

HIGH LIFT DUMP BOX MODELS 9012 & 9015

(Serial Numbers 19.00646 and UP)

OPERATOR'S MANUAL

DO NOT OPERATE THIS EQUIPMENT UNTIL THIS MANUAL HAS BEEN READ AND UNDERSTOOD.

19.01170B 3/06

MILLER DUMP BOX

PRE-DELIVERY CHECK LIST

After the Miller Dump Box has been completely set-up, check to be certain it is in correct running order before delivering it to the customer. The following is a list of points to inspect. Check off each item as you have made the proper adjustments and found the item operating satisfactorily. Any adjustment must be made according to specifications defined in this manual.

- All mechanisms are operating trouble free.
- O All bolts and other fasteners are tight.
- Check all pivot points for freedom of movement.
- O All grease fittings have been lubricated . See "Lubrication" section in this manual, page 28.
- O Wheel bolts checked
- O Pins properly installed
- Hydraulic Systems Bled

DELIVERY CHECK LIST

The following check list is an important reminder of valuable information that MUST be passed on to the customer at the time the unit is delivered. Check off each item as you explain it to the customer.

- Give the customer their Operator's Manual. In-O struct them to be sure to read and completely understand its contents BEFORE attempting to operate the unit.
- Explain the warranty. 0
- Explain and review with the customer the Safety 0 Precautions section of this manual.
- Explain and review with the customer the Operating Instructions section of this manual.
- Explain that regular lubrication and proper adjust-0 ments are required for continued proper operation and long life. Review with the customer the Lubrication and Adjustments section of this manual.
- O Check hydraulic pressure capacity of tractor (2250 PSI min for 12' dump box and 2800 PSI for 15' dump box) as hydraulic pressures lower than these pressures will reduce load dumping capacity. The system is designed to operate at 3000 PSI maximum with a flow of 16 GPM for correct cycle

(If applicable):

- **Roof installed** 0
- Lift arm & cable installed 0
- Roof swings freely 0
- Brakes work correctly 0

Dealer's Name

time.

- Check hydraulic fluid level in tractor reservoir, the 0 dump box needs a minimum usable quantity of 7 gallons.
- Fluid in dump box hydraulic system is compatible with tractor hydraulic system.

Complete the Delivery Registration Card and have customer sign it and return it.

l acknowledge that above points were reviewed with me at the time of delivery.

Customer's Signature

Date Delivered

(Dealer Copy)

Signature of Pre-Delivery Inspector

Date of Inspection

Model No.

Serial No.

MILLER PRO

HIGH LIFT DUMP BOX MODEL 9012 & 9015 19.01170B

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(If app	licab	le)	1
(in abb	Tour		· .

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Date of Inspection

Datie of thepaption

Dealer's Name

Model No.

Serial No.

Customer's Signature

me at the time of delivery.

Date Delivered

(Customer Copy)

SAFETY PRECAUTIONS



This symbol is used to call your attention to instructions concerning your personal safety. Be sure to observe and follow these instructions. Take time to be careful!



DANGER

"DANGER" indicates an imminently hazardous situation that, if not avoided, will result in death or serious injury.



WARNING

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



CAUTION

"CAUTION" indicates a potentially hazardous situation that, if not avoided, may result in minor or moderate injury. It may also alert against unsafe practices.

BEFORE you attempt to operate this dump box, read and study the following safety information. In addition, MAKE SURE that every individual who operates or works with this equipment, whether family member or employee, is familiar with these safety precautions. Miller-St. Nazianz provides guards for exposed moving parts for the operator's protection; however, some areas cannot be guarded or shielded in order to assure proper operation. The OPERATOR'S MANUAL AND DECALS on the machine itself warn you of dangers and SHOULD BE READ AND OBSERVED CLOSELY.

POWER SOURCE SHUTDOWN PROCEDURE

Before cleaning, unclogging, adjusting, lubricating or servicing this machine:

- 1. Shut off the tractor engine, remove the starter key and take it with you.
- 2. The Dump Box should be completely lowered.
- 3. Wait for the all machine motion to stop.
- 4. Remove ALL power connections from the tractor.

Failure to follow these precautions could result in death or serious injury.

SAFETY PRECAUTIONS, continued



Do not unclog, adjust, lubricate or service the dump box unless the "Power Source Shut Down Procedure" (Page 3) has been performed.

The towed implement and its load must not exceed one-and-one half (1-1/2) times the weight of the towing vehicle. Be sure that the towing vehicle is heavy enough and designed to handle the total (loaded) weight of the towed implement(s).

KEEP hands, feet and clothing away from moving parts!

DO NOT allow minors to be near the machine unless properly supervised!

KEEP the dump box away from power lines. Contact with electric lines may result in serious injury or death by electrocution!

USE only properly rated running gear and tires!

ALWAYS engage the tractor parking brake before proceeding to unload the dump box!

DO NOT allow people other than a qualified operator near the unit!

DO NOT exceed a maximum towing speed of 20 MPH (32 KPH) while transporting the dump box!

DO NOT travel on public highways unless adequate warning devices are used to alert other drivers!

DO NOT drive too close to ditches or creeks; be sure surrounding ground has adequate strength to support the weight of the loaded dump box!

DO NOT attempt to ride on the pole of the running gear!

ALWAYS use a safety or locking hitchpin!

ALWAYS keep the towing vehicle in gear when descending steep grades!

ALWAYS travel slowly around curves and along sidehills to prevent tipping!

BE SURE the tires are properly and evenly inflated at all times!

BE SURE the wheel nuts and other fasteners are kept securely tightened at all times!

AVOID high pressure fluids. Escaping fluid under pressure can penetrate skin, causing serious injury.

ALWAYS follow state and local regulations regarding a safety chain and auxiliary lighting when towing farm equipment on a public highway.

SAFETY PRECAUTIONS, continued

REFER to the Power Source operator's manual for proper operation of hydraulic controls.

ONLY dump when unit is on level ground.

DO NOT dump while moving.

ALWAYS block the tires, front and back, so that the Dump Box will not roll when disconnecting from the towing vehicle.

MAINTAIN liquid ballast in non-dump side tires! Maintain at least 750 lbs. of ballast in the weight box on 12' Models and 1500 lbs. of ballast in the weight box on 15' Models.

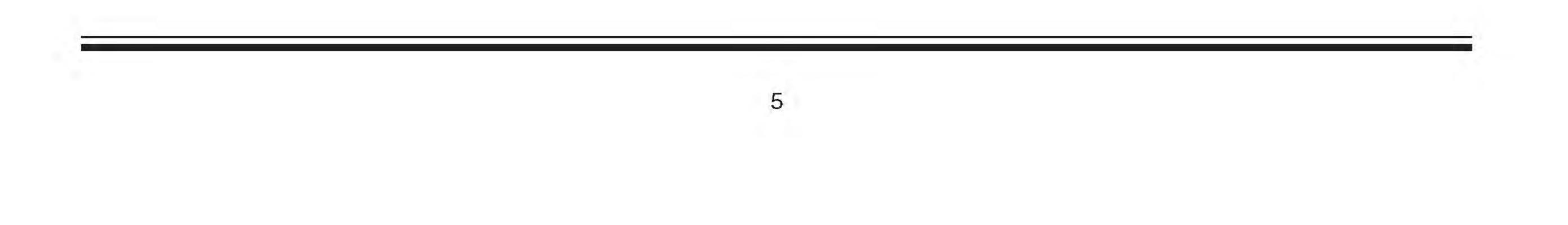
CHECK lug nuts periodically. Refer to the "Adjustments" section of this manual.

MAINTAIN proper tire pressure at all times: Refer to the "Adjustments" section of this manual.

Use of radial tires is not recommended.



To ensure continued safe operation, replace damaged or worn-out parts with genuine service parts from Miller dealer before attempting to operate equipment.



SAFETY LABEL LOCATION

Each Dump Box has been produced and assembled with the operator's safety in mind. As a reminder to the operator of proper operation of the machine, several labels of warning and instruction have been attached. Information on labels is by necessity less than in the operator's manual. Do not depend solely on the labels for safe and proper operation. Use your operator's manual.

DO NOT remove any of these labels. They are for your protection! Take note of their messages and observe!

Periodically check all labels and replace any that are missing, worn, or illegible. When replacing, clean machine surface thoroughly using soap and water or cleaning solvent to remove dirt and grease. Contact your dealer if any labels are not understood!

The Miller Dump Box was designed as a dump box. DO NOT use for other purposes!

