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INSTRUCTION MANUAL

PRISM™ CORONA SURFACE TREATMENT SYSTEM

GENERATOR: MODEL P4-xxx

STATION: MODEL DHD2-xxxxx

TRANSFORMER: MODEL TP4-xxx

COMPANY: _____

ADDRESS: _____

SAFETY WARNING

ENCORE TECHNOLOGIES SHALL NOT BE HELD RESPONSIBLE FOR ANY PERSONAL INJURY AND PROPERTY DAMAGE DUE TO IMPROPER INSTALLATION AND USAGE OF THE ABOVE EQUIPMENT.

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1.0 RECEIVING INSTRUCTIONS

Prior to shipping out the equipment to you, we perform a complete checkout procedure. Whenever possible, we run the equipment on actual production line for 24 hours to eliminate infant mortality. We carefully inspect and pack the equipment for shipment to avoid physical damage. You need to perform a visual inspection of the equipment and notify Encore Technologies immediately if there was any damage during shipment. Encore is the shipper and can not initiate a claim. However, we can assist you in establishing the extent of the damage and estimating the repair costs.

2.0 SYSTEM FEATURES

Depending on what you have purchased, your Prism™ system may consist of a generator, model P4-xxx (P4-150 for a 1.5kW generator or P4-250 for a 2.5kW generator); a treater station, model DHD2-xxxxx (where the xxxxx represent the roller diameter and treat length); and a transformer, model TP4-xxx (TP4-250 for a 2.5kW transformer or TP4-300 for a 3.0kW transformer). In order to get maximum benefits from your Encore equipment, you need to understand the following unique features:

1. Wet Start™: In a humid area, water will quickly collect on the rollers and the electrodes right after the extruder is shut down. Unless there are large droplets formed on the electrodes and rollers, the Wet Start™ feature will enable the generator to burn off all the moisture after a few successive starts. Normal corona will return automatically after all the moisture has been evaporated.
2. Smart Feedback™: You should not have any problem operating the Prism generator with any make of treater station. The high speed analog electronics with multiple path feedback ensure that the Prism generator will 'resonate' or 'match' itself to silicone, glass, epoxy or ceramic rollers - given that the electrode area has not been increased. If you change from silicone to ceramic, you will need to use a different transformer with a lower step-up ratio. Please notify Encore if you need a different transformer or if you have any problem with the Prism generator not being able to match a particular treater station.
3. True Power Reading: The output power, in kW, as displayed on the front panel meter is a true indication of what you are getting. If you see 1.5kW on the display, the generator is putting out 1.5kW of treat power provided that your input power is between 220V to 240V.
4. Advanced Diagnostics: The Prism employs circuitry to detect broken or shorted connections, blown fuses, bad corona transformer, momentary current glitches, overcurrent conditions, overload conditions, corona arcing to ground due to holes in rollers, plus zero speed sensing and a door interlock switch. The alarm will go off to notify you of a problem that needs to be corrected.
5. Smart Alarm: the alarm automatically is set every time the generator is started. The STOP switch is used to turn the alarm off. The alarm will sound when the treat level falls below a preset level. This trip point is preset at the factory to sound when there is practically no output.

6. Shutdown Protection: In case of a pending problem such as an electrical short in the output, the generator will shut down and not allow a restart until power is cycled off then on. This will force the operator to remove power, investigate and correct the problem before attempting to restart.
7. Treat Consistency: Special power sensing circuitry ensures that the treat level selected by the user is held steady, i.e., treat level setting is not affected by changing corona transformer taps (if available) or adjusting electrode gaps. However, due to its soft start feature, power regulation does not engage in the first few seconds after you push START.
8. Adjustable Roller Speed Sensor and Normally-Closed Switch Interlock: The generator has a built-in roller speed sensor interlock and a normally closed switch interlock. The roller speed sensor interlock is set up at the factory for zero speed sensing. However, any low speed setting can be requested as an option. The normally-closed switch interlock can be used to detect an open door.
9. The Treater Station, DHD2-xxxx: The DHD2 design utilizes a seamless chassis construction to maximize structural integrity. The station opens easily in a clamshell fashion to allow film/web to be dropped straight through without any obstruction. Both electrodes can be adjusted live to the correct gap. The electrodes are segmented to allow you to treat only the film and not the entire rollers. Each roller has a carbon brush to carry the corona current to prevent the roller bearings from ceasing and rusting .
10. The Transformer, TP4-xxx: The TP4-250 is a fan-cooled transformer and the optional TP4-300 is an oil-cooled one. Both are designed to be light weight and constructed of aluminum for ozone corrosion resistance. The walls of the TP4-300 are corrugated to maximize surface area and heat dissipation.

3.0 INSTALLATION INSTRUCTIONS

Your Prism corona system should be mounted in place prior to connecting power to it. The most common application is to treat the film/web in line with an extruder. However, your application might require post-treatment and you need to mount your system on the bag machine. Due to the large differences in machine designs and corona treatment applications, the following mechanical and electrical installation instructions should be used as a guide only. However, a clear understanding of all the features in your Prism system is necessary to achieve a successful installation and to avoid problems later on.

