

# Installation, Operation and Maintenance Instructions



## COALESCERS

**ERIEZ** WORLD HEADQUARTERS: 2200 ASBURY ROAD, ERIE, PA 16506-1402 U.S.A.  
*WORLD AUTHORITY IN SEPARATION TECHNOLOGIES*

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# Introduction

This manual details the proper steps for installing, operating and maintaining the Eriez Coalescers.

Careful attention to these requirements will assure the most efficient and dependable performance of this equipment.

If there are any questions or comments about the manual, please call Eriez at 814-835-6000 for Coalescer assistance.

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 **CAUTION**

**Safety labels must be affixed to this product.  
Should the safety label(s) be damaged, dislodged  
or removed, contact Eriez for replacement.**

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# PORTABLE COALESCER

## Installation

### Choosing the Location

- Locate the coalescer as near to the intended point of use as possible.
- Avoid high traffic or forklift path areas to decrease possible bumping or damage to the coalescer.
- For maximum performance, place the coalescer in a level location capable of supporting the flooded operating weight of the unit, allowing access for maintenance and tramp oil container.

### Installing the Unit

- Place the unit in the chosen location.
- Provide an oil collection container and place near the tramp oil discharge of the coalescer.

### Initial Assembly

1. Remove top of coalescer to access those parts packed inside the unit.
2. Replace cover on top of coalescer.

### Assembly

1. Close drain valve on bottom of unit. Open tramp oil discharge valve.
2. Connect clean fluid discharge hose to clean fluid outlet. Adjust the height of the clean fluid discharge line as necessary to ensure unimpeded gravity flow back to the coolant sump. Use the supplied magnetic hose holder to hold hose in place.
3. Connect tramp oil discharge hose to oil outlet.
4. Make sure a magnetic hose holder is on dirty fluid transfer hose near floating Triangle Floating Skimmer on air pump and base mounted electric pump models.

5. Base mounted electric pump and air operated dual diaphragm pump units:

Connect the dirty fluid transfer hose from the Triangle Floating Skimmer assembly to the quick disconnect fitting on the inlet of the basket strainer on air pump models. On base mounted electric pump models, connect the dirty fluid transfer hose to the pump inlet.

If there is no room to use the Triangle Floating Skimmer in the sump or if there are floating chips on the surface of the coolant, use the supplied Suction Screen assembly with hose and connect it to the unit as described.

6. Connect utilities for pump. See also the Pump Owner's Manual in the Appendix.

For units with the air-operated pump, connect shop compressed air to the pump.

For units with electric pump, plug the electric cord into a 110-volt grounded outlet. **NOTE:** Outlet should be GFI protected. The electric pump model is equipped with a switch, which should be turned OFF at this point.

7. Place Triangle Floating Skimmer into sump, or use the Suction Strainer where there is not enough room to use the Triangle Skimmer.
8. Remove Basket strainer bowl and fill with water or the process fluid and reinstall.
9. On air pump and electric pump models:

Clamp hose holder to wall of sump. Adjust as necessary to keep Triangle Floating Skimmer in a position where it will not interfere with the machine tool or parts washer operation. **NOTE:** The skimmer should have the wire mesh strainer pointing up.

Adjust the inlet height of the Triangle Floating Skimmer center inlet pipe so that the inlet is approximately 1/8"-1/4" below the oil layer in the sump, which will allow the collector to always collect both oil and water and enable optimum performance in the coalescer.

For shallow sumps, the triangle floating skimmer can be inverted. (The wire mesh strainer pointing down, adjust the inlet pipe fitting so it is below the surface of the fluid when inverted).

**Adjust the skimmer inlet so you do not see a vortex of air in the middle of the inlet as that will cause foam inside the coalescer.**



**NOTE:** If there are floating chips on the surface of the fluid, do not use any floating skimmer as the chips will clog up the skimmer and cause the unit to plug up and fail.

If floating chips are a problem, disconnect the skimmer hose from the inlet and connect the supplied suction strainer to the inlet using the suction strainer's connecting hose and quick disconnect fitting. Place the strainer in the tank so the hose is submerged into the fluid. It is not meant to pull fluid from the surface of the coolant sump.

