



661AT
BEDKNIFE
GRINDER

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.



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 Operators 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 operators 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.

Following these simple, basic safety rules, as well as others:

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

Safety Message.....	2
Safety Instructions.....	3 -6
Service Data and Adjustments	7 -17
Trouble Shooting	18 -31
Parts Diagram	32 - 49
Wiring Diagram	50 - 51

Read the operators 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 Operators manual. Please observe all safety information in this manual, the operators manual, and the safety decals on the equipment.

This machine is designed for sharpening bedknife blades 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 OPERATORS MANUAL. THIS MANUAL SHOULD BE USED IN CONJUNCTION WITH THE OPERATOR'S MANUAL FOR PERFORMING SERVICE ON THIS EQUIPMENT.



SAFETY INSTRUCTIONS



WARNING

TO VOID 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. Non-slip footwear is recommended. Wear protective hair covering to contain long hair.
10. **ALWAYS USE SAFETY GLASSES.**
11. **SECURE YOUR WORK.** Make certain that the bedknife is securely fastened 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.**
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. **KNOW YOUR EQUIPMENT.** Read this manual carefully. Learn its application and limitations as well as specific potential hazards.
19. **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.
20. **DO NOT OPERATE THE GRINDER WHEN UNDER THE INFLUENCE OF DRUGS, ALCOHOL, OR MEDICATION**

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.
10. **DO TURN OFF COOLANT** before stopping to avoid creating an out-of-balance condition.

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.

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 OSHA.

WARNING

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.

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 555 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 7 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. Thoroughly clean and lubricate the traverse shafts and bearings every 1-3 weeks of use. *See Lubrication section of this manual for additional information.*

2. Every 1- 3 weeks of use, clean and spray the machined areas of the rotational tooling bar with CRC 3-36 or equivalent and wipe dry. Move the right side moveable magnet assembly through its full range of travel. See FIG 1.

3. Clean the interior and the top cover of the Coolant Tank as necessary and at least every 3 months. *See cleaning Polycarbonate section of this manual for additional information.*

4. Replace the four foam rail wipers (FIG. 2) every 6 months of operation.

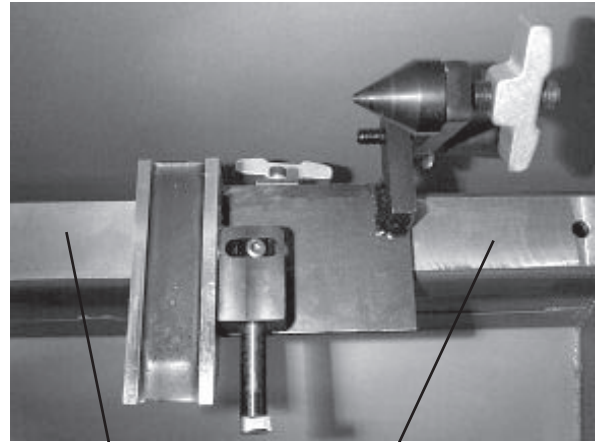
5. Clean the exterior of the diamond dresser arm and spray with CRC 3-36 or equivalent at least every 6 months.

6. Clean the exterior of the grinding head height adjuster and spray with CRC 3-36 or equivalent at least every 6 months. Move head through full range of motion to maintain function.

7. Clean the exterior of the left side tooling alignment adjuster and spray with CRC 3-36 or equivalent at least every 6 months.

8. Drain the coolant tank and remove any debris from the tank and pump area yearly or as needed. Refill the tank with clean water and add new coolant concentrate per instructions in operators manual.

9. Check the brushes on the auto traverse drive motor once every 36 months. Replace as necessary.



TOOLING BAR
MACHINED SURFACES

FIG. 1

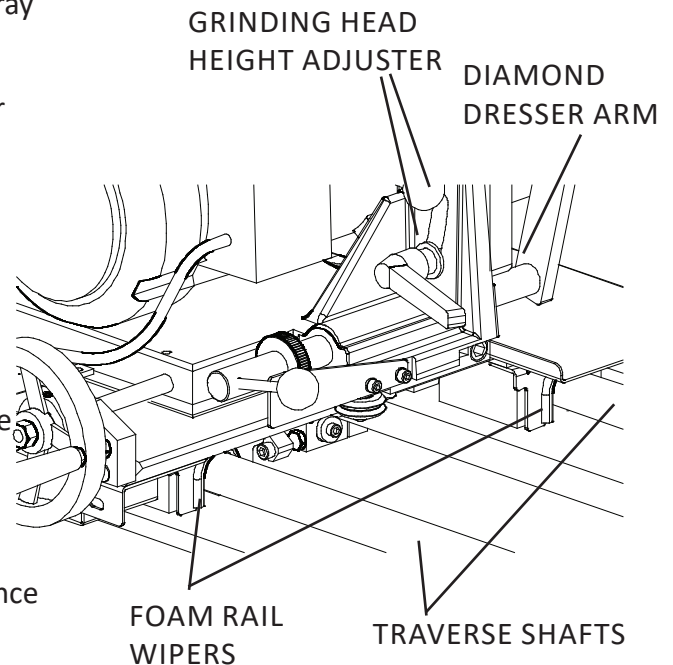


FIG. 2

LUBRICATION OF LINEAR BEARINGS

STEP 1--Thoroughly clean all both shafts. See FIG 3.

STEP 2--Flood spray the shafts with a CRC 3-36 or equivalent (do not use a Teflon based lubricant) until the lubricant is dripping off the shafts. Then run the carriage back and forth through its range of travel. This will carry the lubricant into the bearings and remove contaminants from the bearing.

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

-REPEAT STEPS 2-3 UNTIL ALL CONTAMINANTS HAVE BEEN FLUSHED FROM THE BEARINGS AND THE SHAFTS FEEL DRY TO THE TOUCH.

This completes the lubrication process.

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

TRAVERSE SHAFTS

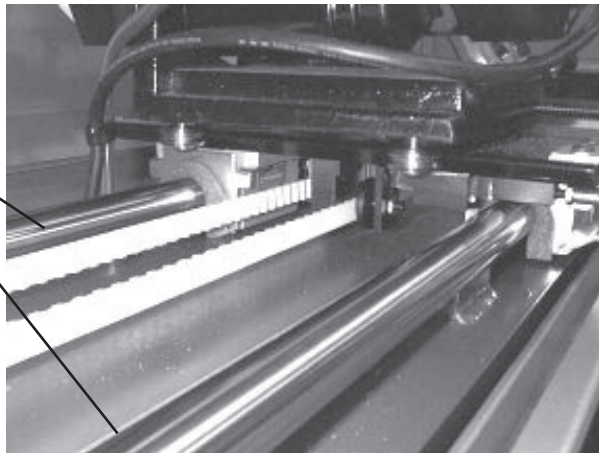


FIG. 3

STORAGE OF MACHINE:

If the unit will be shut down for an extended period of time, more than two weeks, then 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.

-Lubricate the following parts by flooding the area with a spray lubricant and leaving it in place: (Do not use a Teflon based lubricant)

- Traverse shafts, linear bearings.
- Diamond dresser assembly
- Infeed shaft and handwheel assembly
- Right and left side magnet assemblies
- Left side tooling bar adjuster
- 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.

BEARING TENSION ADJUSTMENT

- ORIGINAL INSTRUCTIONS -

ADJUSTING BEARING TENSION USING THE BEARING TESTER FORK

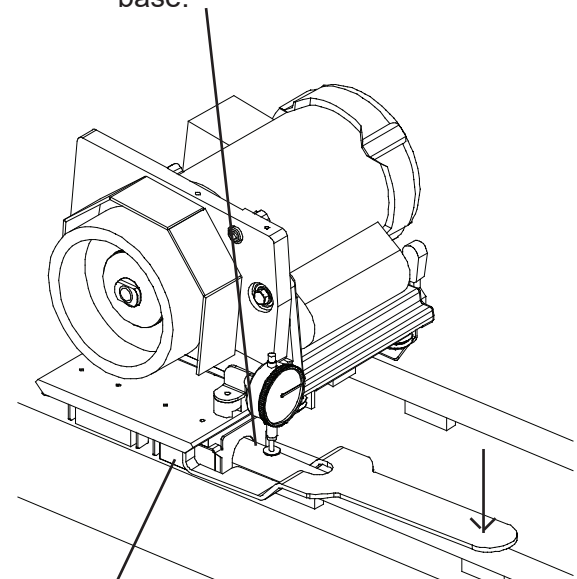
For optimal performance it is recommended that you check and adjust your linear bearings yearly. To test the bearing tension you will need the Bearing Tester Fork (3706055) and a dial indicator. If you do not have a dial indicator you may purchase a Dial Indicator kit 3706060 designed to be used with the Bearing Tester Fork. If the bearings need to be replaced follow the procedures on the next page.

TESTING PROCEDURE:

1. Position Dial Indicator assembly on the machine grinding head assembly next to the bearing to be tested. (Remove the bellows if the machine has them installed) 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 measure to the traverse shaft with a wide flat tip.
2. Insert Bearing Testing Fork 3706055 until the fork contacts the wiper bracket or the bearing.
3. With the tip of the Dial Indicator on the traverse shaft zero out the Dial Indicator.
4. Use your hand and press on the end of the Bearing Tester Fork until it contacts the traverse rail. See Fig 4. 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 steps 1-4 for the other two bearings.

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



Press down on Bearing Tester Fork and Read Dial.

FIG. 4

If dial reads more than .003" of movement, adjust bearing tension. Using the bearing tension screw. See Fig 2.

BEARING REPLACEMENT

- ORIGINAL INSTRUCTIONS -

CARRIAGE LINEAR BEARING REPLACEMENT

STEP 1--Remove the four wiper holders. Replace the wipers on these buckets with the new ones.

STEP 2--Remove the four screws of one linear bearing and slide the linear bearing off the left 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. 5.

STEP 4--Adjust the tension screw while radially rotating the linear bearing around the carriage shaft until the bearing begins to feel snug to the shaft. This should remove any free play between the linear bearing and the carriage shaft.

NOTE: If you feel a cogging action when you rotate the linear bearing around the shaft the tension is too tight. This cogging is from the skidding of the bearing on the shaft. Sliding the bearing block back and forth should be a smooth uniform motion.

STEP 5--Slide linear bearing under carriage and attach with the four screws.

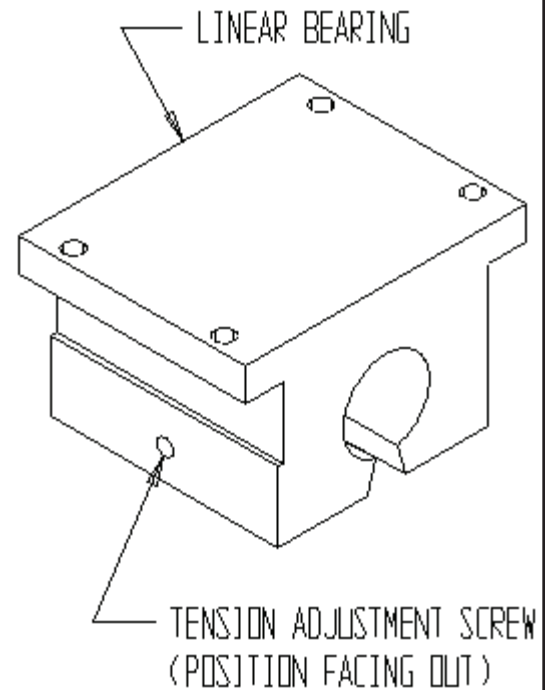


FIG. 5



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 6--After all three linear bearings are secured to the carriage use the bearing tester fork to check for proper bearing tension. When properly adjusted, pulling the carriage along the rails should require approximately three lbs forced with the belt clamp disengaged. Verify that the carriage assembly moves with uniform resistance through its full range of travel.

STEP 7--Reinstall the wiper bracket holders. Slide the carriage back and forth to verify the wiper brackets do not bind on the shaft.

CLEANING AND MAINTENANCE GUIDELINES FOR POLYCARBONATE WINDOWS

CLEANING INSTRUCTIONS

DO NOT USE GASOLINE

Adherence to regular and proper cleaning procedures is recommended to preserve appearance and performance.

Washing to Minimize Scratching

Wash polycarbonate windows with a mild dish washing liquid detergent and lukewarm water, using a clean soft sponge or a soft cloth. Rinse well with clean water. Dry thoroughly with a moist cellulose sponge to prevent water spots. Do not scrub or use brushes on these windows. Also, do not use butyl cellosolve in direct sunlight.

Fresh paint splashes and grease can be removed easily before drying by rubbing lightly with a good grade of VM&P naphtha or isopropyl alcohol. Afterward, a warm final wash should be made, using a mild dish washing liquid detergent solution and ending with a thorough rinsing with clean water.

Minimizing Hairline Scratches

Scratches and minor abrasions can be minimized by using a mild automobile polish. Three such products that tend to polish and fill scratches are Johnson paste Wax, Novus Plastic Polish #1 and #2, and Mirror Glaze plastic polish (M.G. M10). It is suggested that a test be made on a corner of the polycarbonate window with the product selected following the polish manufacturer's instructions.

Some Important "DON'TS"

- ◆ **DO NOT** use abrasive or highly alkaline cleaners on the polycarbonate windows.
- ◆ **Never** scrape polycarbonate windows with squeegees, razor blades or other sharp instruments.
- ◆ Benzene, gasoline, acetone or carbon tetrachloride should **NEVER** be used on polycarbonate windows.
- ◆ **DO NOT** clean polycarbonate windows in hot sun or at elevated temperatures.

Graffiti Removal

- Butyl cellosolve, (for removal of paints, marking pen inks, lipstick, etc.)
- The use of masking tape, adhesive tape or lint removal tools works well for lifting off old weathered paints.
- To remove labels, stickers, etc., the use of kerosene, VM&P naphtha or petroleum spirits is generally effective. When the solvent will not penetrate sticker material, apply heat (hair dryer) to soften the adhesive and promote removal.

GASOLINE SHOULD NOT BE USED!

ADJUSTMENTS

TO ELIMINATE INFEED HANDWHEEL BACKLASH

If there is backlash in the Grinder Head Infeed handwheel (FIG. 6), there are two adjustment points on each to check:

1. Washers behind the handwheel:

A. Remove the setscrew holding the calibration ring to the handwheel. Go through the set screw hole and loosen the setscrew holding the handwheel to the shaft (about one-half turn).

B. Tighten the hex lock nut which secures the handwheel to 100 in. lbs. [1.15 kg-m], then back off 1/2 turn.

C. Check for .015 in. [.04mm] gap between the wave washer and the flat washer. See FIG. 7. Readjust the hex lock nut if necessary.

D. Tighten the setscrew holding the handwheel to the shaft. Install and tighten the calibration ring setscrew.

2. Check the nylon ball tension on the adjustment shaft threads at the grinding head slide. See FIG.6. When you turn the handwheel there should be no free play in the handwheel before the grinding head slide moves. If there is free play, tighten the setscrew that pushes the nylon ball against the acme thread of the adjustment shaft. The nylon ball preloads the free play out of the threaded joint between the adjustment shaft and the tooling bar slide block. Apply tension only enough to zero the free play. DO NOT over tension as the adjuster will be difficult to turn.

