

INSTRUCTIONS FOR INSTALLATION OF THE HOT DIESEL SOLUTIONS MODEL 001 THERMOSTAT ASSEMBLY FOR THE V.M. MOTORI R425 & R428 ENGINES

CONGRATULATIONS ON YOUR PURCHASE OF THE FINEST ENGINE THERMOSTAT ASSEMBLY MADE IN THE WORLD TODAY FOR THE V.M. MOTORI R425 AND R428 ENGINES. WITH PROPER INSTALLATION, THIS THERMOSTAT ASSEMBLY WILL PROVIDE MANY YEARS OF TROUBLE-FREE SERVICE AND OPTIMUM REGULATION OF YOUR EXPENSIVE DIESEL ENGINE'S TEMPERATURE DURING OPERATION.

UNLIKE THE ORIGINAL EQUIPMENT PART, THIS THERMOSTAT ASSEMBLY'S HOUSINGS SHOULD NEVER HAVE TO BE REPLACED. TO CHANGE OUT A FAILED THERMOSTAT VALVE, ALL YOU NEED TO DO IS...

- 1) DRAIN THE ENGINE COOLANT
- 2) REMOVE THE MODEL 001 THERMOSTAT HOUSING CAP
- 3) PULL OUT THE OLD THERMOSTAT VALVE
- 4) REPLACE WITH A NEW VALVE, (STANT # 48792 – 203 DEGREE; STANT # 48799 – 190 DEGREE)
- 5) BOLT THE CAP BACK ON AND TORQUE TO 10 – 12 FT-LBS

SPECIAL NOTE: PLEASE USE BOTH THE FLAT AND LOCK WASHERS IN THE SAME ORDER THEY WERE INITIALLY ASSEMBLED. TO AVOID STAINLESS STEEL TO STAINLESS STEEL GALLING ISSUES, PLEASE COAT THE INSIDE OF THE NUTS, (THREADED PORTION), WITH ANTI-SIEZE COMPOUND; YOU CAN USE COPPER-LUBE, NICKEL-LUBE OR WALTER SURFACE TECHNOLOGIES "ROCK'N ROLL".

- 6) RE-FILL THE ENGINE COOLANT
- 7) RUN ENGINE AND BLEED THE COOLING SYSTEM

TORQUE SPECIFICATIONS:

THERMOSTAT HOUSING FLANGE TO CYLINDER HEAD SOCKET HEAD CAP SCREWS, (3):	20 FT/LBS
THERMOSTAT HOUSING "TAB" TO STAMPED STEEL BRACKET O.E. FLANGE BOLT, (1):	10 - 12 FT/LBS
THERMOSTAT HOUSING CAP NUTS, (3):	10 - 12 FT/LBS

GENERAL INSTALLATION HINTS:

THIS INSTALLATION IS A RATHER STRAIGHTFORWARD AFFAIR; GIVE YOURSELF A COUPLE OF HOURS TO DO THIS BY YOURSELF, OR AROUND AN HOUR WITH A BUDDY HELPING YOU. ADD A FEW BEERS AND CONVERSATION, AND THEN THE INSTALLATION WILL TAKE ALL DAY...L.O.L!

THESE INSTRUCTIONS ARE WRITTEN FOR PEOPLE WHO CONSIDER CHANGING ENGINE OIL A MAJOR UNDERTAKING. THOSE INDIVIDUALS WHO BELIEVE THEMSELVES TO BE FAIRLY HANDY UNDER THE HOOD MAY THEREFORE BE A BIT PUT OFF BY WHAT THEY CONSIDER TO BE OBVIOUS AND UNNECESSARY DETAILS, AND THE TONE OF THE INSTRUCTIONS WHICH MAY SEEM TO COME ACROSS AS ME TALKING DOWN TO THE READER. BELIEVE ME WHEN I SAY THAT IS NOT THE INTENTION HERE... I REALLY WANT THE INSTALLATION OF THE H.D.S. MODEL 001 TO BE AS PAINLESS FOR EVERYONE AS POSSIBLE, SO I INCLUDE DETAILS FOR THE LESS MECHANICALLY INCLINED THAT ARE OBVIOUS TO SEASONED WRENCH PULLERS.

