BR Performance, LLC

15-B International Ct.
PO Box 1226
Mauldin, SC 29662

Tech Support

Phone: (800) 301-4122
E-mail: tech@brperformance.com
Live Chat Accessed from our website.
www.brperformance.com
Also see our forum for more info..

BRP MP62 / S1 Supercharger Kit

1999 - 2005 Mazda Miata

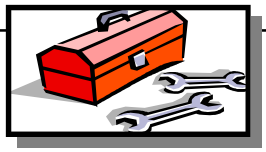
Congratulations!

Congratulations on your purchase of the BR Performance (BRP) MP62 Supercharger Kit. This supercharger kit was designed for the Miata, by true Miata aficionados. We don't just build and sell kits for the Miata. We love them and drive them, HARD, every day. That said, we put a lot of time and effort into the design and development of our MP62 supercharger kit.

"So how long is this going to take to install anyway?" Well, that really depends upon you. We suggest reading through the instructions a couple of times to familiarize yourself with the components, your car, and how they all fit together. If this is your first time installing a modification of this degree, then we suggest you give yourself at least a full day, to a day and a half for the install. An experienced mechanic should be able to install this kit in approx. 7-9 hours.

Do not hesitate to call us if you have questions or concerns.

Tools:



No special tools or equipment will be needed to install your BRP MP62 kit. Common mechanics tools will be needed. Following is a list of tools that may be necessary depending upon how your Miata is currently equipped.

- ◊ Wrenches: 17mm, 14mm,13mm, 12mm, 10mm. A torque wrench is also recommended.
- ◊ Sockets: 3/4", 1/4", 5/16", 17mm, 14mm, 13mm, 12mm, 10mm, 8mm, and assorted extentions may come in handy as well.
- ◊ Screwdrivers: Phillips and Flat Head.
- ◊ Pliers: Slip Joint and Needle Nose.
- ◊ Allen Wrenches (Hex Key): 8mm, 6mm
- ◊ Wiring Tools: Wire stripper/cutter, Crimper (although we suggest the use of a soldering iron & solder for electrical connections when possible).
- ◊ Other: Thread locking compound. Utility knife. Electrical tape. Extra zip-ties to help tidy up the wires and hoses. Throttle body cleaner if you think you'd like to clean your throttle body while it's removed.

Compatibility :

There are no known compatiblity issues with the following equipment:

- ◊ Shock Tower Bars: OEM, Jackson Racing Strut Brace (No ABS!)(Moss #904-650)
- ◊ Headers: OEM, Jackson Racing (Moss # 903-125), Racing Beat 4-2-1 (old model style).
- ◊ Cars equipped with ABS, and all Canadian cars, will require a Washer Bottle Relocation Kit. (Moss #902-490)

99-05 S1 Instruction Section List

- 99-05 S1 MP62 Cover Sheet
- 99-05 S1 Section List
- 99-05 S1 Assembly List
- 99-05 Prep & Removal
- 99-05 Crank Pulley
- 94-05 Head Bracket Assembly
- 99-05 Standard Throttle Body & DTB
- 94-05 Under Brace
- 94-05 SC Mount w/ S-TB
- 99-05 Idler Pulley Assembly
- 99-05 Standard TB Intake
- 94-05 Crossover
- 99-05 Crank Angle Sensor

99-05 S1 Assembly & Component List
MP62 / S1 Kit

- BRA-600-010 ASSY, DTB
- BRA-600-021 ASSY, (6R) UNDER BRACE
- BRA-600-031 ASSY, (6R) HEAD BRACKET
- BRA-600-041 ASSY, (6R) IDLER PULLEY
- BRA-600-051 ASSY, (6R) INTAKE OEM/TB
- BRA-600-061 ASSY, CROSSOVER
- BRA-600-092 ASSY, (6R) SUPERCHARGER
- BRPUD60950 PULLEY, 95MM, CRANK
- ZDB-K060420 BELT, K060420
- BRA-100-002 ASSY, POWERCARD INSTALL
- MOS-988-450 BRACKET, CAS TIMING
- Plug-N-Play Module (PNP) w/ PowerCard (PC)

Dummy Throttle Body

Idler Pulley Assembly

Crossover Assembly

PowerCard Install Kit

Under Brace Assembly

Intake Assembly

Supercharger Assembly

CAS Bracket Assembly

Head Bracket Assembly

6-rib Crank Pulley

PNP w/PC Module

6-rib Belt

Images are for reference only and are meant to assist you in verifying that each assembly has been included in your kit. Your assembly / components may appear slightly different or have slight differences in the hardware (hose clamp sizes, number of clamps, etc) included with your specific kit.

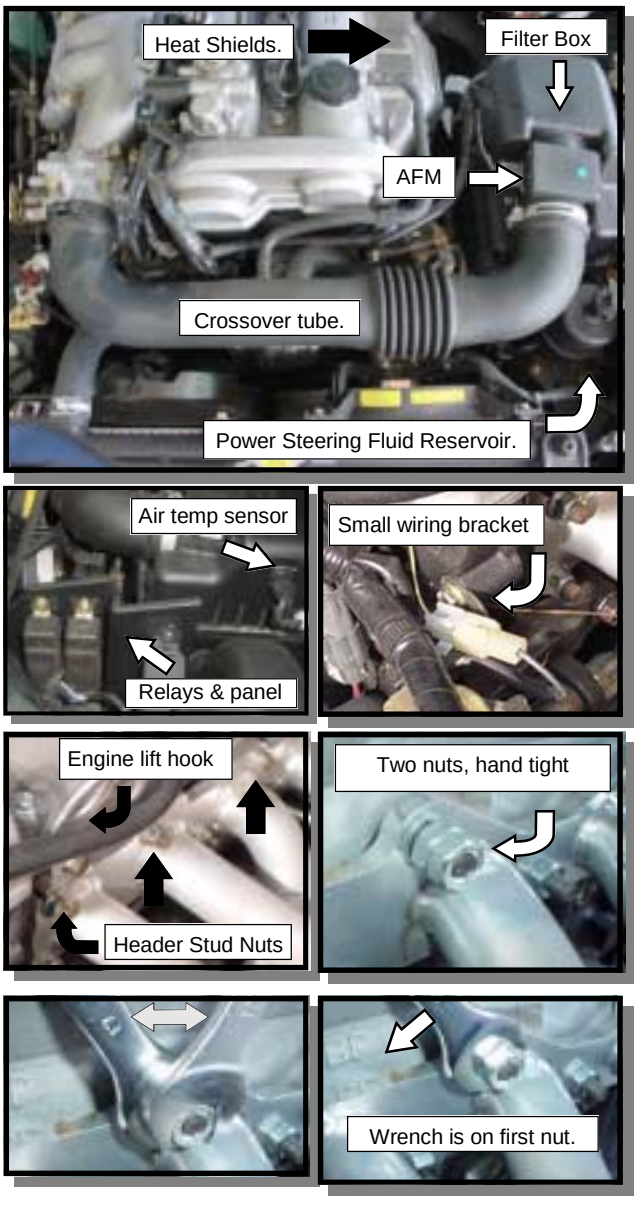
99-05 Preparation & Removal of OEM Components

Prior to Installation:

- You should use a *minimum* of 91 octane, major brand, fuel for at least two tank fulls prior to installations (use of high octane fuel required after supercharger is installed).
- If you have not done so within the last 3,000 miles, you should change your oil and oil filter. We highly recommend the use of synthetic oil with any form of forced induction.
- Be sure that your car's cooling system is adequate (flush and new coolant).
- We suggest a slightly cooler range spark plug such as the NGK BKR6E gapped at approx. .033-.035.
- Before beginning work, disconnect the negative terminal from your battery.
- We recommend placing the car on four jack stands (never use a floor jack to hold a car up).
- We recommend replacing the power steering / air conditioning drive belt during the install.

