ACCU-Master 653
ACCU-Pro 633
AUTO - INDEX
SPIN / RELIEF
REEL MOWER GRINDER
with ACCU-Touch 3

Patent No. 6,010,394 6,290,581 & 6,685,544

ORIGINAL INSTRUCTIONS

SERVICE MANUAL



You must thoroughly read and understand this manual before assembling or maintaining the equipment, paying particular attention to the Warning & Safety Instructions.



IMPORTANT SAFETY MESSAGE



As manufacturers of sharpening equipment, we want to confirm to you, our customers, our concern for safety. We also want to remind you about the simple, basic, and common sense rules of safety when using this equipment. Failure to follow these rules can result in severe injury or death to operators or bystanders.

It is essential that everyone involved in the assembly, operation, transport, maintenance, and storage of this equipment be aware, concerned, prudent, and properly trained in safety. Always use proper shielding and personal protective equipment as specified by the manufacturer.

Our current production machines include, as standard equipment, guards or shields for the grinding wheel, safety signs, and operators and service manuals. Never bypass or operate the machine with any of the guards or safety devices removed or without the proper personal safety equipment.

Read and fully understand all the safety practices discussed in this manual and the <u>Operator's Manual</u>. All safety rules must be understood and followed by anyone who works with reel grinders.

Before operating this grinder, an operator must read and understand all of the information in the operators manual and understand all of the safety signs attached to the product. A person who has not read or understood the <u>Operator's Manual</u> and safety signs is not qualified to operate the unit. Accidents occur often on machines that are used by someone who has not read the operators manual and is not familiar with the equipment. If you do not have an operators manual or current production safety signs, contact the manufacturer or your dealer immediately.

The equipment is designed for one-man operation. Never operate the equipment with anyone near, or in contact with, any part of the grinder. Be sure no one else, including bystanders, are near you when you operate this product.

Follow these simple, basic safety rules, as well as others, including:

- Find and understand all safety signs in the operators manual and on the equipment. This will help minimize the possibility of accidents and increase your productivity in using this product.
- Be careful and make sure that everyone who operates the grinder knows and understands that it is a very powerful piece of machinery, and if used improperly, serious injury or death may result. The final responsibility for safety rests with the operator of this machine.

Throughout this manual, the following safety symbols will be used to indicate the degree of certain hazards.



This symbol is used throughout this manual to call attention to the safety procedures.



The word DANGER indicates an immediate hazardous situation, which if not avoided, will result in death or serious injury.



The word WARNING indicates a potential hazardous situation, which if not avoided, could result in death or serious injury.



The word CAUTION preceded with a safety alert symbol indicates a potential hazardous situation which, if not avoided, may result in minor or moderate injury.

TABLE OF CONTENTS

Safety Message	2	
Safety Instructions	3 -6	6
Service Data and Adjustments		
Trouble-shooting	22	- 29
Parts Diagrams	30	- 71
Wiring Diagrams	72	- 75
Wiring Schematics	75	- 81
PLC Input & Output Lights	82	

Read the <u>Operator's Manual</u> before operating this equipment. Keep this manual handy for ready reference. Require all operators to read this manual carefully and become acquainted with all adjustments and operating procedures before attempting to operate the equipment. Replacement manuals can be obtained from your selling dealer or the manufacturer.

The equipment you have purchased has been carefully engineered and manufactured to provide dependable and satisfactory use. Like all mechanical products, it will require cleaning and upkeep. Lubricate and clean the unit as specified in the <u>Operator's Manual</u>. Please observe all safety information in this manual, the <u>Operator's Manual</u> and the safety decals on the equipment.



This machine is designed for sharpening reel type mower <u>ONLY</u>. Any use other than this may cause personal injury and void the warranty.

To assure the quality and safety of your machine and to maintain the warranty, you MUST use original equipment manufacturer's replacement parts and have any repair work done by a qualified professional.

ALL operators of this equipment must be thoroughly trained BEFORE operating the equipment.

Do not use compressed air to clean grinding dust from the machine. This dust can cause personal injury as well as damage to the grinder.



INSTALLATION, DAILY MAINTENANCE, AND BASIC UPKEEP IS DISCUSSED IN THE <u>OPERATOR'S</u> <u>MANUAL</u>. THIS MANUAL SHOULD BE USED IN CONJUNCTION WITH THE <u>OPERATOR'S MANUAL</u> FOR PERFORMING SERVICE ON THIS EQUIPMENT.



TO AVOID INJURY, READ AND UNDERSTAND THE SAFETY ITEMS LISTED BELOW. IF YOU DO NOT UNDERSTAND ANY PART OF THIS MANUAL AND NEED ASSISTANCE, CONTACT YOUR LOCAL DEALER.

- 1. **KEEP GUARDS IN PLACE** and in working order.
- 2. REMOVE WRENCHES AND OTHER TOOLS.
- 3. KEEP WORK AREA CLEAN.
- 4. **DON'T USE IN DANGEROUS ENVIRONMENT.**Don't use grinder in damp or wet locations.
 Machine is for indoor use only. Keep work area well lit.
- 5. **KEEP ALL VISITORS AWAY.** All visitors should be kept a safe distance from work area.
- 6. **MAKE WORK AREA CHILD-PROOF** with padlocks or master switches.
- 7. **DON'T FORCE THE GRINDER.** It will do the job better and safer if used as specified in this manual.
- 8. **USE THE RIGHT TOOL.** Don't force the Grinder or an attachment to do a job for which it was not designed.
- 9. **WEAR PROPER APPAREL.** Wear no loose clothing, gloves, neckties, or jewelry which may get caught in moving parts. Nonslip footwear is recommended. Wear protective hair covering to contain long hair. Wear respirator or filter mask where appropriate. Wear protective gloves.
- 10. ALWAYS USE SAFETY GLASSES.
- 11. **SECURE YOUR WORK.** Make certain that the cutting unit is securely fastened with the clamps provided before operating.
- 12. **DON'T OVERREACH.** Keep proper footing and balance at all times.

- 13. **MAINTAIN GRINDER WITH CARE.** Follow instructions in Service Manual for lubrication and preventive maintenance.
- 14. **DISCONNECT POWER BEFORE SERVICING,** or when changing the grinding wheel.
- 15. **REDUCE THE RISK OF UNINTENTIONAL STARTING.** Make sure the switch is OFF before plugging in the Grinder.
- 16. **USE RECOMMENDED ACCESSORIES.** Consult the manual for recommended accessories. Using improper accessories may cause risk of personal injury.
- 17. **CHECK DAMAGED PARTS.** A guard or other part that is damaged or will not perform its intended function should be properly repaired or replaced.
- 18. **NEVER LEAVE GRINDER RUNNING UNATTENDED. TURN POWER OFF.** Do not leave grinder until it comes to a complete stop.
- 19. **KNOW YOUR EQUIPMENT.** Read this manual carefully. Learn its application and limitations as well as specific potential hazards.
- 20. **KEEP ALL SAFETY DECALS CLEAN AND LEGIBLE.** If safety decals become damaged or illegible for any reason, replace immediately.
 Refer to replacement parts illustrations in Service Manual for the proper location and part numbers of safety decals.
- 21. DO NOT OPERATE GRINDER WHEN UNDER THE INFLUENCE OF DRUGS, ALCOHOL, OR MEDICATION.



IMPROPER USE OF GRINDING WHEEL MAY CAUSE BREAKAGE AND SERIOUS INJURY.

GRINDING IS A SAFE OPERATION IF THE FEW BASIC RULES LISTED BELOW ARE FOLLOWED. THESE RULES ARE BASED ON MATERIAL CONTAINED IN THE ANSI B7.1 SAFETY CODE FOR "USE, CARE AND PROTECTION OF ABRASIVE WHEELS". FOR YOUR SAFETY, WE SUGGEST YOU BENEFIT FROM THE EXPERIENCE OF OTHERS AND CAREFULLY FOLLOW THESE RULES.

DO

- 1. **DO** always **HANDLE AND STORE** wheels in a **CAREFUL** manner.
- 2. **DO VISUALLY INSPECT** all wheels before mounting for possible damage.
- 3. **DO CHECK MACHINE SPEED** against the established maximum safe operating speed marked on wheel.
- 4. **DO CHECK MOUNTING FLANGES** for equal and correct diameter.
- 5. **DO USE MOUNTING BLOTTERS** when supplied with wheels.
- 6. **DO** be sure **WORK REST** is properly adjusted.
- 7. **DO** always **USE A SAFETY GUARD COVERING** at least one-half of the grinding wheel.
- 8. **DO** allow **NEWLY MOUNTED WHEELS** to run at operating speed, with guard in place, for at least one minute before grinding.
- 9. **DO** always **WEAR SAFETY GLASSES** or some type of eye protection when grinding.

DON'T

- 1. **DON'T** use a cracked wheel or one that **HAS BEEN DROPPED** or has become damaged.
- 2. **DON'T FORCE** a wheel onto the machine **OR ALTER** the size of the mounting hole if wheel won't fit the machine, get one that will.
- 3. **DON'T** ever **EXCEED MAXIMUM OPERATING SPEED** established for the wheel.
- 4. **DON'T** use mounting flanges on which the bearing surfaces **ARE NOT CLEAN, FLAT AND FREE OF BURRS.**
- 5. **DON'T TIGHTEN** the mounting nut excessively.
- 6. **DON'T** grind on the **SIDE OF THE WHEEL** (see Safety Code B7.2 for exception).
- 7. **DON'T** start the machine until the **WHEEL GUARD IS IN PLACE.**
- 8. **DON'T JAM** work into the wheel.
- 9. **DON'T STAND DIRECTLY IN FRONT** of a grinding wheel whenever a grinder is started.
- 10. **DON'T FORCE GRINDING** so that motor slows noticeably or work gets hot.

A WARNING

AVOID INHALATION OF DUST generated by grinding and cutting operations. Exposure to dust may cause respiratory ailments. Use approved NIOSH or MSHA respirators, safety glasses or face shields, and protective clothing. Provide adequate ventilation to eliminate dust, or to maintain dust level below the Threshold Limit Value for nuisance dust as classified by local codes.





UNPLUG THE EQUIPMENT PRIOR TO DOING ANY SERVICE ON THIS EQUIPMENT. FAILURE TO REMOVE POWER TO THIS EQUIPMENT BEFORE SERVICING MAY RESULT IN INJURY OR DEATH.

IF POWER IS REQUIRED FOR TESTING OR TROUBLESHOOTING, THIS SHOULD BE PERFORMED BY A TRAINED PROFESSIONAL OR LICENSED ELECTRICIAN.

REVIEW THE SYMBOLS AND DESCRIPTIONS ON PAGES 10 AND 11 OF THE <u>OPERATOR'S MANUAL</u>. UNDERSTAND ALL SYMBOLS BEFORE OPERATING OR SERVICING THIS EQUIPMENT.



This is the electrical hazard symbol. It indicates that there are **DANGEROUS HIGH VOLTAGES PRESENT** inside the enclosure of this product. TO REDUCE THE RISK OF FIRE OR ELECTRIC SHOCK, do not attempt to open the enclosure or gain access to areas where you are not instructed to do so. **REFER SERVICING TO QUALIFIED SERVICE PERSONNEL ONLY.**

IMPORTANT GROUNDING INSTRUCTIONS

If electrical testing is required, always verify the machine has a proper ground before performing any tests.

In case of a malfunction or breakdown, grounding reduces the risk of electrical shock by providing a path of least resistance for electrical current.

This Grinder has an electrical cord with an equipment grounding conductor and a grounding plug. The plug must be plugged into a matching outlet that is properly installed and grounded according to all local or other appropriate electrical codes and ordinances.

Before plugging in the Grinder, make sure it will be connected to a supply circuit protected by a properly sized circuit breaker or fuse. SEE SERIAL NUMBER PLATE FOR FULL LOAD AMP RATING OF YOUR MACHINE.

Never modify the plug provided with the machine--if it won't fit the outlet, have a proper outlet and circuit installed by a qualified electrician.



ALWAYS PROVIDE A PROPER ELECTRICAL GROUND FOR YOUR MACHINE. AN IMPROPER CONNECTION CAN CAUSE A DANGEROUS ELECTRICAL SHOCK. IF YOU ARE UNSURE OF THE PROPER ELECTRICAL GROUNDING PROCEDURE, CONTACT A QUALIFIED ELECTRICIAN.

SKILL AND TRAINING REQUIRED FOR SERVICING

This Service Manual is designed for technicians who have the necessary mechanical and electrical knowledge and skills to reliably test and repair the this Spin/Relief Grinder. For those without the background, service can be arranged through your local distributor.

This section presumes that you are already familiar with the normal operation of the grinder. If not, you should read the operators manual, or do the servicing in conjunction with someone who is familiar with its operation.



Persons without the necessary knowledge and skills should not remove any panels or shields, or attempt any internal troubleshooting, adjustments, or parts replacement.

If you have questions not answered in this manual, please contact your distributor.

TORQUE REQUIREMENTS

Throughout this manual we refer to torque requirements as "firmly tighten" or the like. For more specific torque values, refer to the information below.

Bolts Going Into a Nut, or Into a Thread Hole in Steel. Refer to the Table at the right.

Bolts Going Into a Thread Hole In AluminumUse the Grade 2 Values in the Table at the right.

Socket-Head Screws Going Into a Nut or SteelUse the Grade 8 Values in the Table at the right.

Machine Screws

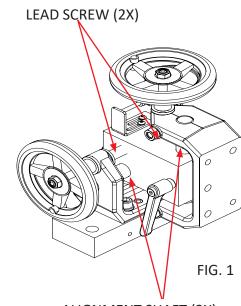
No. 6 screws: 11 in.- lbs (0.125kg - m) No. 8 screws: 20 in. - lbs (0.23 kg - m) No. 10 screws: 32 in. - lbs (0.37 kg - m)

	GRADE 2	GRADE 5	GRADE 8
	SMOOTH	3 MARKS	6 MARKS
	HEAD	on HEAD	on HEAD
1/4 In.	6 ft-lbs	9 ft-lbs	13 ft-lbs
thread	(0.8 kg-m)	(1.25 kg-m)	(1.8 kg-m)
5/16 In.	11 ft-lbs	18 ft-lbs	28 ft-lbs
thread	(1.5 kg-m)	(2.5 kg-m)	(3.9 kg-m)
3/8 In.	19 ft-lbs	31 ft-lbs	46 ft-lbs
thread	(2.6 kg-m)	(4.3 kg-m)	(6.4 kg-m)
7/16 In.	30 ft-lbs	50 ft-lbs	75 ft-lbs
thread	(4.1 kg-m)	(6.9 kg-m)	(10.4 kg-m)
1/2 In.	45 ft-lbs	75 ft-lbs	115 ft-lbs
thread	(6.2 kg-m)	(10.4 kg-m)	(15.9 kg-m)

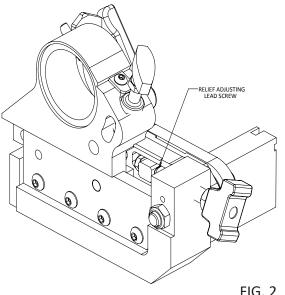
DAILY MAINTENANCE IS SPECIFIED ON PAGE 5 OF THE <u>OPERATOR'S MANUAL</u>, AND IS TO BE PERFORMED BY THE OPERATOR.

LISTED BELOW ARE PERIODIC MAINTENANCE ITEMS TO BE PERFORMED BY YOUR COMPANY'S MAINTENANCE DEPARTMENT:

- 1. Clean the tank and filter of the vacuum system weekly or more often depending on the number of reels ground. (Vacuum system is optional equipment on the 633.)
- 2. Inspect the grinding wheel poly-V belt for cracking and adjust the belt tension per procedure called out in the adjustment section every six months.
- 3. Wipe and re-lube the vertical and horizontal alignment shafts and lead screws with Never-SeezTM every six months. See FIG. 1.
- 4. Lift the bellows and wipe off the bearing rails monthly. To lubricate linear bearing, follow the lubrication procedure on the following pages. Generally, this will be every six months to a year.
- 5. Wipe and re-oil the index finger adjustment screw with spray lubricant every 3 months. Wipe off excess lubricant.
- 6. Check the traverse belt for cracking, uneven wear or other defects every 6 months to a year.
- 7. Clean the indicator rod on the Accu-Positioning Gauge. Wipe with a clean rag until the unit moves smoothly. Generally, this will be every six months to a year.







STORAGE PROCEDURE

It is important to follow the procedures below when placing your grinder in storage for an extended period of time. Proper care will help maintain the working functions of the grinder and decrease maintenance and problems that occur when storing the grinder.

BEFORE STORING THE GRINDER:

-Clean the machine thoroughly.

DO NOT USE COMPRESSED AIR OR A POWER WASHER TO CLEAN THIS MACHINE!

-Lubricate the following parts by flooding the area with a spray lubricant and leaving it in place:

DO NOT USE A TEFLON BASED LUBRICANT!

- 1. Traverse Shafts & Linear bearings (see Lubrication Section of manual).
- 2. Remove grinding wheel and spray the movable parts of the finger system.
- 3. Cross slide shafts and adjustment screws (Right side of Traverse Base).
- 4. Scratches in the paint or any other bare metal surfaces.
- -Work the lubricant in by moving parts through their full range of motion.
- -Make sure all controls are in the OFF position and unplug the unit from the wall.
- -Cover the unit if possible with a sheet or tarp.

BRINGING THE UNIT BACK INTO SERVICE:

- -Remove the cover and reapply lubricant to the items stated above. Wipe off all excess lubricant. (See Lubrication section for more details.)
- -Plug the unit into the wall and test all electrical functions.
- -Check the belts for cracking and adjust the tension if necessary.
- -Check for damaged or missing parts.

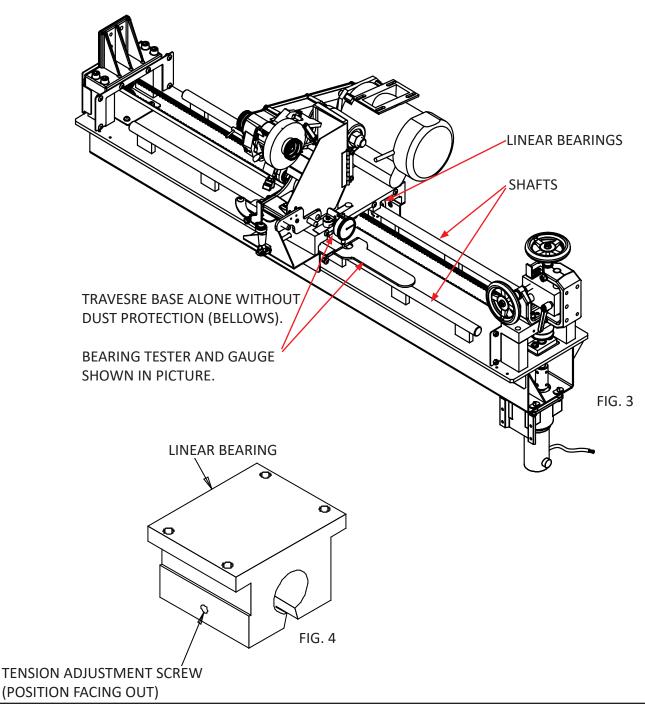
LUBRICATION OF LINEAR BEARINGS

STEP 1--Thoroughly clean the shafts.

<u>STEP 2</u>--Flood spray the two shafts with a spray lubricant **(do not use a Teflon based lubricant)** until the lubricant is dripping off the shafts. See FIG. 3 Then run the carriage back and forth through its full range of travel, this will carry the lubricant into the bearings.

<u>STEP 3</u>--With a clean rag, wipe off the excess amount of lubricant from the shafts. Run the carriage back and forth through its full range of travel and wipe the shafts after each traverse. Repeat until the shafts are dry to the touch.

If the unit will be shut down for an extended period of time (more than four weeks) the shafts and other appropriate parts of the unit should be flooded with lubricant and that lubricant left in place until the unit is brought back into service. When the unit is brought back into service the full lubrication procedure as stated above should be repeated.



ADJUSTMENTS ORIGINAL INSTRUCTIONS

CARRIAGE LINEAR BEARING REPLACEMENT

STEP 1 -- Detach the bellows mounting brackets from the carriage. Detach front and rear shields. See FIG. 5. STEP 2--Remove the three screws of to remove one of the linear bearing. Slide the linear bearing off the end of the carriage shaft.

STEP 3--Insert a new linear bearing onto the end of the carriage shaft with the tension adjustment screw pointing outward. See FIG. 4. Adjust the tension screw of the linear bearing so when you radially rotate the linear bearing around the carriage shaft there should be no free play between the linear bearing and the carriage shaft.

NOTE: Tension is too tight if you feel a cogging action when you rotate the linear bearing around the shaft. This cogging is from the skidding of the bearing on the shaft and indicates tension screw is too tight. Finally, sliding the bearing block back and forth should be a smooth uniform motion.

SETTING THE BEARING TENSION CORRECTLY IS CRITICAL TO PROPER GRINDING. BEARINGS WHICH ARE TOO TIGHT OR TOO LOOSE WILL CAUSE POOR GRIND QUALITY. ALSO, BEARINGS WHICH ARE TOO TIGHT WILL HAVE SUBSTANTIALLY SHORTER LIVES AND MAY DAMAGE THE SHAFT.

STEP 4--Slide linear bearing under carriage and reinstall the three screws.

Repeat Steps 2 thru 4 with the other three linear bearings.

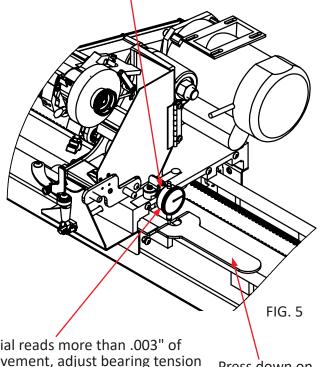
STEP 5 -Position a dial indicator assembly on the machine grinding head assembly next to the bearing to be tested. The dial indicator should be within 1" of the side of the grinding head carriage directly above the bearing being tested. It is best to use a wide flat tip on the end of the dial indicator.

- Insert Bearing Testing Fork 3706055 until the fork contacts the wiper bracket or the bearing.
- -With the tip of the dial indicator on the traverse shaft, zero out the Dial Indicator.
- -Use your hand and press down on the end of the bearing tester fork until it contacts the traverse rail. See FIG. 5. Read the movement on the dial indicator. If the movement exceeds .003" the bearing needs to be adjusted. Retest the bearing after adjusting the tension on the bearing. If the bearing does not improve to below the .003" reading then the bearing needs to be replaced.

