

CONVEYAIR



All Models

Operator's Manual

CONVEYAIR

GRAIN VACS

OPERATOR'S MANUAL



IMPORTANT

References

ECONOMY - Models 1955, 2955 and 3955

DELUXE - Models 3005, 3505 and 4005

Unless otherwise specified in the following text.

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1. INTRODUCTION

1.1. General

Congratulations on your purchase of a new CONVEYAIR grain vac. You have made a wise choice. Using this manual as your guide, you will be able to move a wide variety of grains. If you follow the operating and safety instructions your machine will give you many years of reliable service. This manual contains instructions on safety, set-up, operations, adjustments and maintenance. Familiarize yourself with this information. Use the Table of Contents to guide you. Call your local dealer if you need any assistance or further information.

IMPORTANT: To obtain the fastest parts service, always remember to:

1. Order the part by the correct part number.
2. State the machine model and year.
3. Include the serial number of the machine and blower.

1.2. Serial number location

For your convenience and speedy service please record the model and serial number of your machine (see figure 1) and the serial and part number of your blower. (see figure 2).

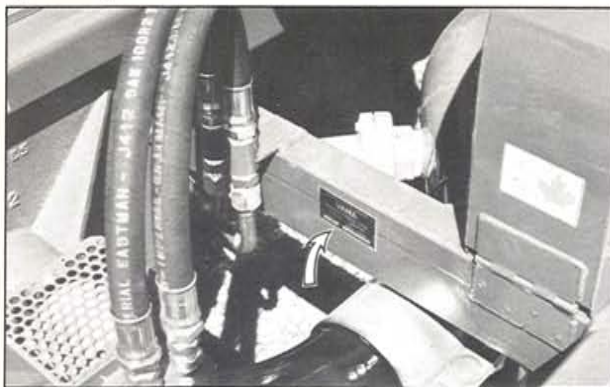


Figure 1 Serial number machine

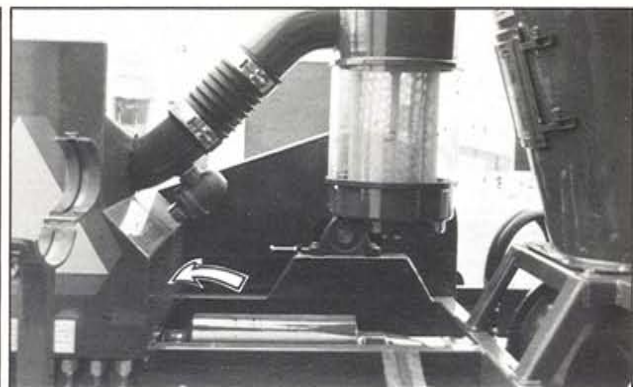


Figure 2 Serial-number blower

Machine Model Serial No Date purchased19 ..
Dealer Blower Serial No.

2. SAFETY

2.1. Safety Alert Symbol

The Safety Alert Symbol means ATTENTION! BE ALERT! YOUR SAFETY IS INVOLVED!

The Safety Alert Symbol identifies important safety messages on the CONVEYAIR grain vac, safety signs in manuals or elsewhere. When you see this symbol, be alert to the possibility of personal injury or death. Follow the instructions given in this manual!



Figure 3 Safety alert

Why is safety important to you?

- 1. Accidents disable and kill
- 2. Accidents are costly
- 3. Accidents can be avoided

2.2. Signal words

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

- **DANGER** - An immediate and specific hazard which will result in severe personal injury or death if proper precautions are not taken.
- **WARNING** - A specific hazard or unsafe practice which could result in severe personal injury or death if proper precautions are not taken.
- **CAUTION** - An unsafe practice which could result in personal injury if proper precautions are not taken, or a reminder of good safety practices.

2.3. Safety

It is your responsibility to read and understand all the safety instructions in this manual before operating this machine. The manual will take you step by step through your working day and alert you to good safety practices while operating the machine. Remember YOU are the key to safety. Good safety practices protect not only 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.

Everyone must be given operating instructions before starting to operate the CONVEYAIR and at least annually thereafter per OSHA regulation 1928.57.

1. Do not modify the CONVEYAIR grain vac. Unauthorized modification may impair the function and/or safety and effect machine life.
2. The most important safety device on this machine 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 them. Accidents can be avoided.

2.4. General safety

1. Read and understand the operator's manual and all safety signs before operating the CONVEYAIR grain vac.
2. Install and properly secure all shields and guards before operating.
3. Have a first-aid kit and fire extinguisher available for use should the need arise and know how to use them.
4. Clear the area of people and remove foreign objects from the machine before starting and operating.
5. Be sure all controls are in neutral before starting the tractor.
6. Always know where all overhead electrical wires are located and stay away from them.
7. Review safety related items with all operators annually.
8. Wear suitable ear protection for prolonged exposure to excessive noise.

2.5. Operating safety

1. Never operate the CONVEYAIR and power unit inside a closed building.
2. Be sure drawbar pin is secured, PTO shaft is attached and locked, and power unit is properly aligned before starting or operating.
3. Stay clear of PTO shaft, intake nozzle and discharge when engaging tractor PTO.
4. Install and secure all shields and guards before operating.
5. Stay away from overhead electrical wires when operating boom or when moving.
6. Do not open receiver section inspection door while tractor is running.
7. Never remove elbow from airlock outlet when power unit is running.
8. Stay clear of truck loading boom when folding truck loading kit.
9. Never wear loose fitting clothing. Keep hands, feet, clothing and hair away from moving parts.

2.6. Maintenance safety

1. Stop power and shut off engine in power unit before servicing, making adjustments, lubricating or unplugging.
2. Shut off power and make sure all machine rotation has stopped before removing blower inlet or outlet connections.

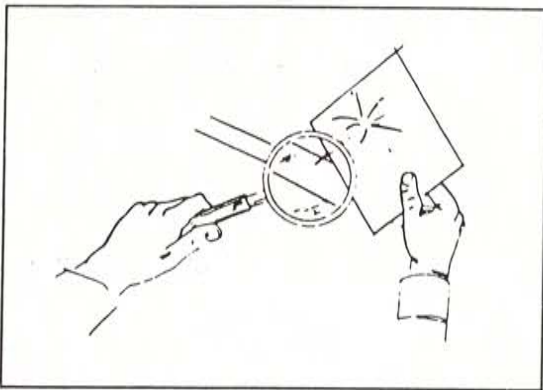


Figure 4

3. Always reinstall shields and properly secure them after servicing, lubricating or adjusting.
4. Relieve hydraulic pressure and disconnect hoses before working on hydraulic system.
5. High pressure fluids can penetrate the skin and cause infection and toxic reaction. Only use a piece of

wood or cardboard to search for leaks. (see figure 4) If these fluids penetrate the skin, they must be surgically removed to prevent gangrene.

2.7. Transport safety

1. Always securely pin the CONVEYAIR to the drawbar and attach the safety chain before transporting.
2. Make sure the Slow Moving Vehicle (SMV) sign is clean and visible.
3. Never transport the machine on a public road during times of limited visibility without taking special precautions.
4. Never tow at speeds exceeding 30 kilometers (20 miles) per hour.

