

# STEWART WARNER INSTRUMENTS

**SW**  
INSTRUMENTS

*... your gauge of quality*



Since the turn of the century, the name Stewart Warner has been synonymous with high quality instruments. At Stewart Warner Instrument Corp., we are proud of this reputation.

We are committed to providing high-quality instruments and sensing devices that meet the needs of Original Equipment Manufacturers. This holds true for similar aftermarket applications.

We recognize that by improving the quality of our products and services, we are reducing the cost for our customers. That is why we strive for continuous improvement in every facet of our business.

The new products we bring to market are created by new product development teams who work concurrently on every aspect of the development process. Team members know our customers and the demanding needs they want our products to serve.

Before a new product is produced, it is



tested in the company's environmental laboratory to ensure that it will meet the most exacting specifications.

Once the product is released into production, we maintain its quality by following the stringent quality control procedures we have built into the manufacturing process. When a product leaves our shop floor, it is ready to go to the customer.

We are dedicated to achieving the finest record for on-time delivery in the industry. We back our pledge to deliver on time with sales and customer service representatives who take a personal interest in our customers' requests from start to finish.

We are a customer-oriented, customer-driven company. We are proud of the levels of product quality and customer service we have achieved. Our goal is to serve our customers and all their instrument needs.

*Team Stewart Warner*

## YOUR GAUGE OF QUALITY



### Deluxe Gauges

The industry standard for quality and reliability. Constantly updated, Deluxe gauges and Deluxe performance panel kits are Stewart Warner's most complete and most popular product line.

### Heavy Duty and Heavy Duty Plus Gauges

Designed and engineered for heavy duty truck and off-highway applications. Heavy Duty and Heavy Duty Plus gauges will measure up under the most demanding operating conditions.

### Track Force Gauges

For serious racers and performance enthusiasts. If there are performance components under the hood, there should be Track Force or Track Force Performance gauges on the dash.

### Standard and Standard Plus Gauges

Economical, dependable, no-frills instrumentation. The Standard and Standard Plus lines prove that gauges can deliver value without sacrificing quality.

### Senders and Switches

Manufactured to exacting specifications, Stewart Warner senders and switches accurately transmit the information on which the precision performance of Stewart Warner electric instruments and gauges depends.

### Hobbs Products

Tough products for tough applications, Hobbs meters, switches, lights and flashers are built to perform in the most demanding conditions and operating environments.

### Related Products

Electric fuel pumps, miscellaneous instruments and all of the attachments and accessories needed to mount or install Stewart Warner instruments and gauges.

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**For your nearest SW Instruments distributor  
call (915) 593-5100 Ext. 215**

# Deluxe Gauges and Performance Panel Kits



*As the industry standard for more than 40 years, the Deluxe line of mechanical and electric gauges has been imitated by other manufacturers, but never duplicated.*

With their straightforward graphics and uncluttered appearance, Deluxe gauges and Performance panel kits have a clean, classic look. It is the most popular Stewart Warner gauge line.

Like all Stewart Warner gauges, Deluxe gauges can be installed easily as original equipment, OE replacements or as aftermarket add-ons. They will perform reliably and accurately in all applications and over a wide temperature range.

Mechanical gauges feature Bourdon tube mechanisms (270 degree sweep), while electric gauges feature Bi-Torque® mechanisms (90 degree sweep) for accuracy and dependability.

Matched senders for electric gauges and tubing kits for mechanical gauges are available.

#### Features and Benefits:

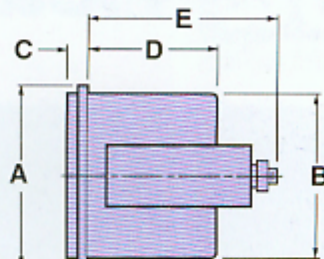
- More than 50 models available covering all applications.
- Bold white graphics on black face dials with white pointers.
- Patented light ring tinted blue-white for better night-time readability.
- Low-profile, bright, stainless steel bezels.
- Programmable electric speedometers and tachometers with wide band input for both diesel and gasoline engine applications.
- Rugged design that sets the industry standard for quality and durability.
- Double- and triple-gauge mounting panel kits available.
- Lighting, bracket and mounting hardware included in kits.

## Deluxe Gauges and Performance Panel Kits

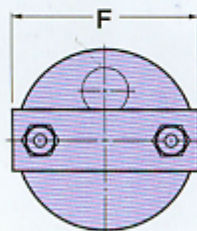
Gauge Type	Dial	2 1/16" Diameter		2 5/8" Diameter			
		Mech	Elec	Mech	Elec		
Ammeter	30-0-30		82310				
	60-0-60		82311		82404		
	100-0-100		82313			Shunt	
	100-0-100		82343			407616	
Voltmeter	10-16V		82309				
	20-32V		82347				
Pressure Oil	0-80 psi		82304			Sender*	
	5-80 psi	82322				279A	
	0-100 psi		82305				
	0-100 psi	82349 <sup>1</sup>				279B-F	
	5-100 psi	82323		82406			
	10-150 psi			82407			
	10-200 psi	82324					
	20-300 psi	82120					
	25-400 psi	82121					
	Transmission Oil	0-150 psi		82346			279C
10-150 psi		82329		82408			
10-150 psi		82350 <sup>2</sup>		368P-D <sup>3</sup>			
Dual Air	10-150 psi	82332					
	1-10 psi	82319					
Fuel	1-15 psi			82405			
	0-16 psi		82333			82504-F	
	2-30 psi	82320					
	10-200 psi	82325					
	2-30 psi	82321					
Temperature Water						Sender**	
	100-240°F		82306			280EA	
	100-265°F	491CT				Lgth. (in.) <sup>††</sup> 600	
	100-265°F	82326				48,60,72,96, 120,144,216, 288,360	
	100-265°F			82409		60,72,144	
						Sender**	
	100-280°F		82307			280ED-F	
	100-280°F		82351 <sup>1</sup>				
	Oil	140-320°F		82308 82352 <sup>1</sup>			280EE-F
		140-325°F	82327				Lgth. (in.) <sup>††</sup> 60,72,96, 144,216
140-325°F				82410		60,72	
Transmission Oil	0-350°F		82344			Sender**	
	100-220°F		82345			280EE-F	
Hydraulic Oil	100-220°F		82345			280EC-F	
	300-1500°F		82335			82505	
Pyrometer	300-1500°F		82335				
Vacuum Turbo	0-30 Hg	82328		82411			
	0-30 Hg/0-15psi	82340					
Fuel Level 240 ohm	E-1/2-F		82303 82353 <sup>1</sup>		82413	391or 385 Series***	
	90 ohm		82341			439 Series	
	Ford/Chrysler 73 ohm		82342				
Clocks	12 hr. analog		82339				
Speedometer		3 3/8"	3 3/8"			Sender <sup>†</sup>	
	5/8"-18/105 sq. hole	0-80 mph	82692				
	W/Odometer	0-85 mph/130 kph	82677				
	Programmable W/Odometer	5-85 mph/130 kph		82637		82646 82623B	
	W/Odometer	0-100 mph		105H-D		106AW	
Tachometer		3 3/8"	3 3/8"				
	5/8"-18 .5:1 W/Hour	0-3500 rpm	82688				
	.5:1	0-3500 rpm	82689				
	1:1 W/Hour	0-3500 rpm	82690				
	1:1	0-3500 rpm	82691				
	12V Neg. Grnd.	0-3500 rpm		82620			
	12V Neg. Grnd. w/Hour	0-3500 rpm		82622		82623B	
	Programmable Low	0-3500 rpm		82635			
	Programmable High	0-3500 rpm		82636		82646	
	.5:1	0-5000 rpm	551AKM-D				
4.6.8, Cyl.	0-6000 rpm		82162B				
4.6.8, Cyl.	0-8000 rpm		82170				
.5:1	0-9000 rpm	535AH-D					

**WARNING:** The tubing on mechanical temperature gauges is gas-filled and cannot be shortened without damaging the gauge. When power is turned off, pointer may rest at random on electrical gauges.

## Approximate Mounting Dimensions



Side View



Back View

Dim.	2 1/16" Gauge		2 5/8" Gauge		3 3/8" Speedometer & Tachometer			
	in.	cm.	in.	cm.	Mech.		Elec.	
A	2.28	5.79	2.60	7.11	3.81	9.68	3.69	9.37
B	2.06	5.23	2.60	6.60	3.34	8.48	3.34	8.48
C	.43	1.09	.43	1.09	.49	1.24	.49	1.24
D	1.76	4.47	1.76	4.47	2.31	5.87	2.61	6.63
E	2.85	7.24	2.46	6.25	3.56	9.04	4.12	10.46
F	2.25	5.72	2.88	7.32	3.59	9.12	3.59	9.12

## Deluxe Performance Panel Kit

Gauge	Dial	Model
<b>Double</b>		
Mech. <sup>1</sup>	Oil Press.	5-100 psi
	Temp.	100-265°F
Elec. <sup>2</sup>	Oil Press.	0-100 psi
	Temp.	100-280°F
<b>Triple</b>		
Mech. <sup>1</sup>	Oil Press.	5-100 psi
	Water Temp.	100-265°F
	Oil Temp.	140-325°F
Elec. <sup>2</sup>	Oil Press.	0-100 psi
	Water Temp.	100-280°F
	Oil Temp.	140-320°F

All panel kits include chrome mounting panels, instructions, and the following:

- 12V lighting and 6' tubing kit with fittings.
- 12V lighting and matching senders.

\* See senders on page 20.  
\*\* See senders on page 22.  
(Universal senders include adapters for 1/8", 1/4", 3/8", 1/2" PT.)

\*\*\* See senders on page 18.

<sup>†</sup> See senders on page 34.

<sup>††</sup> Length must be stated when ordering.

1. Positive ground
2. 7/16-20 thread
3. 3/8" with warning light

For a list of OEM part numbers, turn to page 40.

For Alternator R-Terminal input, contact Sales Department.

Text and data subject to technical modification.

# Heavy Duty Gauges



*Designed especially for heavy-duty applications, Heavy Duty mechanical and electric gauges will perform reliably in all classes of vehicles and under the most demanding operating conditions.*

The Heavy Duty line is just that — heavy duty ... and more. Like all Stewart Warner gauges, Heavy Duty gauges can be installed easily as original equipment, OE replacements or as aftermarket additions. Ruggedly constructed, they will perform reliably and accurately in on-highway and off-road applications and over a wide temperature range.

Mechanical gauges feature Bourdon tube mechanisms (270 degree sweep), while electric gauges feature Bi-Torque® mechanisms (90 degree sweep) for accuracy and dependability.

Matched sensors for electric gauges and tubing kits for mechanical gauges are available.

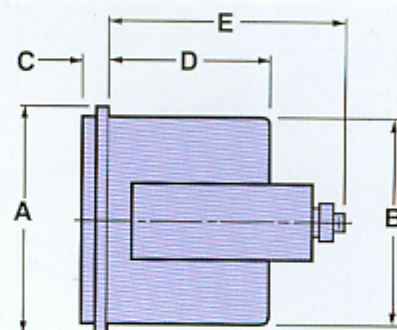
**Features and Benefits:**

- Simple white graphics on black face dials with white pointers.
- Raised flat black bezels with brushed bright rims.
- Lighting, bracket and mounting hardware included in kits.
- Programmable electric speedometers and tachometers with wide band input.
- Speedometer with million-mile odometer.
- Splash lighting.

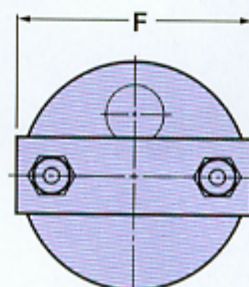
# Heavy Duty Gauges

## Approximate Mounting Dimensions

Gauge Type	Dial	2 1/16" Diameter		Shunt	
		Mech.	Elec.		
Ammeter	60-0-60		284A		
	60-0-60		284AB	813489	
	100-0-100		284AA	407616	
	150-0-150		284AD	413717	
Voltmeter	10-16V		284H		
	20-32V		284AJ		
Pressure				Sender*	
	Oil	0-80 psi		284AE	279A
		0-100 psi		284L	297B-F
		5-100 psi	284D		
	Transmission Oil	10-200 psi	284P		
		20-300 psi	284R		
	Air	25-400 psi	284S		
		0-150 psi		284T	279C
	Dual Air	10-150 psi	284N		
	Fuel	1-15 psi	82331		
	0-16 psi		284E		
Temperature				Sender**	
	Water	100-230°F		284AF	280EC-F
		100-265°F	284B		Lgth. (in.)†† 36.72,144
	Oil	100-280°F		284J	280ED-F
		140-320°F		284K	280EC-F
		140-325°F	284C		Lgth. (in.)†† 36.72,144
Pyrometer	300°F-1500°F		82334	Sender** 82505	
				Extensions 5' 82556-1 10' 82556-2 20' 82556-3	
				Lgth. (in.)†† 96	
Temp/psi	100-260°F/150 psi	82336			
Vacuum	0-30 Hg	284AH			
	0-30 Hg/0-15 psi	284BF			
Fuel Level	0-30 Hg	82301 <sup>1</sup>			
Fuel Level	240 ohm	E-1/2-F	284M	Sender*** 391 or 385 Series	
	GM 90 ohm	E-1/2-F	284BS	439 Series	
	Ford/Chrysler 73 ohm	E-1/2-F	284BR		
Clocks	12 hr. analog		82338		
Speedometer	5/8"-18 .105		3 3/8"	Sender†	
	W/Odometer	0-80 mph	550HF-D		
	W/Odometer	0-160 mph	550HH-D		
	W/Odometer	0-85mph/0-130kph	82678		
Programmable	W/Odometer	5-85mph/0-130kph		82646	
			82642	82623B	
Tachometer	.5:1	0-3500 rpm	551AHK-D		
	.5:1 W/Hour	0-3500 rpm	551AHL-D		
	12V Neg. Ground	0-3500 rpm		82619	
	W/Hourmeter 12V Neg.	0-3500 rpm		82621	
	Programmable Low	0-3500 rpm		82640	
	Programmable High	0-3500 rpm		82641	
	4,6,8, Cyl.	0-6000 rpm		82164B	
	4,6,8, Cyl.	0-8000 rpm		82171B	
	.5:1	0-9000 rpm	535AK-D		



Side View



Back View

Dim.	2 1/16" Gauge	3 3/8" Speedometer & Tachometer	
		Mech.	Elec.
	in. (cm.)	in. (cm.)	in. (cm.)
A	2.28 (5.79)	3.81 (9.68)	3.69 (9.37)
B	2.06 (5.23)	3.34 (8.48)	3.34 (8.48)
C	.43 (1.09)	.49 (1.24)	.49 (1.24)
D	1.76 (4.47)	2.31 (5.87)	2.61 (6.63)
E	2.85 (7.24)	3.56 (9.04)	4.12 (10.46)
F	2.25 (5.72)	3.59 (9.12)	3.59 (9.12)

\* See senders on page 20.

\*\* See senders on page 22.

(Universal senders include adapters for 1/8", 1/4", 3/8", 1/2" PT.)

\*\*\* See senders on page 18.

† See senders on page 34.

†† Length must be stated when ordering.

1 Includes "T fitting" and hose.

2 For magneto applications with a mechanical take off.

For a list of OEM part numbers, turn to page 40.

For Alternator R-Terminal Input, contact Sales Department.

Text and data subject to technical modification.

**WARNING:** The tubing on mechanical temperature gauges is gas-filled and cannot be shortened without damaging the gauge.

When power is turned off, pointer may rest at random on electrical gauges.

# Heavy Duty Plus Gauges



**Engineered for heavy duty truck and off-highway applications, Heavy Duty Plus gauges are built to withstand shock and vibration and to perform accurately time after time.**

Styling refinements give the Heavy Duty Plus line a pleasing appearance. The patented green-tinted light ring is easier on the eyes and makes the line ideal for long-distance driving.

Like all Stewart Warner gauges, Heavy Duty Plus gauges can be installed easily as original equipment, OE replacements or as aftermarket add-ons. Ruggedly constructed, they will perform reliably and accurately in on-highway and off-road applications and over a wide temperature range.

Mechanical gauges feature Bourdon tube mechanisms (270 degree sweep), while electric gauges feature Bi-Torque<sup>®</sup> mechanisms (90 degree sweep) for accuracy and dependability.

Matched sensors for electric gauges and tubing kits for mechanical gauges are available.

#### Features and Benefits:

- Easy-to-read green and white graphics on black with white pointer.
- ISO symbols on face dials.
- High-visibility, green-tinted, patented ring lighting.
- Low-profile, flat, black bezels.
- Programmable electric speedometers and tachometers with wide band input for both diesel and gasoline engine applications.
- Speedometer with million mile odometer.
- Lighting, bracket and mounting hardware included in kits.



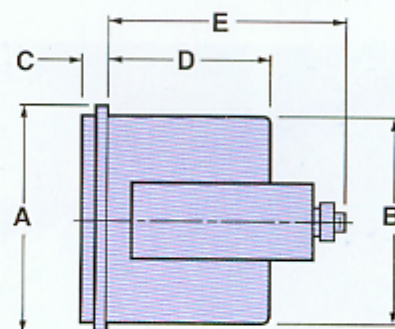
# Heavy Duty Plus Gauges

## Approximate Mounting Dimensions

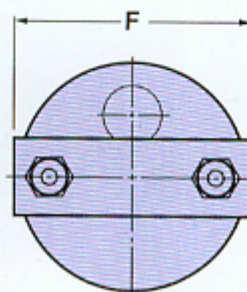
Gauge Type	Dial	2 1/16" DIAMETER		
		Mech.	Elec.	
				<b>Shunt</b>
Ammeter	60-0-60		82359	813489
	100-0-100		82360	407616
	150-0-150		82361	413717
Voltmeter	10-16V		82376	
	20-32V		82377	
<b>Pressure</b>				<b>Sender*</b>
Oil	0-80 psi		82354	279A
	0-100 psi		82358	279B-F
	5-80 psi	82363		
	5-100 psi	82372		
	10-200 psi	82364		
Transmission Oil	20-300 psi	82365		
	20-400 psi	82380		
Air	10-150 psi	82373		
	30-150 psi	82371		
	1-15 psi	82362		
Temperature Coolant	100-260°F	82381		<b>Lgth. (in.)††</b> 36,72,144
				<b>Sender**</b> 280ED-F
Water Oil	100-265°F		82355	
	100-240°F		82374	
	140-320°F		82375	280EE-F
		82382		<b>Lgth. (in.)††</b> 36,72,144
Pyrometer	300-1500°F		82357	82505 <b>Extension</b> 5' 82556-1 10' 82556-2 20' 82556-3
Vacuum	0-30 Hg	82383		
Air Restriction	0-40 H <sub>2</sub> O	82384		
Fuel Level 240 ohm	E-1/2-F		82378	<b>Sender***</b> 391 or 385 Series
Speedometer		<b>3 3/8"</b>	<b>3 3/8"</b>	<b>Sender†</b>
	5-85 mph/ 0-140 kph	82694		
	0-80 mph/ 0-140 kph		82645	82623B or 82646
	0-140 kph/ 0-85 mph	82695		
Tachometer Diesel w/totalizer Programmable		<b>3 3/8"</b>	<b>3 3/8"</b>	<b>Sender†</b>
	0-3000 rpm	82696		
	low frequency 0-3500 rpm		82643	82623B
	high frequency 0-3500 rpm		82644	82646
Gas/Ignition Input	0-3500 rpm		82647	82623B
	4,6,8, Cyl. 0-6000 rpm		82648	
	Mini 4 Cyl. 0-8000 rpm		82649	
	0-6000 rpm		82650	

**WARNING:** The tubing on mechanical temperature gauges is gas-filled and cannot be shortened without damaging the gauge.

When power is turned off, pointer may rest at random on electrical gauges.



Side View



Back View

Dim.	2 1/16" Gauge	3 3/8" Speedometer & Tachometer	
		Mech.	Elec.
	in. (cm.)	in. (cm.)	in. (cm.)
A	2.28 (5.79)	3.81 (9.68)	3.69 (9.37)
B	2.06 (5.23)	3.34 (8.48)	3.34 (8.48)
C	.43 (1.09)	.49 (1.24)	.49 (1.24)
D	1.76 (4.47)	2.31 (5.87)	2.61 (6.63)
E	2.85 (7.24)	3.56 (9.04)	4.12 (10.46)
F	2.25 (5.72)	3.59 (9.12)	3.59 (9.12)

\* See senders on page 20.

\*\* See senders on page 22.

(Universal senders include adapters for 1/8", 1/4", 3/8", 1/2" PT.)

\*\*\* See senders on page 18.

† See senders on page 34.

†† Length must be stated when ordering.

For a list of OEM part numbers, turn to page 40.

For Alternator R-Terminal Input, contact Sales Department.

Text and data subject to technical modification.

# Track Force and Track Force Performance Gauges and Panels



*With their bold yellow and white graphics and bright red pointers, Track Force mechanical and electric gauges are the proven choice of professional racers and performance enthusiasts.*

For performance enthusiasts the choice is clear — Stewart Warner Track Force gauges and performance panel kits. Made for quick-glance viewing, these gauges make any performance vehicle look like a winner.

Like all Stewart Warner gauges, Track Force gauges and performance panel kits can be installed easily. Ruggedly constructed, they will perform reliably and accurately in any racing or off-road application over a wide range of environmental conditions.

Mechanical gauges feature Bourdon tube mechanisms (270 degree sweep), while electric gauges feature Bi-Torque® mechanisms (90 degree sweep) for accuracy and dependability.

Mounting brackets and installation instructions are included.

Matched sensors for electric gauges and tubing kits for mechanical gauges are available.

#### Features and Benefits:

- High-performance yellow and white graphics on black with red pointer.
- Patented blue-white ring lighting.
- Choice of raised flat black or stainless steel bezels.
- Lighting, bracket and mounting hardware included in kits.
- Matching 5" diameter tachometers available with or without memory in 10,000 and 12,000 rpm versions.
- Speedometers with 0-160 mph range.
- The choice of professional racers and performance enthusiasts.
- Double- and triple-gauge mounting panel kits available.

# Track Force Gauges and Performance Panel Kits

Gauge Type	Dial	2 1/16" Diameter				2 5/8" Diameter				
		Mechanical		Electrical		Mechanical		Electrical		
		Black	S. Steel	Black	S. Steel	Black	S. Steel	Black	S. Steel	
Ammeter	60-0-60			82855-P	82875-P			82805-P	82825-P	
Voltmeter	10-16V			82862-P	82882-P			82812-P	82832-P	
Pressure										Sender*
Oil	0-100 psi			82865-P	82885-P					279B-F
	5-100 psi	82857-P	82877-P			82807-P	82827-P			
	10-200 psi	82858-P	82878-P			82808-P	82828-P			
Fuel	1-15 psi					82806-P	82826-P			
	0-16 psi			82868-P	82888-P					82504-F
	1-16 psi	82856-P	82876-P							
Temperature										Lgth. (in.)**
Water	100-265°F	82859-P	82879-P			82809-P	82829-P			36,72,144
	100-265°F									72,144
Oil	100-280°F			82866-P	82886-P					Sender**
	140-320°F			82867-P	82887-P					280ED-F
	140-325°F	82860-P	82880-P							280EE-F
	140-325°F									Lgth. (in.)**
						82810-P	82830-P			36,72,144
										72,144
Vacuum	0-30 Hg	82861-P	82881-P			82811-P	82831-P			
Turbo Boost	0-30Hg/0-15 psi	82864-P	82884-P							
	0-30Hg/0-40 psi					82814-P	82834-P			
Fuel Level										Sender***
240 ohm	E-1/2-F			82863-P	82883-P			82813-P	82833-P	391/385
GM 90 ohm	E-1/2-F			82869-P	82889-P					439 Series
Ford/Chr. 73 ohm	E-1/2-F			82870-P	82890-P					
Speedometer w/Odometer	0-160 mph	3 3/8" 82852-P	3 3/8" 82872-P							
Tachometers										
Pedestal Mount 4,6,8,Cyl Adj.Redline	rpm				2 1/2"					
	0-8000				82854-P					
Pedestal Mount .5:1 Adj. Redline	0-10,000			82853-P						
	0-10,000	82851-P	82871-P			82801-P	82821-P			
4,6,8,Cyl Adj.Redline	0-10,000			82850-P	82873-P					
	0-10,000							82803-P	82823-P	
4,6,8,Cyl Ign. Input	0-10,000							82800-P	82820-P	
4,6,8,Cyl. Telltale Mem.	0-10,000							82802-P	82822-P	
4,6,8,Cyl. Telltale Mem.	0-12,000									

## Track Force Performance Panel Kits

Gauge	Dial	Model Number	
		Black	S. Steel
Double	Mech. <sup>1</sup> Oil Press. Water Temp.	5-100 psi 100-265°F	873143 873139
	Elec. <sup>2</sup> Oil Press. Water Temp.	0-100 psi 100-280°F	873145 873141
Triple	Mech. <sup>3</sup> Oil Press. Water Temp.	5-100 psi 100-265°F	873142 873138
		Oil Temp. 140-325°F	
	Elec. <sup>4</sup> Oil Press. Water Temp.	0-100 psi 100-280°F	873144 873140
		Oil Temp. 140-320°F	

All panel kits include chrome or black mounting panels, instructions, and the following:

- 12V lighting and 6' tubing kit with fittings.
- 12V lighting and matching senders.
- 12V lighting and 6' tubing kit with fittings.
- 12V lighting and matching senders.

