PhiBer
Super Merger

Models: SM848
SM1048

PHIBER

INNOVATIONS FOR PROGRESSIVE PEOPLE

OPERATOR'S MANUAL

www.phiber.ca

Limitation of Liability

PhiBer Manufacturing Inc. shall not be liable for special incidental or consequential damages arising out of the use of, out of the misuse of, or inability to use any product sold by PhiBer Manufacturing Inc. Including without limitation damages or loss of other property or equipment, personal injury, loss of life, loss of profits or revenue, or claims of purchaser for any such damage or loss.

Warranty

PhiBer Manufacturing Inc. warrants its products to be free from defect in factory workmanship and material under normal use and service, when set-up and operated according to factory instructions. Warranty should be handled through PhiBer or an authorized selling dealer. Warranty is subject to the following conditions:

Warranty Claims: Must be completed within 30 days of replacement of part or parts. Claim must include serial number of Merger, date of delivery and all other necessary particulars and explanation of problem.

Warranty Parts: Must be kept for PhiBer's inspection unless otherwise specified.

Warranty Labour: PhiBer must authorize any labour subject to warranty. PhiBer Manufacturing Inc. reserves the right to set the labor rate and time required to complete a warranty repair.

Warranty Limitations: Warranty will not be granted on any Merger that has been misused, altered, or modified in any way. Diagnostic and service calls are not covered by warranty. Warranty covers only the cost of repair and parts; it does not include shop supplies, mileage and freight costs.

Government Legislation: Warranty terms and conditions are subject to provincial or state legislation and laws.

Warranty on cylinders, hydraulic components, electronic components, and other trade accessories are limited to the warranties made by the respective manufacturers and not by PhiBer Manufacturing Inc.

The following table shows the available warranty:

Item	Time from Purchase
Rubber belts	None
Frame and other structural components	One (1) Year
Electronic components	One (1) Year
Hydraulic components	One (1) Year
Hydraulic cylinders	One (1) Year

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INTRODUCTION

Congratulations on your purchase of the PhiBer® Super Merger. The PhiBer® Merger offers the agricultural industry a machine for uniformly merging windrows together for both wet and dry hay operators.

All persons authorized to operate this equipment should read and understand the contents of this Operator's Manual, especially the Safety section. The owner or operator should seek assistance from the dealer, distributor or PhiBer® for any information not fully understood regarding the safe operation, adjustment, maintenance or repair of this equipment.

Keep this Operator's Manual in a clean, dry place that is easily accessible for reference when more detailed information is required to perform tasks related to the operation, adjustment, maintenance or repair of this equipment. It is further recommended that the contents of this Operator's Manual be reviewed at least annually by persons operating, adjusting, maintaining or repairing this PhiBer® Merger and any time a new person is assigned to any of the above mentioned tasks.

Any information in this Operator's Manual that is not fully understood should be clarified by contacting the dealer, distributor or manufacturer.

The contents of this Operator's Manual are accurate up to the time of printing.

PhiBer® reserves the right to make design changes without prior notice to the end user.

ILLUSTRATION OF THE MACHINE

IMPORTANT! All references to "LEFT" or "RIGHT", as used throughout this Operator's Manual, are determined by facing the direction of machine forward travel when in use.

MERGER ASSEMBLY

RIGHT SIDE VIEW (FIG. 1)

1. Right Draper
2. Center Frame
3. Left Pickup
4. Right Pickup
5. Transport Wheel

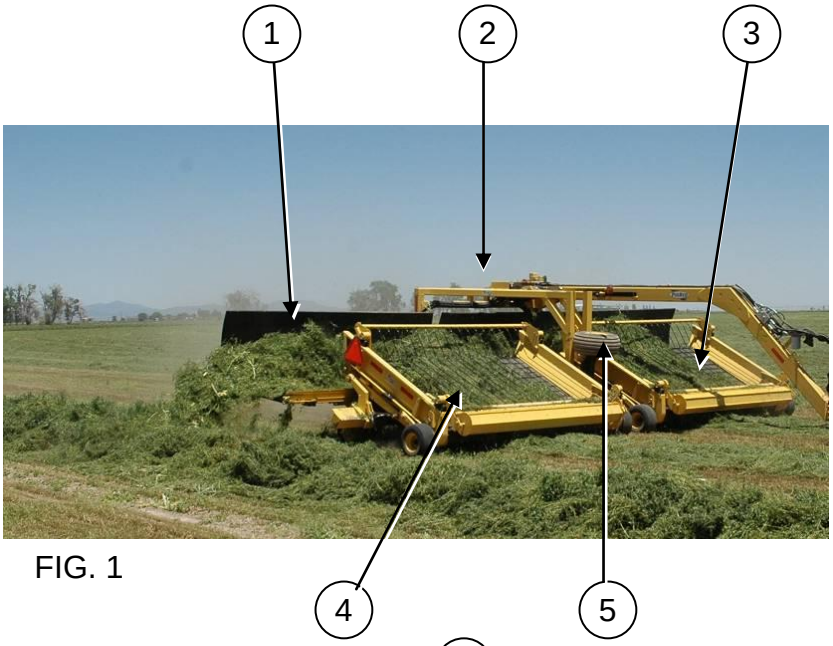
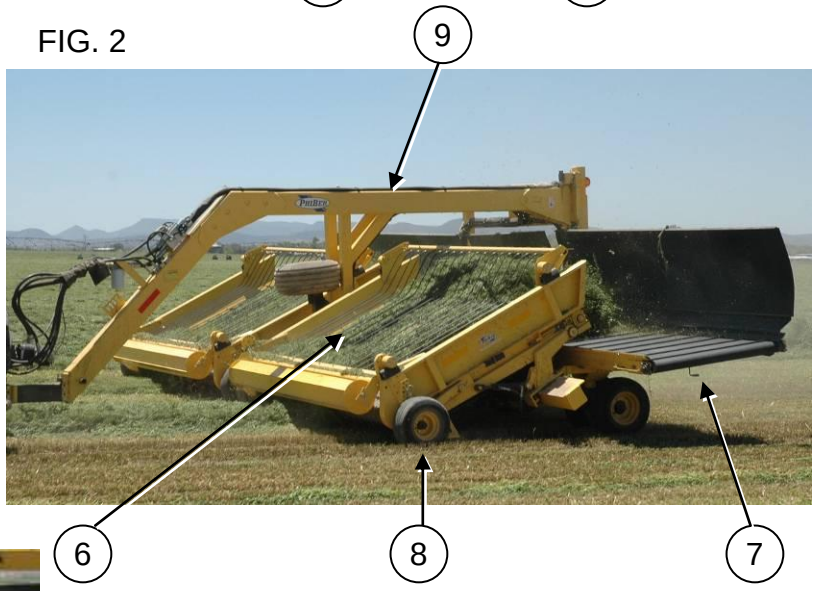


FIG. 1

LEFT SIDE VIEW (FIG. 2)

6. Wind Guard Wires
7. Left Draper
8. Pickup Guage Wheel
9. Swing Tongue

FIG. 2



PICKUP FRONT VIEW (FIG. 3)

10. Pickup Haylage Roller

FIG. 3

INTRODUCTION

CONTROL PANEL

Main functions are easily controlled with the switches on control box as out lined below.(FIG. 4)

Control Panel

1. Move to Field Position Switch
2. Move to Transport Position Switch
3. Swing Tongue Position Switch
4. Left Draper Direction Switch
5. Right Draper Direction Switch
6. Left Pickup In/Out Switch
7. Right Pickup In/Out Switch
8. Pickup Height Control Switch
9. Fuse Holder (10A)
10. Belt drive ON-OFF Switch
11. Flow Boost switch
12. Green Light (Charge Flow OK)

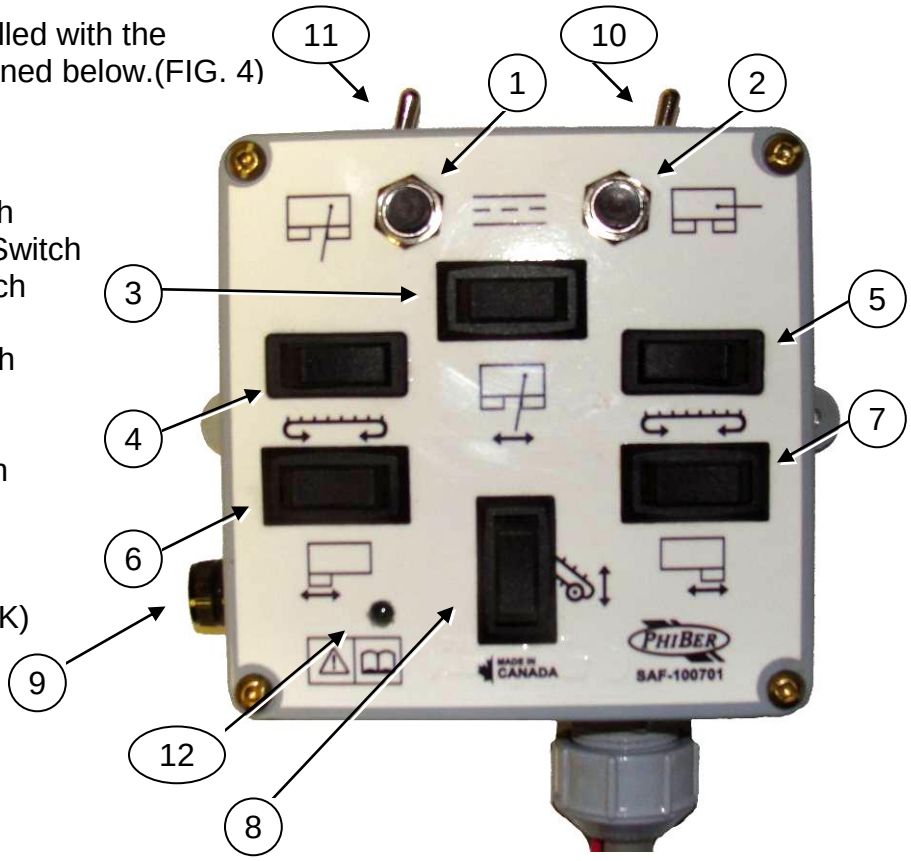


FIG. 4

SERIAL NUMBER LOCATION

The Serial Number plate, FIG. 5, is located on the surface of the left hand main frame member.

Record the machine Model and Serial Number in the spaces provided below. Use these numbers when contacting the dealer for repair parts or service assistance.

Model Number: _____

Serial Number: _____

FIG. 5

DESCRIPTION OF MACHINE

The operator can choose from different discharge patterns which allow for desired windrow merging. Operators have the option of putting two, three, four, or five windrows together for maximum productivity for both Choppers and Merger. It is designed to be aggressive when merging wet hay, and gentle when turning dry hay, this machine is unique to the industry by being able to do both.