Removal of OEM Components:

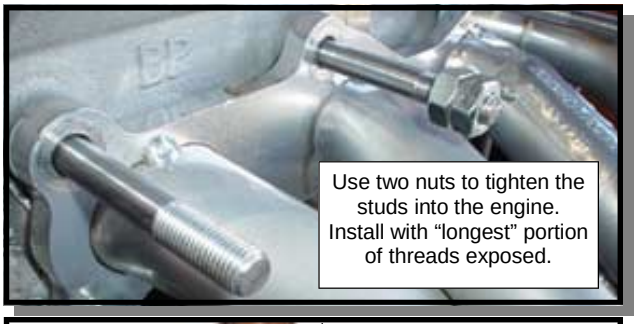
- Begin by removing your OEM shock tower bar (if your car is so equipped). You can re-install this after the supercharger installation is completed.
- Remove the factory crossover tube, filter box and air flow meter (AFM). You will need to unplug the connector at the AFM as well as remove the air temp sensor from the filter box.
- Remove the exhaust header's heat shields.
- If so equipped, just to the right of the power steering fluid reservoir, is a panel with relays mounted onto it. Remove the relays from the panel and then remove the panel itself.
- Remove the engine's front lift hook from the front of the cylinder head.
- Remove the small wiring bracket securing the two small wiring harnesses to the cylinder head. Be sure to replace the bolt.
- Remove the 1st, 2nd, and 3rd (counting from the front) nuts from the top header studs .
- Next we will be removing the three header studs and replacing them with the three longer studs provided in your kit.
- Use two of the provided nuts and hand thread them onto the stud just far enough to clear the end of the stud.
- Use two 17mm wrenches to put tension on the two nuts. Do this by turning the first nut counter-clockwise and the second nut clock-wise. This will tighten the nuts up to one an-other.
- Next, use the 17mm wrench on the first nut to turn the stud counter-clockwise, thereby re-moving the stud from the engine.
- Once the stud is out, use the other 17mm wrench to loosen the two nuts. Repeat the process for the other two studs that need to be removed.
- Note the amount of thread on each end of the new studs is different. Start the replacement studs into the engine with the shorter section

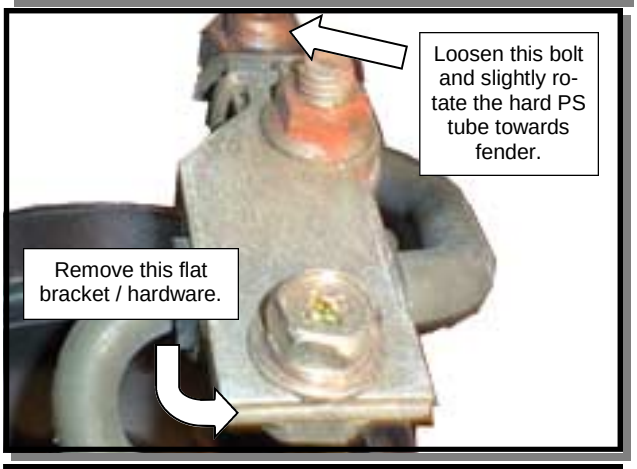


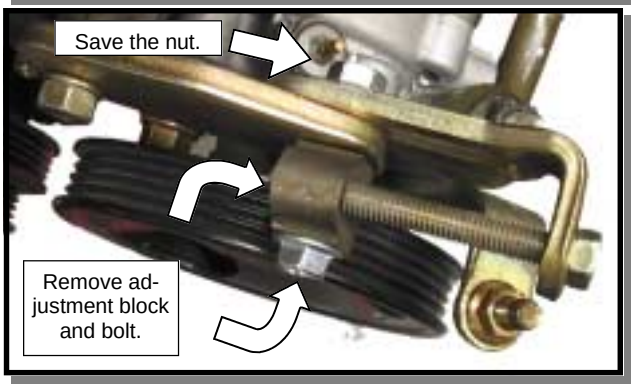
99-05 Preparation & Removal of OEM Components

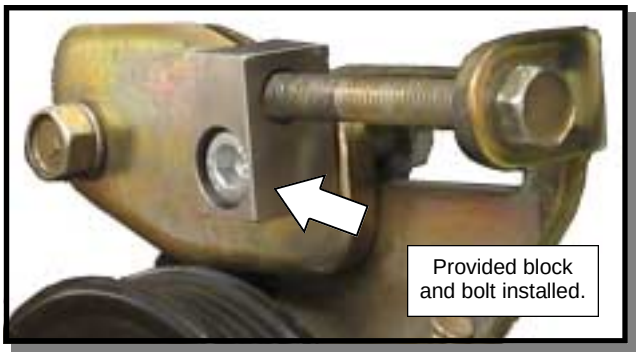
of thread being inserted into the engine.

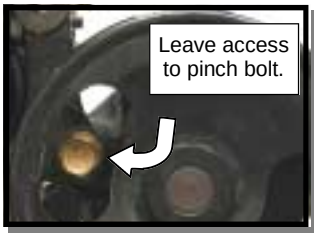
- Tighten the new studs by performing the same procedure that was used to remove the original studs.
- You will use the second (outer) nut to tighten though. Torque to 29-33 ft/lbs.. Remove the nuts when finished installing the three new studs.
- The hard power steering line will need to be rotated towards the fender just slightly to allow more clearance for belt travel. First remove the flat bracket and hardware securing the hard tubing. It will not be re-used.
- Now loosen the nut securing the hard line's fitting on top of the power steering pump. Rotate the tube towards the fender a little and then re-tighten the nut.
- Next you will remove the flange head hex bolt and adjustment block from the power steering tension adjustment assembly. Save the nut as it will be re-used.
- Replace the adjustment block with the block provided in the Idler Pulley Assembly kit. You will also use the provided socket head bolt along with the original nut.
- We recommend replacing the power steering / air conditioning drive belt with a new one at this time. Going to a slightly shorter belt will also allow a little more clearance under the blower and may assist with the remaining installation steps.
- Before tightening the belt, turn the power steering pulley such that you have access to the pinch bolt with a socket.
- Adjust and tighten the power steering / air conditioning belt at this time.
- After the PS belt is tight you can then tighten the pinch bolt and nut.





