AgriMetal INC.

PULL-TYPE TURBINE DEBRIS BLOWER MODEL TB-270

OPERATOR'S MANUAL

CE

AGRIMETAL INC.
PULL-TYPE DEBRIS BLOWER

WARRANTY

AgriMetal Incorporated (AgriMetal) warrants the new Pull-Type Debris Blower to be free from defects in material, under normal use and service. Obligation under this warranty shall extend for a period of 1 year (12 months) following the date of delivery to the original purchaser and shall be limited to, at the option of AgriMetal, replacement or repair of any parts found, upon inspection by AgriMetal, to be defective.

WARRANTY CLAIMS

The purchaser claiming under this warranty shall submit a warranty claim in the prescribed form to AgriMetal or an Authorized Dealer, for inspection by an authorized company representative.

LIMITATIONS OF LIABILITY

This warranty is expressly in lieu of all other warranties expressed or implied and all other obligations or liabilities on our part of any kind or character, including liabilities for alleged representations or negligence. We neither assume nor authorize any other person to assume on our behalf, any liability in connection with the subsequent sale of the Pull-Type Debris Blower.

This warranty shall not apply to any Pull-Type Debris Blower which has been altered outside the factory in any way so as, in the judgement of AgriMetal, to affect its operation or reliability, or which has been subject to misuse, neglect or accident.

This warranty does not cover parts and accessories which are under separate guarantees from the manufacturers and where service can be obtained from their service facilities. No warranty is extended to regular service items such as lubricants, belts, paint and the like.

OPERATOR'S MANUAL

The Purchaser acknowledges having received training in the safe operation of the Pull-Type Debris Blower and further acknowledges that AgriMetal does not assume any liability resulting from the operation of the Pull-Type Debris Blower in any manner other than described in the Operator's Manual supplied at the time of purchase.

WARRANTY VOID IF NOT REGISTERED

AGRIMETAL
PULL-TYPE DEBRIS BLOWER

WARRANTY REGISTRATION FORM & INSPECTION REPORT

WARRANTY REGISTRATION

This form must be filled out by the dealer and signed by both the dealer and the customer at the time of delivery.

Customer's Name _____

Address _____

City, State/Prov., Code _____

Phone Number (_____) _____

Dealer Name _____

Address _____

City, State/Prov., Code _____

Debris Blower Model _____

Serial Number _____

Delivery Date _____

DEALER INSPECTION REPORT

_____ Blower Turns Freely
_____ Check Engine Fluid Levels
_____ Fasteners Tight
_____ Lubricate Machine
_____ Check Tire Pressure

SAFETY

_____ Safety Chain on Hitch
_____ All Decals Installed
_____ Guards and Shields Installed and Secured
_____ Review Operating and Safety Instructions

I have thoroughly instructed the buyer on the above described equipment which review included the Operator's Manual content, equipment care, adjustments, safe operation and applicable warranty policy.

Date _____ Dealer's Rep. Signature _____

Signature _____

The above equipment and Operator's Manual have been received by me and I have been thoroughly instructed as to care, adjustments, safe operation and applicable warranty policy.

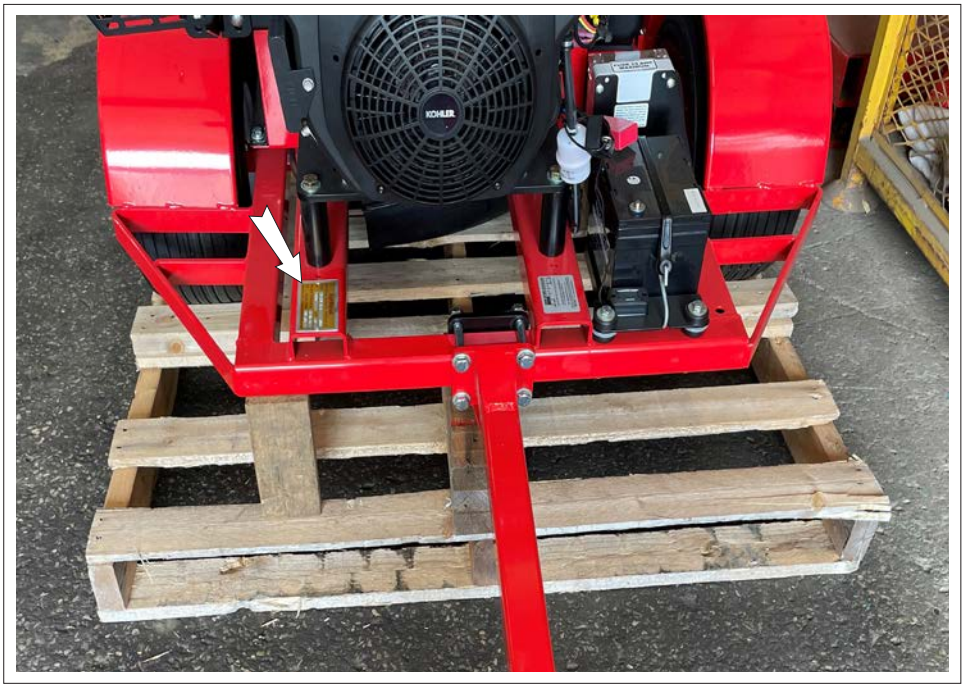
Date _____ Owner's Signature _____

WHITE	YELLOW	PINK
AGRIMETAL INC.	DEALER	CUSTOMER

SERIAL NUMBER LOCATION

Always give your dealer the serial number of your AgriMetal Pull-Type Debris Blower when ordering parts or requesting service or other information.

The serial number plate is located where indicated. Please mark the number in the space provided for easy reference.



Model Number _____

Serial Number _____

TB-270 Noise Level Chart

Engine	Reading Location	Duct Position	Noise Level (dBA)
Low Idle	Right Side	Right	70
		Left	70
		Down	70
	Left Side	Right	70
		Left	70
		Down	70
	Ear	All	73
Max RPM	Right Side	Right	86
		Left	86
		Down	90
	Left Side	Right	84
		Left	82
		Down	86
	Ear	All	101

- Radio Shack Realistic sound level meter used for test.
- All readings taken on hard gravel surface.
- 62 dBA ambient noise level.
- 24° C/75° F ambient Temperature.
- Side measurements at 15 m from machine.

TABLE OF CONTENTS

1 INTRODUCTION

Congratulations on your choice of an AgriMetal Pull-Type Turbine Debris Blower to complement your operation. This equipment has been designed and manufactured to meet the needs of a discerning turf care industry.

Safe, efficient and trouble free operation of your AgriMetal Debris Blower requires that you and anyone else who will be operating or maintaining the machine, read and understand the Safety, Operation, Maintenance and Trouble Shooting information contained within the Operator's Manual.

This manual covers the Model 270 Pull-Type Turbine Debris Blower. Use the Table of Contents or Index as a guide to locate required information.

Keep this manual handy for frequent reference and to pass on to new operators or owners. Call your AgriMetal Dealer if you need assistance, information or additional copies of the manuals.

OPERATOR ORIENTATION - The directions left, right, front and rear, as mentioned throughout this manual, are as seen from behind the tractor driver's seat and facing in the direction of travel.

2 SAFETY

SAFETY ALERT SYMBOL

This Safety Alert symbol means ATTENTION! BECOME ALERT! YOUR SAFETY IS INVOLVED!

The Safety Alert symbol identifies important safety messages on the AgriMetal Pull-Type Turbine Debris Blower and in the manual. When you see this symbol, be alert to the possibility of personal injury or death. Follow the instructions in the safety message.

Why is SAFETY important to you?

3 Big Reasons

Accidents Disable and Kill
Accidents Cost
Accidents Can Be Avoided

SIGNAL WORDS:

Note the use of the signal words DANGER, WARNING and CAUTION with the safety messages. The appropriate signal word for each message has been selected using the following guide-lines:

DANGER - Indicates an imminently hazardous situation that, if not avoided, will result in death or serious injury. This signal word is to be limited to the most extreme situations typically for machine components which, for functional purposes, cannot be guarded.

WARNING - Indicates a potentially hazardous situation that, if not avoided, could result in death or serious injury, and includes hazards that are exposed when guards are removed. It may also be used to alert against unsafe practices.

CAUTION - Indicates a potentially hazardous situation that, if not avoided, may result in minor or moderate injury. It may also be used to alert against unsafe practices.

If you have any questions not answered in this manual or require additional copies or the manual is damaged, please contact your dealer or AgriMetal Inc., 1006 Rue Principale, Wickham, Quebec, Canada, J0C 1S0. Phone (819) 398-6883 or fax (819) 398-5311.

SAFETY

YOU are responsible for the SAFE operation and maintenance of your AgriMetal Pull-Type Turbine Debris Blower. YOU must ensure that you and anyone else who is going to operate, maintain or work around the Debris Blower be familiar with the operating and maintenance procedures and related SAFETY information contained in this manual. This manual will take you step-by-step through your working day and alerts you to all good safety practices that should be adhered to while operating the Debris Blower.