2.8. Safety signs

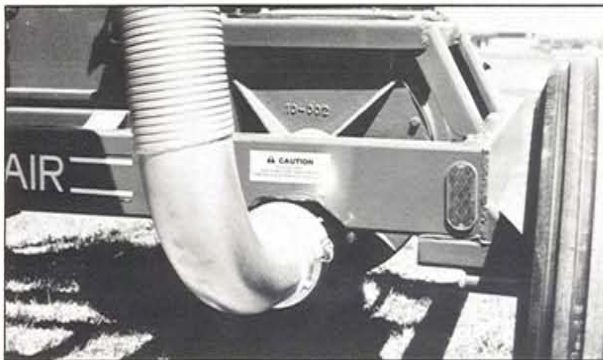
1. Keep safety decals clean and legible at all times.
2. Replace safety decals that are missing or become illegible.
3. If original parts on which a safety decal was installed are replaced, be sure the repair part also has the current safety decal installed.
4. Safety decals are available from your Dealer Parts Department.
5. To install safety decals:
 - Be sure the installation area is clean and dry.
 - Decide on the exact position before you remove the backing paper.
 - Remove the smaller portion of the split backing paper.
 - Place the decal in position and slowly peel back the remaining paper, smoothing the decal as it is applied.
 - Small air pockets can be smoothed out or pricked with a pin.

2.9. Training sign-off form

Vana Industries follows the recommendations of ASAE and OSHA to train all personnel using this equipment on an annual schedule. This is also includes periodic reviews as a standard practice in your operation. For your convenience, a sign-up sheet is provided below. Copy this page to continue the record.

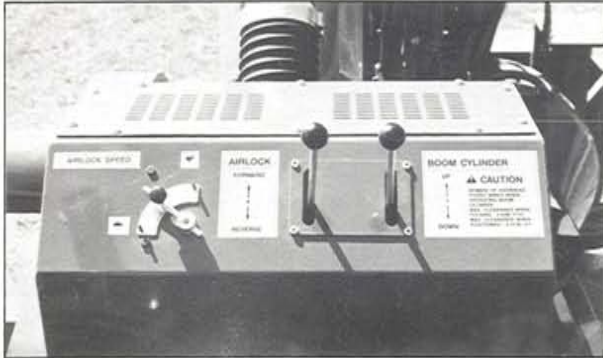
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2.10. Safety decals



CAUTION

ROTATING BELT DRIVE
DO NOT OPEN COVER DURING OPERATION



BOOM CYLINDER

UP
↑
↓
DOWN

CAUTION

BEWARE OF OVERHEAD
HYDRO WIRES WHEN
OPERATING BOOM
CYLINDER.
MAX. CLEARANCE WHEN
FOLDING : 5.44M 17'10"
MAX. CLEARANCE WHEN
POSITIONED : 4.14 M 13'7".



CAUTION

DO NOT OPEN DOOR WHEN
AIRLOCK IS TURNING

2.11. Safety when operating

1. Read and understand the Operator's Manual and all safety signs before operating.
2. Install and properly secure all shields and guards before operating.
3. Clear the area of people especially small children before starting and operating.
4. Make sure all controls are in neutral before starting.
5. Put the PTO and the hydraulics in neutral and turn off the engine before servicing, adjusting, lubricating or unplugging the machine.
6. Always be aware of the location of overhead wires and other obstacles before moving or putting the machine into operating position. Electrocution can occur without direct contact.
7. Never operate machine and power unit in a closed building.
8. Wear suitable ear protection for prolonged exposure to excessive noise.

To the first time operator or owner: Be sure to familiarize yourself with the CONVEYAIR by reading this operator's manual and the safety alerts before attempting to operate it. With proper use and careful maintenance, this unit will give many years of trouble-free use.

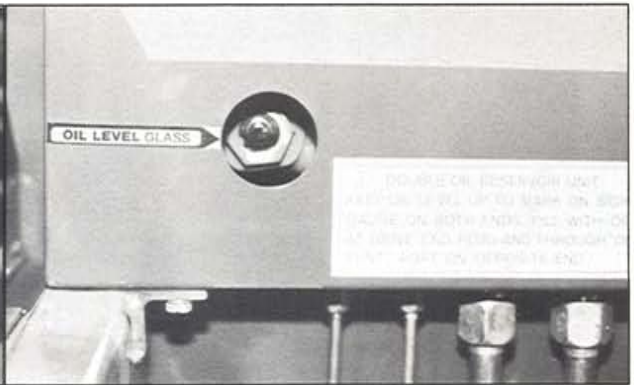


Figure 6 Sight glass blower- deluxe

3.2. Start up preparation

Before starting a job or when moving to a new location the following procedures must be followed to insure safe, reliable and efficient operation.

1. Lubricate the machine on schedule as outlined in the "Maintenance" section. Check the oil level in the reservoir on the air pump. (see figure 5 and figure 6)
2. Use only a tractor with adequate horsepower and hydraulic capacity to properly operate the CONVEYAIR grain vac.

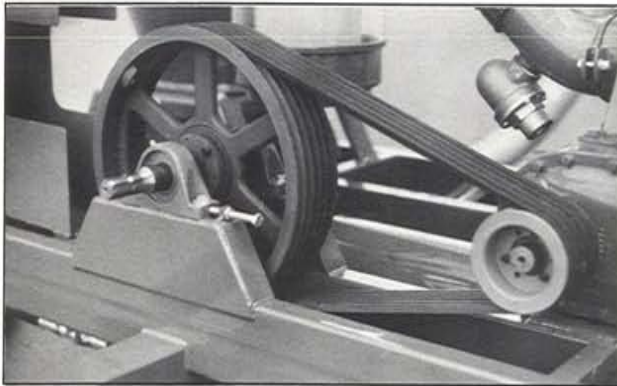


Figure 7 Belt drive

3. Attach the CONVEYAIR unit to your tractor using a proper bar pin, 25 mm Dia x 150 mm (1" Dia x 6"), complete with mechanical lock or click pin.
4. Open the belt cover and rotate the large pulley by hand to insure that the air pump turns freely. (see figure 7)

5. Attach the PTO drive line to the tractor and CONVEYAIR PTO shafts making sure that the retaining pin clicks into its groove.
6. Securely attach the PTO shaft shield retaining chain to the frame.
7. Close the belt shield and secure using the over center latch provided.
8. Attach the hydraulic hoses of the machine to the tractor hydraulics using the proper couplers. All CONVEYAIRS come standard supplied with ISO tips.
9. Retract the hitch jack and stow in transport position.

The machine is now ready to be moved to the working site where it will be prepared for operation. Remember, the unit is equipped with farm implement tires and should not be towed at speeds exceeding 30 kilometers (20 miles) per hour.

3.3. Pre-operation set-up

You can now move the machine to the job site. But before moving it into position and setting it up, take the following precautions:

1. Inspect the working area for:
 - Debris and foreign objects and
 - Overhead electrical wires.
2. Make sure the working area is reasonably level and as dry as possible.
3. Make sure there is adequate room and clearance for power and grain receiving units and the CONVEYAIR.

