

# TITAN

I N D U S T R I A L

P.O.Box 791, Travelers Rest, S.C. 29690

Phone 864-834-7212

Service/Replacement Parts 800-845-4141



## OWNER'S MANUAL

### MODEL TG 6500D Industrial Generator

The Emission Control System for this generator is warranted for standards set by the Environment Protection Agency.

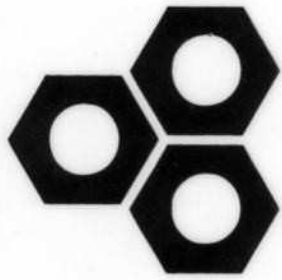
#### **IMPORTANT!**

It is extremely important to read and understand the entire contents of this Owner's Manual for the Titan Industrial Model TG 6500D before attempting to operate the generator. This is a diesel engine powered, industrial strength generating unit of electrical power. The diesel engine and the generator are both potentially extremely hazardous and could cause physical injury or even death if improperly used.

#### **WARNING!**

**Do Not Operate Equipment until reading & understanding Owner's Manual!**  
**Disconnect all loads before starting or stopping generator.**  
**Allow to run for a few minutes with no load before stopping.**

**IMPORTANT !  
READ FIRST**



**TITAN**  
I N D U S T R I A L

**OWNER'S MANUAL  
MODEL TG 6500D  
Industrial Generator**

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TITAN INDUSTRIAL shall not be responsible for any consequences resulting from improper use of this equipment. The operator is required to read the entire contents of this manual before attempting to operate the unit. If the operator does not completely understand the instructions and all of the hazards of operating this unit after reading this manual, he/she must call the factory at 1-800-845-4141 to answer these questions to his/her complete satisfaction before proceeding.

**READ AND COMPLETELY UNDERSTAND** entire contents of this Owner's Manual and become familiar with the unit before attempting to start using this equipment! It is your responsibility to know its applications, limitations, and hazards! Call the factory at 1-800-845-4141 with any questions.

**FOR OUTDOOR USE ONLY!** Never use this unit inside any enclosure including the generator compartment of a recreation vehicle (RV) or inside any building. No modifications will eliminate the danger of possible carbon monoxide poisoning, fire, or explosion.

**TWO (2) FEET OF CLEARANCE** on all sides is required even while using outdoors.

This unit is sold solely for the purpose of portable power. Other applications could void warranty. User accepts responsibility for injuries and/or damage resulting from other applications.

This Manual contains information to ensure your safety and to prevent any equipment problems. Various terms such as 'WARNING', 'CAUTION', 'DANGER', 'IMPORTANT', and the SYMBOL ➡ are all used to signify information that is essential for the operator of this equipment to understand and to practice!



## MODEL TG 6500D DIESEL POWERED ELECTRIC GENERATOR



### DESCRIPTION

**THE TITAN INDUSTRIAL INC. MODEL TG 6500D** is a diesel engine driven, revolving field, alternating current (AC) generator designed to supply electrical power for compatible electrical tools, motors, appliances, and lighting (see wattage reference guide on page 6).

The Model TG 6500D operates at 120 volt and/or 240 volt, single phase, and will operate devices that require up to 5200 watts, continuous and 6000 watts surge.

Figure #1 - Grounding Lug Block



### CONNECTING LOADS

Add up the Watts of all devices you connect to the TITAN INDUSTRIAL GENERATOR at one time. Do not exceed 6000 Watts on (see wattage reference guide page 6), These are approximate wattages.

The rated Watts of most electrical devices can be found on its nameplate. The rated Watts of lights can be taken from the light bulbs. In cases where only Volts and Amps are shown on the nameplate, simply multiply Volts by the Amps to get Watts (Volts X Amps = Watts).

Some electric motors require about three times the rated Watts of power for start-up. This surge of power is required for only a few seconds. Be sure to allow for this high starting wattage when selecting electrical devices to connect to the generator.

First, figure the watts needed to start the largest motor. Add to that figure the running watts of all other connected loads.

Please see the Wattage Reference Guide. It provides an estimated approximation of running watts, to help determine which devices to select to connect to the generator.

**CAUTION!** Do not tamper with engine governed speed. The TITAN INDUSTRIAL GENERATOR supplies correct rated frequency and voltage when running at the proper governed speed. Incorrect frequency and/or voltage could damage connected electrical devices.

### GROUNDING THE GENERATOR

It is required by The National Electrical Code to have the frame and all external conductive parts of the generator connected to an earth ground. Proper grounding also satisfies most local electrical codes.

Connect a No. 12 AWG standard copper wire to the Grounding Lug Block (See Figure 1). The grounding lug is located on the control panel. Connect the other end of the wire to an earth driven copper or brass grounding rod (electrode).

**CAUTION!** Do not connect ground to a preexisting ground rod, water pipe, or building frame.

Consult with a licensed electrician in your area because local codes vary. Properly grounding the generator helps prevent electrical shock if a ground fault condition exists in the generator or in connected electrical devices. This will also help to dissipate static electricity resulting from ungrounded devices.

## ⚡ SAFETY ⚡

This generator was designed for specific applications. DO NOT attempt to modify the unit in any way or use it for any application that it was not designed to do. Ask the dealer or contact the factory if you have any questions concerning the generator's application.

Warnings and cautions in this manual and on decals and tags on the unit are not all inclusive. It would be impossible to anticipate every circumstance that might involve a hazard. Handling, operating, or servicing this unit by any procedure not recommended by the manufacturer may render this equipment unsafe and may pose a threat to you or to others.

- The generator produces a very powerful voltage that can cause extremely dangerous electrical shock. Avoid contact with bare wires, terminals, etc. never permit an unqualified person to operate or service the generator.
- Never handle any kind of electrical cord or device while standing in water, while barefoot or with wet hands or when feet are wet. Dangerous electrical shock could result.
- The National Electric Code requires that the frame and external conductive parts be properly connected to an approved earth ground. Local electrical codes may vary. Check with an electrician for local grounding requirements.
- Use a ground fault circuit interrupter in any damp or highly conductive area such as metal decking or steel work.
- Do not use worn, bare, frayed or otherwise damaged electrical cords or wiring with the generator. A defective cord may result in electrical shock or may cause damage to equipment.
- Do not expose unit to excessive moisture, dirt or corrosive vapors. Unit must be operated on a level surface.
- Comply with all laws regulating the storage and handling of diesel fuel. Diesel fuel is highly flammable and explosive. Avoid spilling diesel fuel on a hot engine. Do not allow smoking, open flames, sparks or heat in the vicinity while handling diesel fuel.
- Do not overfill the fuel tank. Always allow room for diesel fuel expansion. Diesel fuel could overflow and cause fire or explosion if tank is overfilled. Allow for a 20 minute cool down before refueling. Never refuel tank while engine is running.
- Only operate this unit outside with adequate ventilation. This generator's diesel engine exhaust produces carbon monoxide gas that can cause unconsciousness or even death.
- Never store a generator with fuel in the tank where diesel fuel vapors could be ignited by a flame, spark, or pilot light from an appliance such as a furnace, water heater, or clothes dryer.
- Always allow a minimum of 2 feet of clearance on all sides for ventilation while unit is operating. Allow 2 feet of clearance from all combustibles.
- Generator must always be stopped or started with all loads unconnected. Start the engine and let it stabilize before connecting any loads. Disconnect all loads before shutting down the generator.
- Never insert any object through the cooling slots of the engine. You could damage the unit or cause injury.
- **NEVER OPERATE THE GENERATOR:**
  - In rain
  - In an enclosed compartment
  - If connected devices overheat
  - If electrical output is lost
  - If engine or generator sparks
  - If flame or smoke is observed
  - If unit vibrates excessively

**CAUTION!** The engine exhaust contains chemicals known to the State of California to cause cancer, birth defects, or other reproductive harm.

