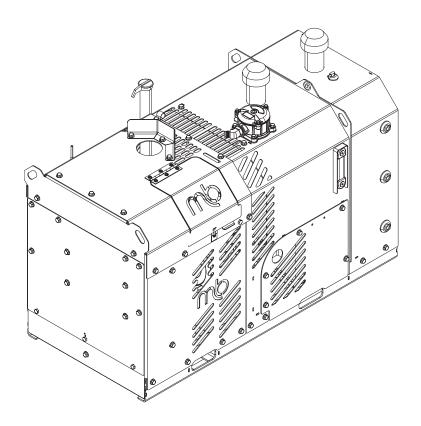
# OPERATOR'S MANUAL

# **Auxiliary Engine Pallet**

25 Hp Engine-Driven Hydraulic Power Pack



QUALITY YOU CAN SEE, PEOPLE YOU CAN TRUST<sup>TM</sup>



M-B Companies, Inc. 1615 Wisconsin Ave. P. O. Box 200 New Holstein, WI 53061-0200 (920) 898-1560 or 800-558-5800 FAX: (920) 898-4588

Publication: AEP-032612

10/16/12

# **TABLE OF CONTENTS**

INTRODUCTION	3
Operator's Manual	3
Identification Numbers	3
SAFETY	4
Safety Alerts	4
Safety Decals	4
Pre-Start Guidelines	4
Operation Guidelines	4
Maintenance Guidelines	5
ASSEMBLY	6
CONTROLS AND FEATURES	7
OPERATION	10
Pre-Start Checks	10
Remote Transmitter	10
Starting The Engine	10
Running The Broom	10
Shutting Off The Engine	10
Transporting	10
MAINTENANCE	11
Maintenance Schedule	11
Lubrication	11
Pressure Manifold	12
Installing a new Transmitter or Receiver	12
STORAGE	13
Storage	13
TROUBLESHOOTING	
SERVICE PARTS	
MARDA ALTV	40



## **NOTES**



M-B Companies, Inc. 10/16/12

### **INTRODUCTION**

#### **OPERATOR'S MANUAL**

You must read, understand and comply with all the safety and operating instructions in this manual before attempting to set-up and operate the Auxiliary Engine Pallet.

Failure to comply with the safety and operating instructions can result in loss of machine control, serious personal injury to you and/or bystanders, and risk of equipment and property damage.

#### **IDENTIFICATION NUMBERS**

When contacting your authorized dealer for information, replacement parts or service, you MUST have the model and serial number of your unit.

Record the serial number in the space provided. The serial number plate/decal can be found in the location shown in Figure 1.

Model Name/Number:	
Date Purchased:	Serial #:

3

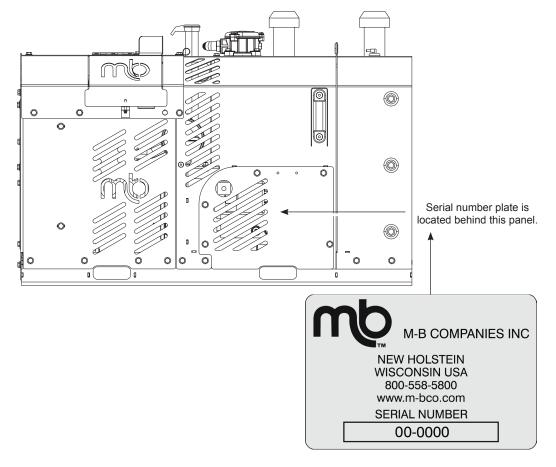


Figure 1

### **SAFETY**

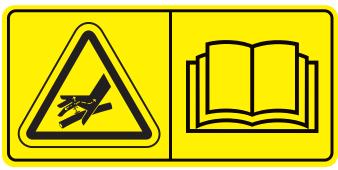
#### **SAFETY ALERTS**

Signal words and alert symbols notify of important safety precautions.

#### **DANGER!**



Indicates a hazardous situation which, if not avoided, will result in serious injury or death.





#### WARNING!



Indicates a hazardous situation which, if not avoided, could result in serious injury or death.



#### CAUTION!



Indicates a hazardous situation or unsafe practice which, if not avoided, could result in minor or moderate injury or property damage.



#### SAFETY DECALS

Reading this manual and the safety instructions it contains will provide you with the necessary basic knowledge to operate this equipment safely and effectively. We have also placed several safety labels on the unit to remind you of this important information while you are operating your unit.

