FOLEY COMPANY

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

ORIGINAL INSTRUCTIONS

Patent No. 6,010,394

6,290,581 & 6,685,544

SERVICE MANUAL

⚠ WARNING

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

6537951 (07-20)

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 Operator's Manual . 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 Operator's Manual 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.

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

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

CAUTION — **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

Read the Operator's Manual 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 Operator's Manual. Please observe all safety information in this manual, the Operator's Manual and the safety decals on the equipment.

This machine is designed for sharpening reel type mower ONLY. 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 OPERATOR'S MANUAL. THIS MANUAL SHOULD BE USED IN CONJUNCTION WITH THE OPERATOR'S MANUAL FOR PERFORMING SERVICE ON THIS EQUIPMENT.

SAFETY INSTRUCTIONS

⚠ WARNING **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.**

SAFETY INSTRUCTIONS

⚠ WARNING **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.

⚠ 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.

SERVICE DATA

⚠ WARNING

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 OPERATOR'S MANUAL. 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.

⚠ WARNING

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.

SERVICE DATA

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.

⚠ WARNING

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 Aluminum
Use the Grade 2 Values in the Table at the right.

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

PERIODIC MAINTENANCE

DAILY MAINTENANCE IS SPECIFIED ON PAGE 5 OF THE OPERATOR'S MANUAL, 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-Seez™ every six months. See FIG. 1.

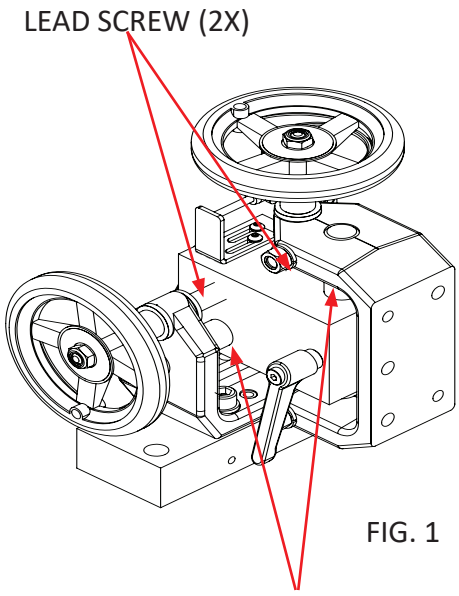


FIG. 1

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.

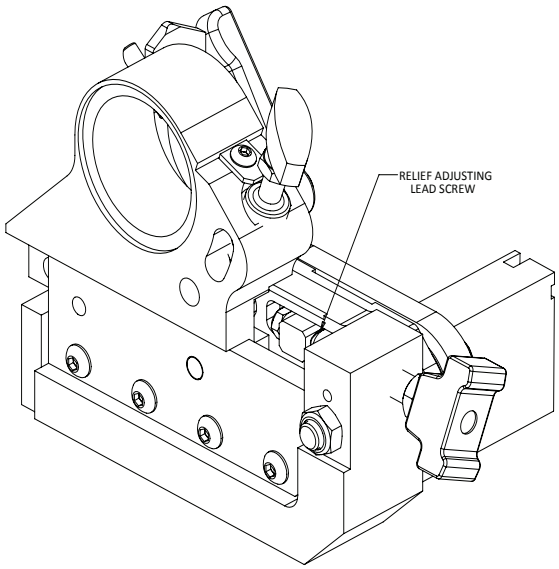


FIG. 2

PERIODIC MAINTENANCE

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

LUBRICATION OF LINEAR BEARINGS

STEP 1--Thoroughly clean the shafts.

STEP 2--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.

STEP 3--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.

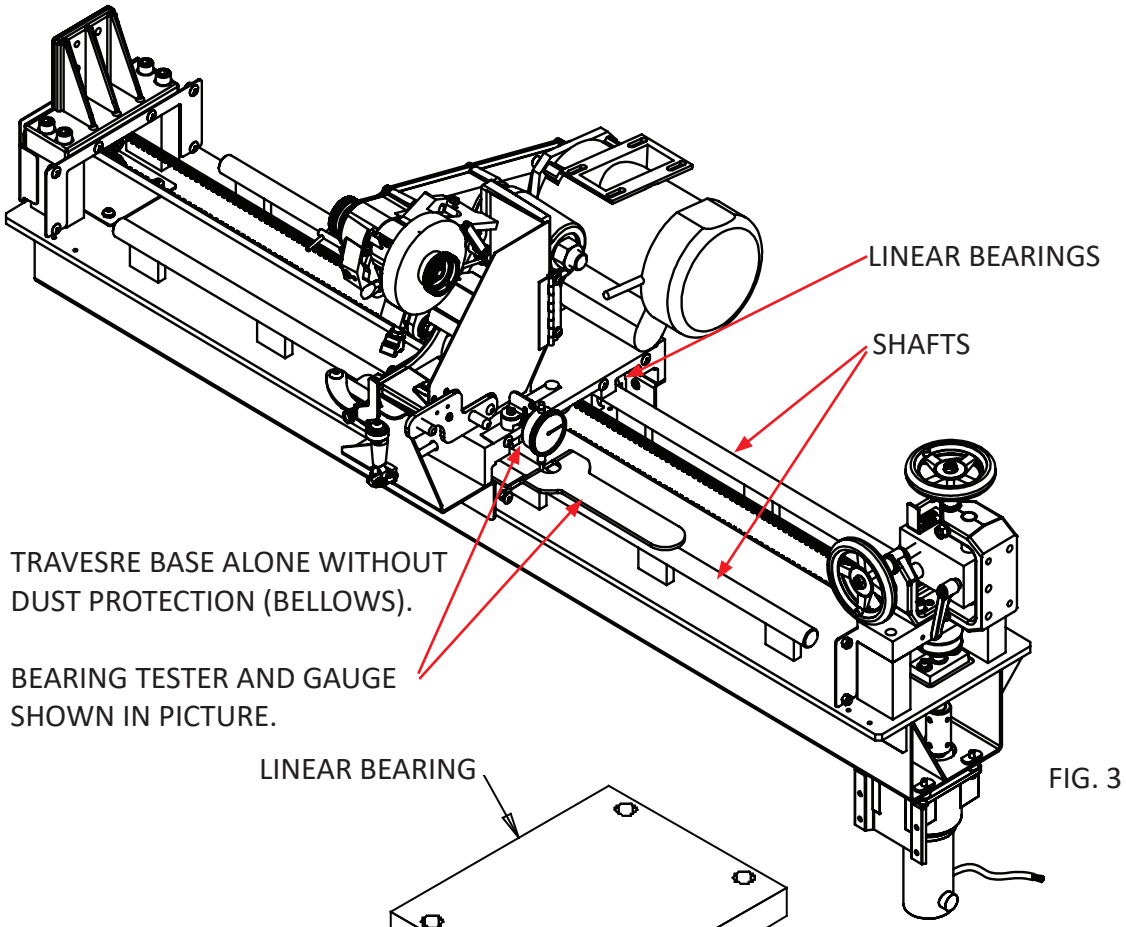


FIG. 3

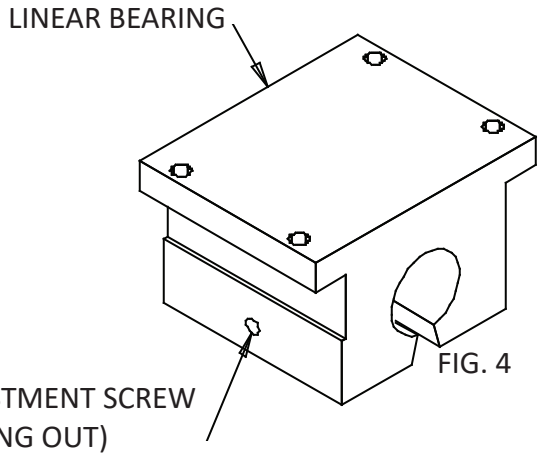


FIG. 4

ADJUSTMENTS

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.

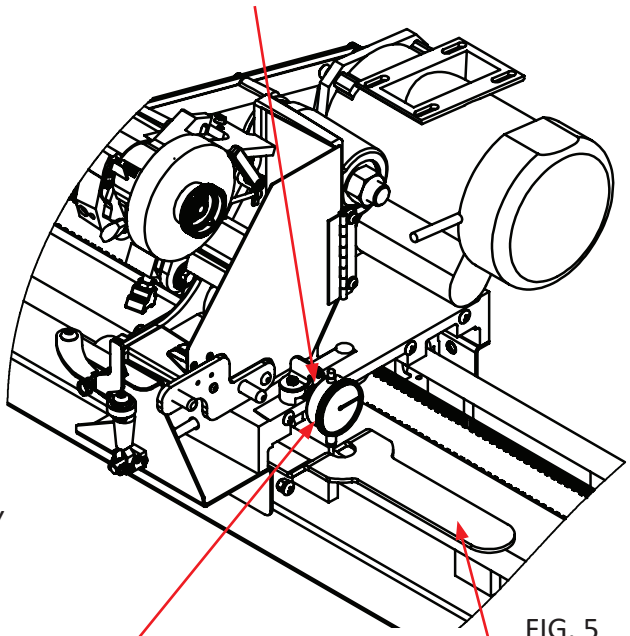
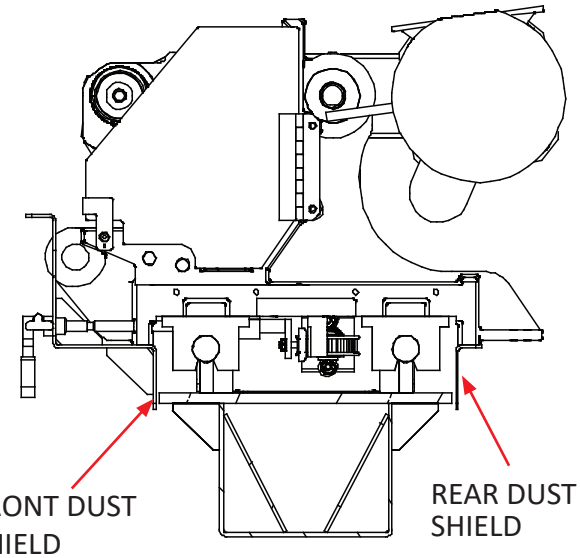


FIG. 5

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.



FRONT DUST SHIELD

REAR DUST SHIELD

FIG. 6

ADJUSTMENTS

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.

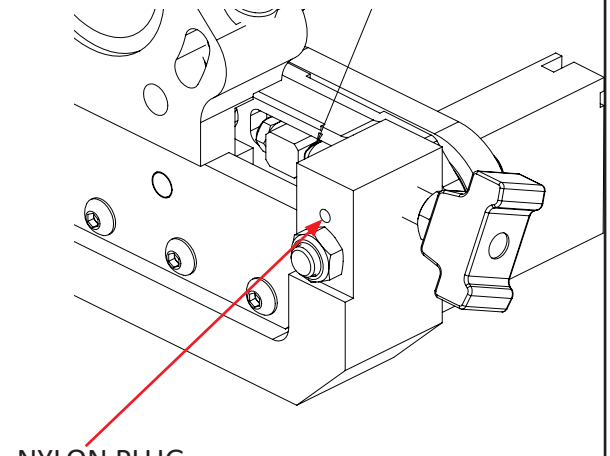


FIG. 7

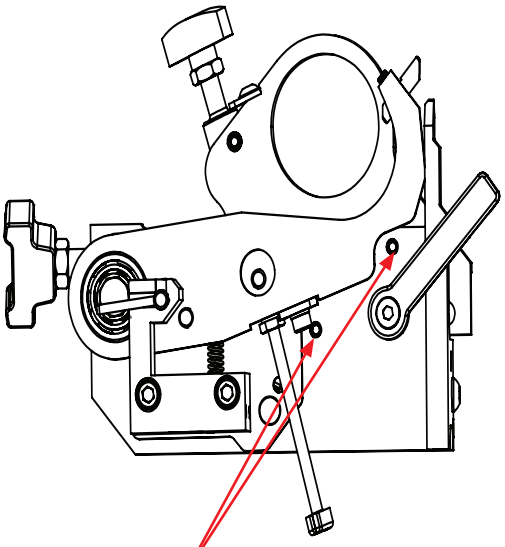


FIG. 8

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.

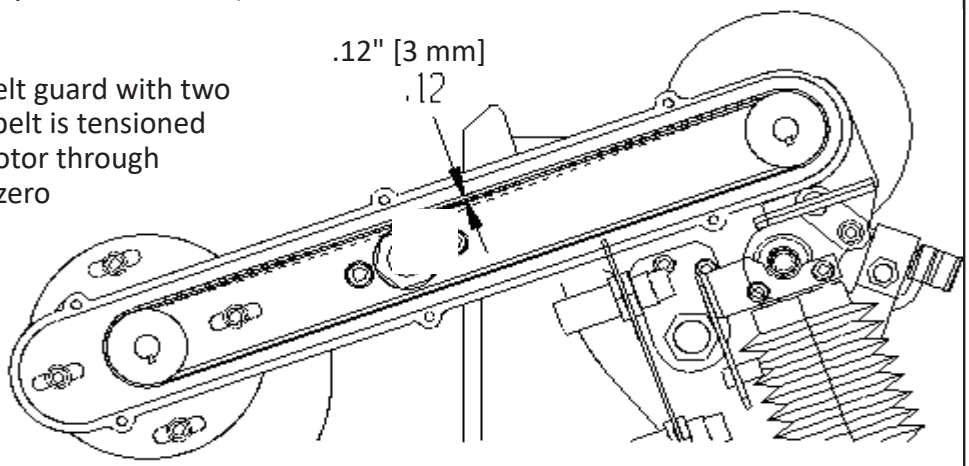


FIG. 9

ADJUSTMENTS

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.

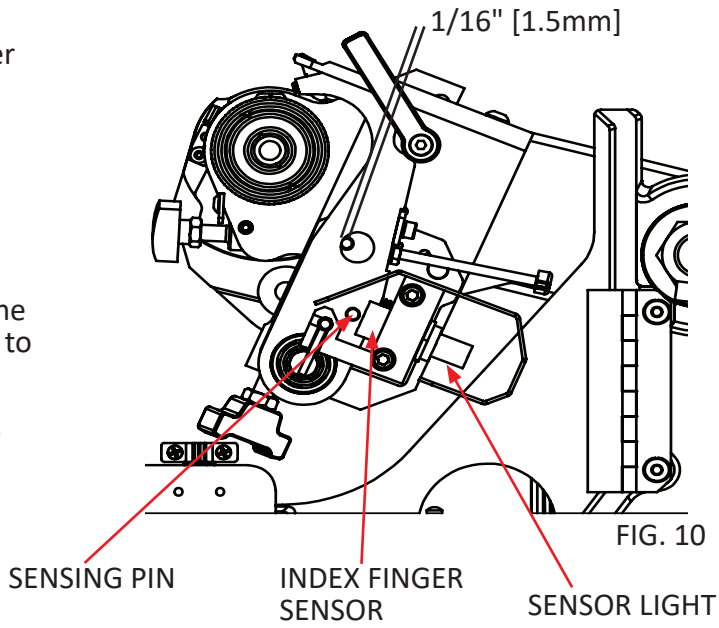


FIG. 10

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.

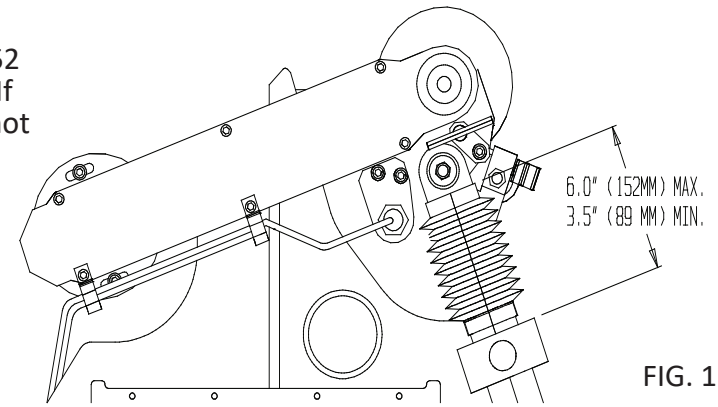


FIG. 11

ADJUSTMENTS

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 ¼” [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.

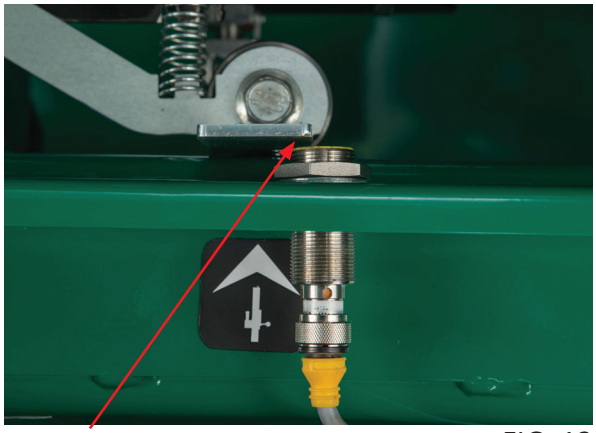


FIG. 12

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.

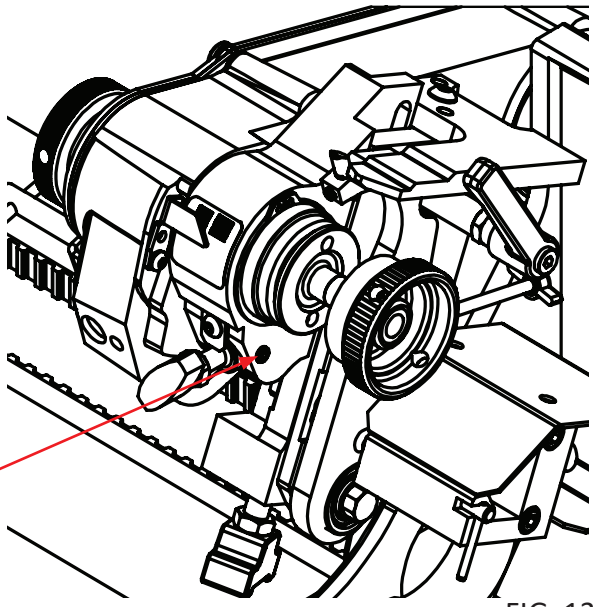


FIG. 13

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.

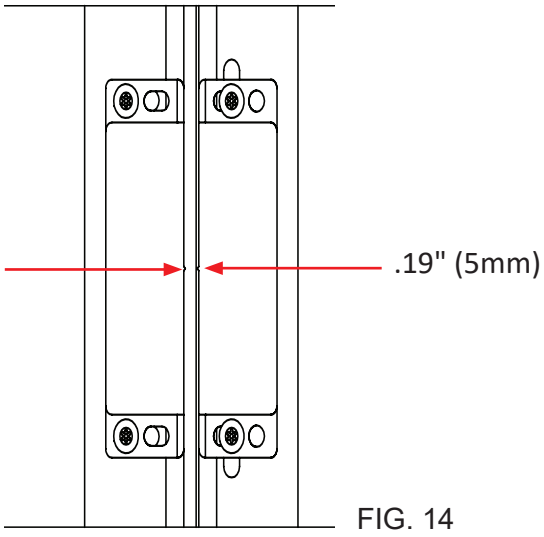


FIG. 14

ADJUSTMENTS

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.

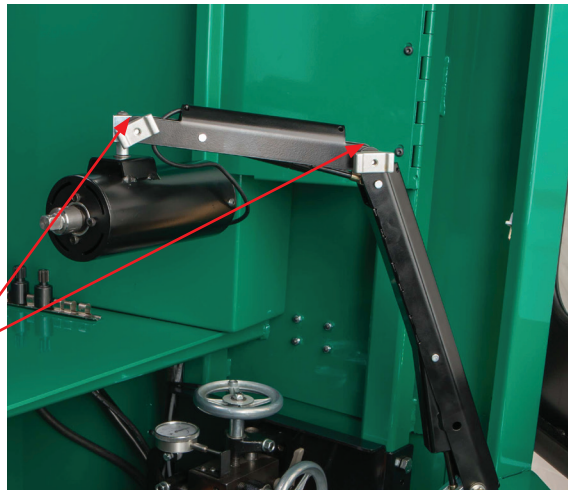


FIG. 15

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.

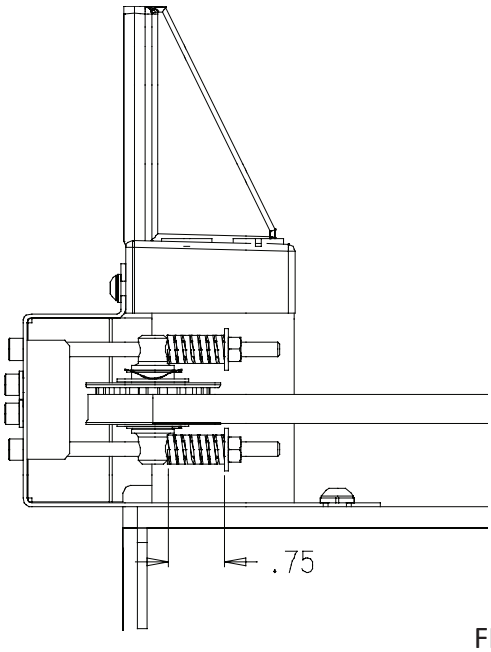


FIG. 16

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.

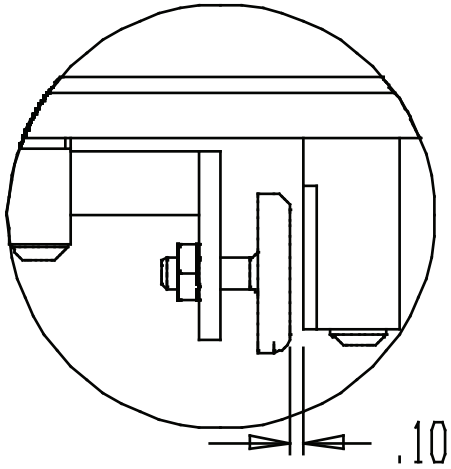


FIG. 17

ADJUSTMENTS

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.

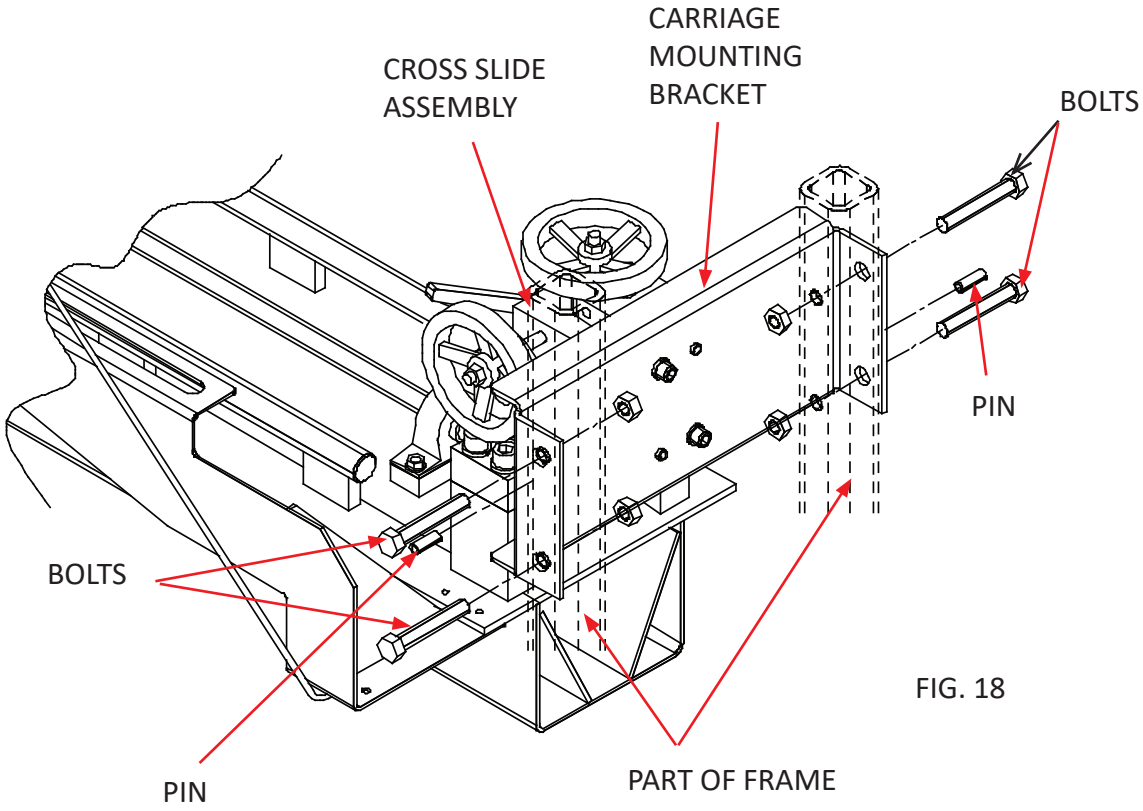


FIG. 18

ADJUSTMENTS

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.
STEP 4--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 re-install 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.
STEP 9--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.

