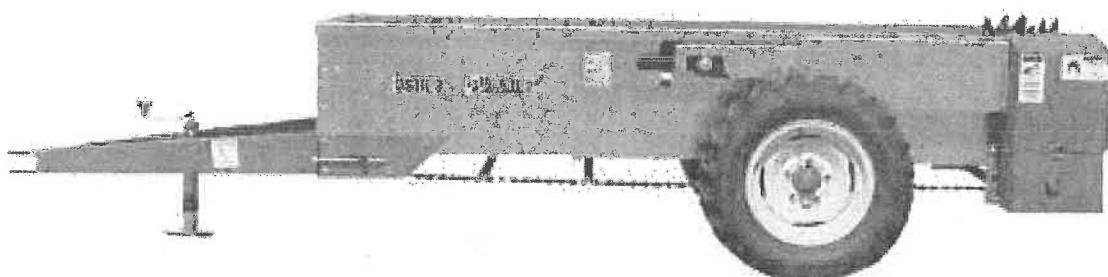
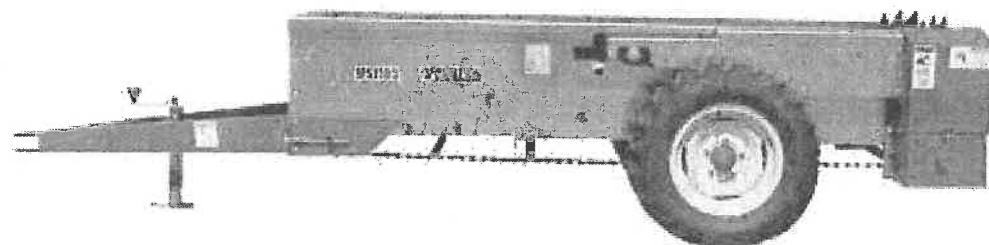
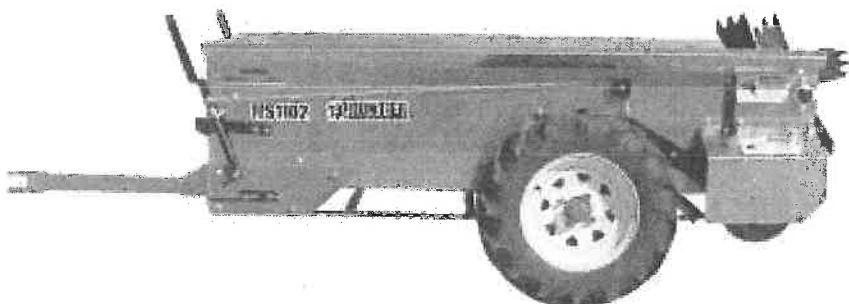


OPERATOR'S MANUAL

MANURE SPREADER

MS1102G
MS1105G
MS1108G



HSMFG0903 REV. 2

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H&S WARRANTY

H&S Manufacturing Co., Inc. ("H&S") warrants this product to be free from defect in material and workmanship. Except as noted below, this warranty term is twelve (12) months from the date of delivery of the product to the original purchaser by an authorized H&S dealer. Under this warranty, H&S will repair or replace, at its option, any covered part which is found to be defective in material or workmanship during the applicable warranty term. In no case will the covered repair cost of a part or parts exceed the replacement cost of that part. Warranty service must be performed by H&S or a dealer authorized by H&S to sell and/or service the product involved, which will use only new or remanufactured parts or components furnished by H&S. This warranty includes approved parts and labor to fix the product but does not include, and the purchaser is responsible for, any service call and/or transportation of the product to and from the dealer's place of business, for any premium charged for overtime labor requested by the purchaser, and for any service work not directly related to any defect covered under this warranty. This warranty includes only those components of the product manufactured by H&S. Warranty for any component not manufactured by H&S including, but not limited to, engines, batteries, tires, rims, hydraulic motors, pumps, etc., are covered by the warranty, if any, provided separately by their respective manufacturers.

This warranty in all its parts, is extended solely to the original purchaser of the product, is terminated upon any subsequent transfer or sale from or by the original purchaser and extends no third party benefits or rights whatsoever.

The warranty term for any product used in any commercial, custom, for hire or rental application, is limited to six (6) months from the date of delivery of the product to the original purchaser by an authorized H&S dealer.

Polybonded (polyethylene and plywood) panels utilized in H&S Manure Spreaders are warranted, to the original purchaser, to not wear through and the polyethylene overlay to not tear free of the plywood for the functional life of the spreader. This specific warranty on polybonded panels includes only replacement of any defective panel part without any allowance for labor beyond the terms of the general warranty (12 or 6 months), and is further limited to manure spreaders used to spread normal agricultural manure.

This warranty does not include: (1) Any product that has been altered or modified in ways not approved by H&S; (2) Depreciation or damage caused by normal wear, misuse, improper or insufficient maintenance, improper operation, accident or failure to follow the product Operator Manual recommendations and product decal recommendations; (3) Normal maintenance parts and service; (4) Repairs made with parts other than those available from H&S or performed by anyone other than H&S or a dealer authorized by H&S to sell and/or service the product involved.

To secure warranty service the purchaser must report the product defect to a dealer authorized by H&S to sell and/or service the product involved within the applicable warranty term together with evidence of the warranty start date and make the product available to that dealer within a reasonable period of time.

THERE ARE NO WARRANTIES WHICH EXTEND BEYOND THE DESCRIPTION ON THE FACE OF THIS WARRANTY. H&S and the companies affiliated with it makes no warranties, representations, or promises, express or implied, as to the quality or performance or freedom from defect of its products other than those set forth above and **NO IMPLIED WARRANTY OF MERCHANTABILITY, FITNESS OR FITNESS FOR A PARTICULAR PURPOSE IS MADE.** IN NO EVENT WILL THE DEALER, H&S OR ANY COMPANY AFFILIATED WITH H&S BE LIABLE FOR INCIDENTAL OR CONSEQUENTIAL DAMAGES. The ONLY REMEDY the purchaser has in connection with the breach of performance of any warranty on H&S products are those set forth above.

The selling dealer has no authority to make any representation or promise on behalf of H&S, or to modify the terms or limitations of this warranty in any way.

AFTER COMPLETION, DEALER SHOULD REMOVE AND RETAIN FOR RECORDS

FRONTIER DEALER PRE-DELIVERY CHECK LIST

After the Manure Spreader has been completely set-up, check to be certain it is in correct running order before delivering 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.

- All Shields and Guards are in place and fastened.
- All grease fittings have been lubricated.
See lubrication guide in this manual.
- All mechanisms are operating trouble free.
- All roller chains are at proper tension.
- Apron chains are adjusted properly.
- All bolts and fasteners are tight.
- All decals are in place and legible.

(Dealer's Name)

Model Number

Serial Number

(Signature of Pre-Delivery Inspector)

(Inspection Date)

DEALER DELIVERY CHECK LIST

This check list that follows is an important reminder of valuable information that should be passed on to the customer at the time this Manure Spreader is delivered.

Check off each item as you explain it to the customer.

This delivery check list, when properly filled out and signed assures the customer that the Pre-delivery service was satisfactorily performed.

- Explain to the customer that the pre-delivery inspection was made.
- Explain to the customer all the safety precautions they must exercise when operating this unit.
- Explain recommended loads for different types of materials.
- Explain to customer that regular lubrication is required for proper operation and long life of machine. Show customer the lubrication section of Operators Manual.
- Give the customer Operators Manual and make sure he reads and understands all operating and service instructions.
- Record Serial Number on page 23 of this Manual.

Date Delivered _____

Dealer's Name _____

By _____

Signature of Original Buyer

FRONTIER MODEL MS1102 GROUND DRIVEN MANURE SPREADER

Your Frontier spreader has been manufactured of the finest quality materials and components. The performance you get from your machine is largely dependent upon how well you read and understand this manual and apply this knowledge. There is a right and a wrong way to do everything. Please do not assume that you know how to operate and maintain your spreader before reading this manual carefully. Keep this manual available for ready reference.

SPECIFICATIONS

	<u>MS1102</u>
Top of Flare Width.....	.28-1/2"
Inside Width.....	22"
Inside Length.....	72"
Inside Depth.....	17"
Overall Length.....	9'-1"
Overall Loading Height (Top of Flare).....	30"
Overall Width w/Standard Tires.....	42"
Standard Tire Size.....	6-12 Traction
Spindle Size.....	1-1/4" Diameter
of Beater.....	20"
Number of Paddles.....	8
Main Apron Chain.....	55 Detachable
Capacity - Cu. Ft. Struck Level.....	13.6
Heaped (Old Rating) Bu.....	25 Bu.
Apron Drive.....	Adjustable Ratchet Drive
Weight w/Tires.....	350 Lbs.

SPECIFICATIONS SUBJECT TO CHANGE WITHOUT NOTICE

Note:

Determine right and left side of spreader by viewing it from the rear. If instructions or parts lists call for hardened bolts see page 7 to identify.

FRONTIER MODEL MS1105/MS1108 GROUND DRIVEN MANURE SPREADER

Your Frontier spreader has been manufactured of the finest quality materials and components. The performance you get from your machine is largely dependent upon how well you read and understand this manual and apply this knowledge. There is a right and a wrong way to do everything. Please do not assume that you know how to operate and maintain your spreader before reading this manual carefully. Keep this manual available for ready reference.

SPECIFICATIONS

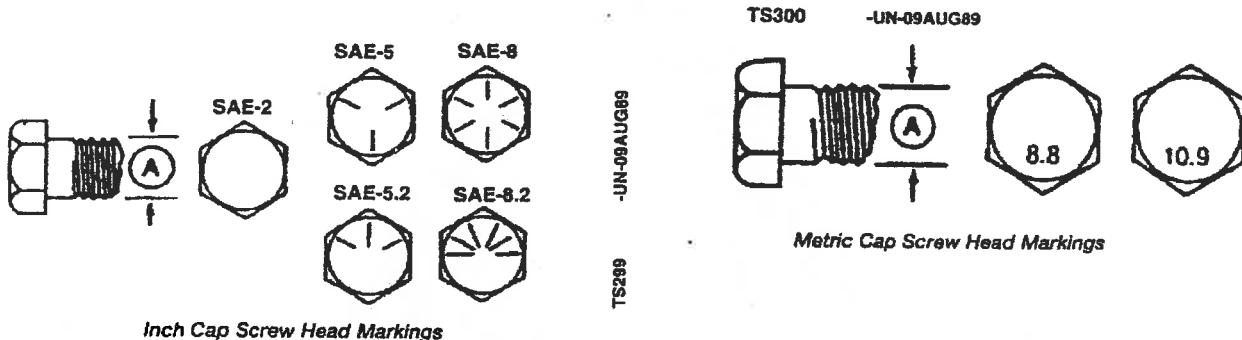
	<u>MS1105</u>	<u>MS1108</u>
Inside Width.....	36"	48"
Inside Length.....	97"	97"
Inside Depth.....	17.5"	17.5"
Overall Width w/7.60 x 15 Tires.....	58"	71"
Overall Length.....	13'-5"	13'-5"
Overall Height w/7.60 x 15 Tires.....	35"	35"
Diameter of Beater.....	17.5"	17.5"
Ratchet Drive.....	Two Speed.....	Two Speed
Weight w/7.60 x 15 Tires.....	790 Lbs.....	975 Lbs.
Capacity - Cu. Ft. Struck Level.....	35.....	47
Heaped (Old Rating) Bu.....	50 Bu.....	80 Bu.
Reat Pan.....	Optional.....	Optional
Swing Away Jack.....	Standard.....	Standard

SPECIFICATIONS SUBJECT TO CHANGE WITHOUT NOTICE

Note:

Determine right and left side of spreader by viewing it from the rear. If instructions or parts lists call for hardened bolts see page 7 to identify.