\* See senders on page 20. \*\* See senders on page 22.  
(Universal senders include adapters for 1/8", 1/4", 3/8", 1/2" PT.)

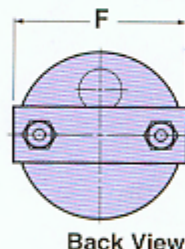
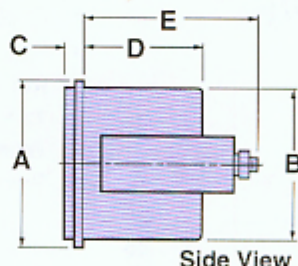
\*\*\* See senders on page 18. † See senders on page 34.

\*\* Length must be stated when ordering.

For a list of OEM part numbers, turn to page 40.

## Approximate Mounting Dimensions

Dim.	2 1/16" Gauge		2 5/8" Gauge		3 3/8" Speedometer & Tachometer				5" Tachometer			
					Mech.		Elec.		Mech.		Elec.	
	in.	cm.	in.	cm.	in.	cm.	in.	cm.	in.	cm.	in.	cm.
A	2.28	5.79	2.80	7.11	3.81	9.68	3.69	9.37	5.39	13.69	5.39	13.69
B	2.06	5.23	2.60	6.60	3.34	8.48	3.34	8.48	5.04	12.80	5.04	12.80
C	.43	1.09	.43	1.09	.49	1.24	.49	1.24	.72	1.83	.72	1.83
D	1.76	4.47	1.76	4.47	2.31	5.87	2.61	6.63	2.25	5.72	2.61	6.63
E	2.85	7.24	2.46	6.25	3.56	9.04	4.12	10.46	3.50	8.89	4.12	10.46
F	2.25	5.72	2.88	7.32	3.59	9.12	3.59	9.12	5.35	13.59	5.35	13.59



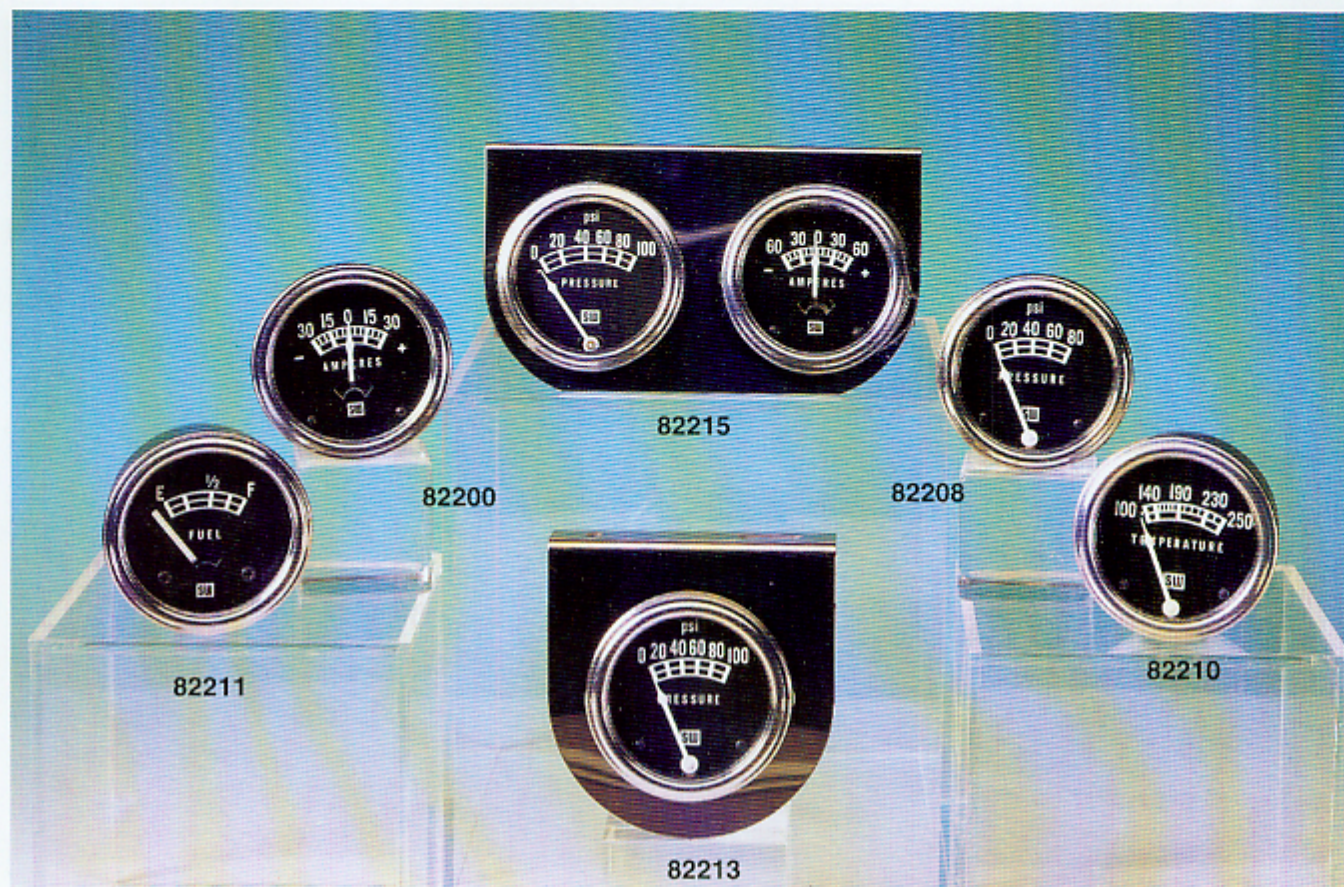
**WARNING:** The tubing on mechanical temp. gauges is gas-filled and cannot be shortened without damaging the gauge.

When power is turned off, pointer may rest at random on electrical gauges.

Text and data subject to technical modification.



## Standard Gauges and Standard Plus Panel Kits



*The non-illuminated Standard line and the illuminated Standard Plus line offer dependable, no-frills instrumentation and prove that lower price does not mean lower quality.*

Non-illuminated Standard gauges for a wide range of uses and illuminated Standard Plus panel kits let you enjoy Stewart Warner quality, reliability and durability at a most economical price.

Like all Stewart Warner gauges, Standard and Standard Plus gauges can be installed easily as original equipment, OE replacements or as aftermarket add-ons. Ruggedly constructed, they will perform reliably and accurately in off-road applications and over a wide temperature range.

Mounting brackets and installation instructions are included. Tubing kits for mechanical gauges are available.

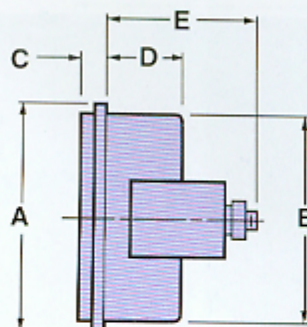
#### Features and Benefits:

- Classic white graphics on black face plate with white pointer.
- Flat, bright stainless steel bezels.
- Popular diaphragm mechanism for proven performance.
- The same quality, reliability and durability as premium Stewart Warner gauge lines.
- Single-, double- and triple-gauge mounting panel kits available.

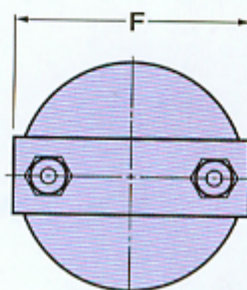
## Standard Gauges and Standard Plus Panel Kits

Gauge Type	Dial	2 1/32" Diameter		
		Mech.	Elec.	
Ammeter	20-0-20		82201	
	30-0-30		82200	
	60-0-60		82202	
Pressure	0-50 psi	82207		
	0-80 psi	82208		
	0-100 psi	82209		
Temperature	100-250°F	82210		Lgth. (in.)* 36, 48, 60, 72, 144
Fuel 240 ohm	E-1/2-F		82211	Sender** 391 or 385 Series

### Approximate Mounting Dimensions



Side View



Back View

## Standard Plus Panels

Gauge Type	Dial	Model No.
<b>Single</b>		
Ammeter <sup>1</sup>	60-0-60	82212
Mech. Oil Pressure <sup>2</sup>	0-100 psi	82213
Mech. Temperature <sup>3</sup>	100-250°F	82214-72
<b>Double</b>		
Amm./Oil <sup>4</sup>	60-0-60/0-100 psi	82215
Oil/Temp. <sup>5</sup>	10-100 psi/100-250°F	82216
<b>Triple</b>		
Amm./Oil/Temp. <sup>6</sup>	60-0-60/0-100 psi/100-250°F	82217

All panel kits include mounting panels, instructions, and the following:

- 12V lighting for electrical system charging up to 60 amps.
- 6' tubing kit with fittings and 12V lighting.
- 72" capillary. Includes 12V lighting.
- 6' tubing kit with fittings and 12V lighting.
- 72" capillary. Includes 6' tubing kit with fittings and 12V lighting.
- 12V lighting, for electrical system charging up to 60 amps, and 6' tubing kit with fittings.

**WARNING:** The tubing on mechanical temperature gauges is gas-filled and cannot be shortened without damaging the gauge.

When power is turned off, pointer may rest at random on electrical gauges.

\* Length must be stated when ordering.

\*\* See senders on page 18.

For a list of OEM part numbers, turn to page 40.

Dim.	2 1/32" Diameter Gauge
	in. (cm.)
A	2.19 (5.56)
B	2.00 (5.08)
C	.25 (0.64)
D	.75 (1.91)
E	1.33 (3.38)
F	2.06 (5.23)

Text and data subject to technical modification.

# Metric Deluxe and Dual Scale Heavy Duty Plus Gauges



*Deluxe gauges, the industry standard for more than 40 years, and Heavy Duty Plus gauges, which have proven themselves under the most rigorous operating conditions, are also available in metric and dual scale versions.*

Deluxe gauges are available with metric or English face dials. Heavy Duty Plus gauges can be ordered with English or dual scale face dials.

Like all Stewart Warner gauges, Deluxe and Heavy Duty Plus gauges can be installed easily as original equipment, OE replacements or as aftermarket add-ons. Ruggedly constructed, they will perform reliably and accurately in on-highway and off-road applications.

Mechanical gauges feature Bourdon tube mechanisms (270 degree sweep), while electric gauges feature Bi-Torque® mechanisms (90 degree sweep) for accuracy and dependability.

Matched sensors and tubing kits for mechanical gauges available.

Product lines include programmable speedometers and tachometers with wide band input for both diesel and gasoline engine applications.

#### Features and Benefits, Deluxe Gauges:

- Bold white graphics on black face dials with white pointers.
- Patented blue-white light ring for better readability.
- Low-profile, bright, stainless steel bezels.

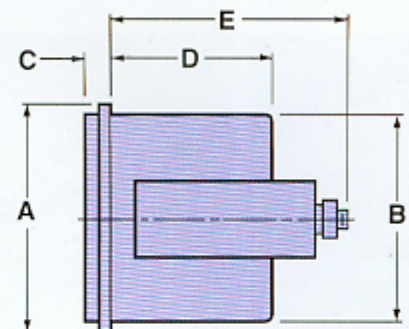
#### Features and Benefits, Heavy Duty Plus Gauges:

- Green and white graphics on black with white pointer.
- High-visibility, green-tinted, patented ring lighting.
- Low-profile, flat, black bezels.
- ISO symbols on the face dials.
- Lighting, bracket and mounting hardware included in kits.

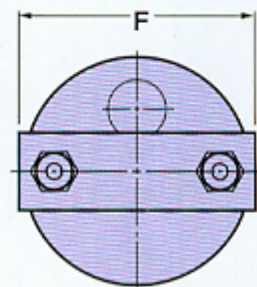
# Metric Deluxe and Dual Scale Heavy Duty Plus Gauges

Gauge Type	Dial	Deluxe 2 1/16" Diameter		Heavy Duty Plus 2 1/16" Diameter		
		Mech.	Elec.	Mech.	Elec.	
Ammeter	30-0-30				82736	Shunt
	60-0-60				82737	813489
Voltmeter	10-16V		82391		82738	
Pressure						Sender*
Oil	0-100 psi/ 0-700 kPa				82728	279B-F
	0-700 kPa		82387			279B-F
	5-100 psi/ 50-700 kPa			82741		
Converter Oil	50-700 kPa	82392				
Converter Oil	0-100 psi/ 0-700 kPa				82729	279B-F
Air	0-1000 kPa		82388			279C
	10-150 psi/ 100-1000 kPa			82742		
	70-1000 kPa	82393				
Dual Air	30-150 psi/ 200-1000 kPa			82746		
Transmission Oil	20-300 psi/ 150-2000 kPa			82743		
Temperature						Sender**
Water	100-240°F/ 40-115°C				82730	82510-F
	40-115°C		82389			82510-F
	100-265°F/ 40-135°C			82744		Lgth.(in.)†† 36,72,144
	40-130°C	82394				36,72,144
Oil	150-350°F/ 65-175°C				82731	Sender** 280EE-F
	60-160°C		82390			280EH-F
Engine Oil	60-160°C		82395			280EH-F
Transmission Oil					82739	280EE
Converter Oil	140-320°F/ 60-160°C			82749		Lgth.(in.)†† 36,72,144
Hydraulic Oil	120-350°F/ 65-175°C				82732	Sender** 280EE-F
	100-240°F/ 40-115°C				82740	280EA
Vacuum	2-30 Hg/ 50-750 mmhg			82745		
Fuel Level						Sender***
240 ohm	E-1/2-F		82386		82733	391 or 385 Series
GM 90 ohm	E-1/2-F				82734	439 Series
Ford/Chr. 73 ohm	E-1/2-F				82735	
Speedometer		3 3/8"	3 3/8"	3 3/8"	3 3/8"	Sendert
	0-140 kph	82697				
Programmable	0-140 kph/ 5-85 mph		82656		82658	82646 or 82623B
	0-140 kph/ 5-85 mph			82695		
Programmable	5-85 mph/ 0-140 kph		82637			82646 or 82623B
	5-85 mph/ 0-140 kph			82694		
Tachometer		3 3/8"	3 3/8"	3 3/8"	3 3/8"	Sendert
With Totalizer	0-3000 rpm			82696		
Programmable Diesel/Low Freq.	0-3500 rpm		82635		82643	82623B
Programmable Diesel/High Freq.	0-3500 rpm		82636		82644	82646
Programmable Diesel with Hour	0-3500 rpm		82622		82647	82623B
4,6,8, Cyl.	0-8000 rpm		82162B		82648	
4,6,8, Cyl.	0-8000 rpm		82170		82649	

## Approximate Mounting Dimensions



Side View



Back View

Dim.	2 1/16" Gauge	3 3/8" Speedometer & Tachometer	
		Mech.	Elec.
	in. (cm.)	in. (cm.)	in. (cm.)
A	2.28 (5.79)	3.81 (9.68)	3.69 (9.37)
B	2.06 (5.23)	3.34 (8.48)	3.34 (8.48)
C	.43 (1.09)	.49 (1.24)	.49 (1.24)
D	1.76 (4.47)	2.31 (5.87)	2.61 (6.63)
E	2.85 (7.24)	3.56 (9.04)	4.12 (10.46)
F	2.25 (5.72)	3.59 (9.12)	3.59 (9.12)

\* See senders on page 20.

\*\* See senders on page 22.

(Universal senders include adapters for 1/8", 1/4", 3/8", 1/2" PT.)

\*\*\* See senders on page 18.

† See senders on page 34.

†† Length must be stated when ordering.

For a list of OEM part numbers, turn to page 40.

For Alternator R-Terminal input, contact Sales Department.

**WARNING:** The tubing on mechanical temperature gauges is gas-filled and cannot be shortened without damaging the gauge. When power is turned off, pointer may rest at random on electrical gauges.

Text and data subject to technical modification.

# Marine Deluxe, Heavy Duty and Heavy Duty Plus Gauges



*Deluxe, Heavy Duty and Heavy Duty Plus gauges have proven themselves under rigorous operating conditions. When adapted for marine use, they will withstand the rigors of the most demanding marine environment.*

Sealed in plastic, Galfan® or brass cases, Deluxe, Heavy Duty and Heavy Duty Plus marine gauges are impervious to shock, vibration, ocean spray or salt air.

Like all Stewart Warner gauges, they can be installed easily as original equipment, OE replacements or as aftermarket add-ons. Ruggedly constructed, they will perform reliably and accurately in any marine environment and over a wide temperature range.

Mechanical gauges feature Bourdon tube mechanisms (270 degree sweep), while electric gauges feature Bi-Torque® mechanisms (90 degree sweep) for accuracy and dependability.

Matched sensors and tubing kits are available.

Programmable electric tachometers with wide band input are available for both diesel and gasoline engine applications.

#### Features and Benefits, Deluxe Gauges:

- Bold white graphics on black face dials with white pointers.
- Patented blue-white light ring for better readability.
- Low-profile, bright, stainless steel bezels.

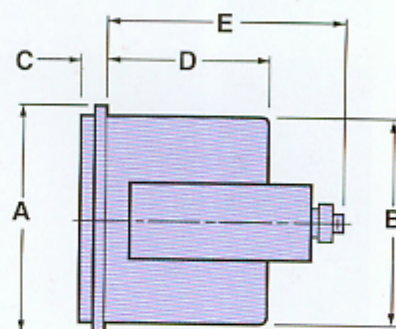
#### Features and Benefits, Heavy Duty Plus Gauges:

- Easy-to-read green and white graphics on black with white pointer.
- High-visibility, green-tinted, patented ring lighting.
- Low-profile, flat, black bezels.
- ISO symbols on the face dials.
- Lighting, bracket and mounting hardware included in kits.

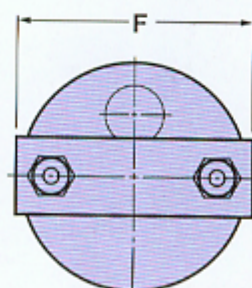


# Marine Deluxe, Heavy Duty, and Heavy Duty Plus Gauges

## Approximate Mounting Dimensions



Side View



Back View

Dim.	2 1/16" Gauge	3 3/8" Speedometer & Tachometer	
		Mech.	Elec.
	in. (cm.)	in. (cm.)	in. (cm.)
A	2.28 (5.79)	3.81 (9.68)	3.69 (9.37)
B	2.06 (5.23)	3.34 (8.48)	3.34 (8.48)
C	.43 (1.09)	.49 (1.24)	.49 (1.24)
D	1.76 (4.47)	2.31 (5.87)	2.61 (6.63)
E	2.85 (7.24)	3.56 (9.04)	4.12 (10.46)
F	2.25 (5.72)	3.59 (9.12)	3.59 (9.12)

\* See dual and other senders on page 20.

\*\* See senders on page 22.

(Universal senders include adapters for 1/8", 1/4", 3/8", 1/2" PT.)

\*\*\* See senders on page 18.

† See senders on page 34.

†† Length must be stated when ordering.

1. Positive ground
2. Dual senders available (see page 21)

For a list of OEM part numbers, turn to pg. 40.

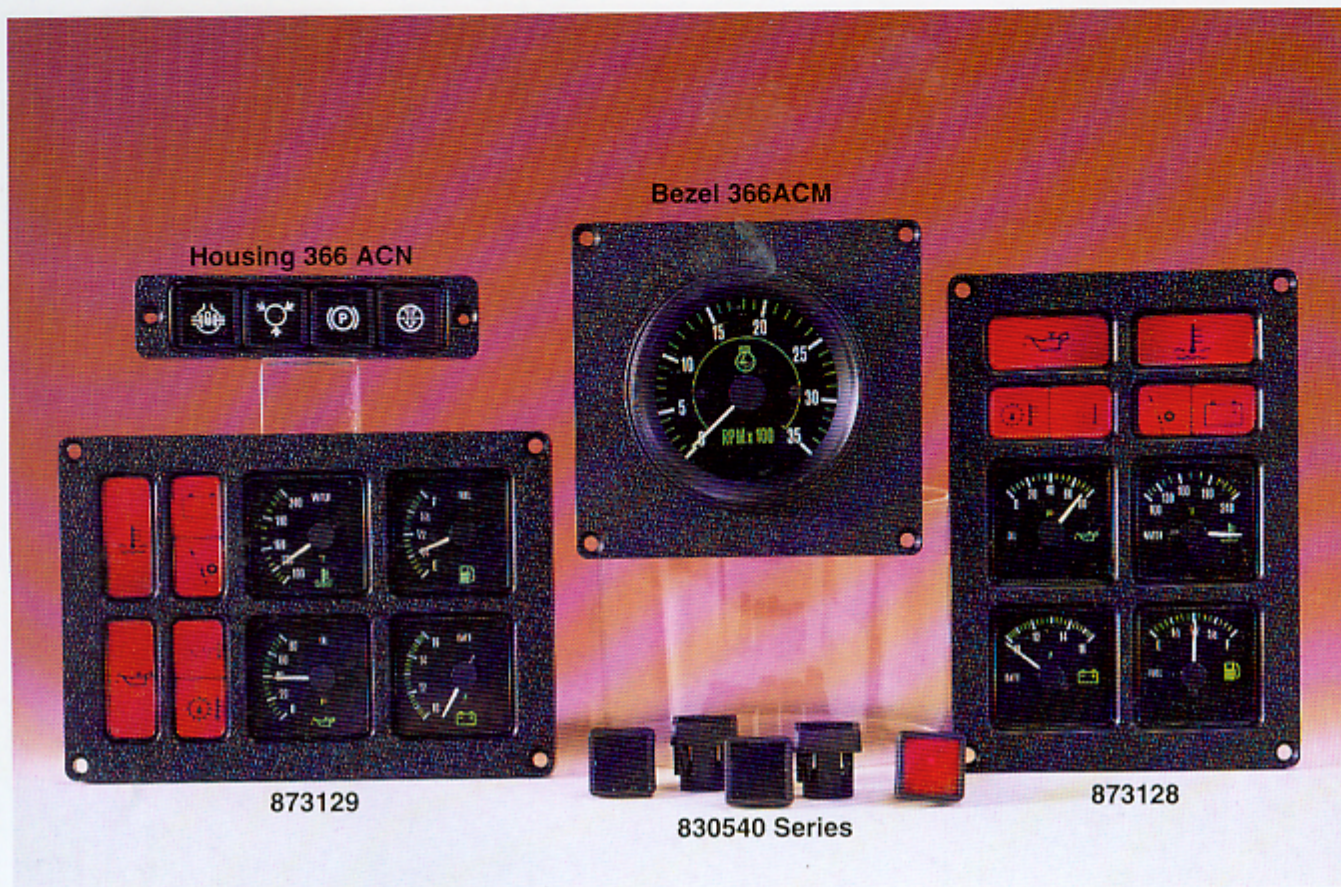
**WARNING:** The tubing on mechanical temperature gauges is gas-filled and cannot be shortened without damaging the gauge.