## Operation

### Start-Up and Operating Procedure

1. Check for proper utility connections and installation of all components.
2. Make sure the tank is level.
3. Prime the coalescer by filling with fresh, clean fluid to a level just below the clean fluid outlet. On base electric pump units this will help fill the pump head cavity with fluid to prime it the first time.
4. For units equipped with air-operated pump, adjust the feed air pressure to 60-80 PSI which will start the pump pumping fluid. Double diaphragm air pumps are self-priming. **NOTE:** Air operated pumps must have a minimum of 30 PSI air pressure to operate properly.
5. For units equipped with the base mounted electric pump, place the discharge hose into the clean side of the coalescer tank. Plug the electric cord into a grounded outlet. The tank drain valve is a 3-way valve. Move the handle of the valve so that the flow pattern on the handle shows flow from the tank to the pump.  
  
This will allow fluid from the tank to backfill the pump cavity. You will see some fluid going out the Triangle Floating Skimmer when the pump cavity is full. Using the on/off switch on the unit, turn the unit on while holding the Triangle Floating Skimmer under the fluid level in the sump to allow the pump to fully prime. If the unit does not immediately begin drawing fluid, turn the pump on and off several times. When the pump is primed, place the clean discharge hose back into the machine sump.
6. For all units, allow the pump to introduce oil-laden coolant to the coalescer.

7. If the unit is portable and will be moved from machine to machine, it must be operated long enough to remove the accumulated free tramp oils. A good rule of thumb is to take the amount of coolant in the sump, divide that amount by the flow rate of the coalescer (3 GPM), and multiply that figure by 4 to 6 passes to come up with an operating time. For example, a 100 gallon sump would need to circulate through a 3 GPM coalescer for 4-6 passes or 133 to 200 minutes.

$$\frac{100 \text{ gallons}}{3 \text{ gpm}} * 4 = 133 \text{ minutes}$$

$$\frac{100 \text{ gallons}}{3 \text{ gpm}} * 6 = 200 \text{ minutes}$$

The more tramp oils present, the longer the unit may have to run to get the free tramp oils out of the coolant.

8. Adjust the flow rate to 2-3 GPM, so the fluid does not back up into the coalescer tank. Use the 1/2" ball valve installed between the pump outlet and the coalescer tank inlet to adjust the flow.

**NOTE:** Air pump must have a minimum 30 psi feed pressure.

For optimum performance of the coalescer, do not exceed the rated flow rate of the unit.

9. Allow the unit to begin collecting tramp oil. Adjust the gray tramp oil removal pipe by moving the slot opening in the pipe using the "T" handle tool provided so that it is 1/8"-3/16" above the fluid level in the tank. This will allow a layer of oil to build up on the fluid, which will dewater as it rises before flowing into the oil removal pipe and out of the unit. After the unit has run for a while, this oil removal pipe can be adjusted again to provide wetter or drier oil as desired.

**NOTE:** It is normal to have a layer of oil on top of the coolant in the coalescer tank. The thicker the layer of oil, the less coolant will be in the oil when it is discharged from the coalescer tank.

#### Operating Procedure Notes

After initial start-up, periodically monitor the coalescer's operation. When not in use, close all valves.

The waste oil collection container should be routinely emptied to avoid overflow.

Periodically clean accumulated solids that have settled out during processing. (See Cleaning Procedure).

Remove and clean the basket strainer monthly or as needed.

If unit will be idle for more than a single day, drain the unit completely to avoid bacterial growth in the stored fluid.



# Cleaning Procedure

Initially, inspect unit weekly to determine how quickly solids accumulate in your application. The frequency of cleaning your coalescer depends upon individual plant conditions. Re-examine the cleaning frequency of unit with any changes in the plant that could affect coolant condition or coalescer operation.

## 1. Shut Down

- Shut off pump to stop feed to unit.
- Close all operating valves.
- Disconnect the utilities.

## 2. Drain Fluid

- Slowly open the drain valve.
- Collect any sediment in a container for disposal.
- Position another container under the drain valve and empty the fluid from the unit.
- Reuse the drained coolant only if it is not contaminated with bacteria or has not become rancid.

## 3. Clean Tank

- Remove the media packs from the unit by removing the weighted bracket that holds the media packs and lifting out the packs.
- Clean media packs by washing with a pressure washer, or simply running through a parts washer.
- Thoroughly clean the tank removing any accumulated oil or solids from the tank walls and bottom.
- Check oil removal pipe for solids build up. Flush if needed.
- Dispose of cleaning fluid properly.

## 4. Reassemble

- Close the drain valve.
- Reinstall the media packs.
- Check all hose connections, fittings and valves for leaks.
- Tighten as required.
- Re-prime the coalescer with new fluid or with the old fluid if in good condition.
- Follow Start-up and Operating Procedure. Adjust unit for proper oil removal.

