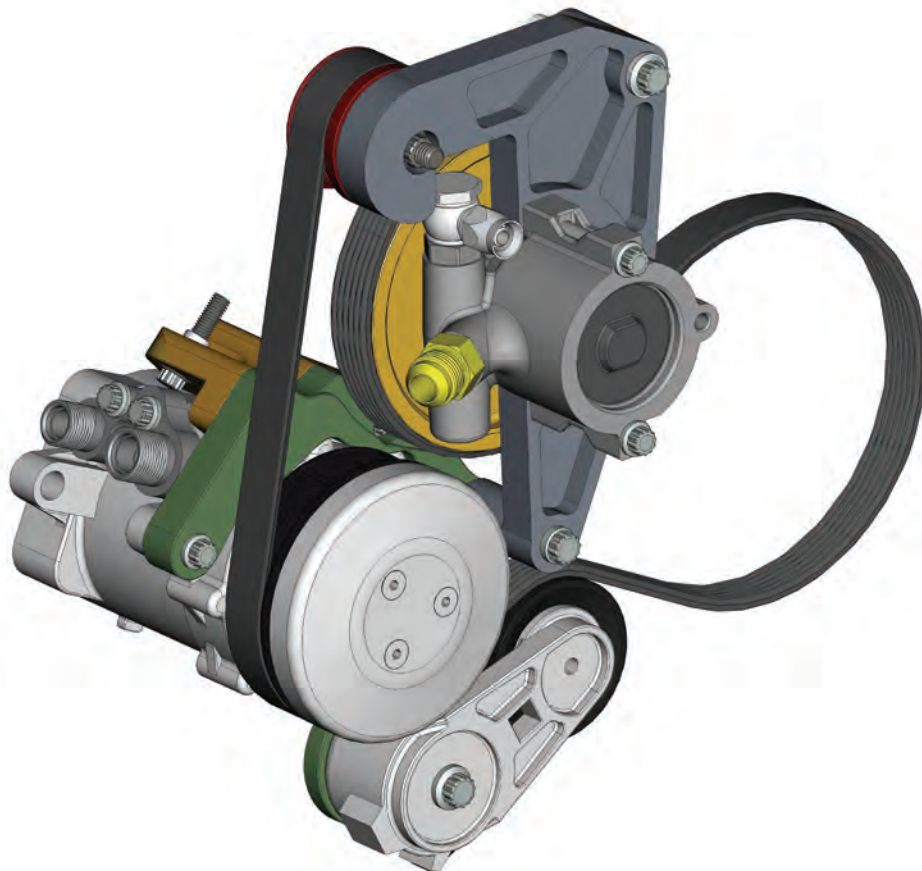




Boss / Coyote 5.0

**Compressor and Power Steering
Serpentine Drive System
(174020)**



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List of Items Needed to Install:

1. Tap: 10mm x 1.5
2. Drill Bit: Size Q
3. Permatex Anti-Seize Lubricant
4. 1/4" Diameter Rod or Bolt Approximately 2 1/2" Long

Important Notice—Please Read

Ford Motorsports recommends a heater control valve bypass to maintain continuous coolant flow through the right bank of Coyote engines. In-line bypass fitting (H-pipe) available separately (Vintage Air Part # 344470).

For Maximum System Performance, Vintage Air Recommends the Following:

Service Info:

Evacuate the system for 35-45 minutes with system components (Drier, compressor, evaporator and condenser) at a temperature of at least 85° F. On a cool day, the components can be heated with a heat gun OR by running the engine with the heater on before evacuating. Leak check and charge to specifications.

The Proper Amount of Refrigerant is Critical to Proper System Operation. Vintage Air Recommends Our System be Charged by Weight with a Quality Charging Station or Scale.

Refrigerant Capacity for Vintage Air Systems:

(For other systems, consult manufacturer's guidelines)

R134a System

Charge with 1.8 lbs. (28.8 oz.) or 816 grams of 134a refrigerant.

Lubricant Capacities:

New Compressor—No Additional Oil Needed.

Used Compressor—Consult Vintage Air.

