OPERATION MANUAL

MQ POWER®

MODELS
DEFTANK1
DEFTANK2
DEF REPLENISHMENT SYSTEM

Revision #0 (07/29/22)

Discount Equipment

THIS MANUAL MUST ACCOMPANY THE EQUIPMENT AT ALL TIMES.

TO PURCHASE THIS PRODUCT PLEASE CONTACT US

Discount Equipment

Equipment Financing and
Extended Warranties Available

Discount-Equipment.com is your online resource for commercial and industrial quality parts and equipment sales.
561-964-4949
visit us on line @ www.discount-equipment.com

Select an option below to find your Equipment

Search by Manufacturer

Search by Product Type

Request a Quote

We sell worldwide for the brands: Genie, Terex, JLG, MultiQuip, Mikasa, Essick, Whiteman, Mayco, Toro Stone, Diamond Products, Generac Magnum, Airman, Haulotte, Barreto, Power Blanket, Nifty Lift, Atlas Copco, Chicago Pneumatic, Allmand, Miller Curber, Skyjack, Lull, Skytrak, Tsurumi, Husquvarna Target, Stow, Wacker, Sakai, Mi-T-M, Sullair, Basic, Dynapac, MBW, Weber, Bartell, Bennar Newman, Haulotte, Ditch Runner, Menegotti, Morrison, Contec, Buddy, Crown, Edco, Wyco, Bomag, Laymor, EZ Trench, Bil-Jax, F.S. Curtis, Gehl Pavers, Heli, Honda, ICS/PowerGrit, IHI, Partner, Imer, Clipper, MMD, Koshin, Rice, CH&E, General Equipment ,Amida, Coleman, NAC, Gradall, Square Shooter, Kent, Stanley, Tamco, Toku, Hatz, Kohler, Robin, Wisconsin, Northrock, Oztec, Toker TK, Rol-Air, APT, Wylie, Ingersoll Rand / Doosan, Innovatech, Con X, Ammann, Mecalac, Makinex, Smith Surface Prep,Small Line, Wanco, Yanmar

DEFTANK1/DEFTANK2
DEF Replenishment System

NOTICE

Specifications and part numbers are subject to change without notice.

Table 1. Specifications (DEF Tank)		
Model	DEFTANK1	DEFTANK2
System Voltage Requirement	12 VDC	
Amperage Requirement	5.0 amps	5.0 amps x 2
Flow Rate	0.75 gpm (2.83 lpm)	0.75 gpm (2.83 lpm) x 2
Maximum Fluid Pressure	5 psi (34.4 kPa)	
External Hose Length	25 ft. (7.62 m)	25 ft. (7.62 m) x 2
Communication Cable Length	25 ft. (7.62 m)	25 ft. (7.62 m) x 2
Controller Type	Parker	
Tank Capacity	100 gallons (379 liters)	
Tank Material	Polyethylene	
DEF Fluid Type	Complies with ISO-2224	
Optional Heater Receptacle	120 VAC @1,500 watts	
Dry Weight	1,210 lb. (548.8 kg)	
Wet Weight	2,110 lb. (957.1 kg)	

Table 2. Specifications (DEF Dispenser Kit)	
Model	DEFDISPENSERKIT
DEF Flow	8 gpm (30.28 lpm)
Nozzle Size	3/4 in. (19 mm)
Maximum Pressure	38 psi (262 kPa)
Motor Amperage	22 amps
Motor Voltage	12 VDC
Pump Motor	1/4 hp
Duty Cycle	30 minutes
Hose Length	20 ft. (6.09 m)
Material	Poly laminated stainless steel
Weight	17 lb. (7.71 kg)

Table 3. Specifications (DEF Tank Heating Pad)	
Model	DEFTANKHEATPAD
Material	Fiberglass-reinforced silicone rubber
Wattage	1,500 watts
Thermostat Operation Range	34°F to 45°F
Inlet Receptacle	120 VAC / 15 amps
Rated Amperage	12.5 amps
Rated Voltage	120 VAC
Switchable Input	On/Off
Hose Length	20 ft. (6.09 m)
Dimensions	25 × 36 in. (635 × 914 mm)

Table 4. Specifications (DEF Heated Hose)	
Model	DEFHOSEHEAT
Material	Compatible with ISO 22241
Material Temp. Range	–40°F to 248°F
Wattage	132 watts
Thermostat Operation Range	34°F to 45°F
Inlet Receptacle	Deutsch connector DT04-2P with W2P
Rated Amperage	11.0 amps
Rated Voltage	12 VDC
Hose Length	19.7 ft. (6.00 m)
OD	0.57 in. (14.5 mm)
ID	0.21 in. (5.33 mm)
Above specifications are for each DEF heated hose.	

Table 5. Specifications (DEF Tank Lift and Stack Assemblies)		
Model	DEFTANKSTACKKITP	DEFTANKSTACKKITG
Material	Mild steel	
Stacking Capacity	1 unit max.	
Finish	Powder coated	Galvanized
Approx. Weight	250 lb. (113 kg)	

