

OPERATION AND MAINTENANCE MANUAL



STATIONARY

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FEED MIXER



Kirby Manufacturing
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i. **WARRANTY**

KIRBY MANUFACTURING, INC.
WARRANTY
COVERING ALL HYDROSTATIC & MECHANICAL DRIVE EQUIPMENT
INSTALLED ON TRUCKS AND TRAILERS

This warranty covers only *newly manufactured* equipment. The warranty covers the hydrostatic drive system that is used on horizontal four (4) auger mixers and vertical mixers, also covered are the mechanical driven trucks, trailers and stationeries. Note: Hence forth, the effective start date of all warranties is the date that the “*CHECKLIST / SIGN-OFF SHEET*” is signed.

In addition to the standard Kirby Manufacturing, Inc. (KMI) warranty offered on products manufactured by KMI, the pump and motor on the *Hydrostatic Drive System* on your new Kirby Mixer are covered for a period of one (1) year. The warranty covers the cost of the motor and the pump on the *Hydrostatic Drive System*. This warranty covers the hydraulic motor coupled to the planetary gearbox, and the hydraulic pump for that motor. They must be properly maintained in strict adherence to the operator’s manual. This limited warranty is effective only if the equipment is used as directed, not subjected to misuse, negligence or accident, and is not altered, adjusted, or repaired by other than KMI or its designee.

All *new* Kirby equipment has a ninety (90) day warranty which covers all parts and labor and also has an additional one year (1) warranty which covers the following parts:

- Auxiliary hydraulic pump for component parts, discharge door, spout, discharge chain/belts
- All hydraulic hoses that have not been damaged due to abuse
- Gearboxes
- Solenoid valves and switches
- Input adaptor to planetary

Bearings, sprockets, chains, hydraulic rams, and tires (unless damage do to a foreign objects) have a full ninety (90) warranty covering parts and labor from date of purchase.

After the first ninety (90) days bearings, sprockets, chains, drivelines, PTO’s and gearboxes (right angle 90, T gearboxes, 1 to 1 reversing, 2 to 1, 3 to 1, 4 to 1, 50 to 1, gearboxes not mentioned within) are covered for parts only for a total of 6 months (not including planetary gearboxes used as final drive on mixers).

All welds performed by Kirby Manufacturing Inc. are covered for one (1) year. All parts not mentioned above have a ninety (90) day warranty.

This warranty shall in no way make KIRBY MFG. INC. liable for personal injuries or damages, loss of time, or expense of any kind either direct or indirect resulting from part failure or defect.

FREIGHT & TRAVEL IS NOT INCLUDED IN WARRANTY, (except for warranties under 90 days)

NOTE: FOR THIS WARRANTY TO BE VALID, THE WARRANTY MUST BE REGISTERED WITHIN 15 DAYS OF DELIVERY OF EQUIPMENT. TO REGISTER YOUR EQUIPMENT, PLEASE FILE OUT THE CHECKLIST / SIGN-OFF SHEET AND MAIL IT TO KIRBY MFG. INC.

Mail to: Kirby Manufacturing
P.O. Box 989
Merced, California; 95341-0989

i. WARRANTY, (continued)

- ADDITIONAL EXTENDED TWO (2) YEAR WARRANTY ON ALL MAJOR POWER TRAIN COMPONENTS (optional)

As a one time offer, Kirby Manufacturing offers the owner of a *newly manufactured* Kirby feed mixer the option to purchase an “extend warranty” policy. This policy covers the cost of all major power train components for a *total* of three (3) years from the date the equipment was put into service, against any defects in manufacturer quality and workmanship

The covered components are as follows:

- Planetary gearboxes
- “T” gear boxes and 90⁰ gear boxes
- Two speed gear boxes
- Hydraulic pumps (*hydrostatic* circuit only)
- Hydraulic motors (*hydrostatic* circuit only)

This policy must be purchased at the time of equipment sale and must go into effect upon initial equipment start-up. The policy requires the equipment owner to pull and send in oil samples at predetermined time intervals.

These time intervals are as follows:

- Gearbox oil samples every 6 months or 1,000 hrs whichever comes first
- Hydraulic system oil samples every 3 months or 500 hrs whichever comes first

These samples are to be sent in by the equipment owner to “WEARCHECK” laboratories for analysis. “WEARCHECK” laboratories will analyze the samples and send a complete report to the equipment owner stating the condition of the oil, as well as make recommendations about any concerns they may see regarding the condition of the oil. It is the equipment owner’s responsibility to maintain the best oil condition in accordance with “WEARCHECK” laboratories’ recommendations.

(Note: sample bottles are pre-addressed to “WEARCHECK” laboratories. It is the equipment owner’s responsibility to pay all mail charges to send samples to “WEARCHECK” laboratories.)

Equipment owner’s responsibilities:

1. Purchase all sample bottles when purchasing equipment.
 - Mechanically driven unit: 30 sample kits; (6-2 spd,6-T,6-90⁰,12- plntry)
 - Hydraulically driven unit: 24 sample kits; (12-hyd sys,12- plntry)
2. Perform regular maintenance as specified in the Operation and Maintenance Manual
3. Pull and send oil samples in to “WEARCHECK” per time intervals stated above.
4. Review oil reports and take corrective actions per “WEARCHECK” recommendations.

As always, it is in the best interest of Kirby Manufacturing to try and offer the best value to its customers. This program is just one more way to help reduce the customer’s operational costs by improving equipment reliability and up-time.

Business Name: _____

Date: _____

Model Type: _____
(circle one) Truck Mounted / Trailer Mounted / Stationary

Serial Number: _____

ii. CHECKLIST / SIGN-OFF SHEET

THIS WARRANTY MUST BE REGISTERED WITHIN 15 DAYS OF DELIVERY OF EQUIPMENT

The *Kirby Warranty* is valid only after the “*CHECKLIST / SIGN-OFF SHEET*” has been **completed and signed** by the Dealer/Salesperson and **understood and signed** by the Owner, or a Representative, and the Dealers/Salespersons, or its Representatives and the completed form is received at **Kirby Manufacturing Inc. (within 15 days)**.

The Salesperson/Dealer has reviewed the following sections in this “Operation / Maintenance Manual” with me and I completely understand the material in its entirety. Have all of the following sections of this manual been presented to me?

(If yes, put a check mark in the appropriate boxes below)

- SAFETY PROCEDURES
- WARRANTY
 - ▶ OPTIONAL THREE (3) YEAR WARRANTY: ACCEPT DECLINE
- MIXER STRUCTURE
- MAIN AUGERS, SHAFTS, AND BEARINGS
- SPROCKETS AND CHAINS (optional)
- GEARBOXES
- DRIVELINES AND POWER TAKEOFFS
- MAIN HYDRAULIC SYSTEM
- LUBRICATION AND MAINTENANCE
- ELECTRONIC SCALES AND LOADCELLS
- EQUIPMENT OPERATIONS
- SPARE PARTS
- APPENDIX

Dealer/Salesperson

Owner/Representative

Print name: _____ Print name: _____

Sign: _____ Sign: _____

1.0 SAFETY PROCEDURES

When inspecting the machine **all power must be shut off** and secured.

Do not attempt to work on machine when machine is running.

Caution must be used when **visible** checking rotating parts under power. It is advisable to have two (2) persons present when checking for safety. The second person should be positioned by a emergency stop switch so the machine can be stopped **immediately** in case of an emergency.

Do not leave machine unattended while in operation.

Be sure all guards and safety devices are in place.

Scale service requires special cautions-**See the section on scales**

Caution: All power should be “locked-out” and the key removed prior to servicing or working on the mixer unit.

Caution: The motor should be shut off and keys removed and a “LOCK-OUT/TAG-OUT” procedure should be used when servicing or working on the mixer unit.

SAFE OPERATIONS:

Operation of this mixer/feeder shall be limited to competent and experienced persons. In addition, anyone who will operate or work around a mixer/feeder must use good common sense. In order to be qualified, he or she must also know and meet all other qualifications, such as:

1. Some regulations specify that no one under the age of sixteen (16) may operate power machinery. It is your responsibility to know what these regulations/safety requirements that are in your area and/or situation.
2. Current OSHA regulations state in part: At the time of initial assignment and at least annually thereafter, the employer shall instruct **EVERY** employee in the safe operation and servicing of all equipment with which the employee is, or will be involved.
3. Unqualified persons are to **STAY OUT OF THE WORK AREA.**
4. A person who has not read and understood or been explained all operating and safety instructions is **not** qualified to operate the machinery.

FAILURE TO READ THIS MIXER/FEEDER MANUAL AND ITS SAFETY INSTRUCTIONS ARE A MISUSE OF THE EQUIPMENT.

SAFETY

IMPORTANT SAFETY PRECAUTIONS

These operating and maintenance instructions contain safety information to:

- make you aware of the hazards associated with the machine,
- inform you of the risk of injury associated with those hazards, and
- tell you how to avoid or reduce the risk of injury.

TAKE NOTE: THE BELOW SAFETY ALERT SYMBOL FOUND THROUGHOUT THIS MANUAL IS USED TO CALL YOUR ATTENTION TO INSTRUCTIONS INVOLVING YOUR PERSONAL SAFETY AND THE SAFETY OF OTHERS. FAILURE TO FOLLOW THESE INSTRUCTIONS CAN RESULT IN INJURY OR DEATH.



**THIS SYMBOL MEANS:
-ATTENTION
-BECOME ALERT
-YOUR SAFETY IS INVOLVED**

SIGNAL WORDS: Note the use of the signal words **DANGER**, **WARNING**, and **CAUTION** with the safety messages. The appropriate signal word for each has been selected using the following guidelines:

DANGER: Indicates an imminently hazardous situation that, if not avoided, will result in serious injury or death. This signal word is to be limited to the **most** extreme situations typically for machine components which, for functional purposes, cannot be guarded.

WARNING: Indicates a potentially hazardous situation that, if not avoided, will result in serious injury or death, and includes hazards that are exposed when guards are removed. It may also be used to alert against unsafe practices.

CAUTION: Indicates a potentially hazardous situation that, if not avoided, may result in minor or moderate injury. It may also be used to alert against unsafe practices.

If you have questions not answered in this manual or require additional copies or the manual is damaged, please contact your dealer or Kirby Manufacturing, P.O. Box 989, Merced, California; Phone number (209)-723-0778.



OPERATING PRECAUTIONS & INSTRUCTIONS

A. Check to see that no obstructions are present in the mixer prior to start up.

B. Before loading, run the mixer empty and check all operations.

C. **Do not overload the mixer.**

Maximum load is 16,000LB for 800 cu.ft. mixer.

Maximum load is 35,000LB for 1000⁺ cu.ft. mixer.

Maximum load is determined by weight, **not** volume.

D. Be sure all shields are in place before operation.

E. Use common sense when operating equipment.

ALWAYS REMEMBER SAFETY FIRST: The careful operator is the best operator. Most accidents are caused by human error.

Certain precautions must be observed to prevent the possibility of injury or death.



DO NOT ALLOW PERSONNEL OTHER THAN THE TRAINED AND QUALIFIED OPERATOR NEAR THE MACHINE.



NEVER START MACHINE UNTIL ALL GUARDS AND SAFETY SHIELDS ARE IN PLACE AND YOU ARE SURE THAT NOTHING IS INSIDE THE MIXER.



DO NOT CLEAN, ADJUST OR LUBRICATE THE MACHINE WHILE IT IS IN MOTION, (ALWAYS turn off, LOCK-OUT and remove keys prior to performing maintenance on the machine)



BEFORE STARTING MORT, BE SURE PTO SHIELDS TURN FREELY.



LOOSE OR FLOPPY CLOTHING SHOULD NOT BE WORN BY ANYONE NEAR THE MACHINE

EQUIPMENT SAFETY GUIDELINES

Safety is a key concern when designing and developing a new piece of equipment. Designers and manufactures build in as many safety features as possible. However, every year many accidents occur which could have been avoided by a few seconds of thought and a more careful approach to handling equipment. You, the operator, can avoid many accidents by observing the following precautions in this section. To avoid personal injury, study the following precautions and insist those working with you, or for you, follow them. Perform regular safety audits to ensure adherence.

In order to provide a better view, certain photographs or illustrations in this manual may show an assembly with a safety shield removed. However, equipment should never be operated in this condition. Keep all shields in place. If shield removal becomes necessary for repairs, replace the shield prior to use.

Replace any **CAUTION, WARNING, DANGER** or instruction safety decal that is not readable or is missing.

Do not attempt to operate this equipment under the influence of drugs or alcohol.

Review the safety instructions with **ALL** users annually.

This equipment is dangerous to children and persons unfamiliar with its operation. The operator should be a responsible adult familiar with farm machinery and trained in this equipment's operations. Do not allow persons to operate or assemble this unit until they have read this manual and have developed a thorough understanding of the safety precautions and of how it works.

Do not paint over, remove or deface any safety signs or warning decals on your equipment. Observe all safety signs and practice the instructions on them.

Never exceed the limitations of a piece of machinery, in its ability to do a job, or to do so Safely! If in question - **DON'T TRY IT!**

LIGHTING AND MARKING

It is the responsibility of the customer to know the safety lighting and marking requirements of the local authorities and to install and maintain the equipment to provide compliance with the regulations.

 **KEEP ALL SHIELDS IN PLACE**

Do not operate the mixer/feeder without safety shields in place.

Rotating parts can crush or dismember causing personal injury or death.

Shut off equipment, removed keys and “LOCK-OUT” equipment before removing shields for adjustment or service.



 **OPERATE MIXER/FEEDER SAFELY**

Rotating parts can entangle or strike people, resulting in personal injury or death.

Never enter a mixer/feeder while in operation.

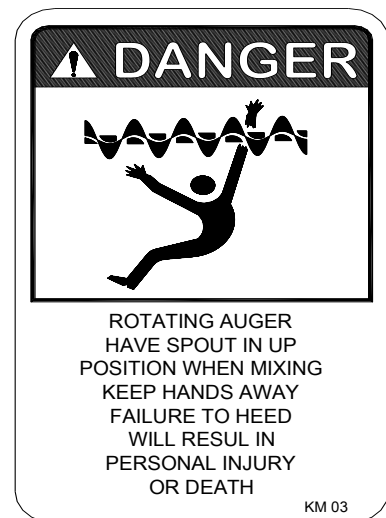
Operate the mixer/feeder from the operator’s panel only.

It is the equipment owner’s responsibility to safe guard the discharge door openings to make sure that no personnel can become entangle in the moving parts of the mixer

The equipment owner is responsible for ensuring that the area near the discharge door(s) is properly safe guarded.

The equipment operator is responsible for inspecting the area near the discharge door(s) to ensure that all safe guards are in place prior to starting the mixer.

Do not exceed load capacity of the mixer/feeder. (See loading instructions).



 **STAY CLEAR OF ROTATING DRIVELINES**

Entanglement in rotating driveline can cause serious injury or death.

Keep driveline shields in place at all times.

Wear close fitting clothing. Stop the motor, LOCK-OUT the equipment and be sure PTO driveline is stopped before making adjustments, connections, or cleaning out PTO driven equipment.



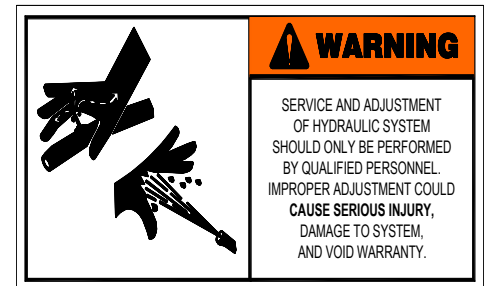
 **AVOID HIGH-PRESSURE FLUIDS**

Escaping fluid under pressure can penetrate the skin causing serious injury or death.

Avoid the hazard by relieving pressure before disconnecting hydraulic or other lines. Tighten all connections before applying pressure.

Search for leaks with a piece of cardboard. Protect hands and body from high pressure fluids.

If an accident occurs, see a doctor immediately. Any fluid injected into the skin must be surgically removed within a few hours or gangrene may result. Doctors unfamiliar with this type of injury should reference a knowledgeable medical source.



 **SAFETY DECAL CARE**

Keep safety decals and signs clean and legible at all times.

Replace safety decals and signs that are missing or have become illegible.

Replaced parts that displayed a safety sign should also display the current sign.

Safety decals or signs are available from your dealer or Kirby Manufacturing.

REPLACEMENT SAFETY DECALS

Immediately replace all and any worn or damaged Safety Decals. When ordering replacement decals please provide the unit's serial and model number.

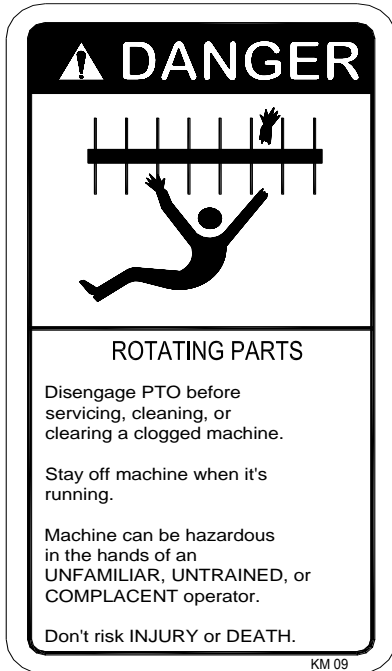


Figure A
DANGER, Rotating Parts
Part No. KM-09

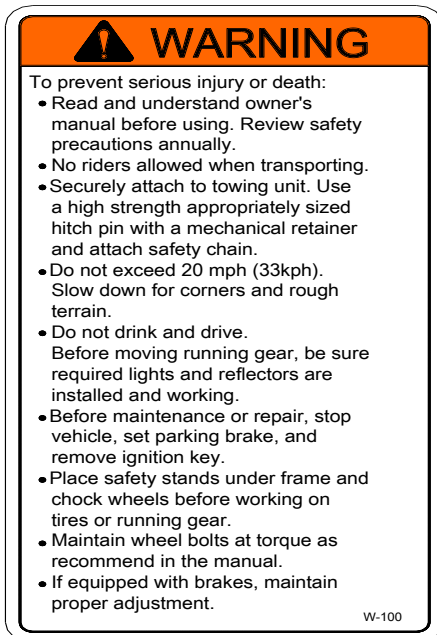


Figure C
WARNING To prevent Serious Injury
Part No. W-100



Figure D
WARNING, Crushing Hazard
Part No. W-200

 **REPLACEMENT SAFETY DECALS; (cont.)**



Figure E
DANGER; use only authorized
Part No. KM-02



Figure F
WARNING; service and adjust
Part No. W-100



Figure G
IMPORTANT; auger bolts must be kept
Part No. N/A

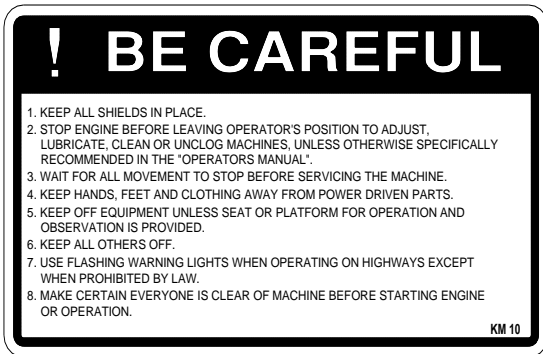


Figure I
BE CAREFUL; keep all shield in place
Part No. KM-10



Figure J
Danger; beware of moving parts
Part No. KM-01

 **REPLACEMENT SAFETY DECALS; (cont.)**



Figure K
DANGER; drive shaft
Part No. KM-07

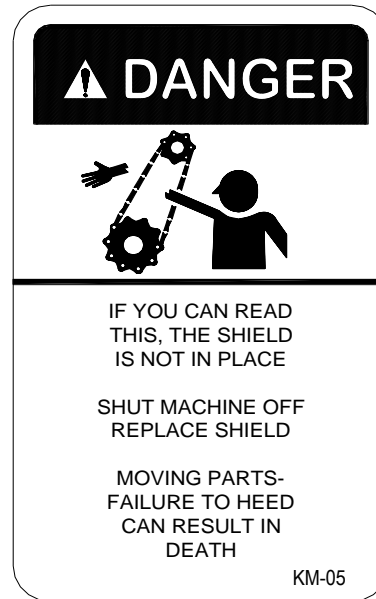


Figure L
DANGER; if you can read this
Part No. KM-05

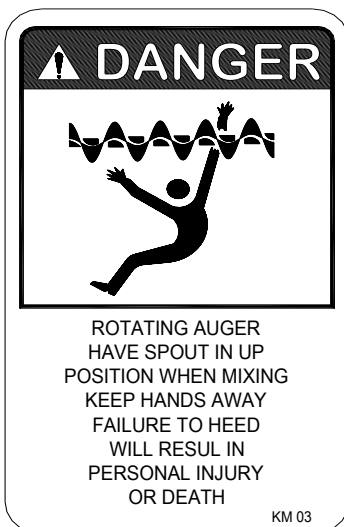



Figure K
DANGER; rotating auger
Part No. KM-03

 **Your best assurance against accidents is a careful and responsible operator. If there is any portion of this manual or function you do not understand, contact your dealer or Kirby Manufacturing.**

 **BEFORE OPERATION**

Carefully study and understand this manual! Note: it is the responsibility of the owner to train all current, new and future operators of the equipment. If assistance is needed, please contact Kirby Manufacturing.

Do not wear loose-fitting clothing which may catch in moving parts.

Always wear protective clothing and substantial shoes.

Prior to operating the equipment, give the equipment a visual inspection for any loose bolts, worn parts or cracked welds, and make necessary repairs. Follow the maintenance safety instructions included in this manual.

Be sure that there are no tools lying on or in the mixer/feeder.

Do not use the unit until you are sure that the area is clear, especially of children and animals. **Always** check inside of mixer prior to starting it up.

Because it is possible that this mixer/feeder may be used in the presence of combustibles, special precautions should be taken to prevent fires and fire fighting equipment should be readily available.

Don't hurry the learning process or take the unit for granted. Ease into it and become familiar with your new mixer/feeder.

Practice operation of your mixer/feeder and its attachments. Completely familiarize yourself and other operators with its operation before using.



DURING OPERATION

Beware of bystanders, **particularly children!** Always look around to make sure that it is safe to start the mixer's motor. This is particularly important with higher noise level areas as you may not hear people shouting.

Keep hands and clothing clear of moving parts.

Do not clean, lubricate or adjust your mixer/feeder while it is running.

Periodically clear the equipment of hay, feed, twine or other materials to prevent build up of dry combustible materials.

Avoid overhead wires or other obstacles when loading the mixer. Contact with overhead lines could cause serious injury or death.

Do not walk or work under raised components or attachments unless securely positioned and blocked.

Keep all bystanders, pets and livestock clear of the work area.

Never leave a running mixer/feeder unattended.

As a precaution, always check the hardware on mixer/feeder prior to operating the equipment. Correct all problems. Follow the maintenance safety procedures.



FOLLOWING OPERATION

Install the unit in an area away from human activity.

To prevent damage to the equipment and injury to livestock, do not install the equipment where it will be exposed to livestock for long periods of time.

Do not permit children to play on or around the equipment.

Make sure to install the machine on a hard, level surface and engage all safety devices.

Lag frame of mixer securely to a solid foundation.



PERFORMING MAINTENANCE

Good maintenance is your responsibility. Poor maintenance is an invitation to trouble.

Make sure there is plenty of ventilation where mixer is installed.

Before working on the mixer/feeder shut off the motor and remove the keys from the operator's panel. Make sure that "LOCK-OUT/TAG-OUT procedure are followed.

Be certain all moving parts and attachments have come to a complete stop before attempting to perform maintenance.

When needed always use a safety supports and blocks. Never use a jack to support the machine.

Always use the proper tools or equipment for the job at hand.

Never use your hands to locate hydraulic leaks on attachments. Use a small piece of cardboard or wood. Hydraulic fluid escaping under pressure can penetrate the skin.

When disconnecting hydraulic lines, always shut off hydraulic supply and relieve all pressure.

Openings in the skin and minor cuts are susceptible to infection from hydraulic fluid. If injured by escaping hydraulic fluid, see a doctor at once. Gangrene can result. Without immediate treatment, serious infection and reactions can occur.

Replace all shields and guards after servicing and before starting the machine.

After servicing, be sure all tools, parts and service equipment are removed.

Do not allow grease or oil to build up on any steps or platforms.

Never replace hex bolts with less than grade five (5) bolts unless otherwise specified.

Where replacement parts are necessary for periodic maintenance and servicing, genuine factory replacement parts must be used to restore your equipment to original specifications.

Kirby Manufacturing will not claim responsibility for use of *unapproved parts* and/or accessories and other damages as a result of their use. This will void your warranty.

If equipment has been altered in any way from original design, Kirby Manufacturing does not accept any liability for injury or warranty.

A fire extinguisher and first aid kit should be kept readily accessible while performing maintenance on this mixer/feeder.

2.0 MIXER STRUCTURE

2.1 Inspect for cracks in metal and welds in mixer chamber and around discharge door and chute. Re-weld as necessary.

2.2 Inspect main support frame for
(I) Cracked welds. Re-weld as necessary.
(II) Bent or worn. Replace or repair as necessary.

2.3 Inspect that all bolts are in place and that all setscrews are properly seated. Replace or tighten as required.

2.4 Inspect for hydraulic oil leaks. Repair any leaks.

2.1 CONVEYOR STRUCTURE

2.1 Inspect for cracks in metal and welds in conveyors, support columns and chute. Re-weld as necessary.

2.2 Inspect attachment of support columns to foundation to insure tight connection. If needed, make necessary modifications to insure sound connection to footings

2.3 check conveyor bearing lub lines and connections

2.4 Inspect that all bolts are in place and that all setscrews are properly seated. Replace or tighten as required.

2.5 insure that **ALL** support frames are protected with ballards and barriers so that support columns can **NOT** be hit by model equipment.

3.0 MAIN AUGERS, SHAFTS, AND BEARINGS



CAUTION! THE MIXER MOST BE TURNED OFF AND “LOCKED-OUT” PRIOR TO PERFORMING THE FOLLOWING CHECKS:

3.1 Observe auger flighting, in mixing chamber

- (I) Bent, deformed, or worn to less than 25% of new thickness.
- (II) Replace flighting as necessary.
- (III) Check blades on mixer replace when worn

3.1 Observe mixing chamber, sides and ends.

- (I) Walls and ends should be straight, not bulging in appearance. This condition can result from over loading or foreign objects present in ration.
- (II) Look for signs of excessive wear

3.2 Observe motor drive line for a bent shaft and check universal crosses for wear.

- (I) insure all shields are in place and operational (sliding without restrictions)

4.0 SPROCKET AND CHAINS, (optional)

This section is NOT APPLICABLE to this stationary mixers

5.0 GEAR BOXES

5.1 Main planetary drive.

- (I) Observe oil level of gearbox reservoirs, use clear view tube on oil reservoir.
- (II) Observe for any over-fill oil coming out of the gearbox oil reservoir tank.

5.2 On mechanical drive mixers, check right angle 90 gearbox and T gearbox under mixer for any oil leakage, These gearboxes are located directly under the planetary gearboxes.

Check and grease “zerk” fittings on PTO; refer to the lubrication section of this manual. There is one (1) universal cross on each end of the PTO driveline.

5.3 Check “Hydrostat Control” lever and cables. If needed, adjust cable for optimum engagement in both *FULL* and *HALF* speed selections on pumps.

5.4 For regular service, refer to the “*Preventive Maintenance and Lubrication Schedule*” located in **Section 8** of the manual

6.0 DRIVELINES AND POWER TAKEOFFS

6.1 PTO driveline

- (I) Shields must be secured by locking devices
- (II) Shields must slide freely.
- (III) Observe shields for damage.
- (IV) Driveline shafts must slide freely, Lubricate all shaft splines.
- (V) U-joints cross & yoke must fit tight in the bearing cups and have zerk fittings for lubrication.

6.2 Stationary mixer PTO

- (I) Observe for oil leaking around PTO shaft seal. Replace seal.
- (II) Check PTO for loose bolts holding PTO to motor output shaft. Tighten bolts.
- (III) Check U-joints, bearings, yokes, and set bolts. Replace worn parts and tighten all bolts.
- (IV) Lubricate driveline “U” joints as per the “*Preventive Maintenance and Lubrication Schedule*”

6.3 Mixer drive line.

- (I) Check for loose or missing setscrews on driveline yokes. Tighten or replace setscrews.
- (II) Check for loose or missing bolts in pillow block bearings. Tighten or replace.
- (III) Observe driveline under operation. CAUTION STAY CLEAR OF ALL MOVING PARTS, DO NOT WEAR LOOSE CLOTHING!!
- (IV) Check for vibration, worn bearings, bad U-joint bearings, or bent shaft. Replace worn or damaged parts.
- (V) Observe for loose setscrews or PTO shaft not slipping in sleeve, causing end thrust load on the bearings.
- (VI) Check for bent shaft. Replace and grease as per lubrication schedule.

7.0 MAIN HYDRAULIC SYSTEM

STATIONARY AND TRUCK MOUNTED VERTICAL MIXERS

QUICK REFERENCE INFORMATION

Thank you for your investment in a Kirby hydraulic driven mixer. With proper care and service you can extend the life of the hydraulic system.

Your system is equipped with two (2) Sauer-Sundstrand Series 90 axial piston pumps, two (2) Parker/VOAC variable displacement hydraulic motors Series V14 and two (2) Fairfield planetary gearboxes.

In order to ensure hydraulic system efficiency only fresh, clean oil should be added to the hydraulic tank. ALL hydraulic oil that is added to the system must be filtered through a 10-micro filter to ensure oil cleanliness. If any lines are damaged, unfastened or replaced, extreme care must be taken to prevent dirt from entering the hydraulic system. All open lines should be capped. Filter indicator should be checked regularly and the filters should be replaced if indicated, or as hours of use require. When replacing the filters always replace O-ring on canister.

Kirby Manufacturing recommends that only authorized *Kirby* filters be used for replacement. The filters used must be at least a 10-micron filter. Oil specifications are Pennzoil AW68.

It is critical that proper maintenance and filter changes be made on a regular basis. Warranty is based on the regular maintenance of your system. By not changing your oil and filters properly and within the time frame given **WARRANTY WILL BE VOID**. Care should be taken to not contaminate the oil, by making sure that you keep all filters clean and free of any foreign matter when replacing.

All hydraulic filters and all planetary gearbox oil should be changed after the first **initial 50 hours** of use. Thereafter, all hydraulic filters should be changed every 500 hours. Use the reservoir filter gauges, located on the top of the hydraulic fluid reservoir, to help determine when the next filter change is necessary. **Note:** the reservoir filter consists of four (4) filters, (2-wet & 2-dry). When the gauge needle is in the yellow zone, you should change the reservoir filters. Once the needle has moved into the yellow zone you have **24 hours** to change the reservoir filters. There are also two filters located on the hydraulic pumps. At the top of the filter, you will see a glass bubble with a green colored indicator inside. When this indicator turns red you need to **immediately** change the filters.

The first oil change on the planetary gearboxes should occur after **50 hours** of use. Thereafter, oil changes should occur every **1000 hours**.

NOTE!! THIS PIECE OF EQUIPMENT IS EQUIPPED WITH A LOW OIL LEVEL EMERGENCY “SHUT-DOWN” SYSTEM, IN THE EVENT OF LOSE OF HYDRAULIC OIL, THE SYSTEM WILL AUTOMATICALLY TURN OFF. THIS IS ACCOMPLISHED BY SEPARATE FLOAT SWITCHES LOCATED IN EACH HYDRAULIC TANK.

The procedure for changing the oil in the planetary gearbox is:

1. First, run unit to warm oil in gear boxes
2. To drain the planetary gearbox oil, place a bucket under the planetary gearbox to catch the used oil, detach the *bottom* hose (the other end of this hose goes to the bottom of gear oil supply reservoir) from the bottom of the gearbox. Let the oil from the gearbox and the *bottom* hose drain into the bucket.
3. Take the plug out of the end of the gearbox’s *top* hose. This is the other hose that hangs down from the side of the planetary gearbox. Place an air hose to the end of the *top* hose. Using compressed air (no more than 20 psi.) gently force the oil out the bottom of the gearbox. **Note:** Excessive air pressure could damage the top output seal of the gearbox.
4. To fill the gearbox, re-attach the *bottom* hose to the bottom of the gearbox.
5. Add (warmed) oil through the reservoir fill cap, located on the reservoir, until oil comes out of the end of the *top* hose.
6. Re-place plug in *top* hose and (if needed) add oil until oil reaches fill line on sight glass and check periodically to ensure that the level is correct.

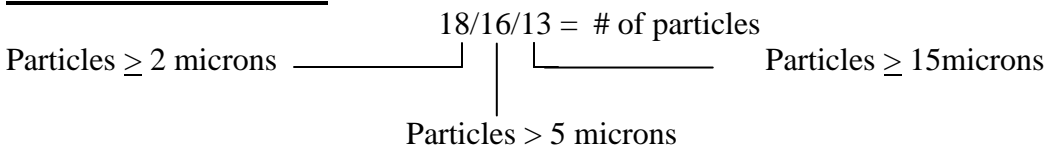
Recommended oil for this gearbox is **PENNZOIL MULTI-PURPOSE GEARLUBE 4140, GRADE SAE-85W-140 with “EP” (Extreme Pressure) additive** (for other oil choices see the additional specification listed below)

If you have opted for the “*Extended Warranty*”, you will be provided with oil sampling kits. You should use these kits when pulling oil samples on your equipment. It is crucial that oil samples be pulled in accordance to the provided schedule. **YOUR WARRANTY WILL BE VOID IF ONE OIL SAMPLING TEST IS MISSED.**

Once your oil sample is sent in and analyzed, the information will then be sent back to you. This information will provide you with valuable information on the condition and maintenance of your hydraulic system. It is your (the customer’s) responsibility to maintain the oil cleanliness to the specifications provided. **OIL SAMPLING SHOULD BE DONE WITH EVERY OIL FILTER CHANGE, INCLUDING THE FIRST 50 HOURS.**

After you receive your fluid analysis report, you should check it to ensure that it meets or exceeds the specifications stated. For hydraulic oil the “cleanliness code” specifications are as follow: Your hydraulic oil should be in the 18/16/13 range. Any sampling that is lower than this is good; any sampling that is higher is an indication that your oil is not clean and thus will reduce the life expectancy of your system. You must **immediately** change your hydraulic filters and oil and run the unit for 50 hours and take another sample.

ISO CODE MEANING



If you have opted for the “*Extended Warranty*”, you will receive all the necessary oil sampling kits when you receive your equipment. It is the customer’s responsibility to pull the oil samples and send them in for analysis. All mail charges will be paid by the customer.

We suggest that you buy your next set of change of filters. It will require two (2) in-tank element part # 7954, two (2) charge pump filters # 7956, and two (2) small breather filters part # 7953 B (located on the side of the filler cap near the top of the hydraulic oil reservoir). We recommend that you **NEVER** use paper element filters. Kirby offers a high efficiency, and high capacity Microglass III type.

Oil temperature, cooling system and low fluid volume shut-down

Your unit is equipped with a hydraulic oil temperature readout (optional read-out) and hydraulic oil cooling system.

Normal operating temperature range of your system depends on ambient temperature and duty cycle. The range should vary between 150 and 180 degrees Fahrenheit.

An automatic hydraulic shut-off for the system is set at 190 degrees Fahrenheit. If the hydraulic oil reaches the 190-degrees mark, the hydraulic system will automatically shut down and the “HIGH TEMPERATURE” warning light will illuminate on the operator panel.

The system will not come back on until the oil cools down. If this failure occurs and you are unable to find the cause, call Kirby Mfg. Inc 209-723-0778 for further assistance.

Your system has a hydraulic oil cooling system equipped with fan(s), which automatically will turn on when the oil temperature reaches 120 degrees. The radiator for this system should be cleaned on a **daily basis**. **NOTE**: be careful not to damage cooling fins on radiator when using compressed air to blow out radiator. You should periodically physically check the fans to ensure they are working when the hydraulic fluid temperature is above 120 degrees.

Your unit is also equipped with a low volume hydraulic sensor in the hydraulic fluid reservoir. If for any reason there is a loss of hydraulic fluid in the system the unit will automatically shut down.. **SEVERE DAMAGE** will occur to the hydraulic system if you try to run the motor after the hydraulic system has automatically shut down.

