

GMC MOTORHOME INTERNATIONAL

AN ALTERNATE ENGINE FOR GMC MH

More Power!!!



300+ HP 6.5 Turbo Diesel Project Engine

**PREPARED BY: BILL HUBLER
MOUNT HOOD CONVENTION, WELCHES, OR
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6.5 L GM TURBO DIESEL FOR GMC/MH

- **WHY**

- **FUEL ECONOMY: 14-15 MPG @ 60 mph INTERSTATE TRAVEL**
- **LONGEVITY: DOUBLE ENGINE LIFE EXPECTANCY**
- **EQUIVALENT ENGINE NOISE W/SUITABLE ENGINE COMPARTMENT INSULATION**
- **POWER IMPROVEMENT: RUNS UP GRADES FASTER THAN OEM GMC/MHs**
- **VIABLE ALTERNATE ENGINE TO REPLACE 455/403 GASOLINE ENGINE**
- **THEY SAID IT COULD NOT BE DONE EFFECTIVELY & I LIKE THE SMELL OF DIESEL**

- **COST**

- **NEW LONG BLOCK @ ABOUT \$4,100 LIST**
- **NEW ACCESSORIES, EXHAUST, ETC @ ABOUT \$4,000**
- **WRECKING YARD LOW MILEAGE USED ENGINE/W/ACCESSORIES @ ABOUT \$5,000**

- **ENGINE COMPARISON**

- **ABOUT SAME SIZE & WEIGHT AS 455/403 ENGINE**
- **RATED TORQUE**

*6.5 L	390 FT-LBS @ 1,700 RPM
455	344 FT-LBS @ 2,400 RPM
403	330 FT-LBS @ 2,400 RPM

Note: *Inter Cooler & Larger exhaust yields additional torque value

6.5 L GM TURBO DIESEL INSTALLATION CONSIDERATIONS

- **ADEQUATE SPACE AVAILABLE: NEAR SAME SIZE AS 455/403**
- **ENGINE TO T-MISSION ADAPTER PLATE AVAILABLE FROM MANY PART HOUSES**
 - **CLEARANCE NOTCH REQUIRED IN T-MISSION BELL HOUSING FOR STARTER**
Note: Starter Attaches to Engine Block
- **CLEARANCE GRINDING MAY BE REQUIRED FOR 6.5 RING GEAR**
- **6.5 STARTER IS TOO LONG FOR INSTALLATION: INTERFERES W/DRIVE AXLE**
 - **SMALL SUPER STARTER AVAILABLE FROM "TILTON" @ ABOUT \$420 LIST**
- **OIL PAN**
 - **REQUIRES THRU HOLE (TUBE) FOR RIGHT DRIVE AXLE**
 - **DRIVER SIDE INDENTURE FOR FINAL DRIVE HOUSING CLEARANCE**
 - **OIL DIP STICK RECEPTACLE RELOCATED**
 - **RAISE PAN BOTTOM FOR GROUND CLEARANCE: LEVEL OF T-MISSION**
- **OIL FILTER**
 - **6.5 NORMAL OIL FILTER LOCATION (ABOVE T-MISSION) TO BE BLOCKED**
 - **OIL PORT AVAILABLE ABOVE FILTER FOR ROUTING TO REMOTE FILTER & COOLER**
Note: Large Oil Cooler Required

6.5 L GM TURBO DIESEL INSTALLATION CONSIDERATIONS

- **FINAL DRIVE**
 - **RETAIN OEM 3.07 FOR BEST OVERALL PERFORMANCE**
 - **2.71 LIMITED POWER PERFORMANCE W/O FUEL ECONOMY**
- **EXHAUST**
 - **DRIVER SIDE MANIFOLD MODIFICATION TO CLEAR T-MISSION**
 - **CUT AT "L" & REROUTE: WELD W/NICKEL ROD**
 - **PASSENGER SIDE MANIFOLD MODIFICATION TO LOWER TOP (about 1 1/2")**
 - Note: Turbo Charger Mounts on Top of Exhaust manifold
 - **CROSSOVER PIPE TO BE FABRICATED TO ROUTE ALL EXHAUST THRU TURBO**
 - **PIPE FROM TURBO TO BE FABRICATED OF 3" MINIMUM DIAMETER**
 - **3" YIELDS ABOUT 7 LBS MAX. BOOST PRESSURE W/SHORT SIDE EXIT PIPES**
 - **4" SHOULD YIELD GREATER BOOST PRESSURE FOR IMPROVED PERFORMANCE**
- **PASSENGER SIDE AXLE SUPPORT**
 - **ADAPTER OEM SUPPORT BRACKET FOR ATTACHING TO ENGINE**
 - **WELDED STEEL PLATE ADAPTER**

