TURFCO®

OPERATOR'S MANUAL
MAINTENANCE MANUAL
PARTS LIST

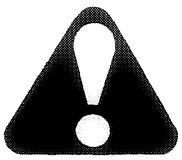
TURFCO®

Mete-R-Matic®
III Top Dresser
Model F12D

Manual Number 657968 Rev A

Product Number 85423

U.S.
Patents 4,438,873; 5,307,952; 5,307,965
Other Patents Pending



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

TURFCO MFG. INC.
1655 101st Avenue NE • Minneapolis, MN 55449-4420 U.S.A.
Phone (763) 785-1000 • FAX (763) 785-0556

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Product Records

IMPORTANT: Record the information from the data plate of your Mete-R-Matic ® III F12D Top Dresser. It will be necessary to furnish your Model Number, Product Number, and Serial Number when ordering parts.

Model Number F12D Product Number 85423

Serial Number _____ Year of Manufacture _____ Date Purchased _ _____

Purchased From _____

Specifications

Intended Use: The Mete-R-Matic ® III F12D is a towed top dresser. The F12D is intended to be used for the application of properly prepared organic or sand top dressing material. The F12D is NOT intended to be used for any purpose other than the application of properly prepared top dressing material. The F12D is NOT designed for or intended to accept riders.

Hopper Capacity	18.3 Cubic Feet When Filled Level (.51 Cubic Meter) 22 Cubic Feet Heaped (0.64 Cubic Meter)
Hopper Dimensions	Top = 72" X 36" (1.83 Meter x 0.92 Meter) Bottom = 60" X 20" (1.5 Meter x 0.51 Meter), Depth = 17-1/2" (0.45 Meter)
Spreading Width	60" Inches (1.5 Meter)
Top Dressing Speed	Up To 8 MPH (12.8 Km/h).
Transport Speed	Up to 8 MPH (12.8 Km/h) When Loaded, Up to 15 MPH (24 Km/h) When Empty.
Conveyor Belt	60" Inches (1.5 Meter) Wide Rubber Composition With Chevron Pattern.
Brush	9" Inch (228 mm) Diameter Polypropylene Bristle.
Metering Gate	Opening Adjustable Up To 2-1/4" Inches (57 mm).
Controls	Electrically Operated Clutch For Conveyor and Brush Drive. Metering Gate Opening Adjusted by Hand.
Drives	Ground Driven.
Wheels	Six, 16 x 6.50 -8, Rib Tread Turf Tires.
Hitch	Standard 5/8" Inch Pin Hitch on a Straight Tow Bar. Optional 2" Inch Ball Coupler on a Fifth Wheel Tow Bar.
Electrical Requirements	12 Volt Direct Current, Negative Ground (Electrical Power Provided By the Tow Vehicle).
Empty Weight	851 Ibs. (386 Kg.)
Maximum load Weight	2,138 Ibs. (970 Kg.)
Total Maximum Combined Weight (Machine Plus Load)	2,989 Ibs. Maximum (1,356 Kg. Maximum)
Maximum Angle of Operation	15° Degrees on Side Slopes -12° Degrees Up and Down Slopes
Shipping Weight	1,100 Ibs. (499 Kg.)
Shipping Dimensions	80-112" x 51" x 39-112" 93.9 Cubic Feet. (2 M x 1.27 M x 1 M, 2.5 Cubic Meter)

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 Mete-R-Matic ® III F12D Top Dresser, 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.turico.com
E-Mail -service@turico.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 Mete-R-Matic ® ill Top Dresser and/or create a safety hazard. Always refer repairs to properly trained service personnel.

DO NOT ALTER the Mete--R-Matic ® m F12D Top Dresser in any manner. Unauthorized alterations may affect it's operation, performance, and may result in injury or death to the operator as well as other individuals in the work area.

Recognizing Safety Warnings 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" identifies immediate hazards which will result in serious injury or death. .
- "WARNING" identifies potential hazards which could result in serious injury or death.
- "CAUTION" identifies hazardous situations 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.

TRAINING: Always read the manual, the decals, and the safety 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: Cloths should be snug fit. loose fitting clothing is hazardous because it may get caught in the mechanism during service or operation.

Remove jewellery before operation. Jewellery may get caught in the mechanism.

Wear shoes that will protect your feet. The protection of leather shoes, boots, or steel toed safety shoes, is required and is strongly recommended.

Hard Hat: 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 needed while operating under trees or around obstacles.

Eye Protection: Safety glasses and/or face shields should be worn 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 speed up to 320 Km/h.

Hearing: If the noise level of the equipment is too loud, use 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 other equipment while operating the machine.

Gloves: Use gloves to protect your hands. Use gloves when handling sharp or hazardous objects.

Respirators: When operating in dusty, windy conditions, wear a respirator. This is also an important consideration if operating equipment while spraying chemicals and fertilizers.

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.

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.

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 machine. Be careful to observe other people and machines in the area.
Beware of slippery conditions. Wet turf can be encountered on slopes, when tuning 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 spark plug 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 the 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: Do not modify the machine in any manner. Always check the machine to make sure it is in good working order.

Tow Vehicles Must have adequate hitches and brakes to control any towed machine. Check the weight and capacity of the machine that will be towed by that vehicle.

Do not place hands or feet near moving or rotating parts. Check that all guards are functional and properly installed. Do not operate a machine without all guards installed.

Check tires. Inflate to pressure shown on tire.

Check to assure that all controls are in good operating condition. Check to assure that the brakes are operating properly.

Do not overload machinery. The components are designed for certain weights and capacities. Overloading machine will cause unsafe conditions.

Shut off the engine before servicing the machine. Check machines on a level area. Machines on a slope may roll when the engine is off.

Refer unfamiliar repairs and adjustments to mechanics that have been trained to do them properly.

Replace decals that are damaged or illegible.

THE ENGINE: Do not run the engine in an enclosed area. The exhaust gases contain carbon monoxide, an odourless and deadly poison.

⚠ WARNING

The engine exhaust contains chemicals known to the State of California to cause cancer , birth defects or other reproductive harm.

Do not refuel machines indoors or in an unventilated area. Do not over fill. Do not add fuel while the machine is hot because spilled fuel may cause a fire. Use fresh gasoline. Stale fuel can gum the carburettor and can cause leakage. Check the fuel lines and fittings frequently for cracks and leaks.

Do not remove the fuel tank cap or fill fuel tank while the engine is hot or running. Allow the engine to cool before refuelling.

Do not operate the engine if gasoline is spilled. Do not operate the engine when the smell of gasoline is present or if any other explosive conditions exist.

Move the equipment away from the spill and avoid any ignition until the gasoline has evaporated.

Do not store, spill, or use gasoline near an open flame. Do not store, spill, or use gasoline near a stove, fumace, water heater, or appliance that uses a pilot light or can create sparks.

Do not choke the carburettor 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.

Keep the cylinder fins and the governor parts free of dirt, grass, and debris which can affect engine speed.

Do not transport the engine with fuel in the tank.

Prevent accidental starting by removing the spark plug wire(s) 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 during operation. Use the correct tools to service the machine.

Do not check for a ignition spark with the spark plug removed. Use an approved tester. 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.

Do not start the engine with the air cleaner and/or the air cleaner cover removed. Do not operate the engine without a muffler. Replace the muffler if it is leaking or worn. Replace only with correct muffler. Do not touch a hot muffler, cylinder, or fin. It will cause bums. Do not operate the engine with an accumulation of grass, leaves, or 'other combustible material in the muffler area.

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. The spark arrester must be maintained in good working order.

This list includes many but not all general safety instructions as they relate to turf equipment. Common sense must always be used to detem1line the safest way to operate a machine under specific conditions

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Assembly

WARNING

To Avoid Serious Injury
Always Follow All Safety Hazard Warnings and Decals. Wear the Appropriate Safety Gear When Assembling the Top Dresser.

ASSEMBLING HOPPER
(SEE FIGURE 1)

Step 1. Attach the hopper side panels [1] to the dresser frame. The top flanges of the panels must face toward the centre of the machine. The hopper side seals [2] must be between the side panel and· the frame. Use 1/4"-20 x 3/4" screws [3] with flat washers [4] to mount the hopper side panels and seals to the frame. All screw heads should be inside the hopper. Secure with 1/4" lock washers [5] and nuts [6]. Do not tighten at this time

Step 2. Install four 1/4" trap nuts [7] on the upper corners of the hopper front panel [8] and the hopper rear panel [9]. The nut portion of the trap nut should be on the bottom of the flange and should line up with the hole in the panel.

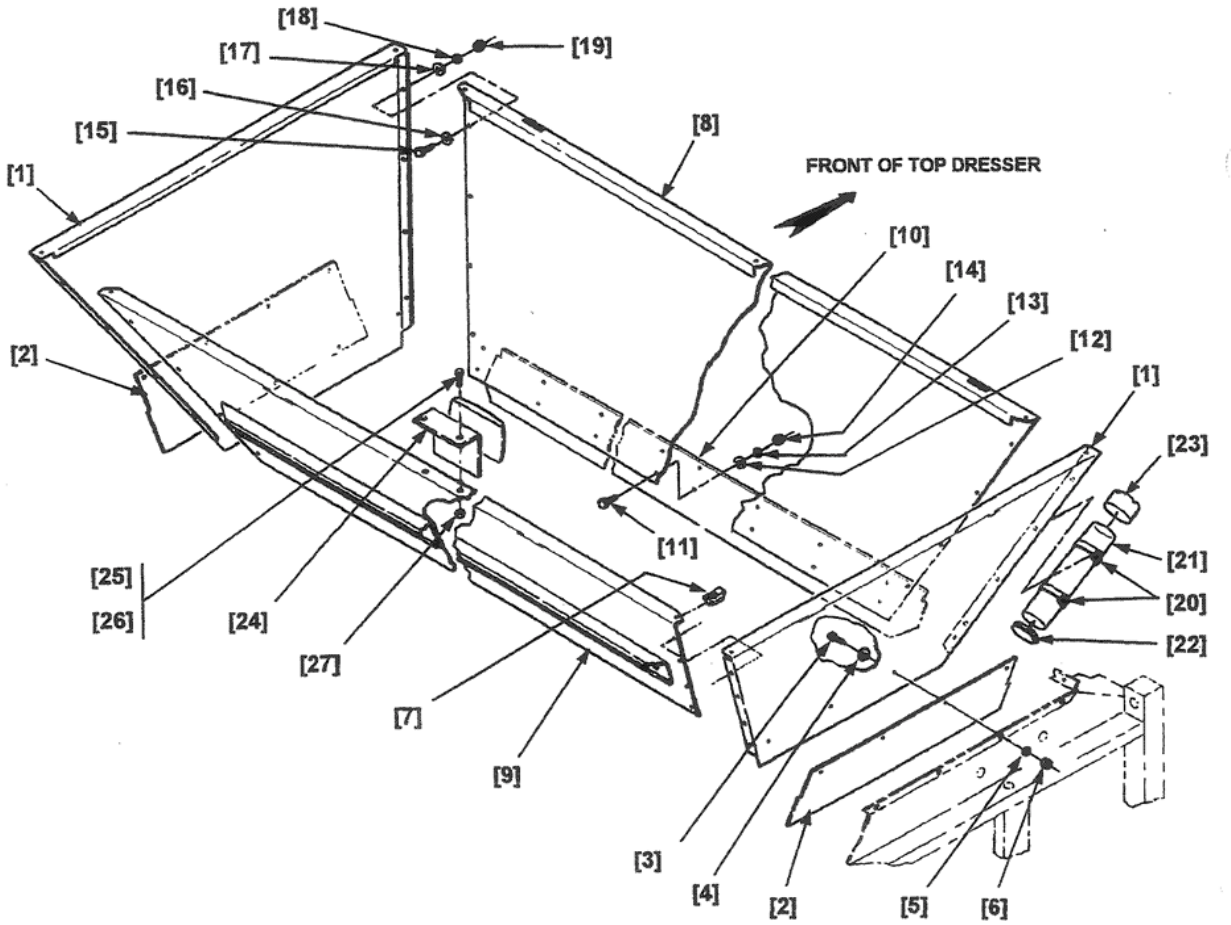

FIGURE 1

Step 3. Attach the front hopper seal [10] to the front hopper panel [8]. Use the lower row of holes on the front hopper panel and the lower row of holes in the seal. Place the seal on the outside face of the panel with the 450 degree angles to the bottom., Secure to the panel with 1/4"-20 x 3/4" screws [11], 1/4" flat washers [12], 1/4" lock washers [13], and 1/4" nuts [14]. All screw heads should be inside face the hopper panel. Flat washers, lock washers, and nuts should be on the outside face of the seal. Securely tighten the screws and nuts

Slide the front hopper panel [8] down inside the flanges of the side panels [1]. The front hopper seal [10] must lay on top of the conveyor belt and the side panel seals. Slide the panel down until the top row of holes in the hopper seal align with the holes in the frame. Install 1/4D -20 x 3/4" screws with flat washers to hold the front panel and seal to the frame. All screw heads should be inside the hopper. Secure on the outside of the frame with 1/4"lock'washers, and nuts. Do not tighten at this time.

Step 4. Use 1/4"-20 x 3/4" screws [15] with flat washers [16] to attach the front panel to the side panels. All screw heads should be inside the hopper. On the outside of the hopper, secure with flat washers [11], 1/4" lock washers [18], and-1/4" nuts [19] . Do not tighten at this time.

Step 5. Install the manual tube to the comer of the front panel. Place the two mounting clamps [20] on the manual tube [21]. Place the plastic plug
[22] into the bottom of the tube and install the plastic cap [23] on top of the manual tube. Attach the manual tube to the front hopper panel. Use the two middle screws. Do not tighten at this time.
Use 1/4"-20 x 3/4" screws with flat washers to attach the side panels to the rear panel. All screw heads should be inside the hopper. Secure with flat washers, 1/4" lock washers, and nuts on the outside of the hopper. Do not tighten at this time.

Step 6. Secure the top comers of the rear and side panels with 1/4"-20 x 3/4" screws and 1/4" lock washers. Tighten to the 1/4" trap nut [1].

Step 7. Level all hopper panels and securely tighten all screws and nuts holding the hopper to the frame. Tighten all hardware holding the hopper panels together.

Step 8. Install the mirror bracket [24] on the rear hopper panel. Use holes on the top of the rear hopper panel. Install the mirror bracket so that the mirror is inside the hopper. If the mirror bracket is mounted with the mirror above the hopper panels, it will be subject to damage when loading the hopper. Fasten with 1/4"-20 x 3/4" hex head cap screws [25], lock washers [26] and nuts [21]. The mirror should be attached to the bracket with the foam adhesive that is applied to the back of the mirror.

ADJUSTING METERING GATE
(SEE FIGURE 2)

Step 9. The metering gate is adjustable forward and backward. To assist in the assembly of the hopper, the gate is factory adjusted to the far back setting. After the hopper is mounted to the top dresser, the gate should be adjusted forward. Use the following steps to properly adjust the metering gate:

- Loosen the two lock nuts [A] that secure the metering gate [13] to the metering gate mounting brackets [C].
- Loosen the four hex nuts [0] that hold the metering gate mounting brackets [C] to the top dresser frame.
- Push the metering gate forward until it is snug against the back of the hopper.
- Tighten the four hex nuts [0] on the metering gate brackets.
- The lock nuts [Alan the ends of the metering gate provide friction to hold the gate in selected position. Tighten as required to set the proper friction. Lock nuts on both ends of the gate should be adjusted uniformly.

ATTACHING TOW BAR
(SEE FIGURE 3)

Step 10. The "Control Box Cable" [1] is routed down through the inside of the tow bar [2] and exits at the rear of the tow bar through a rubber grommet [3]. Install the tow bar with the rubber grommet pointing up. Secure the tow bar to the frame using two 1/2"-20 x 4-1/2" screws [4], lock washers [5] and nuts [6]. Tighten securely.

If equipped with the Optional Fifth Wheel Hitch tow bar, install the same manner as the standard tow bar. The fifth wheel hitch requires a 2" inch ball (not Included) on the tow vehicle.

INSTALLING ELECTRIC CLUTCH WIRING HARNESS AND CONTROL BOX
(SEE FIGURE 3)

Step 11. The electrical cable for the "Clutch Actuator to the Control Box Cable" [1] is factory installed in the top dresser frame. Plug the "Clutch Actuator to the Control Box Cable" connector [8] into the connector [9] for the "Control Box Cable" [1]

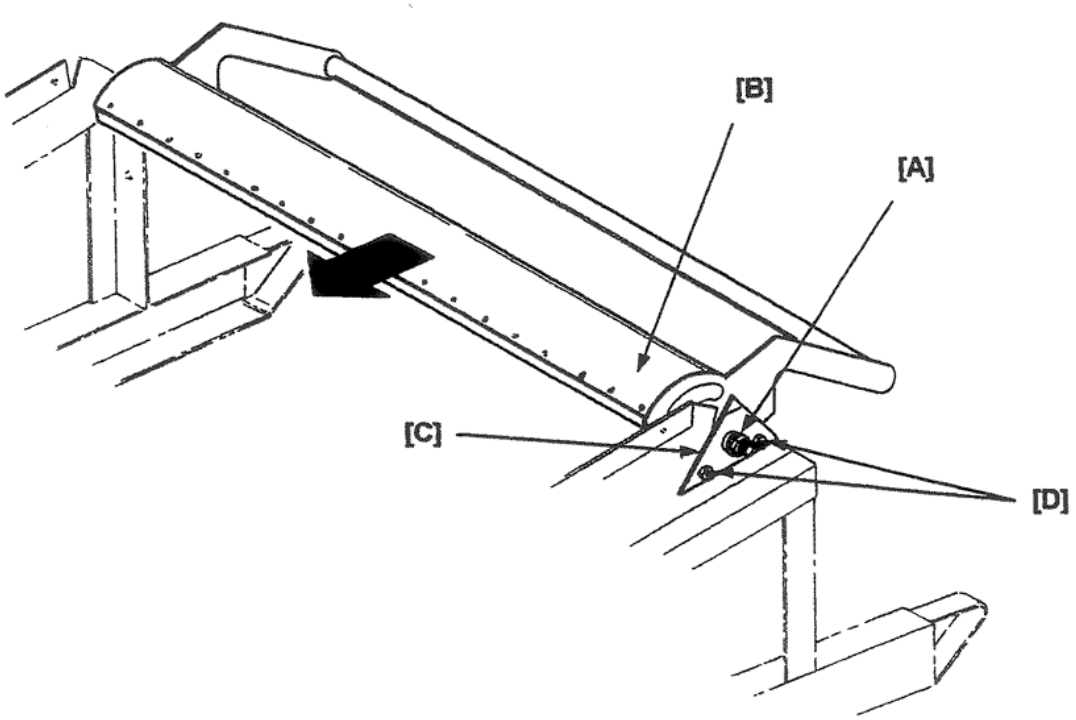

FIGURE 2

(cable is inside the tow bar). Take up any slack in the "Control Box Cable" to prevent the wires from dragging on the ground or from being pinched by the tow bar.

