



M165951C

Item Number:	165951
Serial Number:	

OWNER'S MANUAL

7800 PTOG: 7800 Watt Power Take-Off Generator



⚠ WARNING

Read this manual.

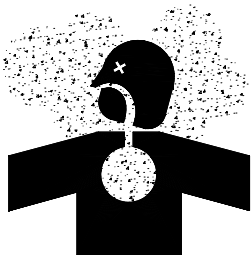
Serious injury or death can result if safety instructions are not followed.



⚠ DANGER

Fire hazard.

Do not operate in an enclosure or building. Fire or explosion will result. Never place this product near combustible materials.



⚠ DANGER

POISONOUS GAS

The tractor used to power this product gives off carbon monoxide, a poisonous gas that can kill you.

ONLY use outdoors and away from air intakes.

NEVER use inside homes, garages, or sheds. EVEN IF you run a fan or open doors and windows. See product manual for more details.

fig01600

Any Questions, Comments, Problems or Parts Orders

Call NorthStar Product Support 1-800-270-0810

Hazard Signal Word Definitions






	<p>This is the safety alert symbol. It is used to alert you to potential personal injury hazards. Obey all safety messages that follow this symbol to avoid possible injury or death.</p>
	<p>DANGER (red) indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury.</p>
	<p>WARNING (orange) indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.</p>
	<p>CAUTION (yellow) indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury.</p>
	<p>CAUTION (yellow) used without the safety alert symbol indicates a potentially hazardous situation which, if not avoided, may result in property damage.</p>

fig01453

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Important Safety Rules

TRAINING AND INSTALLATION

▲WARNING:

1. Read the Operator's Manual completely before attempting to use the generator. Serious injury or death can result if safety instructions are not followed.
2. Do not allow anyone to operate the generator who has not read the Operator's Manual or has not been instructed on the safe use of the generator.
3. Never allow anyone under 16 years old or untrained adults operate the generator. Children 16 years and older must be trained and supervised by a trained adult.
4. Read and follow all safety rules in the tractor's Operator's Manual.
5. Never operate in an enclosure or building. Fire or explosion will result.
6. Keep a fire extinguisher close by your generator and be familiar with how to use it. Consult your local fire department for correct extinguisher type.
7. Always keep the generator and the area around the generator clean.
8. Never mount to a trailer that is not wide enough to handle operating torque. Trailer may tip and cause injury or death.
9. Never connect generator to another electrical system without a licensed electrician installed isolation transfer switch.

OPERATION

▲WARNING:

1. Before starting this generator, review the "Operation Instructions" section of this manual. Failure to follow these rules may result in serious injury to the operator or bystanders.
2. Always provide adequate ventilation. Do not operate generator in any enclosed or narrow space. Tractors consume oxygen and give off deadly carbon monoxide, a poisonous gas that can kill you.
3. Never operate the generator without proper guarding, including driveline guards and tractor and generator shields.
4. Always securely attach the driveline at both ends and keep the driveline guard from rotating freely on the driveline.
5. Never operate the generator when the PTO driveline is at an angle greater than 15° either horizontally or vertically.
6. Never operate the generator while wearing loose fitting clothing such as neckties, scarves, or untucked shirts.
7. **ELECTRIC SHOCK HAZARD:**
 - A. This generator is equipped with a grounding screw located on the generator frame. Always complete the grounding path from the generator to a copper pipe/rod that is driven into moist earth to prevent electric shock.
 - B. Always use grounded male plugs. The neutral line of the generator is mechanically grounded to the frame. Matching NEMA male plugs must always be used. Electric shock could result.
 - C. Always use electrical cords in good condition. Worn, bare, frayed or damaged cords can cause electric shock.
 - D. Always use a ground fault circuit interrupter (GFCI) in damp or highly electrical conductive areas and on construction job sites to prevent electric shock.
 - E. Never operate the generator, or handle any electrical equipment while standing in water, while barefoot, while hands are wet or while in the rain or snow. Electric shock may result.
8. Always wear ear protection while operating generator.
9. Never operate the generator under the following conditions:
 - A. Overheating in load connecting devices.
 - B. Sparking or arcs from generator.
 - C. Loss of electrical output.
 - D. Damaged receptacles.
 - E. Loose, broken, or missing parts.
 - F. Excessive vibration.
 - G. Enclosed compartments, or confined areas.
 - H. Flame or smoke.
 - I. Rain, snow, or wet conditions.
 - J. Operator non-attendance or without proper guarding in place.

MAINTENANCE AND STORAGE

▲WARNING:

1. Refer to the "Maintenance and Storage" section of this manual for proper procedures.
2. Always remove PTO driveline before working on the generator.
3. Clear debris from moving parts when the tractor is shut off. This will ensure the generator is in safe working condition.
4. Check that all nuts and bolts are tight to assure the generator is in safe working condition.
5. Make sure all guards and shields are replaced after maintenance is complete.
6. If a part needs replacement, only use parts that meet the manufacturer's specifications. Replacement parts that do not meet specifications may result in a safety hazard or poor operation of the generator.
7. Never modify the generator in any way, modifications may create a safety hazard and result in serious injury.

