Dultmeier Sales FleetWash Undercarriage Cleaner (In-Ground)
1/20/22 Rev. 2021.13 Official Copy
-Noted Changes from .12 Version – updated wire diagrams
Jeff Hansen

Dultmeier Sales Undercarriage Cleaning Systems (In Ground)

DUUC221000 -- DUUC221000-480

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DULTMEIER SALES

Item Identification:

Upon receipt of your system please ensure that you can identify all components of the DUUC221000 system. Do note, if your supply hoses are over 50ft in length (from pump discharge to clean pan assemblies) then you will need to jump to ¾" supply hoses. ½" hose size can be used up to 50ft. If your pump to pan spacing is longer than a 50ft run, please consult Dultmeier Sales. We advise using Teflon tape and plumbers' grease to help install the stainless-steel fittings.

When a pump discharge longer than 50' is required, modifications can be made to our standard size fittings and hoses.

A. (1) DUPM221000: ARRTTX100-L plunger pump unit complete with 15HP 230/480V Baldor electric motor. Pressure Regulator, Gauge and to be wired by electrician – see Exhibit A.

B. (1) Control Panel: either DUEP30-153/PE1 (for 208-230V) or DUEP30-153/480/PE1 (for 480V)

i. The control panel contains (1) set of (2) photo eye sensors – one transmitter and one receiver. Each has a 50ft cable that will need to be run from the control panel to the photo eye stands that will be anchored to the floor/concrete.
ii. Customer will have specified either 230V (DUUC221000) or 480V (DUUC221000-480) at the time of purchase.
iii. To be wired by electrician.
iv. Use Exhibit E for Wiring Diagram.

C. (1) TLTSS2: Photo eye Stand, set of (2) – to be floor mounted by installer/customer. See Exhibit B.

D. (2) MM80640: Undercarriage Pan Assembly, with stabilizer cones – See Exhibits B, C, D.

i. (2) discharge ports per head, total of (2) discharge heads per pan assembly – total of (4) orifices per assembly

E. (2) CTRB3000-3/4: ¾" x ½" 304SS Hex Bushing, rated to 3000PSI

F. (2) HH1404-88SS: Swivel Union ½" MPT x ½" FPT rated to 3000PSI

G. (4) CTSE3000-1/2: 304SS 90 Street Elbow, rated to 3000PSI – (4) are supplied although they may not be necessary. See details below within installation process notes (pgs. 2-3).

H. (1) CT8012CL: ½" x Close nipple, 304SS, rated to 3000PSI

I. (1) CTTT3000-1/2: Tee, ½", 304SS, rated to 3000PSI

I. (8) SSTP0005EG: Stainless EG Nozzle with vane, to be inserted inside of the stabilizer cones on the MM80640 pan assemblies

