



# **TX Series PTO Generator**

## Operator's Manual

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### Revisions

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## Notes

# Chapter 1 Introduction

## 1.1 Welcome

Congratulations on your choice of a Baumalight TX Series PTO Generator. This equipment has been designed and manufactured to provide a safe, rugged, reliable, and efficient tool that will enable you to provide electrical power to meet all your needs and situations. To be sure that your TX Series PTO Generator provides you with the highest level of safe, trouble-free, and efficient operation, use the TX Series PTO Generator only as specified in this operator's manual. This means that you and anyone else who will be operating or maintaining the TX Series PTO Generator must read and understand this manual.

## 1.2 About This Manual

This manual applies to the Baumalight TX Series PTO Generator and provides information required to install, operate, troubleshoot, and maintain your generator. For more information on Baumalight's responsibilities to you, please refer to ["Warranty" on page 7-1](#).

The specifications of each TX Series PTO Generator may vary according to customer requirements. This means that some of the information in this handbook may not apply to your particular unit. Please be sure that the procedures being followed are in accordance with the specifications of your TX Series PTO Generator.

Baumalight operates under a policy of constant product improvement and therefore reserves the right to update specifications without notice at any time. Every effort is made to ensure the accuracy of this handbook. No liabilities for inaccuracies, or the consequences thereof, can be accepted by the manufacturer or the dealer.

## 1.3 Terms and Abbreviations

Throughout this manual, terms and abbreviations are used; an explanation of each item is provided in the following table.

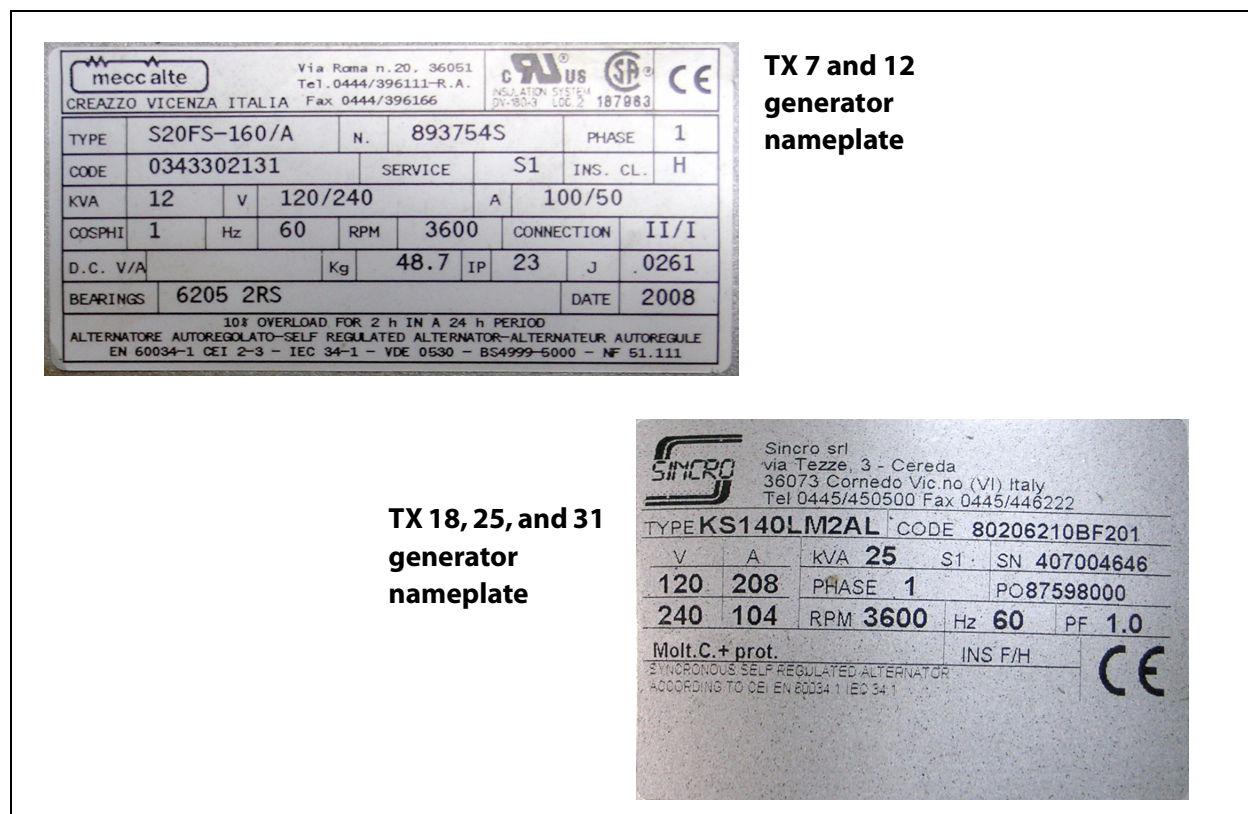
**Table 1-1 Terms and Abbreviations**

<b>PTO</b>	Power Take Off
<b>Generator</b>	TX Series PTO Generator
<b>Agent</b>	The company that sold you the generator and represents Baumalight

## 1.4 Contacting Baumalight

Before contacting Baumalight, have on hand the Serial Number and PTO Model Number, as shown on your generator's nameplate. Be sure to register your generator by completing and returning by fax the Customer Comment Form that is provided in this manual (see "[Customer Comment Form](#)" on page 7-3).

**Figure 1-1: Generator Nameplate**



- Telephone** 519-698-9864
- Toll Free** 866-820-7603
- Fax** 519-698-1087
- e-mail** sales@baumalight.com
- Postal Address** MTB MFG INC.  
4575 Powell Road  
Wallenstein, Ontario, Canada  
N0B 2S0
- Web** www.baumalight.com



## Chapter 2 Safety

### 2.1 General

The PTO Generator is an efficient and powerful piece of equipment. Proper use is essential to prevent injury or death to you or anyone else operating this equipment or is near to it when it is in operation. At all times, be sure to follow the instructions in this manual. If you are unsure how to carry out the tasks explained in this manual, stop immediately and contact your dealer or Baumalight for assistance.

Follow the instructions provided in this manual, as well as any applicable local workplace safety requirements, to ensure your safety and that of anyone else close to the generator while it is in use, and to avoid damaging the equipment.

Do not proceed if you do not understand these instructions. Keep the manuals in a convenient location close to the equipment for reference.

**Note:** Information on how to contact Baumalight is provided in "[Contacting Baumalight](#)" on page 1-2.

### 2.2 Hazard Notices: Danger, Warning, and Caution

Hazard notices appear throughout this manual prior to the step where the hazard could occur. These notices alert you to hazardous situations that can arise in the routine operation and maintenance of the equipment. These hazards are grouped into three categories according to severity: danger (most severe), warning, and caution (least severe). For your safety, obey all of these hazard notices.

---

** DANGER!**

**Indicates an immediately hazardous situation that, if not avoided, will result in death or serious injury.**

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---

** WARNING!**

**Indicates a potentially hazardous situation that, if not avoided, could result in death or serious injury.**

---

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**CAUTION!**

**Indicates a situation that, if not avoided, could result in property damage only.**

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## 2.3 Safety Signs

### 2.3.1 Samples

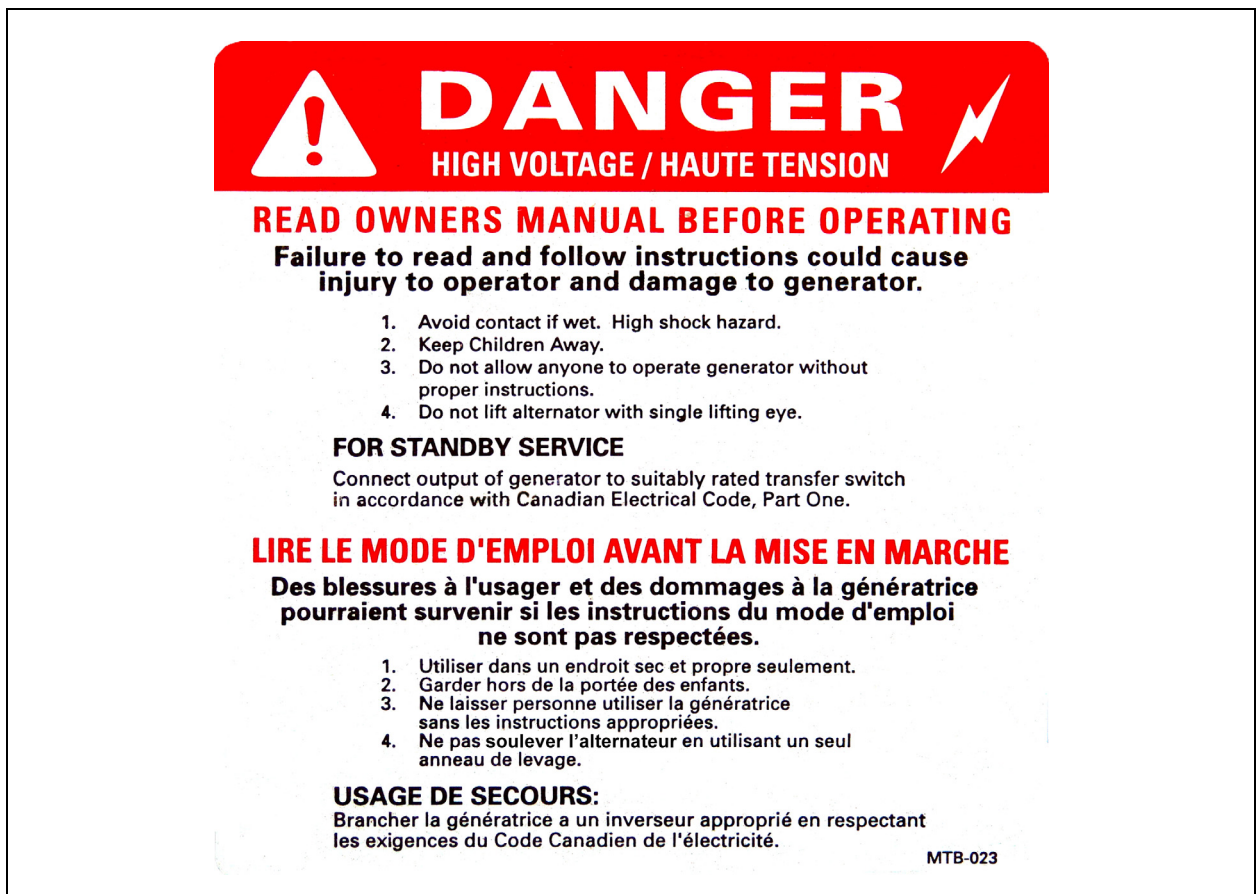
The following illustrations are provided for your reference. These signs are installed on your generator at the factory.

