Dultmeier Sales FleetWash Undercarriage Cleaner (Above Ground)
3/29/23 Revision 2021.9 Official Copy
*Noted Changes from 2021.8: Updated PM221000 BOM Breakdown, Photo Eye Amplifier Instructions Added, Bypass hose plumbing instructions added, Troubleshooting updated, and removal of DUUC101000-OTC, DUUC101000-OTC480, and DUUCWB271000-OTC480 to own respective manuals.
Jeff Hansen

Dultmeier Sales Undercarriage Cleaning Systems (Above Ground)

DUUC101000-OTC -- DUUC101000-OTC480 -- DUUC221000-OTC -- DUUC221000-OTC480

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Item Identification:

Upon receipt of your system please ensure that you can identify all components of the DUUC221000-OTC 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 distance from pump to ramp. If your distance from pump to ramp will exceed 50ft, contact Dultmeier Sales.

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) MM80508: Undercarriage Ramp 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. (1) CTRB3000-1/2: 1/2" x 3/8" 304SS Hex Bushing, rated to 3000PSI

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

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

H. (4) SSTP0010EG: Stainless EG Nozzle with vane, to be inserted inside of the stabilizer venturis on the MM80645 ramp assembly.

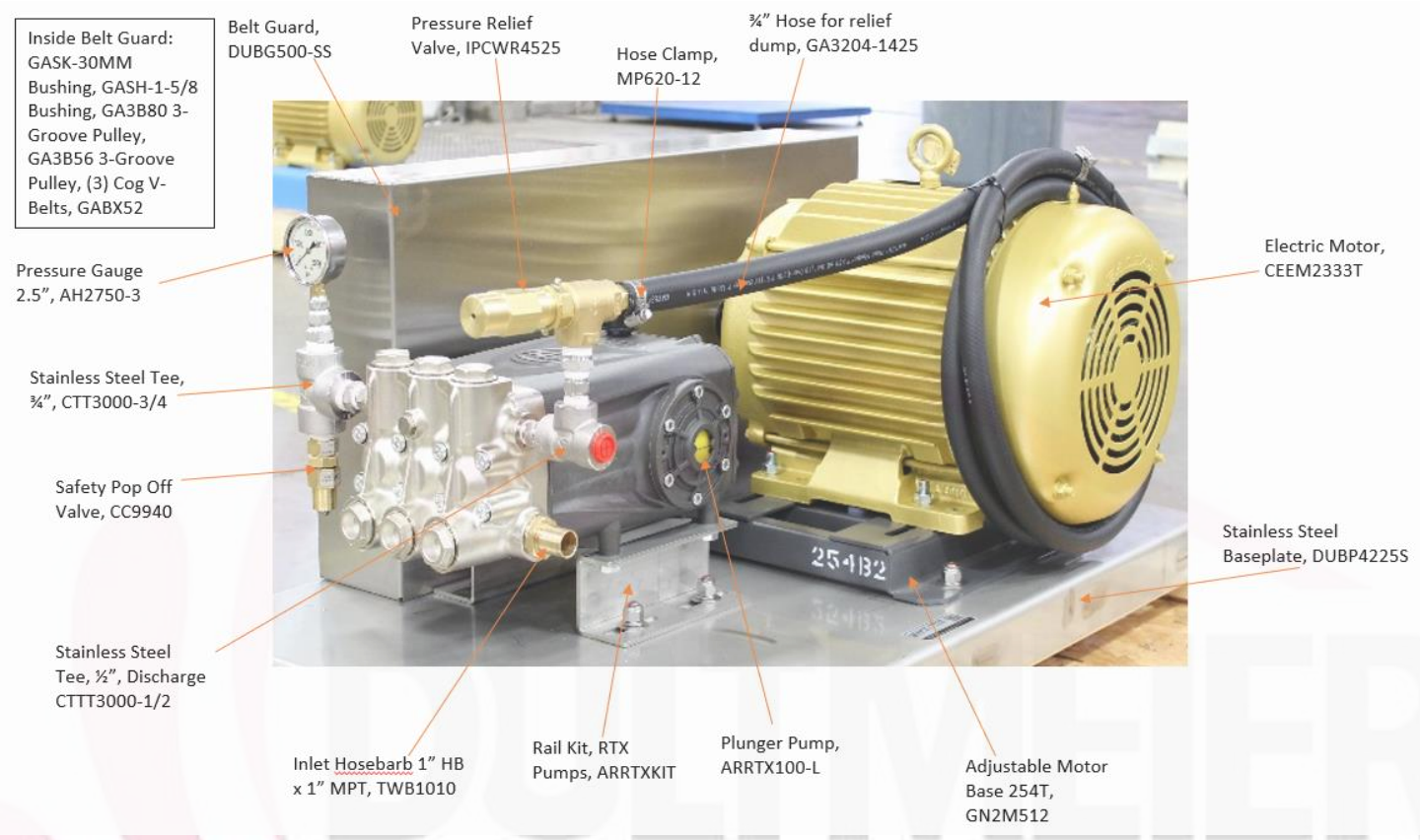






I. (1) Ramp Supply Hose: ½" x TBD – length specified by customer prior to order confirmation. *See opening paragraph regarding ¾" supply hose if pump equipment is more than 50ft from rinse ramp. *Supply hose not included in system BOM – separate line item on order/packing slip/invoice.*

Exhibit A:



1) For an above ground (OTC) system the undercarriage ramp can be permanently fixed to the concrete with concrete anchors (not supplied) or kept unanchored for more flexible usage. Determine the location of the ramp and prepare the site for assembly.

