



EMULSION STORAGE TANK

PART MANUAL - 91999

Rev. B

11/05

Available sizes listed:

PART NUMBER	DESCRIPTION	SHIPPING WEIGHT
91900	2000 GALLON EMULSION STORAGE TANK	5450 LBS.
91910	3000 GALLON EMULSION STORAGE TANK	6850 LBS.
91920	4000 GALLON EMULSION STORAGE TANK	8110 LBS.
91930	5150 GALLON EMULSION STORAGE TANK	9400 LBS.
91940	6000 GALLON EMULSION STORAGE TANK	10,200 LBS.
91950	7000 GALLON EMULSION STORAGE TANK	11,850 LBS.
91960	8000 GALLON EMULSION STORAGE TANK	12,600 LBS.
91980	10,000 GALLON EMULSION STORAGE TANK	13,700 LBS.



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CRAFCO EMULSION STORAGE TANKS

This manual is furnished with each new CRAFCO EMULSION STORAGE TANK. This manual will help your operators learn about the storage tank properly and understand its mechanical functions for trouble-free operation.

Your CRAFCO EMULSION STORAGE TANK is designed to give excellent service and save maintenance expense. However, as with all specially engineered equipment, you can get the best results at minimum costs if:

1. You operate your EMULSION STORAGE TANK as instructed in this manual.
2. Maintain your EMULSION STORAGE TANK regularly as stated in this manual.

CRAFCO EMULSION STORAGE TANK SAFETY PRECAUTIONS

- All operators must be thoroughly trained.
- High operating temperatures of the emulsion storage tank require protective clothing and gloves be worn by operator.

- Wear gloves while operating equipment.



- Always wear eye and ear protection.

- Always wear proper protective clothing.

- Observe all **CAUTION AND WARNING** signs posted on emulsion storage tank.



- Read Operator Manual thoroughly before operating the emulsion storage tank.

- Make sure operator is familiar with the emulsion storage tank operation.

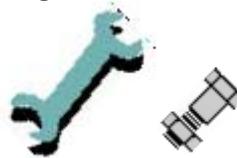
- Shut electric disconnect switch prior to refilling the emulsion storage tank.

- Keep hands, feet, and clothing away from all moving parts.

- Always keep a fire extinguisher near the unit. Maintain extinguisher properly and be familiar with its use.

- Replace any hose that shows sign of wear, fraying, or splitting. Be sure all fittings and joints are tight and leak-proof.

- Precaution is the best insurance against accidents.



- The CrafcO emulsion storage tank should not be left unattended while loading and unloading emulsion into the storage tank.

- Check and tighten all bolts and screws after every 100 hours of operation.

- CRAFCO, Inc. assumes no liability for an accident or injury incurred through improper use of the emulsion storage tank.

- Check the emulsion storage tank thoroughly for any signs of improper wear.

CRAFCO EMULSION STORAGE TANKS SAFETY PRECAUTIONS CONTINUED...

- Crafco, Inc. recommends that the purchasers or users of the merchandise or products frequently and consistently undertake inspections and protective measures with respect to the use and application of the product and merchandise.
- Do not disassemble any valve while under pressure or under a load of emulsion.
- Hose assemblies to service should be inspected frequently for leakage, kinking, corrosion, abrasion or any other signs of wear damage.
- A good place to begin preventative maintenance is with a periodic drive inspection as a normal part of your maintenance rounds. Look and listen for any unusual vibration or sound while observing the drive in operation. A well designed and maintained drive will operate smoothly and quietly. The drive unit is located on the top of the emulsion storage tank.
- Read the service manual regarding the agitator motor. The maintenance schedule is in the manual and the agitator motor will need to be greased and the oil changed on a regular basis.

CRAFCO EMULSION STORAGE TANKS LIMITED WARRANTY

Crafco, Inc. through its authorized dealer covers all storage tanks for defects in materials or workmanship for one year from the date of purchase. Crafco, Inc. shall not be liable for parts or components that have been damaged by accident, alteration, abuse, improper lubrication/maintenance, normal wear, damaged caused during placement/installation, unloading, electrical work performed by outside contractors, improper concrete pad construction, improper tank placement, or other causes beyond our control.

The warranty provided herein extends only to the repair and/or replacement of those components on the product covered above and does not cover labor costs. The warranty does not extend to incidental or consequential damages incurred as a result of any defect covered by this warranty. All transportation and labor cost incurred by the purchaser in submitting or repairing covered components must be borne by the purchaser. Crafco, Inc. specifically disavows any other representation, warranty, or liability related to the condition or use of the product.

WARNING! Use of replacement parts other than genuine Crafco parts may impair the safety or reliability of your product and nullifies any warranty.

This warranty does not cover or imply that the product covered above complies with environmental laws/regulations in purchaser's region. Purchaser is responsible for meeting all environmental regulations.

CRAFCO EMULSION STORAGE TANKS WARRANTY CLAIM INSTRUCTIONS

Please follow the instructions stated below when calling in a Warranty Claim. Failure to follow these procedures may be cause to void the warranty.

1. Call your local CrafcO Distributor. If you do not know who your local distributor is, call a CrafcO Customer Service Representative, (Toll Free 1-800-528-8242) for name, location, and telephone number.
2. On contacting the dealer, be prepared to identify the machine type, model number, and serial number, also, the date of purchase if available.
3. Should the cause of the malfunction be a defective part, the distributor will advise you of the procedure to follow for a replacement.
4. The warranty is valid only for parts which have been supplied or recommended by CrafcO, Inc.

If you have any additional questions regarding warranty repairs and parts, please do not hesitate to call toll free 1-800-528-8242.

CRAFCO, INCORPORATED
235 SOUTH HIBBERT DRIVE
MESA, AZ 85210
480-655-8333
Toll Free 1-800-528-8242



420 N. Roosevelt Ave. • Chandler AZ 85226
 1-800-528-8242 • (602) 276-0406 • FAX (480) 961-0513
 www.crafco.com

EQUIPMENT SPECIFICATIONS CRAFCO EMULSION STORAGE TANKS

AUGUST 2002

SCOPE The emulsion tank shall be furnished complete and ready for satisfactory operation. The unit bid herein will be the manufacturer's latest current production model. Complete detailed specifications with advertising literature sheet shall be furnished with the quotation on the IDENTICAL tank proposed. Any information necessary to show compliance with these specifications not given on the advertising literature sheets furnished with bid shall be supplied in writing and attached to the bid proposal. Unit shall meet or exceed the MINIMUM requirements described herein.

TANK Tanks shall be vertical type and pressure tested for storage of emulsified asphalt and oils. Tanks are manufactured with an offset seam and a series of welds inside and a full seal weld pressure tested outside. They shall be fabricated of minimum 7-gauge steel. Insulation shall be a minimum thickness of 3 inch R-11, R-13 available. Tank shall have primer coat and be painted black. Tank shall be supplied with one side mount manhole access. Tank shall come complete with 10 gauge steel secondary containment shell with 2" monitor pipe and leak detection site glass. There shall be a 5-inch dial side mount material temperature gauge.

	2000 GALLON CAPACITY	3000 GALLON CAPACITY	4000 GALLON CAPACITY	5000 GALLON CAPACITY	6000 GALLON CAPACITY	8000 GALLON CAPACITY	10000 GALLON CAPACITY
TANK							
Minimum diameter and minimum height	64" X 12'	7' X 11'	7' X 14'	7'6" X 15'	7'6" X 18'	8' X 21'	9' X 21'
Shall have minimum drop cone bottom for solids retention	2"	3"	3"	4"	4"	5"	6"
7-gauge steel construction	Side/top	Side/top	Lower 5' of side 1/4" w/ balance & top 7-gauge	Lower 6' of side 1/4" w/ balance & top 7-gauge	Lower 6' of side 1/4" w/ balance & top 7-gauge	Lower 6' of side 1/4" w/ balance & top 7-gauge	Lower 6' of side 1/4" w/ balance & top 7-gauge
steel bottom	7 gauge	7 gauge	1/4 inch				

HEATING ELEMENT The tank shall have heating elements of 6,000 watts and 220 volts. Elements shall be placed in schedule 40 housing positioned inside the tank which are 60" long and located 8" below the

24" liquid manhole access. Heating elements shall be removable without draining the tank or removing the tank cover or the insulation.

	2000 GALLON CAPACITY	3000 GALLON CAPACITY	4000 GALLON CAPACITY	5000 GALLON CAPACITY	6000 GALLON CAPACITY	8000 GALLON CAPACITY	10000 GALLON CAPACITY
HEATING ELEMENTS							
6,000 watts/220 V/25 amps	2	2	2	2	2	3	3

BALL VALVES There shall be a minimum of one 3-inch ball valve for material loading and unloading located at or near tank.

STEEL STAND The bottom of tank must be a minimum of 5 feet above ground level for gravity loading of equipment.

	2000 GALLON CAPACITY	3000 GALLON CAPACITY	4000 GALLON CAPACITY	5000 GALLON CAPACITY	6000 GALLON CAPACITY	8000 GALLON CAPACITY	10000 GALLON CAPACITY
STEEL STAND							
Beam legs and Base plates	(4) 4" 13# WF beam legs & 8" X 8" X 1/2" base plates	(4) 6" 20# WF beam legs & 10" X 10" X 1/2" base plates	(4) 6" 20# WF beam legs & 10" X 10" X 1/2" base plates	(4) 8" 31# WF beam legs & 12" X 12" X 1/2" base plates	(4) 8" 31# WF beam legs & 12" X 12" X 1/2" base plates	(4) 10" 45# WF beam legs & 14" X 14" X 1/2" base plates	(6) 8" 31# WF beam legs & 12" X 12" X 1/2" base plates

HOSE Hose shall be a minimum 3-inch ID, 12 foot long loading hose shall be provided with tank.

AGITATION SYSTEM Top mounted, worm gear drive electric motor, single phase, 110 or 220 volt, shall be provided with HP size based on mixer size.

	2000 GALLON CAPACITY	3000 GALLON CAPACITY	4000 GALLON CAPACITY	5000 GALLON CAPACITY	6000 GALLON CAPACITY	8000 GALLON CAPACITY	10000 GALLON CAPACITY
AGITATION SYSTEM							
Minimum shaft diameter	1 3/4"	1 1/2"	2 3/8"	2 3/8"	2 7/8"	2 7/8"	2 7/8"
Impeller shall be HyFlow II with specified diameter	24"	32"	33"	33"	34"	45"	45"
Impeller to operate at non-variable speed maximum of specified RPM	70 RPM	58 RPM	58 RPM	44 RPM	58 RPM	44 RPM	44 RPM

WARRANTY The manufacturer's usual warranty shall apply and will be in effect for at least one year. Bidder shall provide warranty information with bid proposal.

MISCELLANEOUS The bidding agency is responsible for cost and construction of concrete foundation and for proper placement of mounting component, cost and arrangements for required electrical wiring, cost and arrangements for tank erection and placement, and environmental compliance. Detailed tank leg specifications for mounting to concrete foundation shall be provided by supplier.

OPTIONS

- _ 4 inch internal overflow pipe – part # 91974
- _ Low sensor to keep mixer from operating – part # 91978
- _ Low temp sensor to keep mixer from operating when oil is cold – part # 91977
- _ Highlevel alarm – part # 91976 (see page 41)
- _ Timer for mixer with battery back up – part # 91973
- _ R-13 insulation in place of R-11 – part # 91972
- _ Electric time clock control for agitator – part # 91992 (see page 46)
- _ Access ladder with cage – part # 92000-92012 (see page 55)
- _ Supreme 1040 float gauge with piping – part # 91993 (see page 36)
- _ Top mount manhole-hinged – part # 91997 (see page 75)
- _ Top mount manhole-bolted – part # 91996
- _ 8' steel stand – part # 91971
- _ 220 or 110 volt heat tapes for ball valves – part # 91983
- _ Toe guard and safety rails on top of tank – part # 91979 (see page 55)
- _ 4" internal overflow pipe – part # 91974

CRAFCO EMULSION STORAGE TANKS LETTER TO THE EMULSION TANK PURCHASER

Date: _____

Crafco Emulsion Tank Purchaser

Dear Customer:

We at Crafco would like to thank you for your purchase of a Crafco Emulsion Storage Tank. You should have already received a confirmation of your order from Customer Service providing you with the expected shipping date for your order. In preparation for this delivery there are several items you need to arrange in order for the tank to be installed. A concrete pad needs to be poured, electric service installed, and a crane should be available to unload and place the tank.

CONCRETE PAD SPECIFICATIONS

Refer to Crafco's Emulsion Steel Tank Concrete Pad Specification for the dimensions given for each tank gallon size (see page 16 & 17).

ELECTRIC SERVICE REQUIREMENTS

Electric service of 75 amps for 2000 through 6000 gallon tanks and a minimum of 90 amps for 8000 and 10,000 gallon tanks. 220 volts single phase must be available at the concrete slab. After assembly of the heaters, controls and timer (optional) a certified, licensed, and bonded electrician is required to connect the electrical service. (See page 18, Electric Service Requirements.) (See page 11 and page 74.)

Start

The agitator motor on top of the emulsion storage tank is ½ horse power, 1750 rpm's, 230 volts, single phase, 60 HZ. Protected with a 30 amp circuit breaker (must be installed by customer, see page 74).

Programming the agitator controller is in the manual on page 19 through 31.

The control panel is complete with one (1) process controller, one (1) hi-limit controller, one (1) process contactor, power on lamp, one (1) enclosure heater with thermostat. This is designed for the customer to provide a fused disconnect switch remote. The control panel is for the heating elements (see page 63.)

The hi-limit controller and hi-limit shutdown contactor is the back-up system that will disable the system should a failure occur on the process controller/contactor (see page 63.)

All electrical connection will meet national electrical code (NEC).

It should be noted that the customer supply a 100 amp fused disconnect service which is recommended for the large control panel (see page 73).

A 30 amp fused disconnect service is recommended for the agitator motor and time clock (see page 73 & 74). Agitator box is furnished by the tank manufacturer and is located on the emulsion storage tank.

Heating element (qty. 2) or (qty. 3) on the emulsion storage tank will be wired per picture on page 62.

If the emulsion storage tank gets an option emulsion pump the electrical hooks are 7.5 horse power motor, 1750 rpm's, 3 phase, 230 volts, 50 gallons per minute.

Option: The emulsion storage tank has a high level alarm on the height gauge on the side of the emulsion storage tank. The alarm will go off when the tank is almost full. As soon as you hear the high level alarm have the tanker truck shut off his pump (page 41).

TANK DELIVERY & PLACEMENT

Your tank will be delivered by a commercial carrier on a flat bed trailer. The tank will have lifting points for easy unloading and erection. Once placed on the pad the tank legs should be welded to the steel leg plate attached to the concrete pad (page 44).

Option: If you ordered the optional ladder with cage it will not be attached to the tank at the time of delivery. The optional ladder should be bolted in place before the tank is erected vertically and placed on the concrete pad (page 54 & 55).

ENVIRONMENTAL COMPLIANCE

Compliance with all building codes, zoning and environmental regulations are the responsibility of the purchaser.

COMPONENT PARTS DELIVERY & SET UP

Approximately one week, before the tank arrives, you will receive two parts shipments. One will contain the electrical controls and components. The other will contain component parts fittings and hoses needed to properly operate your tank. Please set these parts aside until a Crafcro representative arrives to install your tank. (Please mark these parts for storage tank. Do not loose the parts.)

A few state agencies have removed the middle vent on top of the emulsion storage tank. They have run a pipe to the side of the emulsion tank and down the side that will help the tank from being overfilled. The emulsion will run on the ground and not all over the emulsion tank (see page 76).

Note: The tanker driver will deliver all the emulsion in this tank truck. The tanker truck driver is going to empty the truck completely. He is instructed to return the truck empty.

A few state agencies have installed guide wires to help hold the tank in place. The guide wires are used along the coast where hurricanes exist.

Shortly after delivery of the tank, a CrafcO representative will be scheduled to complete the set up of the tank. All your components will be installed, internal shipping supports will be removed and operating instructions will be provided at that time.

At any point in time you have questions or need assistance getting prepared to take delivery of your new emulsion storage tank, please feel free to contact us. We at CrafcO are very pleased to provide you with the finest quality products and support.

Please order emulsion with caution! The emulsion storage tank will hold up to 95% of capacity of the tank storage.

The height gauge on the side of the emulsion storage tank should not exceed as follows:

$$2000 \text{ gallons} \times .95\% = 11'-0''$$

Level reading on the height level gauge.

2000	-	11'-0"
3000	-	10'-0"
4000	-	13'-0"
5000	-	14'-0"
6000	-	17'-0"
7000	-	18'-0"
8000	-	20'-0"
10,000	-	20'-0"

The emulsion will arrive about approximately 130°F from the tanker truck. Emulsion will expand when heated.

Have the emulsion tank truck stop when close to the fill mark. Wait until the emulsion settles down, then continue to fill the tank. CrafcO, Inc., does not want the emulsion to come out the vent onto the top of the tank.

This information is provided for estimating purposes only and is not guaranteed to be correct for all soil conditions. Customer is responsible for site evaluation and pad engineering as required by local code.

Sincerely,

“CrafcO’s Sales & Customer Service Departments”

CRAFCO EMULSION STORAGE TANKS

CONCRETE PAD SPECIFICATIONS

The following are the minimum suggested sizes for concrete pads for your asphalt tanks:

All concrete should be 3000# minimum, anchor bolts or weld plates for welding the tank legs should be installed in the appropriate locations with anchors hooked under the cross grid of rebar. Refer to Tank Leg Detail attached (see page 16 & 17.)