Step 12. Plug the connector [10] for the "Power Supply Cable" [11] into the connector [12] on the "Control Box Cable" [1]. There is a 6 amp AGC type fuse in a fuse holder [13] on the positive wire of the power supply cable. The fuse protects the electric actuator and the wire harness from damage by a short in the system. Check the fuse holder to ensure that the proper fuse is installed and is in operating condition.

Step 13. Connect the "Power Supply Cable" [11] to the tow vehicle battery. Battery must be a 12 volt direct current (DC) with a negative (-) ground. The wire with fuse holder [13] is connected to the positive (+) terminal of the battery. The black wire is connected to the negative (-) terminal of the battery.

The electrical actuator works best with a fully charged battery in the tow vehicle. If the actuator does not respond, or if it moves slower than normal, the problem may be a weak battery. All electrical connections must be made securely to insure positive contact. If any problems are noted in the operation of the machine, check the electrical connections first.

WARNING

To Avoid Serious injury, Read and Understand the Entire Operator Manual Before Operating This Machine.

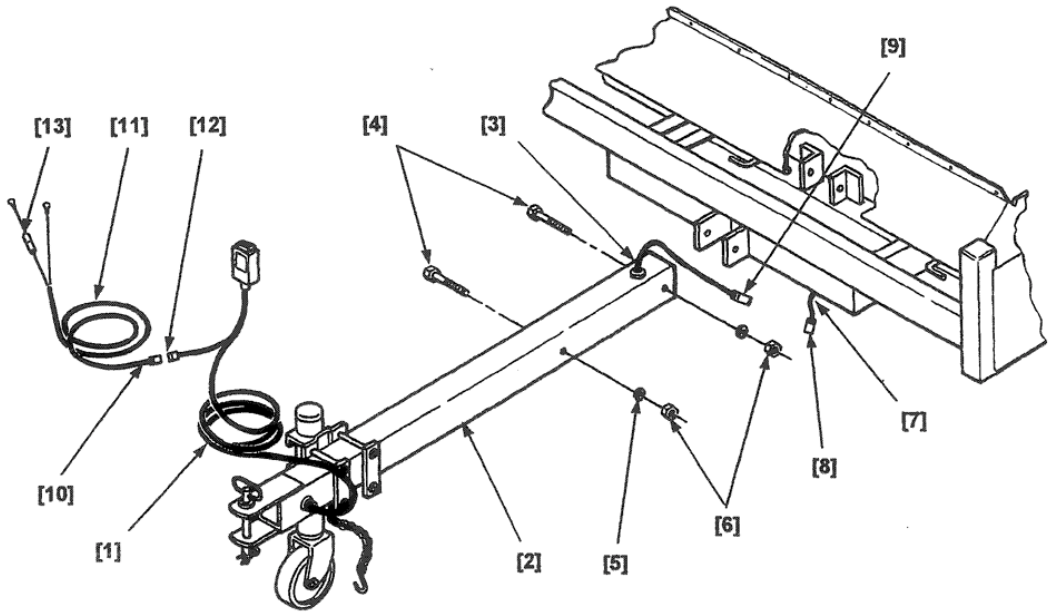

FIGURE 3

WARNING

**To Avoid Serious Injury,
Read and Understand the Entire
Operator Manual Before
Operating This Machine.**

Mete-R-Matic ® III F12D Top Dresser

The Turfco Mete-R-Matic III F12D Top Dresser is a towed type top dresser. The F12D Top Dresser is designed to distribute a uniform application of properly prepared top dressing material to the turf. Top dressing is the introduction of new soils to existing turf.

A conveyor belt carries the top dressing from the hopper, through an adjustable metering gate, into a rotating brush. The brush catches the top dressing and drives it down into the turf base. Top dressing material is spread at a 60" inch width (1.5 meter) at a ground speed up to a MPH (12 Km/h).

Intended Use of the Mete-R-Matic ® III F12D Top Dresser

The F12D Top Dresser is to be used only for the application of properly prepared organic and / or sand top dressing material. Properly prepared top dressing is organic and/or sand material with a controlled moisture content that has been screened to remove debris and excess sized material. The F12D Top Dresser is NOT intended to be used for any purpose other than the application of properly prepared top dressing material.

- Do Not Top Dress Unscreened Material.
- Do Not Top Dress Non-Organic or Non-Sand Based Material
- Do Not Top Dress Rocks
- Do Not Ride On Top Dresser
- Do Not Allow Riders On Top Dresser
- Do Not Operate On Side Slopes Over 15° Degrees
- Do Not Operate Up and Down Slopes Over 12° Degrees
- Do Not Put Tools or Implements In Hopper
- Do Not Put the Electric Clutch Control Box in the Hopper
- Tow Only With a Properly Rated Tow Vehicle.

Tow Vehicle and Tow Vehicle Hitch Requirements

Check the towing weight capacity of the tow vehicle. The tow vehicle must have the capacity to safely tow 3,000 pounds (1,360 Kg). The type of tow vehicle used must have adequate brakes to safely control the weight the Mete-R-Matic III F12D Top Dresser. Do not exceed the capacity of the tow vehicle.

DANGER

**When Properly Loaded, the Mete-R-Matic III F"I2D Can Weigh 2,989 pounds (1,356 Kg).
The Towing Vehicle Must Be Equipped With an Adequate Hitch, Rated for Proper Towing Capacity, and Have Adequate Functional Brakes.**

Always use a proper tow vehicle to move the top dresser, even if moving only short distances. Using improper towing methods may cause damage to the top dresser. Safe movement can only be done with proper equipment.

DANGER

**DO NOT disconnect the hitch while the hopper is loaded.
DO NOT disconnect the hitch while on a slope.**

Tow vehicle must have an appropriate hitch to attach the top dresser. A 5/a" inch hitch pin is required to safely attach the top dresser. If equipped with the optional fifth wheel hitch, a hitch with a 2" inch ball on the tow vehicle is required. Heavy duty components are strongly recommended for your tow vehicle.

Assure that proper electrical power is available to power the top dressers electric clutch. The top dresser requires a negative ground, 12 Volt DC power source.

Do not modify the top dressers hitch in any manner. Always inspect the hitch for damage or missing parts before attaching to the tow vehicle. Do not tow the top dresser if it has a damaged or non-functional hitch.

TONGUE WEIGHTS

DANGER

DO NOT Exceed the maximum tongue weight

Maximum allowable tongue weights for the straight hitch is 330 pounds (150 Kg). Maximum allowable tongue weight for the optional fifth wheel style hitch is 520 pounds (235 Kg). Never overload or operate the machine with an overloaded hitch.

Location of Major Components and Description of Operator Controls

LOCATION OF MAJOR COMPONENTS AND GUARDS (SEE FIGURE 4)

1 Straight Tow Bar and Hitch
2 Hopper
3 Conveyor Belt
4 Brush
5 Side Guard
6 Conveyor Belt Tension Adjusters
7 Metering Gate

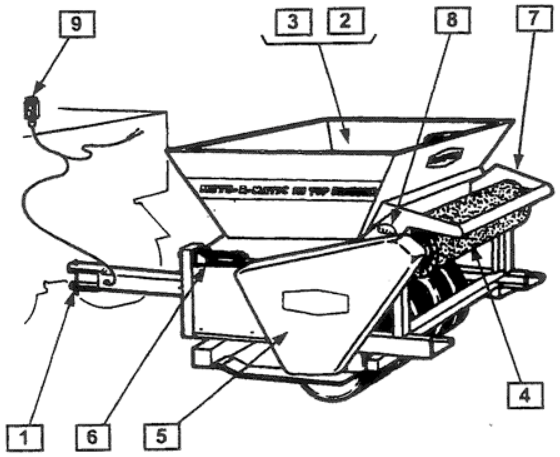

FIGURE 4

DESCRIPTION AND FUNCTION OF OPERATOR CONTROLS (SEE FIGURE 4)

The Operator Controls are the conveyor drive Electric Clutch Control Box and the Metering Gate Control Handle. Do not alter Operator Controls and/or operate the top dresser with defective or non-operational Operator Controls.

⚠ DANGER

Do not alter the controls in any manner and/or operate the machine with defective or non-operational controls.

8 Metering Gate Control:
The metering gate control changes the opening size of the metering gate. The metering gate is a manually controlled by moving the horizontal bar (on the rear of the metering gate) up and down. Metering gate opening sizes will vary depending on the type and the thickness of top dressing that is desired. Check the decal on the metering gate to reference the gate opening. The numbering system on the decal is for reference only, it does not refer to opening size in inches or millimetres. See the "SETTING OF METERING GATE" section in this manual for further information on the metering gate.

9 Electric Clutch Control Box: The Electric Clutch Control Box is a hand held control that engages or disengages the clutch that controls the power to the conveyor belt and" brush. The control box switch has two positions, "ON" and "OFF". Push the switch in the "ON" position to start the conveyor belt and brush. Push the switch in the "OFF" position to stop the conveyor belt and brush.

There is a 2 second delay between the time the switch is thrown and the spreading starts/stops. Push the electric switch 2 seconds before spreading starts. Push the switch 2 seconds before the spreading stops.

The conveyor belt and the brush are ground driven from the wheels. To avoid damage to the clutches, engage the electric clutch at slower speeds, then increase speed as desired. Engaging the clutch at fast speeds will cause the wheels to skid resulting in damage to the turf and to the clutch. Do not engage the clutch while on a golf green.

Always keep the electric clutch control box in a secure place. When not in use, hang the control box on the front of the hopper. Secure the wiring harness by wrapping around the hangers on the front of the frame. If the control box drops to the ground, the wiring harness will become tangled in the axles and wheels. DO NOT put the control box in the hopper. Severe damage to the control box, conveyor belt, and brush will result when the control box becomes tangled in the conveyor belt and the brush.

Operating Instructions

DANGER

To Avoid Serious Injury, Read and Understand the Entire Operator Manual Before Operating This Machine.

DANGER

To Avoid Serious Injury, Always operate the Mete-R-Matic ® III Top Dresser Safely.

Wear the Appropriate Personal Safety Equipment. Read and Follow all Safety Decals and Warnings.

PREOPERATION CHECK LIST

- ✓ Grease -The fittings on the Mete-R-Matic III F12D drive train and axle.
- ✓ Check -Tires are inflated to correct pressure as indicated on tire.
- ✓ Check -The Mete-R-Matic ® III F12DTop Dresser is properly hitched and secured to the tow vehicle.
- ✓ Check -Electrical connection to tow vehicle is correct and the electric clutch operates correctly.
- ✓ Check -Electric clutch control box is secure. DO NOT put clutch control box in hopper.
- ✓ Check -Ali guards are in place.

TOP DRESSING OPERATION

Forward speed is an important part of top dressing. Forward speed during top dressing should not exceed 8 MPH (12 Km/h). Undesired top dressing patterns and excessive stress on the machine will occur if speeds are in excess of 8 MPH (12 Km/h). The drive mechanism and the conveyor/brush are synchronized so that the same amount of top dressing is being applied regardless of forward speed. Moderate and constant speed will provide the best top dressing results. Maximum towing speed when empty is 15 MPH (24 Km/h). When empty, clutch should be should be disengaged before towing.

There is a delay of approximately 2 seconds between the time the electric clutch control box switch is thrown and the spreading starts/stops. Push the electric switch approximately 2 seconds before spreading starts. Push the switch approximately 2 seconds before the spreading stops.

CAUTION

To avoid damage to the clutch, engage it at slower speeds.

The conveyor belt and the brush are ground driven from the wheels. To avoid damage to the clutch, engage it at slower speeds, then increase ·speed as desired. Engaging the clutch at fast speeds will cause the wheels to skid resulting in damage to the turf and to the clutch. Do not engage the clutch while on a golf green.

For best results, top dress in straight lines. A gradual turn can be made without difficulty or undesired top dressing results. On too sharp of a turn, uneven distribution of top dressing material will occur. A sharp turn will result in more top dressing being applied to the inside ground surface of the turn than on the outside surface. To make a sharp turn without top dressing, the turn should be taken slowly. To fast of a turn will increase the possibility of damage to the turf caused by the outside wheels skidding. If a sharp turn is taken to fast, the top dresser may become unstable and cause tipping of the machine and the tow vehicle.

To Avoid damage to the turf, do not stop the top dresser while on a golf green. Tires may sink into the turf and leave tracks.

Do not operate the top dresser on side slopes over 15° degrees. Do not operate the top dresser up and down side slopes over 12c degrees. Do not operate the top dresser with an over filled or overloaded hopper. Tipping or rolling over of the machine can occur.

DANGER

To Avoid Serious Injury and To Avoid Damage to the Top Dresser and the Tow Vehicle, Do 11l0t operate the top dresser on steep slopes.

Do Not Operate on Side Slopes Over 15° Degrees.

Do Not Operate Up or Down Slopes Over 12° Degrees.

Tipping or rolling over of the machine and the tow vehicle can occur.

Always keep the electric clutch control box in a secure place. The electrical harness can be secured to the frame by attaching it the hangers located on the front of the frame. Hang the control box in the slot on the top of the front hopper panel. If the control box drops to the ground, the box can be damaged by the wheels or become tangled in the axles.

⚠ CAUTION

Do not place the electric clutch control box in the hopper.

Severe damage to the control box, the conveyor belt, and the brush can result if the clutch becomes engaged in the conveyor or brush.

⚠ DANGER

**To Avoid Serious Injury,
Keep Hands and Clothing
Away From Rotating Brush
and Conveyor**.

⚠ DANGER

**To Avoid Serious Injury,
Do Not Ride On The Top Dresser
Or Attempt
To Give Rides To Others.**

LOADING OF HOPPER

The hopper capacity is 22 cubic feet (0.64 cubic meter) when top dressing material is heaped in the hopper. Maximum weight of the load in the hopper is 2,138 lb. (970 Kg). The width of the hopper permits loading with a front end loader. Use caution not to damage the hopper mirror. Never overfill or overload the hopper. Overloading may cause undue stress to the top dresser components Overloading may also cause tires to sink into the turf and leave tracks. An overloaded hopper will also cause the top dresser to be top heavy/out-of-balance and will increase the

⚠ DANGER

**To Avoid Serious Injury,
Always keep the top dresser hitched to the tow vehicle when the top dresser is loaded. Never unhitch the top dresser when on a slope.**

chance of the top dresser to tip or roll over if operated on slopes. When using the top dresser, keep the material in the hopper at a level that will assure an even flow to the brush. If the level of the material in the hopper gets too low, an irregular pattern of top dressing will result. Prevent this by refilling the hopper before this low point is reached.

SETTING OF METERING GATE

The amount of top dressing material released for spreading is determined by the metering gate setting. Moisture content and the type of top dressing 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.

It is difficult to observe the amount of top dressing being distributed when applying on turf. The material is driven into the root zone by the rotating brush and is difficult to measure, especially with small gate setting. The amount of material that you see on a hard surface is a true indication of the amount of top dressing applied. Testing for desired amount of top dressing material should be made with the machine moving forward under power on asphalt or concrete, or on a hard area off the turf. Lay a few short swaths of top dressing material with the metering gate opened at position No. 1 on the decal. Increase or decrease the opening to achieve the thickness of application you need.

TRANSPORT

To transport the top dresser without distributing top dressing material, close the metering gate and place the electric control box in the "OFF" position.

⚠ DANGER

**To Avoid Serious Injury,
DO NOT Exceed 8 MPH (12 Km/h) When the Hopper is Loaded.
DO NOT Exceed 15 MPH (24 Km/h) When the Hopper is Empty.**

Excessive stress on the machine and the tow vehicle will occur if speeds are in excess of 8 MPH (12 Km/h). Maximum transport ground speed when the hopper is loaded is 8 MPH (12 Km/h). Maximum transport ground speed when empty is 15 MPH (24 Km/h).

Operator Daily Inspection

DANGER

To Avoid Serious Injury.
Always follow all safety hazard warnings and decals
.
Work safely and wear the appropriate safety gear when inspecting, making adjustments. or servicing the Top Dresser.
Do not attempt to perform any inspection, adjustment, or service with any part of the top dresser operating.

Before each use, check the following items:

Inspect for damaged all" missing guards. Do not operate any machine with missing all" damaged guards.

- Inspect entire machine for damaged or inoperable components. Do not operate any machine with damaged all" 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 and may damage the turf. Inflate tires to the tire pressure rating printed on the tires.
- Inspect the silicon seal on the conveyor belt splice. The silicon stops the leakage of top dressing material through the conveyor belt splice. Material can build up on the inside of the conveyor belt and on the rollers causing conveyor belt tension and alignment problems. Apply new silicon sealant to the splice as required.
- Check for a build up of top dressing material on components under the hopper and conveyor belt.
- Inspect the conveyor belt adjustment and alignment. Check the measurement on the belt tension adjusting screws for proper setting of belt tension.
- Check the brush. Inspect for any damage, debris caught in bristles, or a build up of top dressing material. Clean or repair as required. Check for proper brush bristle contact with the conveyor belt. Refer any brush adjustment procedures to service personnel.
- Maintain proper daily lubrication intervals on the top dresser. Refer to the Lubrication section of this manual proper lubrication of the top dresser.
- .Before filling the hopper, inspect the conveyor belt adjustment and alignment. Proper adjustment must be maintained to prevent damage to the conveyor belt. Check the measurement on the belt tension adjusting screws for proper setting of belt tension. If adjustment is required, see the instructions for Conveyor Belt Tension adjustment in the Operator Adjustment section this manual. Check the conveyor belt adjustment and alignment frequently during operation.

