



INSTALLATION INSTRUCTIONS

3 3/8" & 5" SPEEDOMETER 0-160 MPH

DESCRIPTION

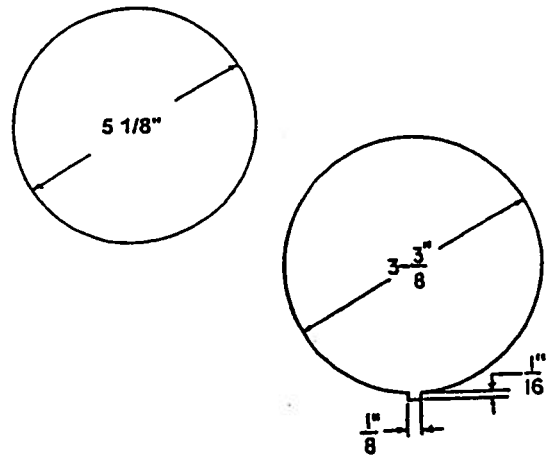
These models are programmable electric speedometers with odometers for use with 12V neg ground systems. They are designed to replace the mechanical speedometers by using the 82623B Sender (995J Hall Effect Sender) or 82646 (990K) magnetic pick-up to replace the flexible shaft. The standard take-off for the mechanical speedometer is 1000 RPM at 60 MPH or 1000 rotations per mile. The 82623B sender generates 8 pulses per revolution, therefore the normal calibration is 8000 pulses per mile. In order to accommodate custom designed vehicles (changes in transmissions, rear end ratios, tire sizes, etc.) these speedometers are made programmable from 4000 to 40,000 pulses per mile. The 82623B sender output is connected to the AUX stud. The SIG stud is used with signals from magnetic senders or pick-ups that can be used with transmission or rear axle tone wheels providing that the pulse per mile are within the 4000 to 40,000 range.

MOUNTING SPEEDOMETER IN PANEL

NOTE - Speedometer requires approximately 3 3/4" clearance behind instrument panel.

1. Cut a 5 1/8" dia. hole or a 3 3/8" dia. hole with a 1/8" wide x 1/16" deep notch pointing down. Remove speedometer and use existing hole if it meets these parameters.
2. Connect wires from the appropriate sender as described in "Wiring" section.
3. Insert speedometer into hole, align properly, and secure with mounting bracket, lockwashers, and nuts. Do not distort mounting bracket by overtightening.

Note - if panel thickness exceeds 1", trim bracket ends to obtain a snug fit.

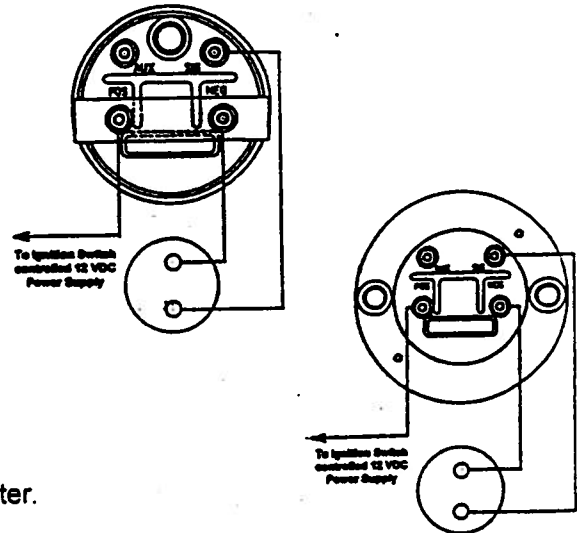


WIRING - MAGNETIC PICK-UP 82646

Note - The pick-up mounted over the rear wheel tone wheel is compatible with this speedometer and should work properly without readjustment of the sender.

1. Disconnect negative battery cable.
2. Connect a magnetic pick-up lead to (SIG) terminal of speedometer.
3. Connect another lead to (NEG) terminal of speedometer.
4. Connect a wire from (POS) terminal of speedometer to a 12 VDC ignition switch controlled power source.
5. Remove cover from lamp hole and plug in lamp and socket assembly.
6. Reconnect negative battery cable.

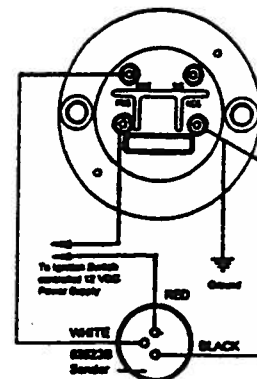
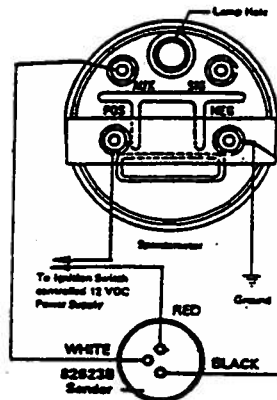
IMPORTANT - Use 18 AWG wire and insulated shank eyelet terminals to make wiring connections to speedometer.



