

MANUAL

FOR

CERTAINTEED MACHINE WORKS

Volu-Matic™ MS INSULATION

BLOWING MACHINE

**PLEASE READ THIS MANUAL THOROUGHLY BEFORE PUTTING THE
VOLU-MATIC™ MS INSULATION BLOWING MACHINE INTO SERVICE!**

MANUFACTURED BY:
CertainTeed Machine Works
101 Hatfield Rd.
Winter Haven, Florida 33880
1-800-237-7841
www.certainteedmachineworks.com

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Check the accessory kit included with <u>new</u> delivered machines that the following items were received for operation.	
Quantity	Item Description
1	150 foot long remote control cord
1	Stator bar
2	#40 chain connector link
2	#40 chain offset link
1	Flexible engine exhaust tubing and clamp
The following items are available through CMW and required for machine installation.	
Quantity	Item Description
1	Engine cooling air intake flange
1	Engine cooling truck or trailer body flange.
1	Spiratube hose for engine intake flange.
2	Hose clamp for spiratube hose.

***VOLU-MATIC™ MS* INSULATION BLOWING MACHINE**

SPECIFICATIONS:

MODEL:

VMSKA1: Kohler gasoline engine - 14 horsepower single cylinder air cooled.

ALL MACHINES: 10 inch airlock, air volume control system, positive displacement blower, electro-magnetic clutches.

HOSE REQUIREMENT: 3" I.D. x 150' length – open blow
2 ½" I.D. x 150' length – sidewall

HOSE MANUFACTURER: Flexaust Mark II

MAXIMUM FEED RATE:

CELLULOSE: 30 - 40 pounds per minute @ 2.0 PSI.

FIBERGLASS: 10 - 15 pounds per minute @ 3.5 PSI.

ROCKWOOL: 15 - 35 pounds per minute @ 4.5 PSI.

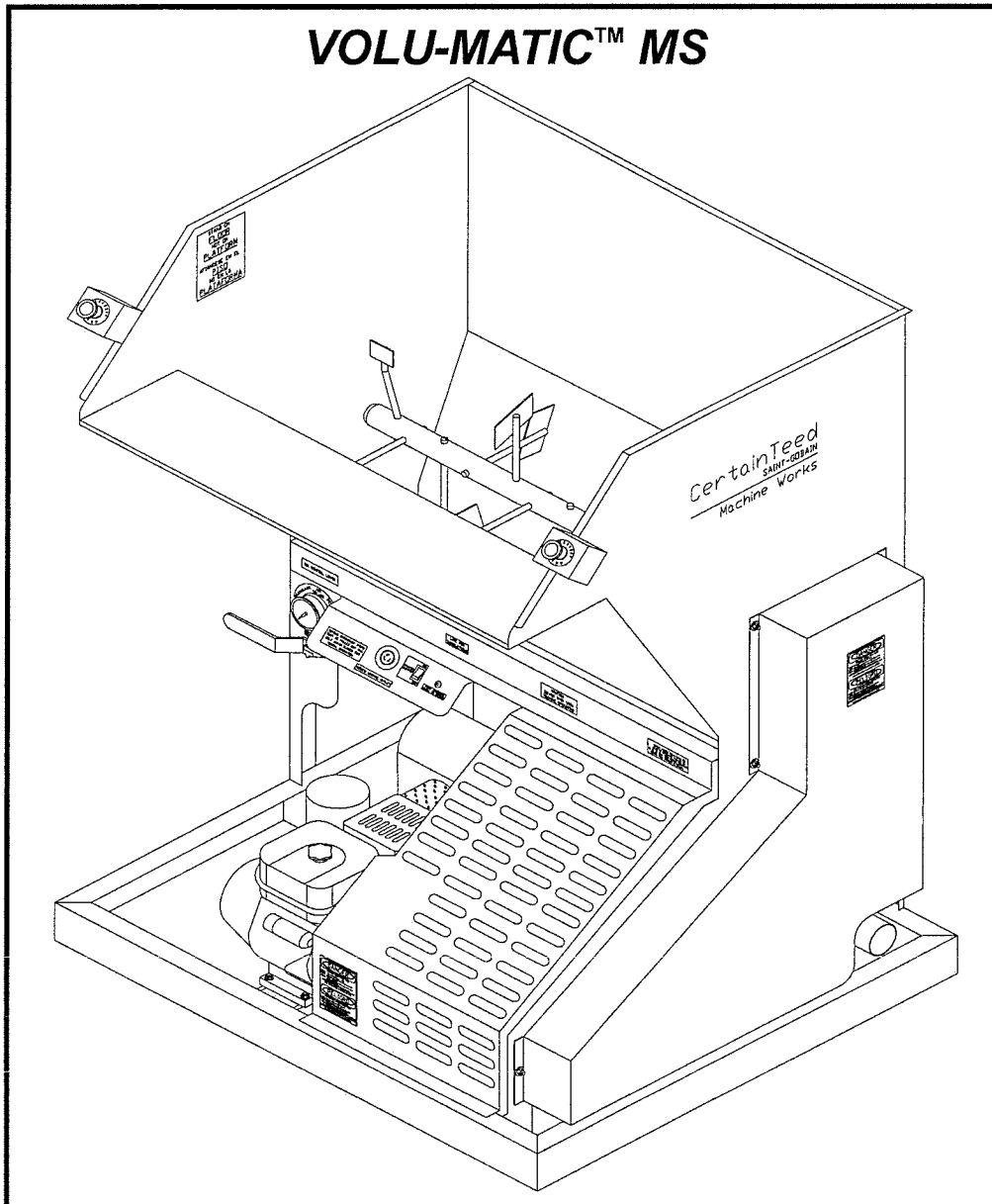
WARNING: RECOMMENDED HOSE SIZE, TYPE, AND LENGTH MUST BE USED TO ACHIEVE MAXIMUM RESULTS. CERTAINTED MACHINE WORKS CANNOT GUARANTEE PERFORMANCE OF THE *VOLU-MATIC™ MS* MACHINE IF HOSES ARE UNDERSIZED, WORN, DAMAGED, OR HOSES OTHER THAN THOSE WE RECOMMEND ARE USED.

GENERAL

Several safety features are on the **VOLU-MATIC™ MS** machine to ensure operator safety. Study the safety section thoroughly so that all the features concerning safety are understood. Keep all these features functional during machine operation.

This introduction is presented to provide a basic description of the function and purpose of the **VOLU-MATIC™ MS** machine.

The **VOLU-MATIC™ MS** machine is principally designed to blow insulating materials into attics of residential and commercial buildings, and can also be configured to blow side walls. The insulation material manufacturer's instructions prevail when it comes to installing their product, since they guarantee the final results.



The **VOLU-MATIC™ MS** machine is normally mounted in the back of a contractor's truck or trailer and is powered by a small industrial engine. The belt driven power train that drives all machine mechanisms, includes electro-magnetic clutches that provide separate control of various functions on the machine. To allow the person installing the insulation full control of the machine, a 12-volt electrical remote control system is provided, which operates either through the provided hard wire remote cord and toggle switch, or with an optional radio frequency remote control unit. The **VOLU-MATIC™ MS** controls provide independent control of both the air that blows the material down the hose to its destination, and the machine mechanisms that condition and feed the insulating material into that air stream.

The 12-volt electrical circuit is powered by the machine's small industrial engine. The electrical control circuit is protected with a 20 amp circuit breaker. A light illuminates when the master switch is turned on, indicating that power is on for both the blower relay and remote control receptacle. When the remote cord switch is moved toward the cord, power is sent through the emergency stop buttons to the blower relay, causing the blower clutch to engage. When the remote cord switch is moved toward the end of the housing, power flows to the blower and mechanism relays, causing both clutches to engage. The toggle switch in the remote cord housing is labeled to identify these machine functions. The switches on the optional radio frequency remote control unit are labeled on the transmitter to identify these machine functions.


The hopper area where material is deposited into the machine has a circulator to open and stir the material, and an auger at the bottom for material feed. Material exits the auger and is conditioned by the shredder before entering the airlock feeder. The airlock feeder deposits the insulating material into the air stream where it enters the hose and flows to the hose exit.

Another feature on the **VOLU-MATIC™ MS** machine is a slide gate that when adjusted, can lengthen the time the insulating material is in the shredder area, which conditions the material. The slide gate is used to control both the feed rate and material conditioning during side wall applications. Air volume is controlled independently with a manually operated valve, to help optimize material coverage.

BEFORE YOU RUN THIS MACHINE...
PLEASE STUDY THE REST OF THIS MANUAL.

SAFETY

The **VOLU-MATIC™ MS** Insulation Blowing Machine has full guarding and electrical disconnects for your safety. Every **VOLU-MATIC™ MS** machine has this warning displayed in a prominent place. **DO NOT REMOVE, MODIFY, OR DEFACE THE WARNING LABEL!**



DANGER

TO PREVENT SERIOUS BODILY INJURY


NEVER WORK ON OR ADJUST THIS MACHINE WHILE IT IS RUNNING.

NEVER WORK ON OR ADJUST THIS MACHINE WITH THE REMOTE CONTROL CORD PLUGGED IN - ALWAYS UNPLUG THE REMOTE CORD.

NEVER ATTEMPT TO RETRIEVE FOREIGN OBJECTS FROM THIS MACHINE UNLESS IT IS STOPPED AND THE REMOTE CORD IS UNPLUGGED.

IT IS THE EMPLOYERS RESPONSIBILITY TO IMPLEMENT THE ABOVE, PROVIDE PROPER SAFETY EQUIPMENT FOR THE OPERATORS OF THIS MACHINE AND TO MAINTAIN THE FACTORY INSTALLED SAFEGUARDS.

DO NOT DEFACE OR REMOVE THIS SIGN FROM THIS MACHINE



PELIGRO

PARA PREVENIR LESIONES FÍSICAS SERIAS

NUNCA TRABAJE EN O AJUSTE ESTA MAQUINA MIENTRAS ESTE ACTIVADA.

NUNCA TRABAJE EN O AJUSTE ESTA MAQUINA MIENTRAS ESTE CON EL CABLE DE CONTROL REMOTO CONECTADO - SIEMPRE DESCONECTE EL CABLE DE CONTROL REMOTO.

NUNCA INTENTE RECUPERAR OBJETOS EXTRAÑOS DE ESTA MÁQUINA A MENOS QUE LA DESACTIVE, APAGUE EL INTERRUPTOR DE SEGURIDAD Y DESENCHUFE EL CABLE DE CONTROL REMOTO.

EL PATRÓN ES RESPONSABLE DE PONER LO ANTEDICHO EN EJECUCIÓN, DE PROVEER EL EQUIPO DE SEGURIDAD APROPIADO PARA LOS OPERADORES DE ESTA MÁQUINA Y DE MANTENER LAS SALVAGUARDAS INSTALADAS DE FÁBRICA.

NO DESFIGURE NI REMUEVA ESTE AVISO DE ESTA MÁQUINA

WARNING: IF ANY FOREIGN OBJECT SHOULD ENTER THE MACHINE; PUSH AN EMERGENCY STOP BUTTON IN (OFF), TURN OFF THE MASTER SWITCH, UNPLUG THE REMOTE CORD, AND SHUT THE MACHINE ENGINE OFF BEFORE RETRIEVING THE OBJECT. NEVER REACH INTO THE MACHINE WHILE IT IS IN OPERATION.

Other warning signs, caution signs, and danger signs are displayed so that the operator is aware of other hazards associated with the use of the machine. You will see the following warnings on the machine. **DO NOT REMOVE, MODIFY, OR DEFACE THE WARNING LABELS!**

WARNING

**THIS MACHINE
REMOTELY
CONTROLLED**

CUIDADO

**MAQUINA
A CONTROL
REMOTO**

DANGER

**KEEP HANDS CLEAR
WHEN
EQUIPMENT
IS RUNNING**



PELIGRO

**NO ACERQUE
LAS MANOS
CUANDO EL EQUIPO
ESTE FUNCIONANDO**

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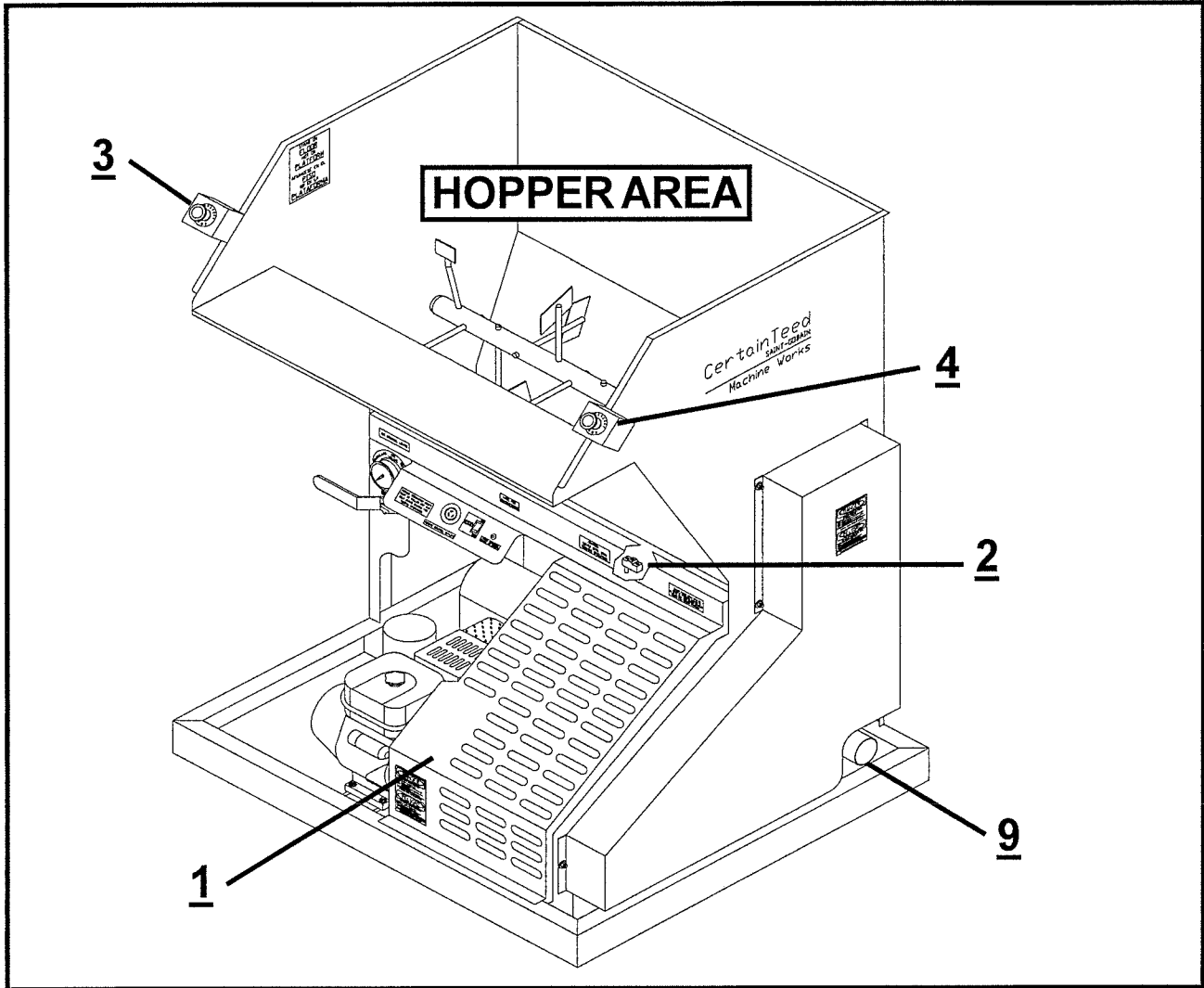
**STAND ON
FLOOR**

