

Hopper or Hose Heat Circulation Kit

313259A

*For circulating heated water through XM plural-component sprayer double wall hoppers, heated hose, and Viscon® HP heater.
Approved for use in explosive atmospheres.*

Model 256273

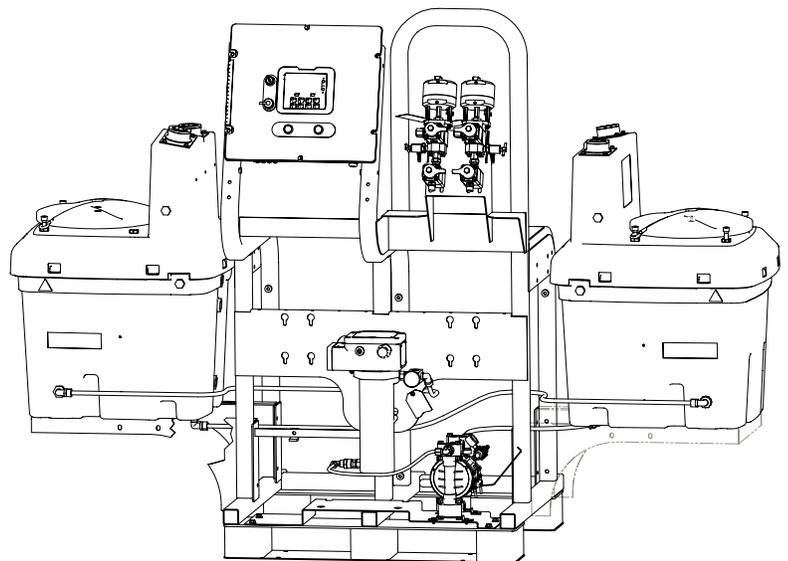
Includes parts needed to assemble heated hose system. Heated hose assembly and Viscon HP heater must be ordered separately.



Important Safety Instructions

Read all warnings and instructions in this manual.
Save these instructions.

See **Technical Data** on page 22 for Maximum Working Pressure and Temperature Rating information.



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Related Manuals

Manual	Description
312359	XM Operation
313289	XM Repair
313292	XM OEM, Instructions-Parts
312747	Double Wall Hopper, Instructions-Parts
309524	Viscon® HP Heater
308981	Husky™ 716 Diaphragm Pump

Warnings

The following warnings are for the setup, use, grounding, maintenance, and repair of this equipment. The exclamation point symbol alerts you to a general warning and the hazard symbol refers to procedure-specific risk. Refer back to these warnings. Additional, product-specific warnings may be found throughout the body of this manual where applicable.

 WARNING	
	<p>FIRE AND EXPLOSION HAZARD</p> <p>Flammable fumes, such as solvent and paint fumes, in work area can ignite or explode. To help prevent fire and explosion:</p> <ul style="list-style-type: none"> • Use equipment only in well ventilated area. • Eliminate all ignition sources; such as pilot lights, cigarettes, portable electric lamps, and plastic drop cloths (potential static arc). • Keep work area free of debris, including solvent, rags and gasoline. • Do not plug or unplug power cords, or turn power or light switches on or off when flammable fumes are present. • Ground all equipment in the work area. See Grounding instructions. • Use only grounded hoses. • Hold gun firmly to side of grounded pail when triggering into pail. • If there is static sparking or you feel a shock, stop operation immediately. Do not use equipment until you identify and correct the problem. • Keep a working fire extinguisher in the work area.
	<p>EQUIPMENT MISUSE HAZARD</p> <p>Misuse can cause death or serious injury.</p> <ul style="list-style-type: none"> • Do not operate the unit when fatigued or under the influence of drugs or alcohol. • Do not exceed the maximum working pressure or temperature rating of the lowest rated system component. See Technical Data in all equipment manuals. • Use fluids and solvents that are compatible with equipment wetted parts. See Technical Data in all equipment manuals. Read fluid and solvent manufacturer's warnings. For complete information about your material, request MSDS forms from distributor or retailer. • Check equipment daily. Repair or replace worn or damaged parts immediately with genuine manufacturer's replacement parts only. • Do not alter or modify equipment. • Use equipment only for its intended purpose. Call your distributor for information. • Route hoses and cables away from traffic areas, sharp edges, moving parts, and hot surfaces. • Do not kink or over bend hoses or use hoses to pull equipment. • Keep children and animals away from work area. • Comply with all applicable safety regulations.
	<p>ELECTRIC SHOCK HAZARD</p> <p>Improper grounding, setup, or usage of the system can cause electric shock.</p> <ul style="list-style-type: none"> • Turn off and disconnect power cord before servicing equipment. • Use only grounded electrical outlets. • Use only 3-wire extension cords. • Ensure ground prongs are intact on sprayer and extension cords. • Do not expose to rain. Store indoors.

! WARNING

	<p>SKIN INJECTION HAZARD</p> <p>High-pressure fluid from gun, hose leaks, or ruptured components will pierce skin. This may look like just a cut, but it is a serious injury that can result in amputation. Get immediate surgical treatment.</p> <ul style="list-style-type: none"> • Do not point gun at anyone or at any part of the body. • Do not put your hand over the spray tip. • Do not stop or deflect leaks with your hand, body, glove, or rag. • Do not spray without tip guard and trigger guard installed. • Engage trigger lock when not spraying. • Follow Pressure Relief Procedure in this manual, when you stop spraying and before cleaning, checking, or servicing equipment.
	<p>BURN HAZARD</p> <p>Equipment surfaces and fluid that's heated can become very hot during operation. To avoid severe burns, do not touch hot fluid or equipment. Wait until equipment/fluid has cooled completely.</p>
	<p>TOXIC FLUID OR FUMES HAZARD</p> <p>Toxic fluids or fumes can cause serious injury or death if splashed in the eyes or on skin, inhaled, or swallowed.</p> <ul style="list-style-type: none"> • Read MSDS's to know the specific hazards of the fluids you are using. • Store hazardous fluid in approved containers, and dispose of it according to applicable guidelines. • Always wear impervious gloves when spraying or cleaning equipment.
	<p>PERSONAL PROTECTIVE EQUIPMENT</p> <p>You must wear appropriate protective equipment when operating, servicing, or when in the operating area of the equipment to help protect you from serious injury, including eye injury, inhalation of toxic fumes, burns, and hearing loss. This equipment includes but is not limited to:</p> <ul style="list-style-type: none"> • Protective eyewear • Clothing and respirator as recommended by the fluid and solvent manufacturer • Gloves • Hearing protection

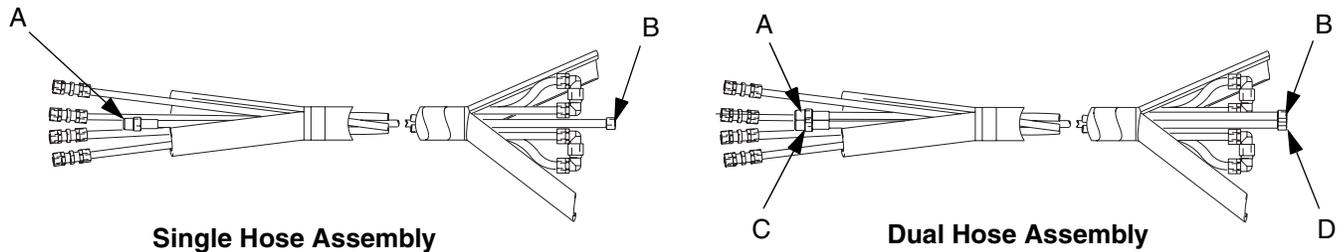
Heated Hopper or Hose Circulation Kit 256273

The kit described in this manual; includes all miscellaneous parts needed to assemble the system. There are three options for using circulation kit 256273:

- Circulate water through heaters and hoppers. See page 8.
- Circulate water through heaters and heated hose. See page 12.
- Circulate water through heaters, hoppers, and heated hose. See page 10.

