

Scope Of Work (SOW) General Overhaul Summary (GOS) Continental AVDS 1790-2 Series



Let's start at the beginning

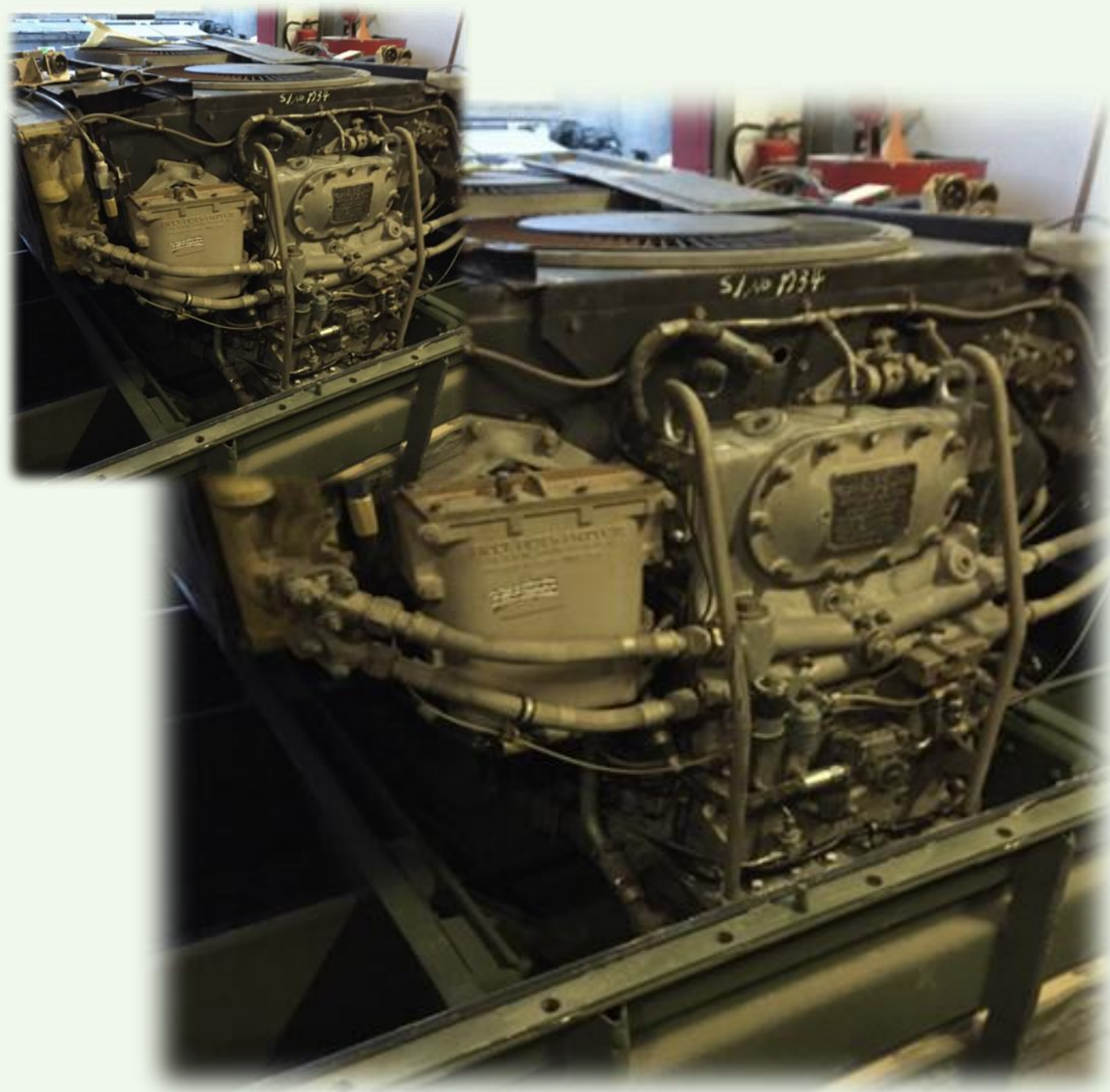
There are two different of customers:

1. Customers that send their engine to us for rebuild and return... R&R.
2. Others that require our company provided overhauled units outright.

Engines arrive by to the shop in many different conditions.

First thing when received we check the the units for any damage during transportation.





As soon as possible we open the transportation container and check visibly the status of the engine. We report immediate to the supplier any discrepancies, such as, broken engine block or missing items.

Then we record all data on the engine components such as serial and model numbers.

Disassembly and Cleaning

As we disassemble the engine every part will get a label and go to the correct department in the shop.



The disassembled engine block will be washed by 60 degree Celsius and a pressure of 50 bars. After this process the block will go in to a chemical bath for cleaning the long bore holes from all oil sludge, dirt, and carbon.



After the chemical bath and drying we do a more intense inspection, using special borescope with camera.

Continuing the cleaning and inspection process on the crankshaft we look especially for overheated spots on wall and taps.

Measuring of the main and connecting rod bearing taps checking tolerance. (we dismantle the caps on the connecting rod side depending on the model of the crankshaft)

Now we begin testing the crankshaft for cracks by magnaflux method.

Technical reports of the crankshaft will be keep on file in our facility.



Upon approval of the crankshaft, we can start with the assembly of the engine.

