

Installation Guide For PowerHouse Generators



Supplied By M+H Power System

This manual is for guidance only and does not replace any federal or local laws. Please contact a licensed installer for more details relevant to your installation in regards to this.

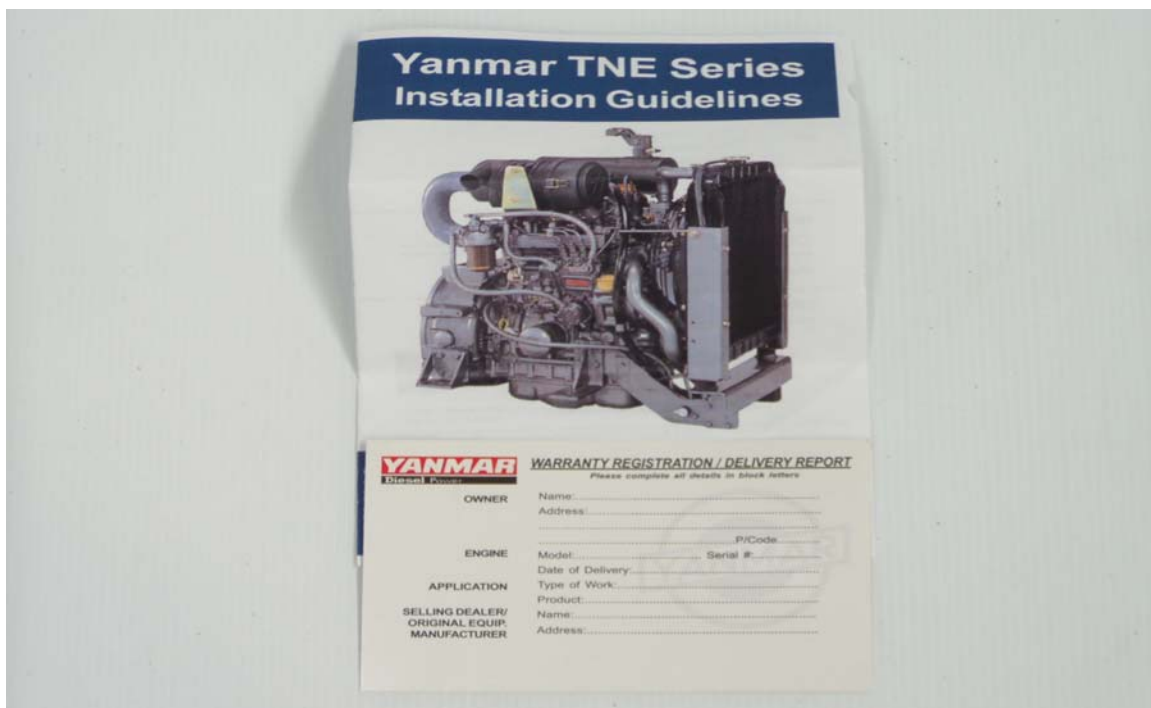
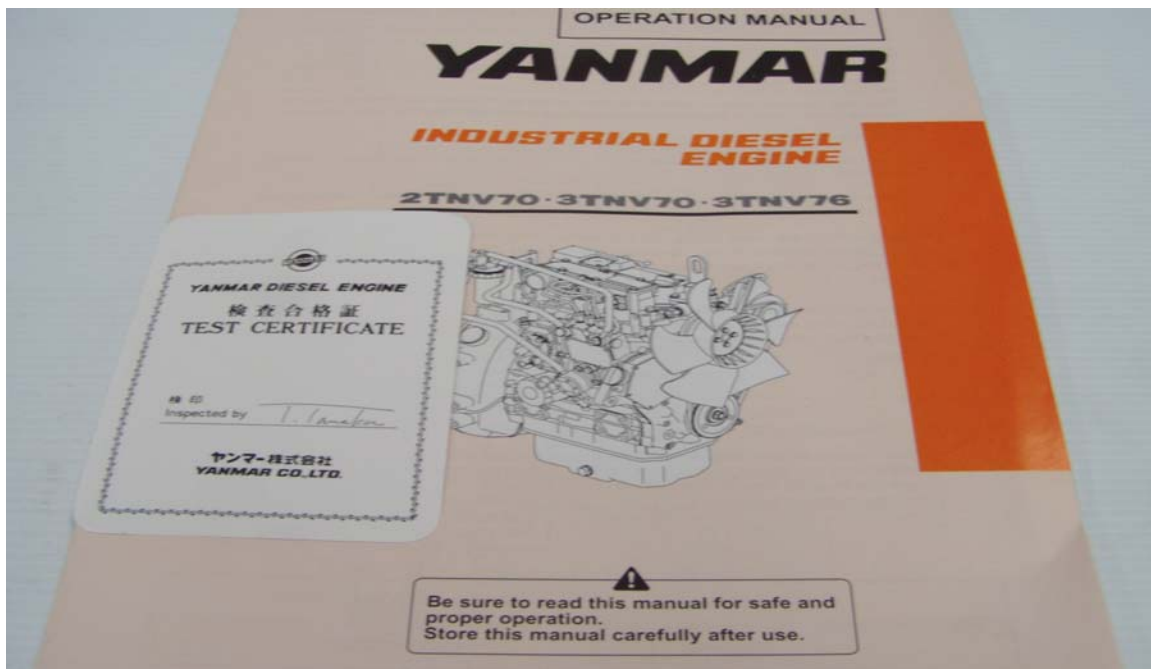
Version 0.2

