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CORKSPORT POWER SERIES HEADER MAZDA MX-3



- NOTE:** THE HEADER WAS DESIGNED AS BOLT UP FOR A DOHC 1.6L. IT HAS, HOWEVER, BEEN DESIGNED TO FIT A NUMBER OF OTHER VEHICLES. SOHC VEHICLES WILL REQUIRE MILD FABRICATION & WELDING!
- NOTE:** THESE INSTRUCTIONS WERE WRITTEN FOR REFERENCE ONLY AND THE USE OF A FACTORY SERVICE MANUAL IS RECOMMENDED. PLEASE READ THESE INSTRUCTIONS THOROUGHLY PRIOR TO STARTING INSTALLATION. ALSO PERUSE THE TOOL LIST BELOW (SECTION IN BLUE) TO MAKE SURE YOU HAVE ALL OF THE TOOLS FOR THE JOB.
- NOTE:** APPLICATION OF PENETRATING OIL A FEW DAYS IN ADVANCE OF THE INSTALLATION MAY BE HELPFUL IN LOOSENING RUSTY FASTENERS, O2 SENSOR AND PCV CONNECTION TO EXHAUST MANIFOLD.
- WARNING:** EXHAUST SYSTEMS AND CATALYTIC CONVERTERS CAN BE EXTREMELY HOT. IF THE CAR HAS BEEN DRIVEN IMMEDIATELY PRIOR TO INSTALLATION, IT MUST COOL DOWN FOR APPROX 1-2 HOURS.





PART NUMBER: MX3-6-121	MODEL: MX-3	YEAR: 1992-1997	TRIM: SOHC & DOHC 1.6
TIME ESTIMATE: 1.5-2 HOURS			
WRENCH RATING: 3/5			

TOOLING LIST: JACK AND JACKSTANDS OR RAMPS PENETRATING OIL ANTI SEIZE COMPOUND 3/8 DRIVE RATCHET O2 SENSOR SOCKET OR 22MM OPEN END WRENCH 14MM 6 POINT SOCKET (MEDIUM TO LONG) 10MM SOCKET 17MM SOCKET & BOX END WRENCH (DOHC ONLY) 6MM ALLEN WRENCH (DOHC ONLY)	OPTIONAL TOOLING: PROPANE OR BUTANE TORCH UTILITY KNIFE	PARTS LIST: POWER SERIES MX-3 HEADER 2x M10x1.25 x 25MM BOLTS 2x M10x1.25 NUTS 2x M10 LOCK WASHERS DOHC ONLY: SLIP FIT SECONDARY PIPE TWO BOLT COMPRESSION FITTING SOHC ONLY: EGR PLUG
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INSTALLATION INSTRUCTIONS:

CORKSPORT POWER SERIES HEADER FOR MAZDA MX-3

HOW THE INSTRUCTIONS WORK

TO BEST COVER ALL OF OUR CUSTOMERS EXPERIENCE LEVELS AND FAMILIARITY WITH THE SYSTEMS ON THEIR MAZDA, WE HAVE BROKEN OUR INSTRUCTIONS DOWN INTO NUMBERED STEPS, EACH OF WHICH HAS THE CORE INFORMATION IN THE HEADER WITH ADDITIONAL DETAIL AS NEEDED DEPENDING ON YOUR EXPERIENCE. IF YOU HAVE A HIGH LEVEL OF EXPERIENCE, YOU CAN JUST USE THE CHECKLIST BELOW AND THEN SKIP TO THE STEP NUMBER WHERE YOU NEED HELP OR ASSISTANCE. VIDEO ASSISTANCE MAY ALSO BE AVAILABLE FOR CERTAIN STEPS AND IS INDICATED BY THE HD ICON:  AREAS WHERE THERE IS A SAFETY CONCERN ARE INDICATED BY THE WARNING ICON:  CAUTIONARY AREAS (WHERE PARTS ARE FRAGILE, ETC) ARE INDICATED BY THE CAUTION ICON:  KEY TIPS ARE INDICATED WITH THE LIGHT BULB ICON: 



OVERVIEW/CHECKLIST:

THIS IS AN OVERVIEW OF EACH OF THE STEPS OF THE BUILD. YOU CAN USE THIS AS A REFERENCE AND A CHECKLIST AS YOU BUTTON UP THE WORK ON THE CAR.