For all mandatory replacement parts We use only high quality OEM or equivalent products that meet or exceed the toughest customers expectations. We do not use old stock or new surplus parts these items and will not compromise the performance of the engine.

The same policy for high quality components is our standard throughout engine to include, the pistons, piston ring sets, and bearing half sets.

As shown in the picture we color every nut after we set it on torque (NM). We also put an extra security, as we have seen too many engines nuts missing and very loose. Of course standard the main bearings also have security wire.



Cylinder Process



The Cylinders also undergo the high pressure steam cleaning as previously described and are inspected. If accepted the cylinders then are subjected to a 2 day chemical bath in order to remove all debris inside the hard to reach areas of this item.

Now inspected again and measured to determine what course of action must to take to restore them to original condition. In most cases we have found they require re-metallization to return to standard size.



We do not re-sleeve the cylinders.

There is another method of reconstituting that is much better and guarantees superior performance.



Prior to installing cylinder to the block the Connecting Rod must be measured in accordance TM. We check visual and make a crack test. Also we take care that we have the same weight for all 12 rods. If everything is approved we can take the new bearing half set and start to assemble the c- rod to the Crankshaft. After that, we assemble piston with piston rings and cylinder to the top of the c- rod and mounting it complete on the engine. We also use an extra sealing against leaking by the feet of the cylinder. High temperatures like in the Middle East and North African countries will avoid leaking.