Contents

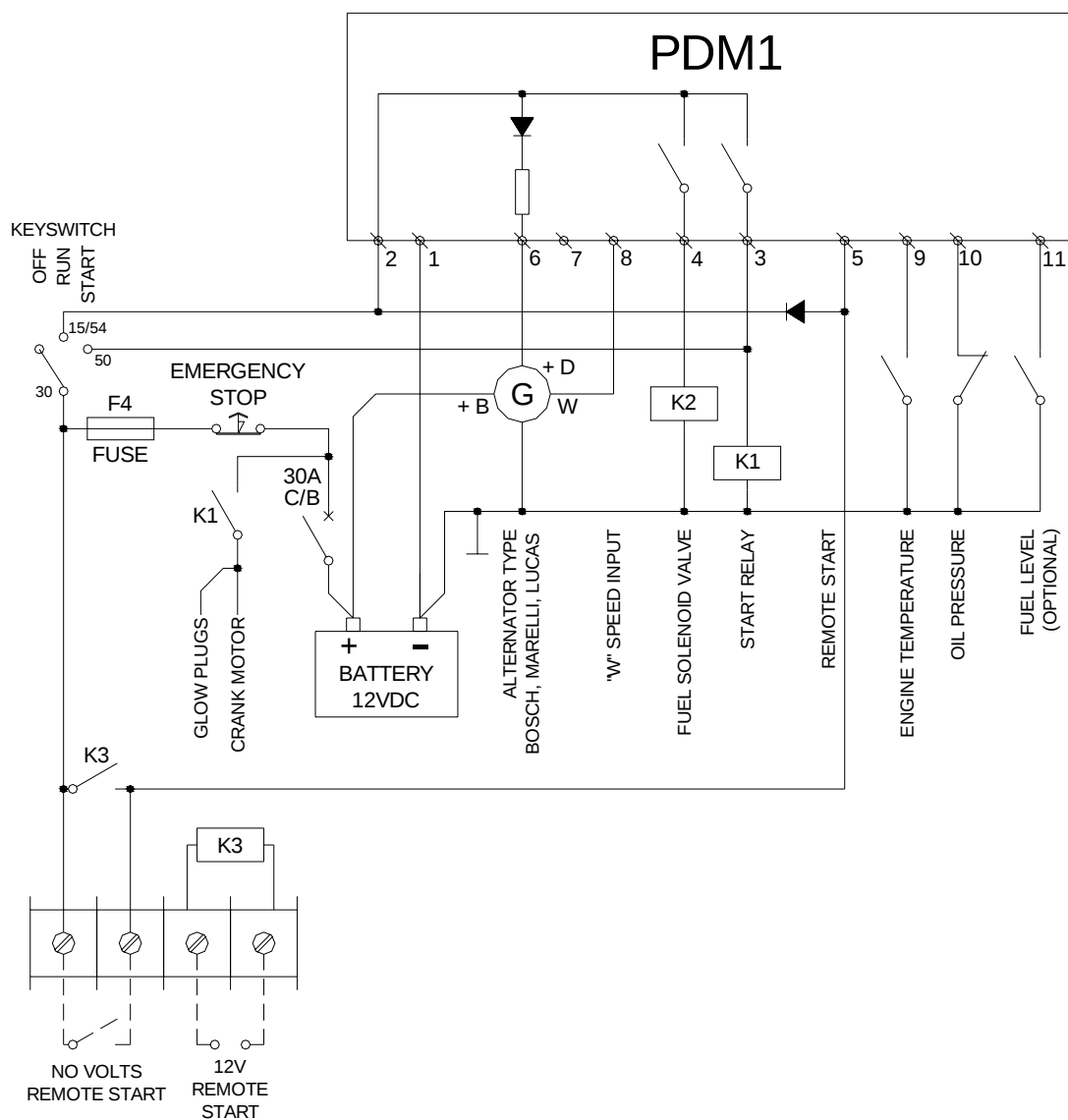
1. Manuals
2. Wiring Diagram for Controller
3. Visual Inspection
4. Unpacking Crate
5. Exhaust
6. Positioning of Generator
7. Expansion bottle install
8. Fuel System
9. Pre Starting Checks
10. Cranking Battery
11. Controller
12. Starting Generator
13. Servicing Requirements & Parts
14. Generator Do's and Don'ts
15. Warranty Statement