**NOT ON
PLATFORM**

**AFIÁNCESE EN EL
PISO**

**NO EN LA
PLATAFORMA**

All **VOLU-MATIC™ MS** machines are factory equipped with side, front, and rear guards. The top of the machine does not require guarding when correctly mounted in the contractor's truck or trailer. If the machine is installed so that the top is exposed, such as in a manufacturing plant, or in an open top trailer installation, a top guard will have to be equipped.



The front guard **1** is designed to hinge up for access to your machine for maintenance and troubleshooting. **THIS GUARD MUST NEVER BE OPENED WHILE YOUR VOLU-MATIC™ MS MACHINE IS IN OPERATION - THERE ARE SHAFTS UNDER THE GUARD, WHICH ARE STILL ROTATING.** If this guard is opened, a safety switch **2** is mounted to the guard which will stop the engine. **IF THE ENGINE DOES NOT SHUT OFF OR STOP WHEN THE GUARD IS LIFTED UP, YOU SHOULD REQUEST THAT MAINTENANCE BE PERFORMED ON THE SAFETY INTERLOCKS.** You will have to restart the engine after the guard is closed for machine operation. If the safety switch or guard should become damaged, replace them, to ensure safety while operating your **VOLU-MATIC™ MS** machine.

There are two emergency stop buttons **3 & 4** that will completely shut the engine down. Either red button will stop the engine when pushed in (off) overriding all other controls. **IF THE MECHANISMS DO NOT SHUT OFF OR STOP WHEN EITHER BUTTON IS PUSHED, REQUEST THAT MAINTENANCE BE PERFORMED ON THE SAFETY INTERLOCKS.** The emergency stops must be pulled out (on) for normal operation. **“KNOWLEDGE OF THE LOCATION AND FUNCTION OF THESE EMERGENCY STOPS IS EMPHASIZED.”**

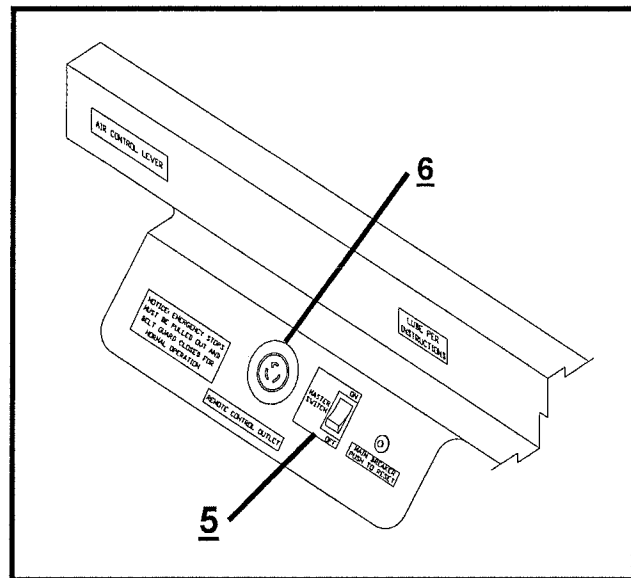
THESE BUTTONS SHOULD BE USED FOR ANY OF THE FOLLOWING TYPE OF EMERGENCIES:

- UNAUTHORIZED INDIVIDUAL GETTING TOO CLOSE TO THE MACHINE.
- OBJECTS FALLING INTO MACHINE.
- A MACHINE COMPONENT BREAKS.
- A MATERIAL HOSE BECOMES DISCONNECTED.
- ANYTHING REQUIRING IMMEDIATE STOPPING OF THE MACHINE.

You will have to restart the engine after the emergency stop buttons are pulled back out (on) for machine operation. If any safety switch should become damaged, replace it; keep your machine safe.

During machine operation, always turn off the “rocker type” master switch **5** (light indicates switch is on), unplug the remote cord from the receptacle **6**, and shut the engine down before removing any guards for any reason!

During machine operation, always stand on the floor to deposit material into the hopper. Under no circumstances should your hand, arm, stick, or broom be used to move or force material down into the hopper. The **VOLU-MATIC™ MS** machine is a self-feeding design requiring no outside assistance for smooth flow.



Operators should wear hearing protection if the machine noise makes them uncomfortable or noise levels exceed acceptable standards. CertainTeed Machine Works recommends that the operator wear an “approved” dust mask or respirator for their protection. Safety features are incorporated into the **VOLU-MATIC™ MS** machine to protect everyone from serious injury. Operate your machine according to the outlined instructions in this manual with all safety features in place and working properly. Operating the machine in an unsafe manner can result in serious injury.

OPERATION

PRELIMINARY CHECKS

1. Check the following table for the proper hose size, type, and length for a particular operation. All hose couplings must be thin wall, 1/16 inch maximum, to minimize restrictions. Thin wall couplings can be purchased from CertainTeed Machine Works.

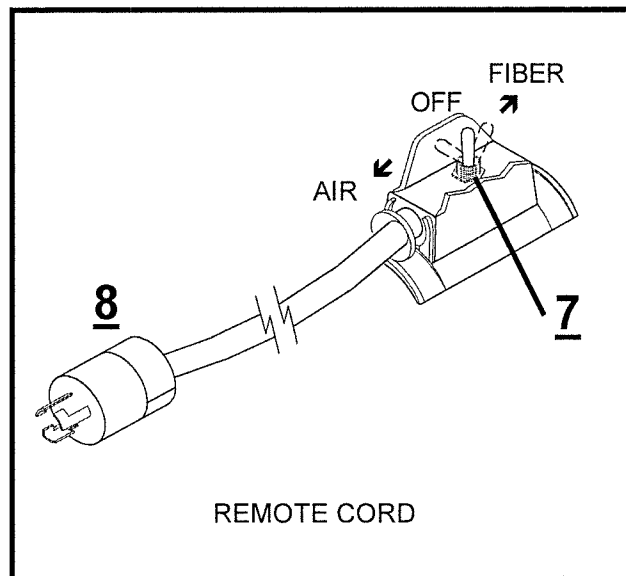
MATERIAL	OPERATION	HOSE DIAMETER	HOSE LENGTH	HOSE TYPE
CELLULOSE FIBERGLASS ROCKWOOL	OPEN BLOW	3"	150' MINIMUM	MARK II
CELLULOSE FIBERGLASS ROCKWOOL	SIDE WALL	2-1/2"	150' MINIMUM	MARK II

2. Make sure that hopper area (page 6) is empty.
3. Check for presence of oil from the engine, blower, and gearbox indicating a leak. Look in the service manual for proper levels and type of oil to use in each component.
4. Check material conditioning slide gate (page 13) and air bleed control valve (page 12) position. Check the recommended start settings chart for proper position.
5. Make sure all guards are in place and securely latched.

WARNING: ALWAYS OPERATE YOUR MACHINE WITH THE TRUCK OR TRAILER SITTING ON A LEVEL SURFACE. OPERATING THE MACHINE WHEN IT IS NOT LEVEL WILL LEAD TO FAILURE OF SOME MACHINE COMPONENTS. THE OIL LEVEL IN THE ENGINE, BLOWER, AND GEARBOX MAY NOT LUBRICATE INTERNAL PARTS PROPERLY WHEN THE TRUCK OR TRAILER IS SITTING ON AN INCLINE.

PRELIMINARY START-UP CHECKS

1. Make sure the hopper area is clear.
2. Turn on the master switch 5 light indicates the switch is on.
3. Pull emergency stop buttons 3 & 4 out (on) for operation.
4. Move the toggle switch 7 to the center (off) position and plug the remote cord 8 shipped with new delivered machines into the receptacle 6. This is a twist lock connection.



5. Clear the area in front of the airlock feeder outlet 9 (page 6) for testing.
6. Start the engine in accordance with manufacturer's literature and increase engine speed until the throttle is at full stroke. The engine will run **3600 RPM**.
7. Cycle the toggle switch in the remote cord housing toward the cord and the blower will come on, check that air does exit the airlock feeder outlet. With the blower operating satisfactorily, cycle the switch toward the end of the housing and the blower and machine mechanisms will operate simultaneously.
8. Take some time to get to know the **VOLU-MATIC™ MS** Machine. Engage and disengage the remote cord noticing the drives start and stop. With machine running, push one emergency stop button and check that the engine stops. Pull emergency stop button out, restart the engine and start the machine again. Push in the other emergency stop button and check that the engine stops. If the remote toggle switch was cycled off, then cycle the toggle switch for the drives to come on once the engine is restarted.
9. For any problems encountered during preliminary start-up procedures, check the troubleshooting section or call CertainTeed Machine Works, 800-237-7841.

WARNING: IF AT ANY TIME THE DRIVES DO NOT STOP WHEN AN EMERGENCY STOP BUTTON IS PUSH IN (OFF), REQUEST THAT MAINTENANCE BE PERFORMED ON THE SAFETY INTERLOCKS.

VOLU-MATIC™ MS RECOMMENDED START SETTINGS CHART

<u>OPERATION</u>	<u>MATERIAL</u>	<u>SLIDE GATE</u>	<u>AIR BLEED PRESSURE</u>
OPEN BLOW	CELLULOSE	6"	2.0 – 3.5 PSI
	FIBERGLASS	6"	2.0 – 3.5 PSI
	ROCKWOOL	5"	4.5 – 5.5 PSI
SIDE WALL	CELLULOSE	5"	1.0 – 2.5 PSI
	FIBERGLASS	5"	1.0 – 2.5 PSI
	ROCKWOOL	4"	1.5 – 1.75 PSI

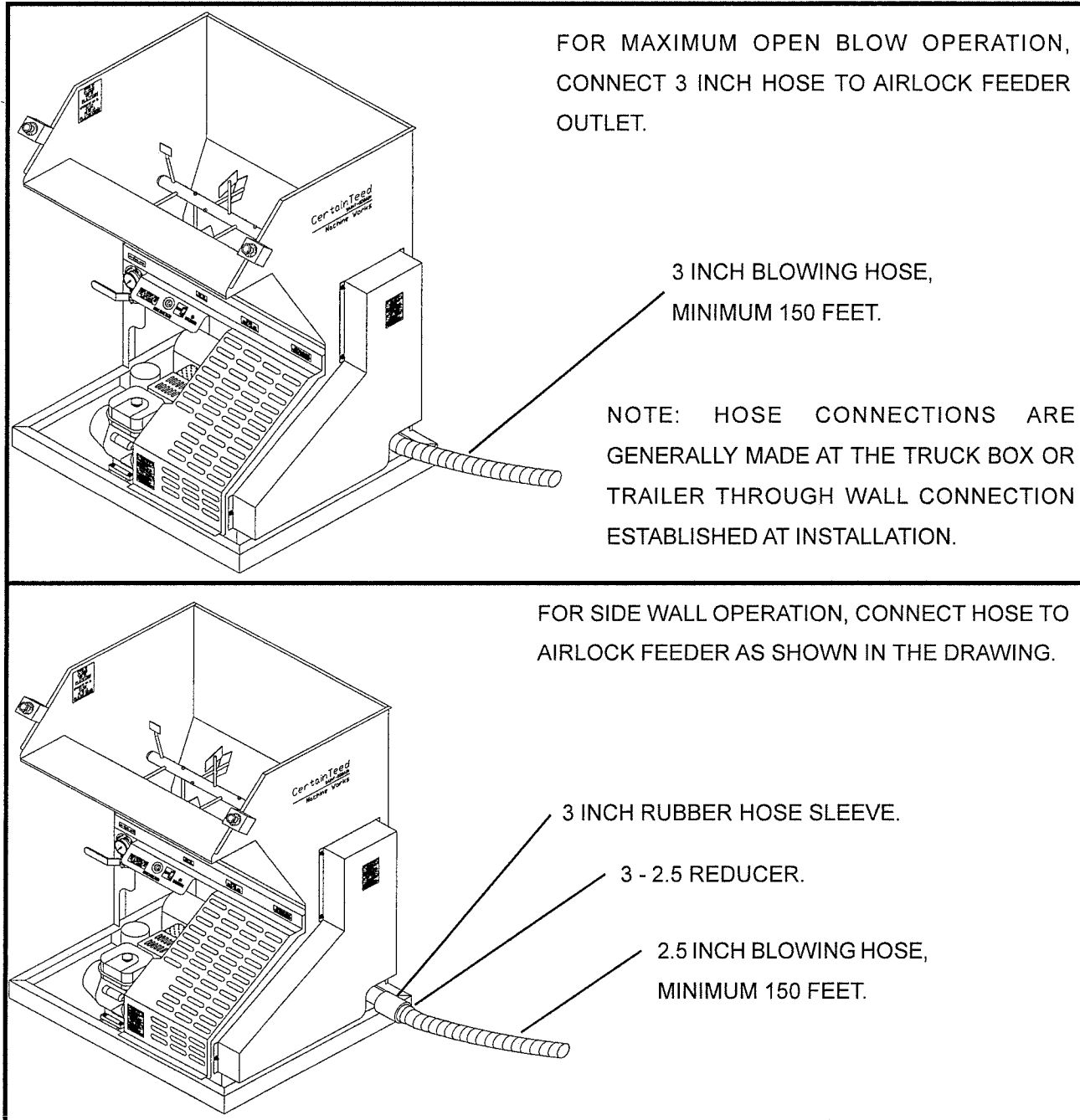
NOTE: USE THESE SETTINGS AS A STARTING GUIDE ONLY. VARIATIONS BETWEEN MATERIALS OF THE SAME TYPE AND VARIATIONS BETWEEN BATCHES FROM THE SAME MANUFACTURER MAY REQUIRE DIFFERENT SETTINGS THAN THOSE SUGGESTED. REMEMBER, THE MATERIAL MANUFACTURER'S INSTRUCTIONS PREVAIL SINCE THEY GUARANTEE THE FINAL RESULTS.

