

# OPERATION AND MAINTENANCE MANUAL

## **STRAW BEDDER**



**Kirby Manufacturing**  
P.O. Box 989  
Merced, California; 95341-0989  
(209) 723-0778 Kirby Mfg.

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**I. WARRANTY**

**KIRBY MANUFACTURING, INC.**  
**MANUFACTURER'S WARRANTY**

KIRBY MANUFACTURING INC. WARRANTS NEW MANUFACTURED PRODUCTS TO BE FREE FROM DEFECTS UNDER NORMAL USE AND SERVICE. KIRBY'S FULL 90-DAY MANUFACTURER'S WARRANTY COVERS EQUIPMENT THAT IS USED AND PROPERLY MAINTAINED IN STRICT ADHERENCE TO THE OPERATOR'S MANUAL. THE WARRANTY EXTENDS TO 12 MONTHS ON WORKMANSHIP.

THIS LIMITED WARRANTY IS EFFECTIVE ONLY IF THE EQUIPMENT IS USED AS DIRECTED, IS NOT SUBJECT TO MISUSE, NEGLIGENCE OR ACCIDENT. AND IS NOT ALTERED OR REPAIRED BY ANYONE OTHER THAN KIRBY OR ITS DESIGNEE. COMPONENTS AND PARTS NOT MANUFACTURED BY KIRBY SHALL BEAR AND BE SUBJECT TO THE LIMITED WARRANTY OFFERED BY THEIR ORIGINAL RESPECTIVE MANUFACTURER.

IT IS A CONDITION OF THIS WARRANTY THAT IF KIRBY OR ITS DESIGNEE OR AUTHORIZED REPRESENTATIVE, SHALL FIND THAT ANY DEFECTIVE PARTS AND THAT SUCH DEFECT OF PART IS INCLUDED IN AND COVERED BY SAID WARRANTY, THEN SUCH DEFECTIVE PART OR PARTS SHALL PROMPTLY BE REPLACED WITHOUT CHARGE TO THE PURCHASER, F.O.B KIRBY PLANT.

BEARINGS, SPROCKETS, CHAINS, HYDRAULIC RAMS AND TIRES (UNLESS DAMAGE DUE TO A FOREIGN OBJECT) HAVE A FULL NINETY (90) DAY WARRANTY COVERING PARTS AND LABOR FROM DATE OF PURCHASE.

THIS WARRANTY SHALL IN NO WAY MAKE KIRBY MANUFACTURING INC. LIABLE FOR ANY PERSONAL INJURIES OR DAMAGES, LOSS OF TIME AND/OR EXPENSE OF ANY KIND EITHER DIRECT OR RESULTING FROM PART FAILURE DEFECT OR DURING TRANSIT OR METHOD OF OPERATION CONTRARY TO GOOD SAFETY AND USE AS INDICATED IN THE OPERATOR'S MANUAL.

NO AGENT OR EMPLOYEE OF KIRBY MANUFACTURING INC. IS AUTHORIZED TO EXTEND ANY OTHER WARRANTY OR OBLIGATION EITHER EXPRESSED OR IMPLIED IN CONNECTION WITH THE SALE OF MANUFACTURED PRODUCTS FROM KIRBY MANUFACTURING INC.

**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 FILL 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**

Business Name: \_\_\_\_\_

Date: \_\_\_\_\_

Model Type: \_\_\_\_\_

Serial No: \_\_\_\_\_

Copyright Revision: July, 2009

## **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 his/her Representative, 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
- STRAWBEDDER STRUCTURE, TRAILER AND PUSHGATE
- BEATERS, SHAFTS, AND BEARINGS
- SPROCKETS AND CHAINS
- GEARBOXES
- DRIVELINES AND POWER TAKEOFFS
- MAIN HYDRAULIC SYSTEM
- LUBRICATION AND MAINTENANCE
- EQUIPMENT OPERATIONS
- SPARE PARTS

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.**

**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 trailer mount unit.

### **SAFE OPERATIONS:**

Operation of this Straw Bedder shall be limited to competent and experienced personnel. In addition, anyone who will operate or work around a Straw Bedder 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 safety 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 personnel 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 are **not** qualified to operate the machinery.

**FAILURE TO READ THIS STRAW BEDDER 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 Straw Bedder prior to start up.

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

C. **Do not overload the Straw Bedder.**

Maximum load is 4 BALES (1 TON EACH) FOR a 20 FT STRAWBEDDER.

Maximum load is 6 BALES (1 TON EACH) FOR a 28 FT STRAWBEDDER.

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.**



**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 personnel 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 Straw Bedder 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 STRAW BEDDER SAFELY**

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

Never enter a Straw Bedder while in operation.

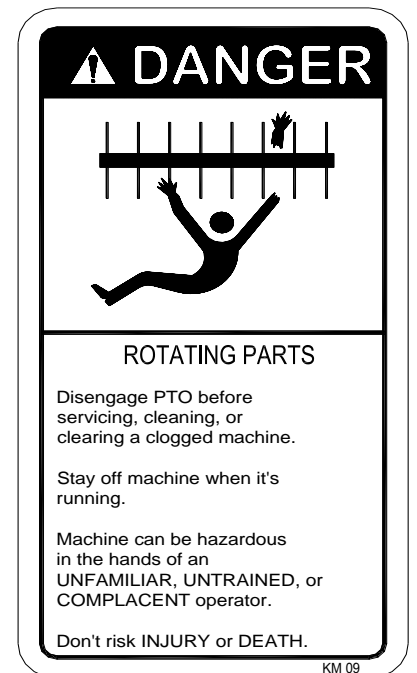
Operate the Straw Bedder from the operator's seat only.

Do not exceed load capacity of the Straw Bedder. (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 STRAW BEDDER**

Keep riders off.

Riders are subject to injury such as being struck by foreign objects, falling into the Straw Bedder 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 STRAW BEDDER**

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

This Straw Bedder may be equipped with either a 1000 RPM or a 540 RPM driveline.

Match tractor PTO with the Straw Bedder 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**

Straw Bedder should be approximately level when attached to tractor.



