TURFCO®

OPERATOR'S MANUAL
MAINTENANCE MANUAL
PARTS LIST

TURFCO®

CR-10
Construction-Renovation
Unit

Product Number 85440 (With Brakes)
and
Product Number 85441 (Without Brakes)

Manual Number 662084 Rev A

DANGER - IF INCORRECTLY USED THIS MACHINE CAN CAUSE SEVERE INJURY. THOSE WHO USE AND MAINTAIN THIS MACHINE SHOULD BE TRAINED IN ITS PROPER USE, WARNED OF ITS DANGERS, AND SHOULD READ THE ENTIRE MANUAL BEFORE ATTEMPTING TO SET-UP, OPERATE OR SERVICE THE MACHINE.

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All specifications, information, illustrations or photos in this manual are based on the latest information at the time of printing. The right is reserved to make changes without notice.

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Product Records

IMPORTANT: Record the information from the serial number plate of your Turfco CR-10 Construction-Renovation Unit. It will be necessary to furnish your Model Designation, Product Number, and Serial Number when ordering parts.

Model Designation ***CR-10 Construction-Renovation Unit***

Product Number (Check One) ❑ ***85440 (With Brakes)***

❑ ***85441 (Without Brakes)***

Serial Number _____ Date Purchased _____

Purchased From _____

Specifications

Intended Use: The CR-10 Unit is a towed implement. The CR-10 Unit is intended to be used for the transportation and application of properly prepared organic material. The CR-10 Unit is NOT intended to be used for any purpose other than the application of properly prepared organic top dressing material. The CR-10 is NOT designed for or intended to accept riders. Operation is intended to be at properly prepared worksites only.

Dimensions: Width	2.13 Meters (84" Inches)
Height (Lowered)	1.80 Meters (71" Inches) With Wing 2.19 Meters (86" Inches)
(Raised)	2.31 Meters (91" Inches)
Length	4.70 Meters (185" Inches)
Hopper Capacity	3.06 Cubic Meter (4 Cubic Yards)
Lift Angle	12 Degrees
Operating Ground Speed	Up to 9.6 Km/h (6 MPH)
Maximum Towing Speed	Up to 9.6 Km/h (6 MPH)
Conveyor Belt	0.81 Meter (32" Inches) Wide PVC Composition With Pebble Top Pattern
Metering Gate	Opening Height Adjustable Up To 127 mm (5" inches)
Controls	Hand Held ON/OFF Switch for Conveyor Belt Drive, Manually Operated Hydraulic Lift Control, Manually Operated Hydraulic Attachment Speed Control.
Conveyor Drive	Hydraulically Driven By Tractors Hydraulic System
Electrical Requirements	12 Volt Direct Current, 6 AMP, Negative Ground (Electrical Power Provided By Tractor).
Wheels	Four, 31 x 15.5 - 15 Floatation Tires
Hitch	Adjustable Height Clevis Pin Hitch
Empty Weight	1630 Kg (3,600 Pounds)
Tongue Weight (Lowered)	567 Kg (1250 Pounds)
(Raised)	1,161 Kg (2,560 Pounds) Maximum
Maximum Load Weight	4422.5 Kg (9,750 Pounds)
Total Maximum Combined Weight (CR-10 Unit Plus Load, No Attachments)	6,100 Kg (13,450 Pounds) Maximum
Maximum Angle of Operation	15° Degrees
Tractor Requirements	29.4 K/Wt (40 HP) with One Bank of "Open Center" Hydraulics
Shipping Dimension	18.1 Cubic Meters (638 Cubic Feet)
Optional Attachments	Conveyor Attachment (Product Number 86147) Conveyor Attachment Swivel (Product Number 86149) Spinner Attachment (Product Number 86148)

Registered Trade Mark

Mete-R-Matic® is a registered trademark of Turfco Manufacturing, Inc.
TURFCO® is a registered trademark of Turfco Manufacturing, Inc.

How To Obtain Parts and Service

To order parts, or to arrange repair service, contact the nearest authorized TURFCO dealer. For a list of authorized TURFCO dealers in your area, or for additional information regarding the CR-10 Construction-Renovation Unit, direct inquiries to:

TURFCO Mfg. Inc.
1655 101st. Avenue North East
Minneapolis, MN. 55449-4420 USA

Telephone (763) 785-1000
FAX (763) 785-0556
Internet - www.turfco.com
E-Mail - service@turfco.com

To ensure safety and proper operation, always purchase genuine TURFCO replacement parts from an authorized TURFCO dealer. Replacement parts from other sources may damage the CR-10 Unit and/or create a safety hazard. Always refer repairs to properly trained service personnel.

DO NOT ALTER the CR-10 Unit in any manner. Unauthorized alterations may affect its operation, performance, and may result in injury or death to the operator as well as other individuals in the work area.

Recognizing Safety Warning Used in Manual
LOOK FOR THE SAFETY HAZARD WARNING SYMBOL

The symbol is used to alert the operator of safety hazards.
It is used in conjunction with the words DANGER, WARNING, and CAUTION.

DANGER **WARNING** **CAUTION**

"DANGER" identified immediate hazards which will result in serious injury or death.
"WARNING" identified potential hazards which could result in serious injury or death.
"CAUTION" identified hazardous situation which may result in minor to moderate injury and/ or could result in damage or destruction of equipment.

General Safety Practices

Safety on the job should always be a top priority. Training and experience are important factors in the safe operation of equipment. Please consider the following information and realize that safe operation is a matter of using common sense as it relates to the machine, its maintenance, the operator, the training, and the operating conditions. These are general safety instructions that apply to most turf maintenance equipment.

This list includes many general safety instructions as they relate to turf equipment. This list does not encompass all hazards. Common sense must always be used to determine the safest way to operate a machine under specific conditions.

TRAINING:

- Always read the manual before operating a machine for the first time.
- Always read the warning decals before operating a machine for the first time.
- Always check the location and use of each control before operating a machine for the first time.
- Practice operating the machine in a safe area with no obstructions until becoming familiar with the controls.
- If you have questions, ask your supervisor or call the factory.

CLOTHING:

- Clothes should be snug fit. Loose fitting clothing is hazardous because it may get caught in the mechanism during service or operation.
- Remove jewelry before operation. Jewelry may get caught in the mechanism.
- Wear shoes that will protect your feet. Sneakers do not protect and do not provide the protection of leather shoes or boots. Steel toed safety shoes should be considered for many situations.
- Hard Hat: The use of a hard hat should be considered when using equipment on a golf course. The danger of being hit by a golf ball should be a major concern as well as protection while operating under trees.
- Eye Protection: Safety glasses and/or face shields should be considered when operating, as well as working in close proximity to high speed rotary equipment. Watch for rotary mowers, edgers, brush and string trimmers. Rotary mowers can throw debris at speeds up to 320 Km/h (200 mph).
- Hearing: If the noise level of the equipment is too loud, consider the use of ear protection.
- Do not use stereo headsets during operation. This is a distraction that may lead to an accident. Headsets also make it difficult to hear other people and equipment while operating the machine.
- Respirators: When operating in dusty, windy conditions, wear a respirator. This is also an important consideration if operating equipment while spraying chemicals and fertilizers.
- Gloves: Use gloves when handling sharp or hazardous objects.

THE OPERATOR:

- The operator should never use a machine while under the influence of alcohol or drugs.
- The operator should be aware of the hazards of working in the sun and should take proper precautions to avoid heat stress and dehydration. Use sun screen products when necessary.
- Care should always be taken when mounting and dismounting a riding machine. Prevent injuries and falls by making sure the operator does not slip. Unless it is an emergency, do not jump off a machine. Injury may result when an operator's foot slips trying to jump from a machine.
- The operator should never attempt to ride a machine that is not designed for that propose. Do not allow others to ride a machine that is not designed for passengers. If designed to carry passengers, do not allow more passengers to ride a machine than the machine was designed to carry.
- Do not operate any equipment at unsafe speeds. Speeds should be reduced when turning or operating

on slopes. The operator must use common sense to determine a safe speed based on the equipment, the load, the slope, the surface, and other conditions that may affect safe operation.

- The operator must be aware of the conditions around the area. Be aware of other people and machines.
- Beware of slippery conditions. Wet turf can be encountered on slopes, when turning or stopping, or at higher speeds.
- Keep hands and feet away from cutting devices and drive components. Shut off the engine and remove the key or ignition wire when servicing cutting devices or drive components.
- If required to lift, an operator should ask for help if the object is too heavy. The operator should lift with his or her legs instead of the back. Care should be taken to avoid twisting the back while lifting a heavy load.
- Never allow children to operate the machine.

THE MACHINE:

- ***Tow vehicles must have adequate tow hitches and brakes to control any towed machine. Check the weight and capacity of the machine that will be towed by that vehicle.*** Trucks used to carry equipment must have adequate load capacity and brakes. Check the weight and capacity of the machine that will be towed by that vehicle.
- ***Do not overload machinery. The components are designed for certain weights and capacities. Overloading the machine will cause unsafe conditions.***
- Make sure the brakes are operating properly.
- Check to assure that all controls are in good operating condition.
- Inspect to insure that all guards are in place. Do not operate a machine without all guards in place.
- Always check the machine to make sure it is in good working order. Do not place hands or feet near moving or rotating parts.
- Check the tire pressure.
- Check the condition of the hydraulic hoses. Leaks and worn hoses should be fixed or replaced before the machine is put into service. Do not use your fingers or hands to check for hydraulic leaks. High pressure leaks can puncture the skin and force oil into the body. This can cause severe injury or death.
- Shut off the engine before servicing the machine. It is best to check machines on a level area. Machines on a slope may roll when the engine is off.
- Do not modify the machine in any manner. Refer unfamiliar repairs and adjustments to mechanics that have been trained to do them properly.
- Replace decals that are damaged or unreadable.

THE ENGINE:

- Prevent accidental starting by removing the spark plug wire when servicing the engine or the equipment. Disconnect the negative wire from the battery terminal if the engine is equipped with an electric starting system.
- Do not strike the flywheel with a hammer or any hard object. This may cause the flywheel to shatter in operation.
- Pull the starter cord slowly until resistance is felt. Then pull the cord rapidly to avoid kickback and to prevent hand or arm injury.
- Do not run the engine in an enclosed area. The exhaust gases contain carbon monoxide, an odorless and deadly poison. The engine exhaust from this product contains chemicals known to the State of California to cause cancer, birth defects or other reproductive harm.
- Do not store, spill, or use gasoline near an open flame, nor near an appliance like a stove, furnace, or water heater that uses a pilot light or can create a spark.
- Do not refuel indoors or in an unventilated area. Check the fuel level. Do not over fill. Do not add fuel while the machine is hot because spilled fuel may cause a fire. Allow the engine to cool before refueling.
- Do not transport the machine with fuel in the tank.
- Do not remove the fuel tank cap or fill the fuel tank while the engine is hot or running.
- Do not operate the engine if gasoline is spilled, when the smell of gasoline is present, or when other explosive conditions exist. Move the equipment away from the spill and avoid any ignition until the gasoline has evaporated.
- Do not choke the carburetor to stop the engine. Whenever possible, gradually reduce the engine speed before stopping.
- Do not tamper with the governor springs, links or other parts to increase the engine speed. Run the engine at the speed set by the equipment manufacturer.
- Do not check for a spark with the spark plug removed. Use an approved tester. Use the correct tools to service the machine.
- Do not crank the engine with the spark plug removed. If the engine is flooded, place the throttle in fast and crank until the engine starts. Avoid damage to electric starter by cranking intermittently until engine starts.
- Do not operate the machine without a muffler. Inspect the muffler periodically and replace it if it is leaking or worn. Replace it with correct muffler. Do not touch a hot muffler, cylinder, or cooling fin.
- Do not operate the engine with an accumulation of grass, leaves, or other combustible material in the muffler area.
- Keep the cylinder cooing fins and the governor parts free of dirt, grass, and other debris.
- Do not use the engine on any forest covered, brush covered, or grass covered unimproved land unless a spark arrester is installed in the muffler. In the State of California, a spark arrester is required by law. Other states may have similar laws. Federal laws apply on federal lands.
- Do not start the engine with the air cleaner or the air cleaner cover removed.
- Use fresh gasoline. Stale fuel can gum the carburetor and can cause leakage. Check the fuel lines and fittings frequently for cracks and leaks.

Towing Requirements

TRACTOR REQUIREMENTS

The CR-10 Unit is designed to be towed and powered by a tractor. The tractor must meet the following specifications:

- Minimum 29.4 kW (40 horsepower) engine.
- "Open Center" Hydraulics That Can Provide 19 MPA at 30.3 Liters Per Minute (2750 PSI at 9 GPM).
- 12 Volt DC, 6 amp, negative (-) ground power source.
- Gearing to provide engine speed (RPM) to produce hydraulic power while not exceeding 9.6 Km/h (6 MPH).
- Equipped to tow a minimum of 6,100 Kg. (13,450 Pounds).
- Clevis style hitch with 1" inch (25.4 mm) pin.
- Equipped to handle 1,161 Kg. (2560 Pounds) tongue weight.
- Adequate Brakes to control and stop a towed minimum load of 6,100 Kg. (13,450 Pounds)

Tow Only With a Properly Rated Tractor. Always use the proper size tractor to move the CR-10, even if moving only short distances. Using improper towing methods may cause damage to the hitch and braking system on the CR-10. Safe movement can only be done with proper equipment.

⚠ WARNING ⚠

When Properly Loaded, the CR-10 Unit can Weigh 6,100 Kg (13,450 Pounds). When Properly Loaded, the CR-10 Unit Can Have A Tongue Weight of 567 Kg to 1,161 Kg (1250 pounds to 2,560 pounds).

TRACTOR HITCH REQUIREMENTS AND CR-10 TONGUE WEIGHTS

The tractor must have an appropriate hitch to attach to the CR-10 Unit. The CR-10 is equipped with a clevis style hitch that requires the use of a 1" inch pin (25.4 mm). When properly loaded and in the lowered position, the CR-10 Unit can have a tongue weight of 567 Kg (1250 pounds). When in the fully raised position, a properly loaded CR-10 can have a tongue weight of 1,161 Kg (2,560 pounds). Heavy-duty hitch components are strongly recommended for your tractor.

The tractor hitch height should be adjustable to allow the CR-10 tongue and hitch assembly to be level when hitched to the tractor. If equipped with brakes (Product No. 85440 only), a level hitch and a level operating position of the machine are IMPORTANT for proper brake operation.

Hitching the CR-10 Unit To The Tractor

⚠ WARNING ⚠

SAFETY FIRST!!

Wear the Appropriate Personal Safety Gear. Use Caution When Working Near Moving Parts and Be Aware Of High Hydraulic Operating Pressures and Temperatures.

Work Safely and Follow All Safety Warnings In CR-10 Unit Operators Manual and the Tractor Operators Manual.

Do not modify the CR-10 Unit to hitch to the tractor.

STEP 1. Verify that the tractor meets the requirements to safely power and tow the CR-10 Unit. Refer to the section in this manual titled "Towing Requirements".

⚠ WARNING ⚠

The Tractor Must Be Equipped With an Adequate Hitch, Rated for Proper Towing Capacity, and Have Adequate Functional Brakes.

STEP 2. *(See Figure 1)* Check the position of the CR-10 rear stabilizer leg **[A]**. To avoid tipping of the CR-10 during hitching, the stabilizer leg should be in a lowered position. If the front of the CR-10 needs to be raise for proper hitching, ensure that the rear leg is remounted higher to allow for the front of the CR-10 Unit to be raised.

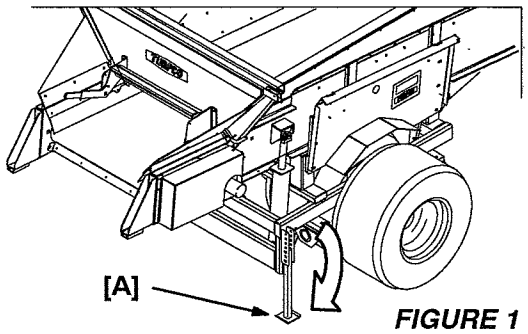


FIGURE 1

STEP 3. *(See Figure 2)* Align the tractor to the CR-10 tongue and clevis hitch **[B]** and insert a 1" (25.4 mm) hitch pin. The height of the tractor hitch should be set so that the lower frame of the CR-10 unit sets level with the ground.

The height of the CR-10 hitch is adjustable by relocating the clevis **[B]** up or down. The clevis should always have two bolts attaching it to the CR-10 Unit tongue, do not position the hitch higher or lower than the adjustment range allows.

STEP 4. *(See Figure 2)* Attach the safety chain **[C]** and the "Break-Away" safety chain **[D]** for the brakes (if equipped) to the tractor.

ALWAYS ATTACH THE SAFETY CHAINS.

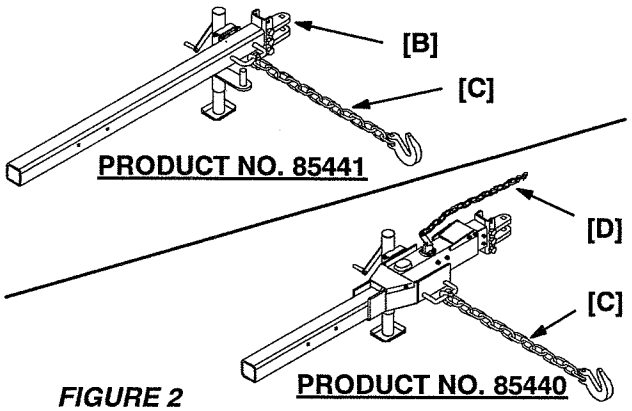


FIGURE 2

STEP 5. *(See Figure 3)* Attach the CR-10 hydraulic hoses **[E]** to the tractor. Ensure that the hoses are routed to allow the CR-10 Unit and tractor to turn without binding the hoses. Ensure that hydraulic pressure from the tractor has been shut off and the tractor engine has been shut off before attempting to connect the hoses.

DANGER

TO AVOID SERIOUS INJURY, Do Not Using Your Hand To Check For Hydraulic Leaks By. Hydraulic Fluid Can Be Forced Under the Skin Causing Serious Injury Or Death.

Never Inspect Any Part Of The Hydraulic System With The Pump Operating. High Oil Temperatures Can Cause Serious Burns and Injury.

STEP 6. *(See Figure 3)* Plug the CR-10 hand held On/Off control box cable **[F]** into the plug-in receptacle **[G]** (at lower left front corner of hopper).

STEP 7. *(See Figure 3)* Plug the CR-10 power supply cable **[H]** into the connector on the hand held On/Off control box cable (located on the cable, near the end plugged into the receptacle).

STEP 8. *(See Figure 3)* Attach the other end of the electrical power cable **[H]** to the tractor battery. Ensure that the cable is long enough and is routed to allow the CR-10 Unit and tractor to turn without binding the cable.

Before attaching the electrical power cable to the tractor battery, inspect the cable for any damage or broken insulation.

- Attach black wire to negative (-) terminal.
- Attach red wire to the positive (+) terminal.

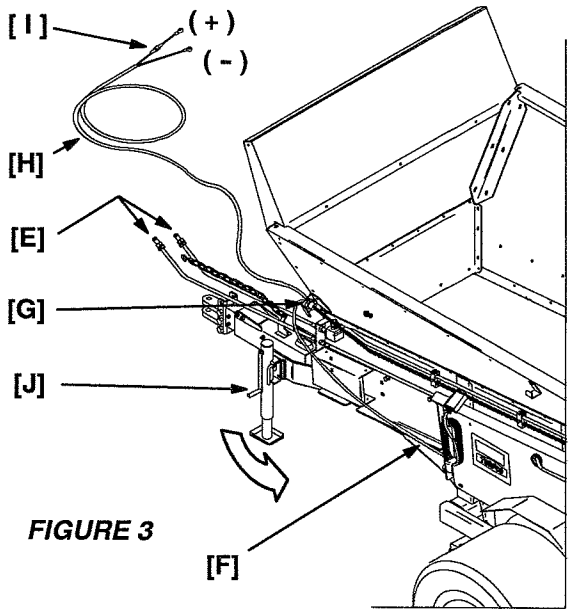


FIGURE 3

STEP 9. *(See Figure 3)* Check the fuse in the fuse holder **[I]** on the CR-10 power supply cable. The fuse should be a 6 AMP, 3AG-32V.

STEP 10. *(See Figure 3)* Raise the front jackstand **[J]**. Rotate and lock into the raised position.

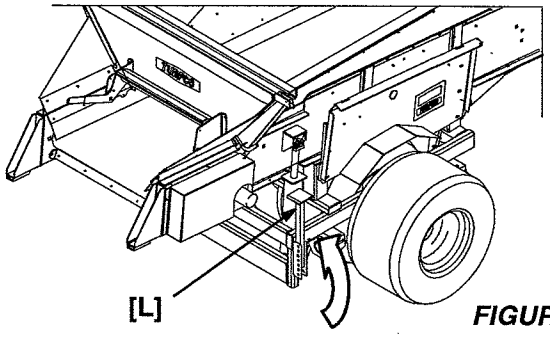
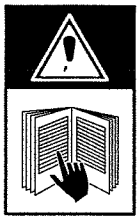


FIGURE 4

STEP 11. *(See Figure 4)* Remove the CR-10 Unit rear stabilizer leg **[L]** and reinstall in a "Raised" position. The foot on the leg should be pointing up.

STEP 12. Inspect the inside of the CR-10 hopper. Look for anything left over from the last use or for anything left from installation and shipping.

STEP 13. Inspect the installation. Check for properly attached hydraulic hoses and electrical cables. Visually check for hydraulic leaks. Check for properly attached safety chains and for a properly installed hitch pin. ***After startup of the CR-10 Unit, check hydraulic fluid level on the tractor. Refill as needed.***



WARNING

TO AVOID SERIOUS INJURY, Read and Understand the Entire Operator Manual For the Tractor and the CR-10 Unit Before Operating.

Description

INTENDED USE OF THE CR-10 CONSTRUCTION-RENOVATION UNIT

The Turfco CR-10 Construction-Renovation Unit is a towed type material handler that can be used to transport material, dispense material while stationary, or distribute a controlled flow of material while moving.

The CR-10 Unit is intended to only be used for the handling of properly prepared top dressing material, screened sand, and crushed or graded pea gravel. Properly prepared top dressing is organic material with a controlled moisture content that has been screened to remove debris, rocks, and excess sized top dressing material. Properly prepared screened sand has been screened to remove debris, rocks, and excess sized material. Properly prepared Pea gravel must be a small graded type that has been uniformly crushed with debris, rocks, and excess sized material removed.

While moving, the CR-10 Unit is designed to distribute a uniform application of properly prepared material to the ground. A conveyor belt carries the material from the hopper, through an adjustable metering gate, and out to the discharge end of the machine. Material is dropped at a 0.81 Meter (32" inch) width at a ground speed up to 9.6 Km/h (6 MPH). While stationary, the CR-10 Unit is designed to distribute material into collective piles or into smaller material handling machines or top dressers. Hydraulic and electrical power to operate the CR-10 is provided by the Tractor used to tow the machine.

The CR-10 Unit is to be USED ONLY for the handling and/or application of properly prepared organic material. The CR-10 Unit is NOT intended to be used for any purpose other than the handling and/or application of properly prepared material.

The CR-10 Unit is intended to be used only when the operator is present at the drivers position on the tractor. The CR-10 Unit is intended to be towed only when it is in a fully lowered position. The CR-10 Unit is not intended to be operated unless it is properly attached to a tractor. Towing of the CR-10 Unit is intended to be done only by tractors having adequate weight, hitch, brakes, and horsepower to safely control the CR-10 Unit.

Operation is intended to be at properly prepared worksites only. A properly prepared worksite is one that has had any operational or safety related deficiencies completely corrected.

- Do Not Use With Unscreened Material.
- Do Not Use With Ferrous or Non-Organic Material.
- Do Not Use With Rocks.
- Do Not Use With Fertilizers, Manure, Weed Killers, or Lawn Foods.
- Do Not Ride On or In the CR-10 Unit.
- Do Not Allow Riders On or In the CR-10 Unit.
- Do Not Allow Anyone To Stand Behind the CR-10 When it is Operating.
- Do Not Allow Anyone To Stand Under or Enter Between the CR-10 Frames When it is Raised.
- Do Not Tow the CR-10 When It Is Raised.
- Do Not Operate On Side Slopes Over 15° Degrees.
- Do Not Operate Up and Down Slopes Over 15° Degrees.
- Do Not Put Tools or Implements In the Hopper.
- Do Not Put the Electric Hand Held ON/OFF Switch in the Hopper.
- Tow Only With a Properly Rated Tractor.
- Do Not Operate On Public Highways. CR-10 is Equipped with Non-Highway Service Tires.
- Do Not Tow or Operate At Ground Speeds Higher Than 9.6 Km/h (6 MPH)

LOCATION AND DESCRIPTION OF THE CR-10 UNIT OPERATOR POSITION

Operator Position: The proper location for the operator of the CR-10 Construction-Renovation Unit is seated in the tractor's seat. Always stop the tractor's hydraulic power and set the CR-10's hand held ON/OFF control to OFF before leaving the tractor's seat. Do not stand behind or allow anyone to stand behind the CR-10 when it is operating.

TRACTOR OPERATOR CONTROLS

Tractor Hydraulic Power Supply: Power to drive the CR-10 and any attachments is provided by the tractor. Refer to the tractor's operator manual for more information about hydraulic power supply controls and connections. Locate and be familiar with the tractor's controls being used to power and control the CR-10 Construction-Renovation Unit.

LOCATION AND DESCRIPTION OF MAJOR COMPONENTS
(See Figure 5, Figure 6 and Figure 7)

[1] *Manual Tube:* The CR-10 manual tube is located on the front of the CR-10 Unit. The tube is used to store the CR-10 operators manual and any CR-10 Attachment manuals.

