VINTAGE AIR FRONT RUNNER ENGINE DRIVE SYSTEMS

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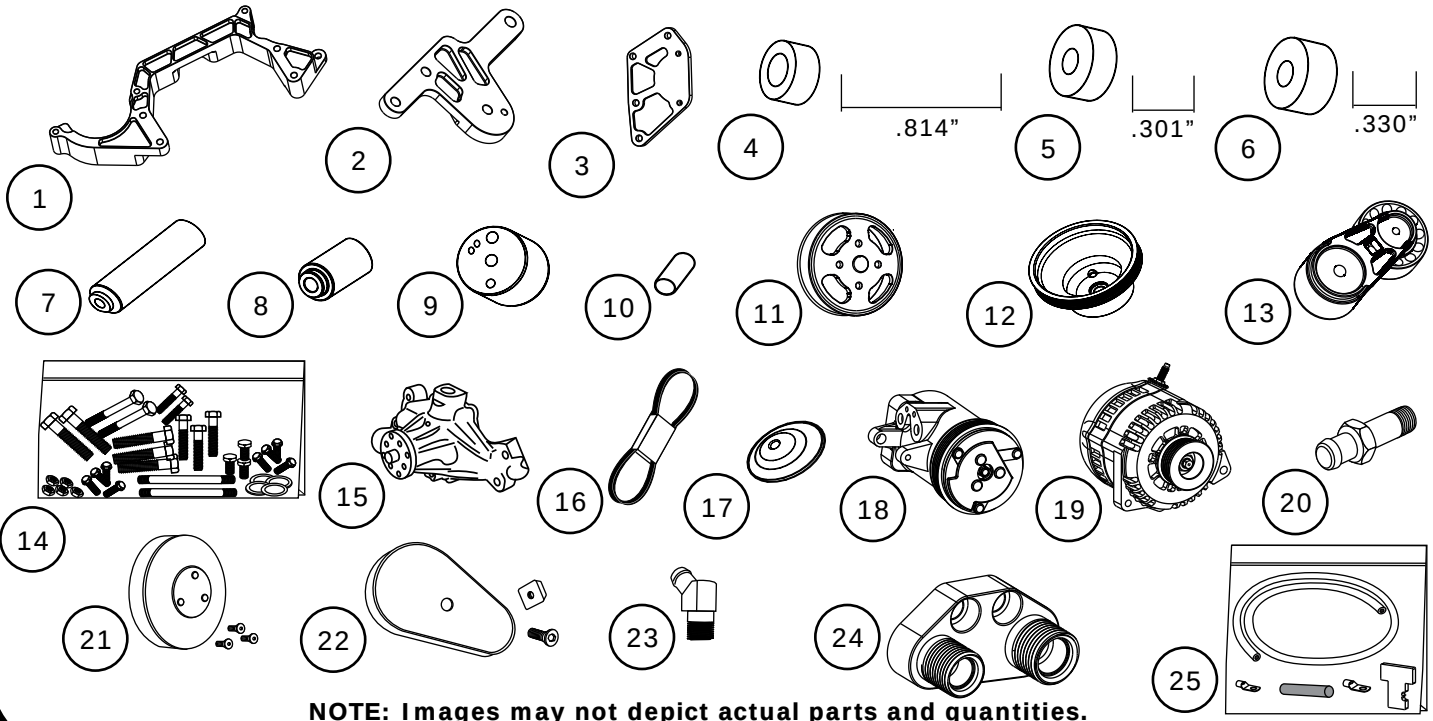
Packing List:
Anodized Front Runner™ Kit (175050-BCA)
Big Block Chevrolet without Power Steering

No.	Qty.	Part No.	Description	
1.	1	17634-BCH	Bracket, Main, Anodized	
2.	1	17635-BCH	Bracket, Tensioner, Anodized	
3.	1	17636-BCH	Bracket, Power Steering, Anodized	
4.	2	17619-BCH	Spacer, .814" Length, Anodized	
5.	1	17630-BCH	Spacer, .301" Length, Anodized	
6.	2	18023-SCH	Spacer, .330" Length, Anodized	
7.	1	17628-BCH	Standoff, Tensioner, Anodized	
8.	2	17629-BCH	Standoff, Power Steering Bracket, Anodized	
9.	1	17609-BCR	Tensioner Spacer	
10.	1	18601-PDS	Dowel Pin, 1/4" x 3/4"	
11.	1	73322-BCH	Pulley, Water Pump, Hardcoat	
12.	1	73313-BCH	Pulley, Crankshaft/Harmonic Balancer, Hardcoat	
13.	1	39603-SCH	Tensioner	
14.	1	19906-HCA	Hardware Kit	
15.	1	72213-BCR	Water Pump with 5/8" Pilot (Reverse Rotation)	
16.	1	726301	Belt, 63 3/8" Serpentine	
17.	1	17610-SCH	Washer, Hat	
18.	1	046768-MTR	Compressor, 6.1 CID Drilled Multi-Groove, Standard	
19.	1	040707	Alternator, 170-Amp, Standard	
20.	1	50101-SUR	Heater Fitting, 5/8" x 1/2" NPT x 2 7/8", Stainless Steel	
21.	1	044093	Clutch Cover Assembly, Anodized	
22.	1	044091	Tensioner Cover Assembly, Anodized	
23.	1	501012	Heater Fitting, 5/8" x 1/2" NPT, 45°, Stainless Steel	
24.	1	045000	Compressor Block, 7B10	
25.	1	220013	Alternator Cable Kit	

