

**Undercarriage Cleaning Systems** 

DU UC221000 DU UC221000-480





Serial Number: Installation Date:	





Please read and understand this manual. Store in safe location for future reference.

**Everyone who operates this unit should understand basic operations and safety precautions!** The time you take to fully understand the proper installation, maintenance and use of the machine will prolong its service life, and assure you of trouble free operation.

When unpacking, check to make sure all the parts shown on the Parts Breakdown near the end of this manual are included. If any parts are missing or broken, please call Dultmeier Sales as soon as possible.

Consumers should notice that this manual may differ slightly from the actual product as more improvements are made to our products. Some of the pictures in this manual may differ slightly from the actual product as well. Dultmeier Sales reserves the right to update designs and / or change the specifications at any time without incurring any obligation to install them on units previously sold.

#### If you have any questions or suggestions about this manual, please contact us at:

1-888-677-5054 dultmeier@dultmeier.com www.dultmeier.com

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This manual is intended to assist in the installation and operation of this unit. Do not attempt to operate this unit without reading and understanding this manual.

### **General Safety**

To avoid the risk of serious bodily injury and property damage, read safety instructions carefully before installing this system. Follow all local and/or national plumbing and electrical codes when installing.



#### Do Not Allow System or Components to Freeze.

To do so may damage the system and will void the warranty.



### Never Run the System Dry.

Running the unit dry (without fluid) can damage internal parts, overheat pump (which can cause burns to people handling or servicing the pump), and will void the warranty.



### Risk of Electric Shock.

Keep the unit dry at all times -Do not wash the motor or electrical panel or allow the unit to sit in standing water.

Use only Ground Fault Circuit Interrupter (GFCI) protected grounded outlet for the cord plug. If you must use an extension cord, use only UL approved indoor/outdoor, 3-wire, grounding type cords. The cord must be rated to support amp draw. Do not allow any part of cord or receptacle ends to sit in water.

To avoid fatal shocks, proceed as follows if service is needed:

- A. Turn off water to the system.
- B. Disconnect the power at main electrical service before unplugging the unit.
- C. Ground the electrical outlet box.
- D. Take extreme care when changing fuses.



Pump was designed for forward rotation to allow optimum lubrication of the crosshead area. Reverse rotation is acceptable if the crankcase oil level is increased slightly above center dot to assure adequate lubrication.



Modern motors can operate at high temperatures. To avoid burns when servicing pump, allow it to cool for 20 minutes after shutdown before handling.

## **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 <sup>3</sup>/<sub>4</sub>" supply hoses. <sup>1</sup>/<sub>2</sub>" 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.

- 1. (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 Item A.
- 2. (1) Control Panel: either DUEP30-153/PE1 (for 208-230V) or DUEP30-153/480/PE1 (for 480V)
  - a. 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.
  - b. Customer will have specified either 230V (DUUC221000) or 480V (DUUC221000-480) at the time of purchase.
  - c. To be wired by electrician.
  - d. Use Item E for Wiring Diagram.
- 3. (1) TLTSS2: Photo eye Stand, set of (2) to be floor mounted by installer/customer. See Item B.
- 4. (2) MM80640: Undercarriage Pan Assembly, with stabilizer cones See Items B, C, D.
- 5. (2) MM59603: Swivel for Undercarriage Pan Assembly
- 6. (2) discharge ports per head, total of (2) discharge heads per pan assembly total of (4) orifices per assembly
- 7. (2) CTRB3000-3/4: <sup>3</sup>/<sub>4</sub>" x <sup>1</sup>/<sub>2</sub>" 304SS Hex Bushing, rated to 3000PSI
- 8. (2) HH1404-88SS: Swivel Union <sup>1</sup>/<sub>2</sub>" MPT x <sup>1</sup>/<sub>2</sub>" FPT rated to 3000PSI
- 9. (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).
- 10. (1) CT8012CL: 1/2" x Close nipple, 304SS, rated to 3000PSI
- 11. (1) CTTT3000-1/2: Tee, 1/2", 304SS, rated to 3000PSI
- (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.
- (8) SSTP0005EG: Stainless EG Nozzle with vane, to be inserted inside of the stabilizer cones on the MM80640 pan assemblies