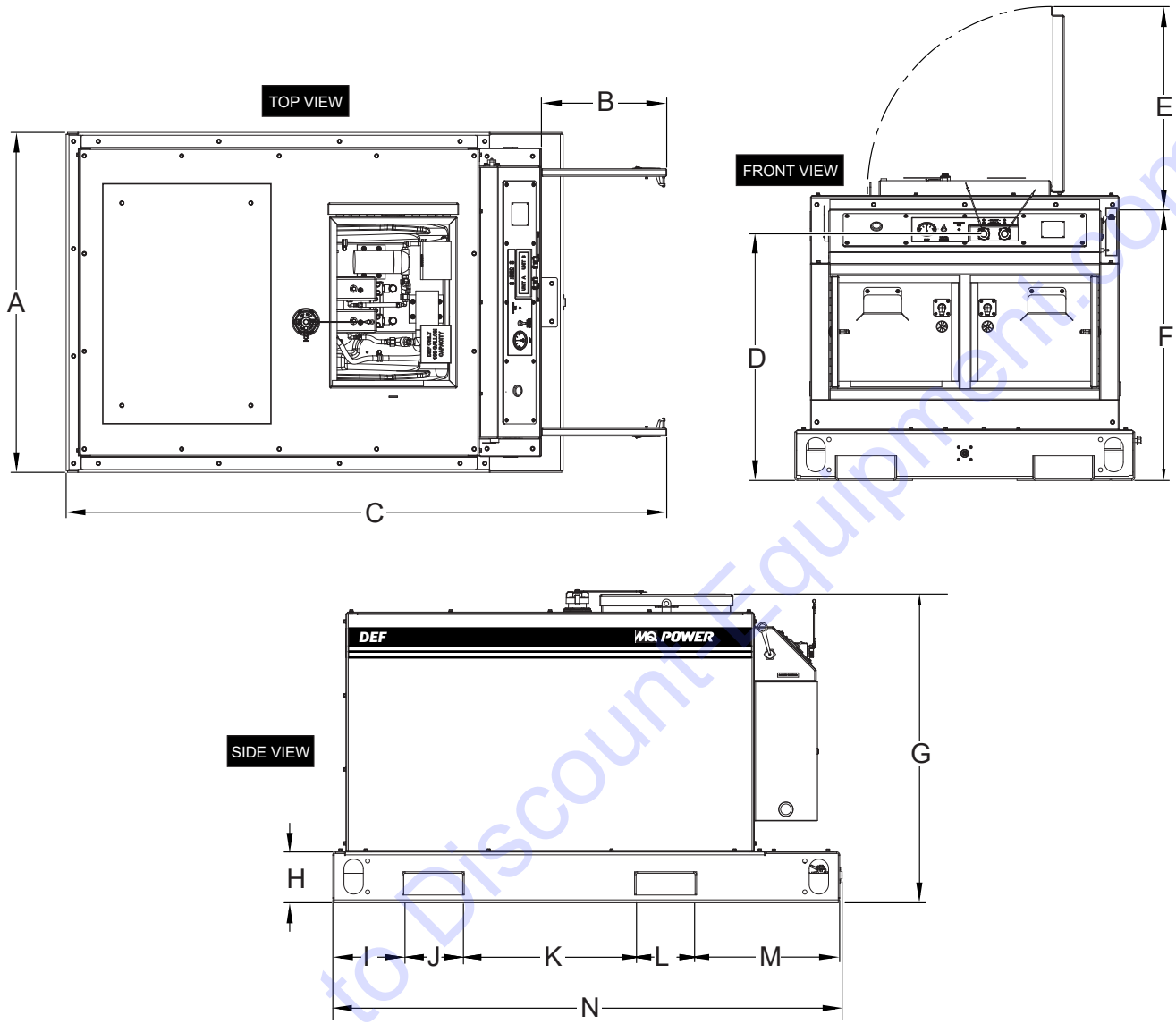


Figure 1. Dimensions

Table 6. Dimensions			
Reference Letter	**Dimension in. (mm)**	**Reference Letter**	**Dimension in. (mm)**
A	44.75 (1136.6)	H	6.56 (166.6)
B	16.50 (419.10)	I	9.18 (545.0)
C	79.06 (2008.1)	J	7.50 (190.5)
D	32.50 (825.50)	K	22.5 (571.5)
E	26.75 (679.40)	L	7.50 (190.5)
F	35.62 (904.87)	M	18.75 (476.25)
G	39.81 (1011.2)	N	65.75 (1670.0)

LIFTING THE UNIT

1. If lifting of the unit is required, there are four pairs of forklift pockets on the skid.
2. Insert the forks on the forklift fully into the forklift pockets on the skid as shown in Figure 2**A**.
3. **DO NOT** lift the unit to unnecessary heights or allow any personnel to stand underneath the unit while it is being lifted.

TRANSPORTING THE UNIT

1. If transporting of the unit is required, there are four pairs of tie-down points on the skid.
2. When transporting the unit on a trailer or a flatbed truck, attach straps from the tie-down points on the skid (Figure 2**B**) and then attach to the tie-down points on the trailer/flatbed truck.
3. Tighten the straps securely.

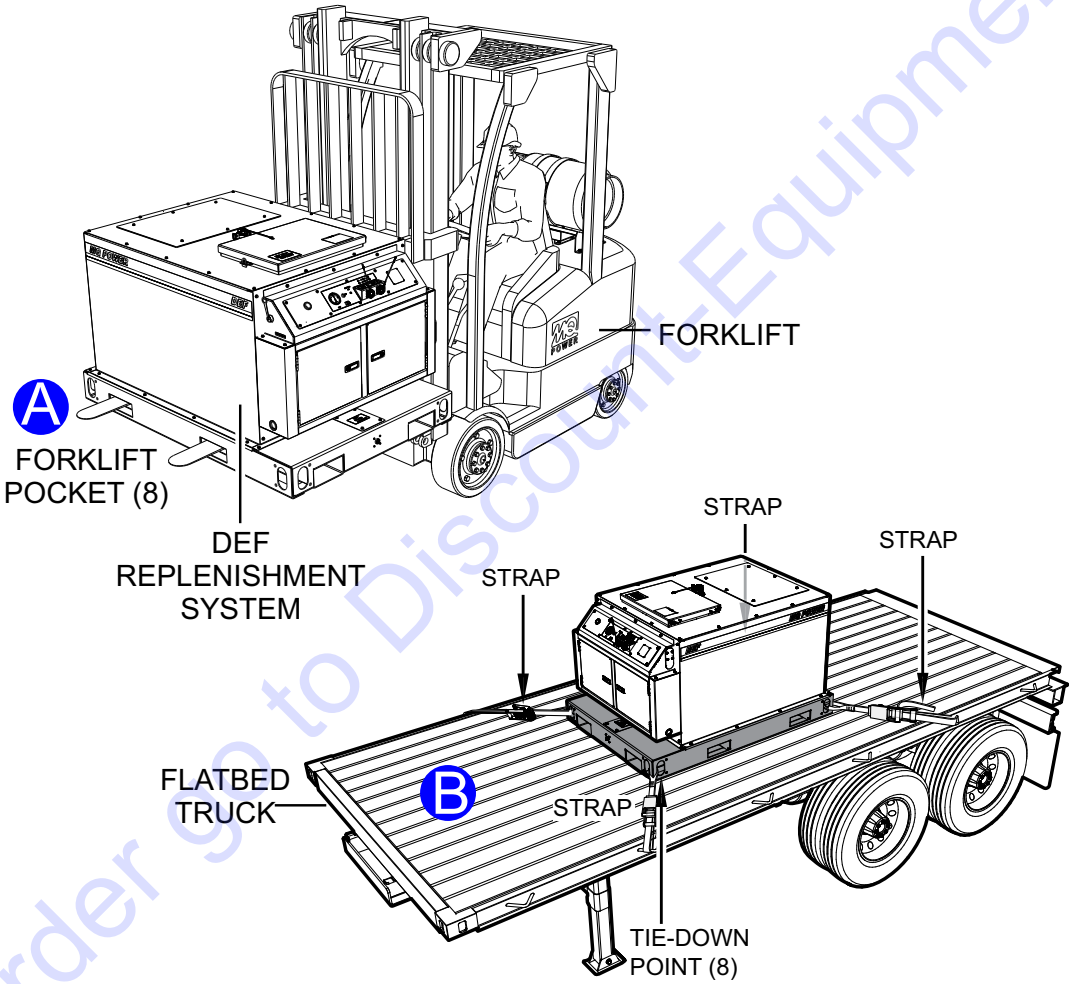


Figure 2. Lifting and Transporting

The emission control system employed with ***most*** diesel engines consists of a **Diesel Oxidation Catalyst (DOC)** and a **Selective Catalytic Reduction (SCR)** catalyst as an exhaust gas after-treatment system that helps reduce harmful gases and destroy the organic fraction of particulate matter produced from the exhaust gas.

To help reduce these harmful emissions, **Diesel Exhaust Fluid (DEF)** is required. MQ Power has designed an external DEF system to provide DEF to the generator's diesel engine.

DEF is a mixture of high-purity, synthetic automotive-grade urea (32.5%) and deionized water that is used in Selective Catalytic Reduction (SCR) systems on diesel engines.

The DEF is injected into the exhaust pipeline, where the aqueous urea vaporizes and decomposes to form ammonia and carbon dioxide.

Within the SCR catalyst, the NO_x are catalytically reduced by the ammonia (NH_3) into water (H_2O) and nitrogen (N_2), which are both harmless. These are then released through the exhaust.

The DOC device helps in filtering out large amounts of harmful **Nitrogen Oxides (NOx)** and **Particulate Matter (PM)** which are emitted by diesel engines. These exhaust emissions pose serious environmental and health risks. It is always important to maintain and service the DOC emission safety device on a periodic basis.

STANDARD FEATURES

- CANBUS DEF level monitoring.
- Designed to automatically maintain DEF fluid level for up to two engine assemblies simultaneously with no operator involvement.
- Digital controller provides automated sensing, pumping, purging and shutdown to maintain onboard DEF tank levels.
- Heavy-duty, galvanized skid base with fork pockets and tie-downs.
- 25-foot (7.62 m) DEF refilling hoses housed within a lockable front compartment.
- Easy-access drain port for serviceability.

MODELS

1. **DEFTANK1** — Allows for the unattended/automatic replenishment of one engine's on-board DEF tank.
2. **DEFTANK2** — Allows for the unattended/automatic replenishment of up to two engines' on-board DEF tanks.