**CAUTION!** If it is your first time starting the generator, allow it to run for 30 minutes before connecting electrical loads. This is for wet seating purposes

**Caution: Customer takes full responsibility for use of this unit as a home generation system.**

**IMPORTANT ! IMPORTANT ! IMPORTANT ! IMPORTANT ! IMPORTANT**

## BEFORE STARTING THE ENGINE

### CHECK AND/OR FILL OIL

**WARNING!**  
DO NOT ATTEMPT TO START THE  
ENGINE BEFORE FILLING WITH OIL!

**Titan Industrial  
Recommends  
ONLY  
Using Rotella T  
Multigrade  
15W - 40  
engine oil.**

#### Fill with oil

- Place generator on a level surface.
- Clean area around oil fill opening.
- Remove the dipstick.
- Wipe the dipstick clean.
- Pour oil in until it reaches the FULL mark on dipstick.
- **DO NOT OVERFILL!**
- **CLOSE OIL CAP!**

### CHECK AND/OR FILL DIESEL

**WARNING!**  
Do not overfill! Leave room for  
fuel expansion. Never fill fuel  
indoors. Never fill fuel when  
engine is hot or running. Do  
not smoke or fill fuel near  
an open flame or sparks.

#### Fill with diesel fuel only

- Use #1 diesel fuel only.
- Clean area around fuel cap.
- Remove fuel cap.
- Add diesel fuel to fuel tank.
- DO NOT overfill. Do not fill above the red plug inside the fuel tank filter (this allows for fuel expansion).
- Replace fuel cap.
- Wipe up any spilled diesel fuel.

#### **Note:**

Because this is a diesel engine, frequent oil and filter changes are required.

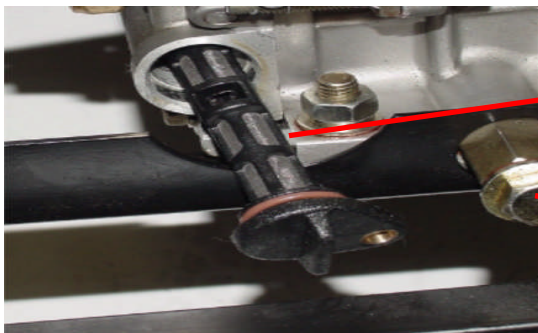
### CHECK AND/OR REPLACE FILTER

**WARNING!**  
Do not clean filter with any type of  
detergent.

#### Check air filter

- Remove cover panel.  
Loosen wingnut and remove air filter cover.
- Never wash air cleaner with any kind of detergent or cleaning solvent.
- Air filter should be changed if engine performance decreases or color of exhaust changes.
- Never run engine without air filter. This can cause rapid engine wear.

Figure #2 - Air Filter Housing



**Oil Filter/Screen**

**Oil Capacity:**

9hp-----35oz

**Oil Drain Plug**

*Clean/Change filter after the first 5 hours of operations.*

**Change oil every 30 hours, or sooner in adverse conditions. Replace/Clean oil filter each and every time oil is changed. Failure to do so, will cause engine damage and void the warranty.**

### Wattage Reference Guide

| Device                        | Running Watts | Device                               | Running Watts |
|-------------------------------|---------------|--------------------------------------|---------------|
| *Air Conditioner (12,000 BTU) | 1700          | Impact Wrench                        | 500           |
| Battery Charger (20 Amp)      | 500           | *Jet Pump                            | 800           |
| Belt Sander (3")              | 1000          | Lawn Mower                           | 1200          |
| Chain Saw                     | 1200          | Light Bulb                           | 100           |
| Circular Saw (6-1/2")         | 800 to 1000   | Microwave Oven                       | 700           |
| Coffee Maker                  | 1000          | *Milk Cooler                         | 1100          |
| Compressor (1 HP)             | 2000          | Oil Burner on Furnace                | 300           |
| Compressor (3/4 HP)           | 1800          | Oil Fired Space Heater (140,000 BTU) | 400           |
| Compressor (1/2 HP)           | 1400          | Oil Fired Space Heater (85,000 BTU)  | 225           |
| Curling Iron                  | 700           | Oil Fired Space Heater (30,000 BTU)  | 150           |
| *Freezer                      | 500           | *Airless Paint Sprayer (1/3 HP)      | 600           |
| Disc Sander (9")              | 1200          | Handheld Airless Paint Sprayer       | 150           |
| Edge Trimmer                  | 500           | Radio                                | 50 to 200     |
| Electric Nail Gun             | 1200          | Refrigerator                         | 600           |
| Electric Range (one element)  | 1500          | Slow Cooker                          | 200           |
| Electric Skillet              | 1250          | *Submersible Pump (1-1/2 HP)         | 2800          |
| *Furnace Fan (1/3 HP)         | 1200          | *Submersible Pump (1 HP)             | 2000          |
| Hair Dryer                    | 1200          | *Submersible Pump (1/2 HP)           | 1500          |
| Hand Drill (1")               | 1100          | Sump Pump                            | 600           |
| Hand Drill (1/2")             | 750 to 1000   | *Table Saw (10")                     | 1750 to 2000  |
| Hand Drill (3/8")             | 500           | Television                           | 200 to 500    |
| Hand Drill (1/4")             | 250           | Weed Trimmer                         | 500           |

\*Allow 3 times the listed Watts for starting these devices  
These wattages shown are approximate and may vary with each specific device

### WARNING:

Factory warranty is voided if fuel, other than specified diesel fuel, is used in this engine. Refer to owners manual for fuel.

### Maintenance Guide

|                           | DAILY | EVERY MONTH/ 30 HRS | EVERY 3 MONTHS/ 100 HRS | EVERY 6 MONTHS/ 500 HRS |
|---------------------------|-------|---------------------|-------------------------|-------------------------|
| Check/Refill Fuel         | X     |                     |                         |                         |
| Drain fuel from tank      |       |                     |                         |                         |
| Check/Refill Oil          | X     |                     |                         |                         |
| Check for oil leakage     | X     |                     |                         |                         |
| Change oil                |       | X*                  |                         |                         |
| Clean/Replace oil filter  |       | X                   |                         |                         |
| Replace air filter        |       | X*                  | X*                      |                         |
| Clean/Replace fuel filter |       |                     |                         | X                       |

\*First oil change should be after 5 hours. After initial break-in period change oil every (30) hours.

X\* Air filter may need to be replaced frequently, due to adverse conditions. Check filter frequently.



# OPERATION OF THE GENERATOR

## **CAUTION!**

DO NOT start or stop the engine with electrical loads connected to the receptacles. Be certain connected devices are OFF before connecting or disconnecting.

## **DANGER!**

DO NOT run generator indoors or in poorly ventilated areas. Engine exhaust contains carbon monoxide which is an odorless, deadly gas.

## **WARNING!**

To avoid burns, avoid muffler and nearby areas.

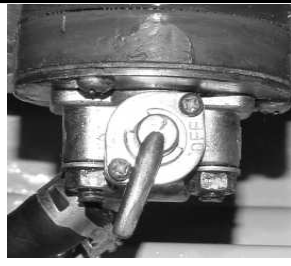
## Starting the Engine - Recoil starting

1. Be sure unit is at a level, well ventated position.
2. Check fluid for proper levels
3. Turn on fuel valve. (figure #3)
4. Put Throttle lever to the run position (figure #5)
5. Turn ignition key on control panel to the run positon.
6. Push and hold down the decompression lever (figure #4)  
Pull the recoil starter briskly until the engine is rotating, then, release lever.
7. Let engine settle before attaching any appliances

Figure #3 - Fuel Valve Positions



off



on

## Starting the Engine - Electric starting

1. Be sure unit is at a level, well ventated position
2. Check fluids for proper levels.
3. Turn on fuel valve. (figure #3)
4. Put Throttle lever in the run position (figure #5)
5. Turn the ignition key to the “Start” position
6. Once engine has started return the key to the “ON”
7. Let engine settle before attaching any appliances