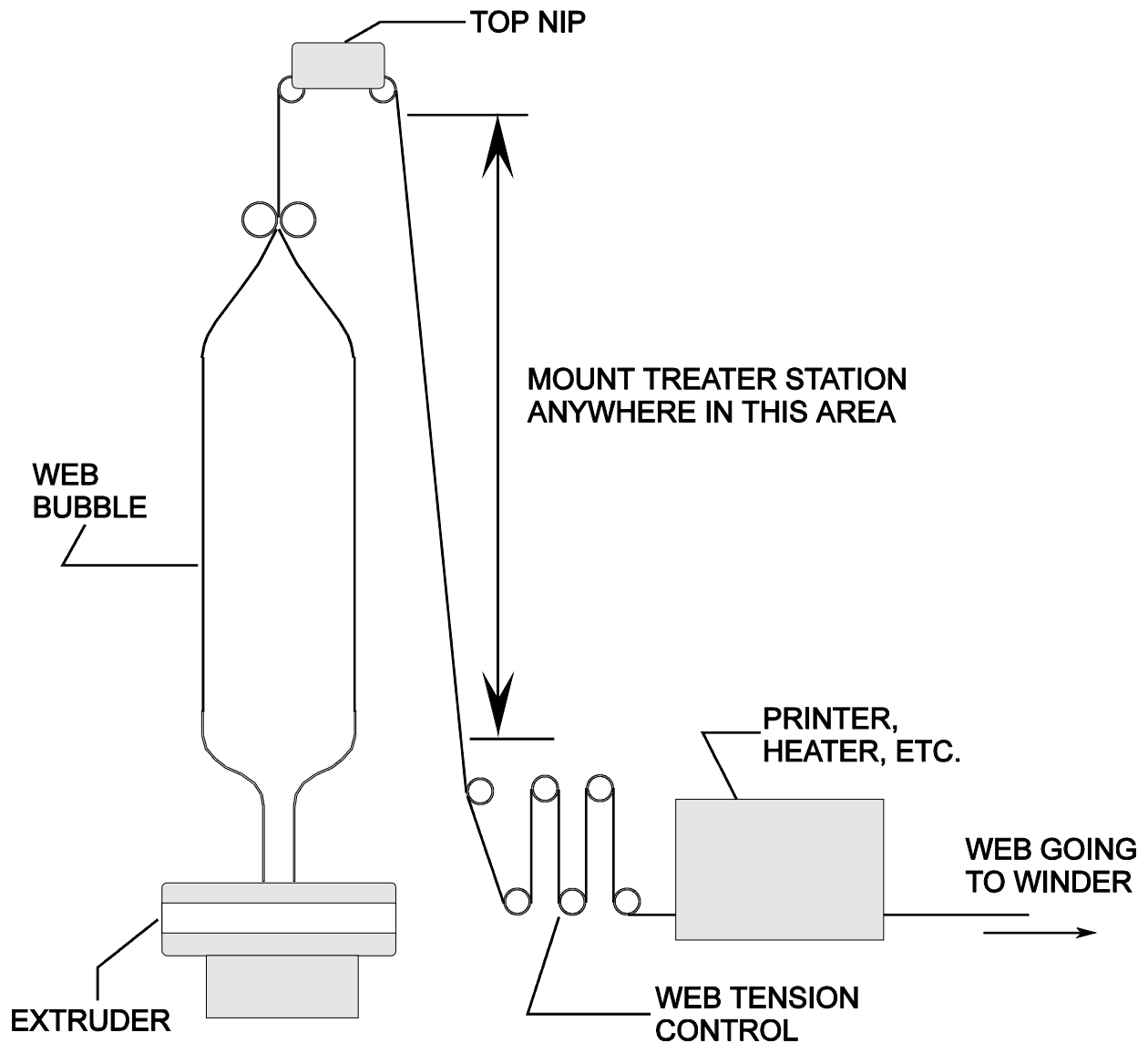
CAUTION: YOUR PRISM™ CORONA SURFACE TREATMENT SYSTEM IS DESIGNED AND MANUFACTURED FOR OPERATION IN A NON-HAZARDOUS ATMOSPHERE.

3.1 Mechanical Installation

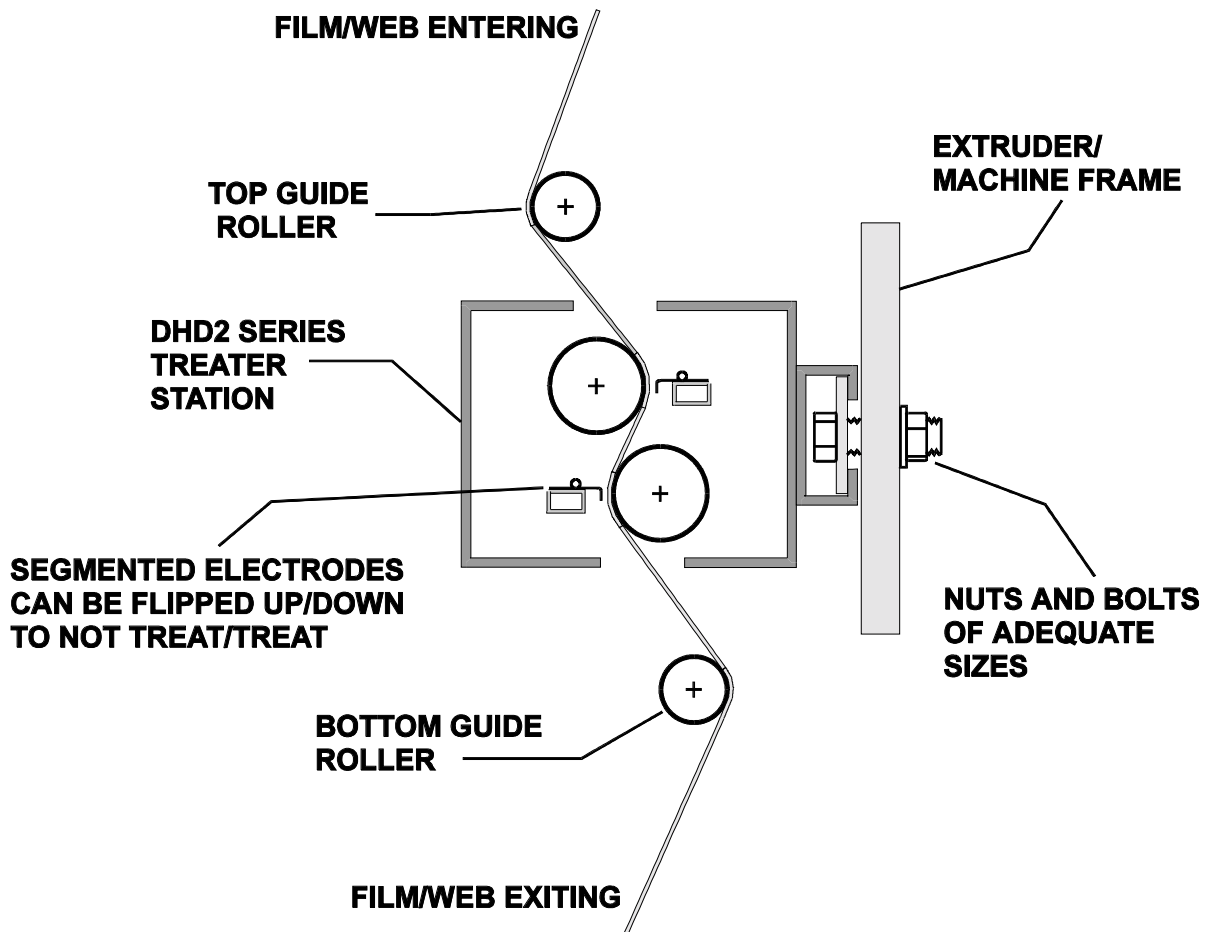
Encore recommends the use of a lock washer with every fastener to minimize loosening by machine vibration.

