WALINGA®
INC.

Central-Vac®

CENTRAL-VAC AIR-PURGE OPERATOR'S MANUAL

WALINGA®

TOUGH TO BEAT IN THE LONG RUN

WALINGA
Start-up/Commissioning Form

This form must be filled out by the sales representative and/or dealer; and signed by both the sales representative and/or dealer and the customer at the time of delivery.	
Delivery date: MM/DD/YYYY	
Owner Operator Name	*Sales Representative / Dealer Name*
Phone	*Phone*
Email	*Email*
Address	*Address*
City *Prov/State*	*City* *Prov/State*
Postal Code/ZIP *Country*	*Postal Code/ZIP* *Country*
Unit Serial Number	
Blower Serial Number	*Airlock Serial Number*

CONFIRMATION OF ACTIONS COMPLETED	
	All items and features accounted for
	Pre-delivery inspection
	Review of warranty terms
	Review of standard notes and terms
	Review operating and safety instructions
	Operator manual supplied
	Supplemental documents supplied
	Guards installed and secured
	All safety signs identified and reviewed
	Discussion regarding applicable standards (see statement on reverse)

Effective: September 10, 2020
Version 1

WALINGA
Start-up/Commissioning Form

It is the responsibility of the Owner Operator to review and determine compliance to local and federal regulations. These regulations include, but are not limited to, local and federal laws as well as standards published by the NFPA (National Fire Protection Agency), ISO (International Organization for Standardization), OSHA (Occupational Safety and Health Administration) or OH&S (Occupational Health and Safety Standards), and ANSI (American National Standards Institute). *Please note: It is a requirement in NFPA 652 that the final operator completes a dust hazard analysis (DHA) of their facility and the products and processes it contains.* Based on this, Walinga understands that a DHA is required to be completed by the owner/operator prior to start-up/commissioning. In the event that a DHA is not available at start-up/commissioning, the owner/operator must provide written acknowledgement of their responsibility and intention to complete a DHA. The owner/operator also agrees that they shall be solely responsible for ensuring that any applicable NFPA standards and regulations shall be satisfied in conjunction with the incorporation of Walinga's equipment into the buyer's specific system of operations.

Date:_____ Owner Operator's Signature:_____

The above equipment has been received by me and I confirm that the sales representative / dealer has completed the start-up/commissioning process.

Date:_____ Owner Operator's Signature:_____

I have completed the actions listed above and confirm that the owner operator has completed the start-up/commissioning process.

Date:_____ Dealer Representative's Signature:_____

I have completed the actions listed above and confirm that the owner operator has completed the start-up/commissioning process.

Date:_____ Manufacturer Representative's Signature:_____

Additional notes:

Walinga Inc.
Pneumatic Conveying System
Warranty Terms

Walinga Inc. is committed to providing a quality product that will meet or exceed your expectations for many years to come. Our warranty terms and our warranty claim process has been designed to ensure that each warranty claim will be resolved in an orderly, fair and timely manner.

The Warranty

Walinga Inc*. ("Walinga") warrants that all new pneumatic products sold by Walinga Inc. will be free from defects in material and workmanship (the "Walinga Warranty").*

Warranty Period

The warranty period for the Walinga Warranty shall expire on the date that is the earlier of: two (2) years after the date of delivery to the original customer; or upon the expiration of five hundred (500) hours of operation; whichever date comes first.

Limitations of and exclusions from the Walinga Warranty

- The Walinga Warranty applies to material and workmanship only.
- With respect to any component parts that are supplied or manufactured by others, the warranty coverage on such component parts will be strictly limited to the warranties of the manufacturers of such component parts.
- The Walinga Warranty shall only be for the benefit of the original purchaser of the pneumatic products.
- A Walinga Warranty may be transferable by the original purchaser to a third party for the balance of the warranty period then remaining, provided that Walinga consents in writing to such transfer of warranty.
- The Walinga Warranty is conditional upon proper storage, installation, use, maintenance, operation and compliance with any applicable recommendations of Walinga.

Warranty Claim Procedure
Should you encounter any difficulties with your unit within its warranty period, please contact your local Walinga dealer or sales representative, your local Walinga Service department or Walinga's Warranty Department to submit a warranty claim application.

To speak with a Walinga Warranty Coordinator, contact:

- Canada / International: 1-888-WALINGA (ext 273); +1-519-824-8520 (ext 273); Email – warranty.canada@walinga.com
- USA: 1-800-466-1197 (ext 8); Email – warranty.usa@walinga.com
- Australia: 07-4634-7344; Email – mail@customvac.com.au

Required Warranty Claim information
The following information must be provided to Walinga in order for us to properly process and consider your warranty application:

- Customer name and contact information (email if available).
- The equipment serial number and/or Vehicle Identification Number (if applicable).
- Date of claimed failure.
- Equipment hours of operation.
- Details, description and photos (upon request) of the claimed failure and the corrective repairs attempted.

Warranty Conditions

- **Equipment must be registered within 30 days of being received by the buyer. It will be within the sole and unfettered discretion of Walinga as to whether it will honour its warranty on non-registered equipment.**

Warranty Conditions (continued)

- The buyer is responsible for promptly notifying Walinga of any defects to the equipment. The buyer is also responsible for making the equipment available to Walinga or its authorized repair facility for evaluation and repair.
- Prior to making any repairs or parts replacements, a warranty application and any estimated associated costs must be approved with the issuance of a claim number by an authorized Walinga representative. Undertaking any work prior to receiving warranty authorization may result in a partial or complete loss of warranty coverage.
- At Walinga's discretion, warranty repairs may be authorized to be completed at a repair facility convenient to the buyer. In such situations the estimated labour time must be approved by Walinga prior to undertaking any work. Labour hours will be reimbursed at the facilities posted hourly labour rate.
- At Walinga's request, parts in question must be returned to the nearest Walinga service facility for evaluation. In such situations a Returned Goods Authorization (RGA) number will be provided to the buyer. The returning shipment must be clearly labeled with the assigned RGA number and include a copy of the RGA form. Unless otherwise arranged, these parts are to be returned to Walinga within 30 days to ensure timely processing of your warranty claim. Failure to return such parts may result in partial or complete loss of warranty coverage.
- Replacement parts provided under warranty are covered for the remainder of the original equipment warranty period.
- Walinga reserves the right to use new, remanufactured or refurbished components when performing warranty repairs and replacements.
- Walinga is entitled to a reasonable amount of time and a reasonable number of attempts to assess the claim, diagnose the problem, and perform any necessary repairs.
- The warranty offered on used or refurbished equipment is limited to that specified on the purchase contract. Where a warranty period has not been stipulated on the purchase contract., and where such equipment is “used”, then such equipment is considered by Walinga to be sold “as is, where is” without the Walinga Warranty. Where such equipment is refurbished, then the Walinga Warranty shall apply.

Without limitation, Walinga reserves the right to reject a warranty claim or for any one or more of the following reasons:

- The warranty claim information provided is insufficient.
- The product evaluation does not substantiate the claim.
- The unit has been operated above and beyond its capacity or not maintained or serviced properly, resulting in damages incurred to major components.
- If the unit was equipped with a factory installed hour meter which has been disconnected, altered or inoperative for an extended period of time; with the result being that the equipment’s operating hours cannot be verified.
- It is apparent that the operator’s manuals have not been followed.
- The equipment is not registered.

Without limitation, Walinga’s Warranty does not cover:

- Damage or deterioration due to lack of reasonable care or maintenance.
- Damage caused or affected by unapproved modifications to the equipment.
- Damage caused by negligence or misuse of the equipment.
- Damage caused by using the equipment for purposes for which it was not designed or intended.

Walinga’s liability under this warranty, whether in contract or tort, is limited to the repair, replacement or adjustment of defective materials and workmanship. In no event will Walinga be responsible for any direct, indirect, loss of time, incidental or consequential expenses including, but not limited to, equipment rental expenses, towing, downtime, inconvenience, or any losses resulting from the inability to use the equipment. Further, Walinga shall not be liable for any damages or inconvenience caused by any delay in the supply or delivery of any equipment or component parts thereof.

The selling Dealer/Sales Person makes no warranty of its own and has no authority to make any representation or promise on behalf of Walinga, or to modify the terms or limitations of the Walinga Warranty in any way.

Punitive, exemplary or multiple damages may not be recovered unless applicable law prohibits their disclaimer.

Warranty related claims may not be brought forward as a class representative, a private attorney general, a member of a class of claimants or in any other representative capacity.

The Walinga Warranty and all questions regarding its enforceability and interpretation are governed by the law of the country, state or province in which you purchased your Walinga equipment. The laws of some jurisdictions limit or do not allow the disclaimer of consequential damages. If the laws of such a jurisdiction apply to any claim against Walinga, the limitations and disclaimers contained here shall be to the greatest extent permitted by law.

Dear Customer,

Thank you for choosing WALINGA PNEUMATIC CONVEYING SYSTEMS. For your convenience, should you require any information related to Parts, Service or Technical Engineering, please contact one of the following Walinga Personnel in Guelph at 1-888 925-4642 unless noted*

TECHNICAL - ENGINEERING:
Duane Swaving *226-979-8227 pcs.techsupport@walinga.com
Ken Swaving *519 787-8227 (ext:100) ks@walinga.com

To speak with a Walinga Warranty Coordinator, contact:

- Canada 1-888-WALINGA (ext 258)
  International +1-519-824-8520 (ext 258) Email – warranty.canada@walinga.com
- USA 1-800-466-1197 (ext 8) Email – warranty.usa@walinga.com
- Australia 07-4634-7344 Email – mail@customvac.com.au

GUELPH SERVICE:
Kevin VanderZwaag *(519) 763-7000 (ext:273) kevin.vanderzwaag@walinga.com

ORIGINAL PARTS SALES:
Ontario and Eastern Canada:
(ext: 224) parts.canada@walinga.com
Parts Department Fax: (519) 824-0367
Manitoba and Western Canada:
Chad Yeo * 204-745-2951 (ext: 424) chad.yeo@walinga.com
USA:
John VanMiddlekoop * (800) 466-1197 (ext 3) parts.usa@walinga.com

SALES MANAGER:
Tom Linde *519-787-8227 (ext 5) thl@walinga.com
Peter Kingma (800) 466-1197 jpk@walinga.com

SALES REPRESENTATIVE:
Tim Linde *519-787-8227 ext 109 tim.linde@walinga.com or *519-993-8447

CORPORATE HEAD OFFICE:
5656 Highway 6N
RR#5, Guelph, Ontario, N1H 6J2
PHONE: (888) 925-4642 FAX: (519) 824-5651
www.walinga.com

FACTORY DISTRIBUTION AND SERVICE CENTRES:
938 Glengarry Cres. Fergus, Ontario Canada N1M 2W7
Tel: (519) 787-8227 Fax: (519) 787-8210

1190 Electric Ave. Wayland , MI.USA 49348
Tel: (800) 466-1197 Fax: (616) 877-3474

70 3rd Ave. N.E. Box 1790 Carman, Manitoba Canada R0G 0J0
Tel: (204) 745-2951 Fax: (204) 745-6309

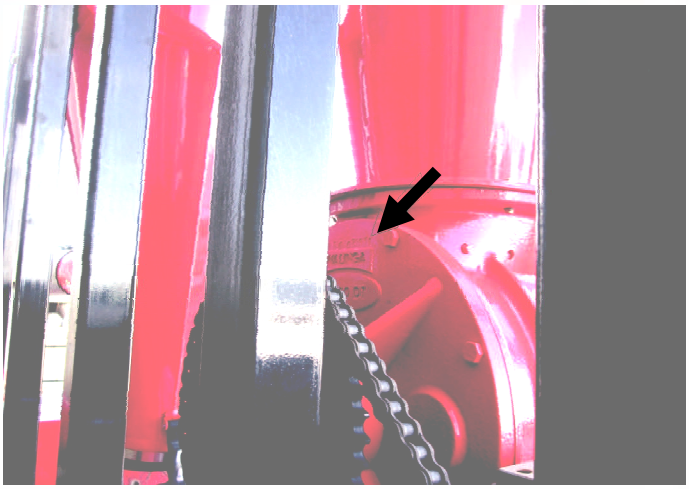
24 Molloy St, Toowoomba, Queensland Australia 4350
Tel: 07-4634-7344 Email: mail@customvac.com.au

SERIAL NUMBER LOCATION

Always give your dealer or Walinga the serial number of your Walinga Central Vacuum System when ordering parts or requesting service or other information. Serial number plates are located where indicated. Record serial numbers in the spaces provided.

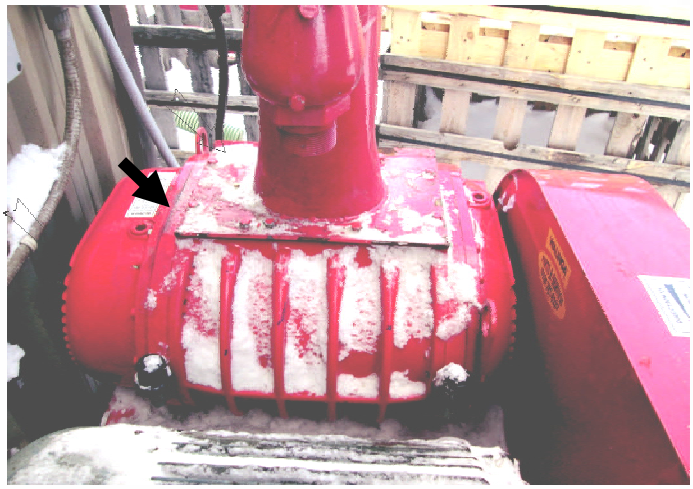
Machine Serial Number

_____



Airlock Serial Number

_____



Blower Serial Number

_____

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1 INTRODUCTION

Congratulations on your choice of a Walinga© Central Vacuum System to complement your manufacturing, food processing or feed milling operation. This equipment has been designed and manufactured to meet the needs of the discriminating buyer for the efficient moving of granular or powder products.

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

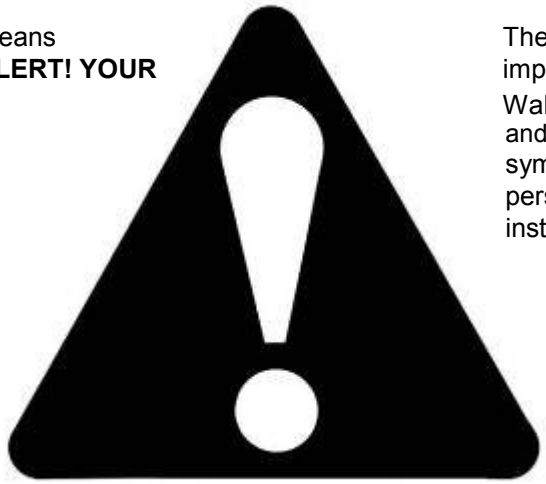
This manual covers all Central Vacuum Systems made by Walinga© Inc. Many systems are custom designed for the specific application. However they are all similar and specific differences are explained where appropriate.