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 (1) CTSE3000-1/2 (1/2" Street Elbow) if your layout requires. Not all layouts will require the street elbow. This component is provided to alleviate bends of the hose in certain scenarios. Installer will need to determine if this component is necessary or not. Connect the ramp supply hose using the ½" union connector provided along with the ½" x 3/8" bushing.

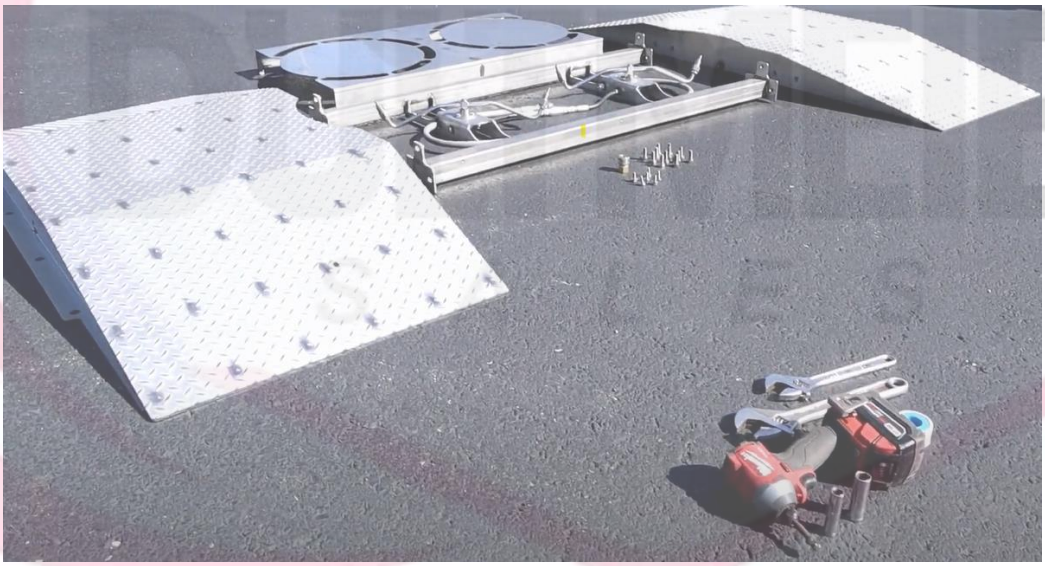
B. If street elbow is necessary thread in (1) CTSE3000-1/2 into the discharge tee. If deemed not necessary, then skip this step. If not needed, the item can be returned for full refund. Contact Customer Service at 1-800-228-9666 to initiate an RMA.
C. Into the Street Elbow (if present), thread in (1) HH1404-88SS (1/2" MPT x ½" FPT Swivel Union) to the ramp supply hose assembly and the male end into either the previously installed female end of the street elbow, or the pump tee female port. If Street Elbow is not present, simply thread the HH1404-88SS union into the discharge tee of the pump.

D. Run the feed hose to your undercarriage rinse ramp.

E. Thread the remaining (1) HH1404-88SS (1/2" swivel union) onto the free end of the ramp supply hose assembly.

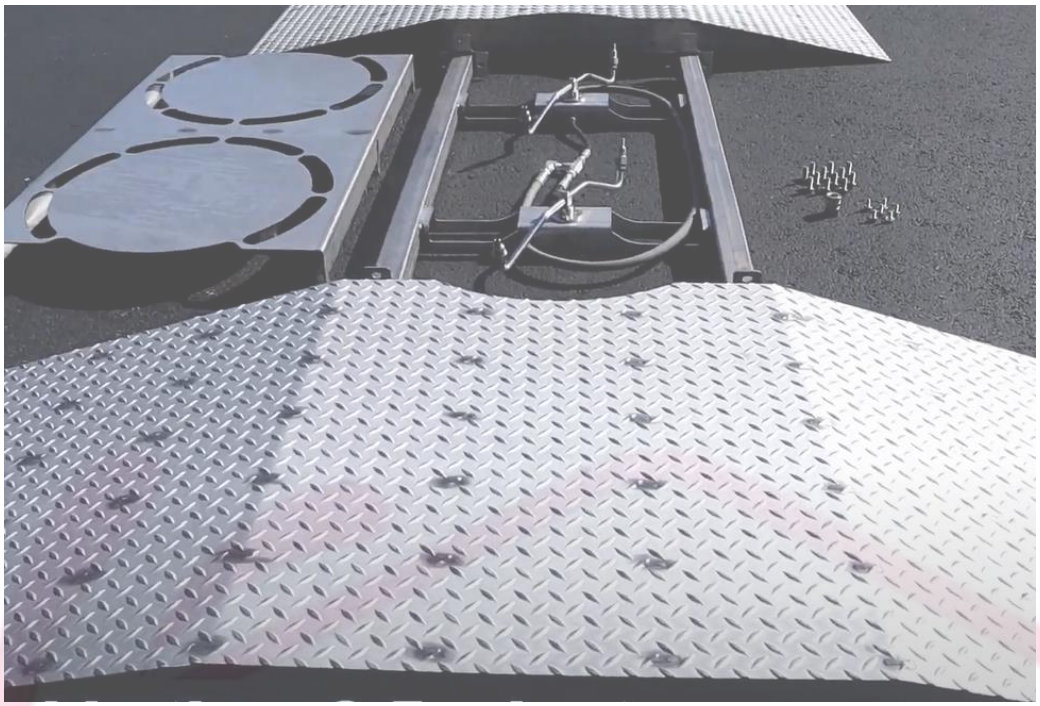
F. Thread the CTRB3000-1/2 (1/2" x 3/8" SS Bushing) into the 3/8" inlet port of the rinse ramp.