Checked By: _____

Packed By: _____

Date: _____



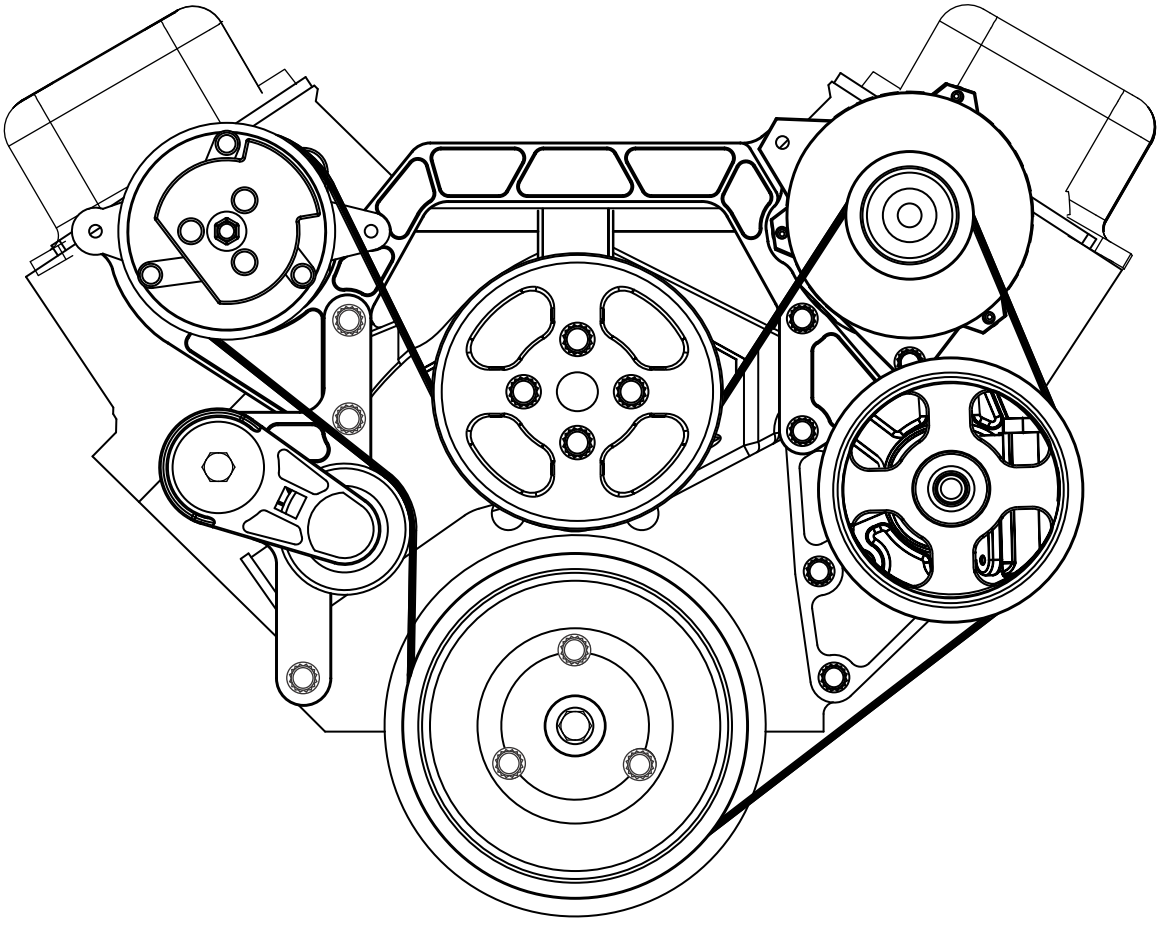
NOTE: Images may not depict actual parts and quantities.
Refer to packing list for actual parts and quantities.

VINTAGE AIR
FRONT RUNNER
ENGINE DRIVE SYSTEMS

Big Block Chevrolet

Serpentine Drive System

with & without **Power Steering**



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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)

Steel Heater Hose Nipple
1/2" NPT for easy access on Chevrolet Front Runner drive installations.

501002-SUR Stainless Standard (1 3/16" length)
50101-SUR Stainless Long (2 7/8" length)
501012 Stainless 45° Angled (Included with Big Block Chevrolet kit)
501011 Extended 45° Angled

DSE Steering Hardline
852000 TiteFit Hardline

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

Water Neck Riser
Designed with 1/2" NPT thread port. Aluminum water neck riser allows installation of a sending unit or connection of a pressure-side heater line or hose when you are unable to use existing manifold outlets. Fitting sold separately. Designed for Small Block & Big Block Chevrolet.

706001-VCQ Water Neck Riser (Top)
706003 Water neck riser with 1/2" NPT front side port location and rear corner port locations.

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

SuperStat Pre-Drilled Thermostat
Allows engine temperature to stabilize faster. Precisely controls amount of coolant flow, which means system cycles less often than conventional thermostats. Stainless spring.

70700-VUT 160° Thermostat
70705-VUT 180° Thermostat
70710-VUT 195° Thermostat

Banjo Fitting
852010 For DSE Hose Kit (High-pressure outlet)
Banjo Fitting
852011 For -6AN Fitting

Compressor Block Fittings
342310 Front Runner TiteFit Line Kit
342311 Front Runner TiteFit Line Kit, fully polished as shown

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Important Notice—Please Read

For Maximum System Performance, Vintage Air Recommends the Following:

The compressor and alternator supplied with this kit are grounded first via their respective mounting brackets, then to the engine block, and finally to the vehicle chassis. Inspect all mating surfaces to ensure a clean, metallic surface. This may require the removal of paint, corrosion or anodizing from several locations in order to complete the grounding path. In addition, the supplied 4 AWG cable or equivalent must be used to both ensure proper charging and prevent damage and/or fire.

After installation, it will be necessary to confirm the quality of the ground and power paths by measuring voltage drop between the electrical components and the battery terminals while operating the alternator at or near its rated load (refer to the diagram provided with the alternator installation instructions).

Refrigerant Capacities:

Vintage Air System: 1.8 lbs. (1 lb., 12 oz.) of **R134a**, charged by weight with a quality charging station or scale. **NOTE: Use of the proper type and amount of refrigerant is critical to system operation and performance. Vintage Air systems are designed to operate with R134a refrigerant only. Use of any other refrigerant could damage your A/C system and/or vehicle, and possibly cause a fire, in addition to potentially voiding the warranties of the A/C system and its components.**

Other Systems: Consult manufacturer's guidelines.

Lubricant Capacities:

New Vintage Air-supplied Sanden Compressor: No additional oil needed (Compressor is shipped with proper oil charge).

All Other Compressors: Consult manufacturer (Some compressors are shipped dry and will need oil added).

Service Info:

Protect Your Investment: Prior to assembly, it is critical that the compressor, evaporator, A/C hoses and fittings, hardlines, condenser and receiver/drier remained capped. Removing caps prior to assembly will allow moisture, insects and debris into the components, possibly leading to reduced performance and/or premature failure of your A/C system. This is especially important with the receiver/drier.

Additionally, when caps are removed for assembly, **BE CAREFUL!** Some components are shipped under pressure with dry nitrogen.

Evacuate the System for 35-45 Minutes: Ensure that system components (Drier, compressor, evaporator and condenser) are 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.

Important Information Before Beginning:

- **Read instructions completely and thoroughly before installing the Vintage Air Front Runner system. Follow instructions step-by-step for proper installation.**
- **Anti-seize must be used on all bolt threads, or mechanical locking will occur, preventing removal of nuts from bolts and causing damage to fasteners.**

OEM Front Belt System Removal

Perform the Following:

1. Disconnect the negative battery cable.
2. Drain the radiator.
3. Remove the fan and belts.
4. Remove the alternator and A/C compressor.
5. Remove the crankshaft pulley from the harmonic balancer.
6. Remove the OEM water pump and thermostat.

Water Pump Mounting Stud Installation

1. Apply a bead of silicone around the 3/8-16 x 5/8" (coarse thread) end of the 3/8-16 x 5/8" x 3/8-24 x 1 ⅛" - 5 ¼" & 3/8-16 x 5/8" x 3/8-24 x 1 ⅛" - 5 ⅞" water pump mounting studs. Thread into the block (See Figure 1, Page 6). **NOTE: The driver side studs should protrude 4 ¾" from the face of the block, and the passenger side studs should protrude 5 ⅛" from the face of the block (See Figure 1, Page 6).**

Water Pump Installation

1. Install the water pump pulley onto the water pump using (4) 5/16-24 x 3/4" 12-Pt SS bolts. Torque to 22 lb ft. **NOTE: The pulley is asymmetrical. The side of the pulley stamped with the part number must face toward the water pump.**
2. Install the 45° 5/8" hose fitting on the top outlet of the water pump included in the kit. Use anti-seize on the threads (See Figure 1, Page 6).
3. Install the straight 5/8" hose fitting on the water pump inlet (See Figure 1, Page 6).
4. Using a suitable gasket sealer, apply a bead of sealer to both sides of the water pump gasket, and place the gasket onto the water pump.
5. Install the water pump and spacers onto the mounting studs (See Figure 1, Page 6).

Water Pump Installation (Cont.)