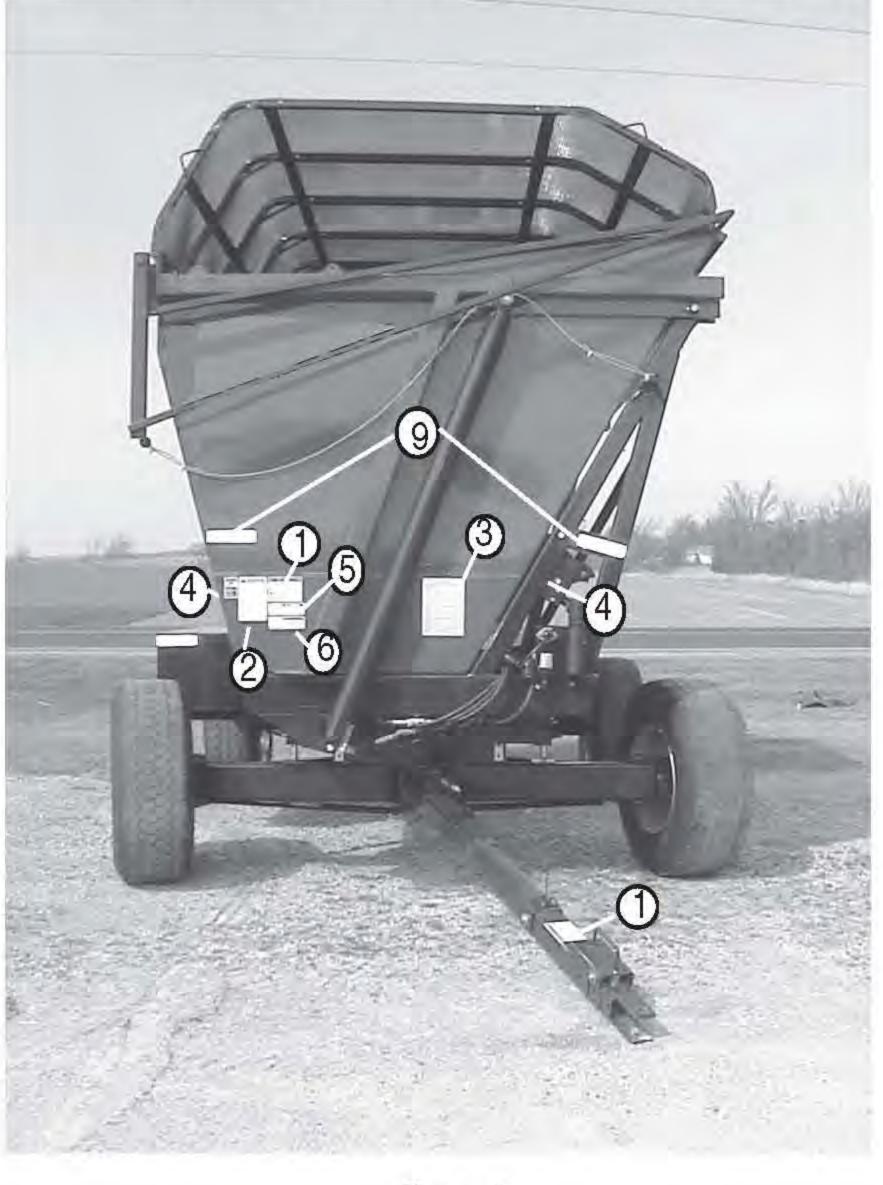


Figure 1



SAFETY LABEL LOCATION (continued)



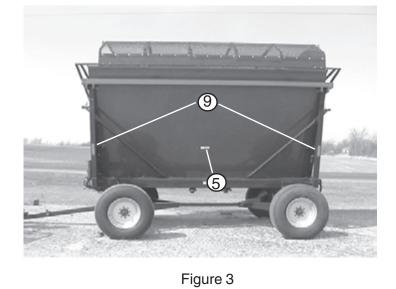


Figure 2

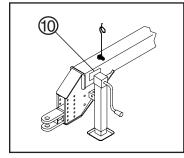


Figure A

<u>REF #</u>	<u> PART #</u>
1	16.20178
2	19.00115
3	19.01222
4	21.09024
5	19.00113
6	19.01223
7	907225
8	907219
9	907220
10	17.01155

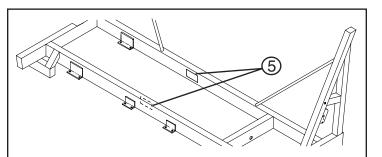


Figure B

DESCRIPTION

Warning - Before You Operate This Equipment
Caution - Purging Hydraulic Cylinders
Operating Instructions
Warning - Avoid High Pressure Fluids
Danger - Keep Clear (right side not shown,
same as left side)
Danger - Electrocution
Decal - SMV
Reflector, Red, 2 in x 9 in (2 required)
Reflector, Amber, 2 in x 9 in (6 required) (right side not shown, same as left side)
Warning - Foot Crushing (Cart Style Only)

SAFETY LABELS

WARNING

BEFORE YOU OPERATE THIS EQUIPMENT:

Read the operator's manual and learn to operate this machine safely.

Keep children away.

Machines can be hazardous in the hands of an untrained operator.

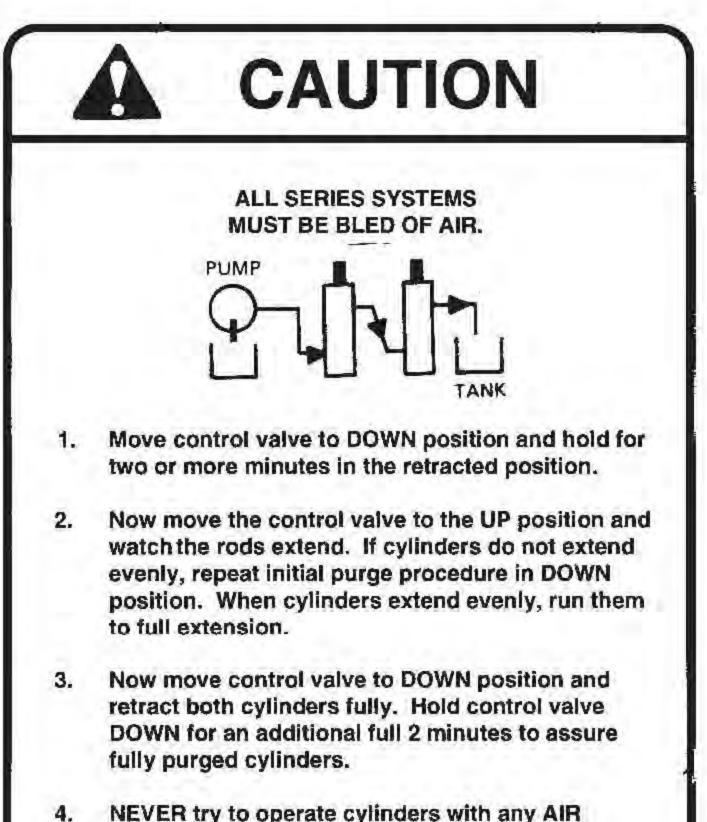
Failure to follow safety, operating and maintenance instructions could result in death or serious injury.

If you have questions; contact your dealer.

16.20178



16.20178 1 Req'd. Figure 1 - #1



 NEVER try to operate cylinders with any AIR retained within the system.

After initial purging, when dumping box, hold hydraulic valve open a minimum of 5 seconds beyond the end of the cylinder stroke in the down

OPERATING INSTRUCTIONS

WARNING

Liquid ballast MUST be maintained in non-dump side tires at ALL times.

Use extreme caution when operating box on uneven ground Do Not raise box unless wagon is parked beside truck and in proper unloading position.

- Failure to equalize the cylinders by purging air from them can severely damage both cylinders and box.
- BEFORE loading first load each day, hold valve open for 60 seconds with box In down position.
- Equalize the cylinders on each load, hold valve open 5 seconds with box in down position.
- Always be sure slide-tube latches are engaged before the tank begins dumping. Avoid lowering box with a load whenever possible.
- Do Not exceed 18,000 pounds (evenly distributed load) on 12 Foot Model.
- Do Not exceed 24,000 pounds (evenly distributed load) on 15 Foot Model.

position.

If system is bled, it will require 8 gallons of hydraulic fluid to be fully charged.

19.00115 1 Req'd. Figure 1 - #2 Always maintain 7 gallons reserve oil in the hydraulic reservoir. (Pumping air into the wagon's hydraulic system will cause severe damage.)

Do Not tow Dump Box over 20 M.P.H. (32 KPH)

Check wheel lug nuts periodically. Refer to Operators Manual

Maintain proper operating tire pressure. Refer to Operators Manual.

