Switchboard Transfers

This EOP provides the following switchboard transfer procedures for operational personnel to follow when loss of utility power causes the Perdix to transfer the load to the generator.

**Caution:** Do not attempt to transfer from generator to utility power without a qualified electrician present.

**Important:** Two-Man Rule: Two people are required to perform any procedure that involves working on energized electrical equipment at 600 volts or greater. Both persons must understand the entire procedure before performing any step of the procedure. One person will read, observe, and verify the performance of each step; both persons must identify and agree which control will be manipulated before executing a change in state; the second person performs each step only when instructed to do so.

**Important:** Personal protective equipment (PPE) required is task and equipment specific based on completed Hazard Risk Analysis. Refer to the DCGS Safety Manager for more information.

**NOTE:** At this switchboard, *Utility Main* refers to source 1 and *Gen Main* refers to source 2.

The following table provides information about the switchboard, its associated generator, and the UPS that the switchboard feeds.

|  |  |  |  |
| --- | --- | --- | --- |
| **Site** | **Type of Switchgear** | **Type of Associated Generator** | **Type of UPS Fed** |
| DCA 50 & 51 | GE Spectra Series SB(switch Board) | Caterpillar 3516C Gen set | GE SG Series UPS |

# References

## Authorization

## Training/Certification

## Equipment/Information

## Policies

## Related Procedures

# Security Considerations

# Switchboard Transfer Procedures

Perform one of the procedures described in the following table as required.

|  |  |
| --- | --- |
| **Under These Conditions** | **Under These Conditions** |
| Utility power fails and the load automatically transfers to the generator | Verifying the automatic transfer from utility power to generator power. |
| Utility power fails and the load does not transfer automatically to the generator. | Transferring manually from utility power to generator power using the switchboard controls.  **Important:** A first responder operator can complete the above procedure without an electrician present. However, it assumes previous training and experience using the switchboard controls. |
| The switchboard controls are not operational. | Transferring manually from utility power to generator power using breakers.  **Important:** Only qualified personnel can perform the above procedure. |

## Verifying the Automatic Transfer from Utility to Generator Power

When utility power fails, use this procedure to verify that the switchboard automatically transfers to generator power.

**Important:** A first responder operator can complete the above procedure without an electrician present. However, it assumes previous training and experience using the switchboard controls.

1. At the Perdix switchboard, locate the ATC-600 controller Status area.
   1. 
2. Verify that for Source 2, the Available and Connected lights are illuminated.
3. Verify that the Load Energized light is illuminated.
   1. This indicates Generator Perdix is supporting the load for the Perdix.
4. Verify that the generator is supplying 470 to 490 volts, phase to phase, by pressing the Display Select button until the Source 2 LED is illuminated.
   1. This displays Phase AB voltage.
5. Press the **Step** button to scroll through all three phases.
6. At the generator cab control panel, check the annunciator panel for any alarms.
   1. If alarms are present, refer to the *IAD1 Emergency Generator Alarm Response* EOP.
7. Verify that downstream equipment is receiving power from the generator and is out of alarm.
   1. For a USB switchboard, verify that its corresponding USPs are out-of-alarm and critical downstream equipment is running normally without interruption.
   2. For an MSB switchboard, contact the on-site mechanical personnel to verify proper mechanical operation. The Bowers duty phone number is 240-429-0478.
8. Notify the DCE Primary of the transfer at iad-dce-primary@amazon.com.

## Transferring Manually from Utility to Generator Power Using Switchboard Controls

Use this procedure when utility power fails and the load does not transfer automatically to the generator.

