

# Twist and Shout

By Bob Sepe

148K on the 2008 XC70's digital information display, original belt cracked and worn, one pulley a bit screechy and a locked belt tensioner as it would not compress.



I really didn't want to tackle the job because the serpentine auxiliary drive belt (the Twist) on the mighty T6 lies between the motor and transmission driving accessories from both sides. This was the last thing to accomplish on my daughter's XC70 before loading it onto a transporter and shipping it to Seattle.

The folks I consulted regarding this task, save Larry in Irondequoit, didn't care to go anywhere near this job. In Larry's case he replaced the water pump on his son's T6, so if you replace the water pump you should change the auxiliary belt, tensioner and pulleys. Because the water pump and power steering pumps share the same pulley; the water pump on the motor side and the power steering pump directly opposite, belt replacement are no longer simple. To install a new belt, the PS and water pump must be separated.

I'll admit to one and only one omission, I should have photographed the arrangement of the AC compressor support bracket before removal. The bracket and two fasteners were the only parts left over. In the old days, the some guys in the shop kicked leftover parts beneath the bench. The vehicle owner would never know and any failure would be down the road. I didn't participate in this practice. (But I knew where to look for spare parts.) I consulted friends at the Volvo shop; they set me straight and had a huge laugh at my expense.

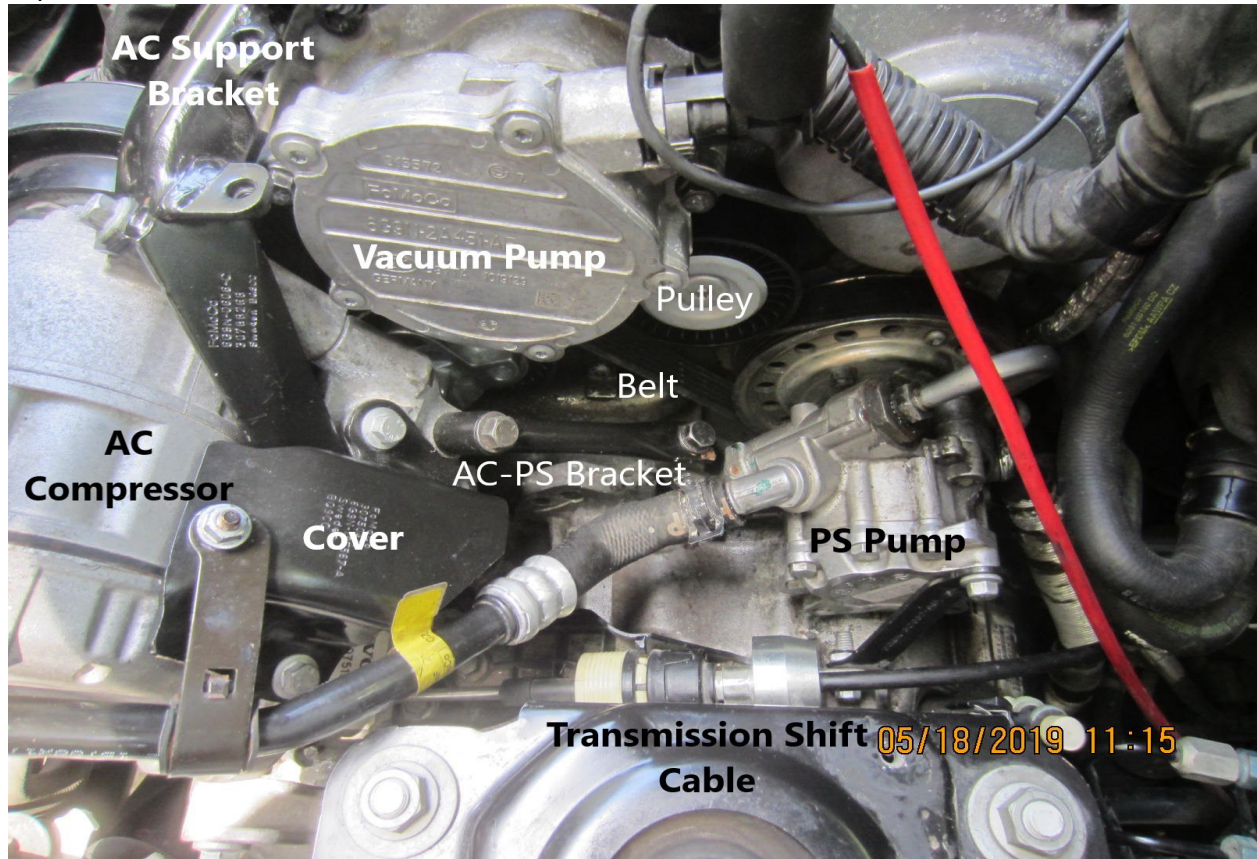
This undertaking consumed 10 hours across 4 days; it took so long because the job was accomplished between rounds of golf. Priorities! Having completed this task successfully, I believe a subsequent auxiliary belt replacement would require 3 hours or 5 hours, if you spent time servicing related components. Warning, don't tackle a belt change in cold weather or standing in snow, rain or in a cold garage. You WILL regret having done so. (This is where the self deprecating Shouting occurs.)