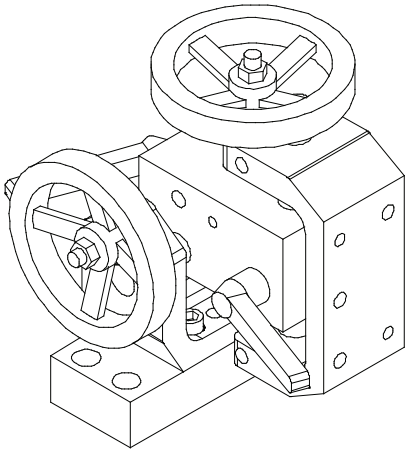


FIG. 19

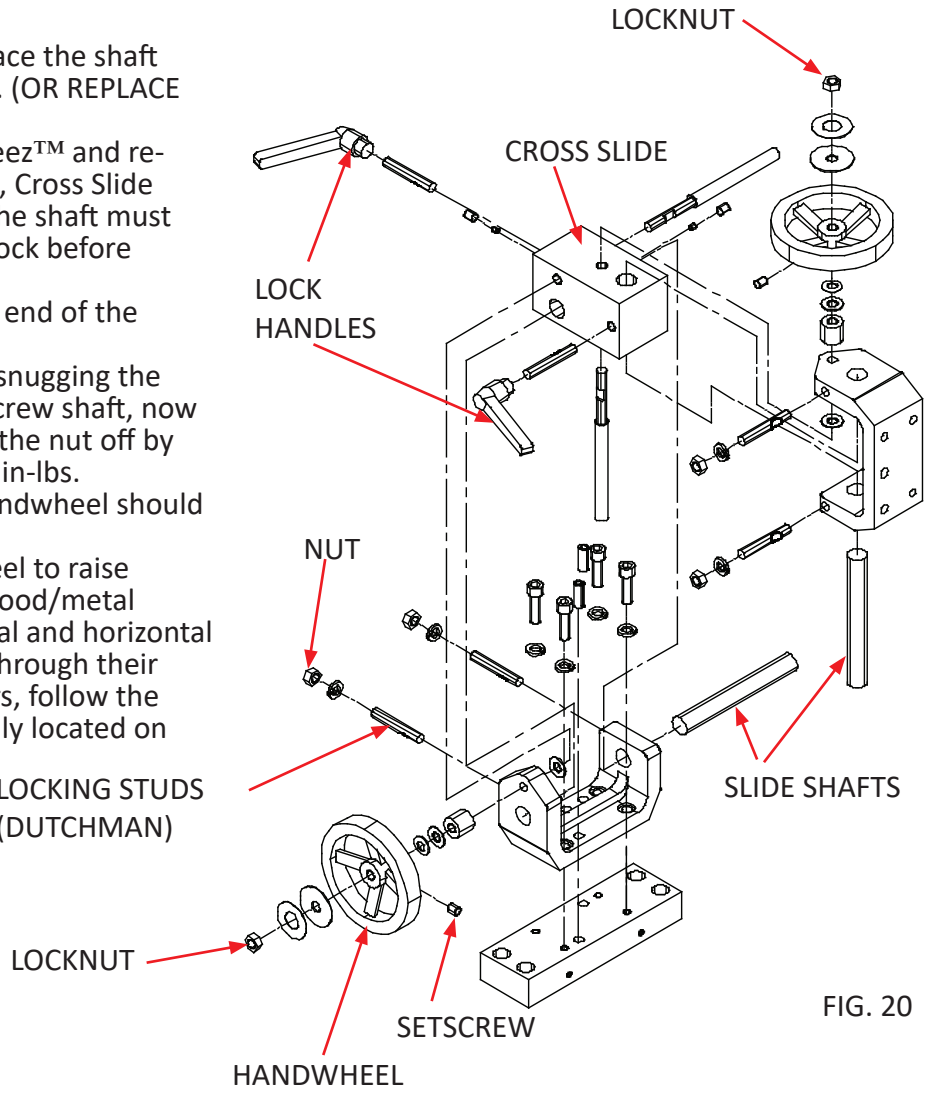


FIG. 20

MACHINE SERVICE

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.

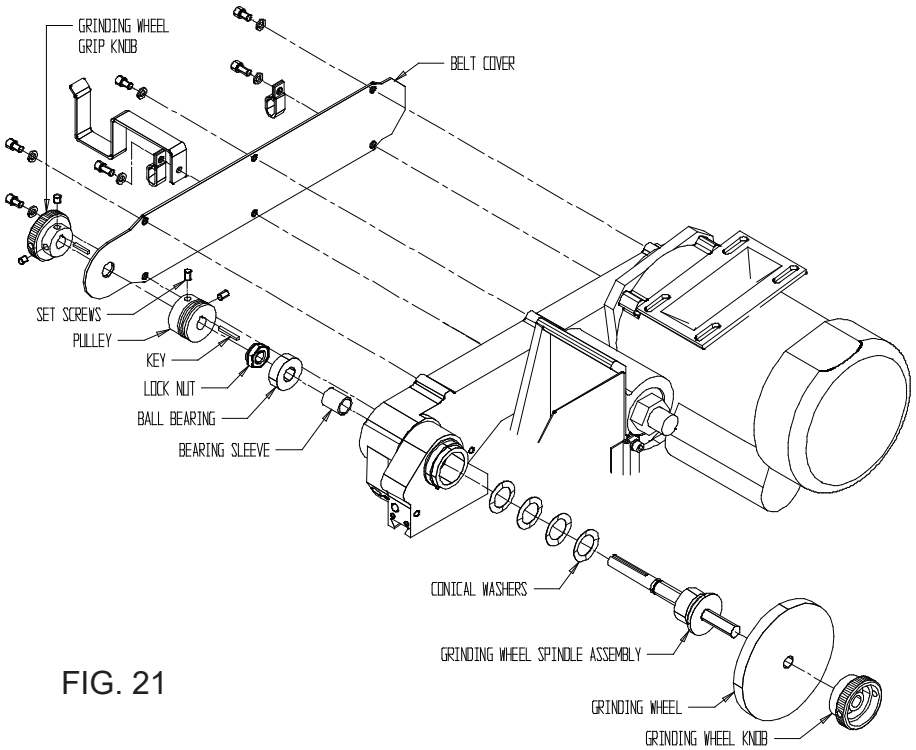


FIG. 21

FIG. 22

MACHINE SERVICE

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.

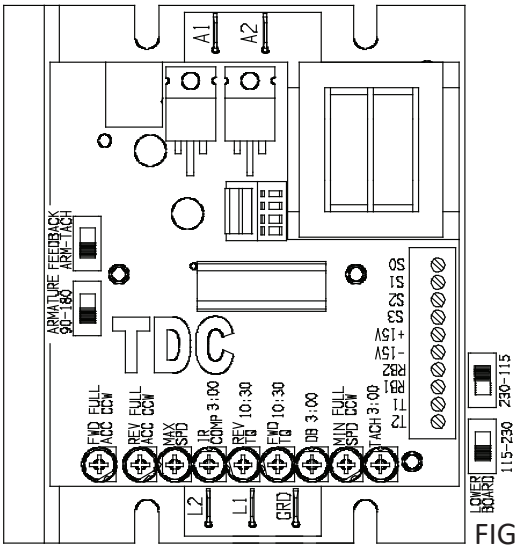
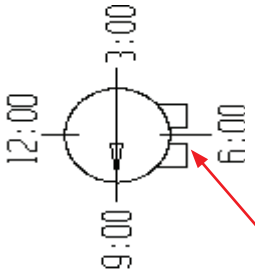


FIG. 23



Potentiometer Clock Orientation

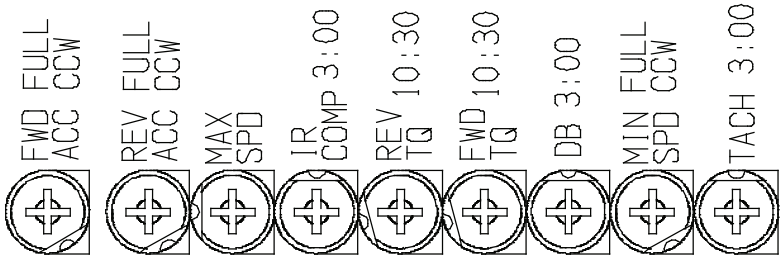


FIG. 24

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

MACHINE SERVICE

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.

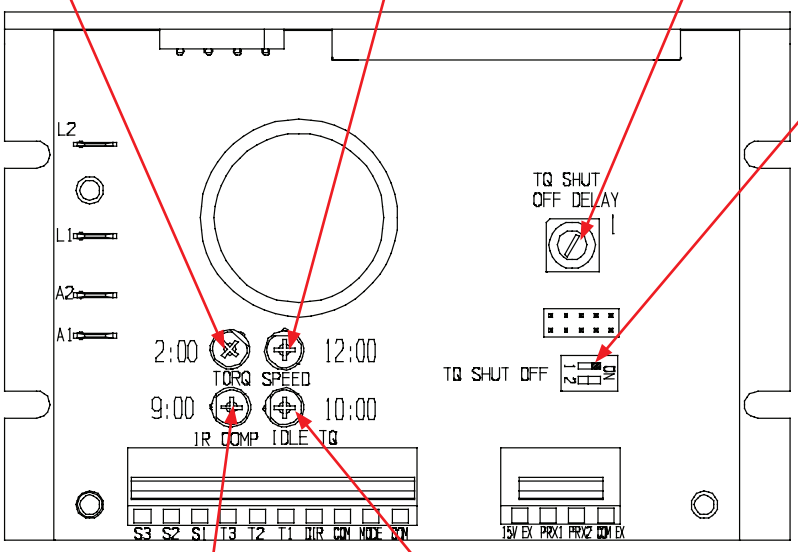
MACHINE SERVICE

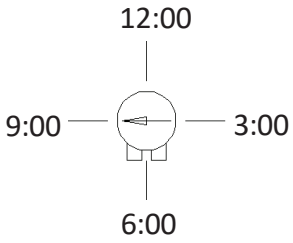
SPIN TORQUE POT (STP) 2:00

RELIEF SPEED POT (RSP) 12:00

DELAY SET TO 1

SWITCH 1 SET TO OFF





Potentiometer Clock Orientation

FIG. 25

IR COMP POT 9:00

IDLE TORQUE POT (ITP) 10:00

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%, 0ff=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
B-1,2,4 = ON
3 = OFF

SWA8 - ON
SWA7 - OFF
SWA6 - ON
SWA5 - OFF
SWA4 - OFF
SWA3 - ON
SWA2 - ON
SWA1-OFF

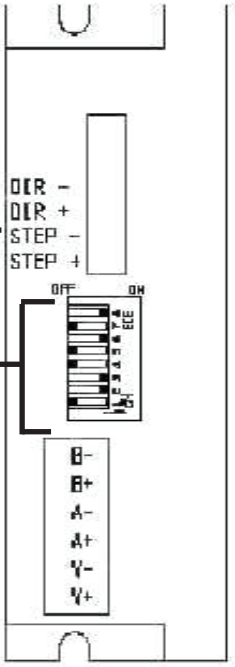


FIG. 26

ELECTRICAL TROUBLESHOOTING

ACCU-TOUCH CONTROL PANEL

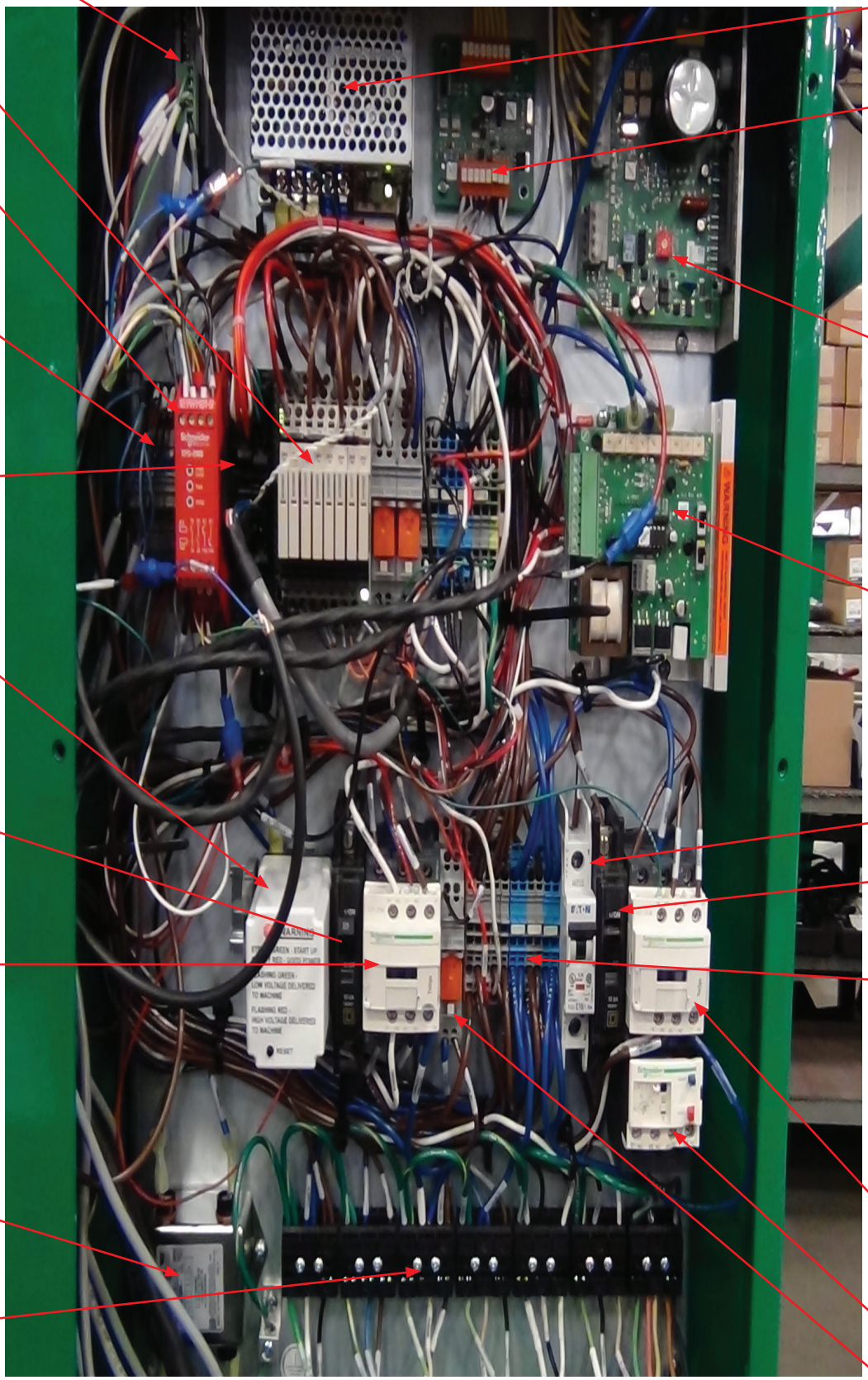


FIG. 27

ELECTRICAL TROUBLESHOOTING

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)

ELECTRICAL TROUBLESHOOTING

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 Operator's 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 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.

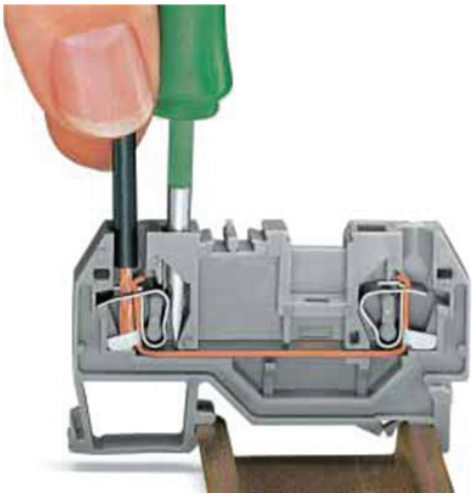


FIG. 28

ELECTRICAL TROUBLESHOOTING

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: Yes--End Trouble Shooting No-- Go go Step B. next
Main Power Cord is not plugged in	B. Plug in the main power cord	Machine works: Yes--End 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: Yes--End Trouble Shooting No--but 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 : Yes--SKIP 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 on LVR is on: Yes--SKIP 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: Yes--End Trouble Shooting No-- Go go Step G. next
Bad power cord	G. Check for power into Line Filter FTR. Check between input of main power cord brown to blue wire.	Measure 120VAC at output of main power cord . Remove wires(#32) if neceassary. Measure between brown and blue wires on power cord. Yes--I 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 of Line Filter FTR. Check between output terminals FTR	Measure 120VAC at output of FTR . Remove wires(#01 and #02) if neceassary. Measure between tabs on filter. Yes--I have 120 VAC, go to Step I. next. No-- REPLACE Filter (FTR)

ELECTRICAL TROUBLESHOOTING

Possible Cause	Checkout Procedure	
Bad Main Circuit Breaker	I. Check for power out of of MCB. Check between output of MCB top screw and ground.	Measure 120VAC at output of MCB (wire 03MCB--) to Nuetral (light blue wire from Line Filter - Wire #02): Yes--I 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 Termial Block GT2 : Yes--I 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 L (08PWR-L) to L2 (25PWRL2). Yes--LED light is on, go to Step L. next. No-- LED light is NOT on, but I have 120VAC at L and L2. - REPLACE PWR.
	L. Check power out of PWR.	Measure power out of PWR for 24VDC at V+ (92PWRV-) to V-(91PWRV+). Yes--I have 24VDC at PWR. Go to Step M. No--I 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-). Yes--I have 24VDC at TCH V+ TO V- . REPLACE TCH. No--I 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? Yes--LED 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? Yes--LED 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? Yes--LED 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. Yes--LED 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.

ELECTRICAL TROUBLESHOOTING

Possible Cause	Checkout Procedure	
Relay F is bad	R. Check 120VAC out of Relay F. at terminal 11.	Measure 120VAC at output of relay F. Use the square hole on Relay to measure. Measure between Terminal 11 (11RYF11) to Nuetral (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 Nuetral (light blue wire from Line Filter - Wire #02): Yes--I 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 Nuetral (light blue wire from Line Filter - Wire #02): Yes--I 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 terminal11 (40RY6NC11) to Nuetral (light blue wire from Line Filter - Wire #02): Yes--I have 120 VAC, go to Step V. next. No--The 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 terminal 22. Measure to Screw on REL at 22. REL should not be engaged.	Measure 120VAC from REL terminal11 (18REL22) to Nuetral (light blue wire from Line Filter - Wire #02): Yes--I have 120 VAC, go to Step W. next. No--I 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): Yes--I have 120 VAC, but MAG is not engaged (pulled in). REPLACE MAG STARTER No--I do not have 1120VAC. Check nuetral side of MAG (A2) to Brown wire on Filter. Check for loose wires to Terminal block Grey 5.

ELECTRICAL TROUBLESHOOTING

PROBLEM--Machine will go back to E-stop after releasing the Green Start Button.

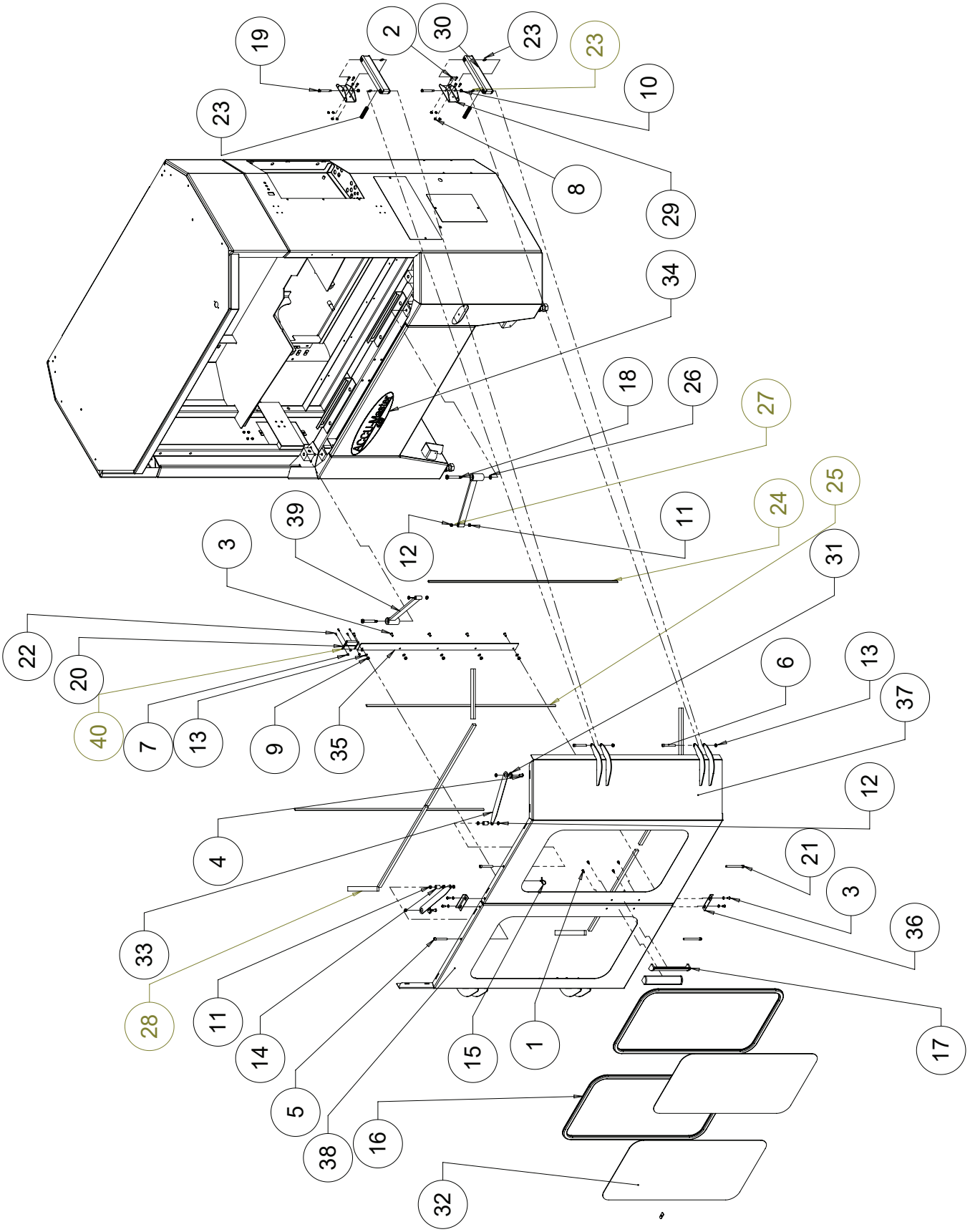
Possible Cause	Checkout Procedure	
Bad SLR Relay	A. Press and hold Green Start button. Check for 120 VAC to Start Relay SRL at A1 and A2.	Check for 120 VAC from SRL A1 (44SRLA1) to A2 (22SRLA2) with Green Start button held in. Yes--I have 120 VAC at A1 to A2. Go to step B. Next No-- I do not have 120VAC 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.	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. Yes--I have 120 VAC . REPLACE relay in SRL. No-- I do not have 120VAC, REPLACE MAG starter.