Part Number	Description	Quantity
DUBG500-SS	Belt Guard	
GASK-30MM	Bushing	1
GASH1-5/8	Bushing	1
GA3B/0	3-Groove Pulley	
GABX52	Cog V-Belts	
IPCWR4525	Pressure Relief Valve	
MP620-12	Hose Clamp	
GA3204-1425	1/4" Hose for Relief Dump	
CEEM2333T	Electric Motor	1
DUBP4225S	Stainless Steel Baseplate	1
GNM512	Adjustable Motor Base 254T	1
ARRTX100-L	Plunger Pump - See Page 6	1
ARRTXKIT	RTX Pumps Rail Kit	1
TWB1010	Inlet 2" Hose Barb x 1" MPT	1
CTTT3000-1/2	Stainless Steel Tee, 1/2", Discharge	1
CC9940	Safety Pop Off Valve	1
CTT30003/4	Stainless Steel Tee, 3/4"	1
AH2750-3	Pressure Gauge 2.5"	1
	Part Number           DUBG500-SS           GASK-30MM           GASH1-5/8           GA3B/0           GABX52           IPCWR4525           MP620-12           GA3204-1425           CEEM2333T           DUBP4225S           GNM512           ARRTX100-L           ARRTXKIT           TWB1010           CTTT3000-1/2           CC9940           CTT30003/4           AH2750-3	Part NumberDescriptionDUBG500-SSBelt GuardGASK-30MMBushingGASH1-5/8BushingGA3B/03-Groove PulleyGABX52Cog V-BeltsIPCWR4525Pressure Relief ValveMP620-12Hose ClampGA3204-14251/4" Hose for Relief DumpCEEM2333TElectric MotorDUBP4225SStainless Steel BaseplateGNM512Adjustable Motor Base 254TARRTX100-LPlunger Pump - See Page 6ARRTXKITRTX Pumps Rail KitTWB1010Inlet 2" Hose Barb x 1" MPTCTTT3000-1/2Stainless Steel Tee, 1/2", DischargeCC9940Safety Pop Off ValveCTT30003/4Stainless Steel Tee, 3/4"AH2750-3Pressure Gauge 2.5"

## System Plumbing Guide (Item A)

- 1. 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 1/2" 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 Items B, C, and D for further detail.
- 2. 2) Wire the control panel and electric motor per Item E. Consult a licensed electrician for this step.
- 3. 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 previously 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.

## System Plumbing Guide (Item A)

- 5. 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 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 Item 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. 5) Install the Photo Eye Stands. See System Setup (Item 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 Item F for replacement parts and wiring diagrams
  - ii. Beam max 75ft distance.
  - iii. Optical Angle +/- 3° opening
- 7. 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. A. 3" or 4" ID Schedule 40 Galvanized, Black Steel, or Stainless-Steel Pipe will be sufficient for this purpose.
  - b. 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 page xx for undercarriage pan assembly dimensions.

ARRTX100 Pump Breakdown: https://www.dultmeier.com/pdfs/ar-RTX\_1450-schematic.pd





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 diagram is incomplete. See next page - page 9 - for other half of diagram.





This diagram is incomplete. See previous page - page 8 - for other half of diagram.



This diagram is incomplete. See next page - page 11 - for other half of diagram.



This diagram is incomplete. See previous page - page 10 - for other half of diagram.



**Reciever Photo Eye** 

Reciever Part Number: TLLR05LCW (included 50ft cable)





Transmitter	Photo Eye
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Reciever Part Number: TLLT05CLW (included 50ft cable)



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 (Item G)**

Internal Components photographed and outlined are for Panel Model: DUEP30-73/PE1. See cross reference diagram (page 13-14) for alternate panel models.





## **Control Panel Internal Component Identification (Item G)**

Internal Components photographed and outlined are for model DUEP30-73/ PE1. See cross reference diagram (pg. 11-12) for alternate panel models. Under Panel Model Number, objects in parenthesis such as (71)(73) indicate different models available, for example DUEP30-(71)(73)/PE1 indicates both DUEP30-71/PE1 and DUEP30-73/PE1.

