

OPERATION AND MAINTENANCE MANUAL

FOR

UNISUL'S VOLU-MATIC™ V

INSULATION

BLOWING MACHINE

NOTE...

THE VOLU-MATIC V MACHINE IS DESIGNED TO BLOW INSULATING FIBERS INTO ATTICS AND CAN BE CONFIGURED TO SPRAY INSULATING FIBERS INTO SIDEWALLS. MANY DIFFERENT TYPES OF MATERIALS CAN BE BLOWN THROUGH THE MACHINE. KEEP IN MIND THAT THE FIBER MATERIAL MANUFACTURER'S INSTRUCTIONS PREVAIL WHEN IT COMES TO APPLYING THEIR PRODUCT SINCE THEY GUARANTEE THE FINAL RESULTS. CONSULT UNISUL'S SALES DEPARTMENT FOR ANY CONCERNS YOU MAY HAVE.

THIS MANUAL IS UPDATED TO INCLUDE ALL RECENT CHANGES AND STILL MAINTAIN INFORMATION FOR OLDER MODEL MACHINES. A SOLID VERTICAL LINE WILL BE PRESENT IN THE PAGE MARGIN AREA TO IDENTIFY THE LATEST CONFIGURATION.

THE MOST NOTABLE CHANGES WILL BE IN THE ELECTRICAL AREA. THERE ARE EMERGENCY STOP BUTTONS LOCATED ON EACH SIDE OF THE MACHINE HOPPER AND THERE ARE LIMIT SWITCHES ON BOTH SWING GATES TO STOP ALL MECHANISM DRIVES WHEN OPENED. ANY TIME THAT A SWING GATE IS OPENED OR AN EMERGENCY STOP BUTTON IS PUSHED IN (OFF), THERE IS A RESET BUTTON ON THE FRONT PANEL THAT WILL HAVE TO BE PRESSED IN ORDER TO GET THE MACHINE RUNNING AGAIN. THIS RESET BUTTON WILL HAVE TO BE PRESSED AFTER THE EMERGENCY STOP IS PULLED OUT (ON) AND THE SWING GATES ARE CLOSED. THE RESET BUTTON WILL ALSO HAVE TO BE PRESSED ANY TIME THE MASTER SWITCH IS TURNED ON.

IF THERE ARE ANY QUESTIONS ABOUT WHAT YOU HAVE RECEIVED OR IF YOU HAVE ANY OTHER PROBLEMS, CALL UNISUL AND WE WILL HELP IN ANY WAY WE CAN. IF THE MACHINE AND PARTS SEEM TO BE IN GOOD CONDITION, CAREFULLY PROCEED.

**READ THIS MANUAL THOROUGHLY BEFORE PUTTING YOUR
VOLU-MATIC™ V INSULATION BLOWING MACHINE INTO SERVICE!**

MANUFACTURED BY:
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WHEN ORDERING PARTS OR CORRESPONDING WITH US ABOUT THIS MACHINE, PLEASE GIVE US THE FOLLOWING INFORMATION AS FOLLOWS:

MACHINE MODEL NO.

MACHINE SERIAL NO.

CHECK THE ACCESSORY KIT INCLUDED WITH NEW DELIVERED MACHINES THAT THE FOLLOWING ITEMS WERE RECEIVED FOR OPERATION.

QUANTITY	ITEM DESCRIPTION
1	*HOPPER EXTENSION
1	*MATERIAL DECELERATION BOX ASSEMBLY FOR SPRAY OPERATIONS
1	*6" ELBOW, HOSE, and CLAMPS FOR DECELERATION BOX
1	*4.5 INCH BLOWER AIR INTAKE FLANGE
1	*4.5 INCH I.D. x 3 FOOT LENGTH CWC HOSE
2	*4.5 INCH HOSE CLAMP
1	*1.437 INCH NON-EXPANSION PILLOW BLOCK BEARING
1	*1.437 INCH EXPANSION PILLOW BLOCK BEARING
1	*PTO TUBULAR DRIVE SHAFT BALANCED
1	*INPUT/CLUTCH SHAFT PTO BELT IDLER ASSEMBLY
1	*GEARBOX PTO BELT IDLER ASSEMBLY
2	*PTO BELT IDLER TAKE-UP ARM
1	*3TB64 PULLEY WITH P1-1.437 BUSHING
1	*2Q5V75 PULLEY WITH Q1-1.437 BUSHING
1	*PTO WARNING LABEL KIT
1	4 INCH O.D. TO 3.5 INCH O.D. REDUCER COUPLER
1	3.5 INCH O.D. TO 3.0 INCH O.D. REDUCER COUPLER
1	3 INCH O.D. TO 2.5 INCH O.D. REDUCER COUPLER
1	2.5 INCH O.D. TO 2.0 INCH O.D. REDUCER COUPLER
1	4 INCH I.D. x 4 INCH LENGTH RUBBER HOSE
1	3.5 INCH I.D. x 4 INCH LENGTH RUBBER HOSE
1	3 INCH I.D. x 4 INCH LENGTH RUBBER HOSE
1	2.5 INCH I.D. x 4 INCH LENGTH RUBBER HOSE
4	4 INCH HOSE CLAMP
2	3.5 INCH HOSE CLAMP
2	3 INCH HOSE CLAMP
2	2.5 INCH HOSE CLAMP
1	4" VACUUM HOSE ATTACHMENT
1	TEE POST and CORNER NOZZLE
1	175 FOOT LONG REMOTE CONTROL CORD
1	FEEDER CRANK HUB WITH 18" ROD
2	#40 AND #50 CHAIN CONNECTOR LINKS
2	#40 AND #50 CHAIN HALF LINKS
6	SHEAR KEYS
1	1/8", 5/32", AND 3/16" T-HANDLE ALLEN WRENCH
1	TUBE HIGH TEMPERATURE GREASE FOR PTO PILLOW BLOCK BEARINGS
* THESE ITEMS WILL BE ON THE MACHINE WHEN INSTALLED BY UNISUL.	

VOLU-MATIC™ V INSULATION BLOWING MACHINE

SPECIFICATIONS

HEIGHT: 73.00 INCHES

LOAD HEIGHT: 60.00 INCHES

WIDTH: 80.00 INCHES

DEPTH: 88.50 INCHES

WEIGHT: 2500 POUNDS

ELECTRICAL: 12 VOLT REMOTE CONTROL
115 VOLT ACCESSORY POWER

BLOWER VOLUME: 270 CFM @ 2 PSI

BLOWER PRESSURE: 6.0 PSI MAXIMUM

VACUUM VOLUME: 600 CFM @ THE INLET CONE.

VACUUM PRESSURE: 4.5 INCHES/MERCURY @ THE INLET CONE.

HOSE REQUIREMENT: 4" I.D. ONLY x 150' LENGTH MINIMUM FOR VACUUMING.
3 ½" I.D. MINIMUM x 150' LENGTH MINIMUM FOR OPEN BLOW.
3" I.D. or 2 ½" I.D. MINIMUM x 150' LENGTH MINIMUM FOR SIDEWALL.

HOSE MANUFACTURER: FLEXHAUST UNI-FLEX RECOMMENDED.

MAXIMUM FEED RATES:

CELLULOSE: 70 - 80 POUNDS MINUTE @ 2.0 PSI.

FIBERGLASS: 25 - 35 POUNDS MINUTE @ 3.5 PSI.

ROCKWOOL: 35 - 55 POUNDS MINUTE @ 4.5 PSI.

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

BEFORE YOU RUN THIS MACHINE...

PLEASE STUDY THE REST OF THIS MANUAL.

INTRODUCTION

THIS MACHINE INCORPORATES ALL OF THE STANDARD FEATURES OF THE FIELD PROVEN VOLU-MATIC III OPEN BLOW INSULATING MACHINE. ALL OF THE HOPPER COMPONENTS, THE SHREDDER HOUSING, AND AIRLOCK FEEDER ARE IDENTICAL. THE MACHINE ALSO HAS THE CAPABILITY OF RECLAIMING ALL EXCESS MATERIAL AT THE POINT OF DELIVERY WHEN SPRAYING SIDEWALLS. THE HOPPER AREA HAS BEEN EXPANDED FOR THE INTRODUCTION OF THESE SPRAYED FIBERS WITH A SELF CONTAINED VACUUM SYSTEM.



THE VOLU-MATIC V MACHINE IS MOUNTED IN THE BACK OF THE CONTRACTOR'S TRUCK AND IS POWERED BY THE TRUCK MOUNTED PTO BOX. THIS PTO BOX DRIVES A SHAFT UNDER THE TRUCK WHICH HAS TWO BELT DRIVES UP TO THE MACHINE. ONE BELT DRIVE GOES TO THE REAR OF THE MACHINE THAT DRIVES A GEARBOX WHICH POWERS THE VACUUM AND GENERATOR. AN ELECTRO-MAGNETIC CLUTCH DRIVES THE VACUUM FAN WHEEL SHAFT SO THAT THE VACUUM CAN BE OFF WHEN BLOWING ATTICS. THE GENERATOR RUNS AT ALL TIMES TO POWER A WALL SCRUBBER WHEN SPRAYING SIDEWALLS OR LIGHTS FOR ATTIC WORK. VEE BELTS DRIVE THE VACUUM AND GENERATOR.

THE OTHER BELT DRIVE GOES TO THE FRONT OF THE MACHINE THAT DRIVES A SHAFT WHICH POWERS THE DRIVE TRAIN. THE FRONT DRIVE TRAIN CONSIST OF TWO ELECTRO-MAGNETIC CLUTCHES, BLOWER, GEARBOX, TRANSMISSION, AND WATER PUMP. THE TWO CLUTCHES CONTROL SEPARATE FUNCTIONS ON THE MACHINE THROUGH THE REMOTE CONTROL 12 VOLT ELECTRICAL CIRCUIT. THE AIR THAT BLOWS THE MATERIAL DOWN THE HOSE TO ITS DESTINATION IS CONTROLLED INDEPENDENTLY AS WELL AS MACHINE MECHANISMS THAT CONDITION AND CONVEY THE MATERIAL. THE MACHINE CAN BE SET AT DIFFERENT SPEED SETTINGS WITH THE TRANSMISSION TO MATCH THE APPLICATORS ABILITY AND/OR MATERIAL CHARACTERISTICS, SEE THE RECOMMENDED START SETTINGS IN THE OPERATION SECTION. VEE BELTS DRIVE THE BLOWER, TRANSMISSION, SHREDDER, AND THE WATER PUMP FOR SIDEWALL SPRAY.

THE HOPPER AREA HAS ROTATING COMPONENTS TO CONDITION 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 MATERIAL INTO THE AIRSTREAM WHERE IT ENTERS THE HOSE AND FLOWS TO THE HOSE EXIT. ANOTHER FEATURE ON THE VOLU-MATIC V MACHINE TO CONDITION MATERIAL IS A SLIDE GATE THAT LENGTHENS THE TIME THAT THE MATERIAL IS STIRRED IN THE HOPPER BEFORE ENTERING THE SHREDDER HOUSING. THE SHREDDER HOUSING ALSO HAS THE CAPABILITY OF ACCEPTING ANOTHER MATERIAL CONDITIONER KNOWN AS THE STATOR BAR. STUDY THE OPERATION SECTION UNDER COVERAGE CONCERNING USE OF THE STATOR BAR. AIR VOLUME CAN BE CONTROLLED INDEPENDENTLY WHICH ALSO OPTIMIZES MATERIAL COVERAGE.

POWER FOR THE TWELVE VOLT ELECTRICAL CIRCUIT IS PROVIDED BY THE INDUSTRIAL ENGINE OR TRUCK BATTERY ON PTO MODELS. THE WIRE LEADS FROM THE BATTERY GO THROUGH THE 20 AMP CIRCUIT BREAKER AND THEN TO A MASTER SWITCH. WHEN THE MASTER SWITCH IS TURNED ON, ELECTRICITY FLOWS THROUGH THE SWITCH CAUSING THE LIGHT TO ILLUMINATE WHILE PROVIDING POWER TO THE LATCHING RELAY AND BLOWER RELAY COIL. WITH THE EMERGENCY STOP BUTTONS PULLED OUT (ON) AND SWING GATES CLOSED, PRESSING THE RESET BUTTON ENERGIZES THE LATCHING RELAY CONTACTS CLOSED ALLOWING POWER TO FLOW TO THE REMOTE CONTROL RECEPTACLE. WHEN THE REMOTE CORD SWITCH IS MOVED TOWARD THE CORD, POWER IS SENT TO THE BLOWER RELAY CONTACTS 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 RELAY CONTACTS CAUSING BOTH CLUTCHES TO ENGAGE. THE TOGGLE SWITCH IN THE REMOTE CORD HOUSING IS LABELED TO IDENTIFY THESE MACHINE FUNCTIONS.

DURING OPEN BLOW OPERATIONS, ONE DELIVERY HOSE AND THE REMOTE CONTROL CORD ARE TAKEN INTO THE ATTIC WHILE THE MACHINE HOPPER IS CONTINUALLY LOADED WITH MATERIAL. THE MACHINE IS EQUIPPED WITH HOPPER EXTENSIONS FOR OPEN BLOW OPERATIONS SO THAT THE EXPANDED HOPPER IS FULLY UTILIZED.

DURING SIDEWALL SPRAY OPERATIONS, ONE DELIVERY HOSE WITH A WATER NOZZLE TO DAMPEN THE INSULATION AND ACTIVATE THE ADHESIVE, PLUS THE REMOTE CORD IS TAKEN INTO THE HOUSE WHILE THE MACHINE HOPPER IS CONTINUALLY LOADED WITH MATERIAL. ANOTHER HOSE FOR VACUUMING EXCESS MATERIAL IS ALSO TAKEN INTO THE HOUSE THAT BLENDS WITH NEW MATERIAL IN THE HOPPER. THIS EXCESS MATERIAL IS CREATED FROM BUILD UP PAST THE STUD SURFACE WHICH IS SCRUBBED SMOOTH BY A SPECIAL TOOL. THE MACHINE IS EQUIPPED WITH A MATERIAL DECELERATION BOX THAT MUST BE MOUNTED ABOVE THE HOPPER BEFORE THE SPRAY PROCESS BEGINS. A SIX INCH DIAMETER HOSE IS ALSO SUPPLIED TO CONNECT THE VACUUM HOUSING TO THE DECELERATION BOX. THE HOPPER EXTENSION SIDES ARE EASILY REMOVED IN ORDER TO MOUNT THE DECELERATION BOX. SEE THE OPERATION SECTION FOR MACHINE SET UP FROM OPEN BLOW TO SIDEWALL SPRAY.

SEVERAL SAFETY FEATURES HAVE BEEN ADDED TO THE VOLU-MATIC V MACHINE TO ENSURE OPERATOR SAFETY. STUDY THE SAFETY SECTION THOROUGHLY SO THAT ALL THE FEATURES CONCERNING SAFETY ARE UNDERSTOOD. KEEP ALL THESE FEATURES FUNCTIONAL SO THAT NO PROBLEMS WILL BE EXPERIENCED DURING MACHINE OPERATION.

SAFETY

THE VOLU-MATIC V INSULATION BLOWING MACHINE HAS FULL GUARDING AND ELECTRICAL DISCONNECTS FOR YOUR SAFETY. EVERY VOLU-MATIC V 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 POWER SOURCE DOWN BEFORE RETRIEVING THE OBJECT. NEVER REACH INTO THE MACHINE WHILE IT IS OPERATING.

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!**

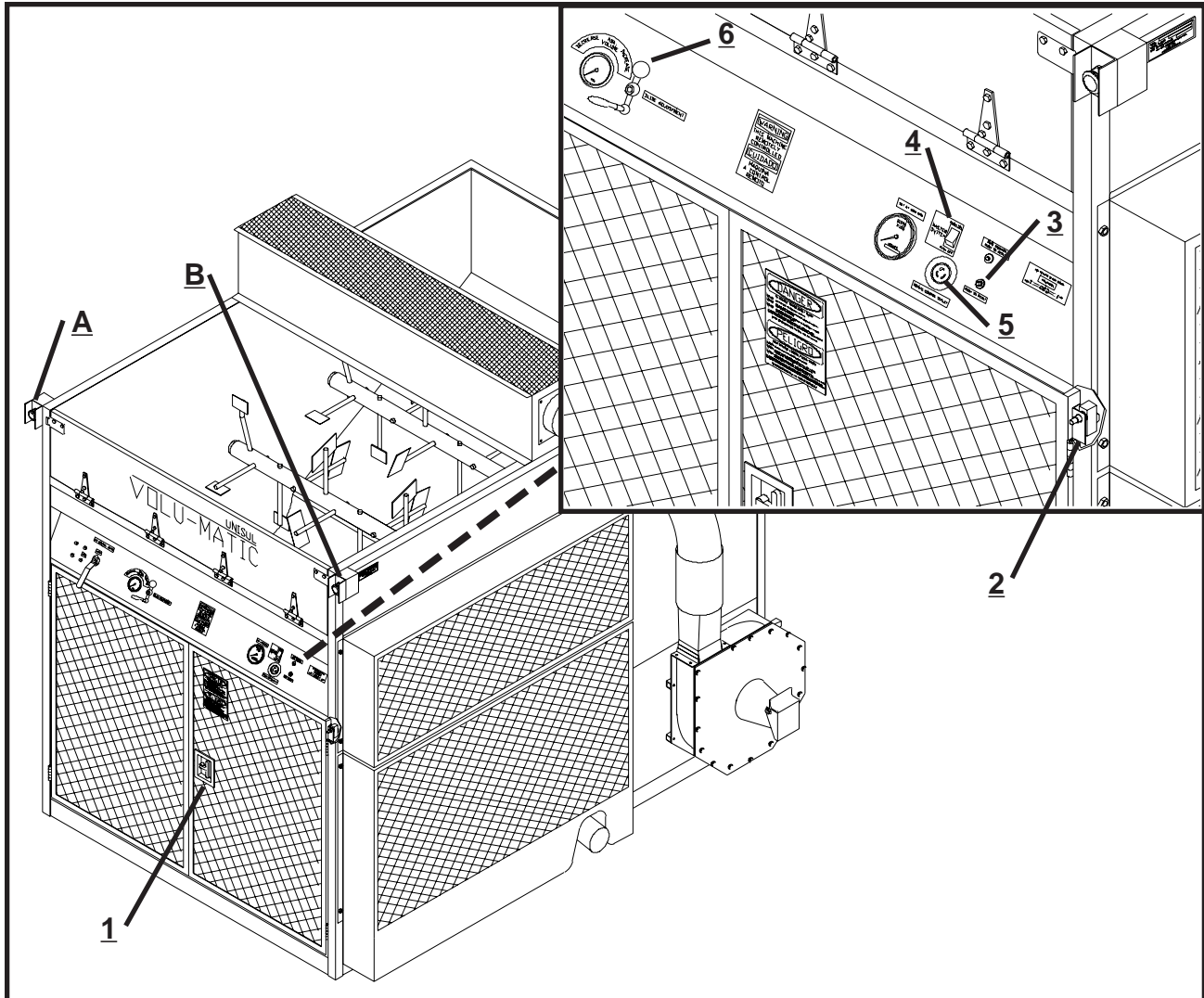


THE PURPOSE OF THIS SIGN IS TO MAKE THE OPERATOR AWARE THAT THEY MAY LOSE BALANCE AND FALL.



THIS WARNING SIGN IS DISPLAYED ON THE TRUCK AFTER INSTALLATION OF A PTO DRIVEN MACHINE. A LABEL KIT IS SENT WITH THE PTO MODEL WHEN THE MACHINE IS SHIPPED FOR CUSTOMER INSTALLATION. USE THE INSTALLATION INSTRUCTIONS IF YOU INSTALL THE MACHINE.

ALL VOLU-MATIC V 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 AS SHOWN IN THE INSTALLATION INSTRUCTIONS. 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 SWING GATE GUARDS ARE EQUIPPED WITH A RECESSED T-HANDLE LATCH 1. **THESE GUARDS MUST NEVER BE OPENED WHILE YOUR VOLU-MATIC V MACHINE IS IN OPERATION - THERE ARE SHAFTS WITH GUARDING OVER THEM, WHICH ARE STILL ROTATING.** IF THESE GATES ARE OPENED, SAFETY SWITCHES 2 ARE MOUNTED TO THE SWING GATES WHICH WILL ONLY STOP CHAIN DRIVEN MECHANISMS AND THE BLOWER. IF THE MECHANISMS DO NOT SHUT OFF OR STOP WHEN EITHER OF THE GATES ARE OPENED, YOU SHOULD REQUEST THAT MAINTENANCE BE PERFORMED ON THE SAFETY INTERLOCKS. YOU WILL HAVE TO PUSH THE RESET BUTTON 3 IN ORDER TO RESTART THE MACHINE AFTER THE SWING GATES ARE CLOSED FOR MACHINE READY ON. IF THE SAFETY SWITCH OR GUARD SHOULD BECOME DAMAGED, REPLACE THEM, TO ENSURE SAFETY WHILE OPERATING YOUR VOLU-MATIC V MACHINE.

THE MAIN DRIVE BELT GUARD AND REAR GEARBOX BELT GUARD ARE TO ENSURE SAFETY WHEN THE MACHINE IS OFF, BUT THE PTO IS STILL ENGAGED ON THE TRUCK.

THERE ARE TWO EMERGENCY STOP BUTTONS **A & B** THAT WILL COMPLETELY SHUT THE MACHINE DOWN. EITHER RED BUTTON WILL STOP ALL MACHINE MECHANISMS 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 STOP BUTTONS 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.

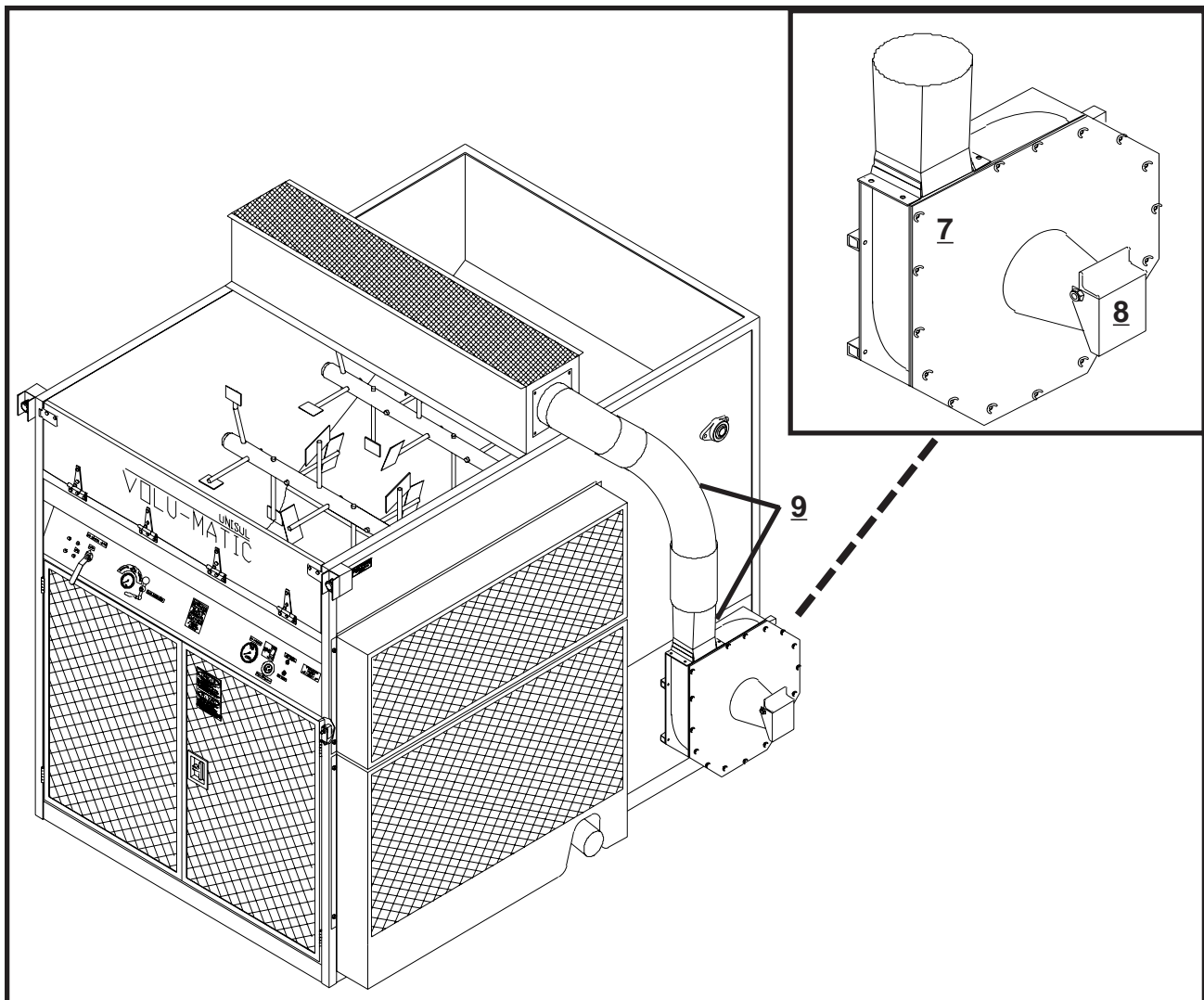
YOU WILL HAVE TO PUSH THE RESET BUTTON **3** IN ORDER TO RESTART THE MACHINE AFTER THE EMERGENCY STOP BUTTONS ARE PULLED BACK OUT (ON) FOR MACHINE OPERATION. IF ANY SAFETY SWITCH INTERLOCK SHOULD BECOME DAMAGED, REPLACE IT; KEEP YOUR VOLU-MATIC V MACHINE SAFE.

DURING MACHINE OPERATION, ALWAYS TURN OFF THE “ROCKER TYPE” MASTER SWITCH **4** (LIGHT INDICATES SWITCH IS ON), AND UNPLUG THE REMOTE CORD FROM THE RECEPTACLE **5** BEFORE REMOVING ANY GUARDS FOR ANY REASON! THE MATERIAL CONDITIONING SLIDE GATE IS ADJUSTABLE FROM OUTSIDE THE MACHINE USING ADJUSTMENT HANDLE **6**.

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 FEED MATERIAL DOWN INTO THE HOPPER. THE VOLU-MATIC V 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 LEVEL EXCEEDS ACCEPTABLE STANDARDS. UNISUL RECOMMENDS THAT THE OPERATOR WEAR AN “APPROVED” DUST MASK OR RESPIRATOR FOR THEIR PROTECTION. SAFETY FEATURES ARE INCORPORATED INTO THE VOLU-MATIC V 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.

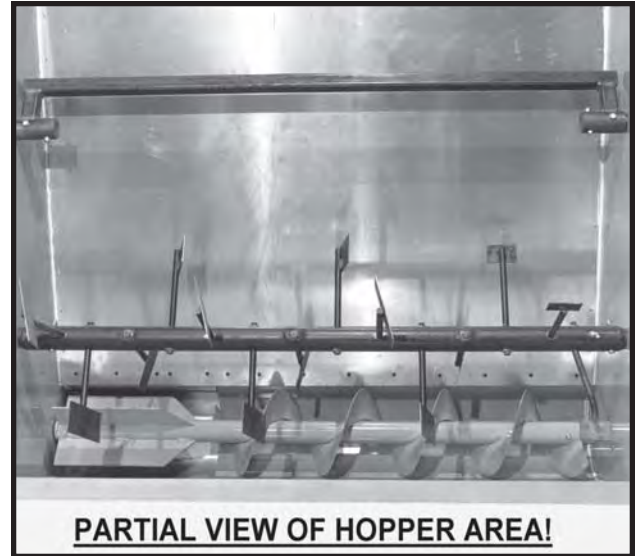
THE VACUUM ON THE VOLU-MATIC V MACHINE IS A SPECIALLY DESIGNED HIGH SPEED CENTRIFUGAL FAN UTILIZING FOUR INCH HOSE. THE VACUUM HOUSING FRONT COVER 7 IS EQUIPPED WITH A TRAP DOOR 8 THAT WILL STAY CLOSED UNTIL HOSE IS HOOKED UP FOR OPERATION. THIS DOOR SHOULD STAY CLOSED AT ALL TIMES SO THAT NO FOREIGN OBJECT WILL ENTER THE VACUUM AND BE DESTROYED. **THIS VACUUM IS STRONG ENOUGH AND VERY CAPABLE OF SUCKING IN A HUMAN HAND BECAUSE OF CARELESSNESS. THEREFORE, ALWAYS CONNECT THE VACUUM HOSE BEFORE THE MACHINE IS STARTED.** THE VACUUM SHOULD NEVER BE OPERATED WITH THE FRONT COVER OFF OR THE EXIT TRANSITION 9 REMOVED. USING THE VACUUM IN ANY UNSAFE MANNER CAN INADVERTENTLY CAUSE ITEMS TO BE SUCKED IN AND BE THROWN. THIS COULD POSSIBLY CAUSE SERIOUS INJURY TO YOURSELF OR SOME OTHER PERSON.



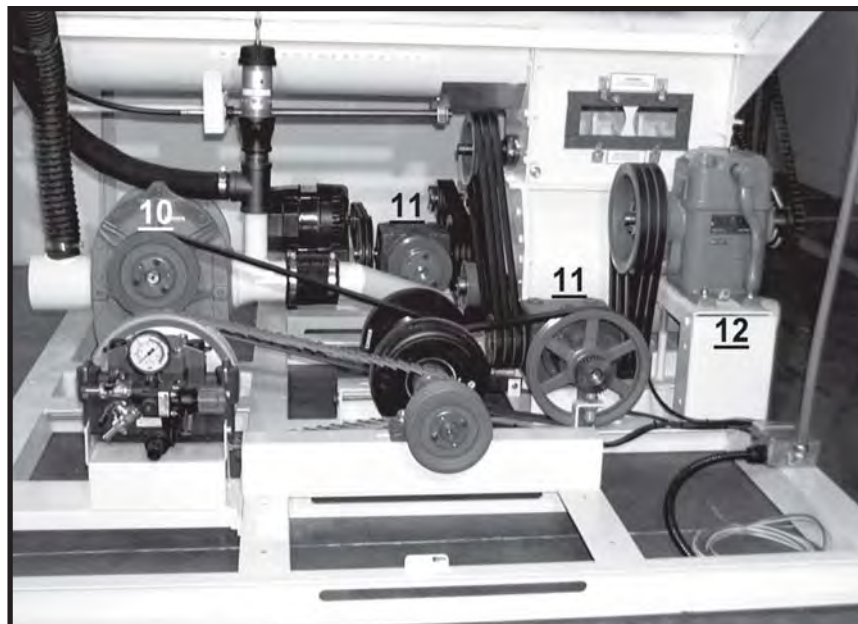
MACHINE START-UP

PRELIMINARY CHECKS

1. IF YOUR MACHINE WAS SHIPPED, REMOVE ALL CRATING FROM MACHINE FRAME. THE SKIDS SHOULD BE REMOVED WHEN THE MACHINE IS LOCATED IN THE CONTRACTOR'S TRUCK OR OTHER FORM OF TRANSPORTATION.
2. BE SURE THAT THE HOPPER AREA IS FREE OF LOOSE OBJECTS.
3. CHECK THAT CHAIN AND BELT DRIVES ARE CLEAR OF LOOSE OBJECTS AND THAT THE DRIVES ARE ADEQUATELY TENSIONED.
4. CHECK FOR COMPONENTS THAT MAY HAVE VIBRATED LOOSE, SUCH AS; AIRSTREAM CONNECTIONS, WIRING CONNECTIONS, BEARINGS, GUARDS, ETC.



5. CHECK THE OIL LEVELS IN THE BLOWER **10**, RIGHT ANGLE GEARBOXES **11**, AND THE TRANSMISSION **12**. WHEN CHECKING THE OIL IN THE BLOWER, TURN THE BRASS VALVE **13** 90 DEGREES TO CHECK, A SMALL AMOUNT SHOULD APPEAR INDICATING SUFFICIENT OIL. REFER TO THE MAINTENANCE SECTION FOR CAPACITIES AND TYPE OF OIL TO USE FOR EACH COMPONENT.

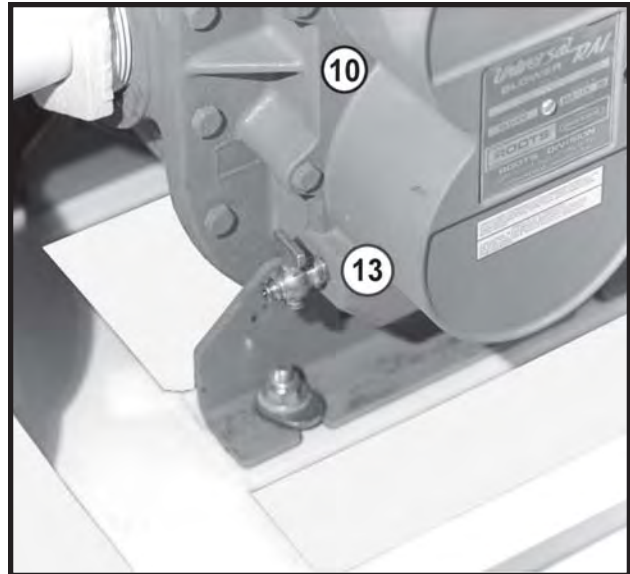


6. OPEN THE MATERIAL CONDITIONING SLIDE **14** TO THE NUMBER 18 POSITION, FULLY OPEN. SEE THE OPERATION SECTION UNDER SLIDE GATE CONTROL.

7. MAKE SURE THAT THE AIR BLEED CONTROL VALVE **15** IS FULLY CLOSED. THE POINTER SHOULD FACE THE CLOSED LABEL. SEE OPERATION SECTION UNDER AIR BLEED SYSTEM.

8. MAKE SURE THE MASTER SWITCH **4** IS OFF AND THAT THE REMOTE CORD IS NOT PLUGGED INTO THE RECEPTACLE **5**.

9. CLOSE AND SECURE ANY OPEN GUARDS BEFORE THE NEXT STEP.



PTO INSTALLATION WARNING:

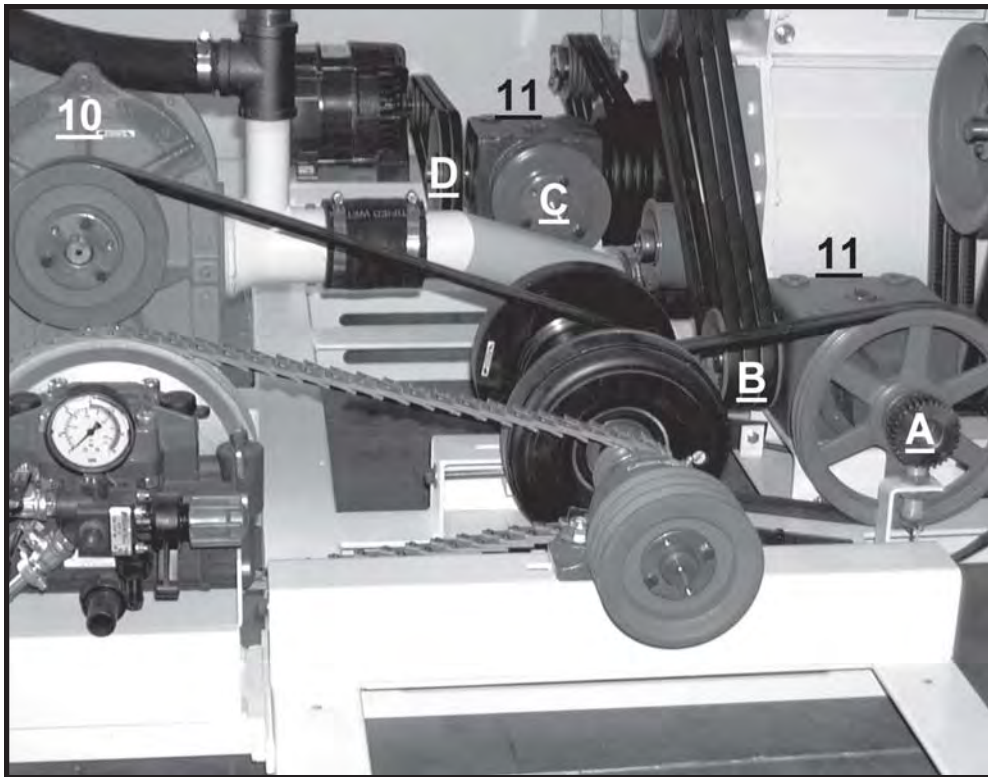
CLOSELY FOLLOW THE PTO INSTALLATION INSTRUCTIONS SO THAT MACHINE PROBLEMS WILL NOT BE EXPERIENCED DURING THE OPERATION OF THE VOLU-MATIC V MACHINE. THE INPUT/CLUTCH SHAFT WHICH POWERS THE DRIVE TRAIN AT THE FRONT OF THE MACHINE IS DESIGNED TO RUN AT **1900** RPM. THE GEARBOX AT THE REAR OF THE MACHINE WHICH POWERS THE VACUUM AND GENERATOR IS DESIGNED TO RUN AT **1800** RPM. THESE SPEEDS SHOULD BE HELD WITHIN **50** RPM SO THAT THE SUPPORT BEARINGS, CLUTCHES, ETC. WILL NOT GENERATE EXCESSIVE HEAT. ALSO, EXCESSIVE SPEED CAN AND WILL DAMAGE COMPONENTS DRIVEN BY THE INPUT/CLUTCH SHAFT OR GEARBOXES AS WELL AS THE SHAFT OR GEARBOXES. THIS IS ESPECIALLY TRUE IF THE TRUCK IS MOVED BEFORE THE PTO ATTACHMENT IS DISENGAGED AFTER OPERATING THE MACHINE. REMEMBER, THE INPUT/CLUTCH SHAFT AND REAR GEARBOX ROTATE AT ALL TIMES WHEN THE PTO IS ENGAGED.

INSTALLATION

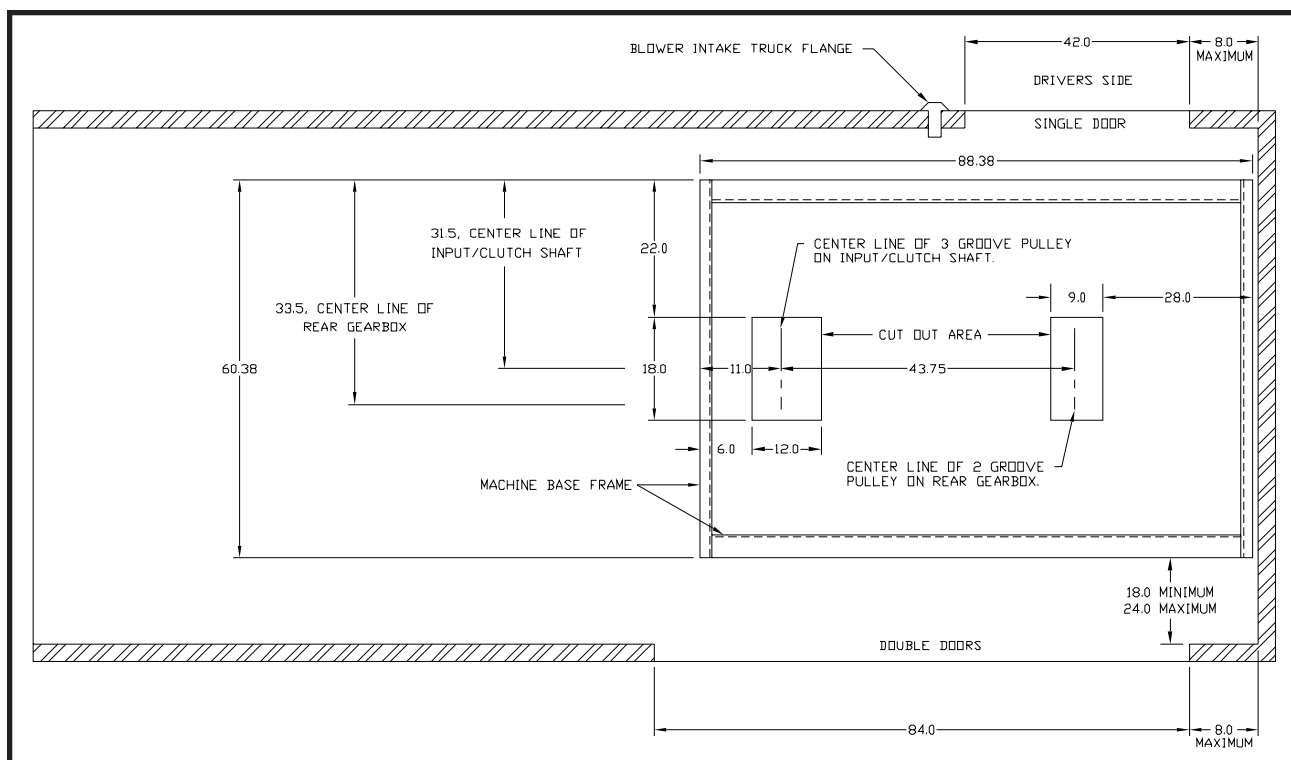
THE VOLU-MATIC V MACHINE IS DESIGNED TO OPERATE USING A TRUCK MOUNTED PTO BOX. THIS BOX SHOULD BE 100% TAKE OFF IN ORDER TO ACHIEVE PROPER MACHINE SPEED WHILE THE TRUCK IDLES AT THE MANUFACTURER'S RECOMMENDED RPM RANGE OF **1500**. A PTO BOX GREATER THAN 100% TAKE OFF IS SUITABLE AND WILL REQUIRE THAT THE TRUCK IDLE SLOWER SO THAT THE MACHINE OPERATES AT THE CORRECT SPEED. AT THE TIME A NEW MACHINE ORDER WAS PLACED YOU WERE ADVISED OF REQUIRED PARTS FOR THE DRIVE LINE TO BE INSTALLED UNDER THE TRUCK. THOSE PARTS ARE; THE PTO OUTPUT DRIVE SHAFT P.N. 45A06015, SUPPORT BEARINGS, DRIVE PULLEYS, AND BELT TENSIONING IDLER PULLEY ASSEMBLIES. A DRAWING OF THE BASIC OUTLINE OF THE DRIVE TRAIN UNDER THE TRUCK WILL SHOW REQUIRED PARTS TO BE MANUFACTURED BY YOU TO COMPLETE THE INSTALLATION.