- 1A: PUT THE CAR ON JACKSTANDS. REMOVE INTAKE TUBE BY UNCLIPPING WIRING HARNESS LOOM CLIP AND TWO 10MM BOLTS.
- 1B: REMOVE O2 SENSOR WIRE FROM COIL SPRING RETAINER ON EXHAUST MANIFOLD SHIELDS.
- 1C: SPRAY 5 BOLTS FOR EXHAUST HEAT SHIELD SHOWN IN FIGURE 1C WITH PENETRATING OIL AND REMOVE BOLTS.
- 1D: SPRAY 9X 14MM NUTS ON EXHAUST MANIFOLD STUDS WITH PENETRATING OIL AND ALLOW TO SOAK.
- 1E: DISCONNECT O2 SENSOR FROM EXHAUST MANIFOLD USING AN O2 SENSOR SOCKET.
- 1F: REMOVE EGR FITTING FROM EXHAUST MANIFOLD WITH 23MM WRENCH. ONCE IT IS LOOSE, REMOVE THE TUBING RETAINER THAT ATTACHES IT TO THE BLOCK SO THAT THE TUBE IS FREE TO MOVE.
- 2A: USING A 6 POINT 14MM SOCKET, REMOVE THE NUTS FROM THE STUDS ON THE EXHAUST MANIFOLD.
- 2B: UNDER THE CAR, REMOVE THE TWO 14MM BOLTS HOLDING THE EXHAUST BRACKETING TO THE FRONT SIDE OF THE ENGINE BLOCK.
- 2C: REMOVE 2 14MM NUTS FROM CONNECTION BETWEEN MANIFOLD DOWNPIPE AND CATALYTIC CONVERTER AND REMOVE FACTORY MANIFOLD FROM THE ENGINE BAY.
- 2D: INSPECT FACTORY EXHAUST MANIFOLD GASKET. UNLESS IT IS ABSOLUTELY PERFECT, REPLACE IT...NO NEED TO TEAR THIS ALL APART LATER IF YOU'RE IN THERE ALREADY.
- 2E: SPRAY EXHAUST HANGERS WITH SILICONE SPRAY OR WD-40 AND REMOVE BUSHINGS FROM HANGERS.

INSTALLATION INSTRUCTIONS:

CORKSPORT POWER SERIES HEADER FOR MAZDA MX-3

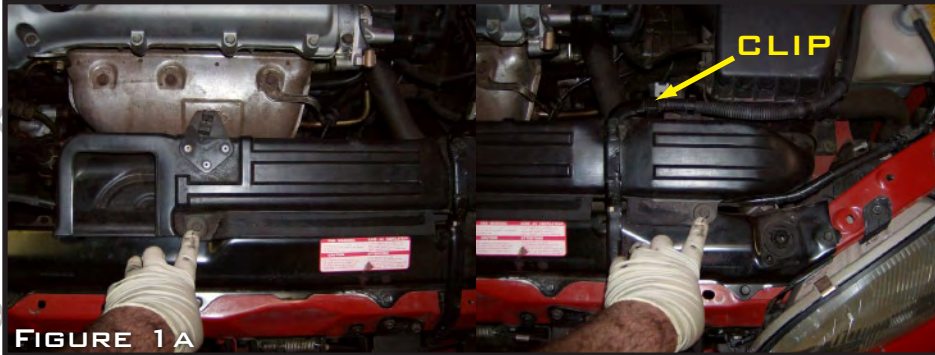
CHECKLIST (CONTINUED):