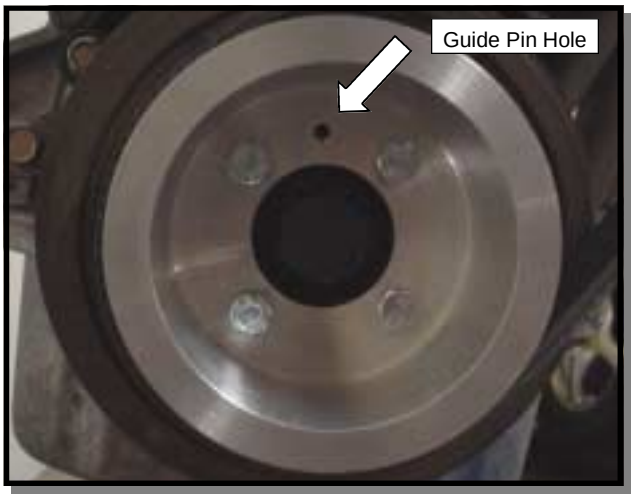






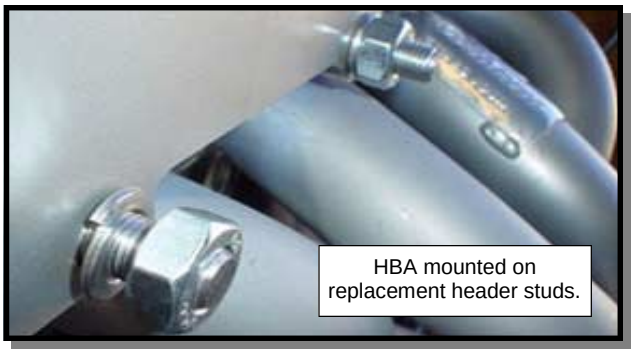
99-05 Crank Pulley

- Locate the crank pulley supplied with your kit. The hardware and spacer for the crank pulley are found in the IPA (Idler Pulley Assembly).
- There are different crank pulleys on the '99-'05 cars. Some are stamped, while others are cast. The cast pulleys will not require the use of the BRP Spacer with the BRP crank pulley. The stamped pulleys will. Since there is no easy way to determine which crank pulley our customers will have, we have included the spacer and hardware in all kits. You should be able to tell if you require the crank pulley spacer or not because the BRP crank pulley will not properly seat down in the OEM pulley if the spacer is required.
- Remove the four bolts securing the OEM crank pulley.
- It is important that you ensure that all pulley and spacer surfaces are clean and debris free. Failure to clean the pulleys free of debris could result in the pulleys/spacers not seating up to one another flush. This could then manifest itself as a crank pulley that does not turn true.
- Test fit the BRP crank pulley to determine if you need the BRP spacer with it or not.
- The BRP spacer and pulley both have a hole drilled for the guide pin.
- Once spacer use has been determined, secure the BPR crank pulley with the provided bolts, lock washers and thread locking compound.
- Torque bolts to 109—151 inch/pounds.



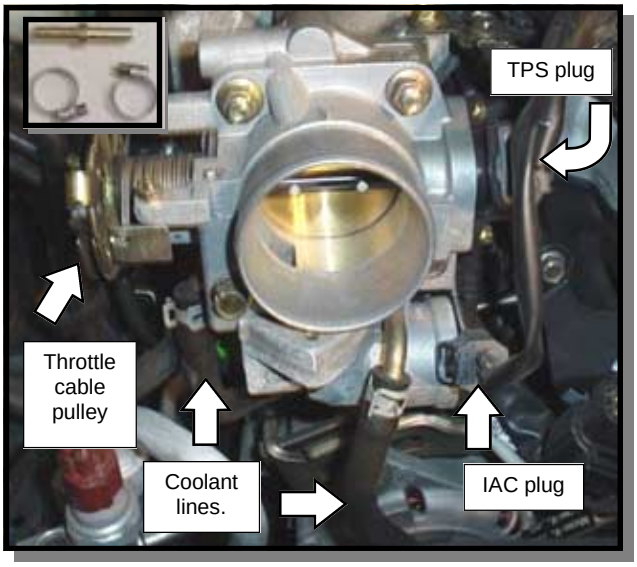
94-05 Head Bracket Assembly

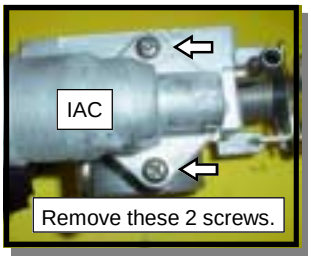
- Locate the HBA (Head Bracket Assembly). Notice that while it is pre-assembled for you, the mount blocks have not been fully tightened down to the plate. Leave the nose and rear mount blocks loose on the HBA plate. They will be tightened down once the blower is fully installed.
- Slide the HBA onto the three replacement header studs that were installed earlier.
- Use the provided lock washers and M10x1.25 hex nuts to secure the HBA.
- Torque the nuts to 29-33 ft./lbs..
- Remove the two hex stock stand-offs from the front mount block's bolts. Stage the bolts by pushing them back just far enough that they're flush with the outer edges of the mount blocks. This will allow lowering of the blower into position and then sliding the bolts into the brackets easy.
- Do the same for the rear mounting block.
- Keep the removed hardware within easy reach (ie. Set them on top of the cam cover). It will make mounting of the supercharger a little easier.