Manuals

Please read and understand all the manuals and supporting documentation in regards to this generator. Some of these are shown below:



Wiring Diagram for Controller



Visual Inspection

Before going to site please ensure unit is complete and free from shipping damage. Unit should come as pictured below:



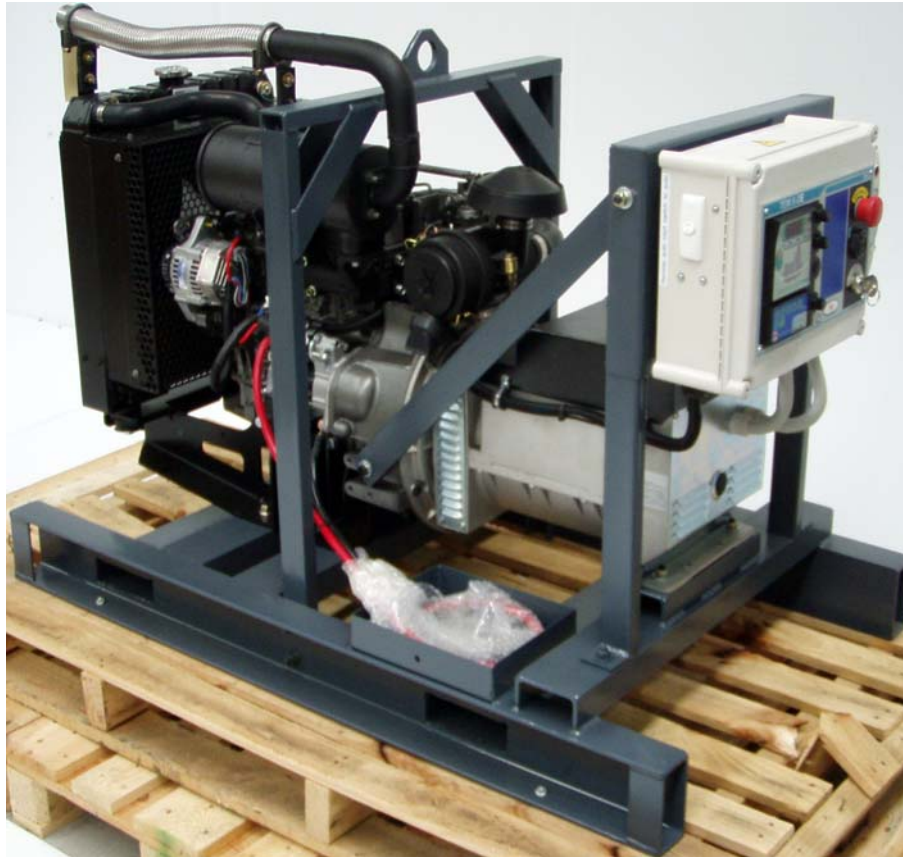
Please ensure all accessories are included as shown in picture below (including hoses):



Once this is done unit can then be shipped direct to site for installation. Once there please complete this inspection again before commencing work.

