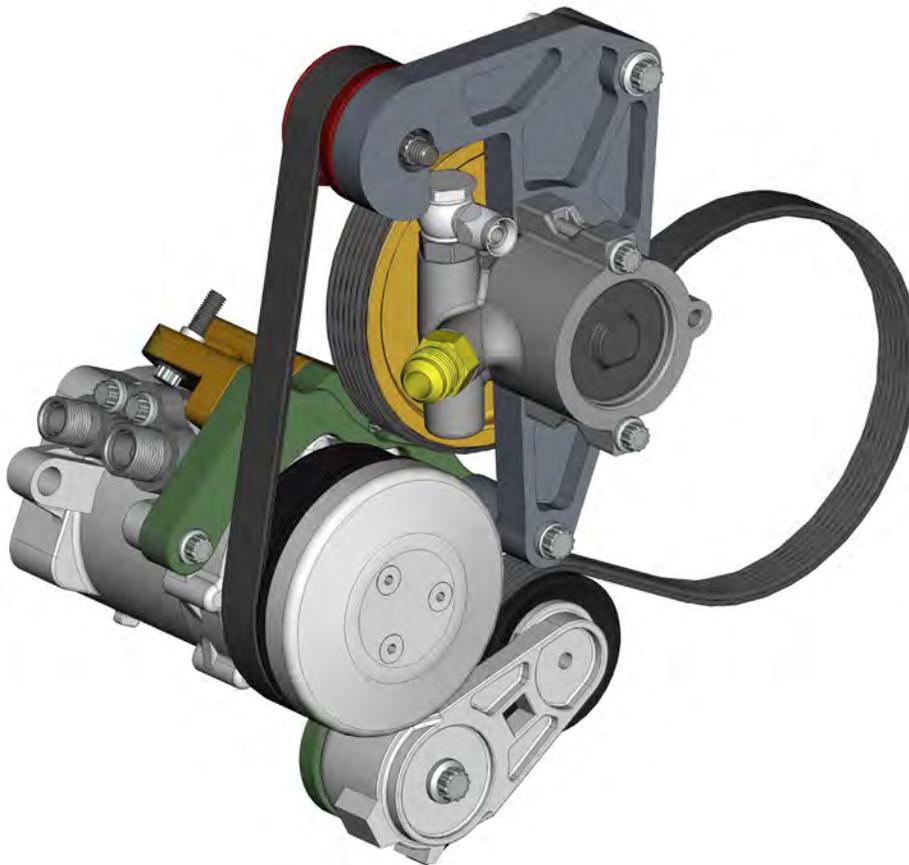




an ISO 9001:2015 Registered Company

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 Notes — 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. (1 lb., 12 oz.) of refrigerant.

Lubricant Capacities:

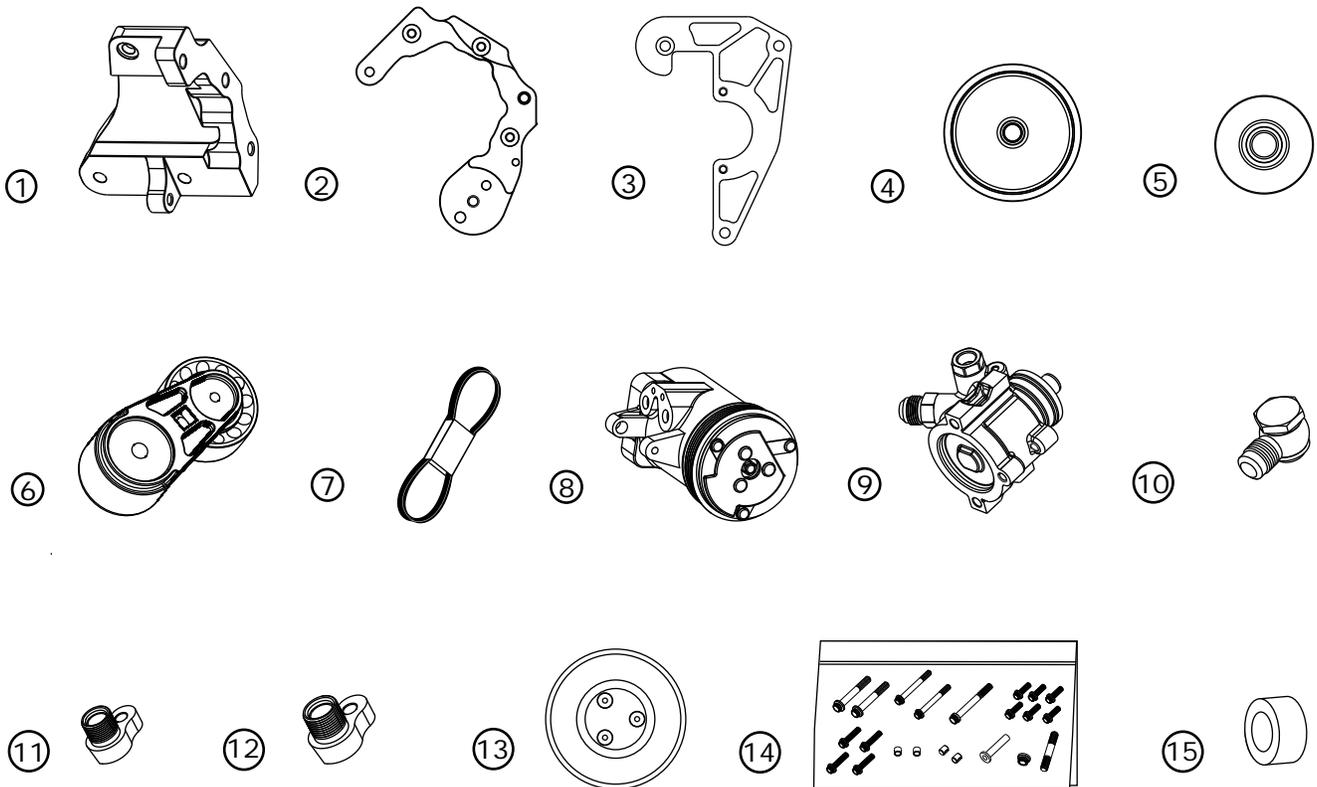
New Compressor—No Additional Oil Needed.
Used Compressor—Consult Vintage Air.