Heated Hose Assembly

Order separately a heated hose assembly that meets maximum pressure and hose diameter requirements. You can connect up to six 50 ft. (15.2 m) heated hose sections for a maximum total length of 300 ft. (91.4 m).



Single Hose Assemblies

Part	Maximum Pressure Rating <i>psi (MPa, bar)</i>	Hose Diameter <i>in. (mm)</i>	Thread A <i>npt(m)</i>	Thread B <i>npsm(f)</i>	Approvals
245840	5000 psi (34, 345)	1/4 (6.35)	1/4	1/4	
245841	7400 psi (51, 510)	1/4 (6.35)	1/4	1/4	
245842	5000 psi (34, 345)	3/8 (9.53)	3/8	3/8	
245843	7400 psi (51, 510)	3/8 (9.53)	3/8	3/8	
245844	5000 psi (34, 345)	1/2 (12.7)	1/2	1/2	
245845	7400 psi (51, 510)	1/2 (12.7)	1/2	1/2	

Dual Hose Assemblies

Part	Maximum Pressure Rating <i>psi (MPa, bar)</i>	Hose Diameter <i>in. (mm)</i>	Thread A <i>npt(m)</i>	Thread B <i>npsm(f)</i>	Thread C <i>npt(m)</i>	Thread D <i>npsm(f)</i>	Approvals
248118	7400 psi (51, 510)	1/2 (12.7)	1/2	1/2	1/2	1/2	
248119	7400 psi (51, 510)	3/8 (9.53)	3/8	3/8	3/8	3/8	
248120	7400 psi (51, 510)	A = 1/2 (12.7) B = 3/8 (9.53)	1/2	1/2	3/8	3/8	
248121	7400 psi (51, 510)	A = 3/8 (9.53) B = 1/4 (6.35)	3/8	3/8	1/4	1/4	

Hazardous Location Heaters

Part No.	Series	VAC (50/60 Hz single phase) / Watts / Amps	Approvals
245848	A	120 / 2300 / 19.2	 <p>Approved Exd II T2 482°F (250°C) Certificate No. ISSeP 07ATEX034X Approved to EN 60079-0:2006 (IEC 60079-0:2004) and EN 60079-1:2007 (IEC 60079-1:2007) for Hazardous Locations, Temp Code T2 482°F (250°C). See Technical Data, page 22, for additional information.</p> <p>CSA Certified and FM Approved as flame proof for Class I, Division 1, Group D Hazardous Locations, Temp Code T2 482°F (250°C), -20°C < T amb < 135°F (57°C). See Technical Data, page 22, for additional information.</p>
245863	A	240 / 4000 / 16.7	
245864	A	480 / 4000 / 8.30	
245862	A	200 / 4000 / 20.0	 <p>Approved Exd II T2 482°F (250°C) Certificate No. ISSeP 07ATEX034X Approved to EN 60079-0:2006 (IEC 60079-0:2004) and EN 60079-1:2007 (IEC 60079-1:2007) for Hazardous Locations, Temp Code T2 482°F (250°C). See Technical Data, page 22, for additional information.</p> <p>CSA Certified as flame proof for Class I, Division 1, Group D Hazardous Locations, Temp Code T2 482°F (250°C), -20°C < T amb < 135°F (57°C). See Technical Data, page 22, for additional information.</p>
246254	A	380 / 4000 / 10.5	