CAP SCREW TORQUE VALUES



INCH CAP SCREW TORQUE VALUES

Bolt Diameter Wrench (A)	Size	SAE 2		Cap Screw Grade SAE 5		SAE 8	
		N-m	lb.-ft	N-m	lb.-ft	N-m	lb.-ft
1/4"	7/16"	7	(5)	11	(8)	16	(12)
5/16"	1/2"	14	(10)	23	(17)	33	(24)
3/8"	9/16"	24	(18)	41	(30)	54	(40)
7/16"	5/8"	41	(30)	68	(50)	95	(70)
1/2"	3/4"	61	(45)	102	(75)	142	(105)
9/16"	13/16"	88	(65)	142	(105)	203	(150)
5/8"	15/16"	122	(90)	197	(145)	278	(205)
3/4"	1-1/8"	217	(160)	353	(260)	495	(365)
7/8"	1-5/16"	224	(165)	563	(415)	800	(590)
1"	1-1/2"	332	(245)	848	(625)	1193	(880)
1-1/4"	1-7/8"	665	(490)	1492	(1100)	2393	(1765)

METRIC CAP SCREW TORQUE VALUES

Bolt Diameter Wrench (A)	Size	Markings on Cap Screw Heads 8.8 10.9			
		N-m	lb.-ft	N-m	lb.-ft
5 mm	8 mm	6	(4.5)	9	(6.5)
6 mm	10 mm	10	(7.5)	15	(11)
8 mm	13 mm	25	(18)	35	(26)
10 mm	16 mm	50	(37)	75	(55)
12 mm	18 mm	85	(63)	130	(97)
16 mm	24 mm	215	(159)	315	(232)
20 mm	30 mm	435	(321)	620	(457)
24 mm	36 mm	750	(553)	1070	(789)
30 mm	46 mm	1495	(1103)	2130	(1571)



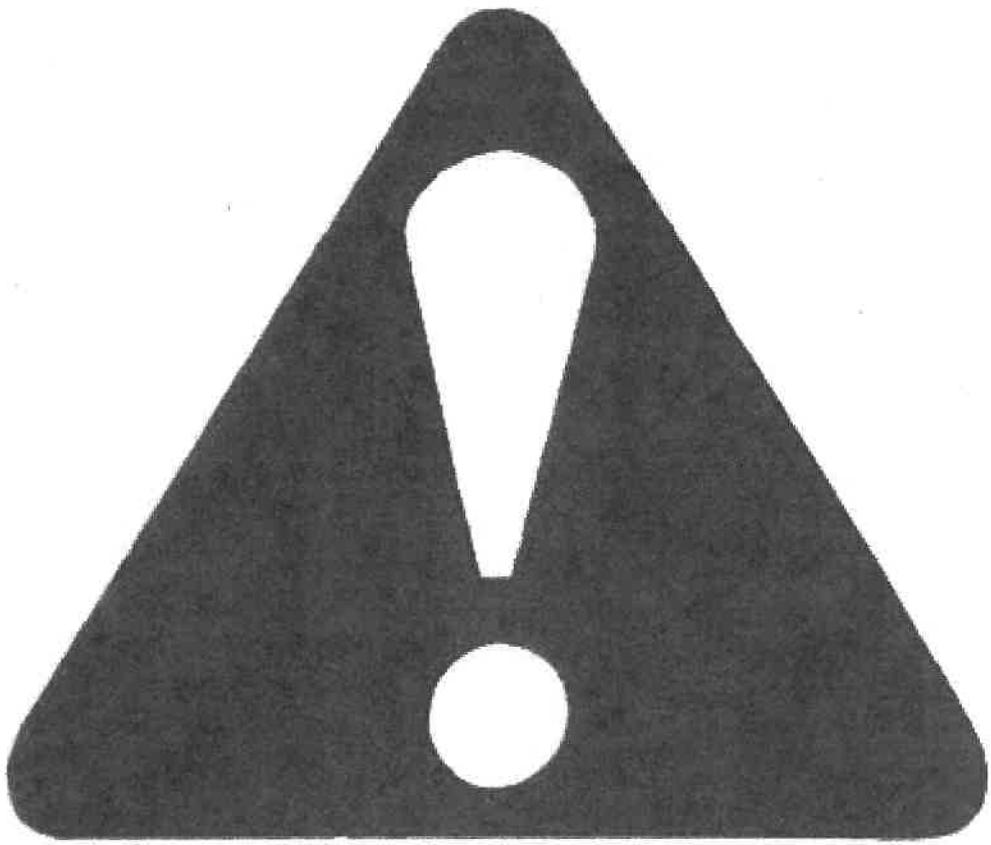
CAUTION: Use only metric tools on metric hardware. Other tools may not fit properly. They may slip and cause injury.

DO NOT use these values if a different torque value tightening procedure is listed for a specific application. Torque values listed are for general use only. Check tightness of cap screws periodically.

Shear bolts are designed to fail under predetermined loads. Always replace shear bolts with identical grade. Fasteners should be replaced with the same or higher grade. If higher grade fasteners are used, these should only be tightened to the strength of the original.

Make sure fastener threads are clean and you properly start thread engagement. This will prevent them from failing when tightening.

Tighten plastic insert or crimped steel-type lock nuts to approximately 50 percent of amount shown in chart. Tighten toothed or serrated-type lock nuts to full torque value.



BE ALERT!

YOUR SAFETY IS INVOLVED.

THIS SYMBOL IS USED THROUGHOUT THIS BOOK WHENEVER YOUR PERSONAL SAFETY IS INVOLVED. TAKE TIME TO BE CAREFUL. REMEMBER: THE CAREFUL OPERATOR IS THE BEST OPERATOR. MOST ACCIDENTS ARE CAUSED BY HUMAN ERROR. CERTAIN PRECAUTIONS MUST BE OBSERVED TO PREVENT THE POSSIBILITY OF INJURY OR DAMAGE.

TRACTORS

This operator's manual uses the term "Tractor" when identifying the power or the towing source.

RECOGNIZE SAFETY INFORMATION

This is the safety-alert symbol. When you see this symbol on your machine or in this manual, be alert to the potential for personal injury.

Follow recommended precautions and safe operating practices.



UNDERSTAND SIGNAL WORDS

A signal word- DANGER, WARNING, or CAUTION - is used with the safety-alert symbol. DANGER identifies the most serious hazards.

Safety signs with signal word DANGER or WARNING are typically near specific hazards.

General precautions are listed on CAUTION safety signs.



FOLLOW SAFETY INSTRUCTIONS

Carefully read all safety messages in this manual, and all safety signs on your machine. Follow all recommended precautions and safe operating procedures.

Keep signs in good condition. Immediately replace any missing or damaged signs.

TRACTORS

This operators manual uses the term "Tractor" when identifying the power or the towing source.



WARNING

TO PREVENT SERIOUS INJURY OR DEATH

BEFORE YOU ATTEMPT TO OPERATE THIS EQUIPMENT, READ AND STUDY THE FOLLOWING 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.

KNOW HOW TO STOP UNLOADING MECHANISM BEFORE STARTING IT.

If the machine becomes clogged. Stop the tractor engine, remove ignition key, disengage spreader drive and allow all mechanisms to stop before cleaning or working on the machine.
Never allow riders in or on the machine.

DO NOT get off the tractor while the spreader is in operation.

DO NOT attempt to perform maintenance or repair with tractor running and spreader drive engaged.

DO NOT step up on machine at any time.

NEVER manually feed material into the beaters.

DO NOT allow minors to operate or be near the machine.

DO NOT ALLOW PERSONNEL OTHER THAN THE QUALIFIED OPERATOR NEAR THE MACHINE.

Before starting tractor, make sure all shields are securely in place.

DO NOT clean, adjust, or lubricate the machine when any part is in operation.

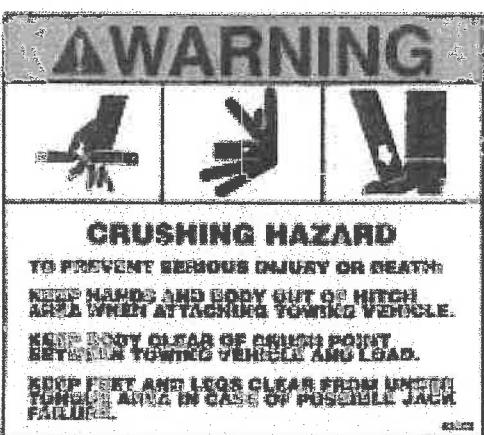
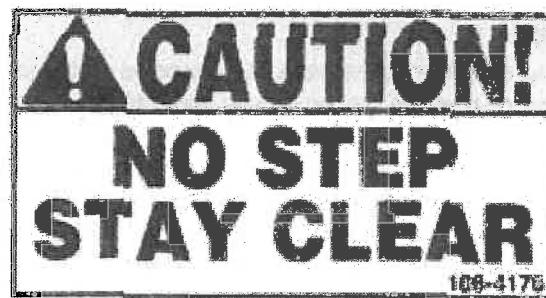
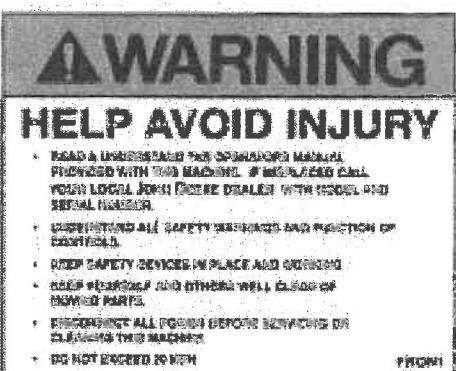
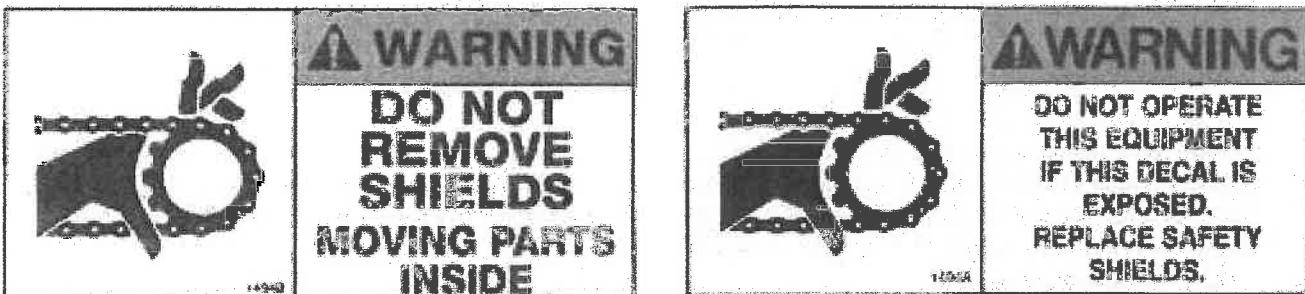
Keep hands, feet, and clothing away from beaters when they are revolving.