19.01222

19.01222 1 Req'd. Figure 1 - #3

8

SAFETY LABELS



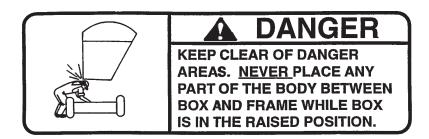
17.01155 1 Req'd. Figure A - Ref #10 On Hitch Next To Jack Stand (Cart Style Only)



21.09024 3 Req'd. Figure 1 - #4



19.01223 1 Req'd. Figure 1 - #6



19.00113 6 Req'd. Figures 1,2,3,B - #5

SET-UP AND ASSEMBLY INSTRUCTIONS

All references to left and right or front and rear are determined with the operator sitting on the tractor facing forward. The container itself is normally set-up at the factory for either left hand or right hand operation depending on model.

SMV Emblem

A Slow Moving Vehicle (SMV) Emblem has been supplied with the dump box.

4-Wheel Running Gear Assembly

For normal assembly proceed as follows:

1. Remove all of the contents from the container. Please inspect all items carefully for discrepancies or shortages of pieces or hardware items.



Handle the component assemblies carefully to avoid injury; they are very heavy and awkward. Use a lift truck or overhead hoist to aid in handling the heavy components.

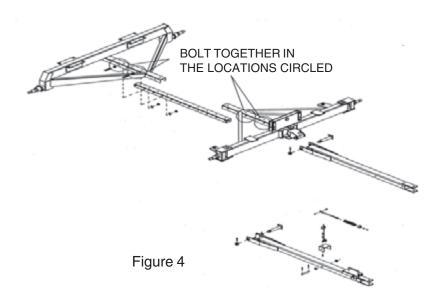
- 2. Mount the wheels on the wagon hubs. Fasten the wheels and tires to the hubs with the (8) wheel nuts torqued to 150 ft/lbs. Check tire pressure for appropriate PSI. Refer to the "Adjustments" section of this manual. Two tires require liquid ballast, 75% full. See your local tire dealer for this service. The tires containing the fluid are to be mounted opposite the dump side for counter weight. If equipped, 20" tires with "dump side" decals are to be mounted on the dump side.
- 3. Center the reach pole between the front and rear axle assemblies. The distance between the centers of the axles should be 94 inches for 12 ft Models and 130 inches for 15 ft Models.
- Couple the rear axle assembly to the reach pole with the (6) 5/8" x 1-1/2" Gr5 bolts, (12) 5/8" diameter hardened flatwashers and (6) 5/8" nylon insert lock nuts as shown in Figure 4. Do not tighten bolts.

Couple the front axle assembly to the reach pole with the (6) 5/8" x 1-1/2" Gr5 bolts, (12) 5/8" diameter hardened flatwashers and (6) 5/8" nylon insert lock nuts as shown in Figure 4. Do not tighten bolts.

5. Securely fasten the pole to the pivot assembly on the front axle using the machined bolt, castle nut and cotter pin as shown in Figure 4.

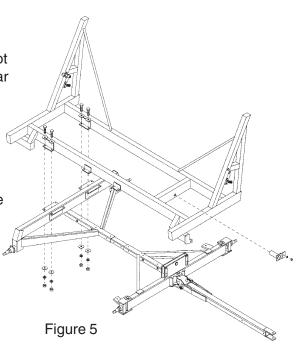
Fasten the assist spring to the pivot assembly with the included hardware (if equipped). Adjust spring tension by loosening the double nut on the spring rod. Then tighten or loosen the two nuts according to whichever adjustment you are seeking and retighten the nuts to each other.

SET-UP AND ASSEMBLY INSTRUCTIONS, continued 4 WHEEL RUNNING GEAR ASSEMBLY

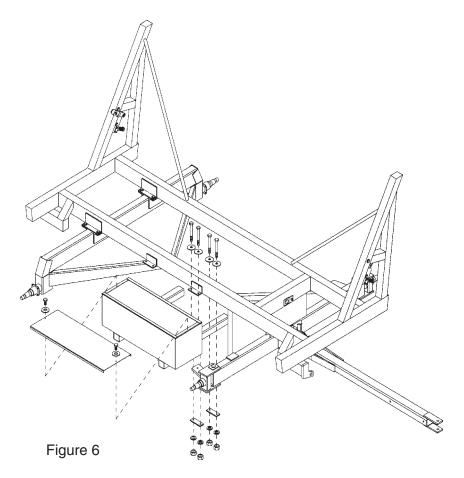


If you are installing the Optional 6" Riser Kit, install it at this time. See page 18. If not, proceed to instruction #6.

- 6. Caution: Carefully raise the dump box and frame assembly securely with forklifts or other suitable lifting devices and install on top of the running gear. Attach the rear with (8) 5/8" x 2-1/2 Gr5 bolts, (16) 5/8" diameter flatwashers, (8) 5/8" lockwashers and (8) 5/8" nuts. Do not tighten. Attach the front to the running gear with the pivot pin and (1) 1/2" diameter lockwasher and (1) 1/2" nut as shown in Figure 5.
- 7. Tighten all running gear, reach and axle mounting hardware securely. Torque all hardware to the specifications found at the end of this manual.



Assemble the weight box to the frame of the dump box with (8) 5/8" x 6-1/2" Gr5 bolts, (8) 5/8" diameter flat washers, (4) straps, (8) 5/8" lockwashers and a (8) 5/8" nuts as shown in Figure 6. Fill the weight box with at least 750 lbs of sand or similar material for ballast on 12' Models and 1500 lbs. on 15' Models.



READ THIS SECTION CAREFULLY

9. With the box empty, place a block of wood between the front axle and the stabilizer cylinder or front bolster; additionally, you want to hold down the non-dump side rear tire with a tractor loader bucket or some similar heavy object for safety during the initial test cycle. Power the box through the dump cycle several times according to the hydraulic instructions decal located on the front of the power unit reservoir, and add any oil as required to keep the system full.

SET-UP AND ASSEMBLY INSTRUCTIONS, continued 2 WHEEL CART ASSEMBLY

For normal assembly proceed as follows:

1. Remove all of the contents from the container. Please inspect all items carefully for discrepancies or shortages of pieces or hardware items.



Handle the component assemblies carefully to avoid injury; they are very heavy and awkward. Use a lift truck or overhead hoist to aid in handling the heavy components.

Note: The axle to tongue mounting plates are not centered on the axle assembly. Measure the distance from each wheel hub face to the center hole in the axle to tongue mounting plate. Position the axle so the side with the shorter dimension is on the dump side.

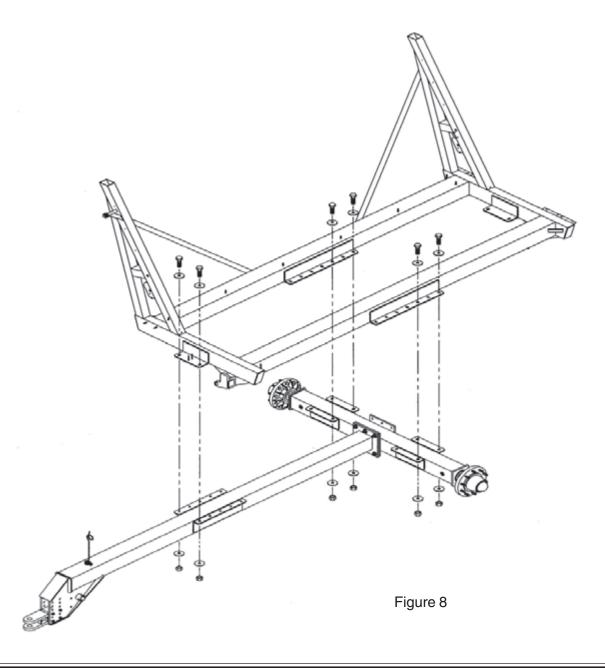
- Couple the tongue assembly to the axle assembly with the (6) 3/4" x 3" Gr5 bolts, (12) 3/4" diameter hardened flatwashers and (6) 3/4" nylon insert lock nuts as shown in Figure 7. Do not tighten bolts.
- 3. Mount the wheels on the cart hubs. Fasten the wheels and tires to the hubs with the (10) wheel nuts torqued to 150 ft/lbs. Check tire pressure for appropriate PSI. Refer to the "Adjustments" section of this manual. One tire requires liquid ballast, 75% full. See your local tire dealer for this service. The tire containing the fluid is to be mounted opposite the dump side for counter weight.
- 4. Install the jack assembly.
- Tighten all cart assembly mounting hardware securely. Torque all hardware to the specifications found at the end of this manual.
 If you are installing the Optional 6" Riser Kit, install it at this time. See page 19. If not, proceed to instruction #6.