Use good judgement in selecting the working site and in positioning of the equipment to ensure safe, efficient operation. The machine is now ready to be positioned for operation.

- **CAUTION** - Never operate the CONVEYAIR and the power unit inside a closed building.

3.4. Economy model set-up

The following set-up must be done prior to starting the machine:

1. Position the CONVEYAIR in such a way that the intake remains as straight and short as possible to give maximum capacity.
2. Position the CONVEYAIR in such a way that the grain receiving unit can be easily and conveniently positioned.



Figure 8 Clamp boom - economy

3. Unlatch the transport clamp holding the discharge boom in position. (see figure 8)
4. Jack up the boom sufficiently to clear the retaining clamp.
5. Rotate the boom 90 degrees towards the rear of the machine to clear the receiver vacuum tank.

6. Release the hydraulic jack on the boom and drop the end of the boom down to waist level.

7. Remove the cyclone assembly from the transport position, attach it to the end of the boom using the self-locking levers and secure it with hair pins. (see figure 9)

8. Using the hydraulic jack raise the boom to the desired height. (see figure 10)



Figure 9 Cyclone attachment- economy

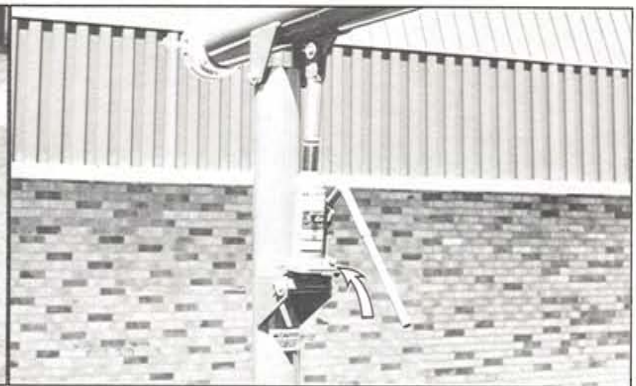


Figure 10 Hydraulic jack - economy

• **CAUTION** Stay away from overhead electrical wires.

9. Rotate the boom around into discharge position using the swivel arm provided. When correctly positioned secure using the lock bolt on the vertical boom swivel support. (see figure 11)

10. Remove the rear cover of the airlock and stow. Attach the flex elbow to the airlock outlet securing it with the cam lock coupler. (see figure 12)



Figure 11 Boom swivel - economy



Figure 12 Flex elbow - economy

11. Attach the free end of the rear flex elbow to the discharge boom and secure it using the cam lock coupler.

12. Using the hydraulic jack, slowly and carefully lower the cyclone into the proper position, over the receiving unit.

13. Attach the suction line to the receiver tank with the cam couplers provided. Keep all suction lines as short and straight as possible.

The CONVEYAIR is now ready to start up.

3.5. Deluxe model set-up

The following set-up must be done prior to starting the machine:

1. Position the CONVEYAIR in such a way that the intake remains as straight and short as possible to give maximum capacity.

2. Position the CONVEYAIR in such a way that the grain receiving unit can be easily and conveniently positioned.

3. Check the CONVEYAIR controls to ensure that the airlock and boom position controls are in neutral.

4. Start the power unit and let it run at idle RPM. Engage the remote hydraulics and let the power unit run at idle. Make sure that there are no bystanders around while setting up the machine.

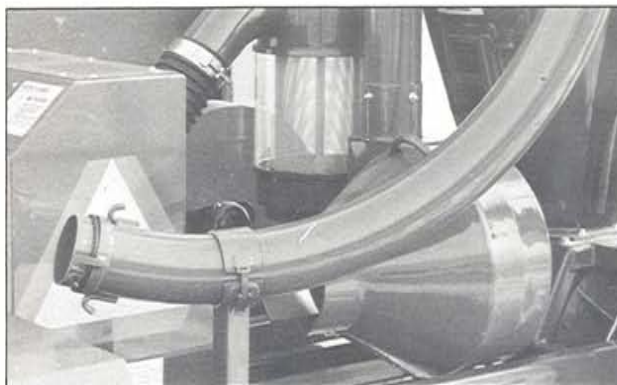


Figure 13 Clamp boom - deluxe

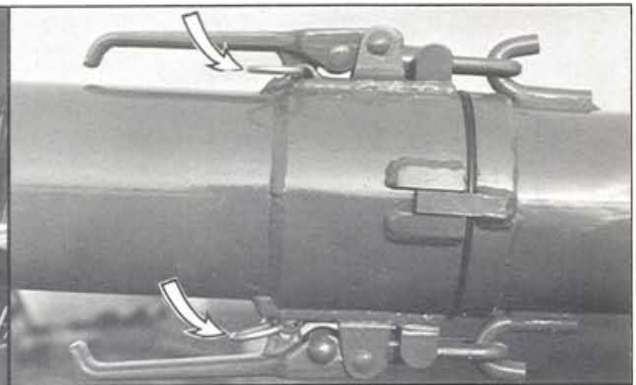


Figure 14 Locking discharge cyclone

5. Unlatch the transport clamp holding the boom in position. (see figure 13) Rotate boom 90 degrees towards the rear of the machine.

6. Remove the discharge cyclone from its transport position and connect it to the end of the boom. Be sure to push the connecting latches over center and install the locking click pins to prevent unlocking from vibration. (see figure 14)

7. Move to the control panel, slowly and carefully activate the boom control lever to raise the boom into working position.

- **CAUTION** - Watch for overhead electrical wires and obstacles before raising boom. do not stand under the boom and prevent others from doing so.

8. Attach the suction line to the receiver intake With the cam lock couplers. Always keep suction lines as short and straight as possible.

The CONVEYAIR is now ready to start up.

4. OPERATION

4.1. General

Your machine has now been positioned correctly so that there is sufficient space for the power unit and CONVEYAIR plus enough space for the trucks, trailers or other receiving equipment. There should also be sufficient space to allow the intake tube to be as straight as possible for maximum capacity. Make sure that the input drive line is positioned as straight as possible. Large angles in the universal joints produce unnecessary vibration and noise and dramatically shorten the life expectancy of the drive line and machine.

4.2. Start up

The following steps should be followed when starting the machine:

1. Clear the area of all bystanders and remove foreign objects from the machine and working area.
2. Place the tractor hydraulics control, transmission lever and PTO control in neutral, depress the clutch and start the tractor.

4.3. Airlock Speed

The speed of the airlock ranges from 0 to 75 RPM and its setting is dependant upon the material being conveyed. The general rule is that the larger and heavier the kernel, the faster the airlock should turn. Airlock speed is also affected by suction and discharge lengths, the moisture content and bushel weight of the material. The operator may have to experiment a little to determine the optimum setting.

1. Keep the tractor engine speed at idle and engage the hydraulic system.
2. Be sure that the airlock rotates in the proper direction.

