Champion 305 TC 30.5" Programmable Paper Cutter

Instruction Manual

The Challenge Machinery Company provides owner's manuals on its products solely as a courtesy to its customers. See the information below before using this manual.

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This manual may not be complete in all aspects of product maintenance and repair. **All products should be used only by qualified and properly trained personnel, following proper safety procedures.** All products should be regularly inspected and maintained, and their condition, application and use should be periodically evaluated by qualified personnel. Only qualified and properly trained technicians should perform maintenance, repair and replacement procedures. Attempting these procedures without proper training may cause machine damage or operator injury!

Products may be unsupported by The Challenge Machinery Company due to age or the unavailability of parts from their original manufacturer. No parts or product support will be available to repair or maintain unsupported products. Older products may not be UL listed (if the product does not have a UL label it is not a listed product), and may not comply with applicable installation or other regulations or requirements if relocated to a new facility. Many municipalities require a product to be UL listed before an electrician will connect power to them. Often the cost of updating an older product to comply with current safety regulations is greater than the value of the product.

CHAMPION 305 TC

Instruction and Parts Manual

Serial Numbers:
1301708 through 1599999,
305-J-150000 and up

Sold and Serviced by

The Challenge Machinery Company
6125 Norton Center Drive
Norton Shores, MI 49441-6081 USA

ChallengeMachinery.com

F.254-J
May 2019

1.0 Introduction

This manual is designed to help you get the most from your Challenge equipment. Keep this manual in a safe, convenient place for quick reference by operators and service personnel.

⚠ CAUTION SAFETY ALERT! This symbol means **CAUTION: Personal safety instructions!** Pay special attention to the instructions in bold type. Personal injury may result if the precautions are not read and followed.

READ THIS MANUAL BEFORE OPERATING! Follow the precautions and instructions given. If after reading the manual questions still remain, contact your Authorized Challenge Dealer.

FOR PARTS AND SERVICE, contact the Authorized Challenge Dealer from whom you purchased the machine. Use the illustrations and parts lists at the back of this manual to identify the correct parts needed. Always give the **SERIAL NUMBER** and **MODEL** of your machine to insure the correct parts are sent as soon as possible.

RECORD YOUR MACHINE SERIAL NUMBER in the space provided on the front cover of this manual. Fill out the warranty card accompanying your machine and return it **DIRECTLY TO CHALLENGE.**

If you bought a used machine, it is important to have the following information on record at Challenge. Copy this page, fill in the information and send it care of The Challenge Service Department, 6125 Norton Center Drive • Norton Shores • MI 49441.

CHALLENGE MODEL	SERIAL NUMBER	
ATTN	COMPANY	
ADDRESS		
CITY	STATE/PROVINCE	ZIP
PHONE	DATE INSTALLED	
DEALER NAME & CITY		

*** WARRANTY INFORMATION ***

It is very important that you read and understand the conditions outlined in the *Warranty Information Sheet* attached to the outside of the shipping container of your machine.

The *Warranty Information Sheet* must be filled out completely and returned to THE CHALLENGE MACHINERY COMPANY in order for the warranty to be issued for this machine.

TABLE OF CONTENTS

2.0 Safety

2.1 Precautions

- This machine is designed for one-person operation. Never operate the machine with more than one person.
- Safe use of this machine is the responsibility of the operator. Use good judgment and common sense when working with and around this machine.
- Read and understand all instructions thoroughly before using the machine. If questions remain, contact the dealer from which you purchased this machine. Failure to understand the operating instructions may result in personal injury.
- Only trained and authorized people should operate this machine.
- Do not alter safety guards or devices. They are for your protection. Severe personal injury may result.
- Disconnect power before cleaning or performing maintenance. See Section 2.2 Power Lockout Procedure.
- Observe all caution labels and plates on this machine.
- Be sure the cutter is properly grounded.
- Be sure there is sufficient power to operate the cutter properly.
- Keep foreign objects off the table and away from cutter blade.
- **BE EXTREMELY CAREFUL** when handling and changing the cutter knife. Severe lacerations or dismemberment could result from careless handling procedures.
- Keep the floor around the cutter free of trim, debris, oil and grease.
- When replacing hydraulic parts, loosen the connections slowly to release pressure. Never loosen connections with the machine running.
- If the cutter sounds unusual or operates abnormally, turn it off and consult the troubleshooting section of this manual. If the problem cannot be corrected, have it checked by a qualified service person.
- **CRUSH HAZARD**, keep hands and fingers from under the clamp while clamping. Use Jogging Aid to load paper, and use the backgauge to push paper out before unloading. **DO NOT REACH UNDER THE KNIFE AND CLAMP AREA!**

2.2 Power Lockout Procedure

For maximum safety when making adjustments or repairs to your machine, be sure to lock out the main power control switch to which the machine is connected. The switch should be moved to the OFF position and a padlock placed in the loop. The person servicing the machine should hold the key.

Figure 1

2.3 Warning Label Definitions

The following warning labels are found at various locations on your machine. Read and understand the meaning of each symbol. If a label is lost from the machine, it should be replaced. The item number and location of each label can be found in Section 15.0 Schematics and Parts List.

HAZARDOUS AREA

Disconnect power before cleaning, servicing, or making adjustments not requiring power. Do not alter safety guards or devices; they are for your protection. Replace all guards. Do not operate with any guards removed.

SHOCK HAZARD

Disconnect power before removing cover. Replace cover before operation.

SHOCK HAZARD

Disconnect power before removing cover. Replace cover before operation.

SINGLE OPERATOR

Do not operate with more than one person.

!OJO!

⚠ CAUTION This Este simbolo de alerta de seguridad significa ¡ OJO ! - INSTRUCCIONES DE SEGURIDADPERSONAL. Lea las instrucciones porque se refieren a su seguridad personal. Fall de obedecer las instrucciones que siguen podria resultar en lesiones corporales.

- Esta maquina, junto con sus mecanismos de seguridad, esta disenada para ser manejada por
- **UNA SOLA PERSONA** a la vez. Jamas debe ser manejada por mas de una persona al mismo
- tiempo.
- La seguridad es la responsabilidad del operario que usa esta maquina.
- **LEA DETENIDAMENTE** el manual de instrucciones y las **PRECAUCIONES DE SEGURIDAD** antes de poner a funcionar la cortadora. Pidale a su supervisor una copia.
- El manejo de la guillotina debe estar exclusivamente a cargo de personal entrenado y autorizado para ello.
- **NO MODIFIQUE LOS MECANISMOS DE SEGURIDAD**, estan ahi para su proteccion no deben ni modificarse ni quitarse.
- **DESCONECTE LA CORRIENTE ELECTRICA** antes de proceder a hacerle servicio de limpieza, engrasar, o de hacer adjustes que no requieren corriente. Trabe el interruptor en la posicion **OFF** (apagado); vea “Procedimiento para cortar la corriente electrica” al pie de esta pagina.
- Eche llave a la guillotina y quite la llave cuando la maquina no esta en operacion; vea “Corriente electrica”.
- Asegurese de que la guillotina este debidamente a tierra. Vea “Conexion de la fuerza electrica”.
- Verifique el voltaje y asegurese de que este sea suficiente para el debido funcionamiento de la guillotina.
- Preste atencion a todas las placas con advertencias instaladas en esta guillotina.
- No permita que objetos estranos esten en la mesa o cerca de la cuchilla cortadora.
- **TENGA SUMO CUIDADO** al tocar y cambiar la cuchilla. Heridas severas y hasta desmembramiento pueden resultar del manejo sin cuidado o negligente.
- El suelo alrededor de la guillotina debe mantenerse despejado y libre de recortes, desperdicios, aceite y grasa.
- Al haber la necesidad de reemplazar partes hidraulicas, afloje todas las conexiones poco a poco para dejar escapar la presion. Jamas debe aflojarse conexiones mientras la maquina este
- andando.
- Si la guillotina empezara a sonar o trabajar diferentemente a lo acostumbrado, desconectela y consulte la seccion “Troubleshooting” (Reparador) de este manual. Si no es posible corregir el problema, llame a su servicio autorizado para que le examinen la maquina.
- **PELIGRO DE MACHUQUE** - Mantenga manos y dedos fuera de la agarradera mientras sujeta el papel. Use el calibrador trasero y su rueda de mano para empujar el papel cortado. **NO PONGA SUS MANOS BAJOLA CUCHILLA O AREA DE LA AGARRADERA.**
- **NO OPERE SIN LAS GUARDAS PROTECTORAS!**

¡ OJO ! PRECAUCION - Como proceder para desconectar la corriente electrica.

Para maxima seguridad durante ajustes y reparaciones de su maquina, verifique bien que el interruptor principal de control de corriente al cual la maquina esta conectada, este desconectado. El interruptor deba ser puesto en la posicion “OFF” (desconectado) y se debe poner un candado en la anilla. La llave del candado debe ser guardada por la persona que estara efectuando los trabajos de servicio o de reparacion en la guillotina.

Desconecte la corriente electrica antes de proceder a hacer cualquier ajuste o reparacion o de efectuar el engrase en cualquier maquina.

3.0 Packing List

Part No.	Description	Qty.
	Basic Machine	1
Extension Side Tables:		
47166	18 x 24 Steel Side Table	2
47164-1	Side Table Back Plate	2
H-6913-606	Side Table Bolts	8
H-6424-6	Side Table Hex Nuts	8
H-6939-616	Leveling Screws	4
H-6913-6008	Side Table Bolts (shipped installed)	6
H-7321-6	Side Table Plain Washers (shipped installed)	6
H-7327-12	Side Table Lock Washers (shipped installed)	6
47006-2	False Clamp Plate (shipped installed)	1
47508	Knife – HSS	2
H-6918-608	Knife Bolts	6
8815	Knife Washers, Special	6
4171	Cutting Sticks (one installed)	4
47575	Knife Lifter Assembly	1
A-12608-4	Jogging Aid	1
Tool Kit:		
5064	Cutting Stick Puller	1
W-164	Hex “T” Wrench	1
W-158	5/16 Open End Wrench	1
W-141	1/8”	1
W-137	5/32”	1

4.0 Specifications

Description	Inch Units	Metric Units
Cutting Width	30 ½”	77.5 cm
Clamp Opening	4”	10.2 cm
Clamping Force	1,800 – 5,000 lbs.	8 – 22 kN
Minimum Cut – Standard	¾”	1.9 cm
- Special	½”	1.3 cm
- w/ False Clamp Plate	2”	5.1 cm
Table Space		
Front: (std.)	25”	63.5 cm
Back:	30 ½”	77.5 cm
Dimensions		
Table Height	36 ½“	92.7 cm
Overall Height	58 ½”	148.6 cm
Overall Length	69 ½”	176.5 cm
Overall Width	48 ½”	123 cm
w/ Side Tables	78 ½”	200 cm
w/o Side Tables	48 ½”	123 cm
Approx. Net Weight	2,550 lbs.	1,157 kg
Approx. Shipping Weight	2,750 lbs.	1,247 kg
Will pass through door:		
Assembled	49”	125 cm
Table/treadle out	42”	112 cm
Table/treadle/pwr unit out	24-1/2”	63 cm
Electrical		

Standard: 5 HP, 3 Phase, 60 Hz AC; 208/230V, 25 Amps (Service size: 40 Amps)
Optional Phase Converter Kit: **K-3482** (1 Phase, 208/230V, Service size: 50 Amps)

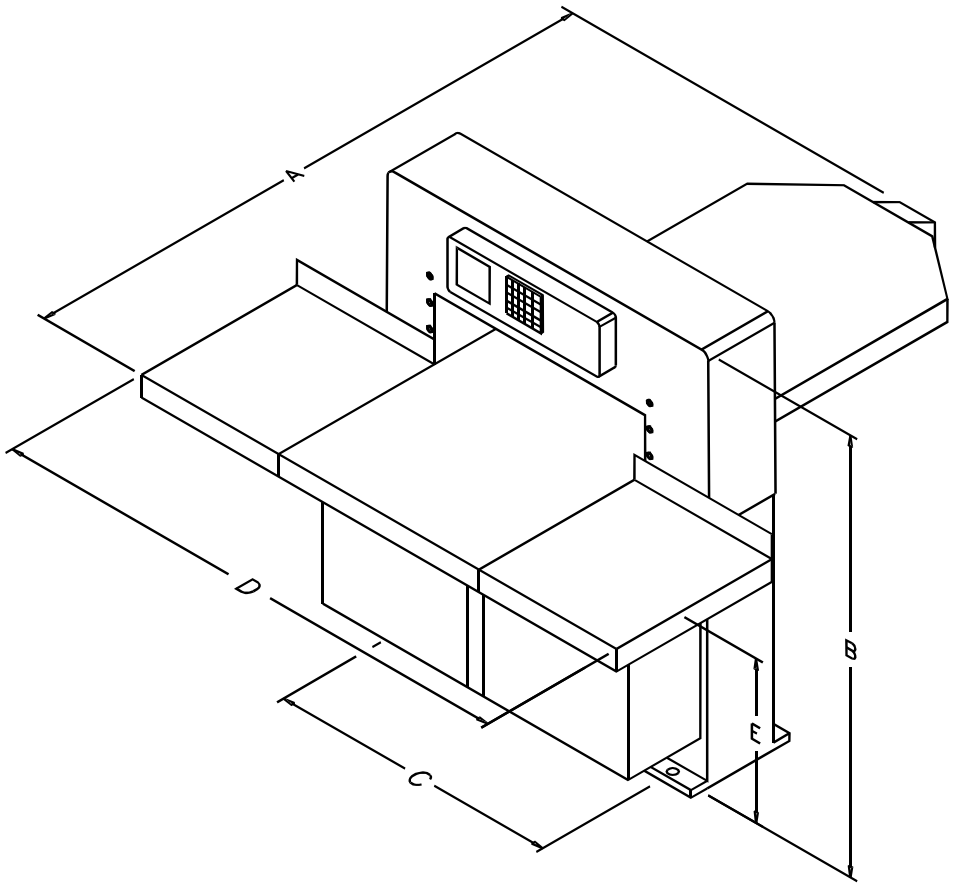
Optional: 5 HP, 3 Phase, 60 Hz AC; 460V, 11.5 Amps (Service size: 20 Amps)

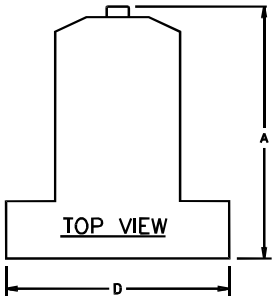
Optional: 5 HP, 3 Phase, 50 Hz AC; 380/415V, 10 Amps (Service size: 20 Amps)

Electric Eyes –
Response time = 68 ms
Object detection capability = 12 mm

Challenge reserves the right to make changes to any product or specification without notice and without incurring responsibility to existing units.

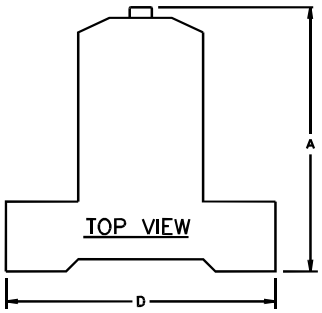
5.0 Footprint





STANDARD SIDE TABLES

		CHAMPION 305		CHAMPION 370	
Symbol	Specification	Inch	cm	Inch	cm
A	Overall Length	69.5	176.5	86.25	219.1
B	Overall Height	58.5	149	60.0	152.4
C	Mounting-Front	41.5	105	60.25	153
D	Overall Width	78.5	200	109.0	276.9
E	Floor to Table	36.5	93	36.0	91.4
	Net Weight	2550lb	1159kg	3750lb	1701kg



LARGE SIDE TABLES

		CHAMPION 305	
Symbol	Specification	Inch	cm
A	Overall Length	76.5	194.3
B	Overall Height	58.5	149
C	Mounting-Front	41.5	105
D	Overall Width	102.5	260.4
E	Floor to Table	36.5	93
	Net Weight	2600lb	1180kg

6.0 Installation & Setup

6.1 Inspecting Shipment

This machine has been carefully packed to prevent damage during shipment. However, claims for damage or loss are the responsibility of the recipient. Inspect all shipments as soon as they are received. If there is any noticeable damage, note it on the freight bill. Visual and/or hidden damage must be reported to the claims department of the carrier within 15 days. Contact your dealer if you need any assistance. Check the contents of the box against the packing list on page 8. Make sure there are no missing items.

6.2 Uncrating

This machine is lagged to a wood skid and covered with a triple-walled corrugated container. Loosen the flaps of the carton where they are attached to the skid. When loose, the carton can be lifted straight up. Remove the side tables and accessory box, which are also attached to the skid. Place the cutter/skid about where the machine will be positioned and remove the lag screws from the skid.

6.3 Lifting/Moving Instructions

Unpacking, handling, and positioning should be done by professional riggers. If handling or unpacking is a problem, your dealer or a local trucking facility should be able to supply or recommend a qualified rigger. This 2550-lb/1157-kg machine should be moved with experienced people and the proper equipment. Do not risk personal injury or damage by attempting to move machinery with inadequate equipment or manpower.

Lifting straps may also be used to lift the machine by placing the straps around the front and rear of the table. When straps are used in this way, wood blocks must be placed beside the lead screw to prevent damage, (Figure 2). A bent lead screw will cause the backgauge to bind.

Figure 2

The backgauge should be positioned all the way to the front of the table and straps placed as close the machine body as possible. Gently lift the cutter, remove the skid and carefully place the cutter on the floor.

Once the machine is off its skid, it can be moved with a forklift or pallet jack from the front. DO NOT attempt to lift the machine from the sides or rear.

6.4 Cleaning

Wipe down the table and bare metal surfaces with a non-flammable solvent such as CRC or blanket wash. The table surface is cast iron, and it will rust if left unprotected. Coat the table with a non-abrasive wax. A Cutter Care Kit, p/n **16077**, with cleaner and wax, is available through your Authorized Challenge Dealer. The protective film on the console may be removed. ***Never*** clean console with petroleum based solvents – damage will result.

6.5 Assembly

Unless otherwise specified, the only items that have been disassembled for shipping are the knife, extension tables, and reach-around shields on the electric eyes. Knife installation instructions are found in Section 8.0 Knife Installation/Changing. Extension table and reach-around shield attachment instructions are as follows:

NOTE: Extension tables are heavy. Use two people to attach them to the machine.

1. Assemble the back plates to the extension tables. The extension table bolts and hex nuts are packed in the tool kit box. Install the back plates such that the half-circle notch at the top of the plates go toward the center of the cutter. These notches provide clearance for adjusting the lower knife gib bolt.

2. One person should hold the extension table in position while the other aligns the holes and starts threading the mounting bolts with washers. The mounting bolts are shipped installed in the side of table- remove them to install tables.

3. Use a 9/16” socket and extension to snug tighten the mounting bolts, then tap the extension table up or down with your hand or a rubber mallet until it is flush with the main table. Run a straight edge or sheet of paper over the seam to check the fit. Make sure your stock will not catch on the seam.

4. Insert the leveling setscrews into the threaded holes next to the mounting bolts. You may have to loosen the mounting bolts slightly to allow enough play to level the table. After the extension tables are leveled and the surface joints even, tighten the mounting bolts securely.

5. The extension tables are powder-coated and need only be wiped down with a dry cloth. DO NOT apply solvents or abrasive cleaners to extension table surfaces. They may cause discoloration or scratches.

NOTE: The reach-around shields for the electric eyes are in their shipping positions – follow the instructions below to secure them in their operational position.

1. On the bottom of the electric eye housing, loosen (but do not remove) the screw furthest back (closet to the machine frame) on each side.

2. On the bottom of the electric eye housing, loosen and remove the front two screws. Now rotate each shield back and to the side – away from of the cut area. Line up the front holes and re-install the front two screws. Tighten all screws (See the instruction sheet included in the shipping material for more details).

ATTENTION: FAILURE TO INSTALL THE REACH-AROUND SHIELDS COULD CAUSE A POTENTIAL CRUSH/LACERATION HAZZARD – THE SHIELDS ARE THERE FOR YOUR SAFETY.

6.6 Hydraulic Power Unit Removal

If installation requires that the machine pass through a doorway that is less than 49" but greater than or equal to 42" wide, the machine should have been ordered from Challenge "knocked down" with the table removed. If the machine must fit through a doorway that is less than 42" and greater than or equal to 24-1/2", the hydraulic power unit must be removed on-site. To remove the hydraulic power unit, follow the instructions below.

1. Disconnect the electrical conduits to the hydraulic motor, air blower, and hydraulic cooling fan, junction box.

2. Remove the filler cap and use a transfer pump to remove the hydraulic fluid into buckets.

3. Locate the hose that connects the manifold to the oil filter. Disconnect it from the filter. Disconnect the hydraulic pump hose from the manifold. Attach the hose that was connected to the manifold to the oil filter. Attach the hose that was connected to the filter to the manifold. This will minimize oil leakage. After the unit is installed, reconnect the hoses to their original location.

4. Remove the (4) bolts that attach the hydraulic assembly to the cutter base. They are located at the bottom shelf the base.

5. USE EXTREME CAUTION WHILE REMOVING THE POWER UNIT. It is very heavy and should be removed using a fork truck. CAUTION, the machine will be top heavy and may tip easily with the power unit removed. Move the reservoir through the doorway on its side.

6. DO NOT ATTEMPT TO LIFT THE CUTTER BY PLACING STRAPS OR THE FORKS OF A TRUCK UNDER THE CLAMP. This can damage the machine.

7. Reinstall the power unit, conduits, hoses, after the machine is in position. Refill the hydraulic reservoir.

6.7 Hydraulic Check

The hydraulic reservoir is filled with 13-1/2 gallons of ISO VG 46 hydraulic oil at the factory. The fluid level should be checked during installation, and at least once per week during normal operation. The reservoir is located behind the cutter, beneath the table (Figure 3). Remove the filler cap to check the fluid level. The fluid level should be approximately 2" (5cm) from the top of the tank.

NOTE: DO NOT OVERFILL. Overfilling may cause leakage when the machine is hot.

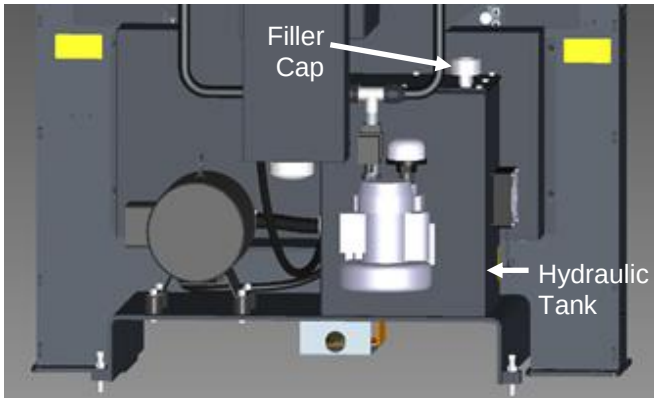


Figure 3

6.8 Power Hook-Up

For satisfactory operation, be sure that your cutter is wired for the correct phase and voltage and has adequate power. The correct electrical specifications for your machine are shown on the serial plate. Check the machine serial plate before connecting the power. For future reference, transfer this information to the front cover of this manual.

Watch Setup Voltage- Inadequate power to the cutter can be a major source of problems. Too many machines on the same circuit will reduce the power to each machine. Inadequate voltage will cause overheating, loss of power, and in extreme cases, failure to operate. Test line voltage when the shop is at actual working levels. Challenge recommends a dedicated line with a lockable disconnect to provide adequate power for this machine.

⚠ CAUTION **CAUTION**: **SHOCK HAZARD! Always disconnect power at main power panel before working on the cutter. Lock it out to prevent accidental power up. (See Power Lockout Procedure page 5).**

Important: You must have an adequate size circuit and heavy enough wiring for this machine. The circuit size should be a minimum of 20% greater than the amperage rating on the machine nameplate. If a wire is run over 75 feet (23 meters), the next size wire should be used. Check local electrical codes.

Electrical Specifications for Champion Cutters

Volts	Amps	Phase	Hz	Circuit Size	Wire Size	Metric Wire
208/230V	25A	3 PH	60 Hz	40A	#8 AWG	4mm sq.
460V	11.5A	3 PH	60 Hz	20A	#12 AWG	10mm sq.
380/415V	10A	3 PH	50 Hz	20A	#12 AWG	10mm sq.

The power source is connected to the cutter through the bottom of the power panel (right hand side).

Hook-up procedure:

1. ***DISCONNECT AND LOCK OUT THE POWER*** at the main panel to prevent accidental power up. (See Power Lockout, page 5).

2. Thread the power cord through a conduit connector into the power panel.

3. Fasten the ground lead to the ground terminal lug (Figure 4).

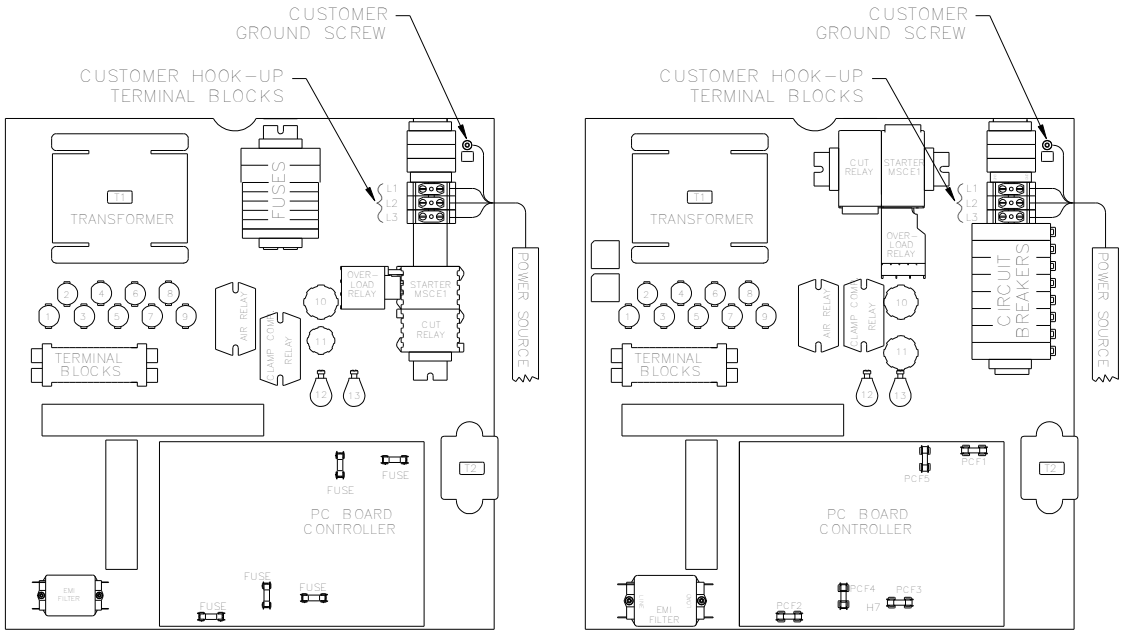


Figure 4

4. Fasten the three power leads to the three terminals of the main power terminal block- L1, L2, & L3.

5. Close the electrical panel doors and latch them. Unlock the main panel and turn on the power. Turn on the main power disconnect switch located on the front face of the table.

6. Press both cut buttons simultaneously to activate the motor and check to make sure it is turning the same direction as the arrow on the motor casing. If it is not turning the proper direction, disconnect the power and exchange any two leads of the power cord as in Figure 5.

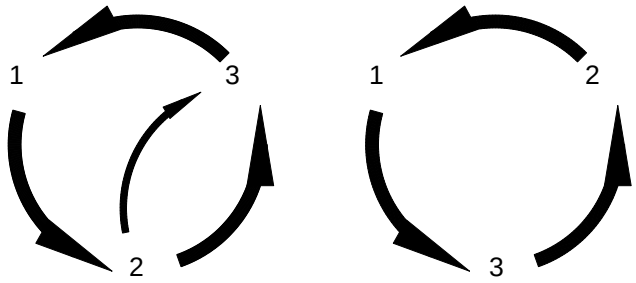
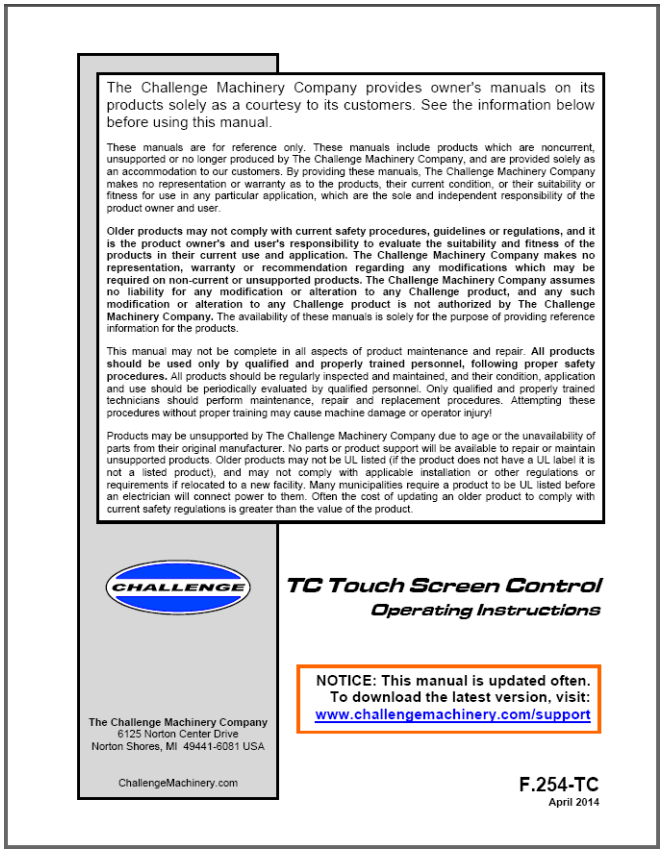


Figure 5

7.0 Operation

IMPORTANT: DO NOT ATTEMPT TO OPERATE YOUR CUTTER UNTIL YOU HAVE THOROUGHLY READ AND UNDERSTAND ALL OF THE INSTRUCTIONS FOUND IN THE OPERATOR AND INSTRUCTION MANUALS INCLUDED WITH YOUR CUTTER. CALL YOUR AUTHORIZED CHALLENGE DEALER IF YOU STILL HAVE ANY QUESTIONS.

Complete operating instructions for all TC Model paper cutters can be found in the TC Touch Screen Control Operating Instructions manual that was included with your machine (Figure 6). If you do not have a copy, or to download the latest version, visit: www.challengemachinery.com/support.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CHALLENGE

TC Touch Screen Control
Operating Instructions

NOTICE: This manual is updated often. To download the latest version, visit: www.challengemachinery.com/support

The Challenge Machinery Company
6125 Norton Center Drive
Norton Shores, MI 49441-6081 USA

ChallengeMachinery.com

F.254-TC
April 2014

Figure 6

7.1 False Clamp Plate

To prevent marking on pressure sensitive jobs, a false clamp plate has been included (installed) with your machine. This plate attaches to the bottom of the clamp. It is secured from the front of the cutter with three set screws.

⚠ CAUTION ALWAYS disconnect the power and LOCK IT OUT before installing or removing the false clamp plate. NEVER attempt to install or remove the false clamp plate while the machine is running. Remove all tools and stand clear when reconnecting power.

To install:

1. *DISCONNECT THE POWER AND LOCK IT OUT! (*See Power Lockout, page 5.)

2. Position the false clamp plate under the clamp, (Figure 7). The locator pegs are positioned to the rear of the cutter and are set into holes in the bottom of the clamp.

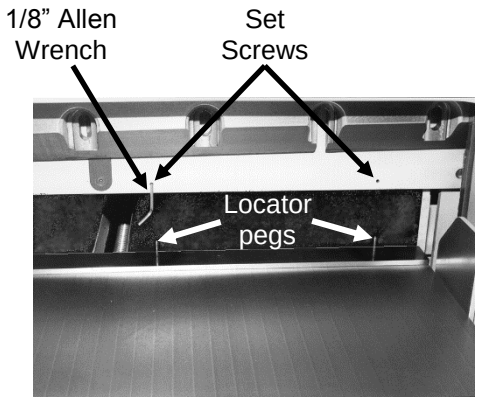


Figure 7

3. With a 1/8" Allen wrench, back off the setscrews in front of the clamp and raise the plate up to the bottom of the clamp. It may be necessary to bring the clamp down onto a stack of paper with the foot pedal in order to access the far left setscrew. Raise the false clamp plate evenly or it will have a tendency to bind. When the plate has been raised into position and is flush with the bottom of the clamp, tighten the setscrews to hold the plate in position.

4. Make sure that all tools have been taken off the cutter table, reconnect the power, and turn on the machine.

NOTE: The backgauge will not move to a position less than 2" (51 mm) when the false clamp plate is installed in the clamp.

When the false clamp plate is not in use, store it on top of the cutter, with the locator pegs inserted into the 3 holes in the top cover. There is a sensor inside one of these holes that detects when the false clamp plate is on top of the machine, thereby informing the machine that the false clamp plate is not installed in the clamp. This allows the backgauge to be positioned less than 2” (51 mm), which it will not do when the false clamp plate is installed in the clamp.

8.0 Knife Installation/Changing

⚠ CAUTION Changing knives can be very dangerous unless safety precautions are observed and extreme care is taken when handling knives.

- Make sure knife lifters are properly installed, see instructions following.
- Keep handling of unprotected knives to an absolute minimum.
- Clear off cutter table before removing knife.
- Have scabbard on cutter table and insert knife immediately.
- Warn people of any unprotected knife.
- Knife changing is a **ONE PERSON OPERATION**. Having more than one person trying to change knives invites accidents.

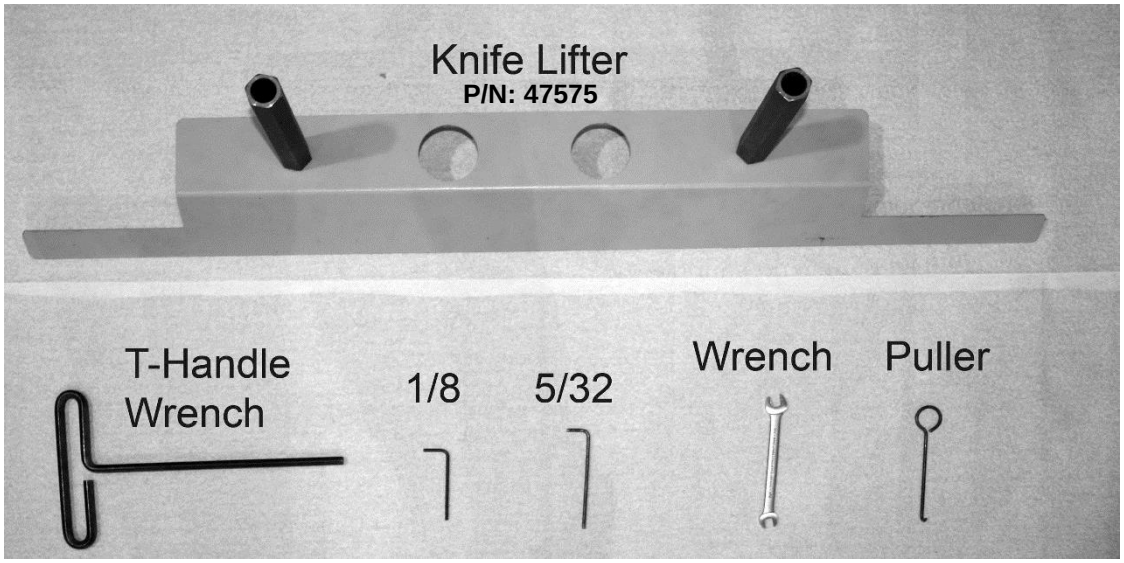


Figure 8 – Knife Changing Equipment

The knife changing equipment shown in Figure 8 is included in the cutter tool kit. The following instructions show how to remove and install a new or re-sharpened knife. Read these instructions AT LEAST ONCE before attempting to actually change or install any blades.

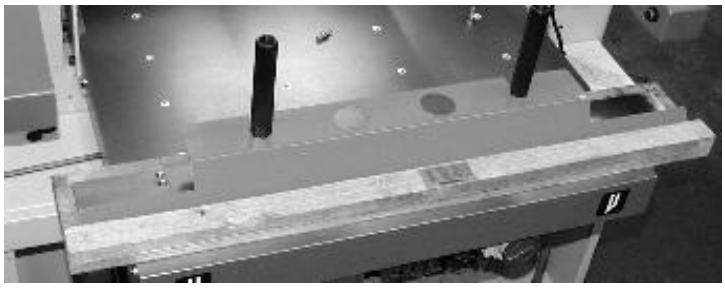


Figure 9

8.1 Knife Removal

1. Clear the cutter table. Place chipboard directly under the knife to prevent nicking if the blade hits the table. On the TC touch screen menu choose “MAINTENANCE” and then “KNIFE CHANGE”. Select “Knife Adjust Mode” then press and hold both cut buttons until the knife and clamp reach the table. Now release the buttons (the knife and clamp should stay down).

2. ***DISCONNECT THE POWER AND LOCK IT OUT***, (See Power Lockout Procedure on pg. 5).

3. If equipped with the paper deflector option, lock it down by screwing the lock knob all the way in (Figure 10).

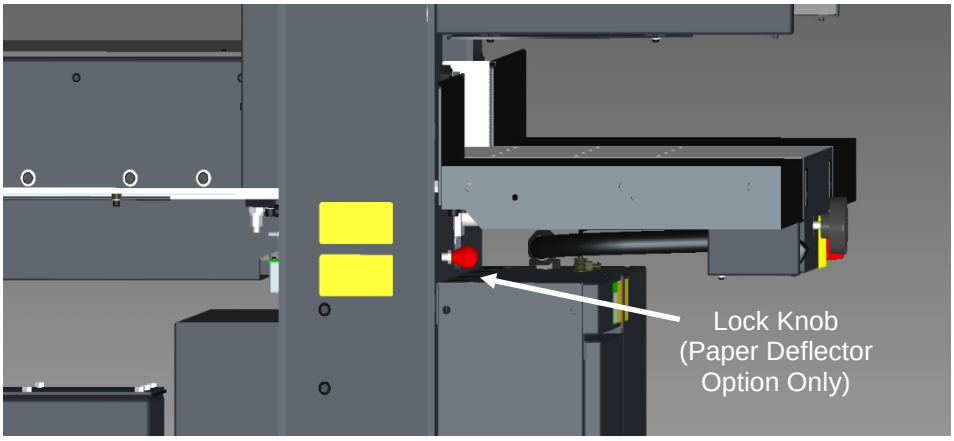


Figure 10 – Paper Deflector Locking Knob

4. Back off the knife adjusting screws on the top of the knife bar, (Figure 11), as far as they will go (counter-clockwise). A new knife will cut deeper than a knife that has been ground several times. If the adjusters are not backed off, damage can result to the new knife and/or the cutting stick.

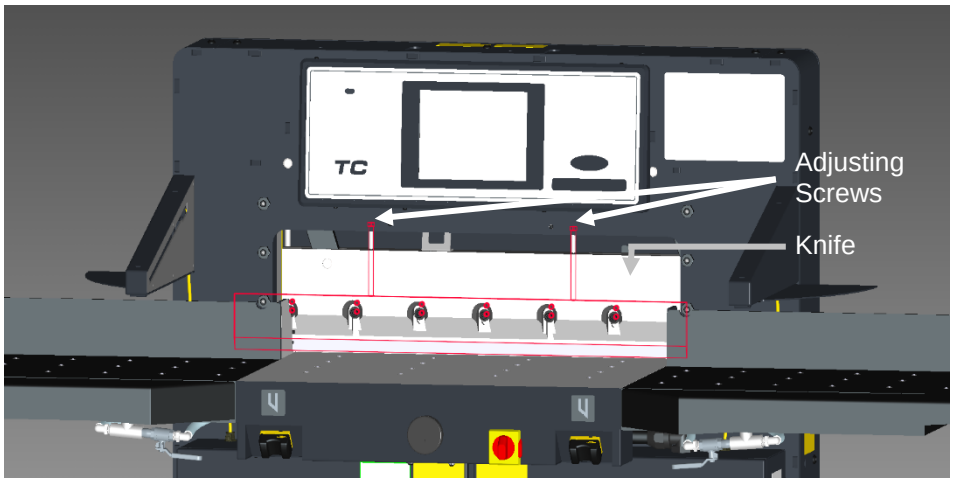


Figure 11 – Knife Adjusting Screws

5. Restore power to the machine and turn it ON. Follow the prompts on the screen to raise the knife and clamp.

6. ***DISCONNECT THE POWER AND LOCK IT OUT***, (See Power Lockout Procedure on pg. 5).

7. Remove the bolts in the two slotted holes of the knife bar and insert the knife lifter by screwing in the two knife lifter handles. Tighten the handles enough to hold the blade in place. Remove the remaining four bolts (Figure 12). The leftmost bolt must be removed while the knife bar is "UP".

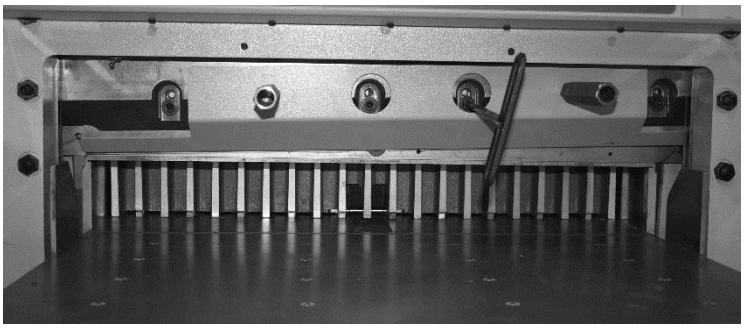


Figure 12

8. Clear the table and put the empty knife scabbard on the table.

⚠ CAUTION **DANGER:** Used knives are heavy and still very sharp. Be careful to keep the edge away from your body and keep other people out of the area while handling the blade. Severe lacerations and dismemberment could result from careless handling procedures.

9. Grasp the knife lifter handles firmly while turning counterclockwise to release the knife from the knife bar. Slowly lower the knife down and to the right. Bring the left side out first.

10. Place the knife with attached lifter on top of the scabbard. Remove the lifter and slide the knife into alignment with the scabbard screw holes. DO NOT FORGET TO INSTALL THE SCABBARD SCREWS!

11. Send the dull knife to the grinder.

8.2 Knife Installation

1. Use the cutting stick puller, (Figure 13), to remove the cutting stick. Turn the cutting stick to a new surface.

Figure 13

2. Check to make sure the paper deflector is locked down (Figure 10, page 19). Also check that the knife adjusting screws have been backed out, (Figure 11, page 19).

3. Place the new knife scabbard on the cutter table.

4. Remove the knife retainer screws.

5. Place your fingers along the top edge of the scabbard and your thumbs in the holes in the knife.

6. Pull the knife up in its scabbard until the bevel is exposed.

7. Place the lifter on top of the knife and insert the knife lifter handles into the corresponding knife bolt holes (use the lowest holes) and thread the handles into the knife until they touch the scabbard. Then back the handles off 1/2 turn.

8. Grasp the knife lifter handles, lift the blade, and insert the blade into the knife bar slot. Slowly guide the blade into the cutter right end first, then bring the left end in parallel to the knife bar. Raise the knife into the knife bar slot as high as it will go. Tighten the handles firmly to hold the knife. An installed lifter is shown in Figure 14 below.

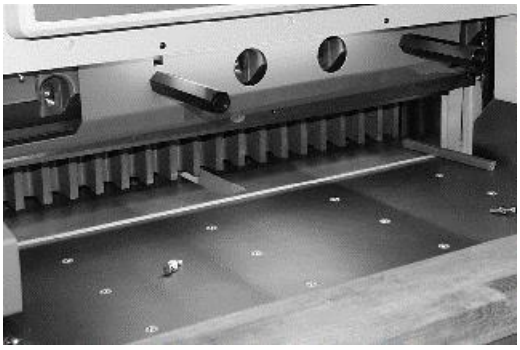


Figure 14

NOTE: If the blade will not go in, either the handles are screwed into the blade too far or the blade is not centered over the table, and the end of the blade is hitting the end stop in the knife bar.

9. Insert the rest of the knife bolts and washers, snug tighten them, but don't tighten completely. Be sure all bolts have washers. The correct washers are important for proper bolt clearances!

10. Remove the knife lifter and insert the remaining two bolts and washers and snug tighten.

11. Place paper across the table to cover the cutting stick.

12. Restore power to the machine and turn it ON. Follow the prompts on the screen to preset the backgauge. Then choose "MAINTENANCE" and then "KNIFE CHANGE". Select "Knife Adjust Mode" then press and hold both cut buttons until the knife and clamp reach the table. Now release the buttons (the knife and clamp should stay down).

