IMPAC™

BY MISSION CRITICAL ELECTRONICS

System Orientation Card

1. Introduction to the IMPAC System

Idle Mitigation Power Automation Control (IMPAC) is an alternative technology to a secondary engine-powered auxiliary power unit (APU) for powering the tools and equipment in MRU/RAV trucks. IMPAC uses batteries to store the energy needed to power the MRU/RAV tools and equipment. IMPAC ensures the compressor is properly heated and the batteries are properly recharged when the truck is connected to shore power. When shore power is not connected and the operator has activated the equipment, IMPAC automatically starts and stops the chassis engine to use an upgraded alternator, ensuring the proper conditions are maintained for operation of the tools and equipment.

System Activation (On/Off)

EQUIPMENT ACTIVATION
PUSH AND HOLD BUTTON TO ACTIVATE.
Flashing Light - Set parking brake and remove key to activate.
Solid Light - Successfully activated.

For more information about ZeroRPM IMPAC system, see label on driver-side visor.
4501-40110A

Charges from: Alternator Shore Power

Provides Power to: All tooling and equipment with manual switches and integrated AC and DC circuit breakers (air compressor, 120V outlets, liftgate, jump-starting, etc.)

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Figure 1 — IMPAC System Diagram

2. Usage Scenario

The IMPAC system performs optimally when the truck has been connected to shore power while not in use. When the operator starts the truck, the shoreline automatically ejects and the truck starts as normal. While the truck is being driven, IMPAC uses load shedding to optimize the recharge of its batteries by the upgraded alternator. When equipment is activated on a job, IMPAC automatically starts and stops the engine to maintain ideal operating conditions. When the truck is driven again, the operator starts the truck as normal and IMPAC maintains ideal conditions to optimize performance for the next stop or until the truck is turned off for the day.

3. System Operation

The operator may activate the equipment while the truck is at idle by setting the parking brake, then pressing the Equipment Activation button (Figure 2), and finally removing the key from the ignition within five seconds. The Equipment Activation button is illuminated solid green when the equipment activation is successful.
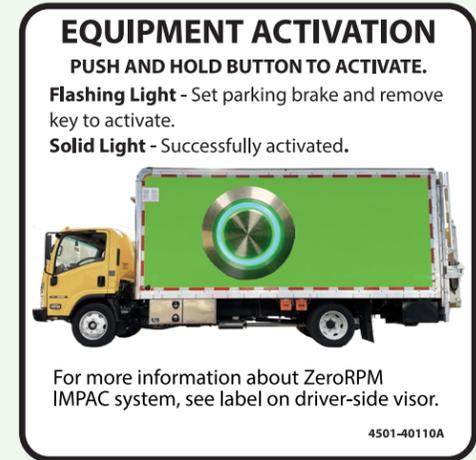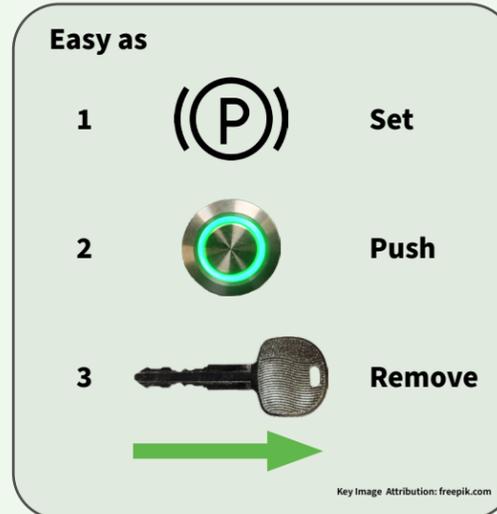

Easy as

1 (P) Set
2 Push
3 Remove

Key Image Attribution: freepik.com

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Figure 2 — Equipment Activation Decal

