

OPERATION AND MAINTENANCE MANUAL

ELP TRAILER MOUNT



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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 due 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)

- OPTIONAL EXTENDED TWO (2) YEAR WARRANTY ON MAJOR POWER TRAIN COMPONENTS

As a one-time offer, Kirby Manufacturing Incorporated (KMI) offers the owner of a *newly manufactured* Kirby feed mixer the option to purchase an “extended warranty” policy. This “extended warranty” policy covers the replacement cost of the 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. This “extend warranty” covers parts only and does not cover labor or any expediting costs.

The covered components are as follows:

- Planetary gearboxes, (used as *final* drives)
- Two speed gear boxes, (used on mechanically drive systems)
- Hydraulic pumps, (used on *hydrostatic* driven systems)
- Hydraulic motors, (used on *hydrostatic* driven systems)

This “extended warranty” 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, (plus, initial sample pulled 50hr after start-up)
- 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 to maintain warranty:

1. Purchase all sample bottles when purchasing equipment.
 - Mechanically driven unit: 16 sample kits; (8-2 spd,8- planetary)
 - Hydraulically driven unit: 16 sample kits; (8-hyd sys,8- planetary)
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.
5. All warranty claims must be accompanied with hard copies of the “WEARCHECK” reports

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. Any replacement provided under this warranty will be warranted for the remainder of the warranty period applicable to the product in which it is installed or which it replaces.

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: _____

Serial No: _____

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 AND TRAILER
- MAIN AUGERS, SHAFTS, AND BEARINGS
- SPROCKETS AND CHAINS
- 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 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 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 section 9**

Caution: The tractor power take-off (PTO) drive line should be removed from the tractor and the key removed prior to 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 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/FEDER 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. *single axle* mixer.

Maximum load is 30,000LB for 1000⁺ cu.ft. *tandem axle* 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 THE MACHINE UNTIL ALL GUARDS AND SAFETY SHIELDS ARE IN PLACE.



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



BEFORE STARTING TRACTOR ENGINE, 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 manufacturers 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.

To prevent injury or death, use a tractor equipped with a Roll Over Protective System (ROPS). 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 lighting and marking requirements of the local highway authorities and to install and maintain the equipment to provide compliance with the regulations. Add extra lights when transporting at night or during periods of limited visibility.

 **KEEP ALL SHIELDS IN PLACE**

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

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

Disconnect PTO driveline 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.

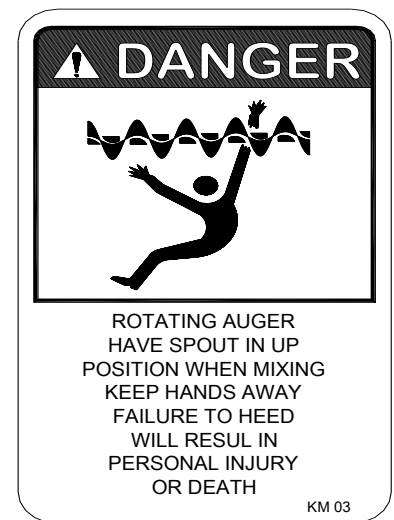
Operate the mixer/feeder from the operator's seat only.

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

Reduce speed when turning or traveling on rough terrain.

Avoid traveling over or near loose fill, rocks, ditches or holes.

Keep transmissions in gear when traveling downhill.



 **KEEP RIDERS OFF MIXER/FEEDER**

Keep riders off.

Riders are subject to injury such as being struck by foreign objects, falling into the mixer and by being thrown off. Riders also obstruct the operator's view, resulting in the machine being operated in an unsafe manner.



 **STAY CLEAR OF ROTATING DRIVELINES**

Entanglement in rotating driveline can cause serious injury or death.

Keep tractor master shield and driveline shields in place at all times. Make sure rotating shields turn freely.

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



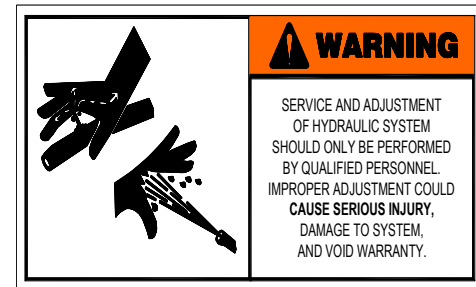
 **AVOID HIGH-PRESSURE FLUIDS**

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.



PREPARING TRACTOR FOR TRAILER MIXER

IMPORTANT: Drive components can be damaged from excessive speed. Do not operate tractor at speeds in excess of recommended PTO rpm.

This feed mixer may be equipped with either a 1000 RPM or a 540 RPM driveline.

Match tractor PTO with the feed mixer driveline.

IMPORTANT: To prevent driveline damage, adjust tractor drawbar to recommended setting. Disengage power to tractor PTO before turning tractor.

Remove clevis if equipped. Turn offset drawbar down.
Adjust drawbar length.

ADJUST TRAILER HITCH CLEVIS

Mixer should be approximately level when attached to tractor.



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.

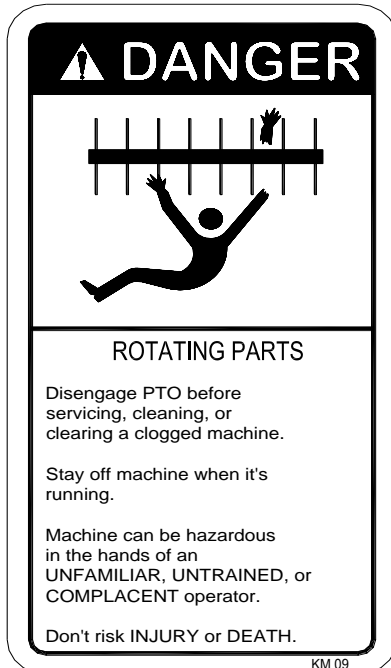


Figure A
DANGER, Rotating Parts
Part No. KM-09



Figure B
WARNING, Run-Away Hazard
Part No. W-300

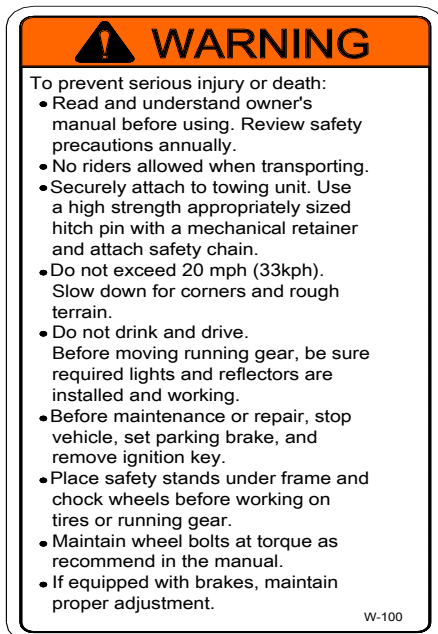


Figure C
WARNING To prevent Serious Injury
Part No. W-100



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

! REPLACEMENT SAFETY DECALS; (cont.)



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

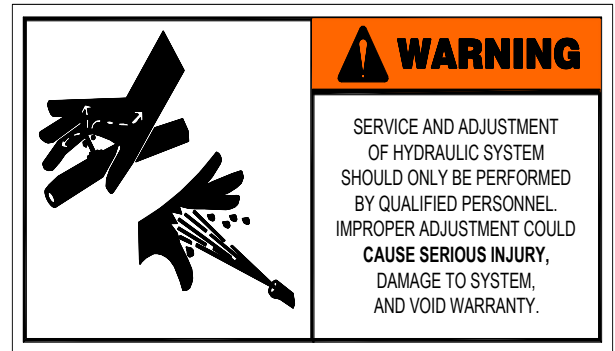


Figure F
WARNING; service and adjust
Part No. W-100



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



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

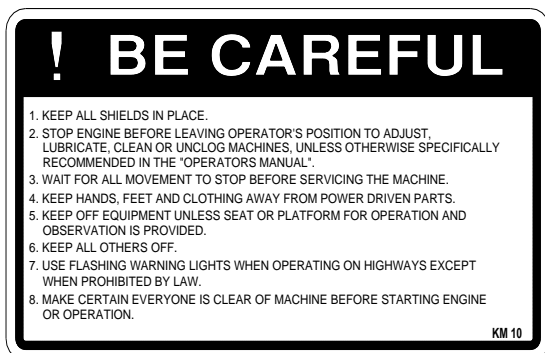


Figure I
BE CAREFUL; keep all shield in place
Part No. KM-10



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

⚠️ REPLACEMENT SAFETY DECALS; (cont.)



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

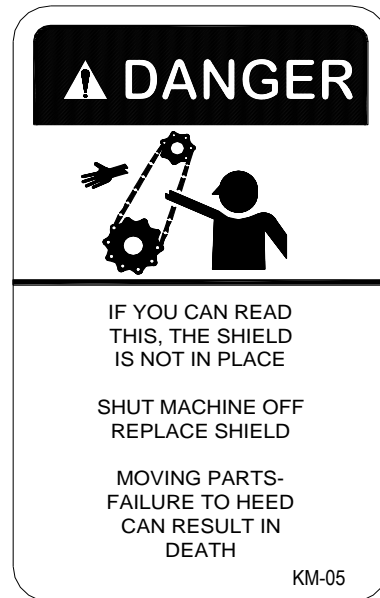


Figure L
DANGER; if you can read this
Part No. KM-05

⚠️ 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.

Keep wheel lug nuts or bolts tightened to specified torque.

Assure that agricultural implement tires are inflated to the proper pressure.

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 dry areas or 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.

Securely attach to towing unit. Use a high strength, appropriately sized hitch pin with a mechanical retainer.

Do not allow anyone to stand between the tongue or hitch and the towing vehicle when backing up to the mixer/feeder.



DURING OPERATION

Beware of bystanders, **particularly children!** Always look around to make sure that it is safe to start the engine of the towing vehicle or move the unit. This is particularly important with higher noise levels and quiet cabs, as you may not hear people shouting. **NO PASSENGERS ALLOWED** - Do not carry passengers anywhere on, or in, the tractor or equipment, except as required for operation.

Keep hands and clothing clear of moving parts.

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

Be especially observant of the operating area and terrain - watch for holes, rocks or other hidden hazards. Always inspect the area prior to operation.

Do not operate on steep slopes as overturn may result.

Operate up and down (not across) intermediate slopes. Avoid sudden starts and stops.

Pick the levellest possible route when transporting across fields. Avoid the edges of ditches or gullies and steep hillsides.

Be extra careful when working on inclines.

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

Maneuver the tractor or towing vehicle at safe speeds.

Avoid overhead wires or other obstacles. Contact with overhead lines could cause serious injury or death.

Avoid loose fill, rocks and holes; they can be dangerous for equipment operation or movement. Allow for unit length when making turns.

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.

Operate the towing vehicle from the operator's seat only. Never stand alongside of the unit with engine running. Never attempt to start engine and/or operate machine while standing alongside of unit.

DURING OPERATION; (CONT.)

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

Following operation, or when unhitching, stop the tractor or towing vehicle, set the brakes, disengage the PTO and all power drives, shut off the engine and remove the ignition keys.

Store the unit in an area away from human activity.

Do not park equipment where it will be exposed to livestock for long periods of time.

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

Do not permit children to play on or around the stored unit.

Make sure parked machine is on a hard, level surface and engage all safety devices.

Wheel chocks should be used to prevent unit from rolling.

HIGHWAY AND TRANSPORT OPERATIONS

Adopt safe driving practices:

Keep the brake pedals latched together at all times. Never use independent braking with machine in tow as loss of control and/or upset of unit can result.

Always drive at a safe speed relative to local conditions and ensure that your speed is low enough for an emergency stop to be safe and secure. Keep speed to a minimum.

Reduce speed prior to turns to avoid the risk of overturning.

Avoid sudden uphill turns on steep slopes.

Always keep the tractor or towing vehicle in gear to provide engine braking when going downhill. **Do not coast.**



HIGHWAY AND TRANSPORT OPERATIONS; (CONT.):

Comply with state and local laws governing highway safety and movement of farm machinery on public roads.

Use approved accessory lighting, flags and necessary warning devices to protect operators of other vehicles on the highway during daylight and nighttime transport.

The use of flashing amber lights is acceptable in most localities. However, some localities prohibit their use. Local laws should be checked for all highway lighting and marking requirements.

When driving the tractor and mixer/feeder on the road or highway under 20 MPH (40 KPH) at night or during the day, use flashing amber warning lights and a slow moving vehicle (SMV) identification emblem.

