MODEL TC700MC

TENDERIZER

MADE IN USA

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WARRANTY POLICY

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This Limited Standard Warranty is valid only when the product has been properly installed, used in a normal manner, and serviced according to the operating manual. This warranty shall not extend to products that have been misused, neglected, altered, or repaired without factory authorization during the warranty period. Operating conditions beyond our control such as improper voltage, air or water pressure, excessive ambient temperatures, or other conditions that would affect the performance or life of the product will also cause the warranty to become void.

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THERE ARE NO WARRANTIES IMPLIED OR EXPRESSED THAT EXTEND BEYOND THOSE CONTAINED IN THIS LIMITED STANDARD WARRANTY.

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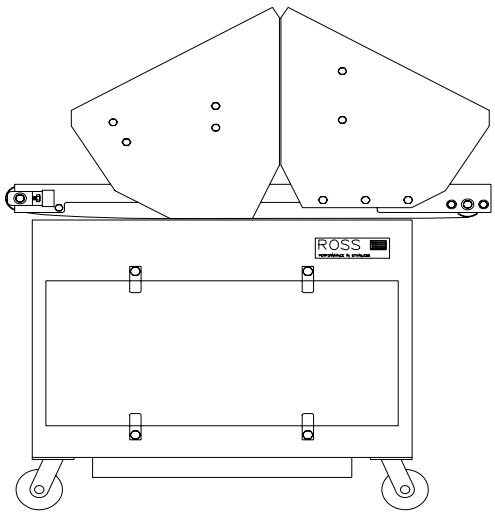
INTRODUCTION

OPERATOR'S MANUAL

MODEL TC700M/MC TENDERIZER

The ROSS TC700M/MC Tenderizer is a blade-type mechanical tenderizer. The ROSS blades are narrow and very sharp so that they actually cut their way through meat tissues and fibers and not merely punch holes by finding paths of least resistance. The special stainless steel alloy blade has a tensile strength of approximately 300,000 pounds per square inch which provides exceptional edge durability combined with extreme toughness. The ROSS Tenderizers can process bone–in meat that is up to 7" high and 12" wide. The most significant technological breakthrough in mechanical tenderizers has been the ROSS system for tenderizing meat with the bones left in.

The ROSS blades are actuated by magnetic head plates so that each blade is actually driven through the meat by magnetic force. These head plates consist of a sophisticated array of rare-earth magnets and special electrical steel pole pieces. The magnets provide just enough force to drive the blades through the toughest meat, but no more. When a ROSS blade hits anything tougher than meat, the magnetic force is overcome and the individual blade simply stops trying to penetrate – the blade is, therefore, undamaged and the other blades are allowed to fully penetrate the meat.



The 700M/MC Tenderizer provides the utmost in safety to operating personnel by incorporating pivoted guards that completely cover the operating area of the Tenderizer. Magnetically operated switches are built in the guard mechanism in such a manner that both guards must be closed before the machine will operate. If either guard is opened while the machine is running, power will be removed from the main motor and all operation will stop.