### **SAFETY DECAL CARE**

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

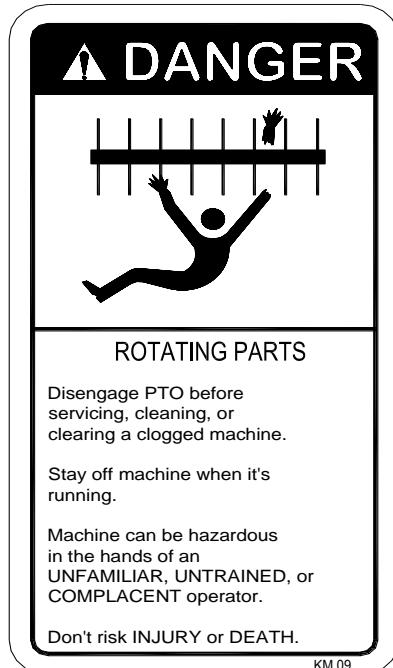
Replace safety decals and signs that are missing or have become illegible.

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**

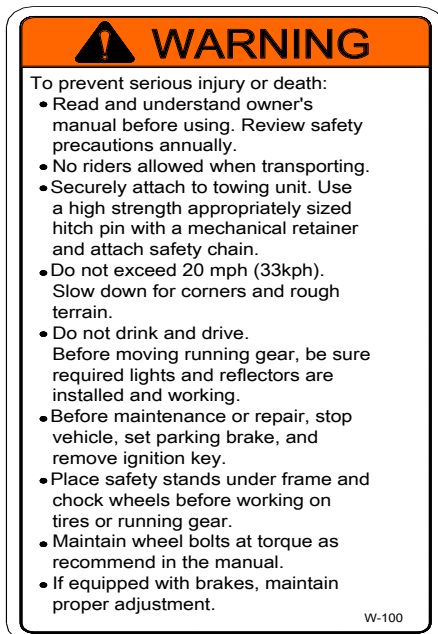
Immediately replace all and any worn or damaged Safety Decals. When ordering replacement decals please provide the unit's serial and model number.



**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**



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



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



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

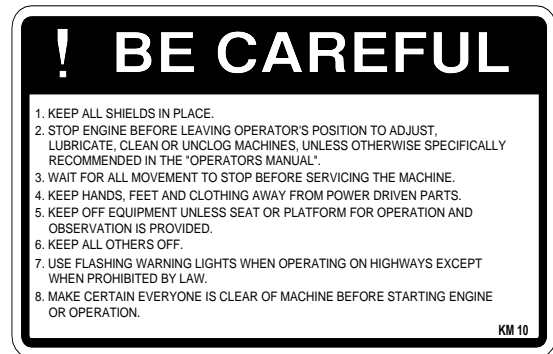


Figure H: WARNING; keep all shields in place Part No. KM-10



Figure I: DANGER; drive shaft Part No. KM-07

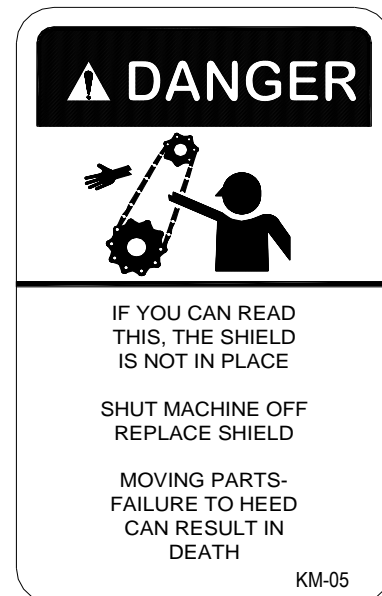



Figure K: DANGER; if you can read this Part No. KM-05

 **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 Straw Bedder.

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

Because it is possible that this Straw Bedder may be used in dry areas or the presence of combustibles, special precautions should be taken to prevent fires and firefighting 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 Straw Bedder.

Practice operation of your Straw Bedder 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 Straw Bedder.

 **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 Straw Bedder 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 most even 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 Straw Bedder unattended.

As a precaution, always check the hardware on Straw Bedder 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.

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 night-time 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 Straw Bedder 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 Straw Bedder in a position to provide maximum visibility at all times.

Make allowances for increased length and weight of the Straw Bedder 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 Straw Bedder, 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 Straw Bedder.

## **2.0 STRAW BEDDER STRUCTURE, TRAILER AND PUSHGATE**

**2.1** Inspect and observe for cracks in metal and welds in feeder structure, bed and beater box, trailer frame, axle assembly and cross feed. Re-weld as necessary.

**2.2** Observe trailer hitch for:

- Cracked welds. Re-weld as necessary.
- Bent or worn. Replace or repair as necessary.

**2.3** Trailer mounts only: Observe trailer tires

- For cuts and punctures in tires.
- Check for proper inflation using pressure gages. 16.5L-16.1 POWER IMP TIRES inflation is **36** psi cold.

**2.4** Observe wheel hubs and bearings:

- Check for oil seal leaks. Replace if oil seals leaks.
- Check wheel hubs for proper bearing tightness. Tighten as required.
- Observe oil level in cap. Oil must be level with the bottom filler hole. Fill with proper lubricant to overflow.

**2.5** Observe that all bolts and set screws in driveline are not missing and that all are properly seated. Replace or tighten.

**3.0 BEATERS, SHAFTS AND BEARINGS**  
**CAUTION! STRAW BEDDER SHALL NOT BE IN**  
**OPERATION FOR THESE CHECKS.**

**3.1** Observe all beater shaft bearings.

- Check for cracks in bearing housings. Replace if cracked.
- Check carriage bolts holding housing to beater posts. They must be tight.
- Check set screws, either for looseness or missing.
- Check for wear in housing or excessive bearing movement in housing. Replace if housing is worn.

**3.2** Observe beaters, beater shafts and floor shafts.

- Beater integrity: check welds to shafts on both ends.
- Check that all knives are in place and secured.
- Replace all missing, sheared or stretched bolts.
- Check that beater rotations are balanced and true.

**3.3** Observe cutting and beater chamber, sides, ends and roof. Walls ends and roof should be straight, not bulging in appearance.

