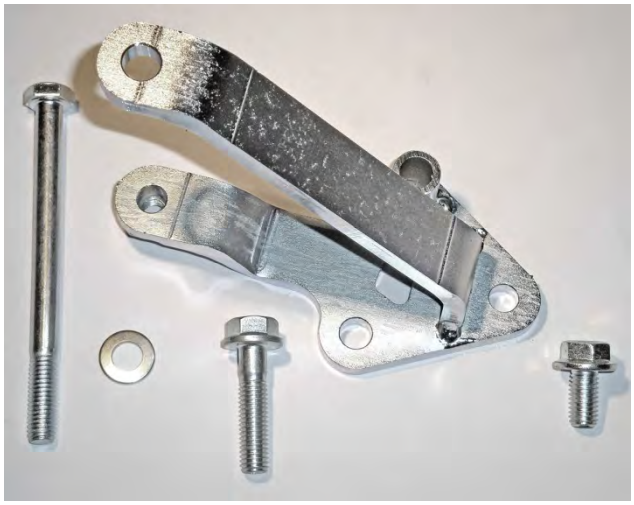
PORSCHE

928

PKT-S/S2 Installation

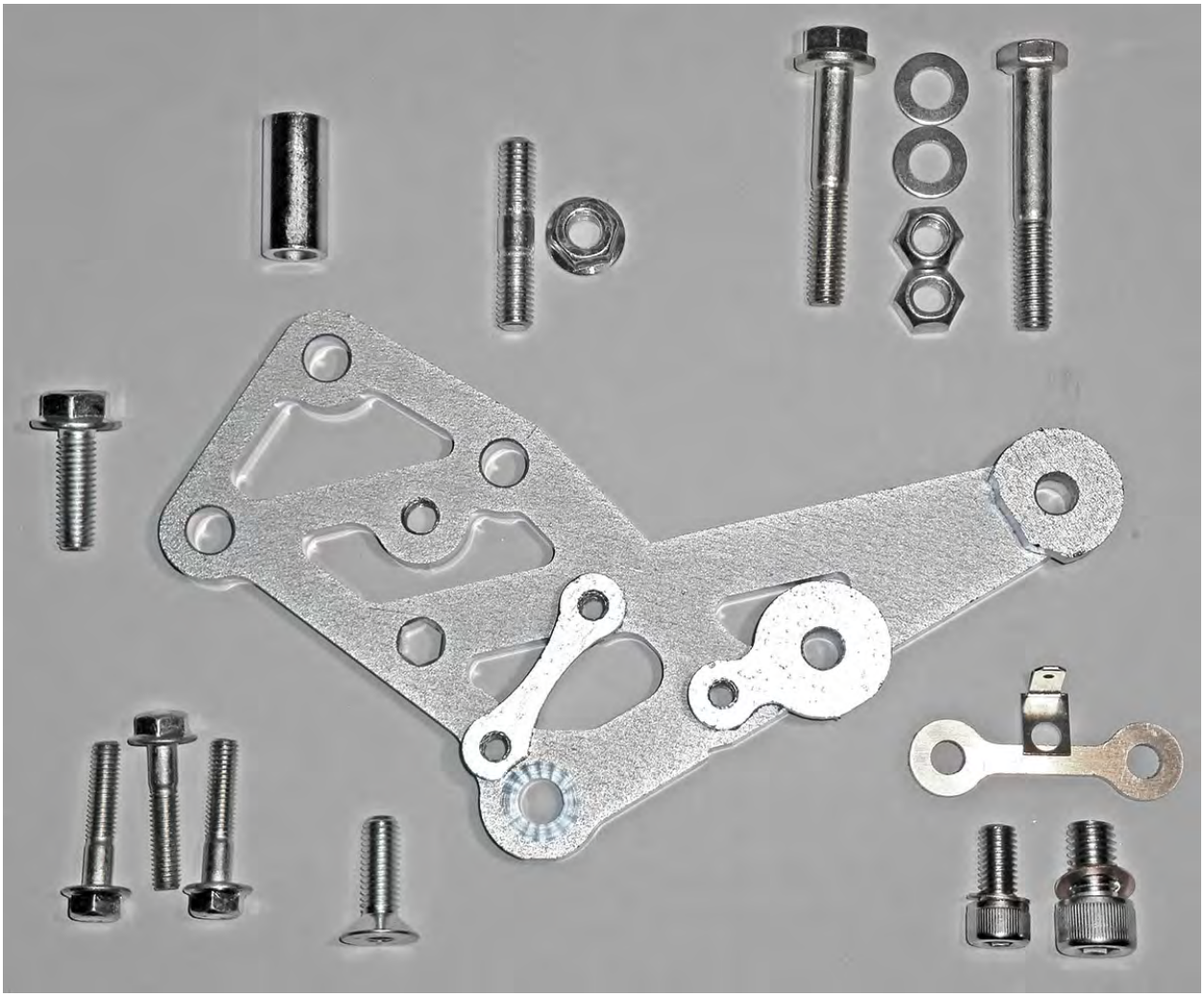
1.8

01-2023



Left: optional air pump accessory bracket and hardware.

Below: main bracket and hardware.



Audi parts

INA/NTN recommended
Example: 2000 Audi A6 30V

078 109 479 E	tensioner
078 109 487 C	lever
078 109 243 S	pulley

Lever and pulley bolts in boxes are replaced by through bolts, washers, and locking nuts.

Note position of large lever and pulley washers.

Water pump detail