Plan your route to avoid heavy traffic.

Be a safe courteous driver. Always yield to oncoming traffic in all situations, including narrow bridges, intersections, etc.

Be observant of bridge loading ratings. Do not cross bridges rated lower than the gross weight at which you are operating.

Watch for obstructions overhead and to the side while transporting.

Always operate mixer/feeder in a position to provide maximum visibility at all times.

Make allowances for increased length and weight of the mixer/feeder when making turns, stopping the unit, etc.



PERFORMING MAINTENANCE

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

Make sure there is plenty of ventilation. Never operate the engine of the towing vehicle in a closed building. The exhaust fumes may cause asphyxiation.

Before working on the mixer/feeder, stop the towing vehicle, set the brakes, and disengage the PTO and all power drives, shut off the engine and remove the ignition keys.

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



PERFORMING MAINTENANCE; (CONT.):

Always use a safety support and block the wheels. Never use a jack to support the machine.

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

Use extreme caution when making adjustments.

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, shut off hydraulic supply and relieve all hydraulic 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 moving.

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

Do not allow grease or oil to build up on any step or platform.

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 AND TRAILER

2.1 Observe for cracks in metal and welds in mixer chamber, trailer frame, and axle assembly and around discharge door and chute. Re-weld as necessary.

2.2 Observe trailer hitch for

- (I) Cracked welds. Re-weld as necessary.
- (II) Bent or worn. Replace or repair as necessary.

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

2.4 Observe for hydraulic oil leaks. Repair any leaks.

2.5 Observe trailer tires:

- (I) For cuts or punctures in tires.
- (II) Check for proper inflation using pressure gauge.
(fill to the maximum pressure rating shown on side of tire)

2.6 Observe wheel hubs and bearings.

- (I) Check for oil seal leaks. Replace if seal leaks.
- (II) Check wheel hubs for proper bearing tightness. Tighten as required.
- (III) Observe oil level in cap, oil must be level with bottom of filler hole. Fill with proper lubricant to over flow.

3.0 MAIN AUGERS, SHAFTS, AND BEARINGS

CAUTION! THE MIXER SHALL NOT BE IN OPERATION FOR 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 tractor drive line and mixer drive line for bent shafts.

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

4.0 SPROCKET AND CHAINS , (CROSSFEED)

4.1 Observe chain for properly seating on sprocket. Use caution while observing mixer while in operation. Look for chain jerking motion, when chain wraps around sprocket. Jerking motion may indicate:

- (I) Misalignment of chain and sprocket. Realign
- (II) Worn or loose chain. Replace worn chain.
- (III) Loose chain idlers. Reposition and tighten idler.
- (IV) Bent shafts. Replace with new shafts.

4.2 Observe sprocket tooth wear pattern.

- (I) Tooth worn on sides indicates misalignment. Realign sprocket.
- (II) Tooth worn to a sharp point indicates loose or worn chain. Adjust sprockets
- (III) Tooth worn to cup at base indicates excessive load on chain. Adjust sprockets

4.3 Observe sprockets for the following.

- (I) Main key sheared or shearing. Replace key.
- (II) Main setscrews loose or missing. Tighten or replace.
- (III) Movement or signs of movement of sprockets on shaft. Tighten or replace.
- (IV) Alignment - Using a straight bar, insure that both sprocket faces are in full contact with the edge of the bar.

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 Two speed gearbox

- (I) Observe shaft seals for leaks. Replace seals.
- (II) Check for loose bolts that secure gearbox to mounting bracket.
- (III) Check for misalignment to other components: U-joints. Shear hub
- (IV) Check input shaft, movement indicates worn bearings. Replace.
- (V) Check output shaft for movement, realign and tighten set screws.
- (VI) Check to see that the oil is level with the filler plug located on the side of this gearbox.
Fill to overflow.
- (VII) Check tightness of gearbox mounting bolts.

Check shifting lever and cables. Adjust cable for optimum engagement in both *high* and *low* speed selections on gearbox.

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 Tractor 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, binding may cause false readings on the scale system. Lubricate all shaft splines.
- (V) U-joints cross & yoke must fit tight in the bearing cups and have zerker fittings for lubrication.

6.2 Mixer drive line.

- (I) Check for loose or missing setscrews or lock collars in pillow block bearings and driveline yokes. Tighten or replace lock collars 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 linear movement through bearings, this is indicated by unpainted surface of shaft exposed on each side of bearing locking collar. Realign and tighten loose locking bolts.
- (VI) Observe for loose setscrews or PTO shaft not slipping in sleeve, causing end thrust load on the bearings.
- (VII) Check for bent shaft. Replace and grease as per lubrication schedule.

7.0 MAIN HYDRAULIC SYSTEM

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) Comer planetary gearboxes and optional Crossfeed motor.

In order to ensure hydraulic system efficiency only fresh, clean oil should be used. 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 planetary gearbox oil should be changed after the first **initial 50 hours** of use. Thereafter, oil changes should occur every **1000 hours**.

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.

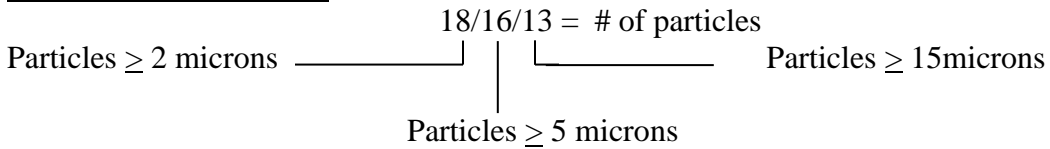
Recommended oil for this gearbox is **PENNZOIL MULTI-PURPOSE GEARLUBE 4140, GRADE SAE-85W-140 with “EP” (Extreme Pressure) additive** (for other oil choices see the additional specification listed below)

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.

GENERAL CHECK LIST

- 7.1 Observe all fittings, pipes, tubes, and hoses for leakage. Tighten as needed.
- 7.2 On tractors, the maximum 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.
- 7.3 Discharge conveyor motor under normal operation requires a minimum of 46 liters per minute (12 gpm) to a maximum of 53 liters per minute (14 gpm) to provide adequate unload speed. The speed is controlled through the cross-feed flow control valve located on the mixer.
- 7.4 Stalling of the discharge conveyor motor may be caused by the loss of oil pressure (P.S.I.) to the motor, due to incorrect adjustment of relief valve, or worn pump/ motor.
- 7.5 Slow speed of discharge conveyor motor may be caused by the loss of oil flow from the pump source to the motor, due to worn pump or restricted flow in the tractor hydraulic system/hydraulic hoses.
- 7.6 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 otherwise defective resulting in a problem with the operation of the discharge.
- 7.7 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 needs lubrication. Lubricate these bearings from the grease bank zerks located on the sides of the mixer. **Lubricate these bearings every 140 hours!**
- (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 Discharge conveyor bearings.

- (I) There are two flange bearings on the discharge end of the cross-feed conveyor
- (II) There are also two take-up bearings on the opposite side of the discharge
- (III) Both have grease zerk that need greasing once a week
- (IV) Check that all grease lines and grease zerks are in place and in good working order, not plugged, loose or kinked.
- (V) Pump grease using a standard hand pump grease gun 3 to 4 times for each bearing. Always be sure the machine is operating and the bearings are rotating to ensure that they take grease. **Caution: Excessive grease will blow out the bearing seals. 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 OR LONG CLOTHING**
 - 3.BEWARE OF THE PTO**

8.3 Powers take off (PTO). U-joints and slip sleeves.

- (I) Follow safety procedures. **DO NOT SERVICE WHILE:**
 - (a) **THE TRACTOR IS RUNNING**
 - (b) **THE PTO IS ENGAGED OR IN MOTION.**
 - (c) **REMOVE KEY FROM IGNITION OF TRUCK OR TRACTOR 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.

8.4 Check all safety shields and ensure that all are in place.

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					
Repack Wheel bearings								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: 1,2, or 3 BELOW	SEE CHOICES A: 1,2, or 3 BELOW	SEE CHOICES A: 1,2, or 3 BELOW
PLANETARY GEARBOX TOP BEARING GREASE	SEE CHOICE B: BELOW	SEE CHOICE B: BELOW	SEE CHOICE B: BELOW
“TEE” AND 90⁰ GEARBOX OIL	SEE CHOICES A: 1,2, or 3 BELOW	SEE CHOICES A: 1,2, or 3 BELOW	SEE CHOICES A: 1,2, or 3 BELOW
BEARINGS AND DRIVE LINE YOKES GREASE	PENNZOIL	AW	NLGI #2
TWO SPEED SHIFTABLE GEARBOX OIL	SEE CHOICES A: 1,2, or 3 BELOW	SEE CHOICES A: 1,2, or 3 BELOW	SEE CHOICES A: 1,2, or 3 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**.

PROCEDURE FOR SAMPLING AND CHANGING OILS:

The following information pertains to changing and sampling the oils in both the gearboxes 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 oils are warm which will allow them to flow more freely when there are being drained. Also, this will ensure that any particles that are in the oil will be in suspension while pulling an oil sample. **ALWAYS PARK EQUIPMENT ON A LEVEL SURFACE WHEN CHANGING OIL AND CHECKING OIL LEVELS.**

I. GEARBOXES:

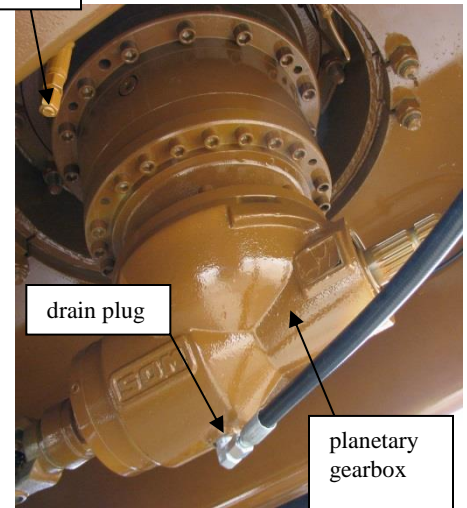
A. Planetary Gearboxes:

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

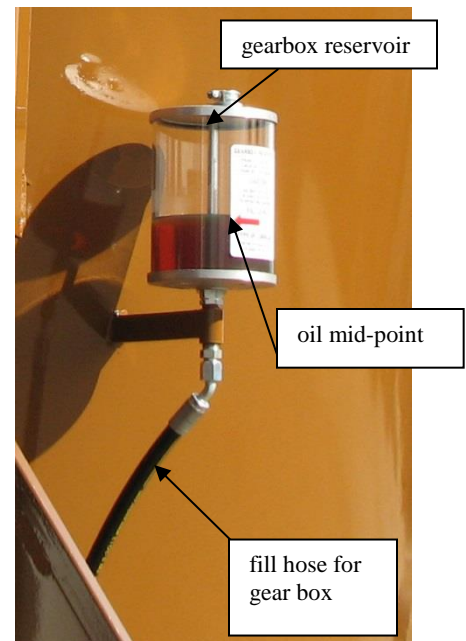
cap @ end of "high level" fill hose



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 needed when re-filling oil, dispensing pump pressure should **never** exceed 10 psi., so seals are not damaged).
4. **IMPORTANT:** gearbox is full **only** when oil starts to flow from the "high level" fill hose, **do not** run mixer until oil is seen coming out of "high level" fill hose.
5. at this point, stop adding oil to the reservoir and observe "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 approximately at the mid-point, add oil if needed)
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 daily in reservoirs over the next week period to ensure proper oil levels are maintained.



Two Speed Gearboxes:

B. Two Speed Manual Shift Gearbox, (optional):

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

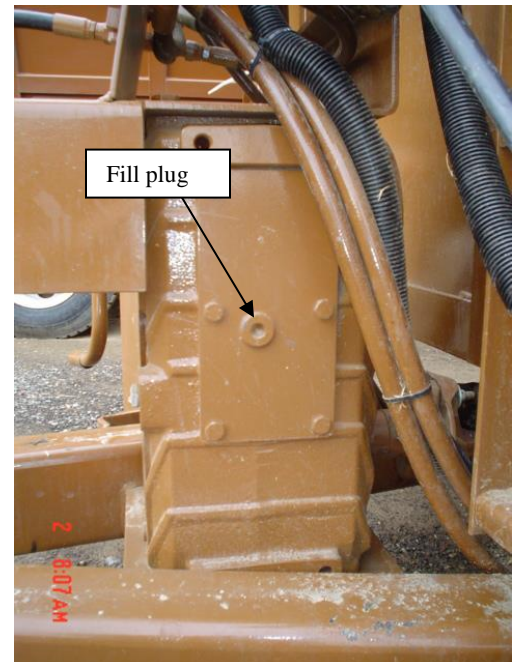


C. Two Speed Manual Shift Gearbox, (optional): (con't)

Filling gearbox:


Step

1. remove fill plug on side of gear box, (this plug is located in the middle of the gearbox)
2. fill gearbox through the fill plug hole, (note: warmed oil will flow quicker)
3. continue filling until oil starts to flow from fill hole
4. replace plug and wipe excess oil from area
5. run equipment and recheck oil levels and check for leaks



NOTE: GEARBOX IMAGES SHOWN FOR REFERENCE ONLY. ACTUAL GEARBOX MODEL MAY VARY.