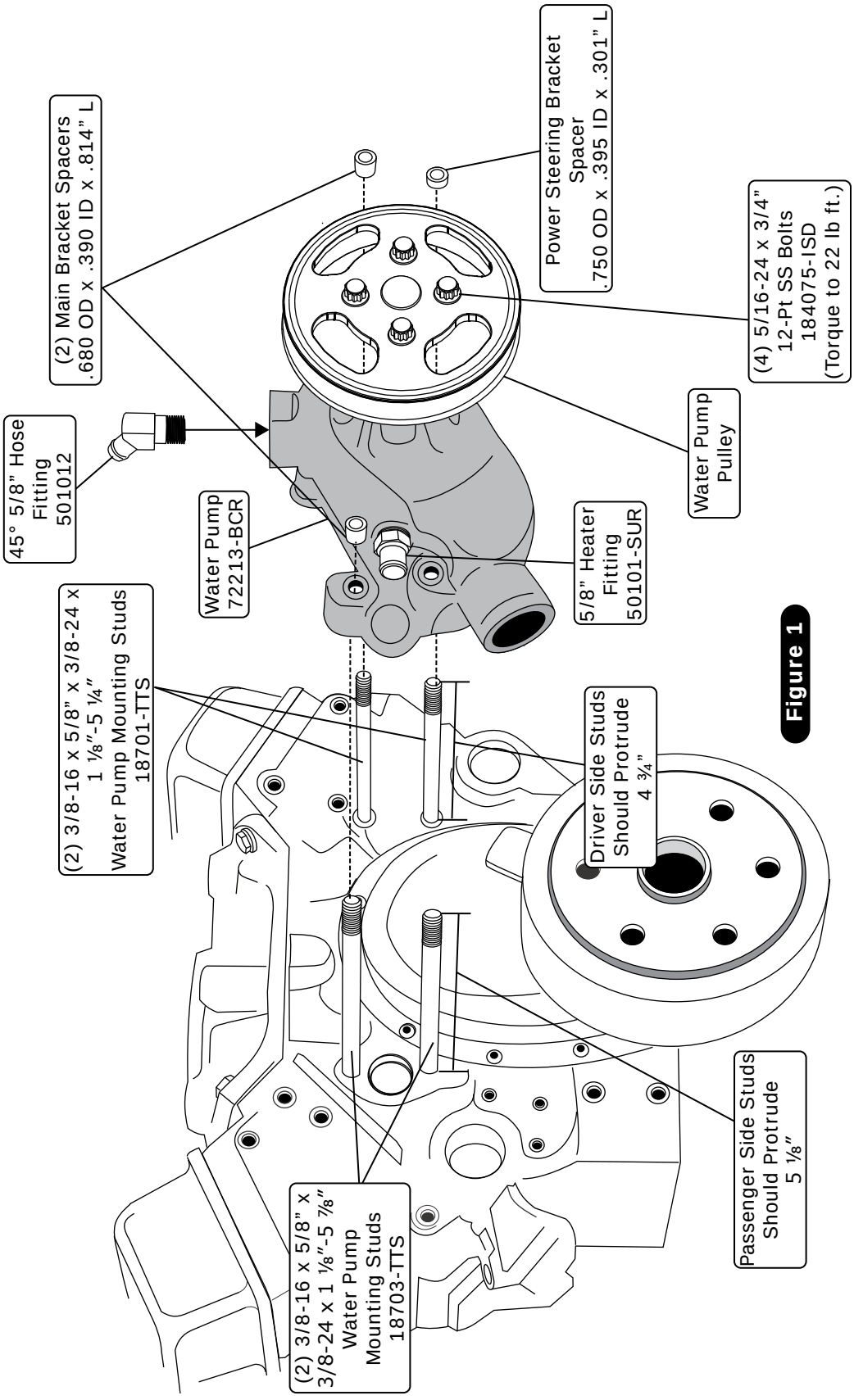


Figure 1

Power Steering Bracket Installation

1. Install the power steering bracket onto the lower driver side mounting stud (See Figure 2, below).

2. Place the (2) power steering standoffs with shoulder ends toward the bracket between the engine block and the power steering bracket. Secure the power steering bracket using (2) 7/16-14 x 3" 12-Pt SS bolts as shown in Figure 2, below. Torque to 35 lb ft.

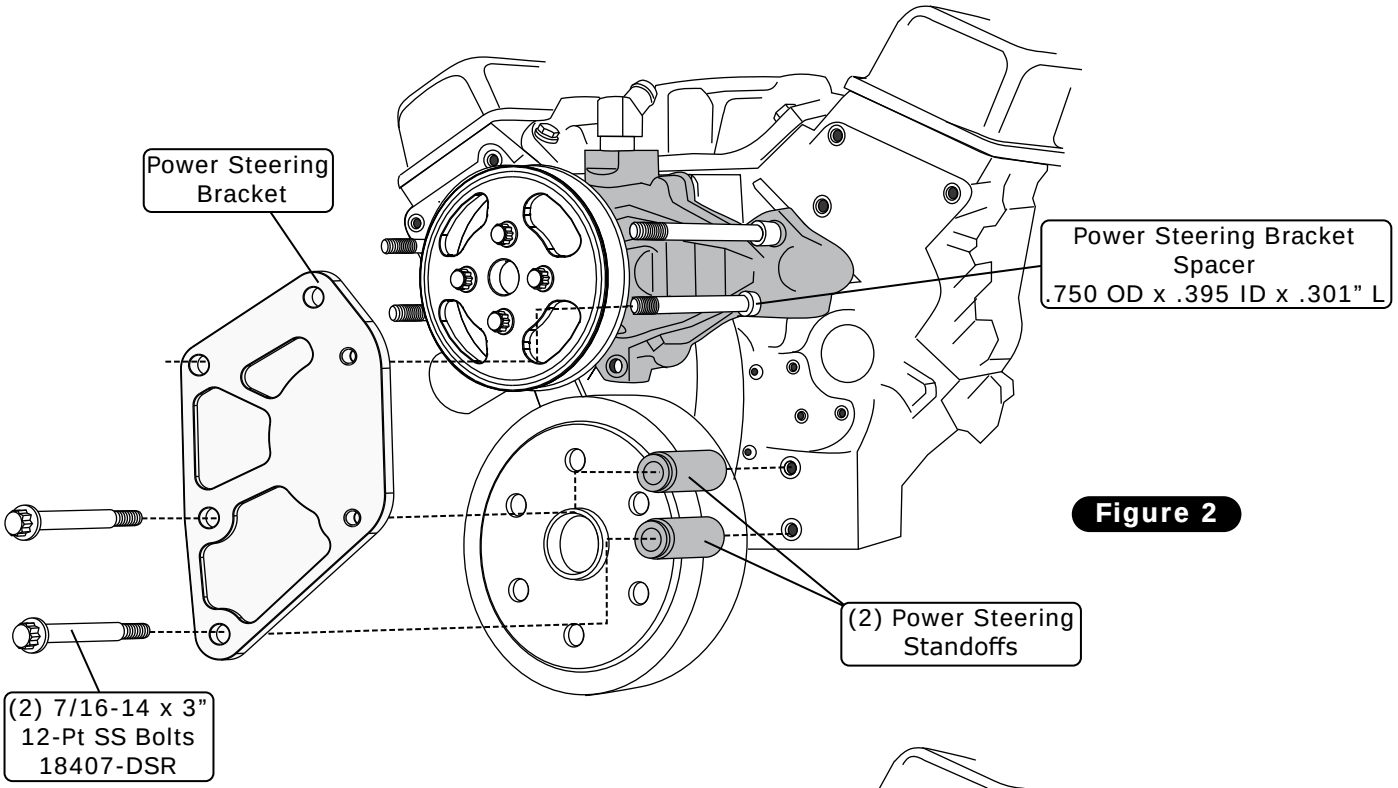
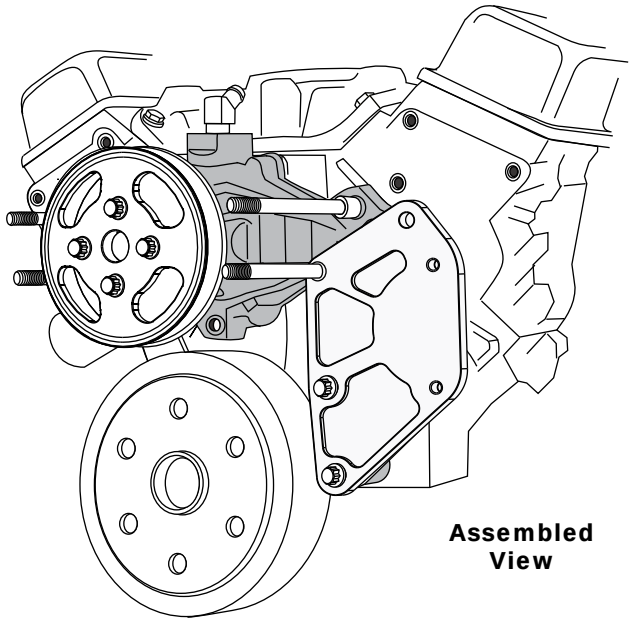