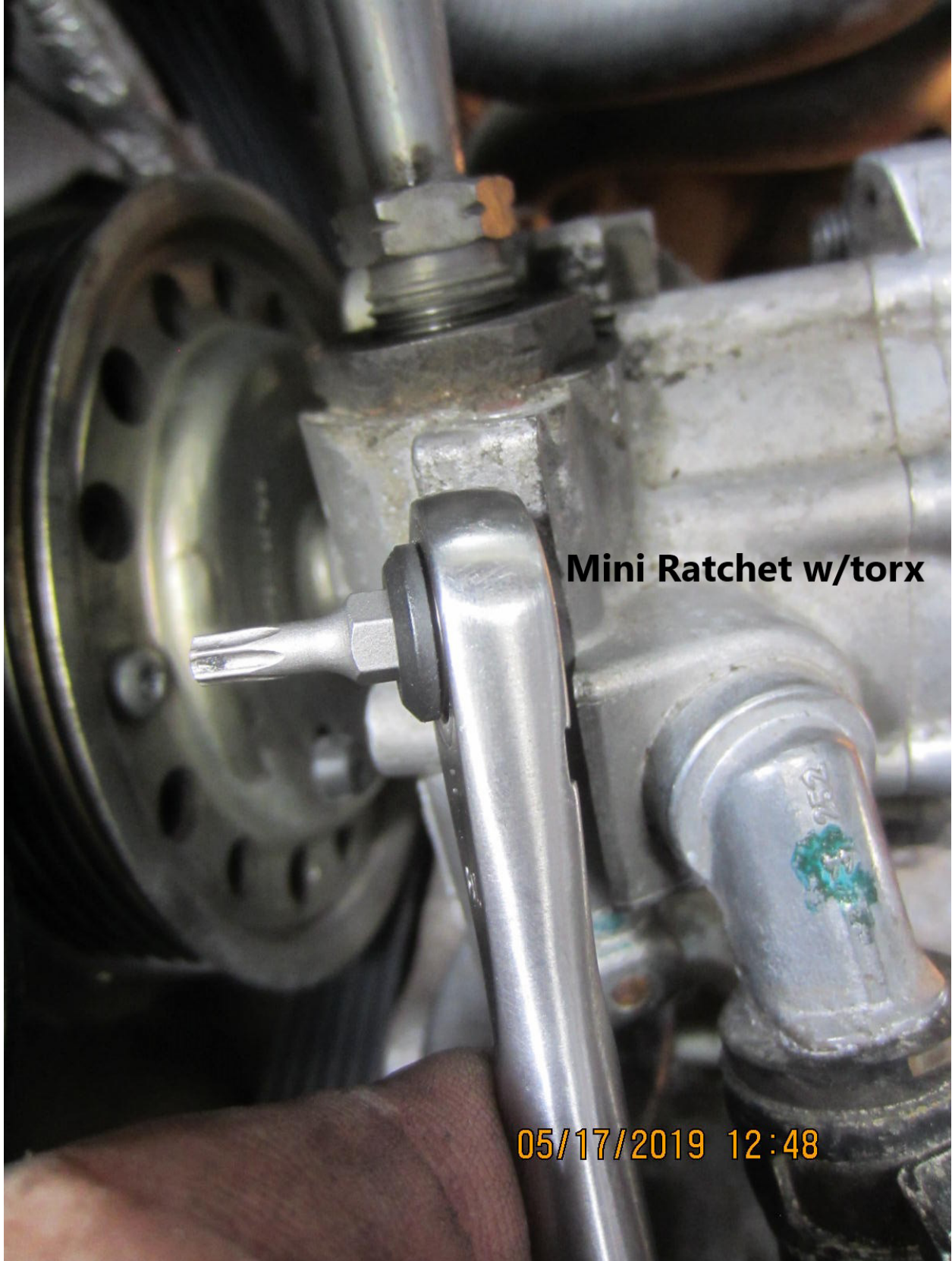
Before beginning, pressure wash the engine bay, if filthy, otherwise you won't be able to see the components clearly. (Tell you an inside baseball secret: mechanics hate to get dirty!) A small powerful drop light and a stick magnet are indispensable. Its best have a wide variety of tools, especially a long handle 10mm double box end ratcheting speed wrench as well as a miniature 1/4" ratchet set. An extended handle 10mm double box speed wrench is invaluable. If you've short stubby fingers, standard and long handle speed wrenches facilitate fastener removal and replacement.