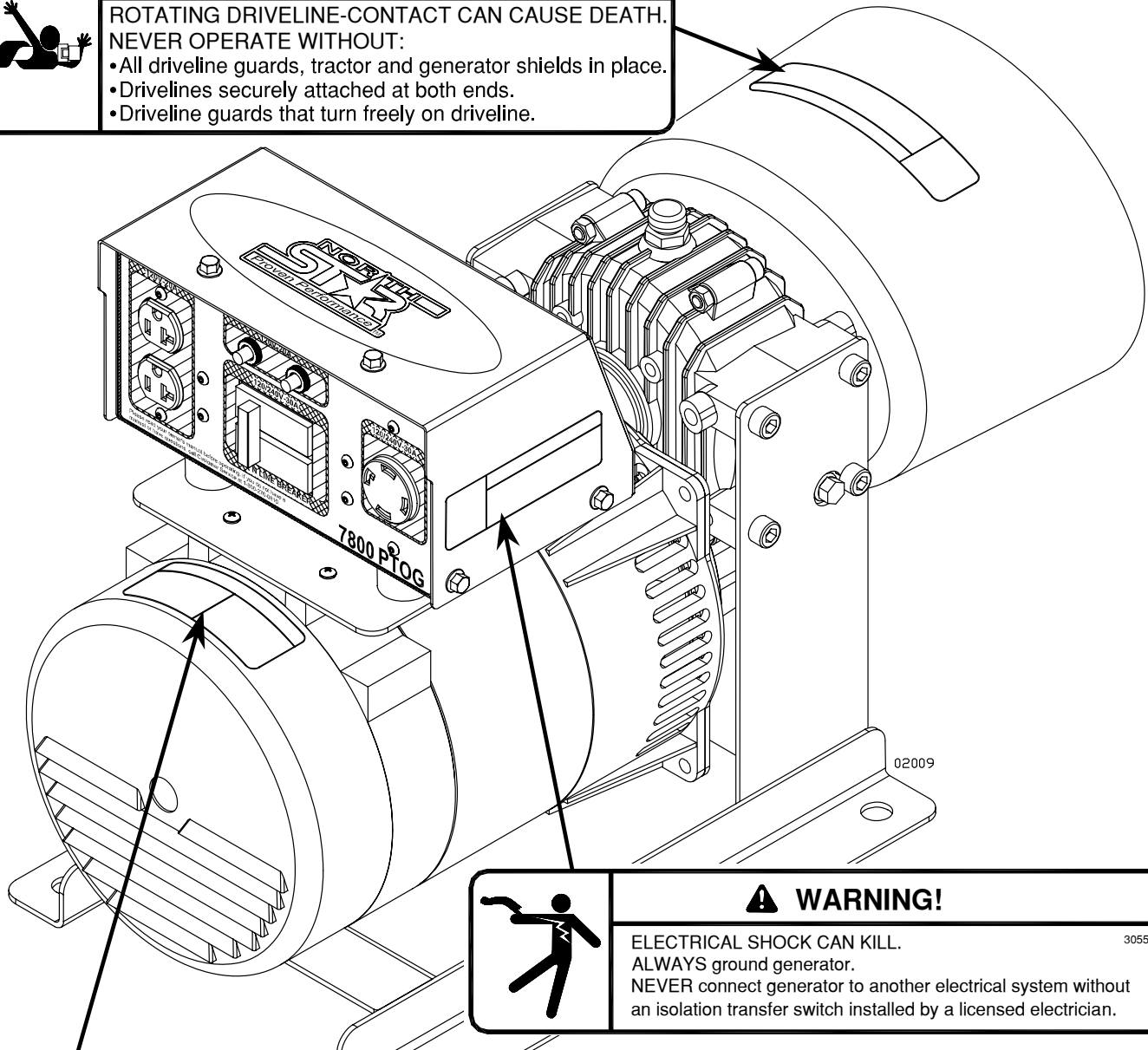
Warning Label Locations



⚠ DANGER!

ROTATING DRIVELINE-CONTACT CAN CAUSE DEATH.
NEVER OPERATE WITHOUT:

- All driveline guards, tractor and generator shields in place.
- Drivelines securely attached at both ends.
- Driveline guards that turn freely on driveline.



⚠ WARNING!



ELECTRICAL SHOCK CAN KILL.
ALWAYS ground generator.
NEVER connect generator to another electrical system without an isolation transfer switch installed by a licensed electrician.

305545

⚠ WARNING!

NEVER operate generator in an enclosed area. (Exhaust gases contain carbon monoxide, an odorless and deadly poison.)
NEVER refuel a hot or running engine.
NEVER operate generator without proper guarding.

NEVER operate generator with loose, broken or missing parts.
NEVER operate generator under wet conditions, electric shock may occur.
ALWAYS clean up fuel spills and move generator away from the spill before starting engine.

Call 1-800-270-0810 to order new labels.

Warning: General Rules	Part No. 777131
Danger: Rotating Driveline	Part No. 31696
Warning: Electric Shock	Part No. 305545