[2] *Hopper:* The hopper holds 3.06 Cubic Meter (4 Cubic Yards) of material. The maximum allowable weight of the material is 4422.5 Kg (9,750 Pounds). Do not over fill the hopper. The rear panel of the hopper is hinged and can be opened.

[3] *Metering Gate:* The adjustable metering gate controls the amount of material flow from the CR-10 Hopper. Refer to the CR-10 Operator Controls section in this manual for more information about the gate.

[4] *Conveyor Belt:* The conveyor belt carries the material from the hopper, through the metering gate, and out to the discharge end of the CR-10. The conveyor belt is controlled by the Hand Held ON/OFF Control Box switch. Power to operate the belt is provided by the hydraulic conveyor belt motor. The tension on the belt is adjustable and can be changed to correct for tracking, alignment or slipping problems.

[5] *Conveyor Belt Hydraulic Motor:* The hydraulic motor powers the conveyor belt. The hydraulic motor is located on the right rear of the CR-10.

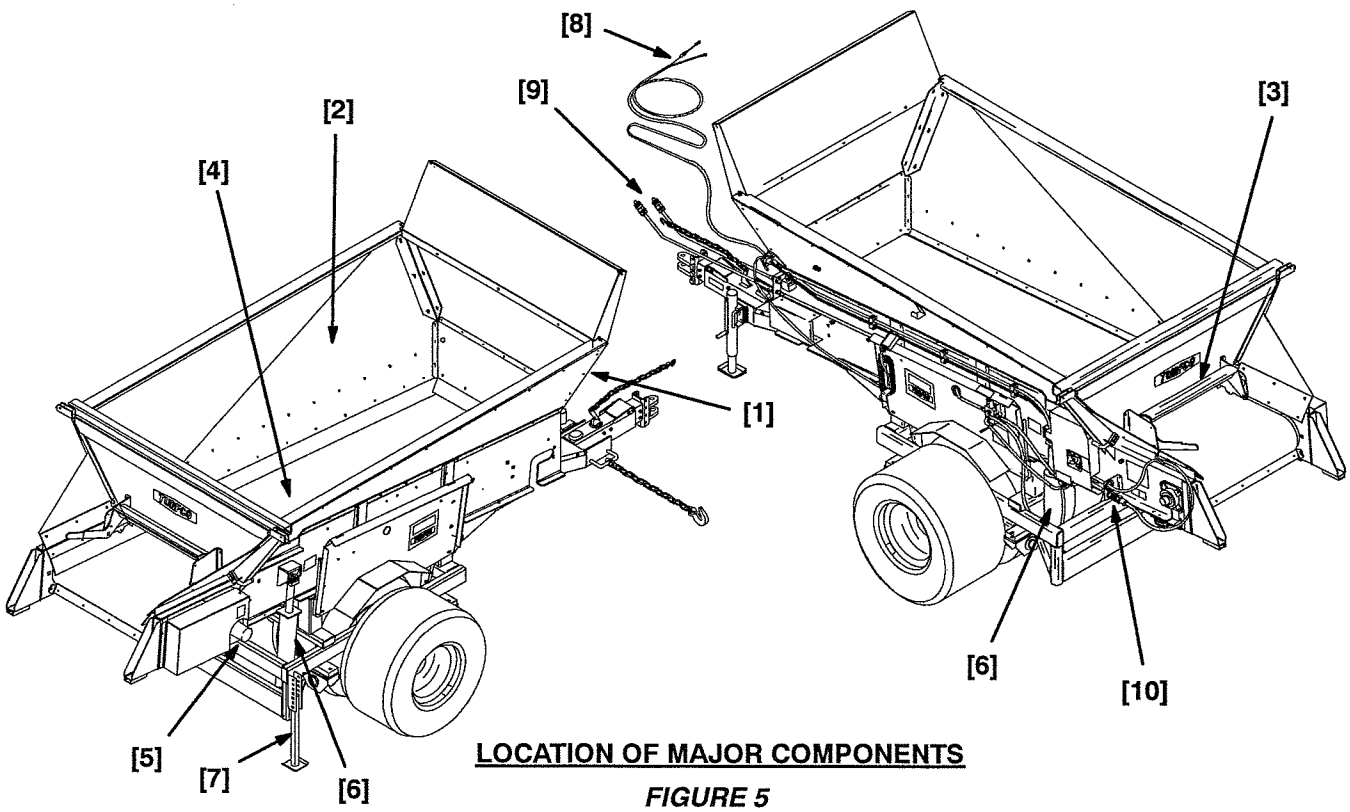
[6] *Hydraulic Lift Cylinders:* The hydraulic lift cylinders (qty. 2) provide the lifting power to raise the rear of the CR-10. The maximum lift is 18° degrees. The Lift Control Handle controls operation.

[7] *Rear Stabilizer Leg:* The rear stabilizer leg provides an extra support to steady the CR-10 when it is not attached to the tractor. The leg should always be stowed in a "Raised" position when the CR-10 is attached to the tractor.

[8] *Electrical Power Supply Cable:* The power supply cable provides electrical power to operate the Hand Held ON/OFF Control Box switch and the electric solenoids in the hydraulic system. The power supply cable is connected to the tractor battery (12 volt DC, negative [-] ground). A 6 AMP fuse is located in a holder on the supply cable.

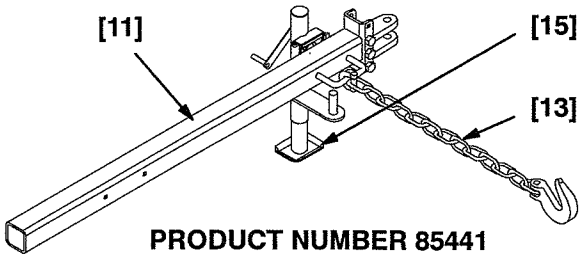
[9] *CR-10 Hydraulic Hoses to the Tractor:* The hydraulic hoses provide the hydraulic power to run the CR-10 conveyor belt hydraulic motor. The hoses have quick disconnect fittings to attach to the tractor.

[10] *CR-10 Hydraulic Hoses to the Attachment:* The hydraulic hoses provide the hydraulic power to run the CR-10 attachments. The hoses have quick disconnect fittings to attach to the attachment. When no attachment is installed, the hoses are connected to each other to complete the hydraulic circuit.



LOCATION OF MAJOR COMPONENTS

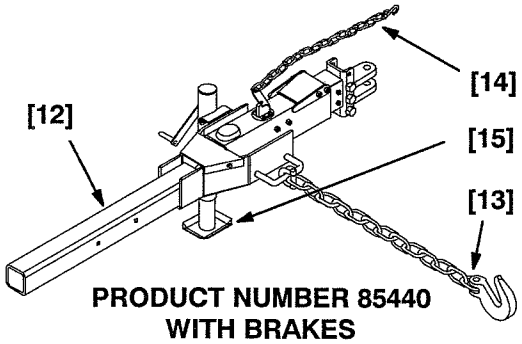
FIGURE 5



PRODUCT NUMBER 85441 WITHOUT BRAKES

FIGURE 6

[11] ***Tongue and Hitch Assembly, Product Number 85441 Without Brakes (See Figure 6):*** The tongue and hitch assembly is designed to accept a 1" inch (25.4 mm) pin. When attached to the tractor, the tongue should set level. The tractor hitch height should be adjusted so that the CR-10 tongue is level.



PRODUCT NUMBER 85440 WITH BRAKES

FIGURE 7

[12] ***Tongue and Hitch Assembly, Product Number 85440 With Brakes (See Figure 7):*** The tongue and hitch assembly on Product Number 85440 is equipped with a master cylinder to operate the brakes. The tongue and hitch assembly is designed to accept a 1" inch (25.4 mm) pin. When attached to the tractor, the tongue should set level. The tractor hitch height should be adjusted so that the CR-10 tongue is level.

NOTE: Use DOT 5 silicon brake fluid in the master cylinder.

[13 and 14] ***Safety Chains:*** The tongue and hitch assemblies are equipped with a safety chain **[13]** that must be attached to the tractor during towing and operation.

On the CR-10 Unit with brakes (Product No. 85440) the hitch will has an extra safety chain. This chain is a break-away chain **[14]** that applies the brakes on the CR-10 in the event that it becomes unhitched or breaks away from the tractor during towing. This chain must be connected to the tractor along with the regular safety chain.

[15] ***Jackstand:*** The adjustable height jackstand is located on the tongue. The jackstand provides support to the front of the CR-10 when it is not hitched to the tractor. The jackstand must be rotated and locked into the "Raised" position when the CR-10 is attached to the tractor.

DESCRIPTION OF THE CR-10 UNIT OPERATOR CONTROLS *(See Figure 8 and Figure 9)*

The Operator Controls are the Hand Held ON/OFF Control Box Switch, the Lift Control Handle, the Metering Gate Handle, and the Attachment Speed Control. Do not alter the operator controls and/or operate the CR-10 Unit with defective or non-operational operator controls.

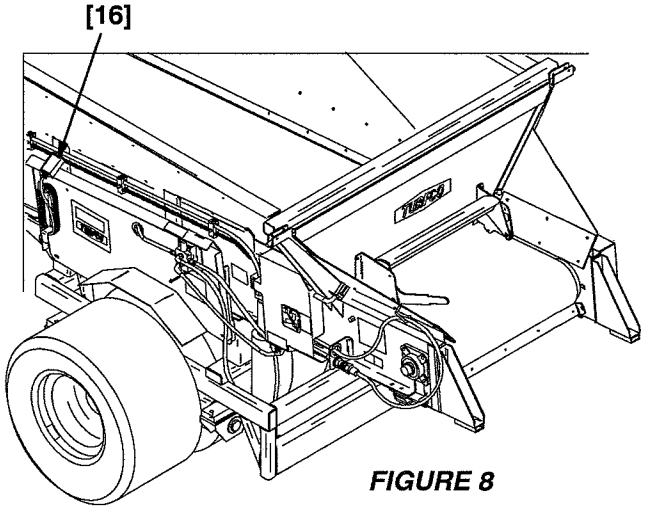


FIGURE 8

[16] ***Hand Held ON/OFF Control Box Switch:*** The ON/OFF switch controls both the on/off operation of the CR-10 and any Attachments. Refer to the decal on the hand held box. The switch has 3 positions:

1. Conveyor Belt OFF **(O)** Attachment OFF **(O)**
2. Conveyor Belt OFF **(O)** Attachment ON **(I)**
3. Conveyor Belt ON **(I)** Attachment ON **(I)**

Always be at the operator's position before engaging the ON/OFF switch.

If no attachments are installed on the CR-10 Unit, only the positions on the switch that control the CR-10 conveyor belt will have any affect on operation. There is no time delay between the time the ON/OFF switch is activated and when the CR-10 conveyor belt starts or stops.

Always keep the hand held switch in a secure place. When not in use, secure the CR-10 hand held switch to the frame side panel of the CR-10 Unit. Wind up the cable on the control wire bracket. If the control box drops to the ground, the wiring harness can become tangled in the axles and wheels. Do not place the hand held switch inside of the CR-10 hopper. Severe damage to the switch and switch cable will result if the control box becomes tangled in the CR-10 conveyor belt or in an attachment.

[17] ***Metering Gate Handle:*** The Metering Gate handle regulates the amount of material released from the CR-10 hopper by changing the opening size of the metering gate. Moving the handle up and down manually controls the metering gate. Move the handle down to increase the opening. Maximum opening size is 127 mm (5" inches). Move the handle up to close the opening. The opening does not completely close; minimum opening size is set at 12.7 mm (1/2" inch).

During operation, the setting of the metering gate opening size will always vary because of:

- Differences in material types.
- Moisture content of material.
- Desired thickness of application.
- Ground speed during operation.

Changing the metering gate setting will give better results than varying operating ground speed. Never exceed the ground speed limit of 9.6 Km/h (6 MPH) to vary results.

[18] ***Rear Hopper Panel Latch Pins:*** The entire rear panel of the hopper can be unlatched by pulling the two rear hopper panel latch pins. This will allow a very large amount of material to be released instead of the controlled volume from the metering gate.

[19] ***Lift Control:*** The Lift Control Handle operates the "Raise" and "Lower" function on the CR-10 Unit. The rear of the CR-10 Unit can be raised 18° Degrees. During stationary operation, the CR-10 Unit can be raised or lowered to control the height of the discharge. During towing or transport, the CR-10 Unit should be completely lowered. DO NOT tow or transport the CR-10 when it is in a raised position.

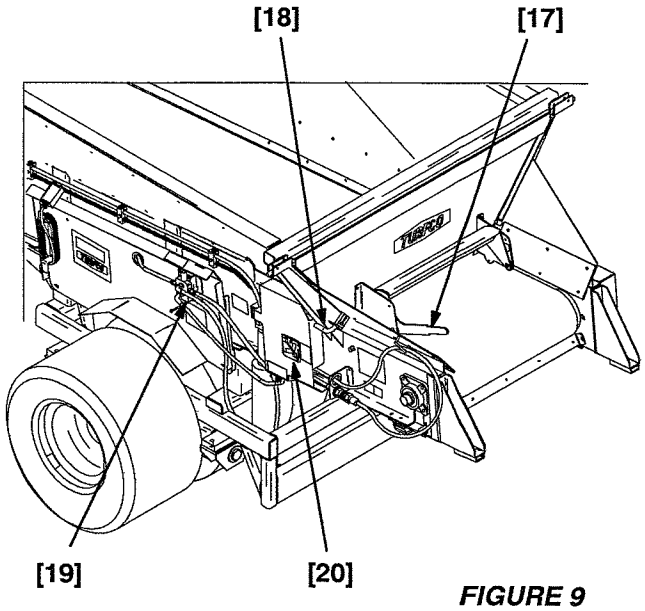


FIGURE 9

[20] ***Attachment Speed Hydraulic Flow Control:*** The Attachment Speed Hydraulic Flow Control is located on the left rear side of the CR-10 unit. The control varies the speed of the attachments by regulating the amount of hydraulic flow sent to the attachment motors. When no attachments are installed on the CR-10 Unit, the control should be set at "Zero" and the attachment hydraulic hoses connected to each other. Do not modify the attachment speed control in any manner. Do not operate any attachment with a damaged or inoperable speed control.

⚠ WARNING ⚠

TO AVOID SERIOUS INJURY, Read and Understand the Entire Operator's Manual Before Operating This Machine.

Operation

⚠ WARNING ⚠

**TO AVOID SERIOUS INJURY,
Read and Understand the Entire
Operator's Manual Before Operating
This Machine.**

Read and Follow all Safety Decals and Warnings.

**TO AVOID SERIOUS INJURY,
Always operate the CR-10 Unit Safely.
Wear the Appropriate Personal Safety Equipment.**

**TO AVOID SERIOUS INJURY,
Keep Hands and Clothing Away From Rotating
Conveyor Belt.**

**TO AVOID SERIOUS INJURY,
Do Not Allow Riders In or On The CR-10.**

PRE-OPERATION CHECK LIST

- **Check -** All guards are in place.
- **Grease -** The fittings on the conveyor rollers, the frame pivot pins, and brake actuator (if equipped).
- **Check -** Tires are inflated to correct pressure as indicated on the decal next to the tire valve.
- **Check -** The CR-10 is properly hitched to the tractor.
- **Check -** All safety chains are secured to the tractor. If equipped with brakes, the break-away chain from the master cylinder must be connected to the tractor.
- **Check -** The CR-10 Unit hydraulic lines are properly installed and secured to the tractor.
- **Check -** The electrical connection to tractor is secure and correct.
- **Check -** The electric ON/OFF hand held switch is secure. DO NOT put hand held switch in the hopper.
- **Check -** The hopper is empty. No tools or debris have been left in the hopper from a pervious use.

LOADING OF HOPPER

The maximum hopper capacity is 3.06 cubic meters (4 cubic yards). Maximum weight of the load in the hopper is 4,422.5 Kg (9750 pounds). Never overfill or overload the hopper. Overloading may cause undue stress to the CR-10 Units components. Overloading may also cause tires to sink into the turf and leave tracks. An overloaded hopper will cause the CR-10 Unit to be top heavy or out-of-balance, and will increase the possibility of the machine tipping or rolling over if operated on too steep of a slope.

⚠ WARNING ⚠

**TO AVOID SERIOUS INJURY,
Always Keep the CR-10 Hitched To the Tow
Vehicle When the Hopper Is Loaded.
Never Unhitch The CR-10 When On a Slope.**

The hopper can be loaded with a front-end loader. Use caution not to drop the load into the hopper from too high of a height. Slowly load the hopper to avoid damage to the hopper and conveyor belt.

When using the CR-10, keep the material in the hopper at a level that will assure an even flow out of the metering gate. If the level of the material in the hopper gets too low, an irregular pattern of material flow will result. Prevent this by refilling the hopper before this low point is reached.

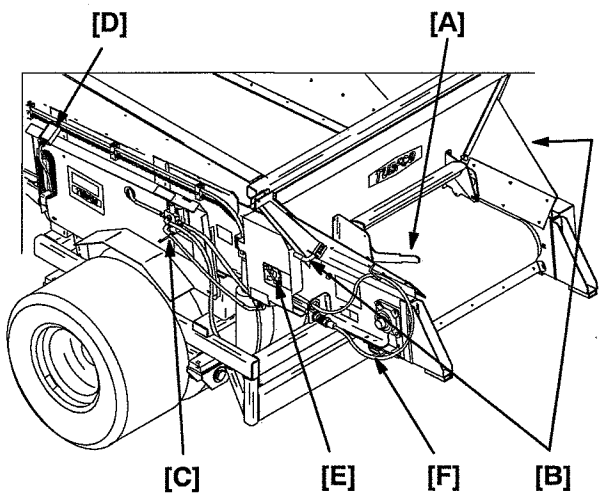


FIGURE 10

[A] SETTING OF METERING GATE (See Figure 10)

The amount of material released from the CR-10 hopper is determined by the metering gate setting. Moisture content and the type of material are variables that will affect the setting of the metering gate. Use a smaller opening for dry material and a larger opening for damp material. Experimentation by the operator will help to determine the proper setting.

When increasing the opening size of the metering gate, the attachment speed control may also need to be set higher to handle the extra volume of material. For less volume of material, decreasing the metering gate opening will have better results than decreasing the speed of the CR-10 conveyor belt.

[B] UNLATCHING THE REAR HOPPER PANEL (See Figure 10)

The entire rear panel of the hopper can be unlatched by pulling the two rear hopper panel latch pins. This will allow a very large amount of material to be released instead of the controlled volume from the metering gate.

Before unlatching the rear panel, close the metering gate. Always stand at the side of the machine when unlatching the panel; the weight of the material in the hopper can cause the rear panel to swing up when unlatched.

For best operating results, the rear hopper panel is meant to be unlatched during stationary operation only. The rear panel should always be latched during loading of the hopper and during transport.

Do not unlatch the entire CR-10 rear hopper panel during operation of any optional attachment. The volume of material released when the entire rear hopper panel is open will be too high for the attachments. Spilling of material and plugging of the attachments will result.

[C] OPERATION OF THE LIFT CONTROL (See Figure 10 and 11)

The CR-10 Lift Control raises and lowers the rear of the CR-10 Unit. During normal operation, the rear of the CR-10 Unit will be in the lowered position **[1]**. However, the rear of the CR-10 Unit can be raised to reach high areas. The raised position **[2]** can also be used to accommodate loading other equipment with high hoppers.

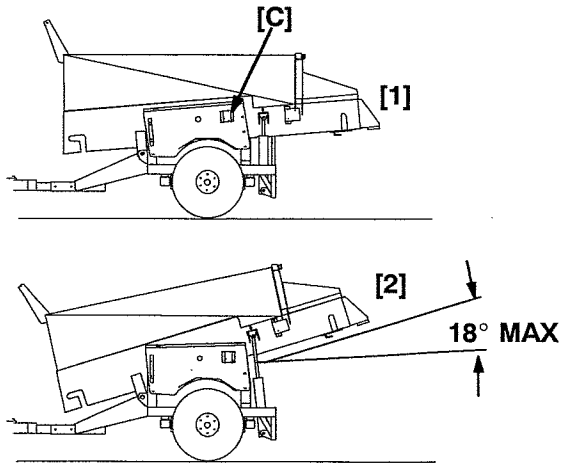


FIGURE 11

⚠ DANGER ⚠

TO AVOID SERIOUS INJURY,
Do Not Reach Into or Enter the Side or Rear of the CR-10 Unit When it is Raised.

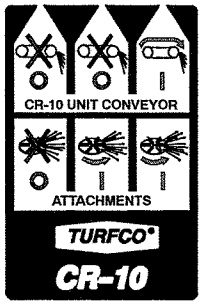
The raised position of the CR-10 Unit is for stationary operation only. During transport or towing, the CR-10 Unit should be completely lowered. DO NOT tow or transport the CR-10 when it is in a raised position.

⚠ CAUTION ⚠

To Avoid Damage To The CR-10 Unit,
Do Not Tow or Transport the CR-10 Unit When it is Raised.

The type of material and its condition (moisture content, size of grain, etc.) will dictate the height that the CR-10 Unit can be raise and still be able to lift the material. If the material will not flow up the belt, the rear is raised too high for the material type. Changing the metering gate opening or unlatching the rear hopper panel may help in some situations.

[D] HAND HELD ON/OFF SWITCH (See Figure 10)



The ON/OFF switch controls both the on/off operation of the CR-10 Unit and the optional attachments. The operator of the CR-10 should have the ON/OFF switch secured at the operators position during operation.

Always be at the operator's position before engaging the ON/OFF switch.

Refer to the decal on the hand held box. The switch has 3 positions:

1. CR-10 Unit Conveyor OFF (**O**) Attachment OFF (**O**)
2. CR-10 Unit Conveyor OFF (**O**) Attachment ON (**I**)
3. CR-10 Unit Conveyor ON (**I**) Attachment ON (**I**)

When no attachments are installed on the CR-10 Unit, the attachment ON/OFF positions on the switch will not have any effect on the ON/OFF operation of the main CR-10 Unit. Only the CR-10 Unit Conveyor positions will operate. For more information about the ON/OFF operation of any attachment, refer to the attachment operator manuals

⚠ CAUTION ⚠

To Avoid Damage To The CR-10 Unit Do Not Place the Hand Held ON/OFF Switch Inside of the Hopper.

Always keep the hand held switch in a secure place. When not in use, secure the CR-10 hand held switch to the frame side panel of the CR-10 Unit. Wind up the cable on the control wire bracket. Do not place the hand held switch inside of the CR-10 hopper.

[E] SETTING ATTACHMENT SPEED CONTROL (See Figure 10)

The Attachment Speed Control controls only the attachments (Spinner Attachment or the Conveyor Attachment). When no attachments are installed on the CR-10 Unit, the control should be set at "Zero". Changing the speed control will have no affect on the speed of the CR-10 Unit conveyor belt.

When no attachments are installed, the hydraulic hoses **[F]** that are used to connect to the attachments should be connected to each other at the quick disconnect fittings. Refer to the hose routing decal located near the speed control (on the left side of the CR-10 Unit).

GROUND SPEED AND OPERATION

Forward speed is an important part of operation. Moderate and constant speed will provide the best results. Ground speed should not exceed 9.6 Km/h (6 MPH). Undesired material patterns and excessive stress on the machine will occur if speeds are in excess of 9.6 Km/h (6 MPH).

⚠ WARNING ⚠

TO AVOID SERIOUS INJURY, and To Avoid Damage to the CR-10 Unit, Do Not Operate At Speeds Over 9.6 Km/h (6 MPH).

DO NOT EXCEED THE MAXIMUM GROUND SPEED OF 9.6 Km/h (6 MPH) TO REACH PROPER HYDRAULIC PRESSURE LEVELS.

Do Not Operate On Public Highways. CR-10 is Equipped with Non-Highway Service Tires.

For best results, operate in straight lines. Gradual turns can be made without undesired spreading results. Too sharp of a turn will result in uneven distribution of material. A sharp turn should be taken very slowly. Too fast of a turn will increase the possibility of damage to the turf caused by the outside wheels skidding. To avoid damage to the turf, do not operate the CR-10 across a golf green. If the green is too soft, the tires may sink into the turf and leave tracks.

⚠ WARNING ⚠

TO AVOID SERIOUS INJURY, To Avoid Damage to the CR-10 Unit and the Tractor, Do Not Operate the CR-10 Unit On Side Slopes Over 15° Degrees, or Up and Down Slopes Over 15° Degrees.

Do not operate the CR-10 on side slopes over 15° degrees. Do not operate the CR-10 up and down side slopes over 15° degrees. Do not operate the CR-10 with an over filled or overloaded hopper. Tipping or rolling over of the machine can occur.

CR-10 UNIT UNHITCHING

DO NOT unhitch the CR-10 Unit if it is on a slope. DO NOT remove safety chains until the CR-10 is secured. Block the tires to prevent uncontrolled rolling. Before unhitching the CR-10 Unit from the tractor, check the following:

- Hopper is empty. No tools are left in the hopper.
- Hoses have been disconnected from the tractor.
- Power supply cable has been disconnected.
- Jackstand is lowered and locked down.
- Rear stabilizer leg is lowered and locked down.

Troubleshooting Table

PROBLEM	POSSIBLE CAUSE
Poor Spreading Results	Low or Uneven Material Level In the Hopper.
	Moisture Level of Material Too High.
	Unscreened Material In Hopper. Debris or Rocks in Metering Gate.
	Buildup Of Material On Machine Components.
	Metering Gate Setting Wrong For Material Type and Conditions.
	Tractor Hydraulic Pressure Supply Too Low or Varying During Operation. Check Tractor Fluid Level. Check Tractor Engine RPM.
Conveyor Belt Tracking or Centering Wrong	Bad Conveyor Belt Roller Bearings or Loose Roller Bearing Hardware. (Refer Repair to Service Level Personnel.)
	Conveyor Belt Tension Wrong. Unequal Measurement on Tension Adjusters. (Refer Repair to Service Level Personnel.)
	Damaged Conveyor Belt (Refer Repair to Service Level Personnel).
	Buildup of Material on Conveyor Belt Rollers. Clean As Needed.
Electric ON/OFF Switch Is Not Functioning	Damage To Wiring Harness. Wires Pulled Loose From Hand Held Control Box. (Refer Repair to Service Level Personnel.)
	Unplugged at Main Wiring Harness. Check Connection.
	Electrical Connection to Tow Vehicle Not Secure. Poor Connection or Wrong Polarity. Low Battery on Tow Vehicle.
	Bad Fuse in Wiring Harness (Replace with 15 amp.)
	Hydraulic ON/OFF Solenoid Valves Damaged or Inoperable. Check Connection at Solenoids. (Refer Repair to Service Level Personnel.)