Figure #5

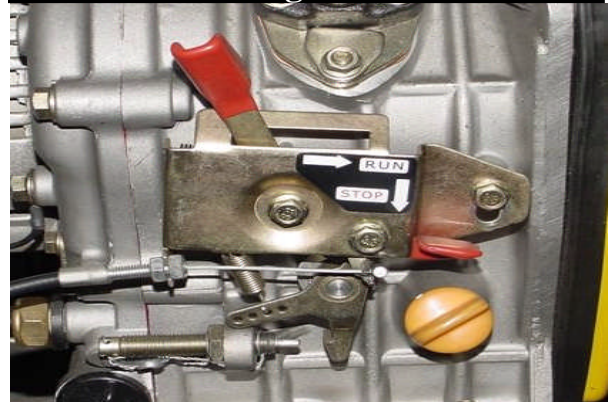


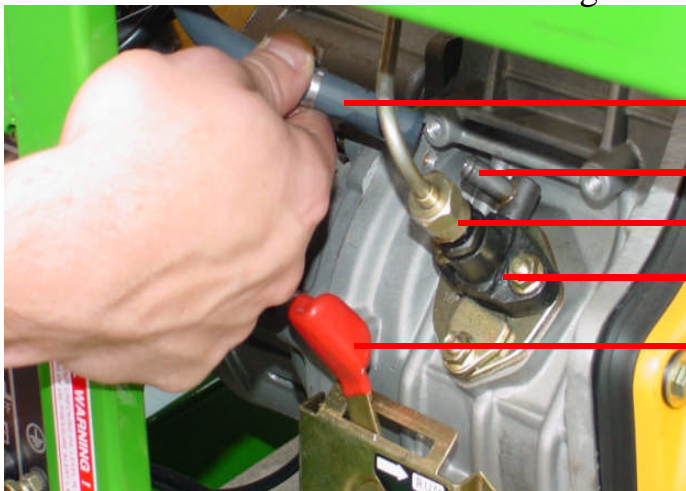
Figure #4 - Compression Release Switch



# OPERATION OF THE GENERATOR

## Bleeding Instructions

Figure #6



Rubber Fuel Line

Fuel Pump Port

Steel Fuel Line

Fuel Pump

Throttle Lever

1. With the fuel valve in the off position take off the rubber fuel line off the fuel pump port.
2. Open fuel valve and let rubber fuel line fill up with diesel fuel. Quickly replace rubber fuel line on the fuel pump port
3. Follow starting procedure(page7)

### If the unit still won't start.

1. Loosen\remove the steel fuel line compression nut. so you can see the top of the fuel pump.(figure #6)
2. With the throttle lever in the run position turn over the engine. Diesel fuel should squirt out of the top of fuel pump.
- \* **If no fuel is coming out of pump retry bleeding procedures, if still no fuel, possible bad fuel pump.**
3. Reconnect fuel line and follow starting procedures.

### Fuel pumping but unit will not start.

1. Follow the steel fuel line up to the injector
2. Disconnect the fuel line from the injector with a 17mm wrench (figure #7)
3. Remove the fuel injector from head assembly and inspect it. Make sure injector tip is clean and free from debris. Invert it. Reconnect metal fuel line. (figure #8)
4. With the throttle lever in the run position turn over the engine. You should have four ports of fuel spraying from the injector tip.
5. Re-install injector in to the head assembly
6. Follow starting procedures.

If the fuel injector does not spray (possible bad injector)

If the fuel injector is working, look under the valve cover to see if the valves are function properly.

Figure #7

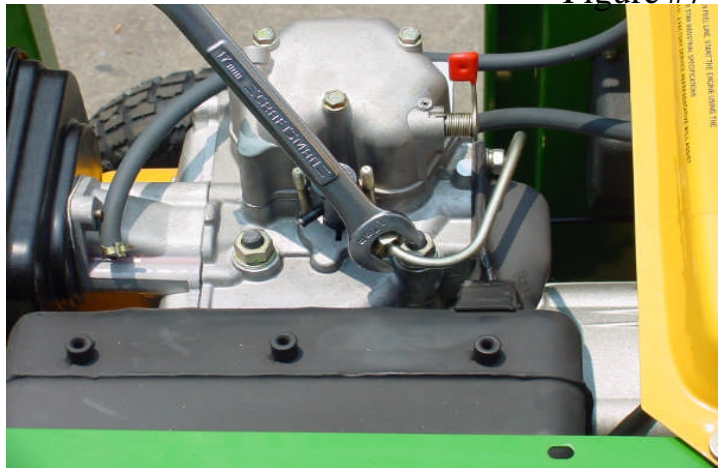
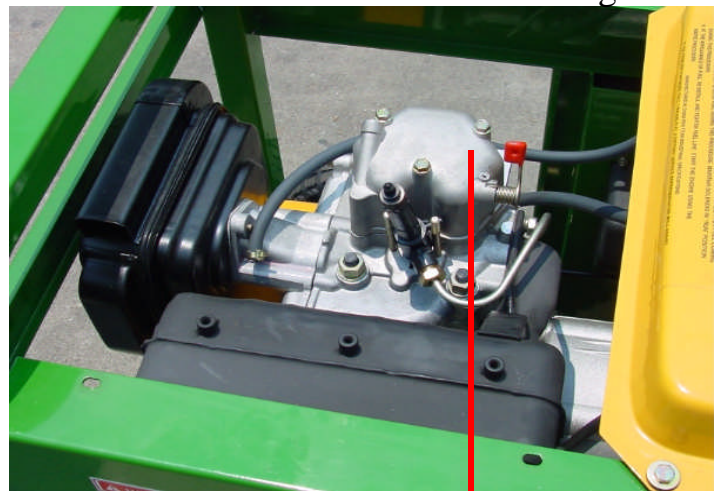


Figure #8



Valve Cover

Valve Settings

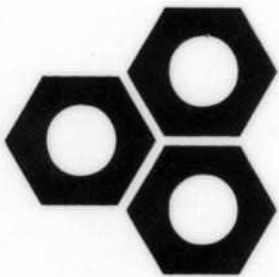
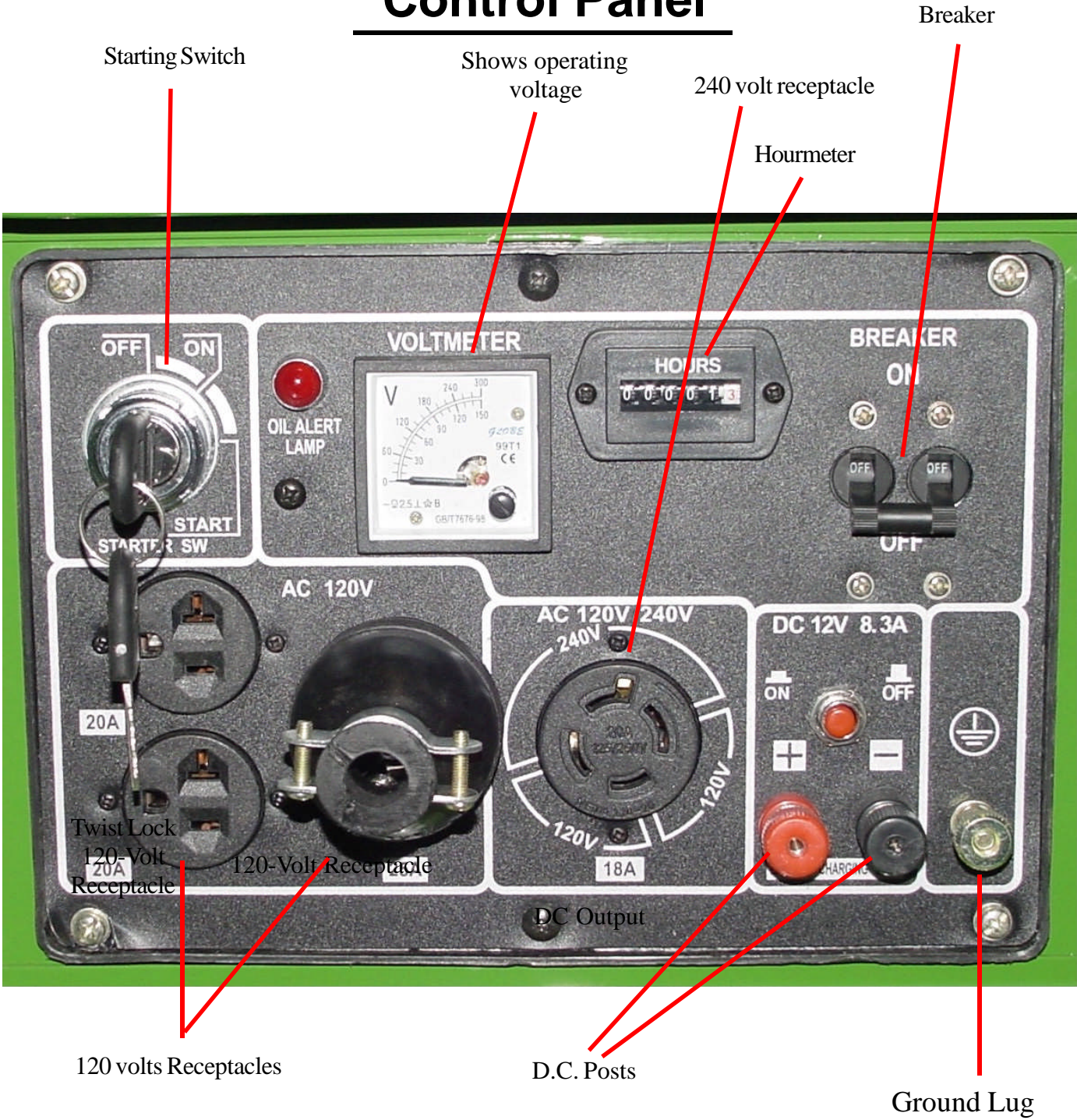
.012-intake