13. ***DISCONNECT THE POWER AND LOCK IT OUT***, (See Power Lockout Procedure on pg. 5).

14. Turn the knife adjusters down (Figure 11, page 19) a little at a time, until the blade cuts through the paper evenly over the entire length of the stick. Be sure the blade is parallel to

the cutting stick, or one end may cut deeper than the other, causing uneven wear on the stick.

15. Tighten all the bolts and release the paper deflector.

16. Restore power to the machine and turn it ON. Follow the prompts on the screen to raise the knife and clamp, and then to preset the backgauge.

17. Make a test cut through a full lift of stock. Make minor adjustments by loosening the bolts and repeating steps 9 through 11.

NOTE: If the knife ends cut but the middle does not, you could have dips or uneven spots in either the knife or the cutting stick. These can be eliminated to some extent by laying 1/2" (13mm) strips of paper beneath the cutting stick to shim it up.

8.3 Knife Care Tips

⚠ CAUTION ! KNIFE SAFETY ! Knives are DANGEROUS!!! They are heavy and very sharp, even after use. Keep the edge away from your body and keep the area clear of others when handling knives. Never touch the cutting edge! To prevent personal injury and damage to the knife, always keep knives in their holders with screws tightened. You are aware of the dangers, but others may not be. Never attempt to hone, polish, or service the knife in any way. Failure to follow safety procedures may result in severe lacerations or dismemberment.

8.3.1 Knife Blade Life

Knife blade life, or the time between sharpenings, can be affected by many factors. One important factor is the type of paper being cut. Abrasive paper, such as recycled paper, soft paper such as newsprint paper, and bound books can all significantly shorten knife blade life. Also, if the knife depth is set too deep, the knife will cut too deep into the cutting stick and can dull the knife blade.

A knife can last between 2,000 and 5,000 cuts before it needs to be sharpened. Cutting soft paper (such as newsprint paper) or paper with high post-consumer recycled content can cause the knife to need sharpening after only 2,000 to 3,000 cuts. Cutting pure paper, such as bond paper with no recycled content, or hard paper can allow the knife to be used for as many as 5,000 cuts before it needs to be sharpened. In all cases, the operator should continually check the quality of the cut to determine when the knife blade needs to be sharpened. Some characteristics that indicate a blade needs sharpening are:

- The knife hesitates or stalls while making a cut.
- The sheets are not all cut to the same length (usually the top few sheets are longer than the rest of the sheets - this is sometimes called “draw”).
- Cut marks appear on the cut face of the paper.
- The profile of the cut (side view) is not perpendicular to the table.
- The cut does not appear straight when viewed from the top.
- The knife makes a “rougher” sound as it passes through paper.
- Nicks are visible on the cutting edge of the knife.

8.3.2 Cutting Stick

A worn cutting stick can affect the cut quality of the bottom sheets. When this happens, the cut stick can be rotated. Usually, the stick should be rotated one or two times between knife sharpenings.

There are 8 possible cut stick positions. The stick can be rotated 4 times, and then turned end to end, and rotated 4 times again.

8.3.3 Bevel Angle

Challenge recommends that bevel angles for the Champion 305 knives be in the range of 21° to 23°. In general, a 21° bevel angle will provide better cut quality when cutting soft paper (such as newsprint), recycled paper, or bound books. However, 21° angle knives can become dull sooner than 23° knives, which results in shorter knife blade life. A knife with a 23° bevel angle, on the other hand, will not dull as easily, and can provide satisfactory results when cutting most types of paper. Knives shipped with the Champion 305 from the factory have a bevel angle of 23°.

8.3.4 Helpful Suggestions

- If your establishment is large enough to purchase more than one set of knives, have one set beveled at 21° and the other at 23°. Note: A set consists of 3 knives: one in the machine, one as a back up, and one at the grinder.

- If the machine seems to strain but the cut quality is still good, reduce the pile height. You may also carefully apply glycerin to the bevel when cutting hard, coated paper. Tie a cloth to the end of a stick; dip the stick in glycerin, and apply. Never apply by hand! In lieu of glycerin you may lightly rub white bar soap along the bevel. Lubrication will prolong the life of your machine and reduce maintenance.

8.3.5 Knife Care

- To prevent corrosion, knives are coated with light oil. It should be REMOVED WITH CARE.

- While removing or installing a knife, be careful not to allow the edge to bump against the machine. Nicks will result.

- If a knife bolt is damaged, replace it.

- Always keep knife bolts securely tightened.

- Always use the heavy-duty knife bolt washers provided by Challenge. Failure to do so could result in scratching or marring of the clamp face.

- Store knives in a dry environment to prevent corrosion.

- Never attempt to service a knife in any way.

Maintenance Section

⚠ NOTICE ⚠

The instructions on the following pages are for the use of trained service personnel only!

Attempting to perform repair and replacement procedures without proper training may cause machine damage or operator injury!

PARTS CUSTOMERS: Parts with the express understanding that they are to replace parts found missing or no longer serviceable on equipment designed and/or manufactured at Challenge. The Challenge Machinery Company assumes no liability for any modification or alteration to any Challenge products, and any such modification or alteration to any Challenge product is not authorized by The Challenge Machinery Company. Any modification or alteration of any Challenge product will void any remaining warranty.

9.0 Cleaning

9.1 Table

The table of a paper cutter requires periodic maintenance to remove surface oxidation. Polishing is also required to provide a smooth surface for paper to move freely. The frequency of this maintenance will be determined by a number of factors. Among these are the humidity, environmental dust, handprints, liquid spills, and type of paper stock. We recommend the use of the **Challenge Cutter Care Kit P/N 16077** for of your table care needs.

To prepare a new machine's table, follow the procedure below:

1. Remove the rust-protective coating from the table with a solvent.

2. Remove all solvent residue from the table with a dry cloth. Continue until the cloth shows no sign of residue.

3. Apply a light coating of an SAE 10-weight non-detergent motor oil or equivalent to the table and allow it to penetrate for at least one hour.

4. Remove all excess oil from the table with paper toweling (not cloth) until the paper towel you are using shows no sign of oil.

5. Apply a paste wax (Challenge P/N 16078) to the table to seal the pores of the metal.

Note: Do not use a wax that contains a cleaning compound on the table. The cleaner contains microscopic abrasive particles that will cause wear between the table and the bottom of the backgauge. A silicone spray (Challenge P/N 16079) will show the same type of wear as the cleaner if the excess silicone is not removed. If the excess is not removed, the silicone spray has a substance that holds the silicone to the surface it is sprayed on that causes a black, gummy build-up under the backgauge. If a silicone spray is used, paper toweling must be used to remove the excess to prevent this wear and build-up.

To clean surface oxidation from a table, follow the procedure below:

1. Spray "Rust-B-Gone" (Challenge P/N 16080) on the table and allow it to dissolve the rust. Then remove it with paper toweling. Or, pour a small quantity of SAE 10-weight motor oil onto the table. Using a Scotch-Brite Pad or a 400 grit sand paper, polish the table following the "grain" of the metal until all oxidation is removed to your satisfaction.

2. Remove all of the oil from the table until the cloth you are using shows no sign of residue.

3. Apply a light coating of an SAE 10-weight non-detergent motor oil or equivalent to the table and allow it to penetrate for at least one hour.

4. Remove all excess oil from the table with paper toweling (not cloth) until the paper towel you are using shows no sign of oil.

5. Apply a paste wax (Challenge P/N 16078) to the table to seal the pores of the metal.

Note: Do not use a wax that contains a cleaning compound on the table. The cleaner contains microscopic abrasive particles that will cause wear between the table and the bottom of the backgauge. A silicone spray (Challenge P/N 16079) will show the same type of wear as the

cleaner if the excess silicone is not removed. If the excess is not removed, the silicone spray has a substance that holds the silicone to the surface it is sprayed on that causes a black, gummy build-up under the backgauge. If a silicone spray is used, paper toweling must be used to remove the excess to prevent this wear and build-up.

9.2 Console

- The console should be cleaned with a mild water based detergent applied to a damp cloth or paper towel. Petroleum based solvents will damage the console.

9.3 Machine Frame

1. The machine frame should be cleaned with a mild, water based detergent applied to a damp cloth.

2. Always be careful when cleaning around safety warning labels. Use limited amounts of cleaners in those areas.

10.0 Lubrication

A clean, lubricated machine will cut more accurately, run longer, with less downtime, and fewer repairs.

Schedule lubrication maintenance both early in the day and early in the week. This allows the lubricants to work into the machine. Lubrication at the end of the day or week allows the lubricants to run off without any benefit to the machine.

Clean off dirty, excess grease. Clean accumulated dust off valves, hoses, and connections. Dust build-up increases operating temperatures and causes premature wear of all hydraulic components.

Oil and grease **WEEKLY** as described below.

When necessary, send the knife down by choosing “MAINTENANCE” and then “KNIFE CHANGE” on the TC touch screen. Select “Knife Adjust Mode” then press and hold both cut buttons until the knife and clamp reach the table. Now release the buttons (the knife and clamp should stay down).

DISCONNECT THE POWER AND LOCK IT OUT, (See Power Lockout Procedure on pg. 5).

Most moving parts require lubrication. Remove all panel covers and look for all oil locations (marked with red paint). Make sure oil holes are not plugged and lubricate with a 30 weight oil. See the photos below for critical locations (not all locations are illustrated here). Notice that some are oil locations and some are grease points. Wipe off old and excess grease. Use a National Lubricating Grease Institute No. 2 consistency, extreme pressure grease.

⚠ CAUTION **Replace all guards before operating. Never operate cutter with any guards removed.**

GREASE  **OIL** 

Backgauge leadscrew (oil):

Figure 15

Knife bar pull-down pin (oil):

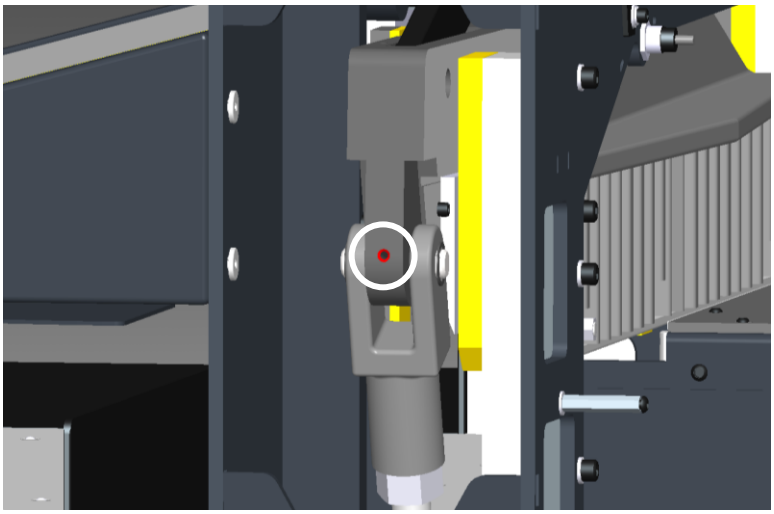


Figure 16

Left and right clamp guides (grease):

Figure 17

Lower knife and clamp cylinder pins (oil):

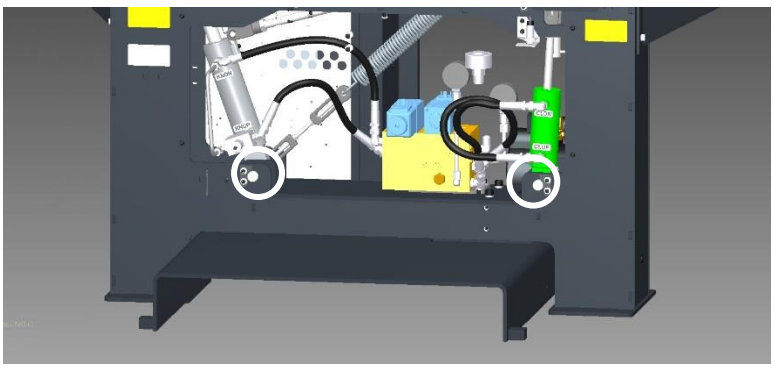


Figure 18

Wipe down the knife bar to remove dust and debris (Figure 19).

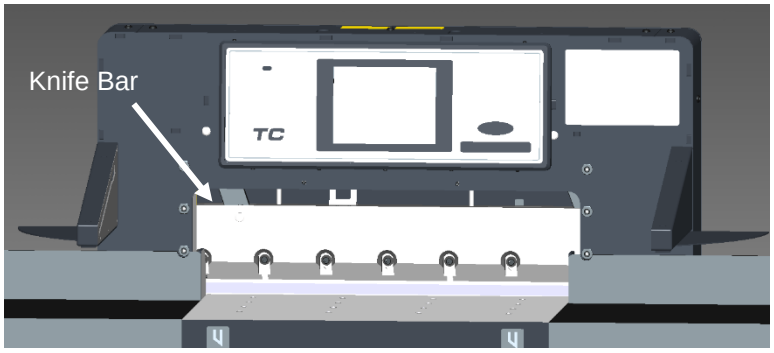


Figure 19

Check knife bar link, bell crank, and hydraulic cylinder pin keepers to make sure they are in place and secure (Figure 20).

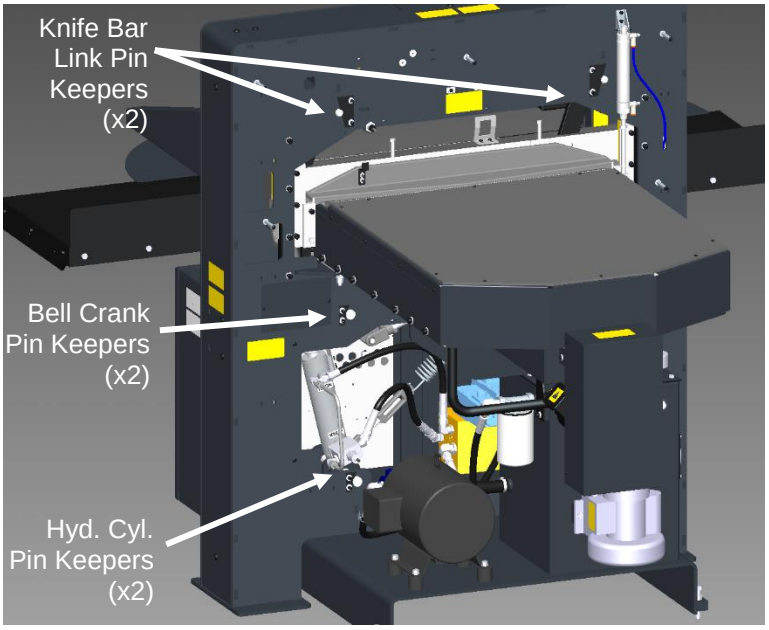


Figure 20

11.0 Hydraulic System

The Champion Series Cutters have both hydraulic cutting and hydraulic clamping operation. The cutter is powered by an electric motor coupled directly to a hydraulic pump. The pump has a fixed flow rate output of 5 GPM at 1,800 psi (max. system relief setting) at 1,800 RPM.

The clamp action is powered by a hydraulic cylinder. When the cut buttons are depressed, this cylinder pulls on the clamp bell crank and brings the clamp down (or brings the clamp up to full hydraulic pressure if the manual foot clamp is down). The cutting action is also powered by a hydraulic cylinder connected directly to the knife bar. The knife sequence valve generates 1,600 PSI of back pressure throughout the system to maintain full clamp pressure during the cut. One advantage of the hydraulics is the immediate return of the knife when the cut buttons are released.

The hydraulic fluid should be changed **YEARLY** or EVERY 1,000 HOURS of operation.

The oil filter (Challenge part H-227-1) should be changed **YEARLY** or whenever any repairs are made to the hydraulic system.

NOTE: Failure to change the oil and filter when needed can damage the seals in the clamp and knife cylinders.

Check the level of the hydraulic reservoir **WEEKLY** or whenever the machine sounds like it is laboring (this could be due to low oil level). The fluid level should be approximately 2" (5cm) from the top of the tank. DO NOT OVERFILL. Overfilling may cause leakage when the machine is hot.

The hydraulic tank, fan, manifold, and fittings should be wiped off **WEEKLY** to maintain maximum cooling of the tank/hydraulic oil.

11.1 Recommended Hydraulic Oil

Use only ISO (International Standards Organization) Viscosity Grade 46, rust, oxidation, and foam inhibiting, non-detergent hydraulic oil. **Oils other than the recommended type will cause seals, cups, and O-rings to deteriorate.** The proper hydraulic oil can be purchased in 5 gallon containers from your authorized Challenge Dealer using the Challenge part number: **S-1991-3**.

⚠ CAUTION NEVER USE Automatic transmission oil or brake fluid as a substitute! Oils other than the recommended type will cause seals, cups, and O-rings to deteriorate. Unsafe operations conditions will result.

11.2 Changing the Oil

⚠ CAUTION Only change oil when it is cold. Burns could result from changing hot oil.

Before beginning, you will need (3) empty five gallon buckets, three oil pans or more, a funnel and an assistant. If oil is hot, wait until it cools.

1. Make sure main power to the machine is off.
2. Remove the reservoir tank cover (Figure 21).

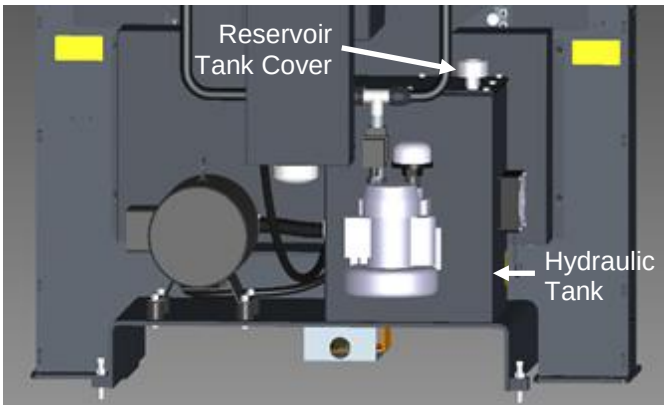


Figure 21

3. Using a hand drill and transfer pump commonly found at hardware and home improvement stores, transfer the used oil to empty containers.

4. Remove the magnet stuck to the bottom of the tank. Clean off any debris that may be attached to it.

5. With a clean rag, wipe out any visible debris remaining in the tank.

6. Place the magnet at the location from which it was removed.

7. Replace the oil filter. Place a thin film of new hydraulic oil on the seal of the new filter to insure a proper seal. Firmly hand-tighten the filter onto the filter head.

8. Using the transfer pump, fill the tank with 13.5 gallons of the recommended fluid (See Section 11.1 - Recommended Hydraulic Oil) until the fluid level is approximately 2" (5cm) from the top of the tank. DO NOT OVERFILL. Overfilling may cause leakage when the machine is hot.

9. Re-install the tank cover with gasket.

10. Before turning on the machine, make sure all hydraulic hose fittings are tight.

11. Turn on main power to the machine. Turn on the hydraulic motor by pressing both cut buttons once. Inspect the hydraulic system for leaks. If leaks are found, turn off main power to the machine and tighten any leaking fittings.

11.3 Hydraulic Valve Adjustments

⚠ CAUTION Several of the following tests require the machine to be operational for checking and adjusting. Be very careful that tools and other people are clear of moving parts and that the cutter is not accidentally operated while adjustments are being made. Disconnect the power and lock it out, (see Safety Precautions, page 5) whenever working on the machine unless the directions specifically require the machine to be powered.

NOTE: Pressure settings fluctuate with oil temperature. **Set pressures when the oil is hot.**

For initial setup, adjust in the following order:

1. **Main System Relief Valve (Figure 22) – 1,800 psi**
2. **Knife Down Sequence Valve (Figure 23) – 1,600 psi**
3. **Clamp Up Sequence Valve (Figure 22) – 400-600 psi**
4. **Clamp Pressure (TC Console) – 400min/1,400max psi**

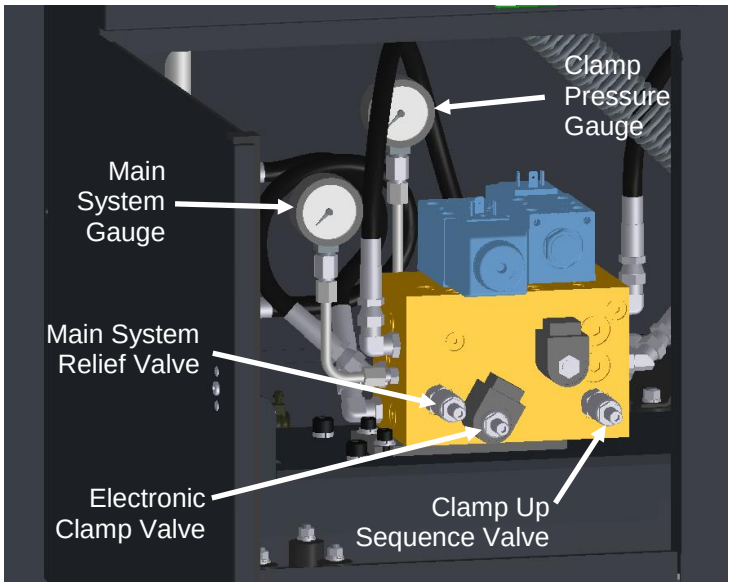


Figure 22

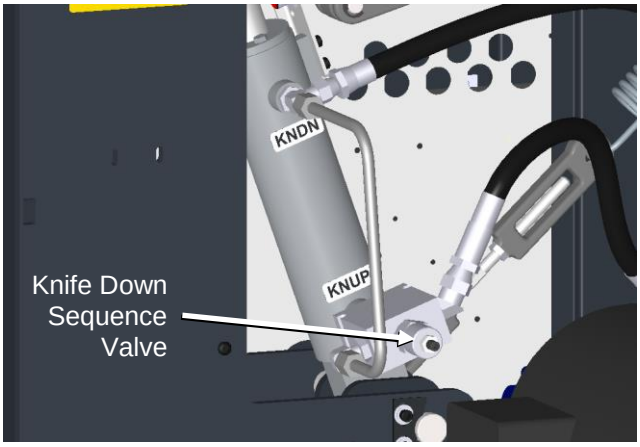


Figure 23

1. **Main System Relief Valve (Figure 22) – 1,800 psi**

   This valve maintains the overall hydraulic pressure for the entire system. Factory setting: 1,800 psi.

   To Check:

   a. Open the left access door on front of the cutter.

b. Turn the power on and make a cut to hold the knife down on the cutting stick. Read the pressure on the main system pressure gauge (front gauge) while the knife is down. If the gauge does not read 1,800 psi, an adjustment is needed. In order to have more time to read the gauge, it may be helpful to send the knife down using the "Knife Change" feature found in the Maintenance pull-down menu.

To Adjust:

a. Loosen the lock nut on the relief valve. Use an Allen wrench to turn the adjusting screw. Turn clockwise to increase pressure, counter-clockwise, to decrease pressure.

b. Make a cut and hold the buttons in. Or send the knife down using the "Knife Change" feature found in the Maintenance pull-down menu. Adjust the valve screw until you have the correct pressure.

c. Tighten the lock nut while holding the hex wrench in place.

2. Knife Down Sequence Valve (Figure 23) – 1,600 psi

This valve controls the clamp and knife sequence. It keeps the knife up until after the clamp has made contact. It is located near the lower port of the knife cylinder. Factory Setting: 1600 psi.

NOTE: Main System Pressure must be set at 1,800 psi before making this adjustment.

To Check:

a. Open the left access door on front of the cutter.

b. Press the cut buttons while reading the pressure on the main system pressure gauge (front gauge). The gauge should read approximately 1,600 psi as the knife is moving down (when bottomed, the gauge will jump to 1,800 psi showing the Main System Relief Pressure previously set).

To adjust:

a. Remove the lower rear cover.

b. Loosen the lock nut. Note: This lock nut also serves as a seal. Some hydraulic fluid may leak out while it is loose.

c. Make a cut and hold the buttons in. While reading the main system gauge, adjust the valve until you have the correct pressure. Clockwise to increase, counter-clockwise to decrease.

d. Tighten the lock nut while holding the hex wrench in place.

3. Clamp Up Sequence Valve (Figure 22) – 400-600 psi

This valve maintains clamp pressure so the clamp remains down until the knife has stopped in the up position. Factory setting: 400-600 psi.

To Check:

a. Open the left access door of the cutter.

b. Press the cut buttons, and while reading the pressure on the main gauge (front gauge), release them. The gauge should read between 400-600 psi as the clamp is going up. There should be no clamp movement until the knife is stopped in the up position.

To Adjust:

a. Remove the protective cap and loosen the lock nut on the clamp up sequence valve.

b. Make a cut, then release the buttons. Read the main gauge as the clamp is returning. Adjust the valve for a reading of 400-600 psi.

c. Tighten the lock nut while holding the hex wrench in place and replace the protective cap.

4. Electronic Clamp Pressure Setting (TC Console) – 400min/1,400max psi

The electronic clamping control allows the convenience of changing the clamp pressure at the control console, as well as the ability to program different clamp pressure settings within programmed jobs. The clamp pressure is controlled by use of a slide bar on the TC touch screen located at the lower left corner of the screen. A number between 0 and 15 will be displayed, indicating the current pressure setting (0 being the lowest, 15 the highest). To adjust the actual clamp pressures at the minimum (0) and maximum (15) settings, follow the procedure below:

Adjustment of the Electronic Valve:

a. On the TC touch screen, select the Maintenance pull-down menu then choose Setup. Then select the Service Info tab, and in the box for Enable Tabs Code, enter **6125**. Now select the Hydraulic Settings tab. The screen should look similar to Figure 24 below:

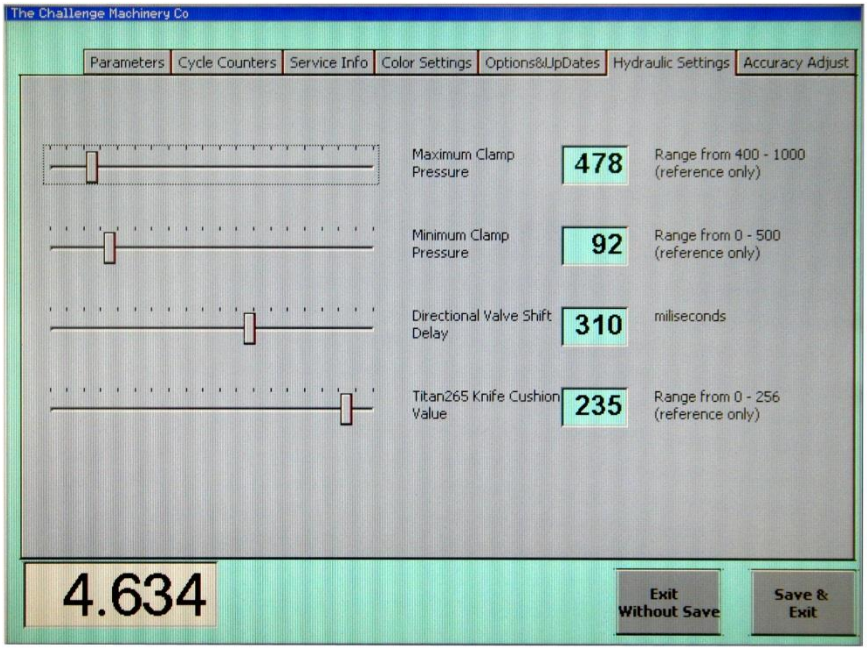


Figure 24

b. To set the maximum pressure, first make sure the correct slide bar is “active” by touching the appropriate slider button. Now press both cut buttons, and after the clamp has contacted the table and while the knife bar is coming down, read the pressure on the right hand pressure gauge. It should be set at 1,400 psi. If not, adjust the maximum clamp pressure slider button higher or lower and re-check the clamp pressure reading on the gauge. Repeat until the pressure is properly set at 1,400 psi.

c. To set the minimum pressure, first make sure the correct slide bar is “active” by touching the appropriate slider button. Now press both cut buttons, and after the clamp has contacted the table and while the knife bar is coming down, read the pressure on the right hand pressure gauge. It should be set at 400 psi. If not, adjust the minimum clamp pressure slider button higher or lower and re-check the clamp pressure reading on the gauge. Repeat until the pressure is properly set at 400 psi.

d. To adjust the directional valve shift delay, first make sure the correct slide bar is “active” by touching the appropriate slider button. Start with the slider button somewhere near the middle. Make a cut and watch the motion of the knife bar. If the knife bar hesitates at the bottom of its stroke, decrease the delay by moving the slider button to the left. If you hear an unusual “clunk” sound when the knife reaches the bottom of its stroke, increase the delay by moving the slider button to the right.

e. The knife cushion value is applicable to Titan 265 cutters only. Changing this setting on Champion 305 cutters has no effect.

f. When finished, press Save and Exit.

12.0 Adjustments

⚠ CAUTION Several of the following tests require the machine to be operational for checking and adjusting. Be very careful that tools and other people are clear of moving parts and that the cutter is not accidentally operated while adjustments are being made. Whenever working on the machine, disconnect the power and lock it out (see SAFETY PRECAUTIONS, page 5) unless the directions specifically require the machine to be powered.

12.1 Electric Eye Alignment

If the electric eyes are not in alignment, or if they become out of alignment during a cut cycle due to vibration, the machine will see them as blocked and will cease any downward motion.

To check if the electric eyes are aligned properly, turn on the power switch and look at the indicator light pattern on the receiver (left hand unit). If the eyes are functioning properly and aligned properly, and if there are no obstructions, the light pattern will look like the one shown in Figure 25 below.

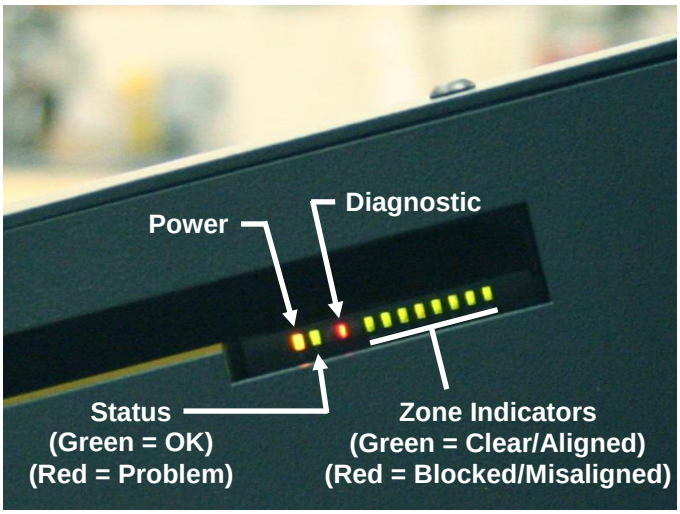


Figure 25 – Electric Eye Indicator Lights

To simulate the vibration caused by a normal cut cycle, gently tap on the electric eye housings one at a time with your hand. Watch the indicator lights to see if any of them change.

If the status light or any of the zone indicator lights are red, this indicates an obstruction. However if there are no physical obstructions blocking the eye beams, then most likely the electric eyes are out of alignment. To adjust:

1. Remove the inner housing covers from both eye housings.

2. Loosen the outer mounting screws (Figure 26) to adjust the eye beam units until they are aligned over their length.

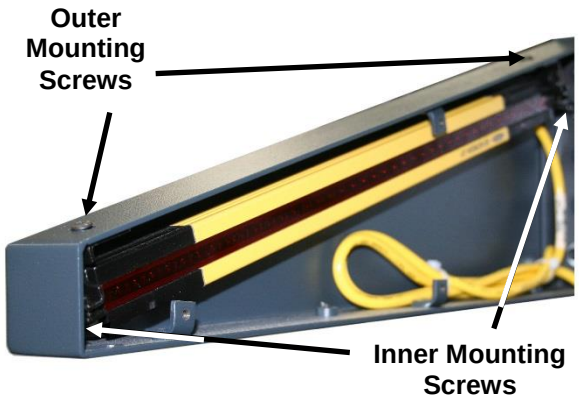


Figure 26

3. Loosen the inner mounting screws (Figure 26) to rotate the beams until they are aligned over their width. When the indicator lights indicate proper alignment as shown in Figure 25, tighten all screws.

4. Replace the inner housing covers and re-check the alignment as indicated above.

12.2 Backgauge Gib Adjustment

If the backgauge does not stay squared or jumps up and down when jogging paper against it, the backgauge gib screws are probably loose or worn. Position the backgauge approximately 2" (50-55mm) from the rear of the table and turn off power.

Remove the rear table cover. From the back, hold each end of the backgauge and try pulling one end while pushing the other to rock it side to side. If there is noticeable side-to-side play in the backgauge, the gibs will need adjusting. Check for play at various positions on the table, (Figure 27). Note: there will be some front to rear movement between the backgauge nut and screw.

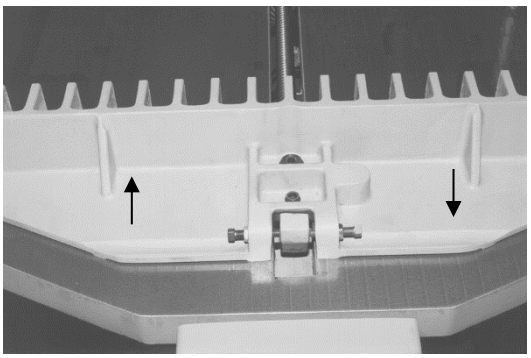


Figure 27

The backgauge has two gibs that ride on an iron rail underneath the table, (Figure 28). These are adjusted with setscrews, which are held in position with jam nuts.

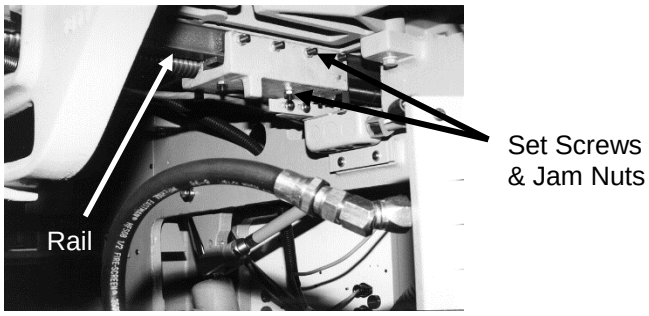


Figure 28

To adjust:

1. Run the backgauge back to 28” (711mm) and disconnect the power.
2. Always adjust the side gib first. Loosen all jam nuts and adjusting screws then tighten the front and rear screws.
3. Pull each end of the backgauge and try to rock it side to side as before to check for play.
4. Continue to adjust these two screws until there is no play.
5. Lock the screws in place with the jam nuts.
6. Snug up the middle two screws and lock in place with the jam nuts.
7. Snug up the bottom gib adjusting screws finger tight and lock in place with the jam nuts.
8. Run the backgauge back and forth to make sure it does not bind. Readjust if necessary.
9. Replace the rear table cover.
10. Check the backgauge squareness.

12.3 Squaring the Backgauge

To test the backgauge for squareness, place a small lift of paper against the left side of the backgauge (but not against the side guide) and make a cut.

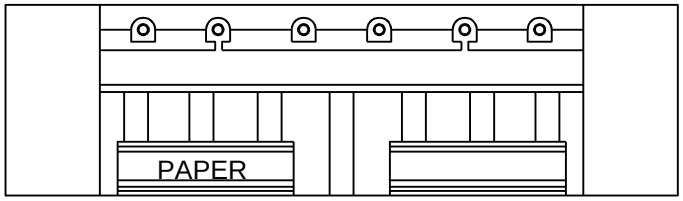


Figure 29

Now, leave the backgauge in the same position, flip the lift over and against the right side of the backgauge (but not against the side guide). Make another cut to see if any of the stock will trim off. Run two checks, one starting on the left and moving to the right, the other, moving from the right to the left. Trim in either sequence indicates the backgauge is out of square.

To adjust squareness:

1. As machine wears, make sure the backgauge gibs are set properly first (see previous section). Then follow steps 2 through 5.

NOTE: Gib adjustment is not necessary on initial machine setup because they have been adjusted at the factory.

2. Remove the rear table cover.

3. Loosen the backgauge locking screw, then loosen the jam nuts on the backgauge squaring screws (Figure 30) .

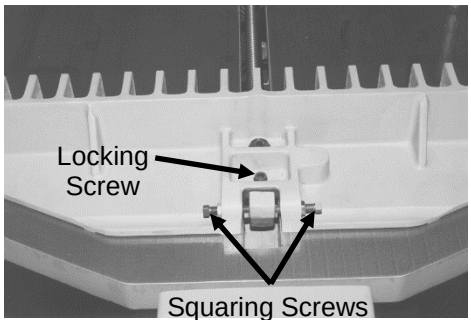


Figure 30

4. Back off the squaring screw slightly on the side that the trim occurred, then turn in the other squaring screw until tight.

5. With both squaring screws tight, make another test. Continue to adjust and test until no trim occurs when testing in either sequence.

6. Tighten the jam nuts and lock screw.

7. Replace rear table cover.

NOTE: Once the backgauge is square, restore power to the machine and check the backgauge accuracy to make sure it is accurate (see next section).

12.4 Backgauge Position Accuracy Adjustment

If the backgauge position readout does not match the actual measurement between the knife and the backgauge, the cutter must be re-calibrated.

The accuracy can be checked by comparing cut sheets of paper. This process is described below.

NOTE: The backgauge gibs should be adjusted and the backgauge squared before attempting to adjust accuracy.

1. Place a 1/4 to 1/2 inch (5 to 13mm) pile of 8-1/2 X 11 (A4) paper against the center of the backgauge.

2. Trim cut lengthwise and rotate 180^0. Using the backgauge position readout, bring the paper up to the 10" (254mm) position and make a cut. Move the backgauge up to 5" (127mm) and make another cut.

3. Take several sheets from the center of each lift and compare them to each other. The encoder system on your cutter will space accurately between your 10” (254mm) and 5" (127mm) cuts, whether the overall accuracy is correct or not. The stack of paper between the 10” (254mm) and 5" (127mm) cuts will be a true 5", but the paper left against the backgauge will not- if the backgauge position readout is off.

4. If the backgauge position readout is off, you will have to adjust the accuracy. On the TC touch screen console, select Maintenance, then Setup. Then select the Service Info tab and in the box for Enable Tabs Code, enter **6125**. Now select the Accuracy Adjust tab and follow the instructions on the screen. You will be asked to cut a sample pile, measure it, and then key in the actual measured value. Press Save and Exit when finished.

5. Run the backgauge back several inches, then bring it forward through the 3.750" (95 mm) preset dimension, then repeat steps 1-3 again.

12.5 Knife Latch Adjustment

The knife latch prevents the knife edge from drifting down while the machine is not in operation. The knife latch height must be set properly in order for the machine to function properly and to prevent the knife blade edge from becoming exposed.

⚠ CAUTION Failure to adjust the knife latch properly could result in the knife blade edge being exposed at times other than normal operation. Serious injury could result.

Follow these instructions to adjust:

1. Make sure the knife is all the way up and has not drifted down by performing a cut cycle.

2. Turn the machine off and lock out power, see page 5.

3. Loosen the two screws on top of the control console and tilt down the console. Locate the knife latch assembly inside the machine.

4. Check the gap as shown in Figure 31. The gap should be .030” (.8 mm) to .060” (1.5 mm).

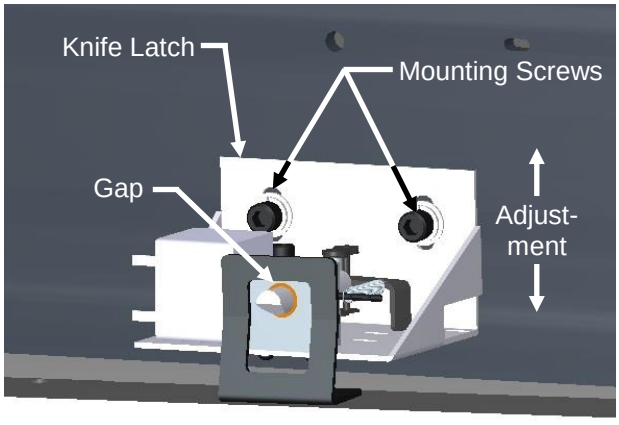


Figure 31 – Knife Latch

5. If the gap is out of range, adjust the knife latch height by loosening the mounting screws (Figure 31) and move the knife latch assembly up or down until the gap is in the correct range of .030” (.8 mm) to .060” (1.5 mm).

6. Tighten the mounting screws.

7. Tilt the control console back up and secure it with the two screws. Restore power to the machine and perform a cut cycle. Recheck the gap to make sure it is still within the correct range.

8. Also make sure that the distance between the knife blade edge and the bottom surface of the clamp is greater than the knife latch gap. This ensures that if the knife were to drift down and hang on the knife latch, the knife blade edge will not be exposed.

9. Once the knife latch is adjusted properly and the mounting screws are tight, tilt the control console back up into place and secure it with the two screws.

12.6 Line Light Adjustment (Incandescent Type)

S/N's: 1509999 and below,
S/N's: 305-J-151075 and below

The line light comes on whenever main power is turned to the ON position and stays on until the machine goes into sleep mode. Light reaches the table after passing between the knife and clamp, (Figure 32).

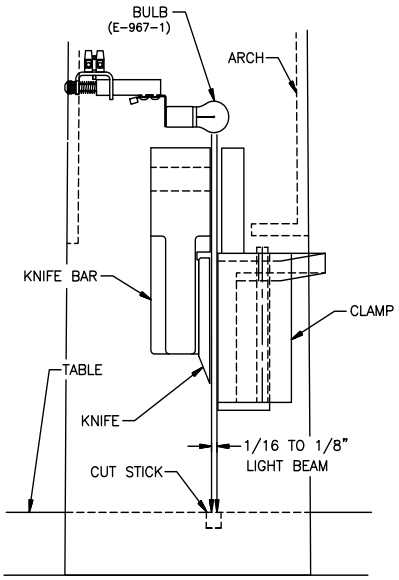


Figure 32 – L.H. Cut-Away Side View

Each light is focused with a socket head cap screw recessed into the arch, directly behind the console, (Figure 33).

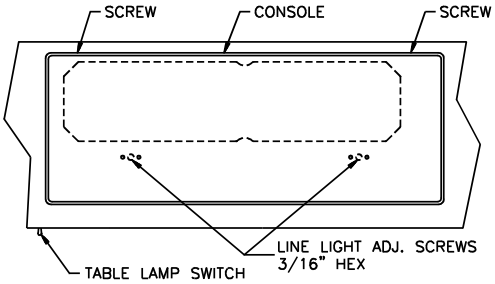


Figure 33

To adjust line light:

1. Let the console down by removing the two screws at the top.
2. Place a wide sheet(s) of paper on the cut stick to view the line.
3. Using a 3/16” hex wrench, turn one of the cap screws until you see a 1/16-1/8” beam.
4. Similarly, turn the adjustment screw of the other bulb until one, continuous beam is seen across the paper on the table.

Bulb replacement:

1. ***DISCONNECT THE POWER AND LOCK IT OUT!*** (See Power Lockout procedure, page 5)
2. Lower the console.
3. Remove the old bulb by lightly pushing bulb into the socket and turning it counter-clockwise. ***CAUTION!-*** If the bulb is still hot, allow a few minutes to cool before changing.
4. Insert the new bulb into the socket and twist clockwise until the bulb locks into place.
5. Reattach the console.
6. Reconnect the power and turn ON.
7. If necessary, adjust the line as above.
8. Unless the cutter will be operated immediately, turn the power off.

12.7 Line Light Adjustment (LED Type)

S/N's: 305-J-151076 and above

The line light comes on whenever main power is turned to the ON position and stays on until the machine goes into sleep mode. Light reaches the table after passing between the knife and clamp, (Figure 34).

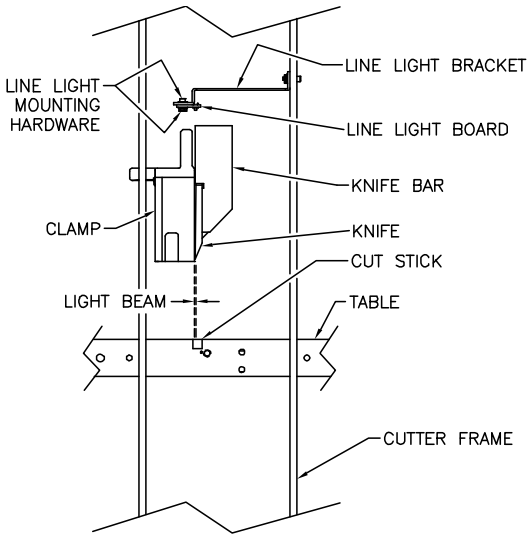


Figure 34 – L.H. Cut-Away Side View

To adjust line light:

1. Place a wide sheet(s) of paper on the cut stick to view the line.

2. Open and tilt the front control console down by removing the two screws at the top of the console.

3. Locate the two screws that attach the LED line light board to the mounting brackets and loosen but do not remove them (Figure 34).