Repeat Step 5 for the other three bearings.

STEP 6--Reattach the shaft bellows and reinsert the plugs in the front and rear dust shields. See FIG. 6.

Dial Indicator must be positioned over the bearing being tested and located within 1" of the side of the carriage base.



If dial reads more than .003" of movement, adjust bearing tension using the tension screw. See FIG. 4.

Press down on **Bearing Tester Fork** and Read Dial.

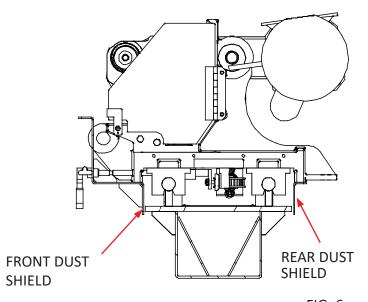


FIG. 6

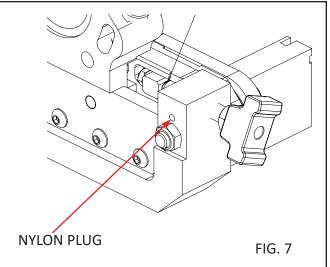
ADJUSTMENTS ORIGINAL INSTRUCTIONS

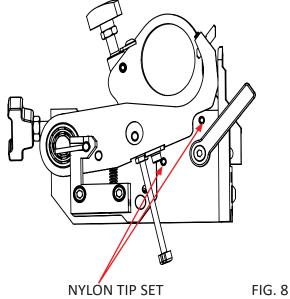
RELIEF ASSEMBLY INDEX FINGER ADJUSTING KNOB AND FREE-PLAY SETSCREWS.

If the index finger stop position is moving during grinding, adjust the tightness of the nylon plug to the knob assembly threads. The tightness has to be sufficient so the knob assembly does not rotate during grinding cycle. See FIG 7.

If the finger assembly does not move freely or has to much free-play when loosened, Adjust the 2 nylon tip set screws on the side of the assembly. FIG. 8

NOTE: To adjust the nylon plug you must allow the index finger to travel to its furthest UP position.





SCREWS

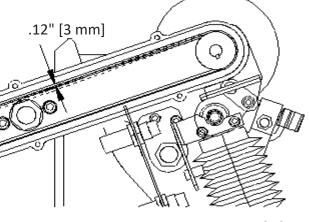


FIG. 9

GRINDING HEAD BELT TENSION ADJUSTMENT

The left side grip grinding wheel knob must be removed for belt tensioning adjustment. Remove the screws holding the vacuum hose bracket, the two double tube clamps and the belt cover. For grinding motor belt adjustment, loosen the four socket head cap screws that attach the motor mounting plate. Adjust the grinding motor for proper belt tension and tighten the four socket head cap screws. Proper belt tension is achieved when 5 lbs of force applied to the belt halfway between the two pulleys results in .12" (3 mm) of deflection. See FIG 9.

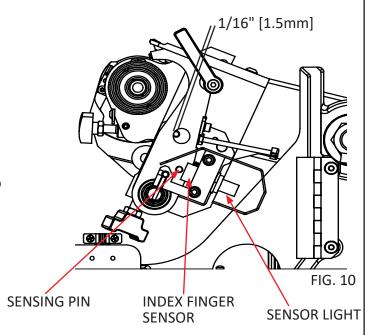
To verify belt tension mount the belt guard with two screws. Turn the motor on. If the belt is tensioned correctly, start-up torque of the motor through the pulley to the belt should have zero slippage. If there is belt slippage there will be a slight squeal before the belt comes up to speed. When you achieve correct tension, reassemble all of the remaining parts that have been removed.

INDEX FINGER SENSOR SETTING

Press the machine system start switch, so the grinder is operational.

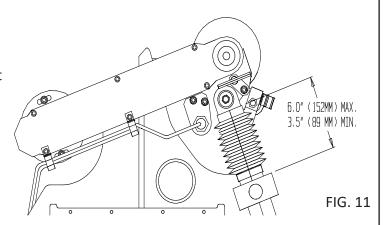
Push down on the index finger until the stop pin is within .06 inches (1.5 mm) of bottoming out. (You can use a 1/16" gauge pin or rod stock between the stop pin and index finger). Set the proximity switch to activate the light at this setting. This assures the index finger to be close to its final stop position so the reel is completely indexed before the carriage starts to traverse. See FIG. 10.

The spring load force pushing up on the index finger brings it away from the proximity when released.



STEPPPER INFEED TRAVEL LIMITS

The infeed stepper maximum extension is 6.0" (152 mm) and minimum compression is 3.5" (89 mm). If you experience a situation where the grind does not properly finish, check that you have not exceeded stepper travel by checking the values per FIG. 11.

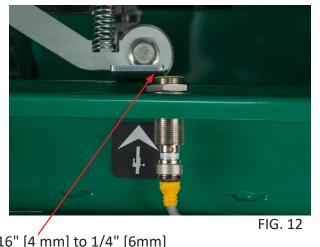


ADJUSTMENTS ORIGINAL INSTRUCTIONS

TRAVEL LIMITS

For the TRAVEL LIMITS to perform properly and reverse the direction of the carriage at each end of the rails, a distance of 3/16"[4 mm] to 1/4" [6 mm] needs to be maintained between the limit sensor bracket and the TRAVEL LIMIT. See FIG. 12.

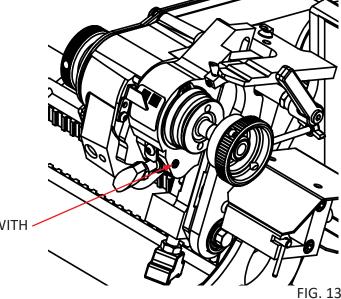
NOTE: the light on the TRAVEL LIMIT switch activates when metal crosses in front of the switch.



3/16" [4 mm] to 1/4" [6mm]

ADJUSTABLE RELIEF TENSION

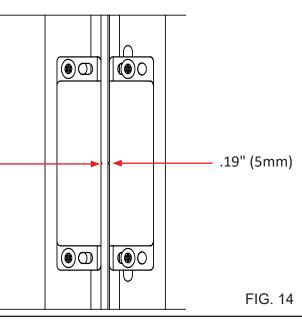
If the relief angle appears to vary during relief grinding adjust the tension on the nylon plug and set screw. See FIG. 13.



SET SCREW WITH **NYLON PLUG**

SAFETY SWITCH ALIGNMENT

For the safety switches to work properly they must be adjusted so the sender and receiver are parallel to each other with a maximum gap of .19 inches (5 mm). A special wrench is needed to adjust the safety screws used to hold the switch in place.



ADJUSTMENTS ORIGINAL INSTRUCTIONS

SPIN MOTOR ADJUSTMENT

If the spin drive motor is moving during operation, or does not move freely into position, adjust the tension of the 2 T-Handles. See FIG. 15.



FIG. 15

TRAVERSE BELT TENSION

To adjust the tension on the traverse belt, tighten the screws and nuts located at the left side of the traverse belt. Tighten the nuts until the compression springs measure 3/4" [19mm]. See FIG. 16. If the springs are not tensioned equally, uneven loading on the traverse system may cause parts to fail.

DO NOT OVERTIGHTEN. OVERTIGHTENING COULD DAMAGE THE BELT OR TRAVERSE DRIVE SYSTEM.

TRAVERSE CLAMP FORCE

If the traverse clamp is slipping during regular operation it may be necessary to tighten the clamp. To tighten, loosen the jam nut on the clamp tip. Screw the tip out so there is .10" gap between the tip and the Clamp Support Block. See FIG 17. Lock in place by tightening the jam nut against the clamp being careful not to move the tip. Verify the distance between the clamp tip and block is still .10". The .10" setting allows slippage in a jam situation and damage can occur if this adjustment is set to narrow.

CAUTION SHOULD BE USED AS ADJUSTING THE TIP WILL AFFECT THE SLIP LOAD AND COULD DAMAGE THE CLAMP TIP, BELT OR TRAVERSE DRIVE SYSTEM.

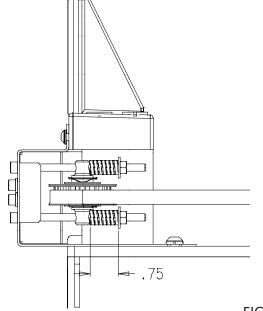


FIG. 16

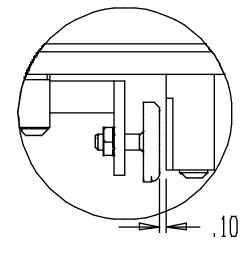


FIG. 17

ADJUSTING CROSS SLIDE ASSEMBLY

If the cross slide becomes very difficult to turn it may become necessary to adjust the assembly. To relieve the tension on the assembly follow the procedure listed below:

STEP 1—Turn the vertical handwheel on the cross-slide counter-clockwise to raise the carriage base up until you are able to slide a piece of wood or metal (such as two 2 x 4s) under the carriage base. Be sure to insert this on the seam of the floor pan under where the right side leg is welded. Release the pressure on the cross slide by lowering the base until the base is supported by the wood/metal piece and the pressure on the cross slide is removed.

STEP 2—Knock out the pins on either side of the mounting frame adjuster and loosen the 4 bolts (B504801) that connect the carriage mounting bracket to the frame of the grinder.

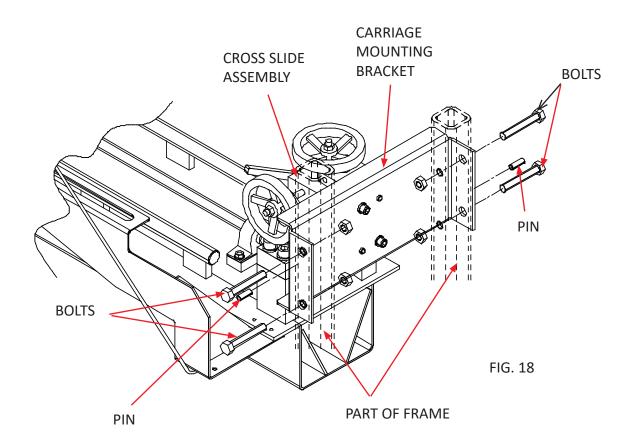
STEP 3—Turn the Vertical handwheel clockwise to raise the cross slide assembly, this will put a preload on the cross slide assembly to the up position.

STEP 4—Tighten the 4 bolts on the Carriage Mounting Frame to 75 ft-lbs.

STEP 5-- Turn the vertical handwheel counter-clockwise to raise the carriage base and remove the wood/metal support (example: the two 2 x 4s). Test the vertical and horizontal handwheels for ease of movement through their full range of motion.

STEP 6—If the cross slides tend to bind, repeat above steps 3-5 above until the handwheels move freely through there full range of travel.

STEP 7—when the cross slides move freely drill new holes and repin the assembly.



ADJUSTMENTS ORIGINAL INSTRUCTIONS

CROSS SLIDE SHAFT REPLACEMENT

If the cross slide shafts become scarred or gnarled, replace them by the following procedure:

STEP 1--Turn the vertical handwheel on the cross-slide counter-clockwise to raise the carriage base up until you are able to slide a piece of wood or metal (such as two 2 x 4s) under the carriage base. Be sure to insert this on the seam of the floor pan under where the right side leg is welded. Release the pressure on the cross slide by lowering the base until the base is supported by the wood/metal piece and the pressure on the cross slide is removed.

STEP 2--Loosen the two nuts on the support casting that hold the locking stud and tap the ends of the studs with plastic or rubber hammer to loosen.

STEP 3--Loosen the lock handles and tap the center of the handle with a plastic hammer to loosen.

<u>STEP 4</u>--Loosen locknut and setscrew on the handwheels and remove.

STEP 5--Remove the Slide Shafts.

STEP 6--Remove all burrs and resurface the shaft to a clean, smooth, polished surface. (OR REPLACE WITH A NEW SHAFT.)

STEP 7--Coat the shaft with Never-Seez[™] and reinstall the shaft through the Support, Cross Slide Block and the three locking studs. The shaft must move freely inside the Cross Slide Block before reassembling.

STEP 8--Retightening the nuts at the end of the locking studs to lock shaft in place.

<u>STEP 9</u>--Reinstall the Handwheel by snugging the setscrew to the flat located on the screw shaft, now tighten the nut until tight then back the nut off by 1/2 turn. Tighten the setscrew to 70 in-lbs.

STEP 10--Test the Cross Slide, the handwheel should turn freely.

STEP 11-- Turn the Vertical Handwheel to raise the Carriage Base and remove the wood/metal supports (two 2 x 4s). Test the vertical and horizontal handwheels for ease of movement through their full range of motion. If binding occurs, follow the procedure under Cross Slide Assembly located on the previous page.

NOTE: it is also possible to remove the complete Cross Slide Assembly and do the repairs on a bench then reinstall.

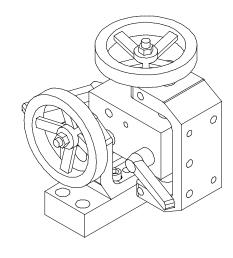
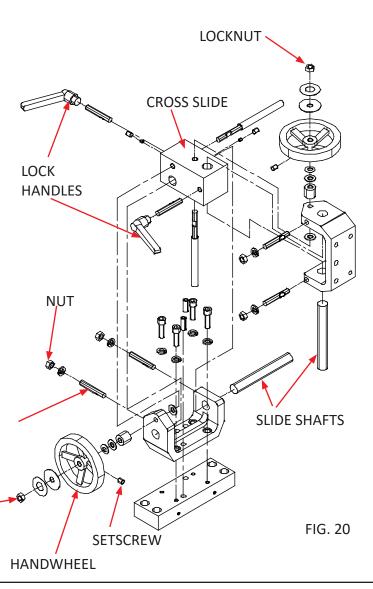


FIG. 19



LOCKING STUDS

(DUTCHMAN)

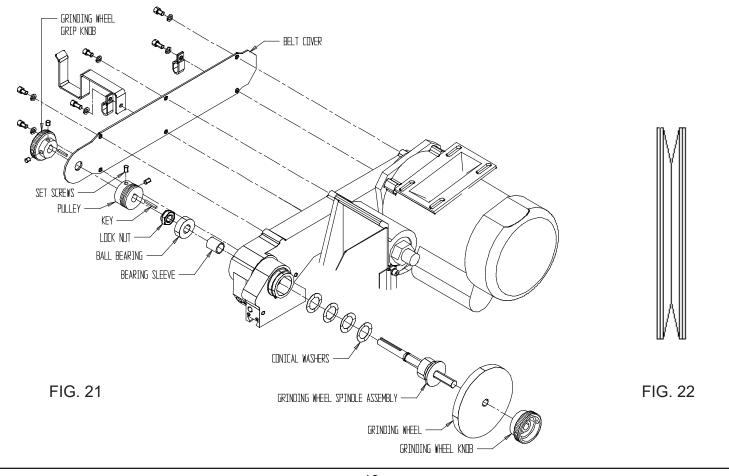
LOCKNUT ·

REPLACEMENT OF GRINDING HEAD SHAFT & BEARINGS

Remove grinding wheel and grinding wheel knob. The Grinding Head Spindle Assembly consists of the grinding head spindle and a ball bearing press fit together. The left side ball bearing is slip fit on the opposite end. To replace the spindle assembly remove the left side grinding wheel grip knob, square key and belt cover. See FIG. 21. Loosen the 4 socket head cap screws on the motor plate to remove the poly-V belt. Loosen the 2 set screws on the spindle pulley and remove the pulley, square key and pulley spacer. Push on the right hand side of the spindle assembly to compress conical washers so there is no pressure on the shaft retaining ring. Using a retaining ring pliers remove the small external retaining ring from the spindle assembly. You can now remove the spindle assembly out the right side by lightly tapping on the left end with a rubber mallet. The second ball bearing can be removed from the belt side of the Grinding Head Housing.

To reassemble place the 4 conical washers (2 Pair nested and then place the 2 pairs back to back) against the ball bearing on the new spindle assembly. See FIG. 22. Thoroughly clean the housing bore and the outside diameter of both bearings. **APPLY BLUE LOCTITE #243 TO THE OUTSIDE DIAMETER OF THE TWO BEARINGS.** Slide the spindle assembly into the right side of the Grinding Head Housing. Install the bearing sleeve against the bearing on the spindle assembly. Slip fit the new left side ball bearing onto the spindle assembly and into grinding head housing. **APPLY BLUE LOCTITE #243 TO THE INSIDE THREAD OF THE 9/16-18 NUT** and install onto the spindle shaft with the grooved side toward the bearing onto the spindle shaft and using a spanner wrench on the right side of the spindle and a 7/8 deep-well socket on the left side, torque the locknut to 15 Ft/Lbs.

APPLY BLUE LOCTITE #243 TO THE BORE OF THE PULLEY BEFORE INSTALLATION. Replace the square key and install the new pulley pushing the counter-bore side of the pulley against the spindle nut with no end play. NEXT INSTALL BLUE LOCTITE #243 ON THE PULLEY SETSCREWS AND TIGHTEN THE TWO PULLEY SET SCREWS. Then install the new external retaining ring on the spindle shaft. Mount the new poly-V belt. (See Grinding Head Belt Tension and Alignment Adjustments in the adjusting section of the manual). Install the new belt cover gasket on the belt cover and install the belt cover and square key. Mount the left side grinding wheel grip knob with a slight gap to the cover and tighten the two set screws.



TRAVERSE DRIVE CONTROL BOARD (TDC)

The Traverse Drive Control Board has nine potentiometers and four switches as shown on drawing 6524511 which is included. These potentiometers and switches have been set at the factory to the positions shown on the drawing. Also see FIG. 23 and FIG. 24.

Fwd Accel & Rev Accel---FWD ACC & REV ACC

The potentiometer is factory preset to the minimum full counterclockwise 8:30 position. This position turns the Acceleration/Deceleration off for this application.

Maximum Speed---MAX SPD

The maximum speed potentiometer is preset to position for 90 Volts DC output to the traverse motor at terminals A1 and A2.

IR Compensation---IR COMP

The IR Comp control is preset to 3:00 position. Never adjust past the 4:30 position.

Regulation of the traverse motor may be improved by slight adjustment of the IR COMP trim pot clockwise from its factory set position. Overcompensation causes the motor to oscillate or to increase speed when fully loaded. If you reach such a point, turn the IR COMP trim pot counterclockwise until the symptoms just disappear.

Rev Torque---REV TQ

The Reverse Torque setting determines the maximum current limit for driving the motor in the reverse direction. The potentiometer is preset to the 10:30 position. It should not require adjustment.

Fwd Torque---FWD TQ

The Forward Torque setting determines the maximum current limit for driving the motor in the forward direction. The potentiometer is preset to the 10:30 position. It should not require adjustment.

Deadband---DB

This motor control board has a potentiometer which must be set for 50 HZ or 60 HZ operation. For 60 HZ set to 3:00 position. For 50 HZ set to 9:00 position.

Minimum Speed---MIN SPD

The potentiometer is factory preset to the minimum full counterclockwise 8:30 position.

Tach---TACH

The tach potentiometer is not used in this application. It should be a the factory setting of 8:30.

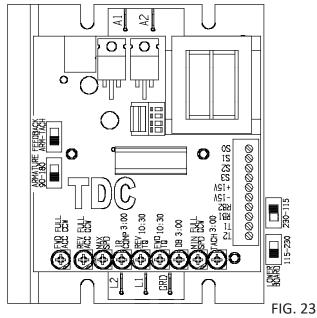
Armature Switch---ARMATURE 90-180

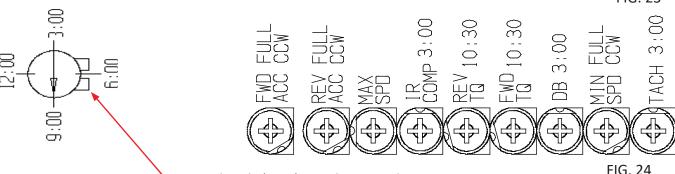
This switch is factory preset to the 90 position for a 90 VDC motor..

Feedback Switch--- FEEDBACK ARM-TACH

This switch is factory preset to the ARM position.

The lower control board has two switches. Both switches are factory preset to 115 for 115 VAC operation.





Potentiometer Clock Orientation Terminal ends (Feet) are always at the 6:00 position, no matter how the potentiometer is orientated on the board.

SPIN DRIVE CONTROL BOARD (SDC)

The Spin Drive Control Board has four potentiometers, two switches and one dial as shown on FIG. 24. These potentiometers, switches and dial have been set at the factory to the positions shown on FIG. 24.

Relief Grinding Mode

The Torque Shut Off mode selector allows you to turn on or off the Torque Shut Off feature. When switch 1 is set to ON, the board will decrease the spin motor torque once the shut time is achieved after leaving the right proximity sensor. The amount of time it takes before the torque is decreased is set with the Torque Shut Off Delay dial. The spin motor torque will be increased to the higher value once the right proximity switch is activated again. If the Torque Shut Off selector is in the OFF position the torque will remain constant during relief grinding.

Torque Shut Off Delay dial is used to set the duration of time before the torque is decreased after leaving the right proximity sensor during relief grinding. If the dial is turned clockwise (higher number) the higher torque value will stay on for a longer period of time.

The Relief Speed (RSP) and the Relief Torque Pot (RTP) interact with each other. The (RSP) is located on the spin board as a remote speed preset at 12:00 (20 Volts DC). See FIG. 24. The (RTP) is located on the control panel and is for relief torque adjustment.

Relief Speed Pot (RSP) when rotated clockwise will increase spin drive speed (the speed at which the reel indexes to the next blade). This speed should never be above the 3:00 setting.

Relief Torque Pot (RTP) is used to vary the reel to finger holding torque for relief grinding. The recommended starting point is 30 in/lbs of torque setting. Never adjust the (RTP) potentiometer dial past the red line marking. Setting the reel to finger torque to high could cause the spin motor system to not operate smoothly.

Relief Idle Torque Pot (ITP) is used to vary the reel to finger holding torque once the shut time is achieved after leaving the right proximity sensor if the Torque Shut Off Selector is set to ON.

Spin Grinding Mode

The Spin Torque Potentiometer (STP) and the Spin Speed Pot (SSP) interact with each other. The (STP) is located on the spin board as remote torque preset at 2:00 for torque setting. See FIG. 25. The (SSP) is located on the control panel and is for spin speed adjustment.

