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# TENSIONER UPDATE KIT

## INSTALLATION INSTRUCTIONS FOR THE

90-05 MAZDA MIATA w/M45 SC (for the specific applications listed below)

- 999-820 - Tensioner Update Kit (to be used with one of the belts below)
- 999-822 - Belt for use on '90-'93 with Power Steering, with A/C, Regular Boost
- 999-016 - Belt for use on '90-'93 with Power Steering, with A/C, Big Boost
- 999-013 - Belt for use on '90-'93 with Power Steering, without A/C, Regular Boost
- 051-424 - Belt for use on '90-'93 with Power Steering, without A/C, Big Boost
- 052-347 - Belt for use on '94-'97 with Power Steering, with A/C, Regular Boost
- 999-111 - Belt for use on '94-'97 with Power Steering, with A/C, Big Boost
- 052-375 - Belt for use on '94-'97 with Power Steering, without A/C, Regular Boost
- 999-825 - Belt for use on '94-'97 with Power Steering, without A/C, Big Boost
- 052-399 - Belt for use on '99-'05 with Power Steering, with A/C, Regular Boost
- 052-375 - Belt for use on '99-'05 with Power Steering, without A/C, Regular Boost

**READ AND UNDERSTAND ALL STEPS OF THE INSTRUCTIONS BEFORE BEGINNING. NOTE, THIS KIT MUST BE USED ON A CAR WITH POWER STEERING.**

**TOOLS REQUIRED:** 17mm socket, 14mm socket, ratchet, 7/8" (90-93 only), 12mm & 14mm combination wrenches, phillips & flathead screwdrivers

**(NOTE: For 01-05 cars already equipped with Moss's previous billet-style tensioner, skip to Step 6.0 on Page 10)**

### 1.0 DISASSEMBLY (90-00 plate style tensioner)

1.1 Use the flathead screwdriver (or an 8mm nut-driver) to loosen the two clamps of the crossover tube. Then remove the tube and set it aside.



1.2 Use a 12mm combination wrench to loosen the locking bolt on the rear face of the tensioner block. If the rubber coupling on the blower outlet gets in the way, loosen its clamps and remove it as well.



1.3 Use a ratchet & 14mm socket to loosen (not remove) the bolt just below the idler pulley. Then rotate the engine to uncover the 14mm headed bolt at the far left of the power steering pump inside the pulley. This can be done with a 21mm socket on the crank pulley. **ONLY** go in the clockwise (tighten) direction on the crank pulley bolt. (Cont'd next page)

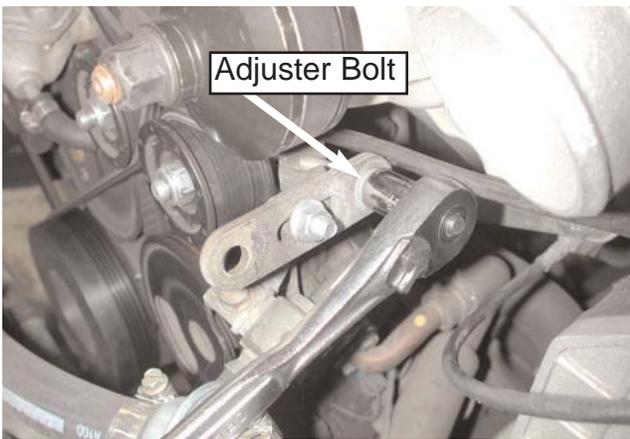


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Loosen and remove this long bolt with a 14mm socket & ratchet. You will need to use a 14mm combination wrench on the nut at the other end of this bolt which lies on the other side of the super-charger support strap bracket. **(For 99-00 cars, remove the two bolts at the top of the radiator fan using 10mm socket so the fan can be lifted slightly to clear the long bolt)**



**1.4** Use a 12mm combination wrench on the tensioner adjuster bolt to loosen the tension on the belt.



**1.5** Take the serpentine belt off.



**1.6** Unthread the tensioner block locking bolt loos-

ened in Step 1.2 from the tensioner place. Then remove the bolt that lies just beneath the idler pulley and the tensioner plate (with its idler pulleys).



