

WEINMAN®

INSTALLATION AND OPERATION MANUAL For Sump Pumps and Sewage Ejectors

Section Nos. 710 & 800



IMPORTANT!

***Read all instructions in this manual before operating pump.
As a result of Crane Pumps & Systems, Inc., constant product improvement program,
product changes may occur. As such Crane Pumps & Systems reserves the right to
change product without prior written notification.***

CRANE[®]

A Crane Co. Company

PUMPS & SYSTEMS

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Form No. 111682-Rev. E

SAFETY FIRST!

Please Read This Before Installing Or Operating Pump.
This information is provided for **SAFETY and to PREVENT EQUIPMENT PROBLEMS**. To help recognize this information, observe the following symbols:



IMPORTANT! Warns about hazards that can result in personal injury or Indicates factors concerned with assembly, installation, operation, or maintenance which could result in damage to the machine or equipment if ignored.

CAUTION ! Warns about hazards that can or will cause minor personal injury or property damage if ignored. Used with symbols below.

WARNING ! Warns about hazards that can or will cause serious personal injury, death, or major property damage if ignored. Used with symbols below.



Hazardous fluids can cause fire or explosions, burnes or death could result.



Extremely hot - Severe burnes can occur on contact.



Biohazard can cause serious personal injury.



Hazardous fluids can Hazardous pressure, eruptions or explosions could cause personal injury or property damage.



Rotating machinery Amputation or severe laceration can result.



Hazardous voltage can shock, burn or cause death.

Only qualified personnel should install, operate and repair pump. Any wiring of pumps should be performed by a qualified electrician.



WARNING ! - To reduce risk of electrical shock, pumps and control panels must be properly grounded in accordance with the National Electric Code (NEC) or the Canadian Electrical Code (CEC) and all applicable state, province, local codes and ordinances.



WARNING! - To reduce risk of electrical shock, always disconnect the pump from the power source before handling or servicing. Lock out power and tag.



WARNING! Operation against a closed discharge valve will cause premature bearing and seal failure on any pump, and on end suction and self priming pump the heat build

may cause the generation of steam with resulting dangerous pressures. It is recommended that a high case temperature switch or pressure relief valve be installed on the pump body.



CAUTION ! Never operate a pump with a plug-in type power cord without a ground fault circuit interrupter.



CAUTION! Pumps build up heat and pressure during operation-allow time for pumps to cool before handling or servicing.



WARNING! - **DO NOT** pump hazardous materials (flammable, caustic, etc.) unless the pump is specifically designed and designated to handle them.



Do not block or restrict discharge hose, as discharge hose may whip under pressure.



WARNING! - DO NOT wear loose clothing that may become entangled in the impeller or other moving parts.



WARNING! - Keep clear of suction and discharge openings. **DO NOT** insert fingers in pump with power connected.



Always wear eye protection when working on pumps.



Make sure lifting handles are securely fastened each time before lifting. **DO NOT** operate pump without safety devices in place. Always replace safety devices that have been removed during service or repair. Secure the pump in its operating position so it can not tip over, fall or slide.



DO NOT exceed manufacturers recommendation for maximum performance, as this could cause the motor to overheat.



DO NOT remove cord and strain relief. Do not connect conduit to pump.



WARNING! Cable should be protected at all times to avoid punctures, cut, bruises and abrasions - inspect frequently. Never handle connected power cords with wet hands.



WARNING! To reduce risk of electrical shock, all wiring and junction connections should be made per the NEC or CEC and applicable state or province and local codes. Requirements may vary depending on usage and location.



WARNING! Submersible Pumps are not approved for use in swimming pools, recreational water installations, decorative fountains or any installation where human contact with the pumped fluid is common.



WARNING! Products Returned Must Be Cleaned, Sanitized, Or Decontaminated As Necessary Prior To Shipment, To Insure That Employees Will Not Be Exposed To Health Hazards In Handling Said Material. All Applicable Laws And Regulations Shall Apply.



Bronze/brass and bronze/brass fitted pumps may contain lead levels higher than considered safe for potable water systems. Lead is known to cause cancer and birth defects or other reproductive harm. Various government agencies have determined that leaded copper alloys should not be used in potable water applications. For non-leaded copper alloy materials of construction, please contact factory.



IMPORTANT! - Crane Pumps & Systems, Inc. is not responsible for losses, injury, or death resulting from a failure to observe these safety precautions, misuse or abuse of pumps or equipment.

GENERAL INFORMATION

TO THE PURCHASER

Congratulations! You are the owner of one of the finest pumps on the market today. These pumps are products engineered and manufactured of high quality components. With years of pump building experience along with a continuing quality assurance program combine to produce a pump which will stand up to the toughest applications.

Check local codes and requirements before installation. Servicing should be performed by knowledgeable pump service contractors or authorized service stations.

APPLICATION

This pump is designed for pumping raw or treated sewage, light sludge, slurries, industrial wastes and similar liquids containing solids. The pump must be installed on a firm, level foundation such as the sump or pit floor and in a vertical position and fully submerged in the liquid at all times.

RECEIVING

Upon receiving the pump, it should be inspected for damage or shortages. If damage has occurred, file a claim immediately with the company that delivered the pump.