- 2F: REMOVE THE 14MM NUTS OFF REAR CATPIPE.
- 3A: DOHC: ATTACH REAR PIPE OF CORKSPORT HEADER ONTO FACTORY EXHAUST FLANGE USING SUPPLIED HARDWARE. LIGHTLY TIGHTEN. SEE FIG 3A FOR PIPE ORIENTATION.
- 3B: SOHC & DOHC: HANG THE HEADER OFF OF THE FACTORY EXHAUST STUDS. SNUG 2 OF THE 14MM NUTS ONTO THE STUDS TO RETAIN THE HEADER IN PLACE.
- 3C: DOHC: SLIDE THE TWO HALVES OF THE HEADER TOGETHER AND TIGHTEN THE TWO SOCKET HEAD CAP SCREWS ON THE COMPRESSION CLAMP WITH THE 9MM ALLEN WRENCH TO ~8FTLB OF TORQUE.
SOHC: CONNECT COLLECTOR TO EXHAUST SYSTEM & WELD.
- 3D: DOHC: TIGHTEN THE TWO REAR HEADER BOLTS SHOWN IN FIGURE 3A TO ~25 FT LB OF TORQUE.
- 3E: DOHC & SOHC: TIGHTEN THE FACTORY HEADER BOLTS TO 16-21 FT LB OF TORQUE IN THE ORDER SHOWN IN FIGURE 3E.
- 3F: THREAD O2 SENSOR (WITH ANTI SEIZE PASTE APPLIED) INTO THE FITTING ON THE CORKSPORT HEADER. TIGHTEN THE O2 SENSOR HAND TIGHT WITH THE O2 SENSOR SOCKET. ATTACH FACTORY COILED LOOM CONNECTOR TO ONE OF THE VALVECOVER BOLTS. RUN SENSOR WIRE THROUGH COIL AND CLIP CONNECTOR TO FACTORY HARNESS.
- 3G: DOHC: RECONNECT THE TUBING CLAMP FOR THE EGR FITTING TO THE BLOCK. THREAD EGR FITTING W/ ANTI SEIZE APPLIED INTO THE FITTING ON THE CORKSPORT HEADER, TIGHTENING HAND TIGHT. SOHC: MAKE SURE THAT EGR PLUG IS INSTALLED TIGHTLY.
- 4A: RECONNECT THE FACTORY AIR INTAKE TRACT WITH THE TWO FACTORY 10MM BOLTS, AND RECLIP THE LOOM CLIP INTO THE INTAKE.
- 4B: MAKE SURE ALL OF YOUR TOOLS ARE OUT OF THE ENGINE COMPARTMENT AND OUT FROM UNDER THE VEHICLE AND LOWER THE VEHICLE TO THE GROUND. START THE CAR AND LISTEN FOR ANY EXHAUST LEAKS. IF LEAKS ARE PRESENT, RECHECK CONNECTIONS.

INSTALLATION INSTRUCTIONS: CORKSPORT POWER SERIES HEADER 1993-1997 MAZDA MX-3

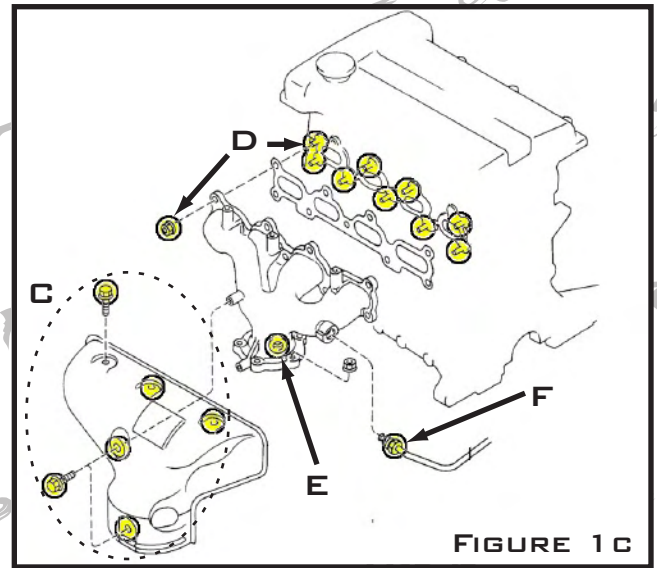
1: REMOVAL OF ACCESSORY COMPONENTS.