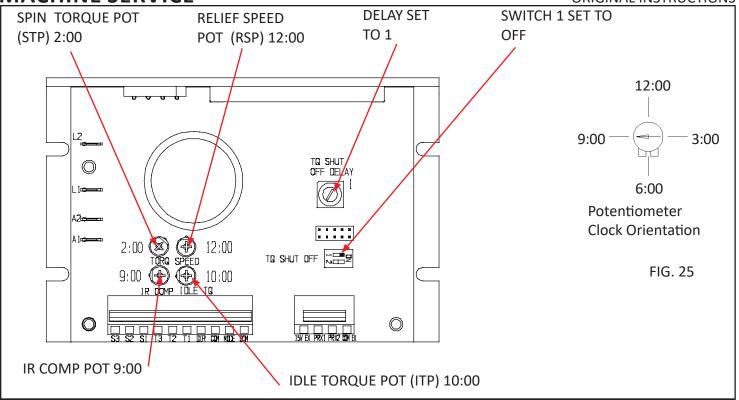
Spin Torque Pot (STP) controls maximum torque allowable in the spin grinding cycle only. This should never be adjusted past the 3:00 position. If the reel does not turn check that the reel is free turning by hand spinning with the power off and the spin drive disconnected.

The Spin speed Pot (SSP) controls reel spin speed, adjust as required. This controls the spin drive speed for spinning the reel.

IR COMP Pot

The IR Compensation is factory set at 9:00.

Regulation of the spin or relief grind spin motor may be improved by a slight adjustment of the IR COMP pot clockwise from its factory-set position. Overcompensation causes the motor to oscillate or to increase speed when fully loaded. If you reach such a point, turn the IR COMP pot counterclockwise until symptoms disappear.



STEPPER INFEED CONTROLLER (SIC)

The Stepper Infeed Controller has a set of 4 dip switches on the side SWB1-4 and 8 dip switches on the top SWA1-8. See FIG. 26.

DIP SWITCH SETTINGS:

Switches SWB1-3 are on the side of the control and are used to select the motor type used.

SWB1= ON

SWB2=ON

SWB3= OFF

Switch SWB4 located on the side and controls the LOAD INERTIA.

SWB4= ON

Switches SWA1- SWA8 are located on top:

Switch SWA1 can be used to preform a self test

SWA1 - OFF

Switch SWA2 selects the noise filter setting

SWA2 - ON

Switch SWA3 selects the IDLE CURRENT (on=50%, Off=90%)

SWA3 - ON

Switches SWA4-5 select the % Max Current

SWA4 - OFF

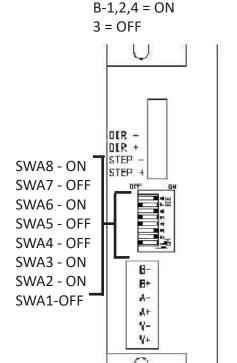
SWA5 - OFF

Switches SWA6-8 select the Steps/revolution.

SWA6 - ON

SWA7 - OFF

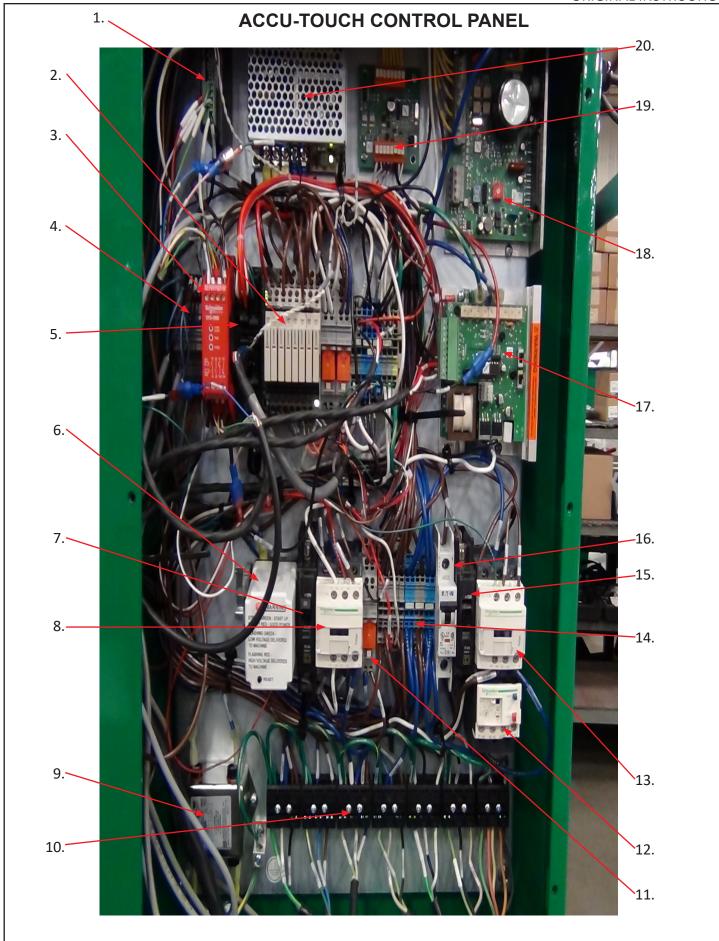
SWA8 - ON



SWITCHES ON SIDE

FIG. 26

FIG. 27



ACCU-TOUCH CONTROL PANEL

- 1. Stepper Infeed Controller (SIC)
- 2. Output Control Relays (RYX)
- 3. Door Safety Switch Monitor (SSM)
- 4. Tiered Terminal Block (TT0- TT6)
- 5. Programmable Logic Controller (PLC)
- 6. Low Voltage Relay (LVR)
- 7. Main Circuit Breaker (MCB)
- 8. Magnetic Contactor (MAG)
- 9. Power Filter (FTR)
- 10. Terminal Blocks
- -(TBG) GRIND MOTOR
- -(TBS) SPIN MOTOR
- -(TBT) TRAVERSE MOTOR
- -(TBF) FLASHER
- -(TBW) WINCH
- -(TBV) VACUUM
- -(TBL) LIGHT
- 11. Start Relay (SRL)
- 12. Grinding Motor Overload Relay
- 13. Grinding Motor Relay (REL)
- 14. Grey Terminal Blocks (GTX)
 Blue Terminal Blocks (BTX)
- 15. Grind Motor Circuit Breaker (GCB)
- 16. Vacuum/Winch Circuit Breaker (VCB)
- 17. Traverse Drive Control Board (TDC)
- 18. Spin Drive Control Board (SDC)
- 19. Gauge/Spin Interface Board (GSI)
- 20. 24 VDC Power Supply (PWR)

SKILL AND TRAINING REQUIRED FOR ELECTRICAL SERVICING

This Electrical Troubleshooting section is designed for technicians who have the necessary electrical knowledge and skills to reliably test and repair the ACCU-Touch electrical system. For those without that background, service can be arranged through your local distributor.

This manual presumes that you are already familiar with the normal operation of the grinder. If not, you should read the <u>Operator's Manual</u>, or do the servicing in conjunction with someone who is familiar with its operation.

Persons without the necessary knowledge and skills should not remove the control box cover or attempt any internal troubleshooting, adjustments, or parts replacement.

If you have any question not answered in this manual, please call your distributor. They will contact the manufacturer if necessary.

WIRE LABELS

All wires on the ACCU-Master have a wire label at each end for assembly and troubleshooting. The wire label has a code which tells you wiring information. The first set of two or three numbers are the Foley wire number. The next group of letters or numbers are the code for the component to which the wire attaches. Example: RT1 for Relay Terminal 1. The last set of numbers or letters is the name of the terminal on the component to which the wire attaches.

TERMINAL BLOCKS:

To insert or remove a wire from the terminal block, insert a small screw driver into the square hole. Then insert or remove wire from the round hole. Remove screwdriver to lock the wire in place.

Note the square hole can also be used when checking for voltages. The probe tip of the multimeter can be inserted into the square hole to take readings.

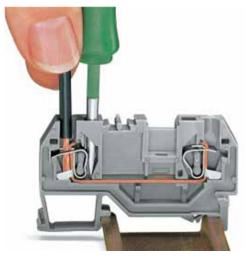


FIG. 28

PROBLEM--Machine will not power up or is stuck in E-stop. In your Product Packet Assembly, there are a series of prints. Find the print titled ACCU-Touch Wiring Diagram, before starting the troubleshooting below. Verify all wires shown on that drawing are correct and pull on wire terminals with approximately 3 lbs force to verify there are no loose terminal connections and/or no loose crimps between wire and terminal. If loose terminals are found, retighten and retest system. If problem persists, test as listed below.

Possible Cause	Checkout Procedure	
You must turn ON the Switch on the Side of the machine	A. Turn switch to the on Position. Look for screen to come on.	Machine works: YesEnd Trouble Shooting No Go go Step B. next
Main Power Cord is not plugged in	B. Plug in the main power cord	Machine works: YesEnd Trouble Shooting No Go go Step B. next
Building Circuit breaker has tripped	C. Check circuit breaker in building electrical panel. Reset if needed. (Check wall outlet to make sure it works.)	Machine works: YesEnd Trouble Shooting Nobut a light works in the outlet. Go to step D. next No- Light does not work in outlet. Solve power issue to outlet.
No DC power in machine	D. Is the touch screen on? The E-stop Screen should be visible.	Touch screen is on E-stop screen: YesSKIP to step N No Touch Screen is not on. Go to Step E. next No touch screen is on but not on E-stop Screen. Verify PLC has power LED on PLC. REPLACE TCH to PLC cord.
Circuit breaker in machine has tripped	E. Check Main 20A Circuit breaker (MCB) to see if tripped. Turn off and on to reset. Look for Light on Low Voltage Monitor LVR.	Steady Red light on LVR is on: YesSKIP to Step K. No No Light on LVR Go go Step F. next No LVR light is blinking SKIP to STEP Q.
Bad Fuse	F. Remove fuse and use meter to check continuity of Fuse.	Remove DC power Fuse on right side of machine. Check continuity of fuse. Replace if bad. Machine works: YesEnd Trouble Shooting No Go go Step G. next
Bad Power Cord	G. Check for power into Line Filter FTR. Check between in- put of main power cord brown to blue wire.	Measure 120VAC at output of main power cord . Remove wires (#32) if necessary. Measure between brown and blue wires on power cord. YesI have 120 VAC, go to Step H. next. No REPLACE Power Cord. 220VAC machines check/replace transformer
Bad Filter	H. Check for power out of Line Filter FTR. Check between output terminals FTR.	Measure 120VAC at output of FTR . Remove wires(#01 and #02) if necessary. Measure between tabs on filter. YesI have 120 VAC, go to Step I. next. No REPLACE Filter (FTR)

Continued on next page.

Possible Cause	Checkout Procedure	
Bad Main Circuit Breaker	I. Check for power out of MCB. Check between output of MCB top screw and ground.	Measure 120VAC at output of MCB (wire 03MCB) to Neutral (light blue wire from Line Filter - Wire #02): YesI have 120 VAC, go to Step J. next. No REPLACE Main Circuit Breaker (MCB)
Bad Power Switch	J. Check Power back from power switch at Grey Terminal Block 2.	Measure 120VAC at GT2 (wire #06) to Neutral (light blue wire from Line Filter - Wire #02). Use square hole in Grey Terminal Block GT2: YesI have 120 VAC, go to Step K. next. No REPLACE Power Switch PSW.
Bad Power Supply	K. Check Power LED light on Power Supply. If no Light then measure 120VAC at wires into Power Supply PWR.	LED Light on PWR is ON? If not then Measure power into PWR for 120VAC at L1 (08PWR-L) to L2 (25PWRL2). YesLED light is on, go to Step L. next. No LED light is NOT on, but I have 120VAC at L1 and L2 REPLACE PWR.
	L. Check power out of PWR.	Measure power out of PWR for 24VDC at V+ (92PWRV-) to V-(91PWRV+). YesI have 24VDC at PWR. Go to Step M. NoI do not have 24VDC at PWR. REPLACE PWR.
Bad Touch Screen	M. Open front control box. Check power into touch screen TCH.	Measure power into TCH for 24VDC at V+ (93TCHV+) to V- (94TCV-). YesI have 24VDC at TCH V+ TO V REPLACE TCH. NoI do not have 24VDC at TCH. REPLACE CORD to TCH.
E-Stop Relay is off	N. Look for the LED light on Relay F.	LED Light on Relay F is ON? YesLED light is on, SKIP to Step R No LED light is NOT on. Go to Step O next.
PLC issue	O. Look for LED light on right side of PLC next to YF.	LED Light on PLC next to YF is ON? YesLED light is on, REPLACE Relay terminal block F. Bad relay block No LED light is NOT on. Go to Step P next.
	P. Look for LED light on right side of PLC next to X5. LVR input.	LED Light on PLC next to X5 is ON? YesLED light is on, Power off machine and restart. If problem is still there replace PLC. No LED light is NOT on. Go to Step Q next.
LVR Tripped/Bad	Q. Look at LVR. If the light on the LVR is blinking press the reset button.	Was the LVR Blinking? A blinking LVR means the power to the machine is not adequate to run the machine. See operators manual for connecting power to this machine. YesLED light on LVR was blinking. Press reset. Fix power delivery issue . No LED light on LVR was NOT blinking. It is Steady RED. Replace LVR. No I do not have a Light on the LVR. No Light means the LVR has failed. REPLACE LVR.

Continued on next page.

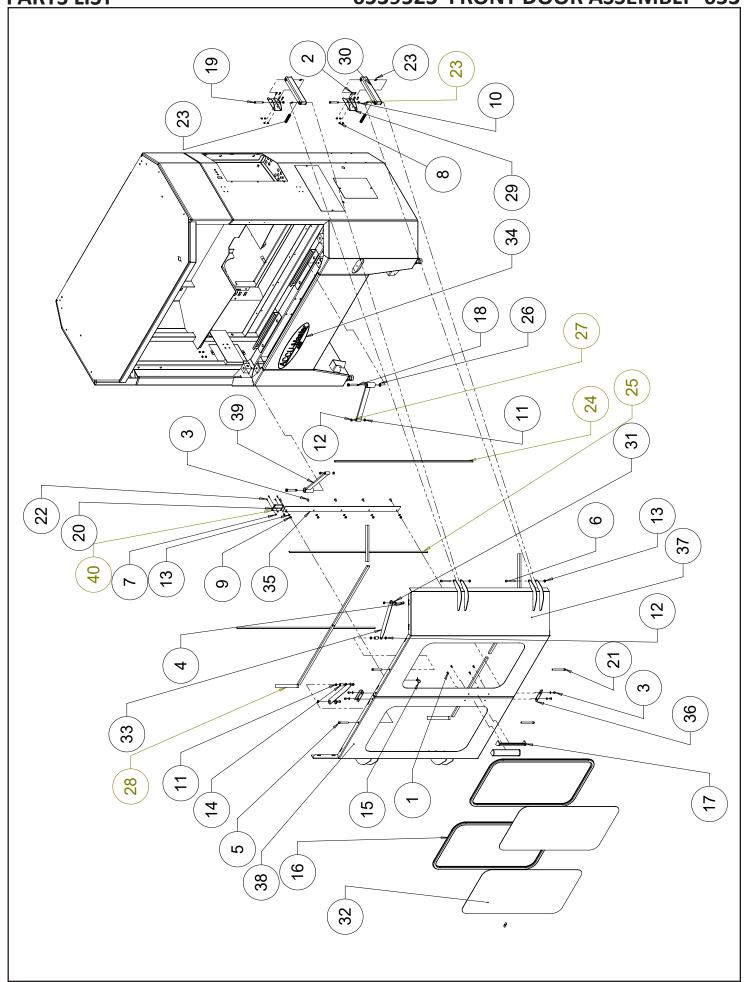
ELECTRICAL TROUBLESHOOTING

Possible Cause	Checkout Procedure	
Relay F is bad.	Check 120VAC out of Relay F at Terminal 11.	Measure 120 VAC at output of Relay F. Use the square hole on relay to measure. Measure between Terminal 11 (11RYF) to Neutral (light blue wire from Line Filter - Wire #02): Yes- I have 120 VAC, go to Step S next. No- Replace Relay YF.
Bad E-stop Contact	S. Check 120VAC back from Emergency Stop Switch ESS.	Measure 120VAC from start relay terminal 24 (13SRL24)to Neutral (light blue wire from Line Filter - Wire #02): YesI have 120 VAC, go to Step T. next. No Check wires going to and from ESS. REPLACE ESS contact block.
Bad Start Switch Contact	T. Check 120VAC back from System Start Switch SSS at MAG. Measure to Screw on MAG at T3.	Measure 120VAC from MAG terminal T3 (14MAGT3)to Neutral (light blue wire from Line Filter - Wire #02): YesI have 120 VAC, go to Step U. next. No Check wires going to and from SSS. REPLACE SSS contact block.
Bad Y6NC relay	U. Press and hold the Green Start button and check for 120VAC out of RELAY Y6-NC.	Measure 120VAC from Y6-NC terminal 11 (40RY6NC11) to Neutral (light blue wire from Line Filter - Wire #02): YesI have 120 VAC, go to Step V. next. NoThe light on RELAY Y6NC should be off. If not then reboot machine. REPLACE relay Y6NC if light is off and there is not 120VAC at terminal RY6NC terminal 11
Bad Grind Motor Relay REL	V. Press and hold the Green Start button and check for 120VAC out of REL at termi- nal 22. Measure to Screw on REL at 22. REL should not be engaged.	Measure 120VAC from REL terminal11 (18REL22) to Neutral (light blue wire from Line Filter - Wire #02): YesI have 120 VAC, go to Step W. next. NoI do not have 120 VAC. REPLACE Grind Motor Relay REL.
Bad Magnetic Starter (MAG)	W. Press and hold the Green Start button and check for 120 VAC at MAG coil A1 and A2.	Measure 120VAC from MAG terminal A1 (45MAGA1) to A2 (24MAGA2): YesI have 120 VAC, but MAG is not engaged (pulled in). REPLACE MAG STARTER NoI do not have 1120VAC. Check neutral side of MAG (A2) to Brown wire on Filter. Check for loose wires to Terminal Block Grey 5.

PROBLEMMachine will go back to E-stop after releasing the Green Start Button.		
Possible Cause	Checkout Procedure	
Bad SLR Relay	A. Press and hold Green Start button. Check for 120 VAC to Start Relay SRL at A1 and A2.	Check for 120 VAC from SRL A1 (44SRLA1) to A2 (22SRLA2) with Green Start button held in. YesI have 120 VAC at A1 to A2. Go to step B. Next No I do not have 120VAC from A1 to A2. Check Blue Terminal Block 1 and Grey Terminal Block 5. REPLACE wires if bad.
BAD SLR Relay or BAD MAG starter contact.	B. Release the Green start button. Remove Relay from SRL. To Remove, rotate arm holding relay into SRL until the relay pops up. Then pull out on relay to remove from terminal block. Then Press and hold Green Start Button and Check for 120 VAC at MAG L3. ADD PIC OF HOW TO REMOVE RELAY.	Remove SRL relay and check for 120 VAC from MAG L3 (43 MAGL3) to Nuetral (light blue wire from Line Filter - Wire #02) with Green Start button held in. YesI have 120 VAC . REPLACE relay in SRL. No I do not have 120VAC, REPLACE MAG starter.

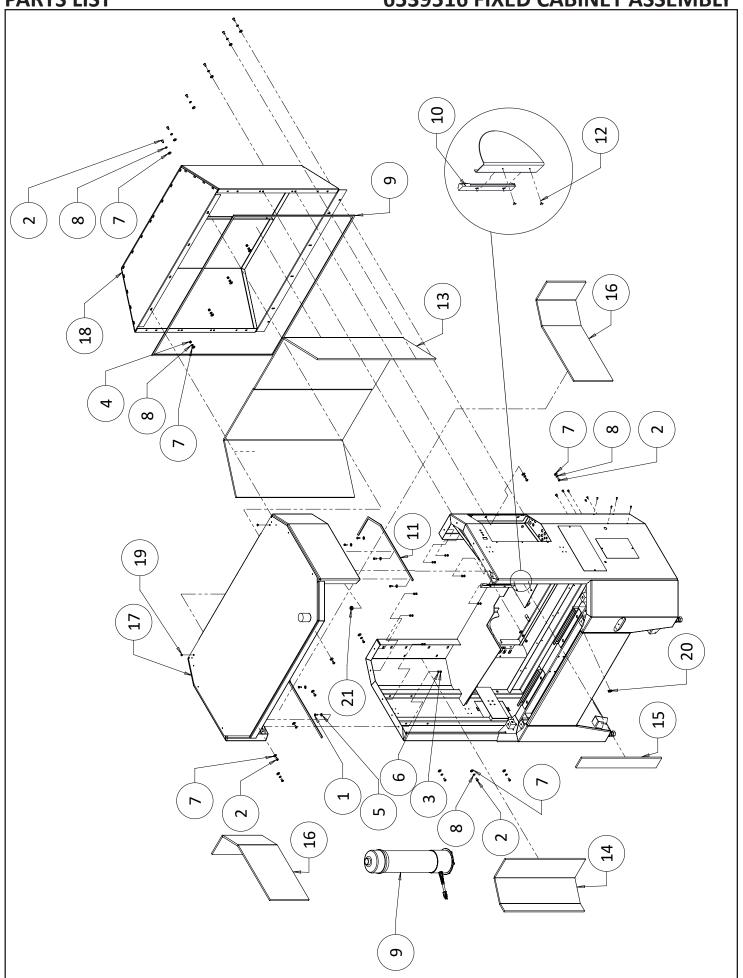
ELECTRICAL TROUBLESHOOTING

PROBLEMGrind N Possible Cause	Checkout Procedure	
Bad Signal	A. Press the Troubleshooting Icon on the start screen. Then press the arrow next to Grind Motor Troubleshooting. Shut the doors, then press and hold the Grind Motor Icon.	Grinding motor works. YesEnd Troubleshooting. No Grinding motor is not turning. Go to step B. next
Bad Control Relay	B. While pressing the Grind Motor Icon (see step A.). Check the indicators on the screen. Grining motor control relay should be on.	When pushing the button the Grinding motor control relay (Y5) is: ONGo to step C next. OFF Turn off machine and reboot system. Retest, if still not functining check PLC, Touch Screen, and cord connections and replace bad component.
	C. While pressing the Grind Motor Icon (see step A.). Check the indicators on the screen. Grinding motor relay should be on.	When pushing the button the Grinding motor Relay (REL) is: ONSkip to step F. OFF Go to step D next.
Bad Fuse	D. Release button on screen. Press Red E-stop Button in. Remove Fuse maked SPIN and Check fuse using Ohm meter.	When checked with an meter the fuse is good (0 Ohms from end to end): YesGo to step E next No Replace fuse and test starting at step A.
Bad Control Relay Y5	E. Reinstall fuse. Pull up on Red E-stop and press green reset button. Return to the Grinding Motor Troubleshooting Screen (see step A). Press and hold Grind Motor Icon and measure voltage into coil of Grind motor Relay (REL) A1 to A2	Use meter to check for 120 VAC from Grind motor relay A1 (39RELA1) to A2 (60RELA2) while pressing icon. Is there 120 VAC from A1-A2? YesIf Relay (REL) does not activate then replace REL. If it does activate then check signal wires #74 and #150 to PLC. No Replace Relay Y5.
Grinding Motor Circuit breaker has tripped	F. Flip Grinding motor Circuit breaker to reset. Retest - pess icon on screen.	Reset cicuit breaker (GCB). Machine works. YesEnd Troubleshooting. No go to step G next
Grinding Motor Overload tripped	G. Press reset on Overload on bottom of Grinding Motor Relay (REL).	Reset Overload on REL. Machine works. YesEnd Troubleshooting. No go to step H next.
No Power to Grinding Motor Relay	H. Check for 120 VAC power coming into REL at L1 and L2.	Use meter and check for 120 VAC from Grinding motor Relay L1 (38RELL1) to L2 (61RELL2). YesThere is 120 VAC at L1 to L2. Go to step I next. No I do not have 120 VAC at L1 to L2. Replace Grind Circuit Breaker (GCB)
Bad Grinding motor Relay or Overload	I. Check for 120 VAC power out of Overload on REL at T1 and T2.	Use meter and check for 120 VAC out of Overload on Grinding motor Relay T1 (63RELT1) to T2 (42RELT2). YesThere is 120 VAC at T1 to T2. Replace Grind Motor. No I do not have 120 VAC at L1 to L2. Replace Grind Motor Relay (REL) and Overload.