Keep this manual handy for frequent reference and to pass on to new operators or owners. Call your Walinga© dealer if you need assistance, information or additional copies of the manual. Contact your dealer for a complete listing of parts.

2 SAFETY

SAFETY ALERT SYMBOL

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



The Safety Alert symbol identifies important safety messages on the Walinga® Central Vacuum System and in the manual. When you see this symbol, be alert to the possibility of personal injury or death. Follow the instructions in the safety message.

Why is SAFETY important to you?

3 Big Reasons

Accidents Disable and Kill
Accidents Cost
Accidents Can Be Avoided

SIGNAL WORDS:

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

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

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

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

Keep this manual handy for frequent reference and to pass on to new operators or owners. Call your Walinga® dealer if you need assistance, information or additional copies of the manual.
Contact your dealer for a complete listing of parts.

SAFETY

YOU are responsible for the **SAFE** operation and maintenance of your Walinga® Central Vacuum System. **YOU** must ensure that you and anyone else who is going to operate, maintain or work around the Central Vacuum System be familiar with the operating and maintenance procedures and related **SAFETY** information contained in this manual. This manual will take you step-by-step through your working day and alerts you to all good safety practices while operating the Central Vacuum System.

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.

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

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

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

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

- Think SAFETY! Work SAFELY!

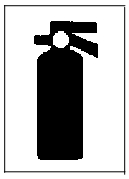
2.1 GENERAL SAFETY

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

2. Only trained, competent persons shall operate the Central Vacuum System. An untrained operator is not qualified to operate this machine.

3. Provide a first-aid kit for use in case of an accident. Store in a highly visible place.

4. Provide a fire extinguisher for use in case of an accident. Store in a highly visible place.



5. Install and properly secure all guards and shields before operating.

6. 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

7. Turn machine OFF, shut down and lockout power supply and wait for all moving parts to stop be-fore servicing, adjusting, maintaining, repairing, cleaning or unplugging.

8. Know the emergency medical center number for your area.

9. Wear appropriate hearing protection when operating the machine.

10. Ground all lines, hoses and wands to prevent static build-up and electrical discharge/shocks.

11. Review safety related items with all operators annually.

2.2 EQUIPMENT SAFETY GUIDELINES

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

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

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

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

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

6. Review the safety instructions with all users annually.

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

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

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

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

2.3 STORAGE SAFETY

1. Store the Central Vacuum System on a firm level surface.

2. If required, make sure the unit is firmly blocked up.

3. Make certain that all mechanical locks are safely and positively connected before storing.

4. Store away from areas of human activity.

5. Do not allow children to play on or around the stored Central Vacuum System.

6. Lock out power by turning off master control panel or junction box and padlocking the door shut to prevent electrocution or unauthorized start-up of the Central Vacuum System.

2.4 SAFETY TRAINING

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

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

3. It has been said, "The best safety feature is an informed, careful operator." We ask you to be that kind of an operator. It is the operator's responsibility

to read and understand ALL Safety and Operating instructions in the manual and to follow these. Accidents can be avoided.

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

   a. Reads and understands the operator's manuals.

   b. Is instructed in safe and proper use.

5. Know your controls and how to stop the Central Vacuum System and any other auxiliary equipment quickly in an emergency. Read this manual and the one provided with your other equipment.

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

2.5 SAFETY SIGNS

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

2. Replace safety signs that are missing or have be-come illegible.

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

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

How to Install Safety Signs:

- Be sure that the installation are is clean and dry.
- Be sure the temperature is above 50°F (10°C)
- Determine exact position before you remove the backing paper. (See Section 3).
- Remove the smallest portion of the split backing paper.
- Align the sign over the specified area and carefully press the small portion with the exposed sticky backing in place.
- Slowly peel back the remaining paper and carefully smooth the remaining portion of the sign in place.
- Small air pockets can be pierced with a pin and smoothed out using a piece of sign backing paper

How to Reorder Your Safety Signs:

1. Call your local dealer, or the factory branch nearest you.

FACTORY DISTRIBUTION AND SERVICE CENTRES:

Head Office:
RR#5, Guelph, Ontario,N1H 6J2
PHONE (888) 925-4642
FAX (519) 824-5651

938 Glengarry Cres. Fergus,Ontario Canada N1M 2W7
Tel: (519) 787-8227 Fax: (519) 787-8210

70 3rd Ave. N.E. Box 1790 Carman,
Manitoba Canada R0G 0J0
Tel (204) 745-2951 Fax (204) 745-6309

1190 Electric Ave.Wayland, MI.USA 49348
Tel (800) 466-1197 Fax (616) 877-3474

PO Box 2426, 24 Molloy Street, Toowoomba QLD,
Australia 4350
Tel: (07) 4634-7344 Fax: (07) 4634-7606

2.6 PREPARATION

1. Never operate the Central Vacuum System and auxiliary equipment until you have read and completely understand this manual, the auxiliary equipment Operator's Manual, and each of the Safety Messages found on the safety signs on the and auxiliary equipment.
2. Personal protection equipment including hard hat, safety glasses, safety shoes, and gloves are recommended during assembly, installation, operation, adjustment, maintaining, repairing, removal, or moving the implement. Do not allow long hair, loose fitting clothing or jewelry to be around equipment.

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

4. Clear working area of debris, trash or hidden obstacles that might be hooked or snagged, causing injury, damage or tripping.
5. Operate only in daylight or good artificial light.
6. Be sure machine is properly anchored, adjusted and in good operating condition.
7. Ensure that all safety shielding and safety signs are properly installed and in good condition.
8. Before starting, give the machine a "once over" for any loose bolts, worn parts, cracks, leaks, frayed belts and make necessary repairs. Always follow maintenance instructions.
9. Walinga would like to remind the owner of this piece of equipment, that in order to be in accordance with NFPA 652-Chapter 7, a Dust Hazards Analysis (DHA) must be completed.
   - **Maximum allowable Kst is 200 bar m/s**
   - **Maximum allowable Pmax is 10 bar**

2.7 INSTALLATION SAFETY

1. Disconnect and remove all mechanical locks, an-chor chains and any other transport devices that would hinder or prohibit the normal functioning of the Central Vacuum System upon start up. Serious damage to the machine and/or personal injury to the operator and bystanders may result from at-tempting to operate the machine while mechanical locking devices are still attached.
2. Anchor the machine to firm, level ground before operating.
3. Level the frame before using or loading.
4. Have at least one extra person available to assist when elevating, moving or connecting to other equipment.
5. Make certain that sufficient amperage, at the prop-er voltage and frequency (60Hz) is available before connecting power for the electric model. Have a licensed electrician provide power to the machine. Always follow ANSI/NFPA 70 Standard and all lo-cal codes when providing electrical power.
6. If using Central Vacuum System as part of material handling system, anchor securely before starting.
7. Vent discharge air from blower to outside.
8. Maintain 18” maximum Machine Distance from the wall.

<u>Suppressed Air for The Purge System</u>

There must be an adequate supply of suppressed air for the purge system The minimum rating is 80 PSI with a minimum flow rate of 4 CFM .
To eliminate moisture in the system,the compressor system must be equipped with an air dryer.

2.8 OPERATING SAFETY

1. Read and understand the Operator's Manual and all safety signs before operating, maintaining, adjusting or repairing the Central Vacuum System.

2. Before servicing, adjusting, repairing or maintaining unit, ensure that unit power source is completely shut down and cannot start up.

3. Do not operate when any guards are damaged or removed, Install and secure guards before starting.

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

5. Clear the area of all bystanders, especially small children, before starting.

6. Before supplying electrical power to the machine, be sure you have adequate amperage at the proper phase and voltage to run it. If you do not know or are unsure, consult a licensed electrician.

7. Wear appropriate ear protection when operating machine.

8. Do not place intake nozzle near feet when standing on the top of grain.

9. Review safety instructions with all personnel annually.

2.9 MAINTENANCE SAFETY

1. Good maintenance is your responsibility. Poor maintenance is an invitation to trouble. Follow all operating, maintenance and operating instructions in this manual.

2. Support the machine with blocks or safety stands when working beneath it.

3. Follow good shop practices:

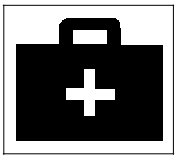
   - Keep service area clean and dry.
   - Be sure electrical outlets and tools are properly grounded.
   - Use adequate light for the job at hand.

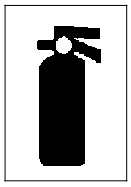
4. Use only tools, jacks or hoists of sufficient capacity for the job.

5. Before servicing, adjusting, repairing or maintaining unit, ensure that power source is completely shut down and locked-out, tagged-out.

6. Always use personal protection devices such as eye, hand and hearing protectors, when perform-ing any service or maintenance work.

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





8. Make sure all guards are in place and properly secured when maintenance work is completed.

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

10. Lock-out, tag-out master panel before performing any maintenance work on machine or opening airlock access door.

11. Clear the area of bystanders, especially small children, when carrying out any maintenance and/or repairs or making any adjustments.

12. Be sure all lines, hoses and wands are grounded when maintenance work is completed.

2.10 ELECTRICAL SAFETY

1. Have only a qualified licensed electrician supply power to the electric model by following ANSI/ NFPA 70 Wiring Standard. Make certain that the Central Vacuum System is properly grounded at the power source.

2. Install safety decals on Master Control panel as per Section 3 - Safety Sign Locations (pg 17)

3. Make certain that all electrical switches are in the OFF position before plugging the Central Vacuum System in.

4. Turn machine OFF, shut down and lock out power supply and wait for all moving parts to stop before servicing, adjusting, maintaining or repairing.

5. Disconnect power before resetting any motor or breaker overload.

6. Replace any damaged electrical plugs, cords, switches and components immediately.

7. Do not work on Central Vacuum System electrical system unless the power cord is unplugged or the power supply is locked-out tagged-out.

8. Check continuity of all couplings.

2.11 LOCK-OUT TAG-OUT SAFETY

1. Establish a formal Lock-Out Tag-Out program for your operation.

2. Train all operators and service personnel before allowing them to work around the Central Vacuum System.

3. Provide tags at the work site and a sign-up sheet to record tag out details.

4. Do not perform any service or maintenance work unless motor is OFF and the power locked out.

2.12 EMPLOYEE SIGN-OFF FORM

Walinga® Inc. follows the general Safety Standards specified by the American Society of Agricultural and Biological Engineers (ASABE) and the Occupational Safety and Health Administration (OSHA). Anyone who will be operating and/or maintaining a Walinga® built machine must read and clearly understand ALL Safety, Operating and Maintenance information presented in this manual.

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

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

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

SIGN-OFF FORM

DATE	EMPLOYEE'S NAME	EMPLOYER'S SIGNATURE

3 SAFETY SIGN LOCATIONS

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

- Think SAFETY! Work SAFELY!

A

B

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

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

- Think SAFETY! Work SAFELY!

C

D

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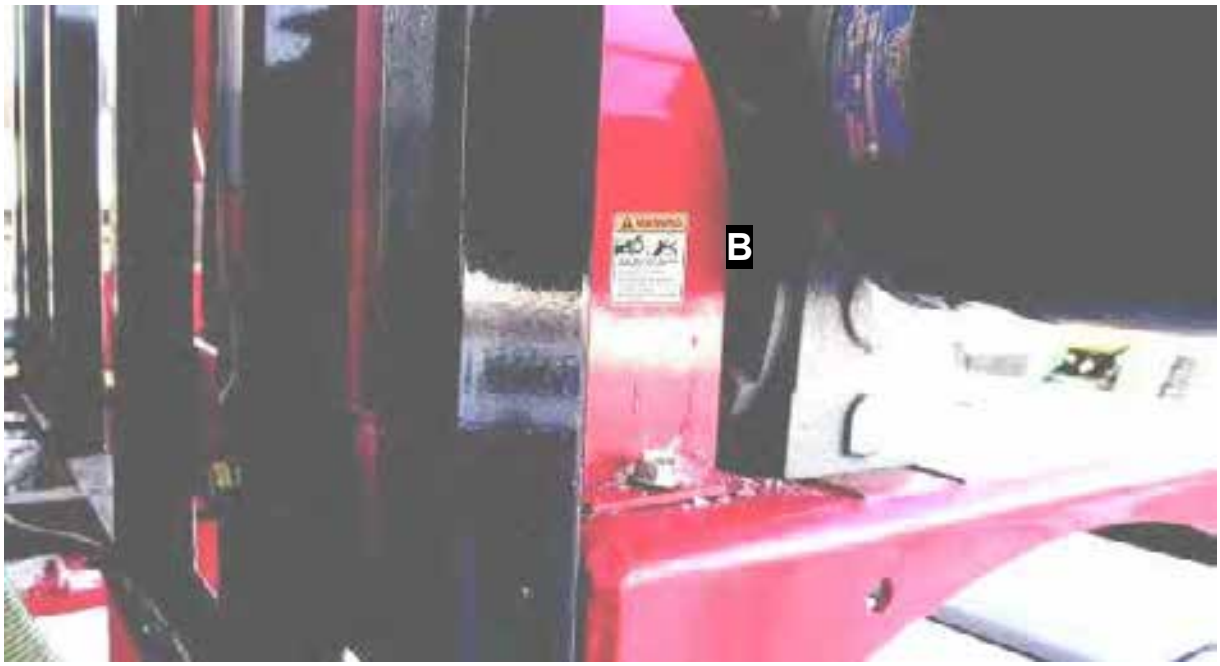