**Figure 2-1: Danger Rotating Driveline**



**Figure 2-2: Warning Power Disconnect**



**Figure 2-3: Warning Shock Hazard****Figure 2-4: Danger High Voltage**

### 2.3.2 Replacing Damaged Safety Signs

It is the responsibility of the owner to be sure all warning labels are clearly displayed. Replace any damaged or illegible safety signs provided with the TX Series PTO Generator as soon as possible. Order replacements from Baumalight, or your Baumalight agent, using the part number displayed on the label.

## 2.4 Machine Hazards

### 2.4.1 Mechanical

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#### **WARNING!**

**Risk of entanglement. The drive shaft that you connect between the tractor PTO and the generator is a moving shaft. Failure to comply with the safety precautions for the rotating driveline can result in serious injury if a part of your body is caught in the rotating parts of the TX Series PTO Generator. Refer to [Figure 2-1 on page 2-2](#).**

---

- Keep clear of the shaft while the generator is in use.
- Be sure to attach the generator-end coupling guard housing provided with the PTO before operating the generator.
- Check that the driveline shield turns freely on the shaft.
- Verify that all other driveline, tractor, and equipment shields are in place.
- Check that the driveline is securely attached at each end.

### 2.4.2 Electrical

The equipment operates at high voltage and amperage. Refer to "[Electrical Schematics](#)" on page 3-8 for details.

- Equipment installation, maintenance, and service involving energized electrical circuits must be performed by qualified persons who have knowledge of the hazards involved. Under no circumstances should you attempt to repair or modify the PTO generator by yourself. Contact Baumalight or your Baumalight agent.
- The Baumalight-supplied connection cables have a non-standard pin configuration. To prevent a shock hazard, use only the Baumalight-supplied cables.
- Avoid contact with the unit when it is wet to prevent electrical shock.
- Whenever possible, place the unit under a suitable cover if there is precipitation while the unit is in service or on standby.

### 2.4.3 Noise

Airborne noise emissions from the equipment are not hazardous under normal operating conditions.

### 2.4.4 Slip, Trip, and Fall

If applicable, designated access positions are marked on the equipment. These positions are provided for safe means of access. Avoid climbing or standing on any part of the equipment not marked for access.

### 2.4.5 Lifting

Use only suitable lifting equipment and the designated lifting points (refer to [Figure 2-5](#)) when lifting the equipment. Do not exceed the rated capacity of the lifting equipment. Only lift the generator using the lifting eye. Failure to comply with these safety requirements can result in the TX Series PTO Generator falling and lead to death or injury to personnel or damage to the generator.

**Figure 2-5: Example of Lifting Points**



## Notes

## Chapter 3 Technical Description

### 3.1 Introduction

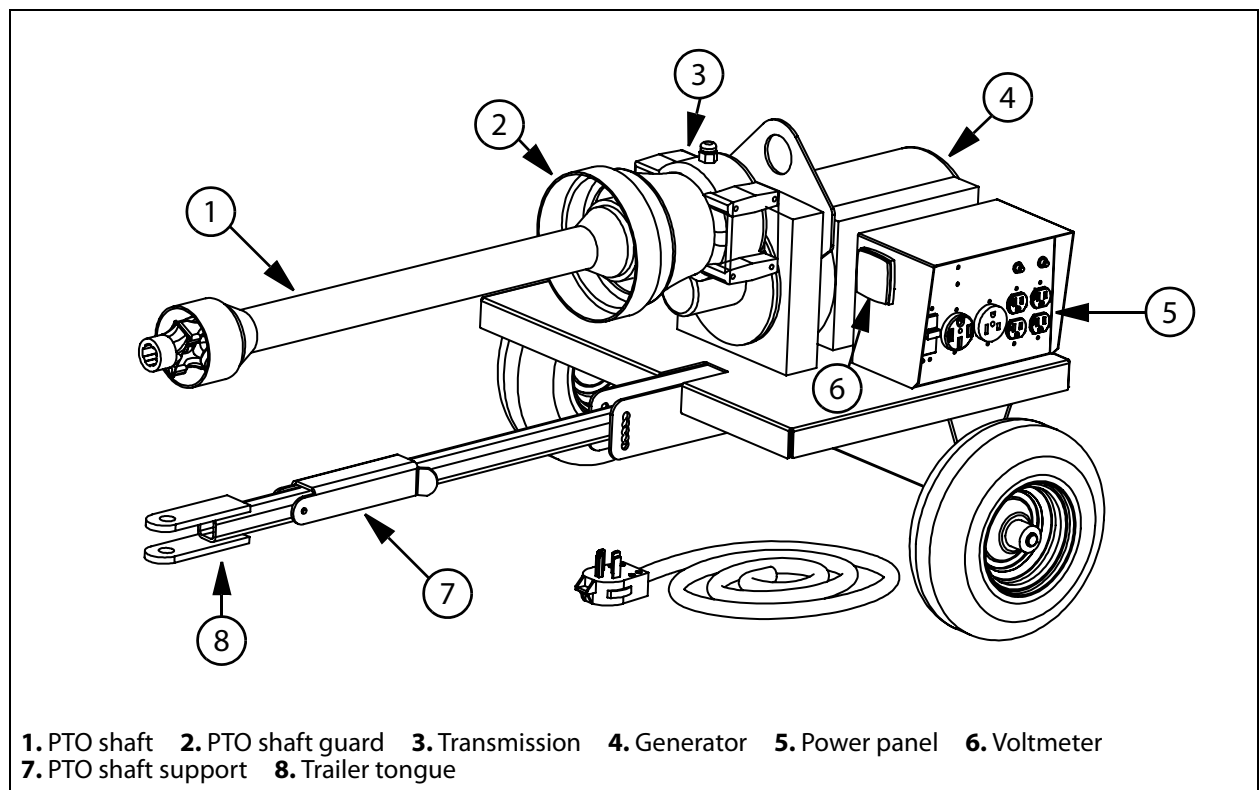
The TX Series PTO Generator is a tractor-powered, trailer-mounted, portable generator intended for small farms and residential estates. This generator features simple connections and controls to provide you with quick and easy access to power when you need it, in all weather and under all conditions.

TX Series PTO Generator models are best matched to tractors in the 10 to 50 hp range and are capable of providing power ranging from 7 to 31 Kilowatts. All TX Series PTO Generators feature double surge power to meet spikes in demand.

### 3.2 Major Components

The TX Series PTO Generator consists of a generator, power panel, and a transmission (gear set) with an input spline on the transmission housing.

**Figure 3-1 — Components of the Typical TX Series PTO Generator**



### 3.2.1 PTO Shaft

The TX Series PTO Generator is supplied with a PTO shaft that can extend to connect the generator to the tractor. Each end of the PTO shaft has a internal spline (female) to connect to the tractor and the generator external splines.

### 3.2.2 PTO Shaft Guard

The shaft extends and has a plastic cover to protect the inner shaft. This is a plastic guard housing, fixed to the transmission housing by four screws, which shields the generator end of the PTO connection. The TX Series PTO Generator ships with the guard housing fixed in place.

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## **WARNING!**

**Risk of entanglement. Make sure the guard housing is properly attached before you connect the PTO shaft to the generator. It is possible for the rotating joint to catch clothing or limbs with a missing or damaged guard, which could result in serious or fatal injuries.**

---

### 3.2.3 Transmission/Gearcase

The transmission, or gearcase, adapts the motion from the PTO shaft for the generator to use.

### 3.2.4 Generator

The generator has a power panel. On the TX series, a VAC meter (refer to "[VAC Meter](#)" on page 3-4 for more information) is provided that faces the operator. Before a load can be applied to the generator, the tractor throttle must be set to 540 RPM with sufficient power to generate 120 VAC under all load conditions.