If the manual is removed from the crating, do not lose or misplace. The main items to look for are: (a) damaged crate; (b) broken or cracked motor castings, pump casing, support feet, and flanges; (c) oil leakage from base of motor or bottom of pump; (d) injury to the power cables; (e) missing items from the shipment.

STORAGE

Short Term - Pumps are manufactured for efficient performance following long inoperative periods in storage. For best results, pumps can be retained in storage, as factory assembled, in a dry atmosphere with constant temperatures for up to six (6) months.

Long Term - Any length of time exceeding six (6) months, but not more than twenty four (24) months. The units should be stored in a temperature controlled area, a roofed over walled enclosure that provides protection from the elements (rain, snow, wind blown dust, etc.), and whose temperature can be maintained between +40 deg. F and +120 deg. F. Pump should be stored in its original shipping container and before initial start up, rotate impeller by hand to assure seal and impeller rotate freely.

SERVICE CENTERS

For the location of the nearest Weinman Service Center, check your Weinman representative or Crane Pumps & Systems Service Department in Piqua, Ohio, telephone (937) 778-8947 or Crane Pumps & Systems Canada, Inc., Bramton, Ontario, (905) 457-6223.

LOCATION

Although sump pumps and sewage ejectors are designed to handle dirty fluids, it is important that they be located in an area that is as clean as possible. This makes proper pump care and maintenance much easier. Another important consideration is to make sure that there is sufficient vertical headroom for fast, easy pump removal. When this isn't possible the pump is removed by dismantling. Pump surroundings should be kept as clean as possible, too.

Most sump pump and sewage ejector units are installed in cast iron or concrete basins but, when necessary, can be adapted for use in improvised installations. Generally, pumps are installed as simplex or duplex units mounted on a round or square covering and suspended into the sump through a round or square opening. Unit length must be adjusted to suspend it from 3 to 6 inches above the sump floor.

INSTALLATION

If the sump has been used previously, check the condition of the water in the sump. When its consistency indicates that it cannot be pumped, prepare it for pumping by dilution, agitation, screening or some similar method.

Lower the pumping unit into place in the sump with a chain hoist and rigging. A duplex pump may be set in a piece at a time, for instance, the cover first and then each pump individually. This approach is especially desirable when lifting facilities are light.

PIPING

The discharge pipe must always be as large or larger than the piping on the pump to avoid excessive friction losses. Provide for a union (or two flanges), a check valve and a gate valve in the discharge line. Some applications with short discharge lines and free, open end may omit the check valve and discharge line because when pump is shut down the back flow is small.

Piping should be supported independently to keep weight off pump. Excessive piping strains tend to throw the pump out of line.

For installations where noise is objectionable, such as hospitals, offices, hotels, apartment buildings, etc., the discharge pipe should be properly insulated against vibration before attaching to the steel framework. In extreme cases flexible piping connections can be used on the discharge line.

WIRING

Consult the wiring diagrams on pages 4, 5 and 6 for the proper way to connect the pump and controls.

ALIGNMENT

Weinman sump pumps and sewage ejectors are precision built for perfect alignment. The entire unit is aligned through use of male and female fittings on the column pipe and its mating pieces.

The discharge pipe is supported independently by a floor flange on the auxiliary cover or basin cover to assist in the casing support and maintenance of good alignment.

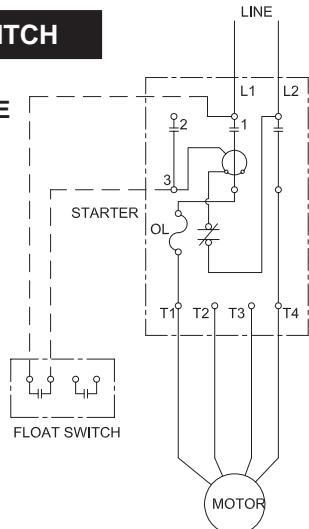
Pumps are aligned at the factory. However, alignment should be checked at the jobsite to insure no movement has occurred during shipping and handling. Stand unit in vertical position and rotate shaft. Shaft should rotate freely without noticeable friction on high spots.

Generally, motors are shipped separately and must be mounted on the pump during installation. The top flange of the driver pedestal is jig drilled, with three sets of holes, to receive standard vertical motors. One set of these holes will line up with those on the motor.

Determine the motor's rotation before attaching. Connect leads and start it for an instant, motor should rotate clockwise when viewed from the top (end opposite shaft extension). On a three phase motor the rotation can be reversed by changing any two leads at the motor or starter.

FLOAT SWITCH

SINGLE PHASE

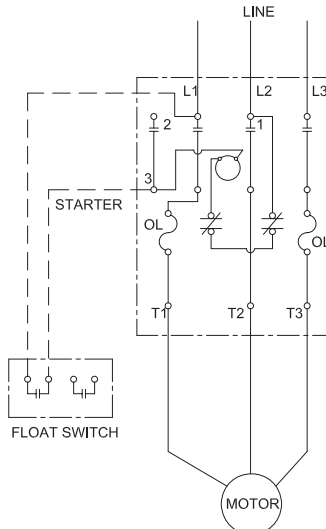


WHEN USING MAGNETIC STARTER WITH THREE POSITION SELECTOR SWITCH (HAND-OFF-AUTO), CONNECT FLOAT SWITCH TO TERMINALS 1 AND 2.

FOR LOW VOLTAGE, CONNECT TERMINALS T1 TO T2, AND T3 TO T4.

