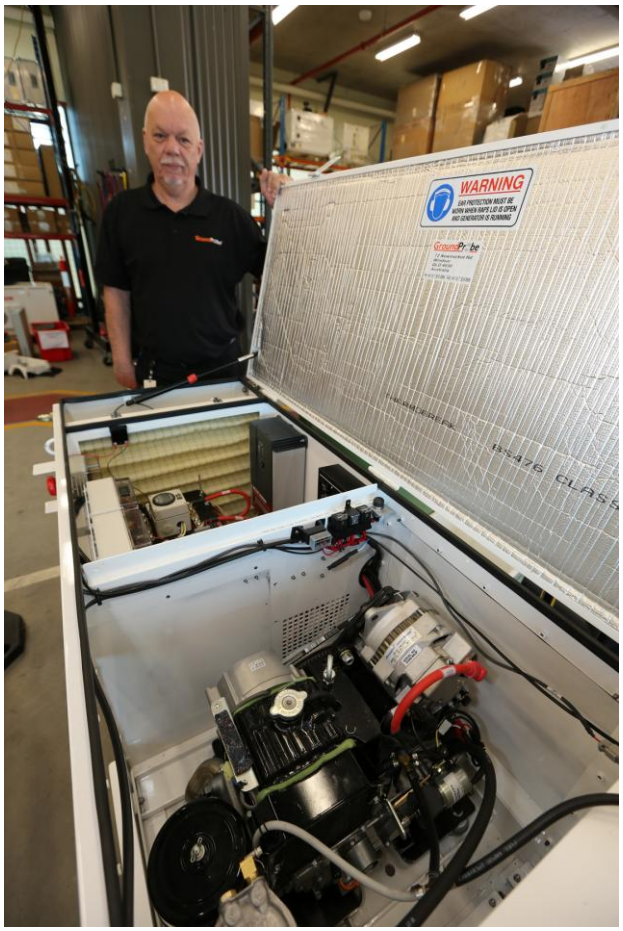
Yanmar Powers World's Leading Ground-Probe Safety Technology

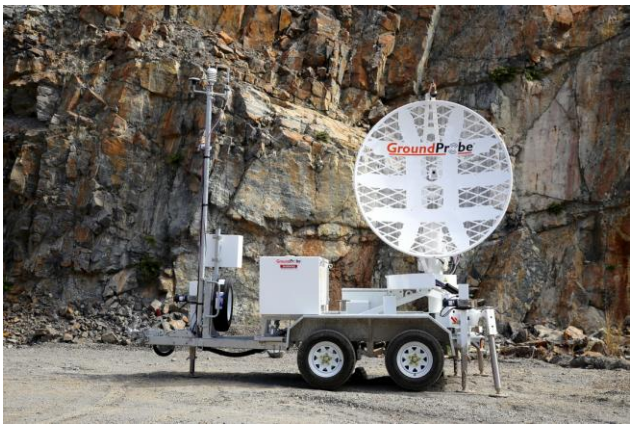
Yanmar industrial diesel engines have been selected as the exclusive power source for the world leading Ground-Probe slope monitoring radar systems. Ground-Probe is a wholly Australian owned company which invented the radar technology and has been employed in open-cut mining sites throughout the world for over a decade.



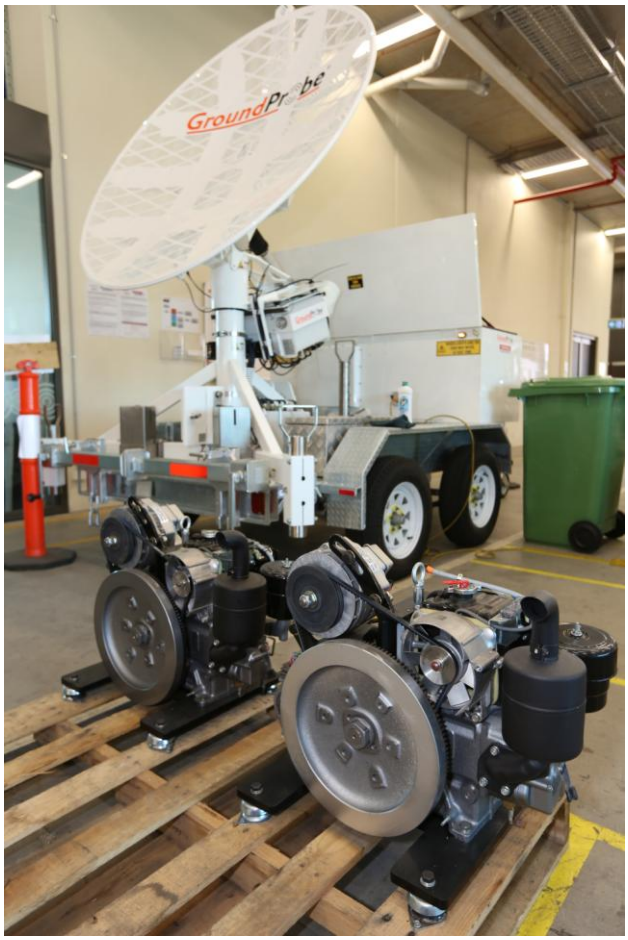
Ground-Probe developed the world's first Slope Stability Radar (SSR), a system which monitors and warns of ground movement in open-cut mines. This is a truly multinational business which evolved from an industry-funded PhD project at the University of Queensland in the 1990s. The first unit was built in 2000 and today there are more than 200 SSR's operating in 24 countries.