**CAUTION! STRAW BEDDER IS IN OPERATION**  
**FOR THESE CHECKS.**

**3.4** Observe beaters. When running, check for bent shafts by observing for straightness during rotation.

**3.5** Observe tractor driveline and Straw Bedder driveline for vibration or bent shaft.

**3.6** Observe pillow block bearings and shaft bearings for:

- Excessive movement in housing.
- Noise indicting flat spot on bearing rollers from overloading bearings.

**3.7** Observe yoke and cross integrity and double chain linkage.

## **4.0 MAIN DRIVE, SPROCKETS AND CHAINS.**

**4.1** Observe chain for proper seating on sprocket – use caution while Straw Bedder is operational. Observe for jerking as chain wraps around sprocket. Loud noise or hard jerking indicates:

- Misalignment of chain and sprocket. Realign.
- Worn or loose chain. Replace worn chain.
- Loose chain idlers. Reposition and tighten idler.
- Bent shafts in sprockets. Replace with new shafts.
- Beater is possibly bent. Replace beaters.

**4.2** Observe sprocket tooth wear pattern

- Tooth worn on sides indicates misalignment. Realign sprocket.
- Tooth worn to sharp to sharp point indicates loose or worn chain.
- Tooth worn to cup at base indicates excessive load on chain.

**4.3** Observe sprockets for the following:

- Main key sheared or shearing. Replace key.
- Taper lock hub broken or cracked. Replace hub.
- Taper lock hub bolts loose, sheared or stretched. Tighten or replace.
- Main set screws loose or missing. Tighten or replace.
- Movement or signs of movement of sprockets on shafts.
- Alignment – using a straight bar, insure that both sprocket faces are in full contact with the edge.

**4.4** Observe chain for the following:

- Loose or worn chain – check rollers, missing cotter keys in master and offset links, tighten and align idler.
- Floor drag chain should be tight. You can test the chain by pulling the chain in the top center of the floor. The chain should pull up no more than 6-8 inches.

## **5.0 GEARBOXES.**

**5.1** Observe all gearboxes for the following:

- Observe shaft seals for leaks. Replace seals.
- Check for loose bolts that secure gearbox to mounting bracket. Tighten as required.
- Check for misalignment to other components: chains, couplers, u-joints. Realign.
- Check input shaft, movement indicates worn bearings. Replace.
- Check that the oil is level with the filler plug. Fill to overflow.

**5.2** For service see preventive maintenance and lubrication schedule in this manual.

## **6.0 DRIVELINES AND POWER TAKEOFFS.**

**6.1** Tractor PTO driveline

- Shields must be secured by locking devices (sleeves).
- Shields must slide freely.
- Observe shields for damage.
- Driveline shafts must slide freely; binding may cause false readings on the scale system. Lubricate all shaft splines.
- U-joints cross & yoke must fit tight in the bearing cups and have grease zerks fittings for lubrication.

**6.2** Straw Bedder drive line (Crossfeed drive shaft.)

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

## **7.0 MAIN HYDRAULIC SYSTEM**

- 7.1** Observe all fittings, pipes, tubes, and hoses for leakage. Tighten as needed.
- 7.2** Observe oil level in main tank. On Straw Bedder units the capacity allowed is 95 liters (25 gallons).
- 7.3** On tractors, the maximum pump capacity required to operate the Straw Bedder is 53 liters per minute (14 gpm) @ 2200 P.S.I. The minimum pump capacity required to operate the Straw Bedder is 45 liters per minute (12 gpm) @ 2200 P.S.I.
- 7.4** Floor motor specification, maximum 58 liters per minute (15 gpm) @ 750 P.S.I...  
Beater motor specification, maximum 76 liters per minute (20 gpm).
- 7.5** Stalling of the Floor 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.
- 7.6** Slow speed of Floor 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.

For service see preventive maintenance and lubrication schedule in **Section 8 & 9**

## **8.0 MAINTENANCE AND LUBRICATION**

Your KIRBY unit has been designed for quiet, trouble free operation with maximum service life with minimum maintenance. The use of a few maintenance steps will lengthen the trouble free life of your unit and minimize down time and repair expense.

After 12 loads have been completed, **all sprockets** should be checked for alignment and the set screws re-tightened. In addition all bearing lock collars should be checked and set screws should be thoroughly tightened. Check all bolts: re-tighten as required.

The **roller chain** is factory lubricated, but should be oiled regularly. **Chain idlers** should be adjusted as required to keep the chain in proper tension. If the unit is operated under extremely dirty conditions, in certain areas where the dust is abrasive, chain life may be greater if it is not lubricated at all. Adjustments for **draper chain** can be made at rear of unit. For proper tension you should be able to lift the chain approximately 6" from the floor at mid-span of chain inside the box.

The **U-joints** on the PTO drive shaft should be greased every 20 hours (50 loads) or as often as required under adverse conditions. All **bearings** are factory sealed and pre-lubricated, but should be greased lightly as needed, depending on how severe the operating conditions are. Excessive greasing may cause seal failure. So do not apply high pressure. If seal is broken, grease as necessary.

The **Gearboxes** on your Kirby unit are filled with #140 weight oil. Normally it is not necessary to check the oil level of the gearboxes unless leakage from the gearbox is detected. If there is any evidence of leakage from the gearbox, **replace seal**, check the oil level at the lower side plug and refill as required. **DO NOT OVER GREASE**.

**Wheel bearings** should be repacked once a year. Pump grease using a standard hand pump grease gun 3 to 4 times for each bearing. Always be sure that the bearings rotate and take in grease.