This section includes the following tasks:

* Verify generator operation
* Start generator with the emergency generator start switch
* Start generator manually
* Perform manual transfer
* Verify manual transfer from utility power to generator power

**Important:** You must perform all the tasks in this section to transfer from utility to generator power.

### Verify generator operation

1. At the ATC-600 controller Status area, verify the following:
   1. The **Source 1** (utility power) **Connected** light is illuminated
   2. The **Source 1** (utility power) **Available** light is not illuminated
   3. The **Load Energized** light is not illuminated
2. Verify that the generator is supplying 470 to 490 volts, phase to phase, by pressing the **Display Select** button until the **Source 2** LED is illuminated.
3. This displays Phase AB voltage.
4. Press the **Step** button to scroll through all three phases.
   1. If the voltage is correct, skip to *Perform manual transfer*.
   2. If the generator is not running, proceed to *Start generator using emergency generator start switch*.

### Start generator using emergency generator start switch

1. Remove the fastener to the switchboard panel door and open the panel door.
2. Locate and switch the **Emergency Generator On** switch to the **On** position.
3. Close and fasten the panel door.
4. Verify that the generator is supplying 470 to 490 volts, phase to phase, by pressing the **Display Select** button until the Source 2 LED is illuminated.

This displays Phase AB voltage.

1. Press the **Step** button to scroll through all three phases.
   * If the voltage is correct, skip to *Perform manual transfer*.
   * If the generator does not start, proceed to *Start generator manually*.

## Start generator manually

1. At the generator cab control panel, check whether the generator is running.
2. If the generator is not running, skip to Step 4.
3. Check the generator breaker. It should be closed.

**DANGER!** If the breaker is tripped, \*\*\*STOP\*\*\* DO NOT PROCEED! Escalate immediately and have a certified electrician in full PPE inspect and reset the breaker.

1. If the generator breaker is open, close it, and skip to Step 10.
2. If the generator is not running, check the annunciator panel for any alarms.



1. If alarms are present, refer to the IAD1 Emergency Generator Alarm Response EOP.
2. Press the STOP button on the generator control panel.

**Important:** Do not press the large red EMERGENCY STOP button.

1. Press the RUN button.

This starts the generator.

1. Check the generator breaker. It should be closed.

**DANGER!** If the breaker is tripped, \*\*\*STOP\*\*\* DO NOT PROCEED! Escalate immediately and have a certified electrician in full PPE inspect and reset the breaker.

1. If the generator breaker is open, close it.

**DANGER!** If the breaker trips when you close it, \*\*\*STOP\*\*\* DO NOT PROCEED! Escalate immediately and have a certified electrician in full PPE inspect and reset the breaker.

1. Check the generator annunciator panel for any alarms. If alarms are present, refer to the IAD1 Emergency Generator Alarm Response EOP.
2. At the switchboard ATC-600 controller, verify that the generator is supplying 470 to 490 volts by pressing the Display Verify button until the Source 2 LED is illuminated.

This displays Phase AB voltage.



1. Press the **Step** button to scroll through all three phases.

### Perform manual transfer

1. Turn the MANUAL AUTO switch to the MANUAL position.
2. Turn the UTILITY switch to the OPEN position.
3. Verify that the utility main breaker labelled 52-1 is open and locked out using the lockout/tagout procedure.

**Caution:** Hazard of shock, arc flash, or equipment damage! You must lock out the MAIN UTILITY breaker. Failure to follow this instruction can result in personal injury or equipment damage.

1. At **UTILITY**, verify that the green **OPEN** light illuminates.
2. Turn the **GENERATOR** switch to the **CLOSED** position.
3. At **GENERATOR**, verify that the red **CLOSED** light illuminates.

### Verify manual transfer from utility to generator power

1. At the Perdix switchboard, locate the display panel Status area.
2. Verify that for Source 2, the Available and Connected lights are illuminated.
3. Verify that the Load Energized light is illuminated.
   1. This indicates the generator is supporting the load for the Perdix.
4. Press the Step button to scroll through all three phases.
5. At the generator cab control panel, check the annunciator panel for any alarms.

* If alarms are present, refer to the IAD1 Emergency Generator Alarm Response EOP.