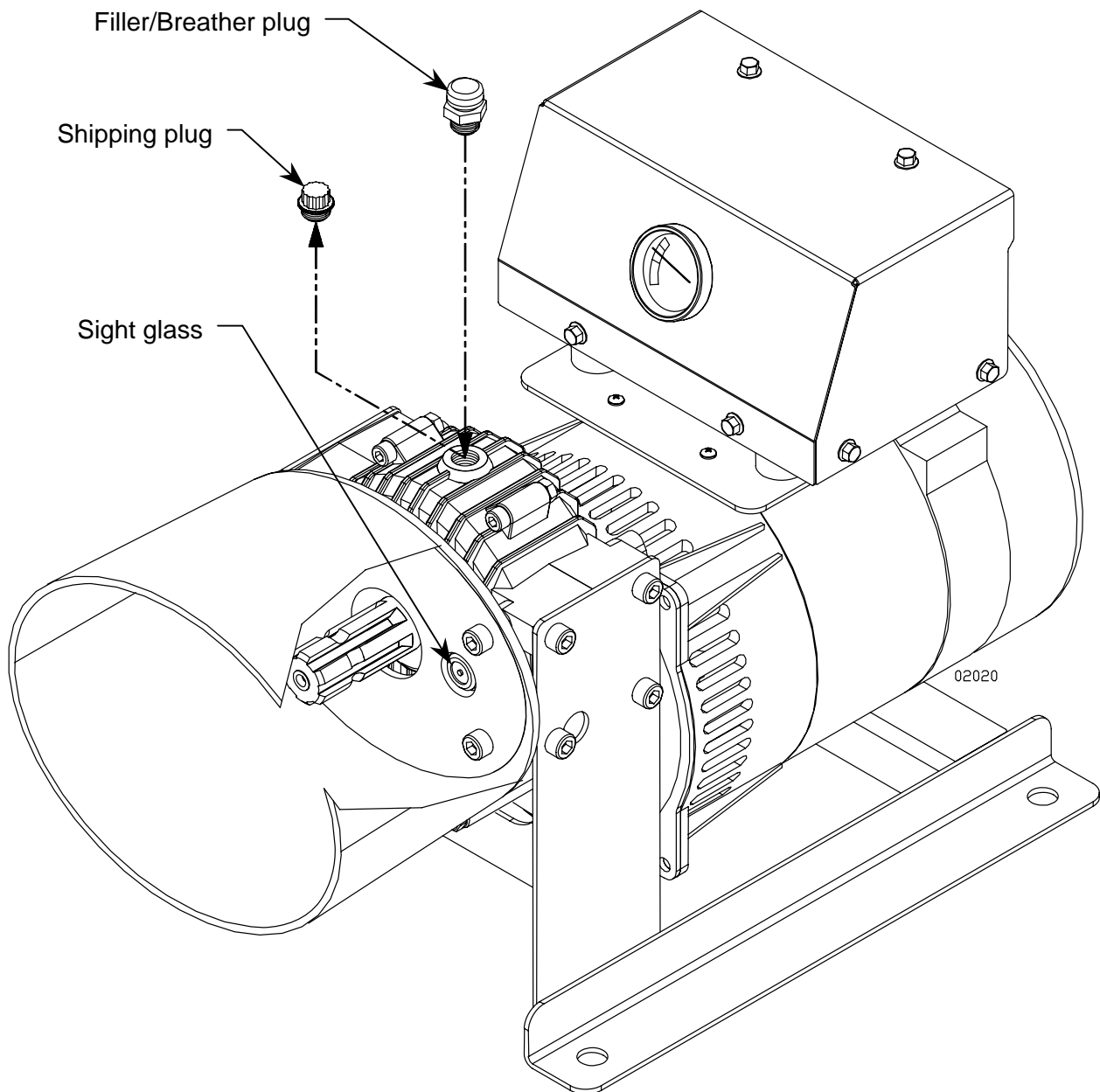
Unpacking

Closely inspect all contents in the shipping carton.

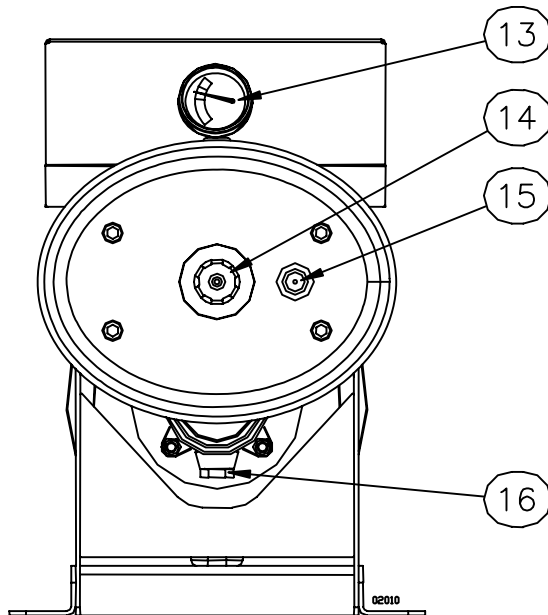
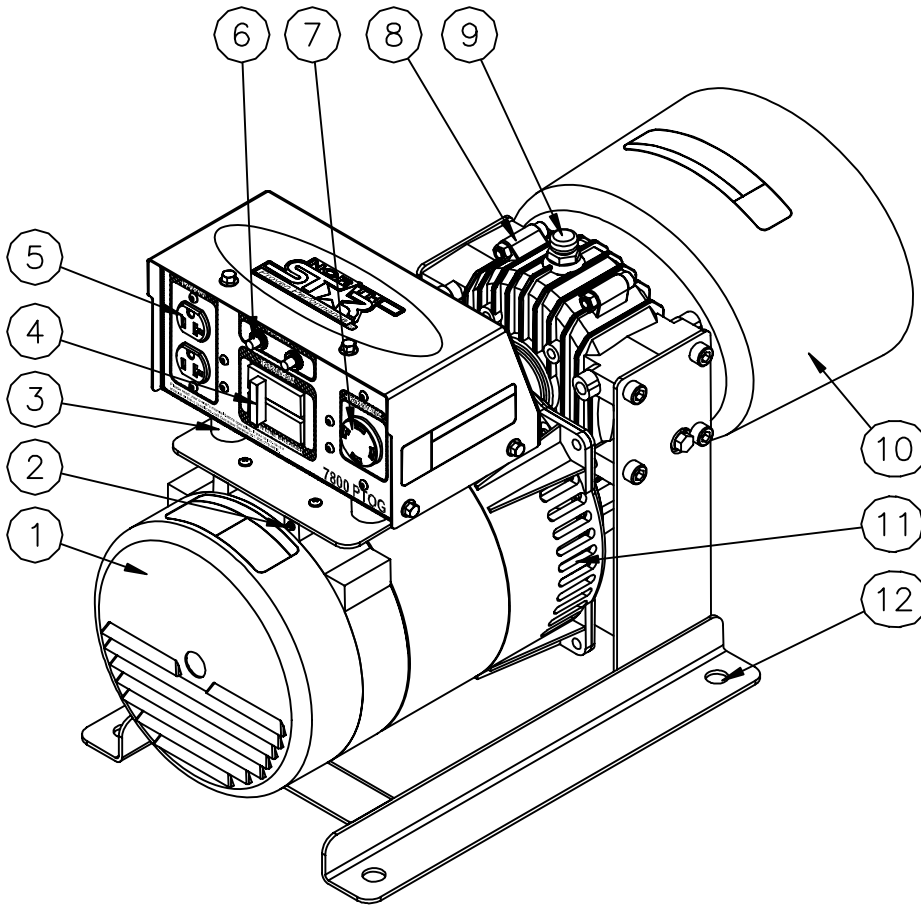
- If you have damaged components: Contact the freight company that delivered the unit and file a claim.
- If you have missing components: Contact Product Support at 1-800-270-0810.