Figure 2



Assembled View

Compressor/Alternator Bracket Assembly

1. Install the compressor block onto the compressor using (2) 8mm-1.25 x 20mm socket cap bolts as shown in Figure 3, below. Torque to 18 lb ft. Keep the ports sealed with caps until the A/C circuit has been completed.
2. Install the compressor onto the Front Runner main bracket using (2) .789 OD x .330 ID x .330" L spacers, with (1) between the main bracket and the compressor's upper rear mounting tab, and (1) between the main bracket and the compressor's lower rear mounting tab. Secure the compressor to the main bracket using (2) 5/16-18 x 4 ¼" 12-Pt SS bolts, (2) 5/16" AN SS washers and (2) 5/16-18 SS nyloc nuts (See Figure 3, below). The compressor mounting ears contain sliding bushings that are drawn in and clamp to the bracket when compressed. Torque to 25 lb ft.
3. Install the alternator onto the main bracket using an 8mm-1.25 x 60mm 12-Pt SS bolt (See Figure 3, below). Torque to 24-28 lb ft.

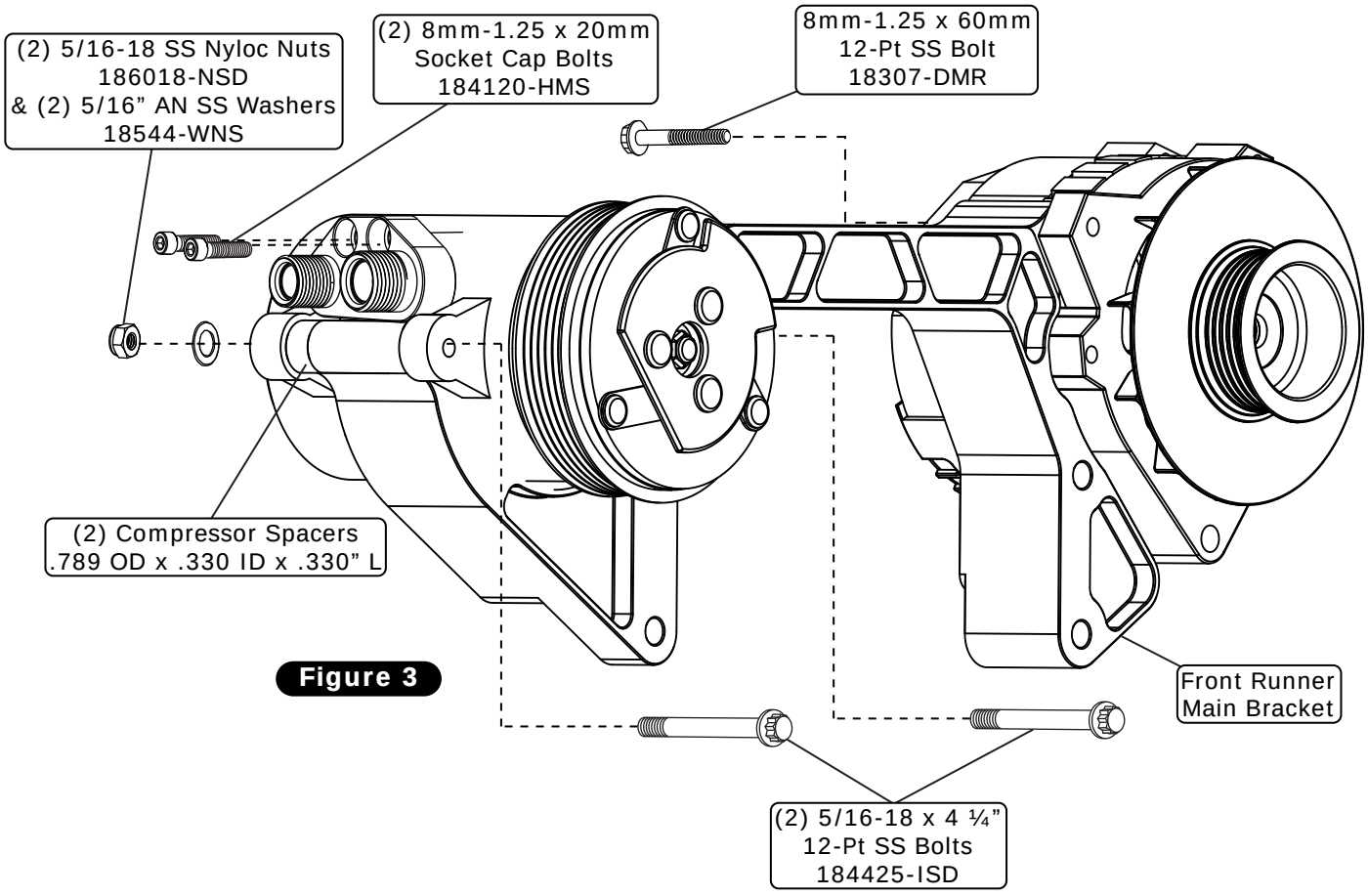


Figure 3

Front Runner Main Bracket Assembly Installation

1. Slide the Front Runner main bracket assembly over the water pump mounting studs (See Figure 4, Page 9).
2. Secure the driver side of the assembly using (2) 3/8-24 12-Pt nuts (See Figure 4, Page 9).
3. Secure the alternator to the power steering bracket using a 3/8-24 x 4" 12-Pt SS bolt, a 3/8-24 SS nyloc nut and a 3/8" AN SS washer (See Figure 5, Page 9). Torque to 24-28 lb ft.