OPTIONS (DEF TANK)

1. **DEFTANK2KIT** — Converts DEFTANK1 to DEFTANK2.
2. **DEFHOSEHEAT**— 19.7-foot (6.00 m) heated DEF fill hose for use in cold weather conditions. See Table 4.
3. **DEFTANKHEATPAD** — 1500-watt, 120-volt heating pad for use in cold weather conditions. See Table 3.
4. **DEFTANKSTACKKITP** — Allows two DEF tank models to be stacked on top of each other. Cage (frame) is powder-coated black. See Table 5.
5. **DEFTANKSTACKKITG** — Allows two DEF tank models to be stacked on top of each other. Cage (frame) is galvanized. See Table 5.
6. **DEFDISPENSERKIT** — Allows for the manual transfer of DEF to other equipment. Connection to a 12-volt DC battery required. See Table 2.

OPTIONS (DEF TANK ADAPTER KITS)

1. **DEFADAPTERKITA** — Modifies a DCA70SSIU4F or DCA125SSIU4F generator for external DEF capability.
2. **DEFADAPTERKITB** — Modifies a DCA70SSJU4F generator for external DEF capability.
3. **DEFADAPTERKITC** — Modifies a DCA150 – 300 series generator for external DEF capability.
4. **DEFADAPTERKITD** — Modifies a DCA400SSI4F or DCA400SSI4F3 generator for external DEF capability.

WHAT IS DEF?

Diesel Exhaust Fluid (DEF) is one of the key elements involved in the selective catalytic reduction (SCR) process. It is a nontoxic solution of 67.5% deionized water and 32.5% synthetic automotive grade urea. DEF helps to convert NOx into nitrogen gas and water vapor. It is stable, colorless, odorless, and meets accepted international standards for purity and composition.

WHAT IS AN SCR?

SCR stands for **Selective Catalytic Reduction**. This system uses a catalyst in the exhaust system of applicable diesel engines. It sprays DEF (diesel exhaust fluid) into the exhaust stream to convert nitrogen oxides (NOx) in the exhaust into nitrogen and water vapor.

The goal of an SCR system is to reduce levels of NOx (oxides of nitrogen emitted from engines) that are harmful to our health and the environment.

SCR is an after-treatment technology that treats exhaust gas downstream from the engine. Small quantities of DEF (automotive-grade urea solution) are injected into the exhaust stream and, when mixed with the NOx, are changed into harmless nitrogen and water.

WHAT IS UREA?

Urea, also known as carbamide, is an organic compound of nitrogen that turns into ammonia when heated. It is used in a variety of industries, including as a fertilizer in agriculture. Urea is produced from synthetic ammonia and carbon dioxide.

WHAT IS THE ALLOWABLE TEMPERATURE RANGE OF DEF?

DEF will begin to freeze at 12°F (–11°C). DEF thaws quickly. There are optional heating components available for this unit to assist in cold-weather conditions.

WHAT IS THE SHELF LIFE OF DEF?

The shelf life of DEF is typically at least one year, depending on the storage temperature. It is best stored out of direct sunlight between 12°F (–11°C) and 86°F (30°C).

NOTICE

Temperatures above 86°F (30°C) will cause DEF to break down into ammonia.

In **cold** temperature regions the DEF temperature will automatically be controlled by a built-in heating element. In **warm** temperature environments, it is recommended that the DEF be stored in a cool area to avoid possible water evaporation.

IS DEF TOXIC?

No, as compared to other automotive fluids (e.g. diesel fuel, brake fluid, coolant fluid, and engine, transmission and axle lube) which are more toxic. The Environmental Protection Agency classifies DEF as "non-hazardous." Urea is naturally occurring and biodegradable.

- Non-hazardous
- Non-flammable
- Non-explosive
- Non-toxic

DEF QUALITY

DEF is defined by AUS-32 specifications. The American Petroleum Institute (API) has developed a quality certification program to ensure that North American suppliers of DEF meet the standards defined by AUS-32.

The quality of DEF in the tank must be maintained. **Extreme care** should be taken to prevent any contaminants from getting into the fluid.

NOTICE

Only approved DEF fluid containing the API certified or ISO 22241 label should be used. To locate a nearby DEF location visit http://www.finddef.com/def_map.php or use the U.S. Department of Energy website at afdc.energy.gov/afdc/locator/def/.

CAN YOU MIX FRESH DEF WITH OLDER DEF?

YES. Since adding new DEF does not change the mixture ratio, you can mix the two together.

WHAT SHOULD YOU DO IF DEF MAKES CONTACT WITH YOUR SKIN?

Try to avoid prolonged or repeated contact with skin. After handling DEF, always wash your hands thoroughly with soap and water.

If irritation occurs, flush the exposed area with plenty of water for at least 15 minutes, then wash the area thoroughly with soap and water. If irritation or pain persists, seek medical assistance.

WHAT SHOULD YOU DO IF DEF MAKES CONTACT WITH YOUR EYES?

Flush eyes with large amounts of water for at least 15 minutes. If irritation or pain persists, seek medical assistance.

HOW DO YOU MONITOR THE DEF LEVEL?

Read the DEF gauge on the control panel of the unit. Refer to **DEF Tank Fluid Level Check** on page 16 section of this manual to learn how to activate the gauge.

HOW DO I CLEAN SPILLED DEF?

If DEF is spilled while filling the tank, simply use a damp cloth and wipe the surface clean.

CAN I USE MY UNIT TO STORE OTHER FLUIDS?

NO. This unit is only intended for DEF and cannot be used for storage of any other types of fluids or chemicals.

WHAT SHOULD I DO IF I SPILL DEF?

If DEF is spilled, contain the spilled liquid and absorb it with an inert, non-combustible absorbent material, such as sand. Shovel the material into a suitable container for disposal.

Spills into a drain should **always be avoided**. If spilled into a drain, flush thoroughly with water. For significant quantities, contact local authorities for proper disposal of this material and its container in accordance with all applicable local and national regulations.

WHAT HAPPENS IF I INGEST DEF?

DEF should **never be ingested**. If it is ingested, **DO NOT** induce vomiting. A physician should be consulted immediately.

WHAT HAPPENS IF I INHALE DEF?

While pumping DEF will not cause significant exposure, inhalation may occur if exposed to DEF in a closed area or if DEF is misted into the air.

Under normal conditions of use, harmful effects are not expected. If you inhale DEF, you should move to an area with fresh air and obtain medical attention if symptoms, such as irritation to the nose and throat, develop or persist.

DOES DEF HAVE AN ODOR?

DEF may have a slightly pungent odor similar to that of ammonia, however it is completely harmless.

IS DEF CORROSIVE?

YES. DEF is corrosive to copper and brass as well as other materials. Only approved materials, such as high-density polyethylene (HDPE), should be used in the DEF tank, packaging and dispensing equipment.

CAN I ADD A FREEZE-POINT PRODUCT TO PREVENT FREEZING OF THE DEF?

NO. While an additive could improve the freeze point of the mixture, the 32.5-percent solution is necessary to provide nitrogen oxide-reducing properties. Any further blending or adjusting of the DEF mixture will impede its ability to perform correctly and may cause damage to the SCR components. Additives of any kind are not approved for use in DEF.