Operator Adjustments

WARNING

To Avoid Serious injury,
Do Not Attempt To Adjust or Service any Part of the Top Dresser When It is Operating.

Properly Secure The Top Dresser Before Starting Any Adjustment or Service Procedures.

The only operator adjustment on the F12D Mete-R-Matic® III Top Dresser is the conveyor belt tension adjustment. Refer all other adjustments or repairs to qualified service personnel.

CONVEYOR BELT TENSION ADJUSTERS
(SEE FIGURE 5)

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 force along its entire length. This force is imparted to the belt by the adjustment springs located at each end of the front roller.

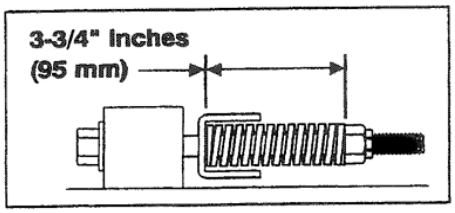

FIGURE 5

Setting Conveyor Belt Tension

Initial spring setting should be 3-3/4" inches (95 mm) (SEE FIGURE 5). If conveyor belt slips under load, tighten conveyor belt adjusting both screws equally at 1/2 turn intervals until slippage stops. Do not compress spring to less than 3-1/4" inches (82 mm). Recheck conveyor belt tension measurement after operation. If belt still does not operate properly, reset spring to 3-3/4" inches (95 mm) and refer repair to qualified service personnel.

Cantering Conveyor Belt

On the inside of the conveyor belt there are two V - guides that track in grooves located on the ends of the conveyor belt rollers. These V-guides will keep the conveyor belt centred if the conveyor tension is equal on both sides. If a centring problems exists, the V-guides may jump out of the roller groove. Refer this repair to qualified service personnel.

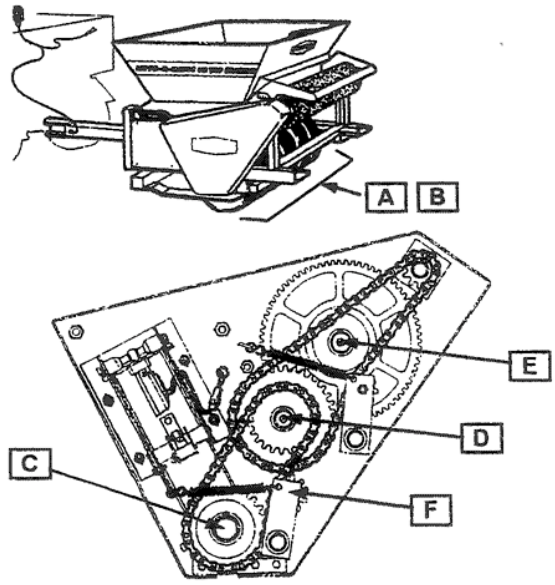

Figure 6

Lubrication

WARNING

To Avoid Serious Injury, Do Not Attempt To Lubricate Any Part of the Top Dresser When It Is Operating.

Properly Secure The Top Dresser Before Starting Any Lubrication Procedures.

When in use, the Mete-R-Matic@ III F12D should be lubricated DAILY with a good quality No. 1 Bentone or Lithium grease. There are a total of 10 grease fittings on the machine (SEE FIGURE 6).

A One on each wheel hub (3 total) between the tires.

B One on each wheel clutch (3 total) to the right of each wheel hub.

C One on the end of the axle for the main clutch (inside guard).

D One on the end of the dead shaft for the double sprocket (inside guard).

E One on the end of the rear roller shaft (inside guard)

F One on the lower chain idler (inside guard)

There are also four springs on the axle which actuate the clutches. Grease should be applied to the surface of the axle inside these springs to prevent rust.

WARNING

To Avoid Serious Injury, Do Not Attempt To Adjust or Service any Part of the Top Dresser When It Is Operating.

Properly Secure The Top Dresser Before Starting Any Adjustment or Service Procedures.

Conveyor Belt Care

The conveyor is a rubber

compposition belt with two V-guides on its underside that travel in the grooves of the pulleys on both rollers. The belt has a chevron pattern that carries the top dressing to the metering gate and brush for distribution.

The conveyor belt has a splice that is sealed with silicon sealer. The silicon sealer should be maintained or replaced as needed to prevent top dressing from passing through the conveyor belt connection and causing a build-up on the rollers.

After extended periods of use the front roller may fill with top dressing and cause excessive tension on the belt. Periodically remove the unwanted material from the inside front roller.

To prolong the life of the conveyor belt, empty the hopper, clean the top of the belt and store the Top Dresser away from the direct sunlight.

Storage

Before storage of the F12D Mete-R-Matic@ III Top Dresser, clean the entire machine. 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.
To return to service after extended storage, perform a complete inspection and adjustment of the entire machine. Reset the conveyor belt tension in accordance with the instructions in the Operator Adjustment section in this manual. lubricate the entire machine in accordance with the instructions in the lubrication section in this manual.

Troubleshooting Table

PROBLEM	POSSIBLE CAUSE
Poor Top Dressing	Results low or Uneven Top Dressing level In the Hopper.
	Moisture level In top Dressing Too High.
	Unscreened Material In Hopper. Debris or Rocks in Metering Gate.
	Build-Up Of Top Dressing Material On Machine Components.
	Brush Not Adjusted Close Enough to Conveyor Belt (Refer Repair to Service Personnel).
	Conveyor Belt Tension Wrong.
Conveyor Belt Alignment Wrong	Build-Up of Top Dressing Material on Conveyor Belt Rollers (Refer to Service Personnel).
	Unequal Measurement on Tension Adjusters.
	Bad Conveyor Belt Roller Bearings or loose Roller Bearing Hardware (Refer Repair to Service Personnel).
	Damaged Conveyor Belt (Refer Repair to Service Personnel).
Electric Clutch is Not Functioning Properly	Electrical Connection to Tow Vehicle Not Secure. Poor Connection or Wrong Polarity.
	low Battery on Tow Vehicle.
	Damage To Wiring Harness. Wires Pulled loose From Hand Held Control Box or Clutch Actuator (Refer Repair to Service Personnel).
	Bad Fuse in Wiring Harness (Replace with AGC 6 AMP).
	Clutch Dogs Damage (Refer Repair to Service Personnel).
	Clutch Wear Plate Adjustment Needs Adjustment (Refer Repair to Service Personnel). .
	Main Clutch Needs Adjustment (Refer Repair to Service Personnel).

Service and Adjustment

⚠ WARNING

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

To Avoid Serious Injury,
Always follow all safety hazard warnings.
Work safely and wear the appropriate safety gear when servicing or making adjustments to the Mete-R-Matic@ III Top Dresser.

Read and follow all safety hazard decals.

Do not attempt to service or adjust with any part of the top dresser when it is operating.

CONVEYOR BELT ADJUSTMENTS

Power to run the conveyor belt is provided by a wheel driven drive train to the conveyor belt rear drive roller. This 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 that the conveyor belt moves at the same rate as the rear drive roller.
It is important that the belt contact the drive roller with a constant force along its entire length. This force is imparted to the belt by the adjustment springs Located at each end of the front roller.

Conveyor Belt Tension

Initial spring setting should be 3-3/4" inches (95 mm). If conveyor belt slips under load, tighten conveyor belt adjusting both screws (SEE FIGURE 7) equally at 1/2 turn intervals until slippage stops. Do not compress spring to less than 3-1/4" inches (82 mm). if belt still does not operate properly, reset spring to 3-3/4" inches (95 mm) and check for problems elsewhere.

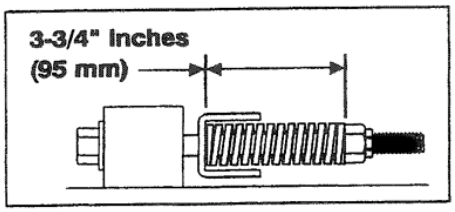

FIGURE 7

Centring Conveyor Belt

On the inside of the conveyor belt there are two V - guides that track in grooves located on the ends of the conveyor belt rollers. These V-guides will keep the conveyor belt centred if the conveyor tension is equal on both sides. If the conveyor belt is not centred, the V-guides may have jumped out of the roller groove. Check for unequal tension on the conveyor belt by measuring the spacing on the tension spring (SEE FIGURE 7). Also check for a build up of top dressing material on roller, loose screws on the roller shaft bearing retainers, worn bearings, or a damaged conveyor belt.

To centre the conveyor belt if the belt V-guides have jumped out of the roller grooves, adjust the tension springs. if the conveyor belt needs to go to the left, loosen the left hand conveyor belt adjusting screw. If the conveyor belt needs to go to the right, loosen the right conveyor hand belt adjusting screw.
It maybe necessary to repeat this adjustment with the hopper loaded. Recheck conveyor belt tension measurement (SEE Figure 7).

CONVEYOR BELT CARE

The Mete-R-Matic® III has a unique design. The conveyor is a rubber composition belt with two V - guides on its underside that travel in the grooves of the pulleys on both rollers. The top of the belt has a chevron pattern that allows a very small amount of material to be discharged when the gate is closed. The conveyor belt has a splice that is sealed with silicon sealer. The silicon sealer should be maintained or replaced as needed to prevent top dressing from passing through the conveyor belt connection and causing a build-up on the rollers.
After extended periods of use the front roller may fill with top dressing and cause excessive tension on the belt. Periodically remove the unwanted material from the inside front roller.
To prolong the life of the conveyor belt, empty the hopper, clean the top of the belt and store the Top Dresser away from the direct sunlight.

METERING GATE ADJUSTMENT
(SEE FIGURE 8)

The metering gate is adjustable forward and backward. If top dressing material is leaking out of the metering gate during transport or normal operation, adjust the metering gate forward.
To assist in the initial assembly of the hopper, the metering gate is factory adjusted to the far backward setting. During assembly, the gate should be adjusted forward.
Use the following steps to properly adjust the metering gate:

- Loosen the two lock nuts [A] that secure the metering gate [B] to the metering gate mounting brackets [C]
- Loosen the four hex nuts [D] that hold the metering gate mounting brackets to the frame.
- Push the metering gate forward until it is snug against the back of the hopper.
- Tighten the four small nuts [D] on the metering gate brackets.
- Tighten the lock nuts [Alan the ends of the metering gate. The lock nuts provide friction so that gate remains in the selected position. If the gate is difficult to move, loosen the lock nut slightly. If the gate moves during operation, the nuts should be tightened. Lock nuts on both ends of the gate should be adjusted uniformly.

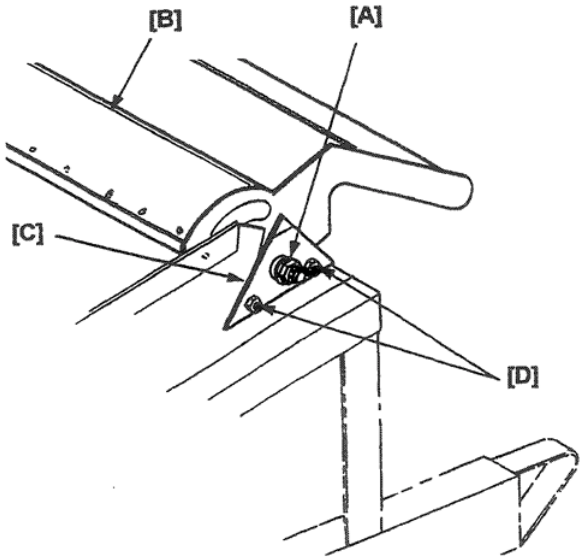

FIGURE 8

BRUSH ADJUSTMENT
(SEE FIGURE 9)

After extended use, the brush may wear and no longer contact the conveyor belt. Eliminate clearance between the conveyor belt and the brush by adjusting the brush forward.

With the conveyor belt properly tensioned, loosen screws [1] on the brush shaft bearing retainers [2] and move the brush [3] forward until brush bristles contact the conveyor belt. Brush bristles should remain straight. Check that the bristles reach into the low areas of the belt to help dig the top dressing out of the chevron pattern. Ensure that the brush is touching the conveyor belt equally along it's entire length and tighten bearing retainer screws.

Test the brush. The brush may need to be adjusted to suit different types of top dressing materials. If working with dry sand, adjust the brush so that it touches the conveyor belt with enough force to slightly curve the brush bristles. If working with material that has a high clay content, increased brush contact may also be necessary to help dig out material that sticks to the conveyor belt between the chevron patterns.

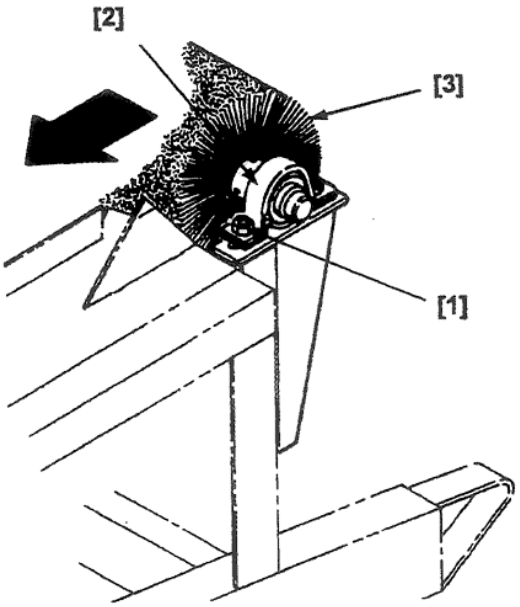

FIGURE 9

MAIN CLUTCH INSPECTION OR REPLACEMENT

Use the following steps to remove, inspect, and replace the Main Clutch. See FIGURE 10 and FIGURE 11.

Step 1. Shift clutch to the engaged position. Disconnect the top dresser from the power source. Remove the guard from the left side of the Mete-R-Matic@ III F12D.

⚠ WARNING

To Avoid Serious Injury, Disconnect the electrical connection for the Mete-R-Matic@ III F12D Top Dresser from the tow vehicle power source.

Step 2. Release the tension on the chain idler for the lower chain by disconnecting the spring [A]. Remove chain [B].

Step 3. Remove pivot pin [C] and pull the clutch actuator up and away from the clutch. (During reassembly, make certain the studs on the actuator fit into the groove on the Clutch.)

Step 4. Remove retaining ring [D] from the end of the axle.

Step 5. Remove clutch driver [E] and the washer, key and next retaining ring.

Step 6. Check the driven half of clutch [F] for side play on the axle. If play is excessive, more than .015 Inch (0.381 mm), the sleeve bearings should be replaced. Remove the clutch from the axle.

Step 7. Inspect the clutch dogs on the face of each half of the clutch. Refer to FIGURE 11. If the clutch dogs are in good condition, the edges will be square. If the edges of the clutch dogs are rounded or broken, the clutch may disengage while under load. Broken clutch dogs frequently result from engagement of the clutch at excessive speed with the hopper loaded. If the dog clutches are broken, the clutches must be replaced.

Increasing the spring pressure by adding washers to the Clutch, (Refer to Main Clutch Adjustment Section) may compensate for some wear but if disengagement still occurs it will be necessary to replace the clutches.

Step 8. To reassemble the clutch, reverse the steps. After assembly, proceed with Main Clutch and Wear Plate Adjustment.

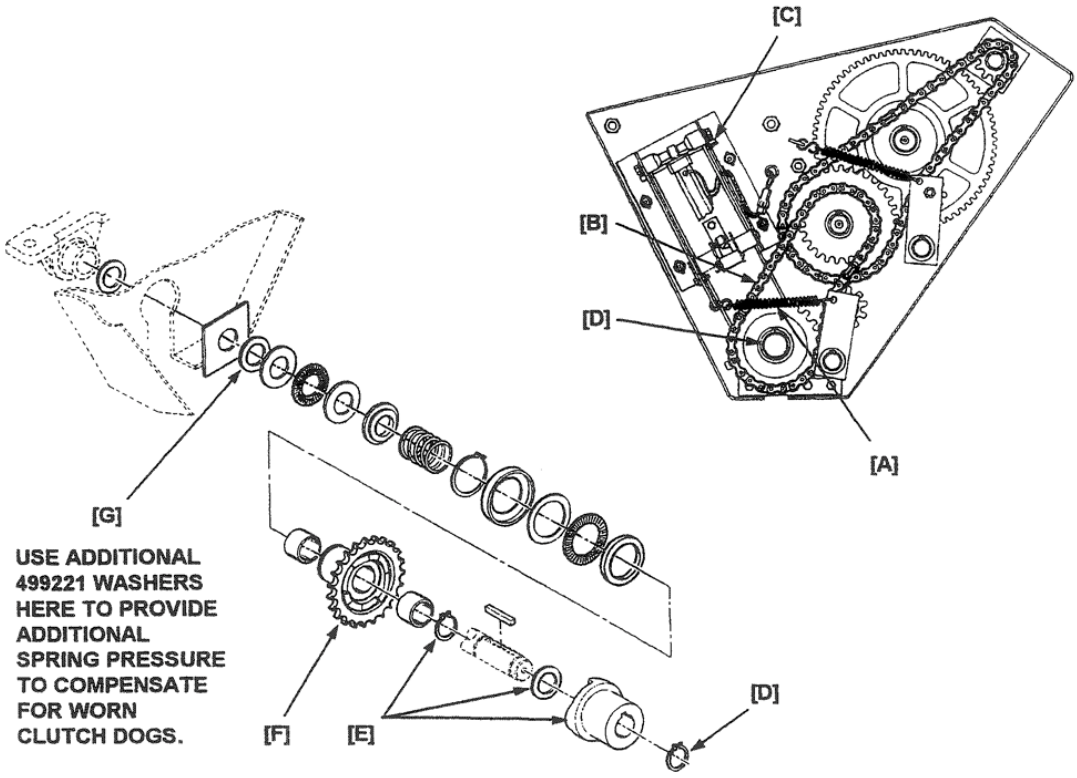

FIGURE 10

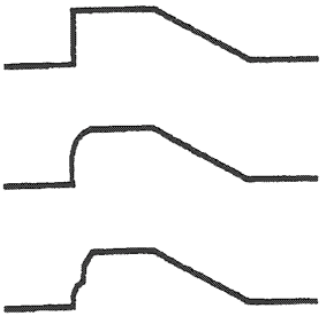

FIGURE 11

MAIN CLUTCH ADJUSTMENT AND WEAR. PLATE ADJUSTMENT (See FIGURE 10 AND FIGURE 12)

⚠ WARNING

To Avoid Serious Injury.
Disconnect the Clutch Electrical Power Source Before Adjusting the Clutch all' Wear Plate.