Packing List: Coyote 5.0 Front Runner with Power Steering (174020)

No.	Qty.	Part No.	Description
1.	1	176016	Front Runner Coyote 5.0 Compressor Bracket
2.	1	176015	Front Runner Coyote 5.0 Tensioner Bracket
3.	1	176014	Front Runner Coyote 5.0 Power Steering Bracket
4.	1	733015	Front Runner Coyote 5.0 Power Steering Pulley Hardcoat
5.	1	733016	Front Runner Coyote 5.0 Idler Pulley with Bearing Hardcoat
6.	1	39603-SCH	No Slack Belt Tensioner
7.	1	724850	48.5" Serpentine Belt
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	045008-VUR	O-ring Compressor Fitting #8
12.	1	045010-VUR	O-ring Compressor Fitting #10
13.	1	044093	Front Runner Clutch Cover Assembly—Black
14.	1	199012	Front Runner Coyote 5.0 Hardware Kit
15.	1	180168	Coyote Front Runner Idler Spacer

**** 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.**



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)



DSE Steering Hardline

852000 TiteFit Hardline



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





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.

NOTE:

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

Engine Block Modification

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

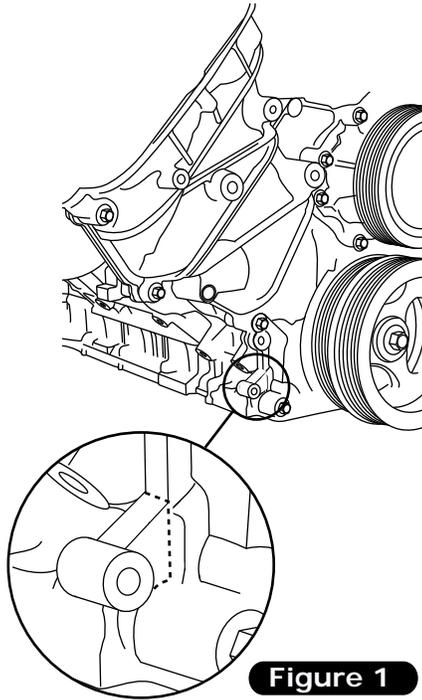


Figure 1

Before Modification

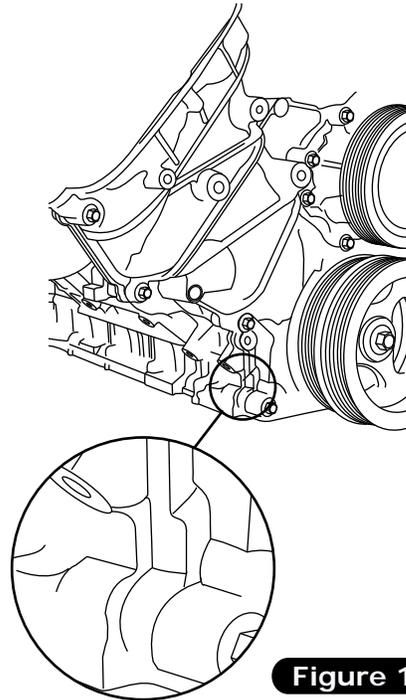


Figure 1a

After Modification

Lower Bracket Assembly

1. Assemble two-piece bracket as shown in Figure 2, below.

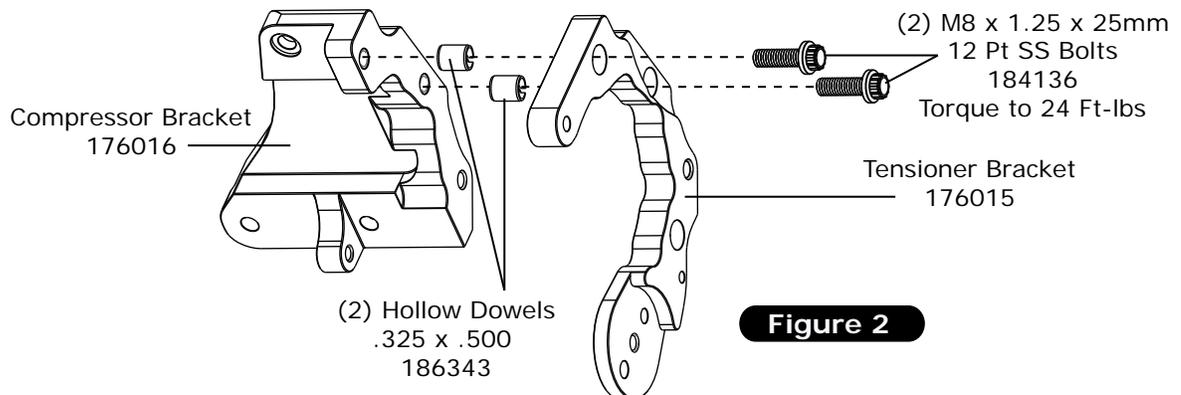


Figure 2



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 two-piece bracket assembly to mounting bosses as shown in Figure 3, below.

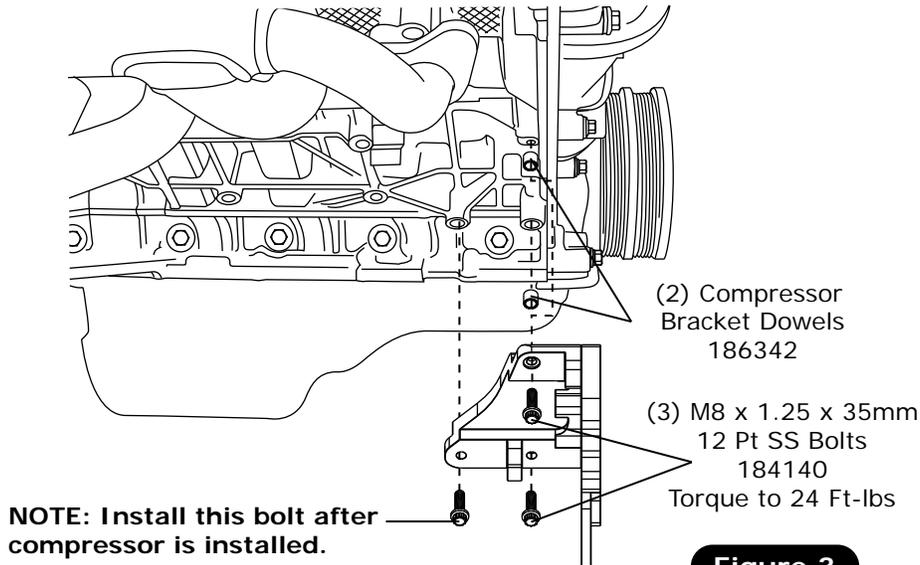


Figure 3

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 4, 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 upper bracket to lower bracket assembly using 3/8-16 x 3 1/4" 12 pt SS bolt (See Figure 4a, below).