Main Bracket Assembly Installation (Cont).

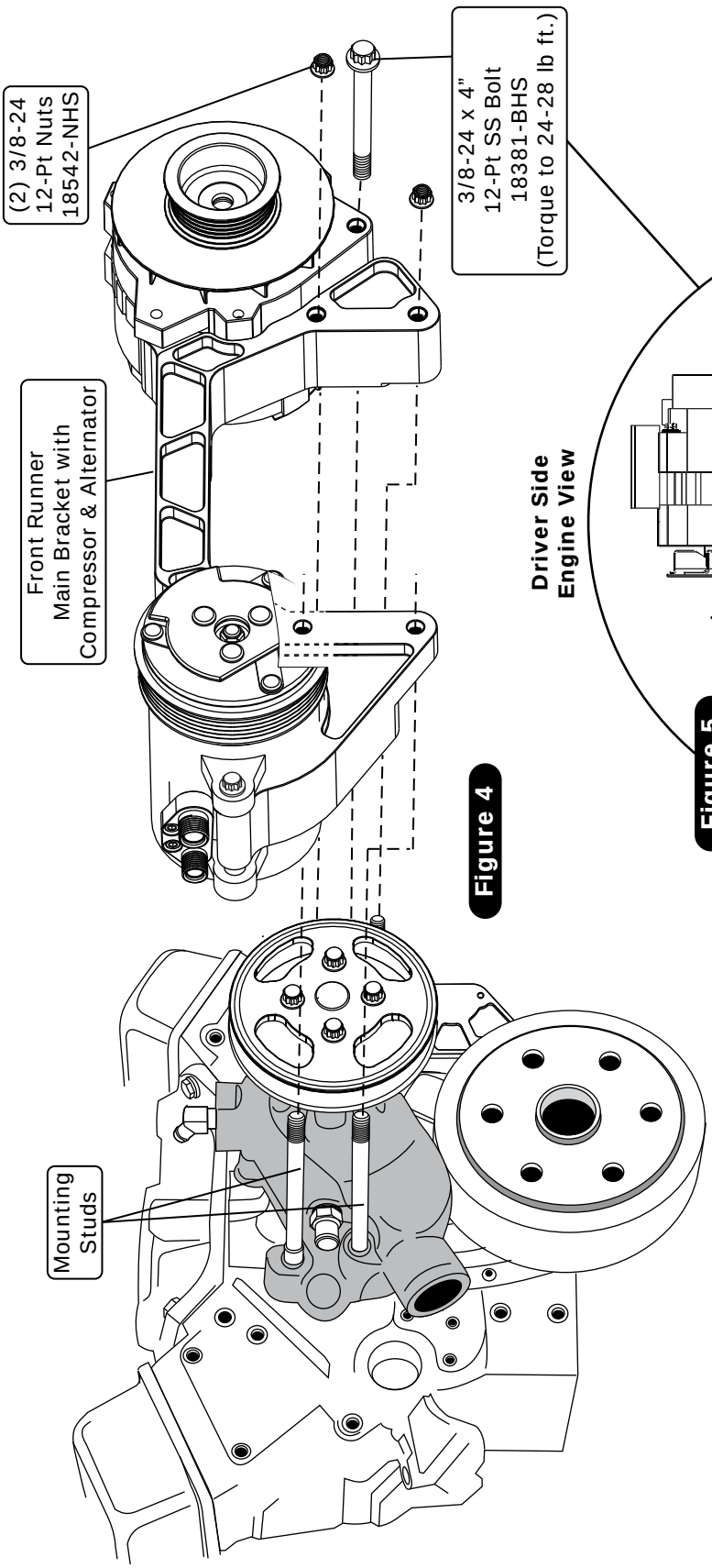


Figure 4

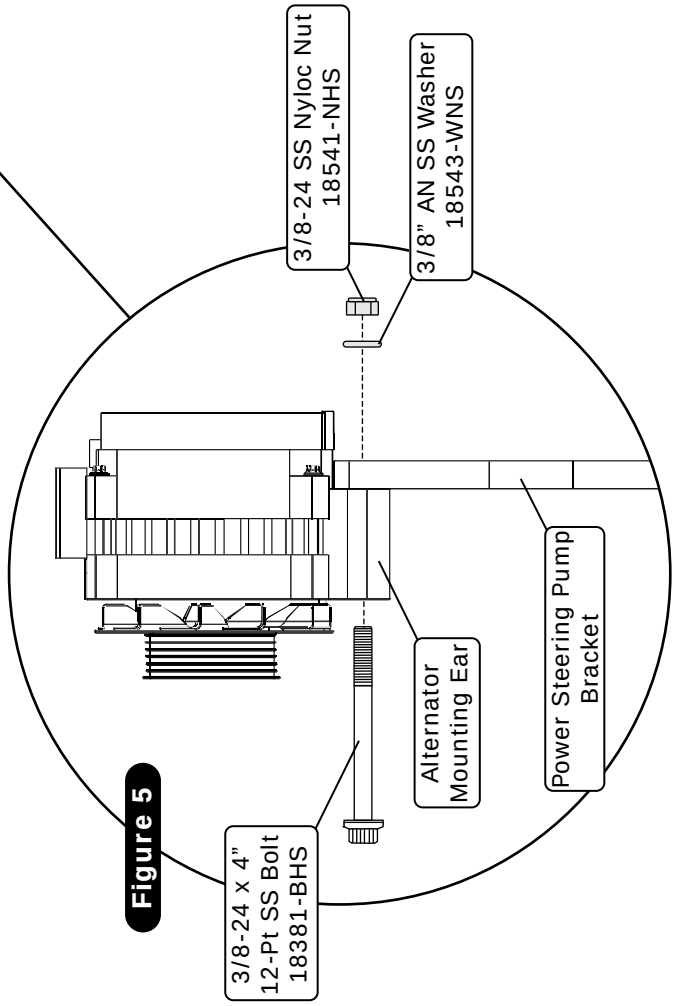


Figure 5

Heater Hose & Lower Radiator Hose Installation

1. Install the heater hose. **NOTE: Hose clamp location and position should be as shown in Figure 6, below.**
2. Install the lower radiator hose. **NOTE: Hose clamp location and position should be as shown in Figure 6, below.**