# Maintenance

Refer to the Owner's Manual for maintenance of the transfer pump. A periodic check of the units overall condition is recommended.

# Troubleshooting

Problem	Possible Cause	Solution
1. Tramp oil in clean effluent.	a. Sudden increase in amount of tramp oil in sump. b. Oil has become chemically emulsified.	a. Check for oil leaks into sump. b. Contact your coolant supplier for sample analysis and corrective actions.
2. Coolant in tramp oil effluent.	Oil removal pipe opening is set too close to the fluid level.	Adjust pipe so slot is 1/8" - 3/16" above liquid level.
3. No oil being removed.	No tramp oil in system.	Stop using unit until tramp oil is present.
4. Unit overflowing.	Outlet flow restricted.	Check hose, clean or repair as needed.
5. No flow through unit.	a. Basket strainer is plugged. b. Is coolant in a pit? c. Pump is not working.	a. Check basket strainer; clean screen b. Base mounted electric pump can only pull 10' total head. c. Check electric pump for dirt. d. Check pump to see if it lost prime. e. Check air pump feed pressure (minimum pressure is 30 PSI) f. Check air pump, check balls, seats or diaphragms.



TABLE 1

Air Powered Unit

# Parts List - Portable Coalescer

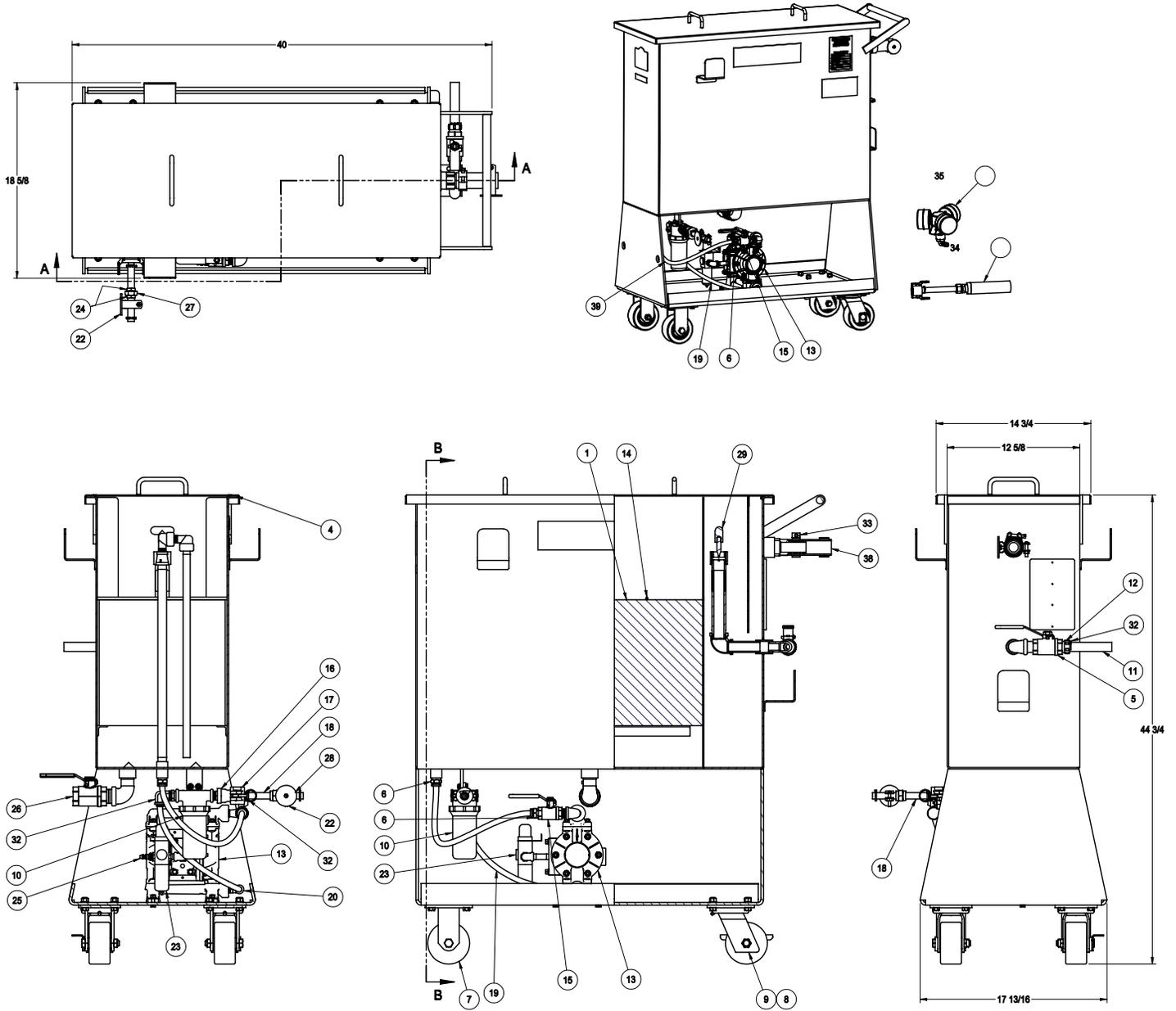