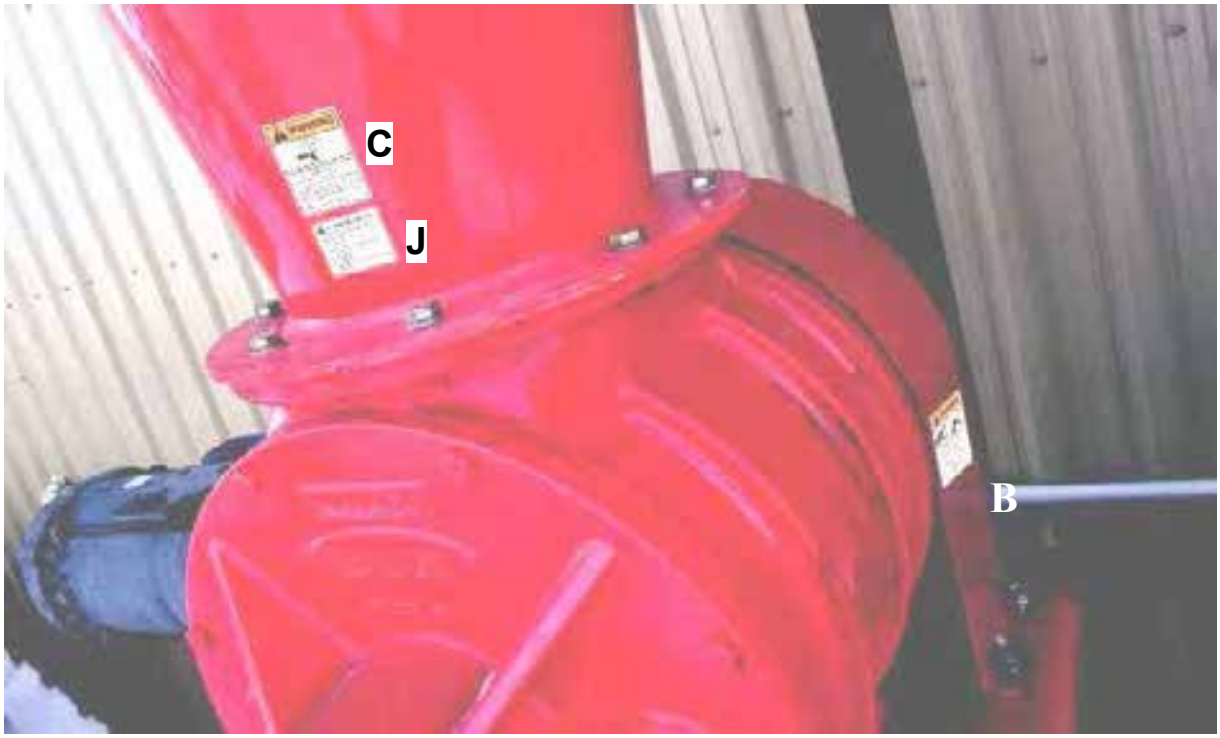

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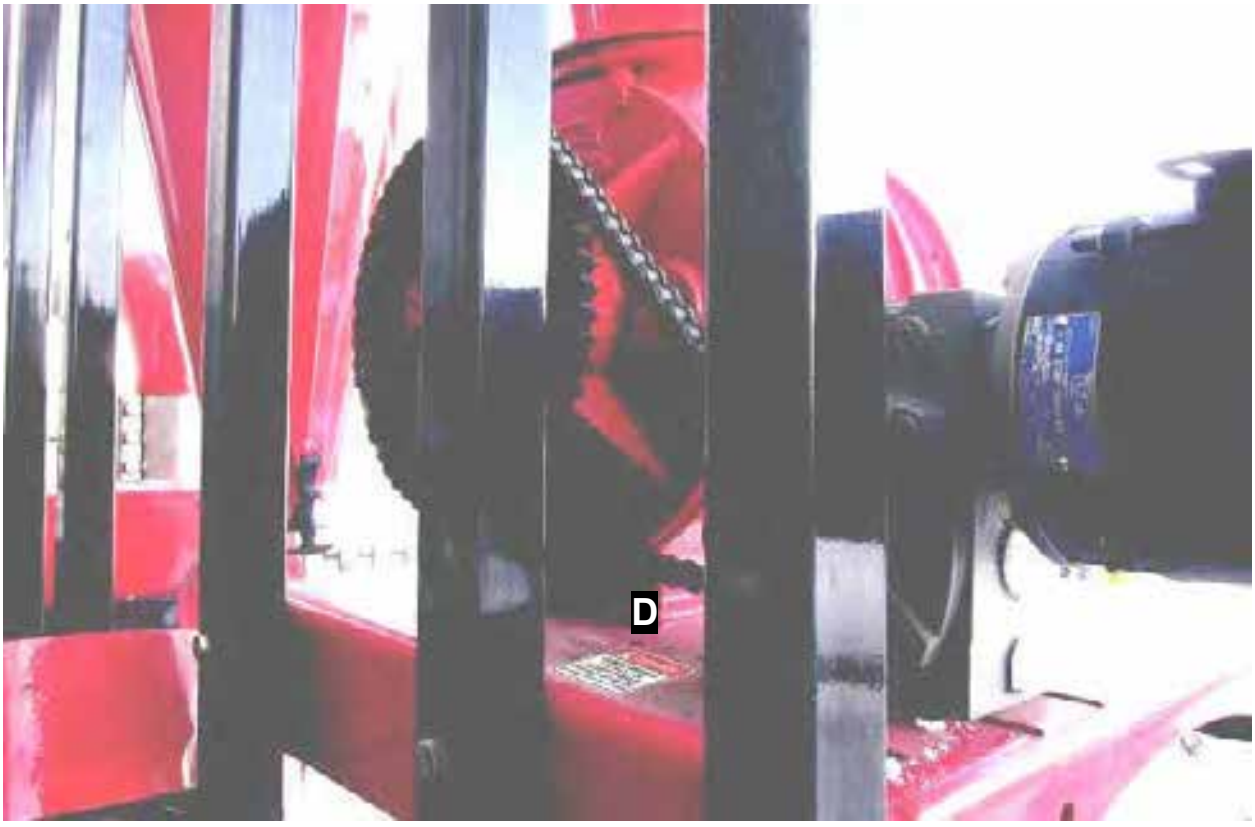

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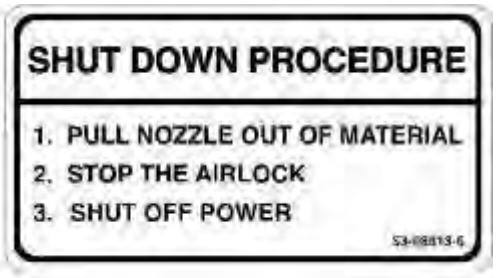

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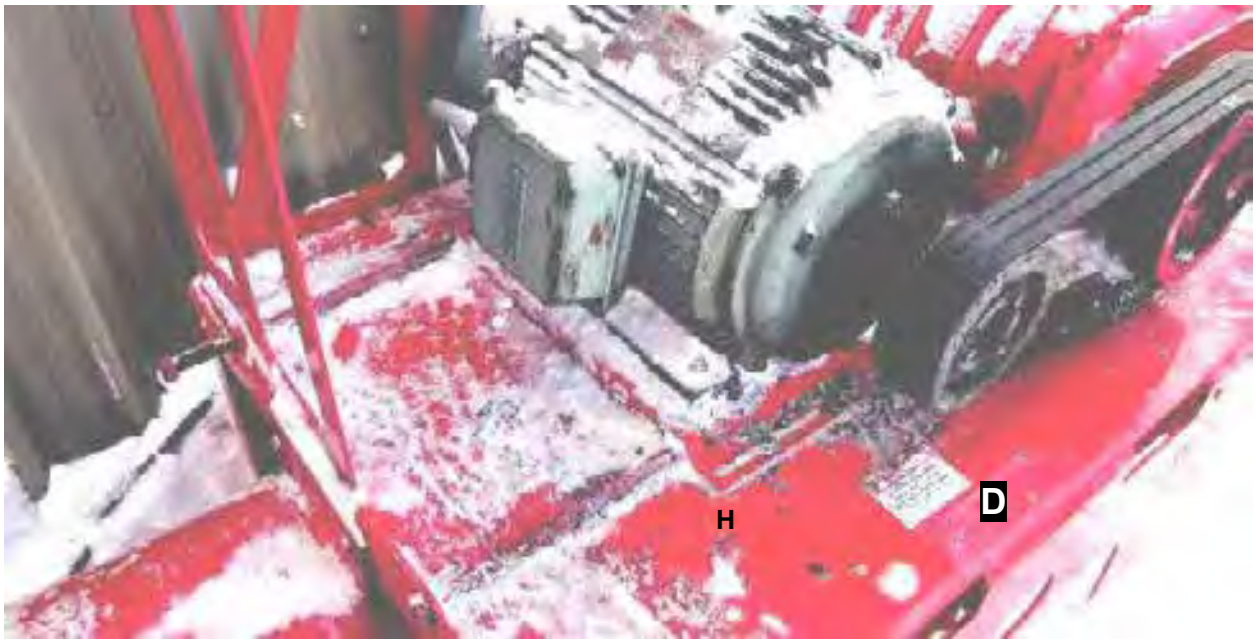

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- Think SAFETY! Work SAFELY!

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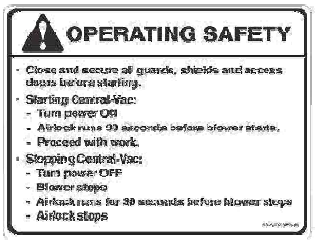

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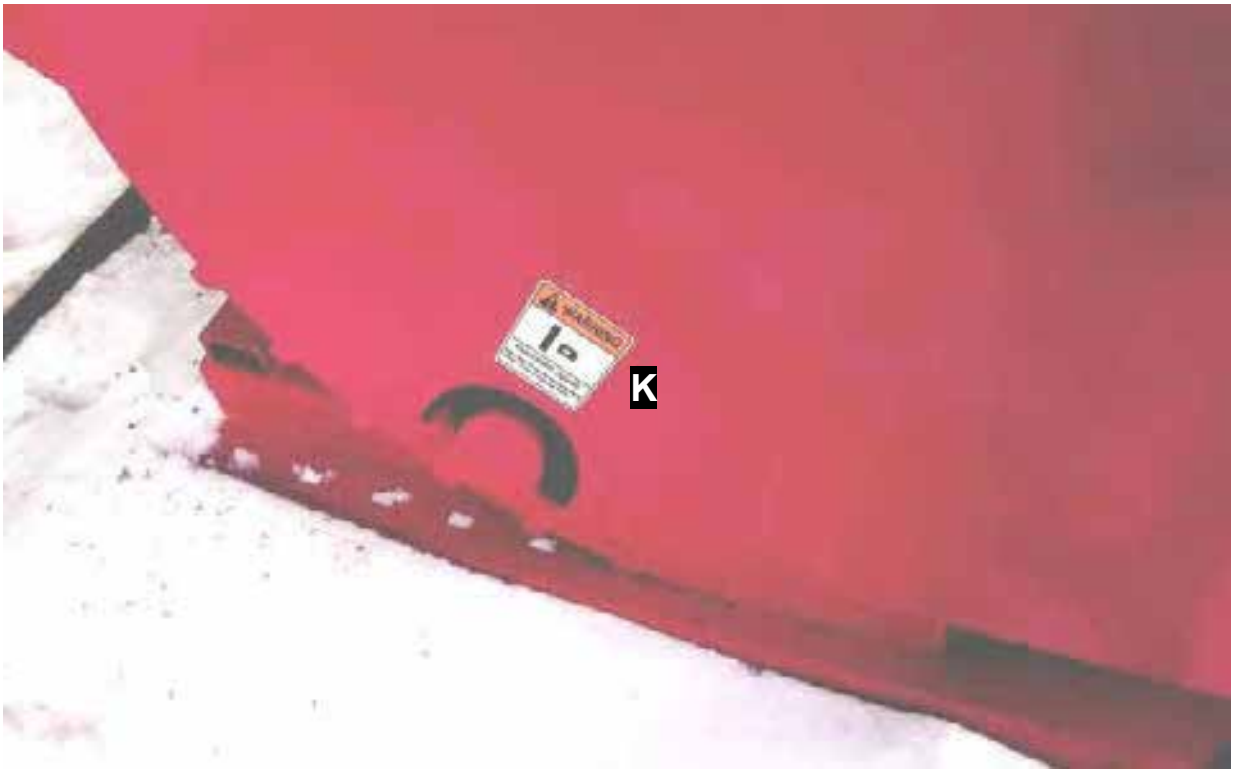


REMEMBER - If Safety Signs have been damaged, removed, become illegible or parts replaced without safety signs, new signs must be applied. New safety signs are available from your authorized dealer.

4 OPERATION

4.1 TO THE NEW OPERATOR OR OWNER

The Walinga® Central Vacuum System is designed to vacuum up grain, powder or other granular material and move it in a stream of pressurized air. A high capacity air pump moves the air through the machine creating a vacuum on the intake side and pressure on the outlet side. Be familiar with all operating and safety procedures before starting.

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

It is the responsibility of the owner or operator to read this manual and to train all other operators before they start working with the machine. Follow all safety instructions exactly. Safety is everyone's business. By following recommended procedures, a safe working environment is provided for the operator, bystanders and the area around the worksite. Untrained operators are not qualified to operate the machine.

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

4.2 MACHINE COMPONENTS

The machine is designed with an air pump or blower drawing air and material into the intake wands, hose and piping. An electric motor powers the blower through a set of belts. A large filter on the intake side removes dust from the air intake before it enters the blower.

Seed, powder or other loose granular material is drawn into the system through the wands and hose/ pipes. Material drops out of the air stream when it enters the cyclone. From the receiver cyclone, the material drops into the turning airlock that discharges it from the system.

A Electric Motor
B Belt Drive Cover
C Blower
D Intake Filter
E Air Lines
F Collector Cyclone
G Air Lock
H Chain Drive Cover
J Intake Hose
K Intake Wand
L Pick-up Point
M Flapper Valve
N Self Dumping Bin
O Reducing Coupler
P Crevice Tool
R Controls
S Vacuum Relief Valve

FIG. 1 MACHINE COMPONENTS

4.3 MACHINE BREAK-IN

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

A. After operating for 1/2 hour:

1. Retorque all fasteners and hardware.
2. Turn blower and airlock by hand. Be sure that they turn freely.
3. Open and clean the pre-cleaner door, filter and tank.
4. Check that no hoses are pinched, rubbing or being crimped. Re-align as required.
5. Check oil level in reservoirs. Add as required.
6. Lubricate all grease fittings.

B. After operating for 5 hours and 10 hours:

1. Retorque all bolts, fasteners and hardware.
2. Check hose routing.
3. Check that blower and airlock turn freely.
4. Check oil level in reservoirs.
5. Then go to the normal servicing and maintenance schedule as defined in the Maintenance Section.

4.4 PRE-OPERATION CHECKLIST

Efficient and safe operation of the Walinga© Central Vacuum System 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 the personal safety and maintaining the good mechanical condition of the Central Vacuum that this checklist is followed.

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

1. Lubricate the machine per the schedule outlined in Section 5 Service and Maintenance.
2. Check the oil level in the blower reservoirs.
3. Inspect all air lines, hoses, fittings and cam lock couplers for sealing and tightness.
4. Reference the pressure differential gauge to confirm that the filters are clean.
5. Check that the blower and airlock turn freely.
6. Check for and remove entangled material.
7. Close and secure all guards.

4.5 CONTROLS

Each customer is responsible to provide the appropriate control panel and power supply to the machine. It is recommended that the customer have a licensed electrician provide power per ANSI/NFPA 70 Standard and all applicable local codes when providing power to the motor.

The Central Vacuum System can be wired into a large control room away from the machine or controlled by the control boxes next to the unit.

Be familiar with the specific control box system before starting.

1. **Master Control Panel:**

   a. **Start:**
   This green two-position push-button switch is used to turn power ON to the control panel. Depress the switch to turn power ON. When power is on, the switch will illuminate.

   b. **Stop:**
   This red two-position push-button switch is used to turn the power OFF to the control panel. Depress the switch to turn power OFF. When the red switch is depressed the green start switch light will go off.

   c. **Airlock:**
   This light is illuminated when the airlock is running and goes out when it stops.

