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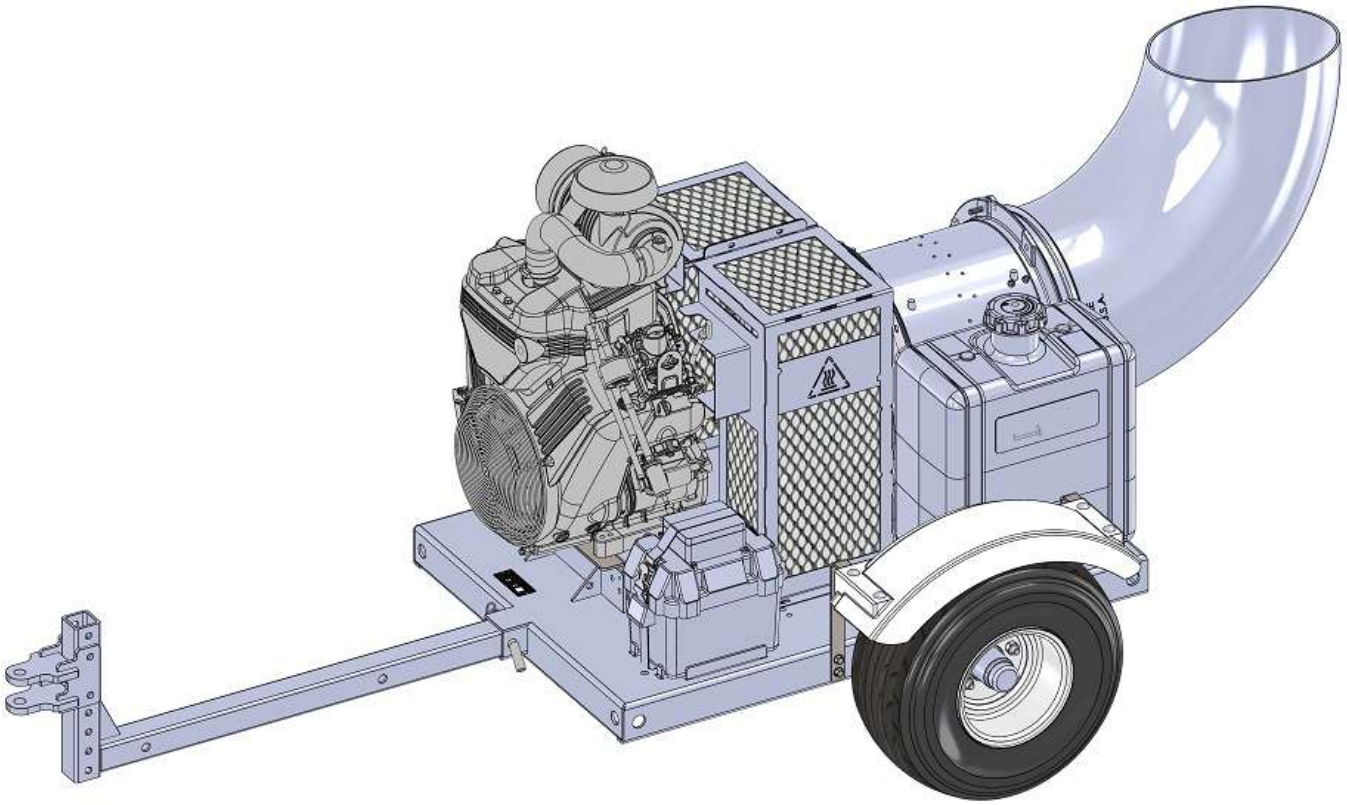

BUFFALO TURBINE'S
BT-CKB7VCE
ORIGINAL INSTRUCTIONS AND PARTS MANUAL

02/26 -BT MAN

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1.0 INTRODUCTION

Congratulations on your choice of a Buffalo Turbine Debris Blower. This equipment has been designed and manufactured to meet the needs of the Turf Care Industry.

Safe, efficient and trouble-free operation of your Buffalo Turbine Blower requires that you and anyone else, who will be operating or maintaining the Blower, read and understand all of the safety, operation, maintenance and troubleshooting information contained within this Operator's manual.

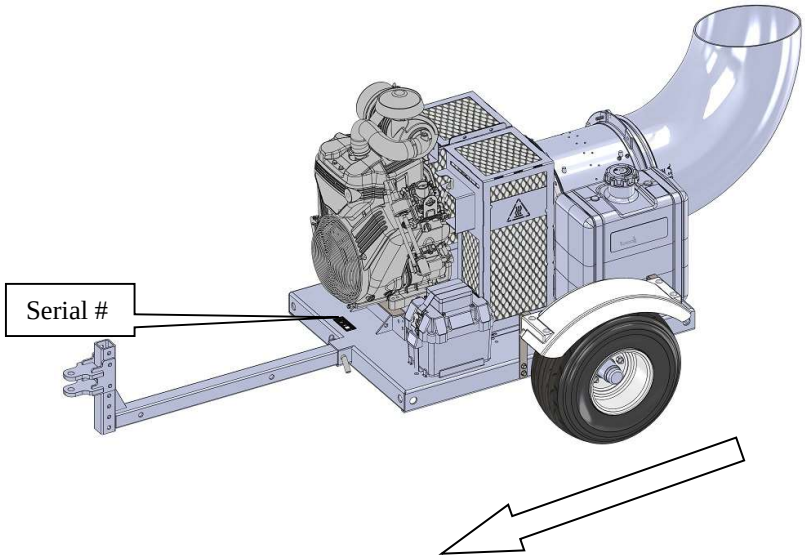
This Manual covers the BT-CKB7VCE Turbine Blower.

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

SERIAL NUMBER LOCATION

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

The serial number plate(s) is located where indicated in the pictures below. Please document the number in the space provided for easy reference.



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

MODEL BT-CKB7VCE

LEFT FRONT TOP SURFACE OF FRAME

Serial Number: _____

2.0 SAFETY

YOU are responsible for the **SAFE** operation and maintenance of your Buffalo Turbine Debris Blower. **YOU** must ensure that you and anyone else, who is going to operate, maintain or work around the Buffalo Turbine 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 practice while operating the 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 machine is familiar with the procedures recommended and follows safety precautions. Remember most accidents can be prevented. Do not risk injury or death by ignoring good safety practices.

- Blower owners must give operating instructions to operators or employees before allowing them to operate the Blower, 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. All accidents can be avoided.
- A person who has not read and understood all operating instructions is not qualified to operate the machine. An untrained operator exposes themselves 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 which could affect the life of the equipment.
- Think **SAFETY**! Work **SAFELY!**

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

The Safety Alert symbol identifies important safety messages on the Buffalo Turbine 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 guidelines

1. **DANGER –**injury or death if the proper precautions are not taken.
2. **WARNING --** A specific hazard or unsafe practice that COULD result in severe personal injury or death if proper precautions are not taken.
3. **CAUTION** – Unsafe practices that COULD result in personal injury if proper practices are not taken, or as a reminder of good safety.

The Safety Alert symbol identifies important safety messages on the Buffalo Turbine 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.

2.1 SAFETY DECALS

The types of decals on the blower unit are shown below. Good safety requires that you familiarize yourself with the various Safety Decals, the type of warning and the area, or particular function related to that area that requires your **SAFETY AWARENESS.* THINK SAFETY! WORK SAFELY!**

!ATTENTION!

1. **KEEP HANDS, FEET AND CLOTHING AWAY FROM POWER DRIVEN PARTS.**
2. **STOP ENGINE AND REMOVE KEY BEFORE LEAVING OPERATOR'S POSITION.**
3. **MACHINE MUST COME TO A COMPLETE STOP BEFORE ANY MAINTENANCE, TO INCLUDE ADJUSTING, LUBRICATING OR CLEANING, IS PERFORMED.**
4. **KEEP PEOPLE AND PETS AT SAFE DISTANCE FROM MACHINE.**
5. **KEEP ALL GUARDS AND SHIELDS IN PLACE.**

Never operate without eye protection due to blowing debris.

Never operate without ear protection due to prolonged exposure to excessive noise

Never operate without guards in place because there are sharp rotating components that will cause serious injury.

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

2.2 GENERAL SAFETY

1. Read and understand the Operator's Manual and all safety signs before operating, maintaining, and adjusting.
2. Provide a first-aid kit for use in case of an accident. Store in a highly visible place.
3. Provide a fire extinguisher for use in case of an accident. Store in a highly visible place.
4. 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
5. Do not operate without guards or shields properly installed.
6. Do not allow riders.
7. **Wear appropriate ear protection for prolonged exposure to excessive noise.**
8. **(All Models) Set Blower on the ground, stop engine, set park brake, remove ignition key and wait for all moving parts to stop before dismounting to service or adjust.**
9. Clear the area of people, especially small children, before starting the unit.
10. Review all safety related items annually with all personnel who will be operating or maintaining the Blower.
11. Keep hands, feet, hair and clothing away from moving parts. Operate equipment only while seated in the operator's seat.

2.3 OPERATING SAFETY

1. Read and understand the Operator's Manual and all safety signs before operating, servicing or adjusting.
2. Before servicing or repairing, **Set blower on the ground, stop engine, set park brake, remove key, and wait for all moving parts to stop.**

2.4 MAINTENANCE SAFETY

1. Read and follow ALL general, operating, maintenance and safety information in this manual.
2. Support the machine with blocks or safety stands when changing tires or working beneath it.
3. Set Blower on the ground, stop engine, set park brake, remove ignition key and wait for all moving parts to stop before operating, servicing or adjusting.
4. Make sure all guards are in place and properly secured when operating or maintaining the Blower.

2.5 TRANSPORT SAFETY

1. Turf trailer Receptacle Uses a Pin Hitch Only. Use Presto Pin. **Do Not Exceed 15 MPH (24KPH) At Any Time.** Use a DOT Approved trailer for Highway Use and for speeds exceeding 15 MPH (24KPH). Make sure you are in compliant with all local DOT regulations regarding transporting Buffalo Turbine equipment on public roads and highways.
2. The CKB7VCE can be made into a Skid Model by removing the trailer package and can easily be transported and operated in the bed of a standard pick-up truck or utility vehicle. Be sure to block, anchor and secure the unit before operating or transporting. **Do not use the top of the Turbine housing to strap or tie down blower unit.**

2.6 STORAGE SAFETY

1. Store the Blower on a firm, level surface.
2. Store away from areas of human activity. Do not permit children to play on or around the stored machine.
3. Make sure the unit is sitting, or blocked up firm and solid and will not tip or sink into a soft area.
4. Cover with a weatherproof tarpaulin and tie down securely.

