Transoptic[®] lighting for maximum nighttime visibility.

These tachs may be used on all 4, 6 or 8 cylinder (12V, negative ground) engines with OEM ignitions as well with most "high performance" ignition systems (see chart on page 30).

NOTE: The 997-A Tach shown is housed in the optional Stage 3 Tach Housing 289-A which must be ordered separately.



Model 997-A
shown with 289-A module

**SENSOR INTERNATIONAL****Model 82605, 0-8000 RPM, 3" Case Dia.****Model 82606, 0-8000 RPM, 3¾" Case Dia.**

Sensitive D'Arsonval jeweled meter movements are powered by zener regulated solid-state circuitry. All Sensor Tachs can be used on 4, 6 or 8 cylinder engines. And they're compatible with all domestic factory-installed electronic ignition systems.

Each Sensor tach has a universal hinge and can be mounted in any position since the face dials can be rotated 360°. Internal lighting kits are included that give excellent nighttime visibility.

International face-style has white numerals and markings on a black background and a yellow international symbol to identify it. Gauge scales and pointers read across the top.

**SENSOR EUROPEAN****Model 82607, 0-8000 RPM, 3" Case Dia.****Model 82608, 0-8000 RPM, 3¾" Case Dia.****Model 82609, 0-10000 RPM, 3¾" Case Dia.**

Sensitive D'Arsonval jeweled meter movements are powered by zener regulated solid-state circuitry. All Sensor Tachs can be used on 4, 6 or 8 cylinder engines. And they're compatible with all domestic factory-installed electronic ignition systems.

Each Sensor tach has a universal hinge and can be mounted in any position since the face dials can be rotated 360°. Internal lighting kits are included that give excellent nighttime visibility.

European face-style has green numerals and markings on a black background. Gauge scales and pointers read across the bottom.

**STAGE 2
Model 998-J**

0-9000 RPM, 12V, negative or positive ground. Works on 4, 6, 8 cylinder engines. 3 3/4" diameter. Combines Zener Diode regulation with a jeweled d'Arsonval meter movement. Face dial can be rotated 360° in pedestal type black finish housing for installation at any required angle. Includes both adjustable red warning band and red static pointer, internal lunar-blue lighting. 250° sweep. Face dial background is black, pointer is white, numerals and accents are orange-white.



998-J

**STAGE 1
Model 998-H**

0-8000 RPM, 12V, negative or positive ground. Works on 4, 6, 8 cylinder engines. 3 3/4" diameter. Combines Zener Diode regulation with jeweled d'Arsonval meter movement. Face dial can be rotated 360° in integral black finish housing for installation at any required angle. Includes adjustable static pointer, internal illumination, 250° sweep. Face dial background is black; numerals and pointer are white; accents are yellow.



998-H

4 CYLINDER TACH

Model 999-K

NEW

0-6000 RPM, 12V, negative ground. Works on 4 cylinder engines only. 3" diameter. 90° face dial in black suede Nextel housing. Pedestal mount easily adjusts up and down for viewing convenience. Can be mounted on steering column or dashboard. Satin chrome finished Lexan bezel. Face dial background is black. Numerals are white, pointer is orange, accents are yellow.









999-K








For Electric Tachometer Applications and Specifications, see pages 30 & 31.



	TACHOMETER MODELS 997-A ^① , 997-B ^① , 997-J ^① , 997-K, 997-R ^② , 82150 ^② , 82600, 82601, 82602, 82603, 82604	TACHOMETER MODELS 998-H, 998-J, 999-C, 999-D 82154, 82605, 82606 82607, 82608, 82609
Breaker Point Ignitions (Single or Dual Point, Single Coil) Kettering Ignitions	YES	YES
ACCEL Bel Breakerless	YES	NO
ALLISON Opto-Pickup	YES**	NO
AMC Prestolite	YES**	YES
A.R.E. Ramfire	YES	NO
BENDIX	YES**	NO
BORG WARNER	YES**	NO
C-D System Mark II	YES	NO
CHRYSLER Electronic (Mopar)	YES	YES ^③
CRAGER C-D	YES	NO
CRAGER Power Pak	YES	NO
DELCO-REMY C-D	YES	NO
DELCO-REMY H.E.I. (G.M.)	YES**	YES ^③
DELCO-REMY Magnetic Pulse	YES	NO
DELCO-REMY Transistorized	YES	NO
ECHLIN T-38N	YES	NO
EDELBROCK Thermalspark	YES**	YES
ESSEX Elightronic	YES**	NO
FORD Motor Craft Electronic	YES	YES
G.M.H.E.I. (Delco-Remy)	YES**	YES
GRANT Flamethrower C-D II	YES	NO
HAYS Stinger	YES**	NO
HURST/AIRHEART Scr Electronic	YES**	NO
IHC Prestolite	YES**	YES
JUDSON	YES	NO
MACH II C.D.	YES**	NO
MALLORY Mini-Mag	NO	NO
MALLORY Photo Cell C-D	NO	NO
MALLORY Rev-pol Mark II	YES	NO
MALLORY SS Breakerless I.R. (Mallory Part 28820 Required)	YES**	NO
MALLORY SS	YES**	NO
MALLORY Super C-D	YES**	NO
MALLORY T-12NA Transistorized	YES	NO
MOBELEC Electronic Breakerless	YES**	YES
MOTION Perf. C-D Phase III	YES	NO
MOTOROLA c.d.l.-12	YES**	NO
MOTOROLA Transistorized	YES	NO
PRESTOLITE Breakerless Ign.	YES	NO
PRESTOLITE Transignitor 201, 205	YES	NO
TRW Lumenitor	YES**	NO

① This application chart applies to only those Model 997-A, -B, -J, -K, -R & 82150 which were manufactured after June 1, 1975 (Alpha Numeric Data Code U-6 or later). Look for data code U-6 or "higher" on Tach. Those units manufactured earlier than this date will not function correctly on those applications which have a double (**).

② For accurate indication above 4,000 RPM, recalibration may be necessary. Instructions included with tachs.

Specification						
PART NUMBER	997-A	997-B	997-J	997-K	997-R	998-H
FACE DIAL	Stage 3	Stage 3	B & W (H.D.)	B & W (H.D.)	B & W	Stage 1
DIAL SWEEP	250°	250°	250°	250°	250°	250°
RPM's	9000	7000	8000	6000	8000	8000
MOUNTING	Panel	Panel	Panel	Panel	Panel	Pedestal
CASE DIAMETER	3"	3"	3 1/4"	3 1/4"	3 1/4"	3 1/4"
CYLINDERS	4-6-8	4-6-8	4-6-8	4-6-8	4-6-8	4-6-8
VOLTAGE	12	12	12	12	12	12
GROUND	Neg.	Neg.	Neg.	Neg.	Neg.	Pos.-Neg.
Description	page 25, 27	page 25, 27	page 25	page 25	page 25	page 29

Specification							
PART NO.	998-J	999-K	82150	82600	82601	82602	82603
FACE DIAL	Stage 2	B & W (E.T.)	B & W	B & W (H.D.)	B & W	B & W	B & W
DIAL SWEEP	250°	90°	250°	250°	250°	250°	250°
RPM's	9000	8000	6000	8000	10000	8000	6000
MOUNTING	Pedestal	Pedestal	Panel	Pedestal	Pedestal	Pedestal	Pedestal
CASE DIA.	3 1/4"	3"	3 1/4"	3"	3 1/4"	3 1/4"	3 1/4"
CYLINDERS	4-6-8	4	4-6-8	4-6-8	4-6-8	4-6-8	4-6-8
VOLTAGE	12	12	12	12	12	12	12
GROUND	Pos.-Neg.	Neg.	Neg.	Neg.	Neg.	Neg.	Neg.
Description	page 29	page 29	page 25	page 26	page 27	page 27	page 27

Specification						
PART NUMBER	82604	82605	82606	82607	82608	82609
FACE DIAL	B & W	International	International	European	European	European
DIAL SWEEP	250°	90°	90°	250°	250°	250°
RPM's	9000	8000	8000	8000	8000	10000
MOUNTING	Pedestal	Pedestal	Pedestal	Pedestal	Pedestal	Pedestal
CASE DIAMETER	3 1/4"	3"	3 1/4"	3"	3 1/4"	3 1/4"
CYLINDERS	6-8	4-6-8	4-6-8	4-6-8	4-6-8	4-6-8
VOLTAGE	12	12	12	12	12	12
GROUND	Neg.	Neg.	Neg.	Neg.	Neg.	Neg.
Description	page 26	page 26	page 28	page 28	page 28	page 28



DELUXE—Model 535-AH

3 $\frac{3}{8}$ " diameter tach features "built-to-last" internal construction for accurate, steady RPM readings. Static pointer. Internal illumination. $\frac{5}{16}$ "-18 connection with .105" sq. hole. 0-9000 RPM



HEAVY DUTY—Model 535-AK

3 $\frac{3}{8}$ " diameter tach features "built-to-last" internal construction for accurate, steady RPM readings. Internal illumination $\frac{5}{16}$ "-18 connection with .105" sq. hole. 0-9000 RPM



0-10,000 RPM 424-EX
0-12,000 RPM 424-EY

MECHANICAL 4:1 TACH WITH TELLTALE POINTER 424 Tach

The ultimate match to the high-performance car. A blue-printed tach to match your one-of-a-kind engine. 4 to 1 ratio provides greater efficiency, exacting accuracy. "Telltale" pointer locks in your highest RPM for any run. Pointer is released with push-button on side. The finest, most completely integrated tachometer system available today.

0-10000 RPM 424-EX
0-12000 RPM 424-EY
Includes light socket (less bulb) 250° Competition Dial.

424 Tach Special Applications

Car	Components Needed	
	Model No.	Description
Ford DOHC Indy engines Offenhauser engines English Ford Corana and Cosworth Formula engines Engines with Smith engine Adapters BF-1507/02 or BF-1507/00.	424-EX	Tachometer 0-10000 RPM
	424-EY	Tachometer 0-12000 RPM
	446900-7X	Flexible Shaft (18", 42" or 72")
		Metric adapter kit (special order from Performance, Coordinator, Dept. 537, Stewart-Warner, Chicago—\$4.30)
All rear engine cars	776-2	Right angle adapter, permitting turn of flexible shaft.

ACCESSORIES FOR 535-AH & 535-AK MECHANICAL TACHS

Drive Tips

Drive tips are flexible Shafts 446900-1X-42" or -72". Stewart-Warner compensating type drive tips snap onto the shaft and are self aligning for maximum reliability.

Size	Distributor	Part No.
104 sq.	Accel, Delco Mallory	818749
.152 tang	Mopar, Mallory	818750
.187 tang	Mallory, Vertex	817769

Right Angle Adapters

Attach to connection on back of tachometer to change direction of shaft connection. 1:1 ratio.
Drive end: .104" sq. tip. Driven end: .105" sq. hole.

- 407010—Direct Rotation
- 411335—Reverse Rotation



818749



407010

264 SERIES MECHANICAL TACHOMETER KITS INCORPORATING 424-EX (0-10,000 RPM) TACHOMETER

264-A HI-PERF TACH KIT—104 sq tip. Includes 424-EX Tach, Shaft, Adapter, Light Socket less bulb and 42" flex. shaft. 3 1/2" Dia., 0-10,000 RPM.

264-B—As 264-A, but with 18" and 42" flex. shaft, and provisions for Mechanical Shut-Off. Shut-Off not supplied.

264-C—As 264-A, except with .152 Tang. and 72" flex. shaft.

264-D—As 264-C with provisions for Mechanical Shut-Off, .152 Tang. Includes 18" and 72" flex. shaft. Shut-Off not included.

264-E—As 264-A, except with .187 Tang. and 72" flex. shaft.

264-F—As 264-E with provision for Mechanical Shut-Off. .187 Tang. But with 18" and 72" flex. shaft, Shut-Off not supplied.

Series 264 Tach Applications

Tip Size	Distributor	Application	Kit No.
104 sq	Delco, Mallory Accel	Chevrolet Miscellaneous	264-A①
.104 sq	Delco, Mallory Accel	Chevrolet Miscellaneous	264-B①②
.152 Tang	Mopar, Mallory	Chrysler (Dodge-Plymouth)	264-C
.152 Tang	Mopar, Mallory	Chrysler (Dodge-Plymouth)	264-D②
.187 Tang	Mallory, Vertex	Miscellaneous	264-E
.187 Tang	Mallory, Vertex	Miscellaneous	264-F②

① When 264-A or B Kit is used on any application other than a G.M. car, where the distributor is at the rear of the engine, an additional Long Flex Shaft must be purchased Part No. 446900-7X-18", 42" 72".
② Use where mechanical shut-off device is desired.



NOTE: ALL MECHANICAL TACHS REQUIRE DISTRIBUTOR WITH MECHANICAL TAKE-OFF.

MECHANICAL

ELECTRIC

250° DIAL/SATIN BLACK BEZEL



These panel mount (3 3/4" Dia.) mechanical tachometers have 250° dials and satin black bezels. They feature provision for glare free internal trans-
optic lighting (lighting kit not included).