GENERAL INSTRUCTIONS:

1. SET THE INDUSTRIAL ENGINE SPEED FOR MACHINE OPERATION. REDUCE MACHINE SPEED APPROXIMATELY 20 PERCENT FOR SIDE WALL OPERATION.
2. VARY THE AIR BLEED PRESSURE FIRST. IF YOU CANNOT GET THE DESIRED RESULTS BY OPENING OR CLOSING THE AIR CONTROL LEVER HANDLE, THEN...
3. VARY THE SLIDE GATE NEXT. IF YOU CANNOT GET THE DESIRED RESULTS BY CLOSING OR OPENING THE SLIDE GATE, THEN...
4. ADD OR REMOVE STATOR BAR. IF YOU CANNOT GET THE DESIRED RESULTS BY ADDING OR REMOVING THE STATOR BAR, THEN START WITH VARYING THE AIR PRESSURE AGAIN.

GETTING STARTED

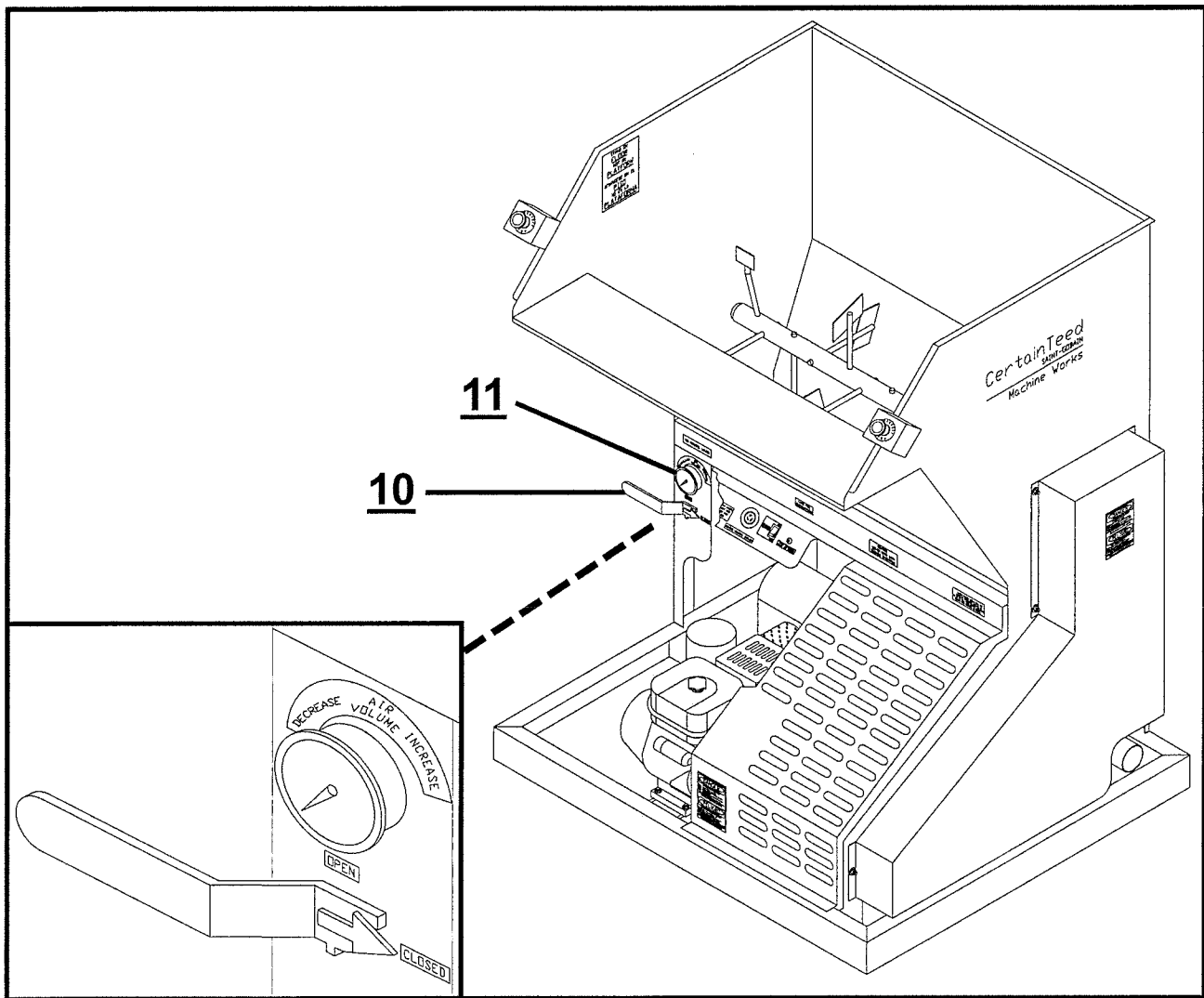
1. Connect hose as shown in the following drawing for a particular operation. Make sure hose connections at the airlock feeder outlet are connected firmly with band clamps and that the hose does not have a short radius bend.



2. Make sure the emergency stop buttons are pushed in (off) and the remote cord toggle switch is in the center (off) position.
3. Use the recommended start settings chart to adjust machine for the type of insulation you are using and particular operation.

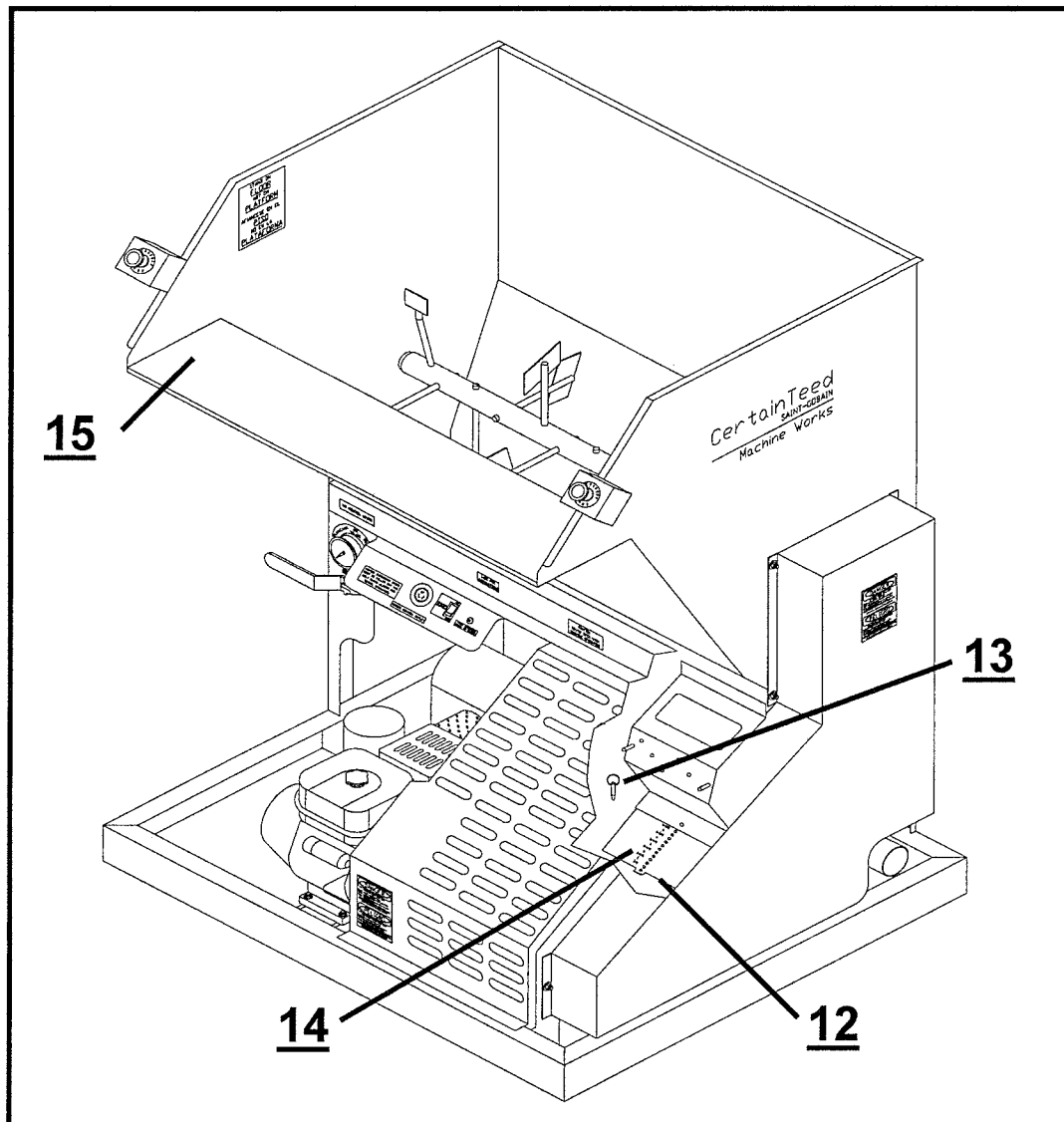
4. Air flow rate may be controlled with the air bleed control valve **10** while monitoring system pressure on the air gauge **11**. The system back pressure must be read while the **VOLU-MATIC™ MS** machine is operating with full length and proper hose while material is being blown.

Always start the adjustment with the air bleed control valve in the fully closed position. If the air flow and pressure deliver the desired results with the valve closed, then do nothing to the valve. As you begin to open the valve, air is bled off from the exit of the blower preventing flow of all air to the airlock feeder. As you begin to open the valve, be careful to not open completely during open blow or the blowing hose could clog because of insufficient air volume.



CAUTION: AS YOU OPEN THE VALVE, BE CAREFUL NOT TO OPEN COMPLETELY DURING OPEN BLOW OR THE BLOWING HOSE COULD CLOG BECAUSE OF INSUFFICIENT AIR VOLUME.

5. To adjust the gate **12**, refer to the chart and select the proper setting for the material to be blown and particular operation. Pull the alignment pin **13** out in order to move the slide gate to the proper position. Insert alignment pin into the hole when the slide gate is moved to the desired number **14**. The scale is calibrated in half inch increments.



6. Load the machine from a standing position on the floor depositing bags of material on the shelf **15**. Do not build scaffolding or use a foot stool to load material into the **VOLU-MATIC™ MS** machine. This moves the operator closer to the rotating components in the hopper and provides a way to lose balance and fall.

Load one to two bags of material into the hopper being particularly careful not to leave pieces of bag in the material since this will clog and stall the machine. Make sure to keep the hopper full during operation without overloading and having the material overflowing onto the floor.

WARNING: DO NOT ATTEMPT TO REMOVE ANY FOREIGN OBJECT FROM THE MACHINE UNTIL IT IS COMPLETELY SHUT DOWN; MASTER SWITCH TURNED OFF, EMERGENCY STOP BUTTONS PUSHED IN, REMOTE CORD UNPLUGGED, AND THE ENGINE SHUT DOWN. FAILURE TO DO SO WILL RESULT IN SERIOUS INJURIES BY THE ROTATING COMPONENTS IN THE HOPPER OR ON THE MACHINE.