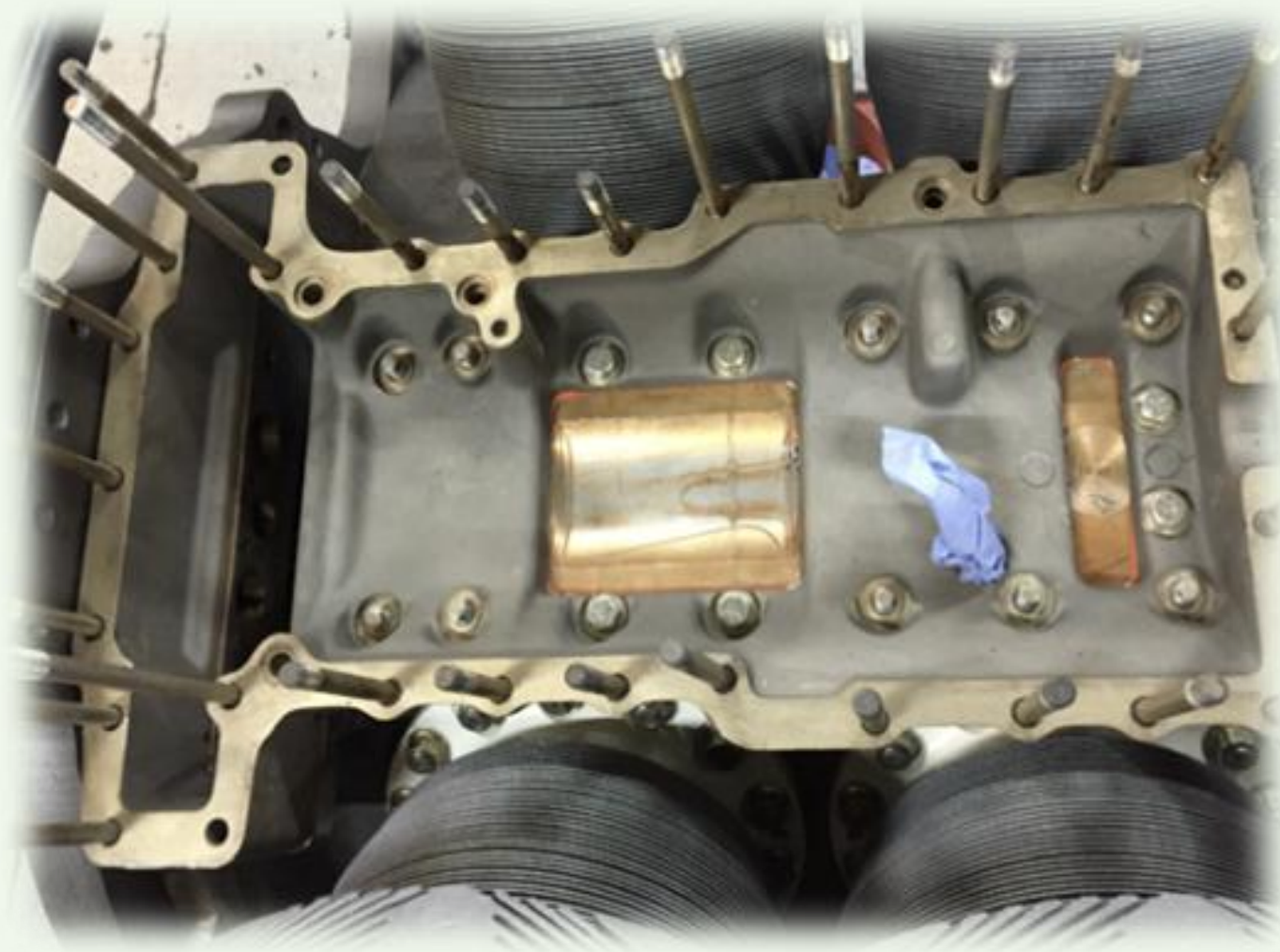
Oil Pump



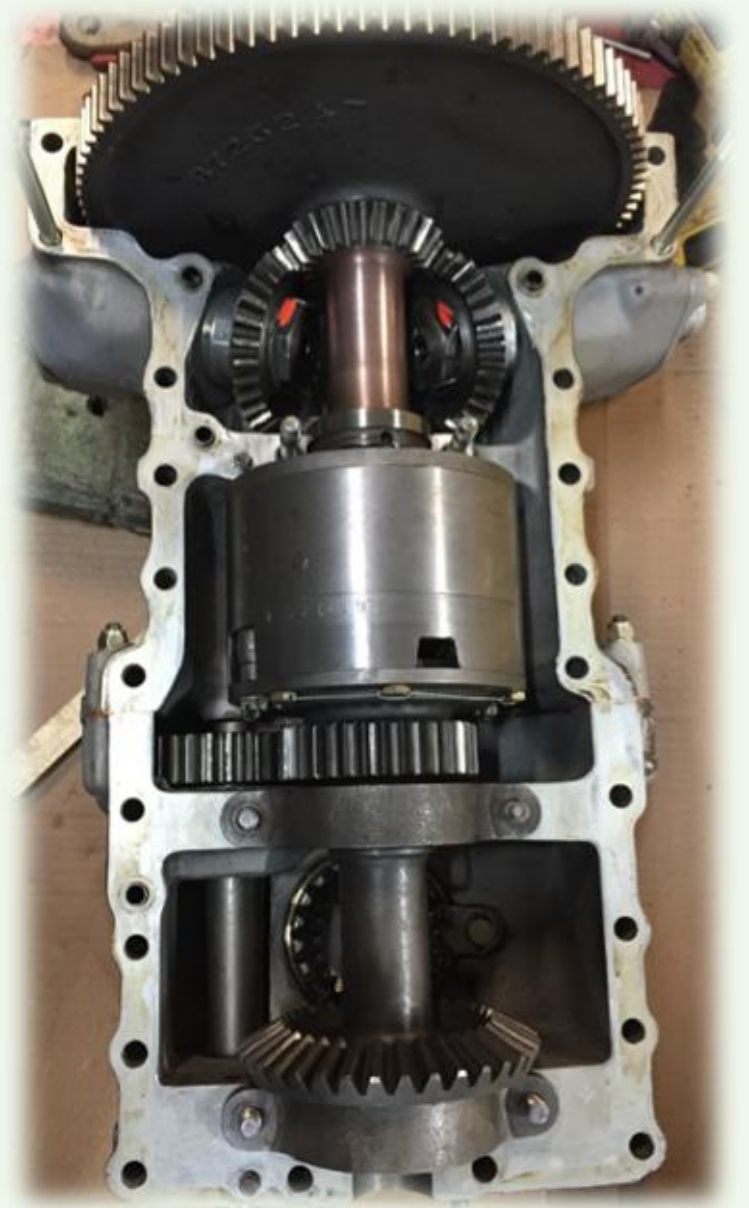
Again, each oil pump visibly checked for damages and then disassembled. As is true with all components the TM procedures for proper rebuild are followed. Pressure bench testing each pump and valve insures that the required volumes are met.

Added extra security on the bolts as seen in the picture. There are also 6 other bolts secured with wire.





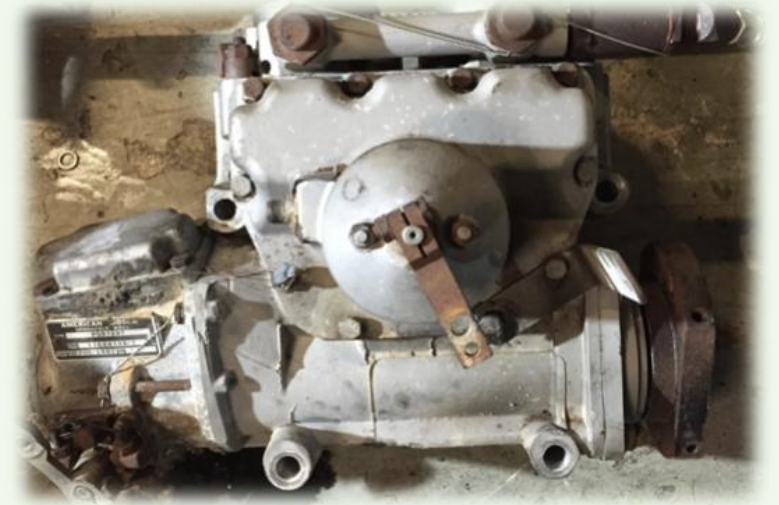
The timing drive gear clutches for the fuel pump and impellers are inspected and every item that is not in tolerance will be replaced.



Few pictures of the high quality factory new and remanufactured parts utilized in our build-up process.