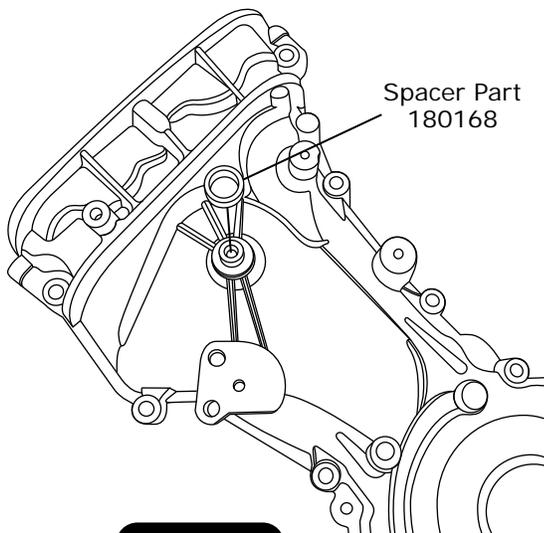


Figure 4

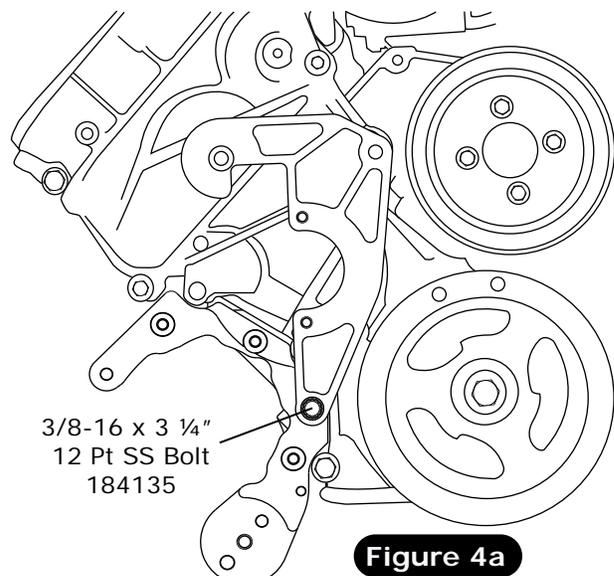


Figure 4a



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.)

1. Measure one inch from tip of drill bit and bottom of drill guide. Tape off drill bit so as not to pass one inch mark (See Figure 5, below).

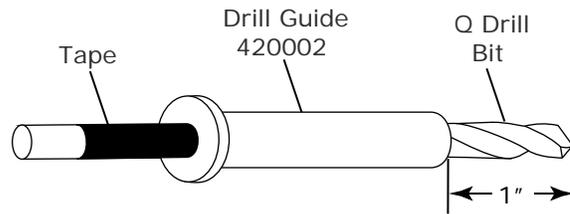


Figure 5

2. With upper bracket secured to lower bracket assembly, use included guide and upper bracket to drill one inch into mounting bosses (See Figure 6, below).
3. Remove upper bracket.
4. Tap mounting bosses using 10mm x 1.5 tap (not supplied). **NOTE: Use bearing grease on holes, when tapping, and compressed air to clear out debris.**