All DANGER, WARNING, CAUTION, and instructional messages on your unit should be carefully read and obeyed. Bodily injury can result when these instructions are not followed. The information is for your safety and it is important.

These labels will act as a constant visual reminder to you, and others who may use the equipment, to follow the safety instructions necessary for safe, effective operation.

If any of these labels are lost or damaged, replace them at once. See you local dealer for replacements.

#### PRE-START GUIDELINES

- Install any covers or guards which may have been removed for shipping purposes.
- Before starting equipment, walk around equipment, making a visual inspection that all safety devices are properly installed and secured.
- Check that all hardware, fasteners, hydraulic fittings, etc. are in good condition and properly fastened. Replace any fatigued or damaged items with proper replacements.
- Personnel who are not required to be in the work area should be kept away. Never start the equipment unless you are absolutely certain that everyone in the area is clear of the machine and aware it is being started.
- Follow the manufacturer's recommended start-up procedure.

#### **OPERATION GUIDELINES**

Read, understand and follow all instructions in the manual and on the unit before starting.

- To avoid serious injury or death, do not modify equipment. Any
  modifications made to equipment can be dangerous and can void
  equipment warranty.
- Never operate equipment with covers or guards removed. Rotating parts can cause severe injury. Keep hands, feet, hair, jewelry and clothing away from all moving parts.
- · Never defeat a safety device to make a task easier.
- Always wear proper apparel when operating equipment; safety glasses, face shield or goggles, ear protection, and dust mask. Tie hair back. Never wear loose clothing or jewelry that could get caught in moving parts.
- Only allow responsible adults who are familiar with the instructions, to operate the unit (local regulations can restrict operator age).
- Clear the area of objects such as rocks, toys, wire, etc., which could be picked up and thrown.



### SAFETY

- Be aware of surroundings. Be sure the area is clear of other people, bystanders or pets. Stop unit if anyone enters the area.
- · Always look down and behind before and while traveling in reverse.
- Be aware of discharge direction and do not point discharge at anyone. Do not point the discharge at glass enclosures, automobiles, or windows.
- Always stand clear of the discharge area when operating this unit.
- · Disengage all clutches and PTO's before starting engine.
- Never leave a running machine unattended. Always disengage the attachment and traction controls, lower the attachment, set the park brake, stop the engine and remove the ignition key before leaving the machine.
- · Operate only in daylight or good artificial light.
- · Never carry passengers.
- Do not operate the unit while under the influence of drugs, alcohol or other medication.
- · Watch for traffic when operating near or crossing roadways.
- Use extra care when loading or unloading the unit into a trailer or truck.
- Keep in mind the operator is responsible for accidents occurring to other people or property.
- Data indicates that operators, age 60 years and above, are involved in a large percentage of power equipment-related injuries. These operators should evaluate their ability to operate the unit safely enough to protect themselves and others from injury.
- All operators should seek and obtain professional and practical instruction.
- Protect eyes, face and head from objects that may be thrown from unit. Wear appropriate hearing protection.
- Always wear substantial footwear and appropriate clothing. Wear footwear that improves traction on slippery slopes. DO NOT wear long scarves or loose clothing that could become entangled in moving parts.
- Abnormal Vibrations are a warning of trouble. Striking a foreign object can damage unit. Stop unit and engine. Wait for all moving parts to stop. Inspect unit and make any necessary repairs before restart.
- Never place your hands or any part of your body or clothing inside or near any moving part while unit is running.
- Stop engine before: refueling, cleaning, making adjustments or removing the attachment assembly.
- Follow the drive unit manufacturer's recommendations for wheel weights or counter weights.
- · Make any adjustments before operating unit.
- Do not touch parts which may be hot from operation. Allow such parts to cool before attempting to service the unit.
- Before using, always visually check that hardware is present, intact and secure. Replace worn or damaged parts.
- Never operate the machine with damaged guards, or without safety protective devices in place.
- Follow the manufacturer's recommendations for towing weight restrictions and procedures.
- Original purchaser of this unit was instructed by the seller on safe and proper operation. If unit is to be used by someone other than original purchaser; loaned, rented or sold, ALWAYS provide this manual and any needed safety training before operation.

 The Operator must understand the functions and parameters of all controls and how to operate, as well as how to STOP in an Emergency.

NOTE: All reference to left, right, front, or rear are given from the operator position and facing forward.