3.1.1 Mounting The Treater Station

The instructions provided by the original manufacturer of your machine, i.e., extruder, bag machine, laminating machine, take precedence over the method recommended here. The figure below shows a general location for mounting the DHD2 treater station for an in-line corona treatment with your extruded film/web.



The DHD2 treater station has two mounting brackets that can accommodate a wide range of attachment to a machine frame. Whatever method you choose to attach your DHD2 treater station, you must ensure that there is sufficient web tension to turn the rollers. If the rollers do not turn or turn too slowly, the generator will shut off. Refer to the illustration below for instruction to ensure that there is good web tension.



3.1.2 Mounting The Transformer:

The transformer uses forced air cooling and you must allow adequate clearance around the transformer for air to circulate: **a minimum of 12" (300mm) of free air space must be allowed around the transformer.** Install the transformer as close to the treater station as possible to minimize the distance that you have to run the high voltage cabling from the transformer output to the electrode.

3.1.3 Filling The Transformer Tank:

The TP4-300 transformer is **delivered to you empty. It must be filled with a suitable transformer insulation oil before it can be put into service.** The oil is needed to keep the transformer from burning up. Mineral transformer oil is readily available locally and listed under 'Transformer' in the phone directory. We recommend that you use Exxon Univolt, or an equivalent substitute by other manufacturers. You will need about five (5) gallons (20 liters) of this oil.

3.1.4 Mounting The Generator:

The Prism generator has four rubber feet and a fan on the back side mounted behind a filter. The rubber feet allow the generator to be placed on any suitable flat surface and prevent slippage. The generator can also be secured to the machine frame using the mounting ears. Allow a minimum of 5" (127mm) of clearance around the back side of the generator for adequate air passage.

3.2 Electrical Installation:

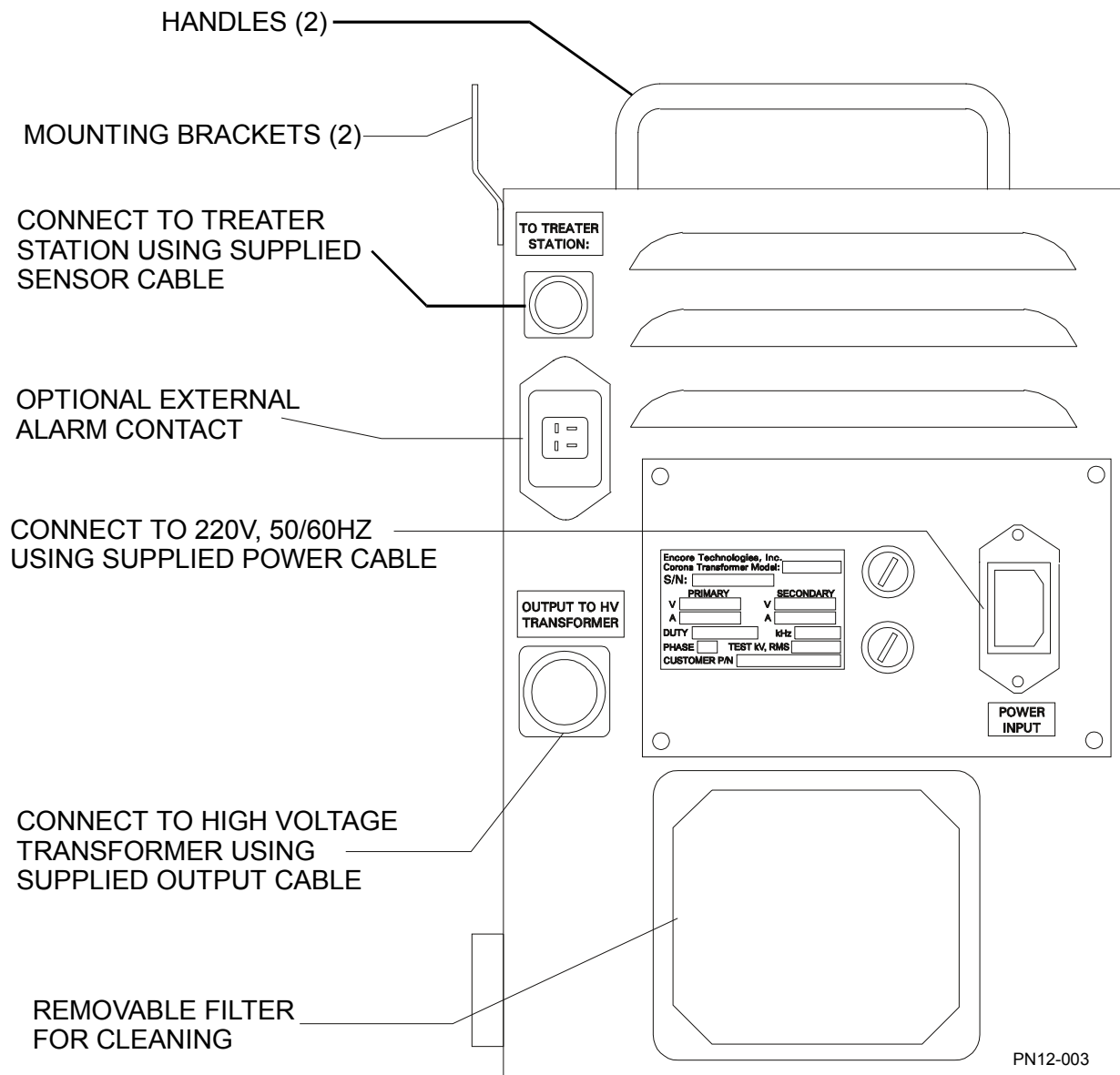
3.2.1 Connecting The Components:

Connect the transformer to the generator using the supplied Output Cable. Align the circular connector to the Output plug on the back of the generator with the large tab in the 12 o'clock position. Turn the metal ring clockwise about 1/3 turn until it engages fully as indicated by a 'click' action.

Connect the treater station to the generator using the supplied Sensor Cable. This cable connects the inductive proximity sensor that serves as the zero-speed power cutoff and an interlock switch. The sensor is mounted inside the treater station and reads two small screws mounted on one end of one roller. The sensor head needs to be adjusted to within 3/32" (2.4mm) of the screw heads to work properly.