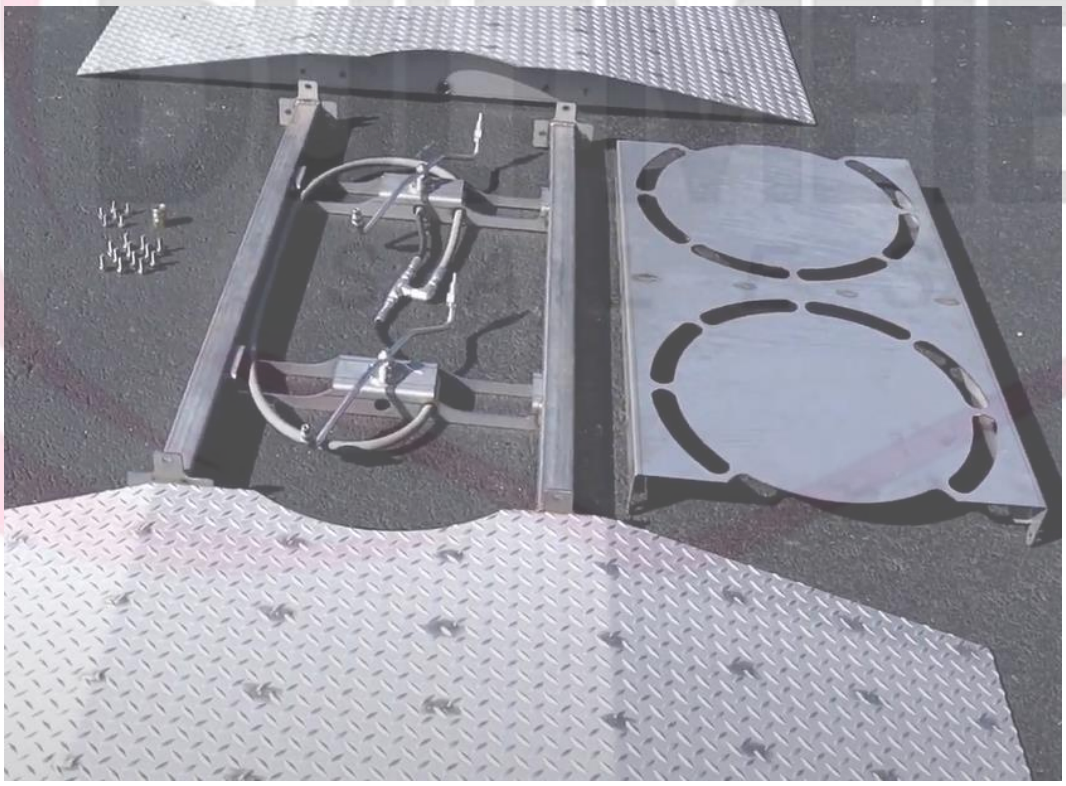
G. Assemble the ramp – you can visit https://www.youtube.com/watch?v=DdxWGfSYM_Y
Necessary tools & supplies: 7/16" and ½" wrench or socket, Teflon tape, and plumbers' grease for stainless-steel fittings.



Finished Ramp in Action: https://www.youtube.com/watch?v=zvorcXgJd3A

Ramp Load Limit: 25 tons per axle





I. Feed the supply hose through the opening in the stainless-steel wall of the rinse ramp (located on either side). Thread the free end with HH1404-88SS into the CTRB3000-1/2 bushing that was installed into the inlet port of the undercarriage rinse ramp.

4) 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. Beam max 75ft distance.

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

5) Run the bypass/hose relief line back to water source (If tank supply) – this line is supplied with each pump/motor unit. If no tank supply, then run back to inlet of the pump (additional plumbing tee will be required – consult Dultmeier if needed). 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 rinse ramp 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.