2000 gallon tank 64" diameter x 12' sidewall with 5' legs

Fill level on tank gauge is 11'-0"

Concrete pad Min. 8' x 8' x 8" thick with #4 rebar 12" on centers in center of slab.
8" x 8" x 1/2" base plate.

3000 gallon tank 7' diameter x 11' sidewall with 5' legs

Fill level on tank gauge is 10'-0"

Concrete pad Min. 9'6" x 9'6" x 8" thick with #4 rebar 12" on centers in center of slab.
10" x 10" x 1/2" base plate.

4000 gallon tank 7' diameter x 14' sidewall with 5' legs

Fill level on tank gauge is 13'-0"

Concrete pad Min. 9'6" x 9'6" x 8" thick with #4 rebar 12" on centers in center of slab.
10" x 10" x 1/2" base plate.

5000 gallon tank 7'6" diameter x 15' sidewall with 5' legs

Fill level on tank gauge is 14'-0"

Concrete pad Min. 11' x 11' x 8" thick with #5 rebar 12" on centers in center of slab.
12" x 12" x 1/2" base plate.

6000 gallon tank 7'6" diameter x 18' sidewall with 5' legs

Fill level on tank gauge is 17'-0"

Concrete pad Min. 11' x 11' x 8" thick with #5 rebar 12" on centers in center of slab.
12" x 12" x 1/2" base plate.

7000 gallon tank 96" diameter x 19' sidewall with 5' legs

Fill level on tank gauge is 18'-0"

Concrete pad Min. 12' x 12' x 8" thick with #5 rebar 12" on centers in center of slab.
12" x 12" x 1/2" base plate.

8000 gallon tank 96" diameter x 21' sidewall with 5' legs

Fill level on tank gauge is 20'-0"

Concrete pad Min. 12' x 12' x 8" thick with #5 rebar 12" on centers in center of slab.
14" x 14" x 1/2" base plate.

10,000 gallon tank 108" diameter x 21' sidewall with 5' legs

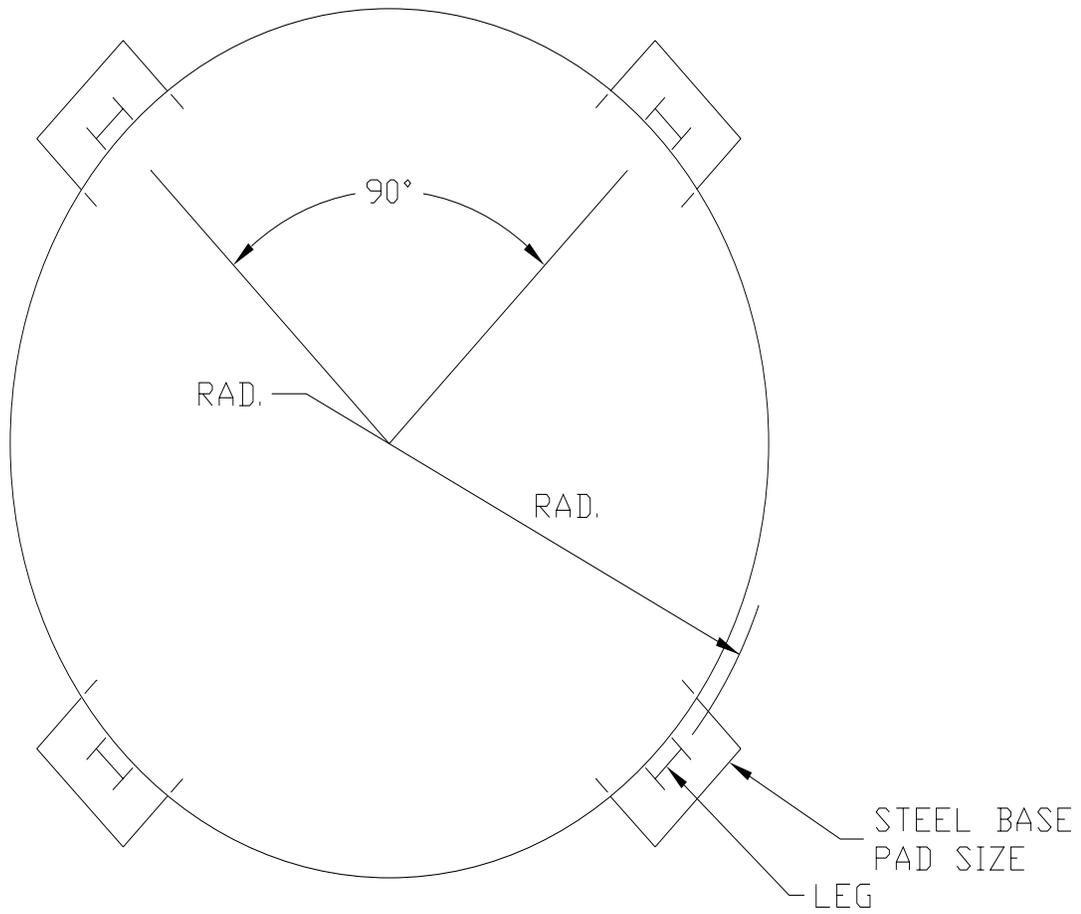
Fill level on tank gauge is 20'-0"

Concrete pad Min. 13' x 13' x 10" thick with #6 rebar 12" on centers in center of slab.
14" x 14" x 1/2" base plate.

CRAFCO EMULSION STORAGE TANKS

TANK LEG DETAIL

Ref. 6,000 gallon capacity
4 beam legs and base plates

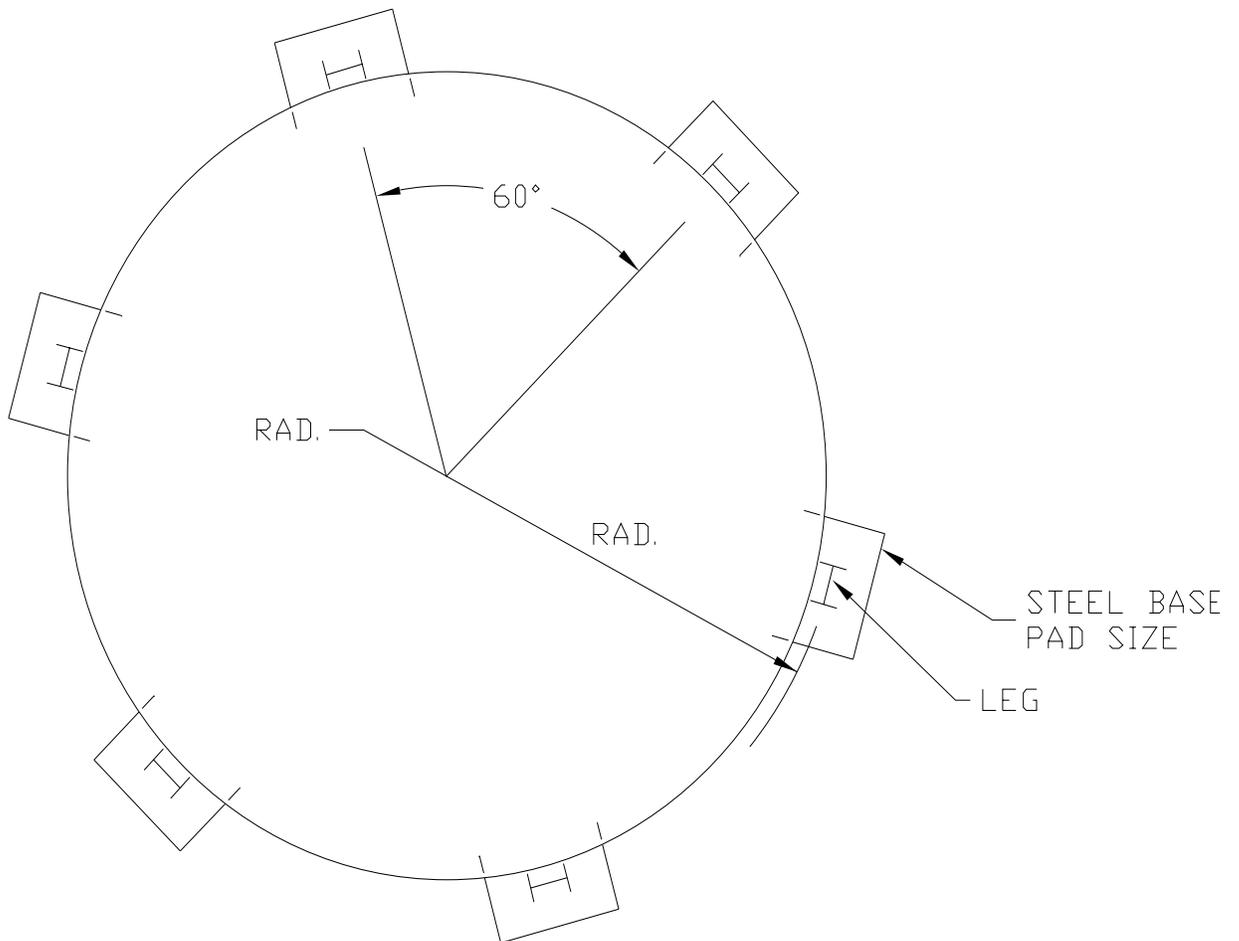


DESIGN "A"

CRAFCO EMULSION STORAGE TANKS

TANK LEG DETAIL

Ref. 10,000 gallon capacity
6 beam legs and base plates



DESIGN "B"

CRAFCO EMULSION STORAGE TANKS

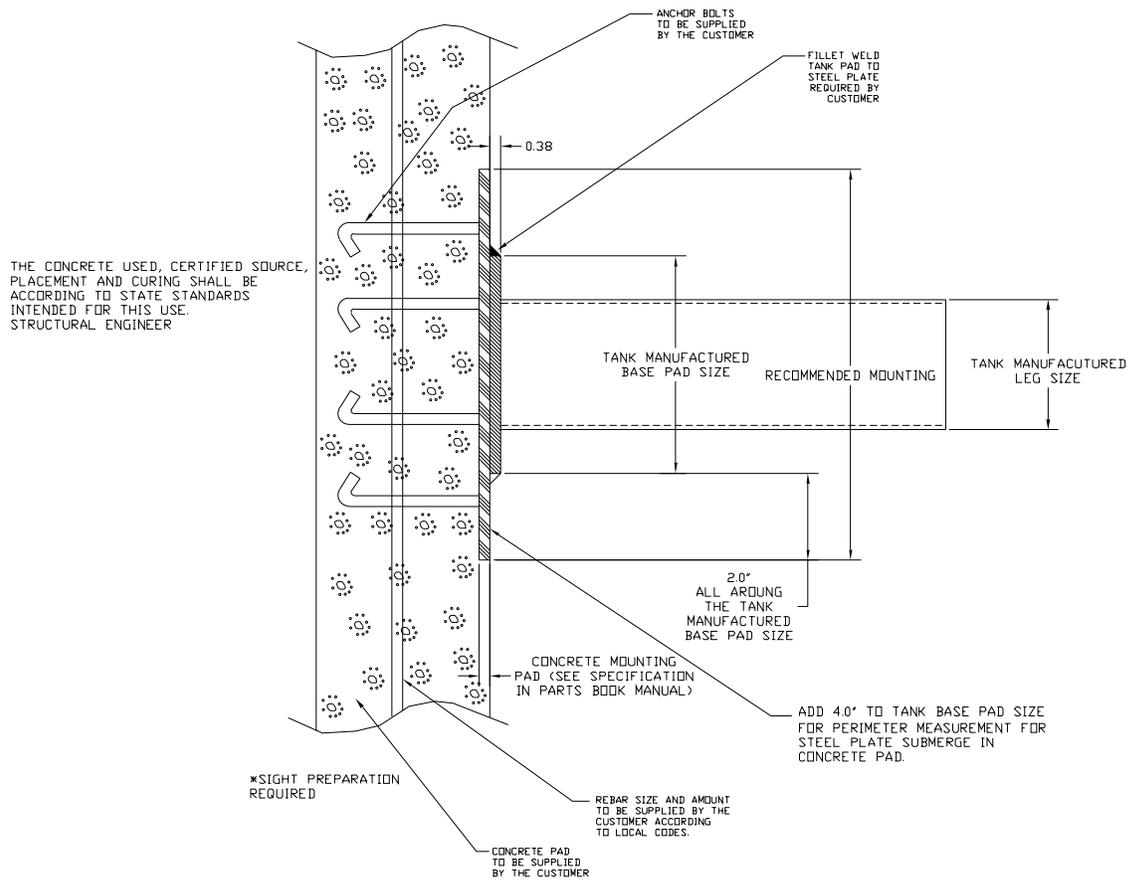
TANK LEG DETAIL

		<u>Shipping Weight</u>	
2000 gallon	64" diam. x 12' shell vertical Asphalt Storage Tank	5450#	Design A
R	Radius to center of leg (Nominal Measurement)		34"
L	Leg Size		4" 13#WF Beam
BP	Steel Base Pad Size		8" x 8" x ½"
3000 gallon	84" diam. x 11' shell vertical Asphalt Storage Tank	6850#	Design A
R	Radius to center of Leg (Nominal Measurement)		45"
L	Leg Size		6" 20#WF Beam
BP	Steel Base Pad Size		10" x 10" x ½"
4000 gallon	84" diam. x 14' shell vertical Asphalt Storage Tank	8110#	Design A
R	Radius to center of leg (Nominal Measurement)		45"
L	Leg Size		6" 20#WF Beam
BP	Steel Base Pad Size		10" x 10" x ½"
5000 gallon	90" diam. x 15' shell vertical Asphalt Storage Tank	9400#	Design A
R	Radius to center of leg (Nominal Measurement)		49"
L	Leg Size		8" 31#WF Beam
BP	Steel Base Pad Size		12" x 12" x ½"
6000 gallon	90" diam. x 18' shell vertical Asphalt Storage Tank	10,200#	Design A
R	Radius to center of leg (Nominal Measurement)		49"
L	Leg Size		8" 31#WF Beam
BP	Steel Base Pad Size		12" x 12" x ½"
8000 gallon	96" diam. x 21' shell vertical Asphalt Storage Tank	12,600#	Design A
R	Radius to center of leg (Nominal Measurement)		53"
L	Leg Size		10" 45# WF Beam
BP	Steel Base Pad Size		14" x 14" x ½"
10,000 gallon	108" diam. x 21' shell vertical Asphalt Storage Tank	13,700#	Design B
R	Radius to center of leg (Nominal Measurement)		59"
L	Leg Size (Note: 6 legs at 60 degree spacing)		8" 31#WF Beam
BP	Steel Base Pad Size		14" x 14" x ½"

CRAFCO EMULSION STORAGE TANKS

TANK PAD SPECIFICATIONS

- Concrete pad shall be (see pg. 13 Concrete Pad Specifications) with 1/2 inch rebar placed on 1 foot centers.
- Metal leg plates shall be 1/2 inch thick. See attached Tank Leg Detail sheet for proper placement.



CRAFCO EMULSION STORAGE TANKS ELECTRIC SERVICE REQUIREMENTS

CRAFCO, INC., recommends that to comply with the electrical codes in your area, an electrical disconnect for the emulsion tank be placed next to the emulsion tank (page 54 & 73). This will protect the electrician if he ever needs to work on the emulsion tank. CRAFCO, INC., recommends that a 110 volt weather-proof electrical outlet be placed on a dust to dawn light. The dust to dawn light needs to be positioned next to the emulsion storage tank (see page 49). This can be used so your spray injection can be plugged in overnight.

On the sensor probe electrical hook-up (location storage tank.)
“red wire = negative terminal”
“white wire = positive terminal”

Use a volt meter to check “resistance”. If there is no resistance then the sensor is not working (see page 59).

Over temperature controller inside the control panel needs to be set just over the number 2.
2 x 100 = 200 degrees (see page 63 & 69)

If the over temperature light is not on, it has tripped the high limit switch (the high limit control). You will need to push the reset button (see page 66).

If the power is turned off at any time, the rest button on the control panel will need to be reset. You will hear a continuous buzz from the electric contactor in the control panel (page 65).

CRAFCO EMULSION STORAGE TANKS EC7000, EC7004 AND EC7005 SINGLE-CHANNEL, ELECTRONIC TIME CONTROLS - OPTION -

GENERAL INSTRUCTIONS

INTRODUCTION

The EC7000, EC7004 and EC7005 are single-channel, electronic time controls that provide simple, inexpensive control of lighting, heating, ventilating, air conditioning, security systems, motors, pumps, fans or any load with a time-of-day schedule. The control may be utilized as a 24-hour or 7-day control. As a 24-hour control the same ON/OFF program is utilized each day of the week. Saturday and/or Sunday, or any other day may be skipped. When schedules vary from day to day, the 7-day programming capability allows a different schedule for each day of the week. With 16 setpoints available, these time controls provide programming versatility.

The EC7000 provides 20 amp switching with a form C (SPDT) output.

The EC7004 provides 30 amp switching with a form A (SPST) output.