Installation of tension light ground L-terminal under upper left bolt and pivot bolt delete plug shown.

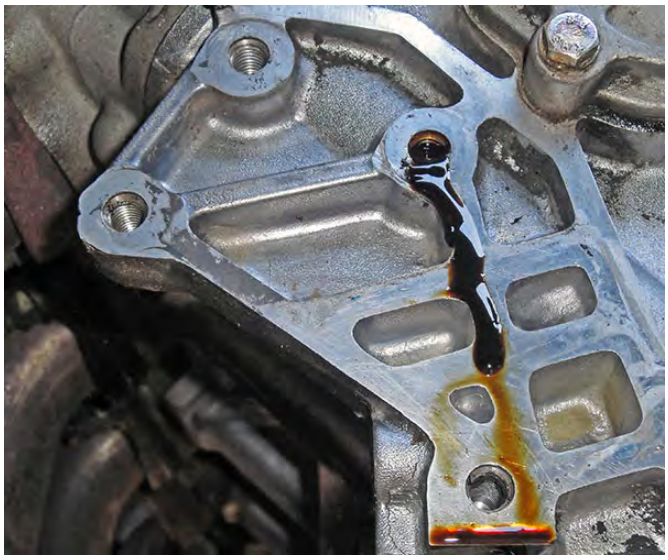
For early water pumps an 8 mm SS bolt and copper washer is installed. Late pumps use a 10 mm bolt.

PKT-S2 parts

Air-pump vs. non-air cover spacer tubes

Lever spacer

87-up tensioner arm axle bracket replacement
Installation detail of ‘dog-bone’ spacer



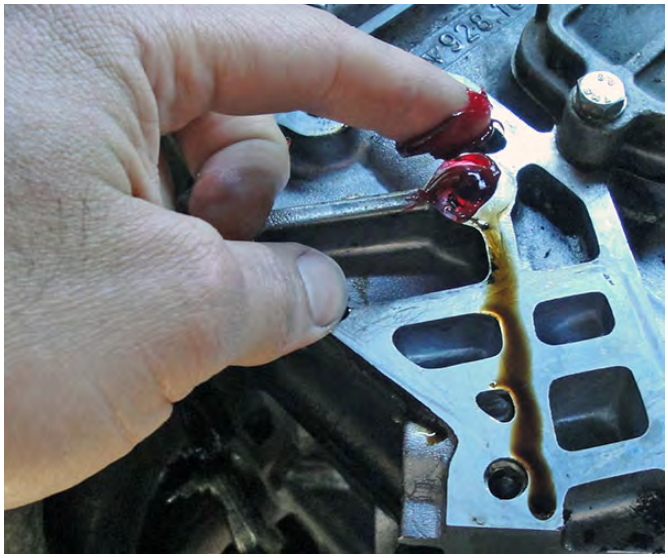
Disconnect battery.

Rotate engine to 4|5 #1.

Install crankshaft lock.