IF ALL YOU ARE DOING IS REPLACING THE THERMOSTAT, THE ABOVE TIMES ARE GOOD ESTIMATES FOR MOST PEOPLE WITHOUT A PROFESSIONAL SHOP AND \$50,000.00 WORTH OF HAND TOOLS TO USE. HOWEVER, THE FOLLOWING INSTRUCTIONS GO INTO A LOT MORE DETAIL THAN A THERMOSTAT REPLACEMENT, SIMPLY BECAUSE MOST PEOPLE WANT TO MAKE EFFICIENT USE OF THEIR TIME. IF THE REPLACEMENT OF A THERMOSTAT ASSEMBLY REQUIRES THE REMOVAL OF NUMEROUS PARTS THAT REQUIRE SERVICING FROM TIME-TO-TIME, IT IS THEREFORE MOST EFFICIENT TO SERVICE, CLEAN OR REPLACE THESE PARTS IF THEY ARE ALREADY OUT OF THE VEHICLE. FOR EXAMPLE, YOU MAY WANT TO CHANGE AND FLUSH THE COOLING SYSTEM AT THE SAME TIME YOU REPLACE THE ENGINE THERMOSTAT. IT WOULD BE AN APPROPRIATE TIME TO DO SO, AS YOU WILL BE DRAINING THE COOLANT ANYWAY. IF THE COOLANT IS CONTAMINATED OR WORN OUT; REPLACE IT.

IF ALL YOU WANT TO DO IS REPLACE THE THERMOSTAT, IGNORE THE INSTRUCTIONS WRITTEN IN ITALICS THAT DETAIL THE CLEANING AND INSPECTION OF THE PARTS YOU REMOVE TO GET TO THE ENGINE THERMOSTAT.

START BY ELEVATING THE FRONT OF YOUR CRD ON RAMPS OR WITH A FLOOR JACK AND JACK STANDS... BE SURE TO SET THE PARKING BRAKE AND CHOCK THE REAR WHEELS. SAFETY FIRST AND ALWAYS!!

DRAIN THE ENGINE COOLANT. WITH A COLD ENGINE, REMOVE THE PRESSURIZED CAP FROM THE COOLANT OVERFLOW BOTTLE TO AID DRAINING. LOCATE THE DRAIN PETCOCK ON THE PASSENGER SIDE OF THE BOTTOM OF THE RADIATOR. ATTACH A SNUG FITTING CLEAR VINYL HOSE ONTO THE OUTLET BARB OF THE PETCOCK, AND HAVE THE OTHER END IN A CLEAN BUCKET TO CATCH THE COOLANT AS IT IS DRAINING. THIS PETCOCK IS ONE OF THOSE STRANGE PARTS I SINCERELY BELIEVE WAS DELIBERATELY DESIGNED TO BREAK IF YOU ARE NOT CAREFUL WITH IT, (CO-INCIDENTALLY, SO IS THE BLEED VALVE ON TOP OF THE RADIATOR CLOSE TO THE UPPER RADIATOR HOSE). GENTLY WORK IT LOOSE WITH A, (15MM?), COMBINATION WRENCH, USING THE OPEN END AND FLIPPING THE WRENCH FROM SIDE-TO-SIDE TO TAKE ADVANTAGE OF THE 15 DEGREE OFFSET OF THE OPEN END. ONCE IT IS FREED UP YOU WILL SEE IT "PULL ITSELF OUT" AND THE COOLANT WILL START TO FLOW. LET IT DRAIN COMPLETELY TO THE POINT THAT IT STOPS FLOWING. AT THIS POINT ENOUGH COOLANT SHOULD HAVE BEEN DRAINED OUT OF

THE COOLING SYSTEM THAT YOU CAN NOW REMOVE THE OLD O.E. THERMOSTAT ASSEMBLY. REVERSE ALL OF THESE STEPS TO CLOSE OFF THE PETCOCK. CLOSE OFF THE PETCOCK NOW SO YOU AVOID FORGETTING TO DO IT LATER.