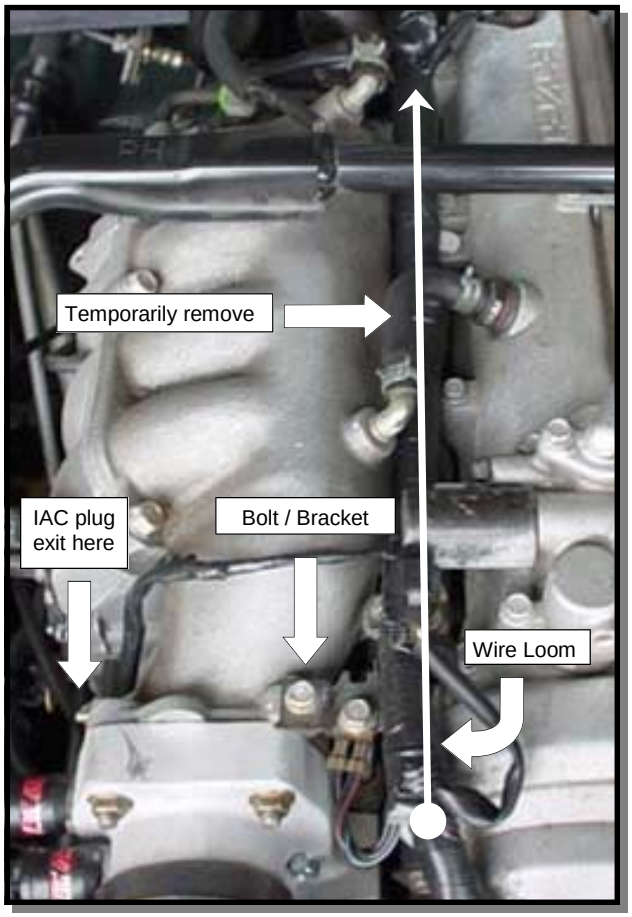


9905 Std. Throttle Body / DTB

- Disconnect the two coolant lines from the factory TB (Throttle Body).
- Use the provided hose mender and 1/4” hose clamps to connect them together. Use zip-ties to secure the now connected coolant line away from the alternator belt. One of the fan support legs is an ideal anchor point.
- Unplug the TPS (Throttle Position Sensor) and (IAC) Idle Air Control connections.
- Remove the throttle cable from the throttle pulley on the side of the TB.
- Remove the throttle cable from the mounting bracket on the side of the intake manifold.
- Remove the cable’s mounting bracket. You can store this bracket & it’s bolts; they will not be re-used.
- Remove the throttle body by removing the two nuts and two bolts (the nuts will be reused). Depending upon model year, behind and below the TB is a brace secured with 4 bolts that will need to be removed too (re-secure the ground wire that is also attached with one of those bolts).
- Carefully remove the OEM gasket behind the TB and keep it with the TB. The OEM gasket will be used with the TB, not with the DTB.
- Remove the IAC from the throttle body. The heads of the original mounting screws for the IAC are soft and easily stripped, even using quality screwdrivers. We’ve found that it’s often best to use a small set of vice grips to loosen these screws.
- Carefully remove the original IAC gasket and keep it (along with the original screws) with the IAC.
- Install the provided gasket and blanking plate to the factory throttle body using the provided hardware.
- Secure the IAC to the DTB using the original factory gasket and mounting screws. Notice that the IAC orientation is different than when mounted to the factory throttle body. The plug connector will point towards the general direction of the firewall.
- Locate the large wiring loom that runs between the intake manifold and the cam cover.
- Temporarily remove the bolt that secures a mounting bracket for the loom at the front of the intake manifold. Cut/remove the zip tie from this bracket too.
- Temporarily remove the hose between the intake manifold & the cam cover.
- Marked in the image is the starting point (marked with a large ball) connected with a line

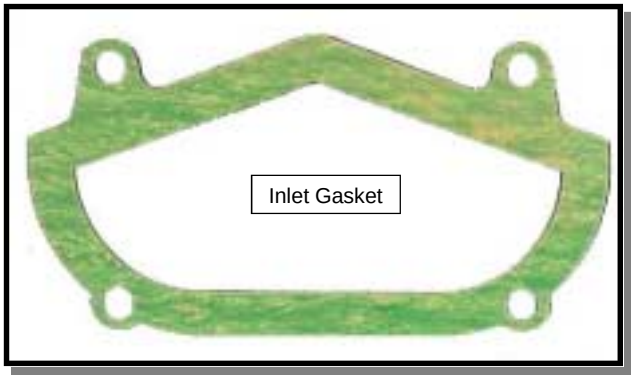


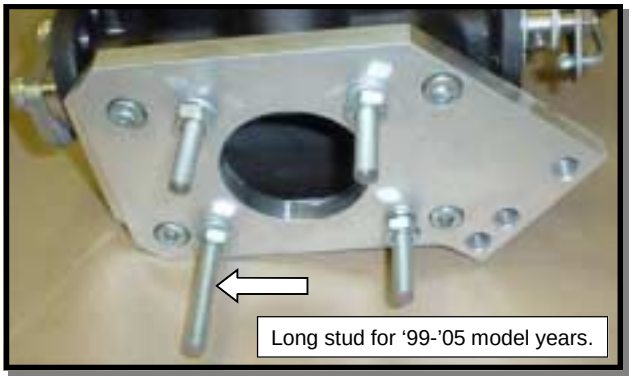


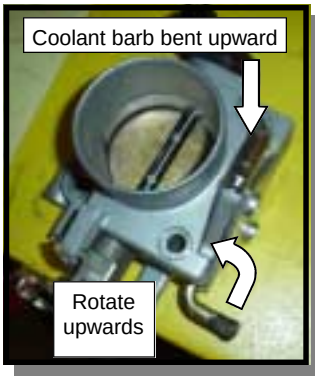


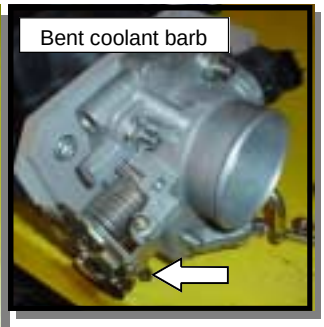
leading the direction you will be cutting and to the ending point (marked with an arrow head).

- Starting at the front of the loom, CAREFULLY and LIGHTLY use a utility knife (or razor blade) to cut through and along the top of the outside of the black wiring loom. Extend the cut freeing wires all the way to the ending point.
- Carefully work free the wires for the IAC plug. Wrap them with electrical tape and route them under the front "neck" of the intake manifold so that the connector will reach the IAC connector once the DTB is installed.
- Next carefully work free the wires for the TPS. You will need to free these wires from the loom nearly all the way to the back of the loom. You may need to actually cut 1-2 wires to free them. If you need to do this, be sure to solder these wires back together and wrap them individually with electrical tape, then wrap all the wires of the TPS harness with electrical tape. The TPS will be extending across the back of the cam cover to the supercharger and throttle body once they're mounted onto the HBA.
- If you plan to wire a JR Boost Timing Control unit into the wiring loom then leave the loom unwrapped until you've done that part of your installation. If you're using our Plug-N-Play module, the J&S, or the manual CAS timing bracket, then you can wrap the wiring loom up at this point.
- Locate the provided DTB gasket and position it over the two studs on the intake manifold.
- Using the original nuts and the two new bolts provided, mount the DTB onto the intake manifold.
- Plug the relocated IAC plug into the IAC.
- Locate the inlet gasket, throttle body adaptor plate, M8 studs and hardware from the intake assembly kit.
- Use the provided M8 socket head bolts to secure the inlet gasket and the throttle body adaptor plate onto the MP62 supercharger.
- Using thread locking compound, install the threaded rods into the throttle body adaptor plate using the same method (using two nuts) to install the replacement header studs. Notice that only the '99-'05 cars will require the one long stud to be installed in the lower left position. The studs will thread into the adaptor plate and contact the blower body. Do not over tighten them as it is possible to thread into and mar the inlet flange.
- Depending upon the headers you have installed, moving the coolant barbs on the throttle body may be necessary for mounting clearance of the supercharger. As a matter of habit, we turn them out of the way on all installations. However, it may not be necessary on your Miata. If you're careful, you can return the barbs back to their original position later if needed. If you choose not to rotate them now, just remember to check for clearance when installing the blower.
- Images show one of the barbs already rotated up and out of the way. Working on a table, use a small screwdriver inserted into the barbs to rotate them up.
- Using the OEM gasket, install the throttle body onto the supercharger and secure with the M8 lock washers and nuts.