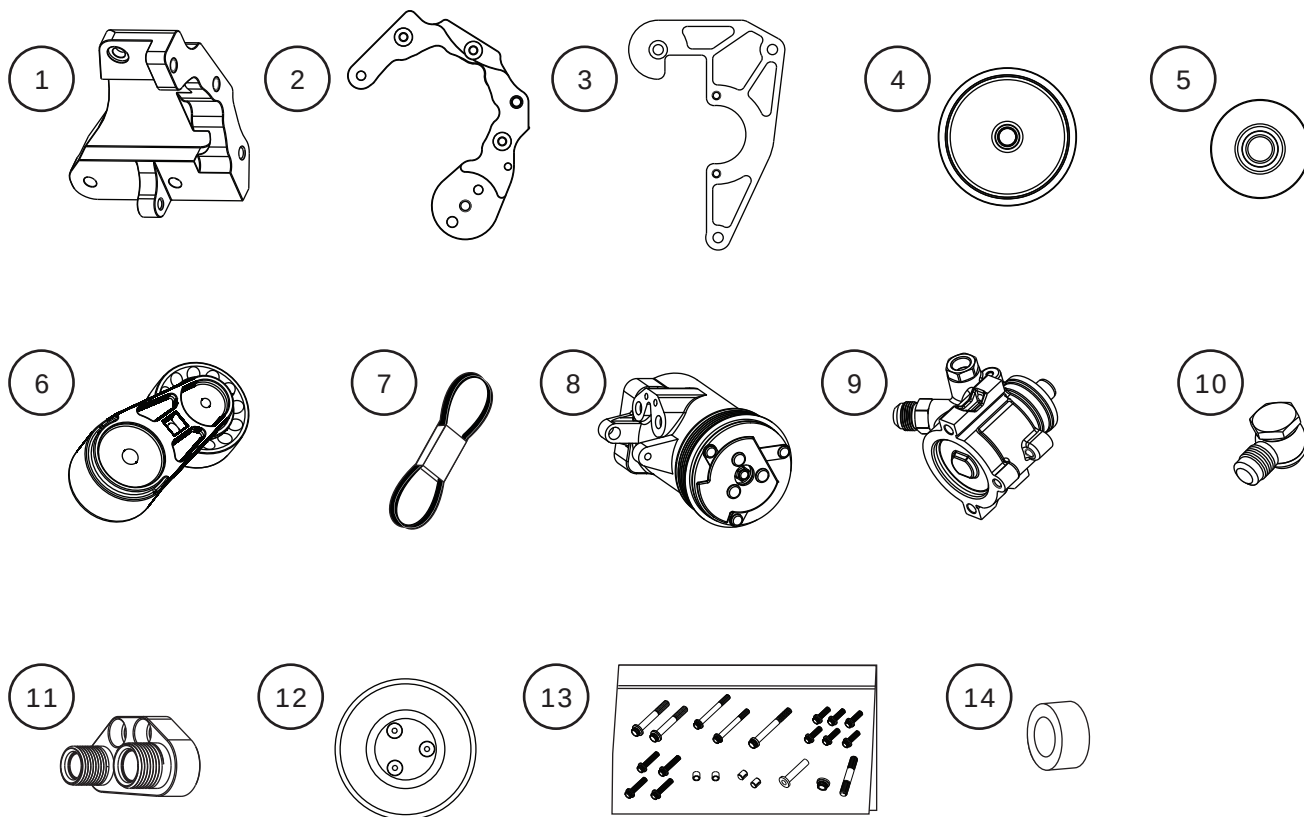


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Packing List: Coyote 5.0 FrontRunner™ with Power Steering Kit (174020)

No.	Qty.	Part No.	Description
1.	1	176016	Bracket, Compressor
2.	1	176015	Bracket, Tensioner
3.	1	176014	Bracket, Power Steering
4.	1	733015	Pulley, Hardcoat, Power Steering
5.	1	733016	Pulley with Bearing, Hardcoat, Idler
6.	1	39603-SCH	No Slack Belt Tensioner
7.	1	724850	Belt, 48.5" Serpentine
8.	1	04670-MTA	Compressor, 134a with Multi-Groove
9.	1	851003	Aluminum Power Steering Pump without Reservoir, with Stock Fitting
10.	1	852011	Banjo Pressure Fitting for Power Steering Pump
11.	1	045000	7B10 Compressor Block
12.	1	044093	Clutch Cover Assembly, Black
13.	1	199012	Hardware Kit
14.	1	180168	Spacer, Idler

**** Before beginning installation, open all packages and check contents of shipment. Please report any shortages directly to Vintage Air within 15 days. After 15 days, Vintage Air will not be responsible for missing or damaged items.**



**NOTE: Images may not depict actual parts and quantities.
Refer to packing list for actual parts and quantities.**



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Additional Parts & Accessories

The following additional parts and accessories are available for your Front Runner drive system:

Power Steering Accessories

DSE Hose Kit

852008 Early GM (1965-81)

852009 Mustang II

852012 Ford Fox Body (1979-2004)

(Fox Body rack & pinion has external hardlines)



Power Steering Hardline

852015 TiteFit Hardline

852016 (Black)



NOTE: Pump not included with hardline (Shown for reference only).

Flow Control Valve

852001 For Mustang II Rack & Pinion
(Reduces flow to 2.0 GPM)



Banjo Fitting

852010 For DSE Hose Kit
(High-pressure outlet)

Banjo Fitting

852011 For -6AN Fitting

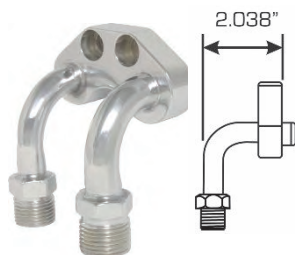


Other Accessories

Compressor Block Fittings

342310 Front Runner TiteFit Line Kit

342311 Front Runner TiteFit Line Kit,
fully polished as shown





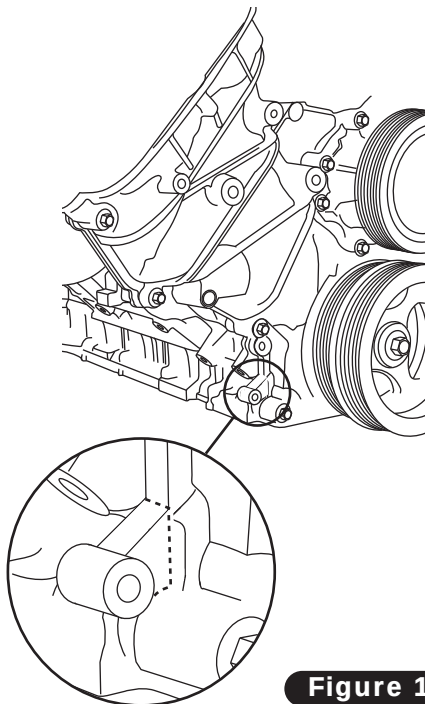
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WARNING: Anti-seize must be used on bolt threads, or mechanical locking will occur, preventing removal of nut from bolt and causing damage to fasteners.

Engine Block Modification

NOTE: Read instructions completely and thoroughly before installing the Vintage Air Front Runner System. Follow the instructions step-by-step for proper installation.

1. Disconnect the negative battery terminal.
2. Remove the tab shown on the lower left side of the timing cover (See Figures 1 and 1a, below).