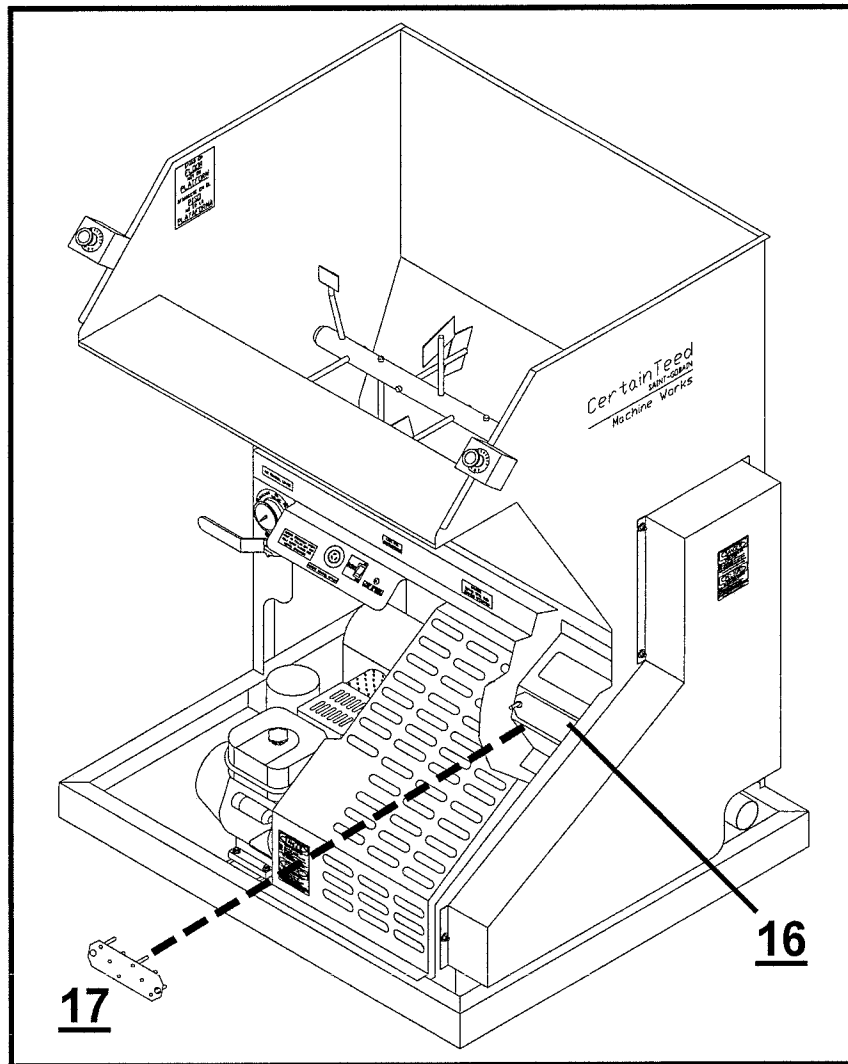
7. Pull emergency stop buttons out (on) for operation.
8. Start engine and increase speed with engine throttle.
9. Take the end of the blowing hose and remote cord to the job's starting point. Engage remote cord for air and material to begin the insulation blowing process.
10. Upon completion of the open blow operation, use air only function for the following;
 - clear all material out of the hose.
 - level off insulation mounds.
 - blow off duct work and clear out the air handler drip pan.
 - blow material from recessed lights.
 - blow material out of soffits.

Coverage

Coverage may be defined as the maximum allowable square feet covered per bag at a minimum specified depth and weight per square foot at a given "R" value. A manufacturer might recommend that the material be blown at a rate of 79 sq./ft. per bag at a depth of 8 3/4 inches and a weight 0.444 lbs. sq./ft. to achieve an insulation value of R-19. If you opened a bag of material and hand distributed it to a depth of 8 3/4 inches, it would only cover 15 - 16 sq./ft. Insulation material must be worked or conditioned by your **Volu-Matic™MS** machine to achieve coverage of 79 sq./ft. per bag.

Coverage decreases when feed rates are too low and material is overworked by the machine mechanisms (or the wrong hose is used) rolling the fibers into tight little balls. Coverage will also decrease if feed rates are too high, allowing material to pass through the machine before it has been opened to the proper density.

An option to coverage problems can also be controlled to some extent with the use of a stator bar in the shredder housing. Remove cover plate **16** and insert stator bar **17** making sure shredder hammers clear pins before bolting down. This adjustment should be done only after various settings of the air bleed control valve and slide gate, do not gain desired results. The stator bar can help increase coverage, but it can also decrease coverage and slow the feed rate of the machine.



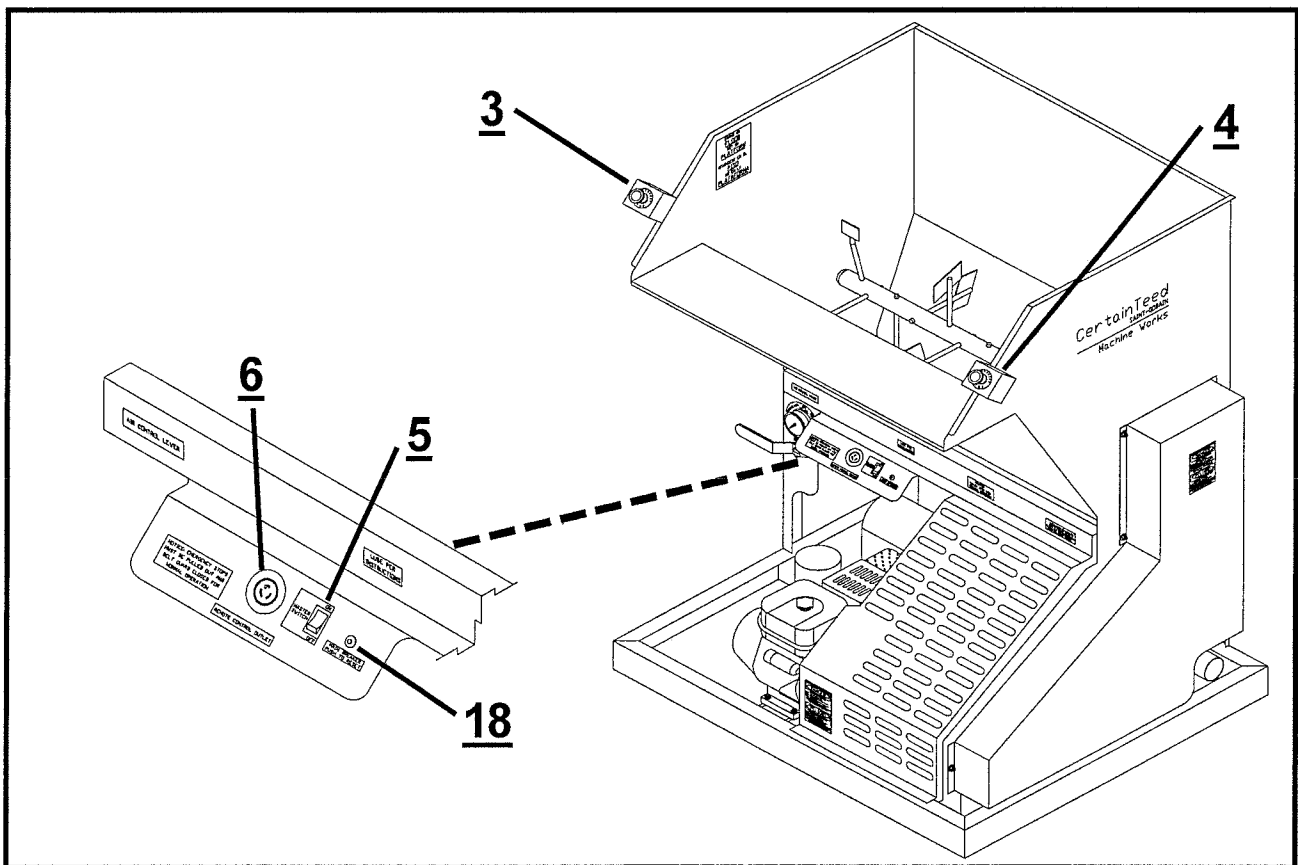
TROUBLESHOOTING

1. ENGINE WILL NOT START.

- A. Check that guard safety switch button is against the guard.
- B. Check if battery charge is low.
- C. See engine manufacturer's manual.

2. ENGINE STARTS BUT MACHINE WILL NOT OPERATE.

- A. Check for tripped circuit breaker **18** on machine front panel. A tripped circuit breaker will be indicated by the middle button protruding out. If the circuit breaker trips again - check for ground short.
- B. Make sure master switch **5** is on.
- C. Check that an emergency stop button **3** or **4** is not pushed in (off).
- D. Check remote cord connection **6**.
- E. Remote cord or connection defective.



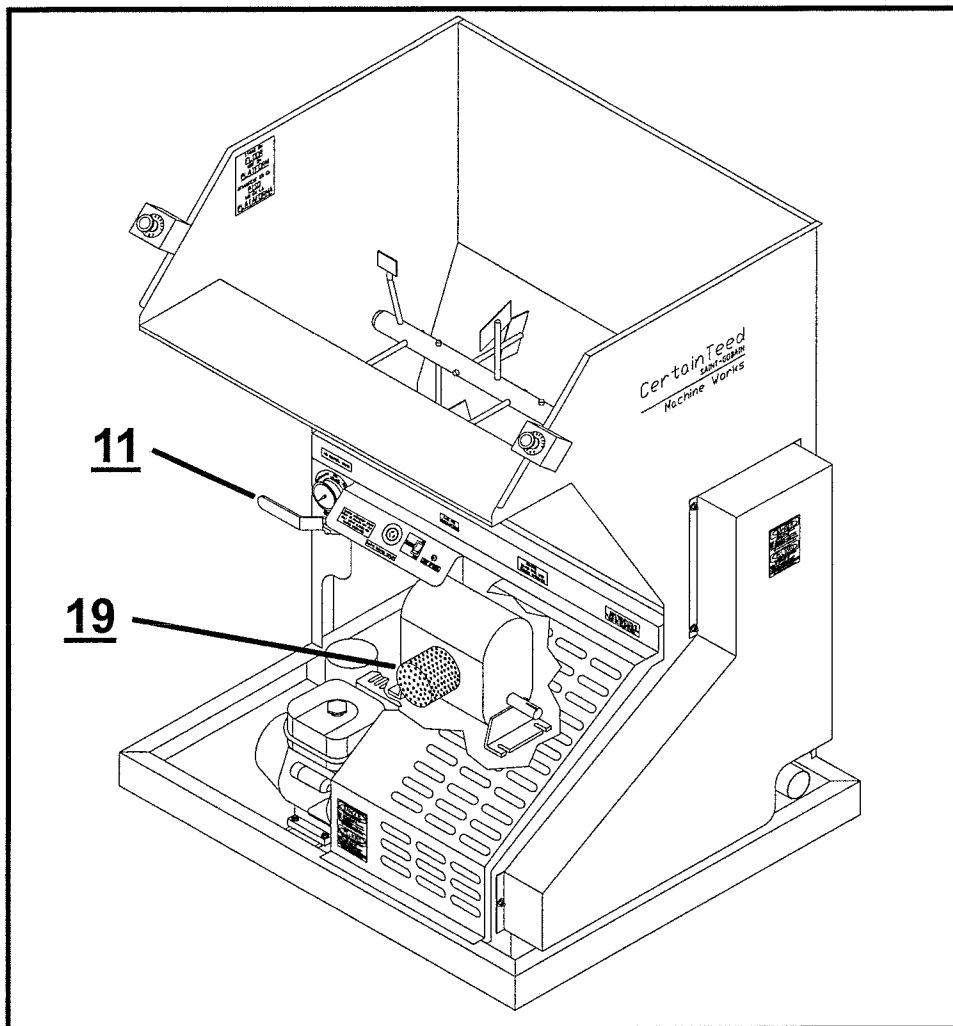
WARNING: MAKE ALL CHECKS WITH THE INDUSTRIAL ENGINE OFF. ALL MACHINE ELECTRICAL IS POWERED BY THE ENGINE BATTERY. IN ORDER TO CHECK ELECTRICAL FUNCTIONS THE FOLLOWING HAS TO HAPPEN; TURN MASTER SWITCH ON AND PULL EMERGENCY STOP BUTTONS OUT (ON). ADDITIONALLY, IF THE BATTERY IS WEAK (LOW VOLTAGE), THE ELECTRICAL MAY NOT WORK. THIS CONDITION MAY ALSO BE CAUSED BY LOOSE OR CORRODED BATTERY CONNECTIONS.

3. BLOWER WILL NOT OPERATE.

- A. Check clutch electrical connections.
- B. Check that blower can be turned by hand. If not - blower defective.

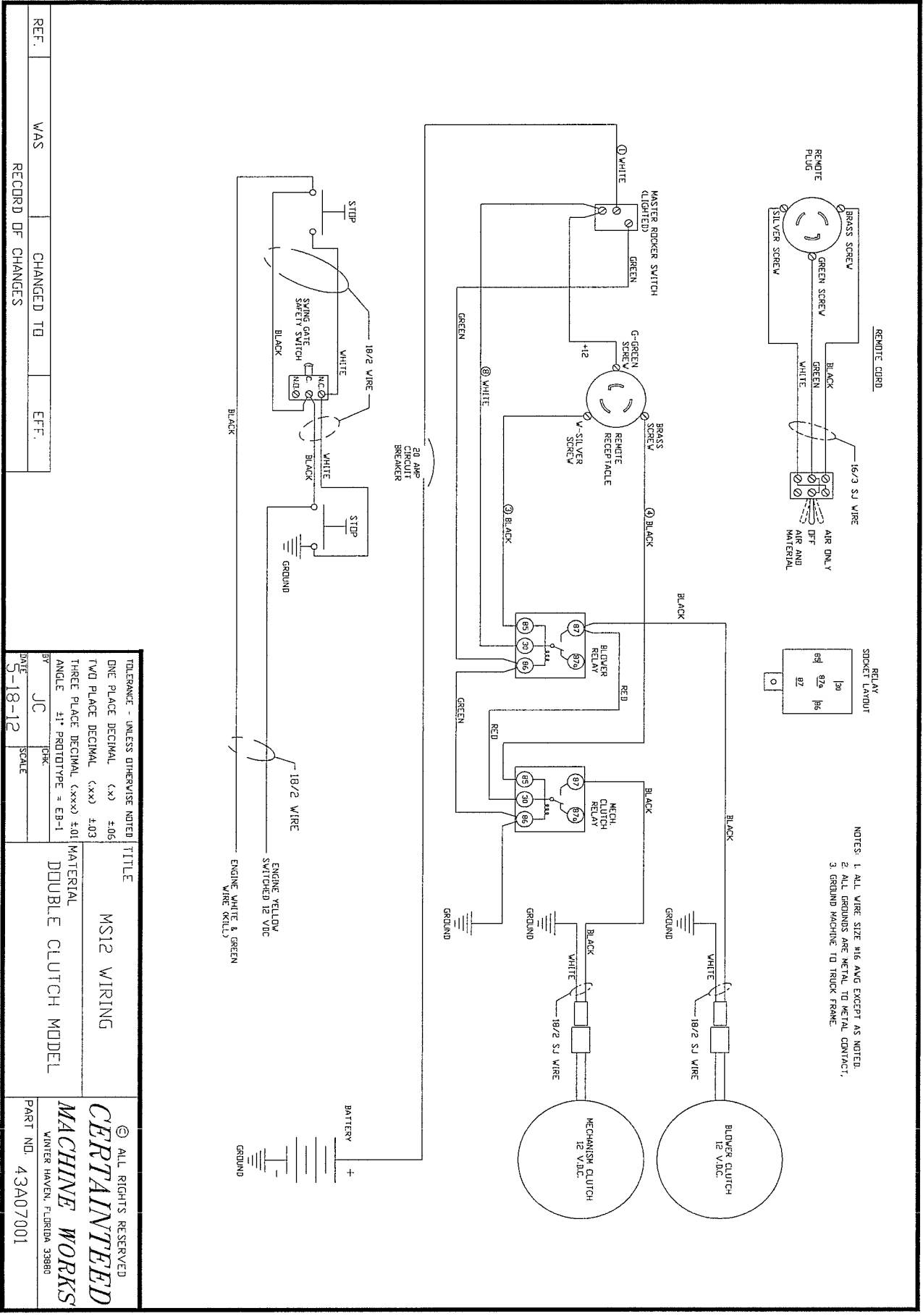
4. INSUFFICIENT AIR.