A check of the system should be made to determine the cause of the low volume shut-down. If for what ever reason, your unit is not equipped with the “automatic shut-down” feature and you have a major loss of hydraulic fluid in the system, you **must** shut down the motor **immediately** or the hydraulic system will be **severely damaged**.

GENERAL CHECK LIST

7.1 Inspect all fittings, pipes, tubes, and hoses for leakage. Tighten as needed.

7.2 Inspect oil level in main tank. On stationary units the dipstick capacity allowed is 95 liters. (25 gallons)

7.3 The auxiliary pump capacity required to operate the mixer is 53 liters per minute (14 gpm) @ 2200 P.S.I.. The minimum pump capacity required to operate the mixer is 46 liters per minute (12 gpm) @ 2200 P.S.I..

7.4 Manifold block specification is 53 liters per minute (14 gpm) @ 3000 P.S.I. **Caution: do not exceed these limits.**

7.5 Manifold relief valve is factory set @ 2200 P.S.I. for maximum safety to the system.

7.6 Manifold needle valve controls the speed at which the door opens. It may be adjusted as needed.

7.7 Truck mount and Stationary mixers have 12-volt solenoid valves to operate conveyor motor (optional) and hydraulic door. Solenoids may be shifted manually by inserting 1/8" shaft into the hole at each end of solenoid. This method will determine if the 12-volt power supply or the switches are defective. This method can also be used to determine if the solenoid is struck or other wise defective resulting in a problem with the operation of the discharge.

7.8 For service see preventive maintenance and lubrication schedule in **Section 8**.

8.0 LUBRICATION AND PREVENTATIVE MAINTENANCE

8.1 Main auger bearings.

- (I) Each planetary gearbox (located under the augers) has a top bearing that need lubrication. Lubricate these bearings from the grease bank zerks located on the sides of the mixer. **Lubricate these bearings every 140 hours!** (NOTE: do not over grease this bearing)
- (II) Check to see that all grease lines and grease zerks are in place and in good working order, not plugged, loose or kinked.
- (III) Pump grease using a standard hand pump one (1) pump for each bearing. Always be sure the machine is operating and the bearings are rotating to ensure that they take grease. **CAUTION: DO NOT OVER GREASE. THIS SHOULD BE A TWO MAN OPERATION. ENSURE ALL SAFETY PRECAUTIONS ARE TAKEN.**
 - 1.BEWARE OF ALL MOVING PARTS.**
 - 2.DO NOT WEAR LOOSE FITTING CLOTHING**
 - 3.BEWARE OF THE PTO**

8.2 Power takeoff. U-joints and slip sleeves.

- (I) Follow safety procedures. **DO NOT SERVICE WHILE:**
 - (a) **THE MOTOR IS RUNNING**
 - (b) **THE DRIVELINE IS ENGAGED OR IN MOTION.**
 - (c) **TURN OFF INTERLOCK KEY ON OPERATOR PANEL, REMOVE KEY AND “LOCK-OUT” EQUIPMENT BEFORE ATTEMPTING TO GREASE THE PTO, U-JOINTS & YOKES**
- (II) U-joints (crosses and yokes) must be tight in the bearing cups.
- (III) Bearings are greased through zerk grease fittings. Pump grease using a standard hand pump grease gun until you observe grease coming out of **ALL FOUR** CUPS OF THE U-JOINT bearings.

8.3 Check ALL safety shields and ensure that all are in place.

8.4 Luricating Main Electric Motor output bearing

Procedure for lubricating main motor output bearing:

1. bring motor up to operation temperature.
2. remove “drain cap” located on bottom of bearing
3. with motor running; pump grease into bearing grease “zert” fitting until grease starts to drip from opened “drain cap” hole
4. let motor run for a minute with “drain cap” off to allow any excess grease to drip out of opened “drain cap” hole
5. replace “drain cap”
6. you have now completed the bearing lubrication process.

LUBRICATION SCHEDULE

(Unless stated differently in this manual use the below chart as a general lubrication schedule/guideline when performing preventative maintenance on your equipment)

PM SERVICE	1st 50 Hours	Every 140 Hours	Every 200 Hours	Every 500 Hours	Every 1000 Hours	Every 3 Months	Every 6 Months	Every 12 Months
Change oil in All gearboxes	X				X ⁽²⁾		X ⁽²⁾	
⁽¹⁾ Pull gearbox oil sample for analysis	X				X ⁽²⁾		X ⁽²⁾	
Change hyd. Oil & Send in samples								X
⁽¹⁾ Pull hydraulic oil sample for analysis	X			X ⁽³⁾		X ⁽³⁾		
Grease top Planetary Bearing		X						
Change hydraulic oil filters	X			X ⁽³⁾		X ⁽³⁾		
Grease all Mixer bearings			X					
Grease PTO, Drive Line & Slip Sleeve			X					
Check out Mixer			X					
Electric Motor Bearing						X		

NOTE: For a more detailed Preventative Maintenance (PM) Schedule refer to the “Maintenance Schedule Checklist” located at the end of this chapter.

⁽¹⁾ If you have opted for the three (3) year “Extended Warranty Policy” on all major components, it is **required** that you sample oils on the frequencies stated in the “Extended Warranty Policy” section of this manual. This is necessary to **not** void the “Extended Warranty Policy” (see the “warranty section” of this manual for more details). Even if you have not chosen the “Extended Warranty Policy”, it is “best practices” to perform regular oils sampling and analysis for proper maintenance of the equipment.

⁽²⁾ 1000hrs or 6 months whichever comes first.

⁽³⁾ 500hrs or 3 months whichever comes first.

LUBRICATE TYPES:

<u>COMPONENTS</u>	<u>LUBRICATE NAME</u>	<u>LUBRICATE TYPE</u>	<u>LUBRICATE GRADE</u>
PLANETARY GEARBOX OIL (IMPORTANT!!)	SEE CHOICES A: 1 - 4 BELOW	SEE CHOICES A: 1 - 4 BELOW	SEE CHOICES A: 1 - 4 BELOW
PLANETARY GEARBOX TOP BEARING GREASE	SEE CHOICE B: BELOW	SEE CHOICE B: BELOW	SEE CHOICE B: BELOW
BEARINGS AND DRIVE LINE YOKES GREASE	PENNZOIL	AW	NLGI #2
HYDRAULIC SYSTEM OIL (STATIONARY ONLY)	PENNZOIL	AW	68
HYDRAULIC MOTOR SPLINES (STATIONARY ONLY)	SEE CHOICE C: BELOW	SEE CHOICE C: BELOW	SEE CHOICE C: BELOW

A. PLANETARY GEARBOX OIL CHOICES:

(ALSO, USE THIS GEAR OIL IN RIGHT ANGLE, TEE AND TWO SPEED GEARBOXES)

- 1.) MobilMobilube SHC 75W-90
- 2.) Chevron.....Chevron RPM Synthetic Gear Lubricant SAE 75W-90
- 3.) Texaco.....Texaco Syn-Star GL 75W-90
- 4.) Texaco ...Texaco multigear EP SAE 85W-140

* **IMPORTANT !!:** All gearbox oils **MUST** have an **EP** (“Extreme Pressure”) **additive**.

B. PLANETARY GEARBOX TOP BEARING GREASE:

** Use an NLGI Grade 2 grease with an **EP** (“Extreme Pressure”) **additive**.

C. COUPLING GREASE:

Texaco Coupling grease, CPS number 221912

Use when mating male and female splined shafts and coupling to reduce “*fretting*” of spline material.

Areas of application:

- between PTO spline connections
- between hydraulic motor splines and planetary input splines
- between “T” & 90⁰ gearboxes and planetary gear boxes, (optional)

D. ELECTRIC MOTOR BEARING:

Mobil Polyrex EM or Chevron SRI 2

PROCEDURE FOR SAMPLING AND CHANGING OILS:

The following information pertains to changing and sampling the oils in both the gearboxes and the hydraulic circuit (trucks & stationary mixers only) on the mixer.

Note: Always make sure to change and sample oil immediately after the equipment has been in operation. This will ensure that the oil is warm which will allow it to flow more freely when it is being drained. Also, this will ensure that any particles that are in the oil will be in suspension while pulling an oil sample.

I. GEARBOXES:

A. Planetary Gearboxes, (truck, trailer and stationary):

Draining gearbox:

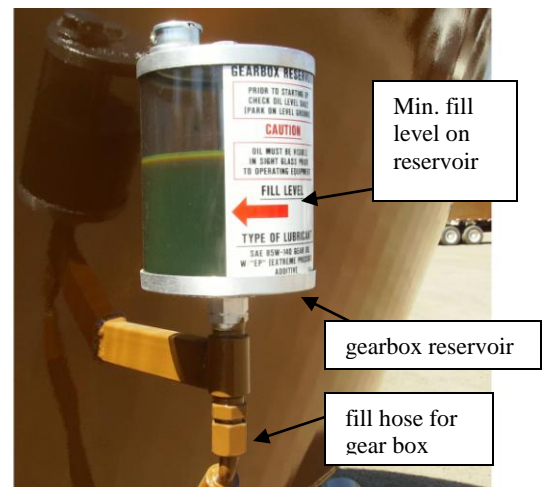
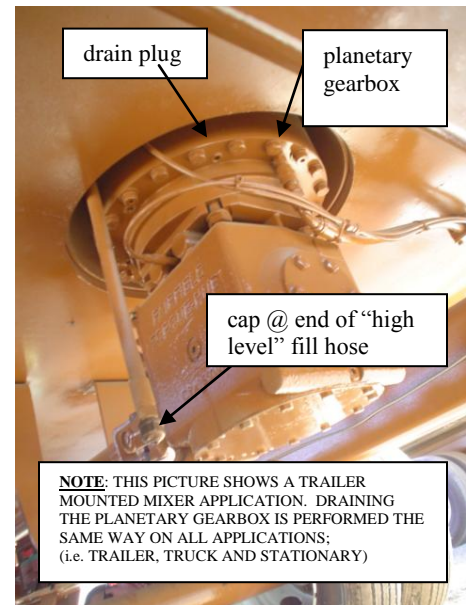
Step

1. locate drain plug on bottom of gearbox
2. whip area clean around drain plug
3. Place drain pan under gearbox drain plug
4. remove drain plug from bottom of gearbox.
5. while oil is draining out capture sample in clean sampling bottle
6. cap sampling bottle and completely fill-out information sheet
7. **SECURELY** replace plug when last of oil has drained from gearbox

Filling gearbox:

Step

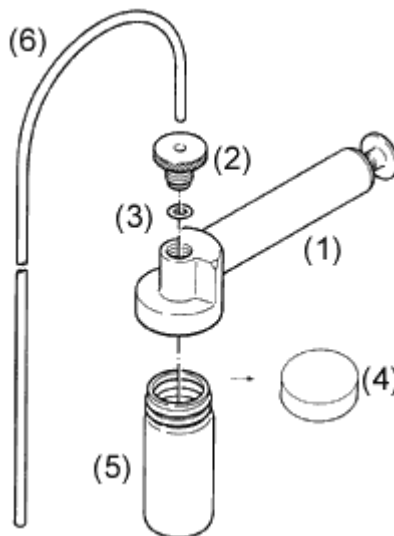
1. remove cap on “high level” fill hose, (this hose hangs down from the planetary gearbox)
2. disconnect fill hose on remote gearbox oil reservoir
3. fill gearbox through fill hose, (note: since gear oil is thick and doesn’t flow freely an oil dispensing pump system is recommended when re-filling oil, pump system pressure should **never exceed 10 psi.**, so seals are not damaged).
4. gearbox is full when oil starts to flow from the “high level” fill hose
5. at this point, stop adding oil and reconnect fill hose to the reservoir and observe the “high level” fill hose
6. when the excess oil has stop flowing from the “high level” fill hose **SECURELY** replace cap
7. check oil level in sight glass on gearbox reservoir, (the oil level in the reservoir should be located at approximately mid-point in the sight glass)
8. run equipment, recheck oil levels and check for leaks
9. you have now successfully completed the oil changing process
10. **IMPORTANT:** recheck oil levels in reservoirs over the next week to ensure proper oil levels are maintained




II. HYDRAULIC SYSTEM, (truck mount only):

BOTTLE SAMPLING PROCEDURE :

1. A representative oil sample should be drawn directly after the shut down before the filter.
2. Check whether the thread of the pump (1) is clean, if not please use a fluff-free cloth.
3. The sample can be taken quickly through the dip-stick opening. Please estimate the required tube length (use the dip-stick) and cut the end to an angle of approximately 45°.
4. Release the aluminium knurled screw (2) on the pump (1) so that you can insert the tube through the whole of the knurled screw.
5. Tighten the knurled screw (2). So the tube (6) will be fixed to the seal (3). The system is sealed now.
6. Screw the open sampling bottle (5) on the "VAMPIRE" pump (1).
7. Clean carefully the sample taking and avoid contamination of the tube.
8. Insert the end of the sampling tube through the inlet into the oil. The tube should not touch the bottom of the oil tank or oil pan.
9. Please hold the sampling bottle always vertically downwards (see picture).
10. Start pumping the oil into the bottle. Stop pumping early enough to prevent contamination of the pump by overflowing the bottle. Leave 1 cm of the bottle unfilled to allow the oil being shaken.
11. Loose the knurled screw to release the vacuum and remove the tube from the pump.
12. Unscrew the bottle and close it with the cap (4).



Maintenance Schedule; (for stationary mounted vertical mixer)

Maintenance Schedule					
equipment:	vertical mixer (stationary mount)				
frequency:	100 hours; approximately 1 week intervals; UNLESS STATED OTHERWISE BELOW				
Customer	Location				
Date service performed	Hours on unit				
Equipment ser. no.	Service technician				
MAJOR AREAS					
1. CUSTOMER INFO.					
	minor areas	item	description	check-off	follow-up required (y/n)
	general	1	1 speak with equipment operators		
		2	2 speak with maintenance technicians		
2. HYDRAULIC SYSTEM					
	minor areas	item	description	check-off	follow-up required (y/n)
	general	1	1 check for leaks; (hoses, fittings, seals, etc)		
		2	2 pull and identify oil samples, (every 500 hrs)		
		3	3 check oil levels, fill if needed		
		4	4 change all oil filters, (every 500 hrs)		
		5	5 change hydraulic oil, (every 4000 hrs.; approx. 1 year)		
		6	6 check pressure bypass (relief) settings & record		
		7	7 check for worn hoses		
		8	8 start mixer and listen for unusual noises		
		9	9 start mixer and check general operating parameters		
		10	10 check driveline to pumps; (lubricate yokes every 8 hrs)		
			(a needle lube gun fitting may be needed)		
		11	11 check operations of hydraulic actuators		
		12	12 check and record pressures on pump (w/ load & w/o load)		
		13	13 check and record pressures on motor (w/ load & w/o load)		
		14	14 clean heat exchanger (radiator) on hydraulic system (daily)		
3. MECHANICAL SYSTEM					
	minor areas	item	description	check-off	follow-up required (y/n)
	general	1	1 are all guards in place, (notify customer if not)		
		2	2 start mixer and listen for unusual noises		
		3	3 look for worn/broken parts		
		4	4 lubricate all grease zert fittings and/or points of lubrication		
	planetary gearbox	1	1 check oil levels (daily) , fill if needed; (pull oil sample and change oil every 1000 hrs, 1st oil change at 50 hrs)		
		2	2 if applicable, identify oil samples; (send out for testing)		
		3	3 is oil clear		
		4	4 grease top bearing every 140 hours		

9.0 ELECTRONIC SCALES AND LOADCELLS

CAUTION: DO NOT WELD ON EQUIPMENT. Scales must be disconnected from power source and/or battery before welding to prevent damage to micro-processor and strain gauges.

Observe (4) bolts on each load cell stabilizer bracket. They should move freely.
Battery or 12 volt power supply must have a minimum of 12 volt-15volt for satisfactory operation of scale. **SEE SCALE MANUAL FOR PROPER OPERATION.**

Twelve (12) volt terminals, connections must be clean and corrosion free and kept tightened.

Loose connection to power or ground will interfere with scale.

Observe J-Box, load cell cables, and power cords for cuts, hanging loose or pulled too tight at the terminals and for loose connections. Correct these conditions.

CAUTION: DO NOT EXPOSE OPEN WIRES, J-BOX OR SCALE INSTRUMENTS TO DIRECT FORCE OF WATER. All entry points are water resistant, but must not be subjected to direct force of water.

Scale instruments are very dependable, but microprocessors are sensitive to electrical interference.

- (I) For stationary mixer operated from commercial power, be sure to confirm that the power source is stable.
- (II) Check to eliminate the power supply as the source of a scale problem. To do this connect the scale directly to a separate charged 12 volt vehicle battery. If the scale problem goes away, the power source is the problem.
- (III) This method may also be used to trace or isolate many other glitches from unknown sources.

CAUTION: SCALE REPAIRS ARE BEST ACCOMPLISHED BY TRAINED AND QUALIFIED SCALE REPAIR PERSONNEL.

CAUTION: ELECTRICAL MOTORS, POWER SUPPLIES, AND CONTROL CABINETS MUST BE REPAIRED BY QUALIFIED SERVICE ELECTRICIANS.

**** NOTE: SEE APPENDIX FOR ADDITIONAL INFORMATION**

10.0 EQUIPMENT OPERATIONS

Pre-Start up Check List (CAUTION: make sure that mixer is turned off and LOTO procedures are being utilized)

Before operating your Kirby Mixer, make sure the following have been checked: Take appropriate action to correct any deficiencies.

Hydrostatic Drive Systems

- Check that all guards are in place and secure
- Visually inspect all hydraulic lines for wear, fitting tightness and hydraulic leaks
- Check hydraulic fluid level in hydraulic tank
- Visually inspect inside of mixer chamber for loose or missing blades, clear of any foreign objects, if lined with stainless steel check for wear
- Oil levels on planetary gearbox at the proper levels
- Hydraulic tank filter gauge reads green
- Charge pump filter glass ball at top reads green
- Discharge door is closed
- If equipped with a second door, that it is closed
- Check if hay stops are fully out, or at proper insertion

Mechanical Drive Systems

- Check that all guards are in place and secure
- PTO lock collar of the mixer is properly locked into place
- PTO guard for mixer PTO is on and shows no signs of damage
- Hydraulic lines are installed properly
- Visual inspect inside of mixer chamber for loose or missing blades and clear of any foreign objects, if lined with stainless steel check for liner wear
- Oil levels on planetary gearbox at the proper levels
- Visually inspect for any leaks from gearboxes
- Discharge door is closed
- If equipped with a second door, that it is closed
- Check if hay stops are fully out, or at proper insertion

Loading/Discharging Instructions

IMPORTANT – turn on motor, shift “*hydrostatic control*” level to **FULL** speed, engage hydraulically driven augers, (**NOTE: turn only one auger on at a time, do not try to start both augers at the same time**). Failure to do so could result in damage to the drive system.

Check operation of the following:

- Doors open and close
- “Discharge Conveyor” turn on and off; (optional)
- “Conveyor Slide” slides in and out; (optional)

- Turn on scales and “0” balance or check procedure appropriate for your scale type and model (see scale manufacture’s operation manual)
- Mechanical Driven System, (only): ensure that the two speed shifts from high to low and ensure that mixer is in low gear (slowest auger speed) to mix the ration.

The average mixing cycle is from 3 to 5 minutes with normal rations for a thorough and accurate mix. The correct length of time for your application will be found by experimentation.

The length cut of the hay you put into the mixer will be determined primarily by the following:

- Quality and type of hay
- Hay stops in or out
- How many and the sharpness of the cutting blades on your augers
- The speed of the augers (direct relationship with motor RPM)
- Length of mixing time

Recommended RPM of mixer in a stationary position for mixing of ration.

Stationary mixer: 1,500 to 1,800 RPM motor speed

Load hay first with mixer running at recommended RPM. If after a load you have determined that your hay needs to be cut shorter, you may want to check the hay stops and start with pushing both hay stops in one setting for a finer cut. If you would like still a shorter cut length push the hay stops in another setting, etc.

Always remove all twine, wire or wrappings from the bales before loading into the mixer.

**NEVER THROW HAY BY HAND FROM THE STACK OR A PLATFORM INTO THE MIXER!
The possibility of falling into the Mixer could result in serious injury or death.**

Always use a loading device for all commodities loaded into the mixer.

You may continue to add the commodities with the recommendation of the following:

- Balance of grains or commodities keeping fragile commodities towards the end of the mix
- Concentrates or other dry ingredients of small quantity should be added to the middle of the loading sequence
- Silage, green chop, or other high moisture commodities
- Add wet ingredients last (water, whey, animal fat, molasses, liquid supplements)

Inspection of the mix may be made on the platform or ladder of the mixer. Caution should be taken that only one person at a time is viewing the load. **Only stand on mixer platform; (Never climb higher than the platform or ladder allow).**

NOTE: when ever possible leave augers running from start of mixing sequence (empty mixer) to the end of mixing sequence (empty mixer). Starting a full mixer is not recommended, since this will put a large starting torque load on the drive components. When ever possible, you should fully off-load the mixer prior to turning it off.

This mixer was designed to mix with the “hydrostat control” shift lever in the **FULL** speed position. When running (empty) the augers should turning at approximately 32-36 RPM. Once the mixer is loaded with feed stuff and the operating pressure reaches 3,125 psi the hydraulic motors, which are attached to the planetary gearboxes, will shift to half speed. This will reduce the mixer’s overall power demand by a factor of two (2). This will also result in an auger speed of approximately 16-18 RPM.

NOTE: The **HALF** speed setting on the “hydrostat control” shift lever is designed to be used when the mixer does not have enough power to over come a large load in the motor start-up mode. If for some reason the fully loaded mixer does not want to start, it is recommended to shift the “hydrostat control” shift lever to **HALF** speed prior to re-starting the mixer augers. For even harder start-up loads, the “hydrostat control” shift lever should be shifted to the **OFF** position and gradually moved to the **HALF** speed setting. Note: the “hydrostat control” shift lever can be moved will the system is in operation, (i.e. electric motor on).

Discharging Instructions

The discharge rate of your mixers ration is controlled by three (3) items:

- the amount that the discharge door (s) is opened
- auger speed
- take-away conveyor speed.

The take-away conveyor should be running any time that the discharge door is opened to take-away the feed from the mixer. You may vary the speed of the take-away conveyor to insure that it is running fast enough to take-away the feed being delivered by the mixer.

Start-up sequence: (optional, automation)

1. turn on take-away conveyor
2. open discharge door(s)

Shut-down sequence: (optional, automation)

1. close discharge door(s)
2. turn off take-away conveyor

Note: the above sequences can be automatically controlled by wiring them directly into the operator panel and creating the logic required to start/stop the devices in the proper sequence.



ALWAYS ensure that **ALL** proper safe guards are in place when automating a piece of equipment. This type of safe guarding is the equipment owner’s responsibility.

The main mixer motor speed should be operated between 1500 and 1800 RPM to provide adequate hydraulic oil to operate the hydrostatic power system and the door controls, and for the most effective mixer operation.

As you start to discharge a full load from the mixer, the hydraulic auger motors will be in low speed, (the hydraulic motors will “*automatically*” be in low speed at this time). When 12,000 – 16,000 lbs. of mix remain in the mixer, the hydraulic auger motors will “*automatically*” shift into high speed for a quicker clean out.

**“AUTOMATIC” TWO SPEED HYDRAULIC MOTOR SHIFTING,
(TRUCK MOUNTED MIXER AND STATIONARY MIXER)**

The Kirby hydraulically driven mixer utilizes a *two speed* hydraulic motor. This motor is coupled to each of the planetary gearboxes which are located under each mixing auger.

The speed of the auger is determined by two factors, one is the RPM of the electric motor and the other is the pressure required by the hydraulic system to keep the augers turning.

If the electric motor is running at an rpm of approximately 1800 RPM, the augers of an empty mixer will be turning at approximately 34 RPM. With an empty mixer, the system pressure needed to turn the augers will be minimal. As hay is loaded into the empty mixer the augers will be turning at approximately 34 RPM, this will produce a fast cutting action. As more feed is put into the mixer the pressure on the “hydrostatic drive system” will start to increase. Once the “hydrostatic drive system” pressure reaches a pre-set pressure of 3,125psi, the augers will “*automatically*” shift down to half their rotational speed, (approximately 17 RPM). This “*automatically*” shifting down action will reduce the overall power requirements of the mixer. This will allow the mixer to mix even the largest loads with ease, while still producing a thoroughly mixed ration.

Once the mixer’s feed has been discharged to a point that requires less than 3,125psi in the “hydrostatic drive system” the augers will “*automatically*” shift back to high speed, (approximately 34 RPM). This high speed auger action will help assist with a fast and uniform clean-out.

Start-Up, Run, & Shut-Down Instructions:



Only *trained* operators should use this equipment, Refer to the Safety Section of this manual for more details). Always ensure that the area around the mixer is secured and that **ALL** personnel in the area are clear of the mixer prior to start-up; (also **ALWAYS** make sure to check inside the mixer prior to starting the mixer).

During ***NORMAL OPERATIONS***, try not to start the mixer when it is loaded with feed. (if a full mixer needs to be started, it is best to start the mixer with the “hydrostat control” shift lever to in the **HALF** speed position.).

MIXER STAT-UP SEQUENCE:

- Make sure that all electrical cabinets and panels are closed and secured.
- The “hydrostat control” shift lever should be in the **FULL** speed position, (see photo #4)
- Make sure main breaker is in the “**ON**” position on the “*main power cabinet*”, (see photo #3)
- The selector switch on the front of the “*main power cabinet*” is in the “**LOCAL**” position and **NOT** in the “**REMOTE**” position, (see photo #2)
- Where applicable make sure that the all emergency stop(s) are pulled-out
- Switch the auger OFF/ON switches located on side of “*joy stick*” control box to the **OFF** positions
- Start the main motor by pushing the **START** button on “*main power cabinet*”, (see photo #2)
- **CLOSE** all mixer door(s) prior to starting the augers; (red lights will illuminate on control consol)
- Turn rear auger **ON**, with switch located on side of “*joy stick*” control box
- Turn front auger **ON**, with switch located on side of “*joy stick*” control box
- Turn scale **ON**; (refer the Scale Manual for more assistance).
- Check door(s) operations by opening and closing door(s); this is done by using the “*joy stick*” control leveler, (see photo #1)
- Close mixer door(s), note: when mixer doors are fully closed a “green” light will illuminate. These green lights will indicate that the mixer is ready to mix a batch of feed.
- You are now ready to load the mixer.

MIXER RUN SEQUENCE: (when mixing multiple batches)

- **CLOSE** all door(s) on mixer prior to starting mixer’s next batch
- Zero the read-out on scale display.
- Load mixer; (refer to the Section on Equipment Operations for more details)
- Run mixer until the desired mix consistence is obtained.
- Once the desired mix consistency is obtained open the door and empty the mixer.
- If for any reason you need to stop the mixer augers prior to off-loading a mixed batch of feed, make sure you do so with the auger **ON/OFF** switches. Also when re-starting the mixer augers, only start one auger at a time. **DO NOT** stop and start the mixer with the **STOP/START** buttons on “*main power cabinet*”. The main motor should **never** be turned off during the daily feed mixing process.

Start-Up, Run, & Shut-Down Instructions: (con't)

NOTE: the control system on the feed mixer allows the user to off-load the mixer from either the control switches located inside the control room (see figure #1) or the control switches located remotely at the discharge conveyor, (see figure #5)

- To off-load the mixer from the control room, simple turn on the switch labeled conveyor and move the “*joy stick*” backward on the control consol until the green door light illuminates, (this indicates that the door is fully open), (see photo #1)
- To off-load the mixer from the remotely mounted control switches, simple turn on the switch labeled conveyor and move the toggle switch label DOOR upward on the control panel until the green door light illuminates, (this indicates that the door is fully open), (see photo #5)
- Once all the feed has been conveyed out of the mixer, simple close the door and turn off the conveyor. NOTE: when the door is fully closed, the red door light will illuminate, this indicates that the door is fully closed).
- Now you are ready to mixer another batch of feed
- For additional batches repeat the instructions in this “**MIXER RUN SEQUENCE**”
- If no more mixing is needed go to the “**SHUT-DOWN SEQUENCE**”

NOTE: During normal operations, **NEVER** open the optional “AUXILIARY DOOR” of the mixer. Always make sure to check that the auxiliary door of the mixer is fully closed prior to and during mixing. This door should only be used to assist with performing maintenance on the equipment or emergency off-loading of feed.

VERY IMPORTANT: **ALWAYS** use the proper LOTO procedures when performing maintenance on the equipment!!

SHUT-DOWN SEQUENCE:

- Ensure that the mixer and conveyor(s) are completely empty of feed.
- **CLOSE** all door(s) ;(red lights will illuminate), (see photo #1)
- Turn **OFF** rear auger, with switch located on side of “*joy stick*” control box
- Turn **OFF** front auger, with switch located on side of “*joy stick*” control box
- Turn off motor by pushing the **STOP** button on “*main power cabinet*”, (see photo #2)
(**DO NOT** use the emergency stop button when turning off the mixer)
- You have now successfully shut-down the mixer.

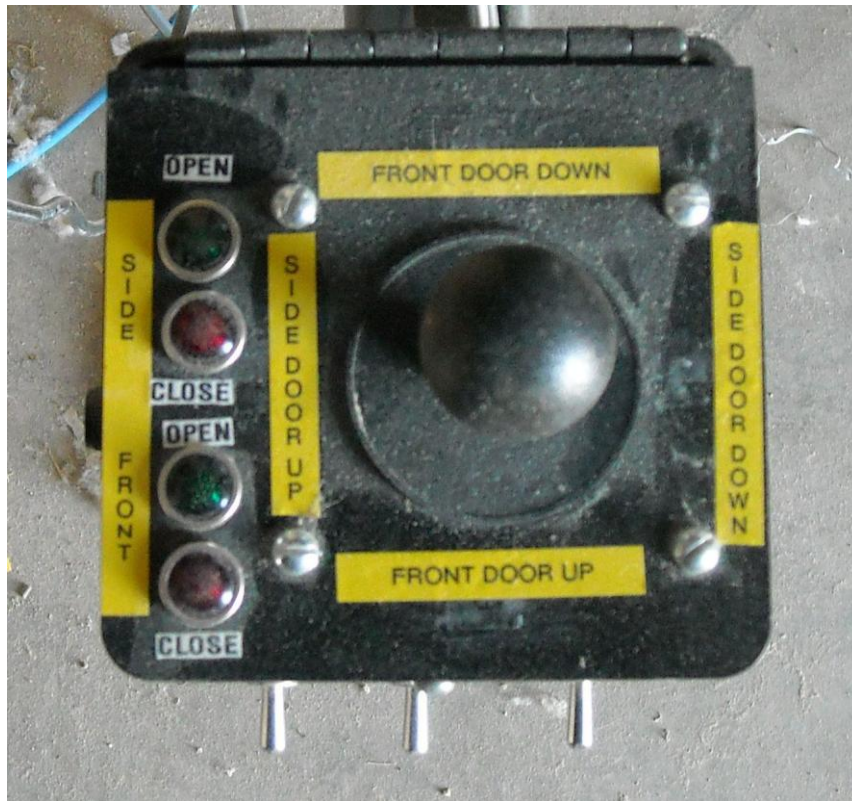
Note: The “hydrostat control” shift lever controls the hydrostatic pumps’ displacement, (volume). The “hydrostat control” shift lever, (see photo #4)

FULL position = full pump displacement = augers at full (maximum) speed, (approx. 34 RPM)

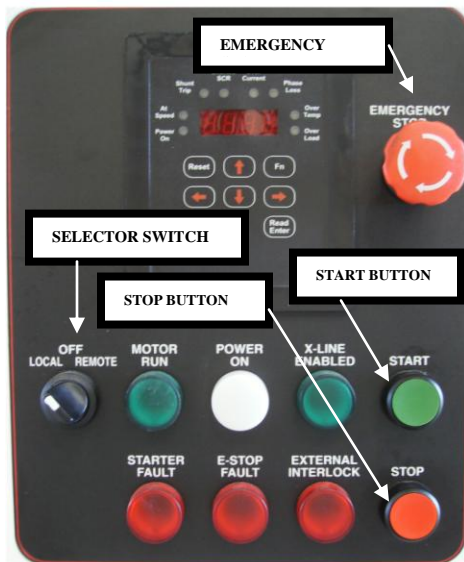
HALF position = half pump displacement = augers at half speed, (approx. 17 RPM)

OFF position = zero pump displacement = augers at zero speed, note only the auxiliary pump will be in operation when the “hydrostat control” shift lever is in the **OFF** position.

**The auxiliary pump is used to supply hydraulic fluid to power the cooling fan located on the hydraulic heat exchanger, as well as, open and close the mixer doors.