Maintenance Schedule:

Maintenance Schedule						
equipment:		vertical mixer (trailer mount)				
frequency:		100 hours, (approximately 1 week intervals); (UNLESS STATED OTHERWISE BELOW)				
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 check oil levels, fill if needed (after pulling samples)			
		3	3 check pressure bypass settings & <u>record (where applicable)</u>			
		4	4 check for worn hoses & loose fittings			
		5	5 start mixer and check general operating parameters			
		6	6 check operations of hydraulic cylinders & motors			
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			
		5	5 check drive line shear pin			
	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 pull and identify oil samples, (send out for testing)			
		3	3 is oil clear and free of contamination			
		4	4 grease top bearing every 140 hours			
	90 degree & "Tee" gearbox	1	1 check oil levels, fill if needed; (pull oil sample and change oil every 1000 hrs, 1st oil change at 50 hrs)			
		2	2 grease bearings; (2 locations per gear box)			
	augers	1	1 check backlash & tightness, (rotate auger back & forth)			
		2	2 check for damage & wear on flighting			
		3	3 check knives for wear & tightness			
	main tub	1	1 check wear on inside of tub, (floor & walls)			
		2	2 check stainless seams and wear (where applicable)			
		3	3 check door operations, adjust if needed & lubricate			

Maintenance Schedule; (con't)

		4	check hay brake operations				
	cross conveyor	1	check for wear on chain assembly				
		2	check for wear on flooring				
		3	check drive system				
		4	check conveyor take-ups and adjust if needed				
		5	check operations of cross conveyor slide				
	two speed gear box	1	check yokes for tightness, (check set screws)				
		2	check oil levels, fill if needed (after pulling sample)				
		3	check shift pressures & record (where applicable)				
		4	check shift linkage adjustment & tighten (where applicable)				
		5	check tightness of gearbox mounting bolts				
	PTO	1	check and grease shaft, (check set screws & locking collar)				
4. WEIGH SYSTEM							
	minor areas	item	description	check-off	follow-up required (y/n)		
	general	1	check operations of scales				
		2	check for rotation of load cells				
		3	check for damaged wiring				
		4	check and clean load cell mounting "V" brackets				
		5	check local support/truck frames for cracks				
		6	check to see if load cells are loose (i.e. not carrying the load)				
5. TEST MIXER'S OPERATIONS							
	minor areas	item	description	check-off	follow-up required (y/n)		
	general	1	"run-in" mixer for a period of time (15min+) to insure smooth operations. Walk around equipment and inspect all components for smooth operations				
ADDITIONAL NOTES AND COMMENTS:							
AFTER SERVICE IS COMPLETED; WRITE SERVICED DATE WITH YOUR INITIALS ON A STICKER AND PLACE ON UNIT NEXT TO SERIAL NUMBER ID PLATE.							

NOTE: It is suggested to make copies of this "Maintenance Schedule" form to assist with performing routine maintenance inspection of the equipment. This will also serve as a retention record of all safety and maintenance inspections.

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-15 volt for satisfactory operation of scale. **SEE SCALE MANUAL FOR PROPER OPERATION.**

Battery 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) 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.
- (II) 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 (Ensure key is out of ignition and unit is not running)

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

- Check that all guards are in place and secure
- PTO lock collar of the mixer is properly locked into place on the output PTO of the tractor
- PTO guard for mixer PTO is on and shows no signs of damage
- Hydraulic lines are installed to the tractor's hydraulic remotes
- Visual 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
- Visually inspect for any leaks from gearboxes
- Tires have proper inflation (fill to maximum pressure rating shown on side of tire)
- Front discharge door is closed
- If equipped with a rear door, that it is closed
- Check if hay stops are fully out, or at proper insertion

Loading/Discharging Instructions

IMPORTANT - Idle engine speed down before engaging the Power Take Off (P.T.O) or engaging hydraulic augers by switch or T lever. Failure to do so could result in damage to the drive system.

Check operation of the following:

- Front door opens and closes
- Rear door (if equipped) opens and closes
- Side door (optional) opens and closes
- "Discharge Conveyor" chain turns on and off
- "Conveyor Slide" (if so equipped) slides in and out
- Turn on scales and "0" balance or check procedure appropriate for your scale type and model (scale owner's manual)
- Ensure that the two speed shifts from high to low and ensure you are in low gear (slowest auger speed) to mix the ration (see section in this manual on two speed shifting procedure)
- **ALWAYS MIX IN LOW SPEED SETTING ON THE GEARBOX.**

The average mixing cycle is from 3 to 5 minutes with normal rations for a thorough and accurate mix. If possible, some mixing time can occur while traveling from the loading/mixing area to the feeding area. 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 Engine RPM)
- Length of mixing time

Recommended RPM of mixer in a stationary position for mixing of ration (ensure all brakes are set when loading mixer)

1,600 to 1,800 RPM tractor engine speed

- PTO speed 900 RPM; for tractors with the larger “1000 RPM PTOs”
- PTO speed 540 RPM; for tractors with the smaller “540 RPM PTOs”

Load hay first with mixer running at recommended RPM. If after a load you have determined that you hay needs to be cut shorter, you may want to check the hay stops and start with pushing in one hay stop for a finer cut. If you are not satisfied with the cut length push in the second hay stop and check the RPM of the power source.

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 ladder while mixer is stationary, (Never climb higher than the ladder allow). Never stand/ride on the ladder while mixer is being moved.**

NOTE: Whenever possible, leave augers running while traveling from the loading/mixing area to the feeding area. This will minimize packing of the feed mixture.

On trucks mounted mixers, this can be done by not pulling the speed control handle all the way to the “OFF” position and leaving it a little forward of the “OFF” position.

This can be done by finding the best gear that will give you the desired ground speed you want, while at the same time allowing you to leave the PTO running at the slowest speed possible with 2 speed gearboxes in low speed.

Discharging Instructions

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

- the amount that the discharge door is opened
- auger speed
- crossfeed speed.

The crossfeed should be running any time that the discharge door is opened to dispense the load. You may vary the speed of the discharge crossfeed with the one-to-ten flow control. Adjustment of discharge speed setting will allow an even discharge of your ration

After you have engaged the tractor PTO when starting to discharge a full load, the engine of the tractor should be operating at 1800 RPM and the mixer should be in low gear. When 6,000 lbs. of mix or less are in your mixer, shift two speed gear box on mixer into high speed for a quicker clean out, (maintain 1800 RPM on tractor's engine).

TWO SPEED SHIFTING PROCEDURE

ALWAYS STOP THE PTO WHEN SHIFTING THE TWO-SPEED GEARBOX

The shift feature of this two-speed reducer is accomplished by sliding splines in and out of mesh. For this reason the reducer must be shifted while in the static or non-rotating mode (PTO off). An isolator spring is incorporated in the design to act as a cushion should splines meet head to head in the static mode The spring allows the piston to complete its travel without overloading the spline tips and also provides the acceleration necessary to engage the splines once slight rotation is accomplished. For this reason the lower the PTO shaft acceleration or start up speed, the better the chance for a completed shift will be.

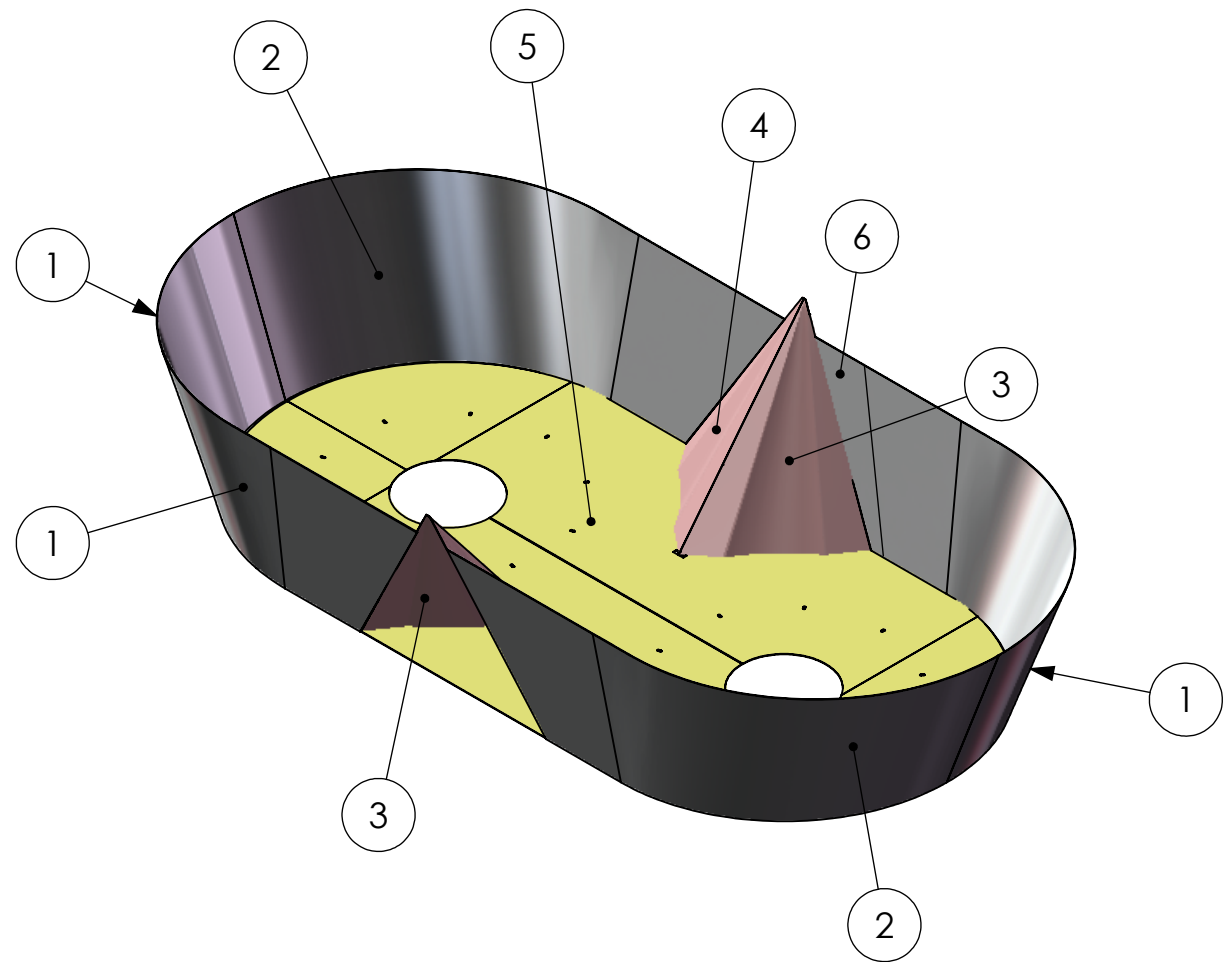
- **To make a shift you should first lower the engine speed to low idle speed and disengage the PTO shaft.**
- **Activate the toggle switch in the cab of the tractor or shift the manual cable lever to initiate a shift with the engine at low idle and PTO off.**
- **Engage the PTO slowly and look for a complete shift.**

If a ratcheting sound is heard, then a shift was not completed. No harm will be done to the box because the spring controls the forces seen by the splines.

Retry the shift sequence following the instructions above maintaining a low engine speed and insuring PTO is off. When the shift is completed then increase the engine speed until the desired speed is reached.