ELECTRICAL TROUBLESHOOTING

PROBLEM-- Grind Motor is not working

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. Yes--End 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. Grinding motor control relay should be on.	When pushing the button the Grinding motor control relay (Y5) is: ON--Go 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: ON--Skip 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): Yes --Go 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? Yes --If 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 - press icon on screen.	Reset circuit breaker (GCB). Machine works. Yes --End 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. Yes --End Troubleshooting. No-- go to step H. next

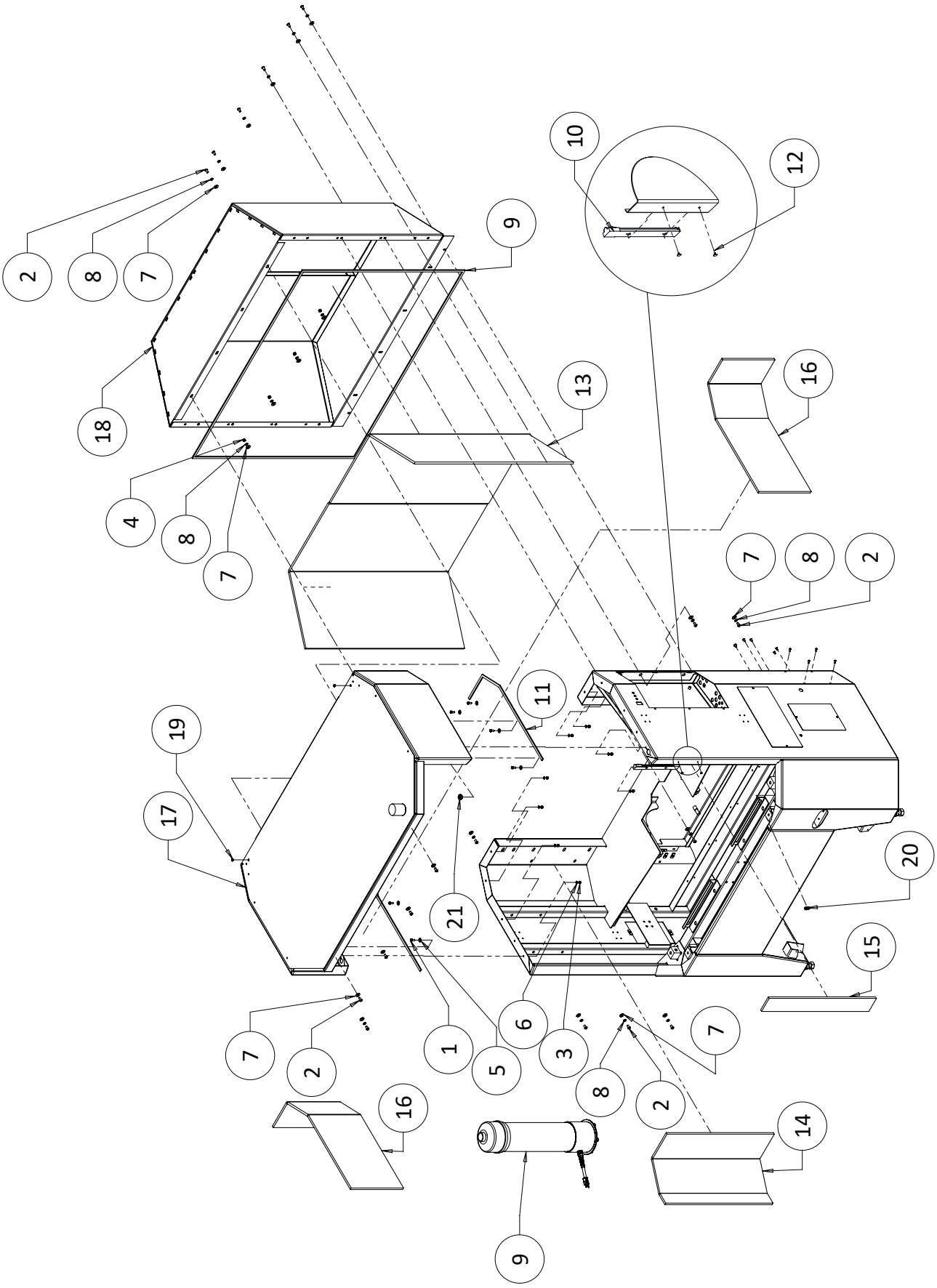
PARTS LIST **6539523 FRONT DOOR ASSEMBLY- 653**



PARTS LIST — 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
10	J317100	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
14	3969065	SPACER .406 ID x .750
15	3706118	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
38	6539522	653 LH DOOR WELDMENT
39	6339524	DOOR PIVOT ARM WELDMENT
40	6539061	FRONT DOOR CORD - AT3

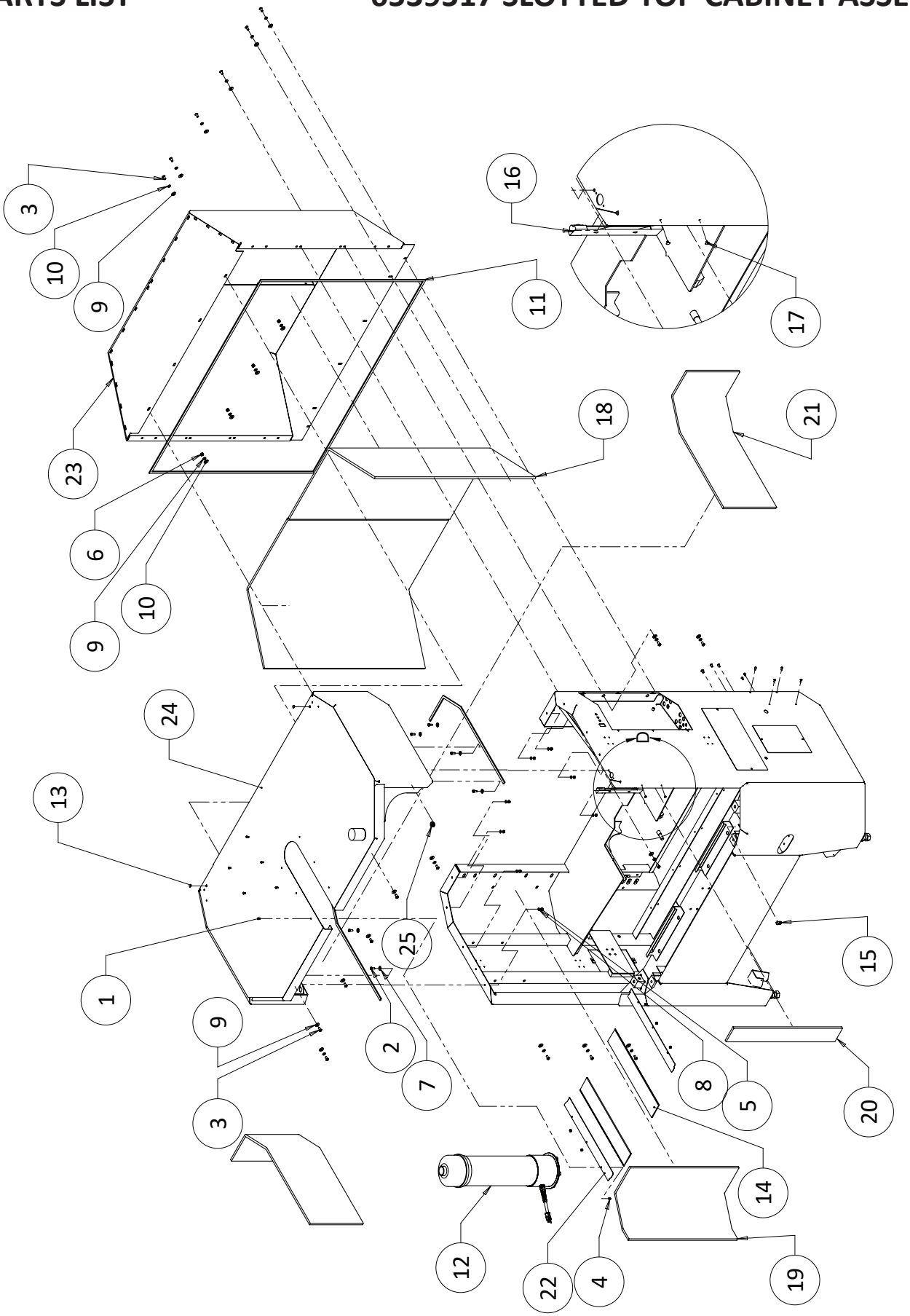
PARTS LIST **6539516 FIXED CABINET ASSEMBLY**



PARTS LIST 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

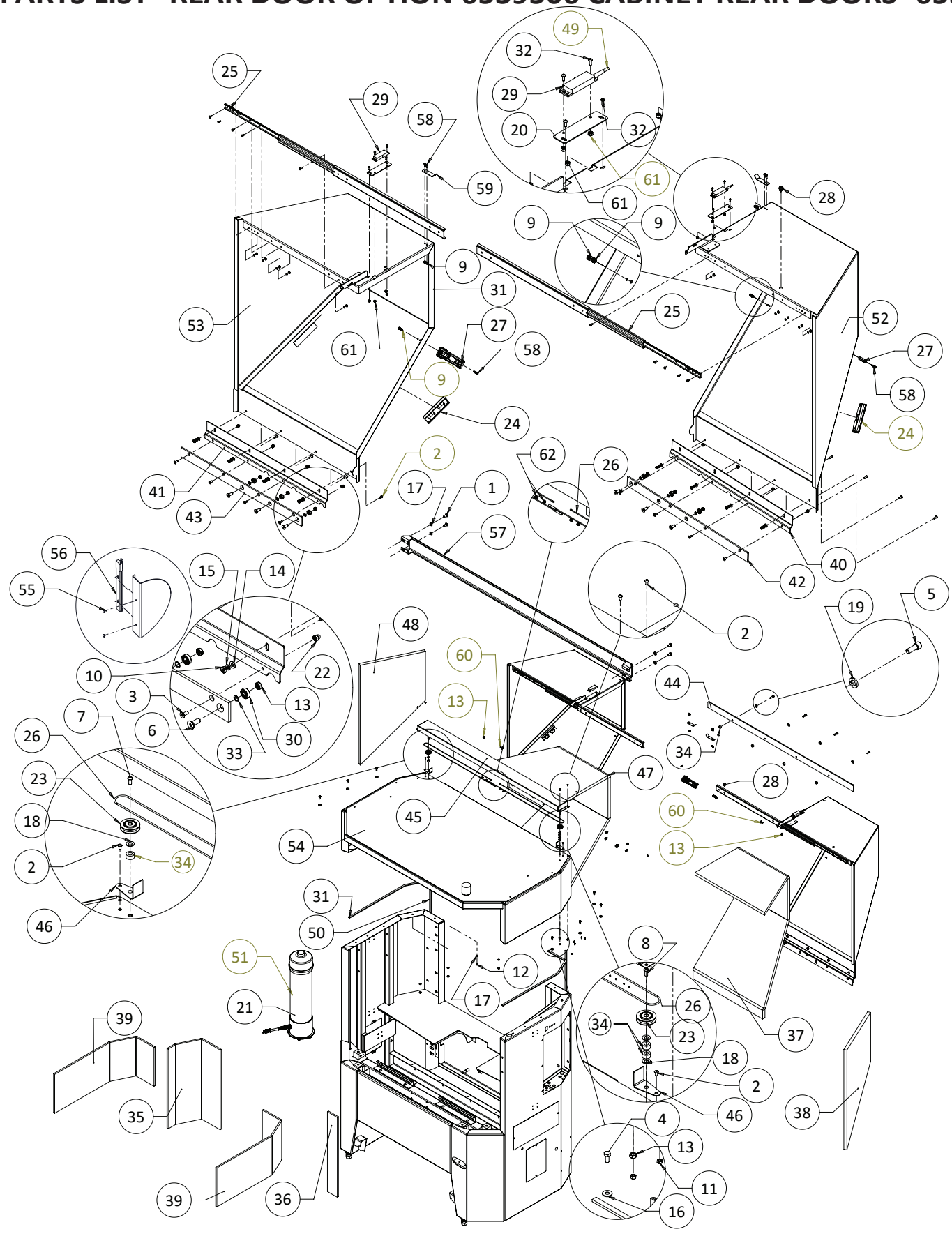
PARTS LIST **6539517 SLOTTED TOP CABINET ASSEMBLY**



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

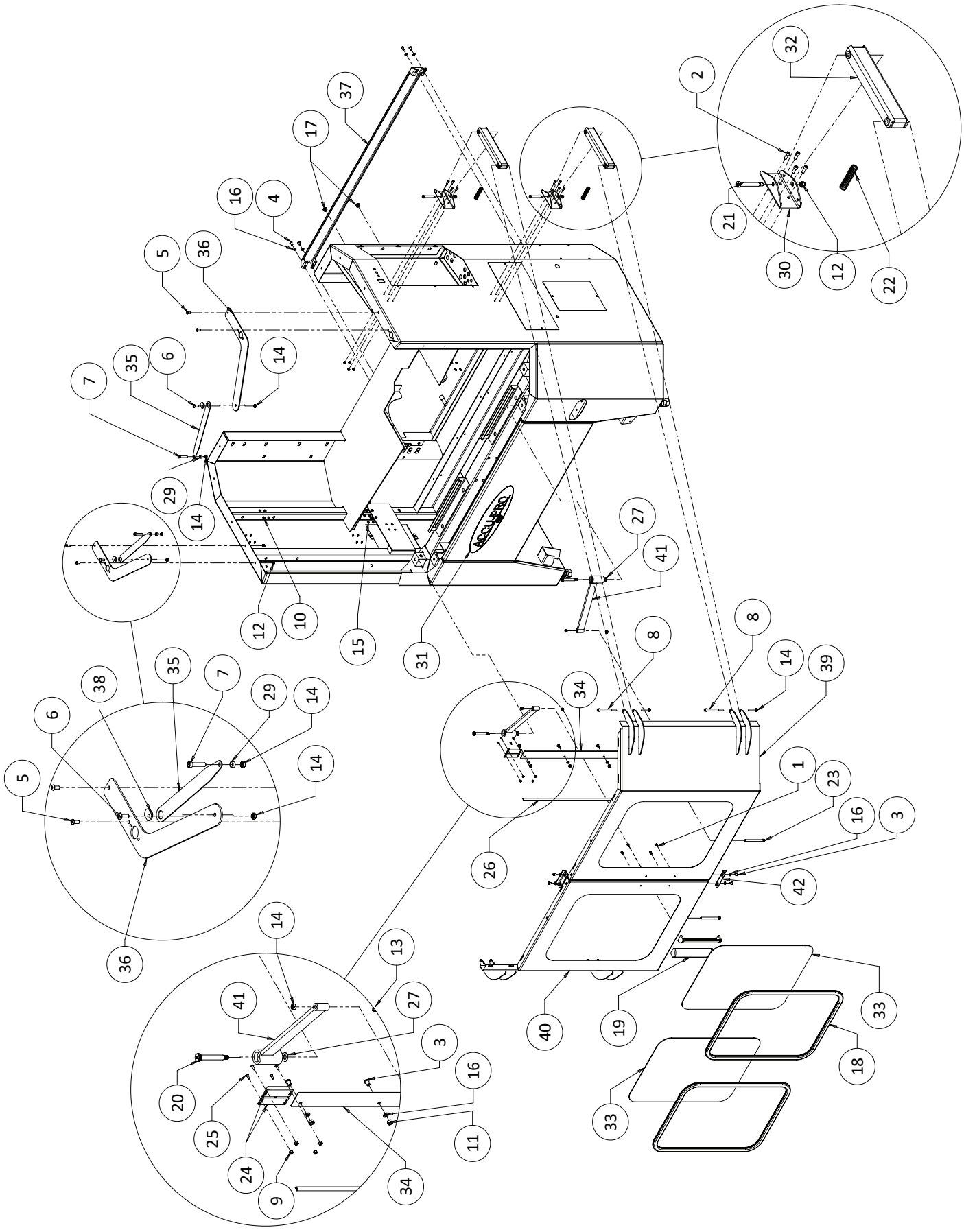
PARTS LIST REAR DOOR OPTION 6539506 CABINET REAR DOORS -653



PARTS LIST REAR DOOR OPTION 6539506 CABINET REAR DOORS -653

DIAGRAM NO.	PART NO.	DESCRIPTION
1	B311013	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
4	B311201	5/16-18 x 3/4 HEX HEAD CAP SCREW
5	B371611	3/8-16 x 1 SOCKET HEAD CAP SCREW
6	B371625	3/8-16 x 1 FLAT HEAD SOCKET CAP SCREW
7	B372416	3/8-16 x 1-1/2 BUTTON HEAD CAP SCREW
8	B373216	3/8-16 x 2 BUTTON HEAD SOCKET CAP SCREW
9	J197100	10-24 LOCKNUT JAM NYLON INSERT
10	J251000	1/4-20 HEX NUT
11	J257000	1/4-20 LOCKNUT JAM
12	J311000	5/16-18 HEX NUT
13	J377000	3/8-16 LOCKNUT JAM
14	K250001	FLAT WASHER 1/4 SAE
15	K251501	1/4 LOCKWASHER SPLIT
16	K310001	FLAT WASHER 5/16 SAE
17	K311501	5/16 LOCKWASHER SPLIT
18	K370001	FLAT WASHER 3/8 SAE
19	K371501	3/8 LOCKWASHER SPLIT
20	55476	DOOR SWITCH BRACKET
21	3706045	VACUUM MASTERCRAFT
	3706046	CLOTH FILTER BAG
	3706067	GREY FILTER INNER BAG
22	3706062	1/4-20 ACORN NUT
23	3706063	WIRE ROPE PULLEY
24	3706205	FLUSH MOUNT DOOR
25	3706206	28 IN DRAWER SLIDE
26	3706208	WIRE ROPE ASSEMBLY
27	3708416	SOFT LATCH SOUTHCO
28	3707273	STRAIN RELF .33-.39
29	3707908	DOOR SWITCH W/DISCONNECT
30	3708036	BALL BRG R6-2RS
31	3708379	STRIP FOAM .50 THICK
32	3708820	8-32 x .50 BUTTON HEAD SAFETY SCREW
33	3708999	WASHER FLAT .38 x .56 x .03 THICK
34	4609049	SPACER .385 ID x .75 OD x .38 LONG
35	6539008	LEFT SIDE FRAME
36	6539009	RIGHT SIDE FRAME
37	6539011	FOAM REAR DOORS
38	6539012	FOAM REAR DOOR SIDE
39	6539013	TOP CANOPY FOAM
40	6539032	LEFT REAR DOOR RAIL
41	6539033	RIGHT REAR DOOR RAIL
42	6539034	LEFT REAR DOOR GUIDE
43	6539035	RIGHT REAR DOOR GUIDE
44	6539036	REAR DOOR TRAP
45	6539041	CABLE TOP GAURD
46	6539042	CABLE GUARD
47	6539044	FOAM REAR DOORS
48	6539045	FOAM REAR DOOR SIDE
49	6539062	REAR DOOR CORD
50	3706052	FOAM SEAL ADHESIVE
51	6509269	BRACKET VAC HOSE
52	6539504	LEFT REAR DOOR WELDMENT
53	6539505	RIGHT REAR DOOR WELDMENT
54	6539507	TOP WELDMENT
55	3708675	3/16 - BLIND RIVET
56	3707958	MACHINE LIGHT - LED
57	6339201	REAR BUMPER
58	B190811	10-24 x 1/2 SOCKET HEAD CAP SCREW
59	6309038	BRACKET - DOOR
60	B371216	3/8-16 x 3/4 BUTTON HEAD CAPSCREW
61	J167000	8-32 LOCKNUT JAM NYLON INSERT
62	J251001	1/4-28 HEX NUT

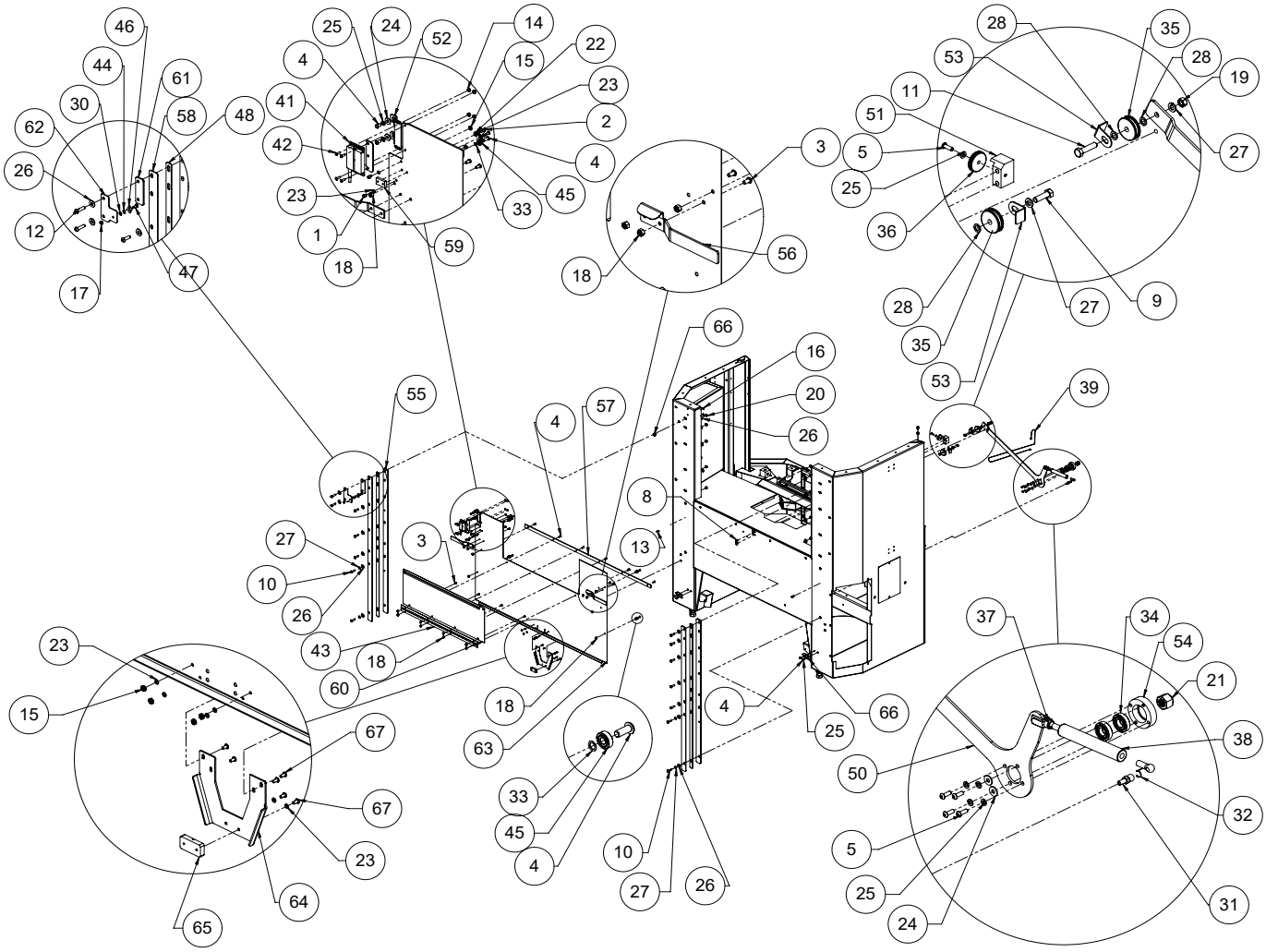
PARTS LIST **MODEL 633 -6339520 FRONT DOOR ASSEMBLY**