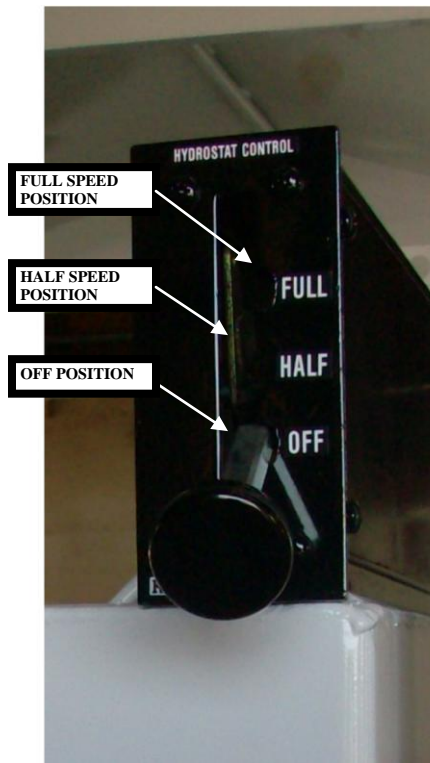
JOY STICK CONTROLS SWITCH
PHOTO #1



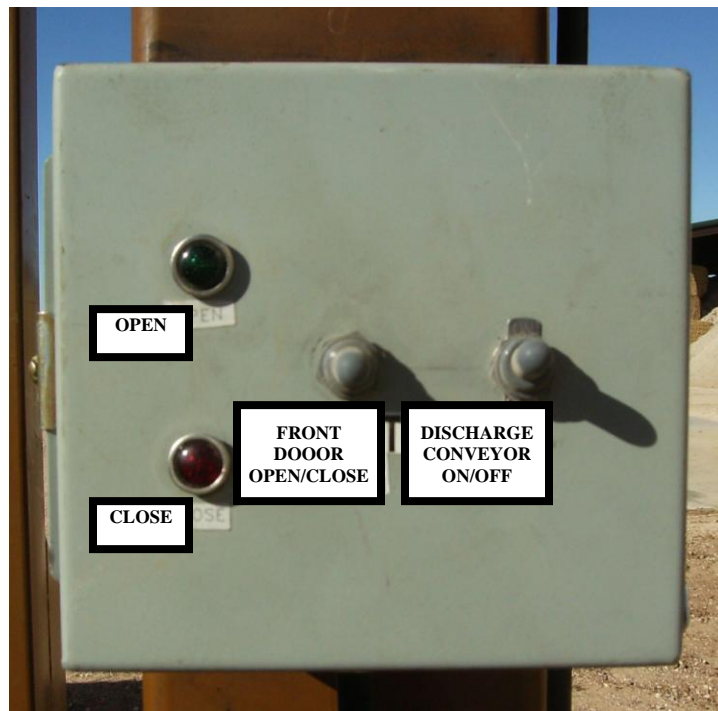
START AND STOP BUTTONS
MAIN POWER CABINET
PHOTO #2



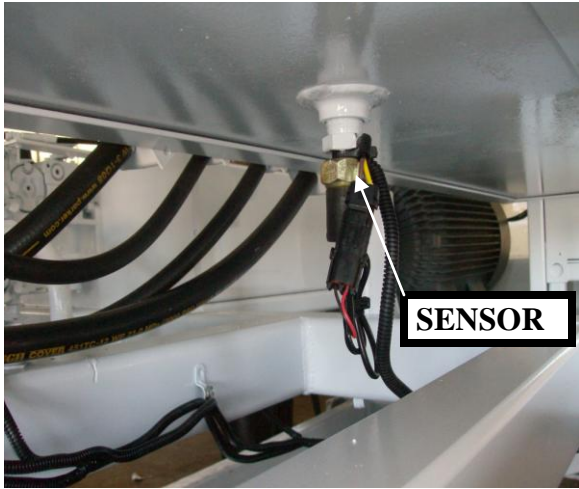
MAIN POWER DISCONNECT
MAIN POWER CABINET
PHOTO #3



HYDROSTAT CONTROL LEVER
PHOTO #4



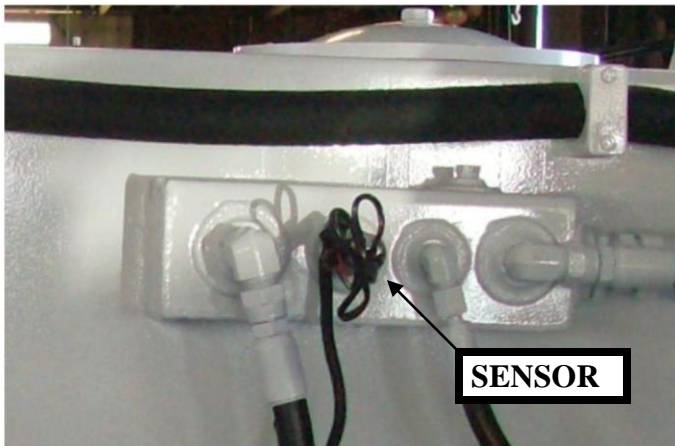
REMOTE OFF-LOADING CONTROL PANEL
PHOTO #5



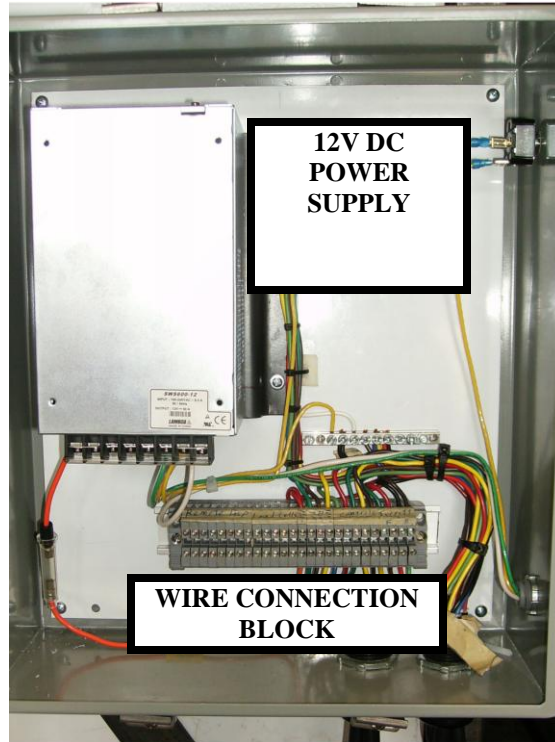
“IN-TANK 120 °F FAN
“ON” SENSOR
PHOTO #6



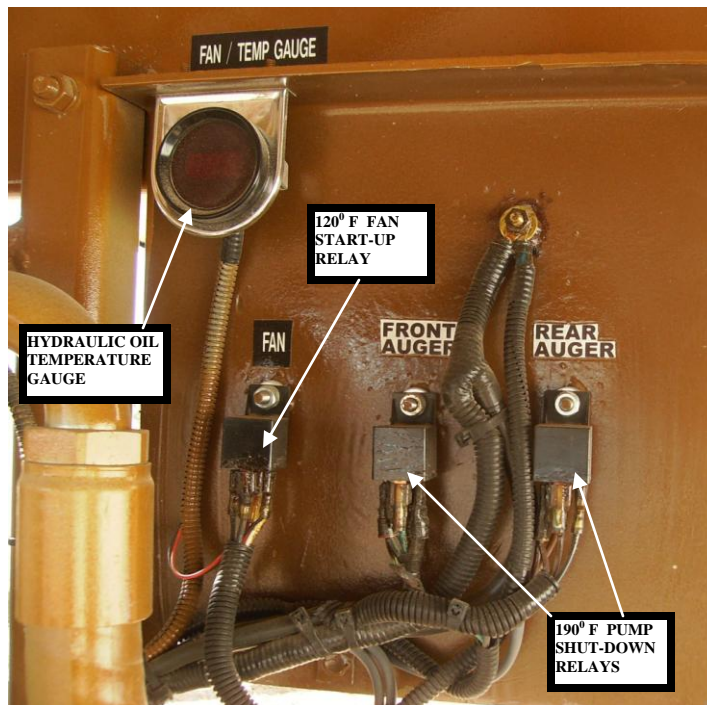
HYD. OIL. “TEMPERATURE
GAGE” SENSOR
PHOTO #7



“RETURN TO TANK” 190 °F “HIGH TEMP”
AUTO SHUT-DOWN SENSOR
PHOTO #8



TYPICAL "12VOLT DC" POWER SUPPLY
PHOTO #9



TEMPERATURE GAUGE & RELAYS
PHOTO #10

11.0 SPARE PARTS

SPARE PARTS LIST

11 SPARE PARTS

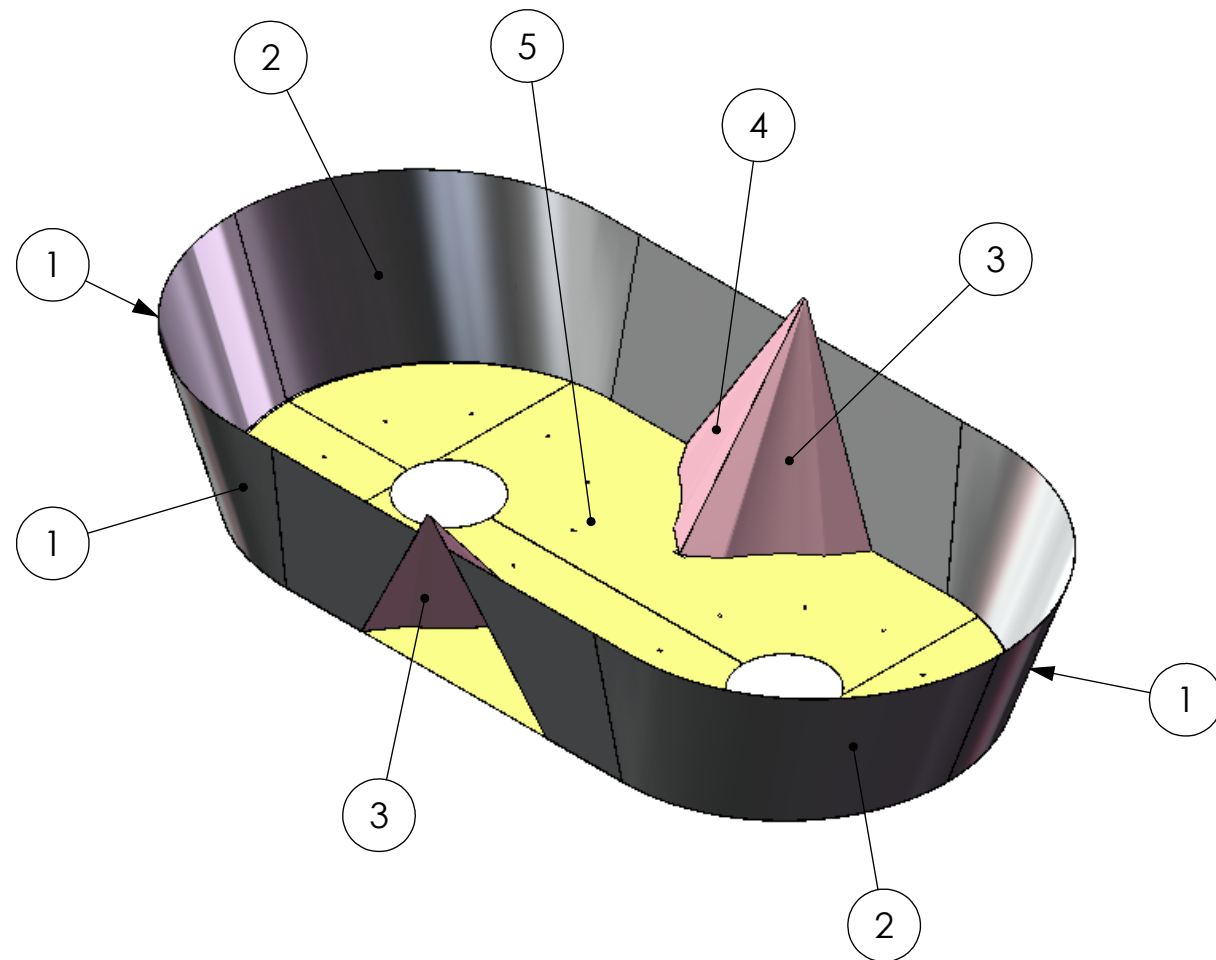
DWG NO.	DESCRIPTION
OMVRT-001	LP VERTICAL MIXER SSTL LINERS
OMVRT-002	LP VERTICAL MIXER ASSEMBLY OPTIONS
OMVRT-003	COMER AUGER DRIVE ASSEMBLY
OMVRT-004	AUGER DRIVE ASSEMBLY
OMVRT-005	LH HYDRAULIC 36" CHAIN CROSSFEED
OMVRT-006	DUAL HYDRAULIC 36" CHAIN CROSSFEED
OMVRT-007	TANDEM AXLE TRAILER ASSEMBLY
OMVRT-008	SINGLE AXLE TRAILER ASSEMBLY
OMVRT-009	TRUCK MOUNT SUBFRAME ASSEMBLY
OMVRT-010	MECHANICAL DRIVE LINE ASSEMBLY
OMVRT-011	ALL HYDRAULIC DRIVELINE ASSEMBLY
OMVRT-012	FRONT MOUNT PUMP & MOTOR HYD. ASSY.
OMVRT-012R	REAR MOUNT PUMP & MOTOR HYD. ASSY.
OMVRT-013	FRONT MOUNT PUMP & HYD. ASSY.
OMVRT-013R	REAR MOUNT PUMP & HYD. ASSY.
OMVRT-014	FRONT MOUNT COOLER & TANK HYD. ASSY.
OMVRT-014R	REAR MOUNT COOLER & TANK HYD. ASSY.

OMVRT-015	VERTICAL MIXER HYDRAULIC TANK
OMVRT-016	SOLENOID MANIFOLD HYDRAULIC ASSEMBLY
OMVRT-017	FOLDING SPOUT HYDRAULIC ASSEMBLY
OMVRT-018	ELP ACCESS LADDER ASSEMBLY
OMVRT-019R	REAR MOUNT COOLER & TANK HYD ASSY (LINDE SETUP)
OMVRT-020	SOLENOID MANIFOLD HYDRAULIC ASSEMBLY (LINDE SETUP)
OMVRT-021	REAR HYDRAULIC PUMP & MOTOR ASSEMBLY (LINDE SETUP)
OMVRT-022	GEARBOX COOLER SCHEMATIC
OMVRT-023	REAR HYDRAULIC PUMP & MOTOR ASSEMBLY (LINDE SETUP) AFTER 9/1/2012

ITEM NO.	QTY.	PART NUMBER	DESCRIPTION
1	2	391068L-SDR	LP SIDE DR. (SSTL.) SIDE & END WALL LINER- LH
2	2	391068R-SDR	LP SIDE DR. (SSTL.) SIDE & END WALL LINER- RH
3	2	392106L-SSTL	LP (SSTL.) LINER SEPARATOR for SIDE DOOR- LH
4	2	392106R-SSTL	LP (SSTL.) LINER SEPARATOR for SIDE DOOR- RH
5	1	391010	BTTM. (SSTL.) LINERS ASSY. for LP800 (ONLY) VERT. MIXER

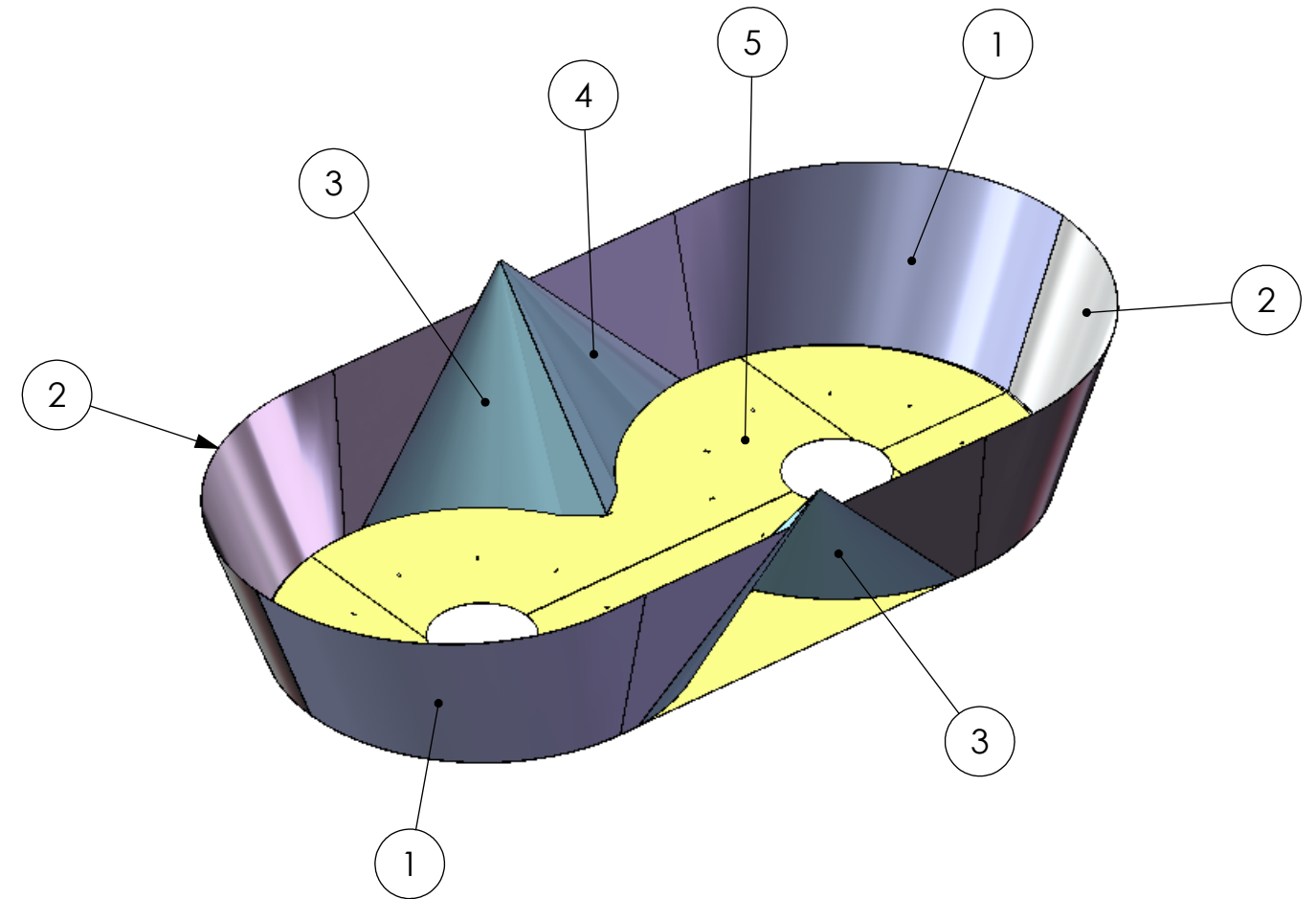
LP VERT. SIDE DOOR

NOTE: ON SIDE DOOR UNITS SPECIFY HOW MANY DOORS ON UNIT, UNIT SERIAL NUMBER NEEDED FOR ALL PART ORDERS.



ITEM NO.	QTY.	PART NUMBER	DESCRIPTION
1	2	391068L	LP STD. (SSTL.) SIDE & END WALL LINER- LH
2	2	391068R	LP STD. (SSTL.) SIDE & END WALL LINER- RH
3	2	391089L	LP800 (SSTL.) SEPARATOR LINER
4	2	391089R	LP800 (SSTL.) SEPARATOR LINER
5	1	391010	BTTM. (SSTL.) LINERS ASSY. for LP800 (ONLY) VERT. MIXER

LP VERT. STD. END DOOR

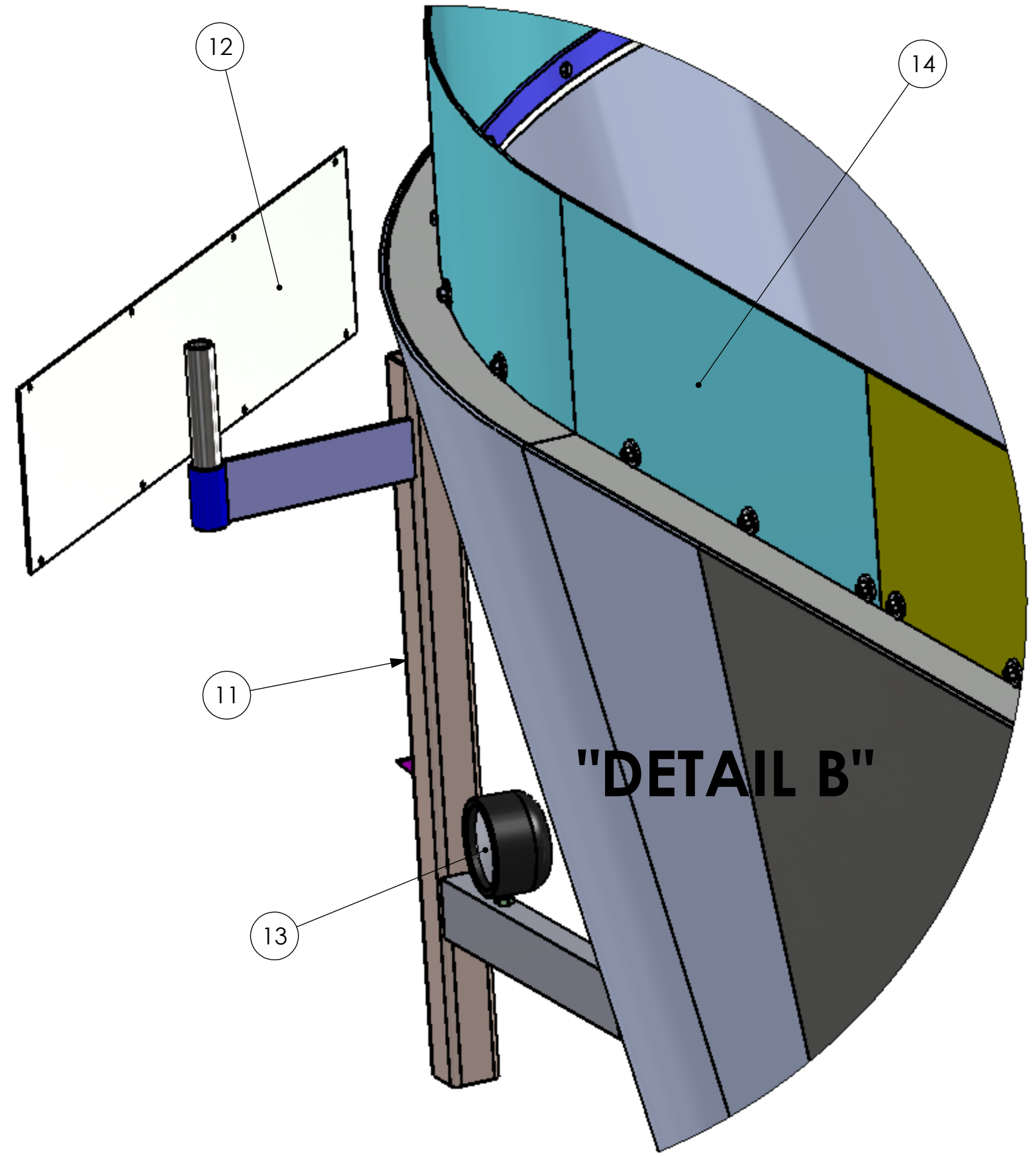
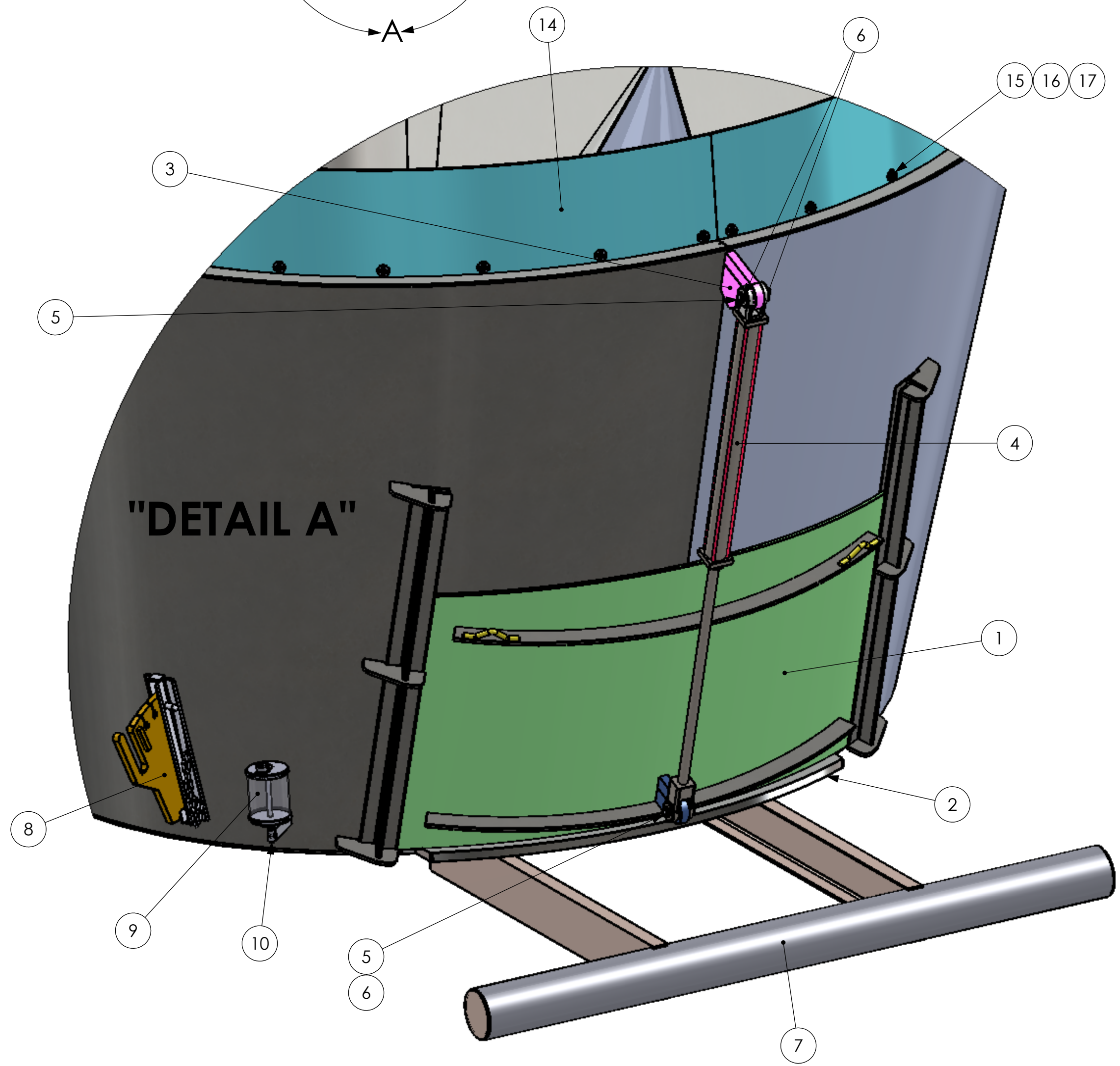
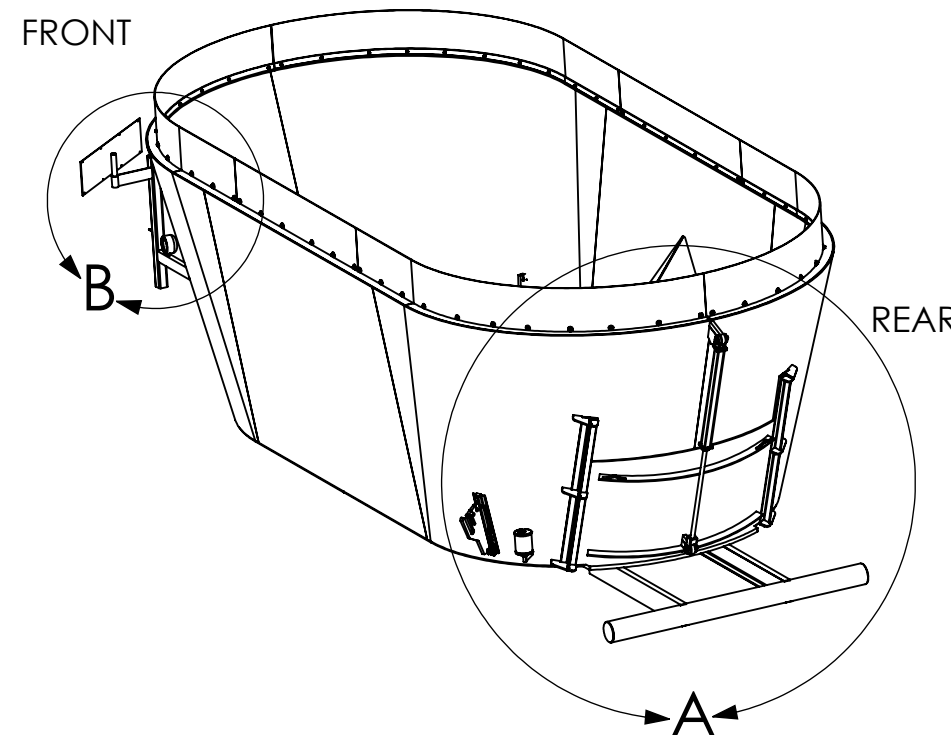


REVISED: 01-30-09 B.K.A.

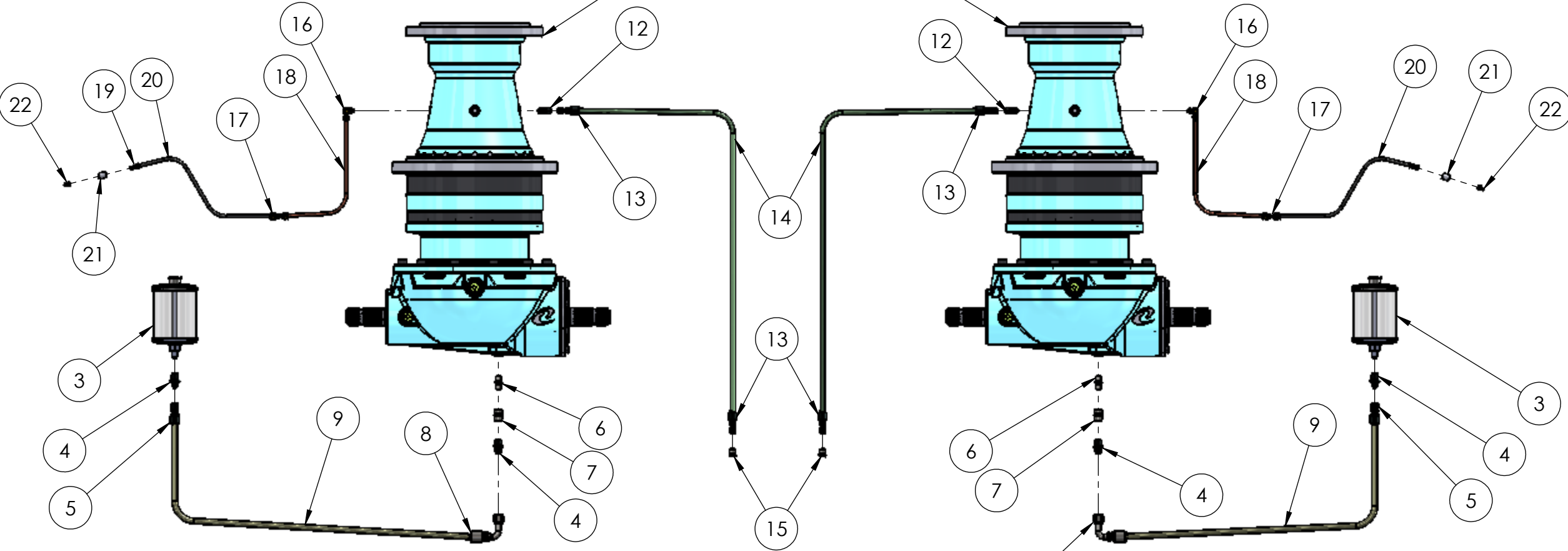
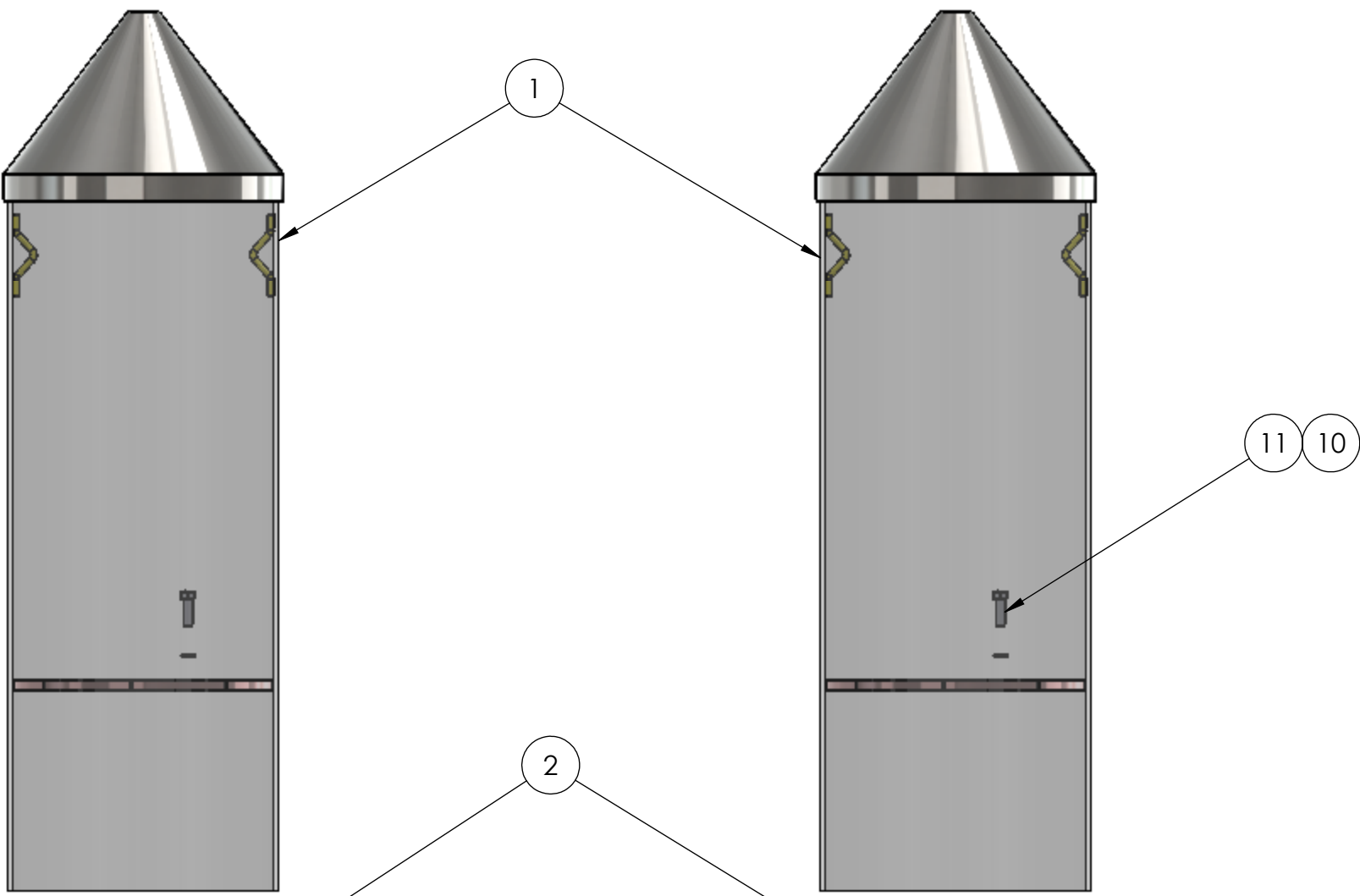
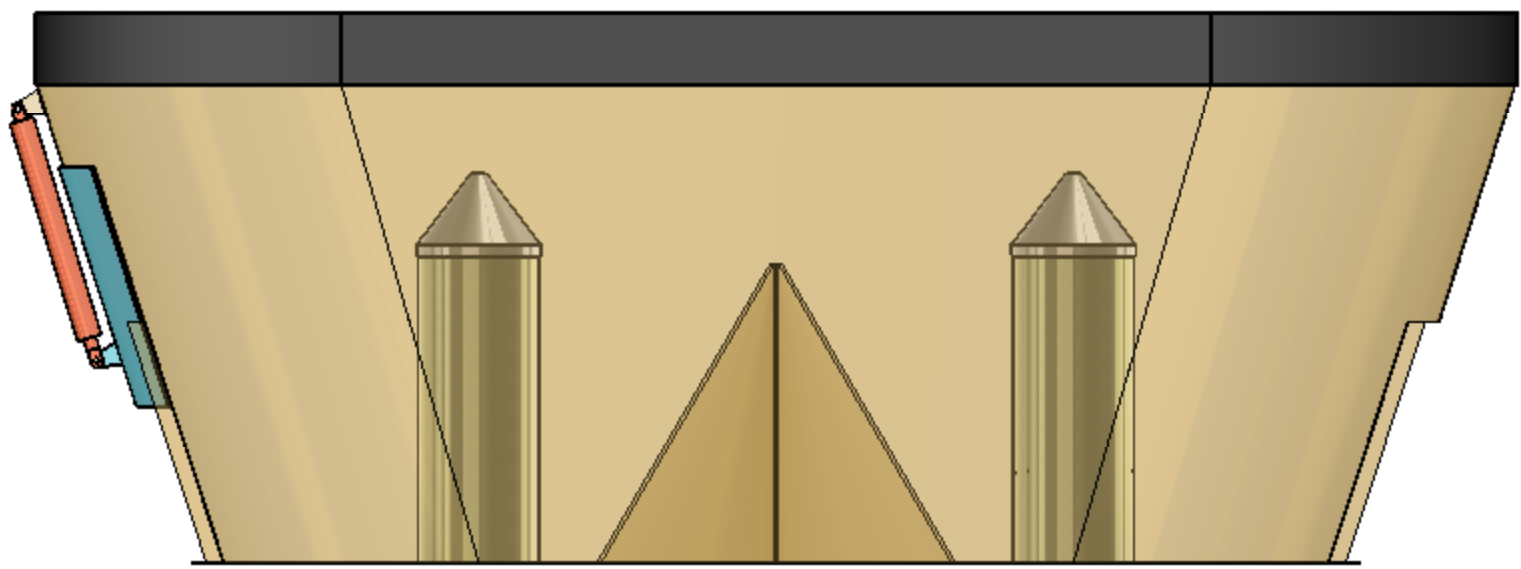
Notes:		Kirby Mfg. Inc. P.O. Box 989 Merced, CA, 95341 Phone: (209) 723-0778 Fax: (209) 723-3941			
AUTOCAD D.F.J. 1-23-01		JOB #:		DESCRIPTION	
		MATERIAL:		LP VERT. MIXER (SSTL.) LINERS	
		MATERIAL P/N:		SIZE PART NUMBER REV.	
DRAWN BY:	DATE 01-09-09	NAME K.C.R.	FINISH:	B OMVRT-001	
CHECKED BY:			VENDOR:	WEIGHT: 1412.098 lbs SHEET 1 OF 1	
APPROVED BY:			VENDOR P/N:		

REVISED: 01-30-09 B.K.A.