**1.7** Unthread & remove the adjustment bolt from the tensioner block. Then remove the tensioner block and the tensioner block locking bolt.

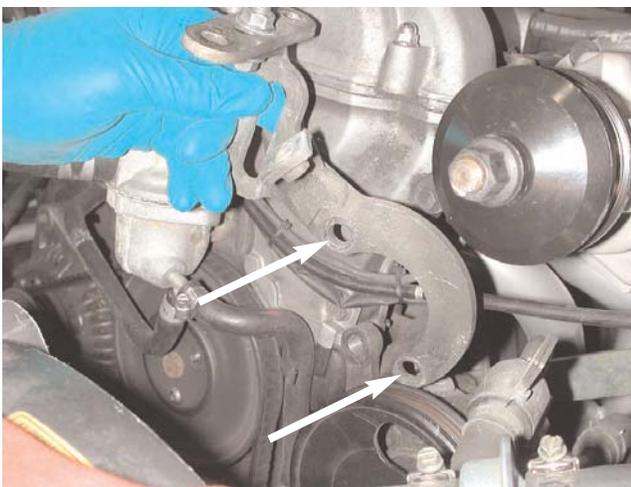
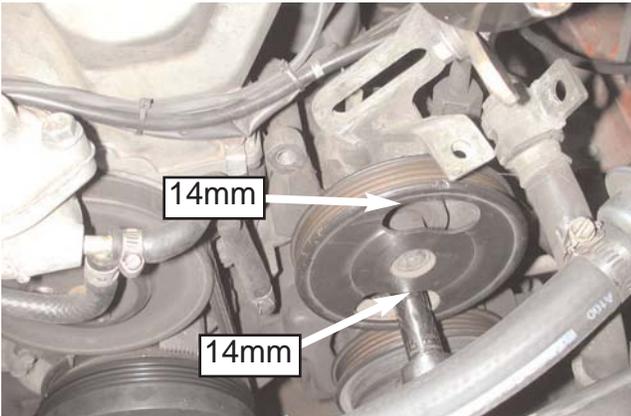


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**1.8** Remove the bolt holding the power steering hose support clamp. Rotate the clamp upwards out of the way.



**1.9** Remove the two 14mm-headed bolts that secure the power steering pump to the power steering hose support bracket.



**1.10** On 99-00 cars, use a 10mm socket to remove the remove the harness bracket. Replace the bolt.



**2.0 1990-1993 P/S LINE SUPPORT BRACKET** (NOTE: 94-97 skip to Section 4, 99-00 skip to Section 3) These steps are used to determine how far to rotate the power steering line and clamp on 1990-1993 1.6L cars in order to clear the new tensioner bracket. These steps **ONLY** apply to 90-93 Miatas.

**2.1** Use dikes to pry open the locking tabs of the power steering hose support bracket. Use a screwdriver to pry open the bracket itself. Move the bracket down one inch off the collar.



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**2.2** Use a 7/8" combination wrench to loosen the nut securing the power steering hose to the pump. Loosen the nut until the p/s line can be rotated, but not enough to leak fluid.

**2.3** Locate and attach the new power steering hose bracket thru the lower hole first using a factory power steering bolt. Then install another factory bolt into the top hole in the bracket. Slide the power steering link onto the stud of the power steering line support bracket. Line up the other hole in the power steering link bracket with the hole of the factory power steering line support clamp. Use a M8 x 20mm bolt and M8 flanged nut to bolt the clamp to the power steering link. Tighten the nut on the stud of the power steering support bracket. The power steering link will bend slightly when you tighten down the line. Now, take note of where the power steering line is pointed. Now that we have the power steering link bracket aligned, we will remove the brackets on order to provide room to tighten the power steering line.



**2.4** Remove the nut & bolt holding the power steering line to the power steering line clamp. Remove the nut securing the power steering link to the power steering support bracket. Then remove the power steering link.