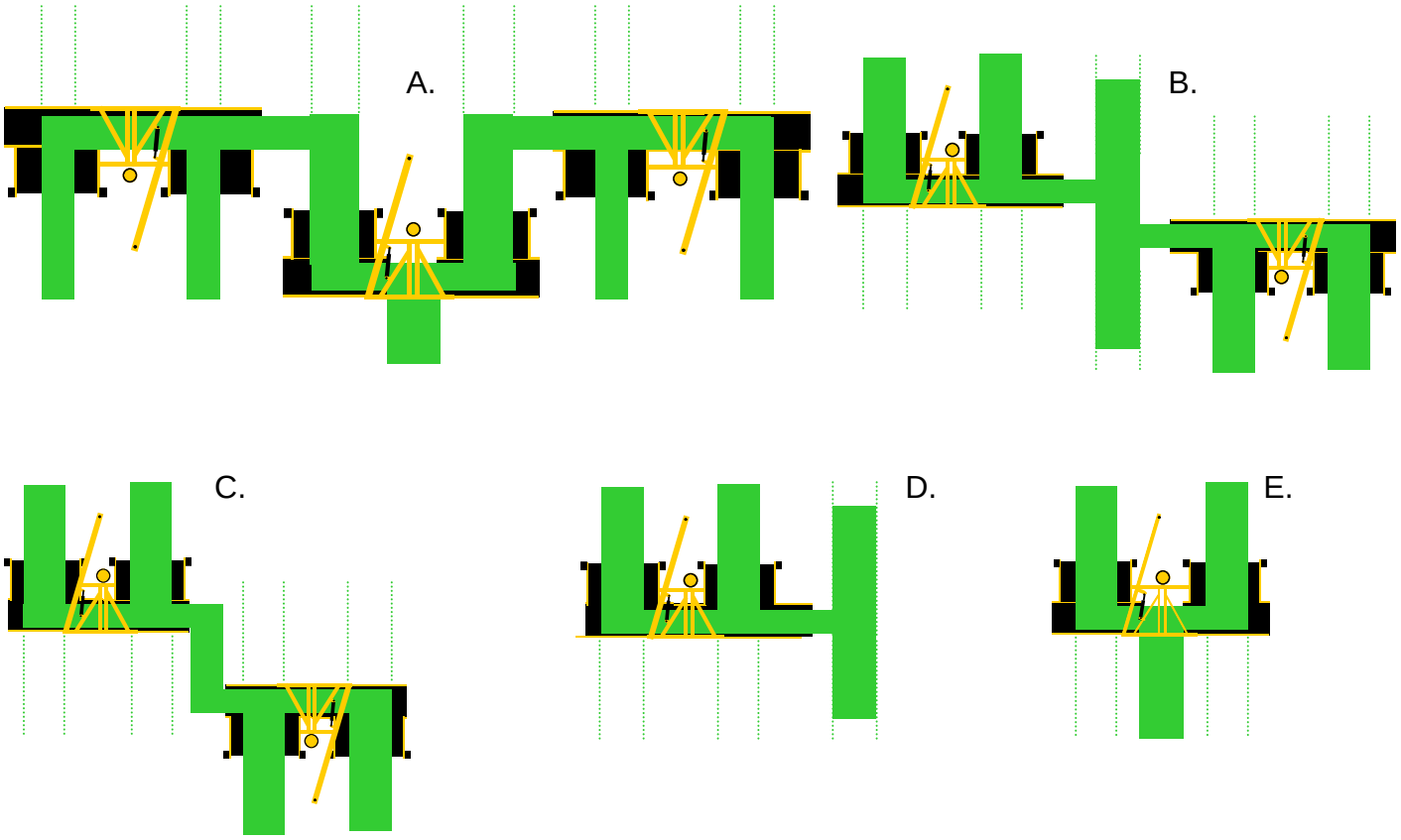


FIG. 6

WINDROW PLACEMENT OPTIONS

FIG. 6

A. Six (6) rows into one (1)
B. Five (5) rows into one (1)
C. Four (4) rows into one (1)
D. Three (3) rows into one (1)
E. Two (2) rows into one (1)

SAFETY

SAFETY ALERT SYMBOLS

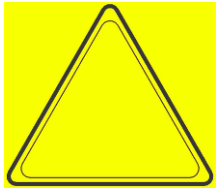
Safety Alert Symbols are intended to draw attention of the machine operator to important safety information both published in the Operator's Manual and applied to the machine. Whenever a Safety Alert Symbol is seen, it means that associated information is provided for recognizing, appropriately responding to and avoiding potentially hazardous situations.

An equilateral triangle surrounding an exclamation point or a double line equilateral triangle surrounding symbols or graphics indicates a potentially hazardous situation. Information included on a safety sign or printed in the Operator's Manual describes the hazardous situation and indicates appropriate response and/or avoidance procedures.

Remember:

ACCIDENTS DISABLE AND KILL
ACCIDENTS ARE COSTLY
ACCIDENTS CAN BE AVOIDED

w/ exclamation point



double line triangle

These Safety Alert Symbols Mean:

ATTENTION!

BE ALERT!

YOUR SAFETY IS INVOLVED!

SIGNAL WORDS

DANGER

Indicates an imminently hazardous situation that, if not avoided, WILL result in death or serious injury if proper precautions are not taken.

WARNING

Indicates a potentially hazardous situation that, if not avoided, COULD result in death or serious injury if proper precautions are not taken.

CAUTION

Indicates a potentially hazardous situation that, if not avoided, MAY result in minor or moderate injury if proper precautions are not taken, or, serves as a reminder to follow appropriate safety practices.

OPERATOR RESPONSIBILITY

Remember, YOU, the operator, are responsible for the safe operation, adjustment, maintenance and repair of this PhiBer® Super Merger. It is the responsibility of the owner, or authorized person in charge, to ensure all persons who operate, adjust, maintain and/or repair this implement be familiar with the information provided in this Operator's Manual.

A safe operator is the key to safety. Good safety practices not only protect you, but also persons who may be in the vicinity of the Merger. Make good safety practices a part of your farming operation. Ensure that all persons operating, adjusting, maintaining and/or repairing this equipment are familiar with the procedures recommended in this Operator's Manual.

Always heed safety warnings and follow recommended safety precautions to avoid hazardous situations. Do not risk personal injury or death by ignoring safety warnings and safety precautions.

Key Safety Reminders:

- The most important safety device is a safe and qualified operator.
- A safe operator is one who has read and understood the contents of the Operator's Manual prior to performing any tasks related to the machine.
- Owners have a responsibility to provide training to persons who may operate, adjust, maintain and/or repair the equipment prior to performing any of these tasks.
- Do not perform any unauthorized modifications to the Merger or use the Merger for any purpose other than what is described in the contents of this Operator's Manual.
- Plan tasks and work schedules to reduce exposure to unnecessary stress and fatigue.
- Observe all workplace safety and health requirements.

SAFETY

GENERAL SAFETY PRACTICES

- Read and understand the contents of this Operator's Manual prior to operating, adjusting, maintaining and/or repairing the Merger.
- Locate, read and understand all safety signs applied to the Merger before performing any tasks.
- Review the contents of this Operator's Manual annually and any time a new person is assigned to perform any task with the Merger.
- Ensure that all bystanders, especially small children, are kept at a safe distance while performing any tasks with the Merger.
- Do not allow riders on any part of the Merger.
- Ensure all guards and shields are intact and in place prior to operating the Merger.
- Keep hands, feet, hair and loose clothing away from moving and/or rotating parts.
- Stop the engine, lower the equipment, set the parking brake, remove the ignition key, and allow time for moving parts to stop prior to adjusting, maintaining or repairing the equipment.
- Ensure that all equipment lighting and marking is intact, clean and operating properly prior to traveling on public roads. Check with local highway authorities to confirm Merger is properly equipped for highway travel.
- Provide a fully stocked First-Aid kit in a highly visible and on easily accessible location.
- Keep a fully charged fire extinguisher in a highly visible and on easily accessible location.
- Ensure that Merger is securely blocked and supported prior to working underneath if it needs to be raised for service.

MAINTENANCE SAFETY

- Read and understand all of the information provided in this Operator's Manual covering the operation, adjustment, maintenance and repair prior to performing any of these tasks.
- Ensure that proper tools, equipment and personal protective equipment are available prior to working on the Merger.
- Wear appropriate clothing when performing tasks around the Merger. Ill-fitting and/or frayed clothing as well as loose or dangling items should not be worn when working near the equipment.
- Stop the engine, lower the equipment, set the parking brake, remove the ignition key, and allow time for moving parts to stop prior to adjusting, maintaining or repairing the equipment.
- Ensure that all moving parts have come to a complete stop before performing adjustments, maintenance or repairs.
- Ensure that hydraulic oil pressure in hoses, lines and components is fully relieved prior to performing maintenance or repairs to the hydraulic system.
- Ensure that wings are either fully lowered or fully raised and secured with their safety chains or securely block the wings if raised to perform adjustment, maintenance or repairs.
- Securely block main frame if adjustment, maintenance or repair is required for wheels and tires.
- Wear personal protective equipment, such as gloves, eye protection, etc. when inspecting hydraulic system for leaks. Use a small piece of cardboard or wood to detect leaks.
- Ensure that all guards and shields are intact and in place after performing adjustment, maintenance or repairs prior to operating equipment.
- Store flammable fluids in approved containers and store out of access by unauthorized persons, especially children.

SAFETY

HYDRAULIC SAFETY

- Ensure that all hydraulic system components are kept clean and in proper working condition.
- Periodically inspect condition of hydraulic hoses, lines and components and remove and replace any parts showing damage or deterioration.
- Use only repair or replacement parts specified by the manufacturer.
- Make repairs following instructions provided by the manufacturer.
- Wear appropriate personal protective equipment when unsure if residual pressure may exist in hydraulic components during trouble-shooting and / or making repairs.
- Use a piece of cardboard or wood to check for hydraulic leaks. Hydraulic fluid under pressure can penetrate human skin.
- Ensure all fittings, couplings and other hydraulic connections are intact and properly tightened before operating hydraulics.
- Ensure that all persons operating, adjusting, maintaining and/or repairing the Merger know how to seek or summon medical assistance should an injury occur.

INSTALLATION SAFETY

- Read, review and understand all Merger installation instructions before attempting to attach Merger to the tractor.
- Ensure that Merger is properly hitched to the tractor and that the Merger is lowered completely to the ground.
- Ensure that tractor engine is shut off, key is removed from the ignition and that parking brake is set and/or wheels blocked.

TRANSPORT SAFETY

- Ensure that the Merger is attached to the tractor properly.
- Ensure drawbar hitch pin retainer for Merger is in place and engaged properly.
- Ensure safety tow chain is securely attached between Merger and tractor.
- Ensure all lighting and implement marking devices are intact and visible.
- Ensure equipment is properly marked according to local road regulations and heed all local traffic regulations.
- Merger adds length to the tractor and covers a wide path when making turns.
- Ensure Merger is fully unloaded before road travel.
- Do not exceed 32 km/h (20 mi/hr).
- Reduce travel speed on rough roads and surfaces.
- Do not allow riders on the Merger at any time.

STORAGE SAFETY

- Store the Merger away from areas of human activity.
- Do not allow children to play on or around Merger

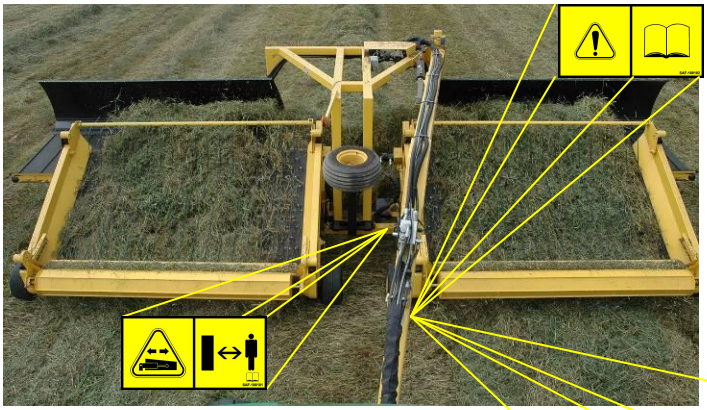
TIRE SAFETY

- Ensure tire inflation pressure is maintained per specifications.
- Follow proper procedures for tire repairs, especially when mounting tire to rim.
- Seek assistance from a trained person for tire repairs or mounting, especially if special equipment is required.

SAFETY

SAFETY SIGNS

SAFETY SIGN LOCATION



SAFETY SIGN EXPLANATION

CAUTION! (FIG.7)

Engage cylinder lock before transport.
DO NOT exceed 32km/h (20mph).
DO NOT tow with a pick-up truck.
- Severe side draft when cornering.

FIG. 7

READ THE OPERATOR'S MANUAL
(FIG. 8)

WARNING! Read and understand the contents of the Operator's Manual before performing any tasks related to the operation, adjustment, maintenance or repair of the machine.

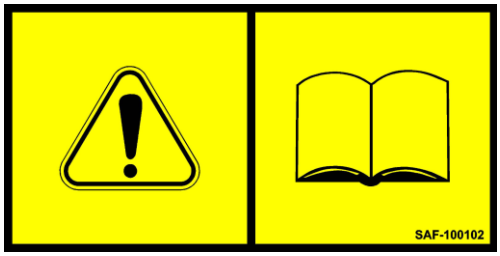


FIG. 8

MOVING PART HAZARD
(FIG. 9)

WARNING! MOVING PART HAZARD. Keep all persons at a safe distance while machine is in operation or when making adjustments and/or repairs.

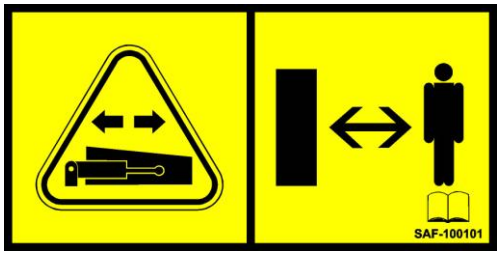


FIG. 9

SAFETY SIGN MAINTENANCE

Safety Sign Legibility

All safety signs applied to the Merger must be visible and legible. Keep dust and dirt cleared from safety signs and ensure that visibility is not obscured.

Safety Sign Replacement

Replacement & safety signs may be ordered through your dealer or distributor. Contact PhiBer® if you are unable to obtain replacement safety signs from a dealer or distributor.

Damaged or Deteriorated Safety Signs

Remove and replace any safety signs that have either been damaged or show signs of deterioration.

Safety Signs on Replacement Parts

Ensure that parts or components that are replaced on the Merger that had a safety sign attached originally include a safety sign.