WIRING - 82623B SENDER

1. Disconnect negative battery cable.
2. Connect the black sender lead of the 82623B Sender and the speedometer (NEG) stud to ground.
3. Connect the red sender lead of the 82623B Sender and the speedometer (POS) stud to a 12VDC ignition switch controlled power source.
4. Connect the white sender lead of the 82623B Sender to the speedometer (AUX) stud.
5. Connect the lead from the lamp socket to a light dimmer controlled power source.
6. Reconnect the negative battery cable.

Note - Ford applications - quick disconnect adaptor 366ADB sold separately.



PROGRAMMING FOR 82623B SENDER

Programming is accomplished by means of a 16 lever switch on the rear of the instrument. The setting for 8000 pulses/mile is the standard setting. The switches should be set as follows: 1000 0101 1010 0100 - '1' is the up position and '0' is the down position.

When there is a change in tire size, axle ratio, transmission, or any combination thereof, or this information is unknown, the speedometer must be recalibrated. This can be done using the odometer.

Set the coding switches for 8000 pulses/mile (1000 0101 1010 0100). Record the starting odometer reading and drive the vehicle over a measured 5 mile distance. Record the ending odometer reading and subtract the starting reading from the ending reading. The difference is the Indicated Odometer Reading (IOR.)

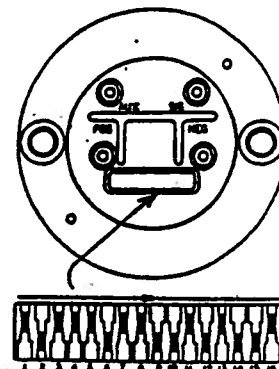
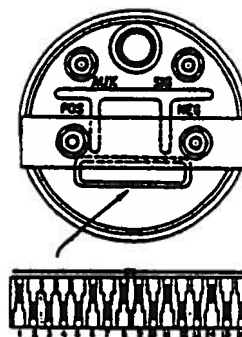
If the IOR is exactly 5.0 miles, the sender is producing 8000 pulses/mile and the speedometer is in calibration. If the IOR is other than 5.0 miles, check the speedometer program chart. Find the IOR on the chart and reset the switches as shown.

Example - If your IOR is 6.0, the actual pulses per mile were 9600 and the switch setting should be 1000 1101 0101 1000.

PROGRAMMING FOR 82646 MAGNETIC PICK-UP

1. Determine if tone wheel is transmission or rear drive axle mount.
2. Calculate vehicle's pulses/mile:
 - A. For transmission mounted tone wheel - Pulses/mile = (16 teeth on drive gear in transmission) X (axle ratio) X (tire revolutions/mile.)*
 - B. For rear drive axle tone wheel - Pulses/mile = (number of teeth or slots on tone wheel)** X (tire revolutions per mile.)*

* Information available from tire manufacturer.
 ** For Peterbilt trucks, 60 teeth typically, may possibly be 120 teeth.
3. Determine switch coding from the program chart by locating vehicle's pulses per mile or closest value in PLS/Mile column and its related switch code in the right column.
4. Locate and remove switch cover on rear of speedometer.



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5. Viewing speedometer in upright position from rear, slide switch levers into positions coded in program chart using a small straight-blade screwdriver. Follow left to right sequence - '1' is up and '0' is down.

EXAMPLE PROGRAMMING

1. Tone wheel is transmission mounted.
2. 16 (teeth on worm drive gear in transmission) X 3.70 (axle ratio) X 471 (tire revolutions /mile) = 27,883.2 pulses/mile.
3. Locate vehicle's pulses/mile or closest value and its related switch code.

		111 1111
	1234 5678 9012 3456	
27520	0100 0100 0101 1010	
27840*	0100 0100 0111 0110	
28160	0100 0101 0010 1010	

*closest for this example

4. Slide switch levers into positions coded in program chart - '1' is up and '0' is down.

Note - Wheel mounted tone wheel is calculated as above except number of teeth in tone wheel is multiplied by the tire revolutions/mile (obtained from tire manufacturer) to get pulses per mile.