.013-exhaust

TDC see Page 20



# Control Panel



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# TROUBLESHOOTING

| Problem  | Cause   | Solution  |
|--|---|---|
| Engine is running but no power output is available.                  | <ol style="list-style-type: none"> <li>1. Circuit breaker is open.</li> <li>2. Poor connection or defective cord set.</li> <li>3. Connected device is bad.</li> <li>4. Fault in generator.</li> </ol>   | <ol style="list-style-type: none"> <li>1. Reset the circuit breaker.</li> <li>2. Check &amp; repair.</li> <li>3. Connect another device that is in good condition.</li> <li>4. Contact service center.</li> </ol>   |
| Engine runs good until loads are connected, then bogs down.          | <ol style="list-style-type: none"> <li>1. Short circuit in a connected load.</li> <li>2. Overloaded generator.</li> <li>3. Engine speed is too slow.</li> <li>4. Short in generator circuit.</li> </ol>   | <ol style="list-style-type: none"> <li>1. Disconnect shorted load.</li> <li>2. See 'Connecting Electrical Loads' section of manual.</li> <li>3. Contact service center.</li> <li>4. Contact service center.</li> </ol>  |
| Engine will not start or engine starts but runs rough.               | <ol style="list-style-type: none"> <li>1. On/Off Switch is turned 'OFF'.</li> <li>2. Battery is dead</li> <li>3. Dirty air cleaner.</li> <li>4. Out of diesel fuel.</li> <li>5. Stale diesel fuel.</li> <li>6. Not enough speed or force is used for recoil start.</li> <li>7. Water in diesel fuel.</li> <li>8. Speed control is not set to "RUN".</li> <li>9. Low oil level.</li> <li>10. Oil nozzle is dirty.</li> <li>11. Engine has lost compression.</li> </ol> | <ol style="list-style-type: none"> <li>1. Turn On/Off Switch to 'ON'.</li> <li>2. Charge or replace it.</li> <li>3. Clean air filter</li> <li>4. Fill fuel tank.</li> <li>5. Drain fuel tank and refill.</li> <li>6. Read and follow directions.</li> <li>7. Drain and refill tank.</li> <li>8. Move speed control to "RUN" position.</li> <li>9. Add oil to proper level.</li> <li>10. Clean oil nozzle.</li> <li>11. Contact service center.</li> </ol> |
| Engine shuts down during operation.                                  | <ol style="list-style-type: none"> <li>1. Out of diesel fuel.</li> <li>2. Fault in engine.</li> </ol>   | <ol style="list-style-type: none"> <li>1. Fill fuel tank.</li> <li>2. Contact service center</li> </ol>   |
| Engine lacks power   | <ol style="list-style-type: none"> <li>1. Load is too high.</li> <li>2. Dirty air filter.</li> <li>3. Engine needs to be serviced.</li> </ol>   | <ol style="list-style-type: none"> <li>1. See 'Connecting Electrical Loads' section of manual.</li> <li>2. Replace the air filter.</li> <li>3. Contact service center.</li> </ol>   |
| If engine has a difficult time starting around freezing temperatures |   | Add 2-5 oz. of 15W-40 motor oil to the orange cap located on top of engine, next to the Decompression lever.  |

**Service**  
1-800-845-4141



**Fax**  
864-834-5127

**Replacement Parts**  
1-800-845-4141

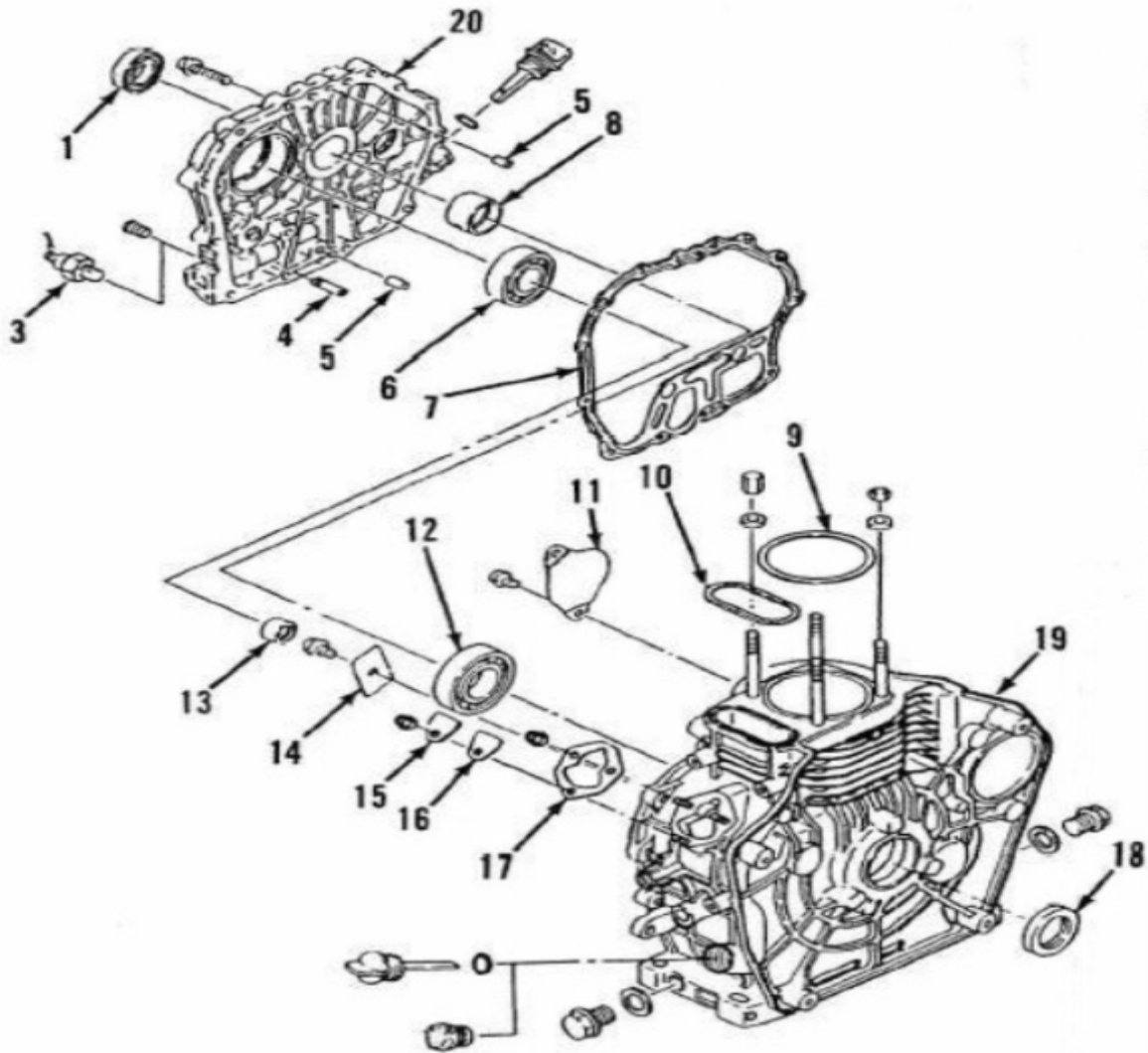
**Toll Free 1-800-845-4141**  
[www.titanindustrial.com](http://www.titanindustrial.com)



# *Parts Catalog*

P.O.Box 791, Travelers Rest, S.C. 29690  
Phone 864-834-7212  
Service/Replacement Parts 800-845-4141

# 1. Cylinder Block Assembly



## Part Name

1. PTO Seal
3. Oil Sensor
4. Oil Pipe
5. Dowel Pins
6. Cam Shaft Bearing
7. Crank Case Cover Gasket
8. Main Bearing
9. Cylinder Head Gasket
10. Push Rod O-ring
11. Starter Cover Plate