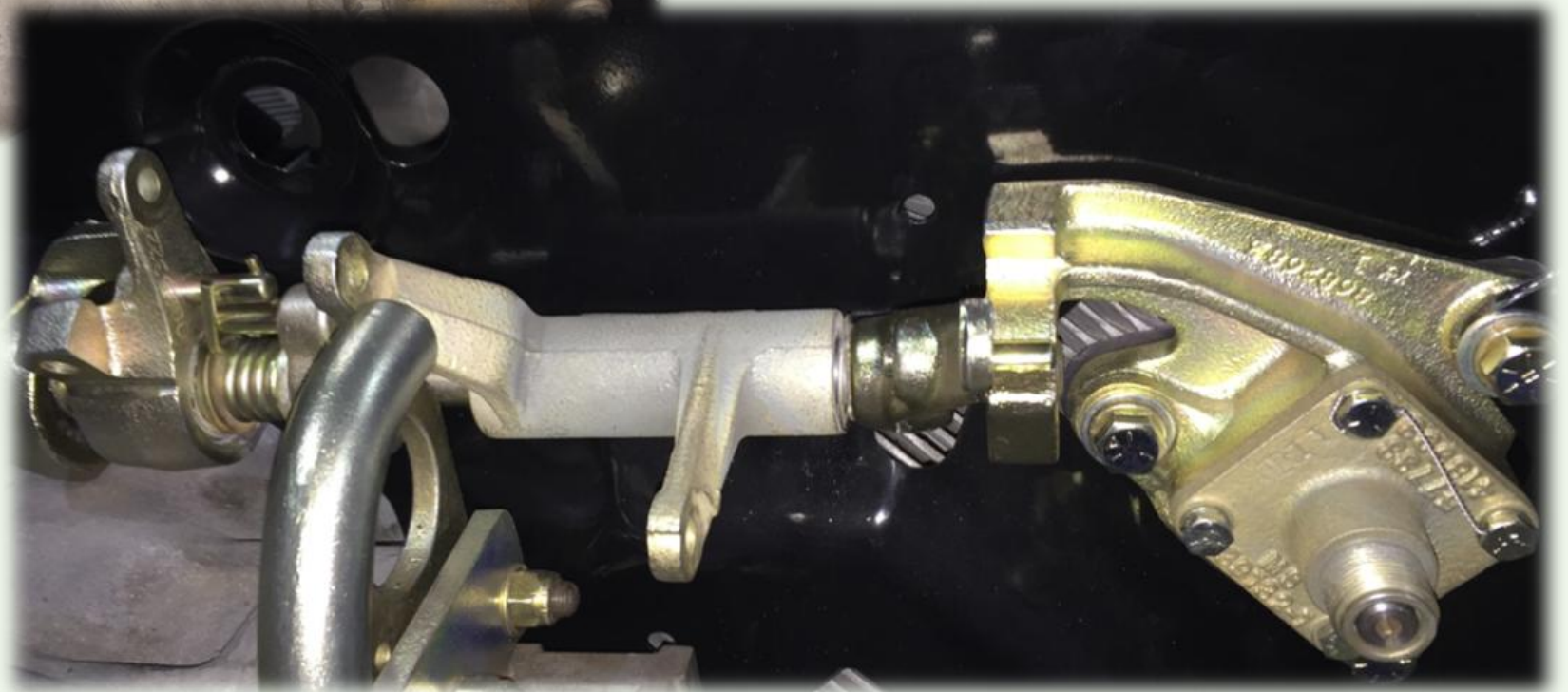
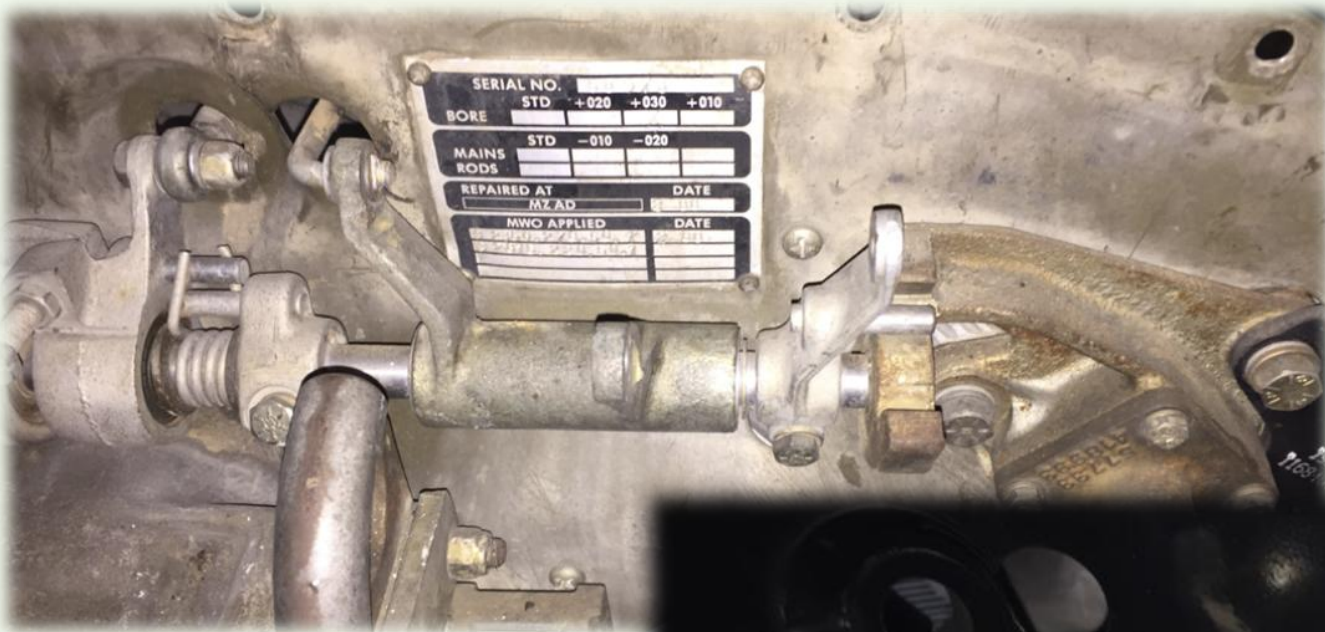
Fuel Pump Metering and Distribution