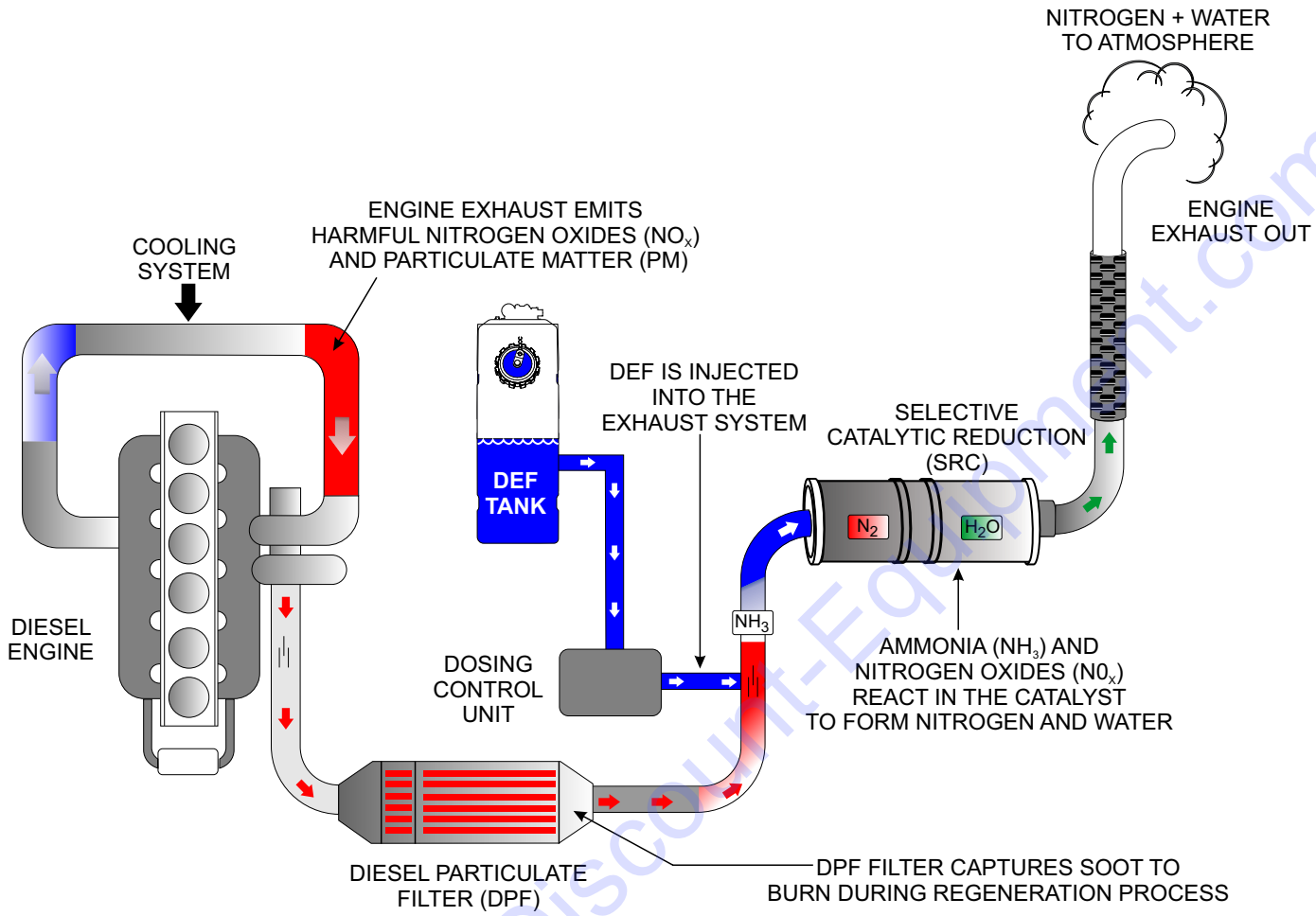


Figure 3. System Overview

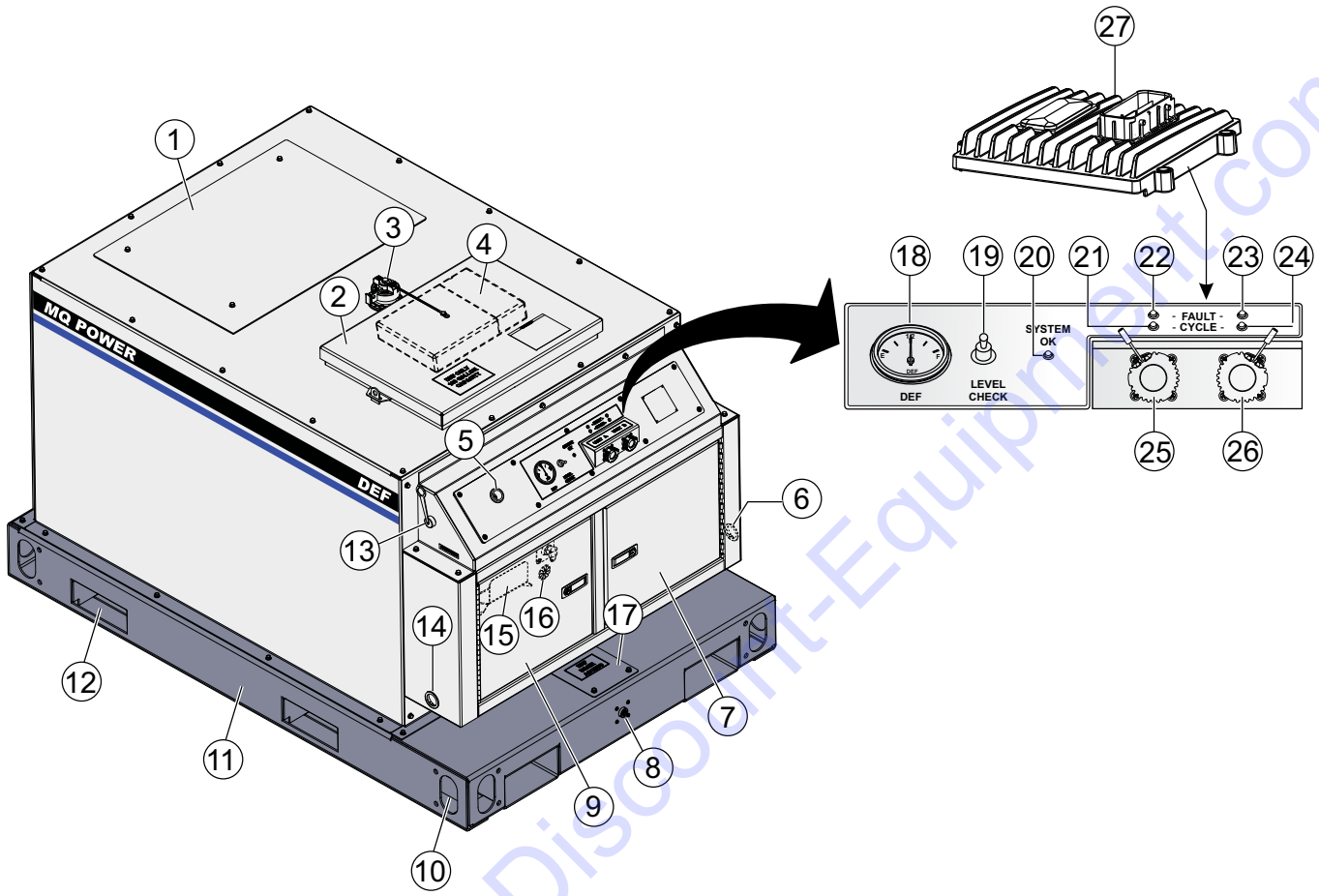


Figure 4. DEF Tank Components

The definitions below describe the controls and functions of the DEF tank (Figure 4).