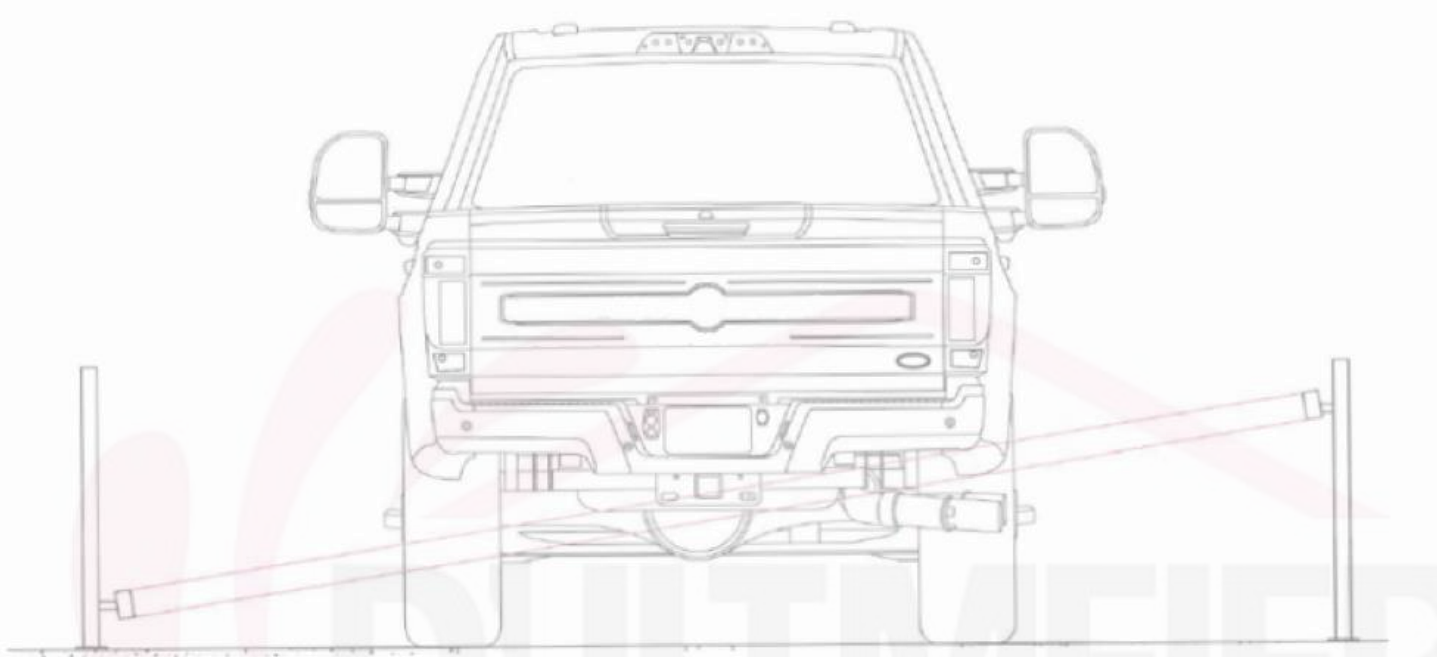
6) Installing Guide Rails – It is not necessary but advised to use Guide Rails to ensure vehicles drive evenly over the rinse ramp.

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 keeps the vehicle weight evenly distributed on the rinse ramp platform.

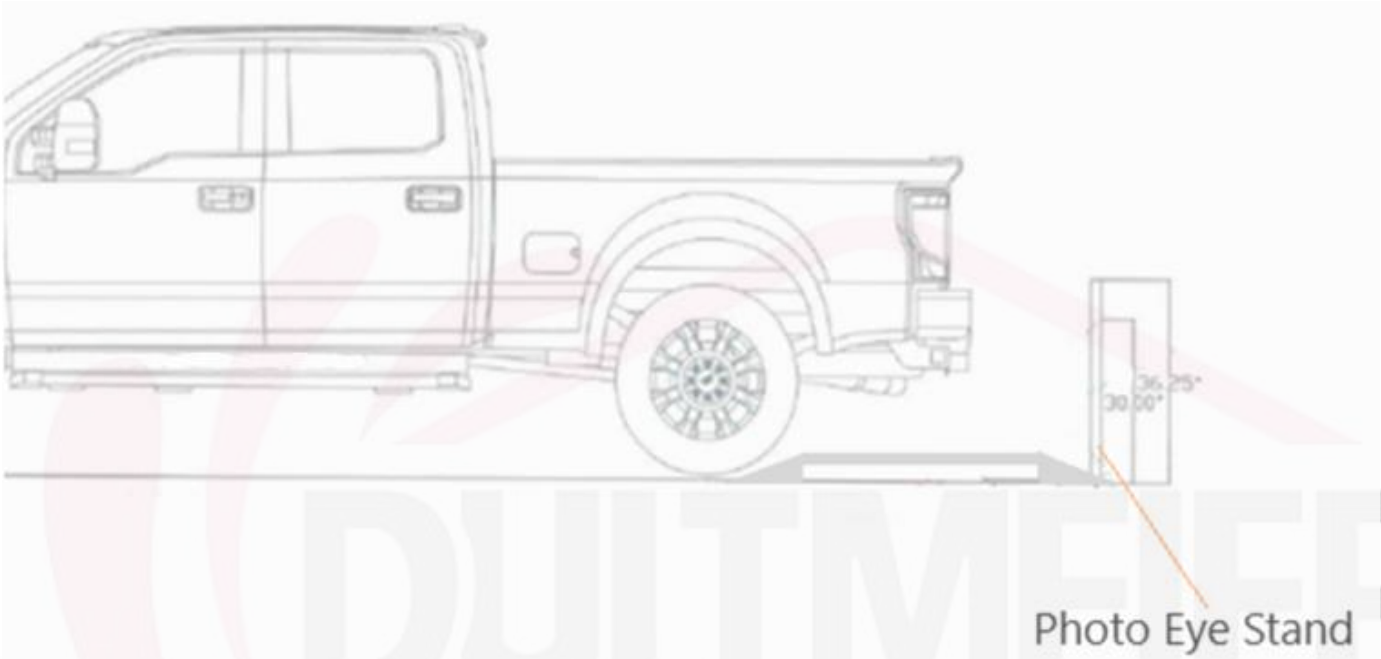
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System Setup (Exhibit B):