They are used in conjunction with .5:1 drive shaft ratio. They have 5/8"-18 connection with .105" sq. hole.

551-AHK 0-3500 RPM
551-AHL (Includes Odometer) 0-3500 RPM

250°/SATIN BLACK/CHROME BEZEL



These Electric Tachometers have 250° dials. They are panel mount units (3 3/4" Dia.) with internal lighting (12V lighting kit included). These tachs can be used with any voltage and with positive or negative ground systems.

These tachometers are set at the factory for use with a 1:1 Take Off Ratio. To use these tachs with other take off ratios, a simple adjustment must be made on the tach.

Sender 106-AW is used in conjunction with these tachs and must be ordered separately. Also accessory Drive Tips must be ordered separately (See page 35).

994-C (250°/Satin Black) 0-3500 RPM
994-D (250°/Satin Black) 0-5000 RPM
82157 (250°/Chrome) 0-3500 RPM
82158 (250°/Chrome) 0-5000 RPM

For Tips, See Page 35

For use with .5:1, 1:1 & 2:1 Take Off Ratios

250° DIAL/SATIN CHROME BEZEL



These panel mount (3 3/4" Dia.) mechanical tachometers have 250° dials with satin chrome bezels. They have provision for internal lighting (lighting kit not included).

They have 5/8"-18 connection with .105" sq. hole.

FOR USE WITH .5:1 Drive Shaft Ratio

551-SE 0-3500 RPM
551-SF (Includes Odometer) 0-3500 RPM

FOR USE WITH 1:1 Drive Shaft Ratio

551-WB 0-3500 RPM
551-WC (Includes Odometer) 0-3500 RPM

250°/CHROME BEZEL



These Electric Tachometers have 250° dials. They are panel mount units (3 3/4" Dia.) with internal lighting (12V lighting kit included). These tachs can be used with any voltage and with positive or negative ground systems.

These Tachometers are set at the factory for use with .5:1 Take Off Ratio. They cannot be used or adapted for other ratios.

Sender 811532 is used in conjunction with these tachs and must be ordered separately. This sender comes with a .187 Drive Tip. If other size Drive Tips are required, they must be ordered separately (See page 35).

994-E (250°/Chrome) 0-3500 RPM
994-F (250°/Chrome) 0-5000 RPM

For Tips, See Page 35

For use with .5:1 Take Off Ratio

250° DIAL/CHROME BEZEL



These panel mount (3 3/4" Dia.) mechanical tachometers have 250° dials with chrome bezels. They have provision for internal lighting (lighting kit not included).

They are used in conjunction with .5:1 drive shaft ratio. They have 5/8"-18 connection with .105" sq. hole.

551-AKM 0-5000 RPM
(Old number 551-SH)

90°/CHROME BEZEL



These Electric Tachometers have 90° dials. They are panel mount units (3 3/4" Dia.) with internal lighting (12V lighting kit included). These tachs can be used with any voltage and with positive or negative ground systems.

These Tachometers are set at the factory for use with .5:1 Take Off Ratio. To use these tachs with other take off ratios, accessory Ratio Cartridges must be ordered separately (See page 35).

Sender 811532 is used in conjunction with these Tachs and must be ordered separately. This sender comes with a .187 Drive Tip. If other sized Drive Tips are required, they must be ordered separately (See page 35).

811531 (90°/Chrome) 0-3000 RPM
812831 (90°/Chrome) 0-5000 RPM









For Cartridges and Tips, See Page 35.

For use with .5:1, 1:1, 1.5:1 & 2:1 Take Off Ratios

Mechanical

Description							
TACHOMETER MODEL	551-AHK	551-AHL	551-SE	551-SF	551-WB	551-WC	551-AKM
RPM's	0-3500	0-3500	0-3500	0-3500	0-3500	0-3500	0-5000
DIAL SWEEP	250°	250°	250°	250°	250°	250°	250°
FACE DIAL (BEZEL)	B & W (Black)	B & W (Black)	B & W (Satin chrome)	B & W (Satin chrome)	B & W (Chrome)	B & W (Chrome)	B & W (Chrome)
Used with DRIVE SHAFT RATIO	.5:1	.5:1	.5:1	.5:1	1:1	1:1	.5:1
Includes ODOMETER	NO	YES	NO	YES	NO	YES	NO
CONNECTION (Hole)	5/8" -18 (.105" Sq.)	5/8" -18 (.105" Sq.)	5/8" -18 (.105" Sq.)	5/8" -18 (.105" Sq.)	5/8" -18 (.105" Sq.)	5/8" -18 (.105" Sq.)	5/8" -18 (.105" Sq.)

Electric

Description								
TACHOMETER MODEL	994-C	994-D	82157	82158	994-E	994-F	811531	812831
RPM's	0-3500	0-5000	0-3500	0-5000	0-3500	0-5000	0-3000	0-5000
DIAL SWEEP	250°	250°	250°	250°	250°	250°	90°	90°
FACE DIAL (BEZEL)	B & W (Satin Black)	B & W (Satin Black)	B & W (Chrome)	B & W (Chrome)	B & W (Chrome)	B & W (Chrome)	B & W (Chrome)	B & W (Chrome)
Used with TAKE OFF RATIO(s)	.5:1 1:1 2:1	.5:1 1:1 2:1	.5:1 1:1 2:1	.5:1 1:1 2:1	.5:1	.5:1	.5:1 1:1 1.5:1 2:1	.5:1 1:1 1.5:1 2:1
Used with SENDER Model (Order Separately)	106-AW	106-AW	106-AW	106-AW	811532Ⓞ	811632Ⓞ	811532Ⓞ	811532Ⓞ
Used with DRIVE TIP Models (Order Separately)	104" Tip—Model 821870 152" Tip—Model 821874 187" Tip—Model 821875 203" Tip—Model 821876				104" Tip—Not Available 152" Tip—Model 811535 187" Tip—Model 811533* 203" Tip—Model 811536			
Used with RATIO CARTRIDGES (Order Separately)	Ratio Cartridges are not and cannot be used with these tach/sender combinations						1:1—Model 811537 1.5:1—Model 811538 2:1—Model 811539	

Ⓞ .187" Tip is included with Sender 811532

TACHOMETER DRIVE APPLICATIONS FOR DIESEL ENGINES

Engine Model	Tachometer Drive Location	Drive Tip Size	Take Off Ratio	To use Tach Model 894-C, 894-D 82157 or 82158 Order These Components Separately.		To use Tach Model 894-E or 894-F Order These Components Separately.		To use Tach Model 811531 or 812832 Order These Components Separately.		
				Sender	Drive Tip	Sender	Drive Tip	Sender	Drive Tip	Ratio Cartridge
ALLIS CHALMERS (BUDA)										
DA-273, 6DAG-273, D-175, D282, 2800, 2900, 3400, 3500	Distributor Well	.187	.5:1	106-AW	821875	811532	—	811532	—	—
D-334-10,000, -11,000 D-516-10,000, -11,000	Front Gear Cover	.152	5:1	106-AW	821874	811532	811535	811532	811535	—
0,000, 11,000	Front Gear Cover	.187	2:1	106-AW	821875	Cannot be used		811532	—	811539
10,000, 11,000	Front Gear Cover with Drive Joint	.187	.5:1	106-AW	821875	811532	—	811532	—	—
16,000, 21,000(1), 25,000	Access Drive Shaft with Drive Joint	.187	.5:1	106-AW	821875	811532	—	811532	—	—
16,000, 21,000(Old)	Access Drive Shaft	.187	1.5:1	Cannot be used		Cannot be used		811532	—	811538
6DCB-1879 8DCBG-1879	Timing Gear Cover	.187	1.5:1	Cannot be used		Cannot be used		811532	—	811536
6DCBMR-1879, 8DC-2505, 8DCG-2505, 8DCSG-2505 8DCSMR-2505	Access Drive Housing	.187	1.5:1	Cannot be used		Cannot be used		811532	—	811538
								(811536)		

CATERPILLAR

D-311-H, D-320-A, D-330-A, D-330-B D-333-A, D-333-B	Timing Gear Housing (Front)	.187	1:1	106-AW	821875	811532	—	811532	—	—
D-334-A	Camshaft Hsg. (F)	.187	.5:1	106-AW	821875	811532	—	811532	—	—
D-336	Service Meter-Left	.187	.5:1	106-AW	821875	811532	—	811532	—	—
D-342-C, D-343-A	Service Meter-Right	.187	.5:1	106-AW	821875	811532	—	811532	—	—
D-346, D-348, D-349	Front Right Cylinder Head	.187	.5:1	106-AW	821875	811532	—	811532	—	—
D-353-D, D-353-E	Service Meter-Left	.187	.5:1	106-AW	821875	811532	—	811532	—	—
D-378-A, D-379-B D-398-A, D-398-B	Gov. & Pump Housing	.187	.5:1	106-AW	821875	811532	—	811532	—	—
D-399, D-398	Gov. & Pump Housing	.187	1.5:1	Cannot be used		Cannot be used		811532	—	811538
1140, 1145, 1150, 1160, 3145, 3150, 3160	Front Cover in Fuel Cam	.187	.5:1	106-AW	821875	811532	—	811532	—	—
1674	Front Shaft Cover	.187	.5:1	106-AW	821875	811532	—	811532	—	—
1673-C	Rt. Side at Front of Transfer Pump	.187	.5:1	106-AW	821875	811532	—	811532	—	—
1680	Rt. Rear Cover at Access Drive Shaft	.187	.5:1	106-AW	821875	811532	—	811532	—	—

CONTINENTAL

All Models	Camshaft Drive	203	.5:1	106-AW	821876	811532	811536	811532	811538	—
All Models	P.S.B. Bosch Pump	203	1:1	106-AW	821876	Cannot be used		811532	811538	811537

CUMMINS

L Series	Fuel Pump	.187	1:1	106-AW	821875	Cannot be used		811532	—	811537
All Others	Fuel Pump	.187	5:1	106-AW	821875	811532	—	811532	—	—

DETROIT DIESEL

51 Series	Blower with Drive Joint of 1:1 Ratio	.187	2:1	106-AW	821875	Cannot be used		811532	—	811539
51 Series, 71 Series, 149 Series	Cam or Balance Shaft	.187	1:1	106-AW	821874	Cannot be used		811535	811537	—
71 Series	Blower	.187	2:1	106-AW	821874	Cannot be used		811532	811535	811539

TACHOMETER DRIVE APPLICATIONS FOR DIESEL ENGINES

Engine Model	Tachometer Drive Location	Drive Tip Size	Take Off Ratio	To use Tach Model 994-C, 994-D, 82157 or 82158 Order These Components Separately.		To use Tach Model 994-E or 994-F Order These Components Separately.		To use Tach Model 811531 or 812832 Order These Components Separately.		
				Sender	Drive Tip	Sender	Drive Tip	Sender	Drive Tip	Ratio Cartridge
GMC TRUCK & COACH										
53 Series 71 Series, 471, 671	Cam or Balance Shaft	.152	1:1	106-AW	821874	Cannot be used		811532	811535	811537
71 Series	Blower Drive Shaft	.152	2:1	106-AW	821874	Cannot be used		811532	811535	811539
D7DH-478, D7DH-637	Top of Cyl. Block	.152	.5:1	106-AW	821874	811532	811535	811532	811535	—
471, 671, 8V71, 6V71	Blower Shaft	.152	2:1	106-AW	821874	Cannot be used		811532	811535	811539
HERCULES										
D1500, D1700, D2000, D2300, D3000, D3400	Side of Cylinder Block	.187	1:1	106-AW	821876	Cannot be used		811532	—	811637
D4800	Gear Cover	.187	1:1	106-AW	821876	Cannot be used		811532	—	811637
JOHN DEERE										
All engine models	Rt. Side of Engine	.152	.5:1	106-AW	821874	811532	811535	811532	811535	—
MACK										
All engine models	Forward Section of Aux. Drive Housing	.203	.5:1	106-AW	821876	811532	811536	811532	811536	—
PALMER DIESEL										
310	Various	.187	2:1	106-AW	821876	Cannot be used		811532	—	811638
PERKINS										
4-107, 4-108, 4-154, NA50, NA70	Aux. Drive Gear	.152	.5:1	106-AW	821874	811532	811535	811532	811535	—
All other engine models	Gear Cover	.152	.5:1	106-AW	821874	811532	811535	811532	811535	—
WAUKESHA										
WAKD, WAKDS, LRDS, LRD	Fuel Pump Drive Housing	.187	.5:1	106-AW	821876	811532	—	811532	—	—
1480K, 1480KBS	Eng. Tmg. Gear Case	.187	.5:1	106-AW	821876	811532	—	811532	—	—
NKD, NKDS, F1095D	Water Pump	.187	.5:1	106-AW	821876	811532	—	811532	—	—
180DAB, 180DAC, 180DLC, 185DAB, 185DAC, 190DSB, 190DLC, 190DLR, 195DLC	Right Side of Engine	.187	.5:1	106-AW	821876	811532	—	811532	—	—
135-DK, 135-DKB	Left Side of Eng.	.187	.5:1	106-AW	821876	811532	—	811532	—	—
186-DLC	Rt. Side of Crankcase	.187	.5:1	106-AW	821876	811532	—	811532	—	—
F1187-D	Fuel Pump Drive Hsg or Gov. Drive Hsg.	.187	.5:1	106-AW	821876	811532	—	811532	—	—
F2695-D, L5100D, L5790-D	Inj. Pump Drive Housing	.187	.5:1	106-AW	821876	811532	—	811532	—	—
H1077-D, L1816-D	Right Side, Top of Gear Cover	.187	.5:1	106-AW	821876	811532	—	811532	—	—

SENDER 106

Sender 106-AW connects to the mechanical Take Off to convert the mechanical movement into electrical signals. Accessory Drive Tips for Sender 106-AW

For Tachometers		For Speedometer 105-H	
Size	Part No.	Size	Part No.
104"	821870	104" sq.	821870
152"	821874	150" sq.	821871
187"	821875	1834" sq.	821872
203"	821876	193" sq.	821873
		152" tang.	821874
		187" tang.	821875
		203" tang.	821876

SENDER 811532

Sender 811532 connects to the mechanical Take Off to convert the mechanical movement into electrical signals. It is set at the factory for a .5:1 Take Off Ratio (Take Off/Engine RPM Ratio). For use with other ratios, Accessory Ratio Cartridges must be ordered.