PARTS LIST MODEL 633 -6339520 FRONT DOOR ASSEMBLY

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	B310813	5/16-18 x 1/2 BUTTON HEAD SOCKET CAP SCREW
4	B311016	5/16-18 x 5/8 BUTTON HEAD SOCKET CAP SCREW
5	B311213	5/16-18 x .75 BUTTON HEAD SOCKET CAP SCREW
6	B371216	3/8-16 x 3/4 BUTTON HEAD SOCKET CAP SCREW
7	B372811	3/8-16 x 1-3/4 SOCKET HEAD CAP SCREW FULL THD
8	B374811	3/8-16 x 1-3/4 SOCKET HEAD CAP SCREW FULL THD
9	J167000	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
21	3706218	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
26	3708889	SEAL FOAM .50 HIGH
27	3709027	THRUST WASHER .507 x .917 x .062 T
28	3709304	THRUST WASHER .375 x .812 x .032 T
29	4609063	SPACER .385 x .625 x .25 L
30	6339039	DOOR PIVOT BRACKET
31	6339050	ACCU-PRO 633 DECAL
32	6339051	DOOR PIVOT ARM MACHINED ecp
33	6339056	WINDOW 18.5 x 26 (633)
34	6339057	DOOR CENTER PLATE
35	6539086	UPPER DOOR PIVOT ARM
36	6339189	DOOR UPPER ARM BRACKET
37	6339201	REAR BUMPER
38	6339202	UPPER DOOR PIVOT
39	6339521	633 DOOR WELDMENT RH
40	6339522	633 DOOR WELDMENT LH
41	6339524	DOOR PIVOT ARM WELDMENT
42	6539088	DOOR SHIPPING BRACKET

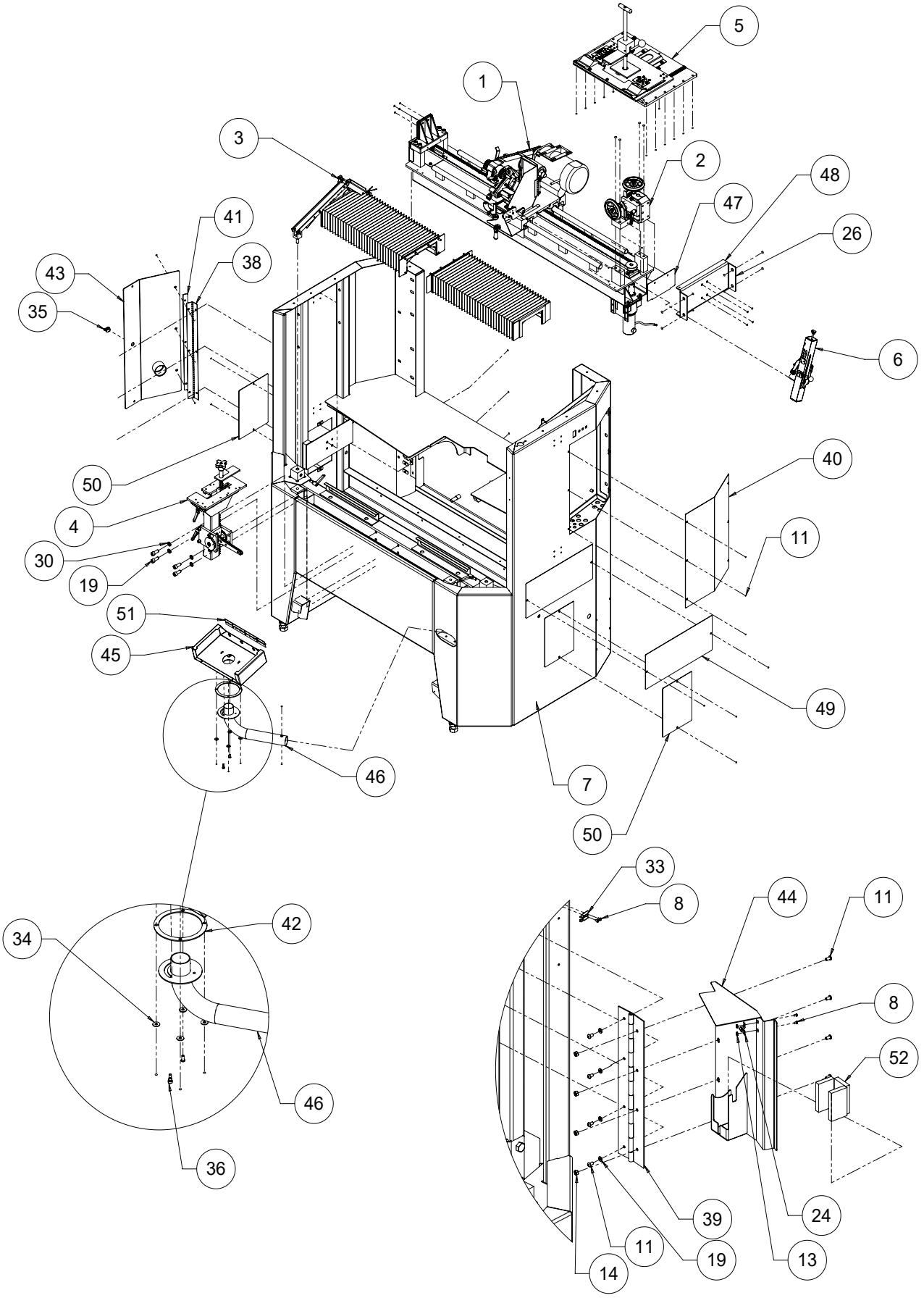
PARTS LIST MODEL 633- 6339545 REAR DOOR ASSEMBLY



PARTS LIST MODEL 633- 6339545 REAR DOOR ASSEMBLY

DIAGRAM NO.	PART NO.	DESCRIPTION
1	B190411	10-24 x 1/4 SOCKET HEAD CAP SCREW
2	B190613	10-24 x 3/8 BUTTON HEAD SOCKET SCREW CAP
3	B250816	1/4-20 x 1/2 BUTTON HEAD SOCKET SCREW CAP
4	B251016	1/4-20 x 5/8 BUTTON HEAD SOCKET SCREW CAP
5	B251216	1/4-20 x 3/4 BUTTON HEAD SOCKET SCREW CAP
6	B310813	5/16-18 x 1/2 BUTTON HEAD SOCKET SCREW CAP
7	B370801	3/8-16 x 1/2 HEX HEAD CAP SCREW
8	B370816	3/8-16 x 1/2 BUTTON HEAD SOCKET SCREW CAP
9	B372001	3/8-16 x 1-1/4 HEX HEAD CAP SCREW
10	B372016	3/8-16 x 1.25 BUTTON HEAD SOCKET SCREW CAP
11	B372401	3/8-16 x 1-1/2 HEX HEAD CAP SCREW
12	B372416	3/8-16 x 1-1/2 BUTTON HEAD SOCKET SCREW CAP
13	H371202	ROLL PIN .375 D x .75
14	J167000	8-32 LOCKNUT JAM
15	J191000	10-24 HEX NUT
16	J252000	1/4-20 HEX JAM NUT
17	J257000	1/4-20 LOCKNUT JAM
18	J257100	1/4-20 LOCKNUT
19	J371000	3/8-16 HEX NUT
20	J377000	3/8-16 LOCKNUT JAM
21	J627100	5/8-11 LOCKNUT
22	K190001	FLAT WASHER #10 SAE
23	K191501	#10 LOCKWASHER SPLIT
24	K250001	FLAT WASHER 1/4 SAE
25	K251501	1/4 LOCKWASHER SPLIT
26	K370001	FLAT WASHER 3/8 SAE
27	K371501	3/8 LOCKWASHER SPLIT
28	09054	FLAT WASHER .387 x .625 x .065
29	55492	DOOR SAFETY SWITCH PLATE
30	80406	FLAT WASHER .27 ID x .50 x .06
31	80418	STUD GAS SPRING
32	80421	RETAINING CLIP GAS
33	3249153	FLAT WASHER .252 x .375 x .018
34	3706032	BALL BEARING R10 W/OIL
35	3706097	PULLEY 1.75 OD x .37 ID
36	3706098	PULLEY 1.5 OD x .25 ID
37	3706099	CLEVIS ROD END M8
38	3706100	GAS SPRING 202# 3.9 STROKE
39	3706212	CABLE ASSY REAR DOOOR
40	3707029	STRAIN RELF LIQUID TIGHT
41	3707908	DOOR SWITCH WITH DISCONNECT
42	3708820	8-32 x .50 BUTTON HEAD SAFETY SCREW
43	3708869	SPRING HINGE
44	3708998	WAVE SPRING .35 ID
45	3709597	BALL BEARING
46	6329131	CATCH
47	6329133	CATCH PIN
48	6329136	REAR SLIDE SPACER
49	6329137	REAR SLIDING DOOR
50	6329163	REAR DOOR ARM
51	6329164	PULLEY BLOCK
52	6329165	DOOR SWITCH BRACKET
53	6329166	CABLE GUIDE
54	6329167	BEARING BLOCK
55	6329172	REAR DOOR INNER SLIDE
56	6329174	REAR DOOR LIFT HANDLE
57	6329175	REAR DOOR STIFFENER
58	6329179	REAR DOOR OUTER PLATE
59	6329180	DOOR STOP BLOCK
60	6329181	HINGED WALKER PANE
61	6329182	DOOR STOP SPACER PLATE
62	6329183	DOOR CATCH BRACKET
63	6339168	REAR DOOR SLIDE UP
64	6339169	REAR DOOR CABLE BRACKET
65	6339170	CABLE CLAMP BLOCK
66	6339171	DOOR STOP BLOCK
67	B190813	10-24 x 1/2 BUTTON HEAD SOCKET CAP SCREW

PARTS LIST **6332901 COMMON ASSEMBLY**



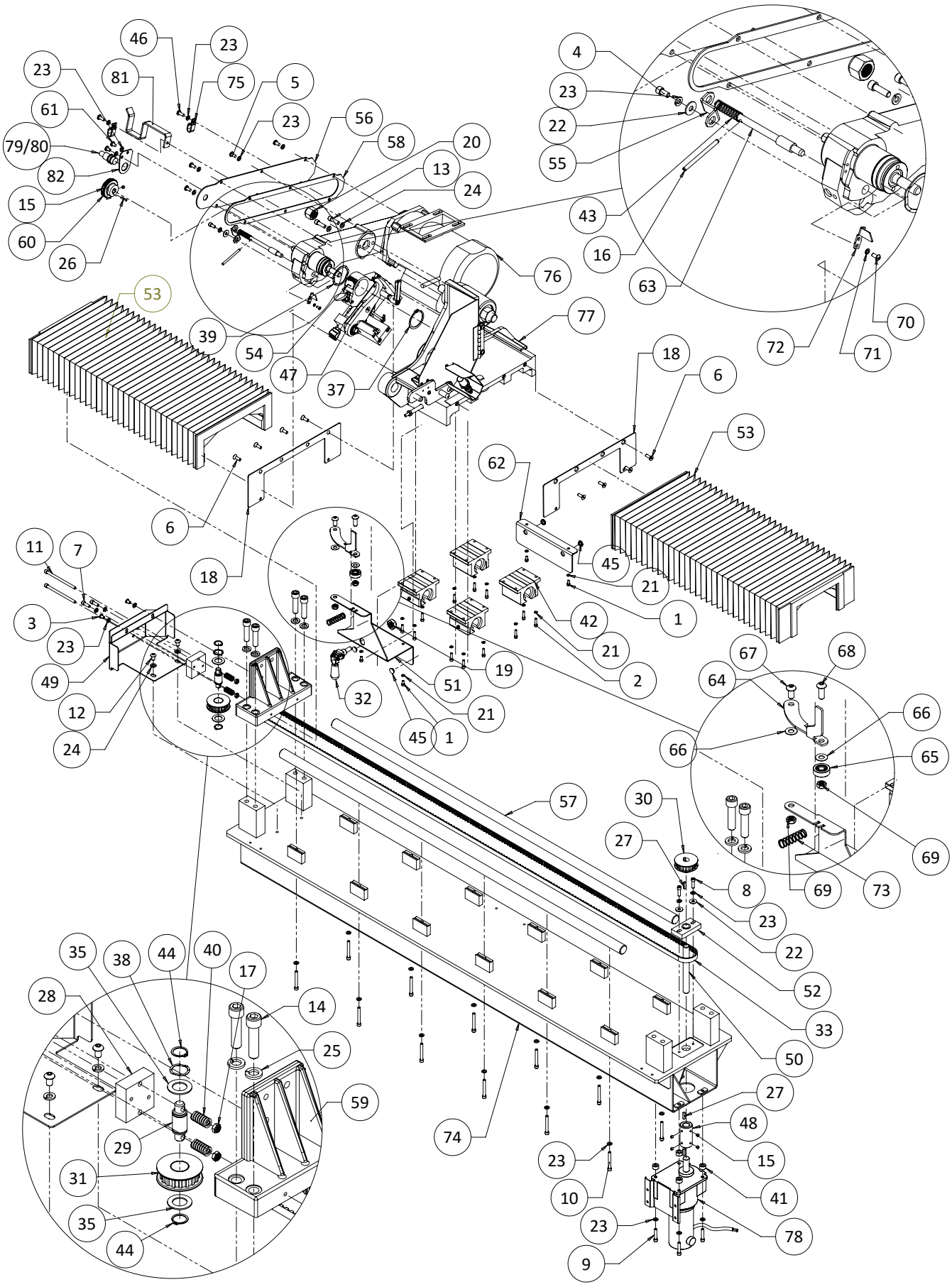
PARTS LIST

6332901 COMMON ASSEMBLY

DIAGRAM NO.	PART NO.	DESCRIPTION
1	6339516	TRAVERSE BASE ASSEMBLY
2	6339537	CROSS SLIDE SUB ASSSEMBLY
3	6339505	SPIN DRIVE ASSEMBLY
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
9	B190634	10-32 x 3/8 BUTTON HEAD SOCKET CAP SCREW
10	B250616	1/4-20 x 3/8 BUTTON HEAD SOCKET CAP SCREW
11	B250816	1/4-20 x 1/2 BUTTON HEAD SOCKET CAP SCREW
12	B250819	1/4-20 x 1/2 TRUSS HEAD MACHINE SCREW
13	B251016	1/4-20 x 5/8 BUTTON HEAD SOCKET CAP SCREW
14	B310813	5/16-18 x 1/2 BUTTON HEAD SOCKET CAP SCREW
15	B311013	5/16-18 x 5/8 BUTTON HEAD SOCKET CAP SCREW
16	B311613	5/16-18 x 1.0 BUTTON HEAD SOCKET CAP SCREW
17	B314811	5/16-18 x 3 SOCKET HEAD CAP SCREW FULL
18	B371211	3/8-16 x 3/4 SOCKET HEAD CAP SCREW
19	B502811	1/2-13 x 1-3/4 SOCKET HEAD CAP SCREW
20	B503211	1/2-13 x 2 SOCKET HEAD CAP SCREW
21	B504801	1/2-13 x 3 HEX HEAD CAP SCREW
22	H371602	ROLL PIN .375 D x 1.0
23	J137000	6-32 LOCKNUT JAM NUT
24	J257100	1/4-20 LOCKNUT FULL
25	J317100	5/16-18 LOCKNUT
26	J507100	1/2-13 LOCKNUT FULL
27	K191501	#10 LOCKWASHER SPLIT
28	K251501	1/4 LOCKWASHER SPLIT
29	K310001	FLAT WASHER 5/16 SPLIT
30	K311501	5/16 LOCKWASHER SPLIT
31	K371501	3/8 LOCKWASHER SPLIT
32	K501501	1/2 LOCKWASHER SPLIT
33	3706193	GRAB CATCH - METAL
34	3706219	.25"PLASTIC WASHER
35	3706220	WING 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



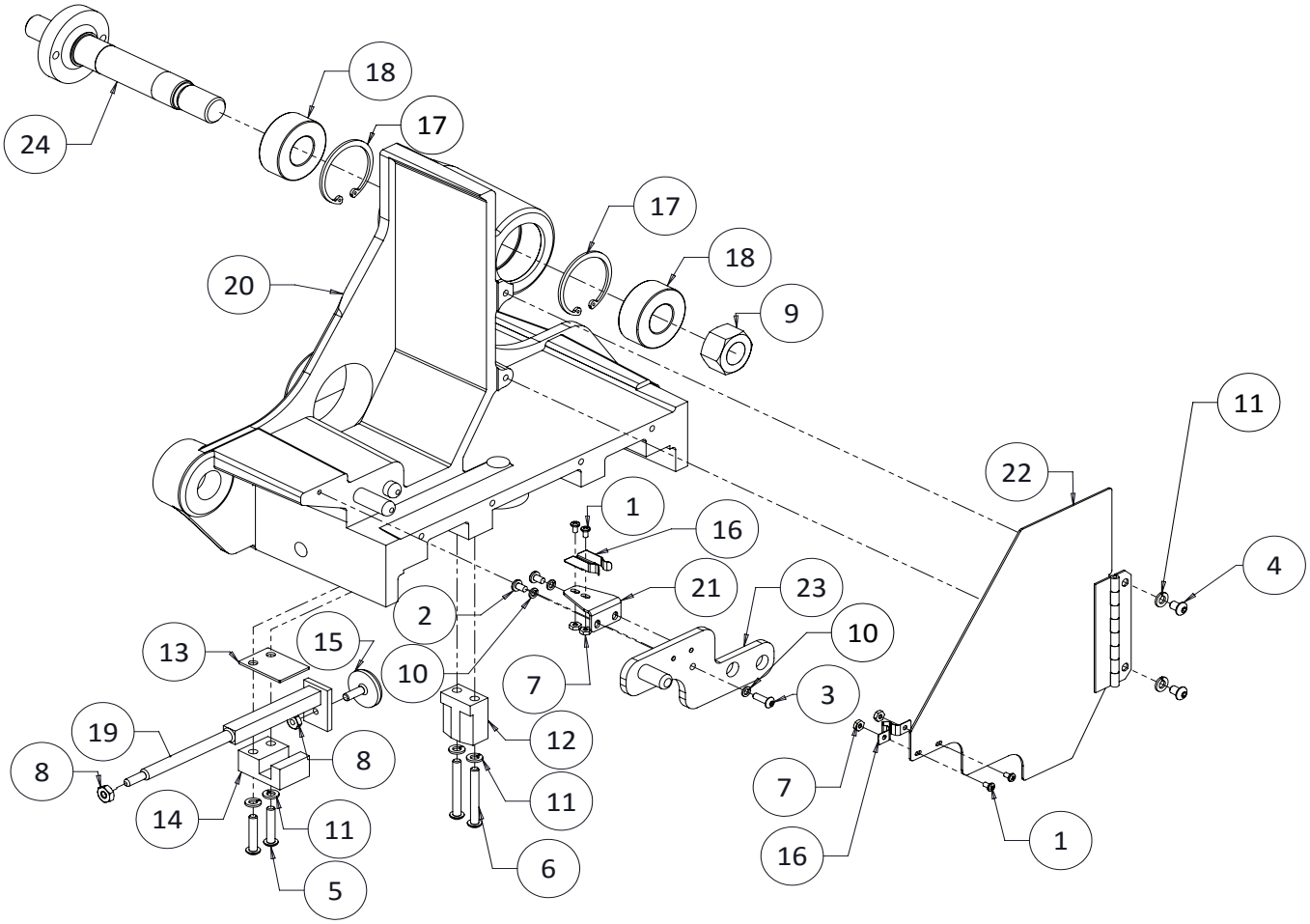
PARTS LIST

6339516 TRAVERSE BASE

DIA NO.	PART NO.	DESCRIPTION
1	B190611	10-24 x 3/8 SOCKET HEAD CAP SCREW
2	B191211	10-24 x 3/4 SOCKET HEAD CAP SCREW
3	B250616	1/4-20 x 3/8 BUTTON HEAD CAP SCREW
4	B250811	1/4-20 x 1/2 SOCKET HEAD CAP SCREW
5	B250818	1/4-20 x 1/2 PAN HEAD MACHINE SCREW
6	B251205	1/4-20 x 3/4 FLAT HEAD SOCKET CP SCREW
7	B251211	1/4-20 x 3/4 SOCKET HEAD CAP SCREW
8	B251411	1/4-20 x 7/8 SOCKET HEAD CAP SCREW
9	B252011	1/4-20 x 1-1/4 SOCKET HEAD CAP SCREW
10	B253211	1/4-20 x 2 SOCKET HEAD CAP SCREW
11	B256411	1/4-20 x 4 SOCKET HEAD CAP SCREW
12	B310813	5/16-18 x 1/2 BUTTON HEAD CAP SCREW
13	B311611	5/16-18 x 1 SOCKET HEAD CAP SCREW
14	B503211	1/2-13 x 2 SOCKET HEAD CAP SCREW
15	C250420	1/4-20 x 1/4 SOCKET SET SCREW
16	H184002	ROLL PIN .188 D x 2
17	J257000	1/4-20 LOCKNUT JAM
18	6539094	BELLOWS CARRIAGE MOUNTING BRACKT
19	J627200	5/8-18 LOCKNUT JAM
20	J757300	3/4-16 LOCKNUT FULL
21	K191501	#10 LOCKWASHER SPLIT
22	K250001	FLAT WASHER 1/4 SAE
23	K251501	1/4 LOCKWASHER SPLIT
24	K311501	5/16 LOCKWASHER SPLIT
25	K501501	1/2 LOCKWASHER SPLIT
26	R000376	SQUARE KEY 1/8 x .75
27	R000377	SQUARE KEY 3/16 x .75
28	28192	TRAVERSE PULLEY SUPPORT
29	50309	TRAVERSE PULLEY SHAFT
30	3706056	DRIVE COG PULLEY
31	55553	IDLER PULLEY ASSEMBLY
32	80335	CLAMP DESTACO 602
33	80354	COG BELT
34	80355	THRUST WASHER .75 ID
35	3707224	CABLE TIE MOUNT
36	3707225	CABLE TIE 6.5 L x.18
37	3708195	RETAINING RING EXTERNAL
38	3708419	WAVE SPRING .78 ID
39	3708436	WAVE SPRING
40	3708658	COMPRESSION SPRING
41	3708884	SPACER .28 ID x .62 OD
42	3709044	BALL BEARING
43	3709072	COMPRESSION SPRING .48OD
44	3709331	RETAINING RING EXTERNAL
45	3709372	HOLE PLUG .50 DIA.
46	B251018	1/4-20 x 5/8 PAN HEAD MACHINE SCREW
47	6339510	RELIEF ANGLE POSITIONER ASSEMBLY
48	6329034	COUPLER .625 DIA.
49	6329036	PULLEY MOUNT BRACKET
50	6329141	MOTOR EXTENSION SHAFT
51	6339533	LIMIT SENSOR AND CLAMP
52	6329511	SHAFT SUPPORT BLOCK
53	6539095	BELLOWS WAY COVER (VELCRO)
54	6339214	RELIEF ANGLE DECAL
55	6509054	RETAINER PLUNGER
56	6509055	BELT COVER
57	6509063	CARRIER SHAFT
58	6509210	GASKET BELT COVER
59	6509221	FIXED TRAV BASE END BRACKET
DIA NO.	PART NO.	DESCRIPTION
60	6509238	GRIP KNOB GRINDING WHEEL
61	B250618	1/4-20 x 3/8 PAN HEAD MACHINE SCREW
62	6509253	CARRIAGE DUST COVER BRACKET
63	6339023	PLUNGER PIN
64	6339132	LIMIT SENSOR BRACKET
65	3709257	BALL BEARING
66	3709304	THRUST WASHER .375
67	B371216	3/8-16 x 3/4 BUTTON HEAD CAP SCREW
68	B371616	3/8-16 x 1 BUTTON HEAD CAP SCREW
69	J377000	3/8-16 LOCKNUT JAM
70	B160607	8-32 x 3/8 BUTTON HEAD CAP SCREW
71	K161501	#8 LOCKWASHER SPLIT
72	6339127	RELIEF ANGLE POINTER
73	3706194	COMPRESSION SPRING .6ODx
74	6329032	TRAVERSE BASE MACHINED
75	3708121	DOUBLE CORD CLAMP
76	6339515	GRINDING HEAD ASSEMBLY
77	6339531	CARRIAGE ASSEMBLY BELT TRAVERSE
78	80380	GEARMOTOR 1/20 HP
79	3707601	PROXIMITY SENSOR
80	6539082	HEAD POSITION SENSOR CORD
81	6509269	VACUUM HOSE BRACKET
82	6509216	HEAD SENSOR BRACKET