FIGURE 1  
UNIT OVERVIEW

Air Powered Unit

# Parts List - Portable Coalescer

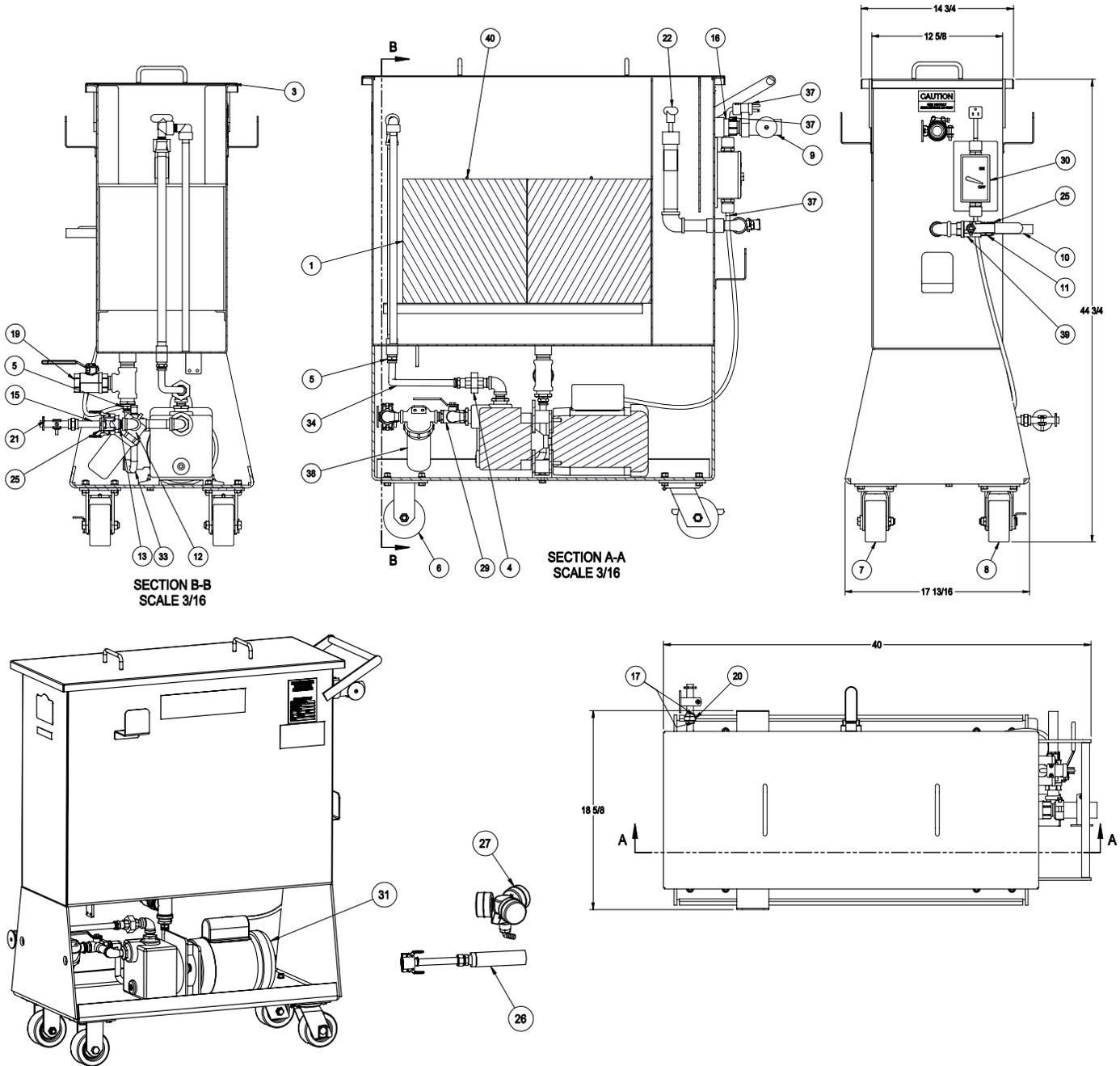
Item Number	Part Number	Quantity Required	Part Description
1	18-1270	2	Filter Cube
4	18-1250	1	Lid Gasket
5	H.35.50252	1	Valve Ball 3/4"
6	22-1430	2	Pushlock Fitting
7	43-1020	2	Caster Rigid
8	43-1060	1	Caster Swivel
9	43-1040	1	Caster Swivel with Brake
10	70-1640	1	Strainer
11	41-2400	1	Discharge Hose for Tramp Oil
12	457915	1	Hose Fitting
13	473599	1	Pump Air
14	22-1000	2	Pipe PVC 1/4
15	H.35.50201	1	Valve Ball 1/2"
16	42-1060	1	Quick Disconnect Adapter
17	42-1020	1	Quick Disconnect Adapter
18	41-2190	1	Skimmer Hose
19	41-2430	1	Tubing Poly 1/2"
20	22-1350	1	Pushlock Elbow Fitting
22	40-1125	2	Hose Holder
23	28-1020	1	Regulator Air
24	41-1067	2	Pinch Clamp
25	459296	1	Quick Disconnect Adapter
26	H.35.50301	1	Valve Ball
27	22-1370	1	Fitting Barbed
28	41-2180	1	Corr. Hose, End of Skimmer
29	459679	1	Oil Removal Assembly
30	FJ-402	1	IOM
32	41-1060	2	Hose Clamp
33	459359	1	Clamp T-Bolt Dixon STBC175
34	18-1300	1	Suction Strainer Assembly
35	18-1050	1	Triangle Skimmer Assembly
37	459670	1	Hose Clamp
38	467935	1	Hose 1 1/4"ID
39	41-2430	1	Tubing Poly 1/2"

