

# MAGNETIC SPEED SENSORS

PRODUCT INFORMATION BULLETIN

PTI 3000

APRIL 1999  
MPC

## INTRODUCTION

The magnetic speed sensor indicates when ring gear teeth, or other ferrous projections, pass the tip of the sensor. Electrical impulses are induced within the coil and sent to the speed control unit. The signal from the magnetic speed sensor, teeth per second (Hz.), is directly proportional to engine speed.

## DESCRIPTION

The magnetic speed sensor is mounted in the ring gear case or flywheel bell housing of the engine. The threaded hole for the speed sensor should be perpendicular to the centerline of the crankshaft and centered over the ring gear teeth. A spot face should be present to provide a flat surface on which to anchor the locknut. With the engine stopped, screw the speed sensor in until

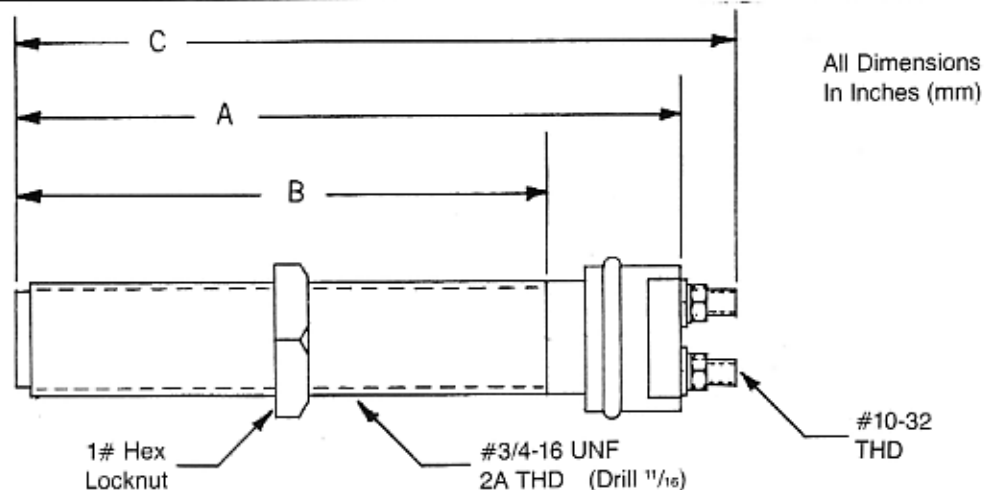
it touches a gear tooth, then back it out 3/4 of a turn and secure it with the locknut. Any ferrous gear may be used as long as the frequency and amplitude of the resulting signal meet the speed control unit specifications.

The wire leads should be twisted for their entire length from the magnetic speed sensor to the control unit. The leads may need shielding if they are longer than 10 ft. (3 m), or if external interference is present.

Do not connect either of the speed sensor leads to anything but the speed control unit used. The shield should not be connected at the speed sensor end.