ITEM NO.	QTY.	PART NUMBER	DESCRIPTION
1	2	171100L	ELP SSSL SIDE LINER- LH
2	2	171100R	ELP SSSL SIDE LINER- RH
3	2	171107R	ELP SSSL SIDE DOOR LINER - RH
4	2	171107L	ELP SSSL SIDE DOOR LINER - LH
5	1	172060	ELP SSSL FLOOR LINER
6	1	171112	ELP SIDE DOOR LINER EXTENSION (1 PER DOOR)

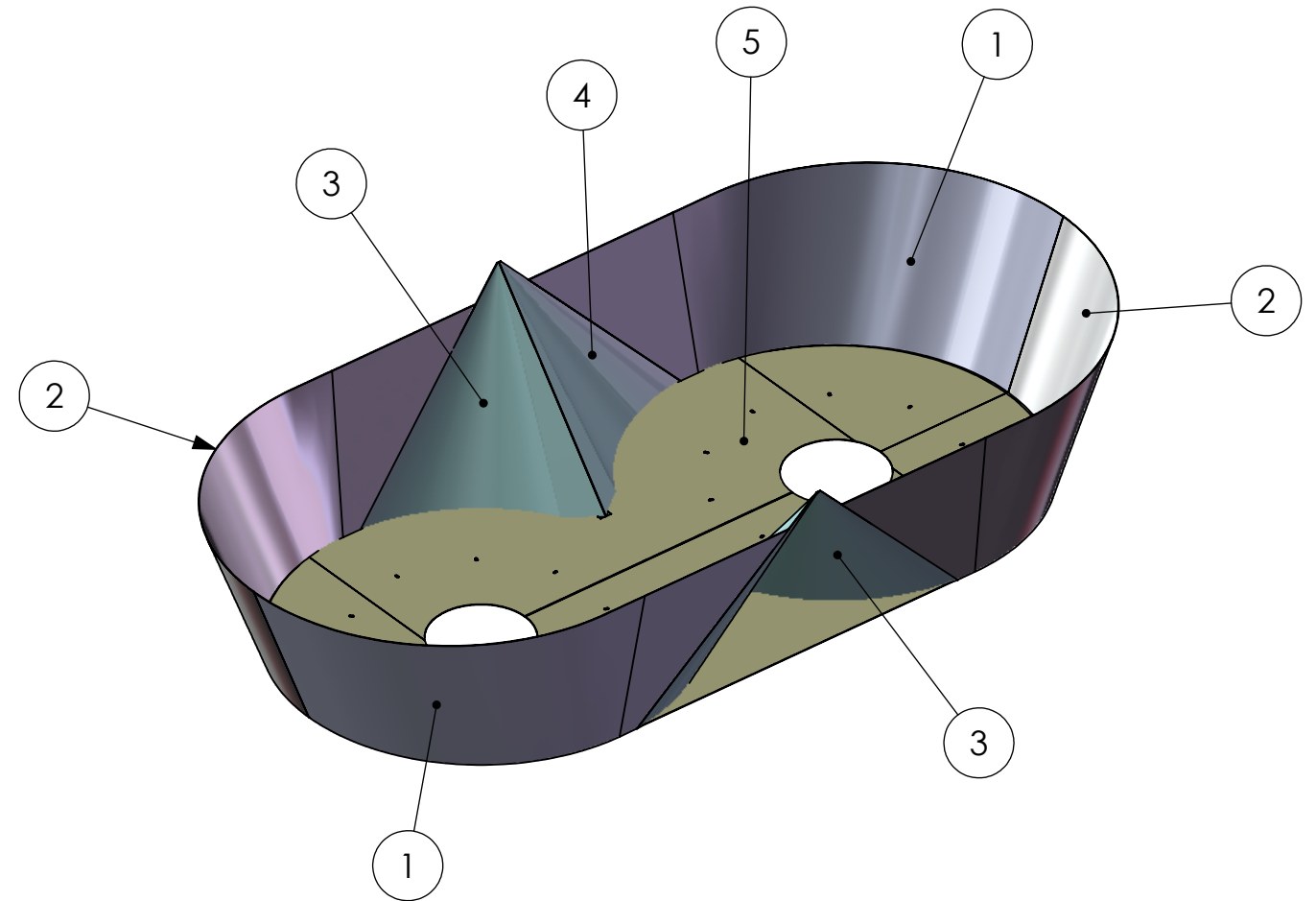
ELP SIDE DOOR




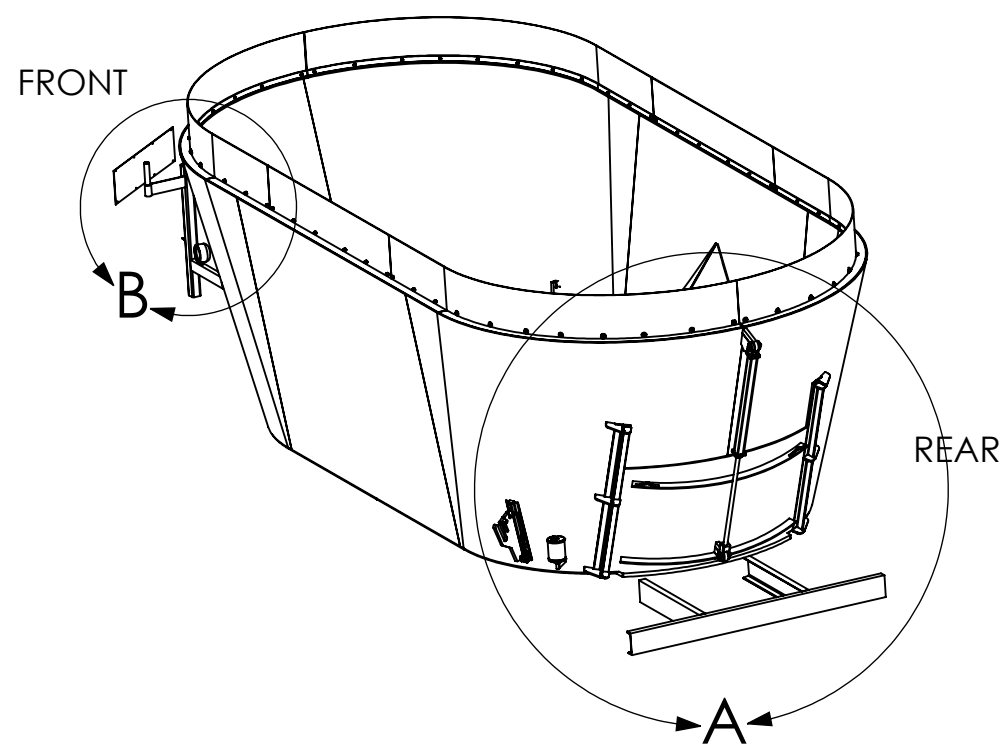
NOTE:
 1.) ON SIDE DOOR UNITS SPECIFY HOW MANY DOORS ON UNIT
 2.) ON ALL UNITS SPECIFY HEIGHT OF LINER (21" OR 42")
 3.) UNIT SERIAL NUMBER NEEDED FOR ALL PART ORDERS.

ITEM NO.	QTY.	PART NUMBER	DESCRIPTION
1	2	171100L	ELP SSSL SIDE LINER- LH
2	2	171100R	ELP SSSL SIDE LINER- RH
3	2	171101L	ELP SSSL SEPARATOR LINER
4	2	171101R	ELP SSSL SEPARATOR LINER
5	1	172060	ELP SSSL FLOOR LINER

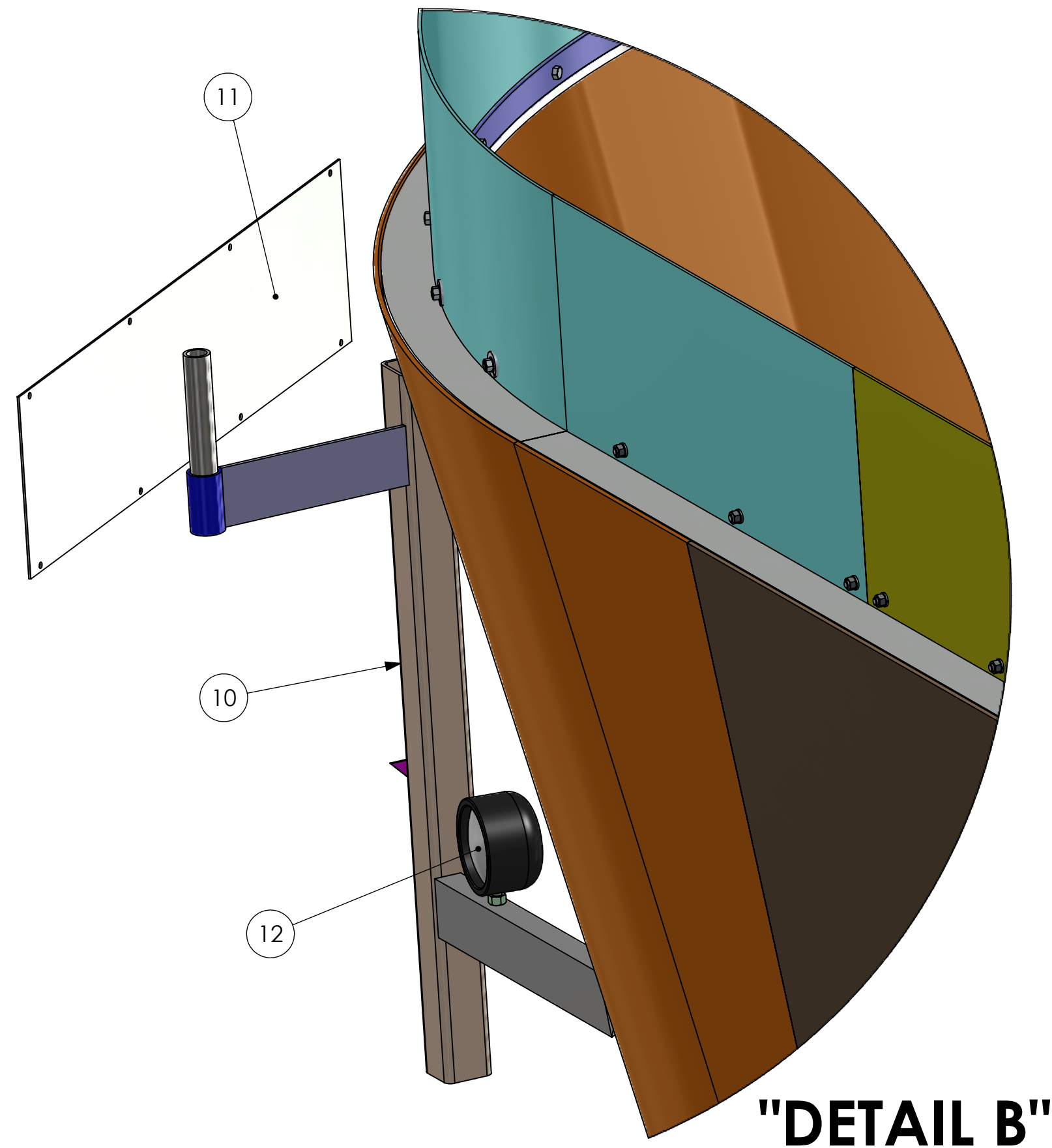
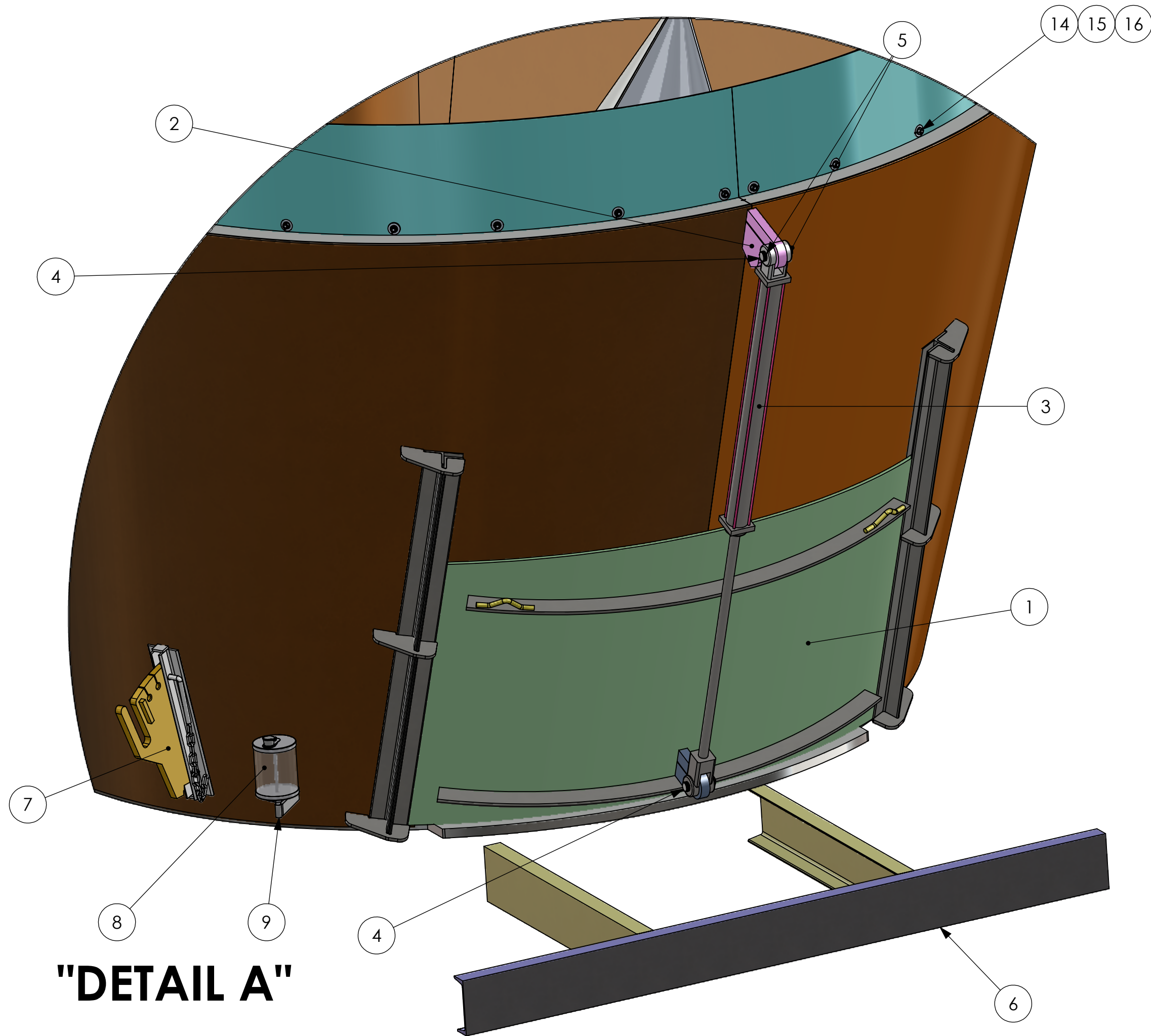
ELP END DOOR



