

Operating Instructions and Parts Reference

CMF-590TM

VERTICAL MIXER

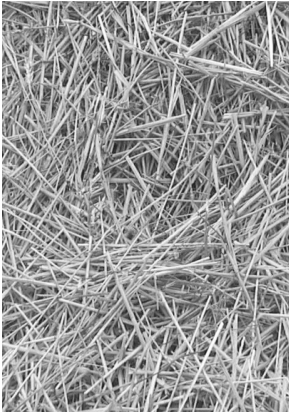


PRODUCT INFORMATION

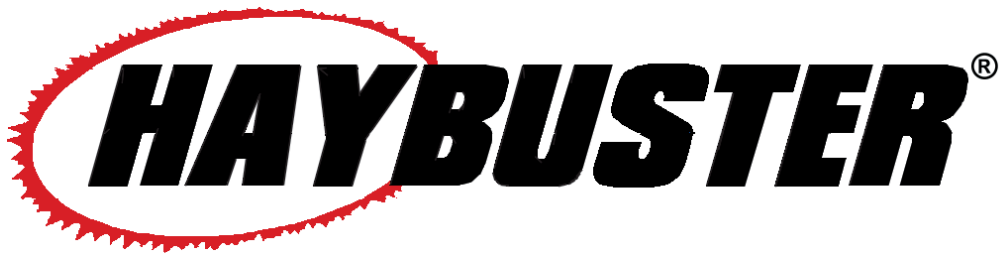
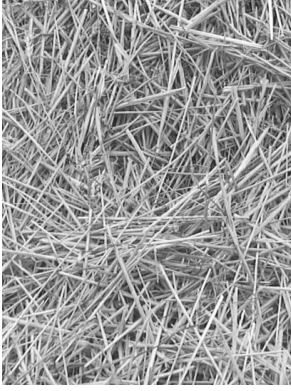


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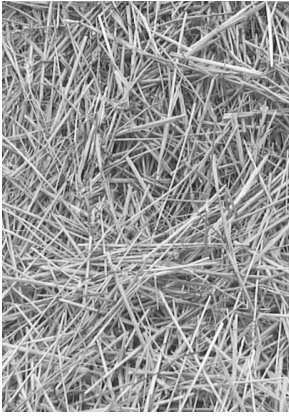
CMF-590TM VERTICAL MIXER

Operating Instructions and Parts Reference

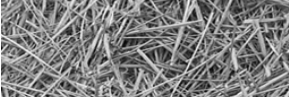
DuraTech Industries International Inc. (DuraTech Industries) has made every effort to assure that this manual completely and accurately describes the operation and maintenance of the *CMF-590TM* as of the date of publication. DuraTech Industries reserves the right to make updates to the machine from time to time. Even in the event of such updates, you should still find this manual to be appropriate for the safe operation and maintenance of your unit.

This manual, as well as materials provided by component suppliers to DuraTech Industries are all considered to be part of the information package. Every operator is required to read and understand these manuals, and they should be located within easy access for periodic review.

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Foreword

All personnel must read and understand the following sections before operating the *CMF-590 VERTICAL MIXER*.

Appropriate use of unit\Introduction

Your model CMF-590 is designed to cut, mix and distribute feed rations including baled forage. It is designed for all bale sizes and ration moisture contents.

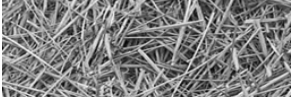


To avoid possible damage to the machine and risk of injury to the operator, consult with a DuraTech Industries International, Inc. (DuraTech Industries) representative before attempting to mix and distribute materials other than livestock forage.

The CMF-590 is used to mix hay and forage with grain and other supplements to feed livestock. The front conveyor with optional left, right or tandem discharge makes distribution of forage mix easier.

Statement of Misuse

This vertical mixer is not to be used for any purpose other than for which it is intended as explained in the operator's manual, advertising material and other pertinent written material prepared by DuraTech Industries. Any machine subject to misuse may cause personal injury or death, and void manufactures warranty.



FOREWORD

Purpose

The purpose of this owner's manual is to explain maintenance requirements and routine adjustments for the most efficient operation of your CMF-590. There is also a trouble shooting section that may help in case of problems in the field. Any information not covered in this manual may be obtained from your dealer.



Special Note: When reference is made as to front, rear, right hand or left hand of this machine, the reference is always made from standing at the rear end of the machine and looking towards the hitch. Always use serial number and model number when referring to parts or problems. Please obtain your serial number and write it below for your future reference.

MODEL: CMF-590 VERTICAL MIXER SERIAL NO _____

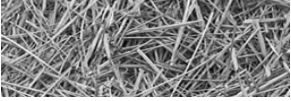
How to use this manual

Manual organization

This manual is organized into the following parts:

- **Part 1:** Operating Manual explains how to set up, use and maintain the CMF-590 VERTICAL MIXER.
 1. Section 1: Safety
 2. Section 2: Dealer Preparation
 3. Section 3: Operation
 4. Section 4: Lubrication
 5. Section 5: Troubleshooting
 6. Section 6: Options
 7. Section 7: Maintenance

- **Part 2:** Parts Reference contains diagrams of each assembly, with the part number of each part. A key on the facing page contains a description of the part and the quantity used.
 1. The **parts reference** section can be found towards the back of this manual behind **Appendix B**.



Dealer responsibilities

- Read Section 2, “Dealer Preparation,” and perform the tasks outlined. Also perform a pre-operation inspection as described in Section 3.
- Upon delivery of the unit to the customer, it is your responsibility to conduct a training session on the safe operation of the unit for primary operator(s). You must also conduct a “walk-around” inspection of all safety instructional decals on the machine itself. Decals are illustrated in **Part 2: Parts Reference**.
- Complete and return the Warranty Registration Card. Receipt of this form is required to activate the warranty. **Appendix A** provides details of the warranty.

Operator responsibilities

- Operator is responsible for his safety.
- Operator is also responsible for the safety of others near the machine.
- Review Section 2, “Dealer Preparation,” to verify that the machine has been prepared for use.
- Thoroughly review sections 1 and 3, which explain normal operation of the machine, and section 4, which explains maintenance requirements.
- Note the important safety information in the Forward and Section 1, “Safety”
- Keep copies of all manuals in a readily accessible location for future reference

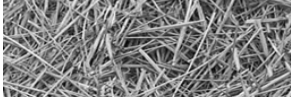


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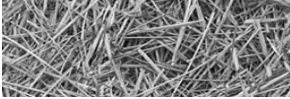


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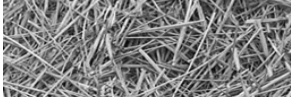
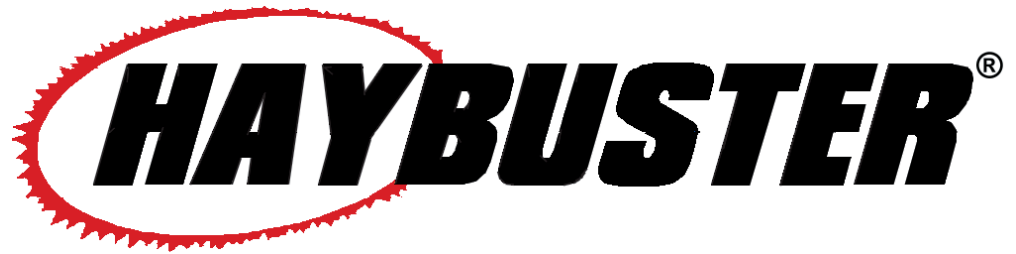
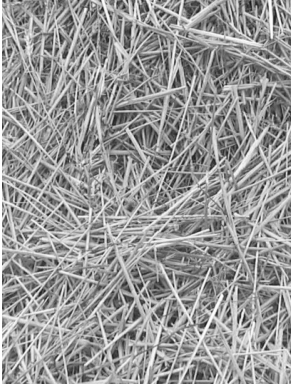


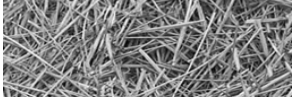
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CMF-590TM VERTICAL MIXER

PART 1: Operating Instructions



Section 1: Safety

The safety of the operator is of great importance to DuraTech Industries. We have provided decals, shield and other safety features to aid you in using your machine safely. In addition, we ask you to be a careful operator who will properly use and service your Haybuster equipment.



WARNING: FAILURE TO COMPLY WITH SAFETY INSTRUCTIONS THAT FOLLOW WITHIN THIS MANUAL COULD RESULT IN SEVERE PERSONAL INJURY OR DEATH. BEFORE ATTEMPTING TO OPERATE THIS MACHINE, CAREFULLY READ ALL INSTRUCTIONS CONTAINED WITHIN THIS MANUAL. ALSO READ THE INSTRUCTION MANUAL PROVIDED WITH YOUR TRACTOR.

THIS MACHINE IS NOT TO BE USED FOR ANY OTHER PURPOSE OTHER THAN THOSE EXPLAINED IN THE OPERATOR'S MANUAL, ADVERTISING LITERATURE OR OTHER DURATECH INDUSTRIES WRITTEN MATERIAL PERTAINING TO THE CMF-590.

1.1 Safety-alert symbols

Decals are illustrated in **Part 2: Parts Reference**.

The safety decals located on your machine contain important and useful information that will help you operate your equipment safely.

To assure that all decals remain in place and in good condition, follow the instructions below:

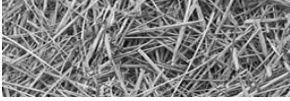
- Keep decals clean. Use soap and water - not mineral spirits, adhesive cleaners and other similar cleaners that will damage the decal.
- Replace all damaged or missing decals. When attaching decals, surface temperature of the machine must be at least 40° F (5° C). The surface must be also be clean and dry.
- When replacing a machine component to which a decal is attached, be sure to also replace the decal.

DuraTech Industries uses industry accepted **ISO/ANSI** standards in labeling its products for safety and operational characteristics.



Safety-Alert Symbol

Read and recognize safety information. Be alert to the potential for personal injury when you see this safety-alert symbol.



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

WARNING: Indicates a potentially hazardous situation that, if not avoided, could result in death or serious injury, 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.

This manual uses the symbols to the right to denote important safety instructions and information.

The **DANGER**, **WARNING** and **CAUTION** symbols are used to denote conditions as stated in the text above. Furthermore, the text dealing with these situations is surrounded by a box with a white background, will begin with **DANGER**, **WARNING**, or **CAUTION**.

The **INFORMATION** symbol is used to denote important information or notes in regards to maintenance and use of the machine. The text for this information is surrounded by a box with a light grey background, and will begin with either **Important** or **Note**.



DANGER:
Signal word - White Lettering/Red Background
Safety Alert Symbol - White Triangle/Red Exclamation Point



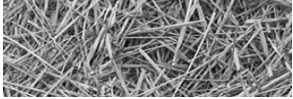
WARNING:
Signal word - Black Lettering/Orange Background
Safety Alert Symbol - Black Triangle/Orange Exclamation Point



CAUTION:
Signal word - Black Lettering/Yellow Background
Safety Alert Symbol - Black Triangle/Yellow Exclamation Point



	<p>1. Yellow warning triangle/black graphical symbol, indicates what the hazard is. Hazard Identification</p>
	<p>2. Red circle-with-slash/black graphical symbol indicates a prohibited action to avoid the hazard. Prohibited Action</p>
	<p>3. Blue mandatory action circles/white graphical symbol - indicates an action to take to avoid the hazard. Mandatory Action</p>



1.2 Operator - personal equipment

THE OPERATOR

Physical Condition

You must be in good physical condition and mental health and not under the influence of any substance (drugs, alcohol) which might impair vision, dexterity or judgment.

Do not operate a **CMF-590 VERTICAL MIXER** when you are fatigued. Be alert - If you get tired while operating your **CMF-590 VERTICAL MIXER**, take a break. Fatigue may result in loss of control. Working with any farm equipment can be strenuous. If you have any condition that might be aggravated by strenuous work, check with your doctor before operating

Proper Clothing



Clothing must be sturdy and snug-fitting, but allow complete freedom of movement. Avoid loosefitting jackets, scarfs, neckties, jewelry, flared or cuffed pants, unconfined long hair or anything that could become entangled with the machine.



Protect your hands with gloves when handling flail and sections. Heavyduty, nonslip gloves improve your grip and protect your hands.



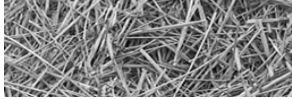
Good footing is most important. Wear sturdy boots with nonslip soles. Steel-toed safety boots are recommended.



To reduce the risk of injury to your eyes never operate a **CMF-590 VERTICAL MIXER** unless wearing goggles or properly fitted safety glasses with adequate top and side protection.




Tractor noise may damage your hearing. Always wear sound barriers (ear plugs or ear muffers) to protect your hearing. Continual and regular users should have their hearing checked regularly.



1.3 Machine safety labels

The safety decals located on your machine contain important information that will help you operate your equipment. Become familiar with the decals and their locations.


 **DANGER:** ROTATING DRIVELINE, KEEP AWAY!
ENTANGLEMENT CAN CAUSE SERIOUS INJURIES OR DEATH.

DO NOT OPERATE WITHOUT

- ALL DRIVELINE GUARDS, TRACTOR AND EQUIPMENT SHIELDS IN PLACE
- DRIVELINES SECURELY ATTACHED AT BOTH ENDS
- DRIVELINE GUARDS THAT TURN FREELY ON DRIVELINE




6500085

 **DANGER**

- ROTATING PARTS CAN ENTANGLE OR STRIKE PEOPLE, RESULTING IN DEATH.
- NEVER ENTER A MIXER/FEEDER WHILE IN OPERATION.
- OPERATE THE MIXER/FEEDER FROM THE OPERATOR'S SEAT ONLY.



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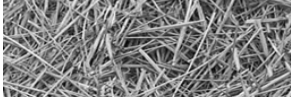
 **WARNING:** HIGH-PRESSURE FLUID HAZARD

To prevent serious injury or death:

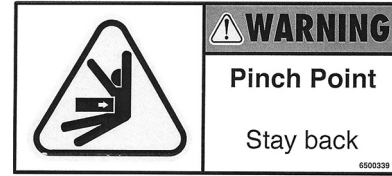
- Relieve pressure on system before repairing or adjusting or disconnecting.
- Wear proper hand and eye protection when searching for leaks. Use wood or cardboard instead of hands.
- Keep all components in good repair.



6500220



WARNING: PINCH POINT STAY BACK

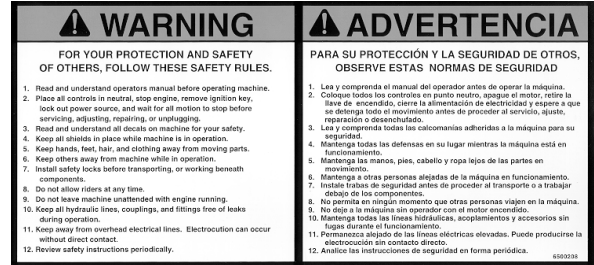


6500339



WARNING: FOR YOUR PROTECTION AND SAFETY OF OTHERS, FOLLOW THESE SAFETY RULES.

1. Read and understand operators manual before operating machine.
2. Place all controls in neutral, stop engine, remove ignition key, lock out power source, and wait for all motion to stop before servicing, adjusting, repairing, or unplugging.
3. Read and understand all decals on machine for your safety.
4. Keep all shields in place while machine is in operation.
5. Keep hands, feet, hair, and clothing away from moving parts.
6. Keep others away from machine while in operation.
7. Install safety locks before transporting, or working beneath components.
8. Do not allow riders at any time.
9. Do not leave machine unattended with engine running.
10. Keep all hydraulic lines, couplings, and fittings free of leaks during operation.
11. Keep away from overhead electrical lines. Electrocutation can occur without direct contact.
12. Review safety instructions periodically.



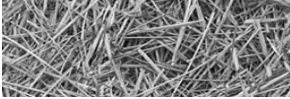
6500208





WARNING: NO RIDERS
SERIOUS INJURY COULD RESULT FROM RIDING ON THE MACHINE.




6500043



 **WARNING:** Risk of eye injury
Eye Protection required


 **WARNING**
Risk of eye injury.
Eye protection required.


6500487

 **WARNING:** Moving parts can crush and cut.
Keep hands clear.


 **WARNING**
Moving parts can crush and cut.
Keep hands clear.

6500488

 **WARNING:** Noise hazard.
Ear protection required.


 **WARNING**
Noise hazard.
Ear protection required.

6500489

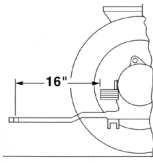
 **WARNING:** NO STEP
DO NOT STEP, STAND, OR SIT ON THIS SURFACE.
MAY CAUSE INJURY AND/OR EQUIPMENT DAMAGE.

 **WARNING**
No Step.
Do not step, stand or sit on this surface.
May cause injury and/or equipment damage.

6500490

 **CAUTION:**

1. ADJUST TRACTOR DRAWBAR SO THAT THE DISTANCE FROM THE END OF THE P.T.O. SHAFT ON THE TRACTOR TO THE CENTER OF THE DRAWBAR HITCH PIN IS 16".
2. ADJUST THE HITCH CLEVIS SO THE MACHINE IS PARALLEL WITH THE GROUND WHEN HITCHED TO TRACTOR.
3. HITCH MACHINE TO TRACTOR WITH A 1" HITCH PIN AND SECURE TO PREVENT LOSS.
4. ADJUST PTO BEARING BRACKET SO THE SHAFT ON THE MACHINE IS LEVEL WITH THE PTO SHAFT ON THE TRACTOR.

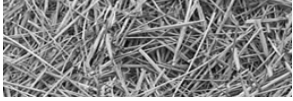


CAUTION	PRECAUCIÓN
1. ADJUST TRACTOR DRAWBAR SO THAT THE DISTANCE FROM THE END OF THE PTO SHAFT ON THE TRACTOR TO THE CENTER OF THE DRAWBAR HITCH PIN IS 16".	1. AJUSTAR LA BARRA DE TIRÓN DEL TRACTOR DE MODO QUE LA DISTANCIA DEL EXTREMO DEL EJE DE LA TDP DEL TRACTOR AL CENTRO DEL PASADOR DEL ENGANCHE DE LA BARRA DE TIRÓN SEA DE 406,4 mm.
2. ADJUST THE HITCH CLEVIS SO THE MACHINE IS PARALLEL WITH THE GROUND WHEN HITCHED TO TRACTOR.	2. AJUSTAR LA HORIZONTALIDAD DEL ENGANCHE DE MODO QUE LA MAQUINA QUEDA PARALELA CON EL SUELO CUANDO ESTA ENGANCHADA AL TRACTOR.
3. HITCH MACHINE TO TRACTOR WITH A 1" HITCH PIN AND SECURE TO PREVENT LOSS.	3. ENGANCHAR LA MAQUINA AL TRACTOR CON UN PASADOR DE ENGANCHE DE 1 pulg (25,4 mm) Y FIJARLO PARA EVITAR LA PÉRDIDA.
4. ADJUST PTO BEARING BRACKET SO THE SHAFT ON THE MACHINE IS LEVEL WITH THE PTO SHAFT ON THE TRACTOR.	4. AJUSTAR LA ESCUADRA DEL CUNETE DE LA TDP DE MODO QUE EL EJE DE LA MAQUINA QUEDA AL MISMO NIVEL CON EL EJE DE LA TDP DEL TRACTOR.

SEE OWNERS MANUAL FOR MORE INFORMATION
VER EL MANUAL DEL OPERADOR PARA MAS INFORMACION.

6500322

• Replacement decals can be purchased from your Haybuster dealer.



1.4 Shielding

Shields are installed for your protection. Keep them in place, and replace damaged shields.

figure 1.1
PTO driveline shield

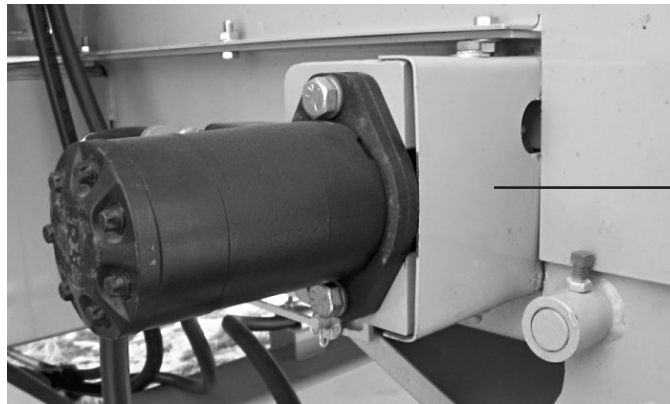


CAUTION! NO STEP! DO NOT STEP OR STAND AT THIS LOCATION



shield

figure 1.2
Orbit motor auger drive shield



shield



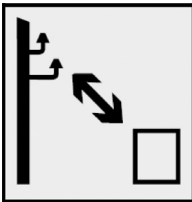
1.5 Safety review section

BEFORE OPERATING

- **Read and follow all instructions contained in:**
 1. This CMF-590 operator's manual
 2. Tractor operator's manual
 3. Decals on the CMF-590



Note: Additional copies of the above mentioned materials can be obtained from your dealer.



Keep sufficient distance away from electrical power lines.
WARNING: Electrocution is possible when running this machine during an electric storm or heavy fog.

- Allow only responsible, properly instructed individuals to operate your machine. Provide proper training and carefully supervise inexperienced operators.
- Use a tractor which meets the tractor requirement contained within this manual. Additional weights may be necessary.
- Make sure all bystanders and other workers are clear before starting the tractor and CMF-590.
- Make no modifications to the machine unless specifically recommended or requested by DuraTech Industries.
- Check periodically for breaks or unusual wear and make any necessary repairs.
- Securely attach to towing unit. Use high strength, appropriately sized hitch pin with a mechanical retainer.
- If required install P.T.O. safety chain, check local regulations regarding safety chain requirements.
- Be sure that there are no tools lying on or in the CMF-590.
- Because it is possible that your CMF-590 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.

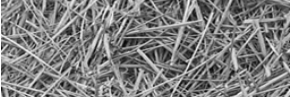


NO SMOKING IN THIS AREA



**DANGER! NO OPEN FLAMES
IN THIS AREA**

- Do not allow anyone to stand between the tongue or hitch and the towing vehicle when backing up to the CMF-590.



DURING OPERATION

- Be sure the tractor operator is the only person riding on the tractor.

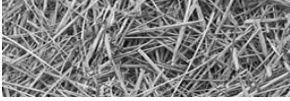


Never allow riders on the machine at any time.

- Keep all bystanders, pets and livestock clear of work area.
- Keep hands and clothing clear of moving parts.
- Never enter the CMF-590 while in operation. Rotating parts can entangle or strike people, resulting in personal injury or death.
- Operate the CMF-590 from the operator's seat only.
- Power takeoff shafts must be locked in place with protective P.T.O. shields in place.
- Do not exceed load capacity of the CMF-590. **(See loading instructions in Section 3.7)**
- Do not clean, lubricate or adjust your CMF-590 while it is moving.
- Periodically clean the equipment to prevent buildup of dry combustible materials.
- Be especially observant of the operating area and terrain – watch for holes, rocks other hidden hazards. Always inspect the area prior to operation.
- Be extra careful when working on inclines.
- Pick the most level route possible when transporting across fields. Avoid the edges of ditches or gullies and steep hillsides.
- Never leave the CMF-590 running unattended.
- As a precaution, always check the hardware on the CMF-590 following every 100 hours of operation. Correct all problems. Follow the maintenance safety procedures.

DURING SERVICE & MAINTENANCE

- Before working on or near the CMF-590 for any reason, including servicing, cleaning, unplugging or inspecting machine, use normal shut down procedures unless instructed differently in this manual.
- Never work on or near the CMF-590 unless engine is shut off, and all power drives and PTO are disengaged. Always follow normal shutdown procedures.
- Check periodically and tighten any loose bolts or connections.
- Where replacement parts are necessary for periodic maintenance and servicing, genuine factory replacement parts must be used to restore your equipment to original specifications. DuraTech Industries will not claim responsibility for use of unapproved parts and/or accessories and other damages as a result of their use. If equipment has been altered in any way from its original design, DuraTech Industries does not accept any liability for injury or warranty.



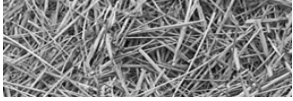
- If it is necessary to operate the tractor engine indoors for more than a few seconds, be sure to provide enough ventilation to remove the tractor exhaust fumes.
- Hydraulic fluid escaping under pressure can be invisible and have enough force to penetrate the skin. When searching for a suspected leak, use a piece of wood or cardboard rather than your hands. If injured, seek medical attention immediately to prevent serious infection.
- Relieve all pressure in the hydraulic system before disconnecting the hose or performing other work on the system. Make sure all connections are tight and the hose is in good condition before applying pressure to the system.
- Replace all shields and guards after servicing and before moving.



DO NOT PERFORM MAINTENANCE ON THE INTERIOR OF THE TUB DURING WET WEATHER CONDITIONS

1.6 Towing/road transport

- Use good judgment and drive slowly over rough or uneven terrain.
- Avoid loose fill, rocks and holes; they can be dangerous for equipment operation or movement. Allow for unit length when making turns.
- Be sure tractor brakes are properly adjusted and foot pedals are locked together.
- Check your state laws regarding the use of light, slow moving vehicle signs, safety chain and other possible requirements.

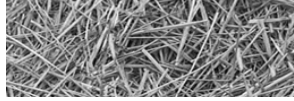


Section 2: Dealer Preparation

2.1 Pre-delivery inspection

Instructions: Before delivering the machine, check the following items carefully and make corrections when necessary. Place an “X” in the box after each item has been checked and found to be acceptable.

- Check machine for missing items or damage in transit.
- Check for loose bolts. Torque to 320-457 ft lbs. (44-63 kgm)
- Check all hydraulic components for leaks or damage.
- Check lug bolts for tightness.
- Check tires for proper air pressure. 130 PSI (900 kPa) cold
- Check condition of tire rims
- Check machine for proper lubrication.
- Check all shields for proper installation and condition.
- Check condition of all decals.
- Check all phases of operation.
- Check gearbox oil levels.



Section 3: Operation

To insure long life and economical operation, we highly recommend the operator of the CMF-590 be thoroughly instructed in the maintenance and operation of the machine. There is no substitute for a sound preventative maintenance program and well trained operator.

Prior to starting the engine of the tractor, we recommend the operator make a visual inspection of the unit. This can be done as the lubrication is being carried out. Any items that are worn, broken, missing or needing adjustment must be serviced accordingly before operating the CMF-590.

3.1 Pre-starting inspection instructions



WARNING: Before inspecting the machine, use the normal shut-down procedure in Section 3.11.

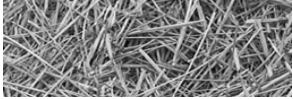
Check the following:

- Hydraulic components for leaks or damage.



Warning: Hydraulic fluid escaping under pressure can be almost invisible and can have sufficient force to penetrate the skin. When searching for suspected leaks, use a piece of wood or cardboard rather than your hands. If injured, seek medical attention immediately to prevent serious infection or reaction.

- Check for loose bolts, worn or broken parts.
- Lug nuts for tightness. Torque to 320-457 ft lbs. (44-63 kgm)
- Condition of tire rims.
- Tires for proper air pressure. 130 PSI (900 kPa) cold
- Installation and condition of shields.
- Installations of slow moving vehicle (SMV) sign if required.
- Condition of decals.
- Gearbox oil levels.



3.2 Setup and Adjustments

3.2.1 Hitch Adjustments

The hitch is adjustable so that the machine is parallel to the ground when attached to the tractor drawbar. This is accomplished by removing the two mounting bolts and reinstalling them with the hitch at the proper height. The distance from the end of the P.T.O. shaft on the tractor to the center of the drawbar hitch pin hole should be 16" (41cm), and the height from the top of the drawbar to the centerline of the P.T.O, should be 8" (20 cm).

figure 3.1
Hitch adjustments



The hitch pin should be of proper diameter to prevent movement and length to extend through all components of the hitch. The pin should be secured with a hairpin clip or suitable device to prevent the loss of the pin.

3.2.2 Jack

An adjustable jack is provided with the machine to support the hitch when the machine is disconnected from the tractor. The jack must only be used on firm, level ground or similar base to prevent it from sinking.

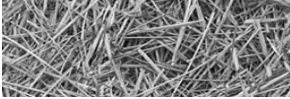


Warning: Never unhook the CMF-590 with material in tub.

When unhooking the machine remove the jack pin and move the jack from the storage location to the hitch position and reinstall the pin. Crank the jack until the hitch is no longer supported by the drawbar of the tractor. The hitch pin now can be removed.



Warning: Never use the jack without reinstalling the jack pin.



When hooking up the machine, install a proper hitch pin and secure it with a hairpin clip or comparable device, crank the jack until the foot of the jack is fully raised. Remove the jack pin and relocate the jack to the storage location. Reinstall the jack pin.

3.2.3 P.T.O. Shield



Warning: Before lifting the P.T.O. shield be sure to follow the normal shut down procedure. Be certain that the tractor is shut off and all rotating components of the machine have come to a complete stop before lifting shield. Loose clothing is discouraged, and long hair should be restrained whenever working on P.T.O. shafts.

To raise the P.T.O. shield, remove the bolts from the front of the shield and lift the shield. If it does not pivot freely look for build up of debris or other obstructions at the pivot point. Do not force the shield, as damage to the shield may occur.

figure 3.2
Raising the P.T.O.
shield



CAUTION! NO STEP! DO NOT STEP OR STAND AT THIS LOCATION



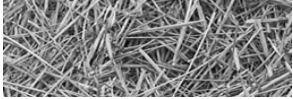
PTO shield bolt

3.2.4 Hydraulic Cylinder and Valve

All cylinder and valve hose connections should be tight and leak free. If the area near a hose connection becomes oily or dirty, repairs should be made to seal the leak. Hoses should be free of cracks or cuts to ensure safe operation. Cylinder seal kits are available from your dealer to repair a leaky cylinder. Pin connections should be free of excessive wear. If pins become worn they should be replaced. Also check yokes and mounts for cracks and wear.



Warning: Hydraulic fluid escaping under pressure can be almost invisible and can have sufficient force to penetrate the skin. When searching for suspected leaks, use a piece of cardboard or wood rather than your hands. If injured seek qualified medical attention immediately to prevent serious infection or reaction.



3.2.5 Tires and Rims

Tires should be inflated to 130 PSI (900 kPa) cold and should be free of cuts or cracks. There should also be adequate tread and no visible cords, wires or tread separation. Tires must also be of proper load rating, speed rating and size.

Rims must be free of cracks and rust pitting. Lug bolts must also be tight. Inspect the area around the lug bolts. Lug nuts need to be torqued to 320-457 ft lbs. (44-63 kgm). If rust develops this is a sign of loose lug bolts. Check wheel bearings and seals, replace and grease as use requires.