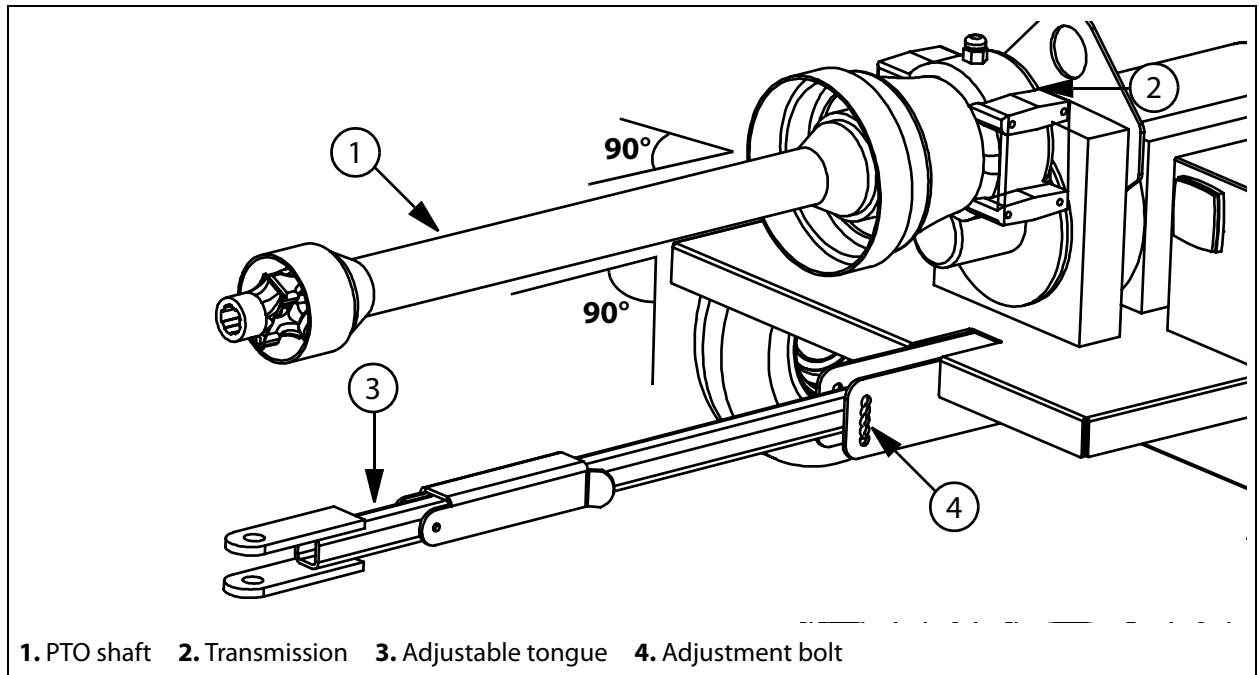
### 3.2.5 Trailer and Adjustable Trailer Tongue

When connecting the generator to the tractor, keep the shaft as level as possible (refer to [Figure 3-2 on page 3-3](#)). Ideally, there should be no bend in the shaft at the point where it fits into the generator transmission.

The trailer on which the unit is mounted has a pivoting bar (tongue) to allow you to set the position of the trailer so that the universal joint at the gearcase end is straight relative to the input shaft (no bend, perpendicular to the transmission housing).

**Note:** A bend in the PTO drive shaft at the tractor end is acceptable.

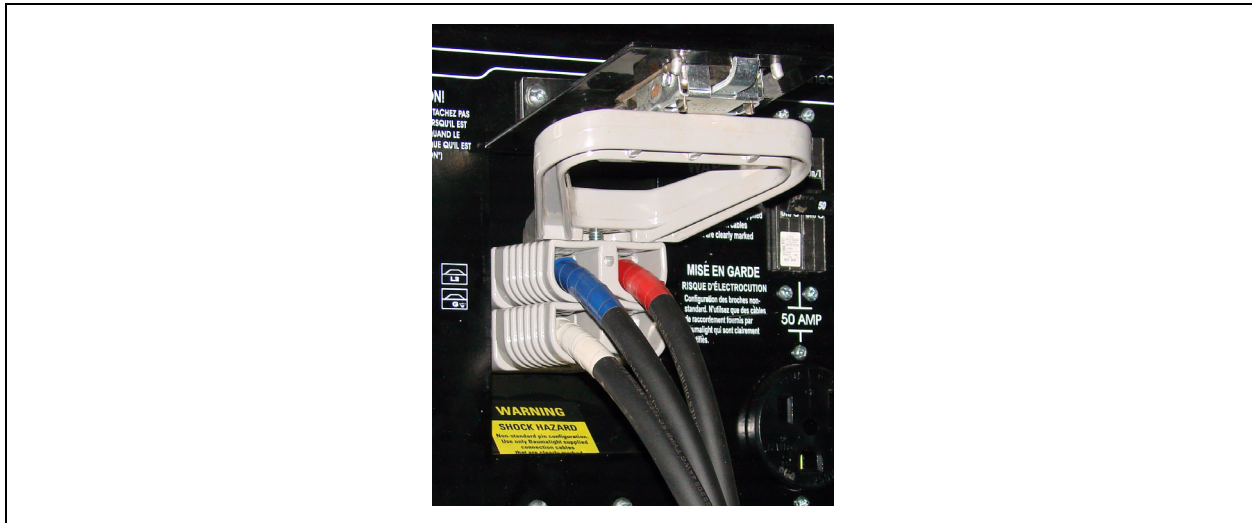


**Figure 3-2 — Correct Positioning of Shaft into Transmission**

### 3.2.6 Transfer Panel Connector

The TX 7 – 12 generators come equipped with a four wire electrical cable and a connector (three pole, four wire, straight-blade angle plug). The TX 18 – 31 generators come equipped with a three wire cable. Have a licensed electrician wire the connector. Connect to the transfer panel with the completed cable assembly.

The TX 18 – 31 generators have a key to lock a cover installed on the power cable connector. This key is supplied with the unit and is attached to the cable.

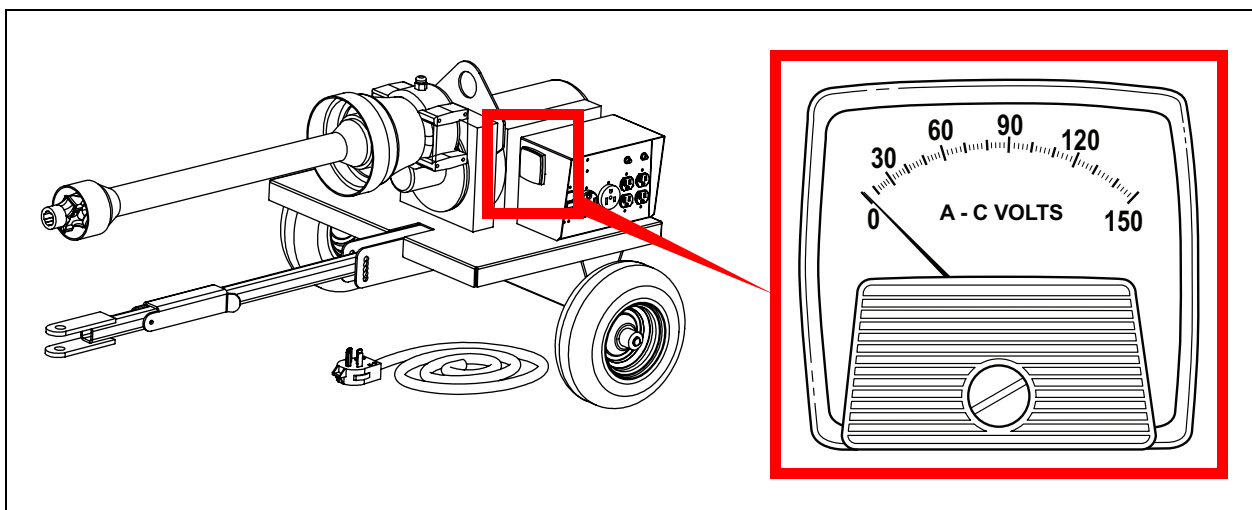
**Figure 3-3 — TX 18 – 31 Transfer Panel Connector (typical)**

### 3.3 Controls and Indicators

The TX Series PTO Generator has a VAC meter and a power panel.

#### 3.3.1 VAC Meter

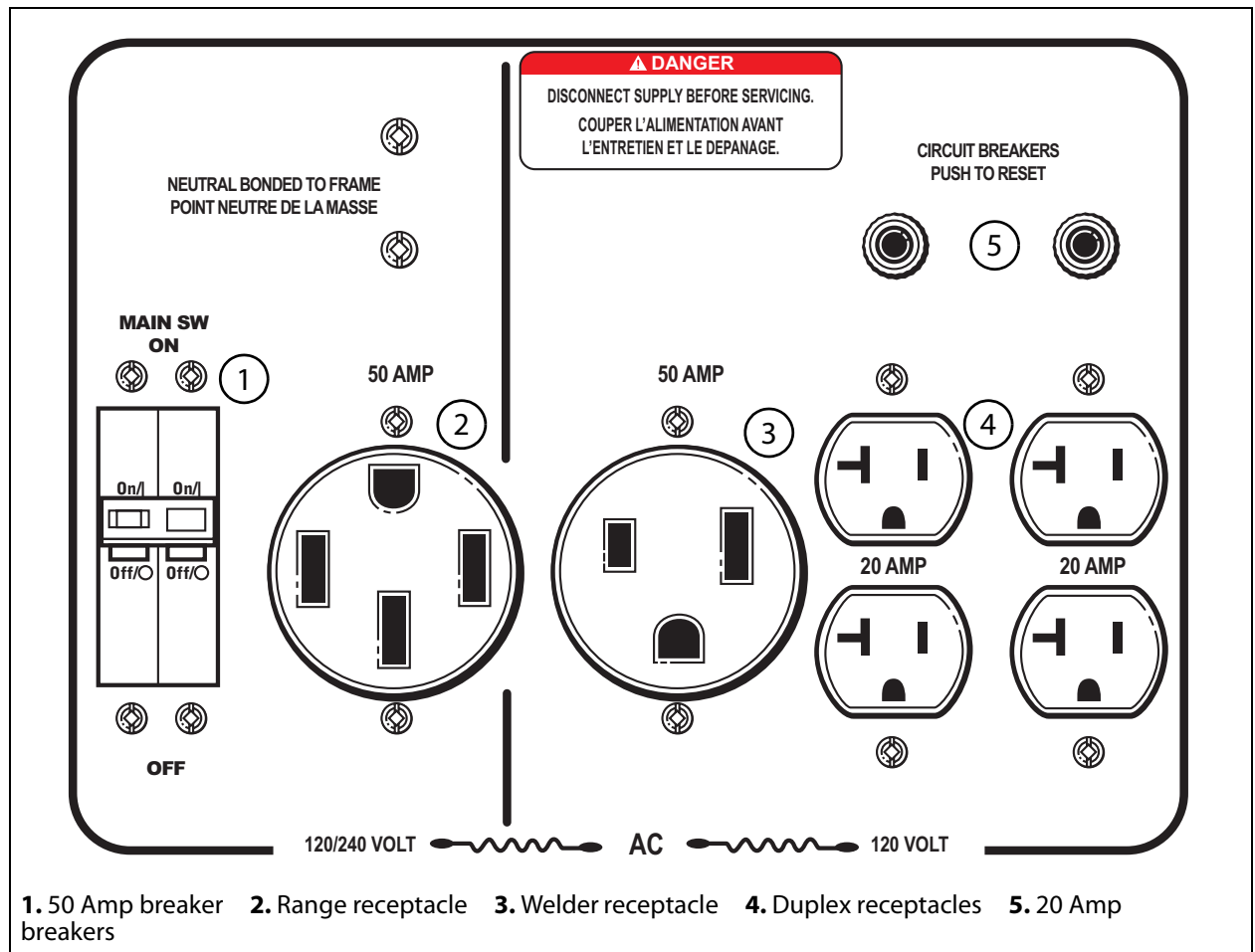
Figure 3-4 shows the VAC meter. Once the generator is running, set the engine throttle of the tractor so that the meter displays 120 VAC at all times and under all loads. This meter is located on the gearbox end of the generator and is in clear view of the operator.