Loose or floppy clothing should not be worn by the operator.

Be sure the machine is clear of people, tools, and other objects before engaging spreader drive.

Frontier always takes the operator and his safety into consideration and guards exposed moving parts for his protection. However, some areas cannot be guarded or shielded in order to assure proper operation. In addition, the operators manual and decals on the machine itself warn you of further danger and should be read and observed closely.

Study The Above Safety Rules
ATTENTION - BE ALERT - YOUR SAFETY IS INVOLVED



OPERATION MODEL MS1102

(FOR MS1105/MS1108 SEE PAGE 15)

1. Check for proper assembly and adjustment and make sure that all bolts are tightened. Securely retighten after a few hours of operation, as bolts can loosen up on new machinery. Check wheel bolts upon delivery and periodically thereafter. Wheel bolts should be tightened at 85-95 ft./lbs. of torque.
2. Check the tires and inflate to the recommended pressure of 14 PSI.
3. Attach the spreader to the tractor as described in the following sections.
4. Before operation pull slowly to make sure that the spreader is operating and lubricated properly.

ATTACHING TO THE TRACTOR

Fasten the spreader hitch to the drawbar with a **hitch pin with a safety locking device**. Use 1/2" diameter hitch pin to pull spreader.

SERVICING

Be certain to shut off tractor, and disengage the apron and beater drives before servicing. Keep loose clothing away from all chain and gear drives as well as the other moving parts. Keep off the equipment when in use, and keep all safety shields in place; do not attempt to clean, grease or lubricate while the machine is running. **NEVER** allow riders in or on the machine.

LOADING

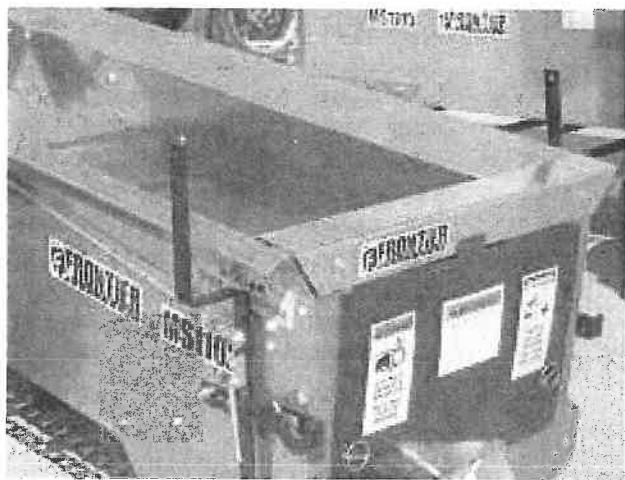
In freezing weather make sure the apron is not frozen to the floor. Also check to make sure that there are no chunks of manure frozen to the floor. Begin loading the spreader at the front end and work toward the rear until loading is completed. Loading this way permits the materials to be spread uniformly. Loading front to rear is particularly important. Do not load up to beater; leave approximately 6-12" in front of beater. When hauling extremely heavy material it may be necessary to reduce the load size. Never load material onto the beater. Do use extra sideboards. Do not overload spreader. Overloading decreases spreading effectiveness. Do not load above the beater.

HOW TO ENGAGE SPREADER

Make sure the tractor is shut off and all motion has stopped. To engage the beater pull the beater lever on the right hand side of the spreader forward. This will release the latch. Allow the lever to travel rearward to engage the beater. To engage the apron pull the apron lever on the left hand side of the spreader forward. This will release the latch. Allow the lever to travel rearward to engage the apron. When forward motion begins the spreader will operate. See illustration on next page.

SPREADING

1. **DO NOT** back up with beater or apron engaged or damage to drives may occur.
2. Do not operate the spreader with a ground speed greater than 4 M.P.H.
3. Only operate spreader with the beater and apron both engaged until spreader is almost empty.
4. Beater may be disengaged when spreader is almost empty to speed up clean out time.



Beater and Apron Engaged



Beater and Apron Disengaged

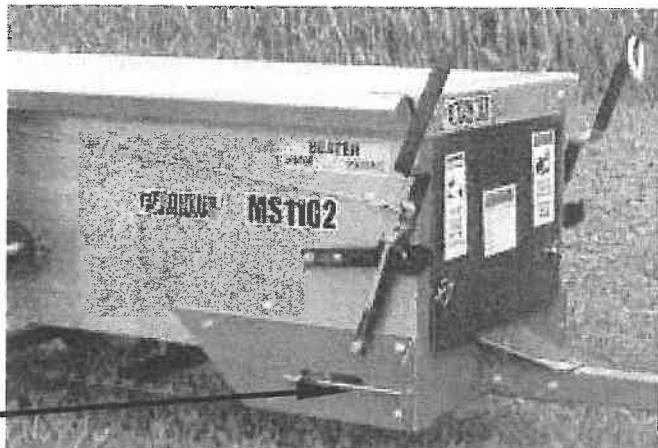
ADJUSTMENTS

APRON

Adjust the apron by tightening the adjusting bolts located at the front of the spreader until the apron chain rests lightly on top of the chain guides located below the axle.

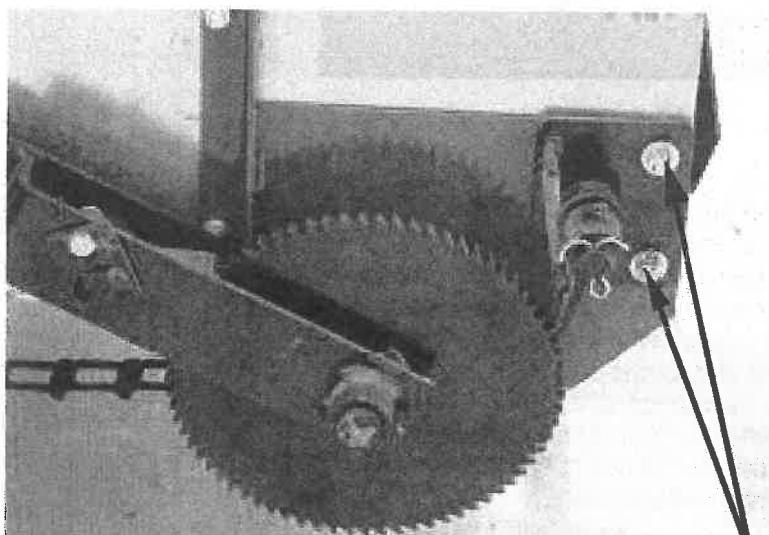
NOTE: Tighten the adjusting bolts on each front corner equally so that the apron slats run parallel with the ends of the bed. The apron will be damaged if the machine is operated with one end of the apron slats running ahead of the opposite end. Do not tighten the apron chain excessively.

TIGHTENER BOLT



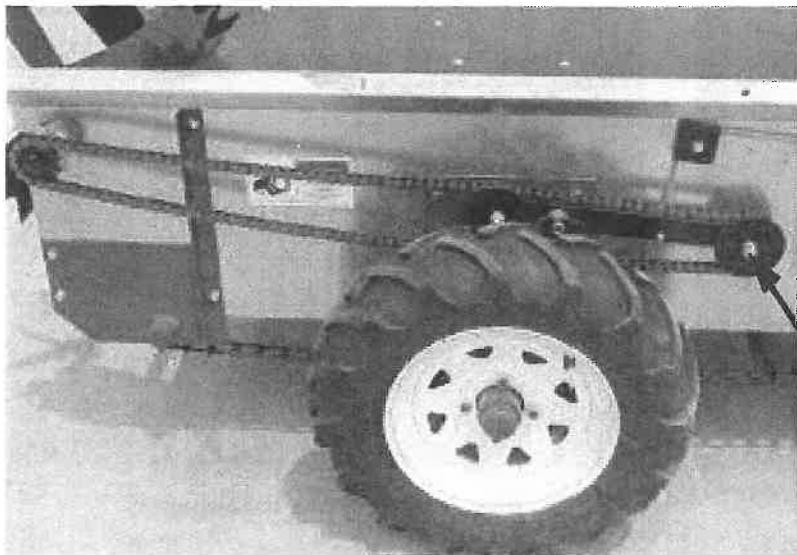
APRON DRIVE RATCHET

Ratchet should be set to take two teeth while under normal operation. If adjustment is needed, loosen two bolts (A) securing holding dog bracket. Adjust bracket in slotted holes. Re-tighten bolts when proper adjustment is reached.



Shields Removed For Clarity

A



BEATER DRIVE CHAIN

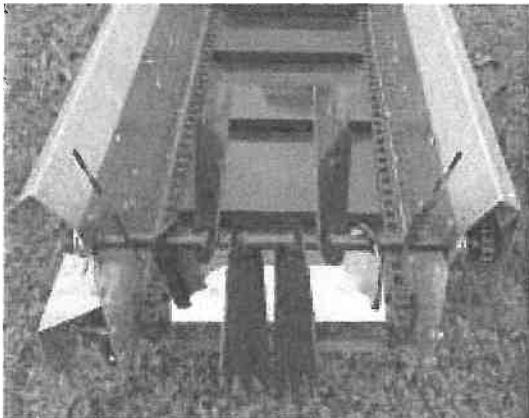
Tightening of the chain may be done by loosening the idler sprocket bolt (B), by sliding slider sprocket assembly towards the front of the spreader. Then re-tighten the idler sprocket bolt. Over tightening of the beater chain drive will cause engagement misalignment.

B

Shields Removed For Clarity

Make sure tires are mounted in correct direction as shown above.

Direction of Travel



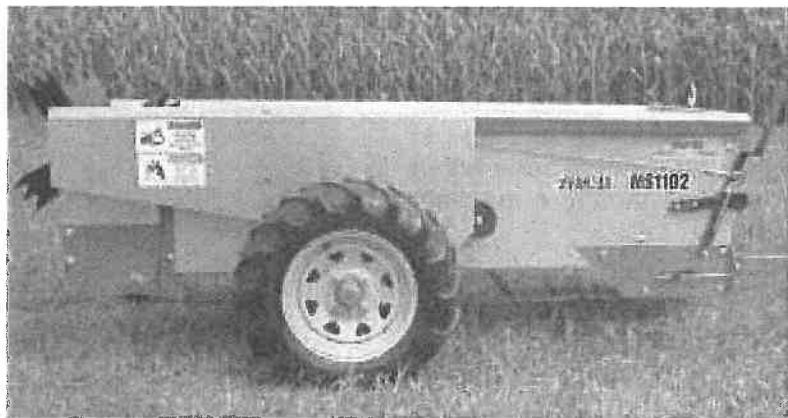
BEATER

The beater paddles are welded to the beater shaft, replacement of these paddles should be performed by an authorized service person who is a competent welder. When replacing paddles, the sharp edge of the teeth must lead in the direction of beater travel.