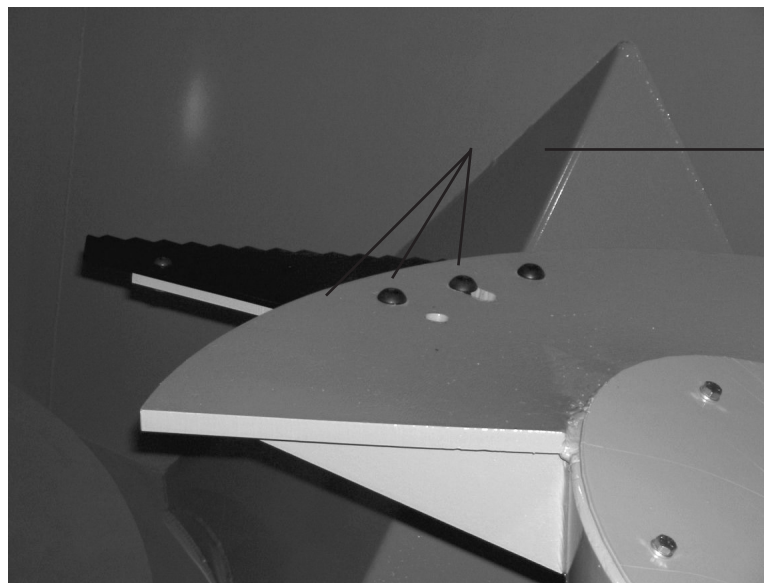
3.2.6 Knives

Your new CMF is setup with seven knives on each auger, the top two knives in each auger have two positions, in or out. When processing tough hay the knives should be in the out position to better attack the long stem hay. Having the knives in the out position increases the horsepower requirements. Alternatively, knives can be removed if the ration does not require much processing and/or over-processing is a possibility. Ingredient condition and rations will determine the optimum layout.

figure 3.3
Knife position
adjustments,
knives in the 'outside'
position



**DANGER! KEEP HANDS AWAY
FROM CUTTING PARTS**



knife position
adjustment bolts

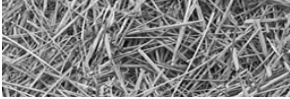
3.2.7 Vertical knives

The purpose of the vertical knives is to create restriction to the flow of material around the tub and provide a shear point for the auger knives. The further into the tub the vertical knives are set the shorter the final stem length will be. The vertical knives also can affect the horsepower demand, which may be important depending on tractor size. Start using your CMF with the knives at neutral or one hole in and adjust as necessary.

figure 3.4
Vertical knife
adjustments, shown
with knife in the fully
engaged position



vertical knife adjuster



3.2.8 Free motion automatic clutch

Torque protection is built into the PTO driveline with two free motion automatic clutches. These clutches are located on each driveline immediately before each gearbox. When overload occurs the clutch disengages and does not reengage until the driveline speed is reduced to near zero. The clutch makes a loud click when it disengages.



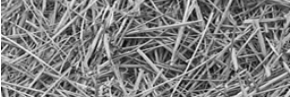
3.2.9 Scale Indicator

The indicator for the four-point scale should be mounted on the indicator mount located on top of the main conveyor. The mount can be mounted in the left or right side of the conveyor. The indicator is powered by a 12 volt battery located under the tub on the left side of the frame.

figure 3.5
EZ-2000 scale indicator

scale indicator





3.2.10 Two-Speed Gearbox (Option)

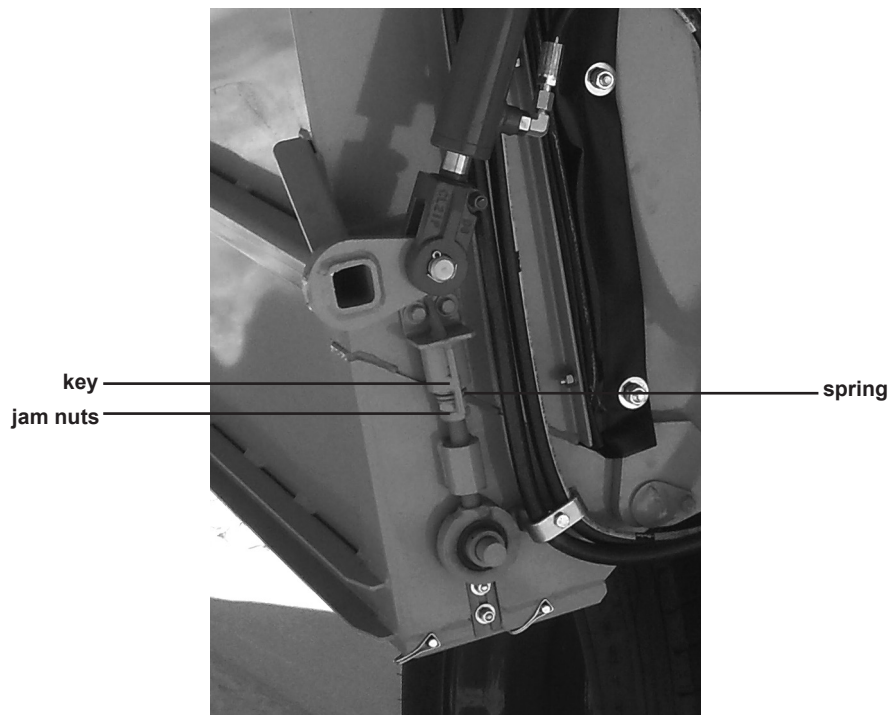
The two-speed gearbox is available on the CMF-590 for operators who want more control of their mixing speeds, want to reduce overall horsepower requirements, or prefer to turn off mixer while transporting a loaded mixer. The two-speed gearbox has two speeds, low and high. Pictures in **Section 6.5**, show lever in two positions in both gear selections.

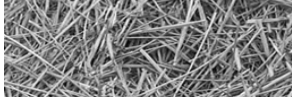
3.2.11 Extension Conveyor Spouts (Option)

Spouts are available with or without magnets. Spouts are adjustable in three hole positions on sides. Point spout down further when running the conveyor extensions at higher angles to avoid material build up on the end of the conveyor. When running conveyor at lower angles, direct spouts so that the magnets are positioned further into the flow of material. Pictures of available spouts can be found in **Sections 6.2 and 6.3**.

3.2.12 Setting Chain Tension on Side Conveyors (Single Auger Machines)

Tension the chain assemblies while the conveyor is running. Turn the tensioning nut compressing the spring until the spring is flush with the key attached to the side of the spring cup. Set the other side. After both springs are maintaining constant compression at the end of the keys, lock the jam nuts.





3.3 Hitching the CMF-590



Warning: Do not operate the CMF-590 unless the tractor complies with the following requirements:

- Tractor has a minimum of 100 horsepower. (without two-speed option)
- Tractor has rollover protective structure and seatbelts.
- Tractor's hydraulic system has at least (2) two-way valves, and a minimum flow of 8 GPM @ 1500 psi.
- To assure adequate braking and steering control while in transport, the tractor must have a weight greater than or equal to 2/3 weight of the CMF-590 and any mix it will transport at speeds more than 10 MPH. ((Max CMF 10,800 lbs. + max load 12,000 lbs) x (0.67) =15,276 lbs.) ((Max CMF 4,899 Kg + max load 5,443 Kg) x (0.28) =2,896 Kg)
- 1-3/8" 6-spline P.T.O. shaft

To hitch the CMF-590 to the tractor, perform the following steps:

1. Adjust the tractor drawbar so that the distance from the end of the P.T.O. shaft on the tractor to the center of the drawbar hitch pin hole should be 16" (41 cm), and the height for the top of the centerline of the P.T.O. should be 8" (20 cm). Refer to figure 3.6

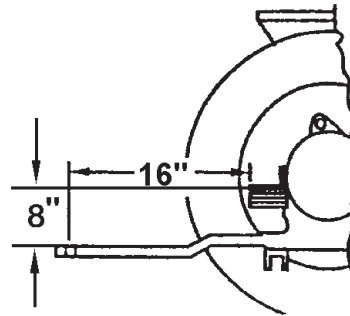
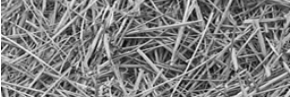


figure 3.6
Safe P.T.O. distance

2. Hitch the CMF-590 to the tractor drawbar. Adjust the hitch so the machine is parallel with the ground.
3. The hitch pin should be sized to prevent excessive movement, and should extend through all components of the hitch. The pin should be secured with a hairpin clip or suitable device to prevent the loss of the pin.
4. Raise the jack. Pull the lock pin and store in transport position.
5. Attach the P.T.O. shaft to the tractor P.T.O. shaft. Depress coupling and slide the coupling onto the splined shaft. Make sure the spring loaded safety catch is properly seated.



6. This machine is set up to operate on 1000 rpm only!
7. If required, install the safety chain. Check local regulations regarding safety chain requirements. Refer to figure 3.7

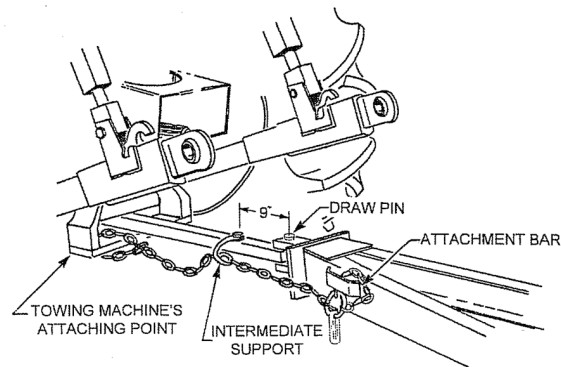


figure 3.7
Safety chain installation

8. Connect the two hydraulic hoses from the hydraulic door cylinder to one set of hydraulic couplers on the tractor. Connect the two hydraulic hoses from the discharge conveyor to the second set of hydraulic couplers on the tractor. Connect the two hydraulic hoses from the extension conveyor to the third set of hydraulic couplers on the tractor.
9. If equipped with a rear door and/or second extension conveyor, connect the two hydraulic hoses from each to the fourth and/or fifth hydraulic couplers on the tractor.

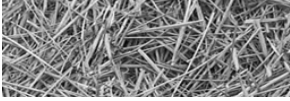
3.4 Unhitching the CMF-590

To unhitch the CMF-590, perform the following steps:



Warning: Never unhook the CMF-590 with material in tub.

1. Follow normal shut-down procedure.
2. Lower jack and secure. Raise the tongue off the tractor draw bar.
3. Place wheel chocks under wheels to keep from rolling.
4. Detach the P.T.O. shaft from the tractor.
5. Cycle the hydraulic control levers to release any pressure in the hydraulic hoses.
6. Detach the hydraulic hoses.
7. Remove the safety chain, if installed.
8. Remove the hitch pin.



3.5 Operation precautions and instructions

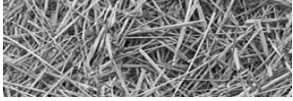
- Make sure there are no bystanders in the way.
- Before loading, run the mixer empty and check all operations.
- Do not overload the mixer. Maximum load is 12,000 lbs. (5,443 Kg). Maximum load is determined by weight, not volume.
- Be sure all shields are in place before operation.
- Use common sense when operating.
- Never attempt to climb on the CMF while the tractor is running.

3.6 Starting the machine

1. Park machine on a hard level surface keeping the driveline as straight as possible.
2. Close the mixer door.
3. If the scale indicator is not at zero, re-zero indicator per the scale indicator manufacturer's instructions.
4. If equipped with two-speed gearbox option, select mixing gear desired.
5. Engage the tractor PTO and increase engine RPM to desired mixing speed.

3.7 Loading and processing

1. Load baled products and materials that require processing first. The center core of round bales will be the toughest to process. Allow enough processing time to adequately process roughage.
2. Set vertical knives per adjustment section.
3. Do not over process as processing continues through the mixing stage.
4. Load silage and/or other high moisture products next.
5. Load dry ingredients.
6. Load liquid supplements last.
7. Allow three to four minutes of mixing time after last ingredient.
8. ALL PROCESSING AND MIXING TIMES WILL VARY.
9. Do not overload the CMF, maximum capacity is 12,000 lbs. (5,443 Kg).



3.8 Unloading

To unload the CMF-590, perform the following steps:

1. If possible, move the mixer to the unloading site while finishing the mixing stage to avoid the need for loaded PTO start-up.
2. Align CMF with bunk and lower the conveyor extension to desired angle (if equipped).
3. Engage the chain conveyor; chain speed is controlled using the auxiliary valve flow control on the tractor.
4. If the augers are not already engaged, engage the PTO.
5. Open the tub door and proceed along the bunk. Engine speeds around 1500 rpm are usually adequate when the tub is full, however engine should be run at rated speed to clean out the tub and provide even feed flow when the tub is near empty. If equipped with two-speed gearbox, turn off mixer and shift to high speed and re-engage to achieve maximum clean out RPM. Most new tractors have P.T.O. brakes which will require the tractor to be turned off before the two- speed can be shifted.

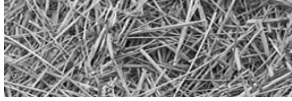
3.9 Storing the CMF-590 mixer/feeder



Warning: When preparing machine for storage, use normal shut-down procedure.

To prepare the CMF-590 for storage, perform the following steps:

1. Clean all mud, dirt, grease and other foreign material from the exterior and interior of the machine. Wash the complete machine. To inhibit rusting repaint places where bare metal is exposed.
2. Place the jackstand in the down and in locked position. Place wheel chocks under wheels if needed to keep machine from rolling. If possible, store the machine in a dry, protected place. (If it is necessary to store the machine outside, cover it with waterproof canvas, plastic, or other suitable protective material.)
3. Coat exposed lift cylinder rods with grease. Oil chains on conveyors. Lubricate thoroughly according to lubrication instructions. Repack wheel bearings.
4. Check the machine for any worn or broken parts. By ordering parts now, you will avoid delays when it is time to remove the machine from storage. When ordering parts always specify machine serial number and the part number of the replacement part. Part numbers can be found in the parts section of this manual.



3.10 Removing the CMF-590 from storage

To remove the CMF-590 from storage, perform the following steps:

1. Remove all protective coverings.
2. Remove blockings from under the CMF-590. Check tire pressure.
3. Lubricate machine in accordance with lubrication instructions found in this manual.
4. Check the conveyor chain tension.
5. Check all hydraulic hoses for deterioration and, if necessary, replace. Tighten any loose bolts, nuts and hydraulic fittings.
6. Follow pre-starting inspection instructions.

3.11 Normal shut-down procedure



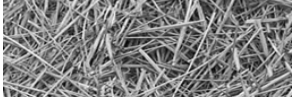
Warning: For your safety and the safety of others, you must use the following normal shut-down procedure before leaving the tractor controls unattended for any reason, including servicing, cleaning, or inspecting the CMF-590. A variation of the following procedure may be used if so instructed within this manual or your tractor manual or if an extreme emergency requires it.

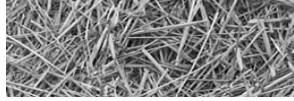
1. Disengage P.T.O.
2. Place transmission in park or set park brake.
3. Shut off machine and remove key.
4. Wait for all movement to stop.
5. Engage tractor park brake, turnoff and remove key engine prior to entering the tub and/or making any adjustments to CMF.

3.12 Light Kit

figure 3.8
Light kit for the CMF-590







Section 4: Lubrication

The operator should make a check of all grease fittings on the unit before beginning to operate it so as to become familiar with their location and correct service schedule.



Warning: Use normal shut-down procedure (Section 3.11) before lubricating the machine.

4.1 Lubrication

Use only a high quality, #2 multi-purpose grease when lubricating the unit. Make sure all fittings and the nozzle of the grease applicator are clean before applying the grease. If grease fittings are missing, replace them immediately.

Lubricate with grease every ten (10) hours of operating time.

1. P.T.O. universal joints – 8 places
 - 1a. As many as seven (8) pumps of grease are required to purge all cross and bearing lube point with fresh grease.
2. Telescoping shafts – 2 places
 - 2a. Telescoping members require enough grease to maintain a smooth sliding action. When telescoping members become contaminated with dirty grease, they should be inspected and cleaned to insure smooth operation.
 - 2b. Shield components should be lubed and inspected to insure all components are in working condition or are replaced if damaged. A properly maintained shield will inhibit dirt from contaminating telescoping members.
3. P.T.O stand bearing – 1
4. Conveyor bearings - 2
5. Extension conveyor bearings – 2 each

Lubricate with grease every fifty (50) hours of operating time.

6. Automatic clutches – Two places – 1 pump only. *Be careful **not** to over grease.*
7. Auger grease line - 1

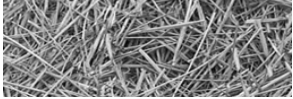
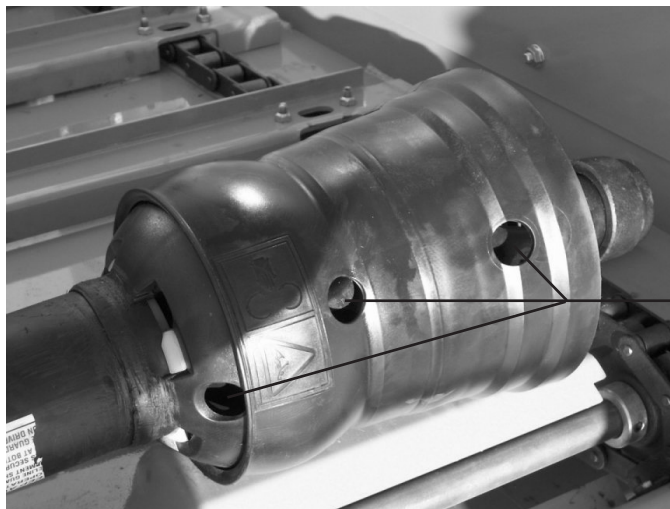


figure 4.1
P.T.O. Universal joint
(1 of 8)



**P.T.O. universal joint
lubrication zerk**

figure 4.2
P.T.O. Universal joint
(2, 3 & 4 of 8)



**P.T.O. universal joint
lubrication zerks**

figure 4.3
P.T.O. Universal joint
(5 of 8), and P.T.O stand
bearing (1 of 1)



**P.T.O. universal joint
lubrication zerk**

**P.T.O stand bearing
lubrication zerks**

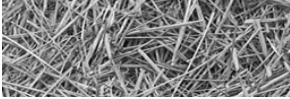


figure 4.4
P.T.O. Universal joint
(6 of 8), and automatic clutch

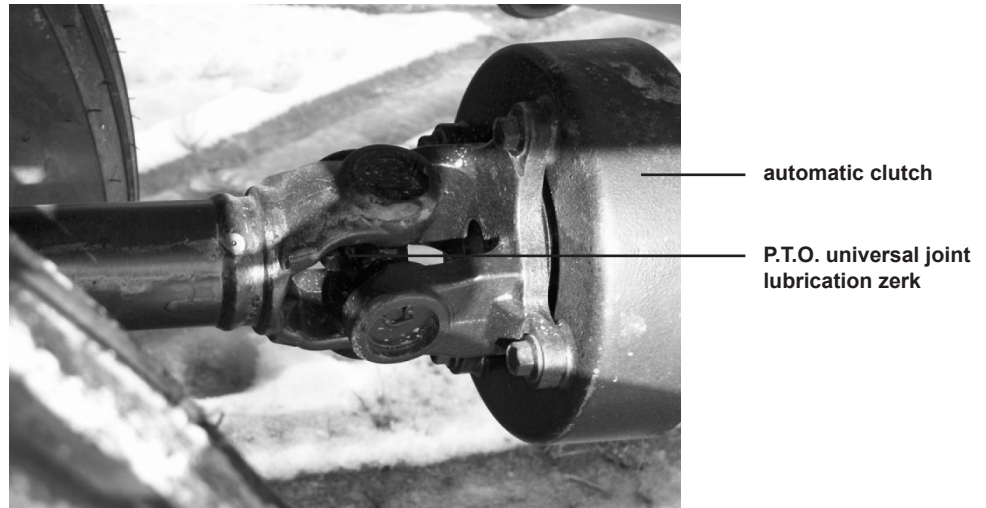


figure 4.5
P.T.O. Universal joint
(7 of 8)

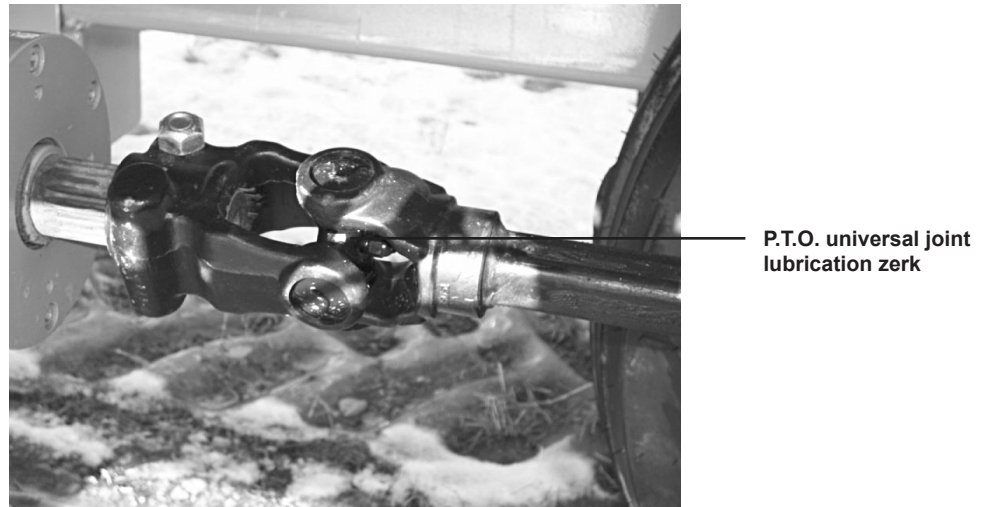
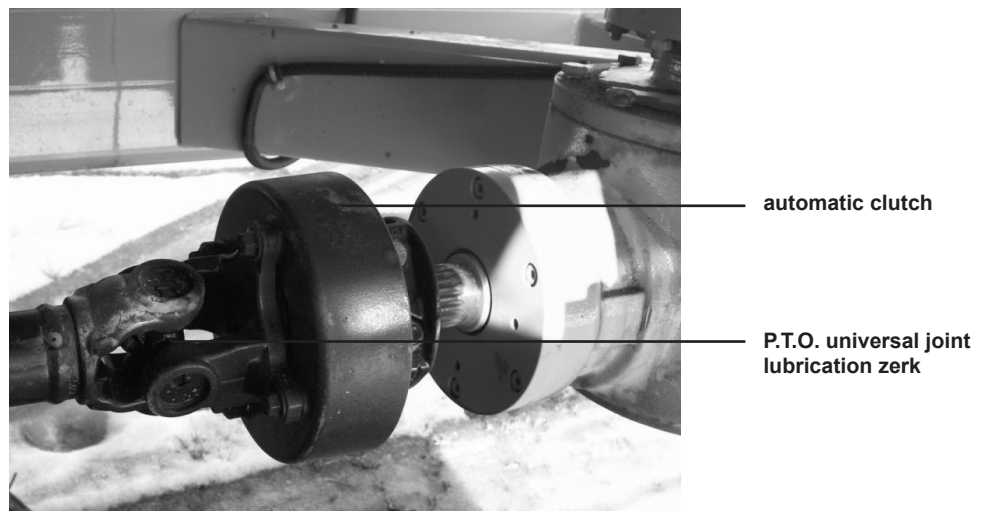


figure 4.6
P.T.O. Universal joint
(8 of 8), and automatic clutch



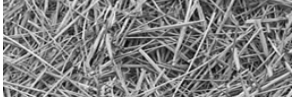
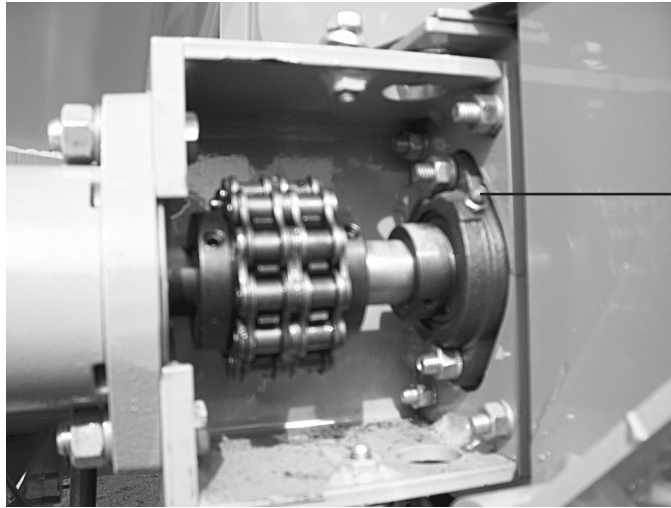
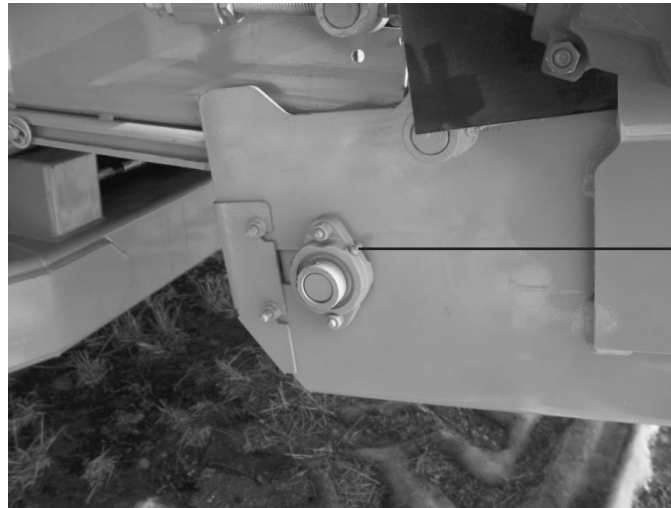


figure 4.7
Conveyor bearings
lubrication point (1 of 2)



conveyor bearings
lubrication zerk

figure 4.8
Extension conveyor bearings
lubrication point (1 of 4)



extension conveyor bearings
lubrication zerk

figure 4.9
Telescoping P.T.O. shaft



telescoping shaft

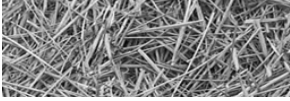
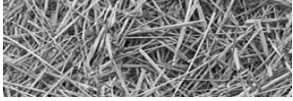


figure 4.10
Auger grease line



auger grease line
lubrication zerk



4.1 Lubrication cont.

Wheel bearings: repack annually

Gearbox: Grease 20-30 pumps every 250 hours (each gearbox), located on the bottom of the tub in front of the left tires.

Chains: Oil conveyor chains every 15 hours.

When to change oil in gearboxes:

- After the first 50-100 hours of operation, drain initial oil, preferably when box is warm. There after oil should be changed every 1500 hours or 12 months, whichever comes first. If machine usage is severe or more than 10 loads per day, it is advisable to change the oil every 1000 hours or 6 months. Inspect and wash oil reservoir breather cap as needed. Air dry before reinstalling. Fill each gearbox with **approximately 5 ½ gallons of EP150 or 80w-90 GL-5 weight Gear Lube. RR-USA recommends using synthetic oil in their gearbox.** Monitor the oil level in the reservoir daily. Oil level should be in the middle of the sight gauge. The working temperature must not exceed (90 degrees C) 194 degrees F max. Proper lubrication is essential for efficient running and long life of the unit as a whole. It is also important to select the correct type of oil to ensure the long life of the gear reducer.

Procedure for changing oil in gearboxes (see chart 4.1 on the following page):

1. Remove magnetic drain plug from the bottom of the right angle gearbox and clean the magnet if it has any metal on it. Return plug to the gearbox before filling.
2. Disconnect the lube lines from the top of the gearboxes at the tee fitting. Disconnect the other lube lines from the bottom of the gearboxes at the other tee.
3. To fill, connect (-8)3/4" MJIC fitting to hose connected to the right angle box and place overflow hose in a pan. Pump oil into the gearbox until it runs out of the overflow hose. Reconnect hoses to the correct fitting.
4. Fill reservoir and continue to monitor reservoir levels during operation so that oil remains half-way up in sight gauge or higher, allow for more expansion in warmer climates.
5. Two-speed gearbox should be half full of oil so that oil is present in sight gauge. Follow same maintenance schedule and use the same oils as recommended above for vertical gearboxes.
6. Any brand of 80w-90 gear oil with a GL-5 rating may also be used; **RR-USA recommends use of synthetic oils.**

Recommendation: Prior to starting each day it is advisable to check the oil level of gearboxes at the sight gauge.

Contact information for:

ConocoPhillips Lubricants: Telephone: 1-800-255-9556 (Technical Hotline)
Email: conocolubricants@conophillips.com

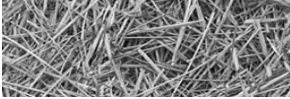
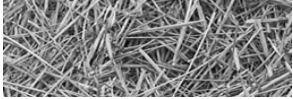


chart 4.1
lubrication chart for reduction gears

Ambient Temperature	-4 F - +41 F -20 C - +5 C	-41 F - +104F +5 C - +40 C	+86 F - +149 F +30 C - ++65 C	+104 F- +149 F +40 C - +65 C
Viscosity				
ISO VG	100	150	220	320
E/50 C	7.3	10.8 -12.5	15 -18	22 - 26
AGIP	BLASIA 100	BLASIA 150	BLASIA 220	BLASIA 320
BP-MACH	ENERGOL	ENERGOL	ENERGOL	ENERGOL
	GR-HP100	GR-HP150	GR-HP220	GR-HP320
CASTROL	ALPHA SP 100	ALPHA SP 150	ALPHA SP 220	ALPHA SP 320
CHEVRON	NL GEAR	NL GEAR	NL GEAR	NL GEAR
	COMPOUND	COMPOUND	COMPOUND	COMPOUND
	100	150	220	320
ELF	REDUCTELF SP 100	REDUCTELF SP 150	REDUCTELF SP 220	REDUCTELF SP 320
ESSO	SPARTAN EP 100	SPARTAN EP 150	SPARTAN EP 220	SPARTAN EP
				320
FINA	GIRAN 100	GIRAN 150	GIRAN 220	GIRAN 320
IP	MELLANA 100	MELLANA 150	MELLANA 220	MELLANA 320
MOBIL	----	MOBILGEAR 629	MOBILGEAR 630	MOBILGEAR 632
SHELL	OMALA EP 100	OMALA EP 150	OMALA EP 220	OMALA EP 320
TOTAL	CARTER EP 100	CARTER EP 150	CARTER EP 220	CARTER EP 320

4.2 General appearance

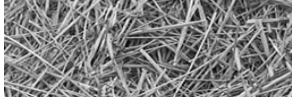
Clean all mud, dirt, grease and other foreign material from the exterior of the machine. Wash the entire machine. Repaint places where bare metal is exposed.