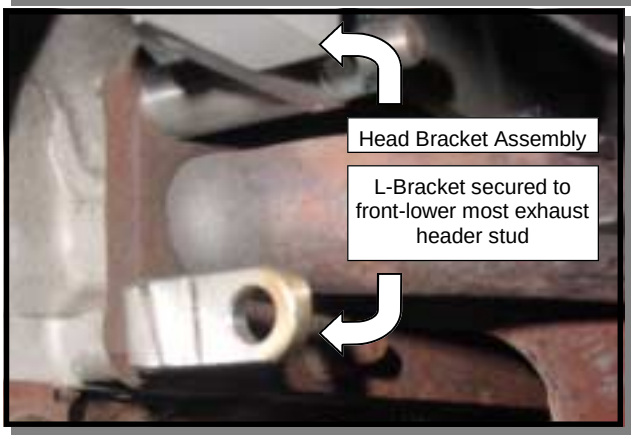


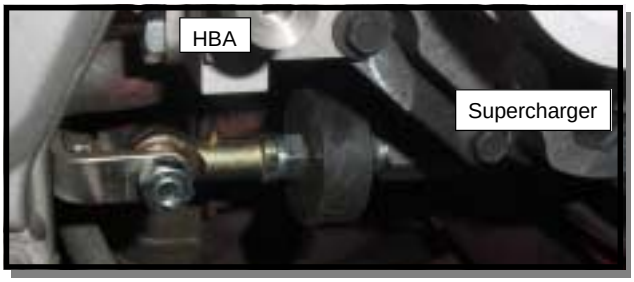


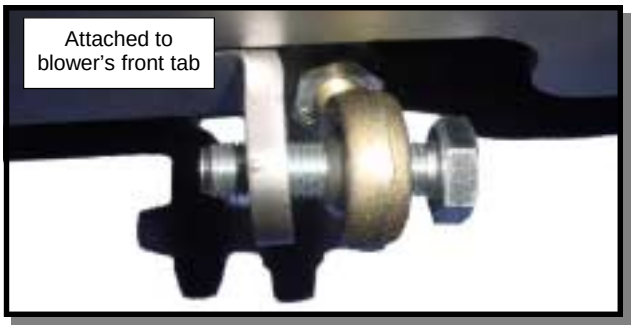


94-05 Under Brace

- Locate the Under Brace Assembly. Notice that while it is pre-assembled for you, it has not been fully tightened down. The under brace is designed to work with both our '94-'97 MP62 kits as well as our '99+ MP62 kits. Differences in exhaust header flange thickness (stock vs. Jackson Racing header, etc), plus the different blower mounting positions ('94-'97 cars vs. '99+ cars) mean the under brace needs to be adjustable.
- The overall length of the under brace is adjusted by first test fitting it and then turning the spherical rod end(s) in or out as needed to obtain the appropriate length for your application. Once done, the three nuts need to be tightened down onto the lock washers.
- The spherical rod ends also allow for the slight movement of the blower assembly forward and back (if needed) without putting flex tension on the rubber isolator portion of the under brace.
- Included with the under brace assembly is a L-bracket and mounting hardware.
- The L-bracket is mounted onto the front-lower most exhaust header stud. Remove that stud's nut, position the L-bracket and secure with the original nut. Torque to 29-33 ft./lbs.
- Use the provided hex head bolt, lock washer and nut to secure the under brace to the L-bracket. The spherical rod end is set to the side closest to the firewall. The bolt goes through the spherical rod end first, then the L-bracket.
- Later in the installation (after the blower is mounted to the head bracket assembly), you will be able to adjust the length of the under brace and secure it to the front-most tab on the outer brace of the supercharger unit. See the images provided for reference.
- When ready to secure the under brace to the blower's outer brace, the bolt will go through the spherical rod end first, then the outer brace's tab.