The sender includes a .167 Drive Tip. If another size tip is required, it must be ordered separately.

Accessory Drive Tips For Sender 811532.

Tip Size	Part No.
.152"	811535
.187"	811533
.203"	811536

Accessory Ratio Cartridges

For Sender 811532 (Not for use in conjunction with Tach Models 994-E or 994-F).

Ratio ^①	Part No.
1:1	811537
1.5:1	811538
2:1	811539

^① Ratio of Take Off/Engine RPM

Accessory Extension Sleeves For Sender 811532. For some GM, Mack and other applications. 2 3/8" long. Requires Sleeve No. 103402 plus appropriate clutch.

Description	Part No.
Sleeve Only	103402
152" Clutch for GM	814011
187" Clutch	814012
.203" Clutch for Mack	814013



82677



550-BP

DELUXE—Models 82667, 550-BP

Chrome bezeled, panel mount 3 $\frac{3}{4}$ " diameter speedometers with odometer and conventional sweep. Both have standard $\frac{5}{16}$ "-18 connection with .105" square hole and require lighting kit 366-FK.

Model 82667 features dual range scales of 5-85 mph and 15-130 km/h. This speedometer meets FMVSS #127.

Model 550-BP has a range of 0-160 mph and is for off-road use only.



82678



550-HH

HEAVY DUTY—Models 82678, 550-HH

Satin black bezeled, panel mount 3 $\frac{3}{4}$ " diameter speedometers with odometer and conventional sweep. Both have standard $\frac{5}{16}$ "-18 connection with .105" square hole and require lighting kit 366-FK.

Model 82678 features dual range scales of 5-85 mph and 15-130 km/h. This speedometer meets FMVSS #127.

Model 550-HH has a range of 0-160 mph and is for off-road use only.



82679



550-EZ

STAGE III—Models 82679, 550-EZ

Panel mount 3" diameter speedometers feature vertical odometer and 250° vertical pointer sweep for fast accurate reading. Both have glare free Transoptic lighting and require light kit 366-FK. Both speedometers have standard SAE connections, $\frac{5}{16}$ "-18 with .105" square hole.

Model 82679 has dual range scales of 5-85 mph and 15-125 km/h. This speedometer meets FMVSS #127.

Model 550-EZ has a range of 0-160 mph and is for off-road use only.

**STAGE I—Model 550-EY**

Panel Mount, 3" diameter speedo with odometer and conventional sweep. Includes self-contained internal lighting. 0-120 MPH Range. Standard SAE Connections, $\frac{5}{16}$ "-18 with .105 sq. hole. For off-road use only.

TRUCK GAUGES

For use with Positive or Negative Ground Systems. These heavy duty 2 1/4" dia., dust-proof steel case gauges have a non-reflecting satin chrome bezel and chimney lighting.

Mechanical gauges are equipped with center-gear Bourdon type mechanisms. 7/16"-20 PL

Electric gauges have electric magnetic mechanisms.



FUEL LEVEL

Dial Range	Part No.
E - F	301-CL 12V (See page 15 for Senders)



AMMETER

Dial Range	Part No.
60-0-60 Amperes	(82302) 359-EP
100-0-100 Amperes	(82312) 369-AW



VOLTMETER

Dial Range	Part No.
10-16 Volts	82337



PRESSURE

Dial Scale	Part No.
5-100 lbs. Oil	360-HM
5-100 lbs. Oil	306-DB 12V Sender No. 279-B
5-150 lbs. Air	380-HL
5-150 lbs. Air	368-P
	3 1/4" dia case-bright bezel

© With warning light.



DUAL AIR PRESSURE

Dial Scale	Part No.
0-150/0-150 lbs air	82331 (Heavy duty style)
0-150/0-150 lbs. air	82332 (Deluxe style)



TEMPERATURE

Dial Scale	Part No.
100-240° Water	311-HF 12V (See page 13 for Senders)
100-250° Water	381-CA-60" 144"
100-325° Oil	311-HC 12V (See page 13 for Senders)

TRUCK SPEEDOMETERS

Meet or surpass heavy duty truck manufacturers specifications. Black and white face dials with white pointers. 3 1/4" diameter rust resistant steel case.

MECHANICAL—Model 550-BS

Mechanical 0-80 MPH, 5/8"-18 shaft connection with .105" square hole. Non-reflective satin chrome bezel. Million mile odometer.



MECHANICAL—Model 550-HF

Mechanical, 0-80 MPH, 5/8"-18 shaft connection with .105" square hole. Non-reflective black with satin trim bezel. Million mile odometer. Transoptic non-glare internal lighting. Has high-beam indicator.



ELECTRIC—Model 105-H

12V, Pos/Neg GD, includes integral indirect lighting kit. Non-reflective satin chrome bezel Million mile odometer. Requires Sender 106-AW and drive tip.



Tip Size	Part No.
104" sq	821870
150" sq	821871
1834" sq.	821872
193" sq	821873
152" tang	821874
187" tang	821875
203" tang	821876

LIGHTING KITS FOR TRUCK INSTRUMENTS

Truck Gauges and Speedometers have provisions for lighting but do not include lighting kits. Lighting Kit 366-FK must be ordered separately if desired.

Surface Mount Deluxe Line Tachometers & Speedometers mount on all panels up to 3/4" thick. Matched face dials are black with white graduations and pointers. Cases are bright chrome coated and extend 2 1/8" from the panel. Case diameters are 3 5/8" at front end and 4" at the base. Mounting hardware and instructions are included.



82154

ELECTRIC TACHOMETER 82154

(Sender Not Required)

For use with any 2 or 4 cycle engine having from 1 to 8 cylinders. *May be used with standard, transistor, magneto or 12-pole alternator ignition system.* No external sender is required. Units are simply and easily adjusted to match any engine/ignition system. Complete installation and adjustment instructions are included.

82154 Electric Tachometer 0-6000 RPM



82155

SPEEDOMETER KITS

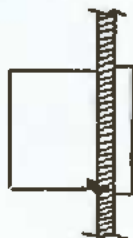
Provide accurate reading of speed in both MPH and Knots. The heavy duty "Accustat" mechanism is designed to withstand extreme vibration and shock, and resist rust and corrosion. Streamlined, non-fouling Pitot Tube folds out of danger upon contact with underwater objects or when boat is transported.

Speedometer kits include: basic Speedometer Head, Deluxe Pitot Tube, 18 feet of tubing and all required installation hardware and instructions.

Dial Ranges		Speedometer KIT No.
MPH	Knots	
10-60	9-52	82155
10-45	9-39	82156

Accessories

Description	Part No.
Deluxe Pitot Tube	433084
Thru Transom Fitting	811159
Connecting Tubing (18 ft.)	171894



Panel Mount
Instruments



Surface Mount
Instruments

Panel Mount Deluxe Line Tachometers and Speedometers may be installed in S-W accessory panels, used as replacements in S-W prewired Marine Panels, or mounted in existing panels. They have matched dial faces that are black with white graduations and pointers.

The bezels are bright, chrome-plated brass. The cases are Lexan® and are 3-3/8" in diameter. These instruments have internal illumination and come complete with lighting kit, mounting hardware and installation instructions.

® Registered trademark of General Electric Co.



Gas



Diesel



TACHOMETERS

Sender Not Required for Gas

82150 Electric tachometers (0-6000 RPM) designed for application on any 2 or 4-cycle, 2, 3, 4, 6, or 8 cylinder engine (**997-R** for 0-8000 RPM). May be used with negative ground, 12 volt systems as well as many other "exotic" ignitions. Units feature jeweled d'Arsonval meter movements coupled with solid state amplified circuitry. These tachometers are completely self-contained and require no separate senders or monitors.

Sender 106-AW Required for Diesel

These tachometers are designed for use on diesels and other engines having mechanical tachometer take-off with a 5:1, 1:1 or 2:1 ratio. An adjustment on the tachometer is used to adjust the tach to the proper ratio. They have jeweled d'Arsonval meter movements and solid state amplified circuitry. They are used in conjunction with Sender 106-AW (see below) which must be ordered separately.

Sender 106-AW comes with installation instructions. Drive Tips must be ordered separately (see below).

Sender 811532 Required for Diesel

These tachometers are designed for use on diesels and other engines having a mechanical tachometer take-off with a .5:1 ratio. They feature jeweled d'Arsonval meter movements coupled with solid state amplified circuitry. They are used in conjunction with Sender 811532 (see below) which must be ordered separately.

Sender 811532 includes .187" drive tip (811533) and installation instructions. Other drive tips must be ordered separately (see below).

RPM Range/ Tip Size	Part Number	
	106-AW Sender	811532 Sender
0-3500	82157	994-E®
0-5000	82158	994-F®

Tachometer Ordering Directions

0-3500	82157	994-E®
0-5000	82158	994-F®

Drive Tip Ordering Information

104"	821870	—
152"	821874	811535
.187"	821875	811533
208"	821876	811536

® Cannot be used two-to-the-engine for flying bridge applications.

SPEEDOMETER KITS

These SPEEDOMETERS will provide accurate, dependable speed readings under all operating conditions for any boat. The heavy duty "Accustat" mechanisms are designed to withstand extreme vibration and pounding shock as well as resist rust and corrosion. The streamlined, non-fouling Pitot Tube folds out of danger upon meeting an underwater obstruction or when boat is being transported.

KIT consists of: Basic Speedometer Head, 18 feet of tubing, double wire lamp socket with 12V bulb, deluxe Pitot Tube with attaching screws and all mounting hardware.

Speedometer Ordering Information

Dial Range	Speedometer Kit No.
10-45 MPH	82152
10-60 MPH	82153

Accessories

No.	Part Description
	Deluxe Pitot Tube
433084	Thru Transom Fitting
811159	Connecting Tubing (18 ft.)
171894	

Panel Mount Deluxe Line Gauges feature brass cases and bezels. The cases are 2-1/4" in diameter. The bezels are flat and chrome-plated. The matching dial faces are black with white graduations and pointers. They may be installed in S-W accessory panels, used as replacements in S-W prewired Marine Panels or mounted in existing panels. They come complete with internal lighting, mounting hardware and installation instructions.

The mechanical gauges have Accustat mechanisms (270° sweep). The electric gauges have Bi-Torque mechanisms (90° sweep), and use 12V negative ground power. To adapt electric temperature and/or pressure gauges to 24V or 32V, see chart on page 23 to find part number of resistor required.

FUEL LEVEL GAUGES



Model 82111

Monitors information on fuel level. Requires fuel level sender and Installation Kit No. 366-LP. Uses 12V neg. power source. For use with 24V source, order Resistor No. 829525-2 (408023). For use with 32V source, order Resistor No. 859528-8 (821988).

Fuel Tank Senders

Part No.	Description
385-B	6-12" depth LH arm
385-C	6-12" depth RH arm
391-A	10-15" depth LH arm
391-B	10-15" depth RH arm
391-C	5 1/2"-24" depth LH arm
391-D	15 1/2"-24" depth RH arm

Choosing Left or Right Hand Fuel Level Senders (See page 15)

The holes in the tank unit bracket plate are not evenly spaced. The distance between two of the holes is greater than between any other two. When viewing the bracket plate, with the widely separated holes nearest you, the float arm will swing left if it is a left hand tank unit or right if it is a right hand tank unit.

If there is more room in the tank to the left of the tank unit mounting location, use a tank unit that swings to the left and vice versa.

OIL PRESSURE GAUGES

Help avoid costly engine repairs due to incorrect oil pressure, defective oil pump, clogged oil filter, etc. Electric gauges use 12V power source. For use with 24V system, order Resistor No. 829525-2 (408023). For use with 32V system, order Resistor No. 829525-8 (821988).



Type	Dial Scale (Psi)	Part No.
Elec	5-80	82113 ¹⁾
Elec	5-100	82118 ²⁾
Mech.	20-300	360-BX
Mech.	25-400	360-EK

¹⁾ Requires Sender No. 353-Z for single gauge. Requires Sender 353-AM for dual gauges.

