ECHO

FAILURE ANALYSIS REPORT

shindaiwa

ENGINE FAILURE CAUSES

☐ RAW GAS

Intake scored

Heavy exhaust score

- ☐ Caused by running the engine on raw fuel
- ☐ Heavy dry piston score *(Wraps around much of piston)*
- ☐ Score often wraps around piston even to intake side
- ☐ Crankcase often dries out when opened up

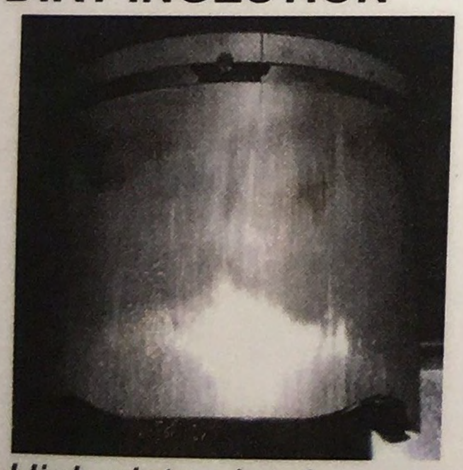
☐ OVER HEATING

Intake side heat discoloration

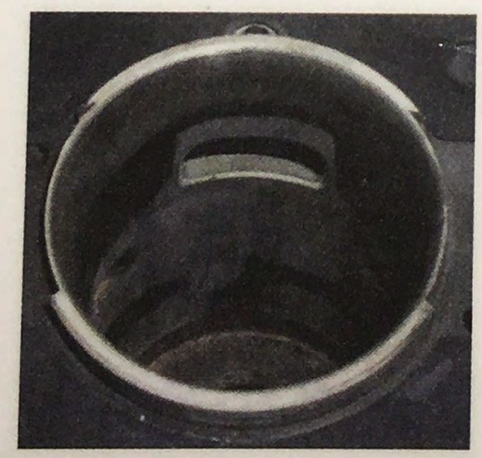
Exhaust discolored & scored

- ☐ Can be caused by blocked engine cooling air intake
- ☐ Other causes include heavy engine load
- ☐ Restricted exhaust will contribute to over heating
- ☐ Oil breakdown darkens piston (*Early stage rings stay free)*
- ☐ Heat expands piston past limits scoring piston
- ☐ Extreme heat can cause detonation & pre-ignition

☐ DIRT INGESTION



High piston intake wear



Cylinder worn below plating

- ☐ Look for signs of dirt ingested through air filter housing
- ☐ High piston & cylinder wear (*Especially on the intake side)*
- ☐ Heavy scaly carbon on top of piston *(May be tan in color)*
- ☐ Heavy carbon in exhaust port
- ☐ High piston ring & ring groove wear *(Can break ring)*
- ☐ Dirt usually in crankcase & bearing wear possible

ENGINE FAILURE CAUSES

☐ LEAN SEIZE

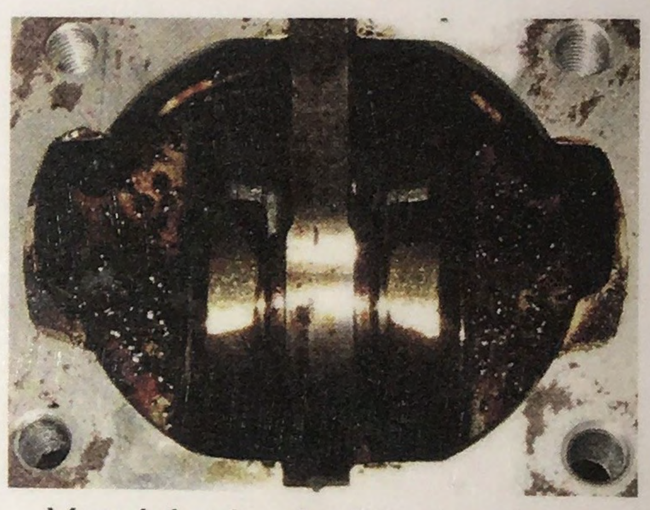
Intake side looks good

Spot score exhaust side

- ☐ Caused by over lean carb adjustment, fuel restriction or air leak
- ☐ Spot score on piston exhaust side *(Sticks piston ring)*
- ☐ Intake side of piston looks good *(Light intake score possible)*
- ☐ Heavy exhaust score possible *(If engine continues to run)*

☐ STALE FUEL

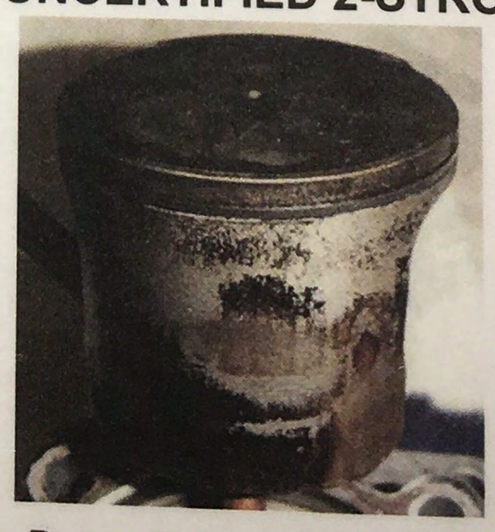
Varnished Piston



Varnish also inside crankcase

- ☐ Caused by running engine on old fuel *(Note varnish smell)*
- ☐ Heavy varnish deposits all around piston
- ☐ Varnish usually sticks piston rings
- ☐ Varnish deposits also inside crankcase
- ☐ Stuck rings can cause exhaust side piston scoring

☐ UNCERTIFIED 2-STROKE OIL



Deposits on piston skirt

Stuck piston rings

- ☐ Caused by running an engine on uncertified 2-Stroke oil
- ☐ Dark deposits all around piston
- ☐ Stuck piston rings *(Caused by carbon in ring grooves)*
- ☐ Carbon can plug exhaust port & spark screen
- ☐ Crankcase usually stays clean