**CAUTION: EXCESSIVE GREASE WILL BLOW OUT THE BEARING SEALS**



## 9.0 MAINTENANCE AND LUBRICATION

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

<b>PM SERVICE</b>	<b>1<sup>st</sup> 50 Hours</b>	<b>Every 140 Hours</b>	<b>Every 200 Hours</b>	<b>Every 500 Hours</b>	<b>Every 1000 Hours</b>	<b>Every 3 Months</b>	<b>Every 6 Months</b>	<b>Every 12 Months</b>
Change oil in <u>All</u> gearboxes	X				X		X	X
Change hydraulic oil filters	X			X		X		
Grease all Straw Bedder bearings			X					
Grease PTO, Drive Line & Slip Sleeve			X					
Check out Straw Bedder			X					
Repack Wheel bearings								X

### LUBRICATE TYPES:

<u>COMPONENTS</u>	<u>LUBRICATE NAME</u>	<u>LUBRICATE TYPE</u>	<u>LUBRICATE GRADE</u>
<b>GEARBOX OIL (TRAILER ONLY)</b>	<b>SEE CHOICES A: 1,2, or 3 BELOW</b>	<b>SEE CHOICES A: 1,2, or 3 BELOW</b>	<b>SEE CHOICES A: 1,2, or 3 BELOW</b>
<b>BEARINGS AND DRIVE LINE YOKES GREASE</b>	<b>PENNZOIL</b>	<b>AW</b>	<b>NLGI #2</b>

### A. GEARBOX OIL CHOICES:

- 1.) Mobil .....Mobilube 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. COUPLING GREASE:**

Texaco Coupling grease, CPS number 221912

Areas of application:

- between PTO spline connections.
- between hydraulic motor splines and planetary input splines.
- between gearboxes.

## **PROCEDURE FOR SAMPLING AND CHANGING OILS:**

The following information pertains to changing and sampling the oils in the gearboxes

**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.

### **Gearboxes:**

#### **Draining gearbox:**

1. Locate drain plug on bottom of gearbox.
2. Wipe 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

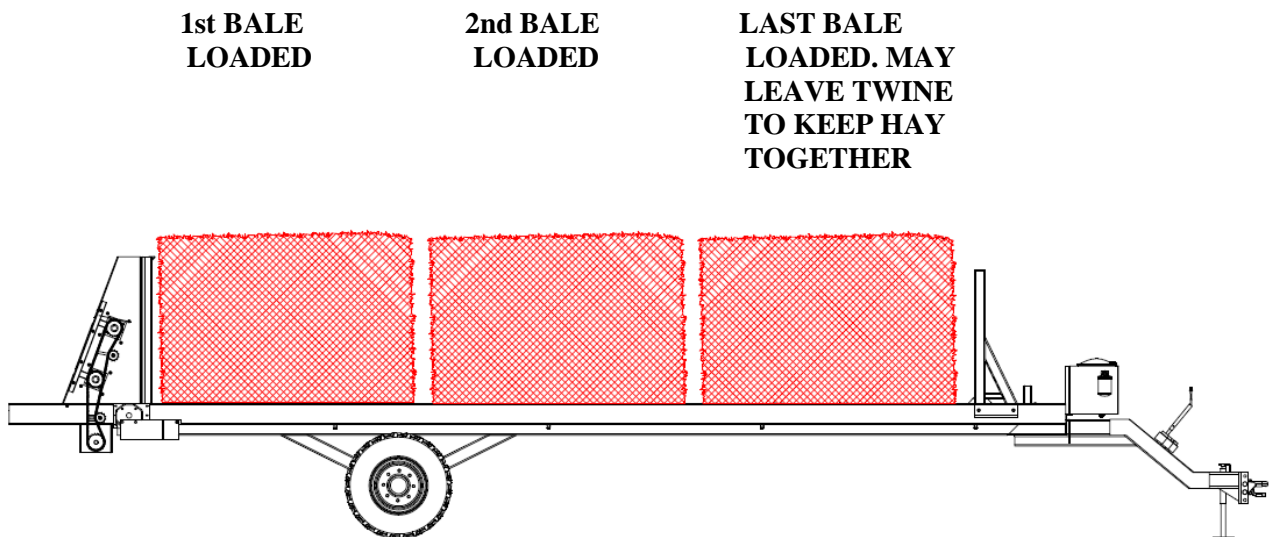
#### **Filling gearbox:**

1. Remove fill plug on side of gear box, (this plug is located in the middle of the gearbox)
2. Fill gearbox through the 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

## **10 EQUIPMENT OPERATIONS**

### **A. LOADING OF YOUR STRAW BEDDER**

1. Make sure that the P.T.O is disconnected (this is to ensure the safety of the individual who is loading).
2. Make sure that the Straw Bedder tongue is properly hooked to trailer hitch (never leave the unit loaded when it is parked on the landing gear).
3. Start loading the bale or bales closest to the beaters first and then work your way back. Set the bales on edge so the twines are facing you. This will make the next step easier.
4. Remove all twines from bales. If hay tends to fluff apart, you may want to leave the top twine on the last bale.
5. When you are done loading, make sure everyone and any foreign object is clear of danger and removed from the floor of the unit. Hook up the P.T.O to the tractor at this time.