Remember, YOU are the key to safety. Good safety practices not only protect you but also the people around you. Make these practices a working part of your safety program. Be certain that EVERYONE operating this equipment is familiar with the recommended operating and maintenance procedures and follows all the safety precautions. Most accidents can be prevented. Do not risk injury or death by ignoring good safety practices.

- Debris Blower owners must give operating instructions to operators or employees before allowing them to operate the machine, and at least annually thereafter.

- The most important safety device on this equipment is a SAFE operator. It is the operator's responsibility to read and understand ALL Safety and Operating instructions in the manual and to follow these. Most accidents can be avoided.

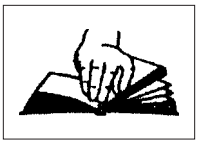
- A person who has not read and understood all operating and safety instructions is not qualified to operate the machine. An untrained operator exposes himself and bystanders to possible serious injury or death.

- Do not modify the equipment in any way. Unauthorized modification may impair the function and/or safety and could affect the life of the equipment.

- Think SAFETY! Work SAFELY!

2.1 GENERAL SAFETY

1. Read and understand the Operator's Manual and all safety signs before operating, maintaining, adjusting or unplugging the Debris Blower.



2. Have a first-aid kit available for use should the need arise and know how to use it.

3. Have a fire extinguisher available for use should the need arise and know how to use it.

4. Do not allow riders.

5. Wear appropriate protective gear. This list includes but is not limited to:

   - A hard hat
   - Protective shoes with slip resistant soles
   - Protective glasses or goggles
   - Heavy gloves
   - Wet weather gear
   - Hearing protection
   - Respirator or filter mask

6. Install and secure all guards before starting.

7. Wear suitable ear protection for prolonged exposure to excessive noise.

8. Place all controls in neutral, stop engine, set park brake, remove ignition key and wait for all moving parts to stop before servicing, adjusting, repairing or unplugging.

9. Clear the area of people, especially small children, before starting the unit.

10. Review safety related items annually with all personnel who will operating or maintaining the Debris Blower.

2.2 EQUIPMENT SAFETY GUIDELINES

1. Safety of the operator and bystanders is one of the main concerns in designing and developing a machine. However, every year many accidents occur which could have been avoided by a few seconds of thought and a more careful approach to handling equipment. You, the operator, can avoid many accidents by observing the following precautions in this section. To avoid personal injury or death, study the following precautions and insist those working with you, or for you, follow them.

2. In order to provide a better view, certain photographs or illustrations in this manual may show an assembly with a safety shield removed. However, equipment should never be operated in this condition. Keep all shields in place. If shield removal becomes necessary for repairs, replace the shield prior to use.

3. Replace any safety sign or instruction sign that is not readable or is missing. Location of such safety signs is indicated in this manual.

4. Never use alcoholic beverages or drugs which can hinder alertness or coordination while operating this equipment. Consult your doctor about operating this machine while taking prescription medications.

5. Under no circumstances should young children be allowed to work with this equipment. Do not allow persons to operate or assemble this unit until they have read this manual and have developed a thorough understanding of the safety precautions and of how it works. Review the safety instructions with all users annually.

6. This equipment is dangerous to children and persons unfamiliar with its operation. The operator should be a responsible, properly trained and physically able person familiar with machinery and trained in this equipment's operations. If the elderly are assisting with work, their physical limitations need to be recognized and accommodated.

7. Use a tractor equipped with a Roll Over Protective Structure (ROPS).

8. Never exceed the limits of a piece of machinery. If its ability to do a job, or to do so safely, is in question - DON'T TRY IT.

9. Do not modify the equipment in any way. Unauthorized modification result in serious injury or death and may impair the function and life of the equipment.

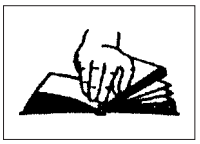
10. In addition to the design and configuration of this implement, including Safety Signs and Safety Equipment, hazard control and accident prevention are dependent upon the awareness, concern, prudence, and proper training of personnel involved in the operation, transport, maintenance, and storage of the machine. Refer also to Safety Messages and operation instruction in each of the appropriate sections of the tow vehicle, engine and machine Manuals. Pay close attention to the Safety Signs affixed to the tow vehicle and the machine.

2.3 SAFETY TRAINING

1. Safety is a primary concern in the design and manufacture of our products. Unfortunately, our efforts to provide safe equipment can be wiped out by a single careless act of an operator or bystander.

2. In addition to the design and configuration of equipment, hazard control and accident prevention are dependent upon the awareness, concern, prudence and proper training of personnel involved in the operation, transport, maintenance and storage of this equipment.

3. It has been said, "The best safety feature is an informed, careful operator." We ask you to be that kind of an operator. It is the operator's responsibility to read and understand ALL Safety and Operating instructions in the manual and to follow these. Accidents can be avoided.



4. Working with unfamiliar equipment can lead to careless injuries. Read this manual, and the manual for your tow vehicle, before assembly or operating, to acquaint yourself with the machines. If this machine is used by any person other than yourself, or is loaned or rented, it is the machine owner's responsibility to make certain that the operator, prior to operating:

   a. Reads and understands the operator's manuals.

   b. Is instructed in safe and proper use.

5. Know your controls and how to stop tow vehicle, engine, and machine quickly in an emergency. Read this manual and the one provided with your tow vehicle.

6. Train all new personnel and review instructions frequently with existing workers. Be certain only a properly trained and physically able person will operate the machinery. A person who has not read and understood all operating and safety instructions is not qualified to operate the machine. An untrained operator exposes himself and bystanders to possible serious injury or death. If the elderly are assisting with work, their physical limitations need to be recognized and accommodated.

2.4 SAFETY SIGNS

1. Keep safety signs clean and legible at all times.

2. Replace safety signs that are missing or have become illegible.

3. Replaced parts that displayed a safety sign should also display the current sign.

4. Safety signs are available from your authorized Dealer Parts Department or the factory.

How to Install Safety Signs:

- Be sure that the installation area is clean and dry.
- Be sure temperature is above 50° F (10° C).
- Determine exact position before you remove the backing paper.
- Remove the smallest portion of the split backing paper.
- Align the sign over the specified area and carefully press the small portion with the exposed sticky backing in place.
- Slowly peel back the remaining paper and carefully smooth the remaining portion of the sign in place.
- Small air pockets can be pierced with a pin and smoothed out using the piece of sign backing paper.

2.5 PREPARATION

1. Never operate the tow vehicle and machine until you have read and completely understand this manual, the Tow Vehicle Operator's Manual, and each of the Safety Messages found on the safety signs on the tow vehicle and machine.

2. 
Personal protection equipment including hard hat, safety glasses, safety shoes, hearing protection and gloves are recommended during assembly, installation, operation, adjustment, maintaining, repairing, removal, or moving the implement. Do not allow long hair, loose fitting clothing or jewelry to be around equipment.

3. 
PROLONGED EXPOSURE TO LOUD NOISE MAY CAUSE PERMANENT HEARING LOSS!
Tow Vehicles with or without equipment attached can often be noisy enough to cause permanent, partial hearing loss. We recommend that you wear hearing protection on a full-time basis if the noise in the Operator's position exceeds 80db. Noise over 85db on a long-term basis can cause severe hearing loss. Noise over 90db adjacent to the Operator over a long-term basis may cause permanent, total hearing loss. NOTE: Hearing loss from loud noise (from tractors, chain saws, radios, and other such sources close to the ear) is cumulative over a lifetime without hope of natural recovery.

4. 
Operate the machine only with a tractor equipped with an approved Roll-Over-Protective Structure (ROPS). Always wear your seat belt. Serious injury or even death could result from falling off the tractor ---particularly during a turnover when the operator could be pinned under the ROPS or the tractor.

5. Clear working area of stones, branches or hidden obstacles that might be hooked or snagged, causing injury or damage.

6. Operate only in daylight or good artificial light.

7. Be sure machine is properly attached, adjusted and in good operating condition.

8. Ensure that all safety shielding and safety signs are properly installed and in good condition.

2.6 OPERATING SAFETY

1. Please remember it is important that you read and heed the safety signs on the Blower. Clean or replace all safety signs if they cannot be clearly read and understood. They are there for your safety, as well as the safety of others. The safe use of this machine is strictly up to you, the operator.

2. All things with moving parts are potentially hazardous. There is no substitute for a cautious, safe-minded operator who recognizes potential hazards and follows reasonable safety practices. The manufacturer has designed this Turbine Debris Blower to be used with all its safety equipment properly attached, to minimize the chance of accidents. Study this manual to make sure you have all safety equipment attached.

3. If a safety shield or guard is removed for any reason, it must be replaced before the machine is again operated.

4. When the use of hand tools is required to perform any part of assembly, installation, adjustment, maintaining, repairing, removal, or moving, be sure the tools used are designed and recommended by the tool manufacturer for that specific task.

5. Personal protection equipment including hearing protection, hard hat, safety glasses, safety shoes, and gloves are recommended during assembly, installation, operation, adjustment, maintaining, repairing, removal, or moving. Do not allow long hair, loose fitting clothing, or jewelry to be around moving parts.