Economy model: Observe the yellow coupler moving under the airlock drive shield to determine its direction of rotation.(see arrow above airlock) If it is not rotating in a counter clockwise direction, reverse the hydraulic control lever on the tractor or shut down the hydraulic system and reverse the hydraulic hoses.



Figure 15 Airlock coupler

Deluxe model: Move the airlock directional control lever of the CONVEYAIR to the forward position, and observe the yellow coupler moving under the airlock drive shield to determine its direction of rotation. If it is not rotating in a counter clockwise direction (see arrow above airlock), reverse the hydraulic control lever on the tractor or shut down the hydraulic system and reverse the hydraulic hoses.

3. Determine the airlock speed by counting the revolutions of the yellow coupler on the airlock drive. (see figure 15) and use the airlock speed control to set the airlock speed at the recommended RPM for your application. (see figures 16 and 17)

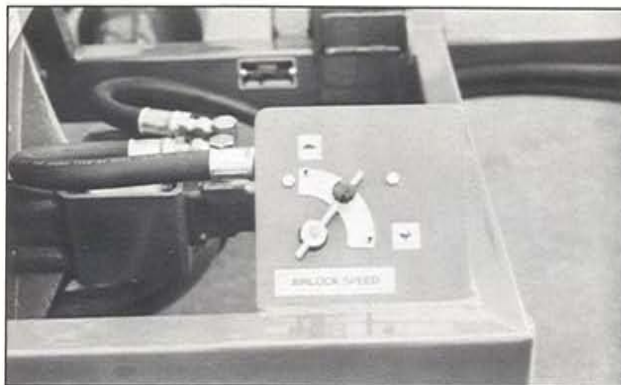


Figure 16 Airlock speed economy

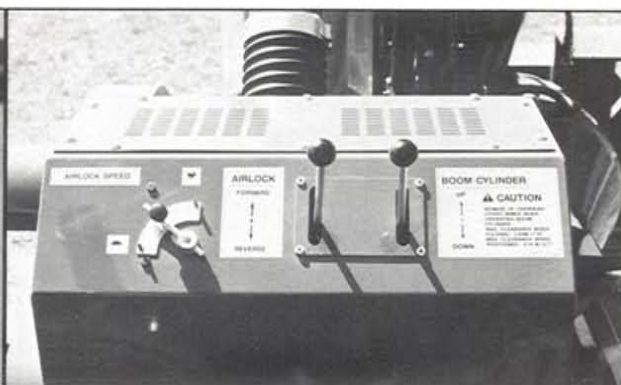


Figure 17 Airlock speed deluxe

Recommended airlock speeds at rated tractor engine speed.

Material	Airlock speed (RPM)
Barley	55-65
Canola	35-45
Corn	45-55
Flax	35-45
Wheat	45-55

- Note: These are guidelines only, which apply specifically to truck loading.

3. With the tractor engine speed at idle carefully engage the PTO to slowly apply PTO power to the CONVEYAIR.

- Note: For maximum machine and belt life, engage PTO slowly and at idle tractor engine RPM.

4. Slowly increase engine speed until rated PTO speed is reached.

5. Before dismounting from tractor make sure the service and park brakes are set and locked. It is always a good idea to chock front and rear tractor tires to prevent creeping from vibration.

6. Open the air slide on the intake nozzle approximately 2 inches. Insert the intake nozzle into the grain.

7. To achieve maximum capacity, slowly close the air slide on the intake nozzle until the machine starts to surge, then slowly open the air slide until the surging stops.



Figure 18 Grain level receiver tank

8. In most cases it is now necessary to readjust the airlock speed. The airlock speed determines the level of the grain in the receiver tank above the airlock. Maintaining a proper level ensures that a proper balance is achieved between vacuum and pressure in the system to efficiently move the grain. The proper grain level in the tank is achieved when the grain covers about 1/2 to 2/3 of the receiver tank access door. (see figure 18) The grain level in the receiver tank may

go up because the airlock turns too fast or too slow.

9. If the grain level in the tank goes above the receiver tank door and the airlock is turning faster than 65 RPM reduce speed until the correct level is achieved. As well, if the grain level in the tank goes above the receiver tank door and the airlock is turning slower than 30 RPM, increase speed until the correct level is achieved. If airlock speed is too slow, build up in the tank will take place because of a reduced transfer of grain from the vacuum to the pressure side of the airlock. If the airlock turns too fast the segments of the airlock will not fill completely, causing grain to build up in the tank because of reduced efficiency in transfer of grain from the vacuum to the pressure side of the airlock.

10. When adjusting the airlock speed, loosen the locking knob on the airlock speed control lever until lever can be moved easily. Move in the direction of the desired speed change, making adjustments in very small increments only as this is a very fine setting. Tighten the locking knob when the proper speed is reached.

- **Note:** If, because of improper airlock speed, plugging of the filter occurs, shut off the tractor PTO, and remove the bottom cover of the filter by unscrewing the wing nut. Restart the PTO and let it run until the machine is cleaned out. Shut off the tractor PTO and hydraulics. Replace the bottom cover of the filter and go back to start up as described previously.

Once the airlock speed has been set it is not necessary to repeat adjustment procedures when stopping to change trucks. It may be necessary to readjust airlock speed setting when:

1. Changing tractors
2. Moving different types of grain
3. Changing the layout of the suction or discharge arrangement.

4.4. Boom adjustment

When it is necessary to change the position of the discharge cyclone on the deluxe model, release the latch on the boom swivel and turn the swivel using the handle provided. The boom can be rotated for convenient positioning of the discharge cyclone. The economy model boom can swivel approximately 100 degrees and is secured with a locking bolt located on the vertical boom support. (see figure 19)



Figure 19 Boom swivel economy

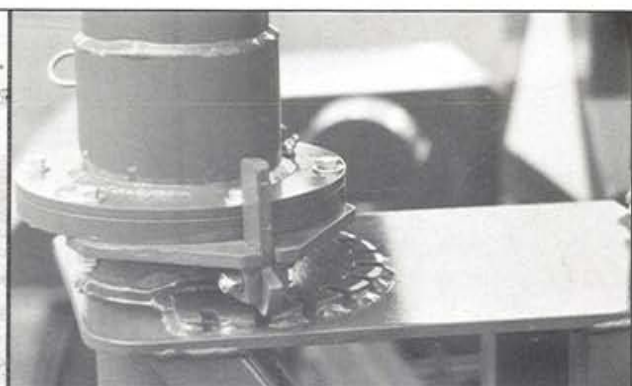


Figure 20 Boom latch deluxe

The deluxe model boom has a latch with which the discharge boom can be secured in 15 degree increments. (see figure 20)

4.5. Hydraulics

Deluxe model: Control console

1. Airlock Speed - Controls the RPM of the airlock. Move to the vertical position (clockwise) to increase the speed and to the horizontal to slow down.

2. Airlock - Move lever forward to turn on the airlock. Move down to reverse the direction of rotation of the airlock.

• **IMPORTANT** - Do not operate the machine with the airlock direction control in the reverse position as there is no hydraulic relief valve protection in this position.