A. LETS GET STARTED! BEGIN BY PUTTING THE CAR UP ON RAMPS OR JACKSTANDS. READ ALL JACKSTAND AND FLOOR JACK RATINGS AND MANUFACTURERS SAFETY RECOMMENDATIONS PRIOR TO LIFTING THE CAR. POP THE HOOD AND REMOVE THE FACTORY AIR INDUCTION SNORKEL FROM THE RADIATOR CROSSMEMBER. REMOVE THE TWO 10MM BOLTS AND FACTORY LOOM CLIP (SHOWN IN FIGURE 1A) AND REMOVE THE INTAKE TRACT FROM THE VEHICLE.



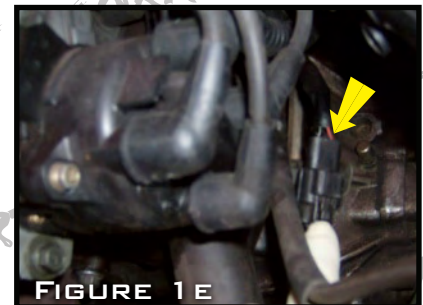
B. DETACH THE O2 SENSOR WIRE (SHOWN IN FIGURE 1B) THAT IS ATTACHED TO THE COILED CLIP ON THE HEAT SHIELD BY UNWINDING IT OUT OF THE COIL.

C. SPRAY FIVE 10MM BOLTS HOLDING THE FACTORY HEAT SHIELDS ONTO THE EXHAUST MANIFOLD (SHOWN IN FIGURE 1C, ITEM C) WITH A PENETRATING OIL LIKE PB BLASTER, AEROKROIL OR WD-40 AND ALLOW THEM TO SOAK. THE FASTER THE BETTER ON THESE - IF YOU CAN HIT THESE RIGHT OFF THE BAT WHEN THE CAR IS STILL WARM, THEY WILL DO THEIR JOB A LOT BETTER. USING YOUR 3/8 DRIVE RATCHET AND 10MM SOCKET, REMOVE THE BOLTS FROM THE HEAT SHIELD. IF THEY ARE STUBBORN, ADD SOME PENETRANT AND LIGHTLY TAP ON THEM WITH A HAMMER OR A WRENCH TO HELP GET THE PENETRANT INTO PLACE. IF THEY START ON THEIR WAY OUT AND THEN BIND, SPRAY AGAIN, CRANK THEM BACK IN AND THEN BACK THEM OUT - THIS WILL ALSO ALLOW THE PENETRANT TO GET INTO THE AREAS THAT ARE CAUSING THE DIFFICULTY. ONCE ALL FIVE BOLTS ARE OUT, REMOVE THE HEAT SHIELD.



D. SPRAY THE 9X 14MM NUTS (SHOWN IN FIGURE 1C, ITEM D) HOLDING THE EXHAUST MANIFOLD ONTO THE EXHAUST STUDS AS WELL AS THE PCB FITTING AND O2 SENSOR THAT ARE CONNECTED INTO THE FRONT/RIGHT SIDE OF THE EXHAUST MANIFOLD. LET THESE SOAK (PREFERABLY WHILE THE EXHAUST IS STILL WARM) AND THEN REPEAT WITH ANOTHER APPLICATION OF PENETRANT.

E. DISCONNECT THE O2 SENSOR (SHOWN IN FIGURE 1E) FROM THE MAIN HARNESS. USING AN O2 SENSOR SOCKET, REMOVE THE O2 SENSOR FROM THE EXHAUST MANIFOLD (LOCATION SHOWN FIGURE 1C, ITEM E). **?** DO NOT TWIST O2 SENSOR WIRES.



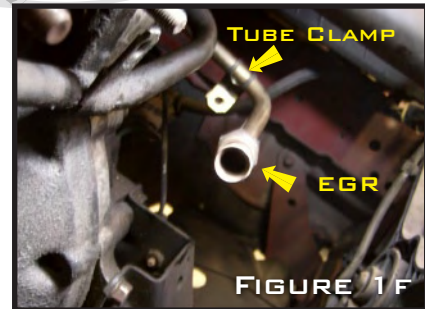
INSTALLATION INSTRUCTIONS:

CORKSPORT POWER SERIES HEADER

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1: ACCESSORY COMPONENTS (CONTINUED).