6. Always use two people to handle heavy, unwieldy components during assembly, installation, removal or moving.

7. Never place any part of your body where it would be in danger if movement should occur during assembly, installation, operation, maintaining, repairing, removal or moving.

8. Never place yourself between the tow vehicle and machine while equipment is in operation.

9. Place all controls in neutral, stop engine, set park brake, remove ignition key and wait for all moving parts to stop before servicing, adjusting, repairing or unplugging.

10. A heavy load can cause instability of the tow vehicle. Use extreme care during travel. Slow down on turns and watch out for bumps. The tow vehicle may need front counterweights to counterbalance the weight of the machine.

11. Never use alcoholic beverages or drugs which can hinder alertness or coordination while operating this equipment. Consult your doctor about operating this machine while taking prescription medications.

12. Do not allow riders on the machine or tow vehicle at any time. There is no safe place for any riders.

13. Before you operate the machine, check over all pins, bolts, and connections to be sure all are securely in place. Replace any damaged or worn parts immediately.

14. Do not allow anyone who is not familiar with the safety rules and operation instructions to use this machine.

15. Never allow children to operate or be around this machine.

16. Do not reach into blower openings when the engine is running. Keep others away also.

17. Clear the work area of objects which might be picked up and snagged or entangled in the machine.

18. Keep hands, feet, hair, jewelry, and clothing away from all moving and/or rotating parts.

19. Do not direct the air stream toward people, animals or buildings to prevent injury or damage.

20. Do not place hands, feet or other body parts into air stream.

2.7 TRANSPORT SAFETY

1. Comply with state and local laws governing highway safety and movement of machinery on public roads.

2. The use of flashing amber lights is acceptable in most localities. However, some localities prohibit their use. Local laws should be checked for all highway lighting and marking requirements.

3. At all times when driving the tow vehicle and equipment on the road or highway under 20 mph (32 kph), use flashing amber warning lights and a slow moving vehicle (SMV) identification emblem. Do not exceed 20 mph (32 kph). Reduce speed on rough roads and surfaces.

4. Plan your route to avoid heavy traffic.

5. Use a drawbar pin with provisions for a retainer. Install the retainer.

6. Do not drink and drive.

7. Attach safety chain between tow vehicle and machine before transporting.

8. Be a safe and courteous driver. Always yield to oncoming traffic in all situations, including narrow bridges, intersections, etc. Watch for traffic when operating near or crossing roadways.

9. Turn into curves or go up or down hills only at a low speed and at a gradual steering angle. Make certain that at least 20% of the tow vehicle's weight is on the front wheels to maintain safe steerage. Slow down on rough or uneven surfaces.

10. Never allow riders on either tow vehicle or machine.

11. Install lighting bar before transporting.

2.8 STORAGE SAFETY

1. Store the unit in an area away from human activity.

2. Do not permit children to play on or around the stored machine.

3. Store the unit in a dry, level area. Support the frame with planks if required.

2.9 REFUELLING SAFETY

1. Handle fuel with care. It is highly flammable.

2. Allow engine to cool for 5 minutes before refuelling. Clean up spilled fuel before restarting engine.

3. Do not refuel the machine while smoking or when near open flame or sparks.

4. Fill fuel tank outdoors.

5. Prevent fires by keeping machine clean of accumulated trash, grease and debris.

2.10 TIRE SAFETY

1. Failure to follow proper procedures when mounting a tire on a wheel or rim can produce an explosion which may result in serious injury or death.

2. Do not attempt to mount a tire unless you have the proper equipment and experience to do the job.

3. Have a qualified tire dealer or repair service perform required tire maintenance.

4. When replacing worn tires, make sure they meet the original tire specifications. Never undersize.

2.11 MAINTENANCE SAFETY

1. Good maintenance is your responsibility. Poor maintenance is an invitation to trouble.

2. Follow good shop practices.

   - Keep service area clean and dry.
   - Be sure electrical outlets and tools are properly grounded.
   - Use adequate light for the job at hand.

3. Make sure there is plenty of ventilation. Never operate an engine in a closed building. The exhaust fumes may cause asphyxiation.

4. Before working on this machine, shut off the engine, set the brakes, and remove the ignition keys.

6. Never work under equipment unless it is blocked securely.

7. Always use personal protection devices such as eye, hand and hearing protectors, when performing any service or maintenance work.

8. Where replacement parts are necessary for periodic maintenance and servicing, genuine factory replacement parts must be used to restore your equipment to original specifications. The manufacturer will not be responsible for injuries or damages caused by use of unapproved parts and/or accessories.

9. A fire extinguisher and first aid kit should be kept readily accessible while performing maintenance on this equipment.

10. Periodically tighten all bolts, nuts and screws and check that all cotter pins are properly installed to ensure unit is in a safe condition.

11. When completing a maintenance or service function, make sure all safety shields and devices are installed before placing unit in service

2.12 BATTERY SAFETY

1. Keep all sparks and flames away from batteries, as gas given off by electrolyte is explosive.

2. Avoid contact with battery electrolyte: wash off any spilled electrolyte immediately.

3. Wear safety glasses when working near batteries.

4. Do not tip batteries more than 45 degrees, to avoid electrolyte loss.

5. To avoid injury from spark or short circuit, disconnect battery ground cable before servicing any part of electrical system.

2.13 GAS MOTOR SAFETY

BEFORE STARTING ENGINE, READ AND UNDERSTAND THE OPERATING AND MAINTENANCE INSTRUCTIONS THAT CAME WITH YOUR ENGINE.

WARNING: DO NOT

1. DO NOT run engine in an enclosed area. Exhaust gases contain carbon monoxide, an odorless and deadly poison.

2. DO NOT place hands or feet near moving or rotating parts.

3. DO NOT store, spill, or use gasoline near an open flame, or devices such as a stove, furnace, or water heater which use a pilot light or devices which can create a spark.

4. DO NOT refuel indoors where area is not well ventilated. Outdoor refuelling is preferred.

5. DO NOT fill fuel tank while engine is running. Allow engine to cool for 5 minutes before refuelling. Store fuel in approved safety containers.

6. DO NOT remove fuel tank cap while engine is running.

7. DO NOT operate engine if gasoline is spilled. Move machine away from the spill and avoid creating any ignition until the gasoline has evaporated.

8. DO NOT smoke when filling fuel tank.

9. DO NOT choke carburetor to stop engine. Whenever possible, gradually reduce engine speed before stopping.

10. DO NOT run engine above rated speeds. This may result in injury.

11. DO NOT tamper with governor springs, governor links or other parts which may increase the governed engine speed.

12. DO NOT tamper with the engine speed selected by the original equipment manufacturer.

13. DO NOT check for spark with spark plug or spark plug wire removed. Use an approved tester.

14. DO NOT crank engine with spark plug removed. If engine is flooded, place throttle in "FAST" position and crank until engine starts.

15. DO NOT strike flywheel with a hard object or metal tool as this may cause flywheel to shatter in operation. Use proper tools to service engine.

16. DO NOT operate engine without a muffler. Inspect periodically and replace, if necessary. If engine is equipped with muffler deflector, inspect periodically and replace, if necessary with correct deflector.

17. DO NOT operate engine with an accumulation of grass, leaves, dirt or other combustible materials in the muffler area.

18. DO NOT use this engine on any forest covered, brush covered, or grass covered unimproved land unless a spark arrester is installed on the muffler. The arrester must be maintained in effective working order by the operator. In the State of California the above is required by law (Section 4442 of the California Public Resources Code). Other states may have similar laws. Federal laws apply on federal lands.

19. DO NOT touch hot muffler, cylinder or fins because contact may cause burns.

20. DO NOT run engine with air cleaner or air cleaner cover removed.

WARNING: DO

1. ALWAYS DO remove the wire from the spark plug when servicing the engine or equipment TO PREVENT ACCIDENTAL STARTING or disconnect the negative wire from the battery terminal.

2. DO keep cylinder fins and governor parts free of grass and other debris which can affect engine speed.

3. DO examine muffler periodically to be sure it is functioning effectively. A worn or leaking muffler should be repaired or replaced as necessary.

4. DO use fresh gasoline. Stale fuel can gum carburetor and cause leakage.

5. DO check fuel lines and fittings frequently for cracks or leaks. Replace if necessary.

2.14 SIGN-OFF FORM

AgriMetal follows the general Safety Standards specified by the American Society of Agricultural Engineers (ASAE) and the Occupational Safety and Health Administration (OSHA). Anyone who will be operating and/or maintaining the Pull-Type Turbine Debris Blower must read and clearly understand ALL Safety, Operating and Maintenance information presented in this manual.

Do not operate or allow anyone else to operate this equipment until such information has been reviewed. Annually review this information before the season start-up.

Make these periodic reviews of SAFETY and OPERATION a standard practice for all of your equipment. We feel that an untrained operator is unqualified to operate this machine.

A sign-off sheet is provided for your record keeping to show that all personnel who will be working with the equipment have read and understand the information in the Operator's Manual and have been instructed in the operation of the equipment.