²⁾ Requires Sender No. 279-B for single gauge. Requires Sender 82501 for dual gauges.

TEMPERATURE GAUGES

Indicates engine operating temperature and warns of clogged intake. Electric gauges use 12V power source. To use with 24V source, order Resistor No. 829525-2 (408023). To use with 32V source, order Resistor No. 829525-8 (821988).



Type	Dial Scale (°F)	Part No.
Water Temp.	100-230	82114 ¹⁾
Oil Temp.	100-260	82115 ¹⁾

¹⁾ Requires Electric Temperature Sender (see below). Please order separately.

AMMETERS



Indicates generator or alternator charging rate, monitors battery condition, and warns of excessive drain by accessories.

Dial Scale (Amps)	Part No.
50-0-50	82108
60-0-60	82109 ¹⁾
100-0-100	82110 ²⁾

¹⁾ Requires Shunt No. 813489. Please order separately.

²⁾ Requires Shunt No. 407616. Please order separately.

Electric Temperature Senders

Thread Size	Single Gauge Senders		Dual Gauge Senders
	82114	82115	82114
1/8"	362-CZ	334-H	—
1/8"	362-AN	334-AA	—
3/16"	362-AJ	334-AB	—
1/4"	362-AH	334-AD	—
Universal	280-EA	280-ED	82503

¹⁾ Universal sender fits 1/8", 1/4", 3/8" and 1/2" thread sizes.

ENGINE WARNING SYSTEM



This audio/visual system provides warning of extreme engine operating conditions. A light and a buzzer in the unit are triggered by sender switches to warn of low oil pressure, high water temperature, etc. The system can be mounted in panels up to 1/2" thick and it operates on 12V power. It can be used with or without other instrumentation.

Model D-825104 consists of a warning device, a nameplate and four speed grip connectors. The sender switches must be ordered separately (see charts below).

Model 366-TJ consists of Model D-825104, plus Pressure Sender Switch 364-L and Temperature Sender Switch 363-F.

Temperature Sender Switches For Warning System

Temperature Setting	1/4" Thread	3/8" Thread	1/2" Thread
200 F	363-D	363-E	363-F
225 F	363-AM	—	363-G
250 F	—	—	363-W
120°-250° Double Switch	—	—	363-AD

Pressure Sender Switches For Warning System

Thread Size	Pressure Setting				
	6 Psi	10 Psi	15 Psi	60 Psi	80 Psi
1/4"	364-L	364-AH	364-K	438076	438077
3/8"	364-M	364-AJ	—	—	—
1/2"	—	364-AI	—	—	—

HOBBS HOUR METER

Model 15017

Provides an accurate record of the total time an engine is operated. This information is vital for proper maintenance. Time is recorded in hours and tenths of hours. Meter may be used with any electrical system having 4-40 volts DC.



Model 15000

Provides an accurate record of the total time an engine has been operated. This information is vital for proper engine maintenance. Time is recorded in hours and tenths of hours. Meter may be used with any electrical system having 4-40 volts DC. This space-saving, rectangular unit fits S-W Prewired Marine Panels Accessory Panels or existing Instrument panels.



VOLTMETER—Model 82112

Checks condition of battery, voltage regulator and generator or alternator of 12-volt systems. Warns of faulty belts, loose battery connections, etc.



VACUUM GAUGE—Model 82117

This "Accustat" gauge helps maintain peak engine efficiency and increase mileage. Shows if timing is correct or if a tune-up is needed. Dial reads 0-30"





SKIPPER PANELS

These compact 8" x 5" panels have all the instruments needed for one engine. For twin engine installations, use two panels. All exposed parts are brass with rubber gaskets to seal out moisture. Aluminum finish on face plate. Dials have white graduations on black with green pointers. Indirect internal lighting from bulbs mounted in back of case. Unit mounts through front of dash.

Panels have mechanical tachometers with straight-out connection ($\frac{1}{8}$ "-18 external thread and .105" square hole). For connection order adapter 407010 (C.W.) or adapter 411335 (C.C.W.). Mechanical temperature gauges have 216" tubing with $\frac{1}{2}$ " P.T. (m) adapter nut.

Skipper Panel 602-BN Includes:

- 531-K tachometer (mechanical) (0-6000 RPM),
- 440366 ammeter (60-0-60),
- 442519 water temperature (electric),
- 444545 oil pressure (electric).

Ⓢ For voltages over 12V, use the following resistors: for 24V use Resistor No. 829525-6 (428989), for 32V use Resistor No. 829525-3 (417813).

Ⓢ 12V senders are equipped for all electric gauges. THESE MUST BE ORDERED SEPARATELY (See chart below).

Skipper Panel 602-EL Includes:

- 531-DF tachometer (mechanical) (0-4000 RPM),
- 440366 ammeter (60-0-60),
- 442523 water temperature (mechanical),
- 444521 oil pressure (mechanical) - cannot be ordered separately.

Electric Senders

Thread Size	Single Gauge Senders	Dual Gauge Senders
-------------	----------------------	--------------------

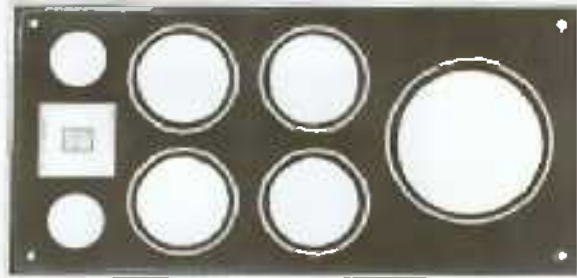
FOR TEMPERATURE GAUGES (100-230)

$\frac{1}{8}$ "	362-CZ	—
$\frac{1}{4}$ "	362-AN	362-BD
$\frac{3}{8}$ "	362-AJ	362-BC
$\frac{1}{2}$ "	362-AH	362-BB
Univ. Ⓢ	280-EA	—

FOR PRESSURE GAUGE

$\frac{1}{8}$ "	353-Z	353-AM
-----------------	-------	--------

Ⓢ Universal Sender fits $\frac{1}{8}$ ", $\frac{1}{4}$ ", $\frac{3}{8}$ " & $\frac{1}{2}$ " thread sizes



271A Panel comes empty, see below

MARINE PANELS

Model 271-A

These panels are die-cast aluminum covered with a tough, moisture and corrosion resistant, clear epoxy coating. Cycolac mounting nrgs provide a recessed appearance. Panels are 12 $\frac{1}{2}$ " x 6 $\frac{1}{4}$ " and have a non-reflective black finish. Panel will hold up to four Deluxe Gauges and a Deluxe Tachometer. It will also accept Hobbs Hour Meter 15000, Ignition Switch 370-T and Light Switch 370-C or 366-SB.

MARINE PANEL HARNESS

For use with Model 271-A Marine Panel. A complete wiring harness for up to four Deluxe Gauges, Deluxe Tachometer, Hobbs Hour Meter 15000, and light and ignition switches.

Description	Part No.
Instrument Wiring Harness	366-YA (821962)
Panel Lighting Harness	366-YB (821963)
10-ft. Extension	366-YC (822337-1)
20-ft. Extension	366-YD (822337-2)
Engine Harness	366-YE (822338)
Dual Stat. Conn.	366-YF (823887)

NO. 271-B PANEL



This panel is 6¼" x 6¼" and will hold any Deluxe Tachometer or Speedometer.

NO. 271-C PANEL



This compact 6¼" x 3¾" panel will hold any two Deluxe Gauges.

NO. 271-D PANEL



This 6¼" x 3¾" panel is specifically designed to hold Hobbs Hour Meter 15000, Ignition Switch 370-T and Light Switch 370-C or 366-SB.

NO. 271-E PANEL



A convenient 6¼" x 3¾" panel with six ON-OFF rocker switches. Self-adhesive identification labels for nearly all conceivable marine needs are included with the panel. Note: No wood grain overlay is available for this panel.

GAUGE BEZEL NO. 821961



Replacement bezel for gauge mounting hole bezel on S-W Prewired Marine Panels and Accessory Panels.

TACH/SPEED BEZEL NO. 821960



Replacement bezel for Tach/Speed mounting hole bezel on S-W Prewired Marine Panels or Accessory Panels.

SOLID-STATE MARINE FUEL PUMPS

U.L. Listed

Pass all critical tests of the marine division of Underwriter's Laboratories! Corrosion-resistant to prevent leakage. No possibility of accidental grounding. Conform to U.S. Coast Guard regulations effective August 1, 1978 (Hobbs Switch 4012 required).

- 82055—12-volt, positive or negative ground, 7 psi
- 82056—24-volt, positive or negative ground, 7 psi
- 82057—12-volt, positive or negative ground, 4 psi

NEW



2 POSITION DIMMER SWITCH NO. 370-C

For all lighted instruments.



LIGHT DIMMER SWITCH NO. 366-SB

Rheostat control for all lighted instruments.



IGNITION SWITCH NO. 370-T

Mounts in ¾" hole in Stewart-Warner panels or existing instrument panels.



ROCKER SWITCH NO. 370-X

For use in 271E panel.



BLANK GAUGE NO. 822406

May be used to fill unused gauge mounting holes.

HOBBS SOLID-STATE DIOCHRON II HOUR METERS



NEW!

Discreet individual components record operating hours of gas, diesel, or battery-powered equipment. Key components are potted for shock protection. Vibration-resistant. Accurate $\pm 1\%$ at room temperature. Temperature range: -40° to $+160^\circ\text{F}$. Instantaneous start and stop.

Easy-to-read face dials, with automatic recycling odometers, record up to 10,000 hours in one-tenth hour increments.

Voltage	Mounting	Part No.
12V DC	3 screw	24963 (16000)
12V DC	Strrup	24957 (16001)
24-72V DC	3-screw	24962 (16002)
24-72V DC	Strrup	24956 (16003)

HOBBS DIOCHRON II HEAVY DUTY HOUR METERS



NEW!

Custom-integrated circuits make these units resistant to high voltage transient current, shocks, vibration and temperature variations.

Diochron II Hour Meters are unaffected by typical, short-duration high voltage transient currents. They are accurate within $\pm 1\%$ of entire voltage range. Temperature range: -25°F to $+185^\circ\text{F}$ (155° maximum above 60 volts). Withstands vibrations from 7 to 500 Hz at 10 g's.

Easy-to-read face dials with automatic recycling odometers record up to 10,000 hours in one-tenth hour increments.

Voltage	Mounting	Part No.
12V DC	Flange	24569
12V DC	Bracket	23651
24-72V DC	Flange	24570
24-72V DC	Bracket	23653

HOBBS ALTERNATING CURRENT METERS



A highly reliable instrument for recording operating time for leasing, maintenance, testing and warranty programs. Polycarbonate, shock resistant, tamper proof case. Records up to 100,000 hours and automatically recycles to zero. Accuracy: $\pm 1\%$. Temperature: -65°F to $+154^\circ\text{F}$. UL recognized component. Power rating: 3 watts. Screw Termination. Available in Minimeter and Deluxe styles.

Voltage	Hertz (Cycles)	Minimeter 2" x 1" Part No.	Deluxe 2.7" Dia. Part No.
120	50	20028	20016
120	60	20001	20017 (19006Ⓢ)
240	50	20029	20018
240	60	20007	20019 (19009Ⓢ)

Ⓢ Previous Part Number. Subject to field availability.

HOBBS MINIMETERS

Dirt and moisture sealed, escapement controlled DC hour meters include jewelled movement, shockproof odometer, and permanently lubricated parts. Easy to read black face dials. Records hours in tenths. Accuracy: $\pm 1\%$. Rundown: 5 seconds. Oper. temp. range: -65° to $+160^\circ$. Meets Military Spec. MIL-L-3971B.

NEW "Long Stud" Models. Similar to above models, except for 2" case size and longer studs for easy replacement of any Hobbs meter. Fits any panel up to 1" thick.

15017—Same as 15002, exc. 2" case and long studs.

15031—Black bezel.

15066—Bezel matches S-W Heavy Duty Gauges.

Part No.	Range (VDC)	Mount	Replaces Part No.
15000	4-40	2 screw	
15001	4-40	3 screw	5600
15002	4-40	Bracket	5601
15003	40-130	2 screw	
15004	40-130	3 screw	
15005	40-130	Bracket	
15006Ⓢ	4-40	Aircraft	5611 & 5612
15007Ⓢ	4-40	Aircraft	

Ⓢ Reads Total Hours.
Ⓢ Reads Flight Hours.



15001, 15004



15000 15003



15002, 15005



15006, 15007

HOURMETER ACCESSORIES

HOBBS HOURMETER MOUNTING BRACKETS



329 (2³/₁₆" x 4") for meter only.
558 (4" x 5¹/₈") use when meter and dampener are used together.

HOBBS PANEL MOUNTING BRACKET



486 Covers panel area 2¹³/₁₆" x 5¹/₄" (for type D.C. meter only)

HOBBS DAMPENERS



To protect meter from severe vibration. Can be used on panel or with 558 bracket.
3888 (3⁷/₈" dia.) for screw type D.C. meters.
2165 (3⁷/₈" dia.) for 2¹/₂" A.C. meters.