When power is turned off, pointer may rest at random on electrical gauges.

Gauge Type	Dial	Deluxe 2 1/16" Diameter		Heavy Duty 2 1/16" Diameter		H. D. Plus 2 1/16" Diameter		
		Mech.	Elec.	Mech.	Elec.	Mech.	Elec.	
Ammeter	60-0-60		82108		284A			Shunt
	60-0-60		82109		284AB		82359	813489
	100-0-100		82110		284AA		82360	407616
Voltmeter	10-16V		82112		284H		82376	
	20-32V		82347		284AJ		82377	
Pressure								Sender*
Oil	0-80 psi		82113		284AE		82354	279A <sup>2</sup>
	5-80 psi	82322						279B-F <sup>2</sup>
	0-100 psi		82305		284L		82358	
	0-100 psi		82349 <sup>1</sup>					
	0-100 psi		82116					
	5-100 psi	82323		284D		82372		
	10-200 psi	82324		284P		82364		
Transmission Oil	20-300 psi			284R		82365		
	30-400 psi			284S				
Drive Oil	0-300 psi	82120						
	0-400 psi	82121						
Fuel	0-10 psi	82319						
	1-15 psi			284E		82362		
	0-16 psi		82333		284AM			82504-F
	0-30 psi	82320						
	0-200 psi	82325						
Water	0-30 psi			82130				
Temperature								Sender**
Water	100-230°F				284AF			280EC
			82114					280EA-F
	100-240°F						82374	280ED-F
	100-265°F	491CT						Lgth. (in.)†† 60*
	100-265°F	82326						48, 60, 72, 96, 120, 144, 216, 288, 360
	100-265°F			284B				36, 72, 144
Coolant	100-265°F						82355	Sender** 280ED-F
Oil	100-280°F		82115					280ED-F
	140-320°F						82375	280EE-F
	140-320°F			284C				Lgth. (in.)†† 36, 72, 144
	140-325°F	82327						60, 72, 96, 144, 216
Trans. Oil	0-350°F		82344					280EE-F
Bow Trim	No Scale		82124		284BP			
Pyrometer	300-1500°F		82335		82334		82357	Sender** 82505
								Extensions 5' 82556-1 10' 82556-2 20' 82556-3
Temp/psi	100-265°F/ 0-150 psi			82336				Lgth. (in.)†† 96
Vacuum	0-30 Hg	82117		284AH		82383		
Turbo	0-30 Hg	82340		284BF				
Fuel Level	240 ohm							Sender*** 391 or 385 Series
	E-1/2-F		82111		284M		82378	
Air Restriction	0-40 H <sub>2</sub> O	82384						
Speedometers								Sender†
(Pitot tube and tubing included)	0-60 mph		82153					
	0-75 mph		82152					
Tachometer								Sender†
5/8"-18, .105 sq. hole								
.5:1 W/Hour	0-3500 rpm	82688		551AHL-D		82696		
.5:1	0-3500 rpm	82689		551AHK-D				
1:1 W/Hour	0-3500 rpm	82690						
1:1	0-3500 rpm	82691						
12V Neg. ground	0-3500 rpm		82620		82619		82643	82623B
12V Neg. W/Hour	0-3500 rpm		82622		82621		82647	82623B
12 Pole Outboard								
4, 6, 8 Cyl. Ignition	0-8000 rpm		82162B		82164		82648	
4, 6, 8 Cyl. Ignition	0-8000 rpm		82170		82171		82649	
20 Pole Outboard								
4, 8, 12 Cyl. Ignition	0-8000 rpm		82163		82165			

Text and data subject to technical modification.

# 4 GC Panel



*The 4 GC Panel is a four gauge cluster designed for use in the agricultural, construction, truck, marine, stand-by power and stationary equipment industries.*

The standard panel includes a voltmeter, fuel level, water temperature and oil pressure gauges. It features oil, water and transmission temperature, oil pressure, battery and parking brake warning lights. Matching speedometer, tachometer and flasher modules also are available.

The panels are offered in 12- and 24-volt vertical and horizontal models. All models use standard 240 ohm Stewart Warner senders.

**Features and Benefits:**

Proven in off-highway and agricultural applications, the 4 GC Panel is reliable, versatile and attractive. It offers the following standard features:

- One-piece, water and dust resistant, front-serviceable, snap-on bezels and lenses.
- Front mounted instruments and lenses with internal back lighting.
- Patented housing and molded-in circuit plate.
- Single interlocking harness connector for all 4 GC functions.
- Rugged plug-in Bi-Torque® gauges.
- Illumination lights serviceable from front and back.
- Easy-to-read green and white graphics.

**Optional Accessories:**

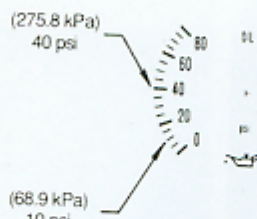
- Independent warning light panel.
- Matching speedometer, tachometer and flasher module.
- Metric face dials.

## 4 GC Panel

### Receiver Unit - Pressure

Functional Dial Spread 87° 45' Angular Degrees.

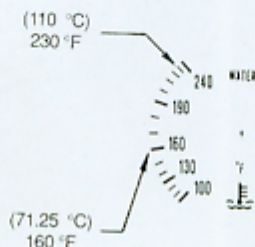
Check Point	10 psi (68.9 kPa)	40 psi (275.8 kPa)
Simulated Sender Resistance (ohms)	190 Ω	103 Ω
Tolerance in Inches	± .031 (± 0.79 cm)	± .092 (± 2.34 cm)
Tolerance (psi) (for reference only)	± 2.0 (± 13.8 kPa)	± 6.0 (± 41.3 kPa)
Direction of Pointer Travel	Descending	Ascending
Replacement Gauges	Vertical 883106	Horizontal 883107



### Receiver Unit - Temperature

Functional Dial Spread 97° 30' Angular Degrees.

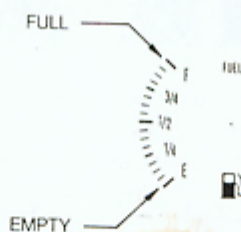
Check Point	160°F (71.25°C)	230°F (110°C)
Simulated Sender Resistance (ohms)	148.5 Ω	55.2 Ω
Tolerance in Inches	± .092 (± 2.34 cm)	± .031 (± 0.79 cm)
Tolerance (°F) (for reference only)	+ 5.7(+ 3.2°C) - 6.3(- 3.5°C)	+ 4.5(+ 2.5°C) - 4.2(- 2.4°C)
Direction of Pointer Travel	Ascending	Ascending
Replacement Gauges	Vertical 887089	Horizontal 878090



### Receiver Unit - Fuel

Functional Dial Spread 87° 45' Angular Degrees.

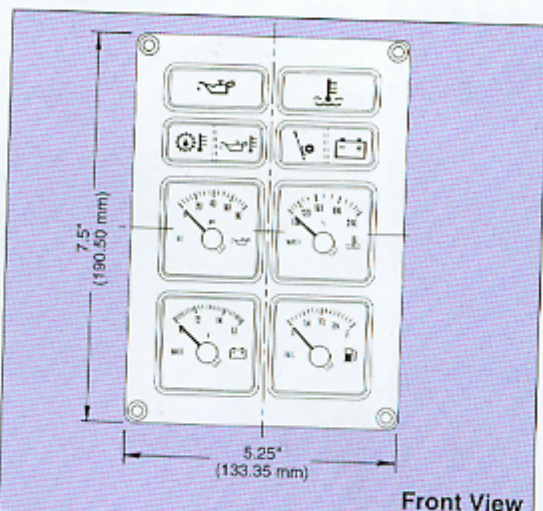
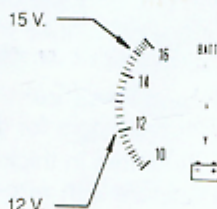
Check Point	EMPTY	FULL
Simulated Sender Resistance (ohms)	240 Ω	33.5 Ω
Tolerance in Inches	± .062 (± 1.57 cm)	± .062 (± 1.57 cm)
Tolerance % Fluid Capacity (for reference only)	± 5%	± 6%
Direction of Pointer Travel	Descending	Ascending
Replacement Gauges	Vertical 880123	Horizontal 880124



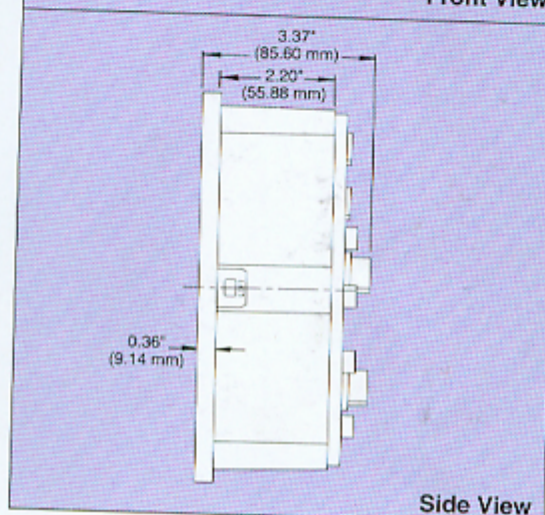
### Voltmeter

Functional Dial Spread 91° Angular Degrees.

Check Point	12 V	15 V
Input Voltage	12 V	15 V
Tolerance in Inches	± .062 (± 1.57 cm)	± .062 (± 1.57 cm)
Tolerance (V) (for reference only)	± .25	± .25
Direction of Pointer Travel	Descending	Ascending
Replacement Gauges	Vertical 876042	Horizontal 876043



Front View

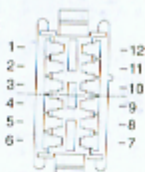


Side View

Gauge cluster to be used with Packard® connecting body #2984792.

Terminals must be assembled as follows:

1. Sender, Oil Press. Ga.
2. Common Ground
3. Internal Lamps
4. Ignition and Battery
5. Sender, Temp. Gauge
6. Sender, Fuel Ga.
7. Parking Brake
8. Battery
9. Water Temp.
10. Oil Pressure
11. Trans. Temp.
12. Oil Temp



Recommend #8 self-threading, type "AB" screw; no lubrication.

**Driving torque:** 18-20 in-lbs (2.03 to 2.26 Nm)

**Stripping torque:** 2.5 ft-lbs (3.39 Nm min.)

(2) Packard #2962987 1/4 spade terminals in Packard #2973782 connector body.

**Mounting position:** Plane of cluster may range from 0° to 90° back from vertical.

Front mounted instruments and lenses with internal back lighting.

**Senders:** Receiver unit - Press. intended for use with S.W. standard 240 ohm rheostat.  
Receiver unit - Temp. intended for use with 280EC sender.  
Receiver unit - Fuel intended for use with S.W. standard 240 ohm rheostat.

366 ACN - Module housing for flashers

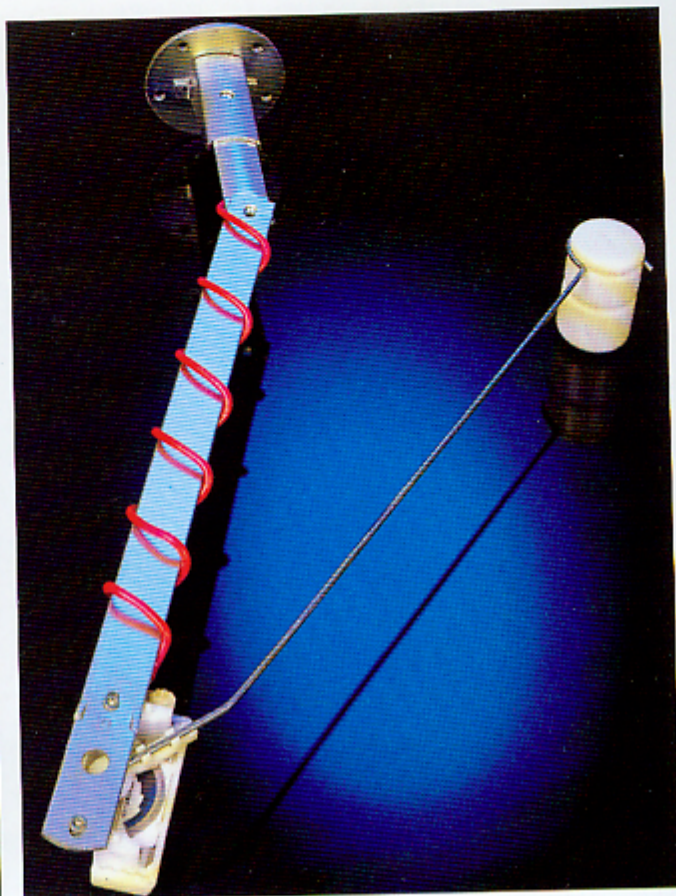
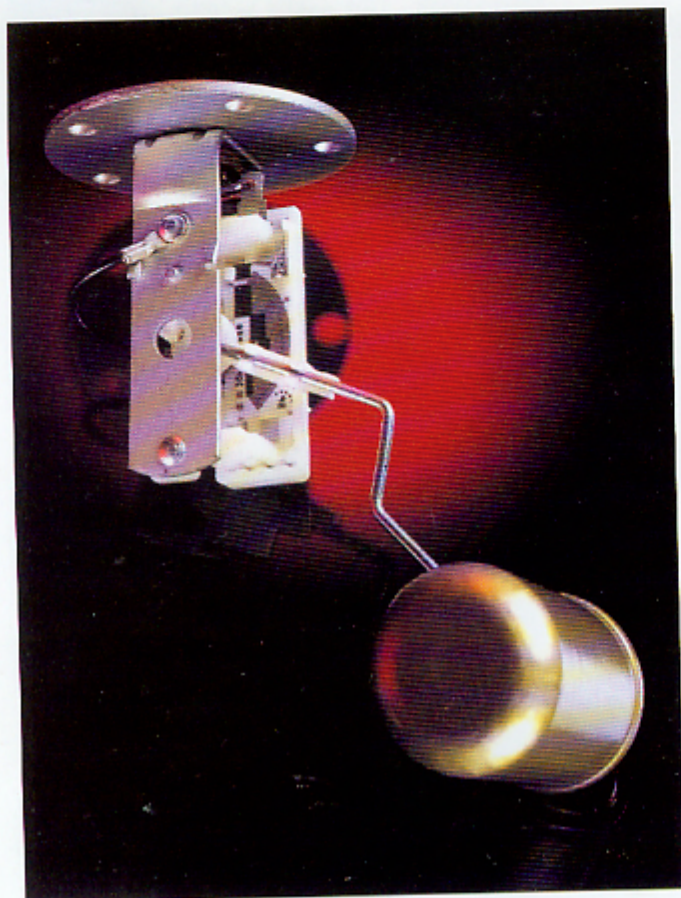
830540 Series - Component flashers for 366 ACN module

(assortment of component flashers available for various functions)

For a list of OEM part numbers, turn to page 40.

Text and data subject to technical modification.

## Thick Film Fuel Level Senders



***Designed to withstand the most rigorous applications, Thick Film Fuel Level Senders will last up to 10 times longer than senders with wire-wound resistors.***

Thick Film Fuel Level Senders are the preferred senders for heavy duty truck, farm and construction equipment applications where long-term performance under demanding conditions is required.

Thick Film Fuel Level Senders will perform reliably for more than three million cycles, whereas senders with wire-wound resistors begin to lose their accuracy and dependability after 300,000 cycles.

Three standard models are offered for tank depths from 6 to 24 inches. Left-hand and right-hand versions also are available. Float arms are adjustable for varying swing lengths.

These senders have the same form, fit and function as the wire-wound senders they are designed to replace. The models shown above have a resistance of 240 ohms. For OEM applications, 30 ohm, 90 ohm and other special resistance values are available.

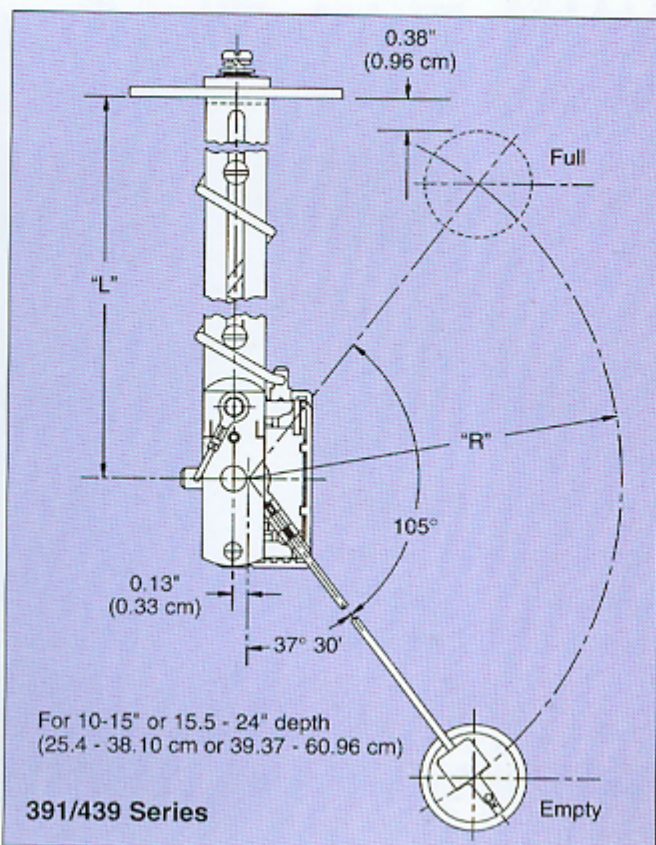
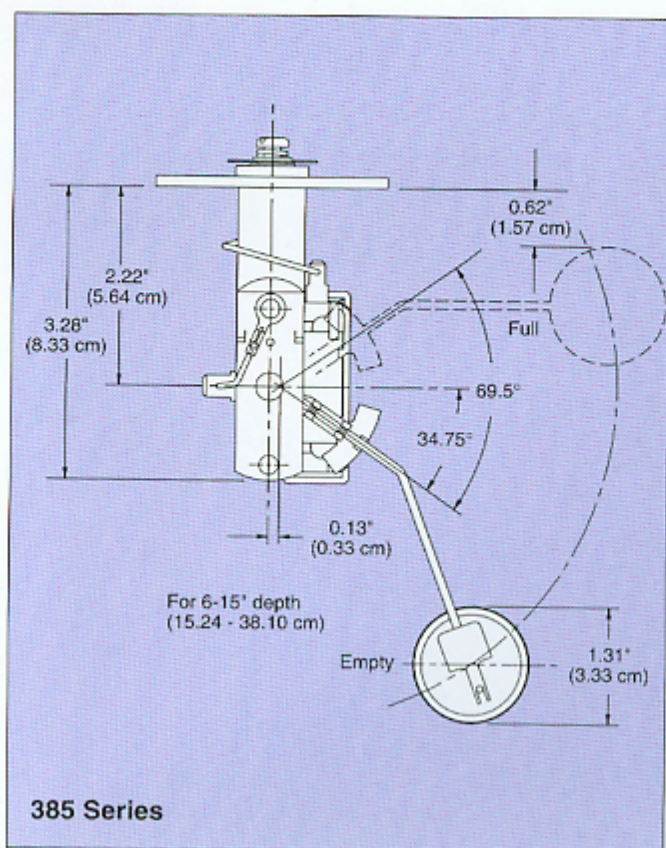
#### **Features and Benefits:**

- Thick-film resistors for greater accuracy and longer life.
- The conductors in thick-film resistors are one-tenth the thickness of conductors with wire-wound resistors and, therefore, subject to less frictional wear.
- Resistors are trimmed by computer-guided lasers to exact specifications for greater accuracy.

#### **Optional Feature:**

- Isolated ground enhances accuracy by eliminating possibility of measurement error caused by electrical ground loops.

## Thick Film Fuel Level Senders



### Materials and Finishes on External Parts

- Flange:** Steel, bright zinc
- Screw:** Brass
- Lockwasher:** Spring steel
- Flat Washer:** Brass

### Application Specification

Fuel level sender plate and stud assembly will withstand an internal pressure of 6 psi (41.4 kPa) when properly installed in the tank.

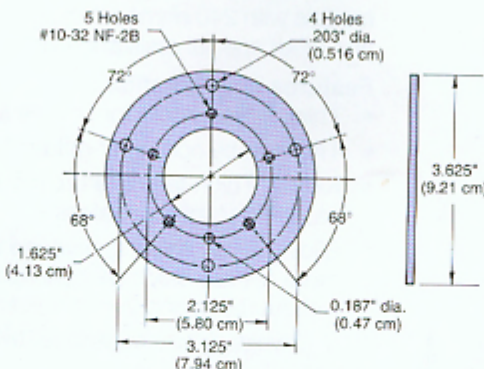
### Float Position Resistance Range

Float Position	Resistance Range
<b>90 ohm</b>	
Full	0.0 - 2.0 ohms
Empty	91.0 - 93.0 ohms
<b>240 ohm</b>	
Full	29.0 - 33.5 ohms
Empty	244 - 250 ohms

### Replacement Floats

411290 brass (for 385 and 391 Series)

**Note:** Order Fuel Level Sender (Tank Unit) Installation Kit No. 366LP-F separately, if needed. Flange should be welded or soldered to tank. The kit contains: one 93310 flange, five 79295 screws; one 72030 gasket, and five 61463 washers.