**TABLE 2**  
AIR POWERED UNIT - PARTS LIST



Electric Powered Unit

# Parts List - Portable Coalescer



**FIGURE 2**  
UNIT OVERVIEW

Electric Powered Unit

# Parts List - Portable Coalescer

Item Number	Part Number	Quantity Required	Part Description
1	18-1270	2	Filter Cube
3	18-1250	1	Rubber Foam Adhesive
4	458699	1	Pipe Union 1/2 Orifice (Blank)
5	22-1430	3	Drain Pushlock Fitting
6	43-1020	2	Caster Rigid
7	43-1060	1	Caster Swivel
8	43-1040	1	Caster Swivel with Brake
9	467935	1	Hose 1 1/4"ID
10	41-2400	1	Hose Oil Discharge
11	457915	1	Oil Discharge Barb Fitting
12	22-1435	1	Pump Pipe Elbow PVC
13	42-1060	1	Male QD Adapter
15	41-2190	1	Vinyl Skimmer Hose
16	454280	1	Fitting Barbed
17	41-1067	2	Hose Clamp Pinch
19	H.35.50301	1	Drain Ball Valve
20	22-1370	1	Skimmer Hose Barb Fitting
21	41-2180	1	Corrugated Hose
22	459679	1	Oil Removal Assembly
25	460838	3	Coolant Discharge Clamp
26	18-1300	1	Suction Strainer Assembly
27	18-1050	1	Triangle Skimmer Assembly
29	25-1120	1	Pump Ball Valve
30	30-2240	1	On/Off Toggle Switch
31	56-1350	1	Pump
33	41-2430	1	Tubing Pump
34	41-2430	1	Tubing Tank
37	30-2055	1	Powercord Extension
38	70-1640	1	Strainer Poly T-Line 1/2"
39	H.35.50252	1	Valve Ball 3/4"
40	22-1000	2	Pipe PVC 1/4

**TABLE 3**  
ELECTRIC POWERED UNIT - PARTS LIST



# PORTABLE COALESCER JR

## Start-Up & Operating Procedure

### Installation

#### Choosing the Location

Locate the coalescer as near to the intended point of use as possible.

Avoid high traffic or forklift path areas to decrease possible bumping or damage to the coalescer.

For maximum performance, place the coalescer in a level location capable of supporting the flooded, operating weight of the unit, allowing access for maintenance and tramp oil container.

#### Installing the Unit

Place the unit in the chosen location.

Provide an oil collection container and place near the tramp oil discharge of the coalescer.