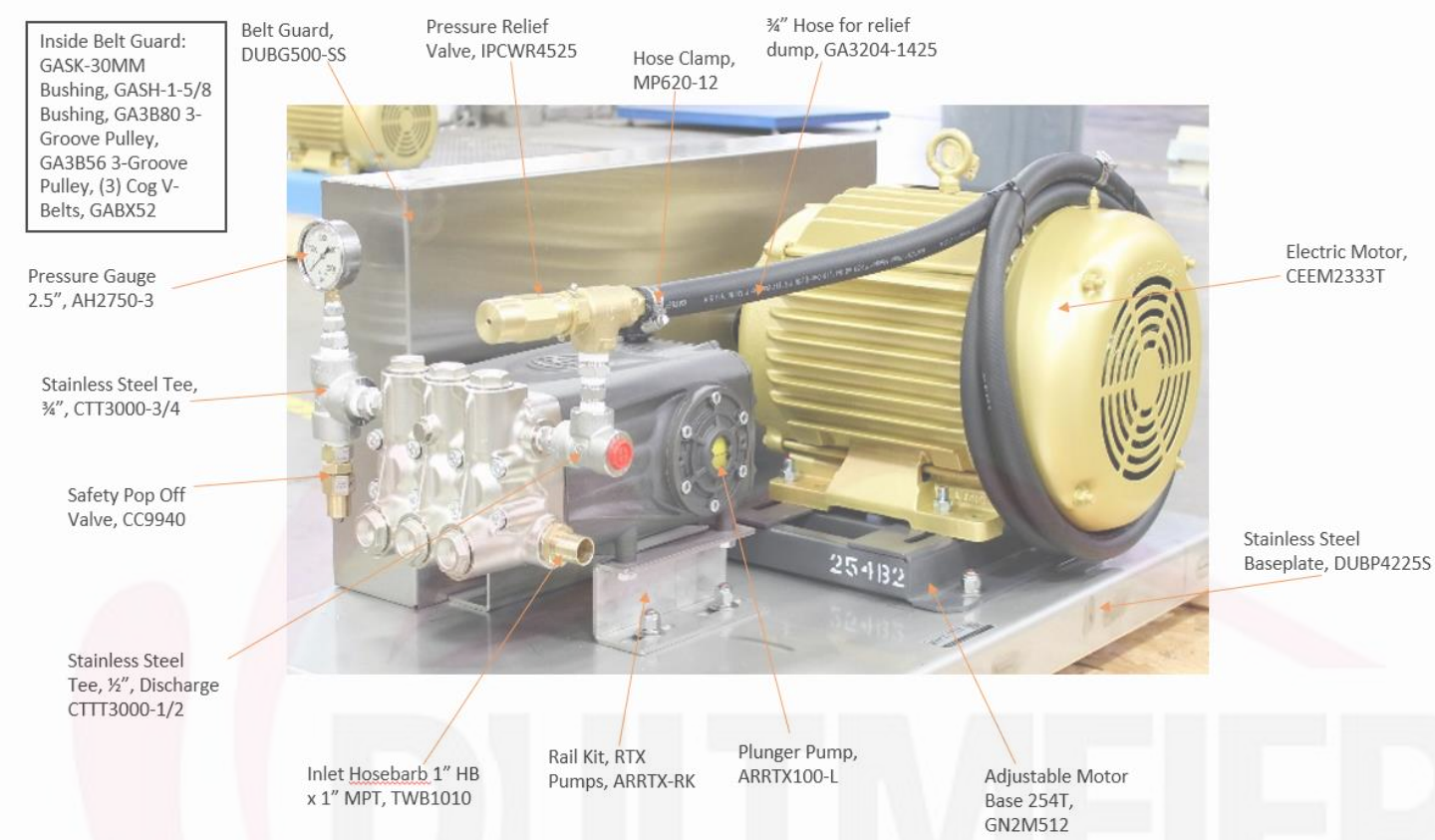






J. (2) Pan Supply Hoses: ½" x TBD – length specified by customer prior to order confirmation. *See opening paragraph regarding ¾" supply hoses if pump equipment is more than 50ft from rinse pans. *Supply hoses are not included in system BOM – separate line item on order/packing slip/invoice.*

Exhibit A:



1) For an in-concrete system the undercarriage spray pans can either be framed into the new cement pour or set in place and back-filled. Dultmeier Sales advises that a trough be laid in place from each pan assembly to the side of the wash bay to allow for drainage and easy access to supply feed lines. This aids in future maintenance, as well. Large ID PVC pipe (such as 2" or 3" pipe) can be laid, as an alternate method. Dultmeier Sales recommends installing (1) CTRB3000-3/4 (3/4" x ½" Bushing) onto the inlet port of each undercarriage pan assembly at this time. The 2" discharge port can be left open to drain into the trough/PVC piping that has been installed. *See exhibits B, C, and D for further detail.*

2) Wire the control panel and electric motor per exhibit E. Consult a licensed electrician for this step.

3) Connect the pump supply port to water supply feed line. Be advised this system needs to have at least 22GPM of water supplied to run the system without damage. If the supply water line cannot supply this amount contact Dultmeier Sales for a 275gal tote & tank float option to allow for a buffer on the water supply.

4) Must use either Teflon® tape or pipe sealant for threaded connections. If using pipe sealant, follow the label directions and allow for adequate dry time before charging the system. Dultmeier Sales sells these products – call for details.

A. Connect the discharge tee of the pump unit (1/2" 304SS Tee, CTTT3000-1/2) to the additional CTTT3000-1/2 provided with your Bill of Materials (BOM). Do this by threading the CT8012CL (1/2" Close Nipple) between the two.

B. Thread in (2) CTSE3000-1/2 (1/2" Street Elbows) into the Tee you've just installed.

C. Into each Street Elbow, thread in (1) feed hose assembly.

D. Run the feed hoses to your undercarriage pan assemblies (one hose per pan).

E. Thread (1) HH1404-88SS (1/2” swivel union) onto the free end of each feed hose assembly.

F. Thread the free end with HH1404-88SS into the CTRB3000-3/4 bushing that was installed into the inlet port of the undercarriage pan assembly in step 1.

4) Once water supply is connected, plumbing is confirmed complete, and wiring is complete then move on to testing the system.

A. Dultmeier Sales advises to test the system with low pressure by allowing city water pressure to feed through the pump and to the pans – note, the pan assemblies will NOT rotate with city water pressure. This will show if any leaks are present and thread tape/pipe sealant needs to be reapplied.

B. Begin by ensuring pump has adequate water supply and engage motor contactor. Use regulator/unloader valve (See Exhibit A) to increase the pressure of the system (turn clockwise to increase pressure and counterclockwise to decrease pressure). This system is designed to run at 1000PSI – at which point it will produce 22GPM. Use the pressure gauge mounted on the pressure side of the pump manifold to dial in/monitor your pressure setting.

5) Install the Photo Eye Stands. See System Setup (Exhibit B & C) for orientation guidelines. Stands should be anchored to the cement with enough clearance for vehicle bodies to avoid physical contact with the sensors and/or stands. One photo sensor is the transmitter and the other is the receiver. This component functions like a garage door opener beam.