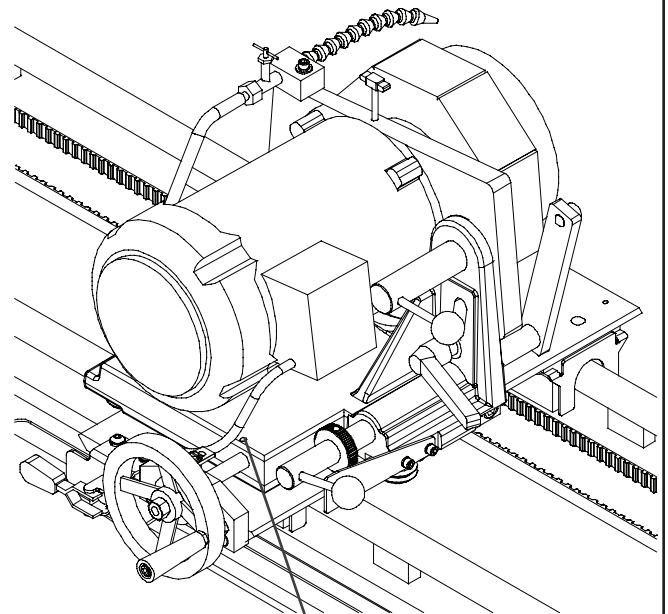


FIG. 6

SETSCREW WITH NYLON BALL

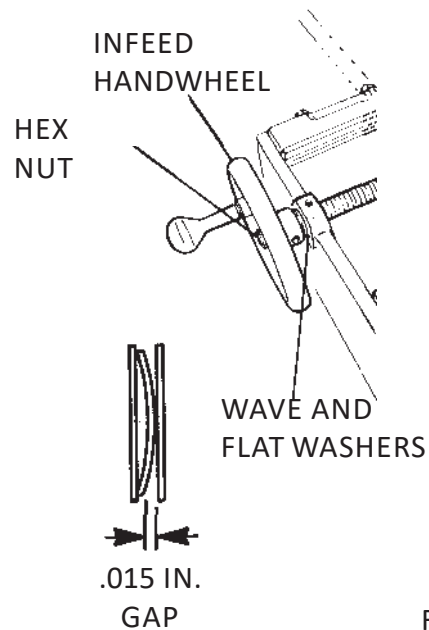


FIG. 7

ADJUSTMENTS (Continued)

TO ELIMINATE ALIGNMENT ADJUSTMENT BACKLASH

If there is backlash in the alignment adjustment handwheels (FIG. 8), there are two adjustment points to check:

1. Check the nylon ball tension:

On the tooling bar adjustment block there is a nylon ball / setscrew combination used to set the tension on the shaft slide block. See FIG. 8. When you turn the handwheel there should not be any free play in the handwheel before the tooling bar block slide moves. If there is free play, tighten the set screw that pushes the nylon ball against the acme thread on the adjustment shaft. The nylon ball adjusts the freeplay between the adjustment shaft and the tooling bar slide block. Apply tension only enough to zero the freeplay. **DO NOT over tension as the adjuster will be difficult to turn.**

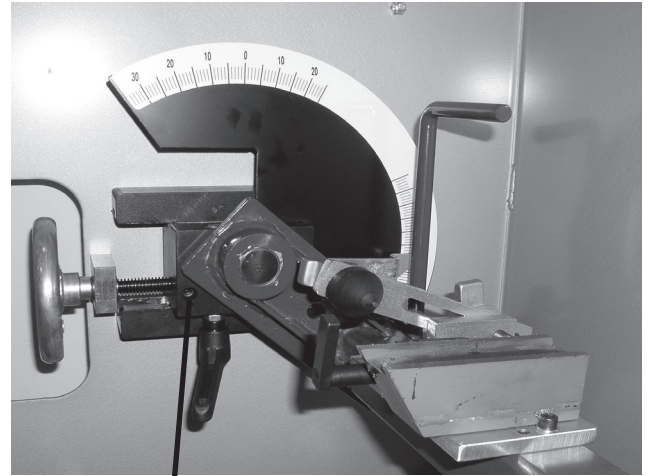
2. Washers behind the handwheel:

A. Loosen (about half a turn) the setscrew holding the handwheel to the shaft.

B. Tighten the hex lock nut which secures the handwheel to 100 in. lbs. [1.15 kg-m], then back off 1/2 turn.

C. Check for .015 in. [.04mm] gap between the wave washer and the flat washer. See FIG. 9. Readjust the hex lock nut if necessary.

D. Tighten the setscrew holding the handwheel to the shaft.



SETScrew AND NYLON BALL

FIG. 8



.015 IN. GAP

FIG. 9

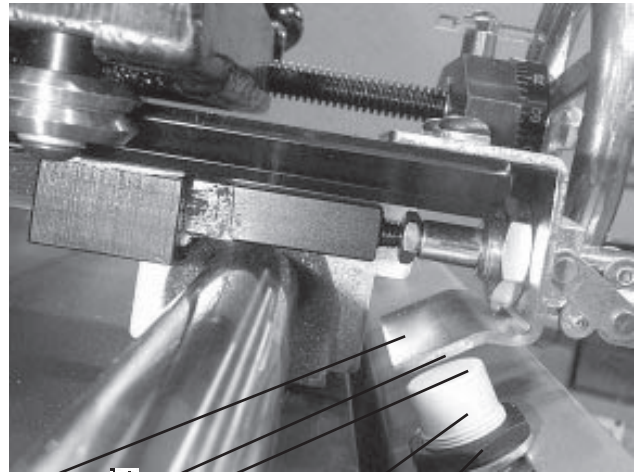
ADJUSTMENT (Continued)

- ORIGINAL INSTRUCTIONS -

TO ADJUST THE PROXIMITY SWITCHES

For the proximity switches to work properly and reverse the direction of the carriage at each end of a traverse, a distance of $3/16$ in. $\pm 1/32$ [4.75 mm ± 0.75] must be maintained between the top of the switch and the sensor bracket on the bottom of the carriage. See FIG. 10.

To adjust the clearance, loosen one of the switch mounting nuts while tightening the other.



PROXIMITY
SENSOR
BRACKET

3/16

PROX

PROXIMITY
NUT

FIG. 10

ADJUSTING THE PRELOAD TENSION ON THE SMALL GRINDING HEAD SLIDE VEE ROLLERS

The small grinding head slide vee rollers are positioned two fixed on the left and one adjustable on the right side. To set the correct preload on the right side adjuster, tighten the setscrew in FIG. 11 until the spring is fully compressed solid, then back off $1/2$ turn.

SETSCREW AND
NYLON BALL

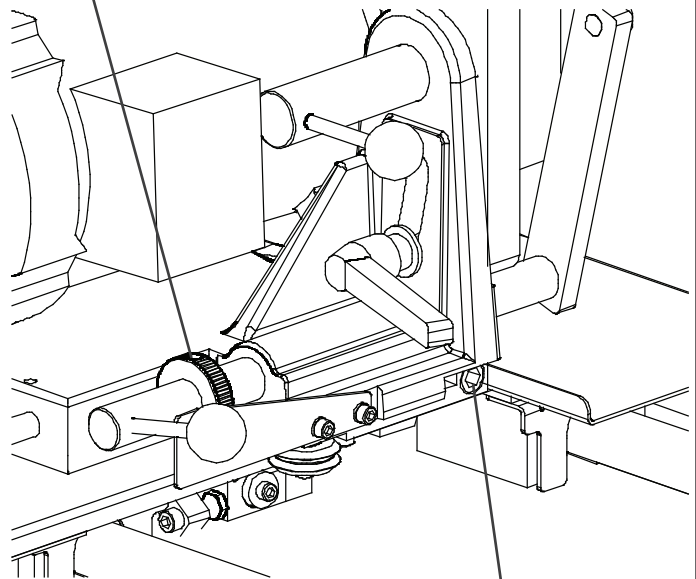


FIG. 11

TENSION ADJUST
SETSCREW

TO ELIMINATE MOVEMENT IN THE DIAMOND DRESSER ADJUSTMENT COLLAR

The adjustment collar on the diamond dresser (See Fig. 11) has a nylon ball and setscrew to put a holding drag on the diamond dresser shaft. If the adjustment collar is moving when not wanted or moving too freely, tighten the setscrew (this will put more load on the nylon ball). If the adjustment collar is difficult to turn, loosen the setscrew decreasing the load on the nylon ball.

ADJUSTMENT (Continued)

- ORIGINAL INSTRUCTIONS -

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 nuts until the compression springs measure $3/4"$. See FIG. 12. If the springs are not tensioned equally, uneven loading on the traverse system may cause parts to fail.

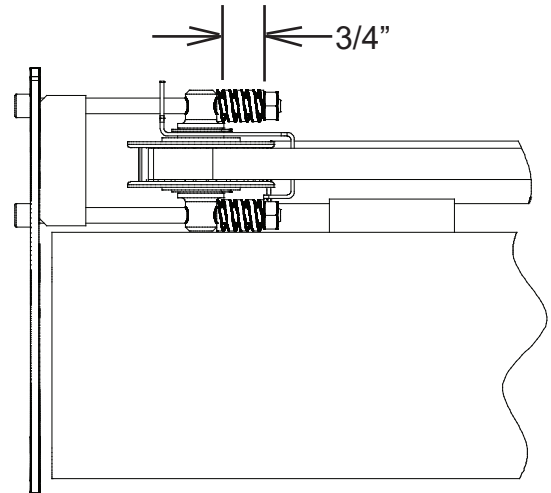


FIG. 12



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

TRAVERSE CLAMP FORCE

If the traverse clamp is slipping during regular operation it may be necessary to tighten the clamp. To tighten, loosen the jam nut and screw the tip out. Move the traverse belt out of the way and verify the clamped distance from the tip to the clamping block (shoe). See FIG. 13. Lock in place by tightening the jam nut against the clamp, being careful not to move the tip.

Do not set the adjustment at less than $.10"$. The $.10"$ setting allows slippage in a jam situation and damage can occur if this adjustment is set too narrow.

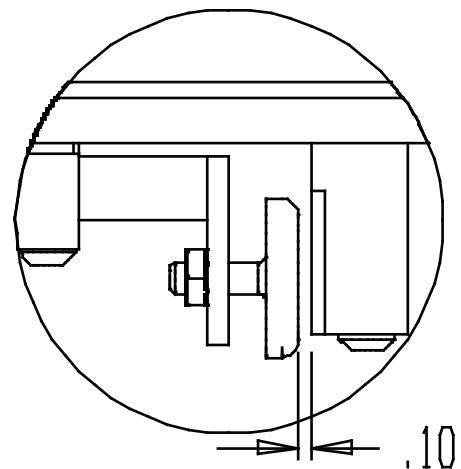


FIG. 13



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

ADJUSTMENTS (Continued)

POTENTIOMETER ADJUSTMENTS TRAVERSE DRIVE CONTROL (TDC)

Min. Speed--Factory set at full (CCW) 8:30. Do not change this setting.

(Right Traverse) Forward Torque--Factory set at full (CW) 4:30. Do not change this setting.

(Left Traverse) Reverse Torque--Factory set at full (CW) 4:30. Do not change this setting.

IR COMP--Factory set to 9:00. IR COMP is current (I) resistance (R) compensation (COMP). IR COMP adjusts the output voltage of the drive which balances load to motor RPM. Regulation of a 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 disappear.

Max. Speed--Set at 3:30 for maximum voltage of 90 Volts DC to the traverse motor. When voltage is above 90 volts DC, the traverse motor will start to pulsate and not run smoothly.

(Right Traverse) Forward Acceleration--Factory set at full (CCW) 8:30. Do not change this setting.

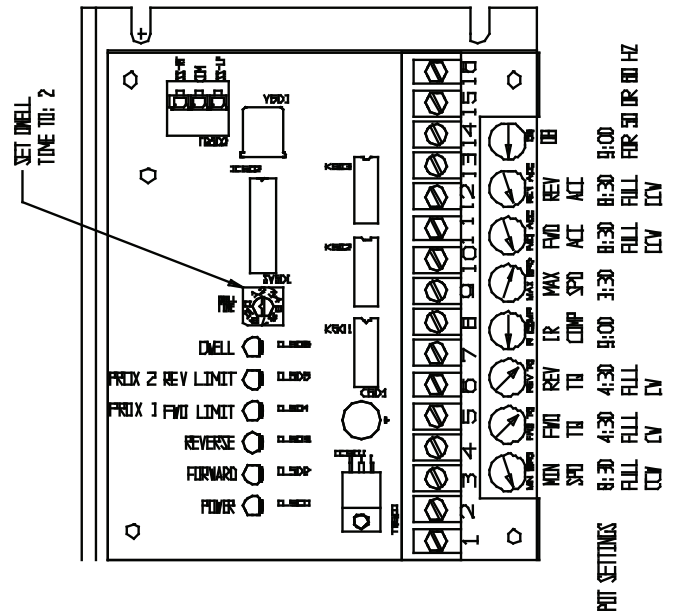
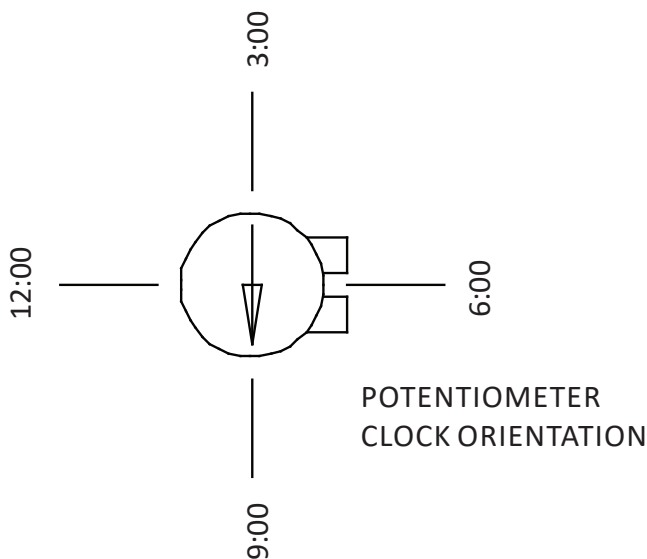
(Left Traverse) Reverse Acceleration--Factory set at full (CCW) 8:30. Do not change this setting.

(DB) Dead Band is the potentiometer setting for the 50 or 60 Hz cycle control. Factory set to 9:00, works for both 50 and 60 Hz. Do not change this setting.

Calibrating the **DWELL TIME** rotary DIP switch adjusts the amount of time the process remains in the stop position after a limit switch is actuated. The **DWELL TIME** range is adjustable from 0 - 4 seconds. A DIP switch setting of 0 sets the **DWELL TIME** to 0 seconds, while a setting of 8 sets the **DWELL TIME** to 4 seconds. Dwell time is preset to #2 setting for a 1 second dwell time when reversing at each end of stroke.