#### MAINTENANCE GUIDELINES

- Maintain or replace safety and instruction decals/labels as necessary.
- · Never run a unit in an enclosed area.
- Keep nuts and bolts tight and keep equipment in good condition.
- Never tamper with safety devices. Check their proper operation regularly and make necessary repairs if they are not functioning properly.
- Keep unit free of debris and build-up. Clean up any oil spillage.
- Never make adjustments or repairs with the engine running unless specified otherwise in the engine manufacture's manual.
- Components are subject to wear, damage, and deterioration.
   Frequently check components and replace with the manufacturer's recommended parts, when necessary.
- · Check control operation frequently. Adjust and service as necessary.
- · Use only factory authorized parts when making repairs.
- Always comply with factory specifications on all settings and adjustments.
- Only authorized service locations should be utilized for major service and repair requirements.
- Never attempt to make your own repairs on this unit unless you have been properly trained. Improper service procedures can result in hazardous operation, equipment damage and voiding the manufacturer's warranty.
- Stop engine on tractor and set parking brake before performing any adjustments on the machinery.
- Do not disassemble a pressurized system unless properly trained and equipped with adequate tooling.
- Escaping hydraulic fluid under pressure can have sufficient force to penetrate the skin, causing serious injury. Before operation, be sure that all hydraulic connections are tight and hoses are not damaged. Relieve pressure in system before making adjustments.
- Oils and fluids can be very hot under pressure. Use caution and allow the system to cool before beginning maintenance work.
- Never operate or pressurize one of these systems with worn or damaged components. Replace hoses, fittings, valves or other components which appear defective.
- Never adjust pressurized systems beyond recommended levels to achieve higher operating pressures.
- NEVER search for hydraulic leaks with only your hands. Use cardboard or a piece of wood.
- For engine equipped models, follow specific engine manufacturer's recommended service intervals for dirty/dusty environments.



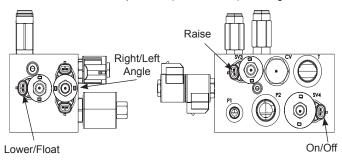
Publication: AEP-032612

M-B Companies, Inc. 10/16/12

### **ASSEMBLY**

The auxiliary engine pallet is shipped fully assembled. The remote transmitter with batteries is secured to the top of the unit.

- Remove packing materials. Inspect the unit for damage. If any damage is visible contact M-B Company before adding fluids or attempting to start the hydraulic power pack.
- Insert the batteries into the remote transmitter. The green LED should blink two times per second when transmitter and receiver are communicating properly. Refer to the section on remote transmitter
- Fill hydraulic reservoir with ISO 32 or greater hydraulic fluid to the proper level. Fill to approximately 3/4 full on level/temp sight gauge. If operating in temps of 0-40°F (-17-4°C) use ISO 32 cold weather type fluid or Dextron III ATF.
- 4. Connect hydraulic hoses to attachment. Remove caps and store in safe location for future use or for servicing. Connect hydraulic lines on the side of the engine pallet for angle and raise functions as required for use with the specific attachment. Connect hydraulic motor hoses "M" for motor high pressure and "MT" for motor low pressure (return to tank). See Figure 2.



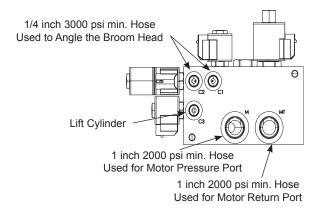
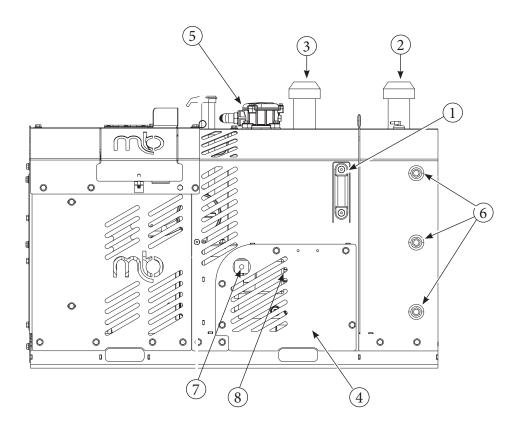


Figure 2

- Fill fuel tank with fuel. Refer to the engine owner/operator manual for the correct type and grade of fuel.
- Check connections at battery posts. Black negative (-) cable to negative (-) posts. Red positive (+) cable to positive (+) post. Tighten connections.
- Verify all other electrical connections have not come loose or detached during shipment.
- Once the engine pallet power pack has been properly set-up, refer to the OPERATION section within this manual to operate for a 15 minute break-in period. Cycle all the controls several times while running the broom to remove any air in the hydraulic system.
- After this break-in period, check oil levels in the hydraulic reservoir and engine. Refer to the engine manufacturer's Owner/Operator Manual for specific guidelines.