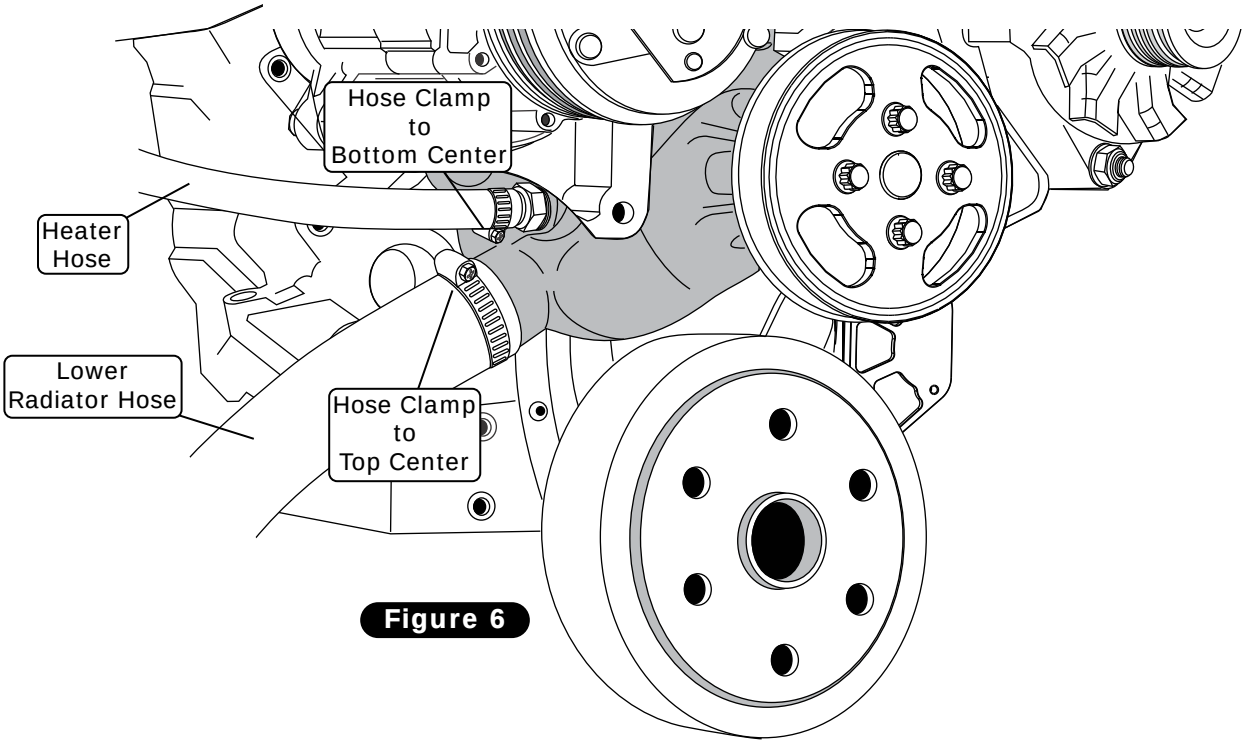


Figure 6

Dowel Pin Installation

1. Carefully install the dowel pin into the locating hole of the tensioner bracket (See Figure 7, below).

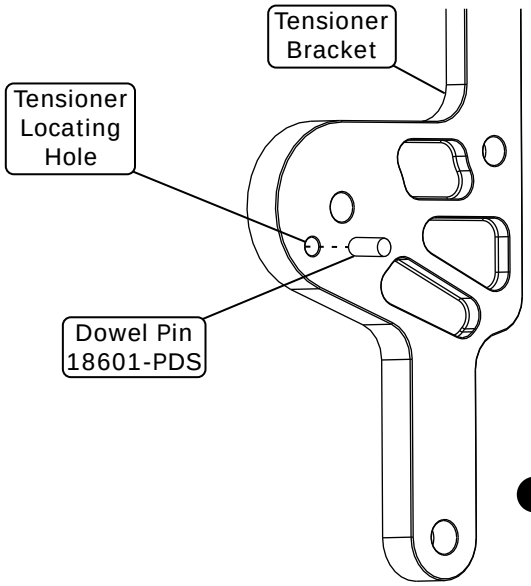


Figure 7

Belt Tensioner Bracket Installation

1. Install the belt tensioner bracket onto the passenger side mounting studs (See Figure 8, below).
2. Place a tensioner standoff between the engine block and the belt tensioner bracket as shown in Figure 8, below. Secure the bottom of the belt tensioner bracket using a 7/16-14 x 5" 12-Pt SS bolt. Torque to 35 lb ft. Secure the top of the belt tensioner bracket to the water pump mounting studs using (2) 3/8-24 12-Pt nuts. Torque to 30 lb ft. **NOTE: The tensioner standoff fits into the counter bore on the back side of the tensioner bracket.**

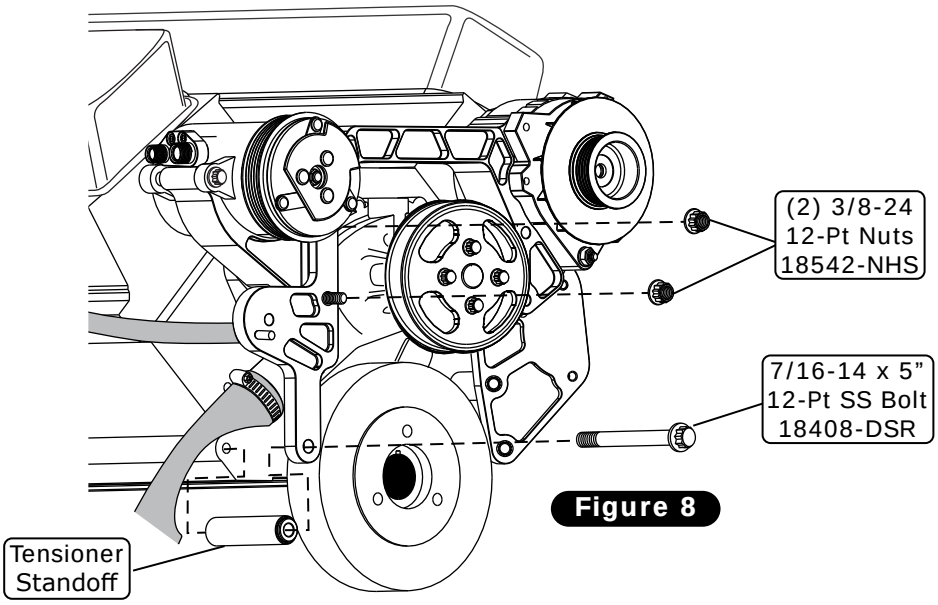


Figure 8

Belt Tensioner Installation

NOTE: Before installing the belt tensioner, see the instruction package included with the tensioner cover kit.

1. Install the tensioner spacer onto the back side of the belt tensioner (See Figure 9, below).
2. Install the belt tensioner with spacer through the belt tensioner bracket. **NOTE: Be sure to insert the dowel pin into the correct locating hole of the tensioner spacer (See Figure 9, below).** Secure the belt tensioner with spacer to the belt tensioner bracket using a 10mm-1.50 x 90mm SS hex bolt, (2) 10mm SS flat washers and a 10mm-1.50 SS nyloc nut (See Figure 9a, below). Torque to 21 ± 2 lb ft.