Unpacking the Crate

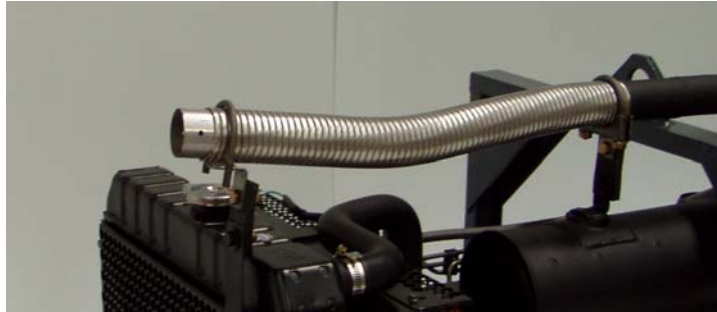
Please take care when unpacking generator as not to damage unit and controller. Please note: use suitable size tools and equipment to ensure the unit is not damaged. On completion the unit should look like this or similar.



When removing generator from base please use correct lifting eye or correct lifting pockets to ensure unit is removed safely. Also please give unit a quick visual inspection to ensure no obvious sign of damage to unit.

Exhaust System

Please remove the U bolts nuts from end of exhaust located at the radiator end.



Remove the metal insert from the end of the flexible exhaust and slide in the exhaust pipe end to ensure the 45 degree angle is facing down to stop water penetration into the system. Tighten up U bolts ensuring the flexible exhaust is not crushed and tightly holding on to the inserted exhaust pipe.



Positioning Of the Generator

When considering where to position generator please ensure genset is located away from flammable materials.

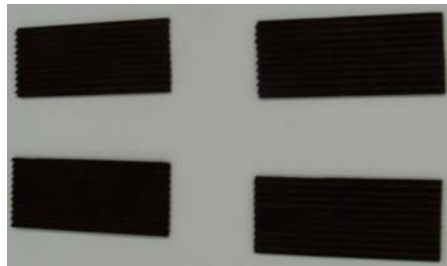
Have easy access all round to enable work to be carried out easily in the future (for maintenance).

Also note that the wall of the building needs a hole cut in it to ensure venting of the radiator. This hole needs to be slightly larger than the radiator and the cowling mounted on the inside wall. The genset can then be fitted into the cowling to ensure hot air is released out of the building. Please also ensure vermin trap (wire mesh is fitted to outside of building).

Also note the exhaust has been mounted along the top of the radiator to vent all the hot exhaust gases out of the room. Please drill a hole capable of putting the exhaust through. Ensure exhaust is facing down to stop water from getting into the engine i.e. 45 degree angle is facing down.

Please ensure all holes in the wall are sealed around the edges and the sealing material is heat retardant, especially around the exhaust system hole.

Once final position of the unit has been decided place the vibration pads underneath the skid as shown below:



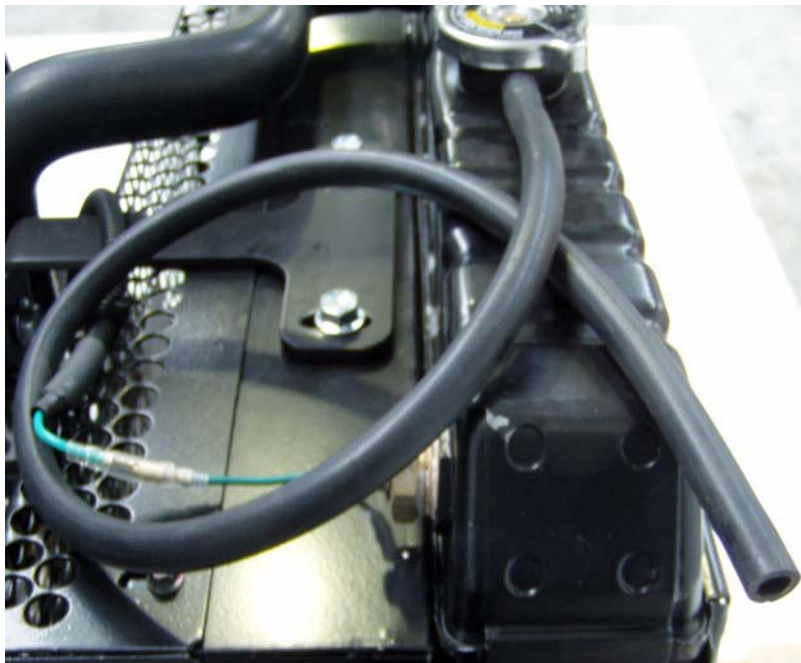
Also ensure adequate ventilation around the unit to ensure air flow. In an ideal situation this would be cross ventilation to enable engine to breathe. The generator room needs to be kept clean and tidy, be free from heavy dirt and dust to ensure a long life span of the electronic components fitted to the unit.

Setting up Water Expansion Bottle

Radiator bottle and hose



Fit hose to radiator as below just below cap.



Attach cable tie to hold the hose in position. Ensure hose is not crushed but held tightly in place.



Fit water bottle to side of radiator and attach hose to bottom of bottle and fill to the max indicated level with recommended coolant.

Coolant levels also needs to be tested, this can be done at the radiator cap. Ensure coolant can be touched by your finger; only do once the engine is cold.

Fuel System

Remove bungs from fuel system located in pictures below prior to commencing any work.

(Fuel in Bung)



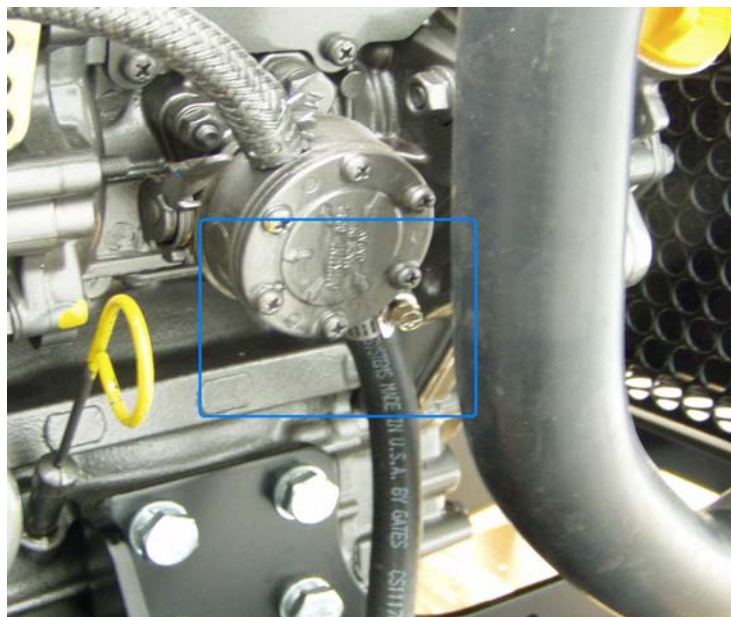
(Fuel out Bung)



Place fuel line hose on bottom of tank. Ensure tap is turned off and clamp is done up tight.



Fit other end of hose to fuel in. On generator located next to radiator and yellow dipstick ensure hose clamp is held tight.



Place fuel return line. Hose on top of tank to generator return line located above fuel filter ensure fuel filter is turned on as below (tap facing up) and line connected with hose clamp held tightly.



Locate tank appropriately to room set up. The tank can be positioned as far as the hose length can reach.