NOTE: The tongue mounting hole positions that are closest to the tongue hitch put the most weight at the hitch. Moving the dump box and elevator back away from the hitch to the next set of holes reduces the weight at the hitch. There are three mounting positions.

Figure 7

2 WHEEL CART ASSEMBLY

- Caution: Carefully raise the dump box and frame assembly securely with forklifts or other suitable lifting devices and install on top of the cart. Attach the rear with (12) 3/4" x 2-1/2 Gr5 bolts, (24) 3/4" diameter flatwashers, and (12) 3/4" lock nuts as shown in Figure 8.
- 7. Tighten all dump box assembly to cart assembly hardware. Torque all hardware to the specifications found at the end of this manual.

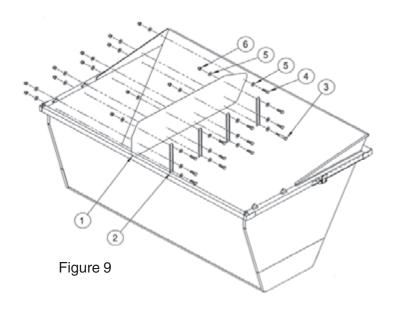


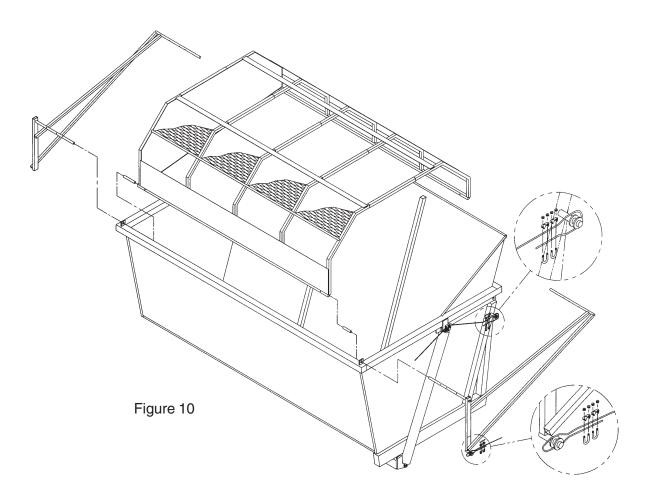
Panel - Crop Divider provides an increase in control of your load during dump cycles.

<u>ltem</u>	Part No.	Description	<u>Qty</u>	
1	19.00799.7	Panel - Crop Divider	1	[]
2	19.00890.7	Channel - Crop Divider	4	
3	902603	Hex Head Bolt 5/16-18 x 2 Gr 5	1	~
4	902859	Hex Head Bolt 5/16 x 1 Gr 5	12	~
5	900494	Washer - Flat 5/16"	26	()
6	906483	Hex Head Nut - Nylon Lock 5/16-18	13	Ø
	19.01119	Instruction Sheet - Panel Crop Divider	1	

ASSEMBLY STEPS

- 1. Lift roof and prop up and out of way.
- 2. Bolt top of Channels to inside of Panel, items 1 and 2, quantity 4 of items 4 and 6, quantity 8 of item 5.
- 3. Lower Channels and Panel assembly into tank.
- 4. Place Channels and Panel assembly down into tank until predrilled holes are aligned (8 inches down from top rail).
- 5. Position left to right such that predrilled holes are aligned and clamp into place (panel is about equally spaced from sides of tank as per Figure 9.
- 6. Bolt Channels and Panel into position with item 3 and remainder of items 4, 5 and 6.
- 7. Unprop and lower roof.

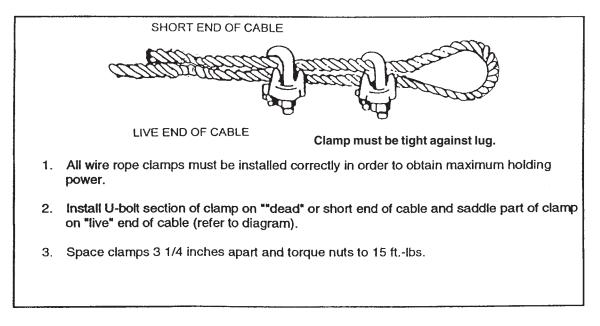




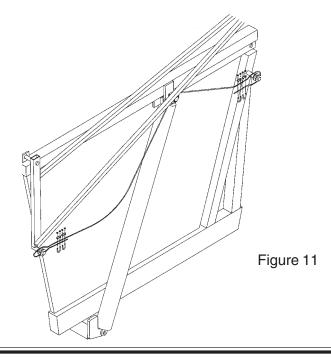
8. Using a forklift, hoist the assembled roof on top of box placing the long leg on the hinge side of box. Position the roof so that it is about 3-1/2" away from the front face of the rear hinge.

Find the two lift arms (triangular shape) and install through hinge, through the spacers and into roof. The pull arm should hang down on the straight side of the box. Use the (8) 1/2" x 2" bolts and locknuts to secure shafts to the roof. The 3 1/2" spacer is used in the rear and the 6 1/2" spacer in the front on 12' models and the 8 1/2" spacer is used in the front on 15' models.

9. Slide the cable thru pulley and around the lugs on the roof arm and frame. Attach 2 cable clamps at each end using a short loop in the cable. (Refer to diagram below for correct cable clamp installation and instructions). Repeat the procedure at the other end of the dump box.

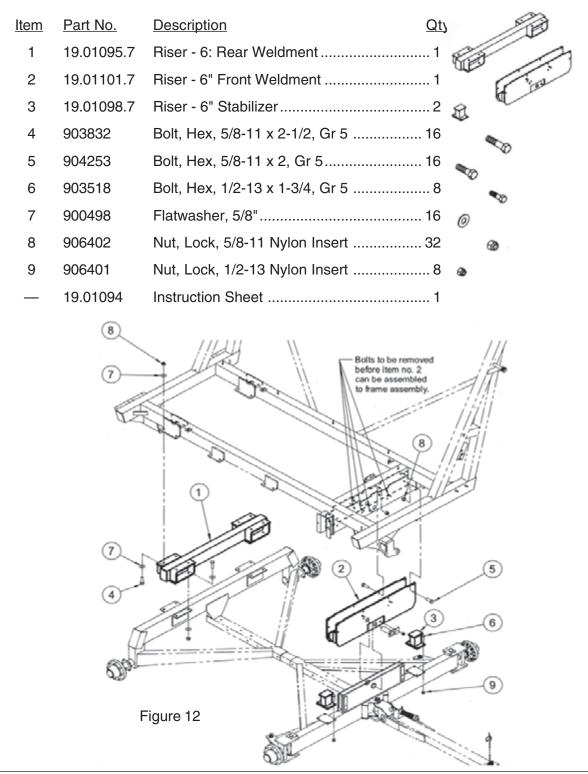


10. Leave enough slack in each cable so that the cables (Figure 11) just start to get snug when the box is raised and is just starting to tip. Recheck all cable clamps to make sure they are tight. Note: The cables may have to be readjusted to make sure the roof opens evenly and to set the amount the roof opens.



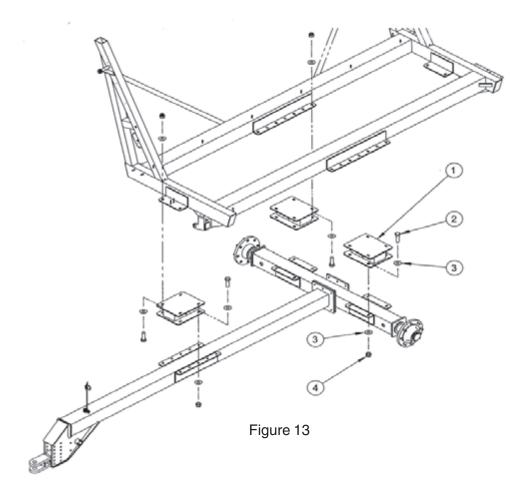
OPTIONAL 6" RISER KIT FOR 4-WHEEL RUNNING GEAR

The 6" Riser Kit allows a 4-wheel running gear style dump box to achieve a height increase of 6 inches.