   IMPORTANT

   The airlock is designed to run for approximately 30 seconds before the blower turns ON and will continue for 4 minutes after the blower shuts down. This insures the collecting cyclone is empty before introducing more material into the system.

   d. **Blower:**
   This light is illuminated when blower is running and goes out when it stops.

   e. **Reset (Blower - Left):**
   This lighted switch monitors the status of the blower circuit breaker inside the panel. For normal operation, the light is OFF. If the blower circuit becomes overloaded, the circuit breaker will trip and the switch will be illuminated. Correct the problem and depress the switch to reset the breaker.

FIG. 2 MASTER CONTROL PANEL

   f. **Reset (Airlock - Right):**
   This lighted switch monitors the status of the airlock circuit breaker inside the panel. For normal operation, the light is OFF. If the air-lock circuit becomes overloaded, the circuit breaker will trip and the switch will be illuminated. Correct the problem and depress the switch to reset the breaker.

2. **Power Disconnects:**
The system is designed with switches close to the machine that allow the operator to disconnect the power to the respective motors as required. Turn the switch into its vertical configuration to provide power to the motor and horizontal to disconnect power.

A. Airlock
B. Blower

FIG. 3 POWER DISCONNECTS:

4.6 OPERATION

The Walinga® Central Vacuum System is used to pick up and move grain, powder or other granular material from one location to another on a stream of air. Before starting, the operator has the responsibility of being familiar with all operating and safety procedures and following them.

Each operator should review this section of the manual at the start of the season and as often as required to be familiar with the Central Vacuum System. When operating the machine, follow this procedure:

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

2. Review and follow the pre-operation checklist (see Section 4.4)

3. Attach the components required to pick up the dust or granular material as appropriate for your application.

   a. Check the integrity of the coupler gasket seal.

FIG. 4 GASKET SEAL

b. Attach hose to Camlock Coupler.

FIG. 5 CAMLOCK COUPLER

c. Attach gathering component to the end of the hose.

Intake Tube

Crevice Tool

Wand

FIG. 6 GATHERING COMPONENTS (TYPICAL)

4. Position Hopper Bin under airlock discharge.

FIG. 7 HOPPER BIN

5. **Starting Machine:**

   a. Check that the master panel is not locked out. If it is, identify cause and retrieve the tag. Turn master panel on.

   b. Turn power disconnects switches ON.

Power Disconnects

   c. Turn power ON at the master control panel.

Master Control Panel

FIG. 8 SWITCHES (TYPICAL)

IMPORTANT

When machine is turned on, the air-lock will start and run 30 seconds before the blower will start.

6. **Stopping Machine:**

   Turn the machine off using the STOP switch. This will shut down both the blower and the airlock but the airlock and purge cycle will run 4 minutes after the blower stops.

IMPORTANT

When machine is turned off, the air-lock will run 4 minutes after the blower stops.

7. **Gathering Material:**

   a. Use the open end of the tube, nozzle or wands to pick up material.

   b. Several types of tubes or wands are available to use. The operator can select the one most appropriate for their application.

Wand

Straight Nozzle

Crevice Tool

FIG. 9 GATHERING MATERIAL

8. **Air Slide:**

   Each wand is designed with an air slide on the tube that can be used to control the amount of air entering the machine along with gathered material. Always move the wand so that sufficient air enters the system to move the material and cool the blower. Do not starve the system for air.

Mostly Closed

Mid-Range

Open

FIG. 10 AIR SLIDE (TYPICAL)

10. **Nozzle Position:**

    Do not place the nozzle between your feet when picking up a deep pile of granular material. The nozzle can pick up sufficient material to draw the operator into the pile and suffocate them. Always pick up material away from nozzle.

11. **System Grounding:**

a. Granular material flowing through pipes, hoses or lines can generate an electrical charge that will create electrical discharges, static and/or sparks. In high dust environments sparks or electrical discharges can set off an explosion. This static charge condition can be very annoying to an operator.

The system is designed using steel lines, met-al arm lock couplers on all fittings, a metal spiral strand in the hose that is attached to each fitting and metal pick-up components to maintain electrical ground continuity and through the entire system. Only when nonmetal components are used or the electrical continuity is broken sparks or shocks occur. Use an ohmmeter to check the electrical continuity of the system on a weekly basis as a maintenance item and/or if anyone feels a shock.

b. Use an ohmmeter to check the electrical continuity of all swivel couplings on a weekly basis as a maintenance item and/or if anyone feels a shock.

Cam Lock

Wand

FIG. 11 CAMLOCK GROUNDING (TYPICAL)

12. **System Filter**
    The system is designed with four filters placed above the Cyclone Assembly. The filters further separates product for the air stream. This prevents the product from being emitted to the atmosphere. The filters should be changed once annually or every 400 hours of operation.

13. **Purge Valves and Timer**
    The Purge valves are developed and designed to use high pressure air to clean any product captured by the filters. The product blown off then passes through the airlock and into the discharge point. The purge valves are controlled by a sequential timer found in the plastic box mounted to the side of the receiver top. This is factory set to purge each set of two filters once every two minutes. (See FIG.13)(Contact your local Walinga Sales Representative before making any changes or adjustments to this timer.)

14. **Air Tank and Regulator**
    The air tank is used to accumulate airflow and pressure for an effective filter purge. It is a pressure rated tank and should never be tampered with. Drain this tank using the port on the bottom side of the tank. The air tank is supplied by an air regulator which is factory set at 80psi and a flow rate of 4 cfm. (Contact your Walinga Sales Representative before making any changes or adjustments to this regulator.) Ensure that the air tank is supplied with air from a compressor system equipped with an air dryer, as moist air can cause condensation in the air tank and premature filter and purge valve failure.

15. **Pressure Differential Gauge**

    The pressure differential gauge is in place to display the difference in pressure before and after the filters. Be sure to inspect the lines and fittings to ensure that they stay clean of any debris.

16. **Explosion Vent**
    The explosion vent is a membrane meant to be the first weak point inside the vacuum system in the case of an explosion. Make sure that the vent is not damaged in any way and that the explosion vent is free from any obstacles blocking the path of the vent or any subsequent ducting. Ensure that the installation of the unit if installed indoors in no farther than 18” from the vent discharge or the wall. The explosion vent creates compliance to NFPA-68.
    - **Maximum allowable Kst is 200 bar m/s**
    - **Maximum allowable Pmax is 10 bar**

FIG.12 Filter

FIG.13 Air Tank and Regulator

FIG.14 Pressure Differential Gauge

17. **Receiver Cyclone/Airlock:**

The system is designed to direct the system intake air flow into a cyclone receiver where the large, heavy particles fall out into the airlock. The airlock is located under the receiver tank. The collected material drops into an airlock compartment as it turns. As the rotor turns and a compartment moves from its up position to its down position, the material in the rotor compartment will fall out into the hopper bin.

FIG. 15 RECEIVER CYCLONE/AIRLOCK

18. **Airlock Unplugging:**

If a large piece of debris is drawn into the intake, it can get into the airlock, stall it and have to be removed. To unplug, lock-out tag-out master control panel. Remove obstruction through the access door on the receiver tank. Rotate airlock after obstruction is removed to be sure airlock turns freely and has not been damaged. Repair airlock if damaged before resuming work.

FIG. 16 AIRLOCK ACCESS

19. **Lock-Out Tag-Out Procedure:**

It is recommended that the customer institute a formal lock-out tag-out procedure for their workplace. In simple terms, this policy would require every person that will be servicing, adjusting, maintaining or unplugging the system to lock out the master panel and place a tag on it before working on the unit. Only the person with the tag can unlock the master switch to allow it to be turned on. This prevents unauthorized people from starting up the system and maintains control by the serviceman working on the system.

20. **Operating Hints:**

a. Lock out tag out master panel before per-forming any service or maintenance work on machine or unplugging airlock.

b. Maintain electrical continuity through all components to prevent sparks, shock or electrical discharges. Do not use plastic components.

c. Clean the intake filter whenever the vacuum relief valve goes off. Replace filter when cleaning frequency is too short.

d. Remove obstructions from airlock through access door in receiver tank after the master panel is locked out tagged out.

FIG. 17 AIRLOCK ACCESS DOOR

e. Verify that each female connection has a rubber gasket seal in good condition.

FIG. 18 GASKET SEAL (TYPICAL)

f. When on top of material, do not push the nozzle into the pile next to the feet. The suction will pull the nozzle and the operator into the pile. If the pile is deep enough, the operator can be submerged under the material and suffocated.

FIG. 19 TUBE NOZZLE

4.7 STORAGE

STORAGE SAFETY

- Store unit in area away from human activity
- Do not allow children to play on or around the stored Central Vacuum System.
- Lock-out tag-out master control panel to prevent unexpected start-up.

If the machine will not be used for a period of time, the machine should be thoroughly inspected and prepared for storage. Repair or replace any worn or damaged components to prevent any unnecessary down time when it will be used again.
Follow this procedure:

1. Clean the entire machine thoroughly using the Central-Vacuum to remove all dirt, debris or residue.
2. Run the airlock to be sure the cyclone receiver is empty and clean.
3. Apply anti-corrosive oil to the blower and the airlock.
4. Gather all hoses, inlets and wands and store them so they will not be damaged during the down time.
5. Lubricate all grease points. Make sure all grease cavities have been filled with grease prior to storage.
6. Inspect all air hoses, fittings, lines and camlock couplers. Tighten any loose fittings. Replace any hose that is badly cut, nicked or abraded or is separating from the crimped end of the fitting.
7. Check the oil level in the blower reservoirs and gearbox. Bring to the recommended level.
8. Install and secure the plugs in the intake line inlets.
9. Touch up all paint nicks and scratches to prevent rusting.

5 SERVICE AND MAINTENANCE

MAINTENANCE SAFETY

- Follow ALL the operating, maintenance and safety information in the manual.

- Support the machine with blocks or safety stands when working beneath it.

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

- Use only tools, jacks and hoists of sufficient capacity for the job.

- Before servicing, adjusting, repairing or maintaining unit, ensure that unit power source is completely shut down and cannot start up.

- Make sure all guards are in place and properly secured when maintenance work is completed.

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

- Lock-out tag-out master control panel before opening airlock access door.

- Lock-out tag-out master control panel before performing any maintenance or service work on machine.

- Clear the area of bystanders, especially small children, when carrying out any maintenance and repairs or making any adjustments.

- Be sure all lines, hoses, and wands are grounded when maintenance work is completed.

5.1 SERVICE

5.1.1 FLUIDS AND LUBRICANTS

1. **Grease:**
   Use an SAE multi-purpose high temperature grease with extreme pressure (EP) characteristics. Also acceptable is an SAE multipurpose lithium-based grease.

2. **Blower Oil:**
   Use Walinga® Blower Oil part number **98-13813-5**.

Reservoir Capacity	
Front	1.4 liters (1.48 qts)
Rear	2.5 liters (2.6 qts)

3. **Gearbox Oil:**
   Use 80W90 gear oil for all applications.

Gearbox Capacity
1.0 liters (1.16 qts)

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

5.1.2 GREASING

Use the Maintenance Checklist provided to keep a record of all scheduled maintenance.

1. Use only a hand-held grease gun for all greasing. Air powered greasing systems can damage the seals on bearings and lead to early bearing failure.

2. Wipe grease fitting with a clean cloth before greasing to avoid injecting dirt and grit.

3. Replace and repair broken fittings immediately.

4. If a fitting will not take grease, remove and clean thoroughly. Also clean lubricant passageway. Replace fitting if necessary.

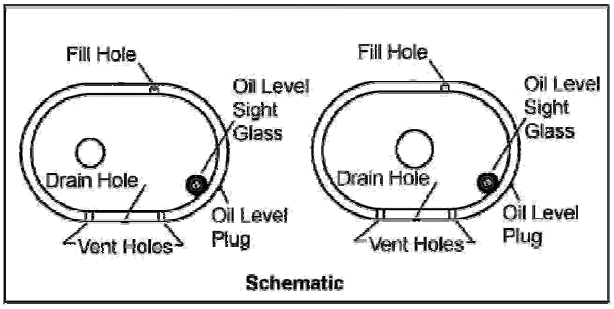
5.1.3 SERVICING INTERVALS

8 Hours or Daily

With the machine running, ensure that the purge cycle is active. This can be done by monitoring the pressure differential gauge. There will be a brief spike in pressure when the filters are being purged. This comes factory set at once per minute. (See 4.5.13)

By referencing the pressure differential gauge, confirm that the filters are being cleaned and are in good running condition. (The filters need to be cleaned or replaced when the differential gauge reads 6 inches of water or more.)

Check the oil level in the blower reservoirs (2 locations).



Schematic

Blower Sight Glass (Typical)

FIG. 23 RESERVOIRS

40 Hours or Weekly

1. Check airlock drive chain. Tension or align as required.

FIG. 24 DRIVE CHAIN

2. Check that the lines, hoses and wands are properly grounded. Use an ohmmeter to be sure. Do not operate unless the system is completely grounded.

FIG. 25 COUPLER (TYPICAL)

3. Check gearbox oil level.

FIG. 26 LEVEL PLUG

Monthly

1. Check purge filters monthly and replace if damaged. When there is a reading of 5 to 6 inches on the differential pressure guage, the filters need to be changed.