Before Modification

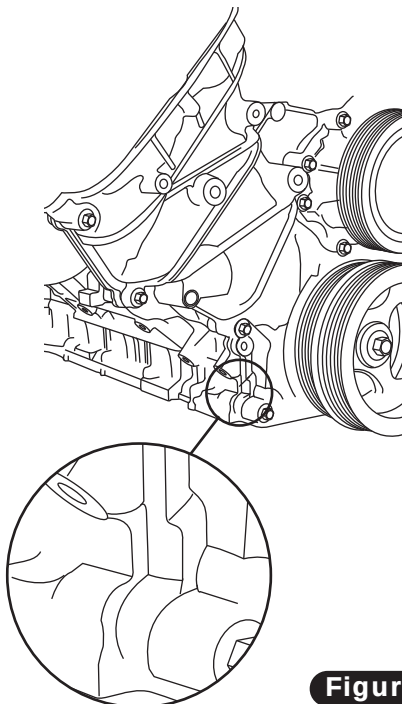


Figure 1a

Lower Bracket Assembly

1. Assemble the two-piece bracket as shown in Figure 1, below.

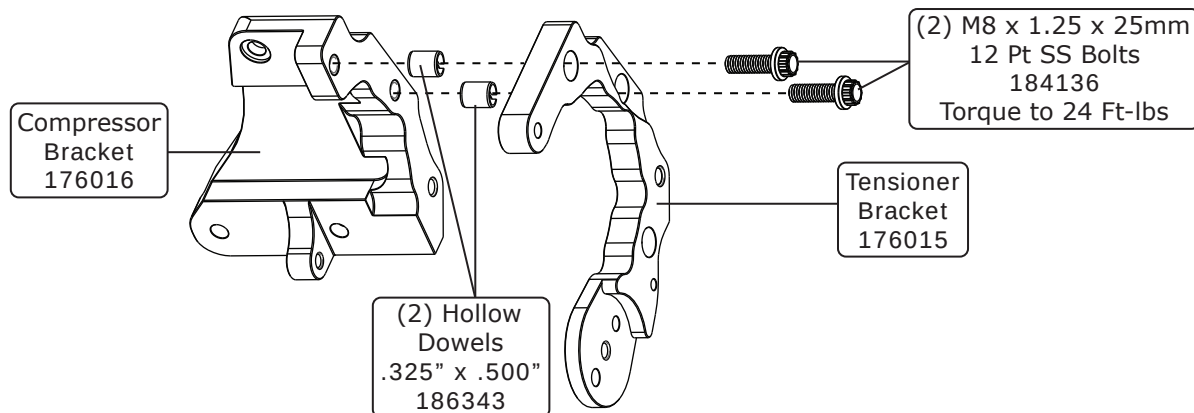


Figure 1



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WARNING: Anti-seize must be used on bolt threads, or mechanical locking will occur, preventing removal of nut from bolt and causing damage to fasteners.

Lower Bracket Installation

1. Mount the two-piece bracket assembly to the mounting bosses as shown in Figure 1, below.

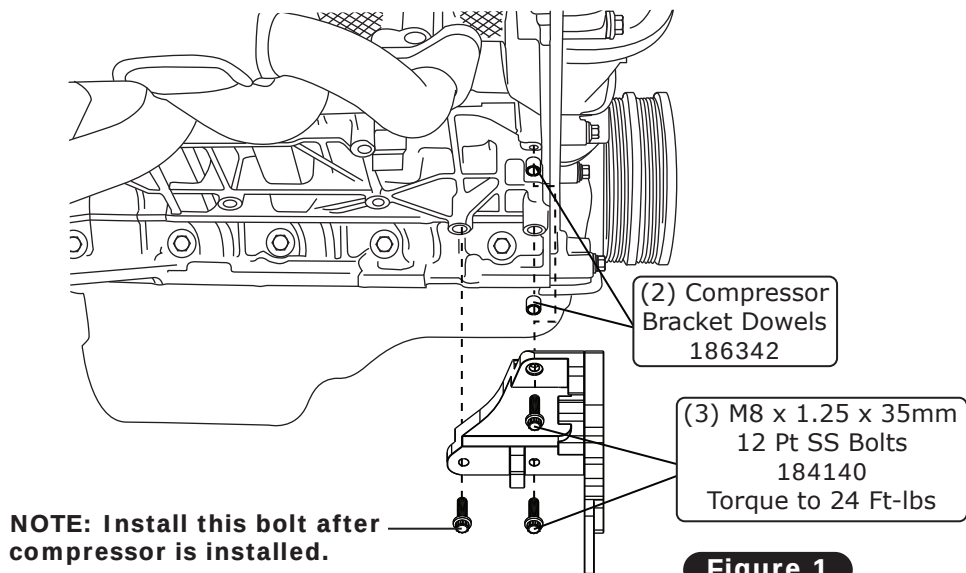


Figure 1

Belt Tensioner Installation

1. Install the serpentine belt tensioner onto the lower bracket using a M10 x 1.5 x 70 12 pt SS bolt (See Figure 1, below).

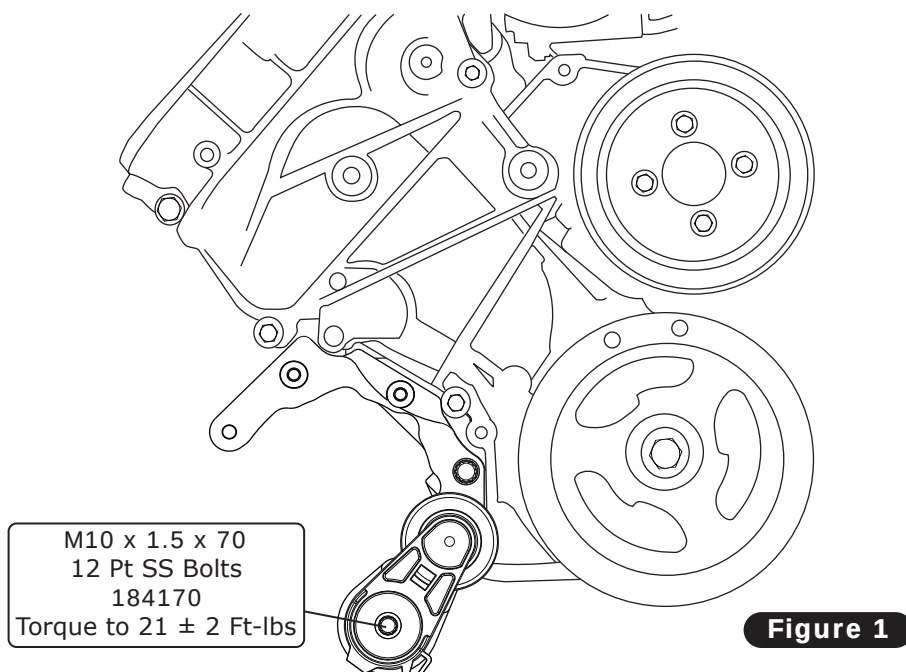


Figure 1



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WARNING: Anti-seize must be used on bolt threads, or mechanical locking will occur, preventing removal of nut from bolt and causing damage to fasteners.