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**2.5** Use a pair of pliers to squeeze the bracket closed. Use an additional pair of pliers to squeeze the tabs closed. Remove the two bolts securing the power steering hose support bracket. Use a 7/8" combination wrench to tighten the power steering line, making sure that it has been reoriented to its new position. You will have to hold the power steering line in position with one hand and tighten with your other hand.



**3.0 1999-2000 P/S LINE SUPPORT BRACKET (Note 94-97 skip to section 4)** - These steps are used to determine how far to rotate the powersteering line and power steering line support clamp on 99 and 00 vehicles only.

**3.1** Use a 7/8" combination wrench to loosen the nuts securing the powersteering hose to the pump. Loosen the nut until the P/S line can be rotated, but not enough to leak fluid.

**3.2** Locate and attach the new power steering hose bracket thru the lower hole first using a factory power steering bolt. Then install another factory bolt into the top hole in the bracket.



**3.3** Tighten one of the plain nuts on to the P/S support bracket stud. Install the P/S link and a lock nut onto the stud. Use the M8 x 20mm bolt to line up the other hole in the link with the hole of the factory P/S line support clamp. Flip the support clamp away from the link and tighten the lock nut down. Double check that the holes still line up.



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**3.4** Now that you have the link bracket aligned, remove the support bracket from the pump to provide room to tighten the power steering line. Make sure the P/S line does not move while you remove the bracket or tighten it or the bolt hole in the link and clamp will not line up.

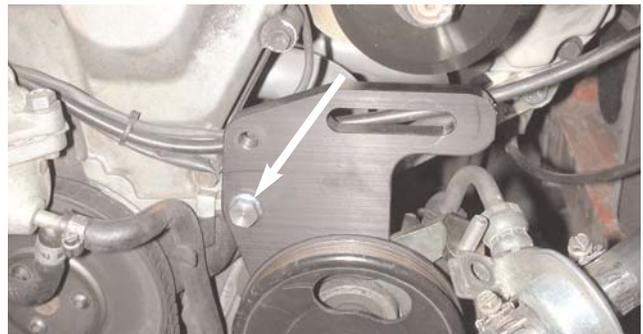
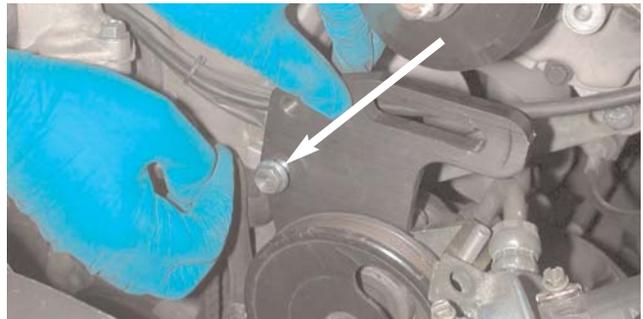


### **4.0 P/S SUPPORT BRACKET & TENSIONER BRACKET**

**4.1** Place the provided power steering support bracket into place. Reinsert the factory bolt into the bottom hole of the power steering support bracket and thread it into the power steering pump until its finger tight.



**4.2** Locate the tensioner bracket and the supplied M10 bolt that has its head shortened. Holding the tensioner bracket in place, insert the bolt thru the tensioner bracket into the upper left-hand non-threaded hole of the tensioner bracket and thread it into the cast bracket on the engine block.

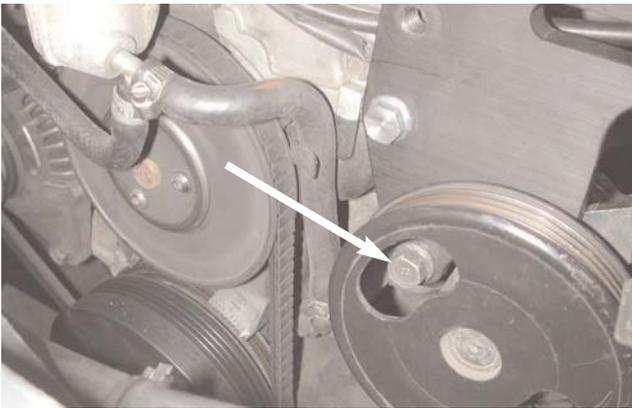


**4.3** Line up the tensioner bracket and the power steering hose support bracket & insert the factory 14mm headed M10 bolt through them. Then thread the bolt into the power steering pump and hand tighten. NOTE: You may have to rotate the power steering pulley to uncover the hole.