Main Clutch Adjustment -The Mai~ Clutch on the Mete-R-Matic III is a ratchet type which IS designed to ratchet automatically when tile machine is move~ backwards. This ratchet motion prevents the conveyor from being driven backwards.

Engagement of the clutch is. maintained by a compression spring. Unwanted disengagement of the clutch while under load may be a result of normal wear or from damage to the clutch when engaged &t excessive speeds. Compression spring pressure can be increased to stop unwanted disengagement caused by normal wear. Additional washers [G] (Turfco Part Number 499221) will increase the spring pressure to compensate for worn clutch dogs. See FIGURE 10 for placement of additional washers [G]. If the clutch dogs are badly worn or broken, replacement of the clutch dogs will be necessary.

Wear Plate Adjustment -The Wear Plate is the adjustment for proper clutch clearances during engagement and disengagement Clearance is maintained by shims behind the Wear Plate. Use the following steps for adjustment.

Step 1. Shift the clutch to the engaged position. The clutch dogs should be fully engaged. If they are only partially engaged, adjustment is require. Disconnect the electrical connection from the power source. Remove shims from behind wear plate [H] (SEE FIGURE 10) until engagement is attained,

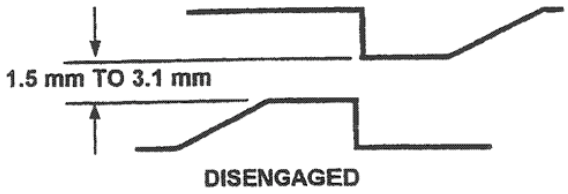

FIGURE 12

Step 2. Reconnect the electrical connection and shift the clutch to the disengaged position. The clutch dogs should clear by 1.5 mm to 3.1 mm" (SEE FIGURE 12). If the dogs do not clear each other, add shims behind the wear plate as necessary to provide proper clearance. Disconnect the electrical connection from the power source before attempting the add shims.

Step 3. Repeat steps 1 and 2 until both conditions are met.

Step 4. To help the clutch perform well, put some thick grease on the clutch throw out bracket at the contact point between the cam and the wear plate.

Step 5. Check the engagement and disengagement of the clutch throw out bracket and other parts in the clutch mechanism as the electric actuator is energized. All parts should move freely and easily as the clutch is actuated in both directions.

Step 6. Put the chain guard back in place.

CHAINS (SEE FIGURE 13)

The roller chains [1] in the drive train are automatically tensioned by spring [2] loaded idler sprockets [3]. After considerable use, the idlers may not be able to provide adequate tension. If this occurs, the chains should be replaced. The springs should also be replaced if they do not exert the proper force on the idler sprockets. Cleaning and lubricating the drive chains periodically will greatly extend their life.

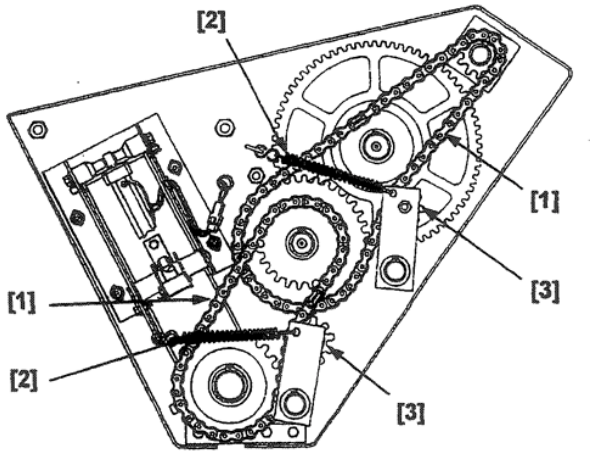

FIGURE 13

Electrical System Diagrams

Before servicing the control box and the control box cable to correct operating problems, check the following:

- Check the power supply at the tow vehicle. Ensure that the tow vehicle is supplying the proper voltage. Power requirement is 12 Volt DC service.
- Check the tow vehicle battery. If the actuator does not respond, or if it moves slower than normal, the problem may be a weak battery.
- Check the inline fuse in the power supply cable. Proper fuse is a AGC 6 Amp.
- Check maximum current draw of the actuator does not exceed 5.6 amp maximum at 12 Volt DC.
- Check the cable connections to the tow vehicle power source for proper contact.
- Check the polarity at the power source. White wire is positive (+), black wire is ground (-).

⚠ WARNING

To Avoid Serious Injury and To Avoid Damage To the Electrical Components, DISCONNECT THE POWER SUPPLY CABLE FROM THE TOW VEHICLE Before Servicing the Electric Clutch or the Clutch Control Box.

Use the following diagrams and information to service the control box and the control box cable.

WIRING HARNESS (SEE FIGURE 14)

Figure 14 shows the information on colour coding of wires and connection points. All electrical connections must be made securely to insure stable electrical contact. If any problems are noted in the operation of the machine, check the electrical connections and the fuse first.

The fuse is a AGC 6 Amp. Also check the connection at the clutch actuator.

CONTROL BOX WIRING DIAGRAM
(SEE FIGURE 15)

If the control box switch needs to be replaced or rewired, refer to Figure 15 for proper wiring connections.

Follow the electrical schematic for proper rewiring of the switch. Before reattaching the power supply to the tow vehicle, check the fuse. Check that the "I" and "0" (ON/OFF) position of the switch matches the "I" and "0" positions of the decal, and operates accordingly.

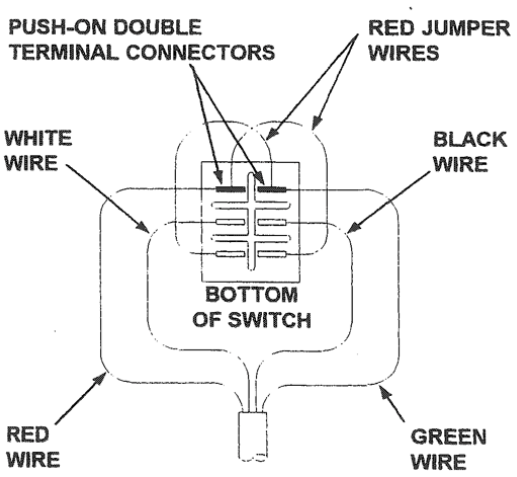

FIGURE 15

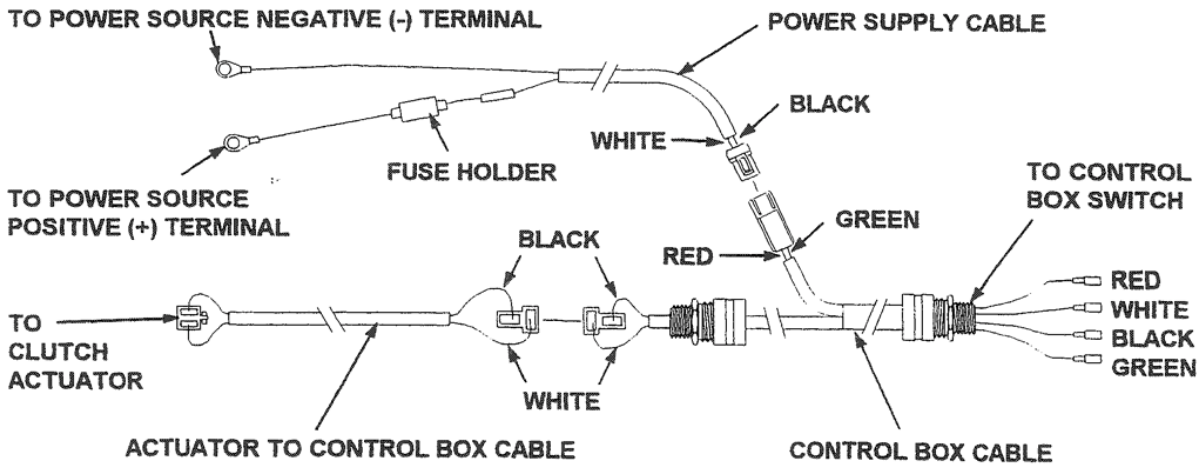

FIGURE 14

Conveyor Belt Replacement

Replacement of the conveyor belt may be necessary if it has been damaged or will no longer stay In proper alignment or adjustment.

⚠ WARNING

**To Avoid Serious Injury,
Work Safely and Wear the Appropriate Safety Gear.**

Always Read and Follow AU Safety Hazard Warnings and Decals.

Do Not Attempt to Service or Adjust With Any

Part of the Top Dresser When it is Operating.

REMOVAL OF OLD CONVEYOR BELT

Step 1. With the clutch engaged, tow the Mete-R-Matic@ III until the conveyor belt splice is below the brush, but still on the rear roller. Check. that the splice can be removed without interference from the frame or the brush.

Step 2. Disengage the clutch. Remove the electrical connection from the tow vehicle.

Step 3. Remove side guard. Loosen the bolts that hold the brush bearings and move the brush back. so that it no longer touches the conveyor belt. It may be necessary to remove the tension on the idler sprocket to allow enough slack in the brush drive chain. Open the metering gate to the largest opening.

Step 4. Release the tension on the conveyor belt by loosening both conveyor belt adjusting screws. Push the front roller towards the back of the machine to ensure that all tension is released.

Step 5. Locate the splice pin and straighten the ends so that it can be removed. Remove the splice. Remove the conveyor belt by pulling out over the top of the brush.

Step 6. Clean the pan and plastic pan cover. Inspect for wear and sharp edges that may damage the new conveyor belt. Clean and inspect rollers.

INSTALLATION OF THE NEW CONVEYOR BELT
(SEE FIGURE 16)

Step 7. The conveyor belt is directional and must be inserted in the proper direction to ensure a correct travel path. Identify the belt ends by looking for the word "travel" and/or and arrow. If neither is found, look for one end near the splice that has its outside ends cut off at an angle. With the chevron pattern up, start the belt with the non-angled cut end going in first, or the travel/arrow end going in first (arrow pointing backwards).

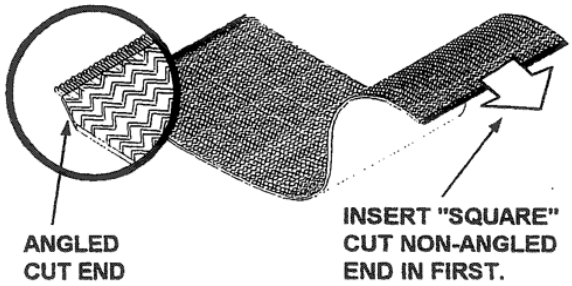

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FIGURE 16

Insert the belt over the brush, moving through the metering gate opening, and into the hopper. Make sure that the conveyor belt is under the hopper seals. Continue to insert conveyor belt around the front roller. Ensure that the raised V-groove on the inside of the conveyor belt fits into the V-groove on the front roller. Continue under the pan until the two ends meet at the rear roller at the rear of the frame.

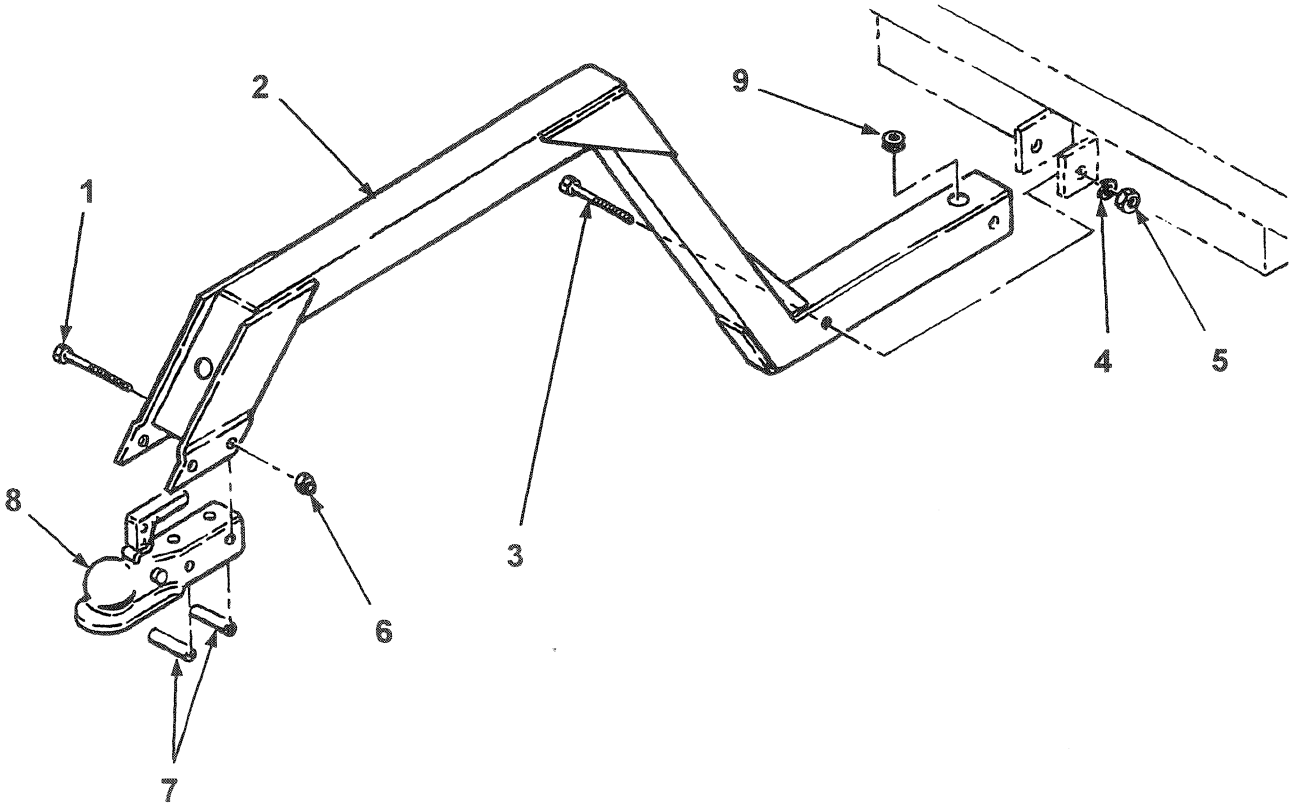
Step 8. Align the ends of the conveyor belt on the rear roller. Insert the splice pin and link the two ends of the conveyor belt together. Slightly bend the ends of the splice pin to secure them in the belt. Adjust conveyor belt tension screws to the recommended setting of 95 mm. Seal the splice along its entire length with silicon and allow to dry.

Step 9. After silicon has dried, readjust the brush for proper bristle contact. See Brush Adjustment section.

Step 10. Replace the side guard. Reinstall the electrical connection to the tow vehicle. Engage the clutch and run the conveyor. Check that conveyor belt runs free, does not catch on the hopper seals, or rub on any frame or drive component.

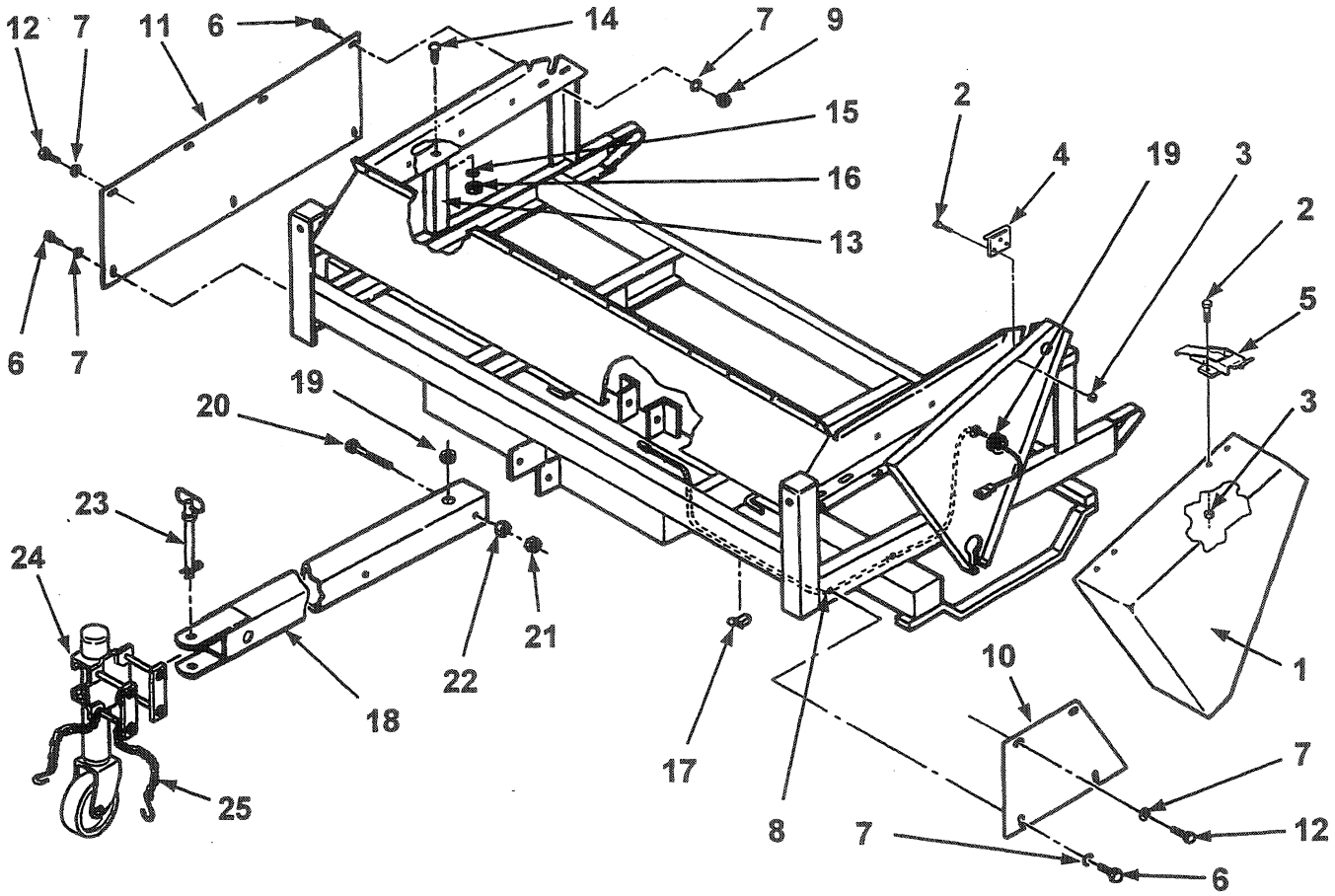
Step 11. Recheck the belt tension.