ALSO, AT THE TIME A NEW MACHINE ORDER WAS PLACED YOU WERE ASKED TO SUPPLY INFORMATION ABOUT THE TRUCK MOUNTED PTO BOX OUTPUT SHAFT ROTATION. YOU SHOULD LOOK AT THE PTO BOX SHAFT FROM THE REAR OF THE TRUCK TO DETERMINE THE ROTATION. THIS INFORMATION IS NECESSARY FOR DETERMINING MACHINE SETUP AT THE FACTORY. THE BLOWER **10** AND RIGHT ANGLE GEARBOXES **11** MOUNTING ARE AFFECTED BY THE ROTATION OF THE TRUCK MOUNTED PTO BOX. THE FOLLOWING PICTURE SHOWS A CLOCKWISE SETUP NOTICEABLE BY THE BLOWER SHAFT AT THE TOP POSITION, THE SHAFT WILL BE AT THE BOTTOM POSITION FOR A COUNTERCLOCKWISE ROTATION SETUP. THE FRONT RIGHT ANGLE GEARBOX PINION SHAFT **A** WILL ALWAYS ROTATE IN THE SAME DIRECTION AS THE PTO BOX, IT IS A SIMPLE MATTER OF FLIPPING THE GEARBOX ONTO ONE MOUNTING SIDE OR THE OTHER SO THAT THE CROSS SHAFT **B** ALWAYS ROTATES TOWARD THE FRONT OF THE MACHINE. THE DRAIN PLUG AND BREATHER CAP ALSO HAVE TO BE INSERTED ACCORDINGLY.

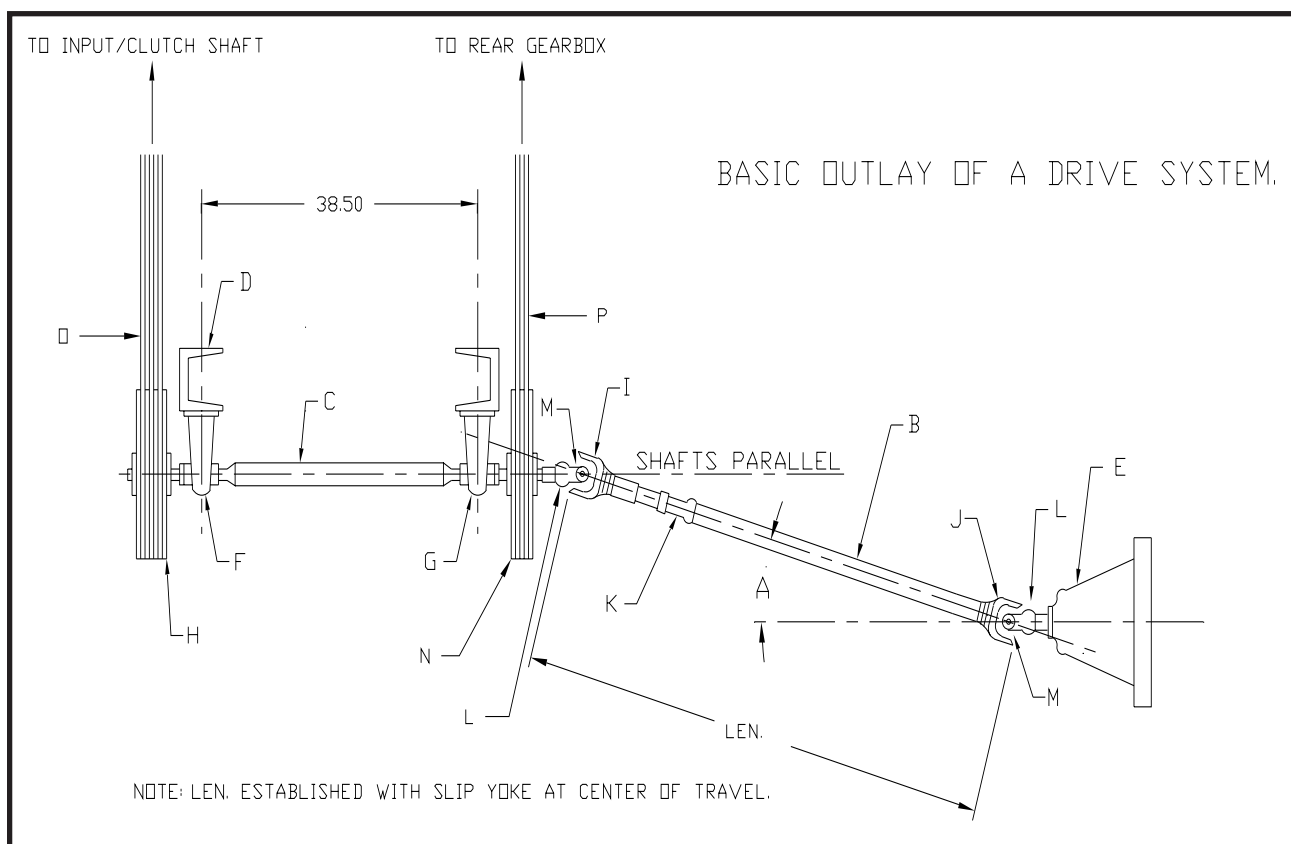
THE REAR RIGHT ANGLE GEARBOX PINION SHAFT C WILL ALWAYS ROTATE IN THE SAME DIRECTION AS THE PTO BOX, IT IS A SIMPLE MATTER OF FLIPPING THE GEARBOX ONTO ONE MOUNTING SIDE OR THE OTHER SO THAT THE CROSS SHAFT D ALWAYS ROTATES TOWARD THE REAR OF THE MACHINE. THE DRAIN PLUG AND BREATHER CAP ALSO HAVE TO BE INSERTED ACCORDINGLY.



WITH THE ROTATION OF THE TRUCK MOUNTED PTO BOX AND MACHINE SETUP DETERMINED, USE THE NEXT DRAWING AS A GUIDE FOR LOCATING THE VOLU-MATIC V MACHINE. MAKE SURE THAT THE MACHINE IS LOCATED SO THAT THE CUT OUTS FOR THE BELT DRIVES WILL LIE BETWEEN TWO TRUCK CHASSIS CROSS MEMBERS AND AS CLOSE AS POSSIBLE TO THE WALL OF THE TRUCK VAN BODY. ONCE THE MACHINE IS LOCATED, CUT OUT THE OPENINGS IN THE FLOOR AND BOLT THE MACHINE IN PLACE. LOCATE A HOLE IN THE TRUCK VAN BODY AS SHOWN FOR THE BLOWER INTAKE FLANGE SHIPPED IN THE ACCESSORY KIT. A FLEXIBLE HOSE IS INCLUDED FOR HOOK UP TO THE BLOWER INLET CONNECTION. USE 3/8" GRADE 5 BOLTS TO SECURE THE MACHINE THROUGH THE FRONT AND REAR CHANNEL OF THE BASE FRAME.

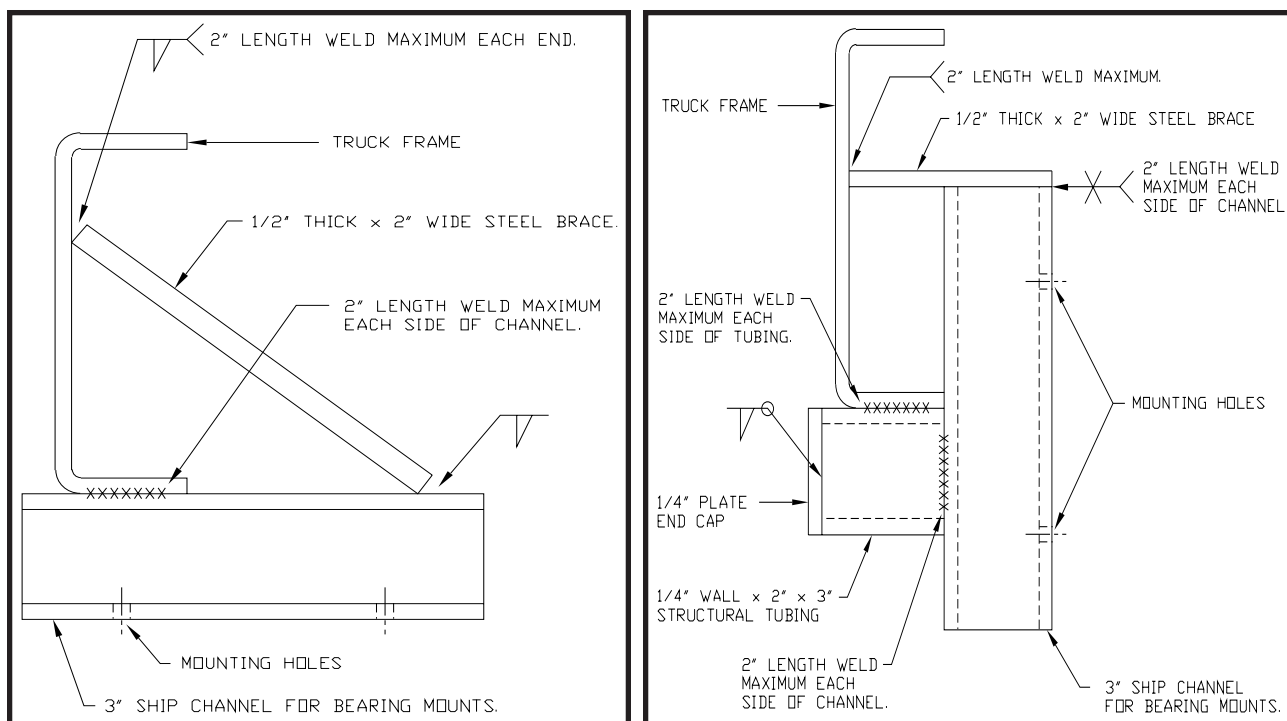


NOW THAT THE MACHINE IS LOCATED, THE NEXT STEP IS TO GET THE DRIVE SHAFT LOCATED UNDER THE TRUCK. THE NEXT DRAWING AND THE FOLLOWING TABLE SHOWS THE BASIC OUTLAY OF A DRIVE SYSTEM.



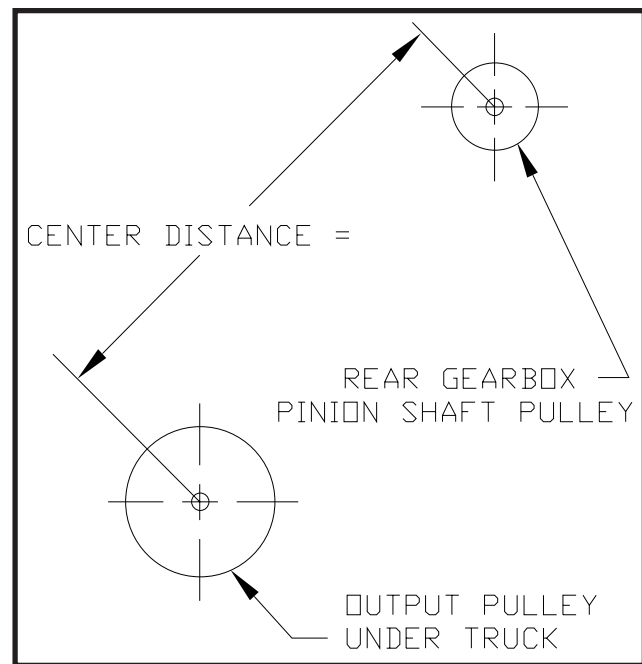
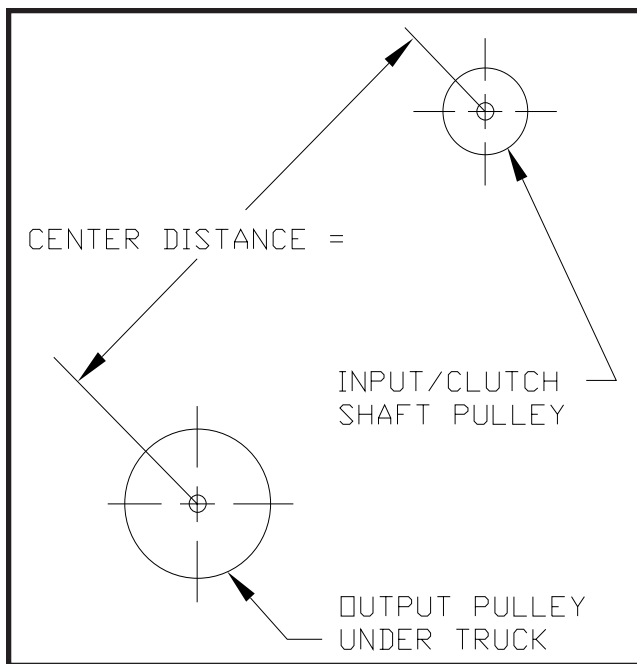
A = MINIMUM OF 5 DEGREES - MAXIMUM OF 15 DEGREES.
 B = PTO UNIVERSAL DRIVE SHAFT
 2" DIAMETER DRIVE SHAFT TUBING UP TO 36" LENGTH.
 2 ½" DIAMETER DRIVE SHAFT TUBING UP TO 54" LENGTH.
 3" DIAMETER DRIVE SHAFT TUBING OVER 54" LENGTH.
 C = PTO OUTPUT DRIVE SHAFT, PART NUMBER 45A06015.
 D = 3" SHIP CHANNEL - WELD TO TRUCK FRAME AND BRACE (INSTALLATION MAY REQUIRE LONGER OR SHORTER CHANNEL TO MAINTAIN 5 TO 15 DEGREE ANGLE).
 E = PTO BOX SUPPLIED BY TRUCK MANUFACTURER.
 F = 1 7/16" EXPANSION PILLOW BLOCK BEARING - SET TO MANUFACTURER'S SPECIFICATIONS.
 G = 1 7/16" NON-EXPANSION PILLOW BLOCK BEARING.
 H = 3TB64 DRIVE PULLEY WITH P SERIES BUSHING SYSTEM.
 I = SLIP YOKE.
 J = STUB YOKE.
 K = STUB SHAFT.
 L = END YOKE, 1.25 BORE.
 M = CROSS.
 N = 2Q5V75 DRIVE PULLEY WITH Q SERIES BUSHING SYSTEM.
 O = BX SECTION DRIVE BELT.
 P = 5VX SECTION DRIVE BELT.
 LEN. ESTABLISHED DURING INSTALLATION.

FIRST, LOCATE THE OUTBOARD BEARING MOUNT SO THAT IT WILL BE AS CLOSE AS POSSIBLE TO THE THREE GROOVE OUTPUT PULLEY LOCATION. LOCATE THE INBOARD BEARING STAND MAINTAINING THE 38.50 CENTER DISTANCE FROM BEARING TO BEARING. THE NEXT TWO DRAWINGS SHOW DIFFERENT CONFIGURATIONS FOR THE BEARING MOUNTS. THE FIRST DRAWING SHOWS THE CHANNEL MOUNTS IN A HORIZONTAL POSITION. THE SECOND DRAWING SHOWS THE CHANNEL MOUNTS IN A VERTICAL POSITION. EITHER MOUNTING CONFIGURATION WILL WORK. THE VERTICAL MOUNTING POSITION MAY WORK BETTER IF ANY ADJUSTMENT NEEDS TO BE MADE TO COMPENSATE FOR BELT LENGTH. MAKE SURE THAT YOU DO NOT PLACE MORE WELD THAN SPECIFIED OR DAMAGE TO THE TRUCK FRAME COULD OCCUR. YOU CAN ALSO MANUFACTURE BEARING MOUNTS THAT BOLT TO THE TRUCK FRAME, EXTRA BRACING WILL BE REQUIRED TO DAMPEN VIBRATION.



NOW THAT THE BEARING MOUNTS ARE LOCATED, THE NEXT STEP IS TO INSTALL THE PTO OUTPUT DRIVE SHAFT, SUPPORT BEARINGS AND DRIVE PULLEYS. WHEN INSTALLING THE PILLOW BLOCK BEARINGS, ONE ASSEMBLY IS A NON-EXPANSION TYPE AND ONE ASSEMBLY IS AN EXPANSION TYPE. MAKE SURE THAT THE EXPANSION TYPE IS MOUNTED NEXT TO THE THREE GROOVE OUTPUT PULLEY AND THAT THIS BEARING IS SET TO MANUFACTURER'S LITERATURE, SEE MANUFACTURER'S LITERATURE SECTION. MOUNT THE **3TB64** PULLEY AND TIGHTEN THE BUSHING SO THAT THE FACE OF THE PULLEY ALIGNS FLUSH WITH THE **3BK57** PULLEY ON THE INPUT/CLUTCH SHAFT. MOUNT THE **2Q5V75** PULLEY AND TIGHTEN THE BUSHING SO THAT THE FACE OF THE PULLEY ALIGNS FLUSH WITH THE **2Q5V63** PULLEY ON THE REAR GEARBOX. MAKE SURE TO PLACE KEYSTOCK UNDER THE BUSHING WHEN MOUNTING THE PULLEYS.

NOW THAT THE OUTPUT DRIVE SHAFT MOUNTING UNDER THE TRUCK IS COMPLETE, THE NEXT STEP IS TO ESTABLISH THE PROPER BELT LENGTH FOR BOTH DRIVES. MAKING SURE THAT ALL MOUNTING IS COMPLETE, MEASURE THE CENTER DISTANCE BETWEEN THE OUTPUT SHAFT UNDER THE TRUCK AND THE INPUT/CLUTCH SHAFT ON THE MACHINE. YOU WILL ALSO HAVE TO MEASURE THE CENTER DISTANCE BETWEEN THE OUTPUT SHAFT AND THE REAR GEARBOX ON THE MACHINE. RECORD THESE TWO DISTANCES FOR USE IN A CALCULATION TO DETERMINE THE BELT LENGTH.



THE FOLLOWING CALCULATION WILL DETERMINE THE "BX" SECTION DRIVE BELT LENGTH FOR THE INPUT/CLUTCH SHAFT. "BX" BELT LENGTHS ARE DETERMINED BY THE PITCH OF THE PULLEYS AND BELTS. TO COMPLETE THE FOLLOWING CALCULATION, MULTIPLY THE CENTER DISTANCE BY TWO AND THEN ADD LINES 4 AND 5 TO GET THE REQUIRED LENGTH ON LINE 6 FOR THE INPUT/CLUTCH SHAFT DRIVE BELT.

1. "B" PITCH DIAMETER OF 3TB64 DRIVE PULLEY UNDER THE TRUCK.	=	6.4
2. "B" PITCH DIAMETER OF 3BK57 PULLEY ON INPUT/CLUTCH SHAFT.	=	5.1
3. ADD LINE 1 AND 2 AND RECORD.	=	11.5
4. MULTIPLY LINE 3 BY 1.57.	=	18.06
5. MULTIPLY MEASURED CENTER DISTANCE BY 2.	=	_____
6. ADD LINE 4 AND 5 TO GET PITCH LENGTH OF REQUIRED "BX" BELT.	=	_____

THE FOLLOWING CALCULATION WILL DETERMINE THE “5VX” SECTION DRIVE BELT LENGTH FOR THE REAR GEARBOX. “5VX” BELT LENGTHS ARE DETERMINED BY THE OUTSIDE DIAMETER OF THE PULLEYS AND BELTS. TO COMPLETE THE FOLLOWING CALCULATION, MULTIPLY THE CENTER DISTANCE BY TWO AND THEN ADD LINES 4 AND 5 TO GET THE REQUIRED LENGTH ON LINE 6 FOR THE REAR GEARBOX DRIVE.

1. “5VX” OUTSIDE DIAMETER OF 2Q5V75 DRIVE PULLEY UNDER THE TRUCK.	=	7.5
2. “5VX” OUTSIDE DIAMETER OF 2Q5V63 PULLEY ON REAR GEARBOX.	=	6.3
3. ADD LINE 1 AND 2 AND RECORD.	=	13.8
4. MULTIPLY LINE 3 BY 1.57.	=	21.66
5. MULTIPLY MEASURED CENTER DISTANCE BY 2.	=	_____
6. ADD LINE 4 AND 5 TO GET OUTSIDE LENGTH OF REQUIRED “5VX” BELT.	=	_____

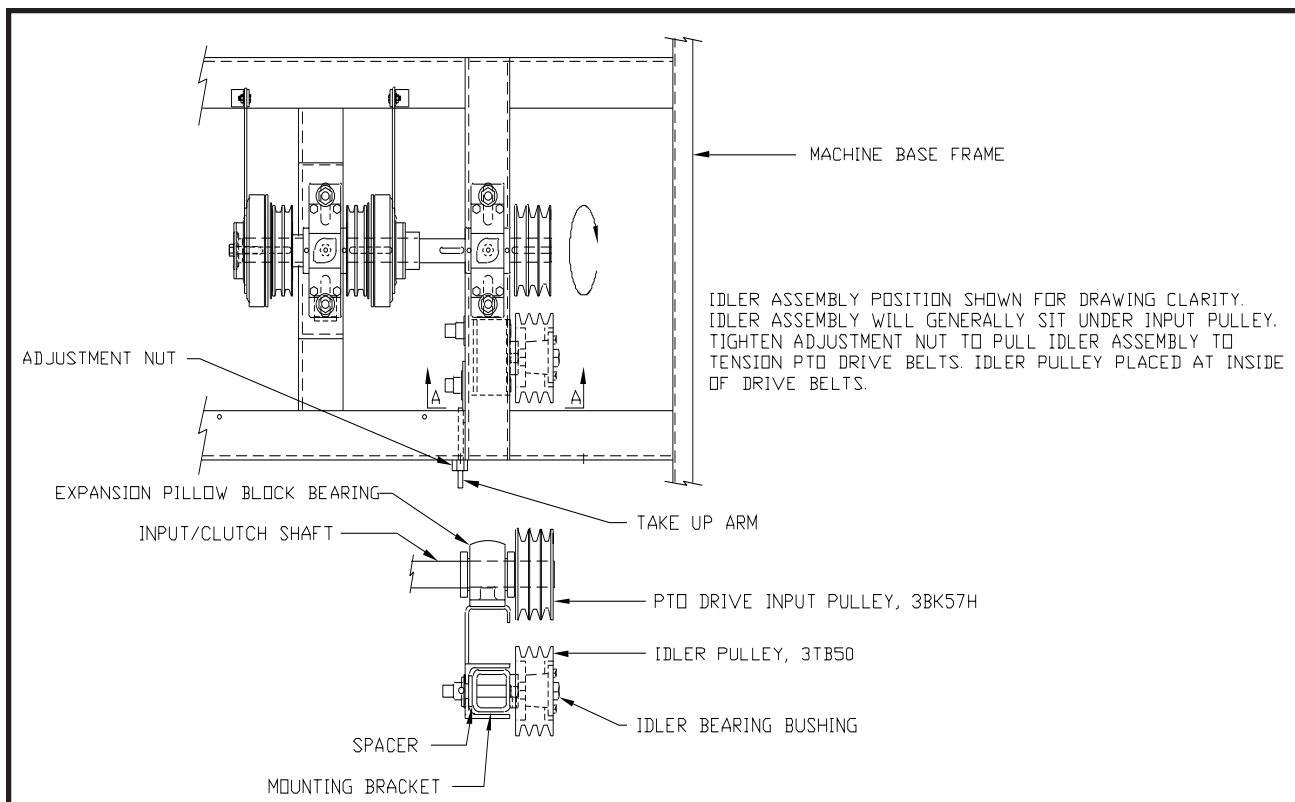
REFER TO THE FOLLOWING TABLES TO MATCH A BELT LENGTH TO THE CALCULATED LENGTH ON LINE 6 IN THE ABOVE CALCULATIONS. IN MOST CASES, THE BELT LENGTH IS NOT EXACT, SELECT THE LONGER BELT FOR USE ON THE DRIVE SYSTEM. ONCE THE BELTS FOR THE DRIVE ARE DETERMINED, MOUNT THE BELTS MAKING SURE THEY CLEAR ALL OBSTACLES UNDER THE TRUCK.

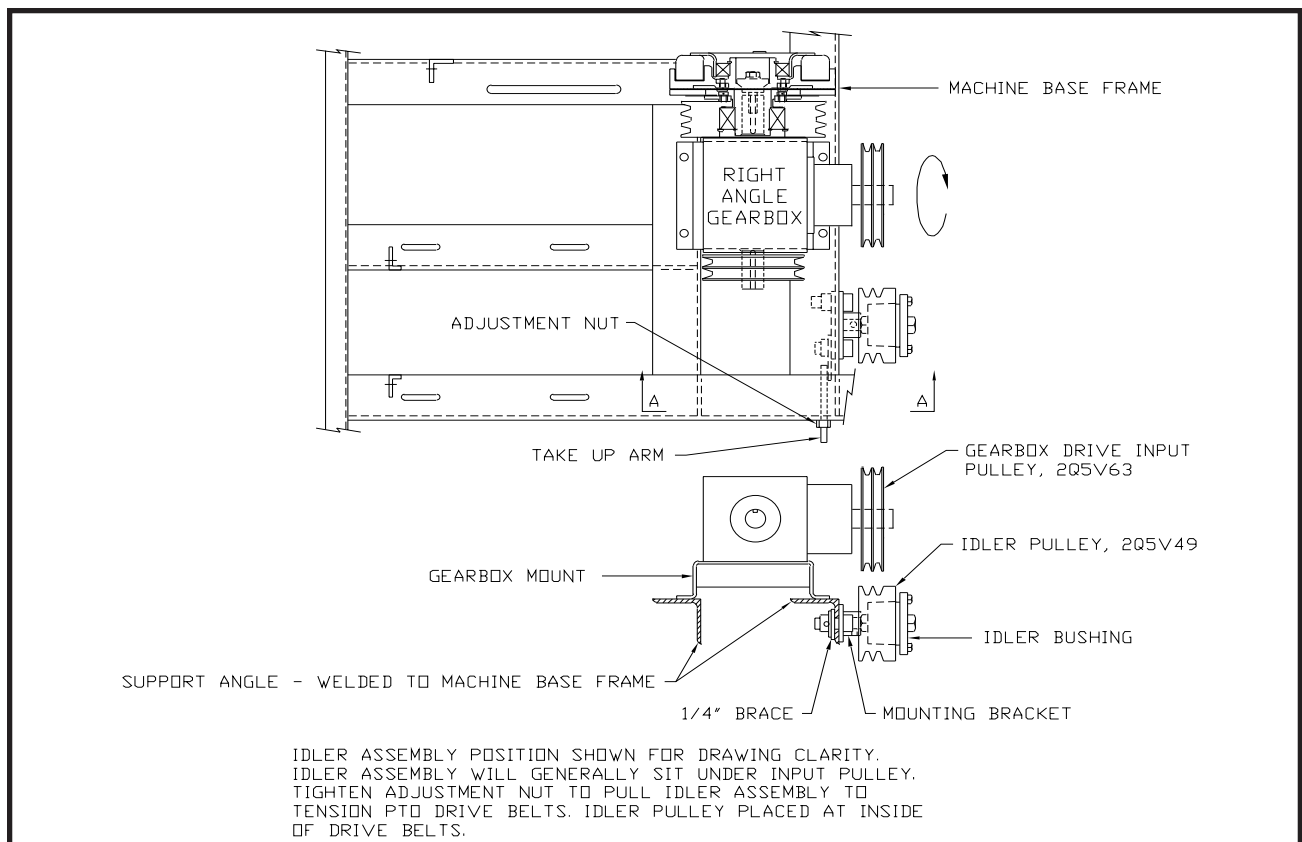
BELT	PITCH LENGTH	BELT	PITCH LENGTH	BELT	PITCH LENGTH
BX63	64.8	BX75	76.8	BX85	86.8
BX64	65.8	BX77	78.8	BX90	91.8
BX65	66.8	BX78	79.8	BX93	94.8
BX66	67.8	BX79	80.8	BX95	96.8
BX67	68.8	BX80	81.8	BX96	97.8
BX68	69.8	BX81	82.8	BX97	98.8
BX70	71.8	BX82	83.8	BX99	100.8
BX71	72.8	BX83	84.8	BX100	101.8

BELT	OUTSIDE LENGTH	BELT	OUTSIDE LENGTH	BELT	OUTSIDE LENGTH
5VX710	71.00	5VX810	81.00	5VX900	90.00
5VX730	73.00	5VX830	83.00	5VX930	93.00
5VX740	74.00	5VX840	84.00	5VX950	95.00
5VX750	75.00	5VX850	85.00	5VX960	96.00
5VX780	78.00	5VX860	86.00	5VX1000	100.00
5VX800	80.00	5VX880	88.00	5VX1030	103.00

NOTE: THE BELT DRIVE SELECTED FOR THE VOLU-MATIC V PROVIDES ADEQUATE HORSE POWER TO RUN THE MACHINE. IN SOME CASES WHERE THE BELT LENGTH MAY JUMP TWO OR THREE INCHES, YOU MAY HAVE TO SHIFT THE MACHINE FROM SIDE TO SIDE TO MAKE A LENGTH WORK. YOU MAY EVEN HAVE TO ADJUST THE HEIGHT OF THE CHANNEL THAT SUPPORTS THE PILLOW BLOCK BEARINGS UNDER THE TRUCK.

REFER TO THE FOLLOWING DRAWINGS AND TIGHTEN THE BELTS WITH THE IDLER PULLEY ASSEMBLIES SUPPLIED FOR INSTALLATION. MAKE SURE THAT THE IDLER PULLEY IS USED ON THE INSIDE OF THE BELT AND ON THE SLACK SIDE. THE BELTS SHOULD DEFLECT A 1/2 INCH WHEN FULLY TENSIONED. AFTER THE INITIAL BREAK IN RUN TIME, IT WILL MOST LIKELY BE NECESSARY TO RETENSION THE DRIVE BELTS.

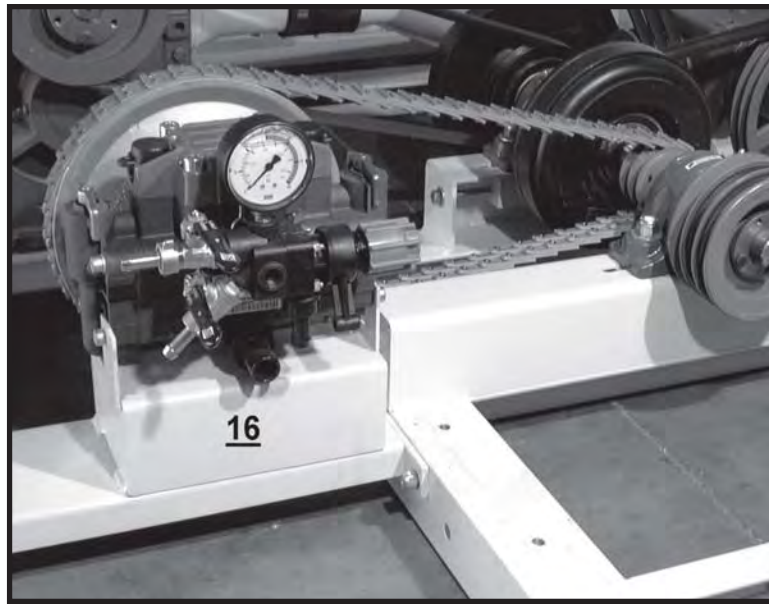




NOW THAT THE OUTPUT DRIVE SHAFT, PULLEYS, AND BELTS HAVE BEEN MOUNTED THE NEXT STEP IS TO MANUFACTURE THE UNIVERSAL DRIVE SHAFT. THE LENGTH OF THE UNIVERSAL DRIVE SHAFT WILL BE DETERMINED BY THE LOCATION OF THE END YOKE THAT MOUNTS ON THE OUTPUT DRIVE SHAFT AND THE TRUCK MOUNTED PTO BOX. THE OUTPUT DRIVE SHAFT IS TURNED DOWN AT THE END TO 1 1/4" DIAMETER FOR THE END YOKE. MAKE SURE THAT YOU MAINTAIN THE 5 DEGREE MINIMUM OR 15 DEGREE MAXIMUM ANGLE FOR THE UNIVERSAL DRIVE SHAFT. ALSO, MAKE SURE THAT THE SLIP YOKE AND STUB YOKE ARE POSITIONED AS SHOWN IN THE BASIC OUTLAY OF A DRIVE SYSTEM TO AVOID EXCESSIVE VIBRATION.

POWER TO THE MACHINE IS SUPPLIED BY THE TRUCK BATTERY FOR ALL 12 VOLT ELECTRICAL FUNCTIONS. NEW DELIVERED MACHINES HAVE A 15 FOOT WIRE LEAD OUT OF THE HANDY BOX LOCATED ON THE MACHINE BASE FRAME. THE WHITE WIRE IS HOOKED TO THE CIRCUIT BREAKER AND GOES TO THE BATTERY POSITIVE POST. THE GREEN WIRE IS GROUND TO THE MACHINE AND GOES TO THE BATTERY NEGATIVE POST. KEEP IN MIND THAT A WEAK TRUCK BATTERY MAY NOT BE POWERFUL ENOUGH TO RUN THE MACHINE. KEEP THE TRUCK BATTERY AND CHARGING SYSTEM IN VERY GOOD SHAPE. WHEN THIS IS COMPLETED, INSTALL THE MAIN DRIVE BELT GUARD AND FASTEN SECURELY.

NOW THAT THE MACHINE IS IN PLACE AND THE DRIVE TRAIN IS INSTALLED, YOU WILL HAVE TO PLUMB THE WATER PUMP **16** TO A WATER SOURCE. REFER TO PUMP MANUFACTURER'S LITERATURE FOR REQUIREMENTS, SEE MANUFACTURER'S LITERATURE.

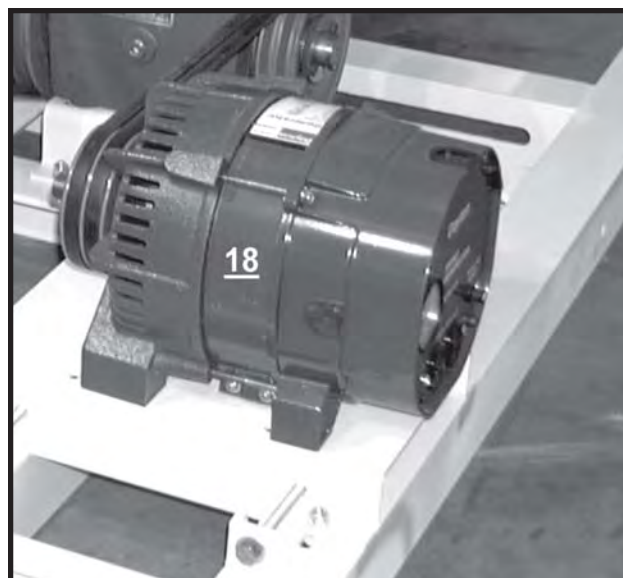
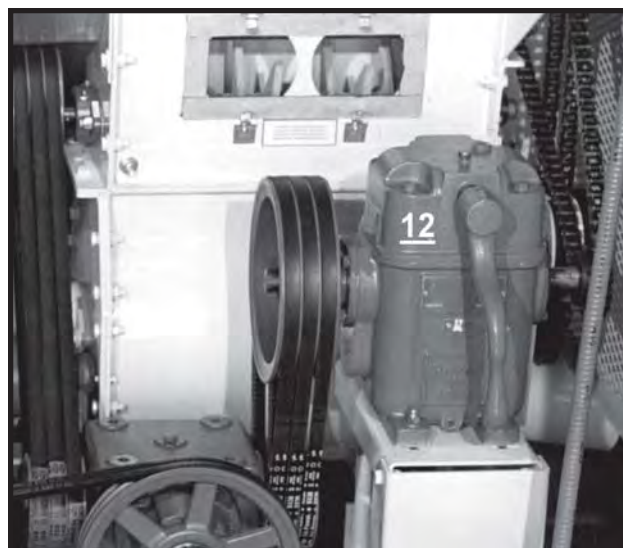


NOTE:

A KIT OF DECALS FOR PTO INSTALLATION IS INCLUDED IN THE ACCESSORY KIT FOR NEW DELIVERED MACHINES. THESE DECALS SHOULD BE DISPLAYED ON THE TRUCK AS INDICATED BY THE INSTRUCTIONS PROVIDED WITH THEM. ADDITIONALLY, UNISUL MANUFACTURERS AN ADDITIONAL GUARD FOR UNDER THE TRUCK TO FURTHER INSURE SAFETY WHEN INSTALLATION IS PERFORMED AT THE FACTORY, YOU SHOULD DO THE SAME.

INITIAL START-UP

1. MAKE SURE THE TRANSMISSION **12** IS IN THE NEUTRAL POSITION, SEE OPERATION SECTION UNDER FOUR SPEED TRANSMISSION. **NEW** DELIVERED MACHINES ARE SHIPPED WITH THE TRANSMISSION IN NEUTRAL. MAKE SURE THE FRONT SWING GATE GUARDS ARE CLOSED.
2. MAKE SURE THE VACUUM EXIT TRANSITION **9** IS CONNECTED TO THE VACUUM HOUSING EXIT TRANSITION **17** AND IS FIRMLY CONNECTED WITH RUBBER HOSE AND CLAMPS TO THE MATERIAL DECELERATION BOX.
3. MAKE SURE THAT THE WATER PUMP **16** SUCTION AND DISCHARGE ARE NOT **BLOCKED** TO PREVENT DAMAGE. YOU CAN RUN A DIAPHRAGM PUMP WITHOUT WATER AT THE SUCTION WITHOUT CAUSING DAMAGE AS LONG AS THE SUCTION AND DISCHARGE ARE NOT BLOCKED.
4. PLUG A 115 VOLT LIGHT INTO THE GENERATOR **18** RECEPTACLE. MAKE SURE THAT THE LIGHT IS ACCESSIBLE AT THE OUTSIDE OF THE MACHINE FRAME AND IN GOOD WORKING CONDITION.
5. START THE TRUCK AND ENGAGE THE PTO AT A LOW IDLE IN ACCORDANCE WITH THE TRUCK MANUFACTURER'S LITERATURE. CHECK THAT THE BELT DRIVE FROM UNDER THE TRUCK IS TRACKING TRUE ON THE IDLERS AND THAT NO EXCESSIVE BELT SLAP IS OCCURRING. SHUT THE TRUCK DOWN FOR

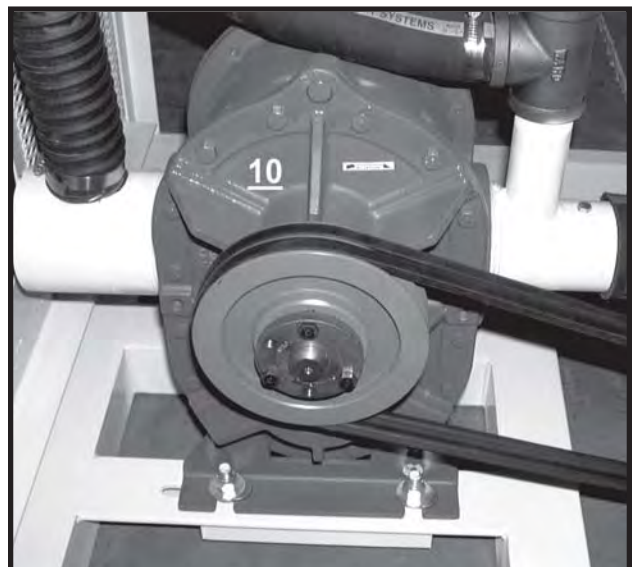
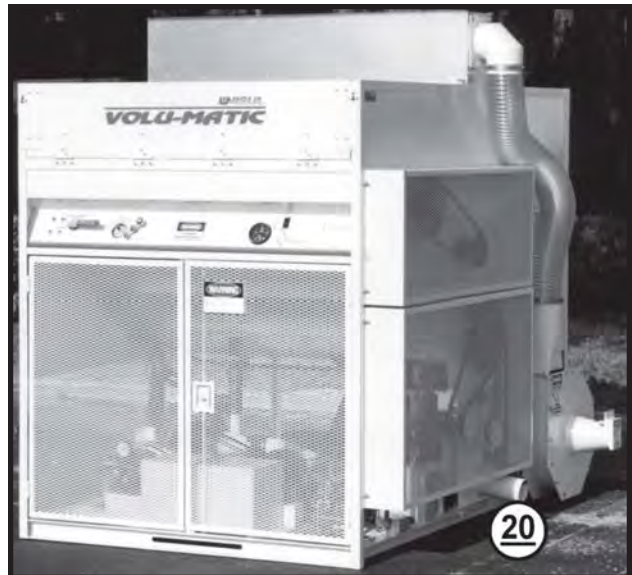
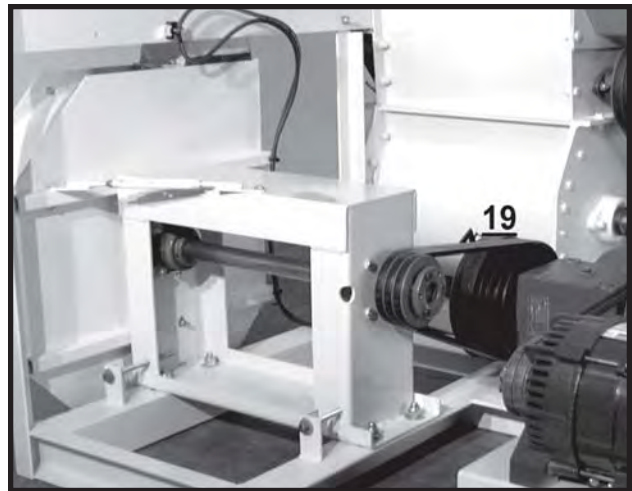


ANY BELT TENSIONING ADJUSTMENT. ONCE THE BELTS ARE TENSIONED PROPERLY, BRING THE TRUCK UP TO THE MANUFACTURER'S RECOMMENDED SPEED ESTABLISHED DURING INSTALLATION. ALWAYS ENGAGE THE PTO AT A LOW IDLE AND DISENGAGE AT A LOW IDLE.