- A. Check that air bleed control valve **11** is not fully open.
- B. Check if blower air intake flange **19** is clogged.
- C. Check air stream hose connections.
- D. Material hose plugged.
- E. Airlock feeder components (seals) worn out or damaged.
- F. Blower defective, worn, or damaged.



5. NO MATERIAL FLOW.

- A. No material in hopper.
- B. Check clutch electrical connections.
- C. Check if slide gate is closed or adjusted in too far for material feed rate.
- D. Object restricting flow in the machine.
- E. Material hose plugged.



REF. WAS CHANGED TO EFF.
RECORD OF CHANGES

TOLERANCE - UNLESS OTHERWISE NOTED	
ONE PLACE DECIMAL (x)	±0.06
TWO PLACE DECIMAL (xx)	±0.03
THREE PLACE DECIMAL (xxx)	±0.01
ANGLE 1: PROTOTYPE = EB-1	
BY JC	SCALE
DATE 5-18-12	

TITLE: MS12 WIRING
MATERIAL: DOUBLE CLUTCH MODEL

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CERTAINTEED
MACHINE WORKS
WINTER HAVEN, FLORIDA 33980
PART NO. 43A07001

PREVENTIVE MAINTENANCE

General

Make sure the engine is off before attempting any maintenance procedures.

Daily

1. Check and clean the blower air inlet screen and industrial engine cooling air inlet screen as required during operation. Keep these screens clean.
2. Visually inspect and remove any foreign objects that may have entered the machine such as pieces of bag, rags, razor knife, etc.
3. Make sure emergency stop buttons are functional.
4. Check that the shredder area inspection window is not cracked.
5. Check oil level in the industrial engine.

Weekly

1. Check oil level in the blower.
2. Check oil level in gearbox.
3. Check chain and belt tension, adjust as required.

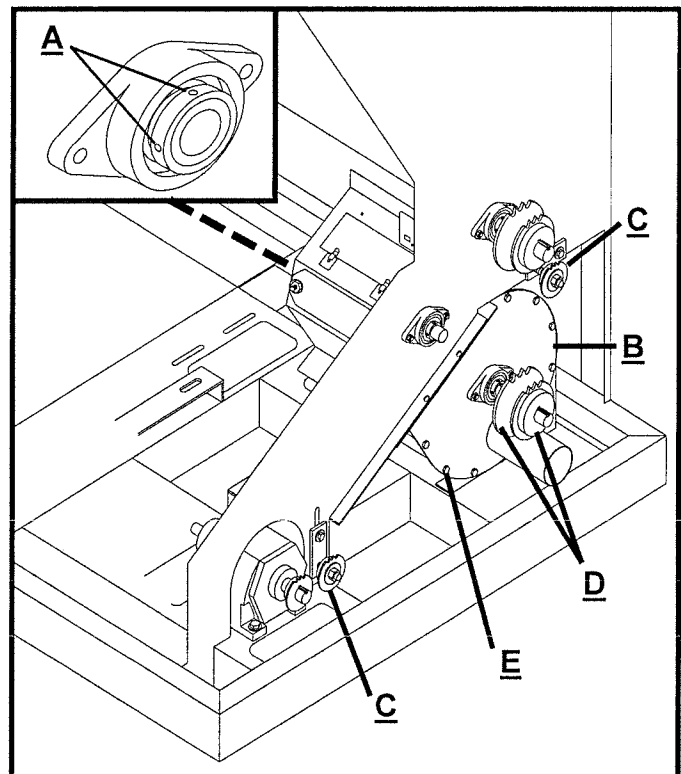
Airlock Feeder

The airlock feeder will require periodic maintenance to prolong the life of the assembly since steel will wear when abrasive type materials and air velocity are mixed. The rubber feeder seals must be changed every 250 hours of operation or approximately every 1 ½ months if the machine is operated 8 hours a day 5 days a week. Additionally, the seals need to be replaced if problems are experienced with loss of air pressure and blow-by occurs during machine operation. Blow-by is a term used when material seems to blow back into the hopper area while the auger tries to meter the material into the shredder area. Failure to change seals on schedule will result in excessive wear and replacement of the feeder assembly.

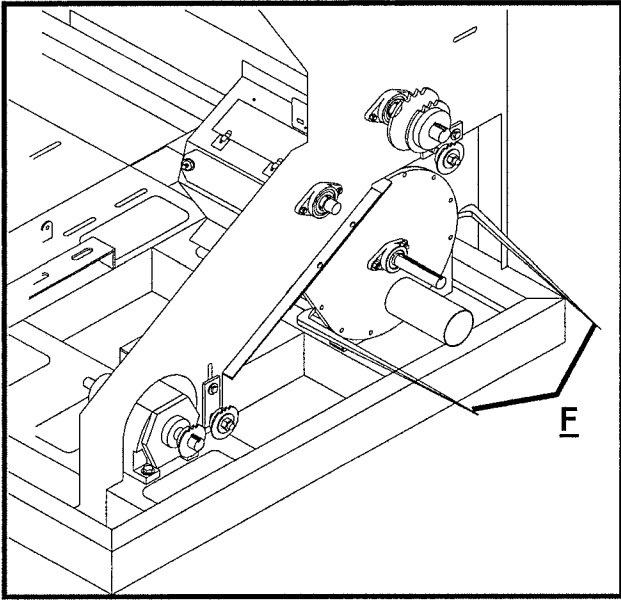
Change the *Volu-Matic™MS* Airlock Feeder Seals as Follows:

- A. Make sure you have a complete set of seals (6) before the job is started.
- B. Make sure all power is disconnected; distributor wire on engine, master switch off, remote cord unplugged, etc.
- C. Remove necessary guards to do the job after power is disconnected, make sure that all guards are installed and secure when job is complete.
- D. Once the outlet end plate is removed, check for excessive wear on the feeder barrel and end plate surfaces. New seals will not be effective in an excessively worn feeder. Inspect rotor for any wear and repair as required.
- E. Replace excessively worn or damaged feeder barrel, end plate and bearing seals for optimum performance from your *Volu-Matic™MS* machine. Excessively worn parts are considered to be when 25% of metal thickness has worn away.
- F. Supplies and tools for seal change:
Set of six seals – seal part number U41P02007, spare 5/16"-18 x 1" length grade 5 bolts and nylock nuts, spray silicon, never-seize shaft lube, penetrating oil, emery cloth, feeder crank hub and rod, dead blow hammer, pry bars, flat file, miscellaneous sockets, open end wrenches, and hex head Allen wrenches.

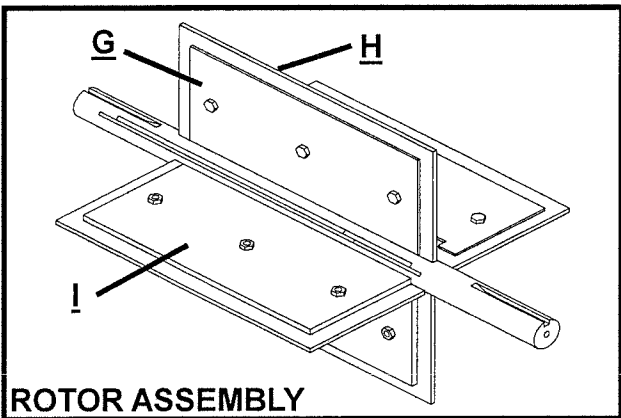
- 1. Loosen the set screws A in bearing collar on the inlet end plate only. Do not loosen the set screws in bearing collar on the outlet end plate B.
- 2. Loosen idler sprockets C to relieve chain tension. Remove both drive chains and sprockets D from the airlock shaft. Remove mounting bolts E from the outlet end plate.



- Use pry bars **E** between the end plate and feeder barrel to bring entire rotor assembly out. File and polish the rotor shaft. Loosen set screws in bearing collar and slide the end plate off the rotor shaft.

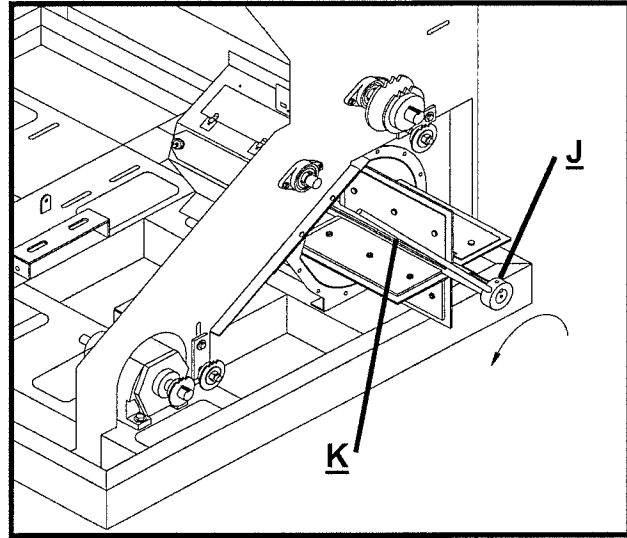


- Remove the bolts that hold the backing plate **G** and rubber seal **H** to the rotor assembly. Clean rotor vane surface **I** (opposite side) before placing in a new seal. Bolt on backing plate making sure not to over tighten, distorting the seal.



- Apply spray silicon lubricant to edges of new rubber seals and surface of feeder barrel. Apply never-seize lubricant on inlet bearing race.

- Insert rotor assembly into airlock feeder barrel rotating counterclockwise using crank hub **J** and rod **K** while pushing with free hand. Make sure bearing seal at inlet end plate does not pinch between rotor shaft and bearing race.



- Once rotor shaft enters the inlet end plate bearing, it might be necessary to use a dead blow soft hammer to fit rotor all the way into the airlock barrel while rotating it. Push rotor as far as possible with seals beginning to bend over on the side against the inlet end plate.
- Install mounting bolts and tighten half way down - rotate rotor - tighten bolts - rotate rotor - tighten bolts completely - rotate rotor.

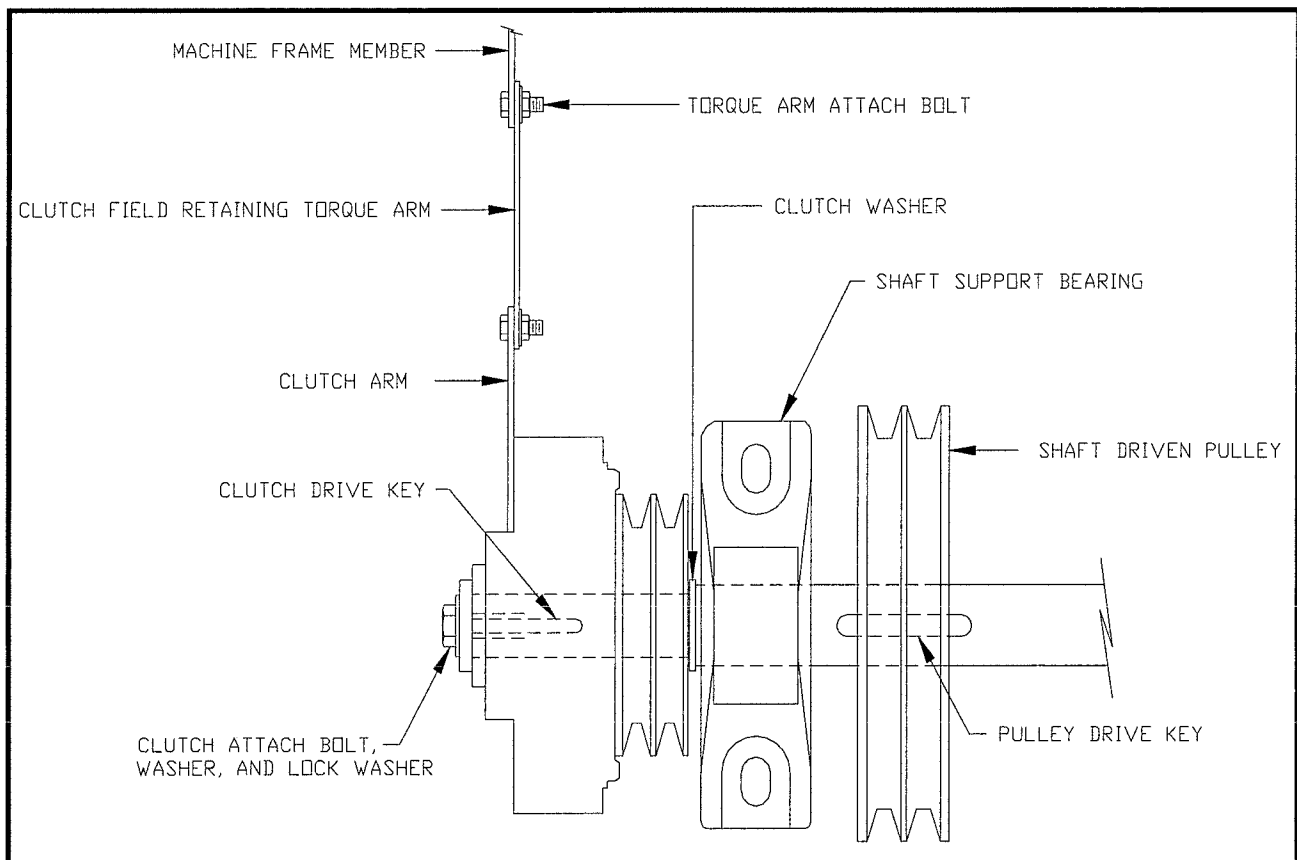
Peer through outlet end plate to see if rubber seals break over against the end plates evenly. Adjust as required by rotating rotor and tap with dead blow hammer. Tighten set screws in bearing collars when rotor is centered in the airlock barrel. Install drive components and any guards removed for service. Discard old seals.