FOR HIGH VOLTAGE, CONNECT TERMINAL T2 TO T3.

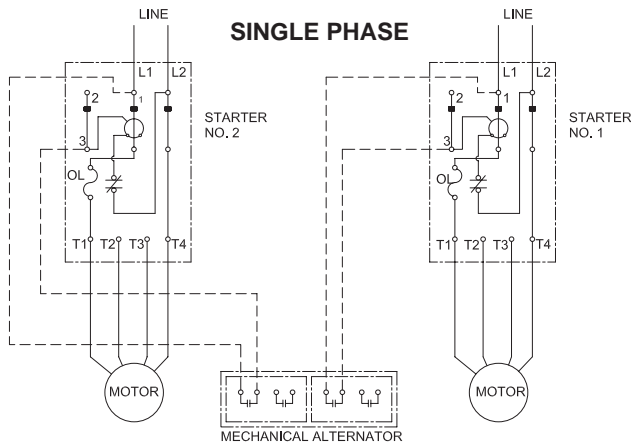
THREE PHASE



WHEN USING MAGNETIC STARTER WITH THREE POSITION SELECTOR SWITCH (HAND-OFF-AUTO), CONNECT FLOAT SWITCH TO TERMINALS 1 AND 2.

Mechanical Alternator

SINGLE PHASE

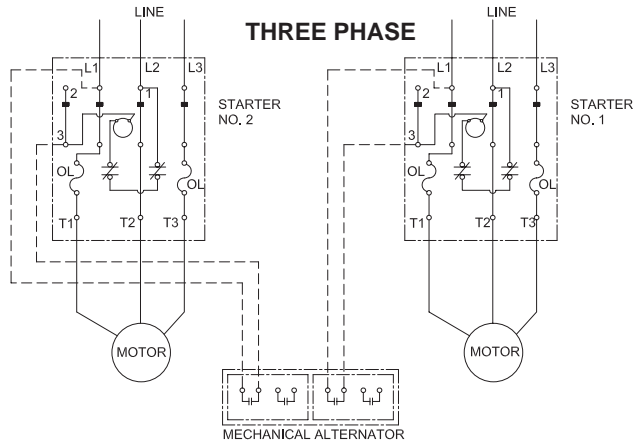


WHEN USING MAGNETIC STARTER WITH THREE POSITION SELECTOR SWITCH (HAND-OFF-AUTO), CONNECT ALTERNATOR TO TERMINALS 1 AND 2.

FOR LOW VOLTAGE, CONNECT TERMINALS T1 TO T2, AND T3 TO T4.

FOR HIGH VOLTAGE, CONNECT TERMINAL T2 TO T3.

THREE PHASE



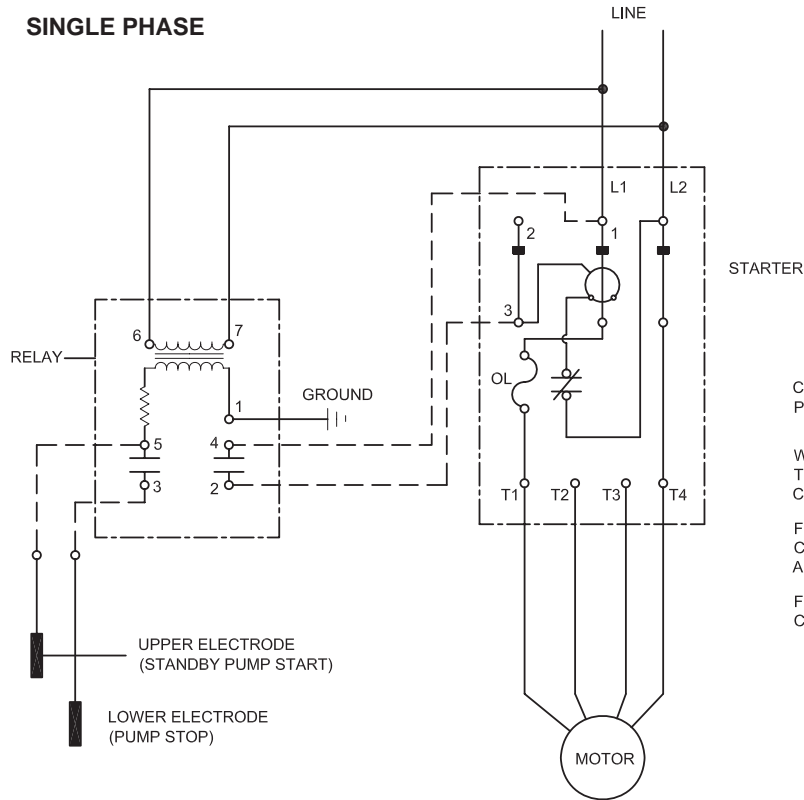
WHEN USING MAGNETIC STARTER WITH THREE POSITION SELECTOR SWITCH (HAND-OFF-AUTO), CONNECT ALTERNATOR TO TERMINALS 1 AND 2.

TYPICAL CONNECTION DIAGRAMS,
SEE PANEL DIAGRAM FOR EXACT
CONFIGURATION.