ADJUSTING WHEEL HUBS

To adjust the wheel hubs, tighten the castellated nut on the spindle to the point where there is no end-play and a slight drag on the bearings, then replace the cotter key with a new one of the correct size.

FAILUARE TO FOLLOW THE RECOMMENDED ADJUSTMENTS WILL VOID WARRANTY.



OPERATION MODELS MS1105/MS1108

(FOR MS1102 SEE PAGE 12)

1. Check for proper assembly and adjustment and make sure that all bolts are tightened. Securely retighten after a few hours of operation, as bolts can loosen up on new machinery. Check wheels bolts upon delivery and periodically thereafter. Wheel bolts should be tightened at 75-85 ft./lbs of torque.
2. Check the tires and inflate to the recommended pressure (7.60-15 to 28 PSI)
3. Attach the spreader to the tractor as described in the following sections.
4. Before operation pull machine slowly to make sure that the spreader is operating and lubricated properly.

TRACTOR HITCH

The hitch of the spreader is designed for a standardized tractor hitch. Adjust the drawbar so that it is 13 to 17 inches above the ground.

ATTACHING TO THE TRACTOR

1. Fasten the spreader hitch to the drawbar using a **hitch pin with a safety locking device**. Use a 3/4" diameter hitch pin to pull spreader.
2. Remove the weight from the jack (jack is not to be used when spreader is loaded). Swing jack forward into its horizontal position, and lock it to provide maximum ground clearance.

SERVICING

Be certain to shut off tractor, and disengage apron and beater drives before servicing. Keep cuffs and other loose clothing away from all chain and gear drives as well as the other moving parts. Keep off the equipment when in use, and keep all safety shields in place; do not attempt to clean, grease or lubricate while machine is running. **NEVER** allow riders in or on the machine.

LOADING

In freezing weather make sure the apron chain is not frozen to the spreader floor. Also check to make sure that there are no chunks of manure frozen to the floor.

Begin loading the spreader at the front end and work toward the rear until loading is completed. Loading this way permits the materials to be spread uniformly. Loading front to rear is particularly important. Do not load up to beater; leave approximately 6-12" in front of beater.

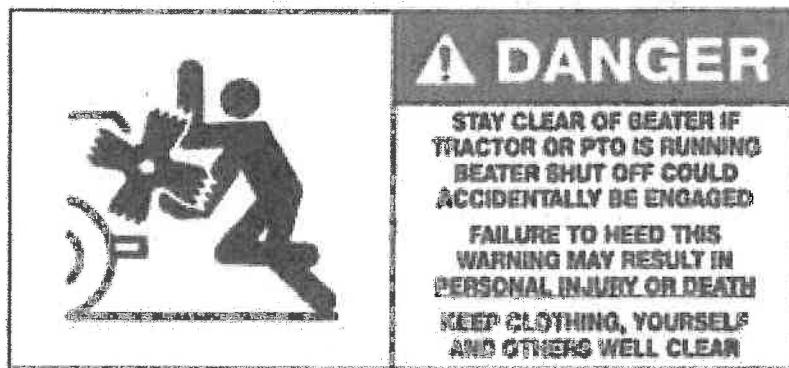
When hauling extremely heavy material with a large portion of dirt it may be necessary to reduce the load size. Never load material onto the beater. Do not use extra sideboards. Do not overload spreader. Overloading decreases spreading effectiveness. Do not load above beater.

HOW TO ENGAGE SPREADER

Make sure the tractor is shut off and all motion has stopped. Raise the Engage and Disengage lever slightly, pull latch forward, lower lever. When forward motion begins the spreader will operate. See illustration on page 17.

SPREADING

1. When ready to unload, make sure spreader drive is engaged.
2. Do not operate the spreader with a ground speed greater than 4 M.P.H.

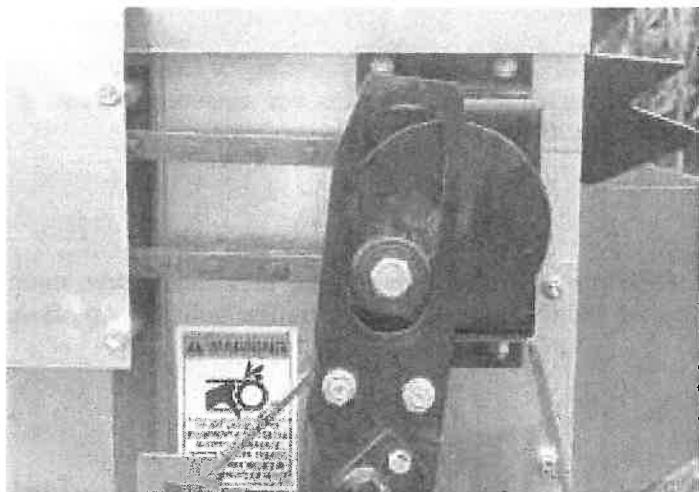


ADJUSTMENTS

APRON

Adjust the apron by tightening the adjusting bolts located at the front of the spreader until the apron chain rests lightly on top of the chain guides located below the axle.

NOTE: Tighten the adjusting bolts on each front corner equally on each side so that the apron slats run parallel with the ends of the bed. The apron will be damaged if the machine is operated with one end of the apron slats running ahead of the opposite end. Do not tighten the apron chains excessively.



Shields Removed For Clarity

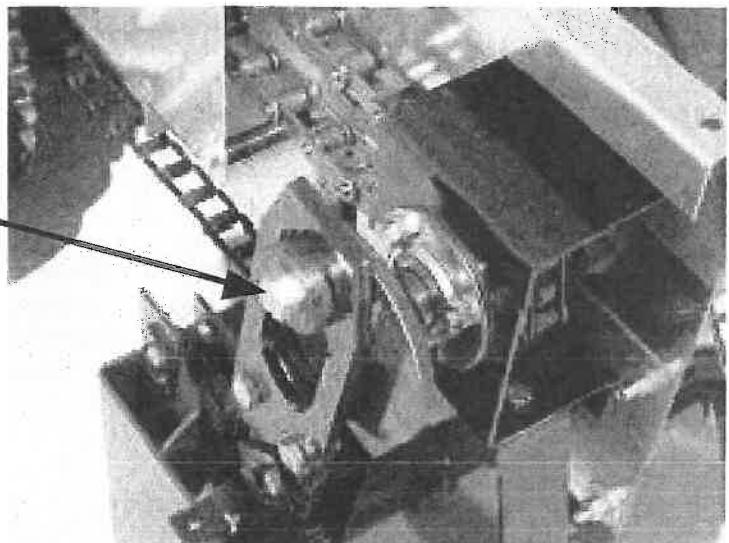
DRIVE CHAIN

Drive chain is spring loaded. Tightening of the chain will be done automatically.

RATCHET

Ratchet should be set to take two teeth while under normal operation. For extreme loads, cam bearing may be adjusted in slot to ratchet one tooth at a time.

Ratchet
Adjustment



ADJUSTING WHEEL HUBS

To adjust the wheel hubs, tighten the castellated nut on the spindle to the point where there is no end-play and a slight drag on the bearings, and replace the cotter key with a new one of the correct size.

FAILURE TO FOLLOW THE RECOMMENDED ADJUSTMENTS WILL VOID WARRANTY.

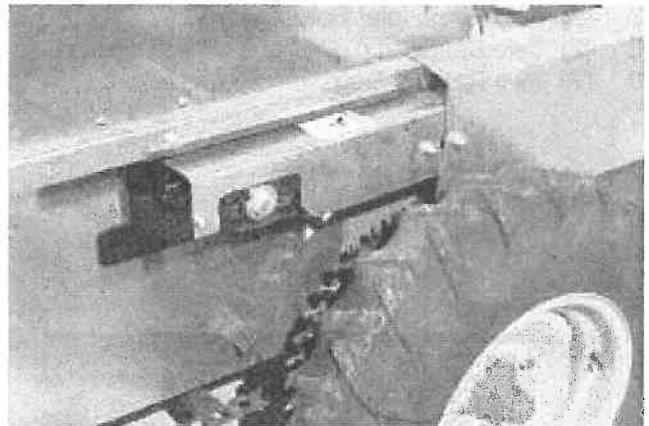
Shields Removed For Clarity

Make sure tires are mounted in correct direction as shown

Direction of Travel



Spreader Engaged



Spreader Disengaged

BEATER

The beater paddles are welded to the beater tube, replacement of these paddles should be performed by authorized service personnel who are competent welders. When replacing paddles, the sharp edge of the teeth must lead in the direction of beater travel.

When transporting on the highway, regularly clean the reflective tape at the rear of the spreader. There is a holder provided for your SMV sign.

LUBRICATION GUIDE MS1102



The operator should become familiar with all lubrication points and establish a systematic routine to insure complete and quick lubrication of the machine.