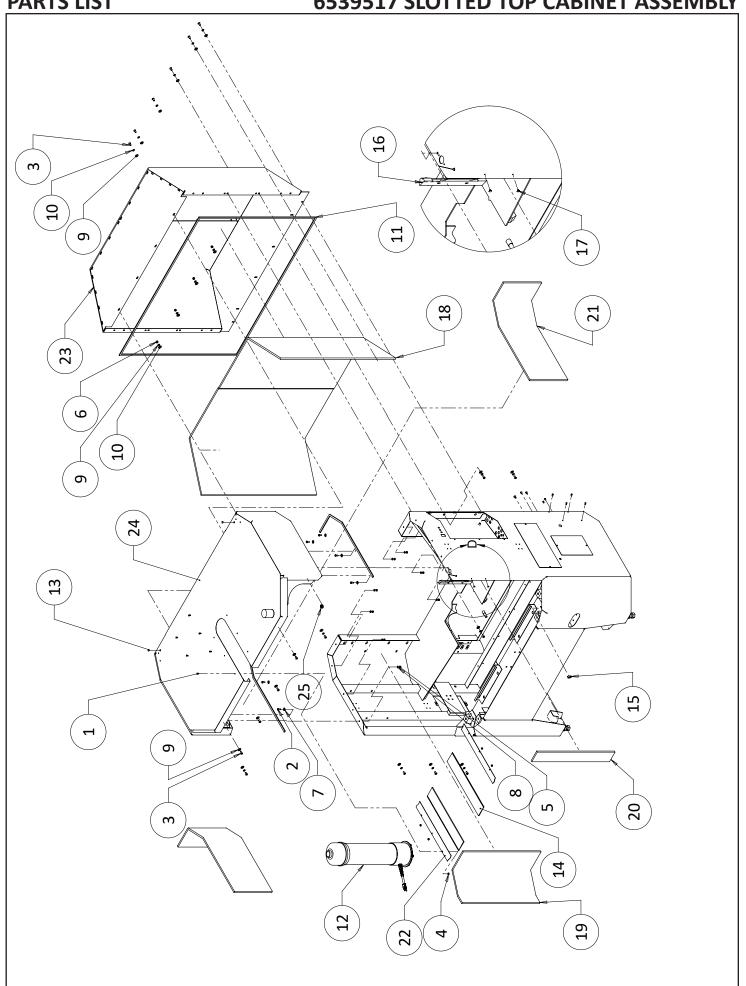
6539523 FRONT DOOR ASSEMBLY- 653

DIAGRAM NO.	PART NO.	DESCRIPTION
1	B230611	M6 x 10 SOCKET HEAD CAP SCREW
2	B251011	1/4-20 x 5/8 SOCKET HEAD CAP SCREW
3	B310113	5/16-18 x 5/8 BUTTON HEAD SOCKET CAP SCREW
4	B371216	3/8-16 x 3/4 BUTTON HEAD SOCKET CAP SCREW
5	3706231	3/8-16 x 3 SOCKET HEAD CAP SCREW FULL THRD
6	B374811	3/8-16 x 3 SOCKET HEAD CAP SCREW
7	J167000	8-32 LOCKNUT JAM NUT
8	J257100	1/4-20 LOCKNUT FULL
9	J311000	5/16-18 HEX NUT FULL
		5/16-18 LOCKNUT FULL
11	J372000	3/8-16 HEX JAM NUT
12	J377000	3/8-16 LOCKNUT JAM NUT
13	K311501	5/16 LOCKWASHER SPLIT
		SPACER .406 ID x .750
		PUSH IN CABLE TIE
16	3706186	WINDOW GASKET
17	3706215	LEDGE HANDLE
18	3706247	SHOULDER BOLT .5 DIA x 2.5 LG
19	3706218	SHOULDER BOLT .38 DIA x 2.5 LG
20	3707908	DOOR SWITCH W/DISC
21	3706232	3/8-16 x 4.5 SOCKET HEAD CAP SCREW
22	3708820	8-32 x .50 BUTTON SAFETY HEAD
23	3706226	COMPRESSION SPRING .75
24	3706052	FOAM SEAL ADHESIVE BACK
25	3708889	FOAM SEAL 50"
26	3709027	THRUST WASHER .507 x .917 OD
27	3709304	THRUST WASHER .375 x .812 OD
28	3708379	STRIP FOAM .50 THICK
29	6339039	DOOR PIVOT BRACKET
30	6339051	DOOR PIVOT ARM
31	6339202	UPPER DOOR PIVOT
32	6539007	WINDOW 18.5 x 36
33	6539086	DOOR UPPER ARM
34	6539002	ACCU-MASTER 653 DECAL
35	6539057	FRONT DOOR BACK PANEL
36	6539088	DOOR SHIPPING BRACKET
37	6539521	653 RH DOOR WELDMENT
		653 LH DOOR WELDMENT
39	6339524	DOOR PIVOT ARM WELDMENT
40	6539061	FRONT DOOR CORD - AT3



6539516 FIXED CABINET ASSEMBLY

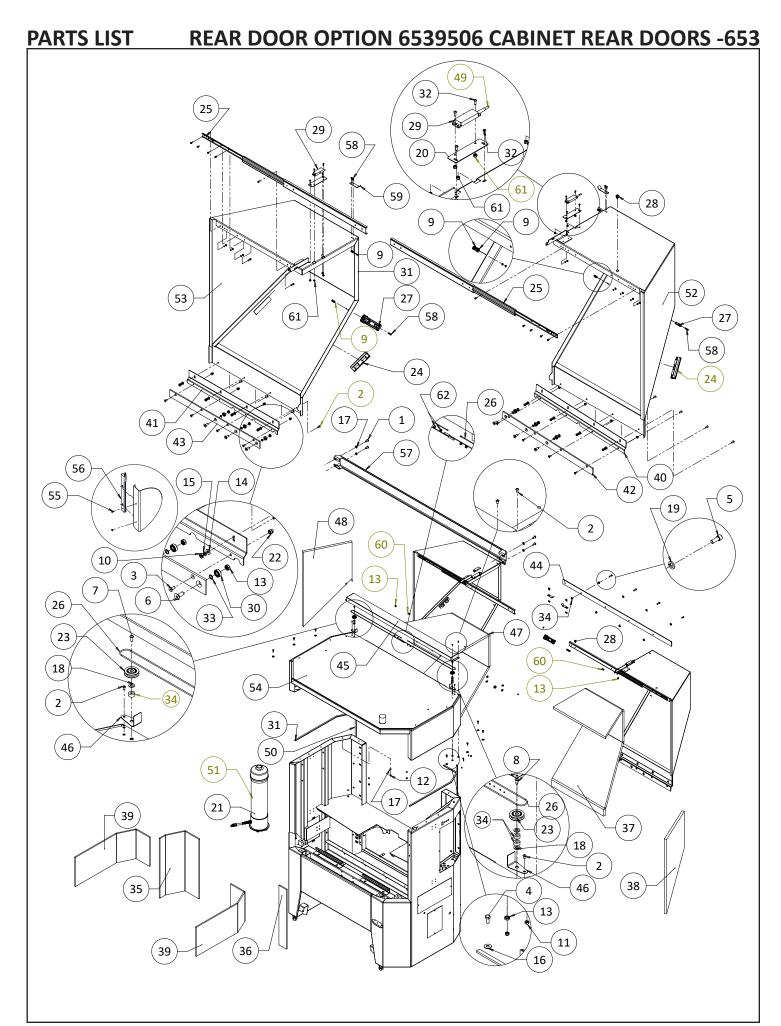
DIAGRAM NO.	PART NO.	DESCRIPTION
1	B311401	5/16-18x7/8 HEX HEAD CAP SCREW
2	B371216	3/8-16x3/4 BUTTON HEAD CAP SCREW
3	J311000	5/16-18 HEX NUT FULL
4	J371000	3/8-16 HEX NUT
5	K310001	FLAT WASHER 5/16 SAE
6	K311501	5/16 LOCKWASHER SPLIT
7	K370001	FLAT WASHER 3/8 SAE
8	K371501	3/8 LOCKWASHER SPLIT
9	3706045	VACUUM MASTERCRAFT
	3706046	VACUUM BAG (MASTERCRAFT 652)
	3706067	GREY FILTER INNER BAG
	3708874	SIZING ADAPTER
10	3707958	MACHINE LIGHT - LED
11	3708378	STRIP FOAM .25 THICK
12	3708675	RIVET - BLIND .188 DIAMETER
13	6529083	FOAM PAD CANOPY BACK WINCH
14	6539008	LEFT SIDE FRAME FOAM SHEET
15	6539009	RIGHT SIDE FRAME FOAM SHEET
16	6539013	TOP CANOPY FOAM SHEET
17	6539507	TOP WELDMENT
18	6539508	FIXED BACK WELDMENT
19	3706250	HOLE PLUG .375 DIAMETER BLACK
20	3706224	HOLE PLUG 1.13 DIAMETER
21	3706260	GROMMET 1 INCH



PARTS LIST

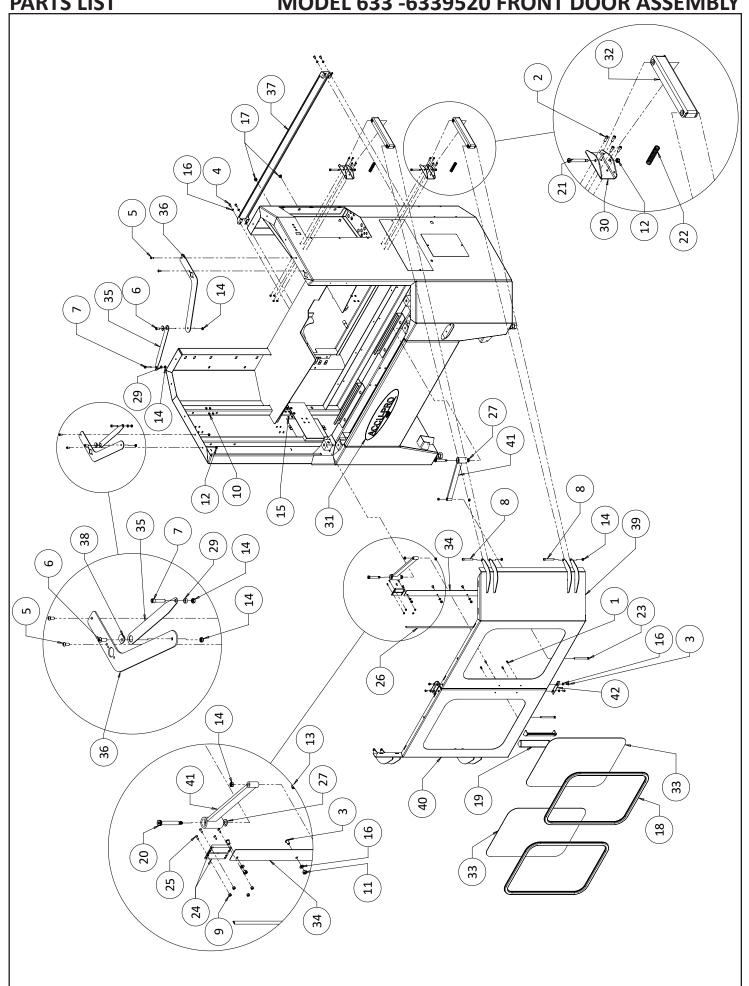
6539517 SLOTTED TOP CABINET ASSEMBLY

DIAGRAM NO.	PART NO.	DESCRIPTION
1	B250816	1/4-20 x 1/2 BUTON HEAD CAP SCREW
2	B311201	5/16-18 x 3/4 HEX HEAD CAP SCREW
3	B371216	3/8-16 x 3/4 BUTTON HEAD SOCKET CAP SCREW
4	J257100	1/4-20 LOCKNUT
5	J311000	5/16-18 HEX NUT
6	J371000	3/8-16 HEX NUT
7	K310001	FLAT WASHER 5/16
8	K311501	5/16 LOCKWASHER SPLIT
9	K370001	FLAT WASHER 3/8 SAE
10	K371501	3/8 LOCKWASHER SPLIT
11	3708378	STRIP FOAM .25T
12	3706045	VACUUM MASTERCRAFT
	3706046	CLOTH FILTER BAG
	3706067	GREY FILTER INNER BAG
	3708874	SIZING ADAPTER
13	3706250	HOLE PLUG .375
14	3706251	NYLON BRUSH 24"
15	3706224	HOLE PLUG 1.13 DIAMETER
16	3707958	MACHINE LED LIGHT
17	3708675	3/16 - BLIND RIVET
18	6529083	FOAM PAD CANOPY BACK
19	6539008	LEFT SIDE FRAME FOAM
20	6539009	RIGHT SIDE FRAME FOAM
21	6539013	TOP CANOPY FOAM SHEET
22	6539102	BRUSH HOLDER
23	6539508	FIXED BACK WELDMENT
24	6539513	TOP WELDMENT
25	3706260	GROMMET 1 INCH



PARTS LIST REAR DOOR OPTION 6539506 CABINET REAR DOORS -653

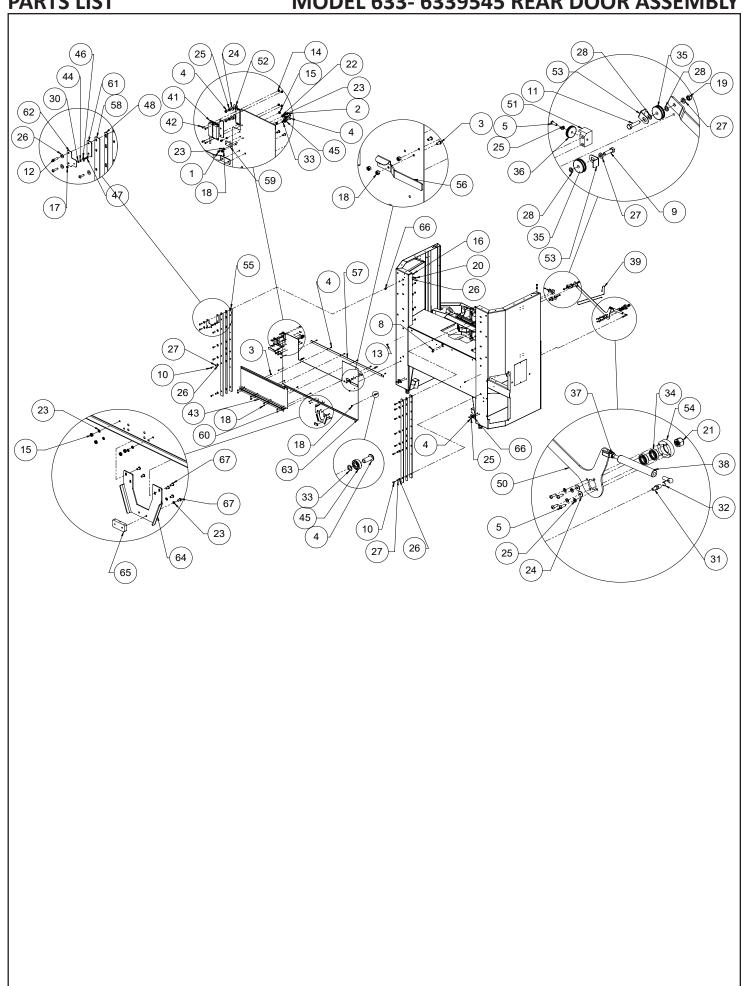
TANIS LIST	INEAIN E	DOOK OF HON 0333300 CADINET REAR DOOKS -033
DIAGRAM NO.	PART NO.	DESCRIPTION
1	B311013	DESCRIPTION 5/16-18 x 5/8 BUTTON HEAD SOCKET CAP SCREW
2	B250816	1/4-20 x 1/2 BUTTON HEAD SOCKET CAP SCREW
3	B251005	1/4-20 x 5/8 FLAT HEAD SOCKET CAP SCREW
		5/16-18 x 3/4 HEX HEAD CAP SCREW
		3/8-16 x 1 SOCKET HEAD CAP SCREW
		3/8-16 x 1 FLAT HEAD SOCKET CAP SCREW
		3/8-16 x 1-1/2 BUTTON HEAD CAP SCREW
		3/8-16 x 2 BUTTON HEAD SOCKET CAP SCREW
		10-24 LOCKNUT JAM NYLON INSERT 1/4-20 HEX NUT
		1/4-20 FIEX NOT 1/4-20 LOCKNUT JAM
		5/16-18 HEX NUT
		3/8-16 LOCKNUT JAM
14	K250001	FLAT WASHER 1/4 SAE
		1/4 LOCKWASHER SPLIT
		FLAT WASHER 5/16 SAE
		5/16 LOCKWASHER SPLIT
		FLAT WASHER 3/8 SAE
		3/8 LOCKWASHER SPLIT DOOR SWITCH BRACKET
		VACUUM MASTERCRAFT
		CLOTH FILTER BAG
		GREY FILTER INNER BAG
		1/4-20 ACORN NUT
		WIRE ROPE PULLEY
		FLUSH MOUNT DOOR
		28 IN DRAWER SLIDE
		WIRE ROPE ASSEMBLY
		SOFT LATCH SOUTHCO
		STRAIN RELF .3339 DOOR SWITCH W/DISCONNECT
		BALL BRG R6-2RS
		STRIP FOAM .50 THICK
		8-32 x .50 BUTTON HEAD SAFETY SCREW
		WASHER FLAT .38 x .56 x .03 THICK
		SPACER .385 ID x .75 OD x .38 LONG
		LEFT SIDE FRAME
		RIGHT SIDE FRAME
		FOAM REAR DOORS
		FOAM REAR DOOR SIDE TOP CANOPY FOAM
		LEFT REAR DOOR RAIL
		RIGHT REAR DOOR RAIL
		LEFT REAR DOOR GUIDE
43	6539035	RIGHT REAR DOOR GUIDE
		REAR DOOR TRAP
		CABLE TOP GAURD
	6539042	
		FOAM REAR DOORS
		FOAM REAR DOOR SIDE REAR DOOR CORD
		FOAM SEAL ADHESIVE
		BRACKET VAC HOSE
		LEFT REAR DOOR WELDMENT
53	6539505	RIGHT REAR DOOR WELDMENT
54	6539507	TOP WELDMENT
		3/16 - BLIND RIVET
		MACHINE LIGHT - LED
		REAR BUMPER
		10-24 x 1/2 SOCKET HEAD CAP SCREW
		BRACKET - DOOR 3/8-16 x 3/4 BUTTON HEAD CAPSCREW
		8-32 LOCKNUT JAM NYLON INSERT
		1/4-28 HEX NUT
		= _j . == 11511101



MODEL 633 -6339520 FRONT DOOR ASSEMBLY

DIAGRAM NO.	PART NO.	DESCRIPTION
		M6 x 10 SOCKET HEAD CAP SCREW
2	B251011	1/4-20 x 5/8 SOCKET HEAD CAP SCREW
		5/16-18 x 1/2 BUTTON HEAD SOCKET CAP SCREW
		5/16-18 x 5/8 BUTTON HEAD SOCKET CAP SCREW
		5/16-18 x .75 BUTTON HEAD SOCKET CAP SCREW
		3/8-16 x 3/4 BUTTON HEAD SOCKET CAP SCREW
		3/8-16 x 1-3/4 SOCKET HEAD CAP SCREW FULL THD
		3/8-16 x 1-3/4 SOCKET HEAD CAP SCREW FULL THD
		8-32 LOCKNUT JAM NYLON INSERT
10	J252000	1/4-20 HEX JAM NUT
11	J311000	5/16-18 HEX NUT FULL
12	J317100	5/16-18 LOCKNUT FULL NYLON INST
13	J372000	3/8-16 HEX JAM NUT
14	J377000	3/8-16 LOCKNUT JAM NYLON INSERT
15	K251501	1/4 LOCKWASHER SPLIT
16	K311501	5/16 LOCKWASHER SPLIT
17	3706039	HOLE PLUG .687 DIA. x .125 THK
18	3706186	WINDOW GASKET
19	3706215	LEDGE HANDLE
20	3706217	SHOULDER BOLT .5 x 2.5L
		SHOULDER BOLT .38 x 2.5L
22	3706226	COMP. SPRING 3 L x .72 OD x .085 DIA WIRE
23	3706232	3/8 16 x 4.5" SOCKET HEAD CAP SCREW FULL THREAD
24	3707908	DOOR SWITCH W/DISCONNECT
25	3708820	8-32 x .50 BUTTON HD SAFETY SCREW
		SEAL FOAM .50 HIGH
		THRUST WASHER .507 x .917 x .062 T
		THRUST WASHER .375 x .812 x .032 T
		SPACER .385 x .625 x .25 L
		DOOR PIVOT BRACKET
		ACCU-PRO 633 DECAL
		DOOR PIVOT ARM MACHINED ecp
		WINDOW 18.5 x 26 (633)
		DOOR CENTER PLATE
		UPPER DOOR PIVOT ARM
		DOOR UPPER ARM BRACKET
	6339201	
		UPPER DOOR PIVOT
		633 DOOR WELDMENT RH
		633 DOOR WELDMENT LH
		DOOR PIVOT ARM WELDMENT
42	6539088	DOOR SHIPPING BRACKET
l .		