SIMPLEX

FLOATLESS CONTROL (Electrode)

SINGLE PHASE



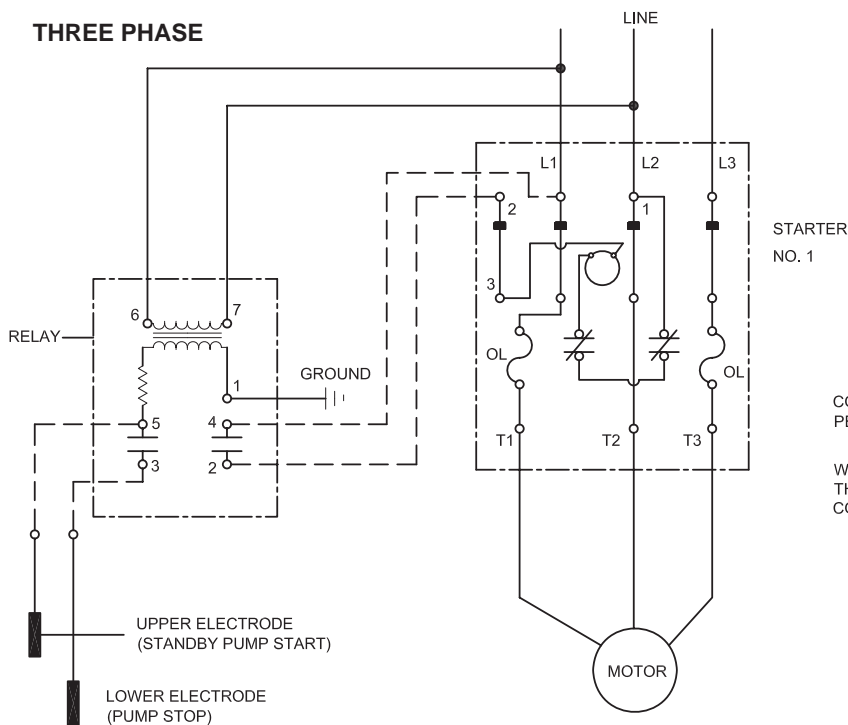
CONNECT RELAY TERMINAL "1" TO ANY METALLIC OBJECT PERMANENTLY SUBMERGED BELOW LOWER ELECTRODE

WHEN USING MAGNETIC STARTER WITH THREE POSITION SELECTOR SWITCH (HAND-OFF-AUTO) CONNECT RELAY TO TERMINALS 1 AND 2

FOR LOW VOLTAGE CONNECT TERMINALS T1 TO T2 AND T3 TO T4

FOR HIGH VOLTAGE CONNECT TERMINALS T2 TO T3

THREE PHASE



CONNECT RELAY TERMINAL "1" TO ANY METALLIC OBJECT PERMANENTLY SUBMERGED BELOW LOWER ELECTRODE

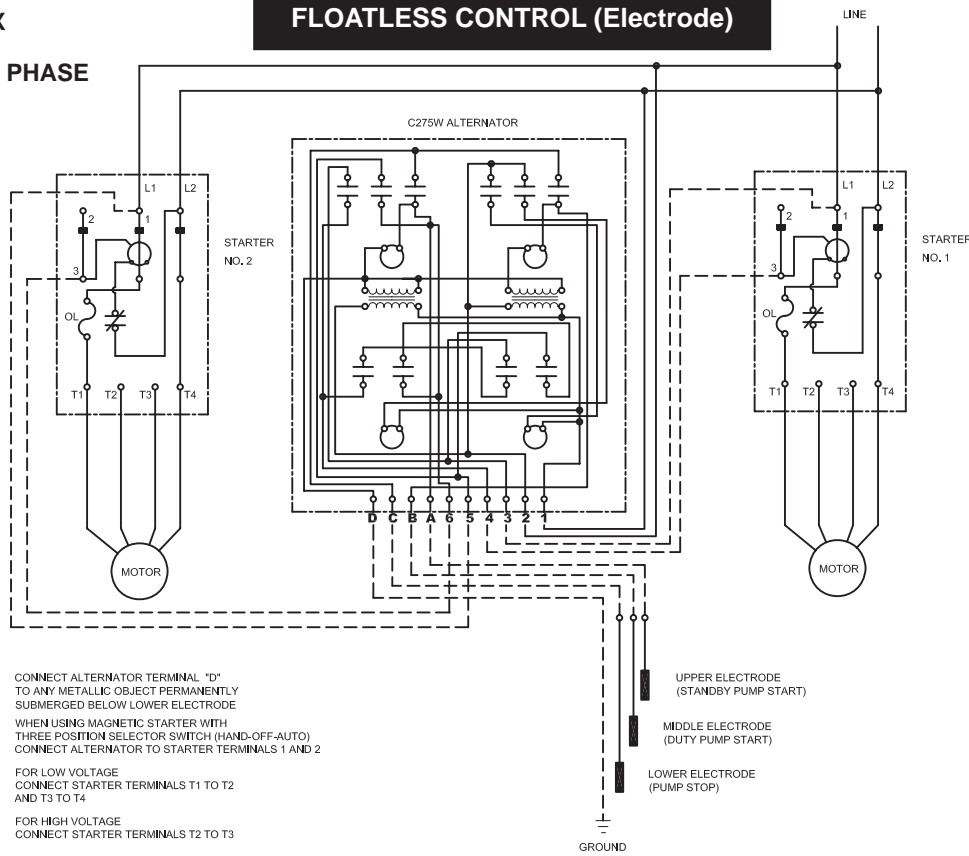
WHEN USING MAGNETIC STARTER WITH THREE POSITION SELECTOR SWITCH (HAND-OFF-AUTO) CONNECT RELAY TO TERMINALS 1 AND 2

TYPICAL CONNECTION DIAGRAMS, SEE PANEL DIAGRAM FOR EXACT CONFIGURATION.