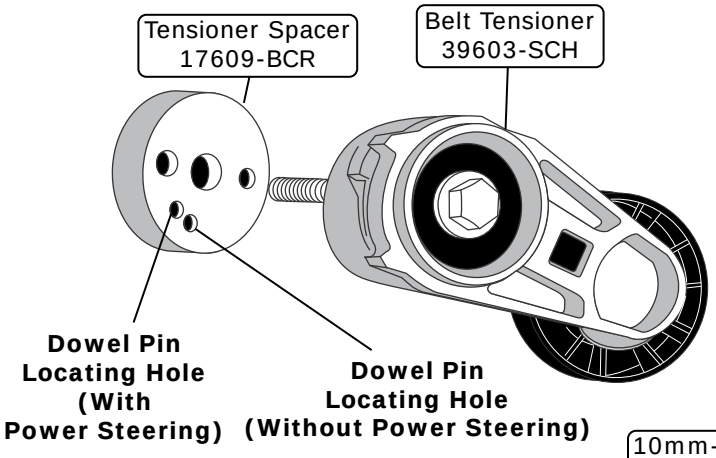


Figure 9

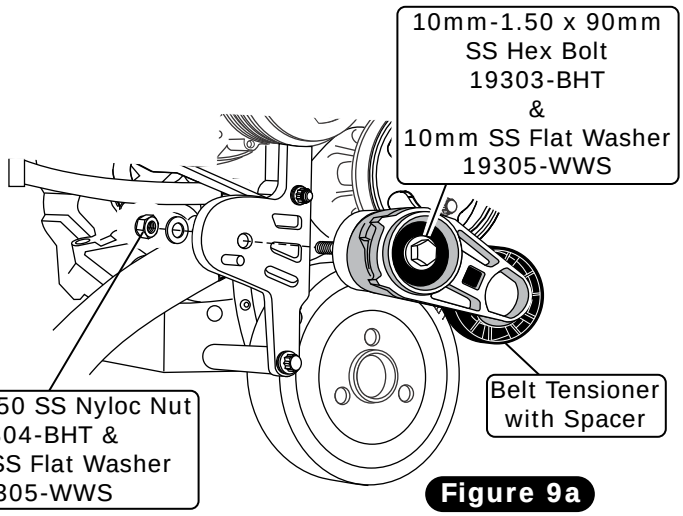


Figure 9a

Crankshaft Pulley Installation

1. Install the crankshaft pulley onto the harmonic balancer using (3) 3/8-16 x 1" 12-Pt SS bolts. Torque to 25 lb ft. Secure the crankshaft pulley to the crankshaft snout with a hat washer and a 1/2-20 x 2 ½" hex bolt (See Figure 10, below). Torque to 85 lb ft.

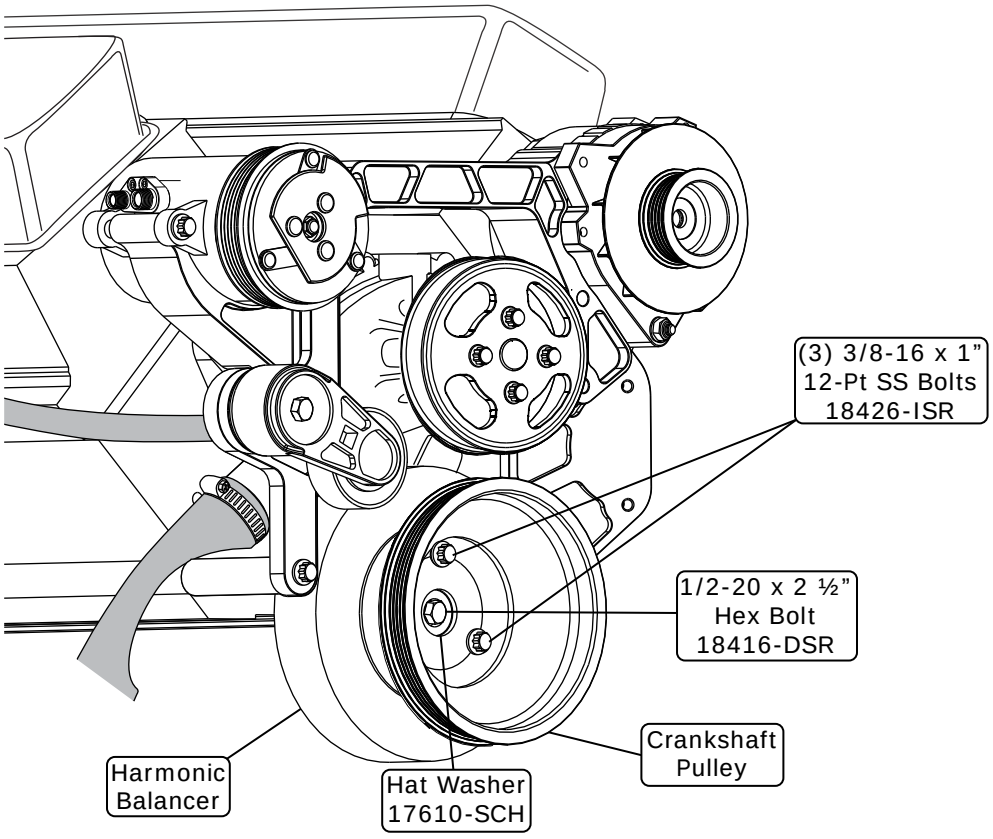


Figure 10

Power Steering Pump Installation (If Equipped)

WARNING: The pulley must be installed with the proper tool (K-D Tool #2897 or equivalent). Do not attempt to hammer or press the pulley onto the power steering pump shaft! Failure to use the proper tool will destroy the pump.

NOTES:

- **Some Type-II GM power steering pumps (non-Vintage Air pumps only) have threaded mounting bases. These must be drilled out to allow the Front Runner mounting bolts to pass through the holes and thread into the bracket (See Figure 11, Page 13).**
- **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 3 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 Part # 852001) may be purchased to reduce the flow to 2.0 GPM (See Additional Parts & Accessories on Page 3). 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 11, Page 13).

2. Install the power steering pump using (2) 5/16-24 x 3" 12-Pt SS bolts (See Figure 11, Page 13). Torque to 28 lb ft.

Power Steering Pump Installation (Cont.)

WARNING: The pulley must be installed with the proper tool (K-D Tool #2897 or equivalent). Do not attempt to hammer or press the pulley onto the power steering pump shaft! Failure to use the proper tool will destroy the pump.