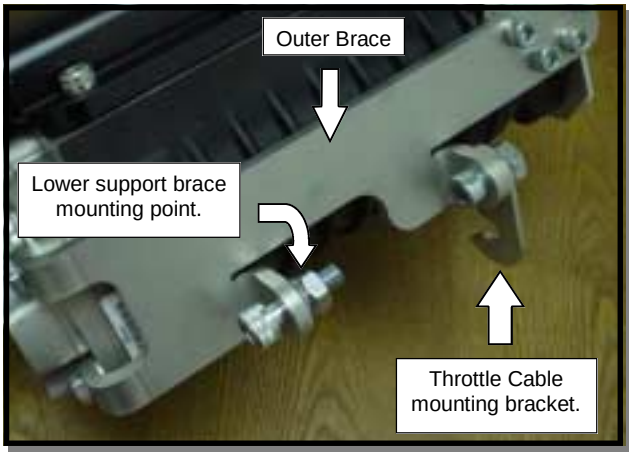


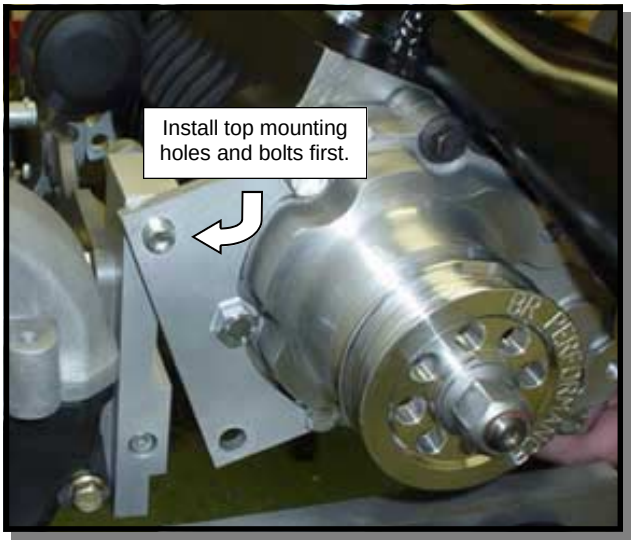


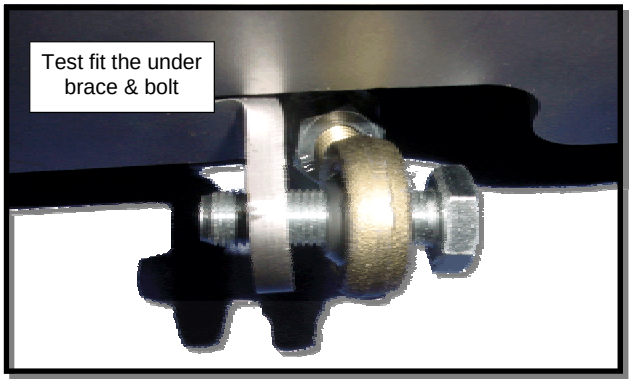


94-05 SC Mount w/ Std. TB

- Using a towel to protect the cam cover, lay the supercharger onto the engine.
- Free the throttle cable from the brackets along the firewall and allow for a nice looping of the throttle cable. The routing should take the cable over near the fender, around the shock tower mount area, towards the headlight, back towards the engine and then back towards the firewall.
- Remove the throttle cable mounting bracket from the side brace of the supercharger so that it is easier to mount the throttle cable into the slot.
- Secure the throttle cable into the mounting bracket (it's a *very* snug fit, but it will fit).
- Install the throttle cable into the pulley on the side of the throttle body. Ensure that the cable is in the channel of the pulley and firmly attached.
- Mount the bracket back onto the outer brace tab. Use the lock washer and nut and tighten the bracket such that the cable runs straight out of the grooves of the pulley. This means the bracket itself will be somewhat under the supercharger. {The spacer included with the throttle cable mounting bracket should only need used on kits with the Big Throttle Body.}
- Adjust the 12mm nuts that secure the throttle cable in the bracket so that there is a little bit of slack in the cable between the pulley. Make sure that the slack is present when the accelerator pedal is released, and that full throttle can occur when the pedal is depressed. With the blower still sitting on the engine you should be able to sit in the car, test the accelerator pedal and see the slack when letting off the pedal slowly.
- Verify the hex stock stand-offs and other HBA hardware are handy
- Position the supercharger for mounting by first aligning the top holes of the supercharger's nose and rear mounting brackets to the top holes of the HBA's mounting blocks. This is done best by tilting the supercharger up while aligning the holes.
- Once the top holes are aligned, push the top bolts through the block and mounting brackets.
- Lower the supercharger and align the lower holes of the mounting blocks & brackets.
- Push the lower bolts in.
- With the bolts securing the blower to the HBA, now is the time to test the fitment of the under brace. Since the HBA's mounting blocks have not been tightened up to the HBA yet, you will need to lift and push the blower up against the



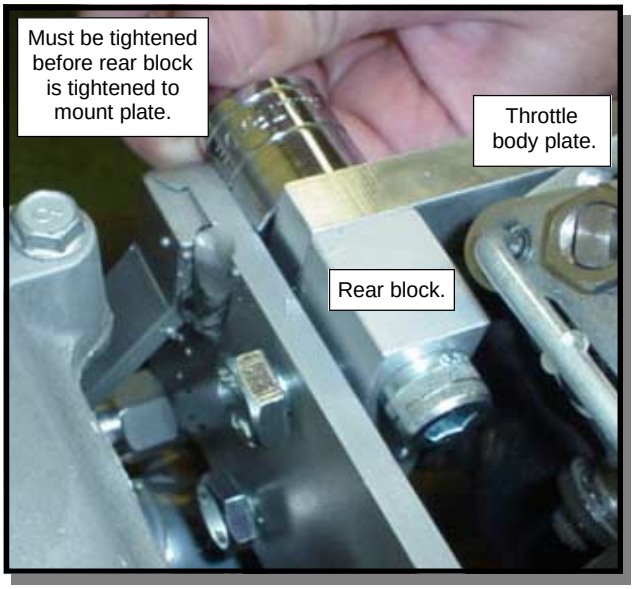




94-05 SC Mount w/ Std. TB

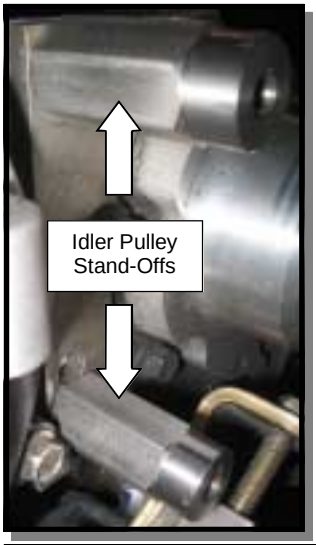
HBA. You're trying to get it into the position it will be in once those mounting blocks are tightened.

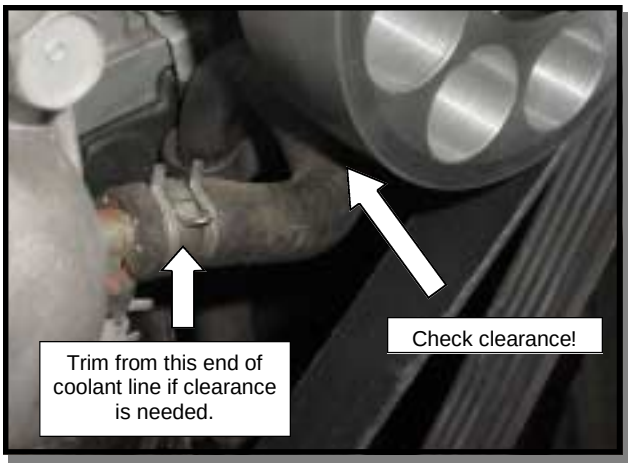
- With the blower held in place, check the under brace's length. You should be able to insert the M10 bolt through the under brace eye and the supercharger's outer brace tab. Do not secure the under brace yet.
- Once satisfied with the under brace's length, replace and hand tighten the lock washers and nuts onto the bolts for the rear mounting block. Tighten the 17mm nuts. You may need to use an Allen wrench on the bolts.
- After the rear mount plate (throttle body adaptor plate) is secured to the rear block of the HBA then you can install the hex stock standoffs onto the bolts of the front mount blocks.
- The holes for securing the mounting blocks to the HBA are slotted. This is to allow slight forward and backward adjustment of the blower.
- Looking at the front mounting block and bolts, align the blower such that the bolts are approximately in the center of the slots and then tighten the bolts to secure the blocks to the HBA.
- Tighten the rear mounting block's bolts.
- Route the TPS connector across the back of the cam cover/firewall. Secure it with zip-ties.
- Plug the TPS connector into the sensor on the throttle body.
- Next position the throttle cable to allow for the mounting of the under brace to the supercharger's outer brace tab. {Important: The HBA install should be completed and the brace should be in either "neutral" (no load or pulling force) or "light compression" (light load). It should not be in tension (pulling force or bending).} Once adjusted, use the bolt, lock washer, and nut to secure it to the tab. The bolt should easily slide into the holes. The bolt should pass through the under brace eye first, then the tab. The lock washer and nut should be against the tab.