Diagnostic LED's indicate the function that is currently being performed:

- * **POWER** indicates that ac power is being applied to the control.
- * **FORWARD** indicates that the process is running in the forward direction (traversing left).
- * **REVERSE** indicates that the process is running in the reverse direction (traversing right).
- * **PROX 1 FWD LIMIT** lights when the forward limit switch is actuated (left prox).
- * **PROX 2 REV LIMIT** lights when the reverse limit switch is actuated (right prox).
- * **DWELL** lights when the process remains stopped after a proximity switch is actuated.



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 661AT electrical system. For those without that background, service can be arranged through your local dealer.

This section 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 open the control panel or attempt any internal troubleshooting, adjustments, or parts replacement.

If you have any question not answered in this manual, please call your local dealer.

WIRE LABELS

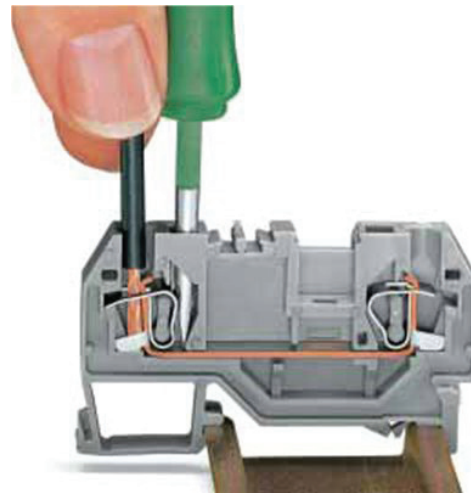
All wires on the 661AT have a wire label at each end for troubleshooting. The wire label has a code which tells you wiring information. The wire label has a seven position code. The first two or three digits are the wire number: 01-199. The next three numbers or letters are the code for the component to which the wire attaches.

Example: TDC for Traverse Drive Control. The last two numbers or letters are the number 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.

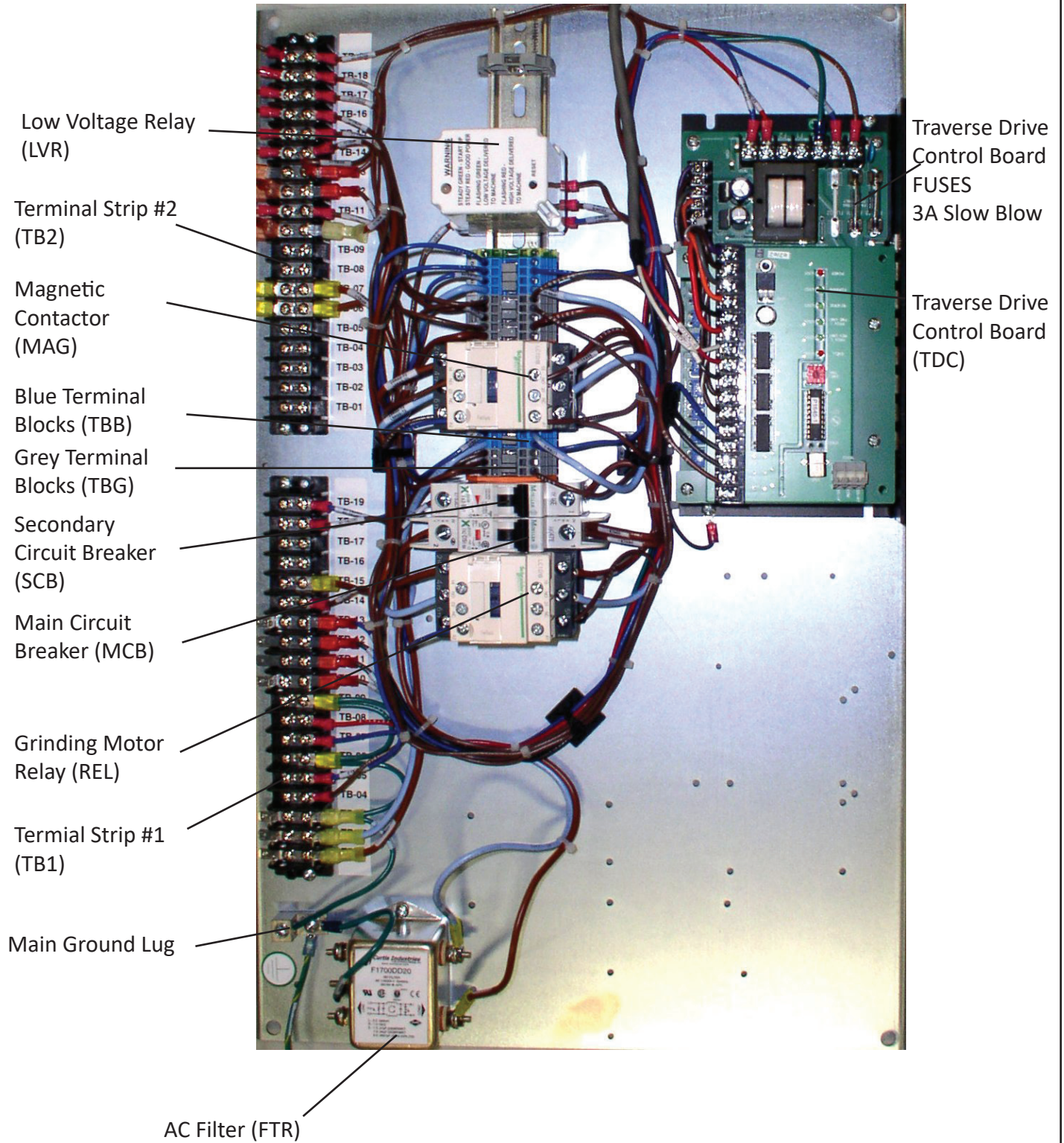
Note the square hole can also be used when checking for voltages. The probe tip of the multimeter can be inserted into the square hole to take readings.



TROUBLESHOOTING INDEX

AC Main Power Controls.....	Page 20-21
Grinding Motor Controls	Page 22-24
Traverse Drive Controls-w/prox.....	Page 25-29
Mechanical Troubleshooting	Page 30-31

CONTROL PANEL located on the right side of the machine.



ELECTRICAL TROUBLESHOOTING

- ORIGINAL INSTRUCTIONS -

PROBLEM--AC Main Power Controls: no electrical power to control panel.

Verify all wires shown on the wiring diagram on pages 68-69 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 problem persists, test as listed below.

Possible Cause	Checkout Procedure	
Emergency Stop Button(ESS) is Depressed	A. Pull Up on ESS Button	Machine works Yes--end troubleshooting No--go to Step B. next
You must push the System Start Switch (SSS) to get power to control Panel	B. Listen for the Magnetic Starter (MAG) contacts to pull in with a click	Machine works Yes--end troubleshooting No--go to step C. next.
Main Power Cord is not plugged in	C. Plug in main power cord	Machine works Yes--end troubleshooting No--go to step D. next.
Guard doors must be closed and ALL Switches MUST be turned OFF for contactor to pull in.	D. Close guard doors and turn off all switches.	Machine works Yes--end troubleshooting No--go to step E. next.
Main 15 amp outlet circuit breaker has tripped	E. Check circuit breaker in your building and reset if necessary. (Check wall outlet with a light to make sure it works)	Machine works Yes--end troubleshooting No--but light works in outlet--go to Step F. next. No--but light does not work in outlet. You must solve your power delivery problem independent of machine.
No 120 Volts AC power to Filter (FTR)	F. Check for 120V at Cord into FTR (Power Cord #32)	FTR "Line" Terminals for 120 Volts AC Yes--Go to Step G. next. No--Replace Power Cord- 6059054
No 120 Volts AC power out of Filter	G. Check for 120V out of FTR	FTR "Load" Terminals for 120 Volts AC Yes--Go to Step H. next. No--Replace Filter
No 120 Volts AC power to Main Circuit Breaker (MCB)	H. Check for 120V to MCB	MCB Bottom Terminal to Terminal Block 4 (Blue) for 120 Volts AC Yes--Go to Step I. next. No--Check wires & replace if needed.
No 120 Volts AC power from Main Circuit Breaker (MCB)	I. Check for 120V to MCB	MCB Top Terminal to Terminal Block 4 (Blue) for 120 Volts AC Yes--Go to Step J. next. No--Flip Switch on MCB to "ON" - Machine works-- end troubleshooting Machine does not work-- replace MCB

ELECTRICAL TROUBLESHOOTING (Continued)

- ORIGINAL INSTRUCTIONS -

Possible Causes

Checkout Procedure

<p>No 120 Volts AC power to Secondary Circuit Breaker (SCB) 6 Amp.</p>	<p>J. Check for 120V to SCB</p>	<p>SCB (03SCB--) to neutral (blue) terminal out of FTR for 120VAC Yes--Go to Step K. next. No--Check wires & replace if needed.</p>
<p>No 120 Volts AC power from Secondary Circuit Breaker (SCB) 6 Amp.</p>	<p>K. Check for 120V from SCB</p>	<p>SCB (67SCB--) to neutral (blue) terminal out of FTR for 120 VAC Yes-- Go to Step L. next. No--Flip Switch on SCB to "ON"-Machine works--end of troubleshooting. Machine does not work--replace SCB</p>
<p>120 Volts AC power not delivered to Terminal Strip</p>	<p>L. Check for 120 Volts AC at terminal strip.</p>	<p>Terminal "11" on Terminal Strip 2 "07TB2-11" to Terminal Block 4 (Blue) for 120 Volts AC Yes--Go to Step M. next. No--Check wires #7 & #3, Check Jumper on Terminal Blocks 1-3.</p>
<p>Grinding Motor Switch (GMS) not working</p>	<p>M. Check for 120 Volts AC at GMS Terminals 1</p>	<p>Measure 120 volts AC from GMS Terminal 1 to Term Block 4(Blue) Yes--Go to Step N. next. No--Flip Switch and check again-Works--Switch is upside down. Does not work-- Check wiring/Verify Continuity/ Replace Switch</p>
<p>Bad Emergency Stop Switch (ESS)</p>	<p>N. Check voltage after the (ESS) MAKE SURE SWITCH IS PULLED UP!</p>	<p>Measure 120 Volts AC from (ESS) term 2 to Term Block 4(Blue) Yes--Go to Step O. next No--Check wire for continuity, then verify switch continuity. If bad replace ESS contactor (NC)</p>
<p>Bad System Start Switch (SSS)</p>	<p>O. Hold in SSS and Check voltage after the (SSS)</p>	<p>Measure 120 Volts AC from (SSS) term 3 to Term Block 4(Blue) Yes--Go to Step P. next No--Check wire for continuity, then verify switch continuity. If bad replace SSS contactor (NO)</p>
<p>Low Voltage Relay (REL) not operating</p>	<p>P. Hold in SSS and Check voltage at LVR. LVR must be installed in 8-pin socket.</p>	<p>Measure 120 Volts AC from LVR term 8 to Term Block 4(Blue) Yes--Go to Step Q. next No--Check for 120 Volts AC from LVR term 6 to term 7. Yes--Verify Continuity of term 1 to term 8 on LVR. Replace LVR if bad. No--Verify Continuity of Wires.</p>
<p>Bad Main Contactor (MAG)</p>	<p>Q. Hold in SSS and Check voltage at MAG A1 & A2.</p>	<p>Measure 120 Volts AC from MAG Term A1 to Term A2 Yes--MAG Should pull in with clunk, if not replace MAG. No--Verify Continuity of Wires.</p>

ELECTRICAL TROUBLESHOOTING (Continued)

- ORIGINAL INSTRUCTIONS -

PROBLEM--Machine Shuts off when you turn on Grind motor switch.

Possible Cause

Checkout Procedure

Guard Door is open.

A. Close the guard doors.

Machine works
Yes--end troubleshooting
No--go to Step **B.** next

Low Voltage Relay is tripping.

B. Power delivered to the grinder is inadequate. Verify that adequate power is delivered to the grinder. See page 27 of the manual. Fix the problem with building power.

Machine works
Yes--end troubleshooting
No--go to Step **C.** next

Door Safety Switch is not aligned

C. Check Alignment of Door Safety Switch on guard door.

Check alignment of door switch.
Yes--end troubleshooting
No--Go to Step **D.** next.

Door Safety Switch is not working properly.

D. Verify Door Switch is Working properly.

Disconnect door safety switch cord at terminal 14 and 15 on Terminal Strip 1. Verify Continuity of switch with door closed.
Yes--Reconnect Terminals and verify continuity of wires.
No--Verify continuity of cord and replace cord or switch.

PROBLEM--(MAG) turns on only with System Start Switch held in.

Possible Cause

Checkout Procedure

No Power to MAG holding Contact

A. Check voltage to MAG holding contact in.

Measure 120 Volts AC at MAG term T3 to Term Block 4(Blue) with E-Stop Pulled out. (do NOT press start button while checking.)
Yes--Go to Step **D.** next.
No--Verify continuity of wiring to MAG T3.

MAG holding contact has failed

B. Verify the magnetic starter (MAG) holding contact is working.

Disconnect Wire to MAG L3 and Measure 120 Volts AC from MAG term L3 to Term Block 4(Blue) Press and hold Green Start button to hold in MAG contacts while checking.
Yes--Verify continuity of wiring from MAG L3
No--Replace MAG.

ELECTRICAL TROUBLESHOOTING (Continued)

- ORIGINAL INSTRUCTIONS -

PROBLEM-- Grinding motor not working.

Assuming (SSS) System Start Switch is on with 120 volts AC to control panel and all other functions are working.

Verify all wires shown on the wiring diagram on pages 68-69 are correct and pull on wire terminals with approximately 3lbs 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

Grinding Motor Switch (GMS) is not on	A. Turn switch on	Grinding Motor works Yes--end troubleshooting No--go to Step B. next
Guard door is not closed	B. Close Front guard doors (and rear ramp - lift option)	Grinding Motor works Yes--end troubleshooting No--go to Step C. next
10 Amp Circuit Breaker (CB) is tripped	C. Check 10 amp CB on front of Control panel. Press in if tripped.	Grinding Motor works Yes--end troubleshooting No--go to Step D. next
Grind Motor Switch (GMS) not working	D. Check for power to GMS	GMS term 5 to Terminal Block 4 (Blue) for 120 Volts AC Yes--go to Step E. next No--With power off, check continuity of wires to GMS.
	E. Check for power from GMS	With GMS ON , check GMS Term 6 to Terminal Block 4 (Blue) for 120 Volts AC. Yes--Go to Step F. next No--replace GMS
Grinding Motor Relay not working	F. Check for power to relay Coil (Relay should click when GMS is turned on.)	Check for 120 Volts (AC) from A1 to A2 of Grinding motor Relay. Yes--If Relay does not pull in with click, replace Relay, if it does Go to Step G. next No-- check continuity of wires to Grinding motor Relay.
No Power to Relay Contacts	G. Verify Power to Relay Contacts	(REL) Term L1 to Term L2 for 120 Volts (AC) Yes--Go to Step H. next No--Check wires to REL Term L1 & L2

ELECTRICAL TROUBLESHOOTING (Continued)

- ORIGINAL INSTRUCTIONS -

Possible Cause

Checkout Procedure

Bad Contacts in Grinding motor Relay

H. Verify power out of Grinding Motor Relay.

With relay pulled in (click) check (REL) Term T1 to Term T2 for 120 Volts (AC)
Yes--Go to Step **I.** next
No--Replace Gringing Motor Relay

Bad Circuit Breaker

I. Verify Power out of Circuit Breaker.

Check for 120 Volts (AC) from terminals TB2-6 to Terminal Block 4 (Blue)
Yes--Go to Step **J.** next
No--Check circuit breaker for continuity. Verify wiring and replace if needed.