Notes:		Kirby Mfg. Inc. P.O. Box 989 Merced, CA, 95341 Phone:(209)723-0778 Fax:(209)723-3941		 DESCRIPTION ELP SSSL LINERS	
		JOB #:			
DRAWN BY:		DATE	NAME	MATERIAL P/N:	
CHECKED BY:		4/1/2014	AMAR B.	FINISH:	
APPROVED BY:				VENDOR:	
				VENDOR P/N:	
				WEIGHT: 1412.098 lbs	
				SHEET 1 OF 1	



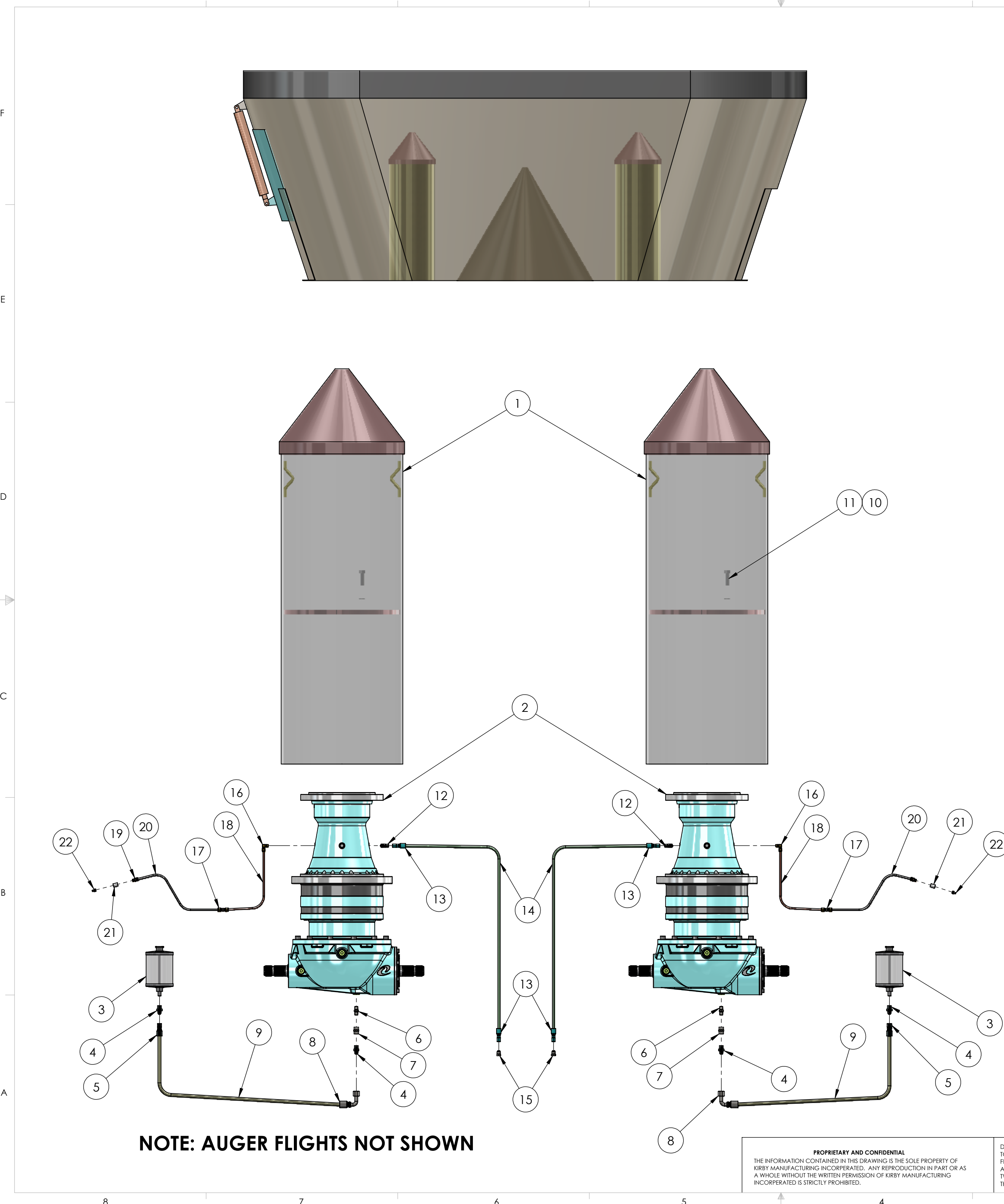
ITEM NO.	QTY.	PART NUMBER	DESCRIPTION
1	2	172002	ELP DOOR ASSEMBLY
2	2	391027N	TOP RAM MOUNT
3	2	7935	2" x 24" HYDRAULIC RAM
4	4	7928	CYLINDER CLEVIS PIN
5	8	7929	CYLINDER CLEVIS HAIR PIN CLIP
6	1	172055	ELP BUMPER ASSEMBLY
7	2	392014	CHOP GATE ASSEMBLY
8	2	7964A	PLANETARY GEARBOX OIL RESERVOIR
9	2	7964-1	OIL RESERVOIR MOUNTING BRACKET
10	1	192021	DISCHARGE DOOR INDICATOR ASSEMBLY
11	1	21318	SCOREBOARD STYLE SCALE DISPLAY MNT. ASSY.
12	1	4719	MIXER (12v) FEED LIGHT, BOLT-ON
13	1	6536	BELT MATERIAL- 10" TALL
14	56	10181	BOLT- 3/8" NC GRD.5 x 1" LG.
15	56	10178	WASHER, LOCK- 3/8"
16	56	10170	NUT- 3/8" NC



"DETAIL A"

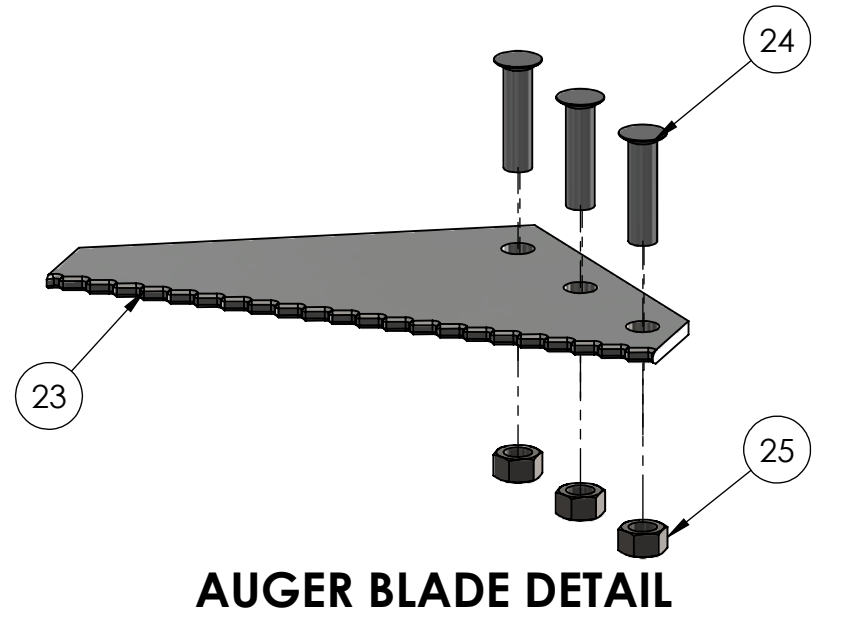
"DETAIL B"

Notes:			Kirby Mfg Inc. P.O. BOX 989 MERCED CA 95340 PH (209)723-0778 FX (209)723-3941		 ELP ASSEMBLY OPTIONS
			JOB #: MATERIAL: MATERIAL P/N:		
DATE	NAME	FINISH:	SIZE PART NUMBER		
DRAWN BY: 4/3/2014	AMAR B.		C ELP-002		
CHECKED BY:		VENDOR:	SCALE: 1:50 WEIGHT: 8697.329 lbs SHEET 1 OF 1		
APPROVED BY:		VENDOR P/N:			



ITEM NO.	QTY.	PART NUMBER	DESCRIPTION
1	2	174002	TWIN SCREW VERTICAL AUGER ASSEMBLY
2	2	7423	PLANETARY GEARBOX
3	2	7964A	PLANETARY GEARBOX OIL RESERVOIR
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
23	10	7774	VERTICAL AUGER BLADE
24	30	10730	AUGER BLADE BOLT
25	30	10648	NUT 3/4" NC LOCK NUT