2.7 SIGN-OFF FORM

- Buffalo Turbine recommends that anyone who will be operating and/or maintaining the Buffalo Turbine 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	EMPLOYEES SIGNATURE	EMPLOYERS SIGNATURE

Buffalo Turbine Debris Blowers

Buffalo Turbine Warranty Policy

3.0 MACHINE WARRANTY INFORMATION

Buffalo Turbine warrants the DEBRIS BLOWER, to the original owner, to be free from defects in material and workmanship, under normal use and service. **All machines must have a completed registration form sent to Buffalo Turbine within 30 days of purchase for warranty to apply.** Obligation under this warranty shall extend for a period of 10 years from date of purchase and, at the option of Buffalo Turbine, replacement of any parts found, upon inspection by Buffalo Turbine, to be defective. Any parts replaced under warranty will have the remainder of the warranty from the original date of purchase.

Warranty parts during first 2 years will be shipped free of charge via standard ground shipping
If expedited shipping is required charges will be paid by the end user
Year 1: parts and labor
Year 2: parts only
Customer will be required to pay shipping charges for years 3-10
Year 3: Engine, per engine manufacturer's standard / Turbine Assembly / Frame (parts only)
Year 4-10: Turbine Assembly / Frame (parts will be prorated)

Buffalo Turbine reserves the right to incorporate improvements in material and design of its products without notice and is not obligated to make the same improvements to equipment previously manufactured.

ALL WARRANTY REPAIRS NEED PRE-APPROVAL BY A FACTORY PERSON (FROM BUFFALO TURBINE) PRIOR TO COMMENCING WITH A WARRANTY REPAIR TO INCLUDE SERIAL NUMBER AND HOURS FROM HOUR METER (IF EQUIPPED). PRE-APPROVAL WILL BE REQUIRED BY THE END USER AND DEALER/DISTRIBUTOR LEVEL.

Factory ordered Buffalo Turbine parts must be used when filing a warranty claim.

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 **DEBRIS BLOWER**. This warranty shall not apply to any DEBRIS BLOWER, which has been altered outside the factory in any way so as, in the judgment of Buffalo Turbine, 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 guarantee from the manufacturers and service can be, obtained from their service facilities. No warranty is extended to regular service items such as lubricants, belts, paint and the like.

Original Instruction Manual

The Purchaser acknowledges having receiving training in the safe operation of the DEBRIS BLOWER and further acknowledges that Buffalo Turbine does not assume any liability resulting from the operation of the DEBRIS BLOWER in any manner other than described in the Operator's Manual supplied at the time of purchase.

WARRANTY VOID IF NOT REGISTERED (see Page 2 for warranty registration form)
DO NOT SPLIT THE TURBINE HOUSING FOR ANY REASON.
DO NOT ATTEMPT TO SERVICE OR DISASSEMBLE THE TURBINE BLOWER.
DO NOT USE THE TOP OF THE TURBINE HOUSING TO STRAP OR TIE DOWN BLOWER UNITS.
Unauthorized service work on the Turbine Blower will null and void all warranties.
If there are any questions regarding any of our products call Buffalo Turbine at 716 592 2700.

3.1 Warranty Registration Form

BUFFALO TURBINE

WARRANTY REGISTRATION FORM & INSPECTION REPORT

Any units not registered with Buffalo Turbine are not eligible for warranty claims

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 _____ Dealer's Name _____

Address _____ Address _____

City, State, Zip, Country _____ City, State, Zip, Country_____

Email Address (important) _____ Email Address _____

Telephone Number _____

Blower Model _____ **Circle one:**

Serial Number _____ Commercial Use

Delivery Date _____ Private Use

DEALER INSPECTION REPORT **SAFETY CHECKS**

_____ Tire Pressure Check -- Model KB _____ All Decals Installed

_____ Wheel Bolts _____ Review Operating and Safety Instructions

_____ Belt Tension

_____ Lubricate Machine _____ Guards in Place

_____ Fasteners Tight _____ Trailer assembly bolts properly installed and tightened

ALL 3 POINT HITCH MODELS: PTO SHAFTS MUST TELESCOPE IN EVERY POSITION

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

Date _____ Dealer's Rep. Signature _____

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

Date _____ Owner's Signature _____

PLEASE EMAIL TO BUFFALO TURBINE AT - service@buffaloturbine.com
Or fax to 716 592 2460

4.0 OPERATIONS

4.1 TO THE NEW OPERATOR OR OWNER

Buffalo 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 volume and velocity of air to remove it from the area of concern. When the material is removed, it gives a neat, professional look to the working area.

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

Potential Mechanical Hazards while operating your machine:
Never operate the debris blower around others to prevent the possibility of being run over by equipment.
Never ride on your debris blower to prevent the possibility of being thrown off the machine or hurt severely.

Potential Crushing Hazards while operating your machine:
Between Trailer Tongue and mounting hitch on towing vehicle
Between each nozzle

WARNING:
This Product can expose you to chemicals including carbon monoxide and benzene, which are known to the State of California to cause cancer and birth defects or other reproductive harm.
For more information go to www.P65Warnings.ca.gov.

4.2 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. Operating for first ½ hour
1. Re-torque all wheel bolts, axle nuts and trailer mounting bolts and nuts.
2. Re-torque all other fasteners and hardware.
3. Check set screw (nozzle pulley) to ensure it tightened.

B. Operating for first 5 hours
1. Re-torque all hardware and fasteners.
2. Check set screw (nozzle pulley) to ensure it tightened.
3. Go to the normal servicing and maintenance schedule as defined in the Maintenance Section of the manual.

4.3 PRE-OPERATION CHECKS

Efficient and safe operation of the Buffalo Turbine 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 maintaining the good mechanical condition of the machine that this checklist is followed.

BATTERY MUST BE CONNECTED BEFORE OPERATION (DISCONNECTED FOR SHIPPING).

Before Operating the Blower and each time thereafter, the following areas should be checked off.

1. For fuel, oil, and operating information of the Vanguard Engine, refer to the Manufacturers specs included with this manual.
2. The Model CKB7 turf trailer is not designed for highway towing. For highway use or speeds above 15mph (24kph) an optional DOT approved trailer must be used.
3. Insure the Blower unit is attached to a proper receiver mounted on the towing vehicle. A pin hitch receptacle is standard with the model CKB7. Attach the CKB7 trailer using the proper size hitch pin with a locking presto pin.
4. Make sure all guards and shields are in place, secured and functioning as designed.
5. Check that all clamp bands are secure.
6. Check the belts and pulleys for proper tension and alignment.

Remote Nozzle and Throttle Control

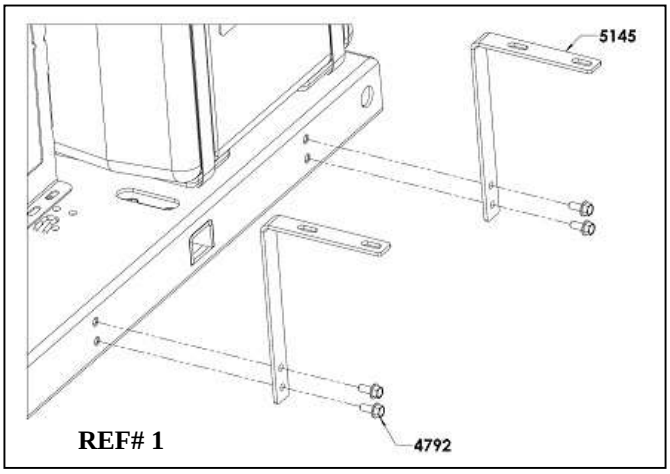
The throttle control adjusts the engine RPM from an idle to maximum RPM and the nozzle control adjusts the rotation of the nozzle assembly (360º in either direction).

CAUTION ! DO NOT ALLOW LEAVES OR DEBRIS TO ACCUMULATE ON OR NEAR THE ENGINE OR EXHAUST SYSTEM OF THE MODEL KB BLOWER, TRACTOR ENGINE OR ANY INTERNAL COMBUSTION ENGINE.

4.4 MODEL BT-CKB7VCE Assembly Instructions

1. Fill engine oil to proper level. (overseas shipments)
2. Attach 2 Fender Brackets **(part# 5145)** with 2 bolts each **(part# 4792)**. Tighten bolts. **(REF#1)**
3. Attach axle stub shaft assembly **(part # 5237)** using 2 bolts **(part # 4798)**. Tighten bolts. **(REF#2)**
4. Attach the tongue **(part # 5161)** to the frame using the bent hitch pin **(part # 5149)** and clip pin **(part # 5239) Note: The tongue is adjustable and will allow for multiple different heights. Determine the desired height before attaching the tongue. (REF#3)**
5. Attach both fenders **(part # 1150)** using (4) 3/8-16 x 1" carriage bolts **(part # 1154)** and 3/8-16 flange nuts **(part # 4801) (REF#4)**
6. Recheck all mounting bolts to assure that they are tight.
7. Bolt on tires**(part # 2019)** . **(REF#2)**
8. Reattach positive battery cable (RED) and ground cable (Black) to proper terminals.

