

OPERATION AND MAINTENANCE MANUAL
FOR
UNISUL'S HYDRAULIC C-500 SERIES POLY-SPRAY™
MACHINE

NOTE...

PLEASE READ THIS INSTRUCTION MANUAL THOROUGHLY. HAVE IT AT HAND WHEN YOU FIRST START THE MACHINE AND KEEP IT HANDY FOR FUTURE REFERENCE. 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.

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
HYDRAULIC C-500 SERIES POLY-SPRAY™ MACHINE INTO SERVICE!**

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CHECK THE ACCESSORY KIT INCLUDED WITH <u>NEW</u> DELIVERED MACHINES THAT THE FOLLOWING ITEMS WERE RECEIVED FOR OPERATION.	
QUANTITY	ITEM DESCRIPTION
1	50 FOOT REMOTE CORD
1	SET OF FUSES
1	3.5 INCH O.D. TO 3.0 INCH O.D. REDUCER COUPLER
1	3.0 INCH O.D. TO 2.5 INCH O.D. REDUCER COUPLER
1	3.5 INCH I.D. x 4 INCH LENGTH RUBBER HOSE
1	3.0 INCH I.D. x 4 INCH LENGTH RUBBER HOSE
2	3.5 INCH HOSE CLAMP
2	3.0 INCH HOSE CLAMP
1	3.0 INCH HOSE SLEEVE
1	2.5 INCH HOSE SLEEVE
1	#40 CHAIN CONNECTOR LINK and HALF LINK
4 ea.	1/4" x 1" KEY
1	1/8" AND 5/32" ALLEN WRENCH

I. SPECIFICATIONS

MODELS:

C-540A: 10 H.P. DRIVE MOTOR, 1 PHASE, 230 VOLT, 50 AMP SERVICE*.
VOLTAGE BUCK-BOOST SYSTEM, + or - 16% ADJUSTMENT.
ROOTS-CONNERSVILLE RAI-47 BLOWER, 6 PSI MAXIMUM AIR PRESSURE.
500' VERTICAL LIFT.

C-550A: VARIABLE FEED REMOTE CONTROL.
10 H.P. DRIVE MOTOR, 1 PHASE, 230 VOLT, 50 AMP SERVICE*.
VOLTAGE BUCK-BOOST SYSTEM, + or - 16% ADJUSTMENT.
ROOTS-CONNERSVILLE RAI-47 BLOWER, 6 PSI MAXIMUM AIR PRESSURE.
500' VERTICAL LIFT.

C-570A: 15 H.P. DRIVE MOTOR, 3 PHASE, 230/460 VOLT, 50/25 AMP SERVICE*.
ROOTS-CONNERSVILLE RAI-56 BLOWER, 8 PSI MAXIMUM AIR PRESSURE.
850' VERTICAL LIFT.

C-590A: VARIABLE FEED REMOTE CONTROL.
15 H.P. DRIVE MOTOR, 3 PHASE, 230/460 VOLT, 50/25 AMP SERVICE*.
ROOTS-CONNERSVILLE RAI-56 BLOWER, 8 PSI MAXIMUM AIR PRESSURE.
850' VERTICAL LIFT.

* STANDARD MACHINE WIRING, OTHER VOLTAGE REQUIREMENTS ARE AVAILABLE, 50 HERTZ MOTORS AVAILABLE FOR EXPORT MACHINES.

ALL MACHINES: SINGLE TEFC ELECTRIC DRIVE MOTOR, CLOSED LOOP HYDRAULIC SYSTEM WITH VARIABLE DISPLACEMENT PUMP, POSITIVE DISPLACEMENT BLOWER - 170 CFM @ 2 PSI, VARIABLE SPEED FEED RATE, VARIABLE SPEED MATERIAL CONDITIONING, AIR BLEED SYSTEM, 24 VOLT REMOTE CONTROL.

VERTICAL LIFT:

VERTICAL LIFT IS A FUNCTION OF BLOWER HORSEPOWER REQUIREMENT AT A SPECIFIC AIR PRESSURE. THE ABOVE LIFT CAPABILITY IS BASED ON HEAVY DENSITY FIREPROOFING AT 66% OF MAXIMUM FEED RATE. LIGHTER DENSITY MATERIALS WILL EXCEED THIS FIGURE.

HOSE:

3" I.D. MINIMUM WITH A MAXIMUM OF 25' OF 2½" I.D. HOSE AT THE NOZZLE.

WARNING: RECOMMENDED HOSE SIZE MUST BE USED ALONG WITH UNISUL'S APPROVED NOZZLE TO ACHIEVE MAXIMUM RESULTS. UNISUL CANNOT GUARANTEE PERFORMANCE OF THE POLY-SPRAY MACHINE IF HOSES ARE UNDERSIZED OR WORN OR DAMAGED, OR HOSES AND NOZZLES OTHER THAN THOSE WE RECOMMEND ARE USED.

O.A. HEIGHT: 67.0 INCHES (170 CM)

FEED HEIGHT: 52.0 INCHES (132 CM)

WIDTH: 33.0 INCHES (84 CM)

LENGTH: 59.0 INCHES (150 CM)

WEIGHT: 1600 POUNDS (726 KG)

(CONTINUED)

MAXIMUM FEED RATES:

C-540A and C-550A MODELS:

30 LBS. MIN. HEAVY DENSITY FIREPROOFING

14 LBS. MIN. LIGHT DENSITY FIREPROOFING

9 LBS. MIN. CELLULOSE

C-570A and C-590A MODELS:

40 LBS. MIN. HEAVY DENSITY FIREPROOFING

19 LBS. MIN. LIGHT DENSITY FIREPROOFING

12 LBS. MIN. CELLULOSE

RATES ARE BASED ON MAXIMUM MACHINE SPEED SETTING WITH MINIMUM 3" I.D. X 150' HOSE WITH A 2½" I.D. X 25' WHIP HOSE AND UNI-FAN NOZZLE.

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

MODEL NO.

MACHINE SERIAL NO.

BEFORE YOU RUN THIS MACHINE...

PLEASE STUDY THE REST OF THIS MANUAL.

II. INTRODUCTION

THIS MACHINE INCORPORATES ALL OF THE STANDARD FEATURES OF THE FIELD PROVEN C-500 SERIES POLY-SPRAY FIBER SPRAYING MACHINE. THE AIRLOCK FEEDER, INFLECTOR, HOPPER, AND HOPPER COMPONENTS ARE IDENTICAL.



NEW HYDRAULIC TECHNOLOGY PERMITS A REPACKAGED COMPACT DESIGN WITH A SINGLE DRIVE MOTOR AND A CLOSED LOOP HYDRAULIC SYSTEM. ALL MACHINE MECHANISM DRIVES; AIRLOCK FEEDER, AUGER, AND CIRCULATORS ARE DRIVEN BY THE CLOSED LOOP HYDRAULIC SYSTEM. THE BASIC COMPONENTS OF THE HYDRAULIC SYSTEM ARE; A VARIABLE DISPLACEMENT PUMP, A FIXED DISPLACEMENT TORQUE MOTOR, TWO CONNECTING LINES, SYSTEM BLOCK, AND RESERVOIR.

A SPEED CONTROL LINKAGE LEVER IS CONNECTED TO THE SHAFT AT THE SIDE OF THE PUMP. MOVEMENT OF THE LEVER PRODUCES OIL FLOW FROM THE PUMP TO THE TORQUE MOTOR THAT

ROTATES ALL MACHINE MECHANISMS. AS THE LEVER IS ADVANCED, MORE OIL FLOWS TO THE TORQUE MOTOR CREATING VARIABLE MECHANISM SPEED. THE LEVER ON THE MACHINE IS MECHANICALLY LIMITED TO PROVIDE OUTPUT IN ONE DIRECTION ONLY, THIS LIMITATION IS NECESSARY SO THAT THE FEEDER DOES NOT REVERSE ROTATION AND DESTROY THE FEEDER SEALS.

A RELIEF VALVE IN THE HYDRAULIC SYSTEM IS SET TO TRIP AT A PREDETERMINED PRESSURE ESTABLISHED DURING TESTING. THIS RELIEF VALVE WILL PROTECT THE MACHINE FROM SERIOUS DAMAGE. THE C-500 SERIES POLY-SPRAY MACHINE WILL HAVE TO BE SHUT OFF AND THEN ON TO RESET A TRIPPED RELIEF VALVE.

THE HOPPER AREA HAS TWO ROTATING CIRCULATORS TO CONDITION AND STIR THE MATERIAL AND AN AUGER AT THE BOTTOM FOR MATERIAL FEED. MATERIAL EXITS THE AUGER AND IS CONDITIONED BY AN INFLECTOR BEFORE ENTERING THE AIRLOCK FEEDER. THE AIRLOCK FEEDER DEPOSITS THE MATERIAL INTO THE AIR STREAM WHERE IT ENTERS THE HOSE AND FLOWS TO THE SPRAY NOZZLE EXIT. OTHER FEATURES ON THE C-500 POLY-SPRAY MACHINE TO CONDITION MATERIAL ARE ROTATIONAL SPEED CHANGE OF THE INFLECTOR AND A SLIDE GATE TO LENGTHEN THE TIME MATERIAL IS IN THE INFLECTOR HOUSING. AIR VOLUME FROM THE BLOWER CAN BE CONTROLLED INDEPENDENTLY WITH A BY-PASS BLEED CONTROL VALVE.

SEVERAL SAFETY FEATURES HAVE BEEN ADDED TO THE C-500 SERIES POLY-SPRAY 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 THE SPRAY PROCESS.

III. SAFETY

YOUR C-500 SERIES POLY-SPRAY MACHINE IS DESIGNED WITH FULL GUARDS, DISCONNECT SWITCHES, AND LOCKOUTS FOR YOUR SAFETY.

EVERY C-500 SERIES POLY-SPRAY MACHINE HAS THIS WARNING DECAL DISPLAYED IN PROMINENT PLACES.

OBSERVE THESE PRECAUTIONS AND BE SURE YOUR FELLOW WORKERS DO ALSO.

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.

ALL C-500 POLY-SPRAY MACHINES ARE FACTORY EQUIPPED WITH TOP, SIDE, FRONT, AND REAR GUARDS. OPERATE YOUR MACHINE ACCORDING TO THE INSTRUCTIONS IN THIS MANUAL WITH GUARDS IN PLACE AND SECURELY LATCHED. OPERATION WITH ANY GUARDS REMOVED OR OPEN CAN RESULT IN INJURY TO OR LOSS OF FINGERS, HANDS, ARMS, TOES, FEET, LEGS, HAIR, AND EVEN YOUR EYES.

THE TOP GUARD **1** IS DESIGNED TO PROTECT THE OPERATOR FROM THE HAZARDS OF ROTATING COMPONENTS IN THE HOPPER AREA. THE OPERATOR LOADS THE MACHINE FROM A STANDING POSITION ON THE FLOOR DEPOSITING BAGS OF MATERIAL ONTO A SHELF IN THE GUARD AND PUSHING IT TO THE OPENING AT THE BACK. NO FOOT STAND OR SCAFFOLDING SHOULD BE BUILT TO STAND ON TO LOAD THE MACHINE, THIS MERELY MOVES THE OPERATOR CLOSER TO THE HOPPER AREA AND PROVIDES A WAY TO LOSE BALANCE AND FALL.

IF THE BAGS OF MATERIAL ARE TOO CUMBERSOME TO HANDLE OR LOAD, CUT THEM IN HALF. NEVER STAND ABOVE THE TOP GUARD, OR ON IT, WHEN THE C-500 POLY-SPRAY MACHINE IS OPERATING.

THE SWING GATE GUARDS **2** ARE EQUIPPED WITH A ¼ TURN RECESSED T-HANDLE LATCH. THESE GUARDS SHOULD NOT BE OPENED WHILE THE POLY-SPRAY IS OPERATING. THE SWING GATES GUARDING THE CHAIN DRIVES FRONT AND BACK ARE EQUIPPED WITH A SAFETY SWITCH **3** WHICH WILL STOP ALL FEED MECHANISM CHAIN DRIVES WHEN OPENED. BELT DRIVES CONTINUE TO RUN AS LONG AS THE MOTOR IS OPERATING.

THESE SAFETY SWITCHES WILL PREVENT SERIOUS BODILY DAMAGE FROM ROTATING SPROCKETS AND CHAINS. DO NOT OVERRIDE OR IN ANYWAY BYPASS THESE SAFETY SWITCHES. IF ONE OF THESE SWITCHES SHOULD BECOME DAMAGED, REPLACE IT. KEEP YOUR POLY-SPRAY C-500 MACHINE SAFE. THE SIDE BOLT ON PANELS ARE DESIGNED FOR SAFETY AND TO FACILITATE MAINTENANCE FOR REMOVAL OF ANY COMPONENTS IN THE FRONT. ALWAYS REPLACE THESE GUARDS BEFORE THE POLY-SPRAY MACHINE IS PUT BACK INTO SERVICE.

THE ELECTRICAL PANEL DOOR **4** SHOULD NEVER BE OPENED WHILE THE MACHINE IS OPERATING. ALWAYS MAKE SURE THAT THE POWER CORD IS UNPLUGGED AND THE DISCONNECT SWITCH HANDLE **5** IS IN THE OFF POSITION BEFORE ATTEMPTING TO OPEN THE DOOR.

THE HANDLE IS INTERLOCKED SO THAT THE DOOR WILL NOT OPEN UNLESS THE HANDLE IS ROTATED TO THE FULL OFF POSITION. THIS SAFETY FEATURE IS TO PROTECT EVERYONE FROM SEVERE ELECTRIC SHOCK, BURNS, AND UNDER CERTAIN CONDITIONS - ELECTROCUTION.

OBSERVE THE FUSE AND OVERLOAD SIZE LABELS WITHIN THE ELECTRICAL PANEL. DO NOT "OVER FUSE" OR INCREASE THE OVERLOAD OR IN ANYWAY BY PASS THE FUSES IN THE ELECTRIC PANEL. THESE ARE SIZED TO PROTECT YOU AND THE C-500 SERIES POLY-SPRAY MACHINE. USING A "GROUND FAULT" DETECTOR OR SIMILAR DEVICE, CHECK TO BE SURE THAT THE C-500 SERIES POLY-SPRAY MACHINE IS ELECTRICALLY GROUND AT ALL TIMES AND BE SURE TO ELIMINATE ANY PUDDLES OF WATER IN THE IMMEDIATE WORK AREA.

AN EMERGENCY STOP BUTTON **6** IS LOCATED AT THE LOADING STATION. THIS RED BUTTON WILL STOP ALL FEED MECHANISM DRIVES WHEN PUSHED IN (OFF), OVERRIDING ALL OTHER CONTROLS. THE EMERGENCY STOP BUTTON MUST BE PULLED OUT TO RESET ON. THIS SAFETY FEATURE SHOULD BE EMPHASIZED AS ONE OF THE MOST IMPORTANT PARTS OF THE MACHINE. USE THIS BUTTON FOR ANY TYPE OF EMERGENCY, SUCH AS; UNAUTHORIZED INDIVIDUAL GETTING TOO CLOSE TO THE MACHINE, OBJECTS FALLING INTO THE MACHINE, A MACHINE COMPONENT BREAKS, MATERIAL HOSE BECOMES DISCONNECTED, ETC. **KEEP IT FUNCTIONAL!**

ALL MACHINE ADJUSTMENTS; FEED RATE, SLIDE POSITION, CONDITIONING SPEED, ETC. ARE TO BE MADE WHILE THE C-500 SERIES POLY-SPRAY MACHINE IS OFF. PUSH THE EMERGENCY STOP BUTTON IN, TURN THE DISCONNECT HANDLE DOWN, UNPLUG THE REMOTE CORD, AND UNPLUG THE POWER CORD BEFORE MAKING ANY ADJUSTMENTS.

ALL MACHINE MAINTENANCE, SUCH AS; ADJUSTING CHAIN AND BELT DRIVES, CHECKING OIL LEVELS, TIGHTENING OF NUTS AND BOLTS, CLEANING THE MACHINE, REPLACING WORN OUT COMPONENTS, ETC. IS TO BE DONE WHILE THE MACHINE IS OFF.

UNDER NO CIRCUMSTANCES SHOULD THE OPERATORS USE THEIR HAND, STICK, OR ANY OTHER OBJECT TO FORCE MATERIAL DOWN INTO THE HOPPER. THE C-500 SERIES POLY-SPRAY HOPPER IS A SELF FEEDING DESIGN REQUIRING NO OUTSIDE ASSISTANCE FOR SMOOTH FLOW. IF ANY FOREIGN OBJECT SHOULD ENTER THE HOPPER AREA; PUSH THE EMERGENCY STOP BUTTON IN (OFF), TURN SELECTOR SWITCH OFF, MOVE DISCONNECT DOWN (OFF), AND UNPLUG THE REMOTE AND POWER CORD.

WHEN AN EMERGENCY SITUATION ARISES, DO NOT PANIC. SHUT THE C-500 SERIES POLY-SPRAY OFF COMPLETELY AND PROCEED TO CORRECT THE SITUATION. THE OPERATOR SHOULD HAVE PREARRANGED SIGNALS FOR THE SPRAY APPLICATOR WHEN READY TO RESTART THE MACHINE.

UNISUL RECOMMENDS THAT THE OPERATOR WEAR AN APPROVED DUST MASK OR RESPIRATOR. TYPICAL FIBERS BLOWN THROUGH THE POLY-SPRAY MACHINE CAN BE VERY DISCOMFORTING TO THE RESPIRATORY SYSTEM. IT IS ALSO ADVISED THAT ALL JEWELRY, SUCH AS; RINGS, WATCHES, NECK CHAINS, ETC. BE REMOVED WHILE OPERATING THE MACHINE.

THE OPERATOR THAT LOADS MATERIAL INTO THE HOPPER OF THE POLY-SPRAY MACHINE SHOULD NOT WEAR LOOSE CLOTHING THAT COULD BE CAUGHT IN ANY ROTATING COMPONENTS IN THE

MACHINE. CARE SHOULD BE EXERCISED DURING WINTER MONTHS WHEN WEARING LONG SLEEVE CLOTHES AND HEAVY JACKETS. GLOVES SHOULD NOT BE WORN, BUT IF NEEDED, MAKE SURE THEY ARE EASILY REMOVABLE.

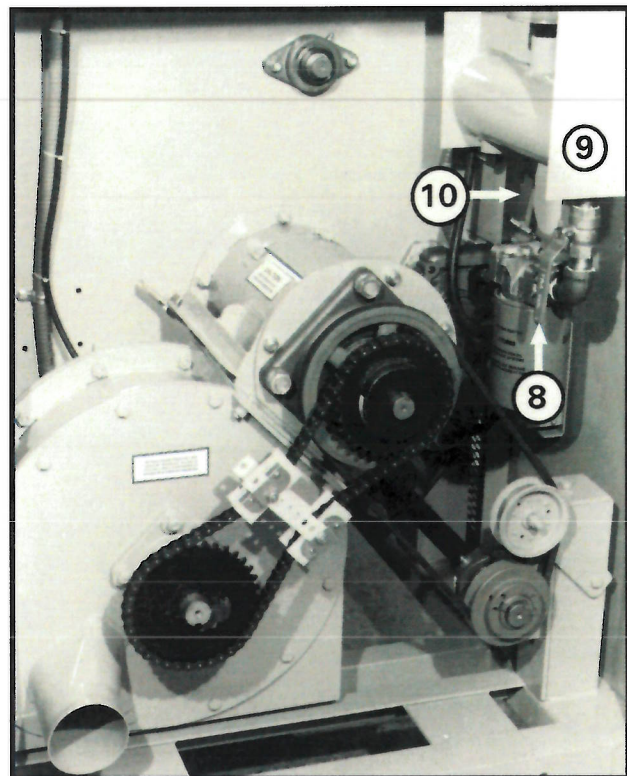
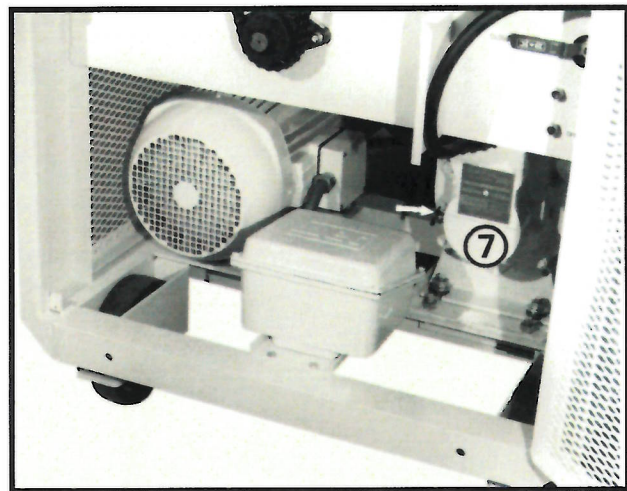
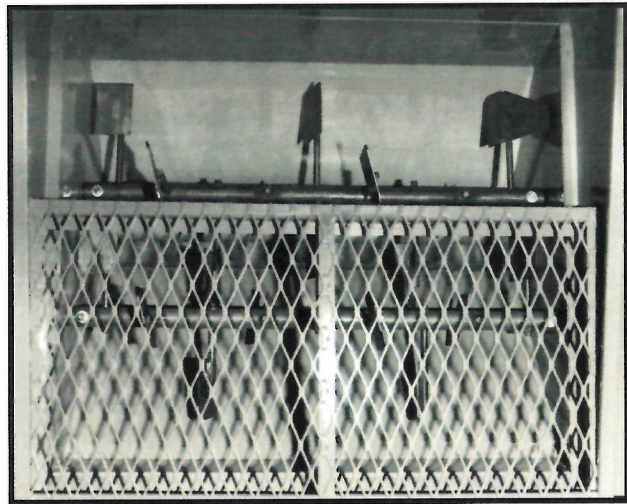
ALL MACHINES HAVE BEEN TESTED AND DO NOT EXCEED APPROVED LEVELS OF SOUND FOR EIGHT HOURS EXPOSURE. TEST RESULTS ARE FOR SINGLE MACHINES AT OUR FACTORY AND UNISUL CANNOT GUARANTEE JOB SITE CONDITIONS WILL DUPLICATE OUR RESULTS. NOISE LEVELS SHOULD BE CHECKED AT EACH JOB SITE AND OPERATORS PROVIDED WITH HEARING PROTECTION IF THEY EXCEED ACCEPTABLE STANDARDS.