IMPAC manages the proper operating conditions for the electrical tools and equipment. The IMPAC display (Figure 3) provides system status feedback to the operator.
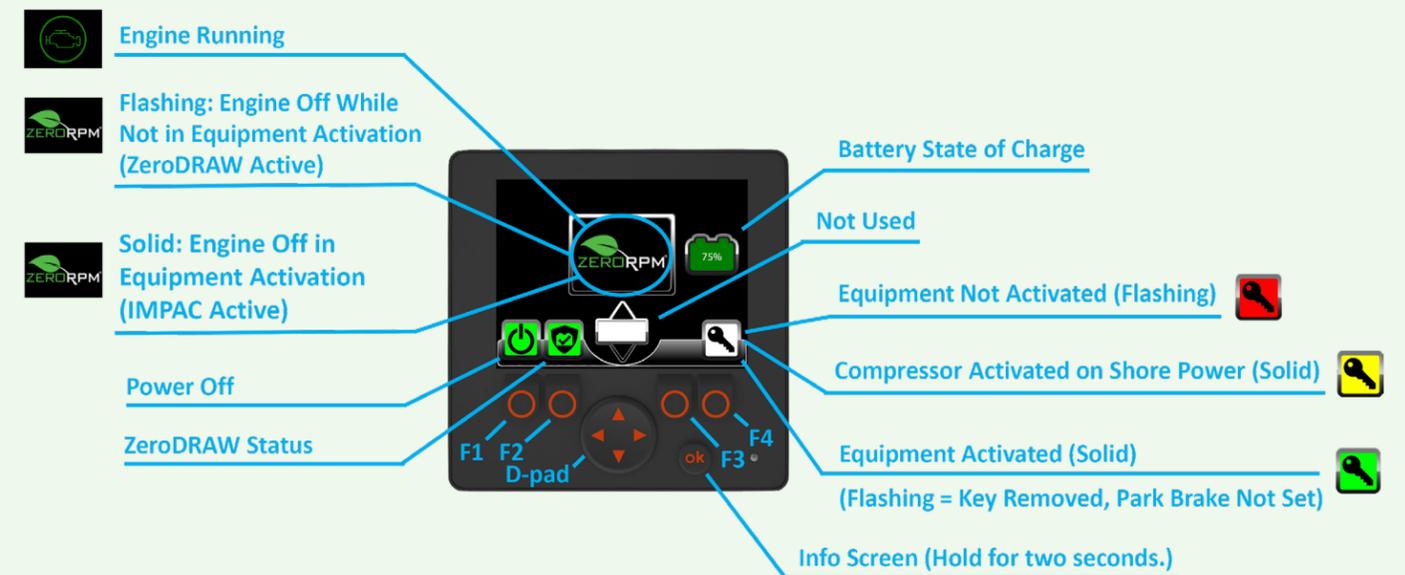

- Engine Running
- Flashing: Engine Off While Not in Equipment Activation (ZeroDRAW Active)
- Solid: Engine Off in Equipment Activation (IMPAC Active)
- Power Off
- ZeroDRAW Status
- Battery State of Charge
- Not Used
- Equipment Not Activated (Flashing)
- Compressor Activated on Shore Power (Solid)
- Equipment Activated (Solid)
- (Flashing = Key Removed, Park Brake Not Set)
- Info Screen (Hold for two seconds.)

Figure 3 — Operator Screen Diagram

NOTE: This illustration depicts the most commonly used icons. Additional icons will be displayed during operation.