USE PRESTO PIN TO KEEP HITCH PIN IN PLACE WHILE OPERATING



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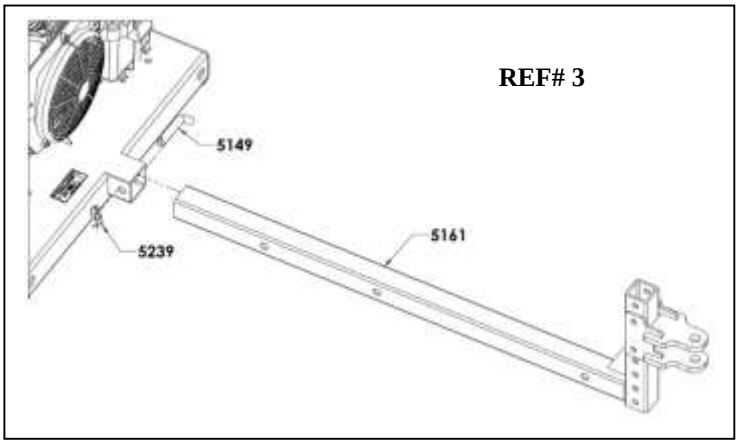

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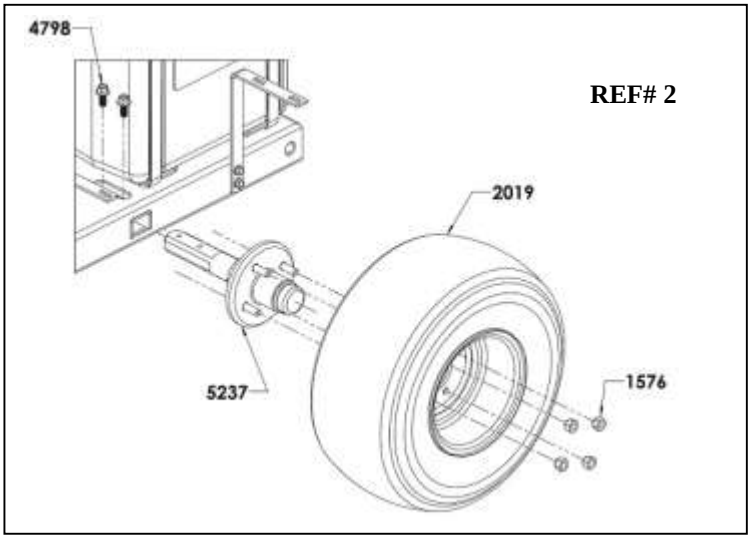

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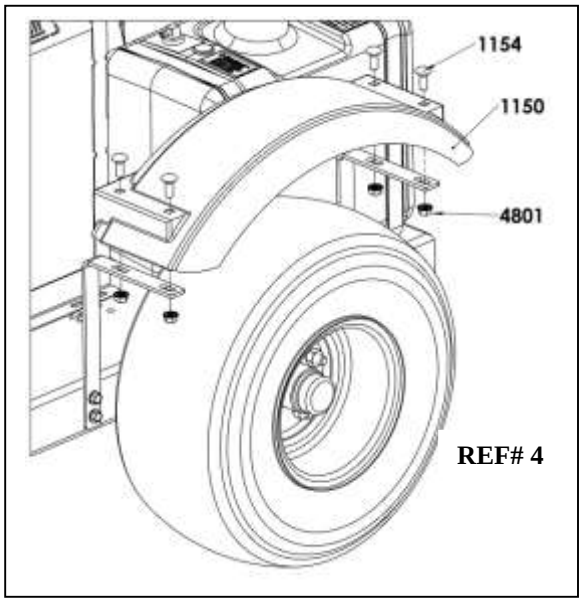


REF# 4

4.4 MODEL BT-CKB7VCE Assembly Instructions (Continued)

11. Confirm that the seam of the nozzle is aligned with the notch in the base ring, as shown below. The nozzle seam must be aligned with that notch in order for the nozzle control system to function properly, so always verify the two are aligned before operating the debris blower.

12. Nozzle Calibration:
    a. Turn keyswitch to ON postion. Wait 10 seconds before performing next step.
    b. Press and hold 'Home' button for 2-3 seconds. This will start the nozzle's calibration sequence and nozzle will rotate automatically (note: nozzle will turn to several predefined locations and stop at home).
    c. Calibration sequence is complete and you can now use any of the one touch auto positioning nozzle features (see PG. 11 for nozzle functions).

4.5 ONE TOUCH AUTO NOZZLE POSITIONING SYSTEM FUNCTIONS

Path Clearing Position:

1. Press the ‘Home’ button to put the nozzle into the ‘Home’ position
2. Press the ‘Shift’ button to go to the ‘Path Clearing Position’

Position A (Preset Normal Blowing Position) / Position B (Preset Heavy Blowing Position):

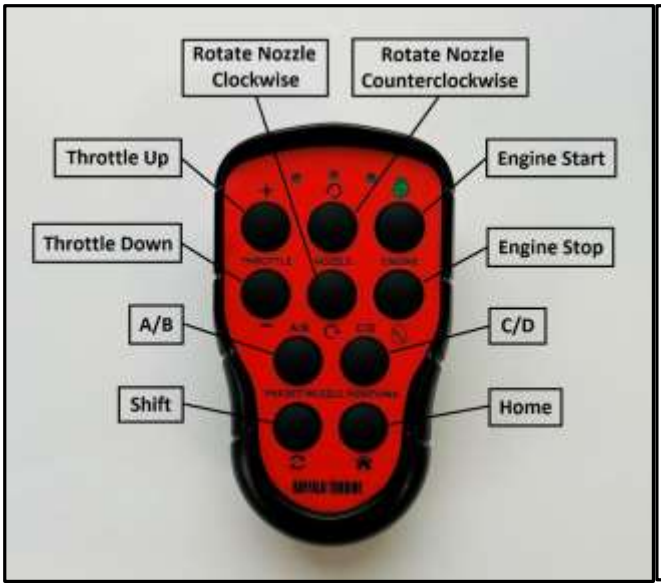
1. Press the ‘A/B’ button to put the nozzle into Position ‘A’
2. Press the ‘A/B’ button a second time to go to Position ‘B’
3. The ‘A/B’ button can be used to toggle back and forth between the two positions

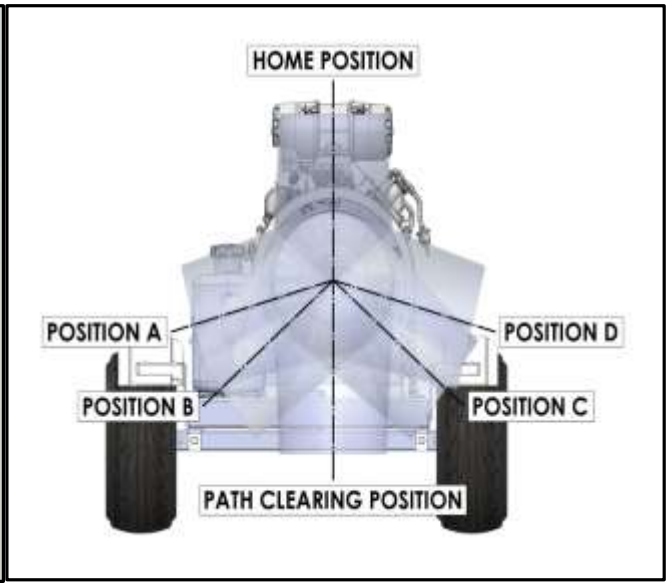
Position D (Preset Normal Blowing Position) / Position C (Preset Heavy Blowing Position):

1. Press the ‘C/D’ button to put the nozzle into Position ‘D’
2. Press the ‘C/D’ button a second time to go to Position ‘C’
3. The ‘C/D’ button can be used to toggle back and forth between the two positions

Mirror Function:

1. Use the ‘Nozzle Rotation’ buttons to put the nozzle in the desired position
2. Press the ‘Shift’ button and the nozzle will automatically go to a position on the other side of the machine that perfectly mirrors the position that was selected
3. Each subsequent press of the ‘Shift’ button will toggle back and forth between these positions, for debris that requires multiple passes to clear
4. At any time, use the nozzle rotation buttons to dial-in a new nozzle position as needed, and the ‘Shift’ button will mirror that new position instead





NOTE: The features of the One Touch Auto Nozzle Positioning System are only available once the system has gone through its calibration sequence described on page 10.

4.6 FIELD OPERATION

1. Do not direct debris blower towards people, pets, autos, windows, etc.
2. **Starting blower unit:** Always start engine at a lower engine speed with nozzle pointed down or away. Turn Engine Key to ON postion and press Engine Start button on Transmitter.
3. The air stream direction is changed (in either direction) by pressing the nozzle buttons on the transmitter. The nozzle will stop turning by releasing the transmitter button. ALWAYS CHECK THE GROUND CLEARANCE WHEN OPERATING THE NOZZLE IN THE DOWN VERTICAL POSITION.
4. **Stopping blower unit**: Shut engine off above ½ throttle by turning key switch to off position to avoid engine backfire. Press Engine Stop button on Transmitter. **Make sure Keyswitch is turned off at the end of the day to prevent battery draining.**
5. Allow the blower fan speed to come to a complete stop before disconnecting from tow vehicle.

4.7 OPERATING RPM (ALL MODELS)

The manufacturer's engine section normally recommends the unit be run at a RPM that will insure efficient operation. The Blower can operate at a slower RPM if it can effectively move the debris. Increase engine RPM as needed.
Moving light material, such as dry leaves, requires much less wind than wet or heavier material.
Always try to blow with the wind. The Blower can be used for a wide variety of applications to move leaves, grass clippings, aeration plugs and debris. Drying wet areas has been another use with these powerful Debris Blowers.

4.8 STORAGE

At the end of the working season or before storing the blower unit, prepare the machine by following this procedure:

1. Select a storage area that is dry, level and free of debris.
2. Thoroughly wash the machine with a water hose to remove all debris and residue.
3. Run the machine at low RPM to dry the Blower Components.
4. Touch up all paint chips and scratches to prevent rusting.
5. Inspect for worn or failed components. Order the replacement parts and repair the blower unit when time allows. This will eliminate unnecessary down time at the start of next season.
6. Store in an enclosed building. If space is not available, cover with a waterproof tarpaulin and tie it down securely.
7. Store the machine away from areas of human activity.
8. Do not allow children to play around the stored unit.

5.0 BT-CKB7VCE Machine Specifications

Length:	**Frame Size 28.5" wide X 47.5" Long** **96" With nozzle installed and tongue** **72" Skid model with nozzle installed**
Width:	**47.5" With axle and tires**
Height:	**36" With axle and tires**
Weight:	**447 lbs**
Electrical System:	**12 Volt battery / 350 CCA**
Fuel Capacity:	**6 Gallon Unleaded Fuel only**
Input Power:	**33HP ETC/EFI Gas Engine**
Outlet Size:	**Approximately 12"**

6.0 MAINTENANCE SECTION

6.1 Maintenance Safety

1. Set Blower on a level surface, stop engine, set park brake, remove ignition key and wait for all moving parts to stop before dismounting to service, adjust or repair.
2. Reinstall and secure all guards removed for servicing before starting to use machine again. *We recommend wearing gloves when removing or installing the guard to avoid getting cut*
3. Securely support machine with blocks or safety stands when changing tires or working beneath it.

6.2 Fluids

Change oil per Manufacturer's specification (see Engine owner's manual section).