Typical Installation

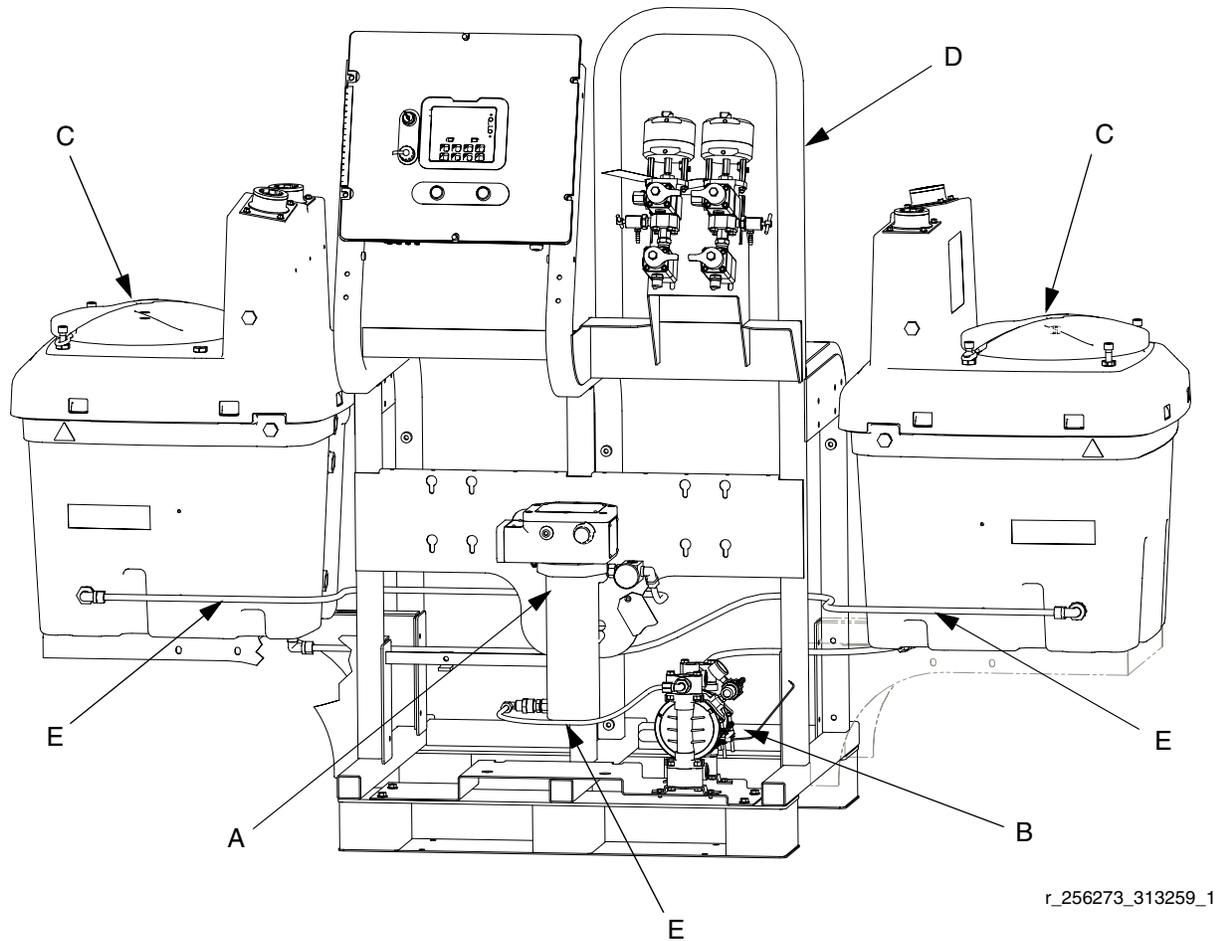


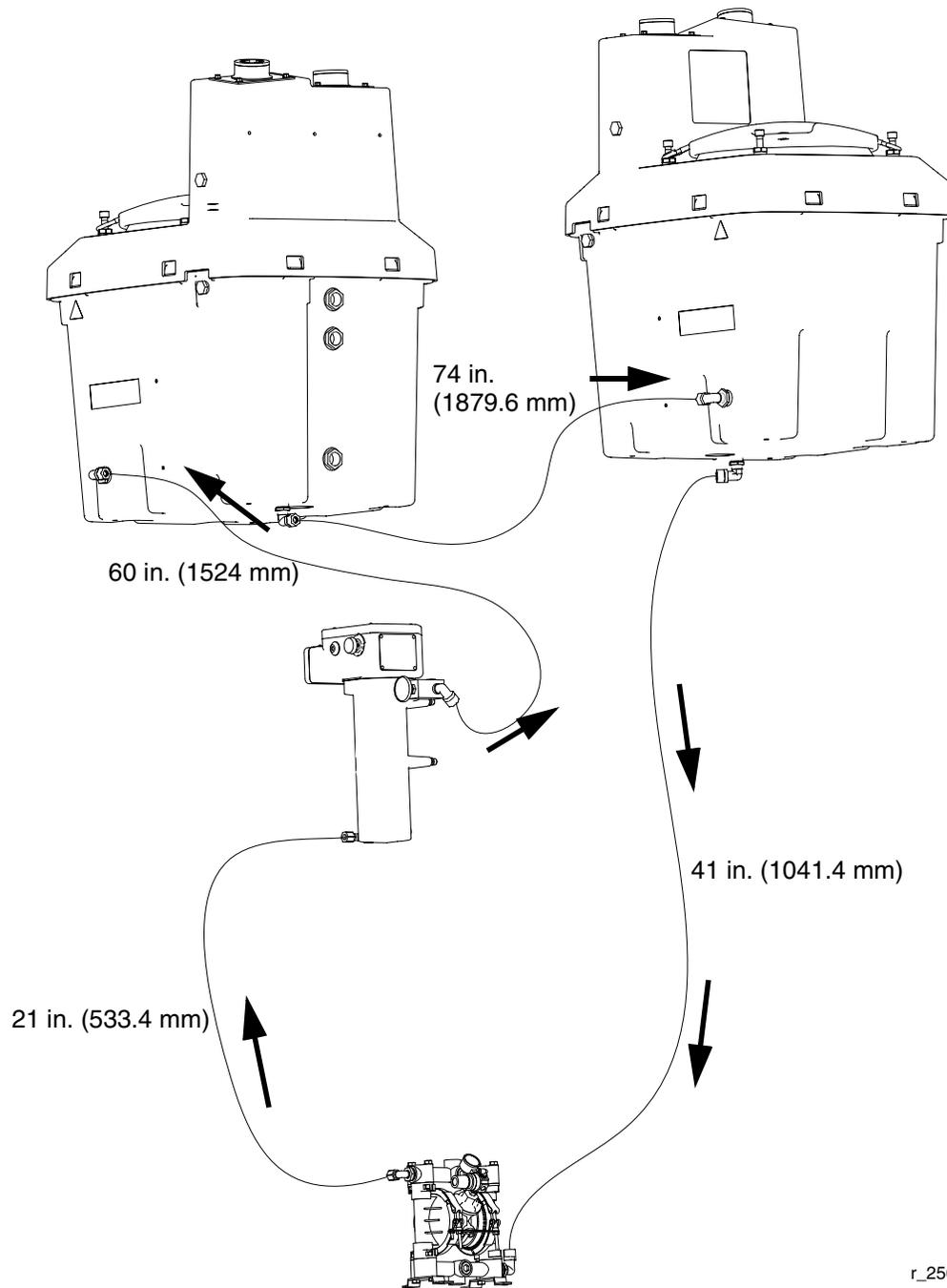
FIG. 1: Heat Hoppers Configuration

Key:

- A Viscon HP Heater
- B Husky diaphragm pump
- C Hopper
- D Frame
- E Fluid circulation tubing

NOTE:

See FIG. 2 on page 9 for fluid schematic of heated fluid.



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FIG. 2: Fluid schematic for heating hoppers