First we check the pump on cracks and for leaking of the aluminum housing. The disassemble and inspection procedure is ten pages of very detailed requirements, such as, motor head hydraulic, weight, spider, camshaft, etc. For the motor head hydraulic we test every part and if out of acceptable tolerance it is replaced. (in stock are enough parts to rebuild at least 100 complete pumps) Final assembly test is conducted on Bacharach 8020A machine. Each test certificate report of the pump will be keep on file in our facility.

Fuel Stop Levers

An imported item, we re-assemble of course with new bearings, washers, etc. Extra care is given to the mechanical parts from levers to the fuel pump metering.

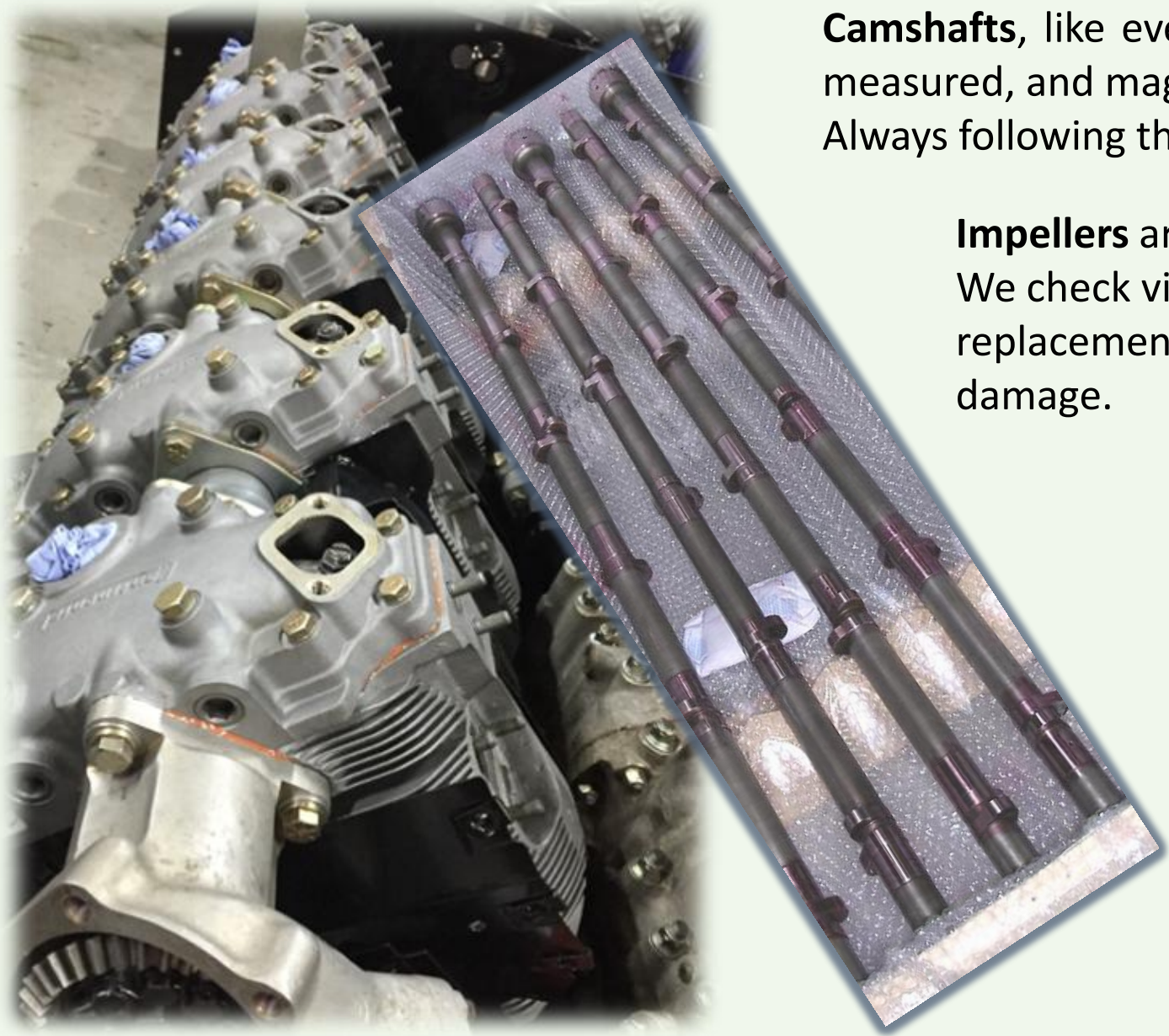


Turbo

This is an especially imported item to get the proper torque out of the engine. (Air pressure) Upgrading each unit with our own stocked overhaul kits. We disassemble the whole turbo, testing the shaft and measuring for acceptable tolerances in accordance to the TM.

We implement a preferred cleaning/surface treatment procedure and DO NOT utilize sandblasting these types of sensitive parts.