6.3 SERVICE CHECKLIST

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

TURN OFF ENGINE, REMOVE KEY & DISCONNECT BATTERY BEFORE SERVICING BLOWER UNIT

CODE: LUBRICATE-(L) / CHECK-(*) / CHANGE-(C) / REPLACE-(B) / CLEAN-(CL)

SCHEDULED MAINTENANCE HOURS _____

SERVICED BY _____

MAINTENANCE

8 hrs or daily

(*) Remove all debris that has settled between the blower wheel fan and the stationary vanes. Helps maintain peak performance.
(*) Check engine oil and fill to proper level – Do not overfill
(*) Check air filter and precleaner
(CL) Clean debris from air intake and other cooling areas on the engine
(*) Check tire pressure (Max. 50 PSI)
(*) Check Clamp Band Bolt for tightness

40 hours or weekly

(*) Inspect battery terminals for any corrosion, broken wires, or loose connections.
(*) Remove Battery and clean debris from inside of battery box
(*) Check set screw (nozzle pulley) to ensure it is tightened
(*) Wash and Clean any dirt or grime build up that has accumulated on blower wheel fan blades. Helps to minimize vibration balance and maintain peak performance.

200hrs or annually

(CL) Machine

DO NOT OPERATE BLOWER UNIT WITHOUT GUARDS SECURELY ATTACHED

BUFFALO TURBINE
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Debris Blowers, Vector Sprayers, Dusters and Dust Control Systems

Declaration of Conformity
According to EC Machinery Directive 2006/42/EC, Annex II B

We, Buffalo Turbine of Springville, New York, USA herewith declare, that the following described machine/machinery part is to be incorporated into a(n) machine/assembly with other machinery to make one machine and that its setting into operation is prohibited unless the machine, which shall be incorporated into the lower mentioned, complies with the requirement of the EC Machinery Directive 2006/42/EC.

Product: Engine Debris blower

Type: BT-CKB7VCE

Serial Number:

Order Number:

Applicable EC Directives: Machinery Directive 2006/42/EC
Noise Emissions Directive 2000/14/EC +
Amendment 2005/88/EC

Applicable Harmonized Standards: BSENISO 12100:2010
ISO 3744:2010
ISO 11094:1991

With a measured sound power level of:
Lwa 125 dB

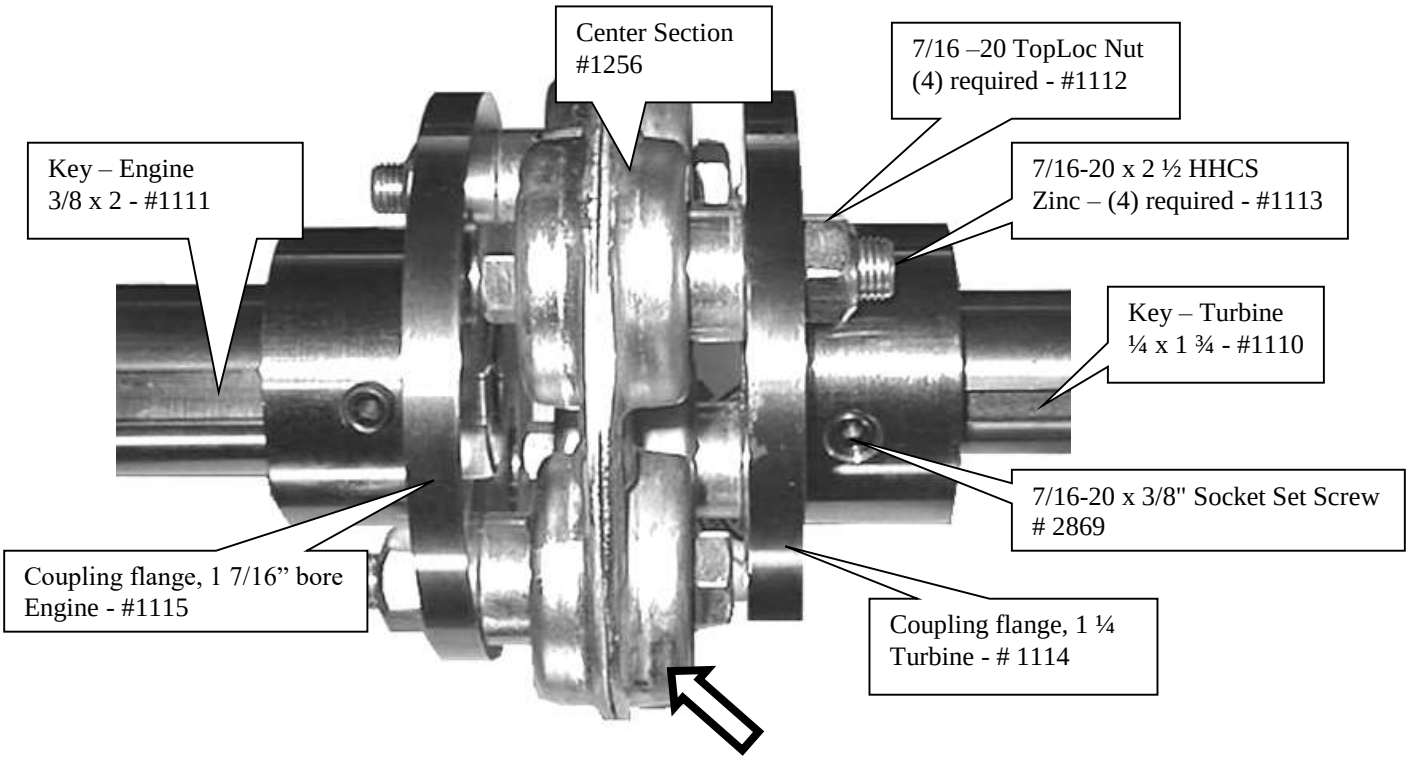
With a guaranteed sound power level of:
Lwa 128dB

INSTALLATION INSTRUCTIONS & PARTS FOR THE MOREFLEX COUPLING

PART # 1746 – COUPLING COMPLETE, KOHLER ENGINE
Includes PN 1110(1pc), 1111(1pc), 1112(4pc), 1113(4pc), 1114(1pc), 1115(1pc), 1256(1pc), 2869(4pc)

ALIGNMENT OF TURBINE SHAFT WITH SHAFT OF ENGINE IS CRITICAL

1. Install keys in both shafts.
2. Slide coupling flanges on both shafts (engine and turbine shafts)
3. Place Moreflex coupling CENTER SECTION between coupling flanges and secure with 4 bolts and TOPLOC nuts. The bolt heads are positioned against the coupling in alternating directions. Tighten all 4 bolts. DO NOT TIGHTEN SET SCREWS AT THIS TIME.
4. Check key for proper position under the set screw hole on both shafts.
5. Place several drops of Loctite 271 into these two holes only. Set screws and tapped screw holes must be free of dirt and oil for Loctite to work properly.
6. Install the set screws over the keys and tighten firmly.
7. Using a drill point, dimple each shaft through the other 2 set screw holes. Clean drill chips, oil and dirt before applying Loctite.
8. Place several drops of Loctite 271 in these 2 holes.
9. Install and tighten set screws in these 2 holes.
10. Check and retighten the 4 bolts that hold the coupling center section in place.
11. Visually inspect the unit and replace the guard. DO NOT OPERATE WITHOUT THE GUARDS IN PLACE.

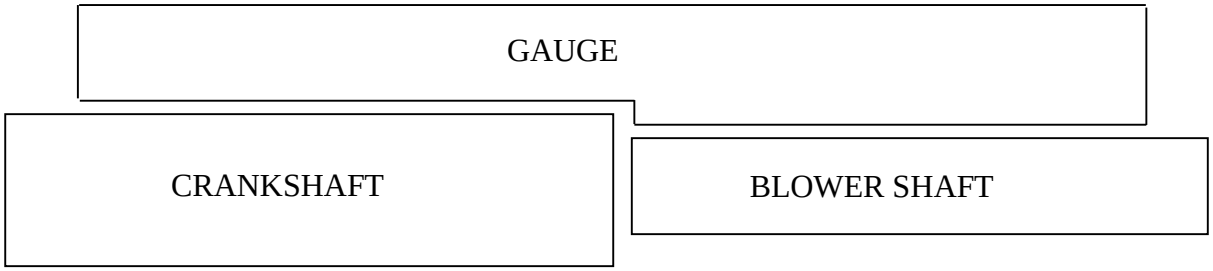


Part # 1256 (center section) is a **“WEAR”** item that should be visually checked each time the engine oil is changed. This coupling is equipped with special lock nuts. Occasionally check that all 4 nuts are securely fastened. LOOK FOR CRACKS IN THE RUBBER COMPOSITION THAT SURROUNDS THE 4 BUSHINGS. **Replace the center section when the rubber composition begins to show ANY signs of cracking OR an increase in vibration OR unusual sounds. When in doubt, call our Service Department.**

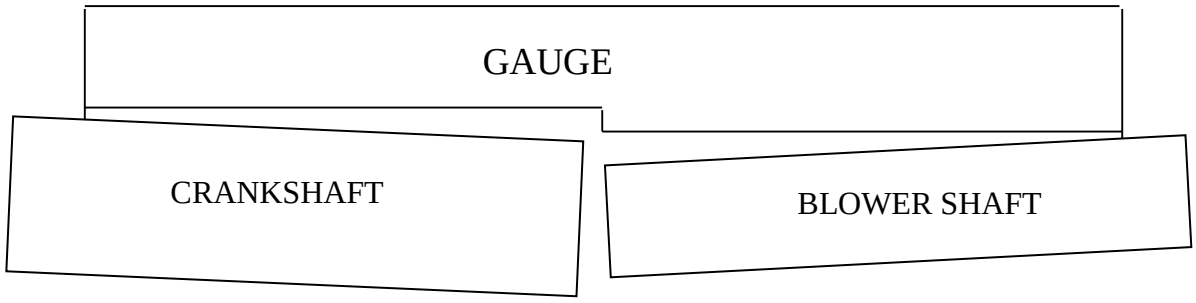
MOUNTING BLOWER ASSEMBLY ONTO FRAME AND ALIGNMENT RECOMMENDATIONS

1. Install blower assembly onto frame and tighten all of the bolts.
2. Remove all burrs and oil from the shafts and keyways (engine and blower shafts).
3. Using the supplied gauge, align the shafts parallel to each other (very important).
4. Check in four places around the shafts at 90° to each other.
5. When properly aligned, gauge should have little to no gap between itself and the shafts at any point along the gauge.
6. To adjust, move the engine. The 2 mounting brackets have tapped holes in each corner to help support and adjust the position of the engine. The 4 roll pins may need to be repositioned after alignment is completed and bolts are tightened.
7. Tighten all engine bolts and recheck alignment. Drill and install 4 roll pins in new position.