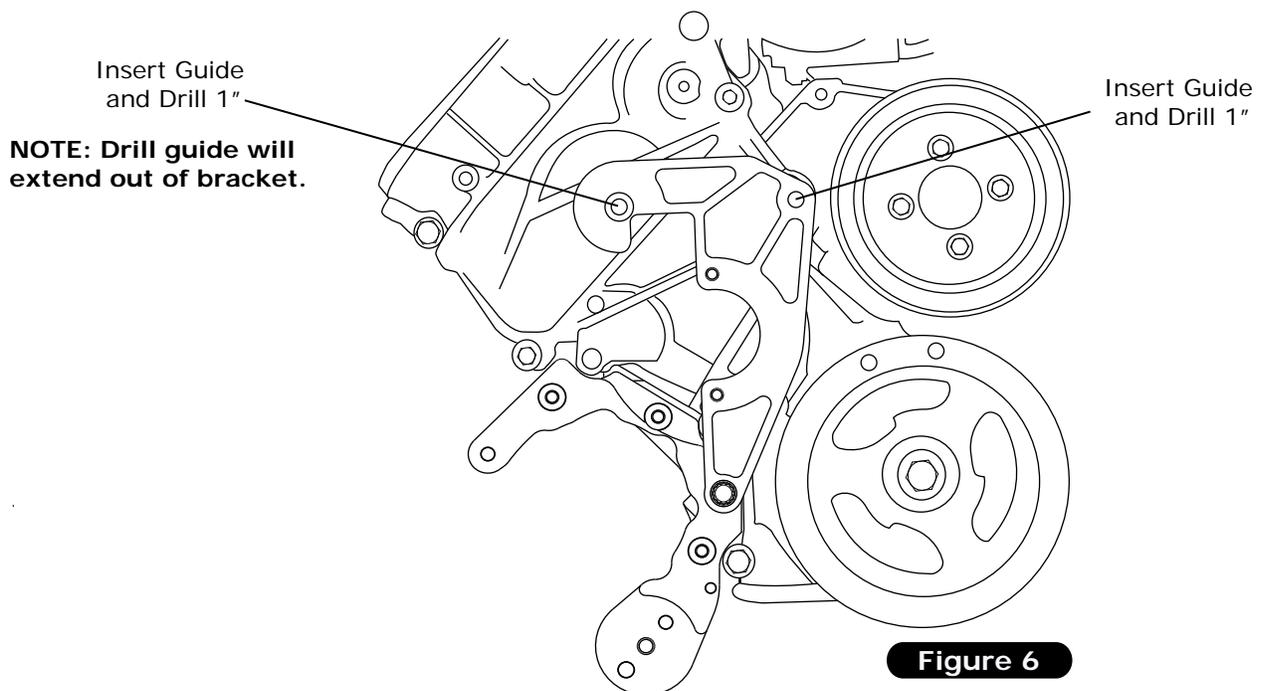


Figure 6



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

1. Install serpentine belt tensioner onto lower bracket with M10 x 1.5 x 70 12 pt SS bolt (See Figure 7, below)

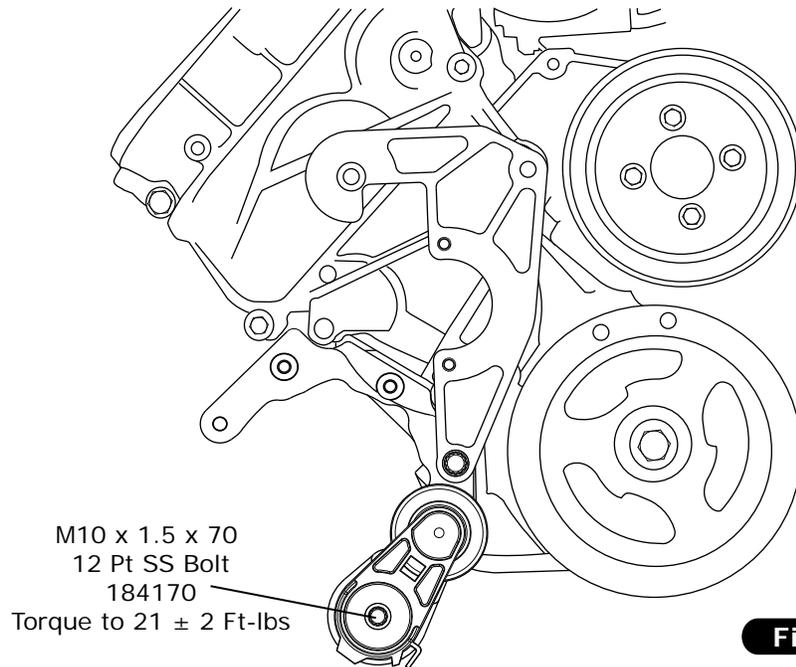


Figure 7

2. Spring back belt tensioner and lock in place using 1/4-20 bolt (See Figure 8, below).

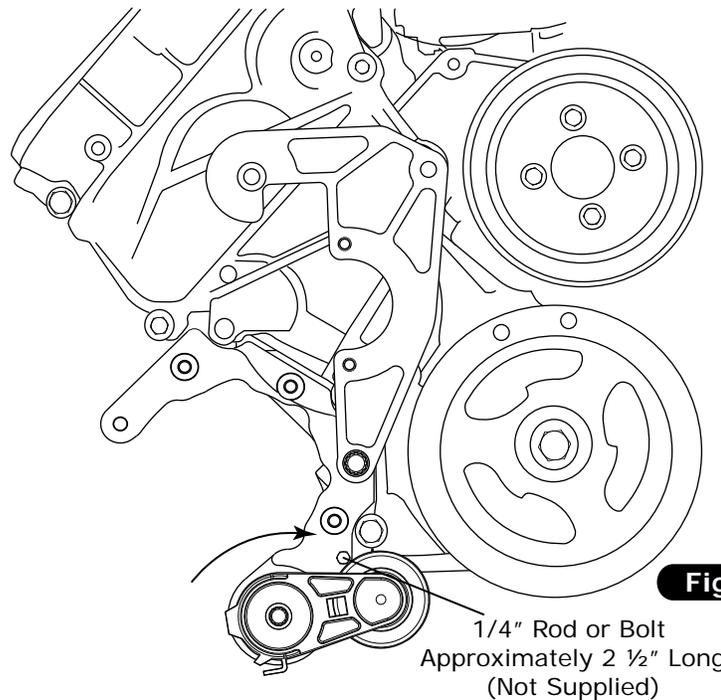


Figure 8



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