4. Slide the LED line light board forward or back until you see a single, continuous, 1/16-1/8" wide beam across the paper on the table.

12.8 Proximity Switches

⚠ CAUTION These tests require the machine to be operational for checking and adjusting. Be very careful that tools and other people are clear of moving parts and that the cutter is not accidentally operated while adjustments are being made.

Challenge Champion cutters incorporate proximity switches to detect stages of operation. These types of limit switches have no moving parts and are more reliable than the old style of contact switches.

NOTE: Adjust the switches in the following order:

1. **Knife Up/Down Limit Switches**
2. **Hydraulic Up Limit Switch**
3. **Clamp Up Limit Switch**

⚠ CAUTION **CRUSH HAZARD!** When the limit switch is actuated, the clamp will return to the up position. Keep hands and tools clear.

1. **Knife Up/Down Proximity Switches**

   The Knife Up and Knife Down Proximity switches are mounted to a bracket that is attached to the Knife Cylinder (Figure 35).

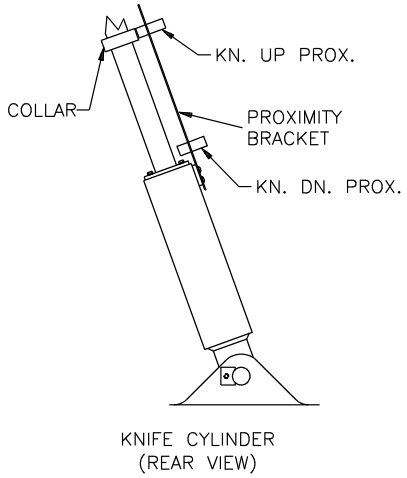


Figure 35

With the power off, set the collar between the proximity switches and then turn on power. Press cut buttons once to turn on the hydraulic motor. The knife will move to the absolute top of its stroke. Move the collar to the top proximity switch until LED turns on, then move it an additional 1/4" higher and tighten its setscrew. An indicator light on the switch body comes on when the switch is actuated (proximity switches must be within 1/8" (3.2mm) to actuate). Send the knife down using the "Knife Change" feature found in the Maintenance pull-down menu. Check the distance between the proximity switch and the actuator.

2. Hydraulic Up Proximity Switch

The Hydraulic Up Proximity Switch is mounted on the lower left rear of the machine frame (Figure 36).

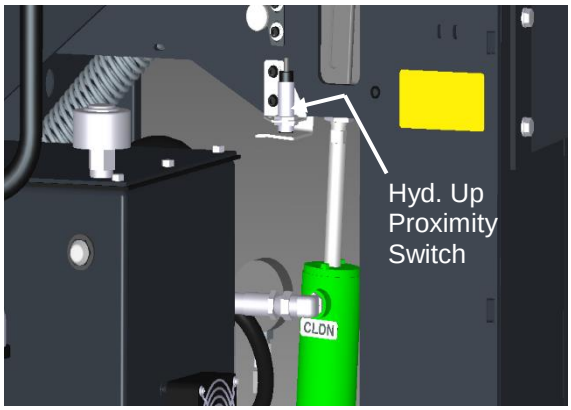


Figure 36

An indicator light on the switch body comes on when the switch is actuated (proximity switches must be within 1/8" (3.2mm) to actuate). The switch senses the extension of the clamp cylinder at the top of its stroke. This stops hydraulic power to the clamp and knife. If the switch is not properly set, the knife and clamp cylinders will be under constant load (indicated by excessive heat and noise).

To adjust:

a. Loosen the bottom lock nut and turn the top lock nut down to raise the switch.

b. Turn on the machine and press the cut buttons once to start the hydraulic motor.

c. The knife and clamp will move to the extreme up position and a load will remain on the hydraulics.

d. When the cylinder has stopped moving, pass a metal object in front of the switch to actuate it and take the load off the hydraulics. Keeping pressure on the switch to hold it against its mounting bracket, turn the lock nut up to lower the switch until the indicator light in the switch comes on. Tighten the lower jam nut.

e. Press the cut buttons to cycle the clamp and check clamp position.

3. Clamp Up Proximity Switch

The Clamp Up Proximity Switch is mounted inside the upper rear cover on the back of the frame (Figure 37).

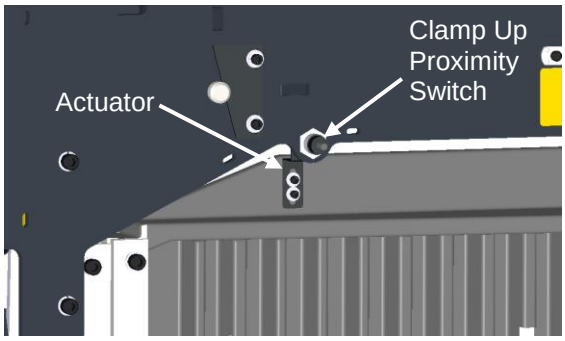


Figure 37

This switch senses when the clamp is in the up position and prevents backgauge movement if the clamp is not up. It also diverts the air from the table when the clamp is down to prevent the stock from moving during a cut. This switch is actuated by a actuator on the top of the clamp. The switch must be adjusted to within 1/8" (3.2mm) of the actuator. The actuator must be adjusted such that the switch shuts off soon after the clamp starts downward travel.

12.9 Clamp Return Speed Adjustment

The clamp return speed can be adjusted if it becomes too sluggish or too fast. This adjustment is made on the air cylinder that is attached to the clamp. To make this adjustment, first remove the upper rear cover. Then loosen the locking nut on the upper flow control valve on the air cylinder (Figure 38) and turn the adjustment knob clockwise to decrease the return speed of the clamp or counter-clockwise to increase the return speed of the clamp. The clamp should be adjusted such that it returns fast but does not bounce at the top of the stroke. Tighten the locking nut when finished.

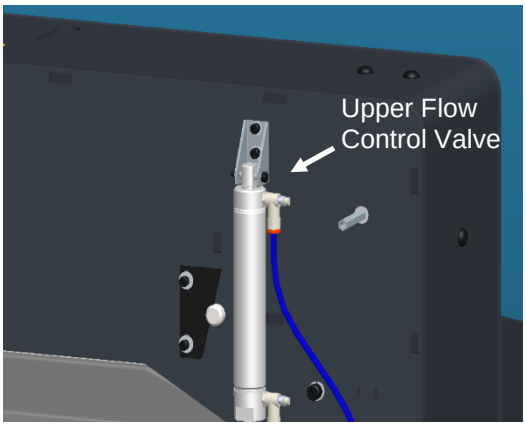


Figure 38

12.10 Pre-Clamp Pressure Adjustment

The pre-clamp feature of the Champion 305 uses low-pressure pneumatics to bring the clamp down prior to making a cut. The system pressure is set at the factory and allows for safe and proper operation of the clamp. It should not be necessary to adjust unless the clamp does not come down all the way to the table after pressing the foot pedal. If this is the case follow these instructions to adjust:

1. Open the lower left front door and locate the pneumatic pressure adjustment knob (Figure 39).

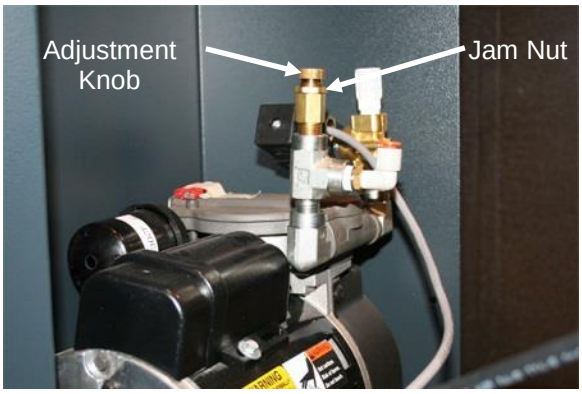


Figure 39

2. Loosen jam nut.

3. Increase the pressure by turning the valve clockwise until the clamp is able to travel down to the table completely when pressing the foot pedal switch.

4. Check to make sure the force under the clamp does not exceed 66 lbs (30 kg). A scale, such as a bathroom scale, should be used to measure this. If the force exceeds 66 lbs (30 kg), decrease the pressure by turning the valve clockwise until the force is below 66 lbs (30 kg).

5. Tighten the jam nut on the pressure control valve.

6. Close and lock lower left door.

12.11 Pre-Clamp Speed Adjustment

The clamp down speed (when pre-clamping using the foot pedal) can be adjusted if it becomes too sluggish or too fast. This adjustment is made on the air cylinder that is attached to the clamp. To make this adjustment, first remove the upper rear cover. Then loosen the locking nut on the lower flow control valve on the air cylinder (Figure 40) and turn the adjustment knob clockwise to decrease the down speed of the clamp or counter-clockwise to increase the down speed of the clamp. Tighten the locking nut when finished.

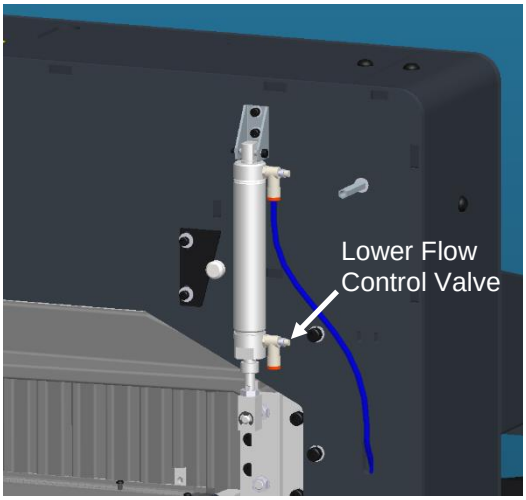


Figure 40

12.12 Clamp Cylinder Adjustment (Clamp Height)

If the clamp piston bottoms in the cylinder before the clamp makes contact with the table, or if the clamp does not make full travel on the up stroke, the clamp cylinder may need adjustment.

To adjust:

1. Turn on machine. Start the hydraulic motor by pressing both cut buttons simultaneously. Turn off the machine.

2. ***DISCONNECT THE POWER AND LOCK IT OUT!*** (See Power Lockout procedure, page 5).

3. Loosen the jam nut (Figure 41).

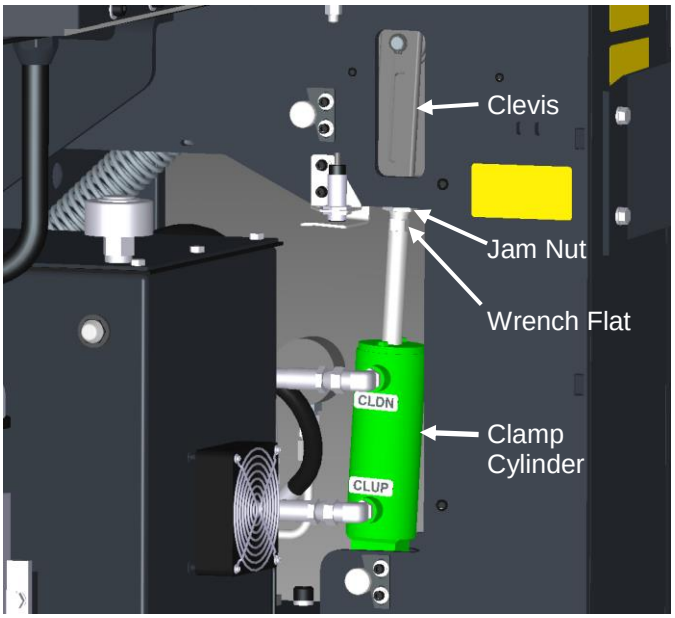


Figure 41

4. Use the flats on the clamp cylinder shaft to turn the shaft into or out of the clevis as required, (in decreases, out increases height). The clamp should be set to 4” above the table.

5. Retighten the jam nut securely.

12.13 Clamp Parallel Rod

If the clamp is not parallel with the table:

1. ***DISCONNECT THE POWER AND LOCK IT OUT!*** (See Power Lockout procedure, page 5.)

2. Loosen the jam nuts on each end of the clamp connecting rod, (Figure 42). (Note: the left jam nut has left hand threads.)

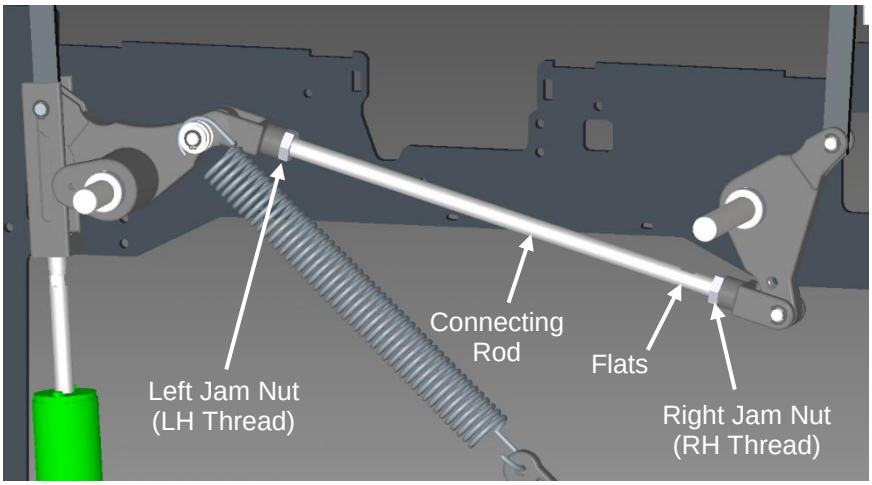


Figure 42 – Cutaway Front View

3. Using the flats on the right hand end of the connecting rod, (Figure 42), turn the connecting rod to align the clamp with the table. Place a long strip of paper under each end of the clamp. Push the cut buttons and when the clamp contacts the table, attempt to pull the strips out. The clamp should be adjusted so neither strip pulls out.

4. Retighten the jam nuts securely.

12.14 Lead Screw Adjustment Nuts

If play is noted in the rear pillow block and thrust bearings, take up the play in the adjustment nuts as follows:

1. Remove the backgauge motor cover.

2. Loosening the lead screw jam nuts (Figure 43).

3. Snug up the inner nut to eliminate any play.

4. Tighten the nuts against each other.

5. Check the socket head bolts in the pillow block to make sure they are also tight.

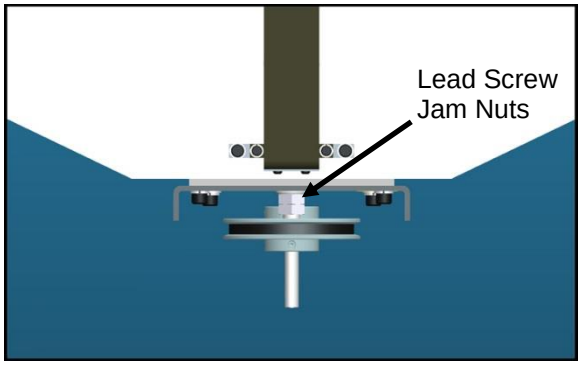


Figure 43 – Top View of Table

12.15 Knife Bar Gibs

The knife bar gibs are two steel-backed UHMW plates located near the left and right ends of the knife bar that press on the knife bar's front surface as it travels up and down. If adjusted too tight the knife may not come down smoothly and/or scoring may occur which could damage the knife bar and gibs. If too loose, you could get uneven or inaccurate cuts.

There are three socket set screws with jam nuts located on each side of the cutter's frame that are used to adjust the gibs (Figure 44). These should be adjusted only when the knife bar is directly behind the screws being tightened.

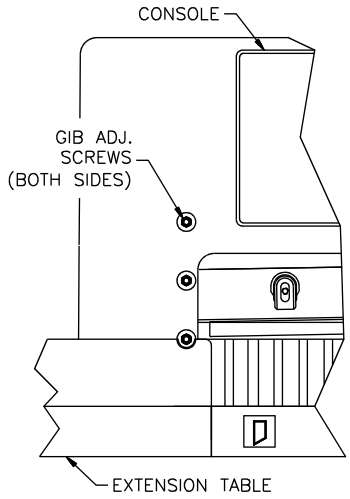


Figure 44

To adjust:

1. Start the machine and make a cut. When the knife is half way down, have someone turn off the machine. The knife bar should be stopped half way across the gibs.

2. Loosen all (6) jam nuts on the gib adjusting screws and back the screws out 1/2 turn.

3. Adjust center (2) screws until snug, not tight, in order to eliminate the air gap between the knife bar and gib. Then tighten those (2) jam nuts.

4. Turn on the machine and send the knife all the way down using the "Knife Change" feature found in the Maintenance pull-down menu. Turn off the machine.

5. Adjust the bottom two screws the same way the middle screws were adjusted. Tighten the jam nuts.

6. Turn on the machine. The knife should return to the up position. Shut the machine off.

7. Adjust the upper (2) gib adjusting screws and tighten the jam nuts.

8. Turn the power back on and cycle the knife several times. Recheck the gibs (repeat steps 2-6 as necessary).

9. Don't over-tighten the gibs.

10. If the knife bar and gibs get scored, remove only the burrs by scraping and then sanding smooth.

13.0 Repair and Replacement

13.1 Fuses

⚠ CAUTION FIRE HAZARD. Replace only with same type and rating fuse.

Some Champion models have a set of fuses. The fuses are located inside the main power box, (Figure 45). Check the label on the inside of the lower right door for correct ratings for these fuses. Labels can be reproduced using the drawings at the back of this manual if the labels on the cover ever become damaged or illegible.

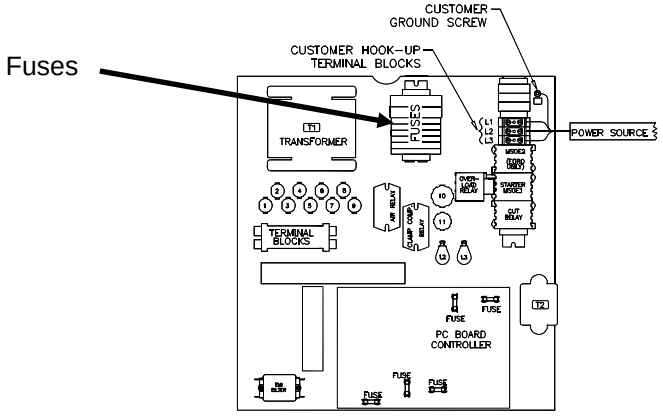


Figure 45

13.2 Knife Cylinder Replacement

Replacing the Knife Cylinder:

1. Remove the knife from the cutter (see Knife, Installation and Set Up).

2. Place a 3" (60mm) lift of paper under the clamp only to hold it up and out of the way of the knife bar. Then place a 3' (1 meter) long 2x4 board flat side down under the right end of the knife bar. This will be used for leverage on the knife bar when removing and reinstalling the knife bar pin.

3. Lock the clamp and knife down by following instructions in the Operator Controls section for your particular model of machine.

4. Turn off the main power disconnect switch. ***DISCONNECT POWER AND LOCK IT OUT!*** See page 5.

⚠ CAUTION Loosen connections slowly to bleed off any trapped pressure!

5. Place a pan underneath the cylinder and gradually loosen and remove the hydraulic hose connections (Figure 46). Loosen the connections **slowly** to bleed off any trapped pressure.

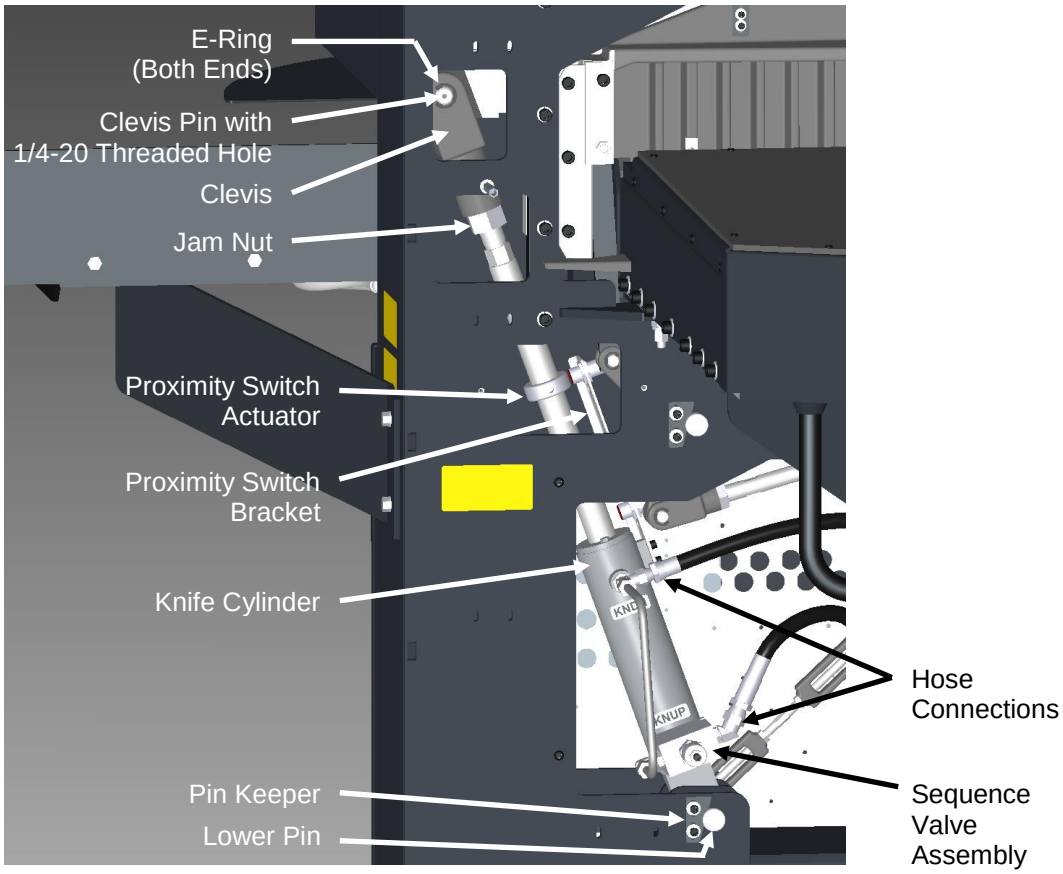


Figure 46

6. Remove the clevis pin out of the knife bar and clevis by first removing the front E-style retaining ring on the pin (Figure 46). The pin has a 1/4-20 tapped hole in it to aid removal of the pin out of the knife bar and clevis. It may also be helpful to use the pry board to block up the knife bar, releasing pressure from the pin to make it easier to remove.

7. Now, remove the pin keeper on the lower pin (Figure 46, previous page). Then carefully tap the pin out of the cylinder.

8. Remove the old cylinder. With the shaft of the old cylinder bottomed out, note the dimension between the top of the cylinder body and the bottom of the cylinder clevis. Also note the approximate position of the proximity switch actuator. Transfer the proximity switch bracket, proximity switch actuator, clevis, clevis jam nut, and hydraulic sequence valve assembly onto the new cylinder and insert it into position on the cutter.

9. Reinstall the lower pin and pin keeper.

10. Install the clevis pin to connect the cylinder to the knife bar and replace the retaining rings.

11. The cylinder shaft can be threaded into the clevis to adjust the position of the knife bar. When properly adjusted, the distance from the top of the knife bar recess to the table with the knife in the down position should measure 4-1/8” (103mm), (Figure 47).

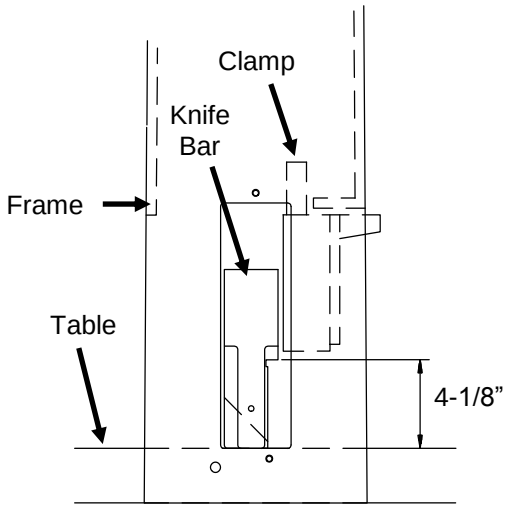


Figure 47

12. Lock the jam nut securely in place.

13. Reconnect the hydraulic hoses.

⚠ CAUTION **CRUSH HAZARD!** Knife and clamp will return to the up position when the key is turned on and the cut buttons are pressed for the first time. Keep hands and tools away.

14. Reconnect the power to the cutter and turn main power on.

15. Adjust the Knife up proximity switch actuator. Press the cut buttons once to turn on the hydraulic motor and raise the knife and clamp. Allow machine to run for a few minutes to work the air out of the system.

16. See Knife Installation and Set up for reinstalling the knife.

14.0 Troubleshooting

⚠ CAUTION Never work on this machine with the power on unless the instructions say the machine power must be on. Lock the power off at the wall disconnect switch. See Power Lockout Procedure, page 5.

WON'T START

1. Fuse blown, Circuit Breaker tripped
2. Starter is defective
3. Loose plug or wire
4. Cut button defective
5. Check error codes

CUT BUTTONS PUSHED- MACHINE SHUTS OFF

1. Knife and clamp are out of sequence. Turn off power and turn back on.
2. Check clamp and knife up limit switches.
3. When cutting a full pile, the clamp up limit switch does not break contact, either adjust limit switch or cut down on pile height.
4. Defective circuit board

CUT BUTTONS ACTIVATED- WON'T CUT

1. A cut button is defective.
2. Motor wired wrong, going in opposite direction of the arrow sticker on the motor
3. Pilot check on the knife cylinder is defective
4. Sequence valve pressure is set too high
5. Either down solenoid in valves inoperative
6. Knife up limit switch is not properly adjusted
7. Defective circuit board
8. Electric eyes are blocked or out of alignment

ERRATIC OPERATION- POWER LOSS

1. Low hydraulic oil level
2. Debris in relief valve
3. Defective pump
4. Oil bypassing clamp cylinder seals

CLAMP WON'T OPERATE

1. Bind in linkage or gibs
2. Clamp pressure reducer valve set too low
3. High pressure solenoid defective
4. Relief valve defective
5. Clamp return spring defective

CLAMP WON'T HOLD PRESSURE

1. Clamp cylinder seals worn
2. Pressure valve setting too low
3. Clamp not parallel to table

CLAMP WON'T BOTTOM

1. Clamp cylinder out of adjustment
2. Clamp return spring broken or out of adjustment

CLAMP NOT PARALLEL TO TABLE

1. The clamp connecting rod is out of adjustment.

CONCAVE CUTTING- ENDS WIDE, CENTER NARROW
1. Excessive moisture at edges of paper
2. More ink on edges of lift

CONCAVE CUTTING- VARIATION OF TOP AND BOTTOM
1. Soft stock not firmly clamped
2. Knife is dull or ground incorrectly
3. Knife bar gibs loose
4. Air in stock when clamped, pulls away from backgauge
5. Clamp not parallel to table

INCONSISTENT STOPPING OF KNIFE IN UP POSITION
1. Bind in knife linkage or gibs
2. Up sequence valve not properly adjusted
3. Knife links worn

HESITATION OF KNIFE
1. Dull knife
2. Seals worn in knife or clamp cylinder
3. Defective counterbalance valve on knife cylinder
4. Knife links worn

KNIFE WON'T RETURN
1. Defective high pressure valve
2. Directional valve(s) stuck in
3. Up sequence pressure too low

CLAMP WON'T RETURN
1. Up sequence pressure too high
2. Bind in clamp linkage or gibs
3. Clamp not parallel to table
4. Clamp return spring defective

KNIFE DRIFTS DOWN
1. Knife bar gibs out of adjustment
2. Defective counterbalance valve on knife cylinder
3. Defective seals in knife cylinder
4. Knife latch out of adjustment

KNIFE STOPS IN STOCK
1. Knife dull
2. Relief valve defective
3. Pressure control valve clogged or defective
4. Knife cylinder seals worn
5. Clamp cylinder seals worn
6. Motor stalling due to low voltage or too small wire to machine

NOISY AND SLUGGISH HYDRAULIC SYSTEM
1. Cylinder seals worn on clamp or knife
2. Low on hydraulic fluid
3. Worn spline coupling in motor/pump
4. Defective main system valve/dump valve

INACCURATE CUTTING
1. Backgauge not square
2. Knife bar has play- tighten gibs

3. Backgauge gibs loose
4. Dull knife
5. Clamp not parallel to table
6. Accuracy not set correctly

BACKGAUGE MOVEMENT ERRATIC

1. Backgauge gibs loose or binding on table way (rail under table)
2. Backgauge nut binding on leadscrew, screw bent or dirty

DRAWING OF STOCK

1. Dull knife
2. Low clamp pressure
3. Hydraulic fluid low
4. Air in lift- reduce pile height
5. Clamp not parallel to table

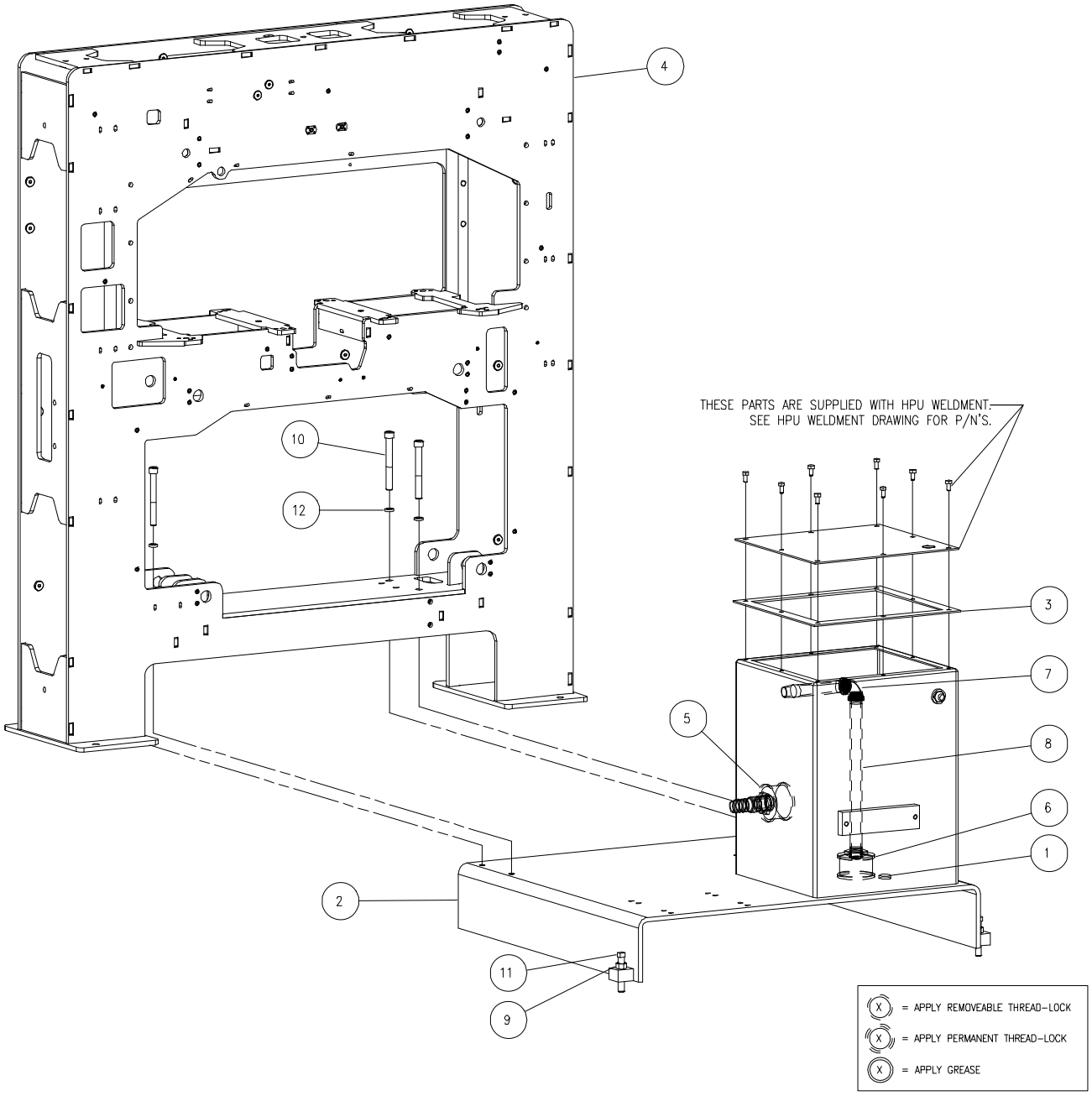
SLOW KNIFE

1. Defective seals in clamp cylinder
2. Defective counterbalance valve on knife cylinder
3. Pump not achieving full pressure
4. Main system or clamp pressure reducer is by-passing fluid

15.0 Schematics & Parts Lists

15.1 Main Assembly – Frame/Tank

47900 Sheet 1

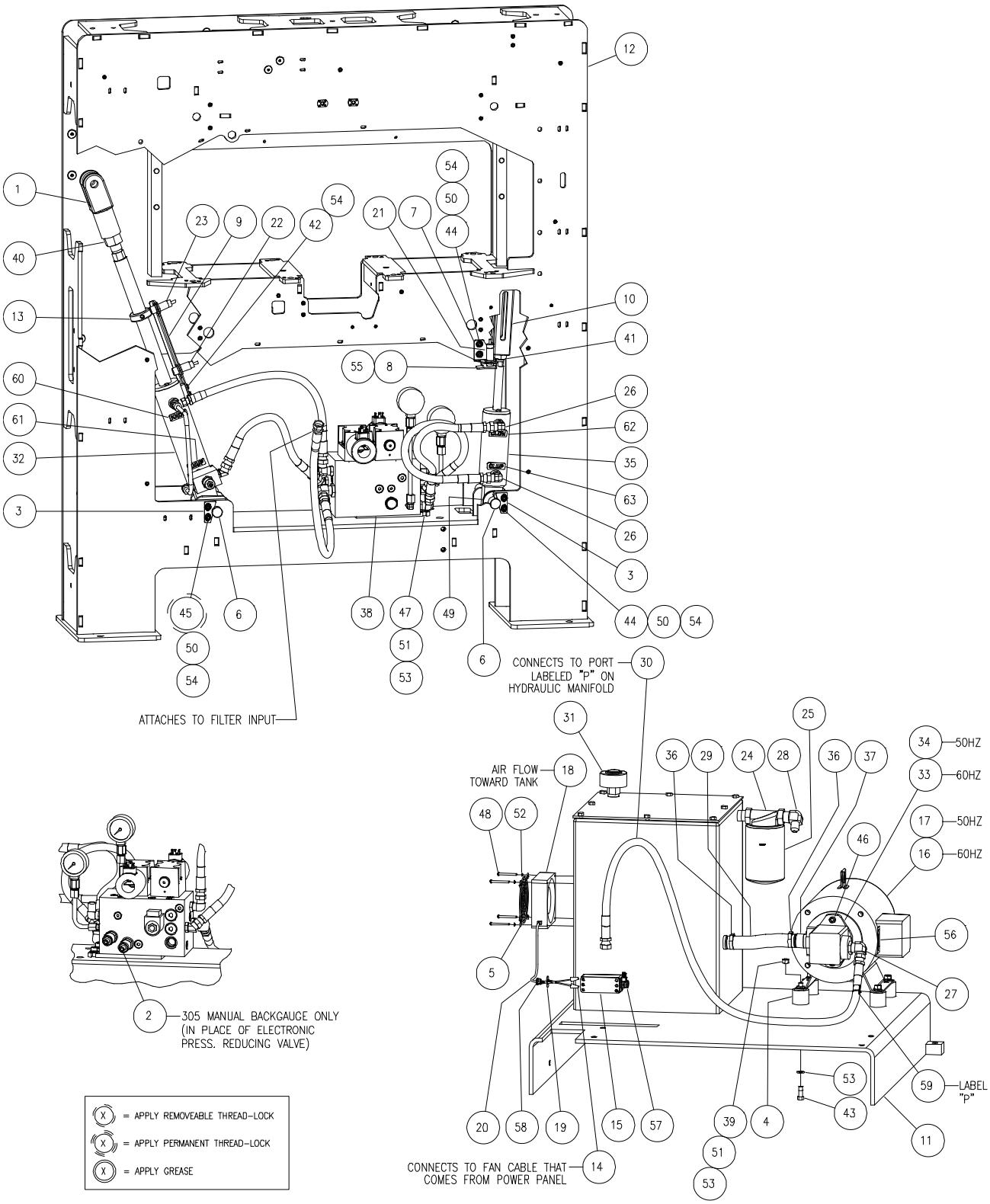


47900 Sheet 1 – Parts List

NO.	PART NO.	DESCRIPTION	QTY
1	47513	MAGNET - HYDRAULIC RESERVOIR	1
2	47542	HPU WELDMENT	1
3	47543	GASKET - HYDRAULIC RESERVOIR	1
4	47901	WELDMENT - 305 FRAME	1
5	H-238-4	STRAINER	1
6	H-338	DIFFUSER	1
7	H-503	ELBOW - PIPE, 90° 3/4 NPT	1
8	H-6405-12112	NIPPLE - 3/4 X 14"	1
9	H-6417-8	NUT - 1/2-13 HEX	2
10	H-6918-836	SCREW - 1/2-13 X 4-1/2 SOCKET HEAD CAP	4
11	H-6931-824	SCREW - 1/2-13 X 3 SQUARE HEAD SET	2
12	H-7329-8	WASHER - 1/2 HIGH COLLAR LOCK	4

15.2 Main Assembly – Hydraulics

47900 Sheet 2

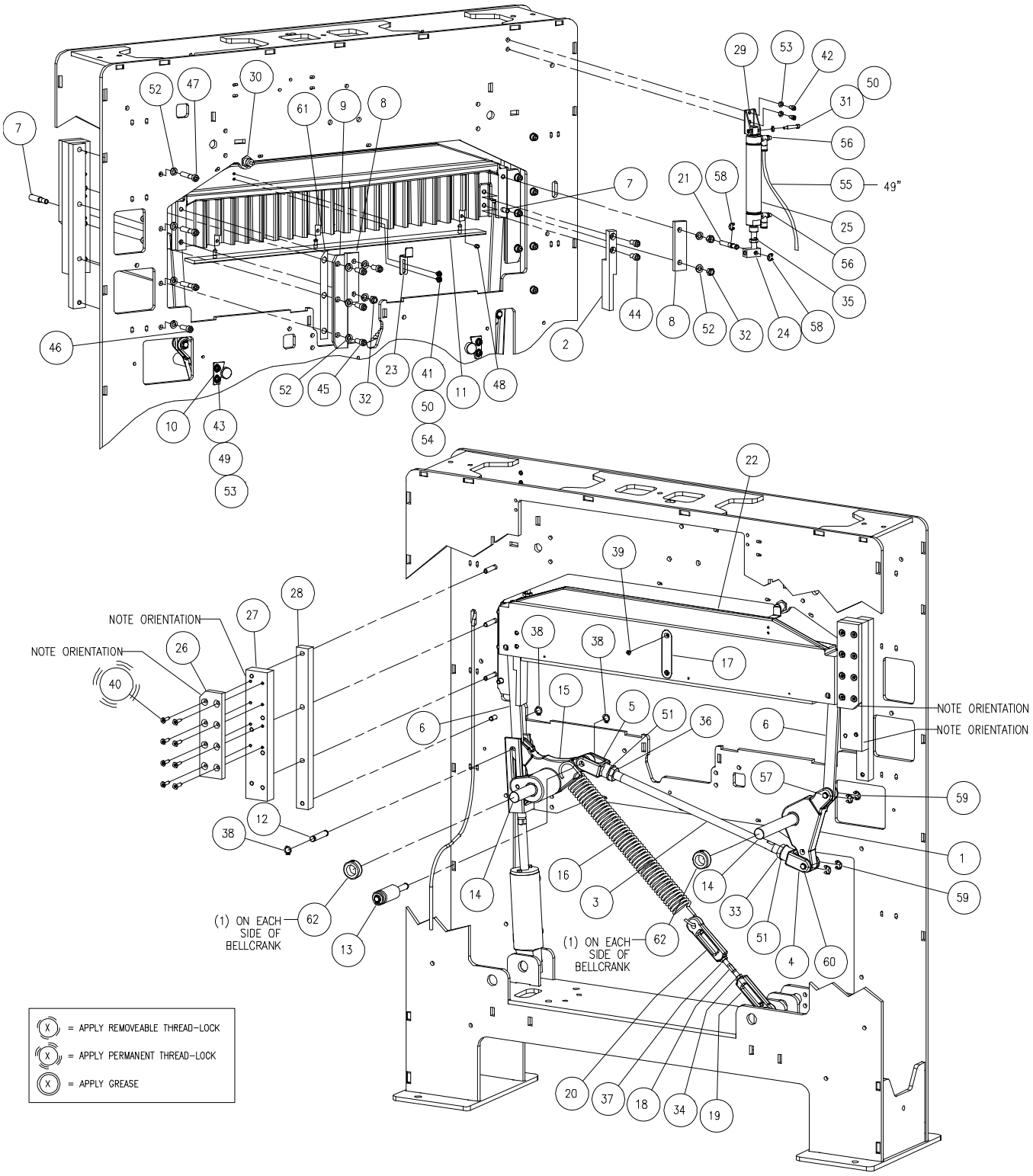


47900 Sheet 2 – Parts List

NO.	PART NO.	DESCRIPTION OF ACCESSORIES	QTY
1	4411	CLEVIS - CONN. ROD L.H.	1
2	5136	PRESSURE REDUCING VALVE	1
3	8835-1	PIN KEEPER	2
4	40016-5	MOUNT - VIBRATION	4
5	47092	GUARD - FAN	1
6	47110-1	PIN - BELL CRANK	2
7	47171-1	BRACKET - CLAMP PROX	1
8	47172-1	ACTUATOR - CLAMP PROX	1
9	47519	BRACKET - KNIFE PROX	1
10	47529	CLEVIS - CLAMP	1
11	47542	HPU WELDMENT	1
12	47901	WELDMENT - 305 FRAME	1
13	A-10644-8	COLLAR	1
14	E-1237-6	WIRE NUT - BLUE	2
15	E-1369-5	COVER - JUNCTION BOX	1
16	E-1600-181	MOTOR - 60 HZ	1
17	E-1600-183	MOTOR - 50 HZ	1
18	E-2483	FAN	1
19	E-2837	ADAPTER - KNOCK-OUT	1
20	EE-2466-2	CABLE ASM - FAN	1
21	EE-2820	PROX. ASM. - HYD UP LIMIT "H"	1
22	EE-2820-2	PROX. ASM. - KNIFE DOWN LIMIT "K"	1
23	EE-2820-5	PROX. ASM. - KNIFE UP LIMIT "U"	1
24	H-226-1	FILTER HEAD	1
25	H-227-1	FILTER	1
26	H-230-6	ELBOW- ORING TO TUBE	2
27	H-230-8	ELBOW- ORING TO TUBE	1
28	H-237-17	ELBOW- PIPE (EXT) TO TUBE	1
29	H-242-55	HOSE - 1" X 6-1/2 LOW PRESSURE	1
30	H-242-65	HYDRAULIC HOSE	1
31	H-287-2	BREATHER CAP	1
32	H-342-2	HYD. CYLINDER - KNIFE	1
33	H-387	PUMP-HYDRAULIC (5 GPM)	1
34	H-387-1	PUMP-HYDRAULIC (6 GPM)	1
35	H-431-2	HYD. CYLINDER - CLAMP	1
36	H-489	HOSE CLAMP	2
37	H-491	HOSE BARB - FILTER/TANK	1
38	H-504-1	KIT - HYDRAULIC MANIFOLD	1
39	H-6417-6	NUT - 3/8-16 HEX	4
40	H-6427-16	NUT - 1"-12 HEX	1
41	H-6428-12	NUT - 3/4-16 HEX JAM	1
42	H-6910-403	SCREW - 1/4-20 X 3/8 BUTTON HEAD CAP	2
43	H-6913-608	SCREW - 3/8-16 X 1 HEX HEAD CAP	4
44	H-6918-404	SCREW - 1/4-20 X 1/2 SOCKET HEAD CAP	4
45	H-6918-405	SCREW - 1/4-20 X 5/8 SOCKET HEAD CAP	2
46	H-6918-608	SCREW - 3/8-16 X 1 SOCKET HEAD CAP	2
47	H-6918-610	SCREW - 3/8-16 X 1-1/4 SOCKET HEAD CAP	2
48	H-6923-63228	SCREW - #6-32 X 1-3/4 ROUND HD MACH	4
49	H-7321-16	WASHER - 1" SAE PLAIN	3
50	H-7321-4	WASHER - 1/4 SAE PLAIN	6
51	H-7321-6	WASHER - 3/8 SAE PLAIN	6
52	H-7324-#6	WASHER - #6 INT TOOTH	4
53	H-7327-12	WASHER - 3/8 MEDIUM LOCK	10
54	H-7327-8	WASHER - 1/4 MEDIUM LOCK	8
55	H-21S-125-0500	ROLL PIN - 1/8 X 1/2	1
56	S-1106	DECAL- RED ARROW	1
57	S-1350-16	STRAIN RELIEF BUSHING	1
58	S-1350-18	STRAIN RELIEF BUSHING	1
59	S-1694-5	TYRAP - IDENTIFICATION	1
60	S-1781-61	LABEL - KNDN	1
61	S-1781-62	LABEL - KNUP	1
62	S-1781-63	LABEL - KNUP	1
63	S-1781-64	LABEL - KNUP	1