SIGN-OFF FORM

DATE	EMPLOYEE'S SIGNATURE	EMPLOYER'S SIGNATURE

3 SAFETY SIGN LOCATIONS

The types of safety signs and locations on the equipment are shown in the illustrations that follow. Good safety requires that you familiarize yourself with the various safety signs, the type of warning and the area, or particular function related to that area, that requires your SAFETY AWARENESS.

- Think SAFETY! Work SAFELY!

A

NC13-33-0183

B

NC13-33-0192

C

NC13-33-0185

REMEMBER - If safety signs have been damaged, removed, become illegible or parts replaced without safety signs, new signs must be applied. New safety signs are available from your authorized dealer.

The types of safety signs and locations on the equipment are shown in the illustrations that follow. Good safety requires that you familiarize yourself with the various safety signs, the type of warning and the area, or particular function related to that area, that requires your SAFETY AWARENESS.

- Think SAFETY! Work SAFELY!

REMEMBER - If safety signs have been damaged, removed, become illegible or parts replaced without safety signs, new signs must be applied. New safety signs are available from your authorized dealer.

4 ASSEMBLING

4.1 MACHINE ASSEMBLY

The machine is shipped from the factory in a partially disassembled configuration and attached to a pallet that provides for easy moving and handling. Always use tools, equipment and forklifts of appropriate size and capacity for the job. Always use 2 men when lifting, moving and assembling the machine.

When the machine is shipped, follow this procedure when preparing for the customer:

1. Clear the area of bystanders especially small children before starting.

2. Remove the pallet tie-downs.

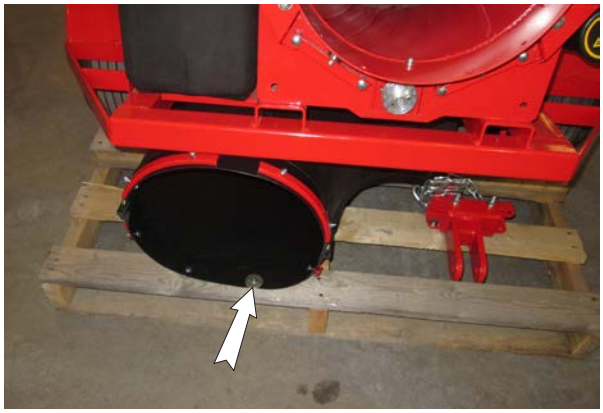
Shipping

Removing Tie-Downs

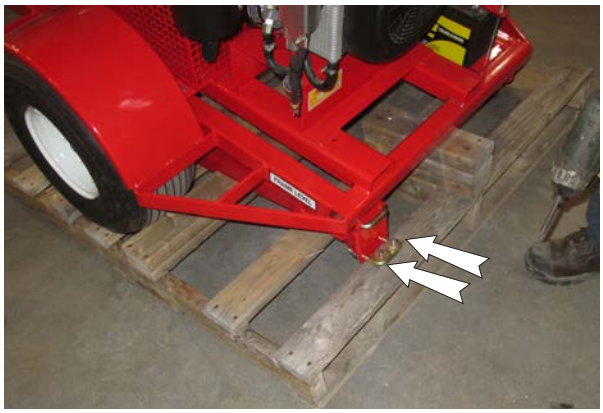
FIG. 1 SHIPPING CONFIGURATION

3. Use a forklift to lift the pallet/machine from the truck. Carry the load close to the ground as it is moved to the assembly area and positioned.

4. Remove duct and hitch tie-downs and lay-out.



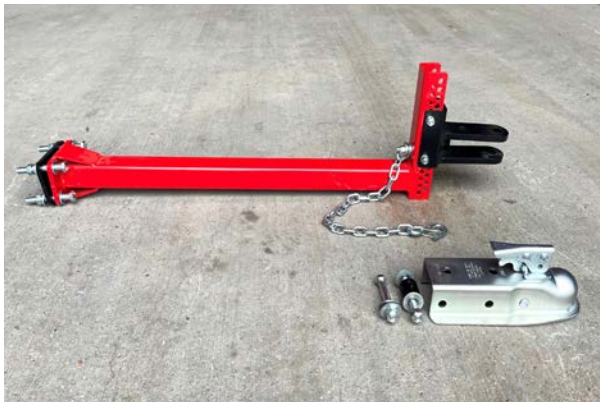
Duct



Hitch

a. You may use the drawbar with the 2" hitch ball coupler or remove it to use a drawbar pin.

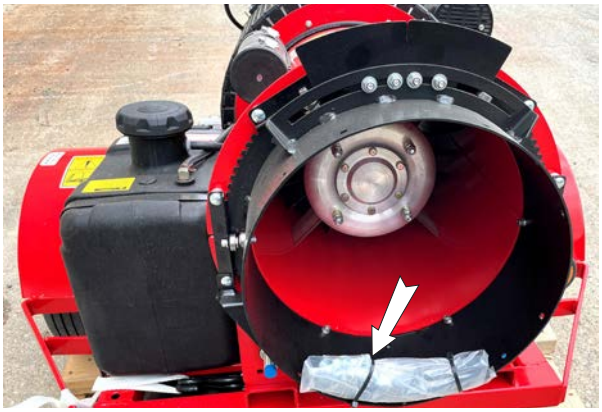
Drawbar with the 2" hitch ball



Drawbar Pin

FIG. 2 ANCHOR BOLTS

5. Cut the plastic ties and remove anchors bracket, clamps, nuts and bolts from the bag.



Removing

FIG. 3 DUCT CLAMPS

6. Slide the duct into the discharge flange.

Flange

Aligning

7. Install the mounting bolts through the anchor brackets to secure the duct to the flange.

Bracket

8. Tighten fasteners to their specified torque.

Secured

FIG. 4 DUCT INSTALLATION

10. Cut the plastic ties and remove the remote control from the bag.

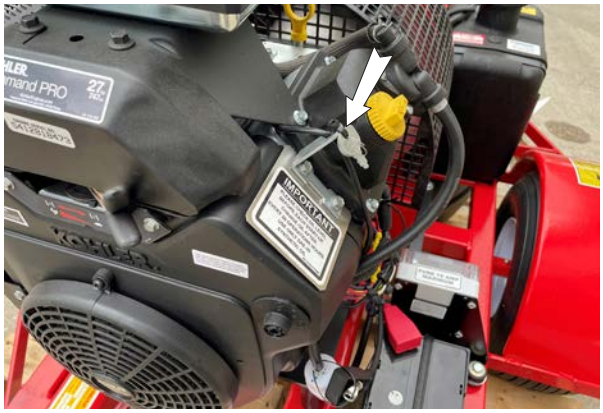
Cannister

Removed

FIG. 5 REMOTE CONTROL

11. Install key into ignition switch.

    a. Remove keys from the bracket.



Keys

    b. Insert key into ignition switch.

Ignition Switch

FIG. 5.5 IGNITION SWITCH

12. Remove the hitch mounting bolts.

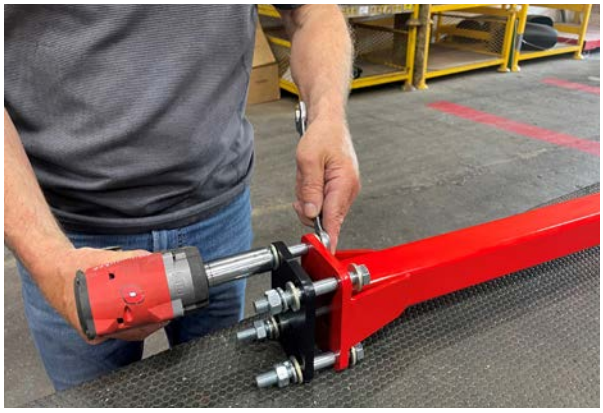


FIG. 6 BOLTS

13. Attach the hitch to the front of the frame.

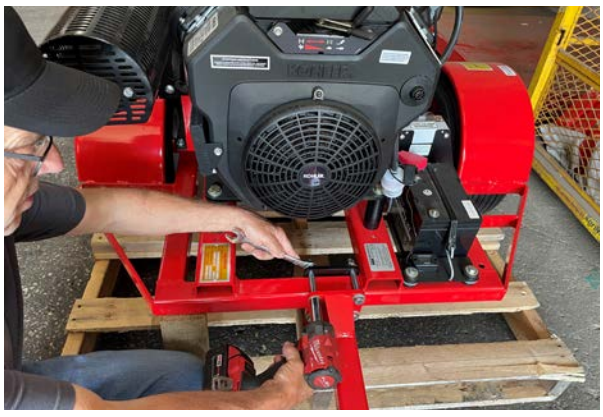
    a. Install the fasteners and bolts through the hitch mounting plate.

Fasteners

    b. Center the hitch on the frame. Measure to be sure.

Centering

    c. Tighten hitch fasteners to their specified torque.



