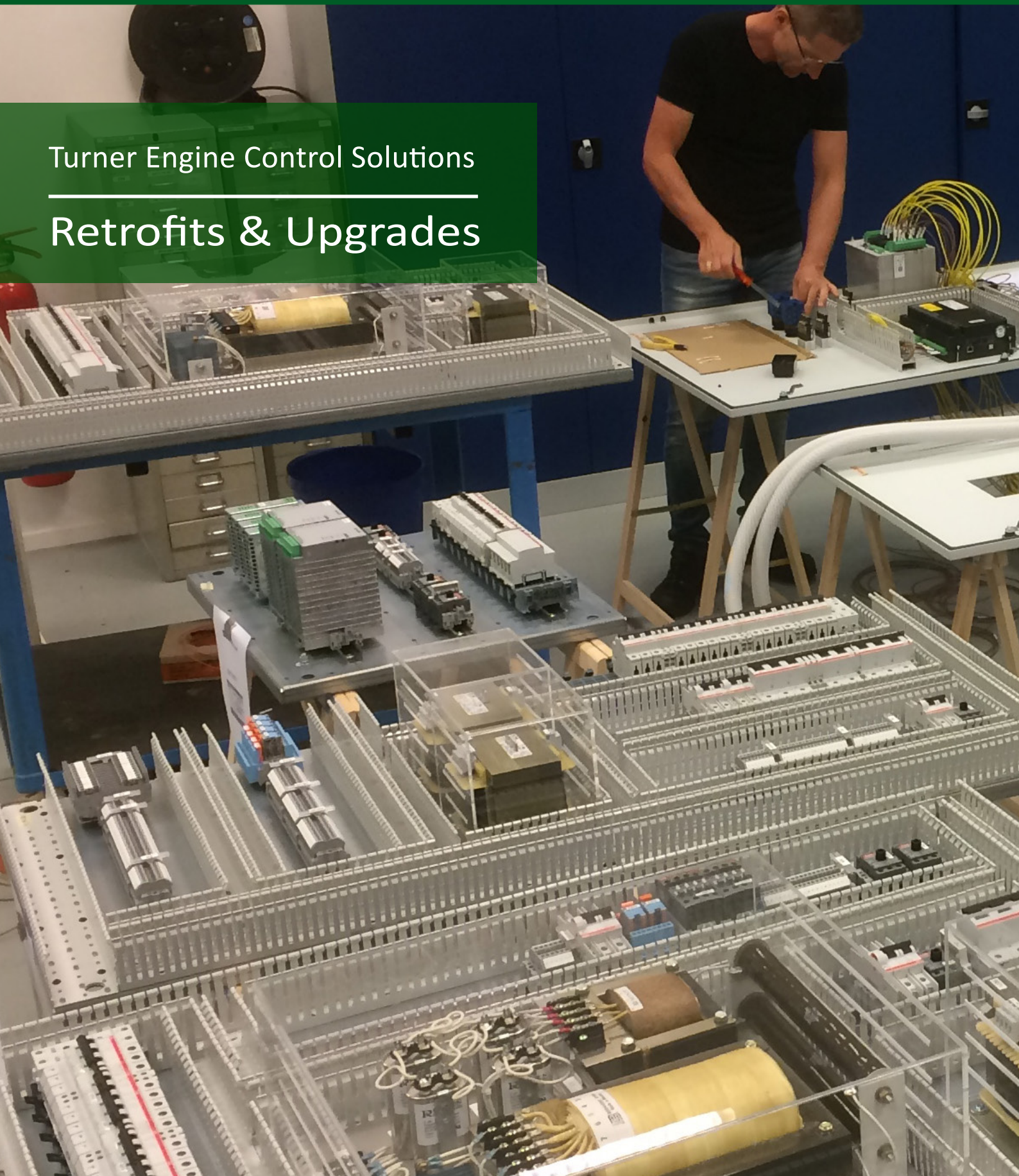


October 2019

Turner Engine Control Solutions Retrofits & Upgrades



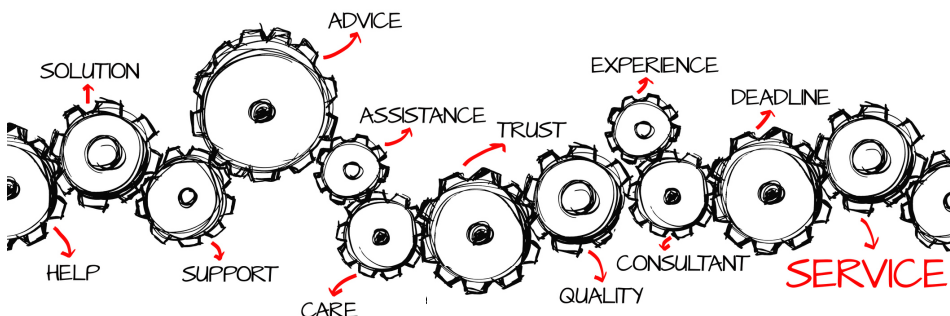
Upgrades & Retrofits

Knowledge and Experience

We have many years experience on upgrading both electric and mechanical control systems installed on all types of engines and turbines. This includes the design and assembly of control panels and cabinets which is done in-house. We are fully equipped with the latest calibrated test benches, special tools, test simulators and software, we maintain an extensive database of drawings and test procedures and our service engineers and technicians are factory trained on all types of Woodward products.