Affixing Safety Signs to Machine

1. Ensure proper position and orientation before installing.
2. Ensure installation area is clean and dry.
3. Ensure ambient temperature is above 10˚ C (50˚ F).
4. Remove backing material to expose label adhesive.
5. Place one edge of the label to machine surface.
6. Slowly press the label onto the surface.
7. Ensure no air pockets exist under the surface of the label.

SPECIFICATIONS

Merger

	SM848	SM1048
Working width	324” (823cm) min	380” (965cm) max
Working length	210” (533cm)	
Transportation width	144” (366cm)	
Transportation length	408” (1036cm)	
Weight	7,200lbs (3266kg)	7,600lbs (3447kg)
Tongue weight field position	900lbs (408kg) (approx)	
Tongue weight transport position	200lbs (91kg) (approx)	
Working tires	8 tires – 20.5x8-10	
Transport tire	1 tire – 26x12-12	
Pick-up tires	4 tires – 18x8.5-8 with trailing skids	
Pick-up width	96” (244cm)	120” (305cm)
Pick-up type	Sectional one piece rubber belt with plastic teeth	
Draper width	8” (122cm)	
Draper length	144” (366cm)	
Center draper length	Optional 72” (183cm)	
Draper travel Bi- directional drapers Inverter chute	36” (91cm) of travel Standard optional	
Hydraulic ports required	2	
Hydraulic requirements	20gpm@ 2500psi (75.7L@172bar)	40gpm@2800psi 151L (151L@193bar)
Electrical requirements	12V - 7amp	

Tractor Requirements

Electrical Power Supply Remote requirements	12 V keyed 4 (2 on self contained)
Optional Onboard Hydraulics Tractor PTO	8gpm 1000

Tire pressure

The life of the tire depends largely upon maintaining the correct pressure

Note: Keep the tire inflated to the maximum pressure given on the tire

Hardware Torque

SAE

Bolt Diameter	Bolt Torque		
Inches	SAE 2 Nm (lb-ft)	SAE 5 Nm (lb-ft)	SAE 8 Nm (lb-ft)
¼	8 (6)	12 (9)	19 (12)
5/16	13 (10)	25 (19)	36 (27)
3/8	27 (20)	45 (33)	63 (45)
7/16	41 (30)	72 (53)	100 (75)
½	61 (45)	110 (80)	155 (115)
9/16	95 (70)	155 (115)	220 (165)
5/8	128 (95)	215 (160)	305 (220)
¾	225 (165)	390 (290)	540 (400)
7/8	230 (170)	570 (420)	880 (650)
1	345 (225)	850 (630)	1320 (970)

Metric

Bolt Diameter	Bolt Torque	
mm	8.8 Nm (lb-ft)	10.9 Nm (lb-ft)
M3	0.5 (0.4)	1.8 (1.3)
M4	3 (2.2)	4.5 (3.3)
M5	6 (4)	9 (7)
M6	10 (7)	15 (11)
M8	25 (18)	35 (26)
M10	50 (37)	70 (52)
M12	90 (66)	125 (92)
M14	140 (103)	200 (148)
M16	225 (166)	310 (229)
M20	435 (324)	610 (450)
M24	750 (555)	1050 (774)
M30	1495 (1103)	2100 (1550)
M36	2600 (1917)	3675 (2710)

Flare-Type Tube Fittings

Tube Size OD in	Nut Size across flats in	Torque Nm (lb-ft)	Recommended # Turns (after finger tightening) turns /flats
3/16	7/16	8 (6)	1/6 (1)
1/4	9/16	12 (9)	1/6 (1)
5/16	5/8	16 (12)	1/6 (1)
3/8	11/16	24 (18)	1/6 (1)
1/2	7/8	46 (34)	1/6 (1)
5/8	1	62 (46)	1/6 (1)
3/4	1-1/4	102 (75)	1/8 (0.75)
7/8	1-3/8	122 (90)	1/8 (0.75)

NOTE: Torque values listed are based on lubricated connections in reassembly.

SHIPPING

Step 1:

Install transport wheel and hook up transport wheel cylinder while Merger is still on the truck.

Lower the transport wheel arm and hook up the hydraulic cylinder. Install the transport tire (26”x12”x12”) on to the hub.

Step 2:

Remove shipping block.

Step 3:

Pull Super Merger off trailer with an adequate tractor.
Park on level ground for further set up.

Step 1:

Remove gauge wheels (used as shipping wheels) from right side (front) of Merger. Install as gauge wheels on pickups.

Remove and discard shipping wheel brackets (two of)

Install gauge wheels onto pickups

Step 2:

Lift pickups from their shipping position. Move into working position by lowering cast iron pivot bushings into cradles. Secure into place by installing covers with bolts provided.

Cast Bushing

Cradle

SETUP & ASSEMBLY

Step 3:

Hook up the pick-up lift cylinders to lift pins on sides of pickup.

Step 4:

Remove gauge wheels with gauge wheel arms (used as shipping wheels) on left side (back) of Merger and install on pickups as shown above.

Step 5:

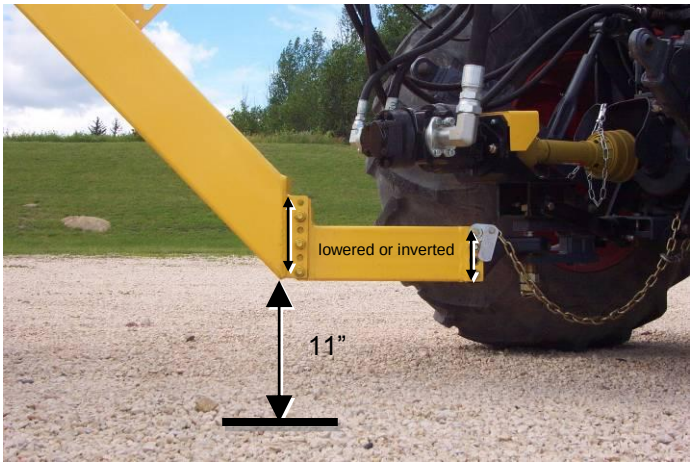
Connect pickup motors to pickup drive shafts. Align keys and tighten shaft coupler securely.

Step 6:

Move haylage rollers to their normal working position and Install wind guard wires using hardware provided.

Step 7: Level hitch

Level Merger hitch. Position Merger on level ground and level the hitch (while in transport position). Adjust the hitch member at the front to obtain a level hitch. This is important so that weight is distributed equally on all wheels.



Cast iron hitch may be raised, lowered or inverted. Hitch extension may be raised or lowered.

11” between level ground and bottom of swing tongue

Step 8:

Extend Right hand flasher
Mount right hand flasher arm to its normal position.

SETUP & ASSEMBLY

Setup instructions for Merger: Tractor supplied Hydraulics

Step 1: Hitch up to tractor

Step 2: Hydraulic setup
Proper set-up of tractor hydraulics ensures optimum operation of Merger and can greatly increase system reliability. The hydraulic system on this Merger is designed to function with open-center, closed-center and closed-center load-sensing tractor hydraulic systems. Contact your dealer or PhiBer for assistance.

There are two crucial elements that must be heeded to ensure optimum Merger performance:

1 **Tractor hydraulic output flow must be set properly.**

- Hook the 3/8" hoses to the tractor and set the flow from this port to a maximum of 8 GPM (30L/MIN) and a minimum of 6 GPM (23L/MIN) (it is important to stay in this range). This set of hoses supplies hydraulic flow for the operation of the swing tongue, pick-up lift, pick-up slides, and transport wheels.

  NOTE: Hydraulic oil flow in excess of 8 GPM (30L/MIN) may cause hydraulic lock up of the system. Flow rates below 6 GPM (23L/MIN) will cause lower cycle times and can impede productivity.

- Hook the 3/4" hoses to the tractor and set the flow from this port between 20 – 28 GPM (76- 106L/MIN). The minimum flow required is 20 GPM (76L/MIN). For merging haylage, 26-28 GPM (98- 106L/MIN) is recommended. Typically hydraulic flow will be set so as to attain smooth lifting of crop material onto pick-up. Pickup belt should move slightly faster than speed of travel.

  NOTE: It is highly recommended that these hoses be connected to 3/4" couplers at the tractor. This is an option on most tractors that will help achieve the high flow rates required and reduce oil operating temperatures.

2 **The low pressure tank return line must discharge directly into the tractor hydraulic reservoir with negligible system back pressure**.
Newer model tractors may have a setting on the hydraulic couplers remote connection that directs return oil flow straight to the tractor hydraulic reservoir. Other tractors may be fitted with an external port that leads directly to the tractor hydraulic reservoir. If an external port is fitted, be sure it is below the oil level. This reduces the risk of the oil foaming which can cause cavitations in the pump.

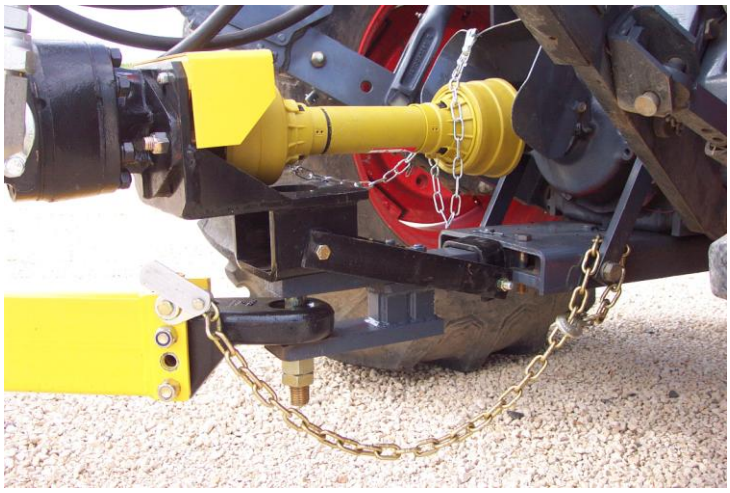
DO NOT connect return line so that return oil flow must work against pilot operated check valve in the tractor hydraulic system.

Setup instructions for Merger with Self Contained Hydraulic System

For the initial hook up of the Merger with self contained Hydraulic system the following parameters are essential:

The hitch of Merger needs to be level
Hammer strap on tractor draw bar required *
The driveline needs to be aligned to the PTO-shaft of tractor as straight as possible
The Hydraulic pump needs to be in line with the tractor when turning corners

Step 1: Hitch up to tractor



- Hitch the Merger up to the tractor as illustrated: Pump mount comprises draw pin. (11/4" diameter bolt) Pump rides on draw pin.
- The driveline needs to be aligned to PTO-shaft of tractor as straight as possible. Bends at universal joints should be no more than 15 degrees. Both tractor and pump should be horizontal.
- Thread on nut and jam nut to bottom of hitch pin. Tighten till pump bracket sits level.
- If pump shaft does not align with PTO shaft of tractor, the draw bar on the tractor can be turned. The spacer under pump mount can be added or removed.
- Tighten jam nut against nut.
- Insert safety pin through hole in bolt.

Step 2: Connect drive line

Connect drive line and fasten drive line cover chains to PTO shields

*NOTE: on some tractors the height of the PTO shaft in relation to the draw bar requires an exception. Pump may be mounted without hammer strap as in picture below. Hardened washer between merger hitch and pump mount is required.

SETUP & ASSEMBLY

Step 3: Attach stabilizer arms

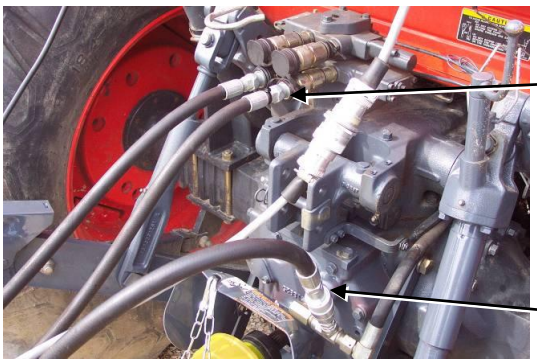
Stabilizer arms will keep Merger pump in line with tractor when turning corners.
Stabilizer arms are mounted to both sides of pump mount bracket. Place u-bracket around draw bar and insert ½ x 6" bolt through U-bracket and link arms. Secure with lock nut.

Step 4: Hydraulic supply

Hook up to tractor hydraulic system.
There are three hoses to be hooked up: two with male tips and one with a female coupler.

- Hook up larger diameter hose with the female coupler directly to a 'dump-to-tank" inlet on tractor transmission (may have to be installed). This is the zero pressure return line. Talk to your dealer or call PhiBer Manufacturing Inc. for assistance. Dumping to tank below the oil level is preferable but not necessarily required. **It is important that the merger is never operated without this line connected to the tractor reservoir. Make sure this line is properly connected before engaging hydraulics.**
  This line returns hot oil from Merger to the tractor and protects Merger pump seals from excessive pressure**.**
- Hook up remaining two lines with male couplers to a set of hydraulic ports at the back of the tractor. Pressure line is marked with black cable tie. Set the flow control for this port **between 5gpm and 10gpm (19-38L/MIN).** 8gpm (30L/MIN) is preferable. Select **orbit motor** setting.