F. DOHC 1.6 ONLY: DISCONNECT THE EGR FITTING (SHOWN IN FIGURE 1, ITEM F) FROM THE EXHAUST MANIFOLD USING A 23MM OPEN ENDED WRENCH OR LINE WRENCH. ONCE THE FITTING IS LOOSE, DISCONNECT THE TUBE CLAMP THAT LOCATES THE TUBE THE FITTING IS ATTACHED TO AND GENTLY PULL THE FITTING AND THE TUBE OUT OF THE EXHAUST MANIFOLD AS SHOWN IN FIGURE 1F.



2: DISCONNECTION AND REMOVAL OF EXHAUST MANIFOLD.

A. NOW THAT THE 9 14MM NUTS HOLDING THE EXHAUST MANIFOLD ON HAVE SOAKED FOR A WHILE, USE YOUR 14MM 6 POINT (MATCHES THE PROFILE OF THE NUTS AND HELPS TO PREVENT ROUNDING OFF OF THE NUTS) SOCKET AND BREAKER BAR OR RATCHET TO LOOSEN THE NUTS AND RUST FROM THEIR DEATH GRIP ON THE EXHAUST STUDS. BACK THE NUTS OFF AND LEAVE THE MANIFOLD HANGING ON THE EXHAUST STUDS.

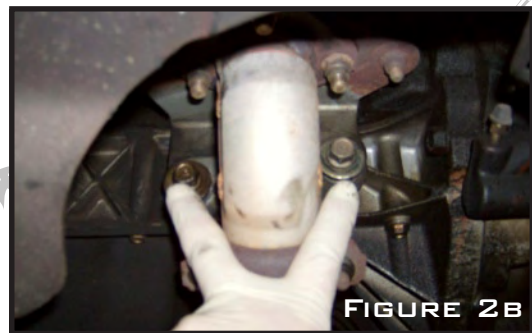
⚠ RISK: ROUNDING THE POINTS OFF OF THE NUTS OR WORSE YET, BREAKING AN EXHAUST STUD OFF IN THE HEAD. SOLUTIONS TO PREVENT THIS ARE COPIOUS USE OF THE PENETRATING OIL, PATIENCE AND WHEN ALL ELSE FAILS HEAT. USING PROPANE OR OTHER GAS TORCHES SHOULD BE A LAST RESORT AND SHOULD ONLY BE USED BY THOSE INDIVIDUALS QUALIFIED AND SAFETY TRAINED IN UTILIZING A TORCH. CARE MUST BE TAKEN TO AVOID ANY OF THE SENSORY SYSTEMS, FUEL LINES OR WIRING HARNESSSES IN THE VEHICLE. THE SMALLER AND MORE CONTROLLED THE TORCH, THE BETTER. GOOD SUCCESS CAN BE HAD WITH SMALL BUTANE TORCHES, BECAUSE THEY'RE VERY DIRECT AND LOCALIZED. MODERATE APPLICATION OF HEAT TO THE STUDS FOLLOWED BY APPLICATION OF PENETRATING OIL AND IMMEDIATELY ATTEMPTING TO REMOVE THE NUTS IS ALMOST A SLAM DUNK IN TERMS OF SUCCESS.

⚠ CAUTION: PENETRATING OILS ARE FLAMMABLE. YOU NEED TO HAVE ACCESS TO FIRE SUPPRESSION SYSTEMS IF YOU'RE GOING TO FOLLOW HEAT WITH OIL.

⚠ TIP: IF YOU MANAGE TO DAMAGE THE THREADS ON ONE OF THE EXHAUST STUDS, YOU CAN USE A STUD REMOVER, AVAILABLE AT AN AUTO PARTS STORE, TO PULL THE STUD AND REPLACE IT WITH ANOTHER FACTORY STUD. SOME HARDWARE STORES CARRY HIGH QUALITY GRADE 5 METRIC STUDS...FOR REFERENCE THESE STUDS ARE M8X1.25.