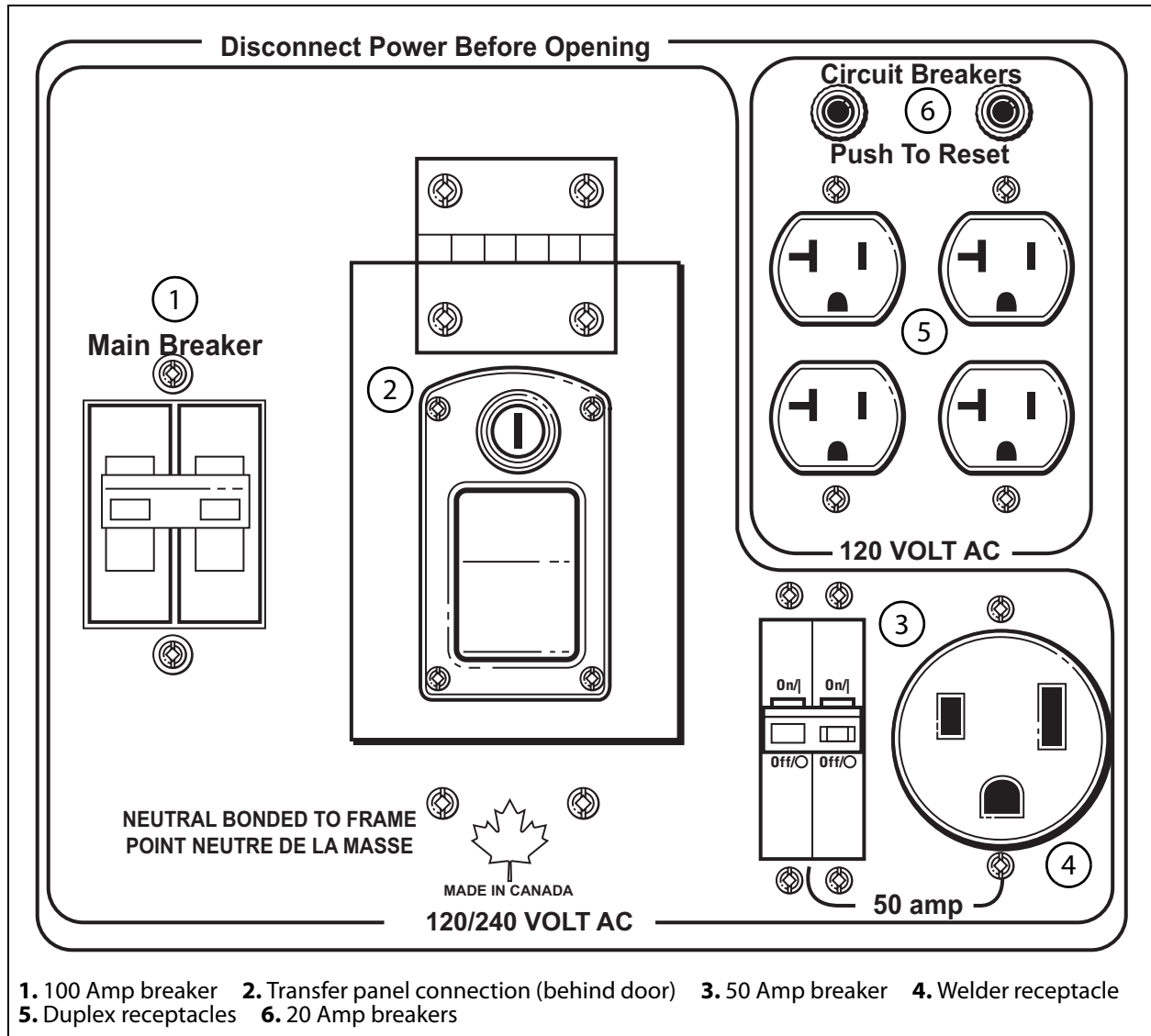
**Figure 3-4 — VAC Meter**

### 3.3.2 Power Panel

The power panel provides the electrical receptacles and circuit breakers needed for power distribution.

**Figure 3-5 — Power Panel (TX7 - TX12)**



**Figure 3-6 — Power Panel (TX18 - TX31s)**

### 3.4 Description of Operation

As the input shaft of the TX Series PTO Generator turns, the rotor inside the generator housing turns inside a stator. As the rotor turns, it cuts lines of magnetic flux that are provided by permanent magnets that are part of the field coil. As the lines of magnetic flux are cut, a current is induced in the armature which becomes the output of the generator.

The generator has a neutral bond ground, meaning that it is grounded to the frame both through its mount on the trailer and through the PTO to the tractor. No external ground to earth is provided and in normal use, this is not required. However, in certain conditions, a ground may be required. Contact Baumalight to determine if an external ground is required.

### 3.5 Technical Specifications

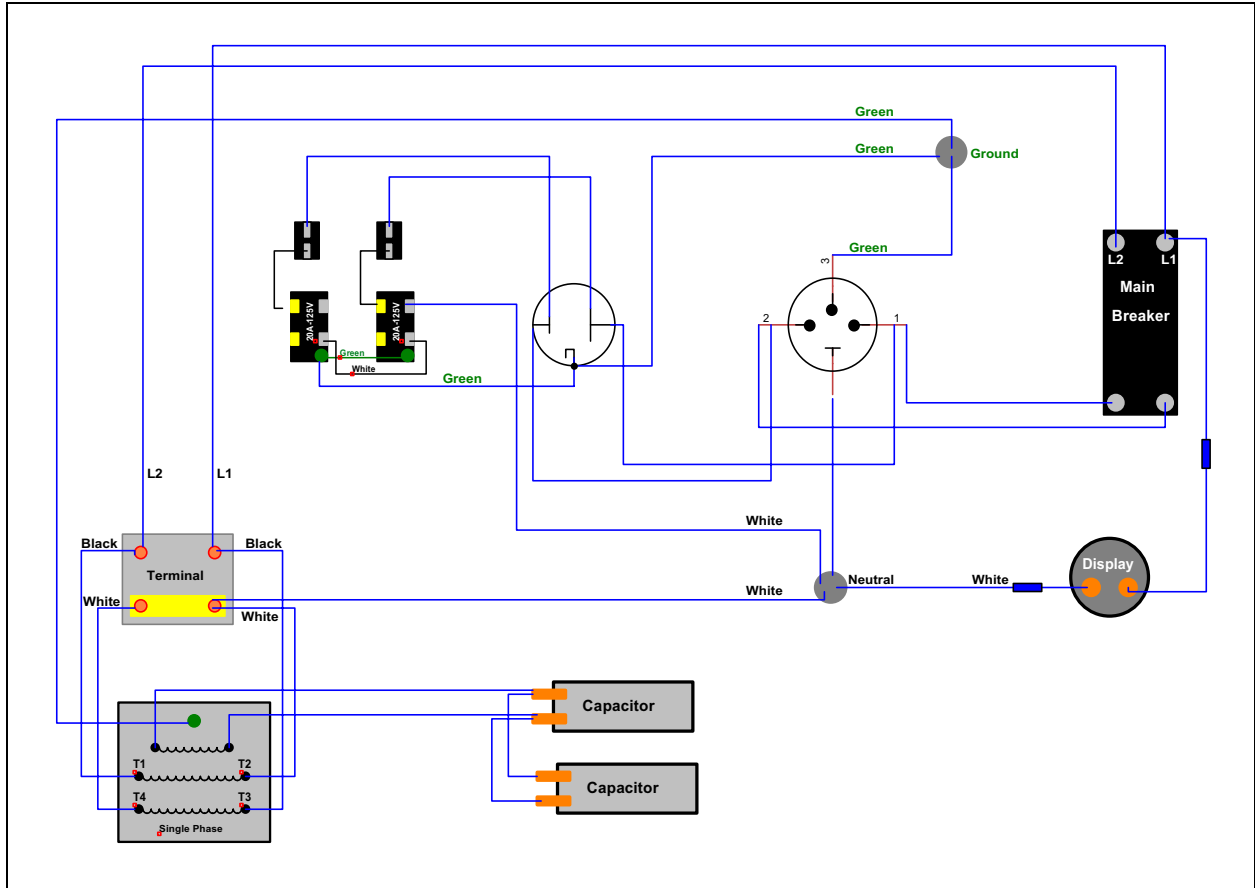
Every TX Series PTO Generator features two 120V/20A duplex receptacle, a welder receptacle with voltage of 240 V, a main voltage of 120/240 into a single phase. The following table provides more detailed technical specifications.