Electro-Magnetic Clutch

The electro-magnetic clutch has no scheduled wear replacement parts and can only be replaced whenever field failures may occur. Refer to the following drawing and detailed instructions for removing the clutch from the shaft.

1. Disconnect wiring at clutch connector.
2. Remove torque arm attach bolt from clutch arm.
3. Remove drive belts from pulley. The pulley is part of the clutch assembly.
4. Remove the attach bolt, washer, & lock washer.
5. Slide clutch off clutch shaft. The use of a pry bar or similar device may be necessary to start clutch off shaft, wedge between bearing housing and clutch hub. Make sure that bearing shaft seal or clutch bearing seal does not get damaged.
6. Inspect clutch drive key, replace as required.

Note: Upon reassembly, make sure to add two drops of blue Locktite to threads of attach bolt. Be careful not to get Locktite on clutch shaft.



Industrial Engine

Check the engine oil level daily before start up. Follow manufacturer's recommended maintenance schedule as specified in the engine manual included with the **Volu-Matic™MS** manual. Keep the engine clean, especially element type air filters and the air inlet cooling system.

Check that battery connections are tight and that cable leads are tight. If the battery is not maintenance free, check the water level weekly. Make sure you use distilled water when replenishing a non-maintenance free battery. Check that all exhaust connections are tight and that no leaks are present in the pipes or muffler, replace as required.

Blower

Check the oil level weekly in the blower by turning the brass valve 90 degrees to check. A small amount should appear indicating sufficient oil. C.M.W. fills Tuthill blowers with SAE30 and all other makes with 15W-40 motor oil. After 100 hours of operation, drain while warm and refill with fresh lubricant. Thereafter, change every six months or 1000 hours machine time. The bearings on the drive end of the blower should be grease lubricated once a month.

Gearbox

Check the oil level weekly in the gearbox. The proper oil level is at the bottom of the plug half way up the gearbox housing. After 200 hours of operation, drain while warm and refill with fresh lubricant. Thereafter, change every six months or 2500 hours machine time. Refer to the manufacturer's literature for the proper oil to use. The gearbox was initially filled with Mobil 630 gear lubricant.

Pillow Block Bearings – Machine Clutch Shafts

Machine main shaft bearings should be lubricated every month of operation. Do not over lubricate. One to two pumps from a hand operated gun is sufficient.

Flanged Bearings

Bearings should be lubricated every 6 months of operation if equipped with a grease fitting. Bearings without fittings are considered lubricated for life. Do not over lubricate. One to two pumps from a hand operated gun is sufficient.

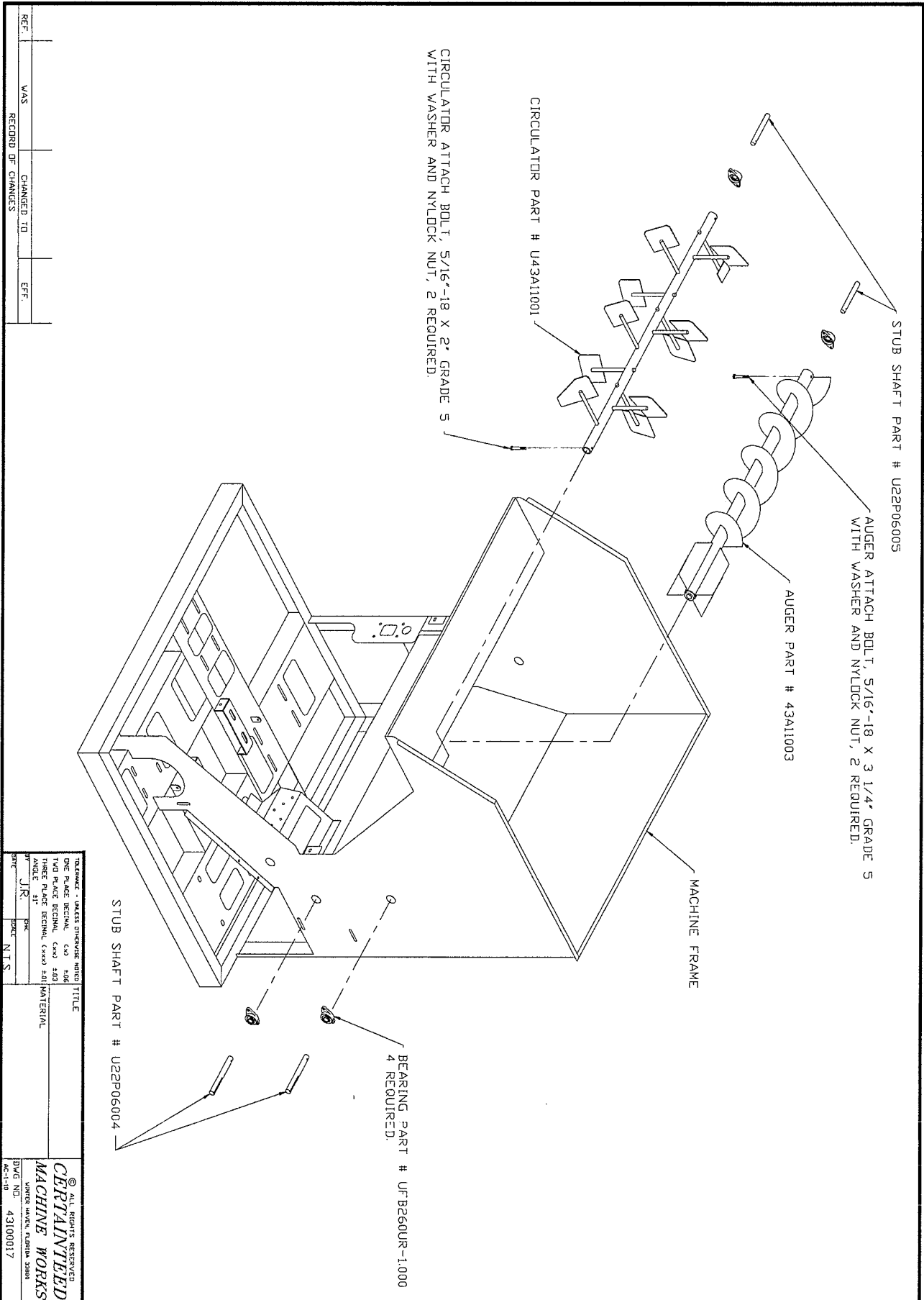
Belts

Do not use belt dressing. Belt dressing will collect material and cause the belts to slip and/or wear faster. There is no substitute for keeping belts dry, free of oil and grease, and tight. Replace worn and deteriorated belts as required. All belt driven components are equipped with take up adjustment.

Roller Chain

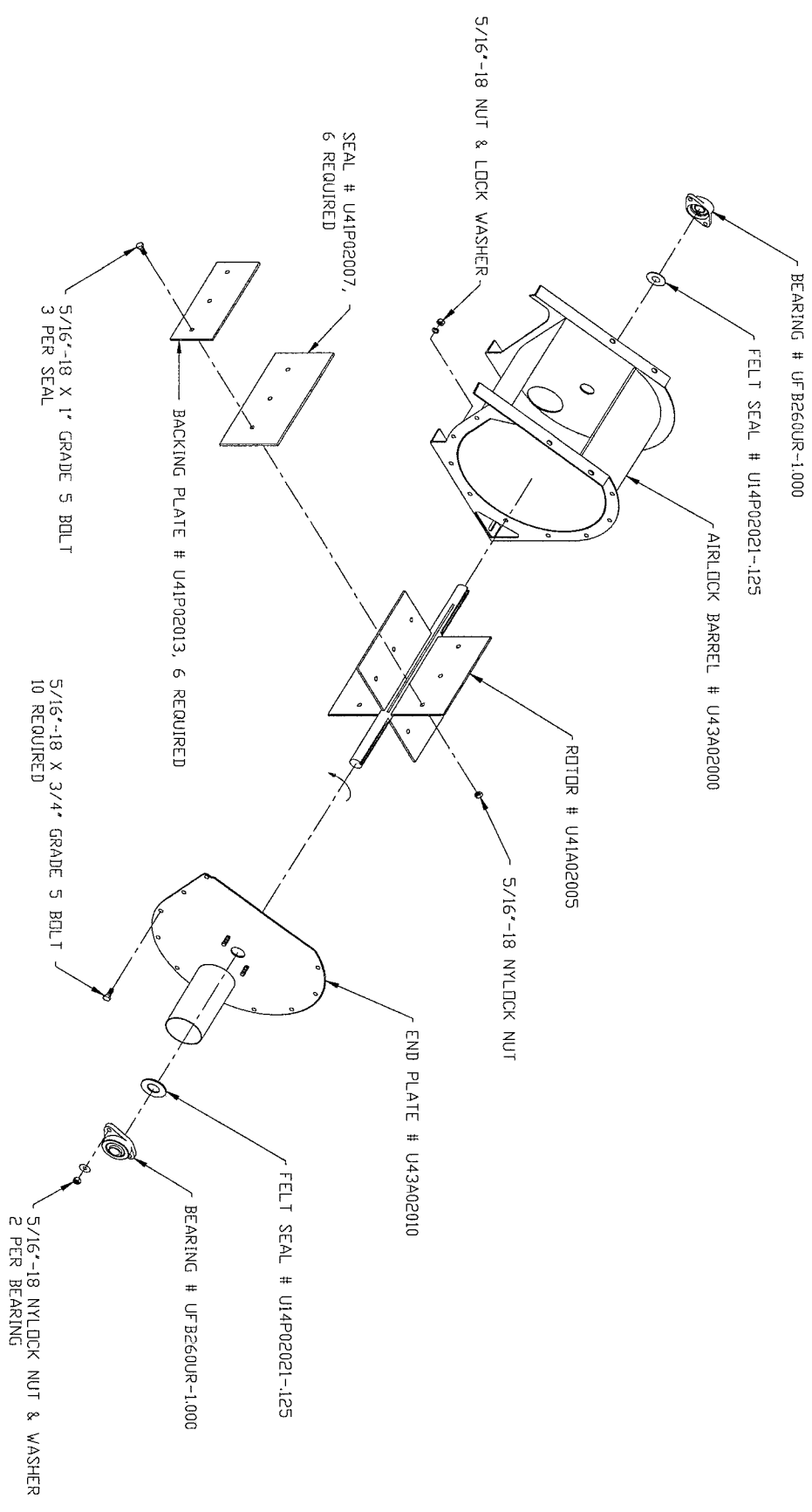
If abrasive materials are conveyed through the machine, do not lubricate the chains. Material may collect and wear the chain and sprockets prematurely. Lubricate the chain if non-abrasive materials are conveyed through the machine.

Parts Drawings

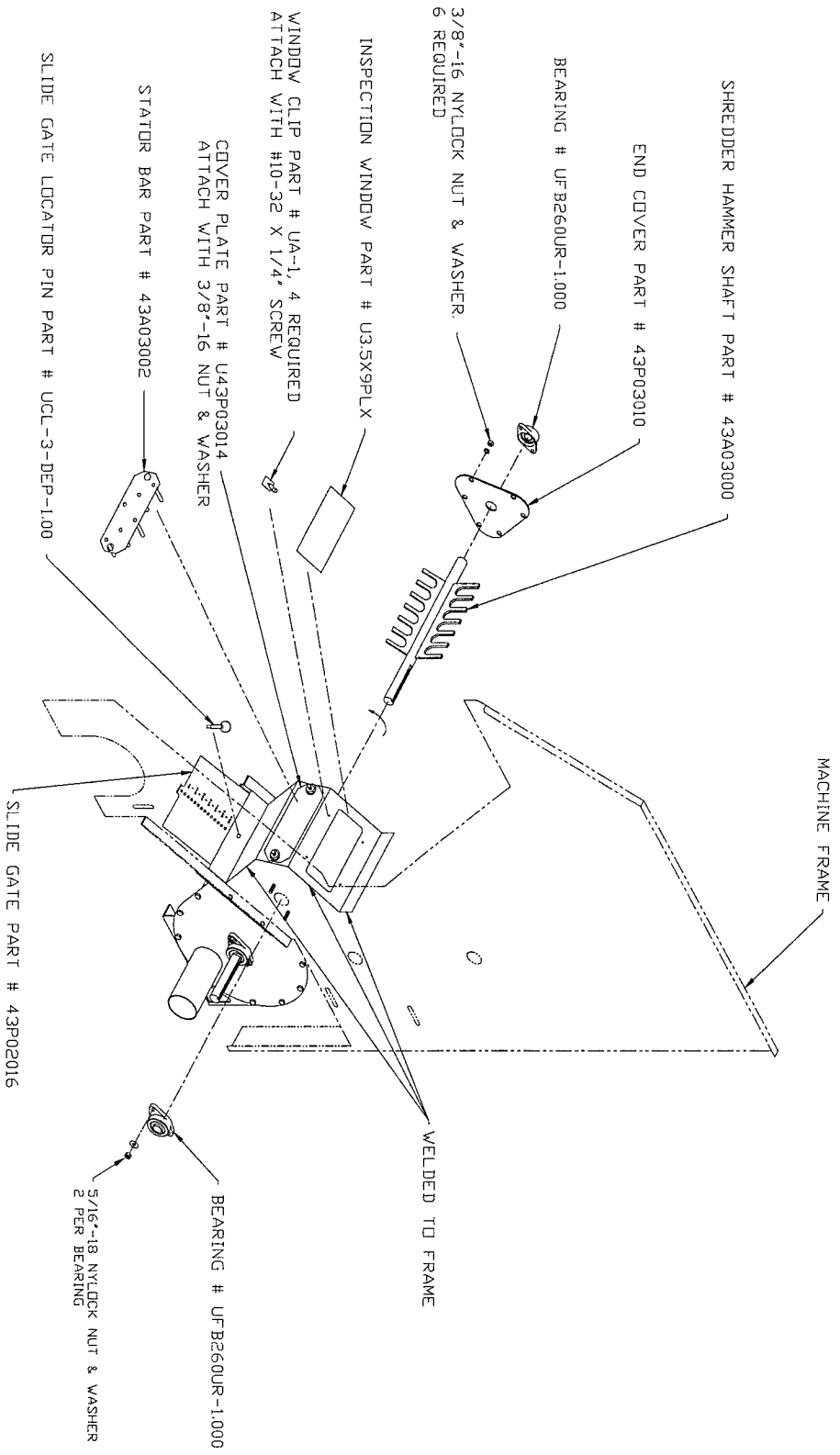


REF.			
VAS	CHANGED TO	EFF.	
RECORD OF CHANGES			

TOLERANCE - UNLESS OTHERWISE NOTED		TITLE	
ONE PLACE DECIMAL	CS0 ±0.06	MACHINE FRAME	
TWO PLACE DECIMAL	CS0 ±0.03	MATERIAL	
THREE PLACE DECIMAL	CS0 ±0.01	DRAWN BY	
FOUR PLACE DECIMAL	CS0 ±0.005	CHECKED BY	
FINISH	AS SHOWN	DATE	
DATE	3/1/07	PROJECT	
BY	J.R.K.	NTS	
© ALL RIGHTS RESERVED		MACHINE WORKS	
UNIVERSITY FLORIDA 32810		DWG NO. 43100017	
REV. 1-10			

