

## TROUBLE SHOOTING GUIDE ENGINE

PROBLEM	CAUSE	SOLUTION
1. EXCESSIVE OIL CONSUMPTION TURBO DIESEL	A. PISTON RINGS BROKEN OR NOT SEATING B. VALVES & GUIDES C. DEFECTIVE TURBOCHARGER	A. OVERHAUL ENGINE B. OVERHAUL ENGINE C. REPLACE TURBOCHARGER
2. EXCESSIVE WHITE OR BLUE SMOKE	A. CONTAMINATED FUEL B. BURNING LUBE OIL C. INJECTORS D. ENGINE TIMING E. INCORRECT VALVE SETTING F. AIR INTO SUCTION SIDE OF INJECTION PUMP	A. CLEAN FUEL SYSTEM B. REPLACE FUEL C. OVERHAUL ENGINE D. RE-SET VALVES E. RE-TIME ENGINE F. TIGHTEN OR REPLACE FUEL LINES
3. EXCESSIVE BLACK SMOKE (MAY SHOW LOSS OF POWER)	A. RESTRICTED AIR FLOW B. INJECTORS  C. ENGINE TIMING D. INCORRECT VALVE SETTING E. WORN CAMSHAFT F. FUEL FILTERS	A. CHECK OIL FILTER B. CLEAN OR REPLACE INJECTORS C. RE-SET TIMING D. RE-SET VALVES E. REPLACE CAMSHAFT F. REPLACE FUEL FILTERS
4. EXCESSIVE EXHAUST TEMPERATURE (TURBO DIESEL)	A. OVER-LOADING ENGINE  B. OVER-FUELING C. RESTRICTED AIR FLOW	A. REDUCE LOAD OR WE DIFFERENT GEAR B. RESET INJECTION PUMP C. REPLACE AIR FILTERS
5. ENGINE OVERHEATING	A. LOW COOLANT LEVEL B. RESTRICTED RADIATOR C. LOOSE BELTS D. ENGINE TIMING E. RESTRICTED AIR FLOW F. INCORRECT WATER PUMP G. DEFECTIVE WATER PUMP	A. ADD COOLANT B. CLEAN RADIATOR C. TIGHTEN BELTS D. RE-SET TIMING E. REPLACE AIR FILTER F. REPLACE WATER PUMP G. REPLACE WATER PUMP
6. TURBOCHARGER LEAKING OIL	A. EXCESSIVE LEAKAGE OF PISTON RINGS B. PLUGGED CRANK CASE VENTILATION  C. DEFECTIVE TURBO	A. OVERHAUL ENGINE B. OPEN CRANK CASE BREATHER C. REPLACE TURBOCHARGER
7. HARD START (DIESEL)	A. INJECTORS  B. INJECTION PUMPS C. LOW COMPRESSION	A. CLEAN OR REPLACE INJECTORS B. REPLACE INJECTION PUMP C. OVERHAUL ENGINE
8. HARD START (DIESEL, HOT ENGINE)	A. INJECTION PUMP B. GETTING AIR INTO SUCTION SIDE OF PUMP	A. REPLACE INJECTION PUMP B. TIGHTEN OR REPLACE FUEL LINES
9. HARD START (COLD ENGINE)	A. CONTAMINATED FUEL B. ENGINE TIMING C. GETTING AIR INTO SUCTION SIDE OF INJECTION PUMP D. INJECTION PUMP	A. CLEAN FUEL SYSTEM B. REPLACE FUEL C. TIGHTEN OR REPLACE FUEL LINES D. REPLACE INJECTION PUMP