Belt Tensioner Installation (Cont.)

2. Spring back the belt tensioner and lock it in place using a 1/4-20 bolt (See Figure 2, below).

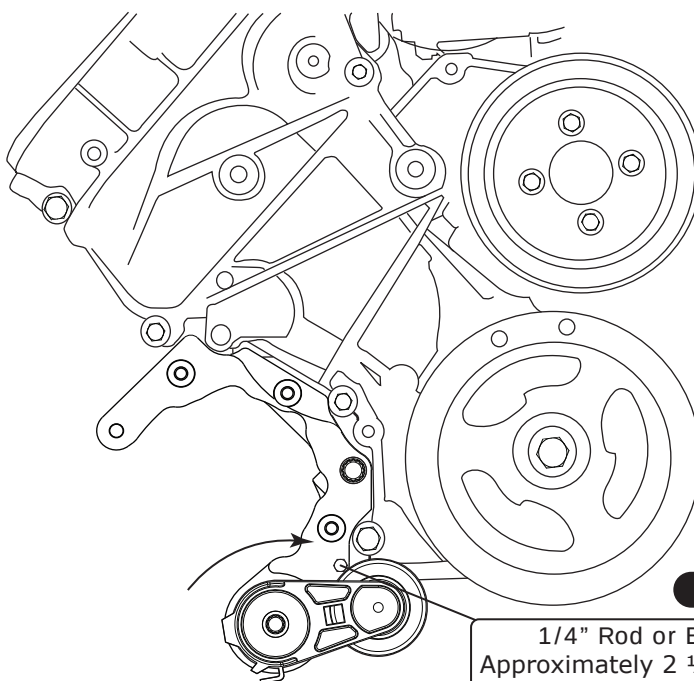


Figure 2

1/4" Rod or Bolt
Approximately 2 1/2" Long
(Not Supplied)

Upper Bracket Installation

1. As of this writing, three different timing cover configurations have been identified. They differ at the cast boss shown in Figure 1, below. One is left unmachined at the factory and will only need to be drilled and tapped. The second design has been machined with a step and M8 threads. On this design, the M8 threads will need to be drilled out and tapped to 10mm x 1.5, and the spacer (180168) installed over the machined boss. The third design is similar to the second, with the addition of stiffening ribs. These ribs will interfere with the idler pulley and must be carefully cut down to achieve adequate clearance (1/16").
2. Mount the upper bracket to the lower bracket assembly using a 3/8-16 x 3 1/4" 12 pt SS bolt (See Figure 1a, below).

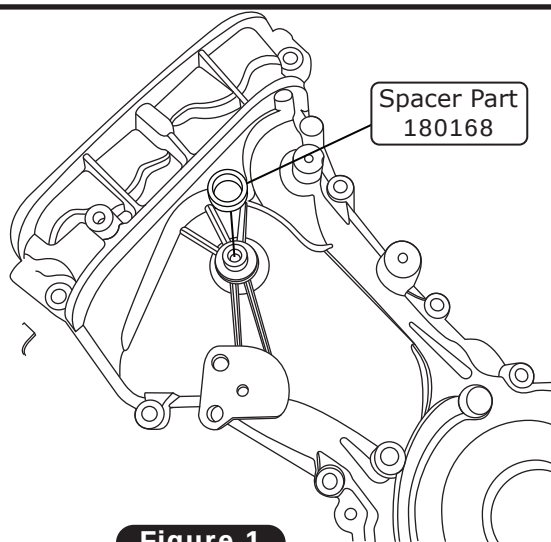


Figure 1

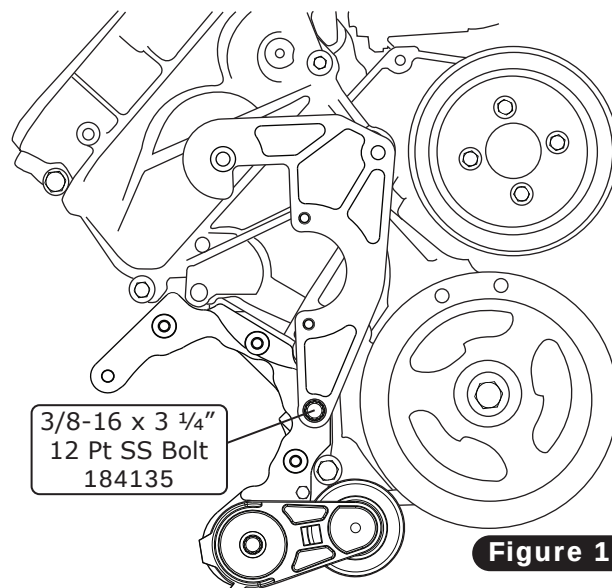


Figure 1a



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WARNING: Anti-seize must be used on bolt threads, or mechanical locking will occur, preventing removal of nut from bolt and causing damage to fasteners.

Upper Bracket Installation (Cont.)