If the TP4-300 transformer is used, ensure that the tank is **grounded to the chassis** of the treater station. The reason is that corona power circulates back to the transformer through the grounded tank. For **safety and operational reasons**, the transformer tank **must be grounded**. You **will not get proper corona** if the transformer tank is **not grounded**.

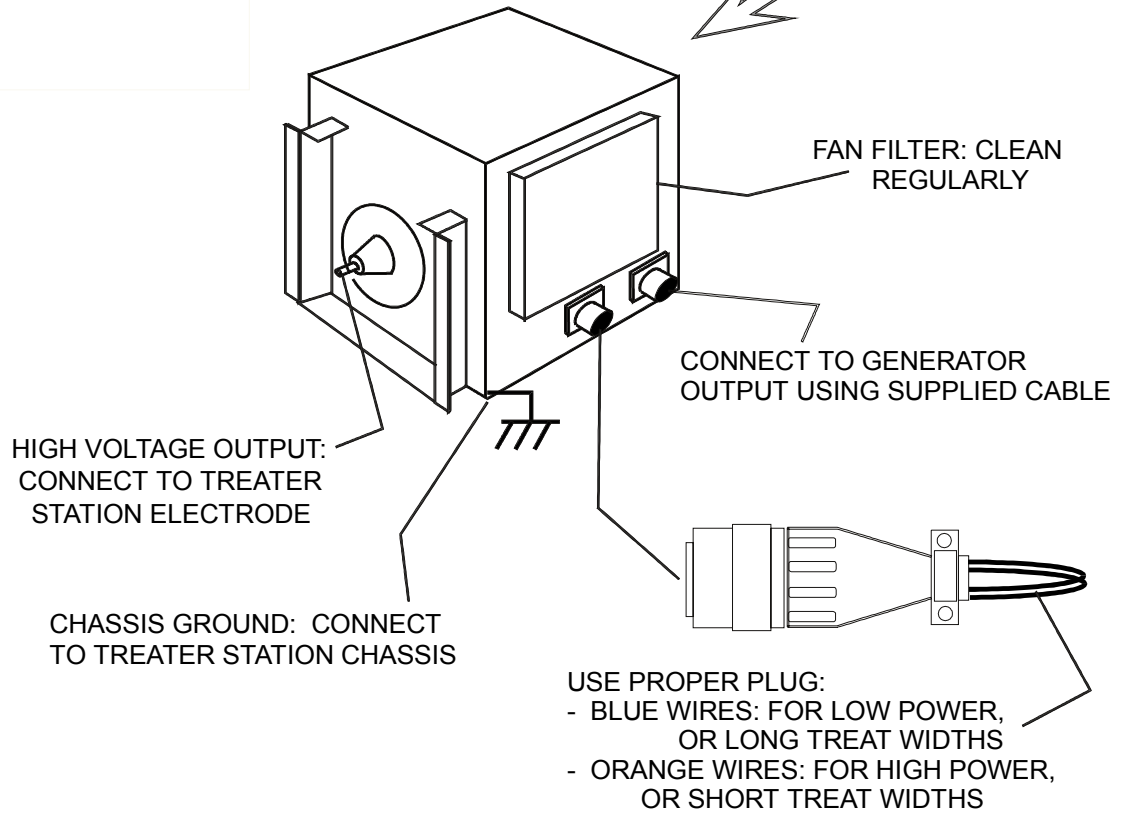
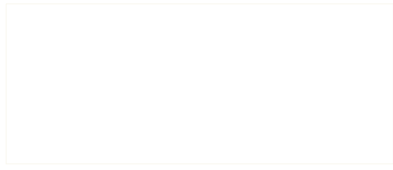
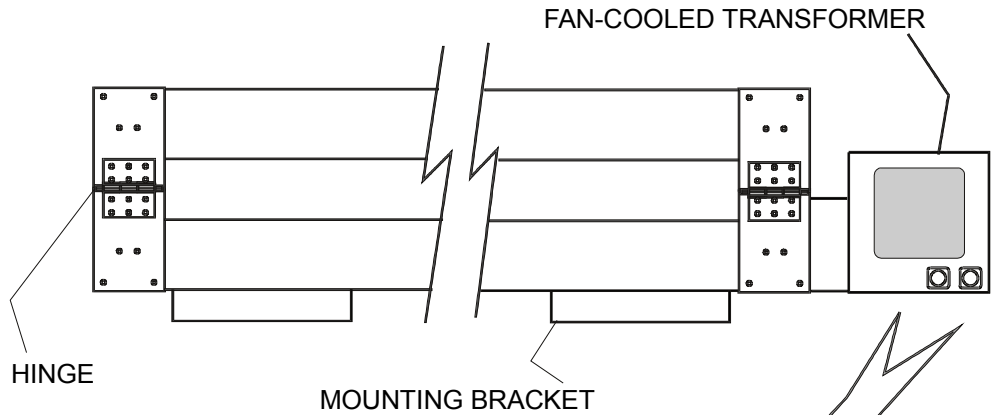
Use special wire, silicone insulated or equivalent, designed for corona applications to connect the transformer output to the treater station electrodes. You can use some thick walled rubber hose or plastic conduit to provide mechanical protection for the high voltage wire and additional electrical shock protection. Refer to the illustrations below.



IMPORTANT NOTES:

1. The Sensor Cable MUST be connected to the generator in order for it to work. If purchased without a treater station, the Sensor Cable has been wired at the factory to bypass the zero-speed sensing and the door interlock. See section 4.4 for instruction to wire your own zero speed sensing and door interlock.
2. DO NOT bundle the Sensor Cable and the Output Cable together, or run them in the same conduit. Interference could cause intermittent shutdown of the generator.