PROBLEM	POSSIBLE CAUSE
Lift Control Inoperable	Hydraulic Fluid Pressure From Tractor Too Low. Check Tractor Fluid Level. Check Tractor Engine RPM.
	Hydraulic Hose Not Properly Connected To Tractor. Check Connections.
	Lift Control Valve Not Operational (Refer Repair to Service Level Personnel.)
	Lift Cylinders Not Operational (Refer Repair to Service Level Personnel.)
Conveyor Belt Motor Inoperable	Hydraulic Fluid Pressure From Tractor Too Low. Check Tractor Fluid Level. Check Tractor Engine RPM.
	Hydraulic Hose Not Properly Connected To Tractor. Check Connections.
	Damaged or Inoperable Hand Held ON/OFF Switch. Check Connection At Main Wiring Harness. (Refer Repair to Service Level Personnel.)
	Hydraulic Solenoid Valve Not Operational. Check Electrical Connection at Solenoid (Refer Repair to Service Level Personnel).
	Hydraulic Motor Not Operational (Refer Repair to Service Level Personnel).
Attachment Speed Control Inoperable	Hydraulic Fluid Pressure From Tractor Too Low. Check Tractor Fluid Level. Check Tractor Engine RPM.
	Non-Functioning Speed Control. (Refer Repair to Service Level Personnel.)
	No Hydraulic Pressure At Control.Check Operation Of Conveyor Belt Hydraulic Motor and Solenoid Valve. (Refer Repair to Service Level Personnel.)

Operator Daily Inspection

⚠ WARNING ⚠

TO AVOID SERIOUS INJURY, Always Follow All Safety Hazard Warnings and Decals.

Do Not Attempt To Perform Any Inspection, Adjustment, Or Service With Any Part of the CR-10 Unit Operating.

Work Safely and Wear the Appropriate Safety Gear.

Before each use, check the following items:

- Inspect for damaged or missing guards. Do not operate any machine with missing or damaged guards.
- Inspect entire machine for damaged or inoperable components. Do not operate any machine with damaged or inoperable components. Inspect the entire machine for loose fasteners. Retighten as required.
- Inspect all controls for proper operation.
- Check all tires for proper inflation. Improper inflation will damage the tires, the machine, and will damage the turf. Inflate tires to the tire pressure rating on the decal next to the tire valve.
- Check the brake fluid level (if equipped). Inspect the brake safety chain for damage.
- Maintain proper daily lubrication intervals on the CR-10. Refer to the Lubrication section of this manual proper lubrication of the CR-10.
- Check the level of hydraulic fluid in the tractor.
- Inspect the conveyor belt splice. Check that the splice wire is fully inserted. Equal amounts of wire should be visible on both ends of the splice. Both ends of the wire should have a slightly bet to keep the wire in place. Refer any need repair or replacement to service personnel.
- Check for a buildup of material on components under the hopper and conveyor belt. Clean as needed.
- Before filling the hopper, check the conveyor belt adjustment and alignment. Check the measurement on both belt tension adjusting screws for proper setting of belt tension. If adjustment is required, see the instructions for "Conveyor Belt Tension Adjusters" in the Operator Adjustment section in this manual. Check the conveyor belt adjustment and alignment frequently during operation.

Storage

TO STORE THE CR-10 UNIT over an extended period, clean all surfaces and remove any remaining material from the hopper. Only use low-pressure wash on the CR-10 Unit. High-pressure washing can wash away the grease from the bearings and lubrication from the drive chains and sprockets.

The conveyor belt should be thoroughly cleaned and stored out of the direct sunlight. If storage is for an extended period of time, remove the tension on the conveyor belt by loosening the conveyor belt tension adjusters.

Check the air pressure in the tires. Inflate to the proper level. Check the brake fluid level (if equipped). Refill as needed. Inspect the brake safety chain and the hitch safety chain.

Remove any optional attachments. Connect CR-10 Unit attachment hoses together. Turn the attachment speed control to Zero. Refer to the attachments operators' manual for proper storage of the attachment.

See the lubrication directions and follow the procedures for lubrication of the hydraulic system and grease fittings. Apply a film of light machine oil to the drive chains to control rust.

TO RETURN TO SERVICE AFTER EXTENDED STORAGE, inspect the entire machine for any damage that may have occurred during storage. Refer any needed correction to service level maintenance personnel.

Adjust the entire machine. Reset the conveyor belt tension in accordance with the instructions in the "Operator Level Adjustment and Service" section in this manual.

- Lubricate the entire machine in accordance with the instructions in the Lubrication section in this manual. Refer the inspection of the hydraulic system to service level personnel.
- Check the tire pressure. Inflate to 207 kPa (30 PSI).
- Check the brake fluid level. Refill as needed.
- Check the inside of the hopper for anything items place inside during storage.
- Reinstall any desired optional attachments.

Operator Level Adjustment and Service

⚠ WARNING ⚠

TO AVOID SERIOUS INJURY, Do Not Attempt To Adjust, Service or Lubricate any Part of the CR-10 Unit When It Is Operating.

Properly Secure The CR-10 Unit Before Starting Any Adjustment, Service or Lubrication Procedures.

Operator Level Adjustment and Service is limited to:

- ***Lubrication***
- ***Tire Pressure***
- ***Conveyor Belt Care and Cleaning***
- ***Correcting Conveyor Belt Tension***

Refer all other adjustments or repairs to qualified service personnel.

LUBRICATION (See Figure 12)

HYDRAULIC OIL: The CR-10 Unit uses the hydraulic fluid from the tractor. Check the fluid level in the tractor. If needed, correct the level using fluid as described in the tractor's operator manual.

GREASE FITTINGS: The CR-10 should be lubricated after EVERY 20 HOURS of operation with a good quality No. 1 Bentone or Lithium grease.

There are a total of 6 grease fittings on the machine. If equipped with brakes, the surge brake actuator housing has another 4 grease fittings.

[A] Two (2) grease fittings for the front conveyor belt roller shaft bearings (located under guards for tension adjusters, one per side).

[B] Two (2) grease fittings for the rear conveyor belt shaft bearings (located at the ends of the rear conveyor belt roller. One per side, access to right side under hydraulic motor guard).

[C] Two (2) grease fittings for the upper and lower frame swivel pins (located on inside surface of pins, one per side).

[D] Four (4) grease fittings on surge brake actuator housing (Product No. 85440 only).

LUBRICATING OIL: Use a good grade of light machine oil on any pivot point. Before lubricating, clean and inspect parts wear or damage. Lightly oil crank and pivot on jackstand. Lightly oil hinge on side guard. Lightly oil all chains to control rust. Do Not Over Lubricate; excess oil will attach dust and dirt.

EUROPEAN LUBRICANTS, FUEL, AND PARTS DISPOSAL NUMBERS

Motor Oil	54112
Gear Oil	54112
Grease	54202
Plastic Parts	57127
Tires	57502

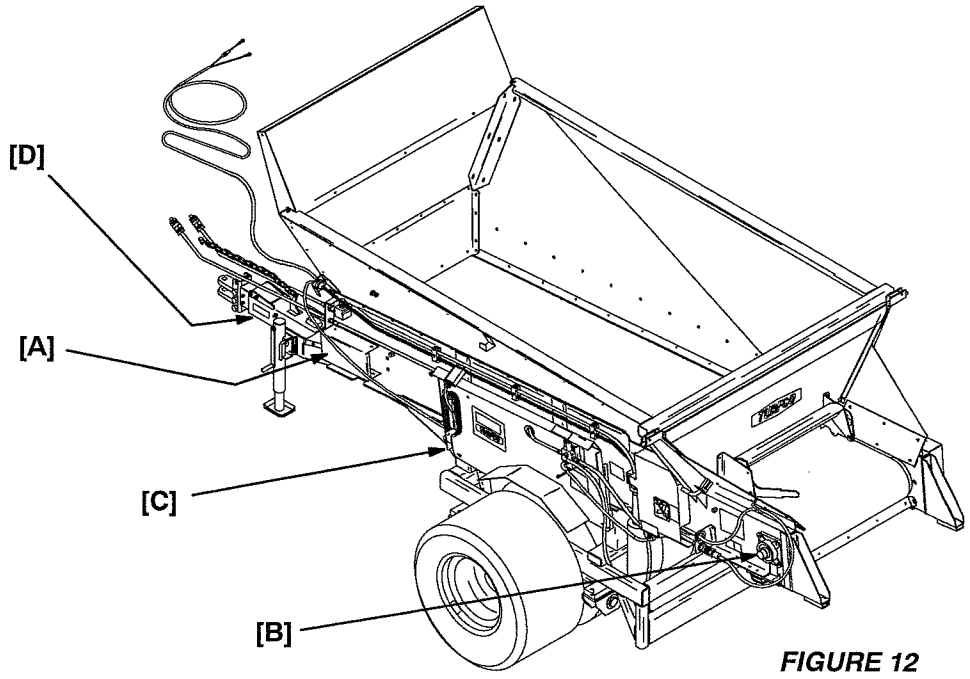


FIGURE 12

TIRE PRESSURE

Inspect the tires often. Look for damage to the tire caused by rubbing against the frame. Rubbing is a result of operation on slopes over the maximum of 15° degrees or operating with under inflated inboard tires.

30 PSI (207 kPa)

Tire air pressure must be maintained to avoid damage to the turf or damage to the tires. Proper tire air pressure is 207 kPa (30 PSI). *DO NOT OVER INFLATE TIRES.* If an inboard tire is flat, DO NOT MOVE the CR-10 Unit, the inboard tire will rub on the frame.

CONVEYOR BELT CARE

Cleaning: Wash the excess material from the belt after use and before storage. After extended periods of use the front and rear conveyor belt rollers may collect a buildup of material. This buildup may cause excessive tension on the belt and cause tracking problems. Periodically inspect and remove the unwanted material from the inside of the conveyor belt and the outside surfaces of the front and rear conveyor belt rollers. The conveyor belt has a splice that connects the two ends of the belt. When cleaning the belt, inspect the splice. If maintenance is needed, refer the repair to qualified service personnel.

Low pressure wash the CR-10 Unit only. High-pressure washing can wash away the grease from the bearings and lubrication from the drive chains and sprockets.

Inspection: After the conveyor belt has been cleaned, inspect for damage, cuts, holes, tears, or unusual wear patterns. Refer any needed repair work to qualified service personnel.

Sunlight: To prolong the life of the conveyor belt, empty the hopper, clean the top of the belt and store the CR-10 away from the direct sunlight.

Sunlight: To prolong the life of the conveyor belt, empty the hopper, clean the top of the belt and store the CR-10 away from the direct sunlight.

CONVEYOR BELT TENSION ADJUSTMENTS
(See Figure 13)

The tension on the conveyor belt must be adequate to assure proper operation. It is important that the belt contact the drive roller with a constant and equal force along its entire length. Correction to the tension adjustment may be required to correct for normal conveyor belt stretch or wear.

The tension adjustment is done by equally turning the adjuster screws to change the location of the front conveyor shaft bearings. Adjustment is calibrated by measuring the distance from the ends of the adjuster screws to the front surface of the nut.

Before adjusting the tension, inspect the conveyor belt, the conveyor belt rollers, and the conveyor belt bearings. Look for damaged, worn or loose bearings. Look damage to the conveyor belt and the conveyor belt splice. Check for a buildup of material on the inside of the conveyor belt or on the surfaces of the front and rear conveyor belt rollers. Refer any needed repairs to qualified service level personnel.

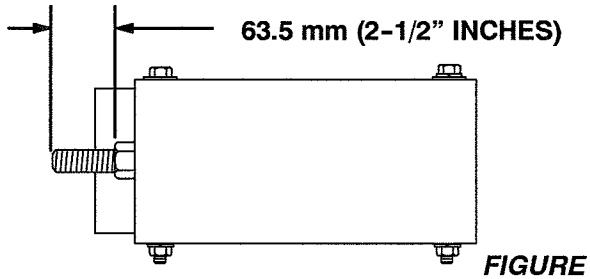


FIGURE 13

Setting Conveyor Belt Tension
(See Figure 13)

Initial calibration measurement should be 63.5 mm (2-1/2" inches). If conveyor belt slips under load, tighten conveyor belt adjusting both screws. Tighten equally making quarter (1/4) turn intervals until slippage stops. Recheck conveyor belt tension measurement after operation. If belt still does not operate properly, reset adjusters to 63.5 mm (2-1/2" Inches) and refer repair to qualified service personnel.

Centering Conveyor Belt
(See Figure 13)

Look at the conveyor belt and the rear drive roller. The outside edges of the rear drive roller should be visible. The space between the end of the roller and the edge to the belt should be approximately equal on both sides.

It is normal during operation for the conveyor belt to move from side to side as it reacts to the changes of the weight and distribution of the material load in the hopper. However, the belt should not stay to just one side or ride past the end of the drive roller on either side.

Correction can be made to recenter the belt by changing the calibration measurement on just one of the conveyor belt tension adjusters. The difference between the right hand and left hand tension adjusters can be up to 12.7 mm (1/2" inch) to correct for conveyor belt centering.

As the conveyor belt wears and stretches, the difference between measurements can become greater. Allow a sufficient number of belt revolutions (minimum of 10) for the new adjustment to take place.

If centering problems still exists after changing the tension adjusters, refer the problem to qualified service level personnel.

Service Level Maintenance

⚠ WARNING ⚠

THE FOLLOWING SERVICE AND ADJUSTMENT PROCEDURES ARE FOR QUALIFIED SERVICE LEVEL PERSONNEL ONLY.

TO AVOID SERIOUS INJURY,
Do Not Attempt To Service any Part of the CR-10 Unit When It Is Operating.

TO AVOID SERIOUS INJURY,
Always Follow All Safety Hazard Warnings. Work Safely And Wear The Appropriate Safety Gear When Servicing The CR-10 Unit.

Read And Follow All Safety Hazard Decals.

Properly Secure The CR-10 Before Starting Any Adjustment, Service or Lubrication Procedures.

HITCH HEIGHT ADJUSTMENT

The hitch height on the CR-10 is adjustable by relocating the hitch up or down. Match the height of the hitch to the height of the tractor hitch. The hitch should always have two bolts attaching it to the CR-10 Unit tongue, do not position the hitch higher or lower than the adjustment range allows.

The tongue of the CR-10 should sit level during operation. If equipped with brakes (Product No. 85440 only), a level hitch and a level operating position of the machine are IMPORTANT for proper brake operation.

SERVICING AND CHANGING TIRES

Inspect the tires often. Look for damage to the tire caused by rubbing against the frame or other components. Rubbing is a result of operation on slopes over the maximum of 15° degrees or operating with under inflated inboard tires.

Always maintain proper air pressure in the tires. Inflate the tires to 207 kPa (30 PSI). Operating the CR-10 with under inflated tires will damage the tires. Under inflated tires will also damage the turf by leaving tire impressions. If an inboard tire is flat, do move the CR-10 Unit. The inboard tire will rub on the frame or against other components.

To remove the inboard tires, the entire wheel, axle, and axle beam assembly must be removed from the CR-10 frame. Disconnect the brake lines from the brake assembles. Disconnect the wheel and axle assembly by removing the bearing retainers (located at each end of the long axle beam). The axle beam bearings allow the wheel and axle assembly to swivel during operation.

⚠ WARNING ⚠

TO AVOID SERIOUS INJURY and To Avoid Damage to the CR-10, Lift and Secure the CR-10 With Jacks Supporting the Lower Frame.

Do Not Lift the CR-10 Using the Axle Beam Located Between the Tires.

Do Not Lift or Jack THE CR-10 With Material in the Hopper.

If replacement of a tire is needed, always replace with tires that have the same tread design, same size and load rating. Do not mix different size tires on the CR-10 Unit. Always check for proper clearance and interference with frame. Proper tire size is 31 x 15.5 x 15NHS (Non-Highway Service). The rim is custom made to provide the necessary clearances.

BRAKE SYSTEM (Product Number 85440 only)

The brakes are on the outside wheels only. Activation of the brakes is by a tongue mounted master cylinder. Break-away protection is provided by a chain that sets the brakes during operation in the event that the tractor and the CR-10 become separated. The brake actuator will not activate the brakes in the event of separation if the break-away chain is not properly connected. The chain must always be connected to the tractor during operation.

The brake shoes should be adjusted so that they just barely rub when the wheel is rotated. Both brakes should be adjusted equally. If the tires are skidding on the grass during operation, the brake shoe may need to be slightly adjusted back. Do not adjust back too far or the brakes will not operate satisfactory.

The brakes will need to be bleed in the event that the hoses have been disconnected to accommodate inboard wheel and axle assembly removal. Open the bleeder valves on the slave cylinders and pressure bleed at the master cylinder.

Maintenance items on the brakes are:

- Keep master cylinder at proper fluid level. in the master cylinder. DOT 5 Silicon Brake Fluid Only.
- Grease 4 fittings on the brake actuator housing.
- Adjustment of brake shoes. Replace worn shoes.
- Inspect brake lines and hoses for damage, kinks or leaks.
- Checking condition and proper attachment of the break-away chain to the master cylinder.

METERING GATE ADJUSTMENTS

Tension on the metering gate pivot points is needed to keep the gate in a selected position during operation. If the gate is changing positions during operation, increase the tension adjustment by tightening the two nuts at the ends of the pivot points. If the metering gate is difficult to move, check for a buildup of material at the pivot points.

The gate is mechanically restricted from completely closing against the conveyor by stops located at each end of the gate. The gate will always remain open at least 12.7 mm (1/2" inch) when in the closed position. *Do not remove the metering gate stops to allow the gate to fully close. Damage will occur to the metering gate and the conveyor belt if they touch during operation.*

DRIVE CHAIN *(See Figure 14)*

The roller chain in the drive train is tensioned by an idler sprocket. After use, normal chain and sprocket wear will cause the chain to be too loose. Adjust the slack in the chain by moving the idler sprocket DOWN in the slot provided for adjustment. If the idler is located at the bottom of the slot, the chain wear is excessive and the chain needs to be replaced. Cleaning and lightly lubricating the drive chain periodically will greatly extend its life.

CHAIN SCHEMATIC

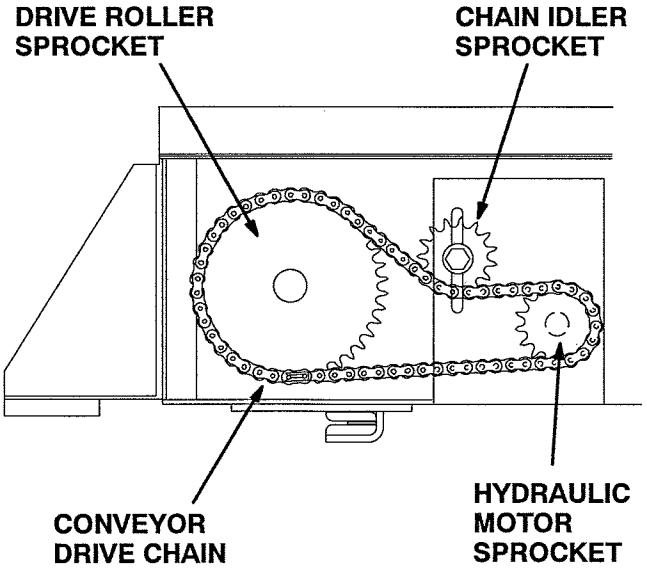


FIGURE 14

Before adjusting or replacing the drive chain, check the following:

- Worn or damaged chain sprockets.
- Loose or out-of-line chain sprockets.
- Excessively Worn or stretched chains.
- Worn or damaged idler sprockets and idler sprocket bearings.
- Sheared keys on sprockets.
- Restricted operation of other components. Check for frozen bearings for the conveyor belt rollers and the brush. Check obstructions caught in conveyor belt or metering gate.
- Loose hydraulic motor, check mounting screws.

CONVEYOR BELT SCRAPER ADJUSTMENT

The center of the plastic scraper should lightly touch the center of the conveyor belt. The contact with the belt should be very light, touching only enough to partially clean the belt. Excessive contact or pressure on the belt will cause rapid wear to both the conveyor belt surface and to the scraper.

CONVEYOR BELT SPLICE WIRE

Check that the splice wire is fully inserted. Equal amounts of wire should be visible on both ends of the splice. Both ends of the wire should have a slight bend to keep the wire in place.

CONVEYOR BELT TENSION ADJUSTERS *(See Figure 15 and Figure 16)*

Power to run the conveyor belt is provided by the hydraulic conveyor belt motor. The motor drives the conveyor belt drive roller through a chain drive. The conveyor drive roller is covered with a rough material which provides the friction necessary to move the belt.

The tension on the conveyor belt must be adequate to assure it moves at the same rate as the drive roller. It is important that the conveyor belt contact the drive roller with a constant and equal force along its entire length. Correction to the tension adjustment may be required to correct for normal conveyor belt stretch or wear.

Refer to the section "Conveyor Belt Care" and "Conveyor Belt Adjustments" in the Operators Adjustment and Service section of this manual for information about conveyor belt tension. After changing the tension setting, allow a sufficient number of conveyor belt revolutions for the new adjustment to take place.

Before adjusting the tension, inspect the conveyor belt, the conveyor belt rollers, and the conveyor belt bearings. Look for damaged, worn or loose bearings. Look for damage to the conveyor belt and the conveyor belt splice. Check for a buildup of material on the inside of the conveyor belt or on the surfaces of the drive or idler conveyor belt rollers

CONVEYOR BELT TRACKING AND CENTERING ADJUSTMENTS *(See Figure 15 and Figure 16)*

If tracking or centering problems occur, first check for unequal tension measurement on the conveyor belt tension adjusters. After extended use, material may build up on the front and rear conveyor belt rollers causing undue tension on the conveyor belt and tracking problems. Clean the rollers before adjusting the conveyor belt tension. Before adjusting the belt, check the following:

- Check for a buildup of material on the inside of the belt, or on the idler and drive conveyor belt rollers.
- Check for damaged conveyor belts. Look for holes, tears, or "worn-thin" spots.
- Check for damaged or worn conveyor belt splices.
- Look for damaged or bent bed rollers. Check the bearings on the bed rollers.
- Check bearings for proper lubrication.
- Look for damaged, worn or loose bearings on the idler and drive conveyor belt rollers.
- Look for loose, broken or damaged conveyor belt tension adjusters.

It is very important during the first 10-15 hours of operation to frequently check the conveyor belt for misalignment. All belts have break-in periods to train the conveyor belt to track properly. During break-in, some irregular movement can be expected. After the break-in period, only normal inspection and adjustment will be necessary. Use the following procedure to adjust conveyor belt tracking (or break-in training):

Step 1. Set each belt tension adjuster screw so that 63.5 mm (2-1/2" inch) of thread is visible behind the nut. Operate the conveyor attachment without any material on the belt. If the belt is not tracking properly, make quarter (1/4) turn adjustments to one tensioner until the belt tracks true. *Turn the adjuster screw on the side that the belt is going towards.* It is very important to give the conveyor belt enough time (minimum of 10 rotations) to move into its new position after turning the adjuster screws. The difference between the right hand and left hand tension adjusters can be up to 12.7 mm (1/2" inch). When the belt starts to run true, continue running (with no material) for fifteen minutes.

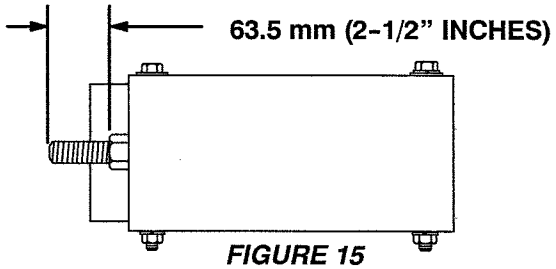


FIGURE 15

Step 2. Fully load the belt with material and operate. It is normal for the belt to slightly move from side to side when it is loaded. Check tracking and make small adjustments if needed. It is very important to give the belt enough time (10 rotations) to move into its new position before making any additional adjustments.

Step 3. After this adjustment procedure (or this initial conveyor belt break-in and training), use the conveyor normally. Check the conveyor belt after every load and make small corrective adjustments as needed After 10 - 15 hours of use the belt should be broken-in and tracking correctly.