## **B. OPERATING YOUR STRAW BEDDER**

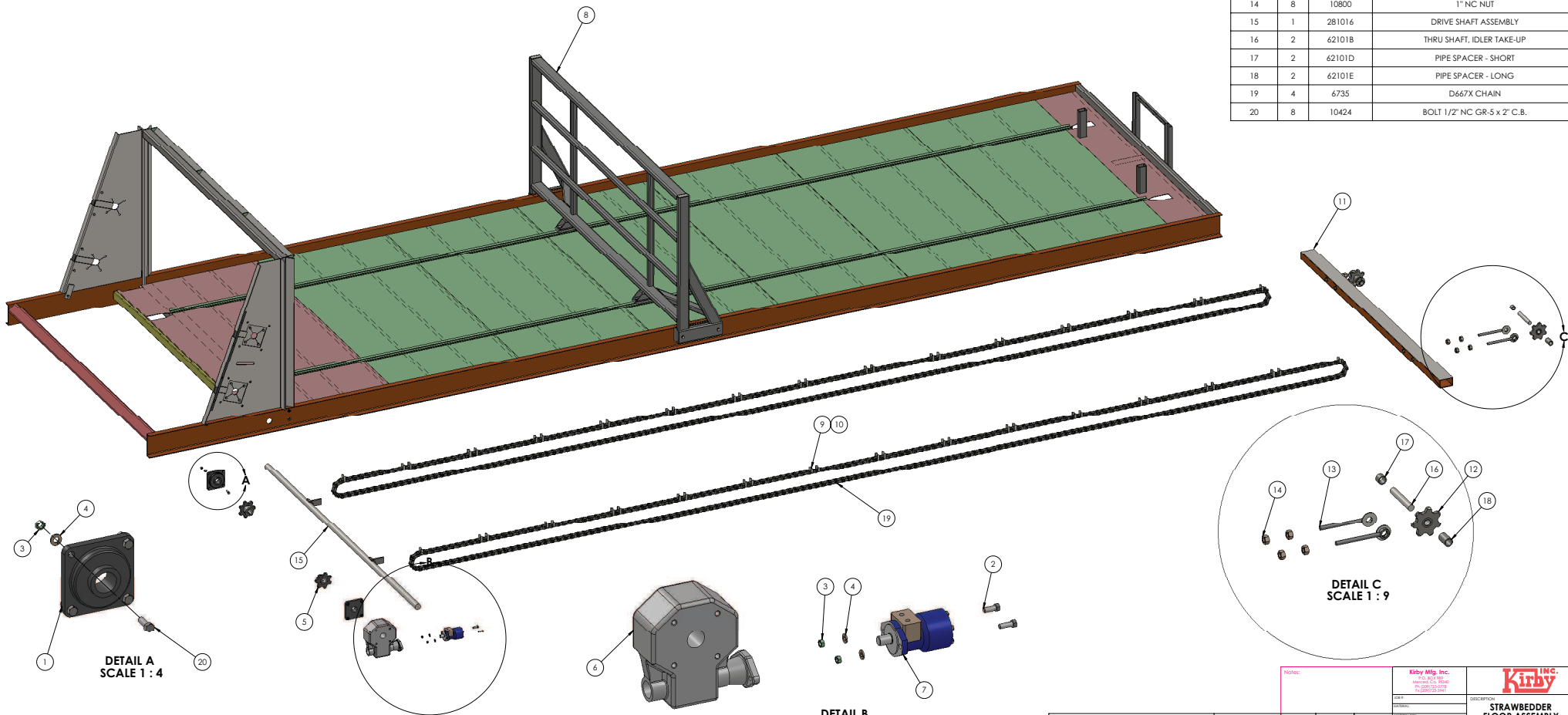
1. When running your unit for the first time or running a new load of hay always start out at 1 or 2 on your flow control and move up to the right speed. The setting will vary from tractor to tractor, type of hay and weather conditions. Most units run at about “3”.
2. Engage the P.T.O; raise the engine’s RPM up to the tractor manufacturer’s recommendations. It will require 540 RPM at the P.T.O in order for the Straw Bedder to work properly.
3. When you are in a position to feed, reverse the floor-drag-chain to relieve any pressure against the beaters on start up.
4. When the beaters have reached optimum speed, start the hydraulics control on the floor. If the oil by-passes in the flow control you maybe feeding the hay into the beaters faster than the knives can cut it. If this is the case, slow the floor down with the flow control.
5. After you have run the first set of bales, CHECK floor chains for tightness: the chains will stretch. Continue checking weekly. Refer to section 4.0

## 11 SPARE PARTS

<b><u>DWG NO.</u></b>	<b><u>DESCRIPTION</u></b>
<b>S280001</b>	<b>FLOOR ASSEMBLY</b>
<b>S280002</b>	<b>TRAILER ASSEMBLY</b>
<b>S280003</b>	<b>PUSH GATE ASSEMBLY</b>
<b>S280004</b>	<b>BEATER/BEATER DRIVE ASSEMBLY</b>
<b>S280005</b>	<b>HYDRAULIC SETUP</b>
<b>S280006</b>	<b>HYDRAULIC SCHEMATIC</b>

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

ITEM NO.	QTY.	PART NUMBER	DESCRIPTION
1	2	2084	4-HOLE FLANGE BEARING
2	18	10411	BOLT
3	18	10390	NUT 1/2" NC
4	18	10398	LOCK WASHER
5	2	27034	DRIVE SPROCKET
6	1	7236	GEARBOX
7	1	7958	MOTOR
8	1	281007	BEDDER PUSH GATE
9	1	6733	FLOOR CHAIN
10	2	6739	FLOOR CHAIN PIN & KEY
11	1	280001	STRAW BEDDER IDLER TUBE
12	2	27033	IDLER SPROCKET
13	4	161011	IDLER TAKE-UP ALLTHREAD ASSEMBLY
14	8	10800	1" NC NUT
15	1	281016	DRIVE SHAFT ASSEMBLY
16	2	62101B	THRU SHAFT, IDLER TAKE-UP
17	2	62101D	PIPE SPACER - SHORT
18	2	62101E	PIPE SPACER - LONG
19	4	6735	D667X CHAIN
20	8	10424	BOLT 1/2" NC GR-5 x 2" C.B.