#### Initial Assembly

1. Remove top of coalescer to access those parts packed inside the unit.
2. Replace cover on top of coalescer.

#### Assembly

1. Close drain valve on bottom of unit, open tramp oil discharge valve.
2. Connect 3/4" clean fluid discharge hose to clean fluid outlet using pipe dope or Teflon tape.
3. Place the discharge hose to the machine sump, adjust the height of the clean fluid discharge hose as necessary to ensure unimpeded gravity flow back to the coolant sump, use the supplied magnetic hose holder to keep the hose in place. Do not allow the end of the hose to be submerged in the fluid.
4. Connect the dirty fluid transfer hose from the skimmer to the inlet of the basket strainer using the supplied clamp.
5. Attach a shop compressed air line to the air pressure regulator/filter on unit.

1. Check for proper utility connections and installation of all components. See assembly procedures and schematic.
2. Make sure the tank is level. Use the adjustable leveling legs or casters.
3. **Prime the coalescer by filling with fresh, clean fluid to a level just below the clean fluid outlet.** The Coalescer tank holds approximately 13 gallons.
4. Measure depth of sump.

Before placing skimmer assembly into the sump, adjust the skimmer height so that the skimmer base is approximately 1-1/4" below the coolant level in the sump.

**Note 1:** If the sump depth is less than 5", modification will need to be made to the skimmer. The skimmer must be trimmed so that the base and the float are short enough to fit the sump. A band saw, cut off saw or hacksaw can be used for this purpose. The length to which to trim the parts is explained in Table 1.

**Note 2:** Once the skimmer height is set as described, the skimmer will maintain operation even with a sump level fluctuation of plus or minus 1-1/4".

Sump Level	Trim Amount	Skimmer Height After Trim	Sump Level Range of Trimmed Skimmer
5-1/4" or greater	None	4-5/8"	+2-1/4" from initial level
4"	1-1/4"	3-3/8"	+1 from initial level
3"	2-1/4"	2-3/8"	0" from initial level
2-3/4"	2-1/2"	1-7/8"	0" from initial level
Less than 2-3/4"	Cannot do	N/A	N/A

**TABLE 1**



5. Make sure filter screen is in skimmer base.
6. Set skimmer assembly into sump in an area where tramp oil tends to accumulate, or at an area of convenience. The base will sit on the sump bottom keeping the skimmer assembly upright. It is best to sit the skimmer as low as possible in the sump with the upper set screw installed so the upper portion of the float will still stay within the lower portion of the skimmer base. This allows the upper portion to “bob” up and down a small amount, which help keep the skimmer clean of solids.
7. Turn the unit on by turning on the air supply and adjusting the air pressure to 30-40 PSI. The pump will self-prime to 10'. Once the pump has been turned on, it will take a few moments for dirty coolant to start to enter the tank. The coolant will likely have air mixed with it, which will bubble in the coalescer tank. This is normal and helps push the tramp oils towards the tramp oil outlet.
8. Allow the unit to begin collecting tramp oil. Adjust the tramp oil removal pipe elbow so that the opening is 1/16"-1/8" above the fluid level in the tank. This will allow a layer of oil to build up on the fluid, which will dewater as it rises before flowing into the oil removal pipe and out of the unit. After the unit has run for a while, this oil removal pipe elbow can be adjusted again to provide wetter or drier oil as desired.
9. If the unit will be portable and will be moved from machine to machine, it must be operated long enough to remove the accumulated free tramp oils. A good rule of thumb is to take the amount of coolant in the sump, divide that amount by the flow rate of the Coalescer (1 GPM), and multiply that figure by 4 to 6 passes, to come up with an operating time. For example, a 50-gallon sump would need to circulate through a 1 GPM Coalescer for 4-6 passes or 200 to 300 minutes. The more tramp oils present, the longer the unit may have to run to get the free tramp oils out of the coolant.

**NOTE: THIS UNIT WILL ONLY REMOVE FREE TRAMP OILS THAT WILL FLOAT, IT WILL NOT REMOVE CHEMICALLY EMULSIFIED TRAMP OILS THAT DO NOT FLOAT.**

**Operating Procedure Notes:**

After initial start up, periodically monitor the coalescer’s operation. When not in use, close all valves.

The waste oil collection container should be routinely emptied to avoid overflow.

Periodically clean accumulated solids that have settled out during processing (see Cleaning Procedure).

Remove and clean the basket strainer monthly or as needed.

**If unit will be idle for more than a single day, drain the unit completely to avoid bacterial growth in the stored fluid.**

NOTE: IT IS NORMAL AND DESIRABLE FOR A LAYER OF OIL TO BE ON TOP OF THE COOLANT IN THE COALESCER TANK. The thicker the layer of oil, the less coolant will be in the oil when it finally is discharged from the coalescer.