6.5 L GM TURBO DIESEL INSTALLATION CONSIDERATIONS

- **ENGINE COVER/COMPARTMENT**
 - CUT OUT OVER TURBO & COVER W/STEEL PLATE
 - INSTALL FIRE PROOF INSULATION & METAL PLATE OVER ALL WOOD FLOOR
 - INSTALL 1 ½" HIGH DENSITY FOAM OVER FLOOR/UNDER CARPET
 - FABRICATE & INSTALL THINNER (3/8") PLYWOOD ENGINE COVER
 - COVER BOTTOM W/1/2" FOAM & METAL PLATE
- **FAN & FAN SHROUD**
 - HEAVY DUTY DIESEL THERMO FAN REQUIRED
 - MODIFY FAN SHROUD SUPPORTS FOR HD FAN
 - Note: Two Large Electric Fans Were Not Adequate cooling
- **AIR CLEANER**
 - REMOTE 12" DIA. X 3 ½" HIGH K-N FILTER (E1500)
 - INSTALLED UP FRONT BETWEEN RADIATOR & RIGHT HEAD LIGHT
 - CONNECTED W/3" HOSE: SPACE LIMITED DIAMETER
- **FRONT MOTOR MOUNT**
 - FABRICATE 2 STEEL PLATES FOR ATTACHING TO EXISTING HOLES ON SIDE OF ENGINE BLOCK & ROUTE AT ANGLE TO ENGINE MOUNT

6.5 L GM TURBO DIESEL INSTALLATION CONSIDERATIONS

- **FUEL PUMP & FILTER**
 - **ELECTRIC FUEL PUMP W/"RACORE" FUEL FILTER**
 - **MOUNTED ON COACH FRAME BEHIND LEFT FRONT WHEEL**
 - **ENGINE MOUNTED "FINAL" FILTER**
- **RADIATOR HOSES**
 - **ADAPT TWO DIFFERENCE SIZE HOSES TO FIT RADIATOR/ENGINE COOLANT PORTS**
 - **GATES 20601/20847 W/ 2" SS TUBE FOR BOTTOM HOSE**
 - **GATES 20705/GM C3C491CL W/1 1/2" SS TUBE FOR TOP HOSE**
- **FUEL FEED MECHANISM/ACCELERATOR PEDDLE**
 - **USE OEM CABLE W/BELL CRANK AT INJECTOR PUMP TO REVERSE DIRECTION**
 - **ADDED ROSTRA'S ALL ELECTRIC CRUISE CONTROL: WORKS GREAT**
- **INSTRUMENTS (MINIMUM)**
 - **SMALL PANEL BELOW OEM PANEL W/FOLLOWING:**
 - **OIL TEMP. -- TRANS TEMP. -- BOOST PRESSURE --TACK -- VOLT & AMP METER**

6.5 L GM TURBO DIESEL INSTALLATION CONSIDERATIONS

• BRAKES

- OEM VACUUM BRAKE BOOST LIMITED BY LACK OF VACUUM IN DIESEL ENGINE
 - DIESEL HAS NO VACUUM SINCE THERE IS NO THROTTLE VALVE
 - OPEN MANIFOLD W/ADDITION OF FUEL TO INCREASE SPEED/TORQUE
- 6.5 DIESEL VACUUM PUMP (DRIVEN BY FAN BELT) W/ ACCUMULATOR TANK
 - NOT ADEQUATE FOR BRAKES....OK FOR HEATER/AC CONTROLS
- CADILLAC HYDRO-BOOST (75-76 ELDORADO) ACCEPTABLE: GOOD BRAKES
 - ALSO DIESEL PICKUPS HAVE COMPATIBLE HYDRO-BOOST SYSTEM

• OTHER/MISCELLANEOUS

- COOLANT CROSSOVER PIPE REQUIRED MODIFICATION (CUT & WELD)
 - ENGINE COVER SUPPORT REQUIRED NOTCH FOR CLEARANCE
- HEAVY DUTY RV TORQUE CONVERTER REQUIRED TO HANDLE DRIVE TORQUE
- AUXILIARY POWER UNIT (APU)/AC HOUSE GENERATOR
 - OEM ONAN NOT COMPATIBLE W/DIESEL FUEL
 - R&R ONAN W/DIESEL GENERATOR FOR COMPATIBLE FUEL
 - DON'T LIKE THE NOISE....WILL INSTALL SMALL GAS TANK NEXT TIME

• --THE BEST IS YET TO COME--

- EXISTING GM DURAMAX 6600 DIESEL: 6.6 L, 90 DEGREE - V8
 - 520 FT-LBS @ 1,800 RPM
 - TURBO CHARGED W/CHARGE AIR COOLING (INTER COOLED)
- Q&A.....BILL HUBLER @ 208-459-7726.....whubler@attglobal.net