6 Months

1. Check the tension and alignment of the input drive belts. See Maintenance Section.

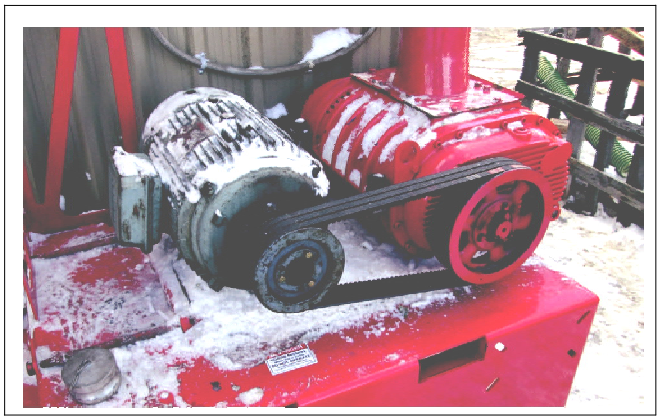


FIG. 27 DRIVE BELTS

2. Service couplings.

100 Hours or Annually

1. Change the oil in the blower reservoirs (2 reservoirs), and clean head plate vent holes.

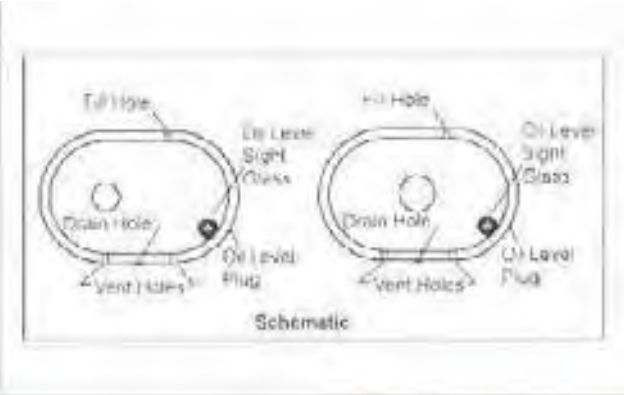


FIG. 28 BLOWER RESERVOIRS

2. Check the function of the vacuum relief valve.

FIG. 29 RELIEF VALVE

3. Check condition of continuity across camlocks.

FIG. 30 CAMLOCKS

4. Change oil in gearbox.

FIG. 31 DRAIN PLUG

5.1.4 SERVICE RECORD

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

CENTRAL VAC INSPECTION SHEET

Date: _____ **Sales Rep:** _____ **Service Rep:** _____

Customer: _____ **Phone #** (___) ___-____ **Serial #** _____

Address: _____

Job number _____ **S.O. number** _____

Notes: _____

PRIME Make: _____ Notes: _____

MOVER serial # _____

VACUUM serial # _____ Notes: _____

BLOWER SPECS: tips: 0.0____", gear end: 0.0____", drive end: 0.0____"

	passed	cleaned	repaired	replaced	N/A	Notes:
blower	☐	☐	☐	☐	☐	
blower timing gears	☐	☐	☐	☐	☐	
internal bearings & seals	☐	☐	☐	☐	☐	
drive seal	☐	☐	☐	☐	☐	
oil condition and level	☐	☐	☐	☐	☐	
head plate vent tubes	☐	☐	☐	☐	☐	
outboard bearing	☐	☐	☐	☐	☐	
BLOWER DRIVE	passed	cleaned	repaired	replaced	N/A	Notes:
sheaves	☐	☐	☐	☐	☐	
belts	☐	☐	☐	☐	☐	
belt alignment	☐	☐	☐	☐	☐	
belt tension	☐	☐	☐	☐	☐	
BLOWER PACKAGE	passed	cleaned	repaired	replaced	N/A	Notes:
blower inlet	☐	☐	☐	☐	☐	
vacuum relief valve	☐	☐	☐	☐	☐	
vacuum gauge	☐	☐	☐	☐	☐	
discharge muffler	☐	☐	☐	☐	☐	
discharge weather cap	☐	☐	☐	☐	☐	

AIRLOCK serial # _____ Notes: _____

SPECS: tips: 0.0_____", drive end: 0.0_____", idler end: 0.0_____"

	passed	cleaned	repaired	replaced	N/A	Notes:
housing condition	☐	☐	☐	☐	☐	
rotor condition	☐	☐	☐	☐	☐	
tip condition	☐	☐	☐	☐	☐	
shaft condition	☐	☐	☐	☐	☐	
AIRLOCK DRIVE	passed	cleaned	repaired	replaced	N/A	Notes:
drive motor	☐	☐	☐	☐	☐	
drive sprockets	☐	☐	☐	☐	☐	
drive chain	☐	☐	☐	☐	☐	
airlock sprocket	☐	☐	☐	☐	☐	
gear box bearings	☐	☐	☐	☐	☐	
gearbox oil condition	☐	☐	☐	☐	☐	
gearbox oil level	☐	☐	☐	☐	☐	
AIRLOCK DISCHARGE	passed	cleaned	repaired	replaced	N/A	Notes:
airlock discharge tube	☐	☐	☐	☐	☐	
airlock discharge coupler	☐	☐	☐	☐	☐	
PRIMARY RECIEVER	passed	cleaned	repaired	replaced	N/A	Notes:
body	☐	☐	☐	☐	☐	
liner	☐	☐	☐	☐	☐	
top sealing gasket	☐	☐	☐	☐	☐	
inspection door	☐	☐	☐	☐	☐	
receiver mounting gasket	☐	☐	☐	☐	☐	
SECONDARY RECIEVER (if applicable)	passed	cleaned	repaired	replaced	N/A	Notes:
body	☐	☐	☐	☐	☐	
liner	☐	☐	☐	☐	☐	
top sealing gasket	☐	☐	☐	☐	☐	
cleanout door	☐	☐	☐	☐	☐	
cleanout door seal	☐	☐	☐	☐	☐	
slide gate	☐	☐	☐	☐	☐	
discharge tube	☐	☐	☐	☐	☐	

FILTER CANISTER (if applicable)	passed	cleaned	repaired	replaced	N/A	Notes:
filter condition	☐	☐	☐	☐	☐	
filter canister condition	☐	☐	☐	☐	☐	
latches	☐	☐	☐	☐	☐	
seal	☐	☐	☐	☐	☐	

PURGE FILTER (if applicable)	passed	cleaned	repaired	replaced	N/A	Notes:
filter 1 condition	☐	☐	☐	☐	☐	
filter 2 condition	☐	☐	☐	☐	☐	
filter 3 condition	☐	☐	☐	☐	☐	
filter 4 condition	☐	☐	☐	☐	☐	
purge valves	☐	☐	☐	☐	☐	
purge tank	☐	☐	☐	☐	☐	
purge timer	☐	☐	☐	☐	☐	
inspection door seals	☐	☐	☐	☐	☐	
explosion vent	☐	☐	☐	☐	☐	
explosion vent duct	☐	☐	☐	☐	☐	

SAFETY/SHIELDS/GUARDS	passed	cleaned	repaired	replaced	N/A	Notes:
belt covers	☐	☐	☐	☐	☐	
decals; w arning/hazards	☐	☐	☐	☐	☐	

ELECTRICAL	passed	cleaned	repaired	replaced	N/A	Notes:
pannel condtion	☐	☐	☐	☐	☐	
all electric pendent stations	☐	☐	☐	☐	☐	

INSTALLED SYSTEM	passed	cleaned	repaired	replaced	N/A	Notes:
structural unit cracks	☐	☐	☐	☐	☐	
cam locks and inlet couplers	☐	☐	☐	☐	☐	
coupling gaskets	☐	☐	☐	☐	☐	
system piping	☐	☐	☐	☐	☐	
dumpster condtion	☐	☐	☐	☐	☐	
mounting rack condtion	☐	☐	☐	☐	☐	
cosmetic; paint	☐	☐	☐	☐	☐	
cosmetic; decals	☐	☐	☐	☐	☐	
hose holders	☐	☐	☐	☐	☐	
tools and hoses	☐	☐	☐	☐	☐	
_____	☐	☐	☐	☐	☐	
_____	☐	☐	☐	☐	☐	

5.2 MAINTENANCE

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

5.2.1 BELT TENSION AND ALIGNMENT

Rotational power from the electric motor is transmitted to the blower through the belt drive. To obtain efficient transmission of power and good belt life, the belts must be properly tensioned and the pulleys aligned.

Belts that are too tight will stretch and wear quickly or overload the bearings on the motor or blower. Belts that are too loose will not transmit the required power and will slip, overheat and wear quickly. Pulleys that are not aligned will result in rapid belt wear.

Follow this procedure when checking and adjusting belt tension and pulley alignment.

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

2. Turn machine off, lock out tag out master control panel and wait for all moving parts to stop before starting maintenance work.

3. Unlatch and remove the belt cover. Lay to the side.

4. Use the appropriate weight to determine the belt deflection in a static condition (Table 1).

FIG. 32 BELT COVER

Table 1 BELT DEFLECTION

Model	Weight Range	Deflection
10 HP (75 KW)	3.8 - 5.7 lbs (1.7 - 2.6 kg)	5/16" (7.9 mm)
15, 20, 25 HP (112, 149, 186 KW)	6.5 - 9.6 lbs (2.9 - 4.4 kg)	5/16" (7.9 mm)

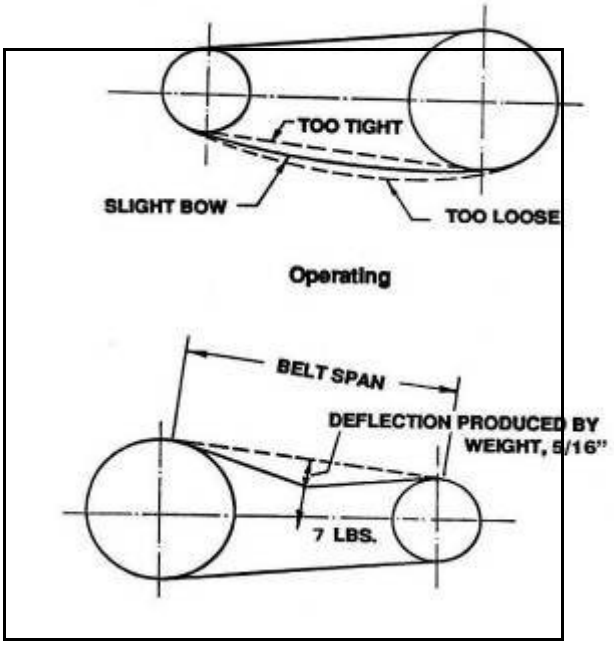


FIG. 33 BELT DEFLECTION

5. **Adjusting Tension:**

   a. Loosen the jam nuts on the motor base and position adjusting bolts. Loosen base position bolts slightly.

   b. Turn the adjusting bolt to set the tension. Turn both bolts the same amount to maintain pulley alignment.

   c. Check the tension again. Overtightening will cause belt stretching and overload the bearing. Belts that are too loose will slip, tear and wear rapidly. To check alignment, see next section.

   d. Tighten base position bolts.

   e. Tighten jam nuts.

   f. Install and secure belt covers.

FIG. 34 TENSIONING

6. **Pulley Alignment:**

   a. Lay a straight-edge across the faces of the two pulleys.

   b. If the gap between the pulley and the straight-edge exceeds 1/16 inch (1.5 mm), the pulleys must be realigned.

FIG. 35 PULLEYS

c. Review the types of alignment before starting.

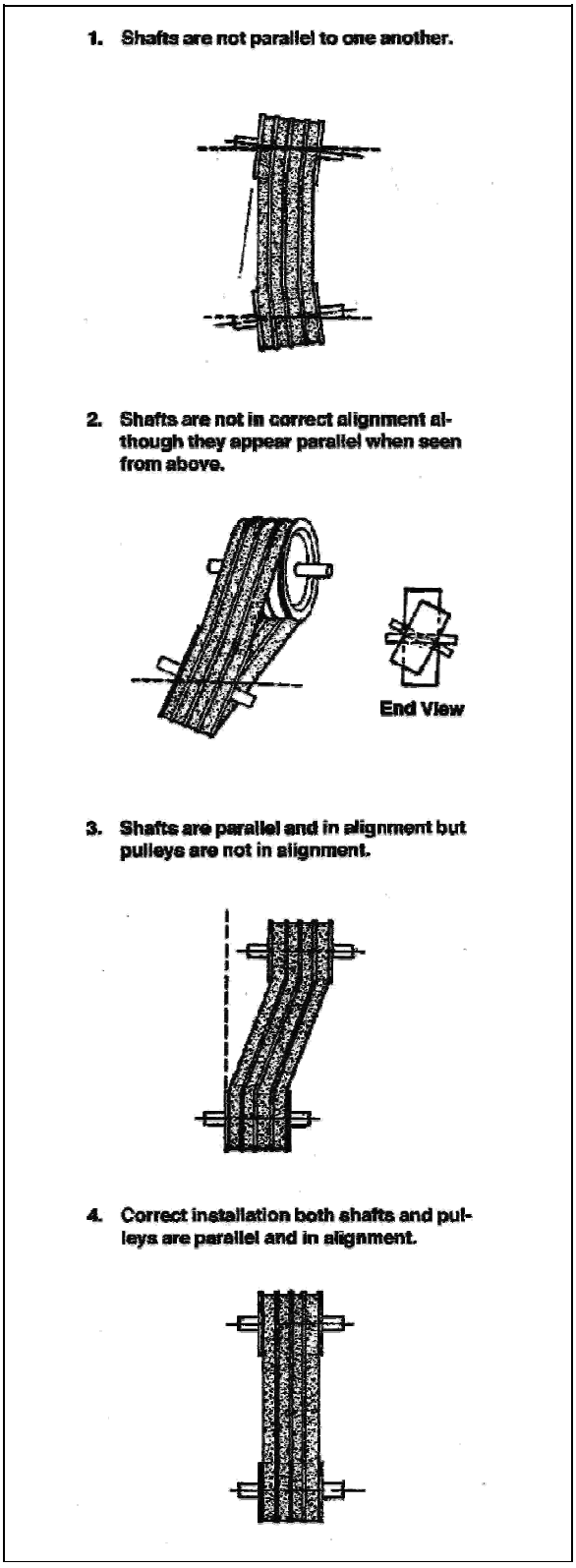


FIG. 36 MISALIGNMENT

d. Use the position adjusting bolts on the motor base to align the input pulley. Tighten motor
base anchor bolts and jam nuts when alignment has been completed.

e. Set the belt tension.

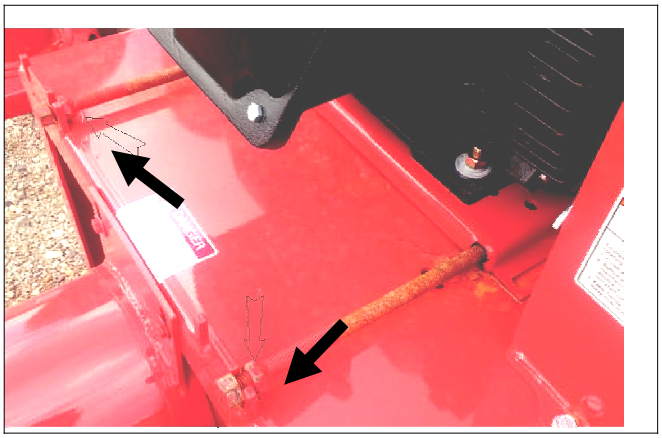


FIG. 37 ADJUSTING BOLTS

f. Install and latch belt cover.

7. Be sure all guards are installed and secure before resuming work.

5.2.2 CHANGING BLOWER OIL AND CLEANING BREATHER

The gears that drive and time the blower lobes run in an oil bath for lubrication. Maintaining the correct level in the reservoirs and changing every 100 hours will insure proper lubrication.

When maintaining the blower, follow this procedure:

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

2. Turn machine off, lock out tag out master control panel and wait for all moving parts to stop before starting maintenance work.

3. Unlatch and remove the belt drive covers.

4. Checking Oil Level:

   a. Remove the level plug in each reservoir or check the sight glass.

   IMPORTANT

   Check the level only when the oil is cold and the machine is level.

   b. Oil in the reservoir should just fill the threads of the level plug hole.

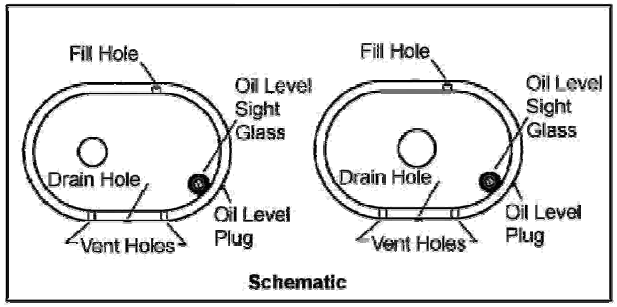
   c. Add oil if low or allow the reservoir to drain if over filled.