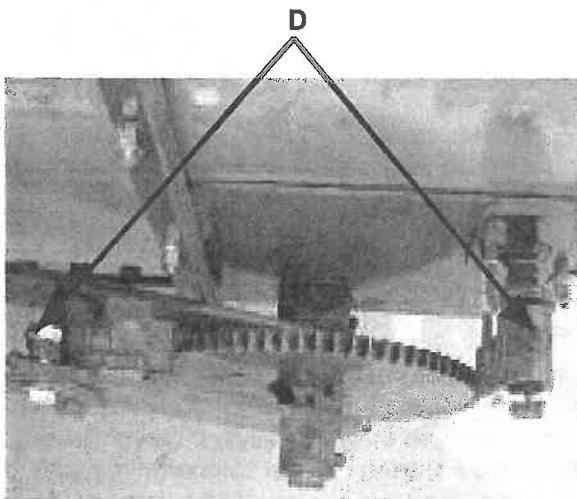
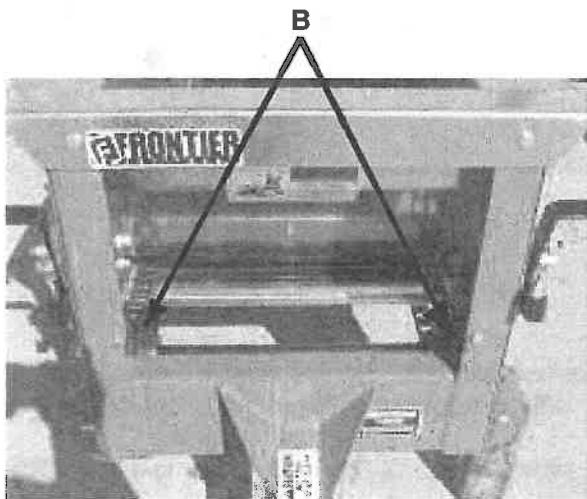
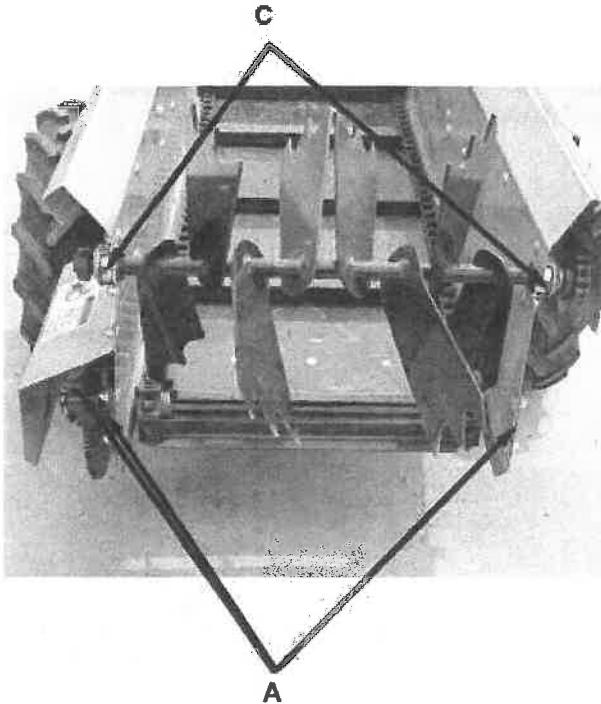
DRIVE CHAIN

Lubricate the drive chain with a light machine oil. Keep chains aligned with sprockets. This will lengthen the life of the sprockets and chain. Lubricate chains often.

GREASE FITTINGS

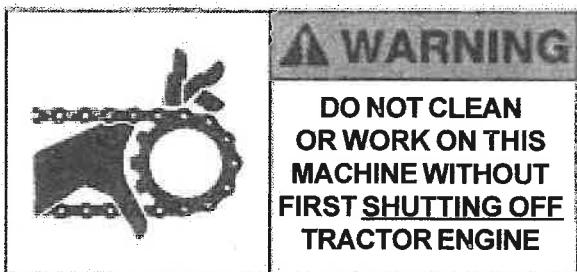
There are 9 grease fittings on this spreader. If these are lubricated properly and often enough it will prolong the life of the spreader. Grease every 20 hours, also **before storage and after power washing**. Make certain that the grease fittings are free of paint and dirt, force a high quality grease into them until the grease comes out around the shaft on the sleeve type bearings. Wipe off grease to prevent the accumulation of chaff and grit around the bearings.

- A. (3) Three Apron Drive Shaft
- B. (2) Two Apron Idler Sprockets
- C. (2) Two Beater
- D. (2) Two Ratchet Dogs



Shields Removed For Clarity

LUBRICATION GUIDE MS1105/MS1108



The operator should become familiar with all lubrication points and establish a systematic routine to insure complete and quick lubrication of the machine.

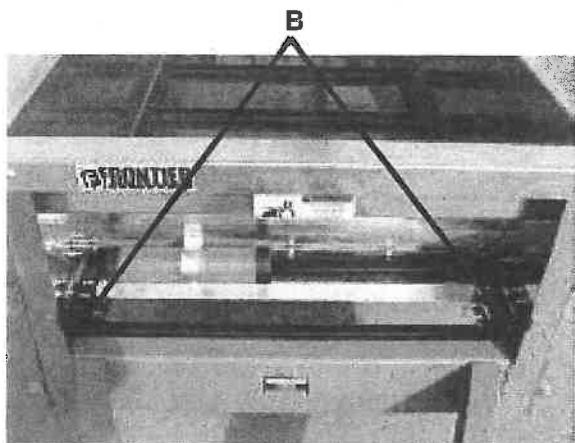
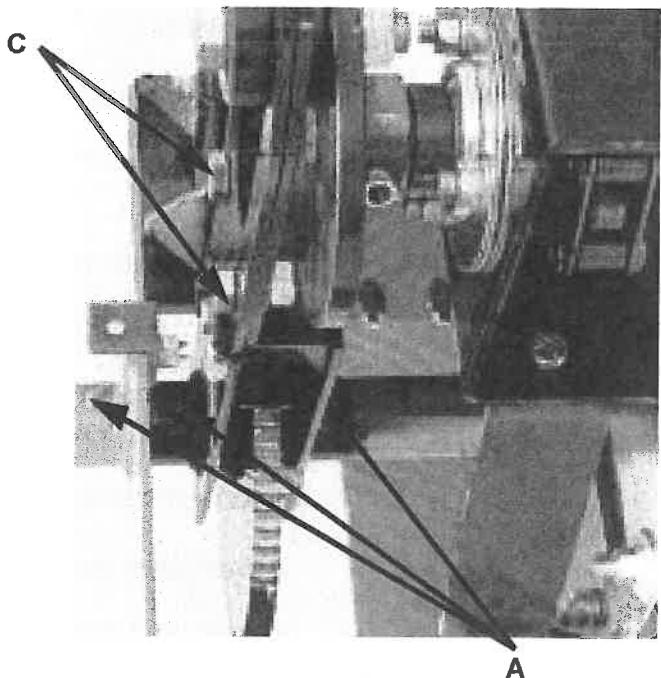
DRIVE CHAIN

Lubricate the drive chain with a light machine oil. Keep chains aligned with sprockets. This will lengthen the life of the sprockets and chain. Lubricate chains often.

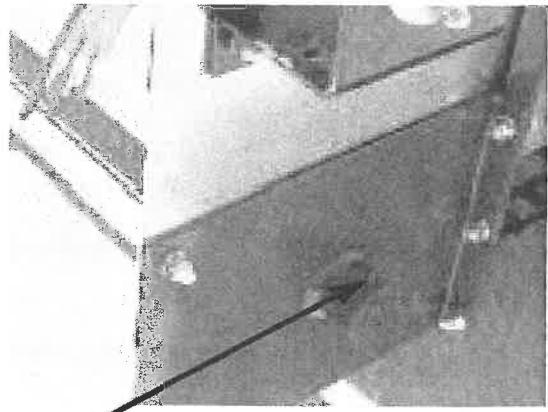
GREASE FITTINGS

There are 10 grease fittings on this spreader. If these are lubricated properly and often enough it will prolong the life of the spreader. Grease every 20 hours, also **before storage and after power washing**. Make certain that the grease fittings are free of paint and dirt, force a high quality grease into them until the grease comes out around the shaft on the sleeve type bearings. Wipe off excess grease to prevent the accumulation of chaff and grit around the bearings.

- A. (4) Four Along Left Hand Side Apron Drive Shaft
- B. (2) Two Apron Idler Sprockets
- C. (2) Two Ratchet Dogs
- D. (1) One on Right Side of Apron Drive Shaft



(Shields Removed for Clarity)



D

TROUBLESHOOTING

**WARNING**

MAKE SURE THAT THE TRACTOR IS SHUT OFF AND SPREADER CAN NOT MOVE BEFORE SERVICING THE MANURE SPREADER. MAINTENANCE AND REPAIR SERVICE WORK TO BE PERFORMED BY A QUALIFIED SERVICE PERSON ONLY.

TROUBLE...	POSSIBLE CAUSE...	POSSIBLE REMEDY...
BEATER DOES NOT TURN	BEATER NOT ENGAGED	ENGAGE BEATER
	DRIVE CHAIN RUN OFF OR BROKEN	CHECK DRIVE CHAIN FOR BENT OR BROKEN LINKS
	BEATER SPROCKET KEY SHEARED OR MISSING	REPLACE KEY
	BEATER SHAFT BROKEN	CHECK SHAFT REPLACE IF NEEDED
	NO FORWARD MOTION TO DRIVE SPREADER	DRIVE FORWARD
APRON DOES NOT TURN	APRON NOT ENGAGED	ENGAGE APRON
	CAM ROLLER NOT CONTACTING CAM OR MISSING	CHECK ALIGNMENT OR REPLACE IF MISSING
	RATCHET DOGS OUT OF ADJUSTMENT	MAKE PROPER ADJUSTMENT
	DOGS NOT CONTACTING RATCHET	REPLACE MISSING OR BROKEN DOGS
	DOG SPRINGS MISSING OR BROKEN	REPLACE MISSING OR BROKEN SPRINGS
	KEYS ON MAIN SHAFT SHEARED OR MISSING	REPLACE SHEARED OR MISSING KEYS
	NO FORWARD MOTION TO DRIVE SPREADER	DRIVE FORWARD
BEATER DOES NOT DISENGAGE	CABLE OUT OF ADJUSTMENT OR BROKEN	ADJUST CABLE OR REPLACE IF BROKEN
APRON DOES NOT DISENGAGE	CABLE OUT OF ADJUSTMENT OR BROKEN	ADJUST CABLE OR REPLACE IF BROKEN
WHEELS WILL NOT TURN	SPREADER OVER LOADED	UNLOAD TO MANUFACTURER SPECIFICATIONS
	MATERIAL WEDGED IN BEATER	REMOVE WEDGED MATERIAL
	TRACTION TIRES INSTALLED INCORRECT DIRECTION	INSTALL CORRECTLY