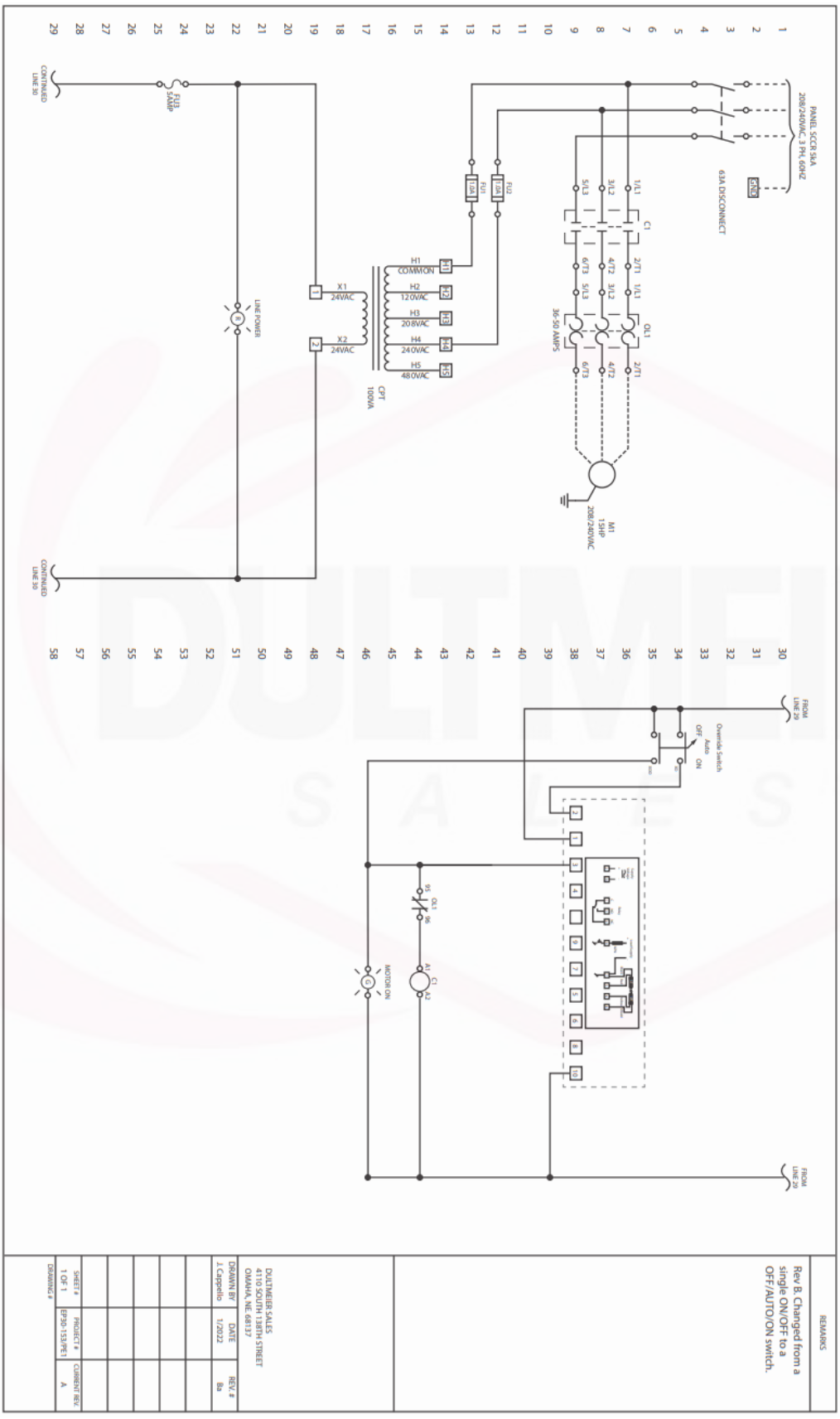
Make note of the angled orientation of the photo eyes. This installation method ensures the beam will always be in a "broken" status. Thus, engaging the motor contactor.