Torque

FIG. 7 HITCH INSTALLATION

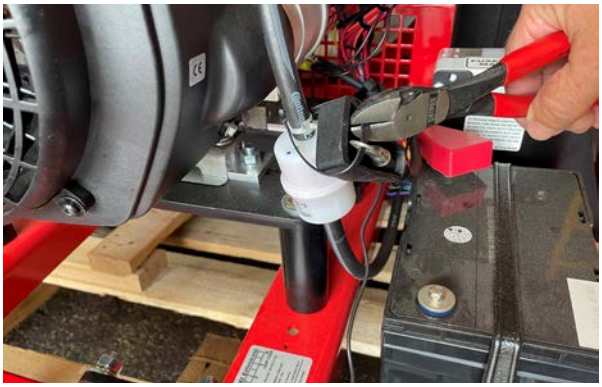
14. Connect Electrical System:

    a. Cut the plastic tie holding the battery cable.

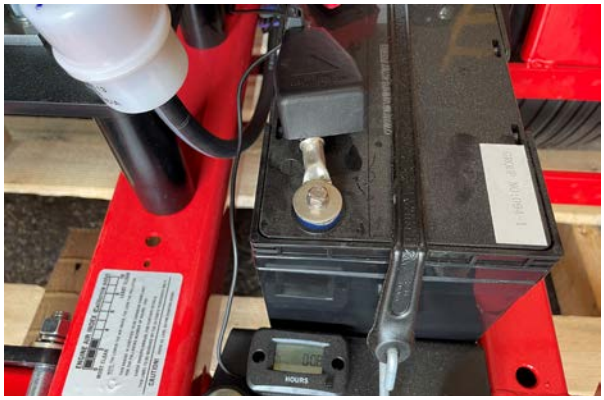
    b. Connect cable to battery pole.

    c. Tighten fastener to its specified torque.

    d. Slide cover over battery pole and secure.



Tie Downs



Cable Attached

Rubber Protector

FIG. 9 ELECTRICAL SYSTEM

15. Turn the ignition key to the RUN position to turn the electrical system ON.

16. Use the remote control module to turn the duct.

IMPORTANT

Do not start engine unless machine is hooked up to tow unit.

17. Turn the duct to the left or right.

18. Turn the ignition key OFF.

Remote control

Left

Right

FIG. 10 DUCT POSITION (TYPICAL)

19. Pull the blower off the pallet.

Pulling

Off

FIG. 11 OFF PALLET

20. Attach to the tow vehicle as required.

NOTE

When the hitch is level or sloped down slightly toward the tow vehicle, the chute will not hit the ground during operation.

FIG. 12 ASSEMBLED

5 OPERATION

OPERATING SAFETY

- Please remember it is important that you read and heed the safety signs on the Turbine Debris Blower. Clean or replace all safety signs if they cannot be clearly read and understood.
- If a safety shield or guard is removed for any reason, it must be replaced before the machine is again operated.
- Always use two people to handle heavy, unwieldy components during assembly, installation, removal or moving.
- Place all controls in neutral, stop engine, set park brake, remove ignition key and wait for all moving parts to stop before servicing, adjusting, repairing or unplugging.
- Do not allow riders on the machine or tow vehicle at any time. There is no safe place for any riders.
- Do not allow anyone who is not familiar with the safety rules and operation instructions to use this machine.
- Never allow children to operate or be around this machine.
- Do not reach into blower openings when the engine is running. Clear the work area of objects which might be picked up and snagged or entangled in the machine.
- Clear the work area of objects which might be picked up and snagged or entangled in the machine.
- Do not reach into blower openings when the engine is running. Keep others away also.
- Keep hands, feet, hair, jewelry, and clothing away from all moving and/or rotating parts.
- Do not direct the air stream toward people, animals or buildings to prevent injury or damage.
- Do not place hands, feet or other body parts into air stream.

5.1 TO THE NEW OPERATOR OR OWNER

AgriMetal Pull-Type Turbine Debris Blowers are designed to quickly and efficiently, blow away leaves, cuttings and other debris. The material is conveyed on a stream of high velocity air to remove it from the area of concern. When the material is removed, it gives a neat, professional look to the working area.

In addition to the design and configuration of equipment, hazard control and accident prevention are dependent upon the awareness, concern, prudence and proper training of personnel involved in the operation, transport, maintenance and storage of equipment. It is the responsibility of the owner or operator to read this manual and to train all other operators before they start working with the machine.

Follow all safety instructions exactly. Safety is everyone's business. By following recommended procedures, a safe working environment is provided for the operator, bystanders and the area around the worksite. Untrained operators are not qualified to operate the machine.

Many features incorporated into this machine are the result of suggestions made by customers like you. Read this manual carefully to learn how to operate the machine safely and how to set it to provide maximum field efficiency. By following the operating instructions in conjunction with a good maintenance program, your Pull-Type Turbine Debris Blower will provide many years of trouble-free service.

5.2 MACHINE COMPONENTS

The AgriMetal Pull-Type Turbine Debris Blower is a large blower mounted on a trailer for moving debris on a stream of air. The air stream can be directed to the right , left or down depending on the duct position. A gas engine on the front frame powers the blower. The throttle and duct position controls are located on a wireless control module that can be used on the towing vehicle. An electric motor rotates the chute to the desired position.

FIG. 12 PRINCIPLE COMPONENTS

5.3 BREAK-IN

Although there are no operational restrictions on the Blower when it is used for the first time, it is recommended that the following mechanical items be checked:

A. After operating for 1 hour:

1. Torque all fasteners and hardware.
2. Check tire pressure. Inflate as required.
3. Check engine fluid levels. Top up as required.

B. After operating for 15 hours:

1. Repeat steps 1 through 4 listed above. (Section A).
2. Change engine oil and filter.
3. Go to the normal servicing and maintenance schedule as defined in the Maintenance Section.

5.4 PRE-OPERATION CHECKLIST

Efficient and safe operation of the AgriMetal Pull-Type Turbine Debris Blower requires that each operator reads and understands the operating procedures and all related safety precautions outlined in this section. A pre-operation checklist is provided for the operator. It is important for both personal safety and for maintaining the machine in good mechanical condition that this checklist be followed.

Before operating the Blower and each time thereafter, the following areas should be checked off:

1. Lubricate the machine per the schedule outline in the Maintenance Section.
2. Check that all bearings turn freely. Replace any that are rough or seized.
3. Make sure that all guards and shields are in place, secured and functioning as designed.
4. Clean the screen over the blower intake.
5. Check engine oil and fuel level. Top up as required.

5.5 CONTROLS

Before starting to work, all operators should familiarize themselves with the location and function of the controls.

1. Gas Engine:
   Read the engine manufacturers operator's manual before starting for more detailed instructions.

   a. Ignition Switch:
      This key operated switch controls the electric power to the engine.

   OFF - Turn the key fully counter-clockwise to stop the fuel flow and turn the engine off.

   RUN - Turn clockwise on detent to the run position. This is the position where the engine will continue to run.

   START - Turn fully clockwise to the last spring-loaded detent position to engage the starter solenoid and start the engine. Release the key when the engine starts and it will return to the RUN position.

   IMPORTANT
   Do not start engine unless machine is hooked up to tow unit.

2. Wireless Control System:
   Each machine is equipped with a wireless control system that sets the position of the duct and controls the engine RPM.

   a. Engine RPM:
      Depress and hold the right end of the top control to increase RPM. Release when the desired RPM is reached. Depress and hold the left end of the top control to decrease RPM. Release when the desired RPM is reached.

   b. Duct Position:
      Depress and hold the right end of the bottom control to rotate the duct clockwise until it reaches the correct position. Depress and hold the left end of the bottom control to rotate the duct counter-clockwise until it reaches the correct position.

3. Wireless Receiver:
   The wireless receiver is mounted to the engine air cleaner cover but does not interfere with any machine functions.

FIG. 14 IGNITION SWITCH

FIG. 15 REMOTE CONTROL

FIG. 16 RECEIVER

5.6 ATTACHING/UNHOOKING

The Turbine Debris Blower should always be located on a level, dry area that is free of debris and other foreign objects. When attaching the machine to a golf cart or a utility cart, follow this procedure:

1. Clear the area of bystanders, especially small children.

2. Make sure there is enough room and clearance to safely back up to the machine.

3. While backing up, align the hitch with the drawbar.

4. Turn the hitch over to reverse the clevis bracket if required to level the frame.

FIG. 17 CLEVIS BRACKET

5. Stop tow vehicle, set park brake, remove ignition key and wait for all moving parts to stop before dismounting.

6. Use a drawbar pin with provisions for a mechanical retainer. Install the retainer.

Pin

Retainer

FIG. 18 DRAWBAR PIN

7. Attach the safety chain around the drawbar cage to prevent unexpected separation.

FIG. 19 SAFETY CHAIN

9. Level The Frame:

   a. Move the unit to a hard level surface such as asphalt or concrete.

   b. Sight along the hitch.

   c. Use the adjustable clevis on the front of the hitch to set the angle of the frame.

   NOTE

   The clevis is designed with multiple settings to allow for attaching to any height drawbar. Reposition in different mounting holes as required. The clevis can also be turned upside down to provide for a wider range. Turning the hitch upside down provides more range.