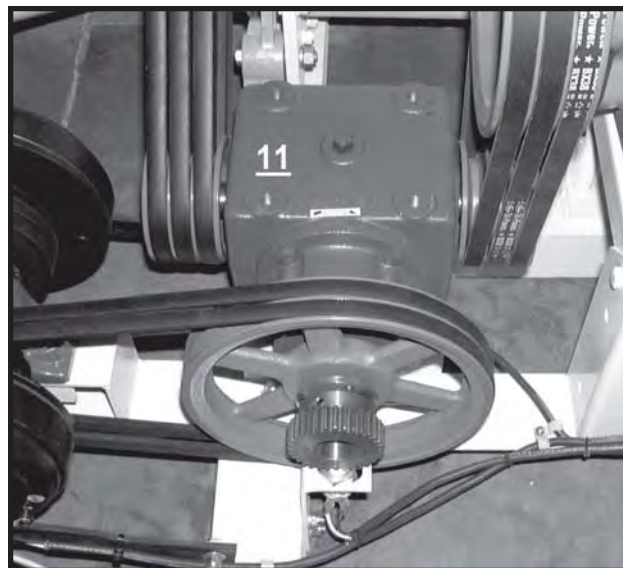
6. ONCE THE MACHINE IS UP TO SPEED, THE INPUT/CLUTCH SHAFT AND WATER PUMP AT THE FRONT OF THE MACHINE WILL BE TURNING. THE REAR GEARBOX AND GENERATOR WILL BE TURNING. THE VACUUM WILL NOT COME ON UNTIL THE ELECTRO-MAGNETIC CLUTCH **19** IS SWITCHED ON. **DO NOT** SWITCH THE VACUUM ON WHILE THE PTO IS ENGAGED.

(SEE STEP 12 FOR PROPER PROCEDURE)

7. TURN ON THE MASTER SWITCH **4**, LIGHT INDICATES THAT THE SWITCH IS ON.
8. PULL EMERGENCY STOP BUTTONS **A & B** OUT (ON) AND MAKE SURE BOTH SWING GATES ARE CLOSED. PRESS THE RESET BUTTON **3** LOCATED ON THE FRONT PANEL.
9. PLUG THE REMOTE CORD SHIPPED WITH NEW DELIVERED MACHINES INTO THE RECEPTACLE **5** MAKING SURE THE TOGGLE SWITCH IS IN THE CENTER (OFF) POSITION. THIS IS A TWIST LOCK CONNECTION TO PREVENT THE CORD FROM BEING PULLED OUT DURING MACHINE OPERATION.
10. CLEAR THE AREA IN FRONT OF THE AIRLOCK FEEDER OUTLET **20** FOR TESTING.



11. CYCLE THE TOGGLE SWITCH IN THE REMOTE CORD HOUSING TOWARD THE CORD AND THE BLOWER ONLY WILL COME ON, CHECK THAT ROTATION IS THE SAME AS THE ARROW INDICATES ON THE BLOWER 10. WITH THE BLOWER OPERATING SATISFACTORILY, CYCLE THE SWITCH TOWARD THE END OF THE HOUSING AND THE BLOWER AND MACHINE MECHANISMS WILL OPERATE SIMULTANEOUSLY. CHECK THAT ROTATION IS THE SAME AS THE ARROW INDICATES ON THE GEARBOXES 11. THE TACHOMETER 21 ON THE MACHINE FRONT PANEL SHOULD READ **1050** RPM. THE TACHOMETER ALSO HAS AN HOUR METER THAT RECORDS MACHINE MECHANISM TIME; AIRLOCK FEEDER, SHREDDER, AND HOPPER COMPONENTS.

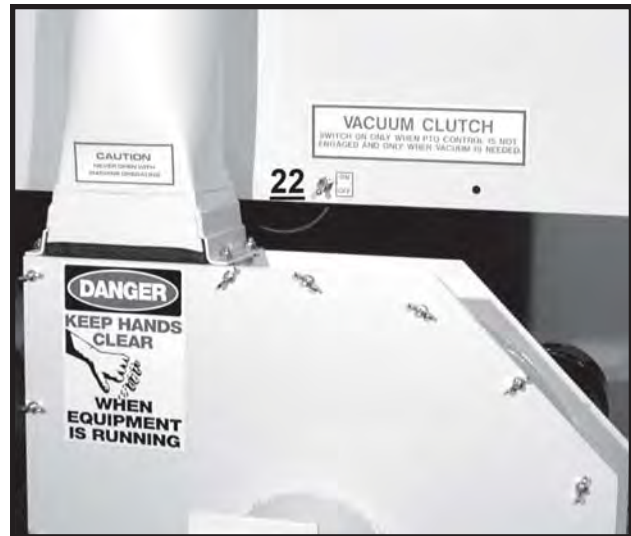


11. IF ALL ROTATIONS ARE CORRECT, SHUT THE MACHINE DOWN AND ENGAGE THE TRANSMISSION INTO GEAR. START THE MACHINE AND CYCLE THE REMOTE TOGGLE SWITCH TOWARD THE END OF THE HOUSING AND CHECK THAT THE AIRLOCK FEEDER, SHREDDER, AND HOPPER COMPONENTS ARE ROTATING. FOR ANY ROTATION PROBLEMS, CHECK THE TROUBLESHOOTING SECTION OR CALL UNISUL.



WARNING: WHENEVER THE VACUUM IS NEEDED, ALWAYS TURN ON THE TOGGLE SWITCH 22 BEFORE THE PTO IS ENGAGED. THIS WILL PREVENT PREMATURE WEAR ON THE CLUTCH ARMATURE. THE VACUUM CAN BE TURNED OFF AT ANY TIME BUT, IF IT IS TURNED OFF BEFORE THE JOB IS COMPLETE, DISENGAGE THE PTO BEFORE YOU TURN THE VACUUM BACK ON.

12. BRING THE TRUCK DOWN TO A LOW IDLE AND DISENGAGE THE PTO. FLIP THE TOGGLE SWITCH **22** TO THE ON POSITION FOR POWER TO THE VACUUM CLUTCH. ENGAGE THE PTO AND BRING THE TRUCK IDLE UP TO THE PROPER RPM AND NOTICE THAT THE VACUUM SPEEDS UP. ALWAYS SWITCH THE VACUUM ON AND THEN ENGAGE THE PTO. THIS PROCEDURE WILL PREVENT PREMATURE WEAR ON THE CLUTCH PROVIDING LONG LIFE.



13. TURN ON THE LIGHT PLUGGED INTO THE GENERATOR TO CHECK THAT POWER IS SUPPLIED.

14. WITH EVERYTHING OPERATING SATISFACTORILY, TAKE SOME TIME TO GET TO KNOW YOUR VOLU-MATIC V MACHINE. ENGAGE AND DISENGAGE THE REMOTE CORD NOTICING THE DRIVES START AND STOP. WITH THE CHAIN DRIVES ON, OPEN AND CLOSE THE FRONT SWING GATE GUARDS NOTICING THE DRIVES STOP AND START.

15. UPON COMPLETION OF THE INITIAL START-UP PROCEDURES; TURN THE REMOTE CORD TOGGLE SWITCH OFF AND UNPLUG FROM THE RECEPTACLE, TURN OFF THE MASTER SWITCH, TURN OFF ANY POWER CONNECTED TO THE GENERATOR, IDLE THE TRUCK TO A LOW RPM, TURN OFF THE VACUUM BY DEPRESSING THE SWITCH TO THE OFF POSITION, AND THEN DISENGAGE THE PTO. THE VOLU-MATIC V MACHINE IS NOW READY FOR SERVICE.

16. FOR ANY PROBLEMS ENCOUNTERED DURING MACHINE START-UP, CHECK THE TROUBLESHOOTING SECTION OR CALL UNISUL.

OPERATION

USE PRELIMINARY CHECKS AND INITIAL START UP PROCEDURES AS A CHECK LIST ON YOUR VOLU-MATIC V MACHINE EACH DAY BEFORE PROCEEDING TO THE JOB SITE. AT THE JOB SITE, CONNECT HOSE PAYING PARTICULAR ATTENTION TO RECOMMENDED HOSE SIZE, TYPE, AND LENGTH AS SPECIFIED IN THE FOLLOWING TABLE. ALL HOSE COUPLINGS MUST BE THIN WALL, 1/16 INCH MAXIMUM, TO MINIMIZE RESTRICTIONS. HOSE PURCHASED FROM UNISUL IS SUPPLIED WITH THIN WALL COUPLERS AND CLAMPS. THE AIRLOCK FEEDER OUTLET **20** IS 4 INCHES IN DIAMETER. A THIN WALL 4" TO 3 ½" REDUCER IS SUPPLIED WITH NEW DELIVERED MACHINES FOR OPEN BLOW OPERATIONS. A THIN WALL 3 ½" TO 3" REDUCER IS SUPPLIED FOR FIBERGLASS AND ROCKWOOL SIDEWALL SPRAY OPERATIONS AND A THIN WALL 3" TO 2 ½" REDUCER IS SUPPLIED FOR CELLULOSE SIDEWALL SPRAY OPERATIONS. MAKE SURE TO REDUCE GRADUALLY WHEN USING 3" OR 2 ½" HOSE FOR SPRAYING.

THE VOLU-MATIC V MACHINE WILL NOT PERFORM TO SPECIFICATIONS WHEN HELD BACK BY UNDERSIZED AND RESTRICTIVE HOSES, COUPLINGS, AND NOZZLES THAT ARE USED FOR SIDEWALL SPRAY OPERATIONS. FOR SIDEWALL SPRAY OPERATIONS, MAKE SURE THE NOZZLE THAT YOU USE HAS AN OPENING THAT IS A LEAST THE SAME SQUARE INCH AREA OR GREATER THAN THE HOSE SELECTED. THE NOZZLE SHOULD ALSO HAVE A BODY WALL THAT IS NOT GREATER THAN 1/16 - 1/8 INCH IN THICKNESS AND WITH A SMOOTH TAPERED ENTRANCE.

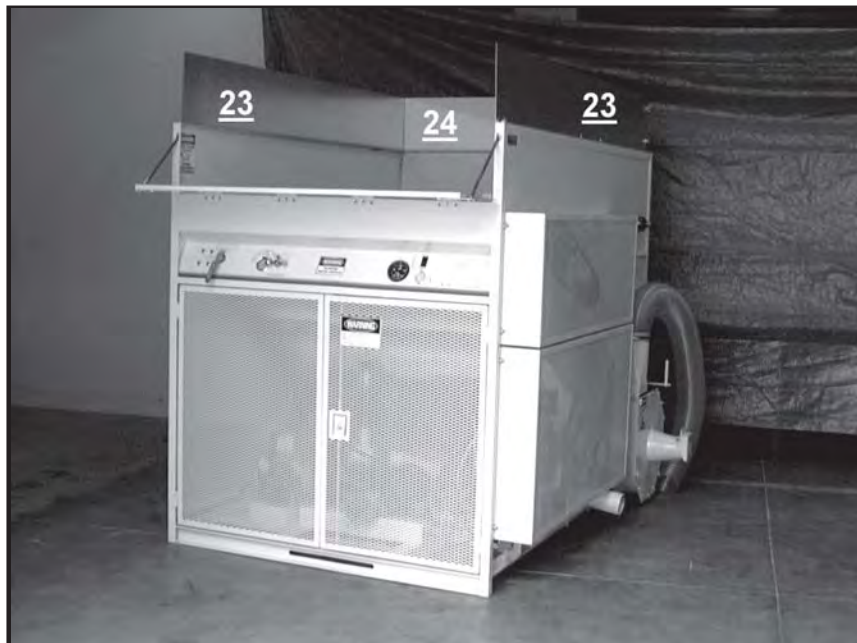
MATERIAL	OPERATION	HOSE DIAMETER	HOSE LENGTH	HOSE TYPE
CELLULOSE FIBERGLASS ROCKWOOL	OPEN BLOW	3 ½" MINIMUM	150' MINIMUM	UNI-FLEX*
CELLULOSE FIBERGLASS ROCKWOOL	SIDEWALL	2 ½" MINIMUM 3" MINIMUM 3" MINIMUM	150' MINIMUM	UNI-FLEX*
CELLULOSE FIBERGLASS ROCKWOOL	VACUUMING	4" ONLY	150' MINIMUM 200' MAXIMUM	UNI-FLEX*
* SIMILAR TYPE AND STYLE MAY BE SUBSTITUTED, CONSULT SALES DEPARTMENT.				
NOTE: UNISUL CANNOT GUARANTEE PLASTIC HOSE SECTIONS IF THEY ARE CONNECTED DIRECTLY TO THE MACHINE DURING SUMMER MONTHS.				

PTO CONTROLS

ALWAYS ENGAGE THE PTO AT A LOW IDLE BEFORE INCREASING ENGINE SPEED TO THE TRUCK MANUFACTURER'S RECOMMENDED RANGE. USE THE TRUCK MOUNTED THROTTLE AND LOCK TO SET THE PTO SPEED ON THE TRUCK MOUNTED TACHOMETER. ALWAYS DECREASE THE IDLE SPEED BEFORE DISENGAGING THE PTO. MAKE SURE THAT THE PANEL MOUNTED TACHOMETER **21** ON THE MACHINE RUNS AT **1050** RPM. UNISUL MARKS AND DOCUMENTS THE TRUCK IDLE SPEED AT INSTALLATION SO THAT THE OPERATOR KNOWS WHERE TO SET THE TRUCK MOUNTED THROTTLE.



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



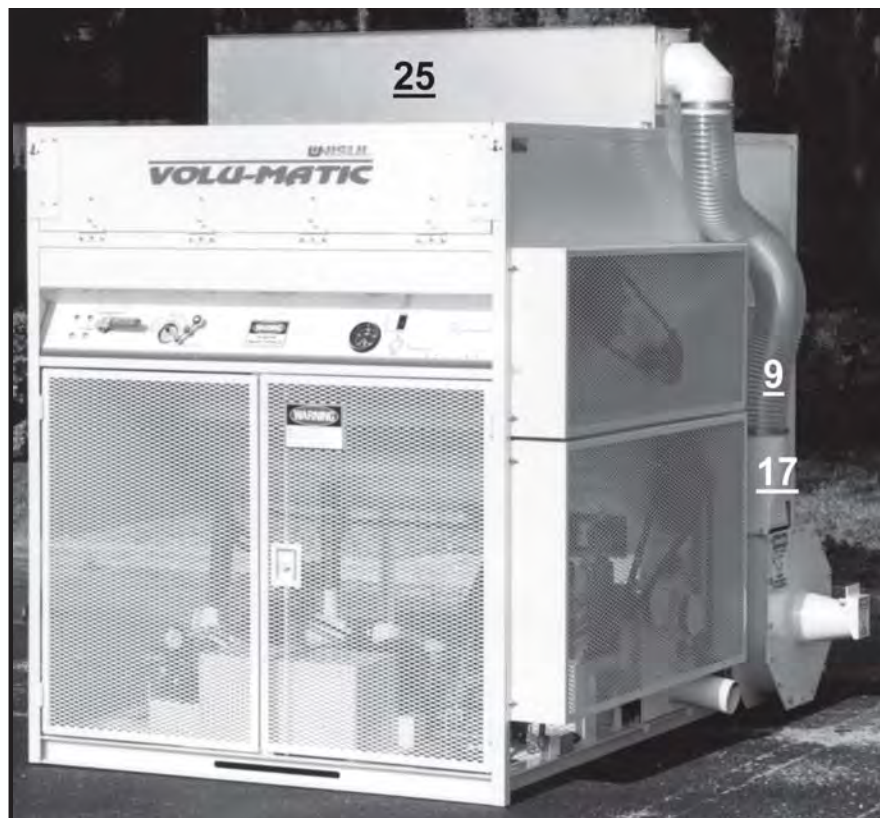
OPEN BLOW

DURING OPEN BLOW OPERATION, YOU WILL NEED THE HOPPER EXTENSION SIDES **23** IN ORDER TO FULLY UTILIZE THE EXPANDED HOPPER AREA. THE EXTENSION BACK **24** CONNECTS TO THE SIDES. PLACE THE SIDES OVER THE WELD STUDS ON THE MACHINE TOP FRAME AND BOLT TO THE EXTENSION BACK. USE THE WING NUTS SUPPLIED WITH NEW DELIVERED MACHINES TO HOLD IN PLACE.

SIDEWALL

DURING SIDEWALL SPRAY OPERATION, YOU WILL NEED TO MOUNT THE MATERIAL DECELERATION BOX **25** ABOVE THE HOPPER FOR THE RECOVERY OF EXCESS SPRAYED FIBERS. YOU WILL ALSO NEED TO CONNECT THE EXIT TRANSITION **9** TO THE VACUUM HOUSING TRANSITION EXIT **17** AND THE DECELERATION BOX.

NOTE: AS OF JULY 1, 2005, THE HOPPER EXTENSION SIDES ARE DESIGNED TO ALLOW THE DECELERATION BOX TO BE MOUNTED WITH THE EXTENSION SIDES IN PLACE. REMOVAL OF THE DECELERATION BOX DURING OPEN BLOW WILL ALLOW BETTER UTILIZATION OF THE HOPPER AREA.

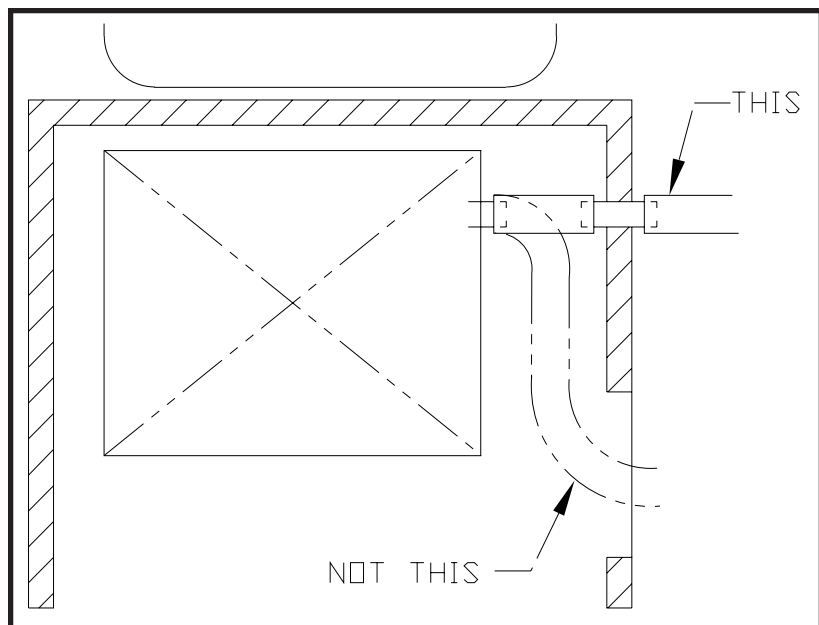


HOSE

CONNECT HOSE FOR OPEN BLOW OR SIDEWALL OPERATIONS WITH SUPPLIED REDUCERS TO THE FEEDER OUTLET **20**. MAKE SURE TO USE RECOMMENDED HOSE SIZE AND TYPE AS SPECIFIED IN THE TABLE. CONNECT HOSE FOR VACUUMING TO THE FRONT COVER **7** BY LIFTING THE DOOR **8**. IF YOUR MACHINE IS NOT SET UP WITH DOUBLE DOORS AS ILLUSTRATED IN THE INSTALLATION INSTRUCTIONS, YOU WILL HAVE TO MAKE PROVISIONS FOR CONNECTING THE HOSE. IN THE FOLLOWING DRAWING, A THROUGH-THE-WALL SLEEVE CONNECTION IS SHOWN. NEVER CONNECT THE HOSE TO THE FEEDER OUTLET OR VACUUM INLET CONE CREATING A SHORT RADIUS BEND IN THE HOSE, THIS WILL RESULT IN EXCESSIVE HOSE WEAR. A SHORT RADIUS BEND IN THE HOSE CAN ALSO RESULT IN POOR COVERAGE, EXCESSIVE AIRLOCK FEEDER WEAR, AND/OR PLUGGED HOSES FOR OPEN BLOW OR SIDEWALL OPERATION. ADDITIONALLY, HIGH FEED RATES FOR OPEN BLOW MAY REQUIRE A 25' TO 50' LENGTH OF 4" DIAMETER HOSE AT THE OUTLET CONNECTION IF EXCESSIVE HIGH AIR PRESSURE IS EXPERIENCED WHEN USING ALL 3 ½" DIAMETER HOSE.

WARNING:

RECOMMENDED HOSE SIZE, TYPE, AND LENGTH MUST BE USED TO ACHIEVE MAXIMUM RESULTS. UNISUL CANNOT GUARANTEE PERFORMANCE OF THE VOLU-MATIC V MACHINE IF HOSES ARE UNDERSIZED OR WORN OR DAMAGED OR HOSES OTHER THAN THOSE RECOMMENDED ARE USED.

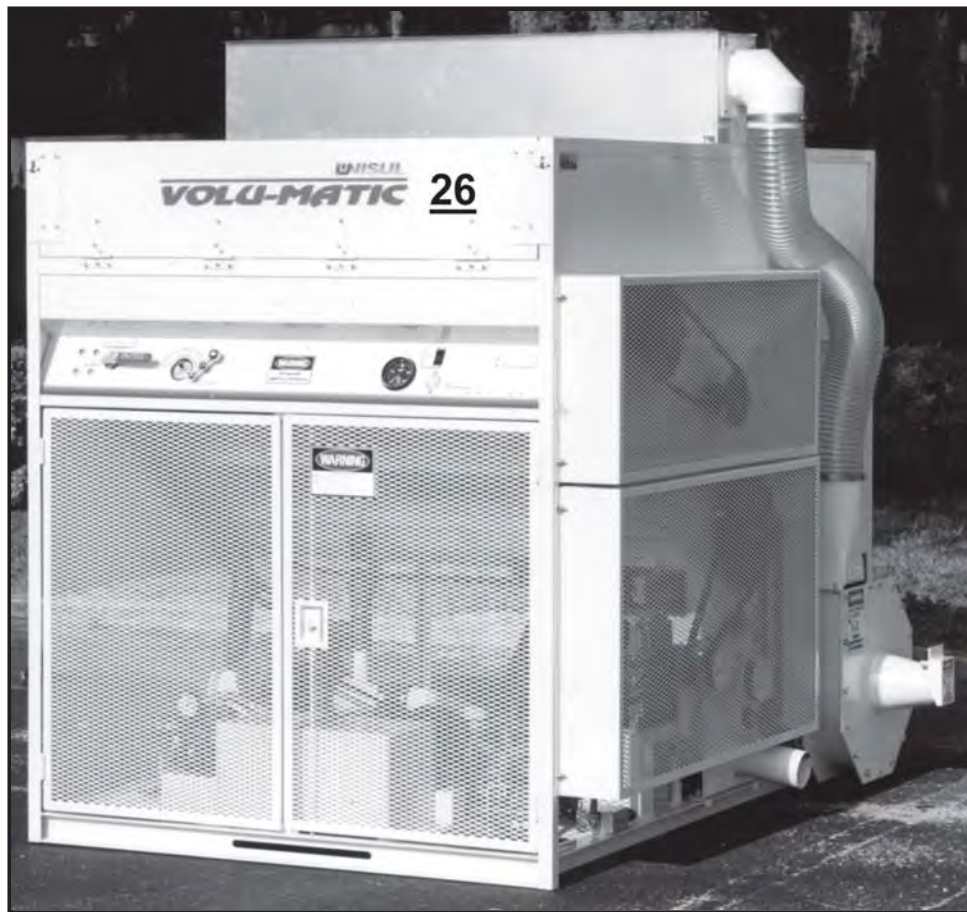


REPEATED WARNINGS ABOUT CHOICE OF HOSE MAY SEEM TO BE AN ATTEMPT TO SELL OUR BRANDS, BUT WE MUST STRESS THE IMPORTANCE OF PROPER HOSE SELECTION FOR THE TYPE MATERIAL AND OPERATION. A ROUGH BORE CORRUGATED HOSE IS NECESSARY FOR BLOWN FIBERS SINCE SMOOTH BORE RUBBER OR PLASTIC WILL ROLL SHREDDED MATERIAL INTO SMALL TIGHT BALLS. YOUR VOLU-MATIC V MACHINE HAS BEEN ENGINEERED, WHEN PROPERLY ADJUSTED, TO CONDITION FIBERS FOR OPTIMUM COVERAGE. IMPROPER HOSE SELECTION WILL DEGRADE FIBERS CONDITIONED BY THE MACHINE AND REDUCE INSULATION VALUE IN BLOWN MATERIAL. DO NOT DEVIATE FROM HOSE DIAMETERS, TYPES, OR LENGTH AS SPECIFIED IN THE TABLE.

LOADING

THE OPERATOR LOADS THE MACHINE HOPPER FROM A STANDING POSITION ON THE FLOOR DEPOSITING BAGS OF MATERIAL ON THE DROP GATE **26**. PULL THE DROP GATE SHARPLY TOWARD YOU TO LAY DOWN FOR LOADING AND THEN DEPOSIT THE MATERIAL INTO THE HOPPER. DO NOT BUILD SCAFFOLDING OR USE A FOOT STOOL TO LOAD MATERIAL INTO THE VOLU-MATIC V MACHINE. THIS MOVES THE OPERATOR CLOSER TO THE ROTATING COMPONENTS IN THE HOPPER AND PROVIDES A WAY TO LOSE BALANCE AND FALL.

LOAD THREE TO FOUR 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 BUT DO NOT OVERLOAD PREVENTING MATERIAL FROM OVERFLOWING ONTO THE TRUCK FLOOR.



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

VOLU-MATIC™ V RECOMMENDED START SETTINGS

OPERATION	MATERIAL	GATE SETTING	TRANSMISSION GEAR	AIR BLEED PRESSURE
OPEN BLOW	CELLULOSE	16"	3RD	2.0 - 3.5 PSI
	FIBERGLASS	16"	3RD	2.0 - 3.5 PSI
	ROCKWOOL	12"	2ND	4.5 - 5.5 PSI
SIDEWALL	CELLULOSE	8"	1ST	1.0 - 1.25 PSI
	FIBERGLASS	8"	2ND	1.0 - 1.25 PSI
	ROCKWOOL	6"	1ST	1.5 - 1.75 PSI

NOTE 1: 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.

NOTE 2: AIR PRESSURE SETTINGS FOR SIDEWALL OPERATION ARE FOR DENSE PACK, NET FILL, AND DRILL & FILL OF OUTSIDE WALLS IN OLDER STRUCTURES. SPRAYING SIDEWALLS WILL RESULT IN HIGHER PRESSURE BASED ON WATER IN THE AIRSTREAM.

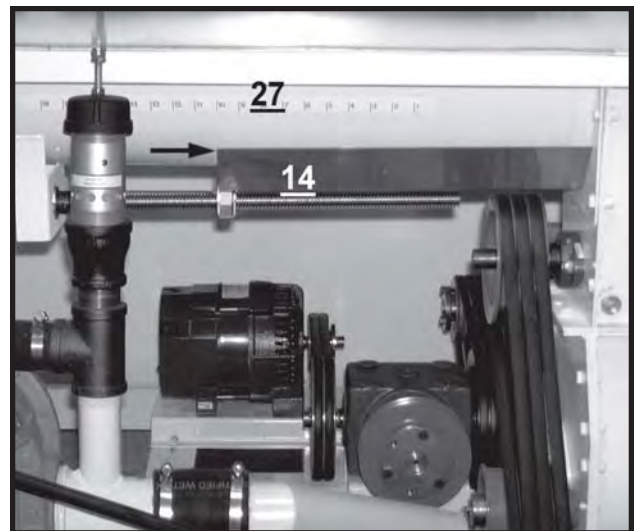
NOTE 3: FILLING OF TEE POST & CORNERS WILL REQUIRE THAT THE MACHINE BE SLOWED DOWN CONSIDERABLY TO USE THE SUPPLIED 2" TO 1" TAPERED NOZZLE.

GENERAL INSTRUCTIONS:

1. SET THE MACHINE SPEED SO THAT THE PANEL MOUNTED TACHOMETER READING IS 1050 RPM FOR OPEN BLOW OPERATION. REDUCE MACHINE SPEED UNTIL TACHOMETER READING IS 800 - 850 FOR ALL SIDEWALL OPERATIONS BUT SPRAYING. REDUCING SPEED FOR SPRAYING SIDEWALLS WILL RESULT IN LOSS OF VACUUM PRESSURE. **NOTE: REMOVE BELTS FROM GENERATOR WHEN REDUCING SPEED FOR SIDEWALL OPERATIONS.**
2. VARY THE AIR BLEED PRESSURE FIRST. IF YOU CANNOT GET THE DESIRED RESULTS BY OPENING OR CLOSING THE AIR CONTROL LEVER, 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 THE STATOR BAR. IF YOU CANNOT GET THE DESIRED RESULTS BY ADDING OR REMOVING THE STATOR BAR, THEN...
5. GO TO THE NEXT HIGHEST OR LOWEST SPEED ON THE TRANSMISSION AND START WITH VARYING THE AIR PRESSURE AGAIN.

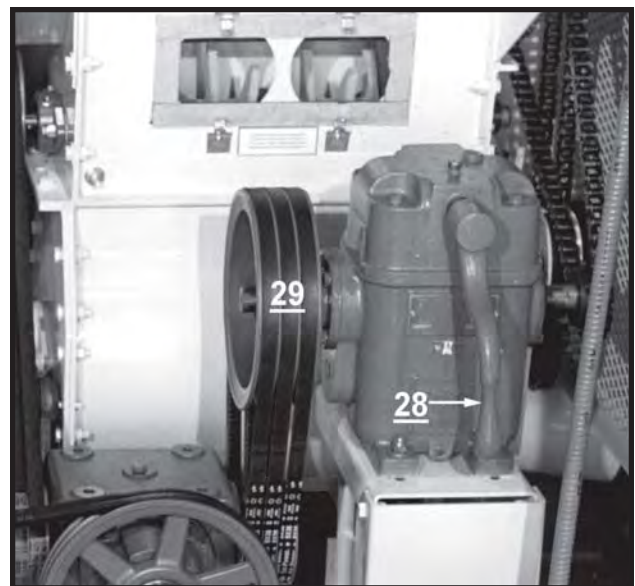
MATERIAL SLIDE GATE

REFER TO THE CHART AND SELECT THE PROPER SETTING FOR MATERIAL AND TYPE OF OPERATION. ROTATE THE HANDLE **6** ON THE MACHINE FRONT PANEL CLOCKWISE TO OPEN THE MATERIAL SLIDE GATE **14**. LINE UP THE EDGE OF THE SLIDE GATE (SEE ARROW) WITH DESIRED SETTING ON THE SCALE **27**. THE SCALE IS CALIBRATED IN INCHES OF OPENING.



FOUR SPEED TRANSMISSION

REFER TO THE CHART AND SELECT AN APPROPRIATE GEAR FOR MATERIAL AND TYPE OF OPERATION. SHIFT THE LEVER **28** INTO GEAR IN ACCORDANCE WITH DECAL INSTRUCTIONS ON THE MACHINE FRONT PANEL. SINCE THE TRANSMISSION IS NOT SYNCHRONOUS, IT MAY BE NECESSARY TO PULL THE GEARS THROUGH BY HAND USING THE PULLEY **29** SO THAT THE GEARS MESH ALLOWING YOU TO CHANGE THEM. THIS SHOULD NEVER BE ATTEMPTED OR GEARS SHIFTED WHILE THE MACHINE IS OPERATING.



WARNING: **NEVER** ATTEMPT TO CHANGE GEARS WHILE THE VOLU-MATIC V MACHINE IS IN OPERATION. ALWAYS CHANGE GEARS WHEN THE MACHINE IS COMPLETELY SHUT DOWN. FAILURE TO DO SO CAN RESULT IN SERIOUS PERSONAL INJURIES OR A SEVERELY DAMAGED TRANSMISSION.

AIR BLEED SYSTEM

REFER TO THE CHART FOR CORRECT AIR BLEED PRESSURE FOR MATERIAL AND TYPE OF OPERATION. AIR FLOW RATE MAY BE CONTROLLED WITH THE AIR BLEED CONTROL VALVE **15** WHILE MONITORING SYSTEM PRESSURE ON THE AIR GAUGE **30**. THE SYSTEM BACK PRESSURE MUST BE SET UNDER LOAD WITH YOUR VOLU-MATIC V MACHINE OPERATING WITH FULL LENGTH AND PROPER SIZE 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 BLEED OFF FROM THE EXIT OF THE BLOWER PREVENTING FLOW OF ALL AIR TO THE AIRLOCK FEEDER. AS YOU OPEN THE VALVE, BE CAREFUL TO NOT OPEN COMPLETELY DURING OPEN BLOW OR THE BLOWING HOSE COULD CLOG BECAUSE OF NOT ENOUGH AIR.

VACUUM SYSTEM

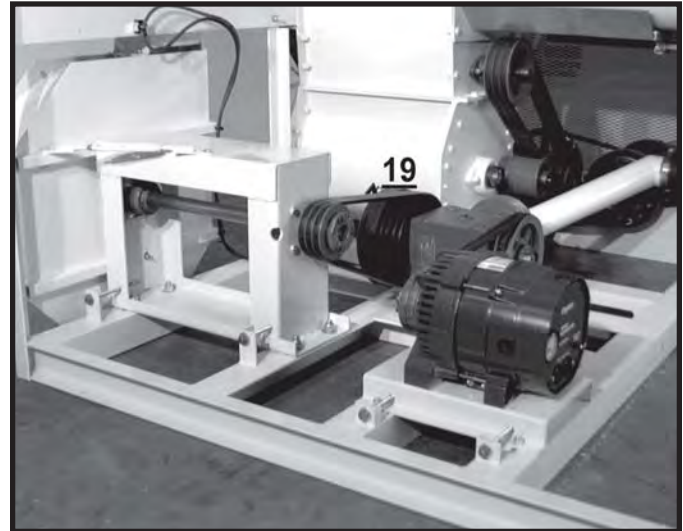
THE HIGH SPEED CENTRIFUGAL VACUUM **31** IS DESIGNED TO USE 4" HOSE ONLY. THE VACUUM IS BELT DRIVEN THROUGH AN ELECTRO-MAGNETIC CLUTCH **19** SO THAT THE VACUUM CAN BE OFF DURING OPEN BLOW OPERATIONS. MAKE SURE THAT THE MATERIAL DECELERATION BOX AND EXIT TRANSITIONS ARE MOUNTED. USE THE FOLLOWING STEPS FOR STARTING THE VACUUM SYSTEM.



1. TURN ON THE MASTER SWITCH 4 AND THEN THE VACUUM CLUTCH SWITCH 22.
2. CONNECT VACUUM HOSE AND SPRAY HOSE WHEN READY TO START JOB.
3. ENGAGE THE TRUCK MOUNTED PTO BOX AT A LOW IDLE.
4. IDLE THE TRUCK UP TO THE CORRECT RANGE ESTABLISHED DURING INSTALLATION.

VACUUM CLUTCH WARNING:

UPON COMPLETION OF THE SIDEWALL SPRAY OPERATION, THE VACUUM CAN BE SWITCHED OFF WHILE THE PTO IS STILL ENGAGED. MAKE SURE THAT THE JOB IS COMPLETE. ANY ENGAGEMENT OF THE CLUTCH WHILE THE PTO IS ENGAGED WILL RESULT IN PREMATURE WEAR OF THE ARMATURE IN THE CLUTCH ASSEMBLY. ADDITIONALLY, THE VACUUM SWITCH IS WIRED THROUGH THE MASTER SWITCH SO THAT THE VACUUM SWITCH WOULD NOT BE LEFT ON ACCIDENTALLY. THIS COULD DRAIN THE TRUCK BATTERY DOWN OVERNIGHT CAUSING THE CLUTCH TO SLIP OR NOT FUNCTION AT ALL.



GENERATOR

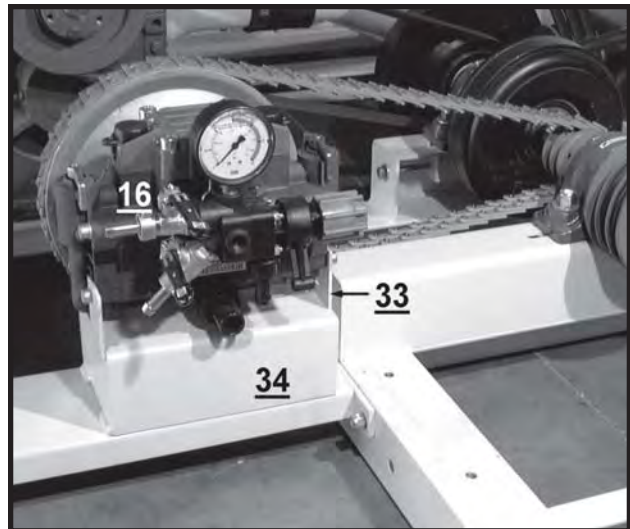
THE GENERATOR 18 SUPPLIES 115 VOLT POWER ON THE MACHINE WHENEVER THE TRUCK MOUNTED PTO BOX IS ENGAGED. REFER TO MANUFACTURER'S LITERATURE FOR ANY INFORMATION CONCERNING USE OF THE GENERATOR.



WARNING: ALWAYS MAKE SURE THAT ANY DEVICE (STUD SCRUBBER, LIGHT, ETC.) PLUGGED INTO THE GENERATOR IS OFF WHEN THE TRUCK PTO CONTROLS ARE ENGAGED OR DISENGAGED. THIS WILL PREVENT LOW VOLTAGE OUTPUT WHICH COULD DAMAGE THE GENERATOR OR THE DEVICE PLUGGED INTO IT.

WATER PUMP

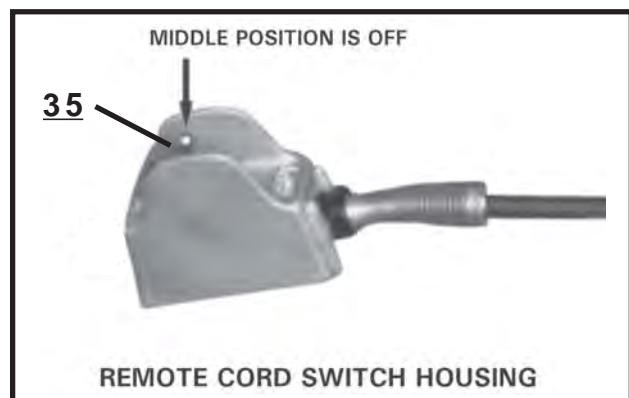
THE WATER PUMP **16** SUPPLIES WATER ON THE MACHINE WHENEVER THE TRUCK MOUNTED PTO BOX IS ENGAGED. REFER TO MANUFACTURER'S LITERATURE FOR PLUMBING TO A WATER SOURCE. DURING WINTER OPERATIONS, THE PUMP FOOT **33** WILL SLIDE OUT OF THE PUMP MOUNT **34**. ROLL OFF THE LINK BELTS AND REMOVE ALL WATER LINE CONNECTIONS AND STORE INSIDE UNTIL THE NEXT TIME THE PUMP IS NEEDED.



12 VOLT ELECTRICAL SYSTEM

THE FOLLOWING IS A DESCRIPTION OF THE 12 VOLT ELECTRICAL SYSTEM ON THE VOLU-MATIC V MACHINE, AN ELECTRICAL SCHEMATIC IS INCLUDED IN THE TROUBLESHOOTING SECTION.

POWER COMES FROM THE BATTERY THROUGH THE 20 AMP CIRCUIT BREAKER TO THE MASTER SWITCH **4**. WHEN THE MASTER SWITCH IS TURNED ON, ELECTRICITY FLOWS THROUGH THE SWITCH CAUSING THE LIGHT TO ILLUMINATE WHILE PROVIDING POWER TO THE LATCHING RELAY AND BLOWER RELAY. WITH THE EMERGENCY STOP BUTTONS **A** **& B** PULLED OUT (ON) AND SWING GATES CLOSED AGAINST THE SAFETY SWITCHES **2**, PRESSING THE RESET BUTTON **3** ENERGIZES THE LATCHING RELAY CONTACTS TO THE CLOSED POSITION ALLOWING POWER TO FLOW TO THE REMOTE CONTROL RECEPTACLE **5**. WHEN THE REMOTE CORD SWITCH **35** IS MOVED TOWARD THE CORD, POWER FLOWS TO THE BLOWER RELAY'S INTERNAL COIL. THIS CAUSES THE NORMALLY OPEN CONTACTS IN THE RELAY TO CLOSE SENDING POWER TO THE BLOWER CLUTCH WHILE ALSO PROVIDING POWER TO THE MECHANISM RELAY. WHEN THE REMOTE SWITCH IS MOVED TOWARD THE END OF THE SWITCH HOUSING, POWER FLOWS TO THE INTERNAL COILS OF THE BLOWER AND MECHANISM RELAYS. THIS CAUSES THE NORMALLY OPEN CONTACTS IN BOTH RELAYS TO CLOSE SENDING POWER TO THE RESPECTIVE CLUTCHES SIMULTANEOUSLY.



AT ANY TIME THAT AN EMERGENCY STOP BUTTON IS PUSHED IN (OFF) OR A SWING GATE GUARD IS OPENED WHILE THE MACHINE IS OPERATING, POWER IS DE-ENERGIZED AT THE LATCHING RELAY WHICH OPENS THE CONTACTS. THIS WILL STOP POWER FLOW TO THE REMOTE CONTROL RECEPTACLE AND RELAYS WHICH WILL DISENGAGE THE BLOWER AND MECHANISM CLUTCHES. YOU WILL HAVE TO PULL THE EMERGENCY STOP BUTTON OUT (ON) AND/OR CLOSE THE SWING GATE GUARD AND THEN PUSH THE RESET BUTTON TO RE-ENERGIZE THE REMOTE FUNCTION.

IF AN EMERGENCY STOP BUTTON IS PUSHED IN (OFF) OR A SWING GATE GUARD IS OPENED WHILE ONLY THE MASTER SWITCH IS ON BUT THE MACHINE IS NOT OPERATING, THE RESET BUTTON WILL HAVE TO BE PRESSED ONCE THE EMERGENCY BUTTON IS PULLED OUT (ON) OR SWING GATE IS CLOSED TO ENERGIZE THE LATCHING RELAY FOR MACHINE OPERATION. THIS IS ALSO TRUE FOR ANY TROUBLESHOOTING REQUIREMENTS YOU MAY ENCOUNTER.