3 System Operation — Continued

IMPAC provides a central location for user interaction and information through the IMPAC display, as well as through AC and DC circuit breakers and Feature Control switches (Figure 4).
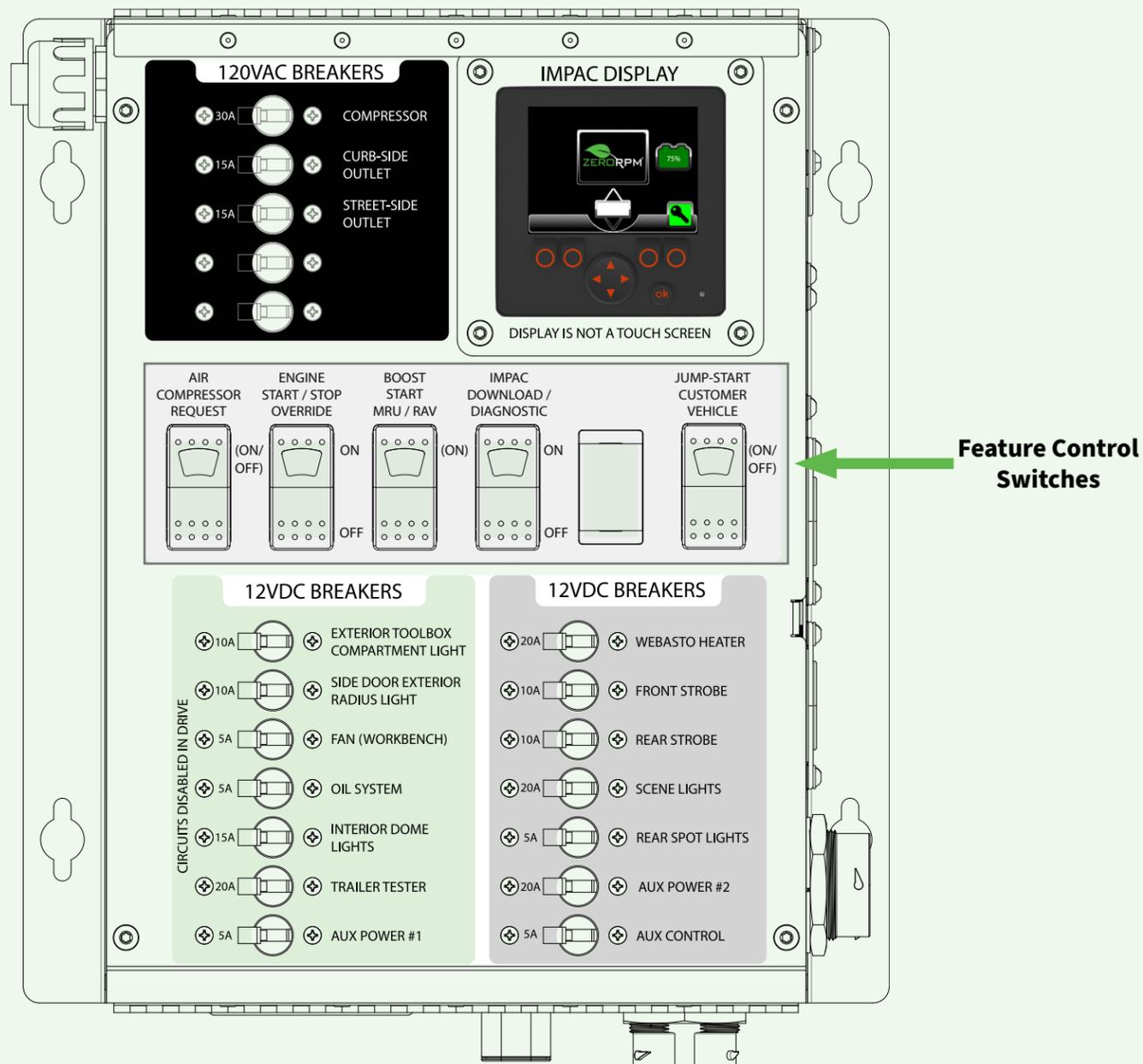

Figure 4 — IMPAC Power Distribution Module User Interface Diagram

IMPAC Technical Reference Documentation

① **System Orientation Card**
Doc. #: 4806-00040

② **System Overview Guide**
Doc. #: 4806-00038

③ **Frequently Asked Questions**
Doc. #: 4806-00039

④ **Operator Manual**
Doc. #: 4806-10007

⑤ **Theory of Operation**
Doc. #: 4818-10053

4 Operating Modes

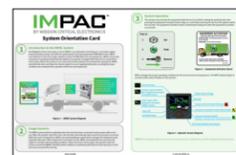The table below provides a quick reference to understand which loads are powered under certain operating modes.

		Mode 0	Mode 1	Mode 2	Mode 3	Mode 4	Mode 5
Icons Displayed While Mode is Active							
Mode Number		Mode 0	Mode 1	Mode 2	Mode 3	Mode 4	Mode 5
Mode Name		Engine Running, Equipment Not Active	Equipment Active	Shore Power	ZeroDRAW	Sleep	Off
Lift Gate	Lift Gate	X	X	X	X	X	X
Always-on 12VDC Loads	Webasto Heater	X	X	X	X		
	Front Strobe	X	X	X	X		
	Rear Strobe	X	X	X	X		
	Scene Lights	X	X	X	X		
	Rear Spotlights	X	X	X	X		
	Aux Power #2	X	X	X	X		
	Aux Control	X	X	X	X		
Disabled-in-Drive 12VDC Loads	Exterior Toolbox Compartment Light	X	X	X	X		
	Side Door Exterior Radius Light	X	X	X	X		
	Fan (Work Bench)	X	X	X	X		
	Oil System	X	X	X	X		
	Interior Dome Lights	X	X	X	X		
	Trailer Tester	X	X	X	X		
	Aux Power #1	X	X	X	X		
Controls	IMPAC Controls	X	X	X	X		
120VAC Loads	Curb-side Outlet	X	X	X	X		
	Street-side Outlet	X	X	X	X		
	Air Compressor		X – N1	X – N3			
Export	Jump Start		X – N2				

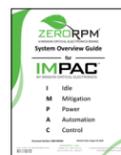*Table 1 — Powered Loads vs IMPAC System Modes*

- N1: Upon request by pressing the "Air Compressor Request" button.
- N2: Upon request by pressing the "Jump-Start Customer Vehicle" button.
- N3: Upon request by pressing F4 while connected to shore power.

More details on the IMPAC system are available at *https://www.zerorpm.com/resources/start-impac*, which can accessed by scanning the QR code to the right.