BOTTOM VIEW OF TREATER STATION WITH FAN-COOLED TRANSFORMER



TP4-250: 2.5kW FAN-COOLED TRANSFORMER

PN12-004

3.2.2 Connecting Power To The System:

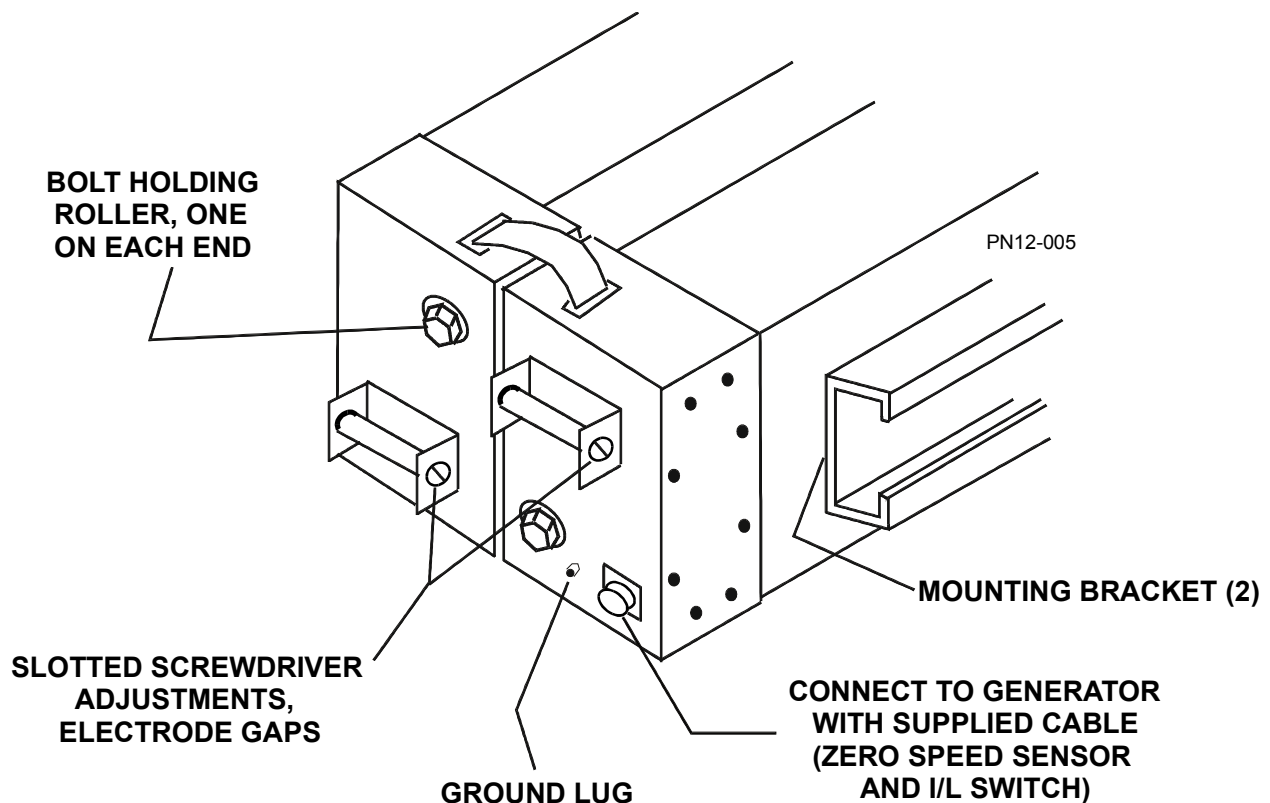
Connect power to the generator in full compliance with your locally governed electrical codes. The Prism generator is equipped with an international standard 115V/220V socket and a factory supplied matching plug that are designed to work with **220V to 240V, 15A, 50/60 Hz service with ground**. We recommend that a two-pole power cutoff switch or a two-pole 15A circuit breaker be installed between main power source and the Prism generator.

4.0 OPERATING INSTRUCTIONS

Due to the simplicity of the designs, the operation of the DHD2 treater station and Prism generator can be quickly learned with little instruction.

4.1 Illustrated Instruction For The Treater Station

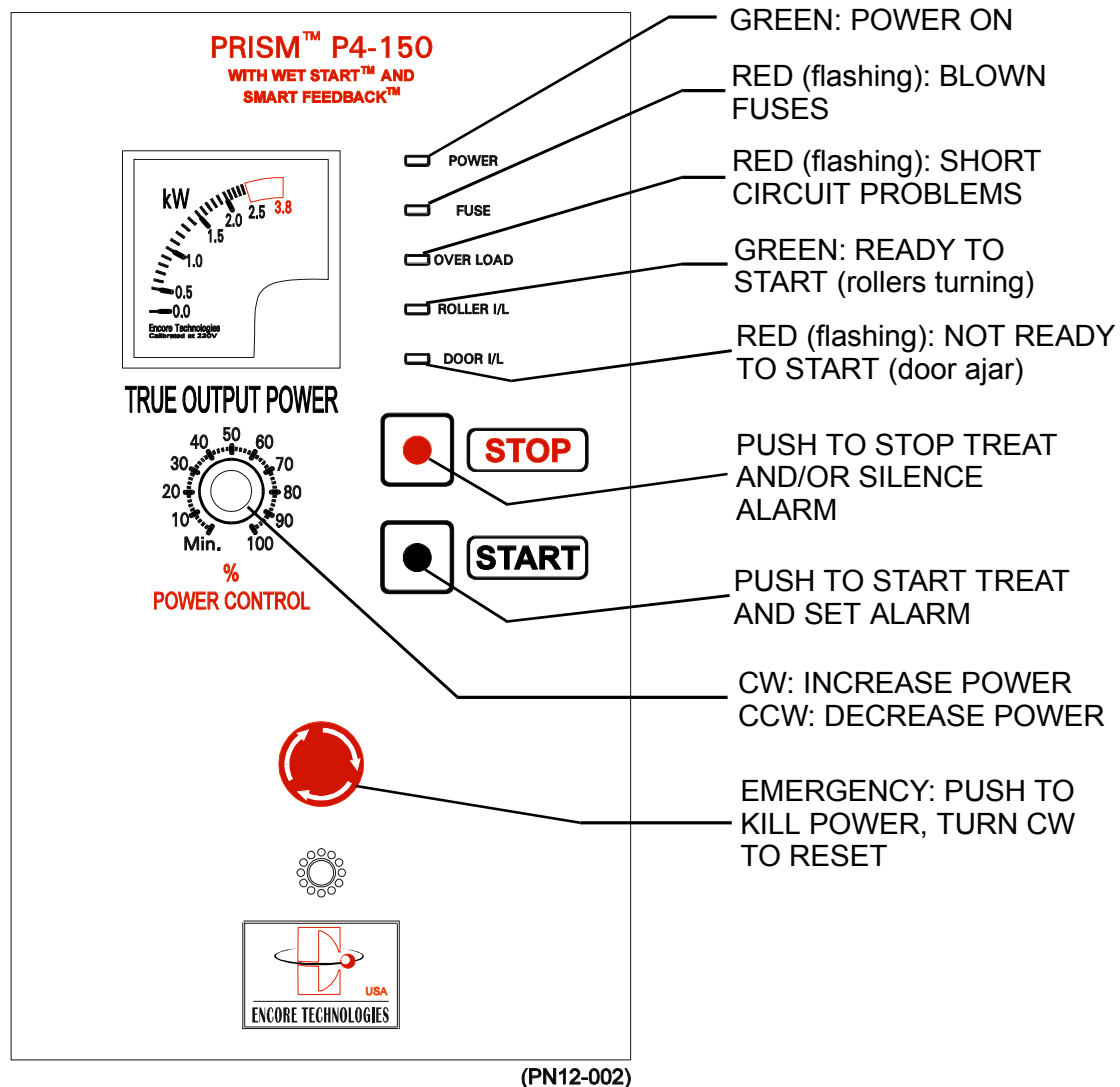
The DHD2 treater station is designed to pivot open in a clam shell fashion by undoing two snap latches. The amount of opening is limited by two steel cables to prevent damage. The rollers can be quickly removed for repairs or sleeve change out. The electrode gaps can be independently adjusted from each end using a flat screwdriver.