IV. MACHINE START UP

PRELIMINARY CHECKS

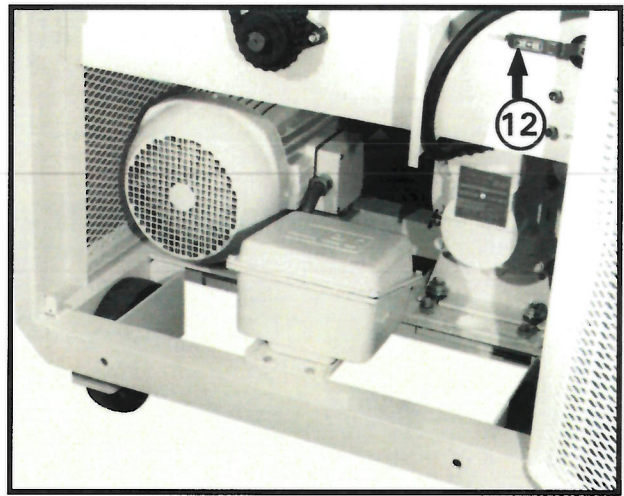
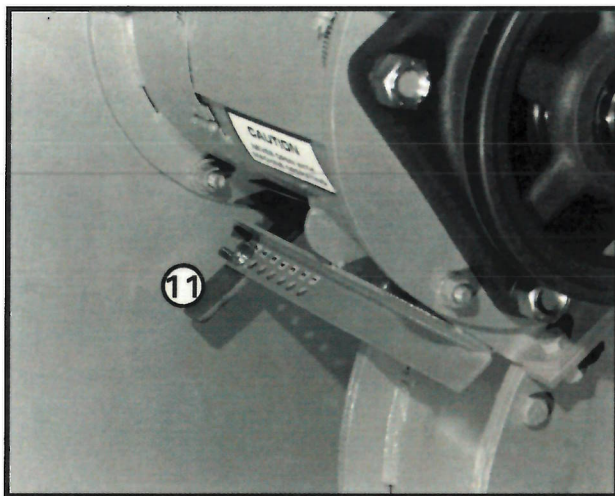
1. MAKE SURE HOPPER IS FREE OF LOOSE OBJECTS, (EARLY DESIGN PICTURED).
2. MAKE SURE THAT THE CHAIN AND BELT DRIVES ARE CLEAR OF LOOSE OBJECTS AND THAT THE DRIVES ARE ADEQUATELY TENSIONED.
3. CHECK FOR ANY MACHINE COMPONENTS THAT MAY HAVE VIBRATED LOOSE, SUCH AS; AIR STREAM CONNECTIONS, WIRING CONNECTIONS, HYDRAULIC HOSE CONNECTIONS, BEARINGS, ETC.
4. CHECK THE OIL LEVEL IN THE BLOWER 7. TURN THE BRASS VALVE ON THE BLOWER 90 DEGREES TO CHECK, A SMALL AMOUNT SHOULD APPEAR TO INDICATE SUFFICIENT OIL. REFER TO THE MAINTENANCE SECTION FOR CAPACITY AND TYPE OF OIL TO USE.
5. MAKE SURE THAT THE BALL VALVE 8 IS OPEN FOR OIL FLOW. NEW DELIVERED MACHINES WILL HAVE THE BALL VALVE WIRED OPEN. CHECK THE OIL LEVEL IN THE HYDRAULIC RESERVOIR 9 USING THE DIP STICK 10 THAT IS SUPPLIED WITH THE MACHINE. REFER TO THE MAINTENANCE SECTION FOR TYPE OF OIL TO USE.



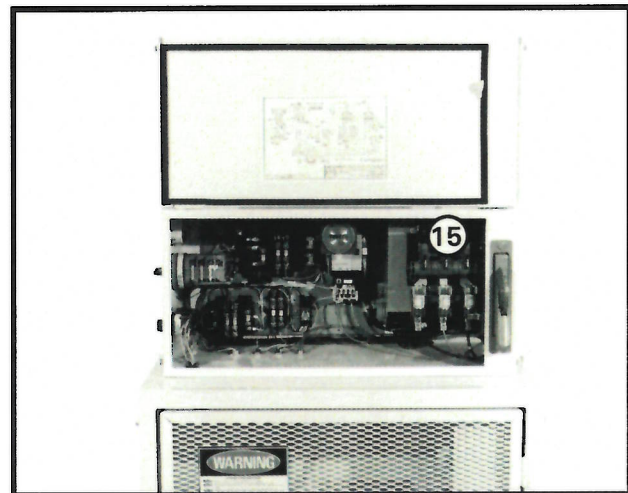
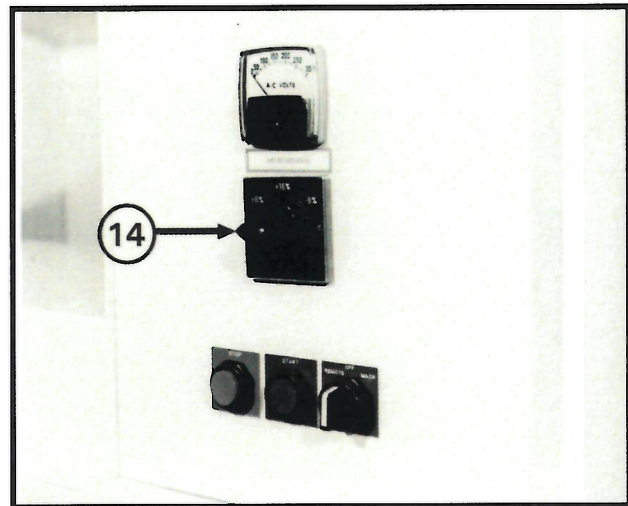
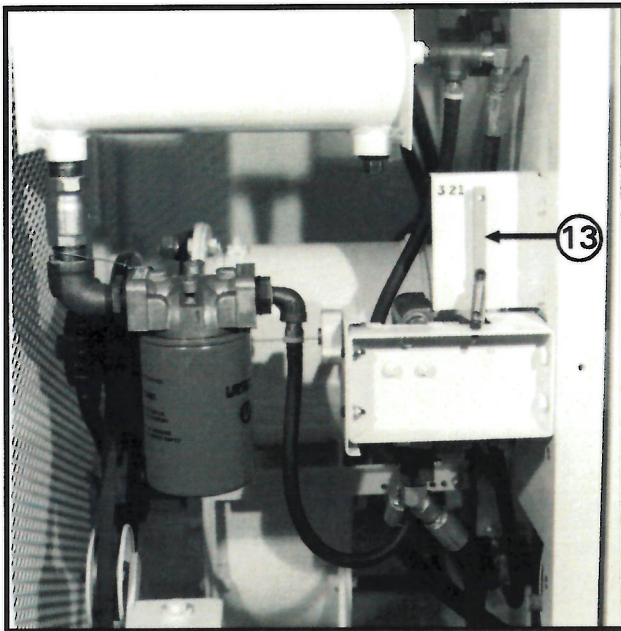
6. CHECK THE FOLLOWING CHART FOR THE PROPER SIZE WIRE BEFORE PURCHASING FOR A POWER CORD.

	CORD LENGTH	WIRE SIZE		WIRE TYPE
SINGLE PHASE	50'	6/3		S OR SO
	100'	4/3		
	150'	4/3		
THREE PHASE		50 AMP	25 AMP	
	50'	6/4	12/4	
	100'	6/4	10/4	
	150'	4/4	10/4	

7. CHECK THAT THE MATERIAL CONDITIONING SLIDE **11** IS IN THE NUMBER 7 POSITION (LARGEST).
8. CHECK THAT THE AIR BLEED VALVE **12** IS FULLY CLOSED. NEW DELIVERED MACHINES WILL HAVE THE VALVE WIRED CLOSED TO PREVENT MATERIAL PLUG IN THE MACHINE OR HOSE ON INITIAL SPRAY JOB, REMOVE WIRE TO ADJUST.



9. CHECK THAT THE SPEED CONTROL LEVER **13** IS IN THE NEUTRAL POSITION. ACCESS IS THROUGH THE OPENING IN THE SIDE BOLT ON PANEL GUARD. (PICTURE REPRESENTS MODEL WITHOUT REMOTE SPEED CONTROL. THE CONTROL LEVER POSITION IS THE SAME FOR MODELS WITH REMOTE SPEED CONTROL).
10. SINGLE PHASE POWERED MACHINES, CHECK THAT THE BUCK-BOOST SELECTOR SWITCH **14** IS IN THE NOMINAL POSITION.



11. NOW THAT ALL PRELIMINARY CHECKS HAVE BEEN COMPLETED, HAVE A QUALIFIED LICENSED INDUSTRIAL ELECTRICIAN CONNECT THE POWER CORD TO THE SERVICE DISCONNECT 15 IN THE ELECTRICAL PANEL BOX.

INITIAL START UP PROCEDURES

- A. SINGLE PHASE C-500 POLY-SPRAY MACHINES ARE WIRED FOR 230 NOMINAL AC VOLTAGE, 60 HERTZ. EXPORT SINGLE PHASE MACHINES ARE WIRED FOR 220 NOMINAL AC VOLTAGE, 50 HERTZ. A MINIMUM SERVICE OF 50 AMPS IS REQUIRED AS STATED ON THE ELECTRICAL PANEL DOOR. DOMESTIC JOB SITE VOLTAGES WILL BE EITHER 208 OR 230 NOMINAL AC VOLTS. ALL SINGLE PHASE POLY-SPRAY MACHINES ARE EQUIPPED WITH A VOLTAGE BUCK-BOOST SYSTEM TO COMPENSATE FOR HIGH OR LOW VOLTAGES. THIS SYSTEM WILL BOOST 208 VOLTS TO APPROXIMATELY 225 OR 240 VOLTS, OR BUCK HIGHER VOLTAGES DOWN TO APPROXIMATELY 230 VOLTS. A VOLTAGE READING ABOVE 230 IS BETTER THAN BELOW DUE TO AMPERAGE DRAW. DO NOT RUN THE SINGLE PHASE POWERED C-500 SERIES POLY-SPRAY MACHINE BELOW 225 VOLTS.

- B. THREE PHASE C-500 POLY-SPRAY MACHINES ARE WIRED FOR 230 OR 460 AC VOLTAGE, 60 HERTZ. EXPORT THREE PHASE MACHINES ARE WIRED FOR 220 OR 440 AC VOLTAGE, 50 HERTZ. A MINIMUM SERVICE OF 50 AMPS FOR 230 VOLTS AND 25 AMPS FOR 460 VOLTS IS REQUIRED AS STATED ON THE ELECTRICAL PANEL DOOR. OTHER VOLTAGES FOR 50 HERTZ

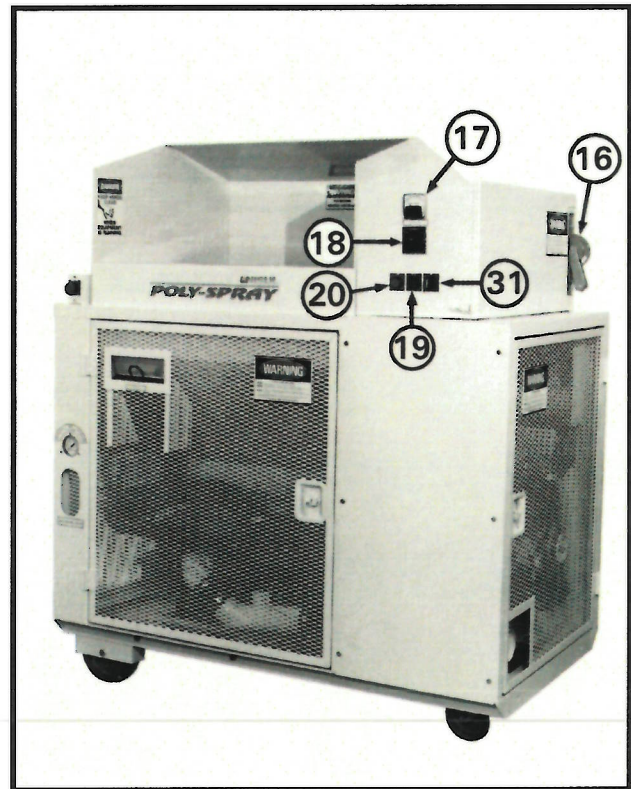
MACHINES ARE AVAILABLE AND SERVICE REQUIREMENTS WILL VARY. DOMESTIC JOB SITE VOLTAGES WILL BE EITHER 230 OR 460 VOLTS. ALL THREE PHASE MACHINES ARE PRE WIRED AT THE FACTORY FOR THE PROPER VOLTAGE AND CANNOT BE CHANGED IN THE FIELD. THREE PHASE MACHINES ARE NOT EQUIPPED WITH A VOLTAGE BUCK-BOOST SYSTEM OR VOLTAGE METER.

C. GETTING STARTED; MAKE SURE THAT ALL GUARDS ARE CLOSED AND SECURED, THAT THE POWER CORD IS PLUGGED IN, AND THAT ALL PRELIMINARY CHECKS HAVE BEEN COMPLETED.

1. MOVE THE DISCONNECT SWITCH HANDLE **16** TO THE ON POSITION (UP). ON SINGLE

PHASE POWERED MACHINES, THE VOLT METER **17** SHOULD INDICATE 230 VOLTS OR IN THE APPROXIMATE AREA. VOLTAGE READINGS BELOW 225 OR ABOVE 245 NEED TO BE ADJUSTED BY MEANS OF THE BUCK-BOOST SELECTOR SWITCH **18**. NEVER ADJUST THE VOLTAGE WITH THE MOTOR RUNNING, PREMATURE SWITCH FAILURE WILL OCCUR.

2. CLEAR THE AREA IN FRONT OF THE AIR LOCK FEEDER (SEE ARROW) AND PRESS THE GREEN START BUTTON **19**. CHECK THAT THE MOTOR IS TURNING COUNTER-CLOCKWISE AND THAT AIR DOES COME OUT OF THE AIR LOCK FEEDER. ALL C-500 SERIES POLY-SPRAY MACHINES ARE WIRED FOR THE CORRECT ROTATION AT THE FACTORY, BUT THIS SHOULD BE DOUBLE CHECKED ON INITIAL START UP. SINGLE PHASE SHOULD NEVER BE A PROBLEM, BUT IF IN ERROR, ROTATION WILL HAVE TO BE CHANGED IN THE MOTOR CONDUIT BOX. THREE PHASE MAY IN SOME INSTANCES BE IN ERROR, HAVE AN INDUSTRIAL ELECTRICIAN REVERSE OR INTERCHANGE ANY TWO CURRENT CARRYING LEADS AT THE

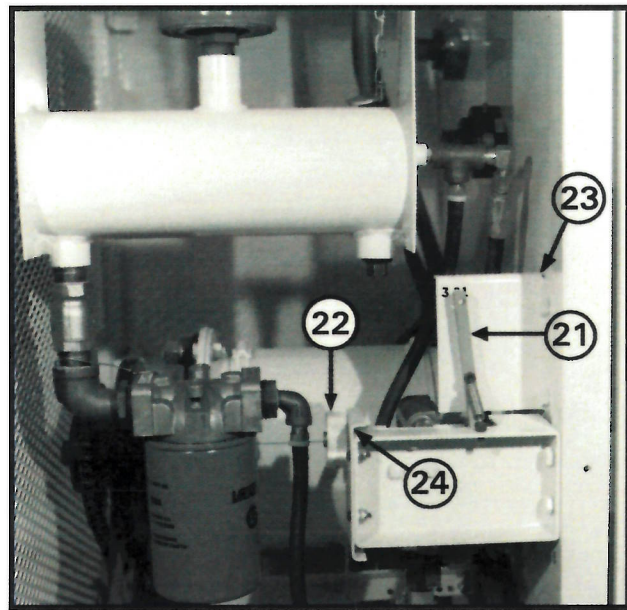


POWER SOURCE TO CHANGE ROTATION. IF ANY PROBLEMS OCCUR, SUCH AS; IMPROPER ROTATION, BELTS SLIPPING, CHAINS BREAK, BLOWER MAKES CLANGING NOISE, ETC. - PRESS THE STOP BUTTON **20** IMMEDIATELY! CHECK THE TROUBLESHOOTING SECTION OR CALL UNISUL.

3a. C-540A AND C-570A MODELS.

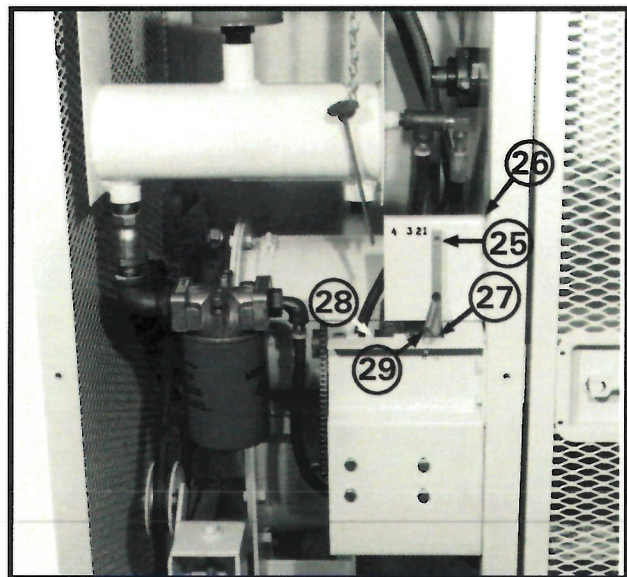
MOVE THE SPEED CONTROL LEVER **21** TO

THE FIRST POSITION. TURN THE KNOB **22** CLOCKWISE TO ADJUST THE LEVER LEFT PAST NUMBER ONE ON THE SPEED INDICATOR BRACKET **23**. THE PLATE **24** HAS INDENT HOLES THAT A SPRING LOADED BUTTON IN THE KNOB WILL SEAT INTO. ACCESS IS THROUGH THE OPENINGS IN THE SIDE BOLT ON PANEL GUARD.



3b. C-550A AND C-590A MODELS

ADJUSTMENT OF THE SPEED CONTROL LEVER **25** ON THESE MODELS CAN BE ACCOMPLISHED TWO WAYS, ELECTRICALLY OR MECHANICALLY. TO ADJUST THE LEVER MECHANICALLY, PUSH THE LEVER IN TOWARD THE SPEED INDICATOR BRACKET **26** AND MOVE TO THE LEFT. A TAPERED PIN **27** SCREWED INTO THE LEVER WILL SEAT IN THE THREADS OF THE LEAD SCREW **28**. THE SPRING **29** HAS TENSION ON THE LEVER TO KEEP IT IN PLACE. MOVE THE LEVER SO THAT THE RIGHT EDGE IS JUST PAST NUMBER ONE ON THE SPEED INDICATOR BRACKET. ELECTRICAL ADJUSTMENT WILL BE COVERED AT STEP SIX.



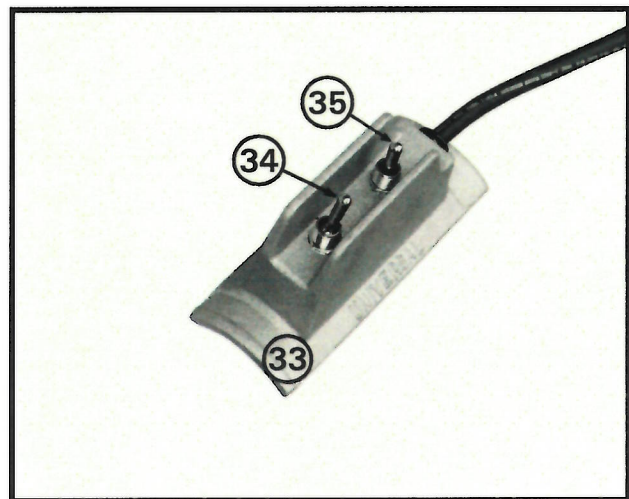
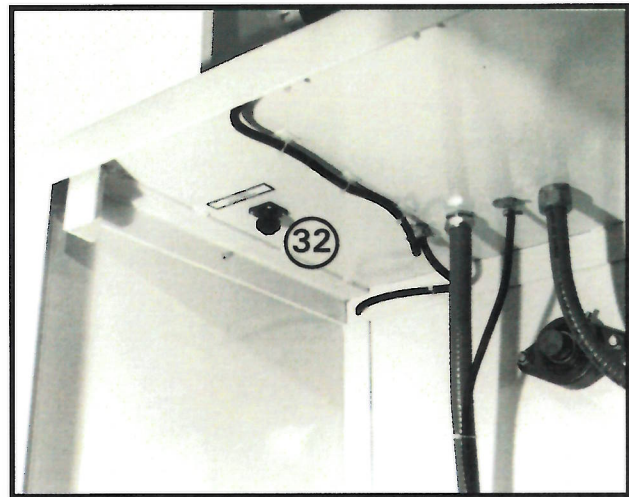
4. ENGAGE THE EMERGENCY STOP BUTTON **30** TO THE ON POSITION, PULL OUT.

5. TURN THE SELECTOR SWITCH **31** TO REMOTE, NOTHING SHOULD HAPPEN - TURN THE SELECTOR SWITCH TO MACHINE, ALL CHAIN DRIVE MECHANISMS SHOULD OPERATE. IF THE CHAIN DRIVE DOES NOT ENGAGE; MAKE SURE THE SELECTOR SWITCH IS IN THE MACHINE SETTING, THAT THE EMERGENCY STOP



BUTTON IS ON, THAT THE SPEED CONTROL LEVER DID NOT RETRACT TO THE NEUTRAL POSITION, AND THAT THE SWING GATE GUARDS ARE CLOSED. THERE ARE LIMIT SWITCHES FRONT AND BACK THAT WILL STOP CHAIN DRIVE MECHANISMS AS STATED IN THE SAFETY SECTION OF THIS MANUAL. IF A PROBLEM PERSISTS, CHECK THE TROUBLE SHOOTING SECTION OR CALL UNISUL!

6. CONNECT THE SUPPLIED REMOTE CORD TO THE REMOTE RECEPTACLE **32**, THIS IS A TWIST LOCK CONNECTION. TURN THE SELECTOR SWITCH TO REMOTE, THE CHAIN DRIVES WILL START AND STOP WITH REMOTE SWITCH OPERATION. THE REMOTE SWITCH FOR THE C-540A AND C-570A IS AN ON-OFF FUNCTION ONLY. THE REMOTE SWITCH **33** FOR THE C-550A AND C-590A MODELS HAS TWO TOGGLE SWITCHES. THE FRONT TOGGLE SWITCH **34** IS ON-OFF MATERIAL FEED, THE BACK SWITCH **35** IS FOR VARIABLE MATERIAL FEED RATE. MOVE THE SWITCH FORWARD TO INCREASE FEED RATE, MOVE THE SWITCH BACK (TOWARD CORD) TO DECREASE FEED RATE. GENERALLY, THE REMOTE SWITCH HOUSING IS LOCATED AT THE NOZZLE SO THAT THE SPRAY APPLICATOR HAS CONTROL OF MATERIAL DELIVERY. THE ELECTRIC MOTOR WILL CONTINUE TO OPERATE UNTIL THE RED STOP BUTTON IS PUSHED.
7. WITH EVERYTHING OPERATING SATISFACTORILY, TAKE SOME TIME TO GET TO KNOW YOUR C-500 SERIES POLY-SPRAY MACHINE. MAKE SURE THAT THE SPEED



CONTROL LEVER IS IN THE RUN POSITION, PAST NUMBER ONE, ENGAGE AND DISENGAGE THE EMERGENCY STOP BUTTON (PULL OUT - PUSH IN) WITH THE SELECTOR SWITCH IN MACHINE AND THEN REMOTE (REMOTE CORD TOGGLE SWITCH WILL HAVE TO BE ON). HAVE CHAIN DRIVES ON, OPEN AND CLOSE THE FRONT AND BACK SWING GATE GUARDS NOTICING THE CHAIN DRIVES START AND STOP. MOVE THE SPEED CONTROL LEVER NOTICING THE CHAIN DRIVE SPEEDING UP AND SLOWING DOWN.

