

Section X — Trouble Shooting Guide

Hard start/no start

- Fuel Supply —
 - A. Insufficient
 - B. Contamination
- Fuel Pump Shutoff —
 - A. Bowden wire sticking
 - B. Electric solenoid malfunction
- Incorrect Engine Timing
- Excess Fuel Device Stuck in Run
- Supply Pump —
 - A. Excessive restriction
 - B. Suction air leak
 - C. Regulating valve operation
- Internal Fuel Pump Phasing
- Control Unit —
 - A. Sticking
 - B. Broken
- Hydraulic Head Plunger
 - A. Worn
 - B. Seized
- Delivery Valve Sticking or Leaking
- Improper Injection Nozzle Operation

Engine dies/stalls at idle

- Delivery Valve Body —
 - A. Eroded
 - B. Cocked
- Supply Pressure —
 - A. Excessive restriction
 - B. Suction air leak
- Return Line Restriction
- Incorrect Low Idle Setting
- Incorrect Governor Spring or Setting
- Control Rod or Control Unit Binding or Sticking
- Loose Hydraulic Head Duct Plug
- Improper Injection Nozzle Operation

Low Power

- Contaminated Fuel Supply
- Throttle Linkage Misadjusted
- Low High Idle Adjustment
- Air Cleaner Restriction
- Engine Timing Incorrect
- Fuel Supply Pressure —
 - A. Excessive restriction
 - B. Fuel filters clogged or restricted
 - C. Suction air leaks
 - D. Supply pump regulating valve operation
 - E. Return line orifice
 - F. Improper fuel supply line
 - G. Fuel tank improperly vented
- Turbocharger Boost Pressure —
 - A. External leaks
 - B. Turbocharger damage
 - C. Low pressure
- Improper Injection Nozzle Operation
- Restricted High Pressure Lines
- Puff Limiter —
 - A. Improper spring preload
 - B. Leaking diaphragm
- Improper Intra-advance Timing Device Operation
- Incorrect Fuel Settings

Engine overspeeds

- Misadjusted High Idle Screw
- Incorrect Governor Spring or Setting
- Control Unit —
 - A. Broken
 - B. Control rod broken
- Worn Slip Clutch

Lube oil dilution

Excessive Engine Idle Periods
Leaking Nozzle Sleeve
Improper Injection Nozzle Operation
Injection Pump Hydraulic Head Area —
A. Lower head seal leak
B. Control unit "O" ring leak
C. Loose control unit fit
D. Cracked or porous housing
E. Worn plunger
F. Crack or pipe in head
Injection Pump Supply Pump Area —
A. Governor shaft seal leak
B. Insert screw leak
C. Insert sealing surface leak

Excessive black smoke

Air Cleaner Restricted
Incorrect Engine Timing
Improper Injection Nozzle Operation
Turbocharger —
A. Damaged
B. Low boost pressure
Incorrect Engine Valve Lash or Cam Lift
Incorrect Puff Limiter Spring Preload
Loose Delivery Valve (broken spring)
Excess Fuel Device Stuck in Run Position
Worn Governor Slip Clutch
Misadjusted Fuel Delivery

Erratic performance/
engine miss

Improper Injection Nozzle Operation
Contaminated Fuel Supply
Fuel Supply Suction Leak
Throttle Linkage Worn/Binding
Improper In-race Timing Device Operation
Improper Pump to Engine Timing
Control Unit —
A. Incorrect retaining plate clearance
B. Control rod binding
C. Sticking/binding
Delivery Valve Erosion
Plunger Sleeve Sticking
Governor —
A. Worn slip clutch
B. Incorrect governor spring or setting
C. Control rod tension spring adjustment
D. Worn internal parts

Excessive white/blue smoke

Contaminated Fuel Supply
Fuel Supply Suction Leak
Engine Burning Lube Oil
Improper Injection Nozzle Operation
Incorrect Engine Timing
Incorrect Engine Valve Lash