Camshafts, like every part, are first visible inspected, then measured, and magnaflux tested for cracks. Always following the TM procedures.

Impellers are very important for the engine cooling system. We check visual and have found that in most cases replacement is required due to cracked aluminum and damage.



Now you can see the engine is slowly coming together.



The oil and transmission coolers will be checked visible on damages.

The coolers will be pressure steam washed, chemical bath to take out all the dirt and then pressure test so we do not have complications when engine is dyno run. After the surface treatment they attached to the engine.



Electrical

The wiring system on the engine is inspected completely and every pole checked for correct function.

When required wires are replaced.



The starter will be inspected to see if it is suitable for rebuild. Of course we re-place all needed items in the starter correctly overhaul by our specialists who follow the TM. The above starter was very damaged and was replaced with a suitable unit.

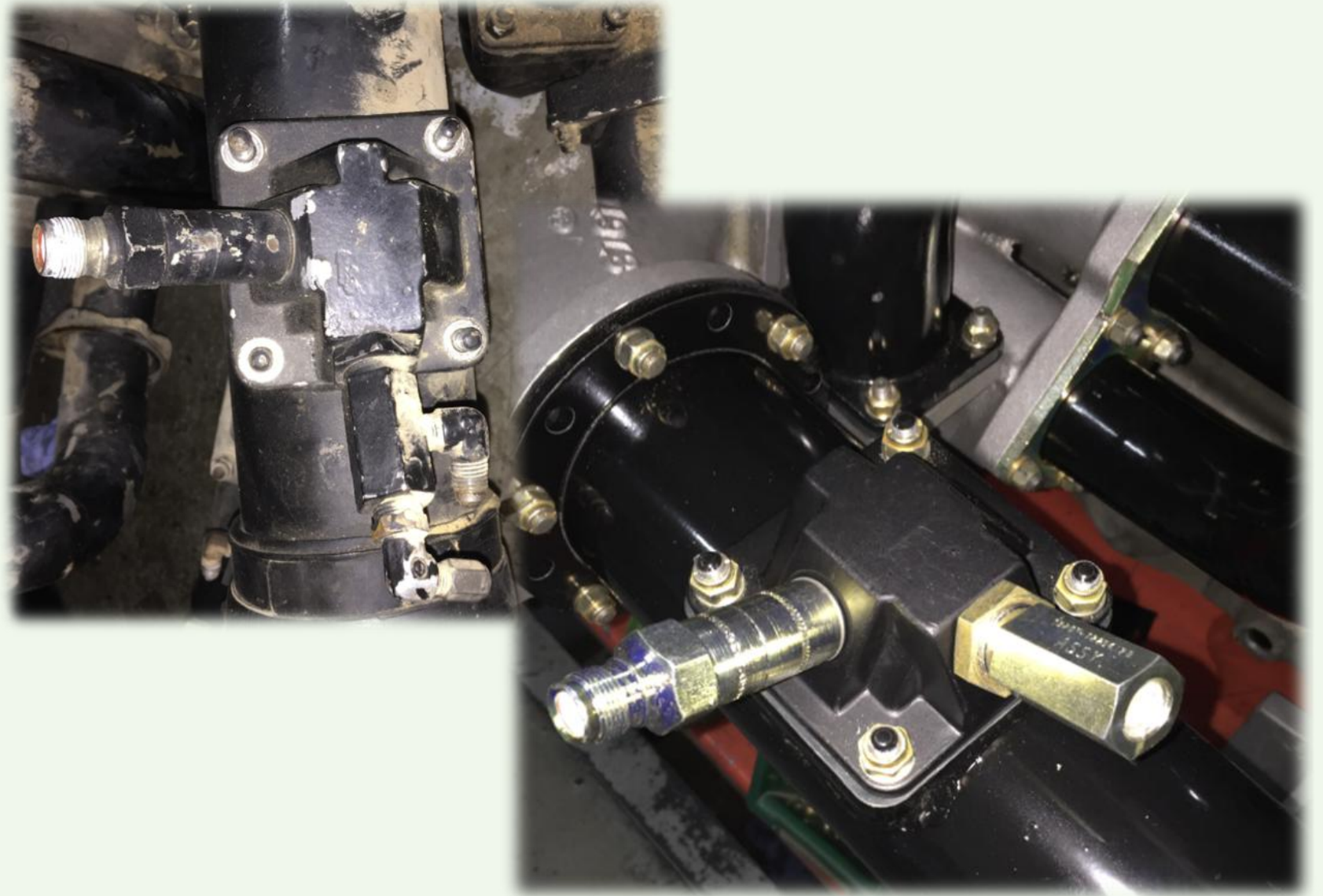
650amp Generator (C – Engines)