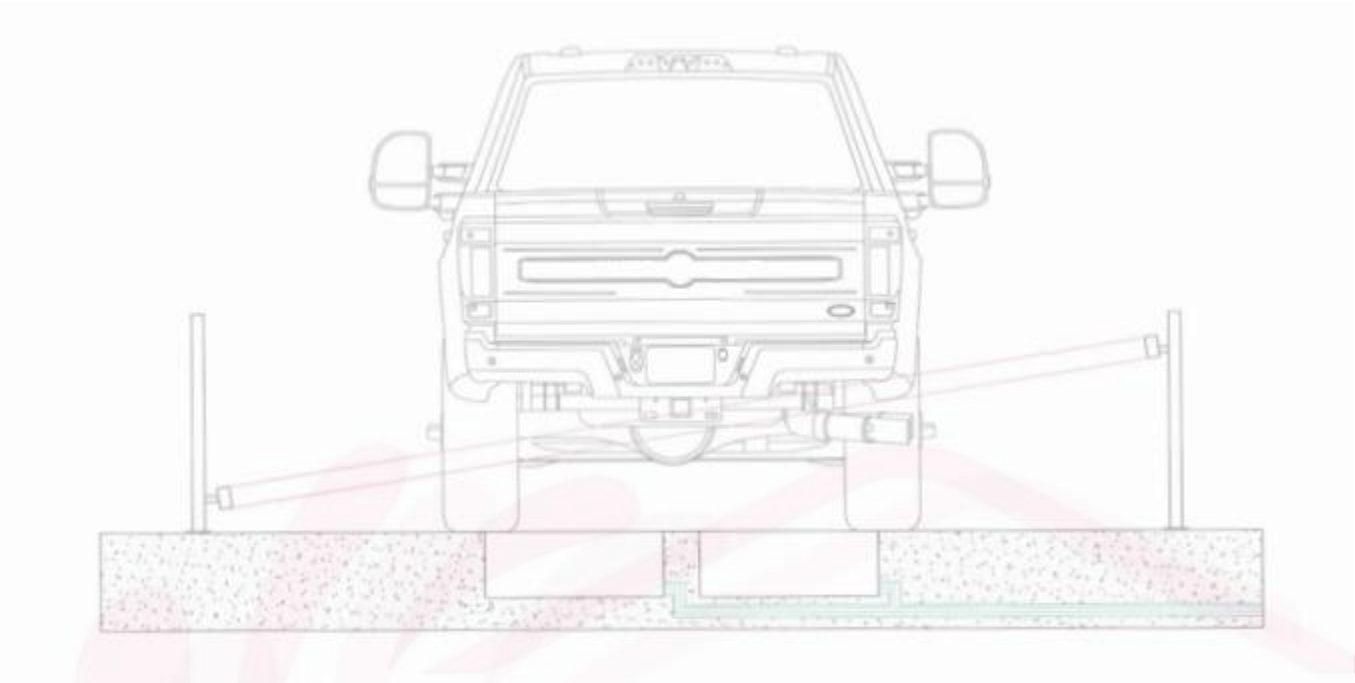
i. See Exhibit F for replacement parts and wiring diagrams
ii. Beam max 75ft distance.
iii. Optical Angle +/- 3° opening

6) Installing Guide Rails – It is not necessary but strongly advised to use Guide Rails to keep vehicles from driving on the lid of the undercarriage pan assembly. Lids are NOT rated for direct traffic.

A. 3” or 4” ID Schedule 40 Galvanized, Black Steel, or Stainless-Steel Pipe will be sufficient for this purpose.

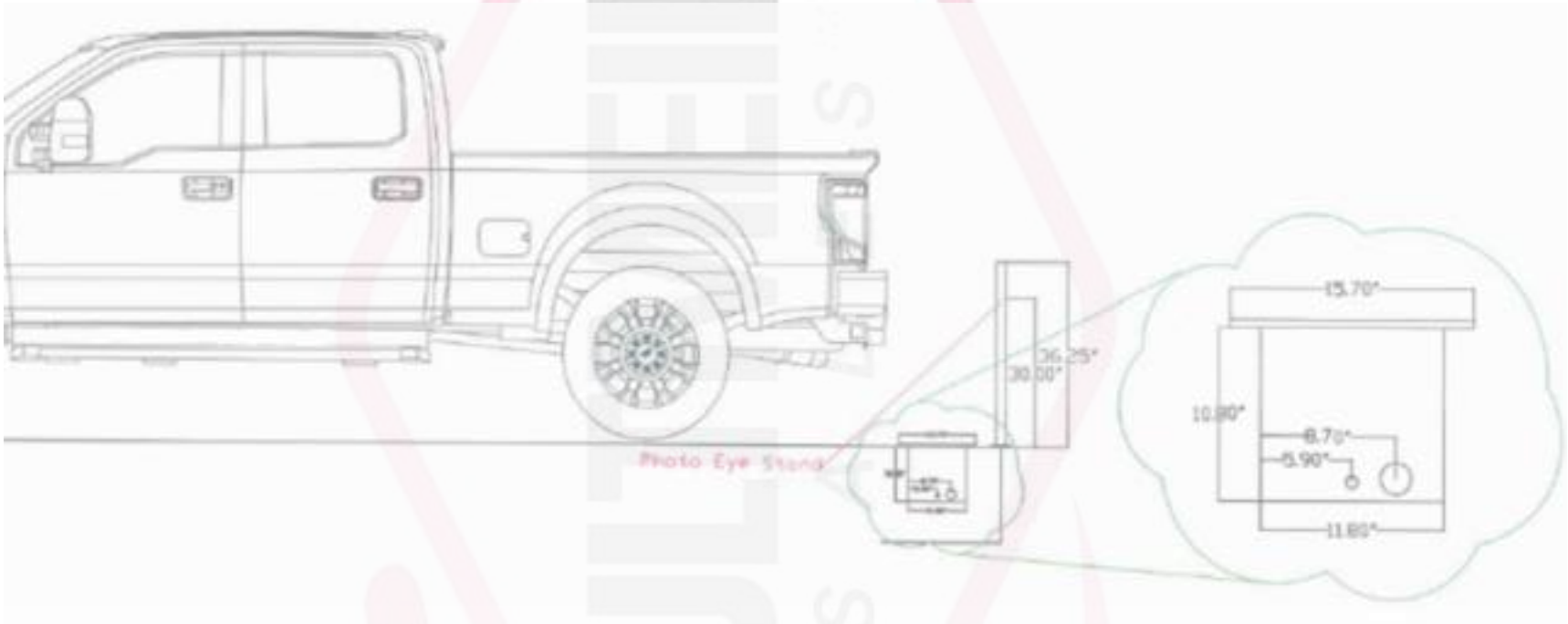
B. Rails should be mounted in a manner that does NOT allow the inside of the tires to run over the undercarriage pan assembly lid(s) by more than 1.4” from outside edge. See Exhibit D for undercarriage pan assembly dimensions.

