Supercharger Reduction Pulley  
Install Instructions  
for MINI Cooper S

ATTENTION! READ THIS FIRST!
Parts that have been drilled, painted, altered, or installed are not returnable. This product is moderate to difficult to install. However since each person’s mechanical ability does vary, please read these instructions completely prior to starting the project. This install requires the Pulley Removal Tool (Part # 169781) and the reduced length drive Belt (Part # 157848). Most installation takes between 2 and 4 hours. If you have any doubt in your ability or lack of tools, we recommend having this work performed by a professional mechanic.

Parts Required:
[1] 15% , 17%, or 19% Reduction Pulley
[1] Reduced Length Drive Belt (Part # 157848)
[2] Hose Clamps (60mm – 80mm)

Tools required:
[1] 3/8” Socket Set with 10mm, 16mm, 18mm, & 19mm Sockets.
[1] 13mm Wrench
[1] #25 Torx Driver
[1] 8mm Allen Wrench
[1] 5/32” Allen Socket
[1] Flat Blade Screwdriver
[1] Phillips Screwdriver
[1] Torque Wrench (capable of 60 inch/lbs of torque)
[1] Floor Jack
[1] 2 Foot 2”x 8” Board (for lifting under oil pan)
[1] Blue Loctite
[1] Pulley Removal Tool (Part # 169781)
[1] Belt Tension Tool (Part# 160148)

Technical Service
For any technical advice concerning this product or its installation, call our Support Line at: 903-581-1855

Step 1: Disconnect Battery Negative Cable
Do not close your rear hatch after disconnecting the battery as power is required for the rear latch to operate. Use a small towel to cover the lower latch and lower the hatch onto the towel.
Tools: 10mm Socket

Step 2: Jack Up Car
Jack up vehicle using factory jack points and making sure to use jack stands to safely hold your vehicle. Consult your owners manual for proper jack points.
Tools: Jack and Two Jack Stands
Step 3: Remove Skid Plate, Bolts, and Screws
Remove skid plate bolts and screws.
Tools: 10mm Socket and Phillips Screwdriver

Step 4: Remove Lower Engine Mount Bolt
Tools: 16mm Socket

Step 5: Lower Car
Lower car off of jack and jack stands.

Step 6: Position Jack
Place floor jack under oil pan. Use the 2”x 8” board to distribute the load and align near the rear edge of oil pan making sure not to come into contact with the power steering pump fan. Lift jack up until board is snug under oil pan but has not yet started to lift engine. (See the photo top of next column)
Tools: Floor Jack and 2 Foot 2”x 8” Board

Step 7: Remove Intake Boot Clamp
Remove intake boot clamp from upper air filter housing. If you have an aftermarket intake you will need to remove the clamp that was provided with that intake. If you have a stock intake, you need to use the flat blade screwdriver to gently pry apart the factory fixed clamp.
Tools: Flat Blade Screwdriver

Step 8: Remove Upper Air Filter Housing
Remove upper air filter housing by sliding off battery conjunction block and removing two torx screws at front of the upper air filter housing. Place a clean rag inside of the intake boot to keep foreign objects from entering. Tools: #25 Torx Driver
Step 9: Remove ECU Cover
Remove ECU cover by depressing the clip on each side.

Step 10: Remove ECU Cable
Remove ECU cable by releasing the two clips by pulling back and then lifting the cable up to disconnect.

Step 11: Remove Lower Air Filter Housing Bolt
Tools: 10mm Socket

Step 12: Remove Intake Snorkel and Clamp

Step 13: Remove Lower Air Filter Assembly

Step 14: Remove Canister Purge Valve
Remove canister purge valve by depressing clip on each end and disconnect the wire.

Purge Canister in Place

Purge Canister Removed
Step 15: Remove Fuel Lines from Holder
Three lines total, two on the topside and one on the bottom.

Step 16: Remove Engine Mount Bracket Bolts
Remove lower and upper bolts from engine mount bracket. Tools: 16mm Socket

Step 17: Remove Bracket

Step 18: Disconnect Water Hose Mounting Clamp
Disconnect water hose mounting clamp at front of intake manifold. Tools: 10mm Socket

Step 19: Unclip Knock Sensor Wire
Step 20: Disconnect Ground Strap
Disconnect top end of ground strap by removing bolt.
Tools: 13mm Wrench

Step 21: Remove Transmission Mount Bolt
Tools: 16mm Socket

Step 22: Remove Upper Engine Mount Bolt
Tools: 18mm Socket

Step 23: Slowly and Carefully Jack Up Engine
When jacking up engine, make sure that the crank vibration dampener pulley does not come into contact with the frame rail and that nothing is binding or is still attached that shouldn’t be. Distance from upper rubber engine mount to bottom of fixed engine mount is approx 3.5”. Goal is to jack up engine just enough to properly fit pulley removal tool.

Step 24: Compress Belt Tensioner
Place belt tensioner tool in place. Fits over front bolt on the belt tensioner and two holes at rear of belt tensioner. Pull back until second hole in spring strap is visible and place small pin supplied with pulley rental kit or a small Allen wrench into hole. Slowly release belt tensioner tool to transfer load onto pin.
Tools: Belt Tensioner Tool and Pin
Step 25: Remove 4 Belt Tensioner Bolts
Remove four bolts illustrated in Figure 28 from the belt tensioner. Tools: 10mm and 16mm Sockets

Step 26: Remove Belt Tensioner
Remove belt tensioner making sure pin stays in place.