Assembly

The gearbox is shipped with oil. Remove the shipping plug and install the filler/breather plug. Make sure that the gear oil level is in the middle of the sight glass; add SAE 80W-90 gear oil as required.



Machine Component Identification



1. **Alternator.** Also called generator head.
2. **Grounding Screw.** Use to ground the generator to a copper pipe or rod that is driven into moist soil.
3. **Isomounts.** Reduces vibrations transmitted to the control box
4. **30A Circuit Breaker.** Thermal magnetic breaker protects against overcurrents and short circuits.
5. **120V Receptacles.** One 120V 20A straight blade receptacle duplex (two receptacles in a common housing). National Electrical Manufacturer's Association (NEMA) number 5-20R.
6. **20A Circuit Breaker.** (Qty 2) Push to reset style thermal breakers protect against overcurrents.
7. **120/240V Locking Receptacle.** 30A receptacle, NEMA L14-30R.
8. **Gearbox.** 1:7 gear ratio.
9. **Filler/Breather Plug.** Fill oil here; use SAE 80W-90 gear oil.
10. **Implement shield.** Never operate generator without shield in place.
11. **Fan Vents.** Never block the vent slots or insert objects through the slots. The closest object should be at least 3 feet away from the vents.
12. **Mounting Holes.** Use these locations to mount the generator in place with 5/8" grade 5 bolts.
13. **Voltmeter.** Needle should be in green area during all generator load conditions. The black line in the center of the green area indicates 120V. During no load conditions, the needle should be at or above the black line.
14. **1-3/8" Diameter 6 Spline Input Shaft.** Requires 14 HP or greater at 540 RPM.
15. **Oil Fill Sight Glass.** When oil is even with the red dot, the oil level is correct. Check oil level daily.
16. **Oil Drain Plug.** Remove to drain oil from gearbox.

⚠ Installation

Choose a location where the generator will not be exposed to rain, snow or direct sunlight. Common places for mounting your PTO generator are to a trailer or a cement slab. Make sure it is as close to the load as possible. This will make using the generator more convenient and reduce voltage drop.

The installation site must be free from water, moisture, or dust. Foreign matters, such as dust, dirt, sand, lint, or abrasive materials can cause damage if allowed inside the generator. All electrical components should be protected from excessive moisture or the insulation system will deteriorate and result in shorting out of the generating system.

1. Mounting the PTO generator to a trailer.

Use four(4) 5/8" grade 5 bolts to secure the PTO generator to the trailer.

Important: When trailer mounting the generator, select a trailer that is wide enough to withstand the torque of start-up and loading torque. Wheels that are not spaced properly could cause the trailer to tip over. The constant vibration of the generator can cause metal fatigue of the trailer base if the steel used is not thick enough. A PTO trailer is available from Northern, Item# 165959. Call 1-800-556-7885 to order.

⚠ WARNING DANGER PTO trailer or generator may tip over and cause serious injury or death. Never stand near an operating PTO generator. Always bolt PTO base to a secure foundation or mounting slab.

⚠ 2. Mounting the PTO generator to concrete.

Use four(4) 5/8" grade 5 anchor bolts when mounting the generator on a cement slab.

3. Connecting the PTO generator to a tractor.

After the generator is firmly mounted, attach the PTO driveline to the generator then the tractor. Use a synchronized PTO driveline rated at 14 HP minimum. A PTO driveline is available from Northern, Item# 165936. Call 1-800-556-7885 to order.

Important: The angle of the driveline shall not exceed 15° in either the horizontal or vertical plane.

⚠ WARNING Always properly guard rotating parts. Failure to guard the power transmission mechanisms may result in serious injury or death.

4. Grounding

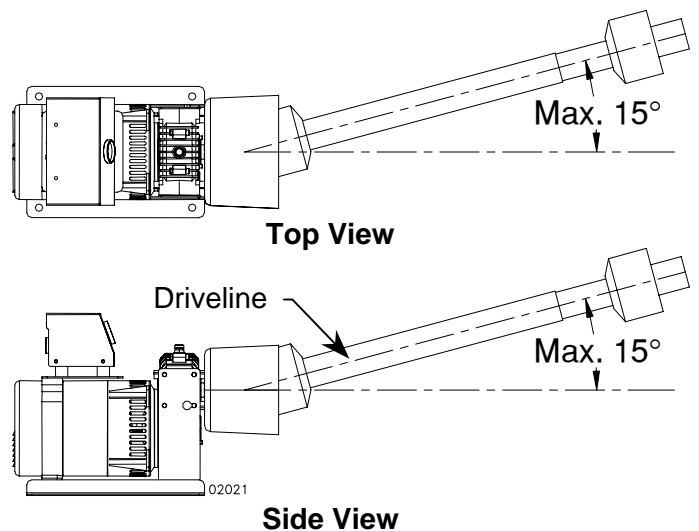
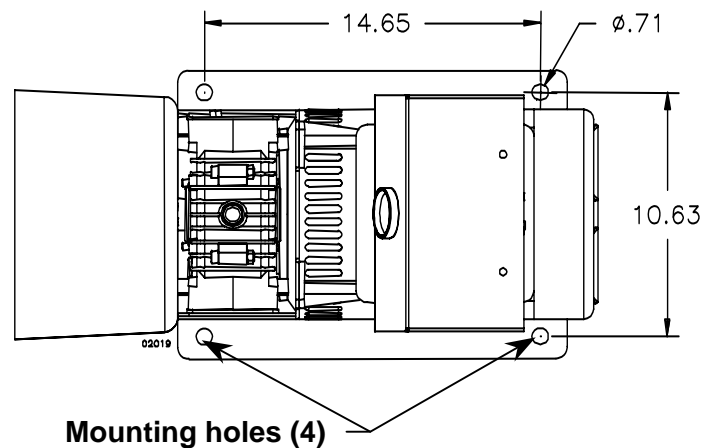
This unit must be grounded. Drive a 3/4" or 1" copper pipe or rod into the ground near the generator. It must penetrate moist earth. Connect an approved ground clamp to the pipe. Run an 8 gauge copper wire from the clamp to the generator ground screw. Do not connect to a water pipe or a ground used by a radio system.