Benefit from my experience, follow these steps: (1) raise the car by driving front wheels on ramps so your work is waist high, (2) remove battery, battery box, and air cleaner box exposing service area, (3) photograph the arrangement of AC compressor, vacuum pump, power steering pump and related support hardware, (4) remove the vacuum pump and place atop the engine to improve visibility, (5) diagram the auxiliary belt path, then cut and remove the belt, (6) remove the idler pulley to provide visibility and work space, (7) remove AC compressor support brackets and fasteners, lift and pull AC unit forward and off its base, (8) remove the belt tensioner and pulley; access to the tensioner fastener is inside base of the AC compressor cradle, (9) remove fasteners supporting power steering pump, (10) remove two torx machine screws fastening water pump bracket to motor side of PS pulley and with considerable effort pull PS unit toward fender side releasing the water pump from the PS pulley to provide space to slide (Twist) the new belt between the pumps and around the PS pulley. (11) Remove and replace both the belt tensioner and free standing pulley. (13) Route the belt around the appliances and release tensioner, and finally (14) Replace the components you removed.

Study the next photographs to assist you navigate this adventure successfully.

Top down View

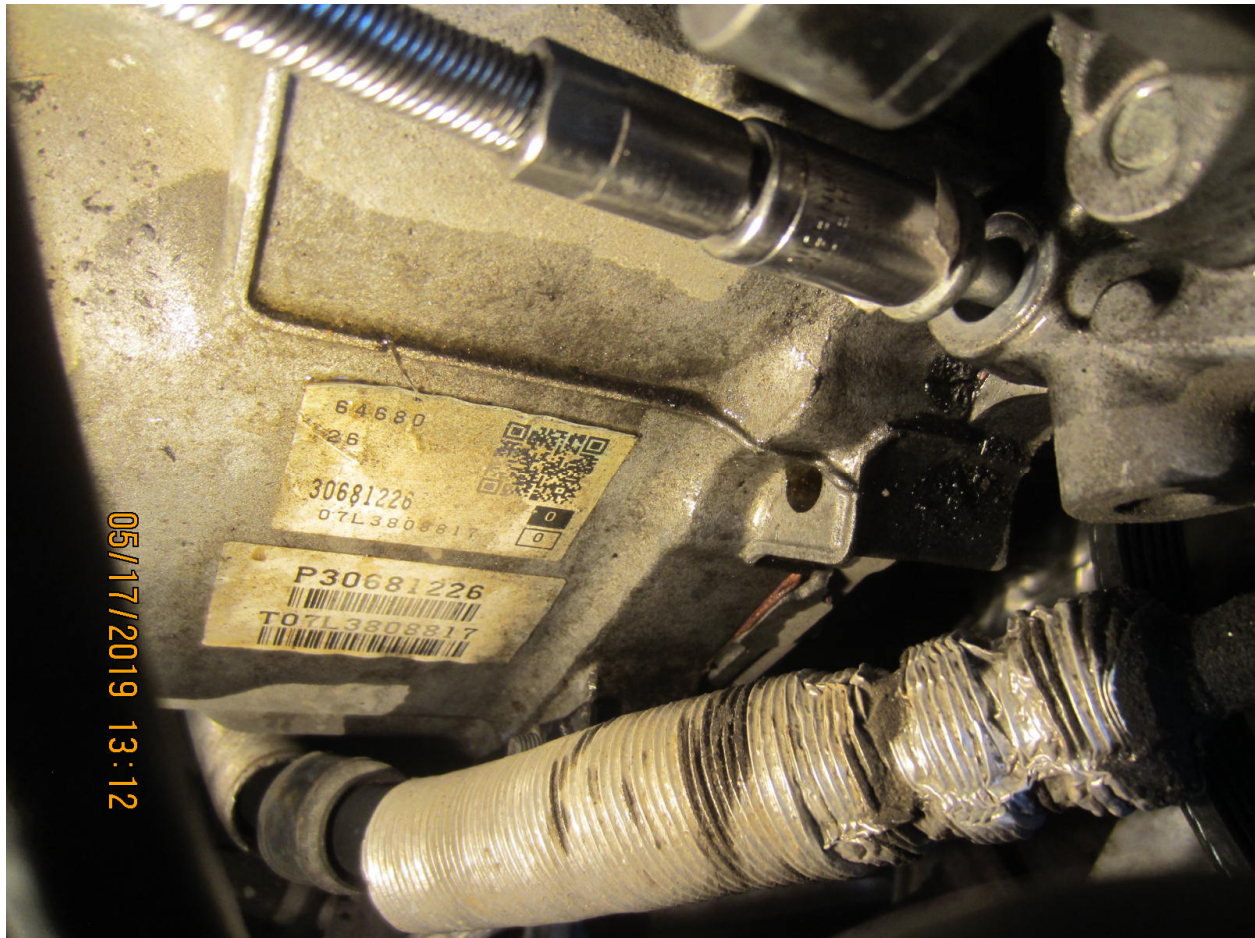