ILLUSTRATED INSTRUCTION FOR DHD2 TREATER STATION

4.2 Illustrated Instruction For The Generator

The Prism generator is very simple to operate by following the illustrated instruction below. Note that when the 'FUSE' or 'OVERLOAD' condition exists, i.e., Red flashing lights, the generator will not start until the problem is fixed and the generator is reset. Reset the generator by pushing the Emergency switch to turn off power then turning it clockwise to release the switch.



4.3 When To Change Transformer Taps

The TP4-300 transformer is equipped with three voltage taps: X0-X1, X0-X2, or X0-X3. The taps allow you to tailor the treat power level to your own need. The taps are accessible by removing four small screws holding the cover over the junction box on the side of the transformer. The tap settings are:

Tap **X0-X3**: Low Power, Factory Setting, Recommended

Tap **X0-X2**: Medium Power

Tap **X0-X1**: High Power

IMPORTANT: Regardless of tap settings, X0 always must be connected

You need to change to a higher tap setting when the generator is set at the maximum but you are unable to reach full output power. By changing the tap setting to the next level, you can raise the corona voltage and thus the maximum power output. It is best to use the lowest tap setting possible to prolong the life of your roller covering and lower arcing problems. Note that internal electronics limit is set to not allow the generator to exceed its maximum rated power.

4.4 Using The Interlock Features

Connect the treater station to the generator using the factory supplied Sensor Cable. When the roller turns at a sufficient speed, the **'ROLLER I/L' light on the generator will turn ON steady Green**. At which point, you can start the generator. If the treater station is equipped with a door interlock switch, the 'DOOR I/L' light on the generator must be OFF to indicate that the station is closed and ready.

If the generator is purchased without a treater station, the Sensor Cable is a short pig tail that has been wired at the factory to bypass the Zero Speed sensor and the Interlock switch. You **MUST** connect the Sensor Cable to the generator in order to start it.

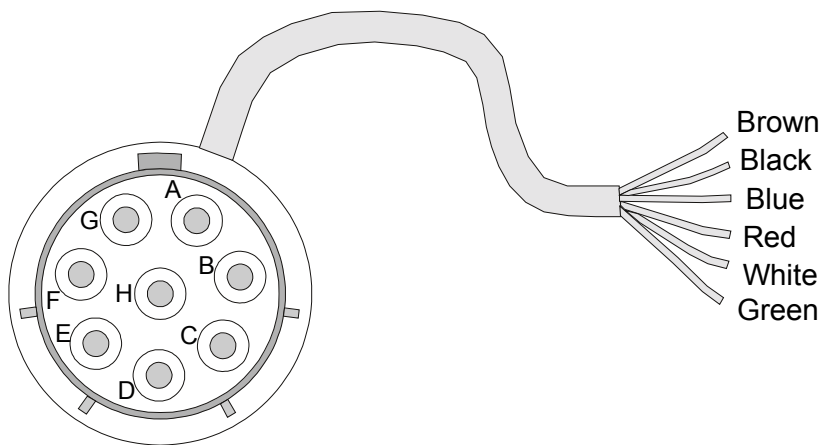
NOTE: The 'ROLLER I/L' light must be ON and the 'DOOR I/L' light must be OFF in order for the generator to start.

Any NPN type Inductive Proximity sensor can be used with one or multiple pulse sensing points mounted on the roller for speed sensing. The generator is set up at the factory to sense and shut down at zero speed. However, any line speed can be requested as an option.

Similarly, any dry contact(s) or limit switch(es) can be wired in series in a Normally Closed circuit to work with the generator. The generator will shut down immediately when the circuit is opened.

The illustration below shows the connections for the interlock features. Again, if the generator is purchased without a treater station the supplied cable has been wired to bypass the sensors. However, you can install Roller Speed sensing and door limit switch(es) in your own treater stations using the connections shown.

SENSOR CABLE



CONNECTOR PIN	WIRE COLOR	FUNCTION
A	BROWN	+12V, 30mA MAX
B	BLACK	SIGNAL, ROLLER SPEED
C	BLUE	COMMON (12V)
D	GREEN	DOOR I/L, N.C.
E	WHITE	DOOR I/L, COM
F	RED	SIGNAL, ROLLER SPEED

PN12-001

- 1. TO BYPASS DOOR I/L: CONNECT WHITE AND GREEN TOGETHER**
- 2. TO BYPASS ROLLER SPEED SENSING: CONNECT BLACK AND BLUE TOGETHER**
- 3. TO USE ROLLER SPEED SENSING: RED AND BLACK MUST BE CONNECTED TOGETHER TO 'SIGNAL', BROWN TO (+) AND BLUE TO (-)**
- 4. ANY INDUCTIVE PROXIMITY SENSOR, TYPE NPN, CAN BE USED FOR ROLLER SPEED SENSING**
- 5. ANY LIMIT SWITCH OR DRY CONTACT CAN BE USED FOR DOOR INTERLOCK**

5.0 TROUBLESHOOTING

The LED's on the front panel of the generator provide you with very effective diagnostic means to help you determine and correct most typical operational problems.