SWITCHES

HOBBS PRESSURE AND VACUUM SWITCHES

Switches to actuate an Hour Meter, warning light, buzzer or engine cut-off when oil or air pressures drop below or exceed safe levels. Three models: Single-circuit, one terminal grounded internally; Single-circuit, two terminals, both insulated; Dual circuit, three terminals, one normally open (NO)ⓐ, one normally closed (NC)ⓑ, one common. Silver-alloy contacts in weather-proofed cases with 1/8" external P.T. connections. Activating pressure is set and sealed at the factory. Nominal ratings are: 6V-DC, 15 amps; 12V-DC, 8 amps; 24V-DC, 4 amps. *Switches with other than standard contact settings or for special purposes are available on special order, in quantity, with settings from 1 to 150 psi.*



Single circuit
1 terminal
Grounded internally



Single circuit
2 terminals
insulated



Dual circuit
3 terminals
1-NC, 1-NO,
1 common

Specifications and Part Numbers

Standard Pressure Setting	Single Circuit 1 Terminal		Single Circuit 2 Terminals		Dual Circuit 3 Terminals NO & NC
	Normally Openⓐ	Normally Closedⓑ	Normally Openⓐ	Normally Closedⓑ	

Low Pressure Switches

Pressure	NO	NC	NO	NC	NO & NC
4 PSI	4000	4001	4006	4007	4012
15 PSI	4002	4003	4008	4009	4013
60 PSI	4004	4005	4010	4011	4014
100 PSI	14731	14729	14732	14728	14727

Vacuum Switches

Pressure	NO	NC	NO	NC
4" HG	4070	4071	4076	4077

- ⓐ Normally open means that the contacts in the switch are open (not in contact) until pressure or vacuum is applied.
- ⓑ Normally closed means that the contacts in the switch are closed (in contact) until pressure or vacuum is applied.



**HAND HELD PORTABLE TACHOMETER—
For Farm or In-Shop Use**

Accurate tach is used wherever end of shaft is accessible. Reads from 100 to 4,000 RPM in both clockwise and counter clockwise rotation.

MODEL 757-W1 TACHOMETER

Includes Cone Tip No. 96798 for shafts with center hole and Cup Tip No. 96799 for shafts with flat or convex ends.

NO. 412850 ACCESSORY SHAFT

12" shaft for getting at hard-to-reach points.



96799

757-W1

96798

412850



**FARM TRACTOR 0-10 MPH SPEEDOMETER
AND KITS—For Low Speed Vehicles**

MODEL 550-KM SPEEDOMETER

Driven from center of tire thread for true record of speed and distance traveled—regardless of terrain, condition of soil, engine RPM or transmission ratios.

NO. 366-WL KIT

Includes Speedometer (550-KM) Flexible Shaft 108" long (446616-108), Mounting and Drive Equipment, and Installation Instructions (SER-SW 4057)



**POLICE SPECIAL SPEEDOMETER—
Model 540-D, 0-120 MPH**



Made especially for police use. Large 4" dia., easy-to-read face dial has exclusive "touch-button" pointer lock. Shows positive proof of speeding. Season and trip odometers. $\frac{5}{8}$ " -18 external thread and .105" square hole. Non-glare indirect lighting included.

**RECORDING BITUMETER—
Model 82681**

For accurate, economical road resurfacing and oiling. Measures vehicle speed in FEET per minute. Enables operator to coordinate vehicle speed with flow or oil or bitumen to get exact coverage required. Face dial is black, 4" dia., with white numerals and adjustable, static orange pointer. Installation requires Fifth Wheel Drive. Right Angle shaft connection with $\frac{5}{8}$ " -18 external thread with .105" square hole. Drive consists of the following:

- 1-Fifth Wheel Drive Assembly with 16" dia. wheel (Purchase from E.D. Etnyre, Oregon, Illinois).
- 1-No. 660-A Drive Joint. Use 4.125 ratio for Recording Bitumeter.



415-732-2116

ENGINE SAFETY PANEL, MODEL 524-DF



524-DF

Panel Description and Components

Provides automatic operation for the continuous protection of unattended or remotely controlled internal-combustion engines on Irrigation Pumps, Oil Rigs, Generator Sets, Air Compressors, Fork Lift Trucks, Refrigerations Machines, Air Conditioners, etc. This safety panel is designed for use with battery, gas and diesel systems.

Replacement Gauges and Switch

82200 Ammeter (30-0-30). Silicone-damped pointer. Terneplate case, 2 $\frac{1}{2}$ " dia. Chrome bezel.

Safety Pressure Gauges.

444701 (0-100 lbs.) Terneplate case, 2 $\frac{1}{2}$ " diameter. Chrome bezel. $\frac{1}{8}$ " P.T. connection.

442412 Safety Water Temperature Gauge has 48" tubing and $\frac{1}{2}$ " P.T. connection. 72" and 144" tubing also available. 2 $\frac{1}{2}$ " dia. case with chrome bezel.

366-SP Stop Switch and Re-Set.



82200



444701



442412



366-SP

DESCRIPTION

Stewart-Warner offers a complete selection of box, straight and angle type Drive Joints designed to correct the rotation of speedometer or tachometer flexible shaft assemblies. During the life of a vehicle, if a change in tire size or rear axle ratio is desired, a corrective Drive Joint should be added to compensate for this change in order for the speedometer to read correctly. It is necessary to specify the ratio required when ordering a Drive Joint. The following charts will indicate the variety of Drive Joints available, and other general applications. For model and ratio information, please consult your local Stewart-Warner sales office.

APPLICATION

- Mounting a flexible shaft on an instrument having limited rear access.
- Changing direction of flexible shaft rotation
- Preventing acute angle bends in the flexible shaft.
- Mounting dual instruments off one engine - as in the case of Marine Flying Bridge tachometer installations.
- Connecting accessory instruments, such as taxi meters, to the flexible shaft ass'y.

DRIVE ADAPTER KIT NO. 366-NE



For Model 666 and 777 series drive adapter. Parts in this assortment will make up any model in any gear ratio. Tools and instructions are provided. Handy for quick repairs or ratio change.

DRIVE JOINT INTERCHANGE FOR SERIES 649, 651, 652, 667, & 668

Stewart-Warner has three types of Drive Joints that have much in common and, therefore, in many cases are interchangeable with each other. Such a change is often desirable when a specific installation requires a heavier duty

drive joint to withstand rugged use, such as unusual vibration conditions. The chart provides a reference for substituting one model for the other, when drive and driven connections are the same.

Extra Heavy Duty	Heavy Duty	Light Duty	Rotation	Drive End 3/8-18 Internal [Ⓢ]	Driven End 3/8-18 External
651-B	649-B	667-SC	Direct	.203 Tip	.213 Hole
651-D	649-D, BD	667-D	Direct	.152 Tip	.161 Hole
651-X	649-X	667-X	Direct	.187 Tip	.191 Hole
651-BR	-	668-SC	Reverse	.203 Tip	.213 Hole
-	-	668-SN	Reverse	.104 Square	.105 Sq. Hole
651-XR	649-Z	668-SX	Reverse	.187 Tip	.191 Hole
652-BR	649-BR	-	Reverse	.203 Tip	.213 Hole
652-XR	649-XR	-	Reverse	.187 Tip	.191 Hole

[Ⓢ] Drive End Tips for these models are removable and interchangeable. The Driven Ends are fixed.

HOW TO ORDER

Customer must specify drive joint model number from next page with suffix letter designating tip sizes from table at right and ratio[Ⓢ] required. For example: To order Model 649 with .203 Tang and .213 Slotted Hole-ratio .500, specify (Model 649-B Ratio .500).









[Ⓢ] To determine correct gear ratio, please request S-W publication No. SER 4410 from your Stewart-Warner sales office.

BASIC DRIVE JOINT TIP SIZES

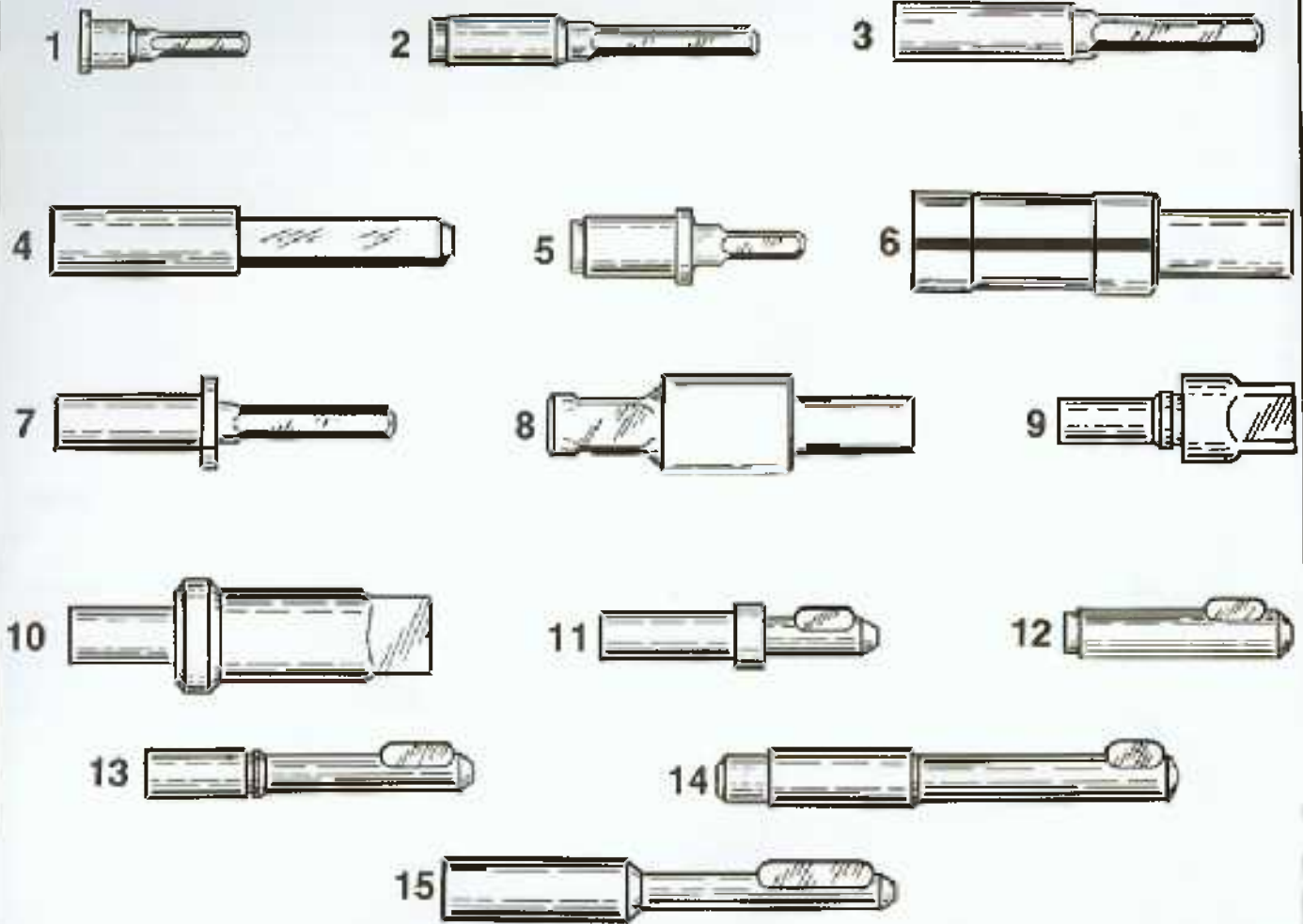
For Models 649, 651, 652, 666, 777	For Models 667, 668	End Connections	
		Drive	Driven
B	SC	.203 tang	.213 slotted hole
D	SD	.152 tang	.161 slotted hole
F	SN	.104 square	.105 square hole
X	SX	.187 tang	.191 slotted hole

NOTE: Suffix "B" or "SC" specifies .203 Tang and .213 Slotted Hole; suffix "D" or "SD" specifies .152 Tang and .161 Slotted Hole; etc.