**Mini Ratchet w/torx**

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Once loose, a flex driver makes quick work of rear PS pump fastener removal.



I loosened the high pressure PS pump line and removed the low pressure return line to gain sufficient room and flexibility to separate the water pump coupler from the PS pump pulley. On the non-pulley side, a support bracket attaches the top of the PS pump to the frame. Remove the fastener at the top and loosen, but do not remove the lower fastener at the frame. Why? Because it is not necessary plus you'll spend hours reinstalling it. No clearance!

In conclusion, this is not a difficult task, but is time consuming, providing ample labor hours and can be especially profitable to a shop. Ford (yes, Ford) engineers knowingly or through neglect conspired to make an otherwise simple and routine task expensive; thus, in my opinion, resulting in auxiliary belt replacement postponement by vehicle owners. Deferred belt maintenance may prompt belt failure and engine demise. This engineering marvel is good for replacement vehicle business but costly to consumers. Environmental concerns suggest that vehicles must be engineered maintenance ease and moderate cost repairs. This results in owner compliance with manufacturer maintenance schedules, long and dependable vehicle use lives and acceptable exhaust emissions.

Bob lives in Cary, NC and is co-chairman of the Blue Ridge Chapter of VCOA. Contact him at [rfsepe@gmail.com](mailto:rfsepe@gmail.com). He'll respond to your Volvo concerns.