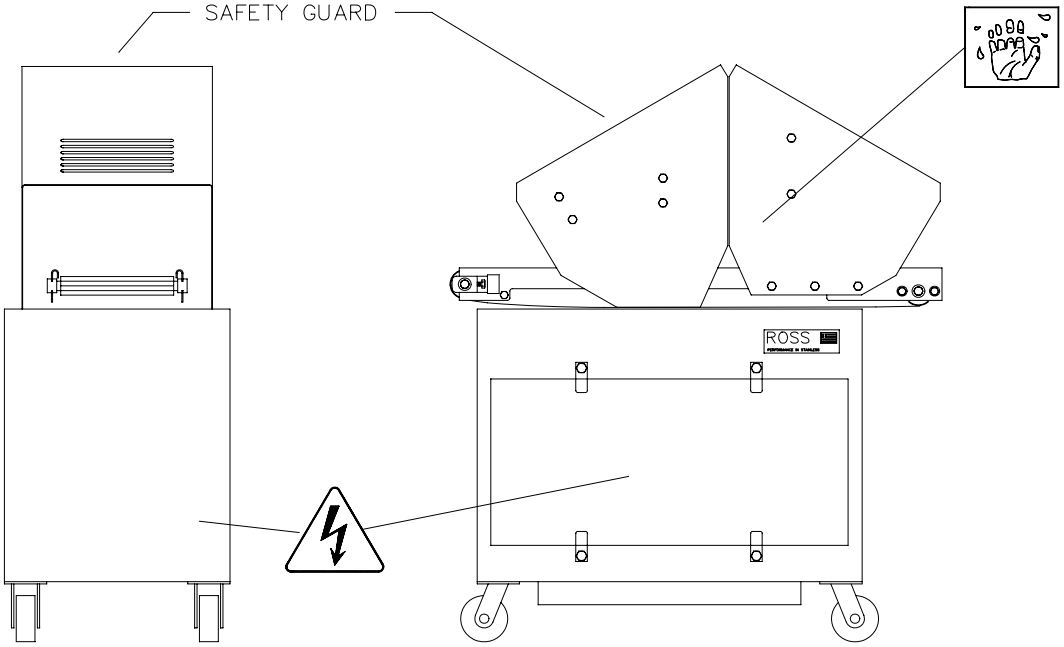
SAFETY FIRST!

DANGER –

THIS SYMBOL INDICATES HIGH VOLTAGE INSIDE MARKED HOUSING

THIS SYMBOL INDICATES SHARP KNIFE INSIDE MARKED HOUSING

Take a moment to note the areas on the machine where serious injury may occur if proper safety precautions are not adhered to.



The ROSS Tenderizer has been carefully designed so that during normal use, the operator is never exposed to dangerous moving parts.

The entire tenderizing head is enclosed by stainless steel safety guards that incorporate an electronic interlock switch. The machine will not operate unless the guards are properly closed.

- NEVER operate the Tenderizer if the safety guards have been removed or if the electronic interlock switch is not working properly.
- NEVER reach under safety guards while machine is running.

If you have any questions concerning the proper, safe operation of your Tenderizer, please contact your local ROSS Dealer or the ROSS Customer Service Department.

DAILY CLEANING PROCEDURE

NOTE:

USE ONLY NEUTRAL pH DETERGENTS AND SANITIZERS.

1) Remove Blade Assemblies from machine.

2) Inspect Blade Assemblies and remove any bent blades.

3) Clean Blade Assemblies with a mild neutral pH detergent solution. Blade Assemblies may be immersed in this solution for up to ten (10) minutes.

4) With Blade Assemblies removed, clean entire machine with a mild neutral pH detergent and a stiff brush. SPECIAL ATTENTION SHOULD BE GIVEN TO THE UNDERSIDE OF THE LOWER GUIDE FRAME.

5) Flush Blade Assemblies and machine with clean hot water or steam. All traces of detergent must be removed.

6) Sanitize entire machine using only neutral pH sanitizers.

7) Rinse machine and Blade Assemblies with clean hot water.

8) Liberally spray the Magnetic Head Plates, Blades, Guide Uprights, Main Uprights and Seals with ROSS 601 Oil.

9) Replace Blade Assemblies in machine.

CAUTION:

NEVER USE CAUSTIC CLEANING SOLUTIONS ON THE ROSS TENDERIZER. DAMAGE TO MAGNETIC HEAD PLATES AND SEALS WILL RESULT.

NEVER LET MAGNETIC HEAD ASSEMBLIES SOAK IN CLEANING SOLUTION LONGER THAN TEN (10) MINUTES.

For more detailed instructions on Cleaning and Lubrication, refer to the Operating Procedures Section of the Instruction manual.