SPEEDOMETER PROGRAM CHART

IOR	PLS/ Mile	SPEED / ODO				PLS/ Mile	120 MPH HZ	SPEED / ODO					
		DUAL SWITCH CODE						DUAL SWITCH CODE					
		120 MPH HZ	1234	5678	9012			3456	1234	5678	9012	3456	
2.5	4000	133.3	0000	0001	1100	1001	4.5	7200	240.0	0010	1110	1111	1001
2.6	4160	138.7	0000	0011	0110	0100	4.6	7360	245.3	1000	0100	0101	0110
2.7	4320	144.0	0000	0011	1110	1101	4.7	7520	250.7	1000	0100	0111	0101
2.8	4480	149.3	0000	1001	0111	1000	4.8	7680	256.0	1000	0101	0010	1010
2.9	4640	154.7	0000	1001	1111	1001	4.9	7840	261.3	1000	0101	1000	0011
3.0	4800	160.0	0000	1011	0111	1100	5.0	8000	266.7	1000	0101	1010	0100
3.1	4960	165.3	0000	1011	1111	0111	5.1	8160	272.0	1000	0101	1010	1101
3.2	5120	170.7	0010	0100	0000	1010	5.2	8320	277.3	1000	0111	0001	0010
3.3	5280	176.0	0010	0100	1000	0011	5.3	8480	282.7	1000	0111	0001	1011
3.4	5440	181.3	0010	0100	1010	1110	5.4	8640	288.0	1000	0111	0011	1100
3.5	5600	186.7	0010	0110	0010	0111	5.5	8800	293.3	1000	0111	1001	0101
3.6	5760	192.0	0010	0110	1001	1000	5.6	8960	298.7	1000	0111	1100	1000
3.7	5920	197.3	0010	0110	1011	1011	5.7	9120	304.0	1000	0111	1110	0001
3.8	6080	202.7	0010	1100	0001	1110	5.8	9280	309.3	1000	0111	1110	1100
3.9	6240	208.0	0010	1100	1001	0101	5.9	9440	314.7	1000	1101	0100	0101
4.0	6400	213.3	0010	1100	1110	0000	6.0	9600	320.0	1000	1101	0101	1000
4.1	6560	218.7	0010	1110	0100	0001	6.1	9760	325.3	1000	1101	0111	0001
4.2	6720	224.0	0010	1110	0110	0100	6.2	9920	330.7	1000	1101	0111	0110
4.3	6880	229.3	0010	1110	0110	1111	6.3	10080	336.0	1000	1101	0111	1111
4.4	7040	234.7	0010	1110	1101	1010	6.4	10240	341.3	1001	1000	1000	0000

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IOR	PLS/ Mile	SPEED / ODO				
		120 MPH HZ	DUAL SWITCH CODE			
			111	1111	1234	5678
6.5	10400	346.7	1001	1000	1000	1001
6.6	10560	352.0	1001	1000	1000	1110
6.7	10720	357.3	1001	1000	1010	0111
6.8	10880	362.7	1001	1000	1011	1000
6.9	11040	368.0	1001	1010	0001	0001
7.0	11200	373.3	1001	1010	0001	0110
7.1	11360	378.7	1001	1010	0001	1111
7.2	11520	384.0	1001	1010	0110	0000
7.3	11680	389.3	1001	1010	0110	0011
7.4	11840	394.7	1001	1010	0110	1100
7.5	12000	400.0	1001	1010	0110	1111
7.6	12160	405.3	1001	1010	1101	0010
7.7	12320	410.7	1001	1010	1101	1001
7.8	12480	416.0	1001	1010	1101	1110
7.9	12640	421.3	1001	1010	1111	0101
8.0	12800	426.7	1001	1011	1010	0010
8.1	12960	432.0	1001	1011	1010	1001
8.2	13120	437.3	1001	1011	1010	1110
8.3	13280	442.7	1011	0001	0000	0101
8.4	13440	448.0	1011	0001	0001	0010
8.5	13600	453.3	1011	0001	0001	0011
8.6	13760	458.7	1011	0001	0001	1100
8.7	13920	464.0	1011	0001	0001	1111
8.8	14080	469.3	1011	0001	0110	0000
8.9	14240	474.7	1011	0001	0110	0011
9.0	14400	480.0	1011	0001	0110	1100
9.1	14560	485.3	1011	0001	0110	1101
9.2	14720	490.7	1011	0001	0111	1010
9.3	14880	496.0	1011	0001	1101	0001
9.4	15040	501.3	1011	0001	1101	0110
9.5	15200	506.7	1011	0001	1101	0111
9.6	15360	512.0	1011	0100	1000	1000
9.7	15520	517.3	1011	0100	1000	1011
9.8	15680	522.7	1011	0100	1000	1110
9.9	15840	528.0	1011	0100	1010	0101
10.0	16000	533.3	1011	0100	1011	0010
10.1	16160	538.7	1011	0100	1011	0011
10.2	16320	544.0	1011	0100	1011	1100
10.3	16480	549.3	1011	0100	1011	1111
10.4	16640	554.7	1011	0100	1110	1010
10.5	16800	560.0	1011	0110	0100	0001
10.6	16960	565.3	1011	0110	0100	0110
10.7	17120	570.7	1011	0110	0100	0111
10.8	17280	576.0	1011	0110	0101	1000
10.9	17440	581.3	1011	0110	0101	1001
11.0	17600	586.7	1011	0110	0101	1110
11.1	17760	592.0	1011	0110	0101	1111
11.2	17920	597.3	1011	0111	0010	0000
11.3	18080	602.7	1011	0111	0010	0001
11.4	18240	608.0	1011	0111	0010	0110

