

03-04 MACH 1 INSTRUCTIONS



HELLION
POWER SYSTEMS

The logo features the word "HELLION" in a large, bold, metallic font with a red-to-silver gradient and a 3D effect. The letter "O" is stylized with a white 'X' through it. Below "HELLION" is the text "POWER SYSTEMS" in a smaller, similar font. The background has faint, sketchy orange lines.

HELLION POWER SYSTEMS
03-04 MACH 1
KIT INSTRUCTIONS

HELLION

Hellion recommends that the front suspension system be installed either by trained professionals or by

PART 1

K-MEMBER INSTALLATION INSTRUCTIONS

1. Disconnect battery and elevate front end of car on either Jack stands or a lift if available
2. Lock steering wheel and remove key, then remove front tires and wheels



3. Remove sway bar assembly



4. Remove steering shaft bolt



5. Remove rack bolts



6. Remove steering tie rod ends (you may want to try using an air hammer with a pickle fork to remove the tie rod end if it is difficult to remove)



7. You may need to loosen and remove engine mount bolts and raise drivers side block to clear steering lines from oil filter boss



8. Pry rack from K-member



9.Strap rack to front cooler



10.Remove brake calipers left & right



11.Remove both front discs



12.Remove ABS sensor lines both left and right



13.Loosen lower ball joint 15/16 nut (both left and right) until there is a 1/8 inch gap with the nut maintaining full thread engagement.



14.Use an air hammer or electric hammer with a pickle fork in order to disengage ball joint from spindle



15.Support A-arm with jack to take load off of spring and remove the 2 strut to spindle bolts, then lower A-arm, being cautious because spring is under pressure.



16.Remove spindle, both left and right



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17. Remove left and right motor mount nuts



18. Support engine and transmission with appropriate upper support tool or support from beneath.



19. Support K-member and remove K-member bolts (6) attaching K-member to frame.



20. Remove old K-member

21. Remove factory O2 sensors (4)

22. Remove ground strap on drivers side frame rail and remove Oil filter

23. Raise new K-member into place, re-install the 6 K-member bolts that attach K-member to frame. Make sure that the brake lines are not between K-member and frame.

24. Tighten bolts to 66 ft. lbs for the lower bolts, and 85 ft. lb.s for the upper bolts.



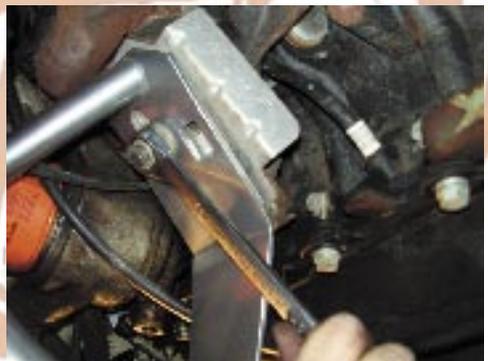
25. Install bushings and sleeves into tubular A-arms, making sure that the short sleeve is in front, and the long sleeve in back



26. Install a-arms using supplied bolts and tighten to 148 ft. lbs.



27. Install motor mounts nuts and tighten to 110 ft. lbs.



28. Install grease boots on lower ball joints



29. Install steering rack, install rack bolts and tighten



30. Re-install steering knuckle and tighten

31. Remove factory caster/camber plates by removing the 3 nuts on each side



32. Remove plate from strut by removing large nut on top of strut shaft



33. Install new caster/camber plates



34. Install strut with coilover kit into caster/camber plate, using caster/camber instructions as reference for bearing/shim stacking order.



35. Re-install factory spindle and hub assembly and retorque to factory specs



36. Re-install factory ABS sensor, steering linkage, brake rotor, and calipers

37. Re-install Sway bar and end links, re-install ground strap to frame using supplied self-tapping screw, and install supplied oil filter.