These lines provide oil for cooling of hydraulic system on Merger.
Always hook up zero-pressure-return line before engaging Hydraulic flow.

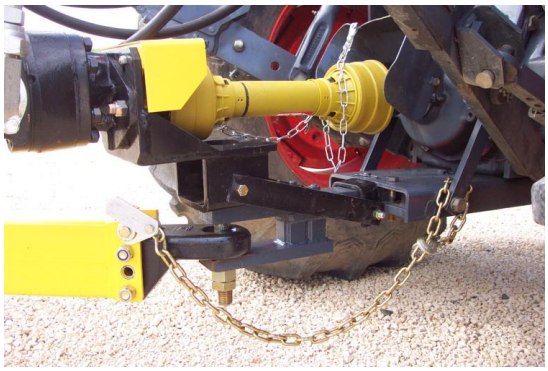


Engage hydraulic flow.
Power light (green) on the monitor will come on when the hydraulics are engaged and flowing the correct direction. If the light is not on, no functions will work.

Suggestion: Mark the flow control on this port for future reference for the operator.

Step 10: Fasten safety chain

Fasten safety chain to tractor as required by law



Step 11: Mount operator control box

Mount Merger Control box at a convenient location on the tractor.
For example: at right hand side of operator.

Step 12: 12 Volt power

Hook the control box to a 12V keyed connection.
This prevents unwanted battery drain.
Connect red to positive and black to ground.

Step 13:
Connect warning lights to Tractor

Connect trailer plug to tractor

OPERATION

OPERATION

Operation of Merger consists of putting unit in field position, choosing a desired windrow pattern, setting the drapers and pickups accordingly, then, engaging the machine and monitoring the merging process.

SUPER MERGER HYDRAULICS SETUP **SELF CONTAINED**

Hook up to tractor hydraulic system.
There are three hoses to be hooked up: two with male tips and one with a female coupler.

- Hook up larger diameter hose with the female coupler directly to a 'dump-to-tank" inlet on tractor transmission. (may have to be installed) This is the zero pressure line. Talk to your dealer or call PhiBer Manufacturing Inc. for assistance. Dumping to tank below the oil level is preferable but not necessarily required. **It is important that the merger is never operated without this line connected to the tractor reservoir. Make sure this line is properly connected before engaging hydraulics.**
  This line returns hot oil from the Merger to the tractor and protects Merger pump seals from excessive pressure**.**
- Hook up remaining two lines with male couplers to a set of hydraulic ports at the back of the tractor. Pressure line is marked with black cable tie. Set the flow control for this port **between 5gpm and 10gpm (19-38L/MIN).** 8gpm (30L/MIN) is preferable. Select **orbit motor** setting.

These lines provide oil for cooling of hydraulic system on Merger.
Always hook up zero-pressure-return line before engaging Hydraulic flow.

Boost control

Belt speed can be increased by approximately 20%, on self contained models only by switching toggle #12 (boost switch) to the ON position

SUPER MERGER HYDRAULICS SETUP **TRACTOR SUPPLIED**

Proper set-up of tractor hydraulics ensures optimum operation of merging hay and can greatly increase system reliability. The hydraulic system on this Merger is designed to function with open-center, closed-center and closed-center load-sensing tractor hydraulic systems. Contact your dealer or PhiBer for assistance.

There are two crucial elements that must be heeded to ensure optimum Merger performance:

1. **Tractor hydraulic output flow must be set properly.**
   - Hook the 3/8" hoses to the tractor and set the flow from this port to a maximum of 8 GPM (30L/MIN) and a minimum of 6 GPM (23L/MIN) (it is important to stay in this range). This set of hoses supplies hydraulic flow for the operation of swing tongue, pick-up lift, pick-up slides, and transport wheels.

     NOTE: Hydraulic oil flow in excess of 8 GPM (30L/MIN) may cause hydraulic lock up of the system. Flow rates below 6 GPM (23L/MIN) will cause lower cycle times and can impede productivity.

   - Hook the 3/4" hoses to the tractor and set the flow from this port between 20 – 28 GPM (76- 106L/MIN). The minimum flow required is 20 GPM (76L/MIN). For merging haylage, 26-28 GPM (98- 106L/MIN) is recommended. Typically hydraulic flow will be set so as to attain smooth lifting of crop material onto pick-up. Pickup belt should move slightly faster than speed .of travel.

     NOTE: It is highly recommended that these hoses be connected to 3/4" couplers at the tractor. This is an option on most tractors that will help achieve the high flow rates required and reduce oil operating temperatures.

2. **The low pressure tank return line must discharge directly into the tractor hydraulic reservoir with negligible system back pressure**.

   Newer model tractors may have a setting on the hydraulic couplers remote connection that directs return oil flow straight to the tractor hydraulic reservoir. Other tractors may be fitted with an external port that leads directly to the tractor hydraulic reservoir. If an external port is fitted, be sure it is below the oil level. This reduces the risk of the oil foaming which can cause cavitations in the pump.

DO NOT connect return line so that return oil flow works against the pilot operated check valve in the tractor hydraulic system.

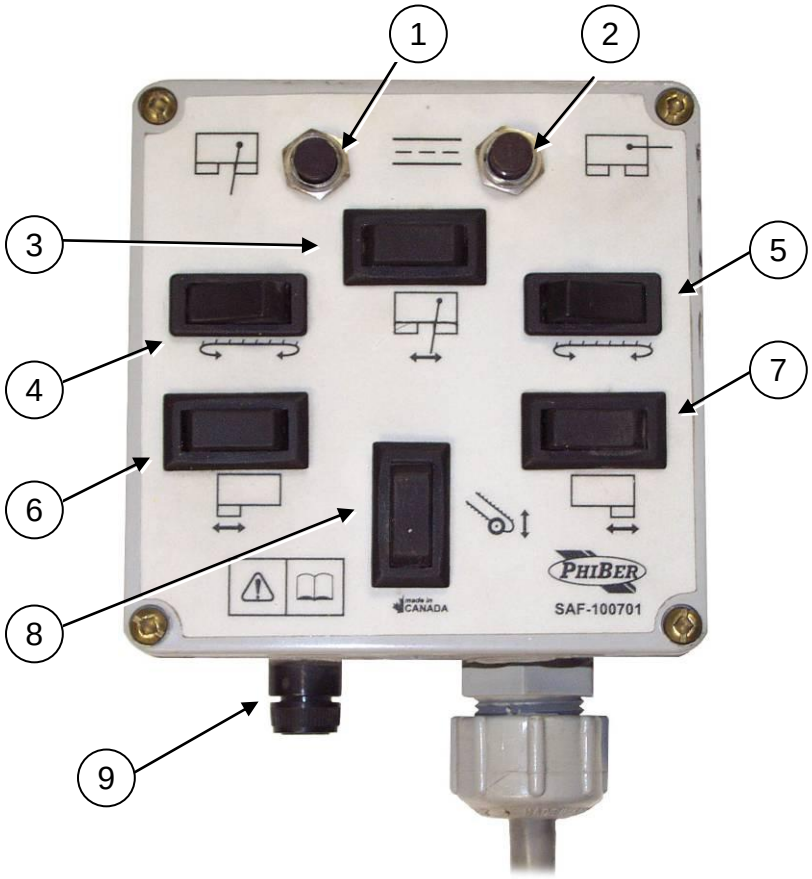
OPERATION

CONTROLS AND ADJUSTMENTS

Please familiarize yourself with the controls, adjustments and procedures of your PhiBer Super Merger. Belt speed will be adjusted through tractor remote or PTO RPM on self contained models.

CONTROL PANEL TRACTOR SUPPLIED

1. Move to Field Position Switch
2. Move to Transport Position Switch
3. Swing Tongue Position Switch
4. Left Draper Direction Switch
5. Right Draper Direction Switch
6. Left Pickup In/Out Switch
7. Right Pickup In/Out Switch
8. Pickup Height Control Switch
9. Fuse Holder (10A)

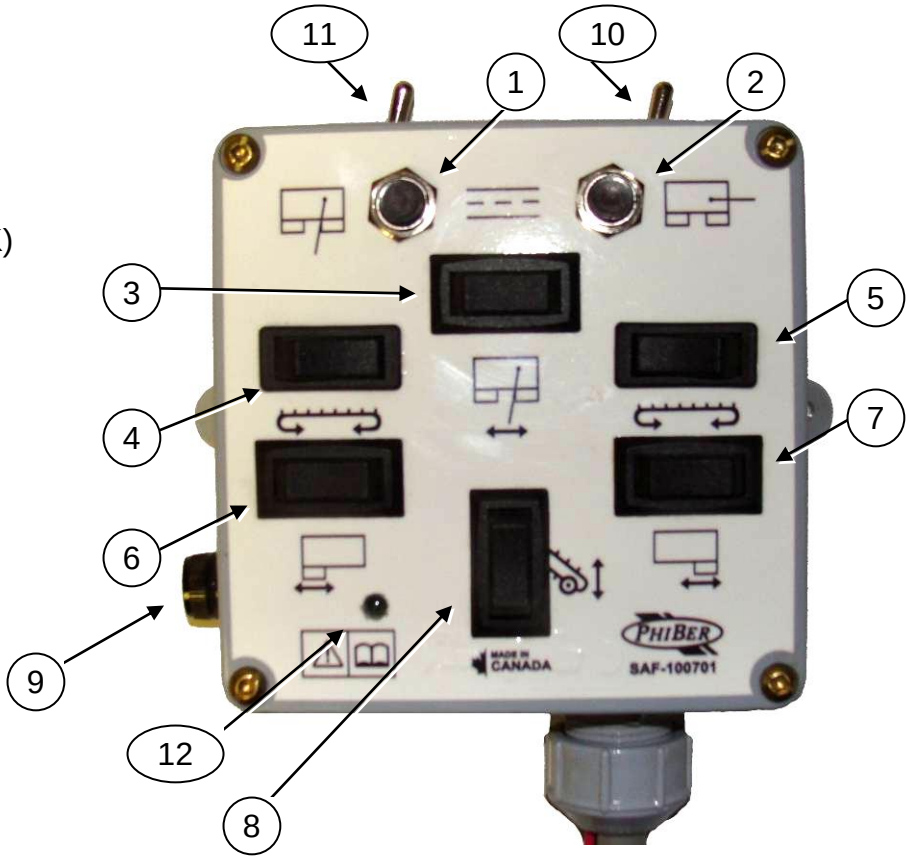


CONTROL PANEL SELF CONTAINED

Main functions are easily controlled with the switches on control box as outlined below.

Control Panel

1. Move to Field Position Switch
2. Move to Transport Position Switch
3. Swing Tongue Position Switch
4. Left Draper Direction Switch
5. Right Draper Direction Switch
6. Left Pickup In/Out Switch
7. Right Pickup In/Out Switch
8. Pickup Height Control Switch
9. Fuse Holder (10A)
10. Belt drive ON-OFF Switch
11. Flow Boost switch
12. Green Light (Charge Flow OK)



OPERATION

PICK UPS

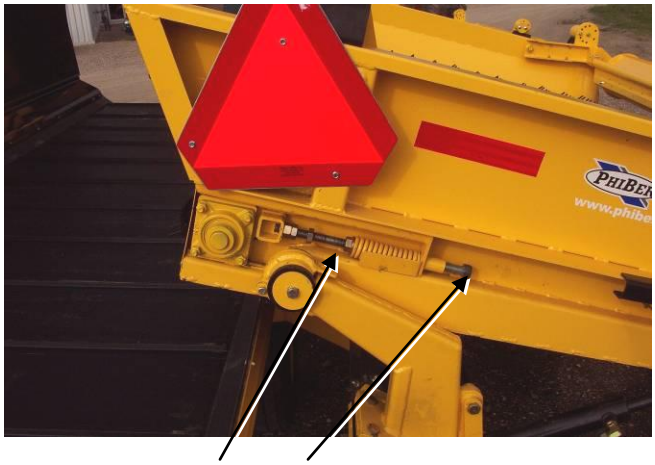
BELT TENSION: Belt tension should be set equally on both sides of the pickup. Coil springs should protrude out of square tubes by approximately 1/4". Belt should hang approx. 3" below edge of pick up frame. For heavy crop or re-growth belts may have to be tightened to avoid slipping. Generally, belts should be run loose (3"-4" sag below edge of pickup).

DO NOT OVERTIGHTEN

BELT TRACKING In order to adjust belt tracking, have Merger on a level surface; pickups lowered to working position. Gauge wheels set to equal height; sides of pick ups parallel: No twist.
Belt tracking can be adjusted by loosening jam nuts and turning adjustment rods. Belts will travel to looser side.
Have belts running during adjustment procedure.

Caution: Stay clear of moving parts!