ITEM NO.	QTY.	PART NUMBER	DESCRIPTION
1	1	392007r1	VERT. DISCH. DOOR ASSY.- NEW STYLE(REV.1)
2	1	191058	VERT. MIXER DISCH. DOOR LIP
3	1	391027N	(NEW STYLE) DISCH. DOOR TOP RAM MNT.
4	1	7936	HYDR. CYLINDER, 2" x 30"
5	2	7928	CYLINDER CLEVIS PIN
6	4	7929	CYLINDER CLEVIS HAIR PIN CLIP
7	1	392017	LOW PROFILE VERTICAL BUMPER ASSY.
8	2	392014	CHOP GATE ASSY.
9	2	7964	VERT. MIXER PLANETARY GEARBOX OIL RESERVOIR (NEW STYLE)
10	2	7964-1	(NEW STYLE) VERT. MIXER G.B. OIL RESERVOIR MNT.ING BRCKT.
11	1	192021	DISCHARGE DOOR INDICATOR ASSY.
12	1	21318	SCOREBOARD STYLE SCALE DISPLAY MNT. ASSY.
13	1	4719	MIXER (12v) FEED LIGHT, BOLT-ON
14	1	6536	BELT MATERIAL- 10" TALL
15	56	10181	BOLT- 3/8" NC GRD.5 x 1" LG.
16	56	10178	WASHER, LOCK- 3/8"
17	56	10170	NUT- 3/8" NC



Notes:		AUTOCAD D.F.J. 6-12-02		Kirby Mfg Inc. P.O. BOX 989 MERCED CA 95340 PH (209)723-0778 FX (209)723-3941			
DRAWN BY:		DATE		JOB #:			
CHECKED BY:		NAME		MATERIAL:		LP VERT. MIXER ASSY. OPTIONS	
APPROVED BY:		FINISH:		MATERIAL P/N:		SIZE PART NUMBER	
		VENDOR:		VENDOR P/N:		C OMVRT-002 REV. C	
		SCALE: 1:50		WEIGHT: 8198.559 lbs		SHEET 1 OF 1	



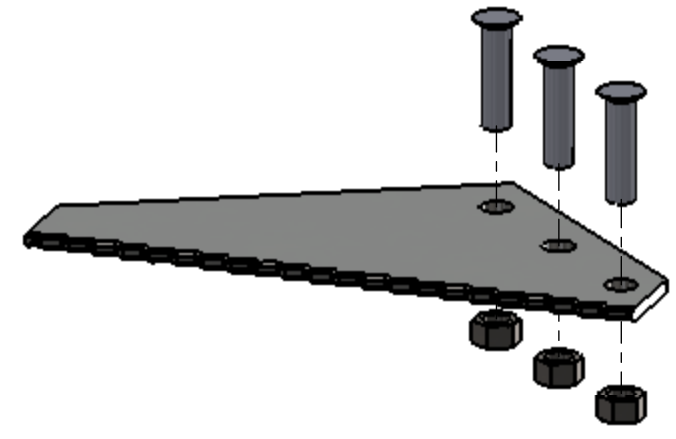
NOTE: AUGER FLIGHTS NOT SHOWN

ITEM NO.	QTY.	PART NUMBER	DESCRIPTION
1	2	SEE NOTE	TWIN SCREW VERTICAL AUGER ASSEMBLY
2	2	7423	PLANETARY GEARBOX
3	2	7964	VERT. MIXER RESERVOIR (NEW STYLE)
4	4	8-8 FTX-S	FITTING, ADAPTER- 1/2" MJIC x 1/2" NPTF MPIPE, STR.
5	2	10643-8-8	COUPLING, STR. FM JIC SWVL., 1/2" x 1/2"
6	2	3_8 FF-S	PIPE NIPPLE, 3/8" MALE PIPE X 3/8"MALE PIPE
7	2	3_8 GG-S	PIPE COUPLING, 3/8" FM PIPE X 3/8" FM PIPE
8	2	13943-8-8	HOSE END 1/2", x 1/2" FM JIC 37*-SWIVEL90* ELBOW
9	1	451TC-8-RL	1/2" HYD HOSE
10	2	10553	WASHER- 5/8" LOCK
11	2	7421A	M16-2.0X60HCS 10.9 BOLTS COMER
12	2	6-6 CTX-S	FITTING, ADAPTER 3/8" MJIC x 3/8" NPTF MPIPE, 90*
13	4	10643-6-6	COUPLING, STR. FM JIC SWVL., 3/8" x 3/8"
14	2	451TC-6-RL	3/8" HYD HOSE
15	2	6 PNTX-S	3/8" MJIC PLUG
16	2	9616	UNION, 1/4" X 1/4" PIPE 90*
17	2	9612	UNION 1/4" COMP
18	2	9605	1/4" COPPER TUBING x 20" LG.
19	2	9614	1/8 PIPE TO 0.25 TUBE MALE CONNECTOR
20	2	9669	1/4" NYLON TUBING x 32" LG.
21	2	9250	1/8" PIPE COUPLER, STRT.
22	2	11310	1/8" NPTF STR. GREASE FITTING

NOTE:

VERTICAL AUGER STYLE	
394006-COM	COMER
394006-COMS	COMER SWEEPER

NOTE: UNIT SERIAL # NEEDED FOR ALL PART ORDERS

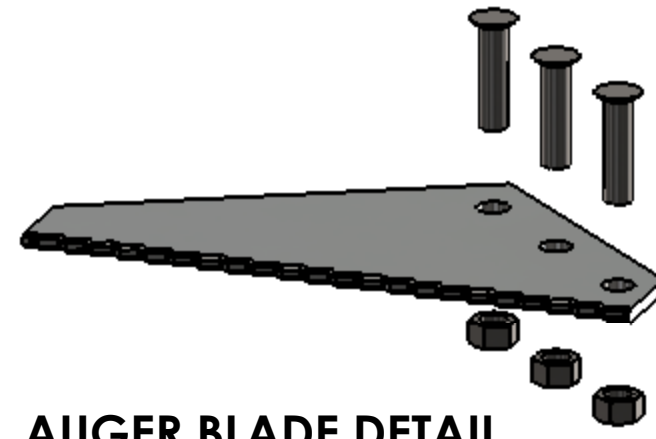
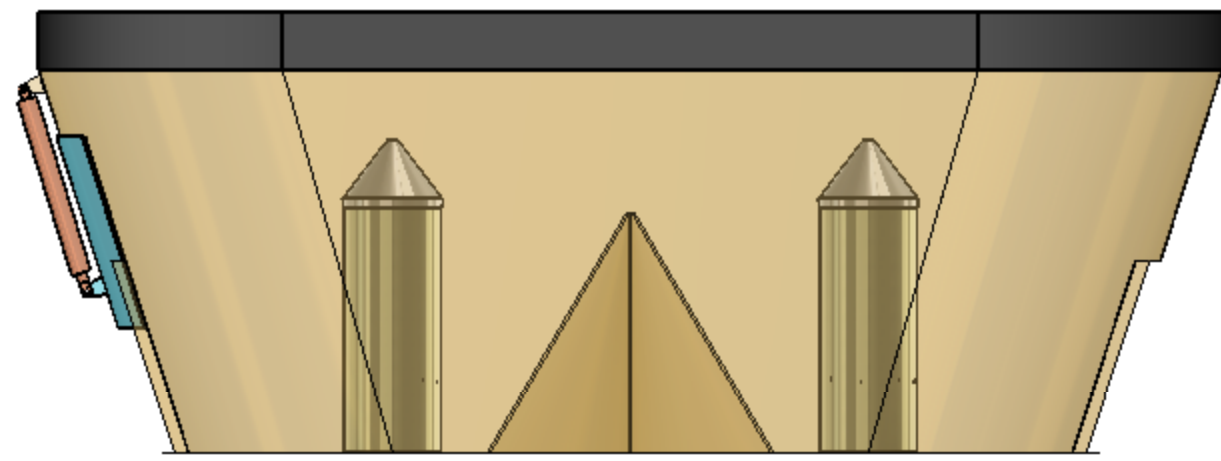


AUGER BLADE DETAIL

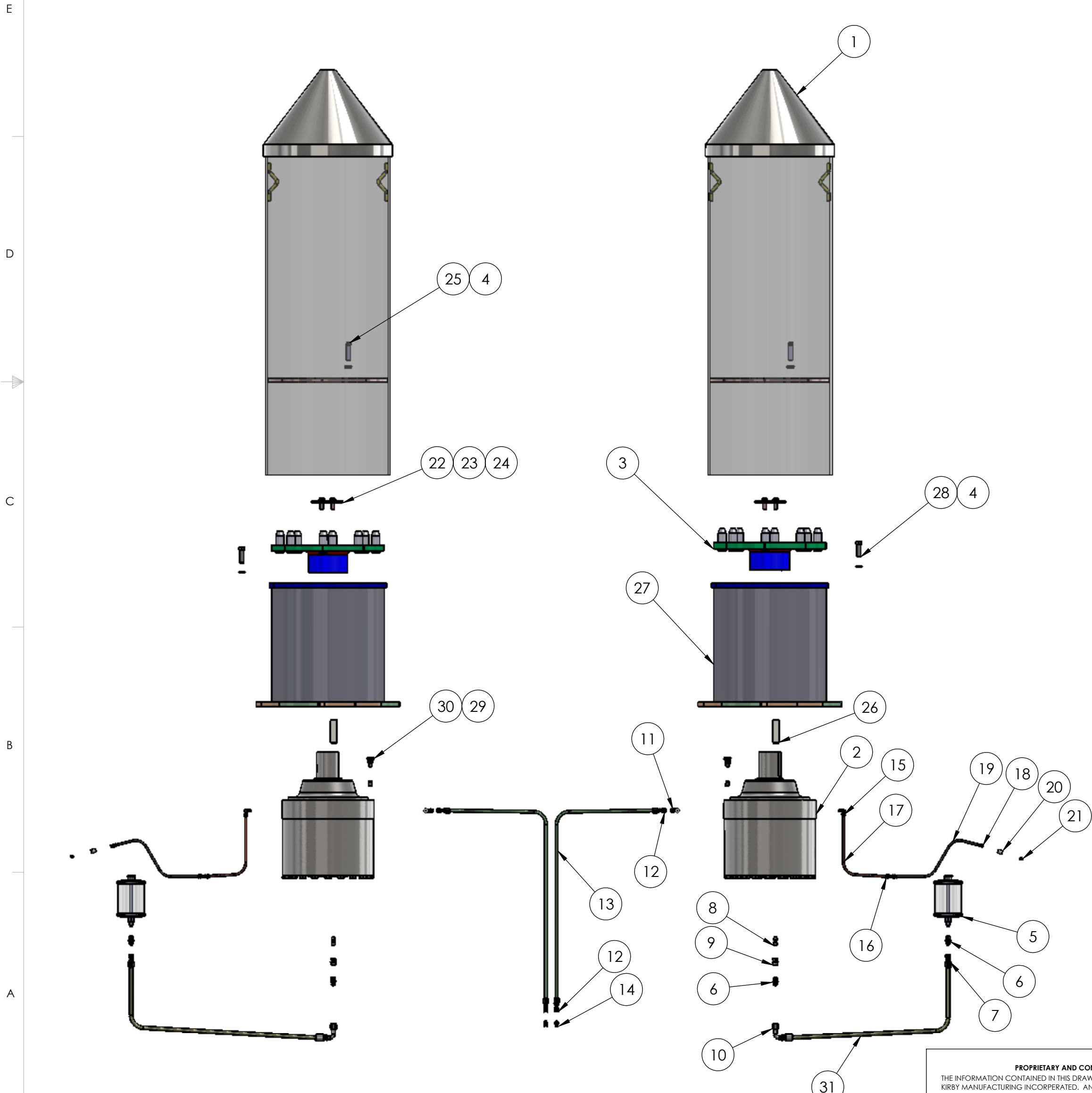
Notes: AUTOCAD K.C.R. 2/12/01		Kirby Mfg Inc. P.O. BOX 989 MERCED CA 95340 PH (209)723-0778 FX (209)723-3941			
DRAWN BY: 9/29/03		NAME: AMAR B.			
CHECKED BY:		DATE:		SIZE C	PART NUMBER OMVRT-003
APPROVED BY:		VENDOR P/N:		SCALE: 1:32	WEIGHT: 66.085409 lbs
				SHEET 1 OF 1	

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DIMENSIONS ARE IN INCHES
TOLERANCES:
FRACTIONAL ±
ANGULAR: MACH ± BEND ±
TWO PLACE DECIMAL ±
THREE PLACE DECIMAL ±



AUGER BLADE DETAIL



ITEM NO.	QTY.	PART NO.	DESCRIPTION
* 1	2	SEE NOTE	TWIN SCREW VERTICAL AUGER ASSEMBLY
** 2	2	SEE NOTE	PLANETARY GEARBOX
3	2	192043	PLANETARY HUB ADAPTER
4	48	10553	WASHER- 5/8" LOCK
5	2	7964	VERT. MIXER RESERVOIR
6	4	8-8 FTX-S	FITTING, ADAPTER- 1/2" MJIC x 1/2" NPTF MPIPE, STR.
7	2	10643-8-8	COUPLING, STR. FM JIC 37* FLARE SWVL., 1/2" x 1/2"
8	2	3/8 FF-S	PIPE NIPPLE, 3/8" MALE PIPE X 3/8"MALE PIPE
9	2	3/8 GG-S	PIPE COUPLING, 3/8" FM PIPE X 3/8" FM PIPE
10	2	13943-8-8	HOSE END 1/2", x 1/2" FM JIC 37*-SWIVEL90* ELBOW
11	2	6-6 CTX-S	FITTING, ADAPTER 3/8" MJIC x 3/8" NPTF MPIPE, 90*
12	4	10643-6-6	COUPLING, STR. FM JIC 37* FLARE SWVL., 3/8" x 3/8"
13	2	451TC-6-RL	3/8" HYD HOSE
14	2	6 PNTX-S	3/8" MJIC PLUG
15	2	9616	UNION, 1/4" X 1/4" PIPE 90*
16	2	9612	UNION 1/4" COMP
17	2	9605	1/4" COPPER TUBING x 20" LG.
18	2	9614	1/8 PIPE TO 0.25 TUBE MALE CONNECTOR
19	2	9669	1/4" NYLON TUBING x 32" LG.
20	2	9250	1/8" PIPE COUPLER, STRT.
21	2	11310	1/8" NPTF STR. GREASE FITTING
22	2	021040	DBL. SPROCKET HOLD DOWN PLATE- S12A GEARBOX
23	4	10398	LOCK WASHER
24	4	10414	BOLT- 1/2" NF GRD.5 x 1 1/2" LG.
25	8	10579	BOLT 5/8" NC GR-8 X 2 1/2"
26	2	3700	KEY 1" SQ X 3 3/4" LONG
27	2	192015	PLANETARY GEARBOX MOUNTING PIPE
28	40	10573	BOLT 5/8" NC GR-5 x 2"
29	2	1/2 x 3/8 PTR-S	FITTING, 1/2" NPTF MPIPE x 3/8" NPTF FMPIPE
30	2	7291S	AIR BREATHER- 3/8" NPTF
31	1	451TC-8-RL	1/2" HYD HOSE

***NOTE:**

VERTICAL AUGER STYLE	
394006-02	TRAILER
394006-02S	TRAILER SWEEPER
394006-02TK	TRUCK
394006-02STK	TRUCK SWEEPER

****NOTE:**

TRAILER MOUNT USE	
20:1	7424
29:1	7425
TRUCK MOUNT USE	
40:1	7587

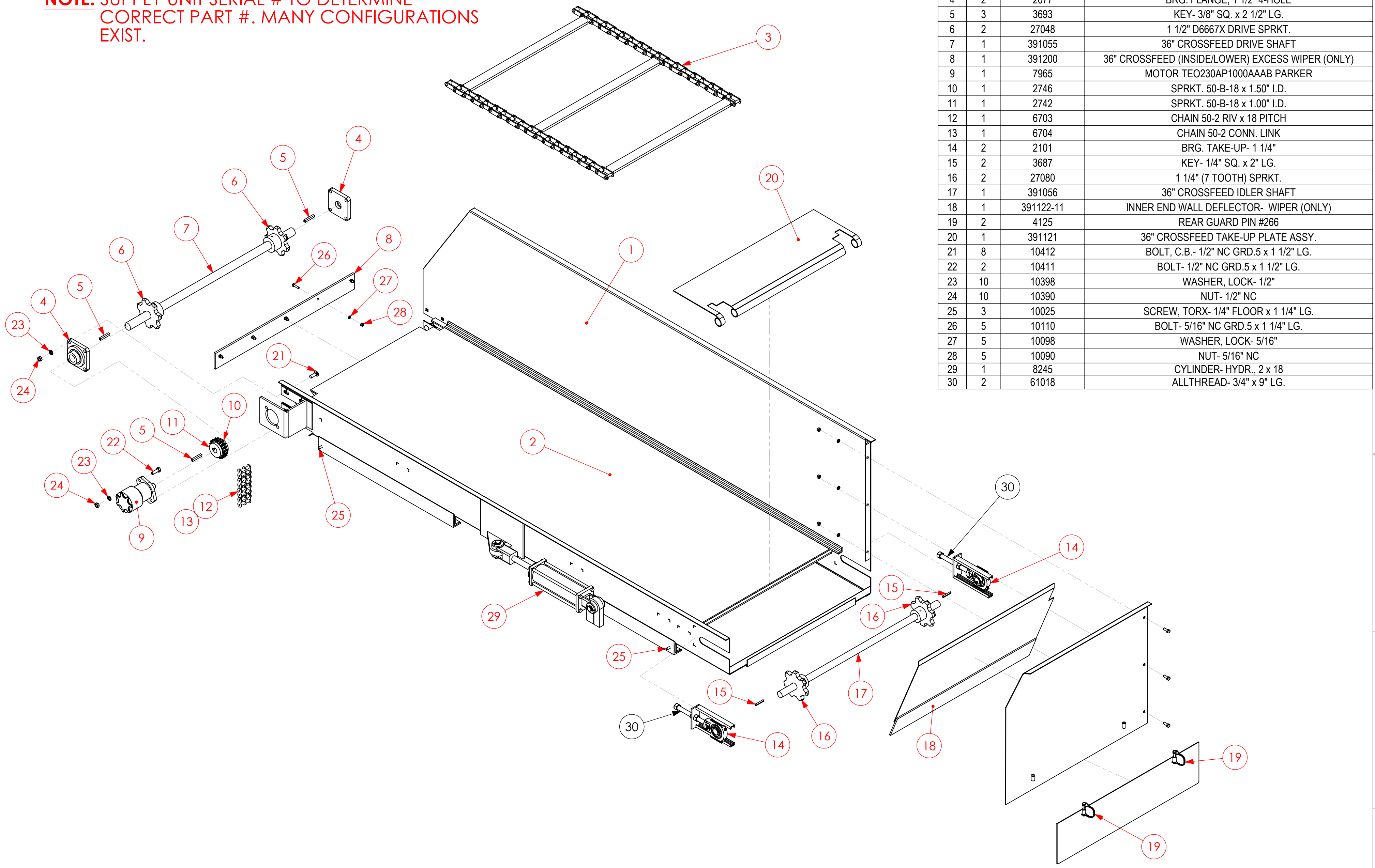
NOTE: UNIT SERIAL # NEEDED FOR ALL PART ORDERS

PROPRIETARY AND CONFIDENTIAL
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DIMENSIONS ARE IN INCHES
 TOLERANCES:
 FRACTIONAL ±
 ANGULAR: MACH ± BEND ±
 TWO PLACE DECIMAL ±
 THREE PLACE DECIMAL ±


Notes: AUTOCAD K.C.R. 2/12/01		Kirby Mfg Inc. P.O. BOX 989 MERCED CA 95340 PH (209)723-0778 FX (209)723-3941			
DRAWN BY: 9/29/09		NAME: AMAR B.			
CHECKED BY:		VENDOR:		SIZE C	PART NUMBER OMVRT-004
APPROVED BY:		VENDOR P/N:		SCALE: 1:48	WEIGHT: 2653.764894 lbs
				SHEET 1 OF 1	

NOTE: SUPPLY UNIT SERIAL # TO DETERMINE CORRECT PART #. MANY CONFIGURATIONS EXIST.



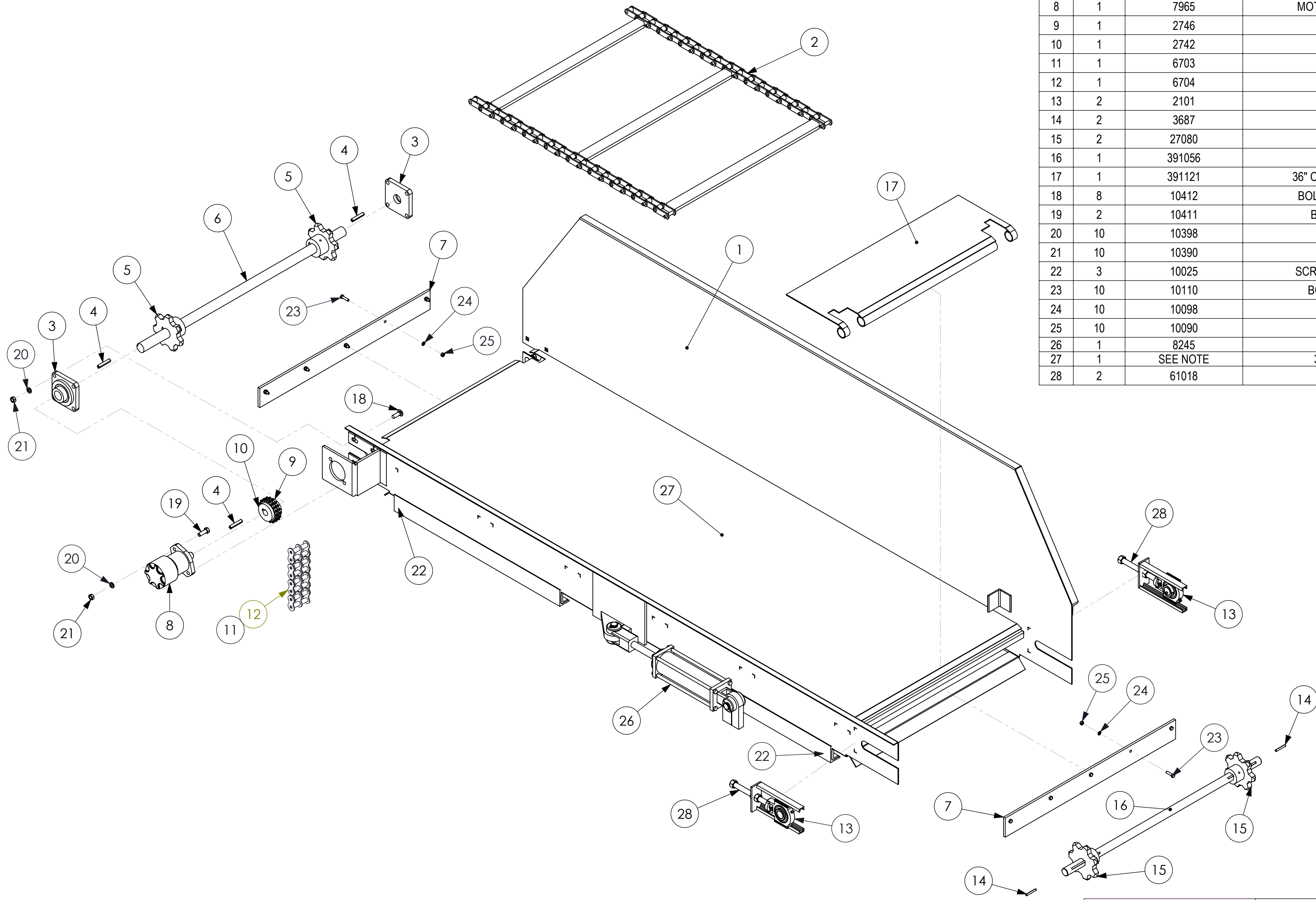
ITEM NO.	QTY.	PART NUMBER	DESCRIPTION
1	1	SEE NOTE	36" HYDR. CHAIN CROSSFEED SHELL
2	1	SEE NOTE	36" CROSSFEED FLOOR
3	1	392030	36" CROSSFEED CHAIN ASSY.
4	2	2077	BRG. FLANGE, 1 1/2" 4-HOLE
5	3	3693	KEY- 3/8" SQ. x 2 1/2" LG.
6	2	27048	1 1/2" D6667X DRIVE SPRKT.
7	1	391055	36" CROSSFEED DRIVE SHAFT
8	1	391200	36" CROSSFEED (INSIDE/LOWER) EXCESS WIPER (ONLY)
9	1	7965	MOTOR TEO230AP1000AAAB PARKER
10	1	2746	SPRKT. 50-B-18 x 1.50" I.D.
11	1	2742	SPRKT. 50-B-18 x 1.00" I.D.
12	1	6703	CHAIN 50-2 RIV x 18 PITCH
13	1	6704	CHAIN 50-2 CONN. LINK
14	2	2101	BRG. TAKE-UP- 1 1/4"
15	2	3687	KEY- 1/4" SQ. x 2" LG.
16	2	27080	1 1/4" (7 TOOTH) SPRKT.
17	1	391056	36" CROSSFEED IDLER SHAFT
18	1	391122-11	INNER END WALL DEFLECTOR- WIPER (ONLY)
19	2	4125	REAR GUARD PIN #266
20	1	391121	36" CROSSFEED TAKE-UP PLATE ASSY.
21	8	10412	BOLT, C.B.- 1/2" NC GRD.5 x 1 1/2" LG.
22	2	10411	BOLT- 1/2" NC GRD.5 x 1 1/2" LG.
23	10	10398	WASHER, LOCK- 1/2"
24	10	10390	NUT- 1/2" NC
25	3	10025	SCREW, TORX- 1/4" FLOOR x 1 1/4" LG.
26	5	10110	BOLT- 5/16" NC GRD.5 x 1 1/4" LG.
27	5	10098	WASHER, LOCK- 5/16"
28	5	10090	NUT- 5/16" NC
29	1	8245	CYLINDER- HYDR., 2 x 18
30	2	61018	ALLTHREAD- 3/4" x 9" LG.

REVISION: AMAR B. 05/18/2010

Notes:		Kirby Mfg Inc. P.O. BOX 989 MERCED CA 95340 PH (209)723-0778 FX (209)723-3941		
		JOB #:		
		MATERIAL:		SIZE PART NUMBER C OMVRT- 005
DRAWN BY:		DATE	NAME	FINISH:
CHECKED BY:				VENDOR:
APPROVED BY:				VENDOR P/N:
		SCALE: 1:12	WEIGHT: 841.946 lbs	SHEET 1 OF 1

NOTE: SUPPLY UNIT SERIAL # TO DETERMINE CORRECT PART #. MANY CONFIGURATIONS EXIST.

ITEM NO.	QTY.	PART NUMBER	DESCRIPTION
1	1	SEE NOTE	36" HYDR. CHAIN (DUAL) CROSSFEED SHELL
2	1	392030	36" CROSSFEED CHAIN ASSY.
3	2	2077	BRG. FLANGE, 1 1/2" 4-HOLE
4	3	3693	KEY- 3/8" SQ. x 2 1/2" LG.
5	2	27048	1 1/2" D667X DRIVE SPRKT.
6	1	391055	36" CROSSFEED DRIVESHAFT
7	2	391200	36" CROSSFEED (INSIDE/LOWER) EXCESS WIPER (ONLY)
8	1	7965	MOTOR TEO230AP1000AAAB PARKER
9	1	2746	SPRKT. 50-B-18 x 1.50" I.D.
10	1	2742	SPRKT. 50-B-18 x 1.00" I.D.
11	1	6703	CHAIN 50-2 RIV x 18 PITCH
12	1	6704	CHAIN 50-2 CONN. LINK
13	2	2101	BRG. TAKE-UP- 1 1/4"
14	2	3687	KEY- 1/4" SQ. x 2" LG.
15	2	27080	1 1/4" (7 TOOTH) SPRKT.
16	1	391056	36" CROSSFEED IDLER SHAFT
17	1	391121	36" CROSSFEED TAKE-UP PLATE ASSY.
18	8	10412	BOLT, C.B.- 1/2" NC GRD.5 x 1 1/2" LG.
19	2	10411	BOLT- 1/2" NC GRD.5 x 1 1/2" LG.
20	10	10398	WASHER, LOCK- 1/2"
21	10	10390	NUT- 1/2" NC
22	3	10025	SCREW, TORX- 1/4" FLOOR x 1 1/4" LG.
23	10	10110	BOLT- 5/16" NC GRD.5 x 1 1/4" LG.
24	10	10098	WASHER, LOCK- 5/16"
25	10	10090	NUT- 5/16" NC
26	1	8245	CYLINDER- HYDR., 2 x 18
27	1	SEE NOTE	36" CHAIN CROSSFEED FLOOR
28	2	61018	ALLTHREAD 3/4" x 9" LG.

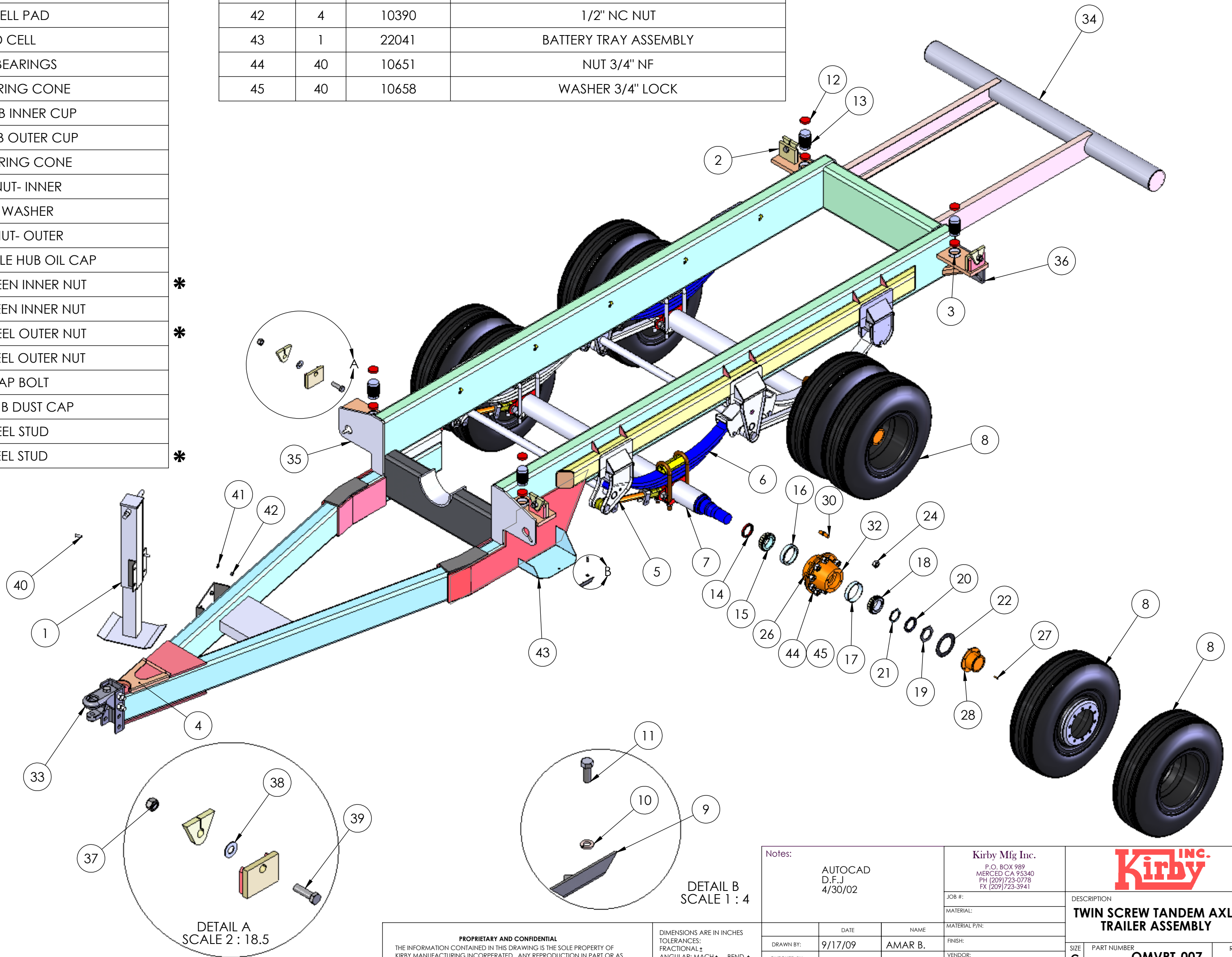


REVISION: AMAR B. 5/18/2010

Notes:		Kirby Mfg Inc. P.O. BOX 989 MERCED CA 95340 PH (209)723-0778 FX (209)723-3941		 DESCRIPTION LP800 (DUAL) HYDR. 36" CHAIN CROSSFEED	
		JOB #:			
		MATERIAL:		MATERIAL P/N:	
DATE	NAME	FINISH:			
DRAWN BY:	8-04-08	BRENT K. AHNEN			
CHECKED BY:			VENDOR:		REV.
APPROVED BY:			VENDOR P/N:		SIZE
		SCALE: 1:50		WEIGHT: 767.5552 lbs	
				SHEET 1 OF 1	

ITEM NO.	QTY.	PART NUMBER	DESCRIPTION
1	1	192027	JACKSTAND MOUNTING ASSEMBLY
2	4	22067	LOADCELL BRACKET
3	4	21313-2	MIXER (LOWER) LOAD CELL MNT.ING PIPE
4	1	192026	VERT. TRLR. P.T.O. SHAFT STAND ASSY.
5	1	5863	H.D. TANDEM AXLE SUSPENSION ASSY
6	4	5864	3-LEAF TANDEM SPRING (356-00)
7	2	6219a	AXLE ASSEMBLY
8	8	6435	TIRE & WHEEL ASSEMBLY
9	1	21272	BATTERY HOLD DOWN PLATE
10	1	10178	WASHER, LOCK- 3/8"
11	1	10181	BOLT 3/8" NC GR5 x 1"
12	8	5332	LOADCELL PAD
13	4	5299-50k	LOAD CELL
14	4	6216	ROLLER BEARINGS
15	4	6213	INNER BEARING CONE
16	4	6214	10-HOLE HUB INNER CUP
17	4	6212	10-HOLE HUB OUTER CUP
18	4	6211	OUTER BEARING CONE
19	4	6210a	SPINDLE NUT- INNER
20	4	6210b	SPINDLE WASHER
21	4	6210c	SPINDLE NUT- OUTER
22	4	6215a	GASKET- 10 HOLE HUB OIL CAP
23	40	6070	RH DUAL WHEEN INNER NUT
24	40	6069	LH DUAL WHEEN INNER NUT
25	40	6068	RH DUAL WHEEL OUTER NUT
26	40	6067	LH DUAL WHEEL OUTER NUT
27	24	10102	DUST CAP BOLT
28	4	6215	10-HOLE HUB DUST CAP
29	20	6218	RH WHEEL STUD
30	20	6217	LH WHEEL STUD

ITEM NO.	QTY.	PART NUMBER	DESCRIPTION
31	2	6229A	10 ON 8.75" RH HUB ASSY *
32	2	6228A	10 ON 8.75" LH HUB ASSY *
33	1	5590	HEAVY DUTY ADJUSTABLE HITCH ASSEMBLY
34	1	392017	LP 800 BUMPER ASSY, STANDARD
35	2	391135	FRONT LP TRAILER REINFORCEMENT CAP
36	2	391136	REAR LP TRAILER REINFORCEMENT CAP
37	4	10742	NUT 7/8 NF NYLOCK
38	4	21257	LOADCELL BRACKET SPACER
39	4	10762	BOLT 7/8 NF GR-8 X 3"
40	4	10411	1/2" BOLT
41	4	10398	1/2" LOCK WASHER
42	4	10390	1/2" NC NUT
43	1	22041	BATTERY TRAY ASSEMBLY
44	40	10651	NUT 3/4" NF
45	40	10658	WASHER 3/4" LOCK