1. **DEF Dispenser Kit Access Panel** — Remove this panel to install the DEF Dispenser Kit. This kit allows for the transfer (remote filling) of DEF to other equipment. Refer to **OPTIONS (DEF TANK)** on page 7 for more information.
2. **Pump / 3-Way Valve Access Panel** — Remove this panel to gain access to the pump, valve and other associated components related to the DEF tank.
3. **DEF Fill Cap** — Remove this cap when filling of the DEF tank is required. **DO NOT** overfill. For security purposes, the cap is lockable.
4. **Documentation Box** — Storage for documentation and other information regarding the DEF tank.
5. **Sight Glass** — Displays fault code information via a series of LED flashes. Refer to **FAULT / ERROR CODES** on page 18 of this manual for a list of error codes/faults.
6. **Fill Hose Opening (Unit B)** — Run the DEF fill hose through this hole opening to the fill port on the generator.
7. **Lockable Storage Compartment (Unit B)** — Open to gain access to the DEF fill hose. Can also be used to store accessories.
8. **DEF Drain Port** — Place a drain pan underneath this port when draining of the DEF is required. The drain valve must be placed in the **open** position before draining can start.
9. **Lockable Storage Compartment (Unit A)** — Open to gain access to the DEF fill hose. Can also be used to store accessories.
10. **Tie-Down Point** — Use these four tie-down points to secure the unit during transport.
11. **Base** — Corrosion-resistant galvanized base.
12. **Forklift Pocket** — When lifting of the unit is required, use these forklift pockets (8) to lift the unit. Remember to insert the forks fully into the forklift pockets.
13. **Heating Pad Receptacle (Option)** — Apply 120 VAC power via an extension cord to this receptacle. The heating pad is placed between the skid base and the DEF tank. The heating pad should be used in cold weather conditions to prevent the freezing of DEF.
14. **Fill Hose Opening (Unit A)** — Run the DEF fill hose through this hole opening to the fill port on the generator.
15. **DEF Fill Hose Rack** — Wrap the hose around this rack when not in use.
16. **Rubber Grommet** — Used for wiring connection when the DEF Heated Hose is used. The DEF Heated Hose heats fill lines in cold weather conditions. Refer to **OPTIONS (DEF TANK)** on page 7 for more information.
17. **DEF Drain Access Cover** — Remove this cover to gain access to the OPEN/CLOSE drain valve.
18. **DEF Level Gauge** — Displays the amount of DEF in the internal tank.
19. **Level Check Switch** — Push this momentary switch upwards and read the DEF level gauge to determine the amount of DEF in the tank. Connection to an application is required for powering of the gauge.
20. **System OK Status LED** — When lit (**GREEN**), indicates that the system is operating correctly.
21. **Cycle Status LED (Unit A)** — When lit (**GREEN**), indicates that pumping of DEF is in process.
22. **Fault Status LED (Unit A)** — When lit (**RED**), indicates that a fault/error has occured. Refer to **FAULT / ERROR CODES** on page 18 of this manual for a list of error codes/faults.
23. **Fault Status LED (Unit B)** — When lit (**RED**), indicates that a fault/error has occured. Refer to **FAULT / ERROR CODES** on page 18 of this manual for a list of error codes/faults (**option**).
24. **Cycle Status LED (Unit B)** — When lit (**GREEN**), indicates that pumping of DEF is in process (**option**).
25. **Communication Port A** — Allows for CANBUS communication between the DEF tank and the generator. This port comes standard on the DEFTANK1 model.
26. **Communication Port B** — Allows for CANBUS communication between the DEF tank and the generator. This port can be added to the DEFTANK1 model as an option. Standard on the DEFTANK2 model.
27. **Controller** — The controller monitors DEF level, purging of supply lines, and fault detection.

OPERATION

NOTICE

The DEF tank system is capable of providing fluid to up to two applications simultaneously (based on model used).

Connecting Fill Hose (Unit A)

1. Make sure the DEF tank system is placed on secure, level ground where it will not slip or slide.
2. Open the front door (Figure 9**A**) on the enclosure and make sure one end of the DEF tank fill hose (P/N EE60457) is already connected to the 90-degree fitting inside the enclosure.
3. Unreel the DEF tank fill hose from its holder and route it through the hole opening on the left side of the enclosure.
4. Connect this end of the fill hose to the application.

NOTICE

The application must have a DEF Adapter Kit installed. Refer to **OPTIONS (DEF TANK ADAPTER KITS)** on page 7 for more information.

NOTICE

The application's fill ports can be identified by a **BLUE** cap (Figure 9**B**) on top of the onboard DEF tank or an **external 90° fitting** (Figure 9**C**) located on the outside of the generator cabinet.

Connecting Communication Cable (Unit A)

To establish communication between the generator and the 100-gallon (379-liter) DEF tank, a communication cable (P/N EE60460) must be connected.

1. Remove the protective dust cap (Figure 9**D**) from the communication port labeled **UNIT A**.
2. Connect the 9-pin end of the communication cable to the **UNIT A** input connection on the DEF tank as shown in Figure 9**F**.
3. Remove the protective dust cap on the generator (Figure 9**E)**.
4. Connect the 14-pin end of the communication cable to the generator as shown in Figure 9**G**.

Connecting Communication Cable (Unit B)

NOTICE

Unit B is only available when using the **DEFTANK2** model.

1. Remove the protective dust cap from the communication port labeled **UNIT B**.
2. Connect the 9-pin end of the communication cable to the **UNIT B** input connection on the DEF tank.
3. Remove the protective dust cap on the generator (Figure 9**E)**.
4. Connect the 14-pin end of the communication cable to the generator as shown in Figure 9**G**.

Operation Indicators

5. The DEF tank is now ready for use. The **GREEN** "**System OK**" status LED (Figure 5) should be **ON** (lit).

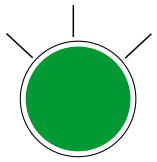


Figure 5. System Status Green LED (ON)

6. The **GREEN** "**Cycle**" status LED (Figure 6) should be **OFF** until the transfer of fluid is required.

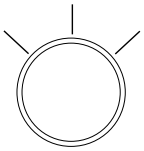


Figure 6. Cycle Status LED (OFF)

7. When the fluid inside the generator's DEF tank falls below 33%, the DEF tank will automatically begin pumping and the **GREEN** "**Cycle**" status LED (Figure 7) will turn **ON**, indicating that the external DEF tank has begun transferring fluid to the generator's DEF tank.

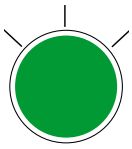


Figure 7. Cycle Status Green LED (ON)

8. The **GREEN** "**Cycle**" status LED will remain **ON** until the pumping process has been completed (generator DEF tank above 75%).
9. If the **RED** "**Fault**" status LED (Figure 8) comes **ON** (lit), this indicates that a pumping fault has occurred and corrective action is required.

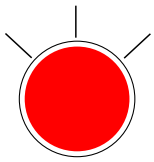


Figure 8. Fault Status Red LED (ON)