System Setup (Exhibit C):



This illustration shows the undercarriage rinse ramp (not to scale) and photo eye stand height. Photo eye stand height dimensions are actual but spacing is not. Spacing can be modified based upon axel to vehicle bumper dimensions.

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



Wiring Diagram Control Panel 480V (Exhibit E):

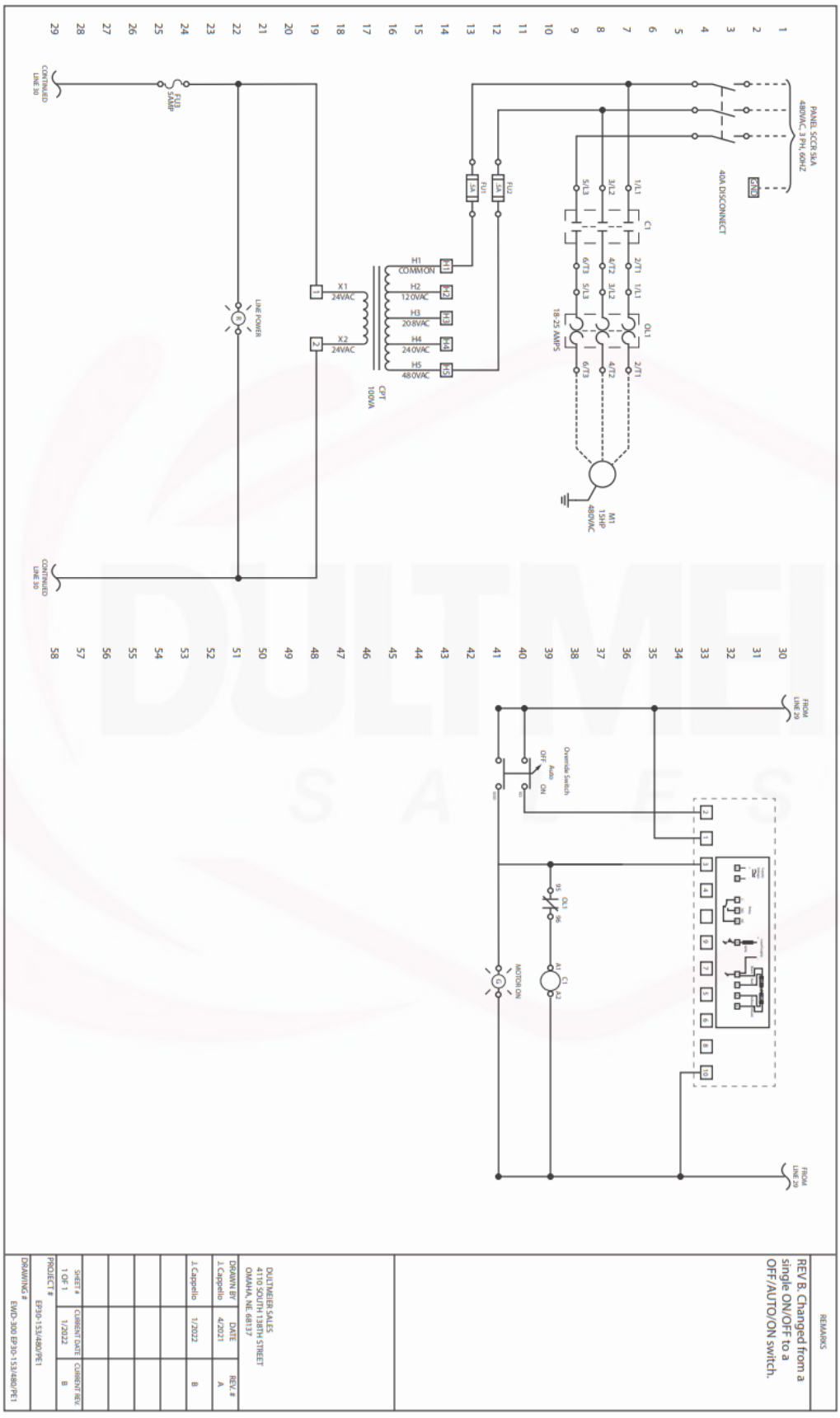


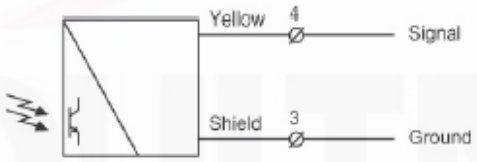
Photo Eye Wiring Diagrams (Exhibit F)

Receiver Photo Eye:



Receiver Part Number: TLLR05LCW (includes 50ft cable)