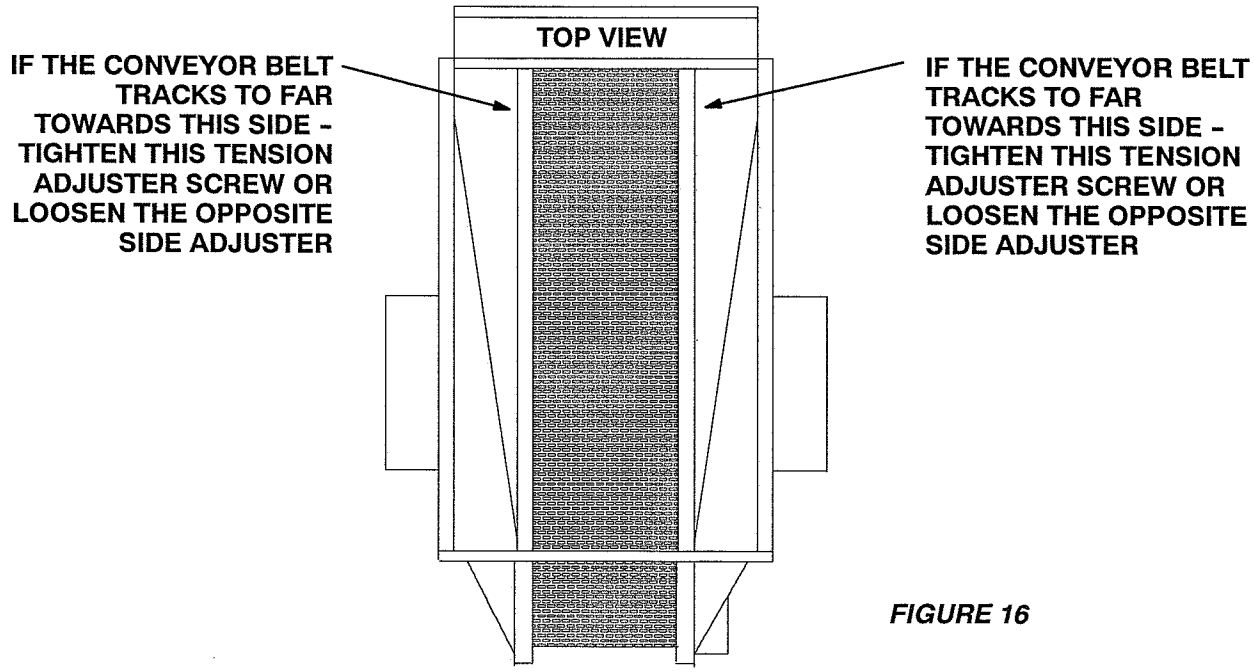


FIGURE 16

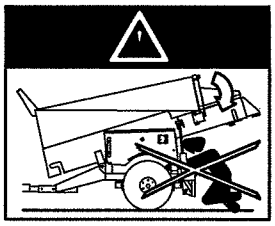
CONVEYOR BELT REPLACEMENT

(See Figure 17)

Replacement of the conveyor belt may be necessary if it has been damaged or will no longer stay in proper alignment or adjustment. Use the following steps for replacement:

Step 1. The CR-10 frame has a small hole in the left side panel to allow the spice wire to be removed. The hole is located next to the rear drive roller. Operate the belt until the splice aligns with the hole.

Step 2. Secure the tractor and the CR-10 to avoid injury. Unplug the electrical connection and the hydraulic connections to the tractor. Ensure that the CR-10 is secured with the front jackstand down and the rear stabilizer leg down. The CR-10 Unit should be completely lowered. DO NOT enter or reach into the space between the upper and lower frames when the CR-10 is raised.



Step 3. Completely remove the tension of the conveyor belt by backing off the tension adjusters.

Step 4. Remove the conveyor belt scraper assembly (located at the bottom of the rear drive roller).

Step 5. Straighten the ends of the splice wire and pull it out thru the hole in the frame.

Step 6. Remove the belt by pulling over the top of the drive roller. *Do not operate the conveyor belt to try to feed it out under power.*

Step 7. Inspect condition of the drive roller, the idler roller and the bed rollers. Look for worn or frozen bearings, bent bed rollers, missing or excessively drive roller rubber coating. Also look for sharp edges on any component that could damage the new belt. Make repairs as needed.

Step 8. Inspect the condition of the hopper seals. Look for worn, missing, or torn seals. Make repairs as needed.

Step 9. Insert the new belt over the top of the drive roller, under the hopper seals, and feed into the hopper. Feed around the front idler roller, under the bed rollers. All hopper seals should be on top of the belt. At the front hopper panel, corners of the front hopper panel seal should be on top of the corners of the side panel seals.

Step 10. Align the splice on the rear drive roller. Join and insert the spice wire to lock the splice. Insert the wire until equal amounts are visible on both ends of the splice. Lock the wire in place by slightly bending the ends.

Step 11. Retension the new conveyor belt to the settings shown in Figure 15.

Step 12. Replace the conveyor belt scraper assembly. Adjust the plastic scraper so that it is very lightly touching the new belt. Refer to Conveyor Belt Scraper Adjustment section in this manual.

Step 13. Reconnect the electrical and hydraulic connects to the CR-10 and operate the conveyor belt. Observe the tracking of the belt. Make corrections to the tension adjusters to correct tracking. Refer to the "Conveyor Belt Tracking and Adjustments" section in this manual for detailed procedures.

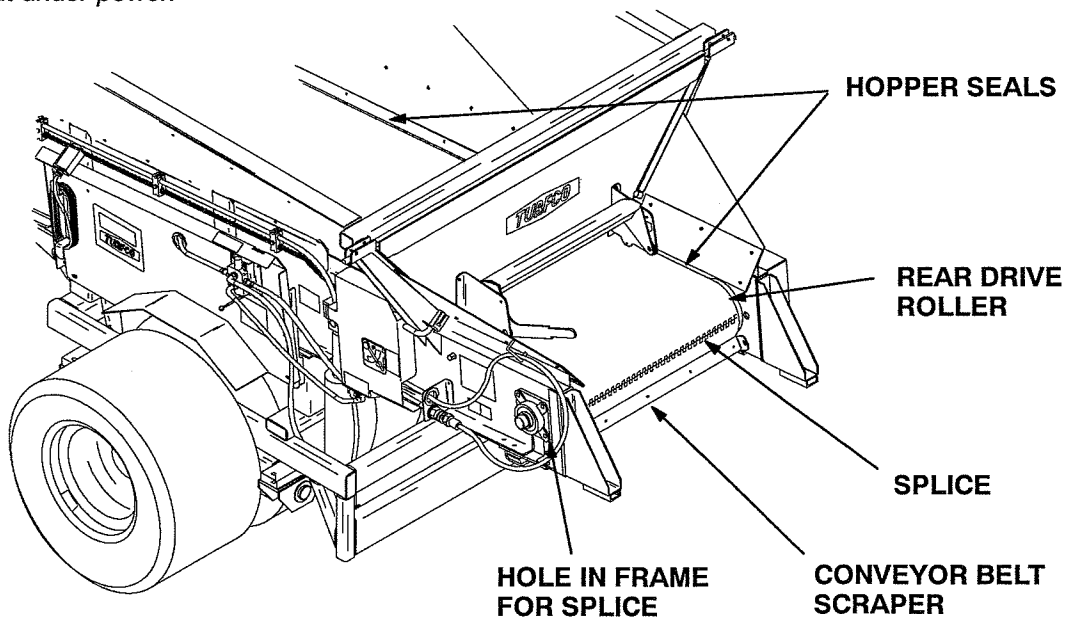


Figure 17

Hydraulic System

(See Figure 18 and 19)

INSPECTING HYDRAULIC HOSES AND FITTINGS

Do not attempt to inspect the CR-10 hydraulic hoses with the CR-10 Unit conveyor belt or attachments operating. Stop the tractors engine and shut off the hydraulics to ensure that there is no hydraulic pressure.

DANGER

TO AVOID SERIOUS INJURY,
Never Service Any Part Of The Hydraulic System With The Tractors Engine and Pump Operating. High Hydraulic Pressure And High Oil Temperatures Can Cause Serious Injury Or Death.

Do Not Use Your Fingers Or Hands To Check For Hydraulic Leaks. High Pressure Leaks Can Puncture The Skin And Force Oil Into The Body. This Can Cause Severe Injury Or Death.

Wear Safety Glasses

Be Aware of High Hydraulic Oil Temperatures. Serious Burns and Injuries Are Possible.

WARNING

TO AVOID SERIOUS INJURY,
The CR-10 Unit Must Be Fully Lowered Before Servicing the Hydraulic System.

Check the condition of the hydraulic hoses. The hoses have a protective covering to control leakage in the event of a hose breaking. Leaks and worn hoses should be fixed or replaced before the machine is put into service. The hydraulic system has pipe thread fittings on some of the components. If disassembled, reseal the pipe thread fitting with Teflon® tape or pipe dope.

HYDRAULIC FLUID

The CR-10 Unit uses the hydraulic fluid from the tractor. Check the fluid level in the tractor. If needed, correct the level using fluid as described in the tractor's operator manual.

DRAINING CR-10 HYDRAULIC SYSTEM

The hydraulic system is self-bleeding and does not normally store or retain any pressure when it is not in operation. However, in the event of failure of certain components, hydraulic pressure can be trapped in the system. Before servicing any component, check for any remaining hydraulic pressure.

- Allow time for the hydraulic oil in the system to cool.
- Disconnect the quick release fittings from any optional attachments.

WARNING

TO AVOID SERIOUS INJURY,
Be Aware of the Possibility of Trapped High Pressure in the Hydraulic System.
DO NOT USE HANDS TO CHECK FOR LEAKS!!
WEAR SAFETY GLASSES!!

Before draining the CR-10, ensure that the unit is fully lowered. Check both lift cylinders, they should be completely retracted. The upper CR-10 frame should be resting on the lower frame.

WARNING

TO AVOID SERIOUS INJURY,
The CR-10 Unit Must Be Fully Lowered Before Draining or Servicing the Hydraulic System.

Be prepared to safely catch and contain approximately 5.7 liters (1.5 gallons) of hydraulic oil. *Do Not Use Air Pressure or Vacuum Pumps To Drain The Hydraulic System.*

Step 1. Remove the quick disconnect fitting on the "Pressure In" hose. This will drain the lift control valve and partially drain the conveyor belt motor.

Step 2. Remove the lower hoses from the left side lift cylinder. This will drain both lower sections of the lift cylinders. The top sections will not be drained.

Step 3. Remove the hose from "Port B" on the conveyor belt hydraulic motor. This will drain the attachment speed control and the remainder of the conveyor belt motor.

Step 4. Remove the male quick disconnect fitting from the "Return to Attachment" hose for the attachments. This will drain the return lines for the attachment speed control.

Some hydraulic oil will always remain in the system and in the components. Always be prepared to properly catch and contain any remaining hydraulic oil when servicing the hydraulic system components.

CHECK VALVE

The check valve is located in the "Return to Tractor" line and is mounted on the front left corner of the CR-10. It keeps hydraulic pressure from entering the CR-10 thru the return line in the event that the hydraulic hoses to the tractor are connected to the wrong ports.

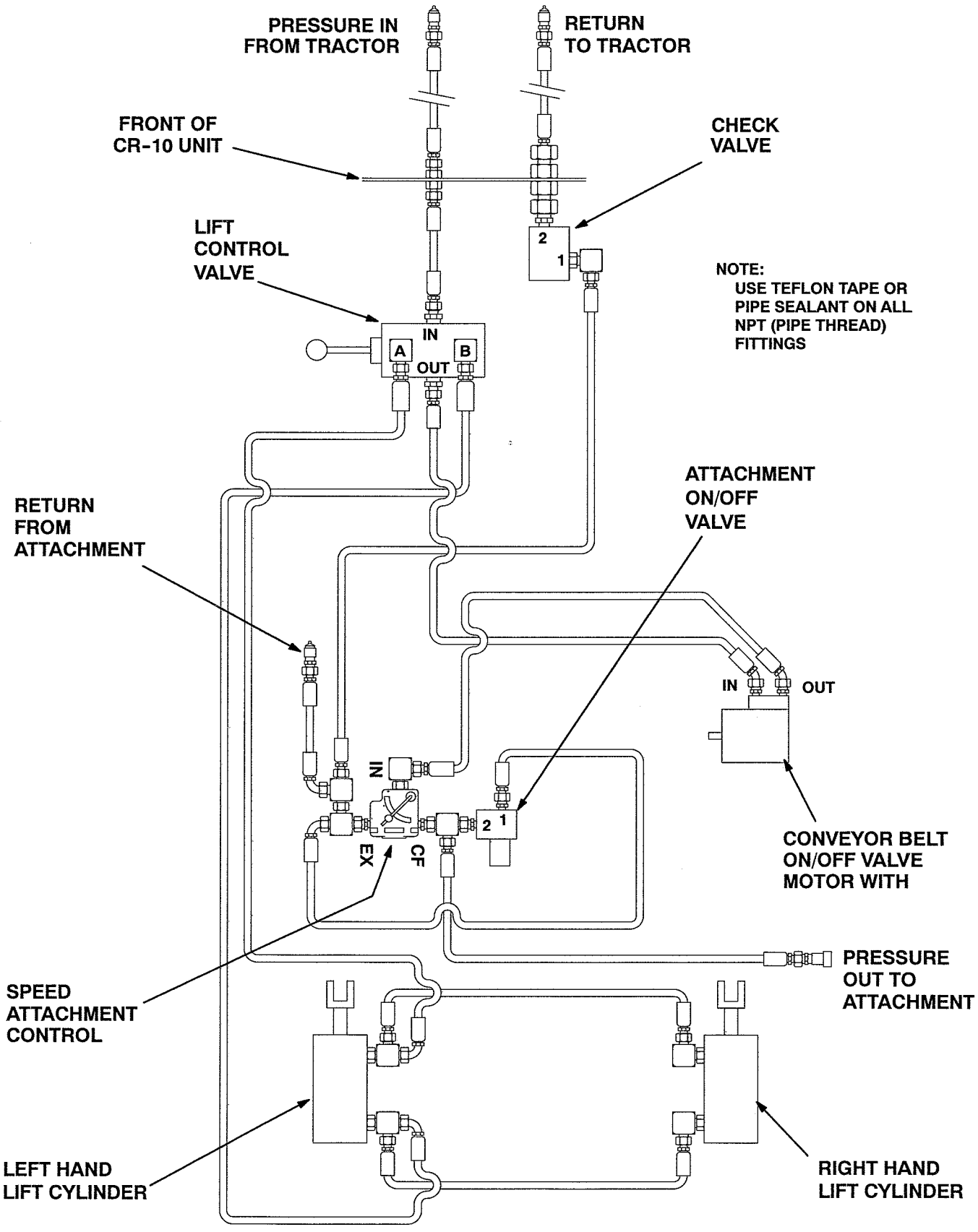

PRESSURE IN FROM TRACTOR
RETURN TO TRACTOR
FRONT OF CR-10 UNIT
CHECK VALVE
LIFT CONTROL VALVE
2
1
IN
A
B
OUT
NOTE:
USE TEFLON TAPE OR PIPE SEALANT ON ALL NPT (PIPE THREAD) FITTINGS
ATTACHMENT ON/OFF VALVE
RETURN FROM ATTACHMENT
IN
OUT
IN
2 1
EX
CF
CONVEYOR BELT ON/OFF VALVE MOTOR WITH
PRESSURE OUT TO ATTACHMENT
SPEED ATTACHMENT CONTROL
LEFT HAND LIFT CYLINDER
RIGHT HAND LIFT CYLINDER

FIGURE 18

The check valve is nonadjustable. The check valve cartridge is a replaceable service part. Refer to the "Parts Lists" section in this manual for the part number for the cartridge and its seal kit.

LIFT CONTROL VALVE

The lift control is the first component in the hydraulic system. It operates the extend/retract function of both lift control cylinders. The lift control has a hand operated spool valve to control the "Raise" (extend) or "Lower" (retract) of the CR-10 Lift Cylinders. When not activated, the spool valve is in a neutral position (spring centered) allowing pressure to exit out to the CR-10 conveyor belt motor.

Pressure enters the lift control valve body thru the "IN" port. Flow is internally controlled by the spool valve. Pressure exiting port "A" is directed to the upper ports on the lift cylinders to retract the pistons providing the "Lower" function. Pressure exiting port "B" is directed to the lower ports on the lift cylinders to extend the pistons providing the "Raise" function. Pressure exits the lift control valve body thru port "Out" and is routed to the CR-10 Unit conveyor belt motor and conveyor belt ON/OFF solenoid.

If the Lift Control fails to operate, check the following:

- Tractor hydraulic pressure or flow too low to provide power. Tractors relief valve bypassing pressure.
- Bad hydraulic connection at the Tractor.
- Twisted, kinked, or restricted pressure hoses.
- Non-operational Lift Cylinders.
- Non-operational Lift Control valve.

RIGHT AND LEFT HAND LIFT CYLINDERS

The right and left hand lift cylinders provide the lift to raise and lower the CR-10 Unit. The lift control valve controls both the raise (extend) and lower (retract) function of the CR-10 Unit. The cylinders have a 411 mm stroke (16" inches). The CR-10 allows the cylinders full travel. Both cylinders act together. The routing of the hydraulic hoses to the lift cylinders provides equal hydraulic pressure and flow to both cylinders.

If the Lift Cylinders fails to operate, check the following:

- Tractor hydraulic pressure or flow too low to provide power. Tractors relief valve bypassing pressure.
- Bad or incorrect hydraulic connection at the tractor.
- Twisted, kinked, or restricted pressure hoses.
- Non-operational Lift Cylinders.
- Non-operational Lift Control valve.
- Mechanical problems with the pivot points between the upper and lower CR-10 frames.

CONVEYOR BELT ON/OFF SOLENOID VALVE

This valve controls the hydraulic flow to the CR-10 Unit conveyor belt. The valve is mounted on the end of the conveyor belt motor. The valve is an electrically operated valves, controlled by the switch on the hand held ON/OFF control box.

The valves are a "normally open" type valve allowing the hydraulic flow to bypass the conveyor belt motor when the hand held ON/OFF switch is in the CR-10 CONVEYOR OFF (**O**) position. Bypassed pressure is routed to Attachment Speed Control.

When the hand-held switch is in the CR-10 CONVEYOR ON (**I**) position, the solenoid is activated. Electrical activation closes the valves and directs all flow to the conveyor belt motor. Pressure out of the motor is then directed to the Attachment Speed Control.

If the conveyor belt motor ON/OFF solenoid valve fails to operate, check the following:

- CR-10 hand held ON/OFF switch not activating the CR-10 conveyor belt motor solenoid.
- Bad electrical connection at solenoid. Bad ground connection at solenoid. Bad ground connection at main wiring harness,
- Non-operational hand held ON/OFF switch. Check for electrical power at conveyor belt ON/OFF solenoid (located on side of motor).
- Bad electrical connection at the Tractor. Low voltage condition from the tractor. Check fuse in main wiring harness.
- Non-operational ON/OFF solenoid.
- Non-operational ON/OFF valve. Valve must close for hydraulic flow to go to motor.
- Lift control valve blocking hydraulic flow.
- Bad or incorrect hydraulic connection at the tractor.
- Twisted, kinked, or restricted pressure hoses.

The solenoids are a replaceable service part. Refer to the "Parts Lists" section in this manual for part numbers for seal kits and solenoids. The valve body does not have any user serviceable parts. If the valves are malfunctioning, they will need replacement.

Refer to the "Electrical Systems" maintenance section in this manual for information about servicing the electrical connections or the hand-held ON/OFF control box.

CR-10 CONVEYOR BELT MOTOR

The conveyor belt motor powers the CR-10 conveyor belt. The motor is mounted at the rear of the CR-10, on the right side of the frame. ON/OFF operation of the motor is controlled at the hand held ON/OFF control box. Hydraulic flow to the motor is controlled by the Conveyor Belt ON/OFF Solenoid Valve.

The operating speed of the motor is fixed and not controllable. Variations in the motor speed speed can be a result of low hydraulic pressure from the tractor, flow being used by the lift cylinders, or changing load conditions in the CR-10 hopper.

CR-10 UNIT HYDRAULIC SCHEMATIC

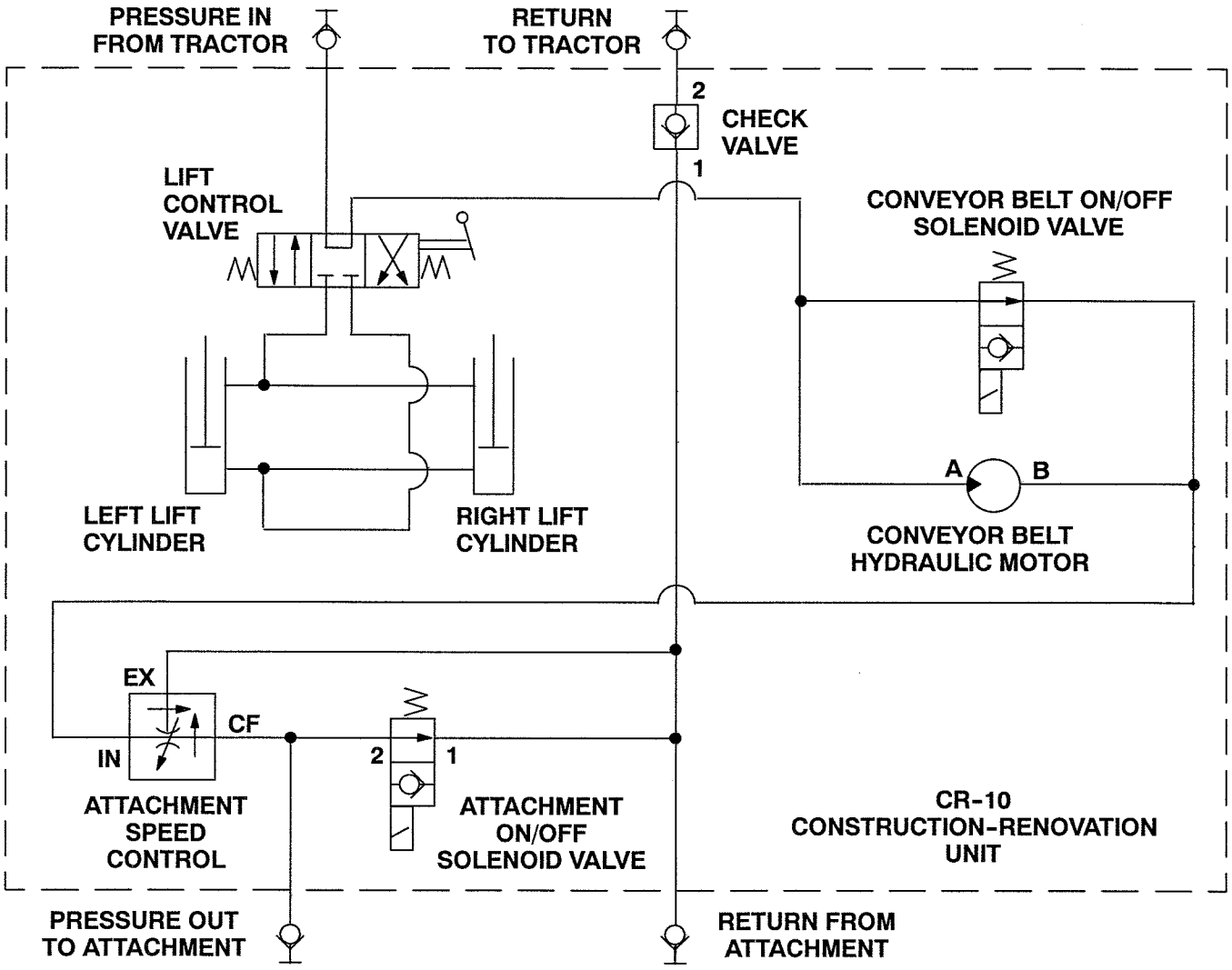


FIGURE 19

The motor rotates only in a clockwise direction (as viewed from the left side of the machine) If the motor is operating in reverse, check the possibility of reversed connections the motor (ports A and B).

If the conveyor belt motor fails to operate, check the following:

- Twisted, kinked, or restricted pressure hoses.
- Bad or incorrect hydraulic connection at the tractor.
- Bad electrical connection with the tractor.
- Non-operational hand held ON/OFF switch. Check for electrical power at conveyor belt ON/OFF solenoid (located on side of motor).
- Non-operational ON/OFF valve. Valve must close for hydraulic flow to go to motor.
- Tractor relief valve is bypassing all hydraulic power back to the tractor.
- Damaged or non-functional motor.
- Mechanical problems, check for loose or out-of-line motor, sheared keys on motor or broken chain (between motor and drive roller shaft).
- Check for restricted operation with other components. Check for a buildup of material or obstructions caught under the conveyor belt.

Hydraulic flow leaving the conveyor motor is routed to the "IN" port on the Attachment Speed Control.

ATTACHMENT SPEED CONTROL

The control regulates the amount of hydraulic power going to the optional attachments. The dial of the control is calibrated 0 through 10. The numbers on the dial are calibrated to correspond to percentage of flow; 0 = 0% flow, 1 = 10%, 2 = 20%, 3 = 30% thru 10 = 100% flow.

The hydraulic flow enters the speed control at the input port (IN). Incoming flow comes from the CR-10 conveyor belt motor.

The controlled flow going out of the speed control, at the controlled flow port (CF), goes out to the attachments hydraulic system.

The unused hydraulic flow going out of the speed control at the exhaust port (EX) is directed back to the return lines to the tractor.

The attachment speed control does not have any user serviceable parts. If the valve is malfunctioning, it will need replacement. Check the following before replacement:

- Tractor hydraulic pressure or flow too low to provide power to the attachment.
- CR-10 conveyor belt motor blocking hydraulic flow to the speed control.
- CR-10 conveyor belt motor solenoid valve blocking hydraulic flow to the speed control.
- Blocked hose from the conveyor belt motor.
- Attachment ON/OFF valve non-operational. Pressure is bypassed back to tractor. Check electrical power at solenoid.
- CR-10 hand held ON/OFF switch not activating the CR-10 conveyor belt motor solenoid or the attachment ON/OFF solenoid.

ATTACHMENT ON/OFF SOLENOID VALVE

This valve controls the hydraulic flow to the optional attachments. The valve is an electrically operated valves, controlled by the switch on the hand held ON/OFF control box.

The valves are a "normally open" type valve allowing the hydraulic flow to bypass the attachment hydraulic system when the hand held ON/OFF switch is in the ATTACHMENT OFF (**O**) position. Bypassed pressure is routed to "Return to Tractor" line.

When the hand-held switch is in the ATTACHMENT ON (**I**) position, the solenoid is activated. Electrical activation closes the valve and directs the hydraulic flow to the attachments system.