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 power steering pump (See Figure 9, 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 pulley using a press will destroy pump!**
 2. Install banjo fitting & clock as shown.
 3. Install power steering pump assembly onto upper bracket using (2) 5/16-18 x 2 3/4" 12 pt SS bolts (See Figure 9a, below).

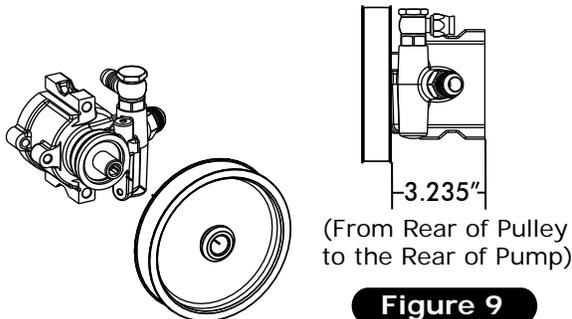


Figure 9

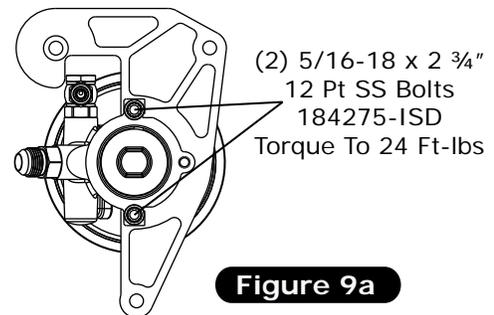


Figure 9a

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 10, below, and Figure 11, Page 10).