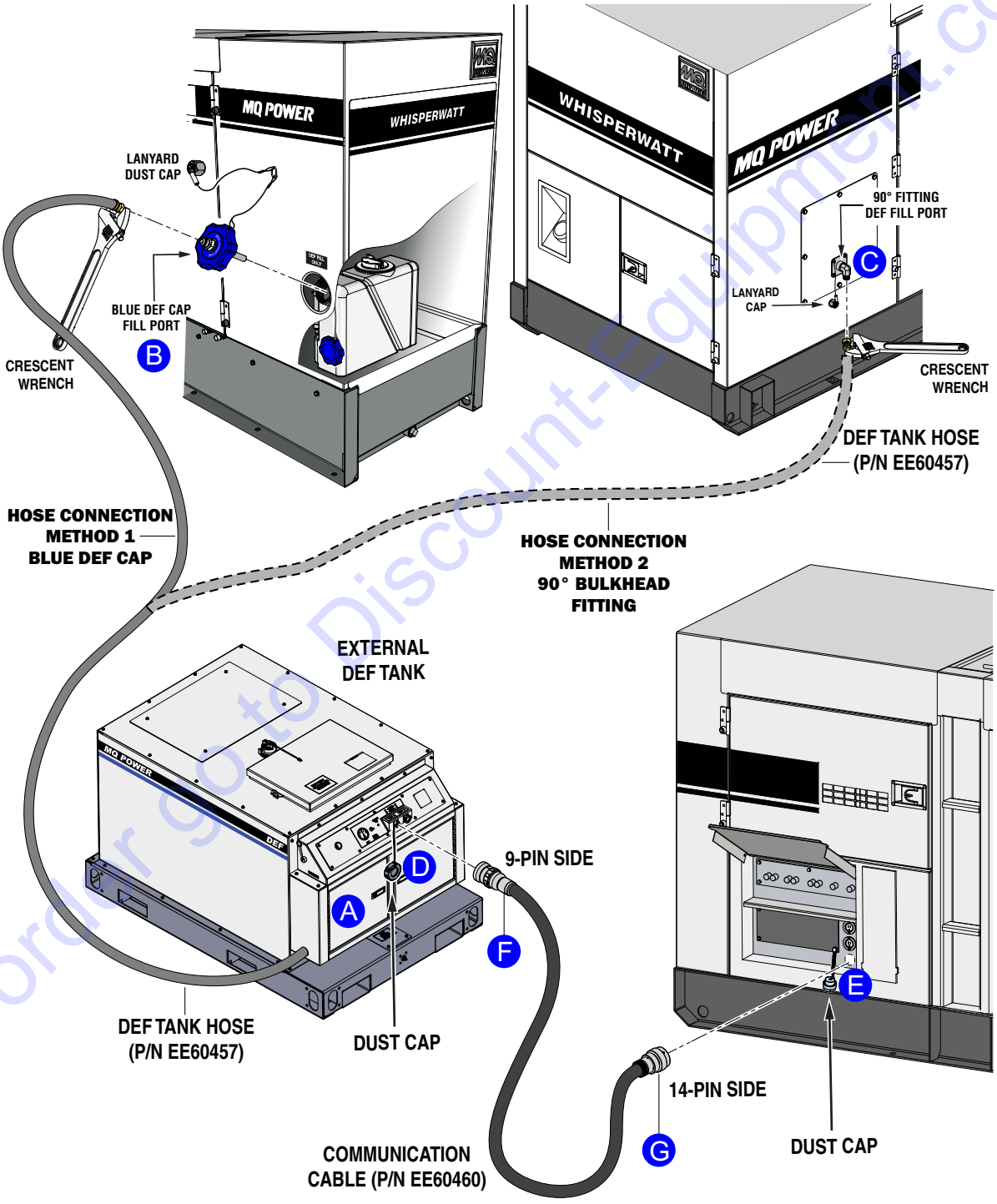


Figure 9. External DEF Tank Connection

DEF Tank Fluid Level Check

1. Push upwards on the "**Level Check**" momentary toggle switch (Figure 10).

> ***NOTICE***
>
> The unit must be connected to an application in order to have 12 VDC for this operation.

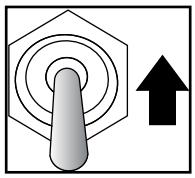


Figure 10. DEF Level Check Switch

2. Read the DEF gauge (Figure 11) to the left of the switch.

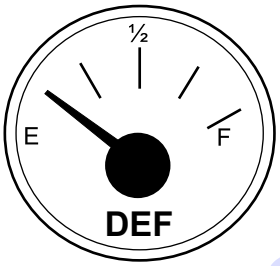


Figure 11. DEF Gauge

3. If the fluid level is low, replenish using the recommended type of DEF.
4. When refilling, make sure the DEF remains free of any contaminants.

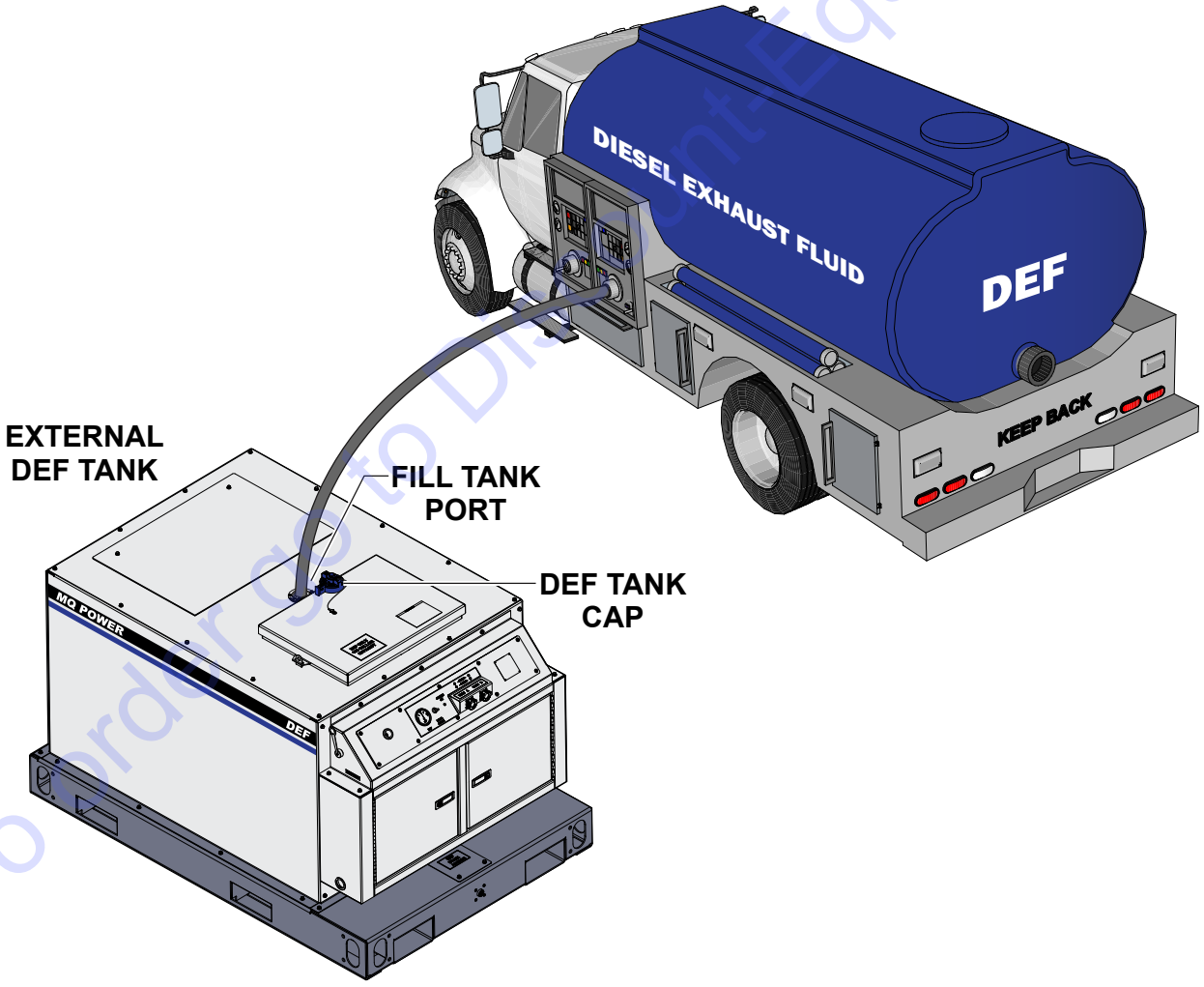


Figure 12. DEF Replenishment

MAINTENANCE

Very little maintenance is required for the DEF Replenishment System. If it ever becomes necessary to drain/flush the 100-gallon (379 liter) DEF tank, do the following:

1. Place a drain pan underneath the drain port (Figure 13) located at the bottom center of the frame/skid.
2. Remove the four screws that secure the DEF drain access cover to the skid.
3. Place the DEF drain valve in the **OPEN** position to let fluid flow into the drain pan.
4. Remove the DEF tank cap.
5. Insert a garden hose or equivalent into the DEF tank fill port and flush. Be sure to use fresh, clean water when flushing the tank.
6. When flushing of the DEF tank has been completed, place the DEF drain valve in the **CLOSE** position and reinstall the access cover.
7. Reinstall the DEF tank cap.