15.3 Main Assembly – Clamp

47900 Sheet 3

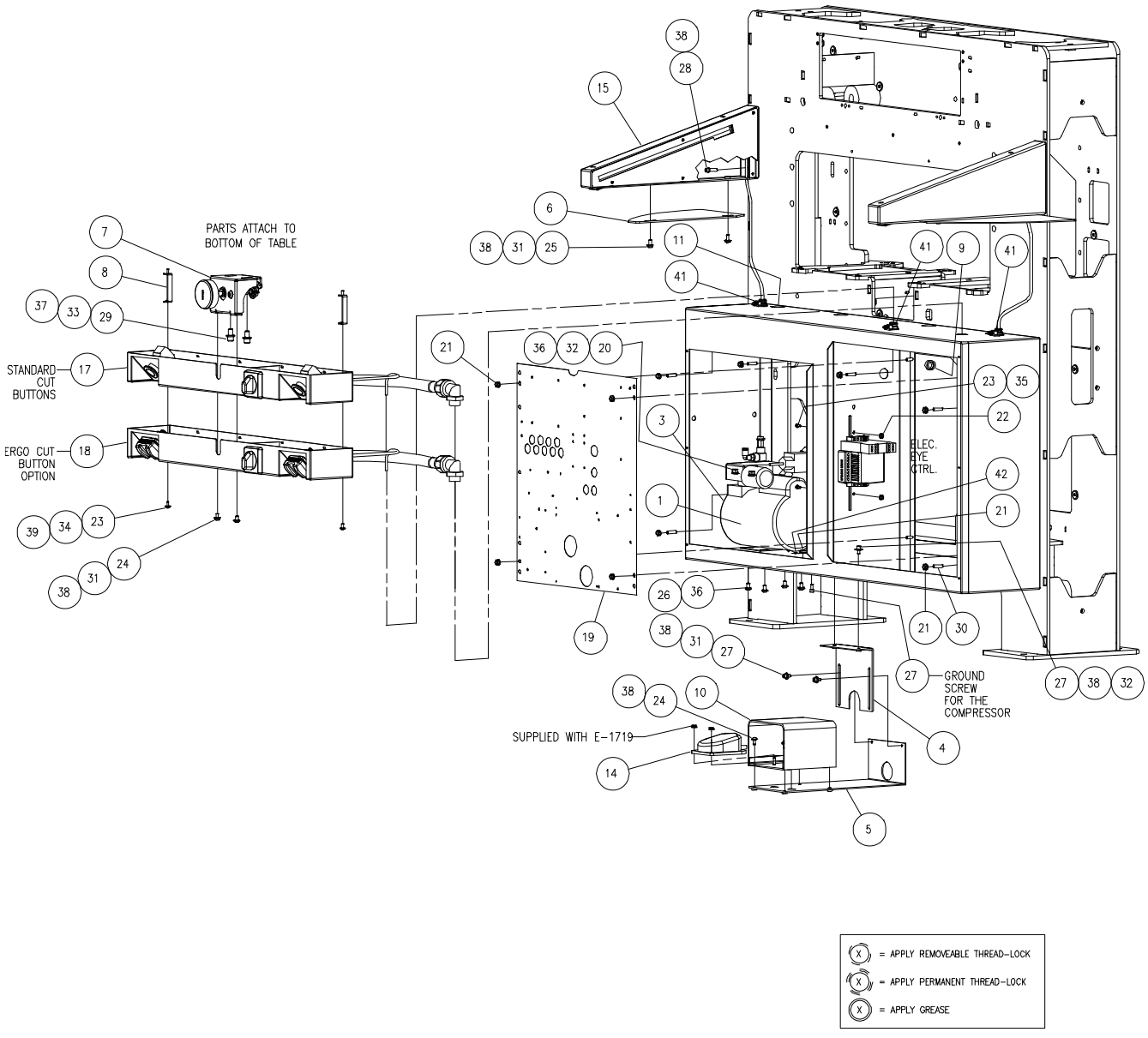


47900 Sheet 3 – Parts List

NO.	PART NO.	DESCRIPTION	QTY
1	4406-D-1	BELLCRANK ASM - R.H. CLAMP	1
2	4441-1	DEFLECTOR - PAPER, BLOCK	1
3	4461	ROD - CLAMP CONNECTOR	1
4	4465	CLEVIS - CONN. ROD R.H.	1
5	4466	CLEVIS - CONN. ROD L.H.	1
6	4504-2	BAR - CLAMP PULL DOWN	2
7	4506	STUD - CLAMP PULL DOWN	2
8	4508	BAR - CLAMP GUIDE	2
9	4509-1	BAR - CLAMP GUIDE	2
10	8835-1	PIN KEEPER	2
11	47006-2	FALSE CLAMP PLATE ASSEMBLY	1
12	47063	PIN- CLAMP CYLINDER CLEVIS	1
13	47090	PIN ASSEBMLY - SPRING	1
14	47110-1	PIN - BELL CRANK	2
15	47123-2	BELLCRANK ASM - L.H. CLAMP	1
16	47136-2	SPRING	1
17	47252	CLAMP WEAR STRIP	1
18	47253	TIE ROD - CLAMP RETURN	1
19	47254	CLEVIS - R.H.	1
20	47255	CLEVIS - L.H.	1
21	47266	STUD - HYDRAULIC DAMPER	1
22	47522	CLAMP - 305	1
23	47528-1	LIMIT SWITCH ACTUATOR - CLAMP UP	1
24	47556-2	ROD END	1
25	47643-1	AIR CYLINDER - CLAMP	1
26	47940	REAR GIB	2
27	47941	REAR GIB SUPPORT	2
28	47942	REAR SUPPORT	2
29	47953	CLEVIS BRACKET	1
30	EE-2820-4	PROX. ASM. - CLAMP UP "C"	1
31	H-5254-408	SCREW - 1/4 X 1 SHSS	1
32	H-6417-6	NUT - 3/8-16 HEX	3
33	H-6424-12	NUT - 3/4-10 HEX JAM	1
34	H-6424-6	NUT - 3/8-16 HEX JAM	1
35	H-6428-7	NUT - 7/16-20 HEX JAM	1
36	H-6433-12	NUT - 3/4-10 L.H. HEX JAM	1
37	H-6433-6	NUT - 3/8-16 L.H. HEX JAM	1
38	H-6451-0500	RING - EXTERNAL GRIPPING	3
39	H-6897-102403	SCREW - #10-24 X 3/8" FLAT HEAD CAP	2
40	H-6909-408	SCREW - 1/4-20 X 1" FLAT HEAD CAP	16
41	H-6918-102404	SCREW - #10-24 X 1/2 SOCKET HEAD CAP	2
42	H-6918-404	SCREW - 1/4-20 X 1/2 SOCKET HEAD CAP	4
43	H-6918-405	SCREW - 1/4-20 X 5/8 SOCKET HEAD CAP	2
44	H-6918-606	SCREW - 3/8-16 X 3/4 SOCKET HEAD CAP	2
45	H-6918-608	SCREW - 3/8-16 X 1 SOCKET HEAD CAP	7
46	H-6918-610	SCREW - 3/8-16 X 1-1/4 SOCKET HEAD CAP	2
47	H-6918-618	SCREW - 3/8-16 X 2-1/4 SOCKET HEAD CAP	6
48	H-6951-406	SCREW - 1/4-20 X 3/8 NYLOK FLT PT SOC SET	3
49	H-7321-4	WASHER - 1/4 SAE PLAIN	4
50	H-7321-#10	WASHER - #10 SAE PLAIN	3
51	H-7324-24	WASHER - 3/4 INT TOOTH	2
52	H-7327-12	WASHER - 3/8 MEDIUM LOCK	18
53	H-7327-8	WASHER - 1/4 MEDIUM LOCK	6
54	H-7327-#10	WASHER - #10 MEDIUM LOCK	2
55	P-303_X_49INCHES	1/4" O.D. POLYETHYLENE TUBING	1
56	P-304	FLOW CONTROL ELBOW-1/4 TUBE X 1/8 NPT	2
57	S-482-1	STRAIGHT ROD END PIN	1
58	S-1193-37	E-RING - 3/8"	2
59	S-1193-50	E-RING - 1/2"	4
60	S-1195	STRAIGHT ROD END PIN	1
61	S-1861	SHIM - CLAMP GUIDE	2
62	SS-798	COLLAR	4

15.4 Main Assembly – Electrical Components, Lower Front

47900 Sheet 5

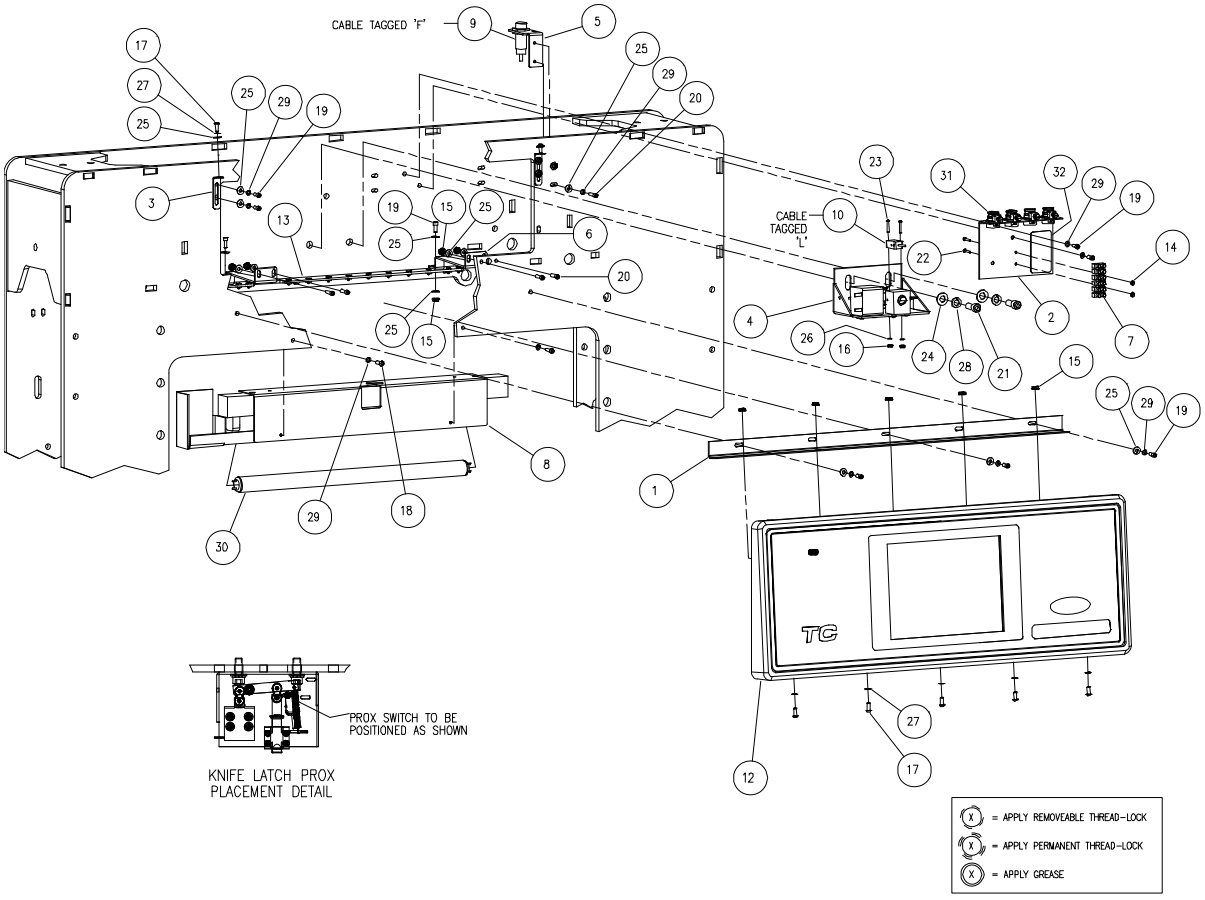


47900 Sheet 5 – Parts List

NO.	PART NO.	DESCRIPTION	QTY
1	40016-8	MOUNT - VIBRATION	4
2	47033-3	FRONT ENCLOSURE	1
3	47645-1	CLAMP COMPRESSOR ASSEMBLY	1
4	47646	FOOT SWITCH BRACKET	1
5	47647	FOOT SWITCH BRACKET	1
6	47943	SHIELD - TABLE	2
7	49249	BACKGAUGE CONTROL ASSEMBLY	1
8	49255-1	STAND OFF- SHEETMETAL	2
9	E-1172-10	SNAP-IN BUSHING	1
10	E-1719	FOOTSWITCH GUARD	1
11	E-2196-17	HOLE PLUG	4
12			
13			
14	EE-3207	FOOT SWITCH ASSEMBLY	1
15	EE-3339	ELECTRIC EYE ASM W/ CONTROLS	1
16			
17	EE-3382	CUT BUTTON SWITCH ASM - 305TC	1
18	EE-3382-1	CUT BUTTON SWITCH ASM - ERGO 305TC	1
19	EE-3461-1	ELECTRICAL PANEL ASM - 305TC	1
20	H-6417-5	NUT - 5/16-18 HEX	4
21	H-6423-4	NUT - 1/4-20 HEX KEP	11
22	H-6423-#10	NUT - #10-24 HEX KEP	4
23	H-6910-102404	SCREW - #10-24 X 1/2 BUTTON HEAD CAP	7
24	H-6910-404	SCREW - 1/4-20 X 1/2 BUTTON HEAD CAP	6
25	H-6910-405	SCREW - 1/4-20 X 5/8 BUTTON HEAD CAP	4
26	H-6910-604	SCREW - 3/8-16 X 1/2 BUTTON HEAD CAP	2
27	H-6918-404	SCREW - 1/4-20 X 1/2 SOCKET HEAD CAP	5
28	H-6918-406	SCREW - 1/4-20 X 3/4 SOCKET HEAD CAP	4
29	H-6918-504	SCREW - 5/16-18 X 1/2 SOCKET HEAD CAP	4
30	H-6940-416	SCREW - 1/4-20 X 1 FLAT SOC SET	6
31	H-7321-4	WASHER - 1/4 SAE PLAIN	8
32	H-7321-5	WASHER - 5/16 SAE PLAIN	4
33	H-7321-6	WASHER - 3/8 SAE PLAIN	2
34	H-7321-#10	WASHER - #10 SAE PLAIN	7
35	H-7324-#10	WASHER - #10 INT TOOTH	2
36	H-7327-10	WASHER - 5/16 MEDIUM LOCK	8
37	H-7327-12	WASHER - 3/8 MEDIUM LOCK	2
38	H-7327-8	WASHER - 1/4 MEDIUM LOCK	18
39	H-7327-#10	WASHER - #10 MEDIUM LOCK	7
40			
41	S-1350-16	STRAIN RELIEF BUSHING	3
42	S-1781-42	LABEL - GROUND	1

15.5 Main Assembly – Electrical Components Upper

47900 sheet 6 (fluorescent table light)

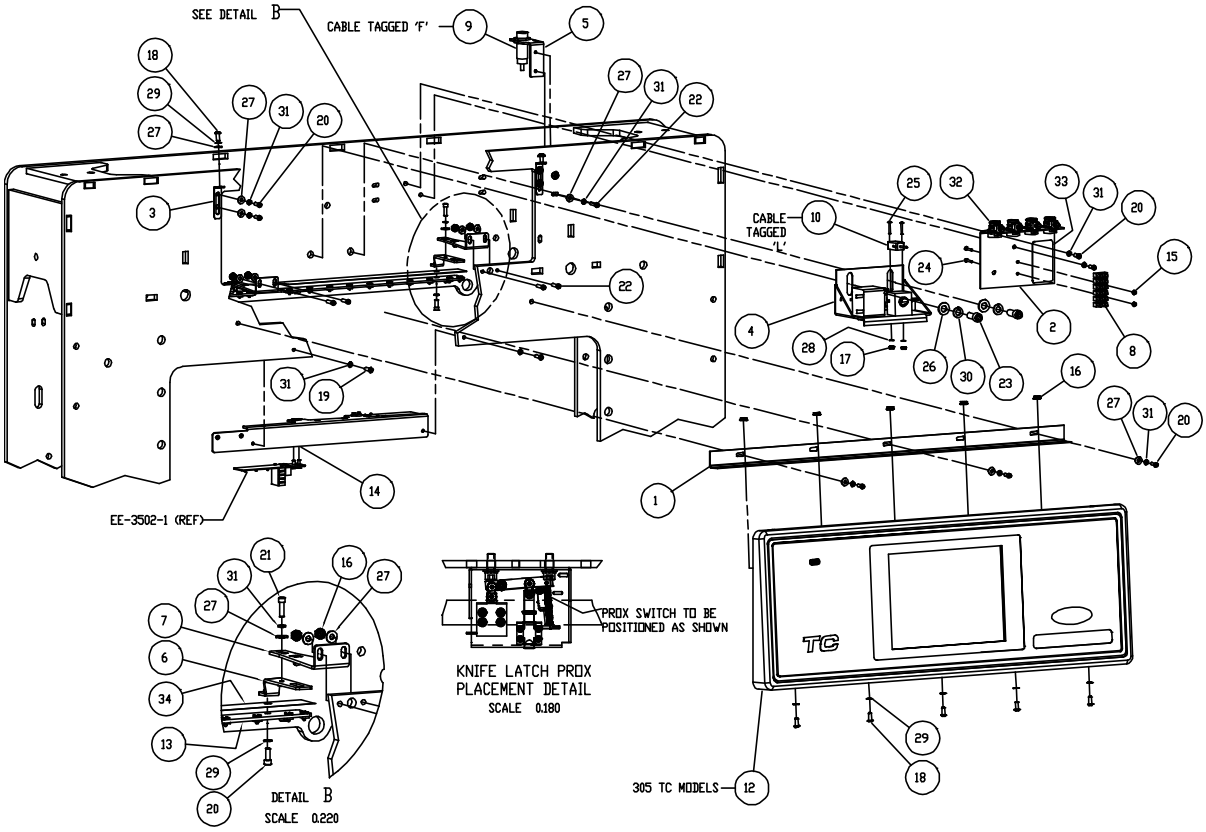


47900 Sheet 6 – Parts List (Fluorescent table Light)

NO.	PART NO.	DESCRIPTION	QTY
1	16047	HINGE- MPS CONSOLE	1
2	47195	BRACKET - ARCH JUNCTION	1
3	47502	BRACKET - CONSOLE	2
4	47568-1	ASSEMBLY - KNIFE LATCH	1
5	47958	PROX SENSOR BRACKET	1
6	47959	LINE LIGHT BRACKET	2
7	E-2626-6	TERMINAL STRIP (6P)	1
8	EE-2149-9	TABLE LIGHT ASSEMBLY	1
9	EE-2820-11	PROX. ASM. - FALSE CLAMP PLATE "F"	REF
10	EE-2842-1	PROX. ASM.- KNIFE LATCH "L"	REF
11			
12	EE-3456	CONTROL CONSOLE ASSEMBLY - 305 TC	1
13	EE-3489	LED LINE LIGHT BOARD (S/N: 305-J-151076 & UP) FOR INCANDESCENT TYPE, SEE SECTION 15.29 ON PG. 113	1
14	H-6417-#4	NUT - #4-40 HEX	2
15	H-6423-#10	NUT - #10-24 HEX KEP	11
16	H-6423-#4	NUT - #4-40 HEX KEP	2
17	H-6910-102404	SCREW - #10-24 X 1/2 BUTTON HEAD CAP	7
18	H-6910-102406	SCREW - #10-24 X 3/4 BUTTON HEAD CAP	2
19	H-6918-102404	SCREW - #10-24 X 1/2 SOCKET HEAD CAP	11
20	H-6918-102406	SCREW - #10-24 X 3/4 SOCKET HEAD CAP	6
21	H-6918-608	SCREW - 3/8-16 X 1 SOCKET HEAD CAP	2
22	H-6922-44012	SCREW - #4-40 X 3/4 FLAT HEAD CAP	2
23	H-6923-44012	SCREW - #4-40 X 3/4 ROUND HD MACH	2
24	H-7321-6	WASHER - 3/8 SAE PLAIN	2
25	H-7321-#10	WASHER - #10 SAE PLAIN	19
26	H-7321-#4	WASHER - #4 SAE PLAIN	2
27	H-7324-#10	WASHER - #10 INT TOOTH	7
28	H-7327-12	WASHER - 3/8 MEDIUM LOCK	2
29	H-7327-#10	WASHER - #10 MEDIUM LOCK	13
30	S-845	LAMP T8 15W 18"	1
31	S-1350-16	STRAIN RELIEF BUSHING	4
32	S-1781-12	LABEL - SHOCK HAZARD	1

15.6 Main Assembly – Electrical Components, Upper

47900 Sheet 6 (LED Table Light)

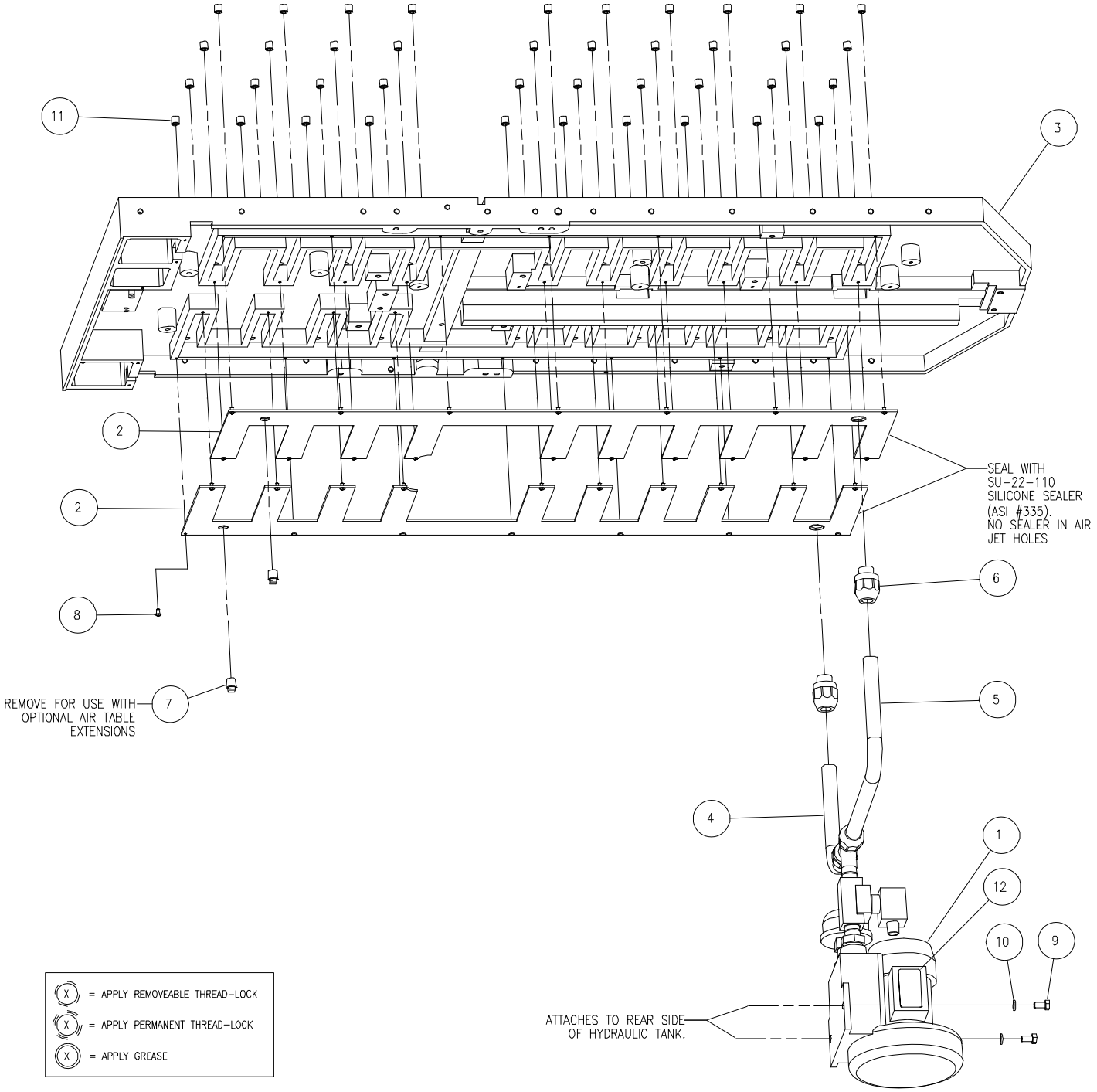


47900 Sheet 6 – Parts List (LED Table Light)

NO.	PART NO.	DESCRIPTION	QTY
1	16047	HINGE- MPS CONSOLE	1
2	47195	BRACKET - ARCH JUNCTION	1
3	47502	BRACKET - CONSOLE	2
4	47568-1	ASSEMBLY - KNIFE LATCH	1
5	47958	PROX SENSOR BRACKET	1
6	47961	LINE LIGHT BRACKET - LOWER	2
7	47962	LINE LIGHT BRACKET - UPPER	2
8	E-2626-6	TERMINAL STRIP (6P)	1
9	EE-2820-11	PROX. ASM. - FALSE CLAMP PLATE "F"	REF
10	EE-2842-1	PROX. ASM.- KNIFE LATCH "L"	REF
11	EE-2850-2	CONTROL CONSOLE ASSEMBLY – MANUAL B.G.	1
12			
13	EE-3489	LED LINE LIGHT BOARD (S/N: 305-J-151076 & UP) FOR INCANDESCENT TYPE, SEE SECTION 15.29 ON PG. 113	
14	EE-3571	TABLE LIGHT – LED ASSEMBLY	2
15	H-6417-#4	NUT - #4-40 HEX	2
16	H-6423-#10	NUT - #10-24 HEX KEP	9
17	H-6423-#4	NUT - #4-40 HEX KEP	2
18	H-6910-102404	SCREW - #10-24 X 1/2 BUTTON HEAD CAP	7
19	H-6910-102406	SCREW - #10-24 X 3/4 BUTTON HEAD CAP	2
20	H-6918-102404	SCREW - #10-24 X 1/2 SOCKET HEAD CAP	11
21	H-6918-102405	SCREW - #10-24 X 5/8 SOCKET HEAD CAP	2
22	H-6918-102406	SCREW - #10-24 X 3/4 SOCKET HEAD CAP	6
23	H-6918-608	SCREW - 3/8-16 X 1 SOCKET HEAD CAP	2
24	H-6922-44012	SCREW - #4-40 X 3/4 FLAT HEAD CAP	2
25	H-6923-44012	SCREW - #4-40 X 3/4 ROUND HD MACH	2
26	H-7321-6	WASHER - 3/8 SAE PLAIN	2
27	H-7321-#10	WASHER - #10 SAE PLAIN	17
28	H-7321-#4	WASHER - #4 SAE PLAIN	2
29	H-7324-#10	WASHER - #10 INT TOOTH	9
30	H-7327-12	WASHER - 3/8 MEDIUM LOCK	2
31	H-7327-#10	WASHER - #10 MEDIUM LOCK	15
32	S-1350-16	STRAIN RELIEF BUSHING	4
33	S-1781-12	LABEL - SHOCK HAZARD	1
34	S-1781-227	LABEL – SHORT CIRCUIT	1

15.7 Main Assembly – Air Table

47900 Sheet 7

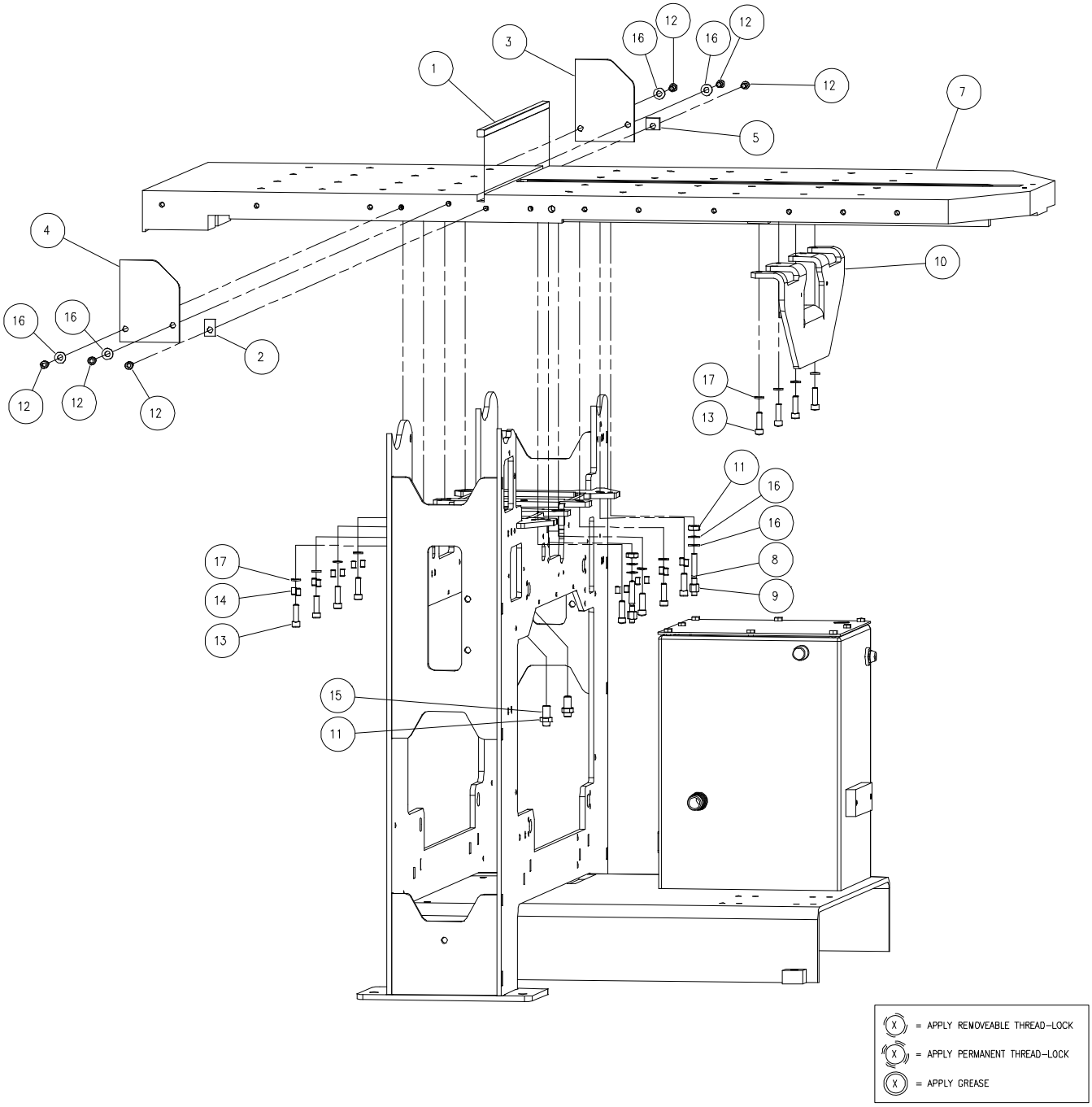


47900 Sheet 7 – Parts List

NO.	PART NO.	DESCRIPTION	QTY
1	47578	BLOWER ASSEMBLY	1
2	47652	AIR CHANNEL COVER	2
3	47654-1	305 TABLE, AIR	1
4	E-2189-2_X_14INCHES	TUBING - CORRUGATED, FLEXIBLE - 14"	1
5	E-2189-2_X_23INCHES	TUBING - CORRUGATED, FLEXIBLE - 23"	1
6	E-2191-2	3/4 CONDUIT FITTING	2
7	H-6650-6	3/8 NPT PLUG - PLASTIC	2
8	H-6910-102403	SCREW - #10-24 X 3/8 BUTTON HEAD CAP	34
9	H-6913-606	SCREW - 3/8-16 X 3/4 HEX HEAD CAP	2
10	H-7327-12	WASHER - 3/8 MEDIUM LOCK	2
11	P-207-2	AIR JET	40
12	S-1781-12	LABEL - SHOCK HAZARD	1

15.8 Main Assembly – Table Mounting

47900 Sheet 8

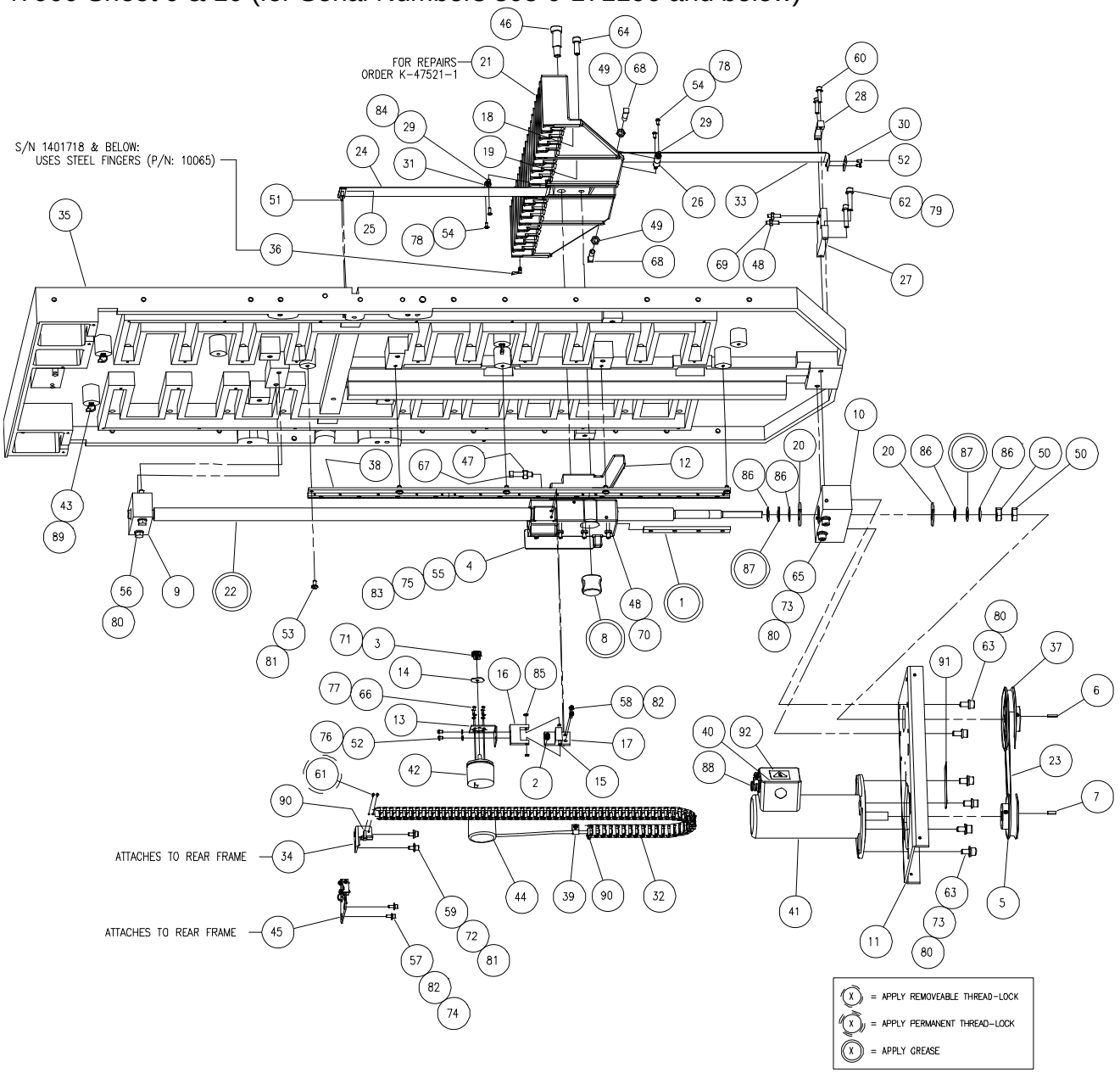


47900 Sheet 8 – Parts List

NO.	PART NO.	DESCRIPTION	QTY
1	4171	CUT STICK - 305	1
2	4542	STOP - STICK, RH	1
3	47115-1	TABLE GUIDE - LH FRONT	1
4	47116-1	TABLE GUIDE - RH FRONT	1
5	47630	CUT STICK STOP	1
6			
7	47654-1	305 TABLE, AIR	1
8	47662	#7 TAPER PIN WITH STUD	2
9	47666	NUT - 3/8-24 HIGH HEX	2
10	47952	TABLE BRACE	1
11	H-6424-8	NUT - 1/2-13 HEX JAM	4
12	H-6918-606	SCREW - 3/8-16 X 3/4 SOCKET HEAD CAP	6
13	H-6918-610	SCREW - 3/8-16 X 1-1/4 SOCKET HEAD CAP	12
14	H-6951-508	SCREW - 5/16 X 1/2 NYLOK FLT PT SOC SET	16
15	H-6951-824	SCREW - 1/2-13 X 1-1/2 NYLOK FLT PT SOC SET	2
16	H-7321-6	WASHER - 3/8 SAE PLAIN	8
17	H-7327-12	WASHER - 3/8 MEDIUM LOCK	14

15.9 Main Assembly – TC Backgauge w/Rack-and-Pinion Encoder system

47900 Sheet 9 & 10 (for Serial Numbers 305-J-171196 and below)



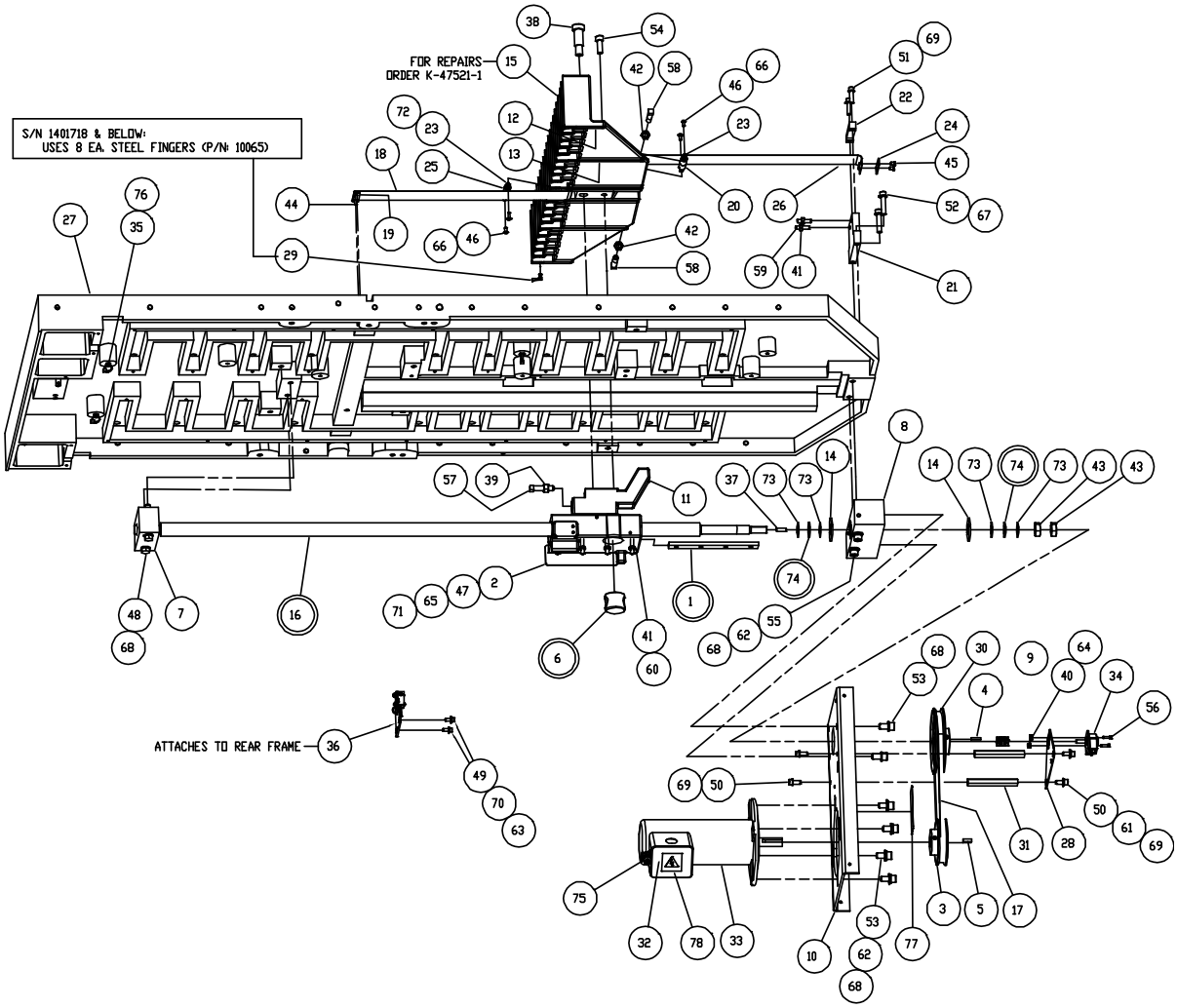
NO.	PART NO.	DESCRIPTION	QTY
1	4510	GIB - BACKGAUGE NUT	2
2	7922	SPRING - COMPRESSION	1
3	8230	ENCODER PINION	1
4	8641-2	ACTUATOR - PRESET	1
5	13927-1	PULLEY - DRIVE, BACKGAUGE	1
6	20206-6123	MACHINE KEY - .125 X .125 X .750	1
7	30305-6123	MACHINE KEY - .188 X .188 X .625	1
8	47028	LEADSCREW NUT- 305 TC	1
9	47037-1	PILLOW BLOCK ASSEMBY- FRONT	1
10	47039-1	PILLOW BLOCK ASSEMBLY- REAR	1
11	47054	MOTOR BRACKET	1
12	47135-1	NUT- BACKGAUGE	1