   IMPORTANT

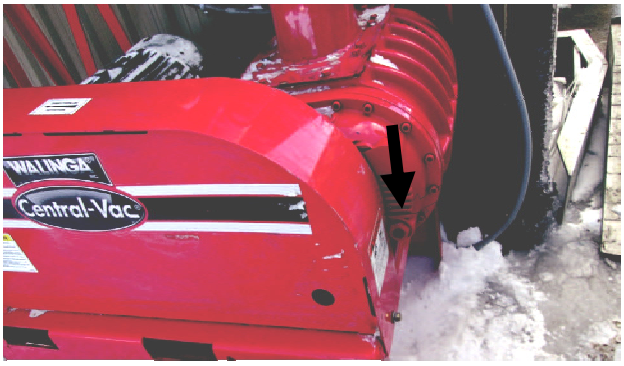
   It is necessary to maintain the recommended oil level in the reservoir. A low level causes heating from lack of lubrication and rapid gear and bearing wear. Too much oil causes heating from oil churning and can cause seal and breather leaks.

d. Install and tighten the level plug.

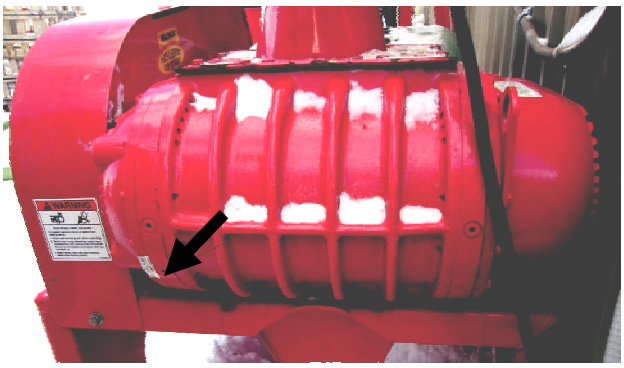
e. Install and secure the belt covers.



Schematic



Sight Glass (Typical)



Level Plug

FIG. 38 BLOWER OIL LEVEL

5. **Changing Oil:**

   a. Place a collection pan or pail under each drain plug.

   b. Remove each drain plug.

   c. Flush each case and allow several minutes to drain.

   d. Dispose of the oil in an approved manner. Do not contaminate the worksite with used oil.

   e. Install and tighten the drain plugs.

   f. Remove fill and level plugs.

   g. Add Walinga© Blower Oil or equivalent to each reservoir until the oil is just starting to come out of the level plug hole.

IMPORTANT

Condensation forms and collects inside the reservoirs during machine operation. Changing oil removes this water and prevents it from damaging the gears and bearings.

   h. Install and tighten the level and fill plugs.

   i. Install and secure the belt drive covers.

6. **Cleaning Breathers:**

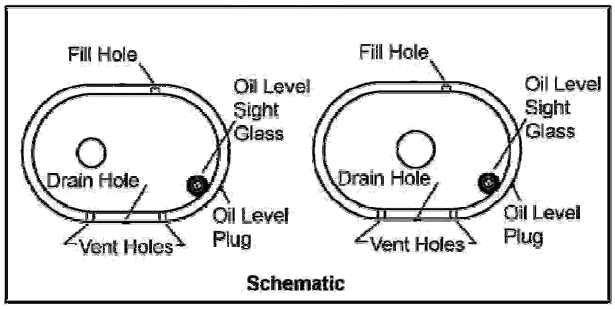
   a. Remove breathers and blow out with an air hose.

   b. If dirt has caked up in the breather, soak in good solvent and then blow out. It may be necessary to use a probe to loosen the dirt.

   c. Install and tighten the breather.

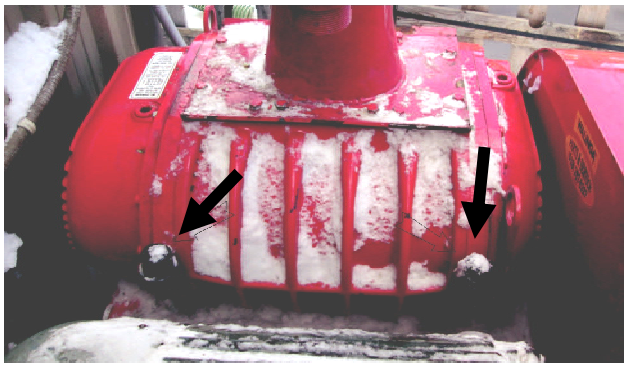
   d. Install and secure the belt drive covers.

   e. Clean vents in end plates located under the blower on either side of the drain plug.



Schematic

Breathers



Breathers

FIG. 39 BLOWER

7. **Pulley Alignment:**

   a. Lay a straight-edge across the faces of the two pulleys.

   b. If the gap between the pulley and the straight-edge exceeds 1/16 inch (1.5mm), the pulleys must be realigned.

   c. Measure the distance the pulley needs to move.

   d. Loosen belts.

   e. Remove bolts from the pulley which is to be moved.

   f. Install bolts into pulleys' threaded holes and force pulley from bushing. Use all bolts with equal force to ensure that bushing is not damaged.

   g. Move bushing as per measurement required.

   h. Re-install sheave onto bushing.

   i. Re-install belts.

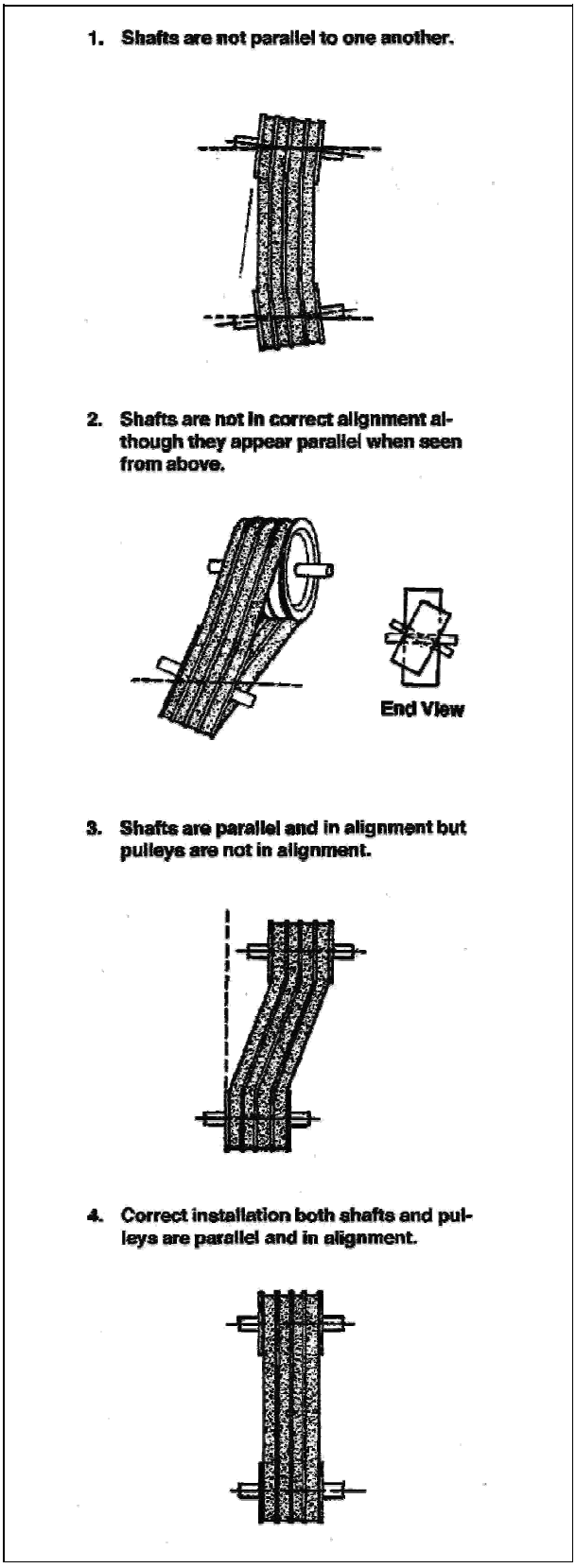


FIG. 40 BELT ALIGNMENT

5.2.3 AIRLOCK

The airlock acts as a seal between the vacuum and atmosphere sides of the machine and is located at the bottom of the collector cyclone tank. As the airlock rotor turns, a pocket is filled with material when it points upward. As the pocket rotates, material is moved to the bottom where the material drops out of the pocket into the discharge pipe.

Efficient operation of the airlock requires a close fit between the tips of the rotor and the case to maintain a seal between vacuum and atmosphere sides.

When checking or maintaining the airlock, follow this procedure:

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

2. Turn machine off, lock out tag out master control panel and wait for all moving parts to stop before starting maintenance work.

3. **Checking Tip Tolerance:**

   a. Checking the airlock can be done through the inspection door.

   b. Use a feeler gauge to check the clearance between the tip and the case. Inspect each tip over its entire width.

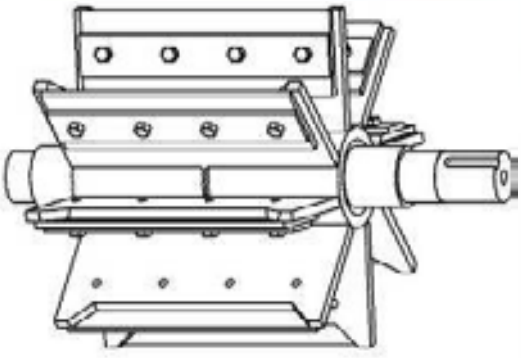
   c. The clearance of the tips must be maintained at 0.004 to 0.006 inches at all times. Adjust or replace tips as required to insure system sealing.

   d. Replace any tips that are bent, chipped or broken.

NOTE

Blades are reversible if not excessively damaged.

Airlock



Drawing

FIG. 41 AIRLOCK

4. **Wiper Blade:**
A wiper blade is located at the top of the airlock to clean the tips as the airlock turns.

To check the wiper blade, follow this procedure:

a. Open the access door on receiver tank.

b. Reach into the top of the airlock and feel the condition of the wiper blade.

c. Replace it if it is damaged in any way.

Blade Replacement:

5.

a. **Lock out tag out master control panel.**

b. Remove chain drive guard.

c. Lift the collector cyclone off the airlock.

d. Remove collector cyclone anchor bolts.

e. Remove the tips from the rotor and the wiper blade from the housing.

f. File the ends of each replacement blade so there is approximately 0.006 inches of clearance between the ends and the housing.

g. Mount the blades to their respective vane and tighten bolts finger tight.

h. Loosen and remove drive chain.

i Rotate airlock rotor slightly to set the clearance between the blade and the case. Be sure to set it at 0.004 inches of clearance. Use a feeler gauge.

j. Tighten the center bolt first. Then the others.

k. Rotate the airlock and listen if it touches the housing anywhere. A slight touch is alright.

k. Repeat mounting procedure with the other blades.

l. Turn the rotor after each blade is installed to be sure it does not contact the case.

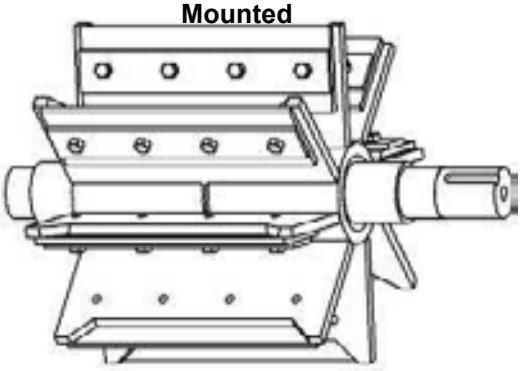
m. Mount the new wiper blade. Be sure the wiper contacts each tip slightly as the airlock turns.

n. Install and set chain drive tension.

o. Install and secure chain drive guard.

p. Clean thoroughly.

Mounted



Schematic

FIG. 43 AIRLOCK SCHEMATIC

5.2.4 CHAIN TENSION

Rotational power to drive the airlock is provided by an electric motor through a chain drive system. To obtain good chain life, the chain must be properly tensioned and the sprockets aligned. Chains that are too tight will stretch and wear quickly or over load the bearings. Chains that are too loose will not transmit the power evenly and will wear out quickly. Misaligned sprockets will rapidly wear the chain and sprockets.

When checking chain tension and alignment, follow this procedure:

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

2. Turn machine off, lock out tag out master control panel and wait for all moving parts to stop before starting maintenance work.

3. Remove guard over chain drive system.

4. Pull on the middle of the slack side of the chain. The chain is properly tensioned when the chain will move 1/4 inch (6 mm).

5. **Adjusting Tension:**

    a. Loosen the gearbox mounting bolts.

    b. Slide or tap gearbox to provide required chain tension.

    c. Tighten gearbox mounting bolt.

    d. Install and secure chain guard.

FIG. 43 CHAIN TENSIONING

6. **Sprocket Alignment:**

   a. Lay a straight edge along the sides of the 2 sprockets.

   b. If there is a gap of more than 1/16 inch (1.5 mm) between the sprockets and straight edge, the sprockets must be aligned.

   c. Use the gearbox position to move sprocket for alignment.

   d. Be sure chain is properly tensioned.

   e. Tighten gearbox mounting bolts when alignment set.

   f. Install and secure chain guard.

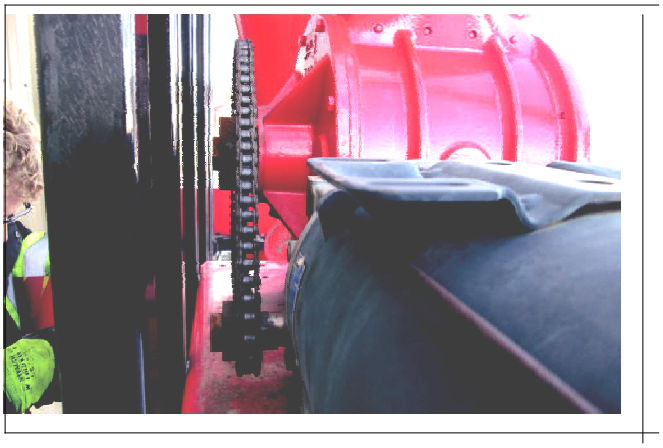


FIG. 44 CHAIN ALIGNMENT

5.2.5 GEARBOX OIL

The airlock is driven by an electric motor that is attached to a gearbox attached to the airlock. The gearbox is equipped with a drain, level and fill plug. Every 40 hours, the oil level should be checked. Every 100 operating hours or annually, whichever comes first, the oil should be replaced. Check more frequently if there are leaks around any of the plugs or shaft seals. When checking oil level or changing oil, follow this procedure (Refer to manufacturer's manual or Walinga ® blower oil.):

FIG. 45 GEARBOX

1. Run the machine until the gearbox is warm. Warm oil will remove more contaminants than cold, stagnant oil.

2. Stop machine.

3. Place all controls in their OFF position and wait 30 seconds for the airlock to stop turning.

4. Turn power OFF at master control panel and lock- out tag-out.

5. **Checking Oil Level:**
   a. When the gearbox is cold, remove the level plug from the side of the gearbox.

   b. When the oil just fills the threads of the level plug, it is at the correct level.

   c. Add oil through the fill plug as required.

   d. Install and tighten level and fill plugs.