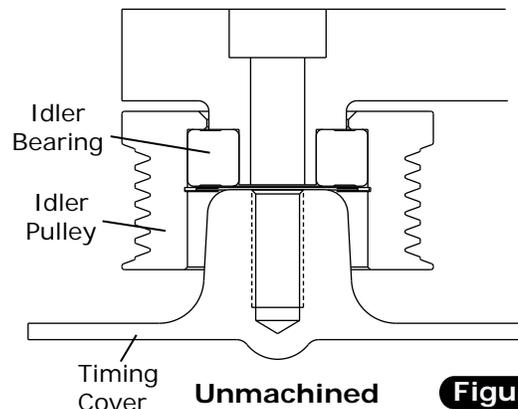


Figure 10



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.)

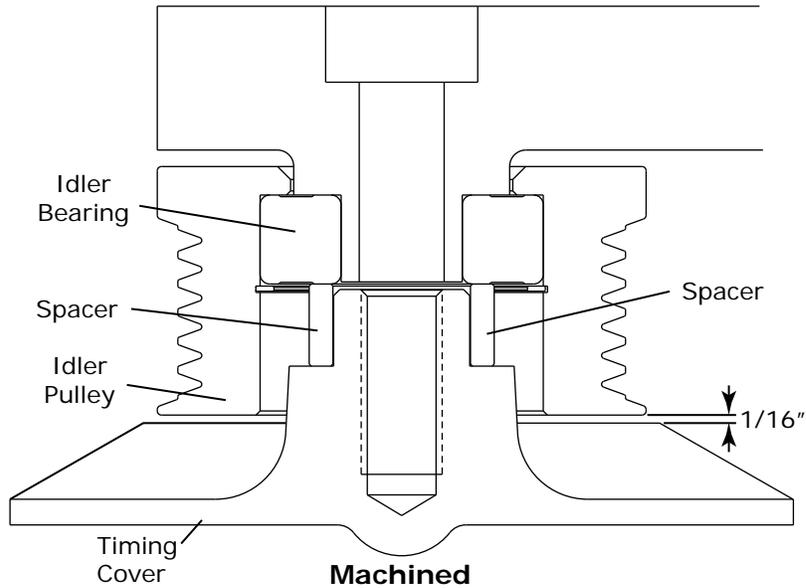


Figure 11

1. 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 12, below).

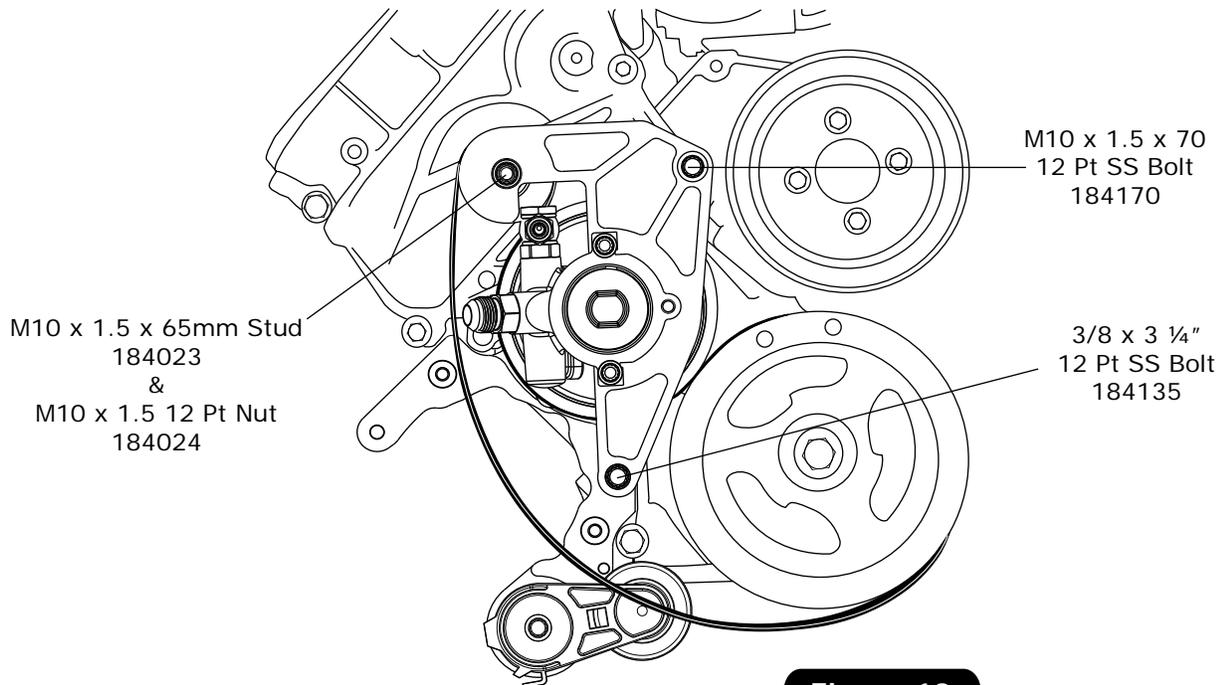


Figure 12



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.