If the valve is malfunctioning, check the following:

- Tractor hydraulic pressure or flow too low to provide power to the attachment.
- CR-10 conveyor belt motor and solenoid valve blocking hydraulic flow to the speed control.
- Blocked hose from the conveyor belt motor.
- CR-10 hand held ON/OFF switch not activating the CR-10 conveyor belt motor solenoid or the attachment ON/OFF solenoid.
- Bad electrical connection at solenoids. Bad ground connection at solenoid. Bad ground connection at main wiring harness,
- Bad electrical connection at the tractor. Low voltage condition from the tractor. Check fuse in main wiring harness.
- Bad hydraulic connection between CR-10 Unit and the attachment.

The solenoids are a replaceable service part. Refer to the "Parts Lists" section in this manual for part numbers for seal kits and solenoids. The valve body does not have any user serviceable parts. If the valves are malfunctioning, they will need replacement.

Refer to the "Electrical Systems" maintenance section in this manual for information about servicing the electrical connections or the hand-held ON/OFF control box.

Electrical System

(See Figure 20, 21, and 22)

Before servicing the electrical system, check the following:

- Check the power supply at the tractor. Ensure that the tractor is supplying the proper voltage. Power requirement is 12 Volt DC negative (-) ground service.
- Check the polarity at the power source. Red wire is positive (+), black wire is ground (-).
- Check the power supply cable plug at the CR-10 Unit for proper connection.
- Check the power supply cable connections to the tow vehicle battery proper contact.
- Check the tractor battery, the problem may be a weak battery.
- Check the in-line fuse in the power supply cable. Proper fuse is a 6 AMP, type AGC-6 .

⚠ WARNING ⚠

TO AVOID SERIOUS INJURY
And To Avoid Damage To The Electrical Components,
DISCONNECT THE POWER SUPPLY CABLE FROM THE TRACTOR
Before Servicing the Electrical System.

POWER SUPPLY CABLE *(See Figure 20)*

The power supply cable supplies power to the CR-10 Unit electrical system. The cable connects to the Hand Held Control Box Cable near the plug at the front of the CR-10.

Connection to the tractor is made directly to the tractor battery. The black wire is attached to the negative battery (-) terminal, and the red wire is attached to the positive (+) battery terminal.

The positive (+) lead on the cable has an in-line fuse holder. Check the holder for a fuse, the proper size is 6 AMP, type AGC-6. Check the connector that connects the Power Supply cable to the Hand Held Control Box Cable. Check for damage, cuts, corrosion, or improper fit.

HAND HELD ON/OFF CONTROL BOX WIRING *(See Figure 20 and Figure 21)*

The hand-held ON/OFF switch controls the electrical power to the conveyor belt solenoid valve and the attachment solenoid valve. ON/OFF switching is controlled by the switch interrupting the power to the solenoid. All wires in the switch are positive (+). Refer to Figure 21 for the proper color coding to rewire the control box switch. The terminals on the bottom of the switch are numbered for identification.

Verify that the power supply cable is unplugged before opening the switch box. Never disassemble the switch box with electrical power present at the switch. If the terminals are accidentally shorted out, damage the solenoids electrical components will occur.

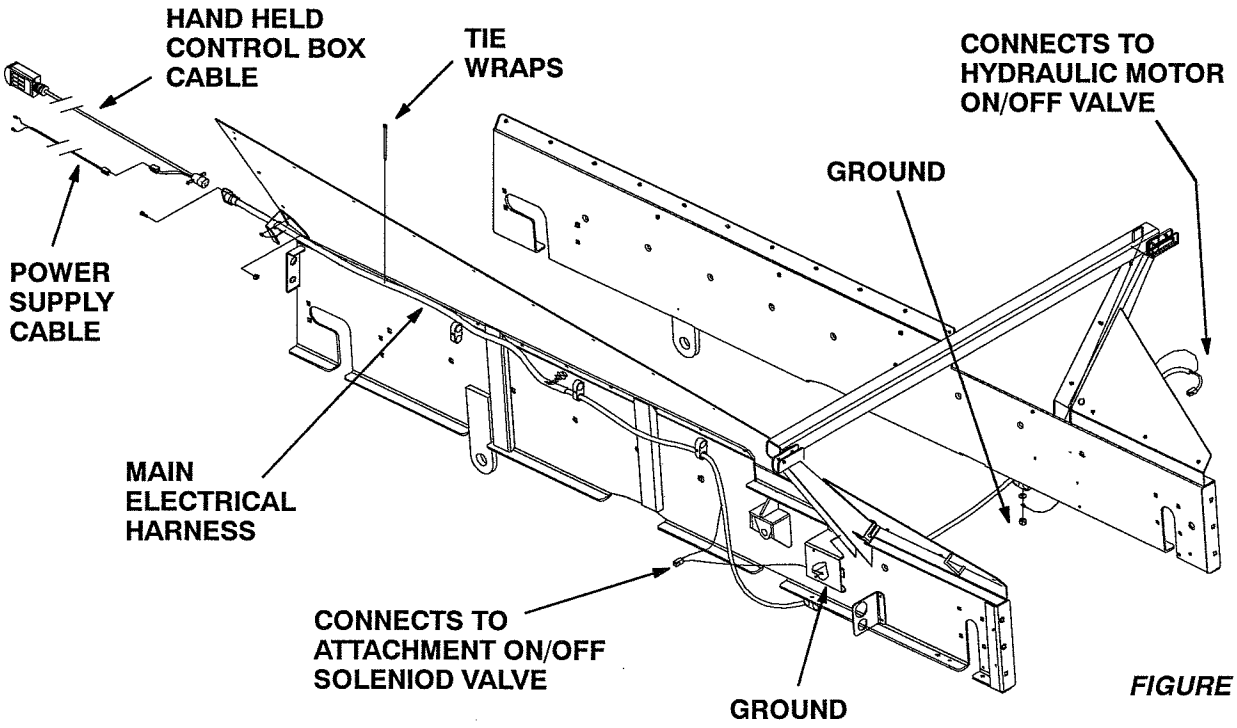


FIGURE 20

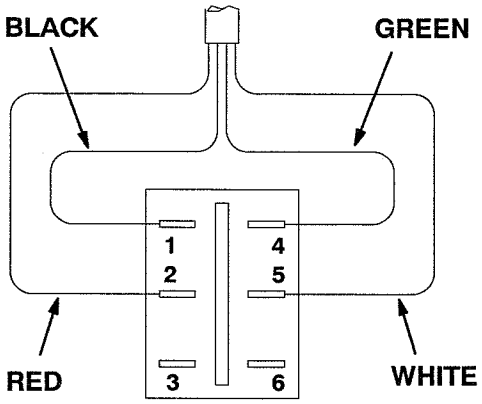


FIGURE 21

After reassembling the control box switch, check the operation of the switch. The switch must operate according to the decal. Check that the "**I**" and "**O**" (ON/OFF) position of the switch matches the "**I**" and "**O**" positions of the decal on the box, and that the CR-10 Unit conveyor belt and attachments operate accordingly.

If operation is in reverse of the decal, check that the switch housing has not been reinstalled up side down. If the housing is in the correct position, remove the switch and rotate 180° degrees. Reinstall and check for proper operation.

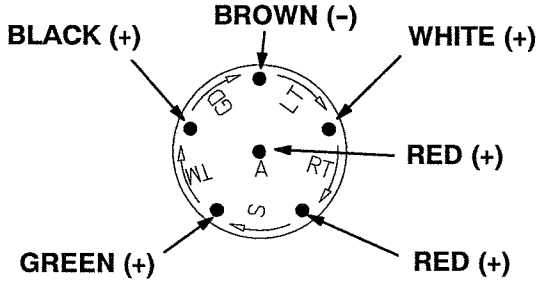
MAIN WIRING HARNESS ***(See Figure 20 and 22)***

The main electrical harness provides electrical connections from the control box cable and the power supply cable. Power is distributed to the CR-10 conveyor belt solenoid valve and the attachment solenoid valve. The main electrical harness starts at the front of the CR-10 Unit at the plug, and is routed down the left side of the machine, ending at the conveyor belt motor on the right rear corner.

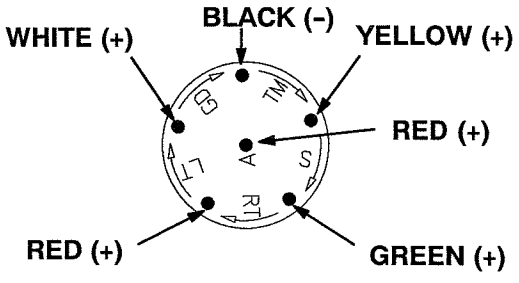
The cable has three negative (-) ground points. One at the connector on the front left side of the CR-10, one under the Attachment Speed Control bracket, and one below the conveyor belt hydraulic motor. The ground at the front of the machine provides the ground for the entire CR-10 electrical system.

The wiring harness has two positive (+) connections. One for the Attachment ON/OFF hydraulic solenoid valve and one for the conveyor belt ON/OFF hydraulic solenoid valve.

The hand held control box switch must be in the ON (**I**) position (for both the conveyor belt and the spinner assembly) to test for voltage at the solenoids. During operation, when the solenoids are activated, they close the valves allowing hydraulic flow to power the hydraulic motors. No electrical power is present at the solenoids when the hand held switch is in the OFF (**O**) position.



FEMALE PLUG ON END OF CONTROL BOX WIRING HARNESS



MALE PLUG ON END OF MAIN WIRING HARNESS

CR-10 UNIT ELECTRICAL SCHEMATIC

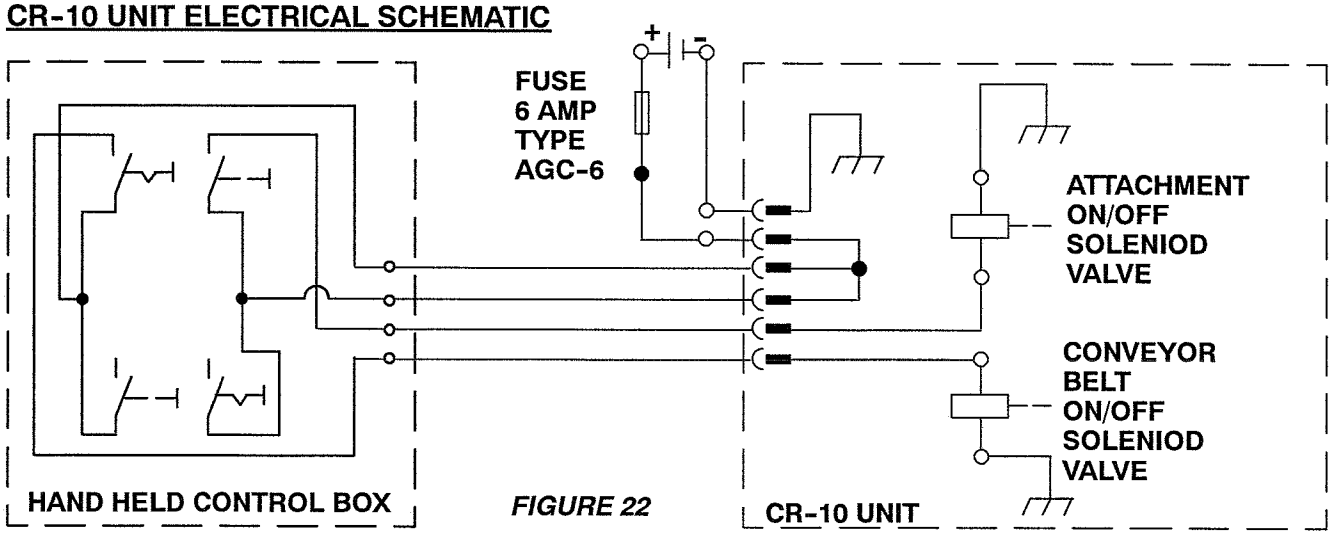
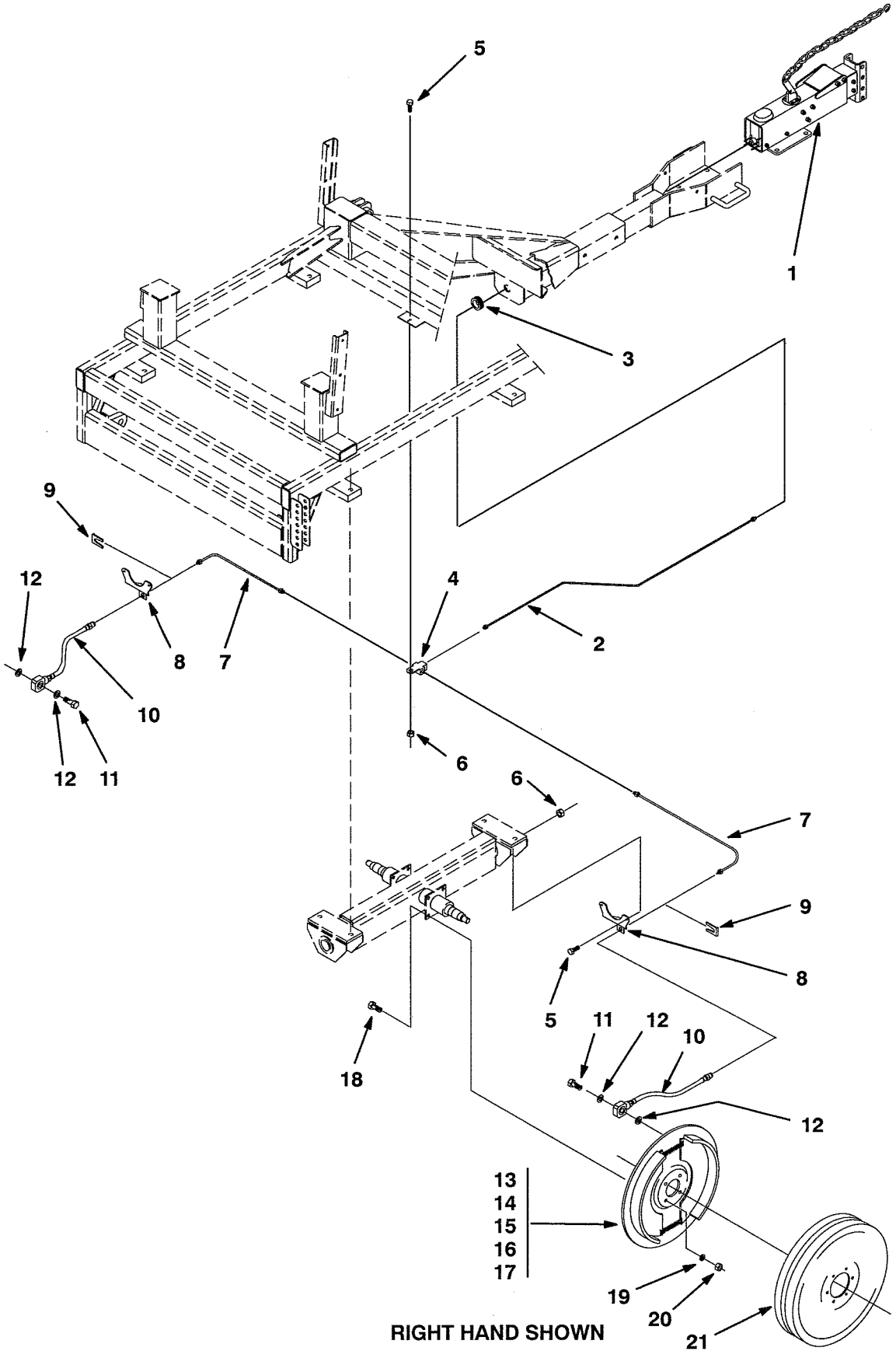


FIGURE 22

Product Number 85440
Brake System

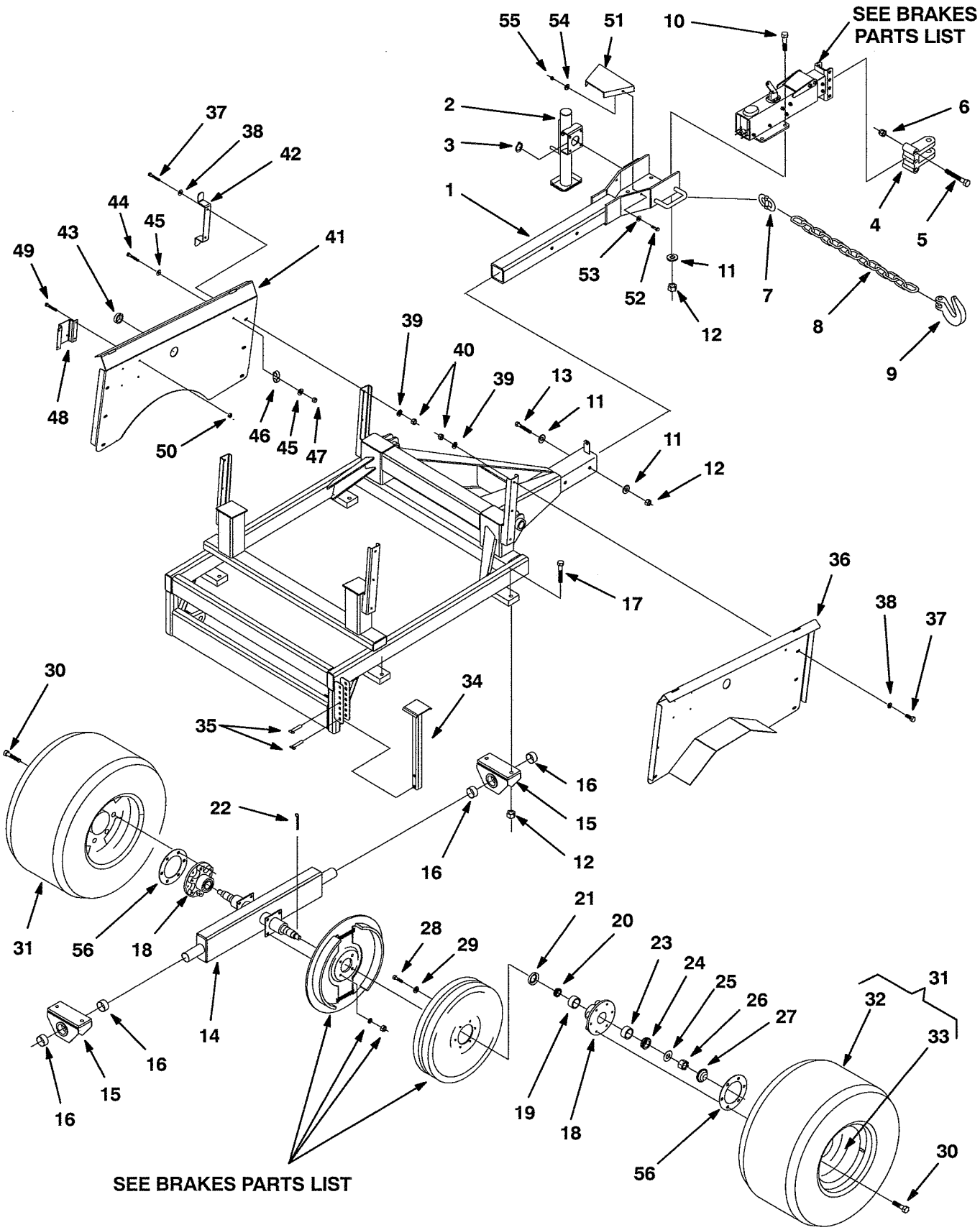


RIGHT HAND SHOWN

Product Number 85440
Brake System

Item No.	Part No.	Description	Qty.
1	661836	Brake, Actuator (Use DOT 5 Silicon Brake Fluid)	1
2	657718	Brake Line, 3/16" x 60"	1
3	661863	Grommet, Rubber, 3/4" ID x 1-5/8" OD	1
4	657523	Tee (With Bracket)	1
5	661619	Screw, Hex Head, 1/4"-20 x 5/8" Whiz-lock	5
6	661620	Nut, Hex, 1/4-20, Whiz-lock	5
7	657715	Brake Line, 3/16" X 30"	2
8	661840	Bracket, Brake Line, Axle Beam	2
9	657519	Hose Clip	2
10	662252	Hose, Brake, 3/8", 26" Long	2
11	657520	Connector Bolt	2
12	657522	Gasket	4
13	659521	Brake Assembly, Left Hand	1
14	659520	Brake Assembly, Right Hand (Right Hand Shown)	1
15	660283	Brake Shoe, Front, RH Only (Service Part)	1
16	660284	Brake Shoe, Front, LH Only (Service Part)	1
17	659522	Brake Shoe, Rear, Right or Left Hand (Service Parts)	2
18	400436	Screw, Hex Head, 1/2"-20 x 7/8"	8
19	446154	Washer, Lock, 1/2"	8
20	443820	Nut, Hex, 1/2"-20	8
21	659523	Drum, Brake, 13"	2

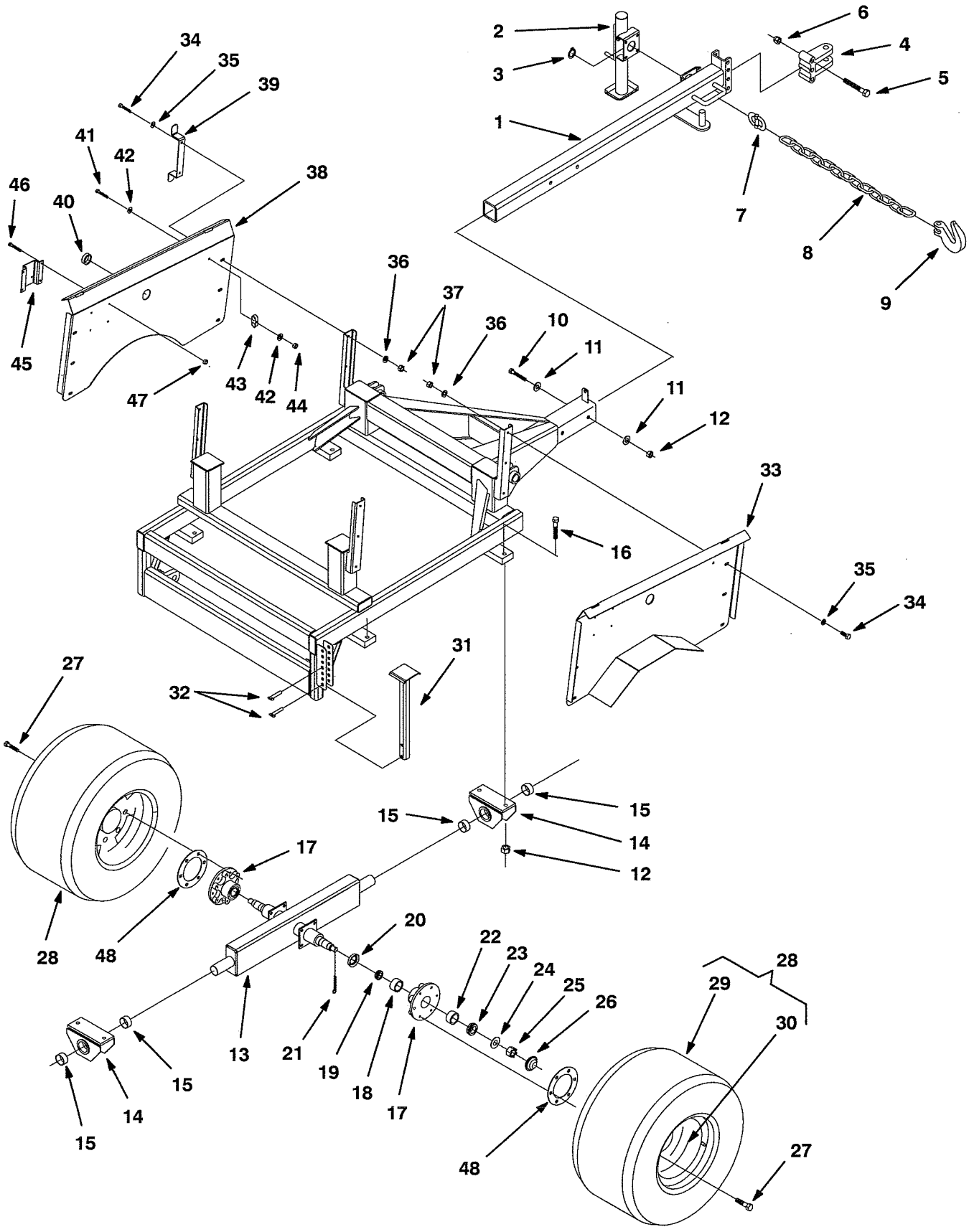
Product Number 85440 (With Brakes)
Lower Frame, Axles and Hitch