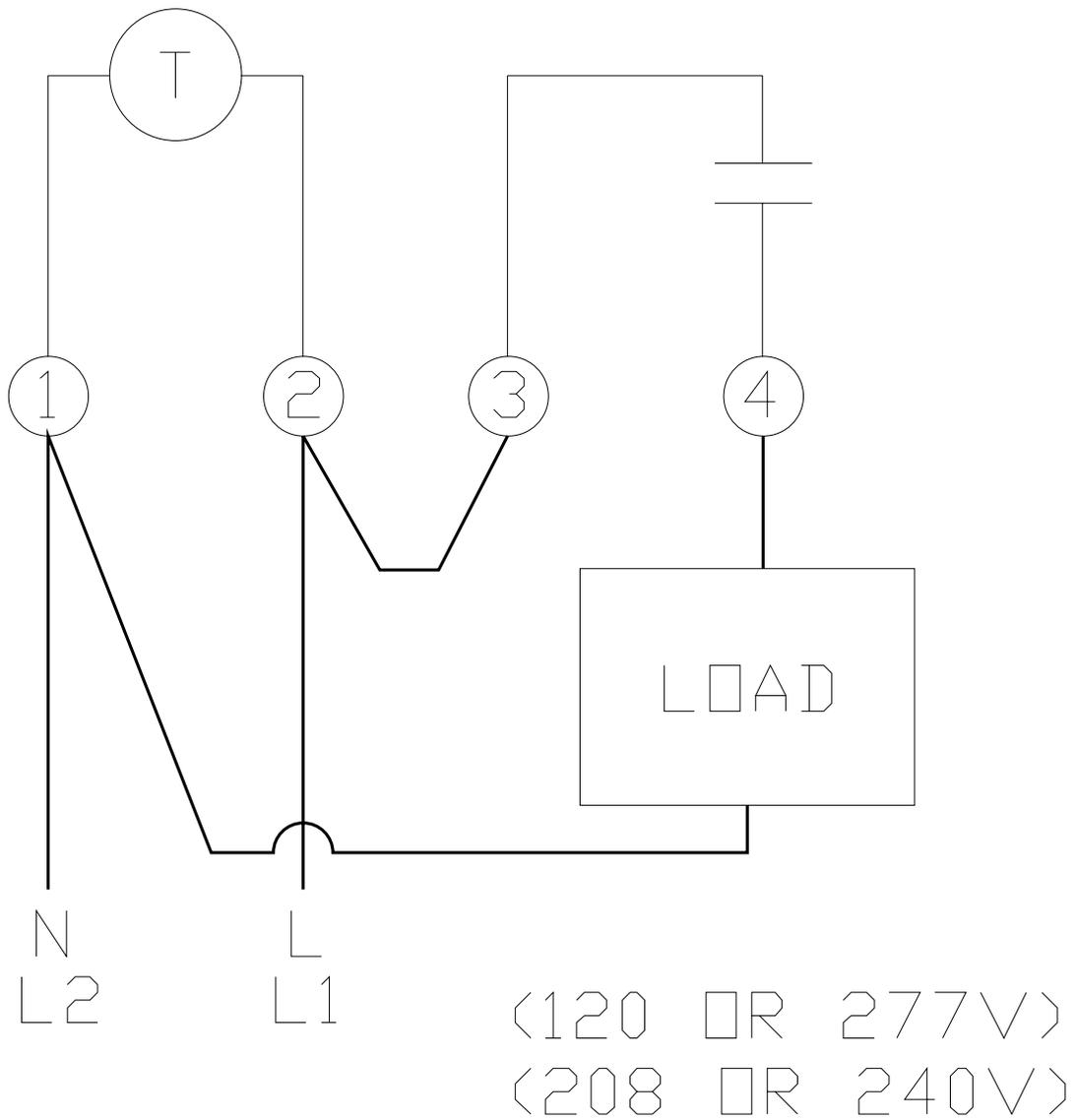
The EC7005 provides 30 amp switching with two form A outputs (DPST).

SPECIFICATIONS - PROGRAMMING CAPABILITIES

- 16 Setpoints - A setpoint defines the type of event (ON or OFF) as well as the time and day(s) on which the event will occur.
- 24-Hour or 7-Day Programming - Allows the same schedule or a different schedule for each day of the week.
- Selectable Clock Format - 12 hour (AM/PM) or 24 hour format.
- Manual Override - Reverses current output state; begins immediately when initiated and remains until overridden again or until next setpoint is reached.

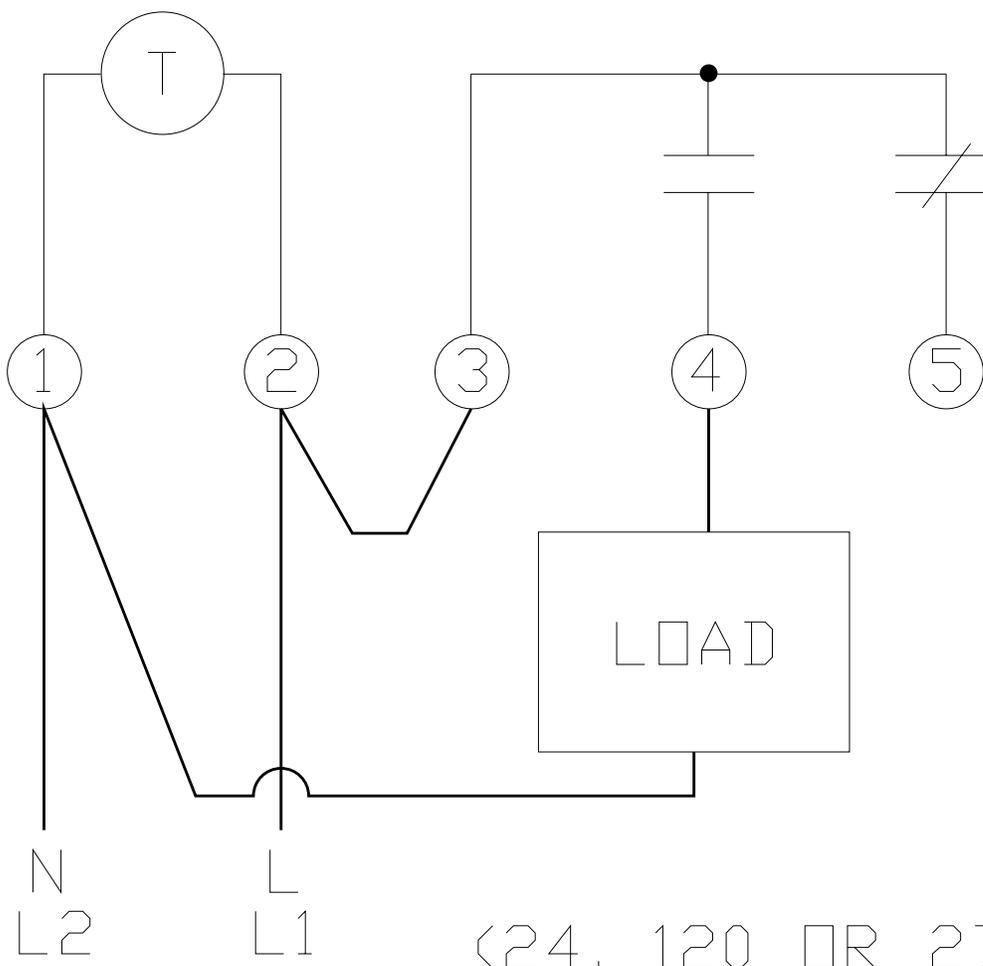
**CRAFCO EMULSION STORAGE TANKS
EC7000, EC7004 AND EC7005 SINGLE-CHANNEL,
ELECTRONIC TIME CONTROLS**

EC7004 SPDT



CRAFCO EMULSION STORAGE TANKS EC7000, EC7004 AND EC7005 SINGLE-CHANNEL, ELECTRONIC TIME CONTROLS

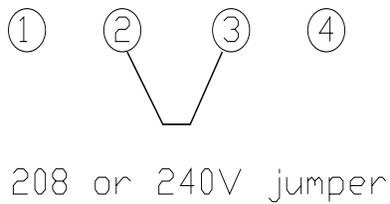
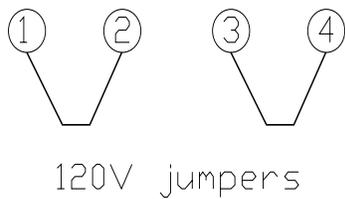
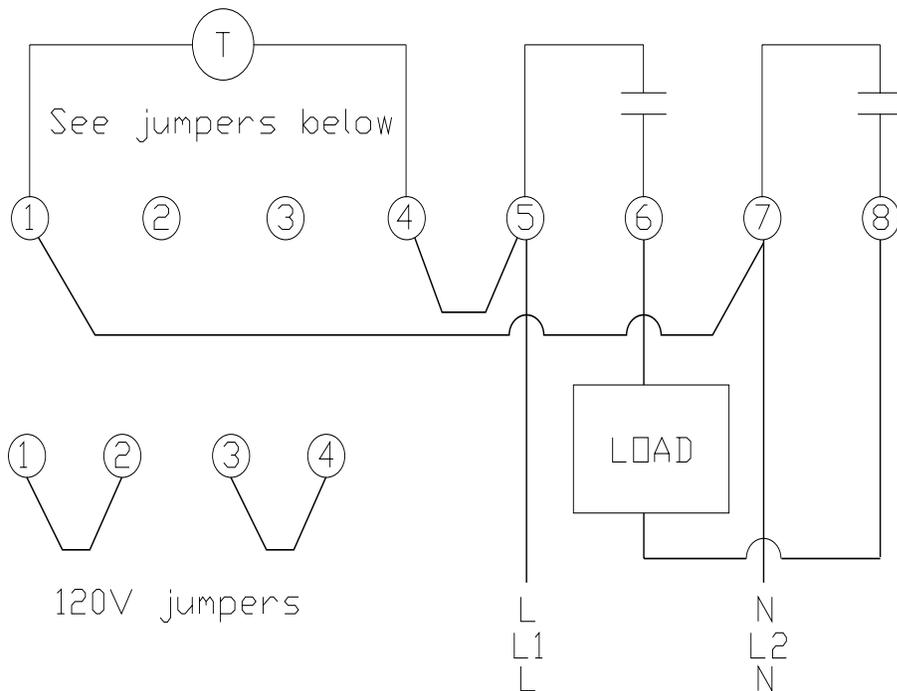
EC7000 SPDT



(24, 120 OR 277V)
(208 OR 240V)

CRAFCO EMULSION STORAGE TANKS EC7000, EC7004 AND EC7005 SINGLE-CHANNEL, ELECTRONIC TIME CONTROLS

EC7005 DPST



(120V)
(208 OR 240V)
(277V no jumper
needed)

CRAFCO EMULSION STORAGE TANKS EC7000, EC7004 AND EC7005 SINGLE-CHANNEL, ELECTRONIC TIME CONTROLS

GENERAL INSTRUCTIONS continued

Example of how to mark your worksheet using schedule on previous page.

No.	DAY OF WEEK							TYPE OF EVENT	TIME
1	S	(M)	(T)	(W)	(T)	(F)	(S)	(ON) OFF	7:30 AM
2	S	(M)	(T)	(W)	(T)	(F)	S	ON (OFF)	5:30 PM
3	S	M	T	W	T	F	(S)	ON (OFF)	12:30 PM

YOUR SETPOINT WORK SHEET (Mark with your schedule)									
No.	DAY OF WEEK							TYPE OF EVENT	TIME
1	S	M	T	W	T	F	S	ON OFF	
2	S	M	T	W	T	F	S	ON OFF	
3	S	M	T	W	T	F	S	ON OFF	
4	S	M	T	W	T	F	S	ON OFF	
5	S	M	T	W	T	F	S	ON OFF	
6	S	M	T	W	T	F	S	ON OFF	
7	S	M	T	W	T	F	S	ON OFF	
8	S	M	T	W	T	F	S	ON OFF	
9	S	M	T	W	T	F	S	ON OFF	
10	S	M	T	W	T	F	S	ON OFF	
11	S	M	T	W	T	F	S	ON OFF	
12	S	M	T	W	T	F	S	ON OFF	
13	S	M	T	W	T	F	S	ON OFF	
14	S	M	T	W	T	F	S	ON OFF	
15	S	M	T	W	T	F	S	ON OFF	
16	S	M	T	W	T	F	S	ON OFF	

CRAFCO EMULSION STORAGE TANKS PROGRAMMING INSTRUCTIONS

These timers initially power up in the Clock Format Select mode. This mode is only accessible once. If the clock format needs to be changed, the timer will have to be reset. To reset the timer, insert a pointed object into the reset hole to the right of the display.

CLOCK FORMAT SELECT mode

STEP	KEY	DESCRIPTION
1.		Apply power to timer. Control displays 12 Hr, indicating 12 hour clock format
2.	>	Toggles between 12 hour (AM/PM) and 24 hour (17:00 = 5: PM) clock formats. Choose the format desired.
3.	ENTER	Advances to RUN mode.

SET TIME mode

STEP	KEY	DESCRIPTION
1.	MODE	Advances to SET TIME mode. Control displays time with hours flashing. TOD is also displayed to indicate that Time-of-Day is being set.
2.	>	Advance to current hour.
3.	ENTER	Minutes begin flashing.
4.	>	Advance to current minute.
5.	ENTER	Day of week begins flashing.
6.	>	Advance to current day of week. Then go directly to Setpoint Programming mode below.

CRAFCO EMULSION STORAGE TANKS SETPOINT PROGRAMMING MODE

(Refer to Understanding Setpoints on page 31 of your completed worksheet.)

STEP	KEY	DESCRIPTION
1.	MODE	Advances from the SET TIME mode to the SETPOINT PROGRAMMING mode. The timer displays “1” at bottom of display and “----”. The “1” indicates that the first of 16 setpoints is being programmed. The dashes indicate that this setpoint is clear.
2.	ENTER	Display shows “SU” and “no”. This indicates that Sunday is not included in the setpoint.
3.	>	Displays toggles between “YES” and “no”. If the event is desired for the particular day select “YES”, if not select “no”.
4.	ENTER	Display shows “MO” and “no”. Repeat steps 3 and 4 to select which day(s) to include in the setpoint. After programming Saturday, the display will show the setpoint with the hours flashing. Dashes in the hour location indicate that the setpoint is still clear.
5.	>	Advance to desired hour.
6.	ENTER	Minutes begin flashing.
7.	>	Advance to desired minute.
8.	ENTER	Event type begins flashing.
9.	>	Display toggles between ON and OFF event types. Choose the event desired.
10.	ENTER	Advances to the next setpoint. Repeat steps 2 through 10 to program additional setpoints. When all setpoints required are programmed, advance to step 11.
11.	RUN	Returns to the RUN mode when programming is complete.

NOTE: Once programming has been completed through step 11, the display should show correct Time-of-Day, Day-of-Week and Setpoint status (ON/OFF). If present load status should be an ON event, but shows as an OFF event, press ENTER/OVR to turn load ON and to initiate programmed schedule.

CRAFCO EMULSION STORAGE TANKS TO REVIEW SETPOINTS

STEP	KEY	DESCRIPTION
1.	MODE	Advances from RUN mode to SET TIME mode (TOD displays)
2.	MODE	Advances from SET TIME mode to SETPOINT PROGRAMMING mode. The control will display the first setpoint (1 displays at bottom). To modify the setpoint, go to step 2 of the SETPOINT PROGRAMMING mode instructions.
3.	>	Advances through the remaining setpoints.
4.	RUN	Returns to RUN mode when done reviewing setpoints.

OVERRIDE

Manual override reverses the current output state. Loads that are ON turn immediately OFF; loads that are OFF turn immediately ON. The timer displays OVR to indicate that the current load state is the result of an override. The override remains in effect until overridden again or until the next setpoint is reached. To initiate override, press OVR (ENTER) key while in the RUN mode.

NOTE: After an override has been initiated, the OVR will display until the next programmed setpoint is reached, even if the timer is overridden again. Display will show if the load is on or off.

CRAFCO EMULSION STORAGE TANKS

TROUBLESHOOTING TIPS

TROUBLESHOOTING TIPS

Problem	Solution
Nothing happens when a setpoint occurs to turn the load ON or OFF.	<ul style="list-style-type: none">• Review programmed setpoints making sure the day has not been skipped
You wish to clear the control's memory and start over.	<ul style="list-style-type: none">• Depress the reset switch to the right of the display.
Manual override does not work.	<ul style="list-style-type: none">• Check the load for proper wiring. Remember, the contacts on these units only switch what is applied to them. (Dry or isolated contacts.)
Blank display.	<ul style="list-style-type: none">• Check input power source. Insure proper connection.
Control does not operate after programming.	<ul style="list-style-type: none">• If programming was performed (changing clock time or entering a setpoint), the control will not update itself. Press the ENTER key and override the load until the next scheduled setpoint.

CRAFCO EMULSION STORAGE TANKS CONTACT RATINGS

Output UL Ratings

EC7000 (see page 21)

Normally open contacts:

20 amp resistive at 24-240 Vac

1 hp at 120 Vac, 2hp at 240 Vac

5 amp tungsten at 120-240 Vac

6 amp ballast at 120-277 Vac

Normally closed contacts:

10 amp "R" at 24-240 Vac

¼ hp at 120 Vac, ½ hp at 240 Vac

3 amp tungsten at 120-240 Vac

3 amp ballast at 120-277 Vac

EC7004 (see page 20)

Normally open contacts:

30 amp resistive at 24-240 Vac

1 hp at 120 Vac, 2 hp at 240 Vac

6 amp tungsten at 120-240 Vac

6 amp ballast at 120-277 Vac

Output CSA Ratings

EC7000 (see page 21)

Normally open contacts:

10 amp resistive at 24-240 Vac

½ hp at 120 Vac, 1 hp at 240 Vac

5 amp tungsten at 120-240 Vac

6 amp ballast at 277 Vac

Normally closed contacts:

10 amp resistive at 24-240 Vac

¼ hp at 120 Vac, ½ hp at 240 Vac

3 amp tungsten at 120-240 Vac

3 amp ballast at 277 Vac

EC7004 (see page 20)

Normally open contacts:

30 amp resistive at 120 Vac

10 amp resistive at 240 Vac

1 hp at 120 Vac, 2 hp at 240 Vac

5 amp tungsten at 120-240 Vac

6 amp ballast at 277 Vac

EC7005 (see page 22)

For EC7005 contact ratings please refer to inner door instructions on unit or contact factory.

