**Incoming Call Troubleshooting**

**Generator is running with utility power present**

-confirm that utility power is back

-neighbors houses are lit up

-utility meter digital display is flashing a bunch of numbers and isn’t dark

-utility notifications or outage map no longer shows an outage

-go out to generator, turn the breaker off

-let gen run for a minute to cool down and press the OFF button

-if transfer switch automatically transfers back on its own

-most likely a utility sense fuse is blown

-leave unit off, schedule for diag

-if transfer switch does not transfer back on its own

-there is an issue in the transfer switch like a SACM module failure, wiring issue, etc.

-remove the thumbwheel at the bottom of the cover, slide the bottom of the cover towards you and pull down

-turn the big breaker in the transfer switch OFF

-use the emergency yellow handle or a small Philips head screwdriver, insert it into the yellow block behind the slot

-yellow block should be in the down position, push the block up all the way

-remove the handle and turn the big breaker on

-all of the house lights should come on at this point

-schedule for diag

-if the handle would not move to the upper position then something melted on the contactor and will need emergency service

-if this is the case make sure the yellow block is down and the handle is removed

-turn gen back to auto position, it will wait 5 seconds and start so be prepared

-once it starts turn the gen breaker on

-house will run on gen until tech arrives

**Utility power is out, generator isn’t running**

-First step is to go out to the gen, lift the lid, and see what fault the controller display is reading

-See fault listings under General Issues

-Customer should clear the fault and place back in auto

-Gen will wait 5 seconds and attempt to start again

-If gen faults out again then it most likely has an issue that cannot be resolved without a site visit

-Common issues are gen has an aux shutdown, a fuel valve that has been turned off, gen is out of fuel, or it faulted out awhile back and is sitting in fault currently

-If gen starts and transfers then it may have just been a hiccup or an intermittent issue

-Customer can decide whether or not they want to schedule a diag or emergency call

**Utility power is out, generator is running but house is dark**

-Gen has a failure to transfer to the gen position

-First step is to lift the lid on the gen and check that the breaker is in the on position and not off/tripped

-Recommend taking the breaker handle and pulling it towards yourself to the OFF position completely

-Then push it all the way away from you to the ON position

-Check house to see if lights came on

-If not place the gen breaker to OFF, leave gen running

-Locate transfer switch and remove the front cover

-remove the thumbwheel at the bottom of the cover, slide the bottom of the cover towards you and pull down

-use the emergency yellow handle or a small Philips head screwdriver, insert it into the yellow block behind the slot

-yellow block should be in the up position, push the block down all the way

-remove the handle

-go out to the gen and turn the breaker ON

-all of the house lights should come on at this point

-schedule for diag

-gen may or may not go back to utility position and shut off on its own, recommend having customer monitor utility and manually transferring it to avoid an emergency trip

-if the handle would not move to the down position then something melted on the contactor and will need emergency service

-if this is the case make sure the yellow block is up and the handle is removed

-turn gen off

-house will be dark until tech arrives to resolve or until utility is restored

**Utility came back, gen shut down and house is dark**

-Gen had a failure to transfer back to utility

-If this symptom occurred it will be accompanied by a Charger Missing AC warning

-Utility sense fuses are good, most likely an internal transfer switch issue like a SACM module failure, wiring issue, etc.

-remove the thumbwheel at the bottom of the cover, slide the bottom of the cover towards you and pull down

-turn the big breaker in the transfer switch OFF

-use the emergency yellow handle or a small Philips head screwdriver, insert it into the yellow block behind the slot

-yellow block should be in the down position, push the block up all the way

-remove the handle and turn the big breaker on

-all of the house lights should come on at this point

-schedule for diag

-if the handle would not move to the upper position then something melted on the contactor and will need emergency service

-if this is the case make sure the yellow block is down and the handle is removed

-turn gen back to auto position, it will wait 5 seconds and start so be prepared

-once it starts turn the gen breaker on

-house will run on gen until tech arrives

**General Issues**

-red light

-always start by clearing the fault:

-Press OFF button or move rocker switch to OFF position depending on the model

-Press ENTER button twice

-If fault cleared the display will say SET TO OFF, fault is cleared at this point

-If utility is out gen can be put back to AUTO and gen will attempt to start because the utility is out

-If utility is present it is recommended to put gen in MANUAL position to force it to start

-If gen starts then issue may have been a hiccup, gen can be put back in AUTO and recommend customer keep an eye on green light and exercise cycle over next few weeks to ensure fault does not come back

-If gen does not start after the 3-5 crank cycles then most likely something has failed and recommend a diag visit

-check the fault on display, common issues are:

-Aux Shutdown 2800

-emergency stop buttons are located inside the gen in front of the engine, on the back of the enclosure, and sometimes on the transfer switch