5.1 'POWER' Indicator

The 'POWER' indicator should light a steady Green to indicate that input power is present. If input power is verified to be valid at the plug but there is no 'POWER' indicator, an internal fuse could be bad. Remove the generator cover to get access to a small circuit board mounted behind the front panel. Replace the fuse, F1, with the factory supplied **1A, 250V fuse**. This fuse resembles a small, black thimble with two small prongs on the bottom.

5.2 'FUSE' Indicator

This 'FUSE' indicator will flash Red and the alarm will go off when one or both power fuses are blown. Blown fuses typically signify a serious problem. Turn the Emergency switch OFF and remove main power. Perform a thorough inspection to locate the fault(s) as follows.

5.2.1 Generator Fuse Test

Perform a test on the generator alone to determine if there is any internal fault that requires factory service. If found to have an internal fault, the generator can be repaired by replacing any failed component with factory parts or shipped to Encore for factory repair. Contact us for further assistance.

1. Replace the blown power fuse(s) with supplied spare 15A, 250V ceramic fuse(s).

NOTE: DO NOT use glass fuse as it will void any warranty. Glass fuse will shatter and could cause physical and personnel damage.

2. Disconnect the high voltage transformer from the generator and turn main power back ON.
3. Reset the Emergency switch by turning its knob clockwise. Push 'STOP' to silence the alarm.
4. Ensure that the 'ROLLER I/L' indicator is ON and the 'DOOR I/L' indicator is OFF (by turning the roller or by installing the Sensor Cable that has been wired to bypass the sensing functions).
5. Push 'START' and verify that only the alarm sounds but the 'FUSE' indicator stays OFF.
5. If the 'FUSE' indicator flashes Red, a fault has developed internally to the generator.

5.2.2 System Inspection

If the generator passes the fuse test, the fault could exist somewhere else in the electrical system. Measure the main power with a 'True RMS' multimeter to determine if the voltage is proper. The generator is designed for 220-240V, 50/60Hz operation. A higher voltage will cause the fuse to blow. Voltage surges such as those caused by motors, power factor capacitors or lightning could be of sufficient magnitude and duration to blow the power fuses.

5.2.3 Generator Reset and Restart

To reset the generator, cycle power by pushing the Emergency switch then turning it clockwise to release the switch. The generator will operate in a normal manner if the fault has been successfully removed.

NOTE: Repeated pushing of the 'STOP' and 'START' buttons without cycling power off/on will continue to make the alarm sound each time with no start.

5.3 'OVERLOAD' Indicator

The 'OVERLOAD' indicator will flash Red and the alarm will sound when abnormal conditions occur during operation. Shut down power by pushing the Emergency switch, and remove main power to the generator. When an overload condition occurs **during** normal operation, it is almost certain that a fault has occurred somewhere. Perform a thorough inspection of the entire treating system to locate the fault(s) as follows.

5.3.1 Generator Overload Test

Perform a test on the generator alone to determine if there is any internal fault that requires factory service. If found to have an internal overload problem, the generator can be repaired by replacing any failed component with factory parts or shipped to Encore for factory repair. Contact us for further assistance.

1. Disconnect the high voltage transformer from the generator and turn main power back ON.
2. Reset the Emergency switch by turning its knob clockwise. Push 'STOP' to silence the alarm.
3. Ensure that the 'ROLLER I/L' indicator is ON and the 'DOOR I/L' indicator is OFF (by turning the roller or by installing the Sensor Cable that has been wired to bypass the sensing functions).
4. Push 'START' and verify that only the alarm goes off but the 'OVERLOAD' indicator stays OFF.
5. If the 'OVERLOAD' indicator flashes Red, an internal overload has developed internally to the generator.

5.3.2 System Inspection

If the generator passes the Overload test, the fault exists somewhere else in the treater system. The following inspection points need to be checked and verified:

1. Installation problems that short out the output: This could be caused by wire insulation that has been damaged, or wire breakage shorting to ground or to another wire.
2. Insulation breakdown in the high voltage cable connecting the transformer to the treater station: Look and listen for arcing purple sparks and cracking sound along the entire length of the high voltage path.
3. Insulation breakdown in the high voltage cable connecting the two electrodes: Look for high voltage cable rubbing against a sharp edge or touching the metal sides. This will cause high voltage to arc to ground and create an overload.

4. Breakdown of the insulators that support the electrodes inside the treater station: Look for surface tracking with black burn marks on the insulators that support the electrodes. The surface tracking will form an electrical path from the electrodes to ground and create an overload. The damaged insulators will need to be replaced.
5. Excessive water condensation or contamination deposit on the rollers and the electrodes: Water condensation by ammonia nitrate and contamination in the form of metal dust and oil residues can cause an overload. Ammonia nitrate is a white powder substance that forms due to electrical discharge (corona) in air. It can form dendrites or spikes which absorb moisture and become conductive. All powdery substance and dendrites need to be removed from the electrodes, rollers and insulators to eliminate electrical paths from the high voltage to ground.
6. Holes in roller: Roller covering materials will develop holes and cracks sooner or later. The holes need to be repaired or the damaged roller needs to be replaced to remove the overload condition.
7. Roller wear to the metal core: Roller covering materials such as silicone will wear even if they don't develop holes or cracks. When the wear is excessive, it will create an overload due to the thinness of the material. In which case, the rollers will have to be recovered or replaced.
8. High voltage bushing on corona transformer arcing to ground: The bushing could develop crack and surface tracking due to the heat and aging. When that happens, the bushing can no longer sustain the high voltage and will break down causing an overload. The bushing will have to be replaced.
9. Too much electrode area: It is possible to overload the generator by increasing the electrode area. If additional electrodes are installed, the generator will drop its operating frequency to compensate. However, excessive electrode areas will draw large enough current that even at the lowest frequency the generator still can overload. Reduce the electrode area or request us to lower the operating frequency range of the generator if the additional electrode area is deemed necessary.
10. Bad high voltage transformer: The high voltage transformer will become damaged if the fan stops, the grills are blocked, or excessive heat or aging. Bad transformer is usually indicated by an electrical burned smell, or by its poor visual appearance. The transformer needs to be replaced or sent back to the factory for rebuild.
11. Excessive high voltage: If the rollers are changed out from a silicone or epoxy type to a ceramic, the transformer will have to be changed out also. Silicone or epoxy operate at a substantially higher voltage that will cause an overload when the same transformer is used on ceramic covered rollers. Contact the factory for a transformer specifically built for ceramic.