ACCEPTABLE



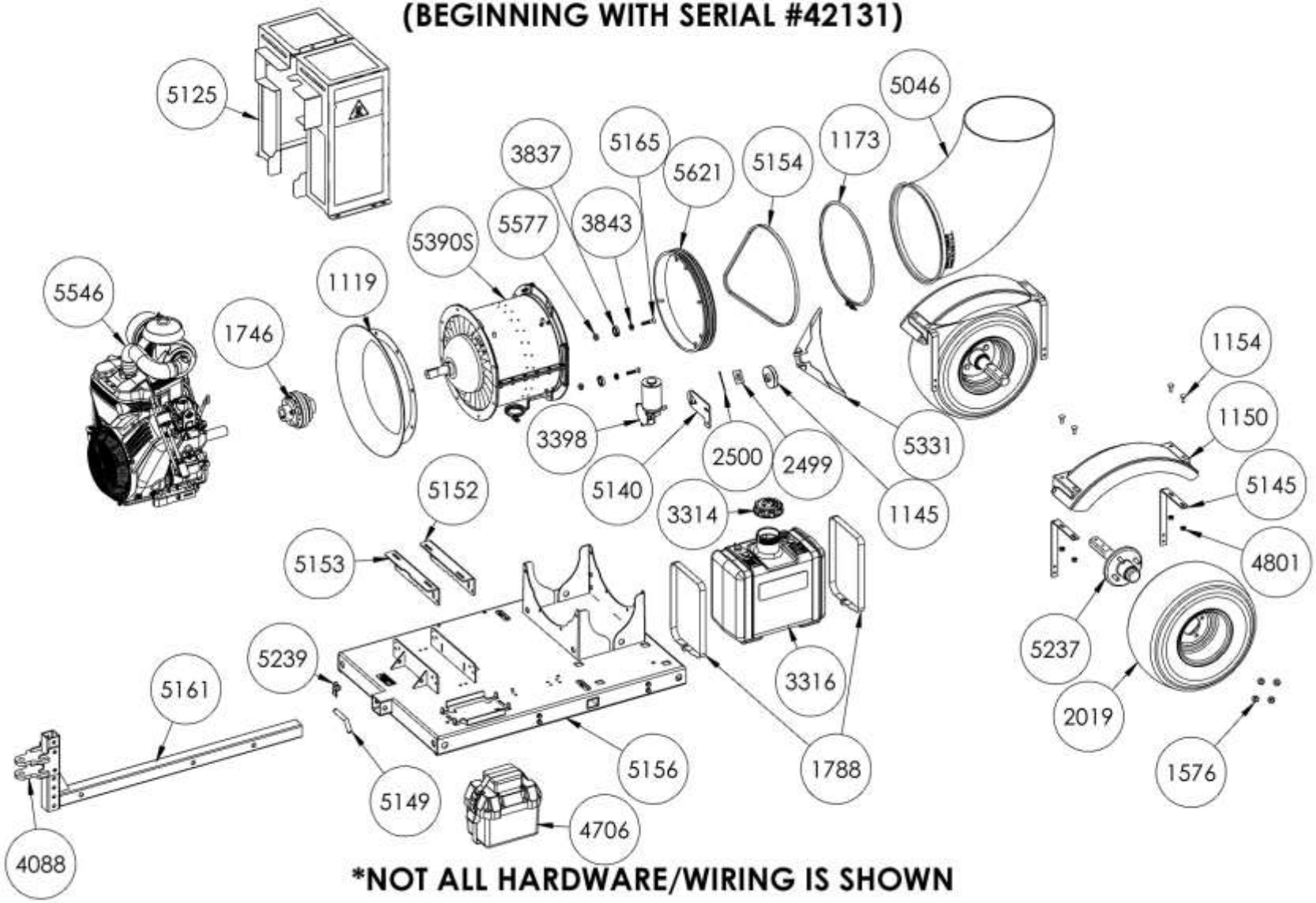
NOT ACCEPTABLE



SECURELY ATTACH GUARDS BEFORE OPERATING BLOWER UNITS

BT-CKB7VCE PARTS REFERENCE

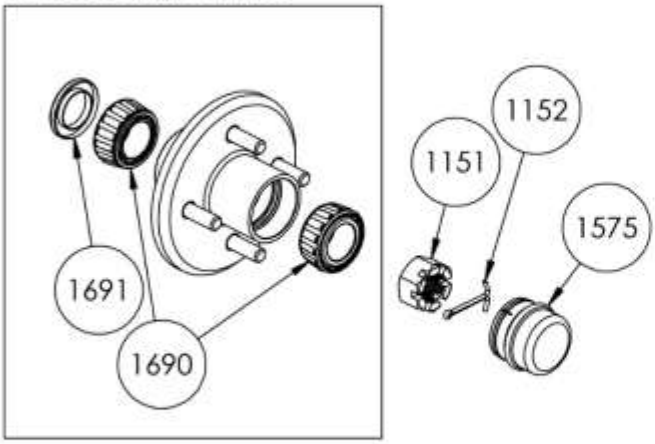
(BEGINNING WITH SERIAL #42131)



*NOT ALL HARDWARE/WIRING IS SHOWN

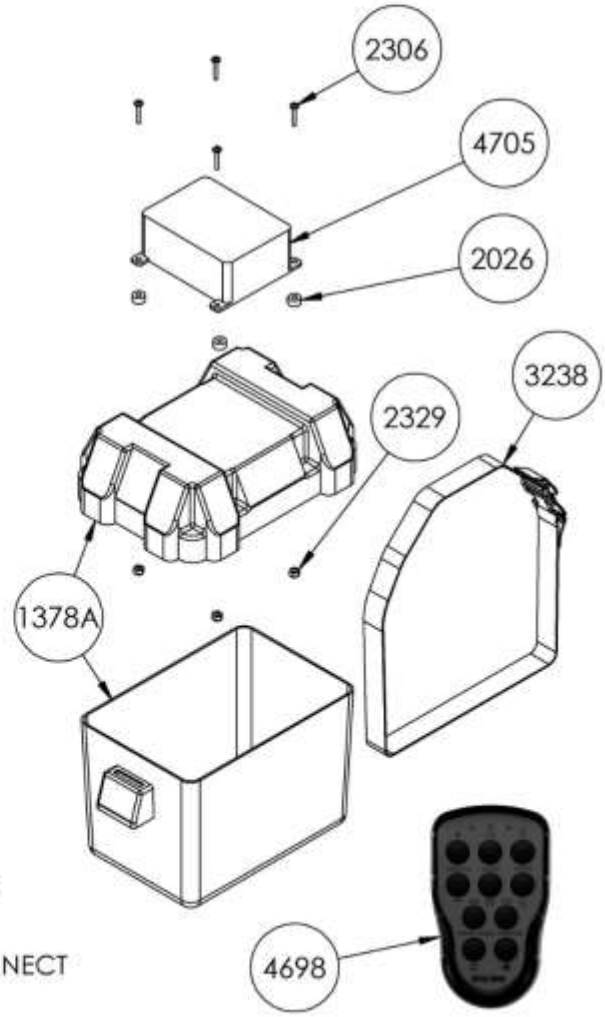
BT-CKB7VCE SUB ASSEMBLIES PARTS REFERENCE

PN 1153 (HUB W/ STUD RISERS)
REPLACEMENT PARTS



HUB ASSEMBLY PARTS REFERENCE		
Part #	Description	Qty.
1151	1"-14 CASTLE NUT	1
1152	1/8 X 1-1/2" COTTER PIN	1
1575	BEARING CAP	1
1690	1-1/16 TAPER ROLLER BEARING	2
1691	SEAL	1

4706 BATTERY BOX PARTS REFERENCE		
Part #	Description	Qty.
1378A	SMALL BATTERY BOX	1
2026	SPACER	4
2306	8-32 X 7/8" PHILLIPS PAN HEAD	4
2329	8-32 NYLOC NUT	4
3238	BATTERY BOX STRAP	1
4698	WIRELESS TRANSMITTER	1
4705	UNIVERSAL WIRELESS RECEIVER W/ SENSORS	1



NOTE:
THE FOLLOWING PARTS ARE NOT SHOWN:

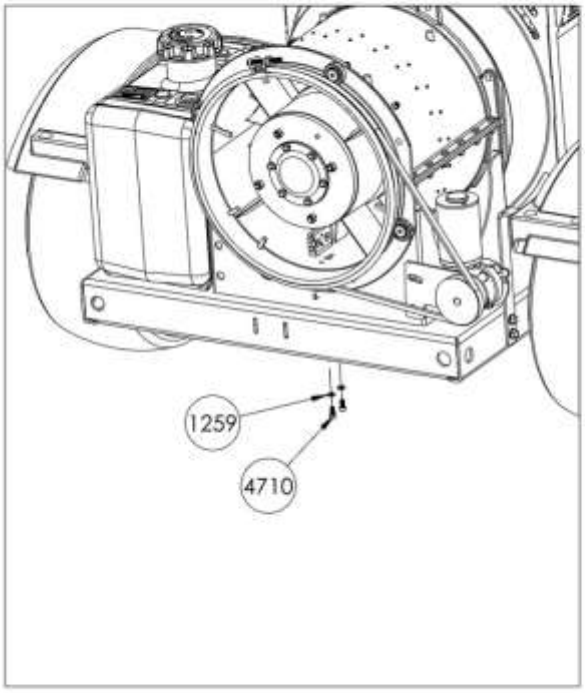
PART 4699 - WIRING HARNESS
QTY = 1

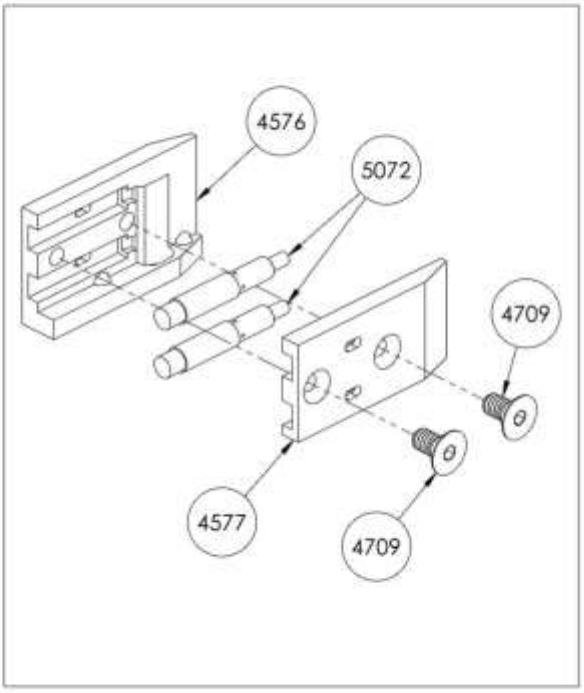
PART 5072 - PROXIMITY SENSOR ASSEMBLY
QTY = 1