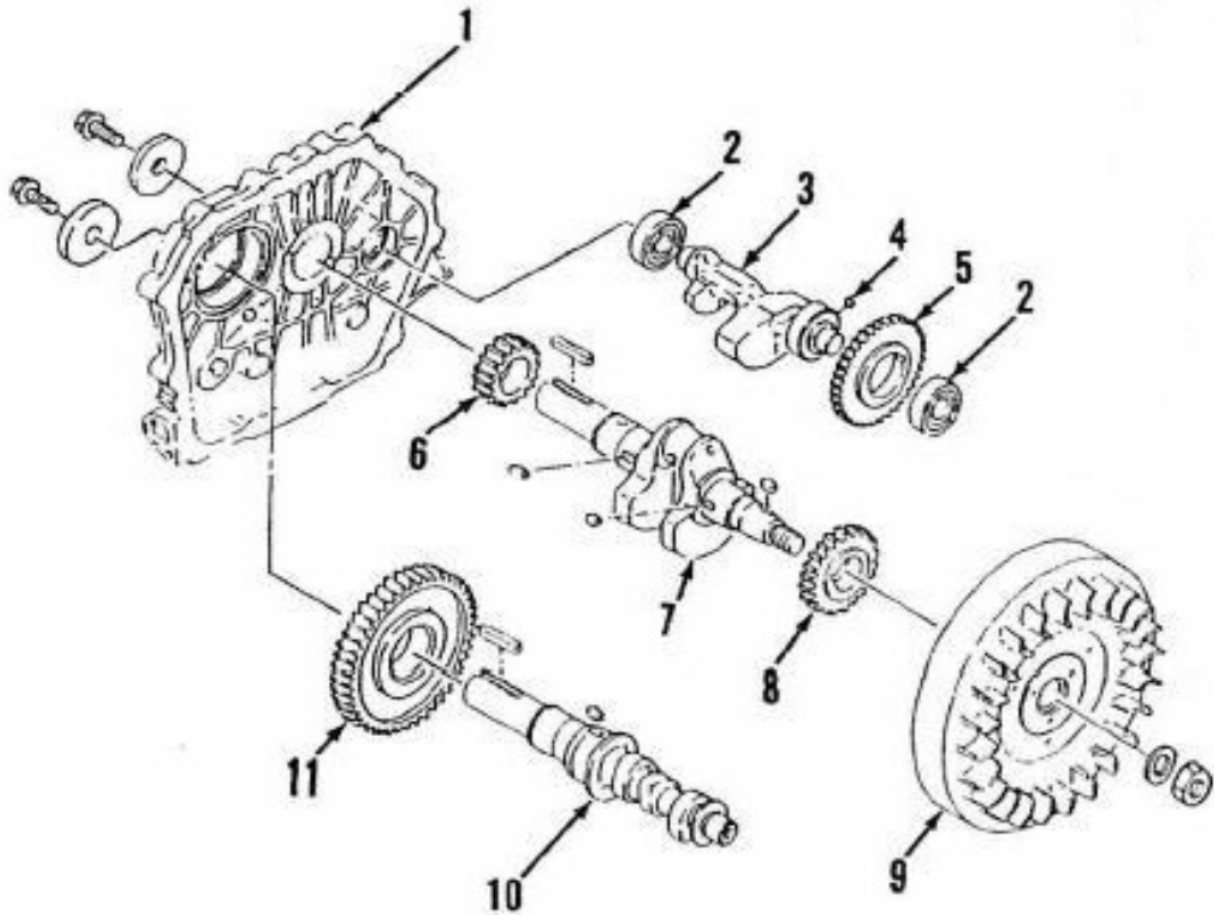
## Part Name

12. Crank Shaft Bearing
13. CamShaft Bearing
14. Bearing Retainer Plate
15. Fuel Pump cover
16. Fuel Pump Gasket
17. Fuel Pump Shims
18. CrankShaft Oil Seal
19. Cylinder Block
20. Crank Case Cover

Some Parts Sold As Assemblies



## **2. Crank Shaft Assembly**



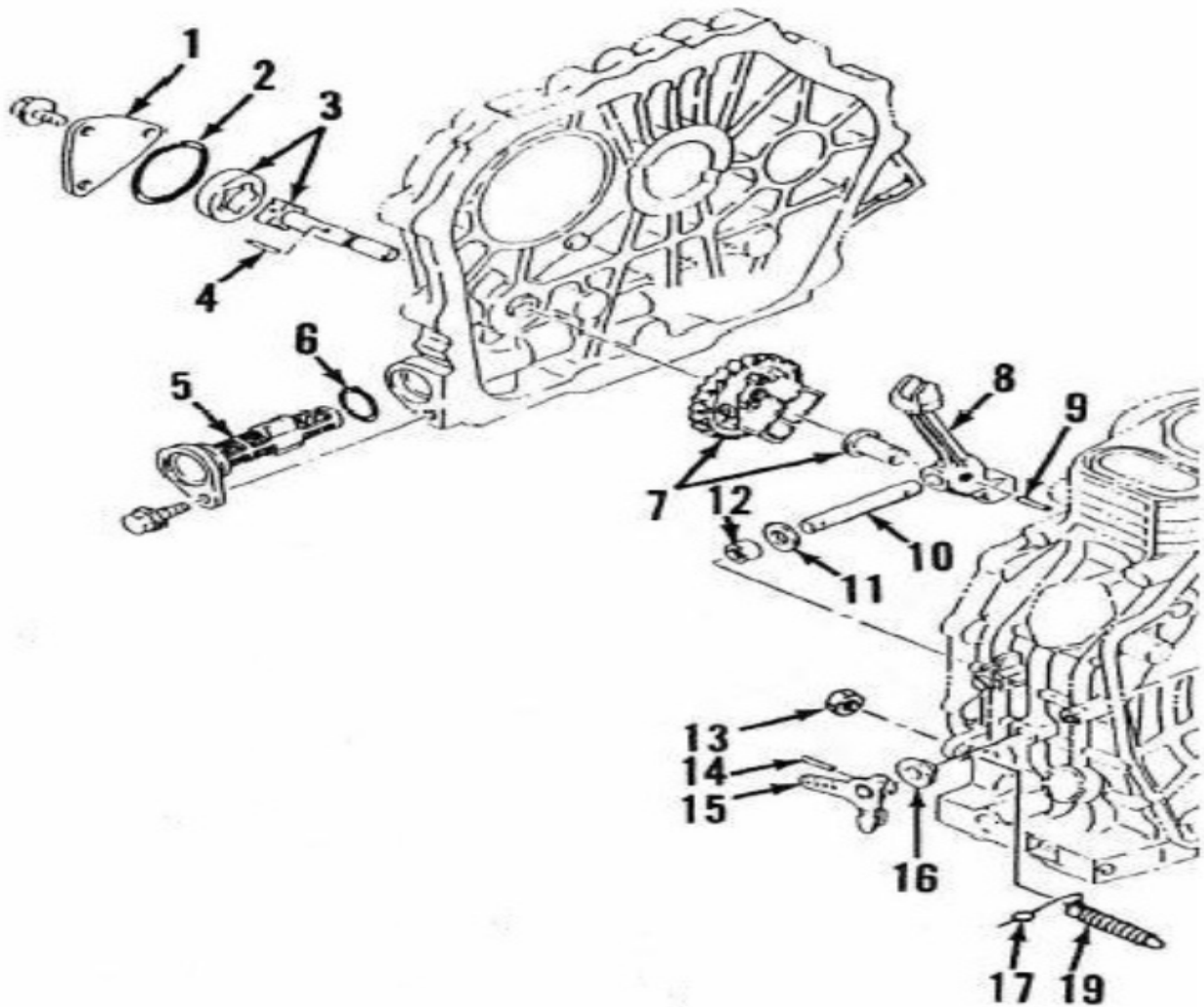
### **Part Name**

1. Crank Case Cover
2. Balancer Shaft Bearing
3. Balancer Shaft
4. Key
5. Balancer Shaft Gear
6. Camshaft Drive Gear
7. Crankshaft
8. Balancer Shaft Drive Gear
9. Flywheel
10. Camshaft
11. Cam Shaft Drive Gear

