120822
Rev 1: 5/8/07

Installation Instructions

Alternator and Pulse Generator Tachometers 3-3/8″

PRECAUTIONS:

- ❑ Read ALL instructions before installing instrument.
- ❑ Follow ALL safety precautions when working on vehicle-wear safety glasses!
- ❑ ALWAYS disconnect (-) negative battery cable before making electrical connections.

HELP?:

- ❑ If after reading these instructions you don't fully understand how to install your instrument(s), contact your local Stewart Warner distributor, or contact our Technical Support Team toll free at **1-800-676-1837**.
- ❑ Additional applications information may be found at ***www.stewartwarner.com***.

GENERAL APPLICATION:

- ❑ 12-volt DC negative (-) ground electrical systems (11-20 VDC operating voltage range for the tachometer, 11-16 VDC for the Light bulb).

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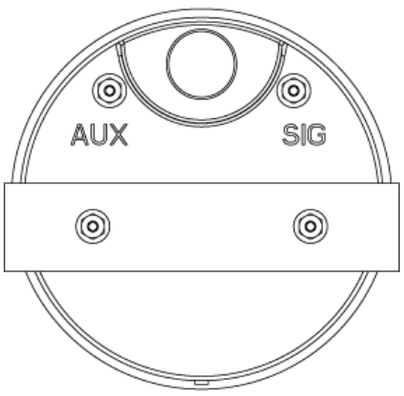
TACHOMETER MOUNTING (Figure 1):

- ❑ Recommended panel cut-out (hole size) for 3-3/8″ tachometer is 3-3/8″.
- ❑ Secure the tachometer in the hole using the supplied bracket and nuts. Be sure to wire the tachometer before mounting.

Figure 1



TACHOMETER HOOK-UP (Figure 2):

1. Disconnect negative (**-**) battery cable.
2. Using 18-ga. wire, connect the (**NEG**) terminal to a clean (rust/paint-free) ground, preferably battery negative terminal.
3. Using 18-ga. wire, connect the (**POS**) terminal to a switched +12V source, like the ignition wire.
4. Using 18-ga. wire, connect the (**SIG**) terminal to the alternator AC tap terminal (R terminal), or to the pulse generator signal wire.
5. There are two (2) wires for the lighting; Connect the (**WHITE**) lighting wire to the dash lighting circuit or to a +12V switched circuit. Connect the (**BLACK**) lighting wire to a chassis ground.
6. Calibrate the pulses per revolution (PPR). Refer to the calibration set-up section.
7. Reconnect the negative (**-**) battery cable & test instrument to ensure that it is working.

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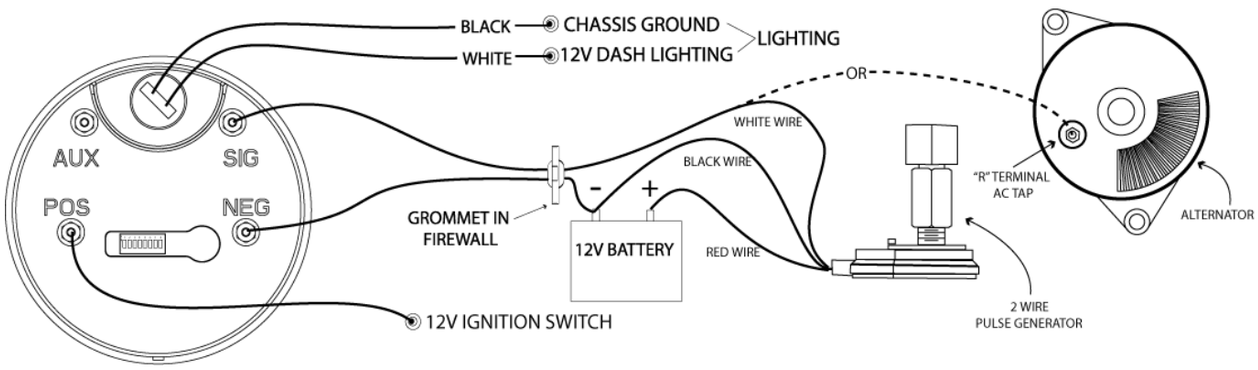
Figure 2



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SIGNAL CALCULATION:

- Given the continual introduction of alternator styles, it is advisable to determine the PPR (Pulses Per Revolution) of the application before installation.
- For alternator applications the PPR calculation is PPR=PxR/2
  - "P" is the number of poles in the alternator.
  - "R" is the pulley ratio. Determine the pulley ratio by dividing the crank pulley diameter by the alternator pulley diameter.
- For pulse generator applications the PPR calculation is PPR=(P/2)xR
  - "P" is the number of poles in the pulse generator
  - "R" is the pulse generator drive ratio (you may need to contact the engine manufacturer for this information)

NOTE: The pulse generator drive ratio is normally either .5 or 1 and in most case this will result in the PPR being the same as or half of the number of pulses from the pulse generator

- Example:
  - # of poles 18
  - Crank pulley diameter is 4.5"
  - Alternator pulley diameter is 2".
  - PPR = (18*(4.5/2))/2 = 20.25 PPR, which falls into the calibration range and should work well.