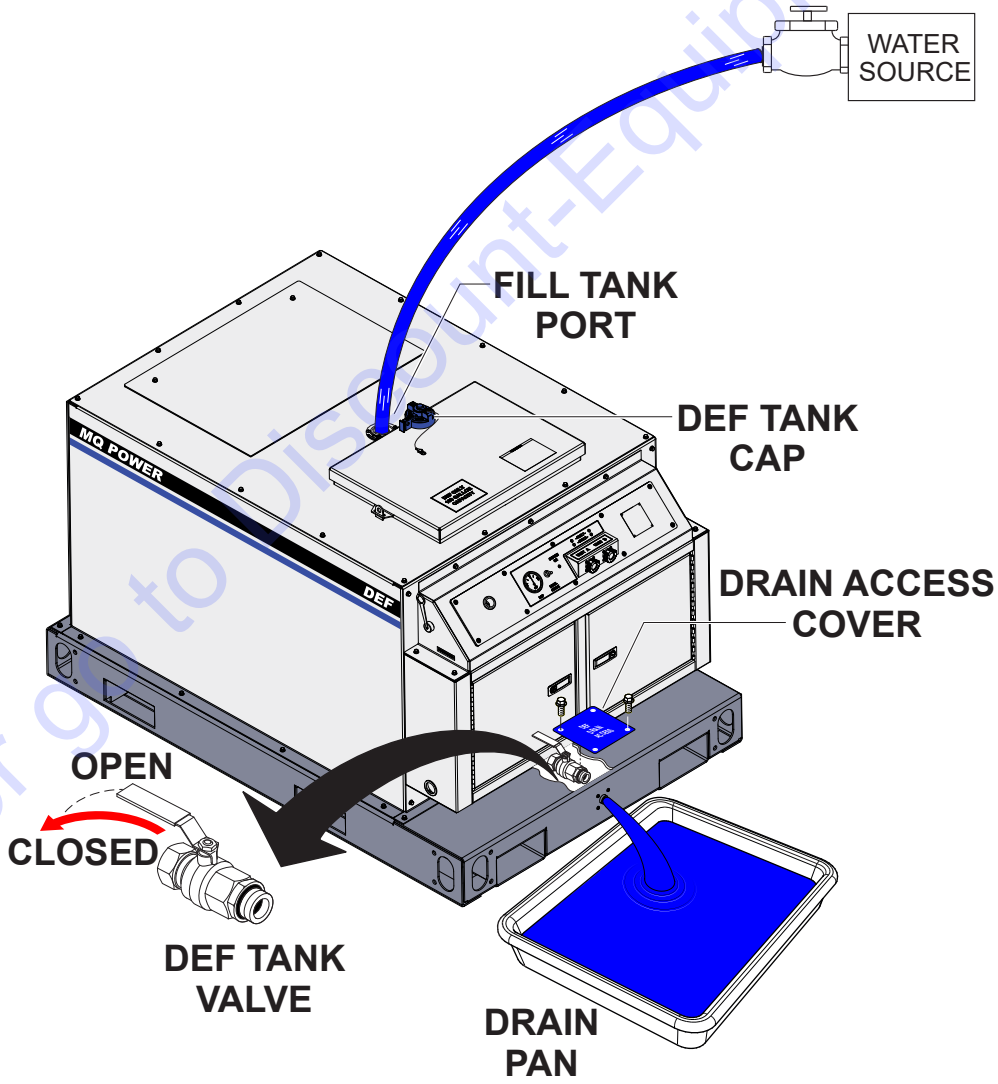


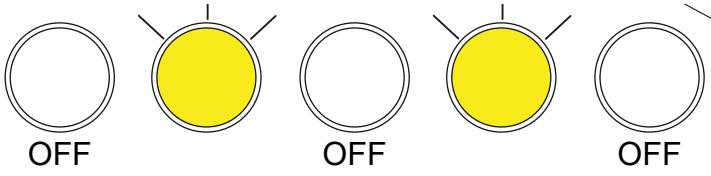
Figure 13. Flushing DEF Tank

FAULT / ERROR CODES

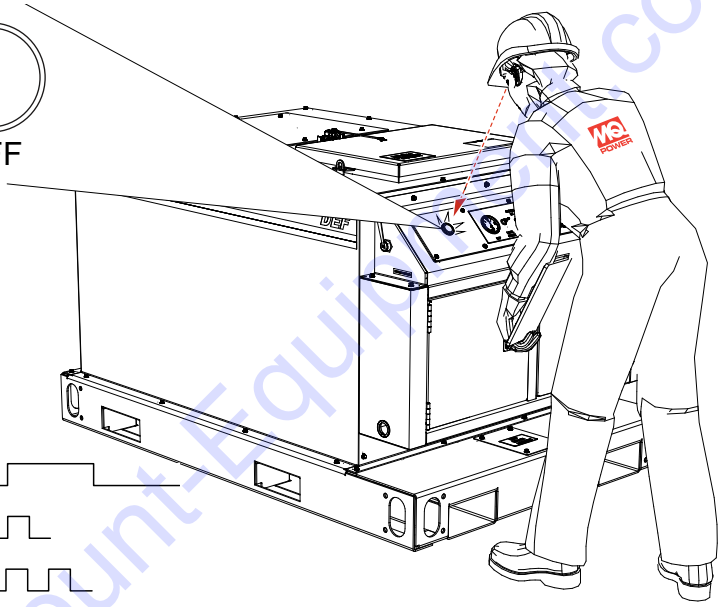
If any of the following faults/errors are detected, an error code will be displayed as a series of flashes on the sight glass LED located on the control panel. The flashes are represented by the LED flash timing sequence shown below.

⚠ CAUTION

DO NOT use this equipment if an error message or error code has been activated. Contact Discount-equipment.



NORMAL OPERATION



Status	Flash (yellow)
Normal operation	
Application not loaded	
No application available	
Waiting for restart	

Error code	Error	Primary Flash (red) Error category	Secondary Flash (yellow) Error description
1:1	Output		
1:2	Input		
1:3	VREF		
2:1	Power supply		
2:2	Temperature		
3:1	CAN, no contact		
3:2	IDtag error		
3:3	System mismatch		
3:4	CAN error (bus off)		
4:1[a]	Stopped, critical		
4:2[b]	Stopped, critical		
4:3[c]	Stopped, critical		

a. Followed by a longer sequence of flashes.
b. Followed by a longer sequence of flashes. Possible causes include reverse feed on startup, critical under-voltage and critical temperature.
c. Followed by a longer sequence of flashes.

