

November 3, 1951

Worked all day at Kōle Kōle with Thomas Cabral.

The governor on the engine is of the type which will govern at any setting of the throttle. The spring tension controls the fuel flow. The left & right hand thread on shaft under leather covering between governor and fuel pump controls the richness of mixture or maximum amount of fuel the engine will consume at full load. This thread adjustment must not be touched.

The sensitivity of governor in percent is a function of spring extension. At low speeds with a strong spring the spring extension is small. Thus large percentage changes of speed will occur for any given linear change of spring length. Thus the governor is insensitive. For sensitive governor operation the spring must be nearly fully extended at desired operating speed. This gives small percentage change of speed for any given linear change of spring length. To govern properly at a low speed requires a weaker spring or one with a larger rate of deformation per pound tension. The yellow and brown spring supplied by Grace Bros. was just such a weaker spring than the green one originally in engine.

After yellow spring was installed the engine was operated. It was found a still weaker spring could be used. To change spring requires removal of governor. This requires removal of oil filling pipe, fuel overflow pipe and flexible fuel line from fuel filter to fuel pump.

(over)

The oil leak was investigated. The crank case pan was removed and gasket found to be loose. In bottom of pan was a tablespoon full of dirt. This consisted of steel filings and chips, small brass wire, charred pieces of wood, bagasse and pieces of fibre like string, thread or cloth. Some of this rubbish was on ledge under oil filler pipe but more on the other side of crank case. Thus it seems someone poured a lot of old dirty oil into engine at one time.

One (#4) connecting rod bearing was removed to see if it had been damaged. Bearing was found to be in good shape so it seems the oil strainer + filter did a good job of cleaning. Bearing was replaced; oil strainer and crankcase were cleaned, and a new cork gasket cut. This was glued to pan by shellac and covered with grease on top side. The pan was replaced and $1\frac{1}{2}$ gallons of new oil poured into engine. Engine was started and ran beautifully. The governing action of spring governor may easily be demonstrated by pushing (to raise speed) or pulling (to lower speed) the end of shaft extending from fuel pump behind lubricating oil filter.

Tom said he had personally seen this engine overhauled a year ago by a competent man in the truck repair shop. He had seen new steel cylinder liners, aluminium pistons, rings and new bearings installed. The main bearings are bronze and connecting rod bearings are babbitt on steel base. New injectors were bought from Grace Bros. and the valves were ground. The engine was used only a couple of months before being set aside as too small for desired purpose. It should be in very good shape. It has no blow by as demonstrated by no fumes from crank case and clean bottom on cover of oil filler cap.

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Unfortunately there is still an oil leak at back of engine. Tom observed it carefully. It does not appear to be the rear bearing as this would flow into flywheel housing and be thrown around by flywheel. He believes it to be gasket on cover of lubricating oil pump. The pump is on end of cam shaft and cover is on back of block. It can only be gotten to by removing flywheel. No harm is done by this leak. It merely means that good oil is being spilled out and thus wasted.

Next spring when generator is removed to change the field connections will be a good time to pull off the flywheel and put new gasket on oil pump cover.

Buda-Lanova Diesel

Harvey Illinois

Model 4 DT 212

9394B B/M

$3\frac{5}{8}$ Bore $5\frac{1}{8}$ stroke

2300 rpm

Small Diesel at

Serial # 4484

H.C.+S.

DAVE?

DORE BORUFF

Dore Boruff

Honolulu T H

227 Punchhole
Road

has a diesel power
plant according to
an H.C.S. man.
2 should write for
details.

Pierce Governor Co. Anderson, Ind,
Serial # P-91839

Model DE 50949
Part No.

Bosch Fuel Pump, Springfield, Mass.
PE 4A 65N, 400, S89, 50622

Grace Bros., 770 Ala Moana Blvd,
Honolulu, Oahu