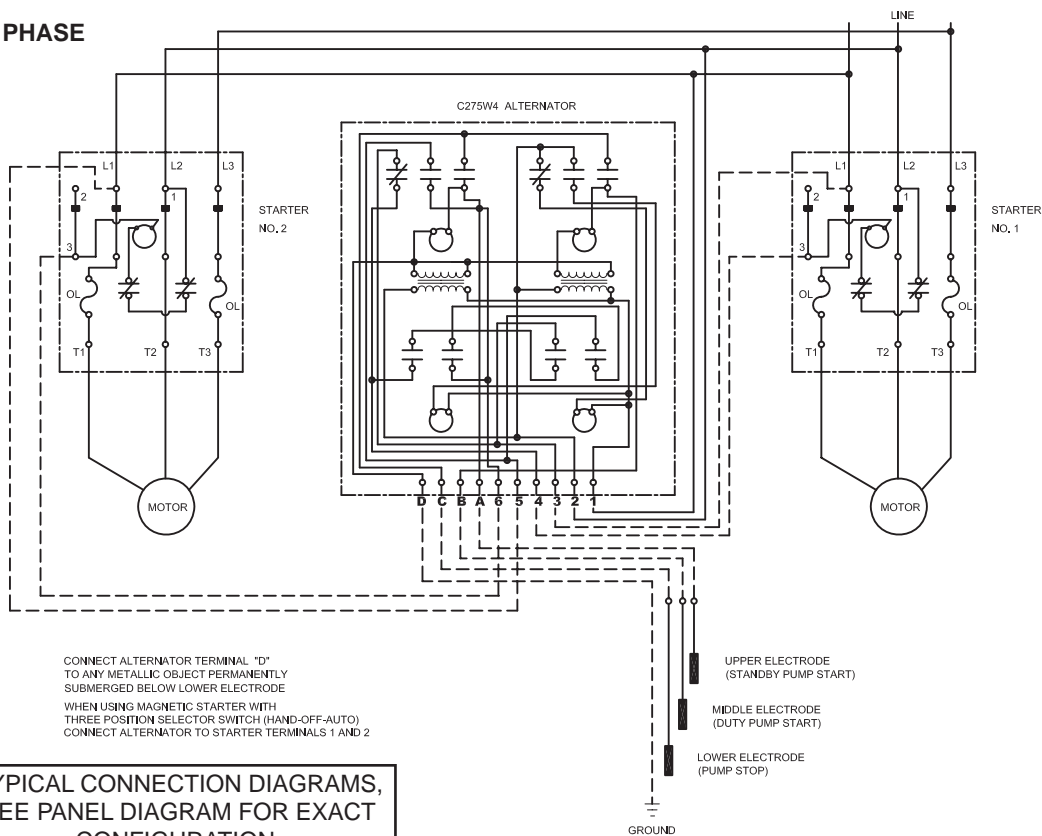
DUPLEX

FLOATLESS CONTROL (Electrode)

