

“SMART BOX” SOLUTION REDUCES WOODWARD 3161 & UG8 UPGRADE TIME AND COST

“PLUG AND PLAY” SOLUTION APPLIED TO MULTIPLE P&O VESSELS TO UPGRADE GOVERNORS ON TWO WARTSILA 9L20 ENGINES

Having already successfully completed governor upgrades on the tugs Shamal and Raheeb, Goltens was engaged by P&O Maritime FZE to complete a similar governor upgrade on the tug Sinyar. The 15-year-old vessel, equipped with two Wartsila 9L20 engines, each driving a propeller and a fire pump, were fitted with mechanical Woodward 3161 governors with pneumatic speed setting, shutdown solenoids and start fuel limiter solenoids.

Goltens’ controls experts advised that with the existing Woodward 3161 governors, the fuel system response to engine speed or load changes was suboptimal and was generating black smoke during transients. In addition, the existing governors were old, unreliable, and reaching end of life and likely to drive increasing repair and spares costs going forward.

Beyond the operational and age limitations, the engines’ speed was controlled via a combinator with different operating modes for propulsion and for the fire pump and this would need to be addressed in the upgrade proposal.

Goltens recommended an upgrade to the UG-25+P3.

GOLTENS’ “SMART BOX” SOLUTION

To address the operational requirements, simplify the design and reduce the time required for the retrofit, Goltens again used its “Smart Box” that converts the existing 3161 or UG8 engine wiring directly to the UG25+ configuration. The use of the Smart Box makes the conversion fully plug and play without having to consider additional wiring or complex configurations.

The Smart Box, by design, maps all combinations of 3161 & UG governor connections to the respective UG25+P3 terminals. This process dramatically increases the speed and efficiency of the upgrade.

With the upgrade, the current to pneumatic converter is also eliminated by using the UG25+P3 electronic governor. The combinator mA speed setting output and shutdown signal input are now directly connected to the UG25+P3 along with redundant power supplies. The start fuel limiter is also now managed within the governor software.

RESULT AND RECOMMENDATION

The Smart Box plug and play solution reduced the onboard upgrade installation time for the Woodward 3161 mechanical governors to the UG25+P3 on the Sinyar to a matter of hours. The Smart Box now enables efficient upgrades during the vessel’s normal operating routine.

PROJECT FACTS

Description:	Retrofit 3161 Governor with UG25+P3 Governor with Smart Box
Vessel:	Sinyar
Engine:	Wartsila 9L20 x 2
Customer:	P&O Maritime FZE
Location:	Dubai, U.A.E.



Figure 1: P&O Maritime FZE tug Sinyar



Figure 2: Goltens’ Controls Engineer installing the Smart Box to work with the new UG25+P3 installation



Figure 3: Goltens’ plug and play “Smart Box” solution

Based upon the success with the first three vessels, P&O Maritime FZE plans to complete the governor upgrades for their fleet with similar installations on the Al Mutwakal and Topaz Dignity in 2022.

Goltens highly recommends the UG25+P3 as a replacement to the aging 3161 governors and suggests incorporating these upgrades as part of planned fleet maintenance schedules.

CUSTOMER COMMENTS

“We have upgraded 3 vessels in the last two years and plan to upgrade the fleet next year. Instead of having 5 different governor part numbers across the fleet, all our vessels will have the same part number governor thereby making inventory management easy. Goltens also keep plenty of stock for the UG25+ P3. The governors perform noticeably better and by eliminating the IP converters the system is also simpler and easier to maintain.”

Darren T.J. Jennings
Technical Manager – UAE
P&O Maritime FZE

“We very much appreciate Goltens support and flexibility and their creative approach behind the Smart Box, which means this upgrade can be completed in a matter of hours.”

Asanga Perera
Technical Superintendent
P&O Maritime FZE



Figure 4: Woodward UG25+P3 installed on Wartsila 9L20