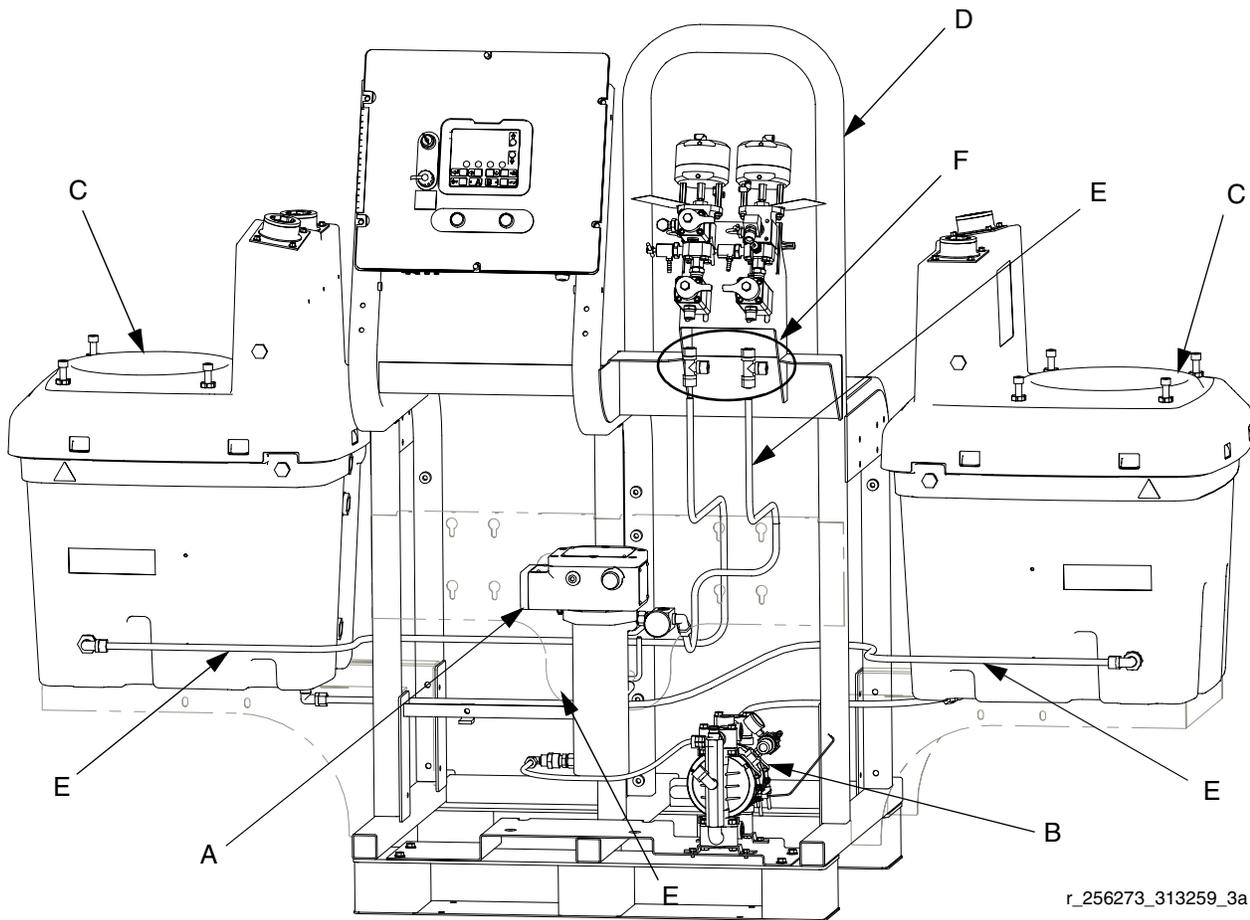


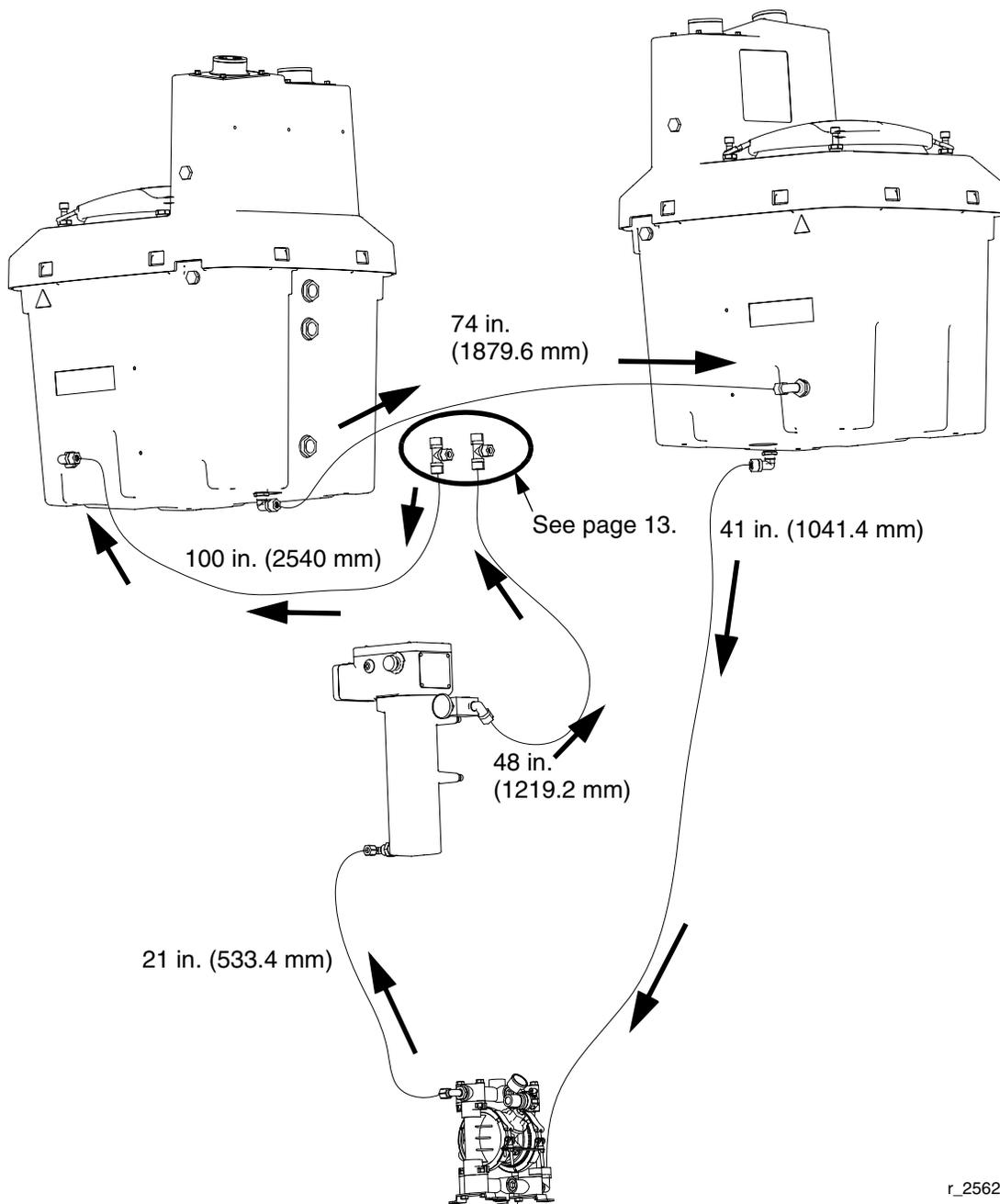
FIG. 3: Hoppers and Heated Hose Configuration

Key:

- A Viscon HP Heater
- B Husky diaphragm pump
- C Hopper
- D Frame
- E Fluid circulation tubing
- F Heated hose tee fittings (see heated hose connections on page FIG. 5 and FIG. 6 on page 12 and 13.)

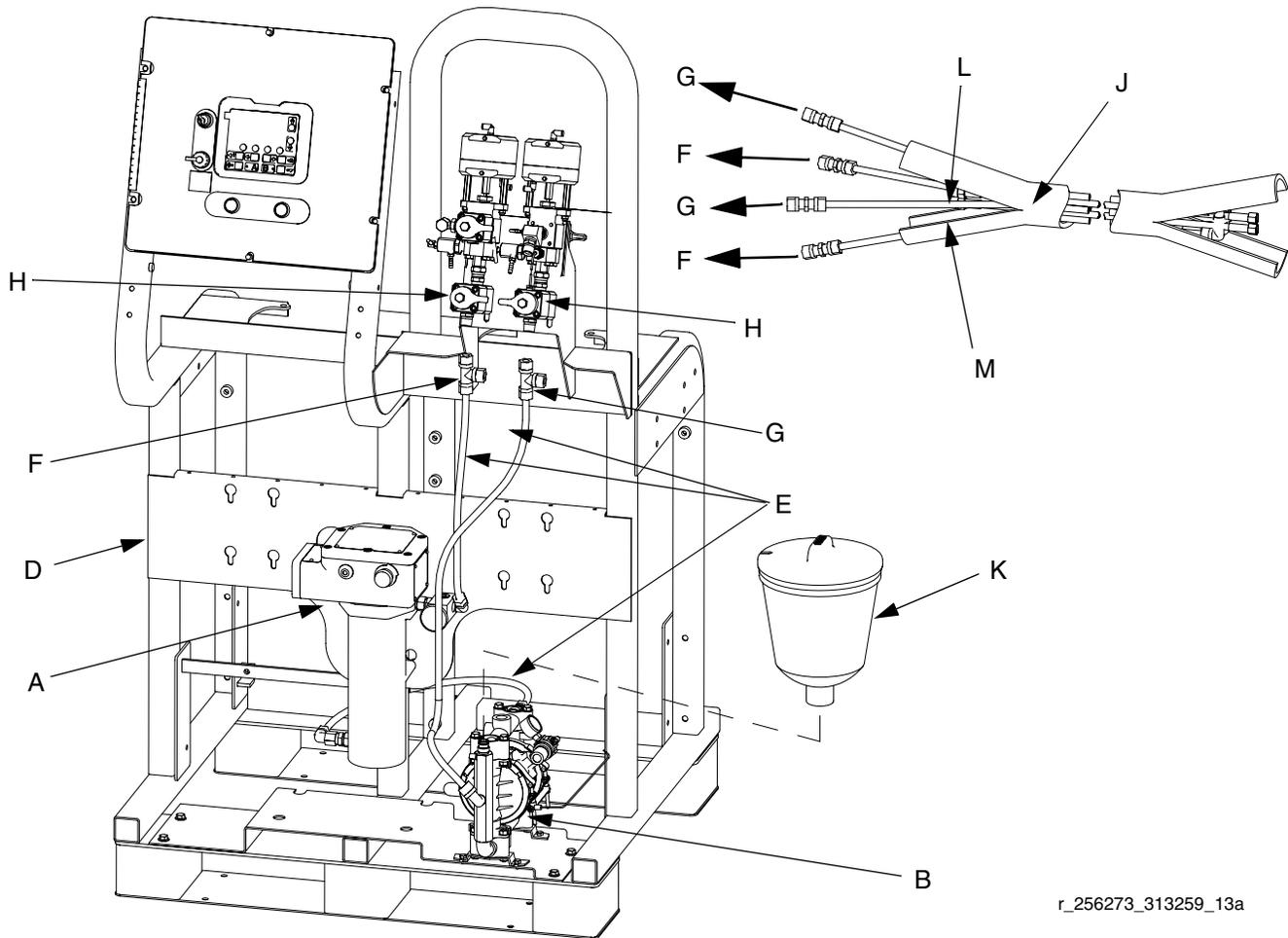
NOTE:

See FIG. 6 on page 13 for fluid schematic of heated fluid.