* LISTED BUT NOT DEPICTED

NOTE: UNIT SERIAL # NEEDED FOR ALL PART ORDERS

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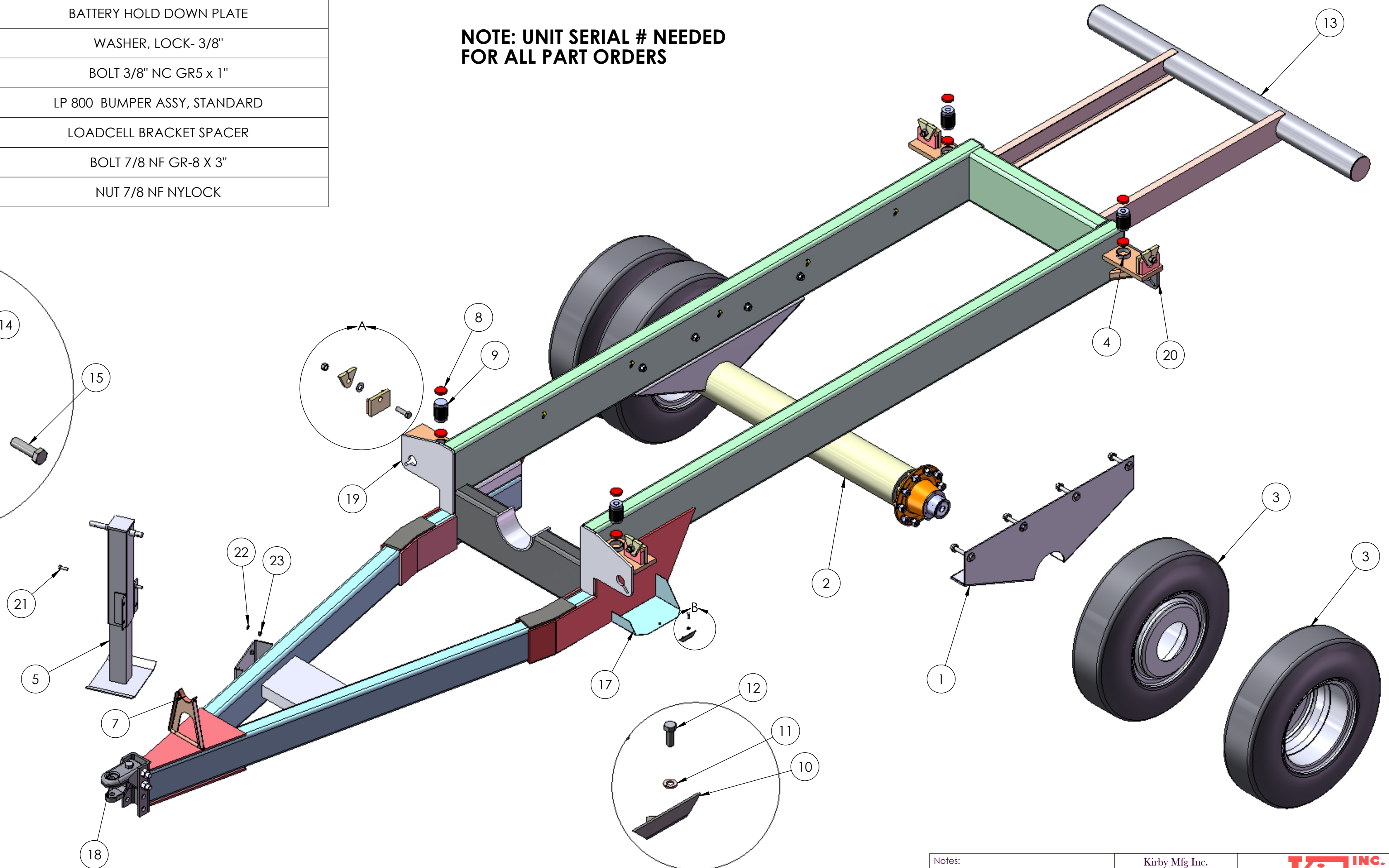
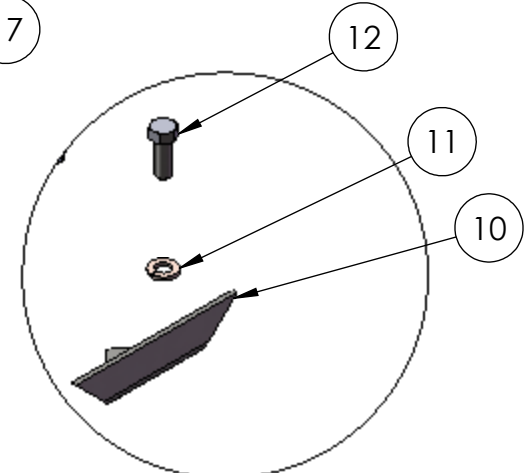
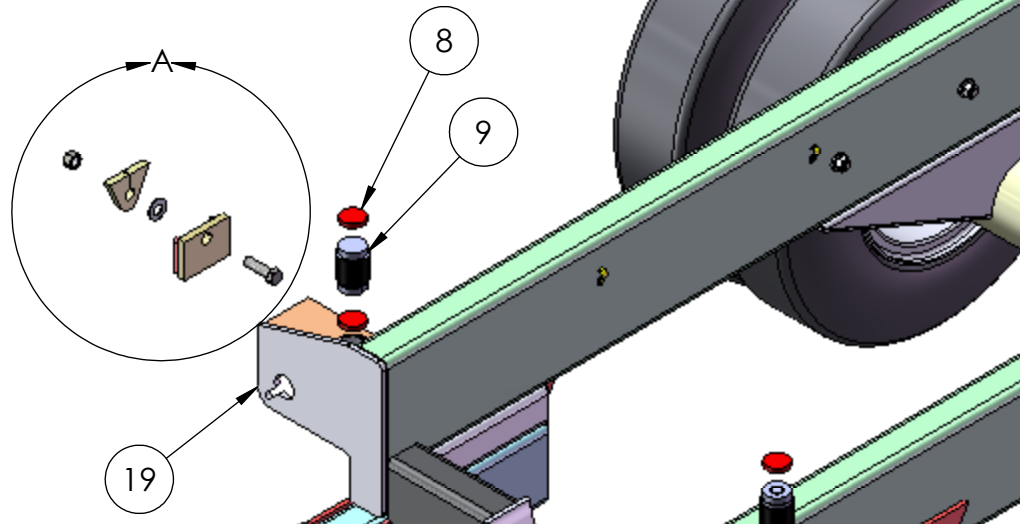
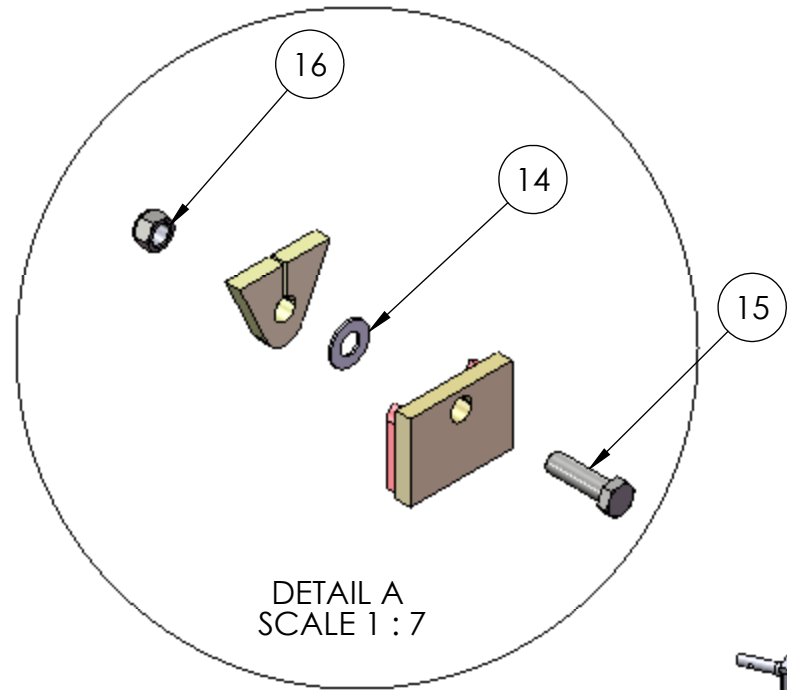
DIMENSIONS ARE IN INCHES
 TOLERANCES:
 FRACTIONAL: ±
 ANGULAR: MACH ± BEND ±
 TWO PLACE DECIMAL ±
 THREE PLACE DECIMAL ±

Notes:		Kirby Mfg Inc. P.O. BOX 989 MERCED CA 95340 PH (209)723-0778 FX (209)723-3941		
AUTOCAD D.F.J 4/30/02		JOB #: MATERIAL: MATERIAL P/N:		
DESCRIPTION	TWIN SCREW TANDEM AXLE TRAILER ASSEMBLY			REV.
SIZE	PART NUMBER			
C	OMVRT-007			
SCALE: 1:64	WEIGHT: 4576.0538 lbs	SHEET 1 OF 1		

ITEM NO.	QTY.	PART NUMBER	DESCRIPTION
1	2	392055	SINGLE AXLE SADDLE ASSEMBLY
2	1	392056	REINFORCED DEXTER AXLE ASSEMBLY
3	4	6468	TIRE & WHEEL ASSY(LP SINGLE)
4	4	21313-2	MIXER (LOWER) LOAD CELL MNT.ING PIPE
5	1	192027	TRLR. FRNT. MNT. (12k) FIXED LEG JACK ASSY.
6	4	22067	MIXER UNIT MNT.ING BRCKT. ASSY.
7	1	192026	VERT. TRLR. P.T.O. SHAFT STAND ASSY.
8	8	5332	LOADCELL PAD
9	4	5299-50k	LOAD CELL
10	1	21272	BATTERY HOLD DOWN PLATE
11	1	10178	WASHER, LOCK- 3/8"
12	1	10181	BOLT 3/8" NC GR5 x 1"
13	1	392017	LP 800 BUMPER ASSY, STANDARD
14	4	21257	LOADCELL BRACKET SPACER
15	4	10762	BOLT 7/8 NF GR-8 X 3"
16	4	10742	NUT 7/8 NF NYLOCK

ITEM NO.	QTY.	PART NUMBER	DESCRIPTION
17	1	22041	BATTERY TRAY
18	1	5590	HEAVY DUTY ADJUSTABLE HITCH
19	2	391135	FRONT LP TRAILER REINFORCEMENT CAP
20	2	391136	REAR LP TRAILER REINFORCEMENT CAP
21	4	10411	1/2" BOLT
22	4	10398	1/2" LOCK WASHER
23	4	10390	1/2" NC NUT

NOTE: UNIT SERIAL # NEEDED FOR ALL PART ORDERS

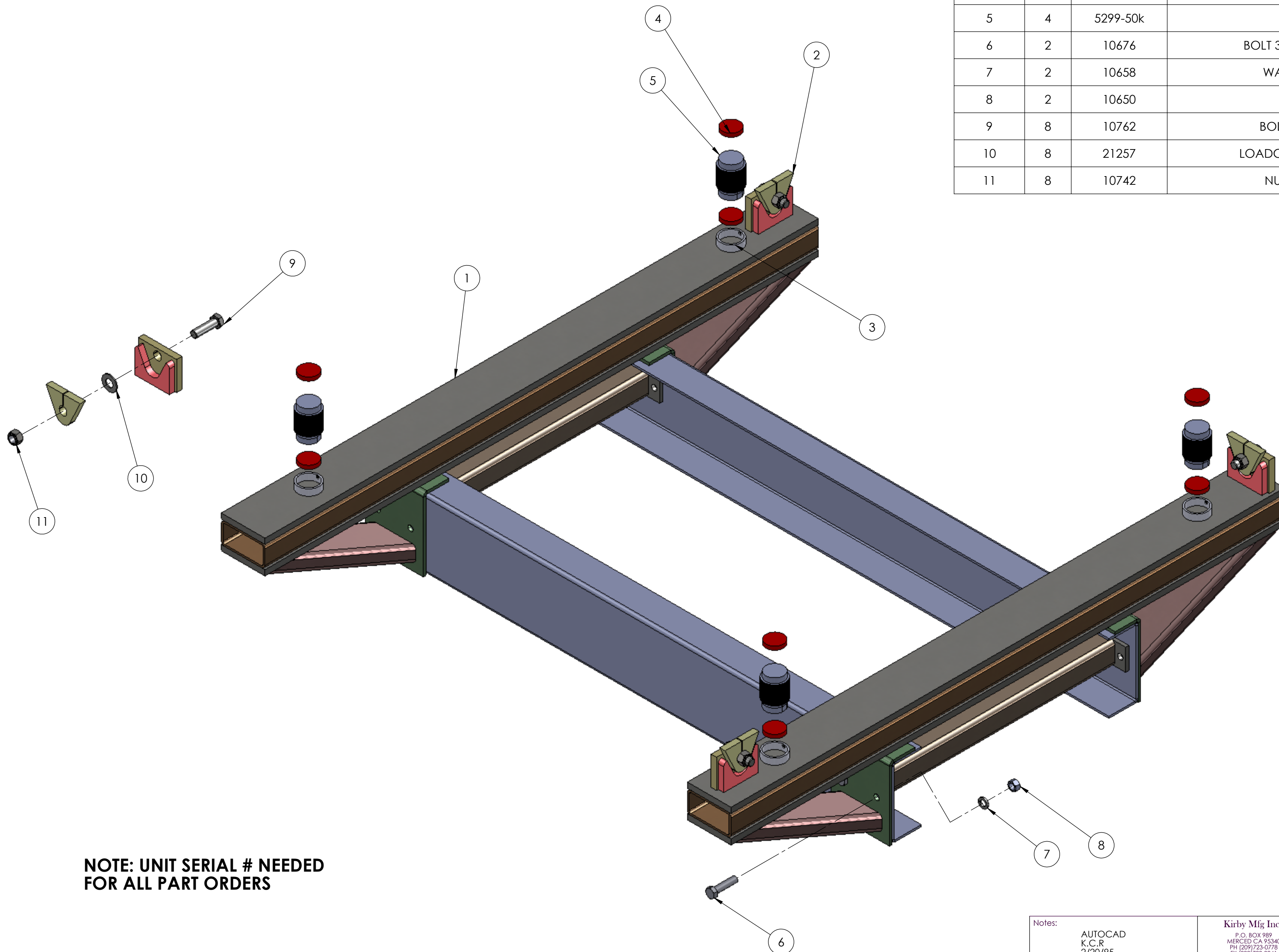


Notes:		Kirby Mfg Inc. P.O. BOX 989 MERCED CA 95340 PH (209)723-0778 FX (209)723-3941		
AUTOCAD D.F.J 5/2/02		JOB #: MATERIAL: MATERIAL P/N: FINISH: VENDOR: VENDOR P/N:		
DRAWN BY:	DATE	NAME	DESCRIPTION LP 800 SINGLE AXLE RUNNING GEAR WELDMENT ASSY.	
CHECKED BY:	9/16/09	AMAR B.	SIZE C	PART NUMBER OMVRT-008
APPROVED BY:			SCALE: 1:48	WEIGHT: 3642.2003 lbs
			SHEET 1 OF 1	

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DIMENSIONS ARE IN INCHES
TOLERANCES:
FRACTIONAL ±
ANGULAR: MACH ± BEND ±
TWO PLACE DECIMAL ±
THREE PLACE DECIMAL ±

ITEM NO.	QTY.	PART NUMBER	DESCRIPTION
1	2	192007	VERTICAL TRUCK SUBFRAME
2	4	22067	MIXER LOADCELL MNT.ING BRCKT. ASSY.
3	4	21313-2	MIXER (LOWER) LOADCELL MNT.ING PIPE
4	8	5332	LOADCELL PAD
5	4	5299-50k	LOAD CELL
6	2	10676	BOLT 3/4" NC GR-5 x 3" LG.
7	2	10658	WASHER, LOCK- 3/4"
8	2	10650	NUT- 3/4" NC
9	8	10762	BOLT 7/8 NF GR-8 X 3"
10	8	21257	LOADCELL BRACKET SPACER
11	8	10742	NUT 7/8 NF NYLOCK



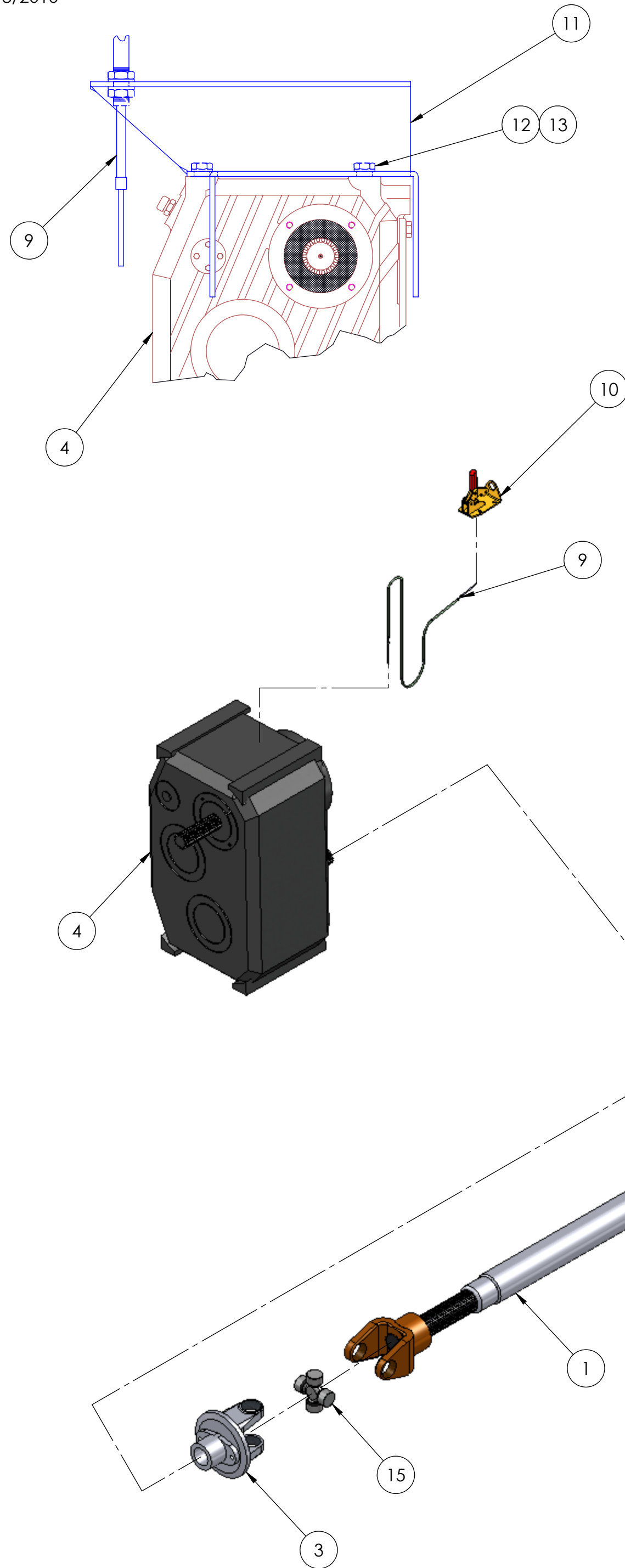
NOTE: UNIT SERIAL # NEEDED FOR ALL PART ORDERS

Notes: AUTOCAD K.C.R 2/20/95		Kirby Mfg Inc. P.O. BOX 989 MERCED CA 95340 PH (209)723-0778 FX (209)723-3941		 DESCRIPTION VERTICAL TRUCK MOUNT SUBFRAME ASSEMBLY	
DRAWN BY: 9/16/09		NAME: AMAR B.			
CHECKED BY:		MATERIAL P/N:		SIZE: C	PART NUMBER: OMVRT-009
APPROVED BY:		VENDOR:		SCALE: 1:24	WEIGHT: 1317.762928 lbs
		VENDOR P/N:		SHEET 1 OF 1	

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DIMENSIONS ARE IN INCHES
 TOLERANCES:
 FRACTIONAL: ±
 ANGULAR: MACH ± BEND ±
 TWO PLACE DECIMAL ±
 THREE PLACE DECIMAL ±

K A M 5/18/2010



ITEM NO.	QTY.	PART NUMBER	DESCRIPTION
1	1	262-23261	LP TRAILER FRONT DRIVELINE
2	2	3980	CROSS 35R
3	1	40-10060	55 SERIES SHEAR ASSEMBLY
4	1	7586-1	GEARBOX, 2 SPEED REDUCER
5	1	4105A	YOKE 55 1-3/4 20 SPLINE SLIDE
6	2	7426	TEE GEARBOX
7	2	3941	YOKE 35N 20-SPLINE 1 3/4"
8	1	242-24474	LP TRLR REAR DRVLN
9	1	4169	CABLE 14' PUSH PULL VERT. TRLR
10	1	4169A	HANDLE, HEAVY DUTY CONTROL
11	1	391124-1	SHIFT CABLE MNT. LP VERTICAL
12	4	7586B	BOLT, 16MM 2.0x25MM 8.8
13	4	10553	WASHER 5/8" LOCK
14	2	OMVRT 003/004	PLANETARY GEARBOX
15	2	4104	CROSS 55R

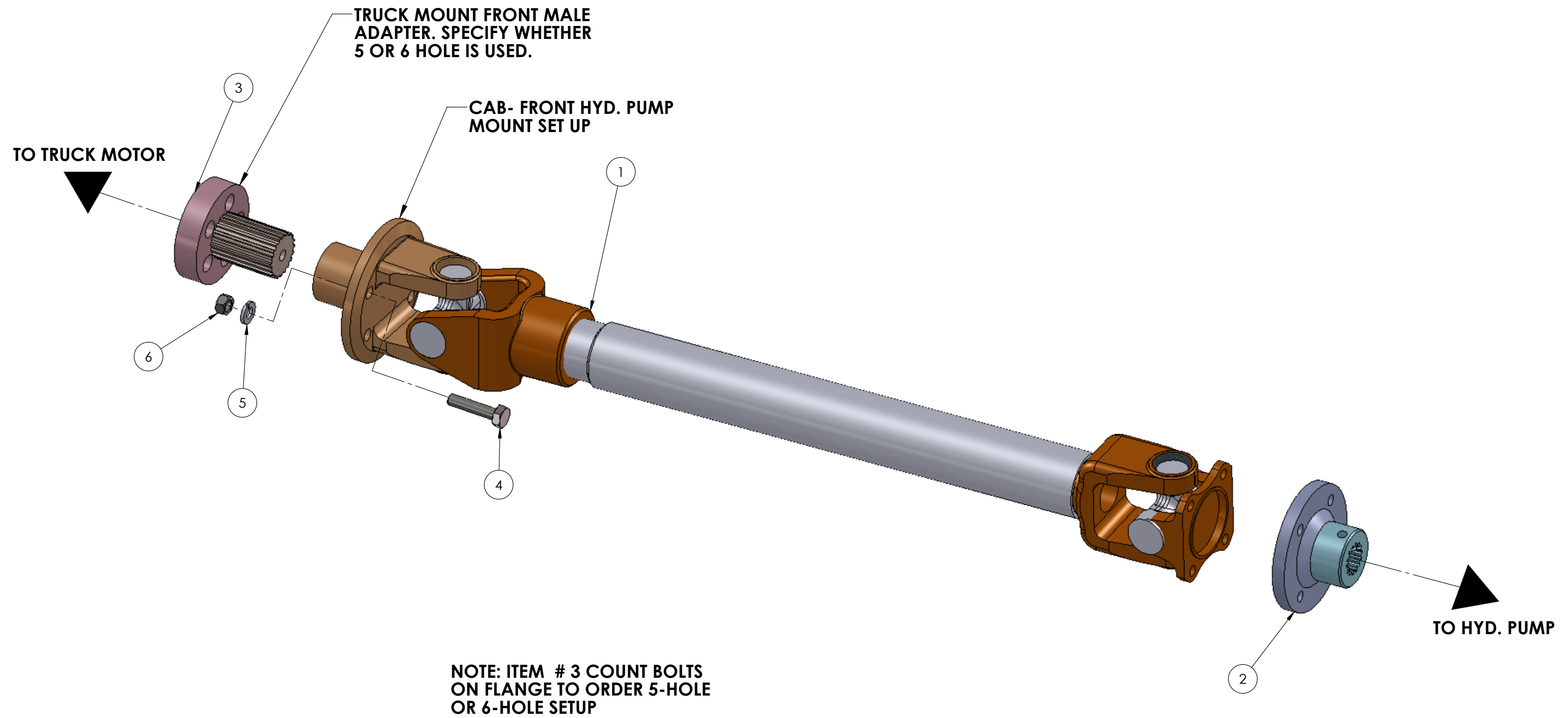
NOTE: UNIT SERIAL # NEEDED FOR ALL PART ORDERS

Notes:		Kirby Mfg Inc. P.O. BOX 989 MERCED CA 95340 PH (209)723-0778 FX (209)723-3941		 DESCRIPTION MECHANICAL DRIVELINE ASSY FOR VERTICAL TRAILER MOUNT
AUTOCAD B.K.A 8/22/07		JOB #: MATERIAL: MATERIAL P/N: FINISH: VENDOR: VENDOR P/N:		
DRAWN BY:	DATE	NAME		SIZE
CHECKED BY:				C
APPROVED BY:				PART NUMBER
				OMVRT-010
				SCALE: 1:24
				WEIGHT: 1446.425030 lbs
				SHEET 1 OF 1

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DIMENSIONS ARE IN INCHES
 TOLERANCES:
 FRACTIONAL ±
 ANGULAR: MACH ± BEND ±
 TWO PLACE DECIMAL ±
 THREE PLACE DECIMAL ±

ITEM NO.	QTY.	PART NUMBER	DESCRIPTION
1	1	4049	EXTRA HEAVY DUTY BALANCED DRIVELINE
2	1	192030	VERTICAL MIXER FEMALE PUMP ADAPTER
3	1	41208-5	ALL HYD MOTOR ADAPTER 5 HOLE
4	1	10401	BOLT 7/16" NC x 2"
5	1	10298	WASHER, LOCK- 7/16"
6	1	10290	NUT- 7/16" NC



UNIT SERIAL # NEEDED FOR ALL PART ORDERS

PROPRIETARY AND CONFIDENTIAL
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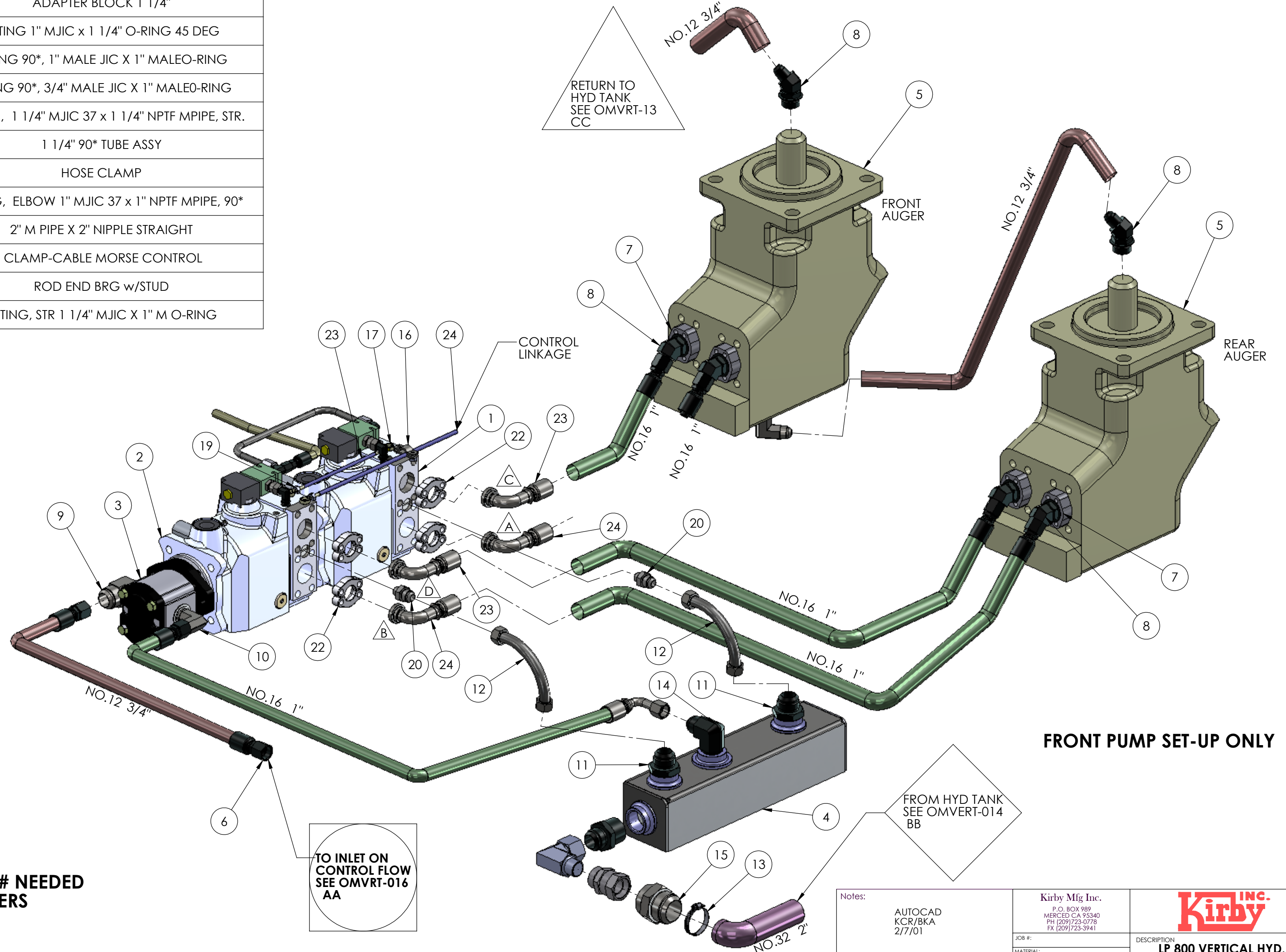
DIMENSIONS ARE IN INCHES
 TOLERANCES:
 FRACTIONAL ±
 ANGULAR: MACH ± BEND ±
 TWO PLACE DECIMAL ±
 THREE PLACE DECIMAL ±

Notes: AUTOCAD B.K.A 8/22/07		Kirby Mfg Inc. P.O. BOX 989 MERCED CA 95340 PH (209)723-0778 FX (209)723-3941		 TRUCK MOUNT DRIVELINE FOR ALL HYDRAULIC SETUP	
DRAWN BY: 8/25/2009 AMAR B.		MATERIAL P/N:			
CHECKED BY:		FINISH:		SIZE	PART NUMBER
APPROVED BY:		VENDOR:		C	OMVRT-011
		VENDOR P/N:		SCALE: 1:8	WEIGHT: 46.921072 lbs
				SHEET 1 OF 1	

ITEM NO.	QTY.	PART NUMBER	DESCRIPTION
1	1	SEE NOTE	PUMP FOR VERTICAL MIXER
2	1	SEE NOTE	PUMP FOR VERTICAL MIXER
3	1	7917	HYDRAULIC PUMP
4	1	192022	VERTICAL SUCTION MANIFOLD
5	2	7907	HYDRAULIC MOTOR V14
6	2	10643-12-12	COUPLING, STR. FM JIC 37 SWVL., 3/4" x 3/4"
7	4	20G5Q2BSX	ADAPTER BLOCK 1 1/4"
8	6	16-20 V5OLO-S	FITTING 1" MJIC x 1 1/4" O-RING 45 DEG
9	1	16 C50X-S	FITTING 90*, 1" MALE JIC X 1" MALE O-RING
10	1	12-16C50X-S	FITTING 90*, 3/4" MALE JIC X 1" MALE O-RING
11	2	20 FTX-S	FITTING, 1 1/4" MJIC 37 x 1 1/4" NPTF MPIPE, STR.
12	2	8765	1 1/4" 90* TUBE ASSY
13	1	TBC 256	HOSE CLAMP
14	1	16 CTX-S	FITTING, ELBOW 1" MJIC 37 x 1" NPTF MPIPE, 90*
15	2	0188-32-32	2" M PIPE X 2" NIPPLE STRAIGHT
16	1	4179	CLAMP-CABLE MORSE CONTROL
17	3	4180	ROD END BRG w/STUD
18	2	20-16 F50X-S	FITTING, STR 1 1/4" MJIC X 1" M O-RING

ITEM NO.	QTY.	PART NUMBER	DESCRIPTION
19	5	10001	NUT 1/4" NF HEX
20	4	SFH-16HK	1" CODE 62 SPLIT FLANGE
21	2	16N78-16-16	HOSE END, 90* 1" x 1" CODE 62 FLANGE HEAD
22	2	507-16-16S	ADPT, FLANGE, 90 DEG 6000 PSI
23	1	10066	ALLTHREAD, 1/4" NF x 18"
24	1	4178B	CABLE, 9' CONTROL

KCR 2/11/2010



FRONT PUMP SET-UP ONLY

NOTE: UNIT SERIAL # NEEDED FOR ALL PART ORDERS

TO INLET ON CONTROL FLOW
SEE OMVRT-016
AA

FROM HYD TANK
SEE OMVERT-014
BB

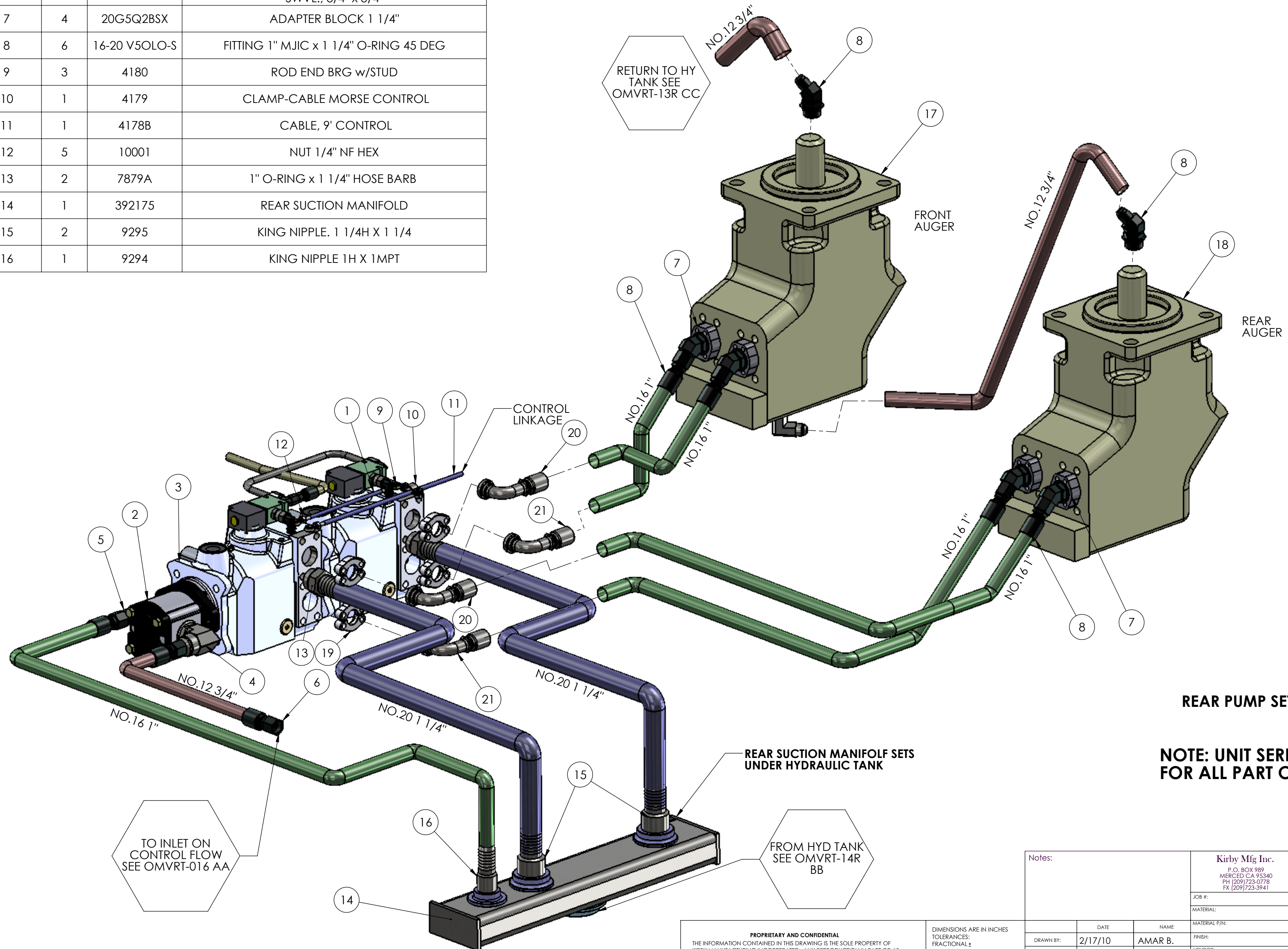
Notes: AUTOCAD KCR/BKA 2/7/01		Kirby Mfg Inc. P.O. BOX 989 MERCED CA 95340 PH (209)723-0778 FX (209)723-3941		
DRAWN BY: 9/21/09		NAME: AMAR B.		
CHECKED BY:		VENDOR:		DESCRIPTION: LP 800 VERTICAL HYD. PUMP & MOTOR HYDRAULIC ASSEMBLY
APPROVED BY:		VENDOR P/N:		SIZE: C
				PART NUMBER: OMVRT-012
				SCALE: 1:12
				WEIGHT: 476.791144 lbs
				SHEET 1 OF 1