**Table 3-1 — TX Series PTO Generator Specifications**

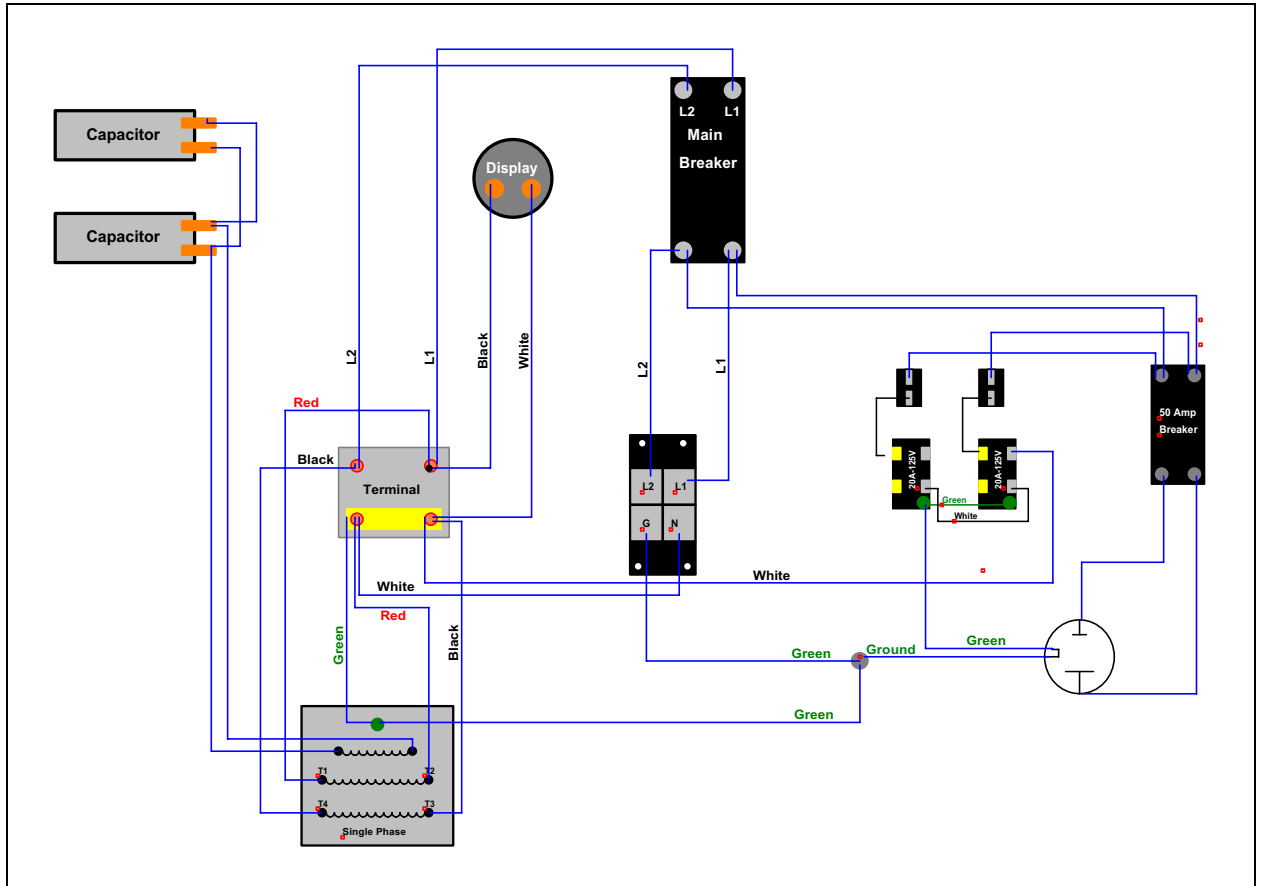
Model	KW Output	Surge KW Output	Required HP		Full Output Amps	Shipping Weight	
			50%	100%		kg	lbs
TX7	7	14	5	11	30	136	300
TX12	12	24	10	21	50	158	348
TX18	18	37	15	34	80	195	430
TX25	25	50	19	42	100	222	490
TX31	31	62	22	50	125	236	520

### 3.6 Electrical Schematics

**Figure 3-7 — TX 7 and TX 12 Electrical Schematic**



**Figure 3-8 — TX 18, TX 25 and TX 31 Electrical Schematic**



## Notes



## Chapter 4 Operating Procedures

### 4.1 Introduction

The operating procedures include the following:

- "Getting the Generator Ready for Use" on page 5-2
- "Towing the Generator to the Job Site" on page 4-1
- "Connecting the Generator to the Tractor" on page 4-2
- "Operating the Generator" on page 4-3
- "Shutting Down the Generator" on page 4-5
- "Storing the Generator" on page 5-3

### 4.2 Towing the Generator to the Job Site

**Tools:** None

**Materials:** None

**Equipment** Tractor and generator on level ground.

**Condition:** Tractor engine off.

All generator switches set to OFF.

Transfer switch set to neutral (or utility), not the generator

Proceed as follows:

1. Connect the trailer tongue to the tractor (refer to [Figure 4-1 on page 4-2](#)). Fasten any safety pins or chains.
2. Connect the PTO shaft to the generator and to insert into the PTO drive on the tractor.

---

**CAUTION!**

**Do not run the PTO drive when towing the generator to a location or generator damage could result.**

---

3. Slide the spline along the generator spline until the detent pin locks in place.

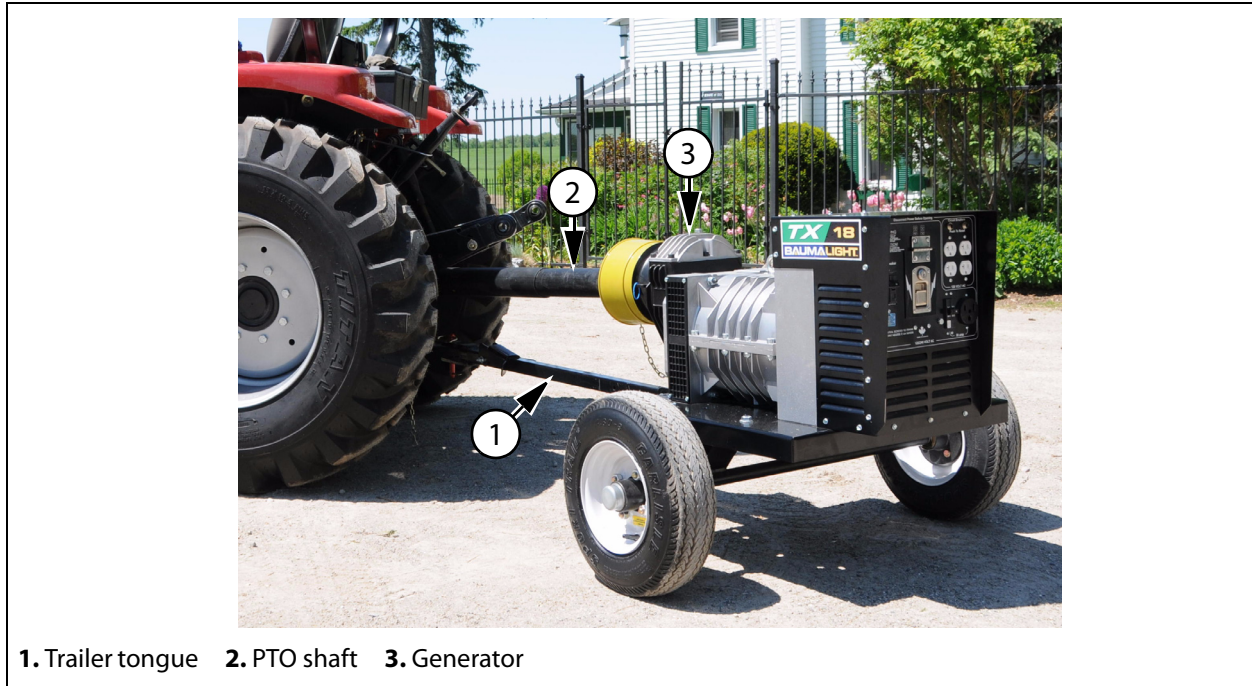
---

**CAUTION!**

**The TX Generator's trailer does not have a suspension. Limit speeds to less than 20 kph (12 mph) to minimize the risk of tip over.**