The Ground-Probe system is based on highly accurate and sophisticated radar technology. A radar beam is emitted from the Ground-Probe unit, scanning the mine slope from a distance of up to 4500 m. The Ground-Probe technology is extraordinarily sensitive and is able to measure the movement of the walls in open-

cut mines to within a tenth of a millimetre, allowing the early warning before a collapse occurs.



Through the advanced technology and real-time reporting capability, Ground-Probe is able to identify the amount, shape and degree of wall movement and precisely where that movement occurs. With this information, a decision can be made by mine management about whether an area is stable enough to be mined, or alternatively, whether an area being mined should be evacuated of people and equipment.



In the first years of operation, it is estimated that more than 20 lives have been saved by Ground-Probe technology.

Eight Ground-Probe radar models are currently manufactured in Brisbane for world export, based on three radar families designed for Targeting Monitoring, Broad Area Monitoring and Long Range Monitoring. The Ground-Probe SSR-FX is a broad area monitoring unit which can scan through a 180 degree arc in less than two minutes. The Ground-

Probe SSR-XT provides targeted monitoring for known, safety-critical risk areas, while the SSR-SARx is for long range monitoring.

Ground-Probe has used Yanmar diesel engines in their radars for the last five years. The Yanmar models supplied to Ground-Probe are the Yanmar 2TNV70 and Yanmar TF70.

This Yanmar 2TNV70 diesel engine develops 13.3hp (9.91kW) at 3600 rpm. It is a compact, state of the art, two cylinder engine noted for its quiet operation and low fuel consumption. Being a water cooled engine greatly assists in keeping the noise levels low and well within the required OH&S standards.

The Yanmar TF70 is a single cylinder, water cooled industrial engine which develops 7.0 hp at 2400 rpm. This is an easy to operate, simple to service engine which is supplied to Ground-Probe as an electric start model. Both Yanmar engines are programmed by Ground-Probe to operate at 65% load.

Typically, Ground-Probe's radars operate in a hostile environment. The equipment is mostly in remote locations, where the climate is stifling hot and frequently humid or freezing cold. The nature of the location, often deep in a pit, can at times limit solar power as a sole power source and more often than not, there is no mains power available at the site where the Slope Stability Radar is positioned.

Therefore, to provide 24/7 operation, the self-contained SSR units require a constant supply of high quality power. This is achieved through a bank of batteries which are automatically charged on-demand by the engine driving an alternator.

“This is highly sophisticated equipment where precise levels of power are required,” said Tony Brimble, Global Procurement and Supply Manager at Ground-Probe.

“We useYanmar engines as we know that Yanmar is a reliable and dependable brand which we can put into our Slope Stability Radars and then ship with confidence worldwide.”

“We chose the Yanmar TF70 as the physical size of the installation is compact and it has proven to be reliable when coupled with our system and maintenance plans. As a global brand, we have easy access to Yanmar parts throughout the world.”

The application of Ground-Probe SSR’s can vary enormously, from a when-needed situation to constant 24/7 monitoring. The engines are required to work long hours, or be ready to operate after a time in storage.

“We have some Yanmar engines which have logged 15,000 hours and these are still running as reliably as the day we installed them,” Tony Brimble said.

“Across both Yanmar models the Distributor, Power Equipment, have stood by their product with excellent technical and sales support.”

The key to the operational success of the Yanmar engine is maintaining a regular service schedule. Medium term maintenance involves replacing oil and filters every 4 to 6 weeks. The long term maintenance schedule is set at a 6 to 8 month cycle. Yanmar engines are swapped out and the Ground-Probe unit repowered on a four to five year cycle depending on the operating environment and hours logged.

Relevant web links:
Power Equipment
www.powerequipment.com.au

Yanmar 2TNV70
http://www.powerequipment.com.au/products/industrial-engines/tnv-series-13-3-83-8hp/2tnv70-13-3hp/

Yanmar TF70
http://www.powerequipment.com.au/products/industrial-engines/tf-series-6-23hp/tf70e-7hp/

Ground-Probe
http://www.groundprobe.com

Power Equipment is the exclusive and authorised Australian, New Zealand, Papua New Guinea and South Pacific Distributor of Yanmar Marine and Industrial diesel engines, JCB DieselMax, MASE diesel marine generators, Torqeedo electric outboards, OXE diesel outboards, Gori high quality folding sailboat propellers, PSS Shaft Seals and Northern Lights Gen Sets. Throughout 2016, Power Equipment proudly celebrates its 25 year Anniversary.

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