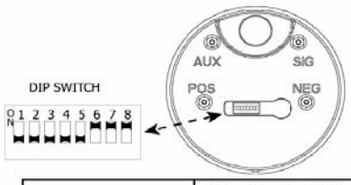
CALIBRATION SET-UP (Figure 3):

1. Remove the dip switch cover on the back of the tachometer.
2. Determine the PPR using the appropriate signal calculation for the signal source being used.
3. Set the DIP switches to the PPR that matches the calculated PPR the closest.

TIP: A small screwdriver or pick may aide in the switch setting.

4. Replace the dip switch cover.

Figure 3



Switch Settings (PPR)	"X" = ON, "-" = OFF							
	1	2	3	4	5	6	7	8
0.5	-	-	-	-	-	-	-	-
1	-	-	-	-	-	-	-	X
1.5	-	-	-	-	-	-	X	-
2	-	-	-	-	-	-	X	X
2.5	-	-	-	-	-	X	-	-
3	-	-	-	-	-	X	-	X
3.5	-	-	-	-	-	X	X	-
4	-	-	-	-	-	X	X	X
4.5	-	-	-	-	X	-	-	-
5	-	-	-	-	X	-	-	X
5.5	-	-	-	-	X	-	X	-
6	-	-	-	-	X	-	X	X
6.5	-	-	-	-	X	X	-	-
7	-	-	-	-	X	X	-	X
7.5	-	-	-	-	X	X	X	-
8	-	-	-	-	X	X	X	X

Switch Settings (PPR)	"X" = ON, "-" = OFF							
	1	2	3	4	5	6	7	8
8.5	-	-	-	X	-	-	-	-
9	-	-	-	X	-	-	-	X
9.5	-	-	-	X	-	-	X	-
10	-	-	-	X	-	-	X	X
10.5	-	-	-	X	-	X	-	-
11	-	-	-	X	-	X	-	X
11.5	-	-	-	X	-	X	X	-
12	-	-	-	X	-	X	X	X
12.5	-	-	-	X	X	-	-	-
13	-	-	-	X	X	-	-	X
13.5	-	-	-	X	X	-	X	-
14	-	-	-	X	X	-	X	X
14.5	-	-	-	X	X	X	-	-
15	-	-	-	X	X	X	-	X
15.5	-	-	-	X	X	X	X	-
16	-	-	-	X	X	X	X	X
16.5	-	-	X	-	-	-	-	-
17	-	-	X	-	-	-	-	X
17.5	-	-	X	-	-	-	X	-
18	-	-	X	-	-	-	X	X
18.5	-	-	X	-	-	X	-	-
19	-	-	X	-	-	X	-	X
19.5	-	-	X	-	-	X	X	-

Switch Settings (PPR)	"X" = ON, "-" = OFF							
	1	2	3	4	5	6	7	8
20	-	-	X	-	-	X	X	X
20.5	-	-	X	-	X	-	-	-
21	-	-	X	-	X	-	-	X
21.5	-	-	X	-	X	-	X	-
22	-	-	X	-	X	-	X	X
22.5	-	-	X	-	X	X	-	-
23	-	-	X	-	X	X	-	X
23.5	-	-	X	-	X	X	X	-
24	-	-	X	-	X	X	X	X
24.5	-	-	X	X	-	-	-	-
25	-	-	X	X	-	-	-	X
25.5	-	-	X	X	-	-	X	-
26	-	-	X	X	-	-	X	X
26.5	-	-	X	X	-	X	-	-
27	-	-	X	X	-	X	-	X
27.5	-	-	X	X	-	X	X	-
28	-	-	X	X	-	X	X	X
28.5	-	-	X	X	X	-	-	-
29	-	-	X	X	X	-	-	X
29.5	-	-	X	X	X	-	X	-
30	-	-	X	X	X	-	X	X

TROUBLESHOOTING:

Q: My tachometer does not respond at all, what do I do?

A: Check all of the wiring connections and power to the tachometer.

1. If the tachometer needle goes to zero when powered up, but does not respond when the engine is started, there is no signal to the (**SIG**) terminal. Check to ensure that the terminal is wired to the proper location for a valid signal.
2. If the tachometer needle doesn't go to zero when powered up, the tachometer is not grounded properly or does not have power to the (**POS**) terminal. Check to ensure a good chassis ground, preferably at the battery negative. Verify that the (**POS**) terminal has a 12VDC supply.

Q: My tachometer does not read correctly, what do I do?

A: First, determine how the reading is incorrect (example: Double, half, quarter etc.), re-set DIP-switches for correct readings.

1. If the RPM reads double, re-set the DIP-switches for 1/2 the PPR of the current setting.
2. If the RPM reads 1/2, re-set the DIP-switches for 2 times the current PPR setting.
3. If the RPM reads 1/4, re-set the DIP-switches for 4 times the current PPR setting.

CLEANING DIRECTIONS:

- For proper cleaning of instrumentation/accessories, use a glass cleaner or mild detergent with a spray on and wipe method.

WARRANTY INFORMATION:

TWO (2) YEAR LIMITED WARRANTY. Stewart Warner products are warranted against defects in workmanship and materials for a period of two (2) years from the date of purchase. Proof-of-purchase is required; otherwise, the warranty period shall default to two (2) years from date-of-manufacture (as indicated by the date code on the product). See detailed Warranty Policy for other Terms & Conditions.

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1-800-676-1837
www.stewartwarner.com