REMOVE THE AIRBOX AND THE RUBBER INLET TO THE TURBOCHARGER. START BY UNPLUGGING BOTH OF THE ELECTRICAL LEADS TO THE AIRBOX, AND ALSO THE LEADS TO THE O.E. THERMOSTAT AND THE VISCOUS HEATER. THESE ELECTRICAL CONNECTIONS ARE RUBBER "O" RING SEALED AND ARE HELD IN PLACE WITH CLIPS. EACH CONNECTION IS UNIQUE AND WILL NOT INTERCHANGE WITH THE OTHER CONNECTIONS, SO THERE IS NO WORRY ABOUT GETTING EVERYTHING CONNECTED WRONG WHEN IT IS TIME TO RE-CONNECT THEM. THESE THINGS CAN BE A REAL PAIN – IN – THE – ASS TO GET APART, BUT JUST LIKE THE DRAIN PETCOCK, HAVE SOME PATIENCE WITH THEM, AS YANKING ON THEM WILL LIKELY DESTROY THEM. UNLIKE THE DRAIN PETCOCK, HOWEVER, THEY ARE SUPERIOR TO AUTOMOTIVE ELECTRICAL CONNECTIONS IN THE PAST. ONCE THEY ARE PROPERLY CONNECTED, THEY STAY CONNECTED AND DO A GOOD JOB OF SEALING MOISTURE OUT OF THE CONNECTIONS WITH THOSE RUBBER SEALS.

THE AIRBOX REMOVAL CAN BE A LITTLE TROUBLESOME AS WELL BECAUSE THE AIRBOX IS HELD IN PLACE BY RUBBER GROMMETS... DON'T YANK ON THE AIRBOX AS YOU WILL LIKELY BREAK OFF THE PLASTIC TABS BEING HELD IN BY THE GROMMETS, OR YOU WILL LIKELY TEAR THE GROMMETS. PULL UP GENTLY AND STEADILY ON THE AIRBOX, AND ONCE IT POPS FREE, REMOVE THE GROMMETS AS WELL.

REMOVE THE RUBBER INLET TO THE TURBOCHARGER. THIS INLET HAS A PORT WHERE THE HOSE FROM THE DESPISED CRANKCASE VENTILATION SYSTEM BLEEDS POLLUTANTS BACK INTO YOUR ENGINE... IT IS AT THIS POINT ON THROUGH THE INTAKE SYSTEM OF THE ENGINE THAT YOU WILL DISCOVER SLUDGY, OILY CRANKCASE VENTINGS COATING THE INSIDE OF ALMOST EVERY INTAKE PART YOU TAKE OFF.

HAVING TO DEAL WITH THIS CRAP REALLY SHOULD CONVINCING YOU TO INSTALL A PROVENT 200 CRANKCASE CATCH CAN, (O.K.... I'LL GET OFF MY SOAPBOX NOW).

INSPECT THE TURBOCHARGER INLET AND CLEAN UP THE ACCUMULATED POLLUTANT FROM AROUND THE INLET. STUFF A CLEAN RAG WITH NO LINT IN THE INLET, COVER THE INLET WITH A PIECE OF PLASTIC SHEETING LIKE SARAN WRAP AND SECURE THE SHEETING IN PLACE WITH A HEAVY RUBBER BAND.

REMOVE THE CHARGE AIR COOLER HOSE, ALSO KNOWN AS THE INTERCOOLER HOSE, LEADING FROM THE TURBOCHARGER TO THE INTERCOOLER. INSPECT THE TURBOCHARGER OUTLET FOR DAMAGE OR POLLUTANTS AND CLEAN IT UP IF NECESSARY. STUFF A CLEAN, LINT-FREE RAG INTO THE OUTLET, COVER WITH PLASTIC FOOD WRAP, AND SECURE WITH A HEAVY RUBBER BAND. STUFF ANOTHER CLEAN, LINT-FREE RAG INTO THE OPENING OF THE INTERCOOLER, COVER WITH SARAN WRAP AND SECURE WITH A HEAVY RUBBER BAND AS WELL. REMOVE THE UPPER RADIATOR HOSE FROM WHERE IT IS ATTACHED TO THE O.E. ENGINE THERMOSTAT AND THE RADIATOR.