Section 5: Troubleshooting

chart 5.1
Troubleshooting chart

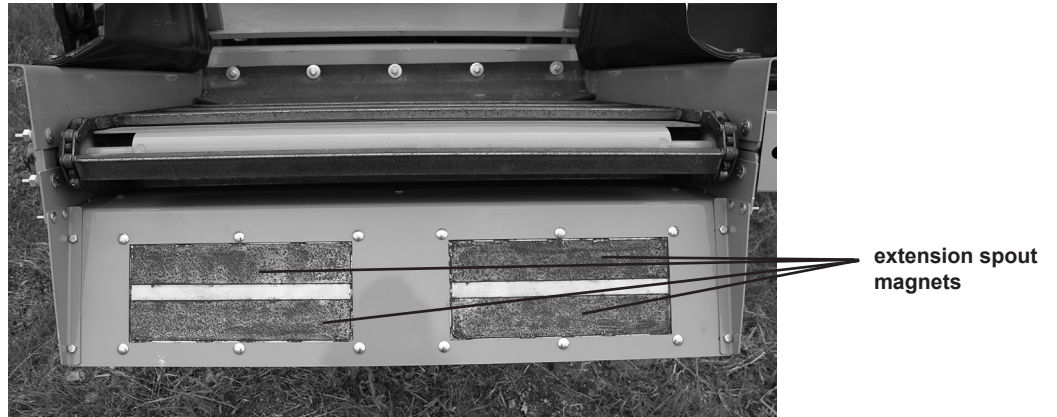
Problem	Cause	Remedy
1. Spillage over tub	1. Vertical knives are in too far.	1. Pull knives out one notch at a time until material stops spilling.
	2. Auger speed is too fast.	2. Slow engine speed
	3. Tub is overfilled	3. Wait longer while processing first bale, before adding more hay or other ingredients. Allow more time to process bulky materials. 4. Park on level ground.
2. Augers stopped turning	1. Automatic clutch disengaged because of shock loading	1. Disengage tractor PTO. Wait till driveshaft stops and reengage PTO. Clutch automatically reengages when driveline slows to near zero rpm. May need to shift Gearbox to low.
	2. Verify two-speed is engaged	2. Check lever position on two-speed gearbox, Forward-high speed Middle-neutral Back-low speed
3. Conveyor does not move	1. Conveyor plugged	1. Look for obstruction
	2. Chains too tight	2. Reduce chain tension
	3. Hoses uncoupled.	3. Make sure hoses are coupled properly.
4. Conveyor plugged at transition to extension	1. Extension conveyor running at too steep of an incline	1. Run extension conveyor at lowest height possible to reach the necessary bunk height.
	2. Conveyor stalls.	2. Running conveyor at steep angle, move spout to a more downward position.
5. Ration over processed	1. Processing continues through mixing stage	1. Add secondary ingredients that don't require processing to the batch sooner.
	2. Too many knives	2. Take knives out.
	3. Vertical knives in too far	3. Pull vertical knives out further,
	4. Auger speed too fast	4. Reduce tractor engine rpm
6. Ration under processed	1. Not enough knives on the augers	1. Add knives
	2. Knives are dull	2. Replace knives
	3. Auger speed not fast enough	3. Increase auger speed, careful not to cause spillage.
	4. Vertical knives not in far enough	4. Push vertical knives in one notch.
7. Scale does not power up	1. Battery not charged	1. Charge the battery/replace if necessary.
	2. Loose battery connection	2. Tighten/clean connections at battery post.
	3. Battery power cable damaged	3. Repair/replace cable.
(Consult scale manufacturer's manual for all other information)	For 24 hour Tech service, Go to digi-star.com or call 1-800-225-7695	
8. Door is loose/does not seal	1. Door clamps out of adjustment	1. Readjust door clamps



Section 6: Options

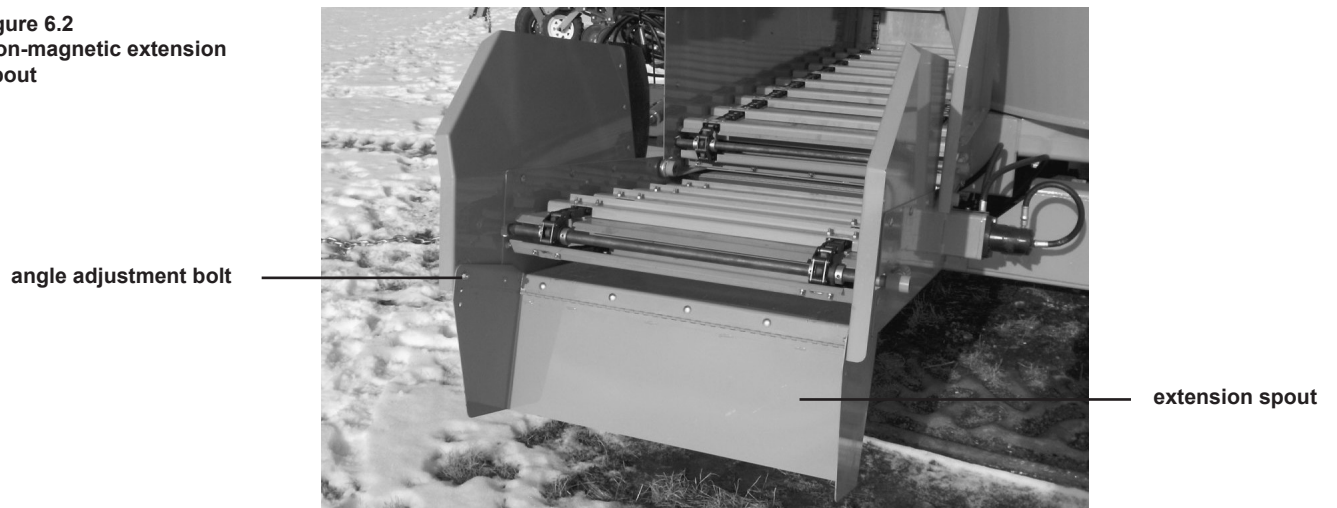
6.1 Magnetic extension spouts

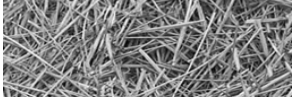
figure 6.1
Magnetic extension spout



6.2 Non-magnetic extension spout

figure 6.2
Non-magnetic extension spout





6.3 Two-Speed Gearbox

figure 6.4
Two speed gearbox in
low speed position

speed selector
low speed position

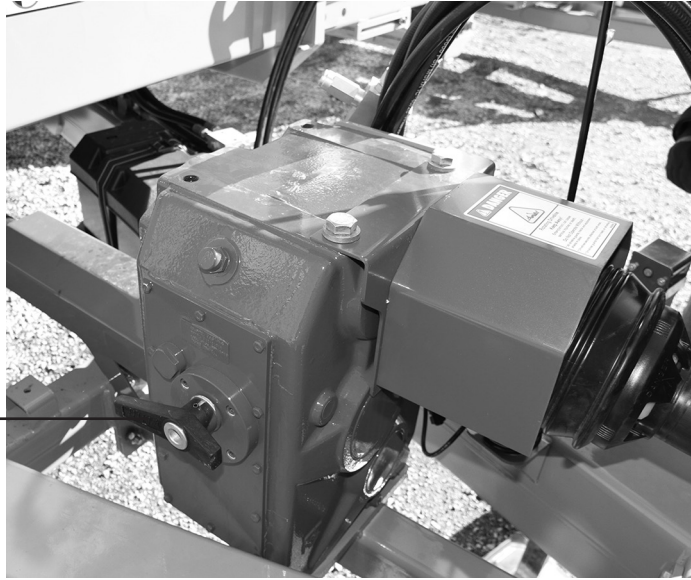


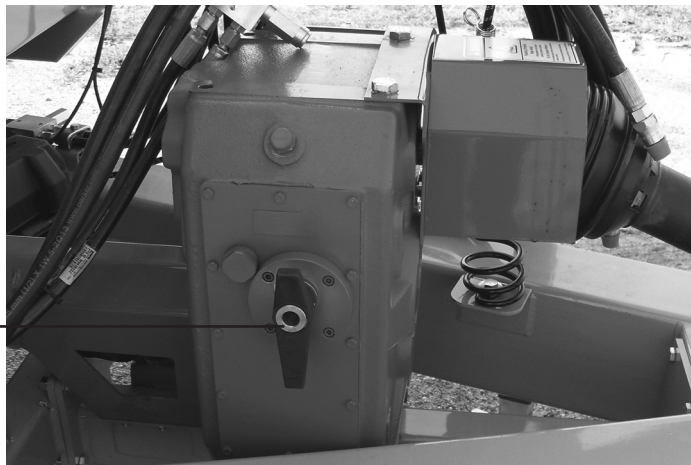
figure 6.5
Two speed gearbox in
high speed position

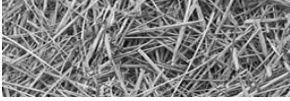
speed selector
high speed position



figure 6.6
Two speed gearbox in
neutral speed position

speed selector
neutral speed position





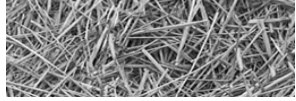
6.4 Conveyor Options



3-Ft. Conveyor



5-Ft. Conveyor



Section 7: Maintenance

7.1 Welding Procedure

CMF-590 welding procedures for machines with a weight scale

Precautions are required for welding on machines with electronic components. Electronic components including but not limited to: electronic scales.

Proper welding procedures are necessary with in order to avoid damage to the components, their sensors, and associated components.

When possible, remove the parts to be welded from the machine.

If not possible to remove the parts, follow the following procedure:



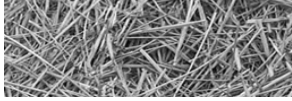
Note: Do not ground the welder to electrical components listed above, sensors, or wiring. Improper grounding can also damage bearings of hydraulic components. Clamp the ground cable from the welder to the part that will be welded. Place the clamp as close as possible to the weld. This will help reduce the possibility of damage.

1. Unhitch the CMF-590 from the tractor.
2. Disconnect the connectors from the electronic scale. Move the connectors to a position that will not allow the connectors to accidentally move back and make contact with any of the pins.
3. Connect the welding ground cable directly to the part that will be welded. Place the ground cable as close as possible to the weld in order to reduce the possibility of welding current damage to bearings, hydraulic components, and electrical components.



Note: If the electrical/electronic components are used as a ground for the welder, or electrical/electronic components are located between the welder ground and the weld, current flow from the welder could damage the components.

4. Protect the wiring harnesses and hydraulic lines from welding debris and spatter.
5. Use standard techniques to weld the materials.



Appendix A: Warranty

DuraTech Industries International Inc., warrants to the original purchaser for one year from purchase date that this product will be free from defects in material workmanship when used as intended and under normal maintenance and operating conditions. This warranty is limited to the replacement of any defective part or parts if DuraTech Industries is notified within thirty (30) days of failure.

DuraTech Industries International Inc. uses RR planetary gear boxes in all CMF machines. The planetary gear boxes carry a two year parts and labor warranty through DuraTech Industries International Inc.

BIMA two speed gear boxes are covered under the DuraTech Industries International Inc. standard one year warranty

This warranty shall become void if in DuraTech Industries International, Inc.'s., judgment the machine has been subject to misuse, negligence, alterations, damaged by accident or lack of required maintenance, or if the product has been used for a purpose for which it was not designed for.

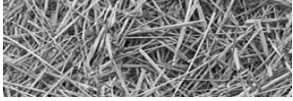
All claims for warranty must be made through the dealer which originally sold the product and all warranty adjustments must be made through same.

This warranty does not apply to tires or bearings or any other trade accessories not manufactured by DuraTech Industries International Inc.'s. Buyer must rely solely on the existing warranty, if any, of these respective manufactures.

DuraTech Industries International Inc., shall **not** be held liable for damages of any kind, direct, contingent, or consequential to property under this warranty. DuraTech Industries International Inc., cannot be held liable for any damages resulting from causes beyond its control. DuraTech Industries International Inc., shall **not** be held liable under this warranty for loss of crops, or rental costs or any expense or loss for labor or supplies.

DuraTech Industries International Inc., reserves the right to make changes in material and/or design of this product at any time without notice.

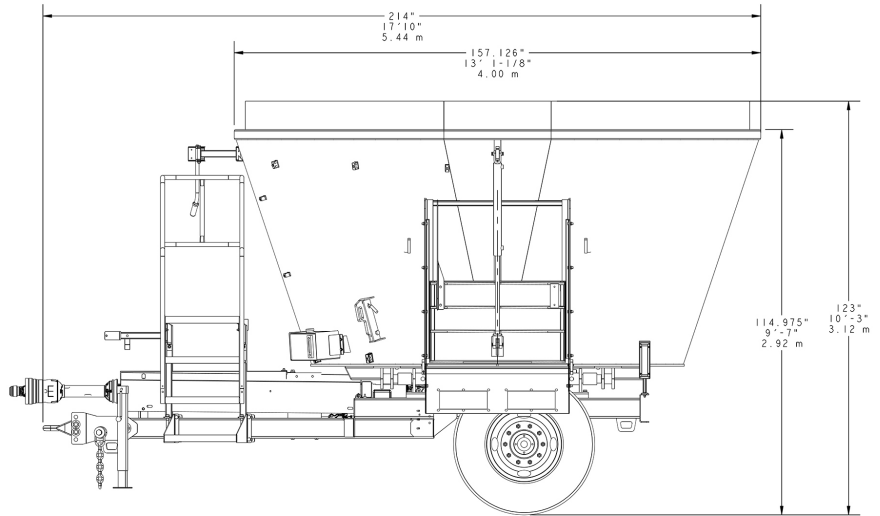
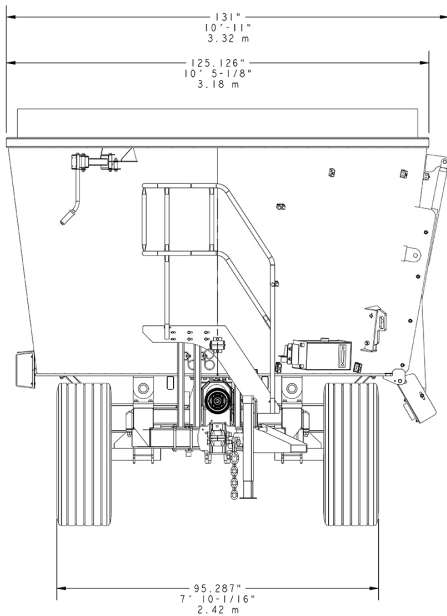
All other warranties made with respect to this product, either expressed or implied, are hereby disclaimed by DuraTech Industries International.

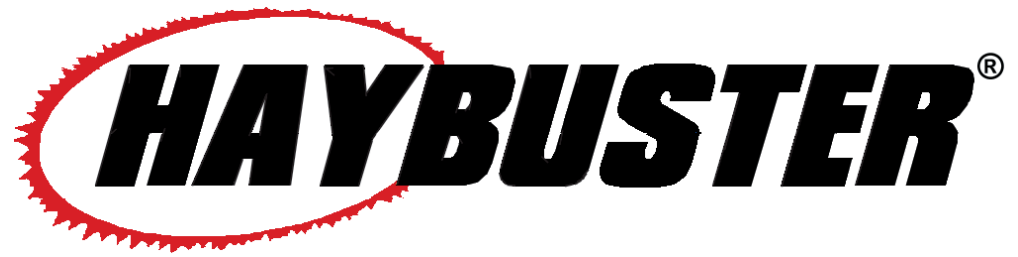
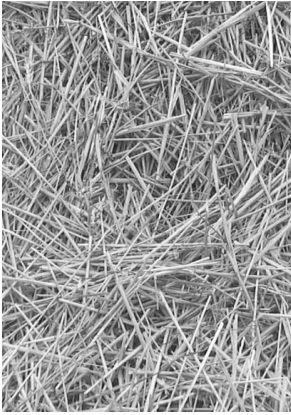


Appendix B: CMF-590 Specifications

General specifications

Max. Weight	10,800 LBS (4,899 Kg)
Overall length, including trailer	17'-10" (5.44 m)
Overall width.....	10'-11" (3.32 m)
Tractor P.T.O speed ...(1-3/8" 6 spline).....	1,000 RPM
Minimum horsepower required.....	100 HP. Min.
Mixing capacity, cu. ft with 12" extension.....	590 cu. ft. (16.7 cu. m)
Max. Gross Weight.....	22,800 LBS (10,342 Kg)
Tires – size.....	385/65R22.5/20 ply
Loading height with extensions.....	10'-3" (3.12 m)
Loading height without extensions	9'-7" (2.92 m)

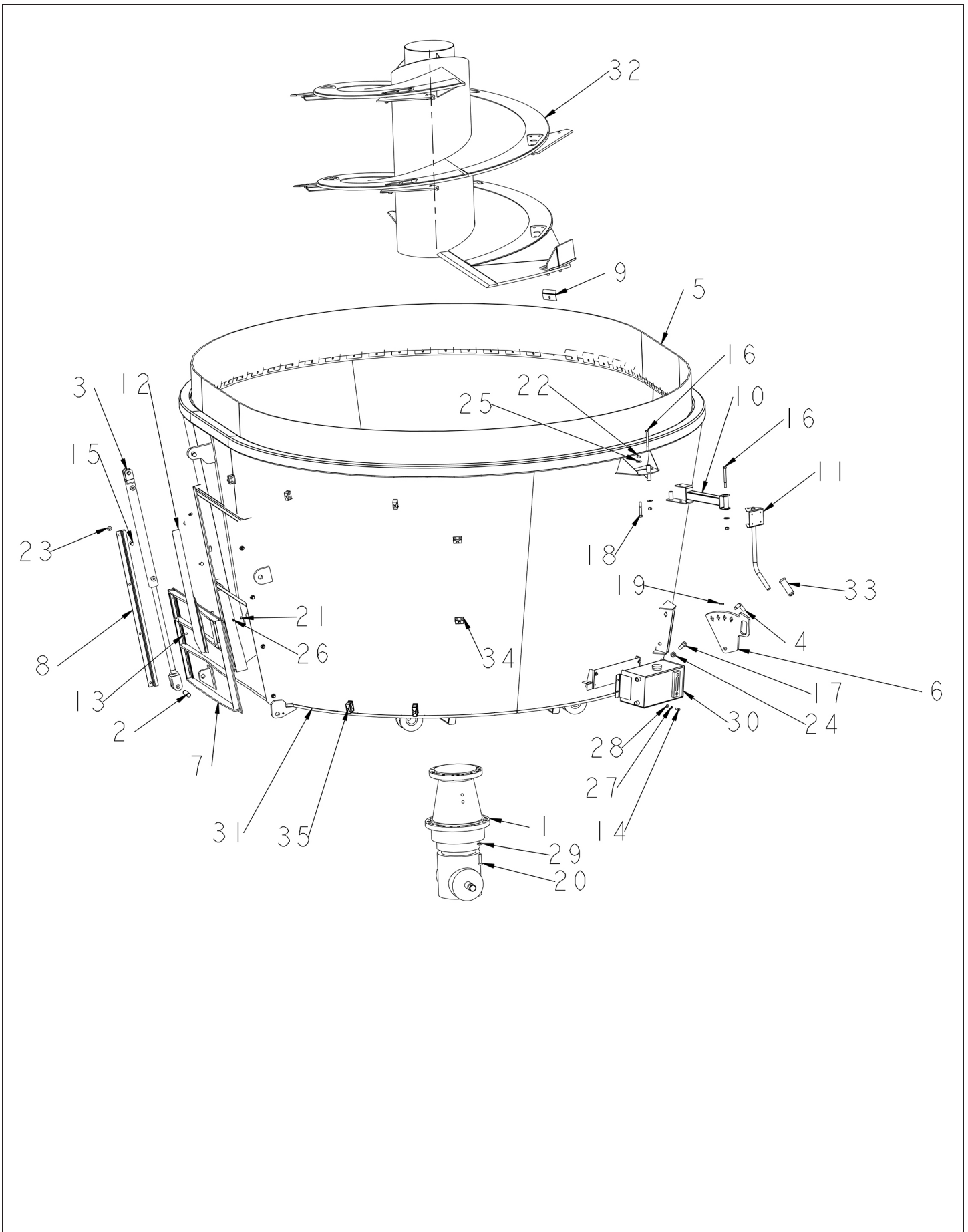




CMF-590TM
VERTICAL
MIXER

Part 2:
Parts Reference

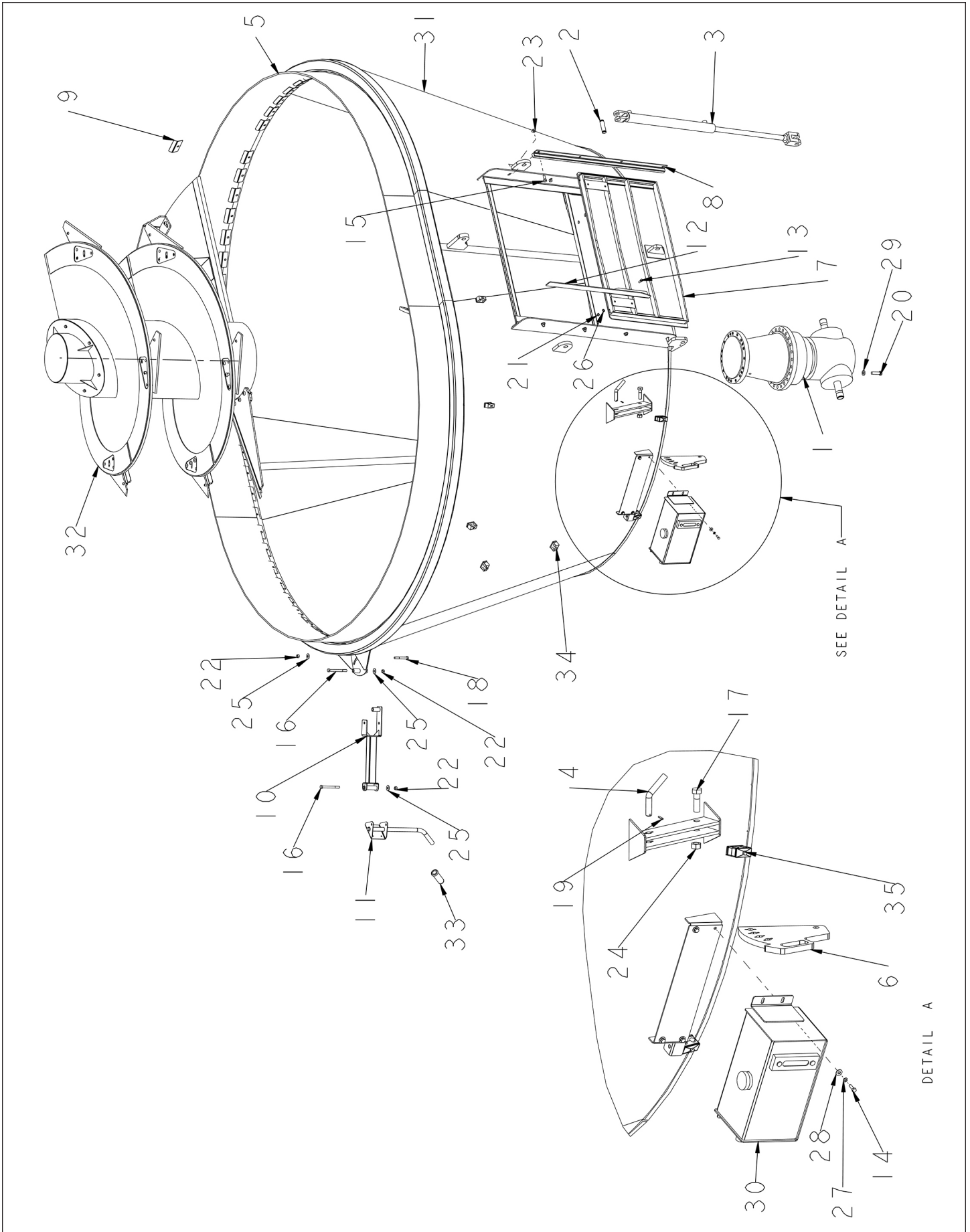
RH TUB ASSEMBLY



RH TUB ASSEMBLY

ITEM	PART	QTY.	PART DESCRIPTION
1	3100226	1	GRBX\PLANETARY\DBL\2100
2	4100030	2	PIN1"X3-1/2"HYD.CYL.
3	4100241	1	CYL\HYD\2"X24"\1-1/4"ROD
4	4704181	2	PIN\LOCK\3/4X2-1/2
5	4704344	1	BELT\12"\EXT\CMF
6	4704567	2	KNIFE\VERT
7	4705357	1	DOOR\TUB\CMF300
8	4705360	2	CLAMP\DOOR\TUB
9	4705376	74	CLAMP\BELT\CMF300
10	4705380	1	BRKT\MONITOR
11	4705381	1	BRKT\SW\MONITOR
12	4705528	1	INDCTR\DOOR
13	4800003	2	BOLT\HEX\3/8X1
14	4800013	4	BOLT\HEX\5/16X1
15	4800018	8	BOLT\HEX\1/2X1-1/4
16	4800041	2	BOLT\HEX\1/2X5
17	4800115	2	BOLT\HEX\3/4X2-1/2
18	4800135	1	BOLT\HEX\1/2X3-1/2
19	4800456	2	PIN\RLLD\3/16X1-1/8
20	4800948	54	BOLT\HEX\M16XM60
21	4900002	2	NUT\HEX\3/8\NC
22	4900016	3	NUT\NYLCK\1/2\NC
23	4900133	8	NUT\FLG\1/2\NC
24	4900139	2	NUT\TPLCK\3/4\GR8\NC
25	5000004	3	WASH\FLAT\1/2
26	5000019	8	WASH\LOCK\3/8
27	5000022	4	WASH\LOCK\5/16
28	5000023	4	WASH\FLAT\5/16
29	5000114	54	WASH\FLAT\5/8\EXTRTHK\GR8
30	5900039	1	TANK\LUBE\RH_PORTS\ASSY
31	5900093	1	TUB\WELD\CMF590
32	5900099	1	AUGER\ASSY
33	7500736	1	GRIP\HAND\1X4-1/2\FLG
34	7501336	5	CLMP\HOSE\CUSH\3/8
35	7501525	4	CLAMP\HOSE\1/2\2
	5900098		TUB\ASSY\RH\CMF590

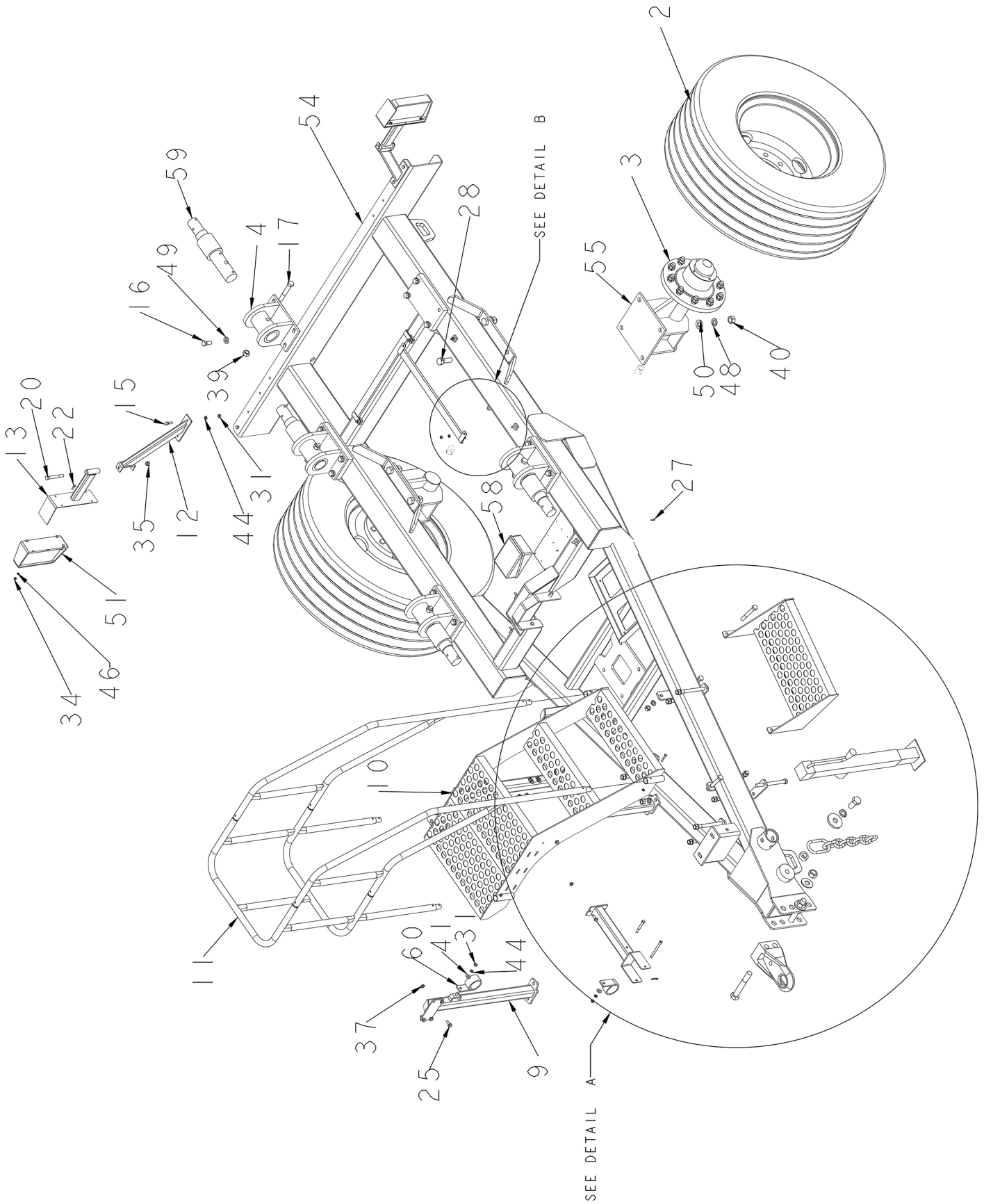
LH TUB ASSEMBLY



LH TUB ASSEMBLY

ITEM	PART	QTY.	PART DESCRIPTION
1	3100226	1	GRBX\PLANETARY\DBL\2100
2	4100030	2	PIN1"X3-1/2"HYD.CYL.
3	4100241	1	CYL\HYD\2"X24"1-1/4"ROD
4	4704181	2	PIN\LOCK\3/4X2-1/2
5	4704344	1	BELT\12"\EXT\CMF
6	4704567	2	KNIFE\VERT
7	4705357	1	DOOR\TUB\CMF300
8	4705360	2	CLAMP\DOOR\TUB
9	4705376	74	CLAMP\BELT\CMF300
10	4705380	1	BRKT\MONITOR
11	4705381	1	BRKT\SW\MONITOR
12	4705528	1	INDCTR\DOOR
13	4800003	2	BOLT\HEX\3/8X1
14	4800013	4	BOLT\HEX\5/16X1
15	4800018	8	BOLT\HEX\1/2X1-1/4
16	4800041	2	BOLT\HEX\1/2X5
17	4800115	2	BOLT\HEX\3/4X2-1/2
18	4800135	1	BOLT\HEX\1/2X3-1/2
19	4800456	2	PIN\RLLD\3/16X1-1/8
20	4800948	54	BOLT\HEX\M16XM60
21	4900002	2	NUT\HEX\3/8\NC
22	4900016	3	NUT\NYLCK\1/2\NC
23	4900133	8	NUT\FLG\1/2\NC
24	4900139	2	NUT\TPLCK\3/4\GR8\NC
25	5000004	3	WASH\FLAT\1/2
26	5000019	8	WASH\LOCK\3/8
27	5000022	4	WASH\LOCK\5/16
28	5000023	4	WASH\FLAT\5/16
29	5000114	54	WASH\FLAT\5/8\EXTRTHK\GR8
30	5900039	1	TANK\LUBE\RH_PORTS\ASSY
31	5900093	1	TUB\WELD\CMF590
32	5900099	1	AUGER\ASSY
33	7500736	1	GRIP\HAND\1X4-1/2\FLG
34	7501336	5	CLMP\HOSE\CUSH\3/8
35	7501525	2	CLAMP\HOSE\1/2\2
	5900100		TUB\ASSY\LH\CMF590