PARTS LIST

6339531 CARRIAGE ASSEMBLY



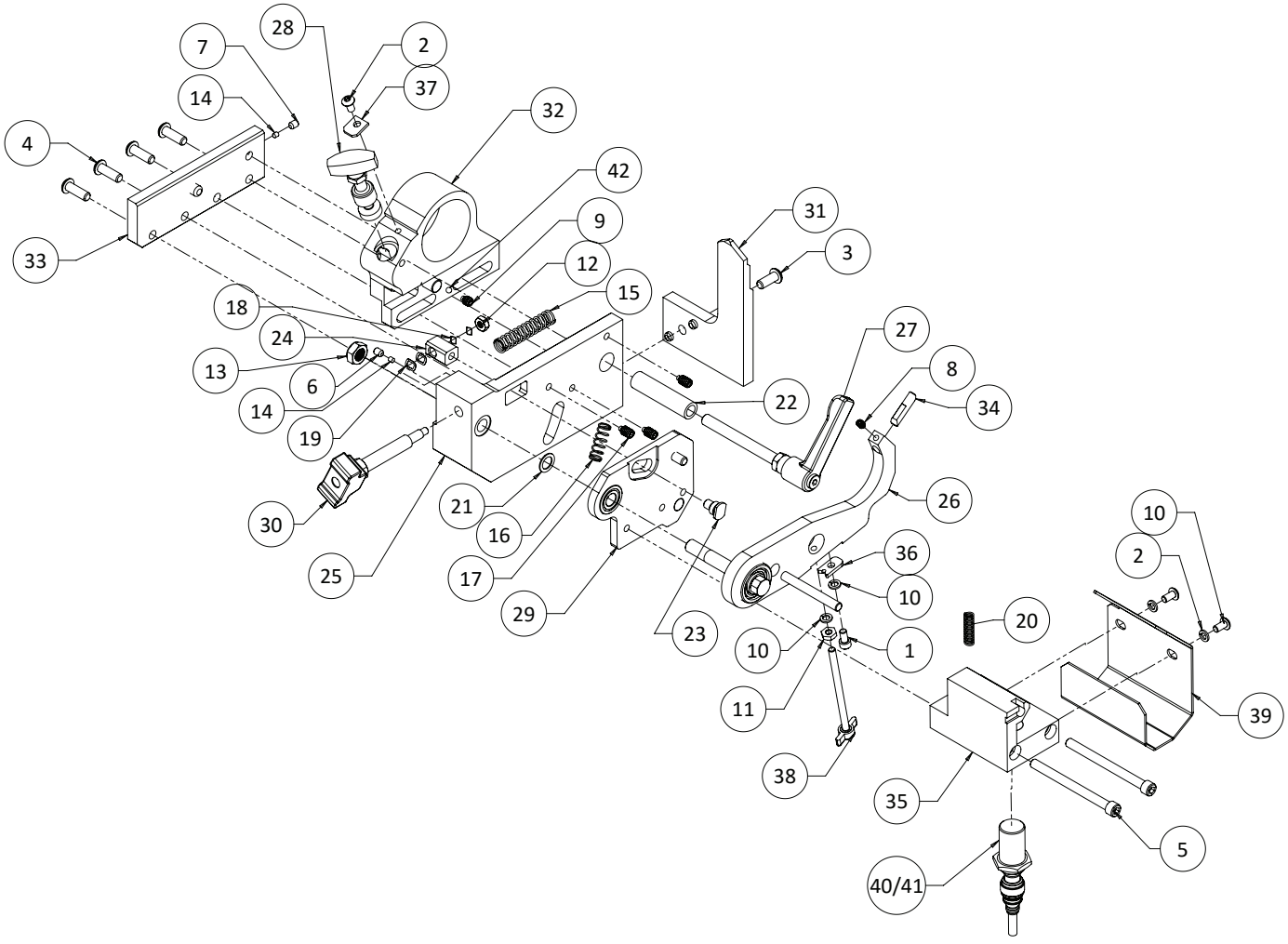
PARTS LIST

6339531 CARRIAGE ASSEMBLY

DIAGRAM NO.	PART NO.	DESCRIPTION
1	B130412	6-32 x 1/4 PAN HEAD MACHINE SCREW
2	B190509	10-24 x 5/16 PAN HEAD MACHINE SCREW
3	B191013	10-24 x 5/8 BUTTON HEAD SOCKET CAP SCREW
4	B250616	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

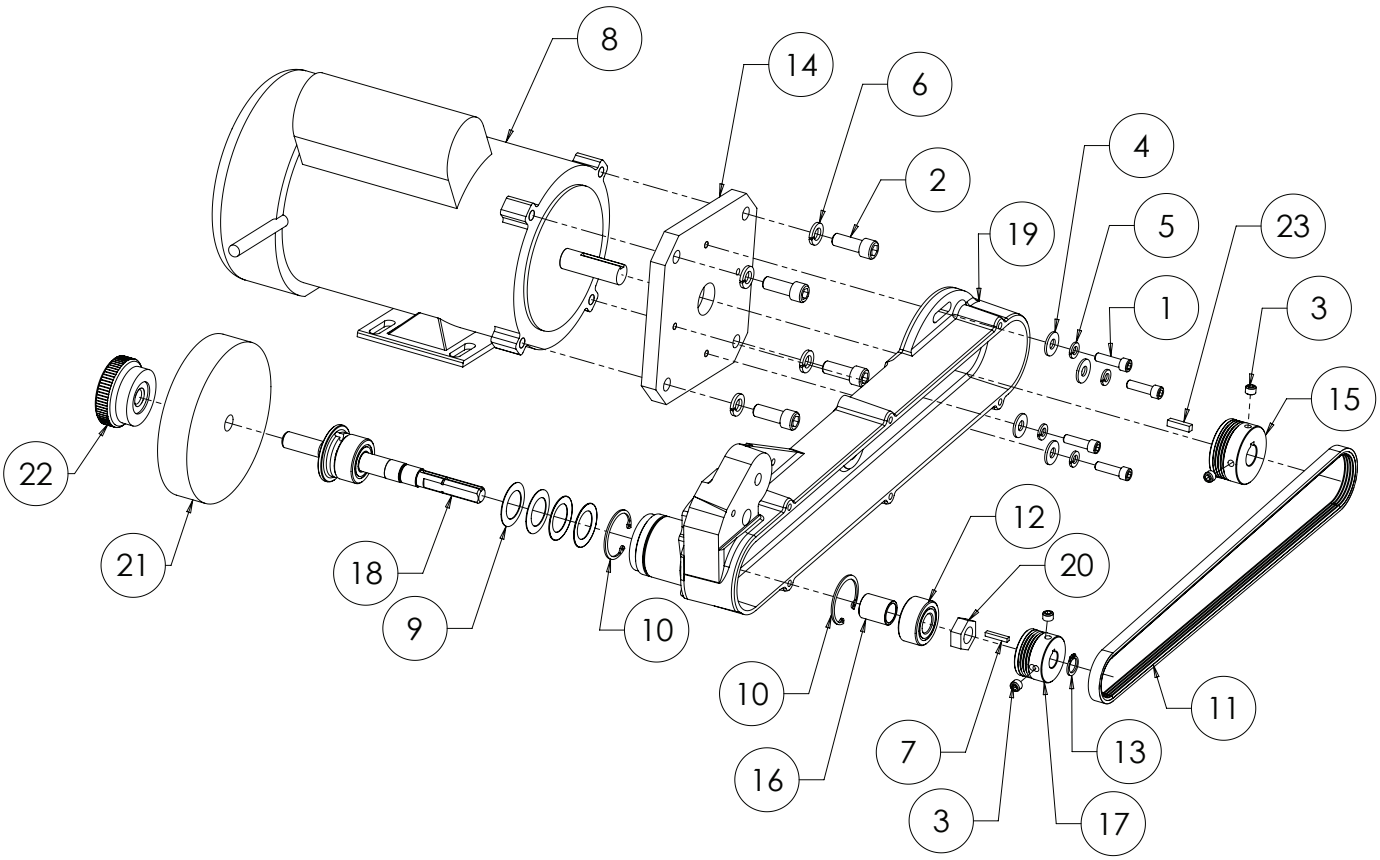
PARTS LIST

6339568 FINGER AND BODY ASSEMBLY



PARTS LIST 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
3	B251016	1/4-20 x 5/8 BUTTON HEAD SOCKET CAP SCREW
4	B251216	1/4-20 x 3/4 BUTTON HEAD SOCKET CAP SCREW
5	B254811	1/4-20 x 3 SOCKET HEAD CAP SCREW
6	C160420	8-32 x 1/4 SOCKET SET SCREW CUP POINT
7	C190460	SOCKET SET SCREW 10-32X1/4
8	C190467	10-32 x 1/4 SOCKET SET SCREW NYLON
9	C250427	1/4-20 x 1/4 NYLON
10	K191501	#10 LOCKWASHER SPLIT
11	J191100	10-32 HEX NUT
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
40	3707601	PROXIMITY SENSOR
41	6539083	FINGER POSITION SENSOR CORD
42	3709705	NYLON BALL 5/32 DIA.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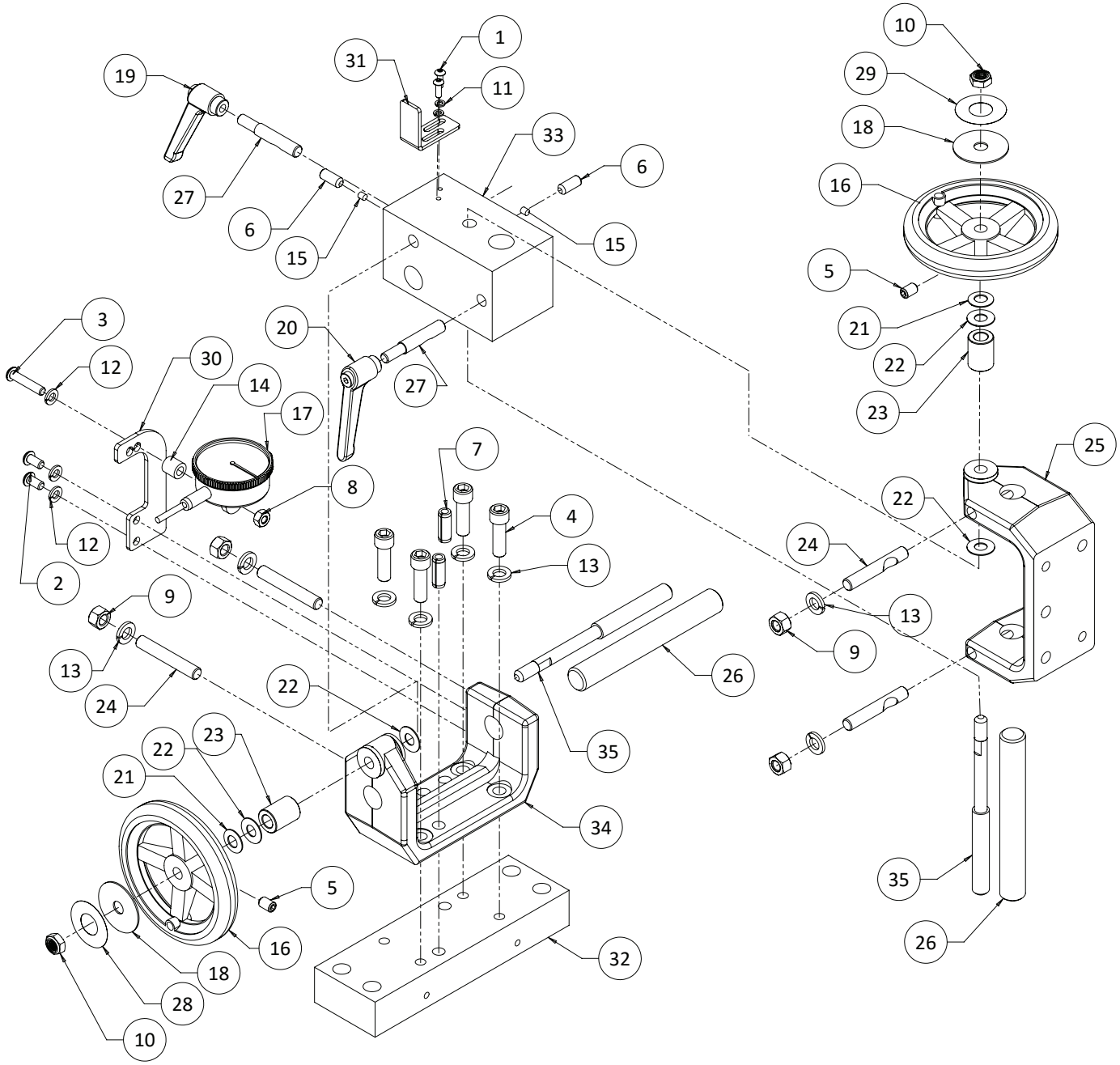
PARTS LIST

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
3	C250627	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

PARTS LIST

6339537 CROSS SLIDE



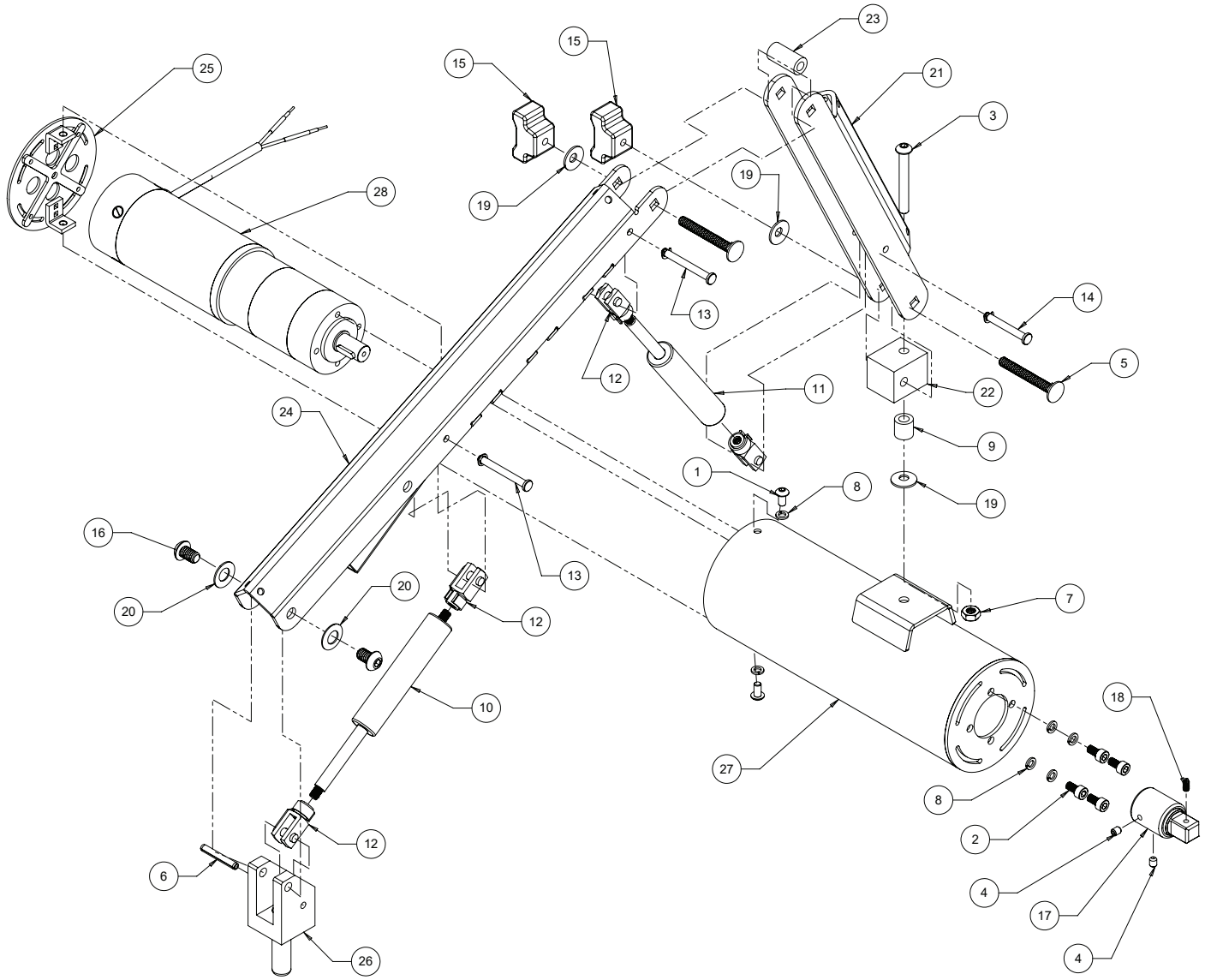
PARTS LIST

6339537 CROSS SLIDE

DIAGRAM NO.	PART NO.	DESCRIPTION
1	B160807	8-32 x 1/2 BUTTON HEAD SOCKET CAP SCREW
2	B250816	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
5	H371602	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.
18	3708705	ADJUSTABLE HANDLE 5/16-18
19	3708706	ADJUSTABLE HANDLE 5/16-18
20	3709062	CONICAL WASHER .38 x .75 x .035 T
21	3709304	THRUST WASHER .375 x .812 x .032 T
22	3969065	SPACER .406 ID x.75 OD
23	6009035	SHAFT LOCKING STUD
24	6009082	SUPPORT CROSS SLIDE
25	6009095	SHAFT SLIDE
26	6309113	SHAFT LOCKING STUD
27	6309114	DECAL ORANGE
28	6309115	DECAL GREY
29	6339027	DIAL INDICATOR MOUNT
30	6339028	DIAL INDICATOR STORE
31	6509011	CROSS SLIDE
32	6509015	SUPPORT CROSS SLIDE
33	6509010	ADJUSTER TRAVEL BRACKET
34	6509390	ADJUSTING SHAFT

PARTS LIST

6339505 SPIN DRIVE ASSEMBLY

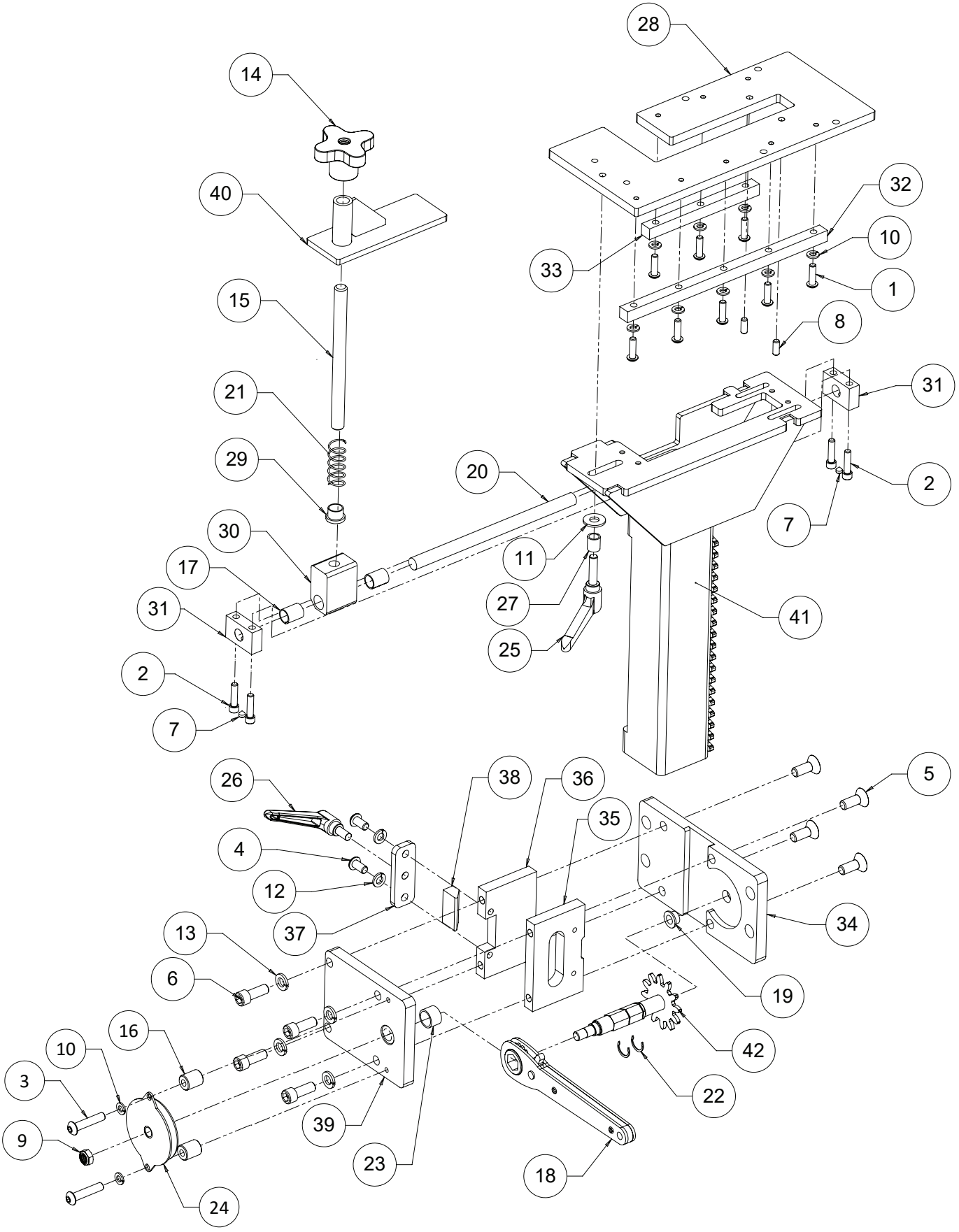


PARTS LIST — 6339505 SPIN DRIVE ASSEMBLY

DIAGRAM NO.	PART NO.	DESCRIPTION
1	B190613	10-24 x 3/8 BUTTON HEAD SOCKET CAP SCREW
2	B200611	M5-.8 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
19	3708861	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
27	6339564	MOTOR HOUSING WELDMENT W/ SLOT
28	6339565	SPIN MOTOR ASSEMBLY 1.9A
NOT SHOWN	3707255	CABLE TIE 4 L x.10 W x.038 T