WITH THE AIRBOX, THE RUBBER TURBO INLET ELBOW, THE INTERCOOLER HOSE AND THE UPPER RADIATOR HOSE REMOVED, IT IS A GOOD TIME TO GIVE THESE ITEMS A COMPLETE AND THOROUGH INSPECTION. CLEAN OR REPLACE THESE PARTS AND THE AIR FILTER IF NECESSARY. I SUGGEST THAT IF YOU FEEL THESE PARTS NEED TO BE CLEANED, DO THIS FIRST BEFORE INSTALLATION OF THE NEW THERMOSTAT, AS THIS WILL GIVE THE CLEANED PARTS TIME TO DRY BEFORE RE-INSTALLATION.

INSPECT THE RUBBER INLET TO THE TURBOCHARGER FOR DAMAGE AND/OR DETERIORATION, AS THIS HAS BEEN KNOWN TO OCCUR. REPLACE THIS PART IF IT IS TORN, OR SEEMS TO BE REALLY SOFT FROM DETERIORATION DUE TO THE CRANKCASE VENTINGS. THIS SAME INSPECTION AND CLEANING IS NECESSARY FOR THE INTERCOOLER HOSE, AS THE POLLUTANTS CAN SEVERELY DETERIORATE THIS PART AS WELL. THE SAME APPLIES FOR THE UPPER RADIATOR HOSE, ALTHOUGH DETERIORATION TO THIS PART WILL BE DUE TO BAD ENGINE COOLANT RATHER THAN RECYCLED POLLUTANTS. LOOK FOR DAMAGE FROM OVER-TIGHTENING OF THE HOSE CLAMPS FROM ALL THREE PARTS. CLEAN THESE PARTS THOROUGHLY IN A SOLUTION OF WATER AND LAUNDRY DETERGENT WITH A DEGREASER ADDITIVE; RINSE THEM THOROUGHLY AND SET THEM ASIDE TO DRY.

THE AIRBOX REALLY SHOULD BE COMPLETELY REMOVED AND CLEANED EVERY 50,000 MILES OR SO, JUST TO GET RID OF THE ACCUMULATED CRUD AT THE BOTTOM OF THE BOX. WASH IT OUT THOROUGHLY IN A SOLUTION OF WATER AND LAUNDRY DETERGENT, RINSE IT THOROUGHLY AND SET IT ASIDE TO DRY. DO THE SAME FOR THE LID, BUT BE SURE TO REMOVE THE MASS AIRFLOW SENSOR AND THE OTHER SENSOR FROM THE AIRBOX LID FIRST, AND CLEAN THESE ITEMS GENTLY WITH RUBBING ALCOHOL AND A SOFT CLEAN RAG. THE AIR FILTER ELEMENT SHOULD BE INSPECTED FOR DIRT ACCUMULATION AND DAMAGE. IF IT CAN BE CLEANED, DO SO ACCORDING TO THE INSTRUCTIONS SET OUT BY THE MANUFACTURER. IF IT IS TOO DIRTY OR IS A 1 USE FILTER, REPLACE IT WITH A NEW ONE.

CLEAN THE GROMMETS AND THE HOLES IN THE SHEET METAL THEY FIT INTO. LATER - BEFORE RE-INSTALLATION OF THE AIRBOX AND AFTER INSTALLATION OF YOUR NEW THERMOSTAT - RE-INSTALL THE GROMMETS AND PUT A FEW DROPS OF LIQUID DISH SOAP ON THE OPENINGS. THE SOAP WILL ACT AS A LUBRICANT TO GREATLY EASE THE TABS OF THE AIRBOX BACK INTO THE GROMMET HOLES WHEN YOU PUSH DOWN ON IT.