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FIG. 4: Fluid schematic for heating hoppers and heated hose



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FIG. 5: Heated Hose Configuration

Key:

- A Viscon HP heater
- B Husky diaphragm pump
- C Hopper (not shown)
- D Frame
- E Fluid circulation tubing
- F Heated hose tee fitting (Red)
- G Heated hose tee fitting (Blue)
- H Recirculation valve
- J Heated hose assembly (purchase separately)
- K Overflow tank
- L "A" fluid Inlet
- M "B" fluid Inlet for dual hose assembly only (optional)

NOTE:

See FIG. 6 on page 13 for fluid schematic of heated fluid.

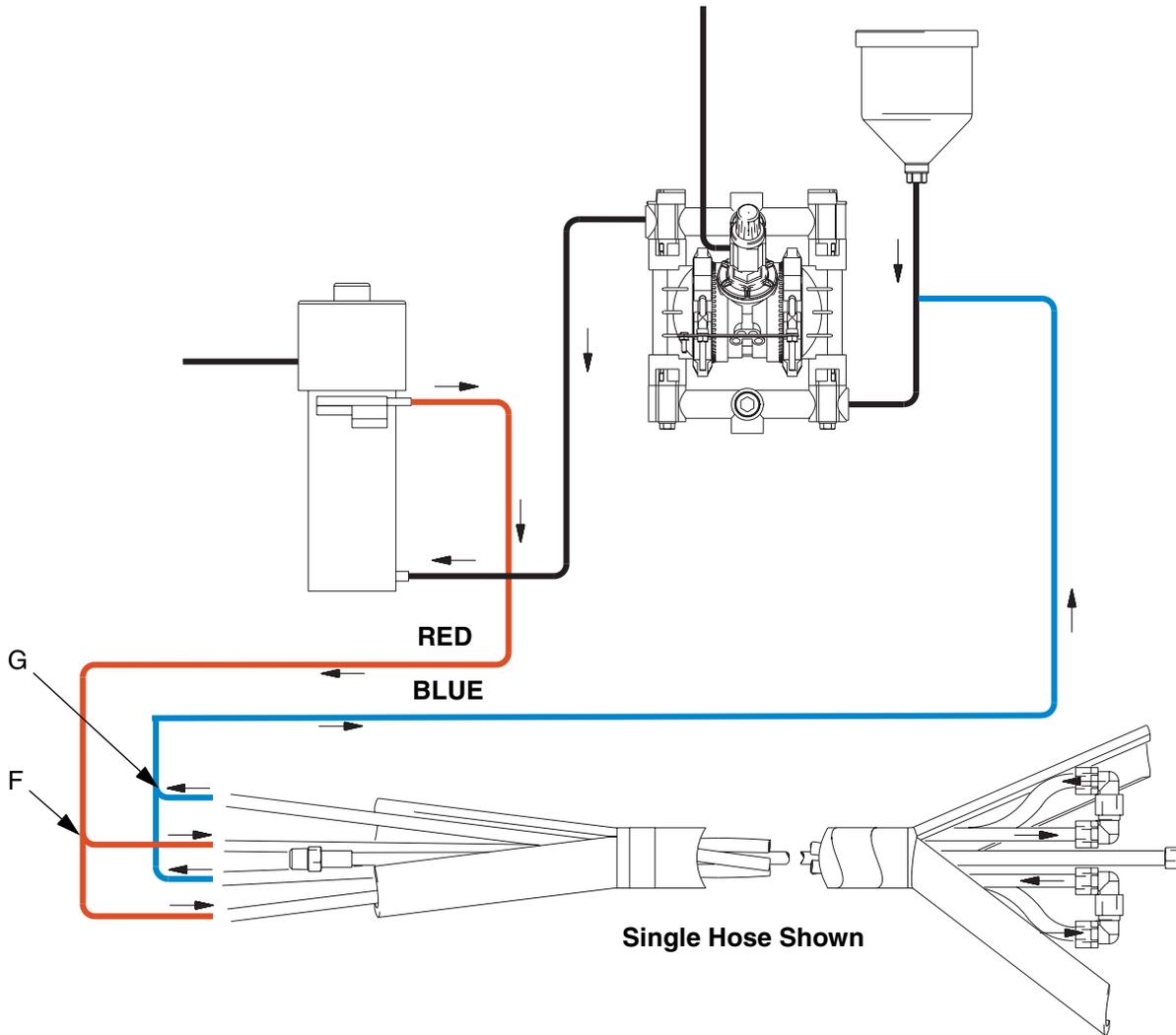


FIG. 6: Fluid schematic for heated hose

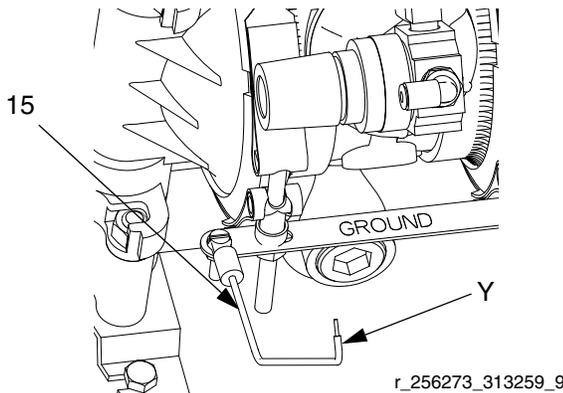
Installation

Grounding

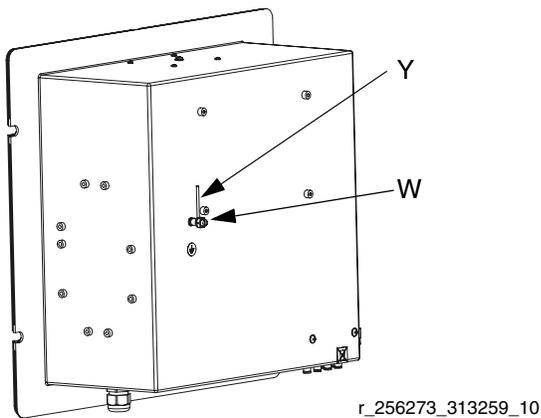


The equipment must be grounded. Grounding reduces the risk of static and electric shock by providing an escape wire for the electrical current due to static build up or in the event of a short circuit.

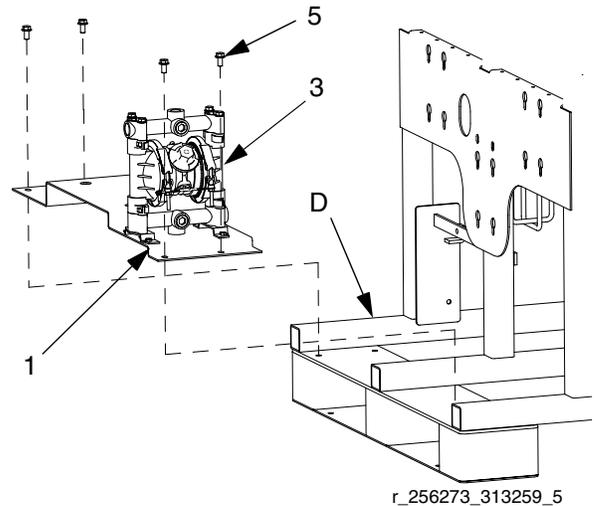
1. Remove grounding screw on diaphragm pump (3) and tighten ring terminal on grounding cable (15) under ground screw.



2. Loosen grounding lug locknut (W) on back of control box. Insert ground wire end (Y) into lug slot and tighten locknut securely.