Optional Fifth Wheel



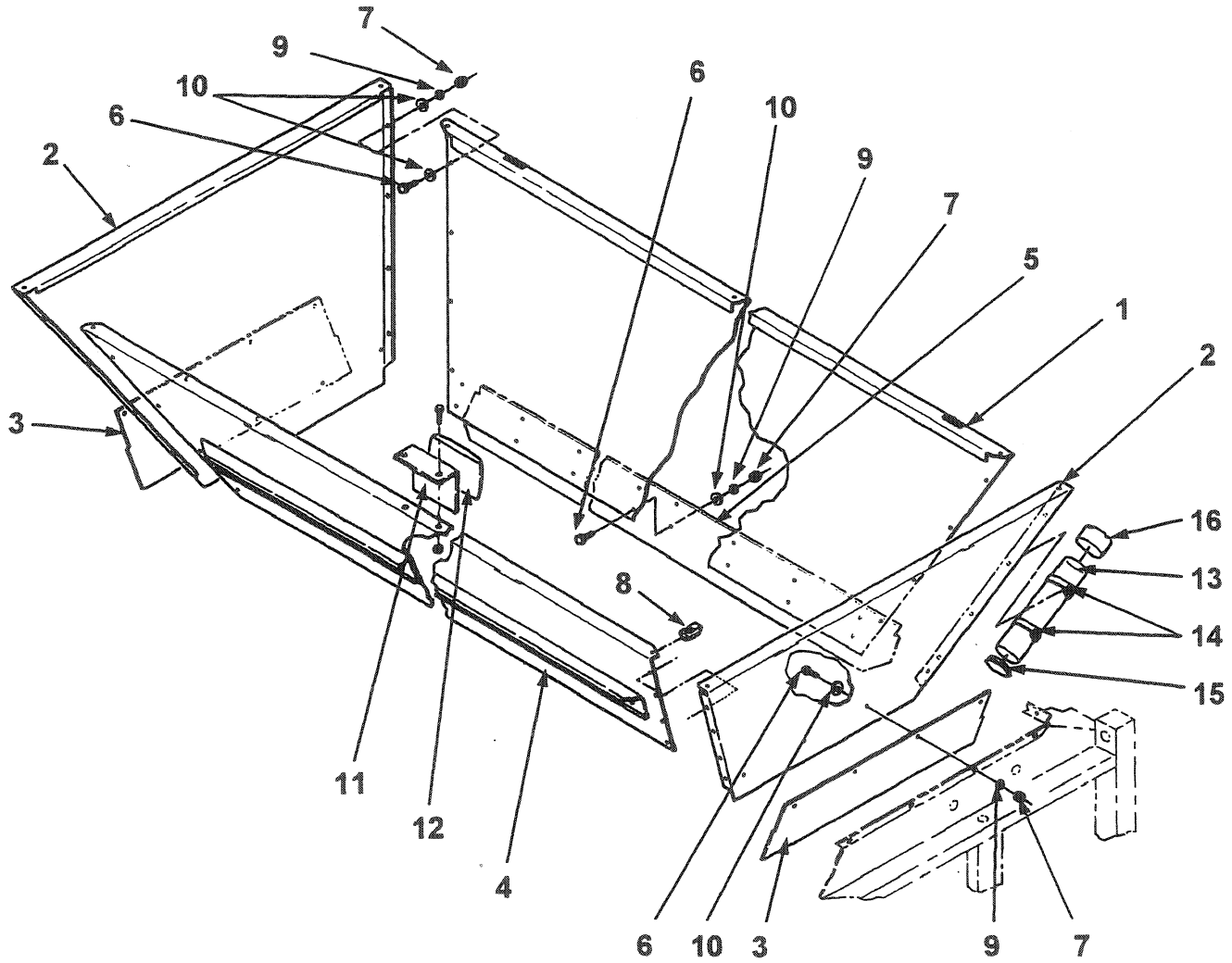
Item	Part No.	Description	Qty.
1	400456	Screw, Hex, 1/2"-20 x 4"	2
2	657888	Tow Bar	1
3	400458	Screw, Hex, 1/2"-20 x 4-1/2	2
4	446154	Washer, Lock, 1/2"	2
5	443820	Nut, Jam, 1/2"-20	2
6	444816	Nut, Hex, 1/2"-20, Self Locking	2
7	657889	Spacer	2
8	657200	Coupler	1
9	658049	Grommet, Rubber	1

Frame



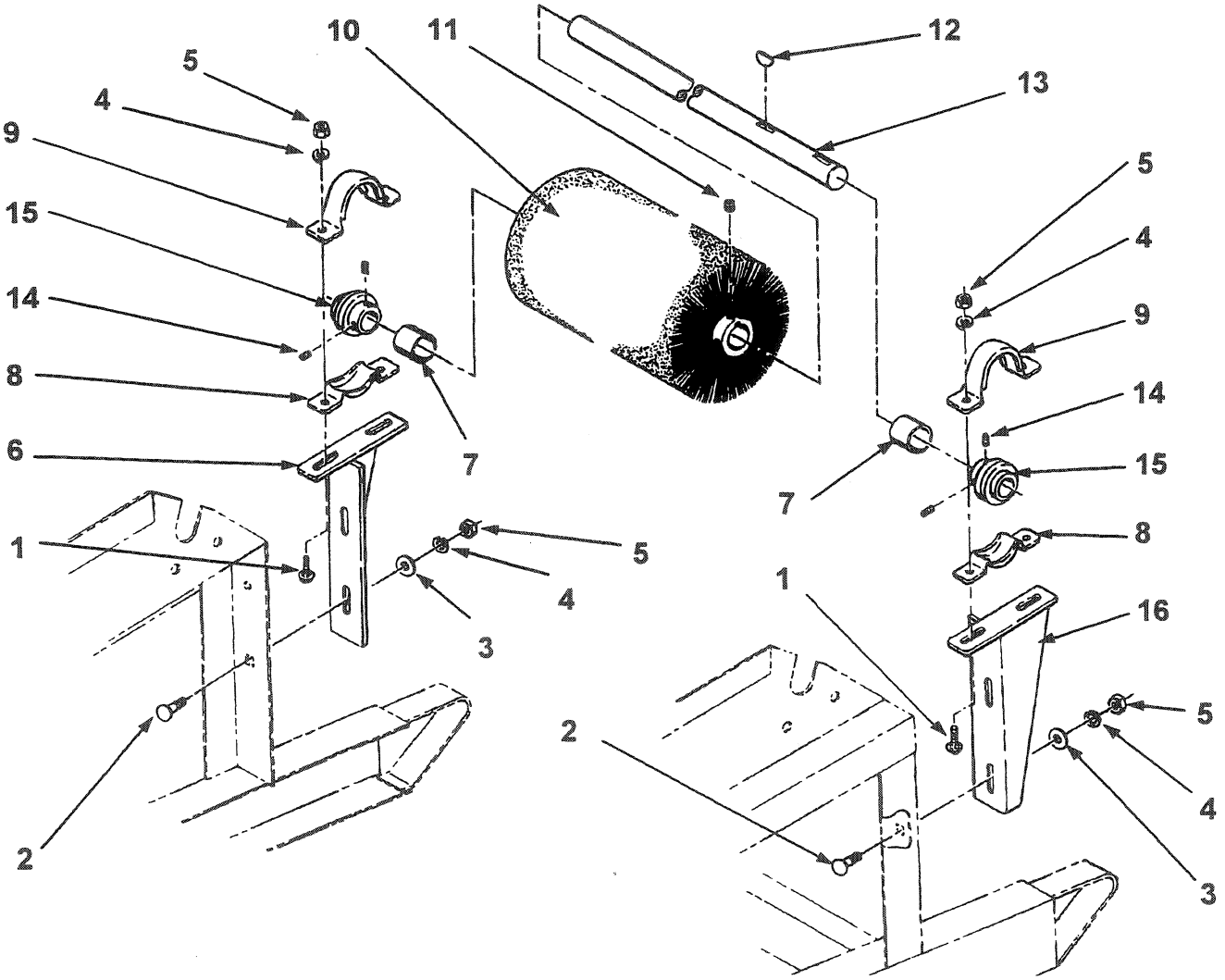
Item	Part No.	Description	Qty.
1	658015	Guard, Side, Domestic Version	1
2	657956	Screw, Machine, Philips, No. 8-32 x 3/8" (Replaces Rivet)	12
3	444702	Nut, Self Locking, No. 8-32 (Replaces Rivet)	12
4	655756	Keeper, Latch	3
5	655757	Latch, Draw	3
6	400106	Screw, Hex, 1/4"-20 x 5/8"	12
7	446128	Washer, Lock, 1/4"	14
8	499126	Nut, Clip, 1/4"-20	13
9	443102	Nut, Hex, 1/4"-20	1
10	655169	Cover, Left Frame	1
11	657103	Cover, Right Frame	1
12	400104	Screw, Hex, 1/4"-20 x 1/2"	2
13	655018	Support, Frame	1
14	657766	Bolt, Carriage, 3/8"-16 x 3/4"	2
15	446142	Washer, Lock, 3/8"	2
16	443110	Nut, Hex, 3/8"-16	2
17	658256	Clip, Wire	4
18	86119	Tow Bar, Standard (Control Box Cable NOT INCLUDED)	1
19	658049	Grommet, Rubber	2
20	400458	Screw, Hex, 1/2"-20 x 4-1/2"	2
21	443820	Nut, Jam, 1/2"-20	2
22	446154	Washer, Lock, 1/2"	2
23	659259	Pin, Hitch, 5/8"	1
24	659278	Jackstand Assembly (Complete with Mounting Hardware)	1
25	659279	Chain, Safety, Pair	1

Hopper



Item	Part No.	Description	Qty.
1	655158	Hopper Panel, Front	1
2	658802	Hopper Panel, Side	2
3	655176	Seal, Hopper Side	2
4	655162	Hopper Panel, Rear (Includes Stiffener)	1
5	655175	Seal, Hopper Front	1
6	400108	Screw, Hex, 1/4"-20 x 3/4"	50
7	443102	Nut, Hex, 1/4"-20	46
8	499410	Nut, Clip, 1/4"-20	4
9	446128	Washer, Lock, 1/4"	50
10	452002	Washer, Flat, 1/4" I.D. x 9/16" O.D. x 3/64" Thick	60
11	657966	Mirror Assembly (Includes Item 12)	1
12	657967	Mirror	1
13	659269	Sleeve, Plastic, Manual Tube	1
14	659272	Clamp, Cable, Manual Tube	2
15	659270	Plug, Bottom, Manual Tube	1
16	659271	Cap, Top, Manual Tube	1

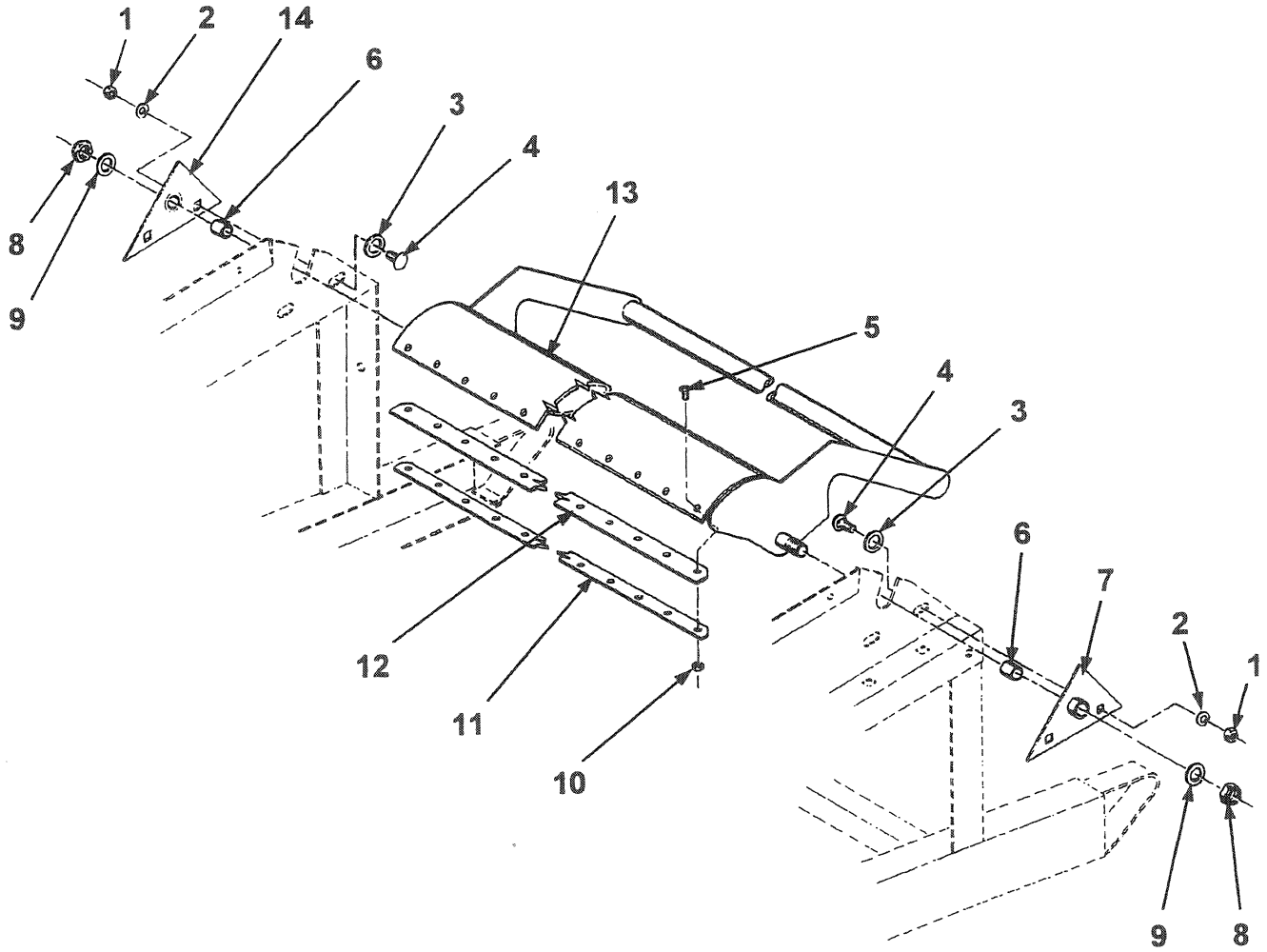
Brush



Item	Part No.	Description	Qty.
1	440118	Bolt, Carriage, 3/8"-16 x 1"	4
2	657766	Bolt, Carriage, 3/8"-16 x 3/4"	4
3	452006	Washer, 3/8" x 7/8" x 5/64"	4
4	446142	Washer, Lock, 3/8"	8
5	443110	Nut, Hex, 3/8"-16	8
6	657991	Mounting Bracket, Right Hand, Brush	1
7	655461	Spacer, Brush	2
8	650806	Base, Bearing	2
9	650807	Cover, Bearing	2
10	653391	Brush (Includes Item 11)	1
11	415553	Screw, Set, 5/16"-18 x 5/16"	4
12	463021	Key, Woodruff, 1/4" x 7/8"	1
13	653394	Shaft, Brush	1
14	499051*	Screw, Set, 1/4"-28 x 1/4"	4
15	650808	Bearing (Includes Item 14)	2
16	657990	Mounting Bracket, Left Hand, Brush	1