PART 2076 - 16/14 FEMALE QUICK DISCONNECT
QTY = 5

BT-CKB7VCE SUBASSEMBLY PARTS REFERENCE

(BEGINNING WITH SERIAL #40522)





***NOT ALL HARDWARE/WIRING IS SHOWN**

BILL OF MATERIALS FOR BT-CKB7VCE			
REF PAGE #	PN	DESCRIPTION	QTY
15	1110	KEY, 1/4 X 1-1/2	1
15	1111	KEY, 3/8 X 1-1/2	1
15	1112	7/16-20 TOPLOC NUT GRADE 5 ZINC	4
15	1113	7/16-20 X 2-1/2 HHCS ZINC GRADE 5	4
15	1114	COUPLING FLANGE 1-1/4 BORE	1
15	1115	COUPLING FLANGE 1-7/16 BORE	1
17	1119	14-221-D1 BELLMOUTH	1
	1121	BLACK GROUND CABLE W/ LUGS 16" LONG 4 GAGE	1
	1122	RED POSITIVE CABLE W/LUGS 24" LONG 4 GAGE	1
	1123	M8 X 1.25 X ¾ HHCS ZINC	1
	1125	¼-20 NYLOC NUT ZINC	2
	1130	5/16-18 X 3/8 SET SCREW	1
17	1145	SHEAVE AK32 X ½ (ROTATION MOTOR)	1
17	1150	PLASTIC FENDER	2
17	1154	3/8-16 X 1 CARRIAGE BOLT ZINC	8
	1156	SERIAL TAG	1
	1158	¼" GAS LINE	120"
17	1173	CLAMP BAND	1
	1182	4 x 4 BT DECAL	2
	1186	CAUTION DO NOT OPERATE DECAL	1
	1233	AMERICA & SAFETY FIRST DECAL	1
15	1256	MOREFLEX CENTER SECTION	1
	1258	¼-20 X ¾ HHCS	2
	1275	BLACK CABLE TIES 8" LONG	9
	1419	5/16-18 X 2" LONG HHCS GRADE 5 ZINC	4
	1541	5/16 FLAT WASHER	4
17	1576	½-20 LUG NUT	8
15,17	1746	MOREFLEX COUPLING COMPLETE, KOHLER	1
17	1788	GAS TANK STRAP	2
17	2019	18" X 8 ½" X 8" 4PLY SAWTOOTH TIRE ON 8X7, 4-4 WHITE RIM	2
17	2499	PLASTIC BELT GUARD MOUNT	1
17	2500	1/8 X 2-1/2" LONG COTTER PIN	1
	2639	SBR RUBBER GROMMET, 5/8" BORE	2
15	2869	7/16-20 X 3/8" SOCKET SET SCREW	4
	3007	CONSTANT TENSION HOSE CLAMP	3
17	3314	EPA APPROVED FUEL CAP	1
17	3316	6 GALLON FUEL TANK, EPA/CARB	1
17	3398	ROTATION MOTOR, 12V, BI DIRECTIONAL	1
17	3837	ELBOW BASE RING BEARING	4
17	3843	BEARING BUSHING	4
17	4088	HITCH ATTACHMENT WELDMENT	1
	4117	½" CLEVIS PIN, 3" LONG	2
19	4576	SENSOR HOUSING, SIDE 1	1
19	4577	SENSOR HOUSING, SIDE 2	1
17,18	4706	CKB7 BATTERY BOX ASSY	1
19	4709	¼-20 X 1/2" LONG FHCS	2
19	4710	¼-20 X ½" LONG SHCS	2
	4725	WARNING – COMBINED EAR /EYE PROTECTION & THROWN OBJECT DECAL	1
	4792	5/16-18 X ¾" SERRATED FLANGE HEAD BOLT, GRADE 5, ZINC	4
	4795	5/16-18 SERRATED FLANGE HEX NUT GRADE 5 ZINC	4
	4797	3/8-16 x ¾" SERRATED FLANGE HEAD BOLT, GRADE 5, ZINC	2
	4798	3/8-16 X 1" LONG SERRATED FLANGE HEAD BOLT, GRADE 5, ZINC	8
	4799	3/8-16 X 1-3/4" LONG SERRATED FLANGE HEAD BOLT, GRADE 5, ZINC	4
17	4801	3/8-16 SERRATED FLANGE HEX NUT, GRADE 5 , ZINC	28
	4808	¼-20 X ¾" LONG SERRATED FLANGE HEAD BOLT, GRADE 5, ZINC	4
	4810	¼-20 SERRATED FLANGE HEX NUT, GRADE 5, ZINC	4
	5002	JUMPER HARNESS FOR 33HP VANGUARD ENGINE	1
	5024	OIL DRAIN VALVE	1
	5029	OIL DRAIN HOSE	1
17	5046	PLASTIC NOZZLE	1
	5048	MODIFIED VANGUARD 40 HP POWER HARNESS FROM ENGINE TO RECEIVER	1
17	5125	MEGA3 GUARD	1
17	5140	ROTATION MOTOR BRACKET	1
17	5145	FENDER BRACKET – BOLT ON	4
17	5149	5/8 X 3" BENT HITCH PIN	1
	5150	3/8-18 NPT OIL DRAIN ADAPTER	1
	5151	CYCLONE DECAL FOR SHORTER TURBINE	2
17	5152	ENGINE MOUNT REAR-33HP	1
17	5153	ENGINE MOUNT FRONT-33HP	1
17	5154	AX56 V-BELT	1
17	5156	KB FRAME	1
17	5161	ADJUSTABLE TONGUE WELDMENT FOR KB7 SERIES	1
	5164	3/8-16 X 1-1/4" LONG SERRATED FLANGE HEAD BOLT, GRADE 5, ZINC	6
17	5165	3/8-16 X 1-3/4" LONG SERRATED FLANGE HEAD BOLT, GRADE 5, ZINC	4
	5193	¼-28 X 3/4" LONG SERRATED FLANGE HEAD BOLT, GRADE 5, ZINC	3
17	5237	STUB AXLE/ HUB ASSEMBLY, KB7 SERIES	2
17	5239	LOCKING COTTER PIN	1
17	5331	MOTOR BELT ROTATION GUARD	1
17	5390S	SHORT NIPPED RH BLOWER ASSEMBLY	1
17	5546	33HP ETC/EFI ENGINE COMPLETE	1
17	5577	BEARING SPACER (BACK SIDE OF TURBINE HOUSING)	4
17	5621	THICK-FLANGE BASE RING KIT (INCLUDES BASE RING, BEARINGS, BUSHINGS AND HARDWARE)	1

5.0 TROUBLE SHOOTING

The Buffalo Turbine Debris Blower uses a high volume and velocity of air to move material from one place to another. The system is simple and reliable requiring minimal maintenance.

If you encounter a problem that is difficult to solve, even after reading through this trouble shooting section, please call your local dealer or distributor**. Before calling, please have this Operator's Manual and the serial number from your Blower ready.**

In the following section, we have listed causes and solutions to the problems that you may have encountered.
TURN OFF ENGINE, REMOVE KEY, AND DISCONNECT BATTERY BEFORE SERVICING BLOWER UNITS.
INSTALL GUARDS BEFORE OPERATING.

PROBLEM	CAUSE	SOLUTION
No air flow	Buildup of debris inside turbine Broken coupling (KB Series)	Remove nozzle and clean debris from inside turbine Replace coupling
No air flow	Blower fan not turning	See solutions above
Reduced or no air flow	Blower fan turns	Air intake or exhaust restricted Shut off engine Blower or tractor – remove restrictions Debris cannot be allowed to build up between the blower fan and stationary vanes
Machine vibrates or Unusual sounds	Bearing or coupling failure Out-of-balance	Replace bearings or coupling check blower for damaged blades Wash and clean blower fan blades
No throttle control		See diagnostic tests on pages 26-27
No nozzle control		See diagnostic tests on pages 28-29
Auto Nozzle Positioning System not working properly		Go through Calibration on page 10 If above does not resolve then proceed to diagnostic tests on page 30
Engine will not Start with Remote		See diagnostic test on page 25

BUFFALO TURBINE WIRELESS REMOTE SYSTEM MANUAL FOR BT-CKB7VCE

Specifications:

Receiver

(BT PN 4705) WIRELESS RECEIVER for BT-CKB7VCE

Transmitter

(BT PN 4698) WIRELESS TRANSMITTER 10 BUTTON

Environmental

Supply Voltage: 12VDC
Signal Analog Voltage Ramp (V/Sec): 10/6
Signal Analog Ramp Range (V): 0-5 increase & 5 - 0 decrease
Functional Relays: functional relays makes/ breaks 8A ACI
Transmit Frequency: 2405-2480 MHz.
Number of Freq. Channels: 16
IP Class: IP65
Battery Type: 2 x 1.5 V - AAA alkaline
Operating Time: Approx. 15 h. with continuous usage

Operation

Operation of the controlled device is performed with the Nozzle and Throttle buttons on the transmitter. The Nozzle buttons are used to rotate the Nozzle clock (↻) wise or counter clock wise (↺). The Throttle buttons (+) increase and (-) decrease the engines throttle.

- Analog Signal Ramp Range (DCV): 0 to 5 increase (+) / 5 to 0 decrease (-)
- Releasing the + or - buttons at any time during an increase/decrease command will result in the control voltage to remain at a proportional value between 0 and 10 volts.
- At any time the operator can press both + and - buttons simultaneously to return the variable output to 0 volts resulting in the engine's throttle be set back to low idle.

Pairing Transmitter (TX) to Receiver (RX)

This procedure should be used to pair a single transmitter to the receiver. Multiple transmitters cannot be paired at the same time to this Receiver (contact Buffalo Turbine at 716-592-2700 for assistance).