YOU NOW HAVE ACCESS TO THE O.E. ENGINE THERMOSTAT ASSEMBLY. START BY REMOVING FROM THE O.E. T-STAT THE SMALL OVERFLOW HOSE TO THE OVERFLOW TANK; PLUG THE END OF IT IF NECESSARY TO PREVENT LEAKING AND SET IT UP ON TOP OF THE ENGINE OUT OF THE WAY. REMOVE BOTH OF THE SMALL CURVED HOSES THAT ARE CLAMPED TO THE 2 MEDIUM SIZED HOSE BARBS ON THE O.E. THERMOSTAT HOUSING. MAKE A NOTE OR TAG THE HOSES AS TO WHICH HOSE GOES ON WHAT HOSE BARB, (THIS IS IMPORTANT, SO PLEASE BE SURE ABOUT THIS). YOU MAY WANT TO COMPLETELY REMOVE THESE LITTLE HOSES AS THEY CAN GET IN THE WAY OF REMOVAL OF THE O.E. UNIT AND INSTALLATION OF THE MODEL 001; IF THIS IS THE CASE ALSO TAKE NOTE OF EACH HOSE'S ORIENTATION, (WHICH END OF THE HOSE GOES ON WHAT HOSE BARB). WITH THE AVAILABILITY OF DIGITAL CAMERAS ON TODAY'S SMARTPHONES, TAKING PHOTOS OF THESE SMALL HOSES BEFORE YOU

REMOVE THEM WILL USUALLY BE ALL THE “NOTE-TAKING” YOU WILL EVER REQUIRE. REMOVE ANY OTHER HOSES YOU NEED TO ACCESS THE MOUNTING BOLTS OF THE O.E. T-STAT, TAKING NOTE OF WHERE THE HOSES ROUTE TO.

YOU ARE NOW READY TO REMOVE THE O.E. THERMOSTAT ASSEMBLY. CRACK LOOSE THE THREE FLANGE BOLTS THAT FASTEN THE O.E. ASSEMBLY TO THE CYLINDER HEAD, AND THEN CRACK LOOSE THE LITTLE FLANGE BOLT ATTACHING THE O.E. THERMOSTAT HOUSING “TAB” TO THE STAMPED STEEL BRACKET AT THE FRONT OF THE ENGINE, (BE SURE TO KEEP THIS LITTLE FLANGE BOLT, AS IT WILL BE USED TO SECURE THE WING OF THE MODEL 001 HOUSING). GENERALLY, THE O.E. THERMOSTAT SHOULD WORK ITSELF LOOSE FROM THE CYLINDER HEAD OF THE ENGINE AT THIS POINT, BUT IT MAY REQUIRE A FEW TAPS WITH A RUBBER, PLASTIC OR WOOD Mallet BEFORE IT GETS UNSTUCK. COMPLETELY REMOVE THE LITTLE FLANGE BOLT, (REMEMBER TO KEEP IT), AND THE THREE CYLINDER HEAD BOLTS; THE O.E. THERMOSTAT SHOULD THEN FALL INTO YOUR HANDS.

NOW COMES THE TEDIOUS PART... REMOVING THE OLD GASKET. SOMETIMES THE GASKET COMES OFF EASILY, BUT MOST OF THE TIME YOU HAVE TO USE A SCRAPER AND SOME ELBOW GREASE TO GET IT OFF. DO NOT GOUGE THE GASKET MATING SURFACE OF THE CYLINDER HEAD... REMEMBER THAT YOUR SCRAPER IS STEEL, AND THE CYLINDER HEADS IS ALUMINUM, SO BE CAREFUL! A LITTLE TRICK I USE IS TO STUFF THE COOLANT PORT OF THE CYLINDER HEAD WITH PAPER TOWELING OR A RAG, AND THEN SPRAY THE GASKET MATING SURFACE WITH PERMATEX OR SIMILAR TYPE OF GASKET REMOVER. LET IT SIT FOR A FEW MINUTES AND DO ITS JOB SOFTENING UP THE OLD GASKET MATERIAL. TRY SCRAPING AGAIN TO REMOVE MORE OLD GASKET MATERIAL. IF YOU ARE LUCKY, THIS WILL ONLY TAKE A COUPLE OF TRIES BEFORE IT IS ALL OFF. ONE OF MY OWN LIBERTY CRD VEHICLES REQUIRED AT LEAST 6 SPRAY & SCRAPES BEFORE ALL OF THE OLD GASKET MATERIAL WAS REMOVED, SO PLEASE HAVE PATIENCE WITH THIS.