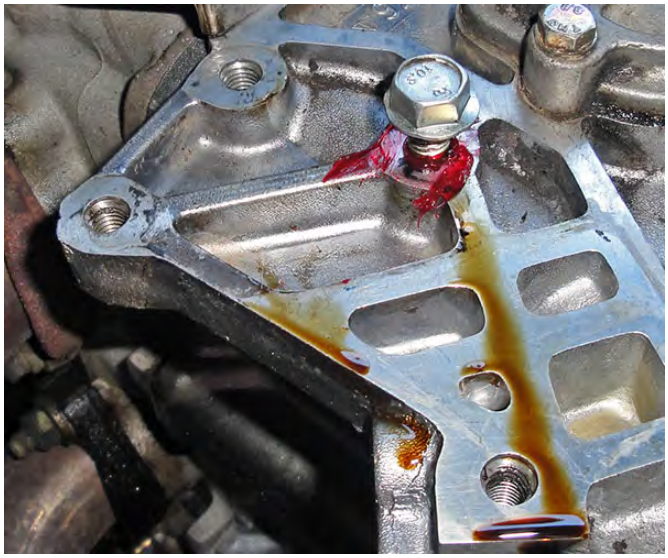
Remove factory tensioning system.

Clean mounting surface thoroughly, removing any remaining gasket material.



One bolt hole is drilled into an oil return passage.

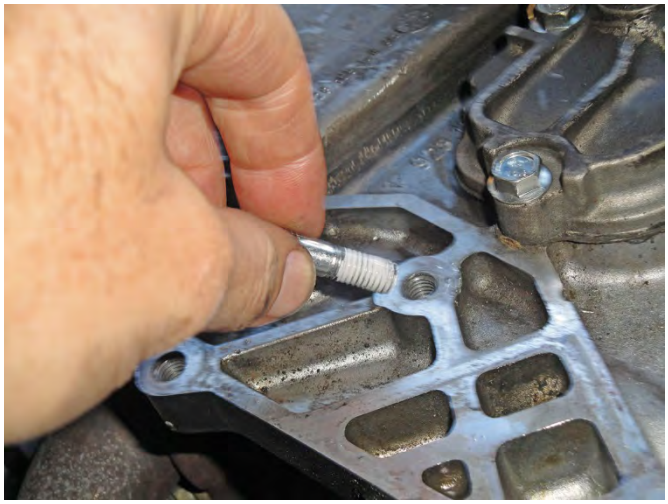
Use a blob of wheel bearing grease to temporarily plug this hole.



Use an M8 bolt to push grease 10 mm deep into the hole.

Use a brake cleaner soaked towel to clean the exposed threads.

Cleaned threads with sealing grease.

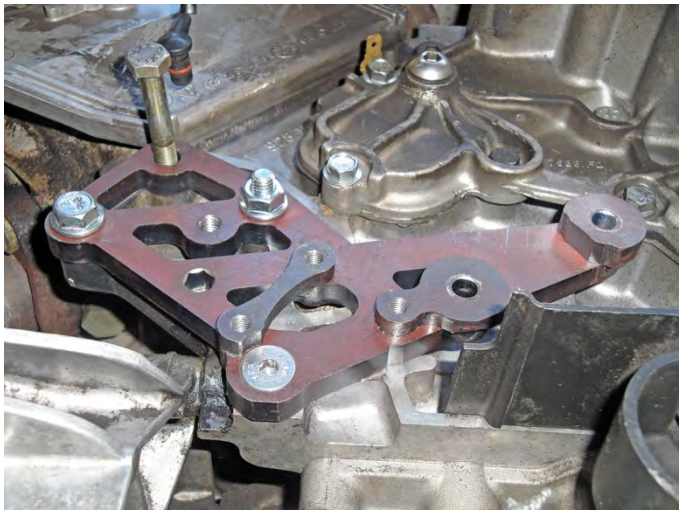


Coat one end of M8x40 stud with silicone sealer.

(Honda-Bond shown.)

Screw in M8x40 stud until seated.

(No torque spec. Seated only.)



Temporarily install bracket with M8 flange nut, M8x25 flange head, and M8x25 flat head bolts.

Use M8x55 to ensure all bolt holes are lined up correctly.