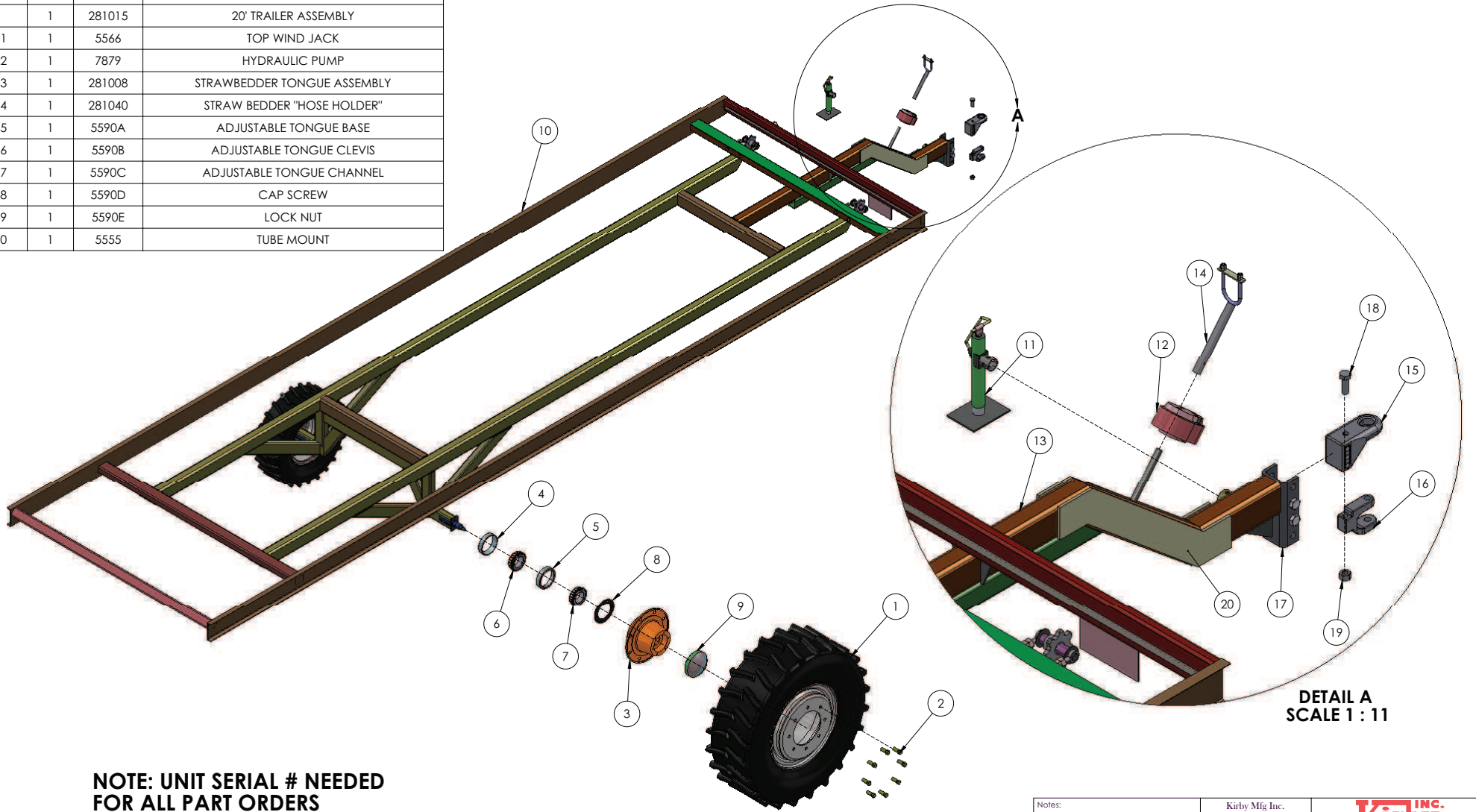
**DETAIL A  
SCALE 1 : 4**

**DETAIL B  
SCALE 1 : 5**

**DETAIL C  
SCALE 1 : 9**

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<p>NOTES:</p>		<p>Kirby Mfg. Inc. P.O. BOX 980 MARIETTA, GA 30067 U.S.A.</p>		<p>DATE: 6/11/2009</p>		<p>DESIGNED BY: AMAR B.</p>		<p>DESCRIPTION: <b>STRAWBEDDER FLOOR ASSEMBLY</b></p>	

ITEM NO.	QTY	PART NO.	DESCRIPTION
1	2	6433	WHEEL & TIRE ASSY
2	16	6234	Q821 WHEEL BOLT
3	2	6225	Q821 HUB ASSEMBLY
4	2	6230	Q821 OUTER CUP
5	2	6232	Q821 INNER CUP
6	2	6231	Q821 OUTER CONE
7	2	6233	Q821 INNER CONE
8	2	6236	Q821 SEAL
9	2	6235	DUST CAP
10	1	281031-03	28' TRAILER ASSEMBLY
	1	281015	20' TRAILER ASSEMBLY
11	1	5566	TOP WIND JACK
12	1	7879	HYDRAULIC PUMP
13	1	281008	STRAWBEDDER TONGUE ASSEMBLY
14	1	281040	STRAW BEDDER "HOSE HOLDER"
15	1	5590A	ADJUSTABLE TONGUE BASE
16	1	5590B	ADJUSTABLE TONGUE CLEVIS
17	1	5590C	ADJUSTABLE TONGUE CHANNEL
18	1	5590D	CAP SCREW
19	1	5590E	LOCK NUT
20	1	5555	TUBE MOUNT



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

**DETAIL A  
SCALE 1 : 11**

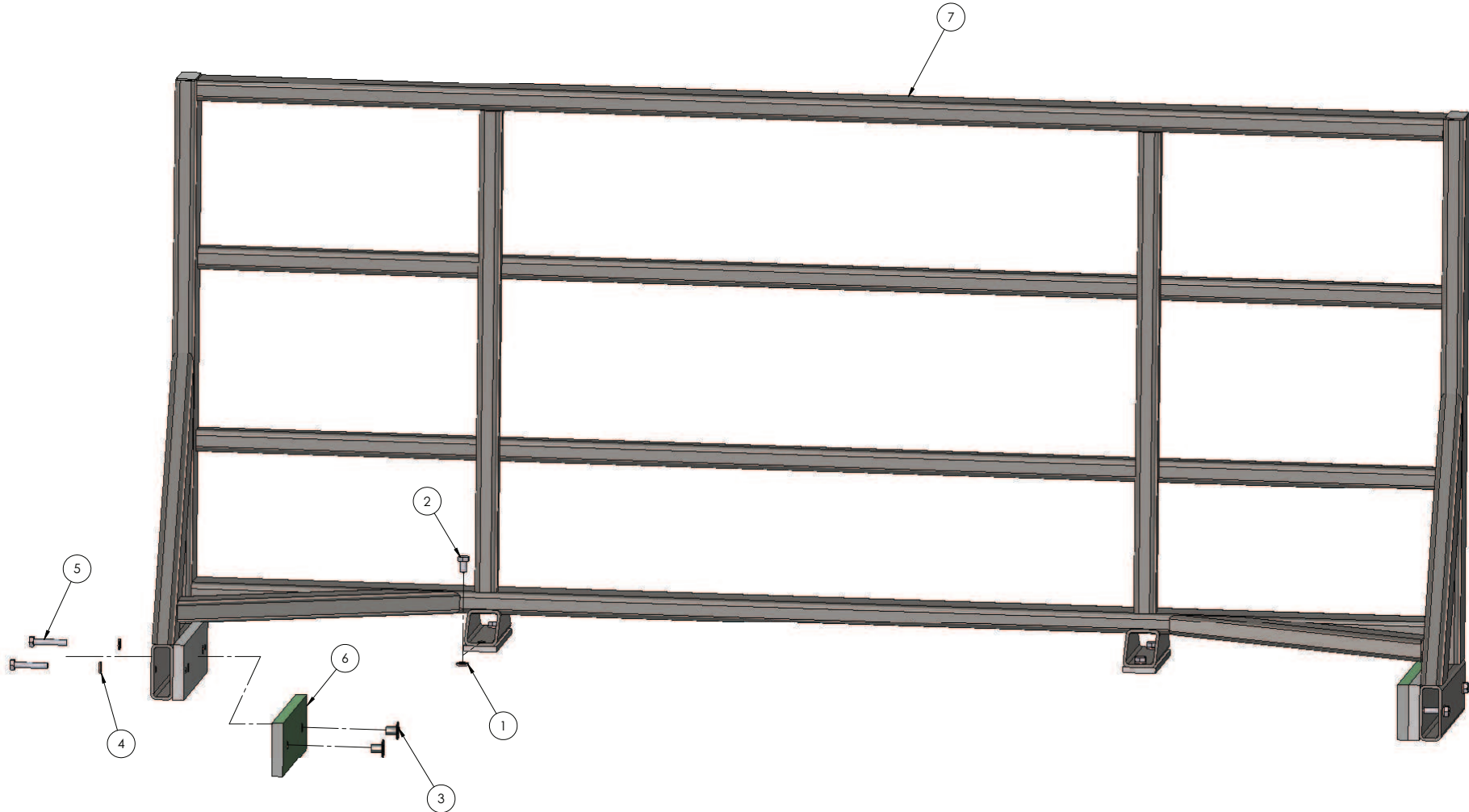
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TOLERANCES:  
FRACTIONAL: ±  
ANGULAR: MACH ± BEND ±  
TWO PLACE DECIMAL ±  
THREE PLACE DECIMAL: ±