NOTE: Paragon solid state controls utilize dry contacts. Input power enables the control to keep time, store programmed information and carry out instructions but input power **does not power the load**. To make circuits function, you must provide power to the contacts.

CRAFCO EMULSION STORAGE TANKS WIRING

Terminals can accommodate 10-16 AWG wire.

POWER OUTAGE CARRY-OVER

The program and time-of-day are maintained during a power outage for a minimum of seven (7) days. A built-in special capacitor eliminates the inconvenience of battery replacement.

ENVIRONMENTAL

EC7000 & EC7004 should be mounted indoors in an environment that is free from excessive contaminants such as oil, moisture and dirt. EC7005 is suitable for both indoor and outdoor use.

PHYSICAL

EC7000 and EC7004 Mounting -

NEMA 1 enclosure mounting

Weight - Approx. 2 lbs. (0.9 kg)

Dimensions -

Width 10.8 cm (4-1/4")

Height 20.0 cm (7-7/8")

Depth 7.6 cm (3")

EC7005 Mounting -

NEMA 3 case mounting

Weight - Approx 2-1/2 lbs. (1.1 kg)

Dimensions -

Width 16.7 cm (6-9/16")

Height 23.1 cm (8-1/8")

Depth 9.8 cm (3-7/8")

EC7000 Bracket Mounting

Dimensions -

Width 10.4 cm (4-1/8")

Height 19 cm (7-1/2")

Depth 6.7 cm (2-5/8")

CRAFCO EMULSION STORAGE TANKS

KEYPAD DESCRIPTION

RUN - Returns timer to the RUN mode. The timer will only control the load when in the RUN mode.

MODE - Advances from one programming mode to the next. The order of programming modes is as follows: Clock Format Select, Run, Set Time and Setpoint Programming. After the last mode, the control will loop back to the Run mode.

Rolls through the parameter currently being programmed.

ENTER - In all programming modes, what is shown in the display is what exists in memory. Pressing the ENTER key simply advance to the next parameter to be programmed. (i.e. hours to minutes).



CRAFCO EMULSION STORAGE TANKS

UNDERSTANDING SETPOINTS

Before you begin programming, make sure you understand setpoints. A setpoint defines the type of event - ON or OFF - as well as the time of the event and the day(s) on which the event will occur. For example, to turn the lights on at 8:00 AM each day of the week, a setpoint like this would be required: ON, 8:00 AM, Mon-Tue-Wed-Thur-Fri-Sat-Sun. Setpoint programming provides built-in skip-a-day capability; to skip any day(s), simply do not add the day(s) to the setpoint.

As a simple example, consider the following schedule for turning lights on and off.

SUN: No lighting required

MON through FRI: Lights ON at 7:30 AM, OFF at 5:30 PM

SAT: ON at 7:30 AM, OFF at 12:30 PM

NOTE: When programming, "no" on the display means no event is required at that setpoint on that particular day. "YES" means an event is required (either ON or OFF) at that setpoint on that day. The sample schedule would be arranged as follows:

1st setpoint: required: (ON at 7:30 AM Monday through Saturday only)

Set as follows - SUN: no

MON through SAT: (YES) ON at 7:30 AM

2nd setpoint: required: (OFF at 5:30 PM Monday through Friday only)

Set as follows - SUN: no

MON through FRI: (YES) OFF at 5:30 PM

SAT: no

3rd setpoint: required: (OFF at 12:30 PM Saturday only)

Set as follows - SUN through FRI: no

SAT: (YES) OFF at 12:30 PM

Mark your setpoint worksheet as above and proceed to program the unit using the instructions on the back page.

CRAFCO EMULSION STORAGE TANKS DISPENSING THE MATERIAL



NOTE: PROTECTIVE CLOTHING, GLOVES, HARD SOLED SHOES, AND FACE SHIELD OR SAFETY GLASSES SHOULD BE WORN FILLING THIS EQUIPMENT. READ ENTIRE MANUAL BEFORE OPERATING.



NEVER POINT THE EMULSION STORAGE TANK FILL HOSE AT ANY PART OF THE BODY OR AT ANY OTHER PERSON. HOT MATERIALS CAN CAUSE SEVERE BURNS. WEAR PROTECTIVE EQUIPMENT WHEN FILLING OR OPERATING THE EQUIPMENT. READ MANUAL BEFORE OPERATING EQUIPMENT.



CRAFCO EMULSION STORAGE TANKS INSTRUCTIONS FOR ORDERING PARTS

Parts may be ordered from your local CRAFCO Distributor or directly from CRAFCO, Inc. if a distributor is not available in your area. When ordering parts, give the following information:

1. Part number.
2. Machine model tank size.
3. Serial number.

Write, telephone, or fax:

CRAFCO, INCORPORATED
235 SOUTH HIBBERT DRIVE
MESA, AZ 85210
Phone: 480-655-8333
Fax: 480-655-1712
Toll Free: 1-800-528-8242

LUBRICATING AND MAINTENANCE INSTRUCTIONS

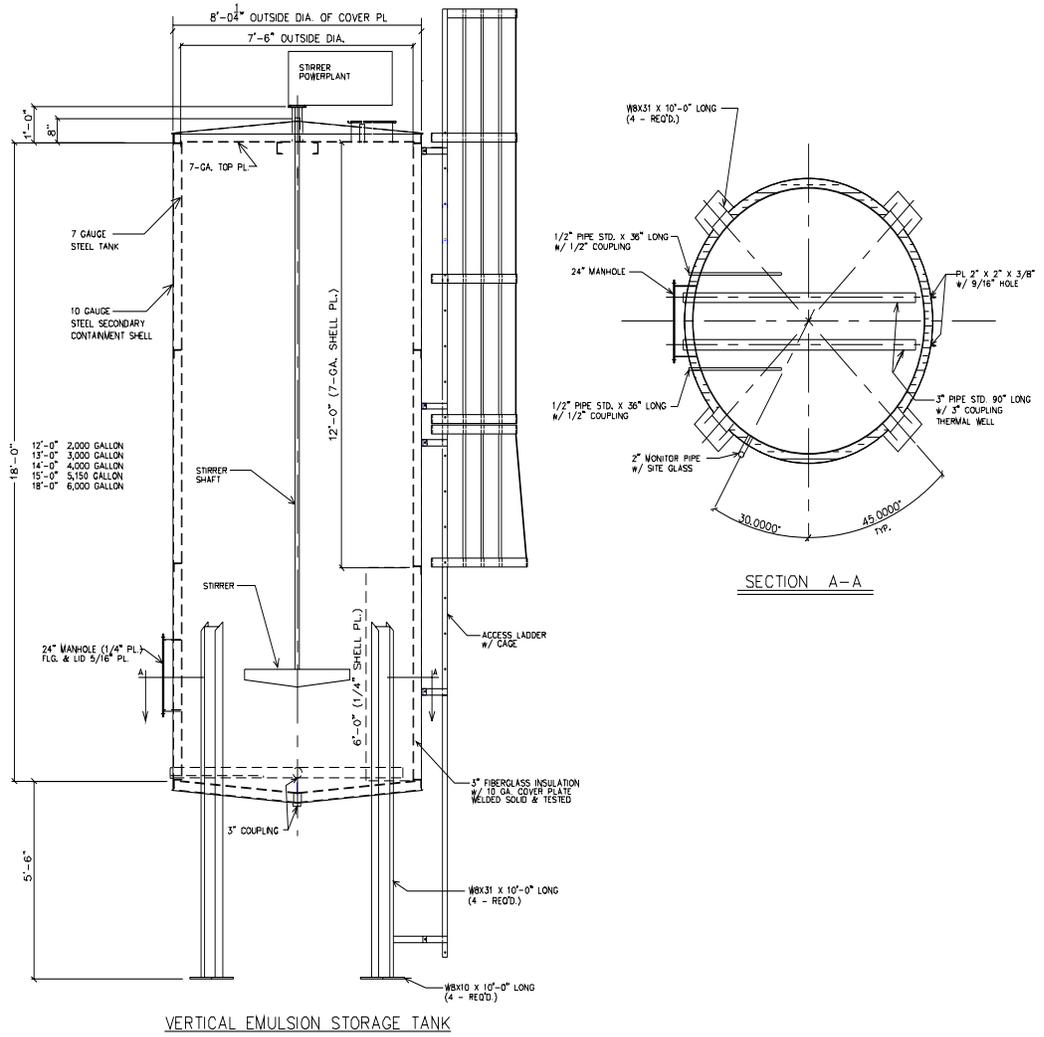
1. Sharpe mixer liquid agitation refer to manual with serial number in bottom right hand corner.
2. Supreme Tank Gauge manual in parts book (page 36).
3. Check gear oil level weekly (see Sharpe Mixer manual included with emulsion storage tank).
4. Check and tighten all bolts periodically.

CRAFCO EMULSION STORAGE TANKS DOUBLE WALL SECONDARY CONTAINMENT

The tank manufacturer provides the tanks we make for CrafcO with a double wall secondary containment for a safe containment of the contents of the primary tank in case it would leak. The primary tank is fabricated and air pressure tested to make sure it doesn't leak. Next the insulation and secondary containment wrapper is attached and seal welded, then the secondary wrapper is air pressure tested to make sure it doesn't leak. Also the secondary containment provides a tight seal over the insulation so there isn't any way for rain to get in and get the insulation wet.

We install a 2" monitor pipe on the side of the tank with a site glass at the bottom to visually check the double wall space. The monitor pipe also provides a location that an electronic monitor could be installed in to monitor the double wall space from a remote location if the customer needed it.

CRAFCO EMULSION STORAGE TANKS DOUBLE WALL SECONDARY CONTAINMENT



SUPREME™ TANK GAUGE

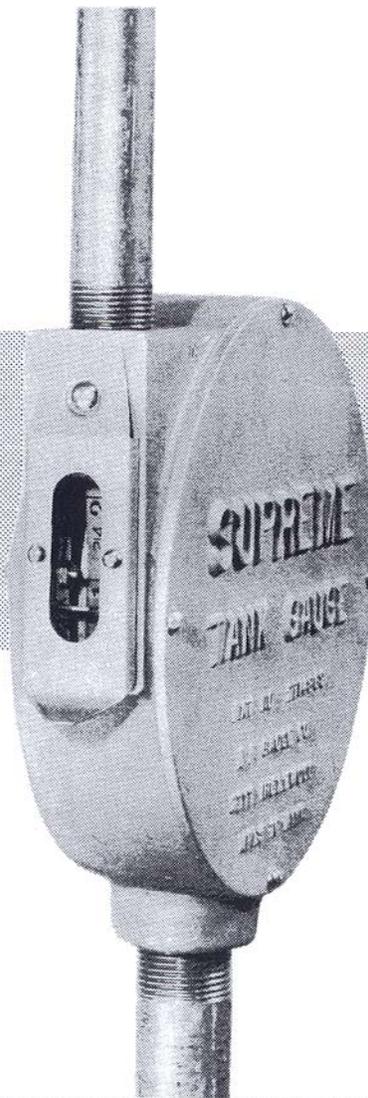
A VAPOR-TIGHT, AUTOMATIC GAUGE FOR ANY FLUID
COMMONLY STORED IN HORIZONTAL AND VERTICAL
STORAGE TANKS

NO VAPOR-LOSS

SUPREME TANK GAUGE eliminates the need of opening tanks, which causes loss of valuable vapors. This loss alone would pay for SUPREME TANK GAUGE in a very short time.

ACCURATE

SUPREME TANK GAUGE eliminates haphazard inaccurate hand measurement. Climbing in wet, cold, slippery weather to measure tanks is unnecessary.



PREVENTS ACCIDENTS

SUPREME TANK GAUGE provides visible readings at ground level. Over 90% of all bulk plant accidents are caused by falls from storage tanks.

EASY TO INSTALL

SUPREME TANK GAUGE comes ready for installation with easy-to-read instructions. Drain, pipe and pipe fittings not included.

TANK GAUGE (Option - 91993 Float Gauge)



1

NUMBER	PART NUMBER	DESCRIPTION
1	91993	SEE DRAWING FOR SPARE PART LIST P. 37

TANK GAUGE (Option - 91993 Float Gauge)



1

NUMBER	PART NUMBER	DESCRIPTION
1	91993	SEE EXPLODED VIEW P. 37

TANK GAUGE (Option - 91976 High Level Alarm)



NUMBER	PART NUMBER	DESCRIPTION
1	91976	OPTION: HIGH LEVEL ALARM (SEE PAGE 9)

LIQUID AGITATION (TOP OF EMULSION TANK)



1

NUMBER	DESCRIPTION
1	SEE OPERATION AND MAINTENANCE MANUAL. SEE SHARPE MIXER MANUAL. THE MANUAL IS INCLUDED WITH THE EMULSION TANK UPON DELIVERY. SAVE THIS MANUAL IT WILL HAVE THE SERIAL NUMBER ON IT.

LIQUID AGITATION (TOP OF EMULSION TANK)



NUMBER	DESCRIPTION
1	SEE OPERATION AND MAINTENANCE MANUAL. SEE SHARPE MIXER MANUAL. THE MANUAL IS INCLUDED WITH THE EMULSION TANK UPON DELIVERY.
2	VENT PLUG. SEE OPERATION AND MAINTENANCE MANUAL, PAGE C-1, FIGURE C1.1.

CONCRETE PAD SPECIFICATION TANK LEG DETAIL



NUMBER	DESCRIPTION
1	SEE TANK PAD SPECIFICATIONS (P. 17) SEE CONCRETE PAD SPECIFICATIONS (P. 13) SEE TANK DELIVERY AND PLACEMENT (P. 11) SEE TANK LEG DETAIL (P. 14)
2	STEEL BASE PAD
3	LEG

CONCRETE PAD SPECIFICATION TANK LEG DETAIL



1

NUMBER	DESCRIPTION
1	CONCRETE PAD AND REBAR. (*SITE PREPARATION REQUIRED - SEE PAGE 11 & 17.)

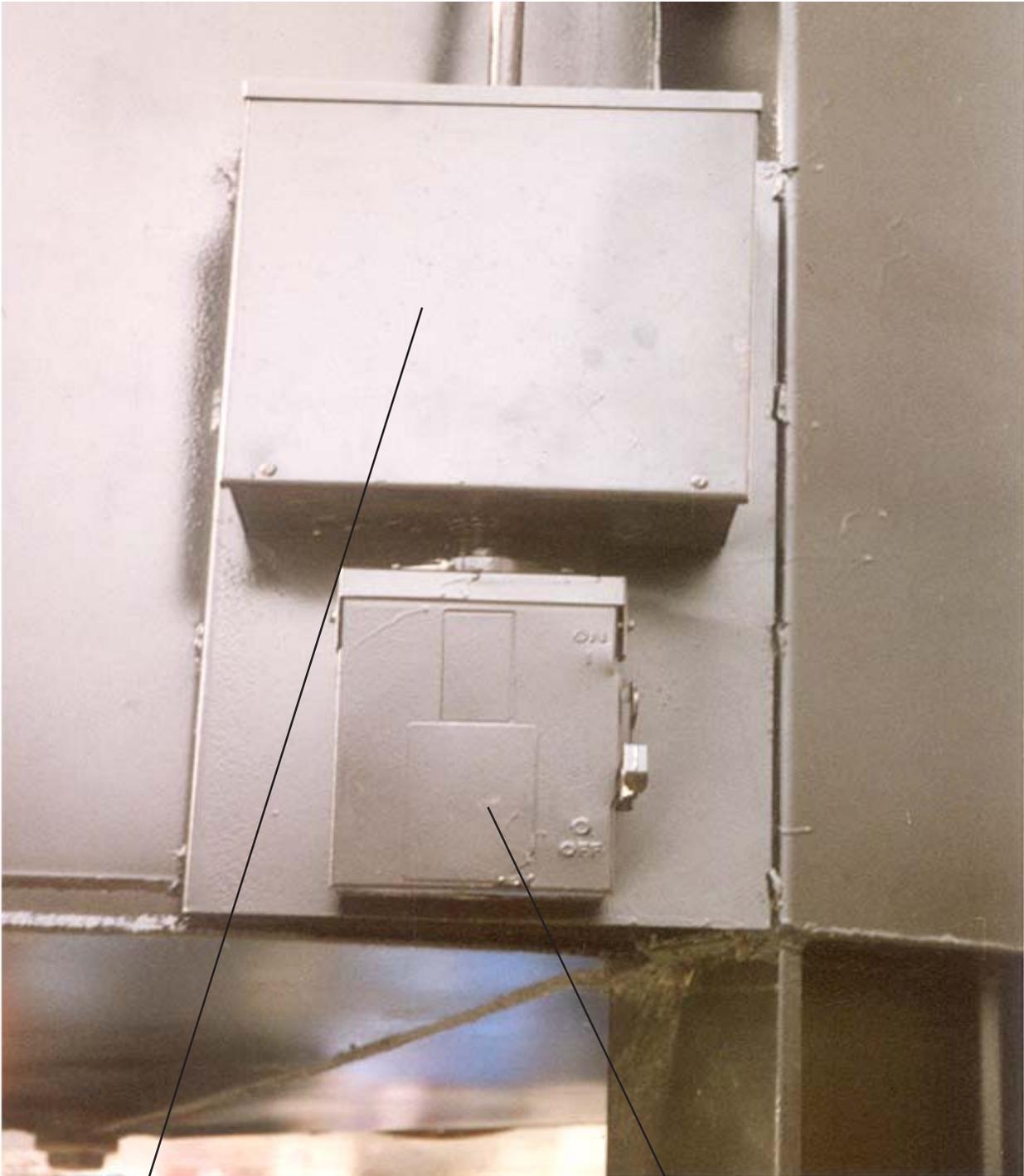
OPTION - ELECTRONIC TIME CONTROLS
Part Number - 91992



1

NUMBER	PART NUMBER	DESCRIPTION
1	91992	SEE ELECTRONIC TIME CONTROL IN PART MANUAL P. 19-31.