IOR	PLS/ Mile	SPEED / ODO				
		120 MPH HZ	DUAL SWITCH CODE			
			111	1111	1234	5678
11.5	18400	613.3	1011	0111	0010	0111
11.6	18560	618.7	1011	0111	0011	1000
11.7	18720	624.0	1011	0111	0011	1001
11.8	18880	629.3	1011	0111	0011	1110
11.9	19040	634.7	1011	0111	0011	1111
12.0	19200	640.0	1011	0111	1100	0000
12.1	19360	645.3	1011	0111	1100	0001
12.2	19520	650.7	1011	0111	1100	0110
12.3	19680	656.0	1011	0111	1100	0111
12.4	19840	661.3	1011	0111	1101	0010
12.5	20000	666.7	1011	0111	1101	1001
12.6	20160	672.0	1011	0111	1101	1100
12.7	20320	677.3	1011	0111	1101	1111
12.8	20480	682.7	1110	0010	1000	1010
12.9	20640	688.0	1110	0010	1000	1011
13.0	20800	693.3	1110	0010	1010	0100
13.1	20960	698.7	1110	0010	1010	0101
13.2	21120	704.0	1110	0010	1011	0000
13.3	21280	709.3	1110	0010	1011	0011
13.4	21440	714.7	1110	0010	1011	0110
13.5	21600	720.0	1110	0010	1011	1101
13.6	21760	725.3	1110	0010	1110	1000
13.7	21920	730.7	1110	0010	1110	1001
13.8	22080	736.0	1110	0010	1110	1110
13.9	22240	741.3	1110	0010	1110	1111
14.0	22400	746.7	1110	1000	0101	0000
14.1	22560	752.0	1110	1000	0101	0001
14.2	22720	757.3	1110	1000	0101	0100
14.3	22880	762.7	1110	1000	0101	0111
14.4	23040	768.0	1110	1001	0000	0010
14.5	23200	773.3	1110	1001	0000	0011
14.6	23360	778.7	1110	1001	0000	0110
14.7	23520	784.0	1110	1001	0000	1101
14.8	23680	789.3	1110	1001	0001	1000
14.9	23840	794.7	1110	1001	0001	1001
15.0	24000	800.0	1110	1001	0001	1110
15.1	24160	805.3	1110	1001	0001	1111
15.2	24320	810.7	1110	1001	0100	1010
15.3	24480	816.0	1110	1001	0100	1011
15.4	24640	821.3	1110	1001	0110	0100
15.5	24800	826.7	1110	1001	0110	0101
15.6	24960	832.0	1110	1001	0111	0000
15.7	25120	837.3	1110	1001	0111	0011
15.8	25280	842.7	1110	1001	0111	0110
15.9	25440	848.0	1110	1001	0111	0111
16.0	25600	853.3	1110	1100	0010	0010
16.1	25760	858.7	1110	1100	0010	1001
16.2	25920	864.0	1110	1100	0010	1100
16.3	26080	869.3	1110	1100	0010	1101
16.4	26240	874.7	1110	1100	0011	1000