Bad Grinding Motor

J. Verify Power to Grinding motor Cord.

Verify wiring at terminals 1, 2 & 3 on Terminal Strip 1. Check TB1-1 to TB1-2 for 120 Volts (AC).
Yes-- Check terminals on motor cord. If tight replace motor.
No-- Check wires from Grinding Motor Relay and Circuit Breaker to Terminal Strip 1.

PROBLEM-- Coolant Pump not working.

Possible Cause

Coolant Pump Switch (CPS) is not on.

A. Turn switch

Coolant Pump works
Yes--end troubleshooting
No--go to Step **B.** next

Coolant flow valve closed.

B. Open coolant flow valve.

Coolant Pump works
Yes--end troubleshooting
No--go to Step **C.** next

2 Amp Circuit Breaker (CB) is tripped

C. Check 2 amp CB on front of Control panel. Press in if tripped.

Coolant Pump works
Yes--end troubleshooting
No--go to Step **D.** next

2 Amp Circuit Breaker (CB) failed

D. Check power from CB

Measure 120 volt AC from both sides of 2 amp CB to Terminal Block 4 (Blue)
Yes--go to Step **E.** next
No--With power off, check continuity of CB & wires to CB. Replace CB.

Coolant Pump Switch (CPS) not working

E. Check for power from CPS

CPS Term 5 to Terminal Block 4 (Blue) for 120 Volts AC
Yes--Go to Step **F.** next
No--replace CPS

Coolant Pump Not Working

F. Check for power from CPS

Measure 120 volt AC from TB1-4 to TB1-5.
Yes--Replace Coolant Pump.

ELECTRICAL TROUBLESHOOTING (Continued)

- ORIGINAL INSTRUCTIONS -

PROBLEM--Traverse Drive not working.


Assuming (SSS) System Start Switch is on with 120 volts AC to control panel and all other functions are working.

Verify all wires shown on the wiring diagram on pages 68-69 are correct and pull on wire terminals with approximately 3lbs 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	
Traverse Motor Switch (TMS) is not on	A. Turn on (TMS)	Traverse works Yes--end troubleshooting No--got to Step B. next
Traverse Speed Pot (TSP) set to zero	B. Set (TSP) to 35 on the control panel	Traverse works Yes--end troubleshooting No--go to Step C. next
Fuse on Traverse Drive Control (TDC) has failed	C. Check fuse and replace if failed. See Page 23. Too heavy a grind causes grinding head traverse motor to overload and blow the fuse, NOTE: Fuse can not be checked visually. Use Ohm test to check fuse. Fuse must be replaced with a slo-blo fuse.	Traverse works Yes--end troubleshooting No--go to Step D. next
Traverse Drive Control (TDC) is bad	D. Check for 120 Volts (AC) incoming to (TDC)	On (TDC) Terminal L1 to L2 for 120 Volts AC Yes--Go to Step F. No--Go to Step E. next
Bad Traverse Motor Switch (TMS)	E. Check for 120 Volts AC at (TMS). (Make certain (TMS) is on)___	Measure 120 volts AC from TMS Terminal 5 to Term Block 4(Blue) Yes--Verify wiring to TDC. No--Flip Switch and check again- Works--Switch is upside down. Does not work-- Check wiring/Verify Continuity/ Replace Switch

ELECTRICAL TROUBLESHOOTING (Continued)

- ORIGINAL INSTRUCTIONS -

Possible Cause	Checkout Procedure	
No DC Voltage from (TDC) Traverse Drive Control	F. Check for 90 Volts DC across (TDC) terminals #A1 to #A2 this voltage drives the DC traverse motor. NOTE: Traverse must be on and have (TSP) turned full CW to maximum voltage of 90 VDC	Check (TDC) terminals #A1 to #A2 for 90 Volts DC Yes--go to Step G. next No--go to Step H. next
Traverse Motor is bad	G. Check traverse motor continuity	Remove motor wires from Terminal Strip 1 terminals #7 & #8 check for 0 ohms across the black and white wires. Yes--end troubleshooting No--go to Step K. next
(TSP) is not working	H. Check (TSP) (10K) on control panel	(TDC) Pin #8 to #7 Pot Full CCW Pot Full CW 0VDC 9.75 VDC Pin #8 to 9 Pot Full CCW Pot Full CW 9.75 VDC 0 VDC Yes--replace the (TDC) No--go to Step J. next
(TSP) (10K) is bad	J. Check (TSP) for 10,000 ohms. Remove three wires from (TDC) red from term #8 white from term #7 black from term #9	Check for 10,000 ohms red to white wires Full CCW--0 ohms Full CW--10,000 ohms Red to black wires Full CCW--10,000 ohms Full CW--0 ohms Yes--replace the (TDC) No--replace (TSP)
Worn motor brushes	K. Inspect Motor Brushes  DISCONNECT POWER FROM MACHINE	Remove the brushes one at a time and maintain orientation for reinsertion. See if brush is worn short, 3/8" (10 mm) minimum length. Yes--replace motor brushes No--replace Traverse Motor NOTE: TRAVERSE MOTOR BRUSHES HAVE SHOWN A VERY LONG LIFE. THEREFORE IT IS IMPROBABLE THAT MOTOR BRUSHES ARE BAD.

ELECTRICAL TROUBLESHOOTING (Continued)

- ORIGINAL INSTRUCTIONS -

PROBLEM-- Traverse does not stop to reverse directions when flag goes under the proximity switch on the left side or right side of machine.

Possible Cause	Checkout Procedure		
Gap between flag and prox is incorrect.	A. Gap between flag and prox should be 3/16 to 1/4" (4-6 mm). Prox LED does not light when flag is under prox.	If incorrect, adjust per adjustment section of manual. Yes--end troubleshooting No--go to Step B. next	
Proximity Switch is bad.	B. Proximity switch is not working properly or wire connections are loose.	First check to see if proximity light comes on. When the light is on, it means that there is electricity coming to proximity switch. Actuate prox switches with steel tool to take measurements.	The light coming on shows the proximity is getting electrical contact.
		Left proximity (PROX 1) check Traverse drive Control (TDC) between terminals #13 (black wire) and #15 (brown wire).	Proximity light on- 0 Volts DC Proximity light off- 12 Volts DC
		Right proximity (PROX) check #14 (black wire) and #15 (brown wire).	Proximity light on- 0 Volts DC Proximity light off- 12 Volts DC
			Replace proximity switch if the voltages do not read as above.

ELECTRICAL TROUBLESHOOTING (Continued)

- ORIGINAL INSTRUCTIONS -

PROBLEM--Traverse speed control goes at one speed only.

Possible Cause	Checkout Procedure	
Defective speed control potentiometer	A. Check potentiometer on control panel.	Traverse Drive Control Pin #8 to 7 Pot full CCW Pot Full CW 0 VDC 9.75 VDC Pin #8 to 9 Pot full CCW Pot Full CW 9.75 VDC 0 VDC Yes--Pot is OK No--Go to Step B. next
	B. Check potentiometer for 10,000 ohms. Remove three wires from Traverse Drive Control red from term #8 white from term #7 black from term #9	Check for 10,000 ohms Red to White wires Full CCW - 0 ohms Full CW - 10,000 ohms Red to Black wires Full CCW - 10,000 ohms Full CW - 0 ohms Yes--Go to Step C. next No--replace potentiometer. Wiper inside of potentiometer controls speed. Wiper may be bad and not making contact.
Wiring hookup to potentiometer is improper. (If components have been replaced.)	C. Check potentiometer wiring for proper hookup. See that speed pot is wired per electrical diagram	Wrong wire hookup effects traverse control. Reversing red and orange wires to potentiometer to the D C motor will run at zero speed but maximum will be too slow. Reversing red and white wires does not affect speed control. Check for Proper function. Yes--end troubleshooting No--Go to Step D. next
Main circuit board dial pot settings not correct. (If board has not been replaced.)	D. Check all pot settings on circuit board as shown in wiring diagram. (See adjustment section Traverse Motor Control Board Settings.)	Minimum and maximum pot settings effect traverse speed.

ELECTRICAL TROUBLESHOOTING (Continued)

- ORIGINAL INSTRUCTIONS -

PROBLEM--If the carriage traverses to one end of stroke or the other and it stops and does not reverse direction.

Possible Cause	Remedy	Reason
Proximity switch is not working properly or wire connections are loose	First check to see if proximity light comes on. When the light is on, it means that there is electricity coming to proximity switch. Actuate prox switches with steel tool to take measurements.	The light coming on shows the proximity is getting electrical contact.
	Left proximity (PROX1) check Traverse drive Control (TDC) between terminals #14 (black wire) and #15 (brown wire).	Proximity light on- 0 Volts DC Proximity light off- 12 Volts DC
	Right proximity (PROX) check (TDC) between terminals #13 (black wire) and #15 (brown wire).	Proximity light on- 0 Volts DC Proximity light off- 12 Volts DC
		Replace proximity switch if the voltages do not read as above.

PROBLEM--Insufficient hesitation at carriage stops prior to reversing traverse.

The dwell time on the traverse drive control not set properly.	Reset dwell time as required. One increment increases Dwell time by 1/2 second.
--	---

PROBLEM--Traverse changes directions erratically while running in traverse cycle.

Loose wire to proximity switch.	Check wire connections from the proximity switches and tighten down screws.	A loose wire connection will give intermittent electrical contact.
---------------------------------	---	--

ELECTRICAL TROUBLESHOOTING (Continued)

- ORIGINAL INSTRUCTIONS -

--problem--	--possible cause--	--remedy--	--reason--
Top face of bedknife is ground in a convex shape (high in the center) or concave shape (low in the center)	A --Grinding wheel is loading up with grinding grit.	Dress the wheel prescribed in the Operators Manual.	A loaded wheel creates undue pressure on the surface being ground. Both ends of bedknife move because of this pressure, allowing bedknife to rock on the middle support.
	B --Too heavy a grind on the final grinding pass.	Follow the procedures in the Operators Manual. On the final pass, infeed only about .001" [.025 mm]. Let the wheel spark out for 10-20 passes at about slow speed, with no additional infeed.	For precise grinding, sparking-out process is critical. It eliminates excessive final-grinding pressure on centers and middle support, which helps maintain grinding straightness.
	C --Small Grinding Head Slide Vee Roller loose	Adjust Vee Rollers per procedure on Page 34.	Looseness in roller causes erratic grind.
The top face of the bedknife is ground unevenly across the width.	A --Grinding wheel rim is not completely over the top face being ground.	The wheel rim must extend over the bedknife top face by 1/2" [13 mm] whenever possible. See Operators Manual. If not possible, dress the wheel more often.	When the rim doesn't extend over the top face, it wears unevenly and causes grooves across the bedknife.
	B --Small grinding Head Slide Vee Roller loose.	Adjust Vee rollers per procedure on Page 34.	Looseness in rollers causes erratic grind.
	C --Backlash in infeed hand-wheel.	Eliminate backlash in infeed handwheel, see Page 31.	Backlash allows grinding wheel to move under load.
Too coarse a grind on bedknife.	Grinding head is traversing too fast.	Slow down the traversing speed.	Traversing speed controls the grinding surface texture. A slower traverse produces grind marks closer together.
	A --Coolant not directed onto the bedknife and grinding wheel.	Direct coolant into the grinding wheel, at the point of the grind. See Operators Manual.	When the front face of the bedknife gets too hot, the steel loses its temper (softens).
The top face of the bedknife shows burn marks from being too hot.	B --Too heavy stock removal during grinding.	Take off about .002 to .003" [.05 to .075mm] per pass during rough grind. See Operators Manual.	Too much stock removal in one pass creates too much heat and softens the steel.
	C --Grinding wheel is glazing.	Dress the wheel before the finish-grinding pass on each bedknife. See Operators Manual.	Wheel will glaze if not dressed often enough. Also, as a general rule, use a higher traverse speed for the heavy grind.

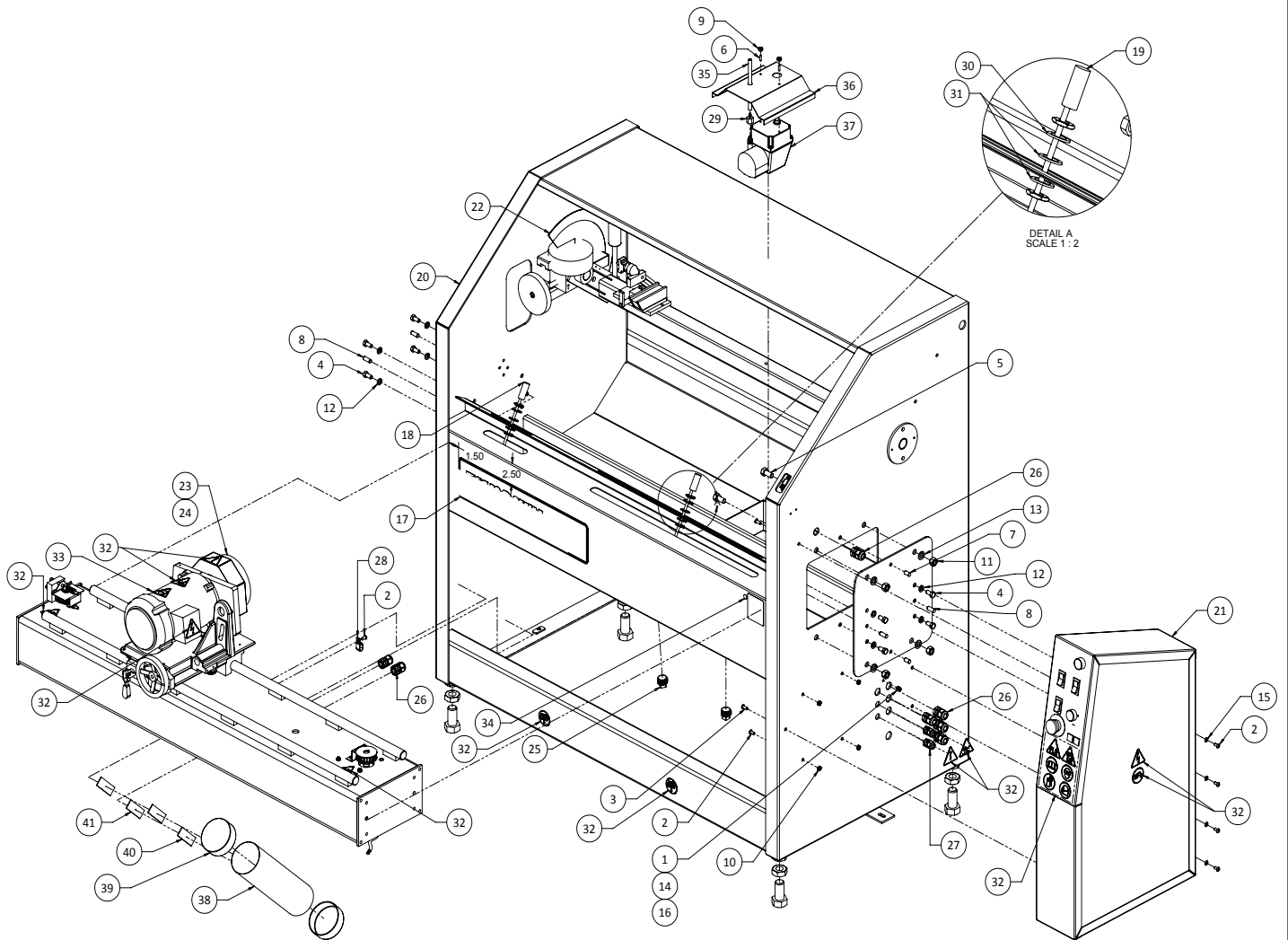
ELECTRICAL TROUBLESHOOTING (Continued)