Compressor Fitting Installation

1. Install A/C fittings onto compressor as shown in Figure 13, below. **NOTE: Be sure not to dump oil out of compressor.**

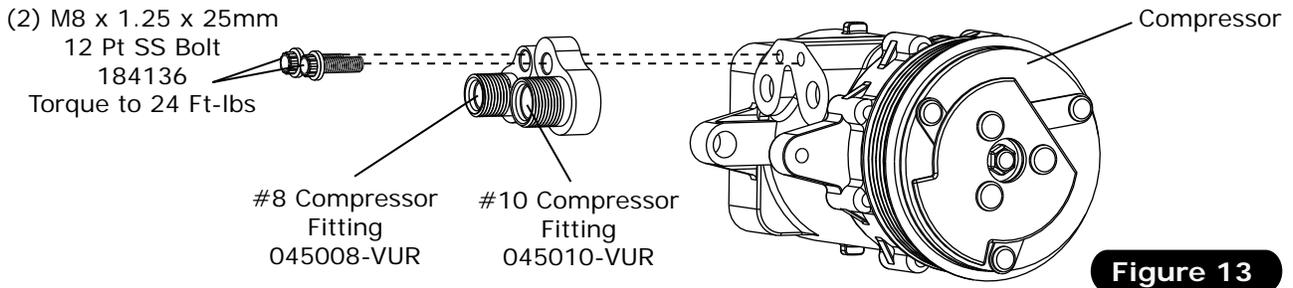


Figure 13

Compressor Installation

1. Install A/C compressor onto lower bracket in a diagonal motion using two M8 x 1.25 x 35mm 12 pt SS bolts and one M8 x 1.25 x 25mm 12 pt SS bolt. Torque bolts to 24 ft-lbs (See Figures 14 & 14a, below).