Notes:		Kirby Mfg Inc. P.O. BOX 989 MERCED, CA 95340 PH (209)723-0778 FX (209)723-3941			DESCRIPTION <b>STRAW BEDDER TRAILER ASSEMBLY</b>	
DRAWN BY: 6/12/2009		NAME: AMAR B.			SIZE: C	PART NUMBER: <b>S280002</b>
CHECKED BY:		VENDOR:		SCALE: 1:4	WEIGHT: 2976.724555 lbs	SHEET 1 OF 1
APPROVED BY:		VENDOR P/N:				


ITEM NO.	QTY.	PART NUMBER	DESCRIPTION
1	4	10553	WASHER, LOCK- L/W Z 5/8
2	4	10560	5/8" BOLT
3	4	10725	SOCKET HEAD BOLT
4	4	10398	LOCK WASHER
5	4	10440	BOLT
6	2	11450	UHMW PLATE
7	1	281007	STRAWBEDDER PUSH GATE

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



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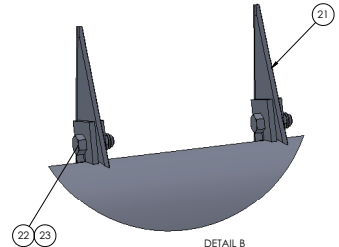
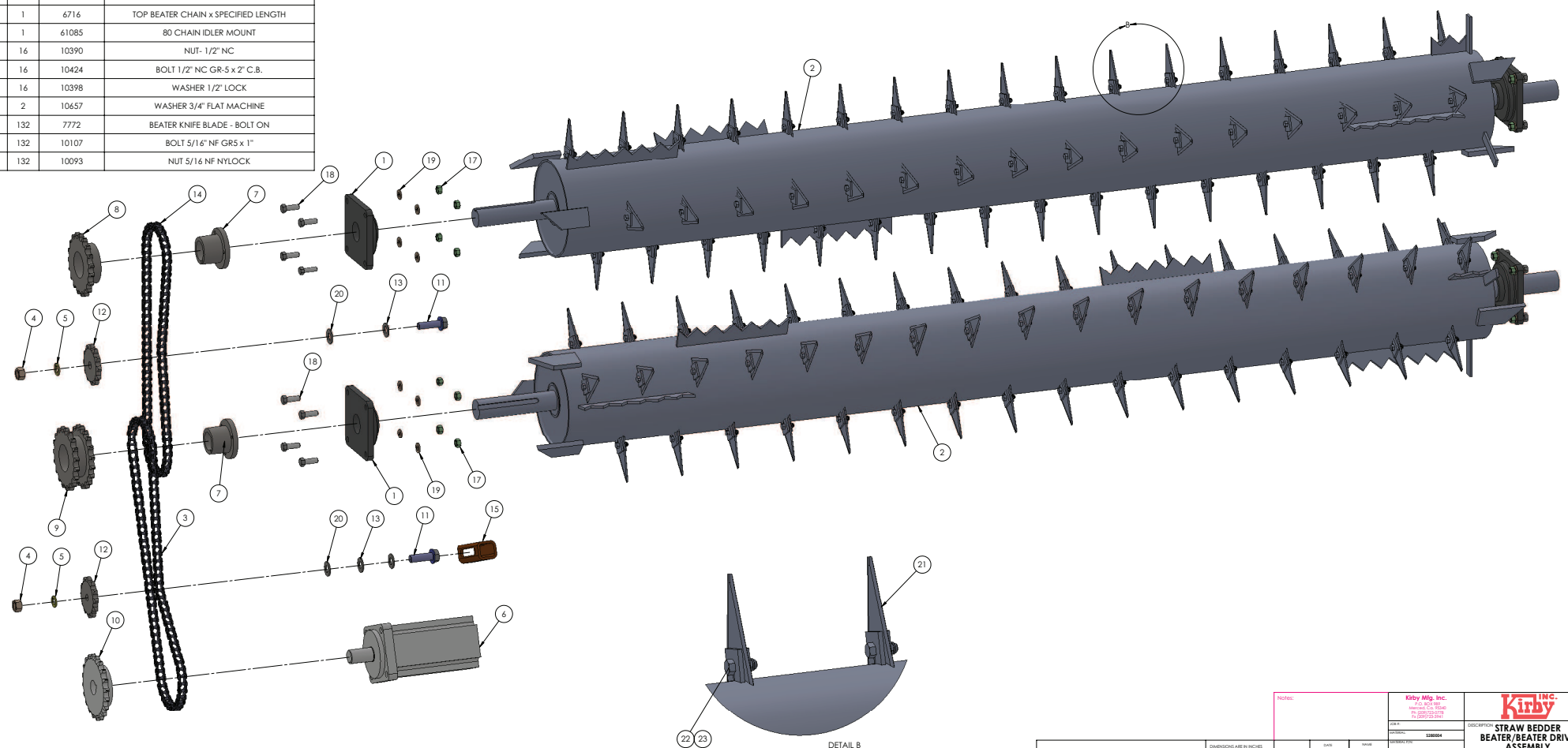
DIMENSIONS ARE IN INCHES  
 TOLERANCES:  
 FRACTIONAL ±  
 ANGULAR: MACH ± BEND ±  
 TWO PLACE DECIMAL ±  
 THREE PLACE DECIMAL ±