3. Measure one inch from the tip of the drill bit and bottom of drill guide. Tape off the drill bit so as not to pass one inch mark (See Figure 2, below).
4. With the upper bracket secured to the lower bracket assembly, use the included guide and upper bracket to drill one inch into the mounting bosses (See Figure 3, below).
5. Remove the upper bracket.
6. Tap the mounting bosses using a 10mm x 1.5 tap (not supplied). **NOTE: Use bearing grease on holes when tapping and compressed air to clear out debris.**

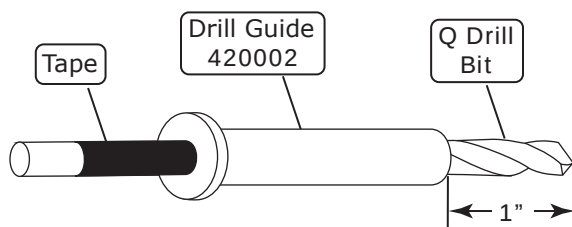


Figure 2

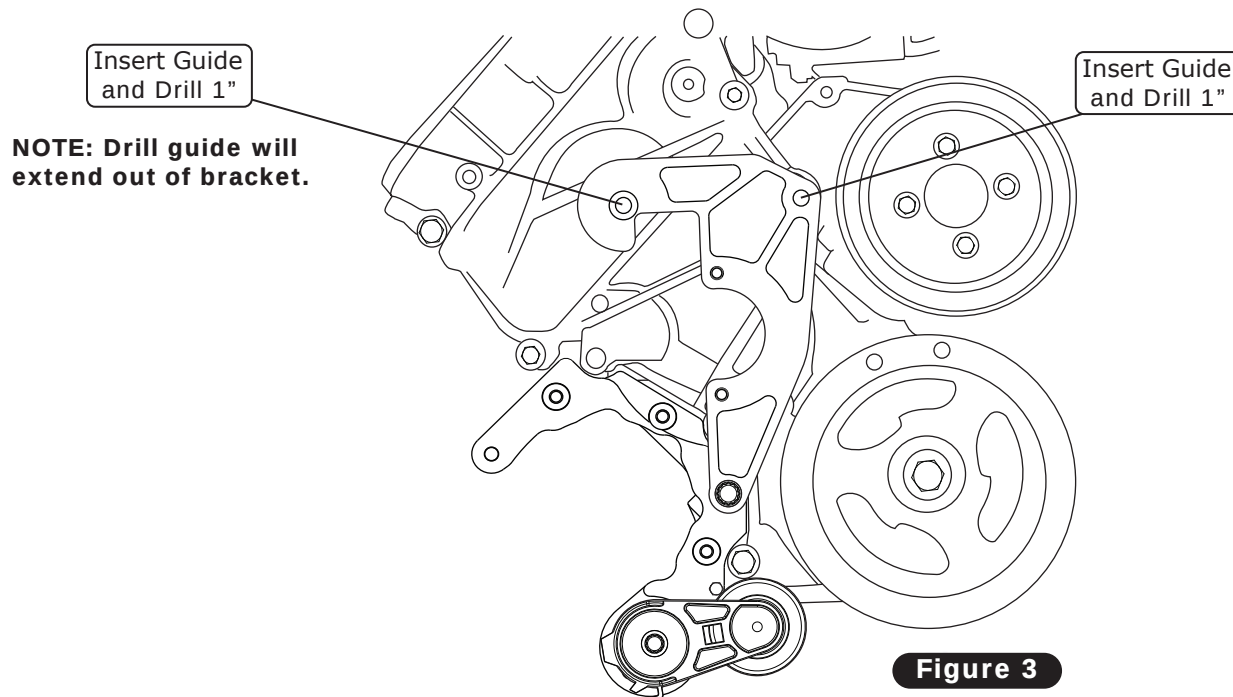


Figure 3



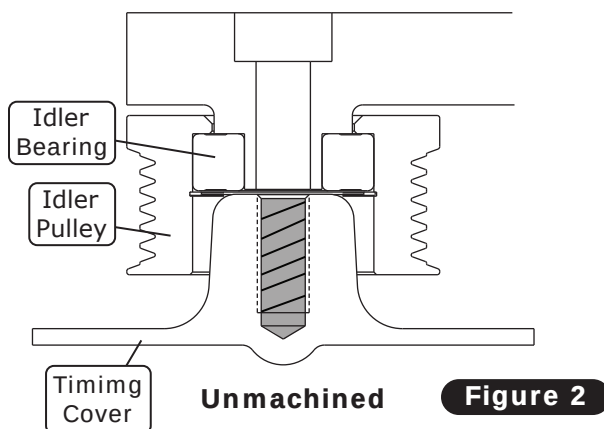
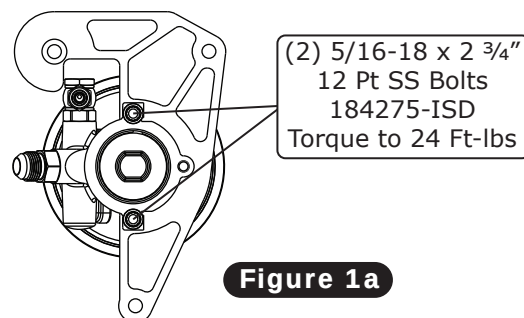
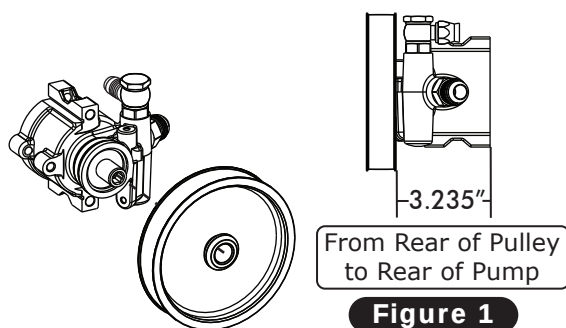
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Power Steering Pump, Pulley and Upper Bracket Installation

NOTES:

- A high-pressure fitting (not included with this kit) is required for hose connection. Several options are available through Vintage Air (See Additional Parts & Accessories on Page 4 of this instruction booklet).
 - TC power steering pump flow rate is 3.0 to 3.4 gallons per minute at 1500 RPM. For rack-and-pinion systems that require a lower flow rate, a flow control valve (Vintage Air #852001) may be purchased to reduce the flow to 2.0 GPM (See Additional Parts & Accessories on Page 4). Consult with the rack manufacturer to determine flow rate requirements.
 - To ensure the functionality and longevity of the power steering pump, proper bleeding of the system is required at the time of installation. See the attached document for power steering system bleeding instructions.
1. Using a power steering pump pulley installer, install the power steering pulley onto the power steering pump (See Figure 1, below). **NOTE: Pulley must be installed using proper tool (K-D Tool #2897 or equivalent). Do not attempt to hammer or press pulley onto power steering pump shaft. Installing the pulley using a press will destroy the pump!**
 2. Install the banjo fitting & clock as shown.
 3. Install the power steering pump assembly onto the upper bracket using (2) 5/16-18 x 2 3/4" 12 pt SS bolts (See Figure 1a, below).
 4. When properly installed, the idler bearing inner race will fit loosely over the upper bracket boss and seat on top of the unmachined timing cover boss or spacer (#180168), depending on design. When the M10 bolt is tightened, the inner race must be tightly clamped between the upper bracket and timing cover such that no play (other than slight play within the bearing itself) can be detected (See Figure 2, below, and Figure 3, Page 10).





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WARNING: Anti-seize must be used on bolt threads, or mechanical locking will occur, preventing removal of nut from bolt and causing damage to fasteners.

Power Steering Pump, Pulley and Upper Bracket Installation (Cont.)

5. Install the power steering pump assembly with belt onto the engine using a M10 x 1.5 x 65mm stud, a M10 x 1.5 12 pt nut, a M10 x 1.5 x 70 12 pt SS bolt, and a 3/8-16 x 3 1/4" 12 pt SS bolt. Torque bolts to 35 ft-lbs (See Figure 4, below).