03-04 MACH 1 INSTRUCTIONS

38. Install injectors & injector adapters.
39. Remove factory h-pipe, removing O2 sensors for reassembly.
40. Remove factory air box from fender.



41. Disconnect (5) connectors and push harness through hole back into fender well.



42. Reconnect (5) connectors through air inlet hole. This will open up the smaller hole in the fender, allowing installation of boost inlet tube.



43. If necessary, Unbolt AC line from block, Remove stud that originally held AC line.
44. Bend AC line down towards the ground and slightly towards radiator. This will create clearance for turbocharger. Take care when bending by supporting the line while bending.
45. If Necessary, relocate inner fender computer box. It is blocking the hole that is used to route the boost tubes. When removing computer box on inside of fender, remove the tabs that hold box to car, this will reveal longer holes in fender. Re-install box with the supplied 1/4" bolts. This will relocate the box about 1/2" towards front of the car. This will make room for the 2 1/2" boost pipe that will be run through that hole.



Turbo

- 46. Loosen clocking bolts on turbocharger.
- 47. Clock compressor housing and turbine housing according to supplied picture. Snug one bolt on each housing to hold clocking in place. If clocking is off, just loosen the one bolt and re-clock. (Oil drain should point down)



- 48. Install 90 degree 1/8 pipe to #4 fitting to top of turbo. Install and tighten fitting so it faces the rear of the car. (use minimal pipe paste)



- 49. Install 90 degree barb fitting to compressor housing. Position fitting so it faces downwards. This will be connected to the underside of the wastegate.
- 50. Install oil drain flange with supplied gasket and bolts.



- 51. Slide supplied 2 1/2" silicone hose onto end of compressor housing. Install and tighten supplied 2 1/2" T-bolt clamp.



- 52. Install turbo support bracket to Cylinder Head using supplied M8x30mm socket head bolts and spacers.



- 53. Remove the compressor housing retention bracket that is on the engine side of the turbo. Bolt turbocharger to bracket, using compressor-housing bolts. Clock turbo correctly & tighten all housing bolts.

Punch Oil Pan

54. Locate pipe plug on the underside of the oil filter mount, remove plug. (This is the fitting for the turbo oil feed. Replace plug with supplied 90-degree 1/4" pipe to #4 fitting.

55. The next step is to punch and tap the oil pan.



56. Mark a point 3/4" Inches down from oil pan rail, and centered left to right.

57. Take supplied punch and hammer a hole into the oil pan. Hit punch until it seats against pan.



58. Next, take a 3/8" pipe tap (supplied) and coat it with grease. Tap hole in pan. The grease will catch the tapped shavings.

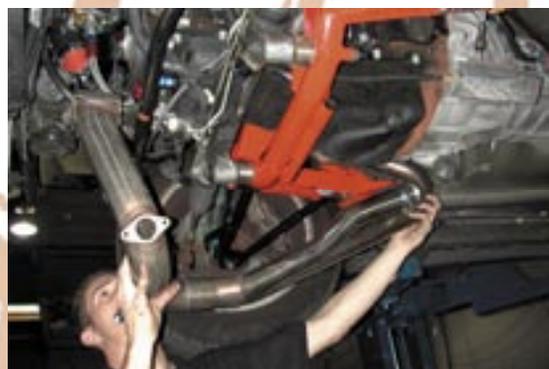


59. Remove tap and wipe the remaining grease from hole, being careful not to let shavings fall into pan.

60. Take supplied 3/8" pipe to #10 fitting and install in pan using pipe paste to seal threads.



61. Install main turbine inlet pipe. From underneath, raise pipe up and bolt to passenger side exhaust manifold using factory nuts.



Turbo Install

62. Next, install (4) bolts that secure Turbo to main pipe, using steel shim gasket between turbo and pipe. Leave bolts loose.