⚠ WARNING Always ground the generator. Electrical shock can kill.

5. Standby Use

If your generator is to be used as a standby electric power source in case of utility failure, it must be installed by a registered and licensed electrician and in compliance with all applicable state and local electrical codes.

⚠ WARNING Never connect any generator to any existing electrical system without an isolating, UL approved transfer switch installed by a licensed electrician.



Operation Instructions

1. Engaging the PTO

While seated on the tractor and the engine at idle, engage the PTO. Slowly increase the throttle until the needle in the generator voltmeter is at or above the black line in the green area.

2. Applying a Load

It is important to determine the total electrical load before it is connected to the generator. Always compare the generator nameplate data with that of the equipment to be used to ensure that watts, volts, amperage, and frequency requirements are suitable for operating equipment. The wattage listed on the equipment nameplate is its rated output. However, some equipment may require three to ten times more wattage than its rating on the nameplate, as the wattage is influenced by the equipment efficiency, power factor and starting system. NOTE: If wattage is not given on equipment nameplate, approximate wattage may be determined by multiplying nameplate voltage by nameplate amperage.

$$\text{VOLTS} \times \text{AMPS} = \text{WATTS}$$

$$\text{Example: } 120\text{V} \times 5\text{A} = 600\text{W}$$

Also, a chart of estimated load requirements for some appliances and tools is shown on page 11.

When connecting a resistive load such as incandescent lights, heaters or common electric power tools, a capacity of up to the generator full rated wattage output can be used.

When connecting a resistive-inductive load such as a fluorescent or mercury light, transformers or inductive coils, a capacity of up to 0.6 times the generator's full rated output can be used.

Always allow the generator to reach operating speed before a load is applied.

Important: The two major factors in determining the life of a generator head are heat build up caused by overloading the generator and corrosive contaminants that attack the wiring insulation. If the generator is overloaded, the wires become excessively hot and cause the insulation to break down, reducing its ability to resist corrosive contaminants. Over time the effectiveness of the insulation is eliminated and a dead short can result.

Apply the load to the generator. Remember to stay clear of the rotating PTO driveline. From the tractor seat re-adjust the speed until the needle on the generator voltmeter is close to the black line in the green area. If the needle will not rise to the green area no matter what the engine speed, the generator is either overloaded or there is a problem. Use the troubleshooting guide at the end of the manual for assistance with possible problems.

3. Operating Speed

The generator must be run at the correct speed in order to produce the proper electrical voltage and frequency.

The output voltage should be checked to ensure the generator is working properly subsequent to connecting a load to the generator. Failure to do so could result in damage to equipment plugged into the unit and possible injury to the individual.

All engines have a tendency to slow down when a load is applied. When the electrical load is connected to the generator, the engine is more heavily loaded, and as a result the speed drops slightly. This slight decrease in speed, together with the voltage drop within the generator itself, results in a slightly lower voltage when the generator is loaded to its full capacity than when it is running with no load. The slight variation has no appreciable effect in the operation of motors, lights and most appliances. Electronic equipment and clocks will be affected if correct RPM is not maintained. See Load vs. Output chart.

Output voltage should be checked periodically to ensure continued proper operation of the generator and appliances. It can be checked with a portable meter. Frequency can be checked by using an electric clock with a sweep second hand. Timed against a wristwatch or a stopwatch the clock should be correct within +/- 2 seconds per minute. All speed setting adjustments should be done by a qualified technician.

Load	Output		
Percent of Generator Output	Speed (RPM)	Frequency (Hz)	Generator Voltage at 120V Receptacle
0%	3780	63.0	125V
50%	3600	60.0	122V
100%	3480	58.0	118V

Operation Instructions

4. Starting Electric Motors

Electric motors require much more current (amps) to start than to run. Some motors, particularly low cost split-phase motors, are very hard to start and require 5 to 7 times more current to start than to run. Capacitor motors are easier to start and usually require 2 to 4 times as much current to start than to run. Repulsion Induction motors are the easiest to start and require 1.5 to 2.5 times as much to start than to run.

Most fractional motors take about the same amount of current to run whether they are of Repulsion-Induction (RI), Capacitor (Cap), or Split-Phase (SP) type. The chart shows the approximate current required to start and run various types and sizes of 120 volt 60 cycle electric motors under various conditions.

120V, 60 Hz Motors		Starting Amps		
HP Motor	Running Watts	RI Type	Cap Type	SP Type
1/6	525	7-11	9-18	16-22
1/4	700	9-15	12-23	22-32
1/3	875	11-18	14-29	26-35
1/2	1175	15-25	20-40	NA
1	1925	24-40	32-64	NA
1 1/2	2400	30-50	40-80	NA
2	1900	36-60	48-96	NA
3	4075	51-85	68-136	NA
5	6750	84-140	112-124	NA

The figures given above are for an average load such as a blower or fan. If the electric motor is connected to a hard starting load such as an air compressor, it will require more starting current. If it is connected to a light load or no load such as a power saw, it will require less starting current. The exact requirement will also vary with the brand or design of the motor.

Generators respond to severe overloading differently than power lines. When overloaded, the engine is not able to supply enough power to bring the electric motor up to operating speed. The generator responds to the high initial starting current, but the engine speed drops sharply. The overload may stall the engine. If allowed to operate at very low speeds, the electric motor starter winding will burn out in a short time. The generator head winding might also be damaged.

Running the generator under these conditions may result in damage to the generator stator as well as the electric motor windings. Because the heavy surge of current is required for only an instant, the generator will not be damaged if it can bring the motor up to speed in a few seconds. If difficulties in starting a motor are experienced, turn off all other electrical loads and if possible reduce the load on the electric motor.

5. Extension Cords

When electric power is to be provided to various loads at some distance from the generator, extension cords can be used. These cords should be sized to allow for distance in length and amperage so that the voltage drop between the generator and point of use is held to a minimum.