47900 Sheet 9 & 10– Parts List Continued

NO.	PART NO.	DESCRIPTION	QTY
13	47175	BRACKET- ENCODER	1
14	47177	SHIELD - ENCODER	1
15	47191	PIN- ENCODER	1
16	47192	BRACKET- ENCODER	1
17	47193	BRACKET- ENCODER MOUNT	1
18	47269_X_2INCHES	UHMW TAPE - 3/8" W X 2" LONG	2
19	47269_X_5PT5INCHES	UHMW TAPE - 3/8" W X 5.5" LONG	6
20	47503	WASHER- PILLOW BLOCK	2
21	47521-1	305 BACKGAUGE - NEW STYLE FINGERS	1
22	47531	LEADSCREW- 305 TC	1
23	47536	V-BELT	1
24	47586	BELT- SLOT CLOSURE	1
25	47587	BELT CLAMP	1
26	47588	CROWNED PULLEY	1
27	47589	END SUPPORT	1
28	47593	HOLD DOWN BLOCK	1
29	47597	PIN- PULLEY	2
30	47598	BELT RETAINER	1
31	47601	STRAIGHT PULLEY	1
32	47602	CABLE CARRIER	1
33	47604	TENSION BRACKET	1
34	47605	CABLE CHAIN MOUNTING BRACKET	1
35	47654-1	305 TABLE, AIR	1
36	60204	FLOATING FINGER - NYLON	20
37	A-12616-1	PULLEY - DRIVEN, BACKGAUGE	1
38	AA-8226-1	RACK ASSEMBLY	1
39	E-968-2	CABLE CLAMP	1
40	E-1237-1	WIRE NUT - BLUE	2
41	E-1600-202	BACKGAUGE MOTOR	1
42	E-2468	ENCODER	1
43	E-2883	ANCHOR- TYRAP	3
44	EE-3030-1	CABLE ASM - ENCODER	1
45	EE-3464	BRACKET ASSEMBLY - PRESET	1
46	H-5254-1010	SCREW - 5/8 X 1-1/4 SHSS	1
47	H-6417-6	NUT - 3/8-16 HEX	1
48	H-6424-4	NUT - 1/4-20 HEX JAM	10
49	H-6424-6	NUT - 3/8-16 HEX JAM	2
50	H-6428-10	NUT - 5/8-18 HEX JAM	2
51	H-6909-63204	SCREW - #6-32 X 1/2" FLAT HEAD CAP	2
52	H-6910-102402	SCREW - #10-24 X 1/4 BUTTON HEAD CAP	4
53	H-6910-404	SCREW - 1/4-20 X 1/2 BUTTON HEAD CAP	5
54	H-6910-83203	SCREW - #8-32 X 3/8 BUTTON HEAD CAP	3
55	H-6910-83204	SCREW - #8-32 X 1/2 BUTTON HEAD CAP	3
56	H-6913-620	SCREW - 3/8-16 X 2-1/2 HEX HEAD CAP	2
57	H-6918-102404	SCREW - #10-24 X 1/2 SOCKET HEAD CAP	2
58	H-6918-102406	SCREW - #10-24 X 3/4 SOCKET HEAD CAP	3
59	H-6918-404	SCREW - 1/4-20 X 1/2 SOCKET HEAD CAP	2
60	H-6918-408	SCREW - 1/4-20 X 1 SOCKET HEAD CAP	2
61	H-6918-44003	SCREW - #4-40 X 3/8 SOCKET HEAD CAP	2
62	H-6918-512	SCREW - 5/16-18 X 1-1/2 SOCKET HEAD CAP	2
63	H-6918-606	SCREW - 3/8-16 X 3/4 SOCKET HEAD CAP	6
64	H-6918-608	SCREW - 3/8-16 X 1 SOCKET HEAD CAP	1
65	H-6918-620	SCREW - 3/8-16 X 2-1/2 SOCKET HEAD CAP	2
66	H-6921-44004	SCREW - #4-40 X 1/4 FILLISTER HD MACH	4
67	H-6931-612	SCREW - 3/8-16 X 1-1/2 SQUARE HEAD SET	1
68	H-6931-614	SCREW - 3/8-16 X 1-3/4 SQUARE HEAD SET	2
69	H-6940-416	SCREW - 1/4-20 X 1 FLAT SOC SET	2
70	H-6940-420	SCREW - 1/4-20 X 1-1/4 FLAT SOC SET	8
71	H-6964-63202	SCREW - #6-32 X 1/8 BRASS TIP SET	1
72	H-7321-4	WASHER - 1/4 SAE PLAIN	2
73	H-7321-6	WASHER - 3/8 SAE PLAIN	6
74	H-7321-#10	WASHER - #10 SAE PLAIN	2
75	H-7321-#8	WASHER - #8 SAE PLAIN	2
76	H-7324-#10	WASHER - #10 INT TOOTH	2
77	H-7324-#4	WASHER - #4 INT TOOTH	4
78	H-7324-#8	WASHER - #8 INT TOOTH	4
79	H-7327-10	WASHER - 5/16 MEDIUM LOCK	2
80	H-7327-12	WASHER - 3/8 MEDIUM LOCK	10
81	H-7327-8	WASHER - 1/4 MEDIUM LOCK	9
82	H-7327-#10	WASHER - #10 MEDIUM LOCK	5
83	H-7327-#8	WASHER - #8 MEDIUM LOCK	2
84	S-1073-25	RETAINING RING	4
85	S-1193-18	E-RING - 3/16"	2
86	S-1295-8	THRUST WASHER	4
87	S-1300-4	THRUST BEARING	2
88	S-1350-16	STRAIN RELIEF BUSHING	1
89	S-1694	TYRAP	3
90	S-1694-1	TYRAP	2
91	S-1781-15	LABEL - MOVING PARTS HAZARD	1
92	S-1781-50	LABEL - ELECTRIC SHOCK	1

15.10 Main Assembly – TC Backgauge w/o Rack-and-Pinion Encoder system

47900 sh't 9 rev. J (for Serial Numbers 305-J-171197 and Up)



47900 sh't 9 Rev. "J" - Parts Lists

NO.	PART NO.	DESCRIPTION	QTY
1	4510	GIB - BACKGAUGE NUT	2
2	8641-2	ACTUATOR - PRESET	1
3	13927-1	PULLEY - DRIVE, BACKGAUGE	1
4	20206-6123	MACHINE KEY - .125 X .125 X .750	1
5	30305-6123	MACHINE KEY - .188 X .188 X .625	1
6	47028	LEADSCREW NUT- 305 TC	1
7	47037-1	PILLOW BLOCK ASSEMBY- FRONT	1
8	47039-1	PILLOW BLOCK ASSEMBLY- REAR	1
9	47053-4	COUPLING - FLEXIBLE, 1/4" ID	1
10	47054	MOTOR BRACKET	1
11	47135-1	NUT- BACKGAUGE	1
12	47269_X_2INCHES	.030 UHMW TAPE - 3/8" W X 2" LONG	2
13	47269_X_5PT5INCHES	.030 UHMW TAPE - 3/8" W X 5.5" LONG	6
14	47503	WASHER- PILLOW BLOCK	2
15	47521-1	305 BACKGAUGE - NEW STYLE FINGERS	1
16	47531	LEADSCREW- 305 TC	1
17	47536	V-BELT	1
18	47586	BELT- SLOT CLOSURE	1
19	47587	BELT CLAMP	1
20	47588	CROWNED PULLEY	1
21	47589	END SUPPORT	1
22	47593	HOLD DOWN BLOCK	1
23	47597	PIN- PULLEY	2
24	47598	BELT RETAINER	1
25	47601	STRAIGHT PULLEY	1
26	47604	TENSION BRACKET	1
27	47654-1	305 TABLE, AIR	1
28	49263	ENCODER BRACKET	1
29	60204	FLOATING FINGER - NYLON	20
30	A-12616-1	PULLEY - DRIVEN, BACKGAUGE	1
31	E-1152-40	STANDOFF	2
32	E-1237-1	WIRE NUT - BLUE	2
33	E-1600-202	BACKGAUGE MOTOR	1
34	E-2468-3	ENCODER	1
35	E-2883	ANCHOR- TYRAP	3
36	EE-3464	BRACKET ASSEMBLY - PRESET	1
37	H-5246-406	DOWEL PIN - 1/4 X 3/4 HD GD	1
38	H-5254-1010	SCREW - 5/8 X 1-1/4 SHSS	1
39	H-6417-6	NUT - 3/8-16 HEX	1

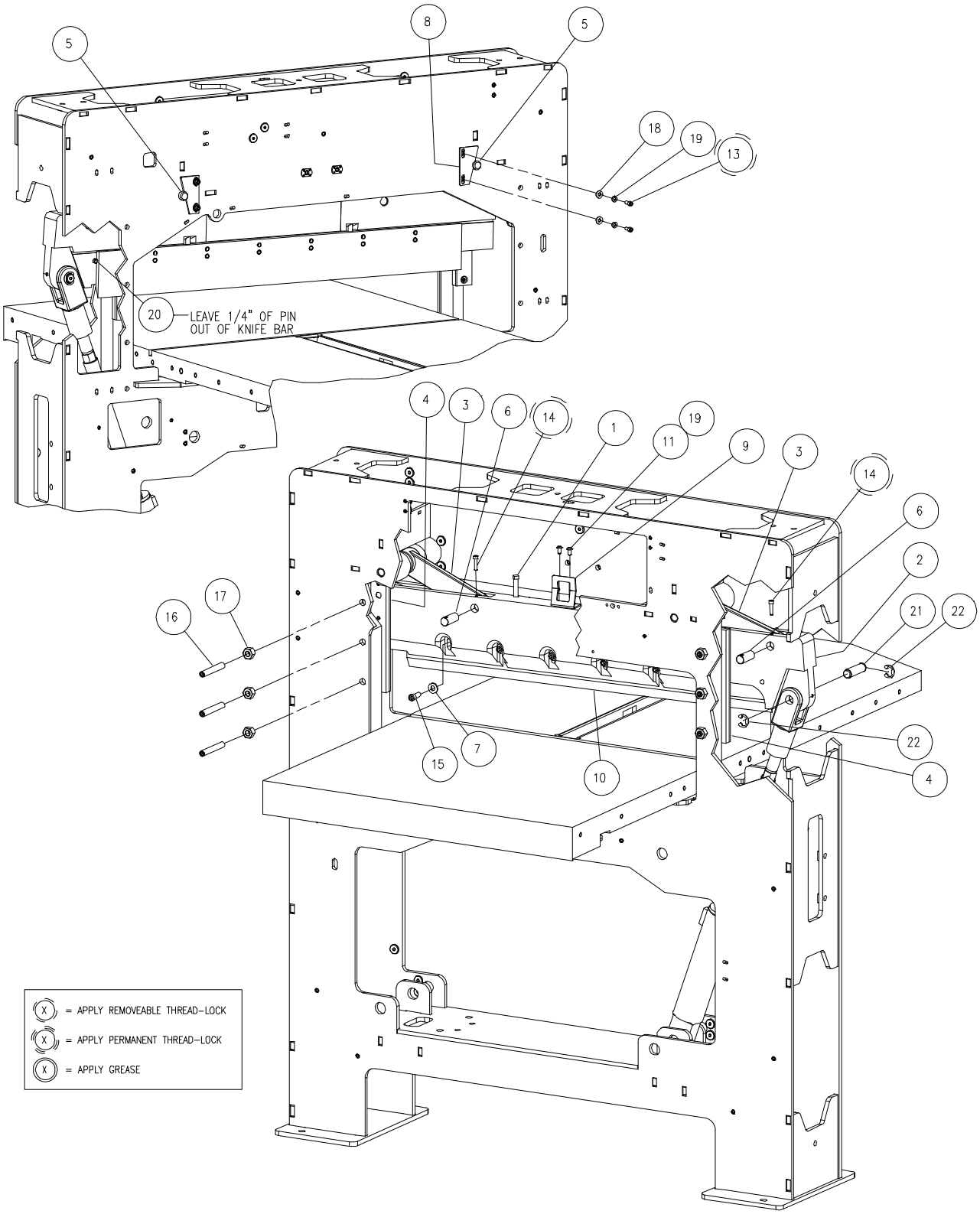
47900 sh't 9 Rev. "J" - Parts Lists (cont.)

NO.	PART NO.	DESCRIPTION	QTY
40	H-6423-N6	NUT - #6-32 HEX KEP	2
41	H-6424-4	NUT - 1/4-20 HEX JAM	10
42	H-6424-6	NUT - 3/8-16 HEX JAM	2
43	H-6428-10	NUT - 5/8-18 HEX JAM	2
44	H-6909-63204	SCREW - #6-32 X 1/2" FLAT HEAD CAP	2
45	H-6910-102402	SCREW - #10-24 X 1/4 BUTTON HEAD CAP SCREW - #8-32 X 3/8 BUTTON HEAD CAP	2
46	H-6910-83203		3
47	H-6910-83204	SCREW - #8-32 X 1/2 BUTTON HEAD CAP	3
48	H-6913-620	SCREW - 3/8-16 X 2-1/2 HEX HEAD CAP	2
49	H-6918-102404	SCREW - #10-24 X 1/2 SOCKET HEAD CAP	2
50	H-6918-405	SCREW - 1/4-20 X 5/8 SOCKET HEAD CAP	4
51	H-6918-408	SCREW - 1/4-20 X 1 SOCKET HEAD CAP	2
52	H-6918-512	SCREW - 5/16-18 X 1-1/2 SOCKET HEAD CAP	2
53	H-6918-606	SCREW - 3/8-16 X 3/4 SOCKET HEAD CAP	6
54	H-6918-608	SCREW - 3/8-16 X 1 SOCKET HEAD CAP	1
55	H-6918-620	SCREW - 3/8-16 X 2-1/2 SOCKET HEAD CAP	2
56	H-6918-63204	SCREW - #6-32 X 1/2 SOCKET HEAD CAP	2
57	H-6931-612	SCREW - 3/8-16 X 1-1/2 SQUARE HEAD SET	1
58	H-6931-614	SCREW - 3/8-16 X 1-3/4 SQUARE HEAD SET	2
59	H-6940-416	SCREW - 1/4-20 X 1 FLAT SOC SET	2
60	H-6940-420	SCREW - 1/4-20 X 1-1/4 FLAT SOC SET	8
61	H-7321-4	WASHER - 1/4 SAE PLAIN	2
62	H-7321-6	WASHER - 3/8 SAE PLAIN	6
63	H-7321-N10	WASHER - #10 SAE PLAIN	2
64	H-7321-N6	WASHER - #6 SAE PLAIN	2
65	H-7321-N8	WASHER - #8 SAE PLAIN	2
66	H-7324-N8	WASHER - #8 INT TOOTH	4
67	H-7327-10	WASHER - 5/16 MEDIUM LOCK	2
68	H-7327-12	WASHER - 3/8 MEDIUM LOCK	10
69	H-7327-8	WASHER - 1/4 MEDIUM LOCK	6
70	H-7327-N10	WASHER - #10 MEDIUM LOCK	2
71	H-7327-N8	WASHER - #8 MEDIUM LOCK	2
72	S-1073-25	RETAINING RING	4
73	S-1295-8	THRUST WASHER	4
74	S-1300-4	THRUST BEARING	2
75	S-1350-16	STRAIN RELIEF BUSHING	1
76	S-1694	TYRAP	3
77	S-1781-15	LABEL - MOVING PARTS HAZARD	1
78	S-1781-50	LABEL - ELECTRIC SHOCK	1

NOTES:

15.11 Main Assembly – Knife

47900 Sheet 11

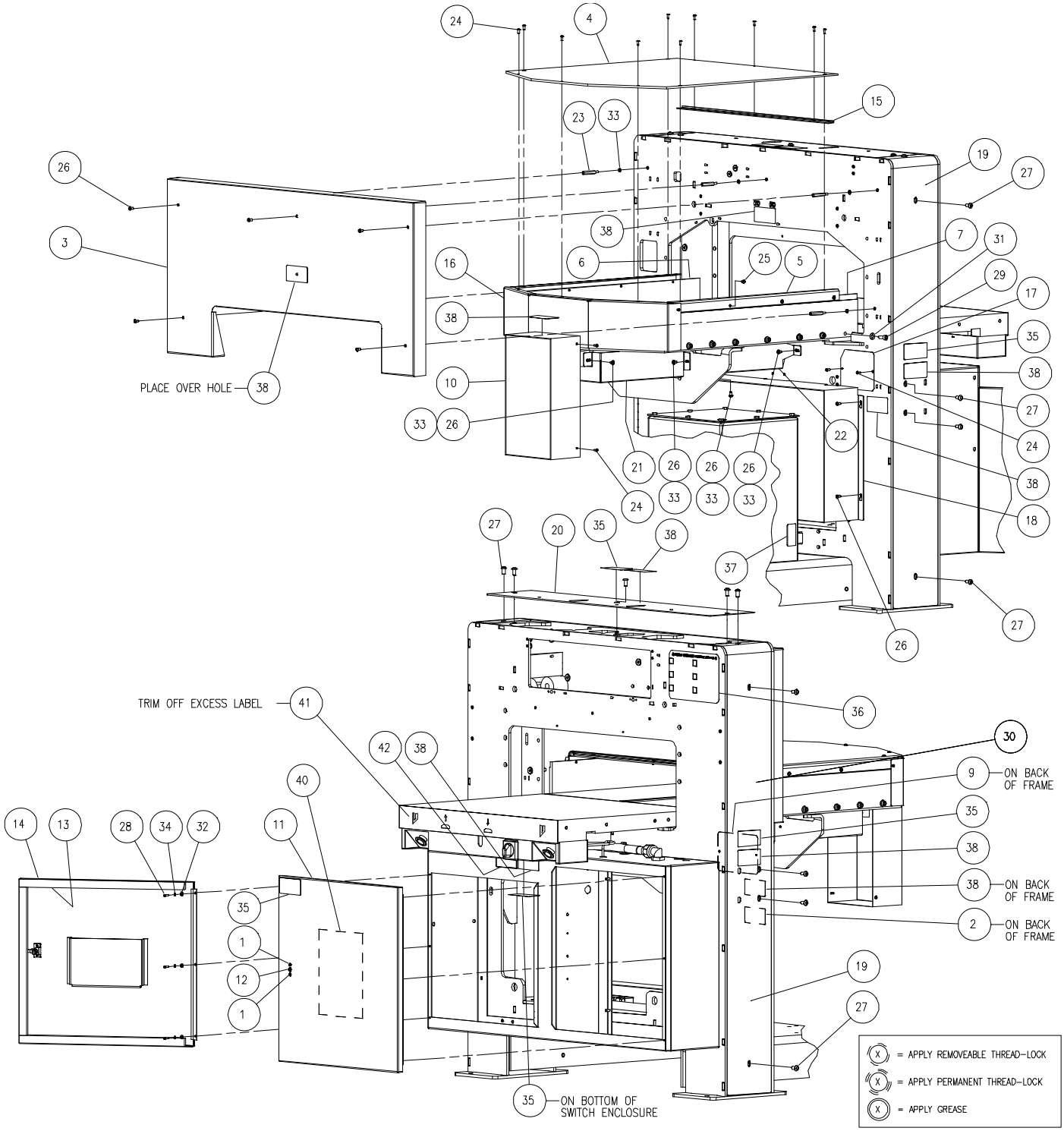


47900 Sheet 11 – Parts List

NO.	PART NO.	DESCRIPTION	QTY
1	4449	KNIFE ADJUSTING SCREW	2
2	4501-2	KNIFE BAR	1
3	4503-3	LINK ASM - KNIFE BAR	2
4	4505	KNIFE BAR GIB	2
5	4507-2	PIN - KNIFE BAR LINK	2
6	4518	PIN - KNIFE LINK	2
7	8815	WASHER - 3/8 HEAVY	6
8	8835-2	PIN KEEPER - UPPER	2
9	47504	BRACKET - KNIFE BAR KEEPER	1
10	47508	KNIFE - 305, HSS	1
11	H-6910-404	SCREW - 1/4-20 X 1/2 BUTTON HEAD CAP	2
12	H-6918-404	SCREW - 1/4-20 X 1/2 SOCKET HEAD CAP	2
13	H-6918-405	SCREW - 1/4-20 X 5/8 SOCKET HEAD CAP	2
14	H-6918-408	SCREW - 1/4-20 X 1 SOCKET HEAD CAP	2
15	H-6918-608	SCREW - 3/8-16 X 1 SOCKET HEAD CAP	6
16	H-6953-856	SCREW - 1/2-13 X 3-1/2 OVAL SOC SET	6
17	H-7002-8	NUT - HEAVY HEX, BLACK	6
18	H-7321-4	WASHER - 1/4 SAE PLAIN	4
19	H-7327-8	WASHER - 1/4 MEDIUM LOCK	4
20	H-21S-375-1000	ROLL PIN - 3/8 X 1	1
21	S-1087-1	PIN - STRAIGHT ROD END	1
22	S-1193-75	E-RING - 3/4"	2

15.12 Main Assembly – Covers and Labels

47900 Sheet 12

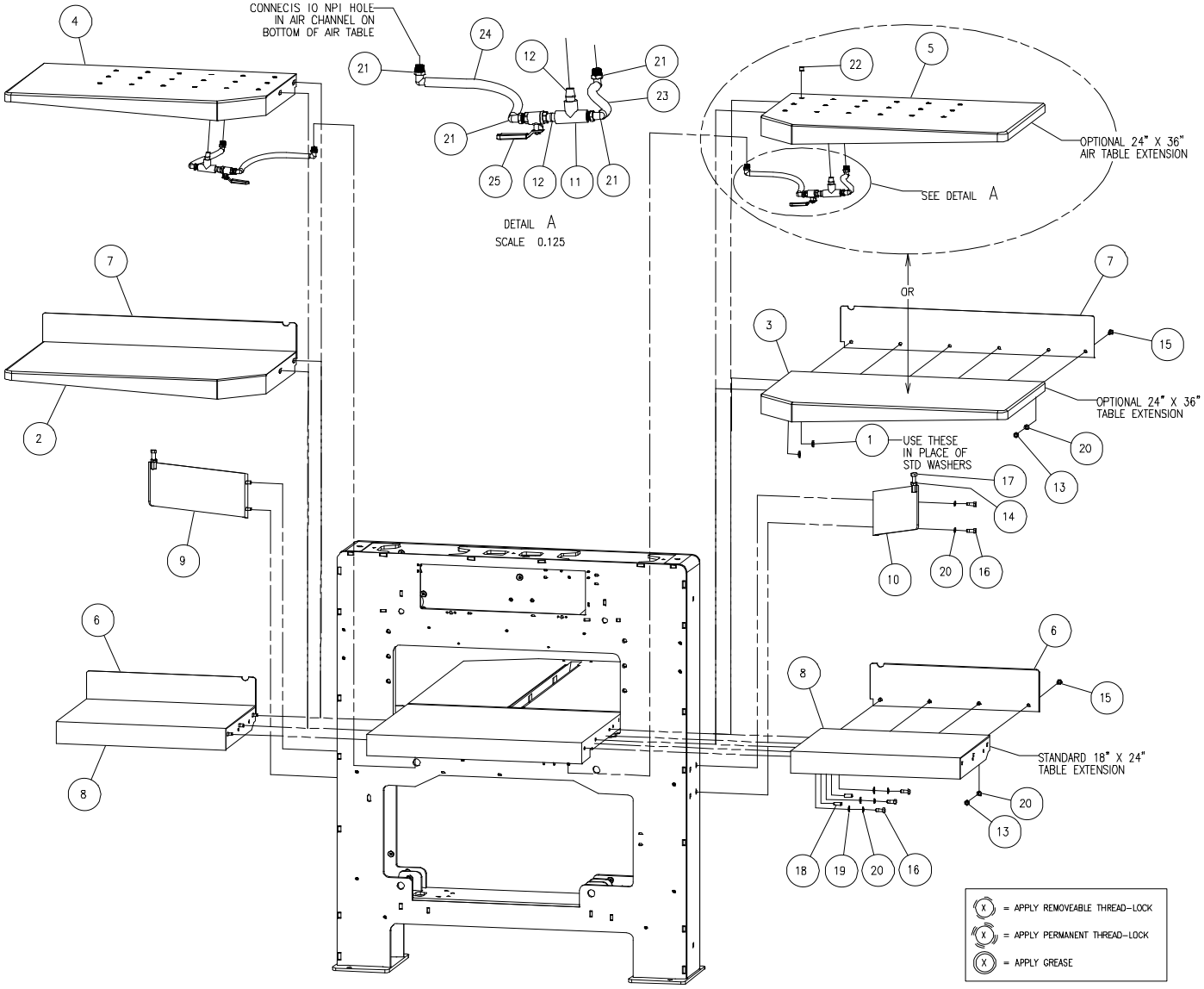


47900 Sheet 12 – Parts List

NO.	PART NO.	DESCRIPTION	QTY
1	11145-1	RIVET - 3/16	4
2	41130	PLATE - SERIAL NUMBER	1
3	47001	COVER - REAR ARCH	1
4	47002-1	SHIELD - BACKGAUGE	1
5	47003	BRACKET - BACKGAUGE SHIELD	2
6	47019-1	GUIDE - RH REAR	1
7	47020-1	GUIDE - LH REAR	1
8	47033-3	FRONT ENCLOSURE	1
9	47050	COVER - R.H. REAR BASE	1
10	47055	COVER - BACKGAUGE DRIVE	1
11	47097	DOOR ASSEMBLY- R.H. FRONT	1
12	47101	DOOR LATCH	2
13	47163	FOAM GASKET - 21-3/4" LONG	6
14	47173-1	DOOR ASM.- L.H. FRONT	1
15	47180	SUPPORT - BACKGAUGE SHIELD	1
16	47265-1	GUARD - BACKGAUGE, REAR	1
17	47552	COVER - L.H. REAR BASE	1
18	47570-1	WELDMENT - LOWER REAR COVER	1
19	47950	SIDE COVER	2
20	47951	TOP COVER	1
21	47955	LEADSCREW COVER - REARWARD	1
22	47956	LEADSCREW COVER - FOREWARD	1
23	E-1152-36	STANDOFF	5
24	H-6910-102404	SCREW - #10-24 X 1/2 BUTTON HEAD CAP	18
25	H-6910-403	SCREW - 1/4-20 X 3/8 BUTTON HEAD CAP	8
26	H-6910-404	SCREW - 1/4-20 X 1/2 BUTTON HEAD CAP	17
27	H-6910-606	SCREW - 3/8-16 X 3/4 BUTTON HEAD CAP	13
28	H-6918-102404	SCREW - #10-24 X 1/2 SOCKET HEAD CAP	6
29	H-6918-608	SCREW - 3/8-16 X 1 SOCKET HEAD CAP	14
30	H-7321-4	WASHER - 1/4 SAE PLAIN	1
31	H-7321-6	WASHER - 3/8 SAE PLAIN	14
32	H-7321-#10	WASHER - #10 SAE PLAIN	6
33	H-7327-8	WASHER - 1/4 MEDIUM LOCK	12
34	H-7327-#10	WASHER - #10 MEDIUM LOCK	6
35	S-1781-11	LABEL- SHOCK HAZARD	5
36	S-1781-116	LABEL - WARNING	1
37	S-1781-12	LABEL - SHOCK HAZARD	1
38	S-1781-16	LABEL- CRUSH HAZARD	9
40	S-1781-230	LABEL – POW. CONN., 305TC (CIRCUIT BRK'S)	1
40	S-1781-211	LABEL - POWER CONNECTION, 305 TC (fuses)	1
41	S-1781-216	LABEL- FRONT OF TABLE	1
42	S-1781-25	LABEL- INSTRUCTION	1

15.13 Main Assembly – Table Extensions

47900 Sheet 13

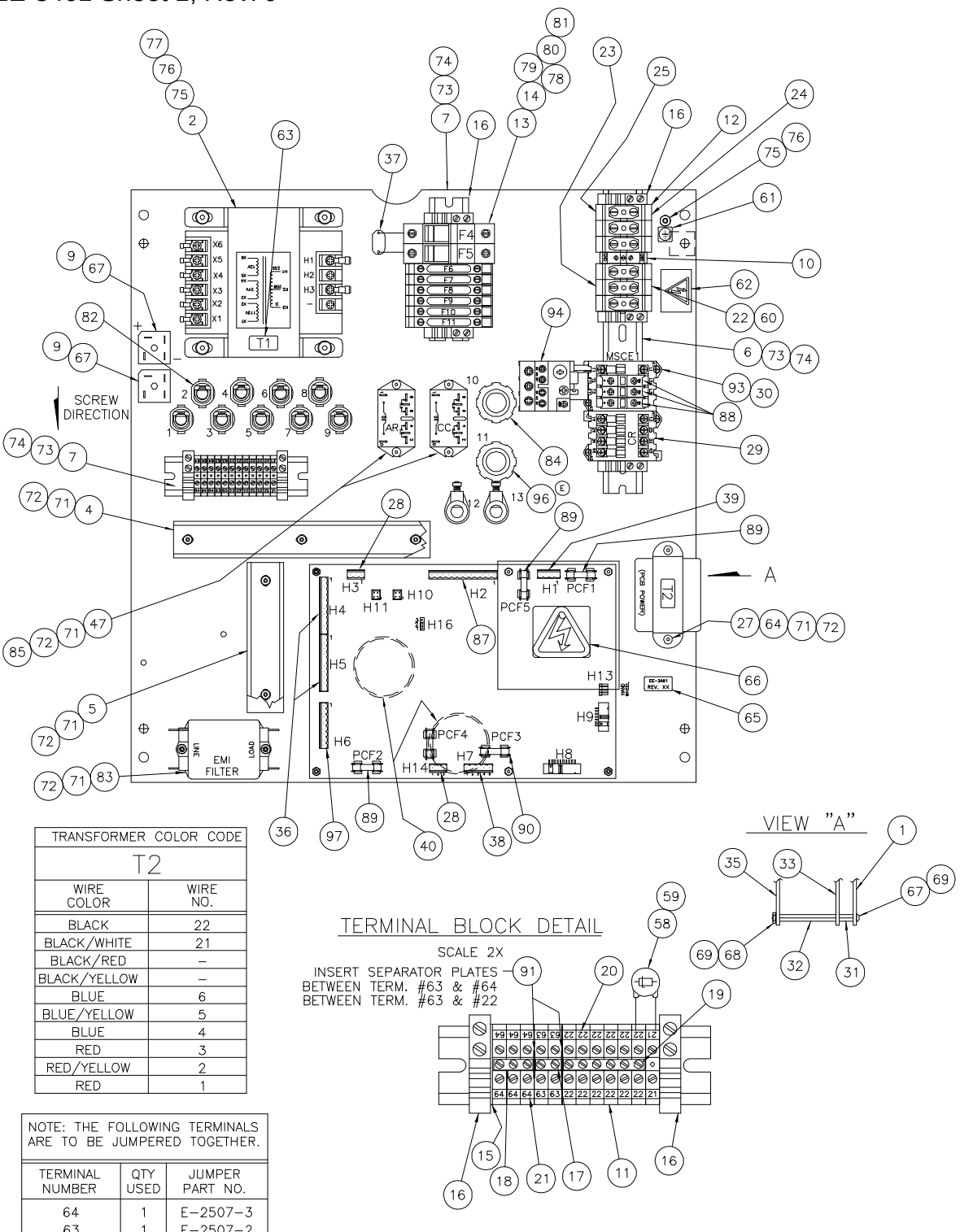


47900 Sheet 13 Parts List

NO.	PART NO.	DESCRIPTION	QTY
1	8815	WASHER - 3/8 HEAVY	4
2	16026	LH TABLE EXTENSION - 24X36	1
3	16027	RH TABLE EXTENSION - 24X36	1
4	16028	LH TABLE EXTENSION - 24X36, AIR	1
5	16029	RH TABLE EXTENSION - 24X36, AIR	1
6	47164-1	PLATE- EXTENSION TABLE	2
7	47164-2	BACK PLATE - LARGE EXT. TABLE	2
8	47166	TABLE EXTENSION - 18 X 24	2
9	A-8495	LH SUPPORT - WELDMENT	1
10	A-8496	RH SUPPORT - WELDMENT	1
11	H-277-1	TEE - 3/8 NPT INTERNAL	2
12	H-6405-1-608	NIPPLE - 3/8" CLOSE	4
13	H-6424-6	NUT - 3/8-16 HEX JAM	12
14	H-6424-8	NUT - 1/2-13 HEX JAM	2
15	H-6913-606	SCREW - 3/8-16 X 3/4 HEX HEAD CAP	12
16	H-6913-608	SCREW - 3/8-16 X 1 HEX HEAD CAP	10
17	H-6913-818	SCREW - 1/2-13 X 2-1/4 HEX HEAD CAP	2
18	H-6939-616	SCREW - 3/8-24 X 1 CUP SOC SET	4
19	H-7321-6	WASHER - 3/8 SAE PLAIN	6
20	H-7327-12	WASHER - 3/8 MEDIUM LOCK	22
21	P-205	90° NYLON ELBOW - 3/8 NPT X 1/2 TUBE	8
22	P-207-1	AIR JET WITH FLANGE	36
23	P-240-3_X_12INCHES	VINYL TUBING - 1/2 ID	2
24	P-240-3_X_22INCHES	VINYL TUBING - 1/2 ID	2
25	S-1921	BALL VALVE - 3/8NPT	2

15.14 Power Panel Assembly (w/Fuses)

EE-3461 Sheet 1, Rev. J



TRANSFORMER COLOR CODE	
T2	
WIRE COLOR	WIRE NO.
BLACK	22
BLACK/WHITE	21
BLACK/RED	–
BLACK/YELLOW	–
BLUE	6
BLUE/YELLOW	5
BLUE	4
RED	3
RED/YELLOW	2
RED	1

NOTE: THE FOLLOWING TERMINALS ARE TO BE JUMPERED TOGETHER.		
TERMINAL NUMBER	QTY USED	JUMPER PART NO.
64	1	E–2507–3
63	1	E–2507–2
22	1	E–2507–6

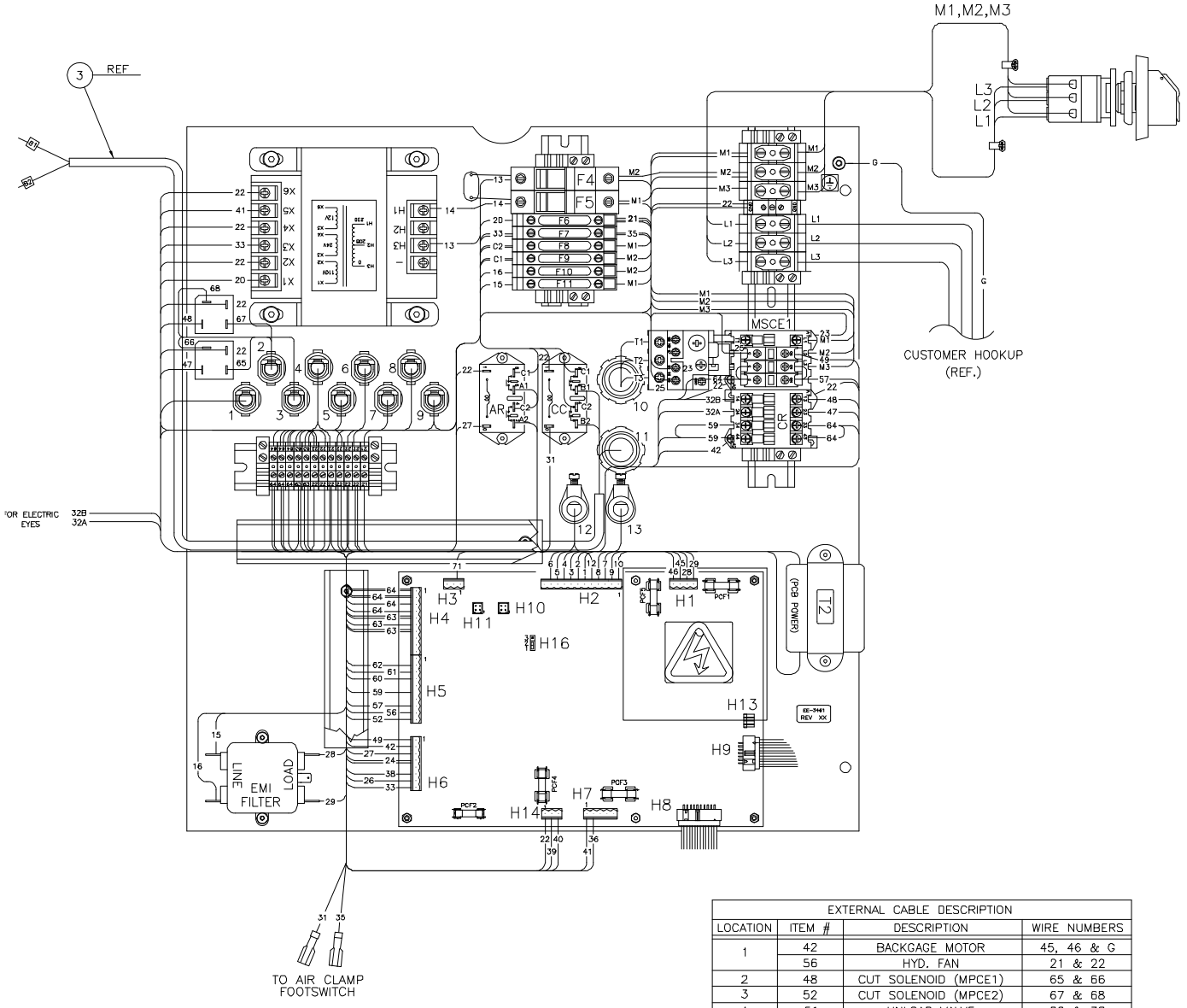
EE-3461 Sheet 1, Rev J – Parts List

NO.	PART NO.	DESCRIPTION OF ACCESSORIES	QTY
1	47512	PANEL - POWER	1
2	E-1089-41	TRANSFORMER - 208-230V "T1"	1
3	EE-3210	CABLE ASM. CLAMP COMPRESSOR JUMPER	REF
4	E-1429-17	WIRE DUCT & COVER - 9" LONG	1
5	E-1429-18	WIRE DUCT & COVER - 5-1/4" LONG	1
6	E-1977-21	RAIL - TERMINAL - 10" LONG	1
7	E-1977-23	RAIL - TERMINAL - 5" LONG	2
8	EE-3080	WIRES - CUT LIST	1
9	E-1143	BRIDGE RECTIFIER - PANEL MOUNT	2
10	E-2068-3	TERMINAL BLOCK - GROUNDING	1
11	E-2068-8	TERMINAL BLOCK - #10 AWG.	12
12	E-2068-7	TERMINAL BLOCK - 3 AWG.	6
13	E-1974-10	TERMINAL BLOCK - FUSEHOLDER, MIDGET	2
14	E-1974-9	TERMINAL BLOCK - FUSEHOLDER, GLASS	6
15	E-2069-3	END PLATE	1
16	E-2070-1	END BRACKET	7
17	E-2507-2	FIXED BRIDGE - 2 POLE	1
18	E-2507-3	FIXED BRIDGE - 3 POLE	1
19	E-2507-6	FIXED BRIDGE - 6 POLE	1
20	E-1356-147	MARKING STRIP - TERMINAL BLOCK	1
21	E-1356-148	MARKING STRIP - TERMINAL BLOCK	1
22	E-1356-71	MARKING STRIP - TERMINAL BLOCK	1
23	E-1356-122	MARKING STRIP - TERMINAL BLOCK	1
24	E-1356-118	MARKING STRIP - TERMINAL BLOCK	1
25	E-1356-119	MARKING STRIP - TERMINAL BLOCK	1
26	E-1453-6	TUBING - SHRINK, 1/8" DIA. 1" LONG	1
27	E-2742-5	TRANSFORMER - 120/230V , 16/24V SC. "T2"	1
28	E-2066-3	PLUG CONNECTOR - 3 PIN (H3 & H14)	2
29	E-2403-2	CONTACTOR - RELAY (CR)	1
30	-4		
31	E-1152-56	STAND-OFF - 1/2" LONG	6
32	E-1152-43	STAND-OFF - 2" LONG	2
33	EE-3432-2	P.C.B. ASM. - I/O BOARD	1
34	EE-2820-11	PROX. ASSEMBLY - FALSE CLAMP PLATE "F"	1
35	47157-7	P.C.B. COVER - CLEAR	1
36	E-2066-10	PLUG CONNECTOR - P.C.B. 10 PIN (H4 & 5)	2
37	E-1736-2	QUENCHARC - WIRE LEADS	1
38	E-2066-5	PLUG CONNECTOR - P.C.B. 5 PIN (H7)	1
39	E-2066-4	PLUG CONNECTOR - P.C.B. 4 PIN (H1 & 12)	2
40	E-2196-21	HOLE PLUG - 2" DIA	2
41	EE-2834-1	CABLE ASM. - JUNCTION BOX	1
42	EE-2833-1	CABLE ASM. - BACKGAGE MOTOR	1
43	EE-2820	PROX. ASSEMBLY - HYDRAULIC UP "H"	1
44	EE-2820-12	PROX. ASSEMBLY - CLAMP UP "C"	1
45	EE-2820-2	PROX. ASSEMBLY - KNIFE DOWN "K"	1
46	EE-2820-5	PROX. ASSEMBLY - KNIFE UP "U"	1
47	E-2232-2	RELAY - AIR BLOWER (AR)/ CLAMP COMPRESS.	2
48	EE-2821-8	CABLE ASM. - CUT SOLENOID"A" (MSCE1)	1
49	EE-2842-1	PROX. ASSEMBLY - KNIFE LATCH	1
50	EE-2821-3	CABLE ASM. - ADJUST. PRESS. SOLENOID "P"	1

EE-3461 Sheet 1, Rev J – Parts List, Continued

NO.	PART NO.	DESCRIPTION OF ACCESSORIES	QTY
51	EE-2821-6	CABLE ASM. - UNLOAD VALVE SOLENOID "U"	1
52	EE-2821-9	CABLE ASM. - CUT SOLENOID "B" (MSCE2)	1
53	47645-1	CONDUIT ASSEMBLY - BLOWER/AIR SOL.	REF
54	EE-3564-1	CABLE ASSEMBLY - ENCODER	1
55	EE-3464	PROX. ASSEMBLY - PRESET	1
56	EE-2825-1	CABLE ASSEMBLY - HYD. FAN	1
57	EE-2843-1	CABLE ASSEMBLY - KNIFE LATCH	1
58	E-1377	VARISTOR - SUPRESSOR, MOV	1
59	E-1453-3	SHRINK TUBING - 1" LONG	2
60	E-2752-2	COVER - TERMINAL BLOCK	3
61	S-1781-197	LABEL - GROUND SYMBOL, PRIMARY	1
62	S-1781-50	LABEL - EURO ELECT. SHOCK	1
63	E-1584-51	LABEL - TRANSFORMER, "T1"	1
64	E-1584-52	LABEL - TRANSFORMER, "T2"	1
65	E-1584-( )	LABEL - ASM. NO./REV. LEVEL	1
66	S-1781-35	LABEL - CAUTION, ELEC. DANGER	1
67	H-6910-83204	SCREW, #8-32NC X 1/2" BUT HD CAP	2
68	H-6910-63203	SCREW, #6-32NC X 3/8" BUT HD CAP	6
69	H-6423-#6	NUT, #6-32NC HEX	6
70	H-7324-#6	WASHER, #6 INT. TOOTH	14
71	H-6910-83203	SCREW, #8-32NC X 3/8" BUT HD CAP	13
72	H-7324-#8	WASHER, #8 INT. TOOTH	13
73	H-6910-102403	SCREW, #10-24NC X 3/8" BUT HD CAP	8
74	H-7324-#10	WASHER, #10 INT. TOOTH	8
75	H-6910-403	SCREW, 1/4-20NC X 3/8" BUT HD CAP	5
76	H-7324-8	WASHER, 1/4 INT. TOOTH	5
77	H-7319-4	WASHER, 1/4 USS FLAT	4
78	E-2308	FUSE - 3.2A SB MIDGET, "F4","F5"	2
79	E-889-35	FUSE - 1AMP SLO-BLO GLASS, "F6"	1
80	E-889-37	FUSE - 12AMP SLO-BLO GLASS, "F7" (50HZ)	1
80	E-889-9	FUSE - 8AMP SLO-BLO GLASS, "F7" (60HZ)	1
81	E-889-5	FUSE - 4AMP SB GLASS, "F8","F9","10","11"	4
82	S-1350-16	STRAIN RELIEF - CABLE	11
83	E-2730-3	FILTER - EMI/EFI, PANEL MOUNT	1
84	EE-2836-1	CONDUIT ASM. - HYDRAULIC MOTOR, 3 PHASE	1
85	H-7321-#8	WASHER -#8 FLAT	4
86	S-1694	TY-WRAP - CABLE (NOT SHOWN)	10
87	E-2066-12	PLUG CONNECTOR - P.C.B. 12 PIN (H2)	1
88	E-2376-6	AUXILIARY CONTACT - N.O.	3
89	E-2330-7	FUSE - 5A SB, METRIC (PCF1,PCF2 & PCF5)	REF
90	E-2330-8	FUSE - 6.3A SLO-BLO, METRIC (PCF3)	REF
91	E-2864	SEPARATOR PLATE - TERMINAL BLOCK	2
92			
93	E-2805-6	STARTER - 3 PHASE	1
94	E-2441-18	RELAY - OVERLOAD, 3 PHASE	1
95	E-2330-5	FUSE - 3.15A SB, METRIC (PCF4)	REF
96	EE-3499	CONDUIT ASM. - AIR BLOWER – TABLE	1
97	E-2066-8	PLUG CONNECTOR - P.C.B. 8 PIN (H6)	1
98	EE-3460	CABLE ASM. - 'CAN' (LONG) (NOT SHOWN)	1