6. **Changing Oil:**

   a. Place pan under drain plug.

   b. Remove drain plug.

   c. Remove fill plug.

   d. Install and tighten drain plug when oil stops draining
   .

   e. Fill with specified oil.

   f. Tighten fill plug.

6 TROUBLE SHOOTING

The Walinga® Central Vacuum System is a high capacity air pump that creates a vacuum for picking up granular material and supplies pressurized air for moving the material. It is a simple and reliable system that requires minimum maintenance.

In the following section, we have listed many of the problems, causes and solutions to the problems that you may encounter.

If you encounter a problem that is difficult to solve, even after having read through this trouble shooting section, please call your Walinga® dealer. Before you call, please have this Operator's Manual and the serial number from your Central Vacuum System ready.

PROBLEM	CAUSE	SOLUTION
Slow pick-up of material	Air Leaks	Tighten all vacuum connections.
		Be sure camlocks are in good condition.
		Tighten receiver cyclone to base.
		Check airlock for tip wear
		Check seal on pre-cleaner bottom door.
		Close and secure.Inspection door must be closed and sealed.
		Check if piping is plugged.
		Check vacuum relief valve. Replace if defective. Clear obstruction.
	Dirty or plugged intake filter	Clean or replace intake filter.
	Defective blower.	Check clearance between lobes and case. Excessive clearance will decrease airflow. Consult your dealer.
	Improper setting of airslide	Reset airslide
Slow discharge of material.	Air leaks	Tighten all pressure connections. Be sure camlocks are in good condition.
	Dirty or plugged intake filter	Clean or replace intake filter.
	Defective blower.	Check clearance between lobes and case. Excessive clearance will decrease airflow. Consult your dealer.
	Defective airlock.	Check that tip clearance is 0.004 inches. Adjust or replace tips as required.

PROBLEM	CAUSE	SOLUTION
Excessive Filter Plugging	Lack of compressed air	Confirm that there is at least 80psi and an air flow rate of 4 cfm in the purge air tank, and that both valves are purging at the correct intervals and for the correct amount of time. Contact your local Walinga Representative for more details.
	Incorrect Filters	Confirm that the filters are Walinga supplied filters that meet Walinga Specifications.
	Defective airlock.	Check tolerance.
	Air leaks.	Check seal between tanks.
	Jammed purge valves	Clean or replace valves
No Compressed Air	Frozen or plugged air lines	Inspect airlines. Thaw or clear airlines. Replace if broken.
Pulsation.	Not enough air flow.	Open air slide on wand to provide more air or allow more air into intake.
	Too many bends in hose.	Straighten out intake hose.
Blower overheating.	Not enough air flow.	Open air slide on wand to provide more air or allow more air into intake.
	Low oil level.	Add oil as required.
Noisy airlock.	Tips hitting case.	Readjust tips where applicable.
Excessive discharge pollution.	Filters torn or damaged.	Confirm that there are no tears or holes in the filter or filter housing.
	Filter incorrectly installed	Ensure that each filter is tightly clamped to its Venturi.
Airlock stalls. 	Airlock jammed.	Remove obstruction from airlock by opening inspection door or discharge line. Lock-out tag-out master control panel.
	Blades too tight.	Loosen bolts. Refer to airlock
	Faulty airlock motor or gearbox.	Replace motor or gearbox as required.
Air loss through airlock	Tip clearance too large.	Adjust tips to decrease clearance to at least 0.006 inches.

PROBLEM	CAUSE	SOLUTION
Breaking rotor blades.	Blades too tight.	Loosen bolts. Refer to airlock maintenance.
Low air volume.	Slow speed.	Check for slipping belts. Adjust belt tension as required.
	Belt slip	Adjust belt tension as required.
		Check relief valve. Clean, repair or replace as required.
	Filter plugged.	Clean filter
	Worn components.	Check clearance and replace defective components. Refer to Blower Manual.
Overheating	Inadequate lubrication	Check oil level in reservoirs. Add as required.
	Excessive lubrication	Check oil level. Correct as required.
	Coupling misalignment.	Check and realign
Motor overloading.	Impellers rubbing.	Consult your nearest dealer.
Loss in drive speed.	Belts slipping.	Tighten belts as required.
	Localized belt wear.	Check cross-section dimension. a. If narrow, pulley spinning. b. If swollen, belt failing internally.
	Unequal stretch on belts.	Defective belts. Replace with matched sets.
	Belts overloaded.	Belts failed or worn out. Replace belts and set correctly.
	Belt separation	Belts too tight. Replace belts and set correctly.
	Envelope seams opening.	Check for oil or rubber solvent. Eliminate contamination and replace belts.
	Abnormal envelope wear.	Check for worn sheave, misalignment or slip. Replace defective parts, adjust properly and replace belt.
	Belt softening or swelling.	Eliminate oil or rubber solvent. Replace belt.
	Belt hardening or cracking.	Eliminate heat on belts. Replace belts

7 SPECIFICATIONS

7.1 MECHANICAL

7.1.1 Mechanical Specifications:

7.1.2 Capacities:

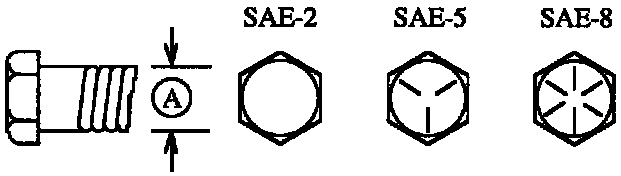
7.2 BOLT TORQUE

CHECKING BOLT TORQUE

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

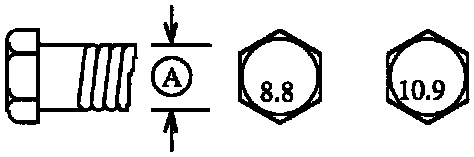
ENGLISH TORQUE SPECIFICATIONS

Bolt Diameter "A"	Bolt Torque*					
	SAE 2		SAE 5		SAE 8	
	(N.m.)	(lb-ft)	(N.m.)	(lb-ft)	(N.m.)	(lb-ft)
1/4"	8	6	12	9	17	12
5/16"	13	10	25	19	36	27
3/8"	27	20	45	33	63	45
7/16"	41	30	72	53	100	75
1/2"	61	45	110	80	155	115
9/16"	95	60	155	115	220	165
5/8"	128	95	215	160	305	220
3/4"	225	165	390	290	540	400
7/8"	230	170	570	420	880	650
1"	345	225	850	630	1320	970



METRIC TORQUE SPECIFICATIONS

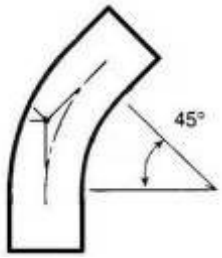
Bolt Diameter "A"	Bolt Torque*			
	8.8		10.9	
	(N.m.)	(lb-ft)	(N.m.)	(lb-ft)
M3	.5	.4	1.8	1.3
M4	3	2.2	4.5	3.3
M5	6	4	9	7
M6	10	7	15	11
M8	25	18	35	26
M10	50	37	70	52
M12	90	66	125	92
M14	140	103	200	148
M16	225	166	310	229
M20	435	321	610	450
M24	750	553	1050	774
M30	1495	1103	2100	1550
M36	2600	1917	3675	2710



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

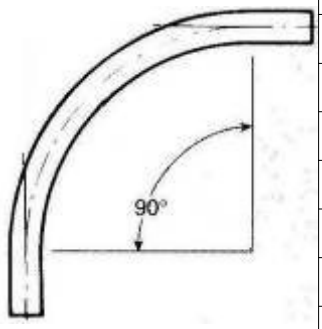
* Torque value for bolts and capscrews are identified by their head markings.

Elbows, TY'S , Galvanized



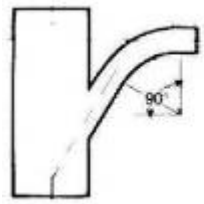
ELBOWS, 45 °, GALVANIZED

PART NO	DESCRIPTION
51-80287-6	2" X .065" Wall X 5" CLR - Straight Ends
51-18904-6	3" X .065" Wall X 7 1/2" CLR - Straight Ends
51-18905-6	4" X .065" Wall X 10" CLR- Straight Ends
51-80288-6	5" X .065" Wall X 12 1/2" CLR - Straight Ends
51-90124-6	6" X .065" Wall X 15" CLR - Straight Ends



Elbows, 90 °, Galvanized

PART NO	DESCRIPTION
51-80282-6	2" X .065" Wall X 5" CLR- Straight Ends
51-80283-6	2" X .065" Wall X 18" CLR - Straight Ends
51-80284-6	2" X .065" Wall X 24" CLR - Straight Ends
51-18949-6	3" X .065" Wall X 7 1/2" CLR - Straight Ends
51-18956-6	3" X .065" Wall X 24" CLR- Straight Ends
51-18957-6	3" X .065" Wall X 30" CLR- Straight Ends
51-80285-6	4" X .065" Wall X 10" CLR- Straight Ends
51-18961-6	4" X .065" Wall X 24" CLR - Straight Ends
51-18963-6	4" X .065" Wall X 36" CLR- Straight Ends
51-80286-6	5" X .065" Wall X 12 1/2" CLR - Straight Ends



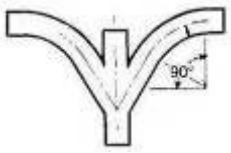
51-18485-6

90 ° TY'S, GALVANIZED

PART NO	DESCRIPTION
51-80290-6	2" Straight W/ 2" Inlet, .065 Wall - Straight Ends
51-80291-6	3" Straight W/ 2" Inlet, .065 Wall - Straight Ends
51-18910-6	3" Straight W/ 3" Inlet, .065 Wall - Straight Ends
51-80292-6	4" Straight W/ 2" Inlet, .065 Wall - Straight Ends
51-18901-6	4" Straight W/ 3" Inlet, .065 Wall - Straight Ends
	4" Straight W/ 4" Inlet, .065 Wall - Straight Ends

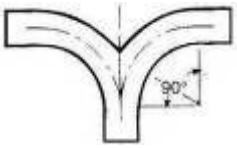
Double 90 TY's, Double 90 Y's, Galvanized, Tips, Tip Clamps

DOUBLE 90° TY's, GALVANIZED



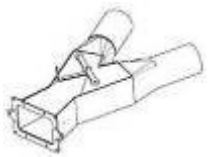
PART NO	DESCRIPTION
51-80294-6	2" Straight W/ 2" Inlets, .065 Wall - Straight Ends
51-18917-6	3" Straight W/ 3" Inlets, .065 Wall - Straight Ends
51-18918-6	4" Straight W/ 4" Inlets, .065 Wall - Straight Ends

DOUBLE 90° Y's, GALVANIZED



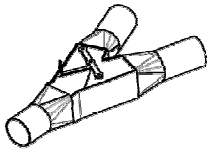
PART NO	DESCRIPTION
51-80293-6	2" .065 Wall - Straight Ends
51-18923-6	3" .065 Wall - Straight Ends
51-18535-6	4" .065 Wall - Straight Ends

DIVERTER VALVES



PART NO	DESCRIPTION
11-81445-5	6" Diverter Valve, 1210 DT Hook-Up

DIVERTER VALVES



PART NO	DESCRIPTION
11-81406-5	6" Diverter Valve, 6" Inlet, 6" Outlet

AIRLOCK FLEX TIP

PART NO	DESCRIPTION
30-75955-4	Airlock Tip, Flex, 1210DT, 9 3/8" LG

TIP CLAMP

PART NO	DESCRIPTION
30-75957-4	Tip Clamp 1210 Rotor, Short Tip

Reducing Couplers, Adaptors, Compression Couplers

REDUCING COUPLINGS

PART NO	DESCRIPTION
51-80280-6	Reducer; Galvanized, 3" To 2" .065 Wall Straight Ends
51-80281-6	Reducer; Galvanized, 4" To 2" .065 Wall Straight Ends
51-18929-6	Reducer; Galvanized, 4" To 3" .065 Wall Straight Ends

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COUPLING , ADAPTORS

PART NO	DESCRIPTION
38-80297-6	Adaptor; KM3 TO KF2
38-43218-6	Adaptor; DM4 TO KF2
38-43219-6	Adaptor; DM4 TO KF3

COMPRESSION COUPLINGS

PART NO	DESCRIPTION
38-80278-6	Coupling; Compression 2", 3 Bolt, Black Gasket, Grounding Strip
38-80279-6	Coupling; Compression 3", 3 Bolt, Black Gasket, Grounding Strip
38-13084-6	Coupling; Compression 4", 3 Bolt, Black Gasket, Grounding Strip
38-08786-6	Coupling; Compression 5", 3 Bolt, Black Gasket, Grounding Strip
38-08523-6	Coupling; Compression 6", 3 Bolt, Black Gasket, Grounding Strip

Operator Tools For 2 inch Hose, Tool Holder

WANDS

PART NO	DESCRIPTION
38-43216-5	Wand 56 " Steel With KM2 Coupling

GAYLORD WAND

PART NO	DESCRIPTION
38-68000-6	Wand, Gaylord 11ga X 51 " Aluminum With KM2 Coupling

CREVICE TOOL

PART NO	DESCRIPTION
38-43217-5	Crevice Tool 24" Chrome Steel With KM2 Coupling

GULPER

PART NO	DESCRIPTION
38-18530-6	Gulper Tool 13" Aluminum

SQUEEGEE GULPER

PART NO	DESCRIPTION
38-40507-5	22” Squeegee Gulper C/W Scraper Blade, Aluminum

BRUSH, WALL

PART NO	DESCRIPTION
38-95604-5	9 “ Wall Brush KM2

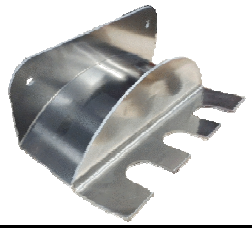
PIPE BRUSH

PART NO	DESCRIPTION
38-72057-5	Pipe Brush, Crescent Wand 2" x 18" w/km2

SQUEEGEE BRUSH / WAND

PART NO	DESCRIPTION
38-72058-5	20” Brush Tool C/W Wand & Wheels

Operator Tools for 3 inch Hose, Self-dumping Hopper Bins, Tool Holders, Filter



TOOL HOLDERS

PART NO	DESCRIPTION
11-47413-5	2" Tool & Hose Holder Rack
11-83065-5	3" Tool & Hose Holder Rack