## Cleaning Procedure:

Initially, inspect unit weekly to determine how quickly solids accumulate in your application. The frequency of cleaning your COALESCER JR depends upon individual plant conditions. Re-examine the cleaning frequency of unit with any changes in the plant that could affect coolant condition or coalescer operation.

### 1. SHUT DOWN

- Shut off pump to stop feed to unit.
- Close all operating valves.
- Disconnect the utilities.

### 2. DRAIN FLUID

- Slowly open the drain valve
- Collect any sediment in a container for disposal.
- Position another container under the drain valve and empty the fluid from the unit
- Reuse the drained coolant only if it is not contaminated with bacteria or has not become rancid.

### 3. CLEAN TANK

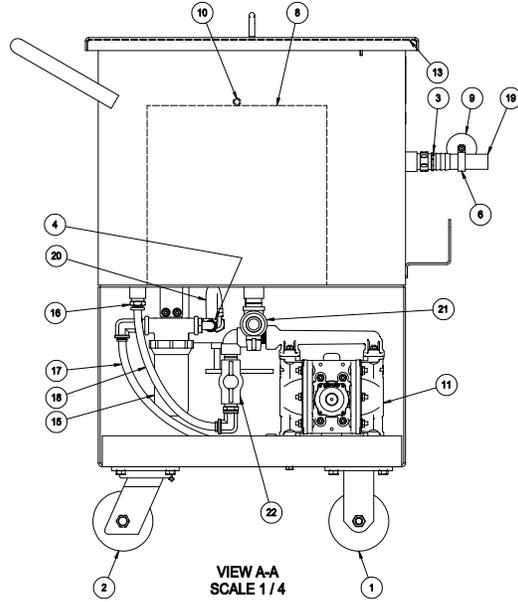
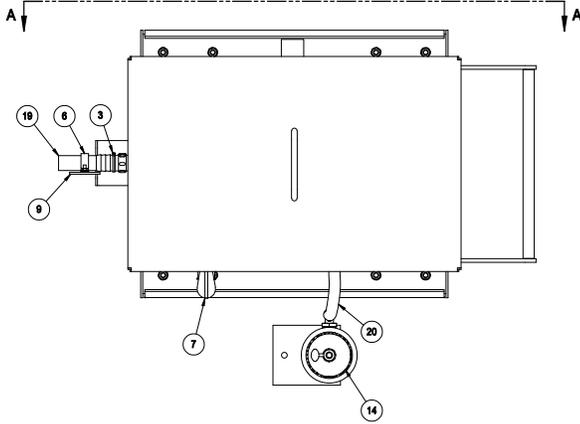
- Remove the tramp oil discharge elbow and valve assembly. Remove the Media pack from the unit lifting it up by the wire tie end in the pack.
- Clean Media pack by washing with a pressure washer, or simply running through a parts washer.
- Thoroughly clean the tank removing any accumulated oil or solids from the tank walls and bottom.
- Check oil removal pipe for solids build up, flush if needed.
- Dispose of cleaning fluid properly.

### 4. REASSEMBLE

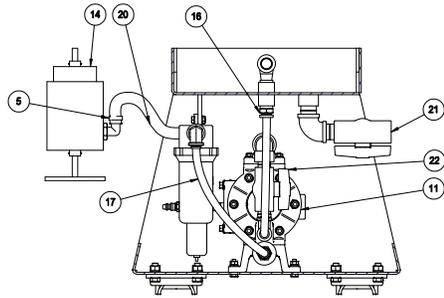
- Close the drain valve.
- Reinstall the Media pack, reinstall the tramp oil drain valve and elbow assembly, make sure there is a gasket on each side of the tank wall.
- Check all hose connections, fittings and valves for leaks.
- Tighten as required.
- Re-prime the coalescer with new fluid or with the old fluid if in good condition.
- Follow Start up and Operating Procedure; adjust unit for proper oil removal.