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TOLERANCES:
FRACTIONAL: ±
ANGULAR: ±MACH ± BEND ±
TWO PLACE DECIMAL ±
THREE PLACE DECIMAL ±

ITEM NO.	QTY.	PART NUMBER	DESCRIPTION
1	1	10066	ALLTHREAD, 1/4" NF x 18"
2	1	7917	PUMP-HYD AUX.HYDROSTAT
3	2	7907	PARKER V14-160 HYDR. MOTOR
4	1	16 C50X-S	FITTING 90*, 1" MALE JIC X 1" MALE O-RING
5	1	12-16C50X-S	FITTING 90*, 3/4" MALE JIC X 1" MALE O-RING
6	2	10643-12-12	COUPLING, HOSE CRIMP- STR. FM JIC 37* FLARE SWVL., 3/4" x 3/4"
7	4	20G5Q2BSX	ADAPTER BLOCK 1 1/4"
8	6	16-20 V5OLO-S	FITTING 1" MJIC x 1 1/4" O-RING 45 DEG
9	3	4180	ROD END BRG w/STUD
10	1	4179	CLAMP-CABLE MORSE CONTROL
11	1	4178B	CABLE, 9' CONTROL
12	5	10001	NUT 1/4" NF HEX
13	2	7879A	1" O-RING x 1 1/4" HOSE BARB
14	1	392175	REAR SUCTION MANIFOLD
15	2	9295	KING NIPPLE, 1 1/4H X 1 1/4
16	1	9294	KING NIPPLE 1H X 1MPT

ITEM NO.	QTY.	PART NUMBER	DESCRIPTION
17	1	SEE NOTE	RH PUMP FOR VERTICAL MIXER
18	1	SEE NOTE	RH PUMP FOR VERTICAL MIXER
19	4	SFH-16HK	1" CODE 62 SPLIT FLANGE
20	2	16N78-16-16	HOSE END, 90° 1" x 1" CODE 62 FLANGE HEAD
21	2	507-16-16S	ADPT, FLANGE 90° 6000 PSI



REAR PUMP SETUP ONLY

NOTE: UNIT SERIAL # NEEDED FOR ALL PART ORDERS

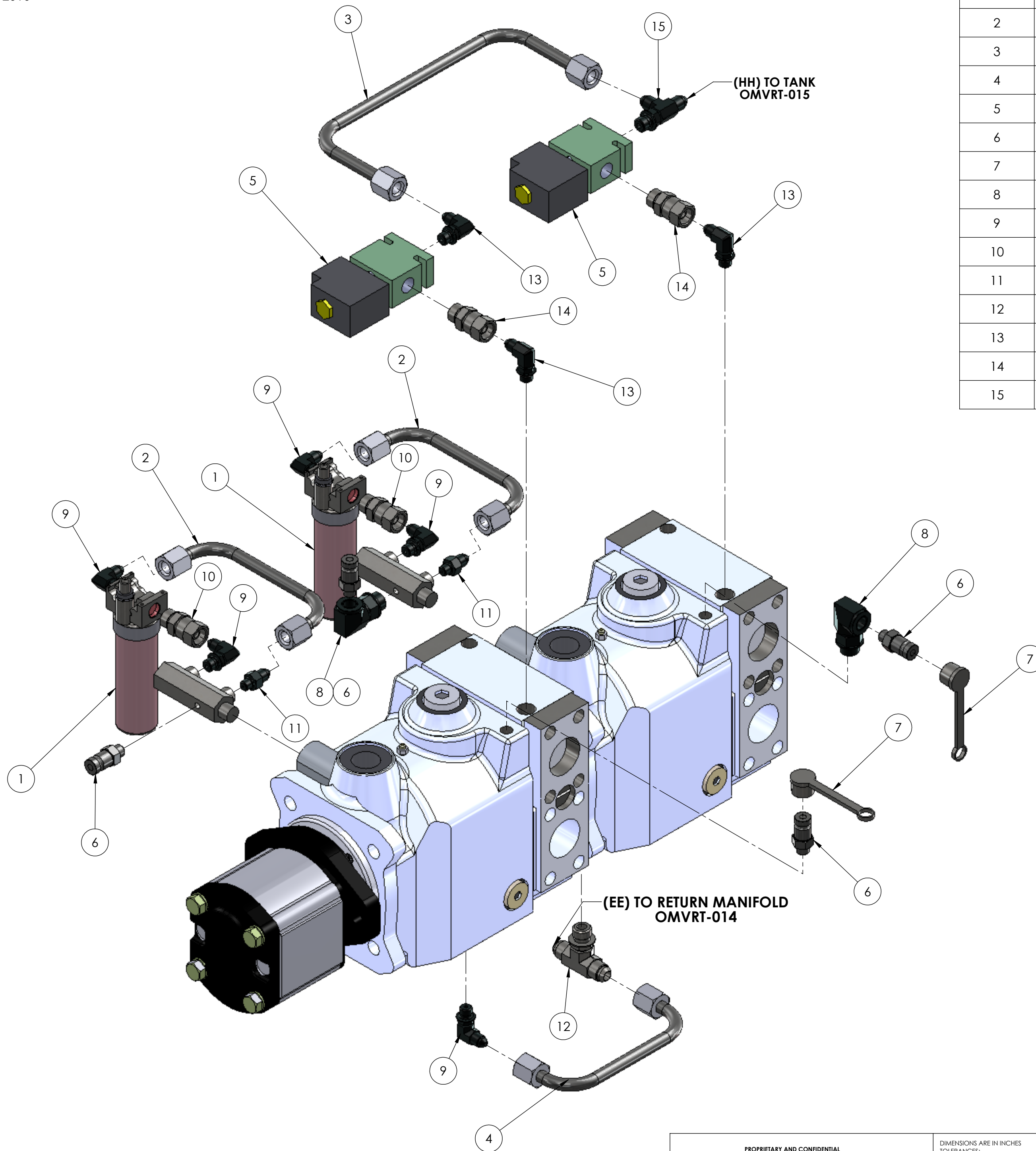
TO INLET ON CONTROL FLOW SEE OMVRT-016 AA

FROM HYD TANK SEE OMVRT-14R BB

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FRACTIONAL ±
ANGULAR: MACH ± BEND ±
TWO PLACE DECIMAL ±
THREE PLACE DECIMAL ±

Notes:		Kirby Mfg Inc. P.O. BOX 989 MERCED CA 95340 PH (209)723-0778 FX (209)723-3941		
		JOB #:		
		MATERIAL:		DESCRIPTION LP 800 VERTICAL REAR HYD. PUMP & MOTOR HYDRAULIC ASSEMBLY
		MATERIAL P/N:		
		FINISH:		SIZE PART NUMBER C OMVRT-012R
		VENDOR:		
		VENDOR P/N:		SCALE: 1:12 WEIGHT: 78.212194 lbs SHEET 1 OF 1
DRAWN BY: 2/17/10 CHECKED BY: APPROVED BY:	DATE: 2/17/10 NAME: AMAR B.			



ITEM NO.	QTY.	PART NUMBER	DESCRIPTION
1	2	7955	INLINE FILTER
2	2	192053	TUBE ASSY 3/8" PUMP DUMP VALVE
3	1	192054	TUBE ASSY, 3/4" FILTER TUBE
4	1	192055	TUBE ASSY, 3/4" PUMP CASE DRAIN
5	2	8990	2 WAY DUMP VALVE
6	4	PD361	TEST PORT, PARKER- 3/8" M O-RING
7	4	PD6-285	DUST CAP FOR PARKER TIPS
8	2	6 AOEG5-S	FITTING, 90° ELBOW 3/8" MALE O-RING X 3/8" FM STR
9	5	12 C50X-S	FITTING, ELBOW 3/4" MJIC x 3/4" M O-RING BOSS, 90°
10	2	12 F650X-S	FITTING STR, 3/4" SWIVEL NUT END X 3/4" STR
11	2	12 F50X-S	FITTING STR, 3/8" MJIC X 3/8" MALE O-RING
12	1	12 S50X-S	FITTING TEE, 3/4" MJIC X 3/4" MJIC X 3/4" ORING
13	3	6 C50X-S	FITTING, ELBOW 3/8" MJIC x 3/8" M O-RING BOSS, 90°
14	2	6 F650X-S	FITTING STR, 3/8" SWIVEL NUT END X 3/8" STR
15	1	6 R50X-S	FITTING TEE, 3/8" MJIC X 3/8" MJIC X 3/8" ORING

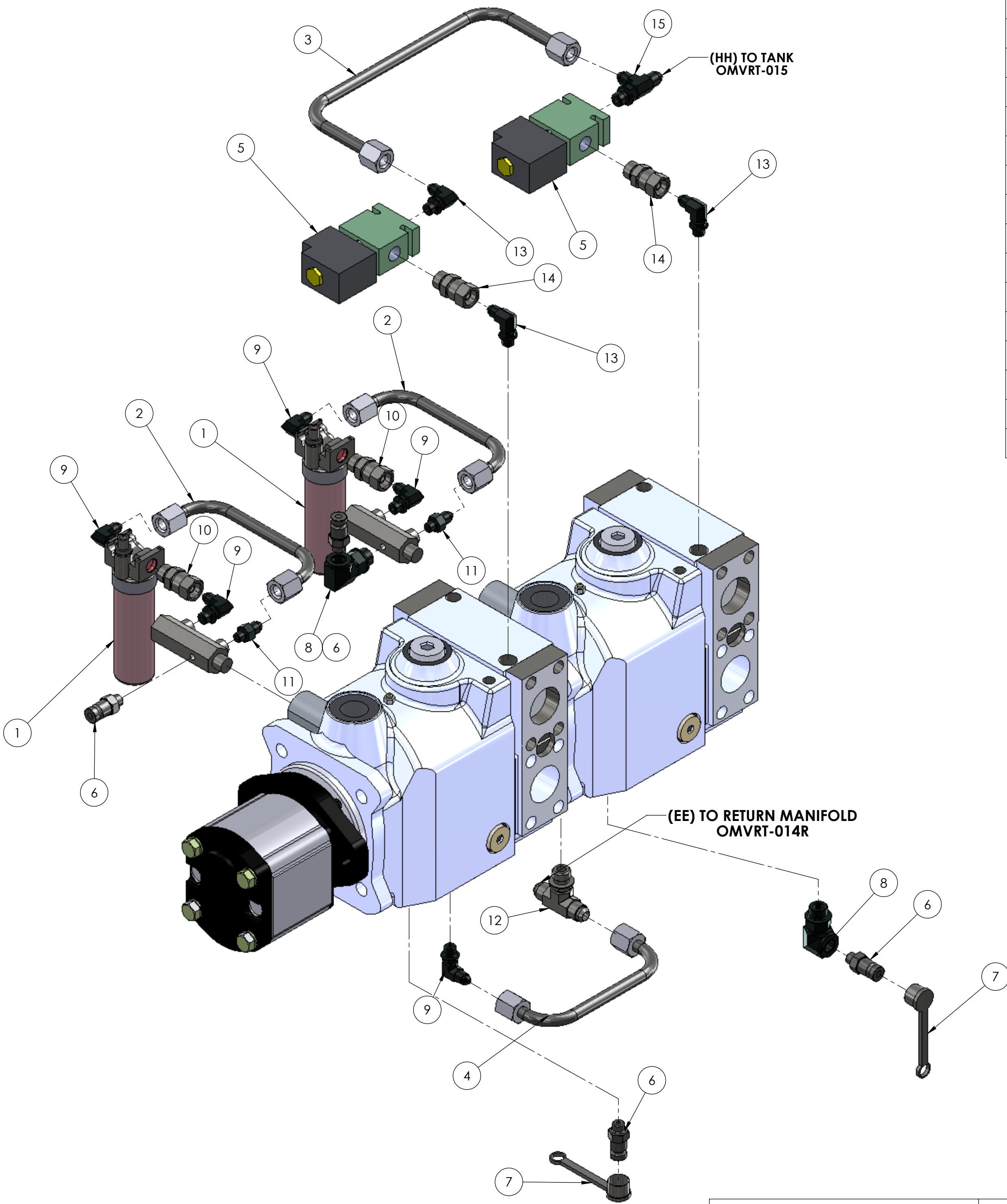
NOTE: UNIT SERIAL # NEEDED FOR ALL PART ORDERS

FRONT PUMP SET-UP ONLY

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 FRACTIONAL ±
 ANGULAR: MACH ± BEND ±
 TWO PLACE DECIMAL ±
 THREE PLACE DECIMAL ±

Notes: AUTOCAD DFJ 9/18/02		Kirby Mfg Inc. P.O. BOX 989 MERCED CA 95340 PH (209)723-0778 FX (209)723-3941		 DESCRIPTION LP 800 VERTICAL HYD. PUMP & MOTOR HYDRAULIC ASSEMBLY	
DRAWN BY: 9/21/09		NAME: AMAR B.			
CHECKED BY:		VENDOR:		SIZE: C	PART NUMBER: OMVRT-013
APPROVED BY:		VENDOR P/N:		SCALE: 1:4	WEIGHT: 29.274352 lbs
				SHEET 1 OF 1	



ITEM NO.	QTY.	PART NUMBER	DESCRIPTION
1	2	7955	INLINE FILTER
2	2	192053	TUBE ASSY 3/8" PUMP DUMP VALVE
3	1	192054	TUBE ASSY, 3/4" FILTER TUBE
4	1	192055	TUBE ASSY, 3/4" PUMP CASE DRAIN
5	2	8990	2 WAY DUMP VALVE
6	4	PD361	TEST PORT, PARKER- 3/8" M O-RING
7	4	PD6-285	DUST CAP FOR PARKER TIPS
8	2	6 AOEG5-S	FITTING, 90° ELBOW 3/8" MALE O-RING X 3/8" FM STR
9	5	12 C50X-S	FITTING, ELBOW 3/4" MJIC x 3/4" M O-RING BOSS, 90°
10	2	12 F650X-S	FITTING STR, 3/4" SWIVEL NUT END X 3/4" STR
11	2	12 F50X-S	FITTING STR, 3/8" MJIC X 3/8" MALE O-RING
12	1	12 S50X-S	FITTING TEE, 3/4" MJIC X 3/4" MJIC X 3/4" ORING
13	3	6 C50X-S	FITTING, ELBOW 3/8" MJIC x 3/8" M O-RING BOSS, 90°
14	2	6 F650X-S	FITTING STR, 3/8" SWIVEL NUT END X 3/8" STR
15	1	6 R50X-S	FITTING TEE, 3/8" MJIC X 3/8" MJIC X 3/8" ORING

NOTE: UNIT SERIAL # NEEDED FOR ALL PART ORDERS

REAR PUMP SET-UP ONLY

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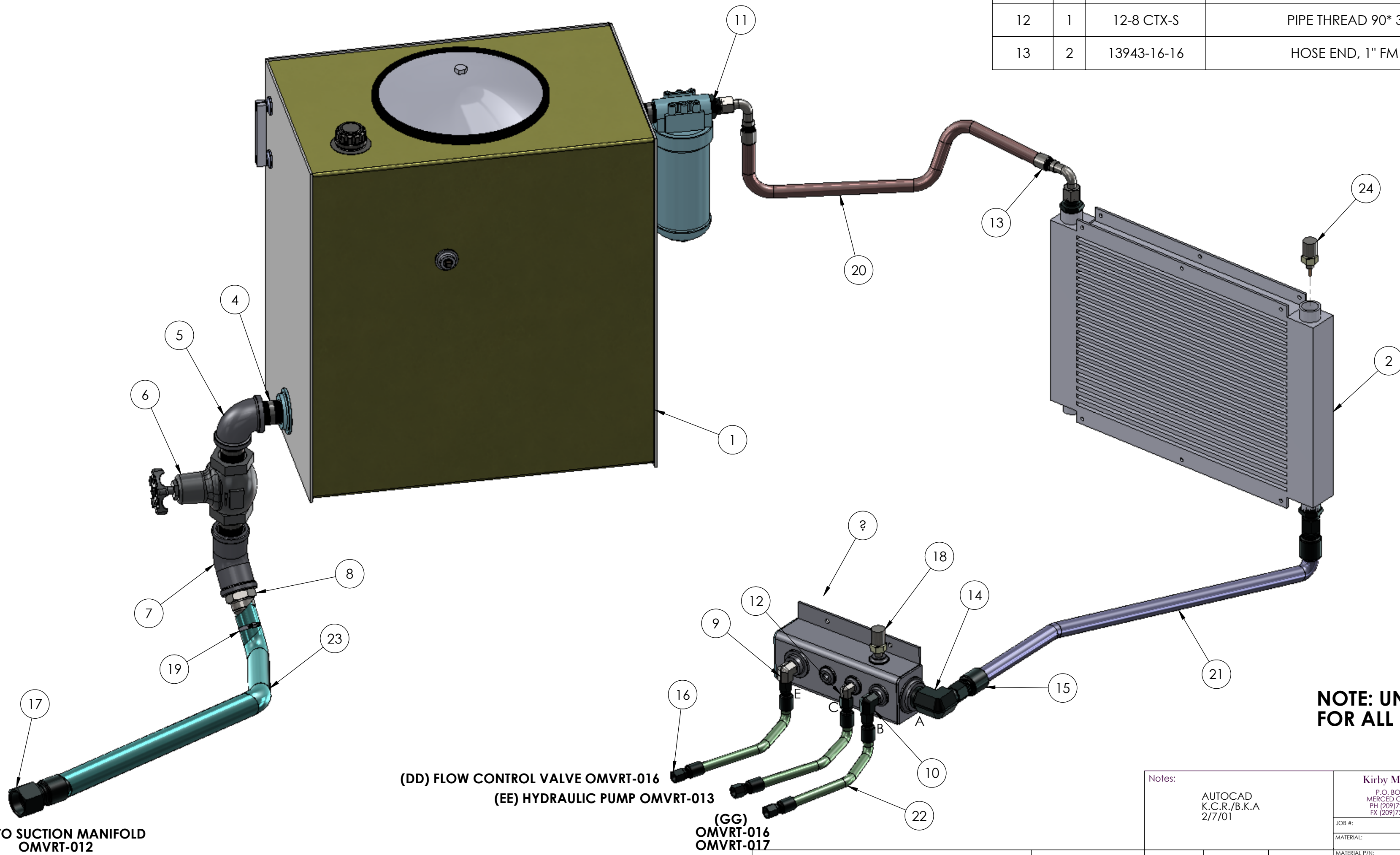
DIMENSIONS ARE IN INCHES
TOLERANCES:
FRACTIONAL ±
ANGULAR: MACH ± BEND ±
TWO PLACE DECIMAL ±
THREE PLACE DECIMAL ±

Notes:		Kirby Mfg Inc. P.O. BOX 989 MERCED CA 95340 PH (209)723-0778 FX (209)723-3941			
		JOB #: MATERIAL: MATERIAL P/N: FINISH: VENDOR: VENDOR P/N:			
DRAWN BY:	DATE	NAME	DESCRIPTION		
CHECKED BY:			LP 800 VERTICAL REAR HYD. PUMP & MOTOR HYDRAULIC ASSEMBLY		
APPROVED BY:			SIZE	PART NUMBER	REV.
			C	OMVRT-013R	
			SCALE: 1:4	WEIGHT: 29.274352 lbs	SHEET 1 OF 1

KCR 2/11/2010

ITEM NO.	QTY.	PART NUMBER	DESCRIPTION
14	1	20-24 CTX-S	FITTING, ADAPTER- ELBOW 1 1/4" MJIC 37* FLARE x 1 1/2" NPTF MPIPE, 90*
15	2	10643-20-20	COUPLING, HOSE CRIMP- STR. FM JIC 37* FLARE SWVL., 1 1/4" x 1 1/4"
16	6	10643-12-12	COUPLING, HOSE CRIMP- STR. FM JIC 37* FLARE SWVL., 3/4" x 3/4"
17	1	10643-32-32	HOSE END
18	1	PDTF120R	OIL TEMP SENDER
19	1	TBC 256	HOSE CLAMP
20	1	301-16-RL	1" HYDRAULIC HOSE
21	1	301-20	1 1/4" HYDRAULIC HOSE
22	3	301-12-RL	3/4" HYDRAULIC HOSE
23	1	8758	2" HYDRAULIC HOSE
24	1	PDTF190R	OIL TEMP SENDER

ITEM NO.	QTY.	PART NUMBER	DESCRIPTION
1	1	193003	65 GAL. HYDR. TANK (ALL HYD.)
2	1	7930	COOLER, HYD OIL 12V DRIVE
3	1	192017	VERTICAL RETURN MANIFOLD
4	3	9290	FITTING, PIPE- NIPPLE 2" NPT, CLOSE
5	1	9353	2" BLK. PIPE COUPLER- 90deg. EL.
6	2	9531	2" GATE VALVE
7	1	9369	FITTING, PIPE- ELBOW 2" NPTF, 45deg.
8	2	0188-32-32	2" M PIPE X 2" NIPPLE STRAIGHT
9	1	12-16 CTX-S	FITTING 90* 3/4" MALE JIC X 1" MALEPIPE
10	1	12 CTX-S	FITTING, ADAPTER- ELBOW 3/4" MJIC 37* FLARE x 3/4" NPTF MPIPE, 90*
11	1	20 FTX-S	FITTING, ADAPTER- 1 1/4" MJIC 37* FLARE x 1 1/4" NPTF MPIPE, STR.
12	1	12-8 CTX-S	PIPE THREAD 90* 3/4" MALE JIC X 1/2" MALE
13	2	13943-16-16	HOSE END, 1" FM JIC 37*-SWVL 90* ELBOW



NOTE: UNIT SERIAL # NEEDED FOR ALL PART ORDERS

(DD) FLOW CONTROL VALVE OMVRT-016
 (EE) HYDRAULIC PUMP OMVRT-013
 (GG) OMVRT-016 OMVRT-017

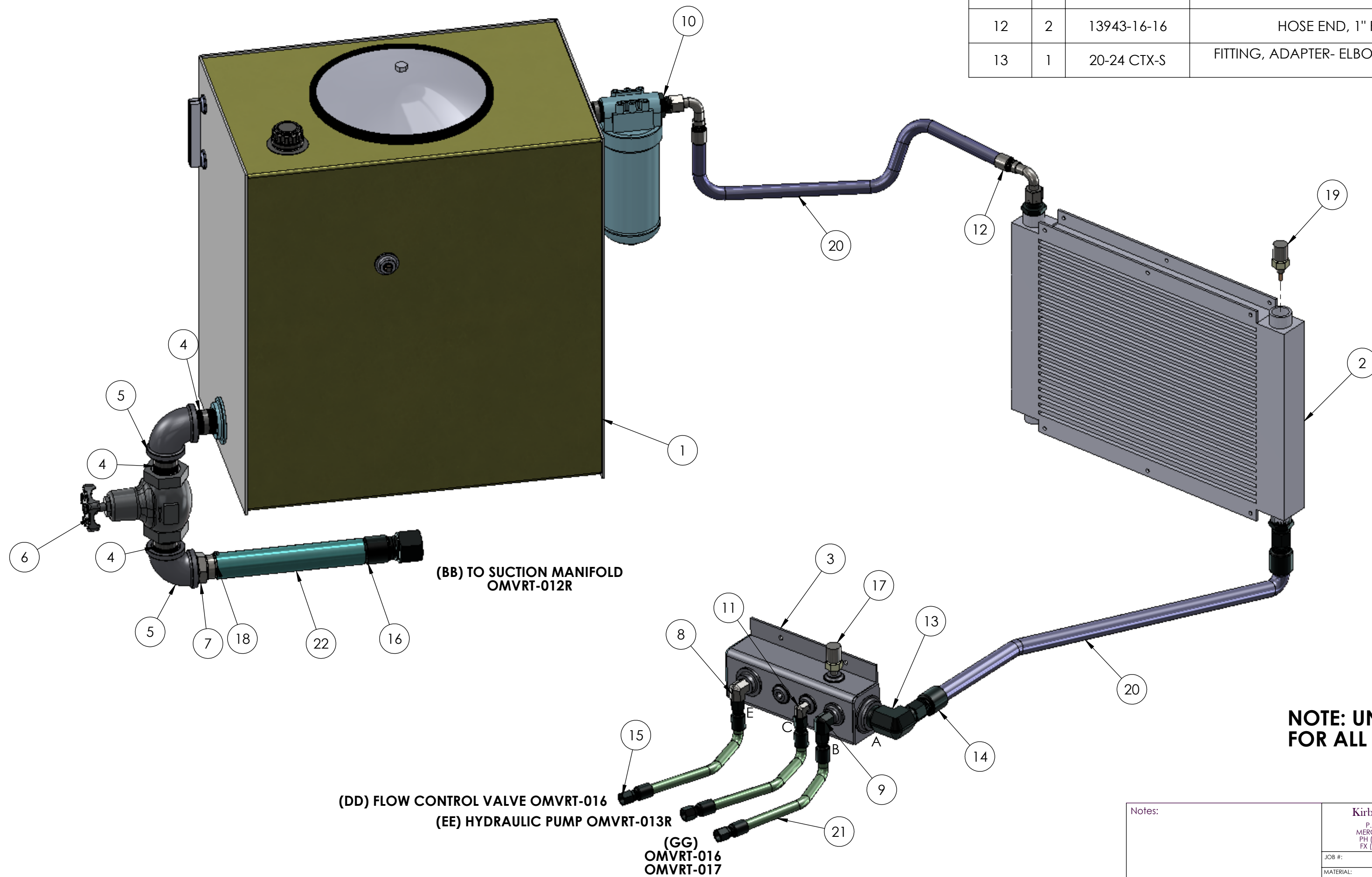
Notes:		AUTOCAD K.C.R./B.K.A 2/7/01		Kirby Mfg Inc. P.O. BOX 989 MERCED CA 95340 PH (209)723-0778 FX (209)723-3941			
DRAWN BY:		DATE		NAME			
CHECKED BY:		8/24/2009		AMAR B.		VERTICAL COOLER & TANK HYDRAULIC ASSEMBLY	
APPROVED BY:						SIZE PART NUMBER	
						C OMVRT-014	
						SCALE: 1:14 WEIGHT: 297.947215 lbs SHEET 1 OF 1	

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DIMENSIONS ARE IN INCHES
 TOLERANCES:
 FRACTIONAL: ±
 ANGULAR: ±MACH ± BEND ±
 TWO PLACE DECIMAL ±
 THREE PLACE DECIMAL ±

ITEM NO.	QTY.	PART NUMBER	DESCRIPTION
14	2	10643-20-20	COUPLING, HOSE CRIMP- STR. FM JIC 37* FLARE SWVL., 1 1/4" x 1 1/4"
15	6	10643-12-12	COUPLING, HOSE CRIMP- STR. FM JIC 37* FLARE SWVL., 3/4" x 3/4"
16	1	10643-32-32	HOSE END
17	1	PDTF120R	OIL TEMP SENDER
18	1	TBC 256	HOSE CLAMP
19	1	PDTF190R	OIL TEMP SENDER
20	2	301-20	1 1/4" HYDRAULIC HOSE
21	2	301-12-RL	3/4" HYDRAULIC HOSE
22	1	8758	2" HYDRAULIC HOSE

ITEM NO.	QTY.	PART NUMBER	DESCRIPTION
1	1	193003	65 GAL. HYDR. TANK (ALL HYD.)
2	1	7930	COOLER, HYD OIL 12V DRIVE
3	1	192017	VERTICAL RETURN MANIFOLD
4	3	9290	FITTING, PIPE- NIPPLE 2" NPT, CLOSE
5	2	9353	2" BLK. PIPE COUPLER- 90deg. EL.
6	2	9531	2" GATE VALVE
7	2	0188-32-32	2" M PIPE X 2" NIPPLE STRAIGHT
8	1	12-16 CTX-S	FITTING 90* 3/4" MALE JIC X 1" MALEPIPE
9	1	12 CTX-S	FITTING, ADAPTER- ELBOW 3/4" MJIC 37* FLARE x 3/4" NPTF MPIPE, 90*
10	1	20 FTX-S	FITTING, ADAPTER- 1 1/4" MJIC 37* FLARE x 1 1/4" NPTF MPIPE, STR.
11	1	12-8 CTX-S	PIPE THREAD 90* 3/4" MALE JIC X 1/2" MALE
12	2	13943-16-16	HOSE END, 1" FM JIC 37*-SWVL 90* ELBOW
13	1	20-24 CTX-S	FITTING, ADAPTER- ELBOW 1 1/4" MJIC 37* FLARE x 1 1/2" NPTF MPIPE, 90*



NOTE: UNIT SERIAL # NEEDED FOR ALL PART ORDERS

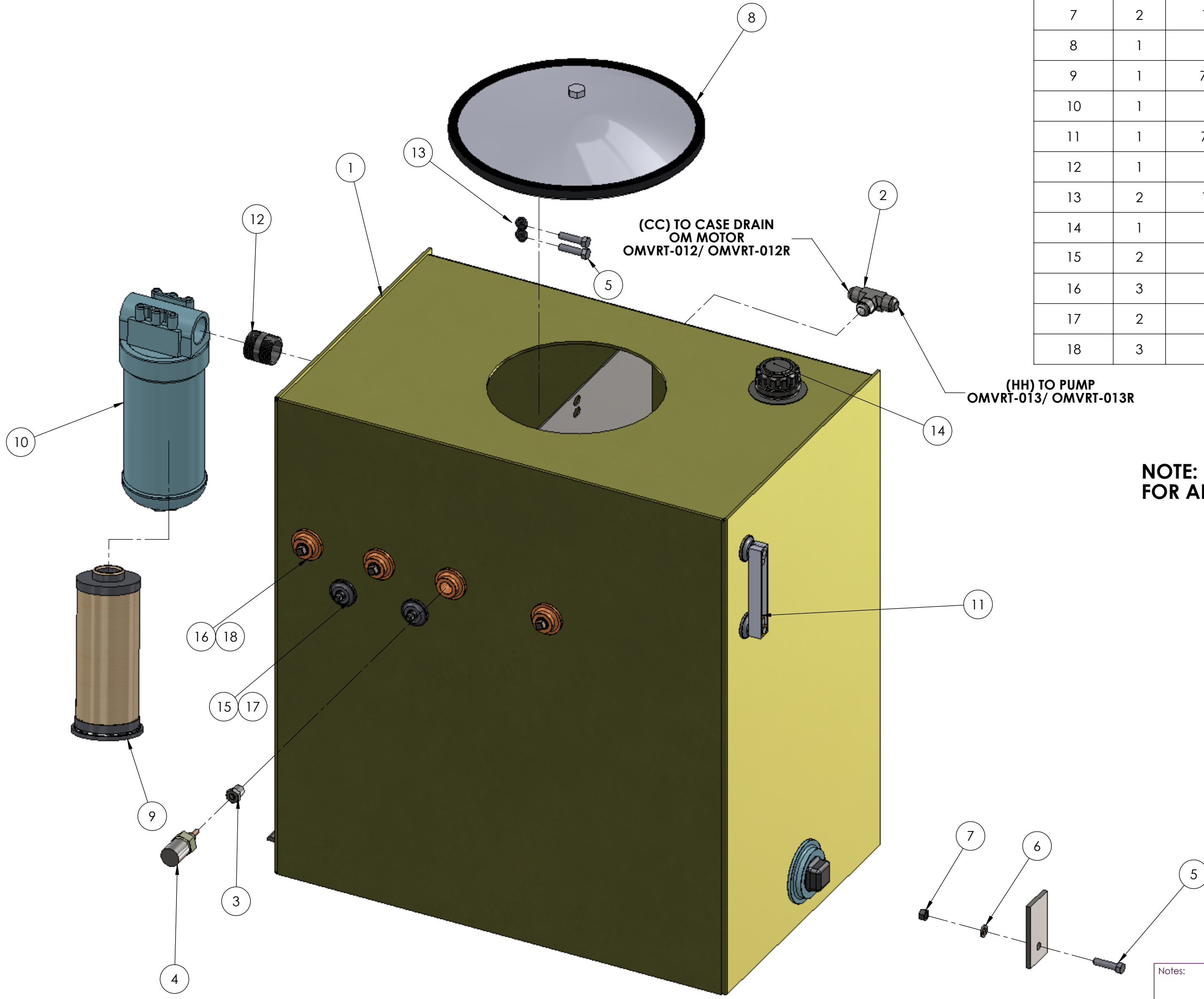
Notes:		Kirby Mfg Inc. P.O. BOX 989 MERCED CA 95340 PH (209)723-0778 FX (209)723-3941		
		JOB #:		
		MATERIAL:		DESCRIPTION REAR MOUNT VERTICAL COOLER & TANK HYDRAULIC ASSEMBLY
		MATERIAL P/N:		
		FINISH:		SIZE PART NUMBER REV. C OMVRT-014R
		VENDOR:		
		VENDOR P/N:		SCALE: 1:14 WEIGHT: 294.991486 lbs SHEET 1 OF 1

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DIMENSIONS ARE IN INCHES
 TOLERANCES:
 FRACTIONAL: ±
 ANGULAR: ±MACH ± BEND ±
 TWO PLACE DECIMAL ±
 THREE PLACE DECIMAL ±

DATE	NAME
2/16/2010	AMAR B.
DRAWN BY:	CHECKED BY:
APPROVED BY:	

ITEM NO.	QTY.	PART NUMBER	DESCRIPTION
1	1	193003	VM TANK, HYD, 65 GAL
2	1	12 STX-S	FITTING MALE BRANCH TEE 3/4" MJIC
3	1	3_4 X 1_4 PTR-S	PIPE THREAD REDUCER
4	1	PDTF190R	OIL TEMP SENDER
5	2	10191	3/8" NC GR5 Bolt x 1.5" lg.
6	2	10178	WASHER, LOCK- 3/8"
7	2	10170	NUT- 3/8" NC
8	1	7961	HYD TANK LID COVER
9	1	7963A	ELEMENT REPLACEMENT FILTER
10	1	7963	CORELESS SPIN ON FILTER
11	1	7951B	GAUGE, FLUID LEVEL, 5" TUBE
12	1	9286	NIPPLE 1-1/4" NPTF
13	2	10173	3/8" NYLOCK NC
14	1	7947	CAP FILLER/BREATHER
15	2	9500	1/2" NPTF Tank Flange
16	3	9501	3/4" TANK FLANGE
17	2	9333	FITTING- PLUG 1/2" NPT
18	3	9334	3/4" NPTF PIPE PLUG