8. UPON COMPLETION OF THE INITIAL START UP PROCEDURES; TURN THE REMOTE

CORD TOGGLE SWITCH OFF, DISENGAGE THE EMERGENCY STOP BUTTON (PUSH IN), MOVE THE DISCONNECT SWITCH OFF (DOWN), UNPLUG THE REMOTE CORD, UNPLUG THE POWER CORD, AND RETURN THE SPEED CONTROL LEVER TO THE NEUTRAL POSITION. THE C-500 SERIES POLY-SPRAY MACHINE IS NOW READY FOR SERVICE. FOR ANY PROBLEMS ENCOUNTERED DURING THE INITIAL START UP, CHECK THE TROUBLESHOOTING SECTION OR CALL UNISUL!

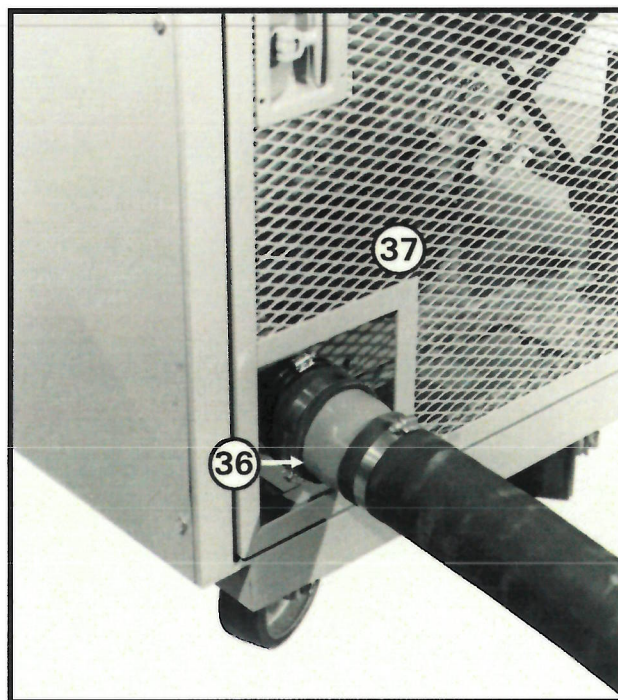
V. OPERATION

USE THE PRELIMINARY CHECKS AND INITIAL START UP AS A CHECK LIST EACH DAY AT THE JOB SITE. ONCE THE C-500 SERIES POLY-SPRAY MACHINE IS VERIFIED AS FUNCTIONAL, PROCEED TO CONNECT HOSES, STANDPIPES, NOZZLES, POWER CORDS, ETC. ALL HOSE COUPLINGS AND STANDPIPES MUST BE THIN WALL, 1/16" MAX., TO MINIMIZE RESTRICTIONS. THE C-500 POLY-SPRAY MACHINE WILL NOT PERFORM TO SPECIFICATIONS WHEN HELD BACK BY UNDERSIZED AND RESTRICTIVE HOSES, COUPLINGS, STANDPIPES, AND NOZZLES.

THE AIR LOCK FEEDER HAS A 3½" DIAMETER OUTLET AND IS DESIGNED TO OPERATE WITH 3" INSIDE DIAMETER HOSE. A THIN WALL 3½" TO 3" DIAMETER REDUCER **36** IS PROVIDED WITH EACH NEW DELIVERED MACHINE IN ORDER TO ADAPT TO 3" HOSE. CONNECT HOSE THROUGH THE OPENING IN THE FRONT SWING GATE GUARD **37**.

THE HOSE SELECTED SHOULD BE SMOOTH BORE RUBBER HOSE OR HEAVY POLYURETHANE HOSE FOR HEAVY DENSITY FIREPROOFING WOOL WITH CEMENT BINDERS. FOR LIGHTER DENSITY FIREPROOFING WOOL APPLICATIONS, A LIGHTER PLASTIC HOSE IS USED. A 25' LENGTH OF 2½" INSIDE DIAMETER WHIP HOSE IS ALLOWABLE AT THE NOZZLE. USE UNISUL'S APPROVED UNI-FAN OR UNI-SPRAY NOZZLES TO ACHIEVE MAXIMUM COVERAGE AND PERFORMANCE.

BEFORE YOU BEGIN THE SPRAY JOB, SEVERAL MACHINE SETTINGS WILL HAVE TO BE MADE. THE FIRST CONSIDERATION WILL BE BASED ON THE SPRAY APPLICATORS ABILITY. THE FOLLOWING CHART WILL SHOW VARIOUS FEED RATES IN POUNDS, THE SPEED CONTROL LEVER POSITION, AND AIR PRESSURE REQUIREMENTS. THESE ARE RECOMMENDED START SETTINGS ONLY. MANY VARIABLES, SUCH AS; HOSE LENGTH AND TYPE, HEIGHT OF MATERIAL DELIVERY, NOZZLE, IF A WHIP HOSE IS USED, ETC. WILL AFFECT THESE VARIOUS SETTINGS.



MODEL	MATERIAL	POUNDS PER MINUTE	SPEED CONTROL LEVER POSITION	AIR BLEED PRESSURE
C-540A	HEAVY	18	1	1.5 - 2.0
	DENSITY	24	2	2.0 - 2.5
	FIREPROOFING	30	3	2.5 - 3.0
AND				
C-570A	LIGHT	6	1	.75 - 1.0
	DENSITY	10	2	1.0 - 1.25
	FIREPROOFING	14	3	1.25 - 1.5
C-550A	HEAVY	15	1	1.5 - 1.75
	DENSITY	20	2	2.0 - 2.5
	FIREPROOFING	30	3	2.75 - 3.25
	FIREPROOFING	40	4	3.75 - 4.25
AND				
C-590A	LIGHT	5	1	.75 - 1.0
	DENSITY	9	2	1.0 - 1.25
	FIREPROOFING	14	3	1.75 - 2.0
	FIREPROOFING	19	4	2.5 - 2.75
RECOMMENDED START SETTINGS ARE BASED WITH MINIMUM 3" I.D. X 150' LENGTH HOSE WITH A 2½ I.D. X 25' LENGTH WHIP HOSE AND UNI-FAN NOZZLE.				

LOADING

THE OPERATOR LOADS THE MACHINE FROM A STANDING POSITION ON THE FLOOR DEPOSITING BAGS OF MATERIAL ONTO A SHELF IN THE HOPPER TOP GUARD. THE OPERATOR THEN DEPOSITS THE MATERIAL INTO THE OPENING AT THE BACK OF THE TOP GUARD. DO NOT BUILD SCAFFOLDING OR USE A FOOT STOOL TO LOAD MATERIAL INTO THE C-500 SERIES POLY-SPRAY MACHINE. THIS MOVES THE OPERATOR CLOSER TO THE ROTATING COMPONENTS IN THE HOPPER AND PROVIDES A WAY TO LOOSE BALANCE AND FALL. BE ESPECIALLY CAREFUL NOT TO LEAVE



PIECES OF THE BAG IN THE MATERIAL, THIS COULD CLOG THE MACHINE, HOSE, OR NOZZLE AND STALL THE SPRAY PROCESS. REMEMBER, DO NOT ATTEMPT TO REMOVE ANY FOREIGN OBJECT FROM THE MACHINE UNTIL IT IS COMPLETELY SHUT DOWN; EMERGENCY STOP BUTTON IN (OFF), THE DISCONNECT SWITCH OFF (DOWN), THE SELECTOR SWITCH IS OFF (CENTER POSITION), AND UNPLUG THE REMOTE CORD AND POWER CORD. THE OPERATOR SHOULD KEEP THE HOPPER FULL SO THAT THE SPRAY APPLICATOR RECEIVES A STEADY FEED RATE. DO NOT OVER STUFF THE HOPPER, JUST KEEP IT FULL.

FEED MECHANISM SPEED CONTROL

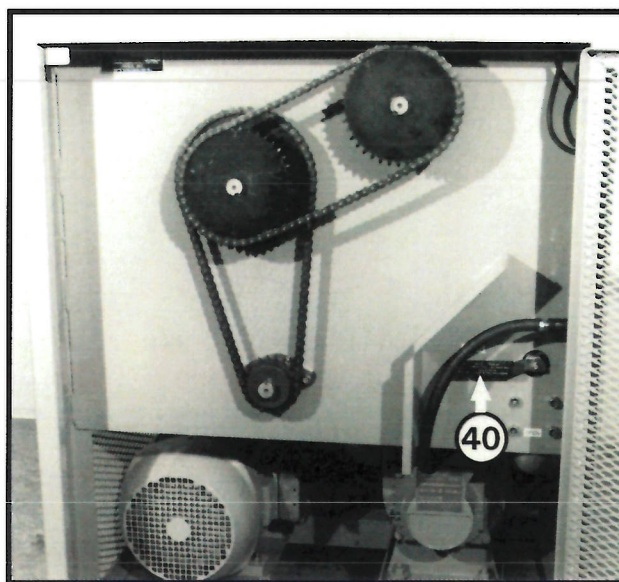
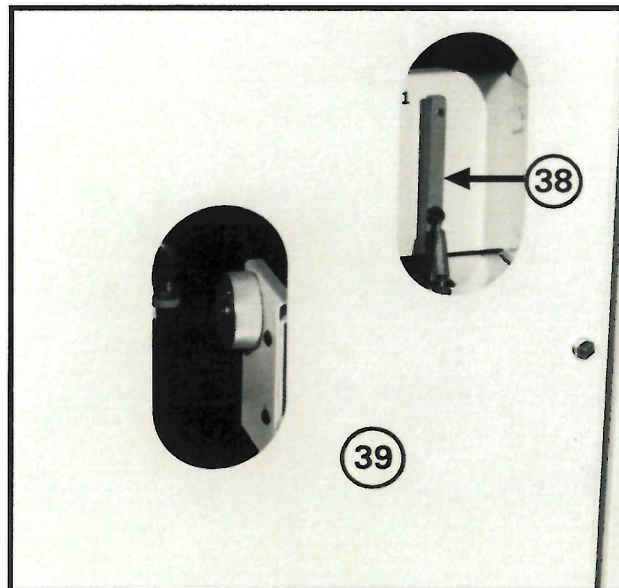
CONTROL THE MACHINE MATERIAL FEED RATE WITH THE SPEED CONTROL LEVER **38**. THIS ADJUSTMENT CAN BE MADE WHEN THE C-500 SERIES POLY-SPRAY MACHINE IS ON OR OFF. CHECK THE CHART FOR THE DESIRED FEED RATE IN POUNDS PER MINUTE AND ADJUST THE LEVER TO THE APPROPRIATE NUMBER AS DESCRIBED IN THE INITIAL START UP PROCEDURES. ACCESS IS THROUGH THE OPENING IN THE SIDE BOLT ON PANEL GUARD **39**.

THE C-550A AND C-590A MODELS ARE EQUIPPED WITH REMOTE SPEED CONTROL AND THE FEED RATE CAN BE VARIED AS REQUIRED DURING OPERATION.

CAUTION: TOO MUCH OF AN INCREASE IN FEED RATE WITHOUT AN INCREASE IN AIR VOLUME CAN RESULT IN CLOGGED MACHINE OR HOSES AND STANDPIPES.

AIR BLEED CONTROL VALVE

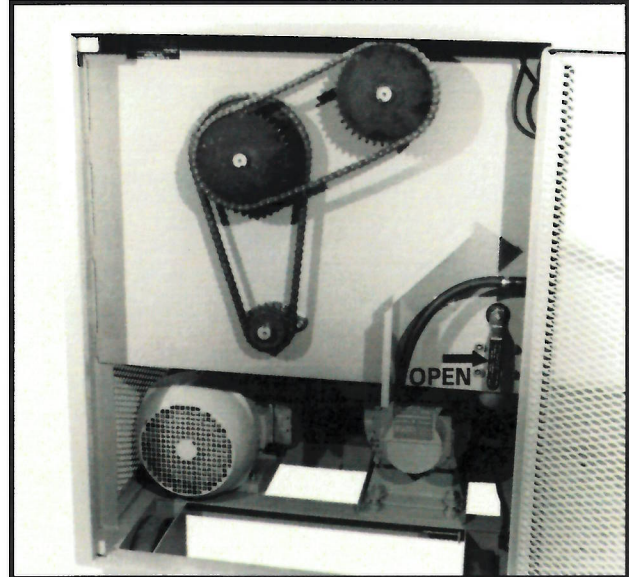
AIR FLOW RATE MAY BE CONTROLLED WITH THE AIR BYPASS BLEED CONTROL VALVE **40** WHILE MONITORING SYSTEM PRESSURE ON THE GAUGE **41**. CHECK THE CHART FOR THE DESIRED FEED RATE IN POUNDS PER MINUTE AND ADJUST (OPEN) THE BLEED CONTROL VALVE TO THE DESIRED PRESSURE READING. THIS ADJUSTMENT HAS TO BE MADE VERY



SLOWLY AND ONLY AFTER THE MATERIAL BEING SPRAYED HAS REACHED THE NOZZLE.

LOW FEED RATES WITHOUT ADJUSTING THE AIR SUPPLY WILL RESULT IN HIGH DENSITIES, LOW AIR SUPPLY WITH A HIGH FEED RATE WILL RESULT IN PLUGGED HOSES, NOZZLES, AND MACHINE.

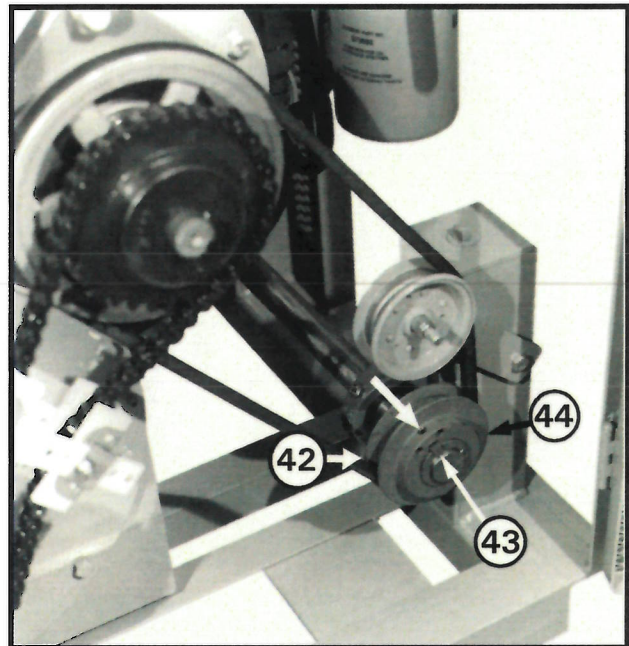
NOTE: ARROW IN PICTURE BELOW SHOWS THE VALVE IS IN THE FULL OPEN POSITION. MAKE SURE ALL ADJUSTMENTS ARE STARTED IN THE CLOSED POSITION.



INFLECTOR SPEED CONTROL

CONDITIONING OF THE FIBER TO OBTAIN THE DESIRED APPLIED DENSITY CAN BE CONTROLLED TO SOME EXTENT BY THE ROTATIONAL SPEED OF THE INFLECTOR. A MECHANICALLY ADJUSTABLE PULLEY **42** WILL ALLOW SIMPLE SPEED VARIATION. THE SPEED OF THE INFLECTOR IS RARELY CHANGED AND SHOULD ONLY BE DONE WHEN ADJUSTMENTS WITH THE AIR BLEED CONTROL VALVE FAIL TO REACH THE DESIRED DENSITY. OPEN THE PULLEY TO SLOW DOWN THE INFLECTOR TO COMPENSATE FOR HIGH DENSITY, CLOSE THE PULLEY TO SPEED UP THE INFLECTOR TO COMPENSATE FOR LOW DENSITY.

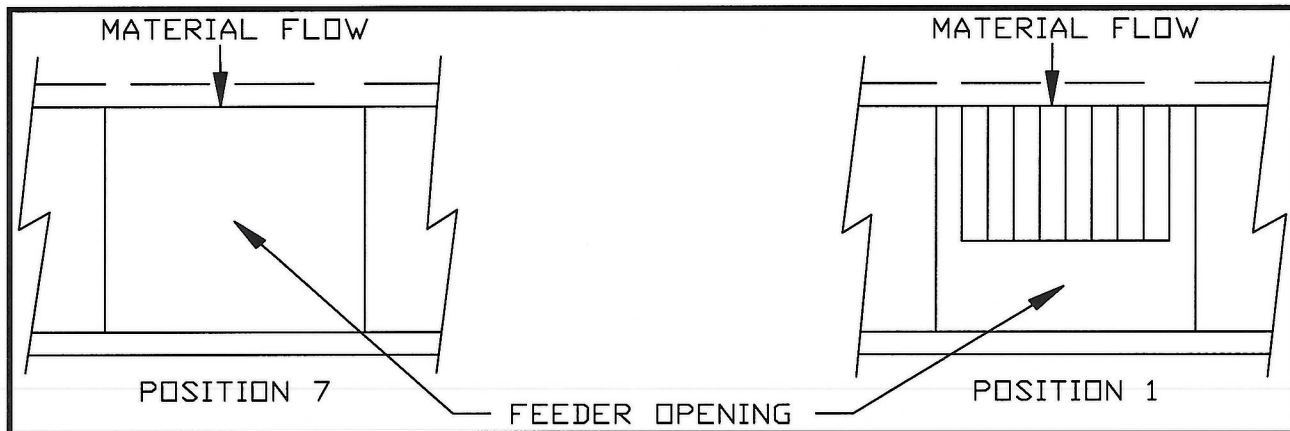
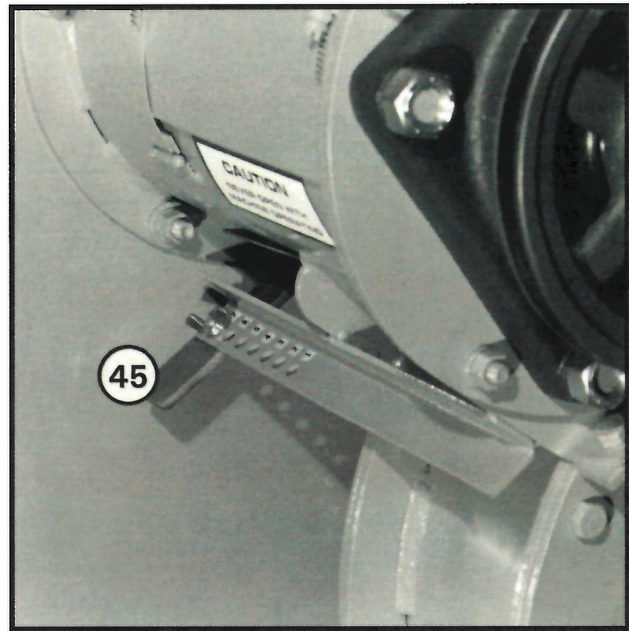
TO ADJUST THE MECHANICAL DRIVE PULLEY, LOOSEN THE SET SCREW (SEE ARROW IN PICTURE), REMOVE KEY **43** AND ROTATE HUB **44** IN OR OUT AS REQUIRED. THE OUTSIDE HUB CAN BE ROTATED AT HALF OR FULL



TURN INTERVALS. THE MECHANICAL PULLEY IS FACTORY SET AT THREE TURNS OPEN, MAXIMUM OPENING SHOULD NOT EXCEED FIVE TURNS. REMEMBER TO INSERT THE KEY AND TIGHTEN SET SCREW WHEN ADJUSTMENT IS COMPLETE.

SLIDE GATE

THE SLIDE GATE **45** ADJUSTMENT IS MADE WHEN VARIOUS SETTINGS OF THE AIR BLEED CONTROL VALVE AND INFLECTOR SPEED CONTROL FAIL TO GAIN DESIRED DENSITIES, USUALLY HIGHER. THE SLIDE SHOULD ONLY BE USED TO CONDITION THE FIBER AND ADJUST MATERIAL DENSITY, NEVER TO CONTROL FEED RATE. THE SLIDE HAS SEVEN POSITIONS NUMBERED FROM SEVEN (LARGEST OPENING) TO ONE (SMALLEST OPENING) GRADUATED IN $\frac{1}{2}$ " INCREMENTS. THIS MEANS THE OPENING TO THE AIR LOCK FEEDER CAN BE ADJUSTED FROM A 5" MAXIMUM TO A 2" MINIMUM, SEE ILLUSTRATION.



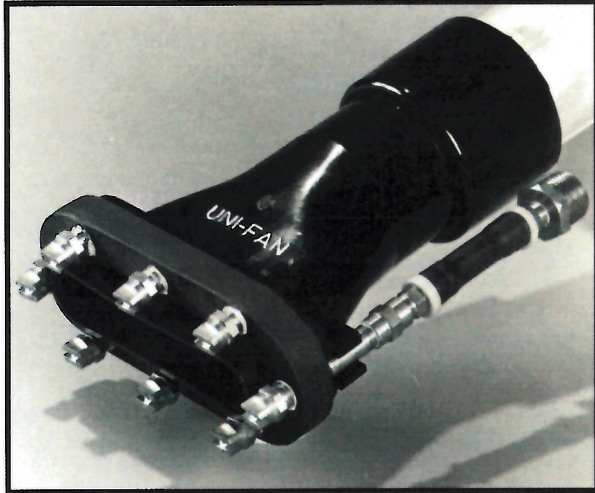
CAUTION: IF THE MATERIAL REMAINS IN THE INFLECTOR HOUSING TOO LONG, EXCESSIVE MATERIAL CONDITIONING WILL OCCUR RESULTING IN HIGH DENSITY AND/OR A JAMMED HOUSING RESULTING IN COSTLY WORK STOPPAGES.

COVERAGE

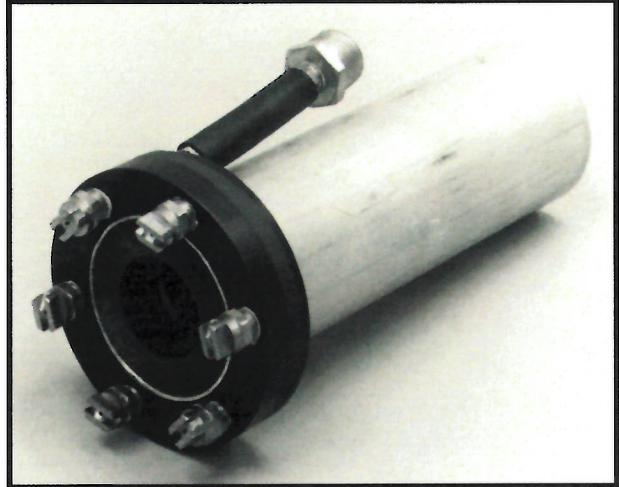
COVERAGE, OR THE AMOUNT OF MATERIAL USED ON THE JOB IS DIRECTLY RELATED TO MATERIAL DENSITY ON THE SURFACE AND DENSITY IS A PRODUCT OF MATERIAL CONDITIONING AND AIR VELOCITY OR IMPACT ON THE APPLIED SURFACE. DENSITY CAN BE REGULATED BY THE DISTANCE OF THE SPRAY NOZZLE FROM THE SURFACE AND BY THE AMOUNT 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 (3) FEET FROM THE SURFACE AS A STARTING POINT AND THE DISTANCE VARIED AS REQUIRED DENSITIES WILL VARY AS THE JOB HEIGHT INCREASES AND AS MATERIAL DENSITIES AFFECT NOZZLE VELOCITY. THE RECOMMENDATIONS ARE START SETTINGS ONLY AND WILL VARY FROM JOB TO JOB.