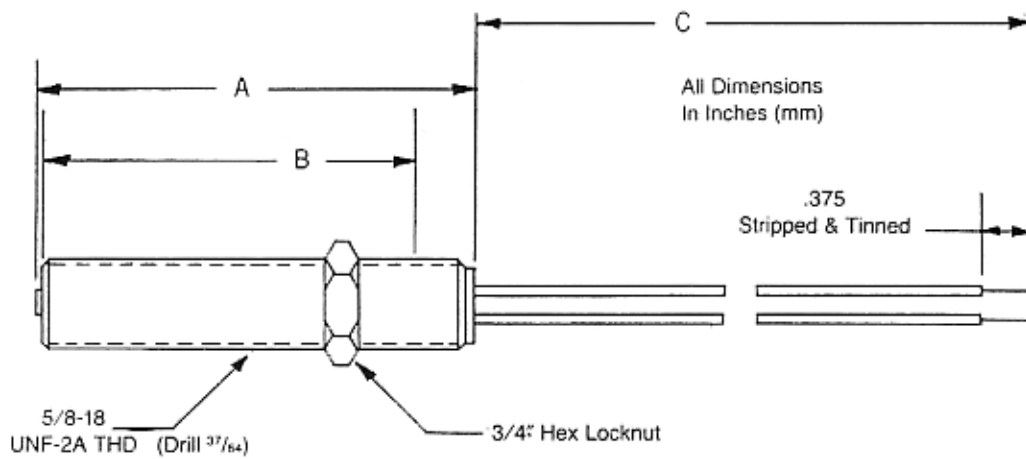
## SPECIFICATIONS

Dimensions .....	See Figure 1-4
Proximity to gear teeth .....	.025 - .035 in. (.64 - .89 mm)
Temperature Range .....	-65° to +225° F (-55° to +105° C)
Output .....	0.5 - 30 Volts RMS is recommended for input to control units (1 V RMS when cranking engine)
Resistance (Varies From Sensor to Sensor) .....	30 - 1200 ohms



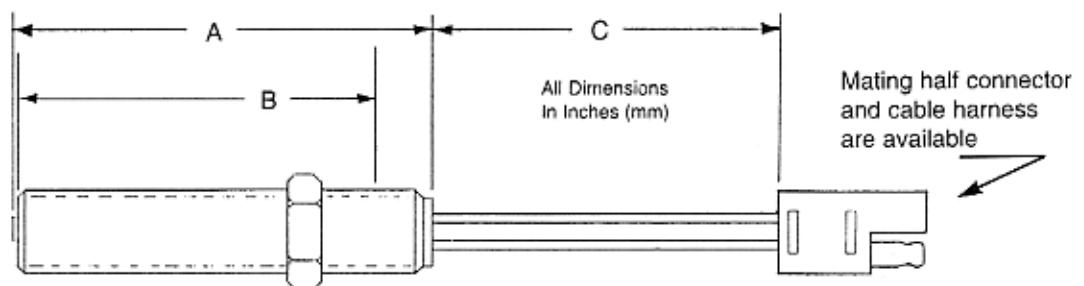
GAC Part Number	Pickup Length A	Thread Length B	Overall Length C
MSP 6718	4.375 (111)	3.5 (89)	4.71 (120)

Figure 1 Magnetic Speed Sensor with Stud Terminals (Includes weather boot.)



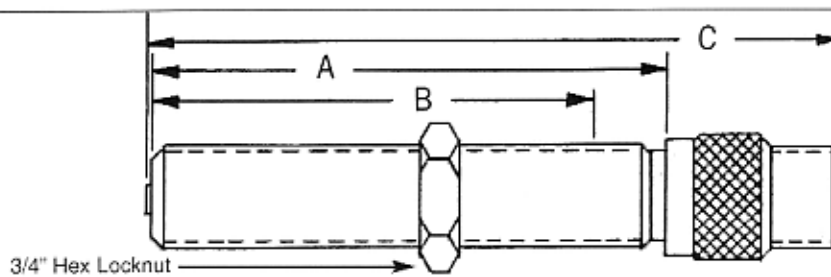
GAC Part Number	Pickup Length A	Thread Length B	Lead Length C	Thread Size	Drill Size
MSP 675	3.125 (79)	2.75 (70)	7.00 (178)	5/8-18 UNF-2A	37/64
MSP 676	5.0 (127)	4.625 (118)	12.00 (305)	5/8-18 UNF-2A	37/64
MSP 6719	2.375 (60)	2.00 (51)	6.00 (152)	5/8-18 UNF-2A	37/64
MSP 6720	3.875 (98)	3.50 (89)	4.500 (114)	5/8-18 UNF-2A	37/64
MSP 6729	2.7 (69)	2.25 (57)	72.00 (1829)	3/8-24 UNF-2A	.332
MSP 6730	1.7 (43)	1.25 (32)	72.00 (1829)	3/8-24 UNF-2A	.332
MSP 6731	4.0 (102)	3.55 (90)	72.00 (1829)	3/8-24 UNF-24	.332