SET-UP AND ASSEMBLY INSTRUCTIONS, continued OPTIONAL 6" RISER KIT FOR 2-WHEEL CART

<u>ltem</u>	Part No.	Description	<u>Qty</u>	o
1	19.01147.7	Riser Weldment - Cart 6"	3	
	19.01154	Hardware Bag - 6" Riser, Cart (contains items 2-4)	1	
2	903832	Bolt, Hex, 3/4-10 x 2-1/2, Gr 5	12	
3	900498	Flatwasher, 3/4"	16	0
4	906402	Nut, Lock, 3/4-10 Nylon Insert	32	6
_	19.01094	Instruction Sheet	1	

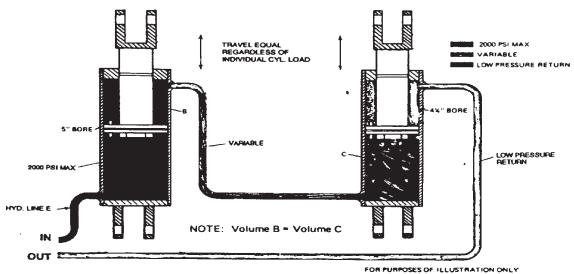


HYDRAULIC CYLINDER SYSTEMS

The lift cylinders are automatically kept in balance. External by-pass automatically allows oil to flow to lifting cylinder when piston reaches the end of its stroke in the retracting position and extended position.

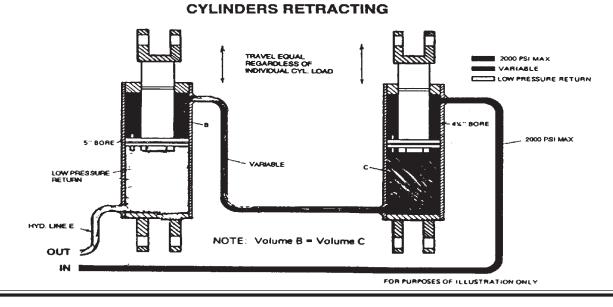
With the cylinders extending, as 2000-PSI oil goes into the bottom of the large cylinder, the fluid at the top of the large cylinder is forced into the bottom of the small cylinder so that both pistons rise at the same time.

With the cylinders retracting, as 2000-PSI oil goes into the top of the small cylinder, the fluid at the bottom of the small cylinder is forced into the top of the large cylinder so that both pistons lower at the same time.









HYDRAULIC CYLINDER SYSTEMS (continued)

HYDRAULIC SYSTEM

- 1. The hydraulic system of the dump box, as delivered, is charged with hydraulic fluid: In the retracted position there are 8 gallons of fluid in the cylinders. To extend (raise and tilt the box) will require an additional 7 gallons.
- 2. As a regular step of normal operation, hold control valve open for five additional seconds after cylinders are fully extended and fully retracted after dumping, to ensure equalization phasing of the cylinders.
- 3. Before initial operation, or if the system has sat for some period of time without being used or the system has been opened for maintenance (see paragraph 5), do the following before operating the dump box: with the tractor running at a low idle, hold the hydraulic valve in the down position for two minutes. (This will recharge the system through the internal by-pass valves).

If cylinders do not extend evenly, repeat Step 3.

- 4. If either or both cylinders fail to fully extend, check the fluid supply. If low, add fluid. (Make certain that seven gallons of space is available in reservoir to lower the unit to down position).
- 5. If any hoses are removed, make certain that all are reconnected according to "Instructions for installing and recharging cylinders in the field."

OPERATING INSTRUCTIONS



FAILURE TO EQUALIZE THE CYLINDERS BY PURGING THE AIR FROM THEM CAN SEVERELY DAMAGE BOTH CYLINDERS AND BOX.

 Before loading the box each work day, hold valve in "down" position for 60 seconds. (This purges any air intruding during over night cooling. Each time the box is dumped, hold valve open 2-3 seconds after box stops moving at the "up" and "down" position, remember that additional time may be required to raise the stabilizer cylinder in the down position. Once the box is full and you are ready to dump, you will become aware of two unique features of the dump box which will make dumping quick and easy.

The box moves horizontally a distance of approximately 13-1/2" toward the receiving unit as the box is being lifted. This feature provides the operator with ample space between the dump box and the receiving unit without having to get too close for dumping.

- 2. The actual pivot height of the boxes vary from 140" to 141-1/2" which will accommodate most receiving units. The actual clearance height over a container will be approximately 11-1/2" less than pivot height.
- 3. The 46 degree maximum dumping angle allows material to slide out easily.
- 4. The telescoping tongue unit (if equipped) is used when a steerable wagon is being operated in conjunction with harvesting equipment which interferes with dumping. By releasing the latch and pulling the tractor slowly ahead until elevator or blower, etc. clears the edge of the box, the dump cycle can be completed without having to unhook or swing anything out of the way. Once the dump cycle is complete, the tractor should be backed until the latch catches.
- 5. The dumping cycle time will depend on the hydraulic flow of the tractor. The higher the GPM rating of the hydraulics, the faster the cycle. (This system is designed for 3000 PSI and 16 GPM).
- 6. The roof will open automatically as the box is being dumped, and will close when the box is lowered.

OPERATING INSTRUCTIONS, continued

FILLING THE BOX

- 1. Your dump box is designed for filling directly from the harvesting equipment. It may be towed directly behind or beside harvesters in the field. A low 10' 4" average loading height allows elevators, conveyors, augers, and blowers from the harvester to clear the box easily during loading.
- 2. One of the outstanding features of the dump box is the synchronized equal-force hydraulic cylinder system. This means that you can fill the box to capacity without worrying about the load distribution in the box. (Do not exceed rated load).
- 3. The capacity of the dump box is stated throughout this manual in two ways:
 - a. Volume capacity (cubic feet)
 - b. Lifting capability (pounds)

Each of these is generally stated without any regard to the density (weight per unit of volume) of the commodity being handled. Because the densities of different commodities vary greatly, so will the usable capacity of the dump box vary from commodity to commodity.

DUMPING THE BOX

Use extreme caution when operating box on uneven ground.

Do not raise box unless wagon is parked beside a truck and in proper unloading position.



CAUTION

Avoid lowering box with a load whenever possible.



CAUTION

Do not exceed 24,000 pounds (evenly distributed load) on Model 9012 & 9015.



CAUTION

Always maintain 7 gallons reserve oil in the hydraulic reservoir. (Pumping air into the dump box's hydraulic system will cause severe damage).

OPERATING INSTRUCTIONS, continued

Transporting

The dump box has been equipped with amber reflectors on the front and sides, and red reflectors to the rear.

There are also red and amber transport lights on the rear frame. The plug for the light cord is mounted in the front. For your safety, and the safety of others, it is recommended that the transport lights are used when traveling public roadways.



NEVER EXCEED A MAXIMUM TOWING SPEED OF 20 MPH (32 KPH) WHEN TRANSPORTING THE DUMP BOX!

DO NOT allow anyone to operate this equipment who has not been trained in its safe operation!

Before unloading the dump box, park the box on level ground for unloading, and engage the tractor parking brake.

Fasteners

Retighten all fasteners every 50 loads or as required.

Storage

For off- season storage the following procedures are recommended:

- 1. Remove all crop material from the dump box.
- 2. Lubricate all grease points.
- 3. Run the dump box for several minutes to distribute lubrication.
- 4. Store inside.

DETERMINING USABLE CAPACITY

Usable capacity is rated in two ways, in pounds and in cubic feet. In no case should the upper limit of certified dumping weight of 24,000 lbs. ever be exceeded. Remember, at no time shall the maximum dumping weight be exceeded, even if volume capacity has not been reached. For commodities weighing 45 pounds per cubic foot or more, the load must be reduced to below the maximum allowable weight. Example: A load of sand at 90 pounds would lower your dumping capacity to only 12,000 pounds or half of a normal load because of the increased density of the product. The reason for this is due to the disadvantageous leverage of a high density load as the box swings outward during the dumping cycle. Additionally, the materials being handled by the dump box must be of a flowable type configuration, materials which compact or stick in bulk will damage the unit severely by not unloading freely during the dumping cycle.