FOR THE BEST NOZZLES AROUND, CALL UNISUL!



UNI-FAN NOZZLE

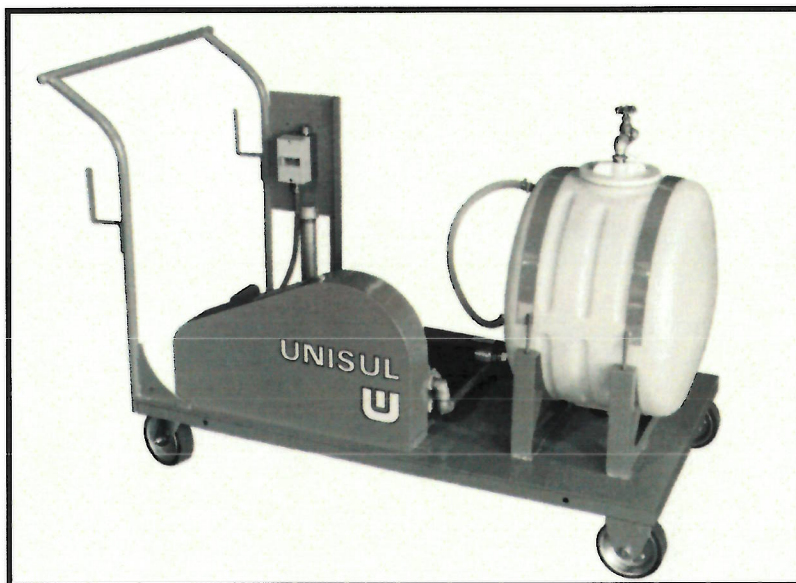


UNI-SPRAY NOZZLE

UNISUL'S UNI-FAN AND UNI-SPRAY NOZZLES REQUIRE FROM 1 TO 5 GALLONS OF WATER PER MINUTE AT 60 TO 80 PSI AT THE NOZZLE (40 PSI MINIMUM REQUIRED FOR ATOMIZATION OF WATER). THIS MUST BE A CONSTANT PRESSURE, CONSTANT VOLUME SUPPLY OF CLEAN WATER THAT IS FREE OF PARTICLES THAT COULD CLOG NOZZLE JETS (WATER THAT WOULD PASS THROUGH A 200 MESH STRAINER). LINE PRESSURE LOSSES REQUIRE A WATER SUPPLY AT THE SOURCE OF 100 TO 200 PSI TO PROVIDE ADEQUATE PRESSURE AT THE NOZZLE.

NEED CONSTANT VOLUME, CONSTANT PRESSURE ALL DAY LONG?

LET UNISUL SOLVE YOUR WATER PROBLEMS!



UNI-FAN AND UNI-SPRAY NOZZLES COME IN VARIOUS SIZES AND PATTERNS WITH INTER-CHANGEABLE JETS TO FIT VARIOUS TYPES OF MATERIALS AND APPLICATIONS. THE NOZZLES AND JETS MAY BE CHANGED TO CONTROL SPRAY PATTERNS AND DENSITIES.

UNISUL MANUFACTURES AN A-289 HYDRA-LIFT WATER BOOSTER SYSTEM AND A TRAIL-A-PUMP OR PORT-A-PUMP GLUE SYSTEM WITH A 4 GPM AND 8 GPM PRESSURE PUMP, STRAINER AND CAPTIVE RESERVOIR TO ASSURE A CONSTANT, CLEAN SUPPLY OF WATER AT THE CORRECT VOLUME AND PRESSURE. WATER PUMP AND NOZZLE OPERATING INFORMATION IS COVERED IN THEIR RESPECTIVE MANUALS.

SUMMARY

- PERFORM PRELIMINARY CHECKS.
- PERFORM INITIAL START UP.
- MAKE FEED RATE ADJUSTMENT.
- MAKE SURE ALL GUARDS ARE IN PLACE AND SECURELY LATCHED.
- LOAD MATERIAL INTO HOPPER.
- START MACHINE.
- ADJUST AIR ONCE MATERIAL REACHES THE NOZZLE.
- CHECK DENSITY.

VI. PREVENTIVE MAINTENANCE

GENERAL

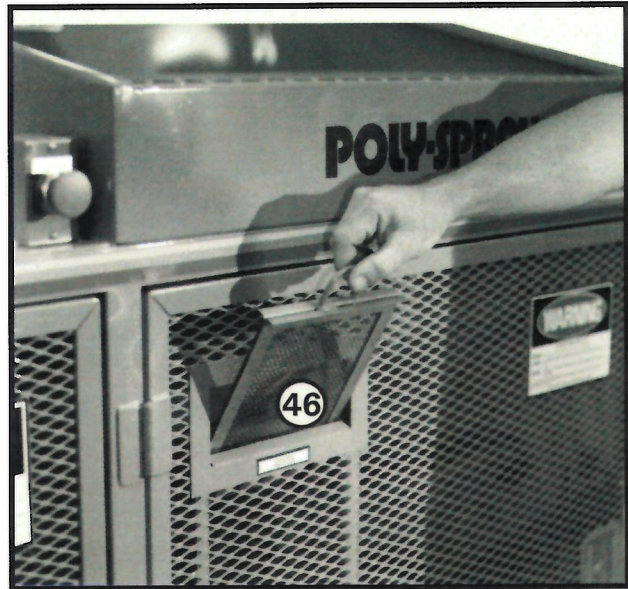
MAKE SURE ALL POWER IS OFF BEFORE ATTEMPTING ANY MAINTENANCE PROCEDURES. THE ONLY EXCEPTION IS THE BLOWER RELIEF VALVE WHICH REQUIRES NO ENTRANCE INTO THE MACHINE. CHECK FOR LOOSE NUTS AND BOLTS, CHECK FOR SLACK AND CONDITION OF "V" BELTS AND CHAIN PERIODICALLY, ESPECIALLY AFTER THE FIRST FEW DAYS OF OPERATION.

DAILY MAINTENANCE

1. EMPTY THE HOPPER COMPLETELY AT THE END OF EACH DAY.
2. EVACUATE ALL HOSES AND STANDPIPES BEFORE SHUTTING OFF THE BLOWER OR PLUGGING MAY OCCUR ON START UP, RESULTING IN COSTLY WORK STOPPAGE.
3. VISUALLY INSPECT AND REMOVE ANY FOREIGN OBJECTS THAT MAY HAVE ENTERED THE MACHINE.
4. CHECK OIL LEVELS IN THE BLOWER AND HYDRAULIC RESERVOIR.
5. CHECK CHAIN AND BELT TENSIONS, ADJUST AS REQUIRED.

6. CLEAN BLOWER INTAKE SCREEN **46** AND AS REQUIRED DURING OPERATION. KEEP THIS SCREEN CLEAN AT ALL TIMES. CHECK THAT ALL AIR STREAM CONNECTIONS ARE TIGHT.

7. CHECK THAT ALL SAFETY SWITCHES ARE FUNCTIONAL AS DESCRIBED IN PRIOR SECTIONS.

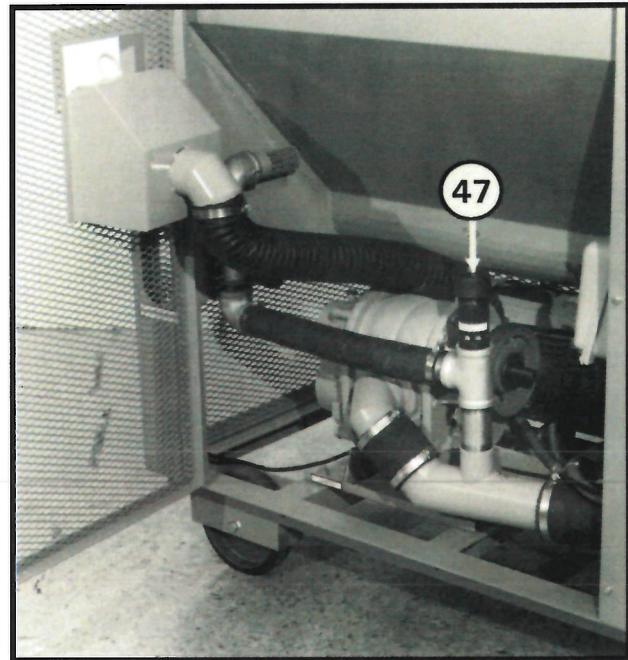


BLOWER RELIEF VALVE

ONCE WEEKLY, PLUG FEEDER OUTLET OR END OF MATERIAL HOSE WITH THE BLOWER ONLY RUNNING AND THE AIR BLEED VALVE FULLY CLOSED. THE SPRING LOADED RELIEF VALVE **47** SHOULD OPEN. CYCLE VALVE SEVERAL TIMES BY PLUGGING AND UNPLUGGING THE OUTLET OR HOSE TO CLEAR THE VALVE OF ANY BUILD UP OF DIRT OR MATERIAL.

WHEN THE RELIEF VALVE POPS, NOTE THE PRESSURE READING ON THE AIR GAUGE AT THAT MOMENT. THE INDICATION SHOULD BE; 6 PSIG FOR THE C-540A AND C-550A MODELS, 8 PSIG FOR THE C-570A AND C-590A MODELS. THE PRESSURE READING WILL DROP THE MOMENT THE RELIEF VALVE POPS WHILE THE BLOWER IS STILL RUNNING. ANY SIGNIFICANT DIFFERENCE OVER ½ PSIG SHOULD BE REPORTED TO THE FACTORY.

NEVER ATTEMPT TO READJUST THE SPRING LOADED RELIEF VALVE WITHOUT CONSULTING THE FACTORY. IF THE BLOWER RELIEF



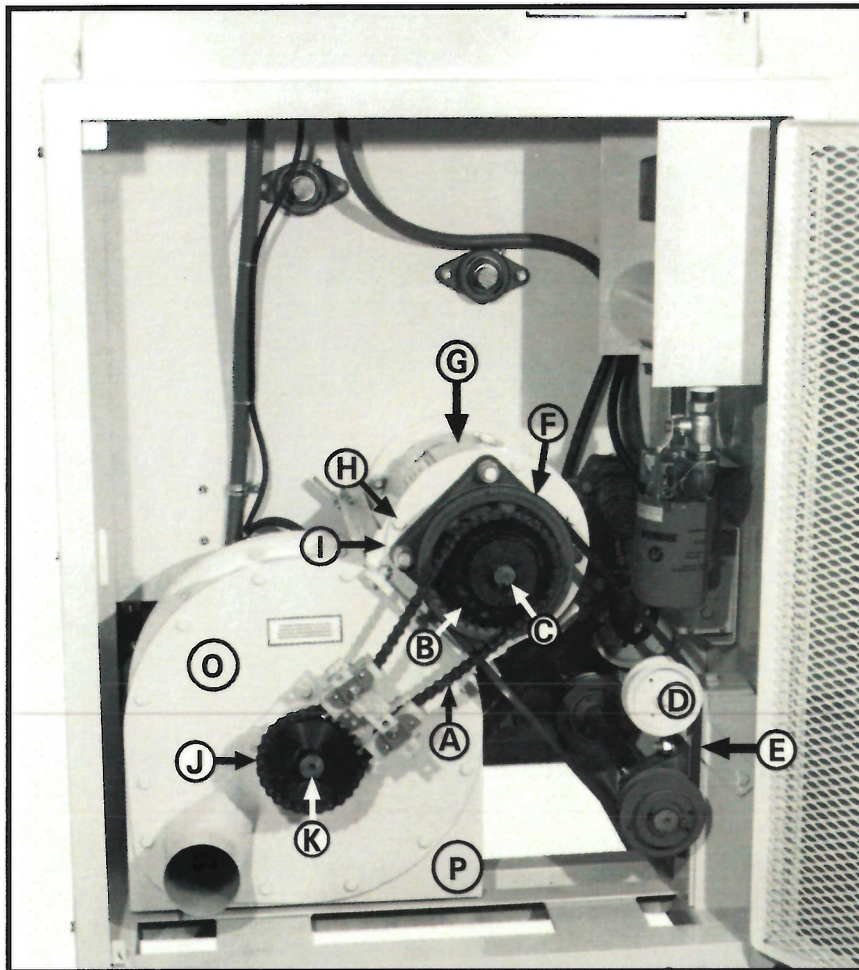
CAUTION: DO NOT GREASE OR OIL SINCE THE RELIEF VALVE WILL NOT FUNCTION OTHER THAN COMPLETELY DRY.

VALVE CONTINUALLY POPS DURING THE SPRAY JOB, CHECK THE TROUBLE SHOOTING SECTION, YOU HAVE OTHER PROBLEMS THAT ARE BEING OVERLOOKED.

AIRLOCK FEEDER

FEEDER SEALS MUST BE CHANGED EVERY 250 HOURS OF OPERATION OR APPROXIMATELY EVERY 1 ½ MONTHS IF THE C-500 SERIES POLY-SPRAY MACHINE IS OPERATED 8 HOURS A DAY 5 DAYS A WEEK, OR SOONER, 150 HOURS FOR COARSE CEMENTITIOUS MATERIALS. FAILURE TO CHANGE SEALS ON SCHEDULE WILL RESULT IN EXCESSIVE WEAR AND REPLACEMENT OF THE FEEDER ASSEMBLY. THE HOUR METER IN THE ELECTRICAL PANEL BOX INDICATES MACHINE MECHANISM TIME; FEEDER, AUGER, AND CIRCULATORS. REFER TO PICTORIAL INSTRUCTIONS FOR SEAL CHANGE INSTALLATION, DISCONNECT ALL POWER!

CHANGE THE AIRLOCK FEEDER SEALS AS FOLLOWS:



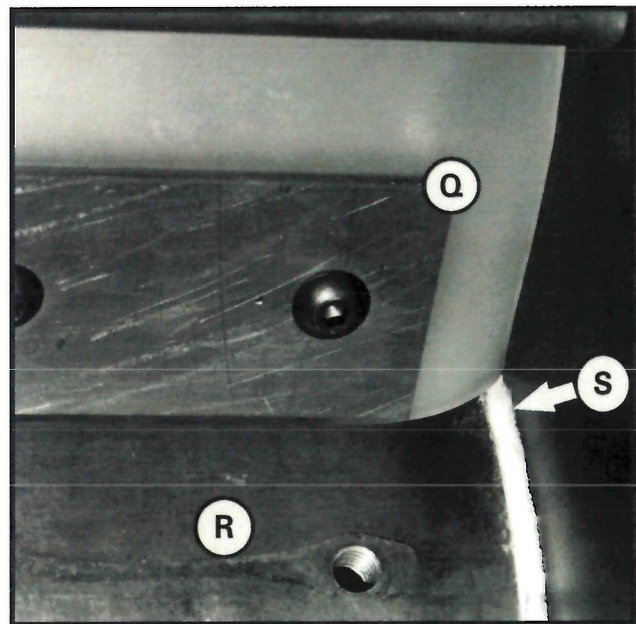
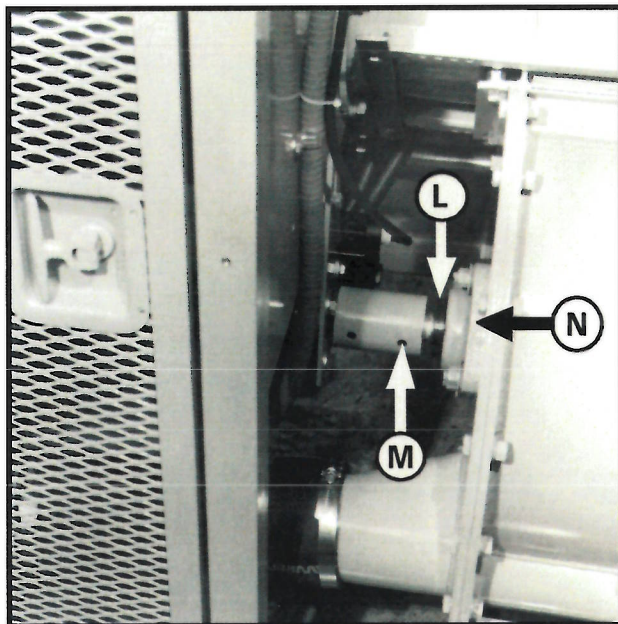
1. REMOVE THE AUGER DRIVE CHAIN **A** AND SPROCKET **B** THAT IS MOUNTED ON THE AUGER SHAFT **C**.
2. LOOSEN THE IDLER PULLEY **D** AND ROLL THE "V" BELT **E** OFF THE INFLECTOR PULLEY **F**.
3. REMOVE THE INFLECTOR HOUSING COVER PLATE **G**.
4. REMOVE THE FOUR BOLTS **H** THAT ATTACH THE INFLECTOR BEARING PLATE **I**.
5. REMOVE THE INFLECTOR ATTACH BOLT, VISIBLE WHEN SPROCKET **B** IS REMOVED.
6. SLIDE THE ENTIRE INFLECTOR ASSEMBLY, WITH BEARING SUPPORT PLATE ATTACHED, OFF

THE AUGER SHAFT, WIPE NEVER SEIZE LUBRICANT FROM SHAFT.

7. THE AIRLOCK FEEDER SEALS ARE NOW IN FULL VIEW THROUGH THE INFLECTOR HOUSING OPENING, INSPECT THAT ROTOR SEALS ARE AT THEIR FULL DIAMETER, SLIGHTLY LARGER THAN THE ROTOR DIAMETER. IF A PROBLEM IS EVIDENT, SEE CHANGE THE AIRLOCK FEEDER ROTOR SEALS.
8. USE A 9/16" SOCKET ON A LONG RATCHET EXTENSION TO REMOVE THE TWO 3/8" GRADE 5 BOLTS THAT ATTACHES EACH SEAL ASSEMBLY.
9. REMOVE AND REPLACE EACH SEAL ASSEMBLY MAKING SURE TO RETORQUE THE BOLTS WITH LOCK WASHER IN PLACE. UNISUL INSTALLS SEALS WITH LOCKTITE APPLIED TO THE BOLT THREADS, MAKE SURE THAT EACH SEAL IS INSTALLED IN THE SAME DIRECTION AS REMOVED, ANGLE TOE FACING DOWN. TO ROTATE THE AIRLOCK FEEDER ROTOR, PLACE THE SUPPLIED FEEDER CRANK ON THE ROTOR SHAFT AND INSERT SUPPLIED HANDLE INTO THE HOLE OR USE A LARGE WRENCH, ROTATE COUNTERCLOCKWISE LOOKING AT FRONT OF MACHINE.
10. REINSTALL ALL COMPONENTS IN THE REVERSE ORDER OF REMOVAL AND BE SURE TO RELUBRICATE THE AUGER SHAFT BEFORE INSTALLING THE INFLECTOR DUE TO THE LENGTH OF THE MATING SURFACES AND CLOSE TOLERANCES.

NOTE: ALWAYS CHANGE A COMPLETE SET OF SEALS (12) FOR MAXIMUM PERFORMANCE, DISCARD OLD SEALS.

CHANGE THE AIRLOCK FEEDER ROTOR SEALS AS FOLLOWS:



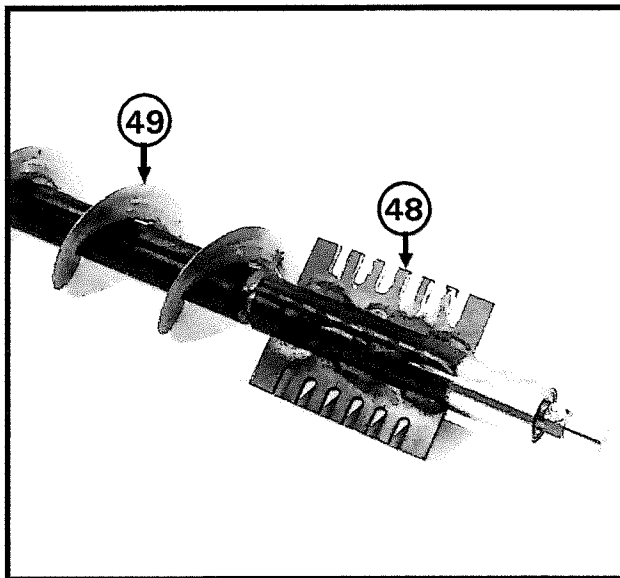
1. REMOVE THE AUGER DRIVE CHAIN **A** AND SPROCKET **J** THAT IS MOUNTED ON THE ROTOR SHAFT **K**.
2. LOOSEN THE SET SCREWS IN THE COLLAR **L** OF THE BACK BEARING HOUSING AND THE SET SCREWS IN THE COUPLER **M** NEAREST THE BACK BEARING COLLAR. DO NOT LOOSEN THE FOUR NUTS RETAINING THE BEARING HOUSING **N**.
3. REMOVE ALL BOLTS THAT ATTACH THE FRONT END PLATE **O** TO THE FEEDER BODY **P**.
4. INSERT PRY BARS BETWEEN THE END PLATE AND FEEDER BODY AND PRY THE END PLATE FORWARD, BRING ROTOR ASSEMBLY COMPLETELY OUT OF MACHINE FRAME.
5. LOOSEN THE SET SCREWS IN THE BEARING COLLAR ON THE FRONT END PLATE AND REMOVE THE END PLATE FROM THE ROTOR SHAFT, DO NOT LOOSEN THE FOUR NUTS RETAINING THE HOUSING.
6. REMOVE FEEDER SEAL ASSEMBLY'S **Q** FROM ROTOR **R**.
7. THE ROTOR SEALS **S** ARE GLUED TO THE FACE OF THE ROTOR. TO REMOVE THE SEAL; SOAK WITH LACQUER THINNER, ALLOW A FEW MINUTES AND THEN SCRAPE OFF. USE SPRAY NEOPRENE ADHESIVE TO APPLY NEW ROTOR SEALS, ALLOW ADEQUATE TIME TO DRY.
8. INSERT ROTOR INTO FEEDER BODY (LESS FEEDER SEALS), SLIDE FRONT END PLATE ONTO SHAFT UP TO ROTOR. INSTALL MOUNTING BOLTS AND TIGHTEN IN A ROTATING PATTERN, TURN ROTOR BY HAND USING THE FEEDER CRANK WHILE TIGHTENING THE BOLTS TO PREVENT PINCHING THE SEALS.
9. TIGHTEN SET SCREWS IN BEARING COLLARS AND COUPLER.
10. INSTALL SPROCKET THAT WAS REMOVED FROM ROTOR SHAFT.
11. INSTALL FEEDER SEALS AS PREVIOUSLY STATED, THIS INSURES THAT THE ROTOR WAS INSTALLED PROPERLY AND IS CENTERED IN THE FEEDER BODY.
12. REINSTALL REMAINING COMPONENTS.

NOTE: ALWAYS CHANGE BOTH SEALS FOR MAXIMUM PERFORMANCE, DISCARD OLD SEALS.

INFLECTOR

THE INFLECTOR **48** IS LOCATED AT THE END OF THE AUGER **49** AND IS BOLTED TO THE SAME SHAFT. INTERNAL BEARINGS ARE SEALED FOR LIFE AND CAN ONLY BE REPLACED IF THEY FAIL. THE FEEDER SEAL CHANGE IDENTIFIES REMOVAL OF THIS COMPONENT.