3. Boom cylinder - Move lever forward to raise the discharge boom and down to lower the boom.

4. Open & closed center hydraulic selector valve - Proper use of the open and closed center hydraulic selector valve is imperative to prevent damage to the tractor hydraulic system. If operated while using the incorrect selector setting, severe overheating of the tractor hydraulic system can occur. Proper selection can be determined by the make and model of the tractor. All CONVEYAIR dealers have been supplied with a list of the most popular tractors in use and the type of hydraulic system they use. If there is any doubt as to the hydraulic system of the tractor uses consult the tractor operator's manual, dealer or the tractor manufacturer.

• **IMPORTANT** - Position the selector in the open or closed hydraulic position before engaging the tractor hydraulics.

5. APPLICATIONS

5.1. General

1. When transferring granular material with your CONVEYAIR always try to keep the suction line as short as possible and minimize the number of bends. This will reduce the wear on elbows and flexible hose and will maximize the capacity of the machine.
2. When the machine does not need to be used at full capacity, e.g., when cleaning bins, throttle down the tractor approximately 30 to 40%.
3. For best capacity the tractor PTO should run at full RPM, 540 or 1000 RPM depending on model, and the airlock between 45 and 55 RPM. The grain level in the receiver section should be kept to approximately the level of the receiver access door,

5.2. Long Distance Blowing

An air slide located on the air line between the receiver tank and the air pump (see figure 21) is used to assist in long distance blowing and also in cooling the air pump. This air slide should only be used if the air pump or the pressure line between the air pump and the airlock is getting too hot to touch, or if discharge length is in excess of 12 m (40 ft). The rule of thumb in long distance blowing is to open the slide 6 - 12 mm (1/4" - 1/2") for every 30 m (100 ft) of distance. This may change according to type of grain or if grain is being moved vertically or horizontally. Remember, opening the air slide too far can affect capacity as adversely as not opening it at all.

5.3. Long Distance Suction

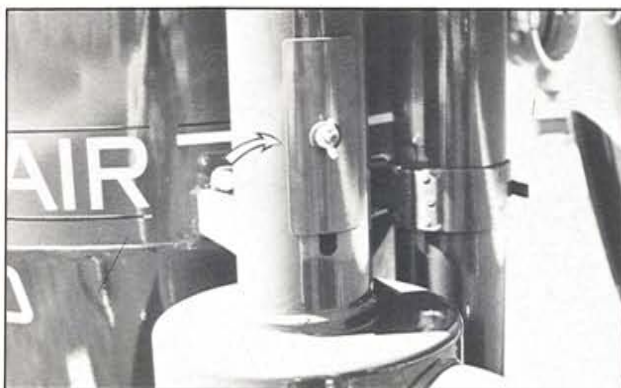


Figure 21 Airslide receiver air pump

When sucking grain more than thirty feet try to avoid using flex line. Instead use straight piping. Remember, the straighter the suction line the greater the efficiency of the CONVEYAIR. For long distance suction it is recommended to open slightly the air slide between the receiver tank and the air pump (see figure 21) to supply cool air to the system. The resulting loss of air

flow will be compensated for by the increased efficiency of cooler air and a cooler air pump.

5.4. Clean up

When using the machine to clean out grain, use a combination of steel flex line, straight piping and poly hose. This will give the needed flexibility to easily get into corners and around obstructions for clean up. It is not recommended to use steel flex and poly hose for regular moving of grain because flow is restricted due to the rougher tube walls and bends associated with flex line. Capacity can be lowered by 20% to 40% with flex line as compared to straight piping.

- **IMPORTANT:** Poly hose is meant for clean up only. Avoid storing the poly hose in direct sunlight. When using the poly hose ensure that there are no sharp obstructions that could cut or puncture the poly hose. Do not dent or stretch steel flex line excessively or attempt to bend it more than 90 degrees.

5.5. Seed drill clean out

When using the seed drill clean out kit, operate the tractor at idle only to reduce suction air flow. The receiver tank can be used as a holding tank by stopping the airlock until the seed can be discharged into a truck or storage.

5.6. Filling bins and temporary storage

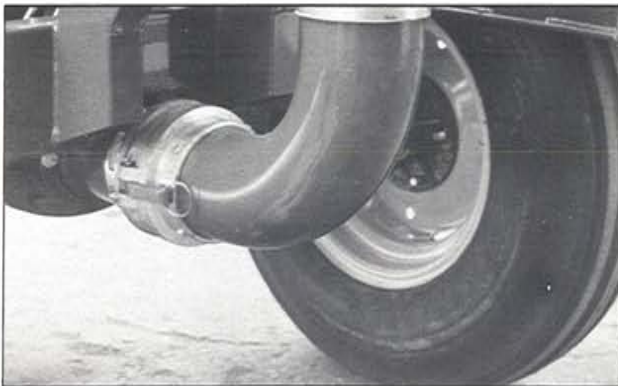


Figure 22 Bottom elbow - deluxe

Economy - When discharging into bins simply detach the couplers from the truck loading kit and hook up the piping going to the bins.

Deluxe - When discharging into bins, take off the bottom elbow behind the airlock (see figure 22), and hook up the machine to stationary or other piping.

5.7. Clean up of spills and ground stored grain

When cleaning up spills or grain stored on dirt, extreme caution should be exercised. Sand and dirt are very abrasive and cause excessive wear to air pumps and air locks. If care in operation is not taken the life expectancy of the CONVEYAIR can be reduced significantly.

- **IMPORTANT:** Avoid passing dirt, sand or other abrasive materials through the CONVEYAIR grain vac.

6. SHUT DOWN AND TRANSPORT

6.1. General

When the job has been completed the following steps should be followed for proper shut down of the grain vac.

1. Remove the nozzle from the material.
2. Allow the material to be removed from the inlet bins and the machine into the receiving unit.
3. Throttle down the tractor to an idle for 4-5 min to allow a complete clean out and cool down of the unit.
4. If the purpose of the shut down is to change receiving units, simply throttle the tractor down, disengage PTO and hydraulics then change receiving unit, To start up again engage hydraulics and PTO, increase engine speed to rated PTO speed.
5. If the CONVEYAIR is being shut down and will be stored for an extended period of time it is necessary to clean the unit completely, as stated above. Run the engine at idle with the PTO engaged, open the lubrication port and inject a cleaning agent, such as WD-40. A 45-60 second spray time should suffice. This will clean the dust from the inside of the air pump and also lubricate the metal parts to prevent corrosion. Close the lube port when finished.
6. If the CONVEYAIR has been operated in a high oil content crop e.g. sunflowers, canola or flaxseed the injection of a cleaning agent through the lube port is necessary to remove the build up of oil and dust. Follow the above described procedure.

• **CAUTION** - Do not use a flammable fluid for cleaning.

6.2. Transport safety

1. Always securely pin the unit to the drawbar and attach the safety chain before transporting.
2. Clean the SMV sign and reflectors before transporting.
3. Never tow at speeds exceeding 30 kilometers (20 miles) per hour.

4. Never transport the machine on a public road during times of limited visibility without taking special precautions.
5. Stay away from overhead electrical wires and obstructions when moving the machine.
6. Always use the flashers on the towing vehicle unless prohibited by law.