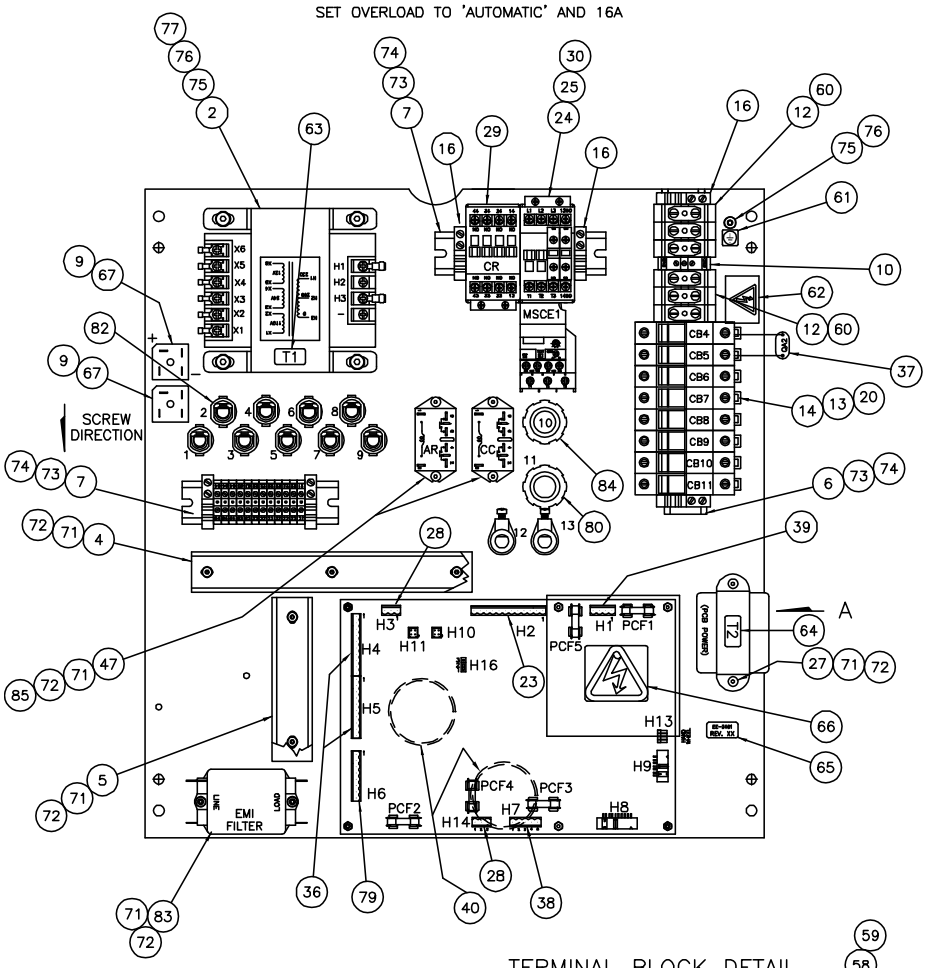
Power Panel Assembly (w/Fuses)
EE-3461 Sheet 2, Rev. J



EXTERNAL CABLE DESCRIPTION			
LOCATION	ITEM #	DESCRIPTION	WIRE NUMBERS
1	42	BACKGAGE MOTOR	45, 46 & G
	56	HYD. FAN	21 & 22
2	48	CUT SOLENOID (MPCE1)	65 & 66
3	52	CUT SOLENOID (MPCE2)	67 & 68
4	51	UNLOAD VALVE	22 & 38
5	44	CLAMP UP PROX. "C"	62, 63 & 64
	50	CLAMP PRESS. VALVE "P"	39 & 40
6	43	HYDRAULIC UP PROX. "H"	61, 63 & 64
7	49	KNIFE LATCH PROX.	52, 63 & 64
	57	KNIFE LATCH "L"	22 & 26
8	46	KNIFE UP PROX. "U"	60, 63 & 64
	45	KNIFE DOWN PROX. "K"	56, 63 & 64
9	41	JUNCTION BOX POWER	21,22,35 & 36
10	84	HYDRAULIC MOTOR	T1, T2, T3 & G
11	96	BLOWER MOTOR	A1, A2 & G
		AIR SOLENOID	22 & 24
12	55	PRESET PROX. (N.C.)	12, 63 & 64
13	34	FALSE CLAMP PROX.	63,64 & 71
	54	ENCODER	7, 8, 9 & 10

15.15 Power Panel Assembly (w/Circuit Breakers)

EE-3461-1 Sheet 1 REV. "A"

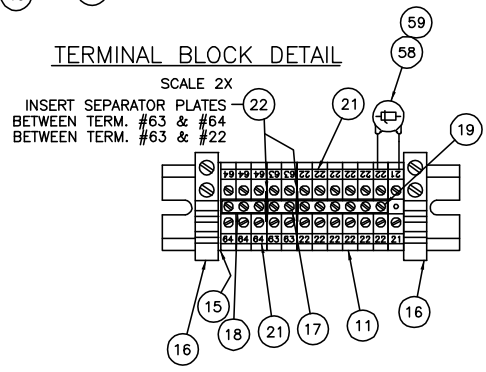


TRANSFORMER COLOR CODE	
T2	
WIRE COLOR	WIRE NO.
BLACK	22
BLACK/WHITE	21
BLACK/RED	–
BLACK/YELLOW	–
BLUE	6
BLUE/YELLOW	5
BLUE	4
RED	3
RED/YELLOW	2
RED	1

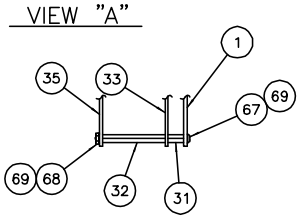
TERMINAL BLOCK DETAIL

SCALE 2X

INSERT SEPARATOR PLATES BETWEEN TERM. #63 & #64 BETWEEN TERM. #63 & #22



VIEW "A"



NOTE: THE FOLLOWING TERMINALS ARE TO BE JUMPERED TOGETHER.		
TERMINAL NUMBER	QTY USED	JUMPER PART NO.
64	1	E–2507–3
63	1	E–2507–2
22	1	E–2507–6

EE-3461-1 Sheet 1, Rev A – Parts List

NO.	PART NO.	DESCRIPTION OF ACCESSORIES	QTY
1	47512-1	PANEL - POWER	1
2	E-1089-41	TRANSFORMER - 208-230V "T1"	1
3	EE-3210	CABLE ASM. CLAMP COMPRESSOR JUMPER	REF
4	E-1429-17	WIRE DUCT & COVER - 9" LONG	1
5	E-1429-18	WIRE DUCT & COVER - 5-1/4" LONG	1
6	E-1977-16	RAIL - TERMINAL - 10-5/8" LONG	1
7	E-1977-23	RAIL - TERMINAL - 5" LONG	2
8	EE-3080	WIRES - CUT LIST	1
9	E-1143	BRIDGE RECTIFIER - PANEL MOUNT	2
10	E-2068-3	TERMINAL BLOCK - GROUNDING	1
11	E-2068-8	TERMINAL BLOCK - #10 AWG.	12
12	E-2068-7	TERMINAL BLOCK - 3 AWG.	6
13	E-3264-1	CIRCUIT BREAKER - 1A (CB6)	1
14	E-3264-5	CIRCUIT BREAKER - 4A (CB4,5,8,9,10,11)	6
15	E-2069-3	END PLATE	1
16	E-2070-1	END BRACKET	6
17	E-2507-2	FIXED BRIDGE - 2 POLE	1
18	E-2507-3	FIXED BRIDGE - 3 POLE	1
19	E-2507-6	FIXED BRIDGE - 6 POLE	1
20	E-3264-9	CIRCUIT BREAKER - 8A (CB7) (60 HZ ONLY)	1
	E-3264-14	CIRCUIT BREAKER - 12A (CB7) (50HZ ONLY)	
21	E-1356-( )	MARKING STRIP - TERMINAL BLOCK	2
22	E-2864	SEPARATOR PLATE - TERMINAL BLOCK	2
23	E-2066-12	PLUG CONNECTOR - P.C.B. 12 PIN (H2)	1
24	E-2376-6	AUXILIARY CONTACT - N.O.	2
25	E-2441-18	RELAY - OVERLOAD, 3 PHASE	1
26	E-1453-6	TUBING - SHRINK, 1/8" DIA. 1" LONG	1
27	E-2742-5	TRANSFORMER - 120/230V , 16/24V SC. "T2"	1
28	E-2066-3	PLUG CONNECTOR - 3 PIN (H3 & H14)	2
29	E-2403-10	CONTACTOR - RELAY (CR)	1
30	E-2805-6	STARTER - 3 PHASE	1
31	E-1152-56	STAND-OFF - 1/2" LONG	6
32	E-1152-43	STAND-OFF - 2" LONG	2
33	EE-3432-2	P.C.B. ASM. - I/O BOARD	1
34	EE-2820-11	PROX. ASSEMBLY - FALSE CLAMP PLATE "F"	1
35	47157-7	P.C.B. COVER - CLEAR	1
36	E-2066-10	PLUG CONNECTOR - P.C.B. 10 PIN (H4 & 5)	2
37	E-1736-2	QUENCHARC - WIRE LEADS	1
38	E-2066-5	PLUG CONNECTOR - P.C.B. 5 PIN (H7)	1

EE-3461-1 Sheet 1, Rev A – Parts List

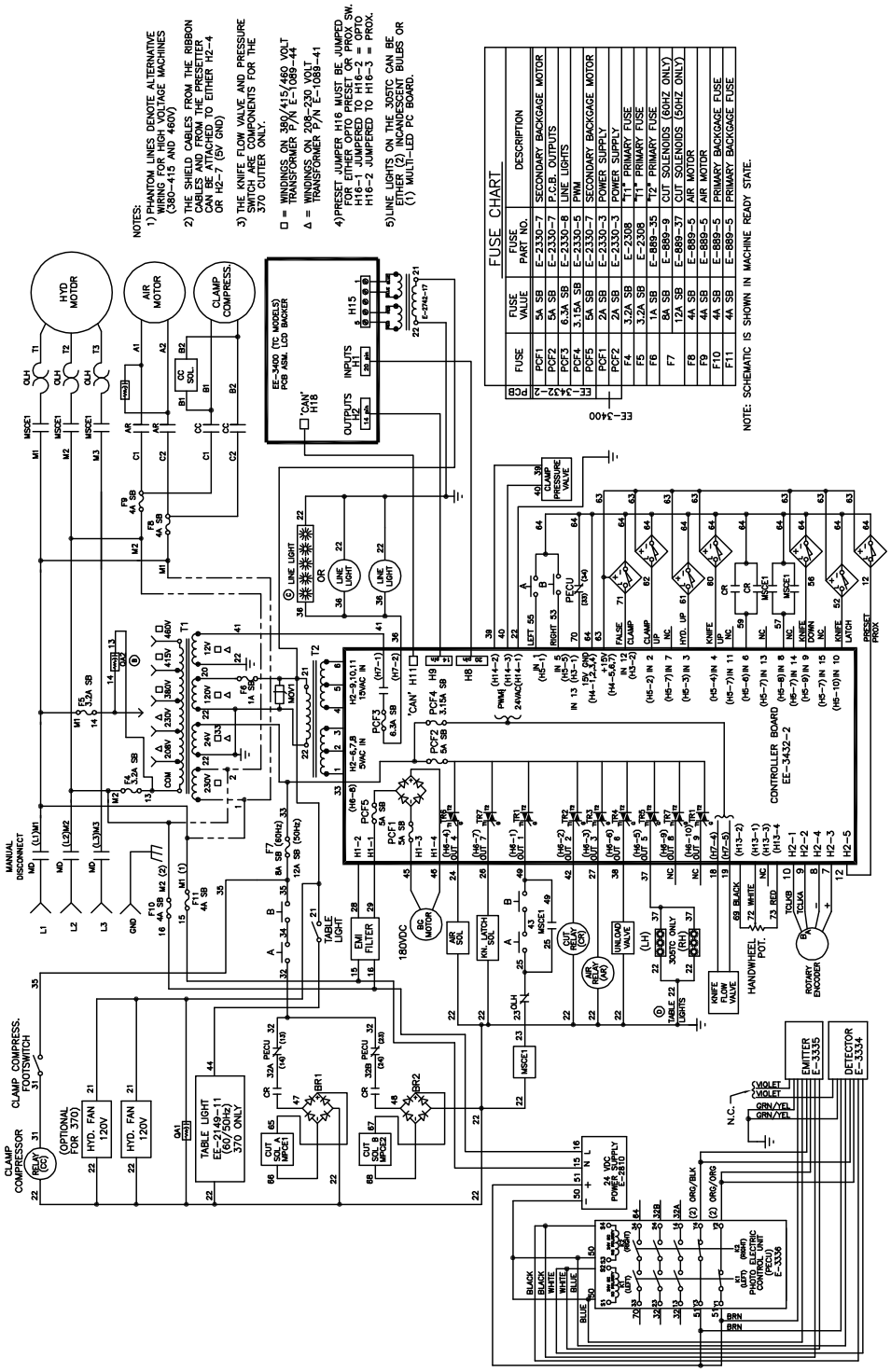
NO.	PART NO.	DESCRIPTION OF ACCESSORIES	QTY
39	E-2066-4	PLUG CONNECTOR - P.C.B. 4 PIN (H1)	1
40	E-2196-21	HOLE PLUG - 2" DIA	2
41	EE-2834-1	CABLE ASM. - JUNCTION BOX	1
42	EE-2833-1	CABLE ASM. - BACKGAGE MOTOR	1
43	EE-2820	PROX. ASSEMBLY - HYDRAULIC UP "H"	1
44	EE-2820-12	PROX. ASSEMBLY - CLAMP UP "C"	1
45	EE-2820-2	PROX. ASSEMBLY - KNIFE DOWN "K"	1
46	EE-2820-5	PROX. ASSEMBLY - KNIFE UP "U"	1
47	E-2232-2	RELAY - AIR BLOWER (AR)/ CLAMP COMPRESS.	2
48	EE-2821-8	CABLE ASM. - CUT SOLENOID"A" (MSCE1)	1
49	EE-2842-1	PROX. ASSEMBLY - KNIFE LATCH	1
50	EE-2821-3	CABLE ASM. - ADJUST. PRESS. SOLENOID "P"	1
51	EE-2821-6	CABLE ASM. - UNLOAD VALVE SOLENOID "U"	1
52	EE-2821-9	CABLE ASM. - CUT SOLENOID "B" (MSCE2)	1
53	47645-1	CONDUIT ASSEMBLY - BLOWER/AIR SOL.	REF
54	EE-3564-1	CABLE ASSEMBLY - ENCODER	1
55	EE-3464	PROX. ASSEMBLY - PRESET	1
56	EE-2825-1	CABLE ASSEMBLY - HYD. FAN	1
57	EE-2843-1	CABLE ASSEMBLY - KNIFE LATCH	1
58	E-1377	VARISTOR - SUPRESSOR, MOV1	1
59	E-1453-3	SHRINK TUBING - 1" LONG	2
60	E-2752-2	COVER - TERMINAL BLOCK	3
61	S-1781-197	LABEL - GROUND SYMBOL, PRIMARY	1
62	S-1781-50	LABEL - EURO ELECT. SHOCK	1
63	E-1584-51	LABEL - TRANSFORMER, "T1"	1
64	E-1584-52	LABEL - TRANSFORMER, "T2"	1
65	E-1584-( )	LABEL - ASM. NO./REV. LEVEL	1
66	S-1781-35	LABEL - CAUTION, ELEC. DANGER	1
67	H-6910-83204	SCREW, #8-32NC X 1/2" BUT HD CAP	2
68	H-6910-63203	SCREW, #6-32NC X 3/8" BUT HD CAP	6
69	H-6423-#6	NUT, #6-32NC HEX	6
70	H-7324-#6	WASHER, #6 INT. TOOTH	14
71	H-6910-83203	SCREW, #8-32NC X 3/8" BUT HD CAP	13
72	H-7324-#8	WASHER, #8 INT. TOOTH	13
73	H-6910-102403	SCREW, #10-24NC X 3/8" BUT HD CAP	8
74	H-7324-#10	WASHER, #10 INT. TOOTH	8
75	H-6910-403	SCREW, 1/4-20NC X 3/8" BUT HD CAP	5

EE-3461-1 Sheet 1, Rev A – Parts List

NO.	PART NO.	DESCRIPTION OF ACCESSORIES	QTY
76	H-7324-8	WASHER, 1/4 INT. TOOTH	5
77	H-7319-4	WASHER, 1/4 USS FLAT	4
78	EE-3460	CABLE ASM. - 'CAN' (LONG) (NOT SHOWN)	1
79	E-2066-8	PLUG CONNECTOR - P.C.B. 8 PIN (H6)	1
80	EE-3499	CONDUIT ASM. - AIR BLOWER - TABLE	1
81			
82	S-1350-16	STRAIN RELIEF - CABLE	11
83	E-2730-3	FILTER - EMI/EFI, PANEL MOUNT	1
84	EE-2836-1	CONDUIT ASM. - HYDRAULIC MOTOR, 3 PHASE	1
85	H-7321-#8	WASHER -#8 FLAT	4
86	S-1694	TY-WRAP - CABLE (NOT SHOWN)	10

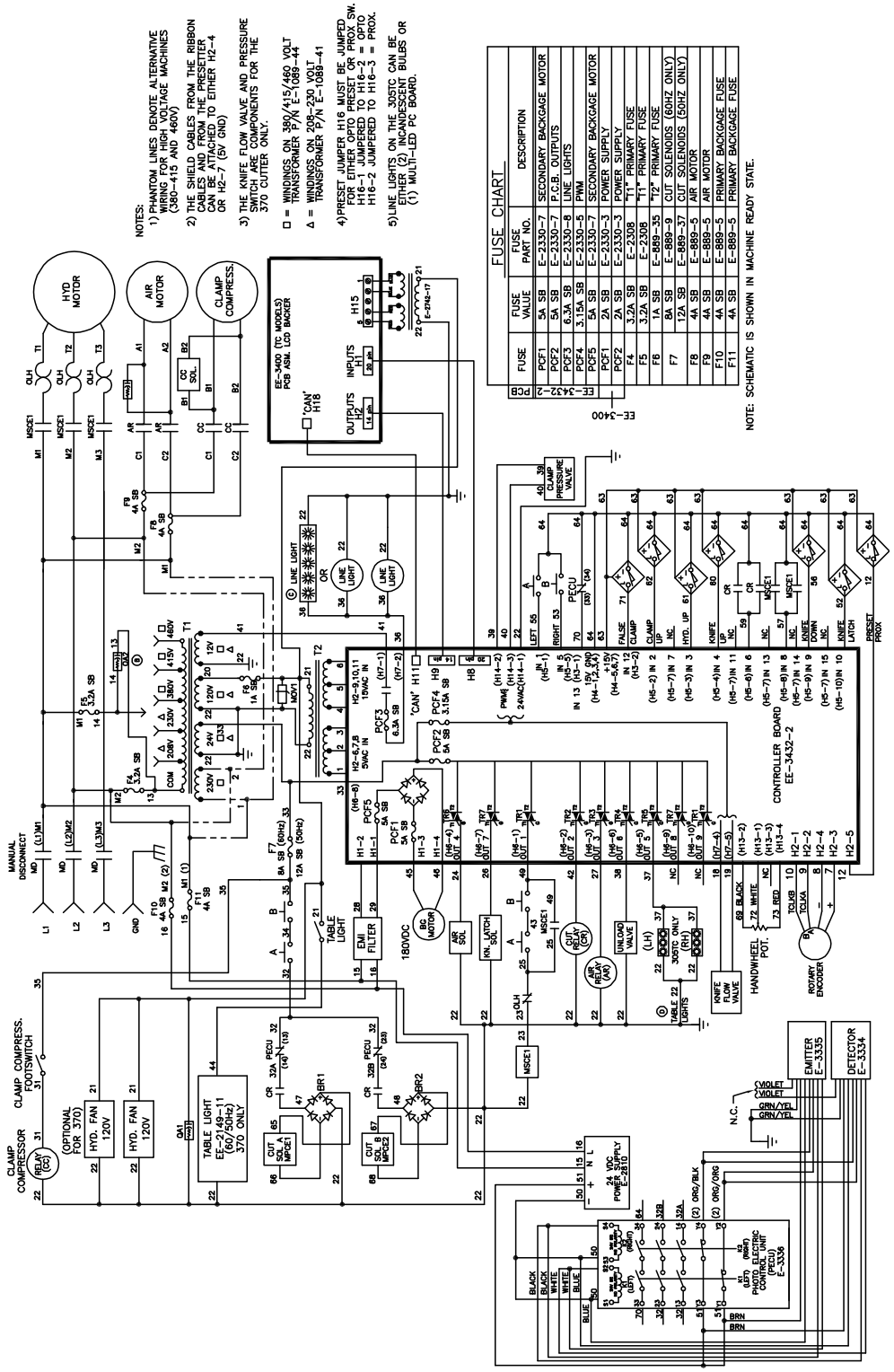
15.16 Basic Machine Schematic – (w/Standard Cut Switches & Fuses)

E-3462, Rev. D



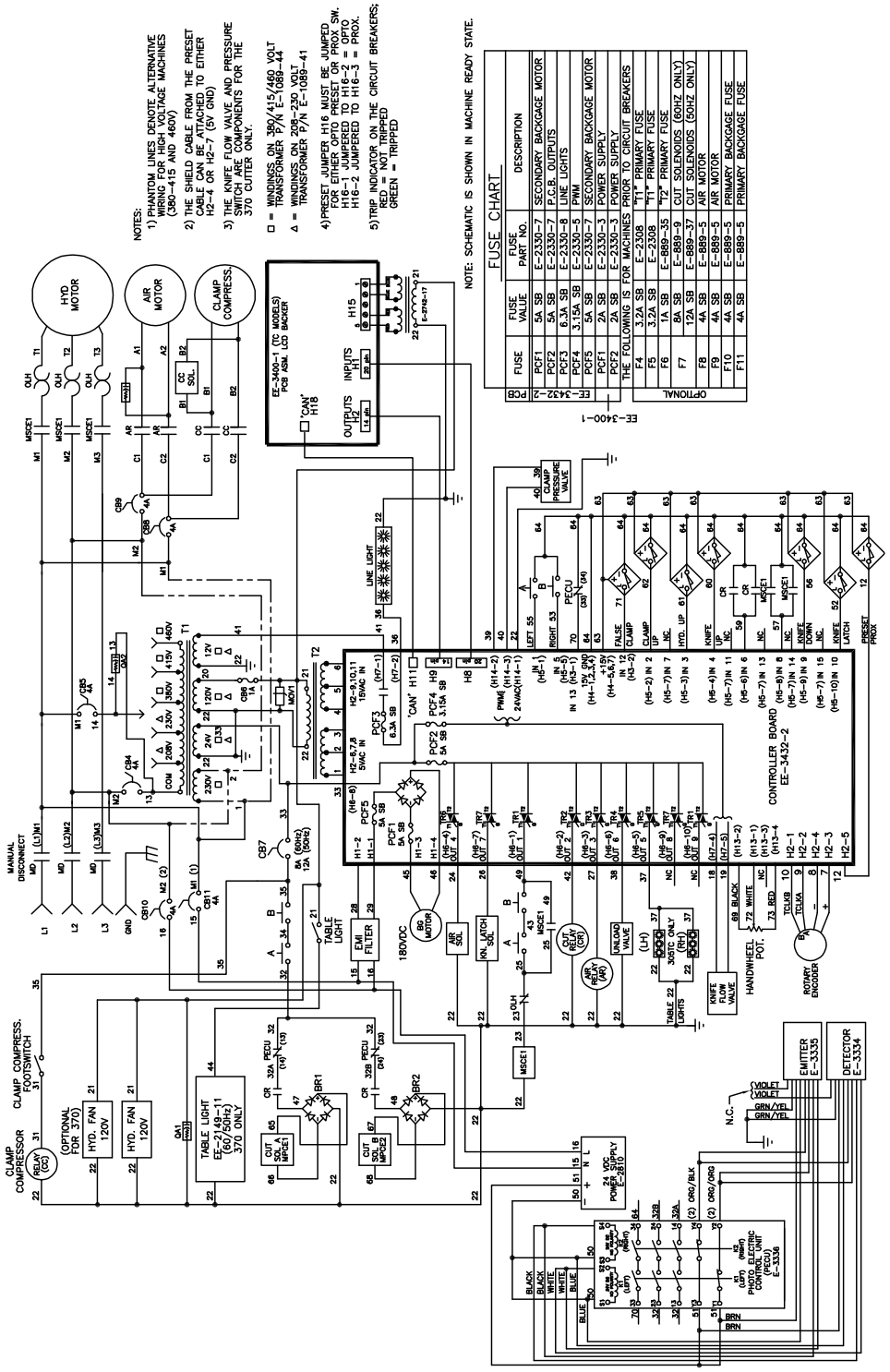
15.17 Basic Machine Schematic – (w/Ergo Touch Switches & Fuses)

E-3462 rev. D



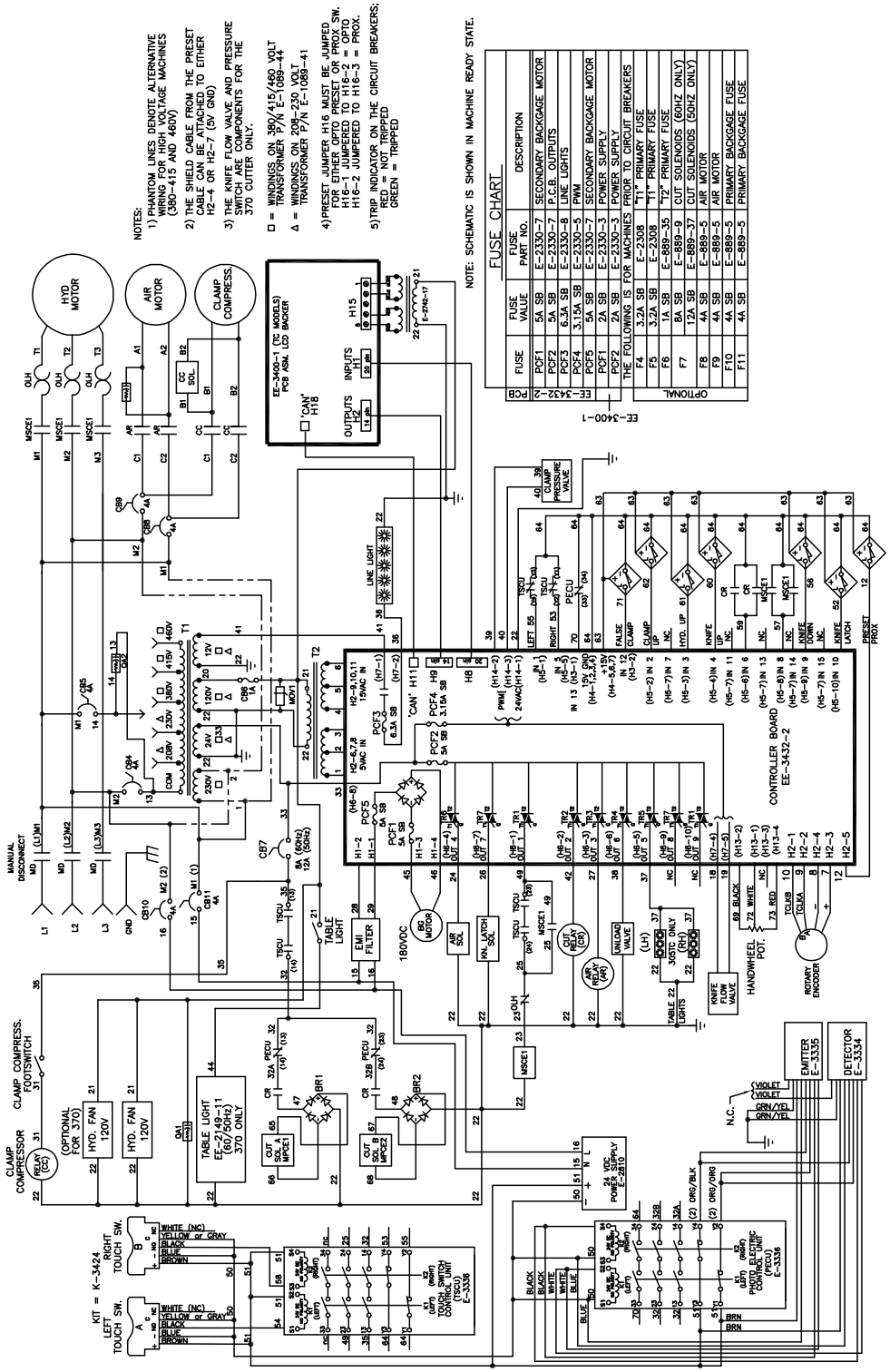
15.18 Basic Machine Schematic – w/Standard Cut Switches & Circuit Breakers

E-3462-1 rev. “A”



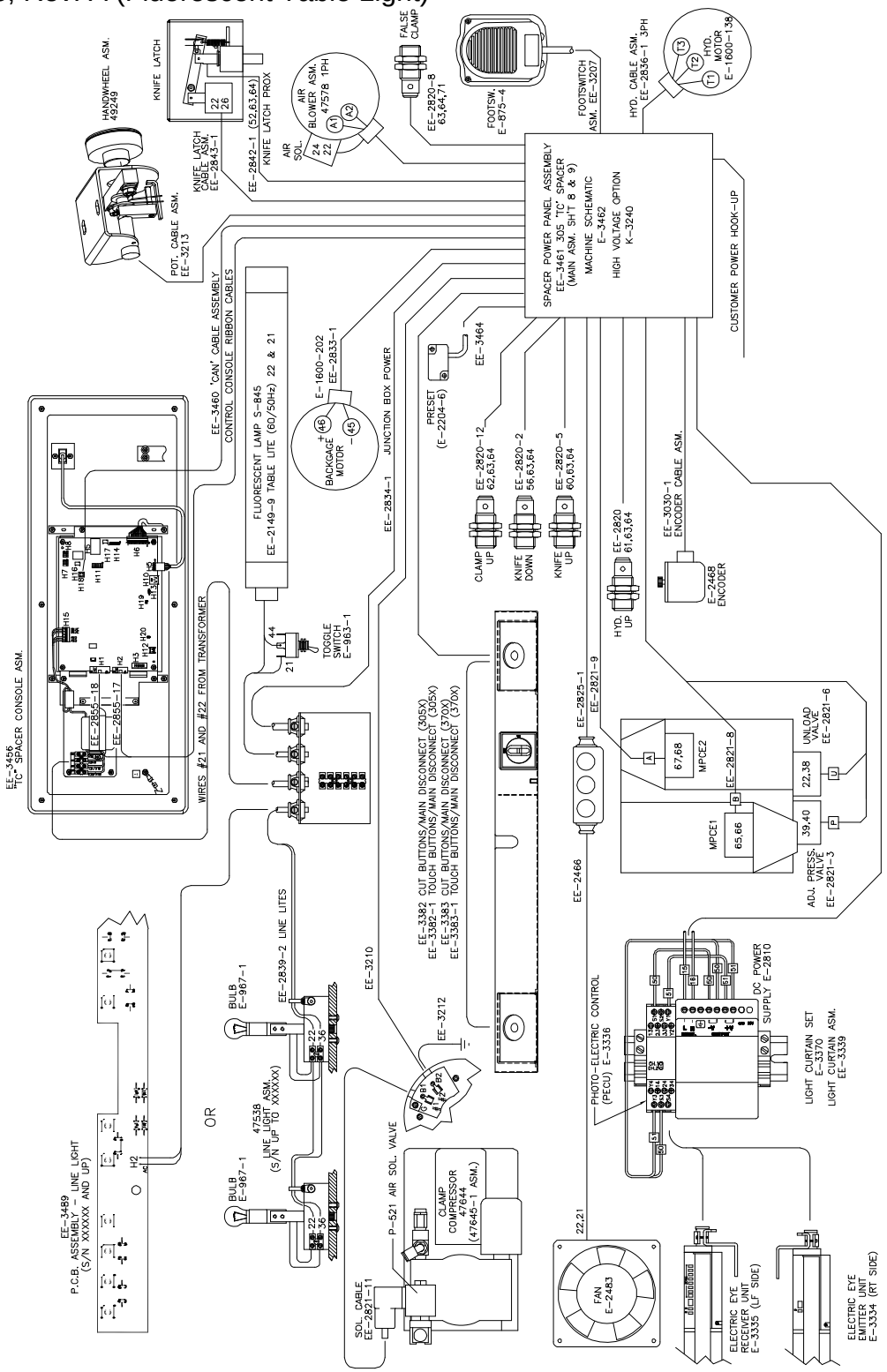
15.19 Basic Machine Schematic – w/Ergo Touch Switches & Circuit Breakers

E-3462-1 rev. “A”



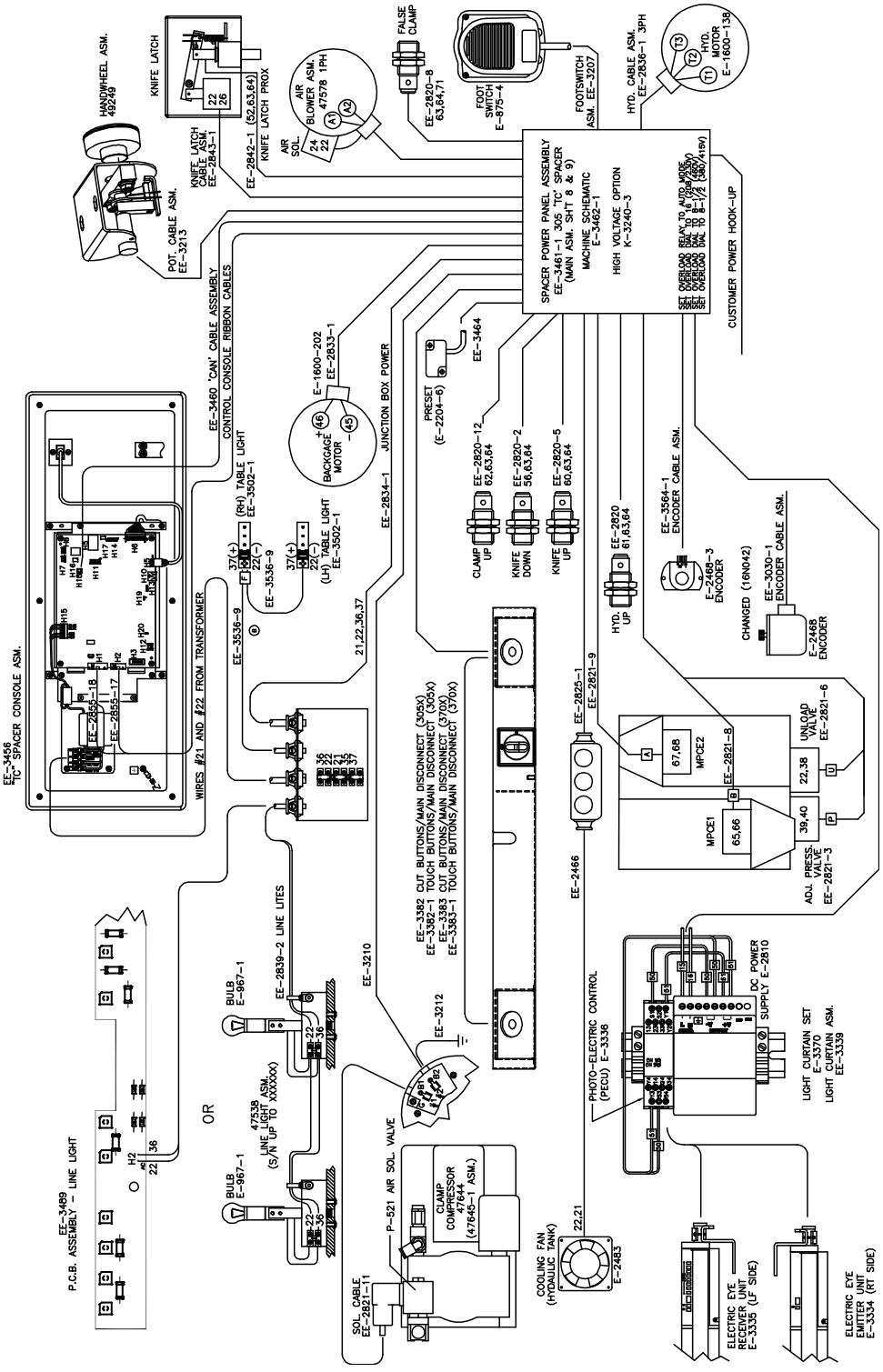
15.20 Interconnection Diagram

E-3463, Rev. A (Fluorescent Table Light)



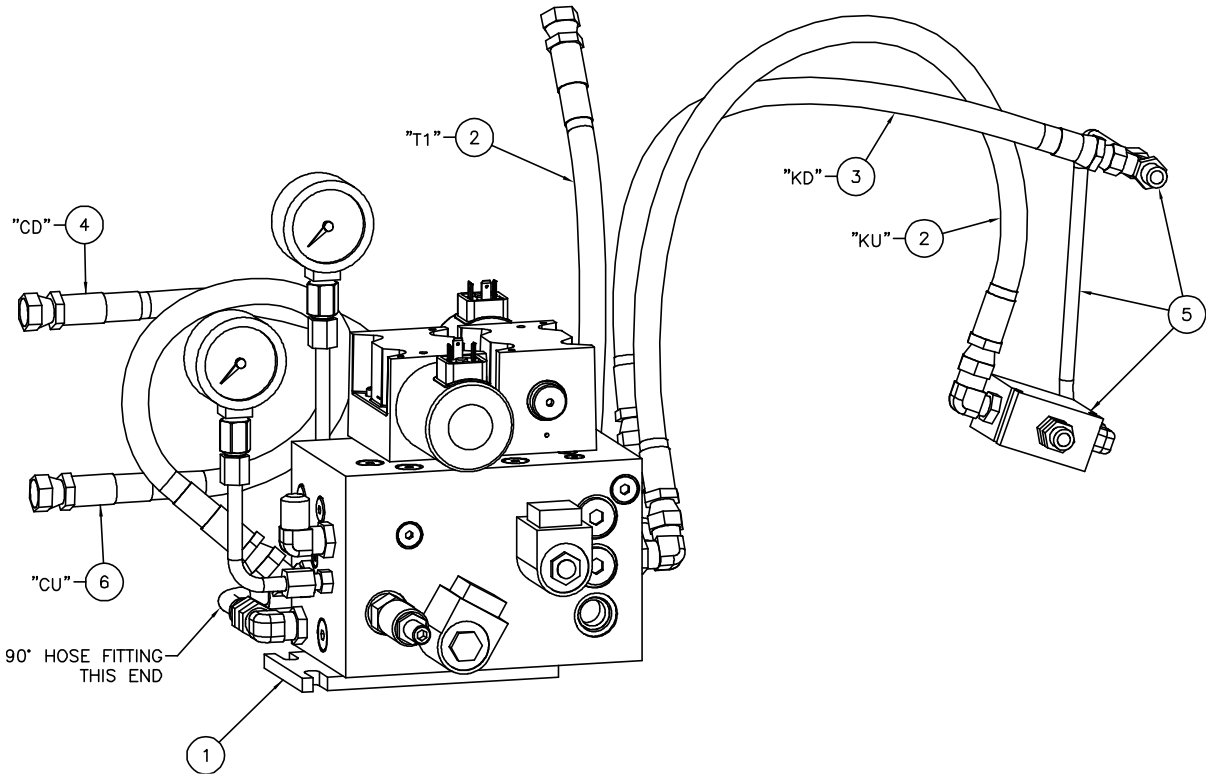
15.21 Interconnection Diagram

E-3463 rev. “B” (LED Table Light)



15.22 Hydraulic Manifold Kit

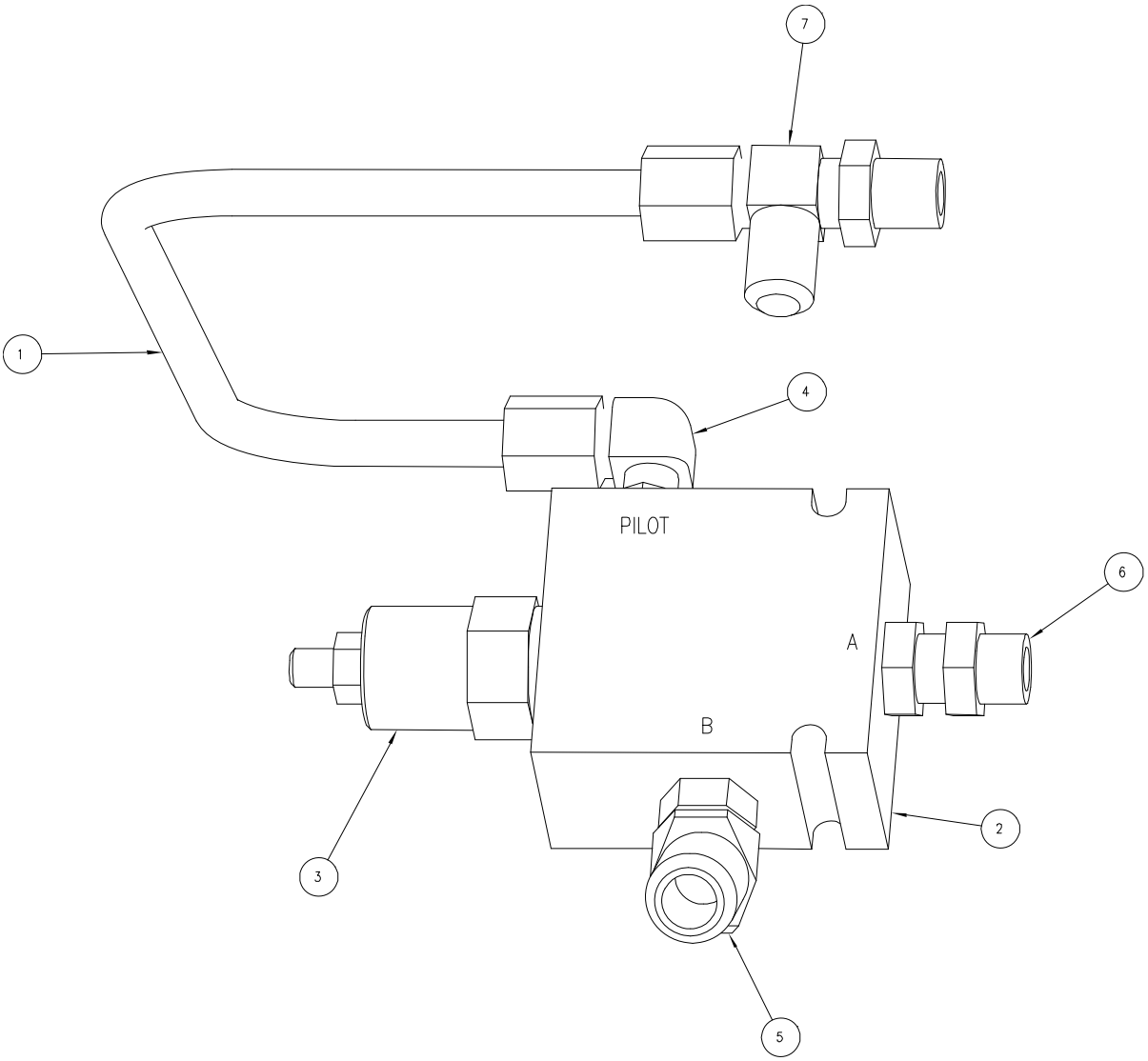
H-504-1, Rev. “D”



NO.	PART NO.	DESCRIPTION OF ACCESSORIES	QTY
1	H-465-2	MANIFOLD ASSEMBLY	1
2	H-242-37	HYDRAULIC HOSE ASSEMBLY (30" LONG)	2
3	H-242-43	HYDRAULIC HOSE ASSEMBLY (21" LONG)	1
4	H-242-84	HYDRAULIC HOSE ASSEMBLY (42" LONG)	1
5	H-437-1	VALVE ASM. - KNIFE DOWN SEQUENCE	1
6	H-242-65	HYDRAULIC HOSE ASSEMBLY (50” LONG)	1
7	S-1694-5	TYRAP- IDENTIFICATION	5