NOTE: UNIT SERIAL # NEEDED FOR ALL PART ORDERS



AUGER BLADE DETAIL

NOTE: AUGER FLIGHTS NOT SHOWN

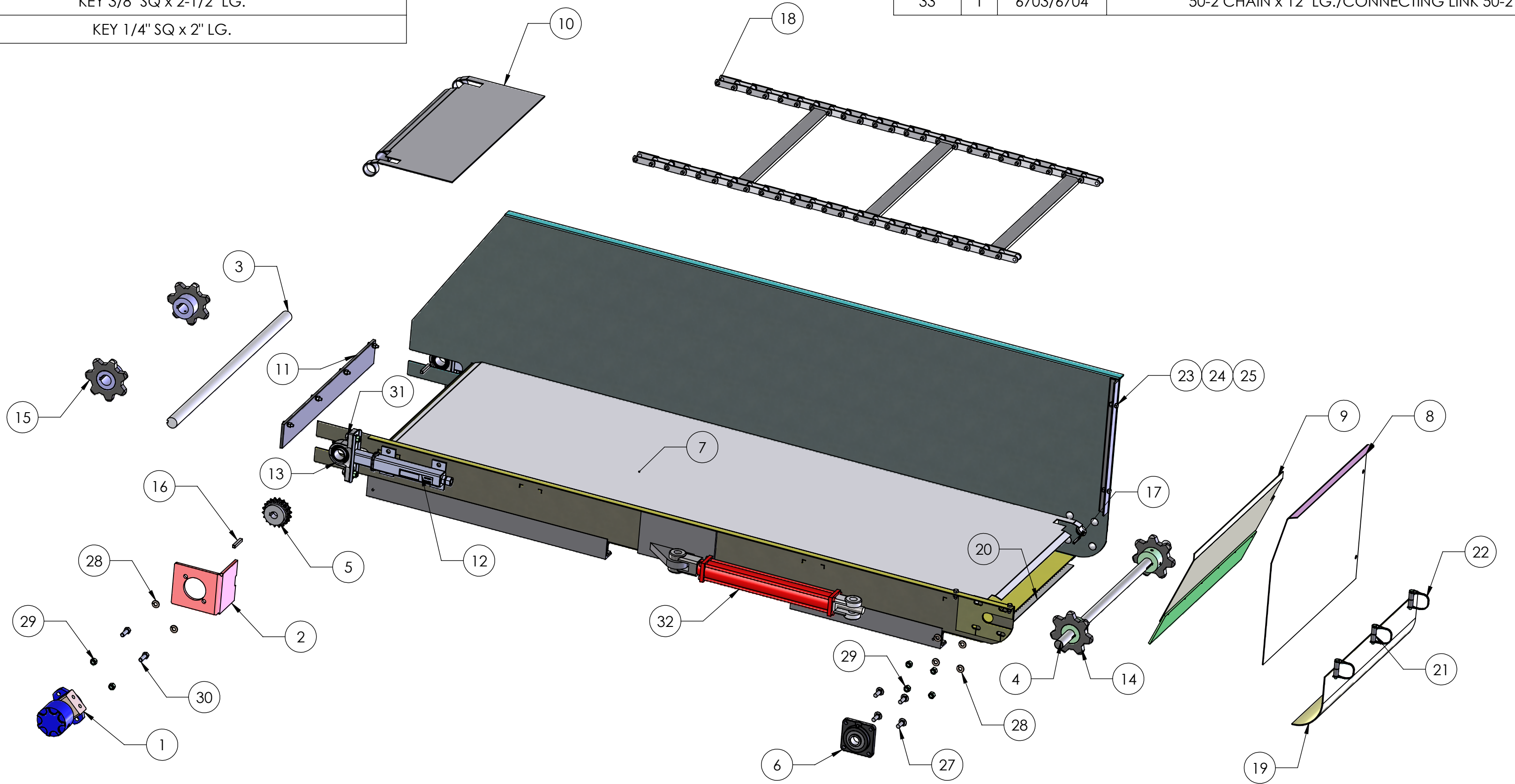
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 TOLERANCES:
 FRACTIONAL ±
 ANGULAR: MACH ± BEND ±
 TWO PLACE DECIMAL ±
 THREE PLACE DECIMAL ±

Notes:		Kirby Mfg Inc. P.O. BOX 989 MERCED CA 95340 PH (209)723-0778 FX (209)723-3941			
		JOB #:			
		MATERIAL:		SIZE C	
		MATERIAL P/N:		PART NUMBER ELP-003	
DRAWN BY: 4/16/2014 AMAR B.		FINISH:		REV.	
CHECKED BY:		VENDOR:		SCALE: 1:32	
APPROVED BY:		VENDOR P/N:		WEIGHT: 66.442913 lbs	
				SHEET 1 OF 1	

ITEM NO.	QTY.	PART NUMBER	DESCRIPTION
1	1	7965	MOTOR
2	1	192040	MOTOR MOUNT
3	1	171091	DRIVE SHAFT
4	1	171092	IDLER SHAFT
5	1	2746-2744	CROSSFEED CHAIN SPROCKET COUPLER ASSY.
6	2	2073	FLANGE BEARING- 1 1/4" SHFT., 4 HOLE
7	1	171093	30" SSTL CROSSFEED FLOOR
8	1	172027	ENCLOSURE END WALL
9	1	172028	END WALL DEFLECTOR ASSEMBLY
10	1	192037	30" CROSSFEED EXTENSION
11	1	26212	30" CROSSFEED EXCESS WIPER
12	2	2501	TAKE-UP ASSEMBLY w/ FREESEAL
13	2	2047	BEARING, PILLOW BLOCK 1-1/2"
14	2	27080	SPROCKET, 1 1/4" DRIVE
15	2	27048	SPROCKET, DRIVE / 1 1/2"
16	3	3693	KEY 3/8" SQ x 2-1/2" LG.
17	2	3687	KEY 1/4" SQ x 2" LG.

ITEM NO.	QTY.	PART NUMBER	DESCRIPTION
18	1	171062	30" CROSSFEED CHAIN ASSEMBLY
19	1	171096	END PLATE DEFLECTOR
20	1	5653- 25"	S65 PIANO HINGE
21	4	12900-1	GUARD PIN ATTACHMENT TUBE
22	3	4125	REAR GUARD PIN
23	4	10181	BOLT 3/8" NC GR5 x 1"
24	4	10178	WASHER, LOCK
25	4	10170	NUT- 3/8" NC
26	3	10025	SCREW, FLOOR 1/4" NC x 1 1/4" LG.
27	8	10412	BOLT, CARRIGE- 1/2" NC x 1 1/2" LG.
28	14	10398	WASHER, LOCK- 1/2"
29	14	10390	NUT 1/2" NC
30	6	10411	BOLT
31	4	10399	WASHER- 1/2" FLAT
32	1	8245	CYLINDER, HYDR.- 2" x 18"
33	1	6703/6704	50-2 CHAIN x 12" LG./CONNECTING LINK 50-2



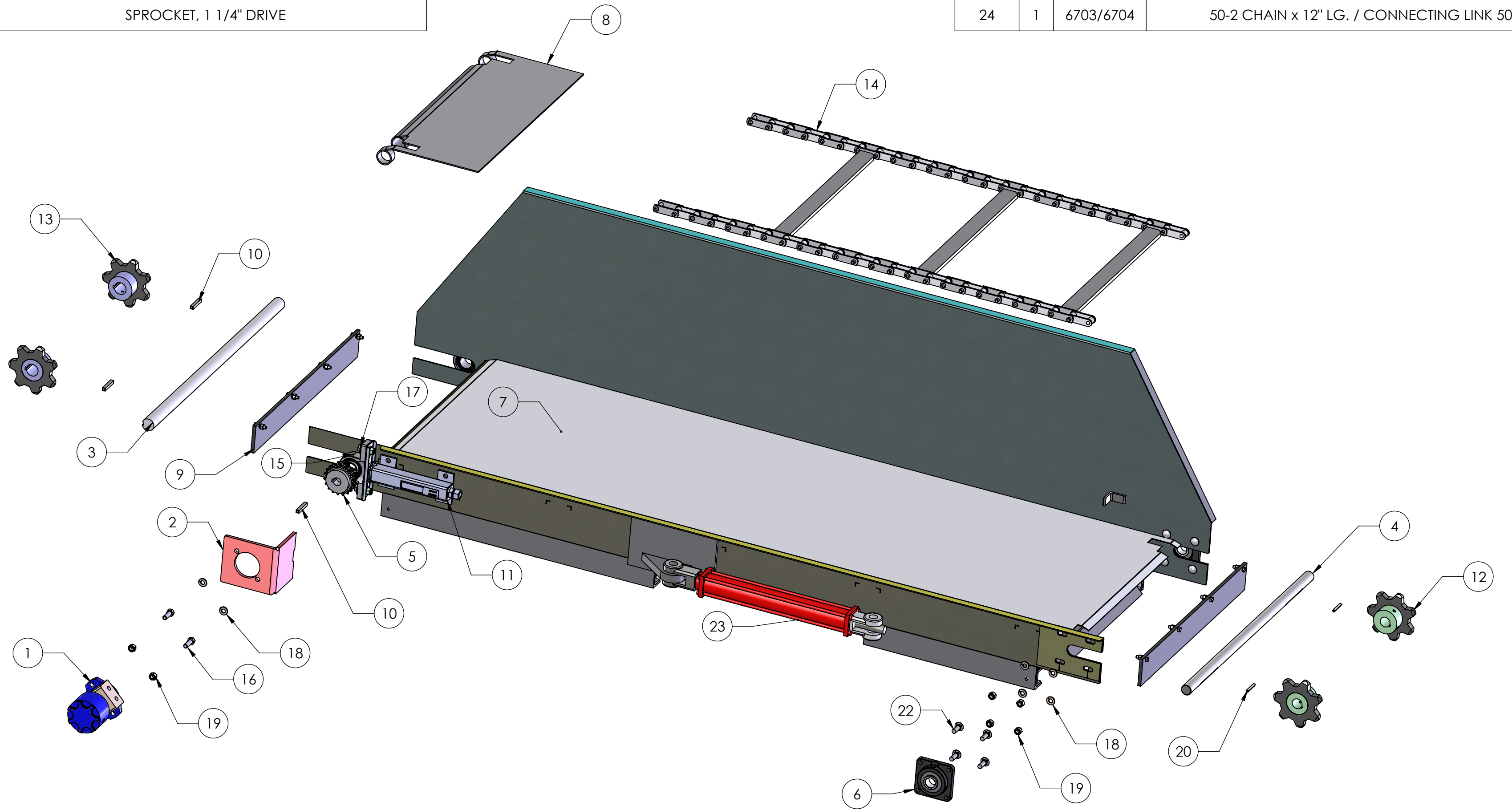
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 TOLERANCES:
 FRACTIONAL: ±
 ANGULAR: MACH ± BEND ±
 TWO PLACE DECIMAL ±
 THREE PLACE DECIMAL ±

Notes:		Kirby Mfg Inc. P.O. BOX 989 MERCED CA 95340 PH (209)723-0778 FX (209)723-3941		Kirby INC.	
DRAWN BY: 4/25/2014 AMAR B.		MATERIAL:		DESCRIPTION ELP LEFT HAND CROSSFEED	
CHECKED BY:		MATERIAL P/N:		SIZE PART NUMBER ELP-004 REV.	
APPROVED BY:		FINISH:		SCALE: 1:32 WEIGHT: 689.202 lbs SHEET 1 OF 1	
		VENDOR:			
		VENDOR P/N:			

ITEM NO.	QTY.	PART NUMBER	DESCRIPTION
1	1	7965	MOTOR
2	1	192040	MOTOR MOUNT
3	1	171091	DRIVE SHAFT
4	1	171092	IDLER MOUNT
5	1	2746-2744	CROSSFEED CHAIN SPROCKET COUPLER ASSY.
6	2	2073	FLANGE BEARING- 1 1/4" SHFT., 4 HOLE
7	1	171093	30" SSTL CROSSFEED FLOOR
8	1	192037	30" CROSSFEED EXTENSION
9	2	26212	30" CROSSFEED EXCESS WIPER
10	3	3693	KEY 3/8" SQ x 2 1/2" LG.
11	2	2501	TAKE-UP ASSY. w/ FREESEAL
12	2	027080	SPROCKET, 1 1/4" DRIVE

ITEM NO.	QTY.	PART NUMBER	DESCRIPTION
13	2	027048	SPROCKET, 1 1/2" DRIVE
14	1	171062	30" CROSSFEED CHAIN ASSEMBLY
15	2	2047	BEARING, PILLOW BLOCK 1-1/2"
16	6	10411	BOLT
17	4	10399	WASHER- 1/2" FLAT
18	14	10398	WASHER, LOCK- 1/2"
19	14	10390	NUT 1/2" NC
20	2	3687	KEYSTOCK- IDLER SHAFT, 1/4" x 2"
21	3	10025	SCREW, FLOOR 1/4" NC x 1 1/4" LG.
22	8	10412	BOLT, CARRIGE- 1/2" NC x 1 1/2" LG.
23	1	8245	CYLINDER, HYDR.- 2" x 18"
24	1	6703/6704	50-2 CHAIN x 12" LG. / CONNECTING LINK 50-2