Why Retrofit or Upgrade

Control systems tend to age faster than the equipment it is controlling. The rapid advancements in electronics and software are the most compelling reason for upgrading. Retrofitting an old control system will lead to more efficient, accurate and reliable control while lowering the cost of ownership. You will get more and better information about the operation of the installation making it possible to operate closer to operating limits without affecting turbine life. This enhances the overall performance of your plant.



Recognised Retrofitter

As Woodward Recognised Engine Retrofitter (RER) and Woodward Recognised Turbine Retrofitter (RTR) we have the specific knowledge, tools and experience to offer extensive solutions for generators, compressor, pumps, propulsion and switchgear applications as well integrated systems. We can manage turnkey projects combining Woodward controls, actuation and valve technologies with other brands as required, delivering reliable solutions both onshore and offshore, around the world.

Turner ECS owns key competences in control systems for engine, turbine and power management systems, this includes software and hardware design, parts procurement, in-house and on-site testing, subcontracting and supervision for on-site construction, commissioning, handover, customer training and support.

Field Service Support

Turner ECS provides support ranging from 24-hour technical phone support to on-site field service to provide diagnostic, repair and upgrade services. Our field service team provides top-level problem solving capabilities and expertise to support Woodward components and entire systems.

BENEFITS

- Prolonged supportability
- Increased efficiency
- Improved accuracy and reliability
- Enhanced diagnostics
- Run closer to operating limits

PRIME MOVERS

- Diesel Engines
- Gas Engines
- Steam Turbines
- Gas Turbines

APPLICATIONS

- Generators
- Compressors
- Pumps
- Propulsion
- Switchgear

INDUSTRIES

- Oil & Gas
- Petrochemical
- Process Plants
- Marine Propulsion
- Power Generation
- Onshore/Offshore

Upgrades & Retrofits

Diving Support Vessel Upgrade – Diesel Electric Propulsion
Speed Control, synchronisation, load sharing, Diesel protection & sequencing.

Built in 1981 this 112 x 21 meter vessel with a Gross Tonnage of 6987 is equipped with five Nohab diesel generators, each capable of producing 2.5MW of power. Turner ECS were chosen to carry out a complete turnkey project to upgrade all electronic actuators, speed controls, synchronisation, load sharing and Diesel PLC modules. This consisted of engineering, delivery and installation of hardware and commissioning of the complete system, including FMEA, Classification and DP trials.

This was an extremely challenging project to undertake due to the tight timescale set by the customer as the vessel was in dry dock, as well as the difficult working environment due to space constrictions as all five diesel generators were being overhauled simultaneously by another contractor.



Refinery – Steam Turbine Power Management Upgrade
Bumpless control mode transfer, minimize process over and undershoot, on-line tunables configuration, on line repair and replacement, automatic and/or manual transfer, first out indication logic.

This refinery originally had four steam turbines fitted with Woodward 505 controls. Following a catastrophic mechanical failure on one of the turbines in 2009 the plant almost shutdown. Turner ECS were approached to rectify this problem and to provide a workable solution that would need to be delivered while the turbines remained on line.

Following this and on advice from Turner ECS the customer reconsidered their plant redundancy philosophy. Hence, in order to increase the availability of the steam turbine driven compressor, during the next planned shut down the existing simplex Woodward 505 controls were upgraded by Turner ECS to Woodward 505 Enhanced in redundant configuration.

For more examples of upgrades & retrofits please visit <https://www.turner-ecs.com/solutions>

Turner Range of Services

TK Projects, Retrofits & Upgrades

Turner ECS delivers reliable retrofit solutions for a wide range of prime movers and other applications. This includes lump sum turnkey projects on turbines and compressors.

Genuine Parts & Service Exchange

Turner ECS has the largest stock of parts, service exchange governors and electronics in Europe and can provide a fast turnaround service.

Product Training

Turner ECS can provide official Woodward product training covering both theoretical and practical training on a wide range of Woodward products.

Electronic Repair & Mechanical Governor Overhaul Service

Turner ECS provides a comprehensive overhaul and repair service for electronic, mechanical and hydraulic governors.

World Wide Field Service

Turner ECS field service engineers and technicians provide comprehensive solutions for commissioning and on-site repair.

Service Contracts

Turner ECS provides long term service contracts to support users with Woodward governors and/or control products and electronic control systems.

ROTATING EQUIPMENT CONTROL SOLUTIONS DELIVERED ACROSS EUROPE & THE MIDDLE EAST

Turner ECS is an official Woodward Channel Partner with offices located in:

- The Netherlands
- England
- Germany
- Italy
- Abu Dhabi
- Qatar
- Saudi Arabia

Turner ECS also operates and manages an extensive network of official agents throughout Europe & the Middle East

CONTACT INFORMATION

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