SINGLE PHASE



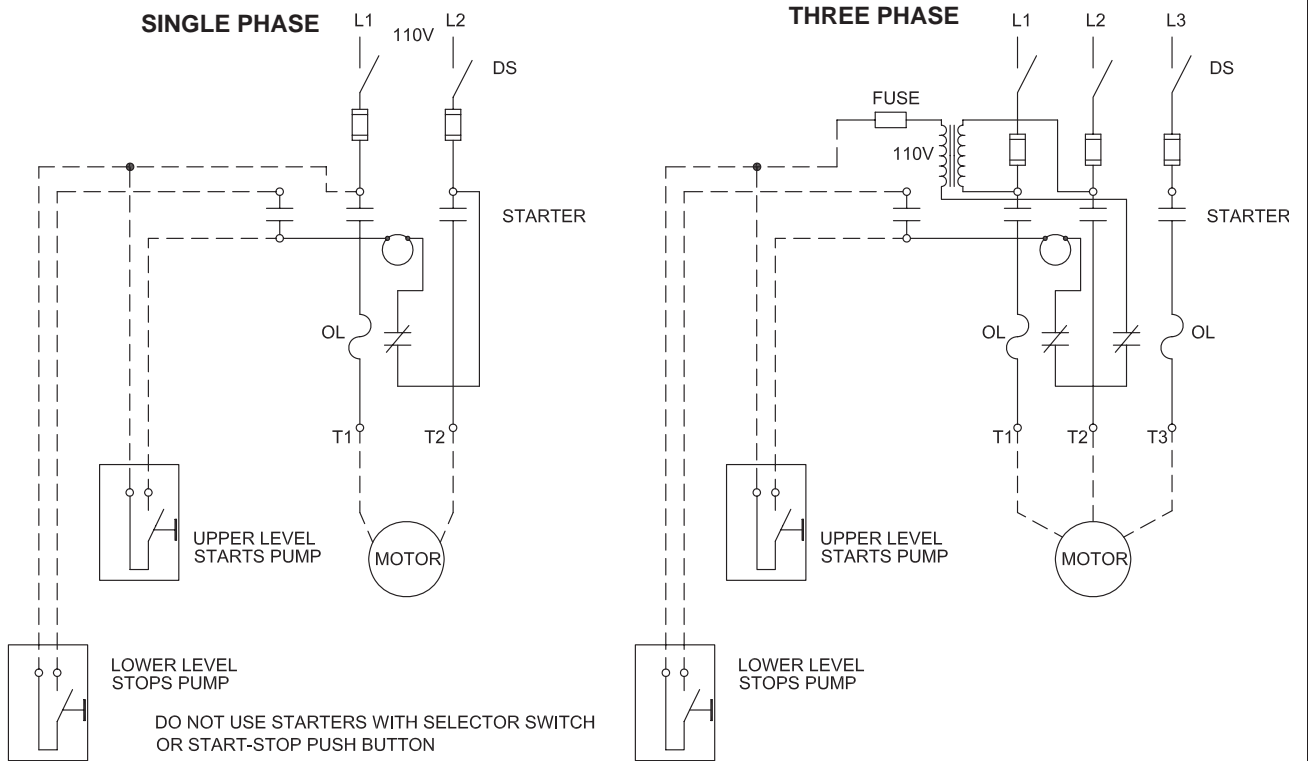
THREE PHASE



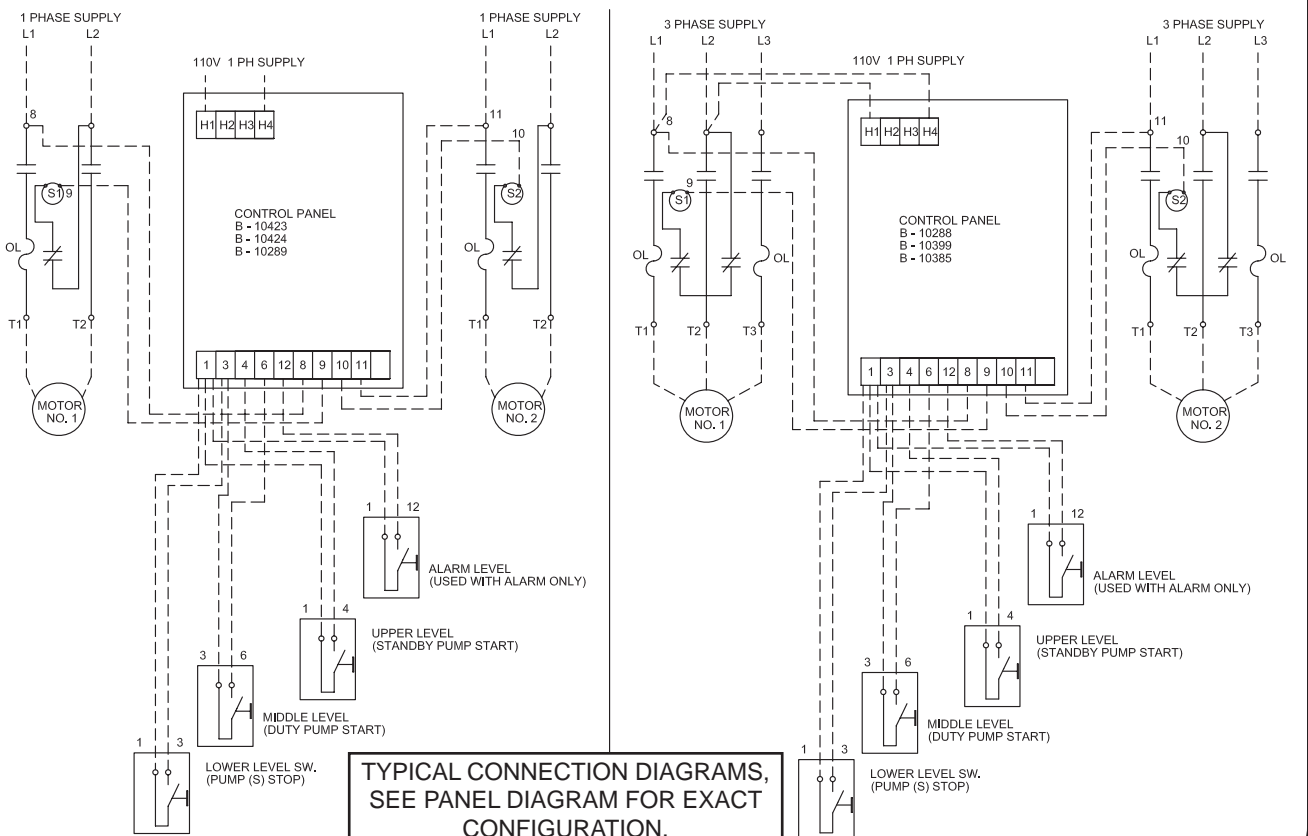
TYPICAL CONNECTION DIAGRAMS,
SEE PANEL DIAGRAM FOR EXACT
CONFIGURATION.

FLOATLESS CONTROL (Switch)

SIMPLEX



DUPLEX



Mount the motor on the driver pedestal, placing the flexible insert in the Woods coupling at the same time. Align the coupling by using a straight edge at four places, 90 degrees apart (as shown in Figures 1 and 2).