A LOCAL REPAIR SHOP WITH A BEARING PRESS MAY BE REQUIRED FOR REMOVAL OF THE INTERNAL RADIAL BALL BEARINGS. ALSO, WATCH FOR EXCESSIVE PADDLE WEAR, AN INDICATION OF EXCESSIVE WEAR WOULD BE HIGH SPEED ADJUSTMENT OF THE INFLECTOR DRIVE PULLEY AND THE SLIDE GATE CLOSED WAY IN.



HOPPER COMPONENTS

NO MAINTENANCE REQUIRED ON INTERNAL COMPONENTS, BUT REPLACEMENT MAY BE NECESSARY AS COMPONENTS WEAR OUT DUE TO ABRASION. THESE COMPONENTS ARE CROSS BOLTED TO SHAFTS MAKING REMOVAL AND INSTALLATION EASY.

TO REMOVE THE CIRCULATORS; UNBOLT FROM STUB SHAFTS INSIDE THE HOPPER,

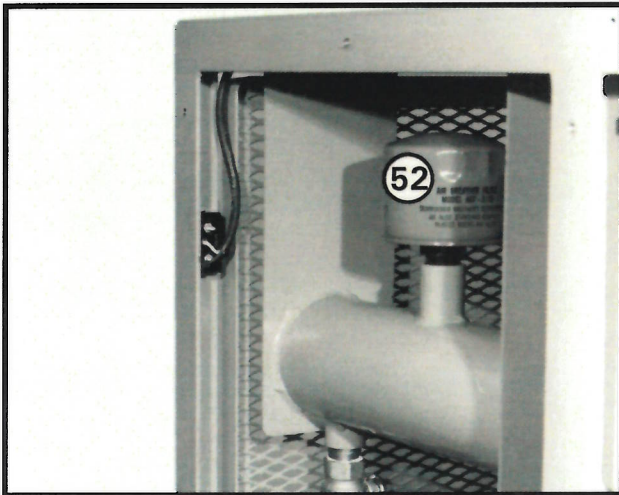
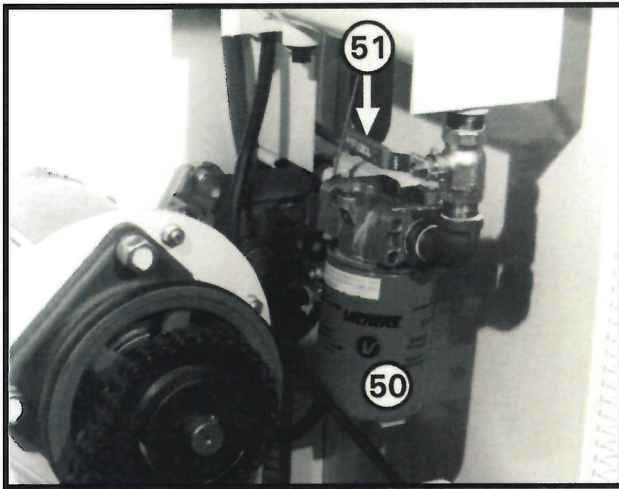
REMOVE THE DRIVE CHAINS, AND THEN THE NUTS RETAINING THE FLANGED BEARING. REMOVE THE STUB SHAFT WITH BEARING AND SPROCKETS ATTACHED WHICH ELIMINATES A FEW STEPS UPON REINSTALLATION. THE CIRCULATORS ABOVE THE AUGER INTERTWINE AND CARE HAS TO BE TAKEN WHEN REASSEMBLY OCCURS SO THAT THE PADDLE ARMS DO NOT HIT DURING ROTATION.

TO REMOVE THE AUGER; FOLLOW INSTRUCTIONS TO REMOVE THE INFLECTOR, UNBOLT FROM SHAFT INSIDE THE HOPPER, AND PULL OUT THROUGH THE INFLECTOR HOUSING.

CLOSED LOOP HYDRAULIC SYSTEM

CHECK THE RESERVOIR DAILY FOR PROPER FLUID LEVEL, THE PRESENCE OF WATER (CLOUDY APPEARANCE), AND EXCESSIVE HEAT (DARK APPEARANCE AND/OR RANCID SMELL). THE SYSTEM DOES NOT REQUIRE REGULAR FLUID REPLACEMENT AS LONG AS THE OIL MAINTAINS A CLEAR OR TRANSPARENT APPEARANCE. IF THE OIL BECOMES CONTAMINATED, THE COMPLETE SYSTEM WILL HAVE TO BE FLUSHED AND REPLENISHED WITH FRESH OIL. SHOULD THIS BECOME NECESSARY, THIS SHOULD BE PERFORMED BY A QUALIFIED TECHNICIAN WITH THE PROPER FACILITIES.

THE SYSTEM FILTER **50** SHOULD BE CHANGED AFTER THE FIRST 50 HOURS OF OPERATION OR FIRST WEEK, BE SURE TO USE 10 MICRON FILTER ELEMENT. CHANGE THE FILTER EVERY 500 HOURS OR FOUR MONTHS THEREAFTER. WHEN CHANGING THE SYSTEM FILTER, HAVE THE BALL VALVE **51** CLOSED (AS SHOWN), HAVE A DRIP PAN OF SOME SORT,



AND REMOVE THE FILTER. INSTALL NEW FILTER, OPEN THE VALVE, AND REPLENISH THE RESERVOIR WITH MOBIL DELVAC 1300 SUPER 15W-40 OIL WITH SG LETTER DESIGNATION. THE FILLER/BREATHER CAP **52** SHOULD BE CHANGED AT 1500 HOUR INTERVALS OR ONCE A YEAR. PERIODICALLY, CHECK THAT ALL HOSE CONNECTIONS ARE TIGHT SO THAT AIR DOES NOT ENTER THE SYSTEM, DO NOT TIGHTEN TO THE EXTENT THAT THREADS BECOME STRIPED. ALSO, REFER TO MANUFACTURERS LITERATURE ON THE HYDRAULIC PUMP AND TORQUE MOTOR.

ELECTRIC MOTOR

REFER TO THE MANUFACTURERS LITERATURE INCLUDED IN THIS MANUAL, SEE

MANUFACTURERS LITERATURE SECTION. HAVE SERVICED BY A QUALIFIED SERVICE SHOP. MAKE SURE MOTOR IS WIRED FOR COUNTER-CLOCKWISE ROTATION.

ROTARY BLOWER

MAKE SURE TO CHECK THE OIL LEVEL DAILY BEFORE START UP. FOLLOW MANUFACTURERS MAINTENANCE SCHEDULE AS SPECIFIED IN THEIR RESPECTIVE MANUAL, SEE MANUFACTURERS LITERATURE SECTION.

FLANGED BEARINGS

BEARINGS SHOULD BE LUBRICATED EVERY 1000 HOURS OF OPERATION IF EQUIPPED WITH A LUBE FITTING. BEARINGS WITHOUT FITTINGS ARE CONSIDERED TO BE LUBRICATED FOR LIFE. DO NOT OVER LUBRICATE, THE GREASE RETAINING SEAL WILL BE DESTROYED. ONE STROKE FROM A HAND OPERATED GREASE GUN IS SUFFICIENT. USE GREASE EQUIVALENT TO NLGI GRADE NUMBER 1 OR 2.

ROLLER CHAIN

DO NOT LUBRICATE ROLLER CHAIN. CHAIN HAS BEEN FACTORY TREATED. EXCESSIVE LUBRICATION WILL CAUSE CHAIN TO COLLECT MATERIAL AND ACTUALLY WEAR FASTER.

“V” BELTS

DO NOT USE BELT DRESSING. BELT DRESSING WILL COLLECT MATERIAL AND CAUSE 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.

VII. TROUBLESHOOTING

CHART 1

MACHINE WILL NOT OPERATE - ELECTRICAL

A. NO VOLTAGE READING

1. DISCONNECT SWITCH IN OFF POSITION.
2. FUSE BLOWN/CIRCUIT BREAKER TRIPPED AT POWER SOURCE.
3. FUSE BLOWN/SERVICE DISCONNECT TRIPPED IN MACHINE PANEL, DISCONNECT POWER, CHECK WITH OHMMETER AND REPLACE FUSE.
4. SEEK HELP OF QUALIFIED INDUSTRIAL ELECTRICIAN.

B. MOTOR WILL NOT OPERATE

NOTE: MOVE DISCONNECT SWITCH TO THE OFF POSITION AND UNPLUG POWER CORD BEFORE ATTEMPTING ANY OF THE FOLLOWING.

1. MOTOR CONTROLLER OVERLOAD TRIPPED, PUSH RESET BUTTON.
2. LOW VOLT CONTROL TRANSFORMER PRIMARY OR SECONDARY FUSE BLOWN, CHECK WITH OHMMETER AND REPLACE BAD FUSE.
3. MOTOR FUSE BLOWN, CHECK WITH OHMMETER AND REPLACE FUSE.
4. CHECK FOR LOOSE WIRES.
5. MOTOR DEFECTIVE OR CONTROL CIRCUIT PROBLEM, SEEK HELP OF QUALIFIED INDUSTRIAL ELECTRICIAN.

C. MOTOR STARTS BUT THERE ARE NO OTHER MACHINE FUNCTIONS

1. EMERGENCY STOP BUTTON PUSHED OFF (IN), PULL ON (OUT).
2. SWING GATE OPEN, REMEMBER - THERE ARE SAFETY SWITCHES THAT WILL STOP ALL MECHANISM DRIVES AS STATED IN THE SAFETY SECTION OF THIS MANUAL.
3. HYDRAULIC PUMP CONTROL LEVER IN NEUTRAL.
4. CHECK SELECTOR SWITCH SETTING - IS IT OFF?
 - A. SWITCH IN REMOTE POSITION;
 1. REMOTE CORD NOT PLUGGED IN.
 2. REMOTE CORD OR TOGGLE SWITCH DEFECTIVE.
 - B. TRY SWITCH IN MACHINE POSITION, STILL NO FUNCTIONS.
 1. SOLENOID RELAY FUSE BLOWN, CHECK WITH POWER DISCONNECTED USING OHMMETER AND REPLACE BAD FUSE.
 2. SOLENOID COIL BAD, CHECK BY LOOSENING NUT AND SLIDE COIL HALF WAY UP SHAFT, ENGAGE WITH POWER ON TO SEE IF COIL PULLS ONTO SHAFT, REPLACE BAD COIL.

5. C-550A AND C-590A MODELS, REMOTE SPEED CONTROL PROBLEM.
 1. DRIVE MOTOR DEFECTIVE/CHECK FOR LOOSE WIRES.
 2. DRIVE SPROCKETS WORN, LEAD SCREW OR LINKAGE JAMMED.
 3. SPEED CONTROL TRANSFORMER FUSE BLOWN, CHECK WITH POWER DISCONNECTED USING OHMMETER AND REPLACE BAD FUSE.
6. CONTROL CIRCUIT PROBLEM, SEEK HELP OF QUALIFIED INDUSTRIAL ELECTRICIAN.

D. MOTOR CONTROLLER CONTINUALLY TRIPS

1. LOW VOLTAGE, CHECK BUCK-BOOST SETTING.
2. POWER CORD UNDERSIZED OR TOO LONG.
3. OPERATING FOR A PERIOD OF TIME ABOVE MAXIMUM BLOWER PRESSURE SETTING, CHECK MALFUNCTIONING RELIEF VALVE.
4. CHECK OVERLOAD SETTING TO LABEL ON MOTOR CONTROLLER, DO NOT EXCEED MAX. SETTING OR DAMAGE WILL OCCUR.
5. HIGH AMP DRAW OR CONTROL CIRCUIT PROBLEM, SEEK HELP OF QUALIFIED INDUSTRIAL ELECTRICIAN.

NOTE: ALL NEW DELIVERED MACHINES ARE PROVIDED WITH AN ELECTRICAL SCHEMATIC IN THE ELECTRICAL PANEL BOX, KEEP THIS SCHEMATIC WITH THE MACHINE AT ALL TIMES. THE SUREST AND FASTEST WAY TO TRACE DOWN AN ELECTRICAL PROBLEM IS TO HAVE A QUALIFIED INDUSTRIAL ELECTRICIAN CHECK OVER THE MACHINE. IF ONE IS NOT AVAILABLE, TRAINING IN THE USE OF A VOLT/OHMMETER AND AMP PROBE WOULD BE REQUIRED AND BENEFICIAL.

CHART 2

MACHINE WILL NOT OPERATE - MECHANICAL

A. MECHANISMS WILL NOT ROTATE - ELECTRICALS OK

1. CHECK CHART 1, COLUMN C, NO.'S 1, 2, 3.
2. HYDRAULIC PUMP DRIVE BELTS SLIPPING.
3. KEYS UNDER DRIVE PULLEYS SHEARED OR MISSING.
4. KEYS UNDER JACK SHAFT DRIVE COUPLER SHEARED OR MISSING.
5. KEYS UNDER FEEDER DRIVE COUPLER SHEARED OR MISSING.
6. ROTOR SHAFT BROKEN - ROTATE BY HAND WITH FEEDER CRANK HUB OBSERVING THAT ROTOR SHAFT, FEEDER BEARING, AND HOPPER COMPONENT BEARINGS ROTATE.
7. HYDRAULIC SYSTEM FAILURE - SEE CHART 4.

B. MECHANISM ROTATES - NO MATERIAL FLOW

1. NO MATERIAL IN HOPPER.
2. INFLECTOR DRIVE BELTS SLIPPING.

3. FOREIGN OBJECT RESTRICTING FLOW IN MACHINE.
4. SLIDE CLOSED TOO FAR IN FOR FEED RATE JAMMING INFLECTOR HOUSING.
5. KEYS UNDER DRIVE SPROCKETS SHEARED OR MISSING.
6. DRIVE CHAINS LOOSE, REMOVED, OR BROKEN.
7. DRIVE SPROCKETS WORN DOWN.
8. AUGER OR INFLECTOR ATTACH BOLTS SHEARED OR MISSING.
9. SEE CHART 3, COLUMN A IF MACHINE CONTINUALLY JAMS.

CHART 3
SPRAY APPLICATION PROCEDURE

A. INSUFFICIENT AIR

1. CHECK THAT BLEED AIR BALL VALVE IS NOT FULLY OPEN WITH HIGH FEED RATE.
2. CHECK IF INLET AIR SCREEN IS CLOGGED.
3. CHECK BLOWER DRIVE BELTS, ADJUST OR REPLACE AS REQUIRED.
4. CHECK THAT AIR STREAM HOSE CONNECTIONS ARE TIGHT.
5. RELIEF VALVE STUCK OPEN, CHECK PRESSURE SETTING AS DESCRIBED IN THE MAINTENANCE SECTION, SEE COLUMN B.
6. FEEDER SEALS WORN OUT, HOW MANY HOURS SINCE LAST CHANGE?
7. ROTOR SEALS WORN OUT.
8. BLOWER WORN OR DAMAGED, SEE MANUFACTURER'S LITERATURE.

B. HIGH SYSTEM AIR PRESSURE - BLOWER RELIEF VALVE CONTINUALLY POPS

1. CHECK PRESSURE SETTING AS DESCRIBED UNDER MAINTENANCE.
2. HOSES OR STANDPIPES PLUGGED; LOW AIR WITH HIGH FEED RATE, THICK WALL HOSE COUPLING, SHARP BENDS IN HOSE, COLLAPSED HOSE, UNDERSIZED INSIDE DIAMETER.
3. INSPECT THAT ONE WAY AIR CHECK VALVE IS NOT STUCK.
4. HOSE DAMS, LONG HORIZONTAL RUN MAY NEED UPSETTING WITH CURVES AND/OR UNLEVEL PLACEMENT.
5. NOZZLE SELECTION; THICK WALL, SMALL INSIDE DIAMETER, OBJECT RESTRICTING FLOW.
6. POLE GUN; GOOSE NECK RESTRICTING FLOW, MATERIAL HOSE PINCHED OR COLLAPSED.
7. INSUFFICIENT AIR TO MOVE MATERIAL.

C. SPORADIC FEED RATE

1. FLUCTUATING HOPPER LEVEL.
2. FEED RATE SET TO LOW FOR SHORT HOSE RUN.
3. INSUFFICIENT AIR.
4. MECHANICAL - REFER TO CHART 2, COLUMN B.
5. HYDRAULIC - REFER TO CHART 4, COLUMN'S B AND C.

D. LOW MATERIAL DENSITY

1. TOO LOW ON AIR VOLUME.
2. NOT ENOUGH WATER.
3. SLOW INFLECTOR SPEED.
4. WORN OR DAMAGED INFLECTOR.
5. CHOKE ORIFICE IN NOZZLE ERODED.
6. SPRAY NOZZLE TOO FAR FROM SUBSTRATE SURFACE.

E. HIGH MATERIAL DENSITY

1. IMPROPER MACHINE SETTING; TOO MUCH AIR, SLIDE CLOSED IN, AND/OR INFLECTOR SPEED HIGH.
2. HOSE SELECTION; SMALL INSIDE DIAMETER, ROUGH BORE, AND/OR EXCEEDED MAXIMUM HEIGHT.
3. NOZZLE SELECTION; THICK WALL, SMALL INSIDE DIAMETER, OBJECT IN NOZZLE CAUSING MATERIAL TO PACK, SMALL CHOKE ORIFICE, AND/OR SMALL WATER JETS.
4. WATER; TOO MUCH WATER, AND/OR HIGH PRESSURE.
5. SPRAY NOZZLE TOO CLOSE TO SUBSTRATE SURFACE.

CHART 4 HYDRAULIC SYSTEM

A. NO MOVEMENT

1. NO FLOW OR PRESSURE.
 - A. PUMP NOT RECEIVING FLUID.
REMEDY: A
 - B. PUMP DRIVE MOTOR TURNING IN WRONG DIRECTION.
REMEDY: B
 - C. ENTIRE FLOW PASSING OVER RELIEF VALVE OR SOLENOID.
REMEDY: C

2. LIMIT OR SEQUENCE DEVICE (HYDRAULIC, MECHANICAL, OR ELECTRICAL) INOPERATIVE OR MISADJUSTED.
REMEDY: C
3. MECHANICAL BIND.
REMEDY: D
4. WORN OR DAMAGED PUMP OR MOTOR.
REMEDY: E
5. IMPROPER SIZE TORQUE MOTOR USED FOR REPLACEMENT.
REMEDY: I

B. ERRATIC MOVEMENT

1. AIR IN FLUID.
REMEDY: J
2. CONTAMINATION IN FLUID.
REMEDY: A
3. WORN OR DAMAGED RELIEF VALVE.
REMEDY: E
4. WORN OR DAMAGED PUMP OR MOTOR.
REMEDY: E
5. IMPROPER SIZE TORQUE MOTOR USED FOR REPLACEMENT.
REMEDY: I

C. SLOW MOVEMENT

1. LOW FLOW.
 - A. FLOW BYPASSING THROUGH PARTIALLY OPEN VALVE.
REMEDY: E OR F
 - B. EXTERNAL LEAK IN SYSTEM.
REMEDY: G
2. FLUID VISCOSITY TOO HIGH.
REMEDY: H
3. WORN OR DAMAGED PUMP OR MOTOR.
REMEDY: E
4. RPM OF REPLACEMENT DRIVE MOTOR INCORRECT.
REMEDY: I
5. IMPROPER SIZE PULLEY USED FOR REPLACEMENT.
REMEDY: I

D. EXCESSIVE SPEED

1. RPM OF DRIVE MOTOR INCORRECT.
REMEDY: I

2. IMPROPER SIZE PULLEY USED FOR REPLACEMENT.
REMEDY: I
3. IMPROPER SIZE PUMP USED FOR REPLACEMENT.
REMEDY: I

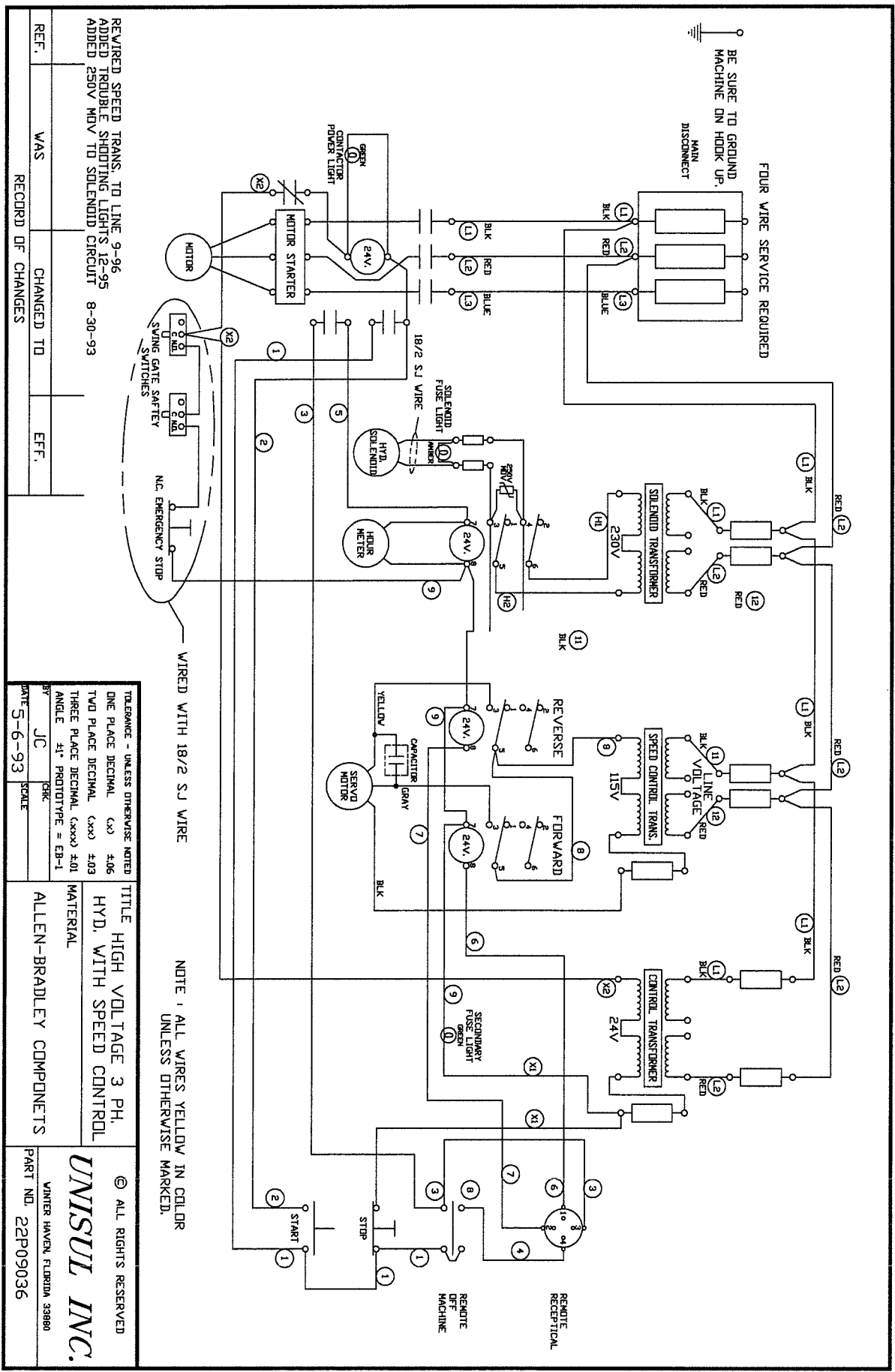
HYDRAULIC SYSTEM REMEDIES:

- A. ANY OR ALL OF THE FOLLOWING; REPLACE DIRTY FILTER, CLEAN CLOGGED INLET LINE, CLEAN OR REPLACE RESERVOIR BREATHER VENT, FILL RESERVOIR TO PROPER LEVEL.
- B. REVERSE ROTATION.
- C. ADJUST, OVERHAUL, OR REPLACE.
- D. LOCATE BIND AND REPAIR.
- E. OVERHAUL OR REPLACE.
- F. CHECK POSITION OF MANUALLY OPERATED CONTROLS, CHECK ELECTRICAL CIRCUIT ON SOLENOID.
- G. TIGHTEN LEAKING CONNECTIONS.
- H. FLUID MAY BE TOO COLD OR SHOULD BE CHANGED TO CLEAN FLUID OF CORRECT VISCOSITY.
- I. REPLACE WITH CORRECT UNIT.
- J. TIGHTEN LEAKING CONNECTIONS, FILL RESERVOIR TO PROPER LEVEL, BLEED AIR FROM SYSTEM.