Reference Number	Item Part No.	Description	Panel Model Number
1	GOOHYSRJ	Selector Handle for Discon- nect 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-(71)(73)(101) (153)/PE1
	GOOT40FT3-A	Disconnect Rotary Switch	DUEP30-(71)(73)(101) (153)(203)/PE1 & DUEP30- 73/480/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)(73)(101)(153) (203)/PE1 & DUEP30-153/480/PE1
	GO3RT2035-1AC20	Motor Contactor, #3, 40Amp	DUEP30-(103)/PE1 7 DUEP30-(153)(203)/480/ PE1
	GO3RT2045-1AC20	Motor Contactor, #3, 80Amp	DUEP30-(153)(203)/PE1
12	GO3RU2126-4DB0	Overload Relay, #0, 20- 25Amp	DUEP30-(73)/PE1 & DUEP30-(153)/480/PE1

## **Control Panel Internal Component Identification (con't)**

Internal Components photographed and outlined are for model DUEP30-73/ PE1. See cross reference diagram (pg. 11-12) for alternate panel models. Under Panel Model Number, objects in parenthesis such as (71)(73) indicate different models available, for example DUEP30-(71)(73)/PE1 indicates both DUEP30-71/PE1 and DUEP30-73/PE1.

Reference Number	Item Part No.	Description	Panel Model Number
	GO3RU2136-4GB0	Overload Relay, #2, 36- 45Amp	DUEP30-73/PE1
	GO3RU2126-1KB0	Overload Relay, #0, 9-12.5Amp	DUEP30-73/480/PE1
	GO3RU2146-4JB0	Overload Relay, #3, 45- 63Amp	DUEP30-(101)(203)/PE1
	GO3RU2136-4EB0	Overload Relay, #2, 22- 32Amp	DUEP30-103/PE1 & DUEP30-203/480/PE1
	GO3RU1216-4AB0	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

- 1. 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 o-rings/seals, cracks in valve bodies.
    - i. Piston Kit: AR42839
    - ii. Valve Kit: AR42835
    - iii. Oil Seals Kit: AR42840
    - iv. Water Seals Kit: AR42844
- 2. 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.
- 3. 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.
- 4. 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.
- 5. 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
- 6. 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.
- 7. Low oil in crankcase. Contact Dultmeier Sales to determine if this is the crankcase or crankshaft oil seal.
- 8. 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.
- 9. Pump Crankcase oil should be changed at first 50 operating hours and then every 500 running hours after that.

### Dultmeier Sales Phone Number: 888-677-5054



# Notice Regarding Manufacturer's Limited Warranty

Dultmeier Sales Limited Liability Company (hereinafter Dultmeier), notifies you that component part(s) carry a manufacturer's limited warranty provided by the manufacturer of said component part(s). These warranties do not pertain to normal wear of component part(s) that may occur within any specified period. While Dultmeier is not the manufacturer of any of the component part(s), Dultmeier will assist you in processing any and all manufacturer's warranty claim if applicable and available. Any and all manufacturer's claims must be submitted in writing to the manufacturer within the warranty periods provided by the manufacturer.

Defective component part(s) that are to be considered for manufacturer's limited warranty must be returned to the manufacturer by prepaid shipment with the applicable manufacturer's limited warranty period. If the component part(s) are deemed to be defective under the manufacturer's warranty, Dultmeier will assist in obtaining a replacement or repair of the component part(s). Said component part(s) will be returned F.O.B. Omaha, Nebraska. Replacement or repair shall be the exclusive remedy for any breach of warranty. Labor for installation, either with respect to original or replacement part or components, is not covered under the manufacturer's limited warranty.

Neither the manufacturer nor Dultmeier warrants loss of income or consequential damages for injury or commercial loss resulting from any breach of warranty or warranties stated above.

The manufacturer's limited warranty as stated does not apply to component part(s) which have been improperly installed, misused, altered, neglected, abused or not installed, adjusted, maintained, or used in accordance with applicable codes and ordinances and in accordance with the manufacturer's specifications as to such factors.

Notwithstanding Dultmeier's willingness to assist in the processing of the manufacturer's limited warranty, Dultmeier makes no warranty against infringement of the like, makes no warranty of merchantability, makes no warranty of fitness for a particular purpose, and makes no other warranty, express or implied, including implied warranty arising from the course of dealing or usage of trade.

Compliance with all local, state and federal codes regarding the installation and operation of said equipment, parts and components shall be the responsibility of the purchaser. The rights and obligations of the parties shall be governed by the laws of the State of Nebraska.

Dultmeier Sales • 1-888-677-5054 Omaha, NE - Davenport, IA

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### If you have any questions or concerns about condition of this unit, please contact us before operating. 1-888-677-5054