6.3. Tractor transport safety

The CONVEYAIR can be towed on public roads behind tractors providing the following precautions are taken:

1. When using a drawbar pin, make sure a click pin or other mechanical device is used to keep the pin in place.
2. When using a ball and socket, make sure the socket is snug.
3. Attach a safety chain between the CONVEYAIR and the towing vehicle.
4. The machine is supplied with implement tires and should not be towed over 30 kilometers (20 miles) per hour.
5. Clean the SMV sign and the reflectors before moving on a public highway.
6. Make sure all components and accessories are retracted and securely stowed before moving.
7. Stay away from overhead electrical wires and obstacles when moving.
8. Always use the flashers on the towing vehicle to alert other drivers.
9. When it is necessary to frequently transport on a public road, it is recommended that the customer purchase the optional 7-pin connector light package to provide extra lighting.
10. This optional light package is also recommended for use when transporting during times of limited visibility.
11. On the Economy model, be sure to release the boom jack screw valve to prevent damage to the boom.

7. LUBRICATION AND SERVICES

7.1. Recommended lubricants and capacities

Grease - Use an SAE Multi-Purpose High Temperature grease with extreme pressure (EP) performances and containing at least 1.5% molybdenum disulfide. Also acceptable is an SAE Multi-Purpose Lithium Base Grease.

Oil - In either the front or rear blower gearbox, use only 15W-40 multi-grade oil that equals or exceeds the SAE "SF" specification.

Capacities: CONVEYAIR Models: 1955, 2955, 3005, 3505: Both front and rear blower reservoir 800 cc (0.87 qt. US).

Capacities: CONVEYAIR Models 3955, 4005: Front blower reservoir - 800 cc (0.87 qt. US). Rear blower reservoir - 1100 cc (1 qt. US).

- **IMPORTANT:** 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.

7.2. Lubrication safety

1. Always disengage PTO and hydraulic power shut off engine and wait for all moving parts to stop before lubricating, servicing, adjusting or unplugging.
2. Reinstall all shields after servicing.
3. Relieve hydraulic pressure and disconnect hoses before working on hydraulic system.

7.3. Greasing

See "Recommended lubricants and capacities" in this section for recommended grease. Use the Maintenance Checklist provided to keep a record of scheduled maintenance.

1. Wipe grease fitting with a clean cloth before greasing, to avoid injecting dirt and grit.
2. Inject grease through fitting with grease gun until grease overflows fitting.

3. Leave excess grease on fitting to keep out dirt.
4. Replace any loose or broken fittings immediately.
5. If fitting will not take grease, remove and clean thoroughly. Also clean lubricant passageway. Replace fitting if necessary.

7.4. Greasing and lubrication intervals

Daily

1. PTO shaft. (see figure 23)
2. Input shaft front and rear bearings. (see figure 24)

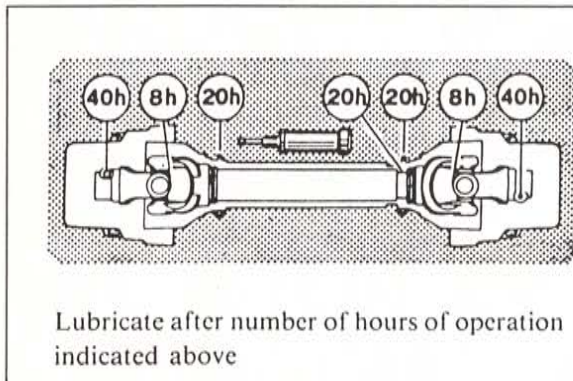


Figure 23 Lubrication PTO shaft

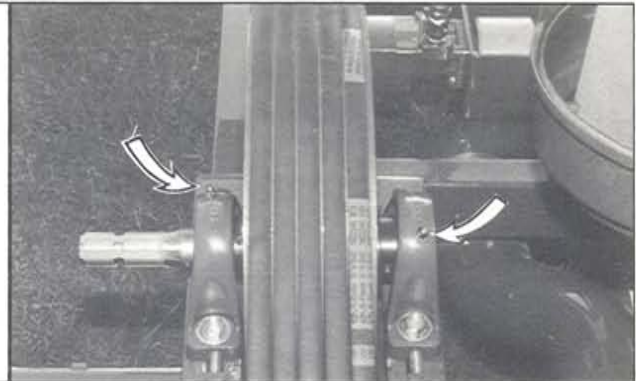


Figure 24 Lubrication input shaft

3. Check reservoir oil levels by looking at the sight glasses. The oil level should be in the middle of the sight glass.
 - **IMPORTANT:** The machine must be level and the reservoir cool when checking the oil level.
 - **NOTE:** Do not overfill. Too much oil will result in overheating and insufficient lubrication.
4. To add oil, remove the breather cap to add. The console cover will have to be removed on the Deluxe model to uncover the breather cap. Remember: Do not overfill. Add only a little oil at a time and check the sight glass. Replace the breather cap and the console cover.
5. Check V-Belt tension. Adjust as per maintenance schedule.

6. Check and clean filter if required.

50 Hours

1. Clean the oil reservoir breather caps with a commercial solvent and dry with compressed air. If caps are clogged with dust, allow them to soak in the solvent for an hour to loosen dust. Reinstall when clean.

2. Truck loading kit swivel (2 locations) - 1 shot of grease.

3. Truck loading boom hinges (2 locations) - 1 shot of grease.

100 Hours or 6 months

1. Change the oil in the blower oil reservoir. Drain the oil by removing the oil drain plugs at the bottom of the reservoirs. Refill (see "Recommended Lubricants and capacities" section for capacities) until the oil level stabilizes at the center of the level glass. Remember, do not overfill.

- **NOTE:** Increase the frequency of changes to every 30 hours in extremely dusty conditions.

200 Hours or Annually

1. Repack wheel bearings annually, with good quality wheel bearing grease.

8. MAINTENANCE

8.1. General

For maximum machine efficiency and capacity the clearance between the airlock tips and the inside of the airlock shell must be maintained within a maximum allowable tolerance. When a noticeable drop in capacity of the CONVEYAIR has been experienced the airlock clearances should be checked. When checking the clearances proceed as follows:

1. Disengage PTO and hydraulic power and shut off engine. Wait for all moving parts to stop.
2. Relieve the pressure in the hydraulic lines and disconnect parts to stop.
3. Remove hydraulic lines from the airlock drive motor to allow rotation of the airlock.
 - **CAUTION:** High pressure fluids can penetrate the skin and cause infection and toxic reaction.
4. Open the inspection door on the receiver tank. Use a feel gage to check the clearance between the tips and the shell.
 - **IMPORTANT:** For best performance the clearance should not exceed 0.38 mm (0.015"); if the clearance is more, it must be adjusted.