Some Parts Sold As Assemblies



### 3. Governor Gear Assembly



#### Part Name

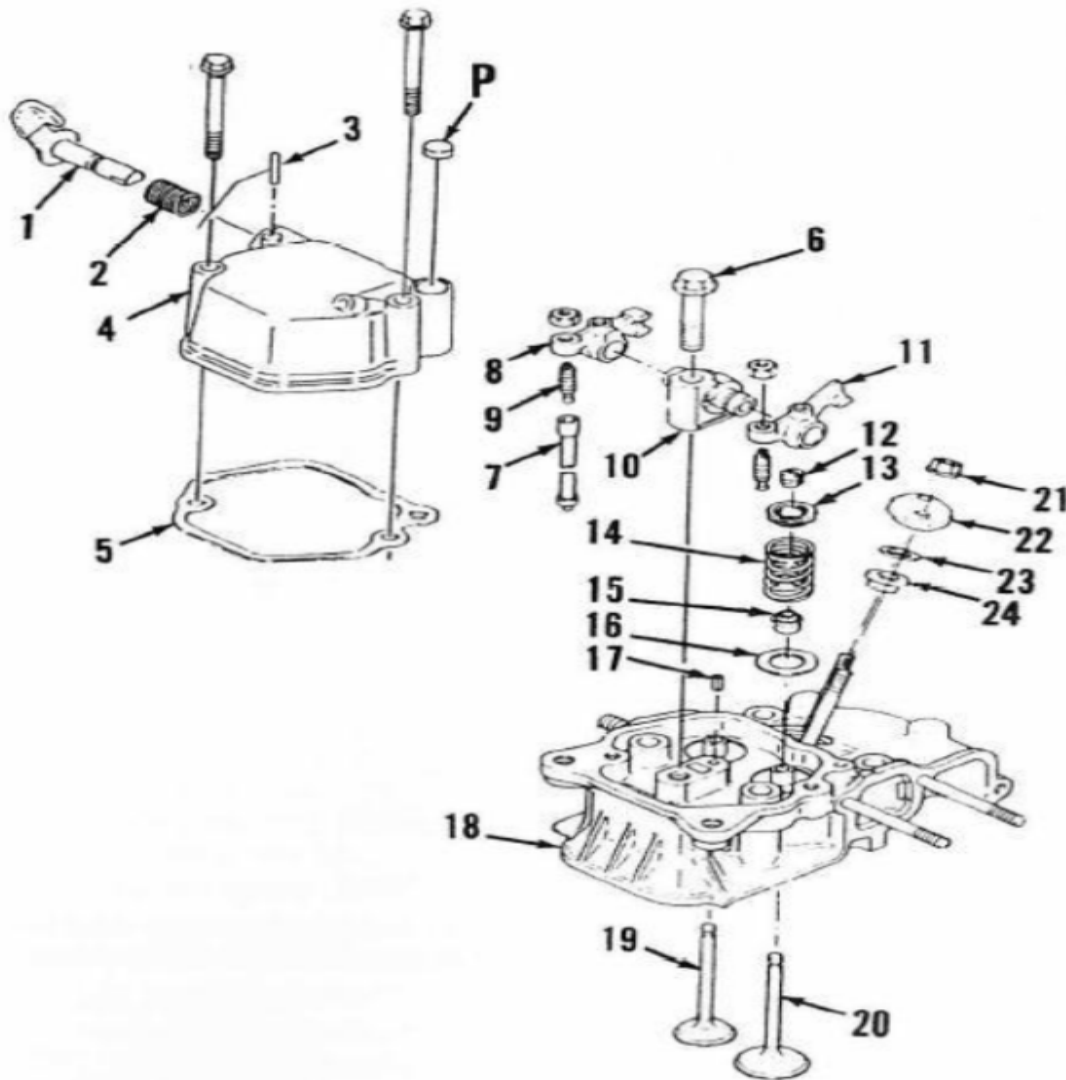
1. Oil Pump
2. Oil Pump O-ring
3. Oil Pump Rotor
4. Oil Pump Drive Pin
5. Oil Filter\Screen
6. O-Ring
7. Governor Assembly
8. Governor Arm
9. Dowel Pin

#### Part Name

10. Governor Arm Shaft
11. Flat Washer
12. Governor Shaft Bearing
13. Lock Nut
14. Dowel Pin
15. Governor Arm
16. Thrust Bearing
17. Seal Wire
19. Governor Stop

Some Parts Sold As Assemblies

## 4. Head Assembly



### Part Name

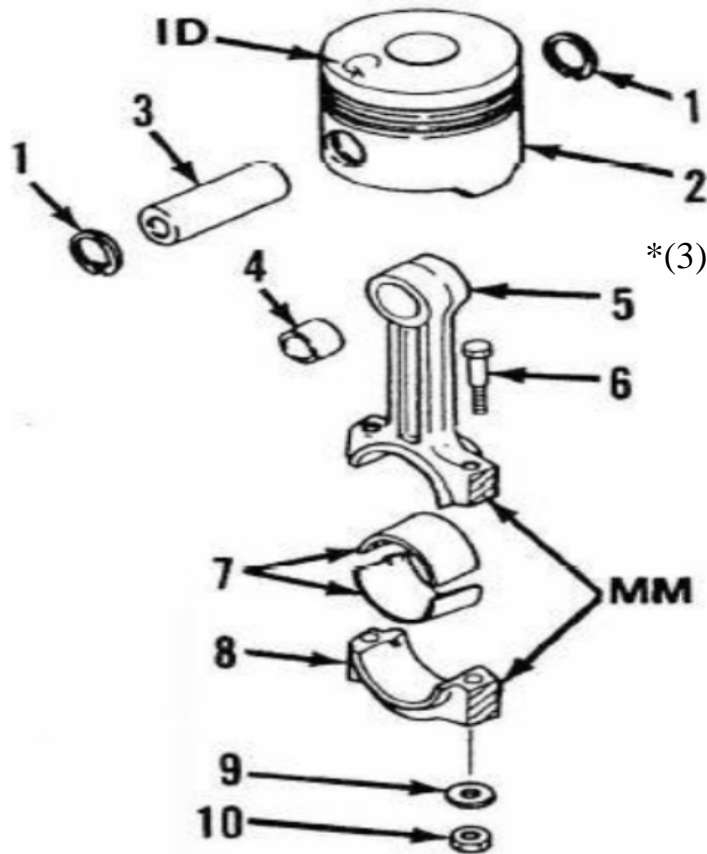
1. Decompression Lever
2. Return Spring
3. Retaining Pin
4. Valve Cover
5. Valve Cover Gasket
6. Rocker Pedestal Bolt
7. Push Rod
8. Exhaust Rocker Arm
9. Adjusting Screw
10. Rocker Arm Pedestal
11. Intake Rocker Arm
12. Split Valve Locks

### Part Name

13. Valve Keepers
14. Valve Spring
15. Valve Guide Seal
16. Spring Seat Washer
17. Pedestal Dowel Pin
18. Cylinder Head
19. Exhaust Valve
20. Intake Valve
21. Injector Clamp Nuts
22. Injector Clamp Plate
23. Injector Spacer
24. Injector Gasket

Some Parts Sold As Assemblies

## 5. Piston Assembly



\*(3) Piston Rings Not Shown

### Part Name

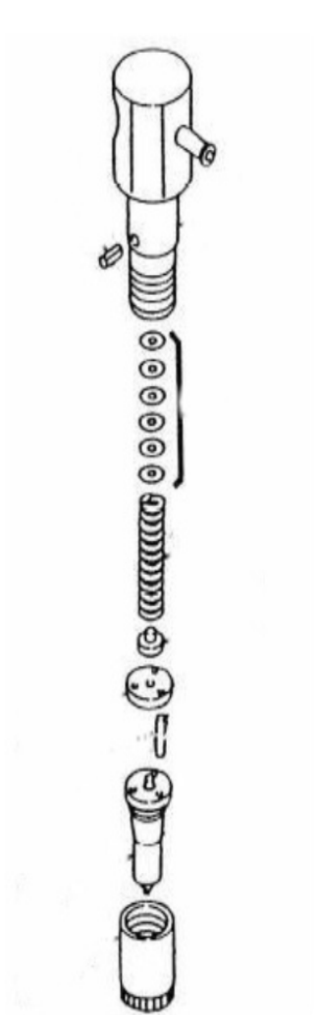
1. Snap Rings
2. Piston
3. Piston Pin
4. Pin Bushin
5. Connecting Rod