Product Number 85440 (With Brakes) Lower Frame, Axles and Hitch

Item No.	Part No.	Description	Qty.
1	661877	Tongue, Brake Weldment	1
2	659550	Jackstand	1
3	657571	Ring, Retaining, Jackstand	1
4	659525	Hitch, Clevis	1
5	657831	Screw, Hex Head, 5/8"-11 x 4-1/2"	2
6	499432	Nut, Hex, 5/8"-11 Flexloc	2
7	660145	Coupling, Link, 3/8	1
8	660144	Chain, Safety, 3/8"	1
9	660146	Hook, Safety Chain, 3/8"	1
10	660177	Screw, Hex Head, 5/8"-11 x 2"	4
11	499024	Washer, Flat, 41/64" ID x 1-3/16" OD x 1/16" Thick	8
12	660858	Nut, Hex, 5/8"-11 Nylock	14
13	659562	Screw, Hex Head, 5/8"-11 x 5-1/2"	2
14	659668	Axle	2
15	659675	Bearing, Axle	4
16	659537	Bearing, Composite	8
17	661834	Screw, Hex Head, 5/8"-11 x 3"	8
18	659517	Hub Assembly, Includes Items 18, 19, 20, 21, 23, 24, and 27	4
19	660278	Race (Cup), Bearing, Inner	4
20	660277	Bearing, Wheel, Inner	4
21	660276	Seal, Bearing	4
22	460032	Pin, Cotter, 1/8" x 1-1/2"	4
23	660279	Race (Cup), Bearing, Outer	4
24	660280	Bearing, Wheel, Outer	4
25	660121	Washer, Flat, 15/16" ID x 1-3/4" OD x 9/64" Thick	4
26	660135	Nut, Castle, 7/8"-14	4
27	660281	Cap, Dust, Hub	4
28	400436	Screw, Hex Head, 1/2"-20 x 7/8"	12
29	446154	Washer, Lock, 1/2"	12
30	660282	Bolt, Lug	24
31	659518	Wheel and Tire Assembly, Includes Items 32 and 33	4
32	659519	Tire, 31 x 15.5-15 NHS	4
33	660432	Wheel	4
34	662017	Stand, Anti-Tip Leg	1
35	659801	Pin, Hitch, 1/2" x 4-3/4"	2
36	662032	Fender, Right Hand	1
37	400260	Screw, Hex Head, 3/8"-16 X 7/8"	12
38	452008	Washer, Flat, 7/16" ID x 1" OD x 5/64" Thick	12
39	446142	Washer, Lock, 3/8"	12
40	443110	Nut, Hex, 3/8"-16	12
41	662033	Fender, Left Hand	1
42	662014	Bracket, Control Wire	1
43	661406	Grommet, Rubber, 1-45/64" ID x 2-1/2" OD x 1/8" Thick	1
44	400196	Screw, Hex Head, 5/16"-18 X 2"	1
45	453009	Washer, Flat, 11/32" ID x 5/8" OD x 1/16" Thick	2
46	661898	Clamp Modu-Stack	1
47	658600	Nut, Hex, 5/16"-18, Nylock	1
48	661842	Bracket, Lift Control	1
49	661619	Screw, Cap, 1/4"-20 X 5/8", Whiz-lock	4
50	661620	Nut, Hex, 1/4"-20, Whiz-lock	4
51	662487	Cover, Tongue	1
52	400112	Screw, Hex Head, 1/4"-20 x 1"	2
53	453023	Washer, Flat, 9/32" ID x 5/8" OD x 1/16" Thick	2
54	446128	Washer, Lock, 1/4"-20	2
55	443102	Nut, Hex, 1/4"-20	2
56	663791	Spacer,Wheel	4

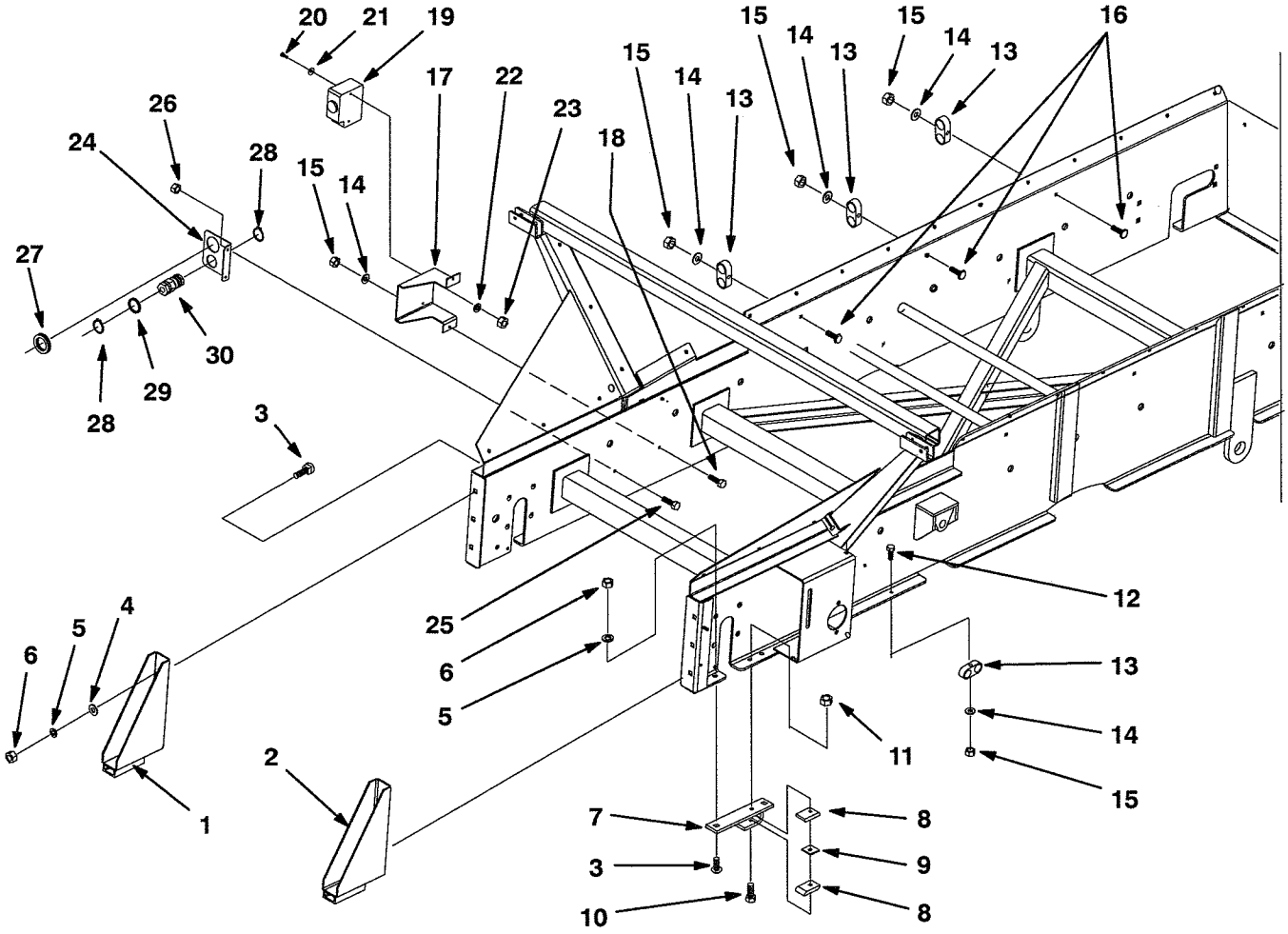
Product Number 85441 (Without Brakes)
Lower Frame, Axles and Hitch

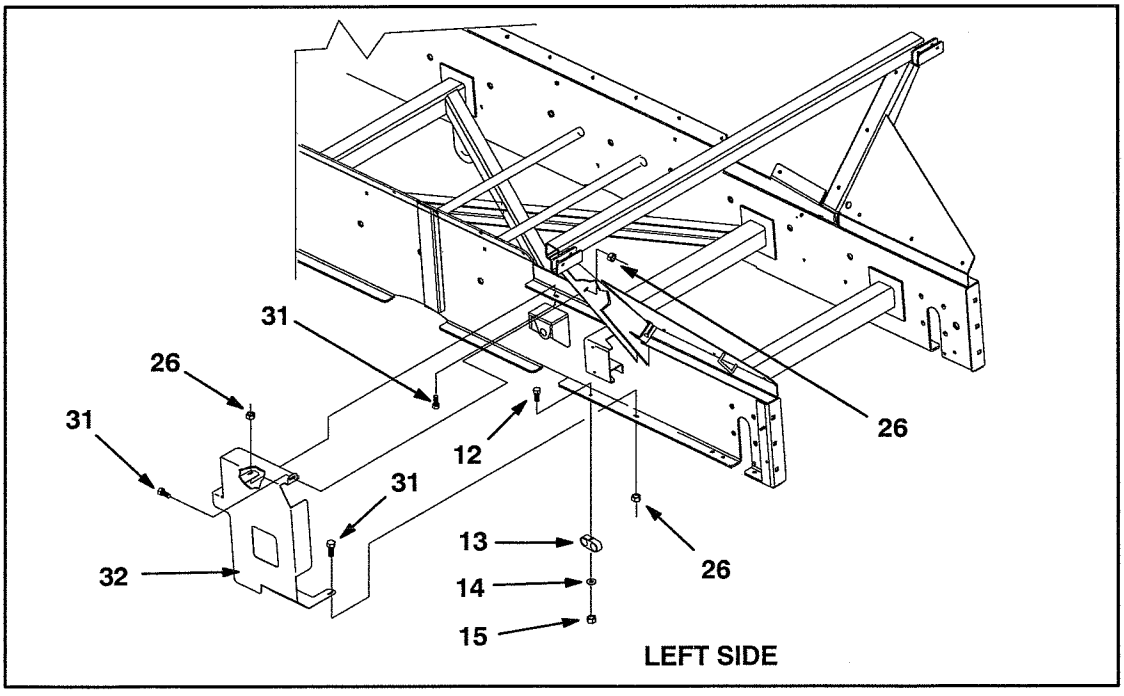


Product Number 85441 (Without Brakes)
Lower Frame, Axles and Hitch

Item No.	Part No.	Description	Qty.
1	660025	Tongue Weldment (Without Brakes)	1
2	659550	Jackstand	1
3	657571	Ring, Retaining, Jackstand	1
4	659525	Hitch, Clevis	1
5	657831	Screw, Hex Head, 5/8"-11 x 4-1/2"	2
6	499432	Nut, Hex, 5/8"-11 Flexloc	2
7	660145	Coupling, Link, 3/8	1
8	660144	Chain, Safety, 3/8"	1
9	660146	Hook, Safety Chain, 3/8"	1
10	659562	Screw, Hex Head, 5/8"-11 x 5-1/2"	2
11	499024	Washer, Flat, 41/64" ID x 1-3/16" OD x 1/16" Thick	4
12	660858	Nut, Hex, 5/8"-11 Nylock	10
13	659668	Axle	2
14	659675	Bearing, Axle	4
15	659537	Bearing, Composite	8
16	661834	Screw, Hex Head, 5/8"-11 x 3"	8
17	659517	Hub Assembly, Includes Items 17,18,19, 20, 22, 23, and 26	4
18	660278	Race (Cup), Bearing, Inner	4
19	660277	Bearing, Wheel, Inner	4
20	660276	Seal, Bearing	4
21	460032	Pin, Cotter, 1/8" x 1-1/2"	4
22	660279	Race (Cup), Bearing, Outer	4
23	660280	Bearing, Wheel, Outer	4
24	660121	Washer, Flat, 15/16" ID x 1-3/4" OD x 9/64" Thick	4
25	660135	Nut, Castle, 7/8"-14	4
26	660281	Cap, Dust, Hub	4
27	660282	Bolt, Lug	24
28	659518	Wheel and Tire Assembly, Includes Items 29 and 30	4
29	659519	Tire, 31 x 15.5-15 NHS	4
30	660432	Wheel	4
31	662017	Stand, Anti-Tip Leg	1
32	659801	Pin, Hitch, 1/2" x 4-3/4"	2
33	662032	Fender, Right Hand	1
34	400260	Screw, Hex Head, 3/8"-16 X 7/8"	12
35	452008	Washer, Flat, 7/16" ID x 1" OD x 5/64" Thick	12
36	446142	Washer, Lock, 3/8"	12
37	443110	Nut, Hex, 3/8"-16	12
38	662033	Fender, Left Hand	1
39	662014	Bracket, Control Wire	1
40	661406	Grommet, Rubber, 1-45/64" ID x 2-1/2" OD x 1/8" Thick	1
41	400196	Screw, Hex Head, 5/16"-18 X 2"	1
42	453009	Washer, Flat, 11/32" ID x 5/8" OD x 1/16" Thick	2
43	661898	Clamp Modu-Stack	1
44	658600	Nut, Hex, 5/16"-18, Nylock	1
45	661842	Bracket, Lift Control	1
46	661619	Screw, Cap, 1/4"-20 X 5/8", Whiz-lock	4
47	661620	Nut, Hex, 1/4"-20, Whiz-lock	4
48	663791	Spacer,Wheel	4

Product Number 85440 and 85441
Attachment Mounts, Control Mounts, and Cabling Clamps

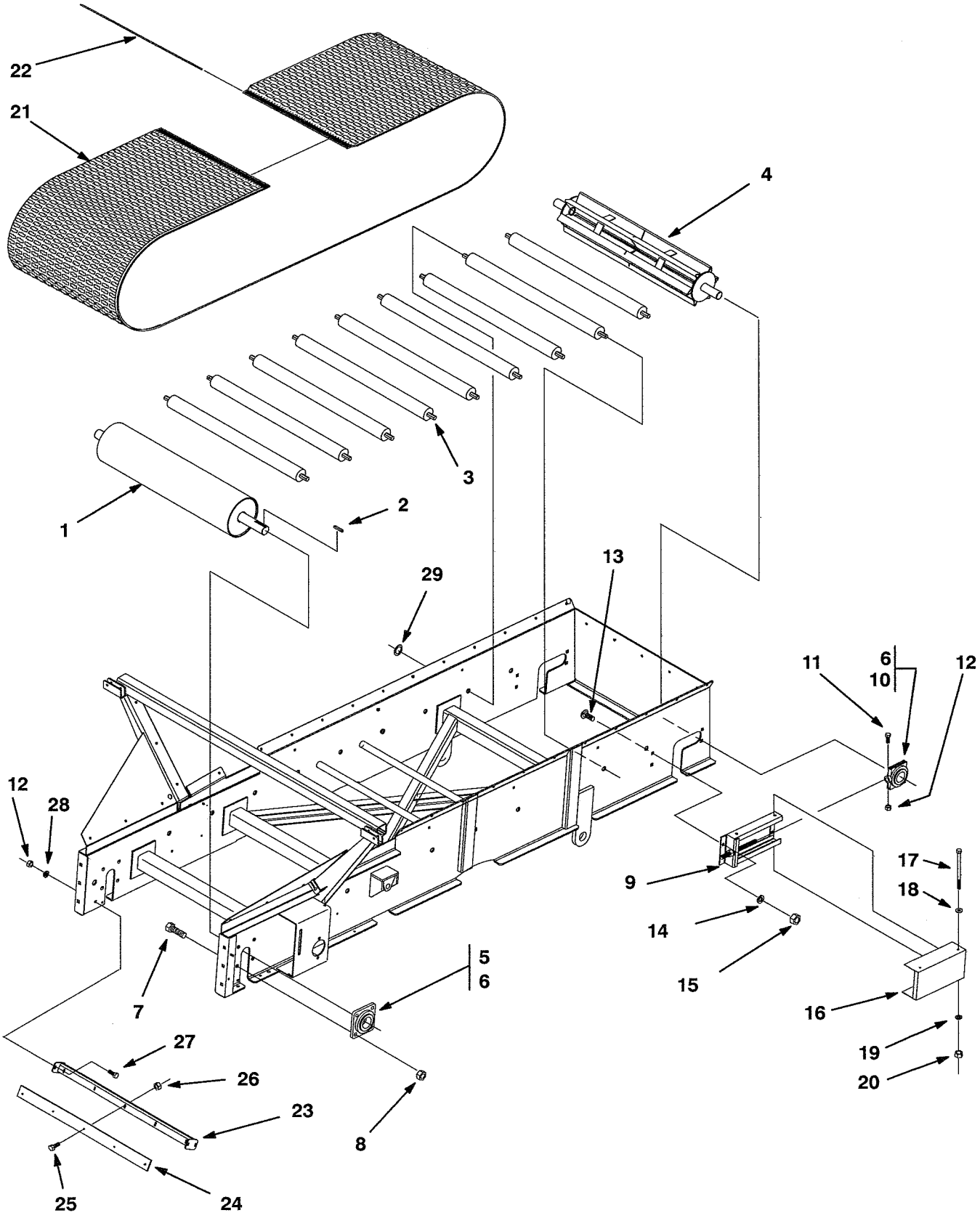




Product Number 85440 and 85441
Attachment Mounts, Control Mounts, and Cabling Clamps

Item No.	Part No.	Description	Qty.
1	662059	Mount, Attachment, Left Hand	1
2	662060	Mount, Attachment, Right Hand	1
3	440194	Bolt, Carriage, 1/2"-13 x 1-1/2"	10
4	499002	Washer, Flat, 1/2" ID x 1-1/2" OD x 5/32" Thick	6
5	446154	Washer, Lock, 1/2"	10
6	443118	Nut, Hex, 1/2"-13	10
7	662027	Clamp, Attachment, Rear	2
8	661940	Pad, Plastic	4
9	661941	Spacer, Pad	2
10	662045	Screw, Hex Head, 3/8"-16 x 3"	2
11	444810	Nut, Hex, 3/8"-16, Flexloc	2
12	400196	Screw, Hex Head, 5/16"-18 x 2"	2
13	661898	Clamp, Modu-Stack	5
14	453009	Washer, Flat, 11/32" ID x 11/16" OD x 1/16" Thick	7
15	658600	Nut, Hex, 5/16"-18 Nylock	7
16	658635	Bolt, Carriage, 5/16"-18 x 2-1/4"	3
17	662081	Bracket, Attachment Speed Control	1
18	400186	Screw, Hex Head, 5/16"-18 x 7/8"	2
19	661789	Control, Flow, Attachment Speed Control	1
20	658172	Screw, Hex Head, 1/4"-20 x 2-1/2"	2
21	452002	Washer, Flat, 1/4" ID x 5/8" OD x 5/32" Thick	2
22	446128	Washer, Lock, 1/4"	2
23	443102	Nut, Hex, 1/4"-20	2
24	661944	Bracket, Hydraulic Hose	1
25	662046	Screw, Hex Head, 1/4"-20 x 3/4" Whiz-lock	2
26	661620	Nut, Hex, 1/4"-20 Whiz-lock	5
27	661863	Grommet, Rubber, 3/4" ID x 1-58" OD	1
28	662121	Ring, Retaining, 1-1/2"	2
29	662122	Spacer, Quick Disconnect	1
30	661802	Fitting, Quick Disconnect	1
31	661619	Screw, Hex Head, 1/4"-20 x 5/8" Whiz-lock	3
32	662171	Guard, Hose	1

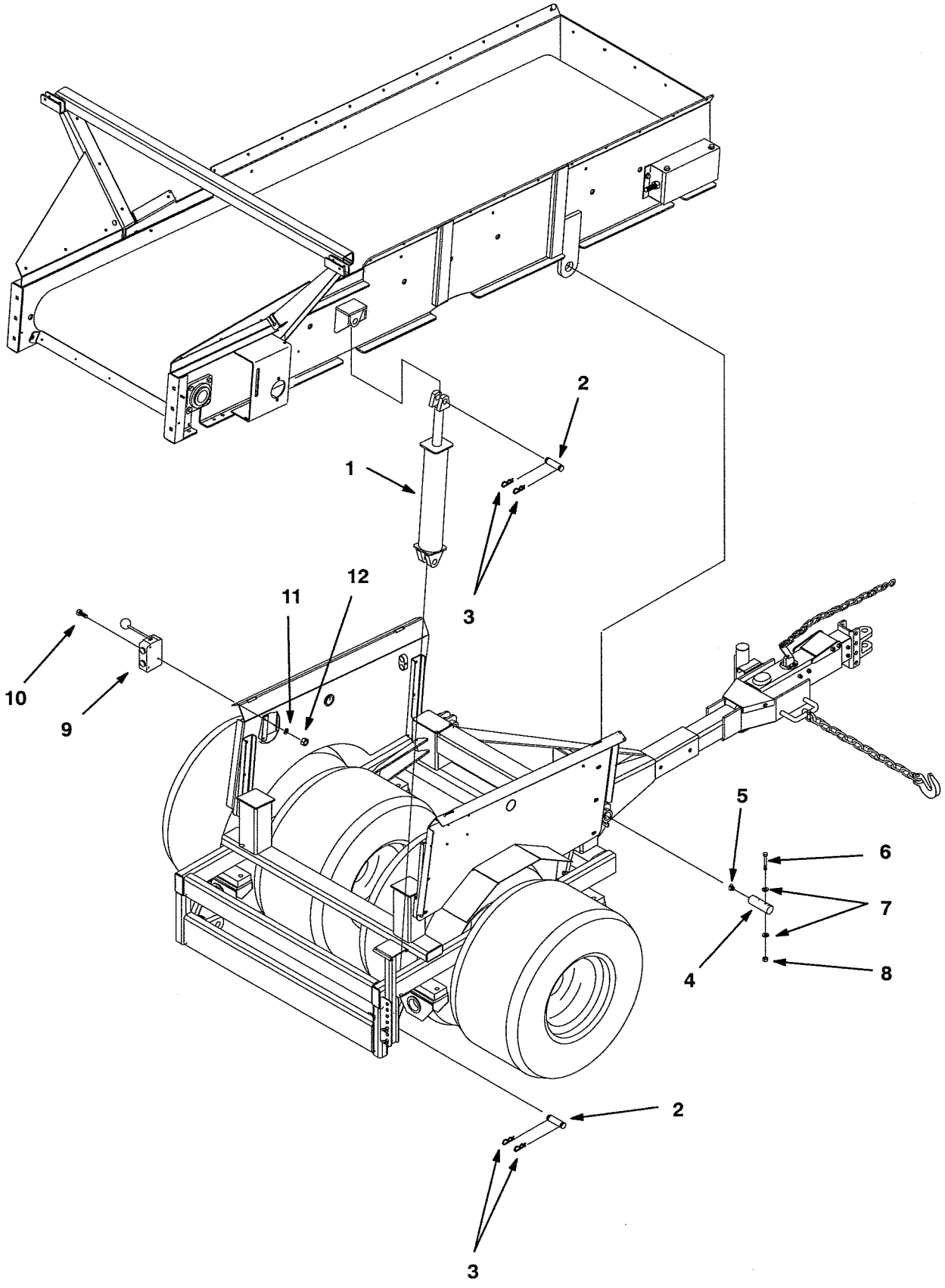
Product Number 85440 and 85441
Conveyor Belt, Bearings and Rollers



Product Number 85440 and 85441
Conveyor Belt, Bearings and Rollers

Item No.	Part No.	Description	Qty.
1	661859	Roller, Drive	1
2	662086	Key, Square, 3/8" x 2"	1
3	661858	Roller, Conveyor	9
4	661868	Roller, Idler	1
5	661851	Bearing, Flange,1-3/4" Bore	2
6	471214	Fitting, Grease, 1/4"-28, Straight	4
7	660177	Screw, Hex Head, 5/8"-11 x 2"	8
8	660858	Nut, Hex, 5/8"-11, Nylock	8
9	659539	Frame, Ball Bearing Take-up, Includes Threaded Rod & Nut	2
10	661852	Bearing, Take-Up, 1-1/2" Bore	2
11	400268	Screw, Hex Head, 3/8"-16 x 1-3/4"	2
12	443110	Nut, Hex, 3/8"-16	6
13	662158	Bolt, Carriage, 1/2"-13 x 1-1/4"	8
14	446154	Washer, Lock, 1/2"	8
15	443118	Nut, Hex, 1/2"-13	8
16	660050	Guard, Tensioner	2
17	660002	Screw, Hex Head, 1/4"-20 x 7"	4
18	452002	Washer, Flat, 1/4" ID x 9/16" OD x 3/64" Thick	4
19	446128	Washer, Lock, 1/4"	4
20	443102	Nut, Hex, 1/4"-20	4
21	661857	Belt, CR-10 Conveyor, Includes Splice	1
22	662140	Splice, Conveyor Belt	1
23	662025	Scraper, Conveyor Belt	1
24	662028	Blade, Conveyor Belt Scraper	1
25	662046	Screw, Hex Head, 1/4"-20 x 3/4" Whiz-lock	5
26	661620	Nut, Hex, 1/4-20, Whiz-lock	5
27	400264	Screw, Hex Head, 3/8"-16 x 1-1/4"	4
28	446142	Washer, Lock, 3/8"	4
29	662474	Fastener, Push-On, 1-1/8" OD	9

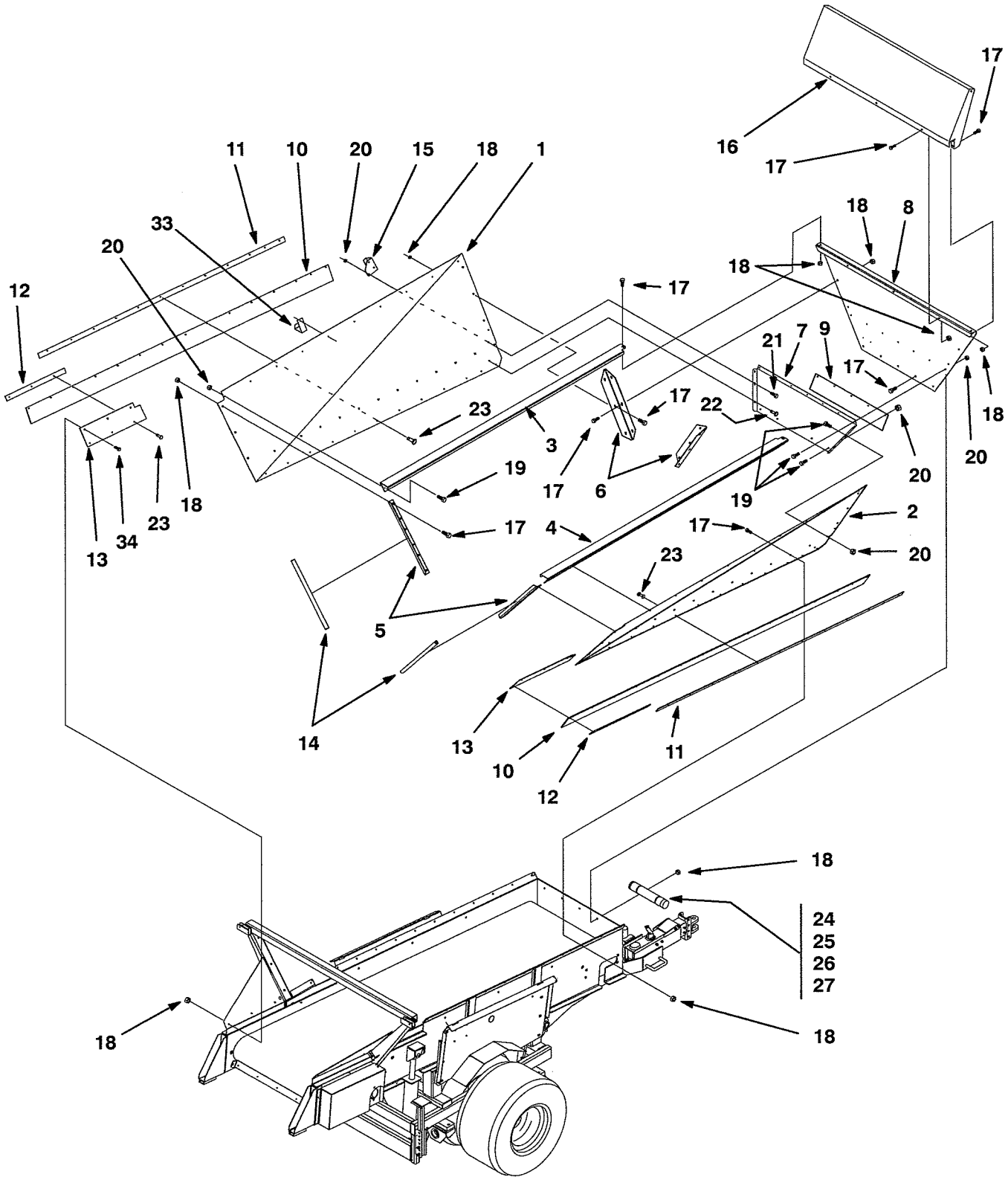
Product Number 85440 and 85441
Upper Frame and Lower Frame Assembly