The following steps will completely erase any previously stored transmitter out of the receiver's memory making them obsolete. You have 10 seconds to complete these procedures after turning the engine key switch to the run position.

1. Verify that the transmitter has a green light when each individual button is pressed.
2. Engine key switch should be in the "OFF" position.
3. Switch on the back of the Transmitter needs to be in "ON" Position.
4. Firmly press and hold transmitter buttons Throttle +, Throttle -, and Nozzle 1 CCW (↺) simultaneously.
5. While holding down the three buttons, turn the engine key switch ON, supplying power to receiver.
6. Keep holding down these three buttons for 6-10 seconds in which time the nozzle should start to move.
7. Pairing has been successfully completed.

If a valid code from an already registered TX is received, the receiver will go directly into normal operating mode. This is to speed up the startup time.

NOTE: Breaking any warranty seal will void the equipment's warranty, consult with Buffalo Turbine at 716-592-2700 before proceeding.

BATTERIES

BATTERY TYPE: 2 x 1.5 V
AAA alkaline
OPERATING TIME: Approx. 15 h. with continuous usage
WARNING! Do not recharge! Attempts to recharge may cause rupture, or the leaking of hazardous liquids which will corrode the equipment.

CHANGE THE BATTERIES

1. Loosen 5 transmitter housing screws and open housing
2. Remove the batteries.
3. Put the new batteries in (2 x 1.5V AAA batteries).
4. Assemble transmitter housing and tighten 5 housing screws.

BATTERY PRECAUTIONS

Observe the following warnings.

- As batteries contain flammable substances such as lithium or other organic solvents, they may cause heating, rupture or ignition.
- Risk of explosion if battery is replaced with a battery of an incorrect type.
- Do not short circuit, disassemble, deform or heat batteries.
- Never try to charge a visibly damaged or frozen battery.
- Do not charge rechargeable batteries with a higher voltage than specified.
- Keep batteries out of reach of small children. Should a child swallow a battery, consult a physician immediately.
- Avoid direct soldering to batteries.
- When discarding batteries, insulate the + and - terminals of batteries with insulating/ masking tape. Do not put multiple batteries in the same plastic bag.
- When improperly disposed, lithium batteries may short circuit, causing them to become hot, burst or ignite.
- Store in a cool location. Keep batteries away from direct sunlight, high temperature, and high humidity.
- Do not throw batteries into fire.

DISPOSAL OF BATTERIES AND ELECTRONICS

An alkaline battery does not contain mercury, cadmium or lead, and is better for the environment than older types of batteries. Alkaline batteries should be disposed through local recycling stations/waste dumps. Contact your local government's recycling or solid waste department for more information on proper recycling of alkaline batteries in your region.
Improperly disposed batteries and electronics may harm public health and the environment. Batteries and electronic waste may contain toxic heavy metals. If thrown away in the trash, the toxic compounds can leach into soil and water, pollute lakes and streams, making them unfit for drinking, swimming, fishing, and wildlife. Contact your local government's recycling or solid waste department for more information on proper disposal of batteries and electronics in your region.

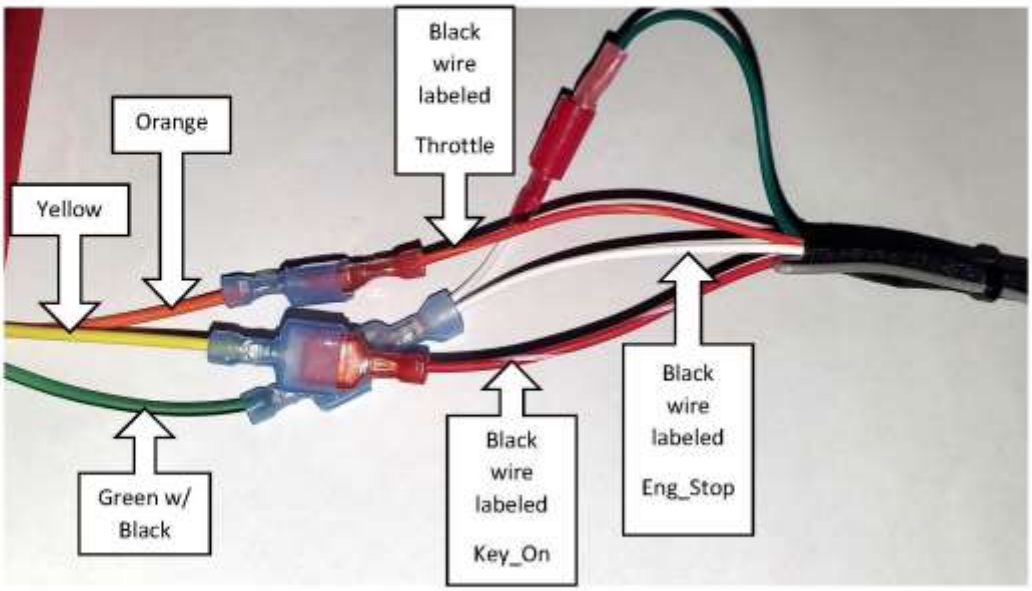
GUARANTEE, SERVICE, REPAIRS AND MAINTENANCE FOR WIRELESS SYSTEM

Buffalo Turbine products are covered by a guarantee against material, construction and manufacturing faults. During the guarantee period, Buffalo Turbine may replace the product or faulty parts. Work under guarantee must be authorized by Buffalo Turbine.

The following is not covered by the guarantee: Faults resulting from normal wear and tear, parts of a consumable nature, any Product that has been subject to unauthorized modifications, a faults resulting from incorrect installation or use, and any failure due to damp and/or water damage.

Repairs and maintenance must be authorized by Buffalo Turbine. Use spare parts from Buffalo Turbine only. Contact Buffalo Turbine at 716-592-2700 if you require service or other assistance. Keep the product in a dry, clean place. Keep contacts and antennas clean. Wipe off dust using a slightly damp, clean cloth. Never use cleaning solutions or high-pressure water.

Wire Identification on BT-CKB7VCE



Yellow - Power to Receiver

Orange - Throttle Output from Receiver

Black wire labeled Throttle - Throttle Input to Engine

Green w/ Black - Engine Kill

Black wire labeled Key_On - Power from Key Switch

Black wire labeled Eng_Stop - Ground Kill Coil

Blue - Engine Start (from Starter)

Blue w/ White - Engine Start (Receiver to Relay)

Starting the Engine Manually with the Key Switch

In addition to remote start/stop via the wireless transmitter, the debris blower can also be started manually using the key switch located on the front of the engine.

To enable manual starting, locate the fuse box on the left side of the engine. It is a black plastic box with wires coming out the bottom. Depress the tabs on both sides of the fuse box cover, and remove the cover from the fuse box.

Inside the fuse box, a blue wire with a spade connector on the end comes out of a terminal at the back of the fuse box, and the spade connector is installed in the first terminal, as shown in Image 1 below. Remove the spade connector from the first terminal and insert it into the second terminal, as shown in Image 2. The engine can now be started manually using the key switch.

To re-enable remote start/stop functionality, remove the spade connector from the second terminal and reinstall into the first terminal, as shown in Image 1.

Reinstall the fuse box cover before operating the debris blower.

Image 1 - Remote Start

Image 2 - Manual Start

TROUBLESHOOTING FOR CYCLONE CKB7VCE REMOTE / RECEIVER

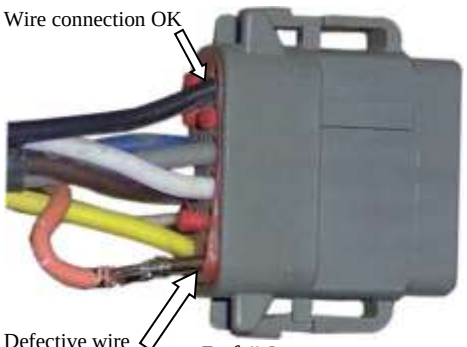
SYMPTOM – DOES NOT THROTTLE UP PROPERLY

1. Disconnect grey plug connected to the receiver. Grey plug must be removed by compressing the side tabs and pulling straight out as shown in Ref #1. Check to ensure that each wire is securely attached to the grey connector plug (see Ref #2). Ref # 2 shows a defective grey plug.

- If wires will not pull out of the grey connector plug, reattach connector plug to the receiver and proceed to step 2.

- If wire(s) pull out of connector plug, wire harness needs to be replaced.(see ref # 2)

Ref # 1



Ref # 2

2. Check Remote Transmitter by pressing each button to ensure that the light on Transmitter has a green light.

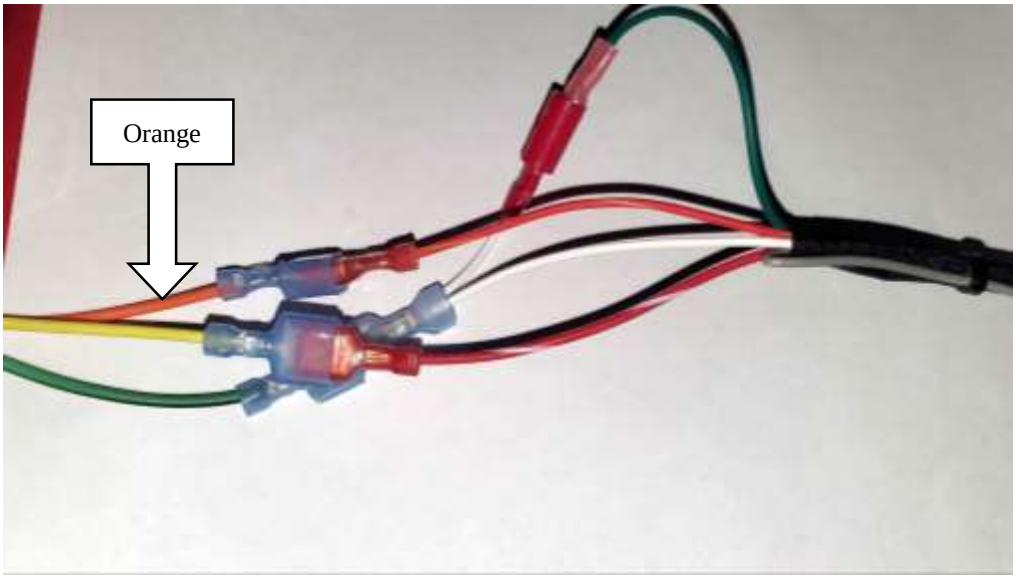
- If the LED lights do not appear when pressing each button on the transmitter, verify switch on back of transmitter is turned on and/or replace transmitter batteries. If the LED lights still fail to function after replacing the batteries, replace the transmitter.