ONCE YOU HAVE ALL OF THE OLD GASKET MATERIAL REMOVED, CAREFULLY AND COMPLETELY WIPE DOWN THE ENTIRE AREA TO REMOVE AS MUCH GASKET REMOVER SPRAY AS POSSIBLE. I RECOMMEND CAREFULLY WASHING THE AREA DOWN WITH CLEAR WATER TO REMOVE THE LAST TRACES OF THAT CHEMICAL, BUT BE CAREFUL NOT TO GET THE TURBOCHARGER OR THE OPENING TO THE INTERCOOLER TOO WET; THEY MAY BE COVERED IN PLASTIC WRAP, BUT THAT IS NO REASON TO BE CARELESS. JUST USE ENOUGH WATER TO GET THE AREA WHERE THE MODEL 001 IS TO MOUNT TO THE CYLINDER HEAD NICE AND CLEAN, AND BE SURE TO REMOVE THE PAPER TOWEL OR RAG YOU STUFFED IN THE COOLANT PORT. DO NOT WORRY ABOUT GETTING A LITTLE WATER IN THE COOLING SYSTEM PORT AS THERE IS NO REAL CONSEQUENCE FOR THIS. DRY THE AREA WITH A RAG.

BEFORE THROWING OUT THAT CRAPPY O.E. THERMOSTAT HOUSING, YOU MUST CLAMP IT IN A VISE AND CAREFULLY CRACK LOOSE THE O.E. TEMPERATURE SENDING UNIT THAT SENDS SIGNALS TO BOTH YOUR TEMPERATURE GAUGE AND TO THE ENGINE CONTROL UNIT, (A.K.A. THE ECU OR THE ENGINE’S COMPUTER). USE A BOX END WRENCH FOR THIS AND A GENTLE PULL TO CRACK IT LOOSE, AS TEMPERATURE SENDING UNITS ARE RATHER DELICATE THINGS. GENTLY CLEAN THE ACCUMULATED CRUD OFF OF IT; BOTH THE THREADS AND THE SENSOR END... A LIGHT SCRUBBING WITH A SOAP INFUSED STEEL WOOL PAD AND CLEAN WATER SHOULD DO THE JOB NICELY. RINSE IT THOROUGHLY. ONCE CLEAN AND DRIED, WRAP TEFLON THREAD SEALING TAPE AT LEAST 2 TIMES AROUND THE THREADS OF THE T.S.U.; BE SURE TO WRAP THE TAPE SNUGLY AND IN THE SAME DIRECTION THAT YOU WOULD GO IF YOU WERE THREADING ON A NUT. THREAD THE T.S.U. INTO THE MATCHING THREADED HOLE

ON THE MODEL 001 HOUSING AND TIGHTEN DOWN WITH ABOUT 15 FT/LBS OF TORQUE. ON BOTH GENERATIONS OF THE MODEL 001, THE THREADED HOLE FOR THE O.E. TEMPERATURE SENDING UNIT IS THE ONLY OPEN THREADED HOLE ON THE HOUSING WHEN IT IS SHIPPED TO YOU. YOU MUST INSTALL THE O.E. TEMPERATURE SENDING UNIT IN ORDER FOR YOUR ENGINE TO RUN PROPERLY, SO THERE IS NO NEED TO PLUG IT UP WHEN THE MODEL 001 IS ASSEMBLED.

NOW YOU CAN FINALLY INSTALL THE HOT DIESEL SOLUTIONS MODEL 001 ENGINE THERMOSTAT ASSEMBLY. REMEMBER THAT THIS PRODUCT COMES TO YOU COMPLETELY ASSEMBLED WITH A STANT 48792 THERMOSTAT VALVE INSTALLED AND THE CAP SECURED AND TORQUED TO THE PROPER SPECIFICATIONS. ALL YOU NEED TO DO IS INSTALL THE COMPLETE UNIT ONTO THE ENGINE.