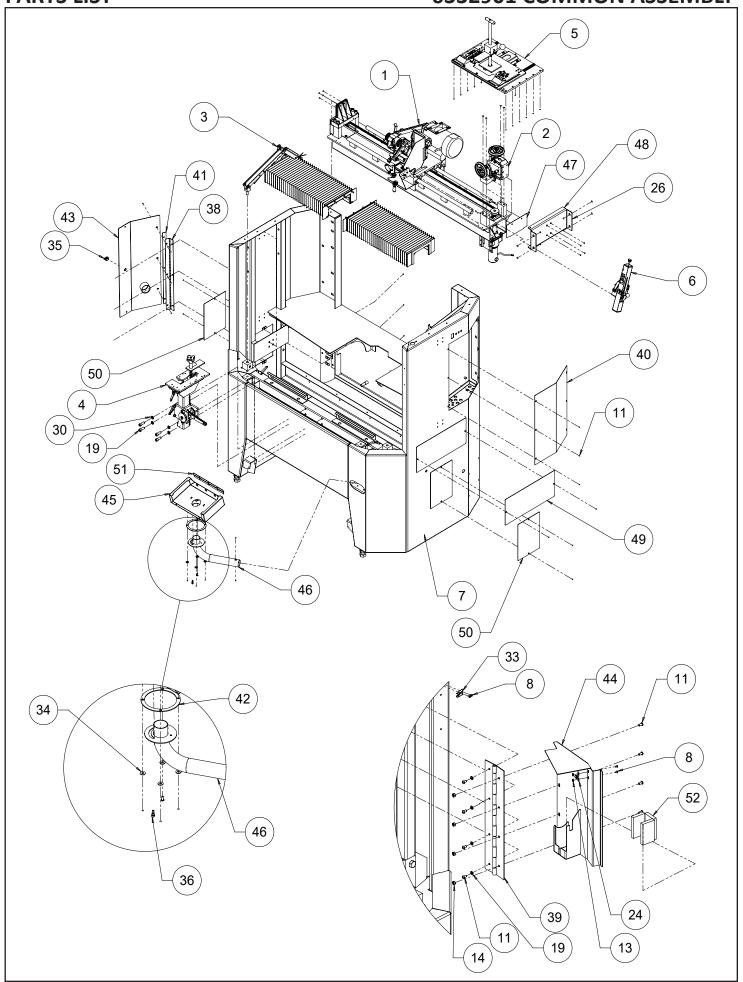
MODEL 633-6339545 REAR DOOR ASSEMBLY



MODEL 633- 6339545 REAR DOOR ASSEMBLY

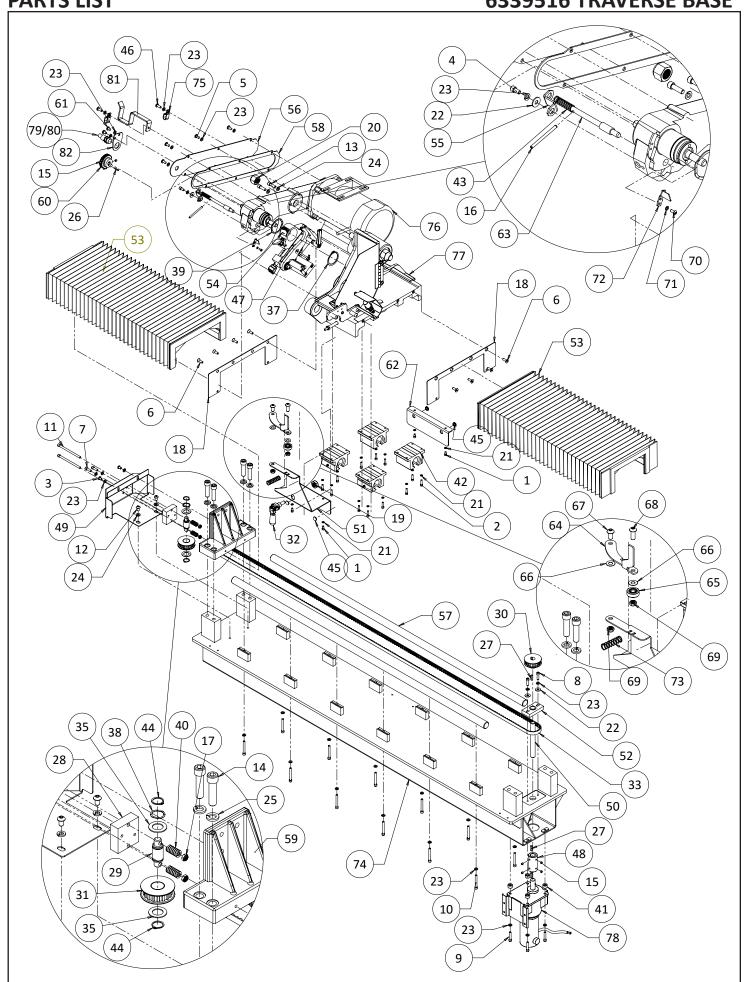
DIAGRAM NO	PART NO	DESCRIPTION
		10-24 x 1/4 SOCKET HEAD CAP SCREW
		10-24 x 3/8 BUTTON HEAD SOCKET SCREW CAP
		1/4-20 x 1/2 BUTTON HEAD SOCKET SCREW CAP
		1/4-20 x 5/8 BUTTON HEAD SOCKET SCREW CAP
		1/4-20 x 3/4 BUTTON HEAD SOCKET SCREW CAP
6	B310813	5/16-18 x 1/2 BUTTON HEAD SOCKET SCREW CAP
		3/8-16 x 1/2 HEX HEAD CAP SCREW
		3/8-16 x 1/2 BUTTON HEAD SOCKET SCREW CAP
		3/8-16 x 1-1/4 HEX HEAD CAP SCREW
		3/8-16 x 1.25 BUTTON HEAD SOCKET SCREW CAP
		3/8-16 x 1-1/2 HEX HEAD CAP SCREW
		3/8-16 x 1-1/2 BUTTON HEAD SOCKET SCREW CAP
		ROLL PIN .375 D x .75
		8-32 LOCKNUT JAM
	J191000	
		1/4-20 HEX JAM NUT
		1/4-20 LOCKNUT JAM
	J257100	
	J371000	3/8-16 HEX NOT 3/8-16 LOCKNUT JAM
	J627100	
		5/8-11 LOCKNOT FLAT WASHER #10 SAE
		#10 LOCKWASHER SPLIT
		FLAT WASHER 1/4 SAE
		1/4 LOCKWASHER SPLIT
		FLAT WASHER 3/8 SAE
		3/8 LOCKWASHER SPLIT
		FLAT WASHER .387 x .625 x .065
		DOOR SAFETY SWITCH PLATE
		FLAT WASHER .27 ID x .50 x .06
	80418	
		RETAINING CLIP GAS
		FLAT WASHER .252 x .375 x .018
		BALL BEARING R10 W/OIL
		PULLEY 1.75 OD x .37 ID
		PULLEY 1.5 OD x .25 ID
37	3706099	CLEVIS ROD END M8
		GAS SPRING 202# 3.9 STROKE
		CABLE ASSY REAR DOOOR
40	3707029	STRAIN RELF LIQUID TIGHT
		DOOR SWITCH WITH DISCONNECT
		8-32 x .50 BUTTON HEAD SAFETY SCREW
	3708869	
		WAVE SPRING .35 ID
	3709597	
	6329131	
	6329133	
		REAR SLIDE SPACER
		REAR SLIDING DOOR
	6329163	
	6329164	
	6329165 6329166	DOOR SWITCH BRACKET
	6329167	REAR DOOR INNER SLIDE
		REAR DOOR INNER SLIDE REAR DOOR LIFT HANDLE
		REAR DOOR LIFT HANDLE REAR DOOR STIFFENER
		REAR DOOR STIFFENER REAR DOOR OUTER PLATE
		DOOR STOP BLOCK
		HINGED WALKER PANE
		DOOR STOP SPACER PLATE
		DOOR STOP SPACER PLATE
		REAR DOOR SLIDE UP
		REAR DOOR CABLE BRACKET
		CABLE CLAMP BLOCK
		DOOR STOP BLOCK
		10-24 x 1/2 BUTTON HEAD SOCKET CAP SCREW
	5150515	IS I If I SO I I SHITLE SO CHET ON TO SCHEW

6332901 COMMON ASSEMBLY



6332901 COMMON ASSEMBLY

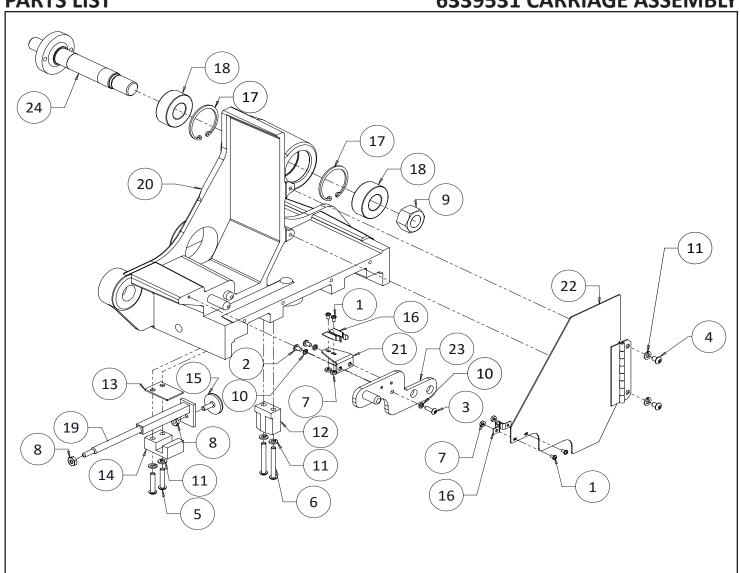
DIAGRAM NO. PART NO. DESCRIPTION	
1 6339516TRAVERSE BASE ASSEMBLY	
2 6339537 CROSS SLIDE SUB ASSSEMBLY	
3 6339505	
4 6339530 FRONT TOOLING ASSEMBLY	
5 6339534 REAR TOOLING ASSEMBLY	
6 6339538 POSITION GAUGE ASSEMBLY	
7 6339544 FRAME WELDMENT PAINT	
8 B130412 6-32 x 1/4 PAN HEAD MACHINE SCREW	
9B19063410-32 x 3/8 BUTTON HEAD SOCKET CAP SCREW	
10B250616	
11B250816	
12 B250819 1/4-20 x 1/2 TRUSS HEAD MACHINE SCREW	
13B251016	
14	
15	
16	
17 B314811	
18	
19 B502811	
20B503211	
21 B504801	
22 H371602	
23	
24	
25	
26	
27	
28	
29 K310001 FLAT WASHER 5/16 SPLIT	
30 K311501	
31 K371501	
32 K501501	
33 3706193 GRAB CATCH - METAL	
34370621925"PLASTIC WASHER	
35WING HANDLE CAM LATCH	
36 3708543 SHOULDER BOLT .313 DIA x .32 LG	
37 3708908 ADJUSTABLE HANDLE 3/8-16 x .78 LG	
38 6059030 HINGE - FRONT END	
39 6329070 HINGE PAINTED	
40 6339083 ELECTRICAL PANEL	



PARTS LIST

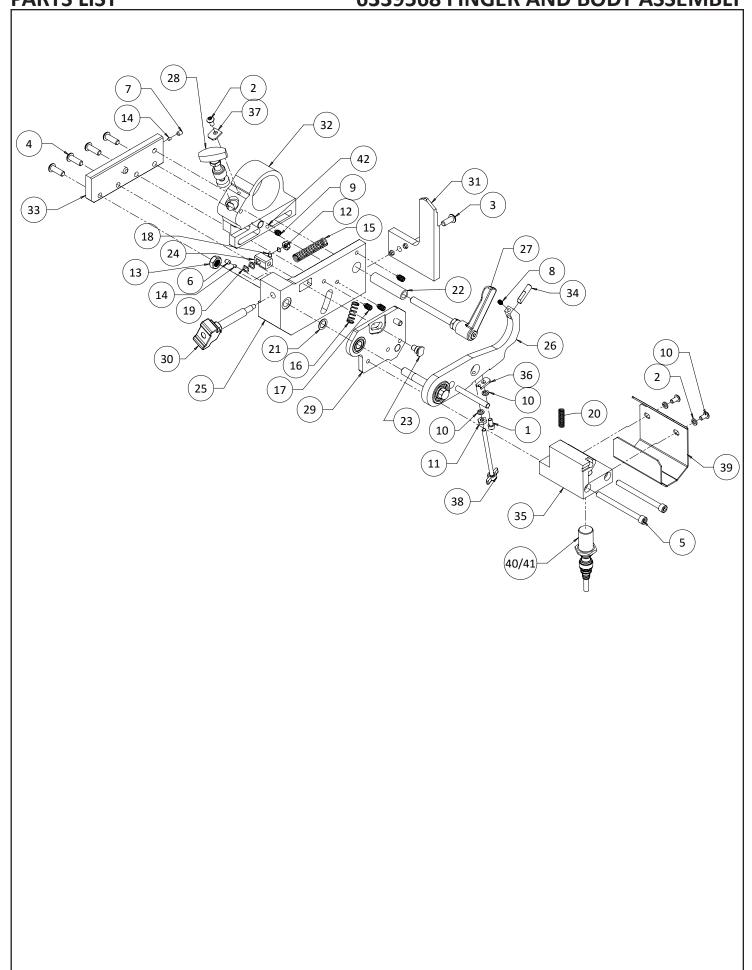
6339516 TRAVERSE BASE

PAKIS LIS	I	6339516 TKAVEKSE BASE
DIA NO. PART NO		DIA NO PART NO DESCRIPTION
	1 10-24 x 3/8 SOCKET HEAD CAP SCREW	60 6509238 GRIP KNOB GRINDING WHEEL
	1 10-24 x 3/4 SOCKET HEAD CAP SCREW	61 B250618 1/4-20 x 3/8 PAN HEAD MACHINE SCREW
	51/4-20 x 3/8 BUTTON HEAD CAP SCREW	62 6509253 CARRIAGE DUST COVER BRACKET
	11/4-20 x 1/2 SOCKET HEAD CAP SCREW	63 6339023 PLUNGER PIN
	31/4-20 x 1/2 PAN HEAD MACHINE SCREW	64 6339132LIMIT SENSOR BRACKET
	5 1/4-20 x 3/4 FLAT HEAD SOCKET CP SCREW	65 3709257 BALL BEARING
	11/4-20 x 3/4 SOCKET HEAD CAP SCREW	66 3709304 THRUST WASHER .375
	11/4-20 x 7/8 SOCKET HEAD CAP SCREW	67 B371216 3/8-16 x 3/4 BUTTON HEAD CAP SCREW
	11/4-20 x 1-1/4 SOCKET HEAD CAP SCREW	68 B3716163/8-16 x 1 BUTTON HEAD CAP SCREW
	11/4-20 x 2 SOCKET HEAD CAP SCREW	69 J3770003/8-16 LOCKNUT JAM
	11/4-20 x 4 SOCKET HEAD CAP SCREW	70 B1606078-32 x 3/8 BUTTON HEAD CAP SCREW
	35/16-18 x 1/2 BUTTON HEAD CAP SCREW	71 K161501#8 LOCKWASHER SPLIT
	15/16-18 x 1 SOCKET HEAD CAP SCREW	72 6339127 RELIEF ANGLE POINTER
	11/2-13 x 2 SOCKET HEAD CAP SCREW	73 3706194 COMPRESSION SPRING .6ODx
	01/4-20 x 1/4 SOCKET SET SCREW	74 6329032 TRAVERSE BASE MACHINED
	2ROLL PIN .188 D x 2	75 3708121 DOUBLE CORD CLAMP
	1/4-20 LOCKNUT JAM	76 6339515 GRINDING HEAD ASSEMBLY
	4 BELLOWS CARRIAGE MOUNTING BRACKT	77 6339531 CARRIAGE ASSEMBLY BELT TRAVERSE
	5/8-18 LOCKNUT JAM	78 80380 GEARMOTOR 1/20 HP
	3/4-16 LOCKNUT FULL	79 3707601 PROXIMITY SENSOR
	1#10 LOCKWASHER SPLIT	
	1FLAT WASHER 1/4 SAE	
	•	82 6509216 HEAD SENSOR BRACKET
	15/16 LOCKWASHER SPLIT	
	11/2 LOCKWASHER SPLIT	
	5SQUARE KEY 1/8 x .75	
	7SQUARE KEY 3/16 x .75	
	TRAVERSE PULLEY SUPPORT	
	TRAVERSE PULLEY SHAFT	
	5DRIVE COG PULLEY	
	IDLER PULLEY ASSEMBLYCLAMP DESTACO 602	
33 80354		
	THRUST WASHER .75 ID	
	4CABLE TIE MOUNT	
	5CABLE TIE 6.5 L x.18	
	5RETAINING RING EXTERNAL	
	9WAVE SPRING .78 ID	
	5WAVE SHING	
	3 COMPRESSION SPRING	
	4SPACER .28 ID x .62 OD	
	4BALL BEARING	
	2COMPRESSION SPRING .480D	
	LRETAINING RING EXTERNAL	
	2HOLE PLUG .50 DIA.	
	8 1/4-20 x 5/8 PAN HEAD MACHINE SCREW	
	DRELIEF ANGLE POSITIONER ASSEMBLY	
	4COUPLER .625 DIA.	
	5PULLEY MOUNT BRACKET	
	LMOTOR EXTENSION SHAFT	
	3LIMIT SENSOR AND CLAMP	
	LSHAFT SUPPORT BLOCK	
	5BELLOWS WAY COVER (VELCRO)	
	4RELIEF ANGLE DECAL	
	4 RETAINER PLUNGER	
	5 BELT COVER	
	3CARRIER SHAFT	
58 6509210) GASKET BELT COVER	
59 6509221	1FIXED TRAV BASE END BRACKET	



6339531 CARRIAGE ASSEMBLY

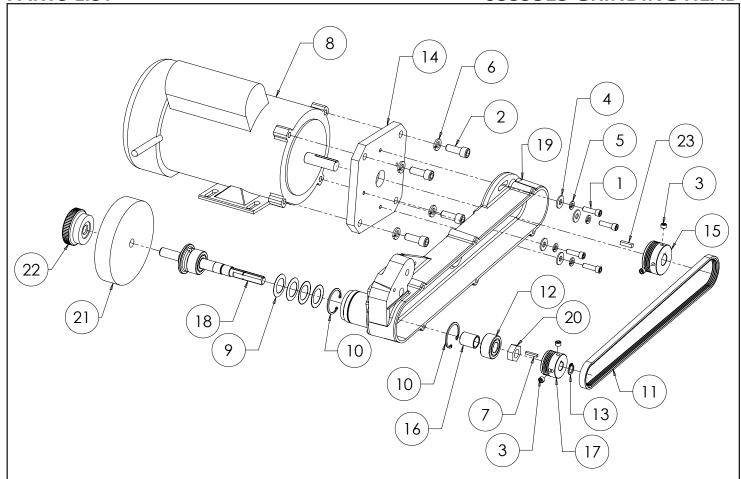
DIACDAMANO	DA DT NO	DESCRIPTION
	PART NO.	
		6-32 x 1/4 PAN HEAD MACHINE SCREW
		10-24 x 5/16 PAN HEAD MACHINE SCREW
		10-24 x 5/8 BUTTON HEAD SOCKET CAP SCREW
		1/4-20 x 3/8 BUTTON HEAD SOCKET CAP SCREW
5	B252016	1/4-20 x 1-1/4 BUTTON HEAD SOCKET CAP SCREW
6	B253216	1/4-20 x 2 BUTTON HEAD SOCKET CAP SCREW
7	J137000	6-32 LOCKNUT JAM NUT
8	J252000	1/4-20 HEX JAM NUT
9	J887300	7/8-14 LOCKNUT
10	K191501	#10 LOCKWASHER SPLIT
11	K251501	1/4 LOCKWASHER SPLIT
12	28187	BLOCK TRAVERSE CLAMP
13	28188	SPACER TRAVERSE CLAMP
14	28189	BLOCK CLAMP SUPPORT
15	50310	TIP BELT CLAMP
16	3706193	GRAB CATCH - METAL
17	3708184	RETAINING RING INTERNAL
18	3708186	BALL BEARING DOUBLE ROW 5
19	6329040	TRAVERSE CLAMP MACHINED
20	6329058	CARRIAGE BASE BELT
21	6339130	CATCH BRACKET
22	6339532	DUST DOOR WELDMENT
23	6339559	PIN PLATE WELDMENT
24	6509023	GRINDING HEAD PIVOT SHAFT



6339568 FINGER AND BODY ASSEMBLY

DIAGRAM NO.	PART NO.	DESCRIPTION
1	B190631	10-32 x 3/8 SOCKET HEAD CAP SCREW
2	B190634	10-32 x 3/8 BUTTON HEAD SOCKET CAP SCREW
		1/4-20 x 5/8 BUTTON HEAD SOCKET CAP SCREW
		1/4-20 x 3/4 BUTTON HEAD SOCKET CAP SCREW
		1/4-20 x 3 SOCKET HEAD CAP SCREW
		8-32 x 1/4 SOCKET SET SCREW CUP POINT
		SOCKET SET SCREW 10-32X1/4
		10-32 x 1/4 SOCKET SET SCREW NYLON
9	C250427	1/4-20 x 1/4 NYLON
		#10 LOCKWASHER SPLIT
	J191100	
12	J197000	10-24 LOCKNUT JAM
13	J377200	3/8-24 LOCKNUT JAM
14	3579284	NYLON PLUG 1/8 DIA
15	3706170	COMPRESSION SPRING .42 OD x .31 ID
16	3706171	COMPRESSION SPRING .42 OD x .33 ID
17	3706172	1/4-20 x 3/8 SET SCREW
18	3706187	WAVE SPRING .2 ID
19	3706188	WAVE SPRING .24 ID
20	3708107	COMPRESSION SPRING .24 OD
21	3708999	WASHER FLAT .376 x .563 x .03
22	6339014	SPACER .5 OD x .33 ID
23	6339016	FINGER STOP POSITION
24	6339017	PIN BLOCK
25	6339020	FINGER SLIDE BASE
26	6339507	INDEX FINGER ASSEMBLY
27	6339508	RELIEF ADJUSTER LOCK HANDLE
28	6339569	RELIEF ANGLE POSITIONER KNOB ASSEMBLY
29	6339511	FINGER STOP PLATE ASSEMBLY
30	6339512	FINGER STOP ADJUSTMENT KNOB
31	6339548	FIXED FINGER ASSEMBLY
32	6339549	FINGER SUPPORT ROTATE ASSEMBLY
33	6339547	CLAMP PLATE FOR RELIEF ASSEMBLY
34	6509007	INDEX STOP PIN
35	6509008	INDEX SENSOR BLOCK
36	6509239	ANTI ROTATE PLATE
37	6509358	STOP PLATE
38	6509501	TEE KNOB ASSY 10-32 x 3.0
39	6509230	INDEX SENSOR GUARD
		PROXIMITY SENSOR
		FINGER POSITION SENSOR CORD
42	3709705	NYLON BALL 5/32 DIA.