63. P/S line will need to be bent towards engine to make clearance for down pipe.



64. Hang down pipe to exhaust housing using supplied V-band clamp. Leave clamp loose. (Heat shield not shown with pic)



Wastegate installation

65. Install supplied 1/8" pipe barb into the underside of the wastegate. (SEE PIC). This is very important. The fitting must be on the correct side for proper operation. An incorrect installation will over boost the engine.



66. Install wastegate, using supplied gasket and bolts. Bolt wastegate to inlet pipe with supplied 8mm socket head bolts. There is no gasket between wastegate and the main pipe. Bolt wastegate outlet pipe to wastegate using gasket and supplied 5/16" socket head bolts. Leave bolts loose.



Exhaust Installation

67. Install exhaust crossover pipe. First, remove (2) factory studs from driver side exhaust manifold. Before installing crossover check for ball size on exhaust manifold. Depending on the ball size, the supplied insert may need to be installed.



68. Bolt crossover pipe to driver side manifold using supplied bolts and washers. Bolt other end to main turbine inlet pipe using supplied 3/8" bolts, washers, and nuts.



69. Bolt exhaust hanger to driver side transmission mount using supplied 5/16" bolt, nut and washer. This is the sheet metal bracket that is attached to the floor of the car.



70. Install dog bone rubber hanger to bracket. Use lubricant for easy installation.

71. Install "double barrel" exhaust pipe to down pipe. We recommend using anti-seize in all slip fit connections. Slide 3" exhaust clamps on before sliding pipe on.



72. Hang "double barrel" on rubber "dog bone".



73. Install straight pipe or catalytic converter onto the "double barrel". Again, slide clamp on first.



74. Install Y-pipe onto straight pipe or cat, sliding clamp on first. If desired, Install O2 sensors. If rear O2 sensors are to be used, extending the factory harness by cutting & soldering the wires will be necessary.



75. Bolt Y-pipe to mufflers.



76. Position the entire exhaust system with about 1/2" clearance from other parts.

77. Position pipes taking aware proximity to suspension components.

78. The turbo support bracket is slotted to allow for differences among cars. Find correct placement and tighten all bolts. When tightening exhaust clamps, slide clamp to the edge of the pipe.



79. Zip tie power steering lines and wires away from down pipe. (pic)

80. Cut 1 1/2 inches off of the Lower radiator hose at the block inlet -this will raise the thermostat housing away from down pipe.



Oil Feed Line

81. Install 47" oil feed line from turbo oil inlet to the underside of the oil filter mount. Route line away from hot pipes & moving parts. Secure with supplied zip ties.



82. Install turbo oil outlet extension with pipe paste and tighten.

83. Assemble #10 steel braided oil return line, positioning 90 degree fitting on the pan, and straight end towards turbo. Tighten oil return line.



84. Remove air temp sensor from factory air inlet pipe and install the sensor in the top of the supplied conical air filter. Hole may need to be slightly enlarged or drilled for fitment.



Intercooler Installation

85. Remove headlights

86. Remove front clip, remove (4) nuts from inside fender, 2 on each side, remove pushpins from top of front fascia, remove pushpins from bottom fascia to lower radiator support, remove (2) screws in fenderwell. Disconnect lower fog light plugs.

87. Remove hood latch support bracket.



88. Slide supplied 2 1/2 inch silicone hose ends onto intercooler inlet and outlet, and clamp with supplied T-bolt clamps.



89. Unbolt PS line cooler from radiator support.

90. Remove PS cooler bolts



91. Relocate PS cooler line clip to other slot in radiator support.



93. Install intercooler support strap, hang strap from hood latch and secure with supplied 5/16" hardware.



92. Install intercooler with supplied metric bolts. Bolt it to lower radiator support, leaving bolts loose.



94. To mount Power Steering cooler, either bend power steering cooling line to reach front tab on intercooler, OR Cut 3/8" PS feed and return lines. Install supplied line and splices to extend cooler to reach front of intercooler.