MATERIAL LBS. BU. LBS. CU. FT ALFALFA MEAL 21 17 ALFALFA SEED 60 48 ALMONDS, BROKEN OR WHOLE 35-37 28-30 APPLES. GREEN 48 39 APPLES, DRIED 24 19 AMMONIUM SULPHATE 56 45 BARK, WOOD, REFUSE 12-25 10-20 BARLEY 47 38 BEANS, CASTOR 45 36 BEANS, NAVY, DRY 60 48 BEETS 56 45 **BLUEGRASS SEED** 14 11 BRAN 20 16 BUCKWHEAT 50-52 40-42 CABBAGE 50 40 CARROTS 50 40 CHERRIES 56 45 CHESTNUTS 50 40 CLOVER, SEED 60 48 CORN, SWEET 35 28 CORN. SEED IN EAR 56 45 CORN, SHELLED 56 45 CORN, POP IN EAR 28 35 CORN MEAL 47-50 38-40 COTTONSEED, DRY DELINTED 44 35 COTTONSEED. MEAL 44-50 35-40 CRANBERRIES 40 32 CUCUMBERS 40 50 FESCUE, MEADOW 22 18 FESCUE, OTHER VARIETIES 14 11 FLAXSEED 45 56 FLOUR, WHEAT 44-50 35-40 FORAGE (CAUTION-VARIES GREATLY) 31-45 25-36 GRAIN. DISTILLERS. DRY 37 30 GRAPES 48 39 GRASS SEED 12-15 10-12 HEMP SEED 44 35 HOMINY 46 37 HOPS. DRY SPENT 44 35 HOPS, WET SPENT 62-68 50-55

GENERAL COMMODITIES WEIGHTS

MATERIAL	LBS. BU.	LBS. CU. FT.
MALT, WHOLE, DRY	34-37	27-30
MALT, MEAL	45-50	36-40
MILLET SEED, COMMON	50	40
MUSTARD SEED	56	45
MILO, CORN SORGHUM	56	45
OATS	32	26
ONIONS	57	46
ORCHARD GRASS SEED	14	11
PEACHES, FRESH	48	39
PEANUTS, UNSHELLED, RAW	19-25	15-20
PEAS, GREEN	56	45
PLUMS	64	51
POTATOES	60	48
POTATOES, SWEET	54	43
RICE, ROUGH	45	36
RUTABAGAS	60	48
RYE	55	44
SAWDUST SHAVINGS, WOOD SLASH, SOFTWOOD SLASH, HARDWOOD SHAVINGS, HARDWOOD SILAGE, CORN SOYBEANS, WHOLE SUGAR CANE SUGAR BEETS SUNFLOWER SEEDS	12-16 19 .28/CMT .33/CMT .40/CMT 31-45 60 13-27 68 20-26	10-13 15 25-36 48 10-22 55 16-21
TIMOTHY SEED	50	40
TOBACCO, SCRAPS	19-21	15-25
TOMATOES	60	48
TURNIPS	60	48
WALNUTS	50	40
WHEAT	60	48
WHEAT, CRACKED	56	45
WOOD CHIPS, SCREENED	15-25	12-20

The preceding are simply general listings for some of the various commodities that may be used in a dump box. Please remember that moisture and compaction or processing will change the specific weight of a commodity greatly from that which is listed, and as such, the aforementioned listings are guidelines only. You may have to weigh one (1) CU. FT. of material to verify how much you may put into a dump cart safely.

LUBRICATION

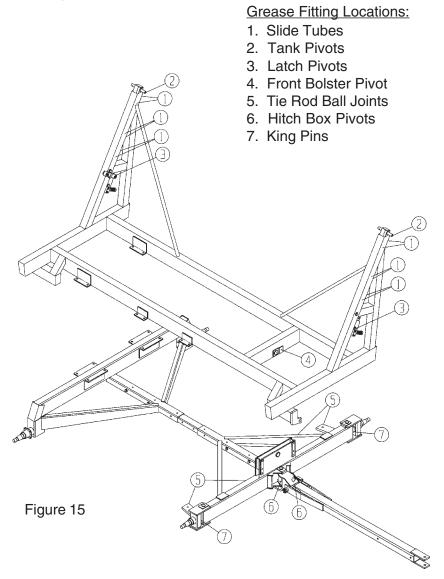


Do not unclog, adjust, lubricate or service the dump box unless the "Power Source Shut Down Procedure" (page 3) has been performed.

Sufficient oil and grease will prevent excessive part wear and early failure. Lubricate according to instructions. Grease fittings are provided on the running gear at several important pivot points. Fittings should be lubricated at least four times a year. Use a good grade of lithium base grease. Wipe dirt from the fittings before greasing to prevent any dirt from being forced into the bearings or pivots. Replace any missing fittings. To minimize dirt build-up, avoid excessive greasing.

NOTE: In addition to the fittings, inspect and repack the wheel bearings at least twice a year.

Daily or after every 30 loads



ADJUSTMENTS

INSTRUCTIONS FOR INSTALLING AND REPHASING CYLINDER IN THE FIELD

LIFT CYLINDERS

- 1. Mount the cylinders on elevator but do not hook up the rod ends.
- 2. Hook up all hoses, lines, fittings and valves.
- 3. After the system is properly plumbed, hook it up to the hydraulic power source, and make sure there is an adequate supply of hydraulic fluid in the reservoir. (Approximately 15 gallons of fluid are required to fully charge and extend all cylinders at once).



WARNING

Avoid high pressure fluids. Keep hands and body away from escaping fluid. Fluid under pressure can penetrate skin causing severe bodily injury.

- 4. Loosen the bleed plug located at the top of the front lift cylinder. Move the control valve for the lift cylinder to the down position and hold until fluid starts coming out of the bleed port. Release the control valve and retighten the bleed plug. Repeat the procedure on the rear lift cylinder.
- 5. Move control valve to "down" position and hold for two or more minutes. Then move control to the "up" position and watch the rods extend. If the cylinders are fully charged, the rods will reach the end of their strokes at the same time. If they do not, move control valve to "up" position, extend both cylinders and hold for five seconds. Continue repeating this sequence until both cylinders extend and retract together, reaching the ends of the strokes at the same time.

POLE

The 12-foot dump box model is available with an optional extendible pole. The pole extends to facilitate hook-ups.

To use the extendible pole, back the towing vehicle near the hitch clevis. Then lift the latch and extend the pole. Securely attach the hitch clevis to the towing vehicle with a locking hitchpin. Back up the towing vehicle to relatch the pole.

ASSIST SPRING

Your dump box with extendible pole has an adjustable assist spring. To adjust, loosen the double nut on the spring rod. Then tighten or loosen the two nuts according to whichever adjustment you are seeking and retighten the nuts to each other.

ADJUSTMENTS, continued

TIRES



WARNING

Always order and install tires and wheels with appropriate capacity to meet or exceed the anticipated weight to be placed on the running gear.

The pressure should be frequently checked and maintained at the appropriate values.

Recommended Tire Pressures:

425 x 22.5 inch tire (Used Truck Tires) operating air pressure 60-65 psi

20.8 x 38 14 PLY tire (Firestone) operating air pressure 32 psi

520/85 D38 operating air pressure 50-64 psi

Non-dump side tires must be filled with liquid ballast.

WHEELS



Frequently check the wheel nuts to make sure they are securely fastened. Nuts should be torqued to 150 ft/lb.

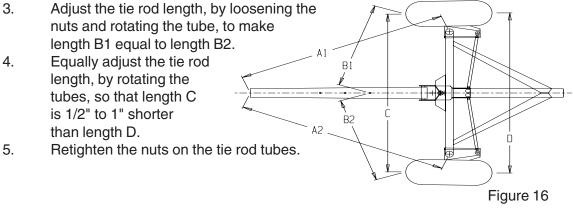
WHEEL BEARINGS

To adjust the wheel bearings, remove the grease cap and cotter pin. Tighten the slotted nut until there is a slight drag on the wheel. Then, back the nut off one notch and lock its position with the cotter pin. Replace the grease cap after the adjustment is made.

TOE-IN

The initial "toe-in" is factory set. However, if excessive Dump Box sway or tire wear is noted the "toe-in" should be checked and readjusted in the following manner:

- 1. Check ball joints, if loose retorque to 100 ft. lbs. (min) for the dump box running gear. Tighten to next slot in nut and replace the cotter pin.
- 2. Adjust the length A1 to within 1/16" of length A2.



HYDRAULIC TROUBLE SHOOTING GUIDELINES

Most of the failure in hydraulic systems have essentially the same symptoms—a gradual or sudden loss of high pressure, with consequent loss of power in the work cylinder, causing it to stall out under light loads, or to move more slowly than normal. Any one of the system components may be at fault, and by following instructions, the problem can usually be pinpointed in a short time. These instructions are intended for spotting problems in a system which previously has been working properly. A reasonably accurate pressure gauge and flow gauge must be used, and the original pump working pressure and GPM flow must be known.

TEST METHOD

The most likely test point in the system is: the piston blow-by. Leakage past the cylinder piston can be detected by testing each cylinder at mid stroke in a fixed length position for fluid by-pass.