System Setup (Exhibit B):



Make note of the angled orientation of the photo eyes. This installation method ensures the beam will always be in a “broken” status. Thus, engaging the motor contactor in the control panel.

The in-ground pan assemblies are NOT rated for direct traffic. Wheel overlap shown above is not relative to actual suggested installation. *This image is meant to act as a visual reference only.*



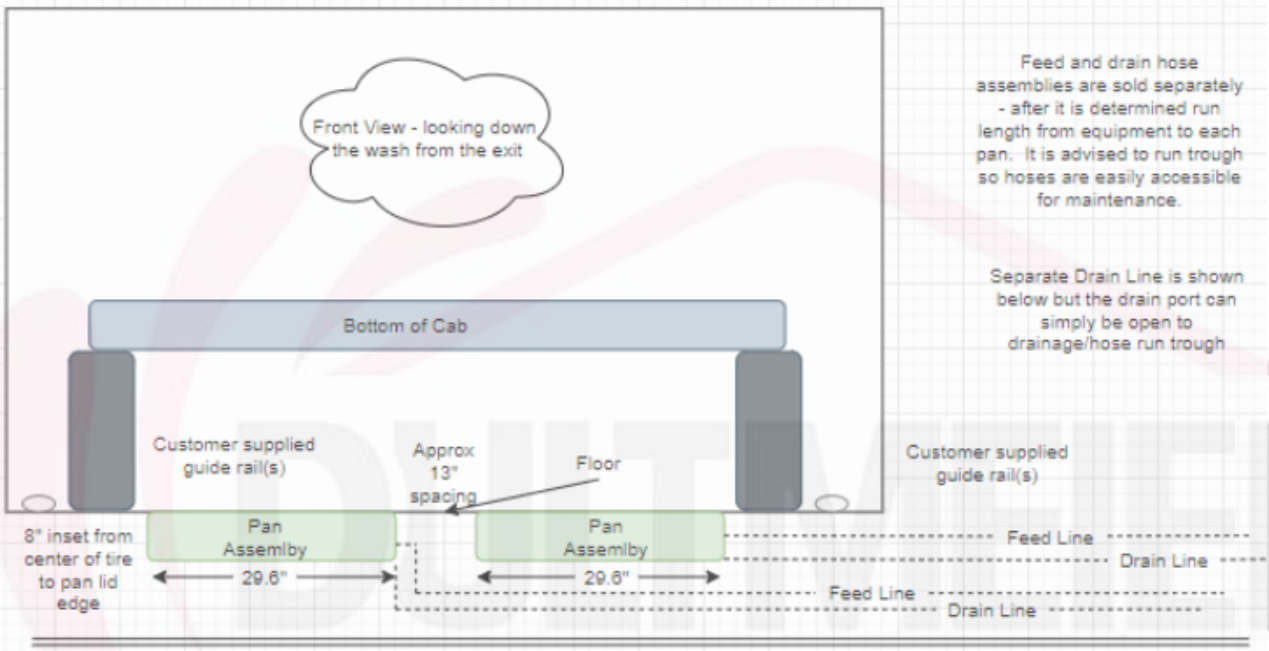
This illustration shows undercarriage pan assembly depth and photo eye stand height. Dimensions are actual but spacing is not. Spacing can be modified based upon axel to vehicle bumper dimensions.

System Setup Exhibit C:

Setup Continued (Exhibit D):

2 Pan UC Proposed Layout for Semi Tractor/Trailer Wash
*Not to scale
10/7/20

Need confirmation on wheel to wheel spacing across all makes/models



Feed and drain hose assemblies are sold separately - after it is determined run length from equipment to each pan. It is advised to run trough so hoses are easily accessible for maintenance.