Wiring Diagram



Transmitter Photo Eye:



Receiver Part Number: TLLT05LCW (includes 50ft cable)

Wiring Diagram

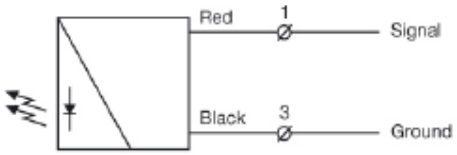
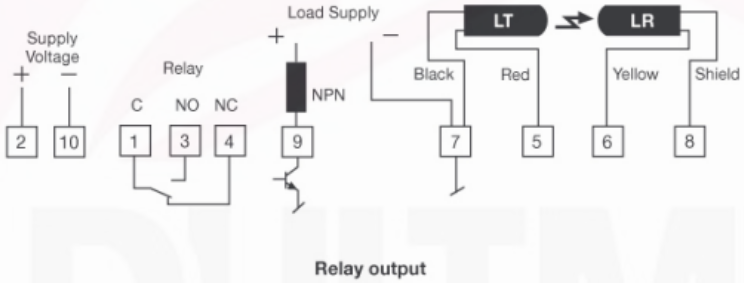


Photo Eye Wiring Diagrams Continued (Exhibit E):

Environmental Data	
Operation Temperature	– 10 to +50 °C
Storage Temperature	– 40 to +80 °C
Sealing Class	IP 40

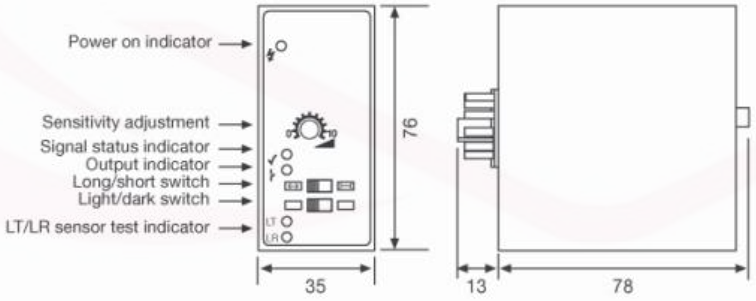
Approvals

Wiring Diagram



Relay output

Dimensions



Amplifier Instructions for Default Settings:

Sensitivity Adjustment should be 3-4 depending on the lighting.
Long/Short Switch should be flipped LEFT.
Light/Dark Switch is identifies NORMALLY CLOSED or NORMALLY OPEN. The System is designed to be NORMALLY OPEN. Therefore, the switch should be flipped LEFT.

Control Panel Internal Component Identification (Exhibit G):

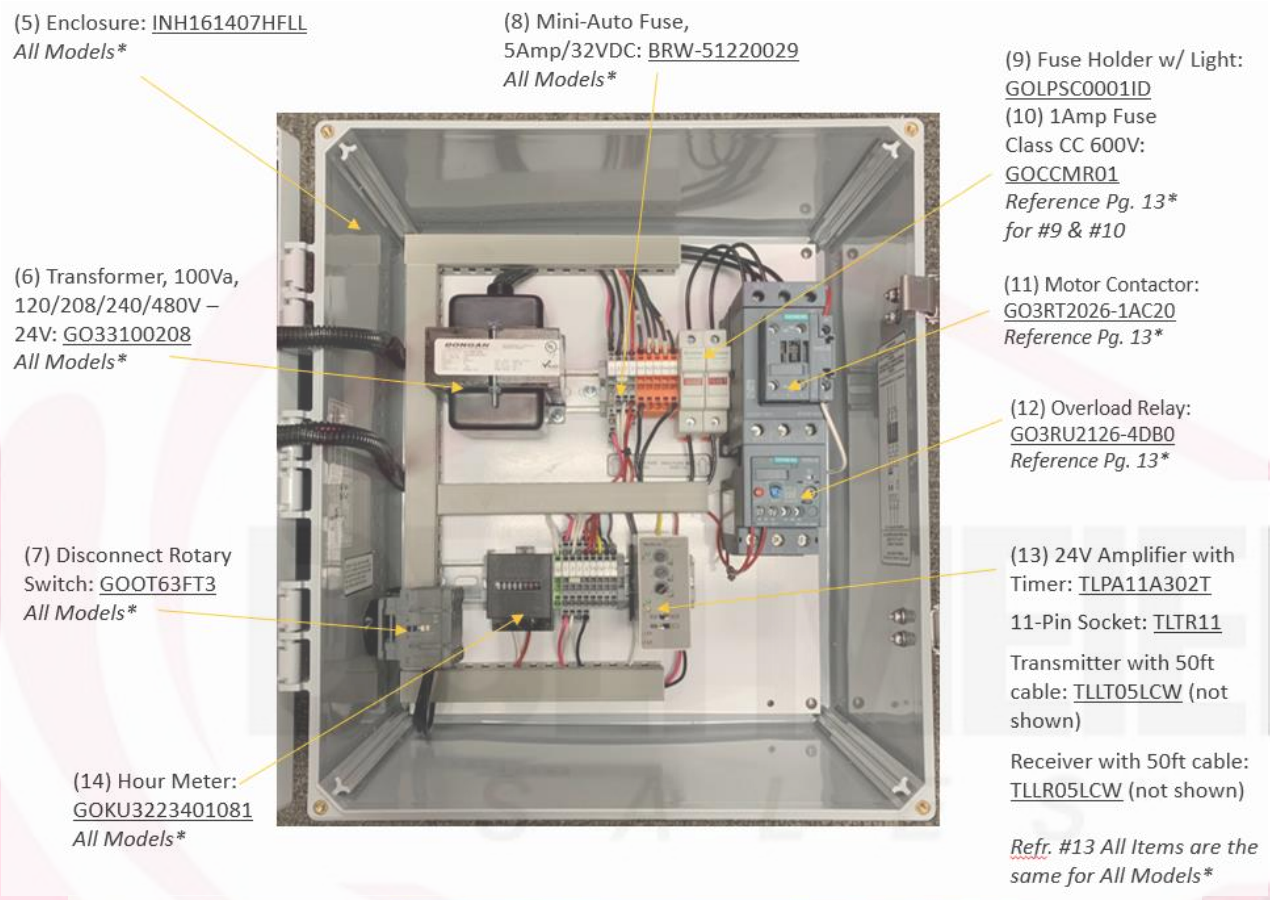
Dultmeier Sales EP30 Panel Series hold a IP66/NEMA 4X rating. They include a DIN-mounted hour meter to aid in the service schedule of your wearable parts/components like seals, valves, etc. Make note, not ALL BOM components are listed. The most common repair/wearable components are listed. Should you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