# **CONTROLS AND FEATURES**

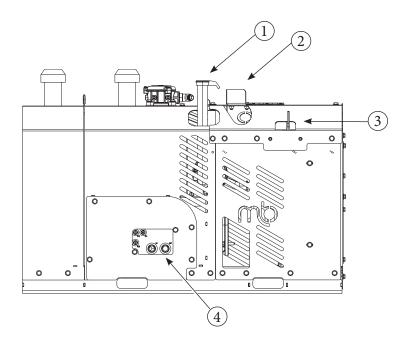


- 1. Hydraulic Fluid Sight Gauge
- 2. Fuel Cap
- 3. Hydraulic Fluid Cap
- 4. Battery Access Panel
- 5. Hydraulic Fluid Filter
- 6. Fuel Sight Gauges
- 7. Main Power Switch
- 8. Fuse, 10 Amp, Main Power

Figure 3



# **CONTROLS AND FEATURES**



- 1. Engine Exhaust
- 2. Engine Intake
- 3. Signal Receiver
- 4. Electric/Hydraulic Valve Assembly

Figure 4



### **OPERATION**

#### PRE-START CHECKS

- 1. Visually inspect equipment and mounting hardware to ensure that all parts are secure and tightened properly.
- 2. Check fasteners that secure power pack to mobile equipment.
- Check for oil leaks and loose hose connections.
- Check electrical connections.
- Check that filters are free of any dirt and debris that would restrict air flow.

#### REMOTE TRANSMITTER

The remote transmitter has buttons to run the engine and control broom functions. There are two LED's that blink to indicate communication status.

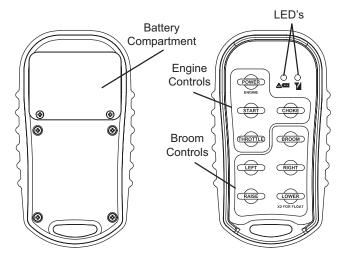


Figure 5

Two AA Alkaline batteries will provide approximately 30 hours of continuous operation.

Activate the remote by pressing and holding the POWER button for at least 2 seconds and release. To turn off the remote and turn off the engine, press and hold the POWER button for more than 3 seconds. The transmitter is designed with a power saving feature which turns the transmitter off after 4 hours if no buttons are pressed.

There are red and green LED's both on the keypad of the transmitter and inside the receiver case. The green LED will blink 2 times per second when the transmitter and receiver are communicating. It will blink 1 time per second if there is no communication (i.e. - no power to the receiver).

#### STARTING THE ENGINE

- 1. Turn the remote transmitter on by pressing the POWER button.
- 2. Move the main power switch, on the top of the unit, to the ON position (switch will light up red).
- Press START (and CHOKE if needed). Release buttons when engine starts. When the engine starts the speed will be at the high setting.
- Use the THROTTLE button to toggle between high and low engine speed.

#### RUNNING THE BROOM

 When the engine is warmed up, press the BROOM button to start the broom.

#### **CAUTION!**



Do not operate engine pallet product at temperatures above 80°F (26.6°C). Engine Warranty will be voided!

NOTE:

If the hydraulic fluid is cold, allow the broom to idle for 10 minutes. If the carrier vehicle is equipped with a lift cylinder, raise the broom off of the ground.

- To change the angle of the broom head, press and hold the LEFT or RIGHT button. When the button is released the movement will stop.
- If the carrier vehicle is equipped with a lift cylinder, the RAISE and LOWER buttons will lift the broom head and lower it.

#### SHUTTING OFF THE ENGINE

- 1. Press the BROOM button to turn off the broom.
- 2. Lower the engine idle by pressing THROTTLE.
- Let the engine idle for 5 minutes or until the hydraulic cooling fan turns off
- Press and hold the POWER button on the remote transmitter for more than 3 seconds to turn off the engine and transmitter.
- Move the main power switch, on the top of the unit, to the OFF position. The switch will go from red to clear.

#### TRANSPORTING

Use the forklift openings on either side of the engine pallet for transporting. Use the lift hook holes for hoisting (Figure 6).