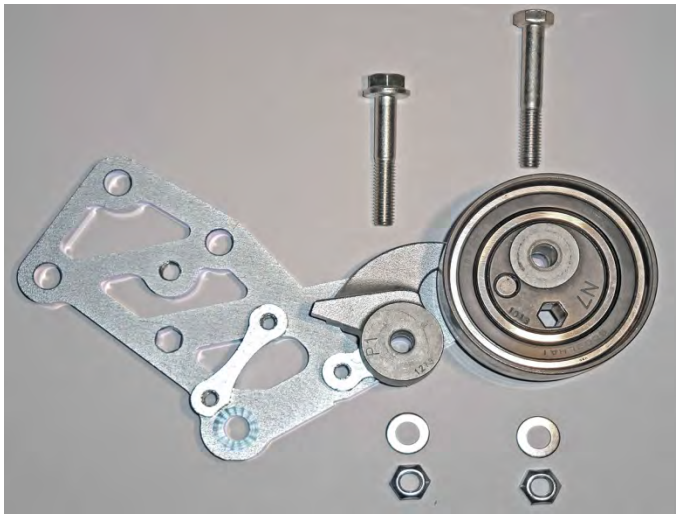
Tighten M8x25 flat head bolt first.

Temporarily install tensioner/damper with M6x30 bolts.

Check that the T/D sits flat against the bracket with a slight gap between the T/D and the A/C bracket.

(Slip a piece a paper between.)

File the A/C bracket slightly at point of contact if interference is found.



Remove tensioner/damper.

Remove bracket.

Install lever and pulley on bracket.

M8x50 flange head bolt on lever. Torque nut to 17 ft/lb.

M8x55 pan head bolt on pulley. Torque nut to 24 ft/lb.

PKT-S2

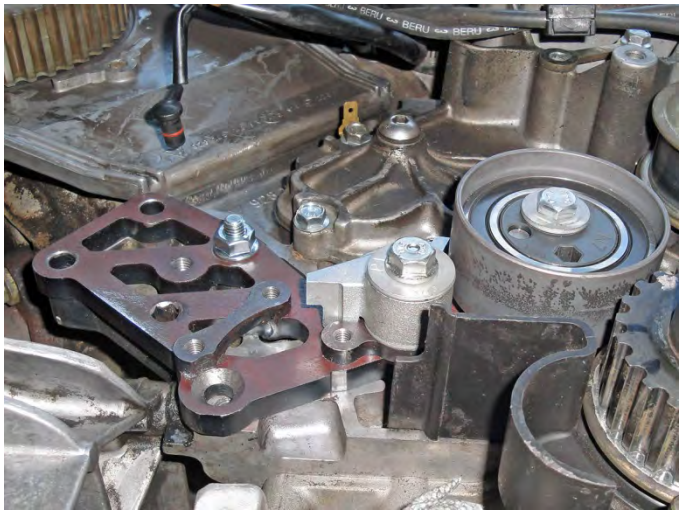
The S2 bracket has two positions for the tensioning lever. The upper position is for most engines. The lower position is for engines where piston extension is likely to be >5mm, EG. engines which have had head machining.

Installing the lever on a S2 bracket

Loosely install a M6 bolt through the lever spacer. To facilitate upper or lower position, clamp the bracket vertically in a vise. For the upper position, clamp upside-down. Lower position, clamp right-side up.

Install M8x50 through lever assembly and spacer and torque nut to 17 ft/lb.

Note position of rear M8 washer when installing to verify that nut is being tightened in upper or lower position.

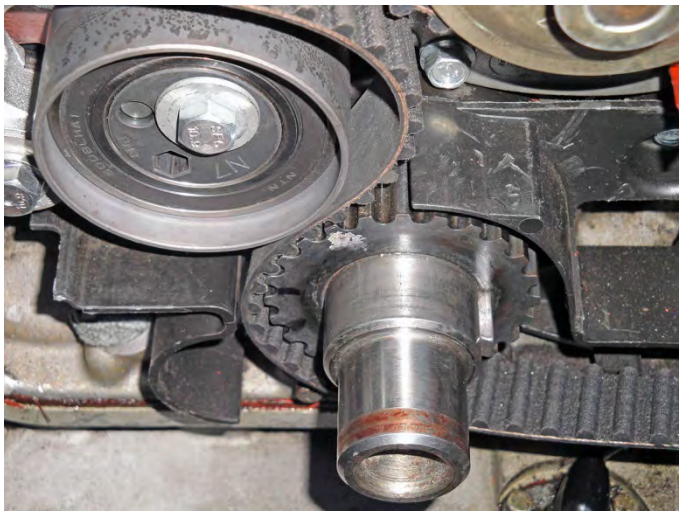


Install bracket over M8 stud.

Loosely install M8 flange nut.