NOTE: REFERENCE HYDRAULIC PUMP AND TORQUE MOTOR MANUFACTURERS LITERATURE FOR ADDITIONAL TROUBLESHOOTING. IT IS ADVISED THAT AN AUTHORIZED SERVICE CENTER BE CONTACTED IF YOUR HYDRAULIC EXPERIENCE OR REPAIR FACILITIES ARE LIMITED.



CAN'T BID ON THAT BIG JOB BECAUSE THERE WILL BE NO ELECTRIC POWER AVAILABLE?
CONSIDER AN ENGINE DRIVEN MACHINE FOR YOUR NEXT PURCHASE!



BE SURE TO GROUND MACHINE ON HOOK UP.
MAIN DISCONNECT

FOUR WIRE SERVICE REQUIRED

REVISED SPEED TRANS. TO LINE 9-96
ADDED TROUBLE SHOOTING LIGHTS 12-95
ADDED 250V MOV TO SOLENOID CIRCUIT 8-30-93

REF. WAS CHANGED TO EFF.
RECORD OF CHANGES

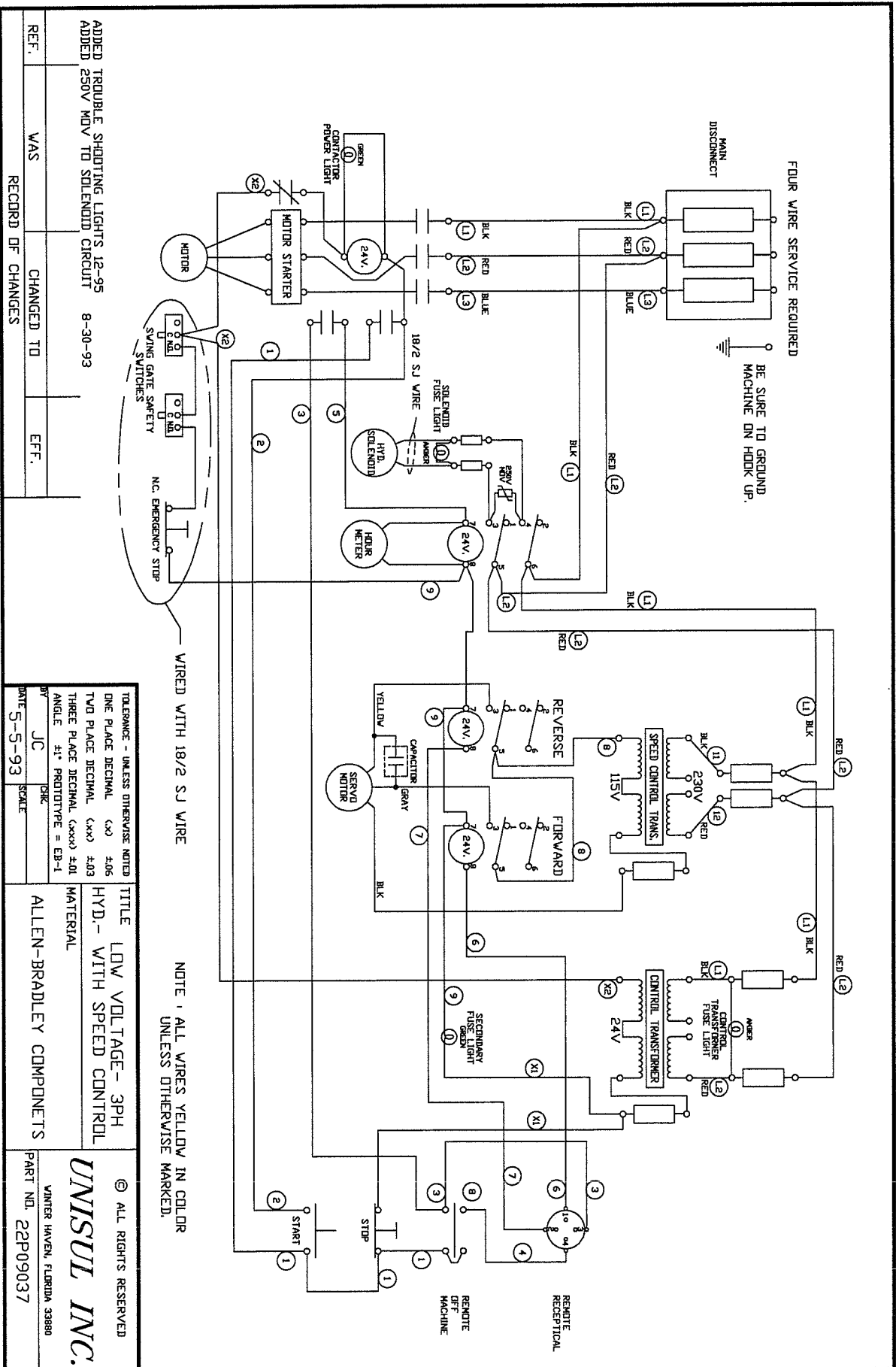
WIRED WITH 18/2 SJ WIRE

NOTE: ALL WIRES YELLOW IN COLOR UNLESS OTHERWISE MARKED.

TELEPHONE - UNLESS OTHERWISE NOTED	
ONE PLACE DECIMAL (x)	4.06
TWO PLACE DECIMAL (xx)	4.03
THREE PLACE DECIMAL (xxx)	4.01
ANGLE 41° PROTOTYPE = EB-1	
BY JC	SCALE
DATE 5-6-93	

TITLE	HYD. HIGH VOLTAGE 3 PH. WITH SPEED CONTROL
MATERIAL	ALLEN-BRADLEY COMPONENTS

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WINTER HAVEN, FLORIDA 33980
PART NO. 22P09036



FOUR WIRE SERVICE REQUIRED

BE SURE TO GROUND MACHINE ON HOOK UP.

Wired with 18/2 SJ WIRE

NOTE: ALL WIRES YELLOW IN COLOR UNLESS OTHERWISE MARKED.

REF. WAS CHANGED TO EFF.
RECORD OF CHANGES

ADDED TROUBLE SHOOTING LIGHTS 12-95
ADDED 250V MOV TO SOLENOID CIRCUIT 8-30-93

TOLERANCE - UNLESS OTHERWISE NOTED	
ONE PLACE DECIMAL (x)	±.06
TWO PLACE DECIMAL (xx)	±.03
THREE PLACE DECIMAL (xxx)	±.01
ANGLE 1/2° PROTOTYPE = EB-1	
BY JC	CHK
DATE 5-5-93	SCALE

TITLE	LOW VOLTAGE - 3PH HYD. - WITH SPEED CONTROL
MATERIAL	ALLEN-BRADLEY COMPONENTS

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PART NO. 22P09037

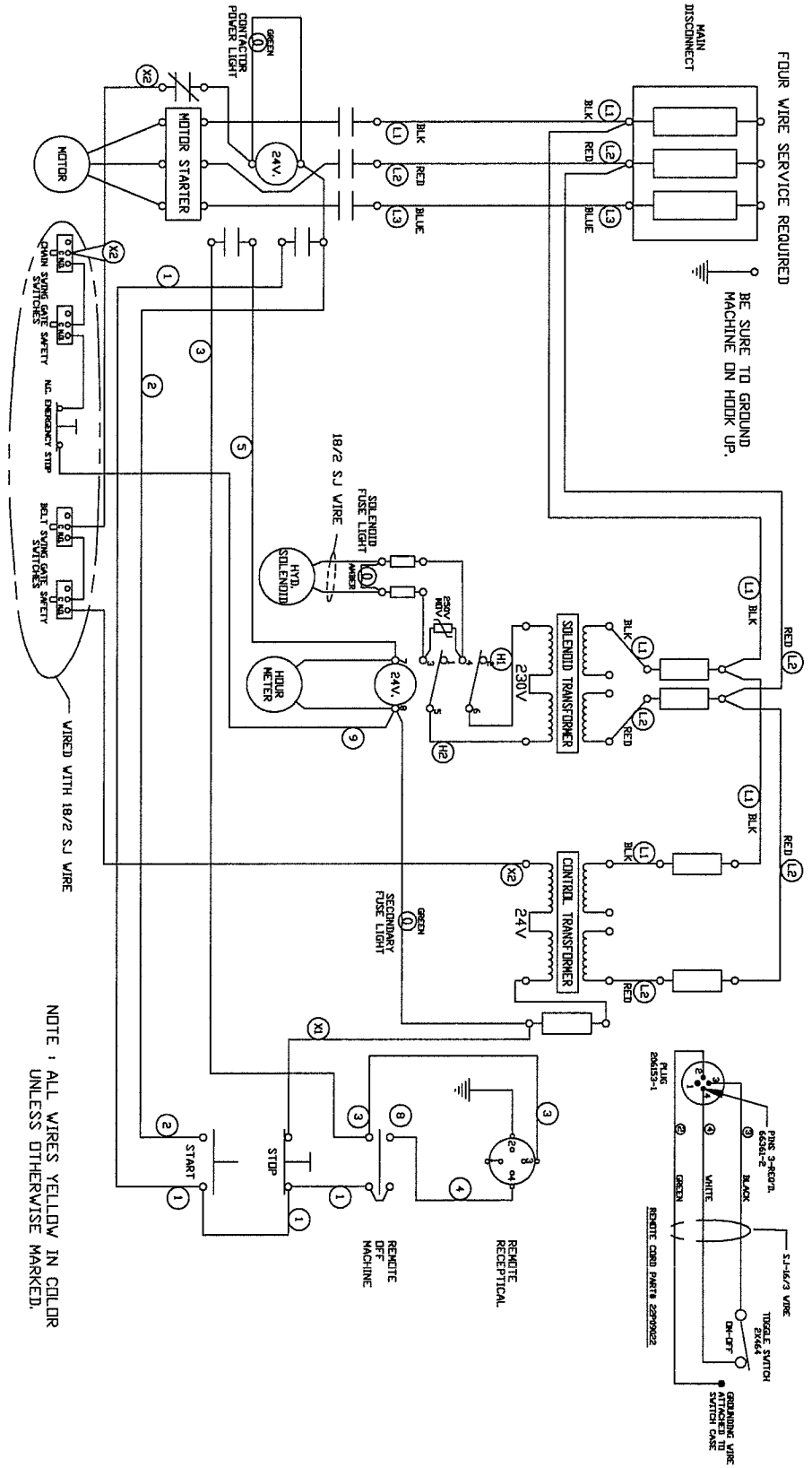
ADDED BELT GATE SWITCHES 9-99
 ADDED BELT GATE SWITCHES 9-99
 ADDED REMOTE GROUND WIRE 2/99
 ADDED TROUBLE SHOOTING LIGHTS 12-95
 ADDED 250V MDV TO SOLENOID CIRCUIT 8-30-93

REF. WAS RECORD OF CHANGES EFF.

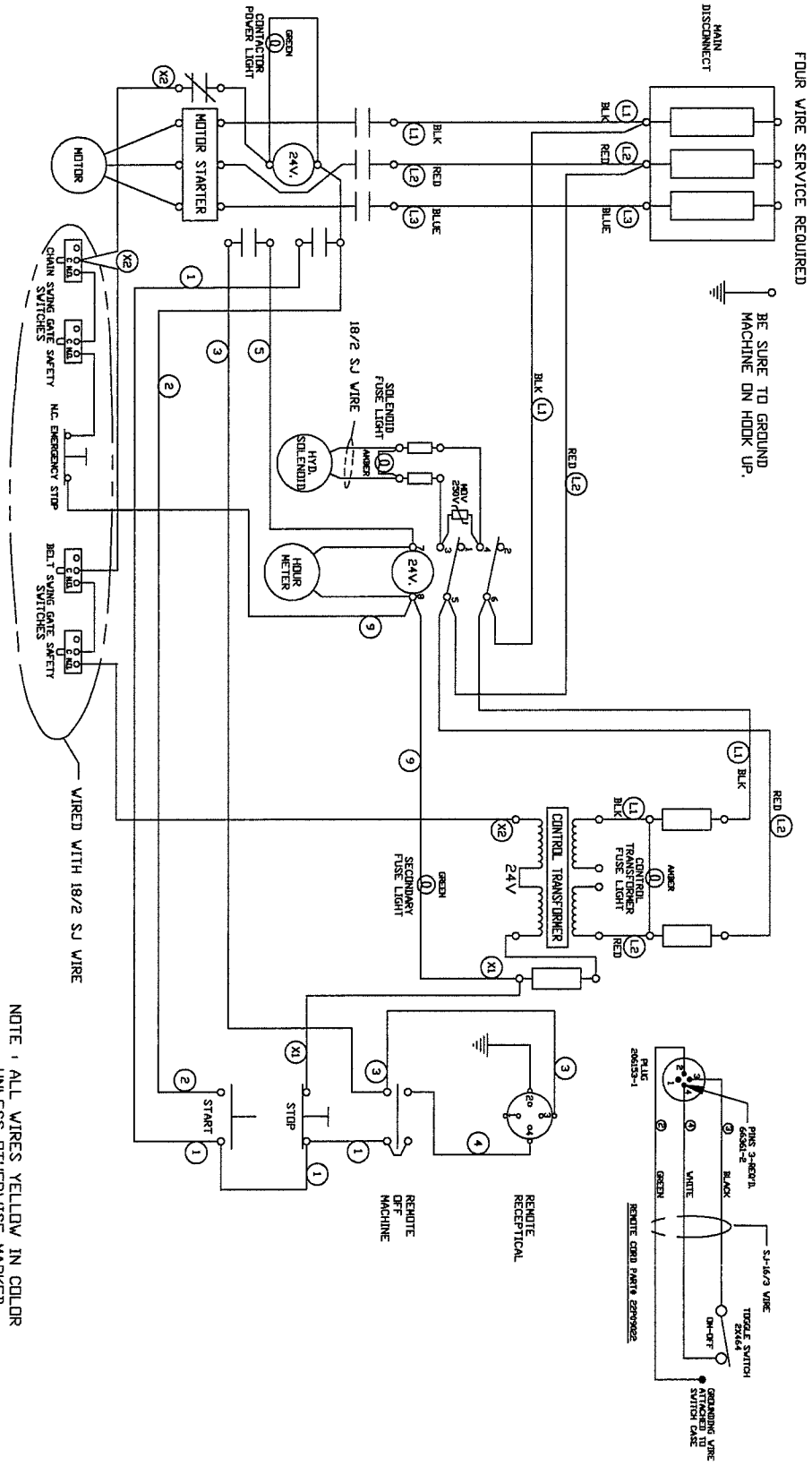
DATE	BY	SCALE
5-5-93	JC	

TELEPHONE - UNLESS OTHERWISE NOTED
 ONE PLACE DECIMAL (x) ±0.6
 TWO PLACE DECIMAL (xx) ±0.3
 THREE PLACE DECIMAL (xxx) ±0.1
 ANGLE 41° PROTOTYPE = EB-1

TITLE HIGH VOLTAGE
 3 PHASE - HYDRAULIC
 MATERIAL ALLEN-BRADLEY COMPONENTS
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 WINTER HAVEN, FLORIDA 33880
 PART NO. 22P09038



WAS RECORD OF CHANGES EFF.



FOUR WIRE SERVICE REQUIRED

BE SURE TO GROUND MACHINE ON HOOK UP.

WIRED WITH 18/2 SJ WIRE

NOTE: ALL WIRES YELLOW IN COLOR UNLESS OTHERWISE MARKED.

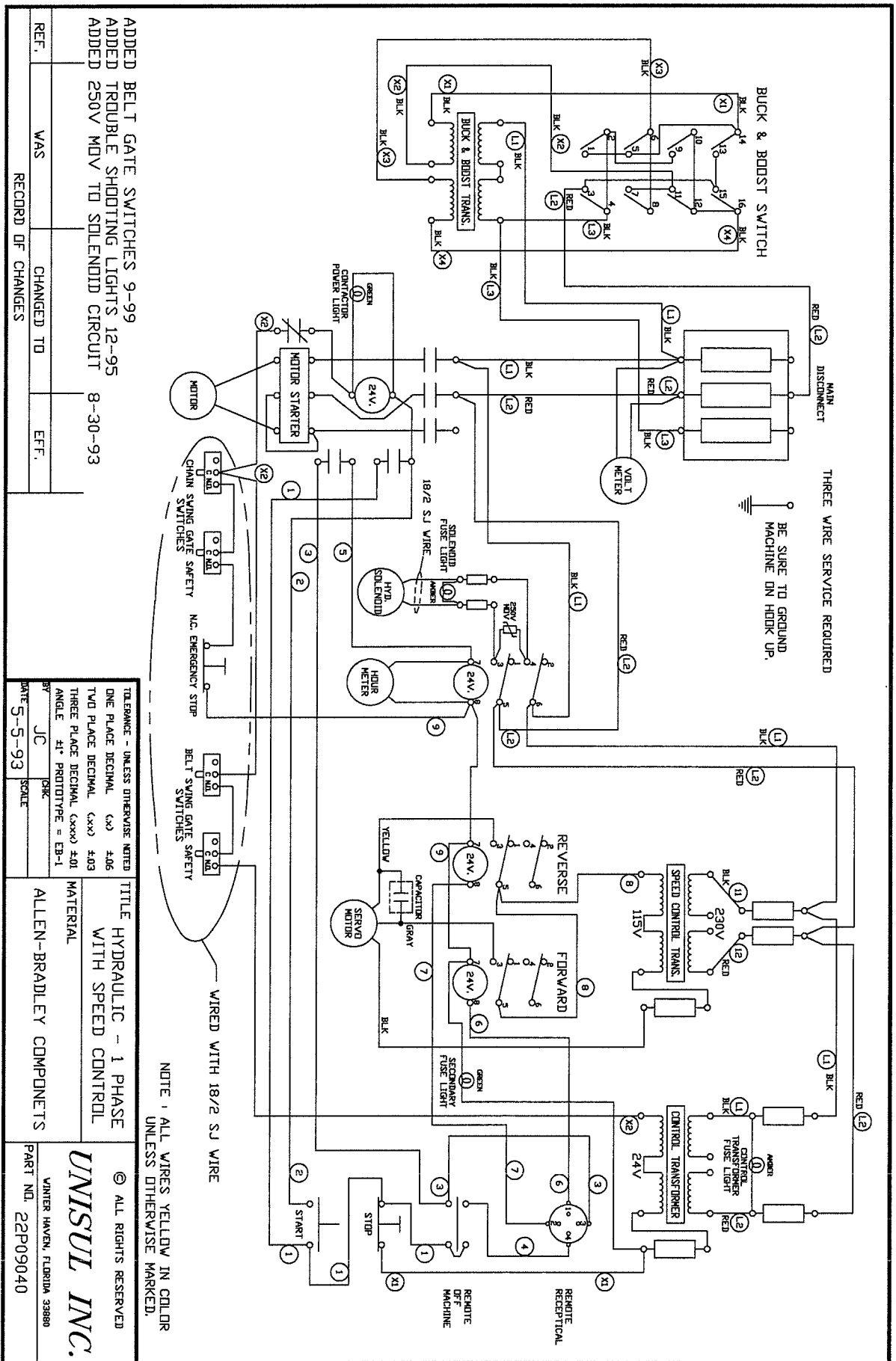
ADDED BELT GATE SWITCHES 9-99
 ADDED REMOTE GROUND WIRE 2/99
 ADDED TROUBLE SHOOTING LIGHTS 12-95
 ADDED 250V MOV TO SOL. CIRCUIT 8-30-93

REF.	WAS	CHANGED TO	EFF.
		RECORD OF CHANGES	

TOLERANCE - UNLESS OTHERWISE NOTED	
ONE PLACE DECIMAL (x)	4.06
TWO PLACE DECIMAL (xx)	4.03
THREE PLACE DECIMAL (xxx)	4.01
ANGLE 41° PROTOTYPE = EB-1	
BY JC	CHK
DATE 5-6-93	SCALE

TITLE	LOW VOLTAGE C-500
	3 PHASE - HYDRAULIC
MATERIAL	ALLEN-BRADLEY COMPONENTS

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 PART NO. 22P09039



ADDED BELT GATE SWITCHES 9-99
 ADDED TROUBLE SHOOTING LIGHTS 12-95
 ADDED 250V MOV TO SOLENOID CIRCUIT 8-30-93

REF. WAS CHANGED TO EFF.
 RECORD OF CHANGES

TELEPHONE - UNLESS OTHERWISE NOTED	ONE PLACE DECIMAL (x)	±.06
TWO PLACE DECIMAL (xx)	±.03	
THREE PLACE DECIMAL (xxx)	±.01	
ANGLE 41° PROTOTYPE = EB-1		
BY JC	SCALE	
DATE 5-5-93		

TITLE HYDRAULIC - 1 PHASE WITH SPEED CONTROL

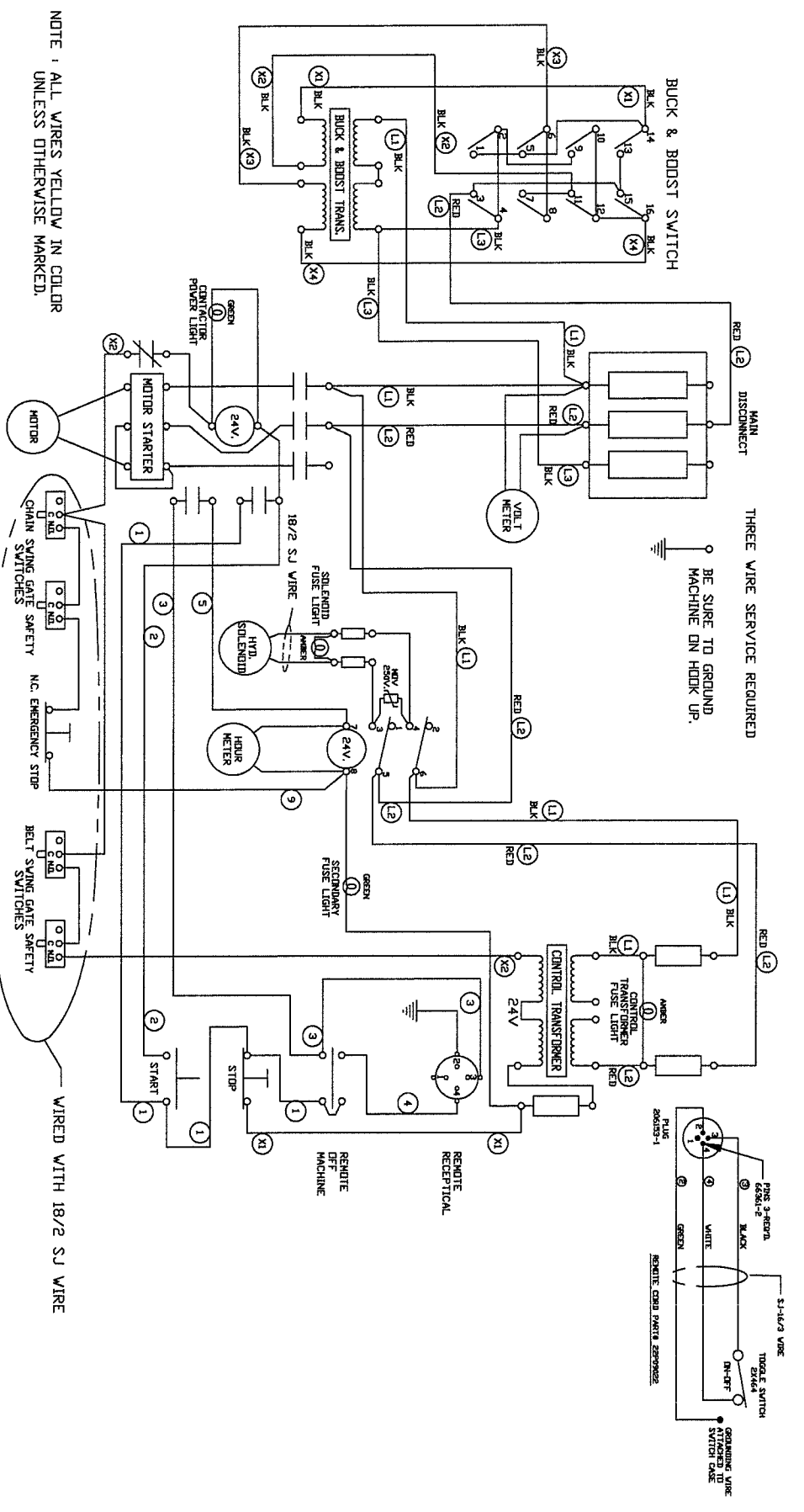
MATERIAL ALLEN-BRADLEY COMPONENTS

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PART NO. 22P09040



NOTE : ALL WIRES YELLOW IN COLOR UNLESS OTHERWISE MARKED.