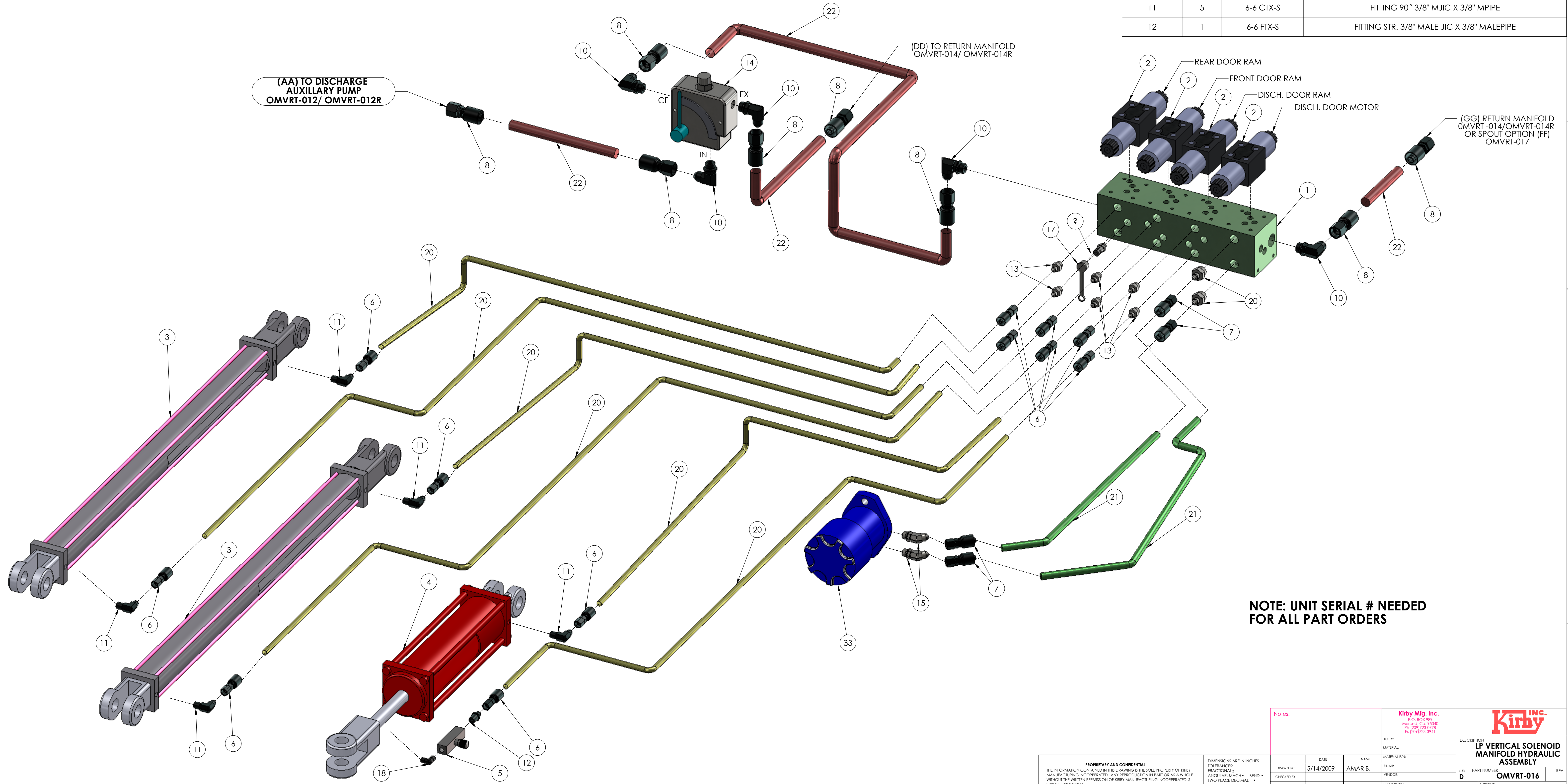
NOTE: UNIT SERIAL # NEEDED FOR ALL PART ORDERS

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DIMENSIONS ARE IN INCHES
TOLERANCES:
FRACTIONAL ±
ANGULAR: MACH ± BEND ±
TWO PLACE DECIMAL ±
THREE PLACE DECIMAL ±

Notes: AUTOCAD D.F.J. 4/5/02		Kirby Mfg Inc. P.O. BOX 989 MERCED CA 95340 PH (209)723-0778 FX (209)723-3941		 VERTICAL MIXER HYDRAULIC TANK	
DRAWN BY: 9/8/2009 AMAR B.		MATERIAL P/N:			
CHECKED BY:		FINISH:		SIZE: C	PART NUMBER: OMOVRT-015
APPROVED BY:		VENDOR:		SCALE: 1:14	WEIGHT: 224.090413 lbs
		VENDOR P/N:		SHEET 1 OF 1	

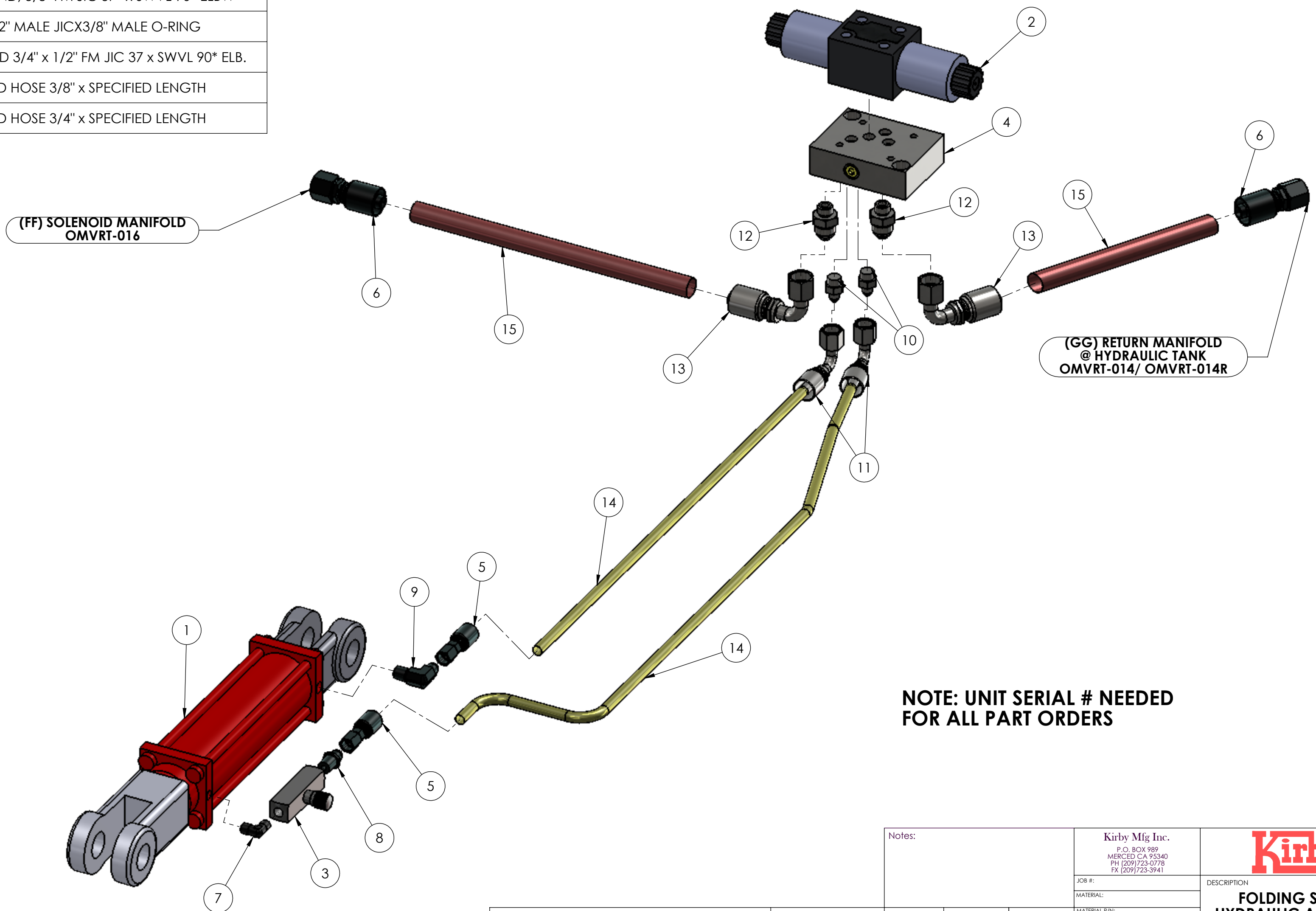
ITEM NO.	QTY.	PART NUMBER	DESCRIPTION	ITEM NO.	QTY.	PART NUMBER	DESCRIPTION
13	6	6-8 F50X-S	FITTING STR. 3/8" MJIC X 1/2" MALE O-RING	1	1	7943-07	HYDRAULIC MANIFOLD
14	1	8054	VALVE FCR-51 3/4" SAE	2	4	7894	(PARKER) Solenoid
15	2	8-8 VTX-S	FITTING, 45° ELBOW, 1/2" MJIC X 1/2" M O-RING	3	2	7936	2" x 30" HYDRAULIC RAM
16	1	PD361	TIP, PARKER (O-RING THREAD)	4	1	8245	2" x 18" HYDRAULIC RAM
17	1	PD6-285	DUST CAP FOR PARKER TIPS	5	1	7896	3/8" NPTF NEEDLE VALVE
18	1	3/8 CR-S	FITTING, PIPE- ADAPTER, ELBOW 3/8" MPIPE x 3/8" MPIPE, 90°	6	12	10643-6-6	HOSE END 3/8" HOSE CRIMP x 3/8" MJIC SWVL
19	6	451TC-6-RL	3/8" HOSE x SPECIFIED LENGTHS	7	4	10643-8-8	HOSE END 1/2" HOSE CRIMP x 1/2" MJIC SWVL
20	2	451TC-8-RL	1/2" HOSE x SPECIFIED LENGTHS	8	8	10643-12-12	HOSE END 3/4" HOSE CRIMP x 3/4" MJIC SWVL
21	4	451TC-12-RL	3/4" HOSE x SPECIFIED LENGTHS	9	2	8 F50X-S	FITTING STR. 1/2" MJIC X 1/2" M O-RING
33	1	27048	1 1/2" D667X DRIVE SPRKT.	10	5	12 C5OX-S	FITTING 90° 3/4" MALE JIC X 3/4" MALE O-RIN
				11	5	6-6 CTX-S	FITTING 90° 3/8" MJIC X 3/8" MPIPE
				12	1	6-6 FX-S	FITTING STR. 3/8" MALE JIC X 3/8" MALE PIPE




NOTE: UNIT SERIAL # NEEDED FOR ALL PART ORDERS

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--	--	--	--	--	--	--	--	---	--	----------------------------------	--	--	--

ITEM NO.	QTY.	PART NUMBER	DESCRIPTION
1	1	7925	CYLINDER 2" x 6"
2	1	7894	VALVE 4-WAY SOLENOID
3	3	7896	3/8" NPTF NEEDLE VALVE
4	1	8071	SOLENOID BLOCK
5	2	10643-6-6	COUPLING, HOSE CRIMP- STR. FM JIC 37* FLARE SWVL., 3/8" x 3/8"
6	2	10643-8-12	HOSE END 3/4" HOSE CRIMP x 1/2" MJIC SWVL
7	1	3_8 CR-S	FITTING, PIPE- ADAPTER, ELBOW 3/8" MPIPE x 3/8" MPIPE, 90*
8	1	6-6 FTX-S	FITTING, ADAPTER- 3/8" MJIC 37* FLARE x 3/8" NPTF MPIPE, STR.
9	1	6-6 CTX-S	FITTING, ADAPTER- ELBOW 3/8" MJIC 37* FLARE x 3/8" NPTF MPIPE, 90*
10	2	6-8 F5OX-S	FITTING, 3/8" MJIC 37* FLARE x 1/2" M ORING BOSS, STR.
11	2	13943-6-6	HOSE END, 3/8" FM JIC 37* x SWVL 90* ELBW
12	2	8-6 F5OX-S	1/2" MALE JICX3/8" MALE O-RING
13	2	13943-12-8	HOSE END 3/4" x 1/2" FM JIC 37 x SWVL 90* ELB.
14	2	451TC-6-RL	HYD HOSE 3/8" x SPECIFIED LENGTH
15	2	451TC-12-RL	HYD HOSE 3/4" x SPECIFIED LENGTH



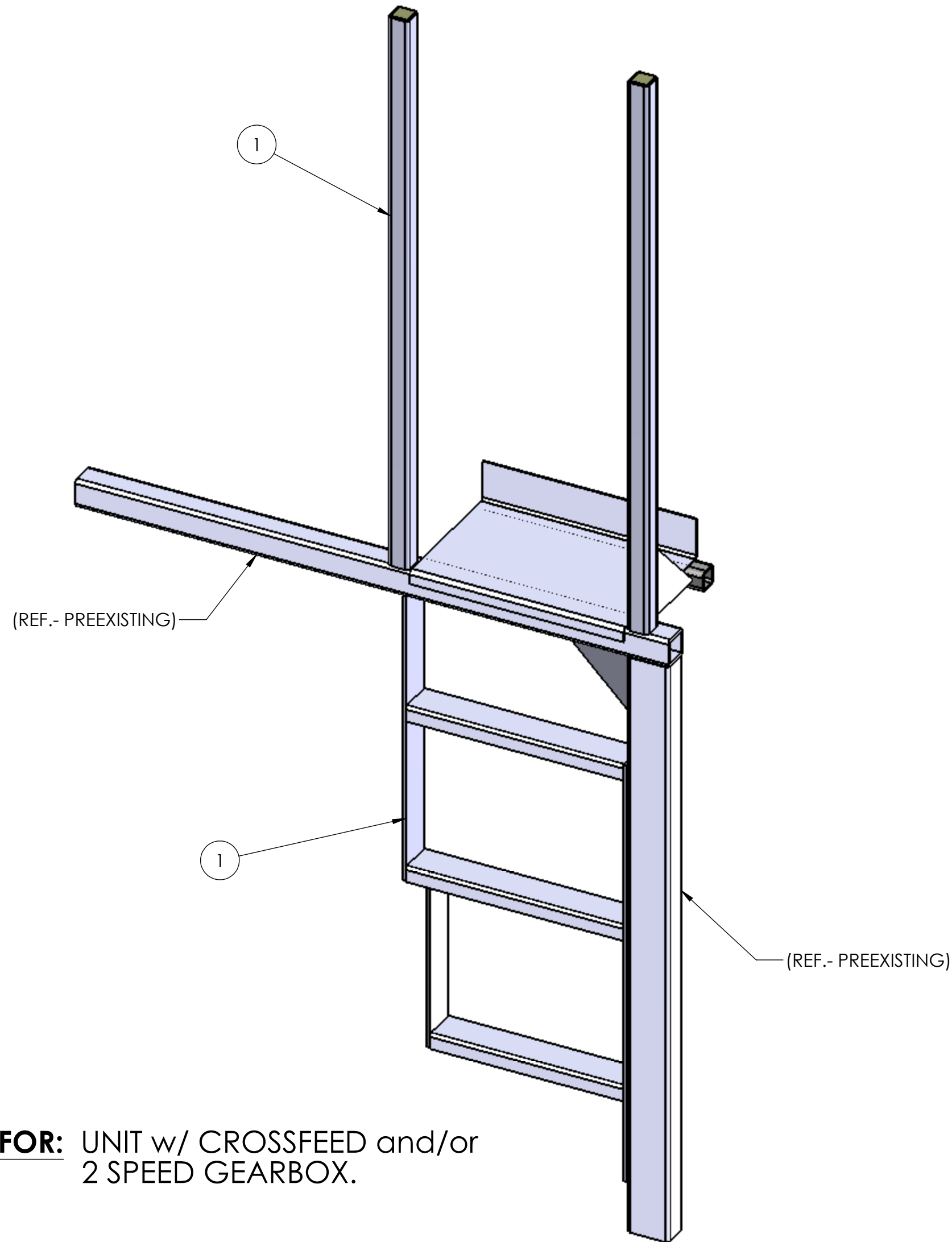
NOTE: UNIT SERIAL # NEEDED FOR ALL PART ORDERS

Notes:		Kirby Mfg Inc. P.O. BOX 989 MERCED CA 95340 PH (209)723-0778 FX (209)723-3941			
		JOB #: MATERIAL: MATERIAL P/N:			
DRAWN BY:	DATE	NAME		DESCRIPTION	
CHECKED BY:				SIZE	PART NUMBER
APPROVED BY:				C	OMVRT-017
				SCALE: 1:12	WEIGHT: 20.538976 lbs
				SHEET 1 OF 1	

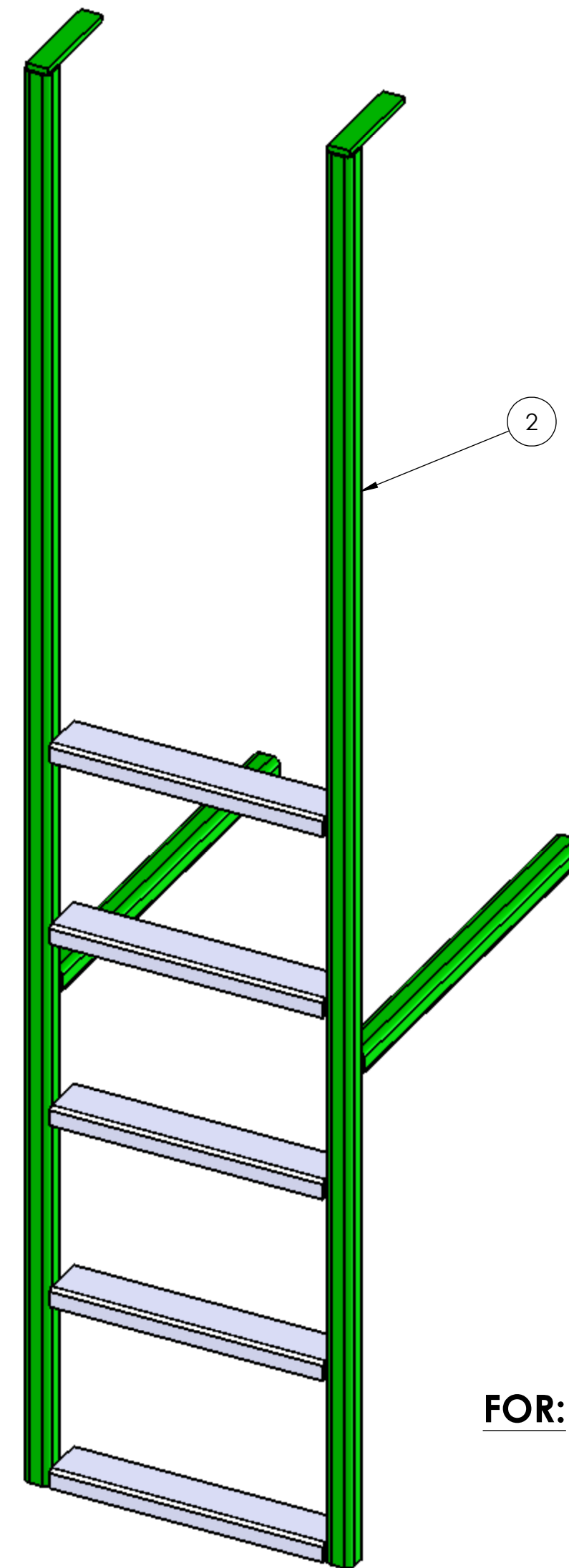
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DIMENSIONS ARE IN INCHES
 TOLERANCES:
 FRACTIONAL: ±
 ANGULAR: MACH ±
 BEND ±
 TWO PLACE DECIMAL ±
 THREE PLACE DECIMAL ±

ITEM NO.	QTY.	PART NUMBER	DESCRIPTION
1	1	172013	ELP (TRLR. MNT.) ACCESS LADDER ASSY. (COMPLETE)- for UNIT w/ CROSSFEED
2	1	172011	ELP (TRLR. MNT.) ACCESS LADDER ASSY. (COMPLETE)- for UNIT w/ SIDE DOORS



FOR: UNIT w/ CROSSFEED and/or 2 SPEED GEARBOX.




FOR: UNIT w/o CROSSFEED and w/ SIDEDOORS.

NOTE: UNIT SERIAL NUMBER NEEDED FOR ALL PART ORDERS.

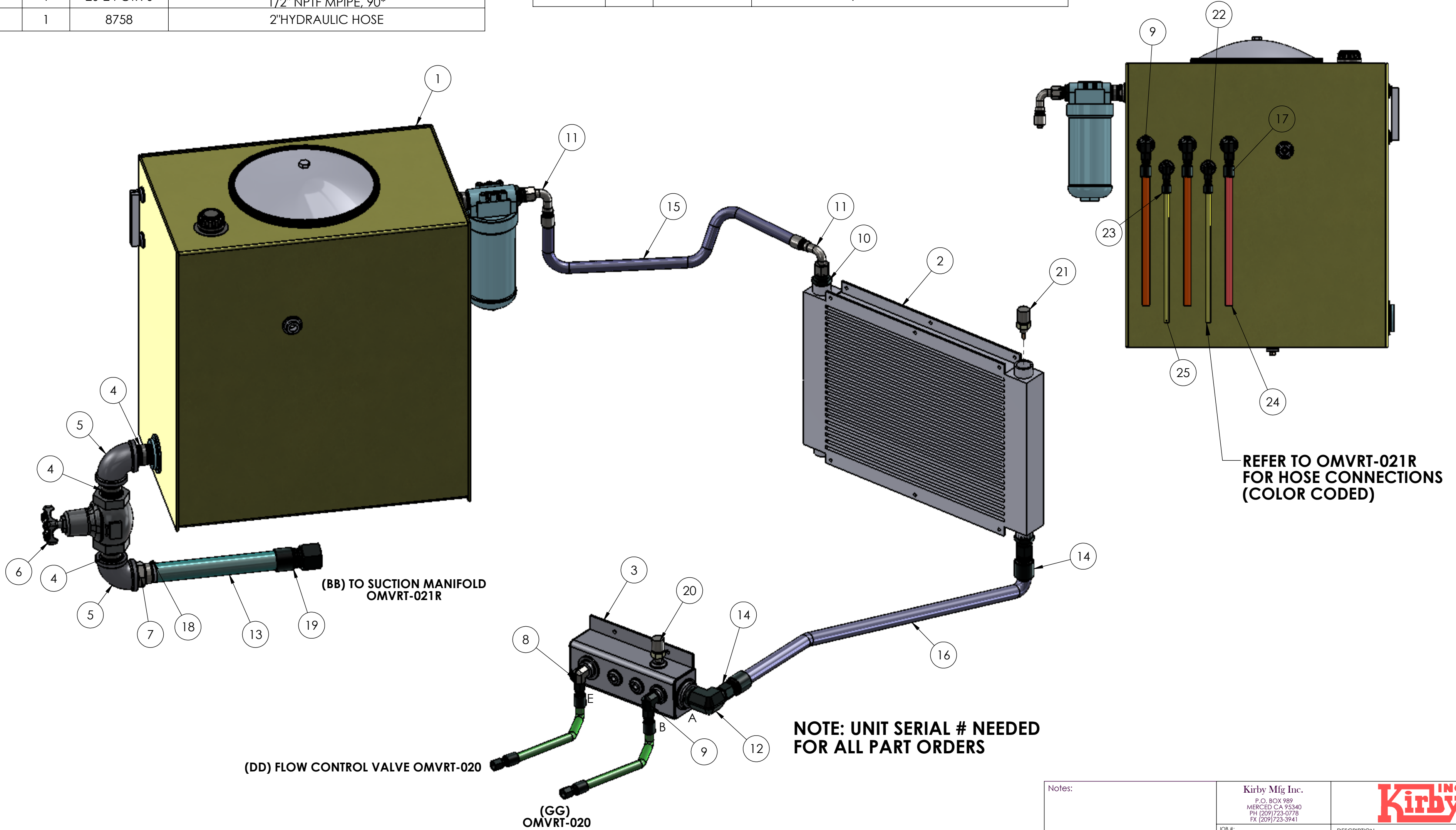
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DIMENSIONS ARE IN INCHES
 TOLERANCES:
 FRACTIONAL ±
 ANGULAR: MACH ± BEND ±
 TWO PLACE DECIMAL ±
 THREE PLACE DECIMAL ±

Notes:			Kirby Mfg Inc. P.O. BOX 989 MERCED CA 95340 PH (209)723-0778 FX (209)723-3941		 DESCRIPTION ELP (TRLR. MNT.) ACCESS LADDER ASSYS.
MATERIAL:			JOB #:		
DRAWN BY: 3-29-10			NAME: BRENT K. AHNEN		SIZE: C
CHECKED BY:			VENDOR:		PART NUMBER: OMVRT-018
APPROVED BY:			VENDOR P/N:		SCALE: 1:12
					WEIGHT: -
					SHEET 1 OF 1

ITEM NO.	QTY.	PART NUMBER	DESCRIPTION
1	1	193003	65 GAL. HYDR. TANK (ALL HYD.)
2	1	7930	COOLER, HYD OIL 12V DRIVE
3	1	192017	VERT. MIXER RETURN MANIFOLD ASSY.
4	3	9290	FITTING, PIPE- NIPPLE 2" NPT, CLOSE
5	2	9353	2" BLK. PIPE COUPLER- 90deg. EL.
6	1	9531	2" GATE VALVE
7	1	0188-32-32	2" M PIPE X 2" NIPPLE STRAIGHT
8	1	12-16 CTX-S	FITTING 90° 3/4" MALE JIC X 1" MALE PIPE
9	4	12 CTX-S	FITTING, ADAPTER- ELBOW 3/4" MJIC 37* FLARE x 3/4" NPTF MPIPE, 90°
10	1	20 FTX-S	FITTING, ADAPTER- 1 1/4" MJIC 37* FLARE x 1 1/4" NPTF MPIPE, STR.
11	2	13943-16-16	HOSE END, 1" FM JIC 37*-SWVL 90° ELBOW
12	1	20-24 CTX-S	FITTING, ADAPTER- ELBOW 1 1/4" MJIC 37* FLARE x 1 1/2" NPTF MPIPE, 90°
13	1	8758	2" HYDRAULIC HOSE

ITEM NO.	QTY.	PART NUMBER	DESCRIPTION
14	2	10643-20-20	COUPLING, HOSE CRIMP- STR. FM JIC 37* FLARE SWVL., 1 1/4" x 1 1/4"
15	1	301-16-RL	1" HYDRAULIC HOSE
16	1	301-20	1 1/4" HYDRAULIC HOSE
17	7	10643-12-12	COUPLING, HOSE CRIMP- STR. FM JIC 37* FLARE SWVL., 3/4" x 3/4"
18	1	TBC 256	HOSE CLAMP
19	1	10643-32-32	HOSE END
20	1	PDTF120R	OIL TEMP SENDER
21	1	PDTF190R	OIL TEMP SENDER
22	2	8-8 CTX-S	FITTING, ADAPTER- ELBOW 1/2" MJIC 37* FLARE x 1/2" NPTF MPIPE, 90°
23	2	10643-8-8	COUPLING, HOSE CRIMP- STR. FM JIC 37* FLARE SWVL., 1/2" x 1/2"
24	5	301-12-RL	3/4" HYDRAULIC HOSE
25	2	301-8-RL	1/2" HYDRAULIC HOSE

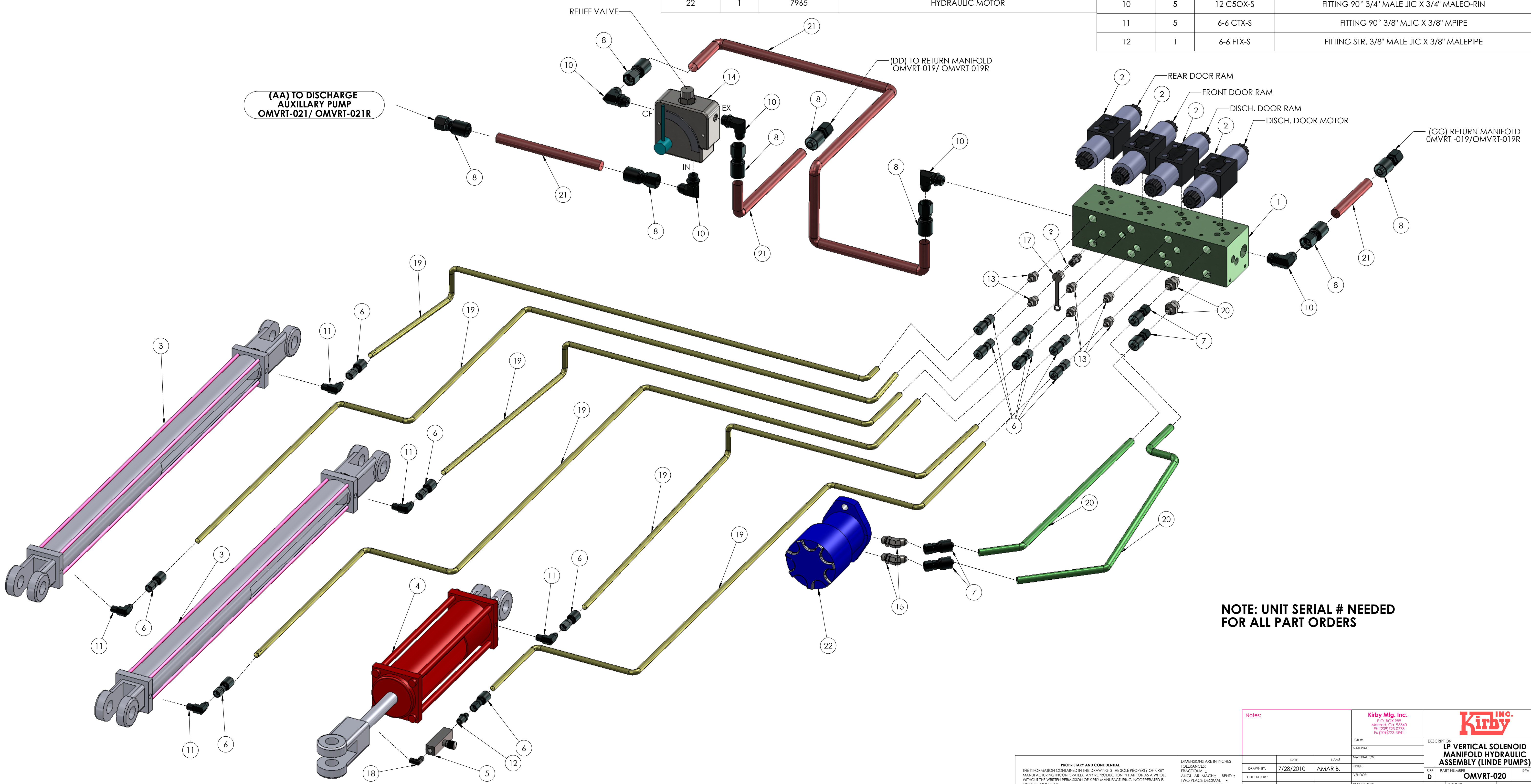


Notes:		Kirby Mfg Inc. P.O. BOX 989 MERCED CA 95340 PH (209)723-0778 FX (209)723-3941	
DRAWN BY: 6/23/2010		NAME: AMAR B.	
CHECKED BY:		VENDOR:	
APPROVED BY:		VENDOR P/N:	
DESCRIPTION: REAR MOUNT VERTICAL COOLER & TANK HYDRAULIC ASSEMBLY (LINDE PUMPS)		SCALE: 1:14	
SIZE: C		PART NUMBER: OMOVRT-019R	
WEIGHT: 298.706381 lbs		SHEET 1 OF 1	

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DIMENSIONS ARE IN INCHES
TOLERANCES:
FRACTIONAL: ±
ANGULAR: MACH ± BEND ±
TWO PLACE DECIMAL ±
THREE PLACE DECIMAL ±

ITEM NO.	QTY.	PART NUMBER	DESCRIPTION	ITEM NO.	QTY.	PART NUMBER	DESCRIPTION
13	6	6-8 F50X-S	FITTING STR. 3/8" MJIC X 1/2" MALE O-RING	1	1	7943-07	HYDRAULIC MANIFOLD
14	1	8054	VALVE FCR-51 3/4" SAE	2	4	7894	(PARKER) Solenoid
15	2	8-8 VTX-S	FITTING, 45° ELBOW, 1/2" MJIC X 1/2" M O-RING	3	2	7936	2" x 30" HYDRAULIC RAM
16	1	PD361	TIP, PARKER (O-RING THREAD)	4	1	8245	2" x 18" HYDRAULIC RAM
17	1	PD6-285	DUST CAP FOR PARKER TIPS	5	1	7896	3/8" NPTF NEEDLE VALVE
18	1	3/8 CR-S	FITTING, PIPE- ADAPTER, ELBOW 3/8" MPIPE x 3/8" MPIPE, 90°	6	12	10643-6-6	HOSE END 3/8" HOSE CRIMP x 3/8" MJIC SWVL
19	6	451TC-6-RL	3/8" HOSE x SPECIFIED LENGTHS	7	4	10643-8-8	HOSE END 1/2" HOSE CRIMP x 1/2" MJIC SWVL
20	2	451TC-8-RL	1/2" HOSE x SPECIFIED LENGTHS	8	8	10643-12-12	HOSE END 3/4" HOSE CRIMP x 3/4" MJIC SWVL
21	4	451TC-12-RL	3/4" HOSE x SPECIFIED LENGTHS	9	2	8 F50X-S	FITTING STR. 1/2" MJIC X 1/2" M O-RING
22	1	7965	HYDRAULIC MOTOR	10	5	12 C5OX-S	FITTING 90° 3/4" MALE JIC X 3/4" MALEO-RIN
				11	5	6-6 CTX-S	FITTING 90° 3/8" MJIC X 3/8" MPIPE
				12	1	6-6 FX-S	FITTING STR. 3/8" MALE JIC X 3/8" MALEPIPE



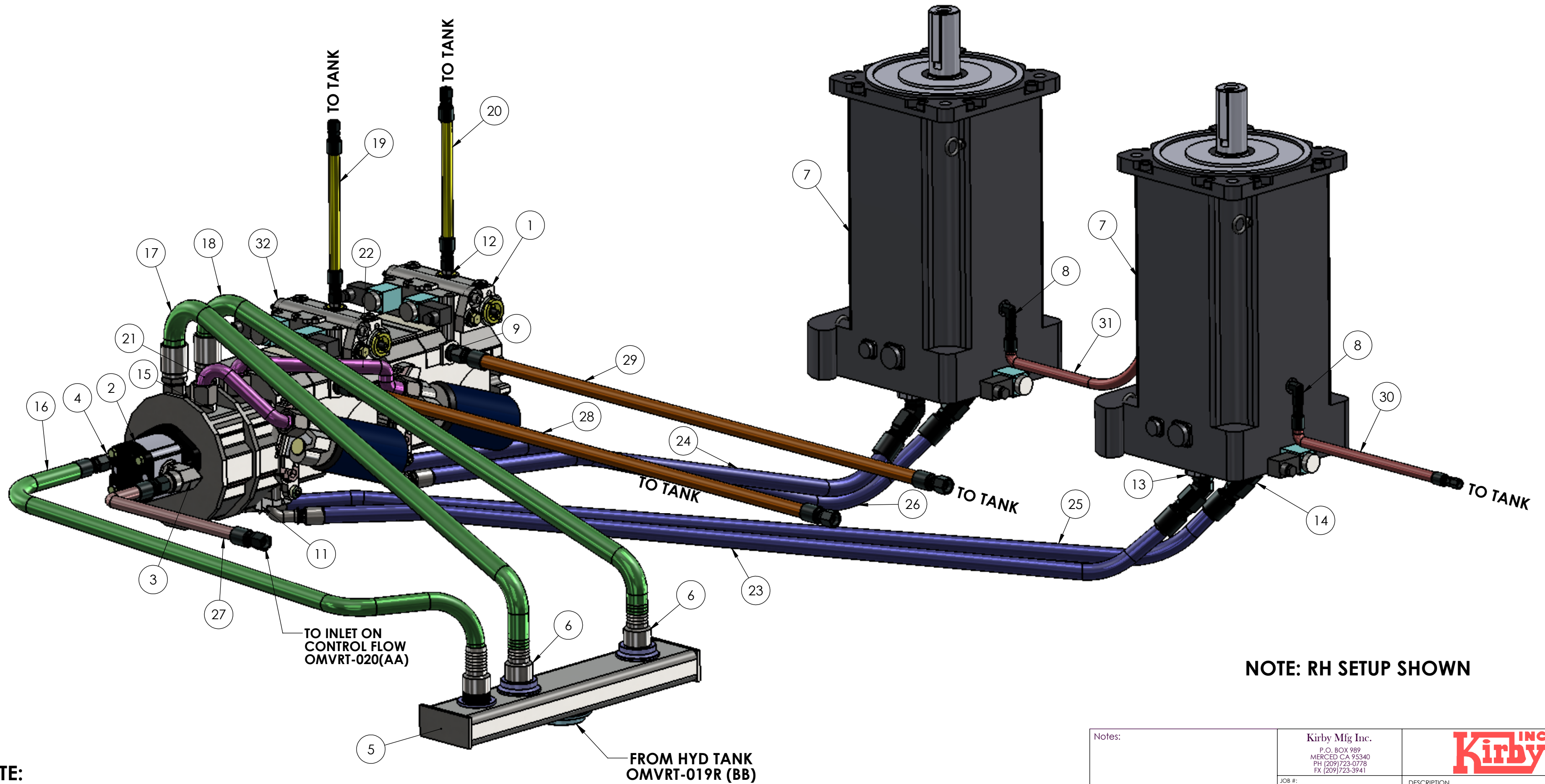
NOTE: UNIT SERIAL # NEEDED FOR ALL PART ORDERS