Do not install any other bolts at this time.

Bracket will hang downward making it easier to string the belt by allowing additional belt slack and pressing the belt against the crank gear.



Install timing belt starting from the tensioner pulley and crank gear.

String belt under oil pump gear and around 5-8 cam gear.

Using a wrench on the shoulder bolt, rotate the 5-8 gear clockwise approximately one tooth. While holding the gear in position, pull the belt taught into the gear teeth.

Rotate 5-8 gear counter-clockwise and clamp. Belt should now be tight between crank, oil pump and 5-8 gear.

String belt under water pump pulley and **half-way** onto the 1-4 gear.

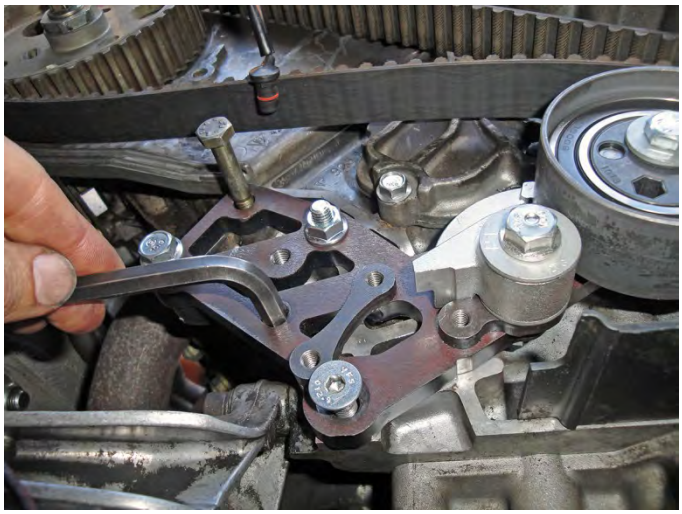
Using a wrench on the shoulder bolt, rotate the 1-4 gear clockwise one tooth. While holding the gear, pull the belt taught into the gear teeth.

Rotate 1-4 gear counter-clockwise and clamp. Belt should now be tight between 1-4 and 5-8 gears.

Press belt teeth into gear around the remainder of the 1-4 gear.

Remove clamp but maintain pressure on belt with fingers.

Using a wrench on the shoulder bolt, rotate 1-4 gear back and forth slightly while pushing belt towards engine until the belt is fully on the gear.



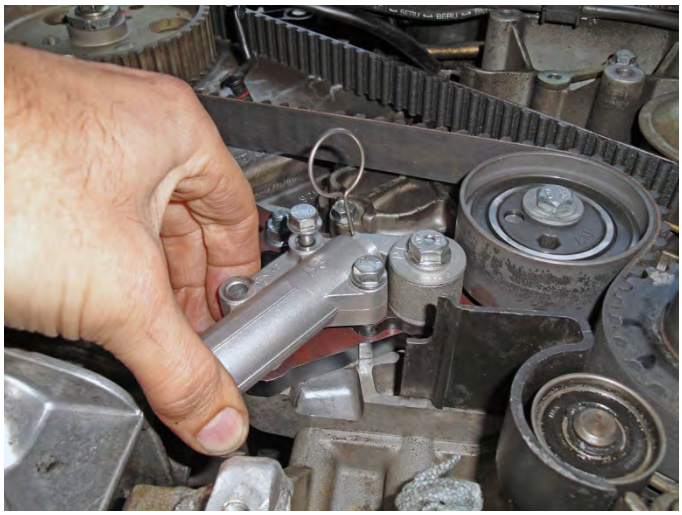
Using an 8 mm hex key or socket, rotate the bracket counter-clockwise until all bolts can be screwed in.

Tighten M8x25 flat head bolt first.

Torque two bolts and nut to 15 ft/lb.

Remove M8x55 bolt.