15.22.1 Knife Down Sequence Valve Assembly

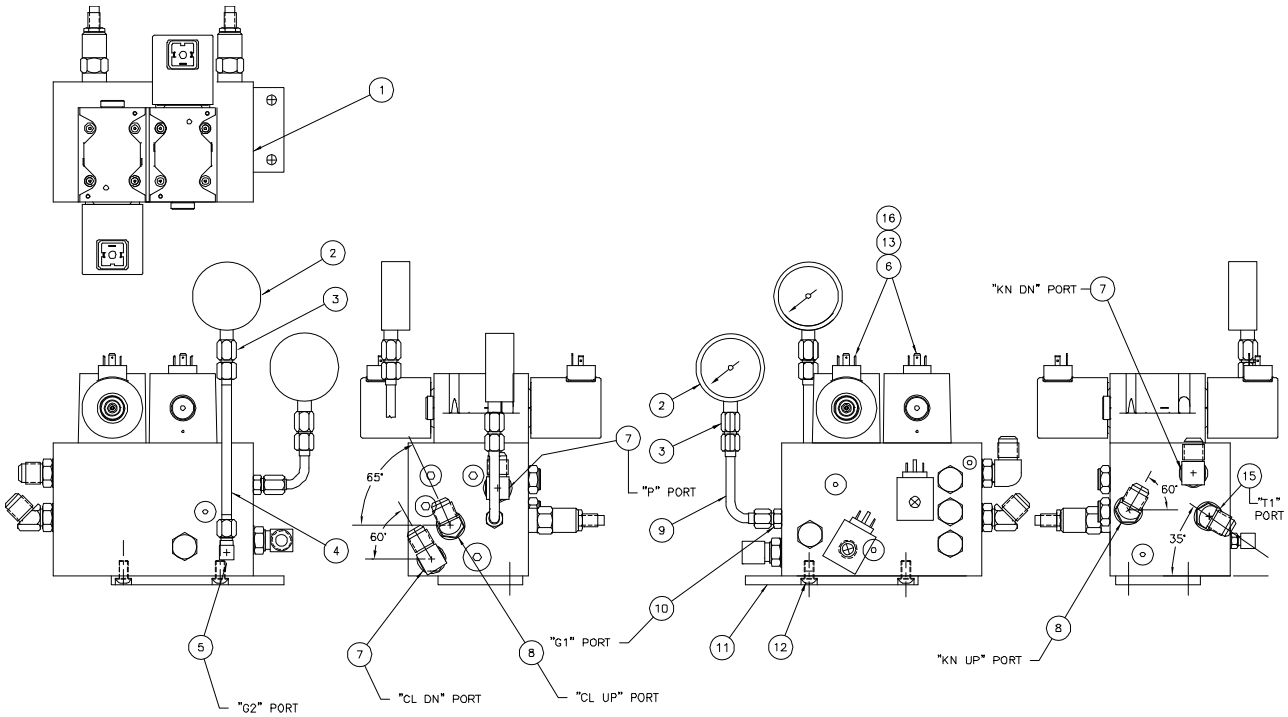
H-437-1, Rev. D

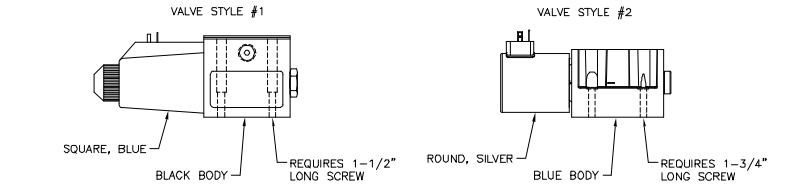


NO.	PART NO.	DESCRIPTION OF ACCESSORIES	QTY
1	56162-1	TUBE ASM.	1
2	56167	ALUMINUM BODY - COUNTER BAL. VALVE KIT	1
3	H-203-40	COUNTER BALANCE VALVE	1
4	H-230-10	ELBOW- ORING TO TUBE	1
5	H-230-6	ELBOW- ‘O’-RING TO TUBE	1
6	H-434	CONNECTOR - ORING TO ORING	1
7	H-435	MALE RUN TEE - ORING TO TUBE	1

15.22.2 Hydraulic Manifold Assembly

H-465-2, Rev. B

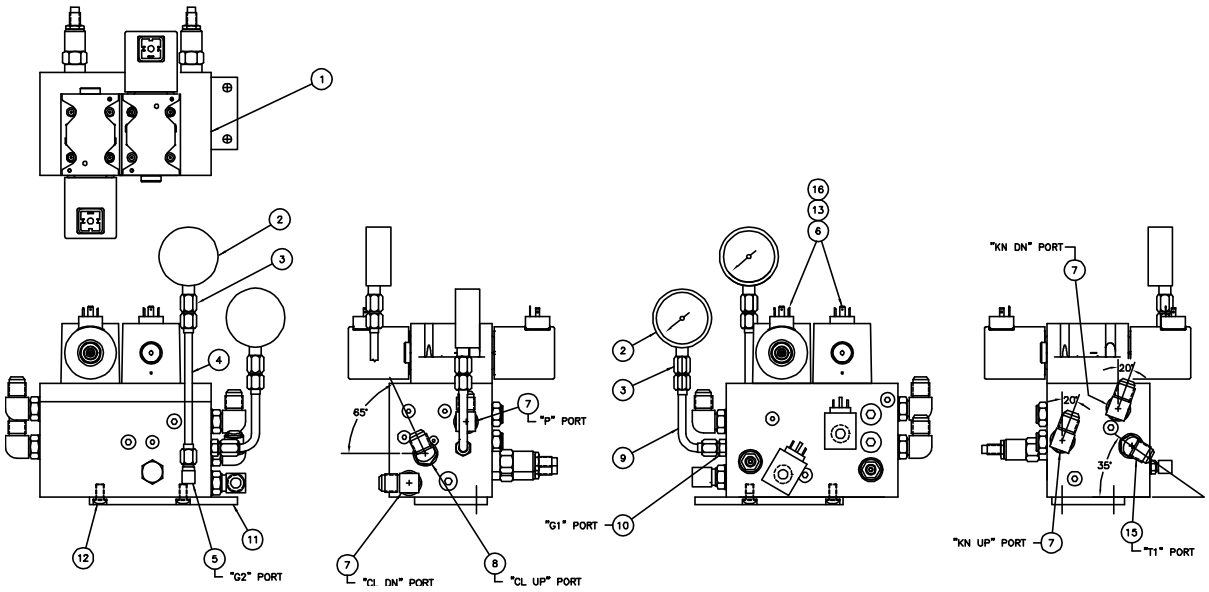




NO.	PART NO.	DESCRIPTION OF ACCESSORIES	QTY
1	H-468-3	MANIFOLD - HYDRAULIC	1
2	8P-629-3	GAGE	2
3	H-253-2	ADAPTER - PIPE TO TUBE	2
4	H-425-1	TUBE ASSEMBLY - "G2" PORT	1
5	H-230	ELBOW - 'O' RING TO TUBE	1
6	H-6918-414	1/4-20 X 1-3/4" SOC HD. SCR (SEE NOTE)	8
	H-6918-412	1/4-20 X 1-1/2" SOC HD. SCR (SEE NOTE)	
7	H-230-4	ELBOW - 90%%D 'O' RING TO TUBE	3
8	H-272-3	ELBOW - 45%%D 'O' RING TO TUBE	2
9	H-518	TUBE ASSEMBLY - "G1" PORT	1
10	H-236-5	ADAPTER - 'O' RING TO TUBE	1
11	47256	PLATE - MANIFOLD MOUNT	1
12	H-6910-606	3/8-16 X 3/4 BUTTON HD. CAP SCREW	3
13	H-557	VALVE - 4 WAY (24 VDC)	2
14			
15	H-230-8	ELBOW - 90%%D 'O' RING TO TUBE	2
16	H-7329-4	WASHER - 1/4 HIGH COLLAR LOCK	8

15.22.2.1 Hydraulic Manifold Assembly

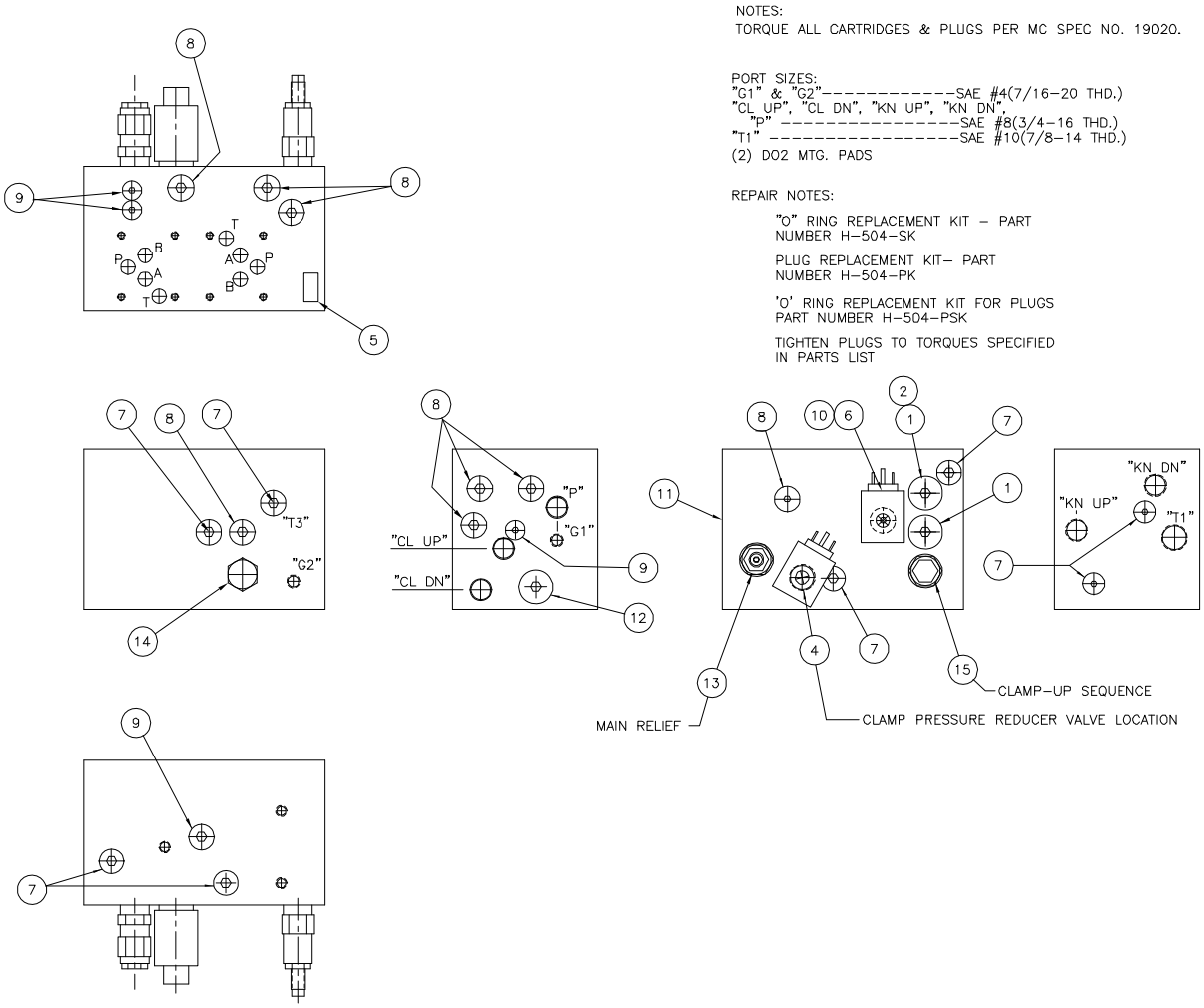
H-465-2 rev. “E”



NO.	PART NO.	DESCRIPTION OF ACCESSORIES	QTY
1	H-468-3	MANIFOLD - HYDRAULIC	1
2	8P-629-3	GAGE	2
3	H-253-2	ADAPTER - PIPE TO TUBE	2
4	H-425-1	TUBE ASSEMBLY - "G2" PORT	1
5	H-230	ELBOW - 'O' RING TO TUBE	1
6	H-6918-414	1/4-20 X 1-3/4" SOC HD. SCR	8
7	H-230-4	ELBOW - 90%%D 'O' RING TO TUBE	4
8	H-272-3	ELBOW - 45%%D 'O' RING TO TUBE	1
9	H-518	TUBE ASSEMBLY - "G1" PORT	1
10	H-236-5	ADAPTER - 'O' RING TO TUBE	1
11	47256	PLATE - MANIFOLD MOUNT	1
12	H-6910-606	3/8-16 X 3/4 BUTTON HD. CAP SCREW	3
13	H-557	VALVE - 4 WAY (24 VDC)	2
14			
15	H-230-8	ELBOW - 90%%D 'O' RING TO TUBE	2
16	H-7329-4	WASHER - 1/4 HIGH COLLAR LOCK	8

15.22.2.2 Hydraulic Manifold

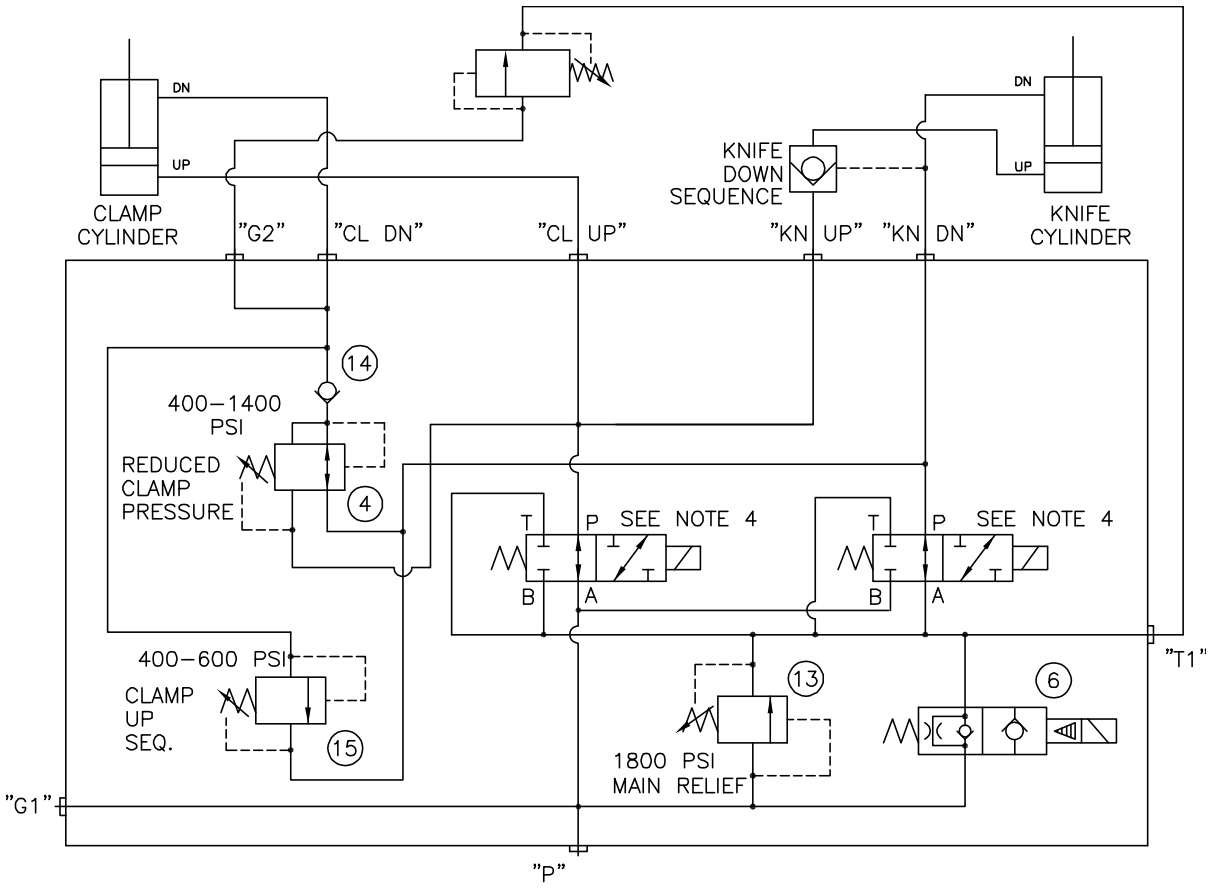
H-468-3, Rev. B



NO.	PART NO.	DESCRIPTION OF ACCESSORIES	QTY
1	H-427-4	PLUG - SAE	2
2	H-427	PLUG - SAE	1
3			
4	H-203-41	PRESSURE REDUCING VALVE- ELECTRICAL (TC)	1
5	N/P	NAMEPLATE	1
6	E-1069-17	COIL (24 VAC)	1
7	H-427-5	SAE PLUG (220 IN-LB TORQUE)	8
8	H-427-2	SAE PLUG SAE PLUG (180 IN-LB TORQUE)	9
9	H-427	SAE PLUG (35 IN-LB TORQUE) SAE PLUG	4
10	H-200-3	CARTRIDGE VALVE	1
11	N/P	VALVE MANIFOLD	1
12	H-427-3	SAE PLUG (550 IN-LB TORQUE)	2
13	H-203-26	RELIEF VALVE	2
14	H-203-38	CHECK VALVE - 10 PSI (305 MANUAL & TITAN 265)	1
15	H-203-43	RELIEF VALVE	1

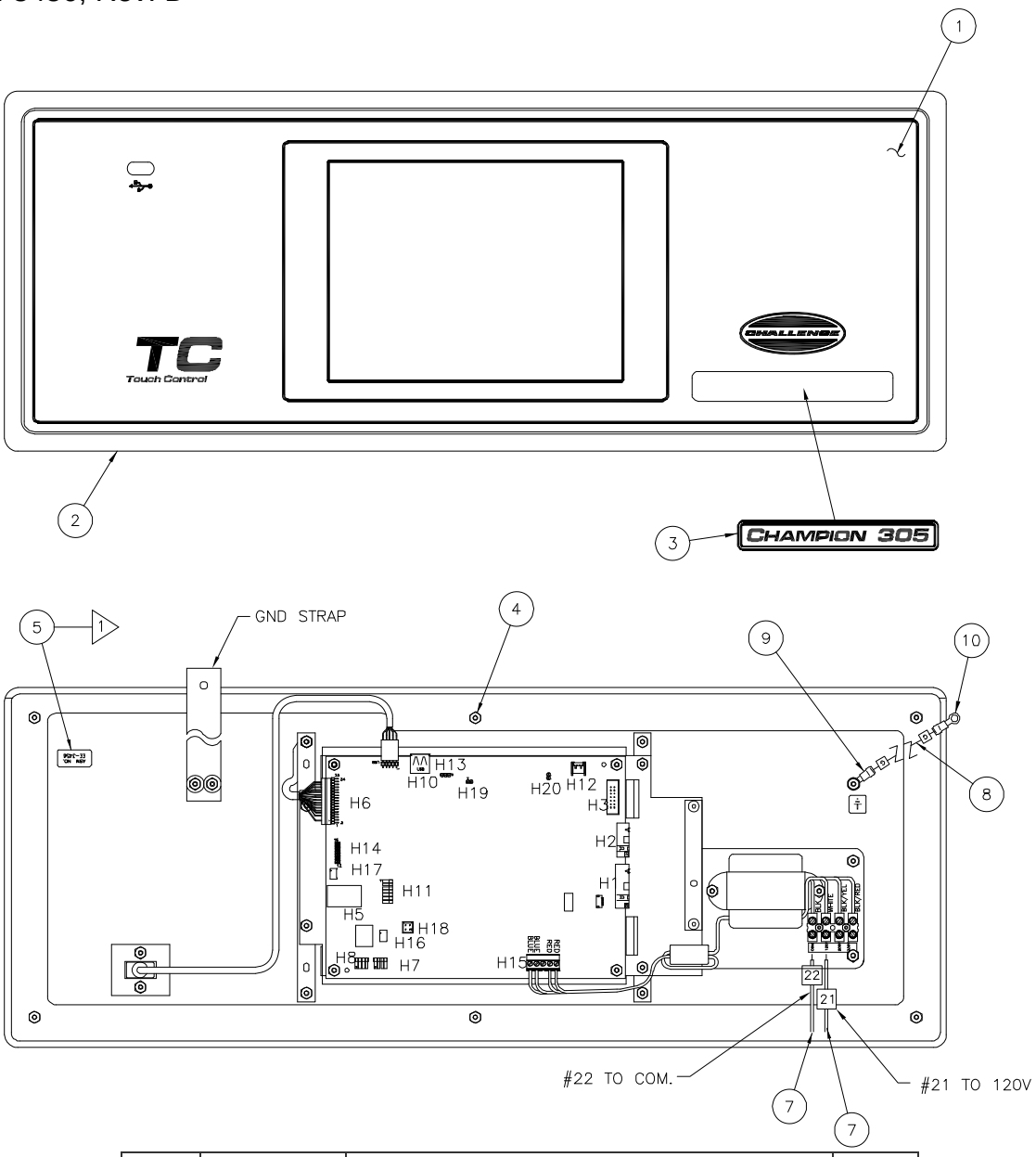
15.23 Hydraulic Schematic

H-468-3, Rev. B



15.24 TC Control Console Assembly

EE-3456, Rev. D

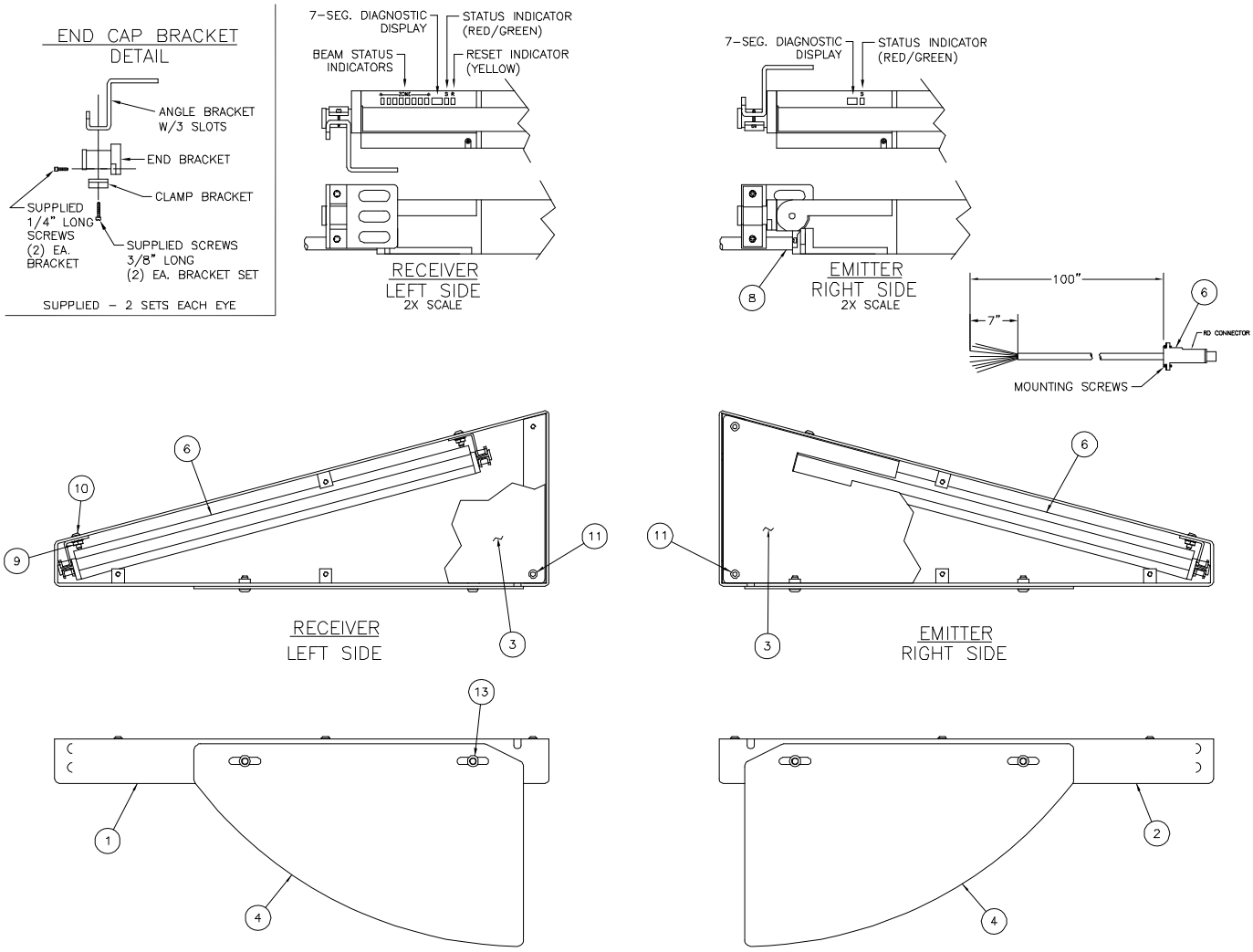


NO.	PART NO.	DESCRIPTION OF ACCESSORIES	QTY
1	EE-3471	PANEL ASM. - FRONT CONTROL, TC	1
2	16013-1	BEZEL - CONTROL CONSOLE	1
3	47701-1	TC PANEL INSERT - CHAMPION 305	1
4	H-6423-#6	NUT - #6-32 HEX (KEP)	6
5	E-1584-( )	LABEL - ASM. NO./REV. LEVEL	1
6			
7	E-849-R	WIRE - #16 GA. RED 34" LONG (#21 & 22)	2
8	E-2743	WIRE - #18 GA. YEL/GREEN MTW 8" LONG	1
9	E-1214-2	CONNECTOR - #6 INS. RING	1
10	E-1214-8	CONNECTOR - #10 INS. RING	1

NOTES:

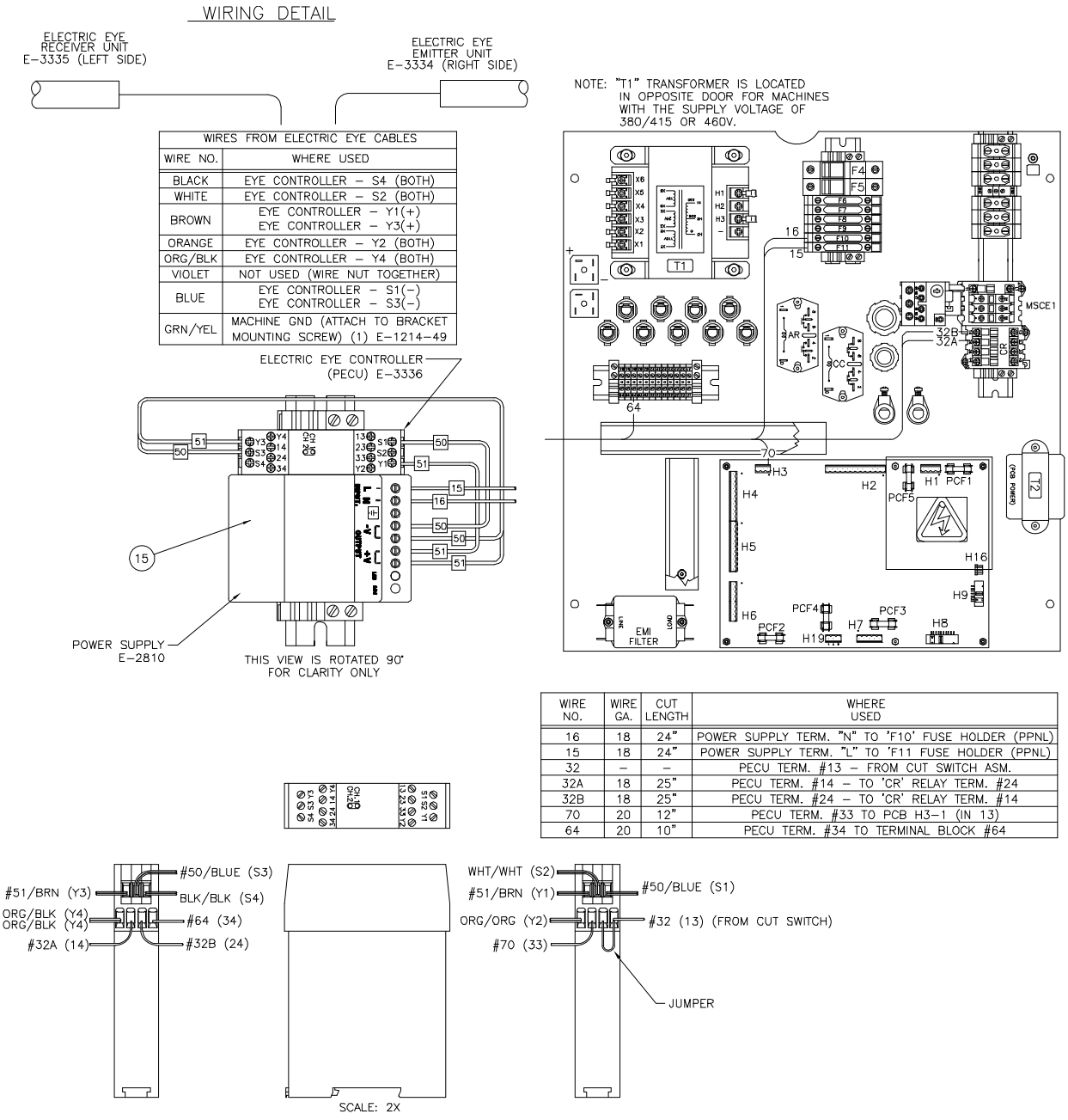
15.25 Electric Eye Assembly

EE-3339 Sheet 1, Rev. F



NO.	PART NO.	DESCRIPTION	QTY
1	47944	HOUSING - ELEC EYE, LH	1
2	47945	HOUSING - ELEC EYE, RH	1
3	47946	ELECTRIC EYE COVER	2
4	47943	SHIELD - TABLE	2
5			
6	E-3370	16" LIGHT CURTAIN SET	1
7	E-1163-B	WIRE - #20GA. BLACK HOOK-UP 22" TOTAL	1
8	E-709-R	WIRE - #18GA. RED MTW 102" TOTAL	1
9	H-6423-#10	NUT - #10-24 HEX (KEP)	4
10	H-6910-102404	SCREW - #10-24 X 1/2 BHC	4
11	H-6910-102403	SCREW - #10-24 X 3/8 BHC	10
12			
13	H-6910-404	SCREW - 1/4-20 X 1/2 BUT HD CAP	4
14	S-1694-2	TYRAP - #10 SCREW MOUNT	2
15	EE-3411	ASM - CONTROL RELAY/POWER SUPPLY	1

EE-3339 Sheet 2, Rev. F



WIRE NO.	WIRE GA.	CUT LENGTH	WHERE USED
16	18	24"	POWER SUPPLY TERM. "N" TO 'F10' FUSE HOLDER (PPNL)
15	18	24"	POWER SUPPLY TERM. "L" TO 'F11 FUSE HOLDER (PPNL)
32	–	–	PECU TERM. #13 – FROM CUT SWITCH ASM.
32A	18	25"	PECU TERM. #14 – TO 'CR' RELAY TERM. #24
32B	18	25"	PECU TERM. #24 – TO 'CR' RELAY TERM. #14
70	20	12"	PECU TERM. #33 TO PCB H3–1 (IN 13)
64	20	10"	PECU TERM. #34 TO TERMINAL BLOCK #64

15.26 Cut Button Assembly – Standard

EE-3382, Rev. C

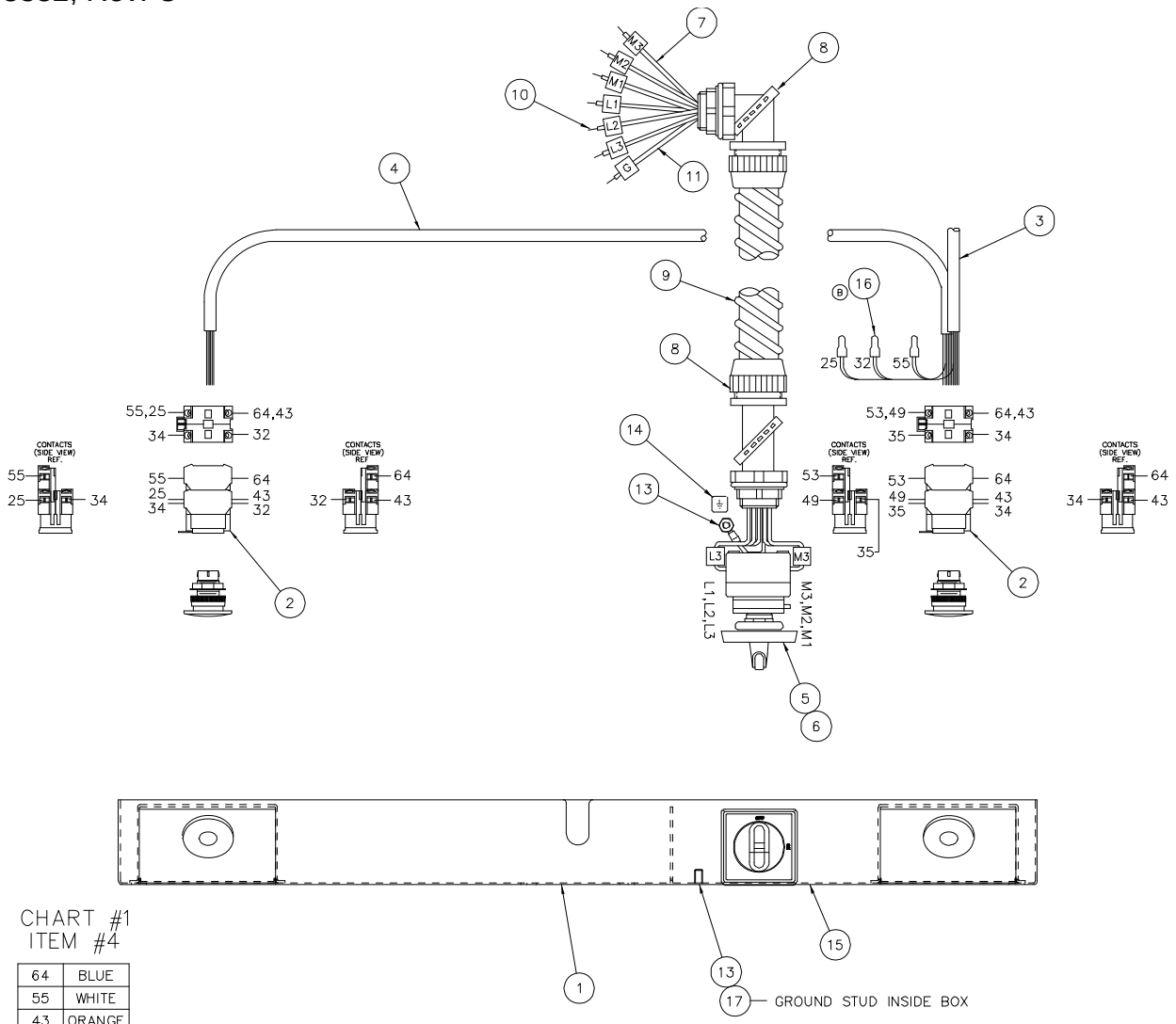


CHART #1
ITEM #4

WIRE NO.	COLOR
64	BLUE
55	WHITE
43	ORANGE
34	GREEN
32	BLACK
25	RED

CHART #2
ITEM #3

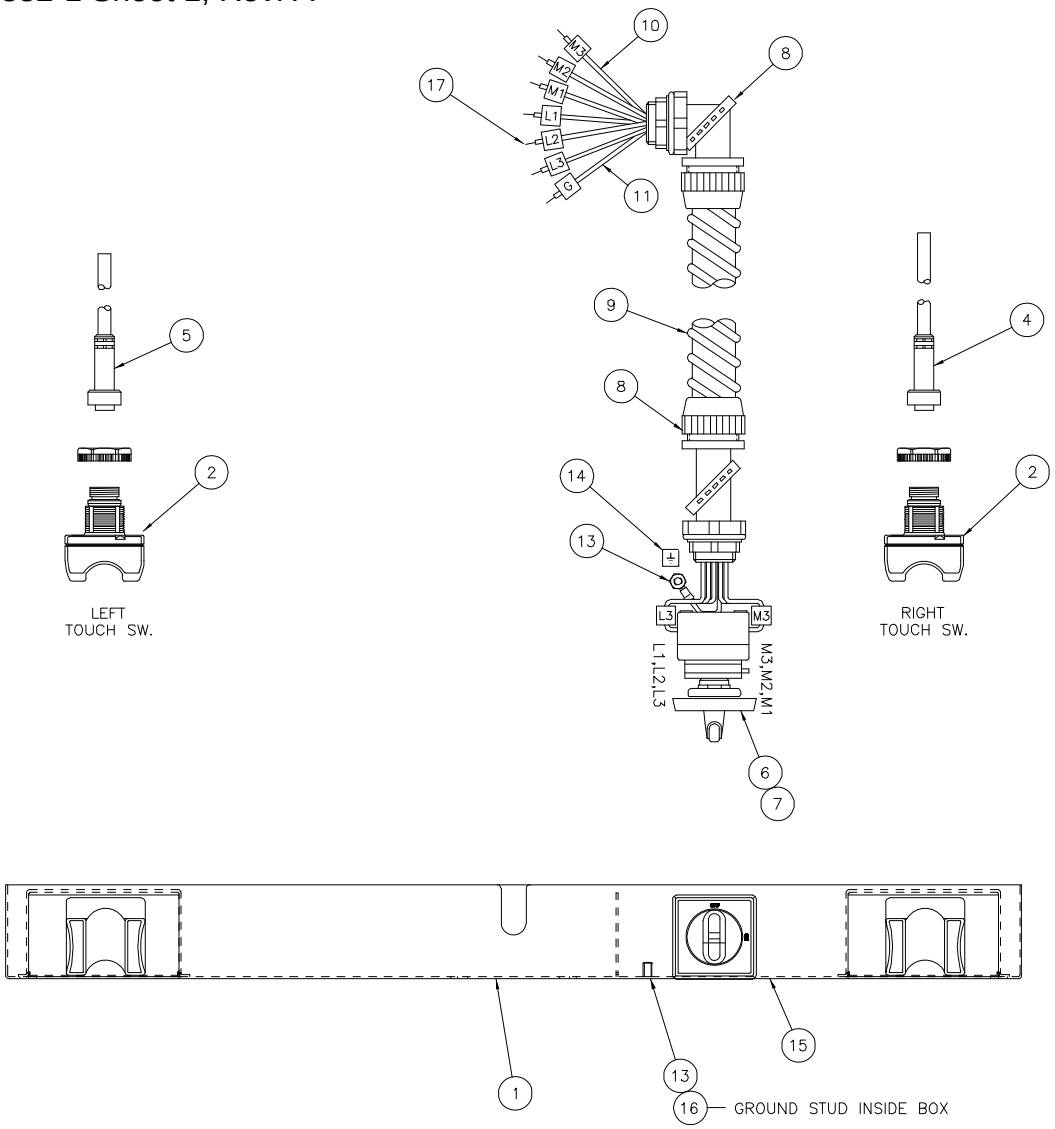
WIRE NO.	COLOR
64	BLUE
55	WHITE
53	YELLOW
49	BROWN
35	ORANGE
32	BLACK
25	RED

NO.	PART NO.	DESCRIPTION OF ACCESSORIES	QTY
1	47665	CONTROL BOX ASSEMBLY	1
2	E-3437-4	PUSHBUTTON SWITCH - MUSHROOM, 3 N.O.	2
3	E-2078-3	CABLE - #18GA. 8 COND. 49" LONG	1
4	E-2078	CABLE - #18GA. 6 COND. 38" LONG	1
5	E-3082	SWITCH - MAIN DISCONNECT (BODY)	1
6	E-3083	SWITCH FACE - MAIN DISCONNECT	1
7			
8	E-2190-2	3/4" CONDUIT CONNECTOR - 90%%d	2
9	E-2189-2	CONDUIT - PLASTIC, 16" LONG	1
10	E-1213-B	WIRE - #10 GA. BLACK MTW 38" LONG	6
11	E-2743-1	WIRE - #14 GA. GRN/YEL TEW 38" LONG	1
12	E-1214-64	CONNECTOR - 1/4" RING (16-14GA)	1
13	H-6423-4	NUT - 1/4-20 HEX	1
14	S-1781-42	LABEL - GROUND SYMBOL, SECONDARY	1
15	S-1781-11	LABEL - ELECTRIC SHOCK	1
16	E-1237-6	WIRE NUT - BLUE	3
17	H-6910-404	SCREW - 1/4-20 X 1/2" BUT HD CAP	1

NOTES:

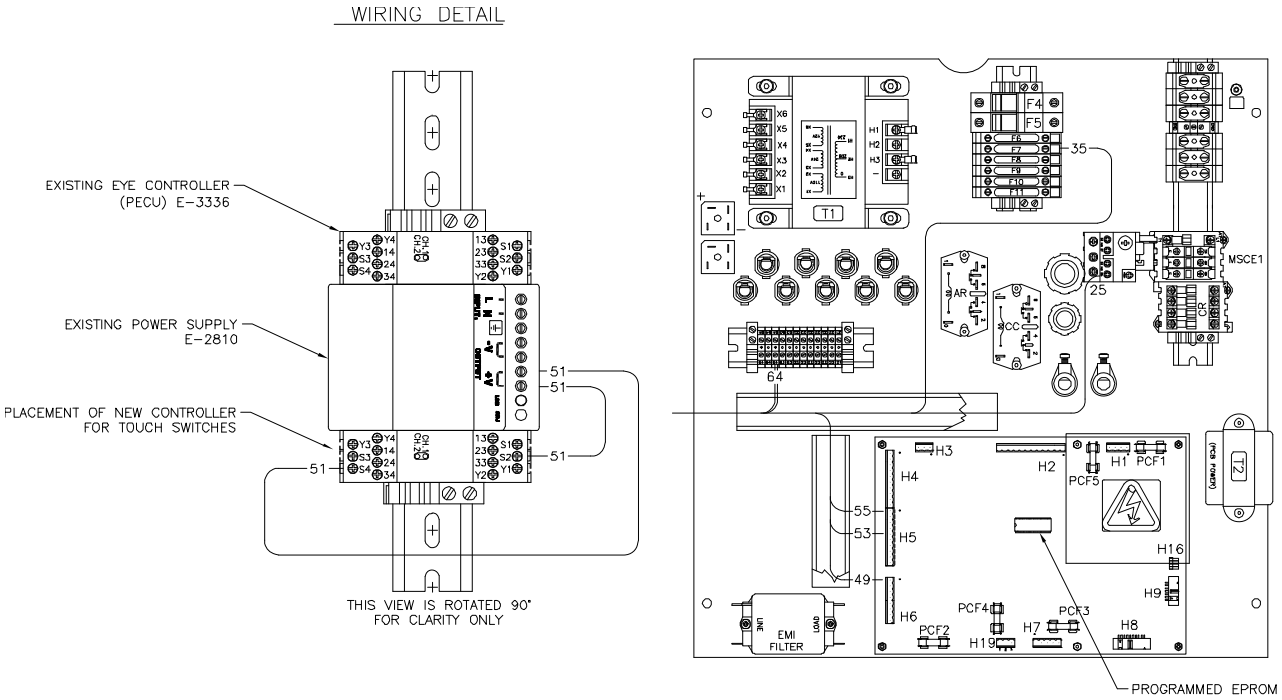
15.27 Cut Button Assembly – ErgoTouch

EE-3382-1 Sheet 1, Rev. A



NO.	PART NO.	DESCRIPTION OF ACCESSORIES	QTY
1	47665	CONTROL BOX ASSEMBLY	1
2	E-3347	SWITCH - ERGO TOUCH	2
3	EE-3350-2	CONTROLLER - ASM. - TOUCH SWITCH	1
4	EE-3348-2	CABLE ASM. - TOUCH SWITCH, LH	1
5	EE-3349-2	CABLE ASM. - TOUCH SWITCH, RH	1
6	E-3083	SWITCH FACE - MAIN DISCONNECT	1
7	E-3082	SWITCH - MAIN DISCONNECT (BODY)	1
8	E-2190-2	3/4" CONDUIT CONNECTOR - 90%%d	2
9	E-2189-2	CONDUIT - PLASTIC, 16" LONG	1
10	E-1213-B	WIRE - #10 GA. BLACK MTW 38" LONG	6
11	E-2743-1	WIRE - #14 GA. GRN/YEL TEW 38" LONG	1
12	E-1214-64	CONNECTOR - 1/4" RING (16-14GA)	1
13	H-6423-4	NUT - 1/4-20 HEX	1
14	S-1781-42	LABEL - GROUND SYMBOL, SECONDARY	1
15	S-1781-11	LABEL - ELECTRIC SHOCK	1
16	H-6910-404	SCREW - 1/4-20 X 1/2" BUT HD CAP	1