FIG. 20 LEVELLING THE FRAME

10. Bring the remote control to the work area.

FIG. 21 REMOTE CONTROL

11. Reverse the above procedure when unhooking from the tow unit.

5.7 FIELD OPERATION

OPERATING SAFETY

- Please remember it is important that you read and heed the safety signs on the Turbine Debris Blower. Clean or replace all safety signs if they cannot be clearly read and understood.
- If a safety shield or guard is removed for any reason, it must be replaced before the machine is again operated.
- Always use two people to handle heavy, unwieldy components during assembly, installation, removal or moving.
- Place all controls in neutral, stop engine, set park brake, remove ignition key and wait for all moving parts to stop before servicing, adjusting, repairing or unplugging.
- Do not allow riders on the machine or tow vehicle at any time. There is no safe place for any riders.
- Do not allow anyone who is not familiar with the safety rules and operation instructions to use this machine.
- Never allow children to operate or be around this machine.
- Do not reach into blower openings when the engine is running. Clear the work area of objects which might be picked up and snagged or entangled in the machine.
- Clear the work area of objects which might be picked up and snagged or entangled in the machine.
- Do not reach into blower openings when the engine is running. Keep others away also.
- Keep hands, feet, hair, jewelry, and clothing away from all moving and/or rotating parts.
- Do not direct the air stream toward people, animals or buildings to prevent injury or damage.
- Do not place hands, feet or other body parts into air stream.

Although the Turbine Debris Blower is easy to use, each operator should review this section to familiarize himself with the detailed safety and operating procedures. When using the machine, follow this procedure:

1. Clear the area of bystanders, especially small children.
2. Review and follow the Pre-Operation Checklist (see Section 5.4).
3. Attach the machine to the tow vehicle (see Section 5.6). Be sure the frame is level.
4. Transport to the working area (refer to Section 5.8).

5. Starting Machine:

   a. Stop tow vehicle engine, set park brake, remove ignition key and wait for all moving parts to stop before dismounting.

   b. Move the throttle to its 1/4 throttle position.

   c. Use the ignition switch on the front frame to start the engine.

   d. Run the engine for a few minutes to allow it to warm.

   e. Increase throttle setting to mid-range to start.

   f. Start tow vehicle engine to start working.

   g. Use the controller to set the position of the duct and the engine RPM.

6. Stopping Machine:

   a. Slow and stop the tow unit.

   b. Slow blower engine speed to low idle using the controller.

   c. Stop tow unit engine, set park brake, remove ignition key and wait for all moving parts to stop before dismounting.

   d. Use the ignition switch on the blower engine to stop engine.

7. Emergency Stopping:
   Stop forward motion, stop tow unit engine, set park brake, slow blower engine to low idle, turn blower engine off and remove ignition keys. Correct condition before resuming work.

FIG. 22 IGNITION SWITCH

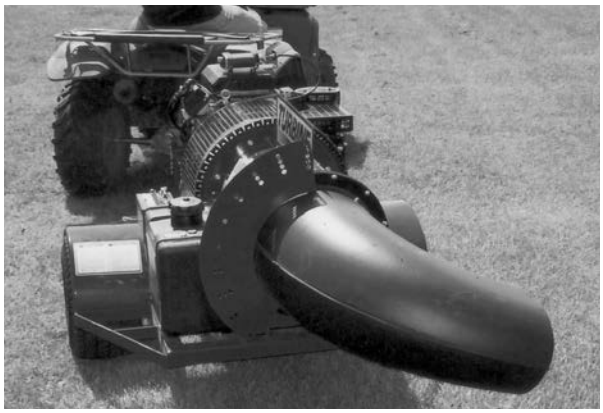


FIG. 23 STARTING/STOPPING

To Right

To Left

FIG. 24 WORKING

8. Duct Position:
The Blower is designed with a moveable duct that can be used to direct the air to the left, or right. Use the wireless control module to change the duct position.

NOTE

The machine ignition switch must be in the run position when moving the duct.

Remote Control

Left

Right

FIG. 25 DUCT POSITION

9. Duct Stops:
The duct drive system is designed with stoppers on each end of its rotation. A stopper plates rotates with the duct and contacts a proximity sensor at the end of its rotation to stop it. This will prevent the duct from over-rotating and contacting the ground.

Inspect rotation components on an annual basis to be sure none are damaged.

a. Stopper plates.

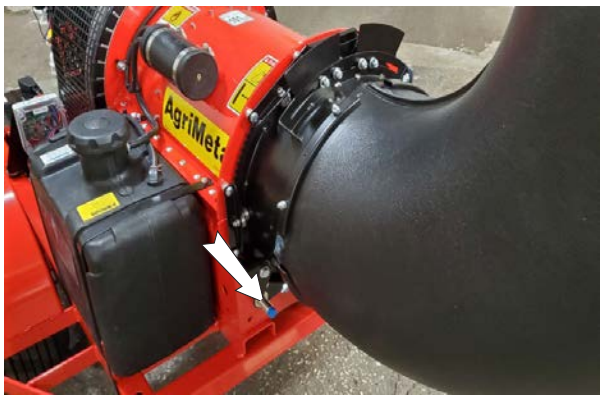
b. Right Sensor.

c. Left Sensor.

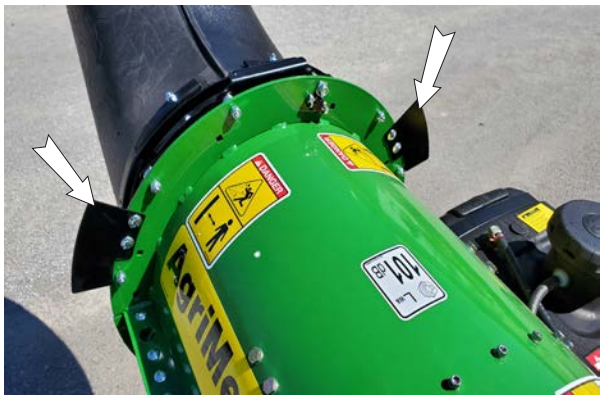
d. Stopper Plates Indicators :
Remove indicator plates when using 360 degrees rotation chute.

Stop plates

Right Sensor



Left Sensor



Stopper Plates Indicators

FIG. 25.5 DUCT STOP SYSTEM

10. Blower Engine Operating RPM:
    Run the blower engine at a fast enough speed to get the job done.

11. Clean the intake screen as required to insure ample flow of air to the fan.

12. Always try to blow with the wind. Blowing against the wind can result in lifting the material into the wind and having it blown over a wider area.

Down

Left Side

Right Side

FIG. 26 WORKING

12. Application Hints:

    a. Cleaning fairways or large open areas:

        i. When moving the material to one side, start at the opposite side and blow toward the receiving side. Use the wireless control module to adjust the duct position to change the air flow direction when coming back.

        ii. When moving the material to all sides, start in the middle and move outward toward the edges while going around.

    b. Cleaning parking lots or other paved surfaces:

        i. Blow only the area that needs cleaning.

        ii. Run only at a speed necessary to move the debris.

        iii. Direct the air stream with care. The blower can produce an air flow speed in excess of 292 kph (175 mph). At this speed, it can pick up small solid objects and move them over 30 m (100 feet). People, pets, animals, building, vehicle or other objects can be hit by these objects. Dust or sand can be blown in peoples eyes.

        iv. It is best to stop for a short time to allow people to pass before running machine again.

    c. Drying wet areas:

        i. Determine the area to be dried.

        ii. Drive slowly past the area that is wet.

        iii. Repeat the drive-by until the moisture is gone.

5.8 TRANSPORTING

TRANSPORT SAFETY

- Comply with state and local laws governing highway safety and movement of machinery on public roads.
- The use of flashing amber lights is acceptable in most localities. However, some localities prohibit their use. Local laws should be checked for all highway lighting and marking requirements.
- At all times when driving the tow vehicle and equipment on the road or highway under 32 kph (20 mph), use flashing amber warning lights and a slow moving vehicle (SMV) identification emblem. Do not exceed 32 kph (20 mph). Reduce speed on rough roads and surfaces.
- Plan your route to avoid heavy traffic.
- Use a drawbar pin with provisions for a retainer. Install the retainer.
- Do not drink and drive.
- Attach safety chain between tow vehicle and machine before transporting.
- Be a safe and courteous driver. Always yield to oncoming traffic in all situations, including narrow bridges, intersections, etc. Watch for traffic when operating near or crossing roadways.
- Turn into curves or go up or down hills only at a low speed and at a gradual steering angle. Make certain that at least 20% of the tow vehicle's weight is on the front wheels to maintain safe steerage. Slow down on rough or uneven surfaces.
- Never allow riders on either tow vehicle or machine.
- Install lighting bar before transporting.