ELECTRICAL CONNECTION BOX



1

2

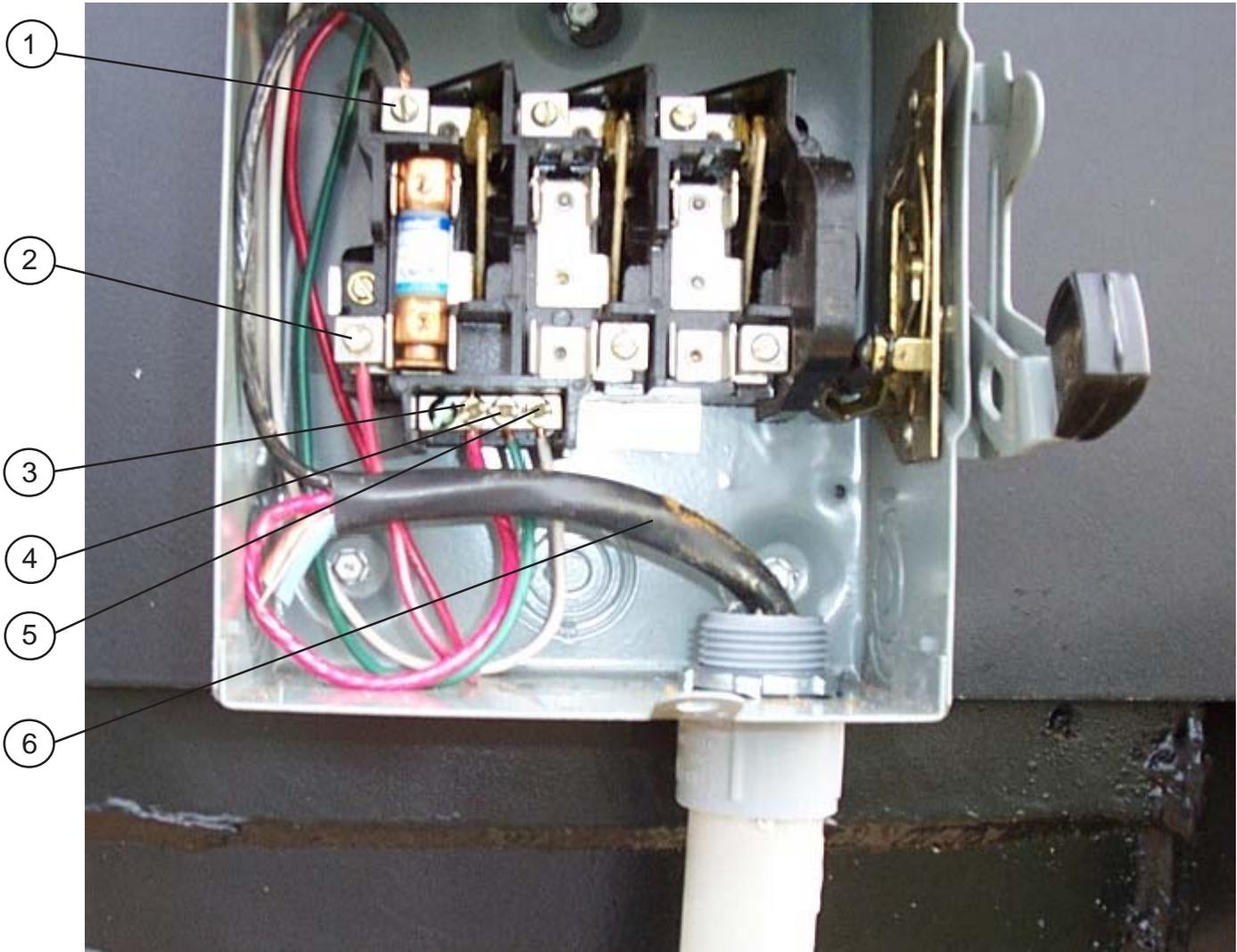
NUMBER	PART NUMBER	DESCRIPTION
1	91992	TIME CLOCK (OPTION)
2	-	ELECTRICAL DISCONNECT (SUPPLIED WITH TANK). SEE PHOTO FOR WIRING (PAGE 49,50, & 51).

**OPTION - ELECTRONIC TIME CONTROLS
PART NUMBER 91992
(WIRING PHOTO)**



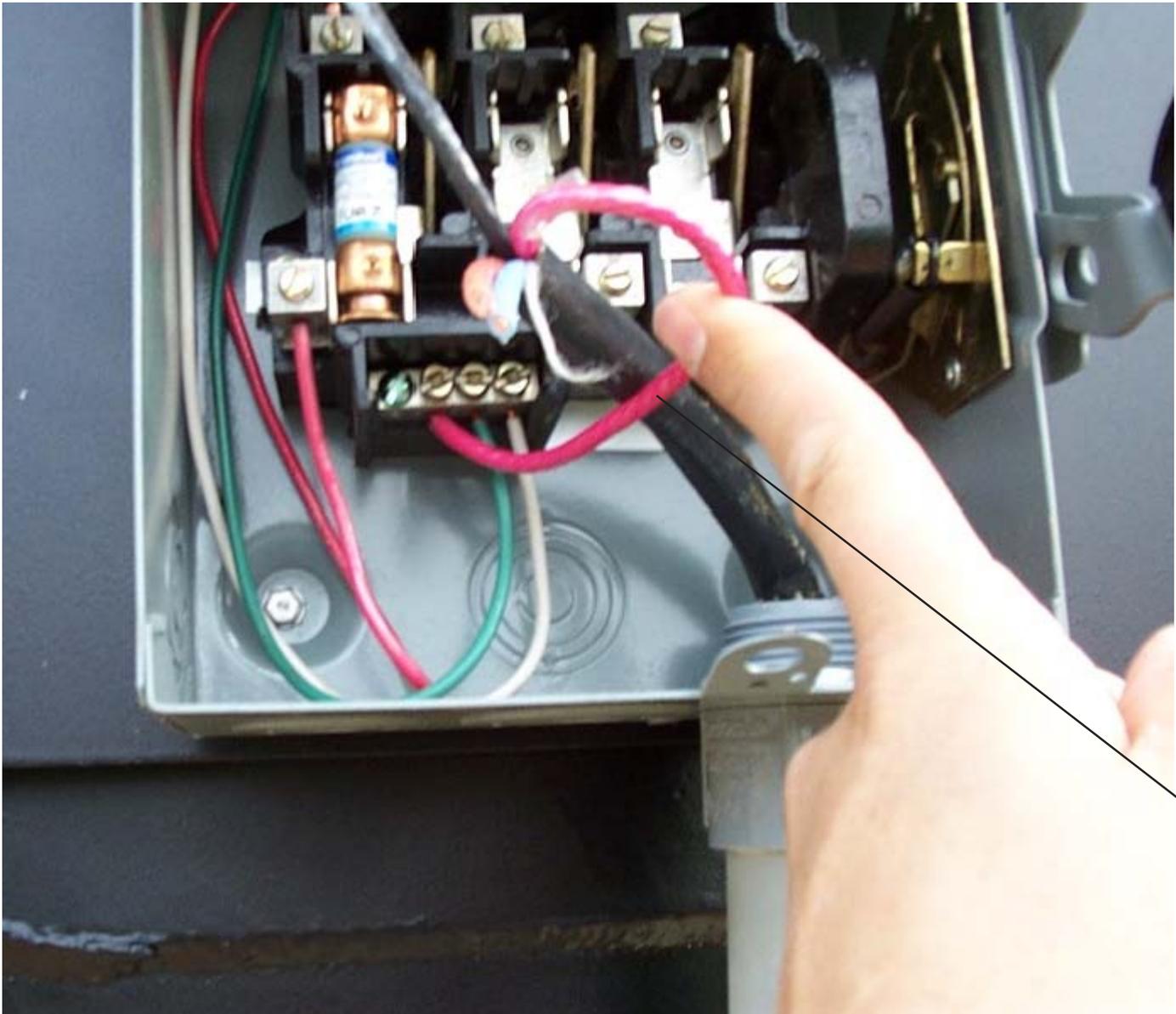
NUMBER	PART NUMBER	DESCRIPTION
1	91992	REMOVE PLASTIC COVER AND WIRE THE TIME CLOCK AS SHOWN (SEE PAGE 20-22).
2	-	RED
3	-	WHITE
4	-	JUMPER - RED

ELECTRICAL CONNECTION BOX SUPPLIED WITH STORAGE TANK MOUNTED ON STORAGE TANK FOR THE AGITATOR MOTOR



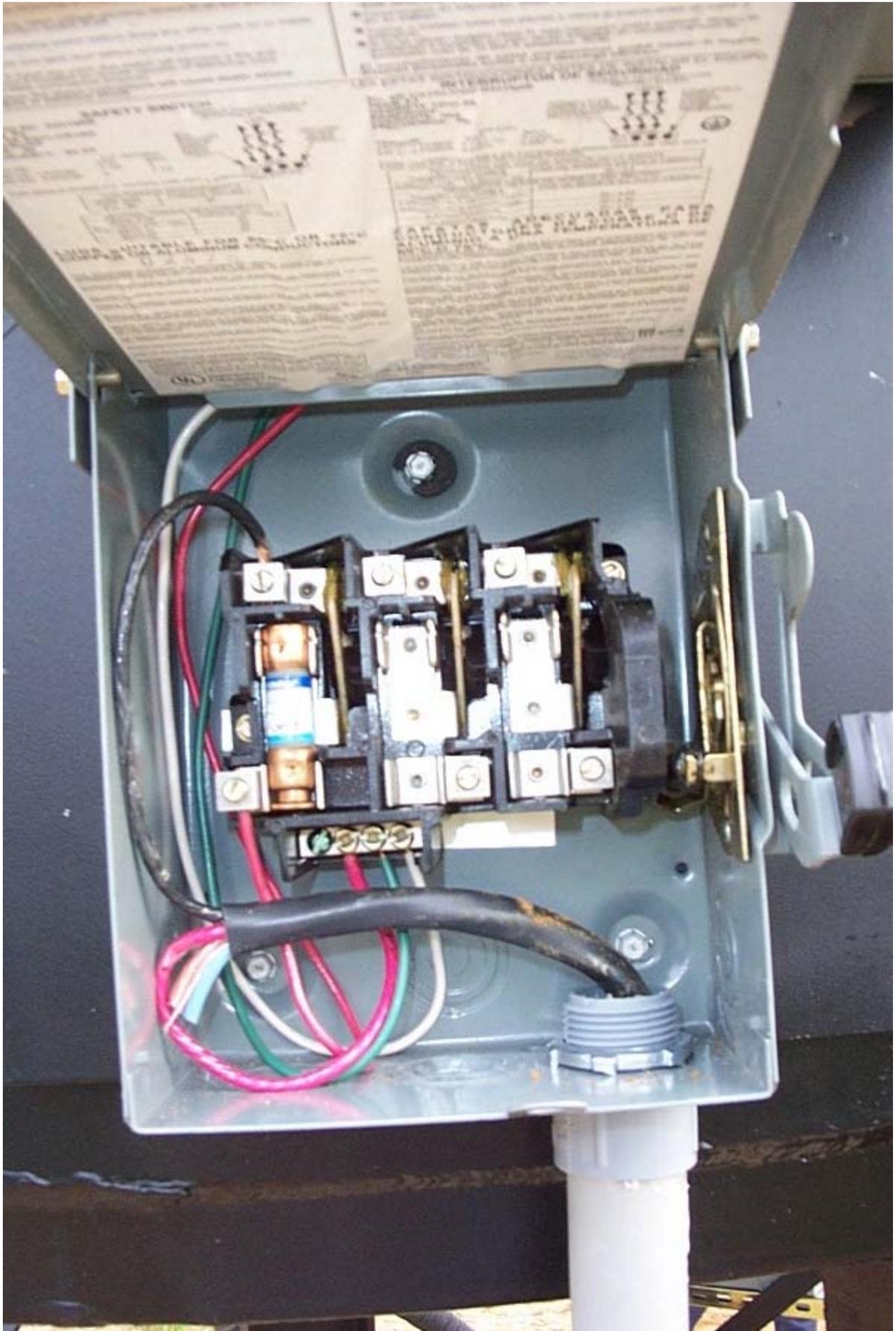
NUMBER	DESCRIPTION
1	POWER "IN" BLACK
2	POWER "IN" RED
3	RED
4	GREEN
5	WHITE
6	SUPPLY LINE

ELECTRICAL CONNECTION BOX SUPPLIED WITH STORAGE TANK MOUNTED ON STORAGE TANK



NUMBER	DESCRIPTION
1	SUPPLY LINE PROTECTED WITH 30 AMP CIRCUIT BREAKER

ELECTRICAL CONNECTION BOX FOR THE AGITATOR MOTOR



EMULSION TANK



EMULSION TANK - PARTS LIST

NUMBER	PART NUMBER	QTY.	DESCRIPTION
1	29293	2	3" THREADED GATE VALVE
2	28010	5	3" CLOSED NIPPLE
3	91799	Based on tank capacity*	HEATING ELEMENT
4	28365	3	3" X 2" PIPE BUSHING (based on tank capacity)
5	91943	2	3" PIPE PLUG SQ HEAD
6	91156	20'	GUM RUBBER HOSE
7	91903	2	FEMALE CPLR X MALE MPT
8	25953	2	4" MUFFLER CLAMPS
9	91904	1	MALE PDPT X HOSE SHANK
10	91975	1	CONTROL PANEL (NOT SHOWN)
11	28167	2	3" X 12" PIPE NIPPLE
12	91985	2	3" LOCKABLE BALL VALVE
13	27820	1	3" PIPE NPT (LP36 (MALE NPT X DIXON HOSE SHANK) TO 3" HOSE BARB
14	27451	1	3" DIXON BOSS LOCK TYPE D-DUST PLUG
15	28215	1	3" 90 DEGREE PIPE ELBOW

•Heating elements

Quantity - (2) for tank capacity 6000 gallons and below

Quantity - (3) for tank capacity 7000 gallons and above

LETTER	PART NUMBER	DESCRIPTION
A	90504	DECAL PART NUMBER.
B	-	BOTH PARTS HAVE THE SAME FITTINGS, BALL VALVES, ETC. SEE PART LIST P. 53 & 56 ABOVE 1-9

EMULSION TANK



NUMBER	PART NUMBER	DESCRIPTION
1	Reference	LADDER WITH A CAGE.
2	Reference	LIGHT POLE SUPPLIED BY CUSTOMER.
3	Reference	ELECTRICAL DISCONNECT.
4	Reference	110 VOLT SPRAY INJECTION PATCHER PLUG IN.
5	Reference	CONCRETE PAD. SEE CONCRETE PAD DRAWING. *SITE PREPARATION REQUIRED.
6	91960	EMULSION TANK, REF. 8,000 GAL.

EMULSION TANK



NUMBER	PART NUMBER	DESCRIPTION
1	917979	TOE GUARD
2	92000-92012	ACCESS LADDER WITH CAGE

EMULSION DISCHARGE VALVE

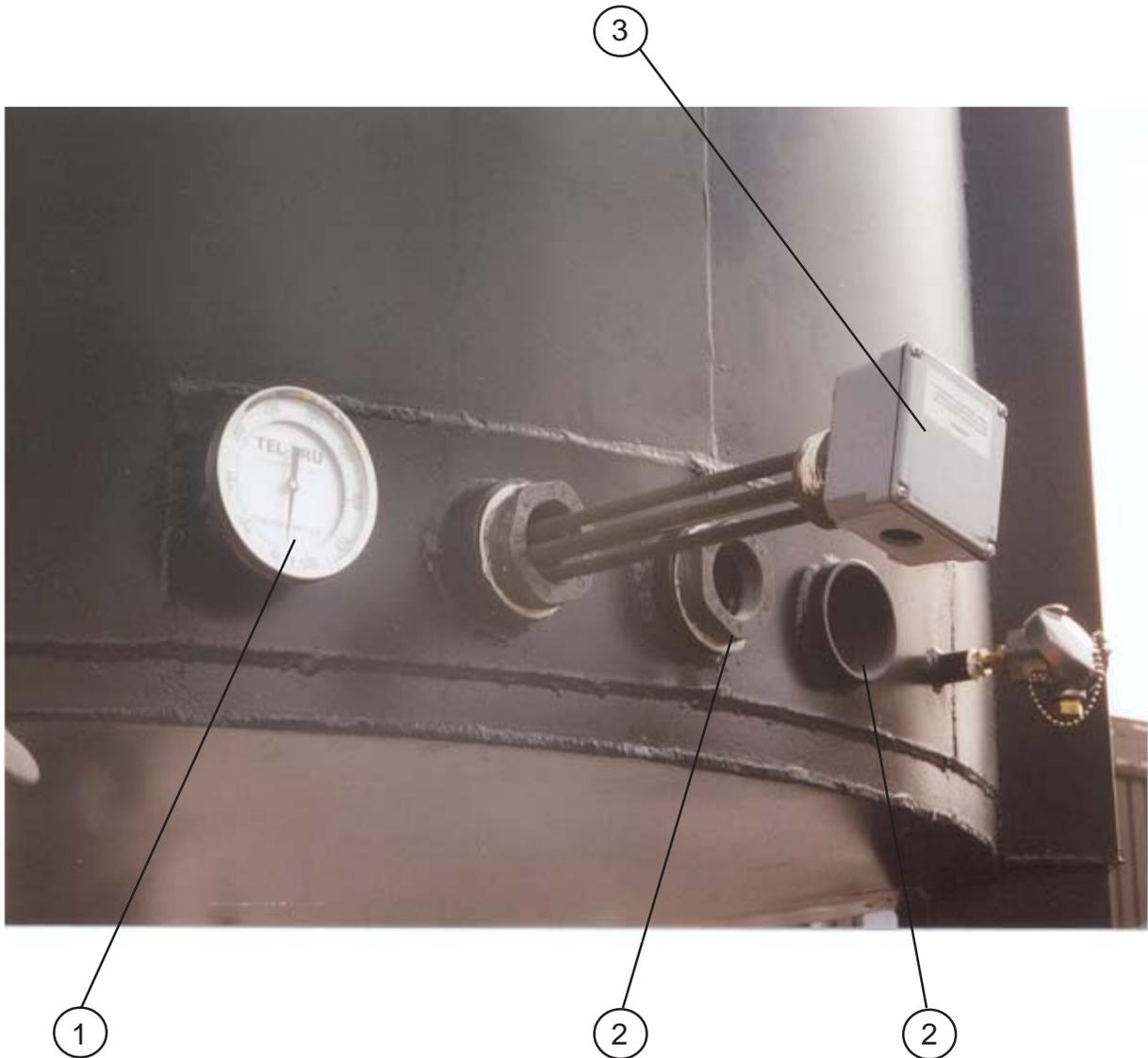


1

2

NUMBER	PART NUMBER	QTY.	DESCRIPTION
1	28010	2	3" CLOSED NIPPLE
2	29293	2	3" THREADED GATE VALVE

THERMOSTATS/THERMOMETER



NUMBER	PART NUMBER	QTY.	DESCRIPTION
1	91998	1	5" DIAL THERMOMETER
2	28365	3	3" X 2" PIPE BUSHING
3	91799	*	HEATING ELEMENT *On units 2,000 thru 6,000 gal. there are 2 heating elements. *On units 8,000, 9,000, and 10,000 gal. there are 3 heating elements.