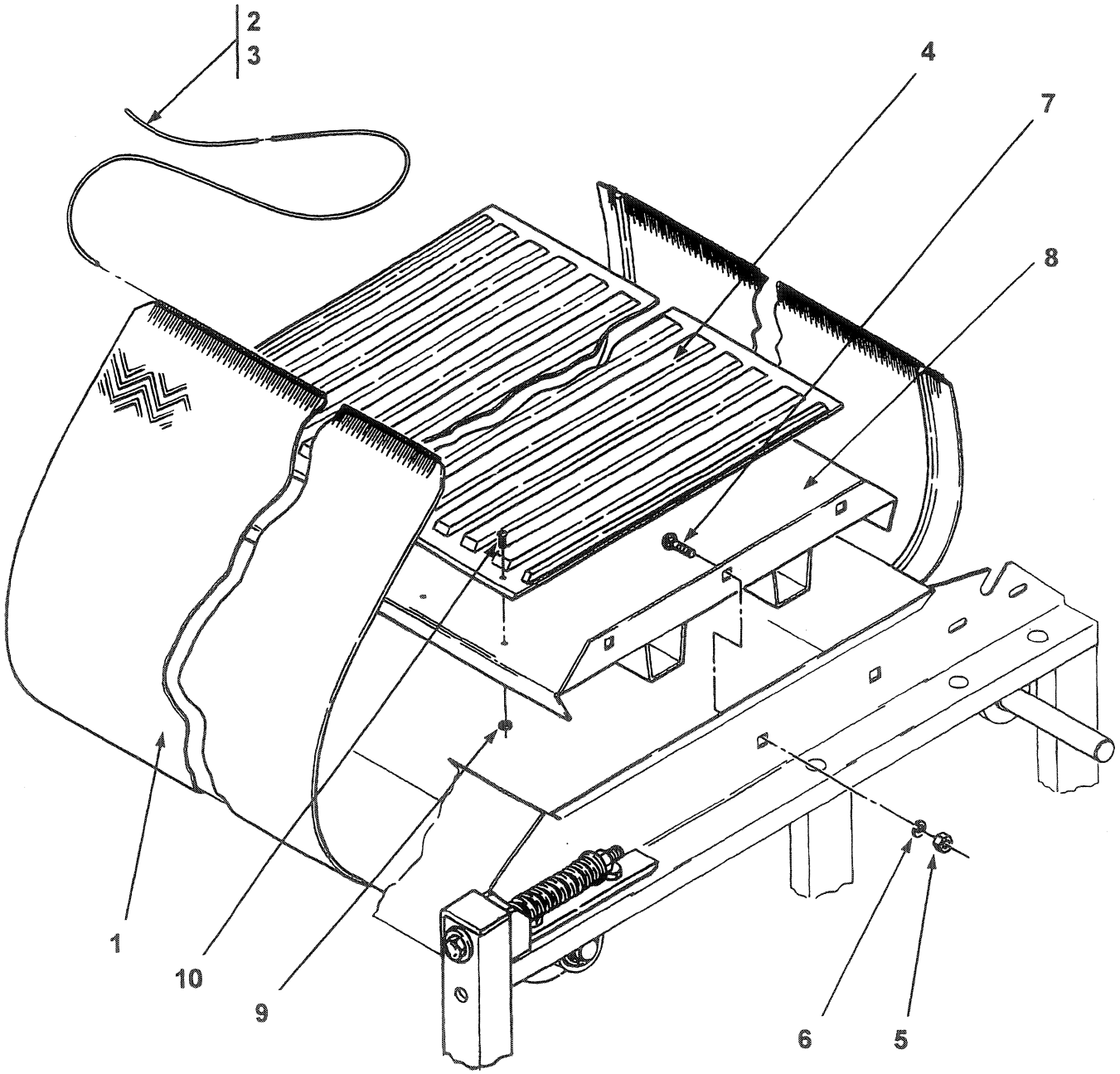
*May Not Fit All 650808 Bearings

Metering Gate



Item	Part No.	Description	Qty.
1	443110	Nut, Hex, 3/8"-16	4
2	446142	Washer, Lock, 3/8"	4
3	499436	Washer, 1/2" x 1-3/4" x 5/64"	2
4	657766	Bolt, Carriage, 3/8"-16 x 3/4"	4
5	499335	Screw, Truss Head., No. 10-24 x 3/4" (Replacement For Rivet)	31
6	650780	Bearing, Oilite	2
7	655104	Bracket, Metering Gate, Left Hand (Includes Item 6)	1
8	444828	Nut, Thin Self Locking, 3/4"-16	2
9	499074	Washer, 49/64" x 1-5/16" x 3/64"	2
10	499244	Nut, KEPS, No. 10-24 (Replacement For Rivet)	31
11	655123	Strip, Metal	1
12	655122	Strip, Rubber	1
13	655121	Gate, Metering (Includes Items 11 and 12)	1
14	655103	Bracket, Metering Gate, Right Hand (Includes Item 6)	1

Conveyor

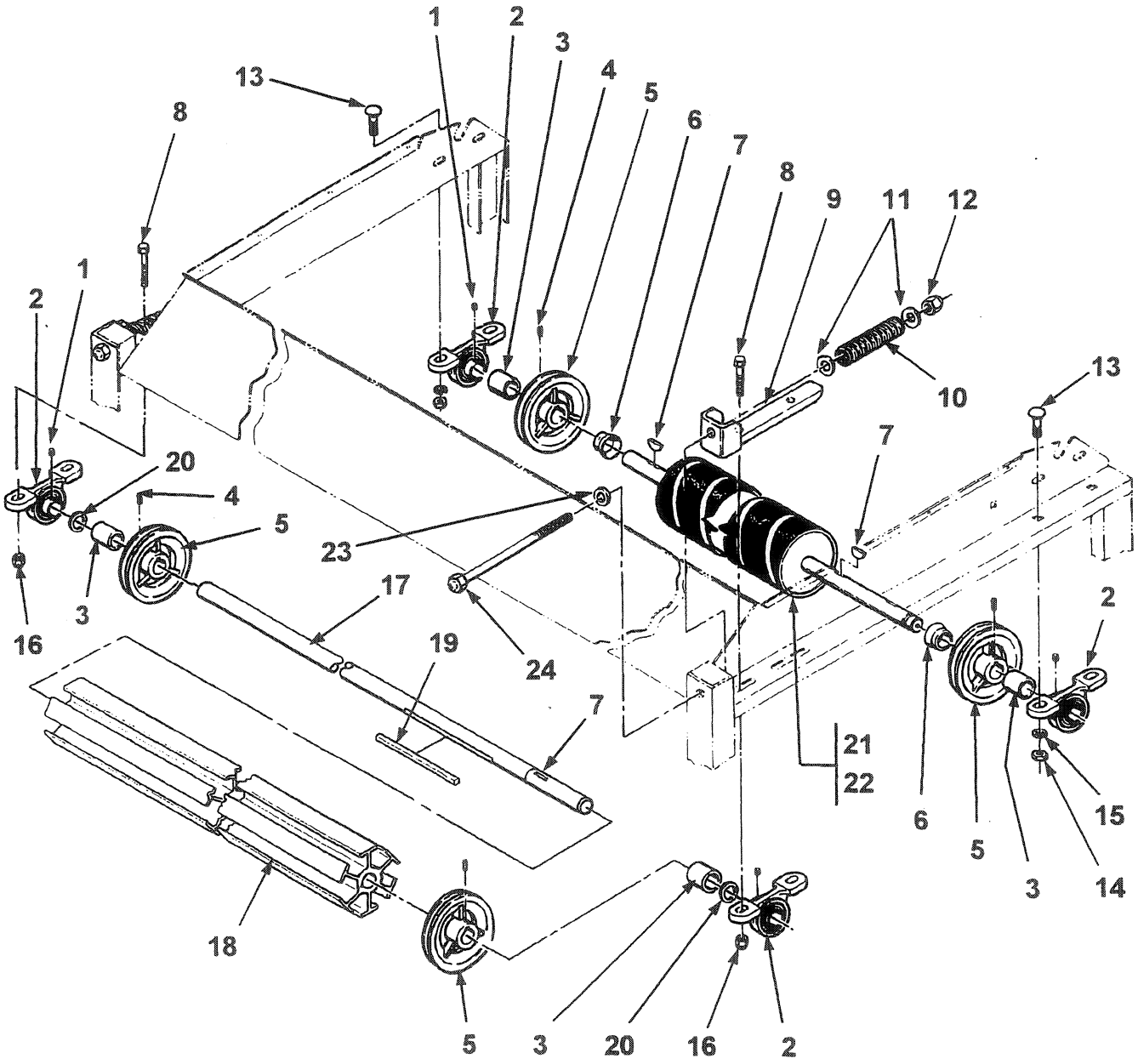


Conveyor

Item	Part No.	Description	Qty.
1	657910	Conveyor Belt (Includes Item 2 and 3)	1
2	655363	Splice	1
3	655364	Sealer, Silicon	1
4	658037	Cover, Pan	1
5	443110	Nut, Hex, 3/8"-16	6
6	446142	Washer, Lock, 3/8"	6
7	657766	Bolt, Carriage, 3/8"-16 x 3/4"	6
8	657919	Pan	1
9	499413	Nut, KEPS, 1/4"-20 (Replaces Rivet)	12
10	499025	Screw, Pan Head, 1/4"-20 x 5/8" (Replaces Rivet)	12

Important: Use silicon sealer (655364) to seal the splice after replacing the conveyor belt. Use silicon sealer as necessary to maintain the seal at the splice. Silicon seal prevents top dressing material from accumulating on the rollers.

Rollers

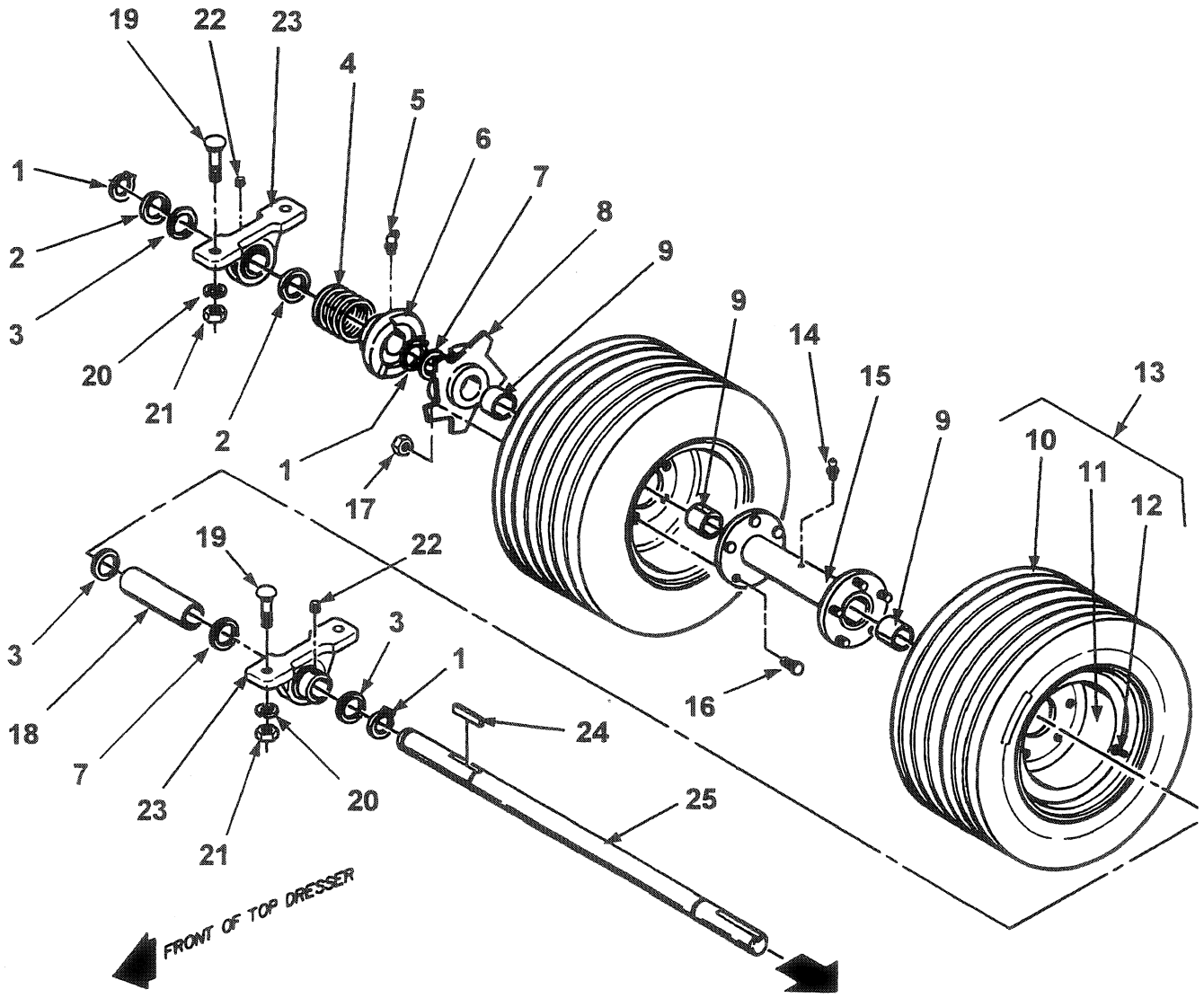


Rollers

Item	Part No.	Description	Qty.
1	499051*	Screw, Set, 1/4"-28 x 1/4"	4
2	655174	Bearing, Pillow Block (Includes Set Screw, Item 1)	4
3	657999	Spacer, Roller	4
4	415517**	Screw, Set, 5/16"-18 x 1/4"	4
5	657964	Pulley (Includes Item 4)	4
6	657998	Spacer, Flared	2
7	463031	Key, Woodruff, 1/4" x 1"	4
8	400444	Screw, Hex, 1/2"-20 x 1-3/4"	4
9	658073	Sliding Plate, Belt Tensioner	2
10	657985	Spring, Compression	2
11	499024	Washer, 41/64" x 1-3/16" x 1/16"	4
12	499432	Nut, Self Locking, 5/8"-11	2
13	440194	Bolt, Carriage, 1/2"-13 x 1-1/2"	4
14	443118	Nut, Hex, 1/2"-13	4
15	446154	Washer, Lock, 1/2"	4
16	444816	Nut, Self Locking, 1/2"-20	4
17	659456	Shaft, Idler Roller (Front)	1
18	659262	Idler Roller, Front, Aluminum Extrusion	1
19	659457	Key, Square, 1/4" x 6"	1
20	499164	Washer, Flat, 1-17/64" x 2" x 3/32"	2
21	657944	Roller, Drive (Rear)	1
22	657965	Tape, 3M Brand, 2" Safety Walk, Medium	30' Ft.
23	499079	Washer, Flat, 41/64" 1-3/4" x 3/16"	2
24	658070	Bolt, Belt Tensioner	2

*May Not Fit All 655174 Bearings
**May Not Fit All 657964 Pulleys

Right Axle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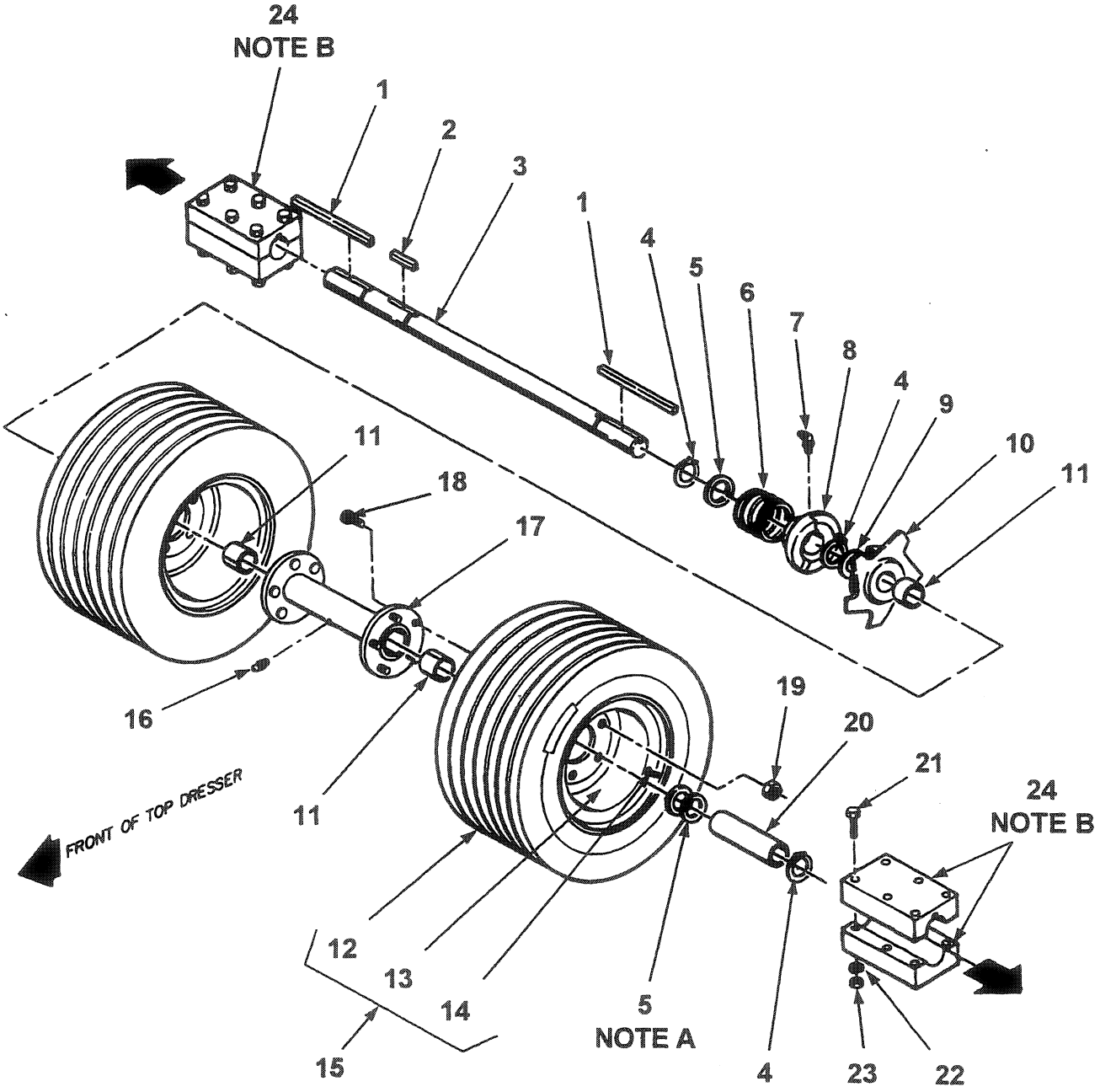
Right Axle

Item	Part No.	Description	Qty.
1	458035	Ring, Retaining, 1-1/4" External	3
2	499221	Washer, 1-9/32" x 1-7/8" x 9/64"	2
3	499223	Washer, 1-9/32" x 1-7/8" x 3/64"	3
4	654738	Spring, Compression	1
5	471215	Fitting, Grease, 1/4"-28, 45° Degree	1
6	654932	Clutch, Wheel	1
7	499164	Washer, 1-17/64" x 2" x 3/32"	2
8	654936	Driver, Wheel Clutch (Includes Oilite Bearing, Item 9)	1
9	655362	Bearing, Oilite	3
10	655146	Tire, 16 x 6.50 - 8	2
11	655147	Rim	2
12	651285	Valve Stem	2
13	655145	Wheel (Includes Items 10, 11, and 12)	2
14	471214	Fitting Grease, 1/4"-28 Straight	1
15	654924	Wheel Hub Assembly (Includes Items 9, 14, and 16)	1
16	499404	Bolt, Lug	10
17	499405	Nut, Lug	10
18	653392	Spacer, Axle	1
19	440194	Bolt, Carriage. 1/2"-13 x 1-1/2"	4
20	446154	Washer, Lock, 1/2"	4
21	443118	Nut, Hex, 1/2"-13	4
22	499051*	Screw, Set, 1/4"-28 x 1/4"	4
23	655174	Bearing, Pillow Block (Includes Set Screw, Item 22)	2
24	499154	Key, 1/4" x 1/4" x 1-1/2"	1
25	656962	Axle, Right	1