Current/Power		Maximum Extension Cord Length			
Amps at 240V	Load (Watts)	#10 Ga Cord	#12 Ga Cord	#14 Ga Cord	#16 Ga Cord
10	2400	250'	150'	100'	75'
20	4800	125'	75'	50'	25'
30	7200	60'	35'	25'	10'
40	9600	30'	15'	10'	*
50	12000	15'	*	*	*

*Not Recommended

CAUTION: Equipment damage can result from the low voltage caused by using an extension cord with a small wire size.

⚠ WARNING Keep a fire extinguisher close by your generator and be familiar with how to use it. Consult your local fire department for correct extinguisher type.

! Operation Instructions

Use to Approximate Generator Load Requirements

Device	Running Watts	Device	Running Watts
Air Conditioner (12,000 Btu)	1700 (a)	Lawn Mower	1200
Battery Charger (20 Amp)	500	Light Bulb	100
Belt Sander (3")	1000	Microwave Oven	700
Chain Saw	1200	Milk Cooler	1100 (a)
Circular Saw (6-1/2")	900	Oil Burner on Furnace	300
Coffee Maker	1000	Oil Fired Space Htr (140,000 Btu)	400
Compressor (1 HP)	2000 (a)	Oil Fired Space Htr (85,000 Btu)	225
Compressor (3/4 HP)	1800 (a)	Oil Fired Space Htr (30,000 Btu)	150
Compressor (1/2 HP)	1400 (a)	Oven	4500
Curling Iron	700	Paint Sprayer, Airless (1/3 HP)	600 (a)
Dishwasher	1200	Paint Sprayer, Airless (handheld)	150
Edge Trimmer	500	Radio	200
Electric Nail Gun	1200	Refrigerator	600 (b)
Electric Range (one element)	1500	Slow Cooker	200
Electric Skillet	1250	Submersible Pump (1-1/2 HP)	2800 (a)
Freezer	800 (b)	Submersible Pump (1 HP)	2000 (a)
Furnace Fan (1/3 HP)	1200 (a)	Submersible Pump (1/2 HP)	1500 (a)
Hair Dryer	1200	Sump Pump	600 (a)
Hand Drill (1")	1100	Table Saw (10")	2000 (a)
Hand Drill (1/2")	875	Television	500
Hand Drill (3/8")	500	Toaster	1000
Hand Drill (1/4")	250	Vacuum cleaner	250
Hedge Trimmer	450	VCR	70
Home Computer	150	Water Heater	3000
Impact Wrench	500	Weed Trimmer	500
Jet Pump	800 (a)		

(a) Hard-starting motors require 3 to 5 times the rated running watts.

(b) These loads may require up to 15 minutes to restart due to its normal build up of compressor head pressure.

NOTE: For extremely hard to start loads such as air conditioners and air compressors, consult the equipment dealer to determine the maximum wattage.

Maintenance and Storage

The generator head is a two pole, 3600 RPM, 60 Hz, brushless, revolving field and synchronous type with two sealed ball bearings. Proper care and maintenance are required to ensure a long trouble free life.

Generator Maintenance - The generator head is brushless and maintenance free. Any major generator service including the installation or replacement of parts should be performed by a qualified electrical service technician. USE ONLY NorthStar APPROVED REPAIR PARTS AVAILABLE AT 1-800-270-0810.

1. Bearing - The bearings used in this generator are a heavy duty, sealed ball bearing type. They require no maintenance or lubrication.
2. Receptacles - Quality receptacles have been utilized. If a receptacle should become cracked or otherwise damaged, replace it. Using cracked or damaged receptacles can be both dangerous to the operator and destructive to the equipment.

Exercising the Generator - The generator should be operated every four weeks. This is accomplished by running the generator and applying a load for 15 minutes. This will dry out any moisture that has accumulated in the windings. If left, this moisture can cause corrosion in the winding. Frequent operation of the generator will ensure that the generator is operating properly should it be needed in an emergency.

Storage - Keep the generator covered and away from any moisture.

Troubleshooting

Problem	
Voltage too low	SOLUTION: A,B
Circuit breaker trips	SOLUTION: C,D,B,E
Voltage too high	SOLUTION: F
Generator overheating	SOLUTION: B,G
No output voltage	SOLUTION: C,H,D,I,J,K,E,A,L,M
Excessive gearbox noise	SOLUTION: N,O,P,Q,R

Cause	Solution
A- Tractor throttle set too low	Increase tractor RPMs
B- Generator is overloaded	Reduce the load (See load application section of this manual)
C- Defective load connected to generator	Disconnect load
D- Defective receptacle	Replace receptacle – Contact Product Support for the nearest service center
E- Defective circuit breaker	Contact Product Support for the nearest service center
F- Tractor throttle set too high	Decrease tractor RPMs
G- Insufficient ventilation	Make sure that there is at least 3 feet of clearance on all sides of the generator
H- Broken or loose wire	Replace or tighten wire – Contact Product Support for the nearest service center
I- Defective stator	Contact Product Support for the nearest service center
J- Defective rotor	Contact Product Support for the nearest service center
K- Defective capacitor	Contact Product Support for the nearest service center
L- PTO not engaged	Engage PTO
M- Gearbox is malfunctioning	Contact Product Support for the nearest service center
N- Defective bearing	Contact Product Support for the nearest service center
O- Defective gear	Contact Product Support for the nearest service center
P- No or low gear oil	Fill gear box to middle of oil level sight glass
Q- PTO driveline is operating at an angle of greater than 15°	Reposition the tractor or generator so the angle is reduced to less than 15° both vertically and horizontally
R- Unsynchronized PTO driveline	Disassemble PTO driveline and reassemble with CV joints synchronized

Specifications and Accessories

SPECIFICATIONS	
Item Number	165951
Maximum Output	7800 Watts (W)
Continuous Output	7200 Watts (W)
Voltage	120 / 240 Volt (V)
Phase	Single phase (4-wire)
Frequency	60.0 Hertz (Hz)
Power Factor	100% (p.f. = 1.0)
Minimum PTO HP	14 HP at 540 RPM
Input Shaft	1-3/8" Diameter, 6 spline
120V Receptacle	(2) 20 Amp (A) (NEMA 5-20R)
120/240V Receptacle	(1) 30 Amp (A) locking device (NEMA L14-30R)
Circuit Breaker	(2) 20 Amp (A) thermal, push to reset style (1) 30 Amp (A) thermal magnetic
Gear Box	
Gear Ratio	1:7
Gear Oil	SAE 80W-90
Oil Capacity	0.75 Qt. (.82 L)
Dimensions	
Length	25.25"
Width	12.50"
Height	17.25"
Gross Weight	110 lbs.