6339515 GRINDING HEAD



6339515 GRINDING HEAD

DIAGRAM NO.	PART NO.	DESCRIPTION
1	B251411	1/4-20 x 7/8 SOCKET HEAD CAP SCREW
2	B371611	3/8-16x1 SOCKET HEAD CAP SCREW
		1/4-20x3/8 SOCKET SET SCREW CAP POINT
4	K250001	FLAT WASHER 1/4 SAE
5	K251501	1/4 LOCKWASHER SPLIT
6	K371501	3/8 LOCKWASHER SPLIT
7	R000376	SQUARE KEY 1/8 X .75
8	3707690	MOTOR 1HP 120VAC TEFC
9	3708193	CONICAL WASHER .882 x 1.362 x .0197
10	3708194	RETAINING RING INTERNAL
11	3708202	BELT POLY V 320J4
12	3708204	BALL BRG DBL ROW 5202-2RS
13	3708870	RETAINING RING EXT .50 SHAFT HD
14	6329041	PLATE MOTOR MOUNT
15	6329042	PULLEY POLY V 1.80 DIA.
16	6329089	SLEEVE BEARING DBL ROW
17	6329100	PULLEY POLY-V 1.44 D STL
18	6329523	GR HEAD SPINDLE ASSY
19	6339026	GRINDING HEAD HOUSING
20	6509494	SPINDLE NUT
21		GRINDING WHEEL (SEE CARTON ASSEMBLY)
22	6509237	GRINDING WHEEL KNOB
23	R000377	SQUARE KEY 3/16 x .75

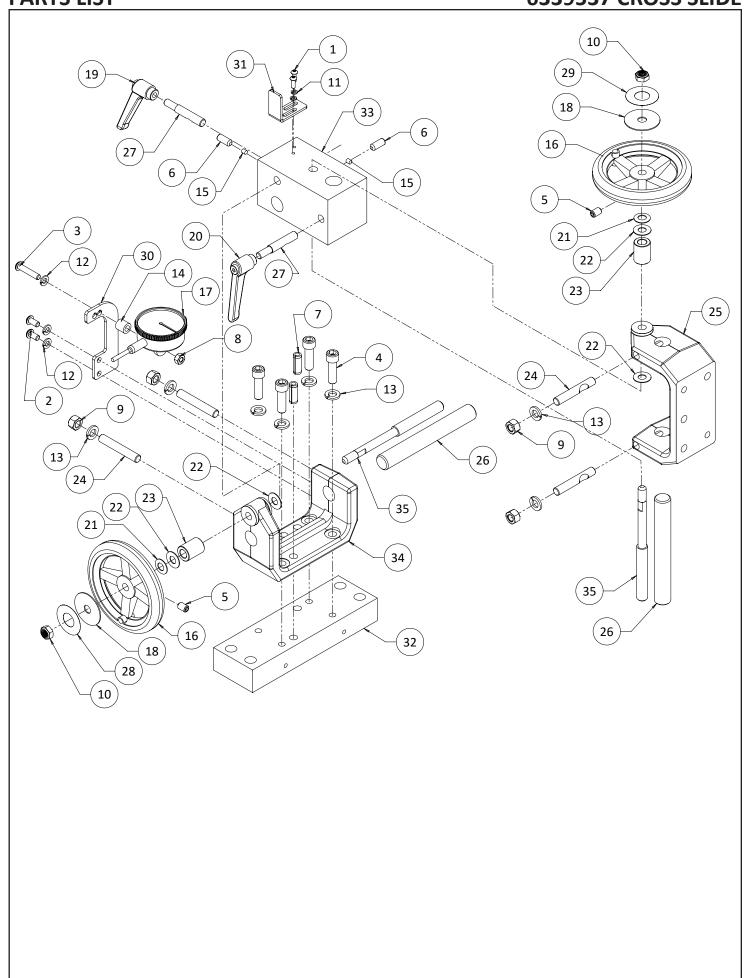
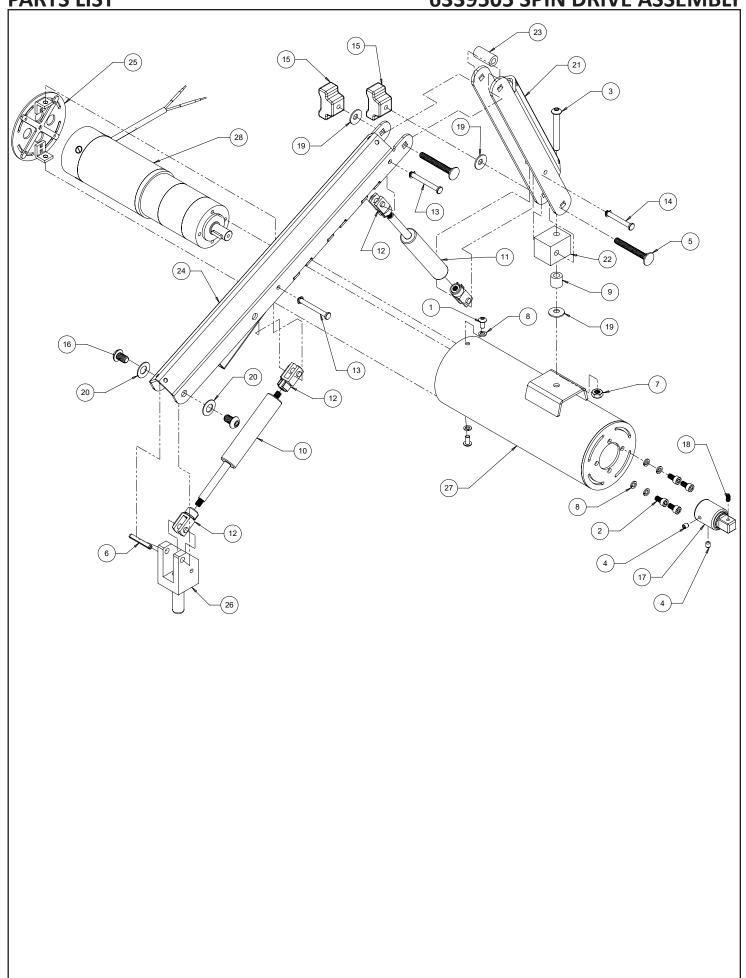


DIAGRAM NO.	PART NO.	DESCRIPTION
1	B160807	8-32 x 1/2 BUTTON HEAD SOCKET CAP SCREW
		1/4-20 x 1/2 BUTTON HEAD SOCKET CAP SCREW
3	B252016	1/4-20 x 1-1/4 BUTTON HEAD SOCKET CAP SCREW
4	B372011	3/8-16 x 1-1/4 SOCKET HEAD CAP SCREW
		ROLL PIN .375 D x 1.0
6	C311220	5/16-1 8 x 3/4 SOCKET SET SCREW CUP POINT
7	J257000	1/4-20 LOCKNUT JAM
8	J371000	3/8-16 HEX NUT
9	J377000	3/8-16 LOCKNUT JAM
10	K161501	#8 LOCKWASHER SPLIT
11	K251501	1/4 LOCKWASHER SPLIT
12	K371501	3/8 LOCKWASHER SPLIT
13	3109027	SPACER .281 IDx.50 OD
14	3579109	NYLON PLUG 3/16 DI
15	3708148	HANDWHEEL 4.5 DIA .
16	3708581	DIAL INDICATOR
17	3708665	FLAT WASHER .41 x 1.
		ADJUSTABLE HANDLE 5/16-18
		ADJUSTABLE HANDLE 5/16-18
		CONICAL WASHER .38 x .75 x .035 T
		THRUST WASHER .375 x .812 x .032 T
		SPACER .406 ID x.75 OD
		SHAFT LOCKING STUD
		SUPPORT CROSS SLIDE
	6009095	
		SHAFT LOCKING STUD
	6309114	
	6309115	
		DIAL INDICATOR MOUNT
		DIAL INDICATOR STORE
	6509011	
		SUPPORT CROSS SLIDE
		ADJUSTER TRAVEL BRACKET
34	6509390	ADJUSTING SHAFT
l .		

6339505 SPIN DRIVE ASSEMBLY



6339505 SPIN DRIVE ASSEMBLY

DIAGRAM NO.	PART NO.	DESCRIPTION
		10-24 x 3/8 BUTTON HEAD SOCKET CAP SCREW
2	B200611	M58 x 10 SOCKET HEAD CAP SCREW METRIC
3	B253216	1/4-20 x 2 BUTTON HEAD SOCKET CAP SCREW
4	C190420	10-24 x 1/4 SOCKET SET SCREW CAP POINT
5	E253200	CARRB 1/4-20 x 2.00
6	H182002	PIN - ROLL .188 D x 1.25 L
7	J257000	1/4-20 LOCKNUT JAM NYLON INSERT
8	K191501	#10 LOCKWASHER SPLIT
9	3109027	SPACER .281 ID x .50 OD x. 50 L STEEL
10	3706138	GAS SPRING 130# 1.97" STROKE
11	3706255	GAS SPRING 30# 1.97" STROKE
12	3706155	STEEL CLEVIS ROD END FOR M6 x 1
13	3706156	CLEVIS PIN 3/16 x 1-3/4 L
14	3706157	CLEVIS PIN 3/16 x 1-1/2 L
15	3706158	KNOB T 1.5 1/4-20 F
16	3706159	5/16-18 x .5" BUTTON HEAD SOCKET CAP SCREW W/PATCH
17	3706165	MOTOR DRIVE ADAPTER 12MM-1/2 SQUARE
18	3706166	8-32 BALL NOSE SPRING PLUNGER
		CONICAL WASHER .258 x .688 x .048
20	3709062	CONICAL WASHER .382 x .75 x .035 T
21	6339005	SPIN DRIVE UPPER ARM
22	6339006	SPIN MOTOR PIVOT BLOCK
23	6339012	SPACER .26 ID x .5 OD x 1.0 L
24	6339501	SPIN DRIVE LOWER ARM WELDMENT
25	6339503	MOTOR HOUSING END CAP
26	6339504	SPIN DRIVE BASE PIVOT BLOCK ASSEMBLY
		MOTOR HOUSING WELDMENT W/ SLOT
28	6339565	SPIN MOTOR ASSEMBLY 1.9A
l		
NOT SHOWN	3707255	CABLE TIE 4 L x.10 W x.038 T

6339530 FRONT TOOLING

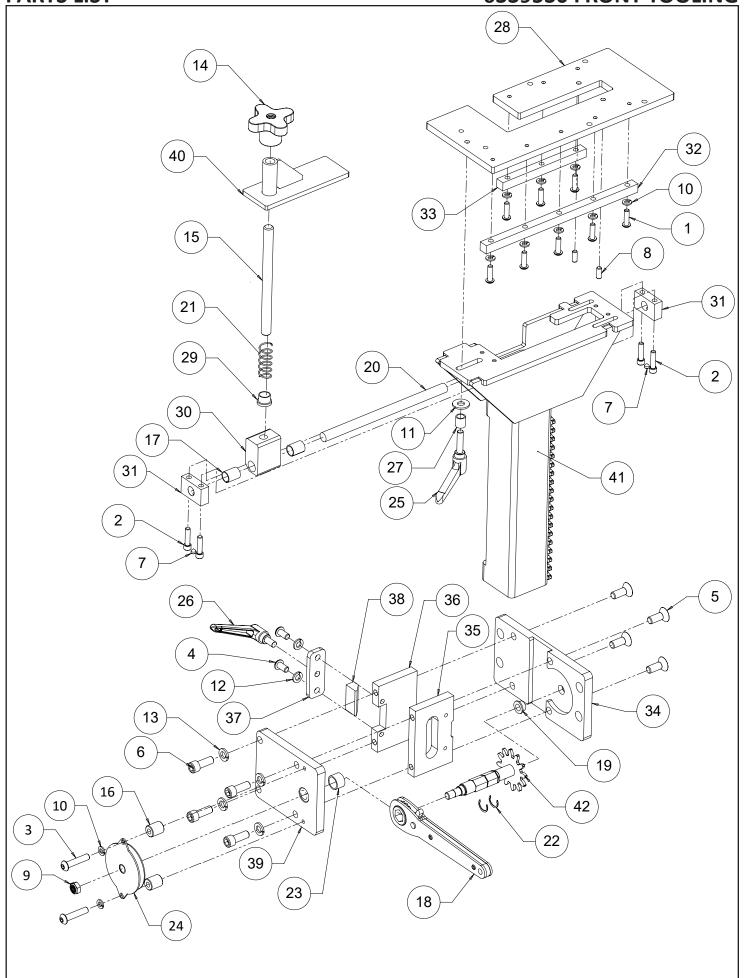
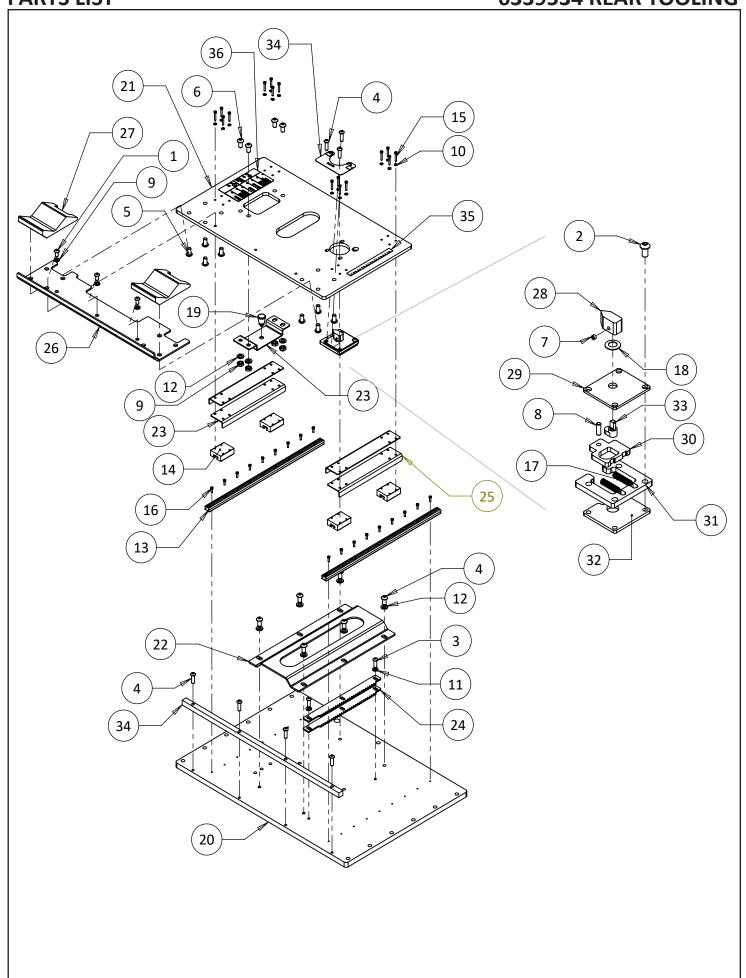
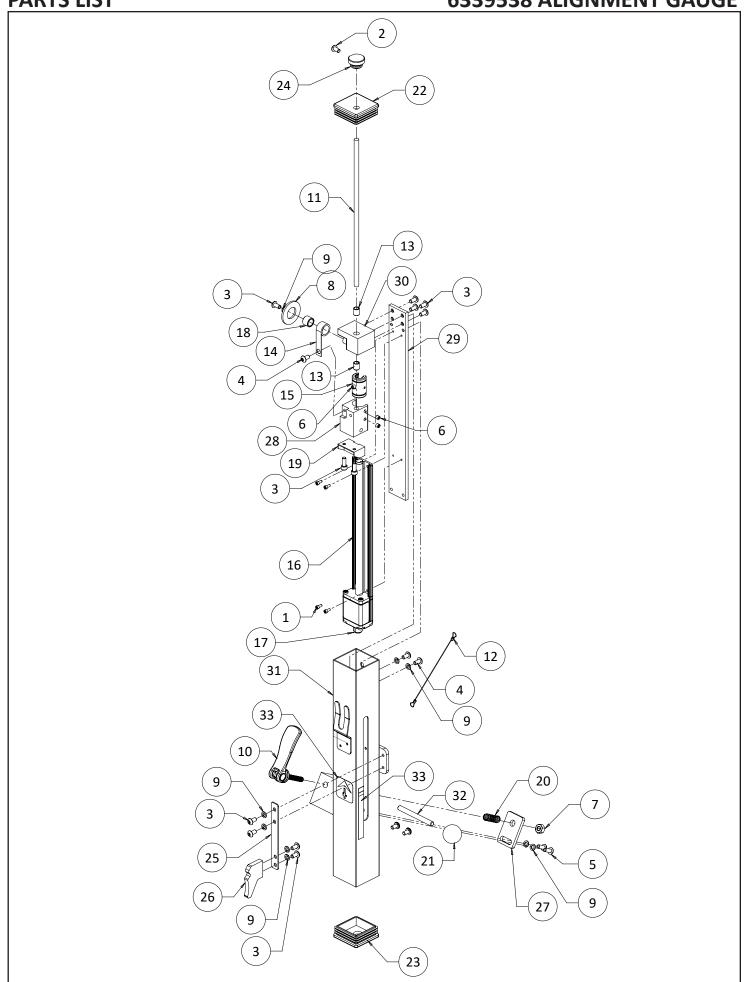


DIAGRAM NO.	PART NO.	DESCRIPTION
		1/4-20 x 7/8 BUTTON HEAD SOCKET CAP SCREW
		1/4-20 x 1 SOCKET HEAD CAP SCREW
		1/4-20 x 1-1/2 BUTTON HEAD SOCKET CAP SCREW
		5/16-18 x 5/8 BUTTON HEAD SOCKET CAP SCREW
		3/8-16 x 1 FLAT HEAD SOCKET CAP SCREW
		3/8-16 x 1 SOCKET HEAD CAP SCREW
		1/4-20 x 3/8 SOCKET SET SCREW CAP POINT
		ROLL PIN .25 D x .75 L
9	J377000	3/8-16 LOCKNUT JAM NYLON INSERT
		1/4 LOCKWASHER SPLIT
		FLAT WASHER 5/16 STEEL
		5/16 LOCKWASHER SPLIT
1		3/8 LOCKWASHER SPLIT
1		KNOB - 4 PRONG 1/2-13F
		STUD - THD 1/2-13 x 6.5 LG
16	3679096	SPACER .281IDx.625 OD x .75 L
		BRG - DU SLEEVE 1/2 ID x 3/4 LG
18	3706190	RATCHET WRENCH .625" HEX
19	3706191	BRG - OILITE FLANGE .375 x .5 x .25
20	3706192	1/2"OD x 8" LG SHAFT
21	3706203	SPRING COMPRESSION .72 OD x 2 LG
22	3706204	RETAINING RING EXTERNAL 5103-62 LOW CLEARANCE FOR 5/8" SHAFT
23	3706234	BRG - OILITE SLEEVE .62 x.73 x .50
24	3706235	DAMPER - 10MM SHAFT
25	3708094	ADJ HANDLE 5/16-18 x 1.25 LG
26	3708908	ADJ HANDLE 3/8-16 x.78 LG
27	6009031	SPACER .386 ID x.50 OD x .56 L STEEL
28	6339095	FRONT TOOLING TOP PLATE
29	6339099	SPRING GUIDE
30	6339100	SLIDE CLAMP BLOCK
31	6339103	SHAFT SUPPORT BLOCK
32	6339104	TOOLING PLATE LONG BRACE
33	6339105	TOOLING PLATE SHORT BRACE
34	6339109	FRONT TOOLING MOUNT PLATE
35	6339111	FRONT TOOLING RIGHT SIDE PLATE
36	6339112	FRONT TOOLING LEFT SIDE PLATE
37	6339113	LOCK PLATE
38	6339114	TOOLING LOCK BLOCK
39	6339207	FRONT TOOLING OUTER PLATE
40	6339527	FORNT CLAMP WELDMENT
41	6339561	FRONT ROLLER MOUNT MACHINED
42	6339562	PINION SHAFT WELDMENT