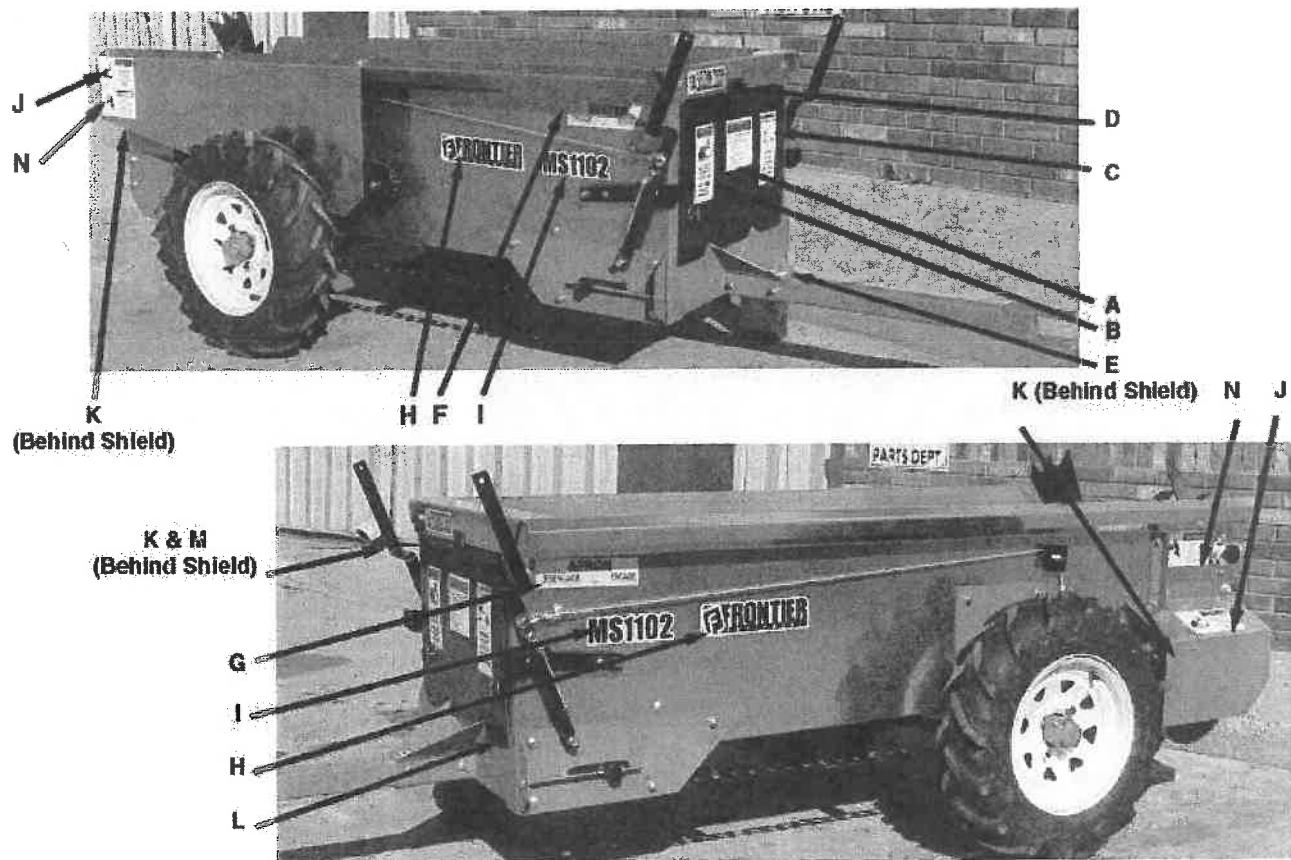
DECAL LOCATION MS1102

Your Frontier Manure Spreader was manufactured with operator safety in mind. Located on the manure spreader are various decals to aid in operation, and warn of danger or caution areas. Pay close attention to all the decals on your Manure Spreader.



DO NOT REMOVE ANY OF THESE DECALS. IF DECALS ARE LOST, DAMAGED, OR IF MANURE SPREADER IS REPAINTED, REPLACE DECALS. REMEMBER: DECALS ARE FOR YOUR PROTECTION AND SAFETY.

ITEM	PART NO.	DESCRIPTION
A.	HPFRON1	Warning - Help Avoid Injury
B.	HP1494K	Warning - Do Not Remove Shields
C.	HP9194B	Danger - Never Allow Riders
D.	HPFRONTIER6.5	Frontier Decal
E.	HP106-4176	Caution - No Step
F.	HP52703E	Beater Engage/Disengage
G.	HP52703F	Apron Engage/Disengage
H.	HPFRONTIER9.5	(2) Frontier Decal
I.	HP1102	(2) Frontier Model Decal
J.	HP1494B	(2) Warning - Do Not Remove Shields
K.	HP1494A	(2) Warning - Do Not Operate
L.	HPH&S	Serial Number
M.	HP82697A	Patent Numbers
N.	HP6603-1102	(2) Danger Stay Clear
		Complete Set of Decals



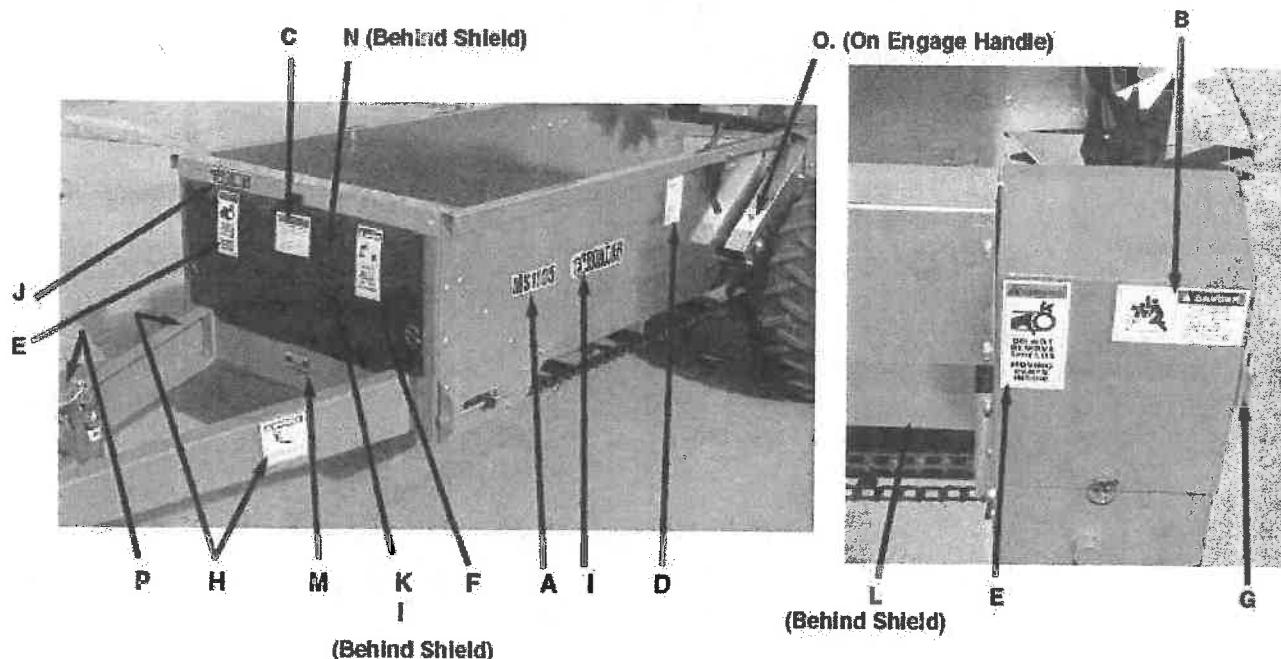
DECAL LOCATION MS1105/MS1108

Your Frontier Manure Spreader was manufactured with operator safety in mind. Located on the manure spreader are various decals to aid in operation, and warn of danger or caution areas. Pay close attention to all the decals on your Manure Spreader.



DO NOT REMOVE ANY OF THESE DECALS. IF DECALS ARE LOST, DAMAGED, OR IF MANURE SPREADER IS REPAINTED, REPLACE DECALS. REMEMBER: DECALS ARE FOR YOUR PROTECTION AND SAFETY.

ITEM	PART NO.	DESCRIPTION
A.	HP1105	Frontier MS1105 Model Decal
	HP1108	Frontier MS1108 Model Decal
B.	HP82697A	(2) Warning - Stay Clear of Beater (1 on LH Rear Shield - 1 on RH Rear Side)
C.	HPFRON1	Warning - Help Avoid Injury
D.	HP82697B	Beater and Apron Engage/Disengage
E.	HP1494K	(2) Warning - Do Not Remove Shields
F.	HP9194B	Danger - Never Allow Riders
G.	HP2X9RED	(2) Red Reflector
H.	HP9194A	(2) Danger - No Step
I.	HPFRONTIER9.5	(2) Frontier Decal MS1102
J.	HPFRONTIER19	(2) Frontier Decal MS1105 & MS1108
K.	HPFRONTIER6.5	Frontier Decal
L.	HP1494A	Warning - Do Not Operate
M.	HP3894	Warning - Do Not Operate
N.	HPH&S	Serial Number
O.	HP52803	Patent Numbers
P.	HP82602	Caution - Pinch Point (On Engage Handle)
	HP5699-1105	Warning - Crushing Hazard
	HP5699-1108	Complete Set of Decals for MS1105
		Complete Set of Decals for MS1108



INSTRUCTIONS FOR ORDERING PARTS

All service parts should be ordered through your authorized Frontier dealer. He will be able to give you faster service if you will provide him with the following.

1. Model & Serial Number - Both can be located on the front main cross channel.
2. All reference to or right apply to the machine as viewed from the rear.
3. Parts should not be ordered from illustration only. Please order by complete part number.
4. If your dealer has to order parts - give shipping instructions
VIA truck - large pieces (please specify local truck lines)
VIA United Parcel Service (include full address)



PLEASE RECORD NUMBERS FOR YOUR UNIT FOR REFERENCE

ABOUT IMPROVEMENTS

FRONTIER IS CONTINUALLY STRIVING TO IMPROVE IT'S PRODUCTS.

We must therefore, reserve the right to make improvements or changes whenever it becomes practical to do so, without incurring any obligation to make changes or additions to the equipment previously sold.