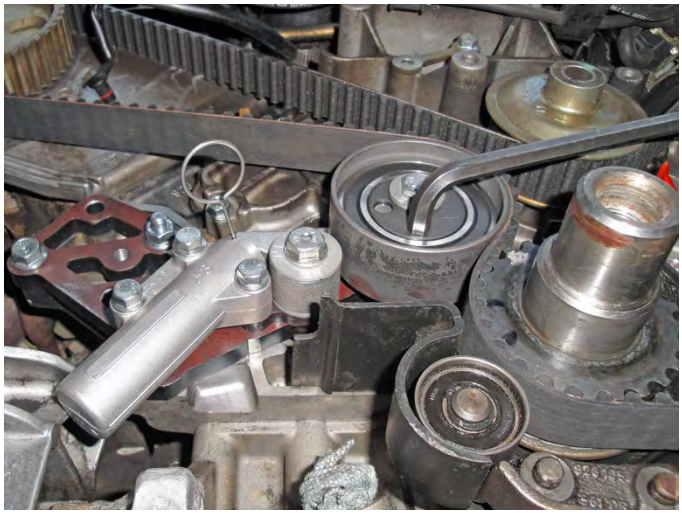
Loosely install tensioner/damper with single M6x30 bolt.



Push tensioner/damper clockwise until remaining two M6x30 bolts can be installed.

Alternatively, use an 8 mm hex key to rotate the tensioner pulley clockwise while installing remaining bolts.

Torque all three bolts to 7 ft/lb.



Using an 8 mm hex key or socket, rotate the tensioner pulley clockwise until the tensioner/damper pin can be removed.

Remove tensioner/damper pin.

Using an 8mm hex socket and a torque wrench, rotate the tensioner pulley counter-clockwise to 11 ft/lb to pull any slack out of the belt.

Install balancer and main drive pulley.

Torque crankshaft bolt to 218 ft/lb.

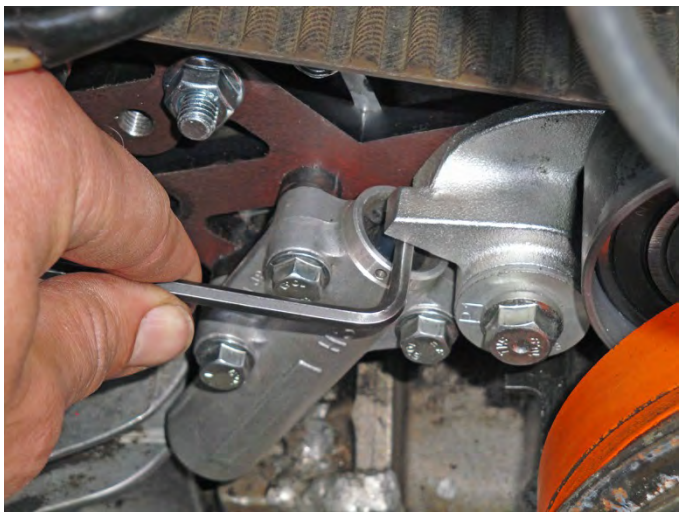
Remove crankshaft lock.

Remove fuel pump fuse or remove ignition computer connector.

Verify that nothing interferes with or can fall into the belt path.

Rotate engine briefly with starter.

Rotate engine by hand to T|0 #1.



Check extension of tensioner/damper piston between the center of the T/D body and lever with a hex key or drill bit.

(The T/D pin is 1.66 mm.)

With a **new** belt, extension should be in the range of: **1** mm to **7** mm, measured **cold**.*

With a **used** belt, extension should be in the range of: **2** mm to **8** mm, measured **cold**.*

If extension is more than 7 mm with a new belt, measured cold, this system should not be used.

*A new belt will stretch to create approximately **2** mm (or more) additional piston extension after about 1000 miles.*

Continental belts are thicker (2.56 mm) and install with less T/D extension than Gates (2.49 mm) but both will stretch to be about equal. The Gates Racing belt is thinnest (2.39 mm), has the largest initial T/D extension but stretches less, and takes longer to stretch.

(Flennor belts are made by Gates.)

*A hot engine will show approximately **2** mm less piston extension than a cold engine.*

**S2 bracket see page 6, first*

*If tensioner/damper piston extension is **2** mm or less the T/D can be modified for more extension.*

The T/D bolt holes are cast in a cone shape, 6-8mm, larger at the rear. Drill (and chamfer) the holes to 8 mm.

Loosely mount the retracted T/D on the bracket. Rotate the T/D away from the lever and tighten bolts to 7ft/lb.

Plug belt tension light wire onto ground terminal when installing center cover.

Optional air pump attachment

Replace M8x25 flange head bolt with M8x35 flange head bolt. Install M8x16 flange head bolt.

Torque both bolts to 15 ft/lb.

Note: if Special Edition two-piece air pump bracket, use M8x25 in place of M8x16.