PLEASE PAY PARTICULAR ATTENTION TO THIS PART OF THE INSTALLATION

SLIP THE THREE SOCKET HEAD CAP SCREWS WITH FLAT & LOCK WASHERS IN THE FLANGE HOLES OF THE MODEL 001 HOUSING, AND SLIP THE DURLON 8500 GASKET ON THE OTHER SIDE OF THE FLANGE, MATCHING THE MATING SURFACE OF THE FLANGE WITH THE GASKET. CAREFULLY GUIDE THE ENTIRE UNIT TO THE MATING SURFACE OF THE CYLINDER HEAD, AND START TO THREAD THE CAP SCREWS INTO THE CYLINDER HEAD MOUNTING HOLES USING A BALL-END 6MM HEX KEY, (L SHAPED ALLAN KEY). SNUG UP EACH CAP SCREW EVENLY AND AS MUCH AS YOU CAN. IF THE HOLE IN THE TAB OF THE MODEL 001 HOUSING LINES UP WITH THE HOLE IN THE STAMPED STEEL BRACKET AT THE FRONT OF THE ENGINE, THEN THREAD IN THE O.E. FLANGED BOLT YOU WERE SUPPOSED TO SAVE WHEN YOU REMOVED THE O.E. THERMOSTAT ASSEMBLY. IF THE HOLES DO NOT LINE UP YET, THEN TAKE THE HEX KEY TOOL WITH THE 3/8" DRIVE I HAVE PROVIDED WITH YOUR MODEL 001, ATTACH 1 OR 2 LENGTHS OF 3/8" DRIVE EXTENSIONS, (WOBBLE EXTENSIONS ARE BEST FOR THIS APPLICATION), AND USE A RATCHET TO TIGHTEN THE CAP SCREWS A LITTLE MORE, UNTIL THE HOLES DO LINE UP. THREAD IN THE O.E. FLANGE BOLT THROUGH THE STAMPED STEEL BRACKET TO THE HOLE IN THE TAB OF THE HOUSING, BUT DO NOT TIGHTEN IT DOWN YET.

TAKE YOUR TORQUE WRENCH, (YOU DO HAVE A TORQUE WRENCH, DON'T YOU? I AM NOT PROVIDING ONE OF THOSE FREE OF CHARGE!!), AND SET IT TO 20 FT-LBS, (A.K.A. 240 INCH POUNDS). ATTACH TO YOUR EXTENSION(S) AND YOUR 3/8" DRIVE HEX KEY, AND GENTLY TORQUE ALL THREE CAPS SCREWS TO 20 FT-LBS. USE A STEADY, GENTLE PULL OF THE TORQUE WRENCH TO ACHIEVE YOUR 20 FT-LB SPECIFICATION... REMEMBER THAT YOU ARE TORQUING ON A 6MM BALL-END ALLEN KEY; IT WOULD NOT TAKE MUCH TO SNAP THAT BALL-END OFF, SO BE CAREFUL.

ONCE ALL THREE CAP SCREWS HAVE BEEN PROPERLY TORQUED, RE-SET YOUR TORQUE WRENCH TO 10 – 12 FT-LBS, AND TIGHTEN THE O.E. FLANGE SCREW TO THAT SPECIFICATION. FOR THOSE OF YOU WHO ARE UNFAMILIAR WITH TORQUE WRENCHES, ASK A FRIEND TO SHOW YOU HOW TO USE ONE. ALWAYS REMEMBER TO BACK OFF THE TORQUE WRENCH TO ZERO BEFORE YOU PUT IT AWAY.

DO NOT DO THE FOLLOWING:

DO NOT LOOSEN UP THE STEEL BRACKET THAT BRACES THE ENGINE THERMOSTAT WHERE IT IS ATTACHED TO THE ENGINE, THEN BOLT THE OTHER END OF THE STEEL BRACKET TO THE TAB ON THE MODEL 001 MAIN HOUSING AND THEN TIGHTEN UP THAT STEEL BRACKET TO ENGINE BOLT AGAIN. SOME CUSTOMERS HAVE INSTALLED THE MODEL 001 IN THIS MANNER IN AN EFFORT TO MAKE EVERYTHING “FIT” CORRECTLY. INSTALLING A MODEL 001 IN THIS MANNER MAY INTRODUCE AN UPWARD OR DOWNWARD VECTORING FORCE ON THE MACHINED TAB OF THE MAIN HOUSING THAT CAN CAUSE IT TO FAIL OVER TIME.

THERE SHOULD BE ABSOLUTELY NO FITMENT ISSUES... IF THERE IS IT MAY BE BECAUSE THE STEEL BRACKET IS SLIGHTLY BENT OR OUT OF ALIGNMENT.