NOTE: ALWAYS TURN THE MASTER SWITCH OFF AT THE END OF THE JOB. LEAVING THE MASTER SWITCH ON WILL DRAIN BATTERY POWER. A BATTERY LOW ON POWER WILL CAUSE THE CLUTCHES TO SLIP DURING OPERATION OR NOT ENGAGE AT ALL.

12 VOLT ELECTRICAL ON OLDER MODEL EQUIPMENT

THE FOLLOWING IS A DESCRIPTION OF THE 12 VOLT ELECTRICAL SYSTEM ON THE VOLU-MATIC V MACHINE, REFER TO THE ELECTRICAL SCHEMATIC INCLUDED IN THE TROUBLESHOOTING SECTION.

POWER COMES FROM THE BATTERY THROUGH THE 20 AMP CIRCUIT BREAKER TO THE MASTER SWITCH **4**. WHEN THE MASTER SWITCH IS TURNED ON, ELECTRICITY FLOWS THROUGH THE SWITCH CAUSING THE LIGHT TO ILLUMINATE WHILE PROVIDING POWER TO THE BLOWER RELAY CONTACTS AND THE REMOTE CORD RECEPTACLE **5**. WHEN THE REMOTE CORD SWITCH **35** IS MOVED TOWARD THE CORD, POWER IS SENT THROUGH THE SWING GATE SAFETY SWITCH **2** TO THE BLOWER RELAY'S INTERNAL COIL WHICH CLOSES THE CONTACTS SENDING POWER TO THE MECHANISM RELAY CONTACTS AND CAUSING THE BLOWER CLUTCH TO ENGAGE.

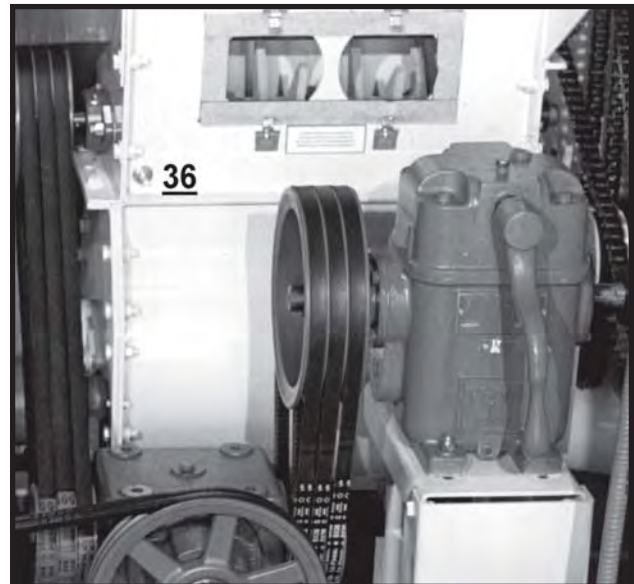
WHEN THE REMOTE SWITCH IS MOVED TOWARD THE END OF THE SWITCH HOUSING, POWER FLOWS TO THE INTERNAL COILS OF THE BLOWER AND MECHANISM RELAYS. THIS CAUSES THE CONTACTS IN BOTH RELAYS TO CLOSE SENDING POWER TO THE RESPECTIVE CLUTCHES SIMULTANEOUSLY.

COVERAGE - OPEN BLOW

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 ¾ 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 ¾ INCHES, IT WOULD ONLY COVER 15 - 16 SQ./FT. FIBER MUST BE WORKED OR CONDITIONED BY YOUR VOLU-MATIC V 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 **36** AND INSERT STATOR BAR MAKING SURE SHREDDER HAMMERS CLEAR PINS BEFORE BOLTING DOWN. THIS ADJUSTMENT SHOULD BE DONE ONLY AFTER VARIOUS SETTINGS OF THE AIR BLEED CONTROL VALVE, SLIDE GATE, AND TRANSMISSION SPEED 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.



COVERAGE - SIDEWALL SPRAY

COVERAGE, OR THE AMOUNT OF MATERIAL USED ON THE JOB IS DIRECTLY RELATED TO MATERIAL DENSITY ON THE SURFACE AND DENSITY IS A PRODUCT OF MATERIAL CONDITIONING AND AIR VELOCITY OR IMPACT ON THE APPLIED SURFACE. DENSITY CAN BE REGULATED BY MACHINE SETTINGS, DISTANCE OF THE SPRAY NOZZLE FROM THE SURFACE, AND BY THE AMOUNT OF WATER. TOO CLOSE TO THE STRUCTURE OR TOO MUCH WATER RESULTS IN HIGH DENSITY AND POOR COVERAGE. TOO FAR FROM THE SURFACE OR TOO LITTLE WATER WILL YIELD DENSITIES BELOW SPECIFICATIONS.

THE SPRAY NOZZLE SHOULD BE HELD APPROXIMATELY THREE FEET FROM THE SURFACE AS A STARTING POINT AND THE DISTANCE VARIED AS REQUIRED. DENSITIES WILL VARY AS THE JOB PROGRESSES FROM DRY MATERIAL TO DRY AND WET MATERIAL AFFECTING NOZZLE VELOCITY. INTRODUCING VACUUMED MATERIAL INTO THE HOPPER IN A CONSISTENT MANNER BLENDING WITH DRY MATERIAL WILL HELP TO CONTROL DENSITY. THE RECOMMENDED START SETTINGS ARE JUST THAT AND CAN VARY FROM JOB TO JOB.

GENERAL

YOUR VOLU-MATIC V MACHINE IS PRIMARILY A MATERIAL CONDITIONING AND AIR CONVEYING SYSTEM ALONG WITH A VACUUM RECOVERY SYSTEM. FIBERS ARE CONDITIONED OR OPENED TO THE PROPER DENSITY BY MECHANISMS IN THE HOPPER, THE SHREDDER, AND THEN AIR CONVEYED INTO SIDEWALL OR ATTIC BY THE BLOWER, AIRLOCK FEEDER, AND HOSE. EXCESS MATERIAL SPRAYED INTO A SIDEWALL CAVITY CAN BE RE-INTRODUCED INTO THE HOPPER TO BLEND WITH NEW MATERIAL ELIMINATING WASTE.

SUMMARY

- PERFORM PRELIMINARY CHECKS.
- PERFORM INITIAL START UP.
- MAKE MACHINE SET UP FOR OPEN BLOW OR SIDEWALL OPERATION.
- SELECT PROPER HOSE.
- LOAD MATERIAL INTO HOPPER.
- ADJUST SLIDE GATE.
- ENGAGE TRANSMISSION INTO GEAR.
- TURN ON MASTER SWITCH AND ENGAGE ALL SAFETY INTERLOCK SWITCHES. TURN ON VACUUM CLUTCH SWITCH IF SPRAYING WALLS.
- START TRUCK AND ENGAGE TRUCK MOUNTED PTO BOX. SPEED UP TRUCK FOR OPERATION.
- PLUG IN REMOTE CORD WITH TOGGLE SWITCH IN CENTER (OFF) POSITION.
- START BLOWING MATERIAL AND ADJUST AIR ONCE MATERIAL REACHES HOSE END.
- CHECK COVERAGE.

PREVENTIVE MAINTENANCE

GENERAL

MAKE SURE ALL POWER IS OFF AND THE TRUCK MOUNTED PTO CONTROLS ARE DISENGAGED BEFORE ATTEMPTING ANY MAINTENANCE PROCEDURES. THE ONLY EXCEPTION IS THE BLOWER RELIEF VALVE WHICH REQUIRES NO ENTRANCE INTO THE MACHINE. CHECK FOR LOOSE NUTS AND BOLTS, CHECK FOR SLACK AND CONDITION OF CHAINS AND BELTS, AND CHECK FOR OIL LEAKS ESPECIALLY AFTER THE FIRST FEW DAYS OF OPERATION. CHECK THE CONDITION OF THE BLOWING HOSE AND VACUUM HOSE AND FOR ANY BUILD UP OF MATERIAL. KEEP THE MACHINE CLEAN.

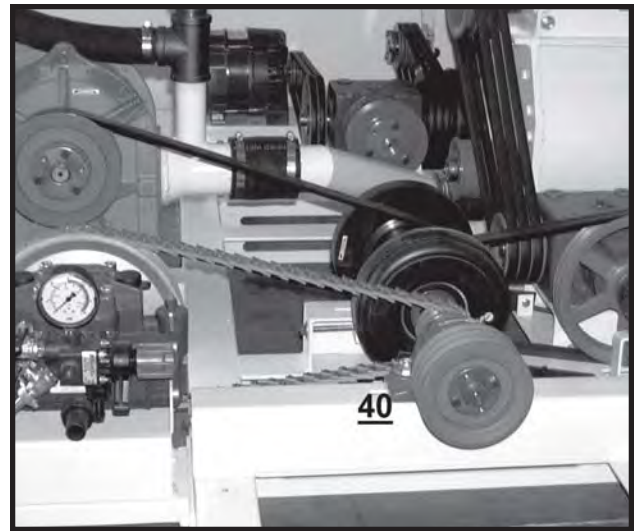
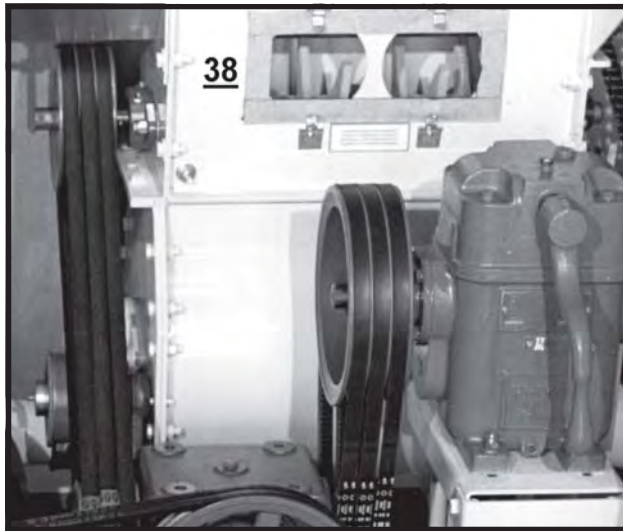
DAILY

1. EMPTY THE HOPPER AND BLOWING HOSE COMPLETELY AT THE END OF EACH DAY.
2. CLEAN THE SPRAY NOZZLE OF ANY MATERIAL BUILD UP.
3. CHECK AND CLEAN THE BLOWER AIR INLET TRUCK FLANGE **37** AND AS REQUIRED DURING OPERATION. KEEP THIS SCREEN CLEAN AT ALL TIMES.
4. VISUALLY INSPECT AND REMOVE ANY FOREIGN OBJECTS THAT MAY HAVE ENTERED THE MACHINE, SUCH AS; PIECES OF BAG, RAGS, COPPER WIRING, NAILS, ETC.
5. MAKE SURE THE EMERGENCY STOP BUTTONS **A & B** AND THE SWING GATE SAFETY SWITCHES **2** ARE FUNCTIONAL.

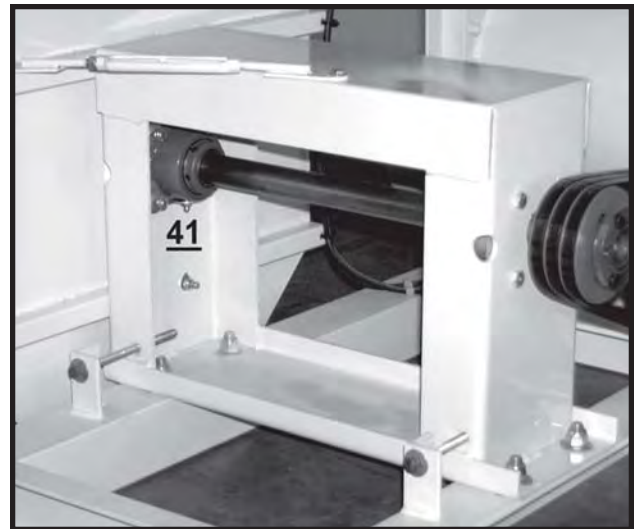
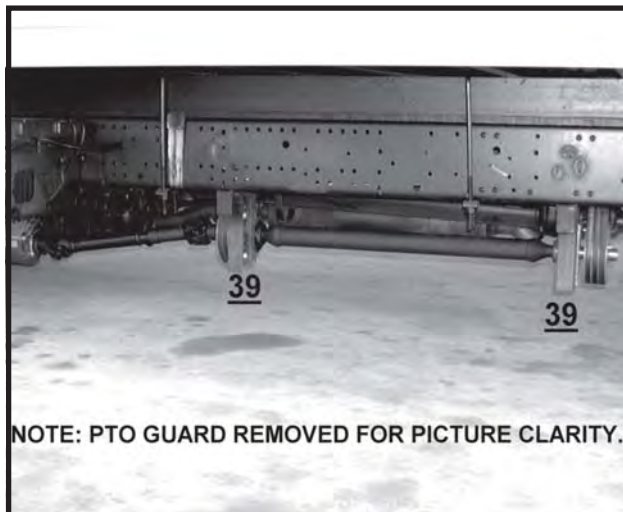


WEEKLY

1. CHECK FOR SLACK AND CONDITION OF THE PTO DRIVE BELTS FROM UNDER THE TRUCK. KEEP A SPARE SET ON HAND IN CASE OF DAMAGE.
2. VISUALLY INSPECT SHREDDER HAMMERS FOR TIP WEAR THROUGH ACCESS WINDOW **38**. WINDOW MAY BE REMOVED TO CLEAR BLOCKAGES OCCURRING IN THIS AREA.

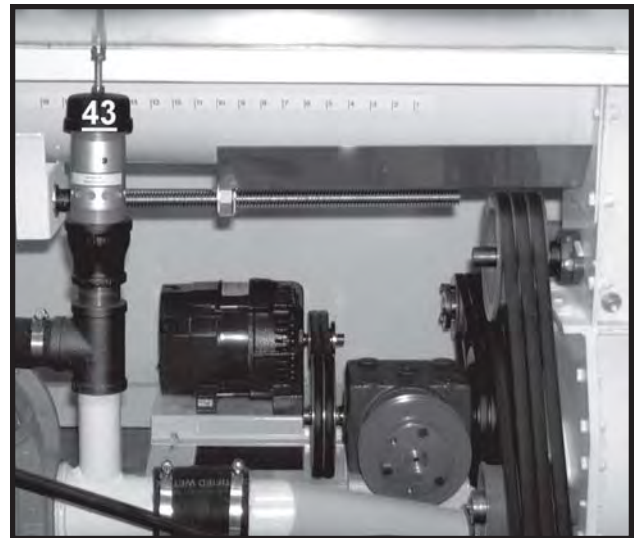
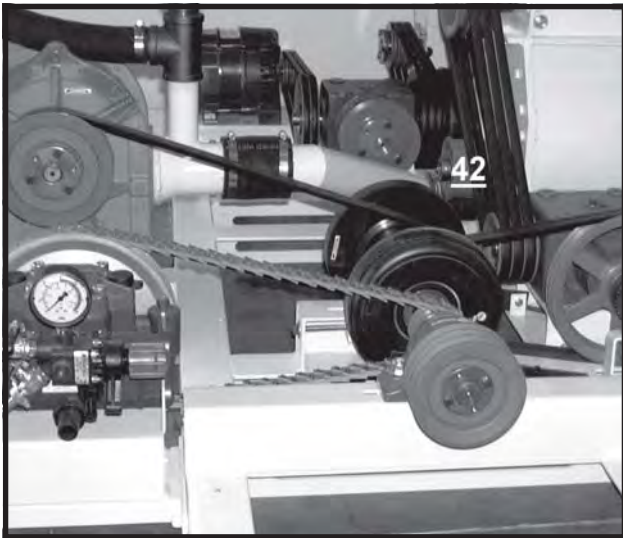


3. **VERY IMPORTANT** - GREASE THE PTO DRIVE PILLOW BLOCK BEARINGS 39 NO MORE THAN 2 PUMPS FROM A HAND OPERATED GUN.



4. **VERY IMPORTANT** - GREASE THE INPUT/ CLUTCH SHAFT PILLOW BLOCK BEARINGS 40 NO MORE THAN 2 PUMPS FROM A HAND OPERATED GUN.
5. **VERY IMPORTANT** - GREASE THE VACUUM FAN FLANGED BEARINGS 41 NO MORE THAN 2 PUMPS FROM A HAND OPERATED GUN.





6. CLEAN OUT ANY MATERIAL BUILD UP INSIDE THE VACUUM HOUSING 31.
7. CHECK THE OIL LEVEL IN THE BLOWER 10.
8. CHECK THE OIL LEVEL IN THE GEARBOXES 11.
9. CHECK THE OIL LEVEL IN THE TRANSMISSION 12.
10. CHECK THE OIL LEVEL IN THE WATER PUMP 16.
11. GREASE THE SHREDDER DRIVE BELTS FLAT FACE IDLER 42 NO MORE THAN 1 PUMP FROM A HAND OPERATED GREASE GUN.
13. CHECK BLOWER RELIEF VALVE 43 FUNCTION.
14. CHECK CHAIN AND BELT TENSION, ADJUST AS REQUIRED.

AIRLOCK FEEDER

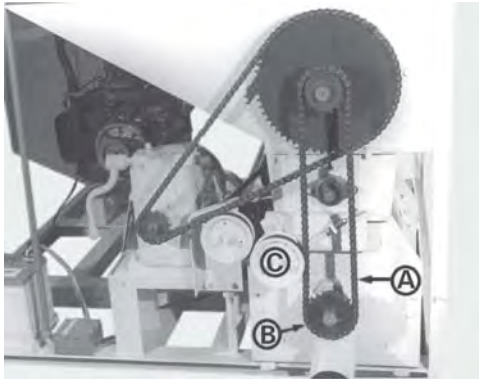
THE AIRLOCK FEEDER WILL REQUIRE PERIODIC MAINTENANCE TO PROLONG THE LIFE OF THE ASSEMBLY SINCE STEEL WILL WEAR WHEN ABRASIVE TYPE MATERIALS AND AIR VELOCITY ARE MIXED. FEEDER SEALS MUST BE CHANGED EVERY 250 HOURS OF OPERATION OR APPROXIMATELY EVERY 1 ½ MONTHS IF THE VOLU-MATIC V MACHINE IS OPERATED 8 HOURS A DAY 5 DAYS A WEEK, OR SOONER DEPENDING UPON THE TYPE OF MATERIAL.

FAILURE TO CHANGE SEALS ON SCHEDULE WILL RESULT IN EXCESSIVE WEAR AND REPLACEMENT OF THE FEEDER ASSEMBLY. REFER TO THE FOLLOWING STEP BY STEP INSTRUCTIONS WHEN IT COMES TIME TO CHANGE SEALS.

CHANGE THE VOLU-MATIC™ V STANDARD AIRLOCK FEEDER SEALS AS FOLLOWS:

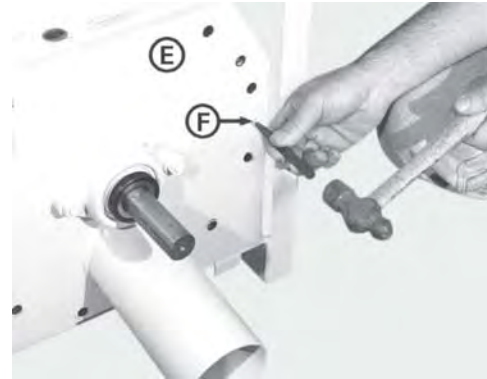
- A. MAKE SURE YOU HAVE A COMPLETE SET OF SEALS (SIX) BEFORE THE JOB IS STARTED.**
- B. MAKE SURE ALL POWER IS DISCONNECTED; TRUCK MOUNTED PTO BOX DISENGAGED, MASTER SWITCH OFF, REMOTE CORD UNPLUGGED, ETC.**
- C. REMOVE NECESSARY GUARDS TO DO THE JOB AFTER POWER IS DISCONNECTED, BE SURE THAT ALL GUARDS 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 AND/OR END PLATES AND BEARING FELT SEALS FOR OPTIMUM PERFORMANCE FROM YOUR VOLU-MATIC V MACHINE. EXCESSIVELY WORN PARTS ARE CONSIDERED TO BE WHEN 25% OF METAL THICKNESS HAS WORN AWAY, SEE REPLACE THE FEEDER END PLATES.**
- F. SUPPLIES AND TOOLS FOR SEAL CHANGE:**
 - SET OF SEALS, PART NO. A-39U-18.
 - SPARE 1/4"-20 x 5/8" LENGTH GRADE FIVE BOLTS AND LOCK WASHERS.
 - SPRAY SILICON, NEVER-SEIZE SHAFT LUB, PENETRATING OIL, EMERY CLOTH,
 - FEEDER CRANK HUB AND ROD, DEAD BLOW HAMMER, SMALL PUNCH AND BALL PEEN
 - HAMMER, VICE GRIP PLIERS, PRY BARS, FLAT FILE, MISCELLANEOUS SOCKETS AND
 - OPEN END WRENCHES, MISCELLANEOUS HEX HEAD ALLEN WRENCHES.

1.



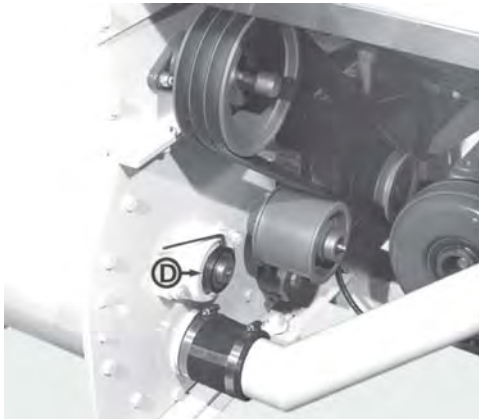
REMOVE DRIVE CHAIN **A**, FEEDER SPROCKET **B**, AND CHAIN IDLER ASSEMBLY **C**.

3.



REMOVE MOUNTING BOLTS IN OUTLET END PLATE **E** AND DRIVE ROLL PINS **F** OUT OF FEEDER ASSEMBLY.

2.



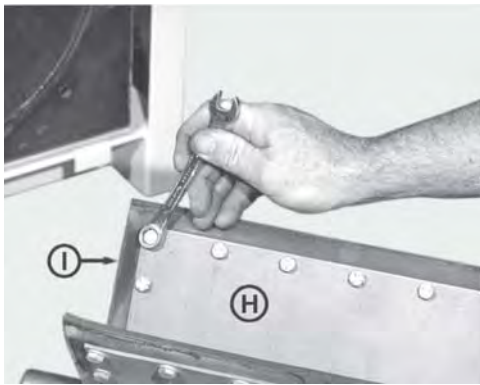
LOOSEN SET SCREWS IN THE BEARING COLLAR **D** ON THE INLET END PLATE ONLY.

4.



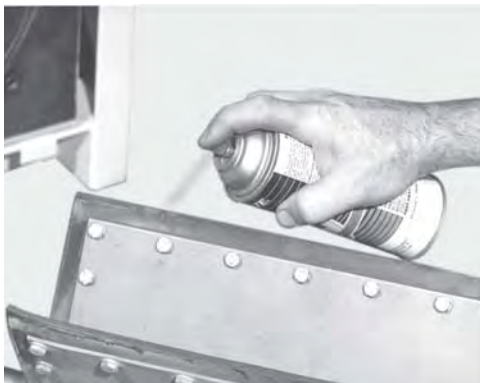
USE PRY BARS BETWEEN END PLATE AND FEEDER BARREL TO BRING ENTIRE ROTOR ASSEMBLY OUT. CLEAN, FILE, AND POLISH ROTOR SHAFT **G**. LOOSEN SET SCREWS IN BEARING COLLAR AND SLIDE END PLATE OFF ROTOR SHAFT.

5.



REMOVE THE BOLTS THAT HOLD THE BACKING PLATE **H** AND SEAL **I** TO THE ROTOR ASSEMBLY. CLEAN THE ROTOR VANE SURFACE BEFORE PLACING IN A NEW SEAL. BOLT ON BACKING PLATE MAKING SURE NOT TO OVER TIGHTEN DISTORTING THE SEAL.

6.



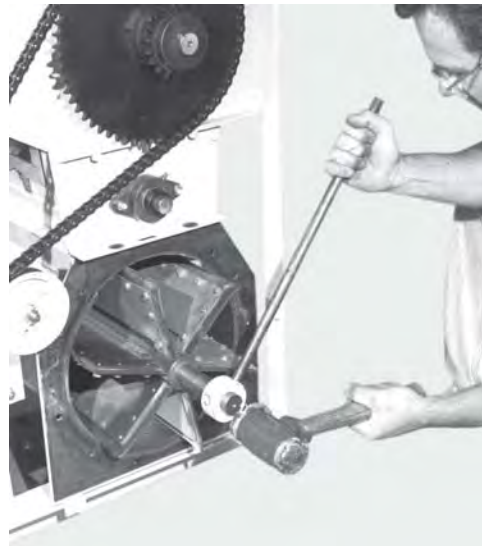
APPLY SPRAY SILICON TO EDGES OF NEW RUBBER SEALS AND SURFACE OF FEEDER BARREL. APPLY NEVER-SEIZE LUB ON INLET BEARING RACE.

7.



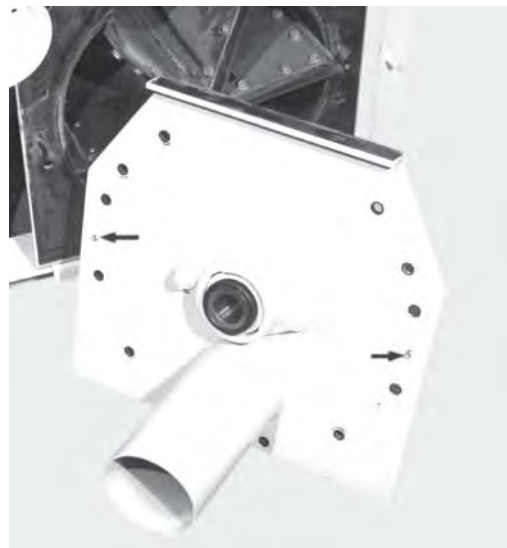
INSERT ROTOR ASSEMBLY INTO FEEDER BARREL ROTATING COUNTERCLOCKWISE USING CRANK HUB **J** AND ROD **K** WHILE PUSHING WITH FREE HAND. MAKE SURE BEARING FELT AT INLET END PLATE DOES NOT PINCH BETWEEN ROTOR SHAFT AND BEARING RACE.

8.



ONCE ROTOR SHAFT ENTERS THE INLET BEARING, IT MAY BE NECESSARY TO USE A DEAD BLOW SOFT HAMMER TO FIT ROTOR ALL THE WAY IN THE FEEDER WHILE ROTATING. PUSH ROTOR AS FAR IN AS POSSIBLE WITH SEALS BEGINNING TO BEND OVER ON THE SIDE AGAINST THE INLET END PLATE.

9.



DRIVE ROLL PINS INTO END PLATE BEFORE SLIDING ON ROTOR SHAFT. ALIGN TO EXISTING HOLES AND HAMMER IN, USE VISE GRIP PLIERS TO DRAW END PLATE UP TO RUBBER SEALS.

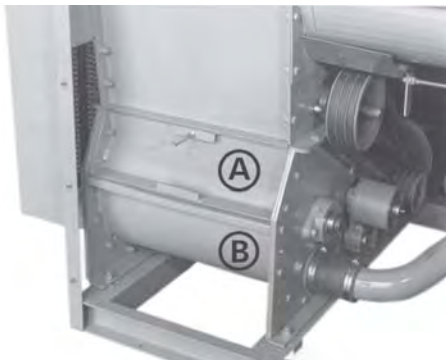
INSTALL MOUNTING BOLTS AND TIGHTEN HALF WAY DOWN - ROTATE ROTOR - TIGHTEN BOLTS - ROTATE ROTOR - TIGHTEN BOLTS COMPLETELY - ROTATE ROTOR.

PEER THROUGH OUTLET END PLATE TO SEE IF RUBBER SEALS BREAK OVER AGAINST 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. INSTALL DRIVE COMPONENTS AND ANY GUARDS REMOVED. DISCARD OLD SEALS.

CHANGE THE VOLU-MATIC™ V SIDE ACCESS DOOR AIRLOCK FEEDER SEALS AS FOLLOWS:

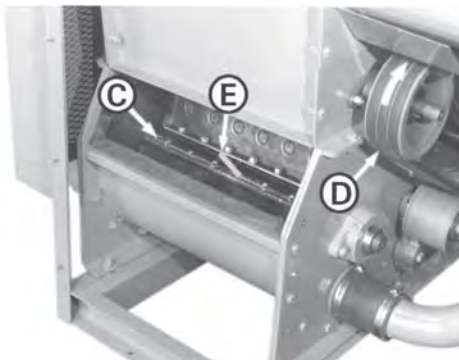
- A. MAKE SURE YOU HAVE A COMPLETE SET OF SEALS (SIX) BEFORE THE JOB IS STARTED.**
- B. MAKE SURE ALL POWER IS DISCONNECTED; TRUCK MOUNTED PTO BOX DISENGAGED, MASTER SWITCH OFF, REMOTE CORD UNPLUGGED, ETC.**
- C. REMOVE NECESSARY GUARDS TO DO THE JOB AFTER POWER IS DISCONNECTED, BE SURE THAT ALL GUARDS ARE INSTALLED AND SECURE WHEN JOB IS COMPLETE.**
- D. ONCE THE DOOR ON THE FEEDER 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. A THOROUGH INSPECTION WILL REQUIRE REMOVAL OF ALL SEALS BEFORE INSTALLING A NEW SET.**
- E. REPLACE EXCESSIVELY WORN OR DAMAGED FEEDER BARREL AND/OR END PLATES AND ROTOR SHAFT FELT SEALS FOR OPTIMUM PERFORMANCE FROM YOUR VOLU-MATIC V MACHINE. EXCESSIVELY WORN PARTS ARE CONSIDERED TO BE WHEN 25% OF METAL THICKNESS HAS WORN AWAY, SEE REPLACE THE FEEDER END PLATES.**
- F. SUPPLIES AND TOOLS FOR SEAL CHANGE:**
 - SET OF SEALS, PART NO. 35A02011
 - SPARE 3/8"-16 x 1" LENGTH GRADE EIGHT BOLTS
 - THREAD LOCKTITE
 - SPRAY SILICON
 - RATCHET AND 8" EXTENSION
 - 9/16" SOCKET AND WRENCH
 - MEDIUM STANDARD SCREWDRIVER
 - MISCELLANEOUS WRENCHES FOR GUARD REMOVAL

1.



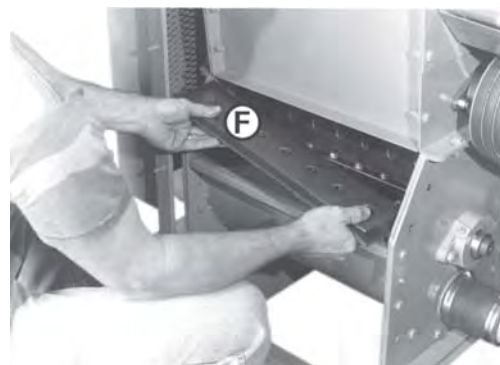
REMOVE THE SIDE ACCESS DOOR **A** FROM THE FEEDER ASSEMBLY **B** BY REMOVING THE FOUR BOLTS AND THEN PULL ON THE HANDLES.

2.



ROTATE ROTOR **C** BY HAND USING BELTS **D** THAT DRIVE THE SHREDDER HAMMERS IN THE SAME DIRECTION AS THE ARROW, THE TRANSMISSION HAS TO BE IN GEAR. ROTATE THE ROTOR SO THAT THE SEAL ENDS UP IN THE CENTER OF DOOR OPENING. REMOVE ALL ATTACH BOLTS, PUSH ONE SIDE OF SEAL FORWARD AND BRING THE OTHER SIDE OF THE SEAL OUT OF THE FEEDER HOUSING ON AN ANGLE. INSERT SEAL ALIGNMENT PIN **E** INTO THE CENTER HOLE OF BOLT HOLE PATTERN IN ROTOR.

3.



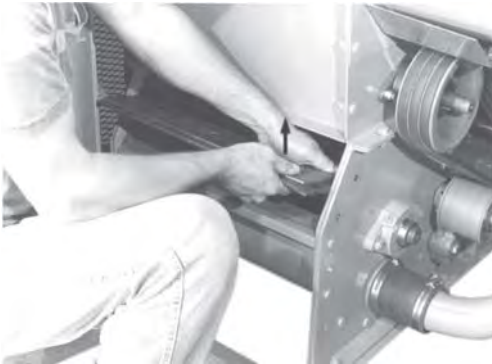
SPRAY SILICON ON SIDE EDGES OF FEEDER OPENING. MAKE SURE TO INSTALL EACH SEAL IN THE SAME DIRECTION AS REMOVED - ANGLE TOE OF ASSEMBLY FACING IN OPPOSITE DIRECTION OF ROTATION. PLACE NEW SEAL ASSEMBLY **F** AS SHOWN.

4.



BEND RIGHT SIDE OF RUBBER TOWARD ANGLE TOE AND SHOVE SEAL TO RIGHT, BEND LEFT SIDE OF RUBBER TOWARD ANGLE TOE AS SHOWN BY HAND.

5.



LIFT RIGHT SIDE OF SEAL ASSEMBLY UP AS SHOWN.

6.



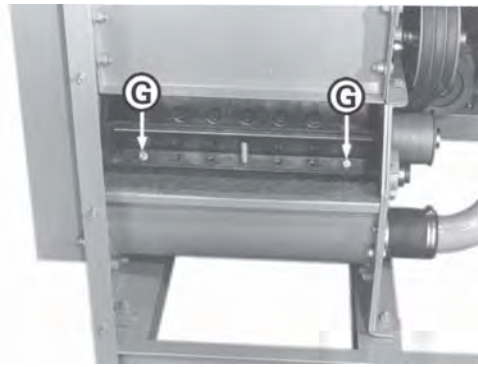
ROTATE FRONT FACE OF SEAL ASSEMBLY UP AS SHOWN.

7.



SLIDE SEAL ASSEMBLY INTO FEEDER HOUSING ALIGNING CENTER HOLE IN THE ANGLE TOE OF THE SEAL ASSEMBLY WITH THE ALIGNMENT PIN.

8.



ONCE THE SEAL ASSEMBLY HAS BEEN INSERTED ALL THE WAY TO THE ROTOR, ADD LOCKTITE TO THE THREADS OF THE ATTACH BOLTS **G**. INSERT ATTACH BOLTS WITH LOCK WASHERS IN END HOLES AND TIGHTEN.

9.



REMOVE ALIGNMENT PIN AND INSERT REMAINING BOLTS, APPLY THREAD LOCKTITE AND USE LOCK WASHERS. REPEAT STEPS TWO THROUGH NINE TO REPLACE ALL SEALS. INSPECT THAT FELT STRIPS (SEE ARROWS) WILL SEAL THE DOOR.

10.

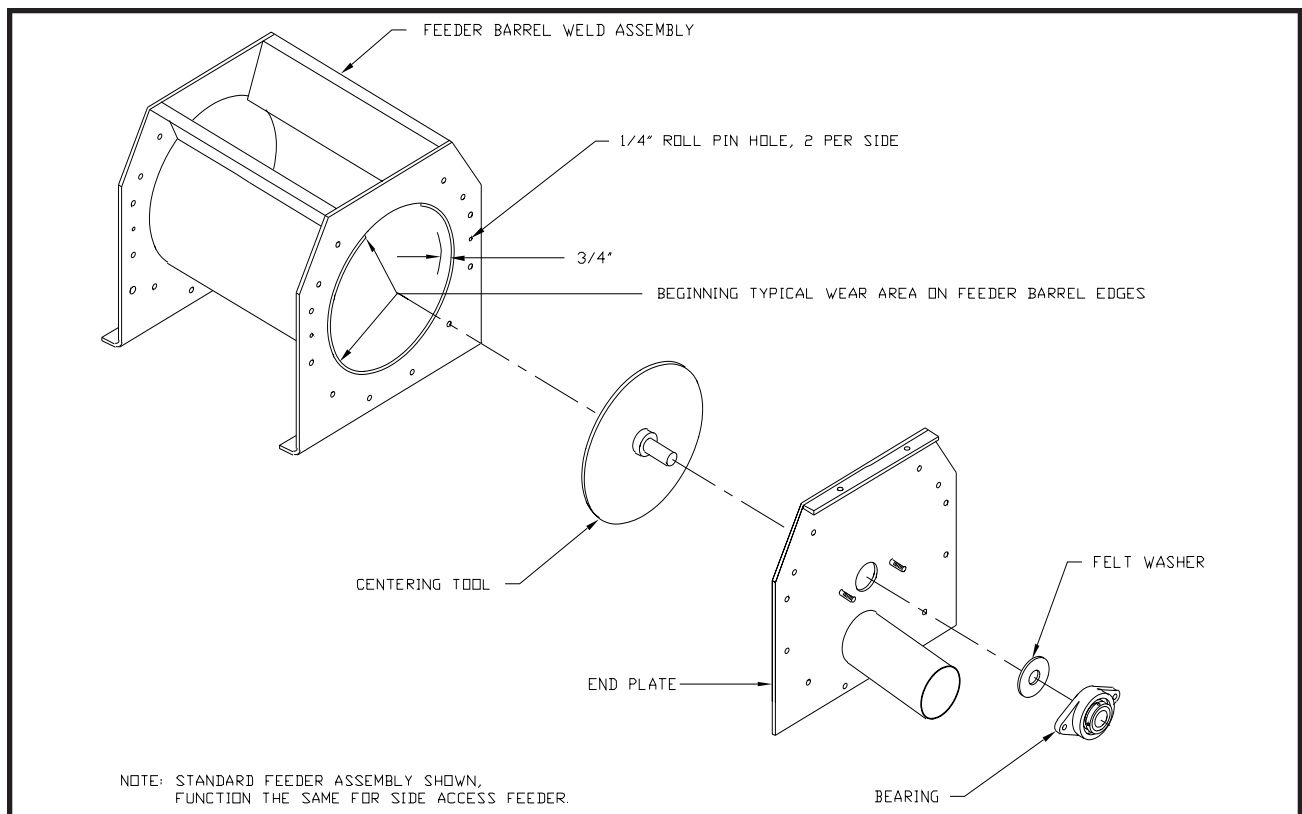


ONCE ALL SEALS ARE REPLACED, INSERT DOOR AGAINST TOP STOP AS SHOWN. SHOVE BOTTOM OF DOOR DOWN TO SHELF AND THEN PUSH DOOR STRAIGHT IN TO ALIGN BOLT HOLES. BOLT DOOR SECURELY IN PLACE AND INSERT ALIGNMENT PIN INTO TOP HANDLE OF DOOR FOR FUTURE SEAL CHANGES, DISCARD OLD SEALS.

REPLACE THE VOLU-MATIC™ V FEEDER END PLATES AS FOLLOWS:

THE END PLATES SHOULD BE REPLACED WHEN EVIDENCE OF DAMAGE IS SEEN BY VISUAL INSPECTION WHILE CHANGING FEEDER SEALS OR PROBLEMS ARE EXPERIENCED WITH LOSE OF AIR PRESSURE AND BLOW-BY OCCURS. 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. THE FELT WASHER THAT SEALS THE BEARING FROM THE AIR STREAM COULD ALSO CONTRIBUTE TO BLOW-BY AND SHOULD BE REPLACED AS REQUIRED.

WHEN REPLACING THE FEEDER END PLATES, THE CLEARANCE HOLE FOR THE ROTOR SHAFT HAS TO BE CENTERED TO THE I. D. OF THE FEEDER BARREL FOR AN EFFECTIVE SEAL ASSEMBLY. THE CENTERING TOOL HAS A BOSS THE SAME DIAMETER AS THE END PLATE HOLE AND IS 1" IN LENGTH SO THAT THE CENTERING TOOL MAY BE PUSHED INTO THE FEEDER BARREL FOR PROPER CENTERING AS THE EDGES BEGIN TO WEAR. THE 3/4" DIMENSION SHOWN IN THE FOLLOWING DRAWING IS THE MAXIMUM ALLOWABLE DEPTH THE TOOL CAN MOVE AND STILL ENGAGE THE FULL WIDTH OF THE END PLATE, ANY MOVEMENT PAST THIS POINT IS AN INDICATION THAT THE FEEDER BARREL WELD ASSEMBLY SHOULD BE REPLACED. ALSO, THE WELD ASSEMBLY SHOULD BE REPLACED WHEN 25% OF METAL THICKNESS HAS WORN AWAY AT THE EDGES. NEW FEEDER SEALS WILL NOT EFFECTIVELY SEAL THIS AREA AND WILL CAUSE PREMATURE SEAL AND END PLATE WEAR, EDGE WEAR IS A GOOD INDICATION THAT THE RUBBER FEEDER SEALS ARE NOT BEING CHANGED ON SCHEDULE, WERE DAMAGED DURING OPERATION, OR AN ABRASIVE MATERIAL REQUIRES THAT THE SEALS BE CHANGED SOONER.



REFER TO THE DRAWING AND FOLLOWING INSTRUCTIONS ON REPLACEMENT OF THE FEEDER END PLATES AND/OR FEEDER BARREL WELD ASSEMBLY.