Drawing

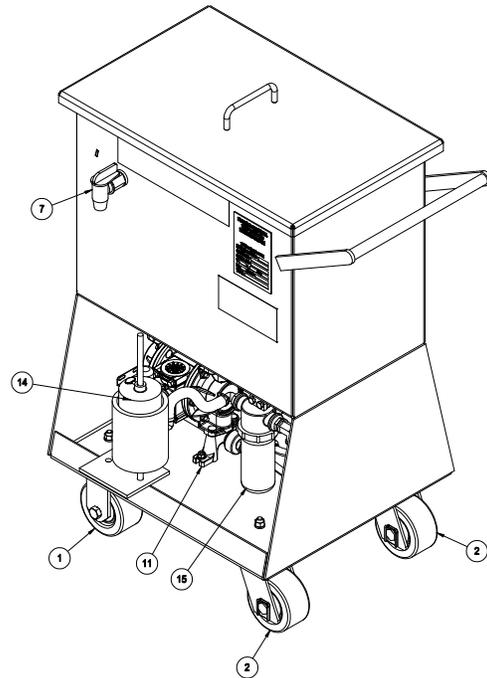
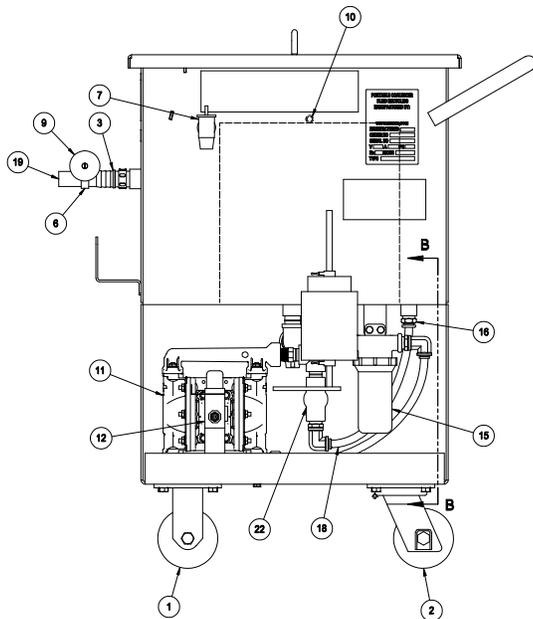
# Spare Parts - Portable Coalescer, Jr.



VIEW A-A  
SCALE 1/4



SECTION B-B  
SCALE 1/4



# Parts List - Portable Coalescer, Jr.

Item Number	Part #	Quantity Required	Description
1	43-1020	2	Caster rigid
2	43-1060	2	Caster swivel
3	41-1040	1	Clamp hose 1-1/4"
4	41-1060	1	Clamp hose 3/4"
5	41-1067	1	Clamp hose double pinch
6	30-1400	1	Conduit hanger
7	458731	1	Faucet vented 3/4" NPT
8	18-1270	1	HQ-pack media pack (1 cu ft)
9	40-1125	1	Magnet cup 2-1/32"
10	22-1000	1	Pipe PVC 1/4
11	473599	1	Pump air diaphragm 3/8"
12	28-1020	1	Regulator air 1/4 NPT
13	18-1250	1	Rubber foam lid gasket
14	18-1080	1	Skimmer float
15	70-1640	1	Strainer poly T-line 1/2"
16	22-1430	1	Fitting tube 1/2" NPT X 1/2"
17	41-2430	1	Tubing black poly 1/2"
18	41-2430	1	Tubing black poly 1/2"
19	41-2400	1	Tubing flex 3/4 ID X 1 OD
20	41-2190	1	Tubing vinyl 1/2 ID X 3/4 OD 1/8 W
21	25-1250	1	Valve 3/4" PVC ball
22	25-1105	1	Valve ball 1/2" thrd

**TABLE 2**

# Maintenance - Portable Coalescer, Jr.

Refer to the Owner's Manual for maintenance of the transfer pump. A periodic check of the unit's overall condition is recommended.

Problem	Probable Cause	Solution
1. Tramp oil in clean effluent	Sudden increase in amount of tramp oil in sump	Check for oil leaks into sump
	Oil has become chemically emulsified	Contact Coolant supplier for sample analysis and corrective actions
2. Coolant in tramp oil effluent	Oil removal pipe elbow is set too close to the fluid level	Adjust pipe elbow so it is 1/16" - 3/16" above liquid level.
3. No oil being removed tramp	No tramp oil in system	Stop using unit until tramp oil is present
	Tramp oil is emulsified	Unit will only remove free floating tramp oils, not emulsified oils.  Wrong application for this unit
4. Unit overflowing	Outlet flow restricted	Check hose, clean or repair as needed
5. No flow through unit	Basket strainer is plugged	Check basket strainer; clean screen
	Skimmer or feed hose is plugged	Check and clean as required
	Pump is not working	Pump may be dirty, flush with clean water or cleaner.  Pump diaphragms may be worn and need to be replaced. See pump manual for information.

**TABLE 4**



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