Separate Drain Line is shown below but the drain port can simply be open to drainage/hose run trough

Notes:

Pans are 29.6" in length (OAL of ass'y is 31.2") by 11.8" (15.7" lid) wide by 10.8" (11.1" lid) deep

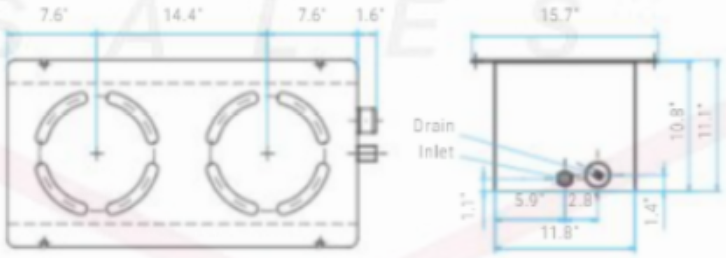
Pans contain (1) 3/4" FPT inlet and (1) 2" FPT Drain port

Edge of Pan lid to pan wall is 1.95"

Customer Supplied Guardrail will impact coverage but protect lid(s) of pans. Note: pan lids not rated for direct traffic - constructed out of 1/4" 304SS

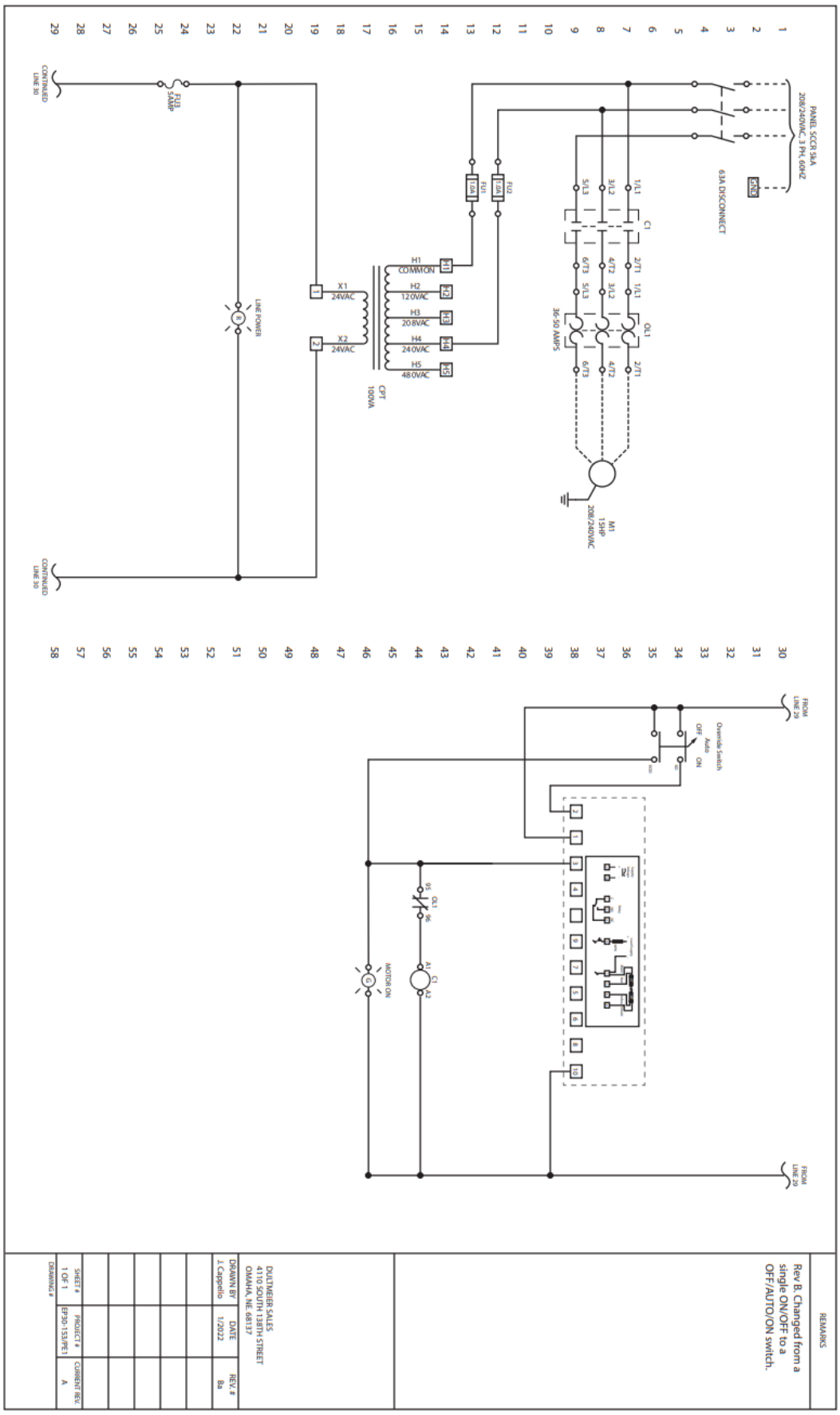
Guardrail should be no higher than 4" off the gound and mount at flush with the edge of pan lid. 4" diameter piping is ideal recommendation

Pan lids are NOT designed for direct traffic



TECHNICAL DATA	
Pressure	4000 psi (27.5 MPa)
Temperature	250°F
RPM	up to 2000 rpm
Body	29.5"x11.8"x10.8"
Water connection	3/4" NPTF
Water drain	2"
Throughput medium	pH 3-12

Wiring Diagram Control Panel 208-240V (Exhibit E):



REMARKS		
Rev B. Changed from a single ON/OFF to a OFF/AUTO/ON switch.		