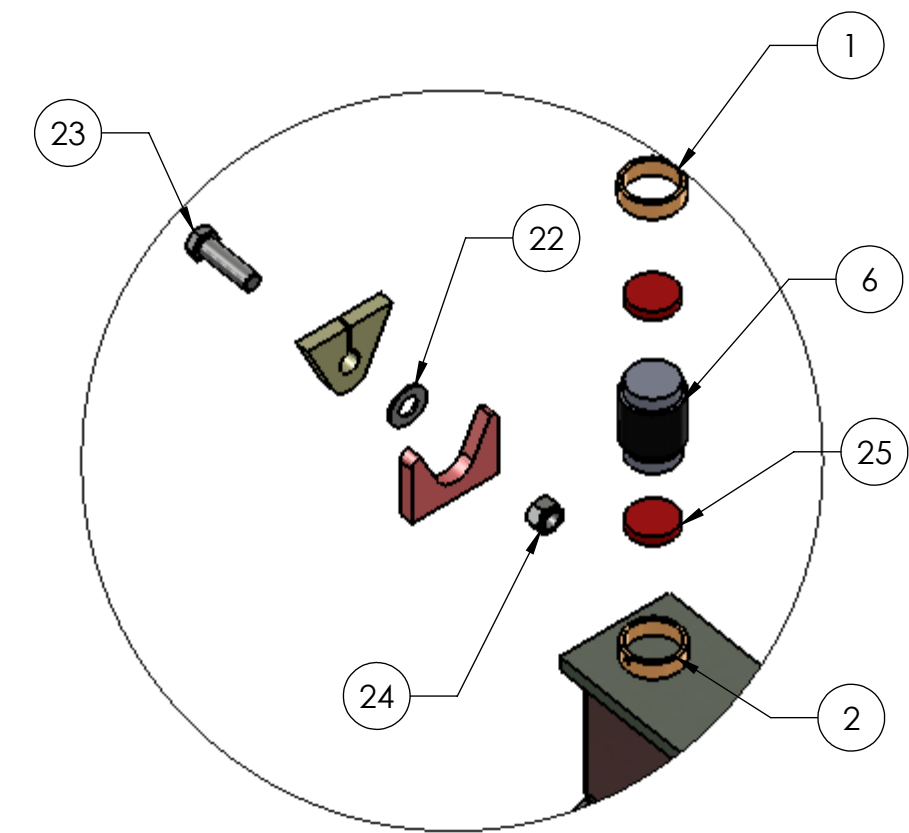
Notes:		Kirby Mfg Inc. P.O. BOX 989 MERCED CA 95340 PH (209)723-0778 FX (209)723-3941		 DESCRIPTION ELP DUAL CROSSFEED	
		JOB #: MATERIAL: MATERIAL P/N:			
DRAWN BY:	DATE	NAME		FINISH:	REV.
CHECKED BY:				VENDOR:	SIZE C
APPROVED BY:				VENDOR P/N:	PART NUMBER ELP-005
				SCALE: 1:32	WEIGHT: 648.448 lbs
				SHEET 1 OF 1	

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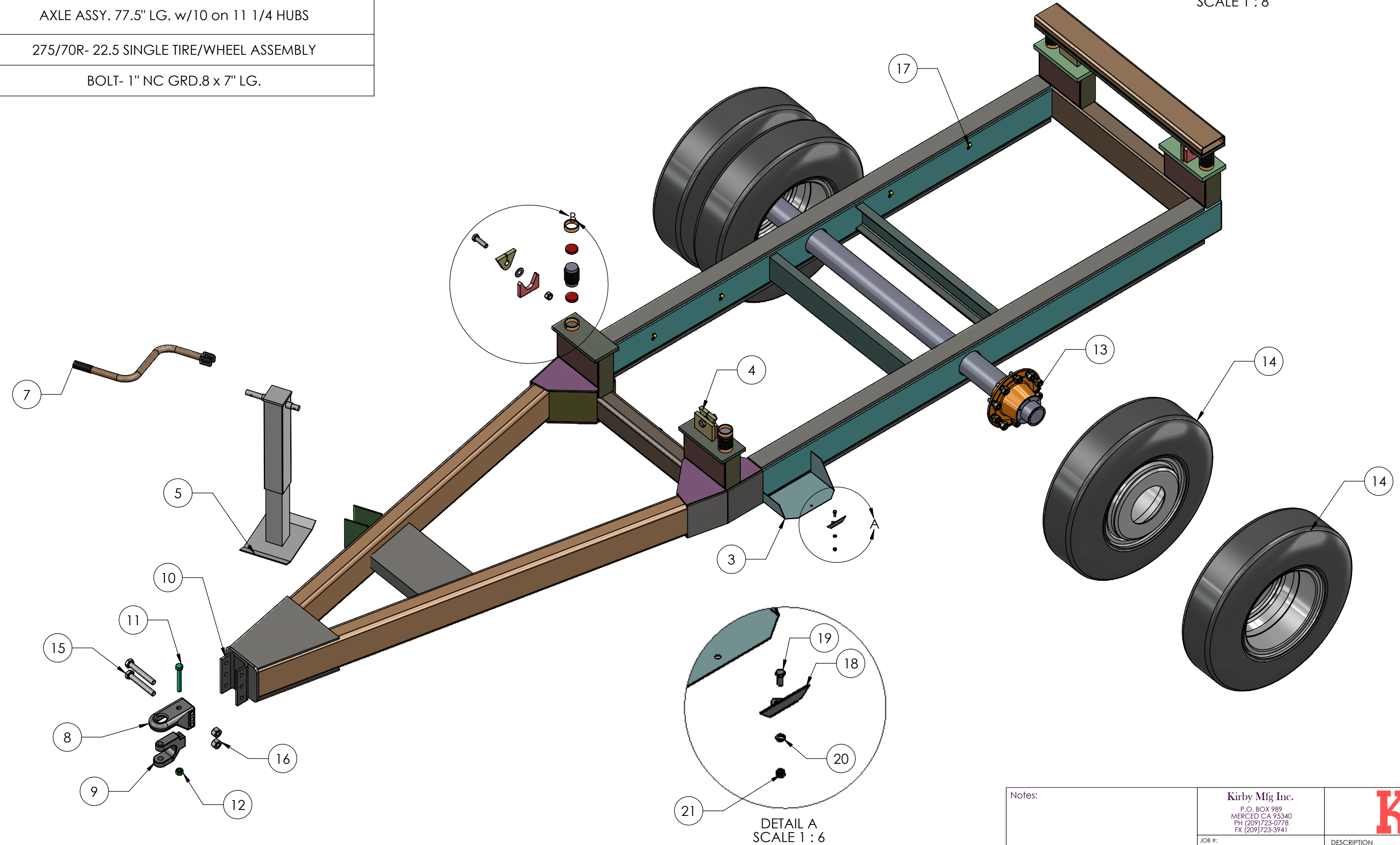
DIMENSIONS ARE IN INCHES
 TOLERANCES:
 FRACTIONAL ±
 ANGULAR: MACH ± BEND ±
 TWO PLACE DECIMAL ±
 THREE PLACE DECIMAL ±

ITEM NO.	QTY.	PART NUMBER	DESCRIPTION
1	4	21313	LOAD CELL MOUNTING PIPE (UPPER)
2	4	21313-2	MIXER (LOWER) LOAD CELL MNT.ING PIPE
3	1	22041	BATTERY TRAY
4	4	22067	LOADCELL BRACKET
5	1	292007	JACKSTAND MOUNTING ASSEMBLY
6	4	5297	LOAD CELL 30K
7	1	5574	JACK CRANK
8	1	5590A	HITCH BASE
9	1	5590B	HITCH CLEVIS
10	1	5590C	HITCH BRACKET
11	1	5590D	SCREW,CAP .750-10UNC X 6.0 GR8
12	1	5590E	NUT, LOCK .750-10UNC HEX GR8
13	1	6219	AXLE ASSY. 77.5" LG. w/10 on 11 1/4 HUBS
14	4	6468	275/70R- 22.5 SINGLE TIRE/WHEEL ASSEMBLY
15	2	10860	BOLT- 1" NC GRD.8 x 7" LG.

ITEM NO.	QTY.	PART NUMBER	DESCRIPTION
16	2	10802	NUT, LOCK- NYLOCK NE 1- 8 Z
17	11	5496	STEEL CONDUIT CLAMP- 1/2"
18	1	21272	BATTERY HOLD DOWN PLATE
19	1	10181	BOLT 3/8" NC GR5 x 1"
20	1	10178	WASHER, LOCK
21	1	10170	NUT- 3/8" NC
22	4	21257	LOAD CELL BRACKET SPACER
23	4	10762	BOLT 7/8 NF GR-8 x 3"
24	4	10742	NUT 78 NF NYLOCK
25	8	5332	LOADCELL PAD




DETAIL B
SCALE 1 : 8

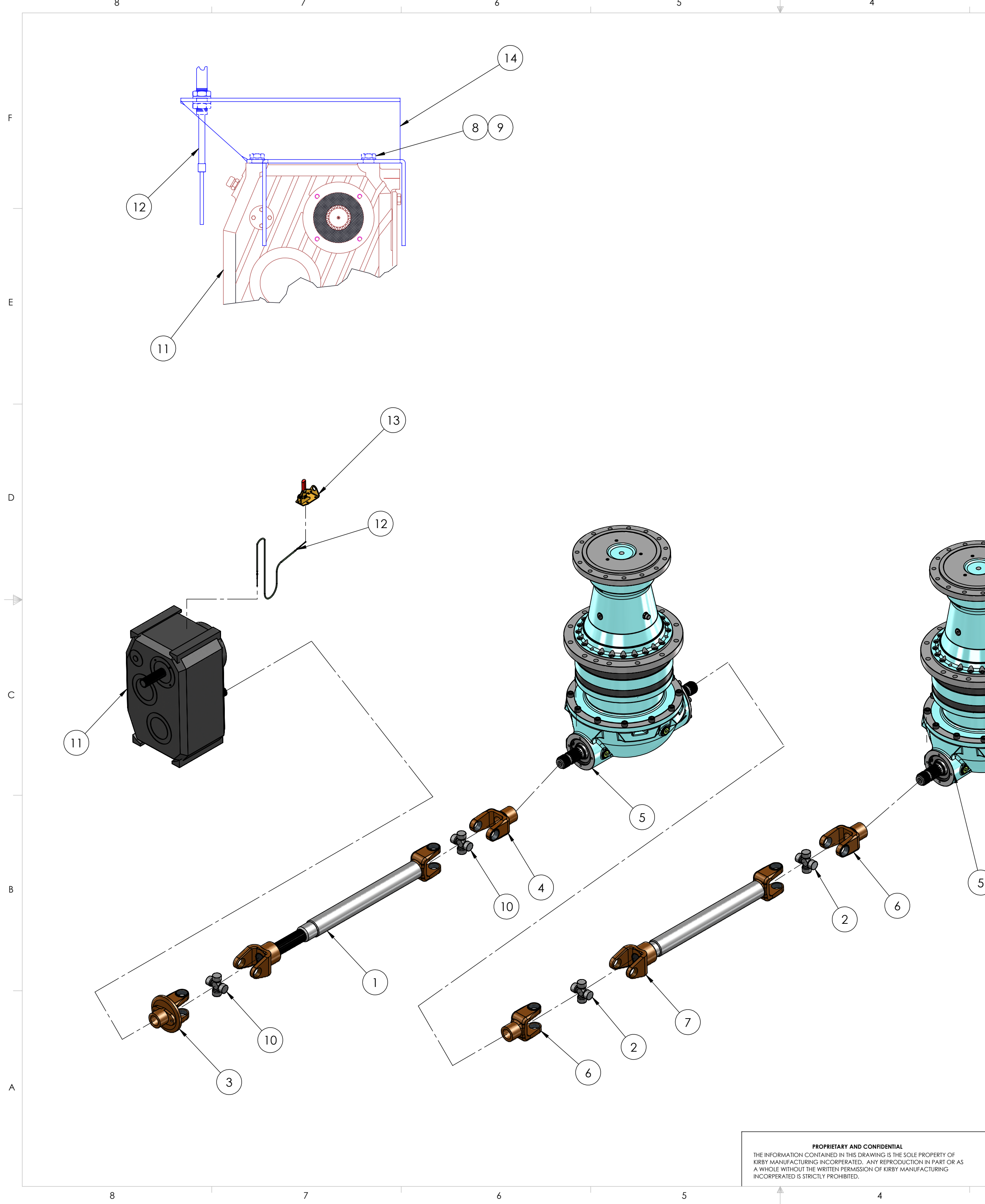


DETAIL A
SCALE 1 : 6

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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		DESCRIPTION	
CHECKED BY:				ELP SINGLE AXLE RUNNING GEAR	
APPROVED BY:				SIZE	REV.
				C	1
				PART NUMBER	ELP-006
				SCALE: 1:32	WEIGHT: 3193.51 lbs
				SHEET 1 OF 1	



ITEM NO.	QTY.	PART NUMBER	DESCRIPTION
1	1	262-23261	FRONT DRIVELINE
2	2	3980	CROSS 35R
3	1	40-10060	55 SERIES SHEAR ASSEMBLY
4	1	4105A	YOKE 55 1-3/4 20 SPLINE SLIDE
5	2	7423	PLANETARY GEARBOX
6	2	3941	YOKE 35N 20-SPLINE 1 3/4"
7	1	242-24474	REAR DRIVELINE
8	4	7586B	BOLT, 16MM 2.0x25MM 8.8
9	4	10553	WASHER 5/8" LOCK
10	2	4104	CROSS 55R
11	1	7585	GEARBOX, 2 SPEED REDUCER
12	1	4169	CABLE 14' PUSH PULL VERT. TRLR
13	1	4169A	HANDLE, HEAVY DUTY CONTROL
14	1	391124-1	SHIFT CABLE MOUNT
* 15	1	7593	BIMA HYDRAULIC 2-SPEED GEARBOX
* 16	1	7596	COMER HYDRAULIC 2-SPEED GEARBOX