TRACTOR PUMPS

Many of the newer tractors and self-propelled machines sold today incorporate a constant pressure-full bypass or closed center type of hydraulic pump. These pumps will not lift to full capacity unless a relief valve of fifty percent greater pressure is first installed. Checking this system for pressure only is not sufficient, as flow is required to move a hydraulic cylinder in and out, and this will not be present if the system has reached hydraulic lock pressure and flow has been shut down while pressure is retained with a check valve. Miller Pro dump box hydraulic systems require 2250 PSI min for 12' dump box and 2800 PSI for 15' dump box, and an oil flow of 16 GPM to achieve normal operation. Hydraulic systems not giving this output will demonstrate less than satisfactory performance. Please consult owner's manual of the power unit for further full explanation of the hydraulic system operating parameters.

New box systems occasionally experience a climbing or creeping of cylinders from time to time. This is usually caused by aerated oil trapped between the two cylinder glands, normally causing the smaller cylinder to rise several inches and extending the smaller stabilizer cylinder. In this instance, rechecking fitting tightness and checking for damaged lines should remedy the problem. Another cause normally found is a small oil bypass around the four-way valve on the power unit. This will push both cylinders evenly a small distance until pressures are even, again causing the small stabilizer cylinder to extend first. Additionally, owners will find that when the units are parked unhooked during periods of extreme temperature variations, that thermal expansion of the oil will cause the cylinders to rise six to ten inches in a tightly sealed hydraulic circuit. This is considered normal and simply repurging the circuit before further use will correct the system.

TROUBLE SHOOTING

PROBLEM	POSSIBLE CAUSE	POSSIBLE REMEDY
	NO HYDRAULIC POWER	-CONNECT HYDRAULIC CIRCUIT TO POWER SOURCE. -ACTUATE PROPER TRACTOR HYDRAULIC CONTROL LEVER. -ENGAGE PTO IF REQUIRED -CHECK QUICK-COUPLERS TO BE CER- TAIN THEY ARE COMPLETELY EN- GAGED OR COMPATIBLE. -CHECK RESERVOIR OIL LEVEL. -LOWER BACK PRESSURE BY REPLAC- ING CLOGGED OIL FILTER.
BOX DOES NOT RAISE OR LOWER	INTERNAL LEAKAGE IN THE LIFT CYLINDERS.	-REPLACE PISTON SEALS IN LIFT CYLINDERS.
	BOX OVERLOADED.	-REMOVE PART OF LOAD.
	INSUFFICIENT HYDRAU- LIC PRESSURE.	-USE POWER SOURCE CAPABLE OF PROVIDING 2800 PSI AT FULL RESTRICTION AND FLOW.
	HYDRAULIC CIRCUIT CROSSED.	-TRACE HYDRAULIC CIRCUIT AND CON- NECT SO FRONT AND REAR CYLIN- DER PORTS ARE IN SERIES.
BOX RAISES OR LOWERS SLOWLY	NOT ENOUGH HYDRAU- LIC OIL VOLUME IN LINE. FLOW RESTRICTOR IN DEALER INSTALLED HOSES. HYDRAULIC SUPPLY LINES ARE TOO SMALL DIAMETER INTERNAL LEAKAGE IN LIFT CYLINDERS.	-USE POWER SOURCE CAPABLE OF PRO- VIDING 16 GPM MINIMUM. -REPLACE WORN PUMP. -REPLACE WORN CONTROL VALVES. -CHECK ADJUSTMENT OF VALVE. -SPEED CONTROL (SEE TRACTOR OWNER'S MANUAL). -REPLACE CLOGGED OIL FILTER. -SPEED UP TRACTOR ENGINE. -DO NOT DEPRESS TRACTOR CLUTCH (JOHN DEERE). -SLOW VALVE SPEED. -REPLACE PISTON SEALS IN LIFT CYLIN- DERS.
	BOXOVERLOADED	-REMOVE PART OF LOAD.

TROUBLE SHOOTING, continued

PROBLEM	POSSIBLE CAUSE	POSSIBLE REMEDY
BOX CHATTERS	AIR IN HYDRAULIC SYSTEM.	-ACTUATE CYLINDERS TO FULLY RETRACTED STROKE TO PURGE SYSTEM OF AIR.
WHEN RAISING OR LOWERING, OR DOES NOT RAISE TO FULL HEIGHT	OIL LEVEL LOW - CHECK FOR MINIMUM USABLE OIL.	-ADD HYDRAULIC OIL (SEE TRACTOR OWNER'S MANUAL) USE HYDRAULIC FLUID ONLY.
	INSUFFICIENT RESER- VOIR CAPACITY.	-CHANGE POWER SOURCE TO PROVIDE A MINI- MUM RESERVOIR CAPACITY OF 7 GAL- LONS USABLE OIL.
STABILIZER CYLIN- DERS DO NOT EX- TEND OR RETRACT PROPERLY	TRACTOR HAS RESTRICTOR IN SYS- TEM. TRACTOR FOUR-WAY VALVE IS LEAKING OIL	-SEE TRACTOR OWNER'S MANUAL FOR IN- STRUCTIONS AND OPERATION WITH DOUBLE ACTING CYLINDERS. -REPLACE PISTON SEALS IN STABILIZER CYLINDER
BOX DOES NOT DUMP	BOX RAISES SLOWLY.	-SEE TROUBLESHOOTING SECTION - BOX RAISES SLOWLY.
PROPERLY.	BOX DUMPED ON SIDE HILL.	-DUMP BOX ON LEVEL GROUND.
BOX RAISES ONE END.	HYDRAULIC CIRCUIT NOT COMPLETELY FILLED. DRY CYLINDER IN- STALLED AND NOT PURGED. BROKEN OIL LINE.	-CHECK FOR LINE LEAKS - BAD SEALS - LEAKY QUICK COUPLER. -POWER SOURCE HAS TOO LITTLE HYDRAULIC FLOW (GPM)

OPTIONAL FEATURES & ACCESSORIES

SAFETY CHAIN (#12.00040)

If the Dump Box is going to be transported on a public highway, a safety chain must be obtained and installed. Always follow state and local regulations regarding a safety chain and auxiliary lighting when farm equipment on a public highway. Be sure to check with local law enforcement agencies for your own particular regulations. Only a safety chain (not an elastic or nylon/plastic tow strap) should be used to retain the connection between the towing and towed machines in the event of separation of the primary attaching system.

SURGE BRAKES

For those applications where brakes are needed, surge brakes are available for the 12 and 15-foot dump boxes with 4-wheel running gear.

FOR EXTEND-O-MATIC BRAKE TONGUE

- 1. Assemble the hydraulic tubing to your running gear, using the instruction sheet and parts list for proper placement.
- 2. Remove master cylinder cover, and fill reservoir of hydraulic cylinder with hydraulic brake fluid, and bleed air from lines. Then refill reservoir, it is important that all air is removed from brake lines.
- 3. Note that the hydraulic cylinder is mounted on spring loaded slides which periodically need to be cleaned and lubricated
- 4. Hydraulic cylinder is activated by a spring loaded push rod operating between it and the tongue insert. These components should be oiled periodically to insure free movement of actuator shaft.
- 5. Provisions for safety chains are provided and can be purchased as extra equipment. It is mandatory that safety chains be used for all highway use.

OPTIONS & ACCESSORIES

HYDRAULIC BRAKE INSTRUCTIONS

1. Adjust Brakes.

The brake adjustment nut is located behind a slot at the bottom of the backing plate. Tighten until lining drags lightly on the drum. Then back off the adjustment 10 to 12 notches. This allows wheel to turn freely. Always rotate drum in direction of forward rotation only.

2. Brake Lines.

Check that all lines are fastened securely. Be sure there are no sharp bends or kinks to retard flow of hydraulic fluid.

3. Bleeding the System.

Use only high-quality brake fluid (SAE 70 R1 or 70 R3). To bleed the system manually fill master cylinder with fluid. Install bleeder hose on first wheel cylinder. Place free end of hose in glass container submerged in fluid (to observe bubbles). Pump actuator with full strokes until bubbles no longer rise to the surface of fluid. Close bleeder screw securely. Repeat bleeding operation at each wheel. Make sure the master cylinder reservoir remains no less than 1/2 full. Fill and secure filler cap when operation is complete.

4. Master Cylinder.

The EXTEND-O-MATIC tongue has an overload control device built in to avoid destructive hydraulic line pressure that could be experienced in panic stops. The master cylinder is allowed to reach the maximum pressure permissible and then moves back on preloaded spring mounts. This holds the pressure on the brake shoes until the braking is reduced to normal. The spring mounting bracket must be kept free from dirt and rust, and should be lubricated frequently to keep brakes from grabbing or becoming erratic. This unit is found under the guard at the rear of the tongue body.