PARTS LIST

6339530 FRONT TOOLING

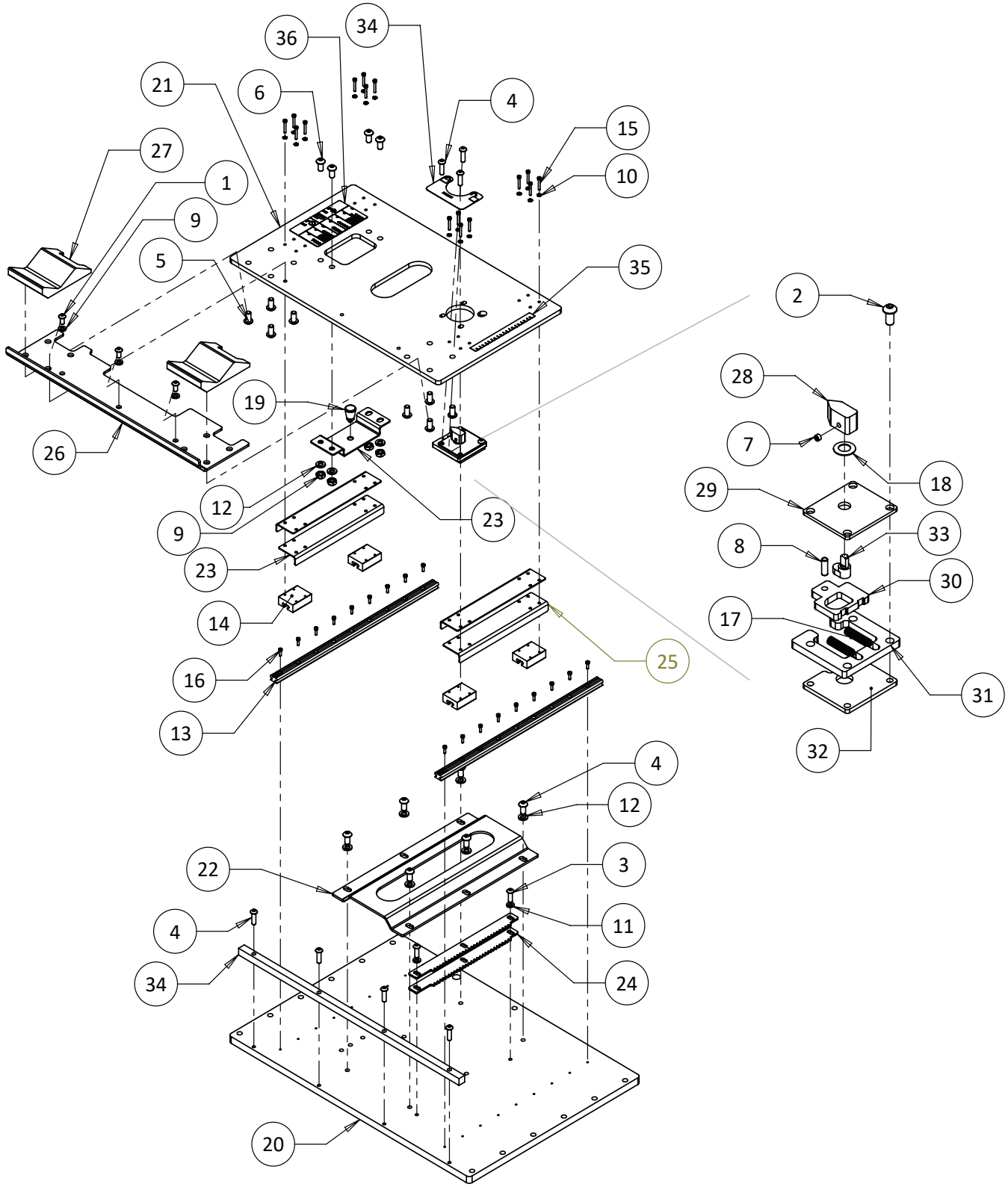


PARTS LIST — 6339530 FRONT TOOLING

DIAGRAM NO.	PART NO.	DESCRIPTION
1	B251416	1/4-20 x 7/8 BUTTON HEAD SOCKET CAP SCREW
2	B251611	1/4-20 x 1 SOCKET HEAD CAP SCREW
3	B252416	1/4-20 x 1-1/2 BUTTON HEAD SOCKET CAP SCREW
4	B311013	5/16-18 x 5/8 BUTTON HEAD SOCKET CAP SCREW
5	B371625	3/8-16 x 1 FLAT HEAD SOCKET CAP SCREW
6	B371611	3/8-16 x 1 SOCKET HEAD CAP SCREW
7	C250620	1/4-20 x 3/8 SOCKET SET SCREW CAP POINT
8	H251202	ROLL PIN .25 D x .75 L
9	J377000	3/8-16 LOCKNUT JAM NYLON INSERT
10	K251501	1/4 LOCKWASHER SPLIT
11	K310001	FLAT WASHER 5/16 STEEL
12	K311501	5/16 LOCKWASHER SPLIT
13	K371501	3/8 LOCKWASHER SPLIT
14	09853	KNOB - 4 PRONG 1/2-13F
15	17119	STUD - THD 1/2-13 x 6.5 LG
16	3679096	SPACER .281IDx.625 OD x .75 L
17	3706189	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

PARTS LIST

6339534 REAR TOOLING



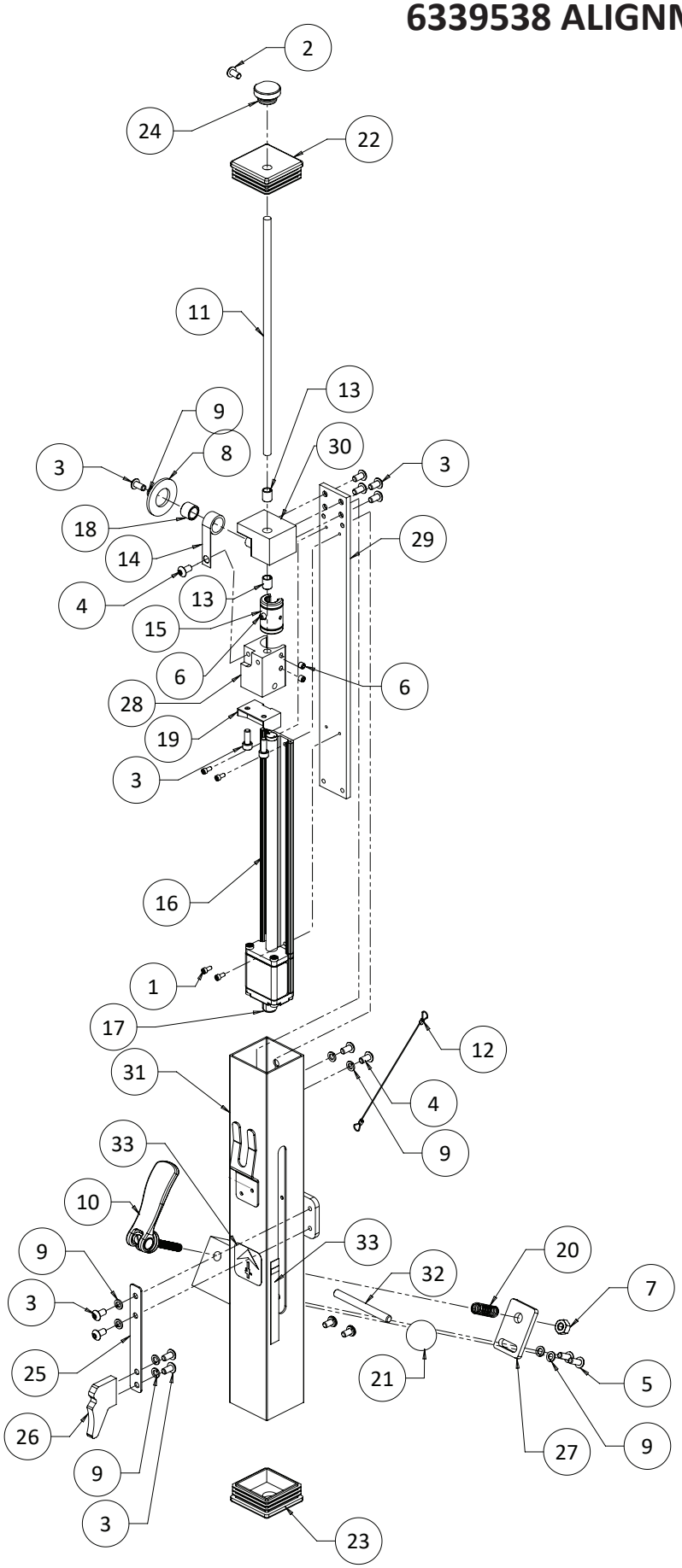
PARTS LIST

6339534 REAR TOOLING

DIAGRAM NO.	PART NO.	DESCRIPTION
1	B250616	1/4-20 x 3/8 FLAT HEAD SOCKET CAP SCREW
2	B250816	1/4-20 x 1/2 FLAT HEAD SOCKET CAP SCREW
3	B251216	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	B311013	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
13	3706195	BEARING RAIL - 15M
14	3706196	LINEAR BEARING 15M
15	3706197	M3-.5 X 20MM SOCKET HEAD CAP SCREW
16	3706198	M3-.5 X 12MM SOCKET HEAD CAP SCREW
17	3706221	COMPRESSION SPRING .25 OD
18	3708214	CONICAL WASHER .38
19	3708914	PLUNGER - SPRING
20	6339119	BOTTOM PLATE REAR
21	6339120	TOP PLATE REAR TOOL
22	6339121	CLAMP PLATE REAR
23	6339122	POSITION PIN BRACK
24	6339123	PAWL RACK REAR TOOL
25	6339124	BEARING SIDE PLATE
26	6339125	SPARK PLATE
27	6339126	REAR TOOLING SUPPORT
28	6339134	POINTER KNOB
29	6339135	PAWL TOP PLATE
30	6339136	LOCATING PIN PLATE
31	6339137	PAWL SPACER PLATE
32	6339138	PAWL BOTTOM PLATE
33	6339139	PAWL PIVOT SHAFT
34	6339141	BOTTOM PLATE FRONT
35	6509304	DECAL - SCALE HORIZONTAL
36	6339025	DECAL SHEET

PARTS LIST

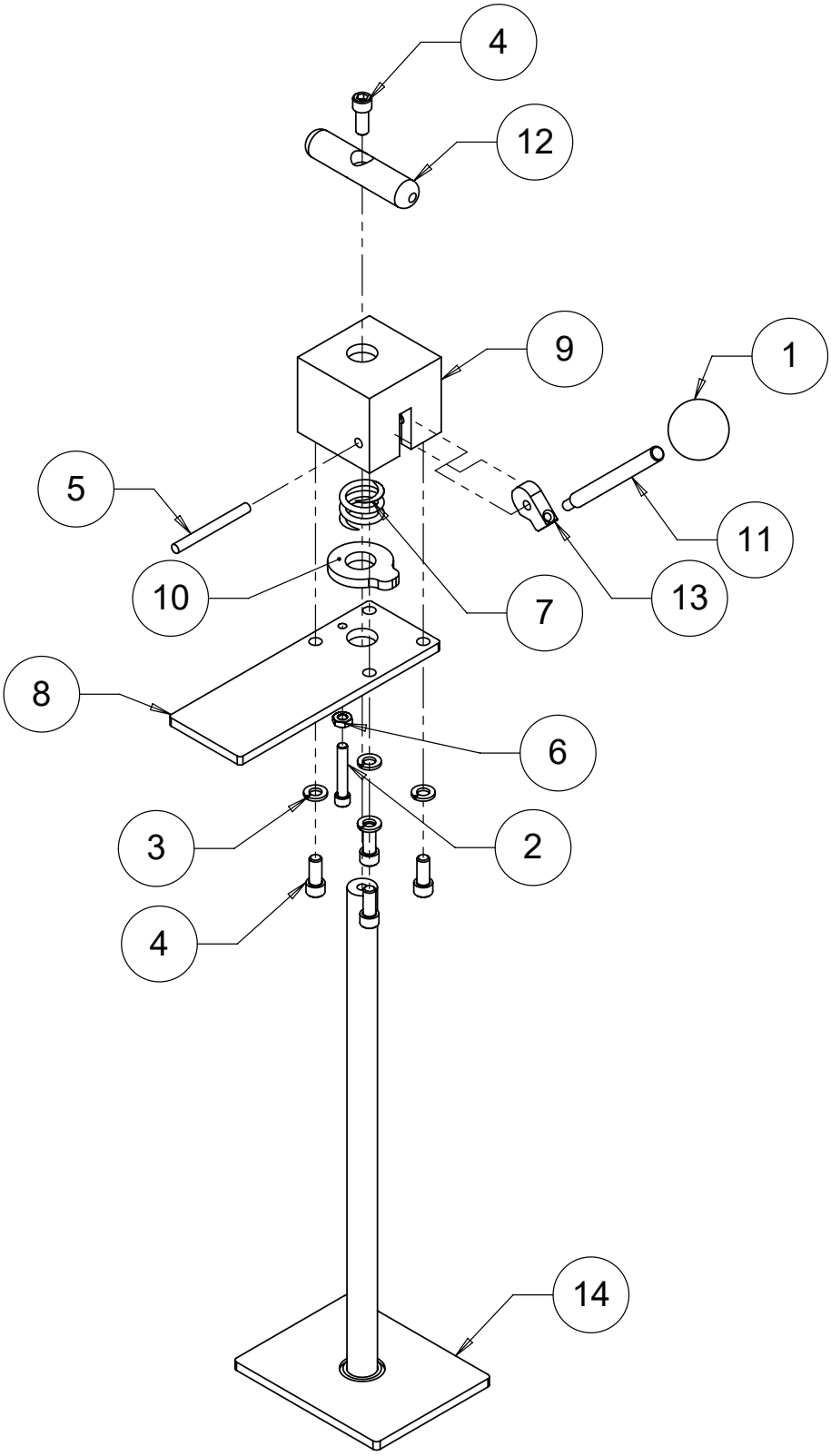
6339538 ALIGNMENT GAUGE



PARTS LIST — 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
9	K191501	#10 LOCKWASHER SPLIT
10	3706173	CAM LOCK HANDLE
11	3706174	.25 DIA x 9" LG SHAFT
12	3706175	LANYARD 8"
13	3706176	SLEAVE BEARING 1/4 ID
14	3706177	CONSTANT FORCE SPRING
15	3706180	LINEAR BEARING 10M
16	3706209	LINEAR SENSOR MACHINED
17	3706210	GAUGE CORD ASSEMBLY
18	3706225	OILITE BEARING .38 ID X .50 OD
19	3707998	LINEAR SENSOR MAGNET
20	3708175	COMPRESSION SPRING .36 OD
21	3709526	1" DIA BALL KNOB 1/4-20 THREAD
22	6339142	GAUGE TOP CAP
23	6339143	GAUGE BOTTOM CAP
24	6339148	HEIGHT STOP BLOCK
25	6339152	SPRING PLATE
26	6339154	GAUGE LATCH
27	6339155	PIN LOCK PLATE
28	6339156	BEARING BLOCK
29	6339199	GAUGE BASE PLATE
30	6339200	BEARING SUPPORT BLOCK
31	6339539	GAUGE HOUSING WELDMENT
32	3706238	STUD 1/4-20 x 3.00 LONG
33	6339025	DECAL SHEET

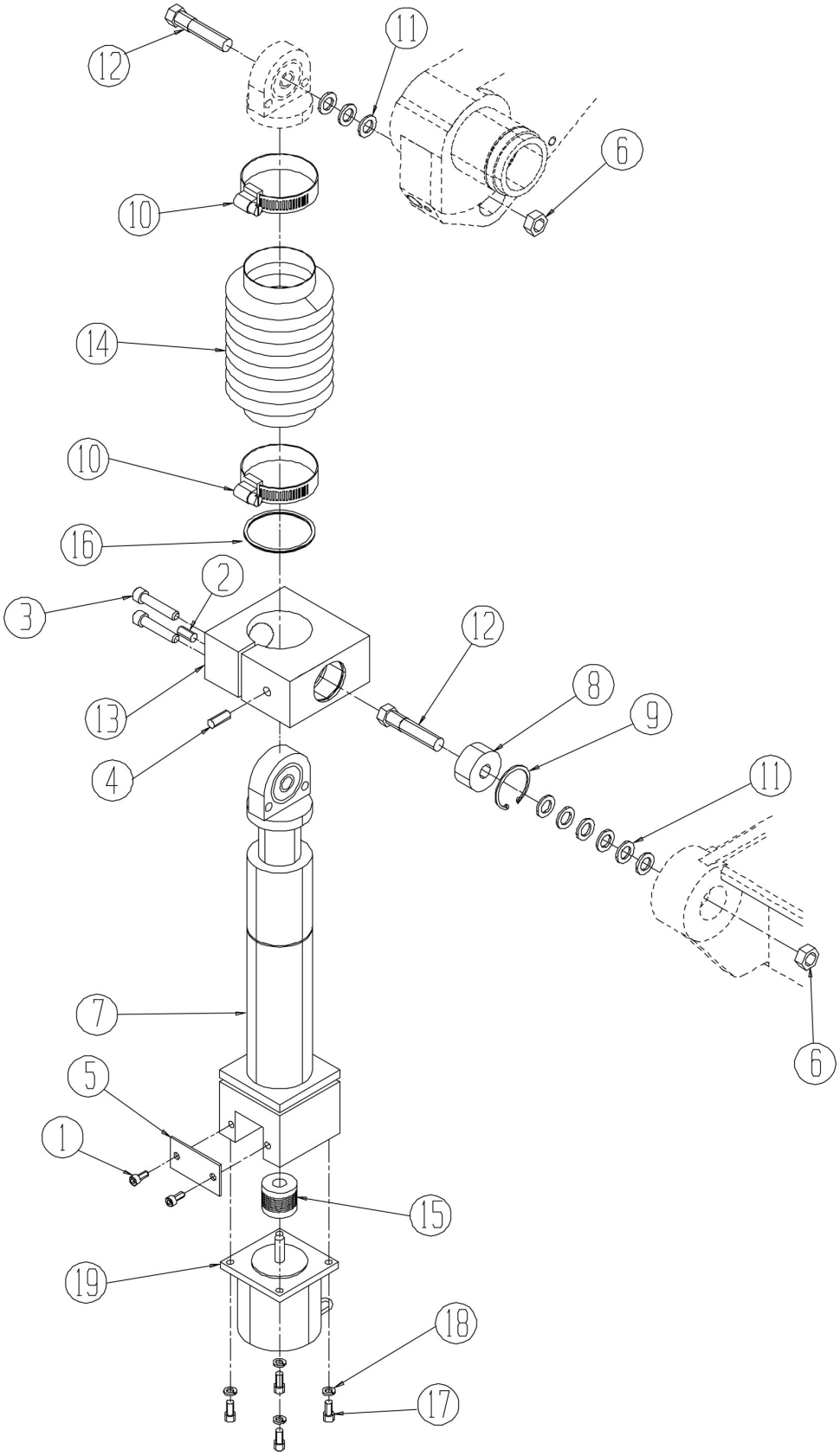
PARTS LIST **6339541 REAR CLAMP ASSEMBLY**



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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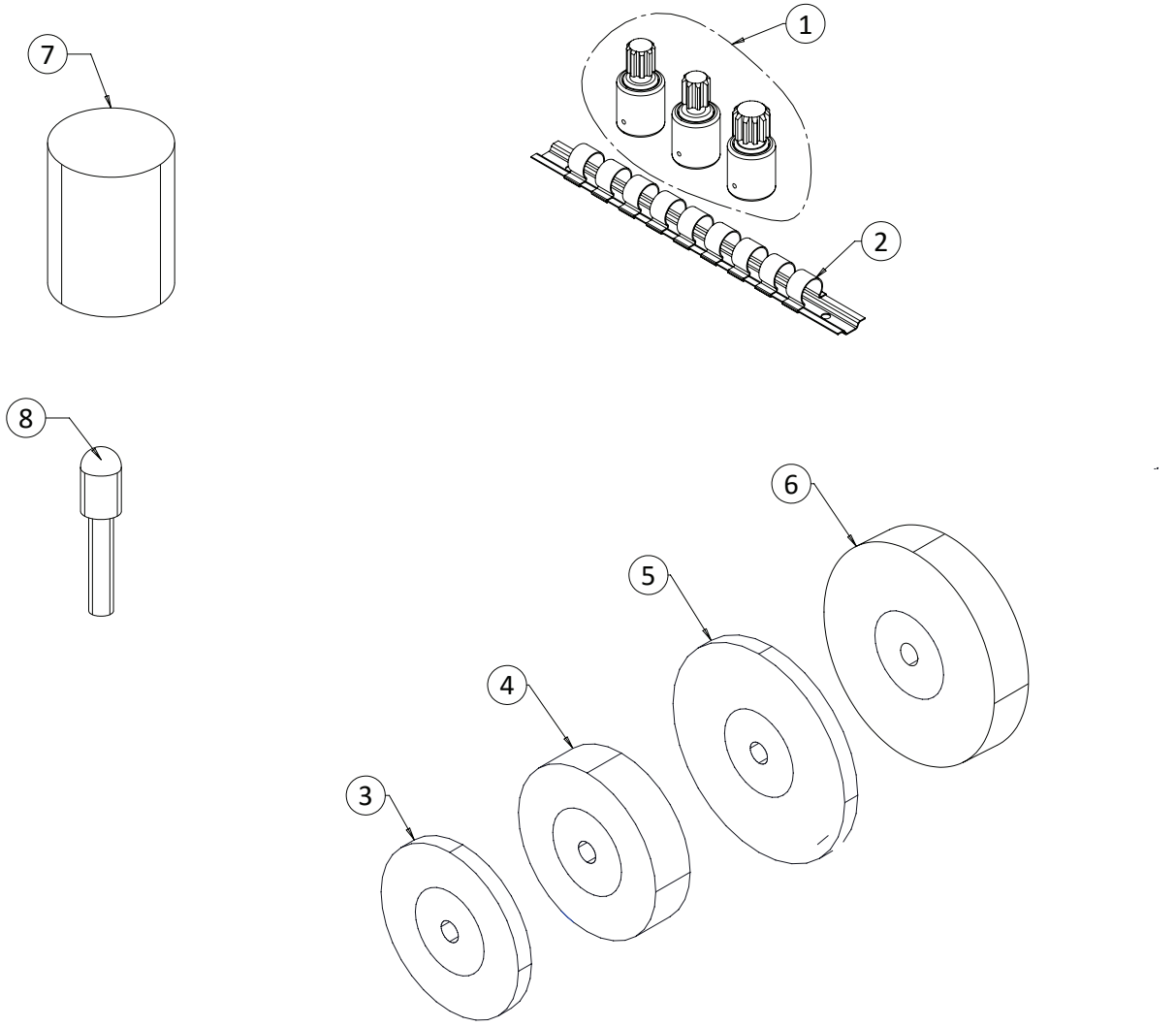
PARTS LIST

6509529 INFEED STEPPER

DIAGRAM NO.	PART NO.	DESCRIPTION
1	B190613	10-24 x 3/8 BUTTON HEAD SOCKET CAP SCREW
2	C250825	1/4-20 x 1/2 SOCKET SET SCREW
3	B252011	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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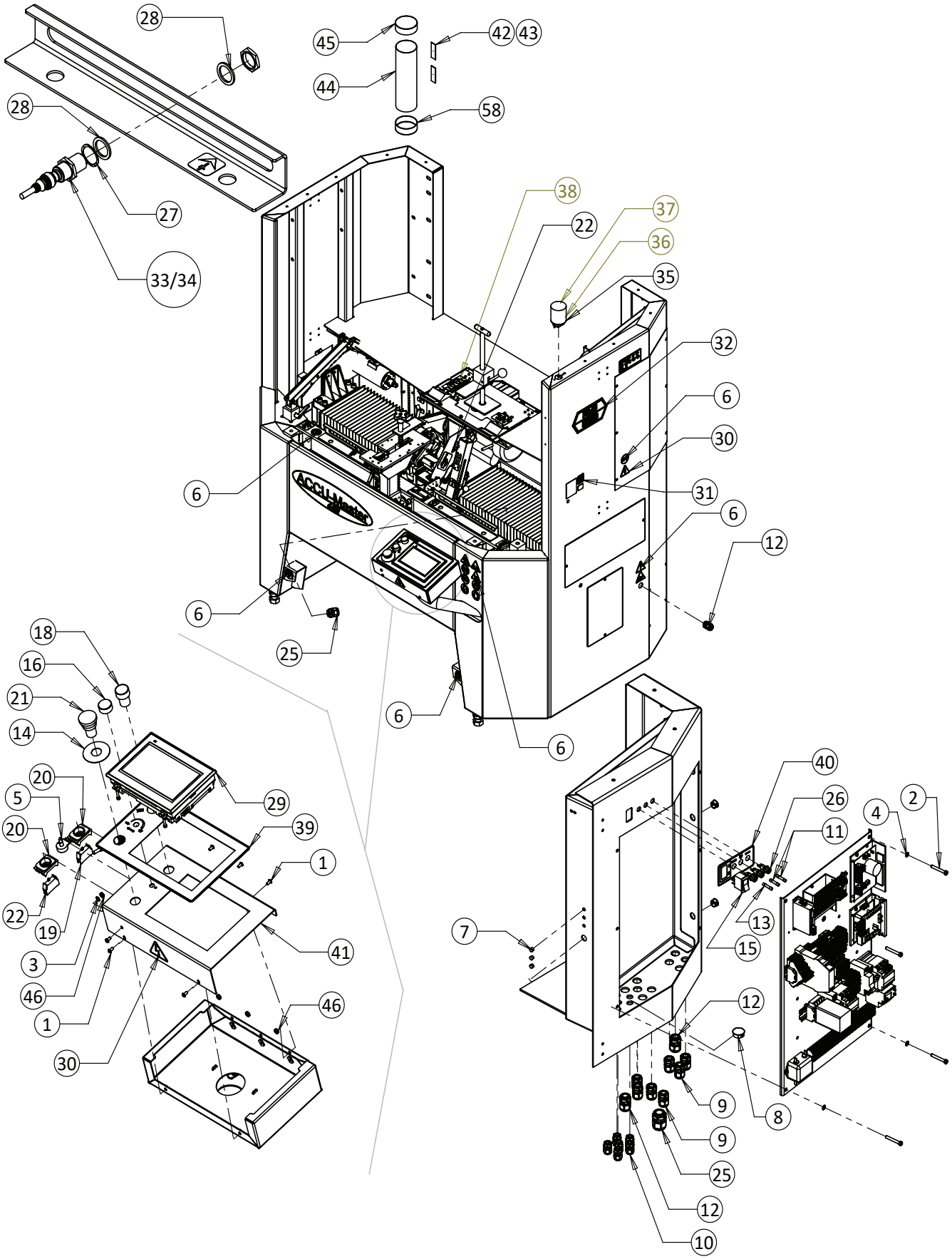
PARTS LIST