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**4.4** Rotate the pulley to uncover the bolt hole at the left side of the tensioner bracket. Insert the long factory 14mm headed bolt through the tensioner bracket, into the cast power steering bracket, through the power steering pump and through the supercharger support strap bracket. Thread the 14mm headed M10 nut onto the end of the bolt protruding from the other side of the supercharger support strap bracket.

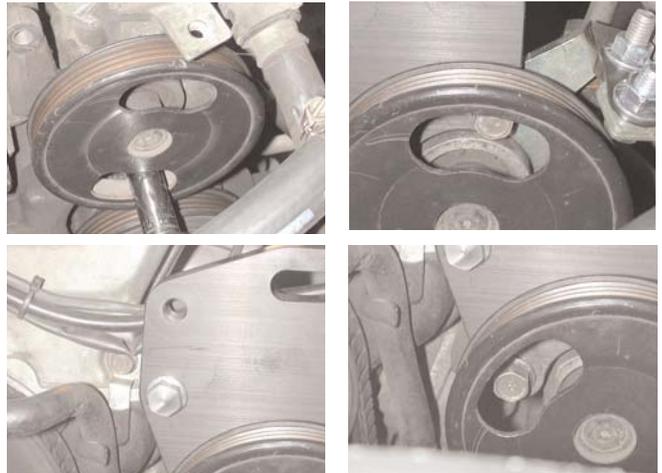


**4.5** Slide the power steering link bracket into place over the stud of the power steering hose support bracket. Insert the 12mm-headed M8 bolt and nut thru the power steering link bracket and the clamp around the power steering line. Thread the 12mm hex M8 nut onto the power steering hose support bracket. Tighten the nut and the nut/bolt combination to 12 ft-lbs.



## 5.0 BRACKET, IDLERS AND BELT

**5.1** Torque the four bolts that attach the tensioner bracket and power steering hose support bracket to the power steering pump, pump bracket and engine block to 32 ft-lbs. You will need to hold the nut on the back of the long 14mm-headed bolts that goes thru the power steering pump and supercharger strap bracket.

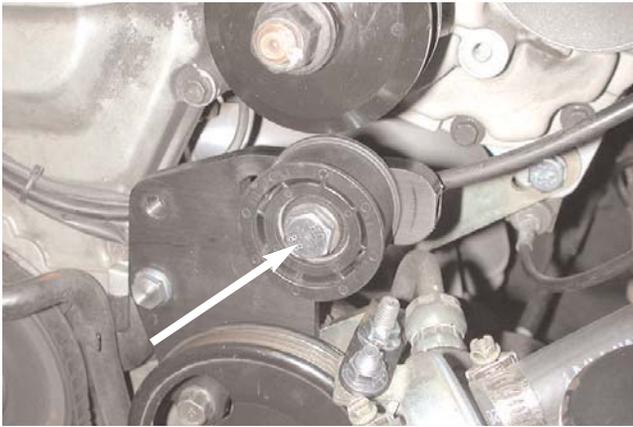
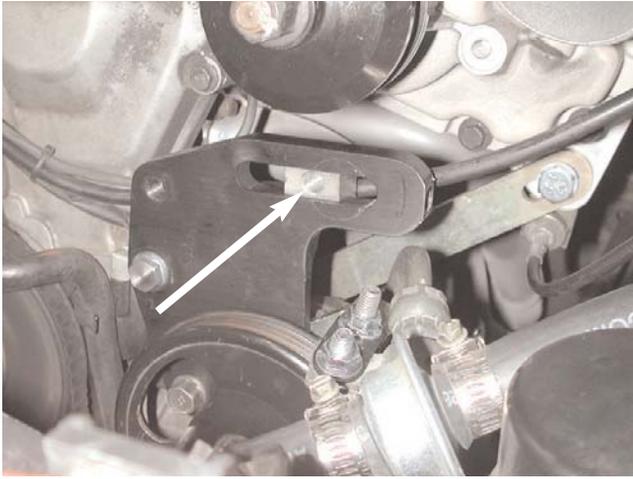