ADDED BELT GATE SWITCHES 9-99
 ADDED REMOTE GROUND WIRE 2-99
 ADDED TROUBLE SHOOTING LIGHTS 12-95
 ADDED 250V MOV TO SOL. COIL CIRCUIT 8-30-93

REF.	CHANGED TO	EFF.
	RECORD OF CHANGES	

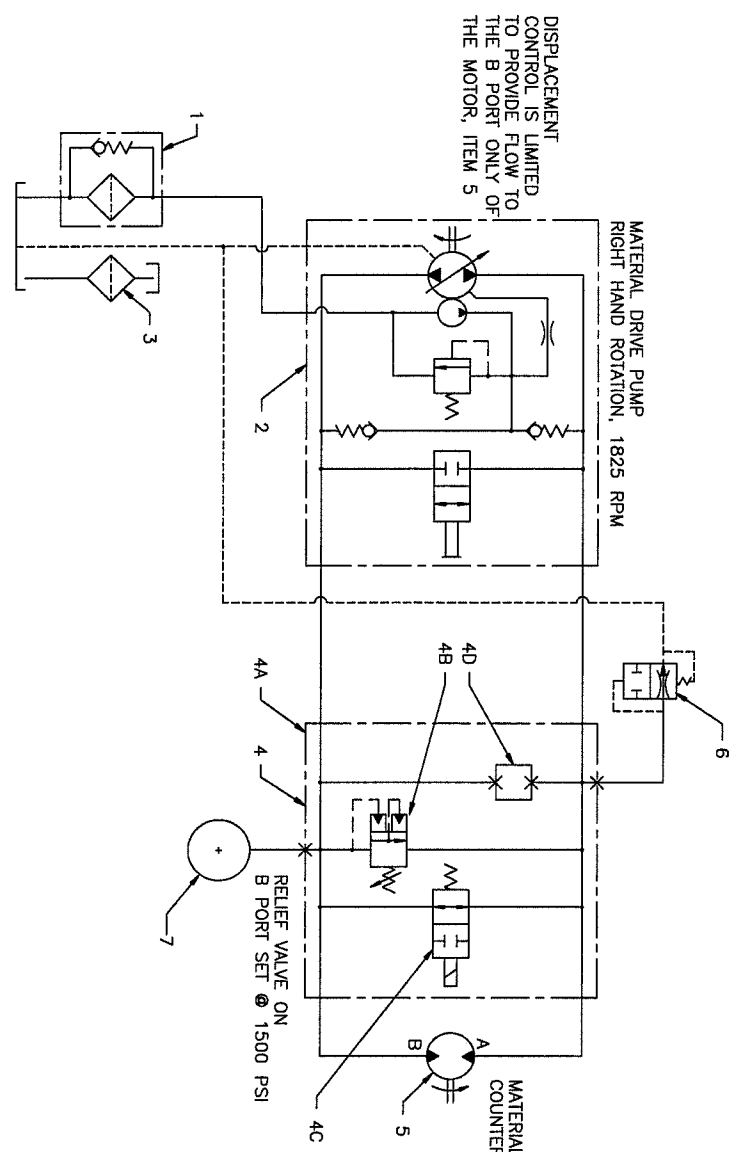
DATE	BY	SCALE
5-5-93	JC	

TOLERANCE - UNLESS OTHERWISE NOTED	
ONE PLACE DECIMAL (x.1)	±0.06
TWO PLACE DECIMAL (x.01)	±0.03
THREE PLACE DECIMAL (x.001)	±0.01
ANGLE 41° PROTOTYPE = EB-1	
TITLE	HYDRAULIC - 1 PHASE LESS SPEED CONTROL.
MATERIAL	ALLEN-BRADLEY COMPONENTS

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 PART NO. 22P09041

ITEM	DESCRIPTION	QTY
1	VICKERS OFSS-10-P-25M-10 SUCTION FILTER	1
2	SUNSTRAND BDP-10L-110 PUMP RH	1
3	SCHROEDER ABF 3/10 BREATHER	1
4	GCC-2249 CUSTOM VALVE ASSEMBLY	1
4A	SUN GC0216A CUSTOM VALVE BLOCK	1
4B	SUN RQEB-FAN KICK DOWN RELIEF CARTRIDGE	1
4C	VICKERS SV4-10-0-0-230AC SOLENOID VALVE	1
4D	SUN XFCG-XXN CAVITY PLUG	1
5	ROSS MG121110AAC MOTOR	1
6	SUN NQAA XAX AA AIR BLEED LINE FUSE	1
7	0-2000 P.S.I. LIQUID FILLED PRESSURE GAUGE	1

NOTES: EQUIVALENT PARTS MAY BE SUBSTITUTED FOR ANY PARTS SHOWN ABOVE.



LTR	REVISION	DATE	CHECKED
A	ADDED AIR BLEED/PRESS.GAUGE	4/92	

UNISUL INC.

HYDRAULIC SCHEMATIC, FIREPROOFING MACHINE

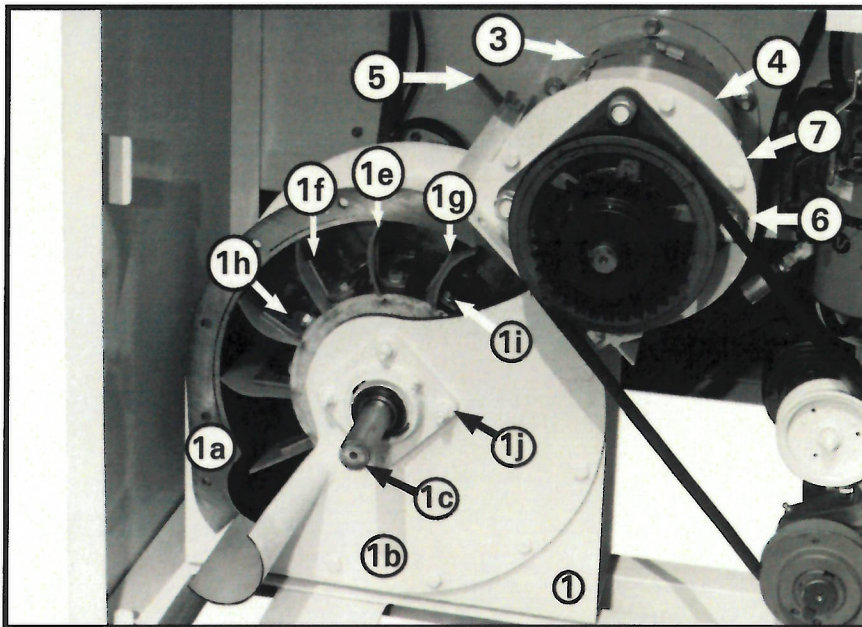
CUSTOMER-CONFIGURED FOR UNISUL INC. FILE NAME: GCC-2244
 BY GULF CONTROLS CORPORATION
 DRAWN BY: A. EL SASS
 CHECKED BY: A. EL SASS

DATE: 8 NOV. 1990
 DATE: 8 NOV. 1990

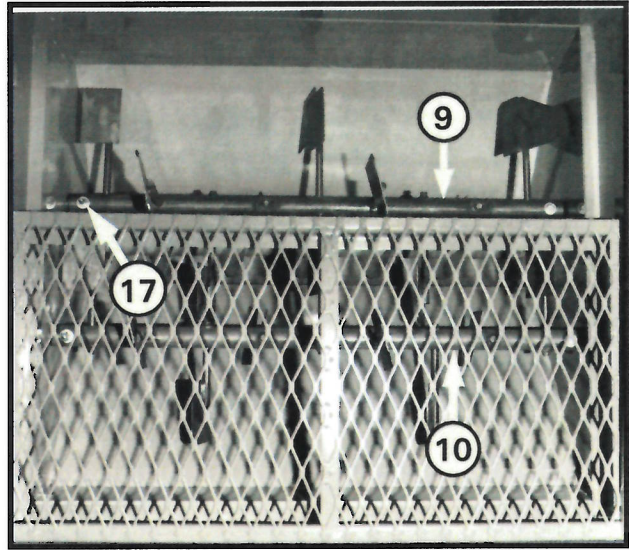
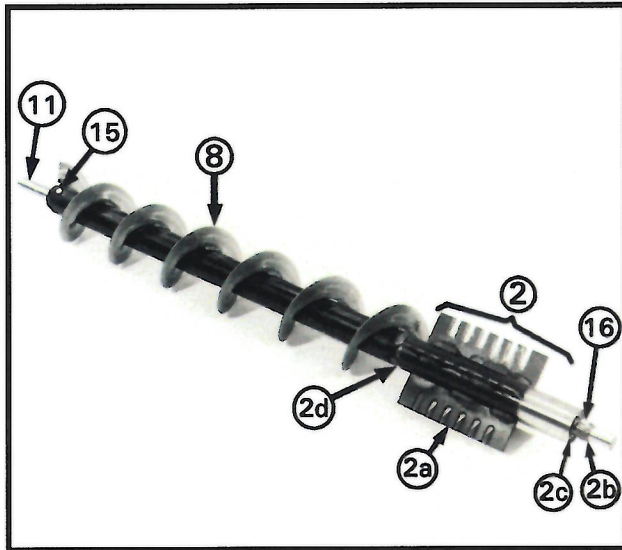
DRAWING NUMBER: 22P10001

VIII. PARTS LIST

<u>ITEM</u>	<u>DESCRIPTION</u>	<u>QUANTITY</u>
1.	AIRLOCK FEEDER ASSEMBLY COMPLETE	1
1a.	BARREL WELD ASSEMBLY	1
1b.	END PLATE	2
1c.	ROTOR	1
1d.	ROTOR SEAL	2
1e.	FEEDER SEAL	12
1f.	VANE - FEEDER SEAL	12
1g.	BACKING PLATE - FEEDER SEAL	12
1h.	SEAL ATTACH SCREW, 5/16"-18 x 1/2" LENGTH BUTTON HEAD	24
1i.	VANE ATTACH BOLT, 3/8"-16 x 1" LENGTH GRADE 5	24
1j.	END PLATE BEARING	2

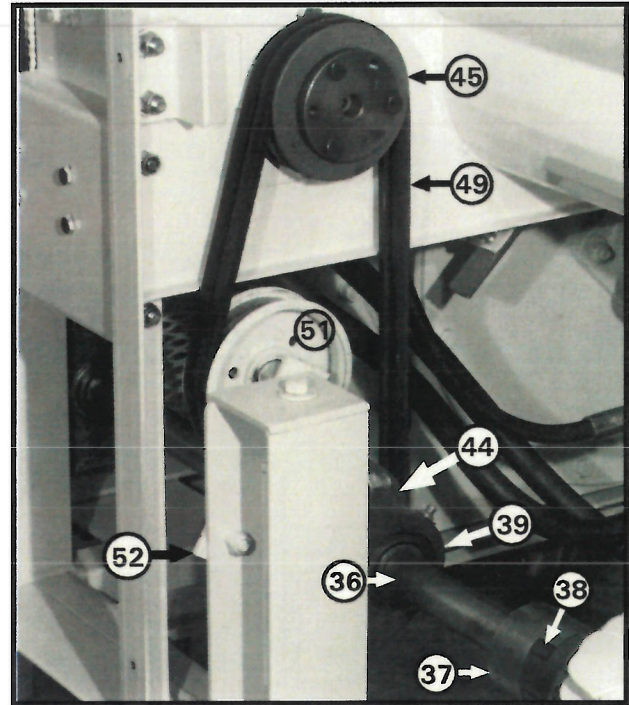
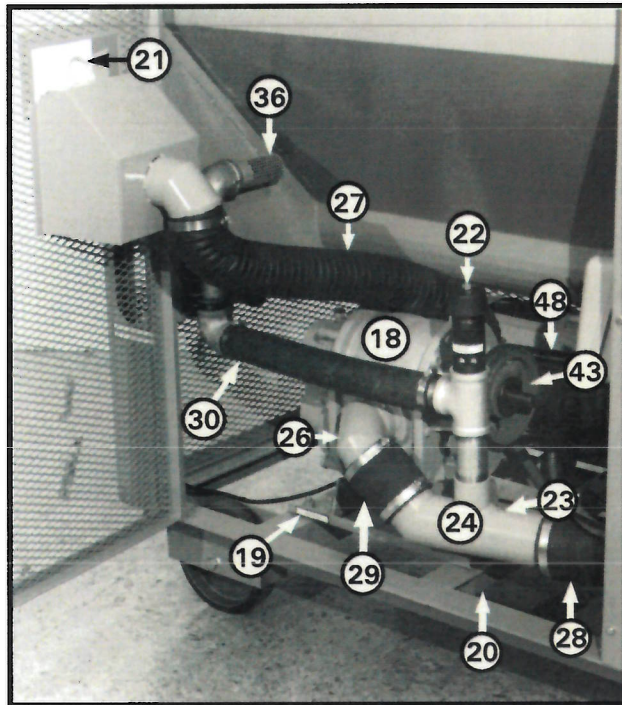


2.	INFLECTOR ASSEMBLY COMPLETE	1
2a.	OUTER CYLINDER WITH PADDLES	1
2b.	INNER CYLINDER	1
2c.	INNER BEARING	2
2d.	PLUG	1
3.	INFLECTOR HOUSING	1
4.	COVER - INFLECTOR HOUSING	1
5.	SLIDE GATE	1
6.	BEARING, AUGER/INFLECTOR	1
7.	PLATE, AUGER/INFLECTOR BEARING	1
8.	AUGER	1
9.	17" DIAMETER CIRCULATOR	1
10.	14" DIAMETER CIRCULATOR	1
11.	AUGER SHAFT	1
12.	STUB SHAFT, CIRCULATOR FRONT	2
13.	STUB SHAFT, CIRCULATOR REAR	2
14.	BEARING, HOPPER COMPONENTS	5
15.	AUGER ATTACH BOLT, 5/16"-18 x 3/4" LEN. GRADE 5	1
16.	INFLECTOR ATTACH BOLT, 5/16"-18 x 1/4" LEN. GRADE 5	1
17.	CIRCULATOR ATTACH BOLT, 5/16"-18 x 2" LEN. GRADE 5	1
18.	BLOWER	1
19.	MOUNTING PLATE, BLOWER	1

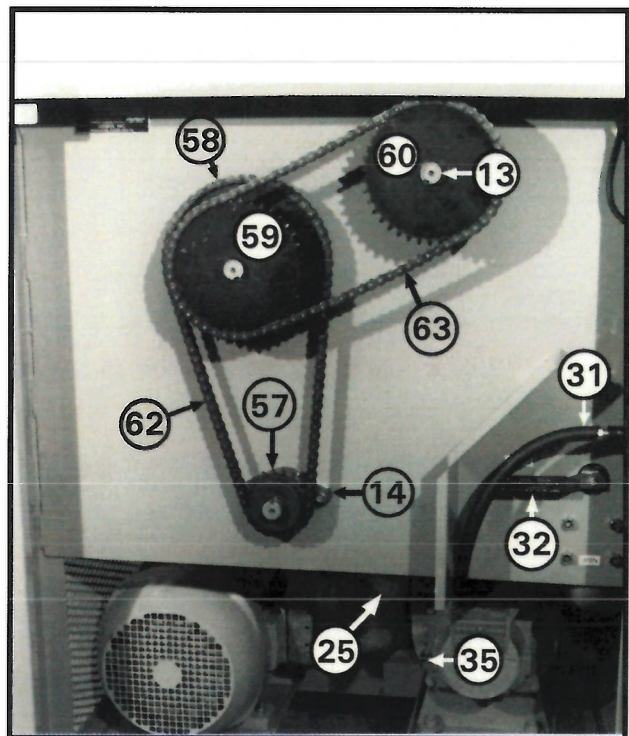
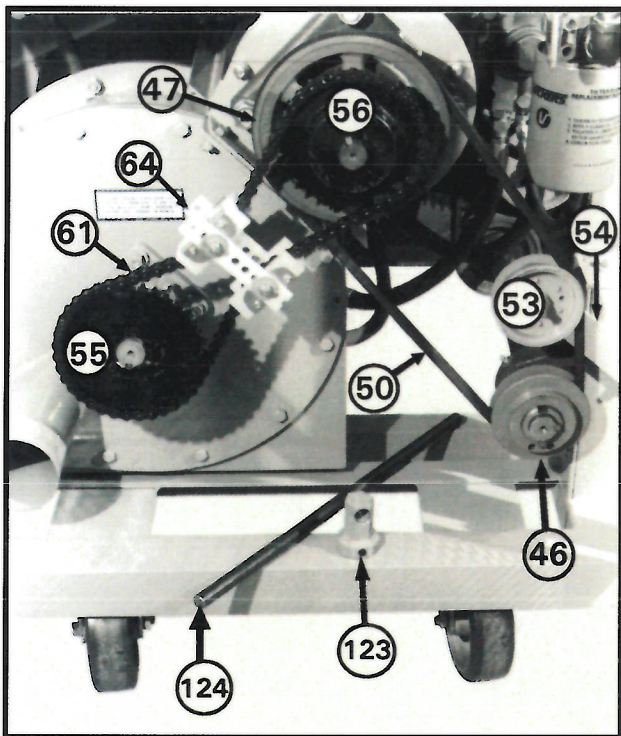


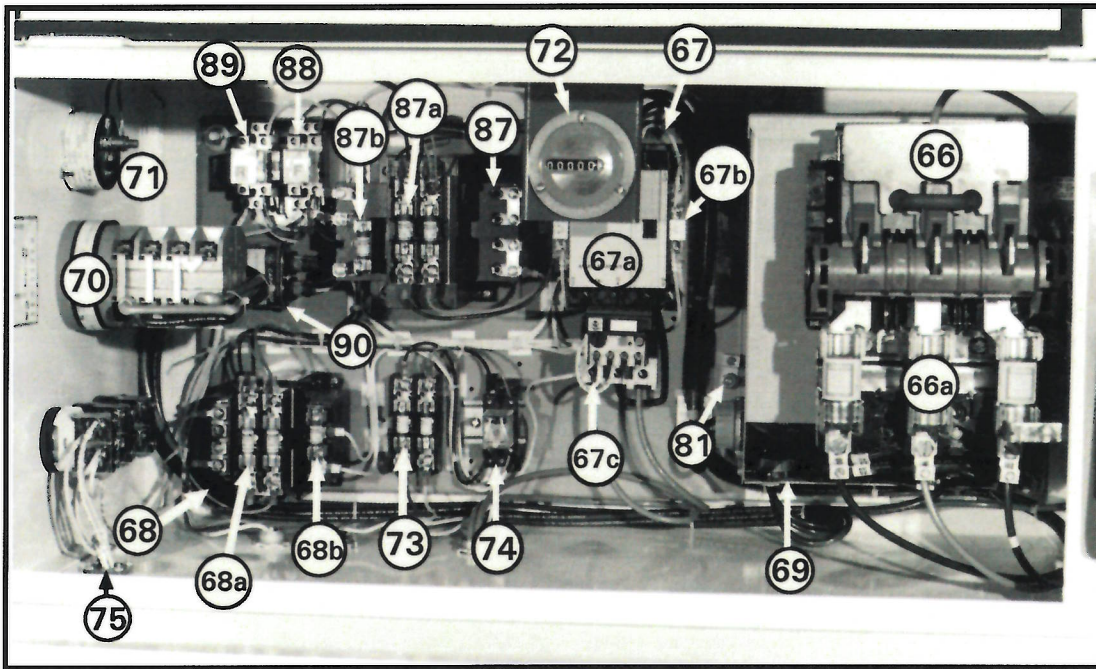
- 20. TAKE UP, BLOWER
- 21. BLOWER INLET SCREEN
- 22. RELIEF VALVE
- 23. CHECK VALVE
- 24. AIR STREAM TUBE
- 25. BLOWER INLET ELBOW
- 26. BLOWER OUTLET ELBOW
- 27. FLEXIBLE CONNECTION HOSE, 3" I.D.
- 28. CONNECTION HOSE, 3 1/2" I.D.
- 29. CONNECTION HOSE, 3/4" I.D.
- 30. CONNECTION HOSE, 1 7/8" I.D.
- 31. CONNECTION HOSE, 5/16" I.D.
- 32. AIR BLEED CONTROL VALVE, 1 1/2" NPT
- 33. AIR GAUGE
- 34. MUFFLER, BLEED AIR
- 35. BRASS VALVE