8.2. Airlock adjustment

When the airlock tips need adjusting, proceed as follows:

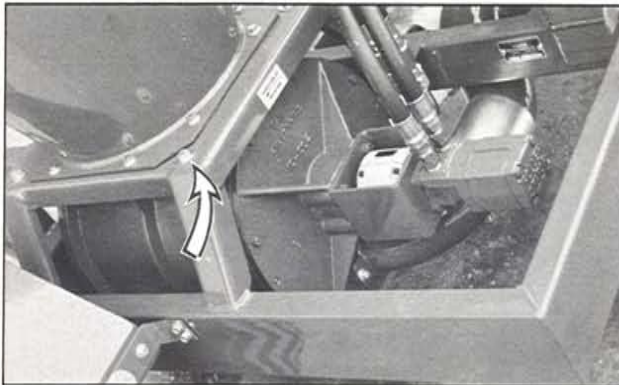


Figure 25 Airlock mounting bolts

1. Loosen the poly connector between the filter and the blower to allow it to move as required.
2. Attach an overhead hoist to the receiver tank.
3. Remove the receiver tank from the frame by removing the mounting bolts. (see figure 25) Be sure

the hoist is of sufficient size to handle the receiver tank.

4. The airlock is now accessible for measuring and adjustment. To adjust, proceed as follows:

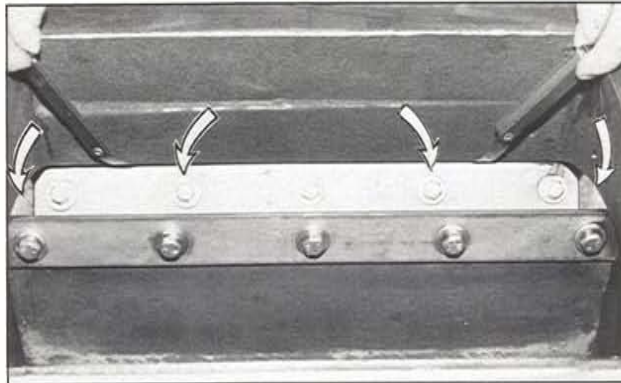


Figure 26 Airlock tip position

- Position tip as shown in figure 26
- Loosen the 5 bolts attaching the tip to the blade of the airlock slightly.
- Move the tip outward, towards the shell until you have 0.18 mm (0.007") clearance.
 - Check that the clearance between the tip end and endplate of the airlock is 0.18 mm (0.007").

- Tighten the five bolts and torque to 34-40 Nm (20-25 ft.lbs.)
- Mark the top as done and rotate the rotor to ensure that there is no contact between the tip and the shell. If contact occurs it is necessary to increase the clearance slightly. If there is no contact proceed to the remaining tips until all ten have been adjusted.
- Replace the receiver tank and ensure that all connections are airtight.

8.3. V-belt adjustment

The V-belts on the input drive should always be adjusted to have approximately 25 mm (1") deflection in the center. If the belts are too loose they will start to slip which will cause heat build up and excessive wear of the belts. If the belts are too tight they will cause the bearings to overload which will result in premature failure of the main shaft and blower bearings.

To adjust the belt tension, proceed as follows:

1. Place PTO and hydraulics controls in neutral and shut-off engine.
2. Unlatch belt shield cover and open cover.
3. Loosen jam nut on adjuster bolts and loosen the bearing bolts. The assembly can now be moved to the desired position

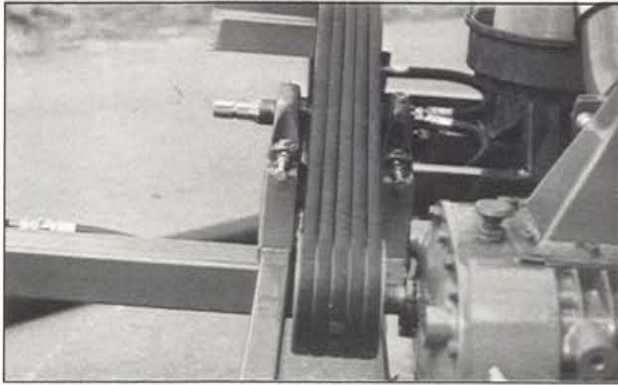


Figure 27 V-belt drive adjustment

4. Use the adjusting bolts to move the pulley assembly to apply the proper tension to the belts and also to properly align the pulleys with each other. (see figure 27)

5. Place a straight edge across the faces of the two pulleys. Maximum allowable misalignment is 2 mm (1/16") on any of the pulley edges. Adjust as required.

6. Be sure the belt tension is correct.

7. Tighten the bearing mount bolts and the jam nuts.

8. Close and latch the belt cover.

- **IMPORTANT:** Be sure the belt tension is right and pulleys are aligned properly. Do not over tighten belts.
- **CAUTION:** Always close and latch belt cover before operating.

9. OPTIONS

9.1. Self contained hydraulics (Optional)

The self contained hydraulic package is recommended when the tractor hydraulic system is inadequate or non existent or if the CONVEYAIR is to be used as a rental unit where there is a greater potential for hydraulic oil contamination. This package must also be used when the Auger Pac is to be used in conjunction with the CONVEYAIR grain vac.

Self contained hydraulics are available for CONVEYAIR grain vacs as a factory ordered option or added on at a later date. The self contained hydraulics are used to eliminate the use of the tractor hydraulics. The self contained package consists of a hydraulic pump driven directly by the PTO input shaft, a 60 L (15 US gal.) hydraulic reservoir, and a replaceable spin on filter element. The operation of the CONVEYAIR's hydraulic controls remains the same as with tractor hydraulics except that there is no open/closed center selector valve with the self contained system.

9.2. Accessory carrier package



Figure 28 Accessory carrier

An accessory carrier package is available for all CONVEYAIR grain vacs, this package can be factory installed on a new unit or can be added on by the dealer. The carrier consists of a rear tray, center T-bar a front tray, and four rubber tarp straps to secure items on the carrier. Figure 28 shows the carrier installed on a deluxe model and the accessories mounted for transport or storage. With the use of the ac-

cessory carrier the need for an extra vehicle to carry the accessories is eliminated.

9.3. Front transport tarp

The transport tarp is available to protect the front of the machine from stone chips when transporting down the road.

9.4. Dual inlet

The dual inlet is available on all CONVEYAIR grain vacs as a factory installed option, offering you the convenience of grain intake from either side of the grain vac.

10. Trouble shooting

Problem	Cause	Solution
Low capacity	Tractor PTO runs slow. 540 rather than 1000RPM.	Speed up tractor PTO to 1000 RPM. Change tractor or PTO shaft
	Belts are slipping.	Tighten belts (see page
	Airlock runs too fast.	Slow down airlock speed until grain builds up to the level of inspection door.
	Improper air intake.	Adjust air intake (see chapter 4.3, page 18).
	Improper use of nozzle.	Use full bin nozzle for larger piles and fullbins. Use cleanup nozzle with flare for cleanup only. Do not submerge airslide in grain.
	Air leaks intake.	Check for worn coupler levers or missing coupler gaskets. Check flex hose and tubing.
	Air leaks machine.	Check filter, receiver section, and airlock gaskets. Check pressure and vacuum relief valve. Check clamps on airline between receiver tank and air pump.
	Improper piping.	Keep suction lines as short as possible. Minimize bends. Use straight lengths of pipe wherever possible.
	Filter plugged.	Remove bottom cover and clean out filter.
Excessive grain damage.	Filter excessively dirty	Remove and clean filter.
	Airlock tip clearance excessive	Adjust airlock tips (see chapter 8.3, page 29).
	Too much air intake. PTO running too fast. Damaged tubing or flexline	Adjust air at intake nozzle. Throttle down tractor Repair and replace when necessary.
Pulsation.	Insufficient air at intake.	Open slide until grain flow becomes even.
	Improper airlock speed.	Adjust airlock speed until grain is at level of the inspection door (see chapter 4.3, page 16).