---

4. Drive the tractor to the required location.

**Figure 4-1 — Towing the generator**

### 4.3 Connecting the Generator to the Tractor

**Tools:** None

**Materials:** None

**Equipment** Tractor and generator on level ground.

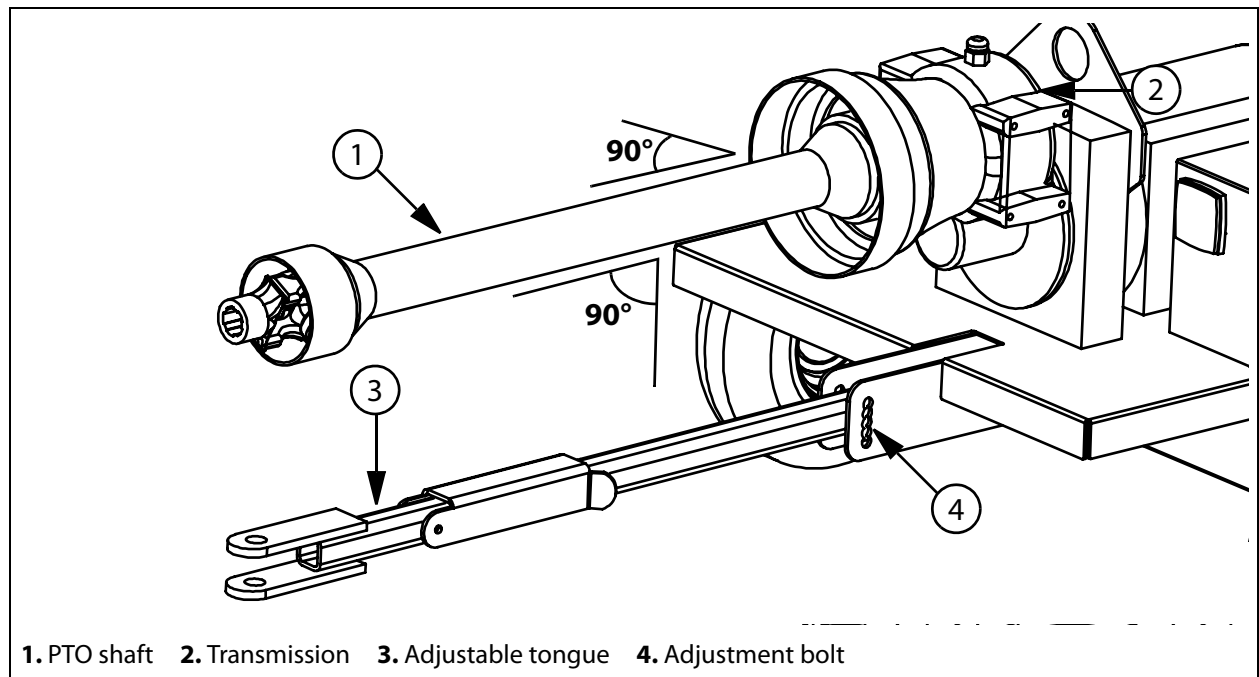
**Condition:** Tractor engine off.

All generator switches set to OFF.

Transfer switch set to neutral (or utility), not the generator

Proceed as follows:

1. If disconnected, connect the trailer tongue to the tractor.
2. Connect the PTO shaft to the generator and rest the shaft on the mount on the tongue.
3. Slide the spline along the generator spline until the detent pin locks in place.
4. Connect the PTO shaft to the tractor. Slide the mount out of the way (right angle down).

**Figure 4-2 — Connecting the generator to the tractor****CAUTION!**

A misaligned PTO shaft can cause excessive vibrations which may lead to transmission damage and potentially void the warranty. Be sure PTO shaft is properly aligned with generator transmission.

5. If necessary, re-adjust the trailer tongue so that the PTO shaft is perpendicular with the generator transmission. The shaft must be straight with no bend in the universal joint on the generator side. A bend is allowable at the tractor's PTO drive end.

#### 4.4 Operating the Generator

**Tools:** None

**Materials:** None

**Equipment** Tractor and generator on level ground

**Condition:** Tractor and generator connected as specified in "[Connecting the Generator to the Tractor](#)" on page 4-2

All generator switches set to OFF

Transfer switch set to neutral (or utility), not the generator

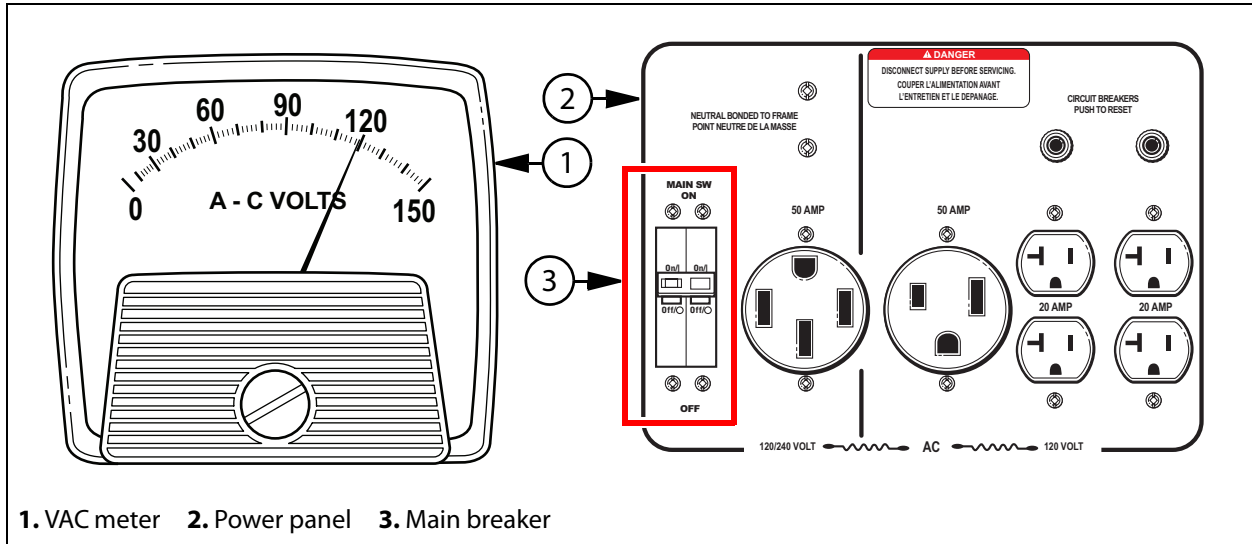
Proceed as follows:

1. Connect the power cable to the generator and to the transfer switch.

2. Start the tractor and allow it to warm up.
3. With the engine idling, engage the PTO drive.
4. Adjust throttle until the VAC meter on the generator displays 120 VAC (refer to Figure 4-3).

**Note:** When applying the load, monitor the VAC meter to maintain the output at 120 VAC.

**Figure 4-3 — VAC meter and power panel**



5. Turn on the main breaker on the generator.
6. Operate the transfer switch so that the load is transferred to the generator.

#### 4.4.1 Monitoring the Load

Plan when to change over to generator power. Ideally, the transfer should take place when the system demand is at its lowest. If a big motor can come on stream, change over to generator power before it does so when the load is lesser.

### CAUTION!

**Risk of generator damage. Avoid running the generator at overload for excessive periods of time. Doing so can damage the generator and void the warranty.**

The generator has sufficient capacity to handle rush current (higher demand) during motor start up, so it is permissible to operate temporarily at overload. However, only allow the generator to do so for short periods of time (less than a minute). Carefully monitor the tractor speed settings when the load changes and adjust the throttle to keep the generator operating at 120 VAC.

## 4.5 Shutting Down the Generator

---

**CAUTION!**

**Follow the shut down sequence to minimize the risk of damage to the generator or associated equipment.**

---

Proceed as follows:

1. Switch off the electrical load or allow it to drop to minimum.
2. If possible, operate the transfer switch to transfer the load back to utility power.
3. Turn generator main breaker off.
4. Drop the tractor speed to idle.
5. Disengage the PTO drive. Allow the PTO shaft to gradually come to a stop.

---

**CAUTION!**

**Avoid braking the PTO drive with the shaft engaged to the generator transmission. Doing so can cause twisting in the PTO shaft and damage the transmission.**

---

6. Shut down tractor.
7. Disconnect the PTO shaft from tractor.
8. Place the mount on the trailer tongue in the upright position to support shaft.
9. Tow unit back to storage.
10. If the generator will not be used again for some time, follow the directions in ["Storing the Generator" on page 5-3.](#)

## Notes

## Chapter 5 Maintenance

### 5.1 Introduction

This section provides the information you will need to maintain your TX Series PTO Generator.

The TX Series PTO Generator is a very rugged, reliable piece of equipment. When used as intended and within its limits, it will require little maintenance other than preparing the equipment for use. The following table lists the recommended maintenance procedures and schedule.

**Table 5-1 — Maintenance Schedule**

<b>Task</b>	<b>Frequency</b>	<b>Notes</b>
Getting the Generator Ready for Use	As needed	On first use and if the generator is dirty
Storing the Generator	As needed	Clean and dry generator before storing
Maintaining the Permanent Magnets	6 months	Run generator under load for an hour
Replacing Gearcase Lubricant	1000 hours	Operating hours or at minimum yearly (whichever comes first)
Severe Service Recommendations	As needed	If in doubt, contact Baumalight or your local dealer

## 5.2 Getting the Generator Ready for Use

Carry out the following procedures the first time you use the generator. After first use, carry out these procedures when the generator is dirty. We recommend that you carry out these procedures after each period of prolonged use of the generator before putting it into storage.

These procedures includes the following tasks:

- [Cleaning](#)
- [Lubricating the Drive Shaft Splines and Universal Joints](#)
- [Inspection](#)

<b>Tools:</b>	Cleaning rags Wheel blocks Tire pressure gauge Wrench to remove fill plug on gearbox Grease gun 1L Measuring cup
<b>Materials:</b>	Cleaning solvent Lithium grease Compressed air supply Synthetic 75-90 weight lubricant
<b>Equipment Condition:</b>	Disconnected from the tractor and wheel blocks in place to prevent movement of the TX Series PTO Generator

### 5.2.1 Cleaning

1. Wipe down the unit using a clean rag and water, or a cleaning solvent.
2. Inspect the air louvers and make sure that they are not obstructed. The generator requires a flow of cooling air. Clean them as necessary.