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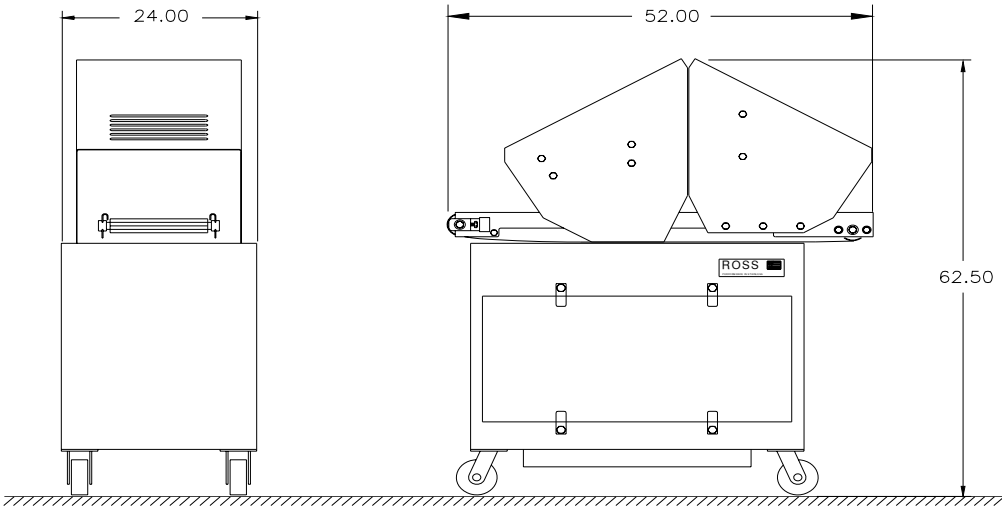
1 SPECIFICATIONS



WEIGHT 1000 pounds

SIZE Length: 52”; Width: 24”, Height: 62”

ELECTRICAL
Voltage: The 700MC can be supplied to operate from any of the standard world wide three phase power system supplying from 208 to 575 volts.

Frequency: The frequency can be either 50 or 60Hz.

Full Load current: The full load current depends on the actual line voltage and frequency; two examples are 7.6 amps @ 208 volts, 60Hz and 4.55 amps @460 volts @ 60Hz.

Power cord/Plug cap: The 700MC tenderizer is supplied with a power cord made from approximately 25 ft of SO 4/12 cable terminated with an approved plug cap. Machines ordered for operation on low voltages (208 – 240 volts) are supplied with a plug cap conforming to NEMA L15-20P. Machines for 440 – 480 volts are supplied with a plug cap conforming to NEMA L16-20P. Machines for 575 volts are supplied with a plug cap conforming to NEMA L17-20P. Machines for 380/415 service at 50Hz are supplied with the appropriate pin and sleeve type plug cap conforming to IEC-309.

Branch circuit protection: The installer must provide external branch circuit protection with either time delay fuses or an appropriate motor rated circuit breaker suitable for a 2 HP three phase motor.

PROCESSING RATE: Up to 6500 pounds per hour. Typical rates are 2000 to 3250 pounds per hour.

AMBIENT TEMPERATURE FOR OPERATION: 30 TO 80 degrees F.

TEMPERATURE RISE IN PRODUCT: None

2 DESCRIPTION

2.1 MECHANICAL

When the 700MC is turned on with the guard(s) in the closed position, the head assembly reciprocates. The conveyor advances when the blades are fully retracted at the top of each stroke.

The meat to be tenderized is simply placed on the conveyor. The powered conveyor advances the product under the blades. Any blade that strikes a bone will automatically stop its downward stroke while the other blades will continue to penetrate the meat. As the blades return to the top of the stroke, the retracted blades are pushed back into position by the soft plastic reset pads.

The blade assemblies are mounted between two “H” shaped stainless steel frames, the head frame and the guide frame. The head frame is bolted to the top of the one and one-half inch diameter main uprights. The guide frame is mounted below the head frame on the smaller one inch diameter guide uprights.

The main and guide uprights extend through the top of the cabinet and are guided by oil-impregnated bronze bearings. These bearings are held in the main frame casting that is bolted to the underside of the top of the cabinet. The lower ends of the main uprights are bolted to the cam plate. This is driven by a cam roller attached to the crank cam on the output shaft of the transmission. The transmission is driven by a two horse power electric motor. The lower ends of the guide uprights extend through the toggle clamp assemblies and guide raisers. The guide raisers with their cushions are attached to the main uprights and the clamp pivots are attached to the guide uprights.