#### DANGER!



Do not lift the unit using the engine housing. This item could fail and the unit could drop.

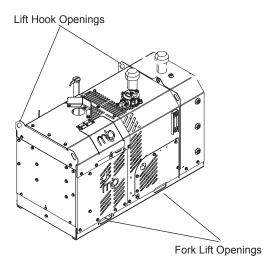


Figure 6

9

### **MAINTENANCE**

#### MAINTENANCE SCHEDULE

#### DANGER!

Keep hands and clothing away from moving parts!



Components may be hot from use! Oil cooler fan may turn ON even with engine OFF!

Only perform Service with engine OFF, battery disconnected and after allowing hot parts to cool.

#### WARNING!



Fluid escaping under pressure can puncture the skin and cause serious injury. Do not touch any hydraulic components until the engine has been turned off, hydraulic system depressurized and components disconnected.

#### **LUBRICATION**

NOTE: Grease points are noted with an applicable decal.



- Grease bearings and pivot points per the MAINTENANCE SCHEDULE using Chevron Ultra Duty II, Grade 2; or equivalent high-temp grease.
- Use an ISO 32 or greater hydraulic fluid. If operating in temps of 0-40°F (-17-4°C) use ISO 32 cold weather type fluid or Dextron III ATF

Service Performed	Before Each Use	Daily (8 Hrs)	Every 25 Hours	Every 50 Hours	Every 250 Hours	Annually
Inspect all fasteners and mounting hardware and tighten as necessary.	•					
Check for loose hydraulic connections.	•					
Check engine oil level and fill as necessary.	•1					
Inspect engine air filter.			•2			
Check hydraulic oil level and fill as necessary.	•					
Check adjustments.		•				
Inspect and clean oil cooler of debris.			•			
Replace hydraulic oil filter.					•	
Replace hydraulic oil.	İ					•

<sup>&</sup>lt;sup>1</sup> Replace per engine manufacturer's requirements.

NOTE:

Maintenance pertaining to replacing oil and oil filter only refers to the independent hydraulic systems provided by M-B Co. Refer to the engine manufacturer's guidelines for maintenance intervals and proper care of engine.



<sup>&</sup>lt;sup>2</sup> Increase frequency to Daily (8 Hrs) if operating in dusty environment.

### **MAINTENANCE**

#### PRESSURE MANIFOLD

Broom performance is controlled by the hydraulic pressure. The valve assembly is preset at the factory. M-B Co recommends that this setting is not changed without consulting with M-B Customer Service.

If the engine is stalling under load or overheating turn the unit off. Contact M-B Customer Service at 800-558-5800 Attachments Division.

# INSTALLING A NEW TRANSMITTER OR RECEIVER

Each transmitter and receiver pair is synchronized together at the factory. If a new transmitter is needed, synchronizing is required. Refer to Figure 7 and use the following procedure:

- Remove the cover of the receiver, making sure the power is applied.
- Place the jumper across the address code jumper for >4 seconds. Both LED's will toggle at this point. Remove the jumper and store it on one pin.
- On the transmitter, press and hold the POWER button, CHOKE button and RAISE button. Release all buttons. Both LEDs will blink together at this point.
- 4. Wait for a few seconds until the green LEDs begin to blink.
- 5. Synchronizing complete.
- 6. Replace the cover on the receiver.

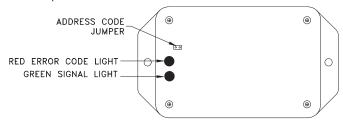


Figure 7



M-B Companies, Inc. 10/16/12

### **STORAGE**

#### **STORAGE**

- Store the unit in a location out of the sun and weather to prolong paint life.
- The hydraulic oil reservoir can become contaminated with moisture if the unit is not properly stored. Be sure oil reservoir cap is free from debris and accumulated snow before storing.
- · The oil cooler fins should be inspected and cleaned if needed.

#### **CAUTION!**



Do not use high pressure water or steam on the cooling fins. The fins will become damaged and reduce cooling capability.

- Disconnect the battery cables from the battery in the unit if it is going to be stored for more than a week.
- Properly clean the unit before storage and remove dirt, debris, salt, etc. to extend paint life.
- The engine has an oil cooler. See engine manual for recommended oil cooler cleaning intervals.
- If the unit is power-washed, all lubrication points should be greased before storage.
- Disconnect all electrical connections between the engine pallet and prime mover for extended storage to prevent battery drain.
- Prevent water from entering the filters and inspect them if contamination is suspected.