### Thick Film Fuel Level Senders

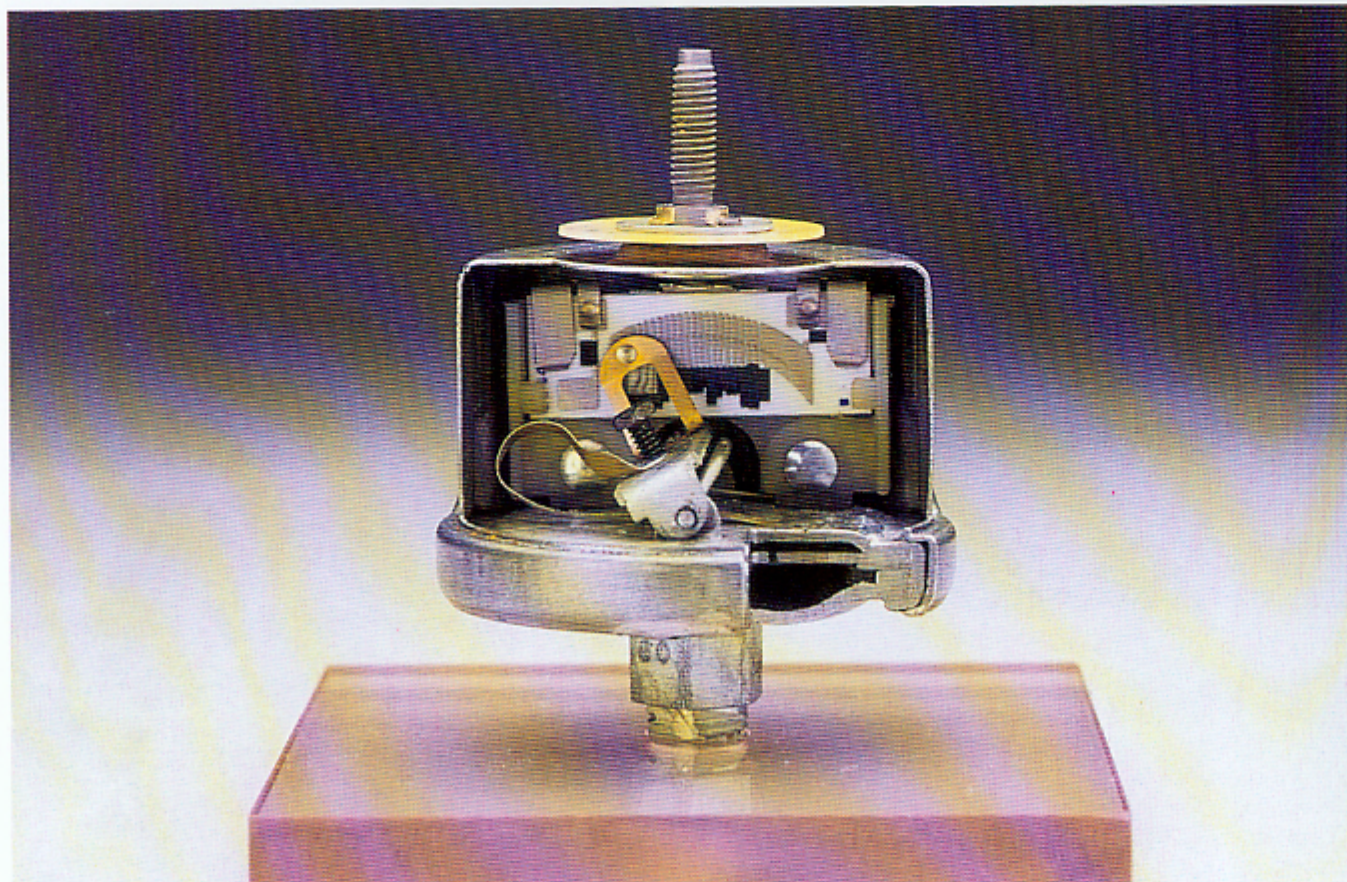
	240 ohm	90 ohm
6-12" depth, LH	385B-F	
6-12" depth, RH	385C-F	
10-15" depth, LH	391A-F	439361-F
10-15" depth, RH	391B-F	439362-F
15 1/2-24" depth, LH	391C-D	439363-D
15 1/2-24" depth, RH	391D-D	439364-D

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 a list of OEM part numbers, turn to page 40.

Text and data subject to technical modification.

## Thick Film Pressure Senders



***Preferred for the most rigorous applications, Thick Film Pressure Senders will last up to five times longer than senders with wire-wound resistors.***

Designed especially for heavy duty truck, farm and construction equipment applications, Thick Film Pressure Senders are preferred wherever long-term performance under demanding conditions is required.

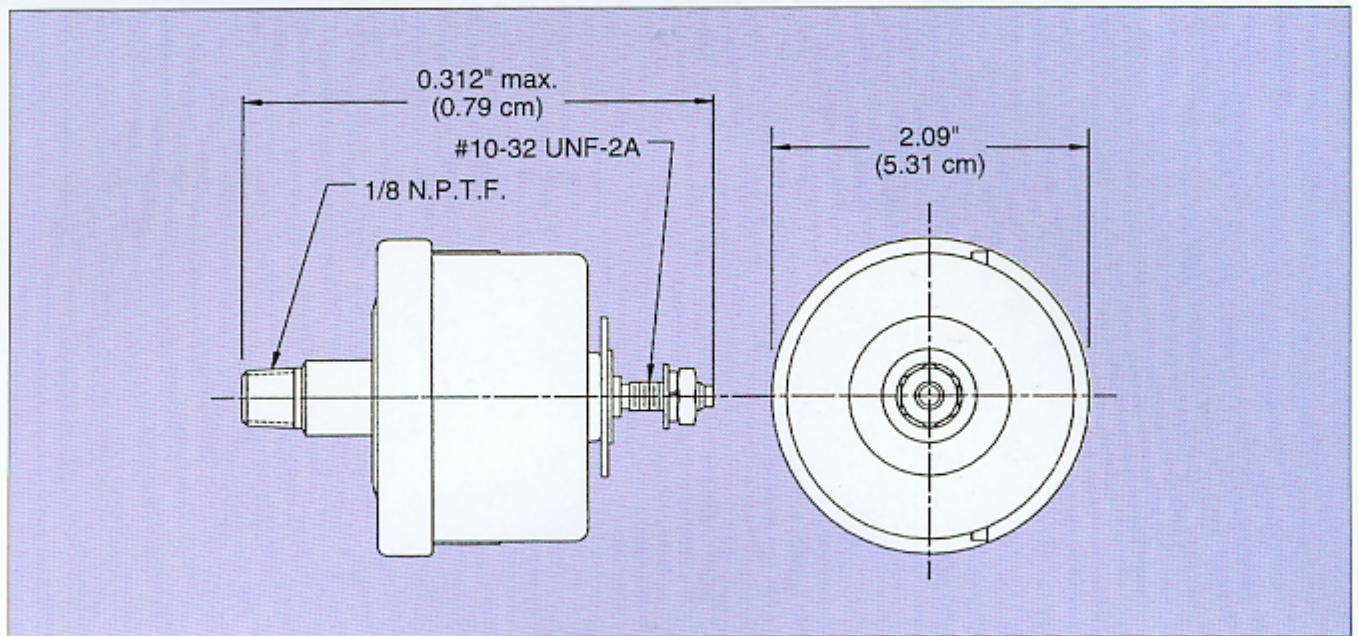
Standard thick film senders are available in 60-, 80-, 100- and 150-psi models with 240 ohms resistance. For the OEM, 30 ohms, 90 ohms, and other special resistance values are available.

#### **Features and Benefits:**

- Thick-film resistors for greater accuracy and longer life expectancy.
- Trimmed by computer-guided lasers for greater accuracy.
- Kapton® high-temperature plastic diaphragms sealed with Viton® gaskets for tighter seals and greater protection against oil leaks.
- Sliding-type conductor instead of lead wires on the cover provides more reliable electrical connection by allowing the cover to rotate without damaging the connection.
- 6-12 volts direct chassis electrical grounding.

Thick Film Pressure Senders have the same form, fit and function as the diaphragm senders they are designed to replace.

## Thick Film Pressure Senders



**Type:** diaphragm, thick film rheostat  
**Voltage:** 12 volts is normal operating voltage. Can be used in circuits up to 36 V with voltage adapter (see page 39)  
**Weight:** 5.5 ounces (56g)

### Materials and Finishes

**Cover:** steel, Galfan® coated  
**Flange and stud assembly:** steel, bright zinc  
**Terminal stud:** brass, white nickel  
**Hex nut:** brass  
**Lock washer:** phosphor bronze  
**Flat washer:** brass

### Application Specifications

**Mounting position:** any orientation permissible  
**Ambient temperature range**  
**Operating:** -40°F through 300°F  
 -40°C through 149°C  
**Storage:** -40°F through 300°F  
 -40°C through 149°C

Allows easy profile changes, if desired.

### Pressure Senders

Model No.	Pressure	Resistance
411-J	80 psi	240 ohms
411-K	100 psi	240 ohms
411-L	60 psi	240 ohms
411-M	150 psi	240 ohms**
411-X	80 psi	120 ohms**
411-Y	100 psi	120 ohms
411-AA	40 psi	240 ohms
411-AB	16 psi	240 ohms

\*\* Dual GA's

### After Market Kit Numbers (240 ohm, 1/8" pipe thread)

Part No.	Full Scale
279A	80 psi
279B-F	100 psi
279C	150 psi
279D	60 psi
82514	80 psi/dual*
82501	100 psi/dual*
82504F	16 psi

Includes adapter for 1/4" pipe thread.

\* Sender operates two gauges simultaneously.

For a list of OEM part numbers, turn to page 40.

# ***Senders and Switches***



***Designed and manufactured to the highest quality standards, Stewart Warner Temperature Senders and Temperature and Pressure Switches offer outstanding performance with most gauges and warning devices that operate in standard temperature and pressure ranges.***

Stewart Warner Temperature Senders and Temperature and Pressure Switches transmit electrical information to electric gauges and warning devices regarding the temperature and pressure of fluids being measured.

**Features and Benefits:**

**Temperature Senders:**

- Constructed of high-quality brass for maximum durability and outstanding electrical and thermal conductivity.
- Smooth contact surfaces for unimpaired electrical conduction.
- Available in several shell thread sizes for a range of applications.

**Temperature Switches:**

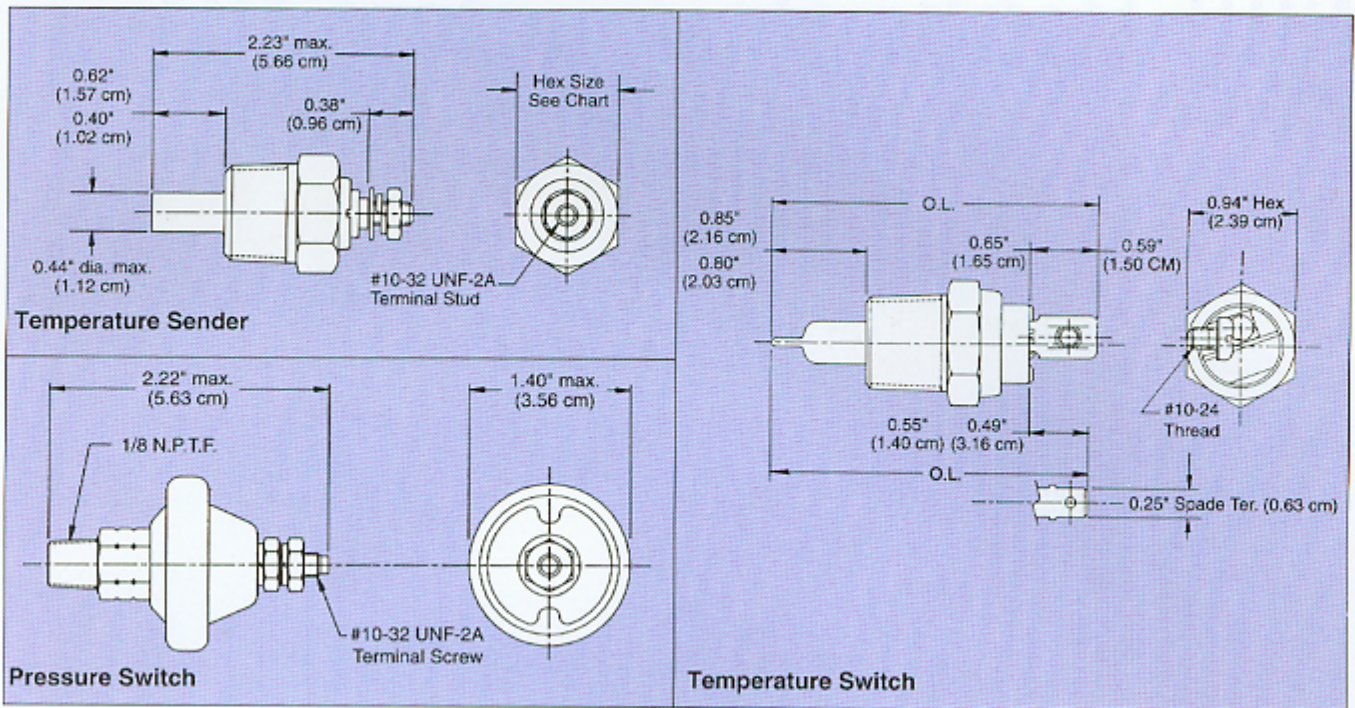
- Constructed of high-grade steel and copper for maximum strength and thermal conductivity.
- Adjustment screw, when touched by a bi-metal contact, completes an electrical circuit at a factory preset temperature level.
- Contacts are normally open and close as the temperature rises.

**Pressure Switches:**

- Constructed of high-grade steel for maximum strength.
- Base assembly, when touched internally by diaphragm assembly, completes electrical circuit at a factory preset pressure level.
- Diaphragm assembly is normally open and closes when input pressure drops.



# Senders and Switches



## Temperature Senders<sup>1</sup>

Gauge No.	Range	Univ.	1/8" PT	1/4" PT	3/8" PT	1/2" PT	Drain Plug	Univ. Metric
284AF; 82345	100°-230°F Water Dual	280EC*		334N-D 334K-D	334P-D 334L-D	334R-D 334M-D		
82306	100°-240°F Water Dual	280EA* 82503	362CZ-D	362AN-D 362BD-D	362AJ-D 362BG-D	362AH-D 362BB-D		
284J; 82307; 82351 82702; 82866P 82886P	100°-280°F Water	280ED-F*	334H-D	334AA-D	334AB-D	334AD-D		82510-F**
284K; 82308; 82344 82352; 82706; 82715 82867P; 82887P	140°-320°F Oil	280EE-F*					280EH-F†	
82334; 82335; 82357	300°-1500°F Pyro	82505**						

\*Includes adapters for 1/8", 1/4", 3/8", 1/2" PT \*\*Includes adapters for 10, 14, 16, 18 mm threads †1/2"-20 UNF threads ††Extensions available 5 ft., 82556-1; 10 ft., 82556-2; 20 ft., 82556-3

## Temperature Senders<sup>1</sup>

Model No.	Temp. Range	Hex Size	TH'd Size
334F	100-280°F	5/8"	1/8" NPTF
334H	100-280°F	5/8"	1/8" NPTF
334J	140-320°F	5/8"	1/8" NPTF
334N	100-230°F	5/8"	1/4" NPTF
334P	100-230°F	3/4"	3/8" NPTF
334R	100-230°F	7/8"	1/2" PTF
334AA	100-280°F	5/8"	1/4" NPTF
334AB	100-280°F	3/4"	3/8" NPTF
334AD	100-280°F	7/8"	1/2" PTF
362AH	100-240°F	7/8"	1/2" PTF
362AJ	100-240°F	3/4"	3/8" NPTF
362AN	100-240°F	5/8"	1/4" NPTF
362CZ	100-240°F	5/8"	1/8" NPTF

<sup>1</sup> Sender voltage regulated by gauge

<sup>2</sup> Switches are voltage independent

## Pressure Switches<sup>2</sup>

Range	1/8" PT
6 psi	364L-F
15 psi	364K-F

## Temperature Switches<sup>2</sup>

Part No.	Temp.	Thread Size	O.L. (Max.)	Terminal
363D-D	200°F	1/4 - 18 NPTF	2.77	Spade
363E-D	200°F	3/8 - 18 NPTF	2.77	Spade
363F-D	200°F	1/2 - 14 PTF	2.77	Spade
363G-F	225°F	1/2 - 14 PTF	2.77	Spade
363W-F	250°F	1/2 - 14 PTF	2.87	Screw
363AM-F	225°F	1/4 - 18 NPTF	2.77	Spade

For a list of OEM part numbers, turn to page 40.

Text and data subject to technical modification.

# Hobbs Hourmeters DC



*With its reliable drive train mechanisms, improved odometer gear trains, and snap-together integrated chassis, the 85000 Series represents a new generation in quartz hour meters.*

Easy to install, the highly accurate 85000 Series Quartz + (DC) hourmeters are shock-proof, vibration resistant, and have totally sealed cases that are impervious to acids and solvents.

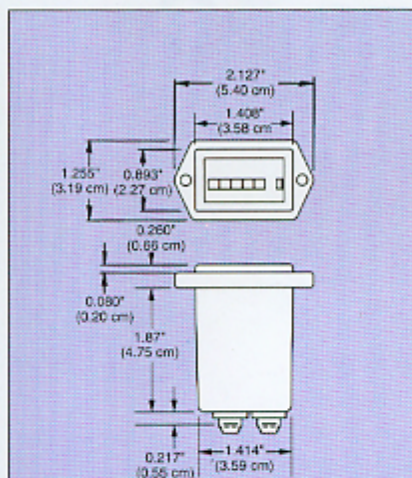
**Features and Benefits:**

- Custom CMOS integrated circuit.
- Relay-driven odometer.
- Indicate operating time in hours and tenths. Also include a running indicator.
- 10,000 hour version is standard.
- Automatically recycles to zero.
- Transient voltage protection.
- 1/4-inch male blade terminals standard.
- U.L. listed and CSA certified.
- Conforms to MIL-M-3971

**Options (Contact SWI for ordering information):**

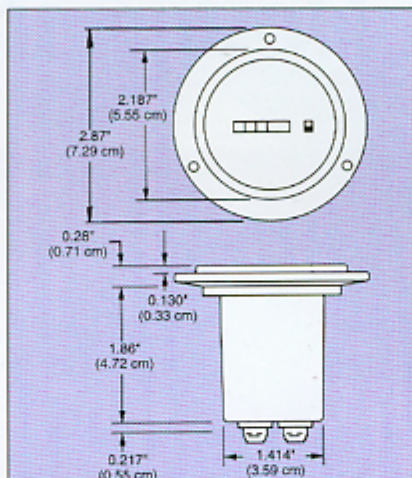
- Screw terminals
- 100,000 hour version.
- 30-110 VDC models.

# Hobbs Hourmeters DC



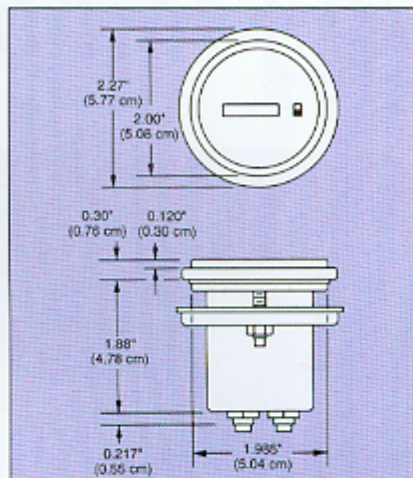
**Figure 1**

Two-Screw Mount: Panel cutout 1.45 x .95 rectangular opening. Two holes spaced 1.750.



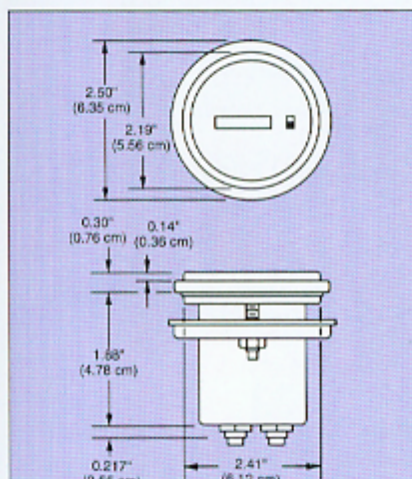
**Figure 2**

Three-Screw Mount: Panel cutout 2.00 diameter opening. Three .150 holes equally spaced on 2.53 bolt circle diameter.



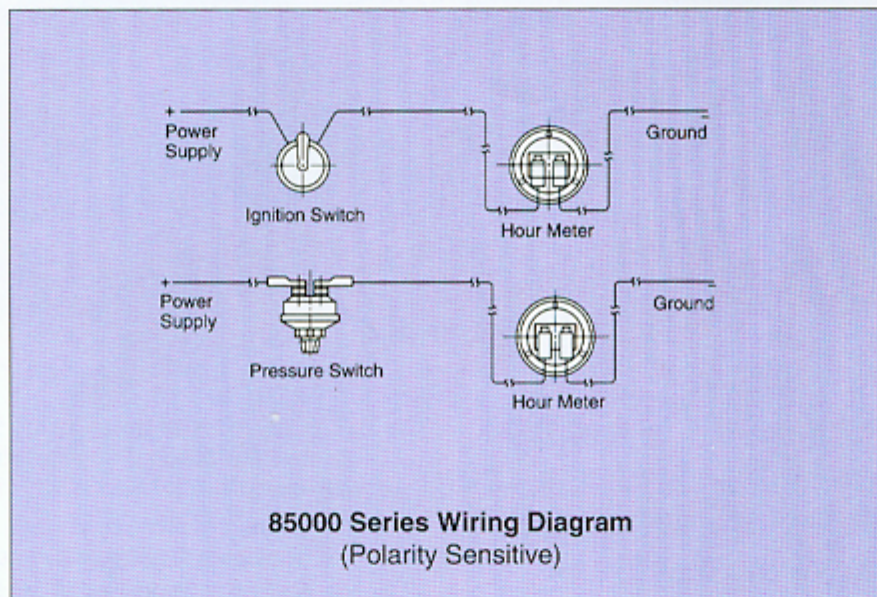
**Figure 3**

Flush Mount (Cup): Panel cutout 2.00 diameter opening.



**Figure 4**

Flush Mount (Cup): Panel cutout 2.00 diameter opening.



**85000 Series Wiring Diagram**  
(Polarity Sensitive)

DC Hourmeters (12-60VDC Operating Range)					
Order Data	1	2	3	4	
Type	2-screw Black	3-screw Black	Chrome Flush 2.27"	Black Flush 2.27"	Chrome Flush 2.50"
Part Number	85094-12	85097-02	85342-03	85093-03	85098-03
Compatible Part Numbers	85000 80000 15000	85001 80001 15001	85002 80002 15017	85003 80005 15031	85006 80003 15002
100,000 Hour Version	85127-12	85134-02	85135-03	85126-03	85133-03
24V	85013-12	85014-02	85015-03		85019-03

Meters are available for use in 72-80 VDC systems  
(Contact SWI for ordering information)

## Specifications:

Temperature range: -40 to +185°F  
Quartz accuracy: .02 percent  
Odometer number height: 0.12inch  
(3 mm)

## Accessories:

- 3888M Damper
- 558M Bracket (use only with 3888M)
- 329M Bracket
- 486M Bracket (panel mount)
- 23944 Angle Bracket
- 3821M Boot Cover

*Text and data subject to technical modification.*

# Hobbs Hourmeters AC



**20000 Series hour meters record operating times of such equipment as business machines, control panels, generators, compressors, tanning beds and medical equipment for leasing, maintenance, testing or warranty purposes.**

For greater reliability, 20000 Series (AC) hourmeters contain only 36 pieces, the result of a design which incorporates the motor and the frame into one substructure.

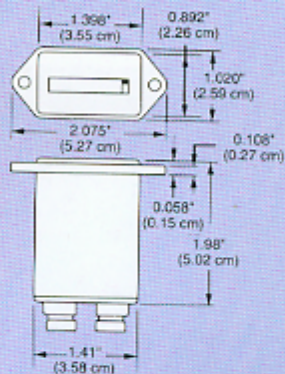
**Features and Benefits:**

- Indicates operating time in hours and tenths.
- Records to 99,999 hours and automatically recycles to zero.
- Shock resistant, tamperproof case.
- Single phase, synchronous, permanently lubricated motor.
- Screw terminations standard.
- U.L. listed and CSA certified.
- Conforms to MIL-M-3971

**Options (Contact SWI for ordering information):**

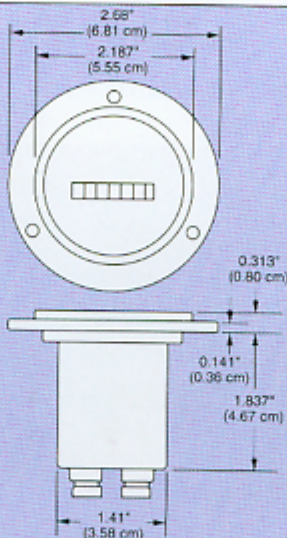
- 7-inch wire leads
- 1/4-inch blade terminals.
- 24 VAC, 240 VAC and 50 hz.

# Hobbs Hourmeters AC



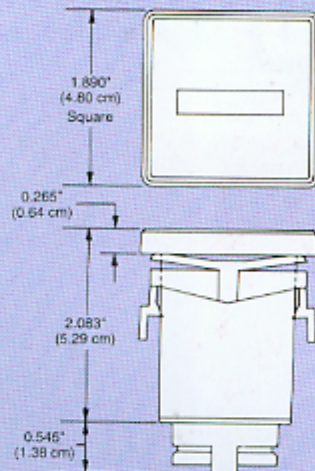
**Figure 1**

Two-Screw Mount: Panel cutout 1.45 x .95 rectangular opening. Two .150 holes spaced 1.750.