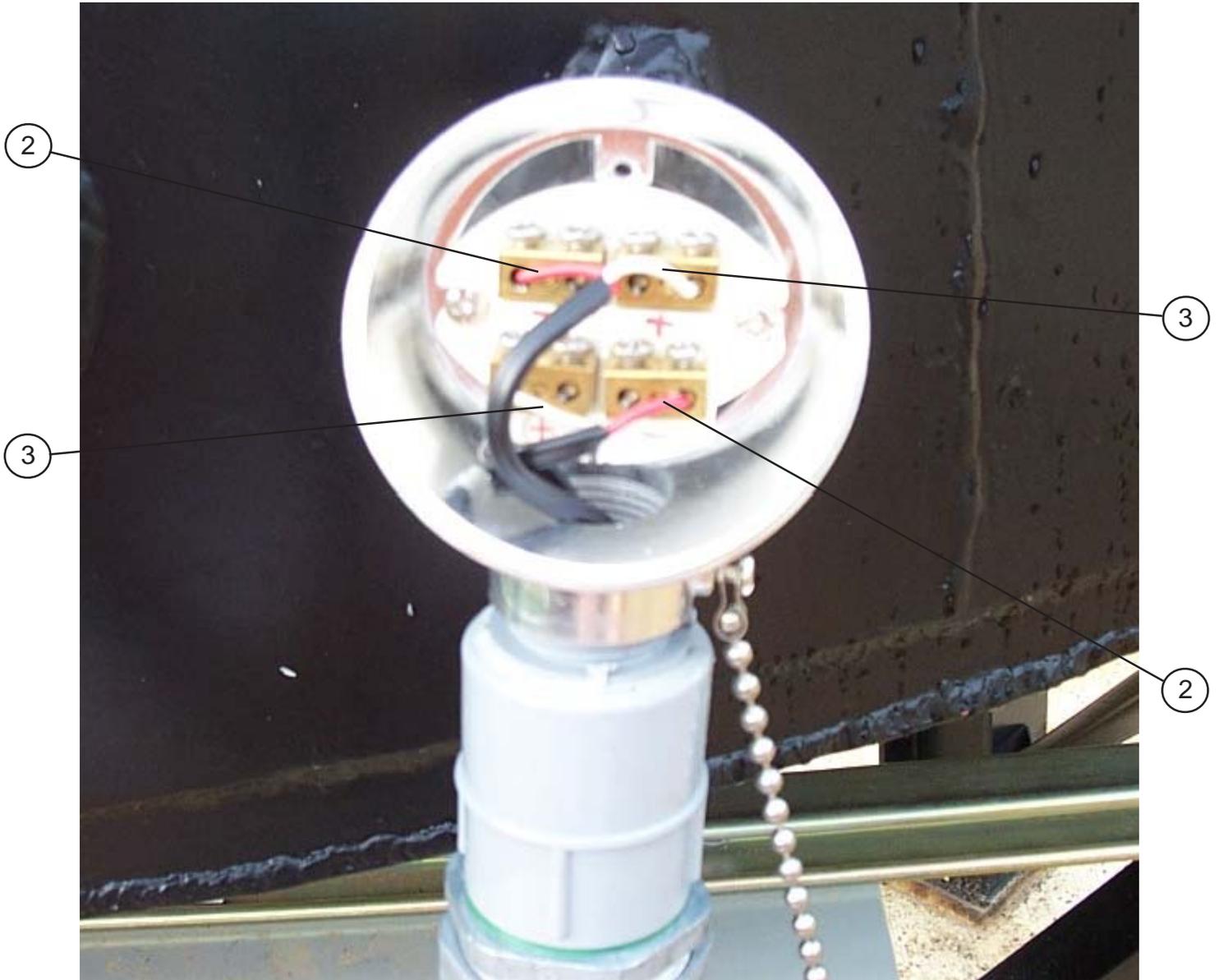
THERMOSTAT PROBE



1

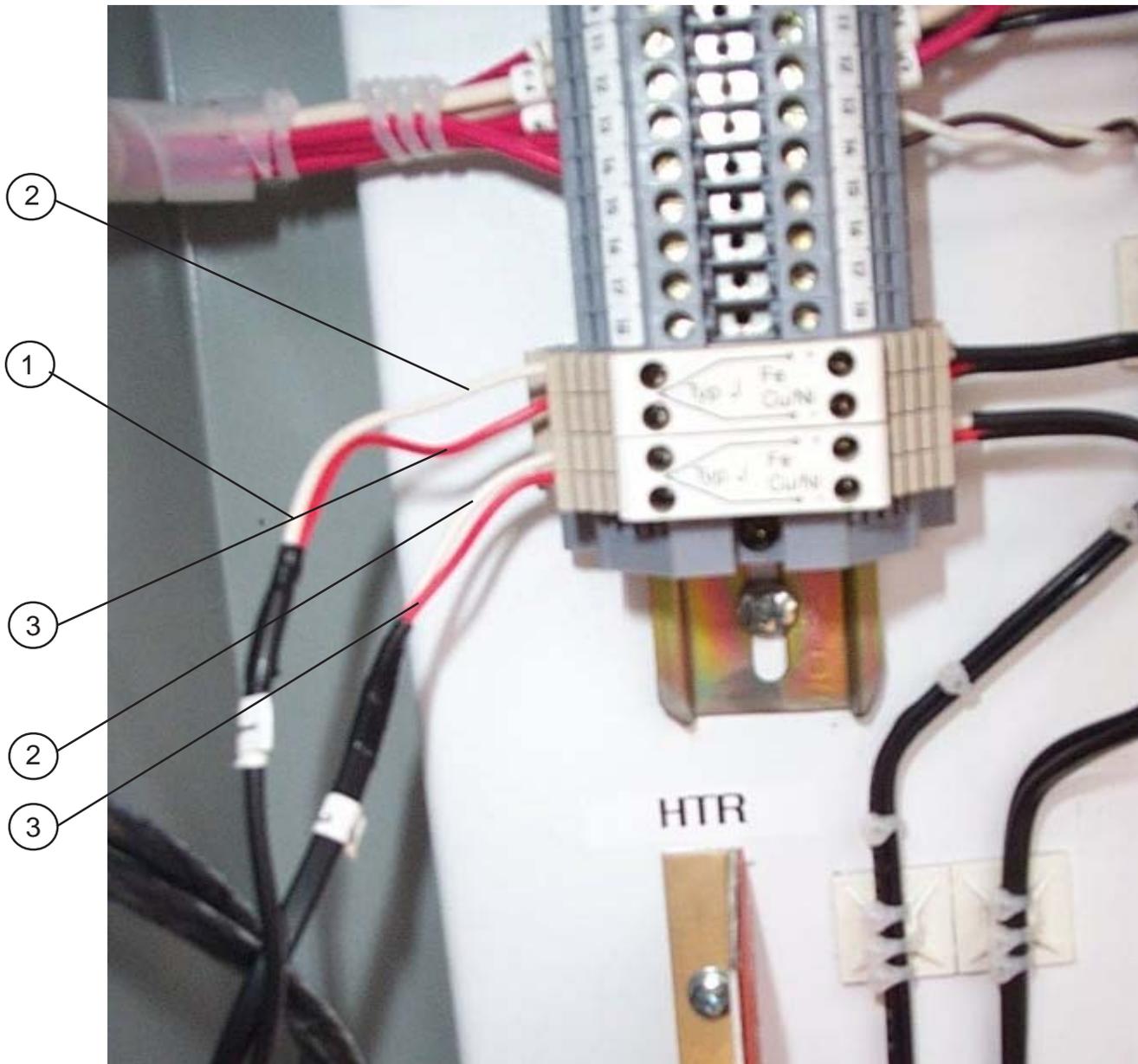
NUMBER	PART NUMBER	DESCRIPTION
1	91906	PROCESS THERMO TYPE J W/HEADBLOCK (SEE PROPER WIRING PAGE 59 & 60).

THERMOSTAT PROBE (FOR ELECTRICAL HOOK-UP SEE PAGE 18.)



NUMBER	DESCRIPTION
1	STANDARD SENSOR PROBE EQUIPPED WITH STORAGE TANK - WIRING DIAGRAM.
2	RED - "NEGATIVE"
3	WHITE - "POSITIVE"

THERMOSTAT PROBE WIRING IN CONTROL PANEL



NUMBER	DESCRIPTION
1	THERMOSTAT PROBE WIRING (SEE PAGE 59).
2	WHITE - "POSITIVE"
3	RED - "NEGATIVE"

THERMOSTAT CONTROL (HEATING ELEMENTS)



1

2

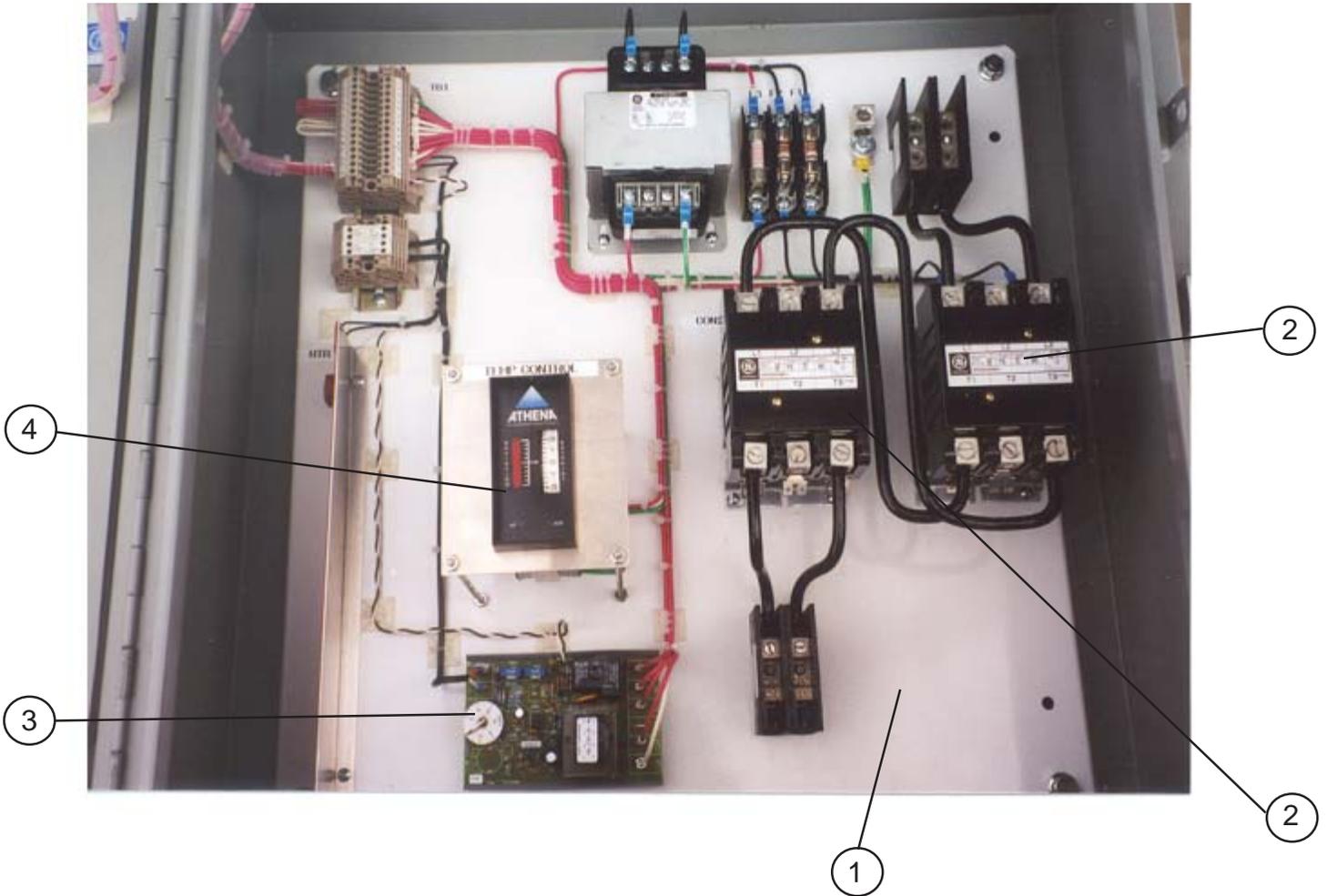
NUMBER	PART NUMBER	QTY.	DESCRIPTION
1	91799	*	HEATING ELEMENT *On units 2,000 thru 6,000 gal. there are 2 heating elements. *On units 8,000, 9,000, and 10,000 gal. there are 3 heating elements.
2	28365	3	3" X 2" PIPE BUSHING

**THERMOSTAT CONTROL
HEATING ELEMENTS
ELECTRICAL CONNECTIONS
(COVER REMOVED)**



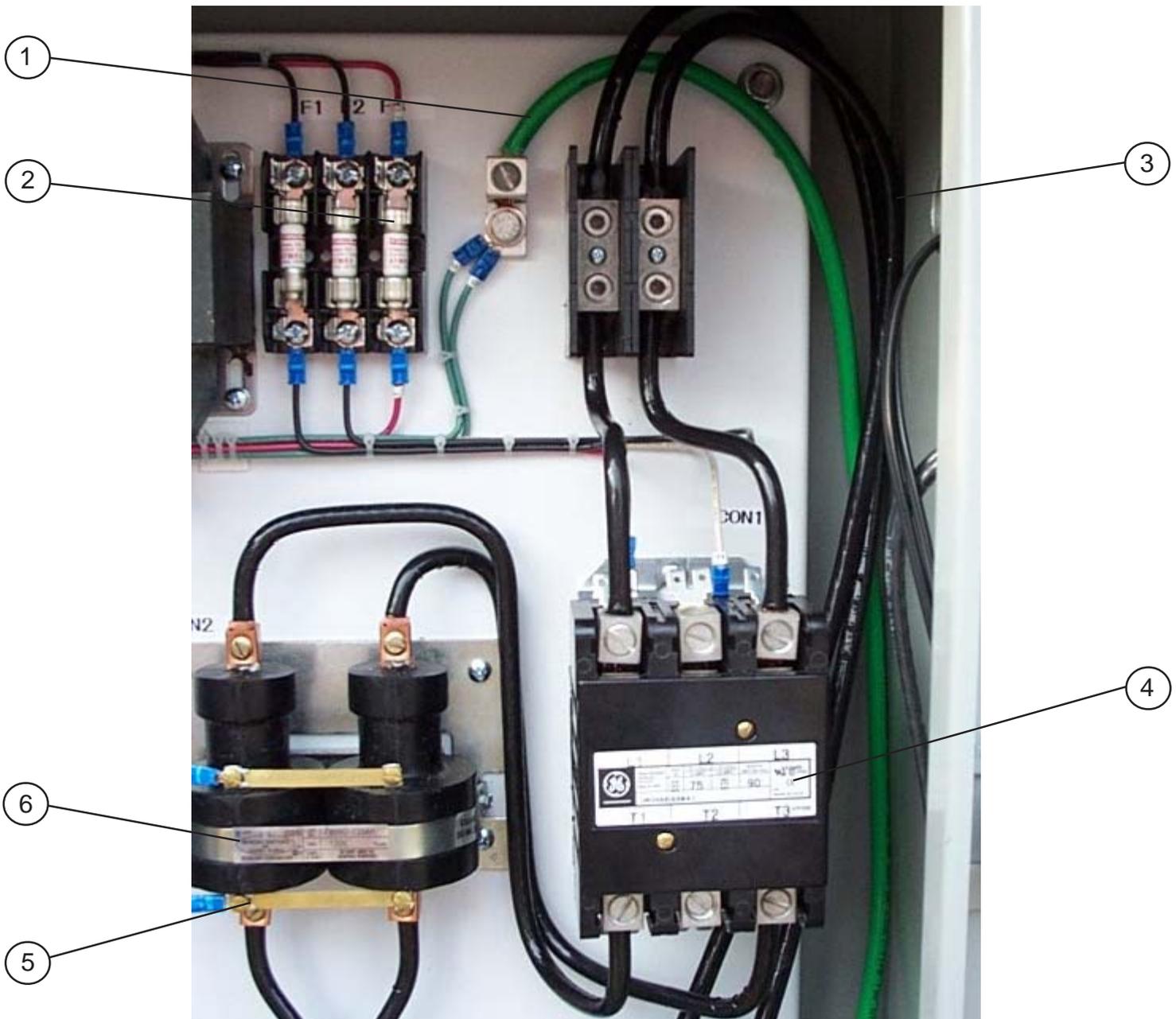
NUMBER	PART NUMBER	QTY.	DESCRIPTION
1	91799	*	HEATING ELEMENT - WIRED