*May Not Fit All 655174 Bearings

Center Axle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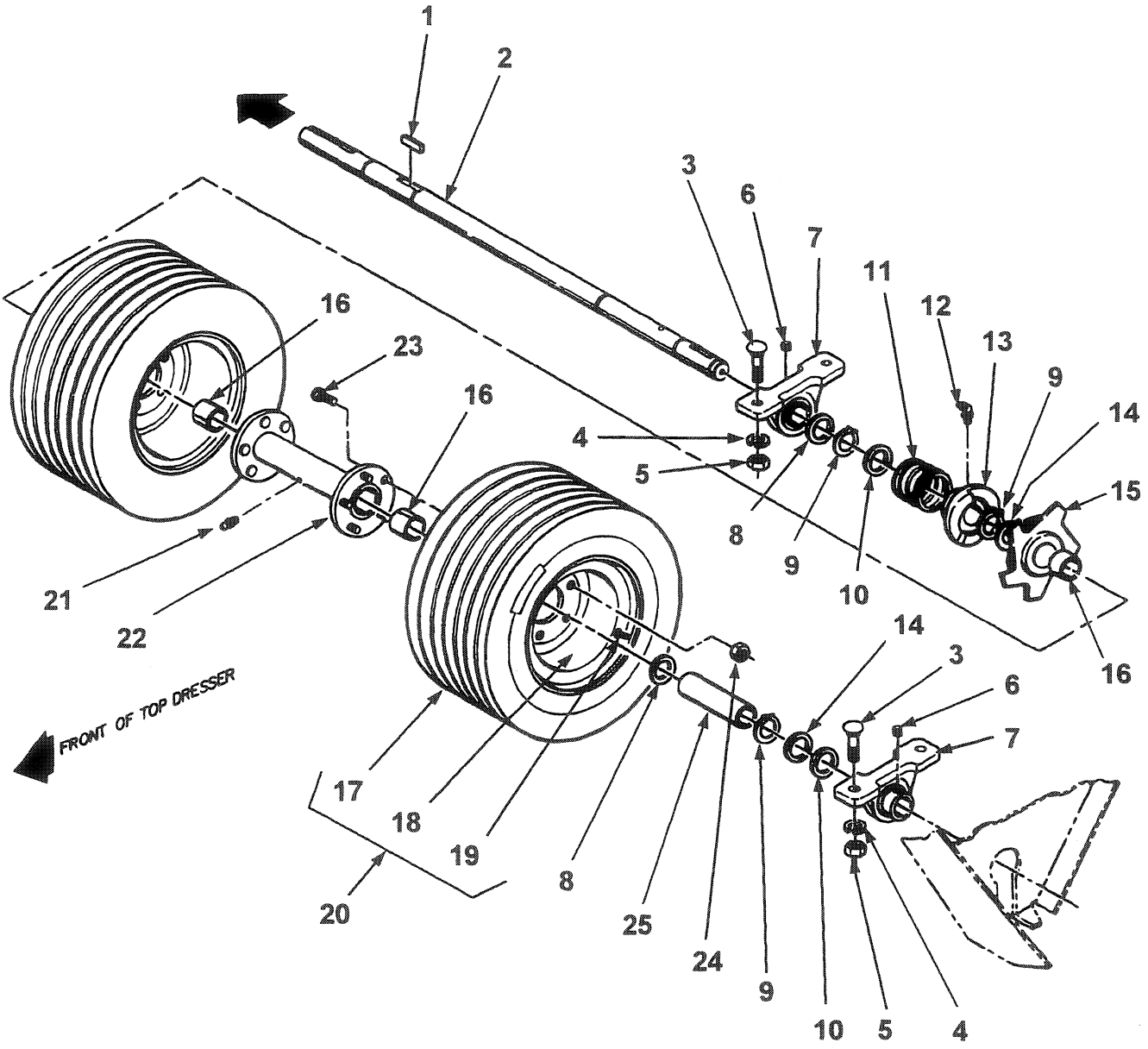
Center Axle

Item	Part No.	Description	Qty.
1	657054	Key, 1/4" x 1/4" x 5"	2
2	499154	Key, 1/4" x 1/4" x 1-1/2"	1
3	656963	Axle, Center	1
4	458035	Ring, Retaining, 1-1/4" External	3
5	499223	Washer, 1-9/32" x 1/7/8" x 3/64"	Note A
6	654738	Spring, Compression	1
7	471215	Fitting, Grease, 1/4"-28 x 45° Degree	1
8	654932	Clutch, Wheel	2
9	499164	Washer, 1-17/64" x 2" x 3/32"	1
10	654936	Driver, Wheel Clutch (Includes Oilite Bearing, Item 11)	1
11	655362	Bearing, Oilite	3
12	655146	Tire, 16 x 6.50 - 8	2
13	655147	Rim	2
14	651285	Valve Stem	2
15	655145	Wheel (Includes Items 12, 13, and 14)	2
16	471214	Fitting, Grease, 1/4"-28 Straight	1
17	654924	Wheel Hub Assembly (Includes Items 11, 16, and 18)	1
18	499404	Bolt, Lug	10
19	499405	Nut, Lug	10
20	654931	Spacer, Axle	1
21	400312	Screw, Hex, 3/8"-24 x 3"	6
22	446142	Washer, Lock, 3/8"	6
23	443112	Nut, Hex, 3/8"-24	6
24	Note B	Coupling, Axle, (Includes Items 1, 21, 22 and 23)	2

Note A: Use as many washers as necessary to minimize the gap between the Retaining Ring (Item 4 and the Axle Spacer (Item 20).

Note B: The entire coupling must be replaced as a unit. Do not mix the blocks of one coupling with another coupling. Replacement couplings are shipped with temporary shims between the blocks; remove and discard the shims before assembly. Make certain the axles are butted together and aligned properly with the key before tightening. Tighten the bolts evenly in an X pattern to 34 Newton-Meters. **Order 656966 Axle Coupling.**

Left Axle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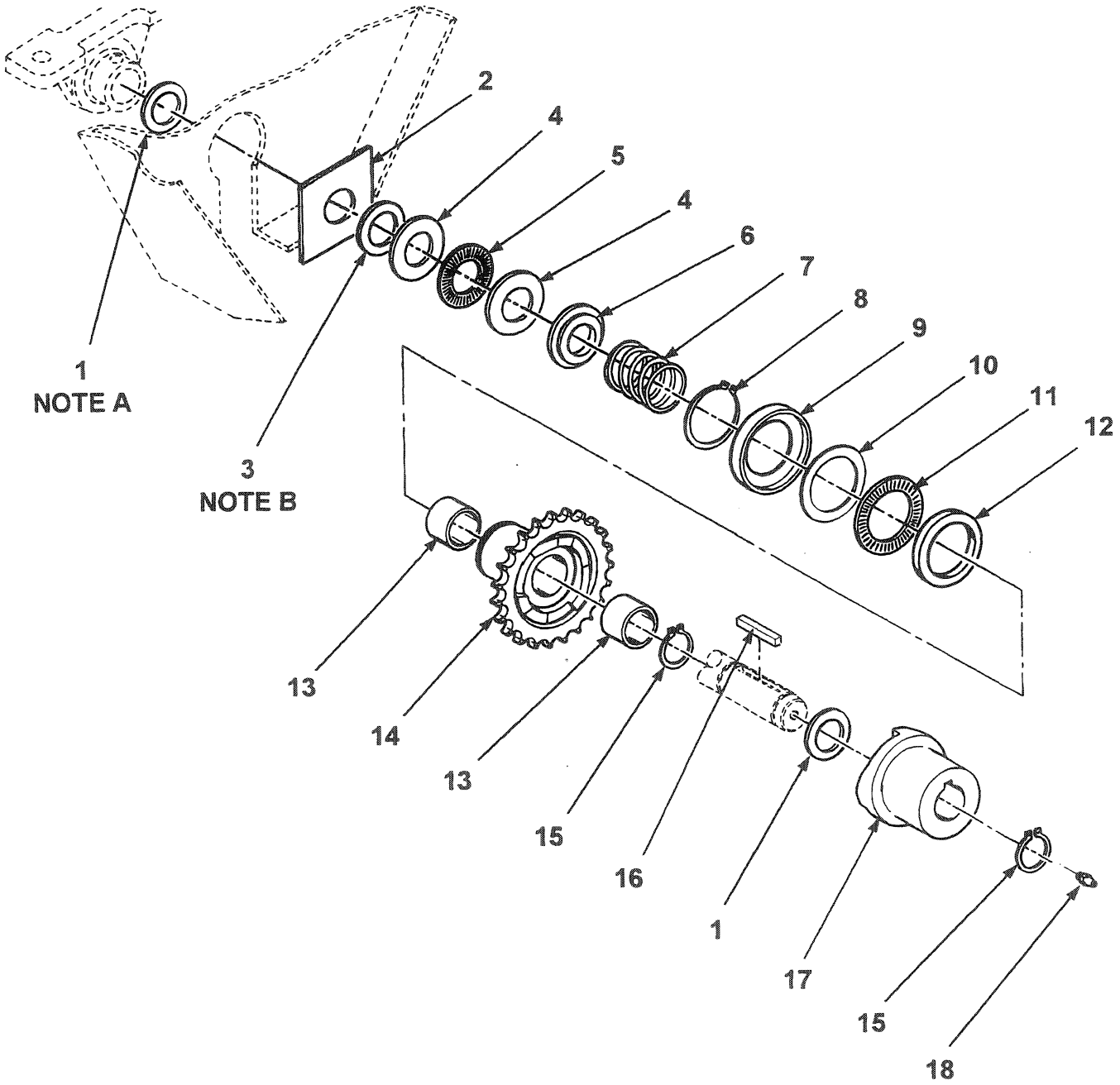
Left Axle

Item	Part No.	Description	Qty.
1	499154	Key, 1/4" x 1/4" x 1-1/2"	1
2	656964	Axle, Left	1
3	440194	Bolt, Carriage. 1/2"-13 x 1-1/2"	4
4	446154	Washer, Lock, 1/2"	4
5	443118	Nut, Hex, 1/2"-13	4
6	499051*	Screw, Set, 1/4"-28 x 1/4"	4
7	655174	Bearing, Pillow Block (Includes Set Screws, Item 6)	2
8	499223	Washer, 1-9/32" x 1-7/8" x 3/64"	2
9	458035	Ring, Retaining, 1-1/4" External	3
10	499221	Washer, 1-9/32" x 1-7/8" x 9/64"	2
11	654738	Spring, Compression	1
12	471215	Fitting, Grease, 1/4"-28, 45° Degree	1
13	654932	Clutch, Wheel	1
14	499164	Washer, 1-17/64" x 2" x 3/32"	2
15	654936	Driver, Wheel Clutch (Includes Oilite Bearing, Item 16)	1
16	655362	Bearing, Oilite	3
17	655146	Tire, 16 x 6.50 - 8	2
18	655147	Rim	2
19	651285	Valve Stem	2
20	655145	Wheel (Includes Items 17, 18, and 19)	2
21	471214	Fitting Grease, 1/4"-28 Straight	1
22	654924	Wheel Hub Assembly (Includes Items 16, 21, and 23)	1
23	499404	Bolt, Lug	10
24	499405	Nut, Lug	10
25	654931	Spacer, Axle	1

*May Not Fit All 655174 Bearings

Jaw Clutch



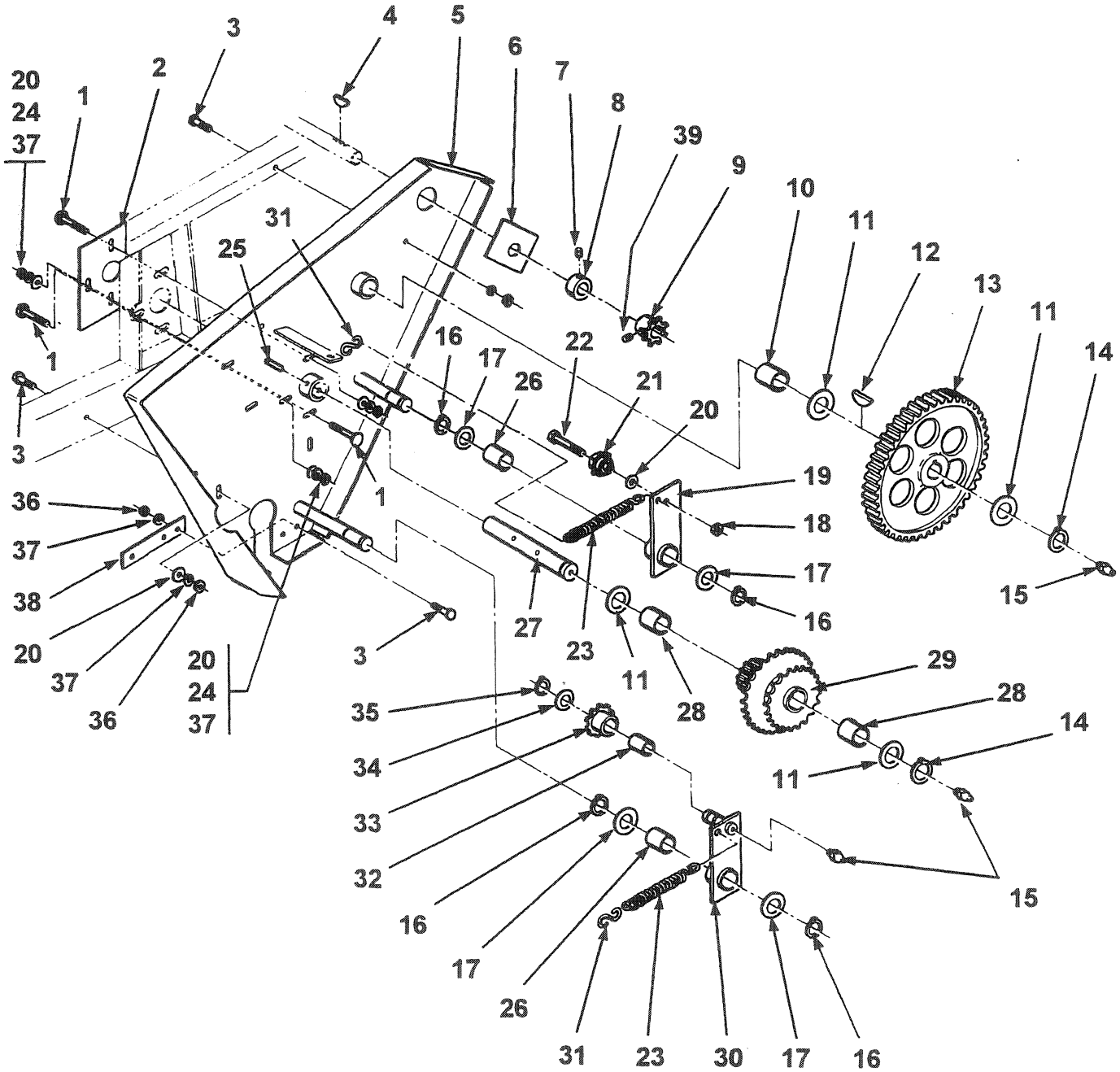
Jaw Clutch

Item	Part No.	Description	Qty.
1	499164	Washer, 1-17/64" x 2" x 3/32"	Note A
2	655205	Washer, Labyrinth (Square)	1
3	499221	Washer, 1-9/32" x 1-7/8" x 9/64"	Note B
4	651293	Washer, Thrust	2
5	651292	Bearing, Thrust	1
6	660286	Bushing, Spring Guide	1
7	651081	Spring, Compression	1
8	499402	Ring, Retaining, 2" External	1
9	655355	Washer, Cupped	1
10	655155	Washer, Thrust	1
11	655154	Bearing, Thrust	1
12	655156	Washer, Thrust	1
13	655459	Bearing, Oilite	2
14	655151	Clutch, Driven (Includes Oilite Bearing, Item 13)	1
15	458035	Ring, Retaining, 1-1/4" External	2
16	499154	Key, 1/4" x 1/4" x 1-1/2"	1
17	655153	Clutch, Driver	1
18	471214	Fitting, Grease, 1/4"-28 Straight	1

Note A: Use as many washers (Item 1) as necessary to insure 0.8 mm to 1.6 mm clearance between the square washer (Item 2) and the backup plate.

Note B: Use as many washers as necessary to provide the proper spring pressure.