- ORIGINAL INSTRUCTIONS -

--problem--	--possible cause--	--remedy--	--reason--
Grinding wheel is glazing too quickly.	A --Wheel needs dressing.	Dress the wheel before the finish-grinding pass on each bedknife. See Operators Manual.	Wheel will glaze if not dressed often enough. If grinding wheel is not extended 1/2" [12 mm] over bedknife, it will glaze more quickly because there is less dressing.
	B --Too light a cut when rough grinding.	Take off about .002 to .033" [.05 to .075 mm] per pass during rough grind. See Operators Manual.	Too light a grinding cut doesn't permit enough dressing action on the wheel, so it glazes.
	C --Grinding head is traversing too slow.	Speed up traverse.	Too slow a traverse speed can cause excessive heat buildup in the grinding wheel, which glazes the wheel.
Grinding motor vibrates excessively.	Grinding wheel is out of balance.	Visually check the outside diameter runout while slowly rotating the wheel by hand. Also check the motor without a wheel installed. Replace the wheel if out-of-round.	A grinding wheel which isn't properly trued up on outside or inside diameters can vibrate excessively and transfer that vibration to the motor.
Carriage traversing varies speed while grinding	A --Linear bearings in the carriage do not rotate freely	Adjust bearing for proper tension. See adjustments section of this manual.	When bearing preload is too tight, it causes excessive loading to drive carriage.
		Flush linear bearing per lubrication procedure and replace wipers. Or replace three linear bearings and wipers.	Grinding grit is getting into the linear bearings and causing excessive driving torque of the carriage.
	B --Belt it slipping.	Adjust belt clamping force. See adjustment section of manual.	If the traverse belt clamp is damaged or not adjusted properly the belt will slip.
	C --Traverse belt tension is too loose.	Adjust traverse belt tension. See adjustments section of this manual.	If the belt is too loose it will tend to vibrate or the belt tensioning springs may tend to jump when loaded.

27555 MAIN BASE ASSEMBLY

EXPLODED VIEW

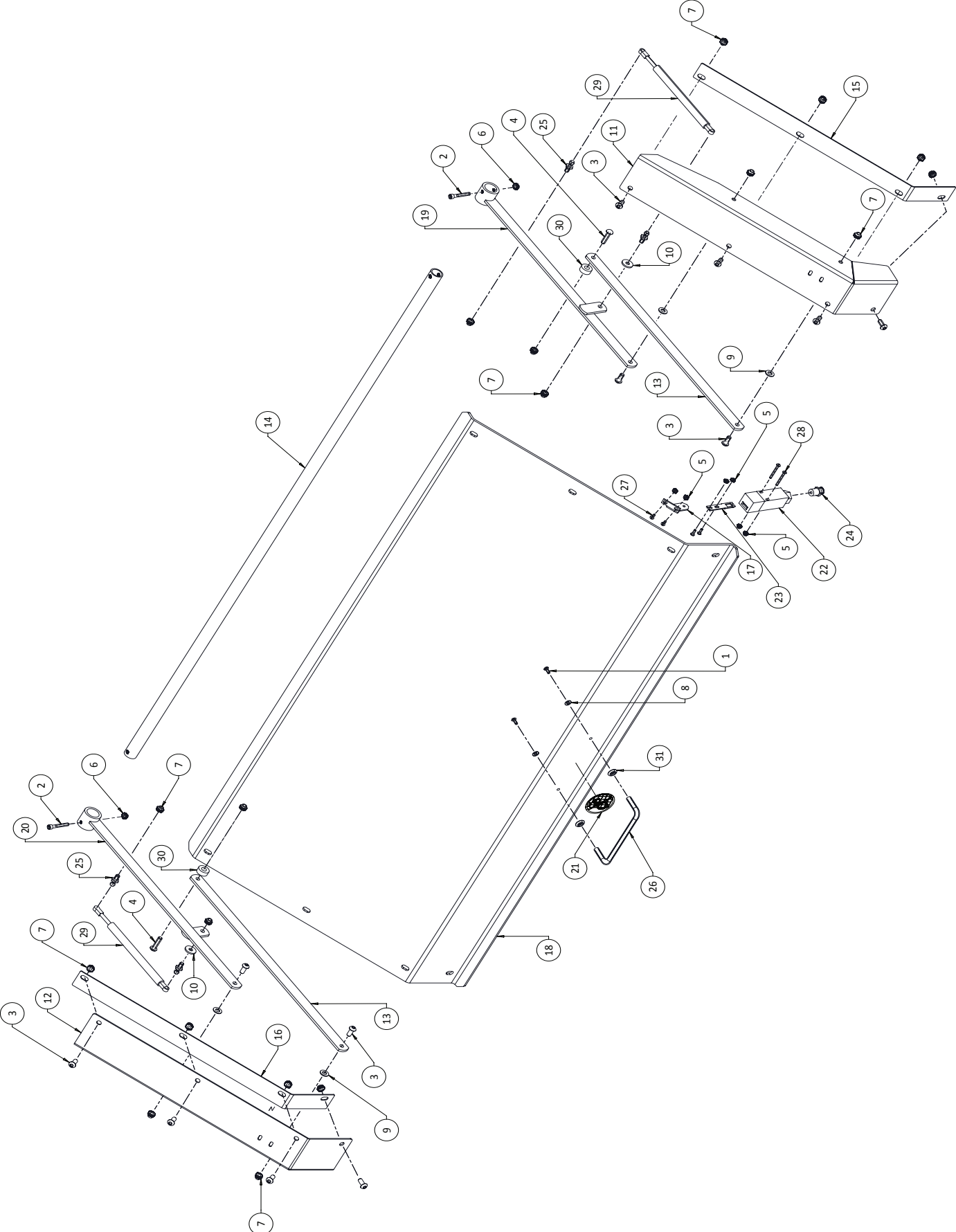


PARTS LIST**27555 MAIN BASE ASSEMBLY**

<u>DIAGRAM NUMBER</u>	<u>PART NUMBER</u>	<u>DESCRIPTION</u>
1.....	B190809.....	
2.....	B251016.....	1/4-20 x 1/2 Button Head Socket Cap Screw
3.....	B250816.....	1/4-20 x 5/8 Button Head Socket Cap Screw
4.....	B371201.....	3/8-16x 3/4 Hex Head Cap Screw
5.....	B501601.....	1/2-13X1 HHCS
6.....	C161020.....	8-32x5/8 SSS CPPT
7.....	H371202.....	Roll Pin .375x.75LG
8.....	H371602.....	Roll Pin .375 x 1LG
9.....	J167000.....	8-32 Locknut Jam Nylon Insert
10.....	J257000.....	1/4 Locknut Jam Nylon Insert
11.....	J501000.....	1-2-13 Hexnut
12.....	K371501.....	3/8 Lockwasher
13.....	K501501.....	1/2 Lockwasher
14.....	R000483.....	Lockwasher #10 Int Teeth
15.....	R000536.....	1/4 Lock Washer
16.....	R000553.....	1/4 Lock Washer
17.....	27098.....	Foley United 661AT Decal
18.....	27148.....	PROX ASSY - TRAV LH 109
19.....	27149.....	PROX ASSY TRAV RH 109
20.....	27538.....	CABINET WELDMENT PAINTED
21.....	27516.....	CONTROL PANEL WELDMENT
22.....	28208.....	DECAL - PROTRACTOR
23.....	3700411.....	GR WHEEL ST CUP 6x2x1.252
24.....	3700409.....	BUSHING - REDUCER 1.25-.62
25.....	3706022.....	Pipe Plug 3/4 NPT
26.....	3707009.....	Strain Relief
27.....	3707029.....	Strain Relief
28.....	3708121.....	Cord Clamp - Double
29.....	3708339.....	CONNECTOR - BARBED INSERT
30.....	3708419.....	Wave Spring Washer
31.....	3708421.....	Flat Washer .75 ID x 1.0 OD x .075 Thick
32.....	3706106.....	DECAL SHEET (BEDKNIFE GRINDERS)
33.....	3708461.....	DECAL WARNING 3600 RPM
34.....	3708832.....	DECAL HIPOT TEST
35.....	6609044.....	COOLANT TUBE 1/4ID X 85"
36.....	6609046.....	COOLANT PUMP COVER
37.....	6709209.....	DOOR ASSY-SERVICE
38.....	3706133.....	CLEAR TUBE 3.5 OD X 12" LG
39.....	3706134.....	END CAP - 3.5 ID BLACK VINYL
40.....	3706135.....	VELCRO HOOK - 1"W ADHESIVE BACK
41.....	3706136.....	VELCRO LOOP - 1"W ADHESIVE BACK

27519 GUARD DOOR ASSEMBLY

EXPLODED VIEW

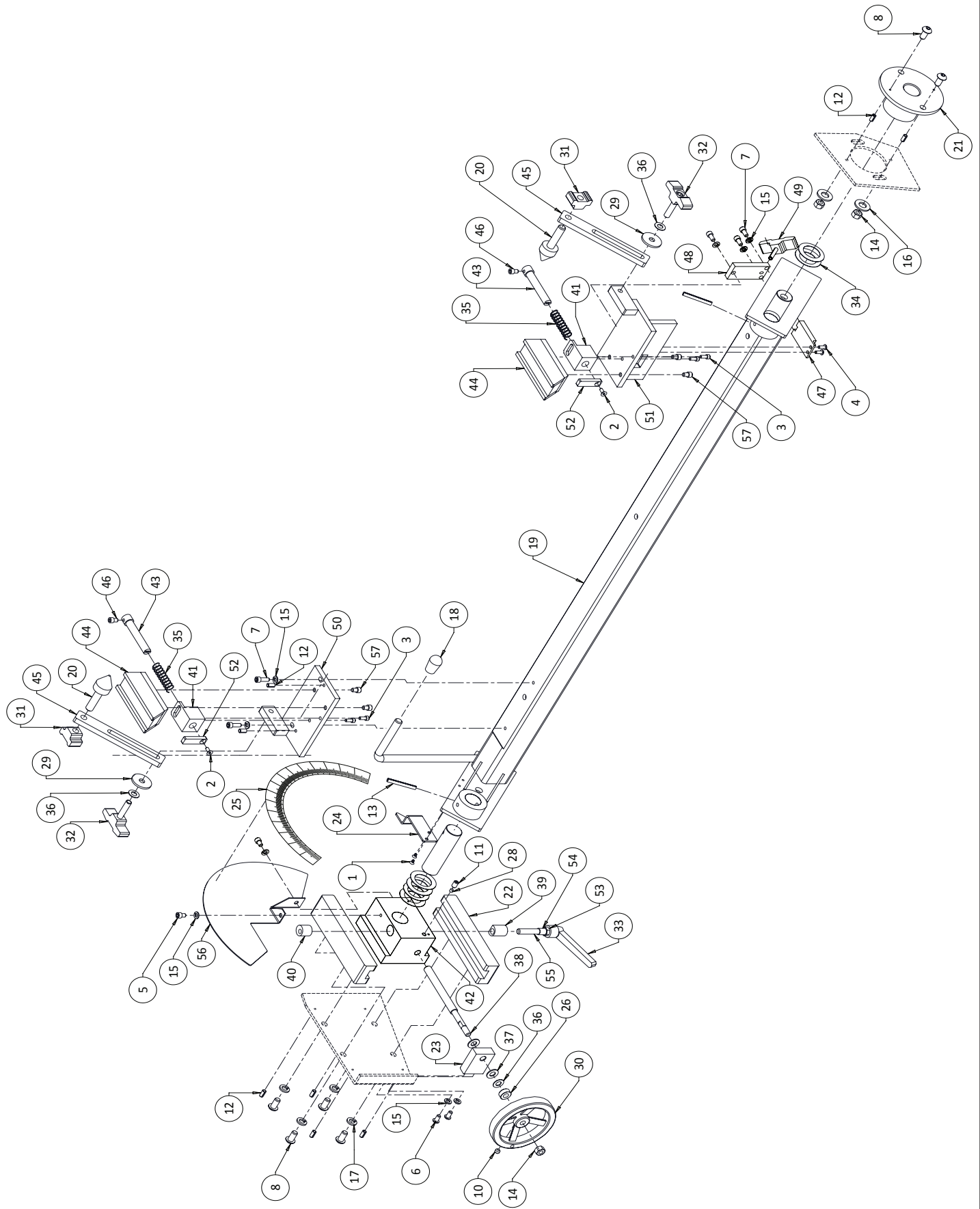


PARTS LIST**27519 GUARD DOOR ASSEMBLY**

<u>DIAGRAM NUMBER</u>	<u>PART NUMBER</u>	<u>DESCRIPTION</u>
1.....	B190834	10 - 32 x 1/2 Button Head Socket Cap Screw
2.....	B252811	1/4 - 20 x 1-3/4 Socket Head Cap Screw
3.....	B311213	5/16 - 18 x 3/4 Button Head Socket Cap Screw
4.....	B312013	5/16 - 18 x 1.25 Button Head Socket Cap Screw
5.....	J167000.....	8 - 32 Jam Locknut
6.....	J257100.....	1/4 - 20 Locknut
7.....	J317000.....	5/16 - 18 Jam Locknut
8.....	K190001	#10 Flat Washer
9.....	K310001	5/16 Flat Washer
10.....	R000453.....	Flat Washer .31 x .88 x .104 Thick
11.....	27131.....	Door Frame Bracket - Right Hand
12.....	27132.....	Door Frame Bracket - Left Hand
13.....	27133.....	Lower Arm
14.....	27138.....	Torque Tube
15.....	27139.....	Inside Door Reinforce - Right Hand
16.....	27140.....	Inside Door Reinforce - Left Hand
17.....	27141.....	Safety Switch Key Bracket
18.....	27142.....	Polycarbonate Door
19.....	27517.....	Door Arm Weldment - Right Hand
20.....	27518.....	Door Arm Weldment - Left Hand
21.....	3706106.....	Decal Sheet
22.....	3707728.....	Safety Switch
23.....	3707372.....	Straight Key - Safety Switch
24.....	3707563.....	Strain Relief
25.....	3708572.....	Ball Stud - 10MM
26.....	3708577.....	D - Handle
27.....	3708820.....	8 - 32 x .50 Button Head Safety Screw
28.....	3708865.....	8 - 32 x 1.50 Button Head Safety Screw
29.....	3708866.....	Gas Spring
30.....	3889045.....	Spacer .406 x .875 x .38 Long
31.....	6709071.....	Handle Ferrule
.....	27144.....	Door Safety Switch Cord (Not Shown)
.....	3708378.....	Foam Strip - .25 Thick (Not Shown)