DULTMEIER SALES
4110 SOUTH 138TH STREET
OMAHA, NE 68137

DRAWN BY	DATE	REV. #
J.Cappello	1/2022	Ba

SHEET #	PROJECT #	CURRENT REV.
1 OF 1	EP30-153/PE1	A

DRAWING #

Wiring Diagram Control Panel 480V (Exhibit E):

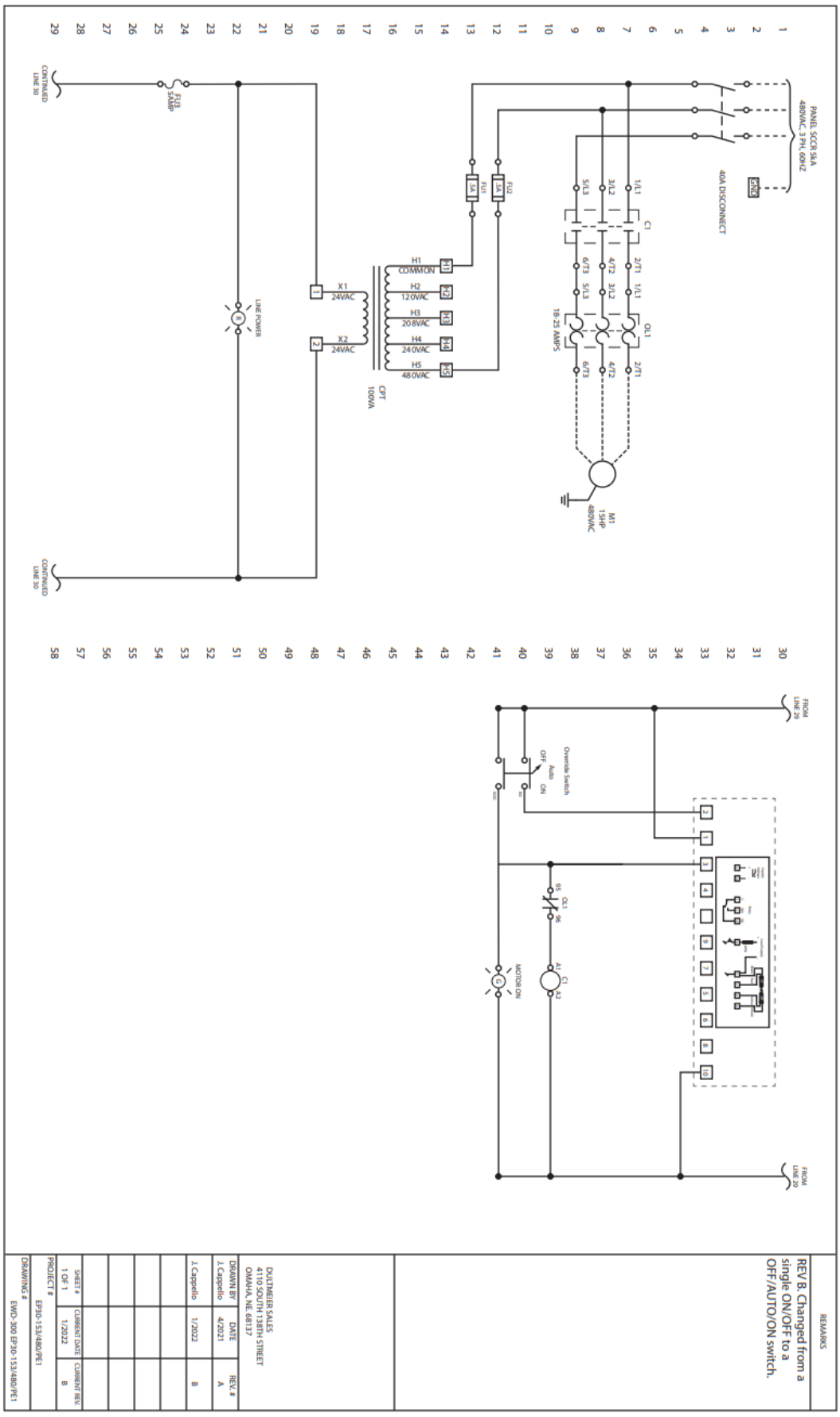
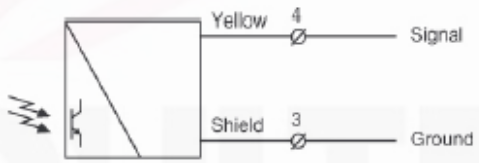


Photo Eye Wiring Diagrams (Exhibit F)

Receiver Photo Eye:



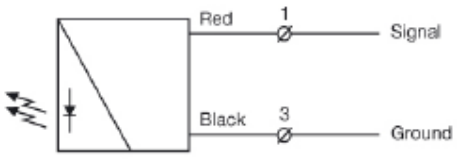
Receiver Part Number: TLLR05LCW (includes 50ft cable)

Wiring Diagram


Transmitter Photo Eye:



Receiver Part Number: TLLT05LCW (includes 50ft cable)

Wiring Diagram


Control Panel Internal Component Identification (Exhibit G):

Dultmeier Sales EP30 Panel Series hold a IP66/NEMA 4X rating. They include a DIN-mounted hour meter to aid in the service schedule of your wearable parts/components like seals, valves, etc. Make note, not ALL BOM components are listed. The most common repair/wearable components are listed. Should you need additional information, please contact Dultmeier Sales (800-228-9666) for all components.



External components are the same between ALL EP30 Series Washdown Panels. With the exception of the Disconnect Rotary Switch Selector Handle – See Cross Reference Chart on page. 13.

Control Panel Internal Component Identification (Exhibit G):

Internal Components photographed and outlined are for Panel Model: DUEP30-73/PE1. See cross reference diagram (pg. 13) for alternate panel models.