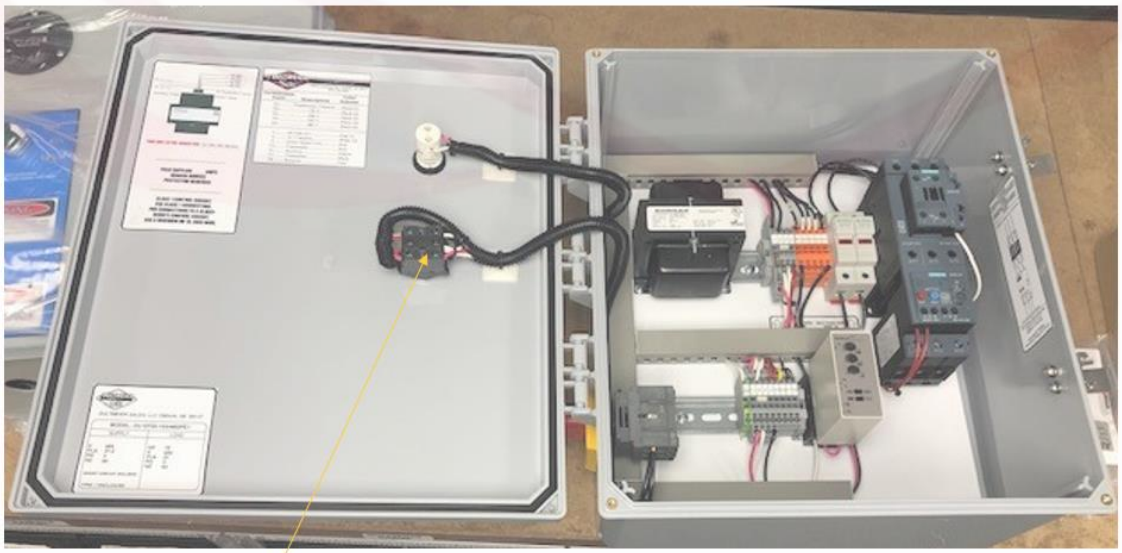


External components are the same between ALL EP30 Series Washdown Panels. With the exception of the Disconnect Rotary Switch Selector Handle – See Cross Reference Chart on page. 13.

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.





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:

i. Pressure Gauge AH2750-3 holds pressure and then slowly drops as unit is running.
   a. 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.
   b. Piston Kit: AR42839
   c. Valve Kit: AR42835
   d. Oil Seals Kit: AR42840
   e. Water Seals Kit: AR42844

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

   b. 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.

I. If there is not adequate water supply to the inlet of the DUPM221000 or DUPM271000 pump unit, there WILL be damage to your equipment. Verify that you have at least 22 GPM (to the 15HP unit) and 27GPM (to the 20HP Unit) of feed supply to the inlet of your pump. If you have questions on calculating this, please contact Dultmeier Sales for consultation.

II. 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.

III. 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.

   a. 30% to 50% pressure loss could also be caused by normal wear of pressure regulating valve, repair kits are available. Repair Kit: IPK316 (same kit for either DUPM271000 or DUPM221000)

IV. 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.

V. Low oil in crankcase. Contact Dultmeier Sales to assist in determining if this is from the crankcase seal or the crankshaft seal failure.

VI. 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.

VII. 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