Figure 2 Magnetic Speed Sensor with Wire Leads



GAC Part Number	Pickup Length A	Thread Length B	Lead Length C	Thread Size	Drill Size
MSP 6721	3.125 (79)	2.75 (70)	2.50 (64)	5/8-18 UNF-2A	37/64
MSP 6723	3.125 (79)	2.75 (70)	2.50 (64)	M16x1.5	14mm
MSP 6724	4.00 (102)	3.375 (86)	2.50 (64)	3/4-16 UNF-2A	11/16

Figure 3 Magnetic Speed Sensor with Plug Connector

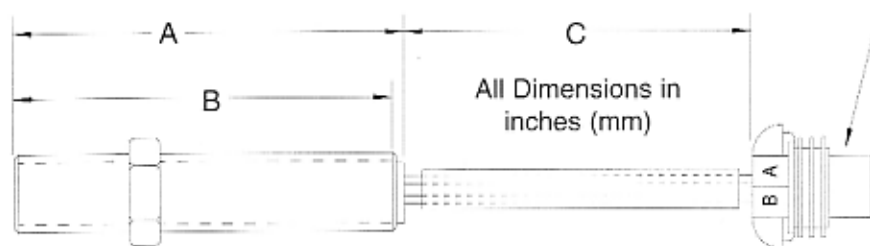


All Dimensions in inches (mm)

GAC Part Number	Pickup Length A	Thread Length B	Overall Length C	Length of Connector	Thread Size	Drill Size
MSP 677	3.125 (79)	2.75 (70)	4.25 (108)		5/8-18 UNF-2A	37/64
MSP 678	5.00 (127)	4.75 (121)	6.125 (156)		5/8-18 UNF-2A	37/64
MSP 679*	3.125 (79)	2.75 (70)	4.25 (108)	2.375 (60)	5/8-18 UNF-2A	37/64
MSP 6710*	5.00 (127)	4.75 (121)	6.125 (156)	2.375 (60)	5/8-18 UNF-2A	37/64
MSP 6714	3.125 (79)	2.875 (73)	4.25 (108)	M16x1.5		14mm
MSP 6715*	3.125 (79)	2.875 (73)	4.25 (108)	2.375 (60)	M16x1.5	14mm

\*Magnetic Speed Sensors are with mating connector, cable clamp, and strain relief.

Figure 4 Magnetic Pickups with MIL Connector



All Dimensions in inches (mm)

PACKARD CONNECTOR  
12052641 SHELL  
12084200-L TERMINALS  
12048087 SEALS

MATING HALF PACKARD CONNECTOR  
12162000 SHELL  
12045773 TERMINALS  
12048086 SEALS

GAC Part Number	Pickup Length A	Thread Length B	Overall Length C	Thread Size	Drill Size
MSP6728	3.125 (79)	2.75 (70)	6.5 (165)	5/8-18 UNF-2A	37/64
MSP6728C*	3.125 (79)	2.75 (70)	6.5 (165)	5/8-18 UNF-2A	37/64
MSP6732	3.125 (79)	2.75 (70)	3** (76)	5/8-18 UNF-2A	37/64
MSP6732C*	3.125 (79)	2.75 (70)	3** (76)	5/8-18 UNF-2A	37/64
MSP6733	3.125 (79)	2.75 (70)	6.5 (165)	5/8-18 UNF-2A	37/64
MSP6733C*	3.125 (79)	2.75 (70)	6.5 (165)	5/8-18 UNF-2A	37/64

\* Magnetic Speed Sensors are with Mating Connector.

\*\*MSP6732(C) has two independent coils, therefore, it is designed with two separate cables of the same length.

Figure 5 Magnetic Speed Sensor with Packard Connector

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