1. REMOVE THE FEEDER DRIVE COMPONENTS.
2. LOOSEN SET SCREWS IN BEARING COLLARS, REMOVE WORN END PLATE, AND REMOVE BEARING HOUSING AND FELT WASHER FROM WORN END PLATE.
3. PULL ROTOR ASSEMBLY OUT OF BARREL WELD ASSEMBLY.
4. INSERT BOSS ON CENTERING TOOL INTO NEW END PLATE CLEARANCE HOLE, PLACE CENTERING TOOL WITH END PLATE INTO FEEDER BARREL, ADJUST CENTERING TOOL IN TO A FIRM FIT WITH BARREL I. D. (KEEP CENTERING TOOL PARALLEL), ALIGN BOLT HOLES AND TOP SURFACE LEVEL, CLAMP INTO POSITION AND DRILL 1/4" HOLE INTO END PLATE FROM EXISTING HOLE IN THE YOKE OF THE FEEDER BARREL WELD ASSEMBLY (NEW HOLES MAY BE LOCATED, DO NOT LOCATE TOO FAR FROM PREVIOUSLY DRILLED HOLES).
5. REMOVE CENTERING TOOL, PLACE END PLATE OVER CENTERING TOOL, ADD FELT WASHER AND BEARING HOUSING AND TIGHTEN BEARING USING WASHER AND NYLOCK NUTS.
7. REMOVE CENTERING TOOL FROM END PLATE.
8. INSTALL ROTOR AND NEW RUBBER FEEDER SEALS FOLLOWING INSTRUCTIONS OUTLINED FOR THEIR ASSEMBLY.
9. BOLT THE END PLATE IN POSITION, A STANDARD ROTOR ASSEMBLY WILL HAVE TO BE ROTATED TO CENTER PROPERLY WHILE BOLTING THE END PLATE IN POSITION.

TO REPLACE THE FEEDER ASSEMBLY COMPLETE:

1. REMOVE THE FEEDER CHAIN DRIVE COMPONENTS INCLUDING THE CHAIN IDLER ASSEMBLY.
2. REMOVE BOLTS THAT ATTACH THE FEEDER TO THE SHREDDER HOUSING AND MACHINE FRAME, SLIDE SPACERS OUT FROM UNDER THE FEEDER.
3. DISCONNECT THE AIR STREAM CONNECTION HOSE.
4. REMOVE THE DRIVE BELTS TO THE SHREDDER HAMMER SHAFT AND REMOVE THE SHREDDER BELT IDLER ASSEMBLY.
5. SLIDE FEEDER OUT FROM MACHINE FRAME, HAMMER SHAFT WILL HAVE TO BE ROTATED TO CLEAR HAMMERS WHEN PULLING FROM MACHINE FRAME.

THE FOLLOWING LABEL IS DISPLAYED ON THE FEEDER OF NEW DELIVERED MACHINES AS A REMINDER TO CHANGE SEALS, THE HOUR METER IN THE TACHOMETER RECORDS MECHANISM RUN TIME SO THAT SEALS CAN BE CHANGED ON A TIMELY SCHEDULE.

**CHANGE FEEDER SEALS EACH 250
HOURS OF OPERATION. FAILURE TO
DO SO WILL VOID FEEDER WARRANTY.
RECORD SEAL CHANGES IN MANUAL**

PTO DRIVE SYSTEM

THE PTO DRIVE PILLOW BLOCK BEARINGS **39** SHOULD BE GREASED ONCE A WEEK OR EVERY 30 HOURS OF OPERATION. DO NOT OVER LUBRICATE, ONE TO TWO PUMPS FROM A HAND OPERATED GREASE GUN IS SUFFICIENT. UNISUL USES MOMAR'S LUBEST TITAN 555 LITHIUM-BASED HIGH TEMPERATURE GREASE. AN EQUIVALENT NO. 2 CONSISTENCY LITHIUM BASED GREASE CAN BE

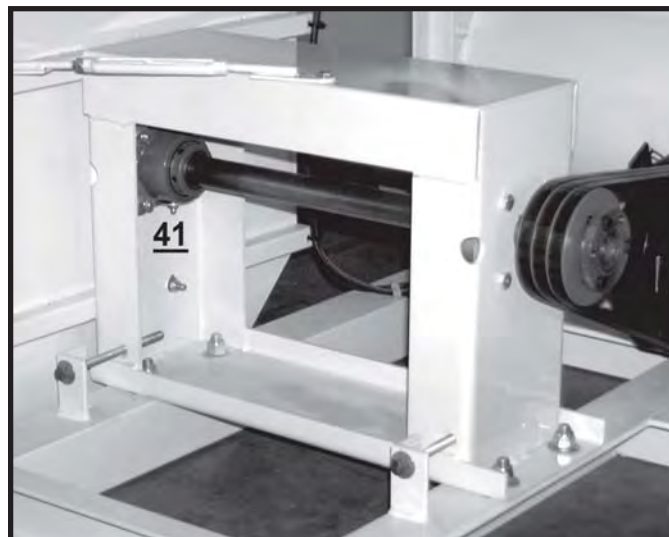
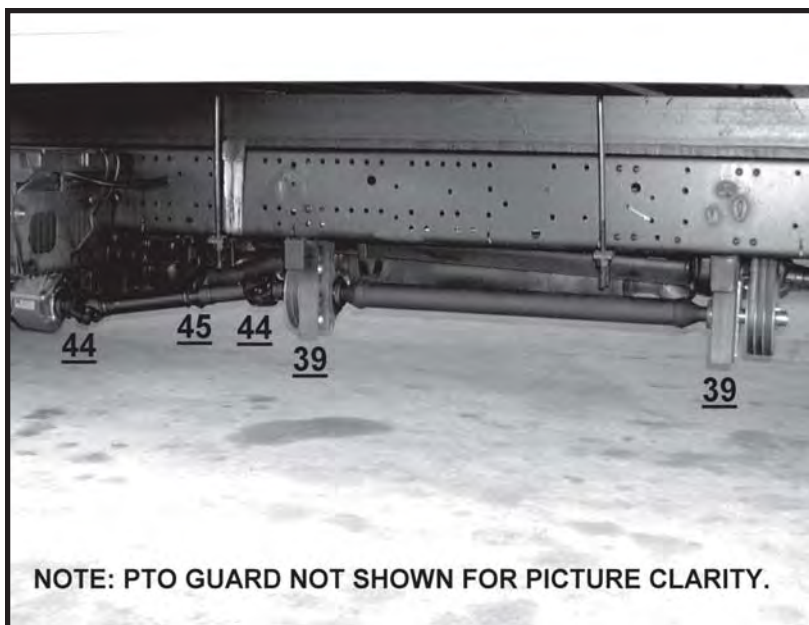
SUBSTITUTED. ALSO, SEE MANUFACTURER'S LITERATURE ON SPHERICAL ROLLER BEARINGS IN THE MANUFACTURER'S LITERATURE SECTION.

THE UNIVERSAL CROSSES **44** SHOULD BE GREASED ONCE A MONTH. DO NOT OVER LUBRICATE, ONE PUMP FROM A HAND OPERATED GREASE GUN IS SUFFICIENT. UNISUL USES MOMAR'S LUBEST TITAN 888 ALL PURPOSE GREASE. AN EQUIVALENT NO. 2 CONSISTENCY LITHIUM BASED GREASE CAN BE SUBSTITUTED. . THE SLIP YOKE **45** SHOULD BE GREASED ONCE A YEAR.

INTERNAL BEARINGS IN THE BELT IDLER PULLEY ASSEMBLIES ARE SEALED FOR LIFE AND CAN ONLY BE REPLACED. A MACHINE SHOP WITH A BEARING PRESS MAY BE NECESSARY. DO NOT OVER TIGHTEN THE PTO DRIVE BELTS AS THIS MAY CAUSE PREMATURE BEARING FAILURE.

VACUUM SYSTEM

THE VACUUM FAN WHEEL SHAFT BEARINGS **41** SHOULD BE GREASED ONCE A WEEK OR EVERY 30 HOURS OF OPERATION. DO NOT OVER LUBRICATE, ONE TO TWO PUMPS FROM A HAND OPERATED GREASE GUN IS SUFFICIENT. UNISUL USES MOMAR'S LUBEST TITAN 555 LITHIUM-BASED HIGH TEMPERATURE GREASE. AN EQUIVALENT NO. 2 CONSISTENCY LITHIUM BASED GREASE CAN BE SUBSTITUTED. ALSO, SEE MANUFACTURER'S LITERATURE ON TAPER ROLLER BEARINGS IN THE MANUFACTURER'S LITERATURE SECTION.



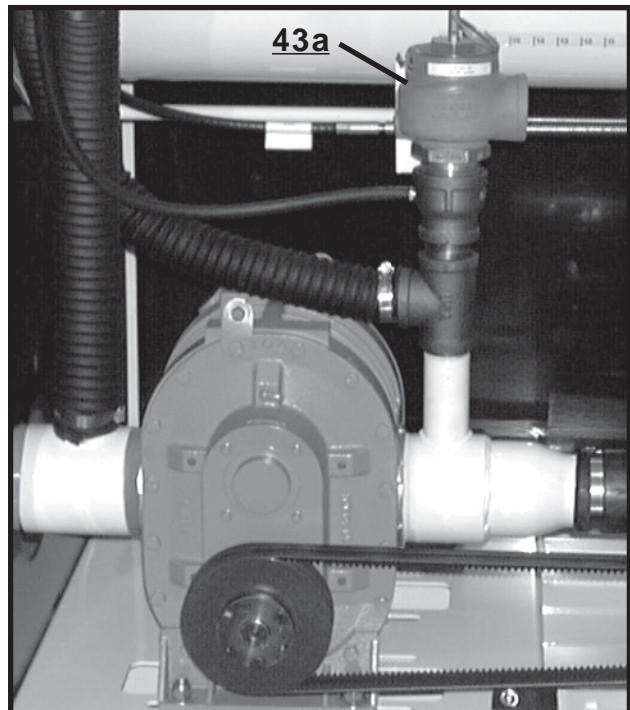
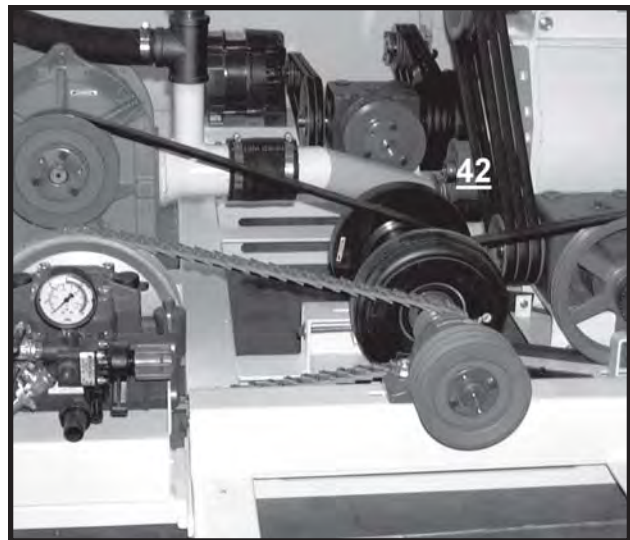
CLEAN OUT ANY MATERIAL BUILD UP INSIDE THE VACUUM HOUSING **31**. USE WATER TO SOFTEN THE MATERIAL TO EASILY WIPE OUT. CHECK THE EXIT TRANSITION **9** FOR MATERIAL BUILD UP. THE CENTRIFUGAL FAN WHEEL **46** IS HIGH SPEED BALANCED. THE BALANCE PROCEDURE MAY BE DONE BY GRINDING METAL AWAY OR ADDING METAL WITH WELDS. DO NOT DO ANY GRINDING TO CLEAN THE WHEEL OR REMOVE ANY WELD BUILD UP.

SHREDDER BELT IDLER

ONCE WEEKLY, GREASE SHREDDER BELT FLAT FACE IDLER **42**. THIS IS A NEEDLE BEARING ASSEMBLY WITH NO SEAL. ONE PUMP FROM A HAND OPERATED GREASE GUN IS SUFFICIENT. UNISUL USES MOMAR'S LUBEST TITAN 888 ALL PURPOSE GREASE. AN EQUIVALENT NO. 2 CONSISTENCY LITHIUM BASED GREASE CAN BE SUBSTITUTED. WIPE OFF EXCESS GREASE TO KEEP BELTS CLEAN. ALSO, DO NOT OVER TENSION THE BELTS. YOU WILL PRE LOAD THE SHREDDER SHAFT CAUSING PREMATURE BEARING FAILURE AND/OR CAUSE SHAFT BREAKAGE.

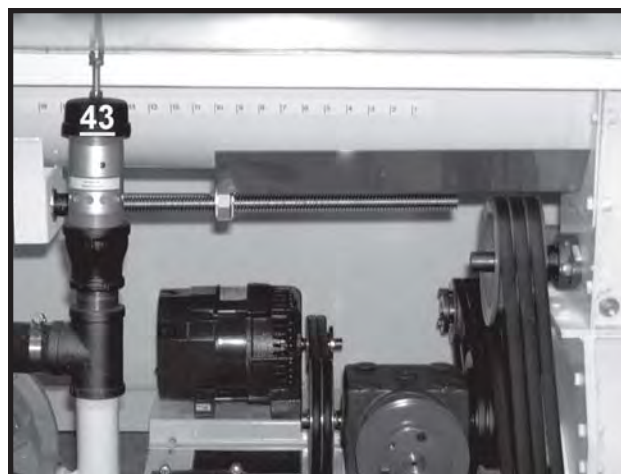
BLOWER RELIEF VALVE

THE RELIEF VALVE **43a** UNISUL NOW USES IS A CONSTANT PRESSURE STYLE MEANING THE PRESSURE WILL REMAIN AT A MINIMUM OF 6 PSI WHEN POPPING OPEN BECAUSE OF HIGH EXCESSIVE PRESSURES. HIGH EXCESS PRESSURES ARE GENERALLY CAUSED BY PLUGGED OR KINKED HOSES. FOLLOW THE SAME PROCEDURE FOR THE OLD VALVE CHECKING THE FUNCTION OF THE NEW STYLE VALVE.



BLOWER RELIEF VALVE

ONCE WEEKLY, PLUG FEEDER OUTLET OR END OF MATERIAL HOSE WITH BLOWER ONLY RUNNING. THE SPRING LOADED RELIEF VALVE **43** SHOULD OPEN. CYCLE VALVE SEVERAL TIMES BY PLUGGING AND UNPLUGGING FEEDER OUTLET OR HOSE TO CLEAR THE VALVE OF ANY BUILD UP OF DIRT OR MATERIAL. BE SURE THE AIR BLEED CONTROL VALVE **15** IS FULLY CLOSED. NOTE PRESSURE READING ON THE AIR GAUGE **30** AT THE MOMENT THE SPRING LOADED VALVE RELIEVES. THE INDICATION SHOULD BE 6 PSI. THE PRESSURE READING WILL DROP THE MOMENT THE SPRING LOADED VALVE POPS WHILE THE BLOWER IS STILL RUNNING BECAUSE THE VALVE IS DESIGNED TO DUMP FULL BLOWER AIR CAPACITY. ANY SIGNIFICANT DIFFERENCE OVER 1 PSI SHOULD BE REPORTED TO UNISULAT ONCE. NEVER ATTEMPT TO READJUST THE SPRING LOADED RELIEF VALVE WITHOUT CONSULTING THE FACTORY.

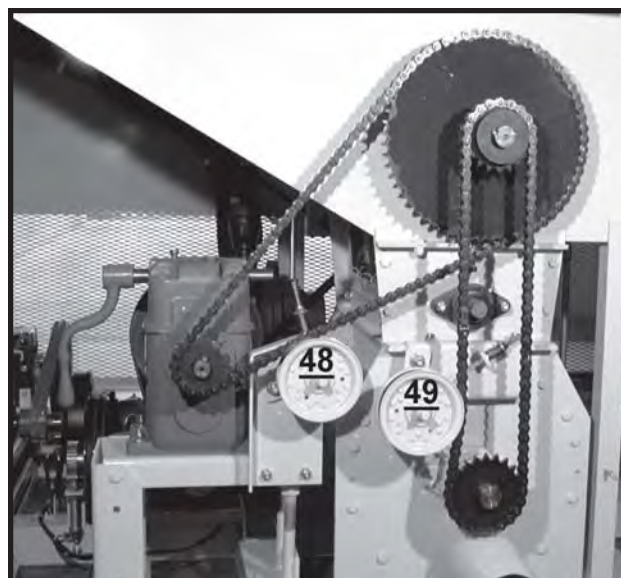


CAUTION: DO NOT GREASE OR OIL SINCE THE RELIEF VALVE WILL NOT FUNCTION OTHER THAN COMPLETELY DRY.



ROLLER CHAIN IDLER ASSEMBLY

SPRAY A LIGHT MISTING OIL ON ALL MECHANISMS THAT MAKE UP THE AUGER DRIVE CHAIN IDLER ASSEMBLY **48** AND AIRLOCK FEEDER DRIVE CHAIN IDLER ASSEMBLY **49**. FOR ANY REASSEMBLY THAT MAY OCCUR, MAKE SURE THAT THE IDLER ARM SWIVELS FREELY WITHOUT WOBBLE AND THAT THE SPRING IS COMPRESSED TO A 1" LENGTH BETWEEN THE TWO CONTROL WASHERS. THE SPRING LENGTH IS 2 ½ INCHES NON-COMPRESSED.



TRANSMISSION

CHECK THE OIL LEVEL WEEKLY IN THE TRANSMISSION. **AS OF JANUARY 1999, UNISUL USES MOBIL GEAR OIL 626.** PRIOR TO THIS DATE THE TRANSMISSION WAS FILLED WITH MOBIL H.D. 85W-140 GEAR OIL. THE PROPER OIL LEVEL IS MARKED AT THE FRONT OF THE HOUSING. AFTER 100 HOURS OF OPERATION, DRAIN WHILE WARM. THOROUGHLY FLUSH HOUSING WITH LIGHT FLUSHING OIL AND REFILL WITH FRESH LUBRICANT. THEREAFTER, CHANGE AND FLUSH EVERY SIX MONTHS OR 1000 HOURS MACHINE TIME.

ROLLER CHAIN

IF ABRASIVE MATERIALS ARE CONVEYED THROUGH THE MACHINE, DO NOT LUBRICATE THE CHAIN. THIS CAN CAUSE THE CHAIN TO COLLECT MATERIAL AND WEAR THE CHAIN AND SPROCKETS PREMATURELY. A CHAIN LUB IS PREFERABLE IF NO ABRASIVE MATERIALS ARE CONVEYED THROUGH THE MACHINE. UNISUL RECOMMENDS MOMAR'S LUBEST MULTI-PURPOSE RED SPRAY GREASE.

BLOWER

CHECK THE OIL LEVEL WEEKLY IN THE BLOWER. FOLLOW MANUFACTURER'S RECOMMENDED MAINTENANCE SCHEDULE AS SPECIFIED IN THE ENCLOSED BLOWER MANUAL PROVIDED IN THE MANUFACTURER'S LITERATURE SECTION. MAKE SURE THAT THE VENT CAP STAYS CLEAN AT ALL TIMES. UNISUL FILLS THE BLOWER WITH 15W-40 MOTOR OIL.

RIGHT ANGLE GEARBOX

CHECK THE OIL LEVEL WEEKLY IN THE GEARBOXES. THE GEARBOXES ARE FILLED WITH **MOMAR SEVERE SERVICE GEAR OIL 80W140 SYNTHETIC.** THE PROPER OIL LEVEL IS AT THE PLUG HALFWAY UP THE REAR OF THE HOUSING. AFTER 500 HOURS OF OPERATION, DRAIN WHILE WARM. THOROUGHLY FLUSH HOUSING WITH LIGHT FLUSHING OIL AND REFILL WITH FRESH LUBRICANT. THEREAFTER, CHANGE AND FLUSH EVERY TWO YEARS OR 4000 HOURS MACHINE TIME.

FLANGED BEARINGS

ALL BEARINGS EXCEPT THOSE INDIVIDUALLY DISCUSSED SHOULD BE LUBRICATED EVERY 6 MONTHS OR 1000 HOURS OF OPERATION IF EQUIPPED WITH A GREASE FITTING. BEARINGS WITHOUT FITTINGS ARE CONSIDERED TO BE LUBRICATED FOR LIFE. DO NOT OVER LUBRICATE, ONE PUMP FROM A HAND OPERATED GUN IS SUFFICIENT. UNISUL USES MOMAR'S LUBEST TITAN 888 ALL PURPOSE GREASE. AN EQUIVALENT NO. 2 CONSISTENCY LITHIUM BASED GREASE CAN BE SUBSTITUTED.

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.

WATER PUMP

CHECK THE OIL LEVEL WEEKLY IN THE WATER PUMP. FOLLOW MANUFACTURER'S RECOMMENDED MAINTENANCE SCHEDULE AS SPECIFIED IN THE ENCLOSED WATER PUMP MANUAL PROVIDED IN THE MANUFACTURER'S LITERATURE SECTION. MAKE SURE TO KEEP THE OIL CHANGED TO PREVENT DAMAGE TO THE PUMP DIAPHRAGMS. KEEP THE AIR PRESSURE IN THE ACCUMULATOR PROPERLY CHARGED.

GENERATOR

FOLLOW MANUFACTURER'S RECOMMENDED MAINTENANCE SCHEDULE AS SPECIFIED IN THE ENCLOSED GENERATOR MANUAL PROVIDED IN THE MANUFACTURER'S LITERATURE SECTION.

OGURA ELECTRO-MAGNETIC CLUTCH

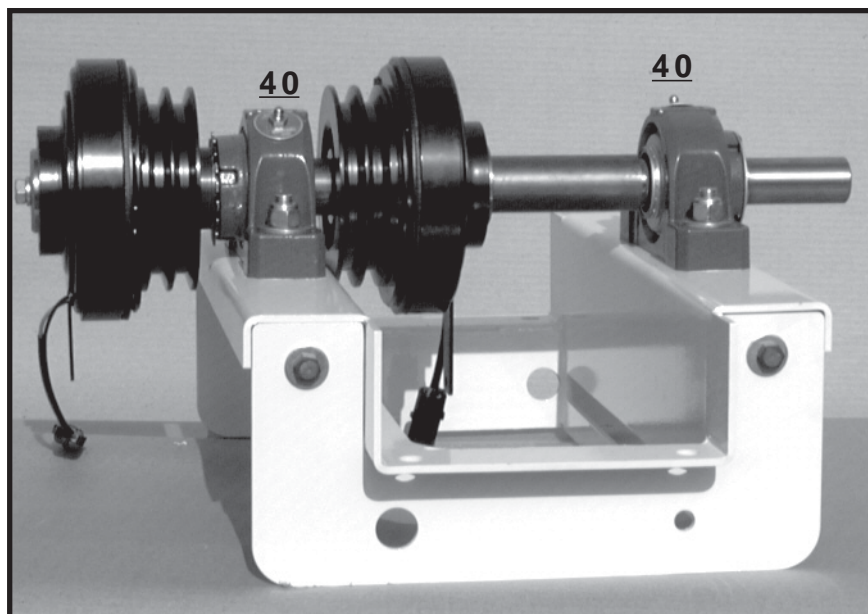
THIS CLUTCH HAS NO SCHEDULED WEAR REPLACEMENT PARTS AND CAN ONLY BE REPLACED WHENEVER FIELD FAILURES MAY OCCUR. EXTENSIVE TESTING WAS PERFORMED AT THE FACTORY AND UNISUL FEELS IT HAS FOUND A VERY SUITABLE REPLACEMENT THAT WILL PROVIDE A LONG SERVICE LIFE.

CLUTCH TORQUE ARM

CHECK THE CONDITION OF THE TORQUE ARM ASSEMBLY THAT RETAINS THE CLUTCH FIELD ASSEMBLY FROM ROTATING. LOOK FOR ELONGATED HOLES IN THE ARM, WORN BOLTS, AND WORN BUSHINGS.

INPUT/CLUTCH SHAFT

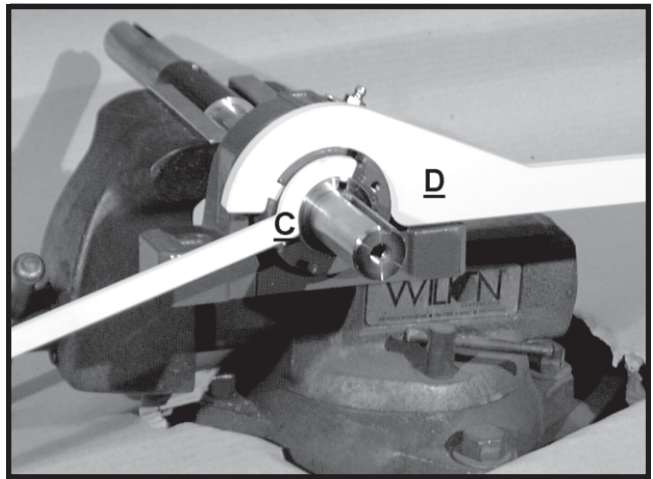
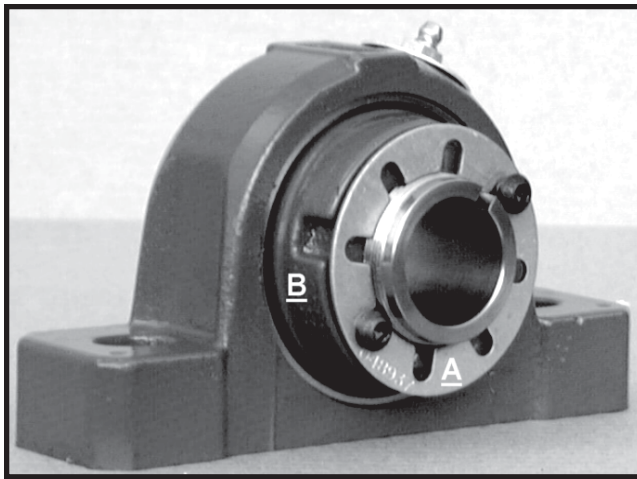
THE INPUT/CLUTCH SHAFT PILLOW BLOCK BEARINGS **40** SHOULD BE GREASED ONCE A WEEK OR EVERY 30 HOURS OF OPERATION. DO NOT OVER LUBRICATE, ONE TO TWO PUMPS FROM A HAND OPERATED GREASE GUN IS SUFFICIENT. UNISUL USES MOMAR'S LUBEST TITAN 555 LITHIUM-BASED HIGH TEMPERATURE GREASE. SEE MANUFACTURER'S LITERATURE ON SPHERICAL ROLLER BEARINGS IN THE MANUFACTURER'S LITERATURE SECTION.



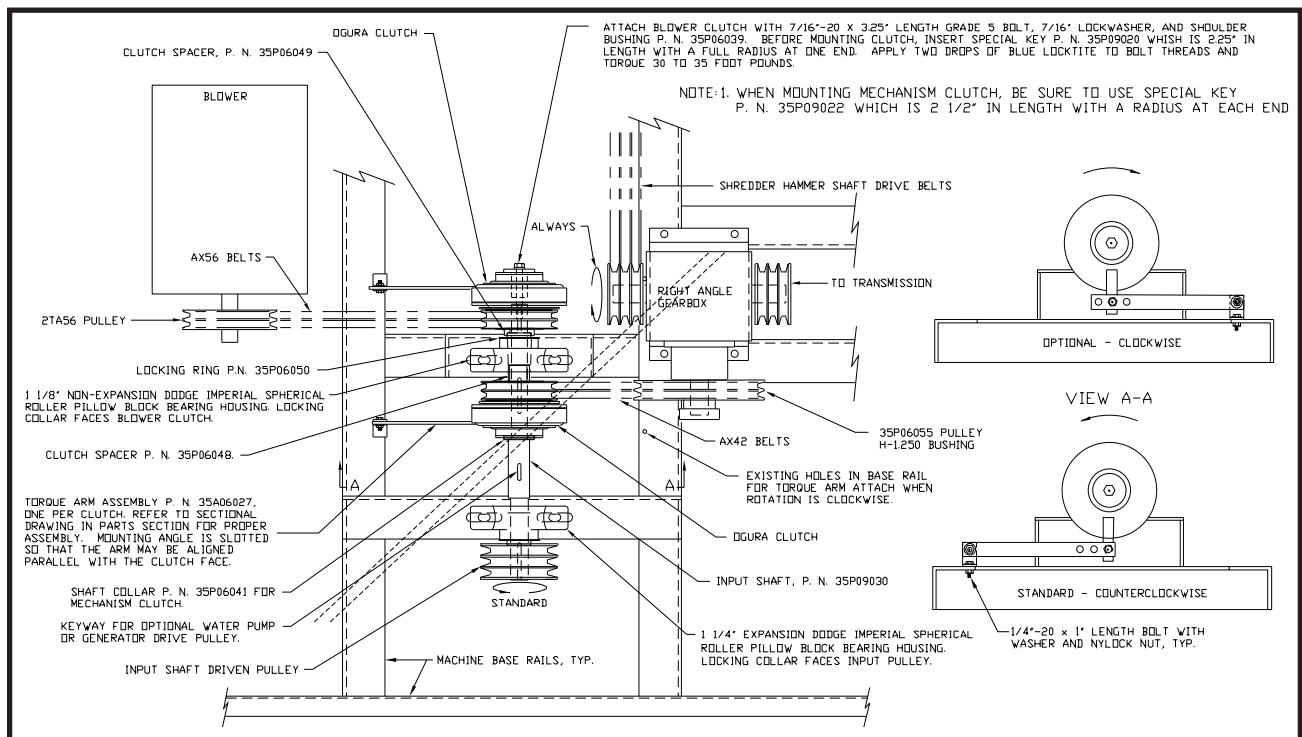
USE THE FOLLOWING STEPS FOR ALIGNING THE INPUT/CLUTCH SHAFT OR REPLACING COMPONENT PARTS ON THIS SHAFT. THE FOLLOWING INSTRUCTIONS ARE FOR THE TAPER LOCK IMPERIAL BEARINGS THAT UNISUL ONCE USED FOR THE INPUT/CLUTCH SHAFT DESIGN. THE TAPER LOCK BEARINGS ARE STILL USED FOR THE PTO OUTPUT SHAFT UNDER THE TRUCK. REFER TO PAGES **57 TO 58** FOR INSTRUCTIONS ON THE DOUBLE SET SCREW COLLAR "K" STYLE TAPER ROLLER BEARINGS THAT UNISUL NOW USES.

- I. Refer to the following instructions and drawings for aligning the input/clutch shaft or replacing component parts on the shaft. The input/clutch shaft is installed at the factory with “never-seize” compound applied to mating surfaces except under the bearings and the mechanism clutch. The mechanism clutch is pressed onto the shaft. Unisul's experience with these bearings shows that lubricant is not required under the bearing.
- II. Make sure you have all parts necessary for a complete clutch or bearing change on blower or mechanism side or both sides.
- III. Make sure all power is disconnected; negative cable to battery, master switch off, and remote cord unplugged.
- IV. Remove necessary guards to do the job after power is disconnected. Make sure that all guards are installed and secure when the job is complete.
- V. Before assembly can begin, the taper lock bearings require a “zero reference point”. The zero reference point is defined as the point when clearance between adapter sleeve, shaft, and bearing bore has been removed and all surfaces are in tight metal to metal contact. To effect this, remove lockplate **A** and turn locknut **B** counterclockwise one to two turns allowing the adapter to fully expand. Slide either bearing on the appropriate side of the shaft to set the zero reference point. Support shaft in a bench vise or similar device to keep weight off the bearing. To reach the “Zero Reference Point”, hold adapter sleeve with spanner wrench **C** and turn locknut with spanner wrench **D** until a snug fit is established between adapter sleeve and shaft. Slide bearing back and forth on shaft checking for drag, if the bearing moves freely tighten locknut until you feel drag on the bearing. Do not tighten any further at this point, tightening of bearing will be completed during assembly. At this point, remove bearing from shaft for complete parts assembly.

NOTE: Read instructions provided by bearing manufacturer to gain a better understanding of the taper lock bearings.

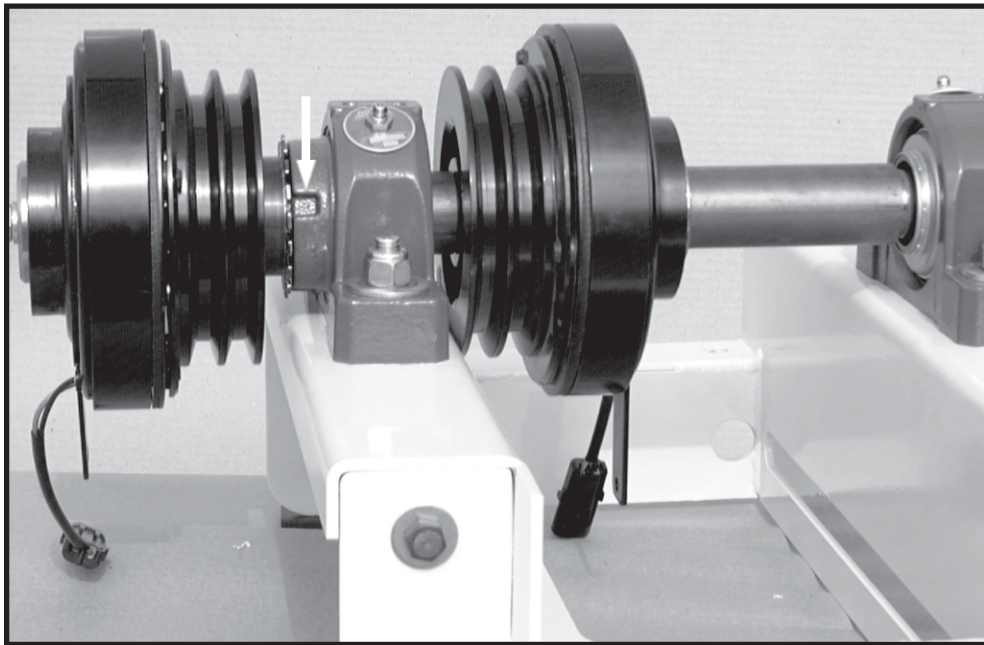


1. SLIDE SHAFT COLLAR 35P06041 UP TO SHOULDER IN MIDDLE OF INPUT/CLUTCH SHAFT.
2. INSERT MECHANISM CLUTCH DRIVE KEY 35P09022 INTO KEYWAY IN SHAFT. THE KEY MAY HAVE TO BE PRESSED IN.
3. MOUNT MECHANISM CLUTCH ON SHAFT, THE SHAFT IS KNURLED OVER THE KEYWAY. THE CLUTCH WILL HAVE TO BE PRESSED ON. DO NOT REST ON CLUTCH PULLEY TO PRESS SHAFT. YOU WILL DESTROY THE BEARING UNDER THE PULLEY. PRESS AGAINST CLUTCH HUB ONLY. PRESS CLUTCH UNTIL SHAFT COLLAR DOES NOT ROTATE AND THEN STOP.
4. SLIDE MECHANISM CLUTCH SPACER 35P06048 WITH KEYWAY ONTO SHAFT UP TO CLUTCH.



5. MOUNT 1 1/8" NON-EXPANSION PILLOWBLOCK BEARING ON SHAFT TOWARD REAR OF MACHINE. HAVE LOCKNUT FACING OUT AND BACK OF BEARING RACE FLUSH TO CLUTCH SPACER. DO NOT USE THE LOCKPLATE SUPPLIED WITH THE BEARING.
6. SLIDE LOCKING RING 35P06050 OVER BEARING ADAPTER SLEEVE.
7. SLIDE BLOWER CLUTCH SPACER 35P06049 WITH KEYWAY ONTO SHAFT UP TO 1 1/8" NON-EXPANSION PILLOWBLOCK BEARING. THE RECESSED BORE FITS OVER THE ADAPTER SLEEVE IN THE BEARING HOUSING.
8. MOUNT BLOWER CLUTCH FLUSH TO CLUTCH SPACER, THE PULLEY WILL FACE THE BEARING. THE KEY IS ROUNDED AT ONE END AND WILL EXTEND PAST THE SHAFT. USE SHOULDER BUSHING 35P06039 AND 7/16" BOLT WITH LOCK WASHER TO SEAT THE CLUTCH, TIGHTEN BOLT 30 FT./LBS.
9. TIGHTEN LOCKNUT IN BEARING HOUSING 3/4 TO 7/8 TURN USING SPANNER WRENCH. **NOTE:** AN ADDITIONAL 1/8 WAS ADDED TO TURN FOR "ZERO REFERENCE POINT" BEGINNING.

NOTE: IF THE SHAFT SPINS AS YOU LOCK DOWN THE BEARING, A PIPE WRENCH OR SIMILAR DEVICE MAY NEED TO BE USED TO HOLD THE SHAFT. PLACE PIPE WRENCH NEAR 1" LENGTH KEYWAY BUT NOT OVER THE KEYWAY TO HOLD SHAFT.

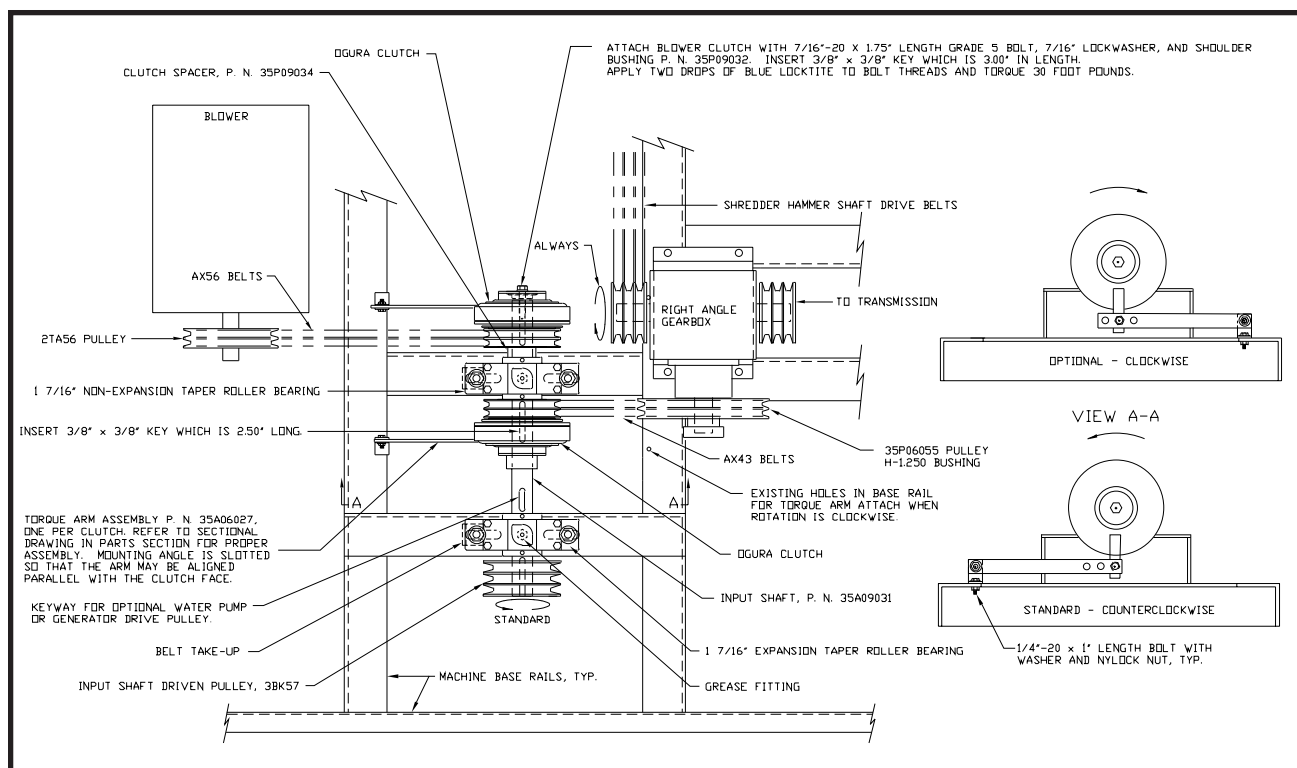


10. ALIGN ONE OF THE TABS IN THE LOCKING RING 35P06050 WITH THE RECESS IN THE LOCKNUT AND BEND OVER USING A SCREW DRIVER OR SIMILAR DEVICE (SEE ARROW NEXT PICTURE). BEND ANOTHER TAB 180 DEGREES FROM PREVIOUS ONE INTO RECESS OF LOCKNUT.
11. ADD PULLEY FOR WATER PUMP OR GENERATOR DRIVE.
12. MOUNT 1 1/4" EXPANSION PILLOWBLOCK BEARING ON SHAFT TOWARD FRONT OF MACHINE. MAKE SURE LOCKNUT FACES OUT.

13. PLACE TWO AX42 BELTS OVER SHAFT. (not shown in picture)
14. PLACE MOUNTED SHAFT ON MACHINE. LINE UP PILLOWBLOCK BEARINGS WITH SLOTS IN BEARING STANDS ON MACHINE FRAME AND INSERT BELT TAKE UP. RUN NUT DOWN THREADS TO HOLD IN PLACE BUT DO NOT TIGHTEN COMPLETELY.
15. SLIDE BEARING RACE OF 1 ¼" EXPANSION PILLOWBLOCK BEARING ALL THE WAY TOWARD THE 1 1/8" NON-EXPANSION PILLOWBLOCK BEARING. MAKE SURE "ZERO REFERENCE POINT" IS ESTABLISHED. TIGHTEN LOCKNUT IN BEARING HOUSING USING SPANNER WRENCHES 3/4 TO 7/8 TURN. THIS WILL DRAW THE BEARING TO THE CENTER OF THE HOUSING.
16. SLIDE LOCKPLATE OVER SHAFT AND ALIGN TANG OF LOCKPLATE WITH SLOT IN ADAPTER SLEEVE. FIND A LOCKNUT HOLE THAT ALIGNS WITH A LOCKPLATE SLOT. IF THE CLOSEST LOCKNUT HOLE IS BEYOND A LOCKPLATE SLOT, TIGHTEN THE LOCKNUT TO ALIGN TO A SLOT. INSERT BUTTON HEAD SCREWS WITH LOCK WASHER AND TIGHTEN.
17. INSTALL PULLEY ON BLOWER SHAFT AND GEARBOX SHAFT. TAKE UP SLACK IN AX42 BELTS GOING TO GEARBOX. WHEN TIGHTENING, KEEP THE CLUTCH PULLEYS ALIGN STRAIGHT TO THE PULLEYS ON THE BLOWER AND GEARBOX.
18. INSTALL TORQUE ARM ASSEMBLIES AS SHOWN IN THE DRAWING, REFER TO THE SECTIONAL DRAWING ON NEXT PAGE FOR PROPER ASSEMBLY AND CLUTCH ATTACHMENT. THE HOLE IN THE MACHINE BASE FRAME FOR THE ATTACH ANGLE MIGHT HAVE TO BE RELOCATED ON EARLY MACHINES. DRILL 1/4" HOLE ONE INCH FROM EXISTING HOLE SO THAT THE TORQUE ARM MAY BE ALIGNED PARALLEL TO THE CLUTCH FACE.
19. TAKE UP SLACK IN AX56 BELTS GOING TO BLOWER.
20. MOUNT INPUT PULLEY ON SHAFT, THE REAR FACE OF THE PULLEY SHOULD BE FLUSH WITH FRONT FACE OF THE BEARING LOCKNUT.
21. MOUNT PTO DRIVE BELTS AND TENSION WITH IDLER ASSEMBLY.
22. REFER TO THE ELECTRICAL SCHEMATIC TO CORRECTLY WIRE THE CLUTCHES.
23. MOUNT MAIN DRIVE BELT GUARD, CHECK CLEARANCES, ETC.
24. TEST MACHINE BEFORE HEADING TO NEXT JOB SITE.