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---	--	--	---	--	---	--	--

ITEM NO.	QTY.	PART NUMBER	DESCRIPTION
1	1	7909L	PUMP-HYD MODEL VERTICAL REAR
2	1	7917	PUMP-HYD AUX.HYDROSTAT
3	1	16 C50X-S	FITTING 90*, 1" MALE JIC X 1" MALE O-RING
4	1	12-16C50X-S	FITTING 90*, 3/4" MALE JIC X 1" MALE O-RING
5	1	392175	REAR SUCTION MANIFOLD
6	3	9294	KING NIPPLE 1H X 1MPT
7	2	7907L	LINDE MOTOR
8	2	6-6 CTX-S	FITTING, ADAPTER- ELBOW 3/8" MJIC 37* FLARE x 3/8" NPTF MPIPE, 90*
9	4	12 F50X-S	FITTING, ADAPTER- 3/4" MJIC 37* FLARE x 3/4" M O-RING BOSS, STR.
10	1	6-6 FTX-S	FITTING, ADAPTER- 3/8" MJIC 37* FLARE x 3/8" NPTF MPIPE, STR.
11	4	SFH-16K	1" CODE 62 SPLIT FLANGE

ITEM NO.	QTY.	PART NUMBER	DESCRIPTION
12	2	8 F50X-S	FITTING, ADAPTER- 1/2" MJIC x 1/2" M O-RING , STR.
13	4	20G5Q2BSX	ADAPTER BLOCK 1 1/4"
14	4	16-20 V5OLO-S	FITTING 1" MJIC x 1 1/4" O-RING 45 DEG
15	4	9068-12-26	FITTING 3/4MJIC X 26MM X 1.5 STR ADPT
16	1	8756	HOSE 1" HYD, SUCTION
17	1	8756	HOSE 1" HYD, SUCTION
18	1	8756	HOSE 1" HYD, SUCTION
19	1	451TC-8-RL	HOSE, HYD 1/2" TOUGH COVER
20	1	451TC-8-RL	HOSE, HYD 1/2" TOUGH COVER
21	1	192058	3/4" LINDE SHORT CHARGE PUMP RH
22	1	192057	3/4" LINDE LONG CHARGE PUMP RH

ITEM NO.	QTY.	PART NUMBER	DESCRIPTION
23	1	451TC-16-RL	HOSE, HYD 1" TOUGH COVER
24	1	451TC-16-RL	HOSE, HYD 1" TOUGH COVER
25	1	451TC-16-RL	HOSE, HYD 1" TOUGH COVER
26	1	451TC-16-RL	HOSE, HYD 1" TOUGH COVER
27	1	451TC-12-RL	HOSE, HYD 3/4" TOUGH COVER
28	1	451TC-12-RL	HOSE, HYD 3/4" TOUGH COVER
29	1	451TC-12-RL	HOSE, HYD 3/4" TOUGH COVER
30	1	451TC-12-RL	HOSE, HYD 3/4" TOUGH COVER
31	1	451TC-12-RL	HOSE, HYD 3/4" TOUGH COVER
32	1	7910L	PUMP-HYD MODEL VERTICAL REAR



NOTE: RH SETUP SHOWN

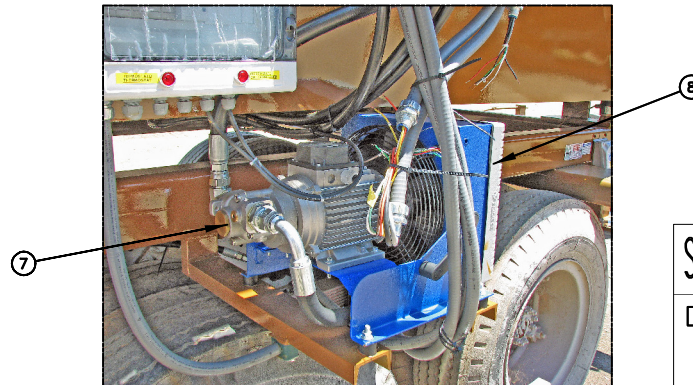
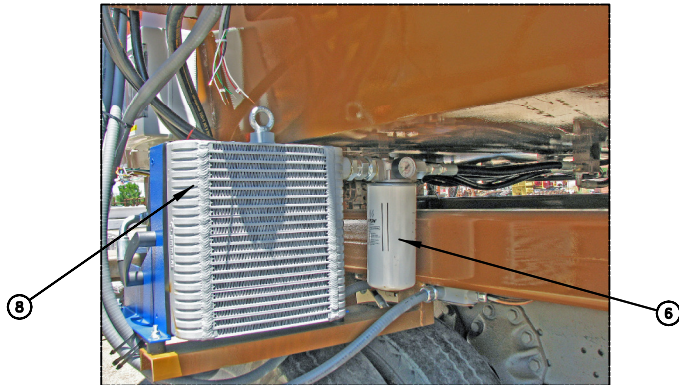
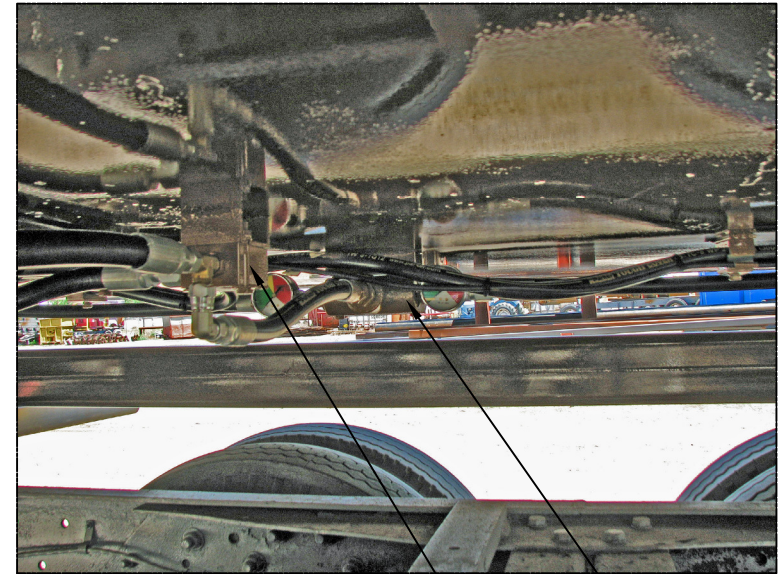
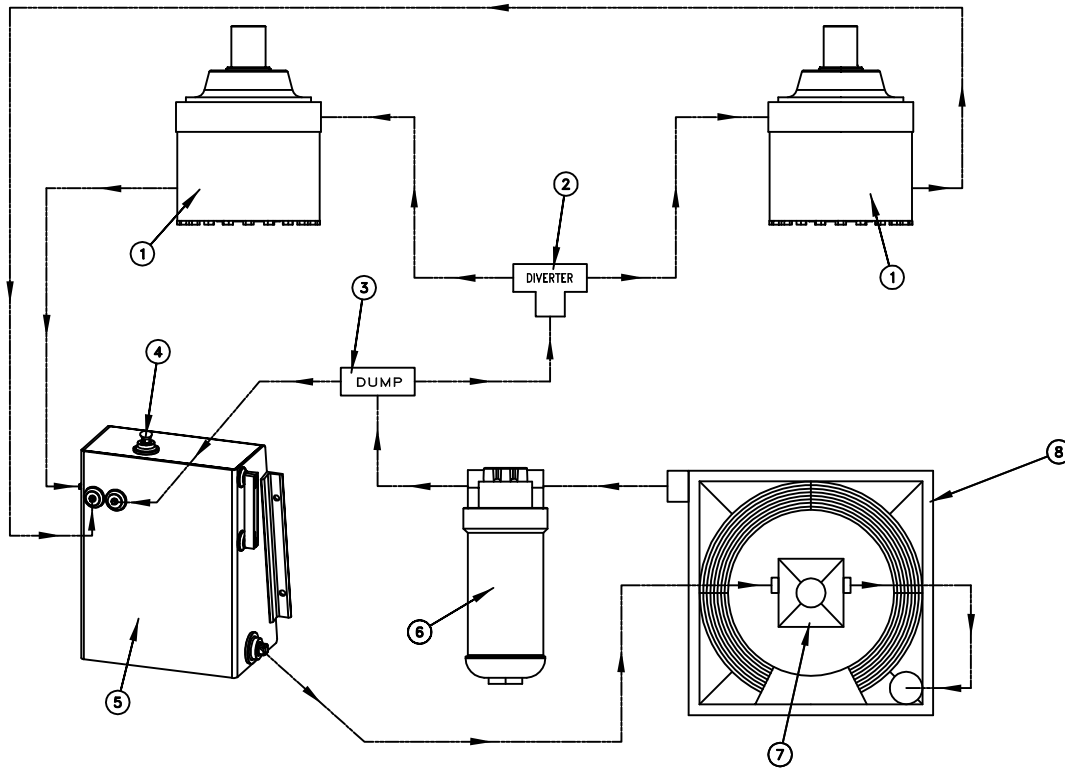
**NOTE:
UNIT SERIAL NUMBER NEEDED
FOR ALL PART ORDERS**

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DIMENSIONS ARE IN INCHES
TOLERANCES:
FRACTIONAL ±
ANGULAR: MACH ± BEND ±
TWO PLACE DECIMAL ±
THREE PLACE DECIMAL ±

Notes:		Kirby Mfg Inc. P.O. BOX 989 MERCED CA 95340 PH (209)723-0778 FX (209)723-3941		
		JOB #: MATERIAL: MATERIAL P/N:		
DRAWN BY:	DATE:	NAME:	FINISH:	DESCRIPTION RH REAR HYD. PUMP & MOTOR ASSEMBLY (LINDE SETUP)
CHECKED BY:			VENDOR:	
APPROVED BY:			VENDOR P/N:	
SIZE C		PART NUMBER OMVRT-021R		REV.
SCALE: 1:14		WEIGHT: 150.067592 lbs		SHEET 1 OF 1

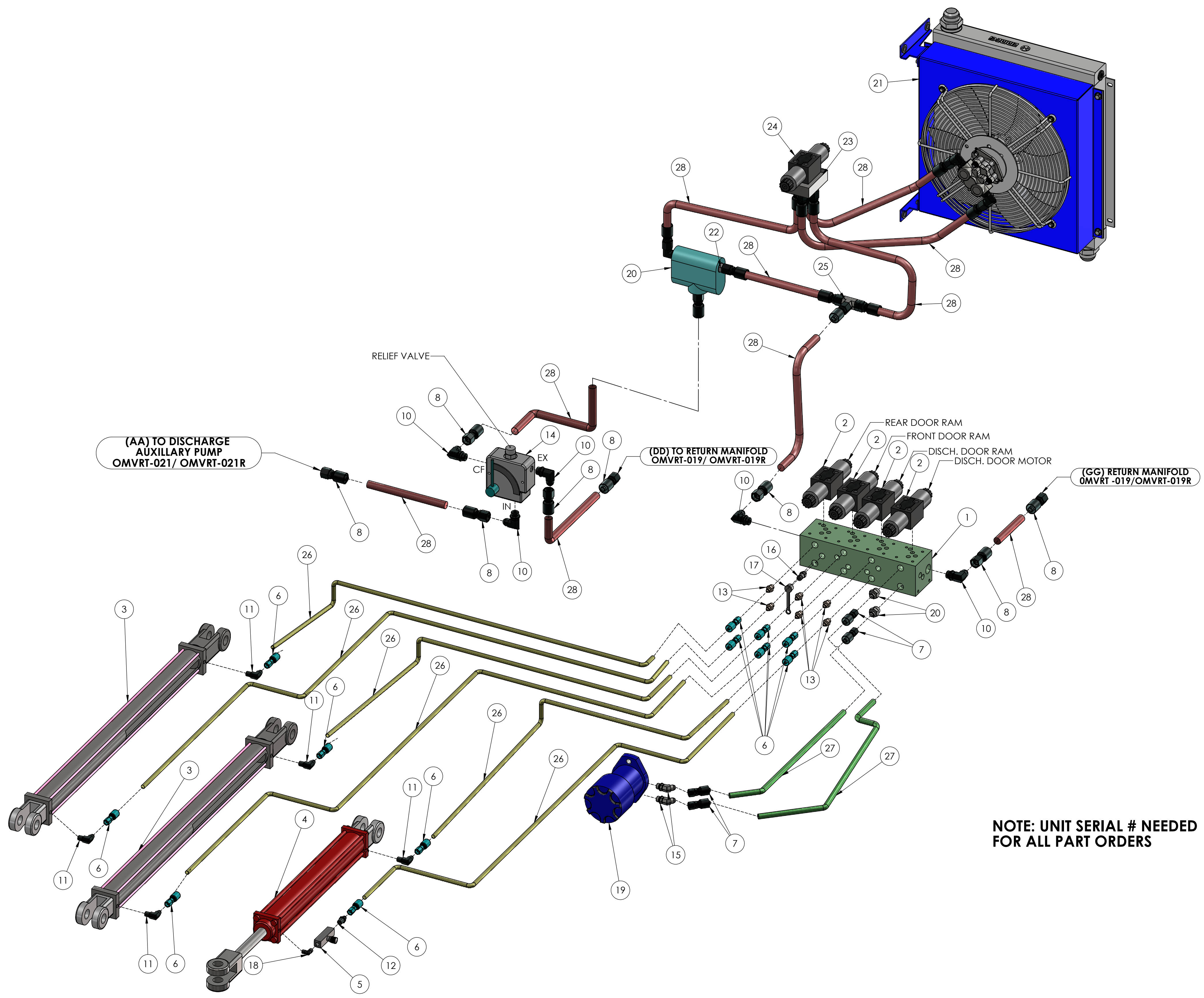
MATERIAL LIST			
SYM.	QTY.	DESCRIPTION	PART NO.
1	2	4-PLANET S25- BTM. FLG. MNT. COMER G.B. (36:1)	7589
2	1	"BRAND" PRI. DIVERTER VALVE, 3-GPM	7948
3	1	2 WAY DUMP VALVE, 1/2" PORT N/O	8993
4	1	AIR BREATHER, A1199P1394 MERI	7291S
5	1	6 GAL. G.B. OIL COOLING TANK ASSY.	393270
6	1	SPIN-ON CORELESS FILTER	7963
7	7	"EMMEGI" GEAR COOLING SYSTEM	8006
8	1	"EMMEGI" COOLER	7994



STATIONARY VERT. MIXER GEARBOX COOLER SCHEMATIC

	DRAWN BY	PART NO.
	B.K.A.	OMVRT-022
	SCALE	DATE
	1/16=1	6-07-12
P.O. BOX 989 MERCED, CA. 95341 PH: (209) 723-0778		DWG. NO. OMVRT-022

ITEM NO.	QTY.	PART NUMBER	DESCRIPTION
1	1	7943-07	HYDRAULIC MANIFOLD
2	4	7894	VALVE 4-WAY SOLENOID
3	2	8267	3" x 30" HYDRAULIC RAM
4	1	8245	2" x 18" HYDRAULIC RAM
5	1	7896	3/8" NPTF NEEDLE VALVE
6	12	10643-6-6	HOSE END 3/8" HOSE CRIMP x 3/8" MJIC SWVL
7	4	10643-8-8	HOSE END 1/2" HOSE CRIMP x 1/2" MJIC SWVL
8	20	10643-12-12	HOSE END 3/4" HOSE CRIMP x 3/4" MJIC SWVL
9	2	8 F50X-S	FITTING STR. 1/2" MJIC X 1/2" M O-RING
10	8	12 C50X-S	FITTING 90° 3/4" MALE JIC X 3/4" MALEO-RIN
11	5	6-6 CTX-S	FITTING 90° 3/8" MJIC X 3/8" MPIPE
12	1	6-6 FTX-S	FITTING STR. 3/8" MALE JIC X 3/8" MALEPIPE
13	6	6-8 F50X-S	FITTING STR. 3/8" MJIC X 1/2" MALE O-RING
14	1	8054	VALVE FCR-51 3/4" SAE
15	2	8-8 VTX-S	FITTING, 45° ELBOW, 1/2" MJIC X 1/2" M O-RING
16	1	PD361	TIP, PARKER (O-RING THREAD)
17	1	PD6-285	DUST CAP FOR PARKER TIPS
18	1	3/8 CR-S	FITTING, PIPE- ADAPTER, ELBOW 3/8" MPIPE x 3/8" MPIPE, 90*
19	1	7965	HYDRAULIC MOTOR
20	1	8061	VALVE PRIORITY DIVIDER
21	1	7994	EMMEGI COOLER
22	6	12 F50X-S	FITTING, ADAPTER- 3/4" MJIC 37° FLARE x 3/4" M O-RING BOSS, STR.
23	1	8071	SOLENOID BLOCK
24	1	8004	4-WAY SOLENOID MOTOR SPOOL
25	1	12 STX-S	FITTING MALE BRANCH TEE 3/4" MJIC
26	6	451TC-6-RL	3/8" HOSE x SPECIFIED LENGTHS
27	2	451TC-8-RL	1/2" HOSE x SPECIFIED LENGTHS
28	10	451TC-12-RL	3/4" HOSE x SPECIFIED LENGTHS



FOR ALL VERTICAL TRUCK MOUNT UNITS WITH HYDRAULIC COOLER (ITEM #22) AFTER 9/1/2012

NOTE: UNIT SERIAL # NEEDED FOR ALL PART ORDERS

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<p>Notes:</p>		<p>Kirby Mfg. Inc. P.O. Box 199 Merced, Ca. 95340 Ph: (209) 323-3718 F: (209) 323-3941</p>		<p>JOB #: MATERIAL: MATERIAL P/N:</p>		<p>DESCRIPTION: LP VERTICAL SOLENOID MANIFOLD HYDRAULIC ASSEMBLY (LINDE PUMPS)</p>		<p>REV.:</p>	
<p>SIZE: D</p>		<p>PART NUMBER: OMVRT-023</p>		<p>CHECKED BY:</p>		<p>VENDOR P/N:</p>		<p>SCALE: 1:1 WEIGHT: 454.371660 lbs SHEET 1 OF 1</p>	

12.0 APPENDIX

APPENDIX
(VENDOR LITERATURE)

SECTION

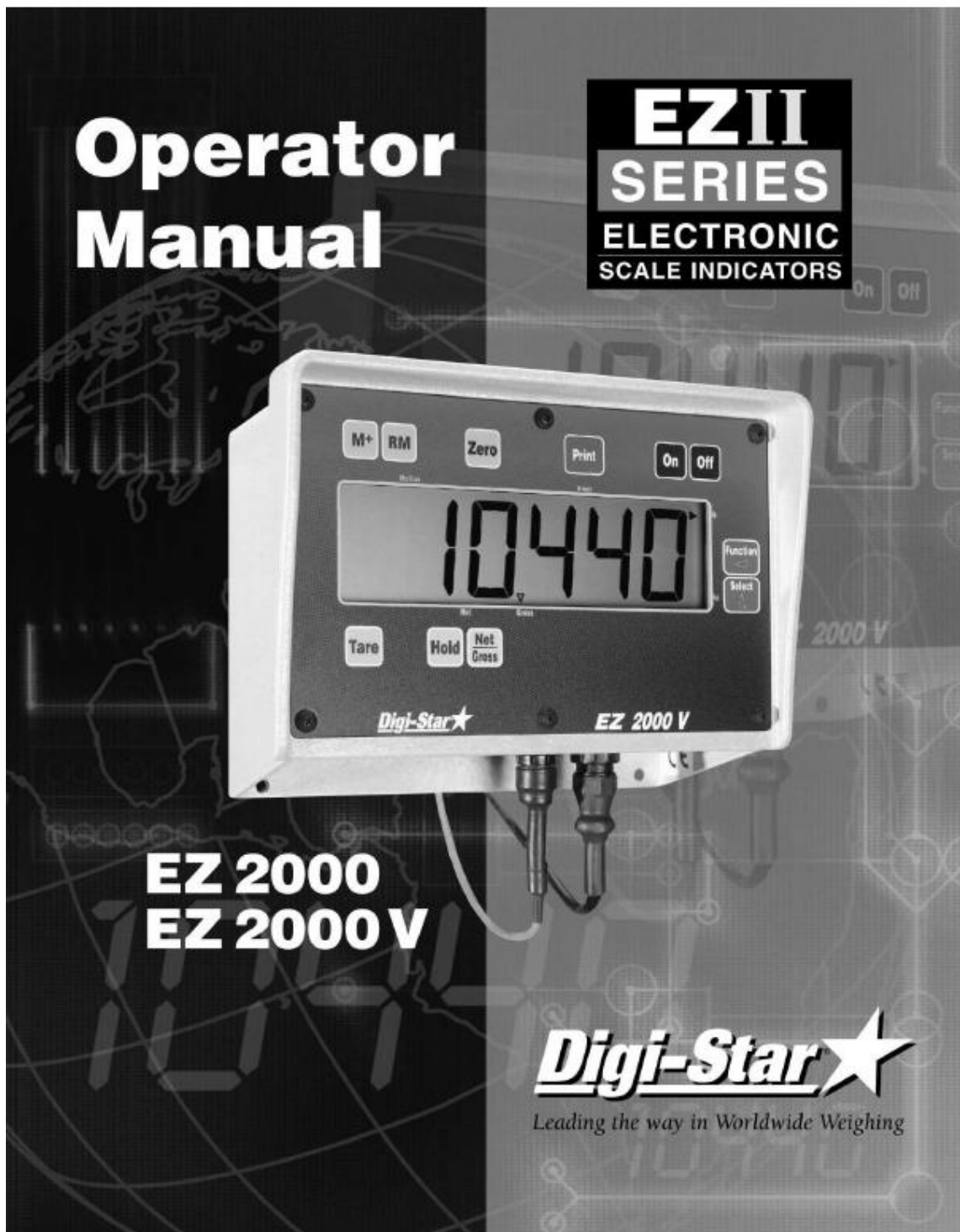
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1

SCALES; DIGI –STAR

[Type text]

SECTION 1



US Part Number: F3531

[Type text]

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Always keep this manual by your scale indicator

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Fort Atkinson, Wisconsin (USA)

1. About the product

1.1 Features of Models EZ2000 and EZ2000V

- Scrolling Help Messages for easy operation
- Large 1.7" display (1" for EZ2000) for greater readability
- Front panel calibration without simulator or weights
- Expanded self diagnostic test capability
- SELECT and FUNCTION keys to simplify appearance and allow for future expansion
- A HOLD feature to hold the weight stable while moving the scale system
- Fiber-optic back lighting for extremely long life
- New powerful microprocessor and expanded memory

1.2 Operating specifications

- Temperature range: -20°F to 140°F
- Power requirements: 10.2Vdc - 16Vdc
- Power on: 160mA, 4L.C. 350Ω
- Power off: 1mA

1.3 Housing

- Size (l×h×w): 10" × 7.4" × 5"
- Weight (unpacked): 4.5 lbs
- Display EZ2000: 6-digit alpha numeric LCD, fiberoptic back lighting
Display height EZ2000 = 1"
Display height EZ2000V = 1.7"
- Environmental enclosure: IP65, IEC529
- Connectors: AMP, gold plated contacts

2. System operation

- EZ2000 shown - EZ2000V operation is the same.
- LB and KG annunciators are located along right hand edge of the 2000V display.

TURNING ON THE SCALE



Press **ON**.

A brief message will be displayed (such as *HELLO*). The scale then enters the GROSS weighing mode.

GROSS mode displays the weight change since the unit was last ZERO/BALANCED.

Pressing **ON** a second time during normal system operation starts the self test.

TURNING OFF THE SCALE



Press **OFF**.

TO ZERO BALANCE THE SCALE



Press **Net/Gross** and then within three seconds, press **Zero**.

The ZERO key will "balance off" empty trailer, bin, or platform weight.

The ZERO message is displayed and the scale is placed in the GROSS mode.

Pressing only the ZERO key will cause the message: *TO ZERO/BALANCE PRESS NET/ GROSS - THEN ZERO* to be displayed.

If the supply power is below the low battery threshold (10.5 Volts), the message *INDICATOR CANNOT BE ZERO/BALANCED-LOW BATTERY VOLTAGE* is displayed. The message *LO BAT* will be periodically shown on the display (approx. every five seconds) to alert the operator of the low battery condition.

Loss of power does **not** affect the Zero/Balance or Setup/Calibration values.

TO SELECT GROSS MODE



GROSS mode displays the weight change since the unit was last Zero/Balanced.

Press **Net/Gross**.

The scale is in GROSS mode if there is a flashing arrow (↕) pointing toward the word Gross, next to the display.

TO SELECT NET MODE



NET mode displays the weight change after a TARE has been performed. TARE creates a temporary zero at that weight value.

Press **Tare** to set a temporary "zero" point and enter the NET mode.

or

if in GROSS mode, press **Net/Gross**.

The NET/GROSS key is an alternating action key. If the scale is in the GROSS mode, pressing the NET/GROSS key will place it in the NET mode. If the scale is in the NET mode, pressing the NET/GROSS key will place it in the GROSS mode.

If the TARE function has not been previously performed, the unit will stay in the GROSS mode and the message *FOR NET MODE PRESS TARE* will scroll across the display.

The scale is in NET mode if there is a flashing arrow (↕) pointing toward the word Net, next to the display.

TO SELECT HOLD MODE



HOLD mode prevents the displayed weight from changing due to "zero shift" while moving the scale. Use of this mode is optional.

Press **Hold** to "hold" the displayed weight and enter the HOLD mode.

The scale is in HOLD mode if the word *HOLD* is flashing on the display and the flashing *HOLD WEIGHT* is only displayed for a brief time.

TO EXIT HOLD MODE



Press **Hold**.

At this time the scale adjusts the Zero/Balance to maintain the gross weight displayed. Small changes in weight can occur while moving the scale system to new locations for loading or unloading. This change is called "zero shift" and is due to several factors including terrain changes and mechanical stresses.

TO CANCEL HOLD MODE



Press **ON**.

Canceling the Hold mode prevents the scale from adjusting the Zero/Balance and returns the system to the normal weighing mode. Use this if you choose Hold Mode in error.

USING FUNCTION & SELECT KEYS



The **FUNCTION** key provides additional features to the operation of the scale. The **FUNCTION** key is similar to the F1 key of a computer. The **SELECT** key is used to determine what operation will occur when the **FUNCTION** key is pressed.

Press **Select** to display the current operation of the **FUNCTION** key.

Continue to press **Select** until the desired operation is displayed.

The **FUNCTION** key maintains this operation until **Select** is pressed again.

Now press the **Function** key to perform the displayed operation.

For example, if the word **TIMER** is displayed, then pressing the **FUNCTION** key will activate the Mix Timer. If the message **M+** is displayed, then pressing the **FUNCTION** key will cause the scale to perform the Memory Plus (**M+**) operation.

The **FUNCTION** key operation is stored in non-volatile memory. This allows the scale to remember the operation of the **FUNCTION** key even when the unit is turned **OFF**.

Press the **SELECT** key once to display the operation currently assigned to the **FUNCTION** key.

ADD WEIGHT TO WEIGH MEMORY



Press the **Select** key to assign the M+ operation to the FUNCTION key.

Press the **Fn** key to perform the Memory Plus (M+) operation.

M+ will be displayed, followed by the amount to be added to the weigh memory. *R_n* will be displayed next, followed by the total amount stored in the weigh memory.
(Optional RM & M+ Keys on the 2000V - See Front Cover Image).

RECALL WEIGH MEMORY



Press the **Select** key to assign the RM operation to the FUNCTION key.

Press the **Fn** key to perform the Recall Memory (RM) operation.

The total amount stored in weigh memory will be displayed.

PRINT WEIGH MEMORY (OPTION)



Press the **Fn** key to display the Recall Memory (RM) value.

Then press the **Print** key while the weigh memory is still displayed.

The PRINT key causes the unit to print the weigh memory and return to the normal weighing modes.

CLEAR WEIGH MEMORY



Press the **Select** key to assign the CM operation to the FUNCTION key.

Press the **Fn** key to perform the Clear Memory (CM) operation.

WEIGH AVERAGING



Press **Function** key to assign the RM operation to the FUNCTION key.

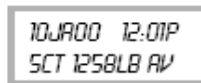


Press the **Print** key twice within three seconds to perform the weigh averaging operation.

The *COUNT* or number of weight values added to the weigh memory will be displayed first. Then the message *AVERAG* is displayed, followed by the average weight value.

To print the average weight value, press the **Print** key while the average weight is still displayed.

Average weight print sample shown below:



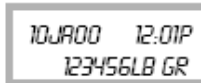
TO PRINT: (OPTIONAL FEATURE)



Press the **Print** key. Scale data will be sent to the printer.

The weight will be printed automatically whenever the TR is used.

Sample output format shown below:



REMOTE DISPLAY (OPTION)



A Remote Display is available for viewing weights at convenient locations. The Remote Display includes a visual alarm light which can be used with the TR option listed below.

TR OPTION: RADIO CONTROL

The transmitter/Receiver (TR) option uses a small hand held transmitter to allow the operator to remotely control the scale. The TR option allows the operator to perform TARE and GROSS functions.

TO START THE MIXER TIMER



Press the **Select** key to assign the TIMER operation to the FUNCTION key.

Then press the **Function** key to see the Mix Time currently set.

While the Mix Time is displayed and a number is flashing, the FUNCTION and SELECT keys can be used to change the displayed value.

The SELECT key (**Select**) increments the “flashing” digit and the FUNCTION key (**Function**) selects which digit of the display is flashing.

Now press the **ON** key. Once the correct time has been entered or if the time displayed is acceptable, pressing **ON** stores the time and starts the Mix Timer.

The display now reads HOURS, MINUTES and SECONDS (HH:MM:SS), separated by colons that flash every second.

The Mix Timer “counts downward” until 00:00:00 time is displayed. At this time, the alarms are activated and the display begins flashing. This continues until the Mix Timer Alarm is cleared

TO CLEAR THE MIX TIMER ALARM



Press the **Tare** key or the **ON** key. The scale clears the Mix Timer alarms and enters the weighing mode.

TO RESTART THE MIX TIMER




Press the **Tare** key followed by the **ON** key to start the Mix Timer using the time previously entered.

3. Mounting and connection

INDICATOR MOUNTING

The indicator is easily attached to the Indicator Mounting Bracket by hooking the top over the plate and securing the bottom with two (2) bolts (size# 10 x 24 x 3/4") and nuts.

POWER CONNECTION

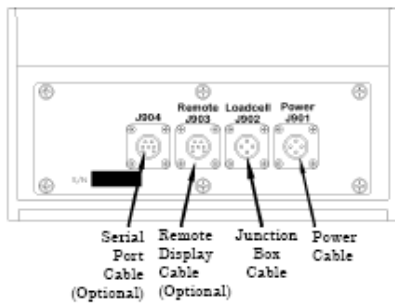
 **Warning!**

Always disconnect the indicator power cord before "jump starting" or fast charging a battery. Disconnect all indicator leads before welding on equipment. Failure to do so can cause surges which will damage the scale.

The power cable should be connected directly to a vehicle battery or regulated power supply. The scale end of the power cable is attached to the J901 connector located on the bottom panel of the scale.

Connect the RED wire from the power cable to +12VDC and the BLACK wire to GROUND. The indicator is fused internally at 4 amps.

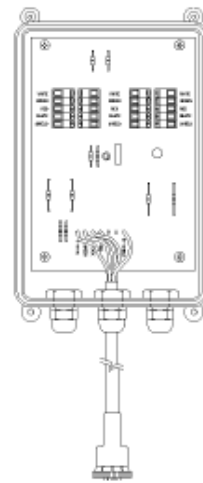
Wire Color	Wire Function
RED	Battery (+12Vdc)
BLACK	GROUND
ORANGE	NA
BLUE	NA




LOAD CELL CONNECTION

The indicator is designed to operate with strain gage load cells. The system will normally be supplied with a "J-BOX" cable going between the indicator and the load cell junction box. Extension Kits are available from your dealer in various lengths.

To connect the load cells, attach the junction box cable to the J902 connector on the bottom panel of the scale. Connect the load cell cables to the junction box as shown below.



Terminal Color	Description
WHITE	SIGNAL +
GREEN	SIGNAL -
RED	EXCITATION +
BLACK	EXCITATION -
SHIELD	SHIELD

 Follow color key on circuit board to insure proper connection of load cell wires.

LIGHTNING PROTECTION

Additional protection can be achieved with the proper installation of grounding rods. Please call (920) 563-9700 and request Digi-Star Form F3050.

TECHNICAL MANUAL

Technical Manual available upon request. Please call (920) 563-9700 and request Digi-Star Manual for New EZ2.

CALIBRATION



Warning!

This indicator was calibrated at the factory to weigh accurately with your system.

Additional calibration is not necessary under normal conditions.

The *Short Form Setup & Calibration* procedure allows you to change the "SETUP" and "CAL" numbers of the indicator. You may want to perform this procedure if:

1. The indicator is being connected to different load cells, or
2. You want to adjust the calibration to match another scale system.

Before continuing, first write down the current SETUP and CAL numbers of your EZ indicator. These numbers are displayed during the Self Test.

To run the self test:

With the indicator already ON, press the **ON** key to start the Self Test. Press the **ON** key to "pause" the Self Test while numbers are displayed. Press **ON** again to "resume".

SETUP # _____ CAL # _____
Keep this information for future reference.

⚠ Do not attempt to calibrate the scale if the indicator is not reading stable weights. The calibration procedure will not fix instability, inconsistencies, or flashing "RANGE" messages.

4. Adjusting indicator to match another scale

Sometimes two different scales are used to weigh the same load. When this is done, the weight measured by each scale may not be the same. This can be caused by one or both of the two scales being slightly out of calibration. This indicator has the ability to match any other scale, even if that scale is not calibrated.

To match your EZ scale (Scale A) to another scale (Scale B) you must determine the Calibration Multiplier. To do this, place a load on Scale A (feed wagon, etc...) and write down the weight displayed. Repeat several times to determine the average weight. Next, place the same load on Scale B and again write down the weight displayed.

Repeat several times to determine the average weight. Use the following formula to determine the Calibration Multiplier for the EZ's "CAL" number:

It is important to use an average of several weights before calibrating the scale.

Scale Matching Example

Original			
SETUP #		127060	
CAL#		23980	
	1 trial	2 trial	3 trial
Scale B	30,000	30,580	28,000
Scale A	29,440	29,800	27,500
B ÷ A	1.020 + 1.026 + 1.018 = 3.064		
	3.064 ÷ 3 trials = 1.021		
	Cal. Multiplier		
New EZCAL# = Orig. EZCAL# × Cal.Multiplier			
	24484	=	23980 × 1.021
You should not modify your "SETUP" number. Only your "CAL" number.			

Follow the instructions: *TO CHANGE THE SETUP/CALIBRATION NUMBERS* shown on the next page.

Scale Information sheet

Original			
SETUP #		_____	
CAL #		_____	
Scale Matching Work Sheet			
	1 trial	2 trial	3 trial
Scale A	_____	_____	_____
Scale B	_____	_____	_____
B ÷ A	+ +		= x
	x ÷ 3 trials = Cal. Multiplier		
New EZCAL# = Orig. EZCAL# × Cal.Multiplier			
_____ = _____ × _____			

CONNECTING EZ INDICATOR TO OTHER LOAD CELLS



TO CHANGE THE SETUP & CALIBRATION NUMBERS



You will need the number and type of load cells used in the new scale system. You will also need the current "SETUP" and "CAL" as described above. Once you have written down this information, contact your nearest Scale Service Center for new "SETUP" and "CAL" numbers.

Follow the instructions "To Change the Setup / Calibration Numbers" shown below.

Press and hold the **Zero** key, then press the **ON** key, to enter Short Form Setup & Calibration.

The first message displayed is SETUP.

Next, the actual SETUP number is displayed.

Press the **Zero** key for additional help information during Setup and Calibration.

If the correct SETUP number is displayed, press the **ON** key to advance to the CAL number.

1. Press the **Select** key to cause the "flashing" digit to count upward.
2. Press the **Tare** key to select which digit is flashing.

When the correct SETUP number is displayed, press the **ON** key to advance to the CAL number.

This displays the CAL message, followed by the CAL number.

The CAL number is not a weight. It is a reference value the indicator uses to determine the weight. This number directly affects the accuracy of the scale system.

Change the CAL number using the same method described in Steps 1 & 2. When the display shows the correct number, press the **ON** key. This causes the number to be stored permanently in the indicator and returns the indicator to the weighing mode.

TO RETURN TO WEIGH MODE



To exit setup without changing any values, press and hold the **Tare** key, then press the **ON** key.