# TROUBLESHOOTING

Trouble	Possible Cause		Remedy	
Reduced or No hydraulic flow	Electric/manual valve not functioning or	1.	Check electrical connections.	
	turned on.  2. No hydraulic pressure/flow.  3. ON/OFF Solenoid failed.	3.	Check hydraulic pump coupler. Check solenoids.	
	<ol> <li>Engine Throttle switch at LOW RPM.</li> <li>Throttle solenoid out of adjustment.</li> </ol>		Operate in HIGH Throttle. Adjust to maintain throttle position.	
No hydraulic pressure	Pump seal failure.		Check pump operation.	
No frydraulic pressure	Pump drive coupler failing.	1	Check pump operation. Check pump coupler.	
	Hydraulic oil level low.	1	Check and fill reservoir to proper level.	
Engine shuts down	Power demand overloading engine.	1.	Operate per instructions. Call M-B Customer Support	
	2. Low engine Oil.	1	See Engine Manual.	
	3. Engine Overheating.	1	See Engine Manual.	
	Engine Throttle switch at LOW RPM.	_	Operate per instructions.	
Driven unit does not lift or angle.	Electric/manual valve not functioning.	1	Check electrical connections.	
	No hydraulic pressure/flow to function.	1	Check hydraulic circuit operation and fluid level.	
	3. Valve solenoids failed.	+	Check solenoids.	
Pump making noise or leaking fluid.	Pump intake blocked.     Shoft goal leaking.	1	Check and repair on personal	
	Shaft seal leaking     Pump suction pulling in air.	1	Check and repair as necessary.  Check suction line and tighten clamps,	
			check hydraulic oil level.	
Engine hesitating or stalling.	Hydraulic relief pressure too high.	1	Adjust to factory setting.	
	Power demand overloading engine.	1	Operate per instructions.	
	<ul><li>3. Engine fuel or air delivery problem.</li><li>4. Too cold to operate.</li></ul>	1	Consult engine manual.	
Engine does not start.	Fuse blown (Figure 3 and Figure 8 Wiring Harness).	1.	Allow engine to warm-up.  Check fuse (Figure 3 and Figure 8 Wiring Harness)	
	Battery low or disconnected.	1	Check battery voltage and connections.	
	Poor electrical ground.	1	Check ground wires, repair or clean as necessary.	
	Starter worn out.	4.	Replace starter.	
	5. Engine flooded with fuel.	1	Choke solenoid out of adjustment.	
	6. Engine too hot.	6.	See Engine Manual, wait to cool.	
Remote control not functioning.	Batteries weak. LED blinks once per second.		Replace Batteries.	
	2. Red LED blinks.		Count light blinks between pauses. Check table below for faulty circuit. Then fix circuit	
			Error Code Probable Cause	
			1 Low battery	
			2 Faulty circuit to RUN	
			3 Faulty circuit to START	
			4 Faulty circuit to CHOKE	
			5 Faulty circuit to THROTTLE	
			6 Faulty circuit to RIGHT	
			7 Faulty circuit to LEFT	
			8 Faulty circuit to LOWER	
			9 Faulty circuit to RAISE	
			10 Faulty circuit to BROOM	
			Error code number is the number of red light blinks between every pause.	
	Receiver and transmitter not communicating.		If one component is new they may need to be synchronized. See section on "Installing A New Transmitter Or Receiver".	