USE THE FOLLOWING STEPS FOR ALIGNING THE INPUT/CLUTCH SHAFT OR REPLACING COMPONENT PARTS ON THIS SHAFT. THE FOLLOWING INSTRUCTIONS ARE FOR THE DOUBLE SET SCREW COLLAR "K" STYLE TAPER ROLLER BEARINGS THAT UNISUL NOW USES.

- I. Refer to the following instructions and drawing for aligning the clutch shaft or replacing component parts on the shaft. The clutch shaft is installed at the factory with "never-seize" compound applied to mating surfaces.
- II. Make sure set screws in bearing locking collars have a lock patch on the threads. Use a minimum half inch length set screws. The bearing housings have two locking collars.
- III. Make sure you have all parts necessary for a complete change.
- IV. Make sure all power is disconnected; negative cable to battery, master switch off, and remote cord unplugged.
- V. Remove necessary guards to do the job after power is disconnected. Make sure all guards are installed and secure when the job is complete.



1. Insert 3/8" x 3/8" key that is 2 1/2" in length at center of shaft.
2. Slide mechanism clutch onto shaft up to collar welded on shaft. The pulley will face away from the shaft collar.
3. Loosen the four bolts at the top of the bearing housing one half turn and slide 1 7/16" non-expansion bearing housing on shaft toward rear of machine. **Do not tighten set screws in locking collars yet!**
4. Slide blower clutch spacer onto shaft up to non-expansion bearing.
5. Insert 3/8" x 3/8" key that is 3" in length at end of shaft.
6. Mount blower clutch flush to clutch spacer, the pulley will face the bearing.
7. Insert blower clutch attach bushing with 7/16"-20 x 1 3/4" grade 5 bolt and lock washer. Apply two drops of blue locktite to threads and then torque bolt 30 foot pounds.
8. Add pulley for water pump or generator drive. A 3/8" x 1/4" step key is required.
9. Loosen the four bolts at the top of the bearing housing one half turn and slide 1 7/16" expansion bearing housing on shaft toward front of machine. **Do not tighten set screws in locking collars yet!**
10. Place two AX43 belts over shaft.
11. Place mounted shaft on machine. Line up bearing housings with slots in bearing stands on machine frame and insert belt take-ups and bolts. Run nut down threads but do not tighten completely.
12. Position bearing race of 1 7/16" expansion bearing to center position. The grease fitting will land in the middle of the housing which is visible when the cover plate is removed. Use a small screw driver against the grease fitting stud to slide the bearing insert.
13. Install pulley on blower shaft and gearbox shaft. Take up slack in AX43 belts going to gearbox. When the belts are tightened, make sure pulleys are aligned straight and that the bearing housing stays straight in line to the bearing stand. Make sure shaft stays straight and is square to machine frame.
Tighten nuts to mounting bolts.
14. **Tighten the set screws in both locking collars on each bearing unit.**
15. Rotate shaft several revolutions by hand allowing the bearing units to self align in the housings.
Tighten the four bolts 24 foot pounds on each bearing unit.
16. Mount input pulley on shaft. Align pulley to idler pulley on machine or drive pulley under the truck.
17. Take up slack in AX56 belts going to blower.
18. Install torque arm assemblies as shown in the drawing.
19. Mount PTO drive belts and tension with idler assembly.
20. Refer to the electrical schematic to correctly wire the clutches.
21. Install any guards removed for service.
22. Test machine before heading to next job site.

WARNING: MAKE ALL CHECKS WITH THE TRUCK ENGINE OFF AND PTO DRIVE DISENGAGED. ALL MACHINE ELECTRICAL IS POWERED BY THE TRUCK BATTERY. IN ORDER TO CHECK ELECTRICAL FUNCTIONS THE FOLLOWING HAS TO HAPPEN; CLOSE SWING GATES, TURN MASTER SWITCH ON, PULL EMERGENCY STOP BUTTONS OUT (ON), AND PUSH THE RESET BUTTON. IF AN EMERGENCY STOP BUTTON IS PUSHED IN DURING TROUBLESHOOTING, REMEMBER TO PUSH THE RESET BUTTON. 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.

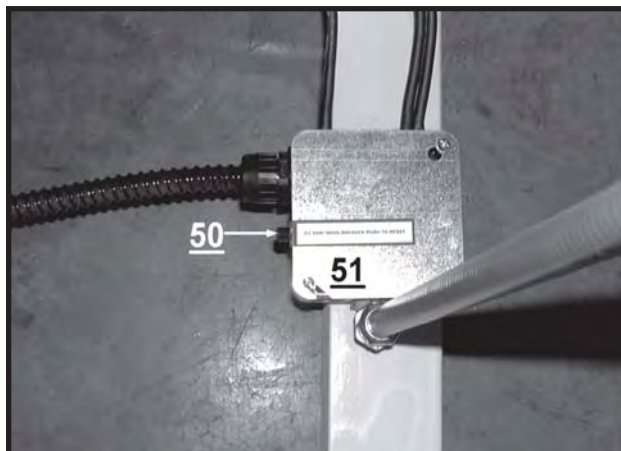
TROUBLESHOOTING

1. TRUCK MOUNTED PTO BOX WILL NOT ENGAGE.

- A. SEE TRUCK MANUFACTURER'S PTO ACCESSORY MANUAL.

2. THE INPUT/CLUTCH SHAFT AND REAR GEARBOX ARE TURNING BUT THERE ARE NO OTHER MACHINE FUNCTIONS - NO ELECTRICAL POWER TO FRONT PANEL.

- A. CHECK FOR TRIPPED CIRCUIT BREAKER **50** IN HANDY BOX **51** LOCATED ON MACHINE BASE FRAME. **THE CIRCUIT BREAKER IS LOCATED ON THE FRONT PANEL OF NEWER EQUIPMENT.** TO RESET, PUSH THE BUTTON IN. ALSO CHECK FOR A CIRCUIT BREAKER AT THE BATTERY CONNECTION.



- B. CIRCUIT BREAKER TRIPS AGAIN. CHECK FOR LOOSE OR DAMAGED WIRES, SHORTS TO GROUND (FRAME IS GROUNDED).

- C. MAKE SURE MASTER SWITCH IS ON.

- D. MAKE SURE SWING GATES ARE CLOSED.

- E. **ON NEWER EQUIPMENT,** CHECK THAT AN EMERGENCY STOP BUTTON IS NOT PUSHED IN (OFF).

- F. **ON NEWER EQUIPMENT,** PUSH RESET BUTTON.

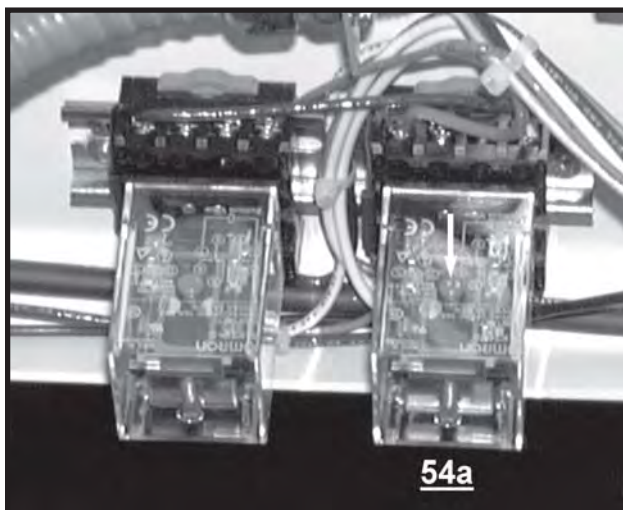
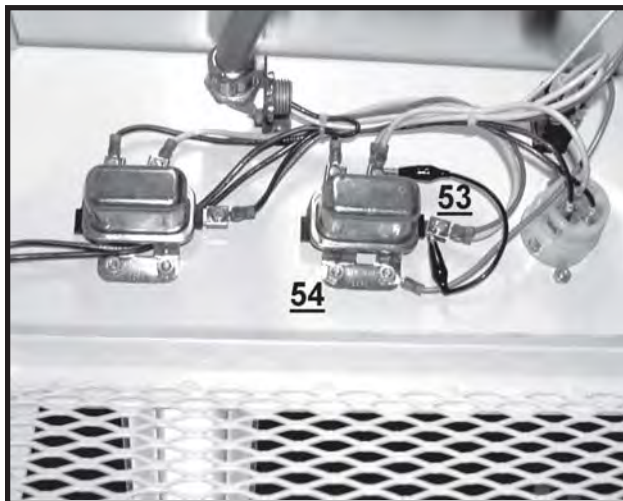
3. PTO ENGAGES - BUT BLOWER WILL NOT OPERATE.

- A. **ON NEWER EQUIPMENT,** NO POWER AT LATCHING RELAY.

- B. CHECK TO SEE IF BLOWER CLUTCH IS OPERATING.



- C. CLUTCH NOT OPERATIONAL - CHECK REMOTE CORD. WITH MASTER SWITCH 4 ON AND ALL SAFETY INTERLOCKS ACTUATED, USE JUMPER WIRE 52 IN REMOTE CORD RECEPTACLE 5. IF BLOWER STARTS, REMOTE CORD BAD.
- D. REMOTE CORD OK - CHECK BLOWER RELAY. USE JUMPER WIRE 53 AS SHOWN TO CHECK RELAY 54. THE MASTER SWITCH WILL HAVE TO BE ON, REMOTE CORD PLUGGED IN AND ENGAGED, PLUS SAFETY INTERLOCKS ACTUATED TO COMPLETE THIS CHECK. IF BLOWER STARTS, THE RELAY IS BAD.



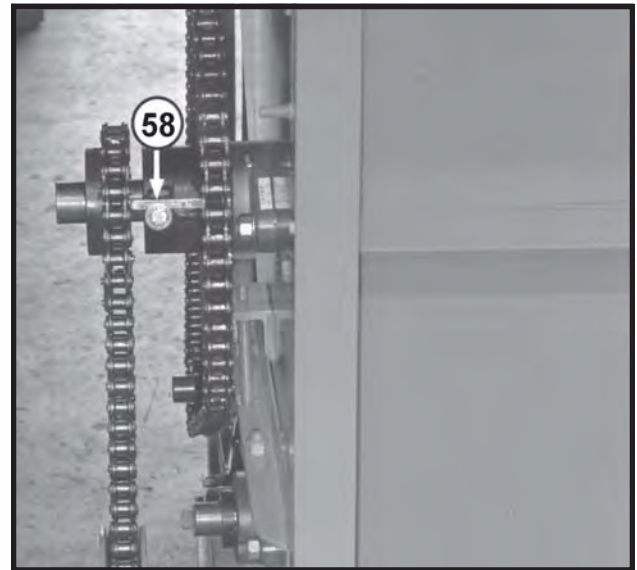
FOR NEW STYLE RELAYS 54a, DEPRESS OVERRIDE BUTTON (SEE ARROW). IF BLOWER STARTS, THE RELAY IS BAD.

- E. CHECK WIRE HARNESS AND CLUTCH ELECTRICAL CONNECTIONS.
- F. CHECK BELTS, ADJUST OR REPLACE AS REQUIRED.
- G. CHECK TRUCK BATTERY, CLUTCH WILL NOT CYCLE OR WILL SLIP IF BATTERY IS NOT FULLY CHARGED.
- H. CHECK THAT BLOWER CAN BE TURNED BY HAND. IF NOT - BLOWER DEFECTIVE.
- I. FAULTY CLUTCH - REPLACE OR REBUILD AS REQUIRED.

4. PTO ENGAGES AND BLOWER OPERATES - BUT MACHINE MECHANISMS WILL NOT OPERATE.

- A. CHECK TO SEE IF MECHANISM CLUTCH IS OPERATING.
- B. CLUTCH NOT OPERATIONAL - CHECK REMOTE CORD. WITH MASTER SWITCH 4 ON, SWING GATE SAFETY 2 ACTUATED, AND BLOWER JUMPER WIRE 52 IN PLACE - USE JUMPER WIRE 55 IN REMOTE CORD RECEPTACLE 5. IF MECHANISM STARTS, REMOTE CORD BAD.

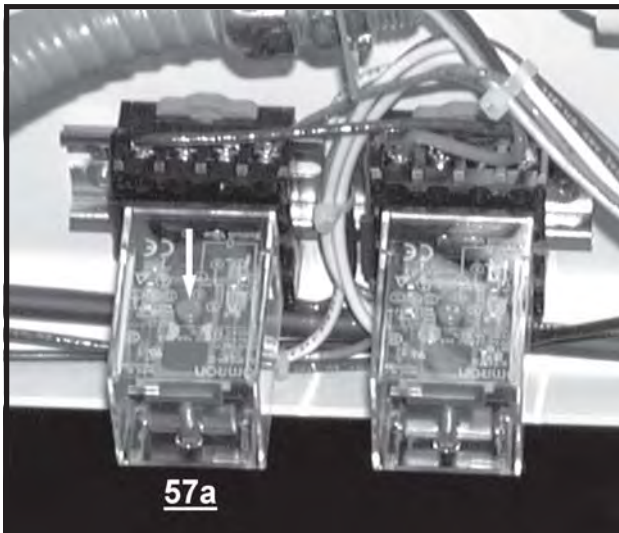




- C. REMOTE CORD OK - CHECK MECHANISM RELAY. USE JUMPER WIRE 56 AS SHOWN TO CHECK RELAY 57. THE MASTER SWITCH WILL HAVE TO BE ON, REMOTE CORD PLUGGED IN AND ENGAGED, PLUS SAFETY INTERLOCKS ACTUATED TO COMPLETE THIS CHECK. IF MECHANISM STARTS, THE RELAY IS BAD.

FOR NEW STYLE RELAY 57a, DEPRESS OVERRIDE BUTTON (SEE ARROW). IF MECHANISM STARTS, THE RELAY IS BAD.

- D. CHECK WIRE HARNESS AND CLUTCH ELECTRICAL CONNECTIONS.
- E. CHECK BELTS, ADJUST OR REPLACE AS REQUIRED.
- F. CHECK TRUCK BATTERY, CLUTCH WILL NOT CYCLE OR WILL SLIP IF BATTERY IS NOT FULLY CHARGED.
- G. CHECK FEEDER SHEAR KEY 58.
- H. TRANSMISSION NOT IN GEAR.
- I. FAULTY CLUTCH.



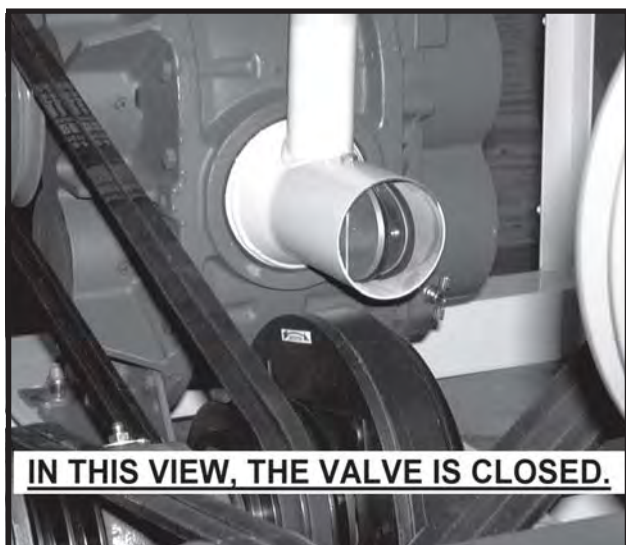
5. INSUFFICIENT AIR - CLUTCH IS OPERATING.

- A. CHECK THAT AIR BLEED CONTROL VALVE 15 IS NOT FULLY OPEN.
- B. CHECK THAT BLOWER RELIEF VALVE 43 IS NOT STUCK OPEN.
- C. CHECK IF BLOWER AIR INTAKE TRUCK FLANGE 37 IS CLOGGED.
- D. CHECK AIRSTREAM AND BLEED AIR HOSE CONNECTIONS.

- E. CHECK THAT ONE WAY AIR CHECK VALVE **59** IS NOT STUCK OPEN.
- F. CHECK BELTS, ADJUST OR REPLACE AS REQUIRED. CHECK FOR MISSING KEYS UNDER DRIVE PULLEYS.
- G. FIBER HOSE OR STANDPIPES PLUGGED.
- H. FEEDER SEALS WORN OR DAMAGED. FEEDER COMPONENTS WORN OUT OR DAMAGED.
- I. BLOWER DEFECTIVE, WORN, OR DAMAGED.



NOTE: THIS STYLE CHECK VALVE OBSOLETE.

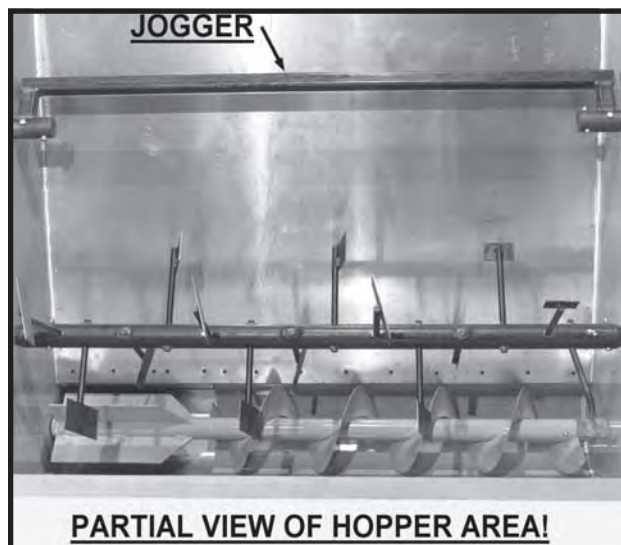


6. NO MATERIAL FLOW - CLUTCH IS OPERATING.

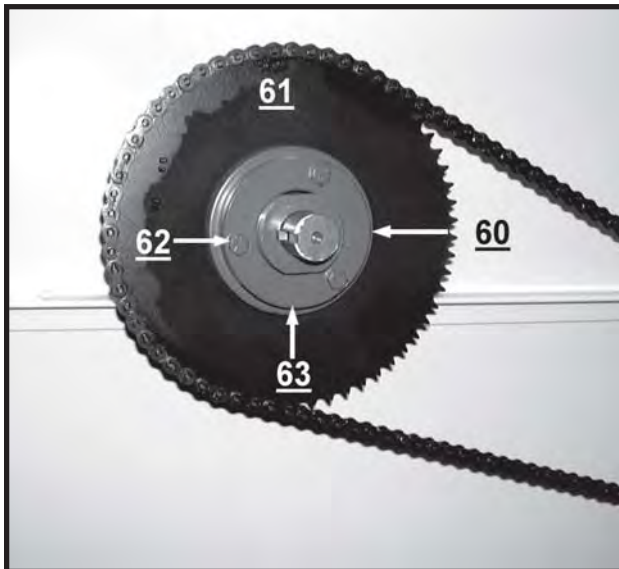
- A. NO MATERIAL IN HOPPER.
- B. CHECK FEEDER SHEAR KEY **58**, REPLACE AS REQUIRED. SHUT MACHINE DOWN COMPLETELY AND LOOK FOR JAMS IN MACHINE IF KEY CONTINUALLY SHEARS.
- C. MATERIAL CONDITIONING SLIDE **14** CLOSED OR ADJUSTED IN TO FAR FOR MATERIAL FEED RATE.
- D. CHECK BELTS, ADJUST OR REPLACE AS REQUIRED. CHECK FOR MISSING KEYS UNDER DRIVE PULLEYS.
- E. CHECK CHAINS, ADJUST OR REPLACE AS REQUIRED. CHECK FOR MISSING KEYS UNDER DRIVE SPROCKETS.
- E. OBJECT RESTRICTING FLOW IN SHREDDER HOUSING OR HOPPER AREA.
- F. FIBER HOSE OR STANDPIPES PLUGGED.

7. TORQUE LIMITER SLIPS OR WILL NOT FUNCTION.

- A. LOOK FOR MATERIAL WEDGE IN HOPPER UNDER FRONT JOGGER.

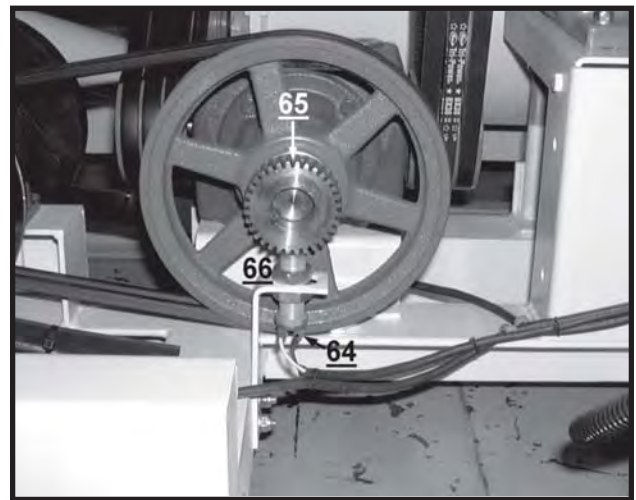


- B. EXAMINE METAL FACES OF TORQUE LIMITER **60** AND SPROCKET **61** FOR OIL OR GREASE. THE TORQUE LIMITER WILL SLIP IF MATING SURFACES ARE OILY.
- C. EXAMINE METAL FACES FOR ROUGH SPOTS OR RUST. TORQUE LIMITER FUNCTION TO SLIP UNDER EXCESSIVE LOADS WILL NOT OCCUR IF MATING SURFACES ARE NOT CLEAN. THE TORQUE SHOULD BE 145 FT/LBS.
- D. TO RESET THE TORQUE LIMITER, LOOSEN THE THREE CAP SCREWS **62** UNTIL THE POINTS ARE RECESSED IN ADJUSTING COLLAR **63**. TURN ADJUSTING COLLAR CLOCKWISE UNTIL HAND TIGHT AND THEN TURN AN ADDITIONAL 1/4 TURN. TIGHTEN CAP SCREWS UNTIL HEADS BOTTOM.



8. TACHOMETER - HOUR METER WILL NOT FUNCTION.

- A. CHECK ALL ELECTRICAL CONNECTIONS AND WIRING.
- B. CHECK TACH SENSOR **64**. THE SENSOR FACE MUST BE CLEAN AND FREE OF GREASE AND MATERIAL BUILD UP.
- C. FACE OF TACH SENSOR MUST BE SQUARE WITH SENDING GEAR **65**. THE SPACE BETWEEN THE SENSOR AND GEAR SHOULD BE .030 TO .040. ADJUSTMENTS MAY BE MADE BY MEANS OF TWO LOCK NUTS **66**.



9. VACUUM SEEMS WEAK.

- A. TRUCK NOT UP TO SPEED.
- B. CHECK TO SEE IF VACUUM CLUTCH IS OPERATING.
- C. CLUTCH NOT OPERATIONAL - CHECK WIRE HARNESS AND CLUTCH ELECTRICAL CONNECTIONS.
- D. CHECK TRUCK BATTERY, CLUTCH WILL NOT CYCLE OR WILL SLIP IF BATTERY IS NOT FULLY CHARGED.

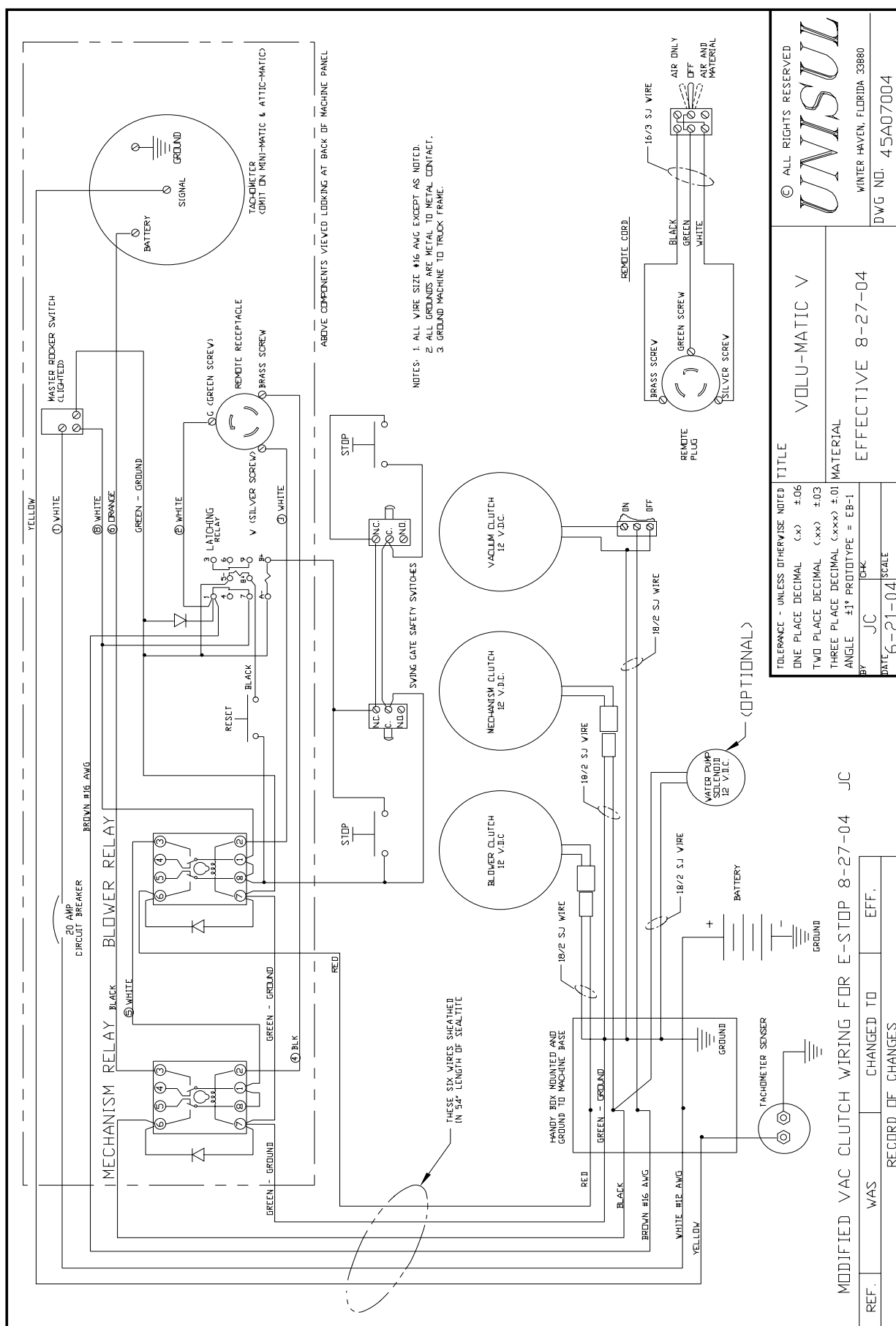
- E. CHECK BELTS, ADJUST OR REPLACE AS REQUIRED. CHECK FOR MISSING KEYS UNDER DRIVE PULLEYS.
- F. HOPPER OR DECELERATION BOX 25 FULL PREVENTING FLOW OF EXHAUST AIR.
- G. VACUUM HOUSING 31 OR EXIT TRANSITION 9 CLOGGED.
- H. VACUUM HOSE HAS A KINK OR IS PARTIALLY CLOSED.
- I. TOO MUCH VACUUM HOSE.
- J. MAIN DRIVE BELTS FROM UNDER TRUCK SLIPPING SLOWING DOWN THE REAR GEARBOX, ADJUST OR REPLACE AS REQUIRED. CHECK FOR MISSING KEYS UNDER DRIVE PULLEYS.

10. GENERATOR

- A. LOW VOLTAGE - TRUCK NOT UP TO SPEED.
- B. DRIVE BELTS TO GENERATOR 18 SLIPPING, ADJUST OR REPLACE AS REQUIRED. CHECK FOR MISSING KEYS UNDER DRIVE PULLEYS.
- C. MAIN DRIVE BELTS FROM UNDER TRUCK SLIPPING SLOWING DOWN THE REAR GEARBOX, ADJUST OR REPLACE AS REQUIRED. CHECK FOR MISSING KEYS UNDER DRIVE PULLEYS.
- D. REFER TO MANUFACTURER'S LITERATURE FOR ANY OTHER TROUBLESHOOTING REQUIREMENTS THAT MAY DEVELOP.

11. WATER PUMP

- A. DRIVE BELTS TO WATER PUMP 16 SLIPPING, ADJUST OR REPLACE AS REQUIRED. CHECK FOR MISSING KEYS UNDER DRIVE PULLEYS.
- B. REFER TO MANUFACTURER'S LITERATURE FOR ANY OTHER TROUBLESHOOTING REQUIREMENTS THAT MAY DEVELOP.

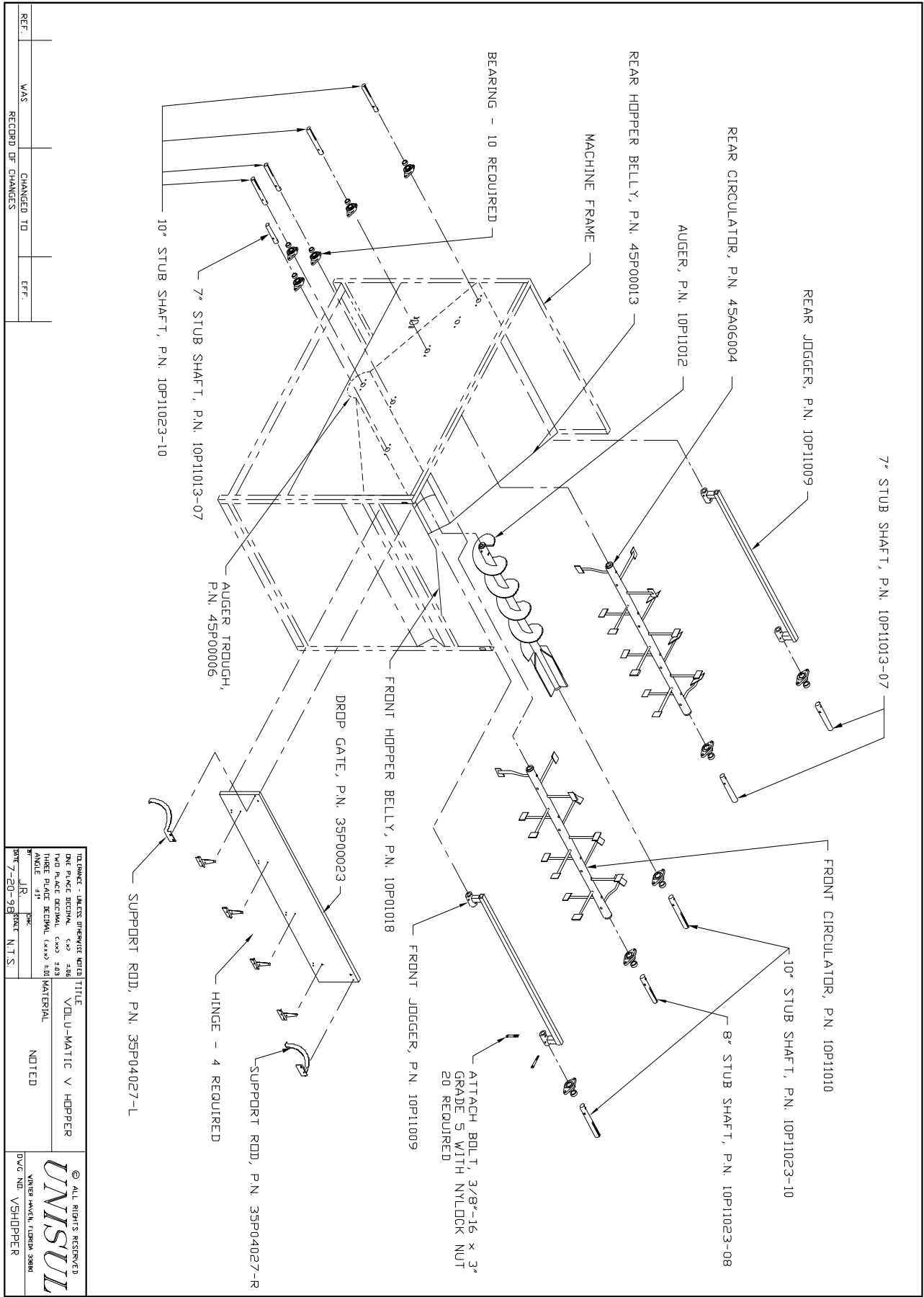


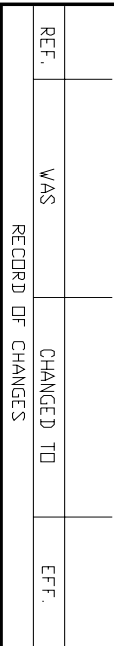
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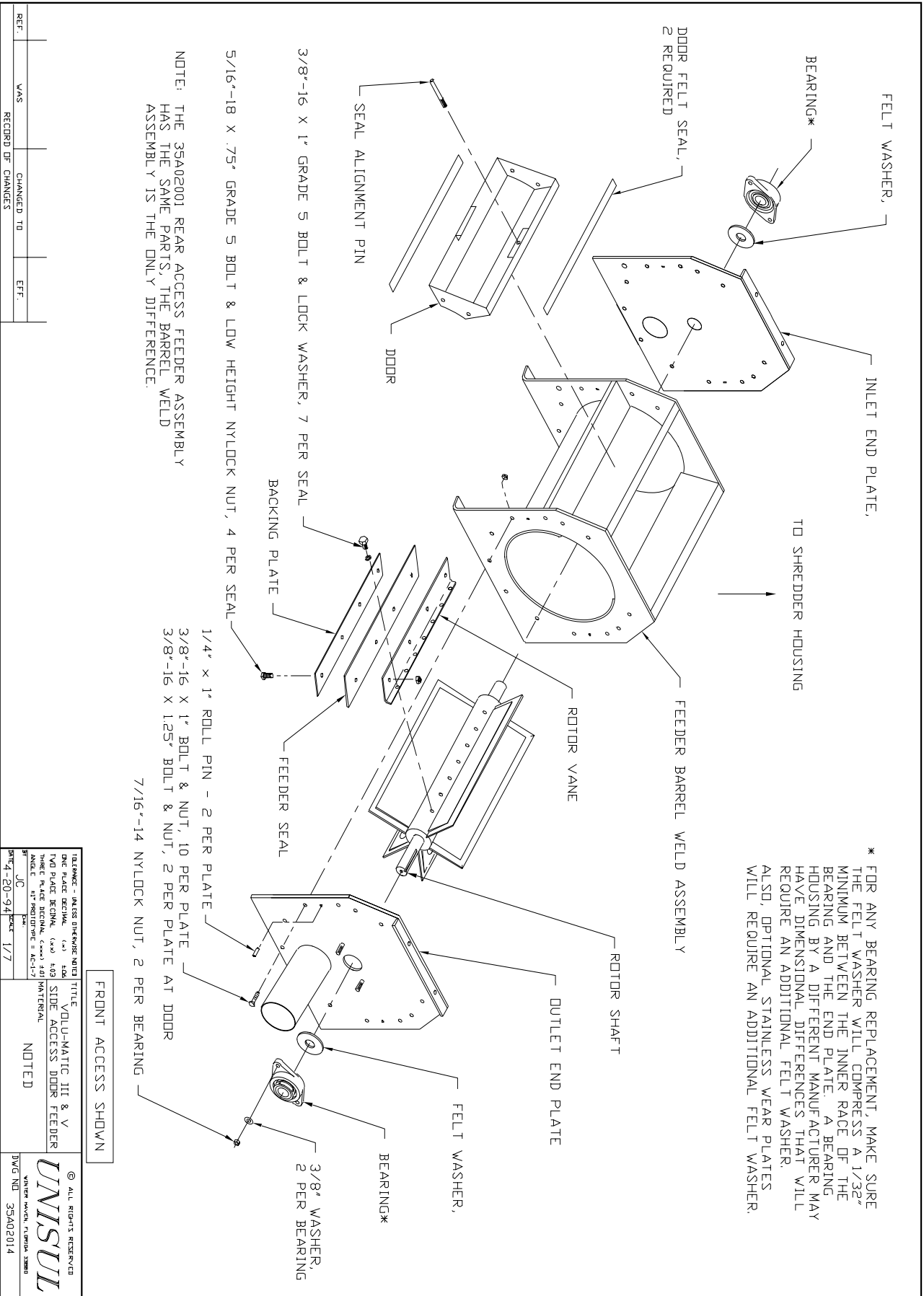
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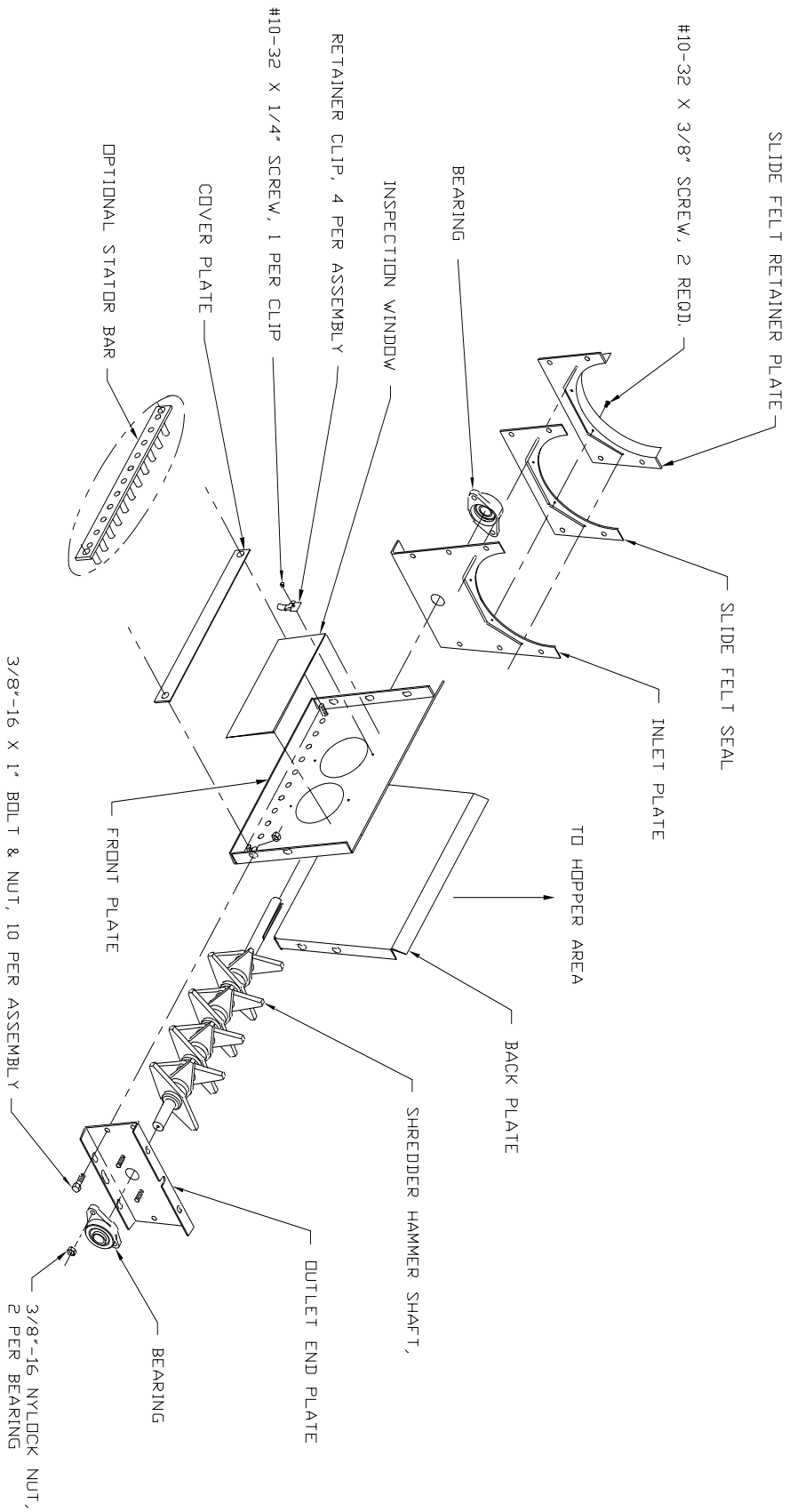
WINTER HAVEN, FLORIDA 33980