CONTROL PANEL



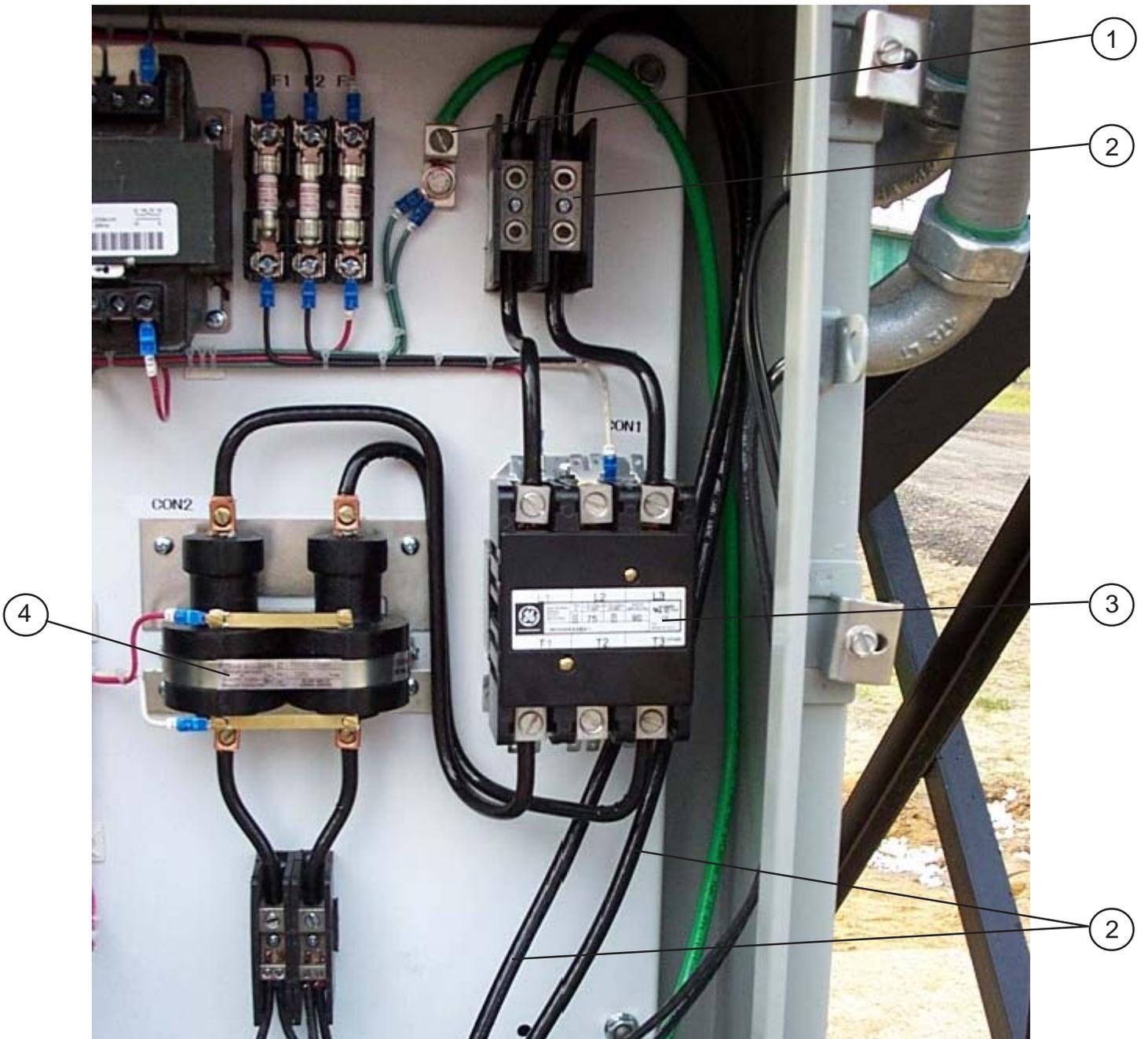
NUMBER	PART NUMBER	DESCRIPTION
1	91975	CONTROL PANEL
2	-	CONTACTOR (OLD STYLE UNITS)
3	-	OVERTEMP
4	-	TEMPERATURE CONTROL

CONTROL PANEL



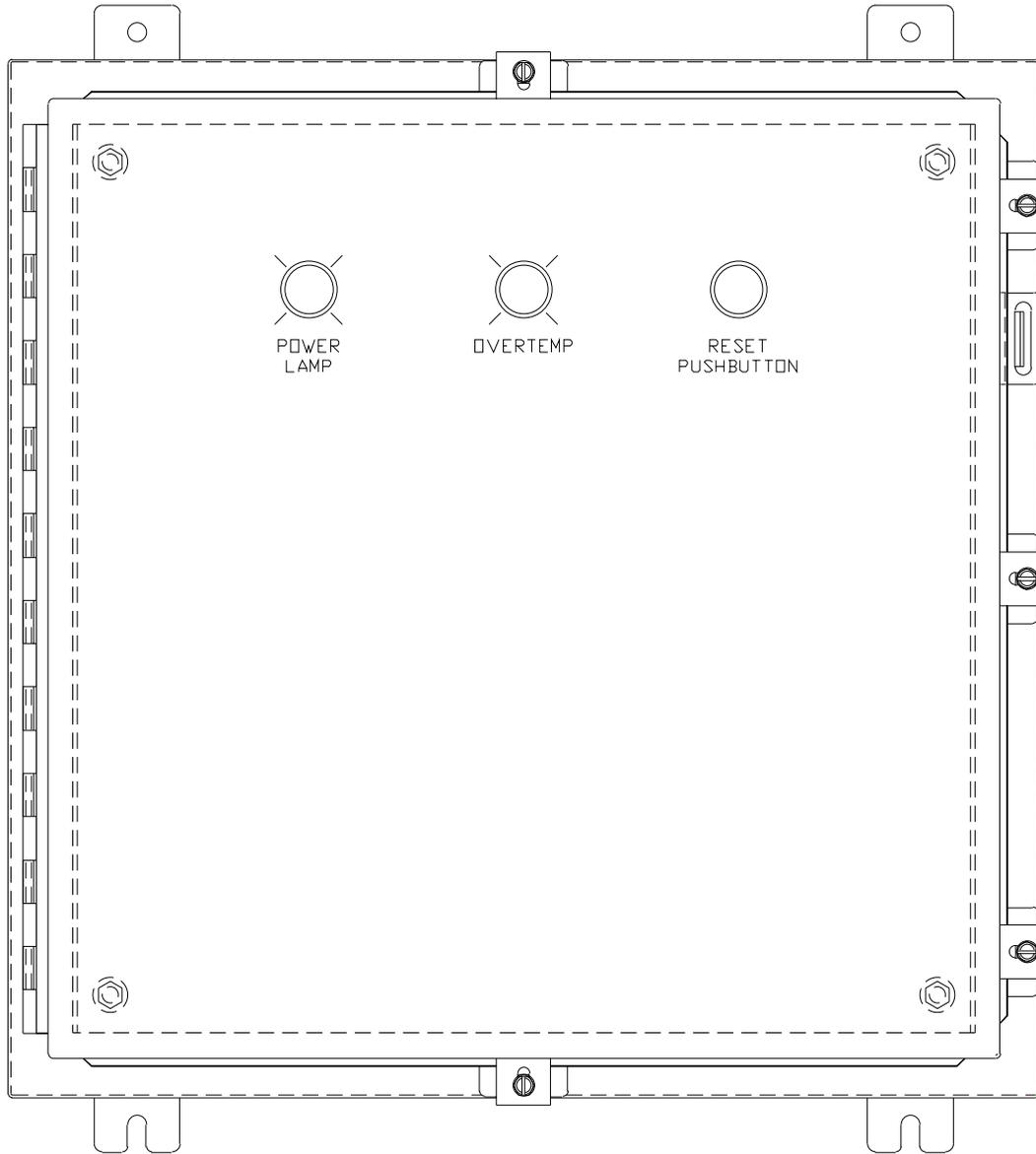
NUMBER	DESCRIPTION
1	GREEN
2	FUSES
3	LEAD WIRES - POWER "IN"
4	POWER ALL THE TIME WITH A LITTLE HUMMING NOISE
5	NO POWER ON THIS SIDE OF CONTACTOR WHEN HEATING ELEMENT REACHES TEMPERATURE
6	MERCURY CONTACTOR