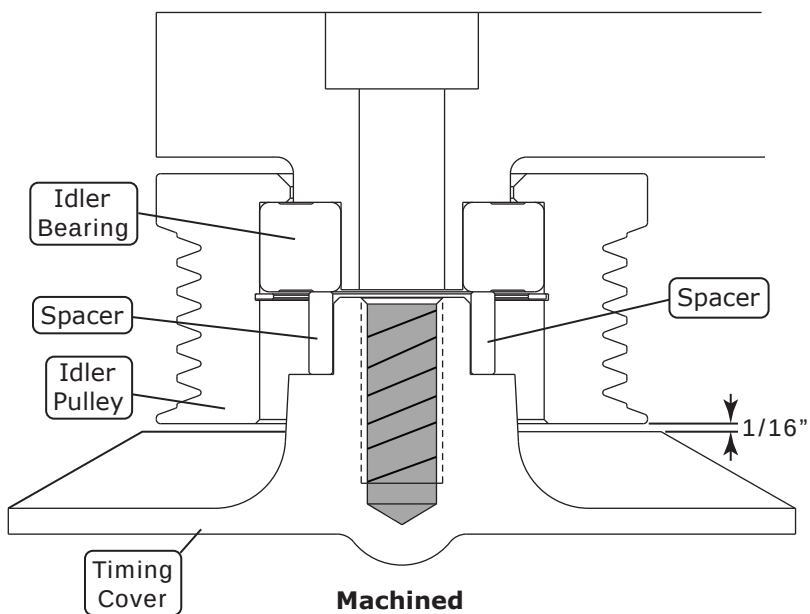


Figure 3

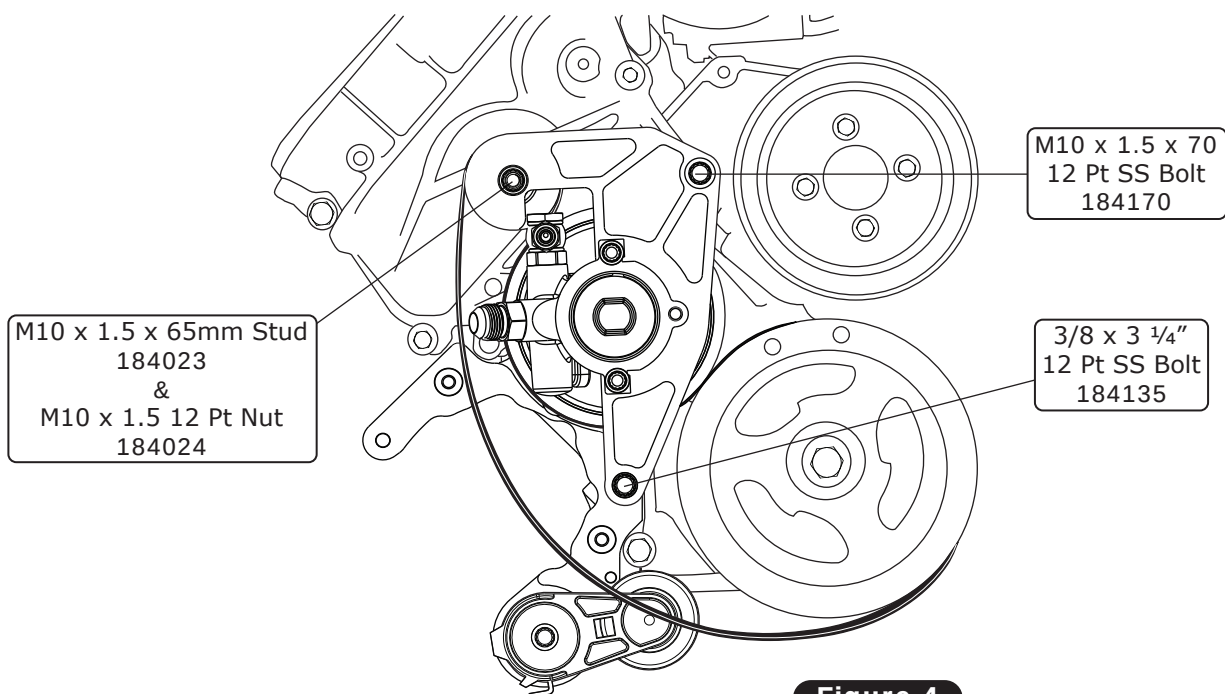


Figure 4

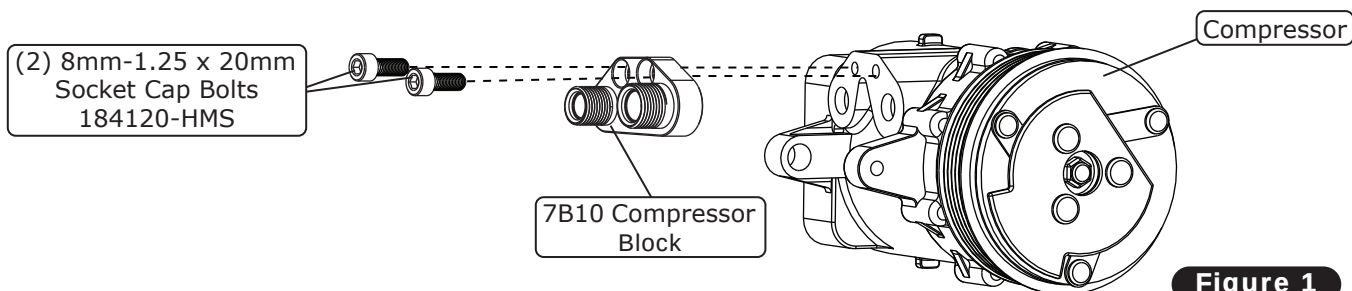


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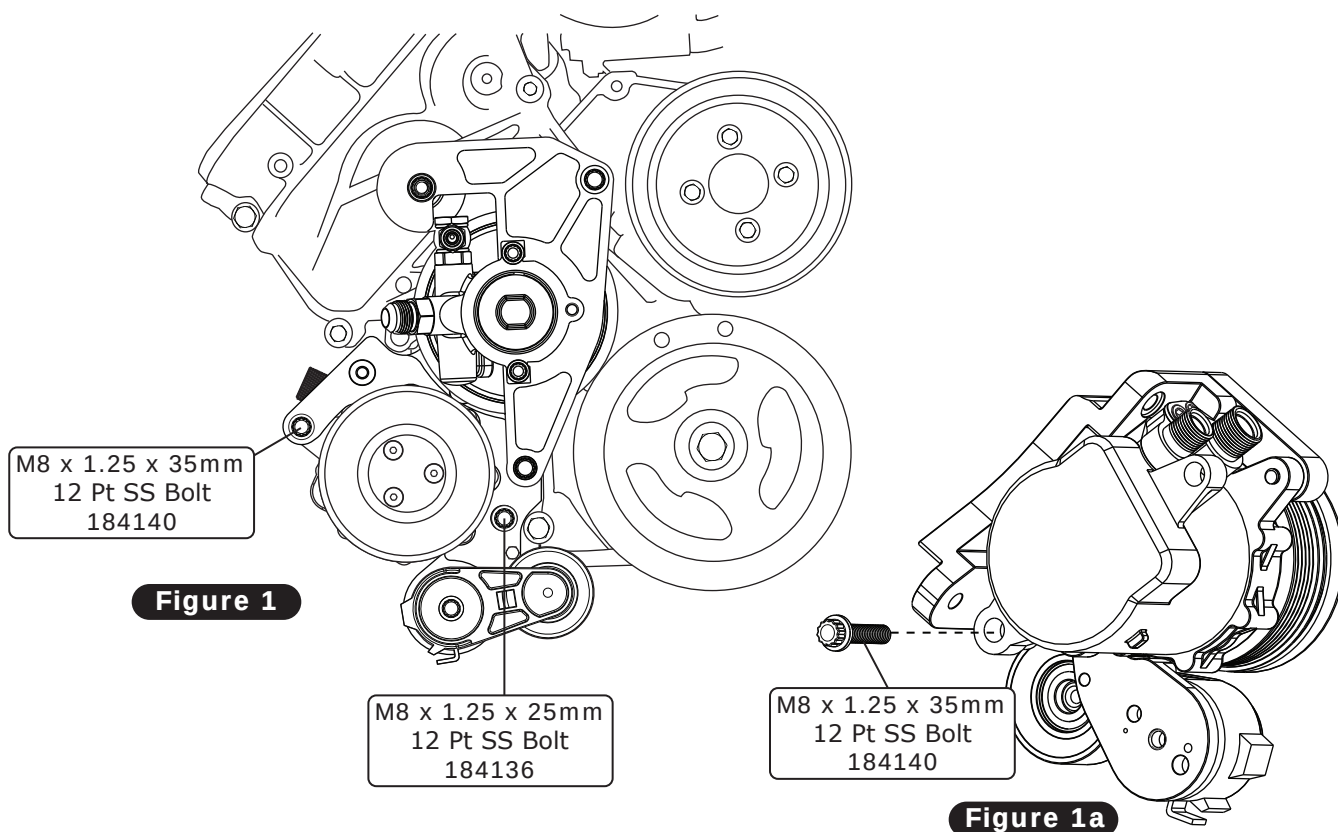
Compressor Fitting Installation

1. Install the compressor block onto the compressor as shown in Figure 1, below. **NOTE: Be sure not to dump oil out of compressor.**



Compressor Installation

1. Install the A/C compressor onto the lower bracket in a diagonal motion using (2) M8 x 1.25 x 35mm 12 pt SS bolts and (1) M8 x 1.25 x 25mm 12 pt SS bolt. Torque bolts to 24 ft-lbs (See Figures 1 & 1a, below).





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Belt Routing Installation

1. Route the belt over the pulleys, then remove the rod/holding bolt. Belt should be installed as shown in Figure 1, below.