1. Verify that downstream equipment is receiving power from the generator and is out-of-alarm.
   * For USB switchboards, verify that the corresponding USPs are out-of-alarm and critical downstream equipment is running normally without interruption.
   * For MSB switchboards, contact the on-site mechanical personnel to verify proper mechanical operation. The Bowers duty phone number is 240-429-0478.
2. Notify the DCE Primary of the transfer at [iad-dce-primary@amazon.com](mailto:iad-dce-primary@amazon.com).

**NOTE:** If this procedure fails to transfer the electrical load to the generator and both the UTILITY MAIN and GENERATOR breakers are not tripped, skip to the section T*ransferring Manually from Utility to Generator Power with Breakers*.

**Important:** Only qualified personnel can perform the following procedure.

## Transferring Manually from Utility to Generator Power with Breakers

Use the following transfer and verification procedures when the switchboard touch screen is not operational.

### Transfer manually from utility to generator power with breakers

1. Verify that the generator main breaker labelled **52-2** is open.
2. Verify that the utility main breaker labelled **52-1** is open and locked out per Step 3 of the *Perform manual transfer task*. If the utility main breaker labelled **52-1** is not open, continue at Substep a using the lockout/tagout procedure.
3. Press the **PUSH OFF** button to open the utility main breaker labelled **52-1**.



1. Verify that the window above the PUSH OFF button indicates OPEN.

**DANGER!** When closing a main switchboard breaker to transfer power, verify that the breaker for the other source (utility or generator) is locked open. Having both closed at the same time will result in equipment damage, injury, or death.

**Important:** If the utility main breaker labelled 52-1 is not in the OPEN position, STOP, DO NOT PROCEED! Call your on-call person for further instruction.



1. Close the generator breaker labelled 52-2 by pressing the PUSH OFF button.
2. Verify that the generator breaker labelled **52-2** status window (above the **PUSH OFF** button) indicates **CLOSED**.

**Important:** If the Generator breaker is not in the CLOSED position, STOP, DO NOT PROCEED! Call your on-call electrician for further instruction.

### Verify manual transfer from utility to generator power

1. At the Perdix switchboard, locate the display panel **Status** area.
2. Verify that for **Source 2**, the **Available** and **Connected** lights are illuminated.
3. Verify that the **Load Energized** light is illuminated.

This indicates Generator Perdix is supporting the load for the Perdix.

1. Press the **Step** button to scroll through all three phases.
2. At the generator cab control panel, check the annunciator panel for any alarms.
3. If alarms are present, refer to the *IAD1 Emergency Generator Alarm Response EOP*.
4. Verify that downstream equipment is receiving power from the generator and is out of alarm.
5. For USB switchboards, verify that the corresponding USPs are out-of-alarm and critical downstream equipment is running normally without interruption.
6. For MSB switchboards, contact the on-site mechanical personnel to verify proper mechanical operation. The Bowers duty phone number is 240-429-0478.
7. Notify the DCE Primary of the transfer at iad-dce-primary@amazon.com.

## Document Properties

|  |  |
| --- | --- |
| **Property** | **Value** |
| Site Code | DCA |
| Filename | dca\_dceo\_eop\_switchboard |
| Title | Switchboard Transfers |
| Version number/Date version published | Draft |
| Doc Type | EOP |
| Zone | Region |
| Technical Owner | swilleye@ |
| Technical Writer | beelliot@ |
| Affected Equipment | Switchboard |
| Sensitivity rating | Amazon Confidential |
| Origin | Commercial version |
| URL | TBD |
| Physical location | TBD |
| Audience | EOT |
| Renewal date | 1/1/15 |
| Special requirements | NA |
| Safety considerations | NA |
| Physical requirements | NA |

## Status

|  |  |  |
| --- | --- | --- |
| **Status** | **Date mm/dd/yy** | **Approver/Reviewer Name** |
| Original filed |  | NA |
| Writer sent to SME for review |  | NA |
| SME sent to Writer |  | NA |
| Writer sent to SME for approval |  | NA |
| SME approved |  |  |
| Writer copy edited |  | NA |
| Site Manager approved |  |  |
| Regional Manager approved |  |  |
| Writer published |  | NA |