Product Number 85440 and 85441
Upper Frame and Lower Frame Assembly

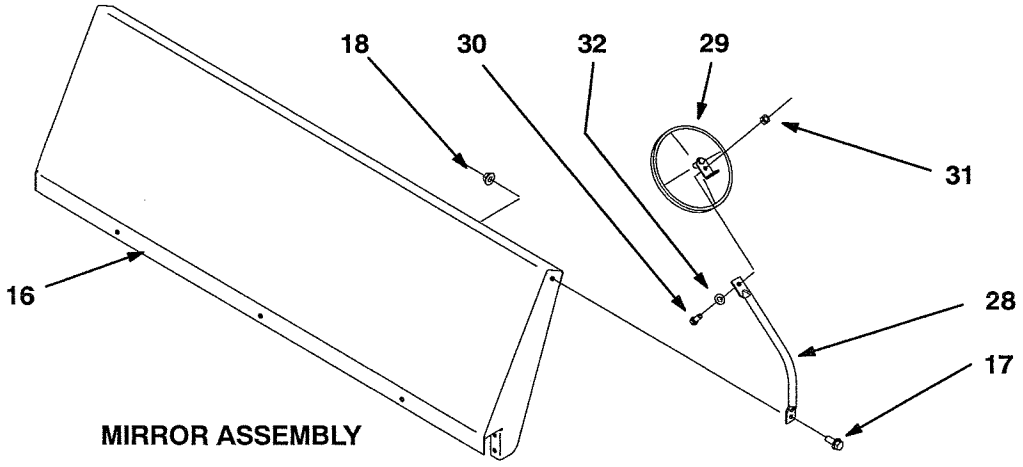
Item No.	Part No.	Description	Qty.
1	661849	Cylinder, Lift, Hydraulic	2
2	662139	Pin, Hydraulic Lift Cylinder	4
3	659769	Pin, Hairpin	8
4	661835	Pin, Pivot, Includes Grease Fitting	2
5	471215	Fitting, Grease, 1/4"-28, 45° Degree	2
6	660164	Screw, Hex Head, 1/4"-20 x 3"	2
7	452002	Washer, Flat, 1/4" ID x 9/16" OD x 3/64" Thick	4
8	444830	Nut, Hex, 1/4"-20 Flexlock	2
9	661826	Control, Lift, Hydraulic	1
10	440118	Screw, Hex Head, 1/4"-20 x 1-3/4"	3
11	446128	Washer, Lock, 1/4"	3
12	443102	Nut, Hex, 1/4"-20	3

Product Number 85440 and 85441
Hopper Assembly



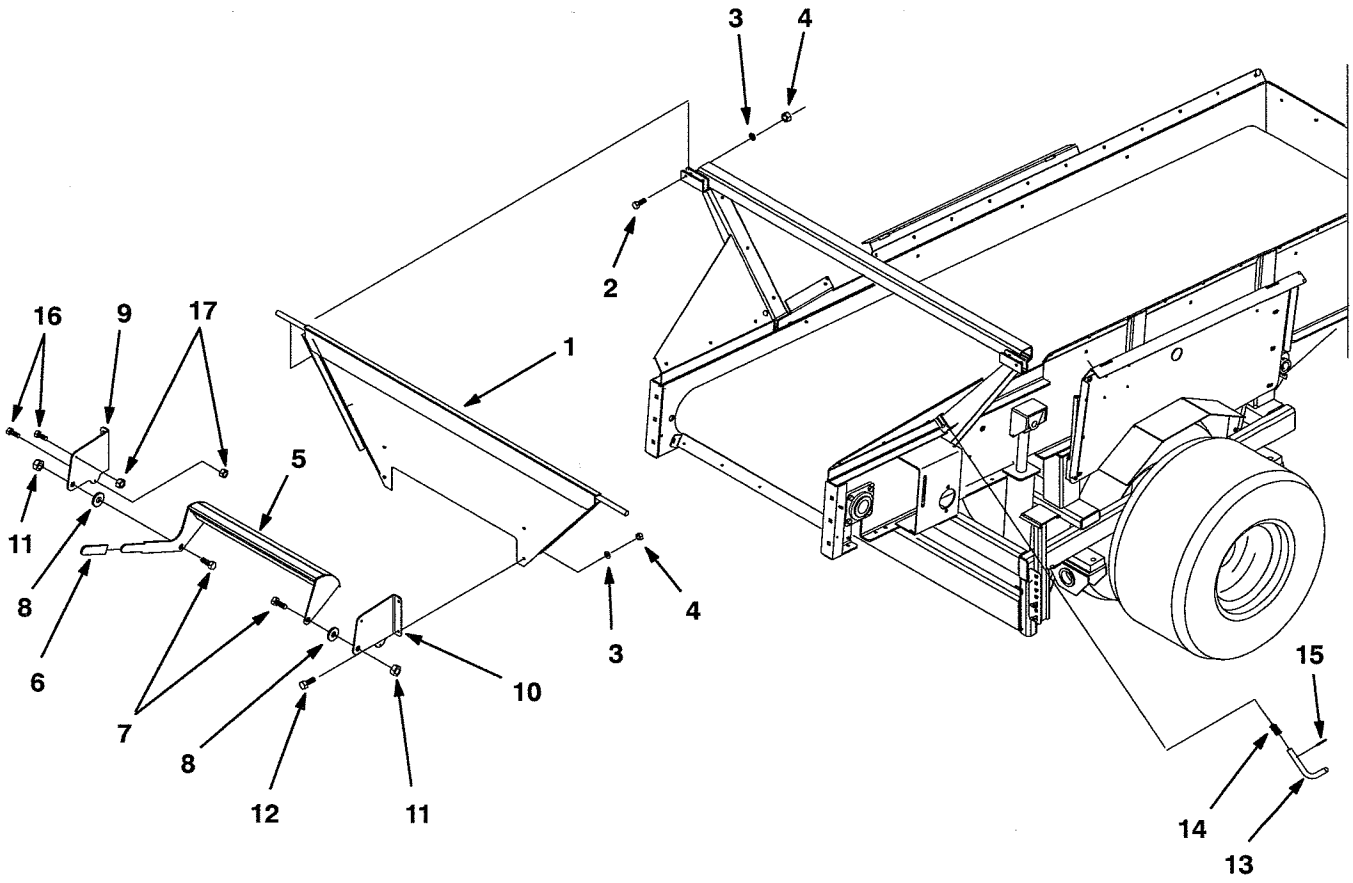
Product Number 85440 and 85441
Hopper Assembly

Item No.	Part No.	Description	Qty.
1	662071	Hopper Panel, Left Hand	1
2	662072	Hopper Panel, Right Hand	1
3	662069	Stiffener, Hopper Panel, Left Hand	1
4	662070	Stiffener, Hopper Panel, Right Hand	1
5	662020	Plate, Rear Seal	2
6	662066	Brace, Corner	2
7	662067	Panel, False	1
8	662068	Hopper Panel, Front	1
9	661861	Seal, Hopper Front	1
10	661860	Seal, Hopper Side	2
11	662019	Strip, Metal	2
12	662022	Plate, Rear Seal, Outer	2
13	662065	Plate, Rear Seal, Inner	2
14	662021	Strip, Sponge Seal	2
15	662015	Bracket, Plug	1
16	662039	Deflector Weldment	1
17	662049	Screw, Hex Head, 3/8"-16 x 1", Whiz-lock	61
18	662050	Nut, Hex, 3/8"-16, Whiz-lock	61
19	661619	Screw, Hex Head, 1/4"-20 x 5/8", Whiz-lock	34
20	661620	Nut, Hex, 1/4"-20, Whiz-lock	36
21	662046	Screw, Hex Head, 1/4"-20 x 3/4", Whiz-lock	2
22	499401	Rivet, Blind, 1/4"	2
23	657218	Rivet, Blind, 1/4"	30
24	659269	Tubing, Clear, Manual Tube	1
25	659270	Plug, Plastic, Manual Tube	1
26	659271	Cap, Plastic, Manual Tube	1
27	659272	Clamp, Cable, Manual Tube	2
28	662029	Arm, Mirror Mounting	1
29	662030	Mirror, Convex, 8-1/2" Diameter	1
30	400186	Screw, Hex Head, 5/16"-18 x 7/8"	1
31	658600	Nut, Hex, 5/16"-18 Nylock	1
32	452004	Washer, Flat, 5/16" ID x 3/4" OD x 1/16" Thick	1
33	662170	Guide, Wire	1
34	657766	Bolt, Carriage, 3/8"-16 x 3/4"	6



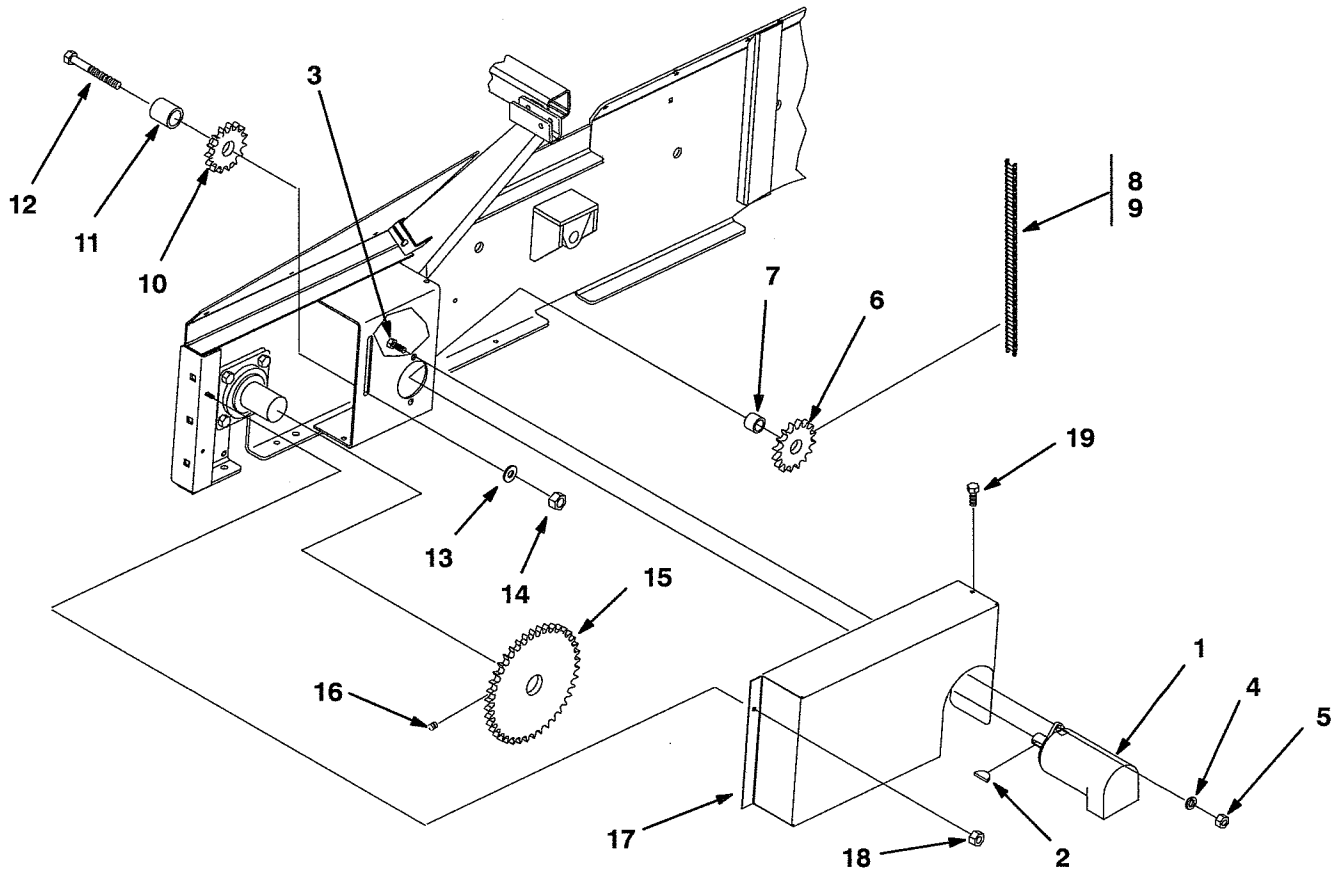
MIRROR ASSEMBLY

Product Number 85440 and 85441
Metering Gate, Rear Hopper Panel, and Attachment Mounts



Item No.	Part No.	Description	Qty.
1	661888	Panel, Rear Weldment	1
2	400270	Screw, Hex Head, 3/8"-16 x 2"	2
3	446142	Washer, Lock, 3/8"	6
4	443110	Nut, Hex, 3/8"-16	6
5	661881	Gate, CR-10 Metering	1
6	657208	Grip, Handle	1
7	660962	Screw, Hex Head, 3/4"-16 x 1"	2
8	661020	Washer, Special Metering Gate	2
9	661886	Bracket, Metering Gate Left Hand	1
10	661887	Bracket, Metering Gate Right Hand	1
11	659984	Nut, Hex, 3/4"-16, Nylock	2
12	400264	Screw, Hex Head, 3/8"-16 x 1-1/4"	4
13	662023	Pin, Gate	2
14	659559	Spring, Gate Pin, 1" OD	2
15	499136	Pin, Spring	2
16	661619	Screw, Hex Head, 1/4"-20 x 5/8" Whizlock	4
17	661620	Nut, Hex, 1/4"-20 Whizlock	4

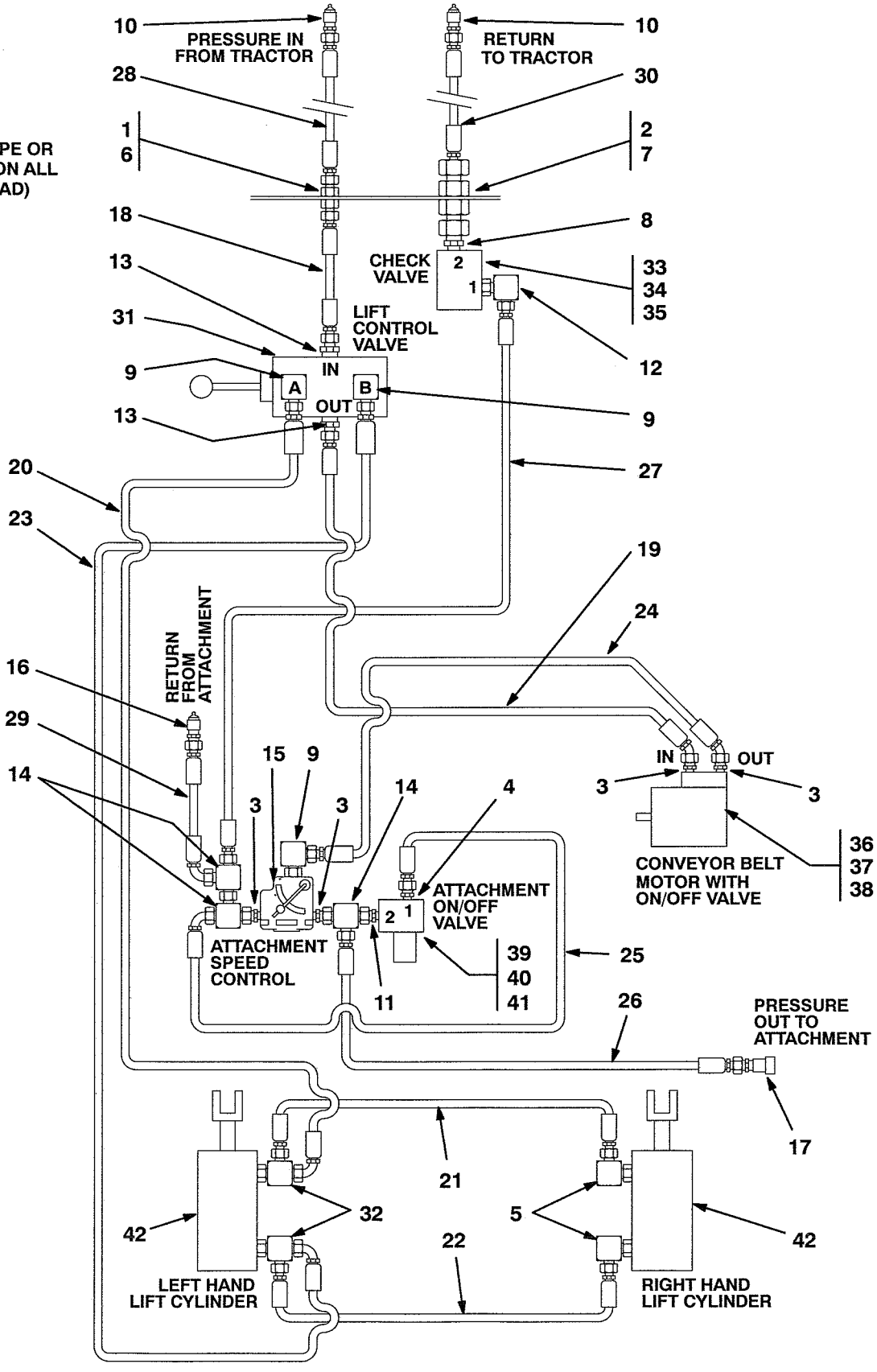
Product Number 85440 and 85441
Conveyor Belt Motor and Drive



Item No.	Part No.	Description	Qty.
1	661848	Motor, Hydraulic, Conveyor Belt Drive	1
2	463031	Key, Woodruff, 1/4" x 1"	1
3	662159	Screw, Hex Head, 1/2"-13 x 2"	2
4	446154	Washer, Lock, 1/2"	2
5	443118	Nut, Hex, 1/2"-13	2
6	661853	Sprocket, 60SH16	1
7	661854	Bushing, 1-1/4", Includes Screws	1
8	661856	Chain, RC-60 x 66 Pitches, Includes Master Link	1
9	660437	Link, Master, RC-60	1
10	659545	Sprocket, Idler	1
11	662018	Spacer, Idler	1
12	662047	Screw, Hex Head, 1/2"-13 x 3-1/2"	1
13	452008	Washer, Flat, 7/16" ID x 1" OD x 5/64" Thick	1
14	662048	Nut, Hex, 1/2"-13, Flexloc	1
15	661855	Sprocket, 60B38F x 1-3/4" Bore, Includes Set Screws	1
16	415529	Screw, Set, 3/8"-16 x 3/8"	2
17	661897	Guard, Drive	1
18	661620	Nut, Hex, 1/4"-20, Whiz-lock	1
19	661619	Screw, Hex Head, 1/4"-20 x 5/8", Whiz-lock	2