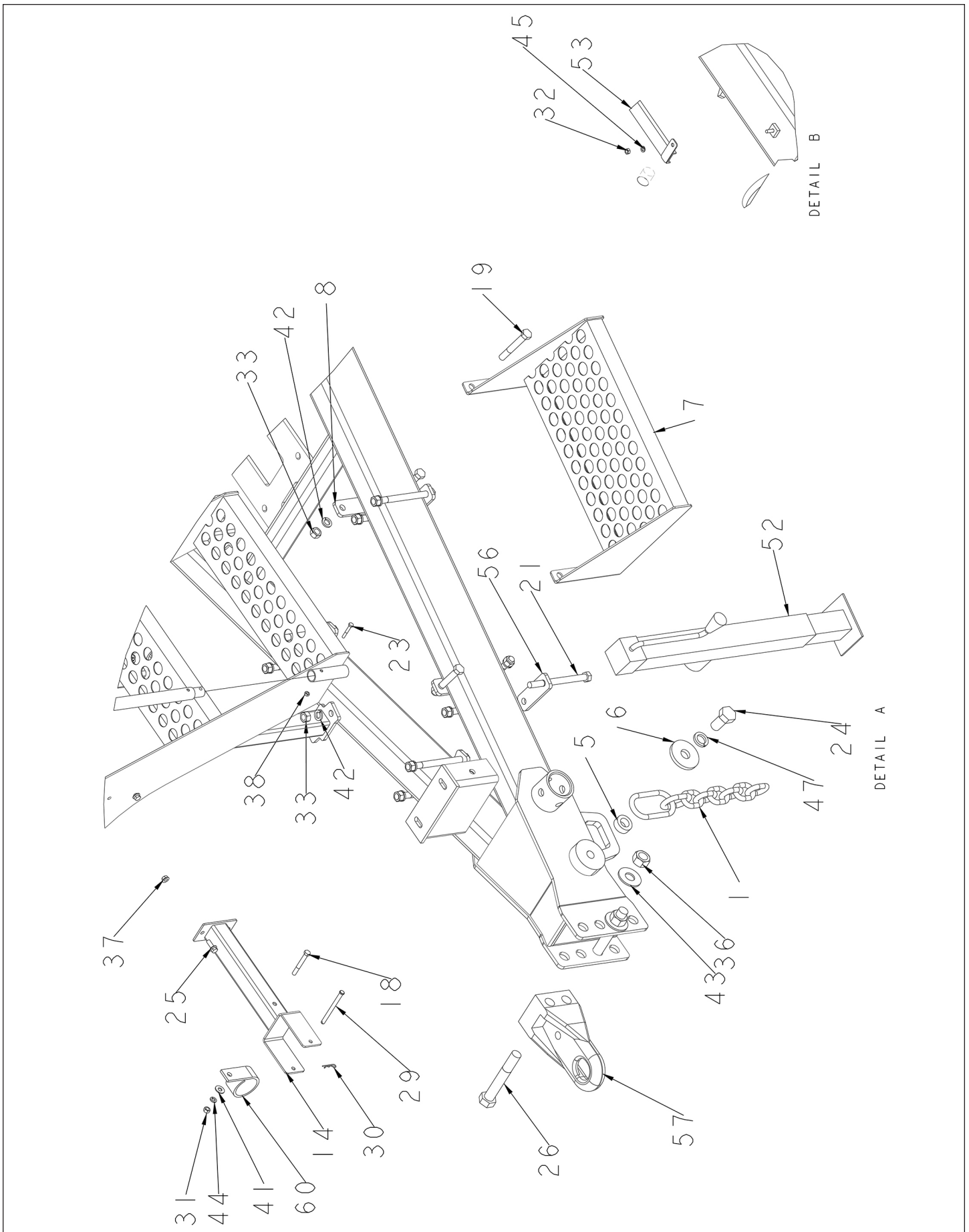
MAINFRAME ASSEMBLY



MAINFRAME ASSEMBLY

ITEM	PART	QTY.	PART DESCRIPTION
1	1100255	1	CHAINSAFETYVAG1/2"40K_CAP
2	2600875	2	WHL\ASSY\385/65R22.5
	2600056		TIRE\385/65R22.5\20PLY
	2600653		WHL\22.5X12.25\11.25BC
3	2900154	2	HUB\ASSY\10-BOLT\11.25"BC (SEE HUB ASSEMBLY)
4	4703989	4	MNT\LOADCELL\FRAME
5	4704337	1	BUSHING\MNT\CHAINSAFETY
6	4704338	1	WASHER\CHAINSAFETY
7	4705375	1	STEP\FRM\CMF
8	4705378	2	PL\CLMP\FRM
9	4705383	2	LEG\LONG\DECK\PLTFRM
10	4705385	1	PLTFRM\VIEW\CMF
11	4705388	1	RAIL\VIEW\PLTFRM
12	4705520	2	MNT\LIGHTS\TAIL
13	4705521	2	BRKT\LIGHTS\TAIL
14	4705530	1	MNDR\HOSE\SHAFT
15	4800098	4	BOLT\HEX\3/8X1-1/4\NC
16	4800106	16	BOLT\HEX\5/8X1-1/2
17	4800139	4	BOLT\HEX\3/4X4-1/2
18	4800156	1	BOLT\HEX\3/8X3
19	4800158	4	BOLT\HEX\5/8X4-1/2
20	4800188	2	BOLT\HEX\1/2X4
21	4800268	8	BOLT\HEX\5/8X7-1/2
22	4800277	8	BOLT\HEX\1/4X1
23	4800506	4	BOLT\HEX\1/4X1-3/4\NC
24	4800547	1	BOLT\HEX\1X2\NC
25	4800913	12	BOLT\FLG\SERR\3/8X1\NC
26	4800919	2	BOLT\HEX\1X6-1/2\GR5\NC
27	4801231	4	SCR\HEX\#8-18X3/4"SELF-DRILLING
28	4801234	8	BOLT\HEX\7/8X2-1/2\GR8\NC
29	4801288	1	PIN\CLEVIS\3/8X4-1/2
30	4801289	1	PIN\HAIR\14GA\1-7/16
31	4900002	7	NUT\HEX\3/8\NC
32	4900003	4	NUT\HEX\5/16\NC
33	4900005	12	NUT\HEX\5/8\NC
34	4900009	8	NUT\HEX\1/4\NC
35	4900014	2	NUT\PLCK\1/2\NC
36	4900015	2	NUT\NYLCK\1\NC
37	4900076	10	NUT\FLG\SERR\3/8\NC
38	4900084	4	NUT\PLCK\1/4\NC
39	4900139	4	NUT\PLCK\3/4\GR8\NC
40	4900192	8	NUT\HEX\7/8\GR8\NC
41	5000001	3	WASH\FLAT\3/8
42	5000003	12	WASH\LOCK\5/8
43	5000014	2	WASH\FLAT\1
44	5000019	9	WASH\LOCK\3/8
45	5000022	4	WASH\LOCK\5/16
46	5000024	8	WASH\LOCK\1/4
47	5000053	1	WASH\LOCK\1
48	5000106	8	WASH\LOCK\7/8
49	5000114	16	WASH\FLAT\5/8\EXTRTHK\GR8
50	5000120	8	WASH\FLAT\7/8\EXTRTHK\GR8
51	5700423	2	KIT\LIGHT
52	5800627	1	JACK\7000LB\SWIVEL-STYLE
53	5900091	2	CHNNL\FRM\WIRE\24"
54	5900094	1	FRM\WELD\CMF590
55	5900096	2	SPNDL\WELD\CMF590
56	6300096	4	PL\CLMP\FRM
57	7500641	1	HITCH\BASE\#3\PP\1"PIN
58	7500978	1	2620 LOADCELL JUNCTION BOX, 2000
59	7501326	4	DIGI-STAR_2.5_CELL
60	7501528	3	STRAP\HANG\2.5ID\STD
	5900095		FRM\ASSY\CMF590
	NOT SHOWN		
	5700226	1	ENCL\BATT\PLSTC\GRP27
	5700227	1	BATT\12VDC\GRP24
	5700275	2	TERMBATT\UNIV\MARINE\
	5700810	1	HARN\JMPP\WWR\SCALE\CMF

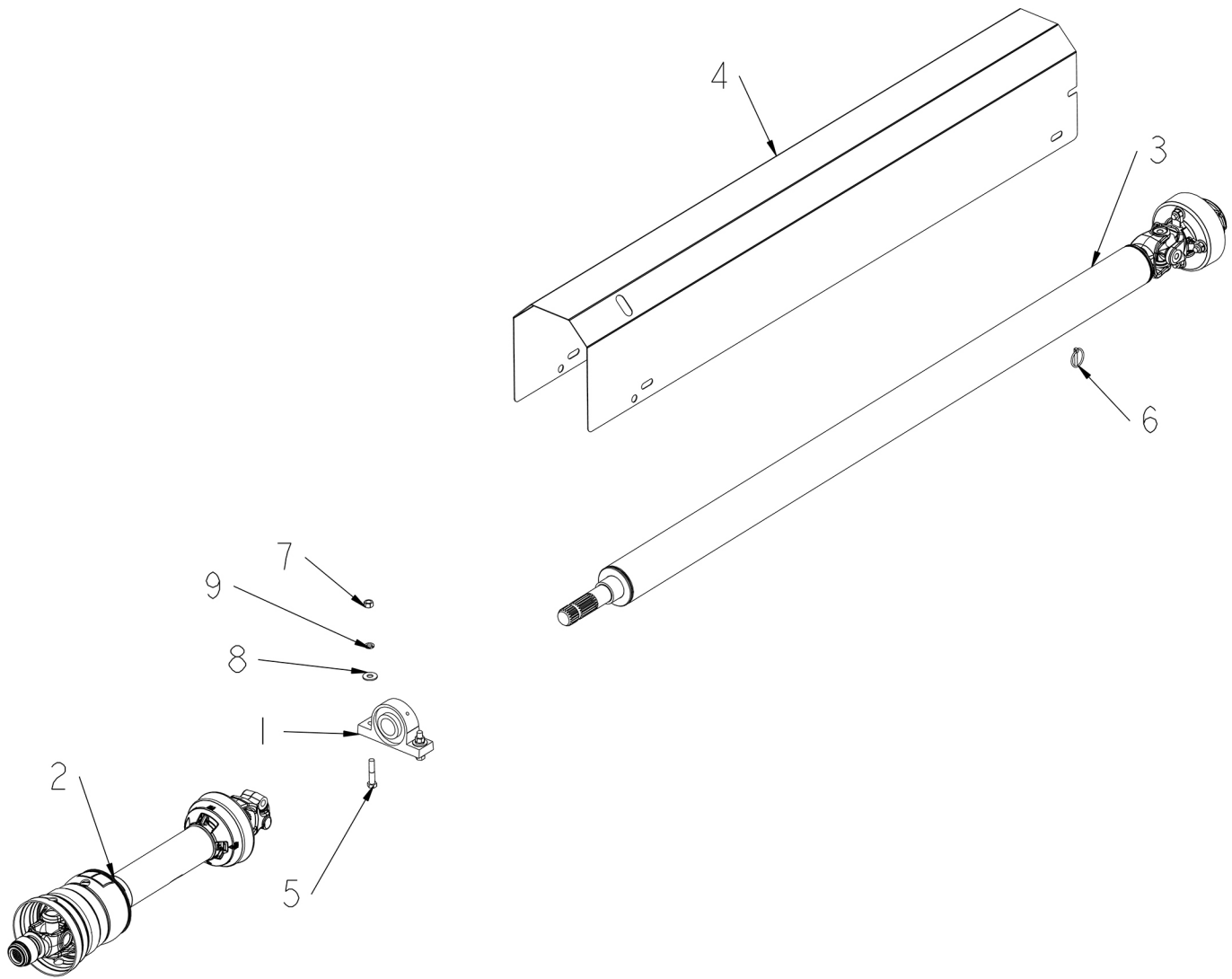
MAINFRAME ASSEMBLY DETAILS A AND B



MAINFRAME ASSEMBLY DETAILS A AND B

ITEM	PART	QTY.	PART DESCRIPTION
1	1100255	1	CHAIN\SAFETY\AG1\2"40K_CAP
2	2600875	2	WHL\ASSY\385\65R22.5
	2600056		TIRE\385\65R22.5\20PLY
	2600653		WHL\22.5X12.25\11.25BC
3	2900154	2	HUB\ASSY\10-BOLT\11.25"BC (SEE HUB ASSEMBLY)
4	4703989	4	MNT\LOADCELL\FRAME
5	4704337	1	BUSHING\MNT\CHAIN\SAFETY
6	4704338	1	WASHER\CHAIN\SAFETY
7	4705375	1	STEP\FRM\CMF
8	4705378	2	PL\CLMP\FRM
9	4705383	2	LEG\LONG\DECK\PLTFRM
10	4705385	1	PLTFRM\VIEW\CMF
11	4705388	1	RAIL\VIEW\PLTFRM
12	4705520	2	MNT\LIGHTS\TAIL
13	4705521	2	BRKT\LIGHTS\TAIL
14	4705530	1	MNDR\HOSE\SHAFT
15	4800098	4	BOLT\HEX\3\8X1-1\4\NC
16	4800106	16	BOLT\HEX\5\8X1-1\2
17	4800139	4	BOLT\HEX\3\4X4-1\2
18	4800156	1	BOLT\HEX\3\8X3
19	4800158	4	BOLT\HEX\5\8X4-1\2
20	4800188	2	BOLT\HEX\1\2X4
21	4800268	8	BOLT\HEX\5\8X7-1\2
22	4800277	8	BOLT\HEX\1\4X1
23	4800506	4	BOLT\HEX\1\4X1-3\4\NC
24	4800547	1	BOLT\HEX\1X2\NC
25	4800913	12	BOLT\FLG\SERR\3\8X1\NC
26	4800919	2	BOLT\HEX\1X6-1\2\GR5\NC
27	4801231	4	SCR\HEX\#8-18X3\4"SELF-DRILLING
28	4801234	8	BOLT\HEX\7\8X2-1\2\GR8\NC
29	4801288	1	PIN\CLEVIS\3\8X4-1\2
30	4801289	1	PIN\HAIR\14GA\1-7\16
31	4900002	7	NUT\HEX\3\8\NC
32	4900003	4	NUT\HEX\5\16\NC
33	4900005	12	NUT\HEX\5\8\NC
34	4900009	8	NUT\HEX\1\4\NC
35	4900014	2	NUT\PLCK\1\2\NC
36	4900015	2	NUT\NYLCK\1\NC
37	4900076	10	NUT\FLG\SERR\3\8\NC
38	4900084	4	NUT\PLCK\1\4\NC
39	4900139	4	NUT\PLCK\3\4\GR8\NC
40	4900192	8	NUT\HEX\7\8\GR8\NC
41	5000001	3	WASH\FLAT\3\8
42	5000003	12	WASH\LOCK\5\8
43	5000014	2	WASH\FLAT\1
44	5000019	9	WASH\LOCK\3\8
45	5000022	4	WASH\LOCK\5\16
46	5000024	8	WASH\LOCK\1\4
47	5000053	1	WASH\LOCK\1
48	5000106	8	WASH\LOCK\7\8
49	5000114	16	WASH\FLAT\5\8\EXTRTHK\GR8
50	5000120	8	WASH\FLAT\7\8\EXTRTHK\GR8
51	5700423	2	KIT\LIGHT
52	5800627	1	JACK\7000LB\SWIVEL-STYLE
53	5900091	2	CHNNL\FRM\WIRE\24"
54	5900094	1	FRM\WELD\CMF590
55	5900096	2	SPNDL\WELD\CMF590
56	6300096	4	PL\CLMP\FRM
57	7500641	1	HITCH\BASE\#3\PP\1"PIN
58	7500978	1	2620 LOADCELL JUNCTION BOX, 2000
59	7501326	4	DIGI-STAR_2.5_CELL
60	7501528	3	STRAP\HANG\2.5ID\STD
	5900095		FRM\ASSY\CMF590
	NOT SHOWN		
	5700226	1	ENCL\BATT\PLSTC\GRP27
	5700227	1	BATT\12VDC\GRP24
	5700275	2	TERMBATT\UNIV\MARINE\
	5700810	1	HARN\JMPP\PWRS\SCALE\CMF

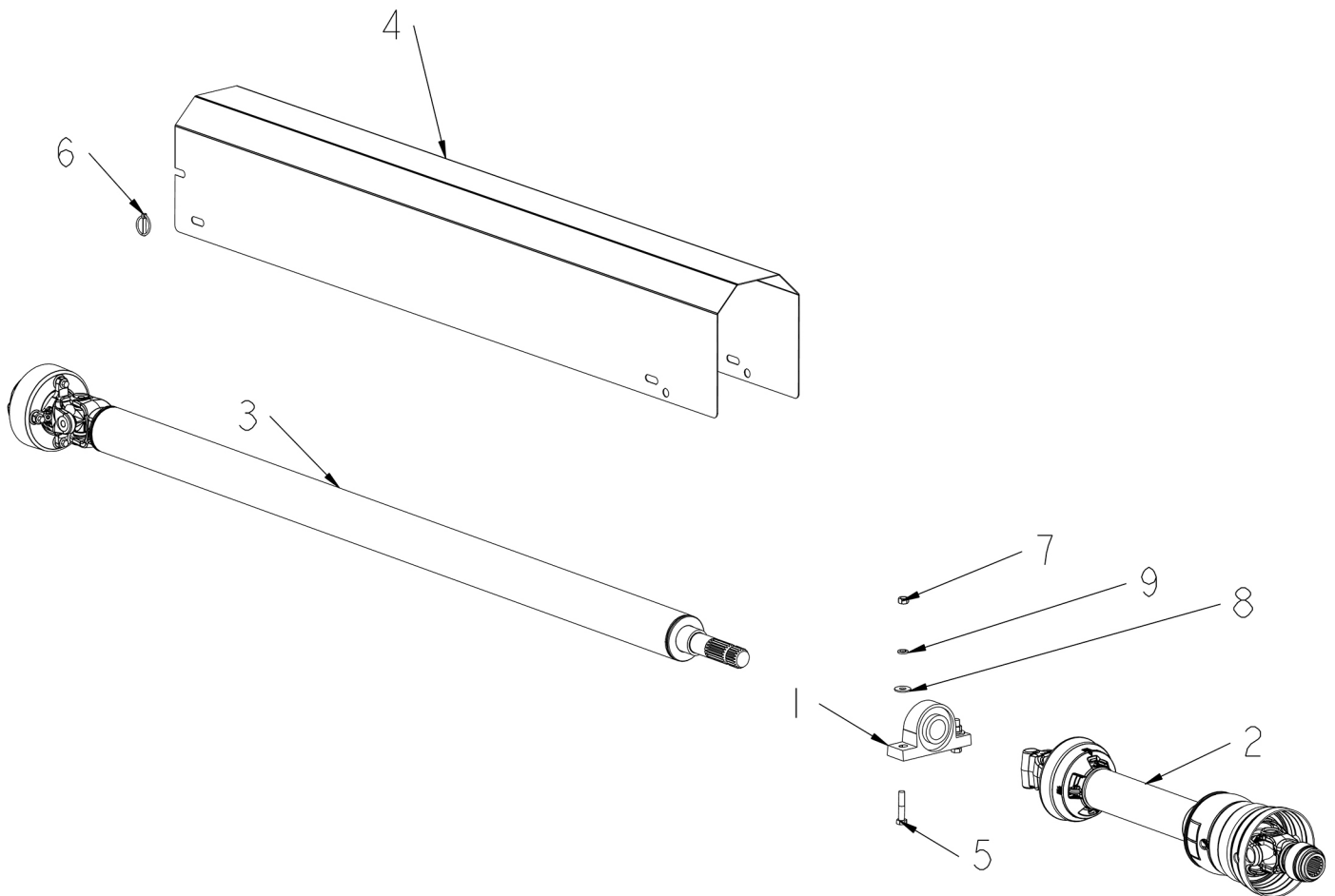
5900141 DRIVELINE



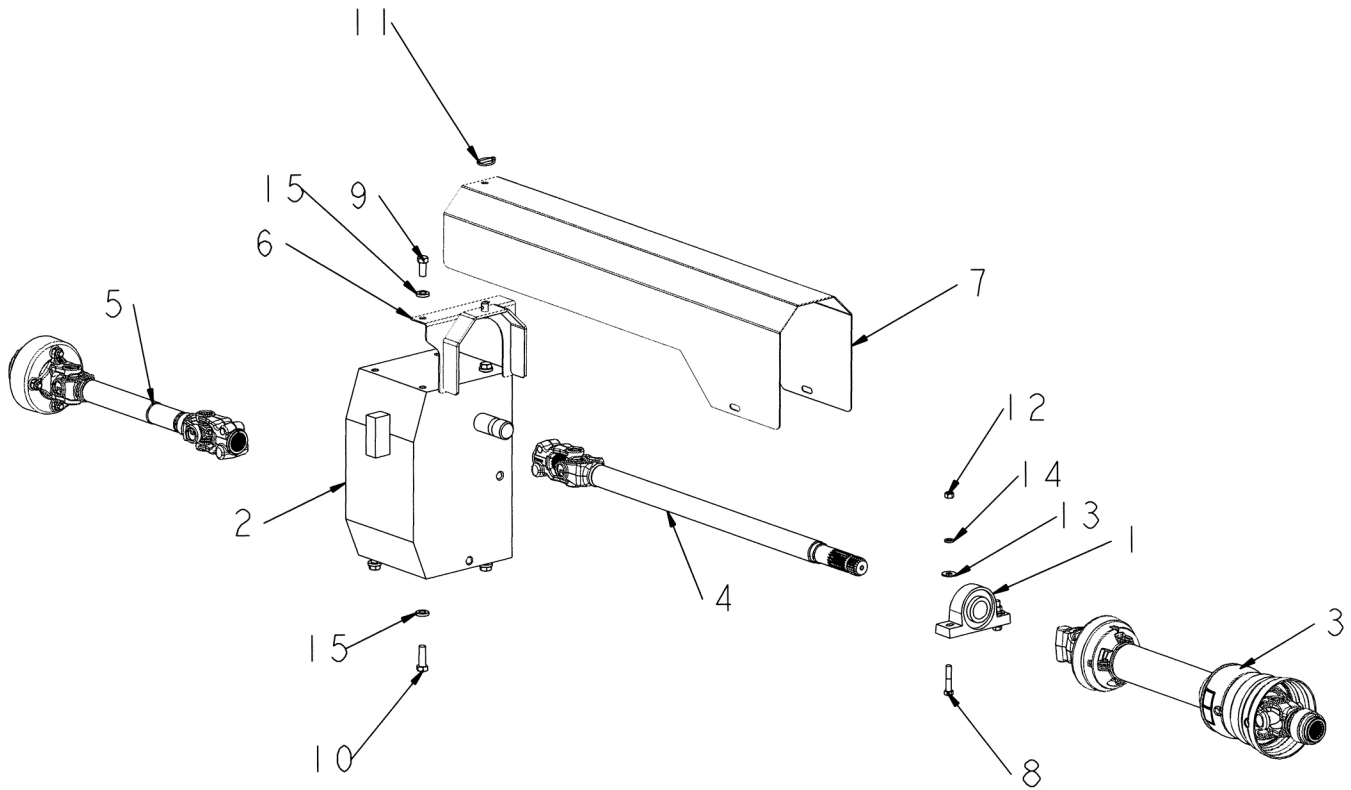
ITEM	QTY.	PART	DESCRIPTION
1	2000514	1	BRG\PB\1-3/4\2BOLT\MALLEABLE
2	3600791	1	PTO\255-25000\44E\1-3/8CV-21WWCV
3	3600870	1	PTO\44E\14K\CLUTCH\STNDRD
4	4705382	1	SH\SHIELD\D/S
5	4800070	2	BOLT\HEX\1/2X2-1/2
6	4801236	2	PIN\LYNCH\1/4X1-9/16\ZN_PLT
7	4900001	2	NUT\HEX\1/2\NC
8	5000004	2	WASH\FLAT\1/2
9	5000006	2	WASH\LOCK\1/2
5900141			DRVLN\1SPD\1-3/8CV\CMF590

5900142 DRIVELINE

ITEM	QTY.	PART	DESCRIPTION
1	2000514	1	BRG\PB\1-3/4\2BOLT\MALLEABLE
2	3600787	1	PTO\255-25002\44E\1-3/4CV\WWCV
3	3600870	1	PTO\44E\14K\CLUTCH\STNDRD
4	4705382	1	SH\SHIELD\D/S
5	4800070	2	BOLT\HEX\1/2X2-1/2
6	4801236	2	PIN\LYNCH\1/4X1-9/16\ZN_PLT
7	4900001	2	NUT\HEX\1/2\NC
8	5000004	2	WASH\FLAT\1/2
9	5000006	2	WASH\LOCK\1/2
5900142		DRVLN\1SPD\1-3/4CV\CMF590	



5900143 DRIVELINE



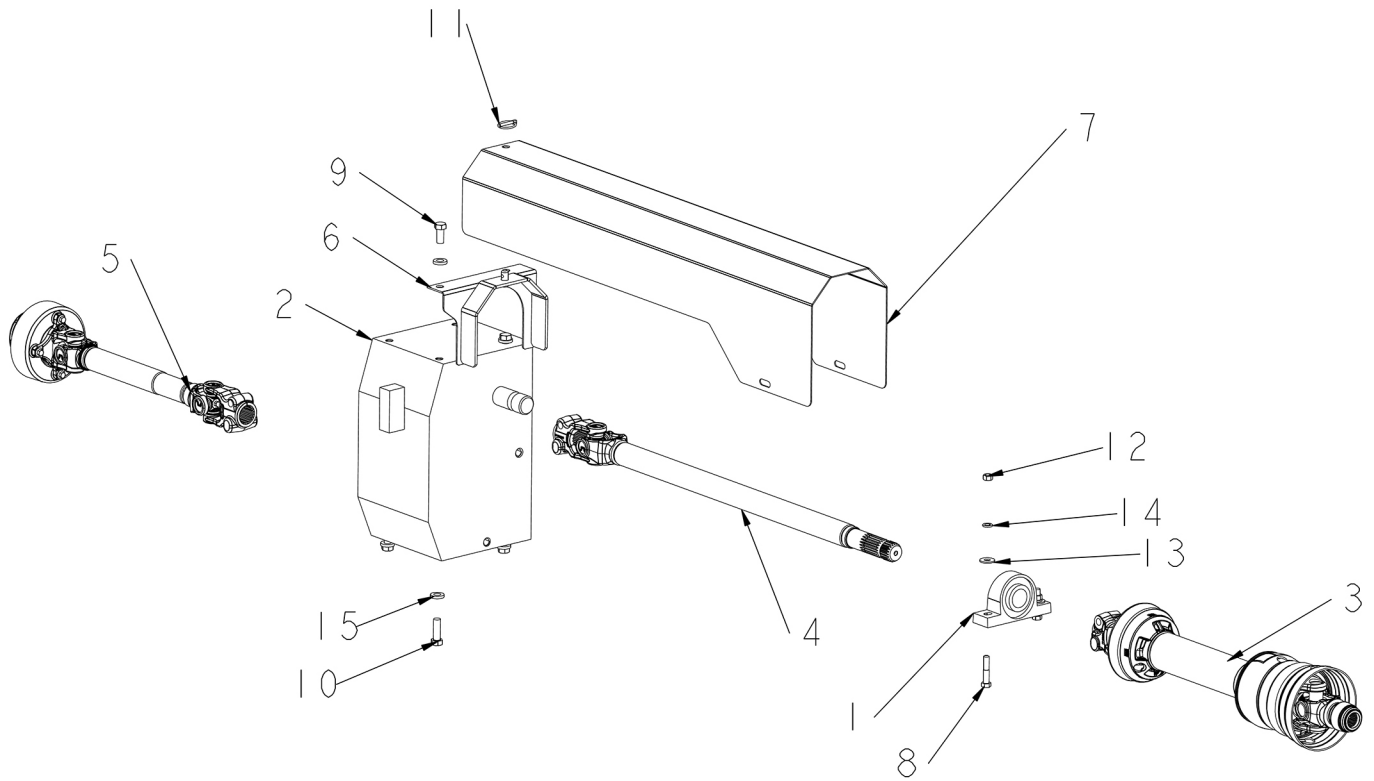
ITEM	QTY.	PART	DESCRIPTION
1	2000514	1	BRG\PB\1-3/4\2BOLT\MALLEABLE
2	3100225	1	GRBX\2SPD\1.84:1\B&P6078
3	3600787	1	PTO\255-25002\44E\1-3/4CV\WWCV
4	3600794	1	PTO\242-25699\35E\SHAFT
5	3600884	1	PTO\35E\SHAFT\14KCLTCH
6	4705397	1	BRKT\SHLD\DRVLN\2SPD\CMF300
7	4705398	1	SHLD\DRVLN\2SPD\CMF300
8	4800070	2	BOLT\HEX\1/2X2-1/2
9	4800565	2	BOLT\HEX\M16XM35
10	4800944	4	BOLT\HEX\M16XM50
11	4801236	1	PIN\LYNCH\1/4X1-9/16\ZN_PLT
12	4900001	2	NUT\HEX\1/2\NC
13	5000004	2	WASH\FLAT\1/2
14	5000006	2	WASH\LOCK\1/2
15	5000114	6	WASH\FLAT\5/8\EXTRTHK\GR8
5900143			DRVLN\2SPD\1-3/4CV\CMF590

5900144 DRIVELINE

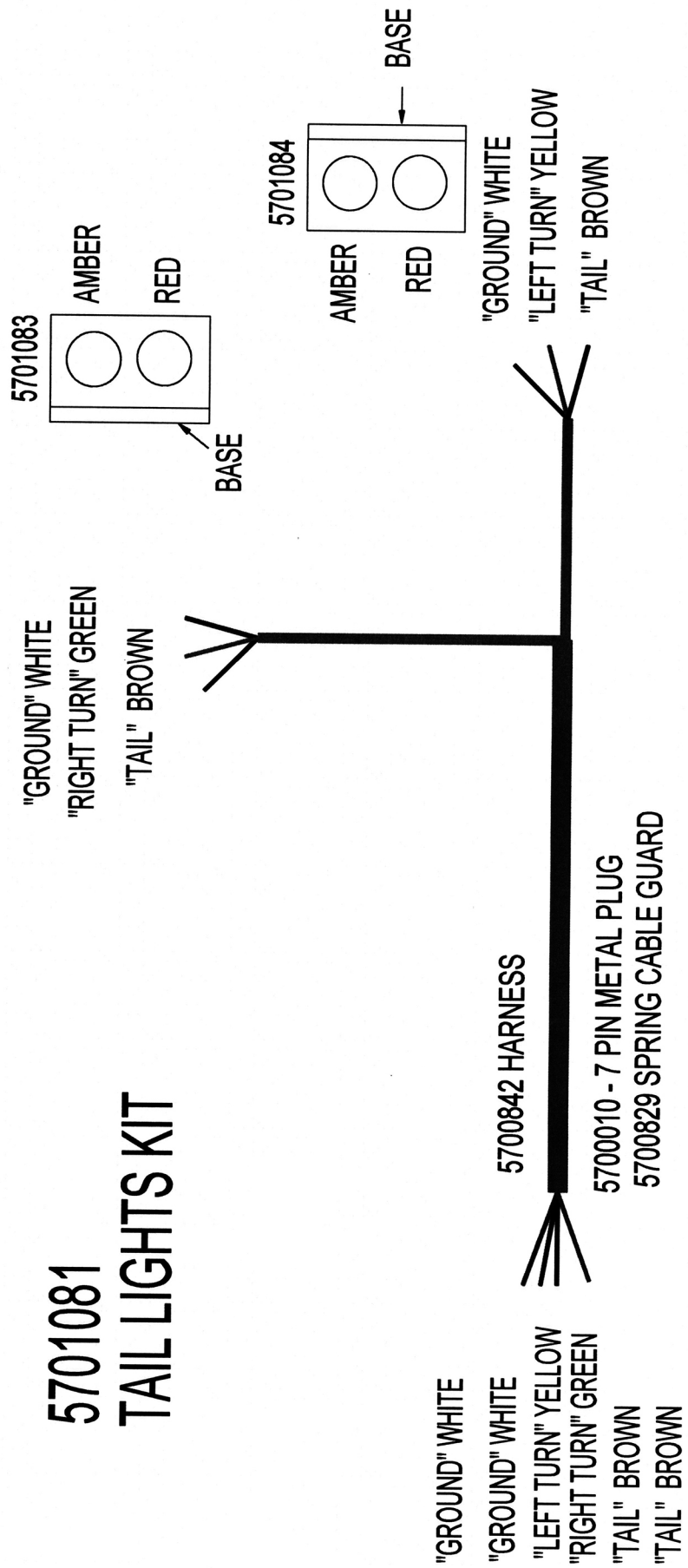
ITEM	QTY.	PART	DESCRIPTION
1	2000514	1	BRG\PB\1-3/4\2BOLT\MALLEABLE
2	3100225	1	GRBX\2SPD\1.84:1\B&P6078
3	3600791	1	PTO\255-25000\44E\1-3/8CV-21WWCV
4	3600794	1	PTO\242-25699\35E\SHAFT
5	3600884	1	PTO\35E\SHAFT\14KCLTCH
6	4705397	1	BRKT\SHLD\DRVLN\2SPD\CMF300
7	4705398	1	SHLD\DRVLN\2SPD\CMF300
8	4800070	2	BOLT\HEX\1/2X2-1/2
9	4800565	2	BOLT\HEX\M16XM35
10	4800944	4	BOLT\HEX\M16XM50
11	4801236	1	PIN\LYNCH\1/4X1-9/16\ZN_PLT
12	4900001	2	NUT\HEX\1/2\NC
13	5000004	2	WASH\FLAT\1/2
14	5000006	2	WASH\LOCK\1/2
15	5000114	6	WASH\FLAT\5/8\EXTRTHK\GR8