5.3.3 Generator Reset and Restart

To reset the generator, cycle power by pushing the Emergency switch then turning it clockwise to release the switch. The generator will operate in a normal manner if the fault has been successfully removed.

NOTE: Repeated pushing of the 'STOP' and 'START' buttons without cycling power off/on will continue to make the alarm go off each time with no start.

5.4 'ROLLER I/L' Indicator

The 'ROLLER I/L' indicator should light a steady Green to indicate that the rollers inside the treater station are turning and the generator is ready to be started. If the rollers are turning but there is no indicator, check the spacing between the head of the proximity sensor and the heads of the pulse sensing points. It should be adjusted to within 3/32" (2.4mm) for proper sensing.

Align the pulse sensing points with the head of the proximity sensor and verify that a small Red light on the proximity sensor comes on. This Red light should blink continuously when the roller is turning. If the Red light does not come on even when touching the head of the proximity sensor with a screwdriver, it is possible that an internal fuse is bad. The Prism circuitry is protected from damage if the proximity sensor or its wires come into contact with high voltage (corona). When this happens, a small fuse on the main board will blow and have to be replaced with the factory supplied **500mA, 250V fuse**. This fuse resembles a small, black thimble with two small prongs on the bottom.

If the generator is purchased without a treater station, the supplied Sensor Cable must be connected to the generator for the 'ROLLER I/L' indicator to come on. The Sensor Cable is factory wired to bypass the sensing functions. See section 4.4 for information to connect your own zero speed sensor and door interlock sensing functions. Use a type **NPN, 10-30Vdc** inductive proximity sensor for zero speed sensing.

NOTE: Two Green lights, 'POWER' and 'ROLLER I/L', must be ON for the generator to start. Pushing 'START' when the rollers are not turning, i.e., 'ROLLER I/L' indicator off, will cause the alarm to sound and no start.

5.5 'DOOR I/L' Indicator

The 'DOOR I/L' indicator should be OFF to indicate that the treater station has been closed (if equipped with an interlock switch) and the generator is ready to be started. If the treater station is closed but the 'DOOR I/L' indicator illuminates Red, the limit switch on the treater station probably is out of adjustment. The generator should be connected to the 'COM' and 'NC' terminals of the switch so that when continuity is established the 'DOOR I/L' will turn OFF.

If the generator is purchased without a treater station, the supplied Sensor Cable must be connected to the generator for the 'ROLLER I/L' indicator to come on. The Sensor Cable is factory wired to bypass the sensing functions. See section 4.4 for information to connect your own zero speed sensor and door interlock sensing functions. Use a Normally Closed (NC) type limit switch. Multiple interlocks can be installed by connecting the NC switches in series.

NOTE: The 'DOOR I/L' indicator must be OFF for the generator to start. Pushing 'START' when the interlock is open, i.e., 'DOOR I/L' indicator flashing Red, will cause the alarm to sound and no start.

6.0 MAINTENANCE

Periodic maintenance is the key to long life and trouble free operation of your Prism components. In general, we recommend that dusting with a vacuum cleaner once every month be carried out with the generator, the transformer and the treater station. Shop air can also be used to blow out accumulated dirt and dust. Without a vacuum cleaner or shop air, simple wiping with a dry or slightly dampened rag will go a long way in keeping the equipment clean.

6.1 Treater Station

Some of the byproducts created by corona treatment include ozone and ammonium nitrate. Ozone will eat, corrode or pit the surface of most anything it comes into contact with: screws will rust, plastics will become dull and brittle, etc. Frequent cleaning and vacuuming will greatly prolong the life of the treater station. However, part replacement will become necessary over time.

Ammonium nitrate forms clear yellow crystals in the form of whiskers on electrodes and rollers. These crystals will create short circuit paths to ground and cause the generator to shut down. The problem is much worse in a hot and humid environment. Thorough cleaning of the electrodes and rollers is a must, especially if the station has been idled for a while. Wet rags will easily remove the whiskers that tend to collect on the underside of the electrodes and insulators like small spikes.

6.2 Generator

The generator uses an internal fan that circulates air through its inside. The filter needs to be removed and dusted off or washed at least once every three months. We recommend that the generator be removed from service at least once every six months for cleaning and general maintenance. The following procedure must be done by a technician who is familiar with electrical/electronic equipment.

Remove the cover and vacuum the inside thoroughly. The fan blades will collect sometimes heavy accumulation of dust that must be cleaned off with a rag. Use the proper screwdrivers to re-tighten ALL screw connections. Look for loose push-in terminals and lugs. A loose connection will generate heat that will turn wire insulation a brownish color. It may be necessary to retighten the push-in terminals or it may require complete replacement.

Inspect the plug-in connectors on the electronic boards. Do not push on the connectors from one side to try to reseat them. This will put force on the board causing it to flex and possibly break. Instead squeeze the connectors and the board at the same time with both thumbs and fingers to reseat them.

6.3 Transformer

The transformer sees the most hostile environment being mounted usually up high. The cooling fan tends to pull hot and humid air plus dirt, dust and oil droplets right through the transformer coils. If the fan fails or the perforated sides become clogged, the transformer will fail rather quickly due to heavy heat buildup.

It is vital that the perforated sides of the transformer housing be cleaned weekly or when it appears dirty. Do this by first turning the generator off then clean with a rag or a vacuum cleaner.

Ozone will corrode the connector and the electrical connections inside the transformer. Wire insulation can become brittle over time and break due to vibration. The transformer housing can be easily removed to allow inspection of the internal components. The fan and its blades need to be thoroughly cleaned and vacuumed. The transformer can be dusted with shop air to blow out accumulated dust and dirt. Air gaps are built in around the transformer coil to allow air to carry the heat away from the windings. These air gaps will become clogged with dust that need to be blown out with shop air.

7.0 FACTORY SUPPLIED ACCESSORIES

<u>Item</u>	<u>Qty</u>	<u>Part Number and Description</u>
1	1	Power cable with plug for 220V, 50/60Hz
2	1	Plug only for 220V, 50/60Hz
3	1	Minifuse, 500mA, 220V
4	1	Minifuse, 1A, 220V
5	1	Output cable, circular plugs both ends
6	1	Sensor cable, circular connectors on both ends (or circular connector on one end with open end wired for bypass when purchased without a station)
7	2	Power fuse, 15A, 220V, ceramic body