**5.2** Locate the tensioner pulley components including the provided 14mm-headed M10 x 50mm bolt, thick black M10 washer, pulley, tensioner pulley spacer (the two provided washers, pulleys and spacers are the same) and the T-nut. Slide the thick black M10 washer over the M10 x 50mm bolt. Then slide the pulley over the bolt. Then slide the pulley spacer over the bolt (Note: The smaller diameter end of the spacer needs to face the pulley).



**5.3** Slide the T-nut into the tensioner bracket from behind. Then thread the M10 x 50mm bolt of the tensioner pulley assembly into the T-nut from the front of the tensioner bracket. Leave it just slightly loose so that the t-nut can still move in its slot.

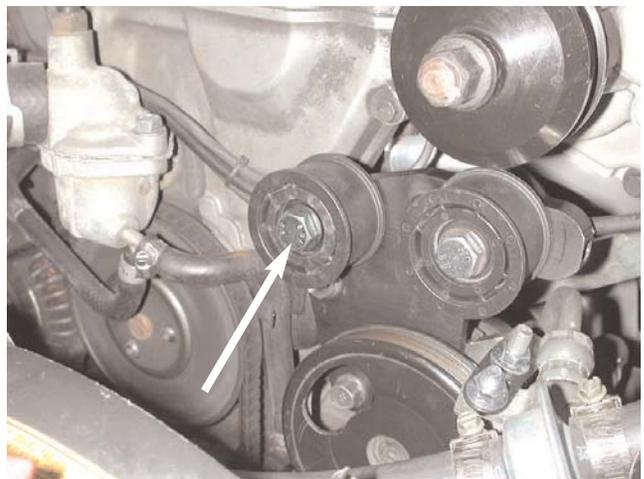
## Tensioner Update Installation Instructions



**5.4** Assemble the idler pulley components. This assembly uses the same components as the Tensioner Pulley assembly, **except that the bolt is a shorter 14-mm headed M10 x 45mm bolt** and there is no T-nut. Slide the thick black M10 washer over the M10 x 45 bolt. Then slide the pulley over the bolt. Then slide the pulley spacer over the bolt (Note: The small diameter end of the spacer needs to face the pulley).



**5.5** Then thread the 14mm-headed M10 x 45mm bolt of the idler pulley assembly into the threaded hole at the upper left corner of the tensioner bracket. The idler pulley should clear the shortened-head bolt just below it. Torque the idler pulley bolt to 32 ft-lbs.



**5.6** Route the Gates serpentine belt around the crank pulley, the air conditioning condenser pulley (if present), the power steering pump, the tensioner pulley, the supercharger pulley, down under the idler pulley and back to the crank.

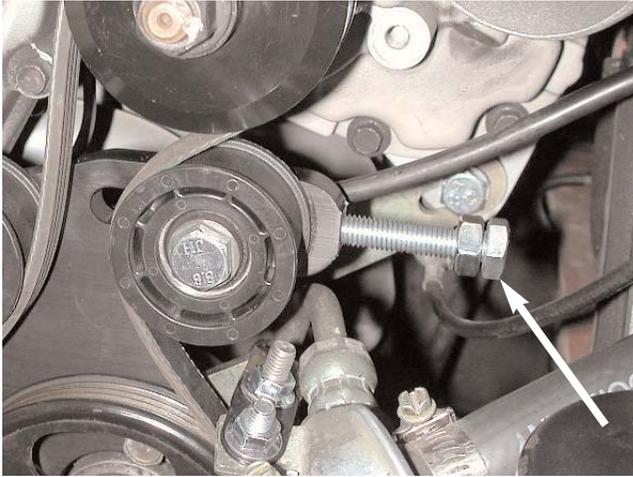


**5.7** Locate the 17mm-headed M10x60mm tensioner bolt and M10 jam nut. Thread the jam nut onto the bolt until it rests up near the head of the bolt.