(5) Enclosure: INH161407HFLL
*All Models**

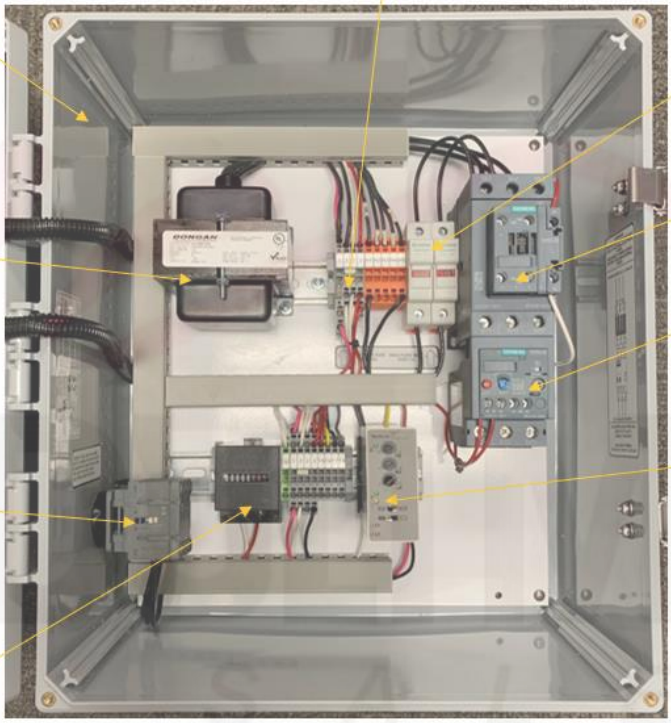
(8) Mini-Auto Fuse,
5Amp/32VDC: BRW-51220029
*All Models**

(9) Fuse Holder w/ Light: GOLPSC0001ID
(10) 1Amp Fuse Class CC 600V: GOCCMR01
Reference Pg. 13 for #9 & #10*

(6) Transformer, 100Va, 120/208/240/480V – 24V: GO33100208
*All Models**

(11) Motor Contactor: GO3RT2026-1AC20
*Reference Pg. 13**

(12) Overload Relay: GO3RU2126-4DB0
*Reference Pg. 13**

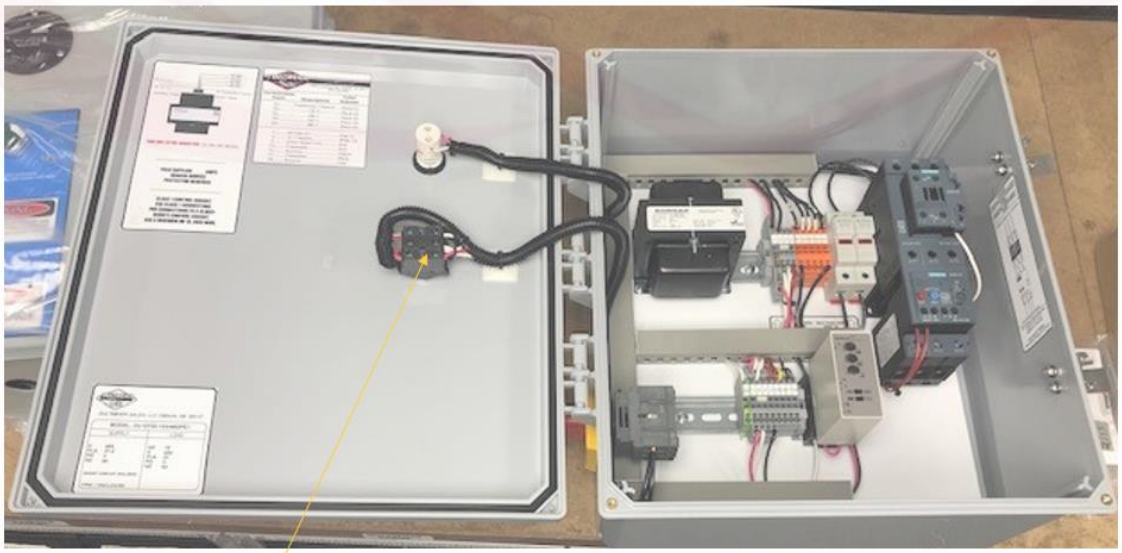


(7) Disconnect Rotary Switch: GOOT63FT3
*All Models**

(13) 24V Amplifier with Timer: TLPA11A302T
11-Pin Socket: TLTR11
Transmitter with 50ft cable: TLLT05LCW (not shown)
Receiver with 50ft cable: TLLR05LCW (not shown)

*Refr. #13 All Items are the same for All Models**

(14) Hour Meter: GOKU3223401081
*All Models**



(15) Contact Block: GOSS-D7-X10
*All Models**

Control Panel Internal Component Identification (Exhibit G):