If belt is tracking to right side, tighten adjustment rod on right side until belt begins to move over to left side. Belt will now be set to track centered on average. Proceed in opposite fashion if belt is tracking to left side.



Adjust pickup belt tension here

Pickups can be shifted from side to side using buttons 6 and 7 to match the cutting width of the windrower. Pickups are raised and lowered using button 8.
Pickups are engaged and stopped by tractor remotes or switching toggle #10 to the "OFF" position respectively on self contained models.

Belt speed should be set to attain smooth flow of crop material off the ground and upwards on pickup. Typically this will be approximately 10% faster than ground speed. Belt speed will be adjusted through tractor hydraulic remotes or PTO RPM on self contained models.

To increase belt speed to ground speed ratio, increase engine RPM and select a lower gear.
To decrease the said ratio, lower engine RPM and select higher gear.
Belt speed can be increased by approximately 20%
on self contained models only by switching toggle #11 (boost on switch) to the "ON" position.
Amount of boost on is adjustable in the electrical box.
Boost will disengage automatically by using any function; for example, lifting pickups

NOTE: When stopping belts, put tractor remote into float to save orbit motor seals.

Gauge wheel adjustment

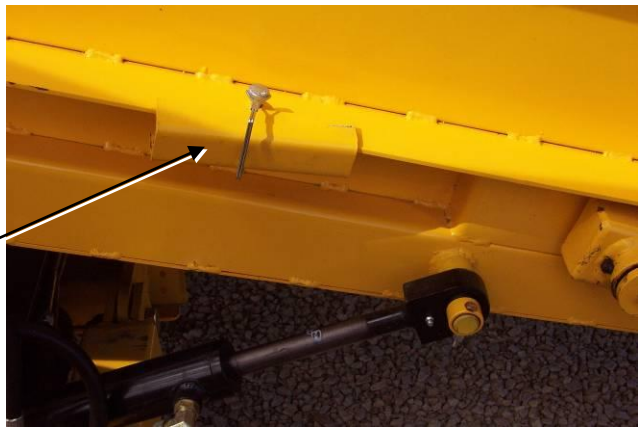
Pickups should be fully lowered for field operation. Adjust the gauge wheels on level ground to allow for 1/2” clearance between ground and pickup teeth. Adjust as needed to obtain desired results as crop conditions vary.

Gauge wheel height adjustment

LIFT CYLINDERS

A set of synchronized lift cylinders lifts each pickup evenly on each side.
Cylinder locks are provided for safety during service and transport
Remove all 4 lift cylinder locks for field work and store on pickup as shown.
Install all cylinder locks for road travel.

Cylinder lock in storage



OPERATION

Haylage Roller

The roller can be adjusted before and after by loosening and sliding the brackets as required. To maintain smooth windrows you should set the Roller as folows

For light crop set Haylage roller to be in close proximity to pickup teeth.
(Teeth slightly touching Haylage roller)

For heavy crop set Haylage roller forward and upward to obtain some space between pickup teeth and Haylage roller.

WIND GUARD WIRES

Wind guard wires
Wire height is adjustable both front and rear by rotating the adjusting brackets around center bolt.

DRAPERS

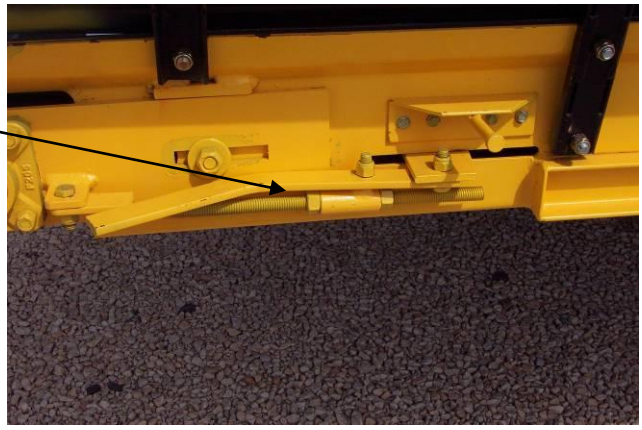
The **drapers slide** manually to any position and are electrically reversible, allowing the operator to place windrows precisely in a variety of configurations.
See section INTRODUCTION.

Slide together, the drapers form a continuous conveyor, delivering hay to one end of the machine.
Moved apart, hay can be merged to the center or sent to either end.
Rubber latches hold the drapers in position.

Direction of draper travel can be controlled from the control panel using switches 4 and 5.

Draper tension can be adjusted via the threaded rod linkage at the rear of the drapers. Belts must track properly to prevent premature failure. Make sure the tensioning mechanism slides freely, delivering equal tension to both ends of the draper rollers.

Adjust draper tension here.



TO BEGIN OPERATION (Self contained)

1. Operate tractor engine at rated RPM.
2. Engage hydraulic flow to charge circuit (8 GPM or 30L/MIN).
3. Green charge flow light will light up.
4. Engage PTO.
5. Merger is now ready for operation.
6. Engage belt drive and lower pickups to start.

OPTIONAL

CENTER DRAPER

An optional center draper extends the working width of the machine by 6',
moving the hay further and achieving a better windrow placement.

Center draper conveys hay from left draper to right draper for right side delivery
or vice versa for left side delivery.

To install center draper, slide right and left hand draper to the outer extremes of the machine.
Move center draper under center frame and set pivot bar into cradles on left and right hand frame
(shown in Picture below). Set front mount onto pin on center frame as shown.
Secure with quick pins as illustrated. Slide Left and Right hand drapers together
against the center draper and fasten drapers with rubber latches.

- Connect center draper motor to the hydraulic flow of left draper motor
- Disconnect male quick coupler from left hand draper motor and connect the same to the quick coupler on the center draper motor.
- Connect short hose on the center draper motor to the quick coupler on left hand draper motor.
- Disconnect center draper motor when center draper is not in use or when merging to opposite sides.

INVERTER CHUTE

The optional inverter chute may be used to completely invert the windrows

OPERATION

TRANSPORTING

Taking Super Merger in and out of transport mode

When putting the merger in and out of transport, move machine to a firm level surface. Engage and lock the hydraulic charge flow circuit. Operate tractor engine at idle speed. Engage PTO. Place tractor gear shift in neutral position and release parking brake. Allow the tractor to roll forward or backward freely as required by the transport function.

Putting Super Merger into field position:

Remove transport lock of swing tongue cylinder**.**
Push and hold the field position button.
Functions will occur in the following sequence.

1. Hydraulic casters will pivot
2. Swing tongue cylinder will turn machine to field position.
3. Transport tire will lift and transfer weight to the tractor drawbar.

The cycle is complete when the transport tire is fully lifted.

Remove cylinder locks of pickup lift cylinders

Swing tongue cylinder lock engaged for transport →

Putting Super Merger into transport position:

Important: Move pick-ups to outside of slide beams
Clearance has to be provided for transport wheel to come down (as it **will interfere** with the pick-ups if they are not spread apart). Then push and hold the transport position button. Functions will occur in reverse sequence.

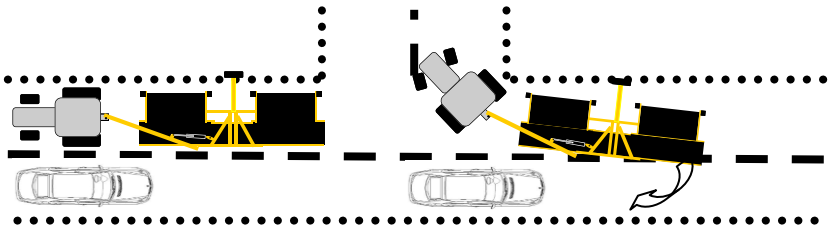
1 Transport tire will come down and take weight off tractor draw bar.
2 Swing tongue cylinder will pivot Merger to transport position.
3 Hydraulic casters will pivot for road travel.
The cycle is complete when all wheel trucks under frame have turned for road travel
(Allow at least 30 sec. for wheel trucks to turn).

NOTE: Until you are completely familiar with the machine, it is expedient that you check to ensure that all 3 hydraulic wheel trucks are completely turned and aligned for transport.
(The front wheel casters freely).

Disengage hydraulic charge flow and disengage PTO for road travel...
Install swing tongue cylinder lock.
Install pick up lift cylinder locks.

WARNING! Disengage PTO and all hydraulic power before entering public roadways

WARNING! Secure swing tongue transport lock and pickup lift locks before traveling on public roads.

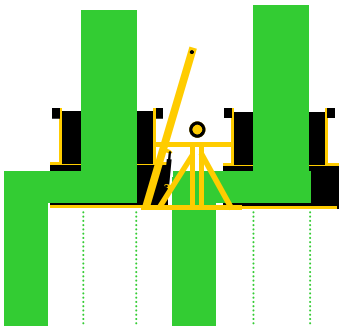


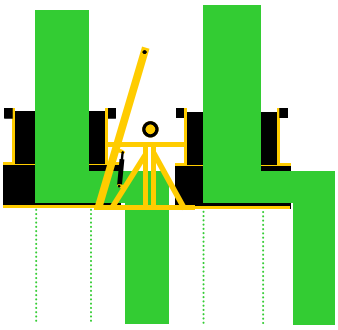
WARNING! WIDE TURNING PATH.
Ensure that all oncoming and/or overtaking traffic is clear before making turns on public roads. Slow down and look for both oncoming and overtaking traffic before making turns.

OPERATING TIPS

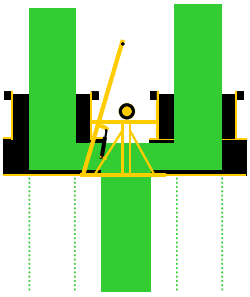
Row configuration

Ono (1) Row into One (1)

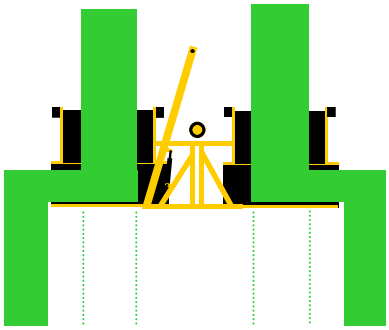




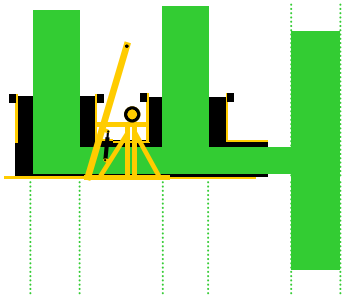
Two (2) Rows into one (1)



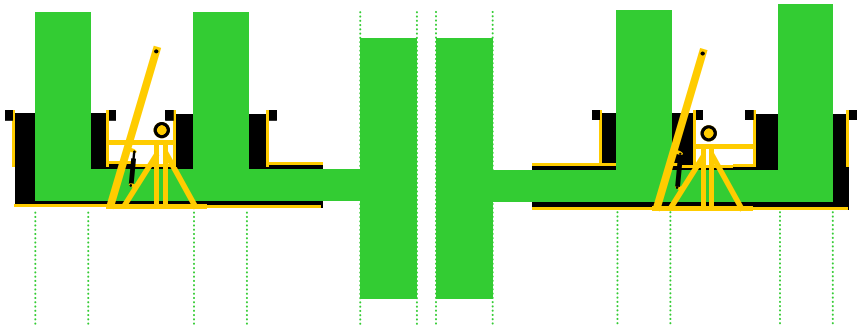
Two (2) into Two (2)



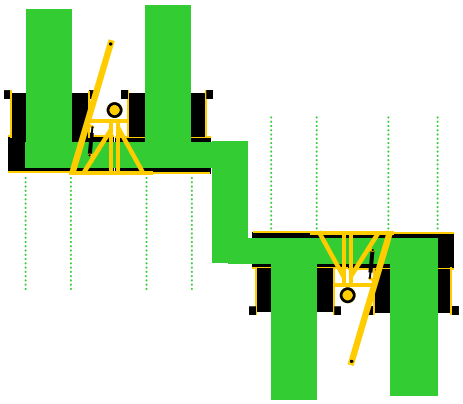
Three (3) Rows into one (1)