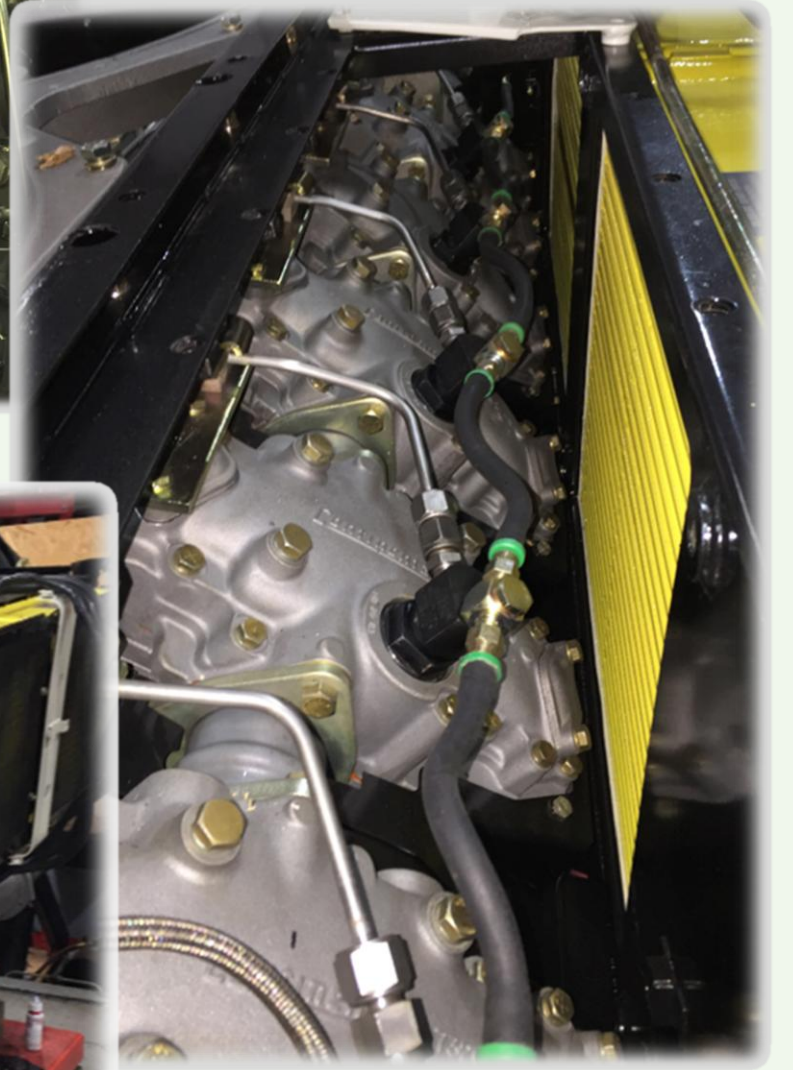
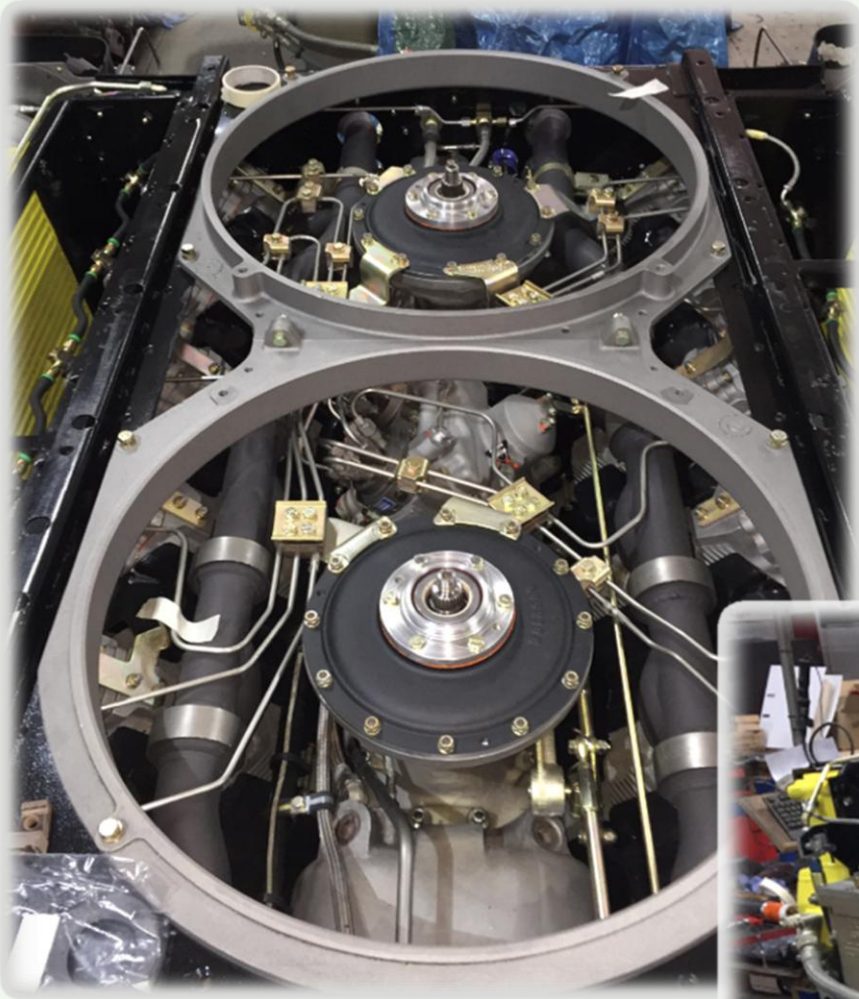


We first have a visual check on leaking, damage, etc. then disassemble the generator, check and testing every part. Replace parts kits are installed and then assembly by qualified technicians. Test certifications are kept on file for each generator.