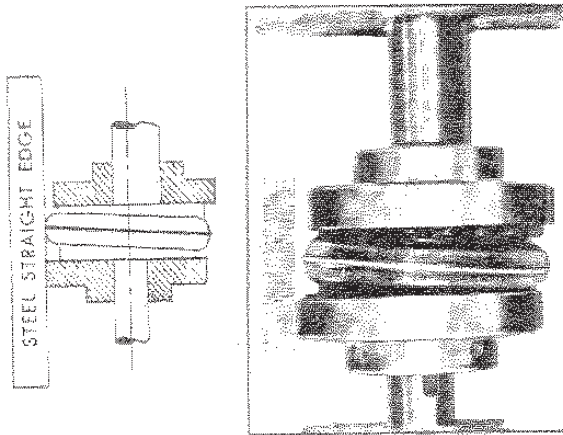


Figure 1 - PARRALLEL MISALIGNMENT

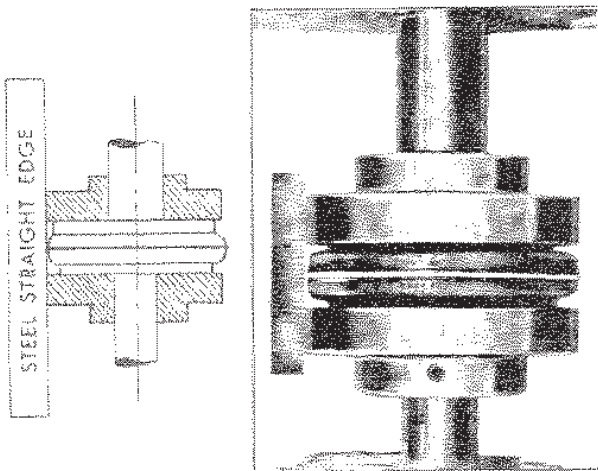


Figure 2 - CORRECT ALIGNMENT

LUBRICATION

Care of Ball Thrust Bearings and Motor Bearings:

The ball bearings on pump and motor, as shipped from factory, are furnished with sufficient lubrication for, from two to three months' operation. Do not add more lubrication when putting the unit in service.

Injury to ball bearings is more likely to result from over-greasing than from under greasing. The real purpose of a lubricant for ball bearings is to form a coating on the highly polished surfaces as a protection against corrosion, rather than for lubrication. An over supply of grease in ball bearings produces heating due to friction and cause the grease to ooze out of bearing housing along the shaft, as the bearing becomes warm.

Under usual conditions, ball bearings will reach a temperature of from 10° to 55°F. above surrounding temperature. Unless the bearing temperature, there is no cause for alarm.

Ball bearings require additional lubricant only two or three times per year, depending upon the continuity of service. Do not use more grease than necessary to fill the bearing housing one-fourth to one-third full.

If bearings are removed from housing for cleaning, use extreme care to see that they are thoroughly dry before being re-installed. Use carbon tetrachloride, or kerosene to clean bearings. Water or moisture is destructive to all ball bearings.

The particular brand of grease is unimportant, providing it is a lithium base grease, especially if the bearing is used in a location where there is excessive moisture or danger of water getting into the housing.

Sleeve Bearings: Lubricated by Pumped Liquid
The standard sump pump is furnished with a special oilless type bearing compounded of materials to give long life and trouble free service.

This material has proven far superior to bronze bearings which were either grease or oil lubricated. Therefore they have been adopted as our standard.

Sleeve Bearings: Grease Lubricated or Oil Lubricated

If specification require oil or grease lines to the bearings, the lines will be installed to lubricate the oilless bearings and it will not injure these bearings.

Sleeve Bearings: Rubber Bearings

Several variations are possible in the bearing arrangements. Sometimes only the lower bearing is furnished as a rubber bearing and in these cases the water is supplied naturally. Intermediate bearings, if furnished, would be standard oilless bearings which are not lubricated.

When the unit is supplied with a rubber lower bearing as well as the intermediate bearings, then the weep holes in the column are plugged, two lantern rings are furnished for the stuffing box and water is piped into the stuffing box connection.

This pressurizes the entire column with fresh water. The water passes through the upper intermediate bearings and supplies water to the lower intermediate bearings.

The pressurized column may also be used in cases where the lower rubber bearing is furnished and no intermediate bearings are necessary.

OPERATION

Weinman sump pump and sewage ejectors are designed to operate automatically after they have been placed in service. The units are started with a starter (manual or magnetic) and then controlled by the pilot device, which may be a float switch, mechanical alternator, electrode controls or diatrol controls. When water in the sump rises the pump is actuated and pumps until the water reaches the lower level when the pump is shut off automatically.

MAINTENANCE

Impeller Adjustment:

The impeller is located properly during final assembly at the factory. No adjustment is required until wear necessitates re-adjustment. This is accomplished by loosening the nut above the thrust bearing collar to the lower unit. When the impeller starts to drag, tighten nut about a half turn to fit the rotating element and give the impeller the proper clearance. Turn the shaft to be sure that it doesn't bind.

FLOAT ROD ADJUSTMENT

To change the level of water in the sump, simply alter the setting of the stop collars on the float rod. The collars are moved by loosening the set screw, moving the collar and tightening the screw again.