1. Mount bracket (1) on XM frame (D) using screws (5).



2. For heating hoppers or heating hoppers and heated hose only:

- a. Change the orientation of the diaphragm pump fluid inlet and outlet ports. See diaphragm pump manual 308981 for instructions.

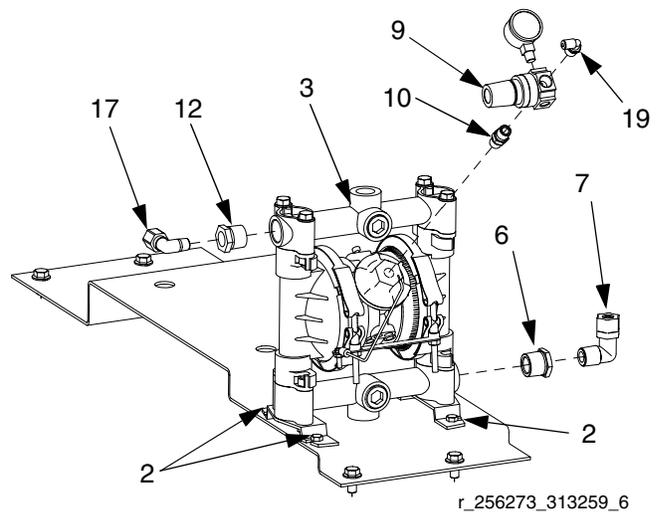


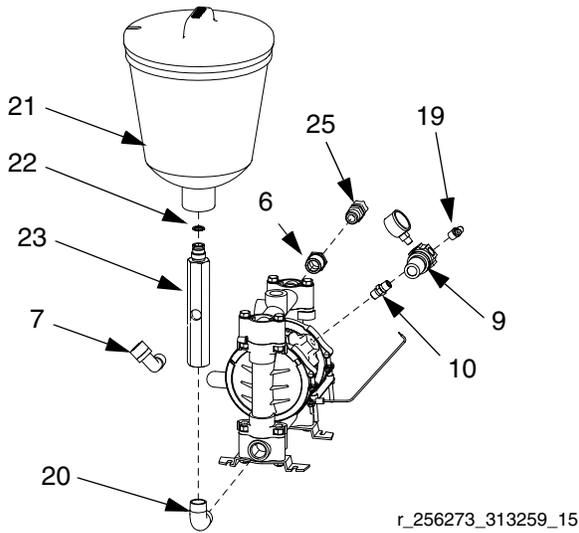
FIG. 7: Pump installation for heating hoppers or heating hoppers and heated hose

- b. Install bushing (6) and tube fitting (7) to fluid outlet and fluid inlet.

- c. Install bushing (12) and tube fitting (17) to diaphragm pump fluid outlet. See FIG. 7.

3. *For heating heated hose only:*

- a. Install elbow (20), mounting fitting (23), o-ring (22) and 1.5 gallon reservoir tank (21) on diaphragm pump fluid inlet.
- b. Connect elbow fitting (7) to mounting fitting (23)



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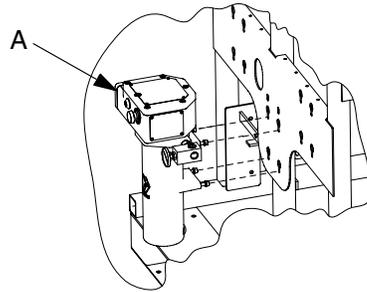
FIG. 8: Pump installation for heating heated hose

- c. Install bushing (6) and straight compression fitting (25) on diaphragm pump (3) fluid inlet.
4. Mount pump (3) on mounting bracket with four screws (2). See FIG. 7 on page 14 or FIG. 8.
 5. Connect nipple (10) and air regulator (9) to pump (3). Connect 100 psi (0.7 MPa, 7 bar) air supply to the air regulator using air tubing (not supplied), and air fitting (19). See FIG. 7 on page 14 or FIG. 8. Refer to Husky 716 manual 308981 if needed.

NOTE:

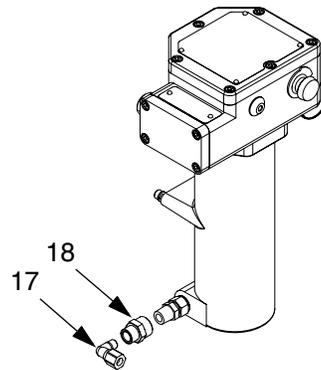
The air regulator (9) controls pump pressure.

6. Slide Viscon HP heater (A) into slots on XM frame. Tighten bolts to secure to frame.



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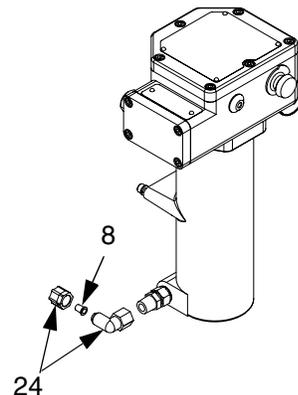
7. *For heating hoppers or heating hoppers and heated hose:* install fitting (18) and elbow (17) in the heater's fluid inlet.



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FIG. 9

8. *For heating heated hose only:* connect elbow fitting (24) to heater fluid inlet.



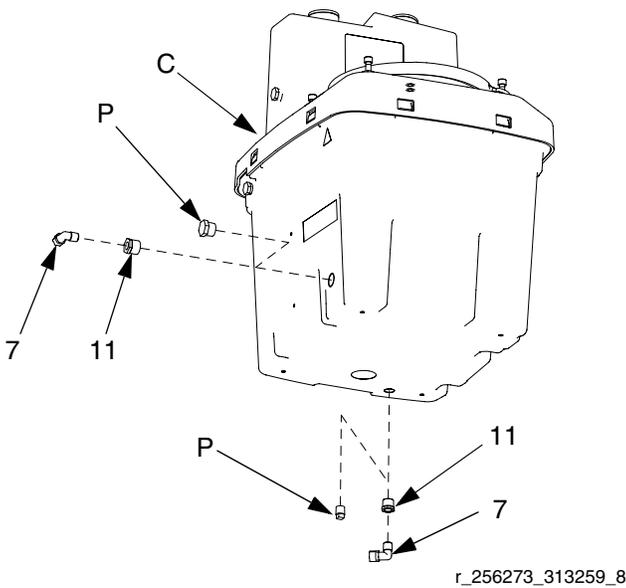
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FIG. 10

9. Install elbow (7) in the heater's fluid outlet.

						
All wiring must be done by an electrician. See warnings, page 3.						

10. Wire Viscon HP heater (B) to your voltage supply. Follow wiring procedure in the Viscon HP manual 309524.
11. If heating hoppers, remove plugs (P) from hopper (C). Install bushings (11) and elbows (7). Repeat for second hopper.



12. Cut tubing (4) as specified in FIG. 2 on page 9 or FIG. 6 on page 13.
 - a. Use tubing cutter to cut tubing (4) squarely to desired lengths.
 - b. Insert tube inserts (8) in tubing (4) ends to avoid leakage.
 - c. Insert tubing (4) through the back of the nut in each of the plastic fittings (7) until the tube stops. Tighten the nut hand tight, then tighten it to 1-1/2 to 2 turns with a wrench.

NOTE:

Fitting nuts may need retightening as the system reaches normal operating temperatures.

Setup

1. For heating hoppers and heated hose:

- a. Connect tee fittings (13) to recirculation inlets and recirculation outlets of heated hose 248118.