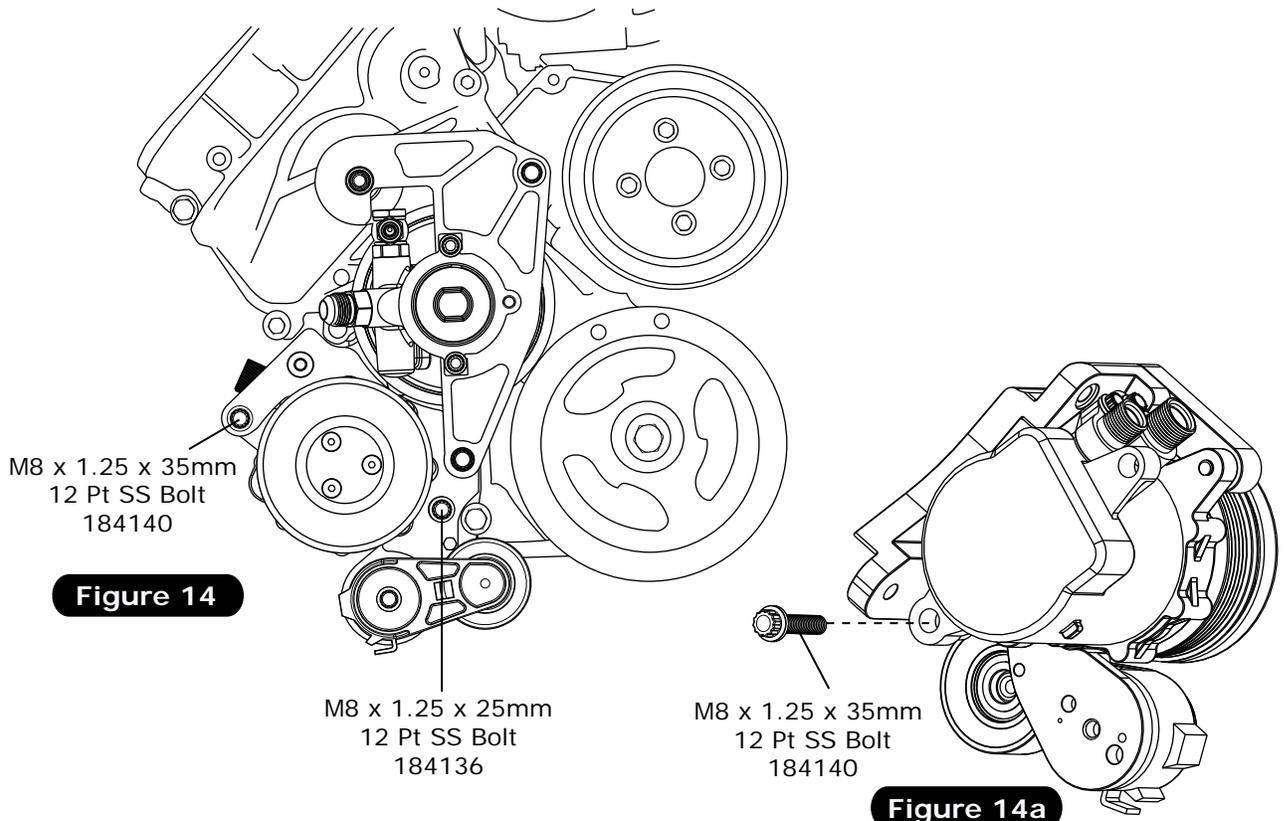


Figure 14

Figure 14a



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 Routing Installation

1. Route belt over pulleys and remove rod/holding bolt. Belt should be installed as shown in Figure 15, below.

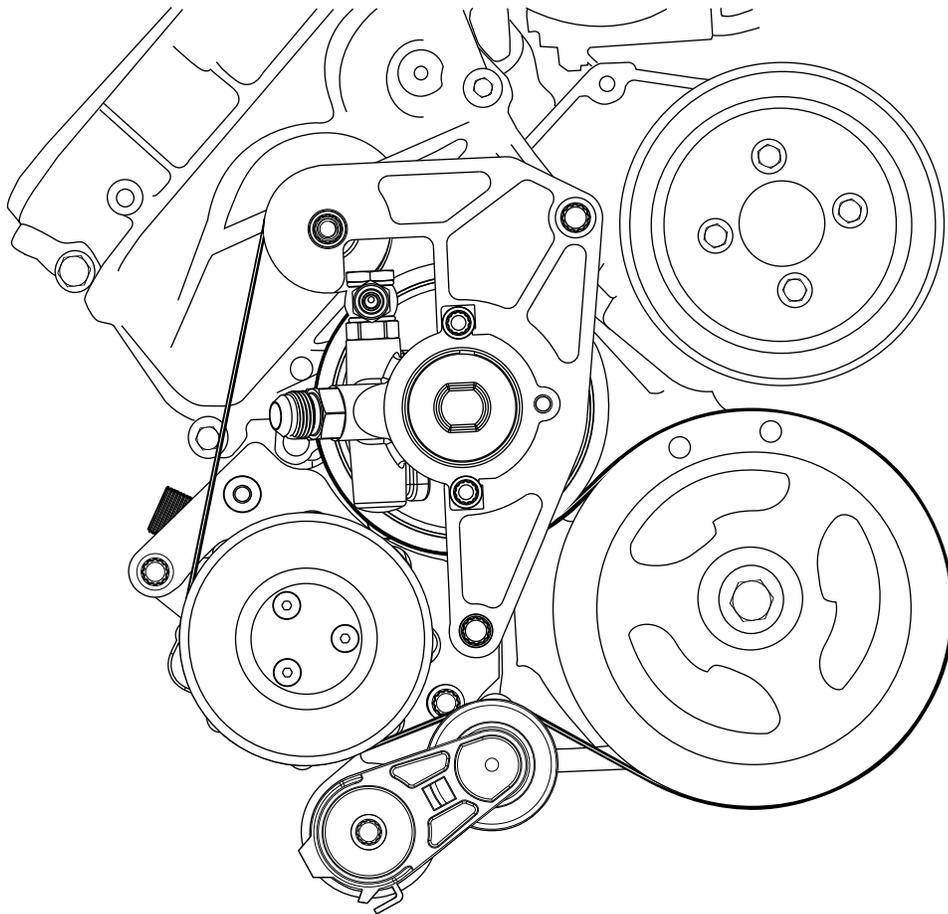


Figure 15



Packing List: Coyote 5.0 Front Runner with Power Steering (174020)

No.	Qty.	Part No.	Description
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4.	1	733015	Front Runner Coyote 5.0 Power Steering Pulley Hardcoat
5.	1	733016	Front Runner Coyote 5.0 Idler Pulley with Bearing Hardcoat
6.	1	39603-SCH	No Slack Belt Tensioner
7.	1	724850	48.5" Serpentine Belt
8.	1	04670-MTA	Compressor 134a with Multi-Groove
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13.	1	044093	Front Runner Clutch Cover Assembly—Black
14.	1	199012	Front Runner Coyote 5.0 Hardware Kit
15.	1	180168	Coyote Front Runner Idler Spacer

Checked By: _____
Packed By: _____
Date: _____