*** OPTIONAL GEARBOXES
USED IN PLACE OF # 11.**

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

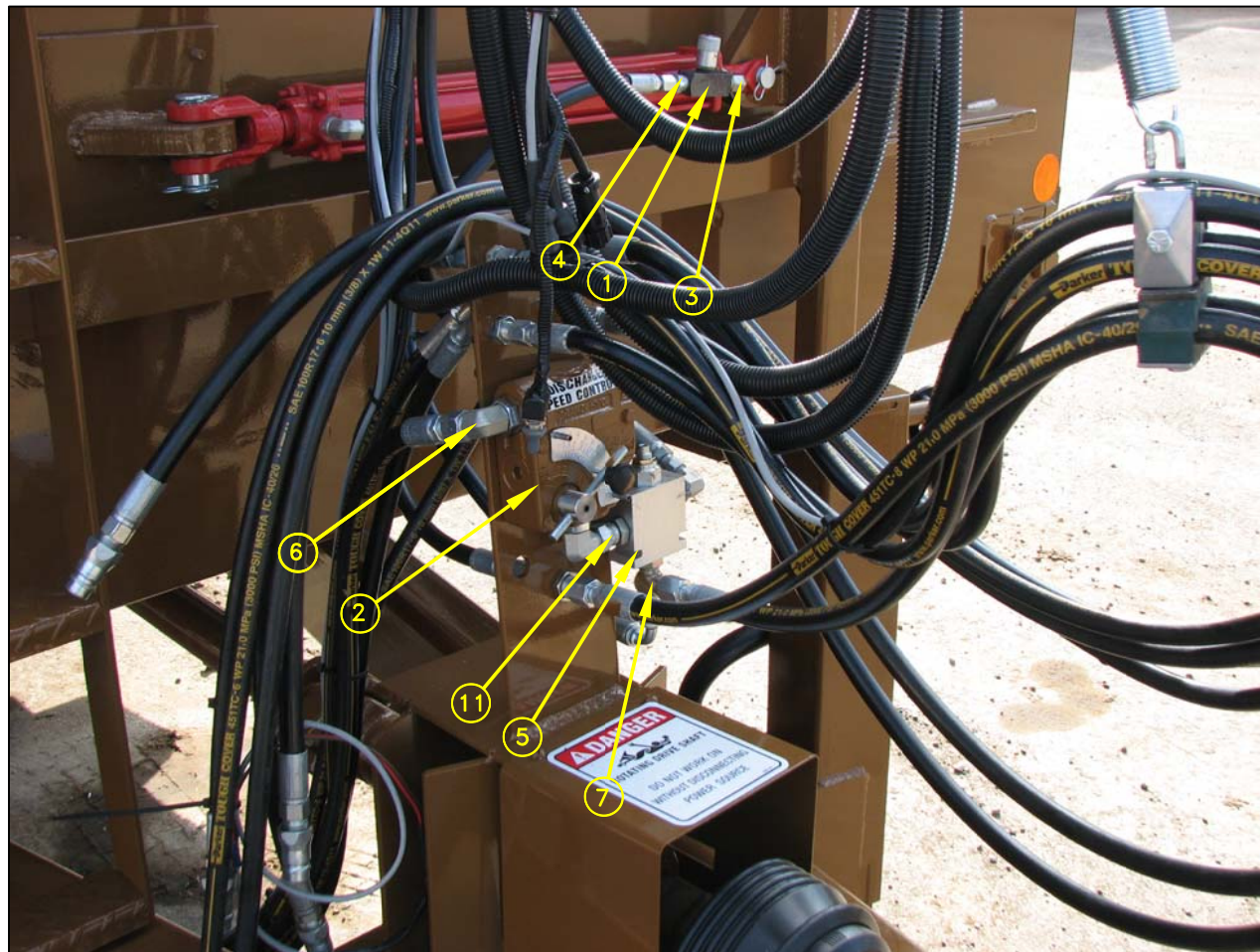
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TOLERANCES:
FRACTIONAL ±
ANGULAR: MACH ± BEND ±
TWO PLACE DECIMAL ±
THREE PLACE DECIMAL ±

Notes:		Kirby Mfg Inc. P.O. BOX 989 MERCED CA 95340 PH (209)723-0778 FX (209)723-3941			
		JOB #:			
		MATERIAL:		MECHANICAL DRIVELINE ASSEMBLY	
		MATERIAL P/N:			
		FINISH:		SIZE PART NUMBER	
DRAWN BY: 4/29/2014 AMAR B.		VENDOR:		C ELP-007	
CHECKED BY:		VENDOR P/N:		SCALE: 1:24 WEIGHT: 1590.807914 lbs SHEET 1 OF 1	
APPROVED BY:					

MATERIAL LIST					
SYM.	QTY.	DESCRIPTION	PART NO.	UNIT COST	TOTAL
1	1	3/8" NEEDLE VALVE	7896		
2	1	VALVE FC-51 10SAE	8055		
3	2	FITTING, 90°	6-6 CTX-S		
4	1	FITTING, STR	6-6 FTX-S		
5	1	VALVE, SEQUENCE CONTROL	8080		
6	3	FITTING, 90°	8-10 C50X-S		
7	1	FITTING, SWIV NUT RUN TEE	8 R6X-S		
8	2	FITTING, STR	8 FTX-S		

MATERIAL LIST					
SYM.	QTY.	DESCRIPTION	PART NO.	UNIT COST	TOTAL
9	1	CHECK VALVE 1/2"	7897		
10	3	FITTING, STR SWIVEL	8-8 F6X-S		
11	2	FITTING, STR	8-8 FTX-S		
12	6	TRACTOR HOSE, HYDRAULIC 3/18" x 112" LG.	451TC-6-RL		
13	2	CROSSFEED MOTOR HOSE, HYDRAULIC 1/2" x 140" LG.	451TC-8-RL		
14	2	CROSSFEED RAM HOSE, HYDRAULIC 3/8" x 160" LG.	451TC-6-RL		
15	2	FRONT DOOR HOSE, HYDRAULIC 3/18" x 80" LG.	451TC-6-RL		
16	2	REAR DOOR HOSE, HYDRAULIC 3/18" x 480" LG.	451TC-6-RL		



THIS SETUP WILL VARY
BASED ON TRACTOR HOSES,
LEVERS AND ELP OPTIONS

ELP HYDRAULIC SETUP

Kirby
MANUFACTURING

P.O. BOX 989
MERCED, CA. 95341
PH: (209) 723-0778

DRAWN BY
AMAR B.
SCALE

PART NO.
ELP-008
DATE
1/12=1 5/5/2014

DWG. NO.

ELP-008

APPENDIX

(VENDOR LITERATURE)

SECTION

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1

SCALES; DIGI-STAR

2

DRIVESHAFT LUBRICATING PROCEDURE

SECTION 1

Operator Manual

EZII
SERIES
ELECTRONIC
SCALE INDICATORS



EZ 2000
EZ 2000 V

Digi-Star ★

Leading the way in Worldwide Weighing

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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**.

Cancelling 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  key to assign the M+ operation to the FUNCTION key.


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

M+ will be displayed, followed by the amount to be added to the weigh memory. RM 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  key to assign the RM operation to the FUNCTION key.


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

The total amount stored in weigh memory will be displayed.

PRINT WEIGH MEMORY (OPTION)




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


Then press the  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  key to assign the CM operation to the FUNCTION key.

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

WEIGH AVERAGING



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

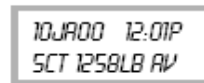


Press the **Print** key twice within three seconds to perform the weigh averaging operation.

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:



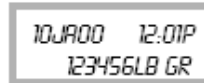
TO PRINT: (OPTIONAL FEATURE)



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

TO RESTART THE MIX TIMER




Press the **Function** 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!**

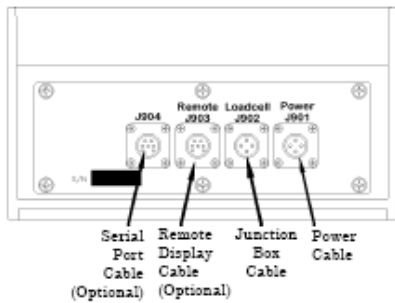
Always disconnect the indicator power cord before "jump starting" or fast charging a battery.

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 J001 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.

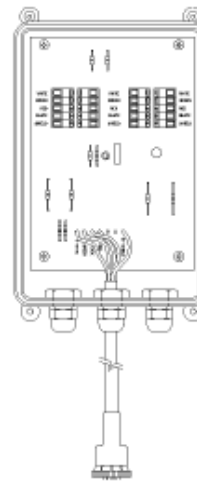
Wire Color	Wire Function
RED	Battery (+12Vdc)
BLACK	GROUND
ORANGE	NA
BLUE	NA




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 J002 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



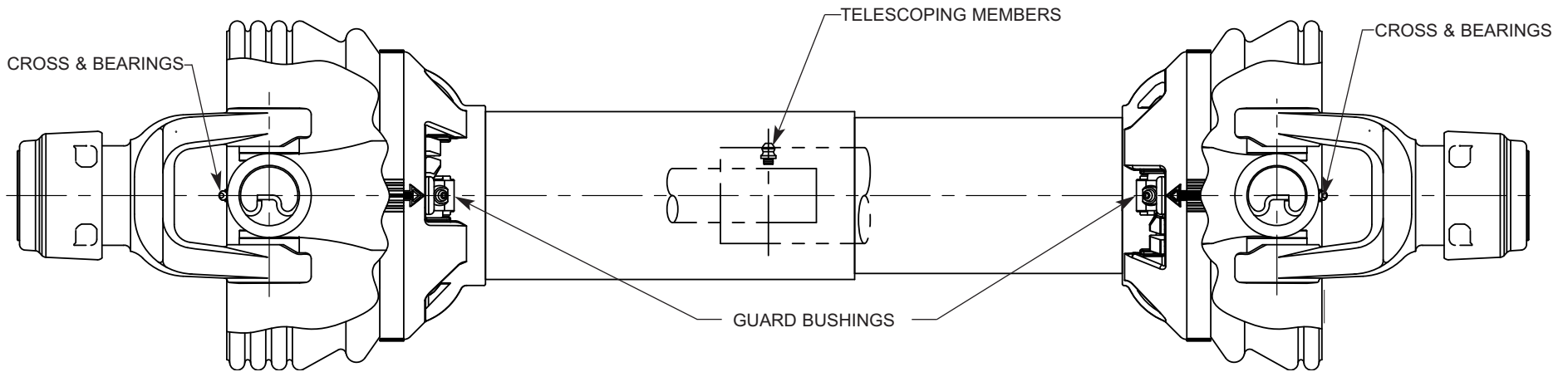
To exit setup without changing any values, press and hold the **Tare** key, then press the **ON** key.



Weasler®

DRIVE SHAFT LUBRICATING PROCEDURE

SERVICE INSTRUCTIONS



LUBRICATE ALL FITTINGS WITH A GOOD QUALITY LITHIUM SOAP COMPATIBLE E.P. GREASE MEETING THE N.L.G.I. #2 SPECIFICATIONS AND CONTAINING NO MORE THAN 1% MOLYBDENUM DISULFIDE.

AN E.P. GREASE MEETING THE N.L.G.I. #2 SPECIFICATIONS AND CONTAINING 3% MOLYBDENUM DISULFIDE MAY BE SUBSTITUTED IN THE TELESCOPING MEMBERS ONLY.

LOCATION	STANDARD INTERVAL	EXTENDED LUBE INTERVAL	LEVER ACTION PUMPS
CROSS & BEARINGS	*8 HRS.	50 HRS.	5
TELESCOPING MEMBERS	8 HRS.	50 HRS.	8-10
CE & NON-ROTATING GUARD BUSHINGS (1000 RPM MAX.)	8 HRS.	50 HRS.	5

*CONSTANT ANGLE APPLICATIONS MAY REQUIRE A LUBE INTERVAL OF 4 HOURS

ROTATING GUARD BUSHINGS SHOULD BE LUBRICATED UPON REPLACEMENT

CAUTION!! REPLACEMENT PARTS ARE NOT LUBRICATED

REPLACEMENT PARTS MUST BE LUBRICATED AT TIME OF ASSEMBLY AND DURING USE PER THE LUBE RECOMMENDATIONS

UNCONTROLLED DOCUMENT 56-15144-06

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