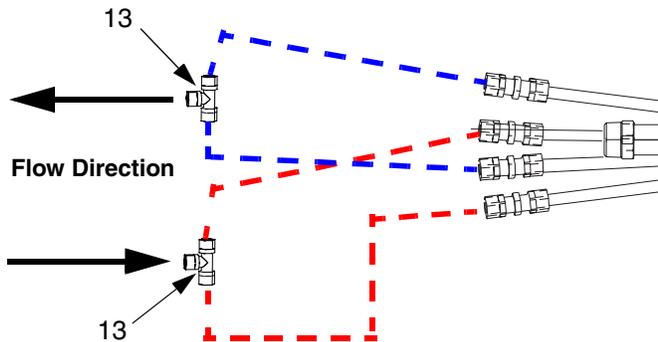


FIG. 11: Recirculation Inlet and Outlet Connections

- b. Connect A and B fluid inlets to shutoff check valve outlets (H).
- c. Interconnect fitting (7) on Viscon HP heater (A) and fluid inlet tee fitting (13) with tubing (4). See parts illustration on page 20.
- d. Interconnect pump (3), Viscon HP heater (A), heated hose tee fitting (13), and hoppers (C) with tubing (4). See parts illustration on page 20.

NOTE:

See FIG. 6 on page 13 for fluid schematic and tubing lengths.

2. For heating hoppers only:

- a. Interconnect hoppers (C), pump (3), and Viscon HP heater (A) using tubing (4), tube inserts (8), and fittings (12, 13, 14). See parts illustration on page 20.

NOTE:

See FIG. 2 on page 9 for fluid schematic and tubing lengths.

- b. Interconnect bushing (12) on pump (3) and elbow fitting (17) on Viscon HP heater (A) with tubing (16).

NOTE:

To ensure a leak-proof seal, use PTFE tape on all pipe thread connections.

3. For heating heated hose only:

- a. Connect tee fittings to recirculation inlets and recirculation outlet of heated hose. See FIG. 11.
- b. Connect A and B fluid inlets to shutoff check valve fluid outlets (H).
- c. Interconnect fitting (7) on Viscon HP heater (A) and fluid inlet tee fitting (13) with tubing (4). See parts illustration on page 20.
- d. Interconnect pump (3), Viscon HP heater (A), heated hose tee fitting (13) with tubing (4). See parts illustration on page 20.

Connecting Additional Hose Lengths

Up to six 50 ft. (15.2 m) sections of heated hose can be attached for a maximum total length of 300 ft. (91.4 m).

1. Remove plastic u-turn fittings at the end of the heated hose assembly.
2. Connect the next length of hose, using union fittings supplied with the hose. Follow fitting assembly procedure in steps 12a-12c, on page 16.
3. Tubes are color coded. Connect like colors.

NOTICE

To prevent cross-contamination, ensure you connect "A" side fluid hose to "A" side fluid hose on additional heated hose.

Operation



1. Select fluid to use for heating circulation.
 - If ambient temperatures (storage or operating) are below 40° F (4.4° C), a 50% water and 50% ethylene glycol mixture is recommended.
 - If ambient temperatures are above 40° F (4.4° C), water alone is okay.

NOTE:

Detailed diaphragm pump operating instructions are in the Husky 716 diaphragm pump manual 308981.

2. **Fill Heating Fluid** in double wall hopper (C). See manual 312747 for instructions.

NOTE:

Each 50 ft. (15.2 m) heated hose section holds approximately 1.25 gal. (4.7 liters) of fluid.

3. Set the flow rate of the circulation fluid to 2 gpm (7.6 lpm) by adjusting the pump's air regulator (7) until the pump cycles at 50 cycles/min. Do not use a higher flow rate as doing so will decrease system performance and pump life. Never exceed the hose's 95 psi (0.6 MPa, 6.6 bar) maximum working pressure rating.
4. Adjust the heater thermostat to the desired hose temperature. The setting should be about 10° F (6° C) higher than the desired paint temperature. Never exceed the hose's 180° F (82° C) maximum temperature rating.

NOTE:

If the hose is not being used for more than one hour, shut off Viscon HP heater and pump to lengthen heater life.

Maintenance

- Check double wall hopper heating fluid level daily. Add fluid as needed.
- Follow pump maintenance instructions in Husky 716 diaphragm pump manual 308981.
- Follow heater maintenance instructions in Viscon HP manual 309524.

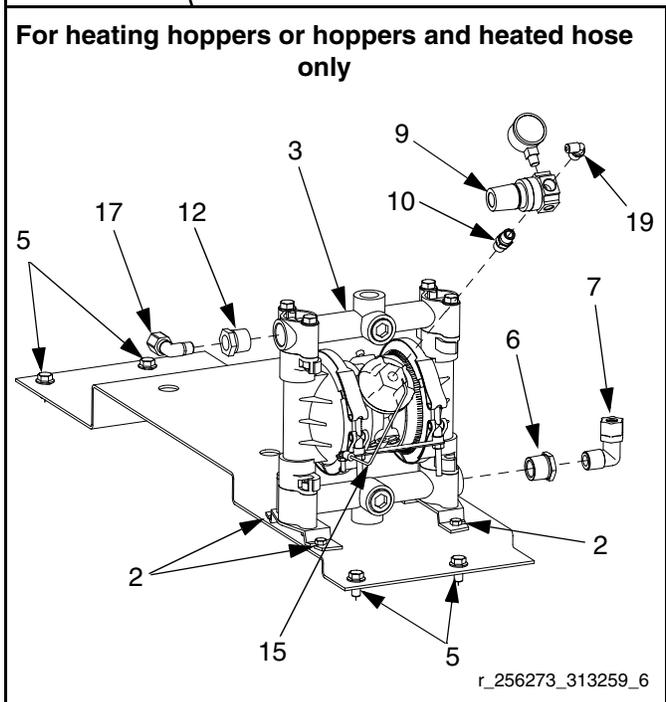
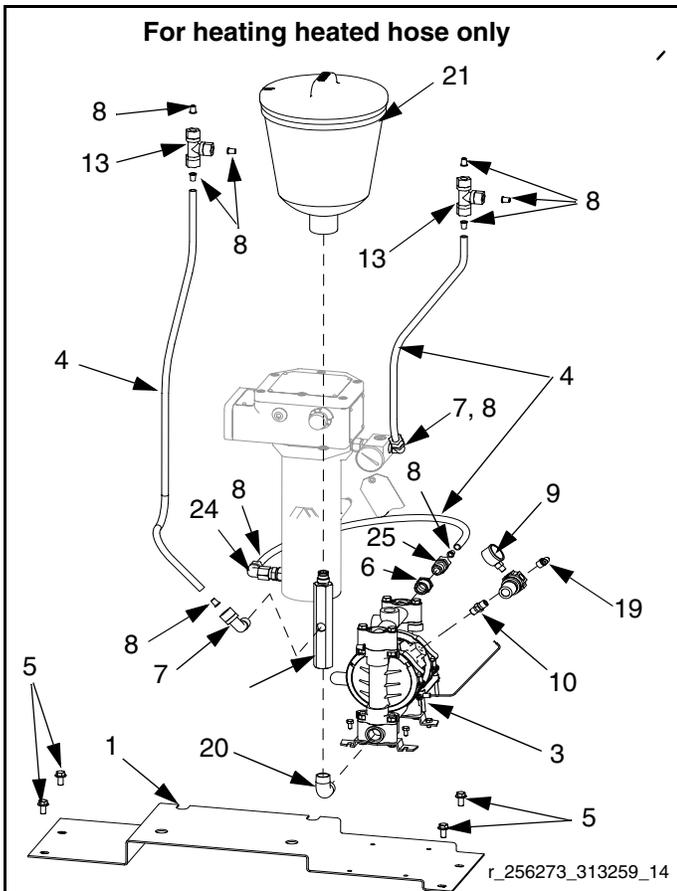
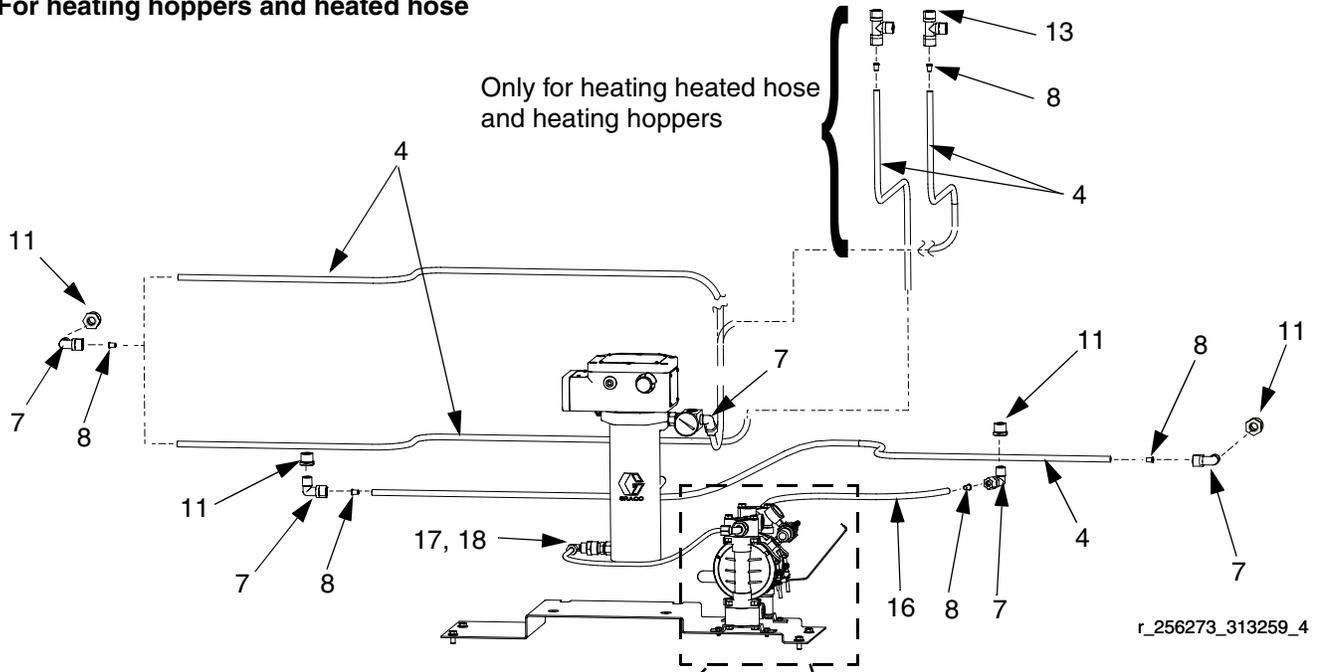
Troubleshooting