SWEEP

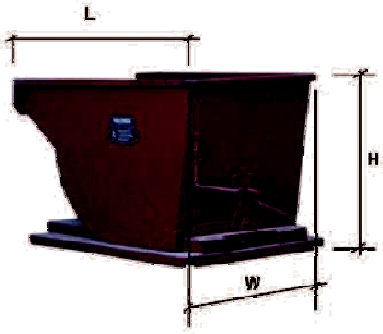
PART NO	DESCRIPTION
38-37825-5	3" Nozzle With Aluminum Sweep With KM3 Coupling

NOZZLE

PART NO	DESCRIPTION
38-37815-5	Suction Nozzle 20 3" X 37" With KM3 Coupling

INTAKE FILTER

PART NO	DESCRIPTION
11-114723-6	Filter, Intake, 6" x 34", 45pl Ground



SELF-DUMPING HOPPER BINS

PART NO	DESCRIPTION				
	10 ga Steel Hopper, Self Dump C/W Safety Chains				
	Capacity (CY)	L (in)	W (in)	H (in)	Steel Lid (Optional) Part No
11-78297-6	.5	47	33	31	11-78281-6
11-64331-6	1	59	40	38	11-78280-6
11-78298-6	1.5	63	52	42	11-78282-6
11-78196-6	2	70	58	44	11-78197-6
11-70845-6	3	80	64	50	11-106955-6
11-78299-6	4	78	84	50	11-78296-6
11-78324-6	5	90	76	60	
11-78325-6	6	91	88	60	

Rubber Hose, Black with Static Wire,Steel Tubing
Clear Hose, with Static Wire,Steel Tubing

RUBBER HOSE, BLACK WITH STATIC WIRE

PART NO	DESCRIPTION
73-82311-6	2 " Rubber Hose, Black With Static Wire
36-15194-6	3 " Rubber Hose, Black With Static Wire

RUBBER HOSE BLACK WITH STATIC WIRE & CAMLOCK BOTH ENDS

PART NO	DESCRIPTION
36-41037-5	2 " Rubber Hose, Black X 25 Ft W/KM2 & KF2
36-40505-5	3 " Rubber Hose, Black X 12 Ft W/KM3 & KF3
36-41039-5	3 " Rubber Hose, Black X 20 Ft W/KM3 & KF3

CLEAR HOSE, WITH STATIC WIRE

PART NO	DESCRIPTION
36-75496-6	2 " Clear Hose With Static Wire
36-78277-6	3 " Clear Hose With Static Wire

CLEAR HOSE WITH STATIC WIRE KM CAMLOCK 1 END & KF SWIVEL END

PART NO	DESCRIPTION
36-78445-5	2 " VHD Hose X 25 Ft W/KM2 & KF2 Swivel
36-91117-5	3 " VHD Hose X 12 Ft W/KM3 & KF3 Swivel

CLEAR HOSE WITH STATIC WIRE & CAMLOCK BOTH ENDS

PART NO	DESCRIPTION
36-98302-5	2 " VHD Hose X 25 Ft W/KM2 & KF2
36-78483-5	3 " VHD Hose, X 12 Ft W/KM3 & KF3

TUBING

PART NO	DESCRIPTION
89-80295-1	Tube; Steel-Aluminized, 2" OD. X .065" Wall
89-16436-2	Tube; Aluminum, 2" OD. X .120 Wall
89-80296-1	Tube; Steel-Aluminized, 3" OD. X .065" Wall
89-15203-2	Tube; Aluminum, 3" OD. X .120 Wall
89-17452-1	Tube; Galvanized, 4" OD. X .065" Wall
89-00392-2	Tube; Aluminum, 4" OD. X .072 Wall
89-08073-2	Tube; Aluminum, 5" OD. X .078 Wall
89-16222-2	Tube; Aluminum, 6" OD. X .125 Wall

Camlock Couplers

COUPLINGS, MALE, QUICK-CONNECT

PART NO	DESCRIPTION
38-18883-6	Coupling; Camlock, Male, Aluminum, 2" ID (KM2-Tube)
38-18152-6	Coupling; Camlock, Male, Aluminum, 3" ID (KM3-Tube)

38-18881-6	Coupling; Camlock, Male, Aluminum, 2" Hose Shank (KM2-Hose)
38-13998-6	Coupling; Camlock, Male, Aluminum, 3" Hose Shank (KM3-Hose)

38-00397-5	Coupling; Walinga, Male, 4" ID (DM4)

COUPLINGS, FEMALE, QUICK-CONNECT

PART NO	DESCRIPTION
38-18882-6	Coupling; Camlock, Female, Aluminum, 2" Hose Shank (KF2-Hose)
38-13999-6	Coupling; Camlock, Female, Aluminum, 3" Hose Shank (KF3-Hose)

38-19043-6	Coupling; Camlock, Aluminum, Female, 2" ID (KF2-Tube)
38-18153-6	Coupling; Camlock, Aluminum, Female, 3" ID (KF3-Tube)

Couplings, Dust Plugs, Saddle Clamps, Brackets, Tube Hanger

COUPLINGS, FEMALE, QUICK-CONNECT

PART NO	DESCRIPTION
38-36781-5	Coupling; Walinga, Female, 4" ID (DF4-Tube)

94-09185-5	Tailbolt; (2 Required For Each DF4 Coupling)

DUST PLUG WITH CHAIN

PART NO	DESCRIPTION
38-18880-6	Dust Plug; 2" (KP2)
38-13204-6	Dust Plug; 3" (KP3)

PART NO	DESCRIPTION
38-04465-5	Dust Plug; 4" (DP4)

CLAMP,SADDLE,GALVANIZED

PART NO	DESCRIPTION
28-16800-6	Clamp; Saddle, 2"
28-04673-6	Clamp; Saddle, 3"
28-02074-6	Clamp; Saddle, 4"
28-04675-6	Clamp; Saddle, 5"

TUBE HANGER, GALVANIZED

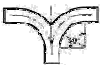
PART NO	DESCRIPTION
28-65182-6	Tube Hanger, 3" Galvanized
28-65183-6	Tube Hanger, 4" Galvanized

BRACKET, ALUMINUM

PART NO	DESCRIPTION
38-39510-4	Bracket; Aluminum (For 4" Saddle Clamp)

BRACKET, STANDOFF

PART NO	DESCRIPTION
38-07612-6	1.25 " Bin Standoff Bracket; For 3"-6" Tube

CENTRAL VAC ACCESSORY & PIPING REQUIREMENTS			
Qty	**Part Number**	**Description**	
	51-80287-6	Elbow; Galvanized, 45 Deg. 2" X .065" Wall X 5" CLR- Straight Ends	
	51-18904-6	Elbow; Galvanized, 45 Deg. 3" X .065" Wall X 7 1/2" CLR - Straight Ends	
	51-18905-6	Elbow; Galvanized, 45 Deg. 4" X .065" Wall X 10" CLR - Straight Ends	
	51-80288-6	Elbow; Galvanized, 45 Deg. 5" X .065" Wall X 12 1/2" CLR - Straight Ends	
	51-90134-6	Elbow; Galvanized, 45 Deg. 6" X .065" Wall X 15" CLR - Straight Ends	
	51-80282-6	Elbow; Galvanized, 90 Deg. 2" X .065" Wall X 5" CLR - Straight Ends	
	51-80283-6	Elbow; Galvanized, 90 Deg. 2" X .065" Wall X 18" CLR - Straight Ends	
	51-80284-6	Elbow; Galvanized, 90 Deg. 2" X .065" Wall X 24" CLR - Straight Ends	
	51-18949-6	Elbow; Galvanized, 90 Deg. 3" X .065" Wall X 7 1/2" CLR - Straight Ends	
	51-18956-6	Elbow; Galvanized, 90 Deg. 3" X .065" Wall X 24" CLR - Straight Ends	
	51-18957-6	Elbow; Galvanized, 90 Deg. 3" X .065" Wall X 30" CLR - Straight Ends	
	51-80285-6	Elbow; Galvanized, 90 Deg. 4" X .065" Wall X 10" CLR - Straight Ends	
	51-18961-6	Elbow; Galvanized, 90 Deg. 4" X .065" Wall X 24" CLR - Straight Ends	
	51-18963-6	Elbow; Galvanized, 90 Deg. 4" X .065" Wall X 36" CLR - Straight Ends	
	51-80286-6	Elbow; Galvanized, 90 Deg. 5" X .065" Wall X 12 1/2" CLR - Straight Ends	
	51-80290-6		2" Straight W/ 2" Inlet, .065 Wall – Straight Ends
	51-80291-6		3" Straight W/ 2" Inlet, .065 Wall – Straight Ends
	51-18910-6		3" Straight W/ 3" Inlet, .065 Wall – Straight Ends
	51-80292-6		4" Straight W/ 2" Inlet, .065 Wall – Straight Ends
	51-18901-6		4" Straight W/ 3" Inlet, .065 Wall – Straight Ends
	51-18485-6		4" Straight W/ 4" Inlet, .065 Wall – Straight Ends
	51-80294-6		2" Straight W/ 2" Inlets, .065 Wall – Straight Ends
	51-18917-6		3" Straight W/ 3" Inlets, .065 Wall – Straight Ends
	51-18918-6		4" Straight W/ 4" Inlets, .065 Wall – Straight Ends
	51-80293-6		2" .065 Wall - Straight Ends
	51-18923-6		3" .065 Wall - Straight Ends
	51-18535-6		4" .065 Wall - Straight Ends
	51-80280-6	Reducer; Galvanized, 3" To 2" .065 Wall - Straight Ends	
	51-80281-6	Reducer; Galvanized, 4" To 2" .065 Wall - Straight Ends	
	51-18929-6	Reducer; Galvanized, 4" To 3" .065 Wall - Straight Ends	
	38-80297-6	Adapter; KM3 To KF2	
	38-43218-5	Adapter; DM4 To KF2	
	38-43219-5	Adapter; DM4 To KF3	
	38-80278-6	Coupling; Compression 2", 3 Bolt, Black Gasket, Grounding Strip	
	38-80279-6	Coupling; Compression 3", 3 Bolt, Black Gasket, Grounding Strip	
	38-13084-6	Coupling; Compression 4", 3 Bolt, Black Gasket, Grounding Strip	
	38-08786-6	Coupling; Compression 5", 3 Bolt, Black Gasket, Grounding Strip	
	38-08523-6	Coupling; Compression 6", 3 Bolt, Black Gasket, Grounding Strip	
	38-43216-5	Wand; 56", Steel W/KM2 Coupling	
	38-68000-5	Wand, Gaylord, 11ga X 51 " Aluminum W/KM2 Coupling	
	38-43217-5	Crevice Tool; 24" W/KM2 Coupling	
	38-18530-6	Gulper Tool; 13" Aluminum	
	38-40507-5	Squeegee Gulper Tool; 22" Aluminum	

Qty	Part Number	Description
	11-15427-6	Intake Filter, 13.75' Diameter x16" LG
	98-13813-5	Blower Oil, Walinga Super Duty, 4 Litre Jug
	38-72058-5	Squeegee Brush/Wand; 20” Brush Tool C/W Wand And Wheels
	11-47413-5	2" Tool & Hose Holder Rack
	11-83605-5	3" Tool & Hose Holder Rack
ft	36-75496-6	Hose, Flexhaust Clear, 2" w/Static Wire
ft	36-78277-6	Hose, Flexhaust Clear, 3" w/Static Wire
	36-78445-5	Hose, Flexhaust, 2" x 25" w/Static Wire & 2” Camlock KM2 1 End, KF2 Swivel 1 End
	36-91117-5	Hose, Flexhaust, 3" x 25" w/Static Wire & 3” Camlock KM3 1 End, KF3 Swivel 1 End
	36-98302-5	Hose, Flexhaust, 2" x 25" w/Static Wire & 2” Camlock Couplings
	36-78483-5	Hose, Flexhaust, 3" x 25" w/Static Wire & 3” Camlock Couplings
ft	73-82311-6	Hose; Rubber, 2" W/Static Wire
ft	36-15194-6	Hose; Rubber, 3" W/Static Wire
	36-41037-5	Hose; Rubber, 2" X 25' W/Static Wire & 2" Camlock Couplings
	36-40505-5	Hose; Rubber, 3" X 12' W/Static Wire & 3" Camlock Couplings
ft	89-80295-1	Tube; Steel-Aluminized, 2" OD. X .065" Wall
ft	89-16436-2	Tube; Aluminum, 2" OD. X .120 Wall
ft	89-80296-1	Tube; Steel-Aluminized, 3" OD. X .065" Wall
ft	89-15203-2	Tube; Aluminum, 3" OD. X .120 Wall
ft	89-17452-1	Tube; Galvanized, 4" OD. X .065" Wall
ft	89-00392-2	Tube; Aluminum, 4" OD. X .072 Wall
ft	89-08073-2	Tube; Aluminum, 5" OD. X .078 Wall
ft	89-16222-6	Tube; Aluminum, 6" OD. X .078 Wall
	38-18883-6	Coupling; 2", Camlock, Aluminum, Male, 2" ID (KM2-Tube)
	38-18152-6	Coupling; 3", Camlock, Aluminum, Male, 3" ID (KM3-Tube)
	38-18881-6	Coupling; 2", Camlock, Aluminum, Male, Hose Shank (KM2-Hose)
	38-13998-6	Coupling; 3", Camlock, Aluminum, Male, Hose Shank (KM3-Hose)
	38-00397-5	Coupling; 4", Walinga, Male, 4" ID (DM4-TUBE)
	38-18882-6	Coupling; 2", Camlock, Aluminum, Female, Hose Shank (KF2-Hose)
	38-13999-6	Coupling; 3", Camlock, Aluminum, Female, Hose Shank (KF3-Hose)
	38-19043-6	Coupling; 2", Camlock, Aluminum, Female, 2" ID (KF2-Tube)
	38-18153-6	Coupling; 3", Camlock, Aluminum, Female, 3" ID (KF3-Tube)
	38-36781-5	Coupling; 4", Walinga, Female, 4" ID (DF4-Tube)
	94-09185-5	Tailbolt; (2 Required For Each DF4 Coupling)
	38-18880-6	Dust Plug; 2" (KP2)
	38-13204-6	Dust Plug; 3" (KP3)
	38-04465-5	Dust Plug; 4" (DP4)
	28-16800-6	Clamp; Saddle, 2"
	28-04673-6	Clamp; Saddle, 3"
	28-02074-6	Clamp; Saddle, 4"
	28-04675-6	Clamp; Saddle, 5"
	38-39510-4	Bracket; Aluminum (For 4" Saddle Clamp)
	38-07612-6	1.25 Bin Standoff Bracket (For 3” - 6” Tube)
	38-65182-6	Tube Hanger, 3” Galvanized
	38-65183-6	Tube Hanger, 4” Galvanized
	30-75955-4	Airlock Tip, Flex , 1210 DT Hook-Up
	30-75957-4	Tip Clamp, 1210 Rotor, Short Tip

Central-Vac
Air-Purge
Operator's Manual

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