ACCESSORIES	
PTO Driveline	165936
PTO Trailer	165959

The manufacturer reserves the right to make improvements in design and/or changes in specifications at any time without incurring any obligation to install them on units previously sold.

**Item# 165951
7800 PTOG Generator
Parts Explosion
Revision C**

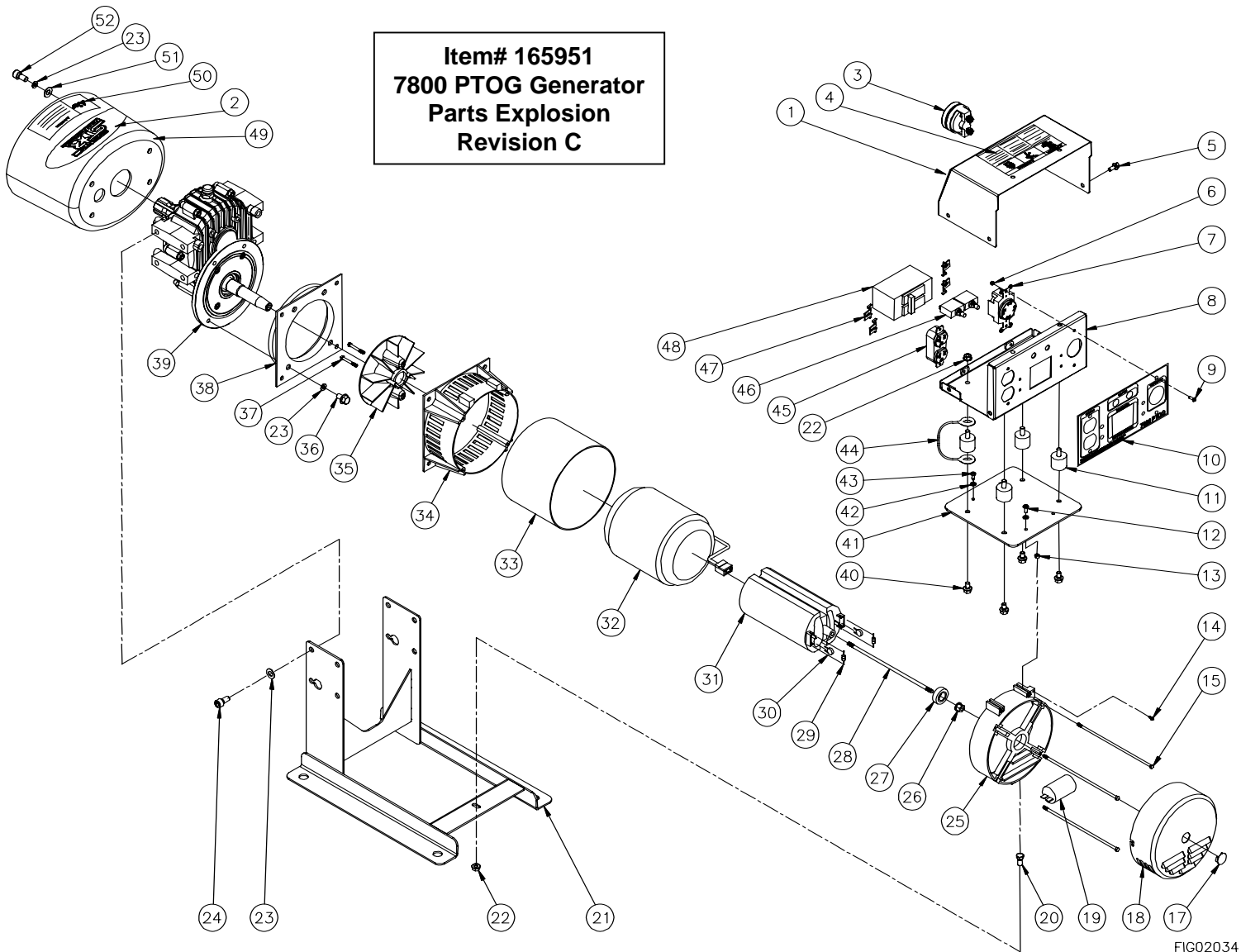
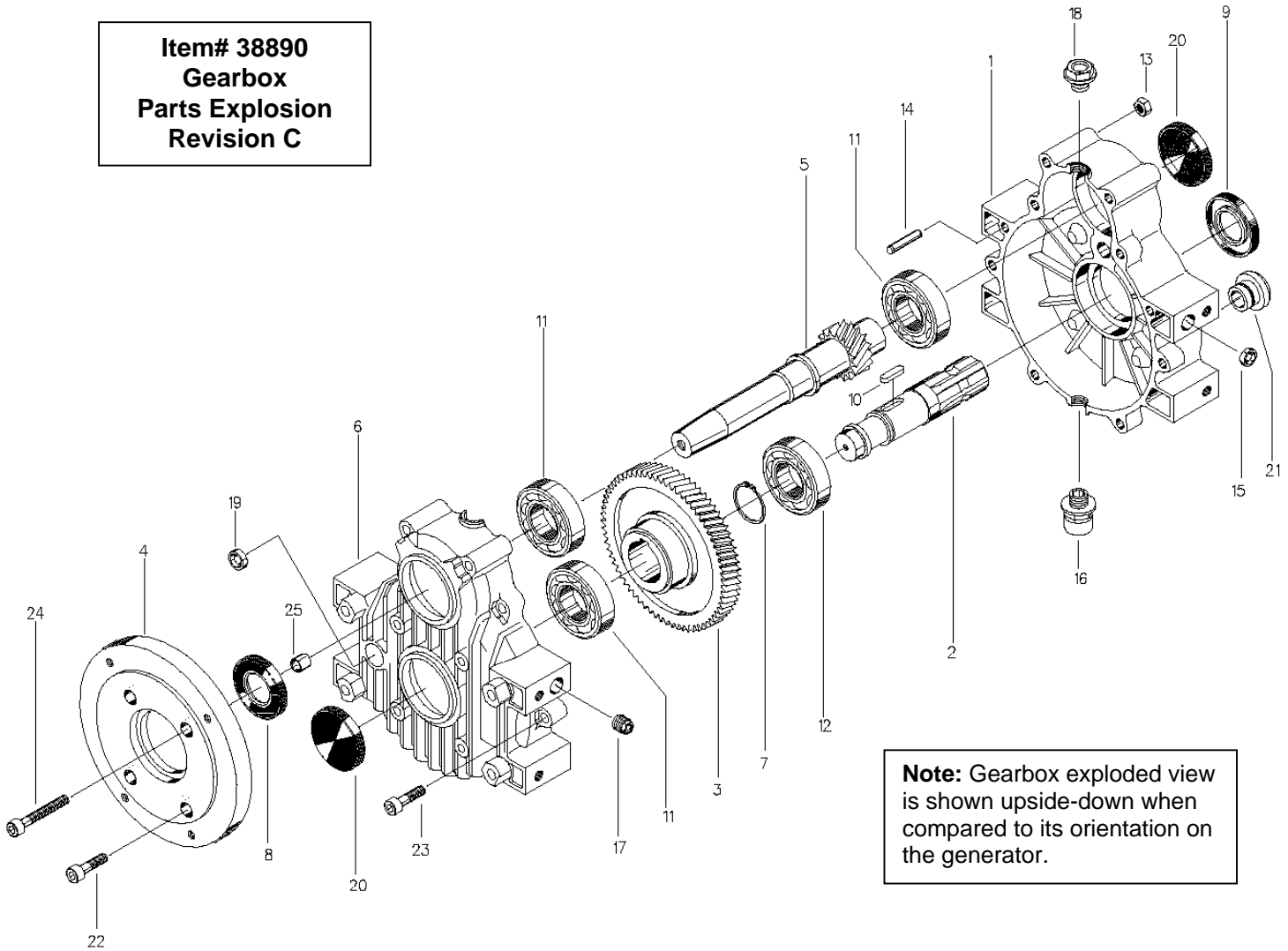