Problem	Cause	Solution
Fluid fittings leaking.	Loose fittings.	Tighten fittings after system reaches desired temperature.
Hose not heating to desired temperature.	Diaphragm flow rate set too high.	Decrease diaphragm pump flow rate.
	Problem with Viscon HP heater.	See troubleshooting in Viscon HP heater manual 309524.
Diaphragm pump not operating correctly.		See troubleshooting in Husky 716 diaphragm pump manual 308981.

Parts

256273, Heated Hopper or Hose Circulation Kit

For heating hoppers and heated hose



Ref.	Part	Description	Qty.
1	256196	PLATE, mounting	1
2	100333	SCREW, cap, hex; 1/4-20 x 1/2 in. (13 mm)	4
3	D53266	PUMP, 715, Husky	1
4	054139	TUBE, nylon, flexible, 1/2 in. (13 mm) OD; 26 ft (7.9 m)	1
5	112395	SCREW, cap, flng hd	4
6	117326	FITTING, bushing; 3/4 npt(m) x 1/2 npt(f)	1
7	117423	FITTING, elbow; 1/2 npt(m) x 1/2 in. (13 mm) OD tube	5
8	117426	INSERT, tube; 1/2 in. (13 mm) OD	12
9	110147	REGULATOR, air, 1/4 npt	1
10	156971	FITTING, nipple, short; 1/4-18 npt	1
11	100380	BUSHING, pipe	2
12	C19683	BUSHING, reducing	1
13*	117425	FITTING, tee; 1/2 in. (13 mm) OD tube	2
15	119402	CABLE, coiled, ground	1
16	054134	TUBE, nylon; 21 in. (533 mm); 3/8 in. (9.5 mm)	1
17	114456	FITTING, elbow, male; 3/8-18 npt	2
18	122275	FITTING, coupling, reducing	1
19	C19391	FITTING, elbow; 1/4 in. (6 mm) OD tube x 1/4 npt	1
20*	108307	FITTING, elbow, pipe	1
21*	188787	HOPPER, 1.5 gallon	1
22*	104938	O-RING	1
23*	15B338	FITTING, reservoir, mounting	1
24*	117424	FITTING, elbow, tube	1
25*	116316	FITTING, compression, straight	1

* Only used for circulating heated fluid through heated hose.

Viscon HP heater is not included with this kit (purchase separately).

Heated hose assembly is not included with this kit (purchase separately).

Technical Data

Maximum Working Pressure

- High Pressure Fluid Hose See **Heated Hose Assembly** table, page 5
- Heated Fluid Circulation Components 95 psi (0.6 MPa, 6.6 bar)

Maximum Temperature Rating 180° F (82° C)

Wetted Parts

- High Pressure Fluid Hose Nylon, Zinc-Plated Carbon Steel
- Heated Fluid Circulation Tubes Polyether-based Polyurethane
- Heated Fluid Circulation Fittings Polypropylene, Aluminum, Brass, Zinc-Plated Carbon Steel

Reservoir Tank Low Density Polyethylene

Heated Hose Dry Weight 31 lb (14.1 kg)

Graco Standard Warranty

Graco warrants all equipment referenced in this document which is manufactured by Graco and bearing its name to be free from defects in material and workmanship on the date of sale to the original purchaser for use. With the exception of any special, extended, or limited warranty published by Graco, Graco will, for a period of twelve months from the date of sale, repair or replace any part of the equipment determined by Graco to be defective. This warranty applies only when the equipment is installed, operated and maintained in accordance with Graco's written recommendations.

This warranty does not cover, and Graco shall not be liable for general wear and tear, or any malfunction, damage or wear caused by faulty installation, misapplication, abrasion, corrosion, inadequate or improper maintenance, negligence, accident, tampering, or substitution of non-Graco component parts. Nor shall Graco be liable for malfunction, damage or wear caused by the incompatibility of Graco equipment with structures, accessories, equipment or materials not supplied by Graco, or the improper design, manufacture, installation, operation or maintenance of structures, accessories, equipment or materials not supplied by Graco.

This warranty is conditioned upon the prepaid return of the equipment claimed to be defective to an authorized Graco distributor for verification of the claimed defect. If the claimed defect is verified, Graco will repair or replace free of charge any defective parts. The equipment will be returned to the original purchaser transportation prepaid. If inspection of the equipment does not disclose any defect in material or workmanship, repairs will be made at a reasonable charge, which charges may include the costs of parts, labor, and transportation.

THIS WARRANTY IS EXCLUSIVE, AND IS IN LIEU OF ANY OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO WARRANTY OF MERCHANTABILITY OR WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE.

Graco's sole obligation and buyer's sole remedy for any breach of warranty shall be as set forth above. The buyer agrees that no other remedy (including, but not limited to, incidental or consequential damages for lost profits, lost sales, injury to person or property, or any other incidental or consequential loss) shall be available. Any action for breach of warranty must be brought within two (2) years of the date of sale.

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Graco Headquarters: Minneapolis

International Offices: Belgium, China, Japan, Korea

GRACO INC. P.O. BOX 1441 MINNEAPOLIS, MN 55440-1441

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