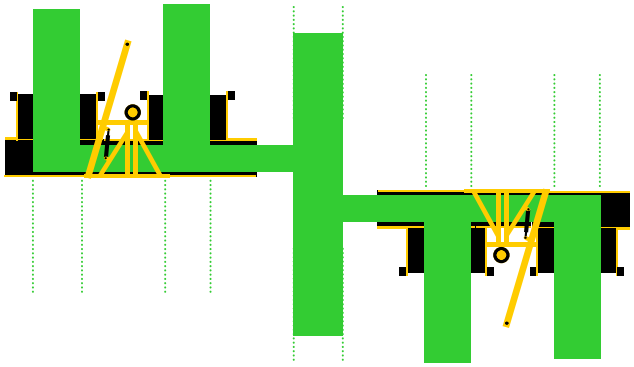
with center draper



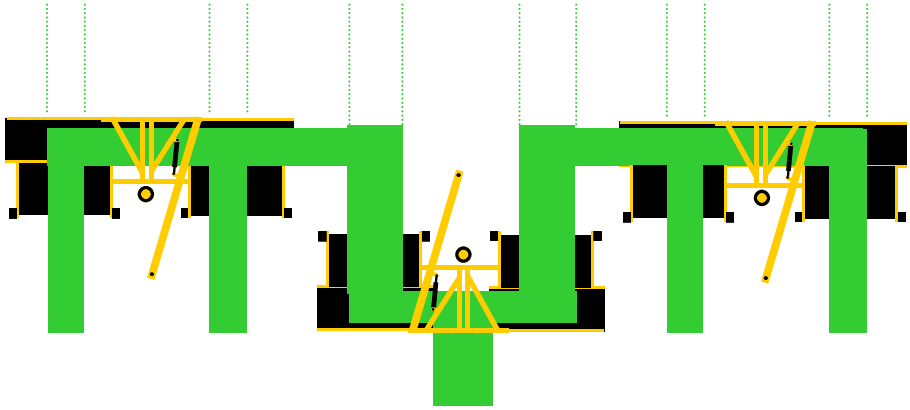
Four (4) Rows into one (1)



Five (5) Rows into one (1)

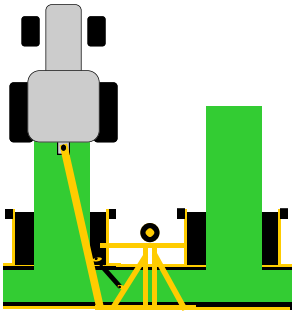


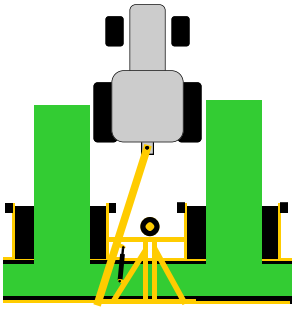
Six (6) into One (1)



Any above mentioned row configuration can be done with

row in-between tractor tires or tractor in-between rows





OPERATING TIPS

Belt speed should be set so as to attain smooth flow of crop material off the ground and upwards on pickup. Typically this will be approximately 10% faster than ground speed.
Belt speed will be adjusted through tractor hydraulic remotes or PTO RPM on self contained models.
To increase belt speed to ground speed ratio, increase engine RPM and select a lower gear.
To decrease the said ratio, lower engine RPM and select higher gear.
Belt speed can be increased by approximately 20% on self contained models only, by switching toggle #11 (boost switch) to the “ON” position.
NOTE: When stopping belts, put tractor remote into flout to save your seals.

Maintaining smooth windrows

To maitain smooth windrows you should set the haylage roller properly

For your light crop, set haylage roller to be in close proximity to ends of the pickup teeth (Teeth slightly touching haylage roller).

For heavy crop, set haylage roller forward and upward so as to allow for more gap between pickup teeth and haylage roller.

ROUTINE MAINTENANCE

Proper maintenance of the Merger will result in more reliable performance. Please refer to the chart below for recommended maintenance information:

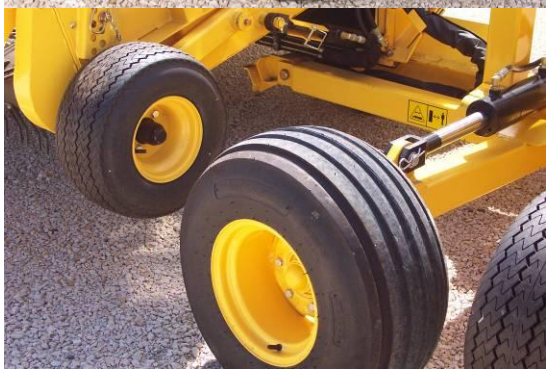
KEY				MAINTENANCE RECORD											
✓	check		hours												
♦	lubricate		by												
◇	clean		date												
▲	change														
10 ⧖															
♦	Casters														
♦	PTO Universal Joints														
✓	Limit Switches														
✓	Wheel Bolt Torque														
♦	Pickup Roller Bearings														
♦	Draper Roller Bearings														
♦	Swing Tongue														
50 ⧖															
♦	Pickup Cylinder Pins														
♦	Pickup Hinge														
500 ⧖															
✓	Wheel Bolt Torque														
♦ ◇	Wheel Bearings														

MAINTENANCE

Grease schedule

CASTERS

Grease casters every 10 hours or daily (4 fittings).



Wheel torque

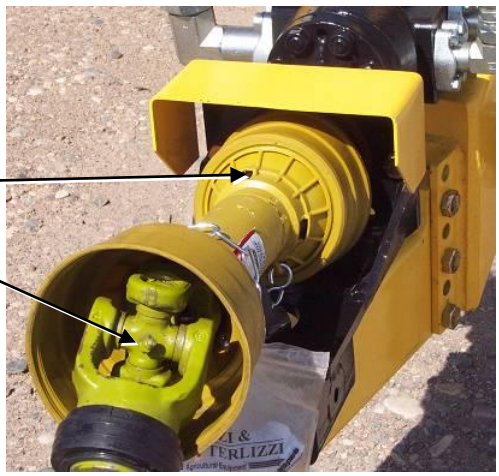
Check wheel bolt tightness (Page16) after the first two (2) hours of operation, again after the first ten (10) hours, then periodically.

Tire pressure

Check your tire pressure (Page 15) after the first two (2) hours of operation, again after the first ten (10) hours, then periodically.

PTO JOINTS

Grease your PTO Universal Joints every 10 hours or daily.



LIMIT SWITCH

Check limit switch on swing tongue daily.

PICKUP ROLLER BEARING

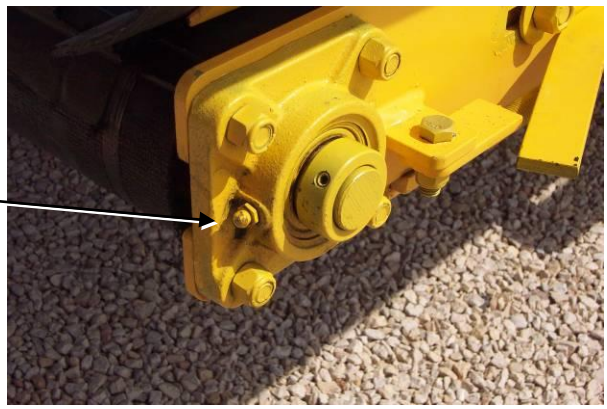
Grease pickup roller bearings every 10 hours or daily.

HAYLAGE ROLLER BEARING

Grease haylage roller bearings every 10 hours or daily.

DRAPER ROLLER BEARINGS

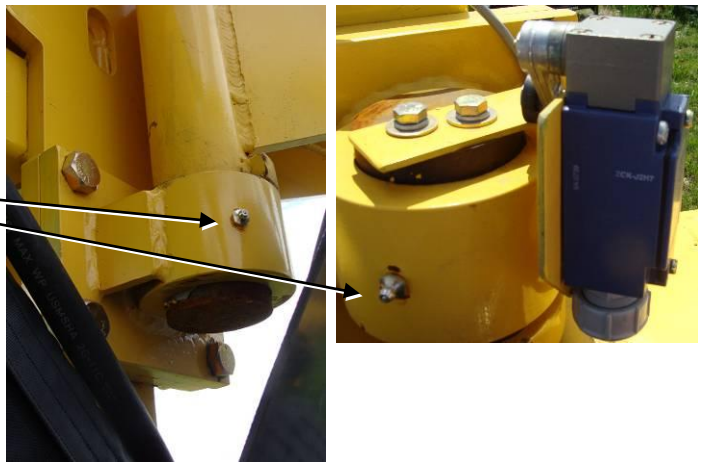
Grease draper roller bearings every 10 hours or daily.



MAINTENANCE

SWING TONGUE

Grese your swing tongue
every 50 hours or weekly.

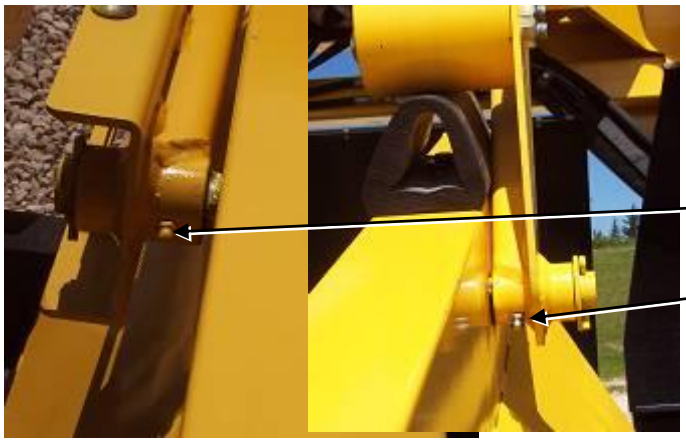


PICKUP CYLINDER PINS

Grease pickup cylinder pins
every 50 hours or weekly.

PICKUP HINGE

Grease pickup hinge
every 50 hours or weekly.

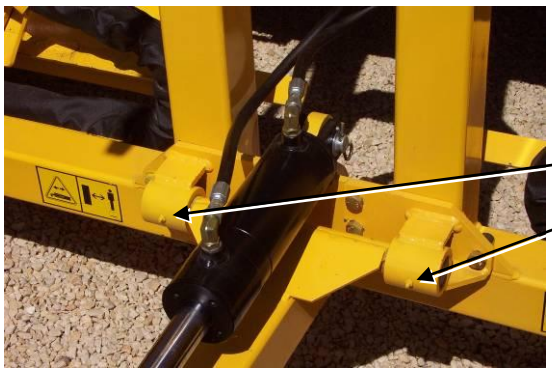


WINDGUARD WIRE ARMS

Grease windguard wirer arms every 50 hours or weekly.

PICKUP GAUGE WHEEL ARMS

Grease pickup gauge wheel arms every 50 hours or weekly.



TRANSPORT WHEEL ARM

Grease transport wheel arm every 50 hours.

WHEEL BEARINGS

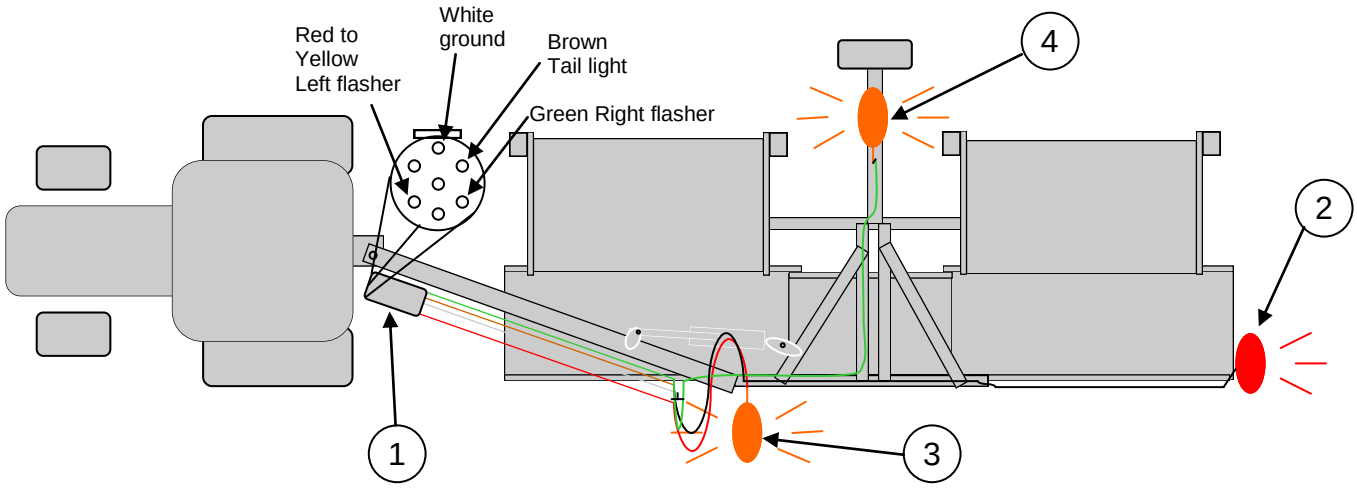
Grease all wheel bearings every 500 hours.

Remove, clean and re-pack wheel bearings every 1000 hours or annually.