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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PARTS LIST

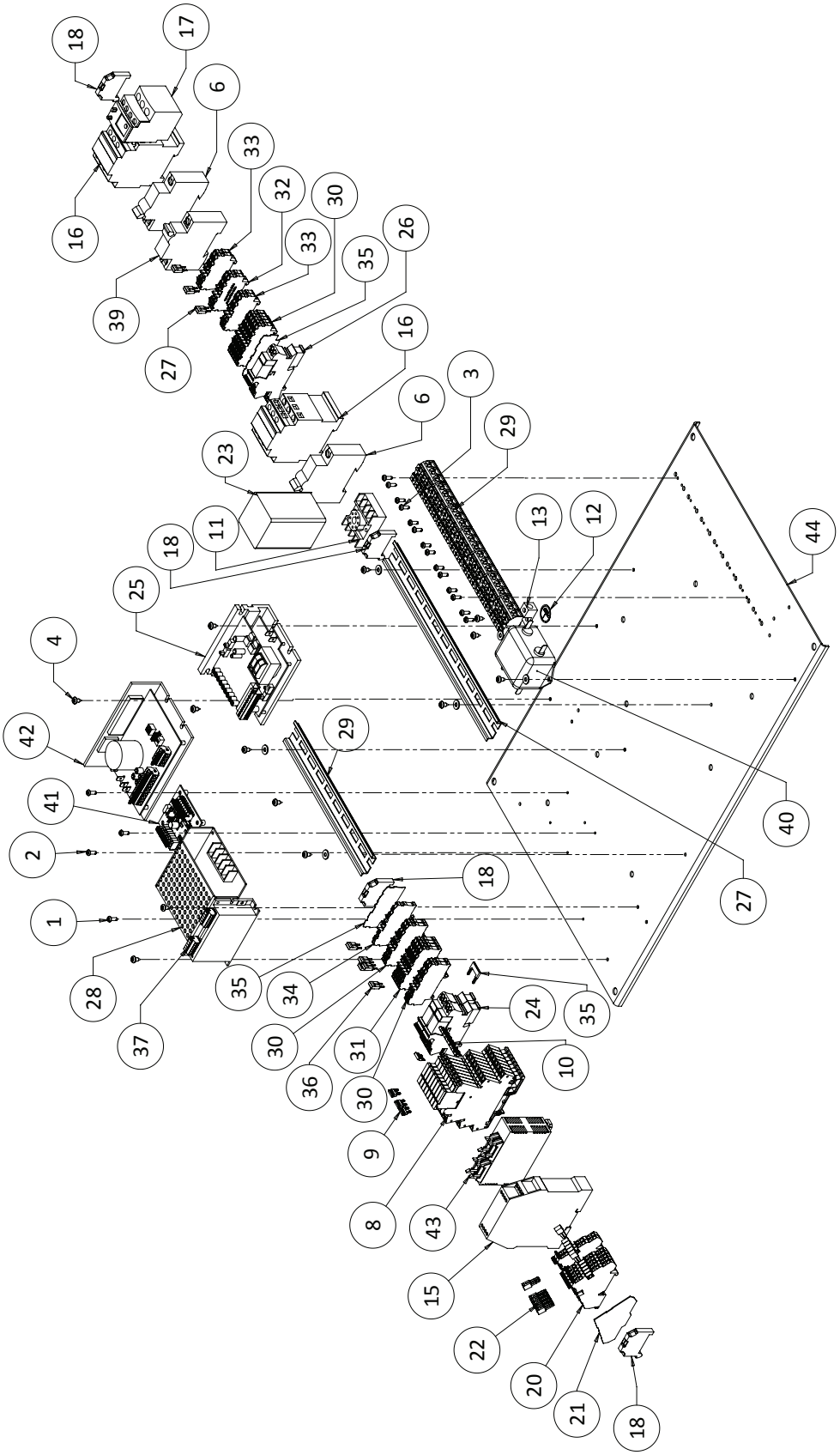
6539519 ACCU-TOUCH 3

DIAGRAM NO.	PART NO.	DESCRIPTION
1	B190634	10-32 x 3/8 FLAT HEAD SOCKET SCREW
2	D250800	1/4-20 THREAD CUTTING SCREW
3	R000465	LOCK WASHER #10 EXTERNAL
4	R000536	LOCK WASHER 1/4 INTERNAL
5	80419	POTENTIOMETER 10K
6	3706105	DECAL SHEET (REEL GRINDER)
7	3706223	HOLE PLUG .313 DIA
8	3706224	HOLE PLUG 1.13 DIA
9	3707009	LIQUID TIGHT STRAIN RELIEF .27-.47 DIA
10	3707029	LIQUID TIGHT STRAIN RELIEF .19-.30 DIA
11	3707090	SLOW-BLOW FUSE - 4 AMP
12	3707093	STRAIN RELIEF
13	3707219	SLOW-BLOW FUSE - 2 AMP
14	3707342	YELLOW E-STOP RING
15	3707367	ROCKER SWITCH ON/OFF
16	3707446	POTENTIOMETER KNOB W/POINTER
17	3708462	DECAL WARNING 4500 RPM MIN
18	3707564	GREEN PUSH BUTTON
19	3707565	CONTACT BLOCK NO
20	3707566	LATCH MOUNTING
21	3707567	PUSH / PULL RED BUTTON
22	3707568	CONTACT BLOCK NC
23	3707595	HOLE PLUG .875 DIA
24	3707597	HOLE PLUG .625 DIA
25	3707658	LIQUID TIGHT STRAIN RELIEF .54-.71 DIA
26	3707927	FUSE HOLDER - PANEL MOUNT
27	3708419	WAVE SPRING .78 ID
28	3708421	FLAT WASHER .75 x 1.0 OD
29	6539047	7" TOUCH SCREEN
30	3708448	ELECTRICAL WARNING DECAL
31	3708872	PATENT DECAL
32	3709990	FOLEY UNITED DECAL
33	3707601	PROXIMITY SWITCH
34	6539078	LEFT PROXIMITY SWITCH CORD ASSEMBLY
	6539079	RIGHT PROXIMITY SWITCH CORD ASSEMBLY
35	6529019	LIGHT BASE ASSEMBLY
36	3707603	BLUE LIGHT LENS
37	3707465	LIGHT BULB 120VAC - FLASHER
38	6339025	DECAL SHEET 633/65
39	6539001	ACCUTOUCH 3 CONTROL DECAL
40	6539046	POWER SIWTCH DECAL
41	6539073	CONTROL PANEL TOP
42	3706136	VELCRO LOOP - 1"W
43	3706135	VELCRO HOOK - 1"W
44	3706133	CLEAR TUBE 3.5 OD
45	3706134	END CAP - 3.5 ID B
46	J197200	10-32 HEX LOCKNUT JAM

ITEMS NOT SHOWN

	6539065	CONTROL CABLE ASSEMBLY
	6539066	LIGHT RECEPTACLE CORD
	6539067	VACUUM RECEPTACLE CORD
	6539068	FLASHER LIGHT CORD
	6539075	SPIN DRIVE CORD
	6539084	RS232 CONNECTOR -
		ACCUTOUCH SCREEN
	6539085	5PIN MINI DIN CONNECTOR
		PLC
	3707224	CABLE TIE MOUNT
	3707225	CABLE TIE 6.5Lx.18
	3707255	CABLE TIE 4Lx.10
	3708378	STRIP FOAM .25T
	6309111	DECAL UP/DOWN

PARTS LIST **6539520 ACCU-TOUCH 3 SUB CONTROL**

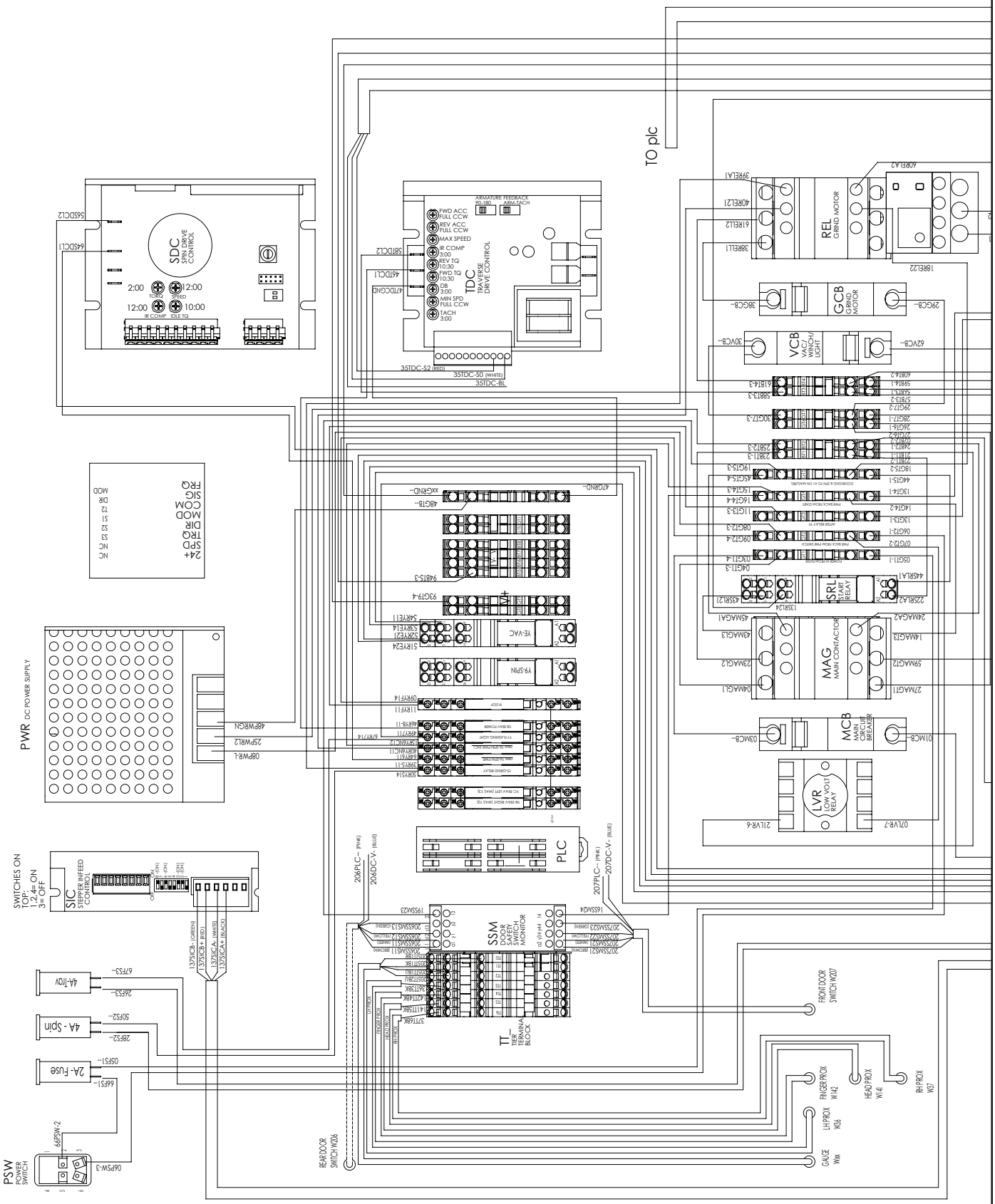


PARTS LIST 6539520 ACCU-TOUCH 3 SUB CONTROL

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
5	K160001	FLAT WASHER #8 SAE
6	80259	CIRCUIT BREAKER 20
7	3706118	PUSH IN CABLE TIE
8	3706148	TERMINAL BLOCK RELAY
9	3706149	2-POLE JUMPER FOR
10	3706150	20 POLE JUMPER FOR
11	3707073	SOCKET 8 PIN
12	3707163	DECAL PRIMARY GROUP
13	3707164	LUG GROUND PRIMARY
14	3707695	2 POLE JUMPER
15	3707907	DOOR SWITCH MONITOR
16	3707556	STARTER MAGNETIC 1
17	3707557	RELAY - OVERLOAD 1
18	3707625	END STOP SCREWLESS
19	3707684	TERMINAL BLOCK - 3
20	3707685	TERMINAL BLOCK - 3
21	3707686	END PLATE - TERM B
22	3707626	JUMPER ADJACENT
23	3707688	LOW VOLTAGE RELAY
24	3707694	RELAY TERMINAL BLOCK
25	3707697	DRIVE TRAVERSE
26	3707798	RELAY TERM BLOCK 8
27	3707829	DIN RAIL 12”
28	3707839	24VDC POWER SUPPLY
29	3707910	TERMINAL BLOCK 3-POLE
30	3707913	TERMINAL BLOCK 4-POLE
31	3707914	TERMINAL BLOCK 4-POLE
32	3707915	TERMINAL BLOCK 3-POLE
33	3707916	TERMINAL BLOCK 3-POLE
34	3707917	TERMINAL BLOCK 4-POLE
35	3707918	TERMINAL BLOCK END
36	3707919	2-POLE TERMINAL BLOCK
37	3707923	STEPPER DRIVE 2AMP
38	3707925	DIN RAIL 9.0 LG
39	3707936	CIRCUIT BREAKER 10
40	3707937	RFI LINE FILTER
41	3707940	CONTROL BOARD FOR
42	3707942	SPIN CONTROL BOARD
43	3707569	PLC AROMAT
44	6539074	CONTROL SUB PANEL
45	6539059	PLC CABLE - INPUTS
	6539060	PLC CABLE - OUTPUTS
	6539058	PANEL WIRE HARNESS

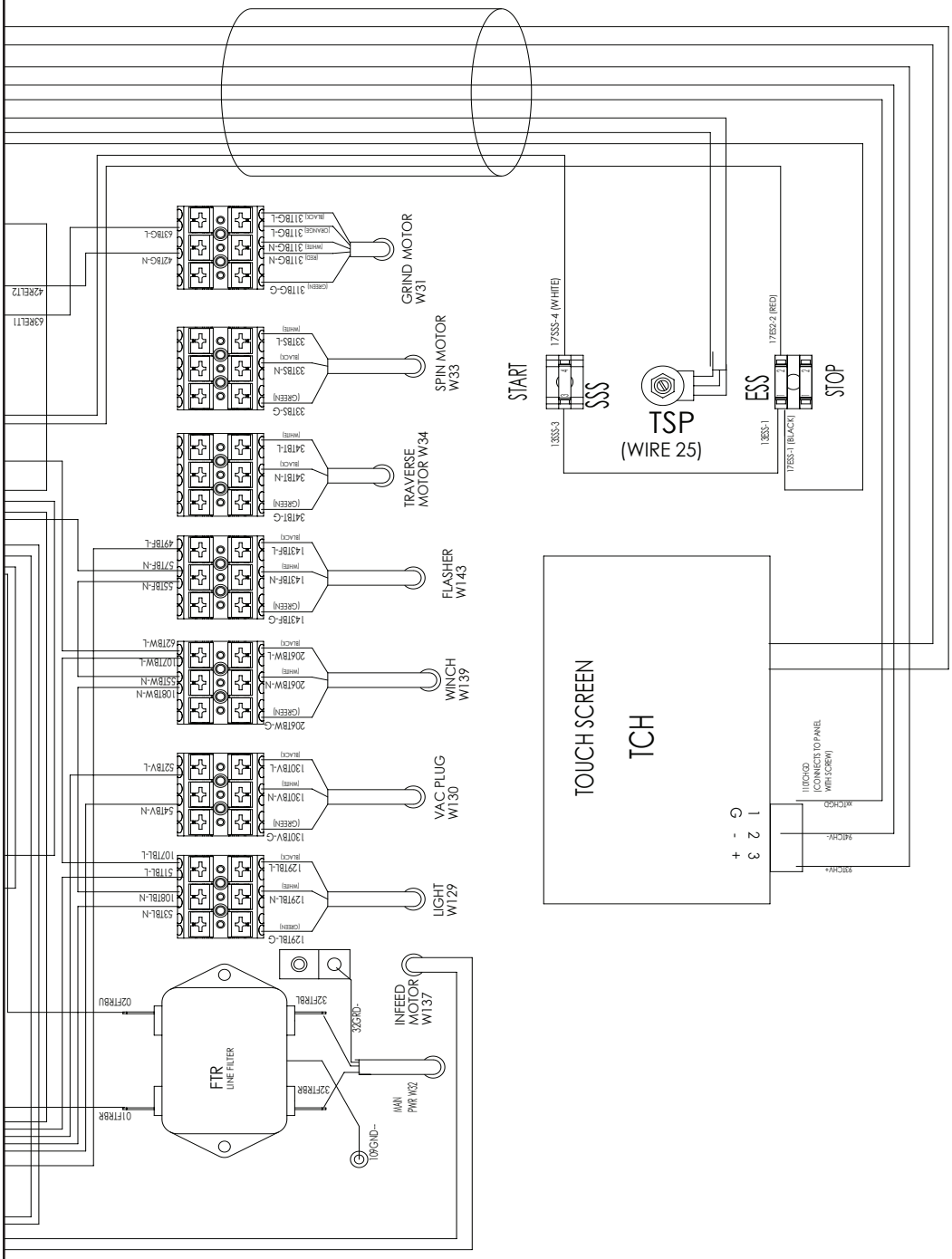
WIRING DIAGRAM

6534519 - AC



WIRING DIAGRAM

6534519 - AC



GROUND SCREW

WIRE CONNECTION

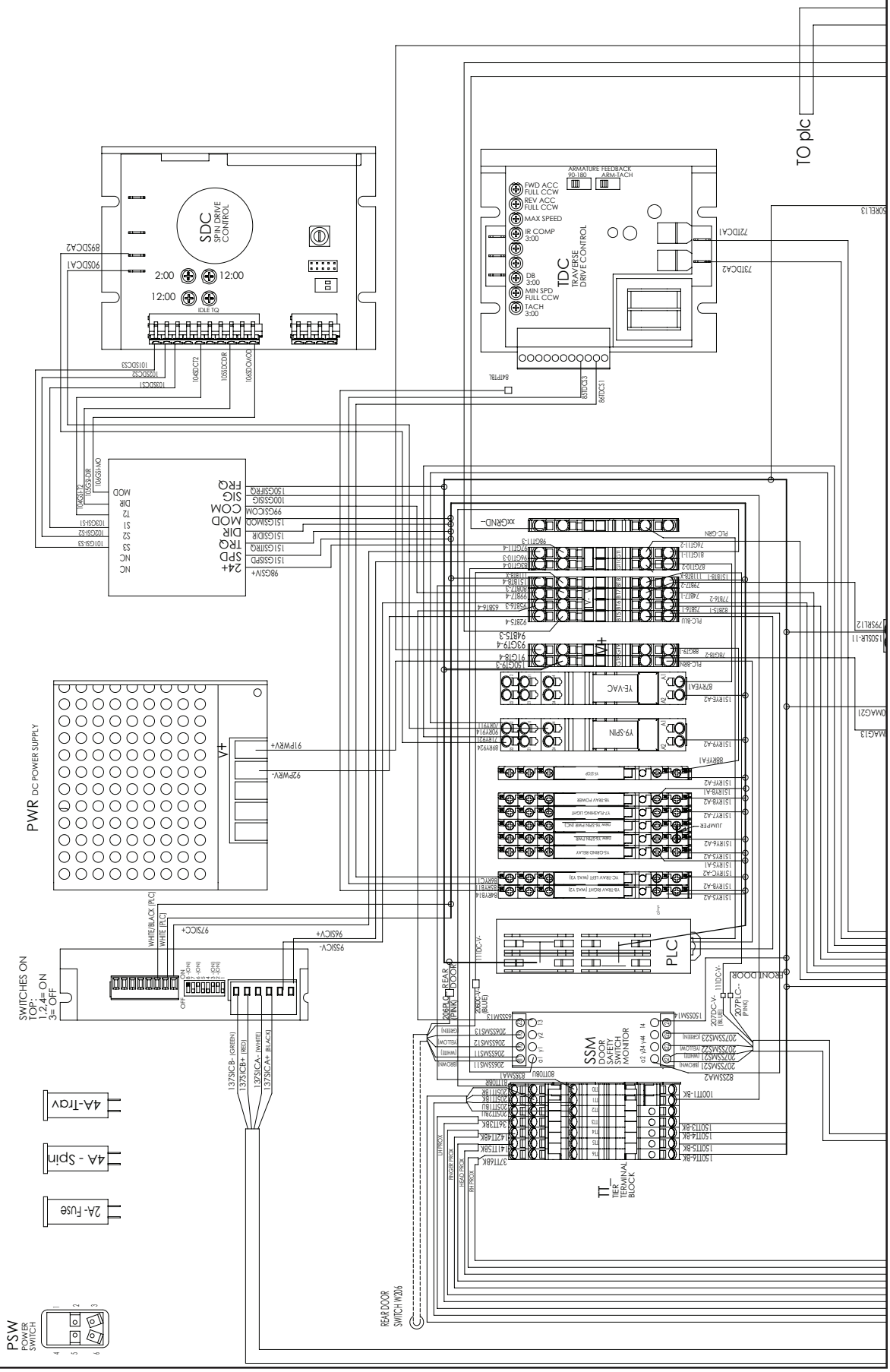
TERM. TO TERM CONNECTION

BTX - BLUE TERMINAL BLOCK
ESS- EMERGENCY STOP SWITCH
FS1-2 AMP FUSE (DC PWR)
FS2-4 AMP FUSE (SPIN/ GRIND RELAY)
FS3-4 AMP FUSE (TRAVERSE)
FTR- FILTER
GCB - GRIND MOTOR CIRCUIT BREAKER
GSI- GAUGE / SPIN INTERFACE
GTX - GREY TERMINAL BLOCK
LVR- LOW VOLTAGE RELAY
MAG- MAGNETIC STARTER
MCB- MAIN CIRCUIT BOARD 20 AMP
REL- GRIND MOTOR RELAY
PLC- PROGRAMMABLE LOGIC CONTROLLER
PSW- POWER SWITCH CONTROL BOX
PWR- DC POWER SUPPLY

SDC- SPIN DRIVE CONTROL
SIC- STEPPER INFEED CONTROL
SRL - START RELAY
SSM- SAFETY SWITCH MONITOR
SSS-SYSTEM START SWITC
TBX - TERMINAL BLOCK (X: L=LIGHT, V=VACUUM, W=WINCH
F=FLASHER, T=TRAVERSE, S=SPIN MOTOR, G= GRIND
TCH- TOUCH SCREEN
TDC- TRAVERSE DRIVE CONTROL
TSP- TRAVERSE SPEED POT
TTX - TIER TERMINAL BLOCK
VCB- VACUUM/WINCH CIRCUIT BREAKER
YXX - OUTPUT RELAYS