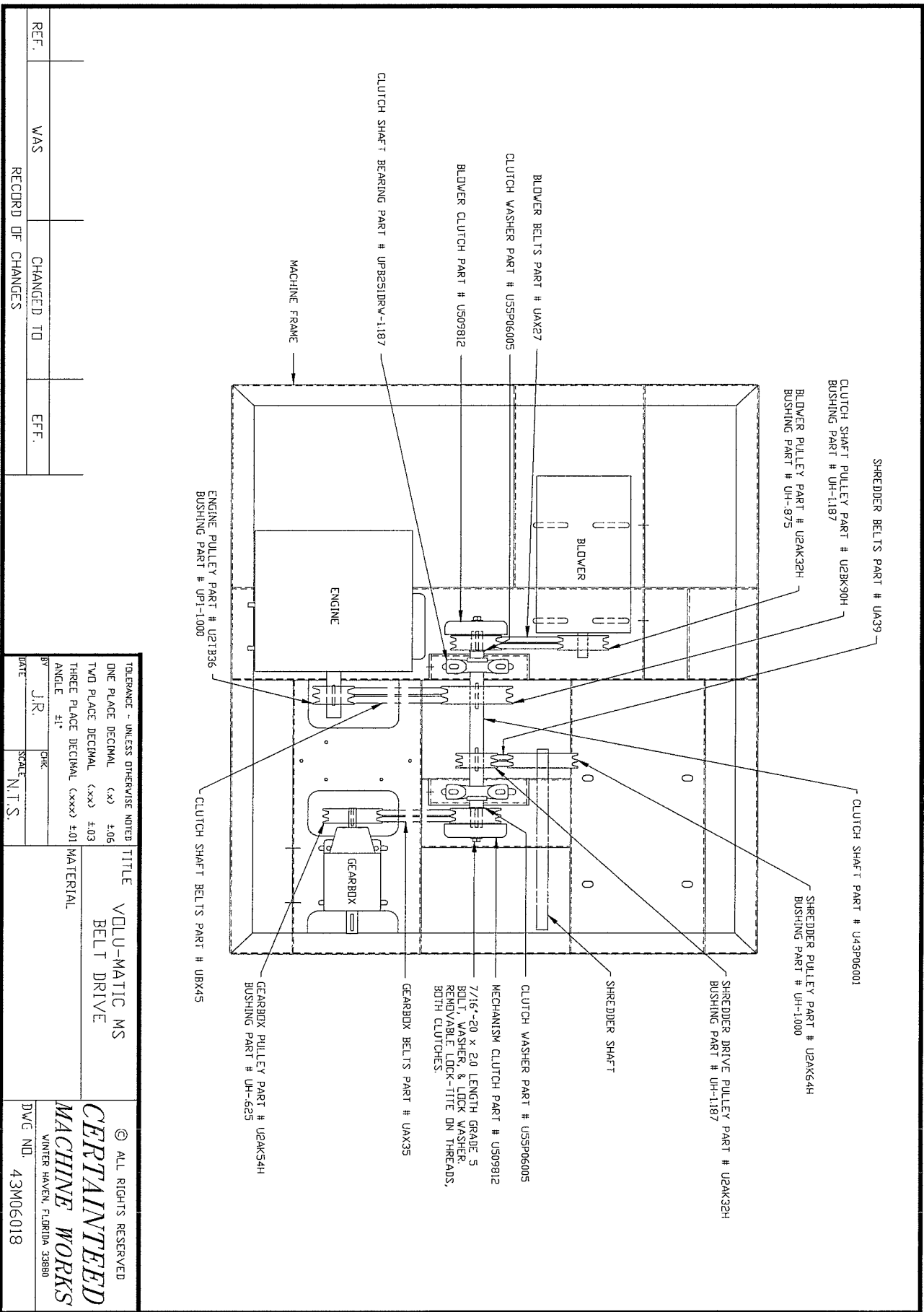


REF.	WAS	CHANGED TO	EFF.
	RECORD OF CHANGES		
TOLERANCE - UNLESS OTHERWISE NOTED ONE PLACE DECIMAL (x) ±.06 TWO PLACE DECIMAL (xx) ±.03 THREE PLACE DECIMAL (xxx) ±.01 ANGLE ±1° SCALE N.T.S.			
BY	CHK	TITLE	
J.R.		AIRLOCK FEEDER ASSEMBLY	
DATE	SCALE	MATERIAL	
1-29-14	N.T.S.		
© ALL RIGHTS RESERVED CERTAINTEED MACHINE WORKS WINTER HAVEN, FLORIDA 33880		DWG. NO. 43102005	



REF:			
WAS	RECORD OF CHANGES	EFF:	

TOLERANCE - UNLESS SPECIFIED METRIC TITLE		SHREDDER ASSEMBLY	
ONE PLACE DECIMAL (x10)	±0.1	CERTAINTIED	
TWO PLACE DECIMAL (x100)	±0.01	MACHINE WORKS	
THREE PLACE DECIMAL (x1000)	±0.001	DWG NO. 43103016	
ANGLE	±1°	DATE: 11/15/16	
DRW: JR	CHK: N.T.S.	© ALL RIGHTS RESERVED	
APP: S-13-14		MACHINE WORKS	

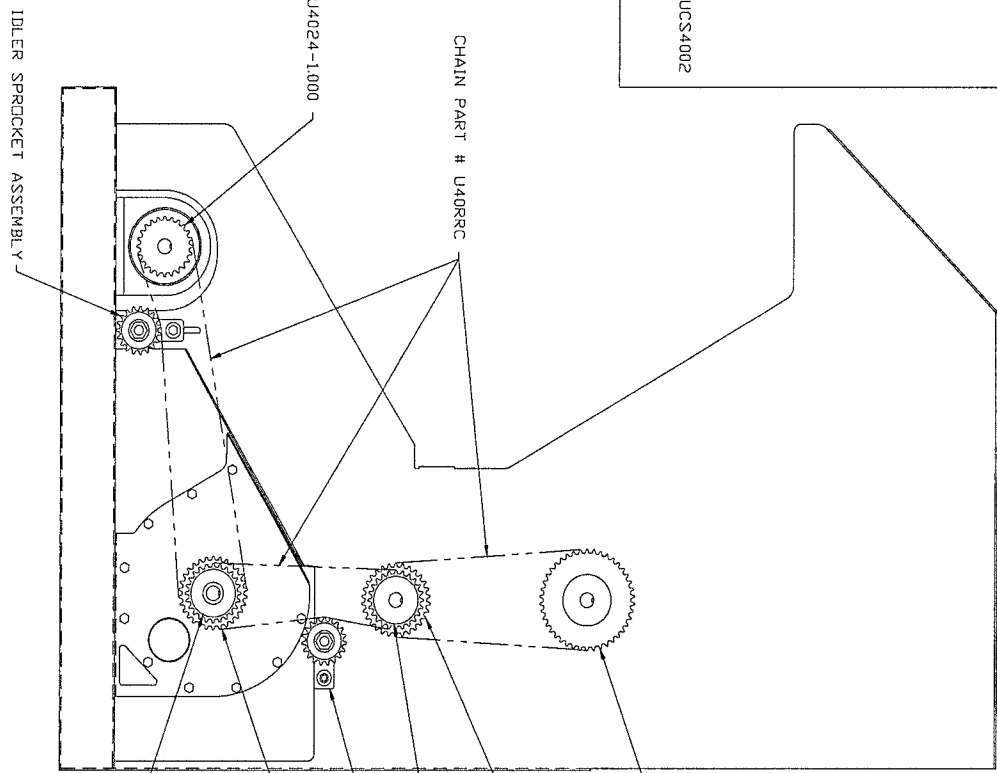
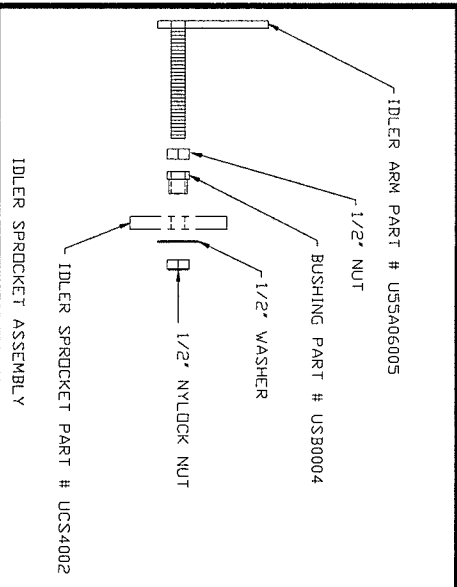


REF.	WAS	CHANGED TO	EFF.
	RECORD OF CHANGES		

TOLERANCE - UNLESS OTHERWISE NOTED	
ONE PLACE DECIMAL (x)	±.06
TWO PLACE DECIMAL (xx)	±.03
THREE PLACE DECIMAL (xxx)	±.01
ANGLE ±1°	
BY J.R.	CHK
DATE	SCALE N.T.S.

TITLE	VOLU-MATIC MS
BELT DRIVE	
MATERIAL	

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MACHINE WORKS
 WINTER HAVEN, FLORIDA 33880
 DWG NO. 43M06018



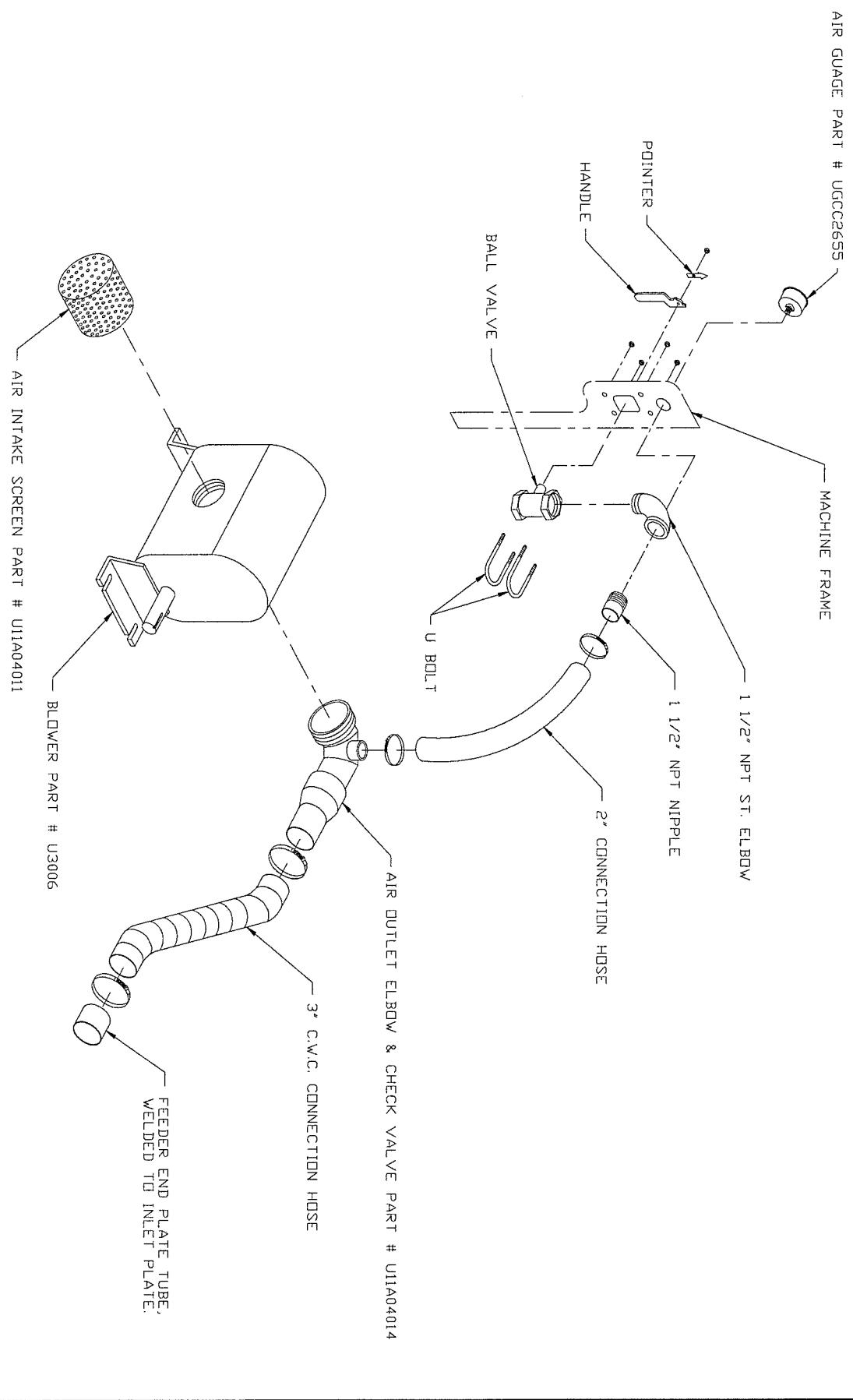
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RECORD OF CHANGES			