When transporting the machine, review and follow these instructions:

1. Clear the area of bystanders, especially small children.
2. Be sure that the towing unit has sufficient size and mass to control the Turbine Debris Blower during transport.
3. Insure that the machine is securely attached to the tow vehicle with a mechanical retainer through the drawbar pin. Always use a safety chain between the tow vehicle and machine.
4. Make sure the SMV (Slow Moving Vehicle) emblem and all the lights and reflectors that are required by the local highway authorities are in place, are clean and can be seen clearly by all overtaking and oncoming traffic. Install the optional lighting bar before transporting on a public road.
5. Always use hazard flashers on the tow vehicle when transporting unless prohibited by law.
6. Do not allow riders.
7. Never exceed a safe travel speed. Never travel faster than 32 kph (20 mph) The ratio of the tow vehicle weight to the machine weight plays an important role in defining acceptable travel speed. The following table summarized the weight ratio to travel speed.
8. Always shift to a lower gear when going down hill to use the engine as a restraining force.
9. Apply the brakes carefully to prevent jackknifing.
10. Never disengage tow vehicle drivetrain and coast down hills. Always keep tow vehicle in gear.

Table 1 Travel Speed vs. Weight Ratio

Road Speed	Weight of fully equipped or loaded implement(s) relative to weight of Towing machine
Up to 32 km/h (20 mph)	1 to 1, or less
Up to 16 km/h (10 mph)	2 to 1, or less
Do not tow	More than 2 to 1

5.9 STORAGE

STORAGE SAFETY

- Store the unit in an area away from human activity.
- Do not permit children to play on or around the stored machine.
- Store the unit in a dry, level area. Support the frame with planks if required.

At the end of the season, the machine should be thoroughly inspected and prepared for storage. Repair or replace any worn or damaged components to prevent any unnecessary down time at the beginning of the next season. Follow this procedure:

1. Thoroughly wash the machine with a pressure washer or water hose to remove all dirt, mud, debris or residue.
2. Make sure all the water drains out of the blower and duct compartments.
3. Lubricate all grease points to remove any water residue from washing.
4. Remove any material that has become entangled around any moving part.
5. Run the machine for a couple of minutes at low RPM to dry the inside of the blower and duct.
6. Touch up all paint nicks and scratches to prevent rusting.
7. Move the machine to its storage area.
8. Store in a dry, level spot.
9. Store in an enclosed building if possible. If space is not available, cover with a waterproof tarpaulin and tie down securely.
10. Unhook from the tow vehicle (see Section 5.6).
11. Place planks under the hitch and tires for added support if required.
12. Store in an area away from human activity.
13. Do not allow children to play around the stored unit.

FIG. 27 STORED

6 SERVICE AND MAINTENANCE

MAINTENANCE SAFETY

- Good maintenance is your responsibility. Poor maintenance is an invitation to trouble.
- Follow good shop practices.
  - Keep service area clean and dry.
  - Be sure electrical outlets and tools are properly grounded.
  - Use adequate light for the job at hand.
- Make sure there is plenty of ventilation. Never operate an engine in a closed building. The exhaust fumes may cause asphyxiation.
- Before working on this machine, shut off the engine, set the brakes, and remove the ignition keys.
- Never work under equipment unless it is blocked securely.
- Always use personal protection devices such as eye, hand and hearing protectors, when performing any service or maintenance work.
- Where replacement parts are necessary for periodic maintenance and servicing, genuine factory replacement parts must be used to restore your equipment to original specifications. The manufacturer will not be responsible for injuries or damages caused by use of unapproved parts and/or accessories.
- A fire extinguisher and first aid kit should be kept readily accessible while performing maintenance on this equipment.
- Periodically tighten all bolts, nuts and screws and check that all cotter pins are properly installed to ensure unit is in a safe condition.
- When completing a maintenance or service function, make sure all safety shields and devices are installed before placing unit in service.

6.1 SERVICE

6.1.1 FLUIDS AND LUBRICANTS

1. Gasoline:
   Use a standard unleaded gasoline for all operating conditions. Do not use gasoline with an ethanol blend.

   Capacity: 24 litres (6.0 gal).

2. Engine Oil:
   Use an SAE-30 synthetic oil meeting the American Petroleum Institute (API) classification of SF or SG for normal operating temperatures. Consult the engine manual for unusual operating conditions. Do not mix oil types or viscosities.

   Crankcase Capacity:
   1.6 L (1.7 US qt)

3. Storing Lubricants:
   Your machine can operate at top efficiency only if clean lubricants are used. Use clean containers to handle all lubricants. Store them in an area protected from dust, moisture and other contaminants.

6.1.2 SERVICING INTERVALS

The period recommended is based on normal operating conditions. Severe or unusual conditions may require more frequent lubrication or oil changes.

8 Hours or Daily

1. Clean blower air intake screen.
2. Check engine oil level.
3. Check fuel level.

FIG. 28 MACHINE

15 Hours

1. First change engine oil.

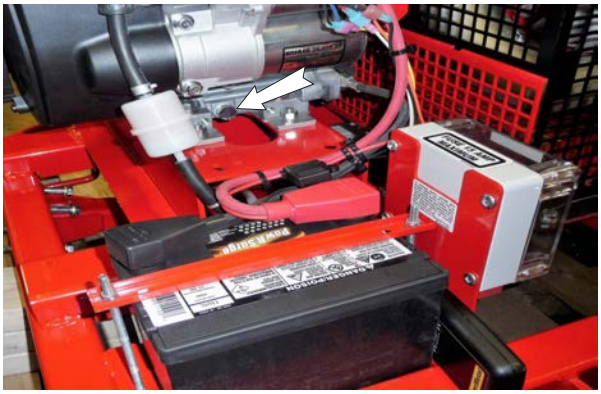


FIG. 29 ENGINE DRAIN PLUG

50 Hours

1. Change engine oil.
   (SAE-30 synthetic oil)
2. Clean air cleaner.
3. Check tire pressure. Pressurize to (10 psi) maximum.


FIG. 30 AIR CLEANER


FIG. 30.5 AIR CLEANER (CYCLONE)

200 Hours

1. Change engine oil filter.

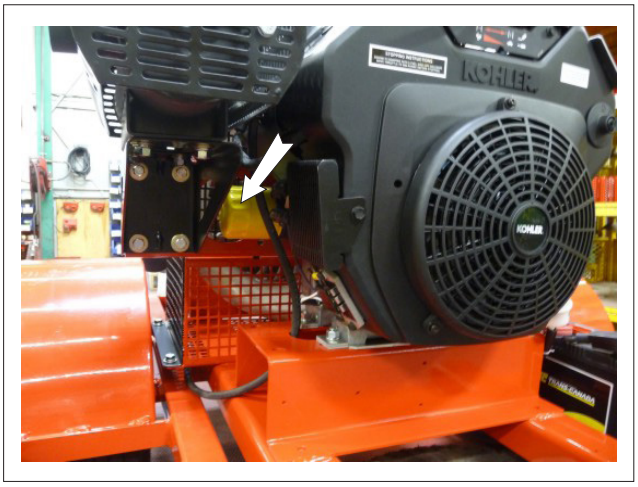


FIG. 31 OIL FILTER

Annually

1. Change in line fuel filter.

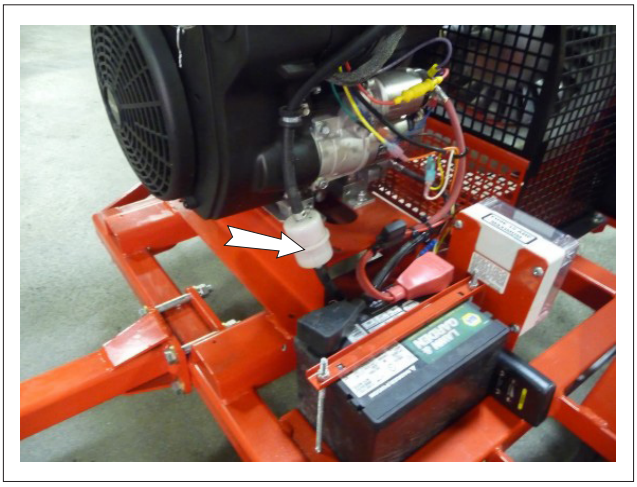


FIG. 32 IN-LINE FUEL FILTER

2. Clean machine.

FIG. 33 MACHINE

6.1.3 SERVICE RECORD

See Lubrication and Maintenance sections for details of service. Copy this page to continue record.

ACTION CODE: CK CHECK CL CLEAN
G GREASE CH CHANGE

Hours																						
Serviced by																						
8 Hours or Daily																						
CL Blower Air Intake Screen																						
CK Engine Oil Level																						
CK Fuel Level																						
15 Hours																						
CH First Change Engine Oil																						
50 Hours																						
CH Change Engine Oil																						
CL Air Cleaner																						
CK Tire Pressure																						
200 Hours																						
CH Engine Oil Filter																						
Annually																						
CH In-Line Fuel Filter																						
CL Machine																						

6.2 MAINTENANCE

By following a careful service and maintenance program for your machine, you will enjoy many years of trouble-free operation.