95. Once bent or extended, bolt it to intercooler.

96. Install intercooler pipe #1 from turbo to lower intercooler inlet. Slide 2 1/2 inch clamps over pipe first to ease installation. Tighten clamps.



97. Install intercooler pipe #2 onto upper intercooler outlet.



98. Install silicone hose and clamps.



99. Install intercooler pipe #3 and silicone hose.



100. Install 4" turbo inlet pipe, Massair meter, and filter onto turbo inlet. Make sure that the flow is correct and the air filter is secured to the end of the meter. Leave clamps loose until final intercooler pipe fitment.



101. Re connect mass air meter, and plug in air temp sensor inside inner fender.



102. Install intercooler pipe #4 and 2.5" by Oval silicone hose adaptor to throttle body.



103. Bolt Blow Off Valve to Stub off of inlet tube. Install blow off valve outlet to stub on the 4-inch tube inlet, using 1 3/8 silicone hose and supplied clamps.



104. Position all intercooler pipes and tighten all clamps.
105. The next step is to connect the valve covers to the 4" inlet. Take supplied 3/8 hose and connect it to the PCV valve on the driver side valve cover. Route 3/8 line to supplied 3/8X1/2X1/2 tee and connect tee to the small hose on the passenger side valve cover. Next connect 3rd leg of tee to the 1/2" stub on the polished 4" inlet pipe.



106. Attach the supplied vacuum line from the turbo compressor to the underside of the wastegate.

Heat shield Install

107. Wrap all power steering lines with supplied heat wrap and zip ties.

108. Wrap all a/c lines with supplied heat wrap.

109. Install the supplied 4" x 6" heat shields on top of the main turbo pipe and the double barrel exhaust. Secure with supplied metal zip ties. This will shield the steering rack boots from heat.

110. Install the supplied overflow tank support rod. Slide

on washer, then push the threaded end through the hole on the overflow tank.

111. Re-install the radiator overflow tank and attach hose.

109. Install supplied 03-04 water crossover tube on top

112. Tighten all overflow tank bolts.

113. Install supplied Polished radiator tube with supplied clamps and 1 1/4 silicone hose.

Oil Line Relocation Kit

114. Remove Driver side wheel and remove front fascia if not already removed.

115. Install pipe fittings into oil filter adapter using pipe paste or silicone



116. Install adapter onto engine and tighten



117. Place oil filter relocation bracket against front bumper to mark mounting holes



118. Drill bumper with 5/16 drill bit. The bumper is hardened steel, so multiple drill bits may be needed to reach the size required.



119. Screw in supplied 90-degree fittings using pipe paste or silicone. *Being careful not to get any debris in the oil lines*

120. Mount adapter to bumper using supplied 5/16 bolts and nuts





121. Screw on AN fittings to engine adapter and oil filter mount measure length of hose.

120. Measure hose length, routing away from hot and moving parts. When setting line length, it is important to check for sway bar travel. Have suspension loaded to have the sway bar swing back when setting hose position. Remember sway bar will swing forward when the suspension is unloaded.

121. Cut hose and push on ends. **ENDS MUST BE PUSHED ON UNTIL THEY BOTTOM OUT. FAILURE TO DO SO MAY CAUSE AN OIL LEAK AND ENGINE DAMAGE.**



122. Install and tighten oil lines, *note inlet and outlet*



123. Install Fram PH16 or Napa 1068 filter, filling with oil before installation.



•Re-install coolant can cover.

•Re-install fender well, and front facia.

•Re-install headlights

•Fill radiator.

•Change oil. We recommend using synthetic oil.

•Check all bolts and hose connections. Install supplied spark plugs and gap to .030.

•Start car, checking for exhaust and fluid leaks.

TAKE VEHICLE TO A DYNO FACILITY AND HAVE A CHIP BURNED TO TUNE IN THE CAR. PUTTING THE VEHICLE UNDER BOOST WITHOUT THE PROPER PROGRAMMING WILL CAUSE MAJOR ENGINE DAMAGE.

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