### 5.2.2 Lubricating the Drive Shaft Splines and Universal Joints

1. With a rag soaked in cleaning solvent, clean the splines on both ends of the connecting drive shaft, on the TX Series PTO Generator drive shaft, and on the tractor.
2. Inspect all splines on the driveshaft, the generator, and the tractor for signs of damage or wear. Repair any damage or wear as soon as possible.
3. Apply a light coat of lithium waterproof grease to the surfaces of the connecting driveshaft splines.
4. Examine the universal joints for signs of wear or damage. Repair or replace any worn or damaged part.
5. Using the grease gun, lubricate each universal joint grease nipple.



### 5.2.3 Inspection

1. Inspect the level of the lubricant in the gearcase. Top up as needed with gear lubricant.

**Note:** There is no sight glass on the TX18-31 gearcase. Drain the lubricant into a measuring cup to check the level.

2. Verify the tire pressure and adjust as necessary. Check the sidewall of the tires for the recommended pressure.
3. Inspect the TX Series PTO Generator to look for damage to the generator. If any damage is found, avoid using the generator and report the damage to your Baumalight representative.
4. Check all fasteners and make sure they are properly tightened. This includes the bolts that attach the generator to the trailer, the bolts that attach the guard to the gearcase, and the bolts that attach the tongue to the trailer.

## 5.3 Storing the Generator

Complete the procedures in "[Getting the Generator Ready for Use](#)" on page 5-2 when storing the generator, then cover the unit to keep it dry. Store the unit in a clean, dry place (heating is optional).

**Note:** If possible, tag the unit with the date of last operation. Inspect periodically and run for at least an hour once every six months. Ensure guard is attached to unit so that it is available for next use.

## 5.4 Maintaining the Permanent Magnets

If the generator is not used for a long time, it is possible that the permanent magnets that provide the magnetic field for excitation of the field coil will lose their magnetism and the generator will not be able to produce electrical power.

To keep the magnets in good working order, you must run the generator under load for at least an hour once every six months.

## 5.5 Replacing Gearcase Lubricant

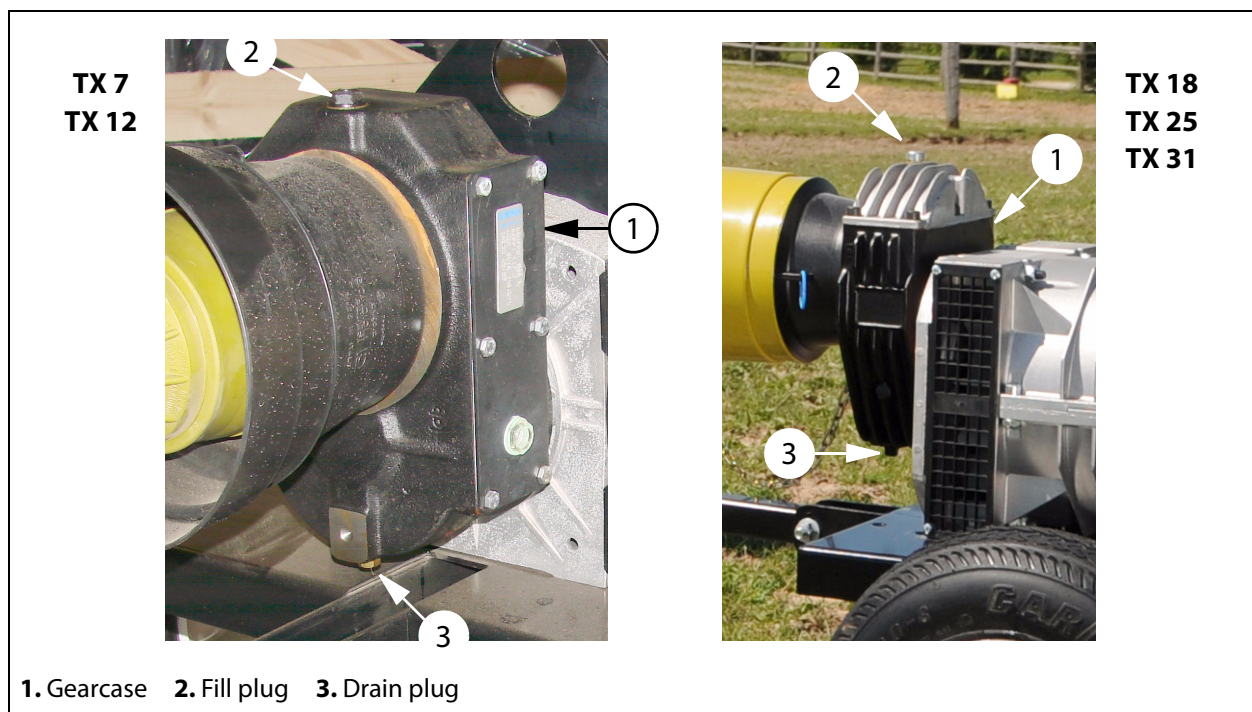
Once a year or after every 1000 hours of operation, you should replace the gearcase lubricant.

**Tools:** Cleaning rags  
Wheel blocks  
Wrench to remove fill plug and drain plug on gearbox  
1L Measuring cup

**Materials:** Cleaning solvent  
Synthetic 75-90 weight lubricant

**Equipment Condition:** Disconnected from the tractor and wheel blocks in place to prevent movement of the TX Series PTO Generator.  
Make sure the equipment is level.

**Figure 5-1 — Replacing Gearcase Lubricant**



### 5.5.1 Draining the Lubricant

1. Wipe down the gearcase using a clean rag and a cleaning solvent.
2. Using a wrench, remove the fill plug at the top of the gearcase, refer to [Figure 5-1](#).
3. Place the measuring cup below the drain plug.
4. Using a wrench, remove the drain plug and allow the lubricant to drain.
5. Using a wrench, replace the drain plug.

### 5.5.2 Replacing the Lubricant

1. Using a synthetic 75-90 weight lubricant fill the gearcase to the proper level.
  - for TX 7 and TX 12 use 400 ml
  - for TX 18, TX 25, and TX 31 use 500 ml
2. Using a wrench, replace the fill plug.

## 5.6 Severe Service Recommendations

Severe service for the TX Series PTO Generator includes the following:

- More than 100 hours of continuous use in a month
- Use outdoors for extended periods in extreme weather (high heat, cold, or wet weather)

If the TX Series PTO Generator is subject to severe service, Baumalight recommends thoroughly cleaning and inspecting the TX Series PTO Generator. If you suspect that there is damage, have the TX Series PTO Generator inspected by your Baumalight representative.

## 5.7 Electrical Tests

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### **CAUTION!**

**Risk of generator damage. Only certified electricians should perform the following procedures.**

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### 5.7.1 Continuity and Resistance Test

The generator has four components that can be checked using an ohmmeter:

- the exciter stator
- the exciter rotor
- the main stator
- the main rotor

Each of these components is composed of various windings forming a complete electrical path of relatively low resistance. Using an ohmmeter, measure the loop resistance of each component. Contact Baumalight for specific values for your machine.

**Note:** Very small resistance values require precision equipment to make accurate measurements; however, a standard ohmmeter will provide a good indication of winding continuity.

### 5.7.2 Diode Testing

**Note:** Make sure to disconnect the engine before performing this procedure.

1. Remove the two main rotor leads and the three-exciter rotor leads from the rectifier assembly. The rectifier assembly is now electrically isolated from the generator. The diodes remain mounted and the diode leads remain connected to the terminal posts.
2. Using an ohmmeter or a battery light continuity tester, place one test probe on the diode lead terminal post.
3. In succession, touch the other test probe to the lead screw hole in each heat sink.
4. Reverse the probes and repeat the procedure.

You have now tested the three diodes connected to this terminal post in both the forward and reverse direction.

5. Repeat the procedure using the other diode terminal post.

When the positive test probe is connected to the diode's anode and the negative test probe is connected to the diode's cathode (forward biased), the diode will switch on and conduct electricity. This is observed by a low resistance reading when using an ohmmeter or the lighting of the bulb when using a battery light continuity tester. Reversing the test leads (reverse biased) will result in the diode switching off and no electricity will be conducted.

The results of these tests should indicate one of three conditions:

**Good diode:** Will have a much greater resistance in one direction than the other. Typical reverse biased resistance will be less than 10 ohms. The battery light tester will have the light "on" in one direction and "off" in the other.

**Shorted condition:** Ohmmeter reading will be zero, or very low in both directions. The continuity tester will have light "on" in both directions.

**Open condition:** Ohmmeter will have a maximum (infinity) reading in both directions. Continuity tester light will be off in both directions.

Diode failure after a 25-hour "run-in" period is generally traceable to external causes such as a lightning strike, reverse current, line voltage spikes, and the like. All 6 diodes are essentially in the same circuit.

Since determining the remaining life on the diodes when one fails is difficult, replace the entire rectifier assembly, rather than individual diodes, to avoid possible continued failure.

## Chapter 6 Troubleshooting

### 6.1 Introduction

The TX Series PTO Generator is a rugged and reliable unit that should provide you with years of trouble free service. However, it is possible that faults may occur and the information in this chapter is provided to help you diagnose any faults and restore your generator to service. If you cannot fix the problem using the information in this chapter, contact your Baumalight agent or Baumalight.