5. Hydraulic Damper.

This is found at the forward end of the torque insert. It is a hydraulic shock absorber installed between the tongue body and latch slide assembly. This dampens the brake action and prevents brakes from erratic operation. Keep slide lubricated lightly. Slide must move slowly but freely.

6. EXTEND-O-MATIC Tongue.

The tongue assembly is designed for dual purpose use. For ease in hooking up - unlatch the insert latch and move tongue insert forward up to 18" to tractor tow bar. After hooking up, back up first to latch the insert. After latching, the insert then applies brakes. Special brake shoes prevent brakes from holding as wagon is backed up. In normal operation the wagon attempts to push the tractor when slowing down. The hydraulic cylinder then activates brakes until wagon reaches tractor speed. Clean and lubricate insert occasionally to maintain smooth operating brakes. To remove insert from the tongue body — remove large bolt at center of tongue assembly. **Always replace bolt**.

TORQUE SPECIFICATIONS

NOTE: Use these torque values when tightening hardware (excluding: Locknuts and Self-tapping, Thread Forming and Sheet Metal Screws) unless specified otherwise.

All torque values are in Lb-Ft except those marked with an * which are Lb-In (for metric torque value Nm, multiply Lb-Ft value by 1.355 or Lb-In value by 0.113)

Unified	Grade	2	Grade	5	Grade	8
National Thread	Dry	Lubed	Dry Lubed		Dry	Lubed
8-32	19*	14*	30*	22*	41*	31*
8-36	20*	15*	31*	23*	43*	32*
10-24	27*	21*	43*	32*	60*	45*
10-32	31*	23*	49*	36*	68*	51*
1/4-20	66*	50*	9	75*	12	9
1/4-28	76*	56*	10	86*	14	10
5/16-18	11	9	17	13	25	18
5/16-24	12	9	19	14	25	20
3/8-16	20	15	30	23	45	35
3/8-24	23	17	35	25	50	35
7/16-14	32	24	50	35	70	55
7/16-20	36	27	55	40	80	60
1/2-13	50	35	75	55	110	80
1/2-20	55	40	90	65	120	90
9/16-12	70	55	110	80	150	110
9/16-18	80	60	120	90	170	130
5/8-11	100	75	150	110	220	170
5/8-18	110	85	180	130	240	180
3/4-10	175	130	260	200	380	280
3/4-16	200	150	300	220	420	320
7/8-9	170	125	430	320	600	460
7/8-14	180	140	470	360	660	500
1-8	250	190	640	480	900	680
1-14	270	210	710	530	1000	740
Metric	Grade	Grade 8.8 (88) Grade 10.9 (10.9)		Grade 10.9 (10.9)		12.9
Course Thread	Dry	Lubed	Dry	Lubed	Dry	Lubed
M6-1	8	6	11	8	13.5	10
M8-1.25	19	14	27	20	32.5	24
M10-1.5	37.5	28	53	39	64	47
M12-1.75	65 102 5	48 76 5	91.5 145.5	67.5	111.5	82
M14-2	103.5	76.5	145.5	108	176.5	131
M16-2	158.5	117.5	223.5	165.5	271	200

Tightening Hydraulic Fittings



CAUTION

Escaping fluid under pressure can penetrate the skin causing serious injury. Relieve pressure before disconnecting hydraulic or other lines. Tighten all connections before applying pressure. Keep hands and body away from pin holes and nozzles which eject fluids under high pressure. Use a piece of cardboard or paper to search for leaks. DO NOT use your hand.

Tightening O-Ring Fittings*

- 1. Inspect O-ring and seat for dirt or obvious defects.
- 2. On angle fittings, back the locknut off until washer bottoms out at top of groove.
- Hand tighten fitting until backup washer or washer face (if straight fitting) bottoms on face and O-ring is seated.
- 4. Position angle fittings by unscrewing no more than one turn.
- 5. Tighten straight fittings to torque shown.
- * Torque values shown are based on lubricated connections as in reassembly.

Tightening Flare Type Fittings*

- 1. Check flare and flare seat for defects that might cause leakage.
- 2. Align hose end with fitting before tightening.
- 3. Lubricate connection and hand tighten swivel nut until snug.
- 4. To prevent twisting the hose, use two wrenches. Place one wrench on the hose end body and with the second wrench, tighten the swivel nut to the torque shown in this chart.
- * Torque values shown are based on lubricated connections as in reassembly.

Thread Size	Nut Size Across Flats	Torque	Value*	Tur Tig (After	nmended ns To ghten r Finger tening)
(ln.)	(ln.)	(Nm)	(lb-ft)	(Flats)	(Turns)
3/8	1/2	8	6	2	1/3
7/16	9/16	12	9	2	1/3
1/2	5/8	16	12	2	1/3
9/16	11/16	24	18	2	1/3
3/4	7/8	46	34	2	1/3
7/8	1	62	46	1-1/2	1/4
1-1/16	1-1/4	102	75	1	1/6
1-3/16	1-3/8	122	90	1	1/6
1-5/16	1-1/2	142	105	3/4	1/8
1-5/8	1-7/8	190	140	3/4	1/8
1-7/8	2-1/8	217	160	1/2	1/12

Tube Size OD	Nut Size Across Flats	Torque	e Value*	Tur Tiç (Afte	nmended rns To ghten r Finger tening)
(ln.)	(ln.)	(Nm)	(lb-ft)	(Flats)	(Turns)
3/16	7/16	8	6	1	1/6
1/4	9/16	12	9	1	1/6
5/16	5/8	16	12	1	1/6
3/8	11/16	24	18	1	1/6
1/2	7/8	46	34	1	1/6
5/8	1	62	46	1	1/6
3/4	1-1/4	102	75	3/4	1/8
7/8	1-3/8	122	90	3/4	1/8

LIMITED WARRANTY

Art's-Way Manufacturing Co., Inc. warrants the products it sells to be free from defects in material and workmanship for a period of one (1) year after the date of delivery to the first (original) purchaser, subject to the following conditions:

- Art's-Way Manufacturing Co., Inc. obligation and liability under this warranty is to repair or replace (at the company's option) any parts that upon manufacture were defective in material or workmanship.
- All parts and repairs under this warranty shall be supplied at Art's-Way Manufacturing Co., Inc. or an authorized Art's-Way Manufacturing Co., Inc. dealer, at the option of Art's-Way Manufacturing Co., Inc.
- Art's-Way Manufacturing Co., Inc. warranty does not extend to parts and elements not manufactured by Art's-Way Manufacturing Co., Inc. and which carry the warranty of other manufacturers.
- Transportation or shipping to an authorized dealer for necessary repairs is at the expense of the purchaser.
- Art's-Way Manufacturing Co., Inc. makes no other warranty expressed or implied and makes no warranty of merchantability or fitness for any particular purpose beyond that expressly stated in this warranty. Art's-Way Manufacturing Co., Inc. liability is limited to the terms set forth in this warranty and does not include any liability for direct, indirect, incidental or consequential damages or expenses of delay and the Company's liability is limited to repair or replacement of defective parte
 - Company's liability is limited to repair or replacement of defective parts as set forth herein.
- Any improper use and/or maintenance, including operation after discovery of defective or worn parts, operation beyond the rated capacity, substitution of parts not approved by Art's-Way Manufacturing Co., Inc., or any alternation or repair by other than an authorized Art's-Way Manufacturing Co., Inc. dealer which affects the product materially and adversely, shall void the warranty.
- No dealer, employee or representative is authorized to change this warranty in any way or grant any other warranty unless such change is made in writing and signed by an officer of Art's-Way Manufacturing Co., Inc.
- Some states do not allow limitations on how long an implied warranty lasts or exclusions of, or limitations on relief such as incidental or consequential damages, so the above limitations or exclusions may not apply to you. This warranty gives you the specific legal rights and you may have other rights that vary from state to state.

ART'S-WAY MANUFACTURING CO., INC. TECHNICAL MANUALS



Manuals are available from your local dealer or Art's-Way Manufacturing Co., Inc. for the operation, service, and repair of your machine. For prompt convenient service, contact your local dealer for assistance in obtaining the manuals for your machine.

Your local dealer can expedite your order for operator manuals, illustrated parts catalogs, service manuals, and maintenance records.

Always give the Machine Name, Model, and Serial Number so your local dealer can provide the correct manuals for your machine. Art's-Way Manufacturing Co., Inc. reserves the right to make improvements in design or changes in specifications at any time without incurring any obligation to install them on units previously sold.

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