5900144

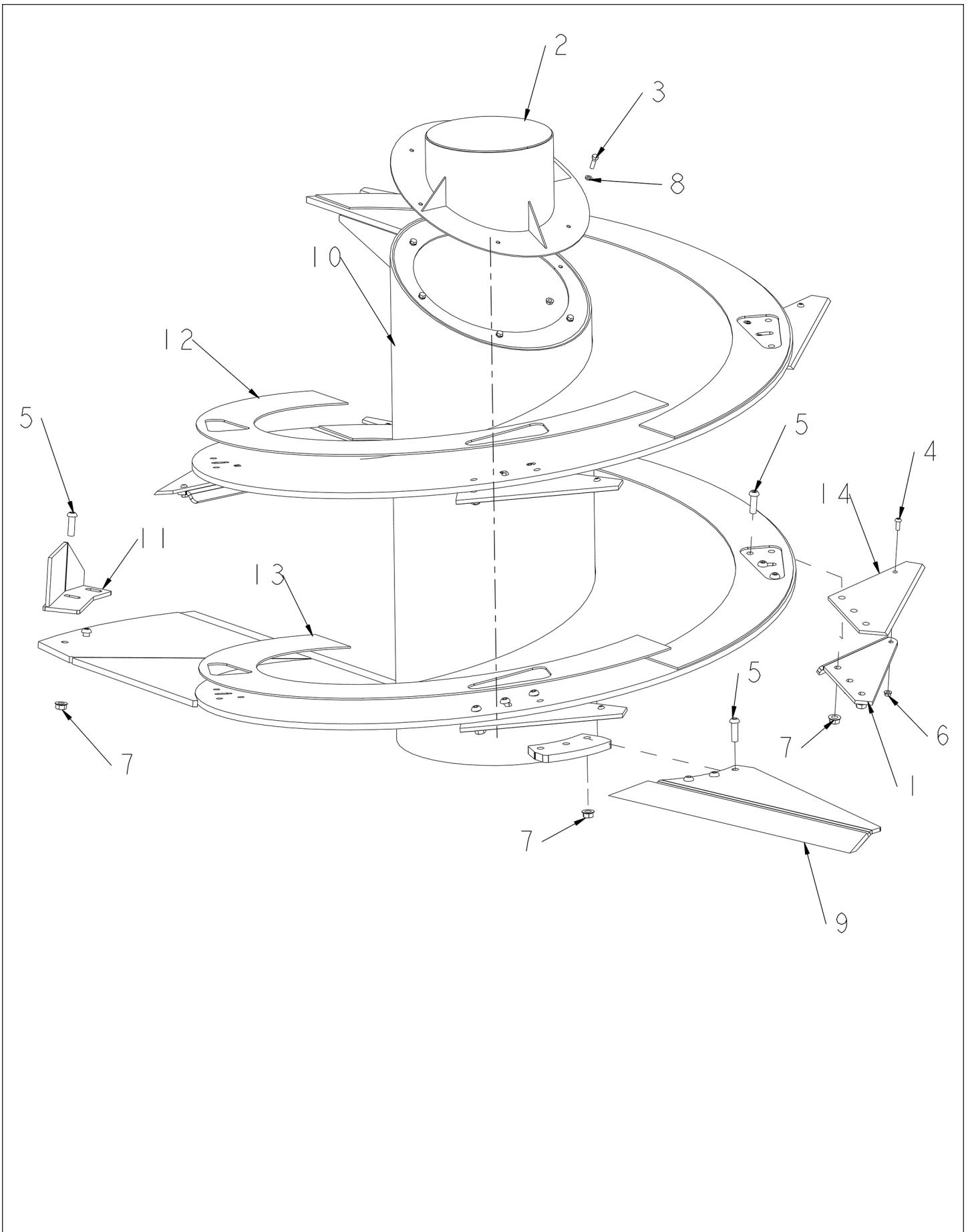
DRVLN\2SPD\1-3/8CV\CMF590







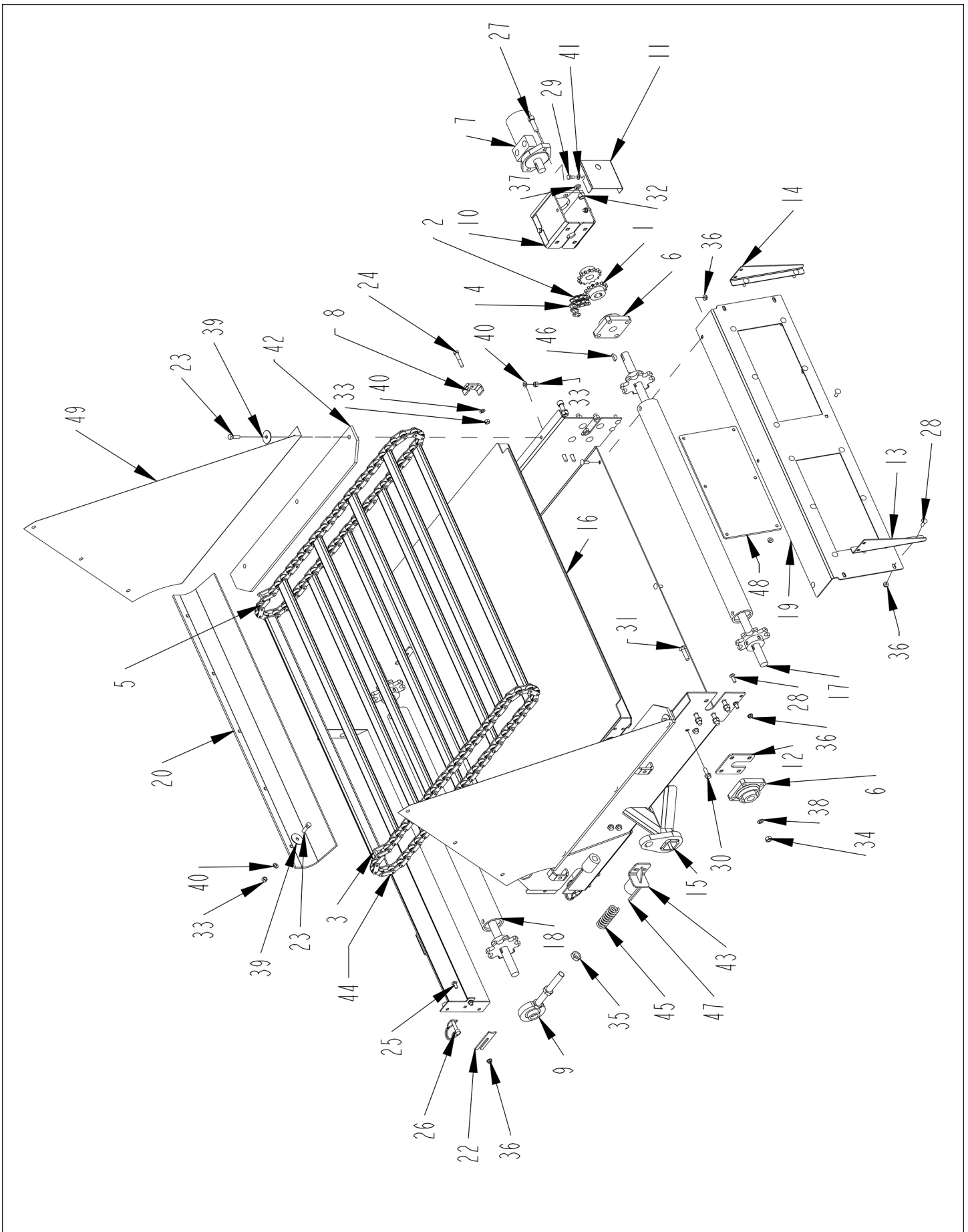
AUGER ASSEMBLY



AUGER ASSEMBLY

ITEM	PART	QTY.	PART DESCRIPTION
1	4704365	7	PL\BACK\BLADE
2	4704884	1	COVER\AUGER
3	4800098	6	BOLT\HEX\3/8X1-1/4\NC
4	4800244	7	SCR\BUT\ALN\3/8X1\NC
5	4800659	26	SCR\BUT\ALN\5/8X2\NC
6	4900076	13	NUT\FLG\SERR\3/8\NC
7	4900110	26	NUT\FLG\SERR\5/8\NC
8	5000019	6	WASH\LOCK\3/8
9	5900070	1	KICKER\AUGER\CMF830
10	5900092	1	AUGER\WELD\CMF590
11	5900139	6	AUGER\CMF590\LINER\TOP
12	5900140	1	AUGER\CMF590\LINER\BTM
13	5900163	1	SWEEP\AUGER\SILAGE
14	7501161	7	BLADE\CMF\STANDARD
	5900099		AUGER\ASSY\CMF590

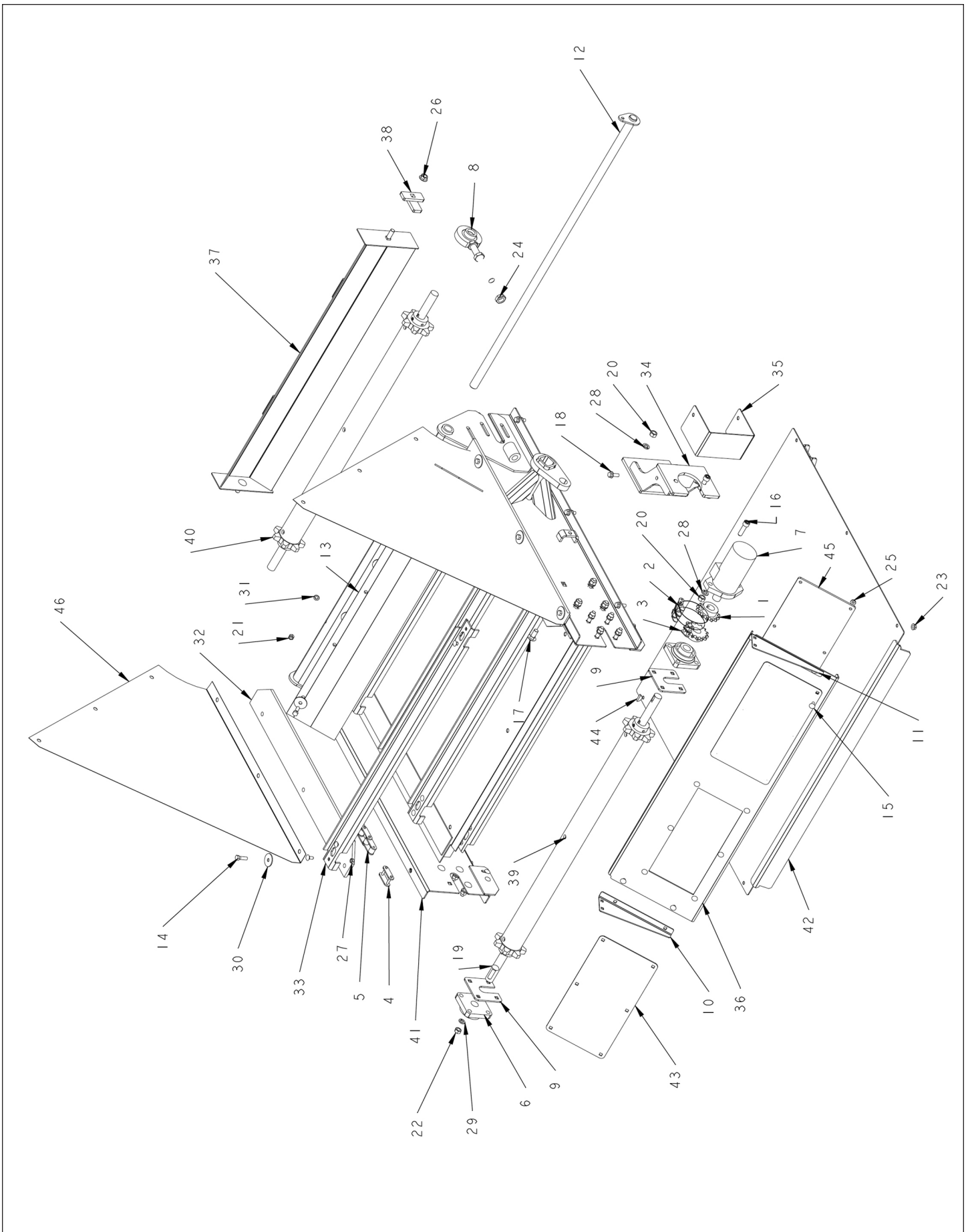
OPTIONAL 3 FT. CONVEYOR ASSEMBLY (FOR S.N. UP TO VM17002059)



OPTIONAL 3 FT. CONVEYOR ASSEMBLY (FOR S.N. UP TO VM17002059)

ITEM	PART	QTY.	PART DESCRIPTION
1	100029	2	SPKT\50\B\14\1\1/4KW
2	110026	1	CHAIN\50DBL\13
3	110067	2	CHAIN\2062\CL
4	110099	1	CHAIN\50DBL\CL
5	1100298	1	CHAIN\ASSY\2062H\3FT\SIDE
6	2000323	2	BRG\FLG\1\4BOLT
7	3900032	1	MOTOR\HYD\22.6\H
8	4700777	6	CLMP\HOSE\1/2
9	4704585	2	BRG\ASSY\CNVYR\CMF
10	4705188	1	MNT\MTR\CNVYR\DOG
11	4705192	2	COVER\CPLR\CHAIN\CNVYR
12	4705194	1	PL\BRG\SHIM
13	4705351	1	SH\SIDE\L\RAMP\FRM\DOG
14	4705352	1	SH\SIDE\R\RAMP\FRM\DOG
15	4705365	1	CNVYR\SIDE\3FT\WELD
16	4705367	1	DECK\CNVYR\SIDE
17	4705370	1	SHAFT\ASSY\CNVYR\SIDE\CMF
18	4705372	1	IDLER\ASSY\SIDE\CNVYR\CMF
19	4705373	1	SH\RAMP\FRM\SIDE
20	4705529	1	BELT\COVER\SHAFT\CNVYR
21	4705531	1	CNVYR\SIDE\3FT\ASSY\RH
22	4705533	2	SH\SEAL\SHAFT\CNVYR
23	4800098	11	BOLT\HEX\3/8X1-1/4\NC
24	4800146	2	BOLT\HEX\3/8X2
25	4800153	4	BOLT\CRG\5/16X3/4\NC
26	4800365	4	PIN\LNCH\3/8X1-1/2W\KEEPER
27	4800434	2	SCR\CAP\ALN\1/2X1-3/4\NC
28	4800473	23	BOLT\CRG\5/16X1\NC
29	4800643	4	BOLT\HEX\5/16X3/4
30	4800913	8	BOLT\FLG\SERR\3/8X1\NC
31	4800947	8	BOLT\CRG\7/16X2\NC
32	4900001	2	NUT\HEX\1/2\NC
33	4900002	13	NUT\HEX\3/8\NC
34	4900025	8	NUT\HEX\7/16\NC
35	4900104	6	NUT\JAM\3/4\NC
36	4900108	31	NUT\FLG\SERR\5/16\NC
37	5000006	2	WASH\LOCK\1/2
38	5000015	8	WASH\LOCK\7/16
39	5000017	11	WASH\FLAT\FNDR\1.395X1-5/8X.090
40	5000019	13	WASH\LOCK\3/8
41	5000022	4	WASH\LOCK\5/16
42	5900048	2	BELT\SIDE\CNVYR\300
43	5900057	2	STOP\SPRNG\TNSNR
44	5900059	1	COVER\CNVYR\SIDE
45	6100076	2	SPRING\1-1/4ODX3-3/4 LX3/16WX10
46	6200011	1	KEY\WDF\1/4X1
47	6200017	2	KEY\SQ\1/4X3
48	7501271	2	MAG\PL\14X6X1-1/2
49	7501493	2	TARP\CNVYR\SIDE
	4705531		CNVYR\SIDE\3FT\ASSY\RH
	4705364		CNVYR\SIDE\3FT\ASSY\LH

OPTIONAL 3 FT. CONVEYOR ASSEMBLY (FOR S.N. VM19002159 & UP)



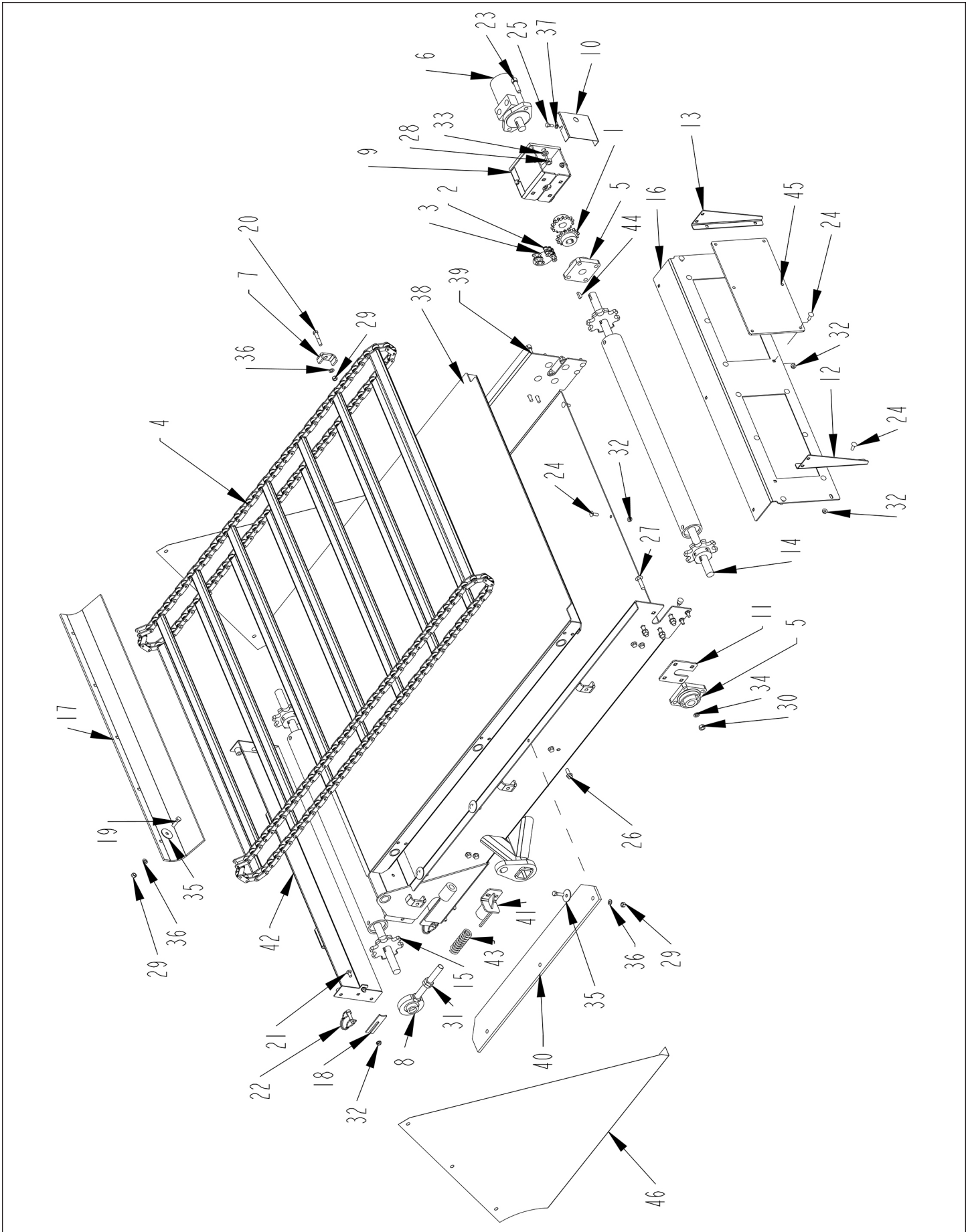
OPTIONAL 3 FT. CONVEYOR ASSEMBLY (FOR S.N. VM19002159 & UP)

ITEM	PART	QTY.	PART DESCRIPTION
1	1000029	2	SPKT\50\B\14\1\1/4KW
2	1100026	1	CHAIN\50DBL\13
3	1100099	1	CHAIN\50DBL\CL
4	1100104	2	CHAIN\620CA\OL
5	1100247	2	CHAIN\620CA\47\W\ATTCH
6	2000323	2	BRG\FLG\1\4BOLT
7	3900025	1	MOTOR\HYD\17.9\H
8	4704585	2	BRG\ASSY\CNVYR\CMF
9	4705194	2	PL\BRG\SHIM
10	4705351	1	SH\SIDE\L\RAMP\FRM\DOG
11	4705352	1	SH\SIDE\R\RAMP\FRM\DOG
12	4705366	1	PIN\CNVYR\SIDE
13	4705529	1	BELT\COVER\SHAFT\CNVYR
14	4800098	11	BOLT\HEX\3/8X1-1/4\NC
15	4800153	52	BOLT\CRG\5/16X3/4\NC
16	4800434	2	SCR\CAP\ALN\1/2X1-3/4\NC
17	4800481	4	BOLT\CRG\1/2X1-1/4\NC
18	4800913	8	BOLT\FLG\SERR\3/8X1\NC
19	4800947	8	BOLT\CRG\7/16X2\NC
20	4900001	6	NUT\HEX\1/2\NC
21	4900002	11	NUT\HEX\3/8\NC
22	4900025	8	NUT\HEX\7/16\NC
23	4900076	8	NUT\FLG\SERR\3/8\NC
24	4900104	6	NUT\JAM\3/4\NC
25	4900108	20	NUT\FLG\SERR\5/16\NC
26	4900133	2	NUT\FLG\1/2\NC
27	4900142	32	NUT\TPLCK\5/16\NC
28	5000006	6	WASH\LOCK\1/2
29	5000015	8	WASH\LOCK\7/16
30	5000017	11	WASH\FLAT\FNDR\3.95X1-5/8X.090
31	5000019	11	WASH\LOCK\3/8
32	5900048	2	BELT\SIDE\CNVYR\300
33	5900157	8	SLAT\CHAIN\SIDE_DISCH\CNVYR
34	5900159	1	BRKT\MTR\SIDE_DISCH
35	5900160	1	COVER\CPLR\MTR
36	5900162	1	SH\RAMP\MAG\SIDE_DISCH
37	5900164	1	COVER\CNVYR\SIDE_DISCH
38	5900165	2	LATCH\COVER
39	5900167	1	SHAFT\DRV\CNVYR\SIDE_DISCH
40	5900168	1	SHAFT\IDLE\CNVYR\SIDE_DISCH
41	5900180	1	CNVYR\SIDE\WELD\3'
42	5900181	1	COVER\BTTM\CNVYR\SIDE_CNVYR\3'
43	5900185	2	BLANK\MAG\SPOUT\SIDE (OPTIONAL PART)
44	6200011	1	KEY\WDF\1/4X1
45	7501271	2	MAG\PL\14X6X1-1/2
46	7501493	2	TARP\CNVYR\SIDE

5900179

CNVYR\SIDE\3FT\ASSY

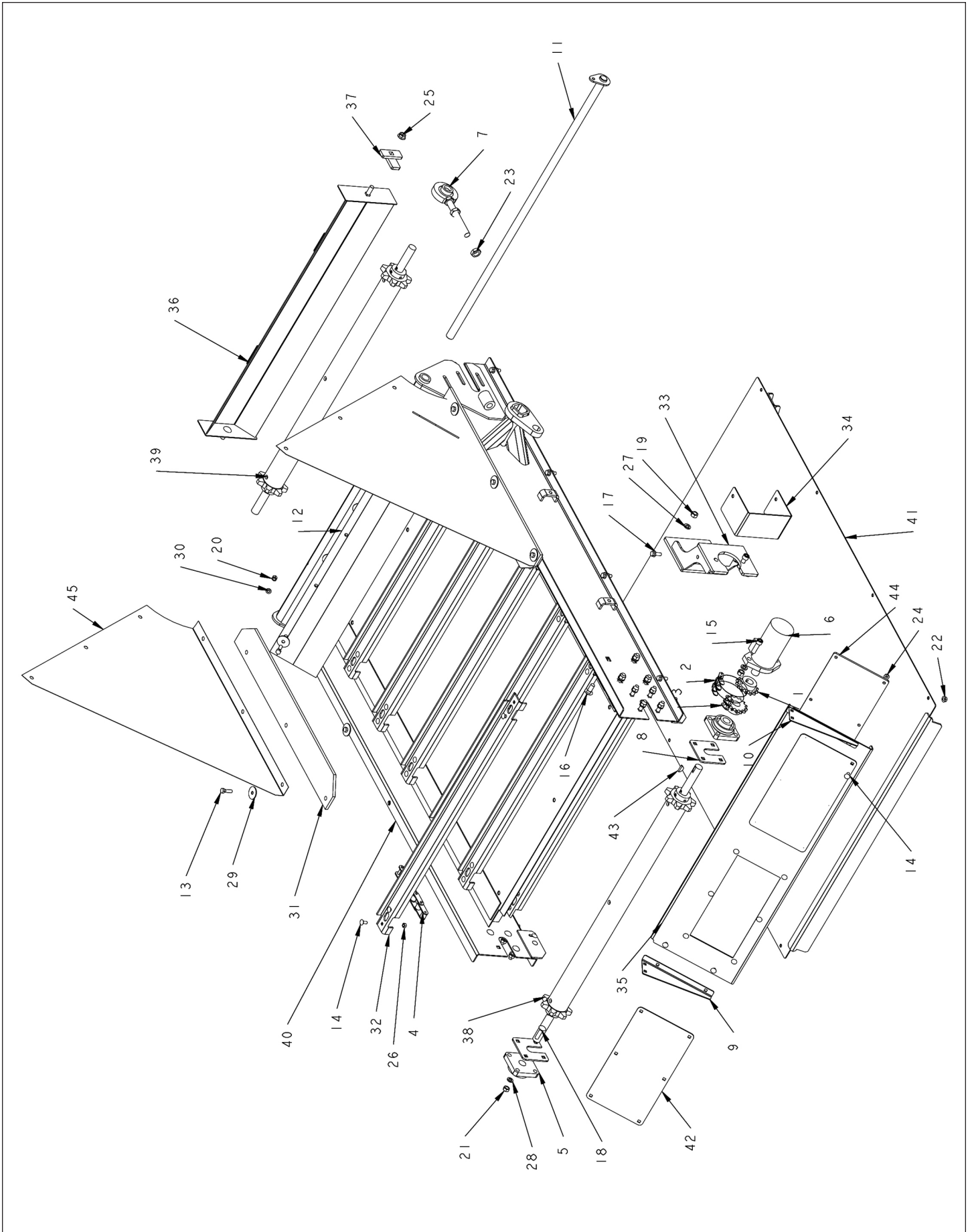
OPTIONAL 5 FT. CONVEYOR ASSEMBLY (FOR S.N. UP TO VM17002059)



OPTIONAL 5 FT. CONVEYOR ASSEMBLY (FOR S.N. UP TO VM17002059)

ITEM	PART	QTY.	PART DESCRIPTION
1	1000029	2	SPKT\50\B\14\1\1/4KW
2	1100026	1	CHAIN\50DBL\13
3	1100099	1	CHAIN\50DBL\CL
4	1100307	1	CHAIN\ASSY\CNVYR\5FT
5	2000323	2	BRG\FLG\1\4BOLT
6	3900032	1	MOTOR\HYD\22.6\H
7	4700777	9	CLMP\HOSE\1/2
8	4704585	2	BRG\ASSY\CNVYR\CMF
9	4705188	1	MNT\MTR\CNVYR\DOG
10	4705192	2	COVER\CPLR\CHAIN\CNVYR
11	4705194	1	PL\BRG\SHIM
12	4705351	1	SH\SIDE\L\RAMP\FRM\DOG
13	4705352	1	SH\SIDE\R\RAMP\FRM\DOG
14	4705370	1	SHAFT\ASSY\CNVYR\SIDE\CMF
15	4705372	1	IDLER\ASSY\SIDE\CNVYR\CMF
16	4705373	1	SH\RAMP\FRM\SIDE
17	4705529	1	BELT\COVER\SHAFT\CNVYR
18	4705533	2	SH\SEAL\SHAFT\CNVYR
19	4800098	11	BOLT\HEX\3/8X1-1/4\NC
20	4800146	3	BOLT\HEX\3/8X2
21	4800153	4	BOLT\CRG\5/16X3/4\NC
22	4800365	4	PIN\LNCH\3/8X1-1/2W/KEEPER
23	4800434	2	SCR\CAP\ALN\1/2X1-3/4\NC
24	4800473	23	BOLT\CRG\5/16X1\NC
25	4800643	4	BOLT\HEX\5/16X3/4
26	4800913	12	BOLT\FLG\SERR\3/8X1\NC
27	4800947	8	BOLT\CRG\7/16X2\NC
28	4900001	2	NUT\HEX\1/2\NC
29	4900002	14	NUT\HEX\3/8\NC
30	4900025	8	NUT\HEX\7/16\NC
31	4900104	6	NUT\JAM\3/4\NC
32	4900108	31	NUT\FLG\SERR\5/16\NC
33	5000006	2	WASH\LOCK\1/2
34	5000015	8	WASH\LOCK\7/16
35	5000017	11	WASH\FLAT\FNDR\395X1-5/8X.090
36	5000019	14	WASH\LOCK\3/8
37	5000022	4	WASH\LOCK\5/16
38	5900033	1	DECK\CNVYR\5FT\SIDE
39	5900034	1	CNVYR\SIDE\5FT\WELD
40	5900048	2	BELT\SIDE\CNVYR\300
41	5900057	2	STOP\SPRNG\TNSNR
42	5900059	1	COVER\CNVYR\SIDE
43	6100076	2	SPRING\1-1/4ODX3-3/4 LX3/16WX10
44	6200011	1	KEY\WDF\1/4X1
45	7501271	2	MAG\PL\14X6X1-1/2
46	7501493	2	TARP\CNVYR\SIDE
	5900032		CNVYR\SIDE\5FT\RH\ASSY
	5900054		CNVYR\SIDE\5FT\LH\ASSY