### Part Name

6. Rod Cap Bolt
7. Rod Sleeve Bearing
8. Rod Cap
9. Washer
10. Nut

Some Parts Sold As Assemblies

## 6. Fuel Injection System



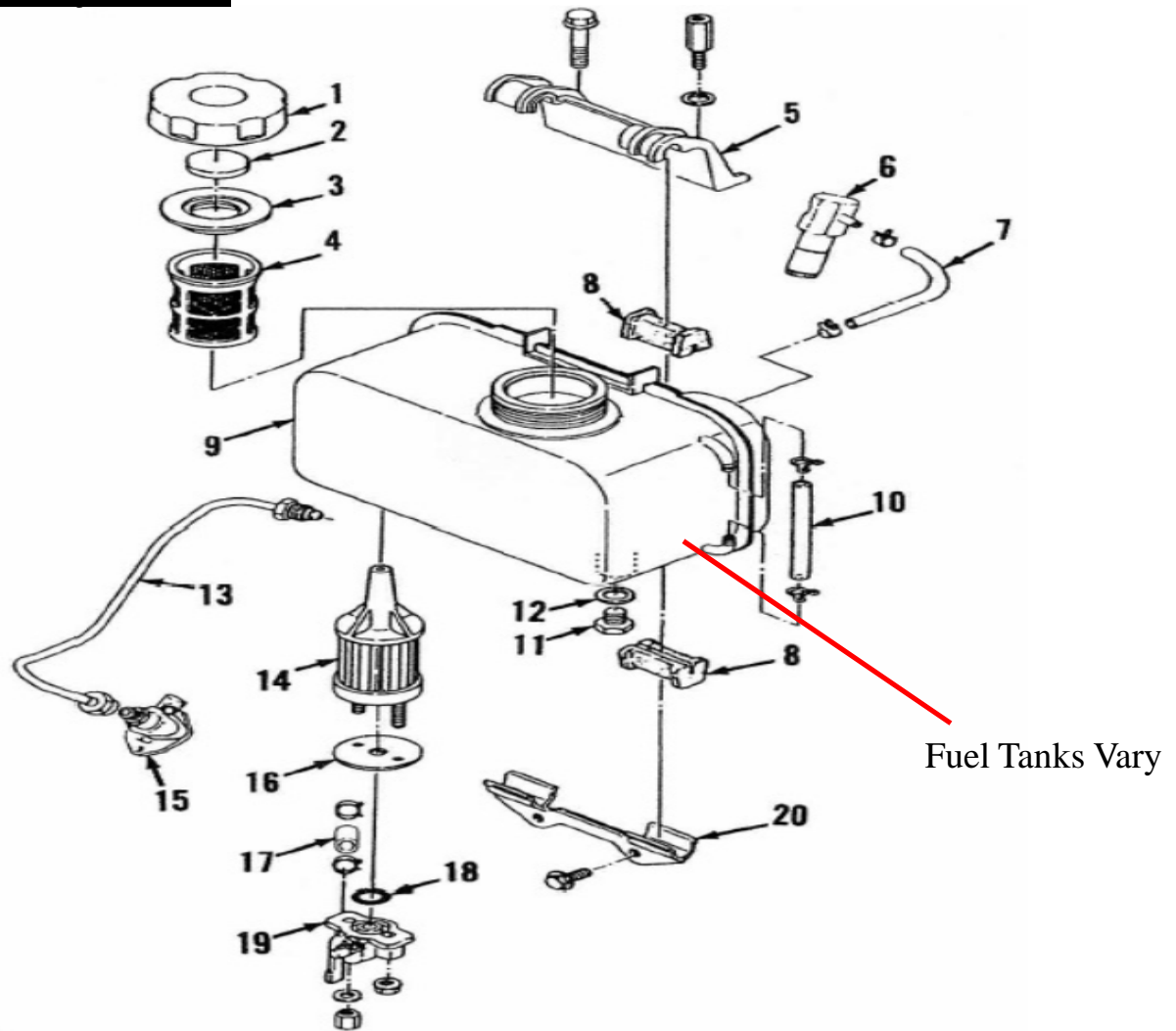
Fuel Injector



Fuel Pump

These Parts Sold As Assemblies

## 7. Fuel System



### Part Name

1. Fuel Cap
2. Fuel Cap Seal
3. Fuel Cap Gasket
4. Filter Screen
5. Mounting Clamp
6. Fuel Injector
7. Fuel Return line
8. Vibration Dampers
9. Fuel Tank
10. Fuel Gauge

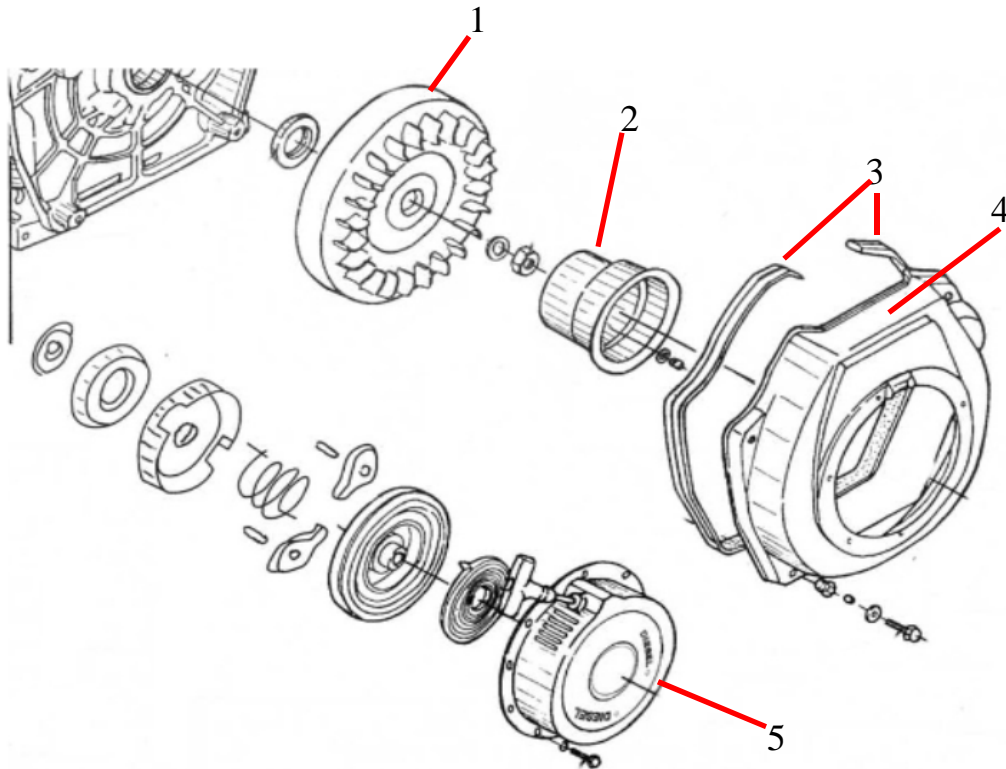
### Part Name

11. Drain Plug
12. Gasket
13. Fuel Injector Line
14. Fuel Filter
15. Fuel Injector Pump
16. Fuel Filter Plate
17. Rubber Fuel Line
18. O-ring
19. Fuel Shut Off Valve
20. Mounting Clamp

Some Parts Sold As Assemblies



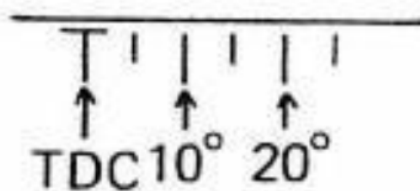
## **8. Starter Assembly**



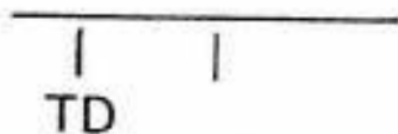
### **Part Name**

1. Fly Wheel
2. Recoil Cup
3. Blower Housing Gaskets
4. Blower Housing
5. Recoil Assembly

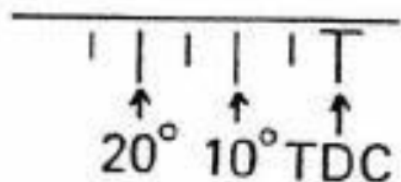
Some Parts Sold As Assemblies



D-Spec.Engine



D-Spec.(01d)