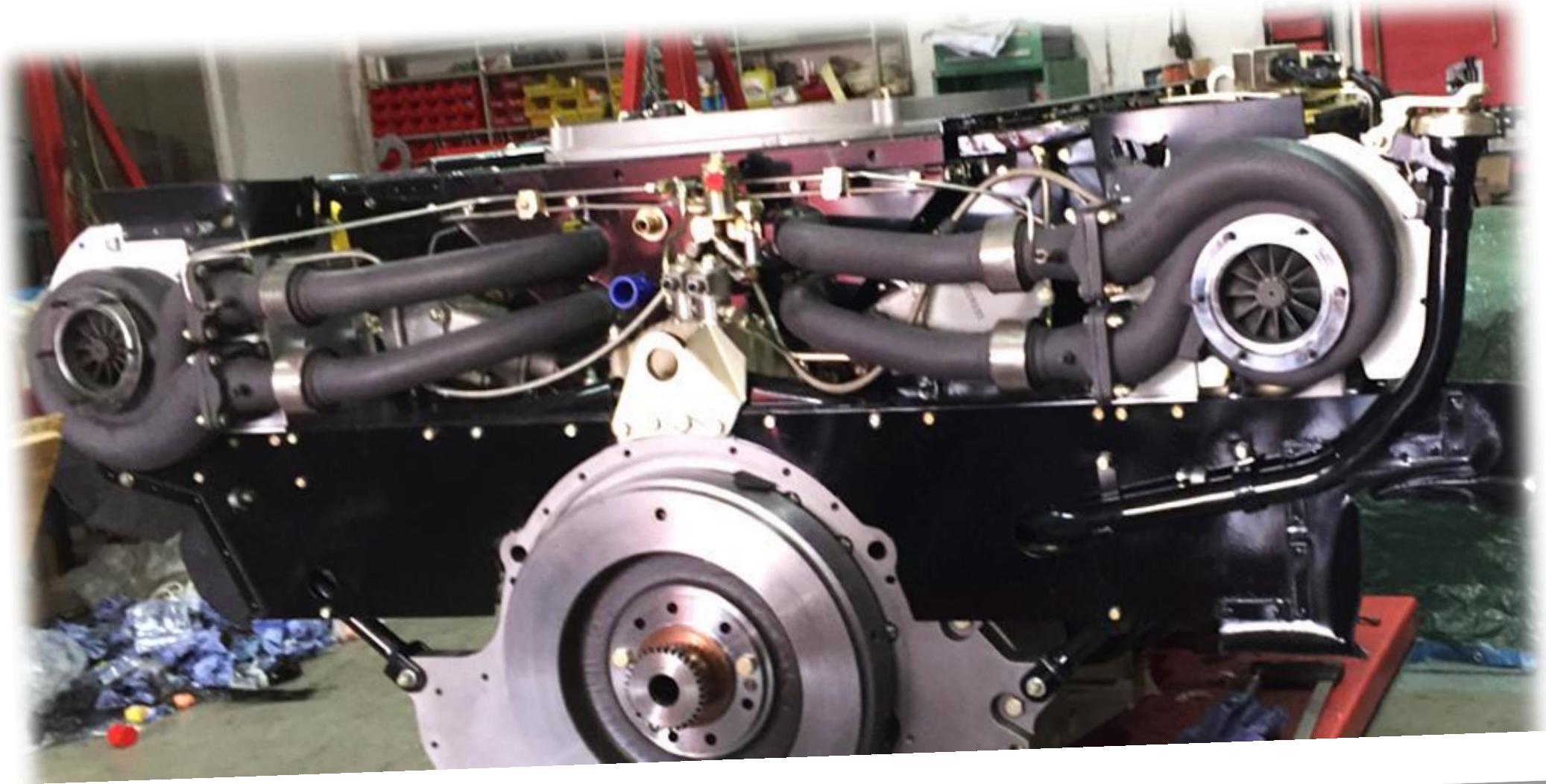
Air Intake

This part of the air intake side after the turbo is always handled correctly and is mostly placed with OEM or equivalent parts. Take extra precautions with the nozzle inside the housing, checking the clear spray. The igniter on the other side we measure following the TM.





Here also a visual check before the first start on the dyno test bench.



Dynamometer Test

Before we start the dyno test, we check if the engine runs in idle speed 675/725 RPM, for around 10 minutes, especially watching for leaking fuel, oil, or air.

Then will assemble the impellers and protection plates on the top of the engine.

Now we start the engine again and let it run for around 5 to 6 hours in idle speed. We stop the engine and cool down. The next day we do the same, letting the engine run in idle speed. This is done so to assure that the piston rings are seated good with the cylinder sleeve.

Day three is the final for the engine. We let it run for around 25 minutes (depends temperature of the engine). And then we start with the dynamometer test.

After the test there is one more comprehensive visual inspection.

DMWR 9-2815-220 is adhered to during the whole test.

Complete DMWR include an TAT Dyno Acquisition data system (show curves of the engine power HP, Torque, and RPM), motor head hydraulic, crankshaft, and cylinder-heads test certificate. Each cert and test are all kept on file in our facility and scanned for off-site digital backup per engine.

We hope that this summary scope of work understandable.

If you have any further questions or need explanations, don't hesitate to contact your agent.

Please be aware that this engine is much more complicated and have many more parts and assemblies than what we have covered in this scope summary.

The maintenance book (TM) is over 850 pages.