-most common one is the back of the enclosure

-yard debris coming off of roof, someone in the yard, snow melting off of gen, squirrels can all cause the button to be bumped or fully pressed

-on the controller push off and enter

-if fault clears and controller says SET TO OFF then press auto and it should say READY TO RUN

-if the fault does not clear then one of the buttons is fully pushed and needs to be set back

-start with the button on the back of the enclosure, press to the opposite side

-then try clearing fault again

-on the controller push off and enter

-if fault clears and controller says SET TO OFF then press auto and it should say READY TO RUN

-if fault does not clear it was not that button, push button back to original position and try a different one

-RPM Sense Loss (also displayed as a No Rotation Warning)

-the generator attempted to start but the engine did not crank

-typically caused by a dead battery (most likely)

-can also be a bad battery cable, starter motor, or a catastrophic engine failure (least likely)

-recommend clearing fault and manually starting

-if the battery is dead or a cable is bad the gen will not do anything and most likely will reboot the controller and go to the install wizard

-if the power is out the controller may die and not reboot at all

-a starter that is failing or the unit has an intermittent cranking issue most likely will eventually crank if you clear the fault and attempt a restart a few times

-Low Oil Pressure

-engine was running and controller shut down because it is out of oil

-some newer 10kw Evo controlled gens have a software bug for this error, if the customer verifies that the oil level is fine with no leaks they can be cleared and restarted without issue, will just need a software update

-any other gens should be kept off

-customer should pull the front cover to inspect

-yellow/brown/orange oil cap is in place and not missing

-when this happens the engine will blow all of its oil into the inside of the enclosure which starves the engine

-this is common on new units where installers do not check the oil and verify that the cap is tight, not a warranty issue but installer error

-if unit was recently serviced then technician or customer performing there own work didn’t tighten cap enough

-customer can elect to wipe up the oil then top off engine to proper level, unit can then be restarted

-if the cap is in place then an oil leak on the engine occurred, most likely a seal or oil cooler line came off

-will require repairs before a restart

-if no oil is present in the enclosure and the dipstick indicates the proper oil level then there is either an internal engine failure, controller issue, or oil pressure sensor issue

-schedule diagnostic visit

-Overtemp

-this fault is usually caused by the unit being covered in snow

-first step is to go out to the gen to inspect surrounding area

-if the unit is covered in snow, shovel out the enclosure

-once clear, the gen will cool off and restart on its own

-if the enclosure did not have any air flow blockage then the temperature sensor is faulty or one of the cooling fans is broken

-if that is the case turn unit off and schedule diag visit

-Overcrank

-this fault occurs when the gen goes through the 3-5 crank cycles and fails to start

-this can occur for many reasons that require a diagnostic visit

-one qualifier we can check before dispatching is the fuel supply

-if the customer is on propane they are either out of fuel or they just had the tanks filled and the driver left the tanks closed or shut the fuel valve at the gen off

-having the customer check their tanks to make sure they have fuel and that everything is turned on will save a diag visit for no reason

-if something is closed (tank valves must be fully turned counterclockwise, fuel shut off valve handles must be in line with the gas pipe) customer can open them and manually start the gen to purge the line

-Overvoltage

-this is typically caused by a faulty controller or something internal to the gen failing, recommend leaving the gen off and scheduling a diagnostic visit

-Overload

-this shutdown typically happens when the generator is improperly sized by the installer or has an undersized fuel supply choking the engine out at higher loads

-the proper repair is to size the gen according to the loads and ensure the fuel supply is large enough for the gen or install load shed modules to isolate them

-the customer can turn the breakers off to any larger loads to isolate them and reset the fault

-these loads are typically going to be any electric heat sources, central air conditioners, electric hot water heaters, and stoves

-Undervoltage

-this fault occurs when the output voltage is too low while running

-common causes for this fault are faulty controllers, unit running at too low of an engine speed (engine not coming up to speed fast enough), faulty brushes, or alternator failures

-other causes for this are generator overload situations and the gen is flagging it as undervoltage

-Underspeed

-this fault occurs if the engine is not running at the correct speed

-this can also be caused if the generator is overloaded or has a fuel supply issue

-recommend clearing fault and restarting

-if fault comes back again schedule for diagnostic visit

-yellow light or yellow with green light

-maintenance is due, not a fault

-if generator is operating correctly it will be combined with a green light indicating that it is still exercising and operating in auto mode

-controller will say maintenance required but may also flash inspect battery, change oil/filter, change air filter, change spark plugs

-schedule as a regulator preventative maintenance

-yellow light with red light

-indicates that maintenance is due but that the unit failed to start

-this is typically due to a dead battery or a heavily corroded battery cable if the unit hasn’t been serviced in years

-recommend scheduling as a diagnostic visit and a preventative maintenance to get unit up and running along with up to date on maintenance

-unit may also need a battery and/or cables depending on how long it has been sitting due for service