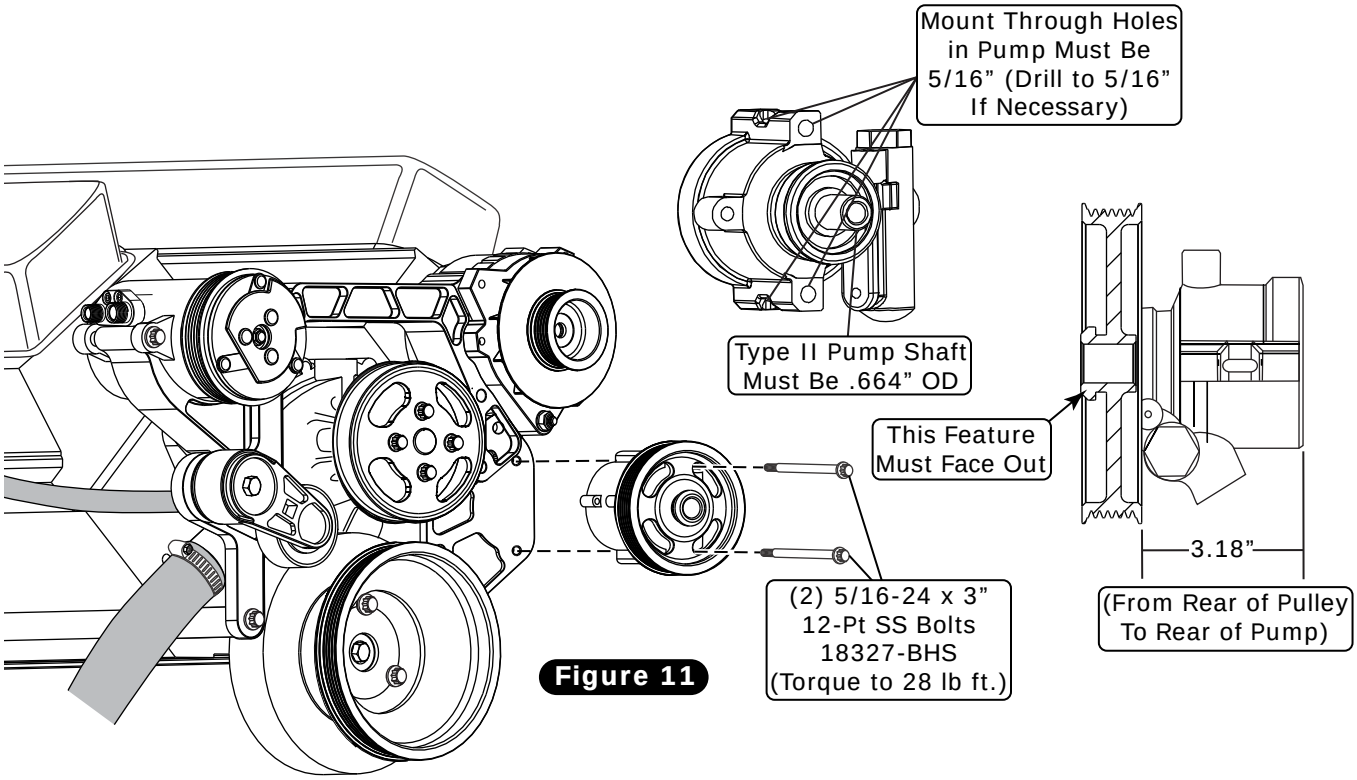


Figure 11

Belt Installation (With Power Steering)

1. Insert a 1/2"-drive ratchet or breaker bar into the socket on the tensioner, and rotate it clockwise to the tensioner stop. Route the belt around the crankshaft pulley, power steering pulley and alternator, and over the compressor. Finally, pull the belt down and slide it under the water pump pulley (See Figure 12, below).

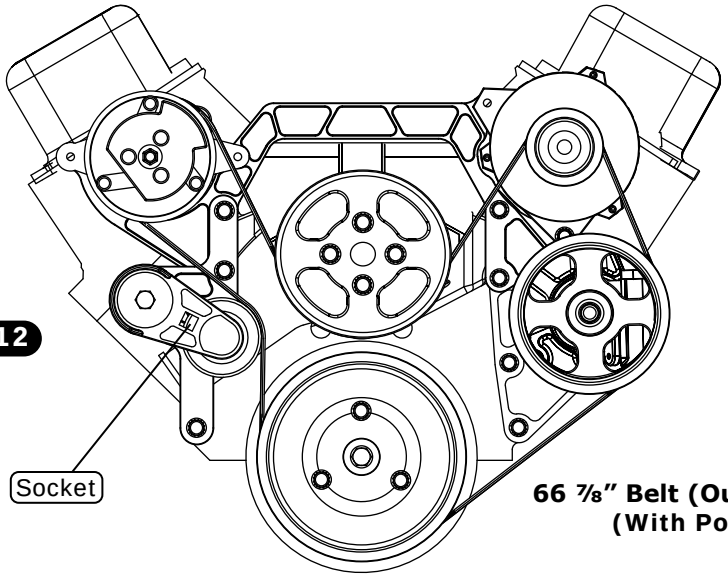


Figure 12

66 7/8" Belt (Outer Circumference) (With Power Steering)

Belt Installation (Without Power Steering)

1. Insert a 1/2”-drive ratchet or breaker bar into the socket on the tensioner, and rotate it clockwise to the tensioner stop. Route the belt around the crankshaft pulley and alternator, and over the compressor. Finally, pull the belt down and slide it under the water pump pulley (See Figure 13, below).

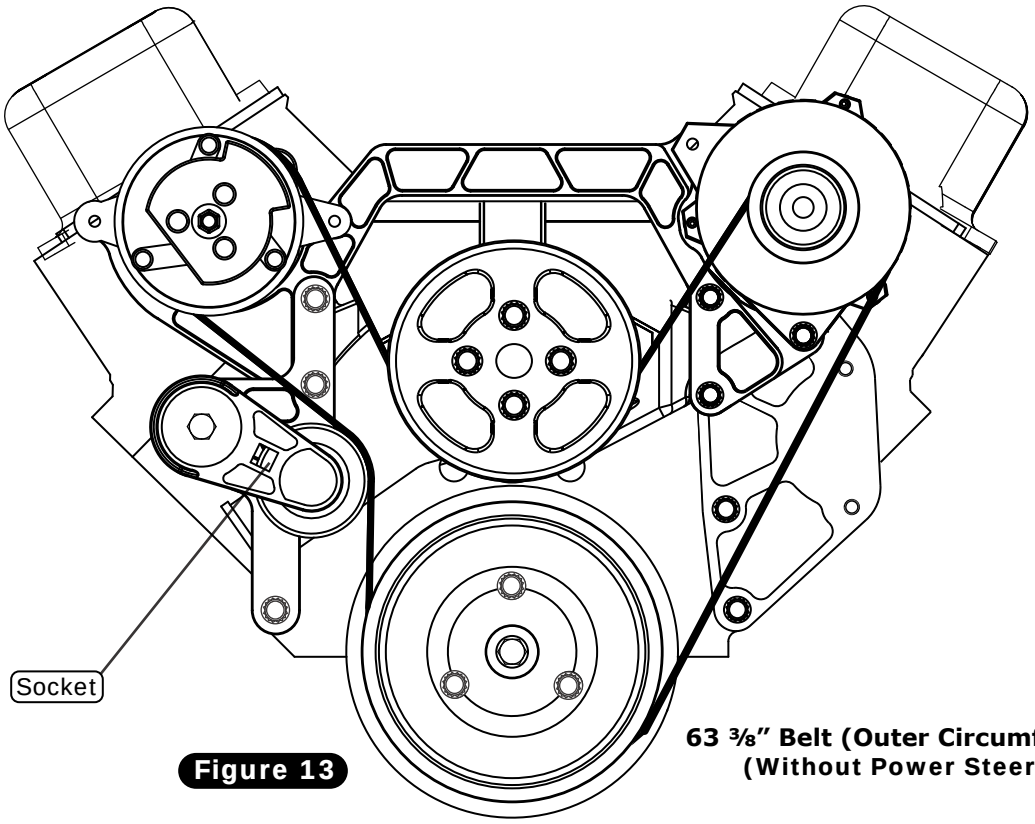


Figure 13

63 ⅜” Belt (Outer Circumference) (Without Power Steering)

Final Steps

1. Reinstall all previously removed items.
2. Vintage Air recommends to use a trinary safety switch with all electric engine cooling fans.
3. Reconnect all electrical connectors. **NOTE: Charging system must be properly wired to accept one-wire internally regulated alternator.**
4. Connect negative battery cable.
5. Fill radiator with at least a 50/50 mixture of approved antifreeze and distilled water. It is the owner’s responsibility to keep the freeze protection at the proper level for the climate in which the vehicle is operated. Failure to follow antifreeze recommendations will cause heater core to corrode prematurely and possibly burst in A/C mode and/or freezing weather, voiding your warranty.
6. Double check all fittings, brackets and belts for tightness.
7. Vintage Air recommends that all A/C systems be serviced by a licensed automotive A/C technician.
8. 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.
9. Evacuate the system for a minimum of 45 minutes prior to charging, and perform a leak check prior to servicing.
10. Charge the system to the capacities stated on Page 4 of this instruction manual.