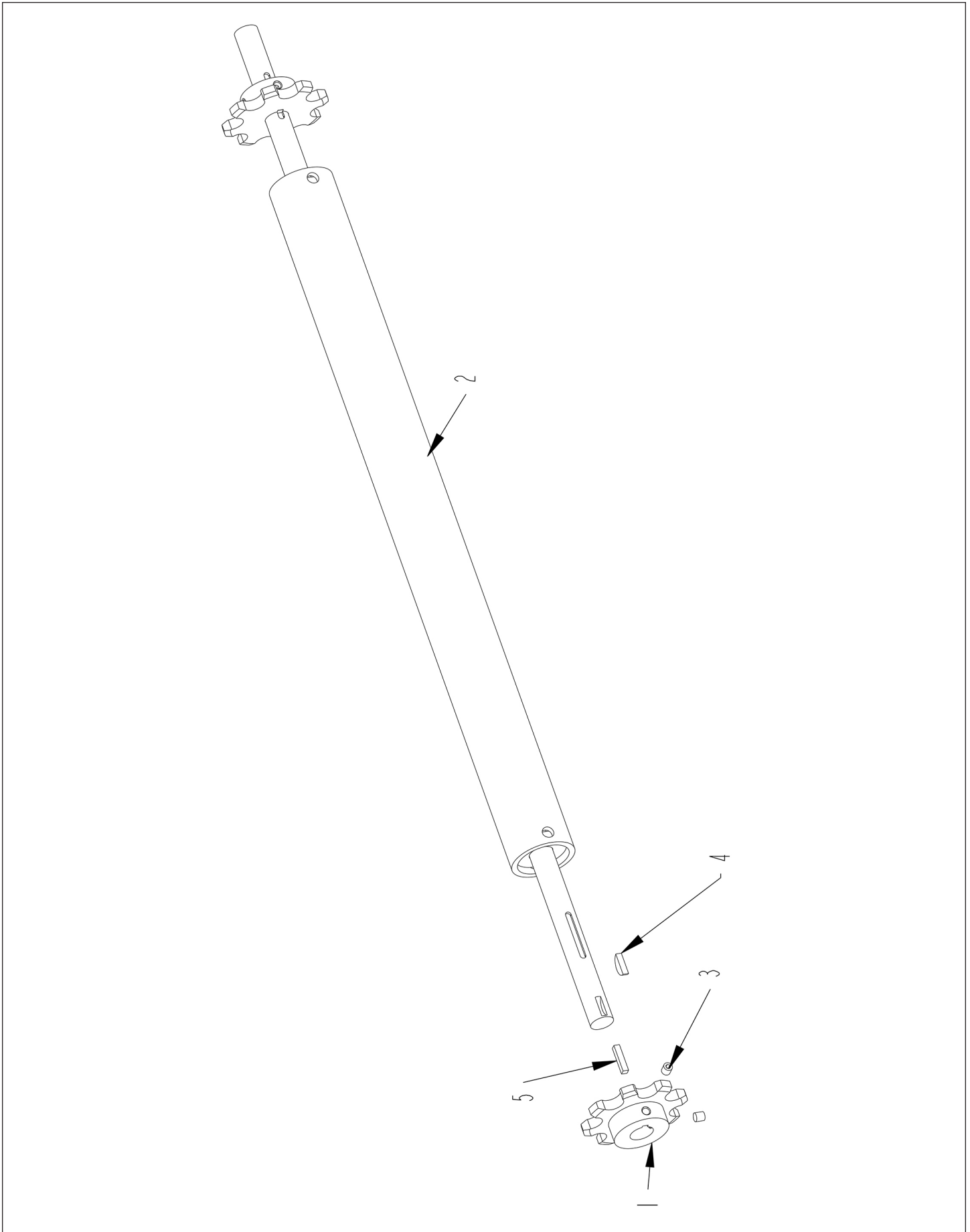
OPTIONAL 5 FT. CONVEYOR ASSEMBLY (FOR S.N. VM19002159 & UP)



OPTIONAL 5 FT. CONVEYOR ASSEMBLY (FOR S.N. VM19002159 & UP)

ITEM	PART	QTY.	PART DESCRIPTION
1	100029	2	SPKT\50\B\14\1\1/4KW
2	110026	1	CHAIN\50DBL\13
3	110099	1	CHAIN\50DBL\CL
4	1100328	2	CHAIN\620CA\W\ATTCH@6\77P+OL_INSTALLED+CL
5	2000323	2	BRG\FLG\14BOLT
6	3900025	1	MOTOR\HYD\17.9\H
7	4704585	2	BRG\ASSY\CNVYR\CMF
8	4705194	2	PL\BRG\SHIM
9	4705351	1	SH\SIDE\L\RAMP\FRM\DOG
10	4705352	1	SH\SIDE\R\RAMP\FRM\DOG
11	4705366	1	PIN\CNVYR\SIDE
12	4705529	1	BELT\COVER\SHAFT\CNVYR
13	4800098	11	BOLT\HEX\3/8X1-1/4\NC
14	4800153	72	BOLT\CRG\5/16X3/4\NC
15	4800434	2	SCR\CAP\ALN\1/2X1-3/4\NC
16	4800481	4	BOLT\CRG\1/2X1-1/4\NC
17	4800913	10	BOLT\FLG\SERR\3/8X1\NC
18	4800947	8	BOLT\CRG\7/16X2\NC
19	4900001	6	NUT\HEX\1/2\NC
20	4900002	11	NUT\HEX\3/8\NC
21	4900025	8	NUT\HEX\7/16\NC
22	4900076	10	NUT\FLG\SERR\3/8\NC
23	4900104	6	NUT\JAM\3/4\NC
24	4900108	20	NUT\FLG\SERR\5/16\NC
25	4900133	2	NUT\FLG\1/2\NC
26	4900142	50	NUT\TPLCK\5/16\NC
27	5000006	6	WASH\LOCK\1/2
28	5000015	8	WASH\LOCK\7/16
29	5000017	11	WASH\FLAT\FNDR\1.395X1-5/8X.090
30	5000019	11	WASH\LOCK\3/8
31	5900048	2	BELT\SIDE\CNVYR\300
32	5900157	13	SLAT\CHAIN\SIDE_DISCH\CNVYR
33	5900159	1	BRKT\MTR\SIDE_DISCH
34	5900160	1	COVER\CPLR\MTR
35	5900162	1	SH\RAMP\MAG\SIDE_DISCH
36	5900164	1	COVER\CNVYR\SIDE_DISCH
37	5900165	2	LATCH\COVER
38	5900167	1	SHAFT\DRV\CNVYR\SIDE_DISCH
39	5900168	1	SHAFT\IDLE\CNVYR\SIDE_DISCH
40	5900176	1	CNVYR\SIDE\WELD\5'
41	5900178	1	COVER\BTM\CNVYR\SIDE_CNVYR
42	5900185	2	BLANK\MAG\SPOUT\SIDE (OPTIONAL PART)
43	6200011	1	KEY\WDF\1/4X1
44	7501271	2	MAG\PL\14X6X1-1/2
45	7501493	2	TARP\CNVYR\SIDE
	5900177		CNVYR\SIDE\5FT\ASSY

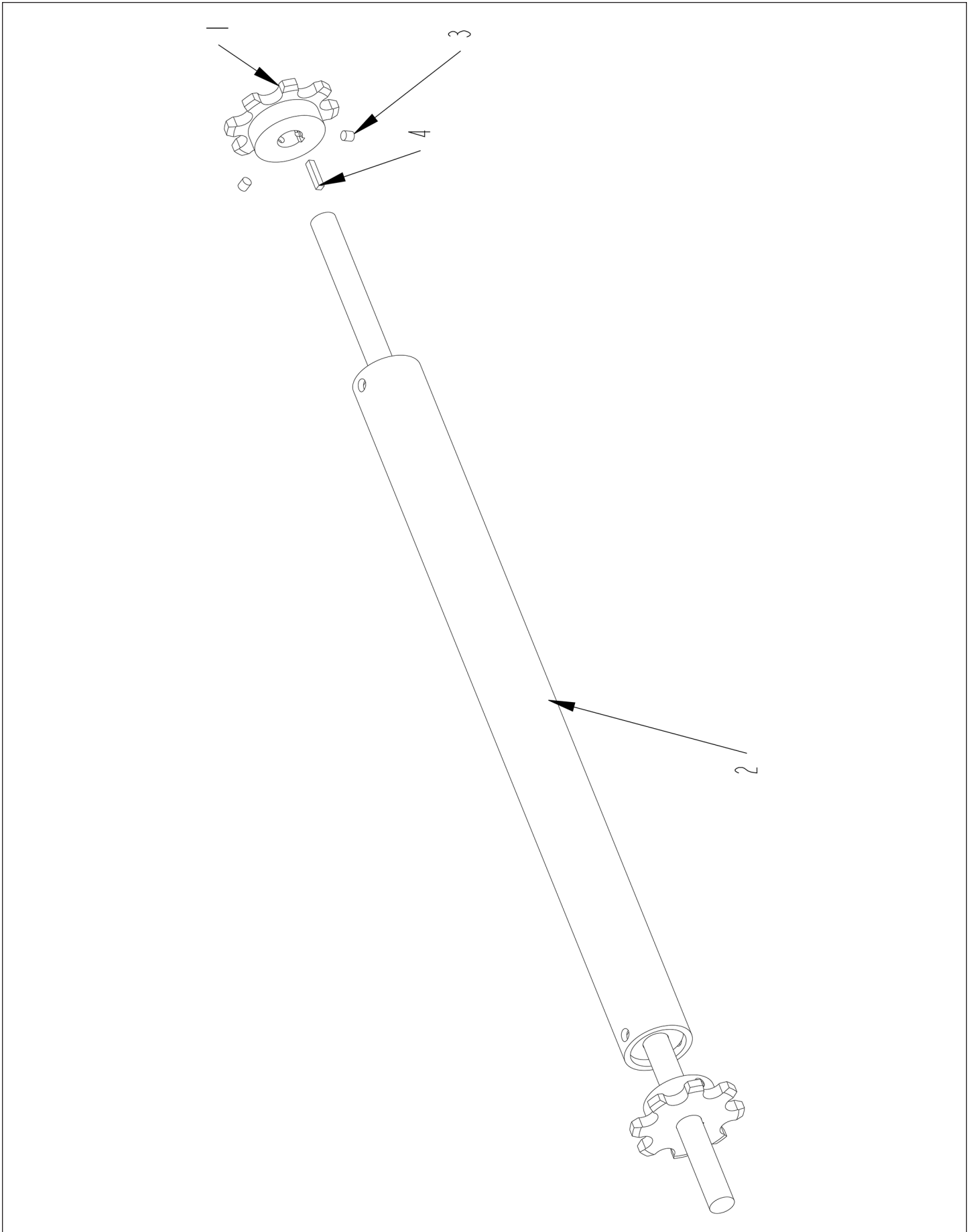
CONVEYOR DRIVE SHAFT ASSEMBLY



CONVEYOR DRIVE SHAFT ASSEMBLY

ITEM	PART	QTY.	PART DESCRIPTION
1	1000299	2	SPKT\B\2062\8\1"BORE\1/4"KW
2	4705369	1	SHAFTWELD\CNVYR\SIDE\CMF
3	4800143	4	SCR\SET\ALN\3/8X3/8\NC
4	6200011	1	KEY\WDF\1/4X1
5	6200014	2	KEY\SQ\1/4X1-1/4
	4705370		DRIVE\ASSY\CNVYR\DOG\CMF

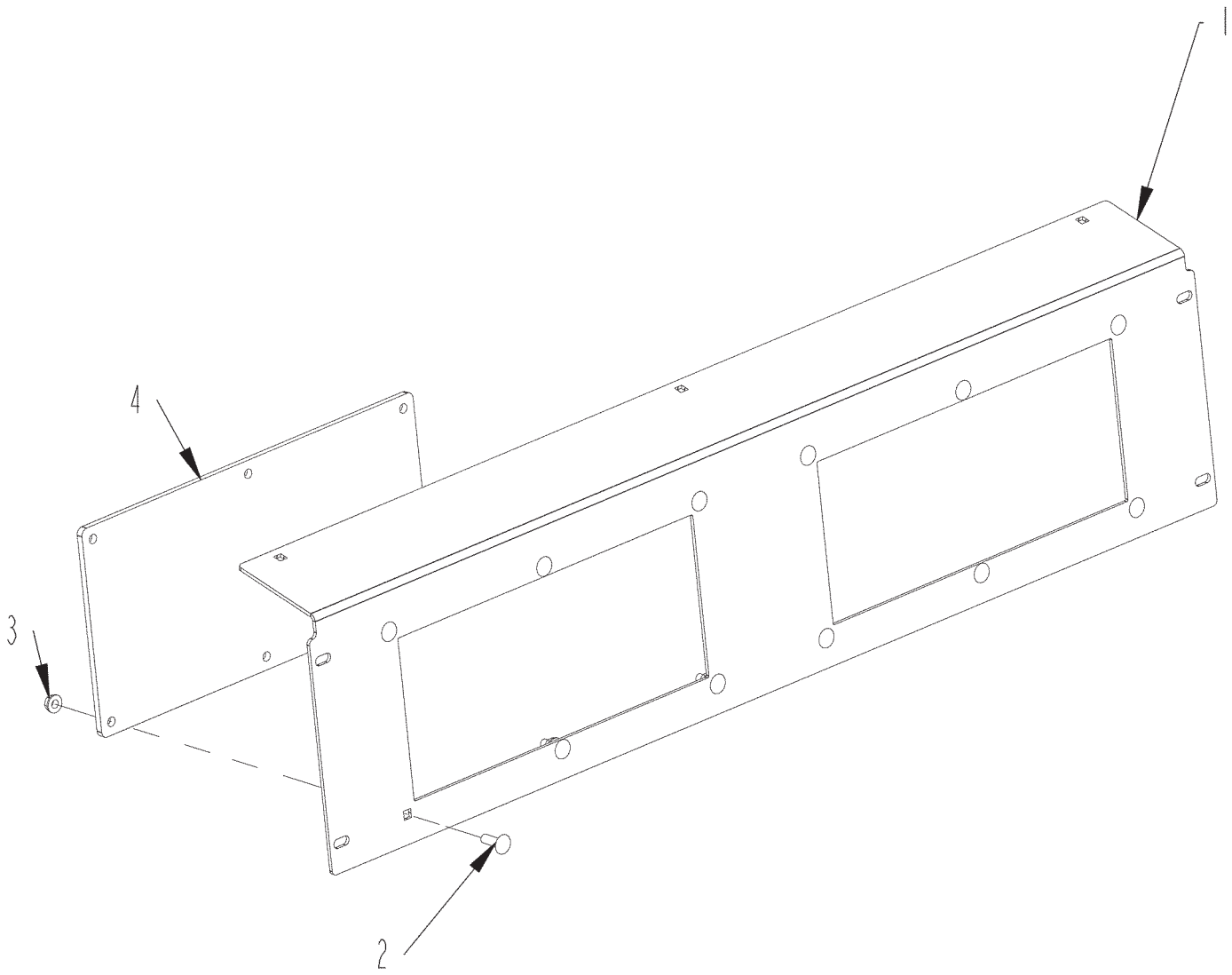
CONVEYOR IDLER SHAFT ASSEMBLY



CONVEYOR IDLER SHAFT ASSEMBLY

ITEM	PART	QTY.	PART DESCRIPTION
1	1000299	2	SPKT\B\2062\8\1"BORE\1/4"KW
2	4705371	1	IDLER\WELD\SIDE\CNVYR\CMF
3	4800143	4	SCR\SET\ALN\3/8X3/8\NC
4	6200014	2	KEY\SQ\1/4X1-1/4
	4705372		IDLER\ASSY\SIDE\CNVYR\CMF

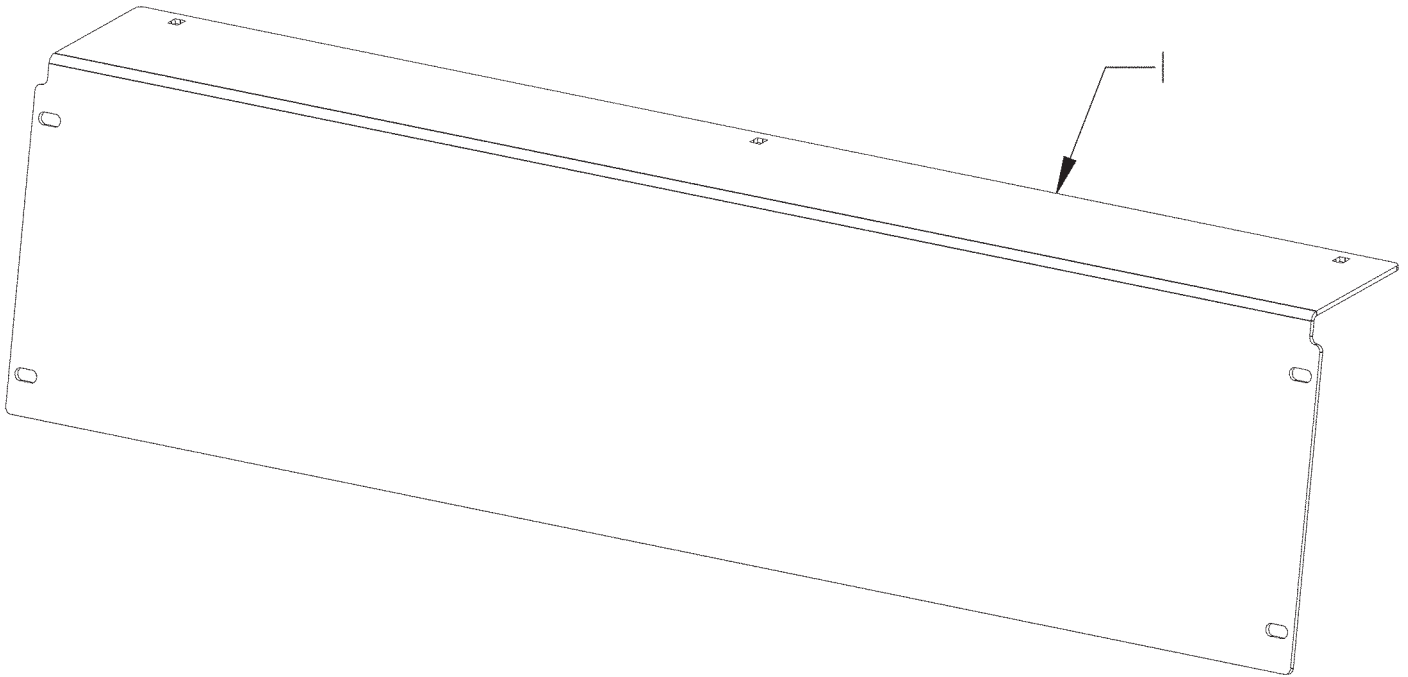
MAGNETIC CONVEYOR SPOUT ASSEMBLY



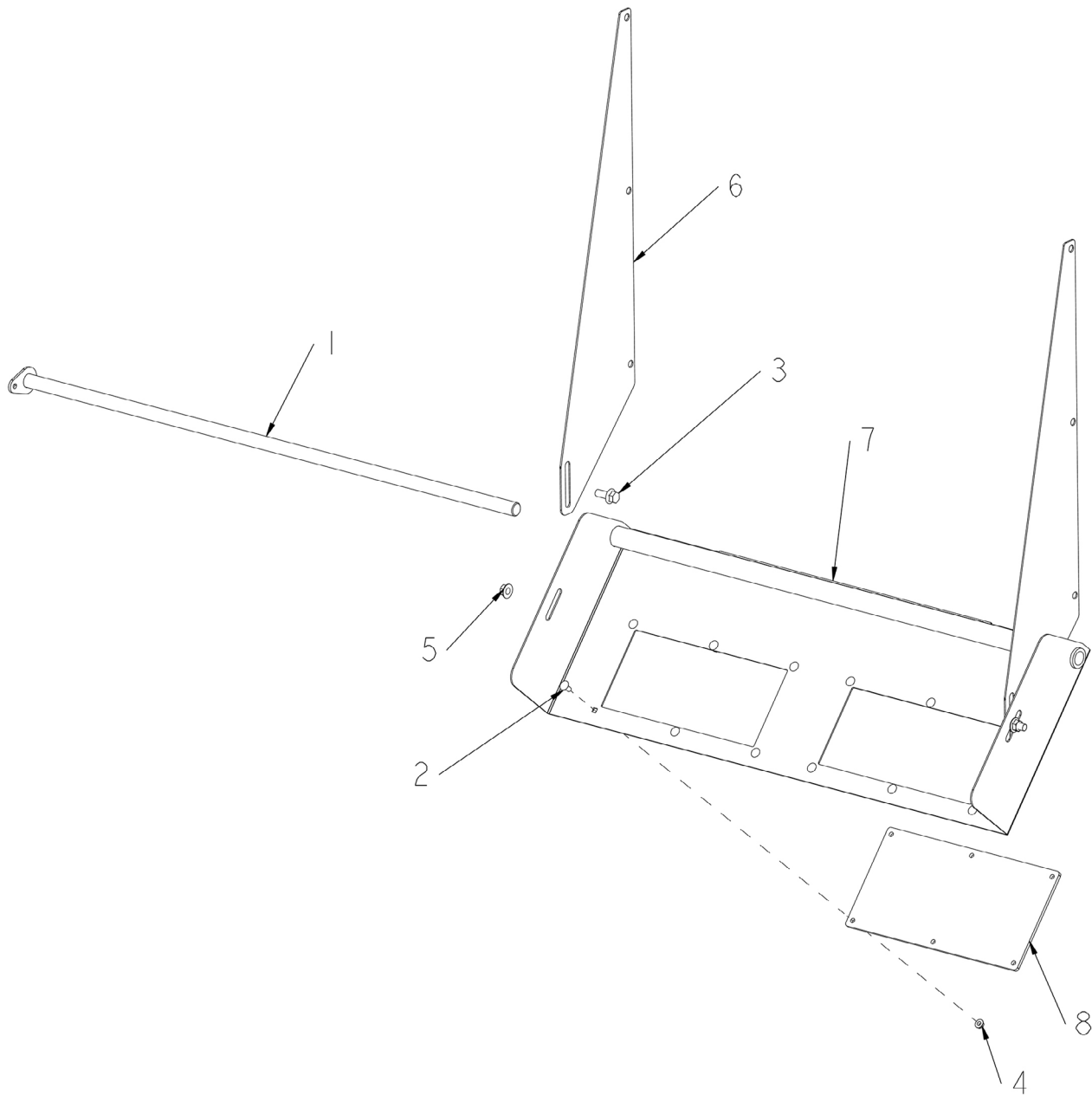
ITEM	PART NO.	QTY.	DESCRIPTION
1	4705373	1	SH\RAMP\FRM\SIDE
2	4800473	12	BOLT\CRG\5/16X1\NC
3	4900108	12	NUT\FLG\SERR\5/16\NC
4	7501271	2	MAG\PL\14X6X1-1/2
	5900028		SPOUT\MAG\CNVYR\CMF430

NON-MAGNETIC CONVEYOR SPOUT ASSEMBLY

ITEM	PART NO.	QTY.	DESCRIPTION
1	5900029	1	SPOUT\CNVYR\NON-MAG\CMF430



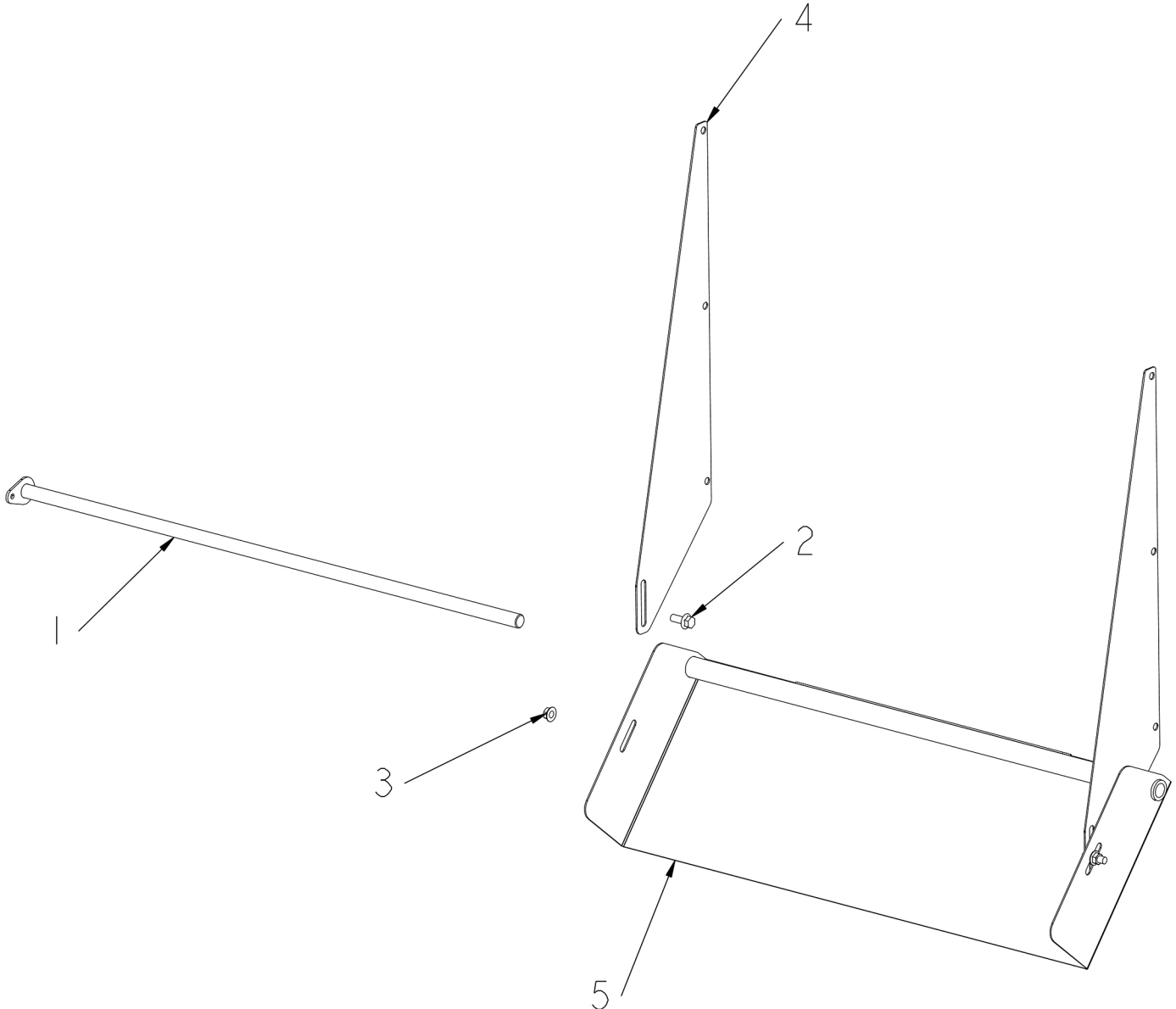
MAGNETIC TUB SPOUT ASSEMBLY



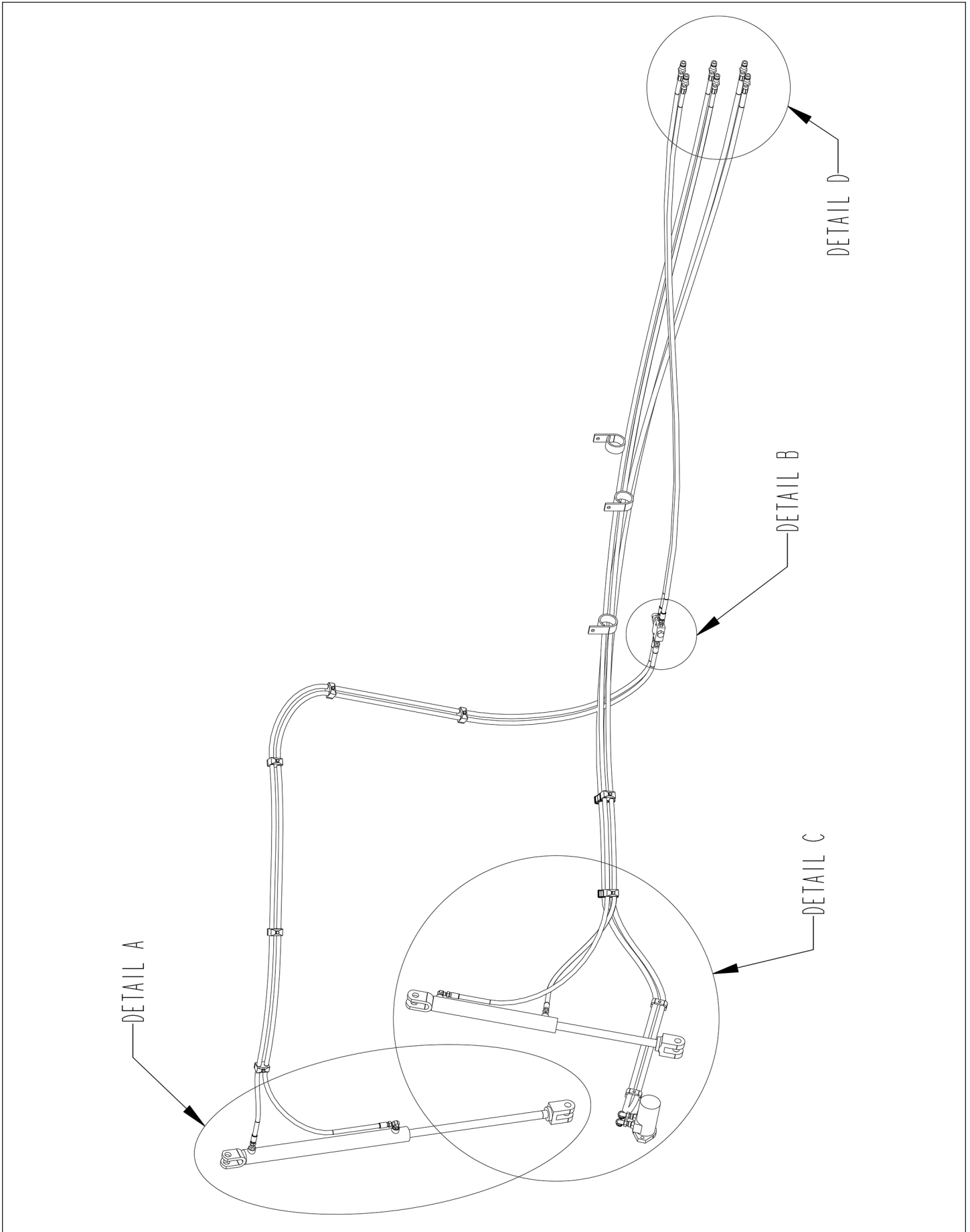
ITEM	PART NO.	QTY.	DESCRIPTION
1	4705366	1	PIN\CNVYR\SIDE
2	4800153	12	BOLT\CRG\5/16X3/4\NC
3	4800928	3	BOLT\FLG\SERR\1/2X1-1/4\NC
4	4900108	12	NUT\FLG\SERR\5/16\NC
5	4900133	3	NUT\FLG\1/2\NC
6	5900007	2	EXT\DISCH\DOOR
7	5900049	1	PAN\MAG\DISCH\CMF430
8	7501271	2	MAG\PL\14X6X1-1/2
	5900051		PAN\MAG\DISCH\CMF430\ASSY (INCLUDES#2,#4,#7&#8)
	5900052		DISCH\MAG\ASSY\CMF430

NON-MAGNETIC TUB SPOUT ASSEMBLY

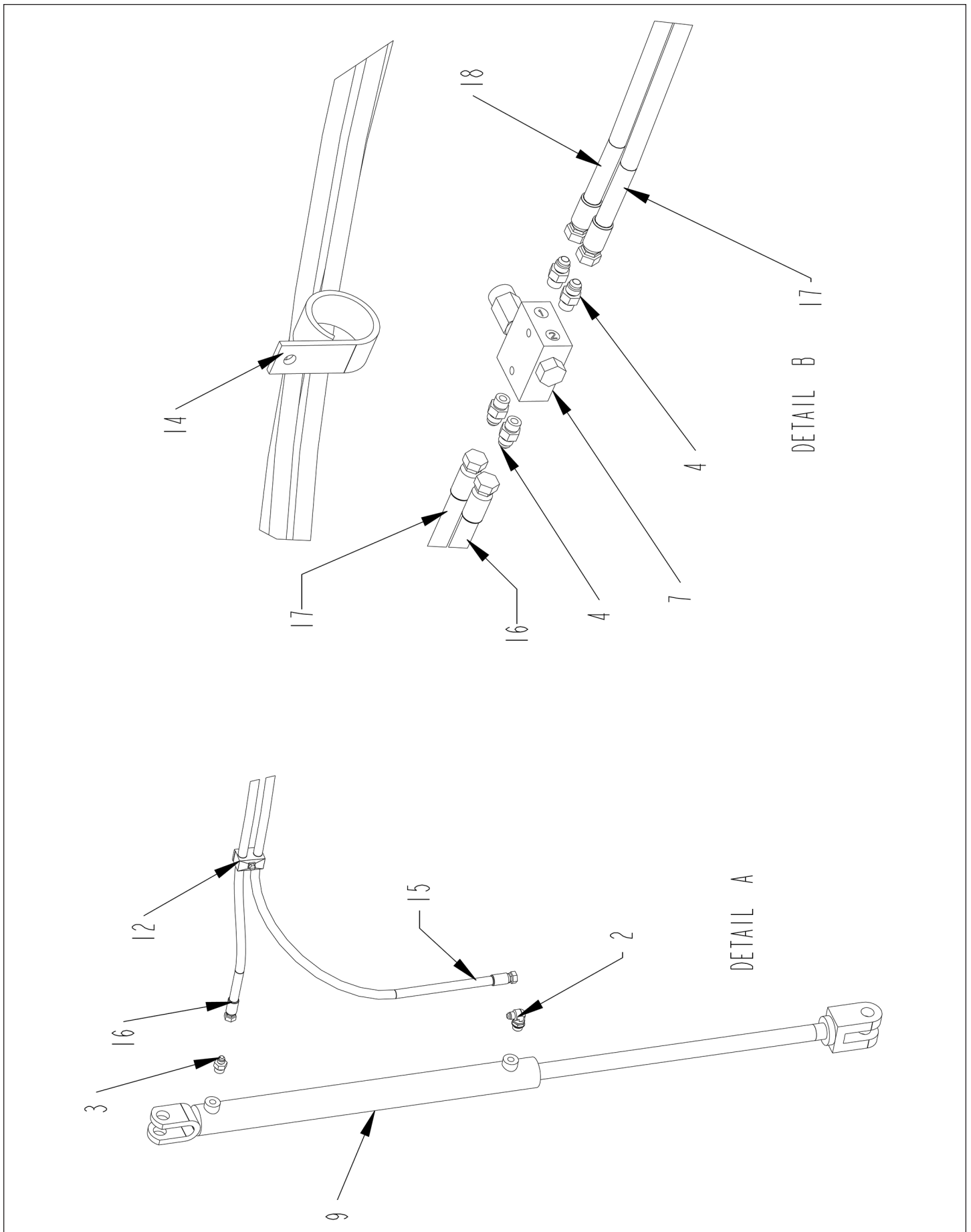
ITEM	PART NO.	QTY.	DESCRIPTION
1	4705366	1	PIN\CNVYR\SIDE
2	4800928	2	BOLT\FLG\SERR\1/2X1-1/4\NC
3	4900133	2	NUT\FLG\1/2\NC
4	5900007	2	EXT\DISCH\DOOR
5	5900050	1	PAN\DISCH\CMF430
	5900053		DISCH\NON_MAG\ASSY\CMF430