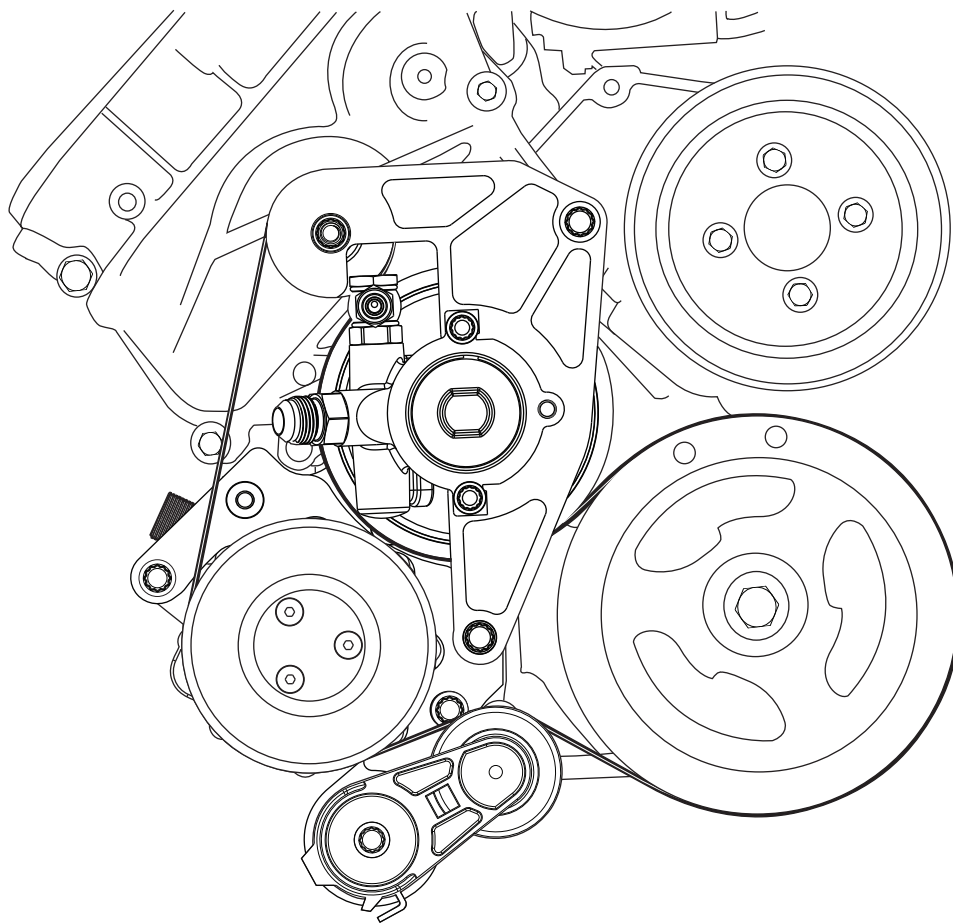


Figure 1

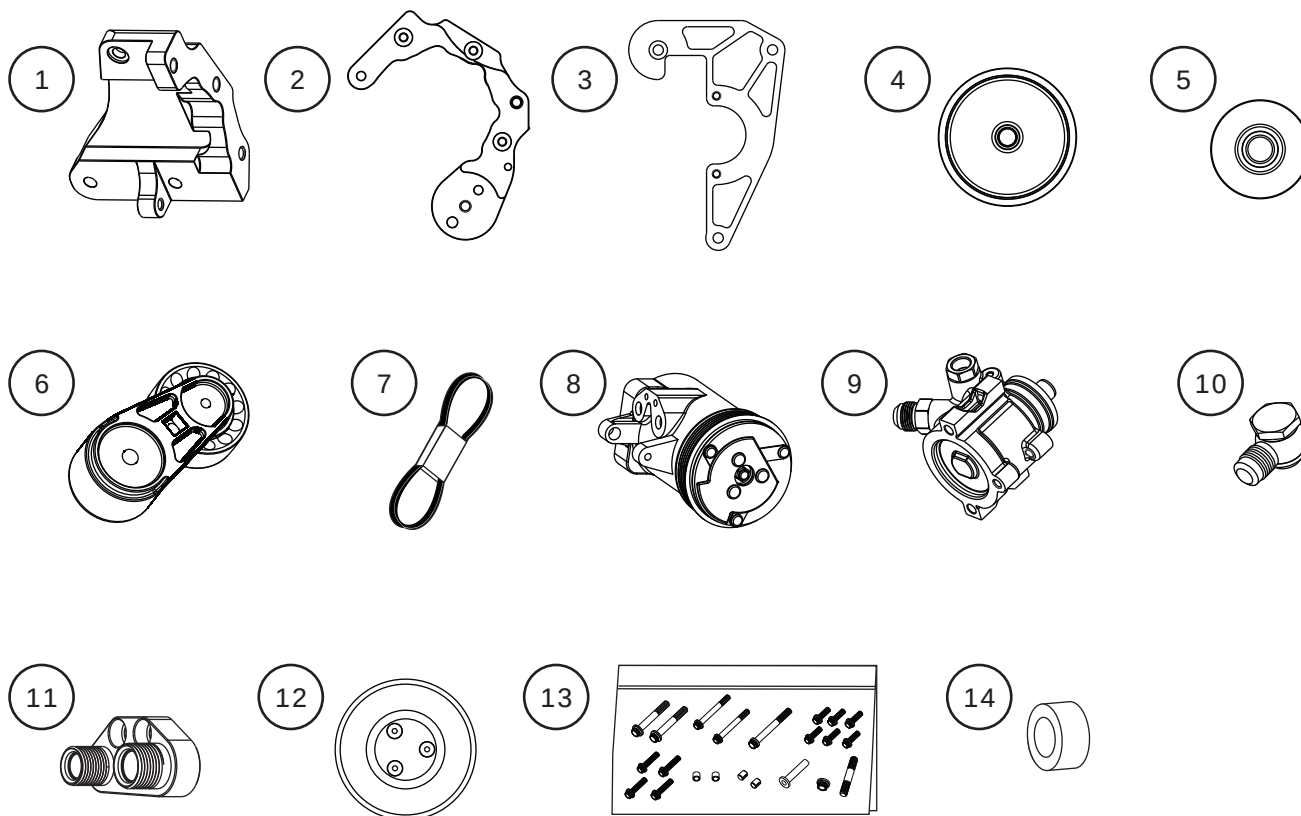


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No.	Qty.	Part No.	Description
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13.	1	199012	Hardware Kit
14.	1	180168	Spacer, Idler

Checked By: _____
Packed By: _____
Date: _____



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