DWG NO. VM3-DROP GATE
EB-4.5



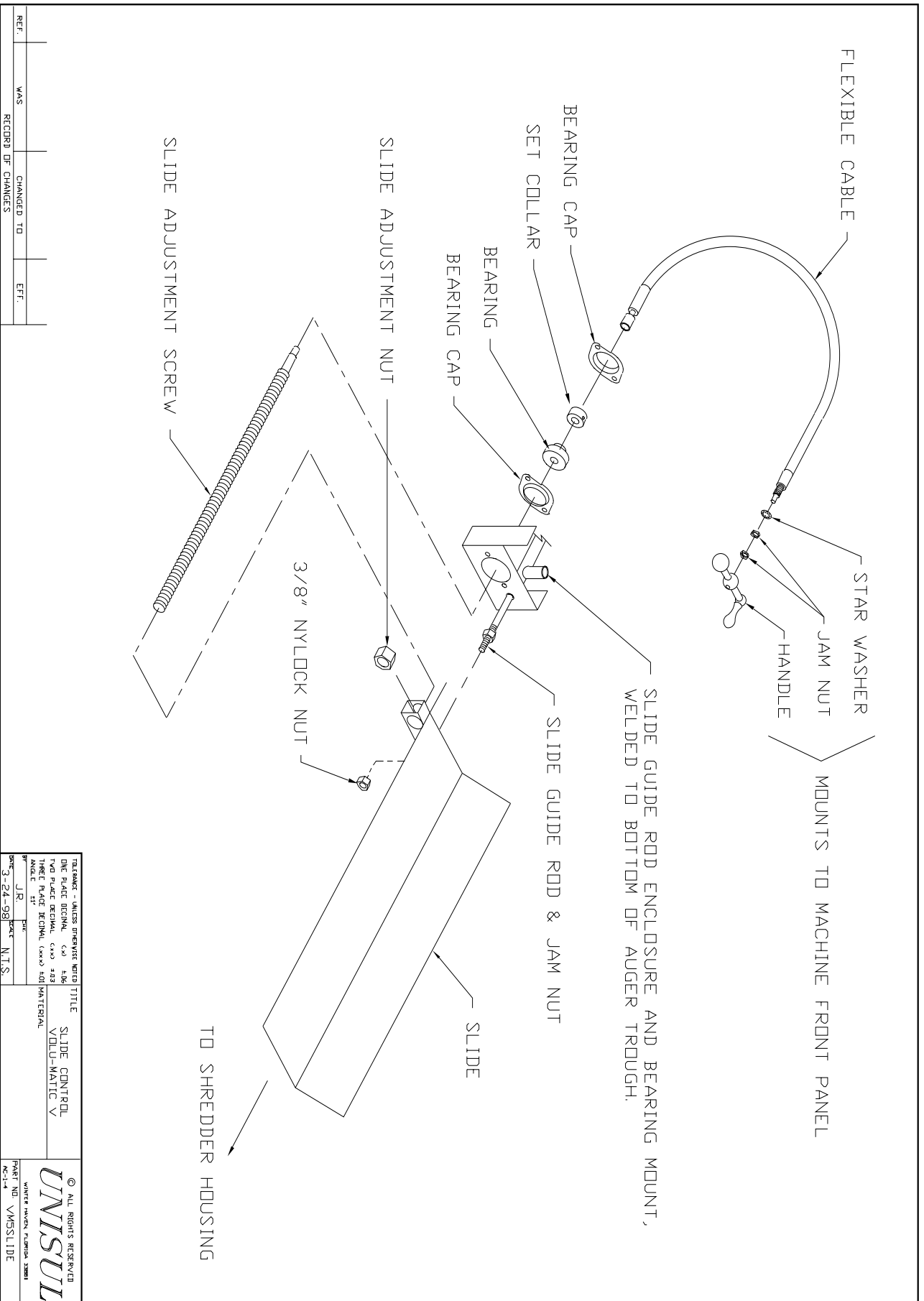
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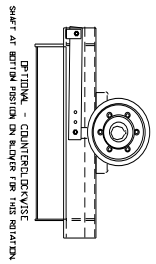
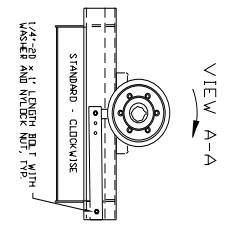
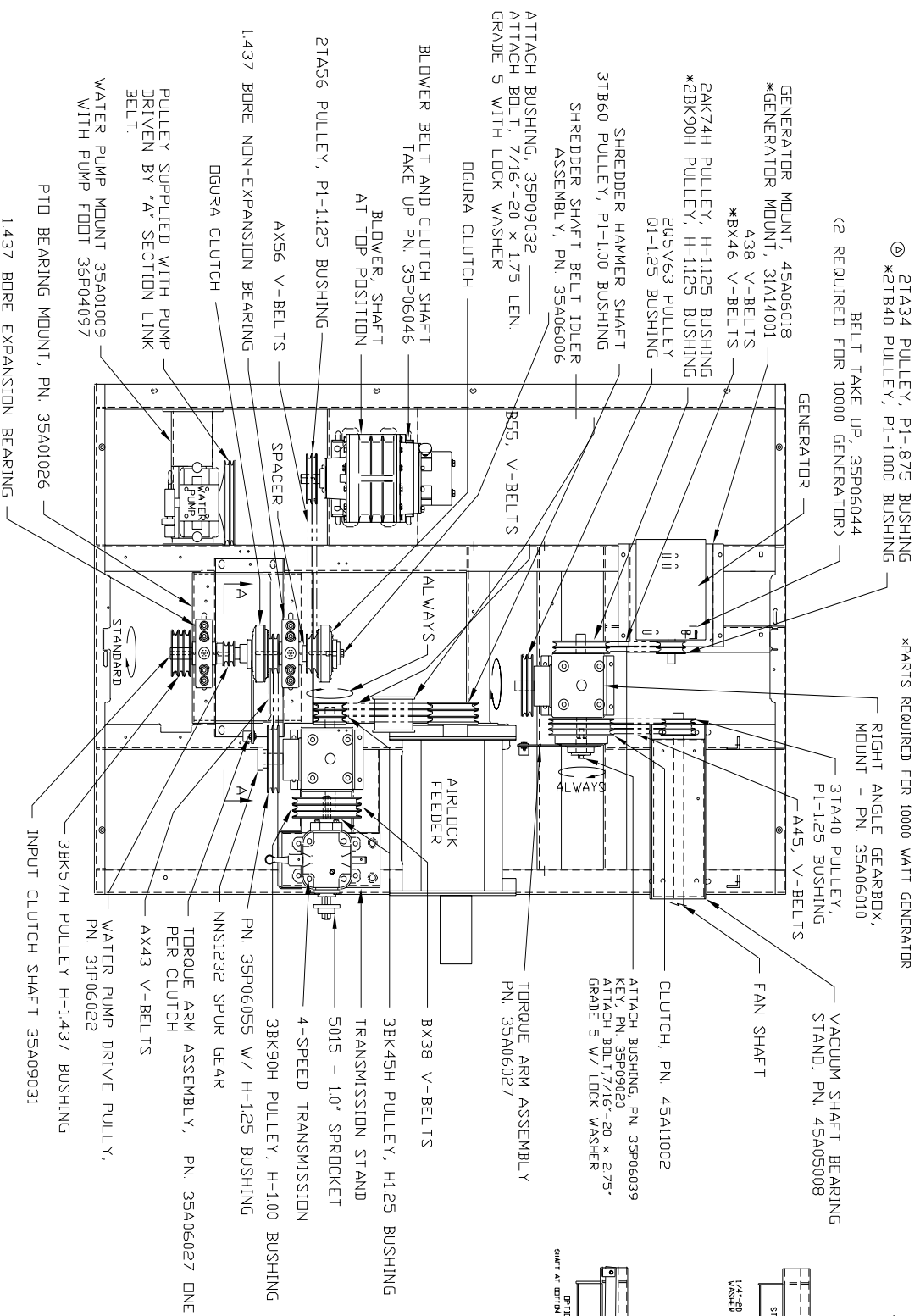




REF.	WAS	CHANGED TO	EFF.
	RECORD OF CHANGES		

<small> TOLERANCE - UNLESS OTHERWISE NOTED ONE PLACE DECIMAL (.X) ±.06 TWO PLACE DECIMAL (.XX) ±.03 THREE PLACE DECIMAL (.XXX) ±.01 ANGLE - 1/4° PROTOTYPE = AC-1-7 </small>		<small> TITLE VOI-U-MATIC III & V SHREDDER HOUSING ASSY. MATERIAL NOTED </small>	
BY JC	CHK. 1/7	<small> © ALL RIGHTS RESERVED UNISUL WINTER HAVEN, FLORIDA 33980 DWG NO. 35A03001 </small>	

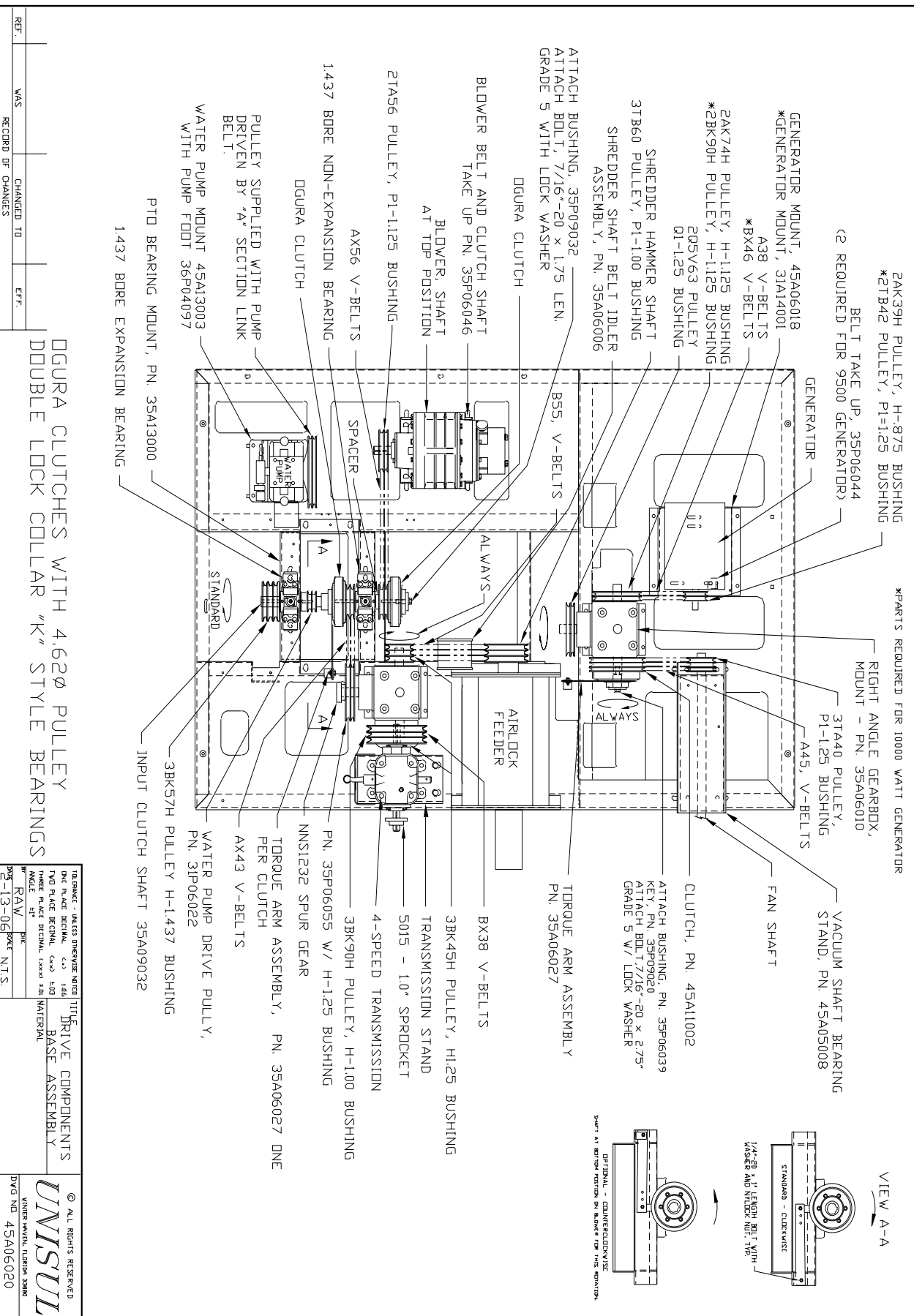


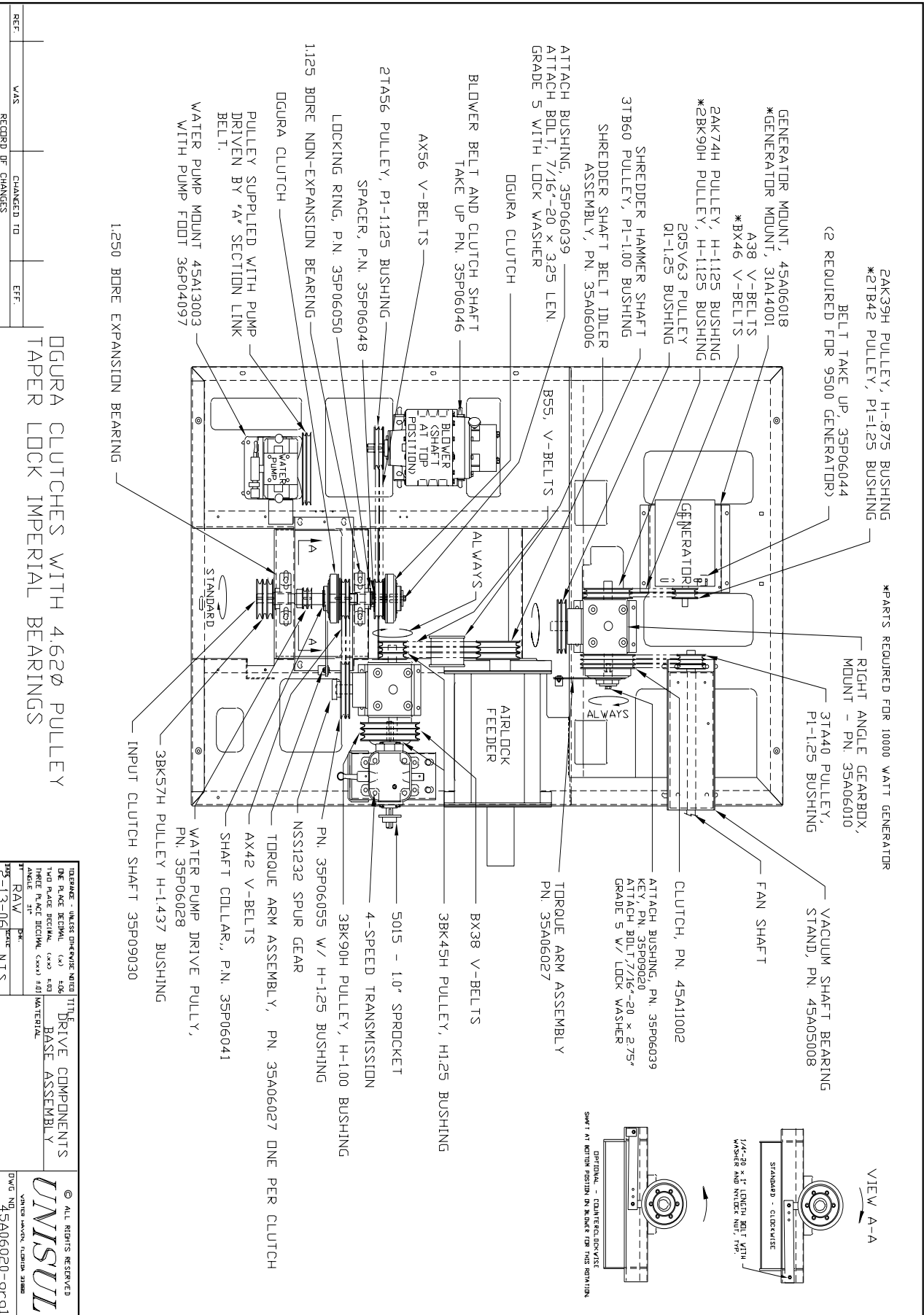


DGURA CLUTCHES WITH 4.62Ø PULLEY DOUBLE LOCK COLLAR PB970 STYLE BEARINGS

REF.	WAS	CHANGED TO	EFF.
②	2AK39H, 2TB42	2TA34, 2TB40	7-26-07
	RECORD OF CHANGES		

TO ORDER - THESE COMPONENTS FIT THE		© ALL RIGHTS RESERVED UNISUL WATER PUMP CLUTCH 32880
ONE PLATE DECIMAL (.001) ±.01		
THREE PLATE DECIMAL (.003) ±.01		
MATERIAL		
DRIVE COMPONENTS		
BASE ASSEMBLY		
SCALE	NTS.	
DWG NO.	45A06020	



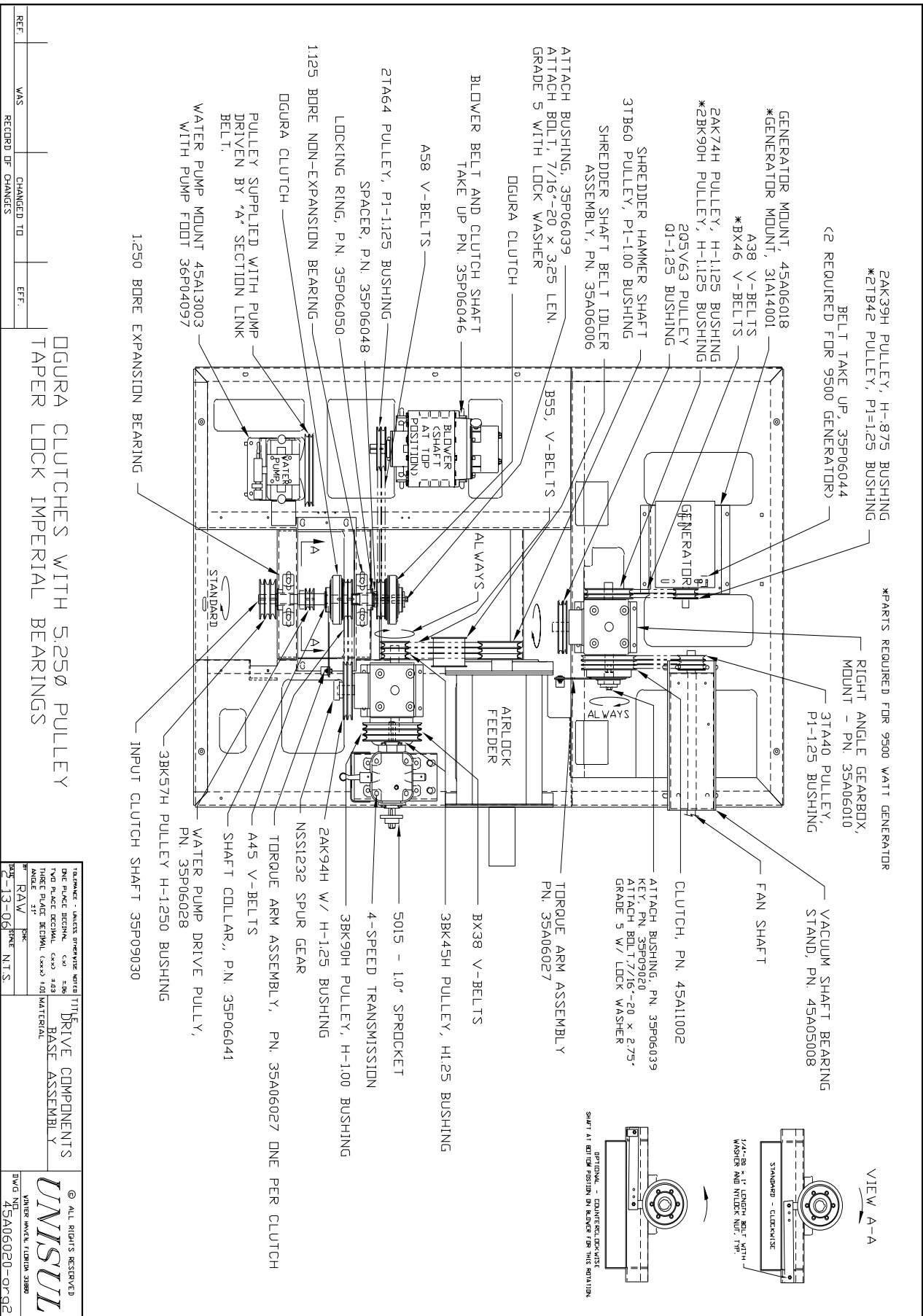


REF.	VAS	CHANGED TO	EFF.

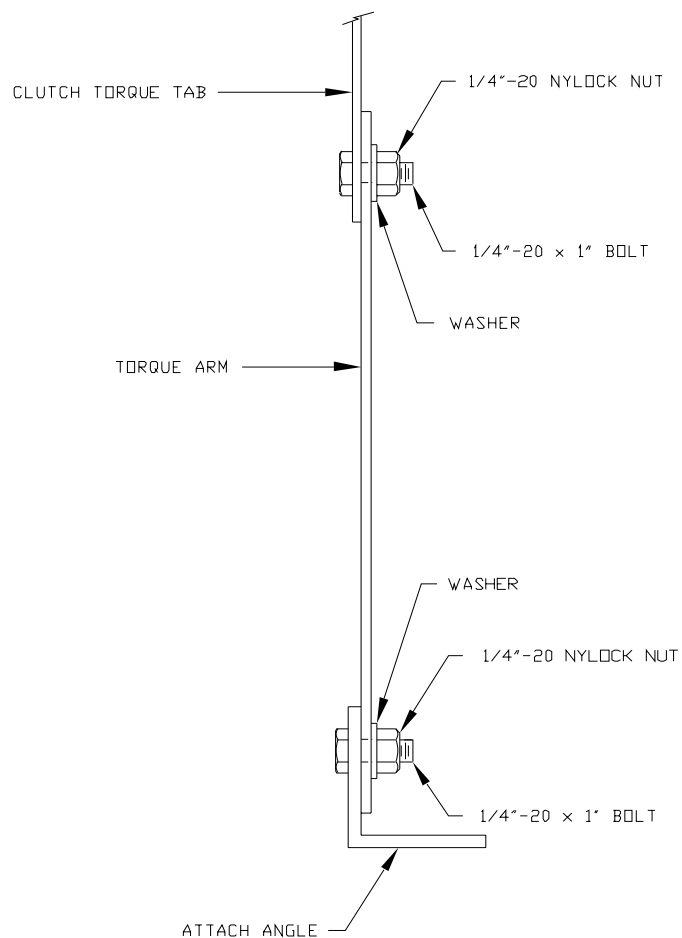
DGURA CLUTCHES WITH 4.620 PULLEY
 TAPER LOCK IMPERIAL BEARINGS

TOLERANCE - UNLESS OTHERWISE NOTED		TITLE	
ONE PLACE DECIMAL	(.1)	4.06	DRIVE COMPONENTS
TWO PLACE DECIMAL	(.01)	4.03	BASE ASSEMBLY
THREE PLACE DECIMAL	(.001)	4.01	MATERIAL
ANGLE	1st		
RAW	PER		
12-13-06	DATE	N.T.S.	

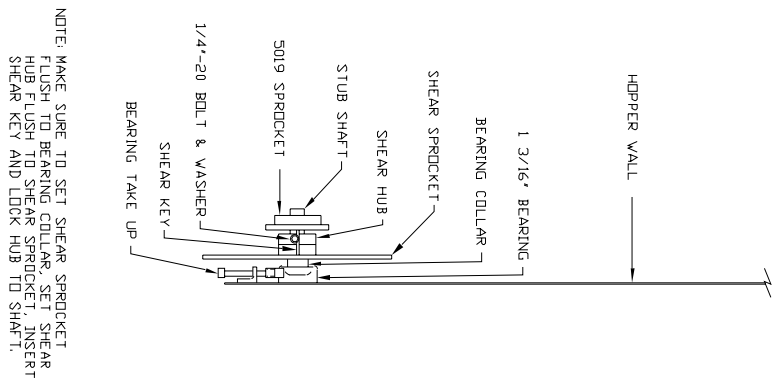
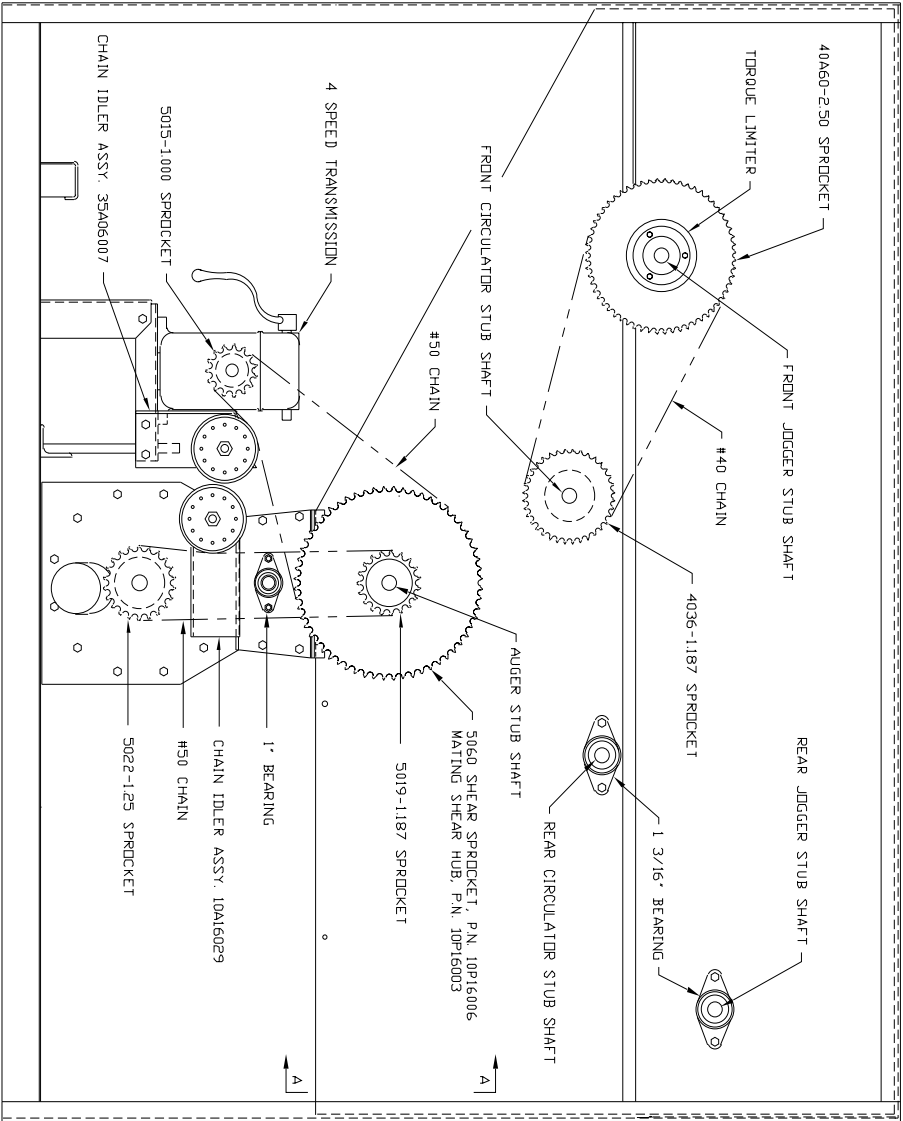
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UNISUL
 45A06020-0r01



RECORD OF CHANGES			
REF.	WAS	CHANGED TO	EFF.

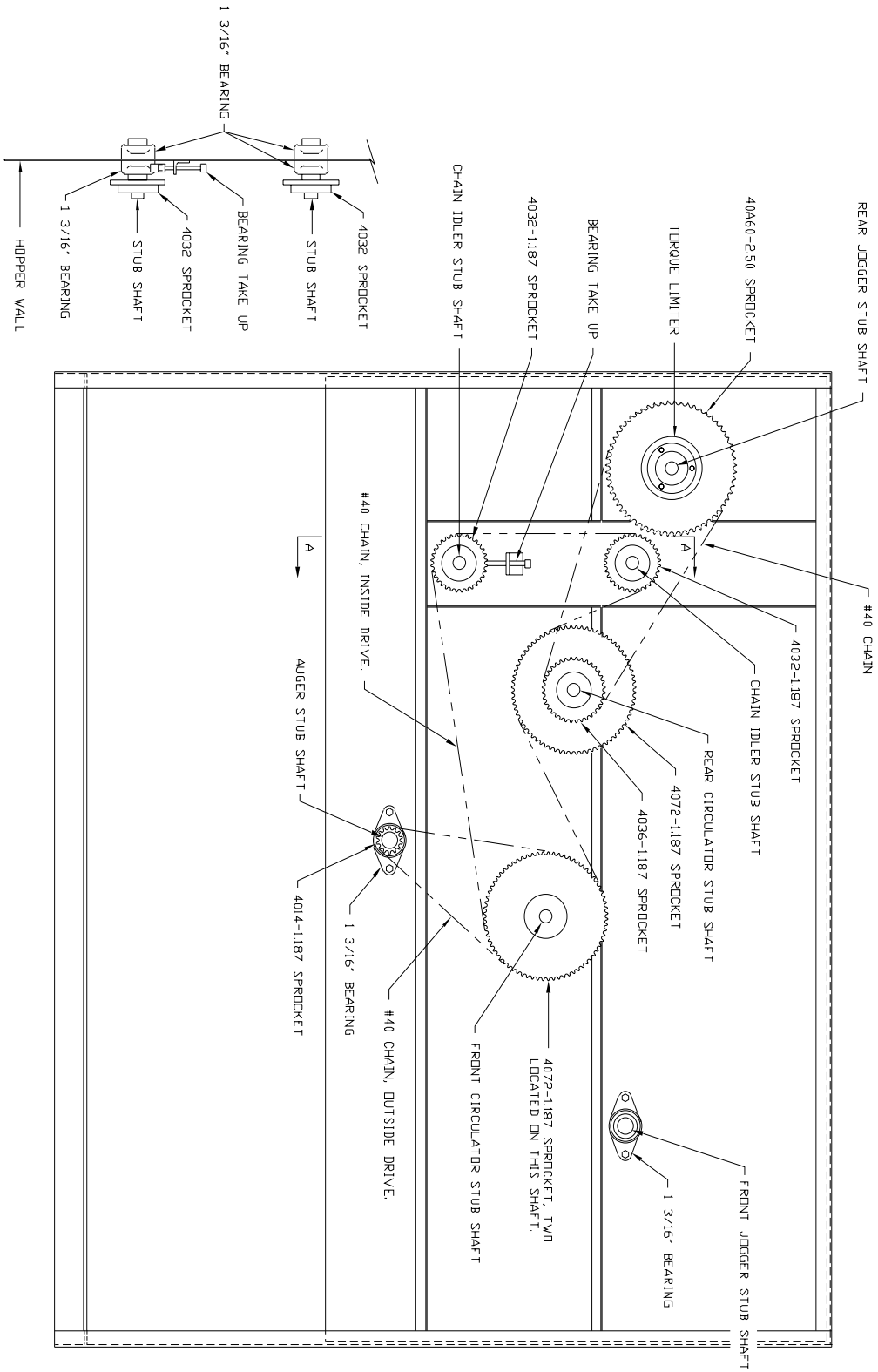


TOLERANCE - UNLESS OTHERWISE NOTED ONE PLACE DECIMAL (.x) ±.06 TWO PLACE DECIMAL (.xx) ±.03 THREE PLACE DECIMAL (.xxx) ±.01 ANGLE ±1°		TITLE	© ALL RIGHTS RESERVED <i>UNISUL</i> WINTER HAVEN, FLORIDA 33880
		RUBBER TORQUE ARM ASSEMBLY	
BY	CHK.	MATERIAL	DWG. NO. 35A06027 EA-1/2
DATE	SCALE		
1-21-00	N.T.S.	NOTED	



NOTE: MAKE SURE TO SET SHEAR SPROCKET
FLUSH TO BEARING COLLAR, SET SHEAR
HUB FLUSH TO SHEAR SPROCKET, INSERT
SHEAR KEY AND LOCK HUB TO SHAFT.

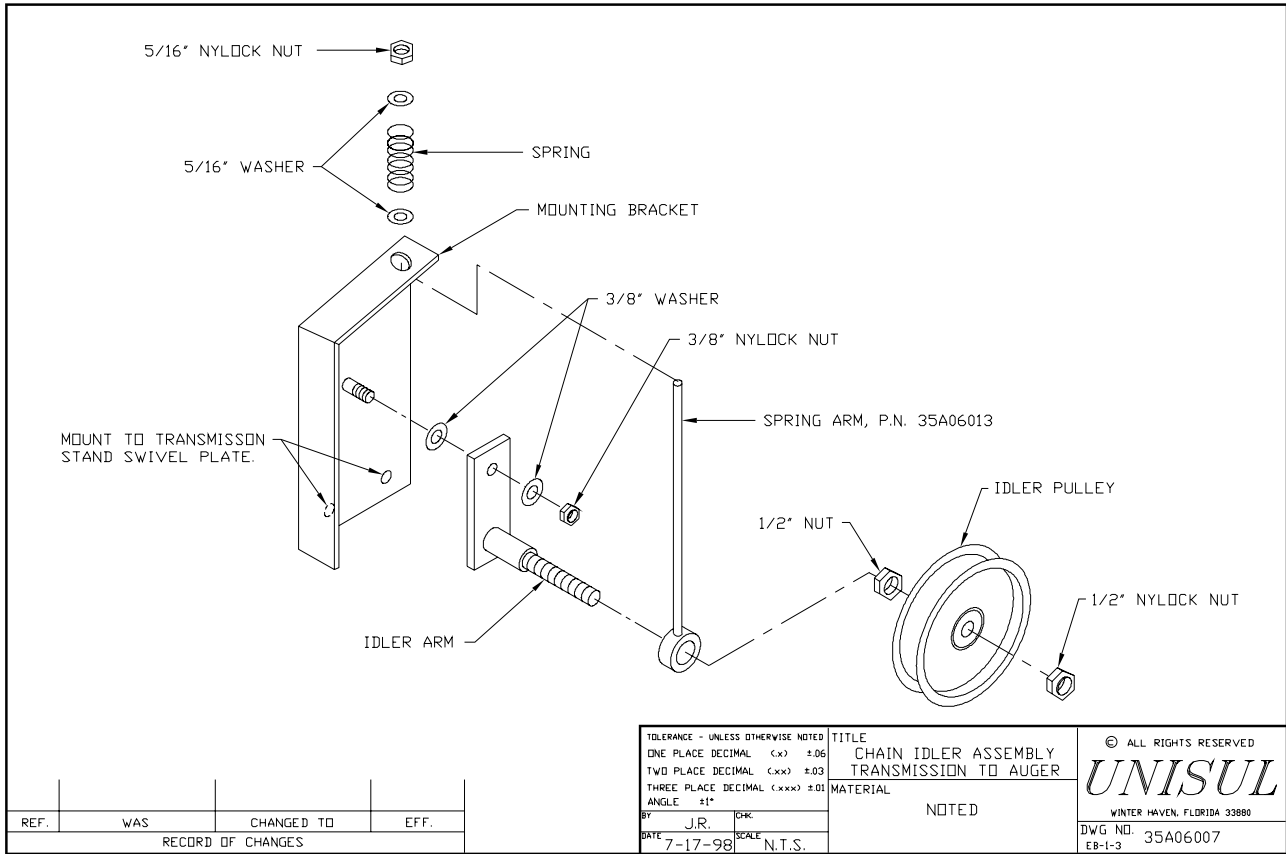
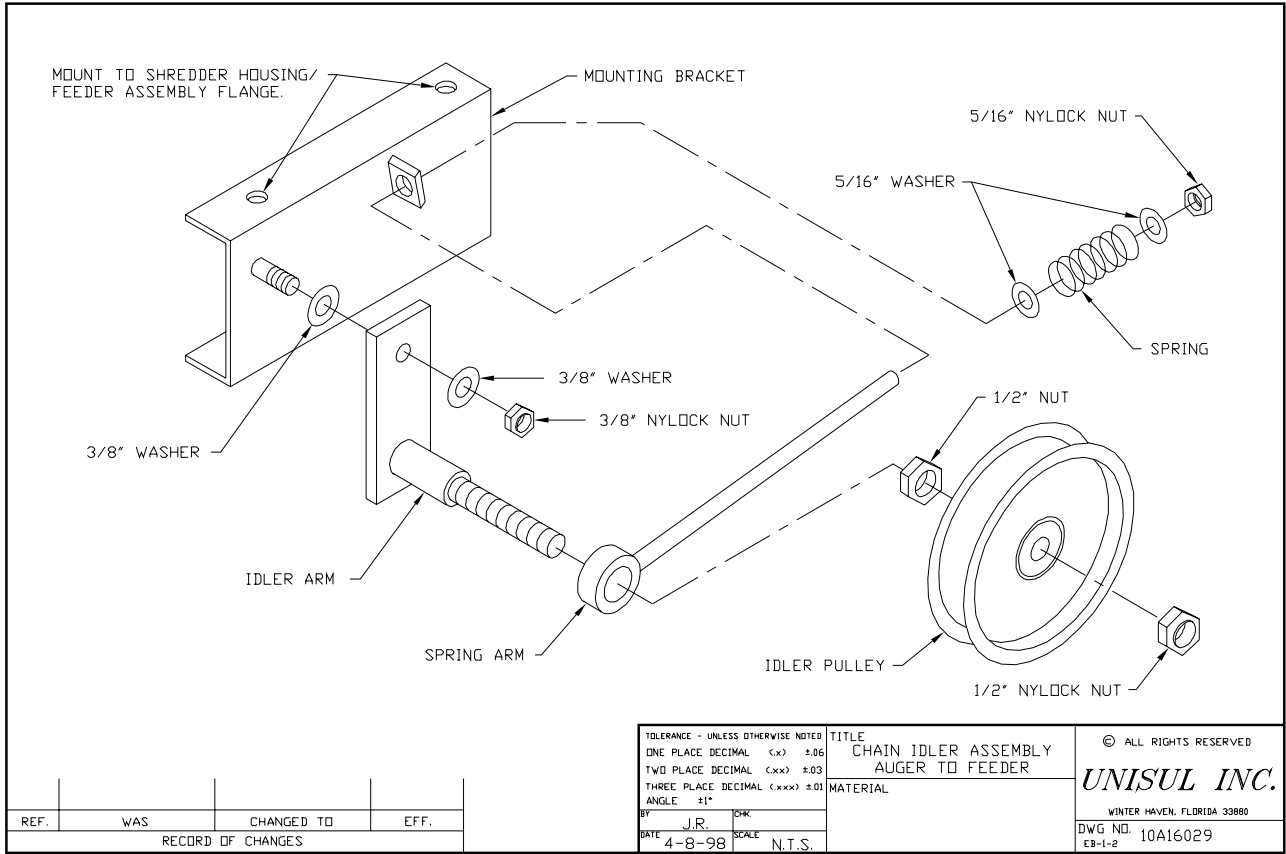
				TOLERANCE - UNLESS OTHERWISE NOTED ONE PLACE DECIMAL (.x) .006 TWO PLACE DECIMAL (.xx) .003 THREE PLACE DECIMAL (.xxx) .001 ANGLE .1°				TITLE V.M. 5 CHAIN DRIVE RIGHT SIDE MATERIAL NOTED				
REF.	WAS	CHANGED TO	EFF.	REV.	J.R.	PK.	N.T.S.	DWG NO.	© ALL RIGHTS RESERVED UNISUL UNITED STATES FLORIDA 32080 45CHAINR			
					7-15-98							
RECORD OF CHANGES												

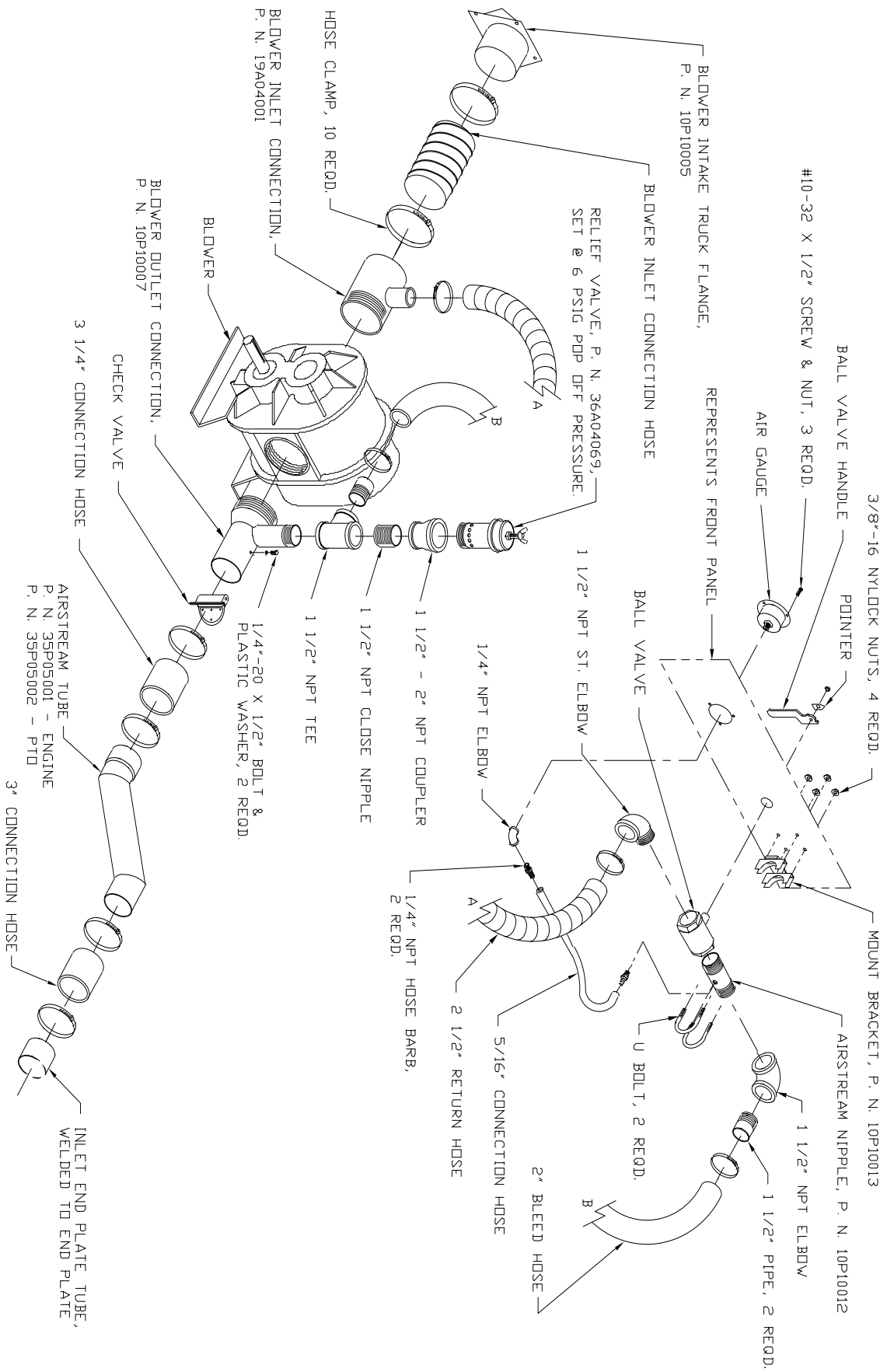


SECTION A - REAR CIRCULATOR & REAR JIGGER ROTATION REVERSING ASSEMBLY.