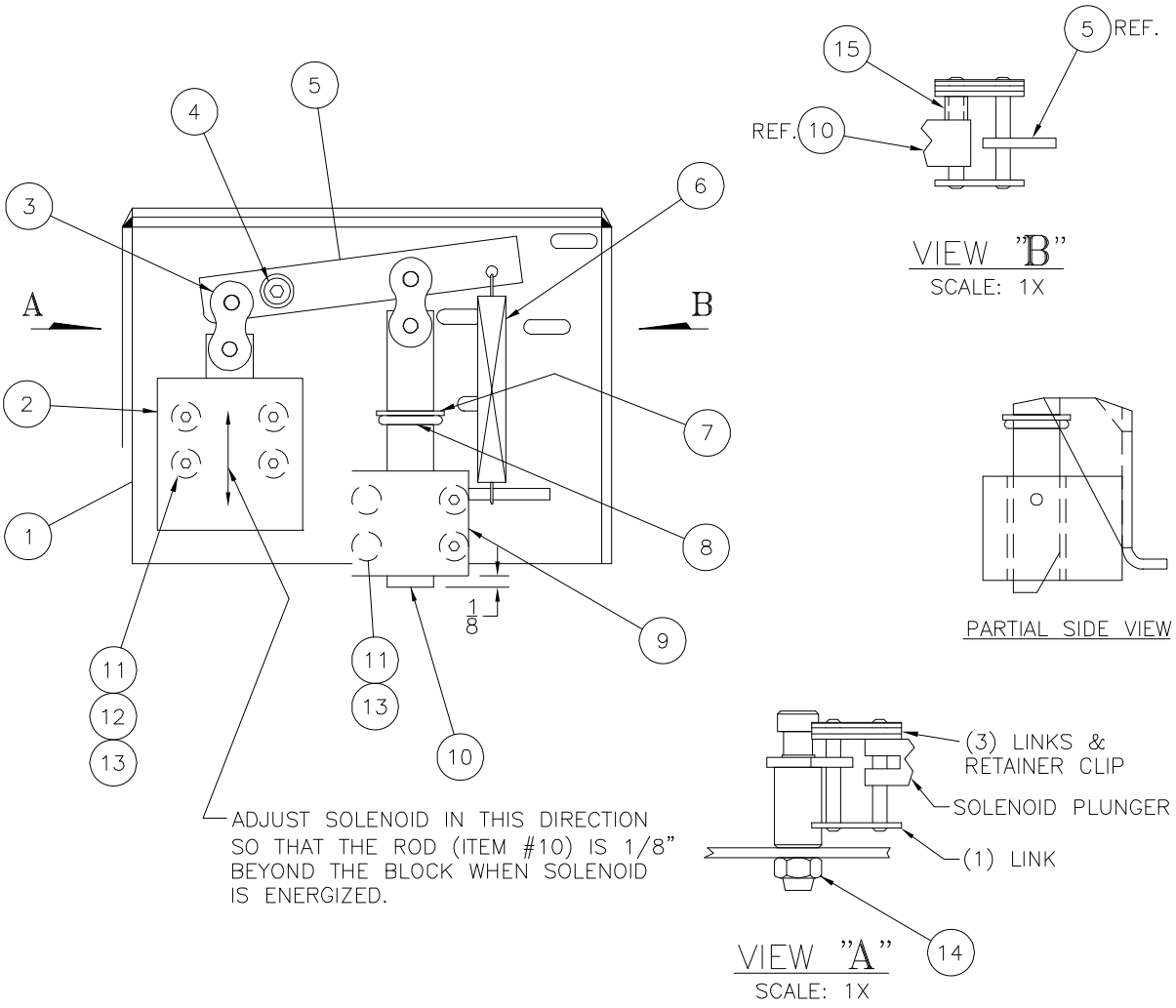
EE-3382-1 Sheet 2, Rev. A



WIRE	ROUTE
WIRES ON THE CONTROLLER (ITEM #3)	
32	TO PECU TERMINAL (13) OR (23)
35	TO FUSE HOLDER "F7"
49	TO PCB H6-1 "OUT 1"
55	TO PCB H5-1 "IN1"
51	TO EXISTING POWER SUPPLY "+V"
51	TO EXISTING POWER SUPPLY "+V"
53	TO PCB H5-5 "IN5"
25	TO STARTER 'MSCE1' N.C.
64	TO GRAY TERMINAL BLOCKS
64	TO GRAY TERMINAL BLOCKS
WIRES FROM TOUCH SW. CABLE (LH)	
50	TO EXISTING POWER SUPPLY "-V"
50	TO EXISTING POWER SUPPLY "-V"
51	TO CONTROLLER TERMINAL "S2"
54	TO CONTROLLER TERMINAL "S1"
WIRES FROM TOUCH SW. CABLE (RH)	
50	TO EXISTING POWER SUPPLY "-V"
50	TO EXISTING POWER SUPPLY "-V"
51	TO CONTROLLER TERMINAL "S4"
58	TO CONTROLLER TERMINAL "S3"

15.28 Knife Latch Assembly

47568-1, Rev. A



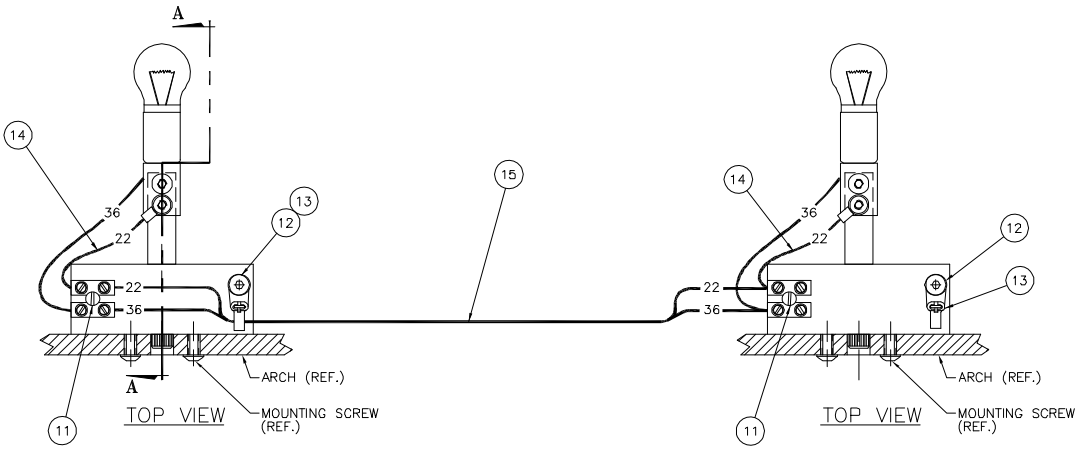
NO.	PART NO.	DESCRIPTION OF ACCESSORIES	QTY
1	47505-1	PLATE- KNIFE LATCH MOUNT	1
2	E-974-3	SOLENOID	1
3	47567	LINK- CHAIN	2
4	H-5254-510	SCREW- 5/16 X 1-1/4 SOC. SHOULDER	1
5	47553-1	LINK ASSEMBLY- KNIFE LATCH	1
6	41117-1	SPRING- EXTENSION	1
7	H-6451-0500	RETAINING RING- GRIPPING EXTERNAL	1
8	S-1810-9	O' RING	1
9	41112-2	ASSEMBLY- KNIFE LATCH BLOCK	1
10	41116-2	ROD- KNIFE LATCH	1
11	H-6910-83203	SCREW- #8-32 X 3/8 BUT. HD. SOC.	8
12	H-7321-#8	WASHER- #8 SAE FLT PLTD	4
13	H-7324-#8	WASHER- #8 INT. TOOTH	8
14	H-5247-4	NUT- 1/4-20 FLEX LOCK	1
15	E-1152-9	SPACER	1

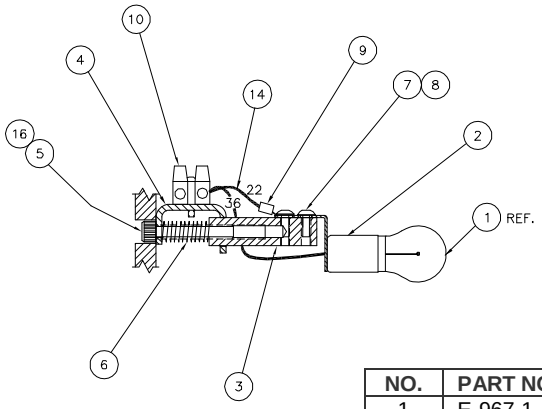
15.29 Line Light Assembly (Incandescent Type)

47538 rev. "D"

S/N's: 1509999 and below
S/N's: 305-J-151075 and below

NOTE: For LED style line light (S/N's: 305-J-151076 and above), see Section 15.6 on page 66 for the LED line light assembly part number.



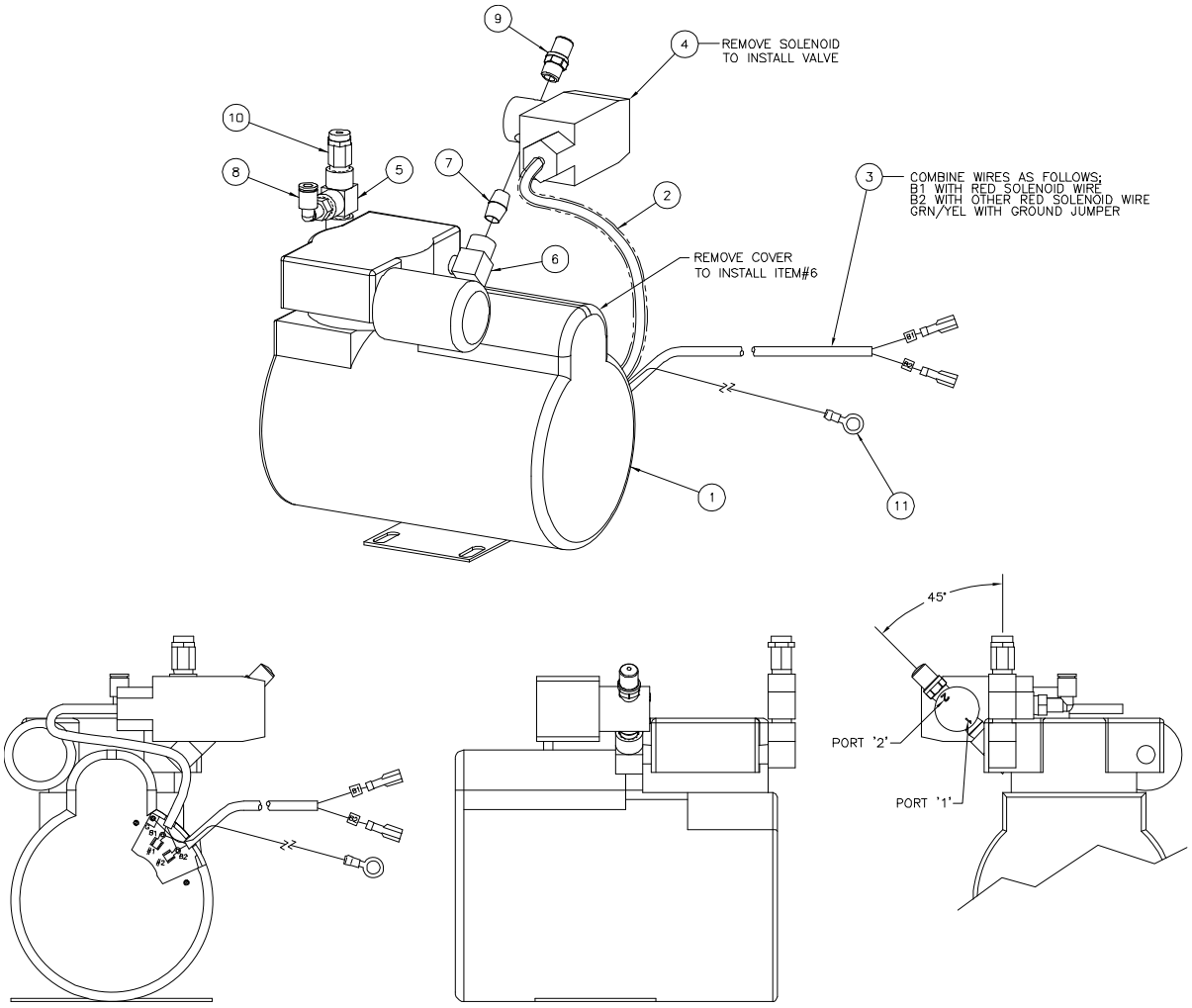


SECTION A–A

NO.	PART NO.	DESCRIPTION OF ACCESSORIES	QTY
1	E-967-1	LAMP- LINE LIGHT	REF.
2	E-1260-1	SOCKET- LINE LIGHT	2
3	9127-1	SUPPORT- LINE LIGHT	2
4	47262	BRACKET- LINE LIGHT	2
5	H-6918-410	SCREW - 1/4-20 X 1-1/4 SOC HEAD CAP	2
6	35048-13	SPRING- COMPRESSION	2
7	H-6910-83203	SCREW- #8-32 X 3/8 BUT. HD. CAP.	4
8	H-7330-#8	WASHER- #8 INT. TOOTH	4
9	E-1214-9	CONNECTOR- #8 EYELET	2
10	E-2626-2	TERMINAL STRIP- 2 POLE	2
11	H-6923-44010	SCREW- #4-40 X 5/8 RD. HD. MACH.	2
12	H-6910-102403	SCREW- #10-24 X 3/8 BUTT. HD. CAP.	2
13	S-1694-2	TIE- CABLE	2
14	E-709-R	WIRE- #18 GA. RED MTW (4" LONG)	2
15	E-709-R	WIRE- #18 GA. RED MTW (16-1/2" LONG)	2
16	SU-10-106	GREASE - DAMPENING	1

15.30 Compressor Assembly

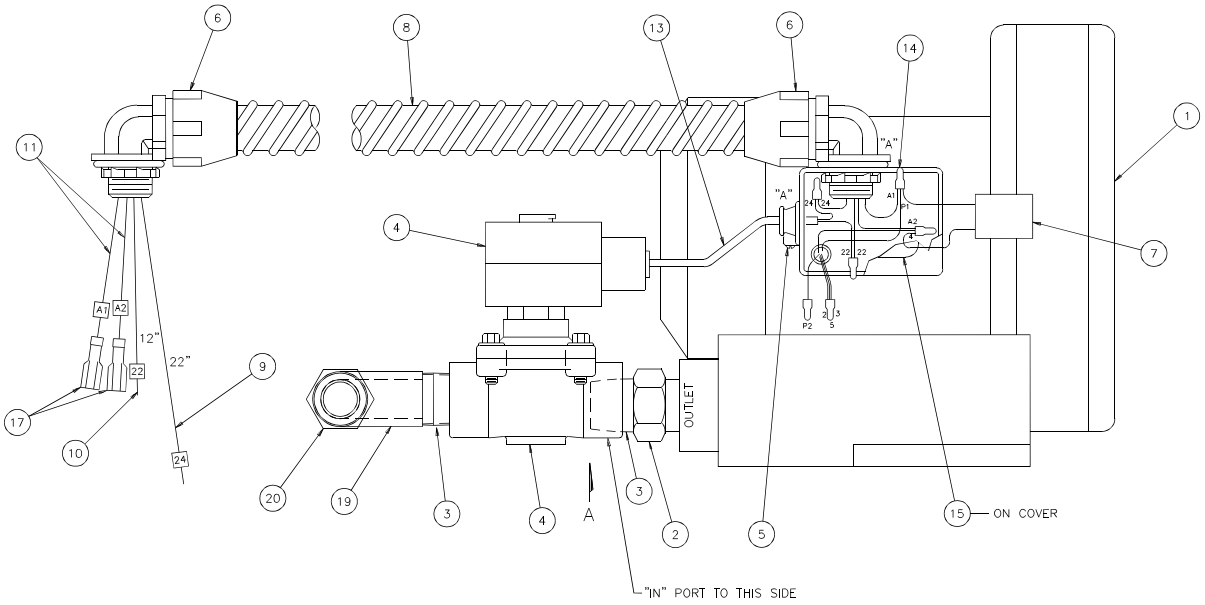
47645-1 Rev. E

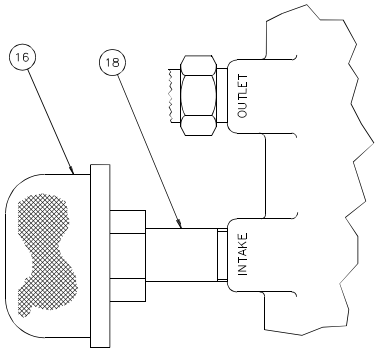


NO.	PART NO.	DESCRIPTION OF ACCESSORIES	QTY
1	47644	COMPRESSOR	1
2	E-1710-3	SPLIT TUBING	12"
3	EE-3210	CABLE ASSEMBLY- COMPRESSOR POWER	1
4	P-521	VALVE- 2-WAY, N.O.	1
5	H-261-3	TEE- 1/4 MALE RUN, BRASS	1
6	H-269-2	ELBOW - 90%%176 STREET, BRASS	2
7	H-6406-407	NIPPLE- 1/4" X 7/8", BRASS	1
8	P-503-402	ELBOW-1/4 TUBE X 1/4 NPT	1
9	P-511	SILENCER - 1/4 NPT	1
10	P-520-125	VARIABLE PRESSURE RELIEF	1
11	EE-3212	WIRE ASM. - COMPRESSOR GROUND	1
12	S-1694	TYRAP - WIRE	2
13	E-1214-9	CONNECTOR - #8 RING	2

15.31 Air Table Blower Assembly

47578, Rev. C





VIEW A
SCALE: NONE

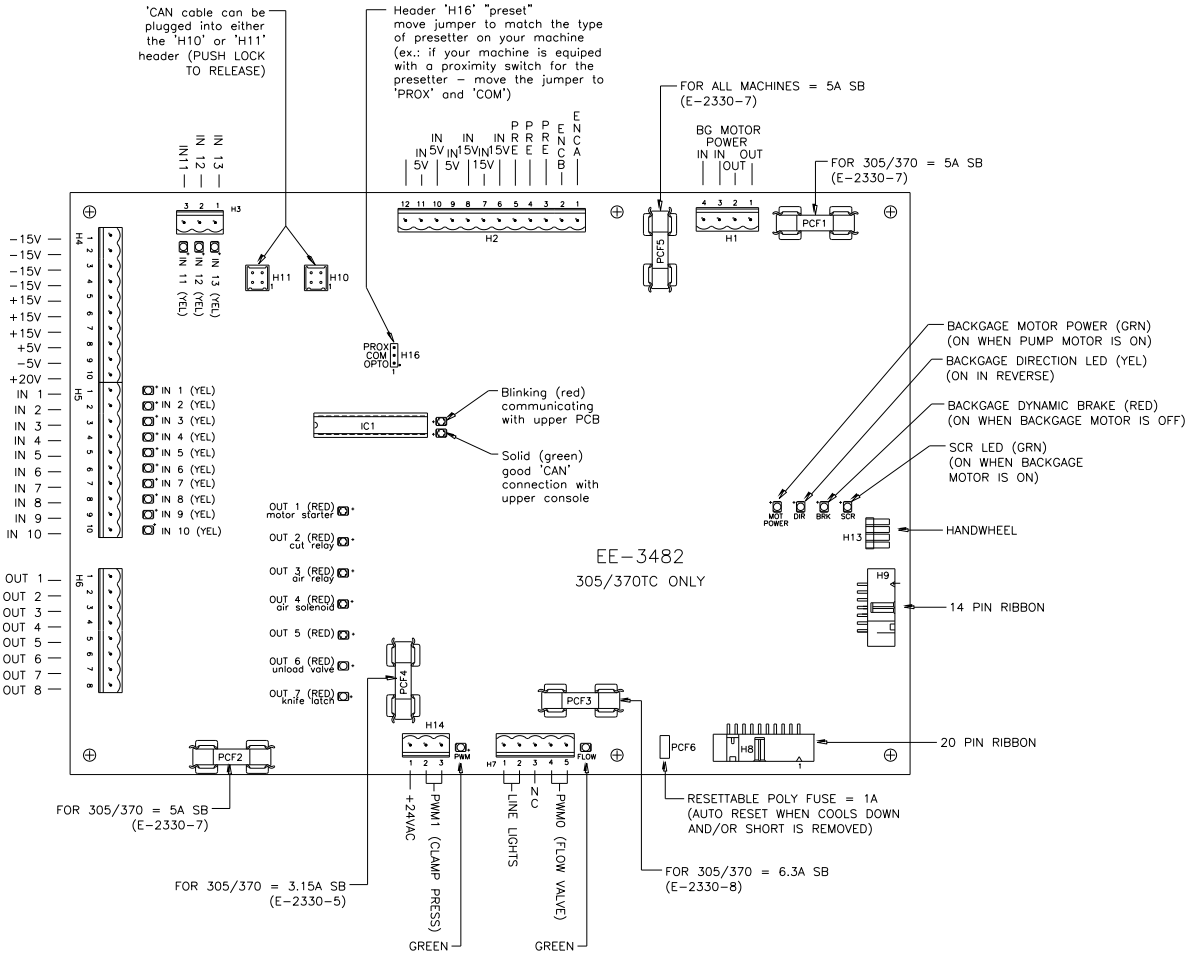
WIRING CHART		
HIGH VOLTAGE	WIRE NO.	CONNECT TO BLOWER NO.
230V 60Hz 240V 50Hz	A1	P1
	A2	4
	–	P2
	–	2,3 & 5

NO.	PART NO.	DESCRIPTION OF ACCESSORIES	QTY
1	E-1223-4	BLOWER – 1PH	1
2	P-204	REDUCER – PVC	1
3	H-6405-1212	NIPPLE – 3/4 CLOSE SCH 40	2
4	P-202-1	VALVE – SOLENOID	1
5	S-1350-16	STRAIN RELIEF	1
6	E-2190-1	CONNECTOR – 90° ELBOW	2
7	E-1736-2	QUENCHARC – 3" WIRE LEADS	1
8	E-2189-1	TUBING – 54" LONG	1
9	E-709-R	WIRE 18 GA RED MTW 81" LONG, #24	1
10	E-709-R	WIRE 18 GA RED MTW 71" LONG, #22	1
11	E-709-R	WIRE 18 GA RED MTW 67" LONG, #A1 & A2	2
12	E-1214-4	CONNECTOR – #8 INS. LOCKING FORK	1
13	E-1453-1	SHRINK TUBING – 6" LONG	1
14	E-1237-1	NUT – WIRE, SM YELLOW	6
15	S-1781-12	LABEL – EURO SHOCK W/TEXT	1
16	P-102	STRAINER	1
17	E-1214-49	CONNECTOR – 1/4" FULLY INS. QUICK DISC.	2
18	P-212-1	PIPE NIPPLE – 1" x 1-1/2 PLASTIC	1
19	P-463	THREADED "T"– PVC (3/4 NPT)	1
20	E-2191-2	CONNECTOR– STRAIGHT, PLASTIC CONDUIT	2

15.32 TC POWER PANEL PCB Troubleshooting

EE-3432

The following is a description of the various diagnostic LED's in the power panel. These lights are indicators used to show input and output status.



DESCRIPTION – INPUTS
IN 1: Left Cut Switch
IN 2: Clamp Up Limit
IN 3: Hyd. Cylinder Up Limit
IN 4: Knife Up Limit
IN 5: Right Cut Switch
IN 6: Cut Relay N.O. Contacts
IN 7: Pressure Switch
IN 8: MSCE1 (motor starter)
IN 9: Knife Down Limit
IN 10: Knife Latch
IN 11: not used
IN 12: False Clamp Switch
IN 13: Safety Eyes (PECU)
IN 14: not used
IN 15: not used

DESCRIPTION – OUTPUTS
OUT 1: Pump Motor Starter
OUT 2: Cut Relay "CR"
OUT 3: Air Relay "AR"
OUT 4: Air Solenoid
OUT 5:
OUT 6: Unload Valve
OUT 7: Knife Latch Solenoid

DESCRIPTION – FUSES
PCF1: BACKGAGE MOTOR
PCF2: OUTPUTS
PCF3: LINE LIGHTS
PCF4: PWM2 (FLOW VALVE)
PCF5: BACKGAGE MOTOR
PCF6: SEC. PWM0 PROTECTION

15.33 Description of Error Messages

Message	Description	Test
Backgauge Failure	Backgauge doesn't move	Mechanical bind; encoder failure; main pc board; blown fuse
Backgauge at Limit	Backgauge is all the way forward or backward	
lamp Up Failure	Clamp failed to return to up position within 7 seconds	Clamp up sequence valve; solenoid (cut) valve
Clamp Down Failure	Clamp failed to come down	Solenoid valves; low pressure; low voltage
Clamp or Knife Down	Clamp or knife stayed downs	No main pressure; stuck solenoid valve
Cut Relay Error 1	Cut relay energized when it should be off	Cut relay is stuck
Cut Relay Error 0	Cut relay de-energized when it should be energized	Output may be bad
DATA IS OUT OF RANGE	The number is outside the limits of the machine	Informational error
Hydraulic Latch Failure 1	Latch relay was OFF when it should have been ON	Defective relay
Hydraulic Latch Failure 0	Latch relay was ON when it should have been OFF	Defective relay
Key is Invalid in Graphics Mode	Tried to delete or insert a cut in an auto-programmed job	Information error
Knife Latch Failure 1	Latch prox. ON when it should have been OFF	Loose solenoid wire; mechanical bind; knife up prox. Switch out of adjustment; defective prox.Sw.
Knife Latch Failure 0	Latch prox. OFF when it should have been ON	
Knife Down Failure	Knife failed to come down within 4 seconds	Low main pressure; low voltage; knife down sequence valve
Knife Up Failure	Knife failed to return within 1.17 seconds	Mechanical bind; solenoid (cut) valve
Knife at Both Limits	Knife up and down prox. Switches are on at the same time	Prox. Switches; broken knife bar components
Lubricate Machine	Lubricate machine alarm	Have machine lubricated
Memory Failed	A memory error occurred during test	
Memory Locked	Tried to change a locked channel	
Motor Starter Error 1	Motor starter engaged when it should not have been	Starter stuck
Motor Starter Error 0	Motor starter disengaged when it should not have been	Output may be bad
Next Channel Locked	Tried to link two channels together and the linked channel is locked	
No Finish > Parent	While entering sheet division data, the sheet dimensions were greater than the starting sheet	
Number Outside of Limit	Selected cut position beyond machine limits	Operator error; false clamp limit

Positioning Error	Backgauge failed to move to programmed position within +/- .005	Mechanical bind; encoder failure; main pc board; leadscrew thrust washers loose; gives loose
Result is Negative	When a math operation yields a negative number	
Send Cancelled	Console key was pressed while backgauge was moving	Operator error; key board failure
Sequence Error	Timing error in either up or down cycle	Low main pressure; any sequence valve
Sharpen Knife	Sharpen knife alarm	Have knife sharpened
Shorted Key Error	Console key shorted	Operator error; defective keyboard

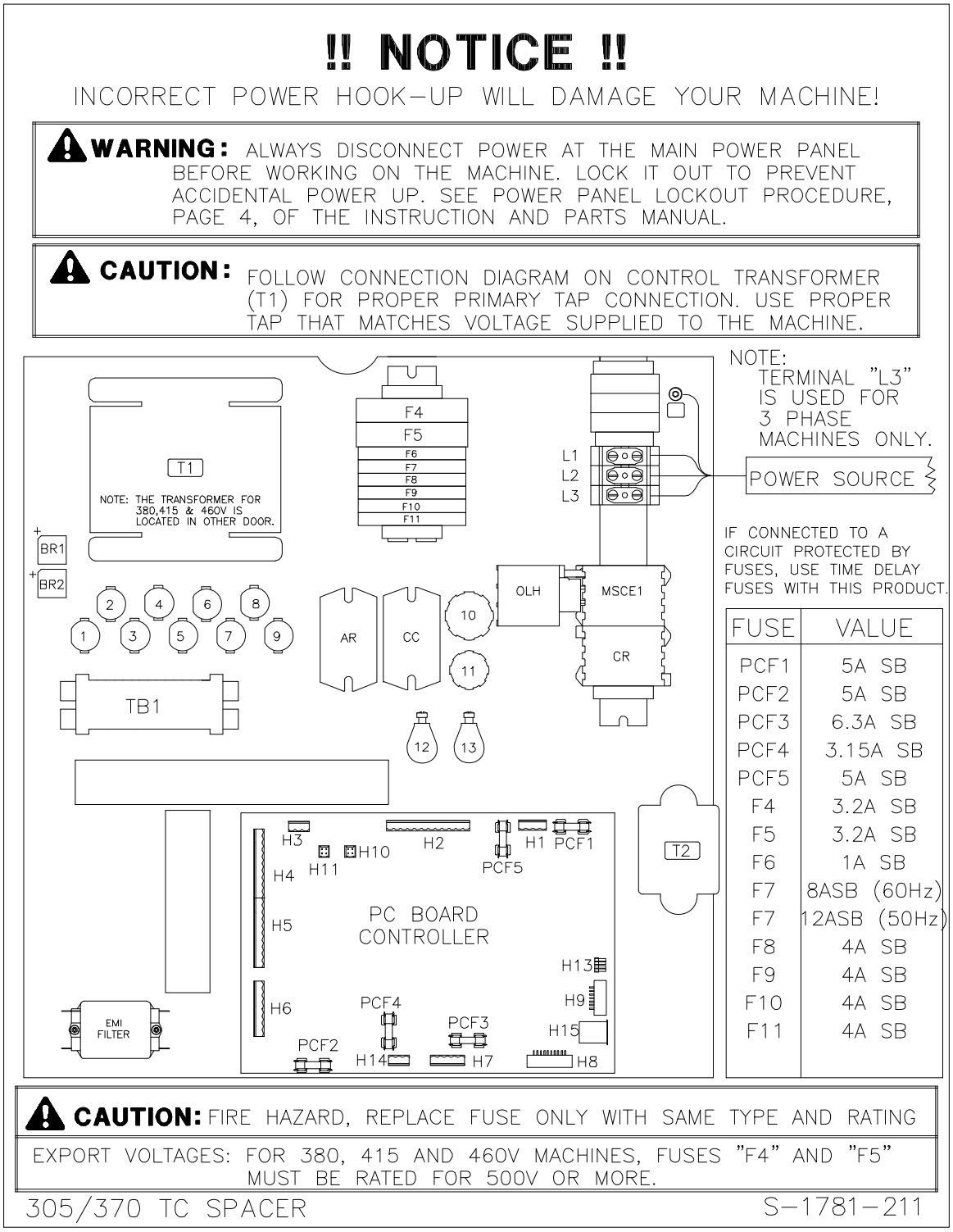
** IF ERROR CODES CANNOT BE RESET BY DEPRESSING THE CLEAR KEY, THE POWER WILL HAVE TO BE TURNED OFF AND ON**

15.34 Sensor Data Abbreviations

RGHTCUT	0	Right Cut Button	Under RHS of table front
LEFTCUT	0	Left Cut Button	Under LHS of table front
CUTRLY (input)	1	Cut Relay	On power panel
HYDLAT	1	Hydraulic Latch Relay	Main pc board
KNFDWN	0	Knife Down Proximity Switch	On bracket attached to knife cylinder
PRESET	1	Preset Sensor	Rear of cutter, under left side of table
CUTSOL (output)	0	Cut Relay	Relay below motor contactor
AIRSOL	0	Air Solenoid	Solenoid valve on top of air motor
KNLATSOL (output)	0	Knife Latch Solenoid	Behind display console, on latch assembly
CLAMPUP	1	Clamp up Proximity Switch	Rear of cutter, right side of arch
HYDUP	1	Hyd. Clamp Up Proximity	Rear of cutter, at top of clamp cylinder
KNFUP	1	Knife Up Proximity Switch	On bracket attached to knife cylinder
MTRSTRT (input)	0	Motor Start Relay	On top of motor contactor block
KNFLAT (input)	0	Knife Latch Prox.	Behind display console, on latch assembly
HYDMOT (output)	0	Hydraulic Motor Relay	Contactor, top right of main pcb
AIRMTR	0	Air Table Motor	Behind oil tank
LTLINE (output)	1	Line Light Output	Line light relay on main pcb
UNLOAD	0	Unload Valve	Solenoid valve on front of Manifold

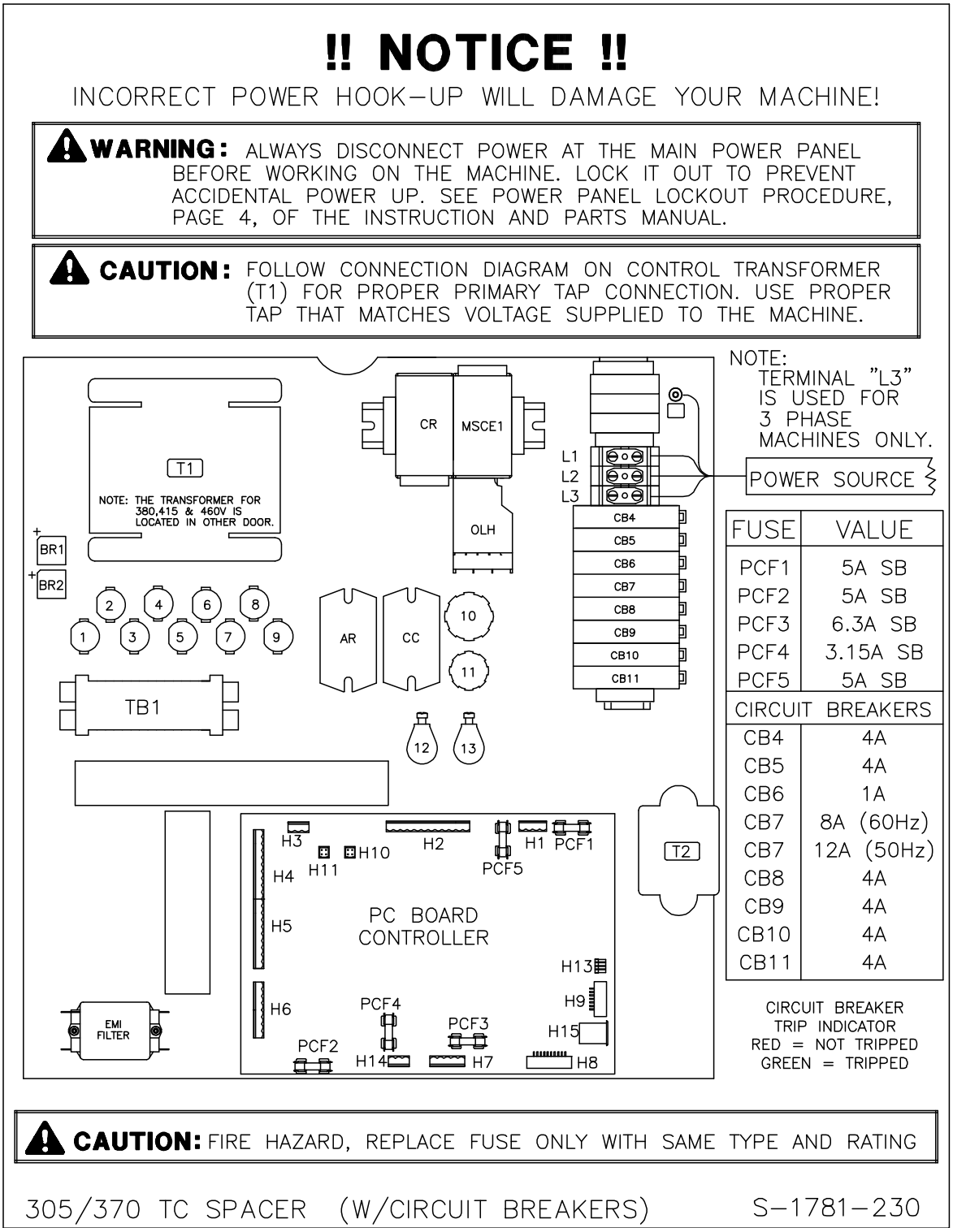
15.35 Power Panel Connection Procedure Label (w/Fuses)

S-1781-211, Rev. A



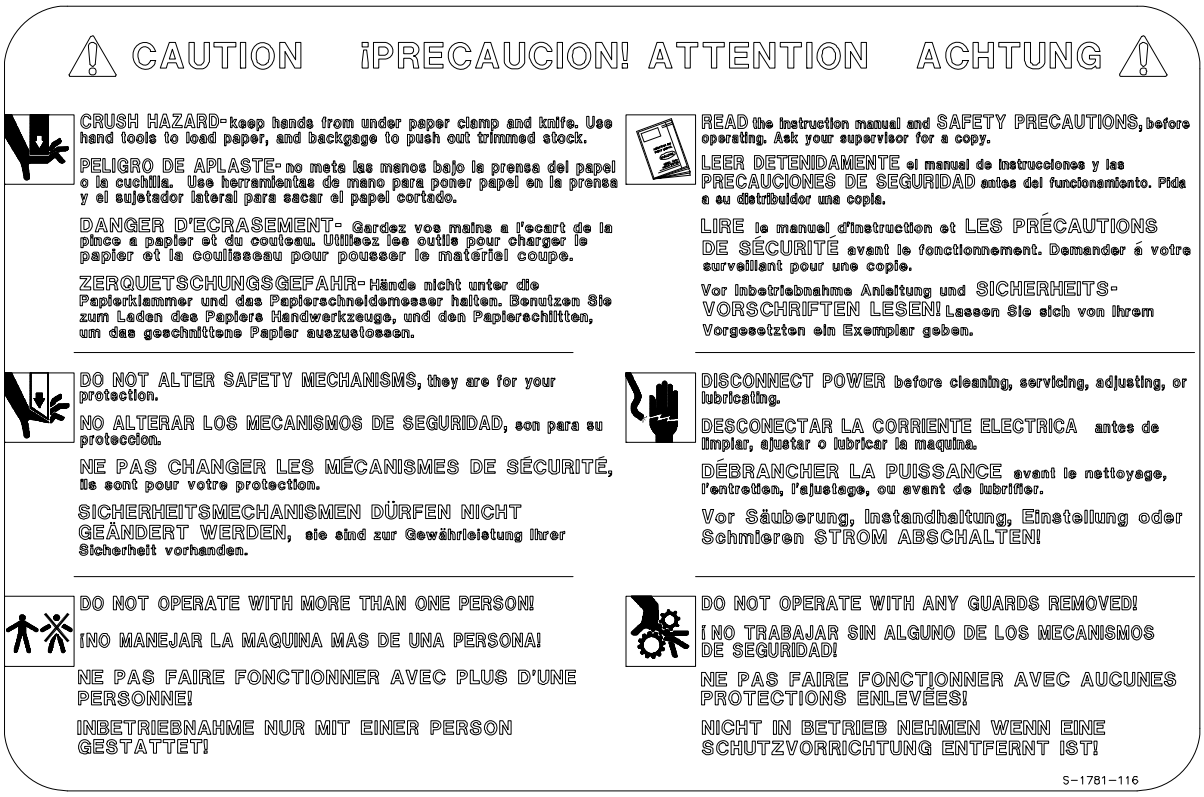
15.36 Power Panel Connection Procedure Label (w/Circuit Breakers)

S-1781-230 rev. “A”



15.37 Warning Label

S-1781-116, Rev. D



15.38 Paper Deflector Kit (Option)

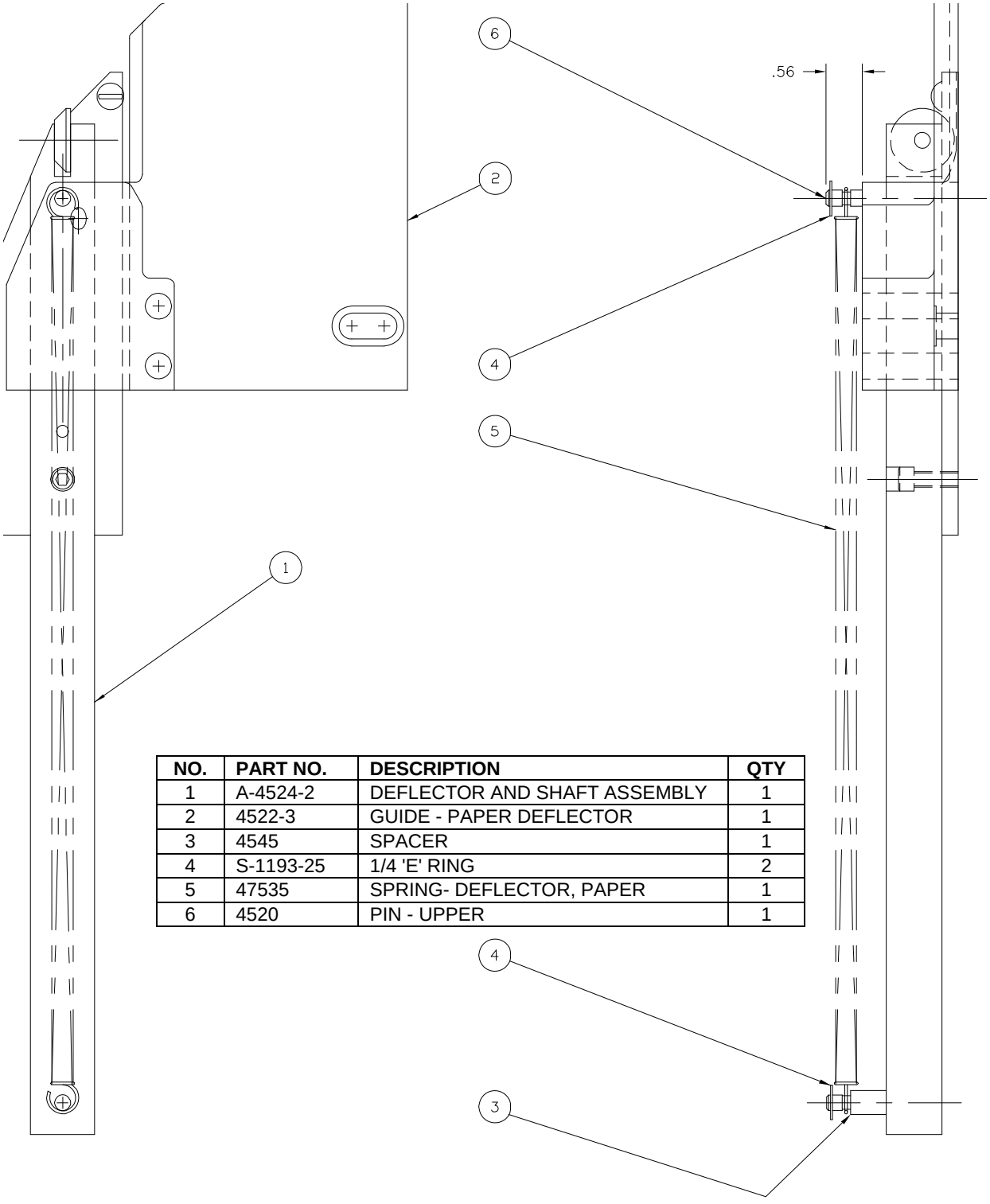
AA-13936-1, Rev. A

Kit includes the following parts:

NO.	PART NO.	DESCRIPTION	QTY
1	A-4511-2	DEFLECTOR ASSEMBLY	1
2	H-6918-616	3/8-16 X 2 SOCKET HEAD CAP SCREW	2
3	H-6918-606	3/8-16 X 3/4 SOCKET HEAD CAP SCREW	1
4	A-4497	LOCK STUD ASSEMBLY	1
5	H-7324-12	3/8 INT. TOOTH LOCKWASHER	3
6	B-2152	BOX	1
7	5-6-27B	STOP- CUT STICK, LH	1
8	H-6909-83203	SCREW- #8-32 X 3/8 FLAT HEAD	1

15.38.1 Deflector & Shaft Assembly (Part of Paper Deflector Kit)

A-4511-2



NO.	PART NO.	DESCRIPTION	QTY
1	A-4524-2	DEFLECTOR AND SHAFT ASSEMBLY	1
2	4522-3	GUIDE - PAPER DEFLECTOR	1
3	4545	SPACER	1
4	S-1193-25	1/4 'E' RING	2
5	47535	SPRING- DEFLECTOR, PAPER	1
6	4520	PIN - UPPER	1

16.0 Safety System Tests

Machine manufacturer __CHALLENGE__ Model ______________

Serial Number ___________________

Frequency of test: **THESE TESTS SHOULD BE PERFORMED AT THE BEGINNING OF EACH WORK DAY.**

Turn on the cutter and start the hydraulic motor (see operator's manual for instructions). Enable the electric eye safety system.

Test #1: Using a 12 mm wide test piece, check the object detection capability of the electric eye system. Do this by waving the test piece throughout the electric eye beam area. The steady green and steady orange lights on the emitter side (RH) should change to steady red and flashing orange.

Test #2: Press both cut buttons to begin a cut cycle. During the downward motion of the knife or clamp, lean into the path of the electric eye beams. The downward motion of the knife and clamp should stop immediately, and the knife and clamp should return to the up position.

If the machine fails either test, DO NOT use machine. Repair or adjust is necessary.

Please enter date and initials for both tests (make copies of this form if necessary).

Date											
Test 1											
Test 2											
Date											
Test 1											
Test 2											
Date											
Test 1											
Test 2											

Repairs	Initials of Repairer	Date

F.254-J

May 2019