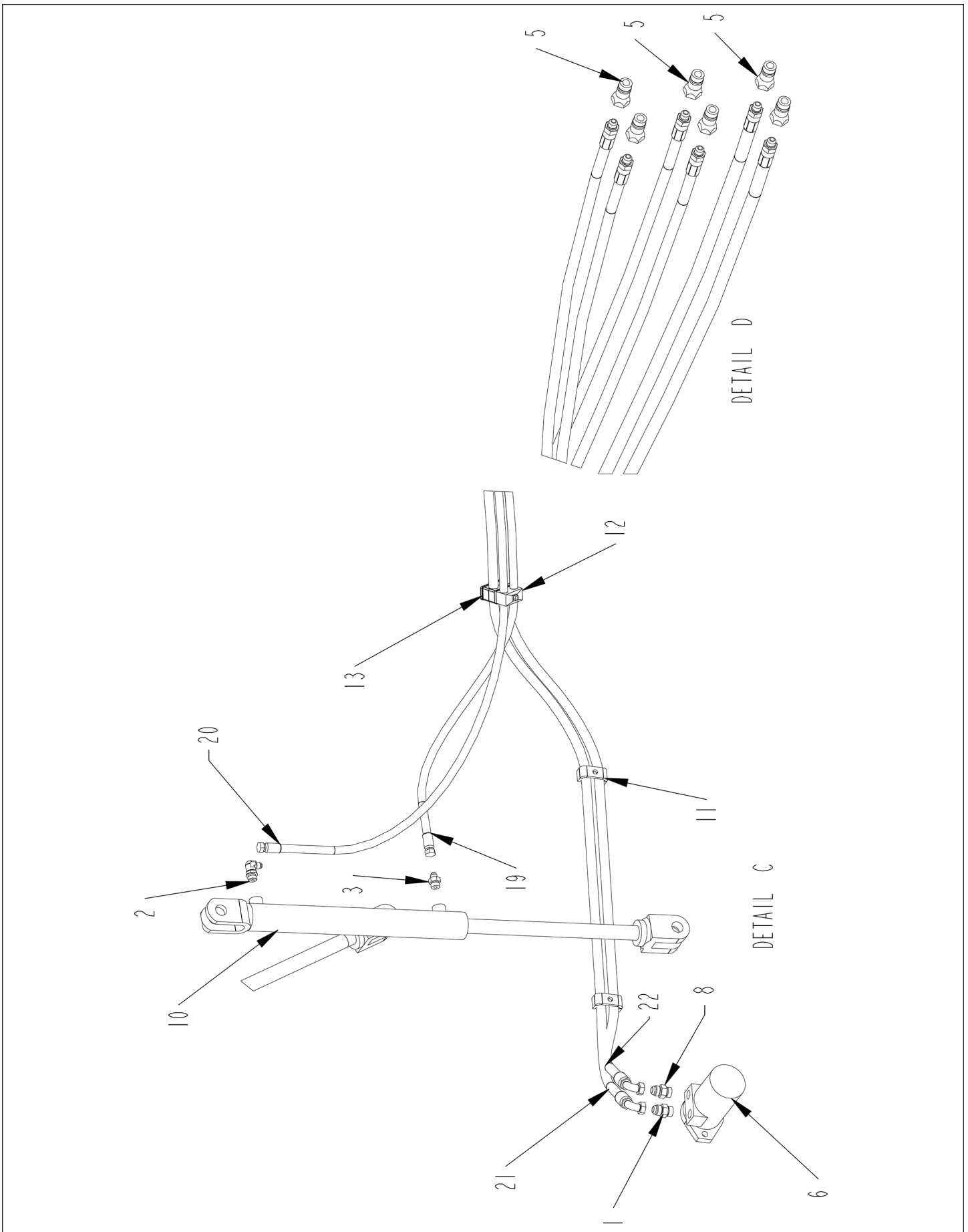
CONVEYOR AND DOOR HYDRAULICS EXPLOSION



CONVEYOR AND DOOR HYDRAULICS DETAILS A AND B



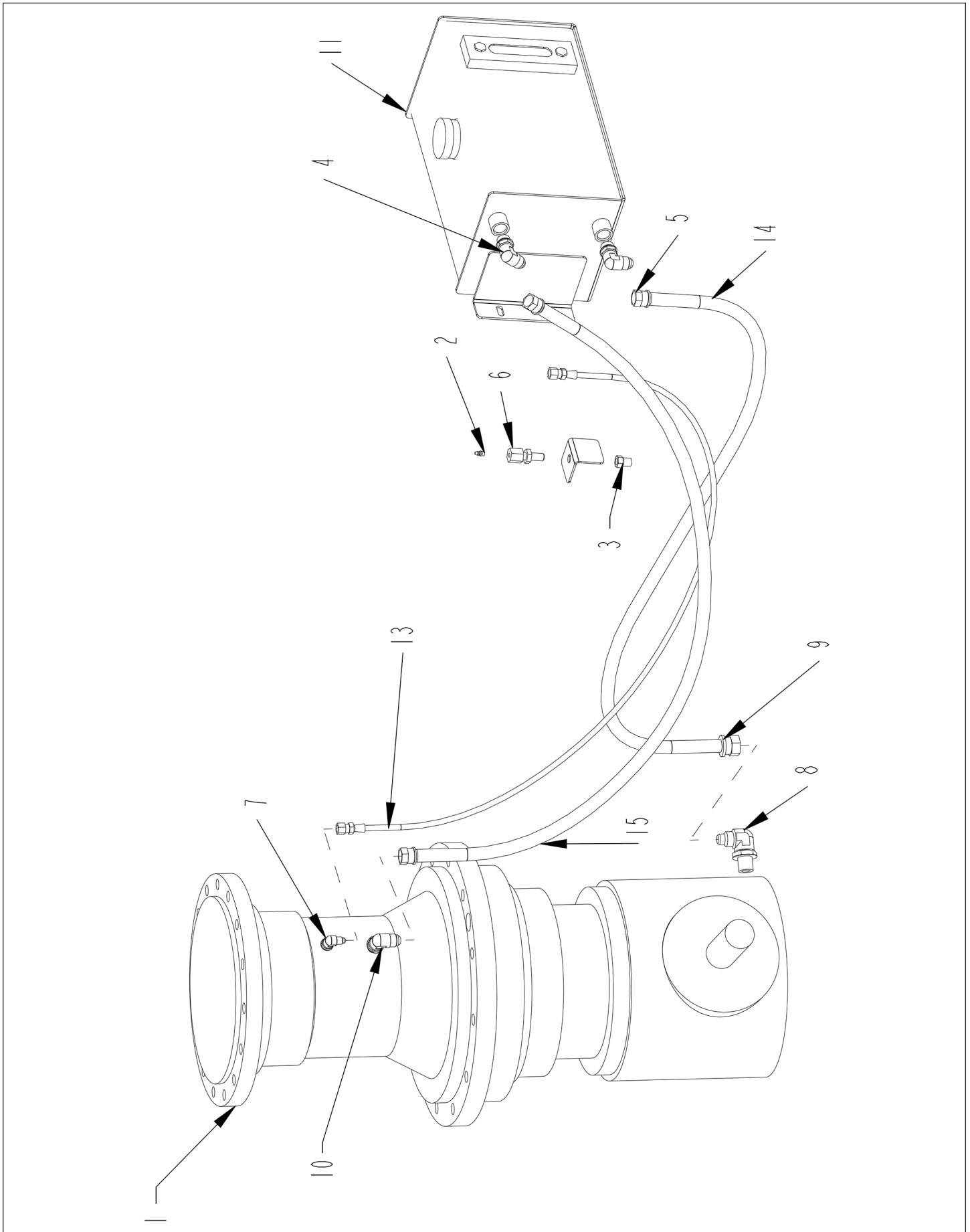
CONVEYOR AND DOOR HYDRAULICS DETAILS C AND D



CONVEYOR AND DOOR HYDRAULICS DETAILS PARTS LIST

ITEM	PART	QTY.	PART DESCRIPTION
1	3800448	1	FTG\7/8MORX7/8MJIC\ST
2	3800453	2	FTG\3/4MORX9/16MJIC\90
3	3800530	2	FTG\3/4MORX9/16MJIC\ST
4	3800631	4	FTG\9/16MORX9/16MJIC\ST
5	3800694	6	FTG\3/4FOR\QUICK;CPLR\MALE
6	3900032	1	MOTOR\HYD\22.6\H
7	4000245	1	VALVE\RELIEF\CROSS\SINGLE
8	4000288	1	FTG\7/8MORX7/8MJIC\ST\CHCK
9	4100241	1	CYL\HYD\2"X24"\1-1/4"ROD
10	4100284	1	CYL\HYD\2X16\1-1/4RD\WELDE
11	4700777	2	CLMP\HOSE\1/2
12	7501336	7	CLMP\HOSE\CUSH\3/8
13	7501525	2	CLAMP\HOSE\1/2\2
14	7501528	3	STRAP\HANG\2.5ID\STD
15	3701695	1	HOSE\HYD\3/8X212\9/16FJICS(2) ROD END DOOR CYL. TO CROSS-OVER RELIEF VALVE
16	3701696	1	HOSE\HYD\3/8X188\9/16FJICS(2) TUBE END DOOR CYL. TO CROSS-OVER RELIEF VALVE
17	3701458	1	HOSE\HYD\3/8X84\9/16FJICSX3/4MOR CROSS-OVER RELIEF VALVE TO TRACTOR COUPLER
18	3701458	1	HOSE\HYD\3/8X84\9/16FJICSX3/4MOR CROSS-OVER RELIEF VALVE TO TRACTOR COUPLER
19	3701697	1	HOSE\HYD\3/8X198\9/16FJICSX3/4MOR ROD END CONVEYOR CYL. TO TRACTOR COUPLER
20	3701698	1	HOSE\HYD\3/8X210\9/16FJICSX3/4MOR TUBE END CONVEYOR CYL. TO TRACTOR COUPLER
21	3701461	1	HOSE\HYD\1/2X249\7/8FJICS90X3/4MOR TOP PORT CHAIN MOTOR TO TRACTOR COUPLER
22	3701461	1	HOSE\HYD\1/2X249\7/8FJICS90X3/4MOR BOTTOM PORT CHAIN MOTOR TO TRACTOR COUPLER

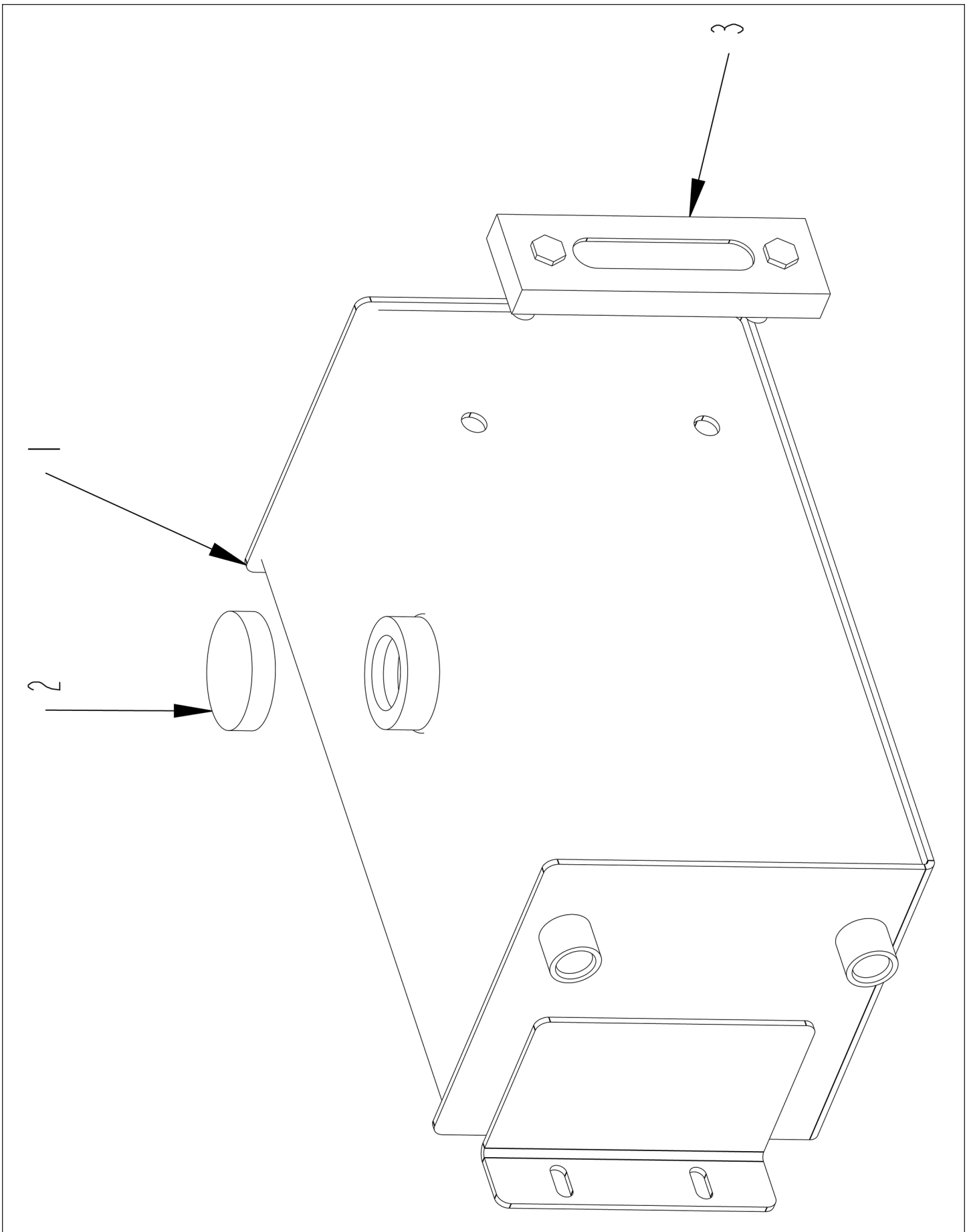
GEARBOX HYDRAULICS



GEARBOX HYDRAULICS PARTS LIST

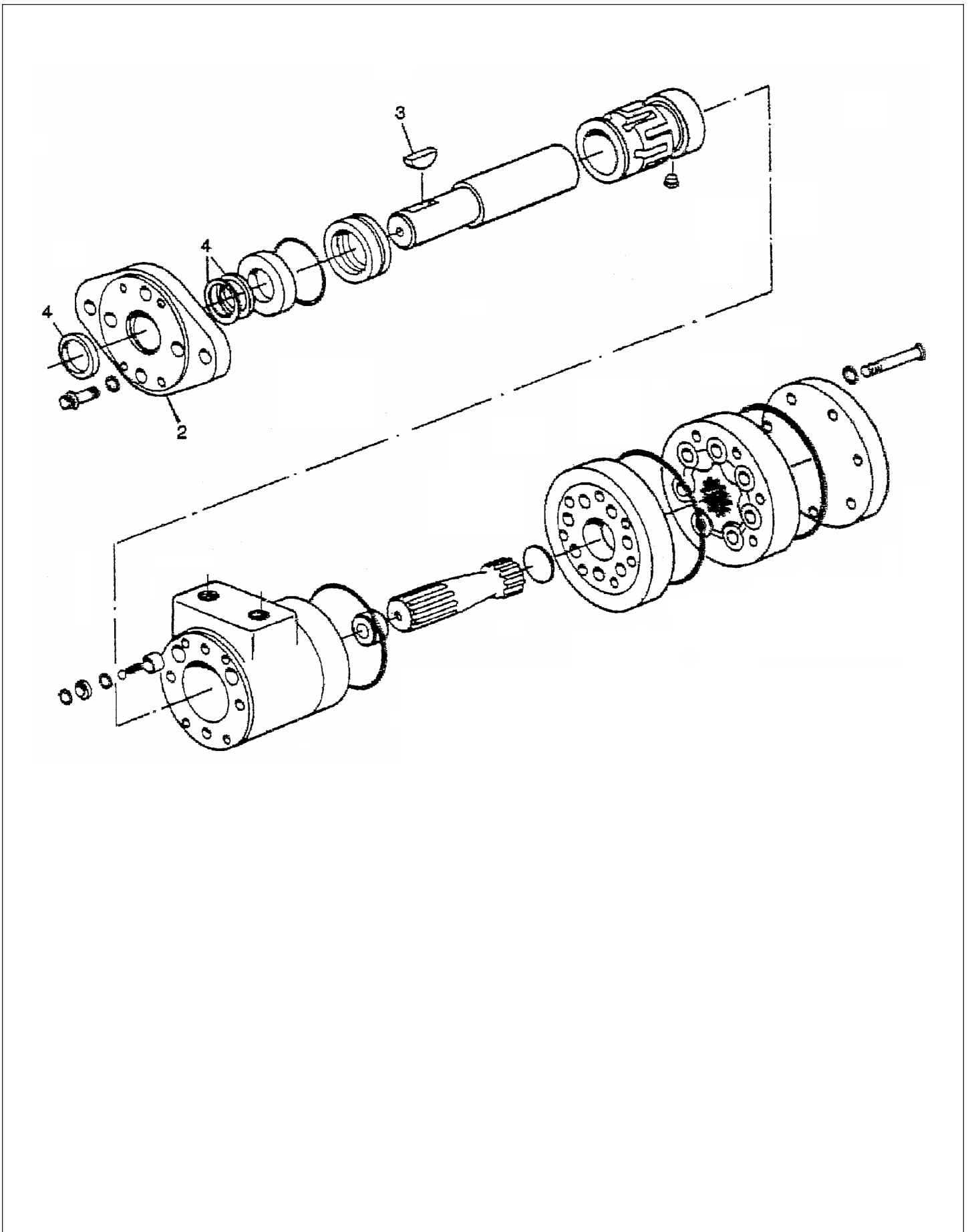
ITEM	PART	QTY.	PART DESCRIPTION
1	3100224	1	GRBX\PLANETARY\SNGL\1800\13.93:1
2	3800082	1	FTG\LUB\1/4NFXZERK\ADAPT
3	3800514	1	FTG\1/4MPX1/8FP\ADPT
4	3800537	2	FTG\3/4MORX3/4MJIC\90
5	3800826	3	FTG\3/4FJICX1/2SHLCK
6	3800861	1	FTG\7/8MJICX1/2FP\BULKHEAD
7	3800862	1	FTG\7/16MJICX#4BSPP
8	3800863	1	FTG\1-1/16MJICX#10BSPP
9	3800864	1	FTG\7/8FJICX1/2SHLCK
10	3800960	1	FTG\3/4MJICX3/8BSPP\90
11	5900039	1	TANK\LUBE\RH_PORTS\ASSY
12	7501525	2	CLAMP\HOSE\1/2\2
13	3700642	1	HOSE\LUB\1/8X86"\7/16FJIC(2) GREASEPORTTOZERKBULKHEAD
14	3701463	1	HOSE\1/2XCUT\3/4FJICX7/8FJIC BOTTOMPORTTANKTOBOTTOMPORTGEARBOX
15	3701462	1	HOSE\1/2XCUT\3/4FJIC(2) TOPPORTTANKTOTOPPORTGEARBOX

LUBRICATION TANK ASSEMBLY



LUBRICATION TANK ASSEMBLY

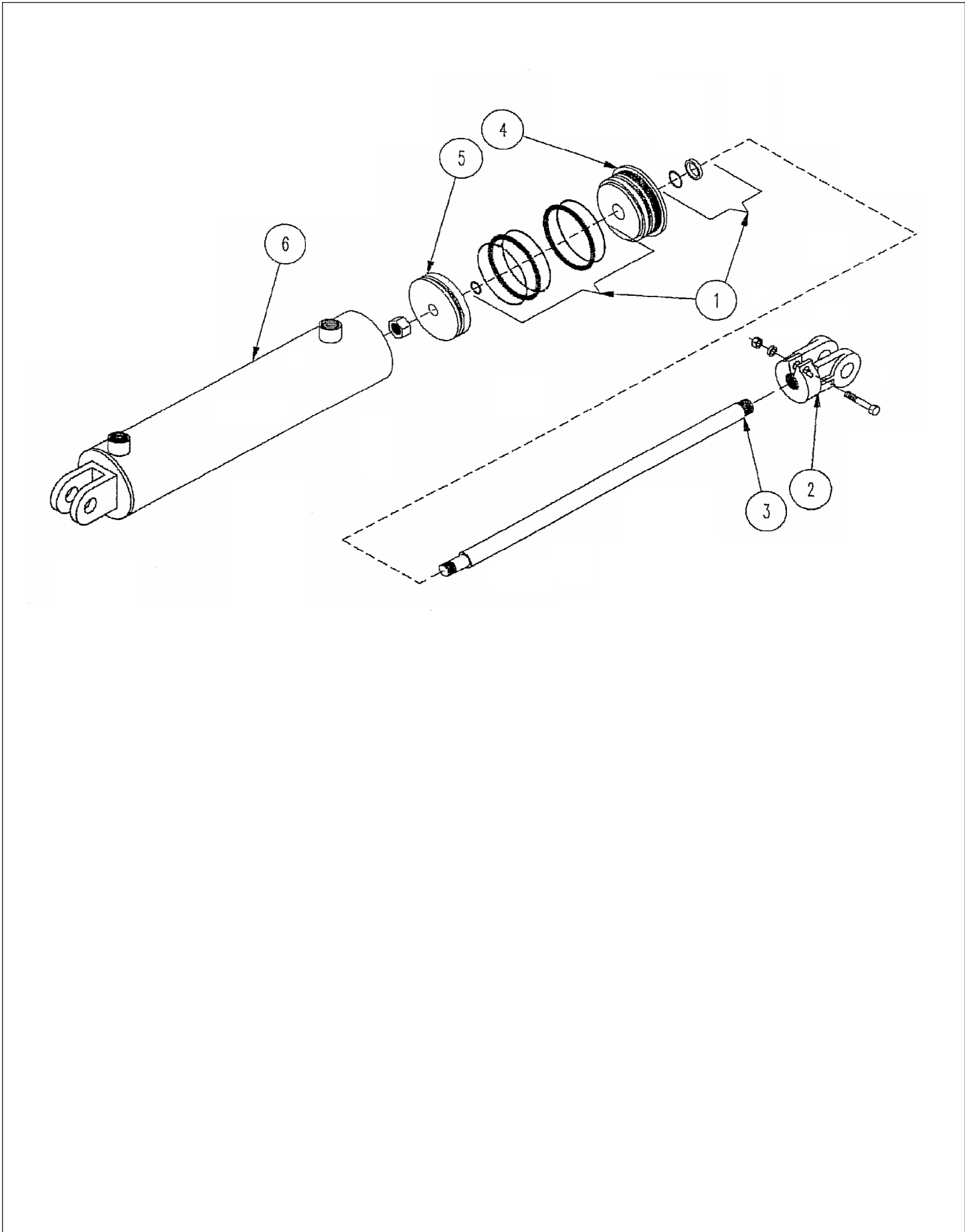
ITEM	PART	QTY.	PART DESCRIPTION
1	5900038	1	TANK\LUBE\RH_PORTS\WELD
2	7500275	1	CAP\VENTED\TANK\OIL
3	7501242	1	GAUGE\LEVEL\5\M12\NOTHERMOMETER
	5900039		TANK\LUBE\RH_PORT\ASSY



ORBIT MOTORS 3900025-3900032

ITEM	PART	QTY.	PART DESCRIPTION
1	3900025		MTR\HYD\17.9\HA;MNT\7/8FOR O-RING THREAD
	3900032		MTR\HYD\101-1040\22.6CI O-RING
2	3900002	1	MOUNTING FLANGE
3	6200011	1	KEYWDF1/4X1\#15\808
4	7501038	1	UNISEAL KIT 007-009

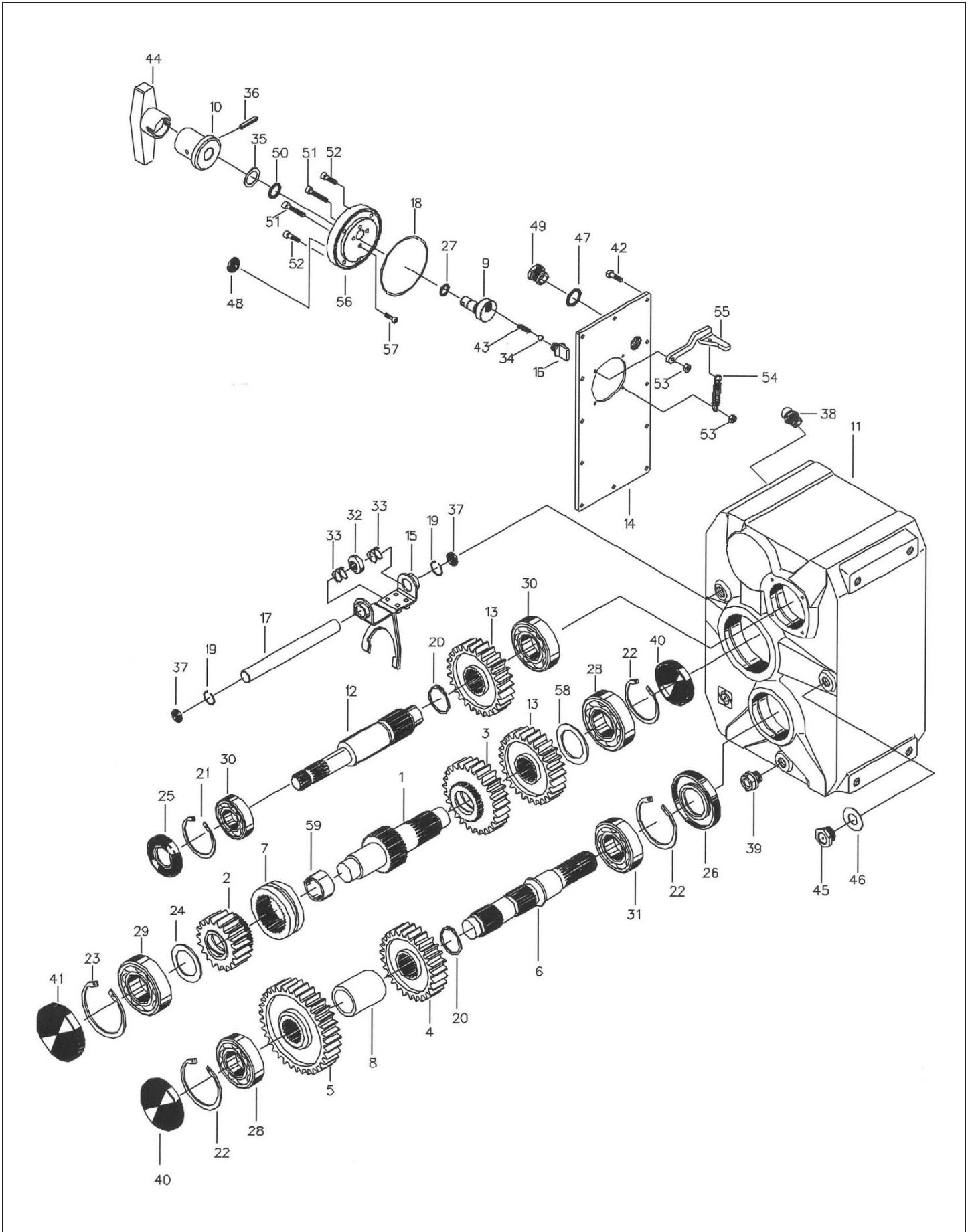
HYDRAULIC CYLINDER ASSEMBLY



HYDRAULIC CYLINDER ASSEMBLY

ITEM	PART	QTY.	PART DESCRIPTION
1	4100241		CYL\HYD\2X24\1-1/4RD\3000 PSI
	4100228		KIT\SEAL\CYL\HYD\2\1-1/4RD\CTD
	4100284		CYL\HYD\2X16\1-1/4ROD\WLD8ORB\90DEG-TO-PIN\CTD