Notes:		Kirby Mfg Inc. P.O. BOX 989 MERCED CA 95340 PH (209)723-0778 FX (209)723-3941		 DESCRIPTION <b>BEDDER PUSH GATE</b>
		JOB #: MATERIAL: MATERIAL/FIN:		
DRAWN BY:	DATE	NAME	FINISH:	SIZE
CHECKED BY:	6/12/2009	AMAR B.	VENDOR:	C
APPROVED BY:			VENDOR P/N:	PART NUMBER
				<b>S280003</b>
				SCALE: 1:24
				WEIGHT: 571.020646 lbs
				SHEET 1 OF 1



ITEM NO.	QTY.	PART NUMBER	DESCRIPTION
1	4	2154	4-HOLE FLANGE BEARING
2	2	281005	STRAWBEDDER BEATER ASSEMBLY
3	1	6716	BOTTOM BEATER CHAIN x SPECIFIED LENGTH
4	2	10651	NUT- 3/4" NF
5	2	10658	LOCK WASHER
6	1	7975	MOTOR
7	2	16099	BUSHING
8	1	17166	SPROCKET
9	1	17330	SPROCKET
10	1	3334	SPROCKET
11	2	61088	IDLER BOLT
12	2	3301	IDLER SPROCKET
13	8	10659	FLAT WASHER
14	1	6716	TOP BEATER CHAIN x SPECIFIED LENGTH
15	1	61085	80 CHAIN IDLER MOUNT
17	16	10390	NUT- 1/2" NC
18	16	10424	BOLT 1/2" NC GR-5 x 2" C.B.
19	16	10398	WASHER 1/2" LOCK
20	2	10657	WASHER 3/4" FLAT MACHINE
21	132	7772	BEATER KNIFE BLADE - BOLT ON
22	132	10107	BOLT 5/16" NF GR5 x 1"
23	132	10093	NUT 5/16 NF NYLOCK

NOTE: UNIT SERIAL # NEEDED FOR ALL PART ORDERS



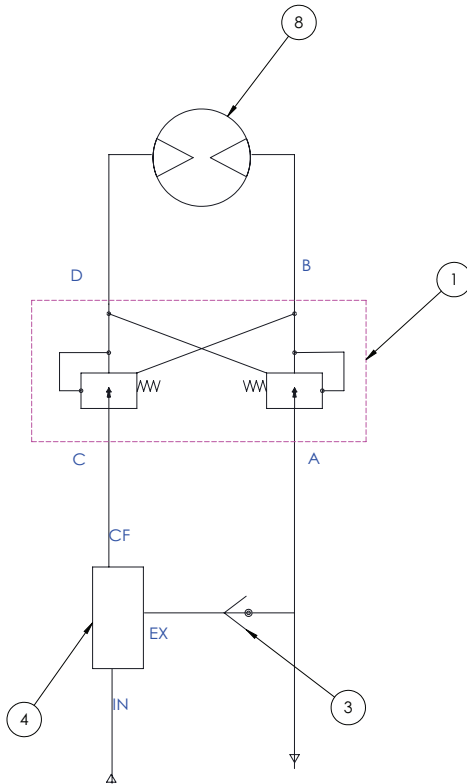
DETAIL B  
SCALE 1 : 2

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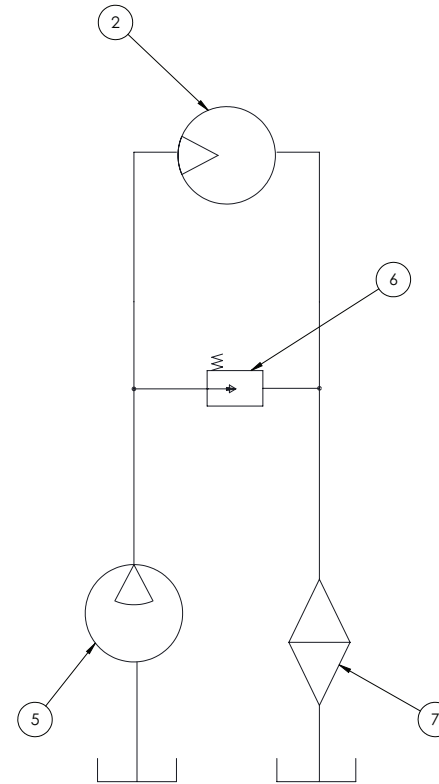


**NOTE: UNIT SERIAL # NEEDED FOR ALL PART ORDERS**

MATERIAL LIST			
SYM.	QTY.	DESCRIPTION	PART NO.
1	1	DUALPORT VALVE	7876
2	1	HYDRAULIC MOTOR	7975
3	1	3/4" CHECK VALVE	7908
4	1	FLOW CONTROL W/O RELIEF	8055
5	1	HYDRAULIC PUMP	7879
6	1	RELIEF BLOCK	8050/8073
7	1	HYDRAULIC FILTER	7949
8	1	HYDRAULIC MOTOR	7958



**FLOOR DRIVE**



**BEATER DRIVE**

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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			
DATE: 12/24/98		NAME: K.C.R.			
DRAWN BY:		FINISH:		SIZE: C	
CHECKED BY:		VENDOR:		PART NUMBER: S280006	
APPROVED BY:		VENDOR P/N:		SCALE: 1:1	
				WEIGHT: lbs	
				SHEET 1 OF 1	