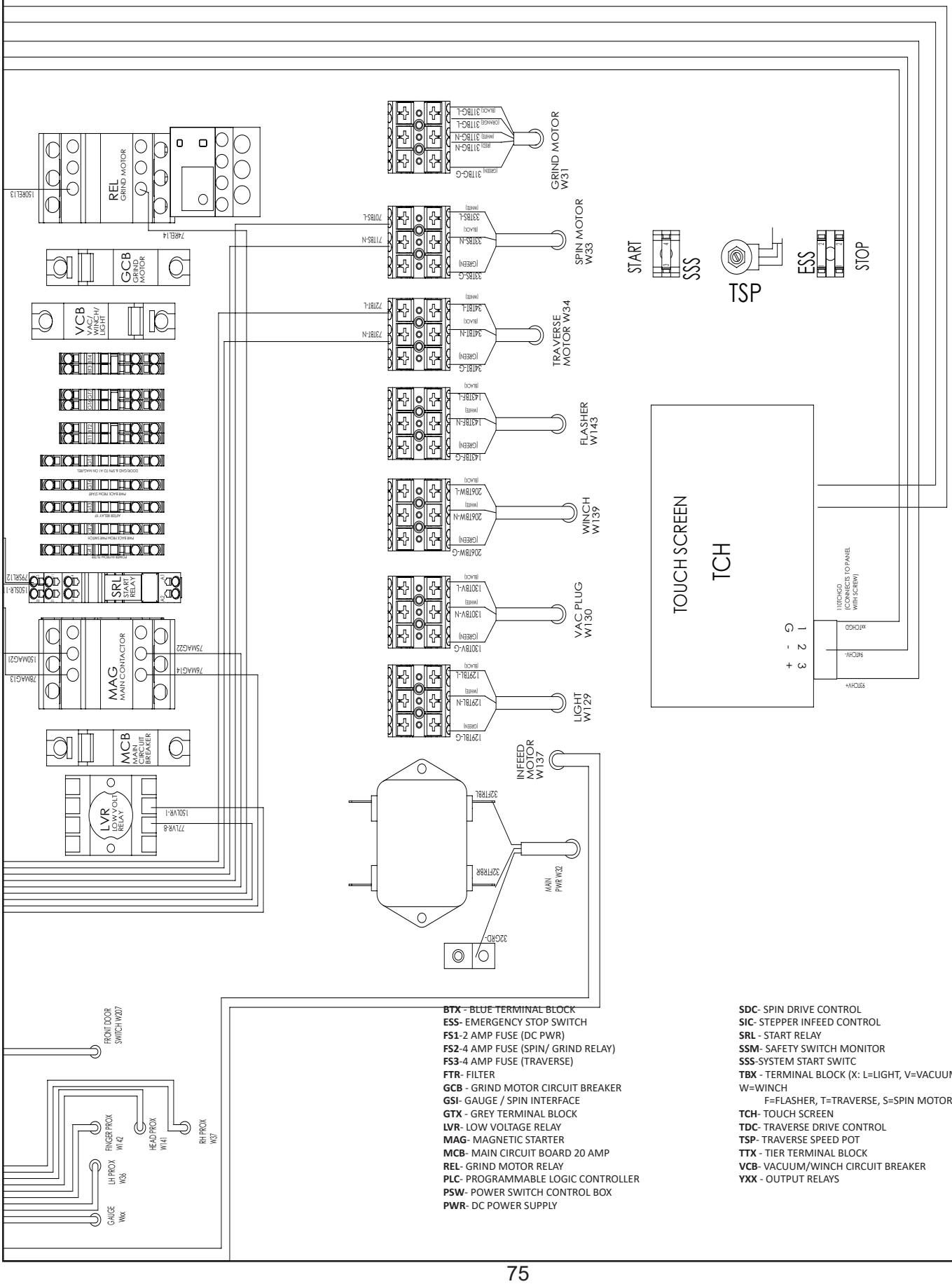
WIRING DIAGRAM

6534519 - DC



WIRING DIAGRAM

6534519 - DC



BTX - BLUE TERMINAL BLOCK
ESS- EMERGENCY STOP SWITCH
FS1-2 AMP FUSE (DC PWR)
FS2-4 AMP FUSE (SPIN/ GRIND RELAY)
FS3-4 AMP FUSE (TRAVERSE)
FTR- FILTER
GCB - GRIND MOTOR CIRCUIT BREAKER
GSI- GAUGE / SPIN INTERFACE
GTX - GREY TERMINAL BLOCK
LVR- LOW VOLTAGE RELAY
MAG- MAGNETIC STARTER
MCB- MAIN CIRCUIT BOARD 20 AMP
REL- GRIND MOTOR RELAY
PLC- PROGRAMMABLE LOGIC CONTROLLER
PSW- POWER SWITCH CONTROL BOX
PWR- DC POWER SUPPLY

SDC- SPIN DRIVE CONTROL
SIC- STEPPER INFEED CONTROL
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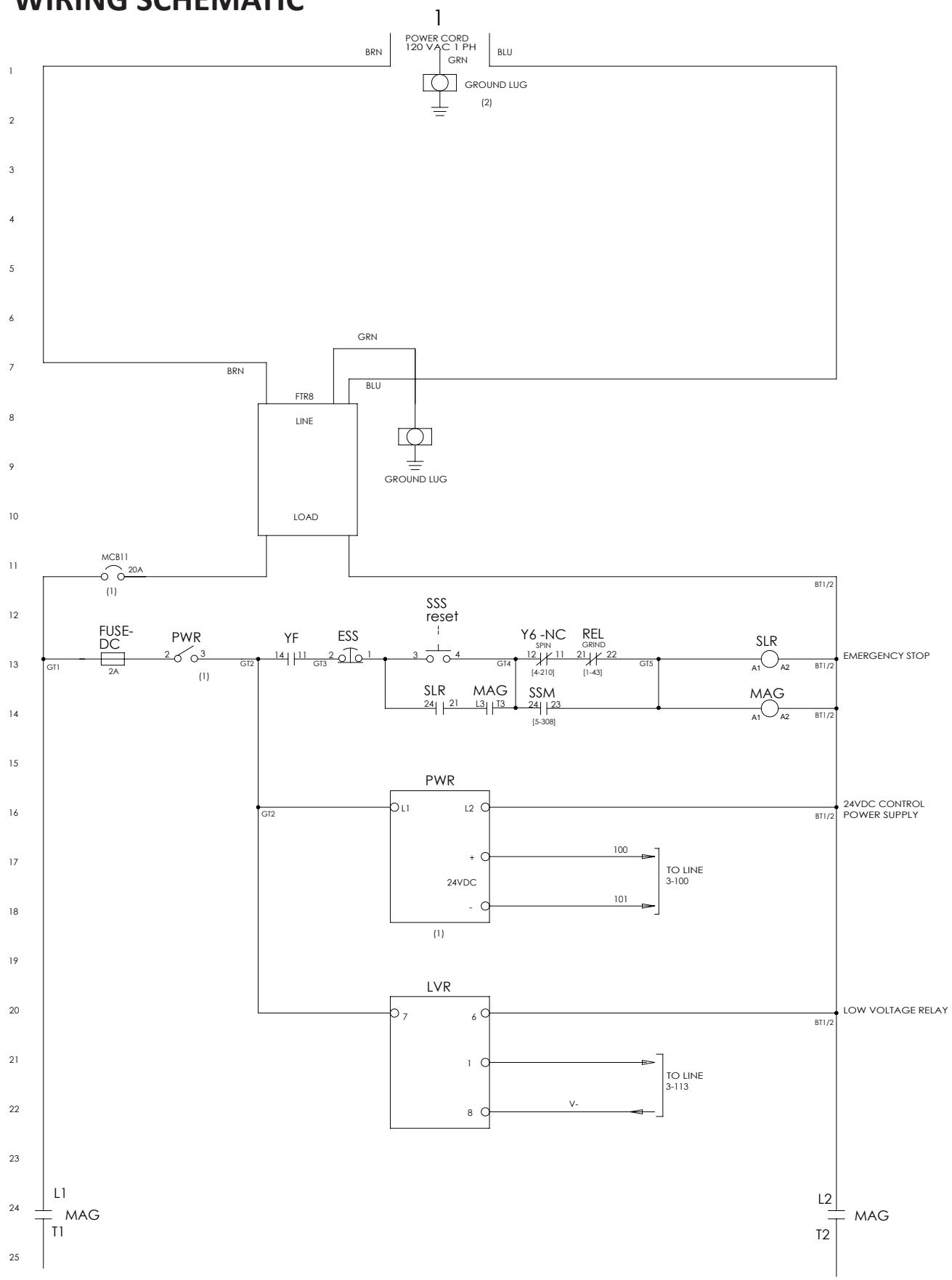
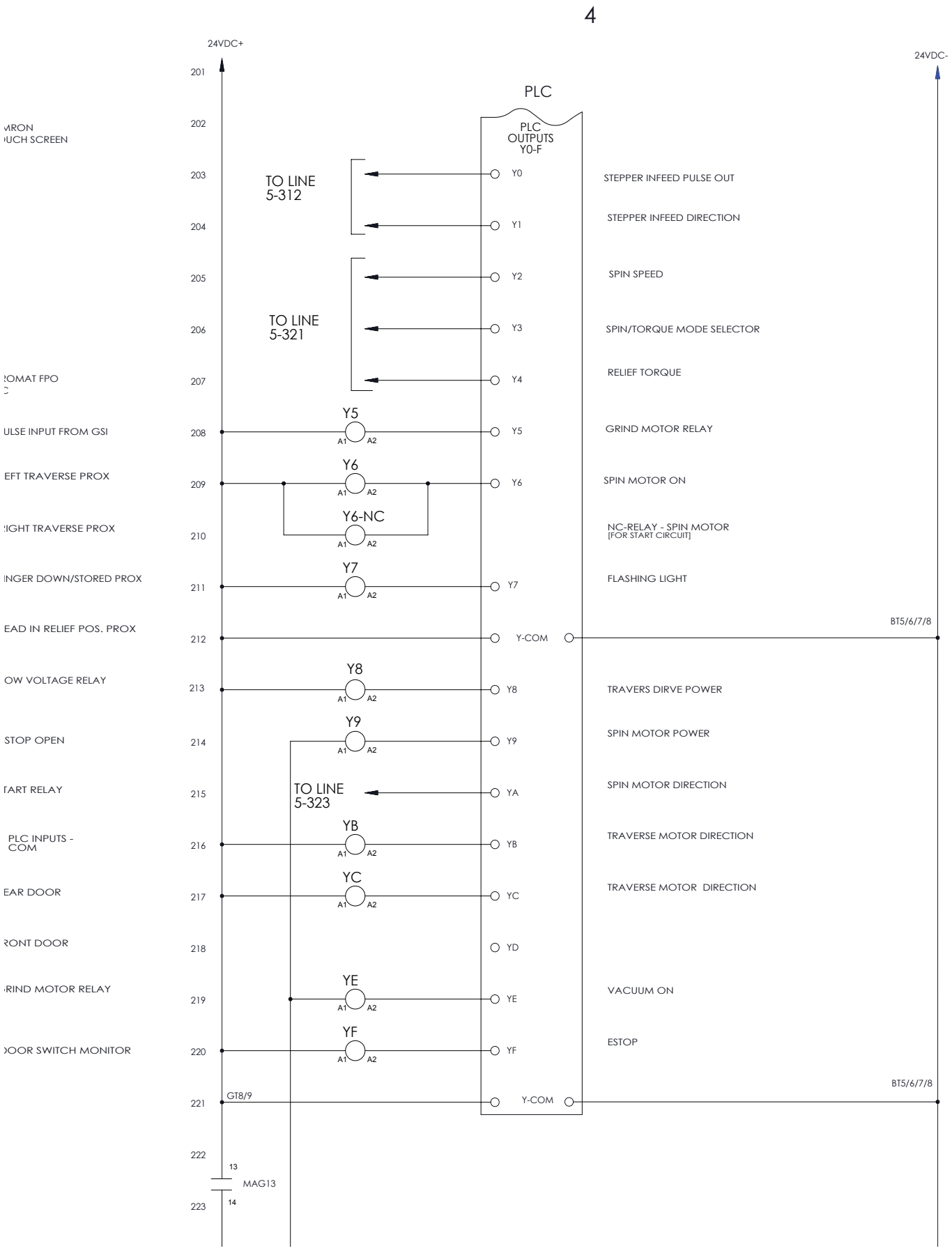
TSP- TRAVERSE SPEED POT
TTX - TIER TERMINAL BLOCK
VCB- VACUUM/WINCH CIRCUIT BREAKER
YXX - OUTPUT RELAYS

WIRING SCHEMATIC



WIRING SCHEMATIC



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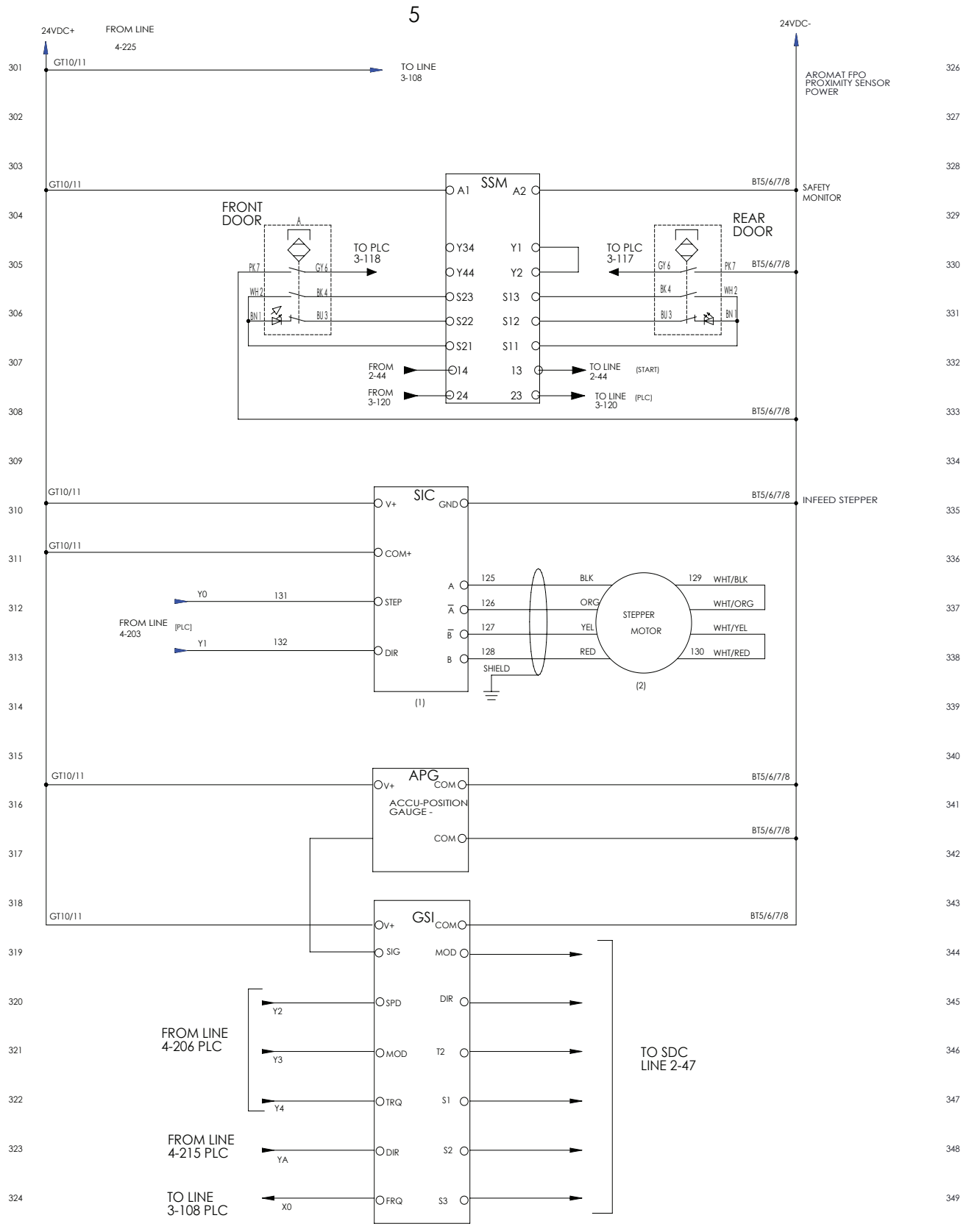

WIRING SCHEMATIC

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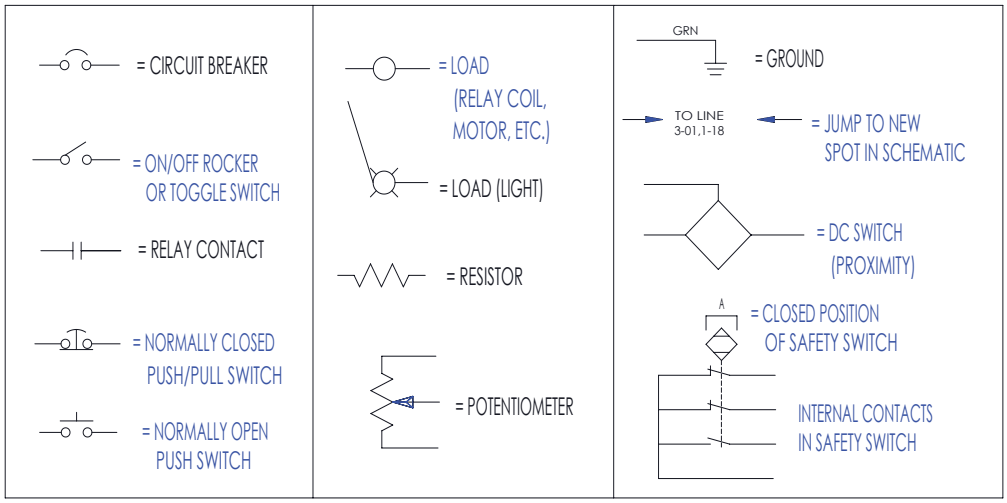
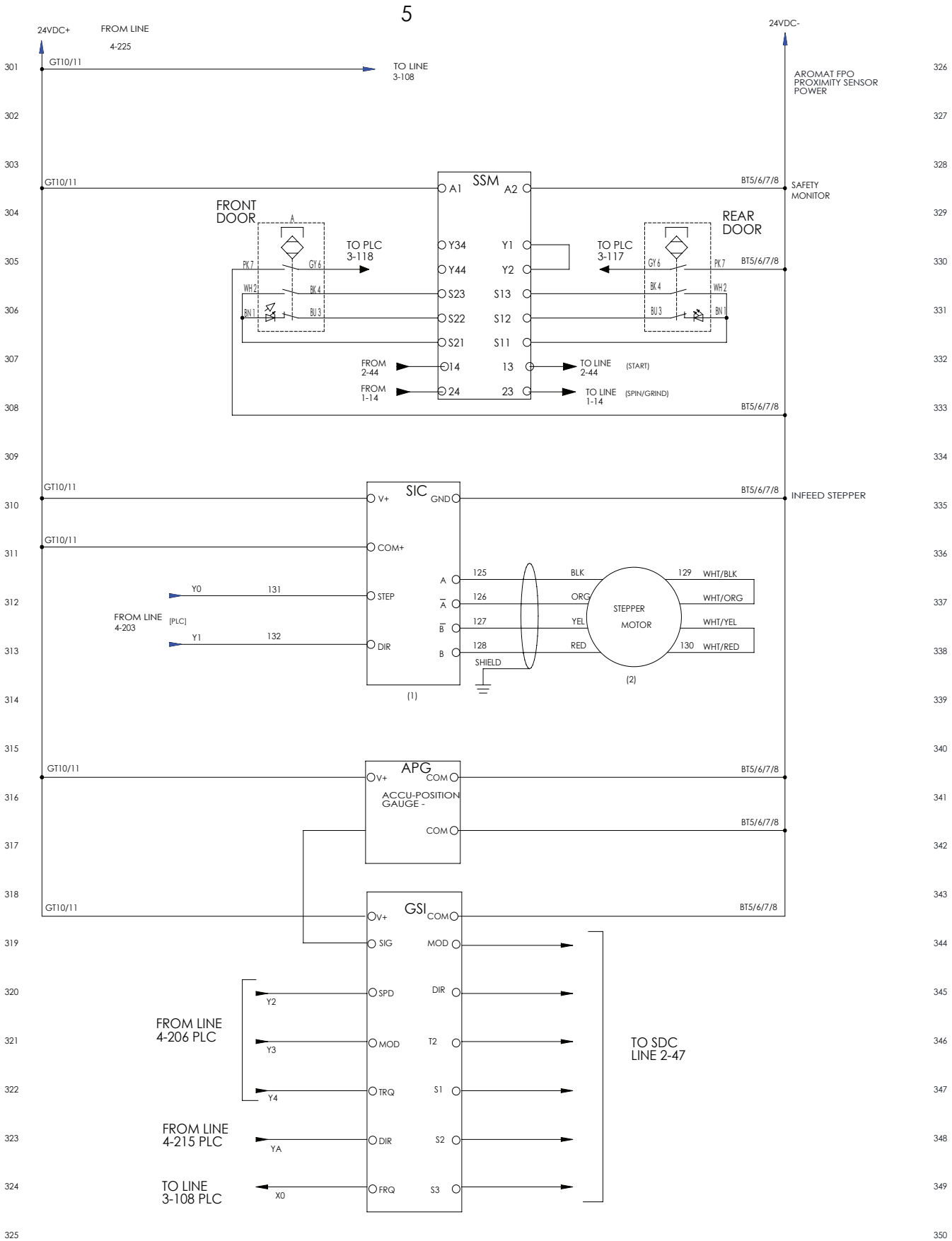


WIRING SCHEMATIC



WIRING SCHEMATIC

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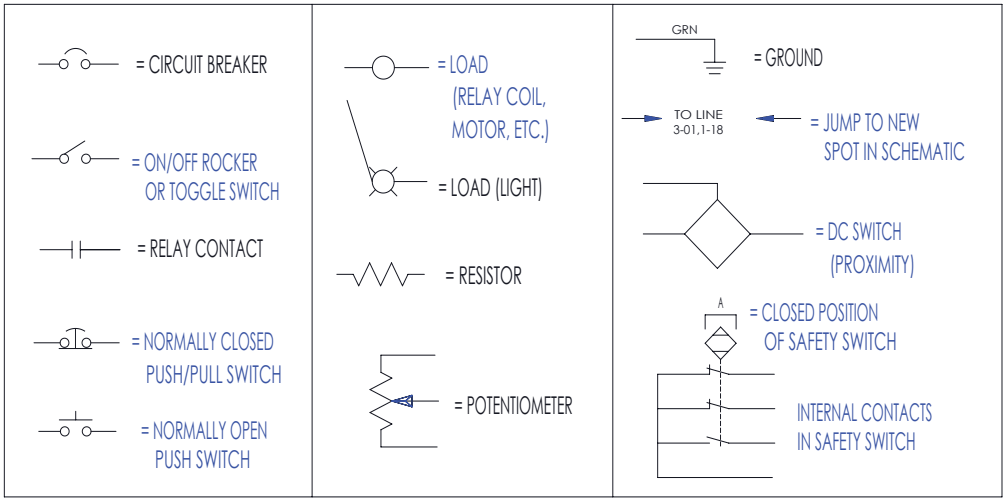


PLC INPUT AND OUTPUT LIGHTS

PLC INPUT LIGHTS

X0 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

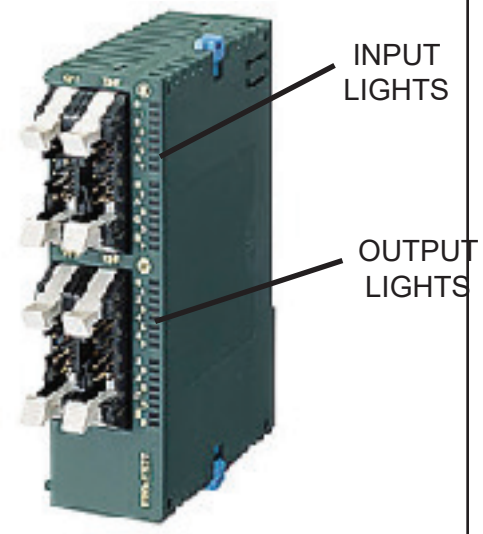
X8 DOOR SAFETY SWITCH - REAR
LIT WHEN DOORS CLOSED

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



PLC OUTPUT LIGHTS

Y0 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