A systematic approach is best when trying to locate and correct generator malfunctions. This troubleshooting chapter is arranged according to the symptoms of the problem. The steps are organized to place the easy checks first and prevent further damage when troubleshooting a disabled machine.

**Note:** Replacement parts can be ordered through an authorized service center or directly from Baumalight.

1. First, gather as much information as possible from operating personnel and individuals present during unit failure. Typical information should include:
  - how long the unit had been operating?
  - what loads were on the line?
  - what were the weather conditions?
  - was there a failure of any protective equipment?
2. Second, collect information on the operating condition of the generator's prime mover (such as the tractor):
  - has the prime mover been maintaining constant speed?
  - if not, have there been extended periods of under speed operation?
  - has the prime mover experienced an over-speed condition?
  - if yes, what was the maximum speed, and how long did the unit operate at that elevated speed?

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### **CAUTION!**

**It is important to maintain the generator speed at the rated nameplate value during all operating tests. Failure to do so can result in equipment damage.**

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**⚠ WARNING!**

**Risk of electrocution. High voltages are present at the generator's terminals when the unit is running. Additionally, accessory equipment such as space heaters can be energized from an outside power source when the unit is at rest. Be sure to disconnect all sources of power before working on equipment.**

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**⚠ WARNING!**

**Risk of pinching/crushing. Keep tools, equipment, clothing and your body clear of rotating parts. Failure to do so can result in injury.**

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**⚠ WARNING!**

**Risk of injury or death. Exercise extreme care when troubleshooting procedures require operating the equipment with protective covers and safety devices removed or disabled. Allow only qualified personnel to work on equipment. Keep unnecessary personnel away from equipment.**

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## 6.2 Before troubleshooting

Before troubleshooting, perform a visual inspection of the equipment.

1. Remove covers and look for any obvious problems such as burnt windings, loose connections, broken wires, frayed insulation, cracked brackets, missing hardware, and other conditions that make the generator unserviceable.
2. Check for foreign objects that may have been drawn into the generator.
3. Verify that the generator's air gaps (main rotor and exciter) are free from obstructions.
4. If possible, rotate the generator manually to ensure free rotation.

### 6.3 Troubleshooting Chart

The troubleshooting procedures should only be used by someone trained in the maintenance and servicing of PTO generators. Familiarize yourself with the material contained in this manual before attempting any servicing. If in doubt, contact your nearest Baumalight representative.

**Table 6-1 Troubleshooting**

Problem	Possible Cause	Solution
High vibration or shaking while running unit	Misaligned PTO shaft - either vertically or horizontally	Correctly align PTO shaft horizontally and vertically. Refer to " <a href="#">Connecting the Generator to the Tractor</a> " on page 4-2.
VAC meter not showing any voltage	Tripped fuses	<ol style="list-style-type: none"> <li>1. Disconnect main switch.</li> <li>2. Wait one minute for self-resetting fuses.</li> <li>3. Restart.</li> <li>4. Connect load once display shows correct speed.</li> </ol>
Generator produces no voltage	VAC meter not showing any voltage	Check voltage with a separate meter at the generator terminals.
	Under speed operation	Check speed using a tachometer or frequency meter.
	Defective connections	Verify generator connections (see drawings supplied with the generator or lead connection diagrams in this manual). Inspect all wiring for loose connections, open circuits, grounds, and short circuits.
	Loss of residual magnetism	Restore residual magnetism. Consult your Baumalight representative.
	Defective diodes, suppressor or windings	Test the generator using the 12 volt battery test or windings as specified in the testing section. If the results indicate generator problems, perform insulation, continuity, and diode tests as specified in " <a href="#">Electrical Tests</a> " on page 5-5.
	Faulty capacitor	Check and replace.

**Table 6-1 Troubleshooting (Continued)**

Problem	Possible Cause	Solution
Generator produces low voltage with no load	Under speed operation	Check speed using a tachometer or frequency meter.
	VAC meter not showing any voltage	Check voltage with a separate meter at the generator terminals.
	Incorrect or defective connections	Verify generator connections (see drawings supplied with the generator or lead connection diagrams in this manual). Inspect all wiring for loose connections, open circuits, grounds, and short circuits.
	Incorrect capacitor rating	Check and replace.
	Defective diodes, suppressor or windings	Test the generator using the 12 volt battery test as specified in the test section. If the results indicate generator problems, perform insulation, continuity, and diode tests as specified in <a href="#">"Electrical Tests" on page 5-5.</a>
Generator produces too high voltage no load	Excessive motor speed	Regulate the motor speed
	Incorrect capacitor rating	Check and replace
Generator produces fluctuating voltage	Fluctuating engine speed	Check engine governor systems for malfunction. Check load for fluctuation.
	Uneven rotation	Check for uniform rotation speed.
	Defective rectifier assembly	Check assembly for loose connections. Test the diodes.
	Loose terminal or load connections	Improve connections both mechanically and electrically



**Table 6-1 Troubleshooting (Continued)**

Problem	Possible Cause	Solution
Generator produces low voltage when load applied	Excessive load	Reduce load. The load on each leg should be evenly balanced, and rated current should not be exceeded on any leg.
	Large motor starting or low load power factor.	Motor starting currents are too large for the generator when starting multiple motors. Sequence the motors and start the largest motor first. Reduce lagging power factor load.
	Line drop	If voltage is proper at generator terminals but low at the terminals, increase external wire size.
	The engine speed slows down	Check engine governor systems for malfunction.
	Defective diodes, suppressor or windings	Test the generator using the 12 volt battery test as specified in the test section. If the results indicate generator problems. See continuity, and diode tests as specified in <a href="#">"Electrical Tests" on page 5-5.</a>
Generator produces high voltage when load applied	Faulty metering	Check voltage with a separate meter at Anderson connectors.
	Incorrect connections	Verify generator connections. Refer to drawings supplied with the generator or connection diagrams in <a href="#">"Electrical Schematics" on page 3-8</a>
	Leading power factor	Check power factor of the load. If power factor is leading, change load configuration. Excessive leading power factor (capacitors) can cause voltage to climb out of control.

**Table 6-1 Troubleshooting (Continued)**

<b>Problem</b>	<b>Possible Cause</b>	<b>Solution</b>
Generator is overheating	Generator is overloaded	Reduce load. Check with amps on display and compare with nameplate rating.
	Clogged ventilation screens	Clean air passages
	High room temperature	Improve ventilation or reduce load or altitude
	Insufficient circulation of cooling air	Generator location and enclosure design must provide adequate air flow and minimize recalculation
	Unbalanced load	The load on each leg should be as evenly balanced as possible and should not exceed rated current on any one leg
Equipment runs normally on utility power, but will not run on generator set	Distorted voltage waveform	Analyze load. Excessive SVR (thyristor) loading will cause distortion. Some equipment may be sensitive to distorted waveforms. Contact Baumalight.
	Improper generator voltage	<ol style="list-style-type: none"><li>1. Check nameplates of devices comprising the load.</li><li>2. Compare required or frequency voltage and frequency with that of the generator.</li><li>3. Adjust driver speed and/or generator voltage as necessary to match generator output to load requirements.</li></ol>
Generator produces mechanical noise	Defective bearing	Replace bearing
	Loose or misaligned coupling	Tighten, realign, or replace coupling

## Chapter 7 Warranty

### 7.1 Conditions

This product is warranted to be free of defects in materials and workmanship under normal use and service, for a period of one year from the date of purchase, when operated and maintained in accordance with the instructions supplied with this unit. This warranty does not cover misuse or negligence.

#### 7.1.1 Exclusions

Under no circumstances will the manufacturer be liable for any consequential damage or expense of any kind, including loss of profits. The manufacturer is under no circumstances liable for tractor damage of any kind. The manufacturer is not liable for the maintenance of the product.

#### 7.1.2 Terms

This warranty is extended only to the original purchaser. Warranty is void if repairs are attempted by anyone other than an Authorized Service Centre.

If a difficulty develops with the product, you should contact your nearest Authorized Service Centre or distributor. Only these locations are authorized to make repairs to the product or affect the replacement of defective parts, which will be done at no charge within a reasonable time after the receipt of the product.

#### 7.1.3 Return of Parts

Unit or parts should be returned at the customer's expense to the nearest repair location or Authorized Service Centre. Damage in-transit is not covered by warranty. Include original purchase receipt with any claim (keeping a copy for your files).

#### 7.1.4 Responsibilities

The distributor's liability under warranty is limited to repair of the product and/or replacement of parts and is given to the purchaser in lieu of all other remedies including incidental and consequential charges.

There are no warranties, expressed or implied other than those specified herein. For the nearest Authorized Service Centre, contact Baumalight.

#### 7.1.5 Customer Responsibility

The warranty is void if your TX Series PTO Generator is not registered. You can register your TX Series PTO Generator by completing the "[Customer Comment Form](#)" on page 7-3.

## Notes

## 7.2 Customer Comment Form

Use the following Customer Comment form to register your TX Series PTO Generator and to provide feedback to Baumalight by mail.



### Customer Comment Form

Baumalight Manufacturing Inc.  
4575 Powell Road  
Wallenstein, Ontario  
Canada  
N0B 2S0  
Phone: 519-698-9864  
Toll Free: 866-820-7603  
Fax: 519-698-1087  
[www.baumalight.com](http://www.baumalight.com)

Date:

Customer Name:   
Address:   
State/Province:   
Zip/Postal Code:

Model:   
Serial Number:   
Purchased from:   
Purchase date:

### Comments

Paint job:   
Welds:   
Overall workmanship:   
This manual:

You can also provide feedback online at this website: [www.baumalight.com](http://www.baumalight.com)