- If the lights functions correctly, proceed to step #3

3. THROTTLE CONTROL JUMP TEST FOR ENGINE

To conduct the throttle jump test:

A. Disconnect the orange wire from the red wire with the yellow stripe
B. Locate the unused gray wire that is folded back and wire-tied to the harness loom, and remove the boot covering the terminal on the end of the gray wire
C. Start the engine (engine should idle at approximately 1500 RPM)
D. Connect 4.5VDC power source to wire labeled throttle on engine (engine should accelerate to approximately 4400 RPM)



- If the engine does not go to full throttle, contact a Vanguard repair authorized Buffalo Turbine Representative.
- If the engine goes to full throttle, contact Buffalo Turbine at 716-592-2700.

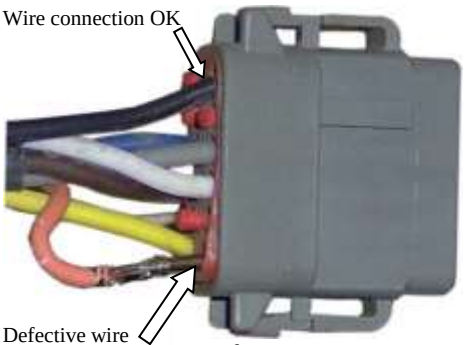
TROUBLESHOOTING FOR CYCLONE CKB7VCE REMOTE / RECEIVER
SYMPTOM: NOZZLE WILL NOT ROTATE PROPERLY

1. Disconnect grey plug connected to the receiver. Grey plug must be removed by compressing the side tabs and pulling straight out as shown in Ref #1. Check to ensure that each wire is securely attached to the grey connector plug (see Ref #2). Ref # 2 shows a defective grey plug.

- If wires will not pull out of the grey connector plug, reattach connector plug to the receiver and proceed to step 2.

- If wire(s) pull out of connector plug, wire harness needs to be replaced.(see ref # 2)

Ref # 1



Ref # 2

2. Check Remote Transmitter by pressing each button to ensure that the light on Transmitter has a green light.

- If the LED lights do not appear when pressing each button on the transmitter, verify switch on back of transmitter is turned on and/or replace transmitter batteries. If a LED lights still fail to function after replacing the batteries, replace the transmitter.

- If the lights functions correctly, proceed to step #3

3. Check the set screw on the rotation motor pulley to make sure pulley is not loose and spinning on the shaft.

- If set screw is loose, rotate nozzle assembly until pulley and flat spot on shaft are aligned. Tighten set screw and test nozzle functions with remote.

- If set screw is tight, proceed to step #4

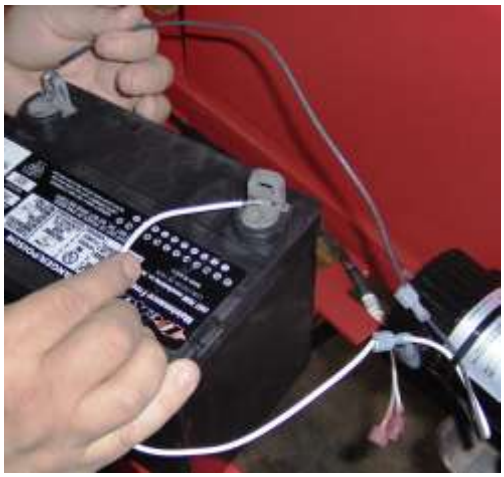
4. With the engine key switch in the run position, disconnect the nozzle wires leading from the rotation motor and wire harness (white and grey) at the quick disconnects. The following test will require an electronic multi-meter, set to read at least 12 volts.

- Insert the red probe into the white wire and black probe into the grey wire. Press the nozzle buttons CW or CCW. (Voltage should read approx. +12 volts in one direction and approx. – 12 volts in the opposite direction.) If the proper voltage is confirmed and all wire connections are secure, proceed to step # 5

- If proper voltage has not been verified contact Buffalo Turbine for further instructions.

5. Apply power to the rotation motor directly. Both wires from rotation motor need to be connected to the battery. (Ex. white to positive terminal & black to negative terminal) Then reverse the wire connections to the battery. (Ex. black to positive terminal & white to negative terminal)

(Ref # 1)



(Ref # 2)

- If rotation motor rotates in both directions, the motor is ok.
- If rotation motor will not rotate in either direction with power applied contact Buffalo Turbine.
- If rotation motor rotates in one direction but the other, contact Buffalo Turbine.

If necessary, contact Buffalo Turbine at 716-592-2700 for more instructions

TROUBLESHOOTING FOR CYCLONE CKB7VCE ONE TOUCH AUTO NOZZLE POSITIONING SYSTEM

SYMPTOM: NO RESPONSE OR AUTO ROTATING FUNCTIONS

1. If the four Auto Nozzle Positioning system buttons on the transmitter have no response, use the clockwise or counterclockwise nozzle rotation button to rotate the nozzle more than 180 degrees.

- If the nozzle rotates when the clockwise or counter-clockwise buttons on the transmitter are pressed, proceed to step 2.
- If the nozzle does not respond when the clockwise or counterclockwise buttons on the transmitter are pressed, see PG. 27-28.

2. Press and hold the Home button for two seconds. The nozzle should automatically go through its Homing sequence which takes about ten seconds, then come to a rest in the Home position, with the nozzle outlet pointing upwards.

- If the nozzle does not initiate its Homing sequence, stop the engine, put the key switch in the 'Run' position, and proceed to Step 3.
- If the nozzle goes through its Homing sequence, and stops in the Home position, function of the Nozzle Control System buttons on the transmitter should be restored.
- If the nozzle goes through its Homing sequence but stops at a position where the outlet of the nozzle is not pointing straight up, stop the engine and make sure that the seam of the nozzle is indexed to the notch in base ring as shown on PG 10. Once the nozzle is properly installed on the base ring, repeat step 2. If the nozzle again does not stop in the Home position, proceed to Step 3.

3. With the engine stopped and the key switch in the 'Run' position, use either the clockwise or counterclockwise nozzle rotation button on the transmitter to rotate the nozzle so the outlet is pointing straight up. With the nozzle pointing up, look down inside of the nozzle and confirm that a small, orange, LED indicator is illuminated on each of the two sensors inside the sensor housing at the bottom of the turbine, as shown in the image below.

- If both orange LED indicators inside the sensor housing do not illuminate, proceed to step 4.
- If both orange LED indicators inside the sensor housing are illuminated, proceed to Step 5.

4. With the nozzle outlet pointing up, one of the sensor targets welded to the inside of the base ring should be centered in front of the sensor housing at the bottom of the inside of the turbine. If a sensor target is not centered in front of the sensor housing, use the nozzle rotation buttons to adjust the nozzle position until the target is centered in front of the housing. Once the target is centered in front of the sensor housing, check to see if the orange LED lights are illuminated.

- If both orange LED indicators inside the sensor housing still do not illuminate, call Buffalo Turbine.
- If both orange LED indicators inside the sensor housing illuminate, proceed to Step 5.

5. With both LED indicators illuminated, press the Home button on the transmitter. The nozzle should automatically go through its Homing sequence which takes about ten seconds, then come to a rest in the Home position, with the nozzle outlet pointing upwards.

- If the nozzle comes to a stop in the Home position, function should be restored.
- If the nozzle comes to a stop in any position other than Home, contact Buffalo Turbine.
- If the nozzle does not come to a stop, press and release one of the nozzle rotation buttons to interrupt it, and contact Buffalo Turbine.

If necessary, contact Buffalo Turbine at 716-592-2700 for more instructions

BUFFALO TURBINE

TALK WITH OUR EXPERTS
8AM-4:30PM (Mon-Fri) EST
(716) 592-2700
www.BuffaloTurbine.com

OPTIONS

180 Zoar Valley Road
Springville, NY 14141

NOZZLES +

Aerospace Polymer Nozzle - Part# 2851

*Call sales and service to request custom nozzle configuration.

Flexible Nozzle Assembly - Part# 3345
Various lengths available. Ideal for rough terrain.

Gyratory Atomizing Nozzle - Part# 2547
(Safety guard removed for clarity)

ALUMINUM NOZZLES

Optional aluminum nozzles ***will not*** connect to the standard Aerospace Polymer Nozzle (Part# 2851). Requires: **Two 45° elbow segments (Part# 1171)** and two additional clamp bands (Part# 1173).

12" Extension - Part# 1468
20" Extension - Part# 1845

10" Round Nozzle - Part# 1417
12" Round Nozzle - Part# 1172
Improves air velocity with lower horsepower and hydraulic blower units

10" Rectangular Nozzle - Part# 1469
19" Rectangular Nozzle - Part# 1425
5.5"x15" opening - extra length/more concentrated air flow. Uses - heavy wet debris, plugs, top dressing. **No ground clearance** in the vertical down position.

Fishtail Nozzle - Part# 1743
5"x30" (wide angle) opening. Distributes a large volume of air at a lower velocity over a wide area. Easily converts blower into a "Greens Fan". Adaptable to all models. Not as effective at moving debris.

D.O.T. TRAILER

Part# 1613-D for 8000, KB4, EFI & Mega

2" BALL RECEIVER HITCH

Part# 4605

FORK POCKETS

Part# 4552
Great for moving blowers around jobsites and bed mount / skid mount applications.

LINE DRIVER ATTACHMENT

Part# 2419

CORDED CONTROL

Part# 5579 for KB7, MEGA 3 Model
Part# 2787 for Diesel Model
Part #5580 for Squared Model

CLAMP BAND W/ BOLT & NUT

Part# 1173

QUICK CONNECT CLAMP BAND

Part# 4935
Quickly remove or add nozzle with the barrel style clamp band.

WARNING:
Cancer & Reproductive Harm -
www.P65Warnings.ca.gov

BUFFALO TURBINE PRODUCTS

Cyclone eKB

Cyclone 8000 (& 8000 EFI)

10 YEAR BUFFALO TURBINE WARRANTY

Cyclone KB7

Cyclone MEGA

The Original & **Most Powerful** Turbine Debris Blowers since 1945

BLITZ (& BLITZ MEGA)

Best On Earth

Cyclone SQUARED

Cyclone Hydraulic (& Hydraulic MEGA)

Cyclone PTO (& PTO MEGA)

Visit BuffaloTurbine.com for more product info