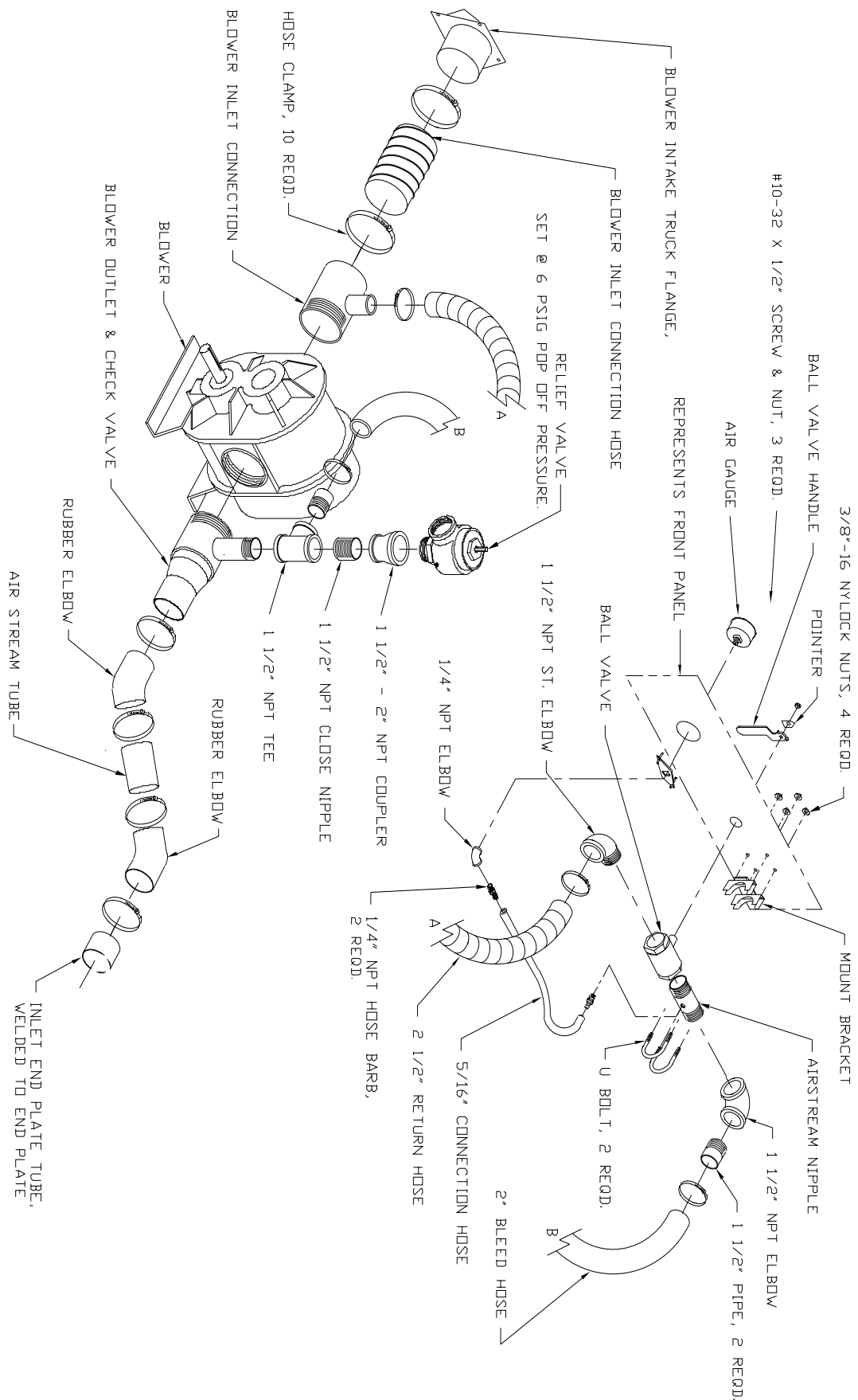
RET.	WAS	CHANGED TO	EFF.
	RECORDED UP	CHANGES	

TOLERANCE - UNLESS OTHERWISE NOTED		TITLE		© ALL RIGHTS RESERVED	
DIM PLACE DECIMAL (.XX) F.30		V/M	5 CHAIN DRIVE	UNISUL	
HOLE PLACE DECIMAL (.XXX) F.33		LEFT SIDE			
FR. PLACE DECIMAL (.XXX) F.40		MATERIAL	NOTED	WHITE HAVEN FLORIDA 32880	
PR. JR. DIM				DWG NO. 45CHAIN/L	
PR. 7-16-98		NOTES			



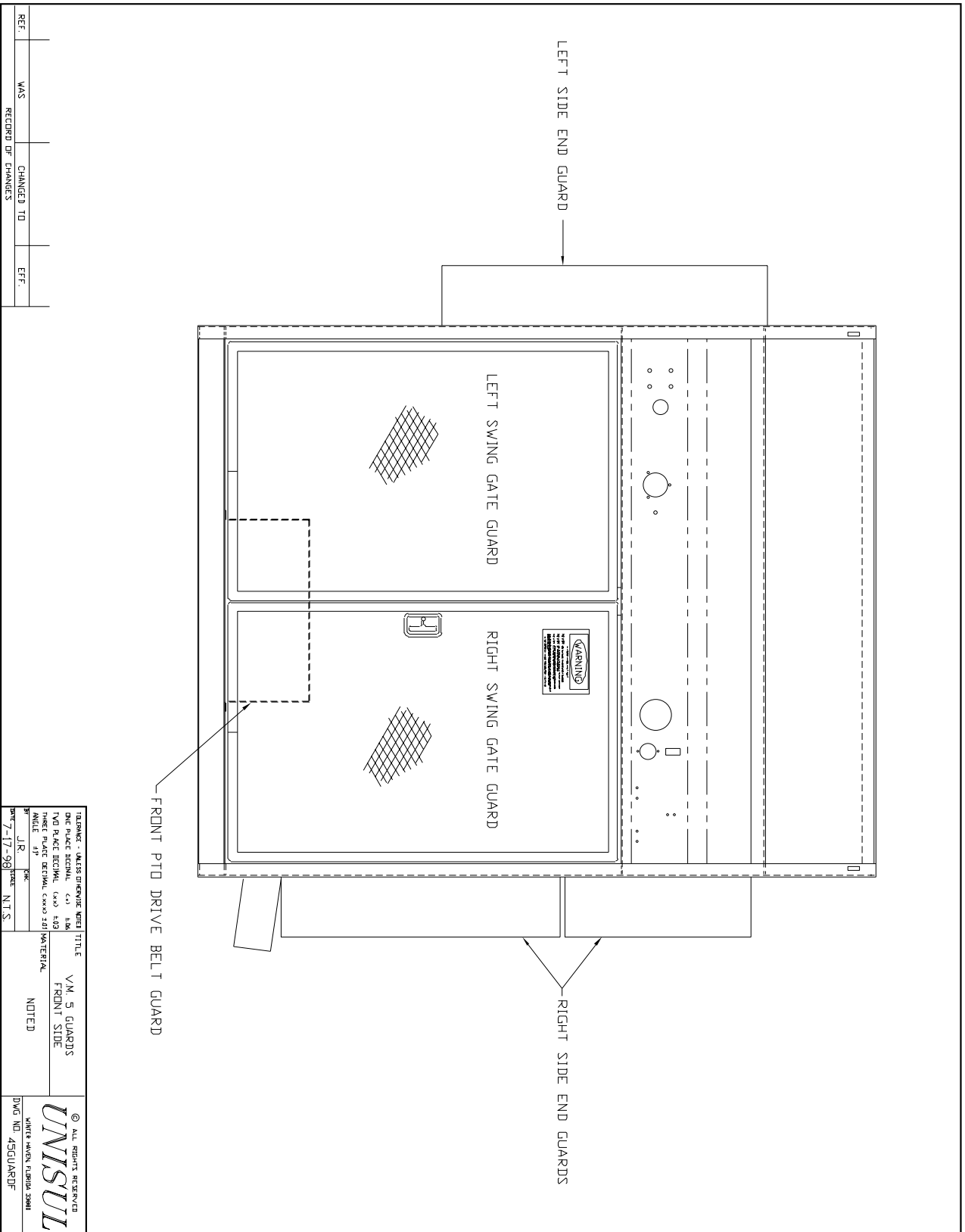


				TITLE		© ALL RIGHTS RESERVED	
				TOLERANCE - JACKET DIMENSIONS NOTED		UNISUL	
				ONE PLATE DECIMAL C-0 E-06		VOLU-MATIC V AIRSTREAM	
				TWO PLATE DECIMAL C-00 E-03			
				THREE PLATE DECIMAL C-000 E-01			
				MATERIAL			
				BY J.R. DATE 7-27-98			
				REVISED			
				N.T.S.			
				UNISUL			
				VINCE JAMES, 123456 7890			
				DWG NO. VMSAIR			



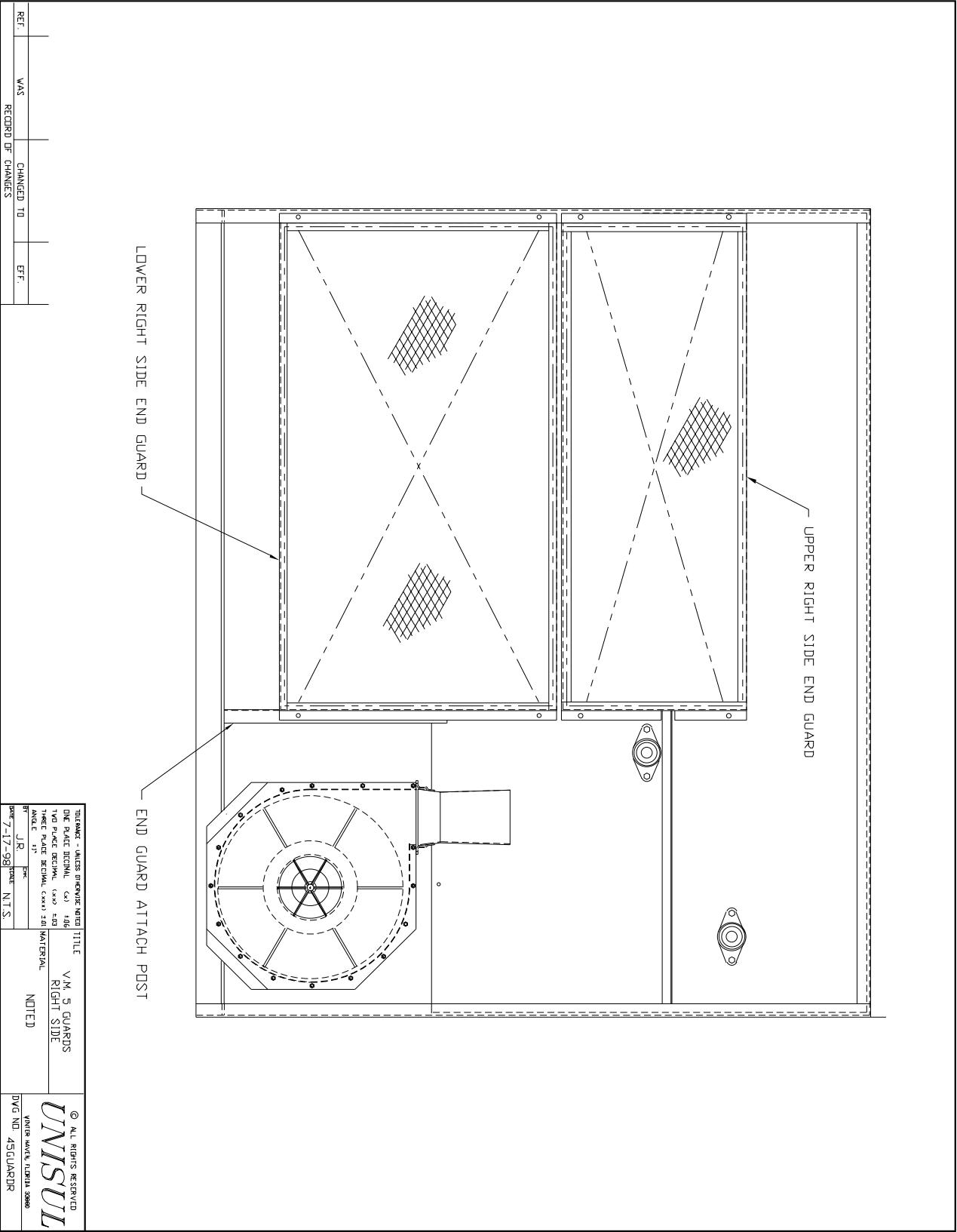
REF.	DESCRIPTION	CHANGED TO	EFF.
1	WAS		
2	RECORD OF CHANGES		

TOLERANCE - UNLESS OTHERWISE NOTED		TITLE	
ONE PLACE DECIMAL (.X) ±.05		VDU-MATIC V AIRSTREAM	
TWO PLACE DECIMAL (.XX) ±.01			
THREE PLACE DECIMAL (.XXX) ±.001			
ANGLE 31°			
DATE	J.R.	PK	
DATE	9-24-03	DATE	N.T.S.
© ALL RIGHTS RESERVED		UNISUL	
DVG NO		VMSAIR02	
42-1-7		VMSAIR02	



REF.	WAS	CHANGED TO	EFF.

TOLERANCE - UNLESS OTHERWISE SPECIFIED	TITLE	V.M. 5 GUARDS	© ALL RIGHTS RESERVED
DWG PLACE DECIMAL (x.x) F.00	FRONT SIDE		
THICK PLACE DECIMAL (x.x.x) F.00			
ANGLE 3/4"	NOTED		
BY J.R. PKC			
DATE 7-17-98	NTS		
DWG NO. 45GUARDF			



REF:	VAS	CHANGED TO	EFF:
RECORD OF CHANGES			

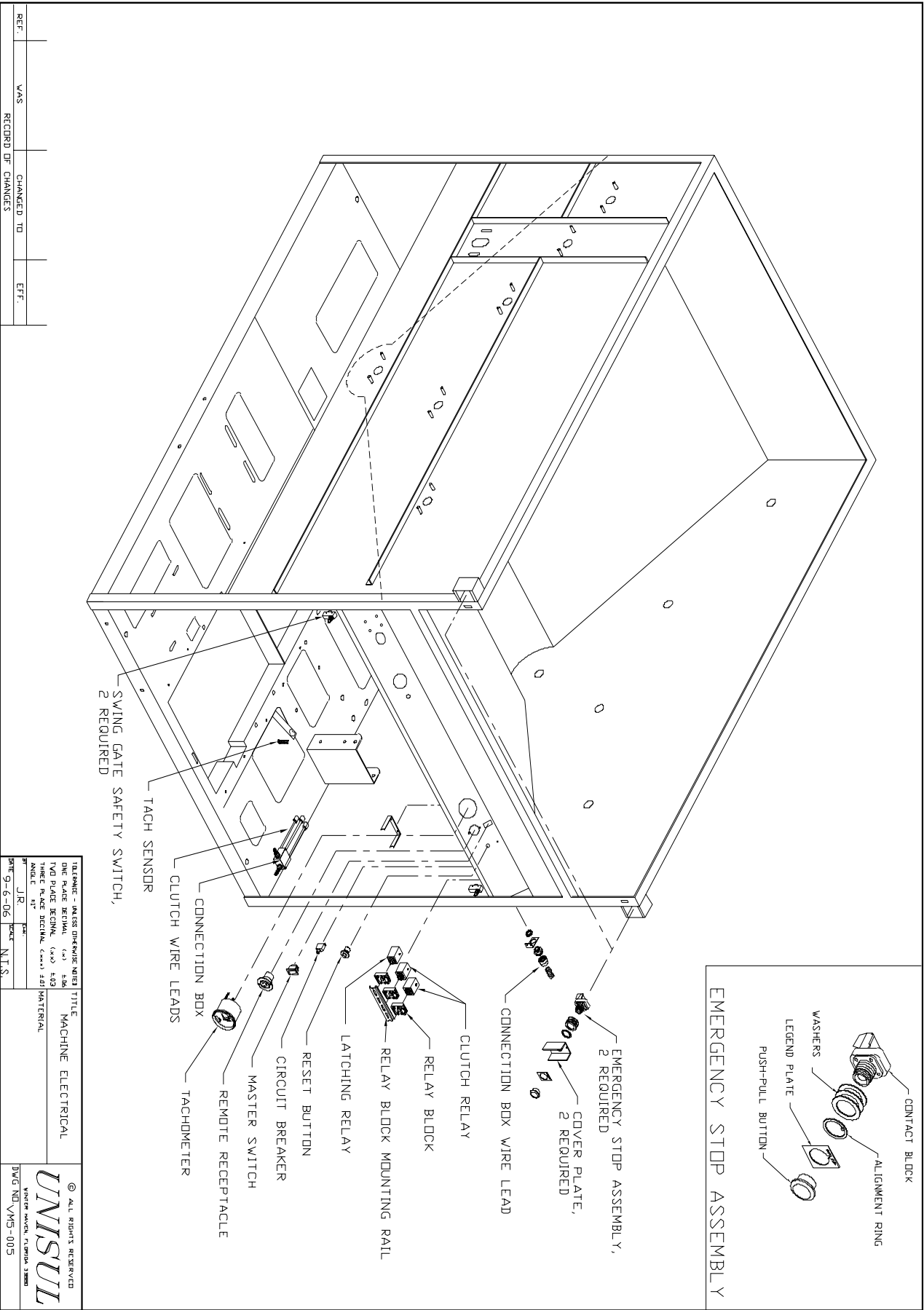
UPPER LEFT SIDE GUARD

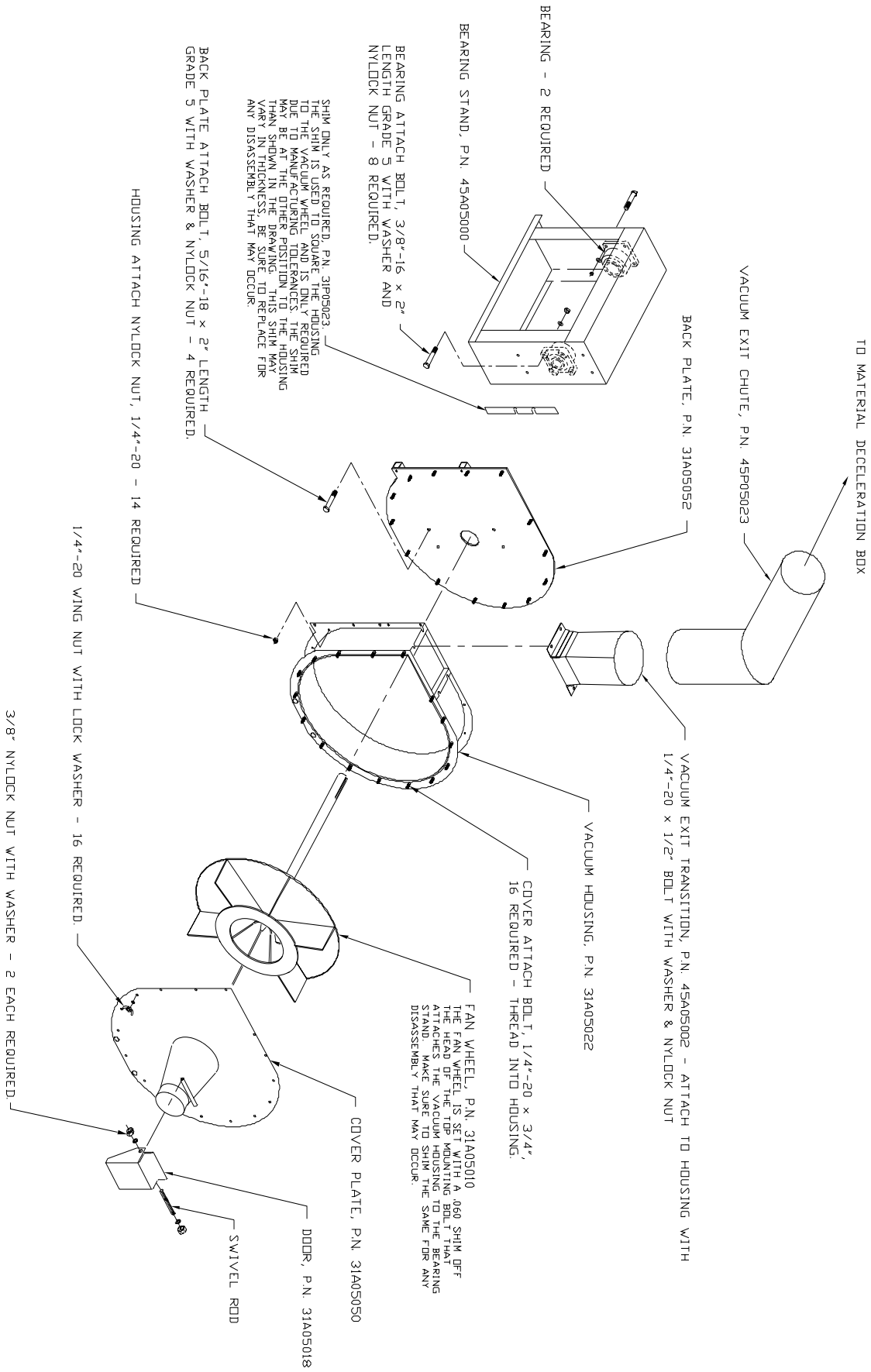
LOWER LEFT SIDE FRONT END GUARD

LOWER LEFT SIDE REAR END GUARD

DESIGNER - JAMES D. HENNING	TITLE
DWG. NO. 1/6	V.M. S. GUARDS
DATE 7-17-98	LEFT SIDE
BY JR	NOTED
CHKD 1/6	

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UNISUL
UNISUL INC., FLORIDA 32608
DWG. NO. 45GUARDL

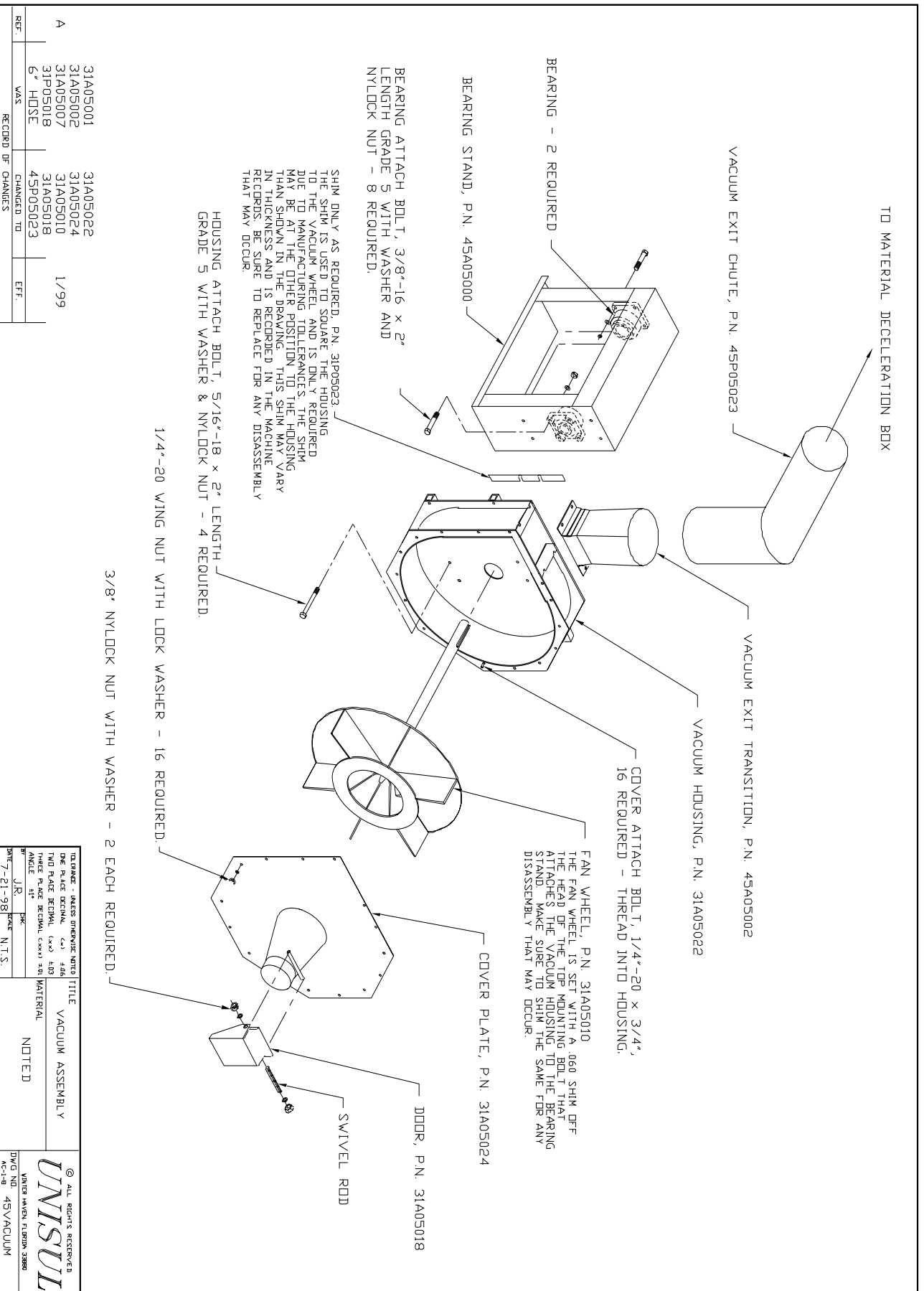


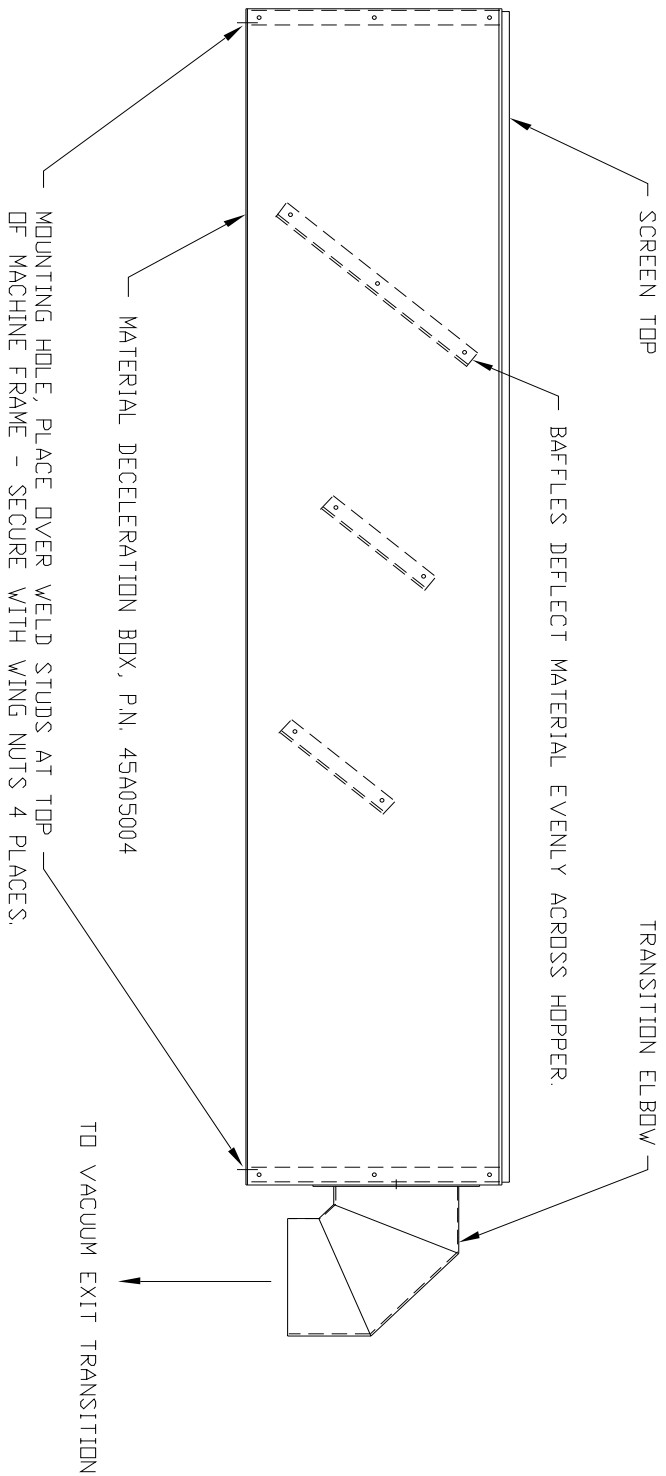


REF.	WAS	CHANGED TO	EFF.

DRAWING - (WAS) DIMENSIONS USED		TITLE	
ONE PLACE DECIMAL (x2)	5.00	VACUUM ASSEMBLY	
TWO PLACE DECIMAL (x40)	5.00		
THREE PLACE DECIMAL (x100)	5.00	MATERIAL	
FOUR PLACE DECIMAL (x200)	5.00		
DATE	JR	SCALE	N.T.S.
2-7-08			

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UNIVERSITY OF FLORIDA 2008
DWG NO. V5VACUUM REV. A





REF.	WAS	CHANGED TO	EFF.	
RECORD OF CHANGES				

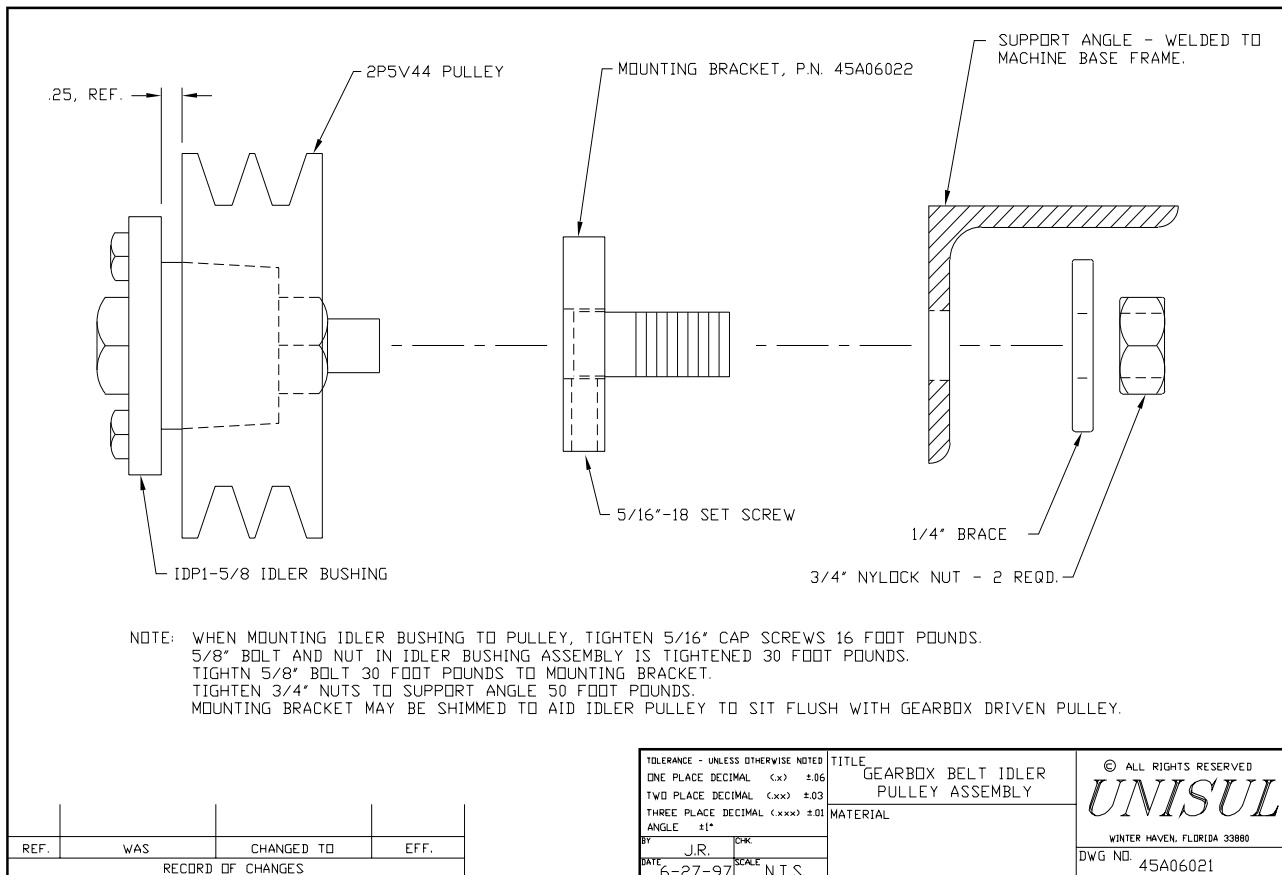
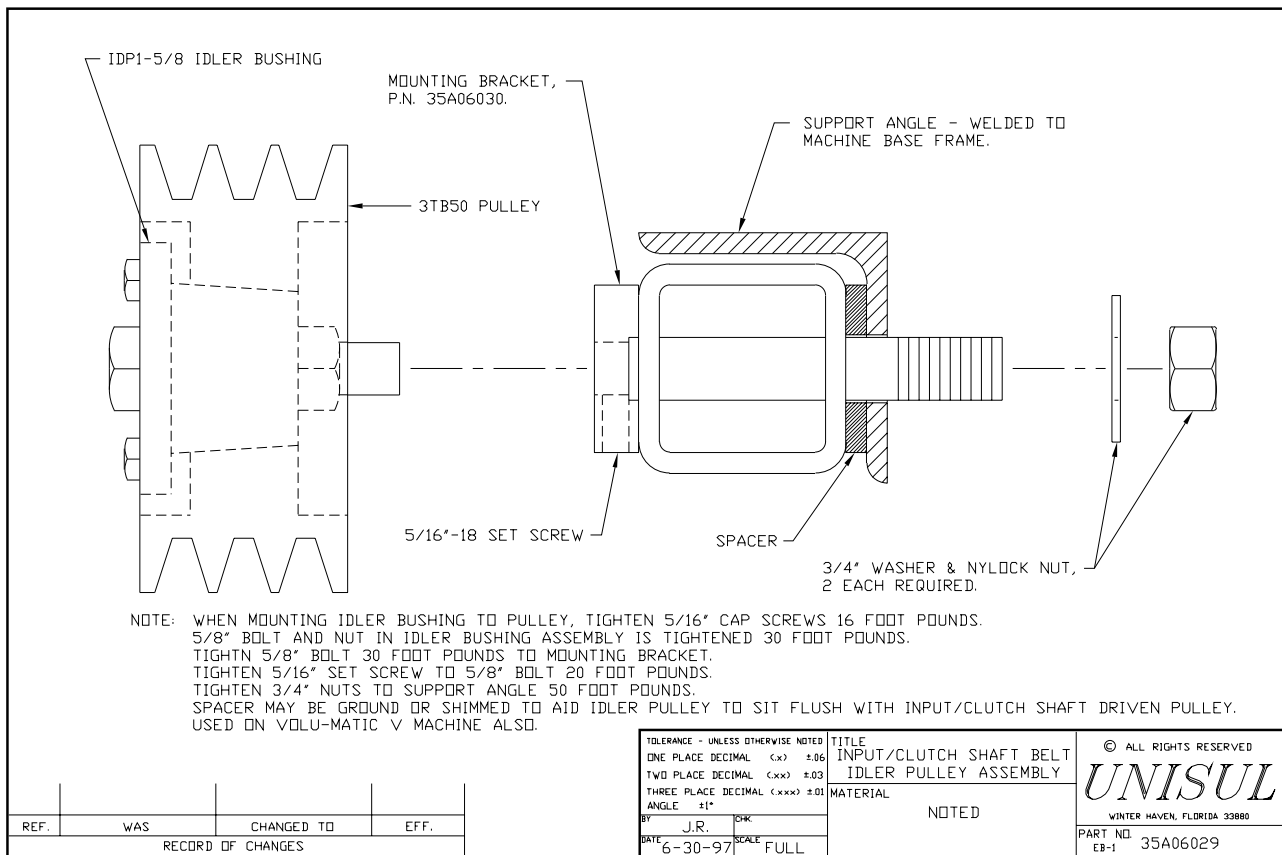
TOLERANCE - UNLESS OTHERWISE NOTED		TITLE	
ONE PLACE DECIMAL (x)	±.06	MATERIAL DECELERATION BOX	
TWO PLACE DECIMAL (xx)	±.03	NOTED	
THREE PLACE DECIMAL (xxx)	±.01		
BY	CHK.		
J.R.			
DATE	SCALE		
7-21-98	N.T.S.		

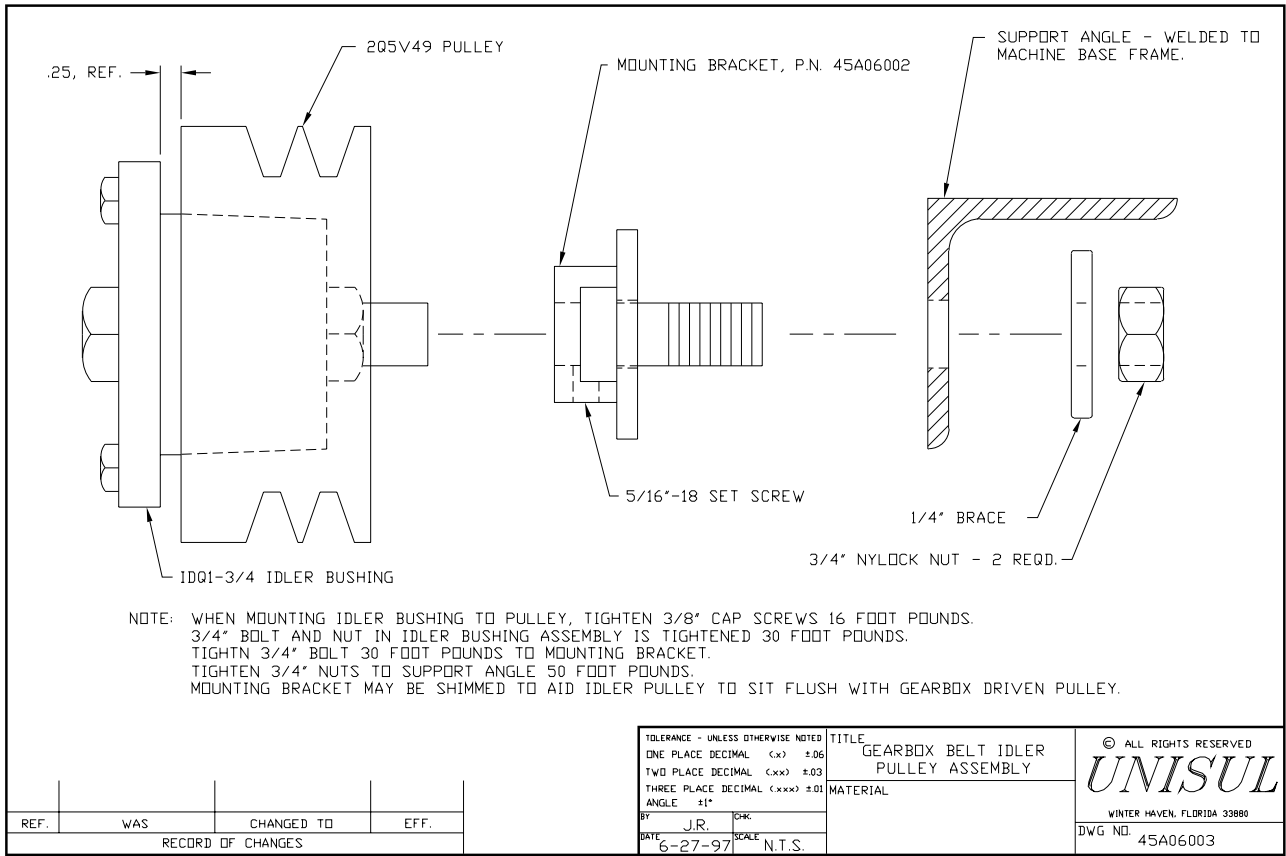
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UNISUL

WINTER HAVEN, FLORIDA 33990

DWG NO. DECEL BOX





[illegible]

PERFORMED BY

PREVENTIVE MAINTENANCE RECORD

DATE _____

JOB DESCRIPTION

PERFORMED BY

This image shows a full page of blank white paper with horizontal ruling lines. The lines are evenly spaced and run across the width of the page, providing a template for writing or drawing. There are no margins, text, or other markings on the page.

**THE INFORMATION FOLLOWING THIS PAGE SHOULD BE REFERRED TO FOR ANY
OPTIONAL EQUIPMENT INSTALLED ON THE VOLU-MATIC™ V MACHINE.
MANUFACTURER'S LITERATURE FOR COMPONENTS INSTALLED ON THE MACHINE
ARE ALSO INCLUDED.**

OPTIONAL EQUIPMENT THAT MAY BE INSTALLED BUT NOT LIMITED TO:

BLOWER INTAKE SILENCER

TOP OR REAR GUARD

RADIO REMOTE CONTROL

MANUFACTURER'S LITERATURE INCLUDED IN MANUAL:

BLOWER

WATER PUMP

GENERATOR

SPHERICAL ROLLER PILLOW BLOCK BEARING (PTO DRIVE SHAFT & MACHINE INPUT/CLUTCH SHAFT)

TAPERED ROLLER BEARING (VACUUM FAN SHAFT)

UNISUL BLOWING EQUIPMENT LIMITED TWO-YEAR WARRANTY

Unisul (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 such as engine, blower, gearbox, transmission, ect., 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. 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.
4. 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, batteries, etc.

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 be suffering from 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.

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.



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PHONE: 863-294-3206
WEBSITE: www.unisul.com

WINTER HAVEN,
SALES: 800-237-7841

FLORIDA 33880-1325
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E-MAIL: unisul@unisul.com

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