CONTROL PANEL

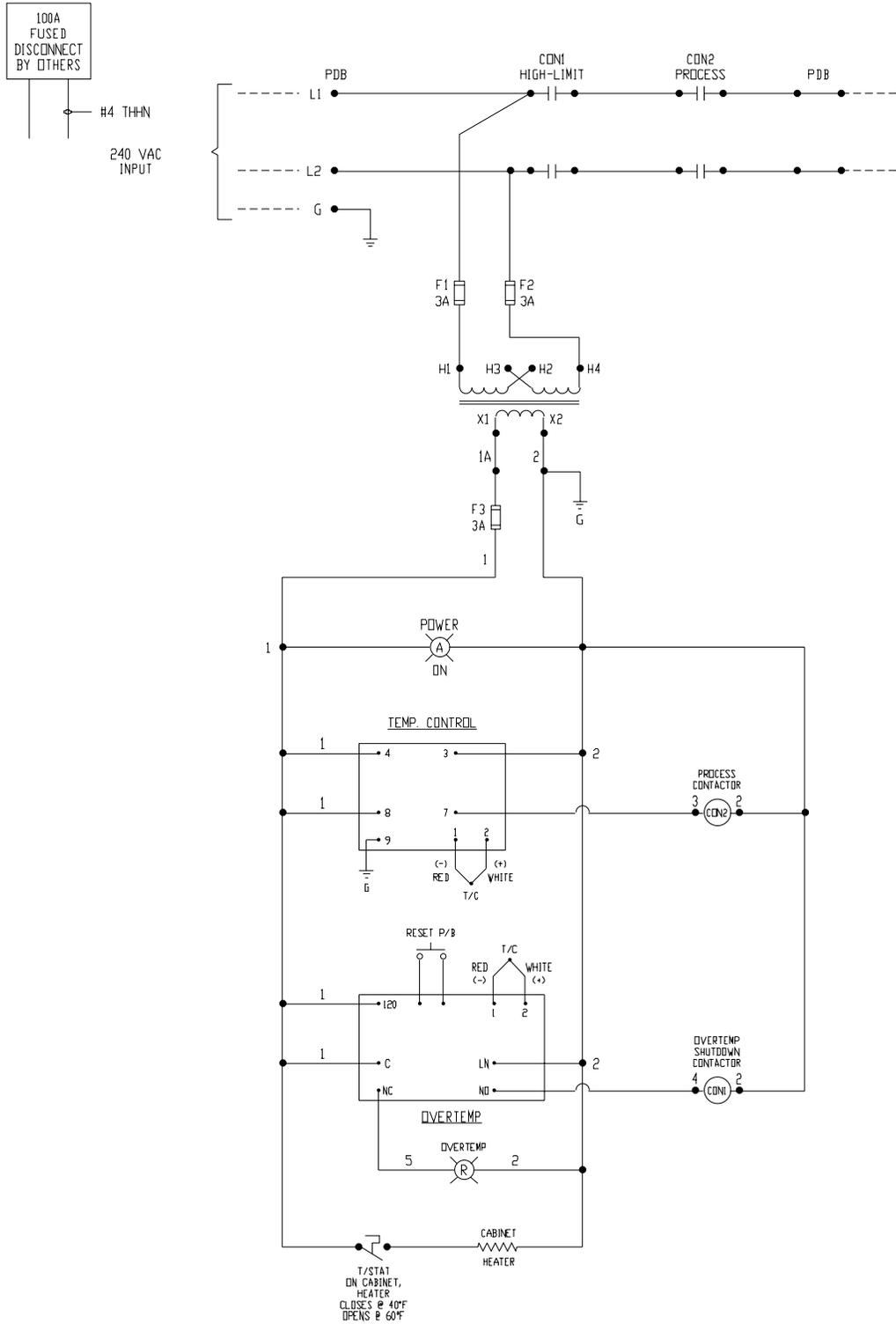


NUMBER	DESCRIPTION
1	GROUND
2	POWER FEED LINES "IN"
3	CONTACTOR
4	MERCURY SWITCH CONTACTOR

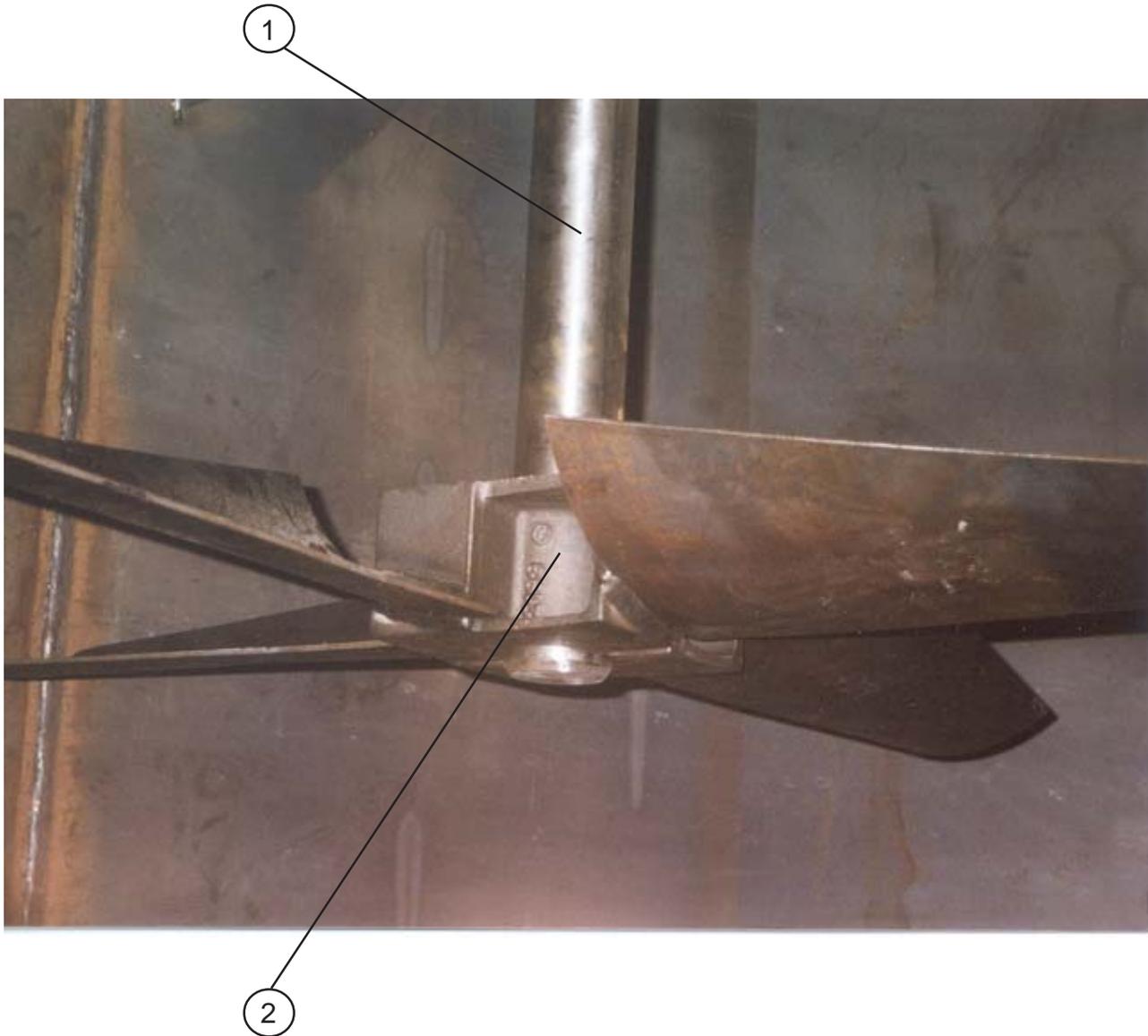
CONTROL PANEL FRONT FACE



CONTROL PANEL ELECTRICAL SCHEMATIC



IMPELLERS INSIDE THE EMULSION TANK



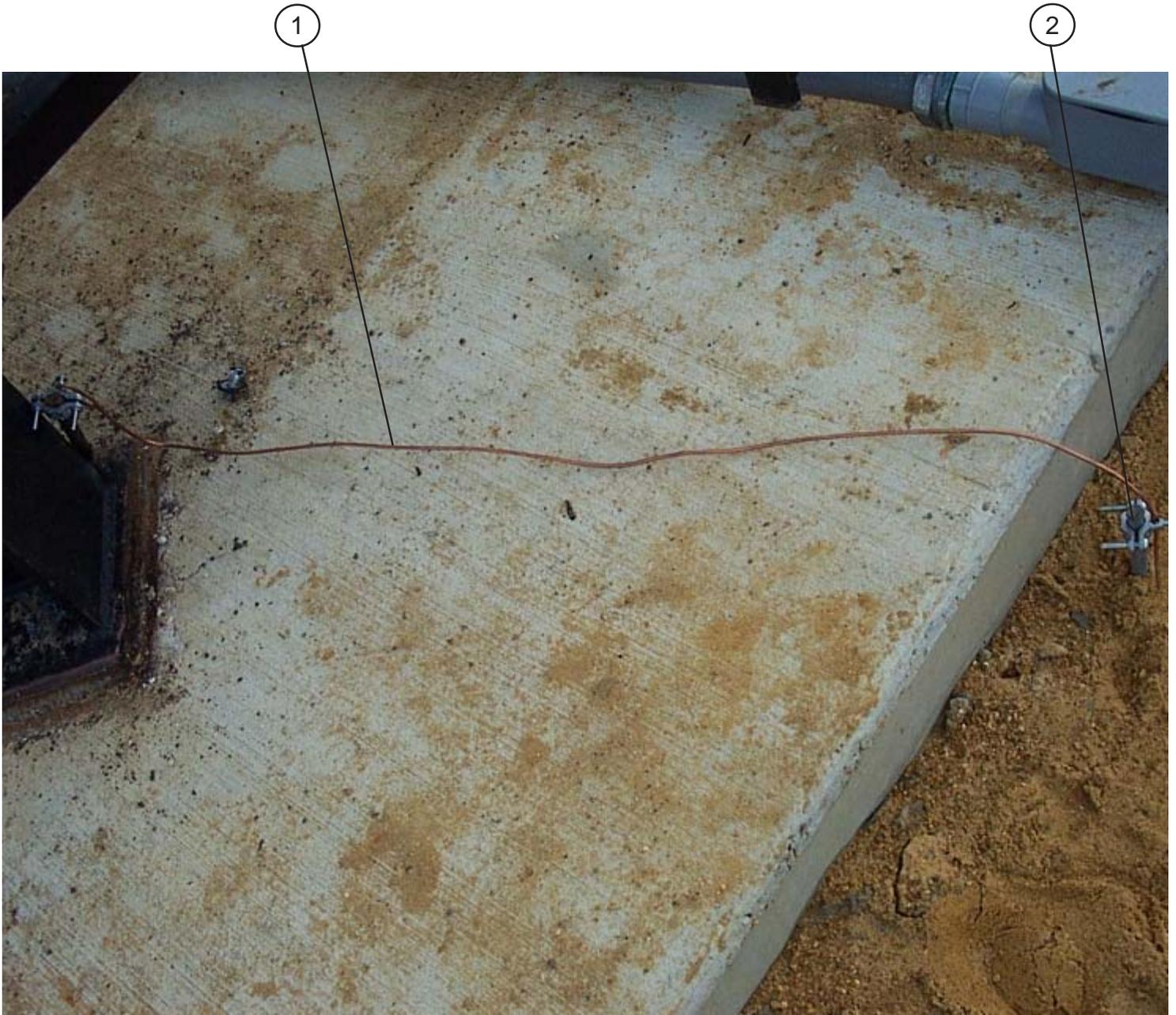
NUMBER	DESCRIPTION
1	CUT SHIPPING MOUNTING BRACKET OFF THE IMPELLER SHAFT BEFORE FILLING UNIT WITH EMULSION. *CUT SHIPPING BRACKET OFF THE FLOAT INSIDE THE TANK BEFORE INSTALLING EMULSION.
2	IMPELLERS (SEE SHARPE MIXING MANUAL - ENCLOSED)

CONTROL PANEL "INSIDE"



NUMBER	DESCRIPTION
1	TEMPERATURE CONTROL
2	TURN A LITTLE OVER NUMBER "2"
3	OVER TEMP. CONTROLLER (DO NOT TURN PASS 210° DEGREES)

ELECTRICAL GROUNDING (RECOMMENDED FOR STORAGE TANK)



NUMBER	DESCRIPTION
1	GROUND WIRE
2	ROD INTO GROUND

IDEAL ELECTRICAL HOOK-UP FOR THE STORAGE TANK HEATING SYSTEM



NUMBER	DESCRIPTION
1	TEMPERATURE GAUGE
2	HEATING ELEMENTS
3	TEMPERATURE PROBE
4	CONTROL PANEL

IDEAL ELECTRICAL HOOK-UP FOR THE STORAGE TANK HEATING SYSTEM



NUMBER	DESCRIPTION
1	CONTROL PANEL

ELECTRICAL CONNECTIONS ON-SITE DISCONNECT PROVIDED BY CUSTOMER



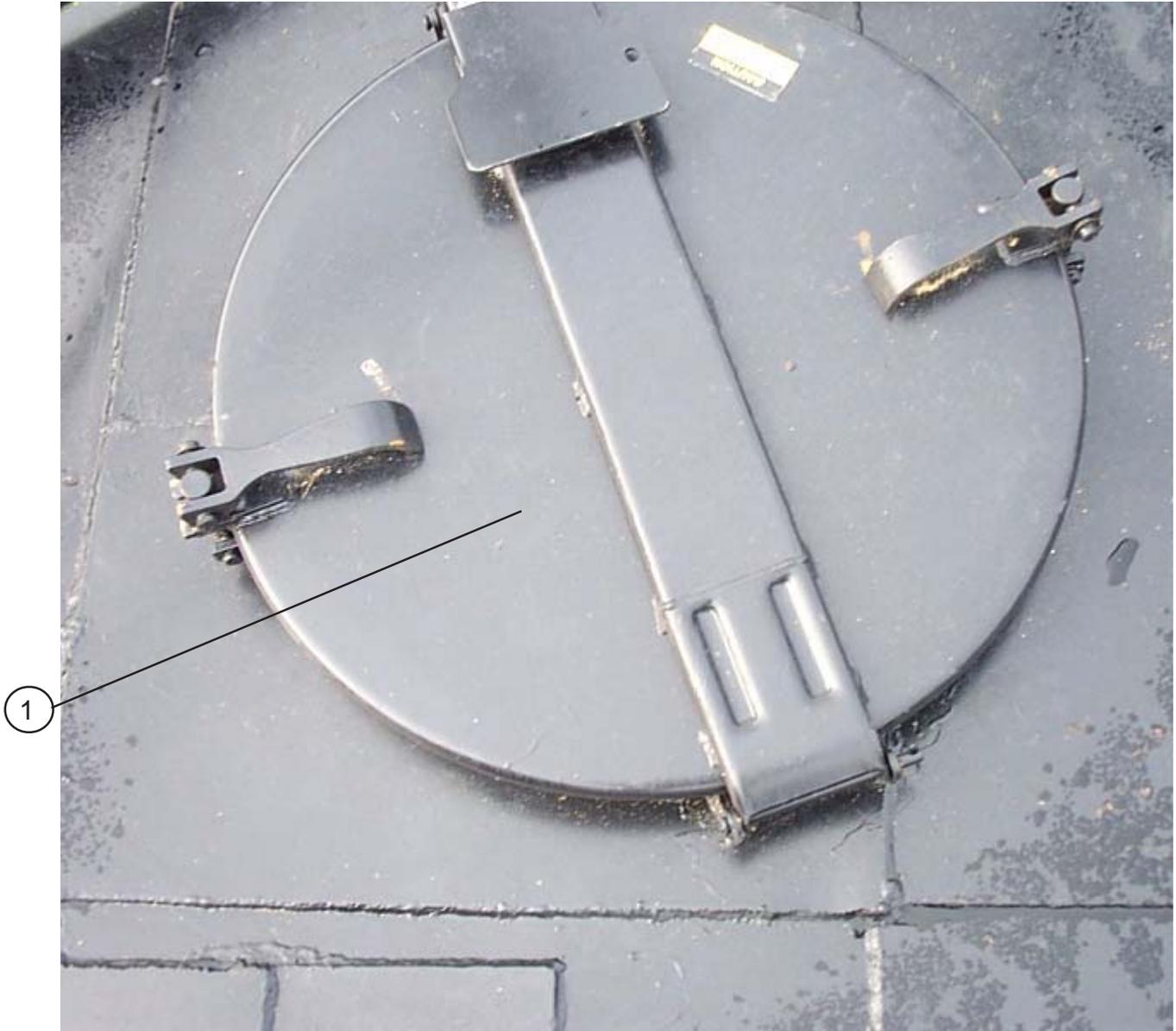
NUMBER	DESCRIPTION
1	100 AMP
2	30 AMP

ELECTRICAL CONNECTIONS ON-SITE DISCONNECT PROVIDED BY CUSTOMER



NUMBER	DESCRIPTION
1	100 AMP CIRCUIT BREAKER. THE CONTROL BOX FOR HEATING SUPPLIED BY THE CUSTOMER.
2	30 AMP CIRCUIT BREAKER FOR THE AGITATOR MOTOR.

**OPTION - TOP MOUNT MANHOLE
HINGED - STORAGE TANK
PART NUMBER 91997**



NUMBER	PART NUMBER	DESCRIPTION
1	91997	TOP MOUNT - MANHOLE - HINGED

**STANDARD
TOP - STORAGE TANK VENT
PIPE - STORAGE TANK**



NUMBER	DESCRIPTION
1	VENT COVER WILL UNSCREW (SEE PAGE 9).



420 N. Roosevelt Ave. • Chandler AZ 85226
1-800-528-8242 • (602) 276-0406 • FAX (480) 961-0513
www.crafco.com

EMULSION STORAGE TANK INSTALLATION GUIDE

APRIL 2004

Read all instructions first.

These instructions are a guide to assist with the set up of your new Crafco Emulsion Storage Tank. They do not replace the manual or eliminate the need to fully review and understand the instructions provided in the manual. Many options are available on the Crafco Emulsion Storage Tanks. These instructions do not address all the optional equipment. Should you have questions about your new Crafco Emulsion Storage Tank contact Crafco, Inc. or your local Crafco Distributor.

- 1) It is the responsibility of the customer to provide all the equipment, labor and material required to install the emulsion storage tank. The site information and installation, including the electrical hook up at the pad site, is the responsibility of the customer. All electrical connections shall be in accordance with NEMA and NEC electrical standards. The electrical controls and devices shall be terminated in a weatherproof control panel. The control box/panel shall be UL listed and approved. It shall be mounted on the tank stand, for easy accessibility from the ground.
- 2) The site pad and electrical connections must meet all local codes and standards. Crafco, Inc. provides only the layout dimensions for the steel mounting plates. Footing and pad design should be done by a licensed architect. All electric work should be done by a licensed electrician.
- 3) The emulsion storage tank will arrive on a flat bed truck from the manufacturer. A crane must be ready at the site to unload the emulsion storage tank. *[The crane is the responsibility of the customer.]* Do not set the emulsion storage tank on the ground. Use four large tires to set the emulsion storage tank on. This will help prevent scratching the paint off the side of the emulsion storage tank. The emulsion storage tank has lifting hooks on the side of the tank. The lifting hooks will be setting on the flat bed truck facing toward the sky. The crane operator can use the lifting hooks on the side of the emulsion storage tank to set the emulsion storage tank on the four tires.
- 4) The emulsion storage tank has holding tabs on the side of the emulsion storage tank for the tank ladder and the safety cage. You must bolt the emulsion storage tank ladder and the safety cage to the tabs. The bolts will be included with the ladder and safety cage. *[A mobile compressor unit and an air ratchet gun and sockets would be helpful in installing the ladder and safety cage.]*
- 5) The emulsion storage tank has a set of lifting hooks on the top of the tank. The lifting hooks are used to set the emulsion storage tank upright on the existing concrete pad.
- 6) Once the emulsion storage tank is properly sitting on the existing concrete pads, you must prepare to weld the emulsion storage tank foot pads to the existing pads in the concrete. Keep the crane hooked to the emulsion storage tank for safety while welding the emulsion storage tank in place. The crane will need to have a little pressure on the emulsion storage tank. A mobile welder unit is needed at this point. You must weld the emulsion storage tank foot pad to the existing concrete pad plates. Four good weld passes all the way around the foot pads are needed to hold the emulsion storage tank to the existing concrete pad plates. It is recommended to weld one pass all the way around the foot pad first and then move to the next pad. Then follow up with the sequential three weld passes.

- 7) After completing the welding, release the crane from the job site.
- 8) Remove the shipping collar from the agitator shaft inside the emulsion storage tank by unbolting and removing the 24" manhole cover from the side of the emulsion storage tank. Climb inside the emulsion storage tank to remove the shipping collar from the agitator shaft. A mobile acetylene torch is needed to cut the collar from the agitator shaft. You can cut the collar in two places and then cut the angle about 1" from the side of the emulsion storage tank. *[DO NOT CUT INTO THE SIDE OF THE TANK]* This will allow the collar to come off the existing agitator shaft. You do not have to worry about the 1" piece left on the inside of the tank. This will not affect anything.
- 9) Cut loose the emulsion storage tank float. The float is held in place by a safety tie. Once the safety tie is cut move the emulsion storage tank float up and down assuring there are no restrictions.
- 10) Do not install the emulsion storage tank side manhole cover until all the electric is connected. After electrical connection is made rotate the agitator shaft before installing the manhole cover.
- 11) Install the 24" manhole cover with RTV silicone. Use adequate amounts of RTV silicone to prevent tank leakage in this spot. Install all the bolts in the manhole cover. *[Even if the manhole cover is installed, you can still hear the agitator shaft rotating in the emulsion storage tank.]*
- 12) The vent plug on the agitator gear box on top of the emulsion storage tank will need to be placed in the right port. The vent plug is placed in a different port for shipping of the emulsion storage tank. Look at the agitator gear box manual and then climb up on top of the emulsion storage tank and move the plug to the proper location. *[The agitator gear box will have a shipping tag on it explaining this.]* Do this prior to operating the agitator.
- 13) A parts kit is shipped from Crafcro, Inc. before the emulsion storage tank arrives. The kit contains all the parts used for the bottom drain and gravity feed on the side of the emulsion storage tank. Install in the side port of the emulsion storage tank: a 3" closed nipple, a 3" gate valve, 3" closed nipple, 3" lockable ball valve, 3" closed nipple, 3" 90 degree elbow, 3" closed nipple, 3" male cam, 3" female cam, and then the emulsion storage tank gravity feed hose. On the bottom port install: a 3" long nipple, 3" gate valve, 3" closed nipple, 3" lockable ball valve, 3" closed nipple, and a male cam. On the end of the emulsion hose install a 3" closed nipple with a muffler clamp, a 90 deg. elbow, and a 3" x 6" nipple. This is to fill the Magnum Spray Injection Patcher.
- 14) If the emulsion storage tank has the optional ball valve heat tape, install it at this time. Instructions are included with the ball valve heat tape. Read the instructions and wrap the heat tape around the ball valves and have the electrician connect it.
- 15) Install the thermostat with silicone in the furthest right hand port. *[The furthest right hand port looking at the emulsion storage tank ports from the port side.]*
- 16) The emulsion storage tank heaters must be installed inside a thermo well. A reducer bushing is needed to install the emulsion tank heaters. The reducer bushings are in the box sent from Crafcro, Inc. Use plumbers tape on the treads of the emulsion storage tank heaters before installing the heaters in the emulsion storage tank ports. If the emulsion storage tank heaters will need to be removed or replaced in the future plumbers tape will help prevent rusting.
- 17) Install the thermocouple (type "j" with head and block) into the right side port next to the thermostat probe. Use pipe dope on the threads of the thermocouple before installing it in the emulsion storage tank port.

- 18) An electrician will need to place all electrical boxes on mounting tracks and have them attached to the emulsion storage tank legs. *Note: Place the electrical boxes close to the emulsion storage tank heaters. Make sure to install a 100 amp. circuit breaker for the heaters and 30 amp. circuit breaker for the agitator motor.*

Your Electrician must: 1. Connect the time clock for the top agitator motor. 2. Connect the thermocouple. *[Read the thermocouple electrical connection instructions. Instructions (green paper) are inside the electric box].* 3. A ground rod will be needed for the emulsion storage tank. 4. Optional - Install a 110 volt electric outlet for Crafcó's Magnum Spray Injection Patcher to be plugged into for the overnight heating. 5. Option - Connect heat tape for the ball valves.

[A dusk to dawn light is suggested by the emulsion storage tank.]

- 19) Program the agitator motor time clock. This is an option for the emulsion storage tank. Instructions are in the electric box for the agitator motor.

20) Do not over fill the emulsion storage tank.

The emulsion will, if over filled, flow out the top vent stake pipe and all over the emulsion storage tank. In the parts kit sent to the job site, the parts book manual will list the right amount for the emulsion storage tank. ***Please read the manual before the tanker truck arrives.***

- 21) Do not leave the emulsion heaters on if there is no emulsion in the emulsion storage tank. This will shorten the life of your emulsion heaters.

- 24) If in a hurricane area, please use guide wires to help hold the emulsion storage tank in place during a hurricane.

IMPORTANT: *These instructions are a guide to assist with the set up of your new Crafcó Emulsion Storage Tank. They do not replace the manual or eliminate the need to fully review and understand the instruction provided in the manual. Many options are available on the Crafcó Emulsion Storage tanks. These instructions do not address all the optional equipment. Should you have questions about your new Crafcó Emulsion Storage Tank contact Crafcó, Inc. or your local Crafcó Distributor.*

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**235 South Hibbert • Mesa, Arizona 85210
480-655-8333 • Watts 1-800-528-8242
Fax 480-655-1712**

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