Publication: AEP-032612

### **TROUBLESHOOTING**

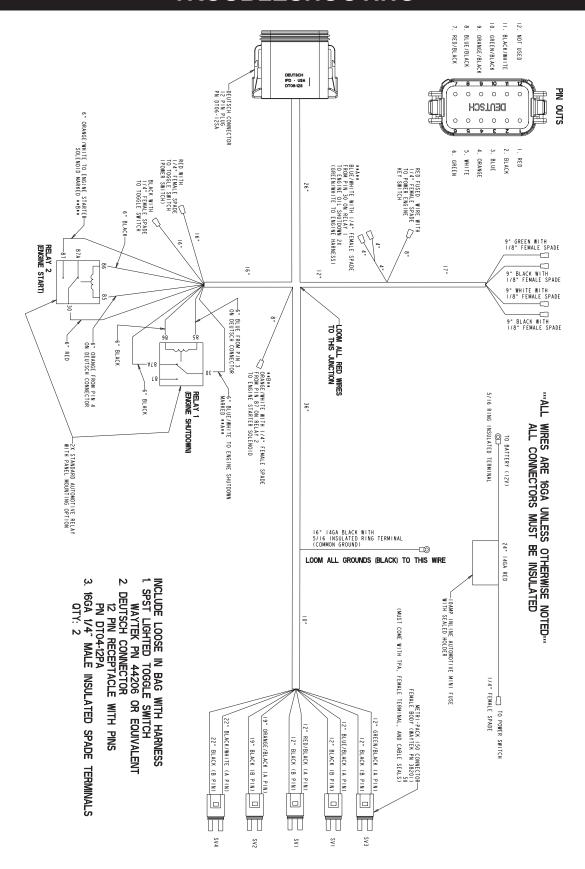


Figure 8 Wiring Harness



### **TROUBLESHOOTING**

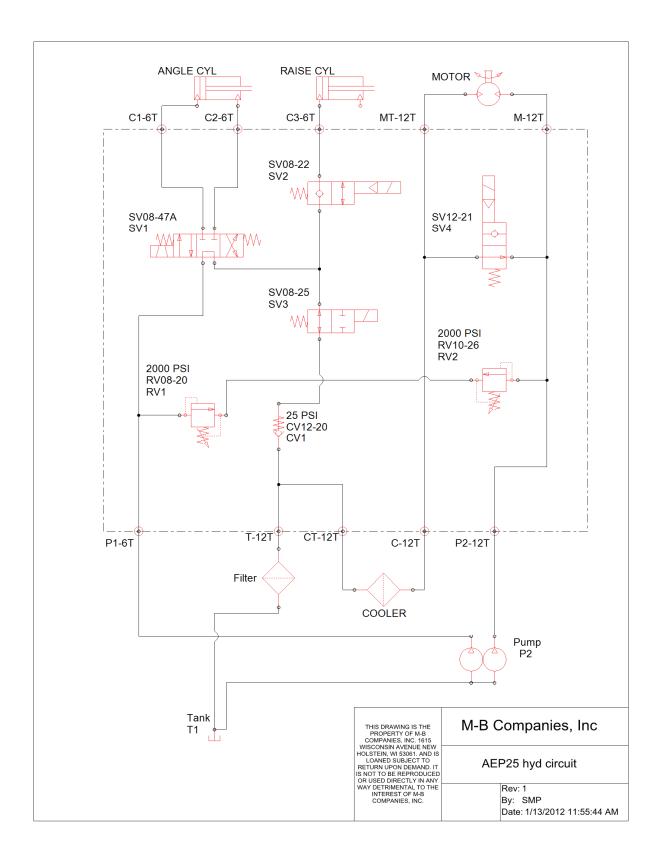


Figure 9 Hydraulic Circuit



### **SERVICE PARTS**

Part Number	Description
202-169703	Manifold Assy., Hydraulic
202-92336	Valve, Swing Solenoid for 202-92171/92284
202-92337	Valve, Float Solenoid for 202-92171
202-176094	#8 Solenoid Valve N.O.
202-176090	#12 Solenoid Valve N.O. Poppet
202-176089	#8 Relief Direct Acting Poppet 1800 PSI
202-160983	#10 Relief, Pilot-Operated Spool
202-176088	#12 Check Valve 25 PSI
202-147341	#8 E-Coil, 12VDC, Metri-Pack, Zener
202-160331-06	#8 Coil Spacer
202-147340	#10 Coil w/Diode, Metropack 150 Connector
209-172693	Cap, Filler Neck
209-169760	Suction Strainer, Hydraulic Reservoir
208-169719	Repair Kit, Level/Temperature Sight Gauge, Hydraulic Reservoir
209-176087	Element, Hydraulic Filter Assembly
169729-01	Seal Kit, Hydraulic Pump
500-118505	Solenoids, Engine Throttle & Choke (2)
500-169701-01	Engine Air Filter Primary
500-169701-02	Engine Air Filter Secondary
500-169701-03	Engine Oil Filter

Part Number	Description
390-117896	Decal, M-B Logo, Small
390-117897	Decal, M-B Logo, Medium
390-172112	Decal Set (Contains decals below)
390-172112-2	Decal, Caution Hot Surface
390-172112-3	Decal, Caution Moving Parts No Reach
390-172112-4	Decal, Caution Read Manual
390-172112-5	Decal, Hydraulic Fluid Read Manual

Please have your serial number (S/N) ready when contacting M-B Co. or an Authorized Dealer for replacement parts or service information.