B. UNDER THE CAR (THIS MEANS PUT YOUR SAFETY GLASSES ON - YOU DON'T WANT 15 YEARS OF ROAD

⚠ GRIME IN YOUR EYES), FOLLOW THE MANIFOLD TO WHERE IT IS BRACKETED AGAINST THE BLOCK (SHOWN IN FIGURE 2B) AND REMOVE THE TWO 14MM BOLTS HOLDING THE BRACKET TO THE BLOCK USING YOUR SHORT 14MM SOCKET AND 3/8" DRIVE RATCHET.



C. USING A 14MM SOCKET AND 14MM WRENCH, REMOVE TWO 14MM DOWNPIPE NUTS/BOLTS THAT CONNECT THE FACTORY MANIFOLD ASSEMBLY TO THE CATALYTIC CONVERTER (SHOWN IN FIGURE 2C). THE MANIFOLD WILL NOW BE LOOSE AND CAN BE EXTRACTED FROM THE CAR - EASIEST TO PULL IT FORWARD TOWARD THE RADIATOR TO CLEAR THE EXHAUST STUDS AND THEN UP AND OUT OF THE TOP OF THE ENGINE COMPARTMENT.



D. INSPECT THE FACTORY EXHAUST MANIFOLD GASKET. UNLESS IT'S ABSOLUTELY PRISTINE, NOW IS THE TIME TO REPLACE IT.

INSTALLATION INSTRUCTIONS:

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2: REMOVAL OF EXHAUST (CONTINUED).

E. SPRAY THE TWO EXHAUST BUSHINGS (SHOWN IN FIGURE 2E) ATTACHED TO THE PIPE BEHIND THE CATALYTIC CONVERTER WITH SILICONE SPRAY. SLIDE THE BUSHINGS OFF OF THE HANGERS.



FIGURE 2E

? TIP: IF THEY ARE STUCK, YOU CAN PULL DOWN ON THE EXHAUST AND SPRAY MORE SILICONE SPRAY INTO THE STRETCHED OPEN HOLES TO HELP LUBRICATE THE BUSHINGS. YOU CAN USE A LARGE FLATHEAD SCREWDRIVER OR PRY BAR TO PRY THE BUSHINGS OFF IF THEY'RE REALLY STUBBORN - BUT YOU CAN JUST PUT YOUR HANDS ON EITHER SIDE OF THE BUSHING WITH YOUR THUMBS ON THE POST AND PUSH/PULL TO GET THEM OFF. IF THEY'RE REALLY BEING STUBBORN, YOU CAN CUT THEM OFF WITH A UTILITY KNIFE.



FIGURE 2F

THESE WILL NOT BE REUSED, SO THEY CAN BE REMOVED FROM THE CHASSIS HANGERS AS WELL. YOU MAY WANT TO LEAVE ONE CONNECTED UNTIL THE NEXT STEP IS FINISHED JUST TO HOLD THE PIPE UP WHILE YOU DISCONNECT THE FLANGE.

F. DISCONNECT THE TWO 14MM NUTS BEHIND ON THE AFT CATALYST PIPE (SEE IN FIGURE 2F) FLANGE AND PULL THE CATALYST PIPE FROM THE CAR. THIS FAR BACK IN THE EXHAUST SYSTEM YOU PROBABLY DON'T NEED MORE THAN A SHOT OR TWO OF PENETRATING OIL. DROP CATPIPE AND REMOVE FROM CAR.

3: INSTALLATION OF CORKSPORT POWER SERIES HEADER.

A. **DOHC ONLY:** ATTACH REAR PIPE OF HEADER ONTO FACTORY CATBACK EXHAUST FLANGE USING SUPPLIED HARDWARE (2X M10 17MM HEAD BOLTS, GASKET, 2X WASHERS AND M10 NUTS). LIGHTLY TIGHTEN FASTENERS **?** SO THAT PIPE STILL HAS SOME RANGE OF MOTION.



FIGURE 3A

NOTE: PIPE IS NOT PERPENDICULAR TO FLANGE, MAKE SURE IT IS ORIENTED AS SHOWN IN FIGURE 3A.