MAINTENANCE

LIGHTING AND MARKING

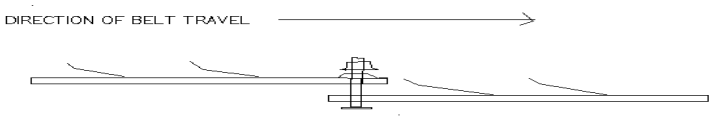
Item	Description
1	Harness Connector
2	Tail Light
3	Left Hand Flasher
4	Right Hand Flasher



INSTALLATION INSTRUCTIONS FOR ONE PIECE PICKUP BELT

The one piece belt used on the PhiBer Super Merger pickup consists of 3 separate belts bolted together in overlapping joints.

- Make sure the belts are overlapped correctly.
- Position the pickup teeth to the correct orientation and tighten bolts.
- Pull the assembled belt into place over the rollers and make the final joint on the flat pan in the center of the pickup.
- Clamp the belt into position to facilitate assembly.
- Adjust upper roller to tighten belt.
- Do not over tighten.



REPLACING TEETH

Lift pickup, turn belt with broken tooth to front pickup roller.
Remove the nut, replace tooth and tighten the nut again.

MAINTENANCE

REPLACING THE DRAPER BELT

Install draper canvas

Release tightner mechanism. Make sure tightner is fully retracted.

Lay out canvas on top of draper frame.

Pull canvas tight around idler roller.

At the back, canvas runs inside canvas guide.

At the front, canvas runs free between draper frame & main frame.

Pull both ends of canvas tight & join alligator lacing with canvas pin provided.

REPLACING SEALING STRIP

Install rubber sealing

Lay out two rubber strips. Allow 1" overhang at each end.
Lay out hold down straps so that the hole pattern matches the holes in top edges of the draper.
Beginning from one end of the draper,
allow ¼" of rubber to provide past the top edge of the draper.
Using vice grip clamps,
clamp sealing rubber & hold down strap to the edge of the draper.
Sandwich the rubber between the hold down strap & the draper.
Align holes of straps & draper.
Drill through rubber with 17/64 " bit (1/4" oversize),
push ¼" carriage bolts through & tighten with lock nuts.

Proceed in same way with all holes <u>except</u> 3/8" square holes in back of draper. These 6 holes are for mounting draper back.

Mount rubber seal at front of draper.
Allow rubber to protrude ¼" above frame when installing front sealing strip.
Slide draper back & forth to gain access to holes that are behind main frame posts.

STORAGE

WARNING! Store Merger away from human activity and protected from the weather.
Do not store close to artificial fertilizers or spraying chemicals.
DO NOT allow children to play on the Merger at any time.

Follow the steps outlined below at the end of each season's use or when the machine will not be used for an extended period of time. This will ensure the Merger is kept in good condition and ready for the next season:

1. Remove all the crop material and dirt left on the machine to facilitate cleaning
2. Clean the interior and exterior of the Merger thoroughly because any chaff and dirt left in the machine will attract moisture and cause rust
3. Check free rotation and movement of all rollers and moving parts. Remove, clean and lubricate as necessary
4. Operate the Merger for a few minutes to work the grease into the bearings.
5. Lubricate casters to prevent rusting.
6. Lubricate bearings on rollers.
7. Coat all bright parts with paint, a rust preventative, oil or grease to protect them from rust.
8. Retract hydraulic cylinders fully and coat exposed parts of the cylinder rods with grease.
9. Support the Merger on wooden blocks to relieve the weight from the tires. Leave tires inflated. Tires, rubber belts and components lives will be extended if protected from sunlight during storage.

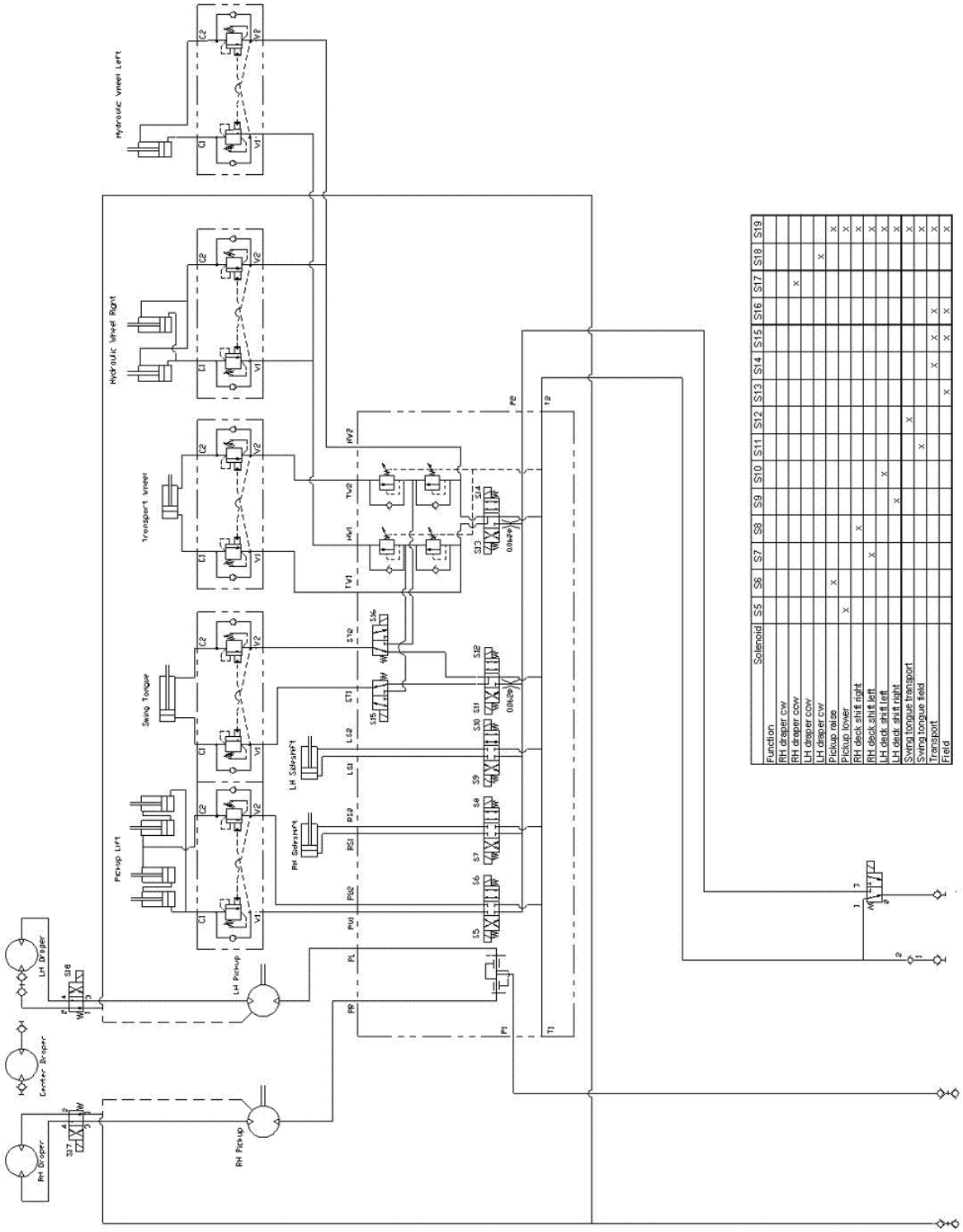
Important: Periodic checks will help to keep your Merger maintenance and repairs to a minimum and avoid costly breakdowns during the season It is a good idea to have the Merger inspected at the end of the season. Your PhiBer dealer will be gladly quote a price for the work.

TROUBLE-SHOOTING

Symptom	Possible cause	Solution
Hydraulics do not work.	Charge flow not engaged. No electrical power.	Engage charge flow. Check operator control box hook up to 12V.
Pickups lift unevenly.	Air in hydraulic line. Cylinder seal broken.	Check oil level in tractor and refill if necessary. Air will be purged by pressing and holding “up” button for 15sec. Replace seals.
Pickup belts don’t track.	Belt tension incorrect.	Set belt tension.See page 29
Machine plugs with hay.	Belt speed to slow.	Belts need to run approximately 10% faster than ground speed.
Hay not picked up.	Gauge wheels not set correctly.	Set gauge wheels See page 30.
Windrow is lumpy.	Set Haylage Roller.	Set Haylage Roller closer to the ground and closer to Pickup. see page 32.
Merger will not go into transport. Wheels don’t pivot completely.	Ground uneven, rocks hinder the wheels. Sequence valve must be adjusted.	Move to level and firm ground. Set sequence valves. Call qualified technician.
Oil heats up.	Charge flow out of proper range.	Ensure that low pressure return flow is discharging directly into the tractor. See page 25,26.
Pickups don’t stay up.	Counter balance valve may need adjustment.	Turn adjustment screws on counter balance valve ¼ turn out

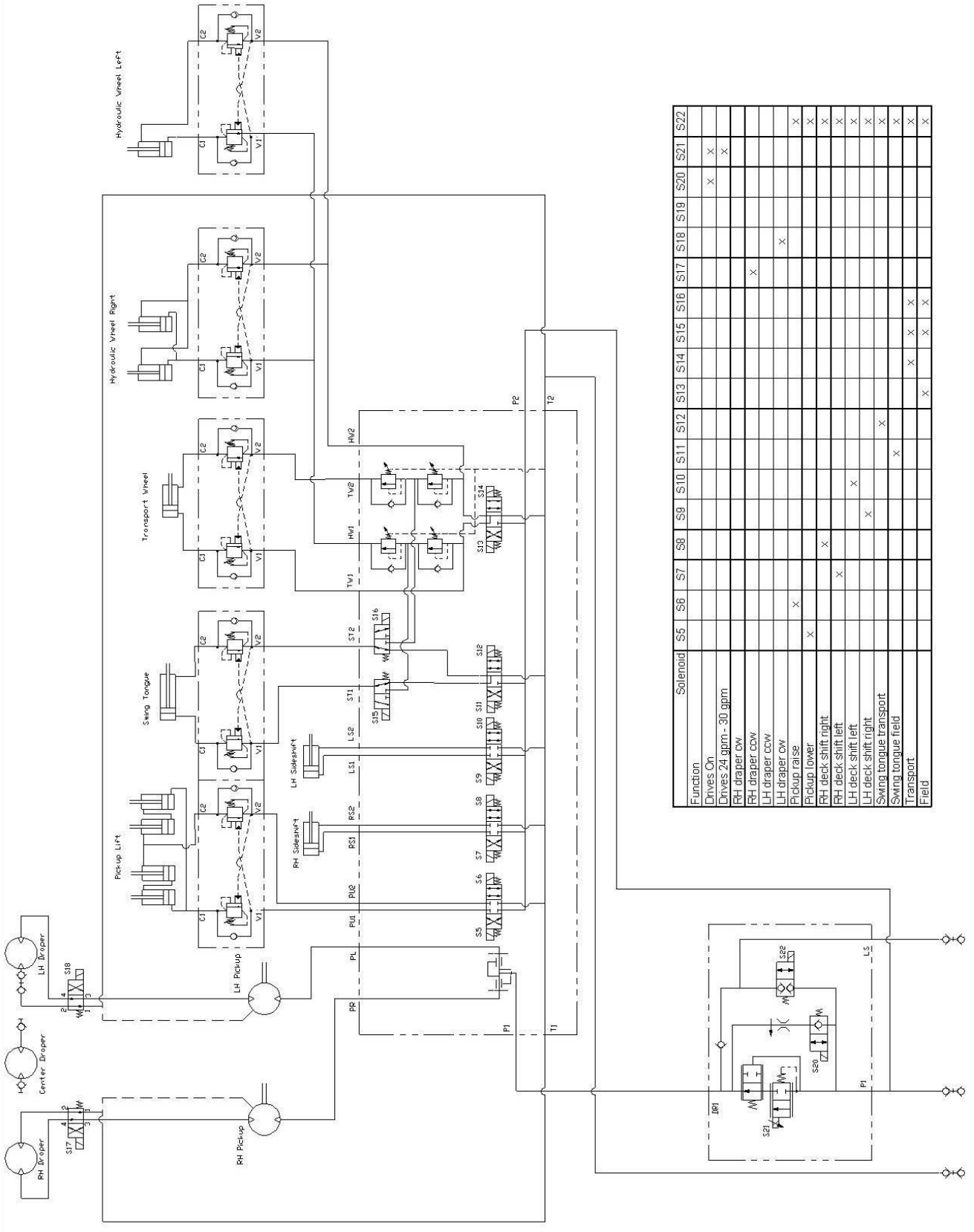
For further inquiries, contact your dealer.