TOLERANCE - UNLESS OTHERWISE NOTED	
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TWO PLACE DECIMAL (x.xx)	±.03
THREE PLACE DECIMAL (x.xxx)	±.01
ANGLE 4:1	EB-1/8
BY J.R.	CHK.
DATE	SCALE

TITLE
VOLU-MATIC MS
CHAIN DRIVE

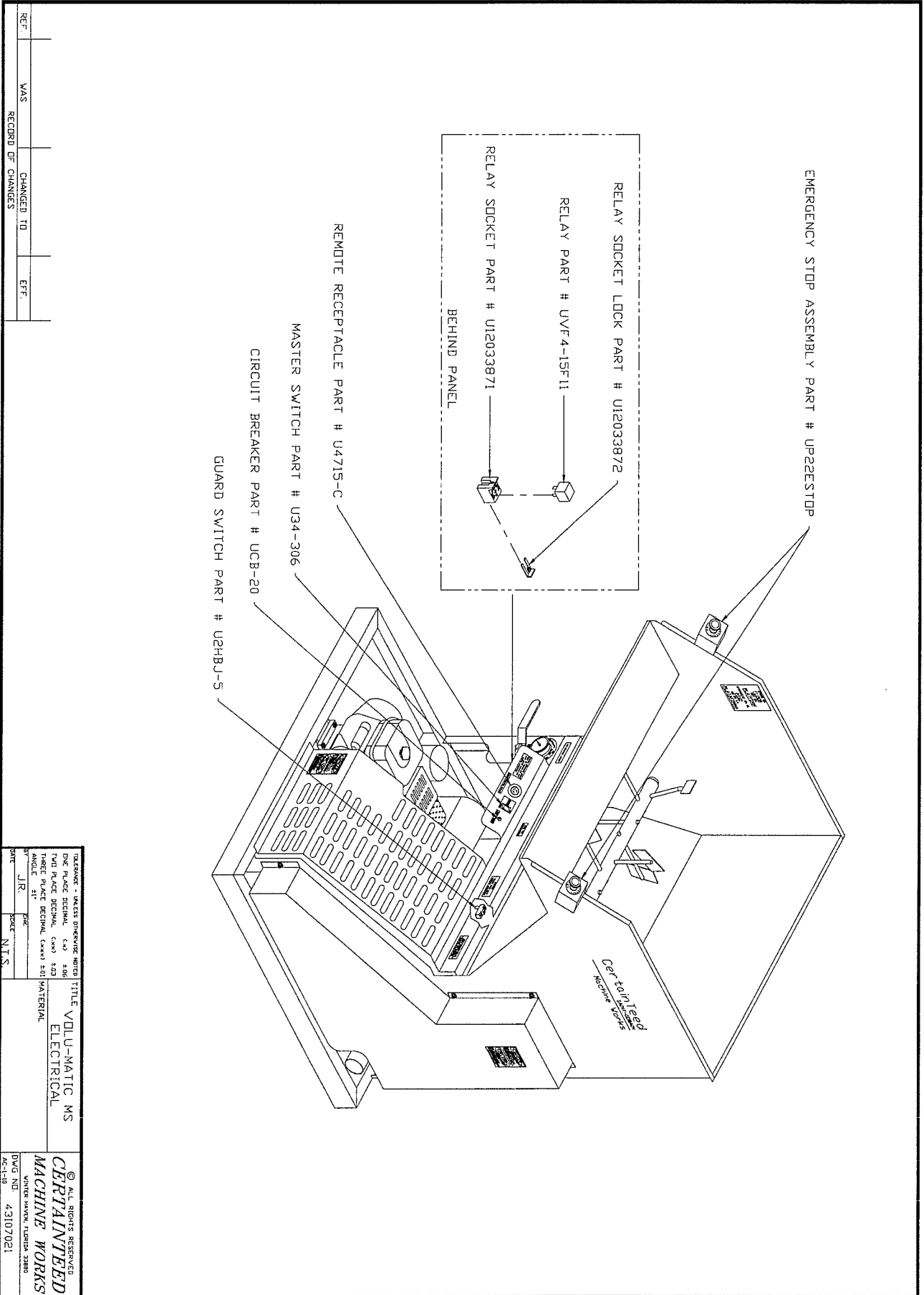
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MACHINE WORKS
WINTER HAVEN, FLORIDA 33980

DWG NO. 43M06019



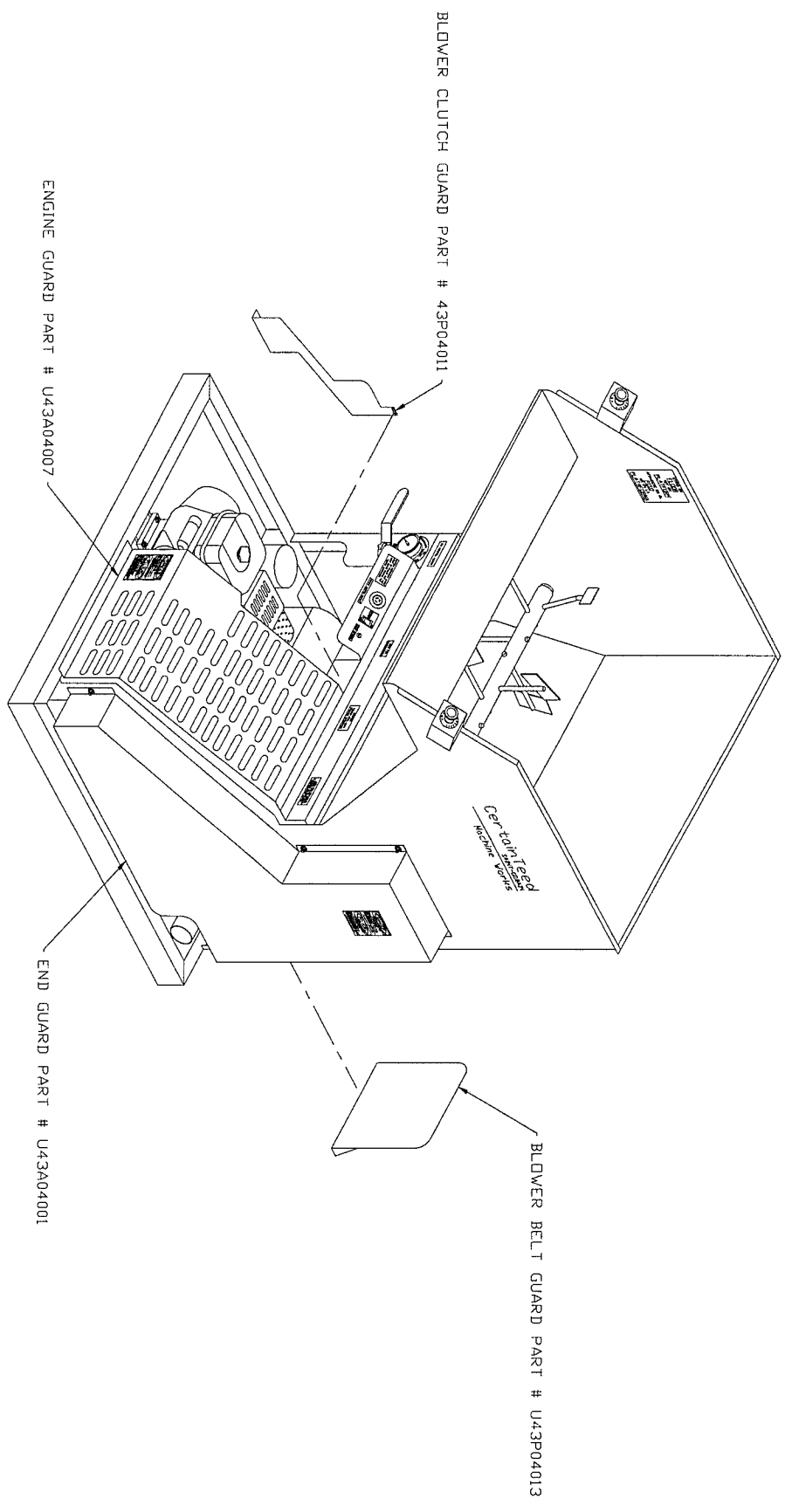
REF:	CHANGED TO	EFF:
WAS	RECORDED UP	CHANGES

TOLERANCE - UNLESS OTHERWISE NOTED	TITLE	VOLU-MATIC MS	© ALL RIGHTS RESERVED
DWG PLACE DECIMAL (.XX) ±.06		AIR STREAM	CERTAINTEED
MATERIAL			MACHINE WORKS
DATE PLACE DECIMAL (MM) ±.03			WINTER HAVEN, FLORIDA 33988
DRWNG	JIR	NTS	DWG NO. 43105020



REF			
	WAS	RECORD OF CHANGES	EFF.

TOLERANCES - UNLESS OTHERWISE NOTED		TITLE	
DIM PLACE DECIMAL (x.3) ±.06		VOLU-MATIC MS	
Fillet PLACE DECIMAL (x.00) ±.02		ELECTRICAL	
ANGLE 5°		MATERIAL	
DRW	J.R.	PKT	NTS.
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MACHINE WORKS		VINTER HAVEN, TEXAS 75880	
DWG NO. 43107021		REV. 1-10	



BLOWER CLUTCH GUARD PART # 43P04011

ENGINE GUARD PART # U43A04007

END GUARD PART # U43A04001

BLOWER BELT GUARD PART # U43P04013

REF.	VAS	CHANGED TO	EFF.
	RECORD OF CHANGES		

TOLERANCE - UNLESS OTHERWISE NOTED TITLE		VOLU-MATIC MS GUARDS	
ONE PLACE DECIMAL (.X)	1.00		
TWO PLACE DECIMAL (.XX)	0.03		
THREE PLACE DECIMAL (.XXX)	0.01	MATERIAL	
ANGLE	31°		
DATE	J.R.	SCALE	1:1
			NTS
ALL RIGHTS RESERVED		© CERTAINTEED	
MACHINE WORKS		WHITE HAVEN, TEXAS 75080	
DWG NO.	43104023		

CERTAINTEED MACHINE WORKS BLOWING EQUIPMENT
LIMITED TWO-YEAR WARRANTY

CertainTeed Machine Works (the Company) warrants to each original purchaser (the Buyer) of its blowing equipment that such products will be free of manufacturing defects for a period of two years from the date of shipment to the Buyer, except that no warranty is made with respect to:

1. Components or accessories manufactured and warranted by others. Warranties for component parts, including but not limited to the engine, blower, gearbox, and transmission, if furnished by the manufacturer of the component, are on file at the Company's main office and copies will be furnished with the blowing equipment when sold. In no event shall the Company provide service on any such component.
2. Any defect caused by alteration performed without the express written authorization of the Company.
3. Repairs made or attempted or adjustments undertaken by unauthorized persons.
4. Any machine that has not been operated and/or maintained in accordance with normal industry practice and the written recommendations of the Company, such as a machine operated with an improperly sized, worn or damaged hose.
5. Damage or breakage due to carelessness, accidents, or improper use.
6. The results of any application or use of the blowing equipment.

This limited warranty does not extend to component parts that need to be replaced on a regular basis due to normal wear and usage, including but not limited to seals, feeder, shredder, auger, fuses, switches, clutches, hoses, shaft seals, chains, belts, sprockets, pulleys, bearings, cables, and batteries.

The Company's obligation under this warranty is limited to repairing or replacing (at its option) any part that is determined by the Company to have a manufacturing defect. The Company or an authorized repair facility will provide any required parts and labor to the Buyer. If the equipment must be returned to the Company for repair, all transportation costs shall be the Buyer's responsibility. The Buyer must obtain a Return Material Authorization (RMA) number from the Company before returning the equipment for repair.

THIS LIMITED WARRANTY IS EXPRESSLY IN LIEU OF ANY OTHER GUARANTEES AND/OR WARRANTIES, ORAL OR WRITTEN, EXPRESSED OR IMPLIED, INCLUDING, WITHOUT LIMITATION, THE IMPLIED WARRANTY OF MERCHANTABILITY AND THE IMPLIED WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE. THE COMPANY SHALL NOT UNDER ANY CIRCUMSTANCES BE LIABLE FOR ANY SPECIAL, INDIRECT, INCIDENTAL OR CONSEQUENTIAL DAMAGES OF ANY KIND, OR ECONOMIC LOSS, INCLUDING DAMAGES TO ANY BUILDING OR ITS CONTENTS, OR INJURY TO ANY PERSONS THEREIN, LOSS OF PROFITS, REVENUE, OR LOSS OF EQUIPMENT USE, EVEN IF THE COMPANY HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES OR LOSS, OR FOR ANY CLAIM AGAINST THE BUYER BY ANY OTHER PARTY.

This warranty is not transferable.

Any claimed defect for which the Company does not receive notice within the two-year warranty period is not covered by this warranty.

CertainTeed
SAINT-GOBAIN

Machine Works

101 Hatfield Rd, Winter Haven, FL 33880

800-237-7841

www.certainteedmachineworks.com

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