6.2.1 CLEANING AIR CLEANER

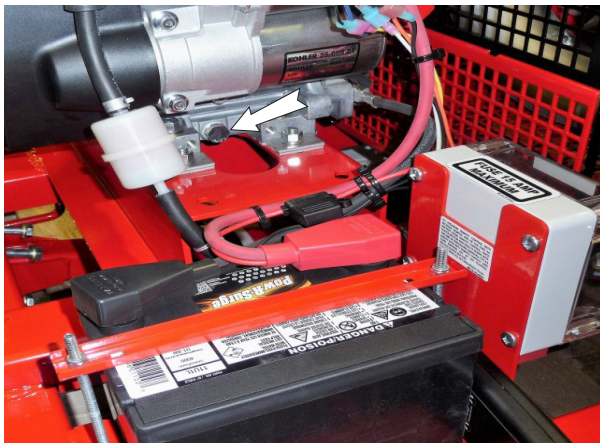
1. Review the Operator's Manual for the engine.
2. Place all controls in neutral, stop engine and remove ignition key before maintaining.
3. Remove the cover over the air cleaner.
4. Remove the foam from the engine.
5. Use an air hose to blow the dust and debris out of the foam.
6. Install foam.
7. Install and secure the cover.

FIG. 34 AIR CLEANER

FIG. 34.5 AIR CLEANER (CYCLONE)

6.2.2 CHANGING ENGINE OIL AND FILTER

1. Review the Operator's Manual for the engine.
2. Place all controls in neutral, stop engine and remove ignition key before maintaining.
3. Allow the engine to cool before changing the oil. Hot oil can cause burns if it contacts exposed skin. It is best to change oil while the engine is warm to keep the contaminants in suspension.
4. Place a pan under the drain plug.
5. Remove the drain and allow the oil to drain for 10 minutes.
6. Install and tighten the drain plug.
7. Dispose of the used oil in an approved container.
8. Remove engine oil filter.
9. Apply a light coat of oil to the O ring and install the replacement filter. Snug up by hand and then tighten another 1/2 turn.
10. Fill the crankcase with specified oil.
11. Run the engine for 1-2 minutes and check for oil leaks.
12. If leaks are found around the drain plug or filter, tighten slightly. Repeat step 9.
13. Check engine oil level. Top up as required.



Drain Plug

Oil Filter

FIG. 35 ENGINE

6.2.3 CHANGING IN LINE FUEL FILTER

The Turbine Debris Blower is designed with an in line fuel filter to remove any contaminants from the fuel prior to it reaching the engine. It is recommended that it be changed annually or more often if contaminants get into the fuel system.

To change the in line fuel filter, follow this procedure:

1. Clear the area of bystanders, especially small children.
2. Stop engine, remove ignition key and wait for all moving parts to stop.
3. Allow the engine and machine to cool.
4. Turn valve off on the bottom of the fuel tank.
5. Place a small container under the filter to catch any spilled fuel.
6. Release the spring clips holding the fuel hose to the filter.
7. Remove the used filter and replace it with a new filter.
8. Reinstall hoses and spring clips.
9. Open valve on bottom of fuel tank.

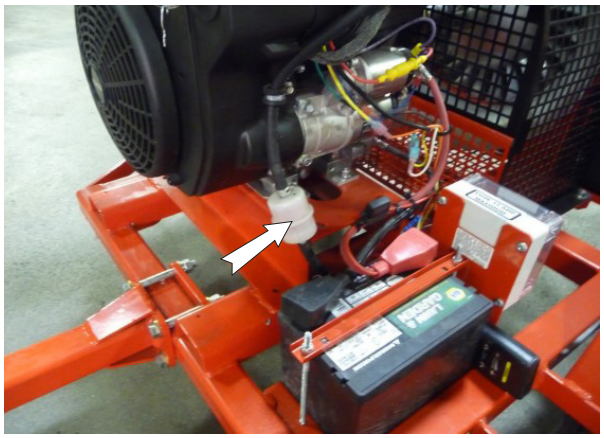


FIG. 36 IN-LINE FUEL FILTER

7 TROUBLE SHOOTING

The AgriMetal Pull-Type Turbine Debris Blower is a large portable blower that can be used to blow leaves, grass clippings, trash and debris. It is a simple system that requires minimal maintenance.

In the following Trouble Shooting section, we have listed many of the problems, causes and solutions that can help you to solve the problems that you might encounter.

If you encounter a problem that is difficult to solve, even after having read through this trouble shooting section, please call your local dealer. Before you call, please have this Operator's Manual and the serial number of your machine at hand.

PROBLEM	CAUSE	SOLUTION
Engine won't start.	No fuel.	Check fuel level, add as required.
	Closed fuel valve.	Open fuel valve located under fuel tank.
	Plugged in-line filter.	Replace in-line filter.
	No power from battery.	Loose cable. Tighten cable.
		Battery low. Recharge battery.
Doesn't move debris/leaves.	No air flow.	Clean blower air intake.
	Wrong angle for air stream.	Level frame to provide proper air stream angle.
Machine vibrates.	Broken fin.	Replace turbine assembly. Call factory.
	Failed bearing.	Replace turbine assembly. Call factory.
Remote stops working.	Fuse blown.	Replace 15 Amp fuse in circuit.
	Lost programming.	Reprogram system.
Duct won't turn.	Fuse blown.	Replace 15 Amp fuse in circuit.
	Remote control failure.	Replace controller batteries.
	12 volt motor problem.	Disconnect grey and green wires by receiver. Provide 12 volts across disconnected wires. Switch polarity. Motor should turn in both directions. Replace motor if it doesn't turn.
	Throttle actuator problem.	Disconnect white and yellow wires by receiver. Provide 12 volts across disconnected wires. Switch polarity. Actuator should turn in both directions. If actuator doesn't move, replace it.
	Electronic receiver failure.	Replace remote batteries.
		Reprogram remote and receiver*.
* To reprogram remote control and receiver.	To program remote control with receiver, turn engine ignition key at on position, press both throttle buttons of the remote until light stays on. (It should take about 5 seconds). You are now all set and ready to go.	

8 SPECIFICATIONS

8.1 MECHANICAL

PULL-TYPE BLOWER	TB-270
Engine	27 HP Kohler Command Pro
Drive	Direct
Fan Design	Axial Flow
Fan Size	14" Diameter
Number of Fins	25
Chute Rotation	360°
Chute Outlet Size	Oblong 9.5″ x 14″ (24cm x 35cm)
Unbreakable Chute	Standard
Tire Size	18 x 9.5-8
Gas Tank Capacity	24 L (6 US Gal)
Wireless Remote Control	Standard
Length Without Drawbar	60″ (152 cm)
Length With Drawbar	104″ (264 cm)
Width	47″ (119 cm)
Height	40″ (102 cm)
Machine Weight	500 lbs (227 kg)
Shipping Weight	550 lbs (249 kg)
Shipping Dimension	50″ x 50″ x 46″ (127 cm x 127 cm x 117 cm)

SPECIFICATIONS SUBJECT TO CHANGE WITHOUT NOTICE

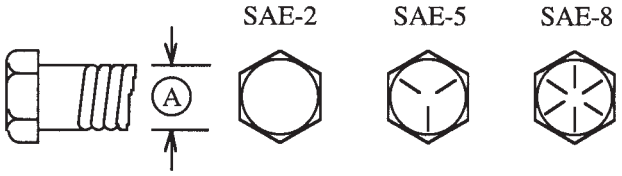
8.2 BOLT TORQUE

CHECKING BOLT TORQUE

The tables shown below give correct torque values for various bolts and capscrews. Tighten all bolts to the torques specified in chart unless otherwise noted. Check tightness of bolts periodically, using bolt torque chart as a guide. Replace hardware with the same strength bolt.

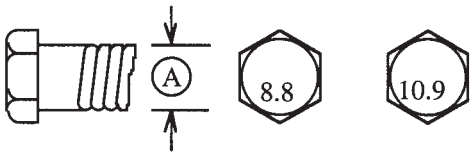
ENGLISH TORQUE SPECIFICATIONS

Bolt Diameter "A"	Bolt Torque*					
	SAE 2		SAE 5		SAE 8	
	(N.m.)	(lb-ft)	(N.m.)	(lb-ft)	(N.m.)	(lb-ft)
1/4"	8	6	12	9	17	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
1/2"	61	45	110	80	155	115
9/16"	95	60	155	115	220	165
5/8"	128	95	215	160	305	220
3/4"	225	165	390	290	540	400
7/8"	230	170	570	420	880	650
1"	345	225	850	630	1320	970



METRIC TORQUE SPECIFICATIONS

Bolt Diameter "A"	Bolt Torque*			
	8.8	10.9		
	(N.m.)	(lb-ft)	(N.m.)	(lb-ft)
M3	.5	.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	321	610	450
M24	750	553	1050	774
M30	1495	1103	2100	1550
M36	2600	1917	3675	2710



Torque figures indicated above are valid for non-greased or non-oiled threads and heads unless otherwise specified. Therefore, do not grease or oil bolts or capscrews unless otherwise specified in this manual. When using locking elements, increase torque values by 5%.

* Torque value for bolts and capscrews are identified by their head markings.

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PRINTED IN CANADA
ISSUE DATE: OCTOBER 2017
PART NUMBER: 33-98-0621