Product Number 85440 and 85441
Hydraulic Assemblies

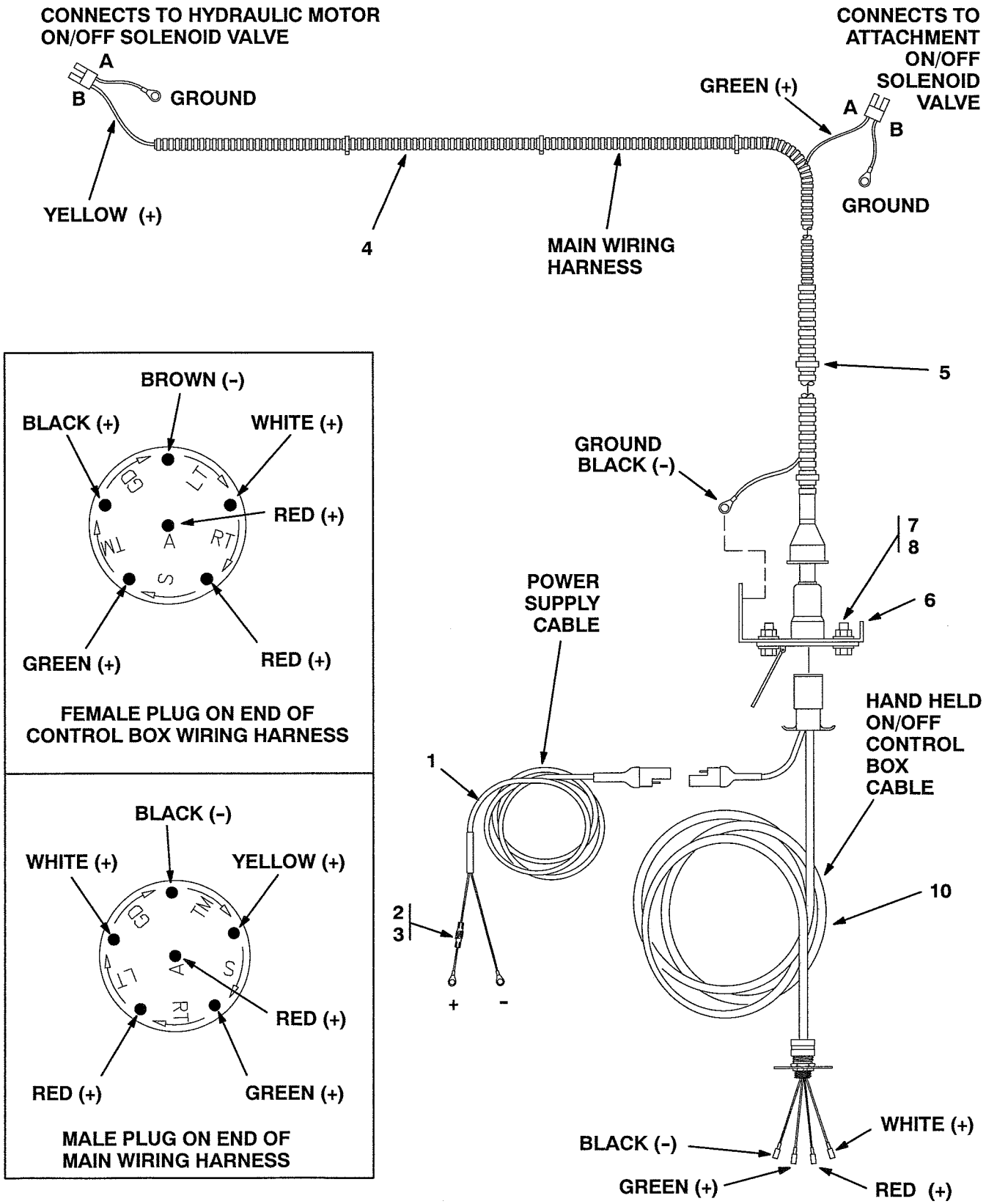
NOTE:
USE TEFLON TAPE OR PIPE SEALANT ON ALL NPT (PIPE THREAD) FITTINGS



Product Number 85440 and 85441
Hydraulic Assemblies

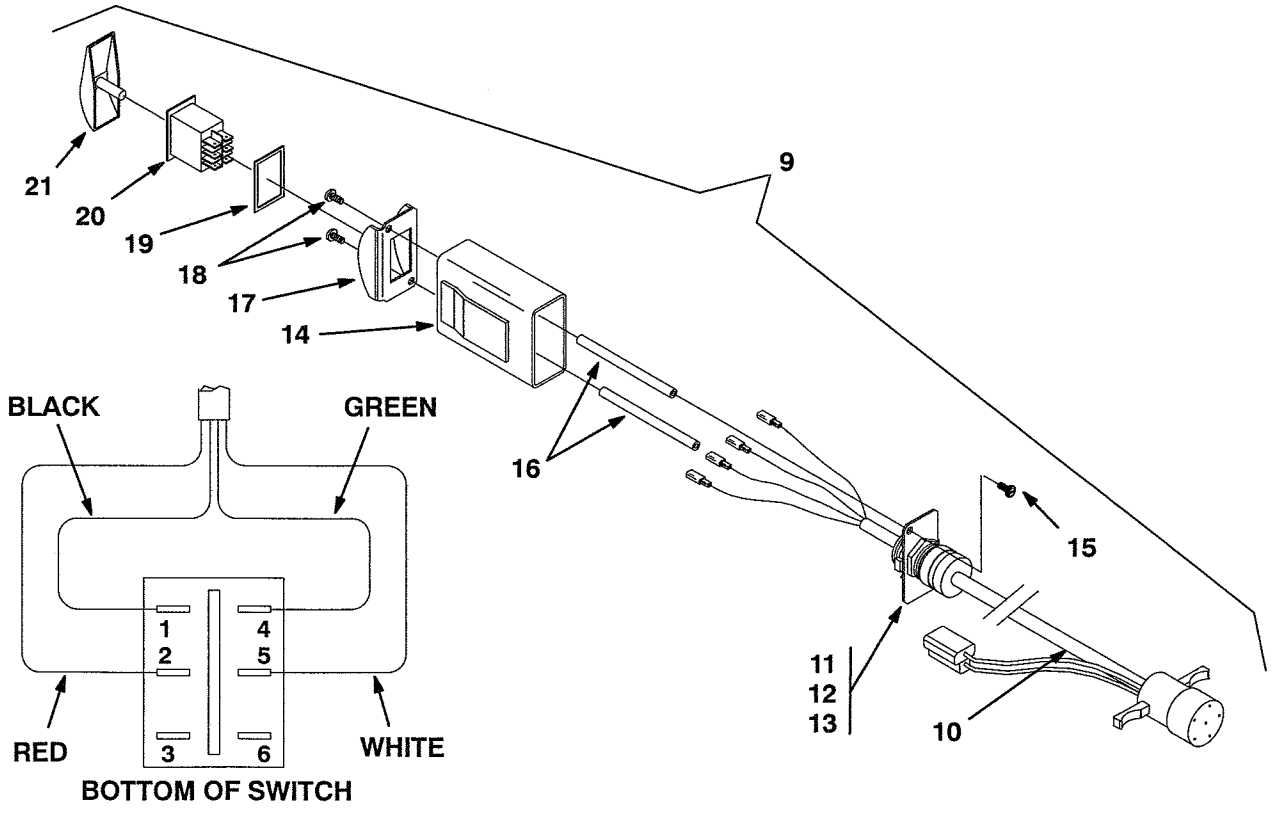
Item No.	Part No.	Description	Qty.
1	447228	Washer, Lock, 3/4", Internal, Star	1
2	499107	Washer, Lock, 1-1/8", Internal, Star	1
3	657250	Adapter, 7/8"-14 Male O-Ring / 3/4"-16 Male 37 Degree Flare	4
4	657547	Adapter, 3/4"-16 Male O-Ring / 3/4"-16 Male 37 Degree Flare	1
5	657663	Elbow, 3/4"-16 Male O-Ring / 3/4"-16 Male 37 Degree Flare	2
6	658506	Union, 3/4"-16, 37 Degree Flare Bulkhead / 3/4"-16 37 Degree Flare, Includes Nut	1
7	659667	Union, 1-1/16"-12 37 Degree Flare Bulkhead / 1-1/16"-12 37 Degree Flare, Includes Nut	1
8	659792	Adapter, 1-1/16-12 Male O-Ring / 1-1/16"-12 37 Degree Flare Swivel	1
9	659908	Elbow, 7/8"-18 Male O-Ring / 3/4"-16 Male 37 Degree Flare	3
10	659971	Coupling, Quick Disconnect, Male, 1/2"	2
11	660408	Adapter, 3/4-16 Male O-Ring / 3/4"-16 37 Degree Flare Swivel	1
12	660679	Elbow, 1-1/16"-12 Male O-Ring / 3/4"-16 Male 37 Degree Flare	1
13	660680	Adapter, 1-1/16"-12 Male O-Ring / 3/4"-16 Male 37 Degree Flare	2
14	660681	Tee, 3/4"-16 Male 37 Degree Flare / 3/4"-16 37 Degree Flare Swivel	3
15	661789	Control, Flow, Hydraulic	1
16	661801	Coupling, Quick Disconnect, Male, 1/2"	1
17	661802	Coupling, Quick Disconnect, Female, 1/2"	1
18	661809	Hose Assembly, Hydraulic. Bulkhead To Control	1
19	661810	Hose Assembly, Hydraulic. Control To Motor	1
20	661811	Hose Assembly, Hydraulic, Control To Cylinder	1
21	661812	Hose Assembly, Hydraulic, Cylinder To Cylinder	1
22	661813	Hose Assembly, Hydraulic, Cylinder To Cylinder	1
23	661814	Hose Assembly, Hydraulic, Control To Cylinder	1
24	661815	Hose Assembly, Hydraulic, Motor To Control	1
25	661816	Hose Assembly, Hydraulic, Control To Tee	1
26	661817	Hose Assembly, Hydraulic, Quick Disconnect To Tee	1
27	661818	Hose Assembly, Hydraulic, Check Valve To Tee	1
28	661819	Hose Assembly, Hydraulic, Quick Disconnect To Bulkhead	1
29	661820	Hose Assembly, Hydraulic, Quick Disconnect To Tee	1
30	661824	Hose Assembly, Hydraulic, Quick Disconnect To Bulkhead	1
31	661826	Valve, Directional Control	1
32	661832	Adapter, 3/4"-16 Male O-Ring 3/4"-16 Male 37 Degree Tee	2
33	661847	Valve, Check, Includes Check Valve and Block	1
34	662095	Cartridge, Check Valve (Service Part)	1
35	660614	Seal Kit, Check Valve or Hydraulic Motor Solenoid Valve (Service Part)	1
36	661848	Motor, Hydraulic, Includes Motor, Solenoid Valve and Solenoid Block	1
37	660604	Cartridge, Solenoid, Hydraulic Motor (Service Part)	1
38	660606	Solenoid, Coil, Hydraulic Motor or Attachment On/Off (Service Part)	1
39	661850	Valve, Solenoid, Attachment On/Off, Includes Solenoid, Cartridge and Block	1
40	661565	Cartridge, Attachment On/Off (Service Part)	1
41	661566	Seal Kit, Attachment On/Off (Service Part)	1
42	661849	Cylinder, 1-3/8" Shaft, 3" Bore, 16" Stroke, Includes Clevis Pins	2

Product Number 85440 and 85441
Electrical Harnesses and Control Box Assembly

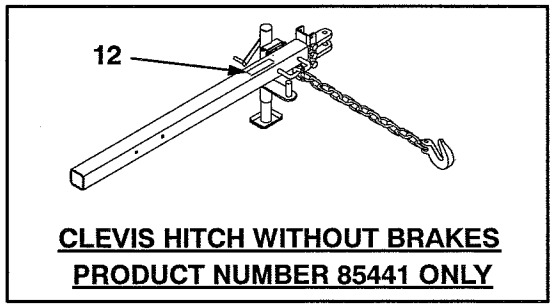


Product Number 85440 and 85441
Electrical Harnesses and Control Box Assembly

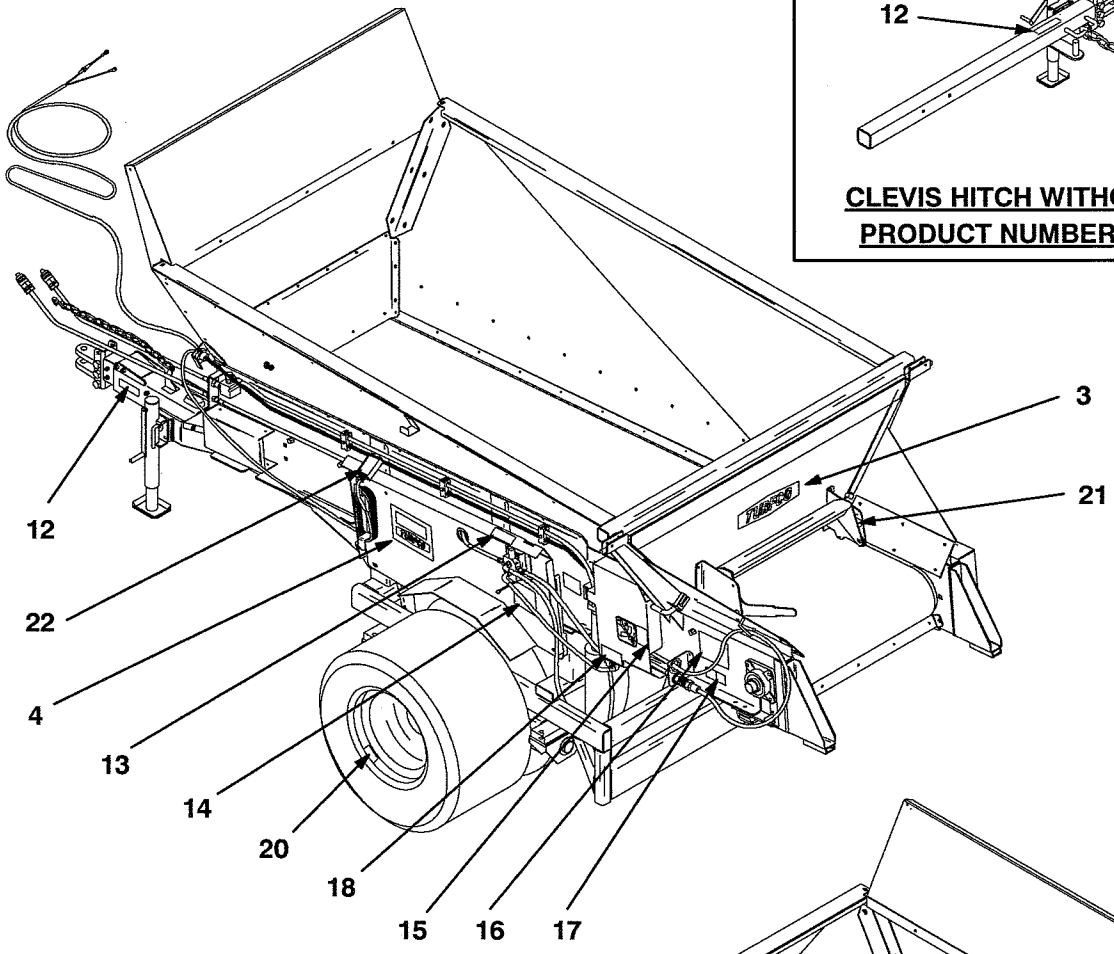
Item No.	Part No.	Description	Qty.
1	662094	Wiring Harness, CR-10 Power To Battery	1
2	657917	Fuse Holder, In-line	1
3	657972	Fuse, 6 AMP, AGC-6	1
4	662063	Wiring Harness, CR-10 Main	1
5	658101	Tie Wrap	As Needed
6	662015	Bracket, Control Wire Plug	1
7	662046	Screw, Hex Head, 1/4"-20 x 3/4" Whizlock	2
8	661620	Nut, Hex, 1/4"-20 Whizlock	2
9	662061	Control Box Assembly, Includes Items 10 Thru 21	1
10	662062	Wiring Harness, CR-10 Control Box, Includes Items 11, 12, and 13	1
11	657950	Base Plate, Control Box	1
12	657953	Connector, Cord, 1/2" NPT Male	1
13	657603	Locknut, Bonding Type	1
14	657970	Body, Control Box	1
15	657956	Screw, Machine, 8-32 x 3/8" Phillips Pan Head	2
16	657951	Rod, Tie, Control Box	2
17	661776	Plate, Switch	1
18	657957	Screw, Machine, 8-32 x 3/8" Phillips Flat Head	2
19	658156	Gasket, Rocker Switch	1
20	661493	Switch, Rocker, SPTT	1
21	658155	Actuator, Rocker Switch	1

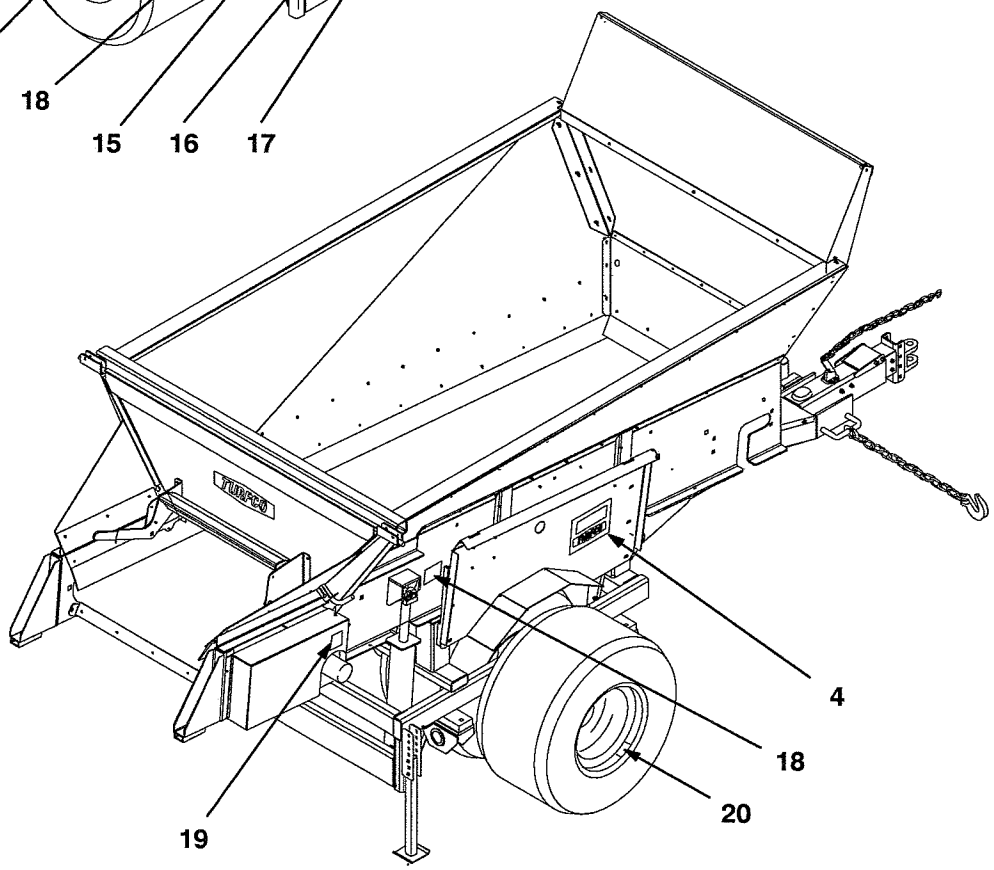


Decals

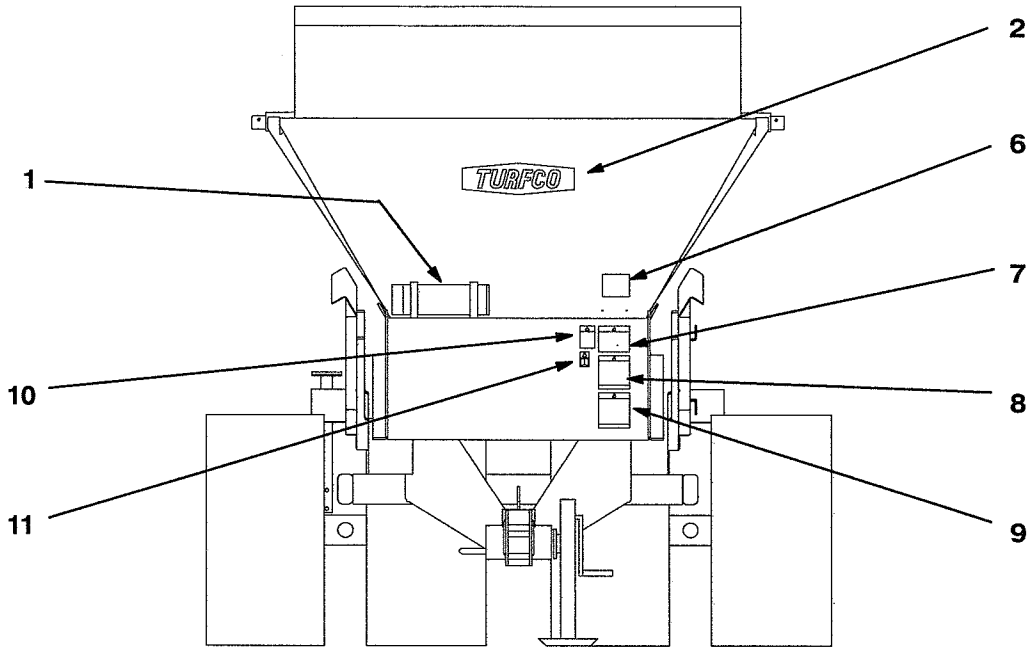


CLEVIS HITCH WITHOUT BRAKES
PRODUCT NUMBER 85441 ONLY





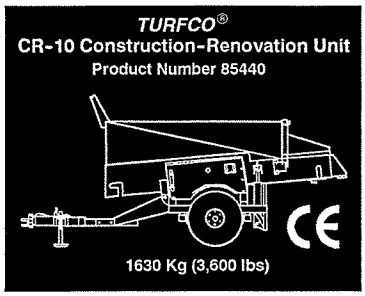
Decals



FRONT VIEW

Item No.	Part No.	Description	Qty.
1	662084	Manual, Operators, CR-10 Unit, Includes Parts List	1
2	660693	Decal, Turfco Logo, 15" Green and Almond	1
3	660972	Decal, Turfco Logo, 12", Green and Almond	1
4	662130	Decal Sheet, Product Name and TURFCO Logo (2 per Sheet)	1
5	662129	Decal Set, CR-10 Unit, Includes Items 6 Thru 21	1
6		Decal, Product Identification (Product No. 85440 or 85441)	1
7		Decal, Warning, Maximum Load Warning Decal	1
8		Decal, Warning, Maximum Towing and Towing Warning Decal	1
9		Decal, Warning, Tongue Weight Warning Decal	1
10		Decal, Warning, Maximum Angle of Operation Decal	1
11		Decal, Warning, Read Manual	1
12		Decal, Warning, Attachment Installation/Hitch Decal	1
13		Decal, Lift Control (Upper)	1
14		Decal, Lift Control (Lower)	1
15		Decal, Attachment Speed Control	1
16		Decal, Attachment Hose Routing	1
17		Decal, Warning, High Hydraulic Pressure Hazard (Domestic or European)	1
18		Decal, Warning, Entrapment/Do Not Enter (Domestic or European)	2
19		Decal, Warning, Hand Hazard	1
20		Decal, Tire Pressure	2
21		Decal, Metering Gate Setting	1
22	662128	Decal, Hand Held Control Box	1

Decals



PRODUCT NO. 85440

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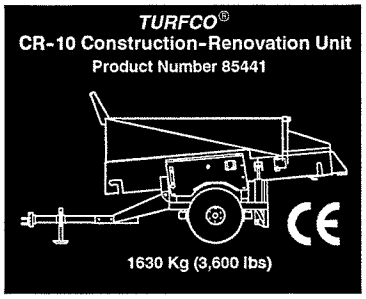
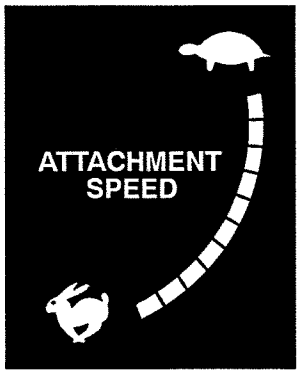


PRODUCT NO. 85441



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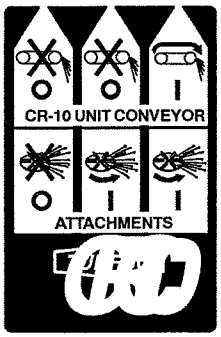

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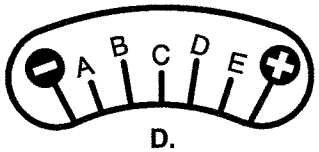

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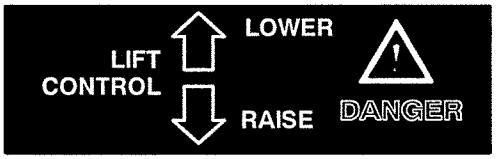

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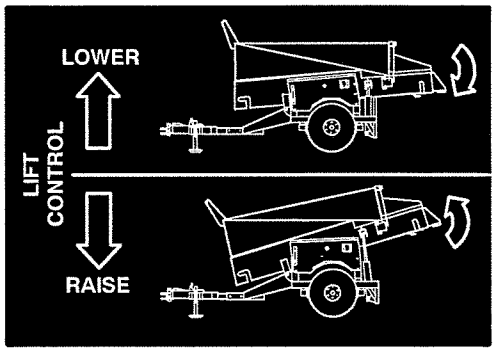

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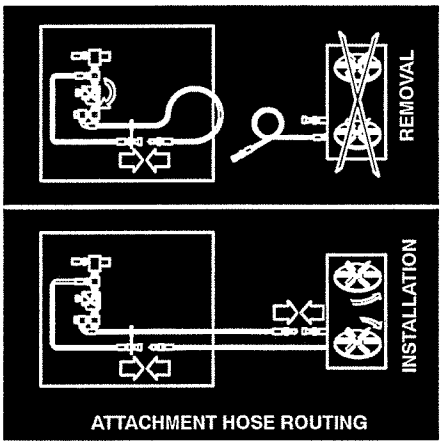


G.

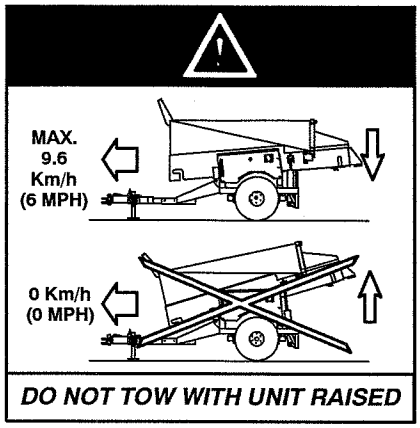
H.

I.

A. Product Identification Decal (85440 or 85441)
B. Attachment Speed Control Decal
C. Hand Held ON/OFF Control Box Decal
D. Metering Gate Setting Decal
E. Lift Control Decal (Located Over Control)
F. Lift Control Decal (Located Under Control)
G. Attachment Hose Routing Diagram
H. Tire Pressure Decal (Quantity 2)
I. Product Name and Logo Decal (Quantity 2)
J. Turfco Logo (Quantity 2)

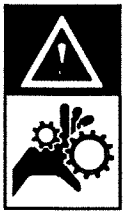
J.

Decals



K.

L.



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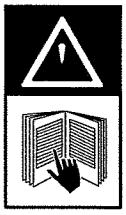

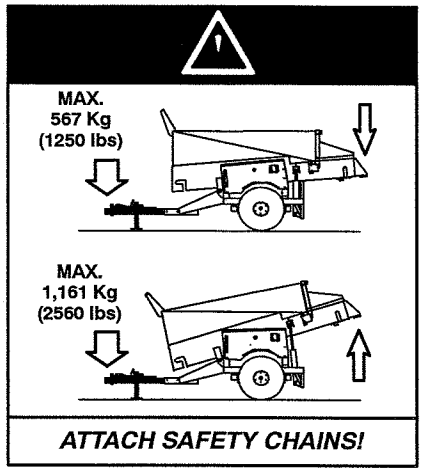

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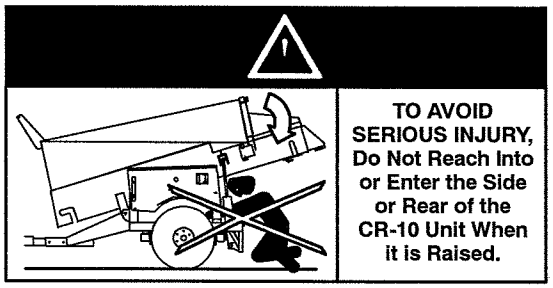
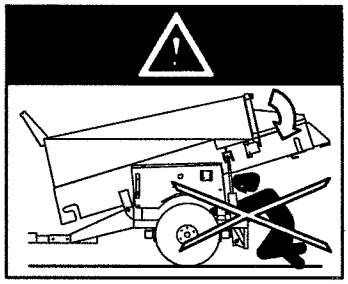
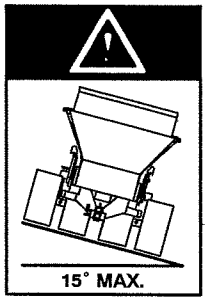


DOMESTIC

O.



EUROPEAN



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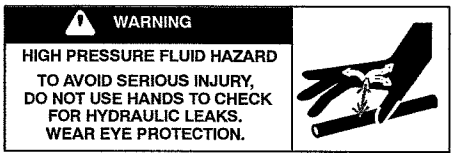
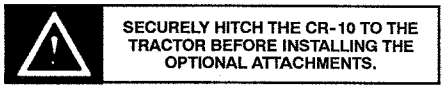


DOMESTIC

Q.

EUROPEAN



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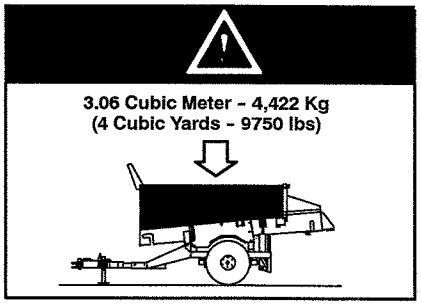

S.

K. Towing Speed Warning Decal
L. Hand Hazard Warning Decal
M. Read Manual Warning Decal
N. Tongue and Hitch Weight Warning Decal
O. Stay Clear/Entrapment Warning Decal (Domestic or European)
P. Maximum Angle of Operation Warning Decal
Q. High Hydraulic Pressure Warning Decal (Domestic or European)
R. Attachment Installation/Hitch Warning Decal
S. Maximum Load Size and Weight Warning Decal

Service Records

SERVICE	DATE

Notes

Set Screw Torque Settings				
SET SCREW DIAMETER (INCHES)	HEX WRENCH FLAT (INCHES)	TORQUE (INCH-POUNDS)	TORQUE (FOOT-POUNDS)	TORQUE (NM)
.190" (#10)	3/32"	27	2.2	3.1
1/4"	1/8"	63	5.2	7.1
5/16"	5/32"	120	10	13.5
3/8"	3/16"	214	17.8	24.2
7/16"	7/32"	324	27	36.6
1/2"	1/4"	464	38.7	52.4
5/8"	5/16"	994	82.8	112.3

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Part No. 662084 Rev A

CR-10 Construction/Renovation Unit
Product Number 85440 (With Brakes)
Product Number 85441 (Without Brakes)

Printed in USA 1001