B. **DOHC & SOHC:** HEAD BACK UP TOP AND HANG THE MAIN HEADER OFF OF THE FACTORY EXHAUST STUDS. MAKE SURE YOU HAVE A GOOD GASKET UNDER IT. START 2 OF THE NUTS ONTO THE STUDS AND TIGHTEN THEM DOWN SNUG SO THE HEADER WON'T FALL OFF THE STUDS.

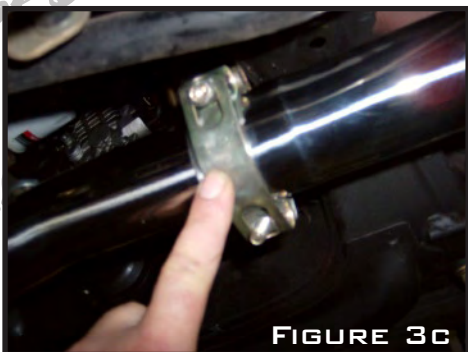


FIGURE 3C

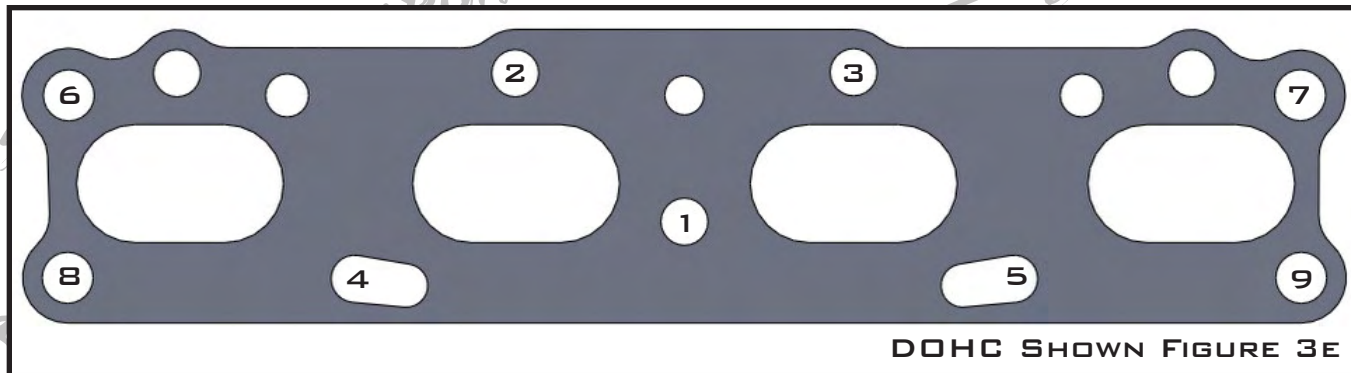
C. **DOHC:** BACK UNDER THE CAR, SLIDE THE COMPRESSION FITTING OVER THE REAR PIPE AND SLIDE THE HEADER OUTLET INTO THE SLIP FITTING OF THE REAR PIPE. SLIDE THE COMPRESSION FITTING FORWARD OVER THE SLIP FIT COUPLING AS SHOWN IN FIGURE 3C AND TIGHTEN THE TWO SOCKET HEAD CAP SCREWS WITH THE 6MM ALLEN WRENCH. **SOHC:** COLLECTOR WILL REQUIRE WELDING TO CONNECT TO EXHAUST.

D. TIGHTEN THE TWO REAR HEADER BOLTS SHOWN IN FIGURE 3A TO ~25 FT LB OF TORQUE. SMILE. YOU'RE DONE UNDER THE CAR!

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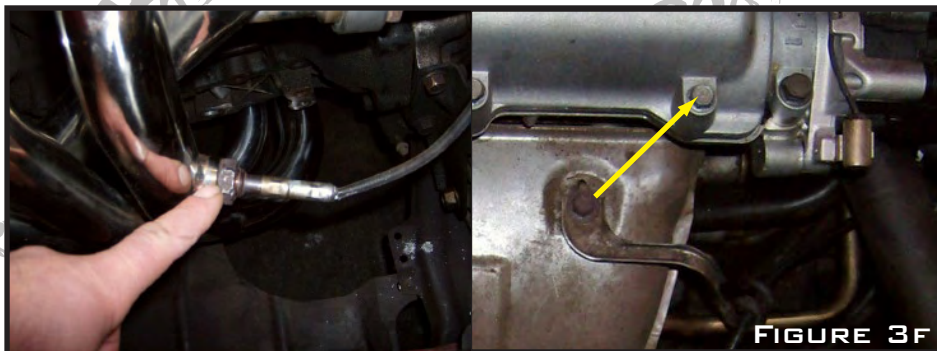
3: HEADER INSTALL (CONTINUED).