Reference Number	Item Part No.	Description	Panel Model Number
1	GOOHYS2RJ	Selector Handle for Disconnect Rotary Switch	All Models
2	GOSS-D7D-P4N3	Pilot Light LED Red	All Models
3	GOSS-D7-N3G	LED Module Green	All Models
4	DUEP30-DECAL	Decal for EP30 Washdown Panels	All Models
5	INH161407HFLL	Enclosure 16X14X7, Hinged	All Models
6	GO33100208	Transformer, 100Va, 120/208/240/480V - 24V	All Models
7	GOOT63FT3	Disconnect Rotary Switch	DUEP30-73/PE1 & DUEP30-71/PE1 & DUEP30-101/PE1 & DUEP30-153/PE1
	GOOT40FT3-A	Disconnect Rotary Switch	DUEP30-73/480/PE1 & DUEP30-103/480/PE1 & DUEP30-103/PE1 & DUEP30-103/480/PE1 & DUEP30-153/480/PE1 & DUEP30-203/480/PE1
8	BRW-51220029	Mini-Auto Fuse, 5Amp/32VDC	All Models
9	GOLPSC0001ID	Fuse Holder with Light	All Models
10	GOCCMR01	1Amp Fuse Class CC 600V	DUEP30-71/PE1 & DUEP30-73/PE1 & DUEP30-73/480/PE1 & DUEP30-101/PE1 & DUEP30-153/PE1 & DUEP30-203/PE1
	GOCCMR.5	.5Amp Fuse Class CC 600V	DUEP30-103/480/PE1 & DUEP30-153/480/PE1 & DUEP30-203/480/PE1
11	GO3RT2026-1AC20	Motor Contactor, #0, 24VAC, 25Amp	DUEP30-71/PE1 & DUEP30-73/PE1 & DUEP30-73/480/PE1 & DUEP30-103/480/PE1
	GO3RT2046-1AC20	Motor Contactor, #3, 24VAC	DUEP30-101/PE1
	GO3RT2035-1AC20	Motor Contactor, #3, 24VAC, 40Amp	DUEP30-103/PE1 & DUEP30-153/480/PE1 & DUEP30-203/480/PE1
	GO3RT2045-1AC20	Motor Contactor, #3, 24VAC, 80Amp	DUEP30-153/PE1 & DUEP30-203/PE1
12	GO3RU2126-4DB0	Overload Relay, #0, 20-25Amp	DUEP30-73/PE1 & DUEP30-153/480/PE1
	GO3RU2136-4GB0	Overload Relay, #2, 36-45Amp	DUEP30-71/PE1
	GO3RU2126-1KB0	Overload Relay, #0, 9-12.5Amp	DUEP30-73/480/PE1
	GO3RU2146-4JB0	Overload Relay, #3, 45-63Amp	DUEP30-101/PE1 & DUEP30-203/PE1
	GO3RU2136-4EB0	Overload Relay, #2, 22-32Amp	DUEP30-103/PE1 & DUEP30-203/480/PE1
	GO3RU2126-4AB0	Overload Relay, #0, 11-16Amp	DUEP30-103/480/PE1
	GO3RU2146-4HB0	Overload Relay, #3, 36-50Amp	DUEP30-153/PE1
13	TLPA11A302T	Amplifier 24V with timer	All Models
14	GOKU3223401081	Hour Meter	All Models
15	GOSS-D7-X10	Contact Block, Rotary Switch	All Models

Troubleshooting:

A. Pressure Gauge AH2750-3 holds pressure and then slowly drops as unit is running.
    i. Could be Seal Failure or Valve Failure. Resolution – open the pump manifold to assess damage. What to look for – scored markings on orings/seals, cracks in valve bodies.
        a. Piston Kit: AR42839
        b. Valve Kit: AR42835
        c. Oil Seals Kit: AR42840
        d. Water Seals Kit: AR42844

B. Pressure Gauge (AH2750-3) does not register any pressure.
    i. If the gauge is sprung a replacement will need to be ordered.

    ii. Turn the throttling knob of the Relief Valve (IPCWR4525) clockwise to increase pressure and counterclockwise to decrease pressure. If there is no result and gauge is confirmed good, then contact Dultmeier Sales for additional troubleshooting or replacement of the pressure relief valve.

C. If there is not adequate water supply to the inlet of the DUPM221000 pump unit, there WILL be damage to your equipment. Verify that you have at least 22 GPM of feed supply to the inlet of your pump. If you have questions on calculating this, please contact Dultmeier Sales for consultation.

D. If pressure declines gradually over time, this could be caused by normal wear of nozzles or normal wear of pump seals. Inspect both nozzles and pump seals - replace nozzles and/or pump seal kit upon inspection.

E. If pressure loss has occurred quickly but is still half to 2/3 normal operating pressure, worn pump valves could be an issue. This could also be caused by foreign particles, (thread tape, brass filings, etc. lodged in one of the discharge valves. Valves, (top ports) should be removed and checked for foreign particles, re-assembled and replaced in pump.

    i. 30% to 50% pressure loss could also be caused by normal wear of pressure regulating valve, repair kits are available. Repair Kit: IPK316

F. Water in oil. This will be evident by a milky color in the pump crankcase. Caused by normal wear of pump seal kit or cracked ceramic plunger caused by wear or premature failure.

G. Low oil in crankcase. Contact Dultmeier Sales to determine if this is the crankcase or crankshaft oil seal.

H. Pump is leaking water between crankcase and manifold. This is normal seal wear, replace pump seal kit. Seals are a wearable item and need to be replaced with routine maintenance.

I. Pump Crankcase oil should be changed at first 50 operating hours and then every 500 running hours after that.

Additional Resources:

ARRTX100 Pump Breakdown
https://www.dultmeier.com/pdfs/ar-RTX_1450-schematic.pdf

Dultmeier Sales Phone Number: 888-677-5054