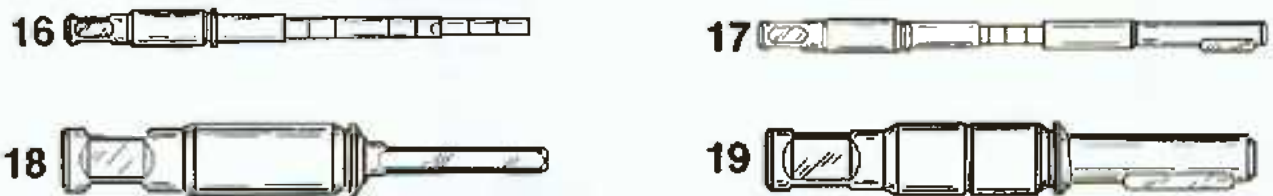
MOST POPULAR MODEL SERIES

Type	Model	Application	Outstanding Features
	649	Truck Manne	Die cast housing Heavy duty construction Needle bearings Reverse or direct drive
	651-652	Truck Marine	Extra heavy duty construction Malleable iron housing Needle bearings, threaded sleeves All models equipped with lubrication fittings
	666	Automobile Truck	Light duty construction Offset drive Bearing supported input and output shafts Die cast housing
	667-668	Automobile Light truck	Light duty construction Die cast housing
	689	Automobile Manne Truck	Light duty construction Dual output Die cast housing Installed at transmission
	777	Automobile Truck	Light duty construction Straight-through drive Die cast housing Compact construction
	778-T	Automobile Truck Taxi	Light duty construction Dual output Die cast housing Installed on back of speedometer or tachometer
	779	Truck	For 2 or 3-speed rear axles Electrically operated Die cast housing

END TIPS



COMPENSATING EXTENSION TIPS—With .128" Square End on Drive End



End Size	Illustration Number	Length	Part Number	Cutting Deduction
.104 square	18	2 1/32"	818749	3 1/16"
.104 square	18	2 5/64"	820152	1 41/64"
.124 square	18	2 1/32"	819468	3 1/32"
.150 square	16	4 1/4"	820219-2	2 63/64"
.150 square	18	2 1/32"	817767	3 1/32"
.150 square	16	4 1/4"	820220-1	3"
.152 tang	19	2 1/32"	818750	3 1/32"
.187 tang	19	2 1/32"	817769	3 1/32"
.193 square	16	2 1/32"	820257	3 1/32"
.193 square	18	2 5/64"	820153	1 41/64"
.203 tang	19	2 1/32"	817759	3 1/32"
.203 tang	17	4 3/8"	820219-1	3 1/4"

Note: Illustrations shown are approximate representations and are for ordering purposes only. Refer to table on next page for exact dimensions.

END TIPS

End Size	Illustration Number	Length	Part Number	Cutting Deduction
FOR .130" CORE				
.104 square	7	1 1/16"	823114	3/16"
.104 square	1	1 1/16"	418035	1/16"
.124 square	2	1 7/16"	60457	1"
.124 square	5	1 3/32"	420090	7/16"
.152 tang	13	1 7/16"	400211	1 3/32"
.152 tang	14	1 9/16"	423913	1 3/16"
.152 tang	11	1 5/32"	63684	23/32"
.187 tang	14	2"	69819	1 9/16"
.187 tang	11	1 7/16"	104461	3/8"
.187 sq. hole	9	1 9/32"	400210	3/8"
.203 tang	11	1 3/16"	63317	3/8"
.203 tang	12	1"	33710	9/16"

FOR .150" CORE

.104 square	3	1 1/8"	65002	1 1/16"
.104 square	3	1 1/8"	426452	1 1/16"
.104 square	7	1 5/16"	65658	23/32"
.104 square	7	1 2 1/16"	95115	63/64"
.104 square	7	1 1/2"	425451	1 1/16"
.104 sq hole	8	1 1/2"	65001	-
.124 square	2	1 7/16"	98984	1"
.124 square	7	1 5/32"	37683	23/32"
.150 square	3	1 3/4"	421843	1 1/16"
.150 sq hole	8	1 1/2"	815026	-
.152 tang	14	1 7/8"	406758	1 11/32"
.152 tang	13	1 3/8"	421795	1 23/64"
.1835 square	4	1 25/32"	428827	1 3/32"
.187 tang	14	2"	68838	1 9/16"
.187 tang	11	1 17/32"	477836	1 3/32"
.187 sq. hole	10	1 9/16"	36833	-
.187 sq hole	9	1 1/32"	409353	-
.187 tang hole	6	1 9/16"	96127	1 9/16"
.203 tang	15	2"	13908	1 9/16"
.203 tang	12	1"	37684	9/16"
.203 tang hole	6	1 9/16"	78869	-

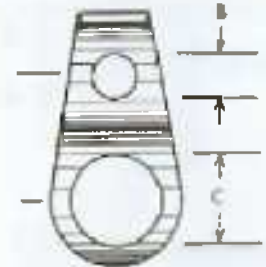
FOR .187" CORE

.104 square	3	1 1/2"	426106	1 1/16"
.104 square	5	1 1/2"	72010	23/32"
.104 square	7	1 13/16"	405137	1 7/64"
.104 sq hole	8	1 1/2"	426056	-
.124 square	5	1 5/32"	69076	1 3/32"
.150 square	3	1 3/4"	105133	1 1/16"
.152 tang	14	2"	415996	1 9/16"
.152 tang hole	6	1 13/16"	406908	-
.1835 square	4	1 17/32"	414677	1 3/32"
.187 tang	14	2"	101254	1 9/16"
.187 tang	11	2"	426108	1 9/16"
.187 tang	11	2"	811192	1 9/16"
.187 sq hole	10	1 1/4"	418811	-
.187 sq hole	10	1 9/16"	98877	-
.187 tang hole	6	1 13/16"	101983	-
.193 square	4	1 25/32"	431487	1 3/32"
.193 sq. hole	10	1 9/16"	414676	-
.203 tang	14	2"	32912	1 9/16"
.203 tang hole	6	1 3/16"	39041	-

MISCELLANEOUS FLEXIBLE SHAFT PARTS



422174 A-.5/16" B-.161" C-1/32"
423585 A-.393" B-.146" C-1/32"
431646 A-.234" B-.140" C-1/32"



402398 A-.812" B-.281" C-.562"
413982 A-.760" B-1 1/32" x 3/16" C-9/16"



33711 Slot Clutch for 203 dia. Tip



31622 8-32 x 1/4 Class 2 fit



60459 Bushing, Diameter A-.5/16"



811024 Collar 130 hole diameter



97708 Swag Die for .130 Core .218 dia. hole

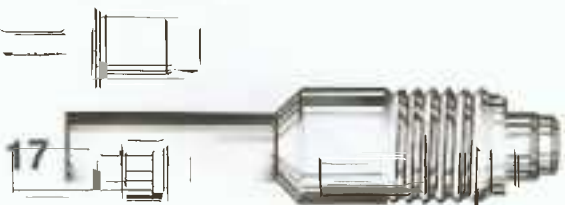
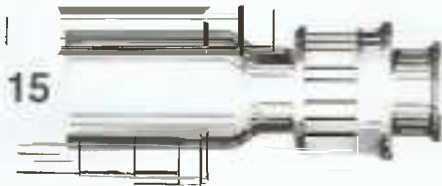
97251 - 1/4 hole - .0450 tip
~~91543~~

FERRULES



CORE & CASING

FERRULE SPECIFICATIONS



FERRULE SPECIFICATIONS

Illustration Number	Length	Description	Part Number	"A" Dimension
---------------------	--------	-------------	-------------	---------------

FOR .253" DIAMETER CASINGS

2	1 7/16"	Ferrule	95374	1 1/32"
2	1 7/16"	Ferrule	810809	1 1/32"
2	1 3/8"	Ferrule	94353	1 1/32"
4	1 5/16"	Ferrule	94354	4 1/64"
12	2 7/16"	Ferrule	417310	7/8"

FOR .297" DIAMETER CASINGS

2	1 7/16"	Ferrule	102547	9/16"
2	1 3/8"	Ferrule	63316	1 1/32"
3	1 5/16"	Ferrule	63315	4 1/64"
7	2 1/4"	Ferrule	69930	3/8-18 Thd
17	2 1/2"	Ferrule	423307	3 1/64"

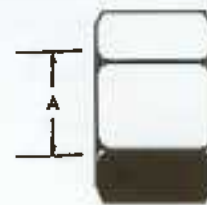
FOR .333" DIAMETER CASINGS

1	1 3/8"	Ferrule	820733-3	7/16"
1	1 7/16"	Ferrule	820733-10	4 1/64"
1	1 3/8"	Ferrule	820852	7/16"
6	2 1/4"	Ferrule	820734-5	4 1/64"
7	2 1/8"	Ferrule	820733-33	3/8-18 Thd
9	1 7/8"	Ferrule (Chrys. + A.M.C. Snap-On)	820051	-
11	2 1/8"	(G.M. Snap-On)	823813	-
10	2 1/16"	Ferrule (Ford Snap-On)	821146	-
13	2 1/32"	Ferrule	414740	1 1/8"
14	3 3/8"	Ferrule + Shaft	824012	3/8"
17	2 1/2"	Ferrule + Shaft	820480	3/8-18 Thd.
18	1 23/64"	Ferrule (Chrys. snap on)	827746	-

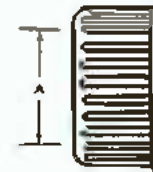
FOR .445" DIAMETER CASINGS

1	2 1/16"	Ferrule	820211-2	1/2"
4	1 3/8"	Ferrule	400514	1/2"
4	2"	Ferrule	417231	1/2"
4	2"	Ferrule	425373	1/2"
5	1 1/2"	Ferrule	820500-3	5/8"
5	1 1/2"	Ferrule	426448	5/8"
5	2"	Ferrule	820211-1	1/2"
5	2"	Ferrule	820211-4	1/2"
5	2"	Ferrule	820211-7	1/2"
5	2"	Ferrule	820500-1	1/2"
5	2"	Ferrule	410215	1/2"
6	2 3/8"	Ferrule	820500-7	3 1/64"
7	2 1/8"	Ferrule	820500-11	3/8-18 Thd.
8	2 7/16"	Ferrule, Clutch + Collar Assembly	60462	-
12	2 19/32"	Ferrule + Extension	820210-2	7/8"
12	2 21/32"	Ferrule + Extension	810624	7/8"
15	2"	Ferrule + Nut Assembly	431488	3/8-18 Thd.
15	2"	Ferrule + Nut Assembly	433198	3/8-18 Thd.
15	2"	Ferrule + Nut Assembly	820214-1	3/8-18 Thd.
15	2"	Ferrule + Nut Assembly	820214-2	3/8-18 Thd.
15	2"	Ferrule + Nut Assembly	820214-4	3/8-18 Thd.
16	1 11/16"	Ferrule + Nut Assembly	820213-2	3/8-18 Thd.
16	2 3/16"	Ferrule + Nut Assembly	401578	3/8-18 Thd.
16	2 1/16"	Ferrule + Nut Assembly	820215-1	3/8-20 Thd.

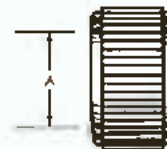
NUT SPECIFICATIONS



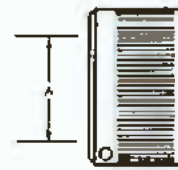
1



2



3



4



5

"A" Dimension	Thread Size	Illustration Number	Part Number
1 1/32"	3/8-20	5	820346-16
1 1/32"	3/8-20	3	820346-11
1 1/32"	3/8-20	5	820346-17
1 1/16"	3/8-18	1	820346-1
5/8"	3/8-18	2	820346-4
1 1/32"	3/8-18	4	417392
3 1/64"	3/8-20	3	820346-12
1 1/16"	3/8-18	1	820346-23
1 1/8"	3/8-18	2	820346-22
1 1/16"	3/8-18	3	72481
4 5/64"	3/8-18	1	820346-21

DUAL PLASTIC CASING



This new type of flexible shaft Casing was specifically designed for OEM replacement, and meets or surpasses Original Equipment Manufacturer specifications. It is particularly suited for marine applications, farm equipment, and all automotive vehicles, including heavy equipment, trucks and busses.

This reinforced plastic Casing (available only in boxed lengths of 100 ft.) consists of a nylon inner liner, reinforced by wire braid, and an extruded Polypropylene cover which protects the core from water, oil, dirt and abrasion

820905—Dual Plastic Casing—.333"

GALVANIZED STEEL CASING



.243 Casing



.297 Casing



.445 Casing

Stewart-Warner offers the finest, most rugged, flexible shaft Casing available, for dependable, trouble-free operation of Speedometers and Tachometers. This Casing is constructed of high grade, heat resistant, galvanized steel wire to afford maximum flexibility and strength while providing greatest protection of the core from damage by dirt, grit, water and abrasion. Stewart-Warner Casing also helps prevent installation problems by reducing the possibility of acute angle bending at the time of installation. This Casing is available with or without an extruded vinyl covering for installations where moisture is a factor. All Casing is packaged in boxed lengths of 100 ft. For vinyl cover, see next column.

Bulk Outer Casing

Size	With Vinyl Cover	Without Vinyl Cover
243	813793	98578
297	-0-	63323
.445	816647	20468

MULTI-STRAND STEEL CORE

This multi-strand Core Stock provides a steady, high driving torque for consistent, reliable instrument performance; assures quiet, dependable flexible shaft operation.

This smooth-surfaced, non-raveling, highly flexible Core is composed of multiple-strand, highest grade carbon steel wire for exceptionally long life and dependability. Three core diameters, when used with the proper fittings, cover every application.

All core on Reels of 100 ft., 500 ft., and 1000 ft. lengths; except #418615 which comes on 50 ft., 100 ft. and 500 ft. Reels only.