Drive Train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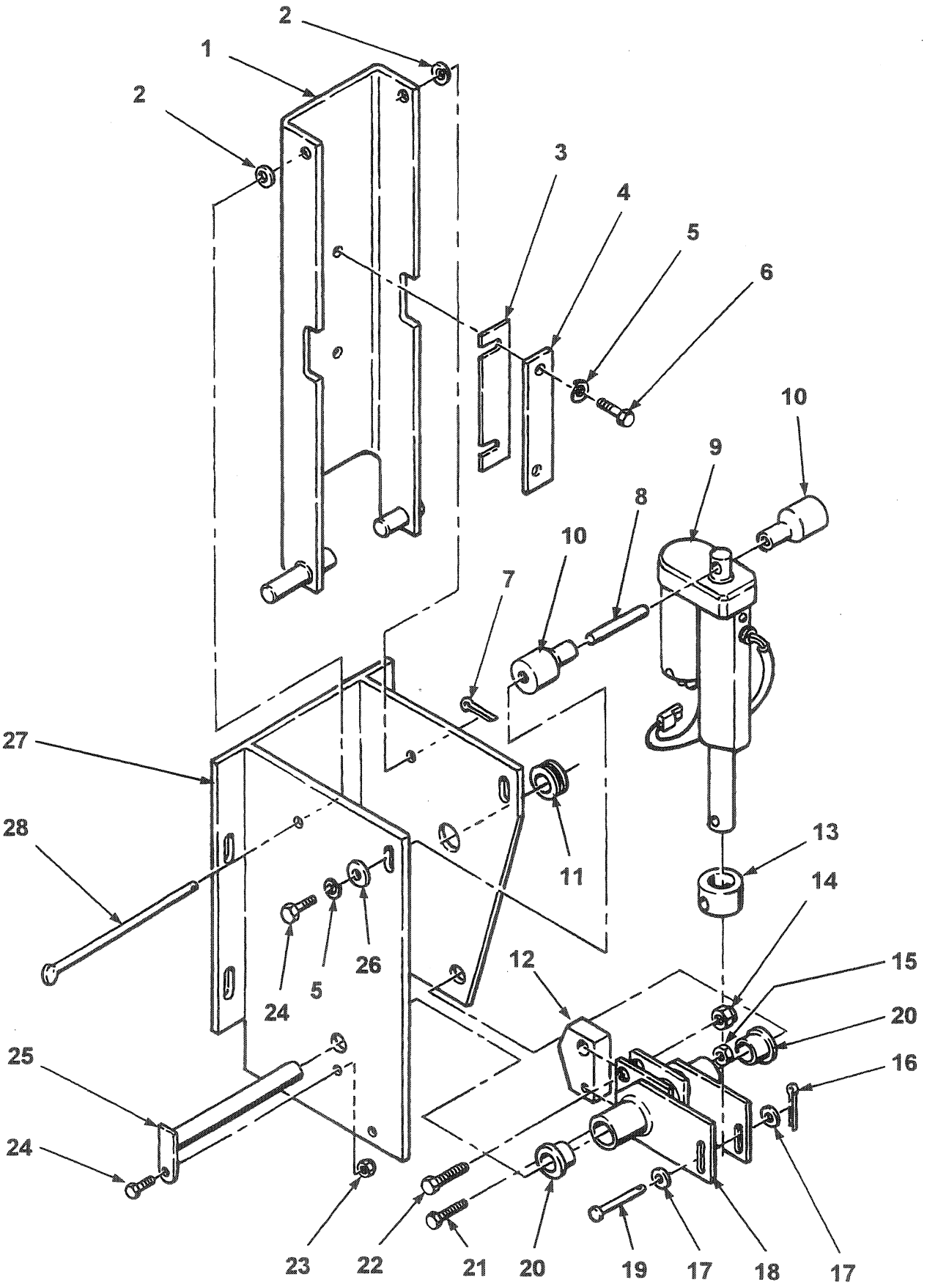
Drive Train

Item	Part No.	Description	Qty.
1	441632	Bolt, Carriage, 3/8"-16 x 2-1/4"	3
2	655732	Plate, Pinion Shaft	1
3	400298	Screw, Hex, 3/8"-24 x 1"	5
4	463021	Key, Woodruff, 1/4" x 7/8"	1
5	655724	Backup Plate (Includes Item 10)	1
6	653396	Seal, Brush Shaft	1
7	415553*	Screw, Set, 5/16"-18 x 5/16"	1
8	650631	Collar, Set (Includes Set Screw, Item 7)	1
9	655197	Sprocket, 12 Tooth (Includes Set Screw, Item 39)	1
10	655754	Bearing, Oilite	1
11	499164	Washer, 1-17/64" x 2" x 3/32"	4
12	463031	Key, Woodruff, 1/4" x 1"	1
13	655736	Gear, 88 Tooth	1
14	458035	Ring, Retaining, 1-1/4" External	2
15	471214	Fitting, Grease, 1/4"-28 Straight	3
16	458021	Ring, Retaining, 1" External	4
17	499128	Washer, 1-1/64" x 1-3/4" x 3/64"	4
18	444760	Nut, Thin Self Locking, 3/8"-24	1
19	655715	Idler, Chain (Includes Oilite Bearing, Item 26)	1
20	452006	Washer, 3/8" x 7/8" x 5/64"	6
21	650811	Sprocket, Idler	1
22	400302	Screw, Hex, 3/8"-24 x 1-1/2"	1
23	656803	Spring, Extension	2
24	443110	Nut, Hex, 3/8"-16	3
25	499054	Pin, Spring, 3/16" x 1-5/8"	1
26	654996	Bearing, Oilite	2
27	655733	Shaft, Pinion	1
28	657740	Bearing, Oilite	2
29	655728	Pinion - Sprockets (Includes Oilite Bearing, Item 28)	1
30	655712	Idler, Chain (Includes Oilite Bearing, Item 26)	1
31	657995	S-Hook	2
32	654995	Bearing, Oilite	1
33	655064	Sprocket, 11 Tooth (Includes Oilite Bearing, Item 32)	1
34	499428	Washer, 57/64" x 1-1/2" x 3/64"	1
35	499045	Ring, Retaining, 7/8" External	1
36	443112	Nut, Hex, 3/8"-24	8
37	446142	Washer, Lock, 3/8"	9
38	655740	Stiffener, Backup Plate	1
39	415509**	Screw, Set, 1/4"-20 x 1/4"	2

*May Not Fit All 650631 Set Collars
** May Not Fit All 655197 Sprockets

Clutch Box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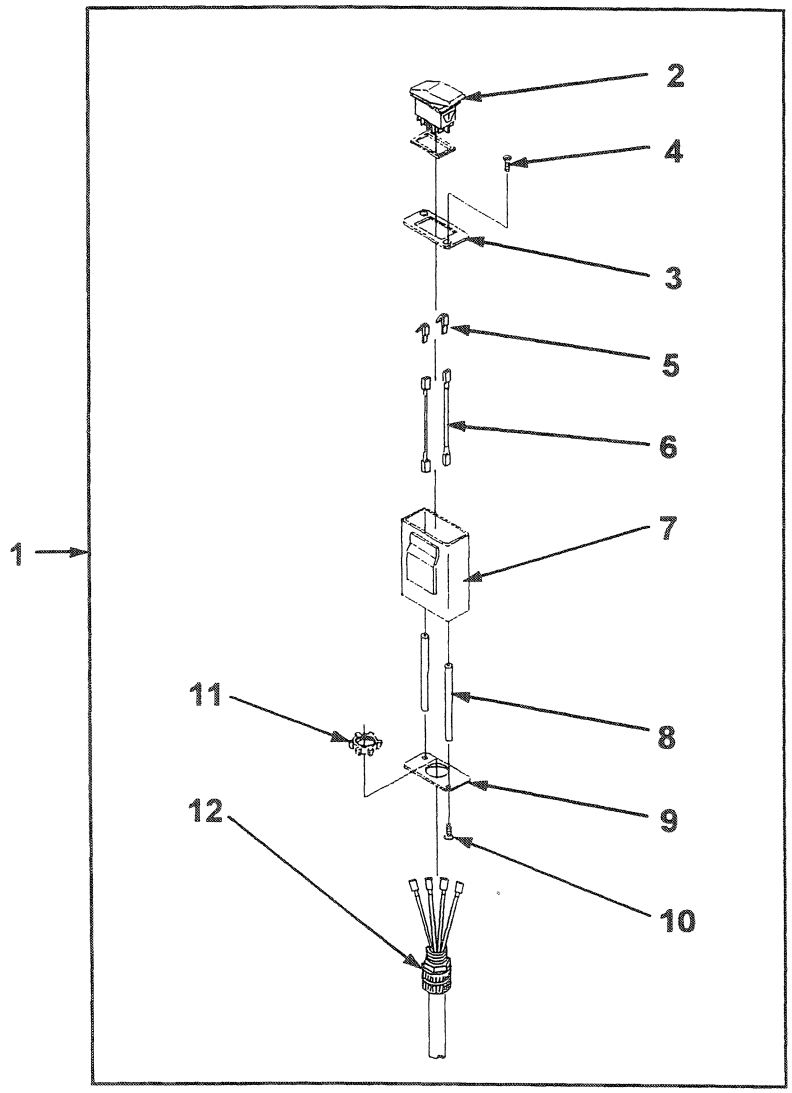
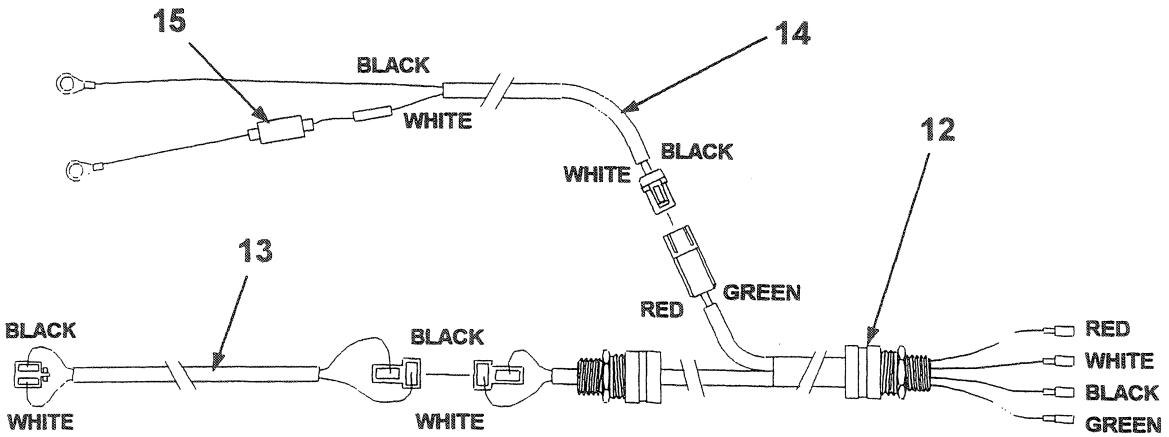
Clutch Box

Item	Part No.	Description	Qty.
1	655073	Bracket, Clutch Throw Out	1
2	499021	Washer, 25/64" x 5/8" x 1/16"	2
3	655356	Shim	Note A
4	655076	Plate, Wear	1
5	446128	Washer, Lock, 1/4"	4
6	400150	Screw, Hex, 1/4"-28 x 1"	2
7	460028	Pin, Cotter, 1/8" x 1"	1
8	657932	Pin, Anchor	1
9	657918	Actuator, Clutch	1
10	657931	Bushing, Anchor	2
11	658049	Grommet, Rubber	1
12	657926	Cam, Wear	1
13	657933	Bushing, Actuator	1
14	444808	Nut, Self Locking, 5/16"-18	1
15	499014	Nut, Self Locking, 1/4"-28	1
16	460014	Pin, Cotter, 3/32" x 3/4"	1
17	452002	Washer, 1/4" x 9/16" x 3/64"	2
18	657927	Arm, Cam Pivot (Includes Item 20)	1
19	657963	Pin, Clevis, 1/4" x 1-3/4"	1
20	656225	Bearing; Oilite	2
21	400152	Screw, Hex, 1/4"-28 x 1-1/4"	1
22	400190	Screw. Hex, 5/16"-18 x 1-1/4"	1
23	444830	Nut, Self Locking, 1/4"-20	1
24	400106	Screw, Hex, 1/4"-20 x 5/8"	3
25	657929	Pivot Shaft, Cam	1
26	452004	Washer, 5/16" x 3/4" x 1/16"	2
27	657921	Clutch Box	1
28	651074	Pin, Pivot	1

Note A: Use As Many Shims (Item 3) As Necessary To Insure Proper Clutch Engagement and Clearance.

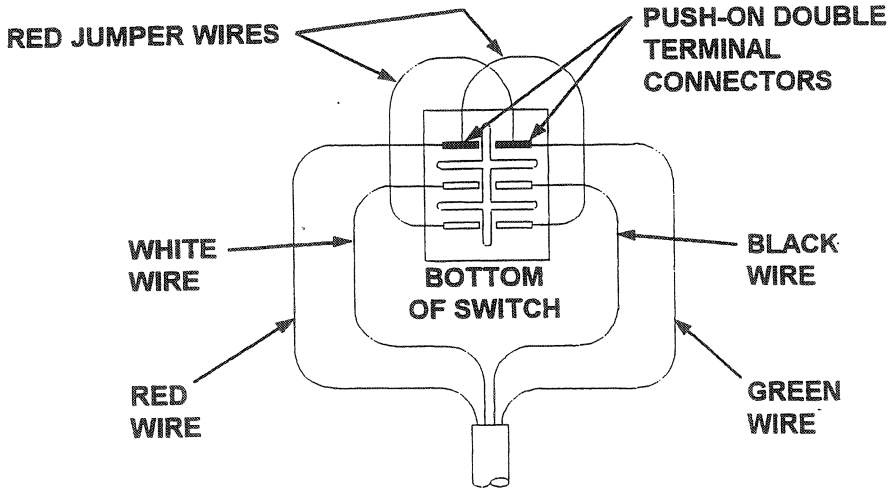
Control Box Assembly and Cables



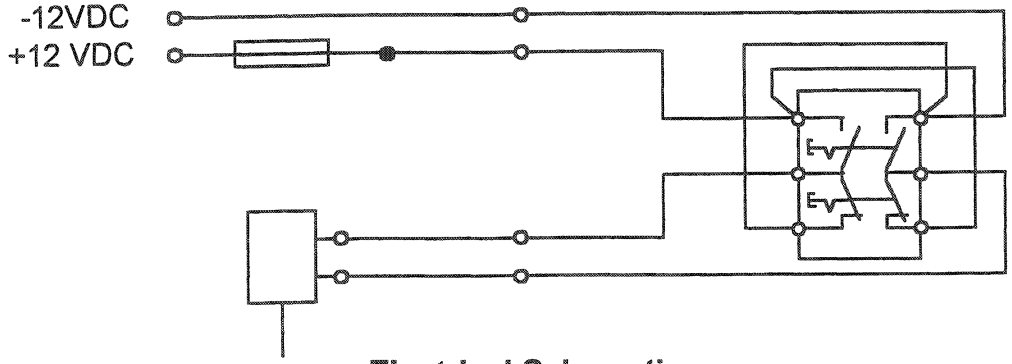


Control Box Assembly and Cables

Item	Part No.	Description	Qty.
1	659175	Control Box Assembly (Includes Items 2 through 12)	1
2	657952	Switch, Rocker Style	1
3	657949	Switch Plate, Rocker	1
4	657957	Screw, Flat Head, 8-32 x 3/8"	2
5	658022	Connector, 1/4" Push-On Double	2
6	658260	Jumper, Wire, Red	2
7	657970	Body, Conveyor Control	1
8	657951	Tie Rod	2
9	657950	Base Plate	1
10	657956	Screw, Pan Head, 8-32 x 3/8"	2
11	657603	Lock Nut, Bonding Type, 1/2" NPT Conduit	2
12	659176	Cable, Control Box	1
13	658248	Cable, Actuator to Tongue	1
14	659177	Cable, Power Supply	1
15	657972	Fuse, 6 Amp (Does Not Include Fuse Holder)	1

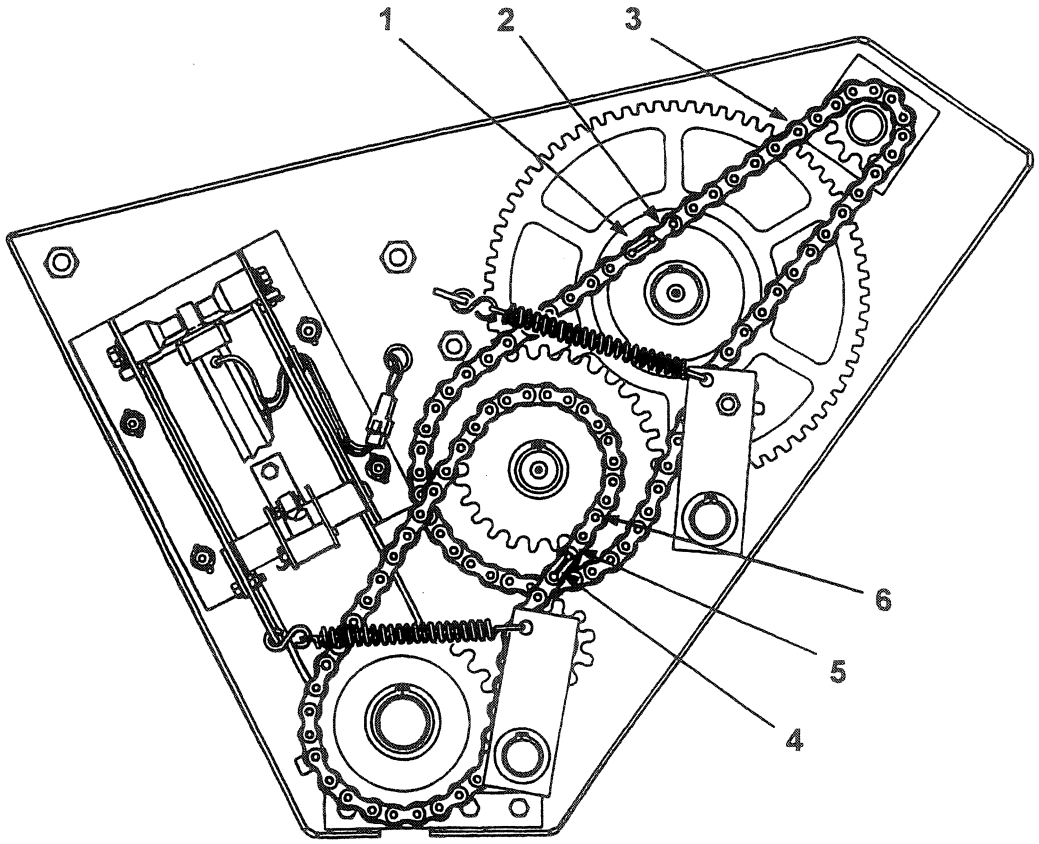


Switch Wiring Diagram



Electrical Schematic

Chains



Item	Part No.	Description	Qty.
1	650703	Link, Master, RC-40	1
2	470513	Link, Offset (Half), RC-40	1
3	658012	Chain, RC-40 x 85 Pitches (Includes Items 1 and 2)	1
4	650013	Link, Master, RC-50	1
5	470515	Link, Offset (Half), RC-50	1
6	655764	Chain, RC-50 x 53 Pitches (Includes Items 4 and 5)	1

Miscellaneous Parts

Item	Part No.	Description	Qty.
		Items not illustrated	
1	657969	Decal Set, F12D, Domestic	1
2	658017	Decal, Hopper, Mete-R-Matic III	2
3	657968	Manual, Operator's and Parts List, Domestic	1

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