STRAINERS

The strainers on sump pumps type MG and VS may become clogged particularly if the water has lint in it. To clean the strainer under these conditions the pump must be pulled from the sump.

STUFFING BOX

Stuffing boxes on sump pumps seldom give trouble. If it does become necessary to repack the box, remove all old packing and replace it with a good grade of soft graphite polymer packing. Pull the gland down easily. Do not tighten with a wrench to prevent packing from scoring the shaft.

BARNES®



burks®

WEINMAN®

DEMING®

PROSSER®

Limited 24 Month Warranty

Crane Pumps & Systems warrants that products of our manufacture will be free of defects in material and workmanship under normal use and service for twenty-four (24) months after manufacture date, when installed and maintained in accordance with our instructions. This warranty gives you specific legal rights, and there may also be other rights which vary from state to state. In the event the product is covered by the Federal Consumer Product Warranties Law (1) the duration of any implied warranties associated with the product by virtue of said law is limited to the same duration as stated herein, (2) this warranty is a LIMITED WARRANTY, and (3) no claims of any nature whatsoever shall be made against us, until the ultimate consumer, his successor, or assigns, notifies us in writing of the defect, and delivers the product and/or defective part(s) freight prepaid to our factory or nearest authorized service station. Some states do not allow limitations on how long an implied warranty lasts, so the above limitation may not apply. **THE SOLE AND EXCLUSIVE REMEDY FOR BREACH OF ANY AND ALL WARRANTIES WITH RESPECT TO ANY PRODUCT SHALL BE TO REPLACE OR REPAIR AT OUR ELECTION, F.O.B. POINT OF MANUFACTURE OR AUTHORIZED REPAIR STATION, SUCH PRODUCTS AND/OR PARTS AS PROVEN DEFECTIVE. THERE SHALL BE NO FURTHER LIABILITY, WHETHER BASED ON WARRANTY, NEGLIGENCE OR OTHERWISE.** Unless expressly stated otherwise, guarantees in the nature of performance specifications furnished in addition to the foregoing material and workmanship warranties on a product manufactured by us, if any, are subject to laboratory tests corrected for field performance. Any additional guarantees, in the nature of performance specifications must be in writing and such writing must be signed by our authorized representative. Due to inaccuracies in field testing if a conflict arises between the results of field testing conducted by or for user, and laboratory tests corrected for field performance, the latter shall control. **RECOMMENDATIONS FOR SPECIAL APPLICATIONS OR THOSE RESULTING FROM SYSTEMS ANALYSES AND EVALUATIONS WE CONDUCT WILL BE BASED ON OUR BEST AVAILABLE EXPERIENCE AND PUBLISHED INDUSTRY INFORMATION. SUCH RECOMMENDATIONS DO NOT CONSTITUTE A WARRANTY OF SATISFACTORY PERFORMANCE AND NO SUCH WARRANTY IS GIVEN.**

This warranty shall not apply when damage is caused by (a) improper installation, (b) improper voltage (c) lightning (d) excessive sand or other abrasive material (e) scale or corrosion build-up due to excessive chemical content. Any modification of the original equipment will also void the warranty. We will not be responsible for loss, damage or labor cost due to interruption of service caused by defective parts. Neither will we accept charges incurred by others without our prior written approval.

This warranty is void if our inspection reveals the product was used in a manner inconsistent with normal industry practice and/or our specific recommendations. The purchaser is responsible for communication of all necessary information regarding the application and use of the product. **UNDER NO CIRCUMSTANCES WILL WE BE RESPONSIBLE FOR ANY OTHER DIRECT OR CONSEQUENTIAL DAMAGES, INCLUDING BUT NOT LIMITED TO TRAVEL EXPENSES, RENTED EQUIPMENT, OUTSIDE CONTRACTOR FEES, UNAUTHORIZED REPAIR SHOP EXPENSES, LOST PROFITS, LOST INCOME, LABOR CHARGES, DELAYS IN PRODUCTION, IDLE PRODUCTION, WHICH DAMAGES ARE CAUSED BY ANY DEFECTS IN MATERIAL AND/OR WORKMANSHIP AND/OR DAMAGE OR DELAYS IN SHIPMENT. THIS WARRANTY IS EXPRESSLY IN LIEU OF ANY OTHER EXPRESS OR IMPLIED WARRANTY, INCLUDING ANY WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE.**

No rights extended under this warranty shall be assigned to any other person, whether by operation of law or otherwise, without our prior written approval.

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**IMPORTANT!
WARRANTY REGISTRATION**

Your product is covered by the enclosed Warranty.
To complete the Warranty Registration Form go to:

<http://www.cranepumps.com/ProductRegistration/>

If you have a claim under the provision of the warranty, contact your local
Crane Pumps & Systems, Inc. Distributor.

RETURNED GOODS

**RETURN OF MERCHANDISE REQUIRES A "RETURNED GOODS AUTHORIZATION".
CONTACT YOUR LOCAL CRANE PUMPS & SYSTEMS, INC. DISTRIBUTOR.**



**Products Returned Must Be Cleaned, Sanitized,
Or Decontaminated As Necessary Prior To Shipment,
To Insure That Employees Will Not Be Exposed To Health
Hazards In Handling Said Material. All Applicable Laws
And Regulations Shall Apply.**