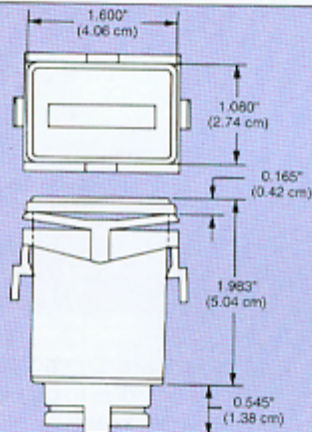
**Figure 2**

Three-Screw Mount: Panel cutout 2.00 diameter opening. Three .125 holes equally spaced on 2.42 bolt circle diameter.



**Figure 3**

Snap-In Mount: Panel cutout 1.45 x .95 rectangular opening.



**Figure 4**

Snap-In Mount: Panel cutout 1.45 x .95 rectangular opening.



120V meter, 120V, single phase (2 wire): Either of the two wires can be connected to either meter terminal.



Neutral 120V meter, 208V, 3 phase, "Y" system (4 wire): Connect any one power wire and the neutral wire to the two meter terminals.

## 20000 Series Wiring Diagrams

## Specifications:

**Temperature range:**  
-65 to +154°F.

**Accuracy:** 1 percent.

**Weight:** 3 oz.

**Odometer number size:**  
0.12 inch (3 mm)

**Power rating:** 3 watts

## AC Hourmeters (108-132V AC Operating Range) 60 Hz

Order Data	1	2	3	4
Type	2-screw Black	3-screw Black	Square Snap-in Black	Rect. Snap-in Black
Part Number	20001-17	20017-14	20115-23	20116-23

## Accessories:

329M	Bracket
23944	Angle Bracket
3821M	Boot Cover

*Text and data subject to technical modification.*

# Hobbs Halogen Lamps



3" X 5" Halogen

4" X 6" Halogen

5" Round Halogen

*Designed to withstand shock, vibration, dust and moisture, these rugged halogen sealed beam work lamps will perform in the most demanding environments imaginable.*

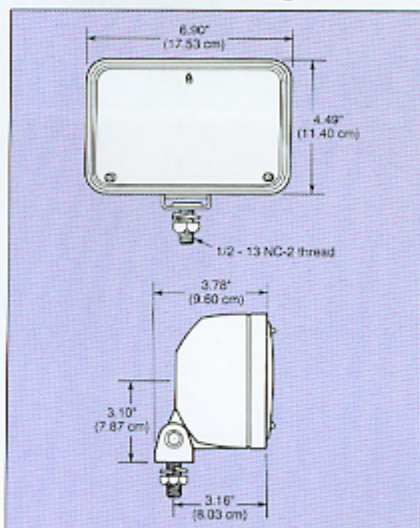
The sealed beams in Hobbs halogen lamps prevent dirt and moisture from entering and eliminate the possibility of damage due to careless handling. The burners are welded to the reflectors for optimum reliability.

**Features and Benefits:**

- 50 percent more light, 50 percent more life than comparable incandescents.
- Borosilicate glass lens resists cracking due to temperature extremes. Will not warp like some plastic lenses.
- Heavy duty mounting brackets.
- Wires pass through mounting studs to simplify installation.
- Impact resistant polypropylene housing.
- Variety of sizes and lens patterns available.
- 12 VDC and 24 VDC models available.
- Five year limited warranty.
- High intensity (not legal for street use).

# Hobbs Halogen Lamps

## 4" x 6" Halogen



### Complete Lamp Assembly

Part No.	Beam Pattern	Voltage	Current
71598-11	Wide Flood	12V 50W	4 amp
74001-11	Narrow Flood	12V 50W	4 amp
71902-11	Spot	12V 50W	4 amp
71915-11	Trap	12V 50W	4 amp
75237-11	HI-LO Driving	12V 35/60W	3/5 amp
72540-11	Wide Flood	24V 60W	2.5 amp
75109-11	Narrow Flood	24V 60W	2.5 amp
72542-11	Trap	24V 60W	2.5 amp
72544-11	Spot	24V 60W	2.5 amp

### Replacement Sealed Beams

Part No.	Beam Pattern	Voltage	Current
71017-11	Wide Flood	12V 50W	4 amp
71791-11	Narrow Flood	12V 50W	4 amp
71792-11	Trap	12V 50W	4 amp
71794-11	Spot	12V 50W	4 amp
75251-11	HI-LO Driving	12V 35/60W	3/5 amp
72541-11	Wide Flood	24V 60W	2.5 amp
78856-11	Narrow Flood	24V 60W	2.5 amp
72543-11	Trap	24V 60W	2.5 amp
72545-11	Spot	24V 60W	2.5 amp

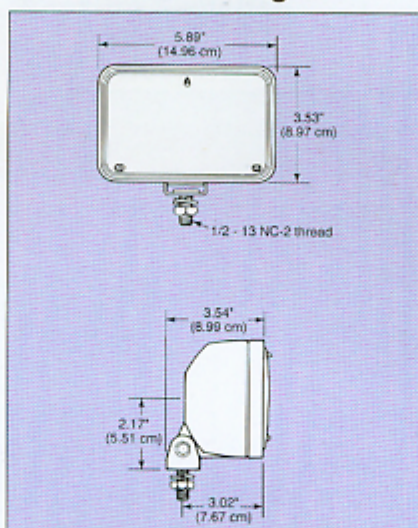
### Marine Complete Lamp Assembly

Part No.	Mntg.	Beam Pattern	Voltage	Current
72656-23	Flush	80°x30° Flood	12V 50W	4 amp
72715-23	Flush	Spot	12V 50W	4 amp
71723-23	Stud	80°x30° Flood	12V 50W	4 amp
72716-23	Stud	Spot	12V 50W	4 amp
72656-23	Flush	80°x30° Flood	24V 70W	3 amp
72717-23	Flush	Spot	24V 70W	3 amp
72530-23	Stud	80°x30° Flood	24V 70W	3 amp
72718-23	Stud	Spot	24V 70W	3 amp

### Marine Replacement Sealed Beams

Part No.	Beam Pattern	Voltage	Current
72108-15	80°x30° Flood	12V 50W	4 amp
72719-15	Spot	12V 50W	4 amp
72728-15	80°x30° Flood	24V 70W	3 amp
72720-15	Spot	24V 70W	3 amp

## 3" x 5" Halogen



### Complete Lamp Assembly

Part No.	Beam Pattern	Voltage	Current
73761-11	Wide Flood	12V 50W	4 amp
77861-49 <sup>1</sup>	Wide Flood	12V 50W	4 amp
73762-11	Narrow Flood	12V 50W	4 amp
73763-11	Trap	12V 50W	4 amp
73764-11	Spot	12V 50W	4 amp

<sup>1</sup>Lamp with built-in toggle switch

### Replacement Sealed Beams

Part No.	Beam Pattern	Voltage	Current
72408-11	Wide Flood	12V 50W	4 amp
72573-11	Narrow Flood	12V 50W	4 amp
72801-11	Trap	12V 50W	4 amp
73804-11	Spot	12V 50W	4 amp

### Marine Complete Lamp Assembly

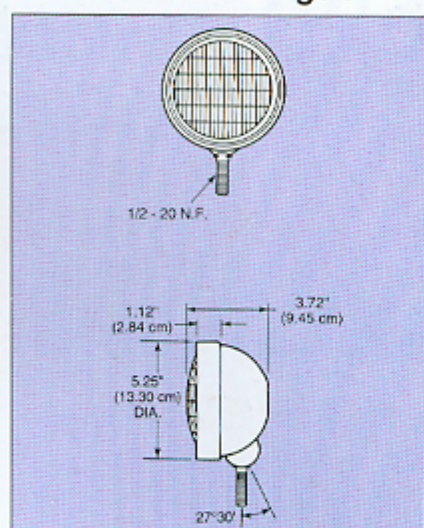
Part No.	Mntg.	Beam Pattern	Voltage	Current
73620-01	Stud	80°x30° Flood	12V 50W	4 amp

Includes Spreader Bracket

### Marine Replacement Sealed Beams

Part No.	Beam Pattern	Voltage	Current
74041-01	80°x30° Flood	12V 50W	4 amp

## 5" Round Halogen



### Complete Lamp Assembly

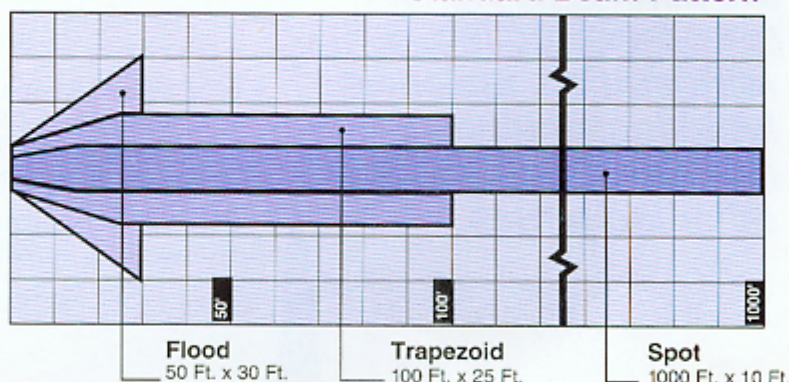
Part No.	Beam Pattern	Voltage	Current
73468-11	Wide Flood	12V 50W	4 amp
73469-11	Trap	12V 50W	4 amp
73470-11	Spot	12V 50W	4 amp

### Replacement Sealed Beams\*

Part No.	Beam Pattern	Voltage	Current
70510-11	Wide Flood	12V 50W	4 amp
70729-11	Trap	12V 50W	4 amp
72774-11	Spot	12V 50W	4 amp

\*will replace any 4-1/2" (part 36) incandescent or halogen sealed beam

## Standard Beam Pattern



Text and data subject to technical modification.



*Used in applications ranging from actuating hourmeters to controlling electronic equipment, Hobbs pressure and vacuum switches are perfect for agriculture, construction, refrigeration, materials handling, engine manufacturing and other industries.*

Excellent set point integrity and cycle life make 5000 Series switches ideal for extended duty applications. The pressure switches have Kapton® diaphragms and the vacuum switches feature fluorosilicone rubber for compatibility with a wide variety of fluids.

Compact Series III adjustable switches are ideal in applications where set points may have to be adjusted in the field. They offer superior performance where hysteresis, fast transfer time and low contact resistance are vital.

#### **Features and Benefits:**

- Durable and compact with enhanced set point integrity at extreme temperatures.
- Thoroughly tested for shock and vibration resistance.

#### **5000 Series Options:**

- Pressure: Steel, plastic or stainless steel base and various base connector thread sizes.
- Vacuum: Various base connector thread sizes.

#### **Series III Adjustable Options:**

- Available in two different pressure ranges



# Hobbs Pressure and Vacuum Switches

## Specifications

	5000 Series	Series III Adj.
Type	Screw	Snap
Set Point	Factory Set	Field Adj.
Operating Pressure	150 psi	200 psi
Proof Pressure	500 psi	350 psi
Burst Pressure	750 psi	500 psi
Diaphragm		
Pressure	Polyimide film	Beryllium copper
Vacuum	Flouro-silicone	N/A
Connector	1/8" - 27 NPTF	1/8" - 27 PTF
Standard Terminals	Screw	1/4" Blade
Circuitry	SPST <sup>1</sup> , SPDT	SPST <sup>2</sup>
Temp. Range	-40°F to 250°F	
Base	Brass	
Cover	Glass-filled polyester	
Set Point Tolerance	±10%	
Dimensions		
Diameter	1.47"	1.69"
Length	2.30"	3.00"
Ratings		
Resistive	15 amps @ 6 vdc	12 amps @ 6 vdc
	8 amps @ 12 vdc	6 amps @ 12 vdc
	4 amps @ 24 vdc	3 amps @ 24 vdc
Inductive	1 amp @ 120 vac .5 amp @ 240 vac	

<sup>1</sup> Circuitry: N.O. or N.C.

<sup>2</sup> Circuitry: N.O.

## Pressure Switches

### 5000 Series

Factory Set Point	Circuitry	Single Circuit 1 Terminal		Single Circuit 2 Terminal		Dual Circuit	
		Part No.	Compatible Part No.	Part No.	Compatible Part No.	Part No.	Compatible Part No.
1 psi	N.O. N.C.	78630 78634		78628 78632		78711	
2 psi	N.O. N.C.	78142 78149		76051 76061		76071	
4 psi	N.O. N.C.	78143 78150	M4000 M4001	76575 76577	M4006 M4007	76579	M4012
10 psi	N.O. N.C.	78144 78151		76576 76578		76580	
15 psi	N.O. N.C.	78145 78152	M4002 M4003	76052 76062	M4008 M4009	76072	M4013
35 psi	N.O. N.C.	78146 78153		76053 76063		76073	
60 psi	N.O. N.C.	78147 78154	M4004 M4005	76054 76064	M4010 M4011	76074	M4014
100 psi	N.O. N.C.	78148 78155	14731 14729	76055 76065	14732 14728	76075	

### Series III Adjustable

Factory Set Point	Circuitry	Single Circuit 1 Terminal		Single Circuit 2 Terminal		Dual Circuit	
		Part No.	Compatible Part No.	Part No.	Compatible Part No.	Part No.	Compatible Part No.
1 - 7 psi	N.O.			73591			
7 - 30 psi	N.O.			74448			

## Vacuum Switches

### 5000 Series

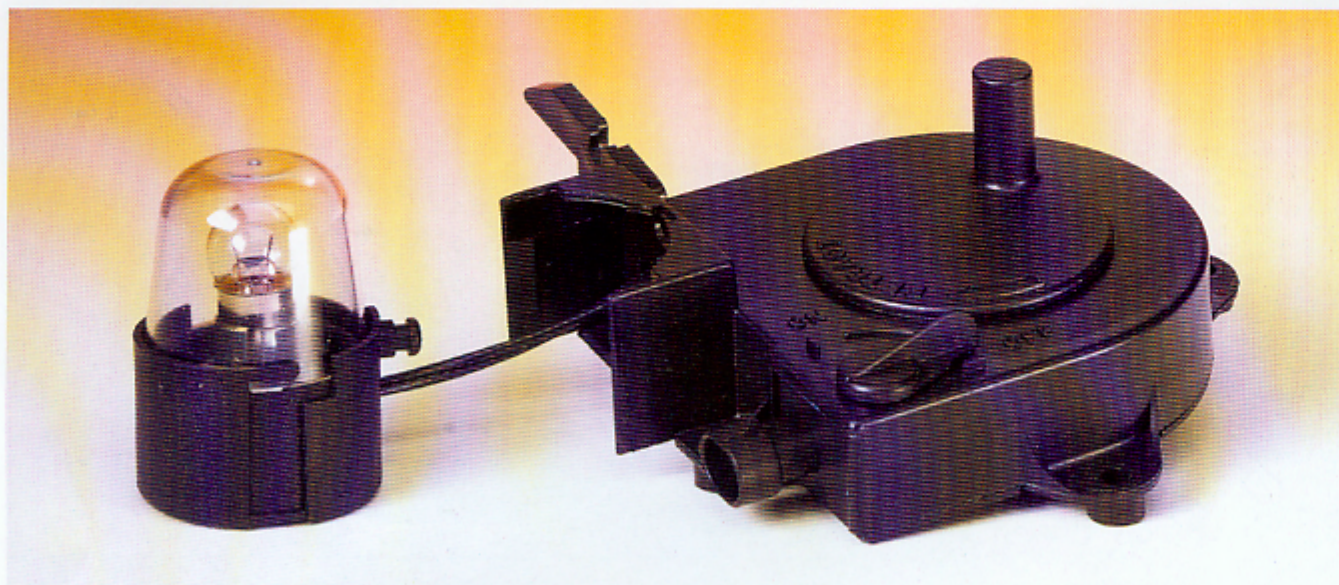
Factory Set Point	Circuitry	Single Circuit 1 Terminal		Single Circuit 2 Terminal		Dual Circuit	
		Part No.	Compatible Part No.	Part No.	Compatible Part No.	Part No.	Compatible Part No.
4" Hg	N.O. N.C.			77342-4 77343-4	M4076-4 M4077-4		
9" Hg	N.O. N.C.			77342-9 77343-9	M4078-9 M4079-9		
17" Hg	N.O. N.C.			77342-17 77343-17	M4080-17 M4081-17		
28 H <sub>2</sub> O	N.O. N.C.			77342-28 77343-28		26503 26502	

*no boot  
not metal  
on top*

3321

Text and data subject to technical modification.

# Hobbs Emergency Lighting Product



*The Hobbs Emergency Lighting Product is an ingenious trouble light easy to install in all types of equipment from automobiles to bulldozers, trucks to boats, and RV's to combines.*

The magnetic trouble light consists of a lamp assembly with an 18-foot power cord. It features a smooth-running reel enclosed in a tough, reinforced nylon housing with built-in ON-OFF switch.

**Features and Benefits:**

- Two lights in one—a compartment lamp and an emergency or trouble lamp.
- Eliminates the distress you feel when you discover your flashlight doesn't work.
- Designed to withstand shock, vibration, dust, corrosion and extreme temperatures.
- Wires easily to a 12 VDC power source.
- Includes mounting hardware and installation instructions.

**Specifications:**

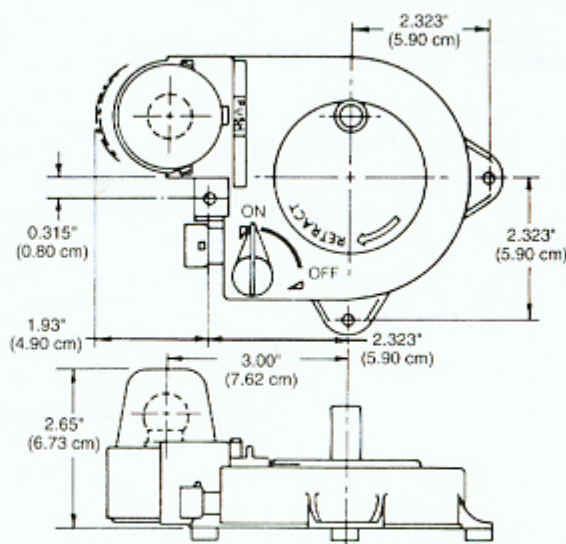
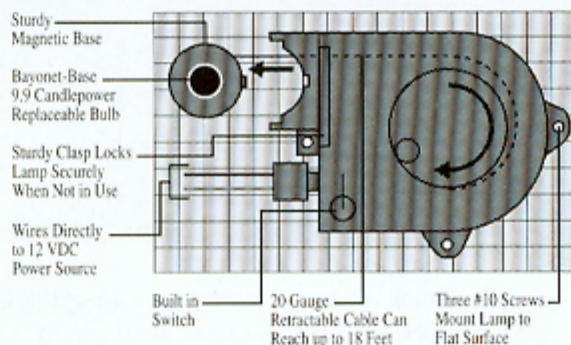
**Electrical:** 12 VDC

**Bulb:** Bayonet-base 9.9 candlepower

**Cable:** 18 feet, 20 gauge

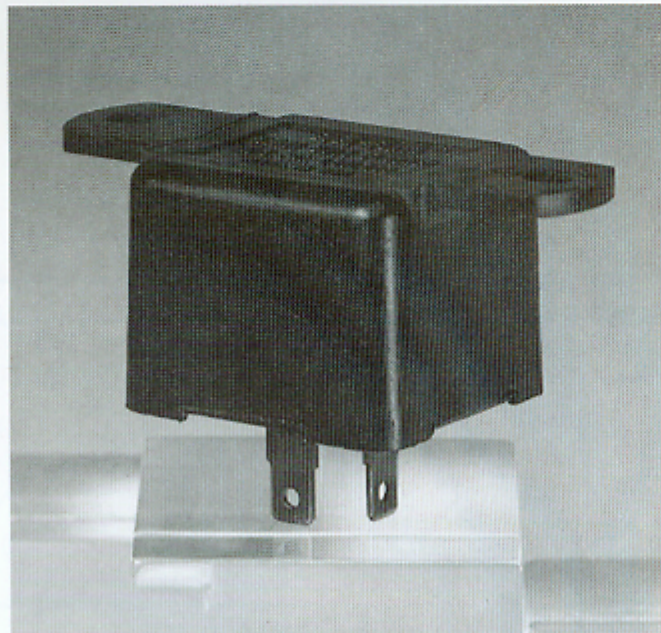
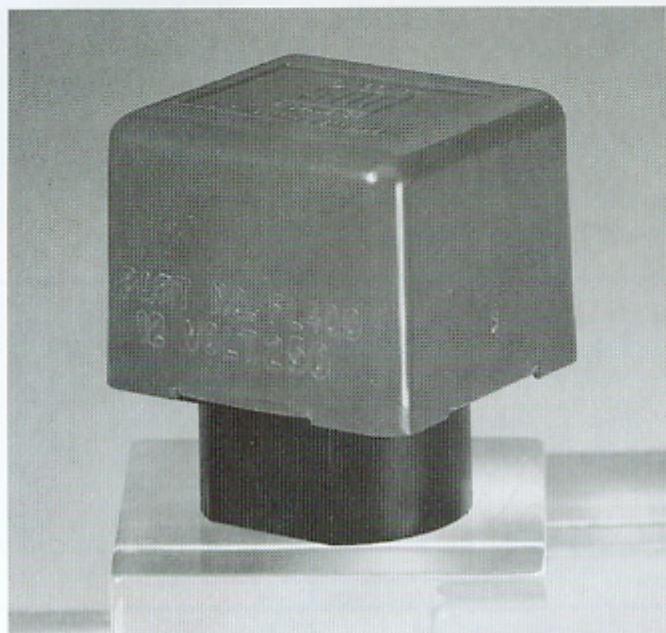
**Order Data**

Part Number	Description
79550	Packaged Lamp
79540	Display





# Hobbs Heavy Duty Flashers



**The Hobbs heavy duty 12 VDC and 24 VDC flashers operate turn signals and hazard warning lights in on-highway vehicles that require heavy lamp load capacity.**

Equipped with a spring mass drive motor, the flashers provide up to 10 times the service life of conventional thermal flashers and continue to operate even when the voltage in a 12-volt system drops as low as 9 VDC.

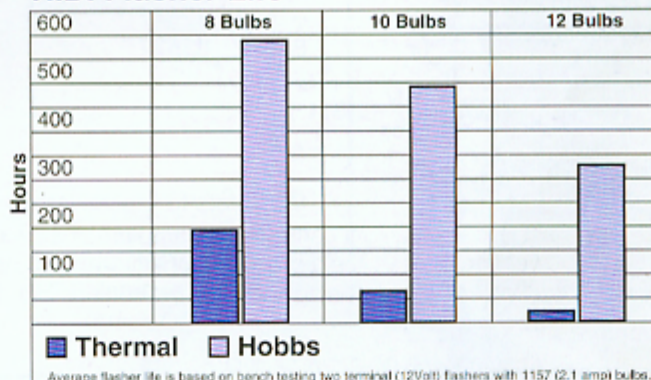
#### Features and Benefits:

- Electro-mechanical (spring mass) motor.
- Silver alloy contacts.
- 1/4-inch blade, brass terminals.
- Polypropylene housing.
- Conforms to Federal Motor Vehicle Safety Standard (FMVSS) 108.
- Exceeds SAE J-590B and SAE J-945 specifications.
- Adapter and extension terminals to convert from a square to a round mounting base.