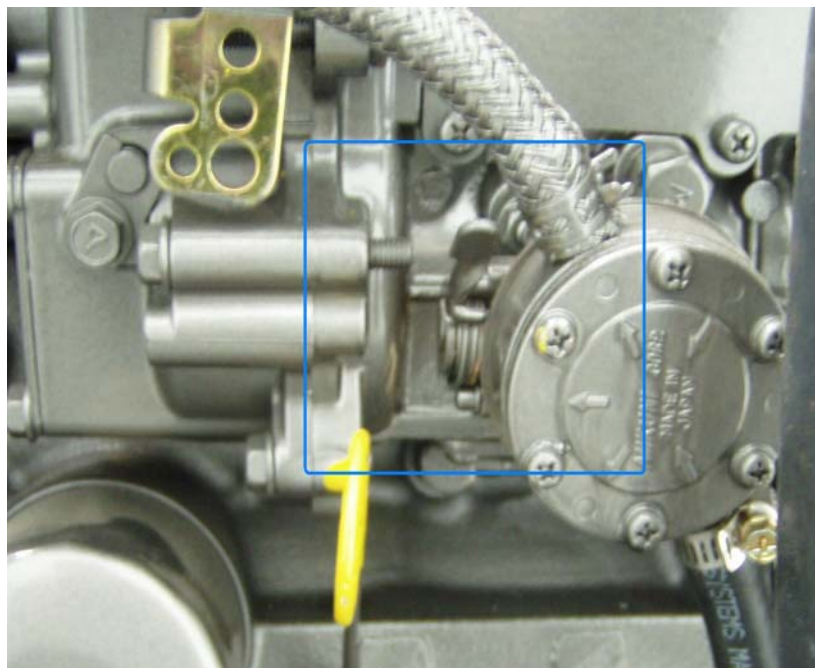


Once located ensure the fuel tank is turned off (Tap is facing across line) unscrew the large cap on the tank and fill. Once finished filling, clean up spillages then replace the cap on the tank Ensure hoses are tied together when positioning tank and ensure that the hoses are not crushed. Run hoses inside skid if needed to stop tripping hazard.

Turn fuel tap on. (Tap is facing in line with hose)

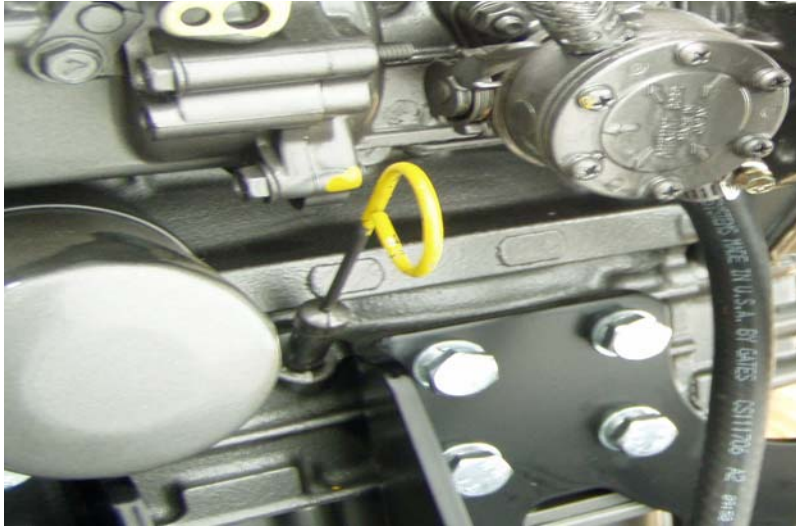


Fuel system now needs priming this is done by pushing down on the fuel pump handle on the side of generator. This is located next to the fuel in point next to the dipstick. (Yellow handle bottom left hand corner of picture). Also the system will be a primed once there is sufficient fuel in the fuel filter and the system is pressured. (10 or so depressions)



Pre Starting Checks

Please ensure that the unit is filled with the appropriate amount of oil this can be checked via the dipstick (Yellow handle) located next to the priming pump. The level should read halfway between minimum and maximum. If not the unit will need topping up with appropriately graded oil. (10w – 40 Castrol)



Coolant levels also needs to be tested, this can be done at the radiator cap. Ensure coolant can be touched by your finger; only do once the engine is cold (Castrol Coolant)



Also ensure all clamps, bolts and nuts are tight fitting.

Crank Battery

Insert battery into cradle.



Fit and tighten battery terminals to battery posts and place cables on terminals. Ensure the Red goes to positive (+), black to negative (-).



Controller

The TEM6- DE controller is one of the most versatile controllers on the market and comes complete with a series of programmable interfaces.