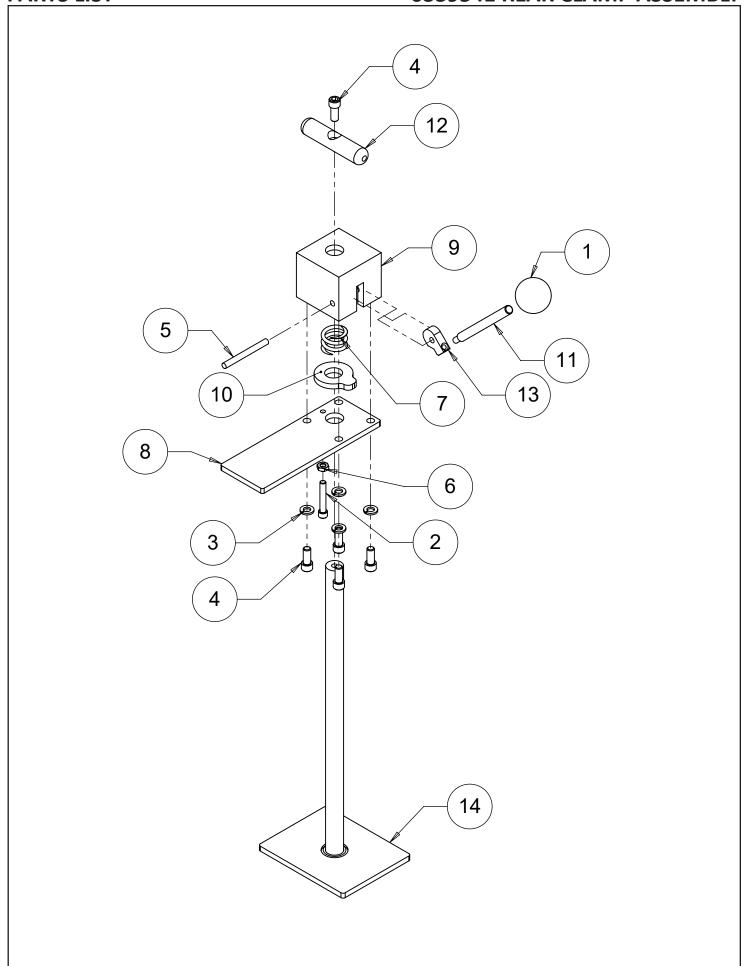
6339534 REAR TOOLING

DIAGRAM NO.	PART NO.	DESCRIPTION
		1/4-20 x 3/8 FLAT HEAD SOCKET CAP SCREW
		1/4-20 x 1/2 FLAT HEAD SOCKET CAP SCREW
		1/4-20 x 3/4 FLAT HEAD SOCKET CAP SCREW
4	B251416	1/4-20 x 7/8 FLAT HEAD SOCKET CAP SCREW
		5/16-18 x 5/8 FLAT HEAD SOCKET CAP SCREW
6	B311413	5/16-18 x 7/8 BUTTON HEAD SOCKET CAP SCREW
7	C190320	10-24 x 3/16 SOCKET SET SCREW CAP POINT
8	H180901	PIN - DOWEL .188 D x
9	J311000	5/16-18 HEX NUT FULL
10	K121501	#5 LOCKWASHER SPLIT
11	K251501	1/4 LOCKWASHER SPLIT
12	K311501	5/16 LOCKWASHER SPLIT
		BEARING RAIL - 15M
14	3706196	LINEAR BEARING 15M
15	3706197	M35 X 20MM SOCKET HEAD CAP SCREW
16	3706198	M35 X 12MM SOCKET HEAD CAP SCREW
17	3706221	COMPRESSION SPRING .25 OD
		CONICAL WASHER .38
19	3708914	PLUNGER - SPRING
		BOTTOM PLATE REAR
		TOP PLATE REAR TOOL
		CLAMP PLATE REAR
		POSITION PIN BRACK
		PAWL RACK REAR TOOL
		BEARING SIDE PLATE
	6339125	
		REAR TOOLING SUPPORT
	6339134	
	6339135	
		LOCATING PIN PLATE
		PAWL SPACER PLATE
_		PAWL BOTTOM PLATE
		PAWL PIVOT SHAFT
		BOTTOM PLATE FRONT
		DECAL - SCALE HORIZONTAL
36	6339025	DECAL SHEET



6339538 ALIGNMENT GAUGE

DIAGRAM NO.	PART NO.	DESCRIPTION
1	B110406	4-40 x 1/4 SOCKET HEAD CAP SCREW
2	B190302	10-24 x 3/16 ROUND HEAD MACHINE SCREW
3	B190611	10-24 x 3/8 SOCKET HEAD SOCKET CAP SCREW
4	B190613	10-24 x 3/8 BUTTON HEAD SOCKET CAP SCREW
5	B190813	10-24 x 1/2 BUTTON HEAD SOCKET CAP SCREW
6	C190320	10-24 x 3/16 SOCKET HEAD SET SCREW CUP POINT
7	J257000	1/4-20 LOCKNUT JAM
8	K190101	FLAT WASHER .225 ID x .75 OD
		#10 LOCKWASHER SPLIT
10	3706173	CAM LOCK HANDLE
11	3706174	25 DIA x 9" LG SHAFT
	3706175	
13	3706176	SLEAVE BEARING 1/4 ID
		CONSTANT FORCE SPRING
		LINEAR BEARING 10M
_		LINEAR SENSOR MACHINED
		GAUGE CORD ASSEMBLY
		OILITE BEARING .38 ID X .50 OD
		LINEAR SENSOR MAGNET
		COMPRESSION SPRING .36 OD
		1" DIA BALL KNOB 1/4-20 THREAD
		GAUGE TOP CAP
		GAUGE BOTTOM CAP
		HEIGHT STOP BLOCK
	6339152	
	6339154	
		PIN LOCK PLATE
		BEARING BLOCK
		GAUGE BASE PLATE
		BEARING SUPPORT BLOCK
		GAUGE HOUSING WELDMENT
		STUD 1/4-20 x 3.00 LONG
33	6339025	DECAL SHEET

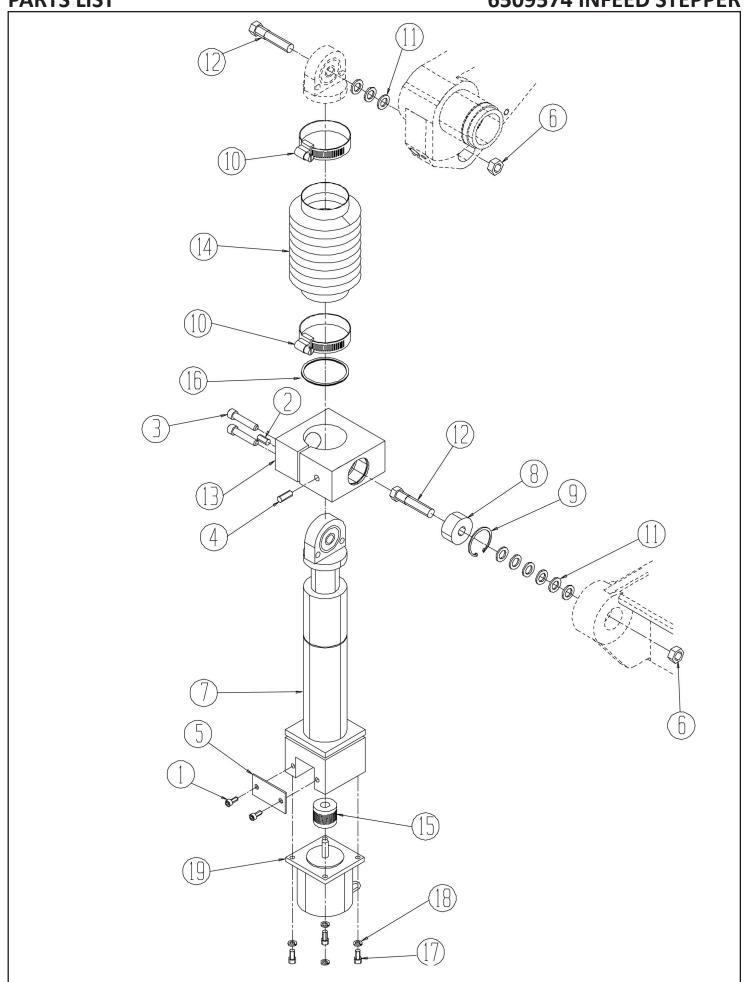


PARTS LIST

6339541 REAR CLAMP ASSEMBLY

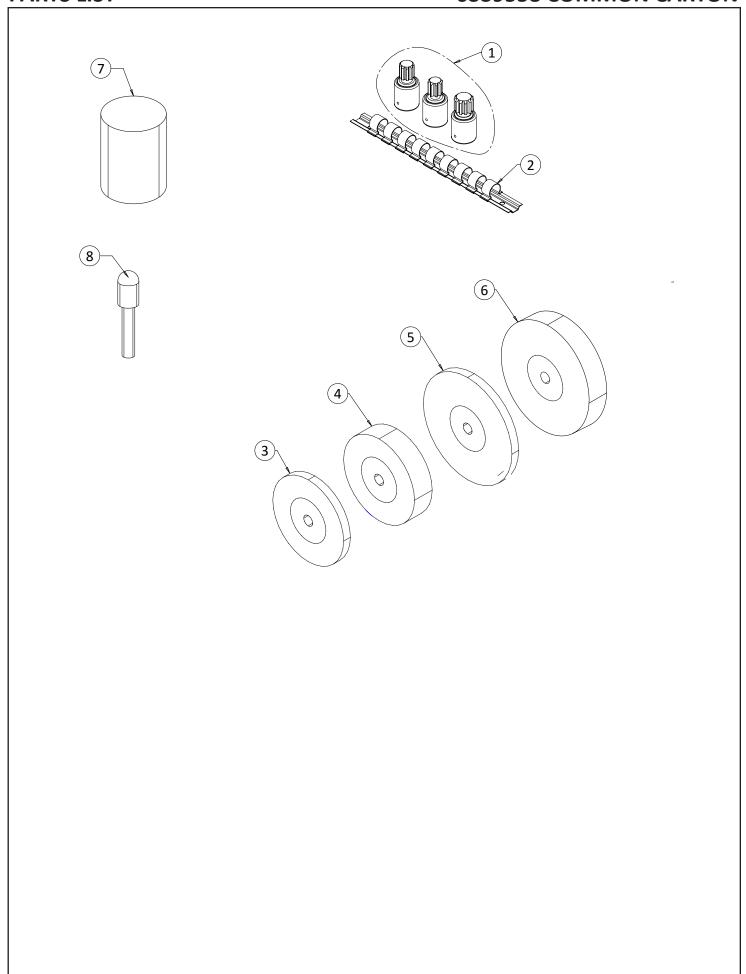
DIAGRAM NO.	PART NO.	DESCRIPTION
1	09351	KNOB - BALL 1.18 OD x 3/8-16 F (B27)
2	B252431	1/4-28 x 1.5 SOCKET HEAD CAP SCREW FULL THREAD
3	K311501	5/16 LOCKWASHER SPLIT
4	B311211	5/16-18 x 3/4 SOCKET HEAD CAP SCREW
5	H252807	PIN - DRIV LOC .25 D x 1.75 LG
6	J252100	JAM NUT 1/4-28
7	3706207	COMPR SPRING .84 ID x .88 LG
8	6339160	CLAMP BAR
9	6339161	CLAMP HOUSING
10	6339163	CLAMP RING
11	6339164	LEVER HANDLE
12	6339165	BASE NADLE
13	6339212	CAM LOCK
14	6339540	REAR CLAMP WELDMENT

6509574 INFEED STEPPER



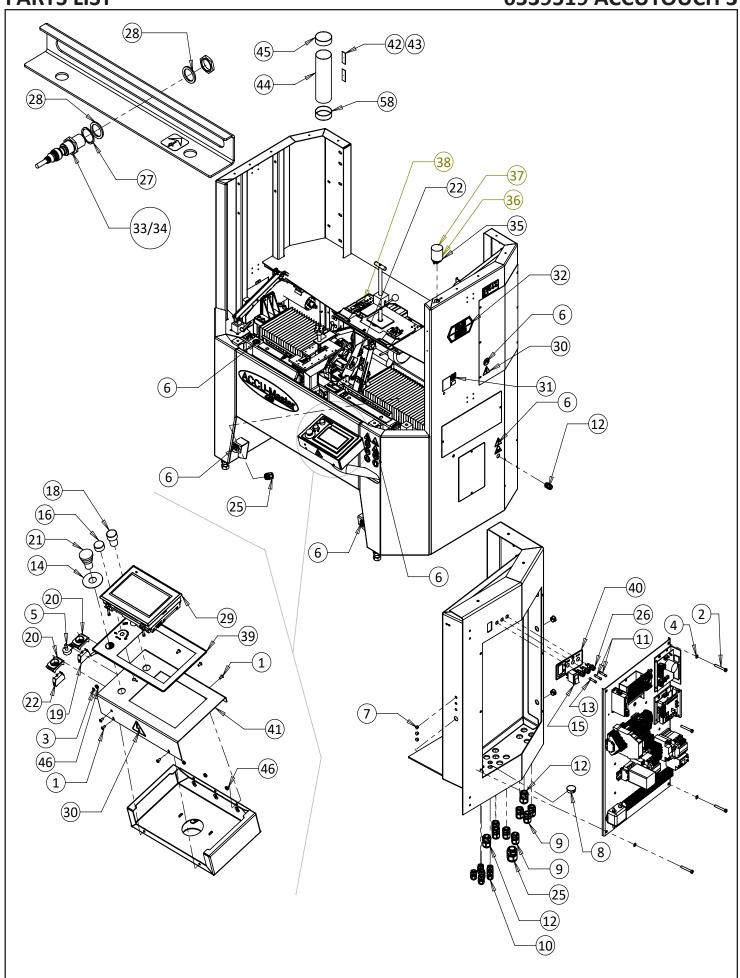
6509529 INFEED STEPPER

DIAGRAM NO.	PART NO.	DESCRIPTION
		10-24 x 3/8 BUTTON HEAD SOCKET CAP SCREW
		1/4-20 x 1/2 SOCKET SET SCREW
		1/4-20 x 1-1/4 SOCKET HEAD CAP SCREW
4	C251020	1/4-20 x 5/8 SOCKET SET SCREW CUP POINT
5	6509381	BASE COVER PLATE
6	J377200	3/8-24 LOCKNUT JAM NYLON INSERT
7	6509384	ACTUATOR ASSEMBLY
8	3708187	BALL BEARING DOUBLE ROW
9	3708189	INTERNAL RETAINING RING
10	3708192	HOSE CLAMP 2.25 DIAMETER
11	3709304	THRUST WASHER .375
12	6509048	HEX PIVOT PIN
13	6509051	BLOCK TRUNION
14	6509056	BELLOWS 1.88 ID
15	3708629	FLEX COUPLING 1 x 1 x .25 BORE
16	3708424	RETAINING RING EXTERNAL SPIRAL 1.75
17	B190811	110-24 x 3/8 SOCKET HEAD CAP SCREW
18	K191501	#10 LOCKWASHER SPLIT
19	6529514	STEPPER MOTOR W/CORD ASSEMBLY



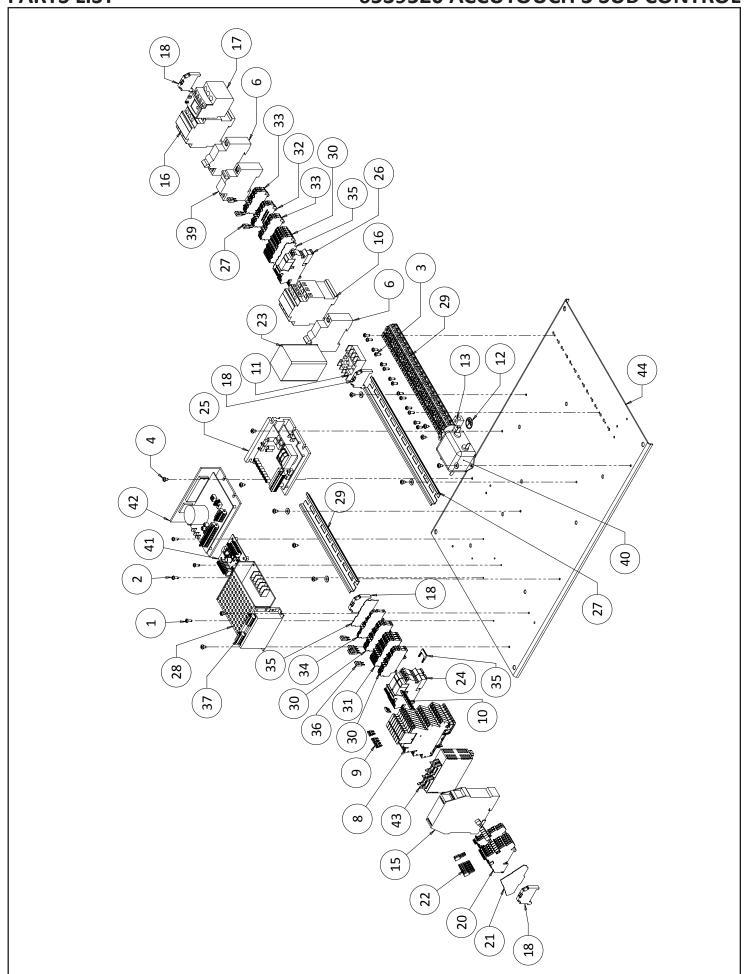
6339558 COMMON CARTON

DIAGRAM NO.	PART NO.	DESCRIPTION
1	3706130	DRIVE ADAPTERS
2	3708205	SOCKET HOLDER
3	3700088	GRINDING WHEEL 3.5 OD x .38 W x .502 B 24G
4	3700086	GRINDING WHEEL 3.5 OD x 1 W x .502 B 24G
5	3700087	GRINDING WHEEL 5 OD x.38 W x .502 B 24G
6	3700089	GRINDING WHEEL 5 OD x 1 W x .502 B 24G
7	3707603	BLUE LENS
8	3707465	FLASHER BULB



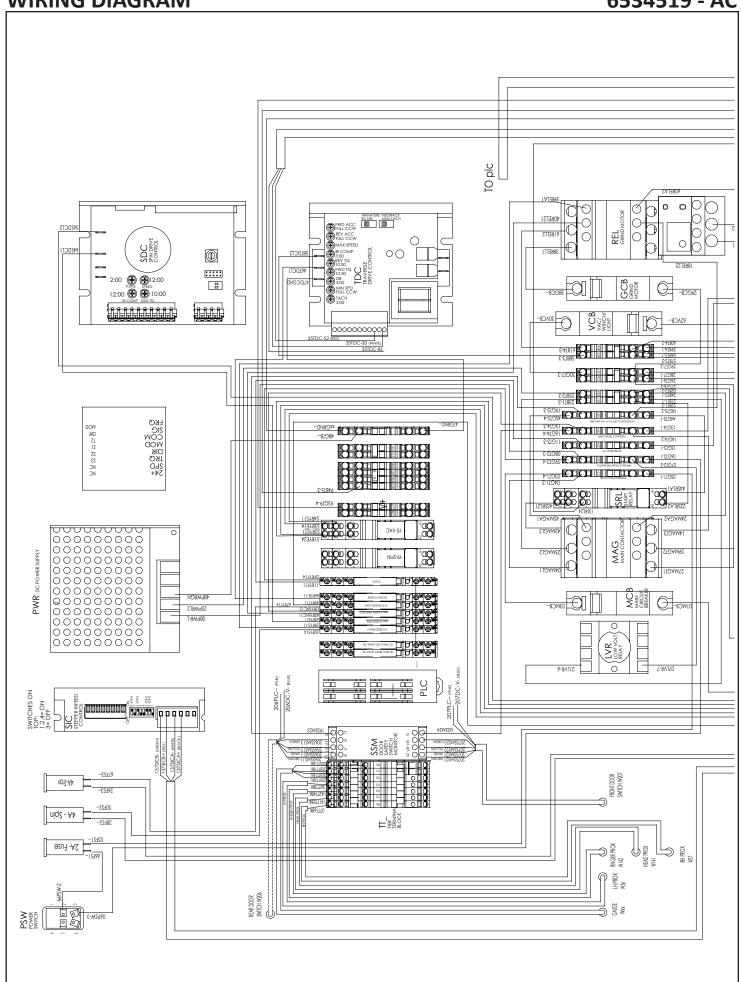
PARTS LIST

DIACDANANO	DA DT NIO	DESCRIPTION		
DIAGRAM NO.	PART NO.			
		10-32 x 3/8 FLAT HEAD SOCKET SCREW		
		1/4-20 THREAD CUTTING SCREW		
3	R000465	LOCK WASHER #10 EXTERNAL		
4	R000536	LOCK WASHER 1/4 INTERNAL		
5	80419	POTENTIOMETER 10K		
		DECAL SHEET (REEL GRINDER)		
		HOLE PLUG .313 DIA		
		HOLE PLUG 1.13 DIA		
		LIQUID TIGHT STRAIN RELIEF .2747 DIA		
		LIQUID TIGHT STRAIN RELIEF .1930 DIA		
		SLOW-BLOW FUSE - 4 AMP		
12	3707093	STRAIN RELIEF		
13	3707219	SLOW-BLOW FUSE - 2 AMP		
14	3707342	YELLOW E-STOP RING		
		ROCKER SWITCH ON/OFF		
		POTENTIOMETER KNOB W/POINTER		
		DECAL WARNING 4500 RPM MIN		
		GREEN PUSH BUTTON		
		CONTACT BLOCK NO		
		LATCH MOUNTING		
21	3707567	PUSH / PULL RED BUTTON		
22	3707568	CONTACT BLOCK NC		
23	3707595	HOLE PLUG .875 DIA		
		HOLE PLUG .625 DIA		
		LIQUID TIGHT STRAIN RELIEF .5471 DIA		
		FUSE HOLDER - PANEL MOUNT		
		WAVE SPRING .78 ID		
		FLAT WASHER .75 x 1.0 OD		
		7" TOUCH SCREEN		
30	3708448	ELECTRICAL WARNING DECAL		
31	3708872	PATENT DECAL		
32	3709990	FOLEY UNITED DECAL		
		PROXIMITY SWITCH		
		LEFT PROXIMITY SWITCH CORD ASSEMBLY		
		RIGHT PROXIMITY SWITCH CORD ASSEMBLE	V	
		LIGHT BASE ASSEMBLY	ı	
		BLUE LIGHT LENS		
		LIGHT BULB 120VAC - FLASHER		
38	6339025	DECAL SHEET 633/65		
39	6539001	ACCUTOUCH 3 CONTROL DECAL		
40	6539046	POWER SIWTCH DECAL		
		CONTROL PANEL TOP		
		VELCRO LOOP - 1"W		
		VELCRO HOOK - 1"W		
		CLEAR TUBE 3.5 OD		
		END CAP - 3.5 ID B		
46	J197200	10-32 HEX LOCKNUT JAM		
ITEMS NOT SHOWI	N			
	6539065	CONTROL CABLE ASSEMBLY		
		LIGHT RECEPTACLE CORD		
		VACUUM RECEPTACLE CORD		
		FLASHER LIGHT CORD		
		SPIN DRIVE CORD		
		RS232 CONNECTOR -		
		ACCUTOUCH SCREEN		
	6539085	5PIN MINI DIN CONNECTOR		
		CABLE TIE MOUNT		
		CABLE TIE 6.5Lx.18		
		CABLE TIE 4Lx.10		
		STRIP FOAM .25T		
	6309111	DECAL UP/DOWN		