27541 BEDKNIFE SUPPORT ASSEMBLY

EXPLODED VIEW



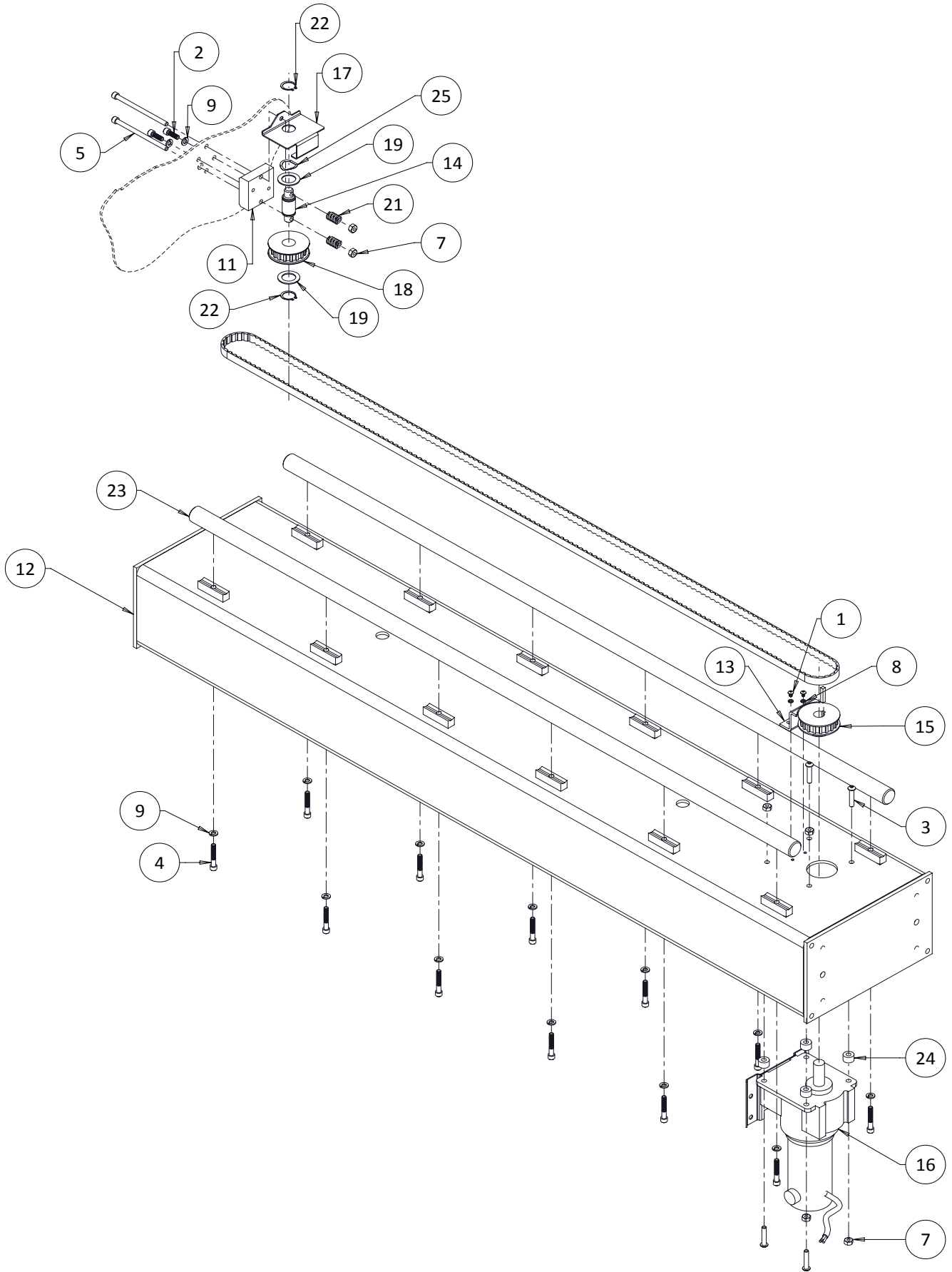
PARTS LIST

27541 BEDKNIFE SUPPORT ASSEMBLY

<u>DIAGRAM NUMBER</u>	<u>PART NUMBER</u>	<u>DESCRIPTION</u>
1.....	B160605.....	8-32x3/8 Flat Head Cap Screw
2.....	B190805.....	10-24x1/2 Flat Head Socket Cap Screw
3.....	B190811.....	10-24x1/2 Socket Head Cap Screw
4.....	B190813.....	10-24x1/2 Button Head Socket Cap Screw
5.....	B250611.....	1/4-20x3/8 Socket Head Cap Screw
6.....	B250816.....	1/4-20x1/2 Socket Head Cap Screw
7.....	B251211.....	1/4-20x3/4 Socket Head Cap Screw
8.....	B371216.....	3/8-16x3/4 Button Head Socket Cap Screw
10.....	C310420.....	5/16-18x1/4 Socket Set Screw - Cup Pt.
11.....	C310820.....	5/16-18x1/2 Socket Set Screw - Cup Pt.
12.....	H250802.....	1/4 dia x 1/2 Long Roll Pin
13.....	H253202.....	1/4 dia x 2 Long Roll Pin
14.....	J377000.....	3/8-16 Jam Locknut
15.....	K251501.....	1/4 Lockwasher
16.....	K370001.....	3/8 Flat Washer
17.....	K371501.....	3/8 Lockwasher
18.....	3709327.....	Rubber Tip
19.....	27508.....	Tooling Bar
20.....	28181.....	Center Assy
21.....	28196.....	RH Tooling Pivot Block
22.....	28200.....	LH Tooling Slide Bar
23.....	28201.....	Tooling Adj. Block
24.....	27118.....	Bracket - Tooling pointer
25.....	28208.....	Decal - Protractor.....
26.....	28212.....	Spacer - 39ID x .750D x .311Long
28.....	3579109.....	Nylon Plug 3/16 Dia
29.....	3589106.....	Washer - Flat .39 x 1.38 x .125
30.....	3708148.....	Handwheel 4.5Dia .38 Bore
31.....	80318.....	Knob-T 1.5 1/2-13
32.....	6009555.....	Knob Assembly-T 2.5 3/8-16x1.5 Long
33.....	3709437.....	Handle - Adj 3/8-16 x 1.97
34.....	3708652.....	Washer - Conical 1.2 x 1.83 x .024
35.....	3708836.....	Spring - Compressed .600D x .531ID x 2.5Long
36.....	3709062.....	Washer - Conical .382 x .75 x .035
37.....	3709304.....	Washer - Thrust .375 x .812 x .032
38.....	6009027.....	Shaft - Adjusting Acme LH
39.....	6309050.....	Lock Bar - LH Adjuster
40.....	6309051.....	Lock Bar - Threaded LH Adjuster
41.....	6609087.....	Base - Gage Short C'bore
42.....	6609016.....	Block - Slide RH
43.....	6609018.....	Shaft - Gage
44.....	6609019.....	Magnet
45.....	6609021.....	Arm - Center Adjust
46.....	6609023.....	Screw - Gage Lock
47.....	6609093.....	Lock Support Bar
48.....	6609092.....	Slide Lock Bar RH
49.....	6609501.....	Knob Assy - T 2.5 1/4-20 x 1.31Long
50.....	6609535.....	Mount Weldment LH
51.....	6609536.....	Slide Weldment RH
52.....	6709021.....	Tip - Gage
53.....	J372000.....	3/8-16 Hex Jam Nut Thin
54.....	27115.....	Spacer .386 IDx .50 ODx .75 Long
55.....	3999030.....	3/8-16 x3.62 LG Thread Stud
56.....	27117.....	Bracket - Rotation Decal
57.....	B250611.....	1/4-20 x 3/8 Socket Head Cap Screw

27554 CHANNEL & TRAVEL ASSEMBLY

EXPLODED VIEW

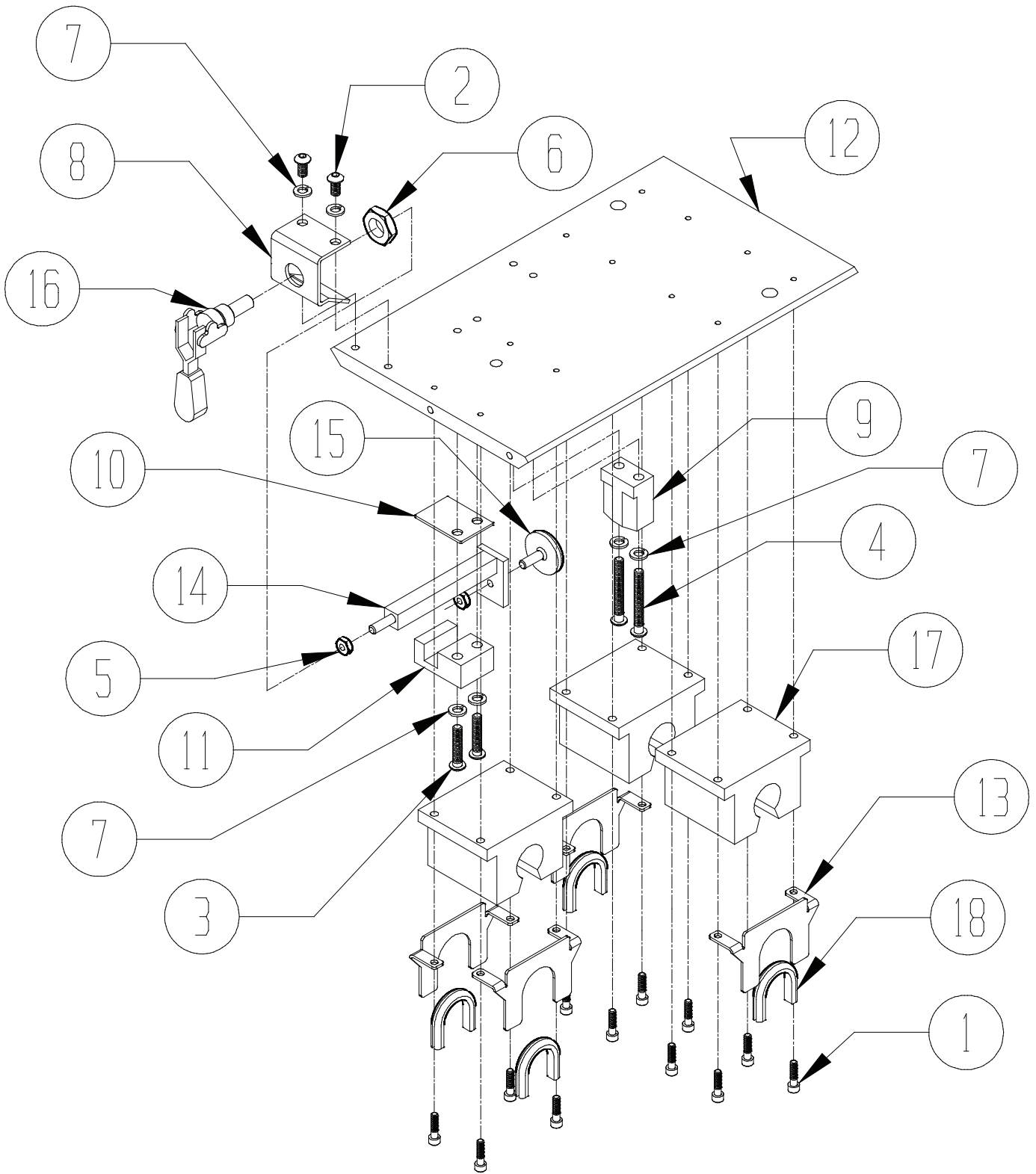


PARTS LIST**27554 CHANNEL & TRAVEL ASSEMBLY**

<u>DIAGRAM NUMBER</u>	<u>PART NUMBER</u>	<u>DESCRIPTION</u>
1.....	B160607.....	8-32 x 3/8 Button Head Socket Cap Screw
2.....	B251211.....	1/4-20 x 3/4 Socket Head Cap Screw
3.....	B252016.....	1/4-20 x 1-1/4 Button Head Socket Cap Screw
4.....	B252011.....	1/4-20 x 1-1/4 Socket Head Cap Screw
5.....	B256411.....	1/4-20 x 4 Socket Head Cap Screw
7.....	J257000.....	1/4-20 Locknut Thin
8.....	K161501.....	#8 Lockwasher Split
9.....	K251501.....	1/4 Lockwasher Split
11.....	28192.....	Support - Travel Pulley
12.....	27156.....	Traverse Base Machined
13.....	28197.....	Guard - Travel RH
14.....	50309.....	Shaft- Travel Pulley
15.....	3706056.....	Pulley - Cog Drive
16.....	6059062.....	Motor Assembly - Travel W34
17.....	50363.....	Guard - Traverse Pulley
18.....	55553.....	Idler Pulley Assembly
19.....	80355.....	Washer - Thrust .75ID x 1.25OD
20.....	80375.....	Belt -Cog
21.....	3708658.....	Spring - Compression
22.....	3709331.....	Ring - Retaining Ext
23.....	6509063.....	Shaft - Carrier
24.....	3708884.....	Spacer .281 ID x .62 OD x .38 Long
25.....	3708419.....	Wave Spring .78 ID x 1.00 OD