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IOR	PLS/ Mile	120 MPH HZ	SPEED / ODO DUAL SWITCH CODE			
			1234	5678	9012	3456
16.5	26400	880.0	1110	1100	0011	1011
16.6	26560	885.3	1110	1100	0011	1110
16.7	26720	890.7	1110	1100	0011	1111
16.8	26880	896.0	1110	1100	0110	1010
16.9	27040	901.3	1110	1100	0110	1011
17.0	27200	906.7	1110	1100	1100	0100
17.1	27360	912.0	1110	1100	1100	0101
17.2	27520	917.3	1110	1100	1101	0000
17.3	27680	922.7	1110	1100	1101	0001
17.4	27840	928.0	1110	1100	1101	0110
17.5	28000	933.3	1110	1100	1101	0111
17.6	28160	938.7	1110	1101	1000	0010
17.7	28320	944.0	1110	1101	1000	0011
17.8	28480	949.3	1110	1101	1000	0110
17.9	28640	954.7	1110	1101	1000	1101
18.0	28800	960.0	1110	1101	1001	1000
18.1	28960	965.3	1110	1101	1001	1001
18.2	29120	970.7	1110	1101	1001	1100
18.3	29280	976.0	1110	1101	1001	1101
18.4	29440	981.3	1110	1101	1100	1010
18.5	29600	986.7	1110	1101	1100	1011
18.6	29760	992.0	1110	1101	1100	1110
18.7	29920	997.3	1110	1101	1100	1111
18.8	30080	1002.	1110	1101	1101	1010
18.9	30240	1008.	1110	1101	1101	1011
19.0	30400	1013.	1110	1101	1111	0100
19.1	30560	1018.	1110	1101	1111	0101
19.2	30720	1024.	1111	1000	1010	0000
19.3	30880	1029.	1111	1000	1010	0001
19.4	31040	1034.	1111	1000	1010	0100
19.5	31200	1040.	1111	1000	1010	0111
19.6	31360	1045.	1111	1000	1011	0010
19.7	31520	1050.	1111	1000	1011	0011
19.8	31680	1056.	1111	1000	1011	0110
19.9	31840	1061.	1111	1000	1011	0111
20.0	32000	1066.	1111	1000	1110	0010
20.1	32160	1072.	1111	1000	1110	1001
20.2	32320	1077.	1111	1000	1110	1100
20.3	32480	1082.	1111	1000	1110	1101
20.4	32640	1088.	1111	1000	1111	1000
20.5	32800	1093.	1111	1000	1111	1001
20.6	32960	1098.	1111	1000	1111	1100
20.7	33120	1104.	1111	1000	1111	1101
20.8	33280	1109.	1111	1001	1010	1010
20.9	33440	1114.	1111	1001	1010	1011

IOR	PLS/ Mile	120 MPH HZ	SPEED / ODO DUAL SWITCH CODE			
			1234	5678	9012	3456
21.0	33600	1120.	1111	1001	1010	1110
21.1	33760	1125.	1111	1001	1010	1111
21.2	33920	1130.	1111	1001	1011	1010
21.3	34080	1136.	1111	1011	0001	0001
21.4	34240	1141.	1111	1011	0001	0100
21.5	34400	1146.	1111	1011	0001	0101
21.6	34560	1152.	1111	1011	0100	0000
21.7	34720	1157.	1111	1011	0100	0001
21.8	34880	1162.	1111	1011	0100	0100
21.9	35040	1168.	1111	1011	0100	0101
22.0	35200	1173.	1111	1011	0101	0000
22.1	35360	1178.	1111	1011	0101	0011
22.2	35520	1184.	1111	1011	0101	0110
22.3	35680	1189.	1111	1011	0101	0111
22.4	35840	1194.	1111	1110	0000	0010
22.5	36000	1200.	1111	1110	0000	0011
22.6	36160	1205.	1111	1110	0000	0110
22.7	36320	1210.	1111	1110	0000	0111
22.8	36480	1216.	1111	1110	0001	1000
22.9	36640	1221.	1111	1110	0001	1001
23.0	36800	1226.	1111	1110	0001	1100
23.1	36960	1232.	1111	1110	0001	1101
23.2	37120	1237.	1111	1110	0100	1000
23.3	37280	1242.	1111	1110	0100	1001
23.4	37440	1248.	1111	1110	0100	1100
23.5	37600	1253.	1111	1110	0100	1101
23.6	37760	1258.	1111	1110	0101	1000
23.7	37920	1264.	1111	1110	0101	1011
23.8	38080	1269.	1111	1110	0101	1110
23.9	38240	1274.	1111	1110	0101	1111
24.0	38400	1280.	1111	1111	0000	1010
24.1	38560	1285.	1111	1111	0000	1011
24.2	38720	1290.	1111	1111	0000	1110
24.3	38880	1296.	1111	1111	0000	1111
24.4	39040	1301.	1111	1111	0001	1010
24.5	39200	1306.	1111	1111	0001	1011
24.6	39360	1312.	1111	1111	0011	0100
24.7	39520	1317.	1111	1111	0011	0101
24.8	39680	1322.	1111	1111	0110	0000
24.9	39840	1328.	1111	1111	0110	0001
25.0	40000	1333.	1111	1111	0110	0100