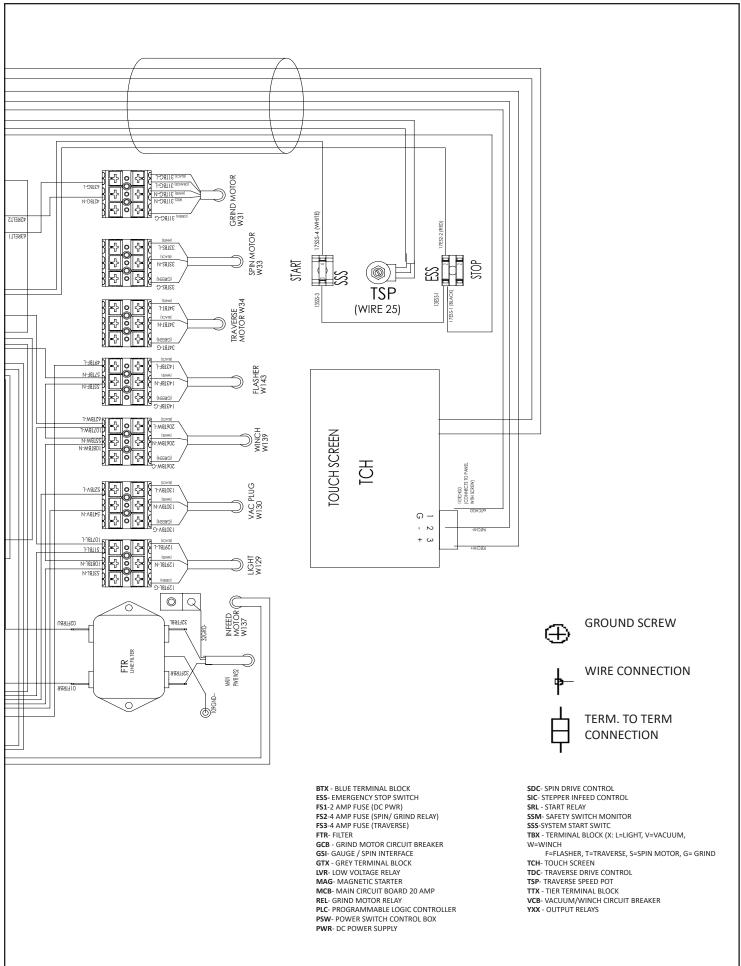


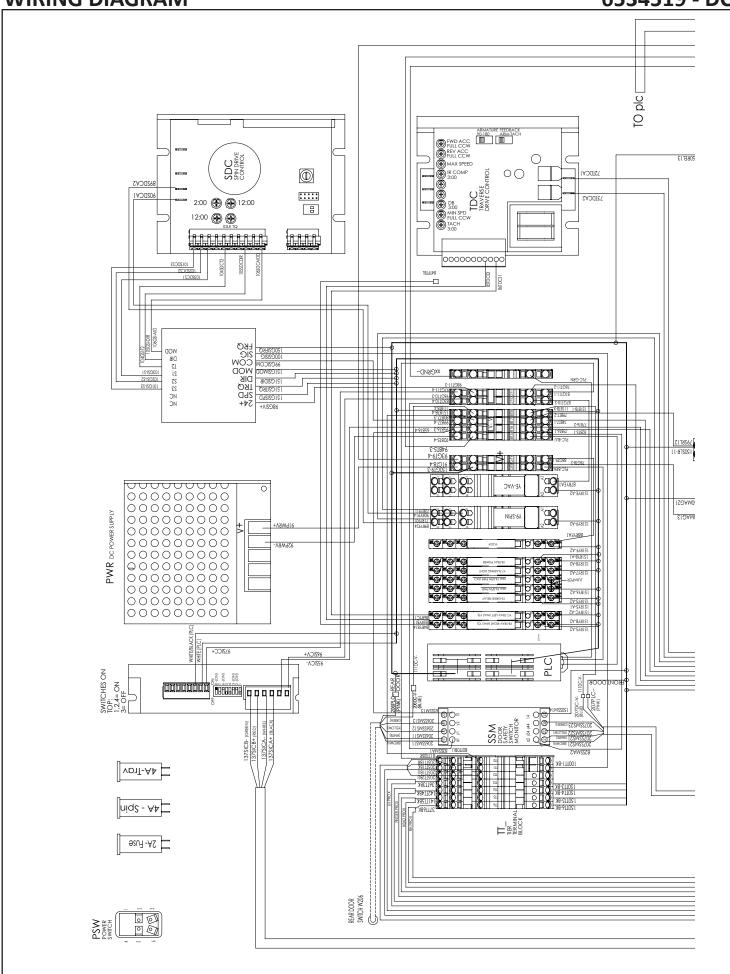
6539520 ACCUTOUCH 3 SUB CONTROL

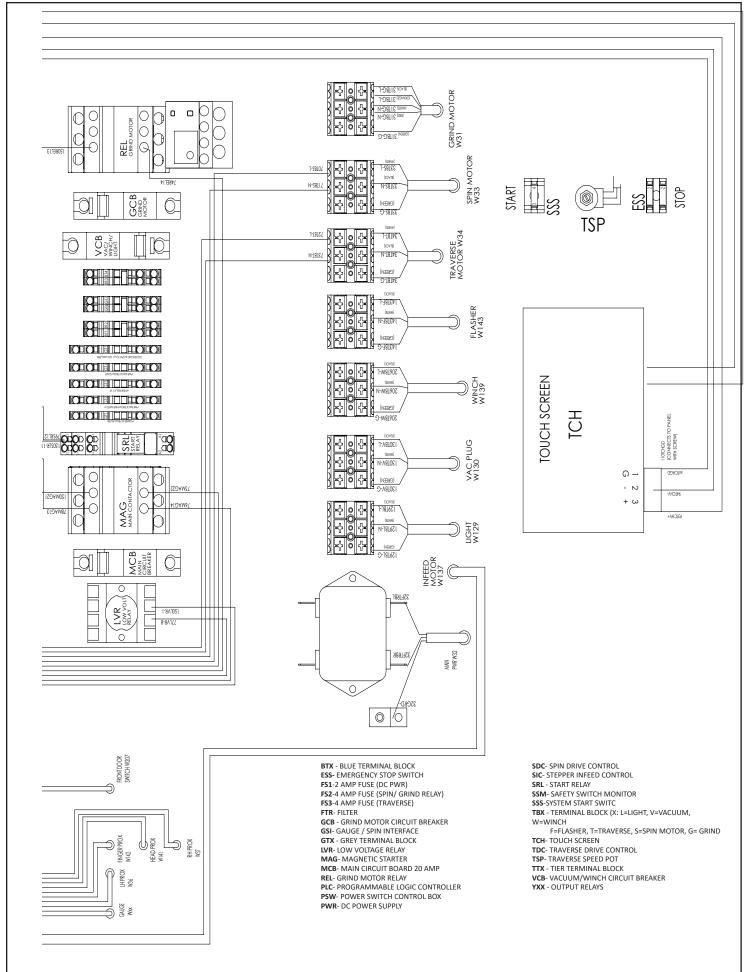
		0000000		
DIAGRAM NO.	PART NO.	DESCRIPTION		
1	D130608	6-32 x .38 PAN HEAD MACHINE SCREW		
2	D131266	6 x 3/4 PHIL PAN SELF TAP		
3	D131666	6 x 1 PHIL PAN SELF TAP		
4	D160866	8 x 1/2 LG PHIL PA		
		FLAT WASHER #8 SAE		
		CIRCUIT BREAKER 20		
		PUSH IN CABLE TIE		
		TERMINAL BLOCK RELAY		
		2-POLE JUMPER FOR		
_		20 POLE JUMPER FOR		
	3707073			
		DECAL PRIMARY GROUP		
		LUG GROUND PRIMARY		
		2 POLE JUMPER		
		DOOR SWITCH MONITOR		
		STARTER MAGNETIC 1		
		RELAY - OVERLOAD 1		
		END STOP SCREWLESS		
		TERMINAL BLOCK - 3		
_		TERMINAL BLOCK - 3		
		END PLATE - TERM B		
		JUMPER ADJACENT		
		LOW VOLTAGE RELAY		
		RELAY TERMINAL BLOCK		
		DRIVE TRAVERSE		
		RELAY TERM BLOCK 8		
		DIN RAIL 12"		
		24VDC POWER SUPPLY		
		TERMINAL BLOCK 3-POLE		
		TERMINAL BLOCK 4-POLE		
		TERMINAL BLOCK 4-POLE		
		TERMINAL BLOCK 3-POLE		
		TERMINAL BLOCK 3-POLE		
		TERMINAL BLOCK 4-POLE		
		TERMINAL BLOCK 4-FOLL		
		2-POLE TERMINAL BLOCK		
		STEPPER DRIVE 2AMP		
		DIN RAIL 9.0 LG		
		CIRCUIT BREAKER 10		
		RFI LINE FILTER		
		CONTROL BOARD FOR		
		SPIN CONTROL BOARD		
		PLC AROMAT		
		CONTROL SUB PANEL		
		PLC CABLE - INPUTS		
		PLC CABLE - OUTPUTS		
	6539058	PANEL WIRE HARNESS		
1				

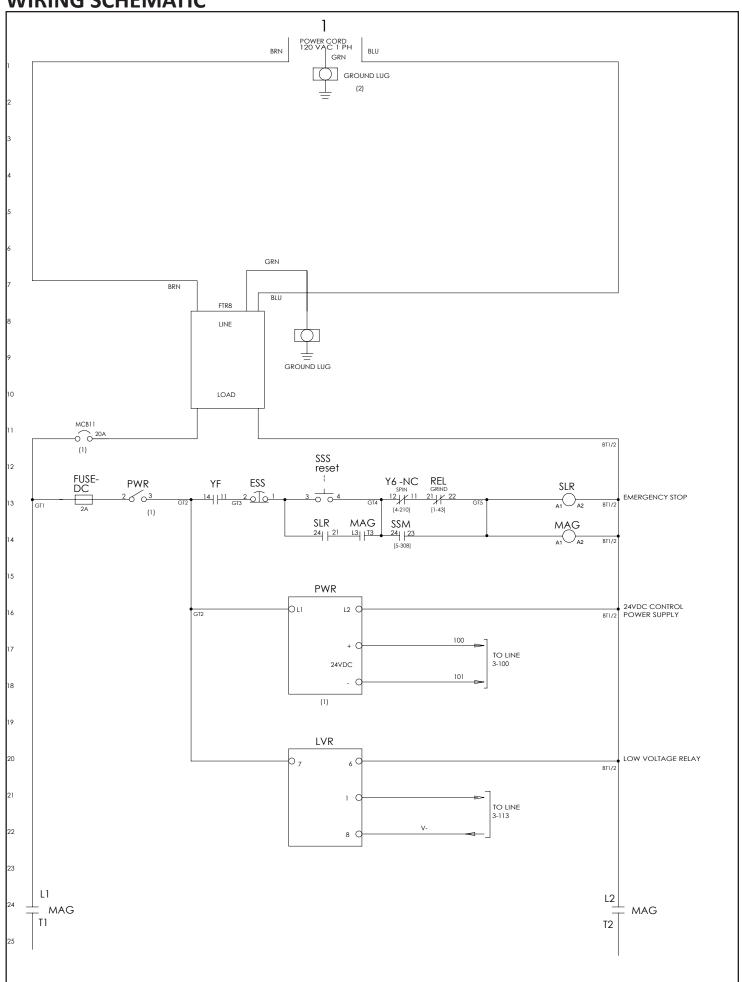


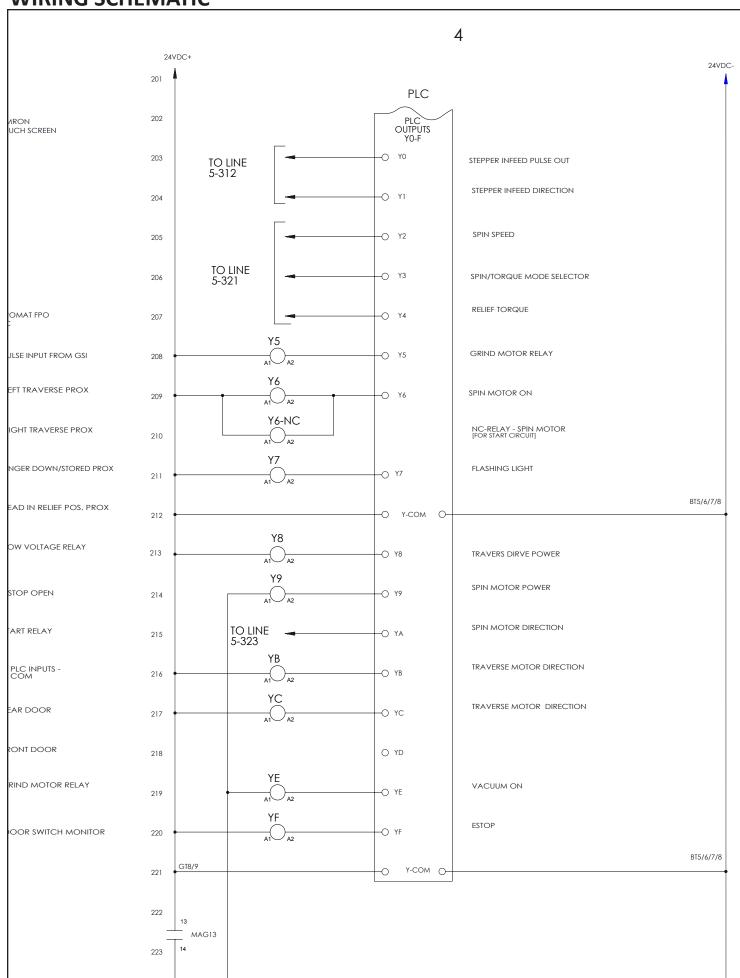
WIRING DIAGRAM

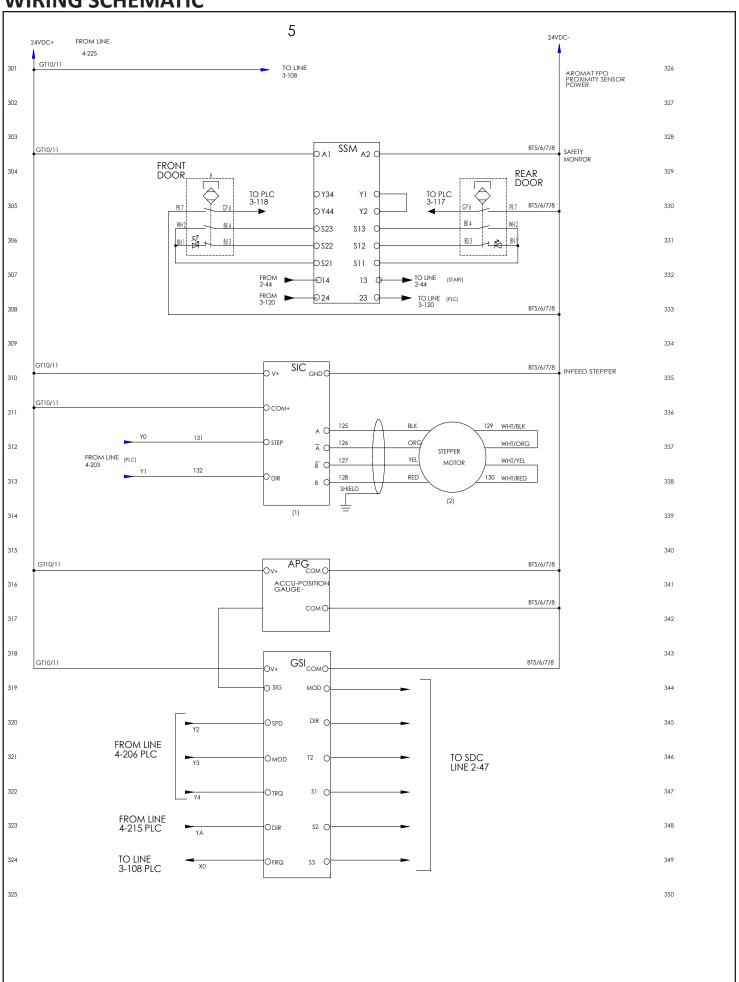


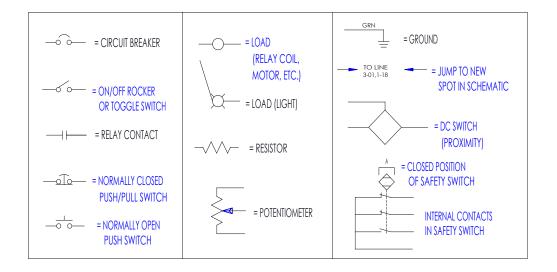


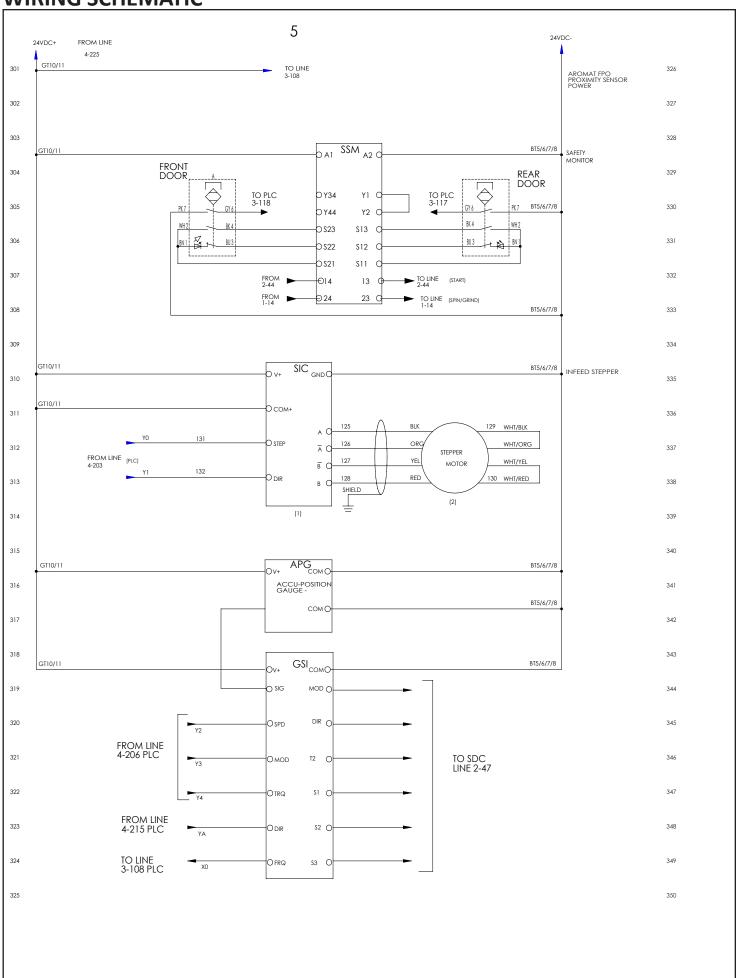


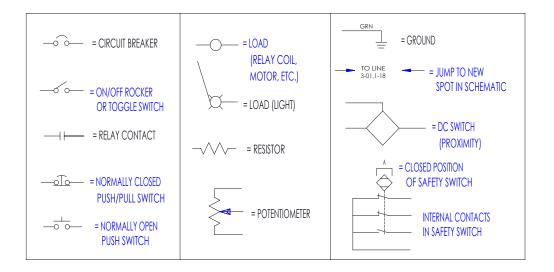












PLC INPUT AND OUTPUT LIGHTS

PLC INPUT LIGHTS

- XO HIGH SPEED COUNTER PULSE IN FROM GAUGE CONTROL BOARD
- X1 LEFT TRAVERSE PROX LIT WHEN ACTIVATED
- X2 RIGHT TRAVERSE PROX LIT WHEN ACTIVATED
- X3 FINGER POSITION PROX LIT WHEN FINGER DOWN
- X4 HEAD POSITION PRX LIT WHEN HEAD IN RELIEF
- X5 LOW VOLTAGE RELAY LIT WHEN RELAY IS GREEN
- X6 E STOP MAIN RELAY LIT WHEN E-STOP IS DOWN – PUSHED IN
- X7 E STOP SECONDARY LIT WHEN START RELAY IS ON
- X8 DOOR SAFETY SWITCH REAR LIT WHEN DOORS CLOSED
- X9 DOOR SAFETY SWITCH FRONT LIT WHEN DOORS CLOSED
- XA GRIND MOTOR RELAY LIT GRIND MOTOR RELAY IS ON
- XB DOOR SWITCH MONITOR
 LIT WHEN DOORS ARE CLOSED AND MONITOR
 CONTACT IS CLOSED (SWITCHES ALIGNED).

PLC OUTPUT LIGHTS

- YO STEP SIGNAL TO INFEED DRIVE LIT WHEN INFEED MOVING (DIM)
- Y1 DIRECTION SIGNAL TO INFEED DRIVE LIT WHEN FEEDING OUT
- Y2 NOT USED
- Y3 SPIN ON / TORQUE OFF TO SPIN BOARD LIT WHEN IN SPIN POSITION
- Y5 GRIND DRIVE POWER LIT WHEN OUTPUTTING
- Y6 SPIN DRIVE POWER LIT WHEN OUTPUTTING
- Y7 FLASHING LIGHT LIT WHEN OUTPUTTING
- Y8 TRAVERSE DRIVE POWER LIT WHEN OUTPUTTING
- Y9 SPIN MOTOR POWER
 LIT WHEN OUTPUTTING
- YA SPIN DRIVE DIRECTION
 LIT WHEN SPIN SET TO CW
- YB TRAVERSE RIGHT TO TRAVERSE BOARD LIT WHEN OUTPUTTING
- YC TRAVERSE LEFT TO TRAVERSE BOARD LIT WHEN OUTPUTTING
- YD NOT USED
- YE VACUUM POWER
 - LIT WHEN OUTPUTTING
- YF E-STOP LOOP
 - LIT WHEN READY TO ACTIVATE E-STOP & LVR IS GREEN