99-05 Idler Pulley Assembly

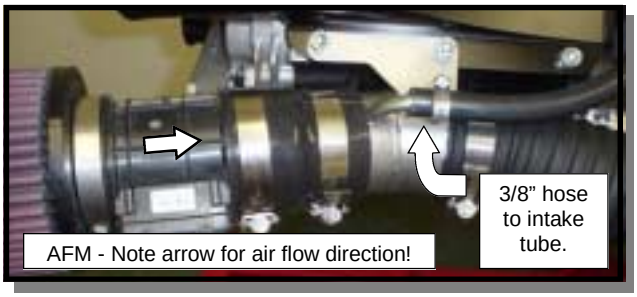
- Locate the remaining components from the IPA (Idler Pulley Assembly) box.
- Ensure that the IPA's stand-offs are tightened.
- The IP plate comes with the IP already installed with the "T-Nut" in the adjustment slot.
- Loosen the tension adjustment bolt to allow the pulley to slide up the adjustment slot so that you can gain access to the lower mounting hole on the IP plate.
- Using the two provided bolts, secure the IP plate to the stand-offs. Torque to approx. 9-11 ft./lbs.
- With the IP plate tight and the IP loose on the plate you will now install the belt. Depending upon the crank pulley/belt in your specific kit, it *may* be easier to remove the IP from the plate. If you choose to do so, use your finger behind the plate and hold the T-nut to keep it from dropping out of the IP plate. Also note the orientation of the T-nut if removed. There is a dimple for the adjustment bolt on one end of the T-Nut.
- Begin by starting the belt onto the supercharger pulley first, then start the belt onto the crank. You will likely need to turn the crank pulley with a wrench or socket to help get the belt onto the crank pulley. Have the car in neutral and on jack stands with the brake off for this step.
- Once completed, tighten the IP down onto the belt. Once the belt it tight then tighten the IP's bolt into the T-Nut. Now tighten the adjustment bolt's nut. You will likely need to make a few belt tension adjustments to get the belt to the proper tension for your stage of kit.
- NOTE: Be sure to check clearance between your IP and the coolant line. If it's too close, we advise shortening the upper end of the coolant line by about ¼" to ½", re-securing and rechecking the line for clearance.





99-05 Std. TB Intake

- Locate the remaining components from the intake assembly.
- Slide one of the 3-1/2” hose clamps over the flex hose and then slide the flex hose onto the TB. Feel around the TB’s opening to ensure that the flex hose is all the way onto the TB. Tighten the clamp securing the hose to the TB.
- Mount the intake tube onto the supercharger’s outlet manifold using the two existing bolts. Torque to 20 ft./lbs.
- Using a 3-1/2” clamp, secure the other end of the flex hose onto the intake tube.
- Using the clamps provided, install the 3/8” hose to the intake tube and the valve cover’s breather barb.
- Using the clamps provided, install the 3/4” by-pass hose to the 3/4” tube on the intake tube.
- You will route the 3/4” air hose from the intake tube around the power steering fluid reservoir and along the top of the cooling fan shrouds behind the radiator. Check for kinks and then clamp it onto the 3/4” hose barb located on the dummy throttle body.
- Pick a relatively straight section of the air hose in which to install the CV (check valve). Cut the hose there and use the provided clamps to secure the CV in the line. The CV’s orientation is such that air is permitted to pass to the DTB, but not back to the intake tube. Verify air flow direction by blowing through the CV.
- Position and secure the air hose with zip-ties.
- Install the AFM (Air Flow Meter) to the intake tube using the clamps and reducing silicone hose connector. Be sure to note the proper orientation of the AFM as marked on it’s side with an arrow to show air flow direction!
- Route the wire harness for and AFM over and plug it in to the AFM. Be sure to check the wires for clearance from the belts. Secure with zip-ties if necessary.
- Clamp the K&N air filter onto the AFM.
- Locate the air temp sensor that was removed from the factory air box. Zip-tie it near the air filter. {It can also be inserted into the end of the filter by cutting a small hole.}
- Next find the relays that were removed from the panel next to the PS reservoir. Wrap around the bottom of the relays and their rubber boots. Wrapping tape around the bottom of the relays and their boots will protect them by helping to prevent water from getting up into the boots. These relays can also be secured with a zip-tie to a suitable location, such as the wiring loom mentioned above.



94-05 Crossover

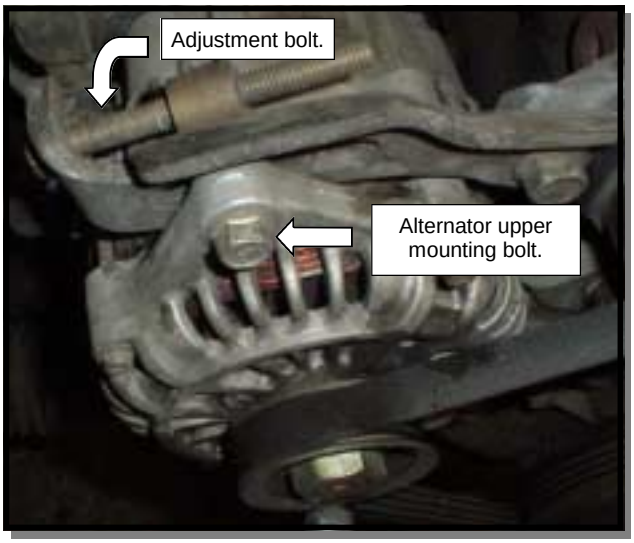
- Locate the Crossover Assembly.
- Using the provided liner clamps and silicone hose connectors you will first loosely install the connectors onto the DTB and outlet manifold of the supercharger. The reducer connector goes onto the DTB.
- Stage two clamps each onto the DTB and supercharger outlet manifold.
- Loosely assemble the remaining silicone hose connector and clamps and join the two long legs of the crossover tubes together. Keep them loose enough that you can rotate the elbows to align them into the connectors on the DTB and the supercharger.
- Once the tubes are aligned and inserted, tighten all hose clamps.
- We recommend orienting the hose clamp's adjustment screws to the sides or lower side of the crossover.

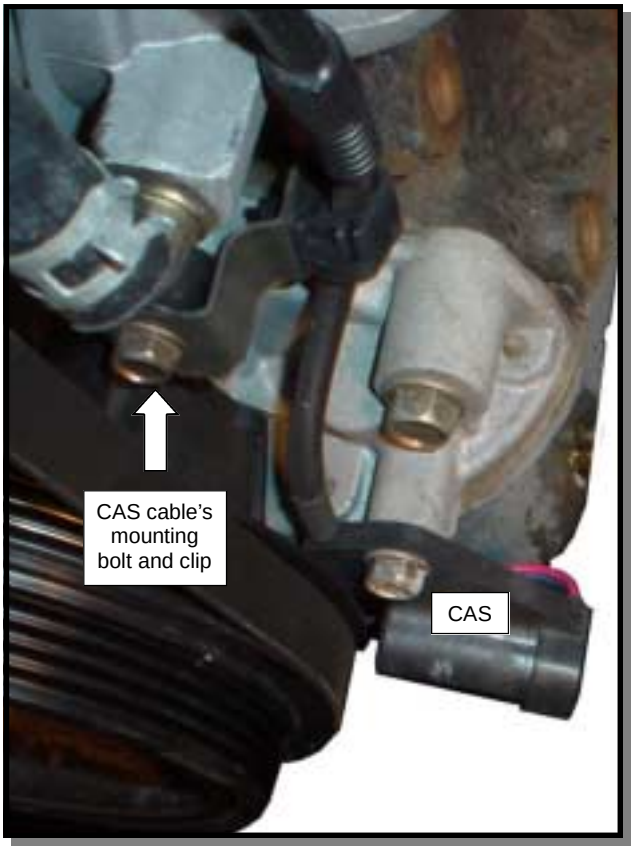
99-05 Crank Angle Sensor Bracket

NOTE:
The CAS (Crank Angle Sensor) hardware bag is included with your kit in the rare situation that you should need it. The kit has been designed such that most will NOT need to install the CAS. The following are examples of those who may need the CAS bracket:

1. Those who are experiencing detonation.
2. Those who only have lower octane fuels available.
3. Those who live in either really hot or really cold climates.
4. California cars.