FIG02034

Item	Part#	Description	Qty
1	39138	Control box top	1
2	38541	NorthStar decal	1
3	31727	Voltmeter	1
4	779781	Warning decal	1
5	82070	1/4-20 x .5" Serrated flange bolt	8
6	82005	#8-32 Keps nut	8
7	306422	120/240V, 30A receptacle	1
8	39137	Control box	1
9	82004	#8-32 Button head cap screw	8
10	39074	Control panel decal	1
11	305587	Isolation mount	4
12	82158	M5-.8 x 14mm Pan Phillips screw	2
13	82243	M5-.8 Hex nut	2
14	82161	Grounding screw	1
15	38280	Bracket securing stud	4
17	38271	End cover plug	1
18	777304	End cover	1
19	779562	Capacitor	1
20	82091	5/16-18 x 1" Hex head cap screw	1
21	39140	Base	1
22	82019	5/16-18 Serrated flange nut	5
23	82049	M10 Rib washer	16
24	82241	M10-1.5 x 20mm screw	8
25	38278	Non drive end bracket	1
27	38276	Bearing	1

Item	Part#	Description	Qty
28	780143	Rotor securing stud	1
29	307479	Diode	2
30	307481	Varistor	2
31	780229	Rotor	1
32	780142	Stator	1
33	38270	Enclosing band	1
34	38269	Drive end bracket	1
35	779557	Fan	1
36	82102	3/8-16 x .75" Serrated flange bolt	4
37	779556	Fan bolt	2
38	780228	Mount plate	1
39	38890	Gearbox	1
40	82014	5/16-18 x .5" Serrated flange bolt	4
41	39136	Control box mount plate	1
42	82069	#10 Split lock washer	4
43	82244	#10-32 x .5" Pan Phillips screw, type F	2
44	306459	Ground wire	1
45	31763	120V, 20A Duplex receptacle	1
46	30643	Circuit breaker, 125V-20A	2
47	777130	Circuit breaker mounting clip	4
48	31005	Thermal breaker, 125/250V-30A	1
49	39053	Implement shield	1
50	779770	PTO Warning decal	1
51	82201	M10 Flat washer	4
52	82137	M10-1.5 x 16mm Hex head cap screw	4

Item# 38890
Gearbox
Parts Explosion
Revision C



Note: Gearbox exploded view is shown upside-down when compared to its orientation on the generator.

Item	Part#	Description	Qty
1	39275	Housing	1
2	39276	Shaft	1
3	39277	Gear	1
4	39278	Flange	1
5	39279	Shaft	1
6	39280	Housing	1
7	31766	Circlip	1
8	39282	Oil seal, 25x52x10mm	1
9	39283	Oil seal, 35x52x10mm	1
10	39284	Key, 10x8x25mm	1
11	39285	Bearing	3
12	31760	Bearing	1
13	39287	Nut, M8	8

Item	Part#	Description	Qty
14	39288	Pin, 8x20mm	2
15	39289	Cap	3
16	39290	Breather plug, 3/8"	1
17	31762	Oil plug, 3/8"	1
18	39292	Drain plug, 3/8"	1
19	39293	Cap	1
20	39294	Cap	2
21	39295	Sight glass	1
22	39296	Screw, M8 x 20mm	2
23	39297	Screw, M8 x 40mm	6
24	39298	Screw, M8 x 110mm	2
25	39299	Sleeve	2

Any Questions, Comments, Problems or Parts Orders
 Call NorthStar Product Support 1-800-270-0810

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