#### Specifications:

**Voltage Range:** 9 - 16 VDC (12 VDC rated)    **Temperature Range:** -40 to +180°F  
 18 - 32 VDC (24 VDC rated)    **Flash Rate:** 60-120 cpm

#### H.D. Flasher Life



#### Order Data

Voltage	Terminals	Type	Part No.	Compatible Part No.
12V	2	ears	15570-01	13600-01
12V	2	no ears	400FL*	
12V	3	ears	15571-01	15513-01
12V	3	no ears	403FL	
24V	2	ears	13610-01	
24V	3	ears	15550-01	

**Individually Boxed**

\*Part number 400FL includes an adapter (shown above) and extension terminals to convert it from a square to a round mounting base.



# Tachometer and Speedometer Accessories

## 106AW-D Sender

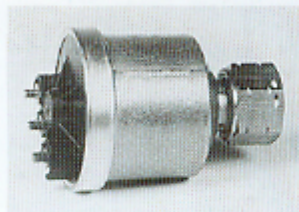
Use with 105H-D speedometer

*5-tach/gear  
- ground  
- odo  
4 pulses*

Connects to mechanical shaft take-off. No voltage input required. Maximum rpm 3,500. Tachometers can be used on any ground or electrical system. Sender will operate 2 tachometers.

Available Tips	
.104 Sq.	821870-D
.150 Sq.	821871-D
.183 Sq.	821872-D
.193 Sq.	821873-D
.152 Tang	821874-D
.187 Tang	821875-D
.203 Tang	821876-D

(order separately)



106AW-D

## 82565-F Sender

Use with any SW diesel tachometer

*Sine wave  
2-wire  
8 pulses*

Connects to mechanical shaft take-off on distributors or magnetos. No voltage input required. Easy two-wire hook-up. Comes with .104 tip. Maximum rpm 3,500.

Available Tips	
.203 Tang	82624
.187 Tang	82625
.152 Tang	82626
.104 Sq.	82629

(order separately)



82565-F

## 82623B Sender

7/8"-18 Thread  
Use with any SW diesel tachometer

*Red  
blk  
white  
Square wave  
8 pulses*

### Use with:

82619	82645	82635
82620	82643	82640
82621	82647	
82622	82637	

### Available Tips

.203 Tang	82624
.187 Tang	82625
.152 Tang	82626
.104 Sq.	82629
.150 Sq.	82630
.184 Sq.	82631
.193 Sq.	82632

(order separately)

Connects to mechanical shaft take-off. Requires 12VDC input. Comes with .187 Tang tip. Maximum rpm 3,500. One sender will operate two tachometers.

Sender extension 2 <sup>3</sup> / <sub>8</sub> " Long: 103402	
(3-wire hook-up)	.152 Clutch 814011
	.187 Clutch 814012



82623B

## Sender

## 82646

Flywheel ring application for tachometer. Tone wheel application for speed.

Use with: 82645 82644 82636 82641 82637



82646

## Converter

24V and 32V converter for use with non-hourmeter tachometers.

24V	82563B	32V	82564B
-----	--------	-----	--------

## Right Angle Adapter for Flexshafts

Clockwise	1:1	5/8-18	.104 Sq.	407010-F
Counterclockwise	1:1	5/8-18	.104 Sq.	411335-D



411335-D

# Mounting Panels

## Speedometers and Tachometers

### 5" Tachometer Cup 289H-F

Black ABS plastic cup with stainless strap and black anodized aluminum base.

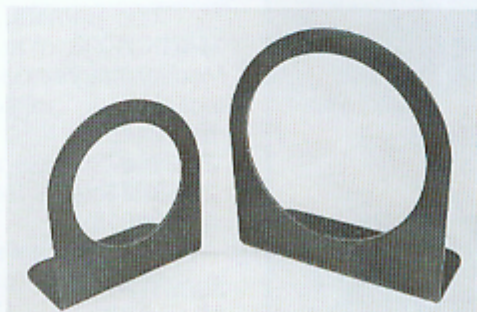


289H-F

### "L" Type mounting bracket

Heavy gauge steel painted flat black to reduce glare.

3<sup>3</sup>/<sub>8</sub>" 289F-F  
5" 289E-F



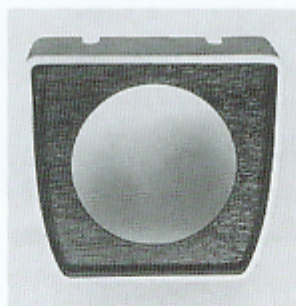
289F-F

289E-F

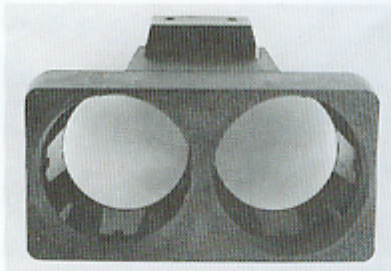
## Gauges

Die cast is black with optional wood grain overlay. Plastic is Noryl black plastic.

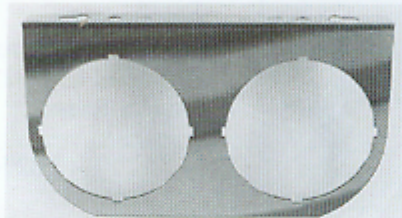
	Chrome 2 <sup>1</sup> / <sub>16</sub> "	Chrome 2 <sup>5</sup> / <sub>8</sub> "	Die Cast 2 <sup>1</sup> / <sub>16</sub> "	Plastic 2 <sup>1</sup> / <sub>16</sub> "
1 Hole	817825-F	811659-F	289B	288A
2 Hole	814143-F	813877-F	289C	287A
3 Hole	811653-F	813642-F	289D	286A



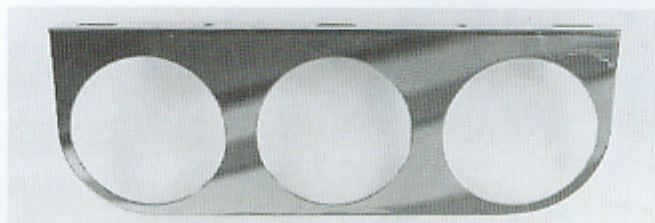
289B



287A



814143-F



813642-F

# Adapter Nuts and Kits

**Adapter Nuts**  
Individual  
Mechanical  
Temperature

	Steel	Brass
1/4" PT*	428819-F (3/8" ID)	
3/8" PT	72446-F (7/16" ID)	408550 (7/16" ID)
1/2" PT		90567 (7/16" ID) 412208-F (1/2" ID)
3/8"-18		95527 (7/16" ID)
M14 x 1.5 **		82572 (3/8" ID)
M16 x 1.5 **		82573 (7/16" ID)
M18 x 1.5 **		82574 (7/16" ID)

\*For tubing less than 120" long \*\*Includes gaskets



**Adapter Nuts**

## Adapter Nut Kits

**366NK Kit**  
Mechanical Temperature  
Includes:  
8 - 72446-F  
2 - 90567  
2 - 95527  
4 - 428819-F

**82512 Kit**  
Metric Mechanical  
Temperature  
Includes:  
3 - 82572  
4 - 82573  
3 - 82574



**82512**

**366ST-F**  
Metric PSI  
Includes:  
1 - M10 x 1  
1 - M12 x 1.5  
1 - M14 x 1.5

**82561-F Kit**  
Japanese PSI  
Includes:  
1 - 1/8-28 BSP male  
1 - 1/8-28 BSP female



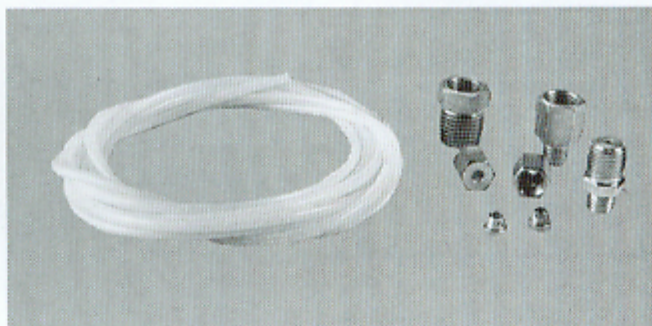
**366NK**

## Tubing Kits

### Pressure Kits

Contains:  
1/8" female PT nut  
1/8" male PT nut  
1/4" adapter nut

6 ft. tubing **82553-F**  
16 ft. tubing **366HM-F**

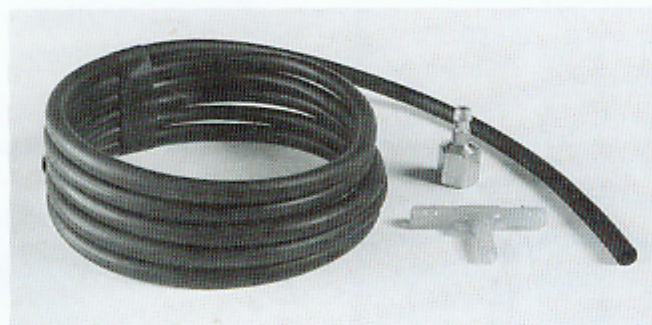


**82553-F**

### Vacuum Kits

Contains gauge to hose  
adapter nut, "T" fitting  
and 6 ft. hose.

**82562-F**



**82562-F**

## Electric Pumps

Pumps assure quick starts, eliminate surging, flooding, and starving. All pumps assure battery-saving quick starts by delivering gas the instant ignition switch is turned on.

The 82050 Series is a powerful piston type pump which brings solid state reliability to fuel pumps. One moving part. Built in filters eliminate the need for other filters in line: microcarbon filter dissipates water; magnetic filter traps metallic particles. Gas line connection 1/4" internal PT.

235 Series has a built-in screen. Gas line connection: 1/8" internal PT. Not to be used with alcohol based fuels.

### 82050 Series

#### Part No.:

#### 82050

12V neg. grd. 7 psi

#### 82051

12V neg. grd. 5 psi

#### 82052

12V pos/neg. grd.  
double insulated 7 psi

#### 82054

24V pos/neg. grd. 7 psi

#### 82053

Filter element and gasket for 82050 series pumps for gasoline

#### 82058

Filter element and gasket for diesel fuel

### 235 Series

#### Part No.:

#### 235A-D

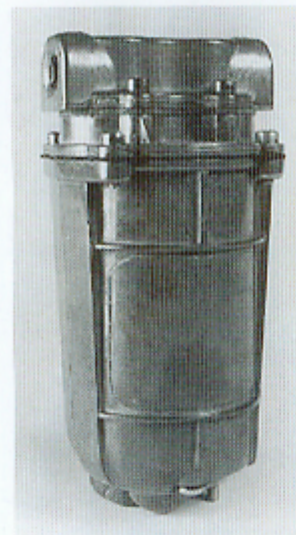
12V pos/neg. grd. 5 psi

#### 235B-D

6V pos/neg. grd. 5 psi



82050



235B-D



82053

## Marine Applications

Corrosion resistant to prevent leakage. No possibility for accidental grounding. Approved by Underwriters Laboratories, and U.S. Coast Guard regulations effective 8/1/78.

#### Part No.:

#### 82055

12V pos/neg. grd. 7 psi

#### 82057

12V pos/neg. grd. 4 psi

Recommended safety switch: 76579-4.



82055

## Hand-Held Tachometer

**82682**  
0-4000 rpm clockwise and counterclockwise.  
3" diameter and 4" long  
used for direct measure on rotating shaft.

**412850** 12-inch ext. shaft

**412850-1** 3-inch ext. shaft

**96798**

Cone rubber tip

**96799**

Cup rubber tip



82682

## Low Speed Speedometer

**550KM**  
0-10 mph 2.95" diameter  
with internal lighting

**366WL**

Low Speed Kit includes the above plus 108" flexshaft, mounting and tire take-off.



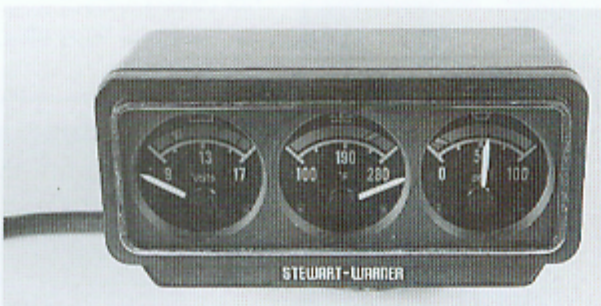
366WL

## Mini Panel

**82459**  
Includes voltmeter, electric water temperature and electric oil temperature gauges in a 4 1/8" w x 2" h x 2" d panel.

**Kit Contains:**

- 1/8" temperature sender
- 1/2" and 3/8" adapter nuts
- 1/8" pressure sender
- 1/4" adapter
- 10 mm male female adapters
- 2 3/4" extension for oil pressure sending unit



82459

## Pedestal Mount Gauges

**82460 Motor Minder**  
Measures fuel efficiency with vacuum 0-30Hg.

**82628 Mini Tachometer**  
2 1/2" diameter, 3 1/2" high, 0-8000 rpm, 12V negative ground, for 4-, 5-, 6-, and 8-cylinders. Complete with adjustable red line.

**82618**

**Electric Tachometer**  
3 1/2" diameter, 0-8000 rpm, 12V negative ground, for 4-, 6-, and 8-cylinder complete with adjustable red line.

\*See Track Force line for additional Pedestal Mount gauges.



82628



82618



## Voltage Adapter

Used to adapt 12VDC Bi-Torque® gauges to higher voltage electrical systems.

	24VDC	32VDC
12V gauge	829525-2D	829525-8D
Pyrometers	829525-9D	829525-6D



829525

## Replacement Light Kits

Use two wire for non-grounded panels.

5/8" light hole (metal socket 1" long)

**One Wire** 366FK-F

With mounting bracket

**One Wire** 366CH

5/8" light hole (plastic socket 1" long)

**One Wire** 366SZ

**Two Wire** 366SX

1/2" light hole (metal socket 1" long)

**One Wire** 82551

**Two Wire** 82550



366SX



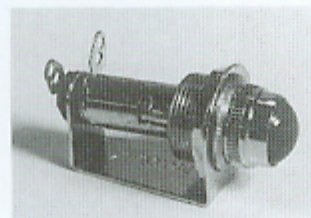
366FK-F

## Warning Devices

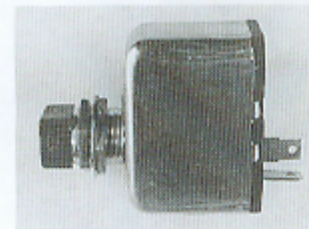
420125-F  
12VDC Warning Light

825104-D  
Audio-Visual/Light and Buzzer

366TJ  
Includes 825104-D with 364L-F and 363F-D switches (See page 23)



420125-F



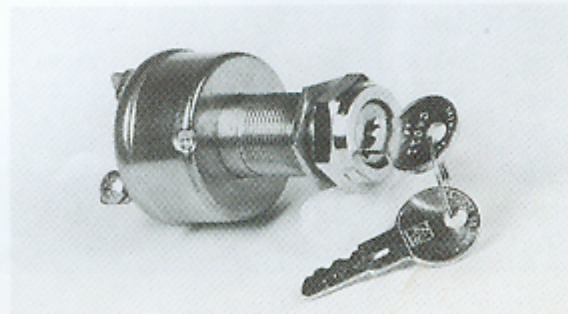
825104-D



366TJ

## Ignition Switch

370T-D  
Mounts in 3/4" hole  
12VDC



370T-D



# OEM to Sales Kit Number Reference

## OEM Number Order

OEM #	Sales Kit #	OEM #	Sales Kit #	OEM #	Sales Kit #	OEM #	Sales Kit #	OEM #	Sales Kit #	OEM #	Sales Kit #
323C	82505	362AN	362AN-D	460AS	82116	479-BF	82124	490BS	284E	550AAX	82697
334AA	334AA-D	362BB	362BB-D	460BF	82304	481CA	82619	490BW1	284N	550HF	550HF-D
334AB	334AB-D	362BC	362BC-D	462BE	82305	481CB	82620	490BX1	284P	550SZ	82677
334AD	334AD-D	362CZ	362CZ-D	462BP	82354	481-HH	82162B	490BY	284R	551AHK	551AHK-D
334F	280EC	362DA	362DA-D	462BX	82387	481-HJ	82164	490BZ	284S	551APP	82683
334H	280ED-F	362ES	362ES-D	462BY	82388	481-HK	82163	490PP1	284BF	551APS	82684
334J	280EE-F	363AM	363AM-F	462CA	82729	481-HL	82165	490ZC	82120	551BAJ	82696
334AZ	82503	363D	363D-D	462CF	82728	481HX	82622	490ZD	82121	690S	82404
334N	334N-D	363E	363E-D	462D	284AM	481HY	82621	490ZE	82319	691AJ	82405
334P	334P-D	363F	363F-D	465DT	284J	481JW	82170	490ZF	82320	691CB	82406
334R	334R-D	363G	363G-F	465EA	82707	481KC1	82635	490ZH	82321	691DB	82407
337-BF	82200	363W	363W-F	465EB	82708	481KC2	82636	490ZJ	82322	691FB	82408
337-BJ	82202	364K	364K-F	465S	284K	481KD1	82640	490ZK	82323	692E60	82409-60
337-BH	82201	364L	364L-F	465DJ	82115	481KD2	82641	490ZL	82324	692E72	82409-72
338CM	82108	366ACM	366ACM	465DB	284AF	481KH	82647	490ZM	82325	995-J	82623B
338CS	284A	366ACN	366ACN	467DP	82306	481KJ	82648	490ZN	82329	990-K	82646
338DB	82310	368P	368P-D	467DR	82307	481KK	82649	491AM144	284B144	830540-40	830540-40
338DC	82311	385B	385B-F	467DS	82308	481KL	82650	491AM36	284B36	830540-41	830540-41
338DF	82313	385C	385C-F	467FB	82355	481KM	82651	491AM72	284B72	830540-42	830540-42
338JY	82736	391A	391A-F	467EM	82374	481KN	82164B	491AN72	284C72	830540-87	830540-87
338JZ	82737	391B	391B-F	467EN	82375	481KB1	82643	491CT600	491CT600	830540-88	830540-88
345-BT	82207B	391C	391C-D	467ER	82114	481KB2	82644	491FE36	82381-36	834763	834763-F
345-BW	82208B	391D	391D-D	467HH	82389	481KR	82655	491FE72	82381-72	834764	834764-F
345-BX	82209B	411AB	82504-F	467HK	82390	481KS	82170B	491FE144	82381-144	873128	873128
351N144	82210B144	411J	279A	467HZ	82731	481KP	82171B	491FF36	82382-36	873129	873129
351N48	82210B48	411K	279B	467JA	82732	482CY	82645	491FF72	82382-72	873134	873134
351N72	82210B72	411L	279D	467JL	82739	482CZ	82637	491FF144	82381-144	873135	873135
355B	82411	411M	279C	467JM	82730	482DA	82642	491FH	82394	873136	873136
361CB120	82326-120	411Y	82501	467JN	82740	482DM	82656	491FJ	82395	873137	873137
361CB144	82326-144	411X	82514	472AA	82110	482DL	82658	491FK-72	82744-72	873138	873138
361CB216	82326-216	442057-72	82410-72	471G1	284AJ	486X	82384	492AP	284AH	873139	873139
361CB288	82326-288	455AW	82111	472CD	82359	490AAW	82372	492AS	82332	873140	873140
361CB360	82326-360	455L	284M	472CE	82360	490AAX	82373	492AZ	82117	873141	873141
361CB48	82326-48	457BD	82303	472CC	82361	490ABA	82362	492CM1	82301	873142	873142
361CB72	82326-72	457BH	82378	472Y	284AA	490ABB	82363	492DS	82383	873143	873143
361CB96	82326-96	457BR	82211	472Z	82109	490ABC	82364	492DT	82745	873144	873144
361CC1-144	82327-144	457CC	82386	474AA	82112	490ABD	82365	493CK	82371	873145	873145
361CC1-216	82327-216	457CE	82733	474AB	284H	490ABJ	82380	493CT	82746	878082	82379
361CC1-60	82327-60	457CF	82734	474BN	82376	490ABL	82742	497AE	82357		
361CC1-72	82327-72	457CH	82735	474CK	82391	490ABM	82392	499L	82356		
351CC1-96	82327-96	460-AZ	284L	474CL	82738	490ABN	82393	535AH	535AH-D		
362AH	362AH-D	460R1	284AE	474N	82309	490ABP	82741	550AAR	82694		
362AJ	362AJ-D	460AR	82113	475R	82377	490ABR	82743	550AAS	82695		



# Sales Kit to OEM Number Reference

## Sales Kit Number Order

Sales Kit #	OEM #	Sales Kit #	OEM #	Sales Kit #	OEM #	Sales Kit #	OEM #	Sales Kit #	OEM #	Sales Kit #	OEM #
279A	411J	363AM-F	363AM	82201	337-BH	82355	467FB	82409-60	692E60	82730	467JM
279B-F	411K	363D-D	363D	82202	337-BJ	82356	499L	82409-72	692E72	82731	467HZ
279C	411M	363E-D	363E	82207B	345-BT	82357	497AE	82410-72	442057-72	82732	467JA
279D	411L	363F-D	363F	82208B	345-BW	82359	472CD	82411	355B	82733	457CE
280EC	334F	363G-F	363G	82209B	345-BX	82360	472CE	82501	411Y	82734	457CF
280ED-F	334H	363W-F	363W	82210B144	351N144	82361	472CC	82503	334AZ	82735	457CH
280EE-F	334J	364K-F	364K	82210B48	351N48	82362	490ABA	82504-F	411AB	82736	338JY
284A	338CS	364L-F	364L	82210B72	351N72	82363	490ABB	82505	323C	82737	338JZ
284AA	472Y	366ACM	366ACM	82211	457BR	82364	490ABC	82514	411X	82738	474CL
284AE	460R1	366ACN	366ACN	82301	492CM1	82365	490ABD	82619	481CA	82739	467JL
284AF	465DB	368P-D	368P	82303	457BD	82371	493CK	82620	481CB	82740	467JN
284AH	492AP	385B-F	385B	82304	460BF	82372	490AAW	82621	481HY	82741	490ABP
284AJ	471C1	385C-F	385C	82305	462BE	82373	490AAX	82622	481HX	82742	490ABL
284AM	462D	391A-F	391A	82306	467DP	82374	467EM	82623B	995-J	82743	490ABR
284B144	491AM144	391B-F	391B	82307	467DR	82375	467EN	82635	481KC1	82744-72	491FK-72
284B36	491AM36	391C-D	391C	82308	467DS	82376	474BN	82636	481KC2	82745	492DT
284B72	491AM72	391D-D	391D	82309	474N	82377	475R	82637	482CZ	82746	493CM
284BF	490PP1	491CT600	491CT600	82310	338DB	82378	457BH	82640	481KD1	830540-40	830540-40
284C72	491AN72	535AH-D	535AH	82311	338DC	82379	878082	82641	481KD2	830540-41	830540-41
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284H	474AB	551AHK-D	551AHK	82319	490ZE	82381-144	491FF144	82643	481KB1	830540-87	830540-87
284J	465DT	82108	338CM	82320	490ZF	82381-144	491FE144	82644	481KB2	830540-88	830540-88
284K	465S	82109	472Z	82321	490ZH	82381-36	491FE36	82645	482CY	834763-F	834763
284L	460AZ	82110	472AA	82322	490ZJ	82381-72	491FE72	82646	990-K	834764-F	834764
284M	455L	82111	455AW	82323	490ZK	82382-36	491FF36	82647	481KH	873128	873128
284N	490BW1	82112	474AA	82324	490ZL	82382-72	491FF72	82648	481KJ	873129	873129
284P	490BX1	82113	460AR	82325	490ZM	82383	492DS	82649	481KK	873134	873134
284R	490BY	82114	467ER	82326-120	361CB120	82384	486X	82650	481KL	873135	873135
284S	490BZ	82115	465DJ	82326-144	361CB144	82386	457CC	82651	481KM	873136	873136
334AA-D	334AA	82116	460AS	82326-216	361CB216	82387	462BX	82655	481KR	873137	873137
334AB-D	334AB	82117	492AZ	82326-288	361CB288	82388	462BY	82656	482DM	873138	873138
334AD-D	334AD	82120	490ZC	82326-360	361CB360	82389	467HH	82658	482DL	873139	873139
334N-D	334N	82121	490ZD	82326-48	361CB48	82390	467HK	82677	550SZ	873140	873140
334P-D	334P	82124	479-BF	82326-72	361CB72	82391	474CK	82683	551APP	873141	873141
334R-D	334R	82162B	481-HH	82326-96	361CB96	82392	490ABM	82684	551APS	873142	873142
362AH-D	362AH	82163	481-HK	82327-144	361CC1-144	82393	490ABN	82694	550AAR	873143	873143
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362AN-D	362AN	82164B	481KN	82327-60	361CC1-60	82395	491FJ	82696	551BAJ	873145	873145
362BB-D	362BB	82165	481-HL	82327-72	361CC1-72	82404	690S	82697	550AAX		
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362CZ-D	362CZ	82170B	481KS	82329	490ZN	82406	691CB	82708	465EB		
362DA-D	362DA	82171B	481KP	82332	492AS	82407	691DB	82728	462CF		
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284AA	4,14	366CH	39	72545-11	28	78630	30	82201	10
284AB	4,14	366FK-F	39	72573-11	28	78632	30	82202	10
284AD	4	366HM-F	36	72744-11	28	78634	30	82207	10
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82372	6,14	82618	38	82741	12	82870-P	8	96798	38
82373	6	82619	4,14	82742	12	82871-P	8	96799	38
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82378	6,14	82624	34	82749	12	82877-P	8		
82380	6	82625	34	82800-P	8	82878-P	8		
82381	6	82626	34	82801-P	8	82879-P	8		
82382	6	82628	38	82802-P	8	82880-P	8		
82383	4,14	82629	34	82803-P	8	82881-P	8		
82384	6,14	82630	34	82805-P	8	82882-P	8		

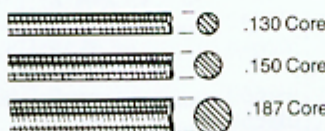
Reliable instrument performance depends upon reliable flexible shaft performance. Stewart Warner offers a choice of replacement shaft core and casing products in a variety of lengths and widths.