.130 Core



.150 Core



.187 Core

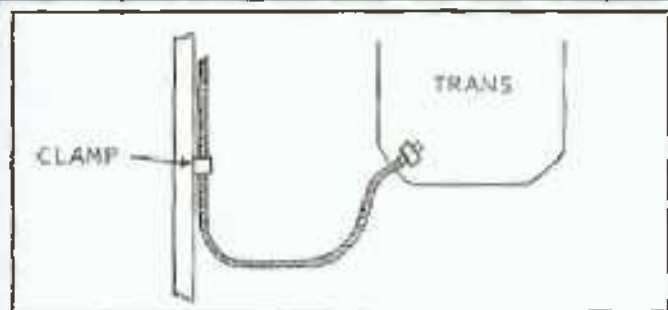
Bulk Inner Core

Diameter	Part Number
130 Left lay	418614
150 Left lay	825128
187 Right lay	418615

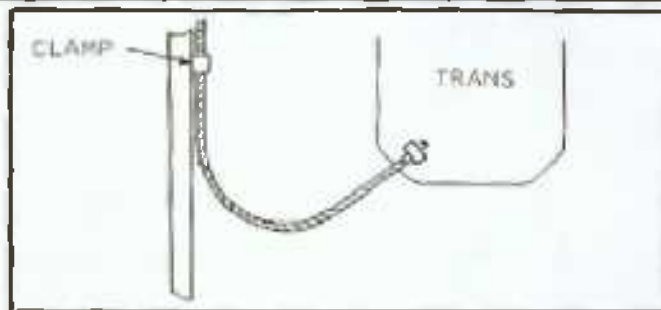
FLEXIBLE SHAFT INSTALLATION

The installation of the flexible shaft should be made with a minimum of sharp bends. Bends should have a 6 inch radius or more and there should be only one 90° bend in each installation. If the bends are tighter than recommended, life and reliability of the system will be reduced.

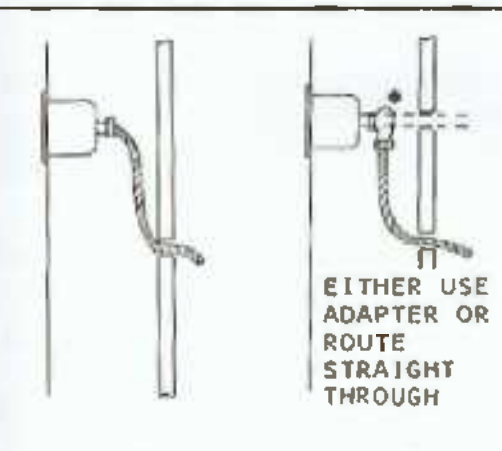
Clamp shafts at natural positions; in other words, do not force the shaft into some odd shape in order to tie it down with a clamp. In particular, avoid "S" turns caused by clamps used to guide the shaft around an obstruction.



WRONG



RIGHT



WRONG

RIGHT

* Use right angle adapter No. 407010.



WRONG



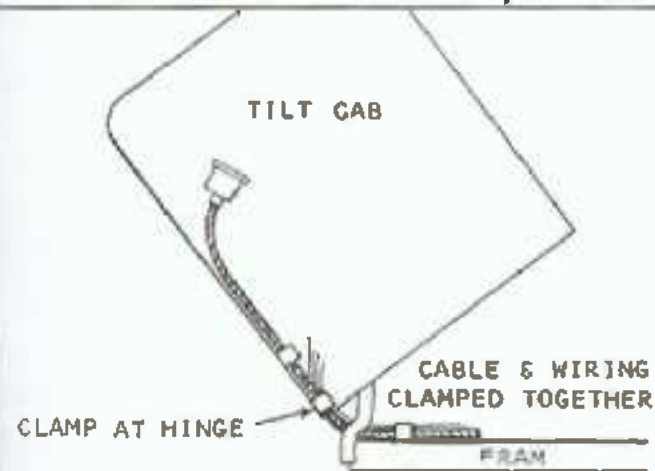
RIGHT



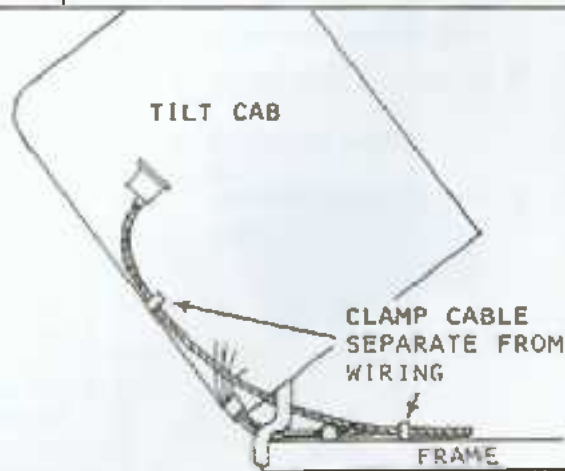
WRONG



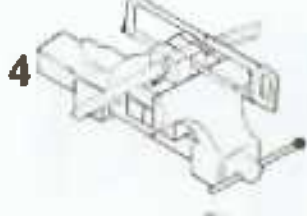
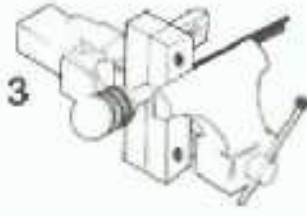
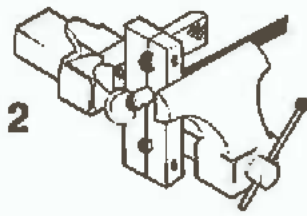
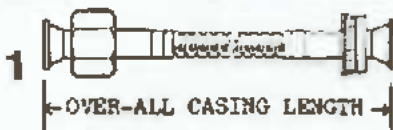
RIGHT



WRONG

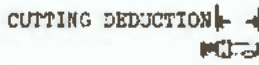
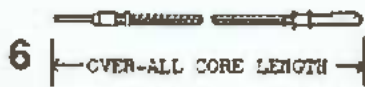


RIGHT



OUTER CASING ASSEMBLY

1. Refer to the following charts to select the proper casing, nuts, and ferrules needed to complete the outer casing assembly.
2. Determine correct length of casing assembly to be used - length of casing assembly is measured from end of ferrule to end of ferrule (Fig. 1). NOTE: File off the burrs, both inside and outside of the cut ends of the casing, to prevent wear.
3. Slide upper ferrule over casing until casing enters ferrule about 1" or is stopped by bushing in the ferrule. Do not allow casing to enter the bell-shaped part of the ferrule.
4. Crimp upper ferrule to casing using ferrule crimping tool T-429430 (Fig. 2) for .243", .297", and .445" dia. casing, or tool T-320637 (Fig. 3) for .333" dia. casing. For tool T-320637, place mandrel into end of casing to prevent collapse of casing during crimping operation. Crimp until ferrule is securely attached to casing.
5. Measure casing to proper length allowing for the depth that the casing will enter the lower ferrule.
6. Cut casing to proper length using tool T-265022 (Fig. 4). Do not cut casing as shown in Fig. 5 for unraveling of casing may result.
7. Be certain that any parts such as nuts, grommets, etc. are put in place on the casing before attaching lower ferrule.
8. Before crimping ferrule on casing, determine how deep the casing end must enter the ferrule to obtain the correct over-all length of the outer casing assembly.
9. Crimp lower ferrule on casing using tool T-429430 or T-320637. Refer to Step 4.

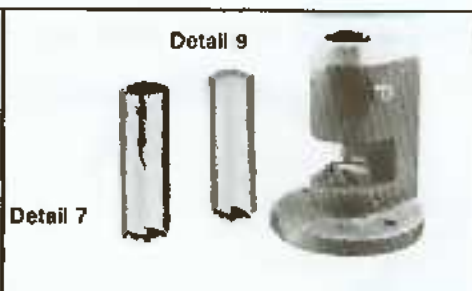


INNER CORE ASSEMBLY

1. Refer to the following charts to select the correct core and tips to be used. NOTE: It is recommended that the core be swaged before cutting. For best results, do not swage core ends before using electric core cutter.
2. Determine over-all length of core assembly - length of core assembly is measured from end of tip to end of tip. (Fig. 6).
3. The length to cut the new core is determined by subtracting the "cutting deduction" spec in the tip chart from the over-all length of the core assembly. If two tips are used, both "cutting deduction" specs must be subtracted from the over-all length (Fig. 7).
4. Cut core to proper length. All core sizes may be cut using swaging-cutting fixture T-136374 (Fig. 8).
5. Attach corresponding upper and lower tip or swag tipless cores using cutting and swaging fixture T-136374 (Fig. 8).

SWAGING AND CUTTING FIXTURE COMPONENTS

All swaging and cutting fixture components must be ordered separately. Order base model number T-136374-6. Order detail 7 (T-136374-7) to (1) cut bulk core stock; (2) swage a .104 sq. on bulk core; (3) crimp a tip securely to a core. Order detail 9 (T-136374-9) for swaging a .124 sq. on .150 core, which is used on foreign cars.



CRIMPING TOOL, NO. T-320637

This rugged, compact tool has been specifically designed for crimping ferrules on .333" diameter Dual-Plastic Casing. It consists of one pair of crimping jaws, and a support rod which is inserted into the casing, during the crimping operation, to retain proper casing I.D. It creates a positive union without crushing ferrules or damaging casing.



FERRULE CRIMPING TOOL, NO. 429430

An extremely handy, compact tool designed for crimping various ferrules to Stewart-Warner bulk casing sizes .243, .297, and .445. It provides a positive means of crimping without a possibility of crushing casing or ferrules.



FLEXIBLE SHAFT FITTING KIT, NO. 366-JJ

This assortment consists of the commonly used flexible shaft fitting for automotive installations using .150" or .187" diameter core and .445" dia. casing. Furnished in compact plastic box, with illustrated chart inside hinged cover for fast identification of contents.

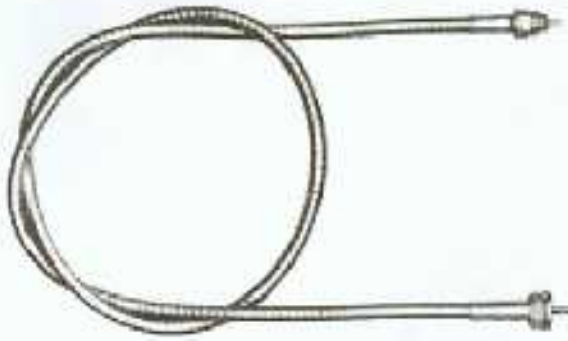


FLEXIBLE SHAFT FITTING KIT, NO. 366-TA

This assortment consists of the commonly used flexible shaft fittings for heavy duty installations where compensating tips are used on lower end for .150" diameter core and .333" or .445" diameter casing. Furnished in compact plastic box, with illustrated chart inside cover for fast identification of contents.



COMPLETE SHAFT ASSEMBLIES



These pre-assembled Shafts are precision built, factory lubricated and ready to install, and are available for direct installation in passenger cars currently on the road. They consist of carbon steel core, dual plastic reinforced casing, and appropriate end fittings to suit the particular installation for which the shaft is selected.

Listed below are the most popular speedometer shafts for AMC, Chrysler, Ford and General Motors cars.

To choose the appropriate length for your car, pull your old shaft, and buy one with the corresponding length. Dash numbers after the model numbers indicate the length (inches) of the shaft.

Manufacturer	Shaft Model No.	Lengths
AMC	446772	68"
Chrysler	446772	66"
Ford	446940	56" -62" -70"
General Motors	446874	48" -58" -68" -79" -85"

UNIVERSAL CORE, .130" DIAMETER



This 21-strand, non-raveling, tempered steel core can be used as replacement stock for any Original Equipment flexible shaft that utilizes standard diameter core. These cores are available in three lengths, left hand wound types, to serve the widest range of normal applications. Each length of Universal Core is furnished with .104 sq. drive tip, .104 sq. swaged lower end, swaging die and easy-to-follow installation instructions.

To install, simply cut the core to the length required, attach the drive tip to the upper end, and insert into the flexible shaft assembly.

Part No.	Direction of Wind	Length
130-B31	LH	81"
130-B114	LH	114"
130-B150	LH	150"



82050 Series



235 Series

FEATURES

- Assures quick starts
- Eliminates surging
- Eliminates flooding
- Eliminates starving

All electric fuel pumps assure battery saving quick starts by delivering gas the instant the ignition switch is turned on. Built-in filters in 82050 series eliminate the need for other filters in the line.

MODEL 82050 SERIES

Powerful piston-type pump, bringing solid-state reliability to fuel pumps—has one moving part. Two filters: Micro-bon filter dissipates water, eliminates need for in-line filter; Magnetic filter traps metallic particles. Gas line connection: 1/4" Internal PT.

Model 82050—(12V) negative ground—7 psi

Model 82051—(12V) negative ground—5 psi

Model 82052—(12V) positive or negative ground (Double Insulated)—7 psi

Model 82054—(24V) positive or negative ground—7 psi

Model 82053—Filter element for above pumps

MODEL 235 SERIES

Utilizes built-in screen. Gas line connection: 1/4" Internal PT.