The TEM6-DE (Complete Unit) has been sourced to enable you ease and efficient use of the diesel. It comes complete with a 12v positive output and also a dry contact for use with nearly all inverters out there in the market place (two wire start). Also the unit can be split down in many different parts the PDM1 is the engine management component and the TEM 3 is the user interface.

TEM 3

It is a measurement instrument to convey the following information to the user.



With only one button interface the select as indicated in the blue area.

Volts (V), Amps (A), Frequency (HZ), Working Hours (H)

Measurements can be seen in two different ways.

Manually, By means of the key “Select Mis”

In this case, by pressing the key repeatedly, you go on with the selection. The selected measurement, besides appearing on the display, is also emphasized by the lighting of the respective Led.

Automatically

In this way the various measurements automatically move in sequence on the display with a 3 second scanning. If you want to stop the scanning on the desired measurement, you only have to press the key “Select Mis”

To switch between Manual – Automatic mode is done by keeping the key “Select Mis” pressed for 3 seconds to go from manual to automatic and once from Automatic to Manual

PDM 1

The PDM 1 component of the controller is the engine management part of the system. This will protect the engine from operating outside its normal parameters.



Understanding this controller is very simple by a series of LED's located across the top line of the controller highlighted below this they are two more just below this. In certain operations these light may be on or off. Ensure you are familiar with these and what they indicate more details can be found below regarding this or in the appropriate manual.

1. Under speed or Over speed engine out of tolerance. Led off in normal running
2. Over temperature. Led off in normal operation
3. Fuel switched off in normal operation
4. Oil low pressure. Led off in normal operation
5. Alternator failure Led
6. Supply LED constantly switched on at power up
7. Glow plug pre heat
8. P1 & P2 programming buttons

This controller features are as follows:

- Only one mains supply from 7 to 30 V Dc
- Programmable relay into 5 different ways
- General Alarm
- Glow Plug Pre-Heating
- Allows remote Start – Stop
- Magnet for stopping
- Over speed and low speed survey
- Protection from Polarity Reverse
- Programmable up to 5 attempts to start
- Working temperature range -20 to +60 Degrees

The next part of the controller package is the key switch, audible alarm and also the emergency stop.



The emergency stop is located on the top right hand side of the controller and is the big red button pressing this will cause the generator to stop instantly and will also inhibit the engine to restart while depressed. Once reset the generator will return to normal operation. **This should be the first point of call** when checking the unit will not start.

The buzzer will sound once the unit has gone into fault conditions.

The key start is also located just below this part of the unit please refer to the [Pre Starting Checks](#) and also the [Manual Starting Generator](#) sections before turning the key.

Manual Starting Generator

Manual start of the generator can be done by the use of the key switch on front of the unit.



Ensure emergency stop button is out before attempting to start unit.

This unit can be started by slowly turning the key slowly through start and then holding in the run position for a few seconds. These may take a few attempts when starting engine for the first time or after long periods of idle times. We recommend this unit gets run for ten minutes every 2 weeks. Also water and oil levels checked as per [Pre Starting Checks](#) above in this manual.

To stop unit either hit emergency stop button or turn key to off position. If emergency stop button is pressed ensure button is released after unit has stopped.

Servicing Requirements

Servicing of this unit is required as below for the use continued good running of the unit and also for warranty purposes.

System	Check Item	Periodic Inspection Interval					
		Daily	Every 50 hours	Every 250 Hours	Every 500 Hours	Every 1000 Hours	Every 2000 Hours
Fuel oil	Fuel Tank oil level check and refill	▲					
	Draining from fuel tank		▲				
	Draining from oil / water separator		▲				
	Cleaning oil / water separator				▲		
	Fuel filter element replacement				—		
Engine oil	Engine oil level	▲					
	Engine oil replacement		—	—			
	Engine oil filter replacement		1st Time	2nd & after			
Cooling water	Check & add cooling water	▲					
	Radiator fin checking & cleaning			▲			
	Cooling fan V-belt checking & adjusting		▲ 1st Time	▲ 2nd & after			
	Cooling water replacement					— or every 1 year	
	Cooling water path flushing & maintenance						▼
Rubber hoses	Fuel & cooling water pipe replacement						▼ or every 2 years
Operating system	Governor lever & accelerator check & adjust			▲			
Intake & exhaust	Air cleaner element cleaning & replacement			▲	—		
Electrical equipment	Alarm operation check	▲					
	Battery Electrolyte check (not applicable on all batteries) & recharging		▲				
Cylinder head	Adjust intake / Exhaust valve clearances					▼	
	Lapping intake / Exhaust valve seats						▼
Fuel valve pump	Check fuel injection valve pressure & adjust					▼	
	Check & adjust fuel injection pump						▼