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**5.8** Thread the M10 x 60mm bolt into the tensioner bracket until the tip of the bolt rests against the side of the T-nut.



**5.9** Snug up the tensioner pulley bolt by hand and then back it off half-of-a-turn so that it will slide but not tilt up, down, left or right. Use a 17mm combination wrench to tighten the tensioner bolt until there is 1/2-inch of deflection when you press firmly on the belt between the idler and crank pulleys.



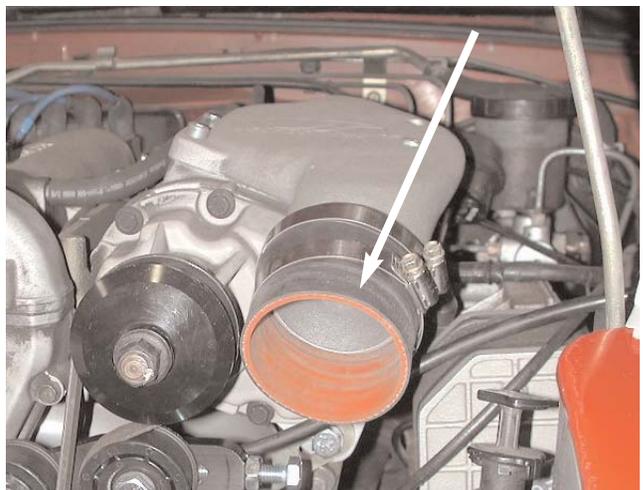
**5.10** Thread the jamnut on the tensioner bolt down against the tensioner bracket. Use a 17mm combination wrench to lock the jamnut into place.



**5.11** Torque the tensioner pulley bolt to 32 ft-lbs. Also doublecheck the torque on the idler pulley bolt.



**5.12** Loosely install the right-hand supercharger outlet hose coupling and its clamp if it was removed to gain access earlier.



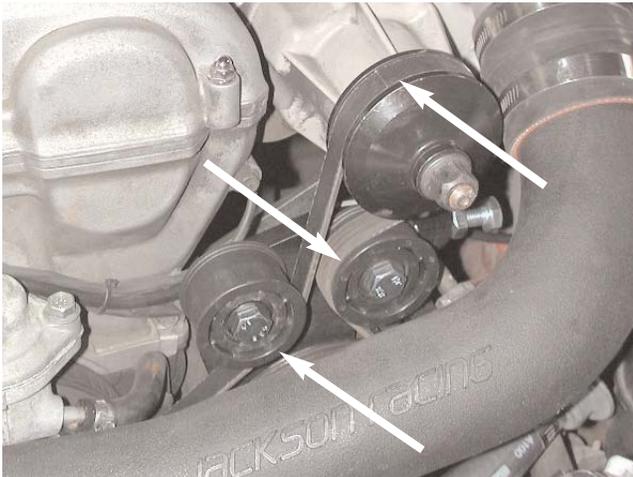
## Tensioner Update Installation Instructions



**5.13** Loosely install the crossover tube and its clamps.

**5.14** Tighten all four coupling and crossover tube clamps.

**5.15** Start the engine and look at the belt to make sure nothing is loose or out of alignment. Make sure that the V's of the serpentine belt ride properly in the grooves of each pulley.



**5.16** Drive the car, making sure that the belt does not squeal. If it squeals, remove the crossover tube, loosen the tensioner pulley bolt 1/2-turn, loosen the tensioner bolt jamnut, tighten the tensioner pulley bolt until you have proper belt tension and retighten all of the components. Note when a new serpentine belt is installed there will be some belt stretch after installation.

