

Engine Build Description

Disassembly and Prep Stage

Install engine on stand. Disassemble completely. Sort fasteners for usable fasteners that are to be plated. Run all parts through large hot tank and then through ultrasonic cleaner. Buff certain pieces in prep for reassembly. Scrape all gasket surfaces and blast front cover, upper and lower oil pans with 2 stage sand blasting process. Inspect all threads and chase with a tap or die. Repair holes with a Time-Sert or replace studs if need be. Flat file all gasket surfaces to ensure no rough spots and a flat sealing surface. Rinse and dry front cover, upper and lower pans and inspect for media with scope. Prep engine block by wire wheeling sleeve seats and inspecting for corroded aluminum. Hone sleeve holes in block and test fit sleeves. Use scope down main coolant and oil passages to inspect for dirt and muck. Chase all threads and holes on engine block. Clean engine block inside and out with acid wash. Dry thoroughly.

Engine Assembly (Block)

Put block on stand and all parts in engine building room. Install piston sleeves with o-rings and grey silicone. Install oil galley plugs in crank and peen over. Lay crankshaft and plasti-gauge for tolerance (.0015-.002). Torque main caps to 36 ft/lbs. Install front timing gears with thrust washer and new lower chain. Install front cover with correct square o-ring and new front seal. Install water pump and tach drive. Replace pilot bushing. Install and torque flywheel. Install and torque pressure plate to 18 ft/lbs. Lay out pistons and rods in correct orientation. Check piston ring gap (Top: .014-.016, Bottom: .019-.021). Assemble pistons and rods. Install pistons and rods in motor and plasti-gauge for tolerance (.0015-.002). Torque to 38 ft/lbs. Install refurbished oil pump. Modify oil control tray to fit and install and clearance from rods. Install cigarette seals with grey silicone in #5 main cap then install upper pan. Replace dipstick rubber and install dipstick. Install lower oil pan and drain plug. Lay upper chain in place at #1 TDC.

Engine Assembly (Head)

Install timing tensioner in head and ensure cams are at TDC #1. Apply grey silicone on rear of head gasket. Place head gasket o-rings on oil dowels. Install and torque head in equal patterned steps to 62 ft/lbs. Complete installation of timing chain to cams and tension. Unlock cams and time engine cams at 102 degrees on the intake cam and 106 degrees on the exhaust cam. Torque nut on vernier drive on cams (w/ seeping locktite) and install locking bolts with nyloc nuts. Install cam cover with engine breather and oil cap. Install alternator, front crank pulley and spica and alternator belts. Install intake manifold, Spica pump and TA. Wire and install 123 distributor.