E. TIGHTEN THE FACTORY HEADER BOLTS TO 16-21 FT LB OF TORQUE IN AN ALTERNATING FASHION STARTING FROM THE CENTER. (SEE DOHC EXAMPLE IN FIGURE 3E).



? TIP: THE FACTORY LOCKING NUTS CAN BE PARTICULARLY NASTY. IF ONE DOESN'T APPEAR TO START PROPERLY, INSPECT THE THREADS TO ENSURE THAT THEY ARE NOT DAMAGED. IF YOU SEE SIGNS OF CROSS THREADING, REPLACE THEM RATHER THAN STRIP OR BREAK A STUD.

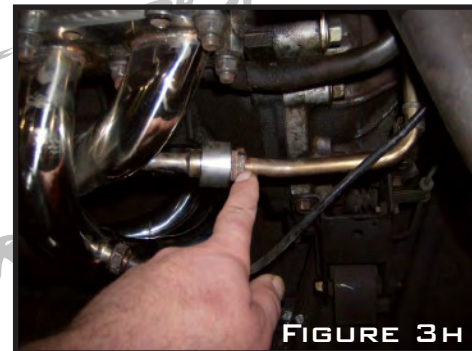
F. APPLY A MODERATE AMOUNT OF ANTI SEIZE COMPOUND ONTO THE THREADS OF THE FRONT O₂ SENSOR AND THREAD IT INTO THE FITTING ON THE CORKSPORT HEADER AS SHOWN IN FIGURE 3F. TIGHTEN THE O₂ SENSOR HAND TIGHT WITH THE O₂ SENSOR WRENCH - IT NEEDS TO BE TIGHT, BUT DON'T GO OVERBOARD. USE THE FACTORY COILED LOOM CONNECTOR AND



CONNECT IT TO ONE OF THE FACTORY VALVECOVER BOLTS AS SHOWN IN FIGURE 3F. YOU MAY NEED TO OPEN THE HOLE UP SLIGHTLY. RECONNECT THE O₂ SENSOR HARNESS TO THE FACTORY WIRING HARNESS. MAKE SURE THE CONNECTOR LATCHES TIGHT. WIND THE O₂ SENSOR HARNESS THROUGH THE COILED LOOM CONNECTOR.

G. ATTACH SECONDARY O₂ SENSOR INTO COLLECTOR OF HEADER USING ANTI-SEIZE COMPOUND SIMILAR TO PRIMARY O₂ SENSOR.

H. **DOHC:** RECONNECT THE TUBING CLAMP FOR THE EGR FITTING TO THE BLOCK. APPLY A MODERATE AMOUNT OF ANTI-SEIZE COMPOUND ONTO THE THREADS OF THE EGR FITTING AND THREAD IT INTO THE FITTING ON THE CORKSPORT HEADER, TIGHTENING HAND TIGHT AS SHOWN IN FIGURE 3G. **ON THE SOHC:** MAKE SURE THIS IS PLUGGED WITH INCLUDED HARDWARE.



4: FINAL BUTTON-UP

A. RECONNECT THE FACTORY AIR INTAKE TRACT WITH THE TWO FACTORY 10MM BOLTS, AND RECLIP THE LOOM CLIP INTO THE INTAKE.

B. MAKE SURE ALL OF YOUR TOOLS ARE OUT OF THE ENGINE COMPARTMENT AND OUT FROM UNDER THE VEHICLE AND LOWER THE VEHICLE TO THE GROUND. START THE CAR AND LISTEN FOR ANY EXHAUST LEAKS. IF LEAKS ARE PRESENT, RECHECK INTEGRITY OF GASKETS AND TIGHTNESS OF CONNECTIONS. ENJOY!