Hydraulic tractor supplied



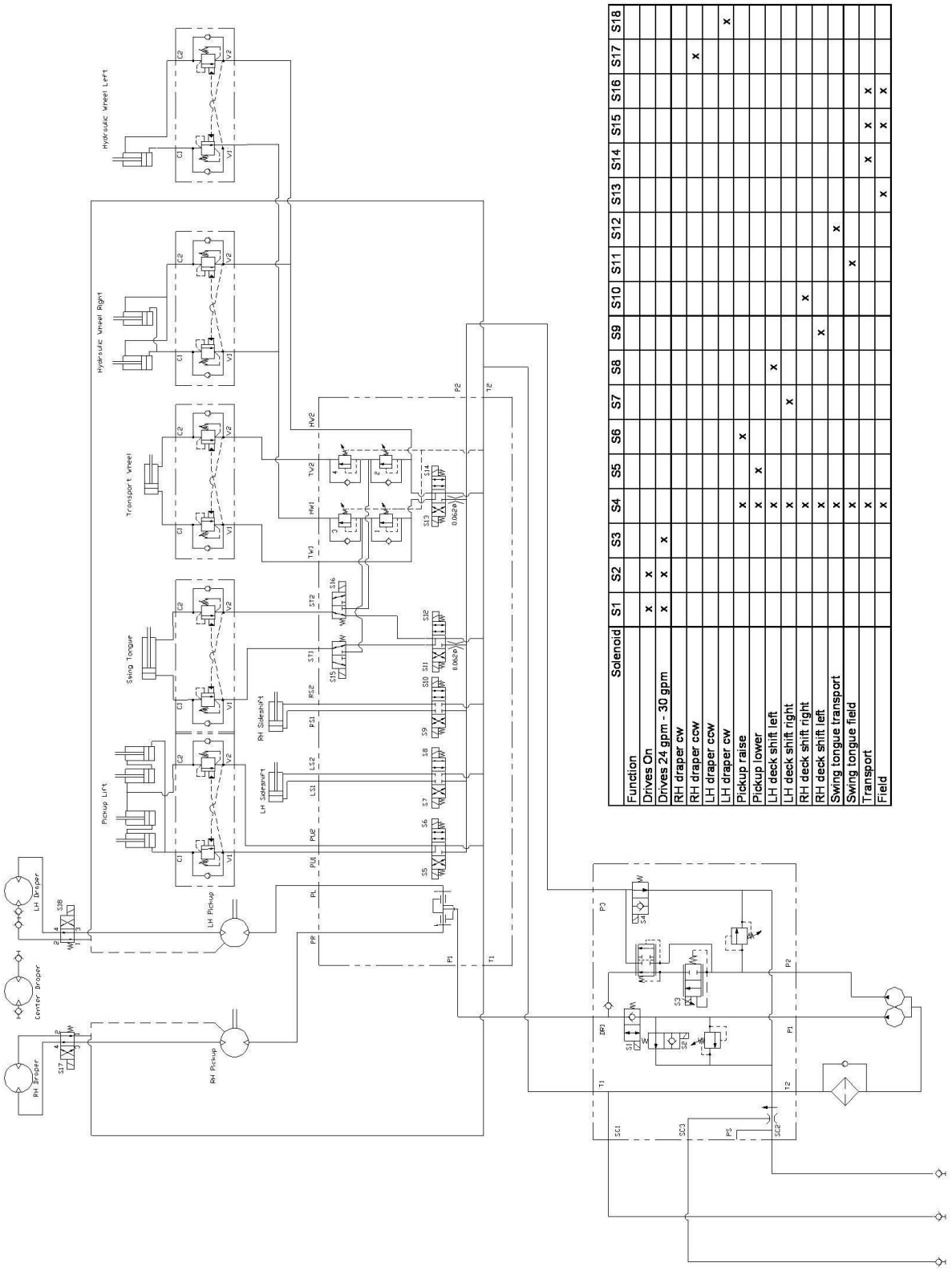
SCHEMATICS

Hydraulic power beyond



Solenoid	S5	S6	S7	S8	S9	S10	S11	S12	S13	S14	S15	S16	S17	S18	S19	S20	S21	S22
Function																		
Drives On																X		
Drives 24 gpm - 30 gpm																	X	
RH draper cw																		
RH draper ccw													X					
LH draper ccw																		
LH draper cw														X				
Pickup raise		X																X
Pickup lower	X																	X
RH deck shift right				X														X
RH deck shift left			X															
LH deck shift left						X												X
LH deck shift right					X													X
Swing tongue transport								X										X
Swing tongue field							X											X
Transport										X	X	X						X
Field									X		X	X						X

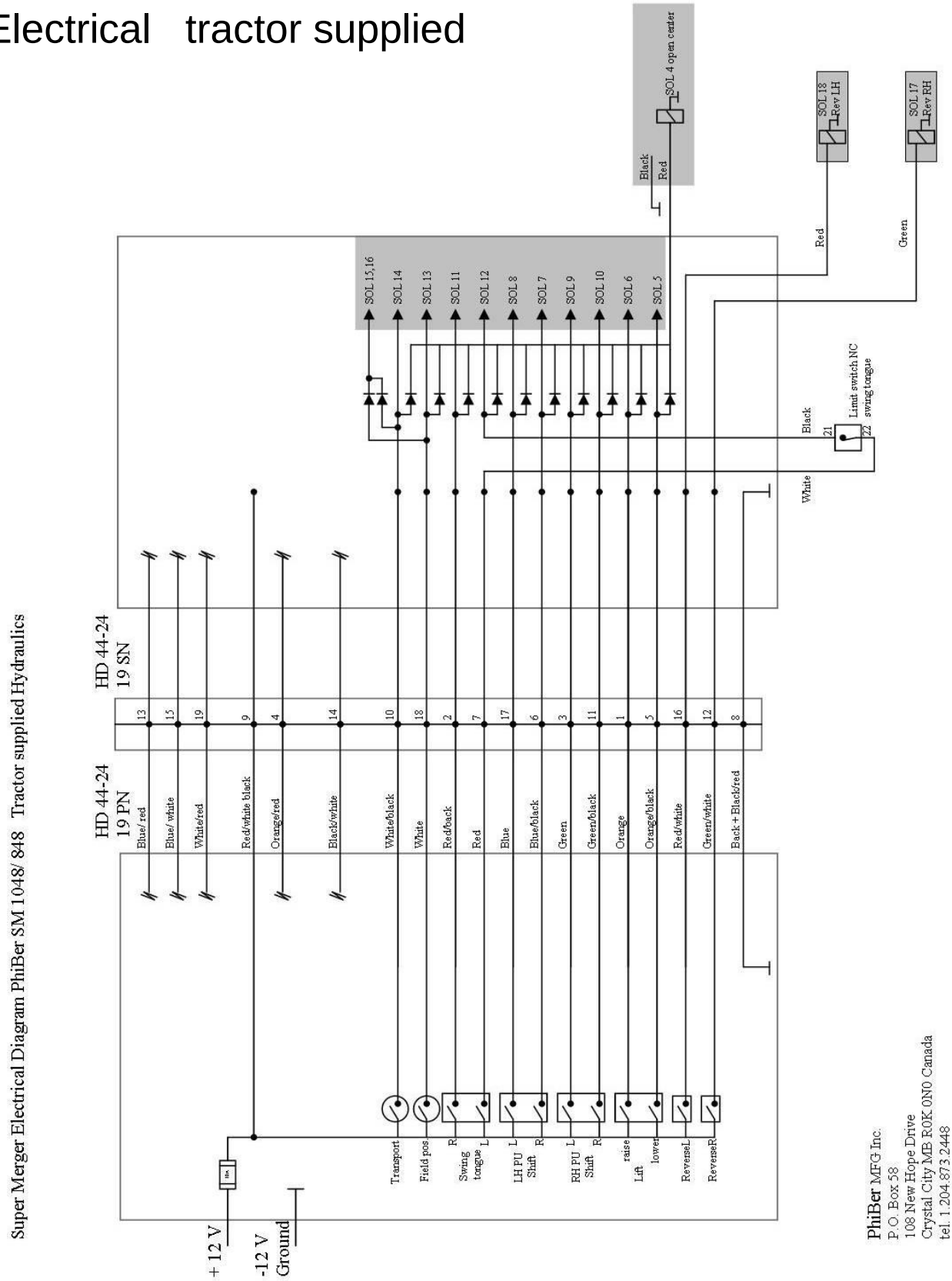
Hydraulic self contained



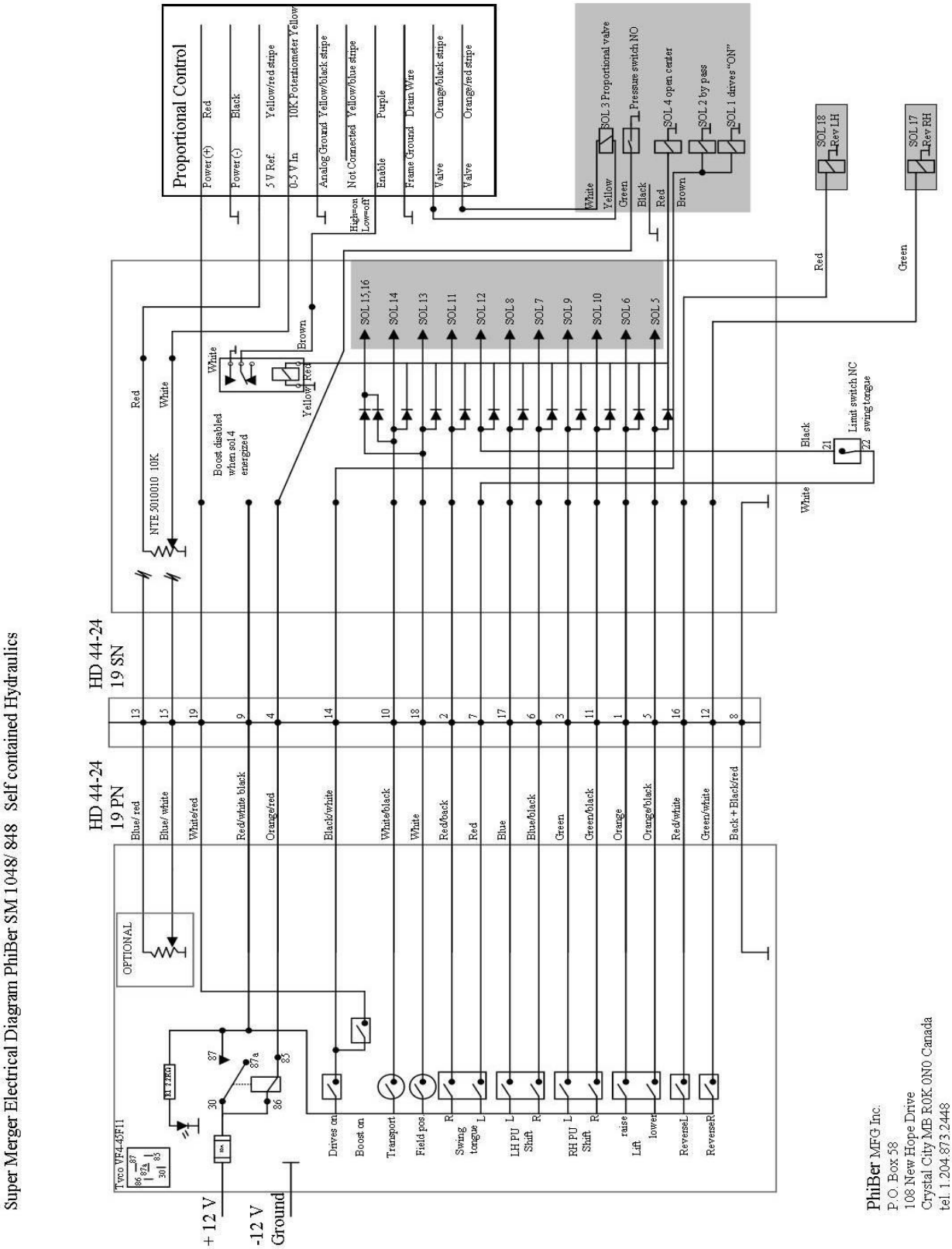
Solenoid	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	S11	S12	S13	S14	S15	S16	S17	S18
Function																		
Drives On	x	x																
Drives 24 gpm - 30 gpm	x	x	x															
RH draper cw				x		x												x
RH draper ccw				x	x													
LH draper cw				x			x										x	
LH draper ccw				x	x													
Pickup raise				x		x												x
Pickup lower				x	x													
LH deck shift left				x				x										
LH deck shift right				x			x											
RH deck shift right				x						x								
RH deck shift left				x					x									
Swing tongue transport				x								x						
Swing tongue field				x							x							
Transport				x										x	x	x		
Field				x									x		x	x		

SCHEMATICS

Electrical tractor supplied



Electrical self contained



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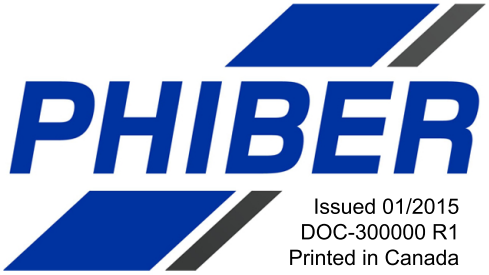

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