## Packaged Universal Core, .130" Diameter



Part No.	Direction of Wind	Length
130-B81-D	LH	81"
130-B114-D	LH	114"

## Multi-Strand Steel Bulk Inner Core



Diameter	Part Number <sup>1</sup>
.130" Left Lay	418614-100, -500, -1000
.150" Left Lay	825128-115, -550, -1100
.187" Right Lay	418615-50, -115, -550

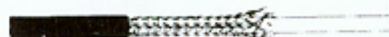
<sup>1</sup> \*-xxxx" indicates length in feet

## Galvanized Steel Bulk Outer Casing



Size	With		
	With Vinyl Cover	Non-Skive Cover	Without Vinyl Cover
.243"	813783-100	—	98578-100
.445"	816647-100	833805-100	20468-100

## Dual Plastic Core & Casing



820905—Dual Plastic Casing—.333" 100 ft. Reels—.175" I.D.

## Swaging and Cutting Tool 136374-T

This tool is of sturdy construction and is designed to handle the following operations in assembling flexible shaft inner cores:

- A. Cutting of .130, .150 and .187 core.
- B. Swaging .104 square end on .130 core only.

**Note:** For swaging .124 square end on .150 core, use Detail 136374-9 (includes upper and lower jaws).

- C. Crimping tips on core.



## Stewart Warner Crimpmaster

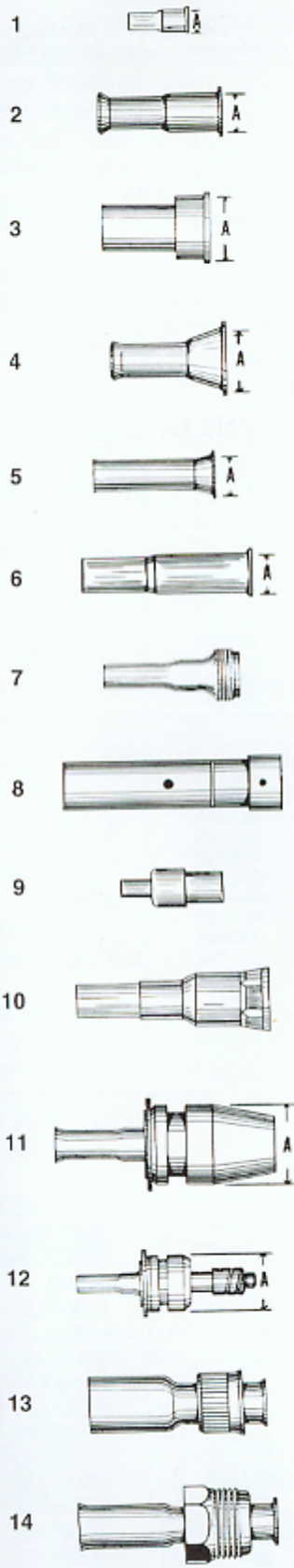
With patented locking feature. Will not release until positive crimp is made. Has 4 casing diameters to match all Stewart Warner assemblies. Hardened, heat-treated black oxide jaws. Nickel-plated handles with plastisol grips.



## Stewart Warner Cutting Pliers

Cuts all Stewart Warner core diameters. Same hardened, heat-treated black oxide jaws as Crimpmaster™. Same nickel-plated handles with black textured plastisol grips.





## Ferrule Specifications

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

### For .243" Diameter Casing

1	1 <sup>5</sup> / <sub>16</sub> "	Ferrule	95374	1 <sup>3</sup> / <sub>32</sub> "
1	1 <sup>5</sup> / <sub>16</sub> "	Ferrule	810809	1 <sup>3</sup> / <sub>32</sub> "
2	1 <sup>3</sup> / <sub>8</sub> "	Ferrule	94353	1 <sup>3</sup> / <sub>32</sub> "
3	1 <sup>5</sup> / <sub>16</sub> "	Ferrule	94354	4 <sup>3</sup> / <sub>64</sub> "
7	2 <sup>1</sup> / <sub>4</sub> "	Ferrule	69930	7 <sup>1</sup> / <sub>8</sub> -18 Thd.

### For .333" Diameter Casing

1	1 <sup>3</sup> / <sub>8</sub> "	Ferrule	820733-3	7 <sup>1</sup> / <sub>16</sub> "
4	1 <sup>5</sup> / <sub>16</sub> "	Ferrule	820733-10	4 <sup>3</sup> / <sub>64</sub> "
1	1 <sup>7</sup> / <sub>8</sub> "	Ferrule	820734-6	7 <sup>1</sup> / <sub>16</sub> "
6	2 <sup>1</sup> / <sub>4</sub> "	Ferrule & Bushing	820734-5	4 <sup>3</sup> / <sub>64</sub> "
7	2 <sup>1</sup> / <sub>4</sub> "	Ferrule	820733-33	7 <sup>1</sup> / <sub>8</sub> -18 Thd.
10	2 <sup>1</sup> / <sub>8</sub> "	(G.M. Snap-On)	823813	—
9	2 <sup>5</sup> / <sub>16</sub> "	Ferrule (Ford Snap-On)	821146-1	—
12	3 <sup>5</sup> / <sub>8</sub> "	Ferrule & Shaft	824012	7 <sup>1</sup> / <sub>8</sub> "

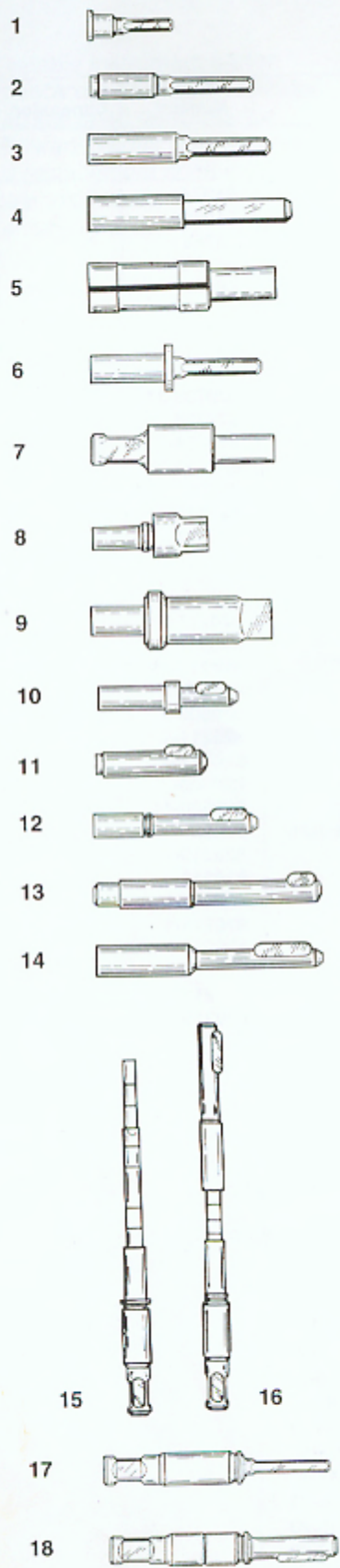
### For .445" Diameter Casing

1	2 <sup>1</sup> / <sub>64</sub> "	Ferrule & Bushing	820211-2	1 <sup>1</sup> / <sub>2</sub> "
4	1 <sup>1</sup> / <sub>2</sub> "	Ferrule & Bushing	400514	1 <sup>1</sup> / <sub>2</sub> "
4	2"	Ferrule	820211-13	1 <sup>1</sup> / <sub>2</sub> "
2	2"	Ferrule	820500-4	1 <sup>1</sup> / <sub>2</sub> "
5	1 <sup>1</sup> / <sub>2</sub> "	Ferrule	820500-3	1 <sup>1</sup> / <sub>2</sub> "
5	2"	Ferrule & Bushing	820211-1	1 <sup>1</sup> / <sub>2</sub> "
5	2"	Ferrule & Bushing	820211-4	1 <sup>1</sup> / <sub>2</sub> "
6	2 <sup>3</sup> / <sub>8</sub> "	Ferrule	820500-7	3 <sup>3</sup> / <sub>64</sub> "
7	2 <sup>1</sup> / <sub>4</sub> "	Ferrule	820500-11	7 <sup>1</sup> / <sub>8</sub> -18 Thd.
8	2 <sup>7</sup> / <sub>16</sub> "	Ferrule, Clutch & Collar Assembly	60462	—
11	2 <sup>19</sup> / <sub>32</sub> "	Ferrule & Extension	820210-2	7 <sup>1</sup> / <sub>8</sub> "
11	2 <sup>21</sup> / <sub>32</sub> "	Ferrule & Extension	820210-4	7 <sup>1</sup> / <sub>8</sub> "
13	2"	Ferrule & Nut Assembly	820214-6	5 <sup>1</sup> / <sub>8</sub> -18 Thd.
13	2"	Ferrule & Nut Assembly	820214-1	5 <sup>1</sup> / <sub>8</sub> -18 Thd.
13	2"	Ferrule & Nut Assembly	820214-2	5 <sup>1</sup> / <sub>8</sub> -18 Thd.
13	2"	Ferrule & Nut Assembly	820214-4	5 <sup>1</sup> / <sub>8</sub> -18 Thd.
14	1 <sup>15</sup> / <sub>64</sub> "	Ferrule & Nut Assembly	820213-3	5 <sup>1</sup> / <sub>8</sub> -18 Thd.
14	2 <sup>15</sup> / <sub>64</sub> "	Ferrule & Nut Assembly	820215-1	3 <sup>1</sup> / <sub>4</sub> -18 Thd.

## Nut Specifications



"A" Dimension	Thread Size	Illustration Number	Part Number
7 <sup>1</sup> / <sub>16</sub> "	3 <sup>1</sup> / <sub>4</sub> -20	4	820346-16
2 <sup>9</sup> / <sub>64</sub> "	3 <sup>1</sup> / <sub>4</sub> -20	3	820346-11
2 <sup>9</sup> / <sub>64</sub> "	3 <sup>1</sup> / <sub>4</sub> -20	4	820346-17
1 <sup>5</sup> / <sub>32</sub> "	5 <sup>1</sup> / <sub>8</sub> -18	1	802346-1
1 <sup>5</sup> / <sub>32</sub> "	5 <sup>1</sup> / <sub>8</sub> -18	2	820346-4
3 <sup>9</sup> / <sub>64</sub> "	3 <sup>1</sup> / <sub>4</sub> -20	3	820346-12
1 <sup>1</sup> / <sub>16</sub> "	7 <sup>1</sup> / <sub>8</sub> -18	1	820346-23
1 <sup>1</sup> / <sub>16</sub> "	7 <sup>1</sup> / <sub>8</sub> -18	2	820346-22



**Compensating Tips**

End Size	Illustration Number	Length	Part Number	Cutting Deduction
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**For .130" Core**

.104 square	6	1 1/32"	823114	23/32"
.104 square	1	13/16"	418035	1/16"
.124 square	2	17/16"	60457	1"
.152 tang	12	7/16"	400211	1 3/8"
.152 tang	10	1 1/32"	63684	23/32"
.187 tang	10	3/16"	104461	3/4"
.187 sq.hole	8	1 1/32"	400210	—
.203 tang	10	13/16"	63317	3/4"
.203 tang	11	1"	33710	9/16"

**For .150" Core**

.104 square	3	1 1/2"	65002	1 1/16"
.104 square	6	1 1/32"	65658	23/32"
.104 square	6	1 21/64"	95115	63/64"
.104 square	6	1 1/2"	425451 <sup>1</sup>	1 1/16"
.104 sq.hole	7	1 1/2"	65001	—
.124 square	2	17/16"	98984	1"
.124 square	6	1 5/32"	37683	23/32"
.150 square	3	1 3/4"	421643	1 1/16"
.152 tang	14	17/16"	408758	1 11/32"
.152 tang	12	17/16"	421795	1 23/64"
.1835 square	4	2 3/32"	428827	1 3/32"
.187 tang	13	2"	64339	1 9/16"
.187 tang	10	1 17/32"	427828	1 3/32"
.187 sq. hole	9	1 9/16"	36833	—
.187 sq. hole	8	1 1/32"	409353	—
.187 tang hole	5	1 9/16"	96127	1 9/16"
.203 tang	12	2"	13909	—
.203 tang hole	5	1 9/16"	78869	—

**For .187" Core**

.104 square	3	1 1/2"	426106	1 1/16"
.104 square	6	1 35/64"	405137	17/64"
.104 sq. hole	7	1 1/2"	426056	—
.150 square	3	1 3/4"	105133	1 1/16"
.152 tang	14	2"	415996	1 5/16"
.152 tang hole	5	1 13/16"	406908	—
.1835 square	4	1 25/32"	414677	1 3/32"
.187 tang	13	2"	101254	1 5/16"
.187 tang	10	2"	426108	1 5/16"
.187 tang	10	2"	811192	1 5/16"
.187 sq. hole	8	1 1/4"	418811	—
.187 sq. hole	9	1 9/16"	98877	—
.187 tang hole	5	1 13/16"	101983	—
.193 sq. hole	9	1 9/16"	414676	—
.203 tang	14	2"	32912	1 5/16"
.203 tang hole	5	1 13/16"	39041	—

<sup>1</sup>Ford shaft, thin-walled.

End Size	Illustration Number	Length	Part Number	Cutting Deduction
.104 square	17	2 7/32"	818749	3 1/32"
.104 square	17	2 37/64"	820152	1 11/64"
.124 square	17	2 1/32"	819468	3 1/32"
.150 square	15	4 1/4"	820219-2	2 63/64"
.150 square	17	2 1/32"	817767	3 1/32"
.150 square	15	4 1/4"	820220-1	3"
.152 tang	18	2 1/32"	818750	3 1/32"
.187 tang	18	2 1/32"	817769	3 1/32"
.193 square	17	2 37/64"	820153	1 61/64"
.203 tang	18	2 1/32"	817759	3 1/32"
.203 tang	16	4 3/8"	820219-1	3 1/4"

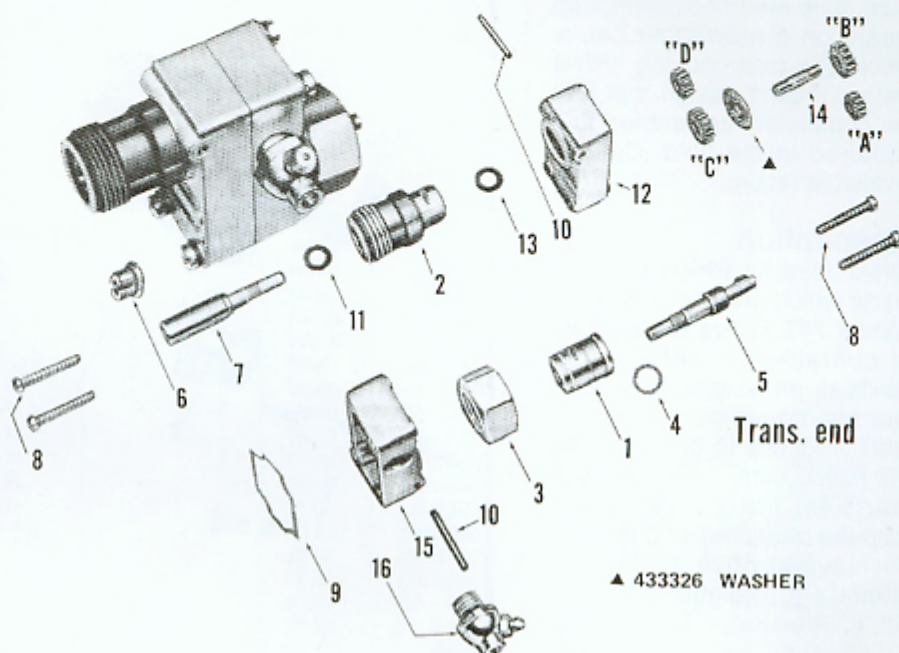


This is an off-set drive joint used for correcting an instrument that registers fast or slow because of a change in tire size, axle ratio, or transmission gears on a passenger car or truck. Call for available ratios.

## Description

Drive Joint Kit 82901 contains parts which are common to all Model 666 Series Drive Joints. It contains almost enough parts to make one drive joint but will require parts from two additional kits to be complete. Kit 82951 contains uncommon parts for the 666 Series in popular quantities and enough for several drive joints. The gears are available in a third kit, 82954.

All parts available individually.



### 82901 Drive Joint Kit

Kit contains common parts for one 666 drive joint. Together they cover all of the models offered. This is a medium-duty drive joint for light trucks, automobiles, and boats.

#### Parts List

Ref. No.	Part No.	Qty.
1	830561	(1) Sleeve
2	15204	(1) Sleeve
3	820346-20	(1) Nut
8	171885	(4) Screws
9	13144	(1) Gasket
10	13116	(2) Pin
11,13	844	(2) Washer
12	101487	(1) Case(Trans.)
14	13787	(1) Intermediate Shaft
15	14477	(1) Case(Shaft)
17	433326	(1) Washer
	1940-B	(1) Alemite Fitting*

\*Not available separately

### 82951 Drive Joint Parts Kit

Kit contains uncommon parts of the 666 drive joint series for repairing and servicing.

#### Parts List

Ref. No.	Part No.	Qty.
4	832465	(20) Washer
5	15202	(10) Drive Shaft
5	90062	(4) Driven Shaft
5	97010	(2) Drive Shaft
5	417052	(4) Drive Shaft
7	64701	(10) Driven Shaft
7	69503	(6) Driven Shaft
7	96097	(2) Driven Shaft
7	831186	(6) Sleeve

### 82954 Gear Kit

A new gear kit which contains all the gears used on models 666, and 777.

#### Parts List

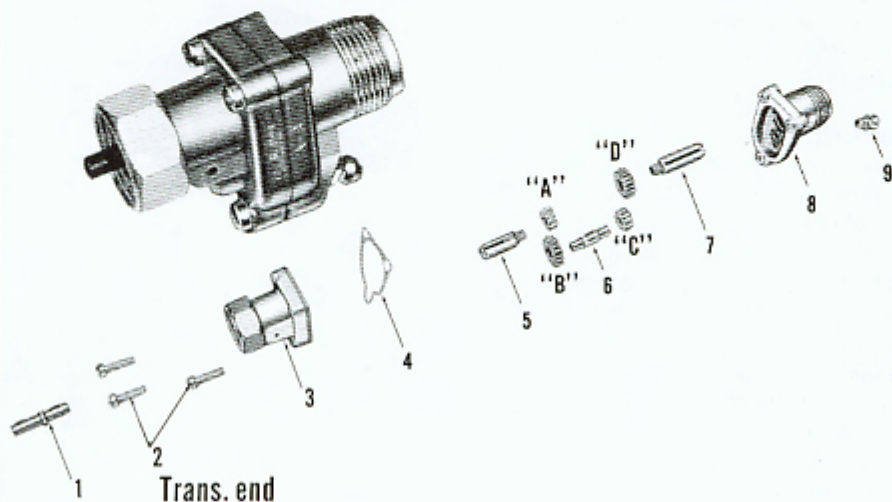
Ref. No.	Part No.	Ref. No.	Part No.
2	816487	6	816494
2	816488	6	832212-14
4	816474	8	816472
4	816475	8	816473
4	816476	8	816479
4	816477	8	816481
4	816478	8	816491
4	816483	8	816492
4	816484		
4	816493		
4	832212-16		
6	816480		
6	816482		

**777-Series**—A Straight-thru drive-joint used for correcting instruments that register fast or slow due to change in tire size, axle ratio or transmission gears on a passenger car or truck. Die-cast housing with a very compact design that can be completely assembled and repaired in the field. Call for available ratios.

## Description

Drive Joint Kit 82903 contains parts which are common to all Model 777 Series drive joints. It contains almost enough parts to make one drive joint but will require parts from two additional kits to be complete. Kit 82953 contains uncommon parts for the 777 Series in popular quantities and enough for several drive joints. The gears are available in a third kit, 82954.

All parts available individually.



### 82903 Drive Joint Kit

Kit contains common parts for a single 777 drive joint. Must be used with parts from kit 82953 to assemble a complete unit.

#### Parts List

Ref. No.	Part No.	Qty.
2	170509	(3)
3	400017	(1)
4	400014	(1)
5	817552	(1)
6	13787	(1)
8	408712	(1)
	1641-B	(1)
	433326	(1)

### 82953 Drive Joint Parts Kit

Kit contains uncommon parts of the 777 drive joint. Medium-duty straight-through unit. Kit will build or repair every model offered.

#### Parts List

Ref. No.	Part No.	Qty.
1	101451	(10)
1	101452	(10)
1	428798	(4)
2	101453	(10)
7	400011	(6)
7	400012	(6)
7	400013	(6)
7	408730	(6)
7	428799	(4)
	832465	(25)

### 82954 Gear Kit

A new gear kit which contains all the gears used on models 666, and 777.