M-B Co. 1615 Wisconsin Ave. P.O. Box 200

New Holstein, WI 53061-0200

website: www.m-bco.com email: sales@m-bco.com

Phone: 800-558-5800 or 920-898-4203

FAX:

Main 920-898-4588 Attachments 920-898-1085 Brush Dept. 920-898-1082



#### CENTURY OF INNOVATION SINCE 1907

#### LIMITED WARRANTY

Limited Warranty: Subject to the limitations set forth herein, M-B Companies, Inc. ("M -B") warrants its products to be free from defects in material and workmanship for a period of twelve (12) months from the date of delivery of the product to its original owner, except that the warranty is twelve (12) months solely for the following products: Truck Mounted Pavement Marking Equipment, Airport Snow Removal Products, Attachment Products, Brushes, MSV Multi-Service Vehicles. Parts shall have a ninety (90) day warranty. This warranty is not transferable without the written consent of M-B.

Notice: M-B's obligations under this Limite d Warranty are conditioned on M-B receiving, within the warranty period, written notice from Buyer specifying the nature of any alleged defect and requesting corrective action by Seller.

Remedies: M-B, at its option, will repair or replace, or provide a credit to Buyer for, defective warranted items. If requested by M-B, products or parts for which a warranty claim is made shall be returned, transportation prepaid, to M-B's factory. Buyer shall not return any product for repair, replacement or credit without M-B's advance written consent.

Other Manufacturer's Warran ty: On products furnished by M-B, but manufactured by any other manufacturer, the warranty of said manufacturer, if any, will be assigned to Buyer, if the said warranty is assignable. However, M-B does not represent or guarantee that such manufacturer will comply with any of the terms of the warranty of such manufacturer.

Exclusions: Any improper use, operation beyond capacity, or substitution of parts not approved by M-B, or alteration or repair by others in such a manner as in M-B's judgment materially and/or adversely affects the product shall void this warranty. This warranty does not apply to defects caused by damage or unreasonable use while in the possession of the owner, including but not limited to: failure to provide reasonable and necessary maintenance, normal wear, routine tune ups or adjustments, improper handling or accidents, operation at speed or load conditions contrary to published specifications, improper or insufficient lubrication, or improper storage.

Seller manufactures power brooms that mount to many makes and models of equipment. Seller attempts to ensure that the mounting frames fit correctly. However, the large number of tractor models, types and options currently available, compounded by frequent manufacturer design changes, may prevent Seller from supplying a frame that fits every unit correctly. Therefore, unless Buyer supplies drawing which detail the attachment points on the specific unit to which the broom will be mounted. Seller will not be responsible for the fit of the mounting frame.

The batteries, tires, rubber material, brushes and material normally consumed in operation, and major components such as engines, air compressors, and hydraulic pumps and motors are excluded from this warranty but may be covered to the extent of any warranty received by M-B from its supplier if permitted by the terms of such warranty.

Limitations of liability: M-B shall not be liable for any incidental, consequential, punitive or special damages of any kind, including, but not limited to, consequential labor costs or transportation charges in connection with the repair or replacement of defective parts, or lost time profits or expense which may have accrued because of said defect.

M-B disclaims all other warranties, whether express or implied, including but not limited to any implied warranty of merchantability or fitness for a particular purpose. This warranty is exclusive remedy of buyer. This warranty cannot be extended, broadened or changed in any respect except in writing by an authorized officer of M-B.

Notwithstanding anything in this warranty is to the contrary, in no event shall M-B's total liability hereunder exceed purchased price of the particular product.

AIRPORT SNOW REMOVAL EQUIPMENT

1200 Park Street Chillron, WI 53014 800-558-5800

PAVEMENT MARKING EQUIPMENT-PA 79 Montgomery Street Monogomery, PA 1775Z 888-123-2900

PAVEMENT MARKUNG EQUIPMENT-OR ATTACHMENTS DIVISION 2490 Ewald Avenue SE Salem, 08/97302 800-253-2909

1615 Wisconsin Avenue New Holstein, WI 53061 800-558-5800



W W W . M - B C O . C O M

M-B Companies, Inc. 1615 Wisconsin Ave. P. O. Box 200 New Holstein, WI 53061-0200 (920) 898-1560 or 800-558-5800 FAX: (920) 898-4588