INSTEAD, LEAVE THE STEEL BRACKET TO ENGINE BOLT TIGHT. BOLT THE MODEL 001 TO THE CYLINDER HEAD AT THE COOLING SYSTEM PORT FIRST, ONLY WITH THE SOCKET HEAD CAP SCREWS GENTLY SNUGGED UP. AFTER THIS, CHECK TO SEE IF YOU HAVE ANY CLEARANCE BETWEEN THE MAIN HOUSING TAB WITH THE THREADED HOLE, AND THE UNDERSIDE OF THE STEEL BRACKET WHERE TO TWO PIECES BOLT TOGETHER. THERE SHOULD NOT BE A GAP, **BUT IF THERE IS A GAP PLEASE USE A FLAT WASHER OR WASHERS AS SHIM MATERIAL TO CLOSE UP THAT GAP.** THEN INSTALL THE BOLT AND THREAD THAT BOLT DOWN ALMOST ALL OF THE WAY. TORQUE TO SPECIFICATION THE CYLINDER HEAD TO THERMOSTAT SOCKET HEAD CAP SCREWS FIRST, THEN COME BACK TO THE MAIN HOUSING TAB TO TORQUE TO SPECIFICATION THE FLANGE MOUNTING BOLT THERE.

YOU HAVE NOW SUCCESSFULLY INSTALLED A MODEL 001 ENGINE THERMOSTAT ASSEMBLY... TIME FOR A BEER BEFORE RE-INSTALLING ALL OF THE PARTS YOU HAD TO TAKE OFF TO REMOVE & REPLACE A THERMOSTAT ASSEMBLY ON A R428 ENGINE. THIS TIME, HOWEVER, IF YOUR MODEL 001 THERMOSTAT ASSEMBLY IS PROPERLY INSTALLED, YOU WILL NEVER HAVE TO GO TO THIS TROUBLE AGAIN!!

WHEN INSTALLING ALL THE PARTS BACK ON THAT YOU TOOK OFF, REMEMBER TO REMOVE THE SARAN WRAP AND RAGS FROM THE TURBOCHARGER INLET AND OUTLET, AND ALSO THE INLET OF THE INTERCOOLER. THIS MAY SEEM LIKE A NO-BRAINER, BUT YOU WOULD BE SURPRISED HOW MANY TIMES PEOPLE FORGET THIS. REMEMBER NOT TO TIGHTEN HOSE CLAMPS TOO MUCH OR YOU RISK CAUSING DAMAGE TO THE HOSES.

FINALLY, ONCE EVERYTHING IS RE-INSTALLED, REMEMBER TO RUN THE ENGINE FOR A FEW MINUTES WHILE RE-FILLING WITH COOLANT TO AID IN GETTING RID OF THE AIR IN THE COOLING SYSTEM. FILL AS MUCH AS YOU CAN THROUGH THE OVERFLOW TANK AND THEN CAP THE TANK. OPEN UP THE BLEEDER VALVE NEXT TO THE UPPER RADIATOR HOSE TO EXPEL MORE AIR BUBBLES OUT OF THE SYSTEM. THIS BLEEDER VALVE WORKS A LOT LIKE THE COOLING SYSTEM DRAIN PETCOCK, SO HAVE SOME PATIENCE WITH IT IF IT IS STUCK CLOSED. WRIGGLE IT WITH A SET OF CLOTH-COVERED SLIP-JOINT PLIERS TO GENTLY CRACK IT LOOSE. ONCE IT BEGINS TO TURN IT WILL POP UP TO ALLOW AIR OUT OF THE COOLING SYSTEM. CONTINUE TO BLEED THE SYSTEM OF AIR FOR ABOUT 15 MINUTES, AND THEN CLOSE OFF THE BLEEDER WHEN THE ENGINE BECOMES FULLY WARMED UP. MONITOR THE COOLANT LEVEL OF YOUR LIBERTY CRD FOR THE NEXT FEW DAYS BETWEEN TRIPS TO SEE IF YOU REQUIRE A TOP-UP OF ENGINE COOLANT. FILL UP THE COOLANT ONLY WHEN THE ENGINE IS COOL.