Step 27: Slide Drive Belt Off Supercharger Pulley

Step 28: Remove Center Cap from Supercharger
Remove the center cap on the pulley shaft by using flat head screwdriver to pry it out enough so you can unscrew it by hand. Tools: Flathead Screwdriver

Step 29: Install Pulley Removal Tool
Install the pulley removal tool over the factory supercharger pulley aligning the grooves.
Note: The Supercharger Pulley Removal Tool is specifically designed to remove the factory S/C pulley in the confined space of the 02-06 Cooper "S".

Step 30: Remove Stock Supercharger Pulley
Turn shaft on pulley removal tool clockwise until pulley has slid completely off the supercharger shaft. While turning, make sure the center shaft on pulley removal tool stays centered on the supercharger shaft. Make sure supercharger shaft is smooth and free of any burrs. If needed, smooth the supercharger shaft with single cut flat file. Tools: ½” Drive Ratchet & 19mm Socket

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Step 31: Install New Pulley Hub
Slide new pulley hub onto supercharger shaft.

Step 32: Install New Pulley
Place new pulley over hub until inside end of pulley touches the end of the supercharger shaft.

Step 33: Tighten Down Pulley on Hub
Apply a drop of blue loctite onto end of the threads on the six supplied 5/32 Allen bolts. Thread in the six bolts into pulley making sure they go into the pulley hub. Using an Allen socket and torque wrench, evenly tighten the six bolts to 60 inch/lbs of torque.
Tools: 5/32” Allen Socket, Blue Loctite, and Torque Wrench (capable of 60 inch/lbs of torque)

Step 34: Reinstall Center Cap on Supercharger Shaft
(See step # 28)

Step 35: Reinstall Belt Tensioner
Reinstall belt tensioner making sure the pin stays in place. The longer 16mm bolt goes on front.
Tools: 10mm and 16mm Sockets

Step 36: Install New Drive Belt
Install new belt supplied with pulley kit according to the diagram. Make sure all belt and pulley grooves line up.
(See Step #27)
In the diagram the following numbers represent:

(1) Crankshaft pulley
(2) Alternator pulley
(3) Idler pulley
(4) Supercharger pulley
(5) A/C compressor
(6) Tensioner roller
Step 37: Uncompress Belt Tensioner
Reinstall canister purge valve by pushing in clip on each end using belt tensioner tool, compress tensioner slightly to and reconnect wire. remove pin from second hole. Slowly release pressure See Figures 14 & 15 from the tensioner tool. (See Step #24)

Step 38: Lower Engine
Slowly lower engine making sure upper engine mounts and transmission mounts are aligning. (See Step #23)

Step 39: Reinstall Transmission Mount Bolt
You may have to use the jack to help position the engine so that the transmission mount lines up and the bolt can be installed.

Step 40: Reinstall Upper Engine Mount Bolt

Step 41: Clip Knock Sensor Wire Back in Place

Step 42: Reconnect Water Hose Mounting Clamp

Step 43: Reconnect Ground Strap

Step 44: Reinstall Engine Mount Bracket

Step 45: Reinstall Fuel Lines in Holder
Three lines total, two on the topside and one on the bottom.

Step 46: Reinstall Canister Purge Valve
Reinstall canister purge valve by pushing in clip on each end and reconnect wire.

Step 47: Reinstall Lower Intake Assembly
You may have to reinstall rubber seal at the back of lower intake assembly as well.

Step 48: Reinstall Intake Snorkel and Clamp

Step 49: Reinstall Lower Intake Assembly Bolt

Step 50: Reinstall ECU Cable
Reinstall ECU cable by pushing down and then pushing two clips at front forward.

Step 51: Reinstall ECU Cover
Reinstall ECU cable by pushing down and then pushing two clips at front forward.

Step 52: Reinstall Upper Air Filter Housing
Reinstall upper air filter housing reinstalling the two torx screws at front of the upper air filter housing. Reinstall battery conjunction block to side of upper air filter housing. Tools: #25 Torx Driver

Step 53: Reinstall Intake Boot Clamp
Remove clean rag from inside of the intake boot.

Step 54: Jack Up Car
Jack up vehicle using factory jack points and making sure to use jack stands to safely hold your vehicle. Consult your owner’s manual for proper jack points.
Tools: Jack and Two Jack Stands

Step 55: Reinstall Lower Engine Mount Bolt
Tools: 16mm Socket

Step 56: Reinstall Skid Plate
Reinstall skid plate with bolts and screws. There is three bolts in the front and two screws in the back.
Tools: 10mm Socket and Phillips Screwdriver

Step 57: Lower Car
Lower car off of jack and jack stands.

Step 58: Reconnect Battery
Tools: 10mm Socket

Step 59: Reset Throttle
Reset throttle by turning ignition key to position 2 for 10 Seconds.

Step 60: Start Car
Start car and perform visual inspection of belt movement.

Step 61: Redo Visual Inspection with Car Off
Turn car off and redo visual inspection making sure everything looks sound.