27543 CARRIAGE ASSEMBLY

EXPLODED VIEW

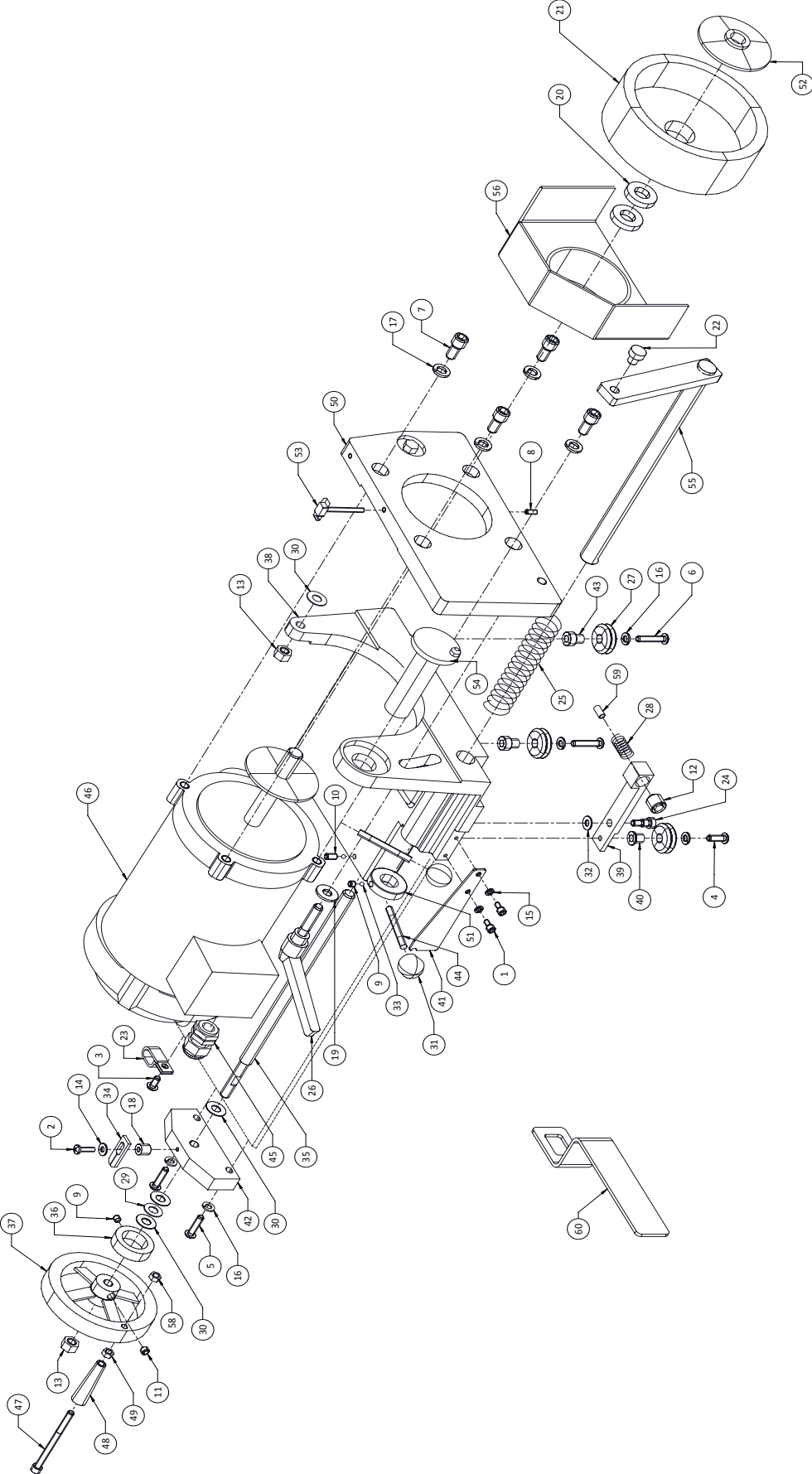


PARTS LIST**27543 CARRIAGE ASSEMBLY**

DIAGRAM NUMBER	PART NUMBER	<u>DESCRIPTION</u>
1.....	B191211.....	10-24 x 3/4 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.....	B253216.....	1/4 - 20 x 2 Button Head Socket Cap Screw
5.....	J252000.....	1/4-20 Hex Jam Nut
6.....	J627200.....	5/8 - 18 Locknut - Jam Nylon
7.....	K251501.....	1/4 Lockwasher Split
8.....	28183.....	Bracket - Travel Clamp
9.....	28187.....	Block - Travel Clamp
10.....	28188.....	Spacer - Travel Clamp
11.....	28189.....	Block - Clamp Support
12.....	28191.....	Carriage - Grinding Head
13.....	28211.....	Bracket - Rail Wiper
14.....	28507.....	Travel Clamp Assembly 275
15.....	50310.....	Tip - Belt Clamp
16.....	80335.....	Clamp
17.....	3709044.....	Bearing - Ball Bushing
18.....	3969064.....	Wiper - Foam

6609529 GRINDING HEAD ASSEMBLY

EXPLODED VIEW



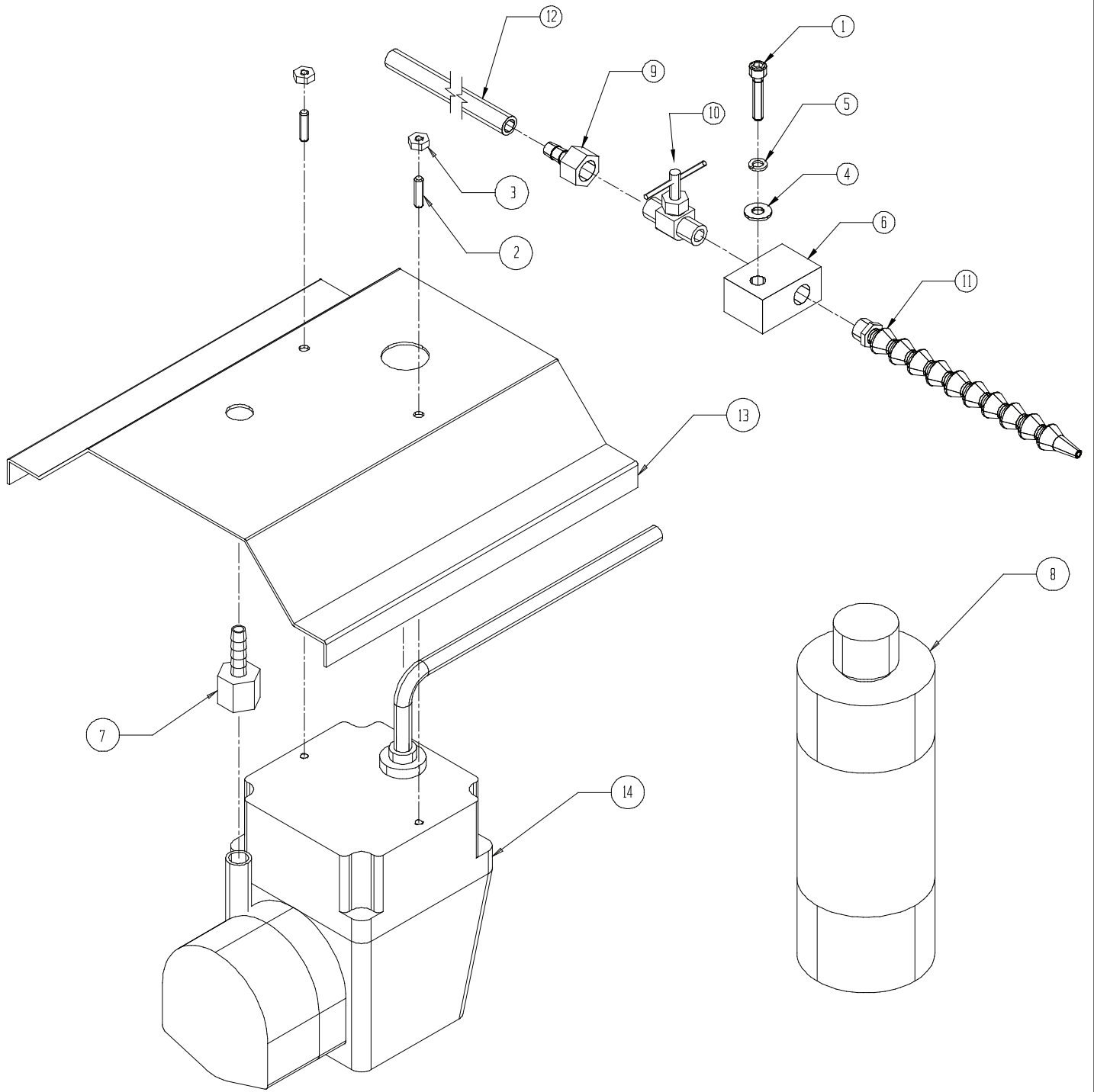
PARTS LIST

6609529 GRINDING HEAD ASSEMBLY

DIAGRAM NUMBER	PART NUMBER	PART DESCRIPTION	DIAGRAM NUMBER	PART NUMBER	PART DESCRIPTION
1	B190611	10 - 24 x 3/8 Socket Head Cap Screw	32	3708103	Washer Conical
2	B191213	10 - 24 x 3/4 Button Head Socket Cap Screw	33	3709705	Nylon Ball
3	B250816	1/4 - 20 x 1/2 Button Head Socket Cap Screw	34	3809047	Indicator Clear
4	B251216	1/4 - 20 x 3/4 Button Head Socket Cap Screw	35	6009218	Shaft Adjusting
5	B251616	1/4 - 20 x 1 Button Head Socket Cap Screw	36	6059082	Ring Calibrated
6	B252016	1/4 - 20 x 1 - 1/4 Button Head Socket Cap Screw	37	6009044	Handwheel
7	B371611	3/8 - 16 x 1 Socket Head Cap Screw	38	6609004	Base Carriage Slide
8	C190820	10 - 24 x 1/2 Socket Set Screw	39	6609027	Arm - Roller Pivot
9	C250420	1/4 - 20 x 1/4 Socket Set Screw	40	6609028	Bushing-V Roller Short
10	C250820	1/4 - 20 x 1/2 Socket Set Screw	41	6609029	Bracket - Dresser Lock
11	C310420	5/16 - 18 x 1/4 Socket Set Screw	42	6609030	Guide - Feed Screw
12	C621060	5/8 - 18 x 5/8 Socket Set Screw	43	6609058	Bushing-V Roller Long
13	J377000	3/8 - 16 Locknut Jam Nylon	44	6709035	Stud
14	K190001	No. 10 Flat Washer	45	3707009	Strain Relief
15	K191501	No. 10 Lockwasher Split	46	6609502	Motor Assy 3/4 HP
16	K251501	1/4 Lockwasher Split	47	B255011	1/4-20x3-1/8 Socket Head Screw
17	K371501	3/8 Lockwasher Split	48	3709370	Handle
18	3589081	Spacer	49	J252000	1/4 x 20 Hex Jam Nut
19	K310101	5/16 Flat Cut Washer	50	6609505	Motor Pivot Assy
20	3700409	Bushing - Reducer	51	6709038	Collar - Adjuster
21	3700411	Grinding Wheel Straight Cup 6" dia x 2" deep	52	6709103	Flange - Outer
22	3702086	Diamond Dresser	53	6709501	Tee Knob Assy
23	3708121	Clamp - Double Tube	54	6709503	Eccentric Pin Assy
24	3708543	Shoulder Bolt	55	6709509	Dresser Arm Weldment
25	3708553	Spring Compression	56	6709552	Grinding Wheel Guard Weldment
26	3708561	Adjustable Handle	58	J257000	1/4 - 20 x3-1/8 Socket Head Cap Screw
27	3708657	Roller Dual Vee	59	H250802	1/4x1/2 Lg Roll Pin
28	3708658	Spring Compression	60	6709160	Grinding Wheel Wrench
29	3709062	Washer Conical			
30	3709304	Washer - Thrust			
31	3709526	Knob			

27532 COOLANT ASSEMBLY

EXPLODED VIEW



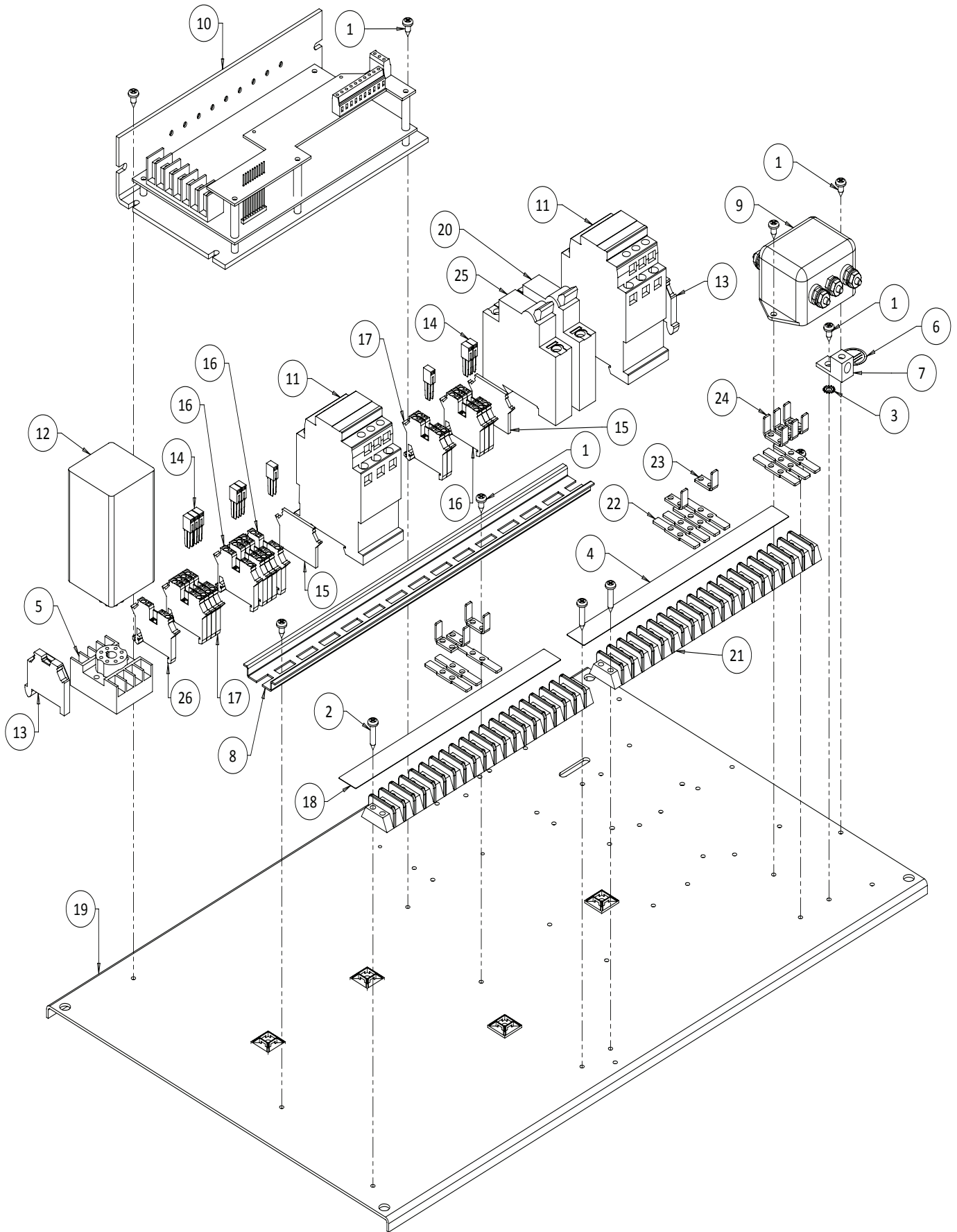
PARTS LIST

27532 COOLANT ASSEMBLY

<u>DIAGRAM NUMBER</u>	<u>PART NUMBER</u>	<u>DESCRIPTION</u>
1.....	B192011.....	10-24 x 1-1/4 Socket Head Cap Screw
2.....	C161020.....	8-32 x 5/8 Socket Set Screw
3.....	J167000.....	8-32 Jam Lock Nut
4.....	K190001.....	#10 Flat Washer
5.....	K191501.....	#10 Lockwasher Split
6.....	3679116.....	Connector - Shut Off Valve
7.....	3708339.....	Barbed Connector
8.....	80340.....	Coolant - Pint
9.....	3709593.....	Barbed Connector
10.....	3709595.....	Shut Off Valve
11.....	3709642.....	Coolant Line Assembly
12.....	6609044.....	Coolant Tube 1/4 ID
13.....	6609046.....	Cover - Coolant Pump
14.....	6709209.....	Coolant Pump