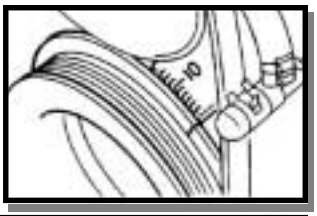
- With the power steering and air conditioning belt removed, temporarily remove the alternator drive belt. To do this, loosen the lower and upper mounting bolts, then the adjusting bolt on the top mounting bracket. Viewing the engine from the front of the car, locate the CAS immediately next to the engine crank pulley on the right hand side. It will appear as a small black plastic part that fits beside and behind the crankshaft pulley. Remove the CAS and it's 10mm headed mounting bolt. Follow the CAS cable up to it's mounting clip secured by a 10mm headed timing cover bolt. Remove the bolt and clip. The reinstall the bolt without the clip. Unplug the electrical connector on the end of the CAS cable and re-route the harness end of the plug up and forward so it will appear in front of the cam cover.
- Rotate the engine either by turning the bolt on the end of the crankshaft with a 22mm (13/16") wrench or by putting the car in 2nd gear and gently rocking. Rotate the engine so that the yellow timing mark on the edge of the crankshaft pulley aligns with the 0-degree mark on the timing scale.
- Assemble the CAS with it's new mounting bracket assembly as follows: First gently unclip the CAS cable from the back of it's plastic body so that the cable no longer loops behind. Loosely assemble the CAS to the mounting bracket by passing it's original 10mm headed bolt through the CAS and then through the long curved slot in the new mounting bracket, and finally into the special locking "Toggle" nut. Note that the Toggle nut has a shoulder on one side. This will allow the lock nut to register in the curved slot of the mounting bracket without rotating. This arrangement wil alow us to retard the ignition timing by giving us a sliding attachment point for the CAS. {The Ignition timing can only be retarded, it cannot be advanced beyond the factory Mazda setting of 10 degrees BTD).
- Note that the CAS can now slide along the curved slot, it can be easily secured by simply tightening the 10mm headed bolt. On the left

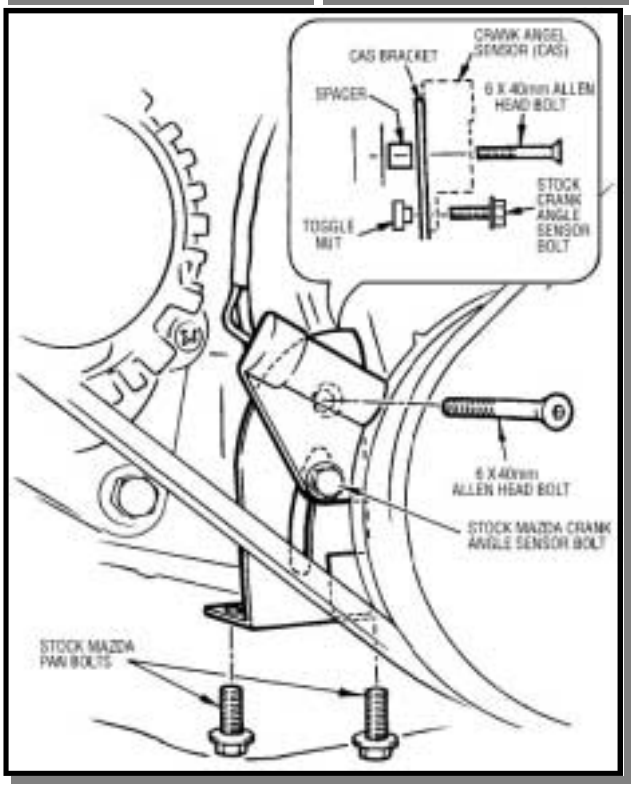




99-05 Crank Angle Sensor Bracket

side of the crankshaft pulley, remove the 10mm headed bolt that appears approximately 3" above the flange where the oil pan meets the bottom of timing cover. This bolt passes through the black plastic timing cover. Next slide your hand along the left side of the crankshaft pulley. Where the pulley meets the flange of the oil pan, feel the 10mm headed bolt that appears just behind the pulley and remove it and it's neighbor just to the left as well. When you have removed the previous two bolts, pass the new 6mm bolt with the countersunk head through the CAS mounting bracket, then it's spacer and into the now vacant hole on the black plastic timing cover. Do not tighten it completely at this time, finger tight will do. Using the two 10mm headed bolts you previously removed from the oil pan flange, secure the bottom of the CAS bracket by passing the bolts through it and into their original holes, once again only finger tight. Now tighten the countersunk bolt with the 5mm Allen wrench included with the 10mm headed oil pan flange bolts.





- Note that immediately behind the crankshaft pulley there is a larger black metal dis. This is the CAS Trigger Disc. Upon closer examination there will appear four evenly spaced small tabs along it's circumference. Whenever one of these tabs pass under the CAS, it tells the engine management computer to fire the ignition. To set the ignition timing set the crankshaft pulley's YELLOW mark to the 5-degree mark. Then slide the CAS sensor along it's curved slot until the cylindrical portion of the CAS is centered over the nearest tab. Slide the included adjustment shim between the face of the CAS and the tab. (The adjustment shim is 0.25", or 1mm thick). Gently press the CAS with the adjustment shim against the tab on the trigger disc and tighten the bolt that passes through the CAS into the locking nut. Use of the adjustment shim will ensure proper operating clearance between these two parts.
- Route the CAS cable up between the alternator and engine block, secure the cable to the alternator adjustment bracket with a Ty-Wrap strap. Continue up to the bracket that mounts the three large electrical connectors on the front of the timing cover. Remove the upper left 10mm headed bolt securing this bracket and pass the CAS cable behind, then re-install the bolt. Plug the CAS connector into it's mate in the front of the cam cover. Secure this and the other cables out of the way of the supercharger drive belts by using the metal bracket that used to secure the plastic clip for the cam cover bent hose with a Ty-Wrap strap. Reinstall the alternator belt and tighten.
- If you find that after installing the supercharger, you are experiencing detonation reset the ignition timing to a lower number setting. **NEVER ATTEMPT TO SET THE IGNITION TIMING WHILE THE ENGINE IS RUNNING. SERIOUS INJURY WILL RESULT!**