#### Parts List

Ref. No.	Part No.	Ref. No.	Part No.
2	816487	6	816494
2	816488	6	832212-14
4	816474	8	816472
4	816475	8	816473
4	816476	8	816479
4	816477	8	816481
4	816478	8	816491
4	816483	8	816492
4	816484		
4	816493		
4	832212-16		
6	816480		
6	816482		

# Numerical Cross Reference

## S.S. White to Stewart Warner

S.S. White Part No.	S.S. White Eng. No.	Stewart Warner	Clark Bros.	A.C. Part#	S.S. White Part No.	S.S. White Eng. No.	Stewart Warner	Clark Bros.	A.C. Part#
HC104	312-15690Y	20468	27L-250	BC-340	HR178	2701-3020	101451		
HC106	312-15692Y	816647	47L-100	BC-440	HR179	2701-3021	101452		
HC108	312-15689Y	63323			HR180	2701-3022	101453		
HF103	311-12156A	820500-7	B-29		HR181	2701-3028	417149		
HF105	311-12471X	820215-1		FE-55	HR183	2701-3053	428796		
HF106	311-12474XOB	820214-4	SO-21M		HR184	2701-3054	416031		
HF111	311-13606X	36794			HR185	2701-3057	428797		
HF114	311-14388	823813	B-19		HR186	2701-3058	96097		
HF115	311-14389	820051	C-11		HR187	2701-3065	15203		
HF116	311-14390X	821146	SO-21		HR188	2701-3066	68503		
HF117	311-14394	820733-3	B-9		HR189	2701-3067	64701		
HF119	311-14410	820733-10	B-26		HR190	2071-3069	90062		
HF123	311-15285A	820500-11	B-24	FE-52	HR191	2701-3070	97010		
HF125	311-15292	820500-1	B-22		HR192	2701-3071	417052		
HF126	311-15295X	820211-2	SO-14,14M		HR193	2701-3077X	400017		
HF136	311-16016	414740	A-22		HR194	2701-3078X	400015		
HH102	141-14911	71885			HR195	2701-3079X	14477		
HH107	2701-3072	843			HR196	2701-3080X	14477		
HH108	2701-3073	844			HR198	2701-3091	15202		
HM101	143-23	425676			HS101	312-13339Y	418614	130	
HM118	311-14999X	T-429430			HS102	312-13340Y	418614	130-500	BC-1300
HM121	311-15296	818750	JB-35		HS103	312-13341Y	418614	130-1000	BC-130M
HM122	311-15297	817769	JB-34		HS104	312-13342Y	825128	150-100	
HM123	311-15298	817759	JB-32		HS105	312-13343Y	825128	150-500	BC-150C
HM124	311-15299	818749	JB-33		HS106	312-13344Y	825128	150-1000	BC-150D
HM125	311-15300	817767	JB-38		HS107	312-13345Y	418615	187-100	BC-187C
HM136	311-16056X	820219-1	JEX-203		HS108	312-13346Y	418615	187-500	BC-187D
HM137	311-16057X	820219-2			HT101	311-12119	400211		657
HM138	311-16128	819468	JB-42		HT102	311-12127	63317		TL-128
HM139	311-16129	813773			HT104	311-12149A	32912	J-26	TL-127,-9
HM140	311-16130	820257	JB-43		HT105	311-12150A	421643	J-7	TL-117
HM141	311-16131	820153			HT107	311-12470A	65002	J-6	TL-7
HM142	311-16231	811024	F-8	SP-1	HT108	311-12816	37684	J-9	TL-11
HM144	311-16344	820152	JB-57		HT109	311-12817A	65658	J-47	TU-9
HM157	312-14777Y	T-136374			HT111	311-13120A	65001	JB-53	FE-23
HN101	311-12122A	820346-4	D-17		HT112	311-13277A	421795	J-22	TL-4
HN102	311-12124A	820346-22	D-2	FE-113	HT113	311-13278XA	409353	J-40	TU-2
HN104	311-13300	820346-16	D-29		HT114	311-13291	36833	JB-41	FE-131
HR102	311-12151	408758			HT116	311-13296A	415996	J-25	TL-101
HR144	2701-2010	816475			HT117	311-13298	426056	J-23	FE-137
HR145	2701-2010A	816472			HT120	311-13381A	78869	J-213	FE-71
HR146	2701-2011	816477			HT121	311-13383	98877	J-20	FE-131
HR147	2701-2011A	816483			HT122	311-13385	69819		
HR148	2701-2012	816485			HT123	311-13386	420090		
HR149	2701-2012A	816479			HT124	311-13388	60457		TU-115
HR150	2701-2012B	816473			HT126	311-13615	418035	J-5	SP-8
HR151	2701-2012C	816474			HT129	311-13634A	96984	J-8	TU-12
HR152	2701-2012D	816487			HT130	311-13635A	64339	J-10	TU-125,TL-5
HR153	2701-2013	816489			HT131	311-13678A	13909	J-12	TL-6
HR154	2701-2031A	816481			HT132	311-13907A	101254	J-27	TU-123,TU-129
HR155	2701-2014	816476			HT133	311-13939A	105135	J-16	TL-116
HR156	2701-2014A	816491			HT135	311-14003X	400210		TU-1
HR157	2701-2015	816493			HT137	311-14005	39041	J-17	FE-20
HR158	2701-2015A	816482			HT138	311-14067	72010	J-18	TU-11
HR159	2701-2016	816480			HT139	311-15294	95115	J-46	TU-3
HR160	2701-2017	816494			HT143	311-16005	104461		
HR161	2701-2017A	816478			HT148	311-17118	96127	J-191	FE-134
HR162	2701-2018	816492				311-12646	33710		
HR163	2701-2018A	816486				311-13289	413487	J-13	TL-121
HR164	2701-2019	816490				311-13380	65290		
HR165	2701-2019A	816484				311-13387	423913		TL-126
HR166	2701-2020	816488				311-13632A	37683		
HR167	2701-3001	400013				311-13636	63884		TL-13
HR168	2701-3002	428799				311-13918	426106	J-15	TL-120
HR169	2701-3003	400012				311-16137	405137	J-14	TU-105
HR170	2701-3004	408730				311-3730	15921		
HR171	2701-3005	400011				2701-971	402398	G-1	
HR172	2701-3006	13787				2701-3017	35628		
HR173	2701-3007	400014				2701-30084	817552		
HR176	2701-3018	101454				2701-30084	400009		
HR177	2701-3019	428798				2701-30304			

# Cross Reference Guide

Gauge Type	Deluxe					Metric Deluxe and Dual Heavy Duty Plus				
	Dial	2 1/16" Dia.		2 5/8" Dia.		Dial	Deluxe 2 1/16" Dia.		Heavy Duty Plus 2 1/16" Dia.	
		Mech.	Elec.	Mech.	Elec.		Mech.	Elec.	Mech.	Elec.
<b>Ammeter</b>	30-0-30 60-0-60 100-0-100 100-0-100		82310 82311 82313 82343		82404	30-0-30 60-0-60				82736 82737
<b>Voltmeter</b>	10-16V 20-32V		82309 82347			10-16V		82391		82738
<b>Pressure</b>	0-16 psi 1-10 psi 1-15 psi 2-30 psi 2-30 psi 5-80 psi 0-80 psi 0-100 psi 0-100 psi 5-100 psi 0-150 psi 10-150 psi 10-150 psi 10-150 psi 10-200 psi 10-200 psi 20-300 psi 25-400 psi	82319  82320 82321 82322   82323  82329 82350 82332 82324 82325 82120 82121	82333    82304 82305 82349  82346  82407 82408 368P-D	82405       82406  82407 82408 368P-D		0-100 psi/ 0-700 kPa 0-700 kPa 5-100 psi/ 50-700 kPa 50-700 kPa 0-100 psi/ 0-700 kPa 0-1000 kPa 10-150 psi/ 100-1000 kPa 70-1000 kPa 30-150 psi/ 200-1000 kPa 20-300 psi/ 150-2000 kPa	82392      82393	82387    82388   82390	82741     82742 82746 82743	82728        82729       82730       82731    82732 82740
<b>Temperature</b>	0-350°F 100-220°F 100-240°F 100-265°F 100-265°F 100-265°F 100-280°F 100-280°F 140-320°F 140-320°F 140-325°F 140-325°F	491CT 82326    82327	82344 82345 82306  82307 82351 82308 82352	82409       82410		100-240°F/ 40-115°C 40-130°C 100-265°F/ 40-115°C 40-130°C 150-350°F/ 65-175°C 60-160°C 60-160°C 140-320°F/ 60-160°C 120-350°F/ 65-175°C 100-240°F/ 40-115°C	82394    82395	82389    82390	82744    82739	82730          82732 82740
<b>Pyrometer</b>	300-1500°F		82335							
<b>Temp/psi</b>										
<b>Vacuum</b>	0-30 Hg 0-30 Hg/0-15psi	82328 82340		82411		2-30 Hg/ 50-750 mmhg			82745	
<b>Fuel Level</b>	E-1/2-F 240 ohm E-1/2-F 240 ohm E-1/2-F 90 ohm E-1/2-F 73 ohm		82303 82353 82341 82342		82413	E-1/2-F 240 ohm E-1/2-F 90 ohm E-1/2-F 73 ohm		82386		82733 82734 82735
<b>Clocks</b>	12 hr. analog		82339							
<b>Air Restriction</b>										
<b>Speedometer</b>	0-80 mph 0-85 mph/130 kph 5-85 mph/130 kph 0-100 mph 0-160 mph	3 3/8" 82692 82677  550BP-D	3 3/8"  82637 105H-D			0-140 kph 0-140 kph/5-85 mph 0-140 kph/5-85 mph 5-85 mph/0-140 kph	3 3/8" 82697	3 3/8" 82656 82637	3 3/8" 82695 82694	3 3/8" 82658
<b>Tachometer</b>	0-3500 rpm 0-3500 rpm 0-3500 rpm 0-3500 rpm 0-3500 rpm 0-3500 rpm 0-3500 rpm 0-5000 rpm 0-6000 rpm 0-8000 rpm 0-9000 rpm	82688 82689 82690 82691  551AKM-D 535AH-D	82622 82635 82636  82162B 82170			0-3000 rpm 0-3500 rpm 0-3500 rpm 0-3500 rpm 0-6000 rpm 0-8000 rpm		82635 82636  82162B 82170	82696	82643 82644 82647 82648 82649

Marine Deluxe, Heavy Duty, Heavy Duty Plus								Heavy Duty			Heavy Duty Plus		
		Deluxe 2 1/16" Dia.		Heavy Duty 2 1/16" Dia.		Heavy Duty Plus 2 1/16" Dia.		2 1/16" Diameter			2 1/16" Diameter		
Dial		Mech.	Elec.	Mech.	Elec.	Mech.	Elec.	Dial	Mech.	Elec.	Dial	Mech.	Elec.
60-0-60 60-0-60 100-0-100			82108 82109 82110		284A 284AB 284AA		82359 82360	60-0-60 60-0-60 100-0-100 150-0-150		284A 284AB 284AA 284AD	60-0-60 100-0-100 150-0-150		82359 82360 82361
10-16V 20-32V			82112 82347		284H 284AJ		82376 82377	10-16V 20-32V		284H 284AJ	10-16V 20-32V		82376 82377
0-16 psi 0-10 psi 1-15 psi 0-30 psi 0-80 psi 5-80 psi 0-100 psi 0-100 psi 0-200 psi 0-300 psi 0-400 psi 10-200 psi 20-300 psi 30-400 psi		82319  82320  82322  82325 82120 82121 82324	82333   82113  82305 82349	284E 82130  284AE  284L  284P 284R 284S	82362   82372  82358  82364 82365			0-16 psi 1-15 psi 0-80 psi 0-100 psi 0-150 psi 5-100 psi 10-150 psi 10-150 psi 10-200 psi 20-300 psi 25-400 psi	284E   284D 284N 82331 284P 284R 284S	284AM  284AE 284L 284T	0-80 psi 0-100 psi 5-80 psi 5-100 psi 10-150 psi 10-200 psi 20-300 psi 20-400 psi 30-150 psi	82354  82363 82372 82373 82364 82365 82380 82371	82354 82358
0-350°F 100-230°F 100-240°F 100-265°F 100-265°F 100-280°F 140-320°F 140-325°F		491CT 82326  82327	82344 82114  82115	284AF  284B 284C	82374 82355  82375			100-230°F 100-265°F 100-280°F 140-320°F 140-325°F	284B  284C	284AF  284J 284K	100-240°F 100-260°F 100-265°F 140-320°F	82381 82382	82374 82355 82375
300-1500°F			82335		82334		82357	300-1500°F		82334	300-1500°F		82357
100-265°F/0-150 psi					82336			100-265°F/0-150 psi	82336				
0-30 Hg 0-30 Hg		82117 82340		284AH 284BF		82383		0-30 Hg 0-30 Hg 0-30 Hg/0-15 psi	284AH 82301 284BF		0-30 Hg	82383	
E-1/2-F 240 ohm			82111		284M		82378	E-1/2-F 240 ohm E-1/2-F 90 ohm E-1/2-F 73 ohm	284M 284BS 284BR		E-1/2-F 240 ohm		82378
								12 hr. analog		82338			
											0-40 H <sub>2</sub> O	82384	
0-60 mph 0-75 mph		82153 82152						0-80 mph 0-85 mph/ 0-130 kph 5-85 mph/ 0-130 kph	3 3/8" 550HF-D 82678  82642	3 3/8"	0-80 mph/ 0-140 kph 5-85 mph/ 0-140 kph 0-140 kph/ 0-85 mph	82694 82695	82645
0-3500 rpm 0-3500 rpm 0-3500 rpm 0-3500 rpm 0-3500 rpm 0-3500 rpm 0-6000 rpm 0-8000 rpm 0-8000 rpm		82688 82689 82690 82691  82620 82622 82162B 82170 82163		551AHL-D 551AHK-D	82619 82621			0-3500 rpm 0-3500 rpm 0-3500 rpm 0-3500 rpm 0-3500 rpm 0-3500 rpm 0-6000 rpm 0-8000 rpm 0-9000 rpm	551AHK-D 551AHL-D  82619 82621 82640 82641 82164B 82171B  535AK-D		0-3000 rpm 0-3500 rpm 0-3500 rpm 0-3500 rpm 0-6000 rpm 0-6000 rpm 0-8000 rpm	82696	82643 82644 82647 82648 82649 82650

Duty Plus		Track Force										Standard			
2 1/16" Diameter		2 1/16" Diameter					2 5/8" Diameter					2 1/32" Diameter			
		Mechanical		Electrical			Mechanical		Electrical			Dial			
Mech.	Elec.	Dial	Black	S. Steel	Black	S. Steel	Black	S. Steel	Black	S. Steel	Black	S. Steel	Dial	Mech.	Elec.
	82359 82360 82361	60-0-60			82855-P	82875-P					82805-P	82825-P	20-0-20 30-0-30 60-0-60		82201 82200 82202
	82376 82377	10-16V			82862-P	82882-P					82812-P	82832-P			
82363 82372 82373 82364 82365 82380 82371	82354 82358	0-16 psi 1-15 psi 1-16 psi 0-100 psi 5-100 psi 10-200 psi	82856-P	82876-P	82868-P 82865-P	82888-P 82885-P	82806-P	82826-P					0-50 psi 0-80 psi 0-100 psi	82207 82208 82209	
82381 82382	82374 82355 82375	100-265°F 100-280°F 140-320°F 140-325°F	82859-P	82879-P	82866-P 82867-P	82886-P 82887-P	82809-P	82829-P					100-250°F	82210	
	82357														
82383		0-30 Hg 0-30 Hg/0-15 psi 0-30 Hg/0-40 psi	82861-P 82864-P	82881-P 82884-P			82811-P	82831-P			82814-P	82834-P			
m	82378	E-1/2-F 240 ohm E-1/2-F 90 ohm E-1/2-F 73 ohm			82863-P 82869-P 82870-P	82883-P 82889-P 82890-P					82813-P	82833-P	E-1/2 F 240 ohm		82211
82384	3 3/8"		3 3/8"	3 3/8"											
	82645	0-160 mph	82852-P	82872-P											
82694 82695															
82696	82643 82644 82647 82648 82649 82650	0-8000 rpm 0-10000 rpm 0-10000 rpm 0-10000 rpm 0-12000 rpm	82851-P	82871-P	82853-P 82850-P	82873-P	2 1/2" 82854-P	3 3/8"	3 3/8"	3 3/8"	3 3/8"	5"	5"	82803-P 82800-P 82802-P	82823-P 82820-P 82822-P

## Technical Specifications

### DELUXE/HEAVY DUTY SPEEDOMETERS

- Type:** Micro-processor based with odometer
- Programmable:** 6960 to 122760 pulses/mph
- Range:** 0 to 85mph/0 to 120 kph dual scale
- Odometer:** Steps at 0.1 mile increments—999,999 miles
- Accuracy:** ±2 mph (with 5 minutes warm up)
- Signal input:** Sine or square wave
- Sine wave:** 2.0 to 120 V peak-to-peak—magnetic sender
- Square wave:** 4.0 to 16 V peak (RP-123)—generator pulse sender
- Voltage:** 12VDC, negative ground
- Voltage range:** 9.0 to 16.0 VDC
- Mechanism:** Air-core movement with zero return
- Operating temperature:** -40°F to 160°F/-40°C to 71°C
- Storage temperature:** -40°F to 200°F/-40°C to 93°C
- Coding switch:** 10 DIP-switches at rear of case
- Dual axle ratio operation:** Programmed to accept inputs from vehicles equipped with .733 dual axle ratio
- Deluxe face dial:** Black background/white markings/white pointer/blue secondary scale
- Heavy Duty face dial:** Black background/white markings/white pointer

#### Programming example:

System pulses per mile = (Tires revs./mile) x (Axle ratio) x (No. Sender tone wheel teeth)  
 For: tire revs./mile = 430  
 axle ratio = 4.20  
 teeth = 16

Pulses per mile = 28896

Switches set per supplied tabulation.

Switch Coding	1	0	0	0	1	1	1	1	0	0
Switch Lever #	0	1	2	3	4	5	6	7	8	9

### DELUXE/HEAVY DUTY TACHOMETERS

- Type:** Electronic based
- Programmable:** HI Range—0 to 3500 rpm calibration for magnetic sender sensing of 90 thru 160 flywheel teeth  
LO Range—0 to 3500 rpm calibration for 4 pulses per revolution to 25.5 pulses per revolution
- Range:** 0-3500 rpm
- Accuracy:** ±60 rpm (with 5 minutes warm up)
- Signal input:** HI Range—Sine wave, 90-160 pulses/rev, 2.0-120 V p-to-p  
LO Range—Square wave, 4-25.5 pulses/rev, 8.0-16.0 V peak
- Signal source:** HI Range—275 to 5000 Ohms—magnetic sender output impedance  
LO Range—Generator pulse sender or alternator "R" terminal
- Voltage:** 12VDC, negative ground
- Voltage range:** 11.0 to 16.0 VDC
- Mechanism:** Air-core movement with zero return
- Operating temperature:** -40°F to 160°F/-40°C to 71°C
- Storage temperature:** -40°F to 200°F/-40°C to 93°C
- Coding switch:** 8 DIP-switches at rear of case
- Deluxe face dial:** Black background/white markings/white pointer
- Heavy Duty face dial:** Black background/white markings/white pointer

#### Programming examples:

LO RANGE: For generator pulse sender—pulses per revolution = (tachometer sender take off ratio) x 8.

Typical: 0.5 take off-ratio x 8 = 4.0 pulses/rev.

Switch Coding	0	0	0	0	1	1	0	0
Switch Lever #	1	2	3	4	5	6	7	8

HI RANGE: 1 Vehicle system: 103 flywheel teeth  
 2. Select switch setting per Stewart Warner tabulation.

Switch Coding	0	1	1	0	0	0	1	1
Switch Lever #	1	2	3	4	5	6	7	8

### Low-Frequency Tachometers: Programming for Alternator "R" Terminal Input

1. Determine Pulses/Eng Rev by the following formula

$$\frac{\text{Pulses}}{\text{Eng. Rev}} = \frac{\text{Crankshaft Pulley Dia.}}{\text{Alternator Pulley Dia.}} \times \frac{\text{No. Alt. Poles}}{2}$$

2. Select the nearest pulses/eng rev tabulated in the programming chart.

3. Set each switch lever as specified for the pulses/eng selected.

Installation instructions available upon request.



## Performance Display

Complete kit boxes designed for attractive store display or easy shelf storage

**Each kit includes:**

Ready to install gauges  
Matched senders for electrical gauges  
Tubing kits for mechanical gauges  
Installation hardware and lighting  
Complete installation instructions

### 82218

550BP	Mechanical Speedometer 3-3/8"
82170	Electrical Tachometer 3-3/8"
82305	Electrical Oil Pressure 2-1/16"
82307	Electrical Water Temperature 2-1/16"
82303	Fuel Gauge 2-1/16"
82309	Voltmeter 2-1/16"
279B-F	Pressure Sender
280ED-F	Temperature Sender
385C	Fuel Sender



### 82219

82822-P	Electrical Tachometer 5"
82827-P	Mechanical Oil Pressure 2-5/8"
82829-72P	Mechanical Water Temperature 2-5/8"
82553-F	Tubing Kit (1)



### 82220

82826-P	Mechanical Fuel Pressure 2-5/8"
82827-P	Mechanical Oil Pressure 2-5/8"
82829-72P	Mechanical Water Temperature 2-5/8"
82553-F	Tubing Kits (2)

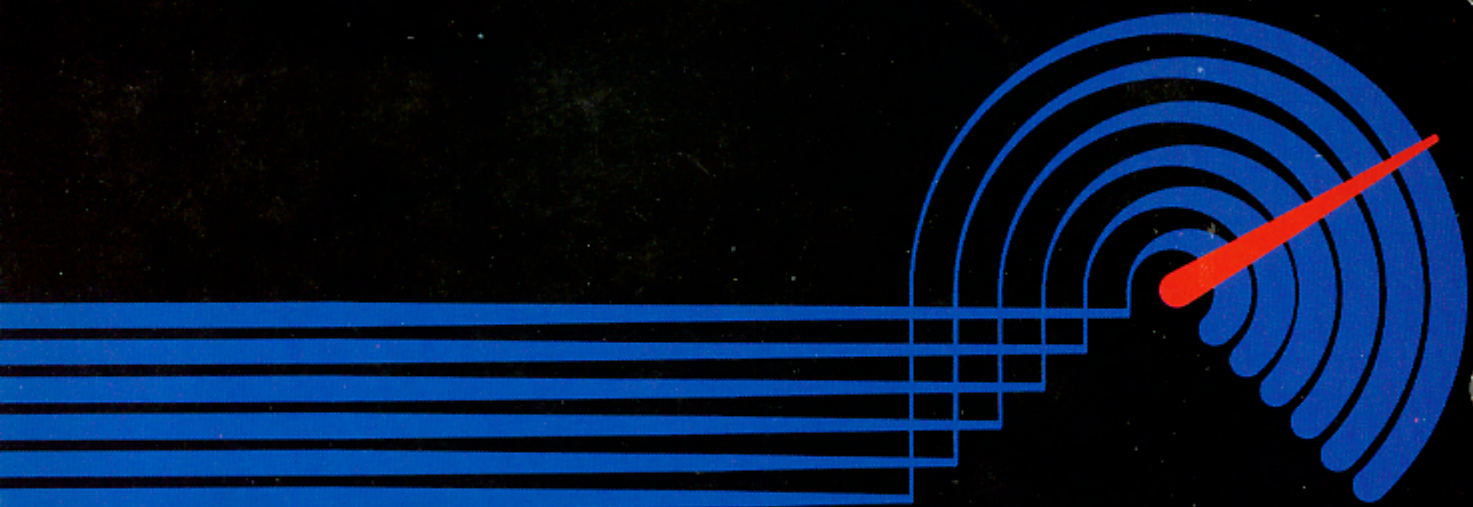


### 82221

82405	Mechanical Fuel Pressure 2-5/8"
82305	Mechanical Oil Pressure 2-5/8"
82409-72	Mechanical Water Temperature 2-5/8"
82553-F	Tubing Kits (2)







SYMBOL OF

**SW**

EXCELLENCE

**Headquarters**

Stewart Warner Instrument Corp.  
580 Slawin Court  
Mount Prospect, IL 60056-2183  
Phone: (708) 803-0200  
FAX: (708) 803-8441

**Manufacturing**

Stewart Warner Instrument Corp.  
1324 Goodyear  
El Paso, TX 79936  
Phone: (915) 593-5100

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