27548 ELECTRICAL PANEL SUB - ASSEMBLY

EXPLODED VIEW

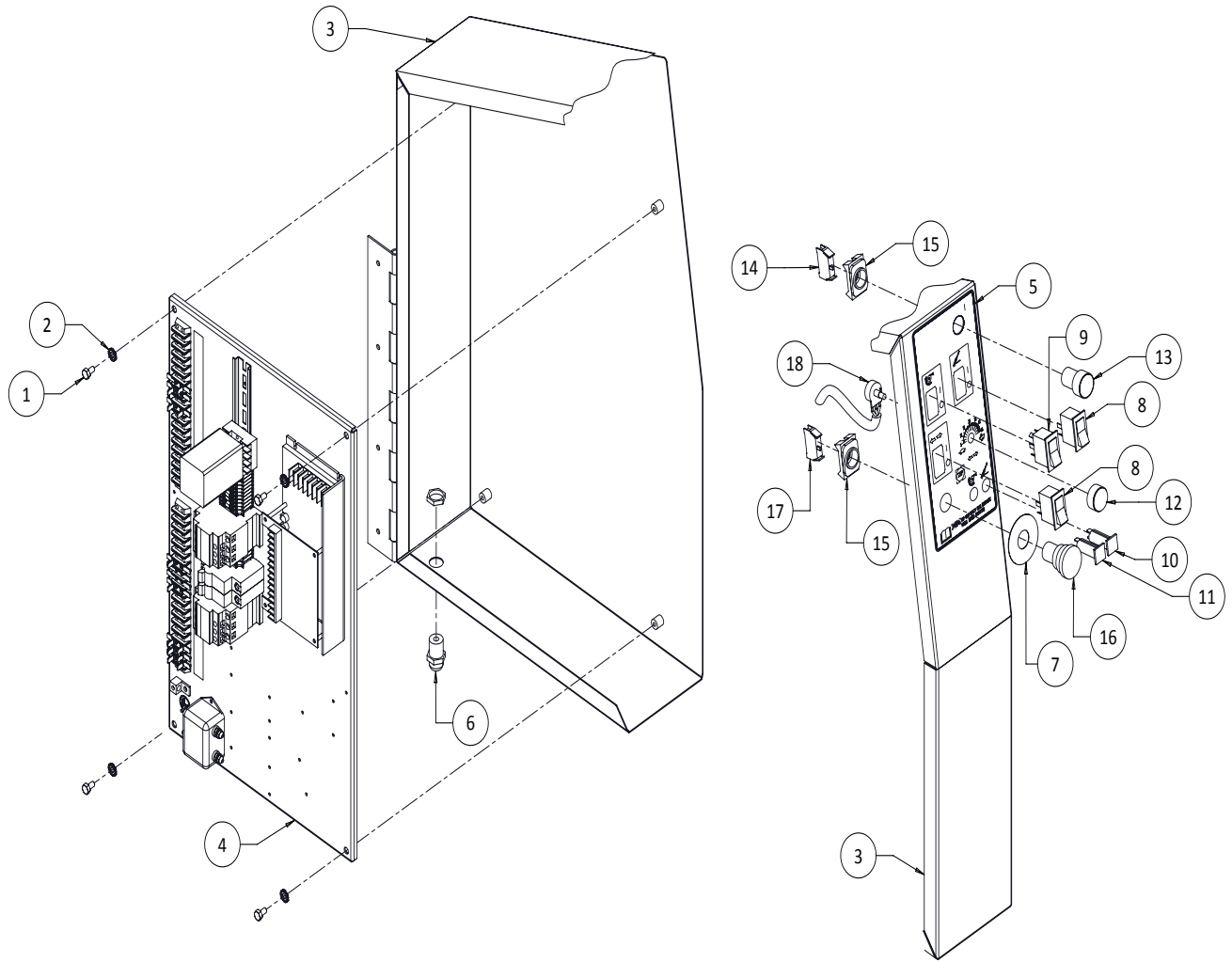


PARTS LIST**27548 ELECTRICAL PANEL SUB - ASSEMBLY**

<u>DIAGRAM NUMBER</u>	<u>PART NUMBER</u>	<u>DESCRIPTION</u>
1.....	D160666	#8 x 3/8 Seft Tapping Screw
2.....	D161266	#8 X3/4 Self Tapping Screw
3.....	R000480	#8 External Tooth Lock Washer
4.....	55223	Terminal Strip Decal
5.....	3707073	8 Pin Socket
6.....	3707163	Primary Ground Decal
7.....	3707164	Primary Ground Lug
8.....	3707378	Din Rail 14"
9.....	3707403	Power Line Filter
10.....	3707550	Traverse Control Board
11.....	3707556	Magnetic Starter
12.....	3707558	Voltage Sensor Relay
13.....	3707625	End Stop - Terminal Block
14.....	3707626	Jumper - Adjacent Terminal Block
15.....	3707627	End Plate - Terminal Block
16.....	3707628	Terminal Block - 2 Conductor Grey
17.....	3707629	Terminal Block - 2 Conductor Blue
18.....	3708826	Decal - LVR Warning
19.....	6009270	Panel - Electrical
20.....	3707589	Circuit Breaker - 15 Amp
21.....	3707706	Terminal Strip - 19 Pole
22.....	3707707	Straight Double Spade Terminal
23.....	3707709	Single 90° Spade Terminal
24.....	3707708	Double 90° Spade Terminal
25.....	3707779	6-Amp Circuit Breaker
26.....	3707624	Grpimd Terminal Block
.....	3707224	Cable Tie Mount (Not Shown)
.....	3707225	Cable Tie 6.5" Long x .18 Wide (Not Shown)
.....	3707255	Cable Tie 4" Long x .10 Wide (Not Shown)
.....	3707773	Wire Harness Assembly - Common (Not Shown)
.....	27150	Wire Harness Assembly - 661AT Panel (Not Shown)
.....	27146	Wire Harness Assembly - 661AT Control (Not Shown)
.....	6509147	Wire Assembly (Not Shown)

27549 CONTROL PANEL ASSEMBLY

EXPLODED VIEW

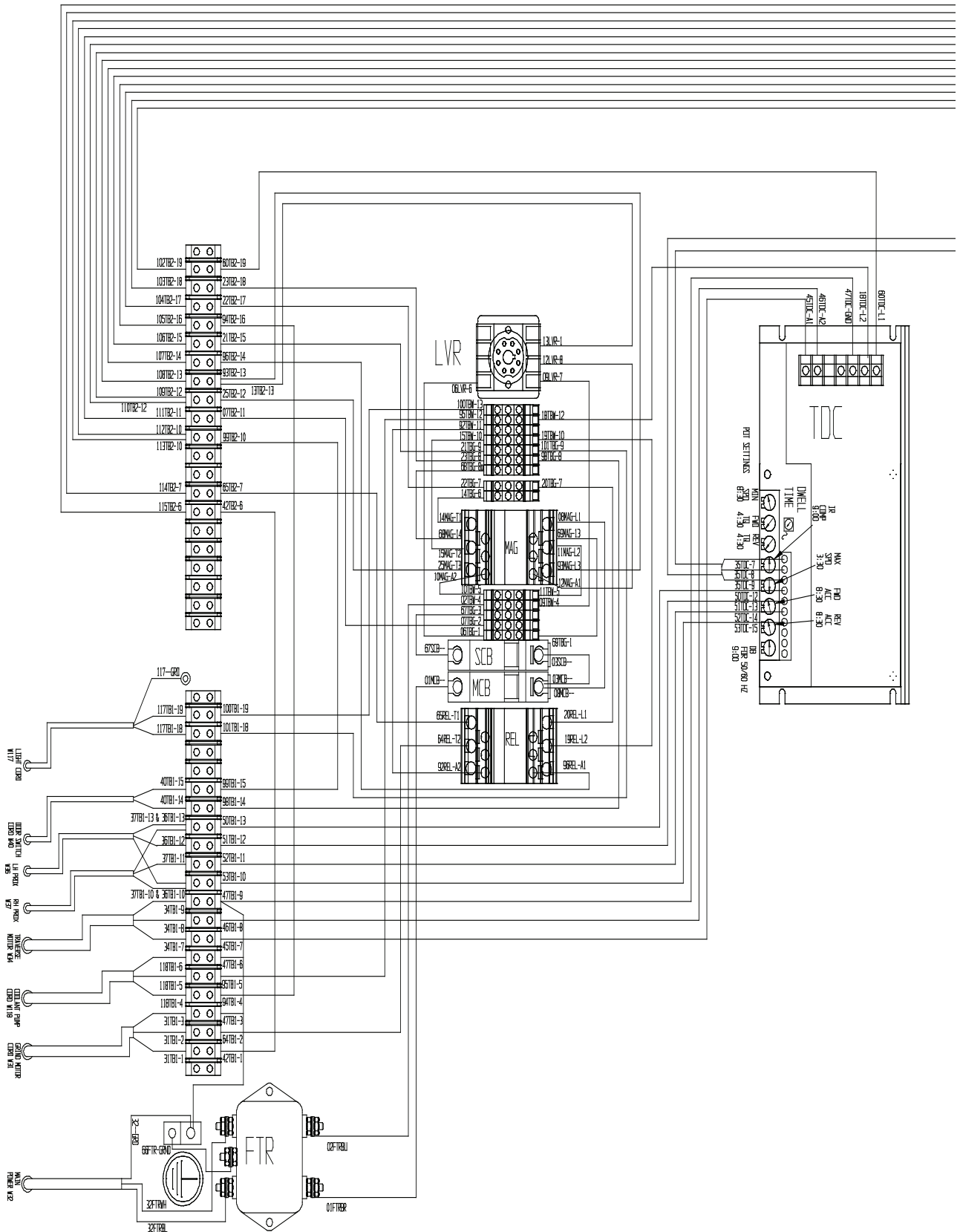


PARTS LIST

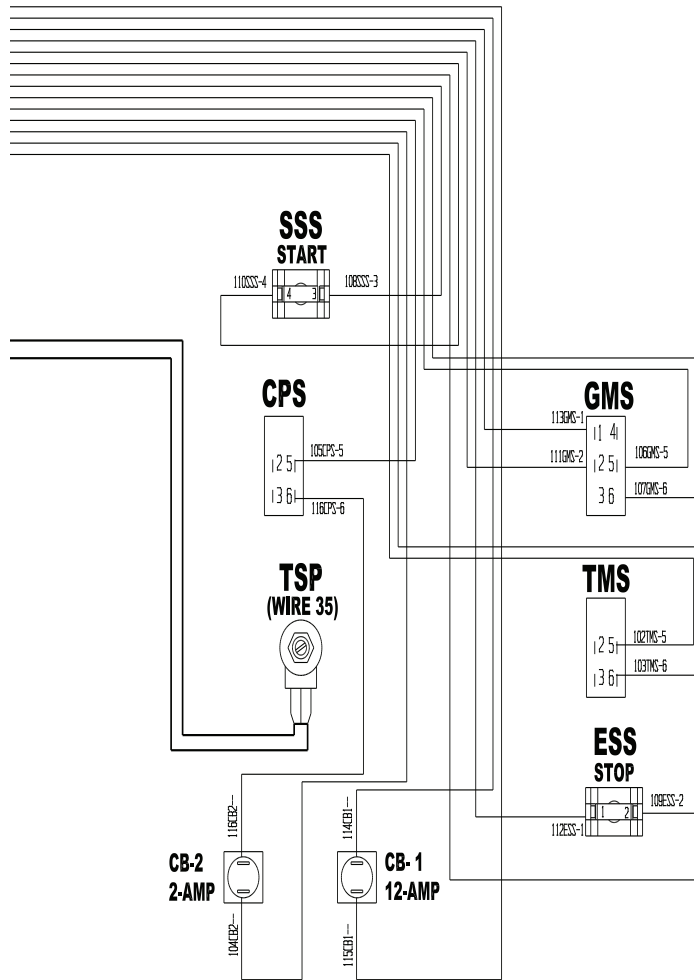
27549 CONTROL PANEL ASSEMBLY

<u>DIAGRAM NUMBER</u>	<u>PART NUMBER</u>	<u>DESCRIPTION</u>
1.....	D250800	1/4-20 x 1/2 Thread Cutting Screw Hex Head
2.....	R000536	1/4 Internal Tooth Lock Washer
3.....	27516	Control Panel Weldment
4.....	27548	Electrical Panel Sub-Assembly (See Pages 66-69)
5.....	80409	Decal - Control Panel
6.....	3707093	Strain Relief
7.....	3707342	Yellow E-Stop Ring
8.....	3707367	Rocker Switch - On/Off
9.....	3707429	Rocker Switch - On/Off
10.....	3707442	2 Amp Circuit Breaker
11.....	3707444	10 Amp Circuit Breaker
12.....	3707446	Potentiometer Knob
13.....	3707564	Green Start Pushbutton
14.....	3707565	Normally Open Contact Block
15.....	3707566	Pushbutton Mounting Latch
16.....	3707567	Red Push/Pull E-Stop Pushbutton
17.....	3707568	Normally Closed Contact Block
18.....	6059050	Pot Assy Traverse
.....	6059054	Main Power Cord (Not Shown)
.....	370837825 Thick Foam Strip (Not Shown)

27402 WIRING DIAGRAM



27402 WIRING DIAGRAM



CB1-CIRCUIT BREAKER 1
 CB2-CIRCUIT BREAKER 2
 OSS-ODOR SAFETY SWITCH
 ESS-EMERGENCY STOP SWITCH
 FTR-LINE FILTER
 GMS-GRINDING MOTOR SWITCH
 LVR-LOW VOLTAGE RELAY
 MAG-MAGNETIC STARTER
 PX1-LEFT PROXIMITY SWITCH
 PX2-RIGHT PROXIMITY SWITCH
 REL-GRINDING MOTOR RELAY

SSS-SYSTEM START SWITCH
 TB1-TERMINAL STRIP 1
 TB2-TERMINAL STRIP 2
 TBG-TERMINAL BLOCK GREY
 TBW-TERMINAL BLOCK WHITE
 TSP-TRAVERSE SPEED POT
 TDC-TRAVERSE DRIVE CONTROL