Problem	Cause	Solution
Pulsation.	PTO running too slow. Belts are slipping. Excessive airlock tip clearance. Airlock turning too slow	Increase PTO RPM. Tighten belts. (see page 30) Adjust airlock tips. Adjust airlock speed until grain is at proper level of inspection door.
Filter plugs up	Obstruction in suction line. Airlock turning too Airlock not turning at all.	Shut down machine and clear obstruction. Increase airlock speed, until grain is at the level of the inspection door. (see page 18) Shift airlock control from FORWARD to REVERSE and back to FORWARD. If the obstruction does not clear up, shut off tractor and machine, open up inspection door and remove the cause of obstruction. CAUTION see page 4.
Airlock not turning fast enough.	Flow control valve for airlock speed set too low. Faulty tractor hydraulics.	Reset flow control to increase airlock speed. Use different tractor.
Airlock not turning.	Flow control valve for airlock speed set too low. Tractor hydraulics not properly engaged. Obstruction in airlock.	Reset flow control. Reset tractor hydraulics. Shift airlock control from FORWARD to REVERSE and back to FORWARD. Repeat if obstruction does not clear up. If obstruction does not clear up, shut off tractor and machine, open up inspection door and remove the cause of obstruction. CAUTION see page 4.
Hydraulic oil heating up excessively.	Faulty tractor hydraulics. Low oil level.	Use different tractor. Add oil.
Excessive wear on air lines	Improper piping. Too much air flow	Minimize bends. Adjust airslides and airlock speed.

11. SPECIFICATIONS

	Deluxe Models	Economy Models
Length	2.77 m (8' - 10")	2.77 m (8' - 10")
Width	2.41 m (7' - 11")	2.34 m (7' - 8")
Height (transport)	2.36 m (7' - 9")	2.36 m (7' - 9")
Maximum clearance	3.70 m (12')	3.60 m (11' - 10")
Weight	962 kg (2120 lbs.)	907 kg (2000 lbs.)
Tire size	7.60 x 15	7.60 x 15
Tire Pressure	25 psi	25 psi
PTO speed (1955)		540 RPM
PTO speed (2955, 3005)	1000 RPM	1000 RPM
PTO speed (3955,4005)	1000 RPM	1000 RPM
Minimum HP (1955)		60 HP
Minimum HP (2955,3005)	80 HP	80 HP
Minimum HP (3955,4005)	100 HP	100 HP

LIMITED WARRANTY

VANA INDUSTRIES LTD. ("Vana") warrants to the buyer that the new CONVEYAIR ("the new machinery") is free from defects in material and workmanship.

This warranty is only effective as to any new machinery, which has not been altered, changed, repaired or treated since its delivery to the buyer, other than by Vana or its authorized dealers or employees, and does not apply to accessories, attachments, tools, or parts, sold or operated with the new machinery, if they have not been manufactured by Vana.

Vana shall only be liable for defects in the materials or workmanship attributable to faulty material or bad workmanship that can be proved by the buyer, and specifically excludes liability for repairs arising as a result of normal wear and tear of the new machinery or in any other manner whatsoever, and without limiting the generality of the foregoing, excludes application or installation of parts not completed in accordance with Vana's Operator's Manual, specifications, or printed instructions.

Written notice shall be given, by registered mail, to Vana within seven (7) days after the defect shall have become apparent or the repairs shall have become necessary, addressed as follows:

Vana Industries Ltd.
92 De Baets Street
Winnipeg, Manitoba, Canada R2J 3S9

This warranty shall expire one (1) year after the date of delivery of the new machinery.

If these conditions are fulfilled, Vana shall at its own cost and at its own option either repair or replace, any defective parts provided that the buyer shall be responsible for all expenses incurred as a result of repairs, labor, parts, transportation, or any other work, unless Vana has authorized such expenses in advance.

This warranty shall not extend to any repairs, changes, alterations, or replacements made to the new equipment other than by Vana or its authorized dealers or employees.

This warranty extends only to the original owner of the new equipment.

This warranty is limited to the terms stated herein and is in lieu of any other warranties whether express or implied, and without limiting the generality of the foregoing, excludes all warranties, express or implied or conditions whether statutory or otherwise as to quality and fitness for any purpose of the new equipment. Vana disclaims all liability for incidental or consequential damages.

VANA INDUSTRIES LTD.

**CONVEYAIR™**

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 _____	Dealer _____
Address _____	_____
City, State, Zip _____	Address _____
Phone # (_____) _____	City, State _____
CONVEYAIR MODEL # _____	DATE PURCHASED _____
CONVEYAIR SERIAL# _____	
AIR PUMP SERIAL # _____	CHECK ONE:
ENGINE SERIAL # _____ (S.D. ONLY)	COMMERCIAL ☐ FARM USE ☐

INSPECTION REPORT

Date _____ Inspected By _____
(PRINT NAME)

☐ BELT TENSION & ALIGNMENT☐ HYDRAULIC FITTINGS☐ HYDRAULIC LINES

AIR PUMP RESERVOIR LEVELS

☐ FRONT☐ REAR☐ ALL LIGHTS AND REFLECTORS IN PLACE☐ WHEEL BOLTS TIGHT☐ TIRE AIR PRESSURE (32 PSI)☐ ALL GREASE FITTINGS GREASED☐ CAM LOCK COUPLERS OPERATE FREELY☐ P.T.O. SHAFT INSTALLED PROPERLY☐ ALL SHIELDS IN PLACE

S.D. ONLY

☐ ENGINE OIL LEVEL☐ ENGINE COOLANT LEVEL☐ ENGINE GUAGE OPERATION☐ ENGINE CLUTCH OPERATION

SELF CONTAINED HYDRAULICS

☐ HYDRAULIC OIL LEVEL☐ HYDRAULIC CONTROL OPERATION

SAFETY

☐ ALL SAFETY PROCEDURES HAVE BEEN REVIEWED WITH CUSTOMER☐ ALL WARNING DECALS ARE IN PLACE, CLEAN AND LEGIBLE☐ INSTRUCT CUSTOMER TO REVIEW SAFETY AND OPERATING PRACTICES WITH ALL OPERATORS ANNUALLY

I have thoroughly inspected the machine and made adjustments and corrections as needed.

Signature _____ (Dealer Inspector)

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 _____

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
VANA	DEALER	CUSTOMER





VANA INDUSTRIES LTD.
WINNIPEG, MANITOBA, CANADA