FIGURE 1

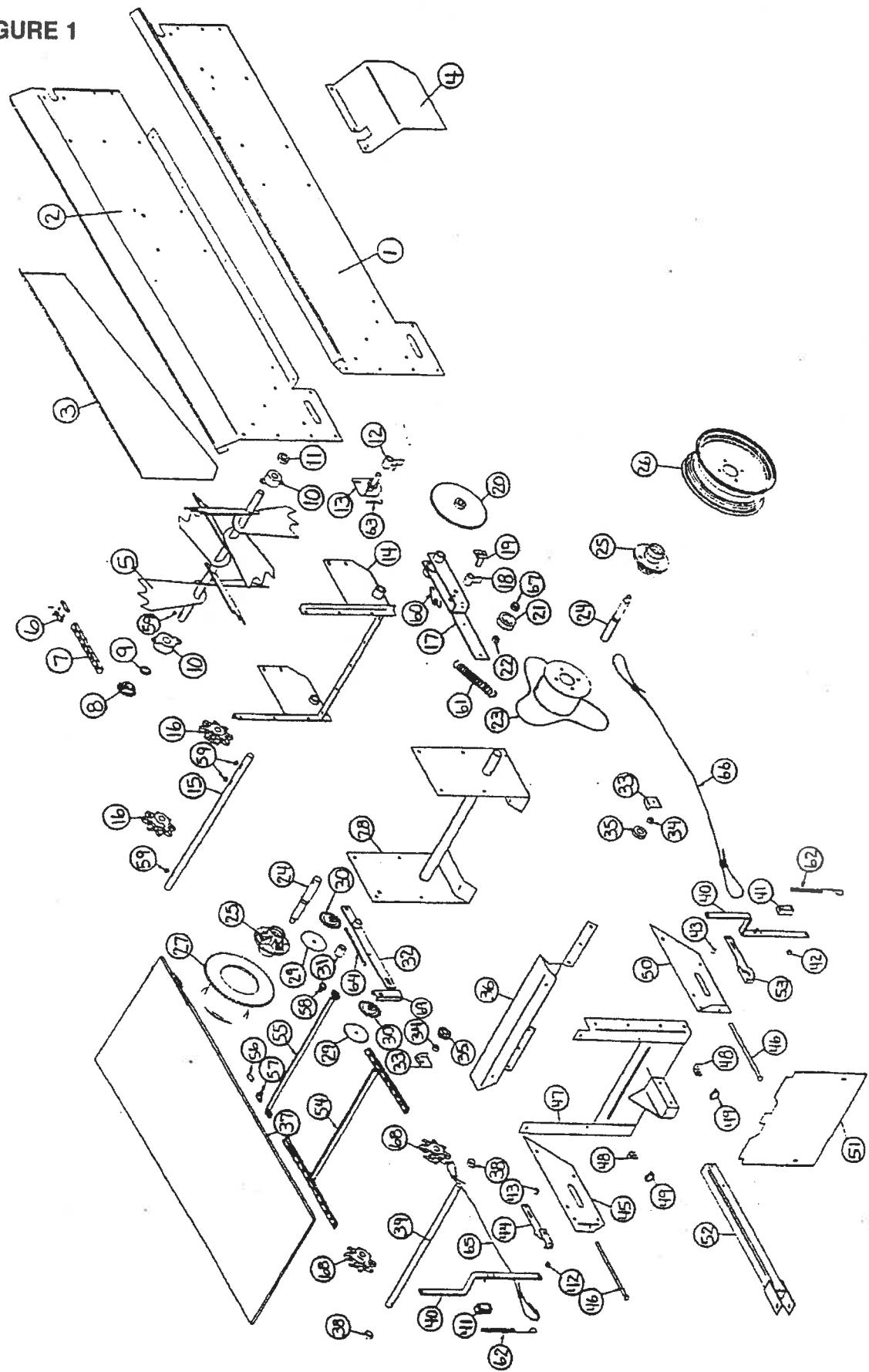


FIGURE 1
MS1102 SPREADER

ITEM	PART#	DESCRIPTION	ITEM	PART#	DESCRIPTION
1.	HP25G18	LH Spreader Side	30.	HPK101	Sprocket
2.	HP25G19	RH Spreader Side	31.	HP25G31	Pivot Bushing
3.	HP25G20	Beater Drive Shield	32.	HP25G8	Engagement Arm
4.	HP25G17	Ratchet Shield	33.	HP25G21	Pulley Mount
5.	HP25G6	Beater	34.	HPST81	Spacer
6.	HPX61	#50 Connector Link	35.	HPBFR292	Poly Pulley
7.	HP25G38	#50 Chain 147 Pitches	36.	HP25G16	Front Panel
8.	HP4C4	13T Sprocket	37.	HP25G36	Floor
9.	HPX28	Spacer	38.	HP25G26	Spacer
10.	HP25G51	Bearing	39.	HP25G28	Front Shaft
11.	HPL4C4	Collar	40.	HP25G11	Control Handle
12.	HP25G13	Holding Dog w/90° Zerk	41.	HP23N282	Shifter Dog
13.	HP25G12	Dog Plate	42.	HPST77	Spacer
14.	HP25G9	Back Bracket	43.	HPS70	Spacer
15.	HP25G29	Apron Shaft	44.	HP25G14	Right Control Bar
16.	HPL10R24	Apron Chain Sprocket	45.	HP25G24	Right Chain Tightener Bracket
17.	HP25G7	Cam	46.	HP25G33	Bolt 3/8"x9" GR.5 Full Thread
18.	HP5N51	Drive Dog w/45°	47.	HP25G2	Front End
19.	HP5N26	Dog Pin	48.	HPR26	Shield Angle
20.	HP25G10	Ratchet Gear	49.	HPF56	Lynch Pin
21.	HP25G32	Cam Roller	50.	HP25G23	Left Chain Tightener Bracket
*	HP25G63	Cam Roller Complete	51.	HP25G34	Front Poly Shield
22.	HP23N94	Spacer	52.	HP25G1	Pole
23.	HP25G4	Hub	53.	HP25G15	Left Control Bar
24.	HP25G30	Spindle	54.	HP25G46	Complete Apron Chain
25.	HP25G40	Hub-Road Wheels	55.	HP25G47	Apron Slat
*	HPBFR273	Seal	56.	HP25G48	Connector Link
*	HPBFR274	Bearing	57.	HP25G49	Attachment Link RH
*	HPBFR275	Race	58.	HP25G50	Attachment Link LH
*	HP25G42	Stud Bolt	59.	HP5B10	1/4"x1" Woodruff Key
*	HPCAT14	Stud Nut	60.	HP23N186	Spring-Drive Dog
*	HPT35	Spindle Nut	61.	HPK103	Spring Ratchet Arm
*	HPCAT13	Hub Cap	62.	HP23N284	Spring-Dog
*	HP25G25	Spindle Washer	63.	HP12R3	Spring
*	HPT37	5/32"x1-1/4" Cotter Pin	64.	HP25G41	Spring
26.	HPBFR280A	Wheel	65.	HP25G44	Cable 47"
*	HP25G43	Tire 6x12	66.	HP25G45	Cable 62"
27.	HP25G5	Right Hub	67.	HP25G39	Bearing w/Bushings
28.	HP25G3	Axle Assembly	68.	HPL10R20	Front Apron Chain Sprocket
29.	HP25G22	Chain Washer	69.	HP25G53	Chain Guide

* (Means Not Shown)

FIGURE 2

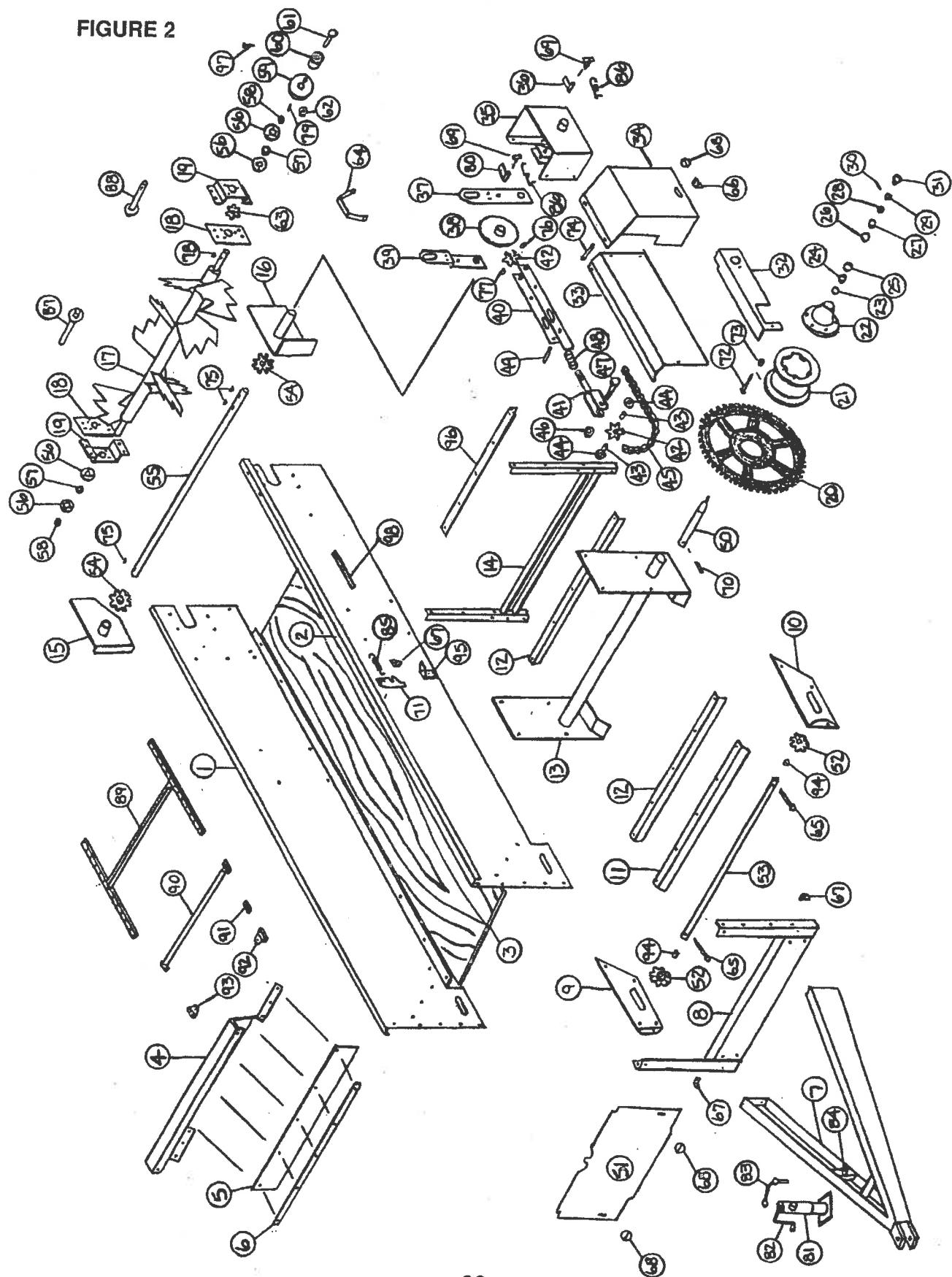
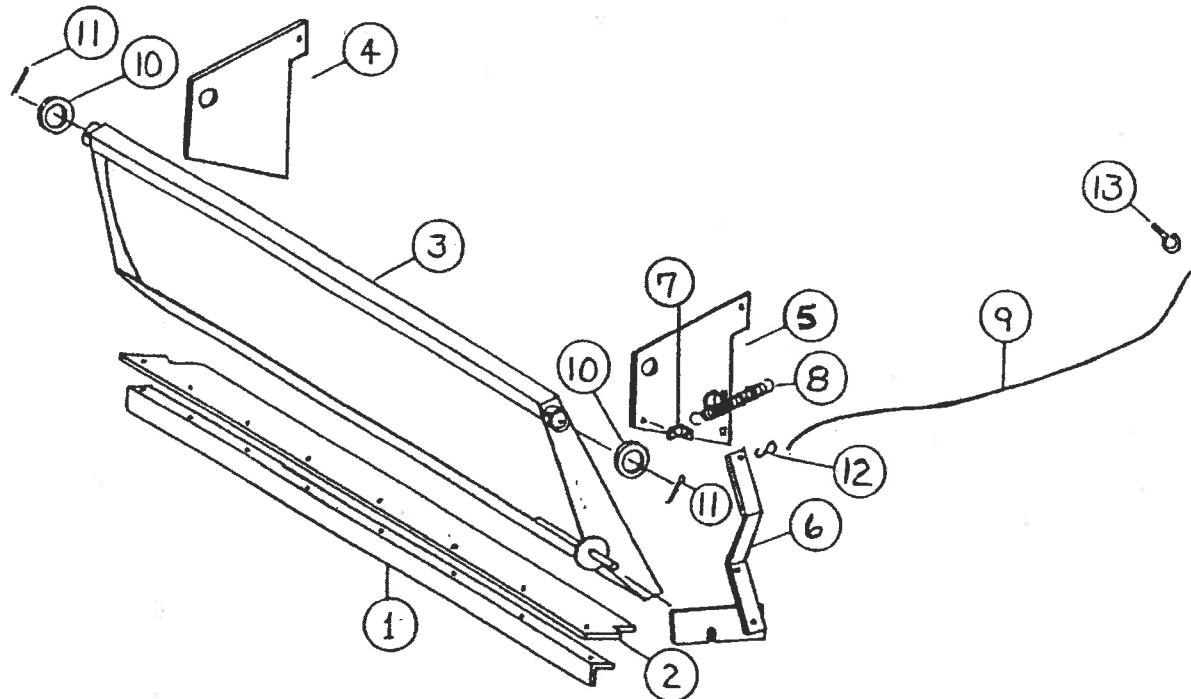