**5.17** Enjoy your upgraded Miata tensioner system!

**(See next page for belt replacement info)**

For future belt replacements, your kit will now use the following belts from Moss Motors:

**999-822** - Belt for use on '90-'93 with Power Steering, with A/C, Regular Boost

**999-016** - Belt for use on '90-'93 with Power Steering, with A/C, Big Boost

**999-013** - Belt for use on '90-'93 with Power Steering, without A/C, Regular Boost

**051-424** - Belt for use on '90-'93 with Power Steering, without A/C, Big Boost

**052-347** - Belt for use on '94-'97 with Power Steering, with A/C, Regular Boost

**999-111** - Belt for use on '94-'97 with Power Steering, with A/C, Big Boost

**052-375** - Belt for use on '94-'97 with Power Steering, without A/C, Regular Boost

**999-825** - Belt for use on '94-'97 with Power Steering, without A/C, Big Boost

**6.0 DISASSEMBLY (01-05 with Moss' previous billet style tensioner only. Installation on 90-00 with plate style tensioner ends here.)**

(See the equivalent step in section 1.0 for illustrations of steps not shown below)

**6.1** Loosen the two clamps of the crossover tube. Then remove the tube and set it aside.

**6.2** Use a 14mm socket and ratchet to loosen the tensioner pulley bolt 1/2-turn.



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**6.3** Use a 10mm combination wrench to loosen the tensioner bolt jamnut. Thread the nut back towards the head of the bolt. Then use a 10mm combination wrench to back the head of the bolt away from the T-nut. This will relieve tension on the serpentine belt.



**6.4** Remove the serpentine belt.

**6.5** Remove the nut securing the power steering hose clamp to the power steering support bracket.

**6.6** Use a 14mm socket and ratchet to remove the idler pulley and idler pulley bolt.



**6.7** Use a 14mm socket and ratchet to remove the shortened-head bolt that lies at the upper left-hand side of the tensioner bracket just below the idler pulley.



**6.8** Rotate the power steering pulley to uncover the bolt at the bottom of the power steering pump that holds on the power steering support bracket. Use a 14mm socket and ratchet to loosen this bolt slightly, but leave it in place.



**6.9** Rotate the power steering pulley to uncover the short 14mm-headed bolt at the top of the power steering pump. Remove the bolt using a socket and a ratchet.



**6.10** Rotate the pulley to uncover the bolt head at the left side of the tensioner bracket. Use a 14mm socket and ratchet to loosen and remove the long bolt and backing nut. You will need to use a 14mm combination wrench on the nut at

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the other end of this bolt which lies on the other side of the supercharger support strap bracket.

**6.11** Remove the original tensioner bracket. Allow the power steering support bracket to rotate on the lower bolt and to rest against the power steering hose.



**6.12** Follow steps **4.3** (Page 6) through **5.16** (Page 10).

**6.13** Enjoy your new updated Miata tensioner system!

For future belt replacements, your kit will now use the following belts from Moss Motors:

**052-399** - Belt for use on '99-'05 with Power Steering, with A/C, Regular Boost

**052-375** - Belt for use on '99-'05 with Power Steering, without A/C, Regular Boost

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Moss #	Description	Quantity
772-516	INSTRUCTIONS,TENSIONER UPDATE	1
988-160	TENSIONER ASSEMBLY, MP62	1
051-084	BOLT, HEX, M10 X 1.50 X 50	1
	1- Idler Pulley to T-Nut	
051-215	SPACER, SHOULDER	2
	2- b/t M10 bolt head and Idler	
052-904	TENSIONER, T-NUT, MIATA MP62	1
051-627	PULLEY, 2.0IN IDLER, NYLON	2
052-923	BOLT, M10 X 1.5 X 45, HEX HEAD	1
	1- Idler Pulley to Bracket	
051-916	BRACKET, POWER STEERING HOSE	1
052-903	BELT DRIVE BRACKET	1
052-331	SPACER, IDLER, .325	2
052-367	BOLT, FLANGE, M10 X 1.25 X 20	1
	1- Belt Drive Bracket - Engine	
052-922	JAM NUT, M10 X 1.5	1
	1 - belt tension adjustment	
052-924	BOLT, M10 X 1.5 X 60, HEX HEAD	1
	1 - belt tension adjustment	
052-941	POWER STEERING LINK, MP62	1
051-186	NUT, HEX FLANGE, M8 X 1.25	2
051-127	BOLT,HEX FLANGE,M8 X 1.25 X 20	1

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