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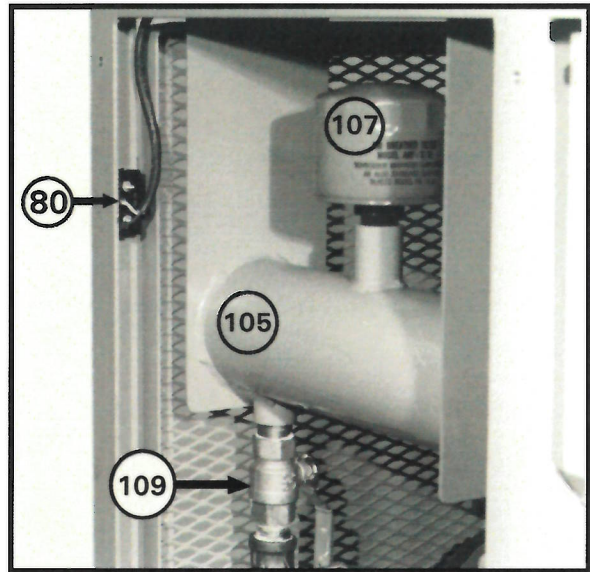
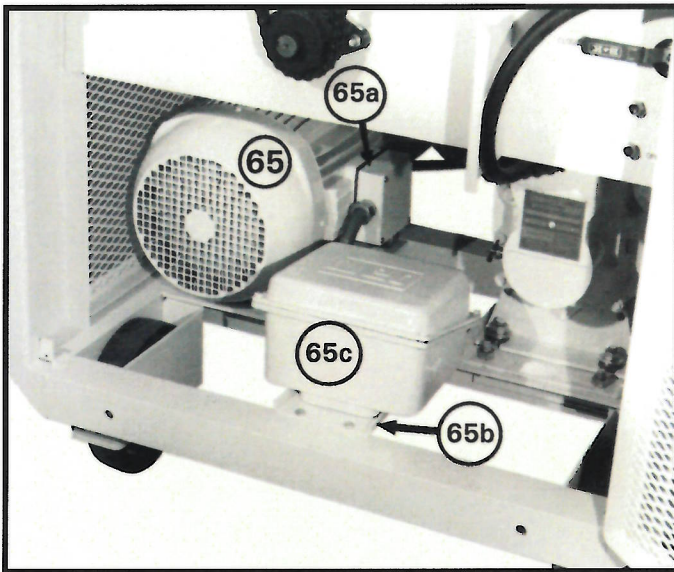


36.	JACK SHAFT	1
37.	JAW COUPLER, JACK SHAFT DRIVE	1
38.	SPIDER GEAR, JAW COUPLER	1
39.	BEARING, JACK SHAFT	2
40.	TAKE UP, JACK SHAFT BEARING	2
41.	COUPLER, FEEDER DRIVE	1
42.	BLOWER DRIVE PULLEY AND BUSHING	1
43.	BLOWER DRIVEN PULLEY AND BUSHING	1
44.	HYDRAULIC PUMP DRIVE PULLEY AND BUSHING	1
45.	HYDRAULIC PUMP DRIVEN PULLEY AND BUSHING	1
46.	INFLECTOR DRIVE PULLEY	1
47.	INFLECTOR DRIVEN PULLEY	1
48.	BLOWER DRIVE BELT	2
49.	HYDRAULIC PUMP DRIVE BELT	2
50.	INFLECTOR DRIVE BELT	1
51.	BELT IDLER, HYDRAULIC PUMP	1
52.	IDLER ARM, HYDRAULIC PUMP BELT IDLER	1
53.	BELT IDLER, INFLECTOR	1
54.	IDLER ARM, INFLECTOR BELT IDLER	1
55.	AUGER DRIVE SPROCKET	1
56.	AUGER DRIVEN SPROCKET	1
57.	17" DIAMETER CIRCULATOR DRIVE SPROCKET	1
58.	17" DIAMETER CIRCULATOR DRIVEN SPROCKET	1
59.	14" DIAMETER CIRCULATOR DRIVE SPROCKET	1
60.	14" DIAMETER CIRCULATOR DRIVEN SPROCKET	1
61.	AUGER DRIVE CHAIN, #40	1
62.	17" DIAMETER CIRCULATOR DRIVE CHAIN	1
63.	14" DIAMETER CIRCULATOR DRIVE CHAIN	1
64.	CHAIN IDLER, #40	1
65.	DRIVE MOTOR	1
65a.	CAPACITOR BOX	1
65b.	PLATE, CAPACITOR BOX MOUNT	1
65c.	MOTOR CONNECTION BOX	1

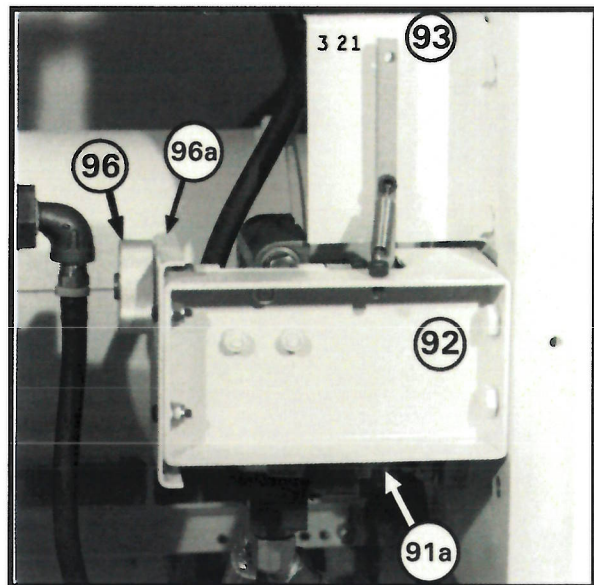
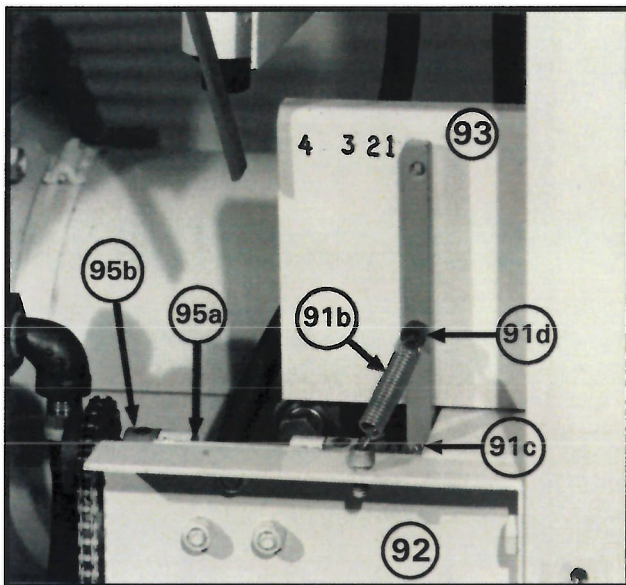


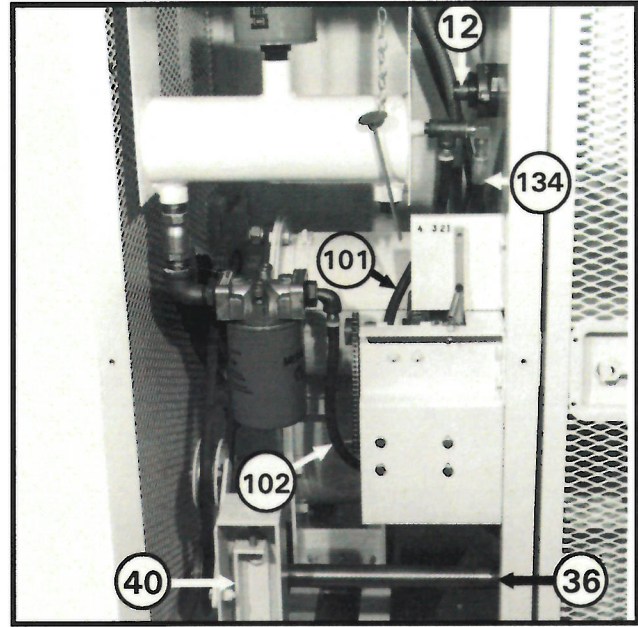
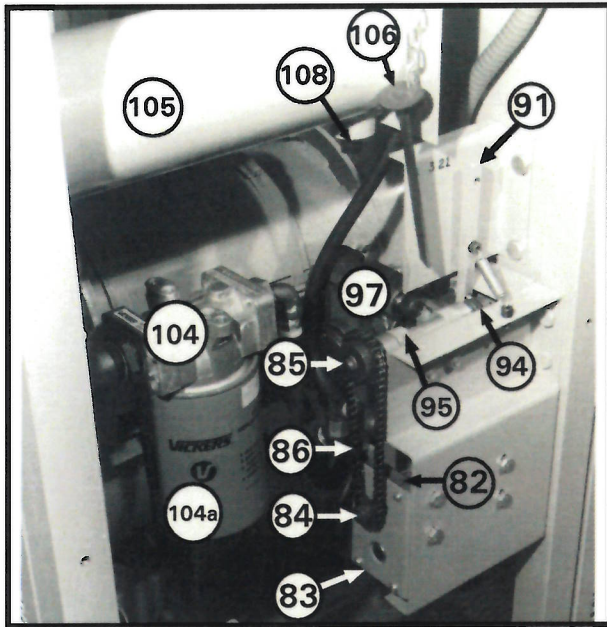


66.	DISCONNECT SWITCH	1
	66a. FUSE	3
67.	MOTOR CONTROLLER OVERLOAD AND STARTER	1
	67a. OVERLOAD	1
	67b. AUXILIARY CONTACT	2
	67c. COIL	1
68.	LOW VOLT CONTROL TRANSFORMER	1
	68a. PRIMARY FUSE	2
	68b. SECONDARY FUSE	1
69.	BUCK-BOOST TRANSFORMER	1 *
70.	BUCK-BOOST ROTARY SWITCH	1 *
71.	VOLT METER	1 *
72.	ELAPSE TIMER	1
73.	FUSE AND CLIP, SOLENOID RELAY	2
74.	RELAY, SOLENOID	1
75.	REMOTE RECEPTACLE	1
76.	SELECTOR SWITCH, 3 POSITION	1
	76a. CONTACT BLOCK, N.O.	2
	76b. LEGEND PLATE	1
77.	START SWITCH (GREEN)	1
	77a. CONTACT BLOCK, N.O.	1
	77b. LEGEND PLATE	1
78.	STOP SWITCH (RED)	1
	78a. CONTACT BLOCK, N.C.	1
	78b. LEGEND PLATE	1
79.	EMERGENCY STOP BUTTON (RED)	1
	79a. CONTACT BLOCK, N.C.	1
	79b. LEGEND PLATE	1
	79c. COVER PLATE	1
80.	SAFETY SWITCHES, N.O.	2
81.	GROUND LUG	1
82.	GEAR MOTOR	1 **
83.	MOUNT, GEAR MOTOR	1 **
84.	LEAD SCREW DRIVE SPROCKET	1 **
85.	LEAD SCREW DRIVEN SPROCKET	1 **
86.	DRIVE CHAIN, #25	1 **

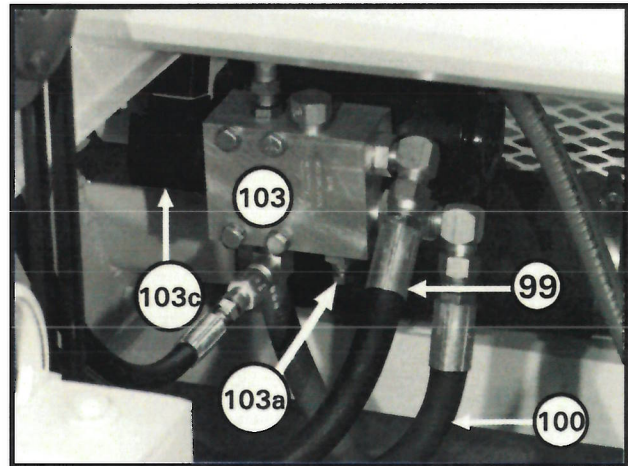
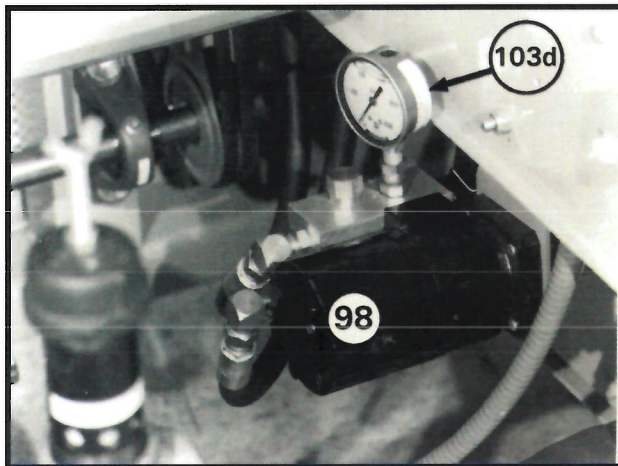


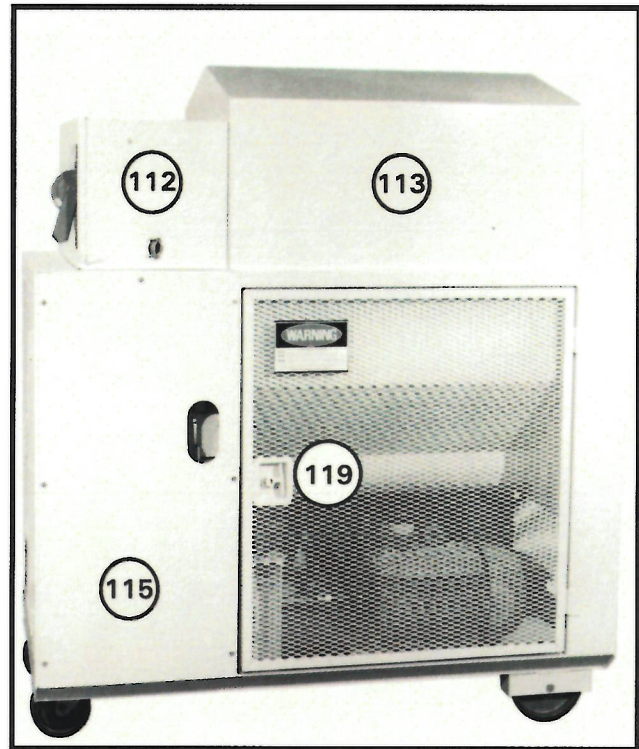
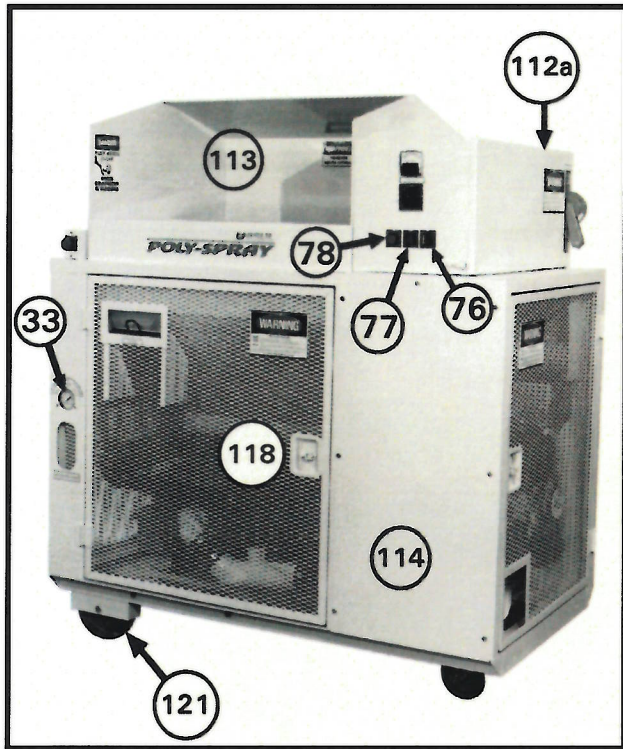
87.	GEAR MOTOR CONTROL TRANSFORMER	**
87a.	PRIMARY FUSE	2**
87b.	SECONDARY FUSE	**
88.	RELAY, FORWARD	**
89.	RELAY, REVERSE	**
90.	CAPACITOR, GEAR MOTOR	**
91.	SPEED CONTROL LEVER	1
91a.	LINKAGE PLATE	2
91b.	TENSION SPRING	1
91c.	GUIDE PIN	1
91d.	ADJUSTMENT SCREW, TENSION SPRING	2
92.	BRACKET, SPEED CONTROL LEVER	1
93.	BRACKET, SPEED INDICATOR	1
94.	LEAD SCREW	1
95.	BEARING BRACKET, LEAD SCREW GUIDE	1
95a.	BUSHING	2
95b.	GUIDE COLLAR	2
96.	KNOB, SPEED ADJUSTMENT	1
96a.	INDENT PLATE	1





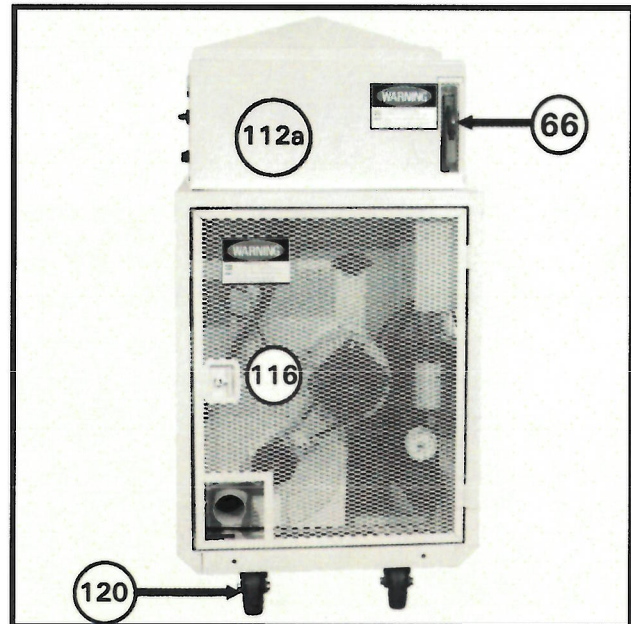
- | | | |
|-------|--|---|
| 97. | HYDRAULIC PUMP | 1 |
| 98. | TORQUE MOTOR | 1 |
| 99. | PRESSURE HOSE | 1 |
| 100. | RETURN HOSE | 1 |
| 101. | CASE DRAIN HOSE | 1 |
| 102. | SUCTION HOSE | 1 |
| 103. | MOTOR BLOCK | 1 |
| 103a. | RELIEF VALVE | 1 |
| 103b. | SOLENOID VALVE | 1 |
| 103c. | SOLENOID COIL | 1 |
| 103d. | PRESSURE GAUGE | 1 |
| 104. | OIL FILTER HOUSING | |
| 104a. | FILTER ELEMENT, 10 MICRON | 1 |
| 105. | OIL RESERVOIR | 1 |
| 106. | OIL DIPSTICK | 1 |
| 107. | AIR BREATHER/FILLER CAP | 1 |
| 108. | MAGNETIC DRAIN PLUG | 1 |
| 109. | SHUT OFF VALVE, 3/4" NPT | 1 |
| 110. | TORQUE ARM | 1 |
| 111. | TORQUE ARM CONTROL BOLT, 3/8"-16 x 1 1/4" LEN. GRADE 5 | 1 |





- 112. ELECTRICAL ENCLOSURE ASSEMBLY
- 112a. ENCLOSURE DOOR
- 112b. ENCLOSURE INSERT
- 113. TOP GUARD
- 114. PANEL GUARD, LEFT SIDE
- 115. PANEL GUARD, RIGHT SIDE
- 116. SWING GATE GUARD, FRONT
- 117. SWING GATE GUARD, REAR
- 118. SWING GATE GUARD, LEFT SIDE
- 119. SWING GATE GUARD, RIGHT SIDE
- 120. 6" SWIVEL CASTER
- 121. 8" WHEEL
- 122. 8" WHEEL ATTACH BOLT, 1/2"-14 x 4" LENGTH

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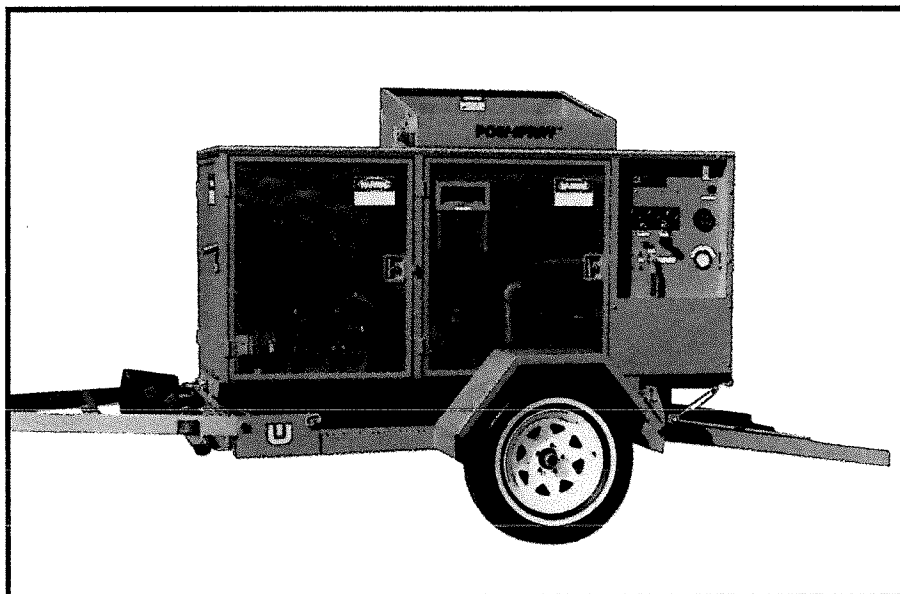


123. FEEDER CRANK HUB	1
124. FEEDER CRANK ROD	1
125. 50' REMOTE CORD	1
126. 50' REMOTE CORD EXTENSION	
127. 3½" TO 3" REDUCER	1
128. 3" TO 2½" REDUCER	1
129. 3" SLEEVE	1
130. 2½" SLEEVE	1
131. CHAIN CONNECTOR LINK	1
132. CHAIN OFFSET LINK	
133. 1/4" X 1" LENGTH KEY	4
134. AIR BLEED HOSE	1

* DENOTES SINGLE PHASE POWERED MACHINES ONLY.

* * DENOTES C-550A AND C-590A MODELS ONLY.

NOTE: ITEMS 123 THROUGH 133, WITH THE EXCEPTION OF 126, ARE ACCESSORIES SUPPLIED WITH NEW DELIVERED MACHINES. ITEM 126 IS AVAILABLE FOR PURCHASE AS REQUIRED.



NEED A TRAILER FOR YOUR MACHINE? CALL UNISUL!

THE INFORMATION FOLLOWING THIS PAGE SHOULD BE REFERED TO FOR ANY COMPONENTS INSTALLED ON THE C-500 POLY-SPRAY MACHINE.

MANUFACTURERS LITERATURE INCLUDED IN MANUAL:

ELECTRIC MOTOR

BLOWER

HYDRAULIC PUMP

TORQUE MOTOR

GEAR MOTOR (C-550A AND C-590A MODELS)

BUCK-BOOST TRANSFORMER

CHAIN IDLER

CERTAINTEED MACHINE WORKS BLOWING EQUIPMENT
LIMITED TWO-YEAR WARRANTY

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

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

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

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

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

This warranty is not transferable.

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

CertainTeed
SAINT-GOBAIN

Machine Works

101 Hatfield Rd, Winter Haven, FL 33880

800-237-7841

www.certainteedmachineworks.com

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