FIGURE 2
MS1105 & MS1108 SPREADER

ITEM	MS1105	MS1108	DESCRIPTION	ITEM	MS1105	MS1108	DESCRIPTION	
1.	HP5N2	"	RH Tub Side	54.	HP5N42	HP80N63	Apron Drive Sprocket	
2.	HP5N1	"	LH Tub Side	55.	HP5N25	HP80G16	Apron Drive Shaft	
3.	HP5N70	HP80G20	Floor	56.	HP4C7	"	Flange	
4.	HP5N5	HP80G2	Front Panel	57.	HP4C8	"	Bearing	
5.	HP5N45	HP12N69	Front Seal	58.	HP4C9	"	Lock Collar	
6.	HP5N44	HP80G3	Front Seal Band	59.	HP5N23	"	Beater Cam Hub	
7.	HP5N6	HP80N14	Pole Assembly	60.	HPT66	"	Cam Bearing	
8.	HP5N10	HP80G3	Front Support	61.	HP5N74	"	Bolt 5/8"x2-1/2" GR.5	
9.	HP5N8	"	Apron Tightener Bracket RH	62.	HP5N60	"	Flange Nut	
10.	HP5N9	"	Apron Tightener Bracket LH	63.	HP5N52	"	Beater Sprocket	
11.	HP5N7	HP80G4	Front Shaft Cover	64.	HP5N50	"	Beater Mount Re-Enforcement	
12.	HP5N4	HP80G5	Floor Brace	65.	HPA9	"	Tightener Bolt	
13.	HP5N15	HP80G6	Axle Assembly	66.	HP5N53	"	Back Shield Angle	
14.	HP5N3	HP80G7	Rear Support	67.	HP5N68	"	Front Shield Angle	
15.	HP5N11	HP80G8	RH Rear Apron Bracket	68.	HPF56	"	Clip Pin	
16.	HP5N12	HP80G9	LH Rear Apron Bracket	69.	HP5N26	"	Dog Pin	
17.	HP5N18	HP80G10	Beater	70.	HPT245	-	3/8" x 3" Bolt GR. 5	
18.	HP5N49	HP80G11	Beater Mount Seal	*	HPK93	-	3/8" Lock Nut	
19.	HP5N16	"	Beater Bracket	*	-	HPB10	1/2" x 4" Bolt GR. 5	
20.	HP5N40	"	Sprocket 41T	*	-	HPA13	1/2" Lock Nut	
21.	HP5N71	HP80G12	Hub Drum	71.	HP5N35	"	Latch	
22.	HP5N72	HPRG101	Wheel Hub	72.	HPBFR143	HP80G21	Stud	
23.	HPBFR57	HP12N17	Seal	73.	HPBFR144	"	Stud Nut	
24.	HPBFR58	HP12N18	Inner Bearing	74.	HP5N36	"	Shield Spacer	
25.	HPBFR59	HP12N19	Inner Race	75.	HPG12	"	Key 5/16"x1"	
26.	HPBFR61	HP12N20	Outer Race	76.	HP5N29	"	Outside Bushing	
27.	HPBFR62	HP12N25	Outer Bearing	77.	HP5N30	"	Inside Bushing	
28.	HPBFR63	HPB4	Washer	78.	HP5B10	"	Key 1/4"x1"	
29.	HPBFR64	HPB3	Nut	79.	HPS135	"	Key	
30.	HPBFR65	HPB31	Cotter Pin	80.	HP5N51	"	Drive Dog w/45° Zerk	
31.	HPBFR66	HP12N23	Hub Cap	81.	HPB42	HP12N11	Jack	
32.	HP5N39	"	Rotary Shield	82.	HPBFR3	HP12N12	Jack Handle	
33.	HP5N33	"	Stationary Shield	83.	HPBFR4	HP12N13	Jack Pin & Chain	
34.	HP5N32	"	Rear Shield	84.	HP12N14	"	Jack Mount	
35.	HP5N17	"	LH Apron Mechanism Cover	85.	HP12R3	"	Spring	
36.	HP5N20	"	Holding Dog w/Straight Zerk	86.	HP23N186	"	Dog Spring	
37.	HP5N13	"	Reciprocator Face	87.	HP5N58	HP80G17	RH Beater Stub Shaft	
38.	HP5N21	"	Ratchet Gear	88.	HP5N59	HP80G18	LH Beater Stub Shaft	
39.	HP5N14	"	Reciprocating Arm	89.	HP5N47	HP80G19	Apron Chain (1102 62H/1108 67H)	
40.	HP5N28	"	Pivot Arm	90.	HP5N48	HP80N62	Slat w/Attachment Link	
41.	HP5N27	"	Idler Spring Bracket	91.	HPL10R33	HP11S25	Connector Link 62H/67H	
42.	HP5N56	"	Idler Sprocket	92.	HPL10R37	HP11S23	Attachment Link LH 62H/67H	
43.	HP5N31	"	Sliding Idler Spacer	93.	HPL10R38	HP11S24	Attachment Link RH 62H/67H	
44.	HP5N62	"	Washer 3/4"	94.	HP5N24	HP12N66	Front Apron Shaft Spacer	
45.	HP5N57	"	Chain	95.	HPST33	"	Angle	
46.	HPHE7	"	Lock Nut 3/4"	96.	HP5N69	HP80N64	Drive Shaft Cover	
47.	HP5N55	"	Bolt 3/4"x3-1/2" GR.5	97.	HPS84	"	Bolt 5/16"x2-1/2" GR.5	
48.	HPS109	"	Spring	98.	HP5N73	"	Edge Guard	
49.	HP5N34	"	Pivot Arm Spacer	*	HP5N46	"	Tire-Traction Lug 7.60x15	
50.	HP5N61	HP12N16	Spindle	*	HP5N63	HPRG127	Wheel 15x6	
51.	HP5N54	HP80G14	Front Shield	NOTE: * (MEANS NOT SHOWN)				
52.	HPL10R20	HP12N65	Apron Chain Sprocket	" (MEANS SAME AS PRECEDING NUMBER)				
53.	HP5N22	HP12N67	Apron Front Shaft	- (MEANS NOT USED ON THIS MACHINE)				

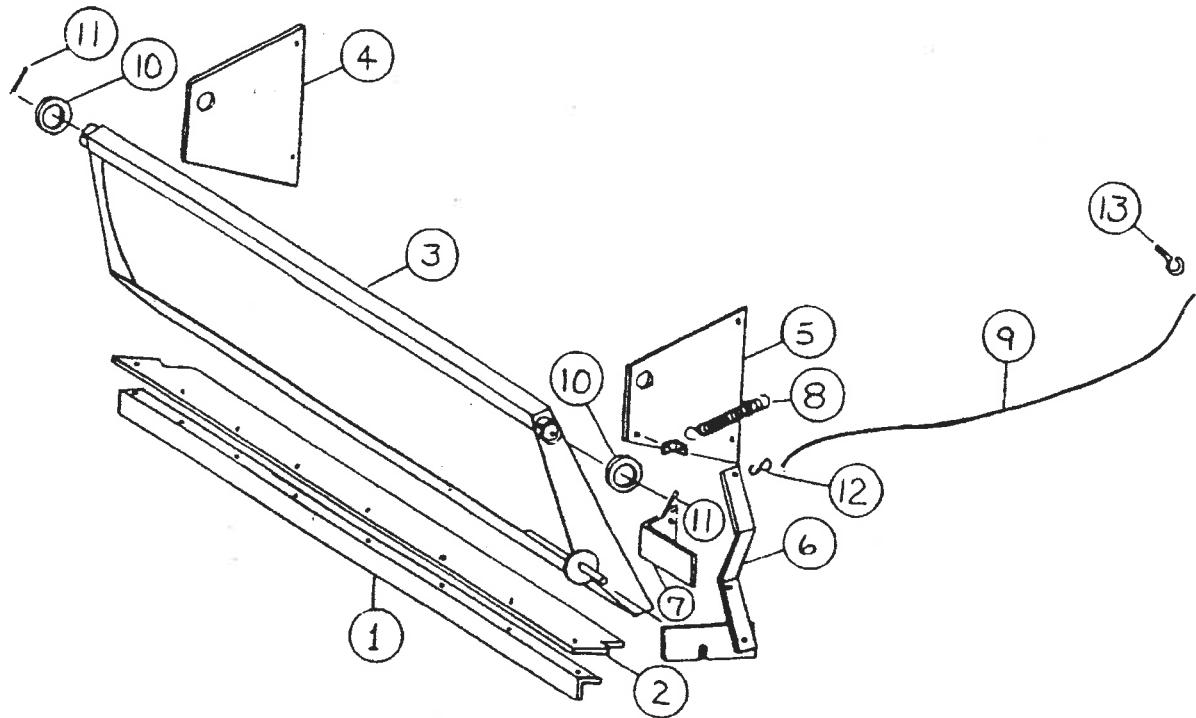
FIGURE 3



**OPTIONAL PAN
MS1102 SPREADER**

ITEM	PART#	DESCRIPTION
1.	HP25G59	Pan Angle
2.	HP25G61	Pan Rubber
3.	HP25G56	Pan
4.	HP25G60	LH Pan Plate
5.	HP25G57	RH Pan Plate
6.	HP25G58	Pan Handle
7.	HPR26	Spring Angle
8.	HPR27	Pan Handle Spring
9.	HP25G62	Trip Rope
10.	HPR3	Pan Spacer
11.	HPR70	Cotter Pin
12.	HPR31	"S" Hook
13.	HPK79	"I" Bolt

FIGURE 4



**OPTIONAL PAN
MS1105 & MS1108 SPREADER**

ITEM	MS1105	MS1108	DESCRIPTION
1.	HP5N64	HP12N52	Pan Angle
2.	HP5N65	HP12N53	Pan Rubber
3.	HP5N66	HP80N1	Pan
4.	HP80N2	"	LH Pan Plate
5.	HP80N3	"	RH Pan Plate
6.	HP5N67	"	Pan Handle
7.	HP80N82	"	Pan Handle Stop
8.	HPR27	"	Pan Handle Spring
9.	HP80N6	"	Trip Rope
10.	HPR3	"	Pan Spacer
11.	HPR70	"	Cotter Pin
12.	HPR31	"	"S" Hook
13.	HP23N213	"	"I" Bolt

SERVICE / MAINTENANCE RECORD