Symbol	Meaning
▲	Check
—	Replace
▼	Dealer

Parts

Please find below a list of the spare parts to complete the service. Please adhere to the intervals as stated above.

Parts for Service					
Engine	Size (KVA)	Air Filter	Fuel Filter	Oil Filter	Fan Belt
3TNV70	6.5	119655-12560	119810-55650	119305-35151	25132-003600
3TNV76	8	119655-12560	119810-55650	119305-35151	25132-003600
3TNV82	10	119655-12560	119810-55800	129150-35152	25132-003700
3TNV88	13	119655-12560	119810-55800	129150-35152	119865-42290

Oil recommended is castrol 10W-40 grade

Coolant castrol

What to Do and Not to Do

- Keep the generator outside. Never use it indoors. (unless properly installed inside building).
- Install a battery-operated carbon monoxide alarm.
- Keep the generator dry. Do not use in wet conditions. To protect from moisture, operate it on a dry surface and with adequate ventilation.
- Dry your hands if wet before touching the generator.
- Never try to power the house wiring by plugging the generator into a wall outlet, a practice known as "backfeeding". This is an extremely dangerous practice that presents an electrocution risk. It also bypasses some of the built-in household circuit protection devices unless done properly.
- If you must connect the generator to the house wiring to power appliances, **get a licensed electrical contractor to do it** in accordance with **Australian Standards AS/NZS 3000 Electrical Installations**.
- Avoid creating a fire hazard. Store fuel for your generator in properly labelled non-glass safety containers, out of the home and away from fuel-burning / heat appliances.
- Before refueling the generator, turn it off and let it cool down. Fuel spilt on hot engine parts could ignite.
- When running generator on hand ensure all load connection devices are removed.
- When performing service work ensure emergency stop button is pressed.
- Do not smoke in or around generator
- Do not run generator on light loads for prolonged periods of time, the generator needs at least 50% loading to prevent damage.
- Familiarise yourself with all paperwork / manuals available to you.
- Ensure emergency button is out prior to starting generator.

Contact installer For More Details

Warranty and Statement of Guarantee

The manufacturer Main Scope of supply

Yanmar Engines

Sincro generators

Heavy duty skid frames with forklift holes and centre lifting frame

Generator direct coupled to engine flywheel housing with 6 mounting feet

Battery leads and holds down clamps

Engine oil, radiator coolant, bolts, industrial paint

Main circuit breaker with Clipsal enclosure wired to alternator output terminals

Control panel mounted panel frame

Anti vibration rubber

Fuel tanks

Labour and load test

Statement of Guarantee

The Equipment shall be assembled to ensure satisfactory operation in which continuity of service is the first consideration, and to facilitate inspection, cleaning and repairs. The equipment shall also be built to ensure satisfactory operation under atmospheric conditions prevailing in Australia and local Countries

The generating sets shall incorporate every reasonable precaution and provision for the safe working and reliable running of the equipment.

The generators shall function without undue vibration. Components, connections and cabling shall be assembled and arranged to minimize the risk of any damage.

Consideration needs to be given to the importance of the correct installation of the generating sets and should be done in accordance with the M+H Manual

Inherent problems do exist when using machinery, therefore warranty is reliant upon the installer and the operator, reading and understanding the information provided by M+H

Warranty

Defects liability period shall commence on date of delivery of equipment being, 12 months or first 1000 hours, whichever occurs first.

On a warranty claim, equipment will be required for inspection by the Manufacturer or a qualified Power Generation Service Agent, all costs for removal and freight to be covered by Owner

The manufacturer will cover parts and labour applicable to scope of supply. [Backed up by the manufacturers warranty for there products]