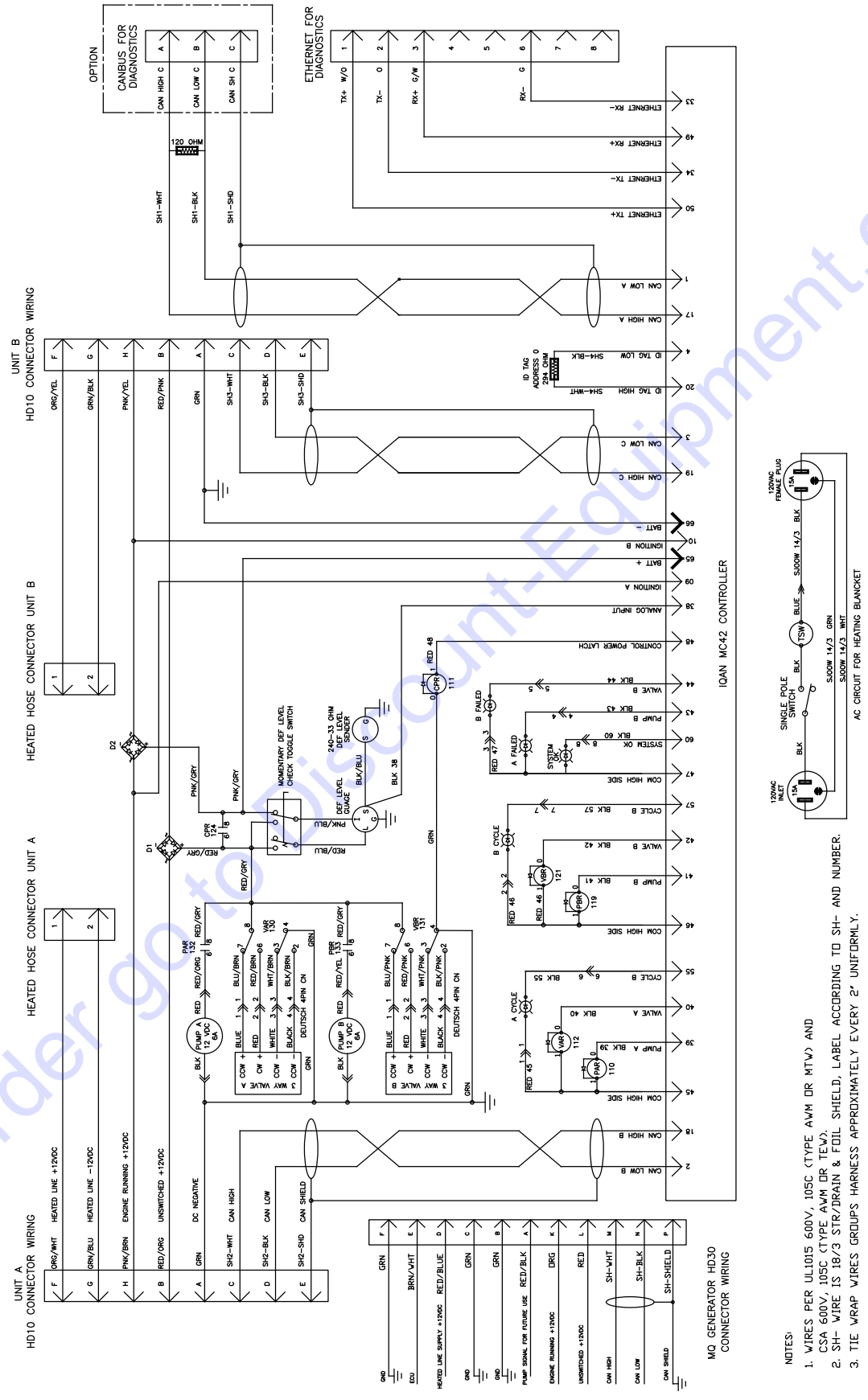
FAILURE MODES, EXTERNAL FAULTS ON POWER DRIVERS

The tables shown below and on the preceding page contain information about the actions taken by the IQAN-MC42FS when certain failure-causing conditions occur. Failure modes for internal faults are included in the total PFHd for the module.

Output pin configuration	Failure mode	Expected channel status[a]			Comment
		Start up	On	Off	
Current out	Broken wire		open load	open load	
	Short to GND (HS)	critical error	overload	overload	
	Short to GND (LS)	critical error	overload	overload	SCG while off: coil is energized for ≦50 ms before detection
	Short to Battery (HS)	(no contact)	open load	-	Prevents module startup => LED showing Stopped, Critical
	Short to Battery (LS)	(no contact)	overload	-	Prevents module startup => LED showing Stopped, Critical
	Short LS+ to LS-		overload	-	
	Overload		overload	n/a	
	Insufficient voltage on +BAT		saturated	n/a	
	Insufficient voltage on +BAT, current saturated < 70%		open load	n/a	
PWM out HS+LS	Broken wire		open load	open load	
	Short to GND (HS)	critical error	overload	overload	
	Short to GND (LS)	critical error	overload	overload	SCG while off: coil is energized for ≦50 ms before detection
	Short to Battery (HS)	(no contact)	-	-	Prevents module startup => LED showing Stopped, Critical
	Short to Battery (LS)	(no contact)	overload	-	Prevents module startup => LED showing Stopped, Critical
	Overload		overload	n/a	

Output pin configuration	Failure mode	Expected channel status[a]			Comment
		Start up	On	Off	
Digital out HS+LS	Broken wire		open load*	open load	*with multiple low sides, open load while on is detected only when combined load is showing undercurrent
	Short to GND (HS)		overload	overload	
	Short to GND (LS)		-	overload	
	Short to Battery (HS)	(no contact)	*	-	Prevents module startup => LED showing Stopped, Critical *SCB while on can be detected as undercurrent (open load) in configurations with one low-side
	Short to Battery (LS)	(no contact)	overload	-	Prevents module startup => LED showing Stopped, Critical
	Overload		overload	n/a	
	Under current		open load	n/a	
Digital out HS	Broken wire		open load	open load	
	Short to GND (HS)	critical error	overload	-	
	Short to Battery (HS) coil energized	(no contact)	*	open load	Prevents module startup => LED showing Stopped, Critical *SCB while on can be detected as undercurrent (open load)
	Overload		overload	n/a	
	Under current		open load	n/a	See under current threshold. Can be disabled in IQANdesign
PWM out HS	Broken wire		-	open load	
	Short to GND (HS)		-		
	Short to Battery (HS) coil energized	(no contact)	-	open load	Prevents module startup => LED showing Stopped, Critical
	Overload		overload	n/a	Power driver thermal protection shut down

a. Only the resulting status from the test expected to find the errror first is listed, different status is possible as several failure modes are detected by multiple test.
Failures not detected by in this state are indicated with -



NOTES:

1. WIRES PER UL1015 600V, 105C (TYPE AWM OR MTW) AND CSA 600V, 105C (TYPE AWM OR TEW).
2. SH- WIRE IS 18/3 STR/DRAIN & FOIL SHIELD, LABEL ACCORDING TO SH- AND NUMBER.
3. TIE WRAP WIRES GROUPS HARNESS APPROXIMATELY EVERY 2' UNIFORMLY.

TO PURCHASE THIS PRODUCT PLEASE CONTACT US

Discount Equipment

Equipment Financing and
Extended Warranties Available

Discount-Equipment.com is your online resource for commercial and industrial quality parts and equipment sales.
561-964-4949
visit us on line @ www.discount-equipment.com

Select an option below to find your Equipment

Search by Manufacturer

Search by Product Type

Request a Quote

We sell worldwide for the brands: Genie, Terex, JLG, MultiQuip, Mikasa, Essick, Whiteman, Mayco, Toro Stone, Diamond Products, Generac Magnum, Airman, Haulotte, Barreto, Power Blanket, Nifty Lift, Atlas Copco, Chicago Pneumatic, Allmand, Miller Curber, Skyjack, Lull, Skytrak, Tsurumi, Husquvarna Target, Stow, Wacker, Sakai, Mi-T-M, Sullair, Basic, Dynapac, MBW, Weber, Bartell, Bennar Newman, Haulotte, Ditch Runner, Menegotti, Morrison, Contec, Buddy, Crown, Edco, Wyco, Bomag, Laymor, EZ Trench, Bil-Jax, F.S. Curtis, Gehl Pavers, Heli, Honda, ICS/PowerGrit, IHI, Partner, Imer, Clipper, MMD, Koshin, Rice, CH&E, General Equipment ,Amida, Coleman, NAC, Gradall, Square Shooter, Kent, Stanley, Tamco, Toku, Hatz, Kohler, Robin, Wisconsin, Northrock, Oztec, Toker TK, Rol-Air, APT, Wylie, Ingersoll Rand / Doosan, Innovatech, Con X, Ammann, Mecalac, Makinex, Smith Surface Prep,Small Line, Wanco, Yanmar