Model 235-A— (12V) positive or negative ground - 5 psi

Model 235-B— (6V) positive or negative ground - 5 psi

FUEL PUMP APPLICATION CHART

Model No.	Engine Horsepower	Delivery:	
		1 psi	3 psi
235-A	Up to 225	26	11
235-B	Up to 150	13	9
82050	Up to 350	34	29
82051	Up to 350	31	24
82052	Up to 350	31	24

①: Gallons per hour as per S-W lab test procedure. Suction lift: 2'. Discharge lift: 0'. Length of suction line: 16'. Length of discharge line: 2'. Diameter of line: 3/16" I.D. Test Fluid: gasoline.

NOTE: Models 82055, 82056, and 82057 Marine Fuel Pumps are on page 45.

SAFETY SWITCH RECOMMENDED (Hobbs No. 4012)

This is a single-pole, double-throw pressure switch that can be wired into the electrical system so as to shut off the electric fuel pump when the engine oil pressure drops below 4 P.S.I. In effect, this means that the pump would be shut off if the engine stopped running for any reason, even though the ignition switch remained on.

All Stewart-Warner sales models are composed of 1 or more parts. Each of these parts has an engineering part number (usually stamped on the part).
 This chart identifies the "parent" Sales Model Number for many Engineering Part Numbers.
 To order, the Sales Model Number must be used. Product cannot be ordered using Engineering Part Numbers.

Eng. Number	Sales Number	Eng. Number	Sales Number	Eng. Number	Sales Number	Eng. Number	Sales Number
334-F	280-EC	360-DE	82328	465-AJ	284-AF	492-BB	82300
334-H	280-ED	360-EK	82121	465-DH	82114	499-D	284-AK
334-J	280-EE	360-HY1	82319	465-DJ	82115	551-ZE	272-D
334-T	280-EH	360-HZ	82320	465-ER	82306	551-ZF	272-E
334-AE	280-EJ	360-JA	82321	465-ES	82307	598-AA	273-D
334-AZ	82503	360-JB	82322	465-ET	82308	598-AB	273-E
335-B	280-EK	360-JC	82323	470-D	270-E	598-AP	82152
337-AM	281-A	360-JD	82334	470-L	283-H	598-AR	82153
337-BF	82200	360-JE	82325	470-M	284-H	599-AD	82155
337-BH	82201	361-CB	82326	470-AW	822112	599-AE	82156
337-BJ	82202	361-CC	82327	470-BJ	82309	690-P	285-A
338-R	270-A	362-ES	280-EA	471-C	284-AJ	690-S	82404
338-AB	282-A	382-ET	280-EB	472-B	270-B	691-AB	285-D
338-AD	283-A	366-FF	82553	472-C	270-C	691-AD	285-E
338-AE	284-A	378-P	82211	472-E	284-AA	691-AE	285-F
338-CM	82108	378-BW	281-C	472-F	284-AB	691-AF	285-H
338-DA	82302	378-BX	281-E	472-H	284-AD	691-AJ	82405
338-DB	82310	455-E	270-D	472-Z	82109	691-CB	82406
338-DC	82311	455-H	270-J	472-AA	82110	691-DB	82407
338-DE	82312	455-J	283-M	490-BN	283-D	691-FB	82408
338-DF	82313	455-L	284-M	490-BP	283-E	692-E	82409
342-FW	281-D	455-AW	82111	490-BS	284-E	692-W	285-B
342-HR	281-F	455-BK	82303	490-BT	284-F	692-X	285-C
344-F	281-B-72	460-C	270-F	490-BW	284-N	960-BR	272-F
346-FA	281-H	460-E	283-L	490-BX	284-P	960-BP	272-A
350-X	282-C	460-F	284-L	490-BY	284-R	960-BS	272-B
351-H	282-B-72	460-H	284-T	490-BZ	284-S	960-BT	272-C
352-AT	82207	460-R	284-AE	490-EX-1	284-O	994-A	82157
352-AW	82208	460-AR	82113	491-AK	283-B-72	994-B	82158
352-AW	82209	460-AS	82116	491-AL	283-C-72	996-H	82154
353-CJ	82204	460-BF	82304	491-AM	284-B	997-AA	82150
355-B	82501	460-BH	82305	491-AN	284-C	997-AD	82151
355-BM	82411	465-F	270-H	492-AM	283-F	82003	82011
356-AJ	82328	465-N	283-J	492-AP	284-AH	82006	82010
	82210	465-P	283-K	492-AR	285-J	821135	106-AW
356-BW	82206	465-R	284-J	492-AZ	82117	825736	284-AL
357-BL	82203	465-S	284-K	492-BA	82400	442057	82410
360-BX	82120						

SUPERSEDED/DISCONTINUED INTERCHANGE

SUPERSEDED

Superseded/ Discontinued Number	Recommended Substitution		Superseded/ Discontinued Number	Recommended Substitution		Superseded/ Discontinued Number	Recommended Substitution	
	Automotive	Marine		Automotive	Marine		Automotive	Marine
240-A-6V	235-B	—	356-AJ-60	82210-60	—	546-A	—	546-B ^①
240-C-24V	82054	—	356-AJ-72	82210-72	—	546-C	—	546-B ^①
240-C-12V	82051	—	356-AJ-144	82210-144	—	546-D	—	546-E ^②
270-A	—	82109	356-BW-48	356-BW-60	—	546-F	—	546-B ^②
270-B	—	82109	356-BW-72	82206-72	—	551-SH	551-AKM	—
270-C	—	82110	357-N	82200	—	563-AB	550-KM	—
270-D	—	82111	357-W	82201	—	600-C	82404	—
270-E	—	82112	357-X	82202	—	601-CB	82406	—
270-F	—	82113	357-BL	82203	—	601-DB	82407	—
270-H	—	82114 ^③	359-L	82310	—	601-FB	82408	—
270-J	—	82115	359-M	82311	82108	692-E60	82409-60	—
272-A	—	82150	359-CT	82311	82108	692-E72	82409-72	—
272-B	—	994-E ^④	359-EM	82310	—	692-E144	82409-144	—
272-C	—	82150	359-EN	82311	82108	702-D	702-J	—
272-D	—	—	359-EP	82302	—	997-C	997-B	—
272-E	—	—	360-A	D-360-JC	—	998-C	82600	—
272-F	—	82150	360-AD	D-360-JB	—	998-D	888-H	—
272-H	—	994-F ^④	360-BX	—	82120	998-D	998-H	—
273-D	—	82152	360-DE	82329	—	82003	82011	—
273-E	—	82153	360-EK	—	82121	82006	82010	—
285-A	82404	—	360-HY1	82319	—	82151	82150	82150
285-B	692-E	—	360-HZ	82320	—	64308	418614	—
285-C	442057	—	360-JA	82321	—	64466	825128	—
285-D	601-CB	—	360-JB	82322	—	429370	997-R ^⑤	997-R ^⑤
285-E	82405	—	360-JC	82323	—	432867	82150 ^⑥	82150 ^⑥
285-F	—	—	360-JD	82324	—	408023	829525-2	829525-2
285-H	601-DB	—	360-JE	82325	—	417813	829525-3	829525-3
285-J	356-B	—	360-JW	82323 (D-360-JC)	—	428989	829525-6	829525-6
288-B	288-A & 283-A	—	360-JY	82325 (D-360-JE)	—	442057-60	82410-60	—
288-C	288-A & 283-D	—	361-A	82327 (D-361-CC)	—	442057-72	82410-72	—
288-D	288-A & 283-F	—	361-L	82326 (D-361-CB)	—	811196	814143 [◆]	—
288-E	288-A & 283-J ^③	—	361-CA-96	—	—	811658	817825	—
301-H	82303	82111	-120	361-CA-144	—	819210	829525-6	829525-6
301-CP	82303	82111	361-CB48	82326-48	—	819891	—	—
308-G	82304	82113	361-CB60	82326-60	—	819892	—	—
308-DC	82304	82113	361-CB72	82326-72	—	819893	—	—
308-DD	82305	82116	361-CB96	82326-96	—	891894	—	—
311-W	82306	82114	361-CB120	82326-120	—	819895	—	—
311-R	82308	82115	361-CB144	82326-144	—	821988	829525-8	829525-8
311-HH	82306	82114	361-CB216	82326-216	—	—	—	—
311-HJ	82307(Water) ^⑦	82115 ^⑧	361-CB288	82326-288	—	HOBBS HOUR METERS		
	82115(Oil) ^⑧	—	361-CB360	82326-360	—			
311-HK	82308	—	361-CC60	82327-60	—	1906	20017	—
352-AT	82207	—	361-CC72	82327-72	—	1909	20019	—
352-AT	82207	—	361-CC96	82327-96	—	1932	—	—
352-AW	82208	—	361-CC144	82327-144	—	1935	—	—
352-AY	82209	—	361-CC216	82327-216	—	5600	15001	—
352-CX	82204	—	362-AA	D-362-DA	—	5601	15002	—
352-DA	82319 (360-HY-1)	—	366-AU	366-VVL	—	5611	15006	—
353-S	279-B	—	366-FF	82553	82553	5612	15006	—
353-AH	279-A	—	366-JH	366-MS ^⑨	—	5613	15007	—
353-AZ	279-C	—	367-B	82405	—	5614	15007	—
355-A	355-BM	82117	369-AW	82312	—	5628	15002	—
355-B	82411	—	369-AX	82313	—	15031	—	—
355-R	82400	—	375-AK	82337	—	16000	24963	—
355-BL	355-BM	—	375-AL	82309	82112	16001	24957	—
355-BM	82328	—	377-A	82331 ^⑩	82109 ^⑩	16002	24962	—
355-BT	355-BM	—	377-B	82313 ^⑩	82110 ^⑩	—	—	—
356-AJ-36	82210-36	—	378-P	82211	—	16003	24956	—
356-AJ-48	82210-48	—						

① Uses Series 382 Sander—Order Separately.
② Uses Sander 811532—Order Separately.
③ Uses Series 334 or 280 ED Sander—Order Separately.

④ Black Wrinkle Finish.
⑤ Uses Shunt 813849—Order Separately.
⑥ Uses Shunt 407616—Order Separately.
⑦ Does not include Hour Meter

⑧ Does not include Hour Meter or Fuel Level Gauge.
⑨ 12V, Negative Ground
⑩ Bright Chrome

HOBBS ENGINE STARTING SYSTEM— For Fast Starts of Diesel or Gasoline En- gines in Extremely Cold or Wet Weather



Used by several major original equipment manufacturers, the Hobbs System is reliable, safe and provides fast diesel and gasoline engine starting in cold weather or high moisture conditions. It can be installed to be operated at anytime the dash mounted switch is depressed or can be wired to the starting motor circuit to restrict operation only to the engine cranking cycle. The fluid from a standard 12 ounce starting fluid can is dispensed in a measured 2½ cc shot when the electric solenoid is energized.

Kit for 12V 19402
Kit for 24V 19595

Solenoid Assembly

Atomizer Nozzle

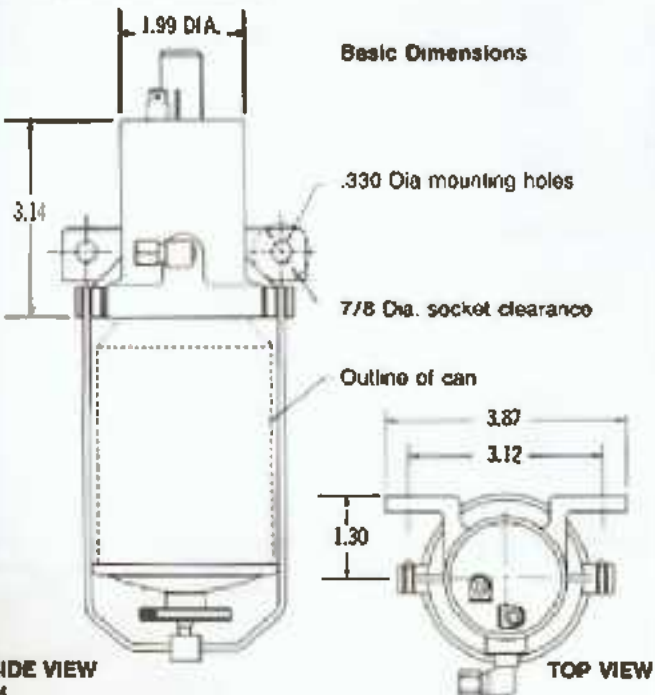
Switch Assembly

Cable Assembly

Wire Assembly

48" Nylon Tube

Basic Kit, complete with mounting hardware and instructions (starting fluid not included).



AUDIO-VISUAL ENGINE WARNING SYSTEMS

High intensity cold cathode diode light and buzzer warn you of impending high engine water temperature and/or low oil pressure. This unit sounds and lights each time the engine is started until oil pressure builds up, and at any time water temperature is excessive. Shock and vibration resistant. Mounts in panel to ½" thick.

Complete Kit 366-TJ includes 364-L oil pressure sender switch, 363-F water temperature sender switch, 825104 warning device, nameplate and four ¼" speed grip electrical connectors.

Warning Device only, 825104 for use separately with any switch to detect low pressure, low fluid, brake failure, etc. Can react to multiple or individual switches. Also order extra warning device when oil pressure and water temperature warnings are desired to be separately signalled.

Warning Device





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