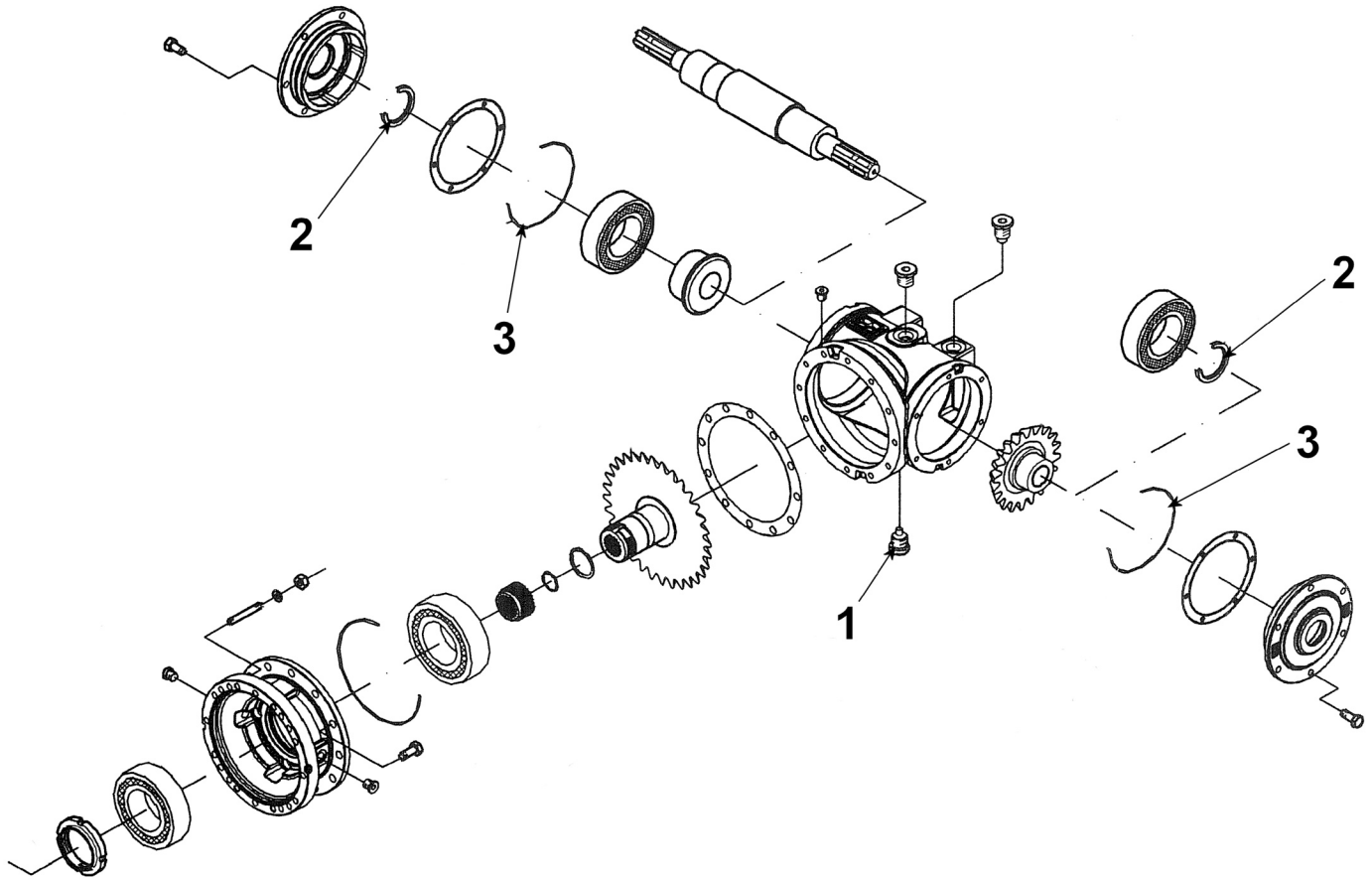
3100225 - 2-SPEED GEARBOX ASSEMBLY



3100225 - 2-SPEED GEARBOX ASSEMBLY

ITEM	PART	QTY.	PART DESCRIPTION
	3100225		GRBX\2SPD\1.84:1\B&P6078
18	3100412	1	ORING\STD\3375
25	3100413	1	SEAL\OIL\B&P\45X85X10
26	3100414	1	SEAL\OIL\B&P\50X90X10
27	3100415	1	ORING\STD\3043
38	3100416	1	PLUG\BRTHR\B&P\1/2
40	3100417	2	PLUG\OIL\B&P\RCA90
41	3100418	1	PLUG\OIL\B&P\RCA110
45	3100419	1	PLUG\OIL\B&P\1/2
46	3100420	1	SLEEVE\B&P\215X268X15
47	3100421	1	ORING\STD\3100
51	3100422	1	SEAL\OIL\B&P\16X22X34

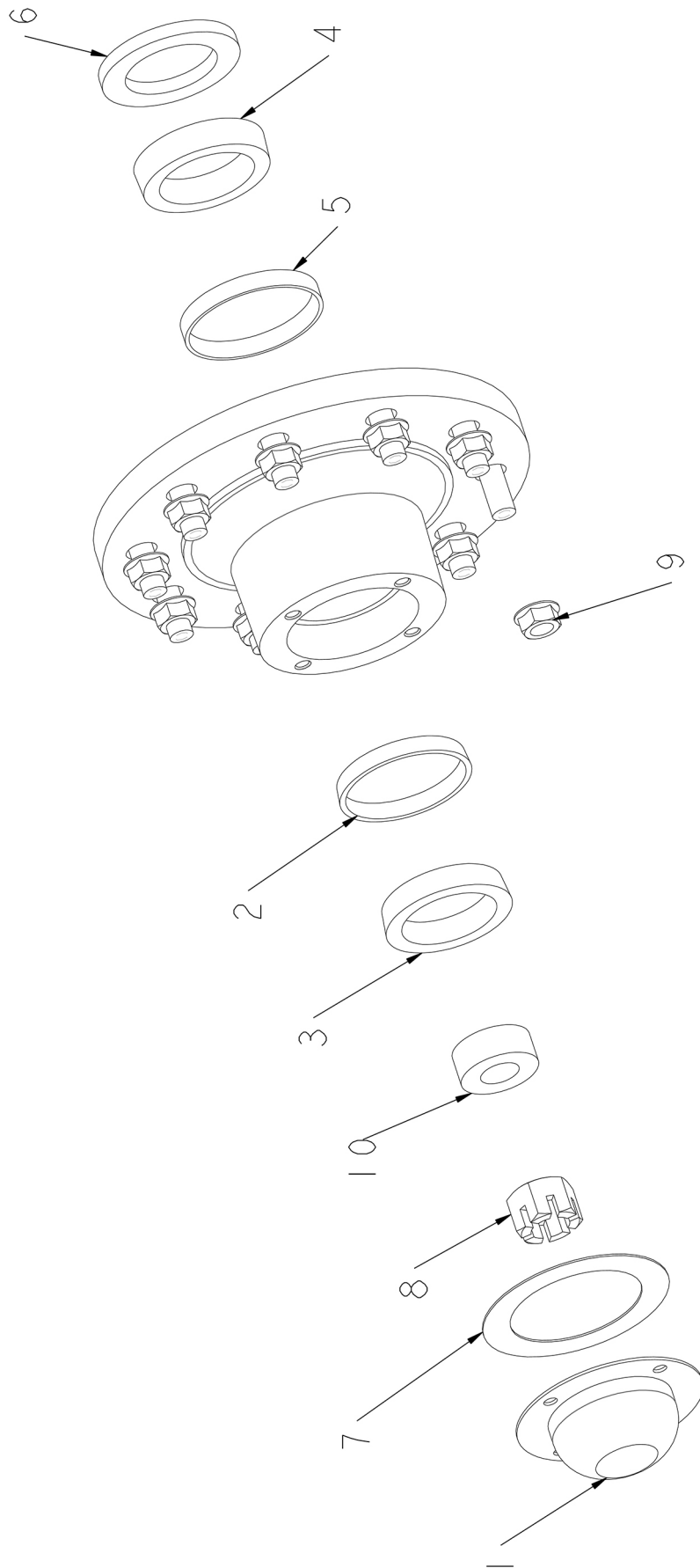
3100224 PLANETARY GEARBOX



3 1 0 0 2 2 4 P L A N E T A R Y G E A R B O X

ITEM	PART	QTY.	PART DESCRIPTION
1	3100365	1	PLUG\MAG\3/4BSPP\GRBX\CMF
2	3100395	2	SEAL\OIL\INPUT\RR1800
3	3100396	2	ORING\COVER\INPUT\RR1800
	3100224		GRBX\PLANETARY\SNGL1800

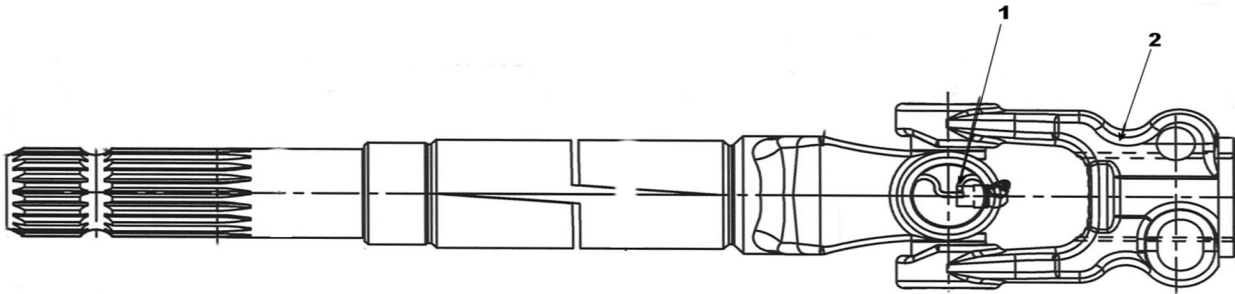
HUB ASSEMBLY



HUB ASSEMBLY

ITEM	PART	QTY.	PART DESCRIPTION
1	2900146	1	CAP\DUST\H1010
2	2900149	1	BRG\CUP\OUTER\H1010
3	2900150	1	BRG\CONE\OUTER\H1010
4	2900156	1	BRG\CONE\INNER\H1010-11
5	2900157	1	BRG\CUP\INNER\H1010-11
6	2900158	1	SEAL\GREASE\H1010-11
7	2900173	1	SEAL\HUB\DUST_CAP\H1010
8	4900053	1	NUT\SLTTD\1-1/4\NF
9	4900176	10	NUT\WHL\FLG\3/4-16
10	5000133	1	WASH\SPNDL\1-5/16ID\2-1/2OD\1/4T
	2900154		HUB\ASSY\15KSI\10-BOLT\11-1/4BOLT_CIRCLE\8.69PILOT

2-SPEED DRIVELINE - 3600794



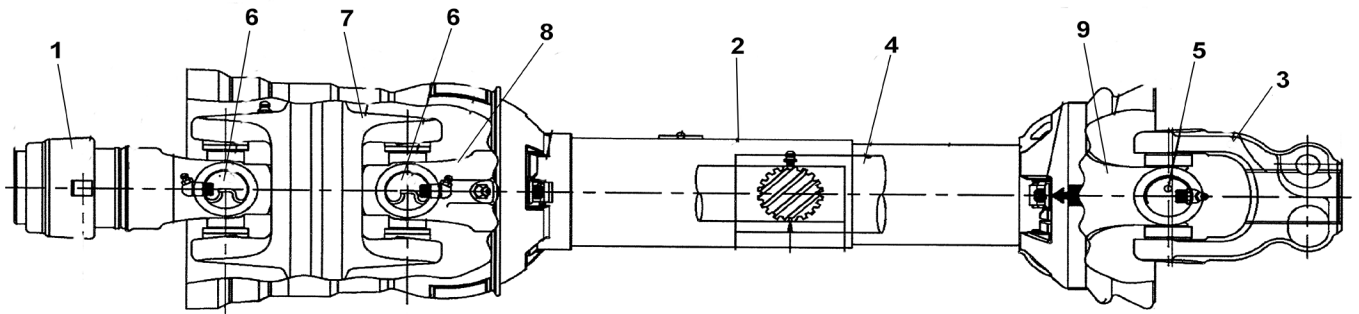
3600794 PTO\242-25699\35E\SHAFT

ITEM	QTY.	PART	DESCRIPTION
1	1	3600606	CROSS&BRG\35E\WLSR
2	1	3600713	YOKE\35E\20SPL

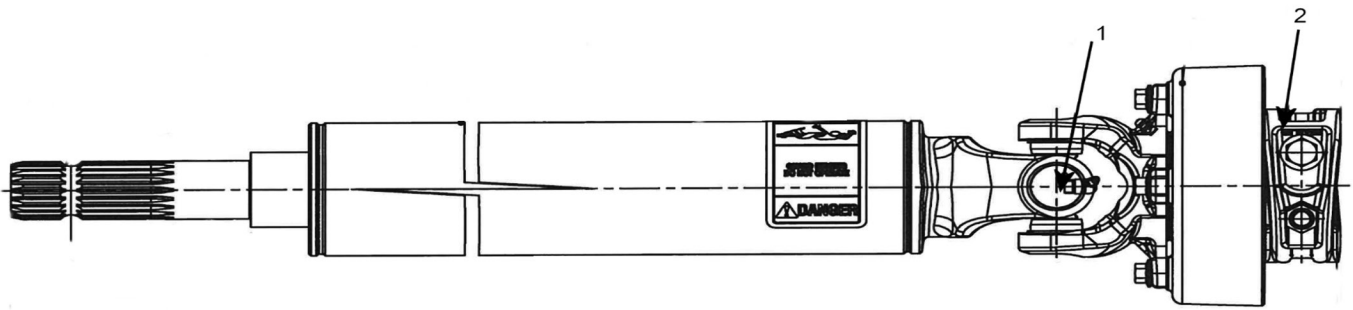
STANDARD AND 2-SPEED DRIVELINE - 3600787

ITEM	PART NO.	DESCRIPTION
1	3600788	JOINT&SHFT\44E\1-3/4 WWCV
2	3600570	GUARD\PTO\FRNT\OUTER
3	3600571	JOINT&TUBE\44E\U\20SPL
4	3600572	GUARD\PTO\REAR\INNER
	3600489	KIT\REP\NYLON\PLSTC;SHLD

3600787-PTO\255-25002\44E\1-3/4 WWCV



STANDARD DRIVELINE - 3600870

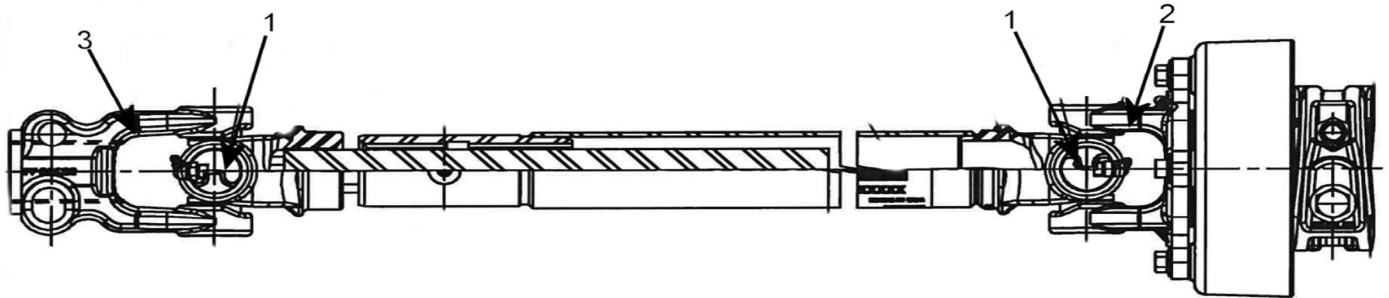


3600870

PTO\44E\14K\CLUTCH\STNDRD

ITEM	PART	QTY.	DESCRIPTION
1	3600604	1	CROSS&BRG\44E\WLSLR
2	3600888	1	YOKE\CLUTCH\AUTO\ASSY\44E\12K

2-SPEED DRIVELINE - 3600884



3600884

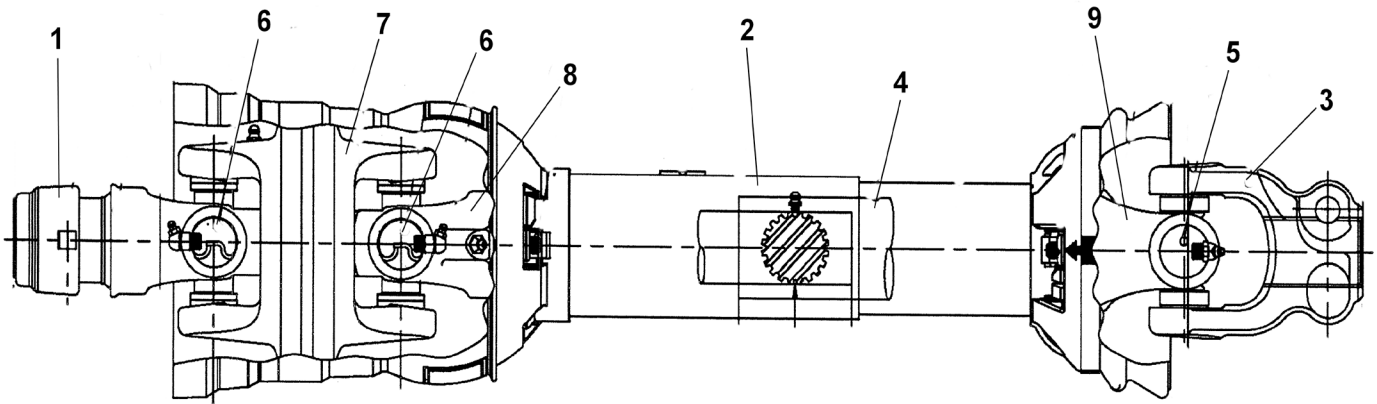
PTO\242-27833\35E SHAFT\12K CLTCH

ITEM	PART	QTY.	DESCRIPTION
1	3600606	2	CROSS&BRG\35E\WLSLR
2	3600753	1	YOKE\CLUTCH\AUTO\ASSY\35SER\12K
3	3600847	1	YOKE\35E\20SPL

STANDARD AND 2-SPEED DRIVELINE - 3600791

ITEM	PART NO.	DESCRIPTION
1	3600792	JOINT&SHFT\44E\1-3/8-21 WWCV
2	3600578	GUARD\PTO\FRNT\OUTER
3	3600579	JOINT&TUBE\44E\U\20SPL
4	3600580	GUARD\PTO\REAR\INNER
	3600489	KIT\REP\NYLON\PLSTC;SHLD

3600791-PTO\255-25000\44E\1-3/8-21 WWCV





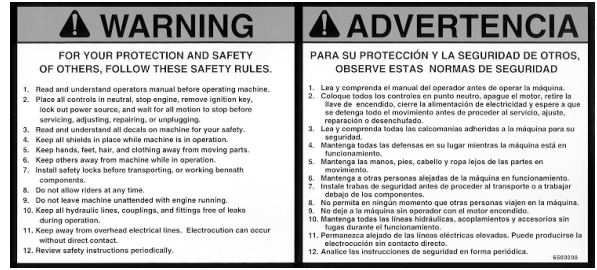
1.



2.



3.



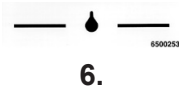
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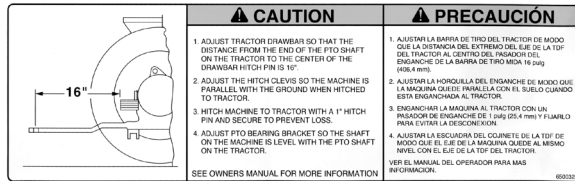
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5.



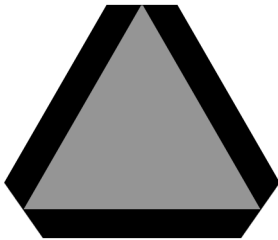
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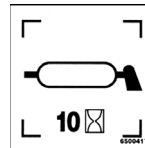
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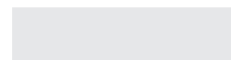
11.



12.



13.



14.

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3
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1

15.



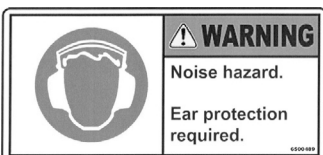
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17.



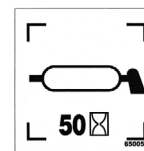
21



18.



19.

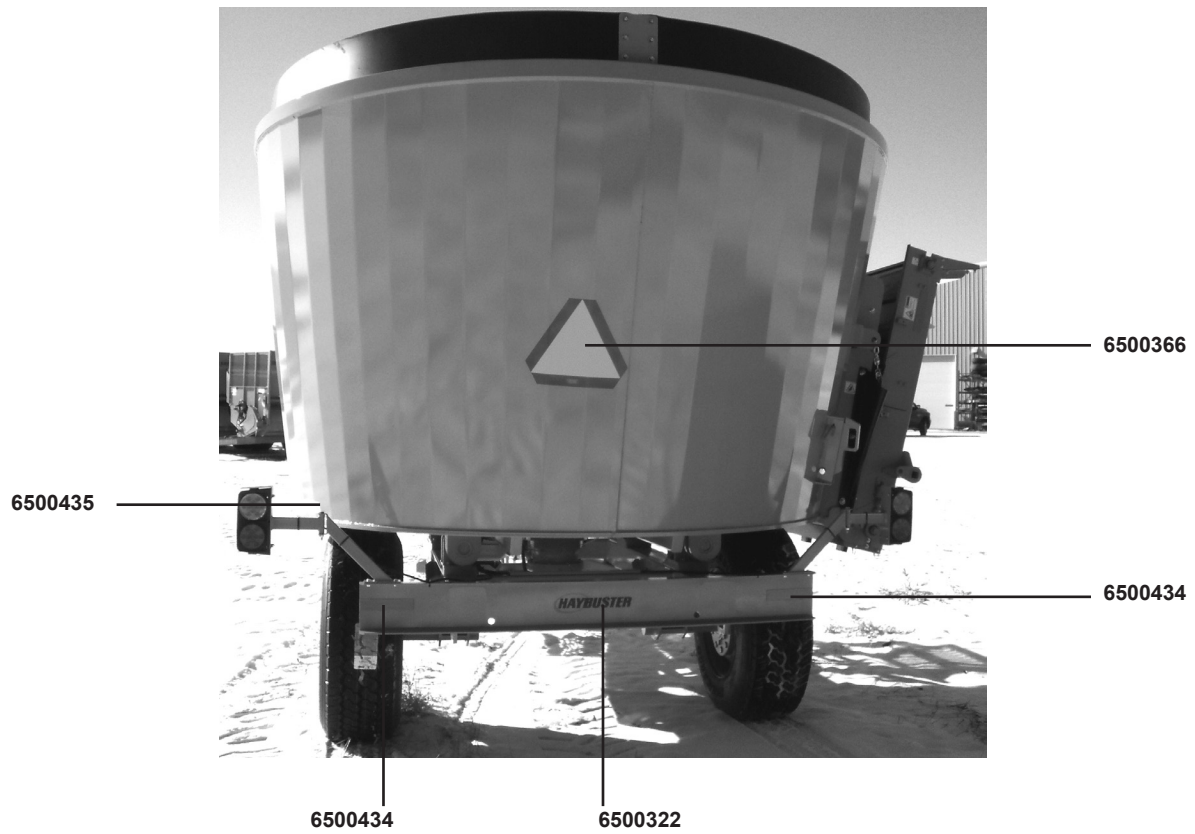
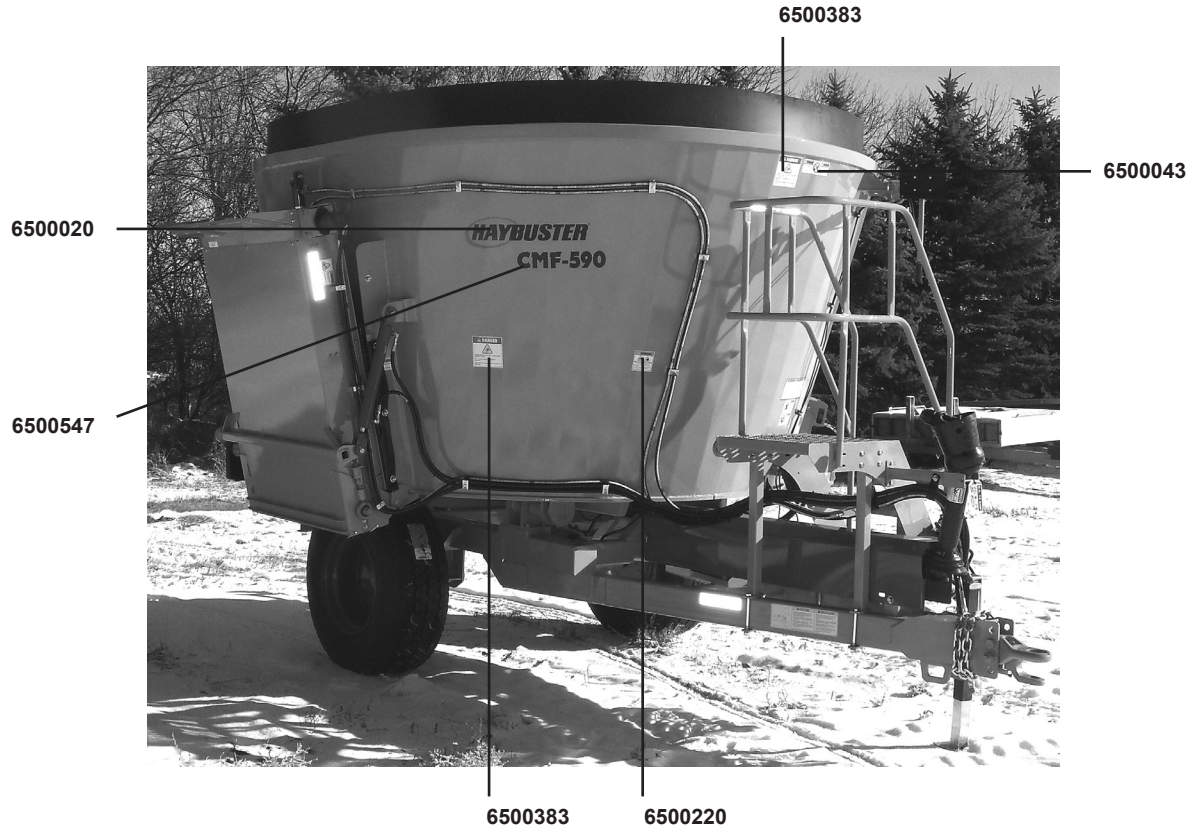


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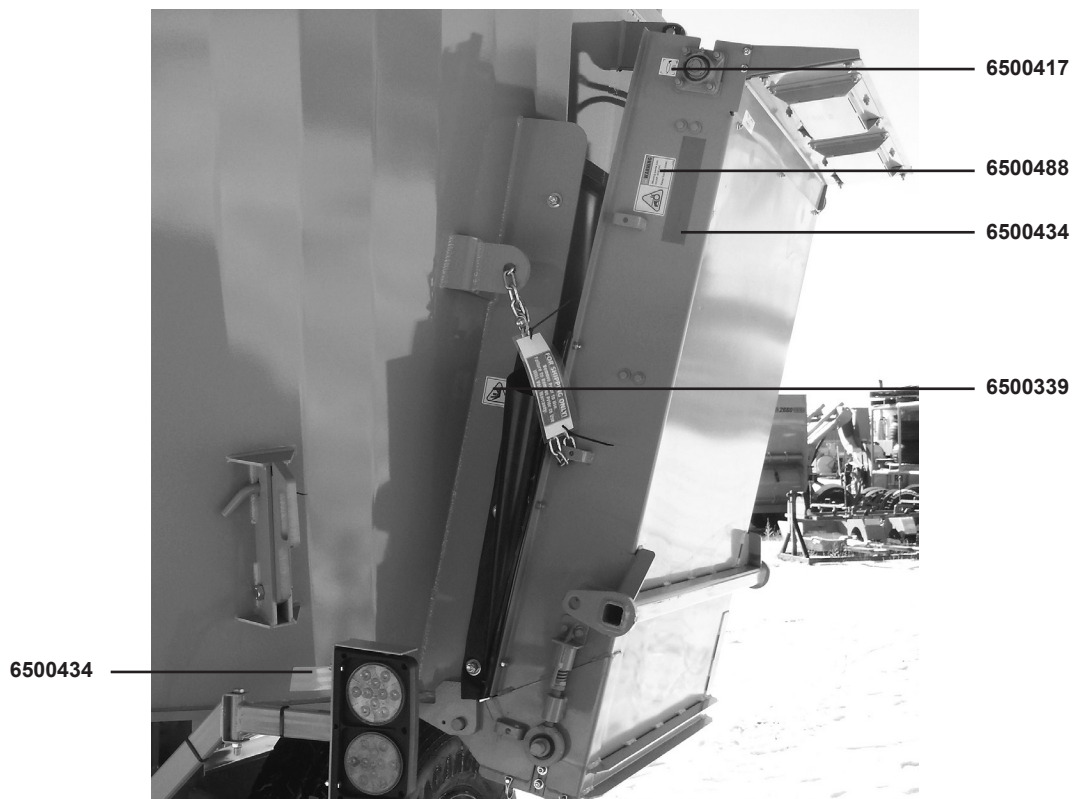
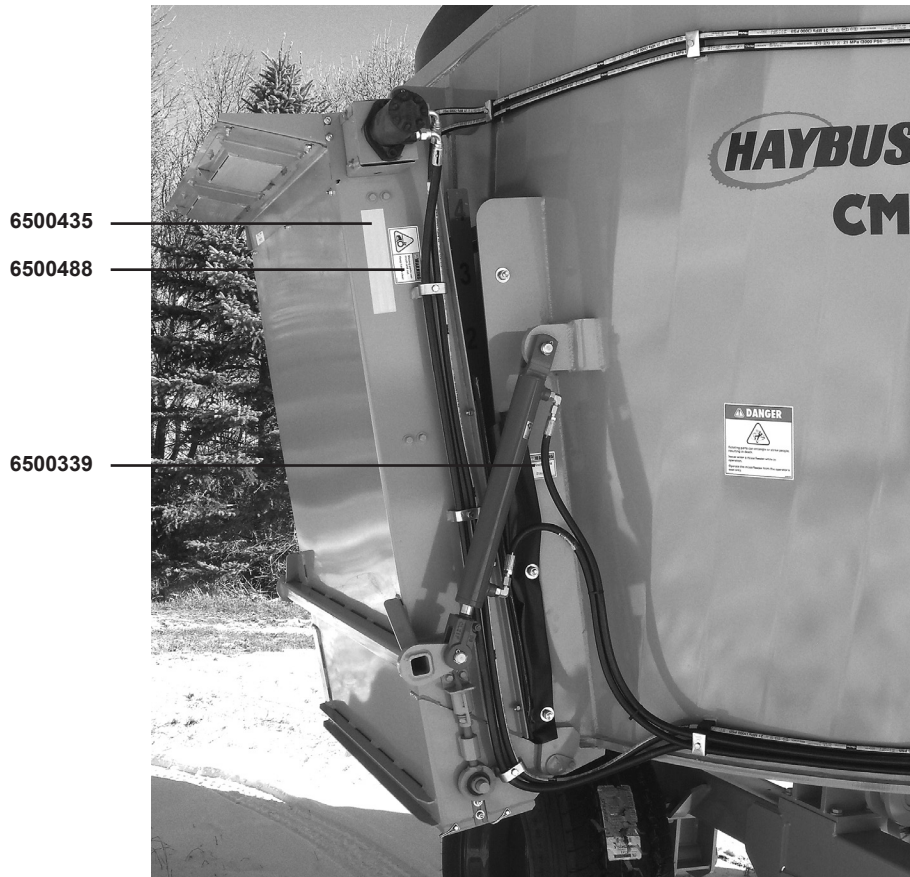
DECALS

ITEM	PART	QTY.	PART DESCRIPTION
1	6500020	2	DECAL\LOGO\HYBSTR\SNBRS\3
2	6500043	1	DECAL\WARN\NO;RIDERS
3	6500085	1	DECAL\DNGR\ROTATNG;DR-LNE
4	6500208	1	DECAL\WARN\GENERAL
5	6500220	1	DECAL\WARN\HI;PRESS;FLUID
6	6500253	1	DECAL\INFO\FLUID;LEVEL\>
7	6500304	1	DECAL\LOGO\HYBSTR\1-3/4\W/
8	6500322	1	DECAL\CAUT\ADJ_DRAWBAR\16"
9	6500339	2	DECAL\WARN\PINCH;POINT
10	6500366	1	DECAL\SMV
11	6500383	2	DECAL\WARN\AUGER\MIXER
12	6500417	1	DECAL\GREASE\10HRS
13	6500434	2	DECAL\2X9\RED\REFCT
14	6500435	4	DECAL\2X9\AMBER\REFCT
15	6500437	1	DECAL\LOCATOR\DOOR
16	6500487	1	DECAL\WARN\PPE\EYE
17	6500488	1	DECAL\WARN\PARTS\MOVING
18	6500489	1	DECAL\WARN\PPE\HEARING
19	6500490	1	DECAL\WARN\NOSTEP
20	6500517	2	DECAL\GREASE\50HRS
21	6500547	2	DECAL\LOGO\CMF590
	6500536		DECAL\KIT\CMF590
	7500077		PAINT\YELLOW\SPRAY\12OZ
	7500092		PAINT\YELLOW\QUART
	7500091		PAINT\YELLOW\GALLON
	7500078		PAINT\RED\SPRAY\12OZ
	7500105		PAINT\RED\QUART
	7500104		PAINT\RED\GALLON

DECAL LOCATIONS



DECAL LOCATIONS



DECAL LOCATIONS



Please fill out the delivery report on the following pages. The white copy is to be returned to:

DuraTech Industries International Inc.
P.O. Box 1940
Jamestown, ND
58402-1940

The yellow copy is the dealer copy; the pink copy is to be retained by the customer.