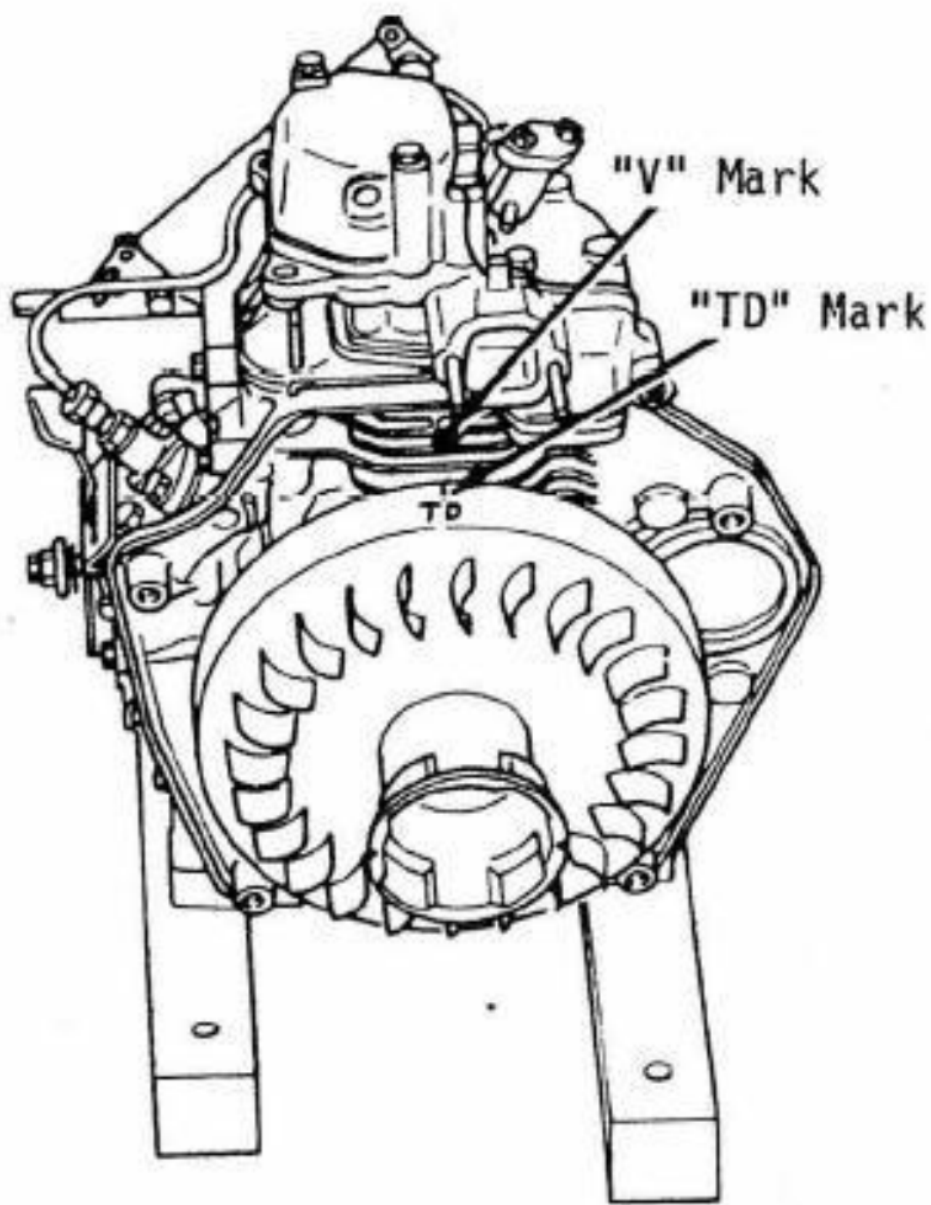


S-Spec.Engine



S-Spec.(01d)

Engine Timing  
Reference Information





| The list of control torque on the Diesel engine assembling line |             |                |       |       |
|---|-------------|----------------|-------|-------|
|   |             | Gap/Torque SAE |       |       |
| Item  | Torque(N.M) | Lower          | Upper |       |
| Valve Rocker Arm Support  | 13-15       | 10             | 11    | lb-ft |
| Flywheel End Nut  | 150-160     | 111            | 118   | lb-ft |
| Crankcase Cover Bolt  | 18-23       | 13             | 17    | lb-ft |
| Cylinder Head Nuts  | 42-46       | 31             | 34    | lb-ft |
| Connecting Rod Bolts  | 28-30       | 21             | 22    | lb-ft |
| FO Pump Stud Bolt (Stud Side)                                   | 30-35       | 22             | 26    | lb-ft |
| FO Nozzle Case Nut  | 40-45       | 30             | 33    | lb-ft |
| FO Injection Nozzle Nuts  | 10-12       | 7              | 9     | lb-ft |
| FO Pump Nuts  | 10-12       | 7              | 9     | lb-ft |
| Standard Bolts and Nuts (M6)                                    | 7-10        | 5              | 7     | lb-ft |
| Standard Bolts and Nuts (M8)                                    | 18-20       | 13             | 15    | lb-ft |



P.O.Box 791, Travelers Rest, S.C. 29690  
 Phone 864-834-7212  
 Service/Replacement Parts 800-845-4141

|  |                                    |                         |
|---|------------------------------------|-------------------------|
| LIQUID COMBUSTION TECHNOLOGY  |                                    |                         |
| Part  | Item/Model                         | HL178FA-A<br>Standard   |
| Engine  | Maximum speed                      | 3720±50rpm              |
|   | Idle speed                         | 1850±150rpm             |
|   | Envelope Size                      | 417mmX470mmX494mm       |
|   | Cylinder compression               | 20:1<br>at 600rpm       |
| Cylinder  | Sleeve                             | 86mm                    |
|   | Stroke                             | 70mm                    |
| Cylinder head   | Warpage                            | -----                   |
| Piston Pin & Rings  | 1st ring side clearance            | .065 - .095mm           |
|   | 2nd Ring side clearance            | .03 - .065mm            |
|   | Oil ring side clearance            | .02 - .055mm            |
|   | Pin O.D                            | 22.991 - 23.000         |
|   | End Gap 1st&2ndOil                 | .10 - .25mm/.15 - .35mm |
| Conn-rod  | Small end I.D.                     | 23.025 - 23.038mm       |
|   | Big end I.D.                       | 40.014 - 40.028mm       |
|   | Big end oil clearance              | .025 - .047mm           |
| Crankshaft  | Pin O.D.                           | 39.965 - 39.982mm       |
|   | Plain Bearing Side - Bearing ID    | 40.009 - 40.078mm       |
|   | Plain Bearing Side - Journal OD    | 40.002 - 40.018mm       |
|   | Plain Bearing Side - Oil Clearance | .027 - .079mm           |
|   | Ball Bearing Side - Bearing ID     | 39.988 - 40.000mm       |
|   | Ball Bearing Side - Journal OD     | 40.007 - 40.018mm       |
|   | Fitting (Tight Fit)                | .007 - .030mm           |
| Valves  |                                    |                         |
|   |                                    |                         |
|   | Stem OD                            |                         |
|   | Intake                             | 5.960 - 5.975mm         |
|   | Exhaust                            | 5.945 - 5.960mm         |
|   | Guide ID                           |                         |
|   | Intake & Exhaust                   | 6.0 - 6.015mm           |
|   | Stem Clearance                     |                         |
|   | Intake & Exhaust                   | 0.012—0.028mm           |
|   |                                    |                         |
|   | Seat width                         | 1.5 - 3.0mm             |
|   | Spring free length                 | 33mm                    |





# TITAN INDUSTRIAL

P.O. Box 791  
Travelers Rest, S.C. 29690  
(800) 845-4141  
[www.titanindustrial.net](http://www.titanindustrial.net)

## Model 6500

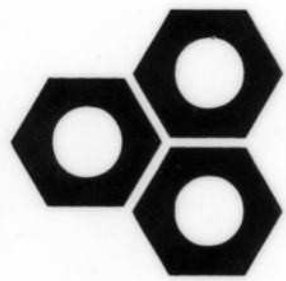


### Specifications:

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- Output 5200watts Continuous-  
6000watts Surge
- 2- L5-20 Receptacles
- 1- L14-20 Receptacle
- Circuit Breaker Protection
- 84 Decibel's @ 10'
- Electric Start\recoil
- 9hp Titan Diesel Engine
- (steel sleeve) Cylinder
- 3.5 Gallon Fuel Tank
- Approx. Run Time 10hrs  
@50% Load
- RPM 3720
- Brushless Generator Head
- Copper Windings
- Single Phase 60Hz.
- Low Oil Shut Down
- Oil Capacity 34-36oz. 15w-40
- Size: L-26" W-19" H-24"
- Net. Weight 230LBS.
- One Year Warranty





# TITAN

I N D U S T R I A L



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