As the 700MC makes its downward stroke, the head and guide frames descend until the guide frame contacts the meat. At this point, the guide frame stops while the head frame continues downward to the bottom of the stroke. The guide frame is locked on the stationary toggle rods by the toggle assembly. This holds the meat down on the conveyor belt as the head frame travels upward withdrawing the blades. As the main uprights and the guide raisers reach the clamp pivots at the position where the guide frame had been locked, the unlock cushion lifts and levels the toggle clamp. With the toggle clamp level, the toggle rings release allowing the guide uprights and guide frame to rise to the top of the stroke.

The crank cam also actuates the cam follower assembly and rocker arm for the conveyor advancement. The cam follower causes the rocker arm to pull down on the pull rod, operating the bell crank. The bell crank causes the push rod to operate the index arm. As the index arm moves, the pawl on the index arm engages a tooth on the index wheel causing the conveyor to advance one increment. As the index wheel advances, a serpentine track on the cam drive wheel causes the conveyor to move side to side producing the proper interdigitation of the blades to maximize tenderization. The crank cam is designed to have the rocker arm and conveyor drive advance the conveyor just as the head assembly is near the top of its stroke with the blades out of the product.

2.2 ELECTRICAL

The electrical control system is located in a sealed compartment at the input end of the Tenderizer cabinet. The control system includes a control transformer, fuses, motor starter, phase sensor, and relay. The electrical schematic, MN045770, is located at the rear of this manual. The incoming three-phase power is connected between terminals 1, 2 and 3 of the main terminal block. It is then fed through the

disconnect switch (S1) to the line terminals L1, L2 and L3 of the motor starter (K1) and to terminals 3, 4, and 5 of the phase sensor.

A single-phase connection from the incoming power is applied to the primary of the control transformer (T1) through fuses F2 and F3. The control transformer is designed with tapped primary and secondary windings allowing it to be connected such that a control voltage of approximately 120 VAC may be obtained from a wide range of line voltages. The 120 VAC control voltage is used to energize the coils of the motor starter (K1) and relay (K2) as well as the head adjusting motor circuit.

Power from the secondary of the control transformer is fed through the POWER switch (S2) to fuses F4 and F5. The load side of fuse F5 is connected to terminals 1 and 8 of relay K2 and to one side of the START switch (S3). With the machine connected to the proper electrical power source, the disconnect switch turned on and the POWER switch pulled out, pressing the START switch will energize relay K2 through guard switch S7 providing the guard is closed. When K2 pulls in, contacts 8 – 6 of K2 feed 120 volts to one end of the motor starter's coil (K1) and contacts 1 - 3 latch K2 in allowing the START switch (S3) to be released. S8 is an E-stop switch mounted at the rear of the machine.

Although the vertical reciprocating motion of the Tenderizer head is unaffected by the rotational direction of the main drive motor, if the motor was to operate in the reverse direction, the drive to the conveyor would occur with the blades partially down. Under these conditions, the conveyor would attempt to move with the blades still inserted in the product. To prevent this from happening, a phase sensor (A1) is incorporated in the electrical system to keep the motor starter from being energized unless the incoming power is correctly phased.

Terminals 3, 4, and 5 of the phase sensor are connected to the incoming power allowing the phase sequence to be sensed. If they are in the correct sequence, an internal solid state relay connects together terminals 1 and 8 of the phase sensor. Terminals 1 and 8 are connected in series between the return side of the motor starter's coil and the 0 volt connection fromT1, thus with the proper power phasing, the motor starter will pull in applying the three phase power to the main motor and the machine starts operating.

120 volts from the transformer through the POWER switch and fuse F4 is applied to the bridge rectifier (CR1). The DC terminals of CR1 are connected to the head adjusting motor through the HEAD ADJUSTING switch (S4) and limit switches (S5 and S6). S4 is a two position switch with four contact blocks connected so as to allow reversal of the polarity of the DC voltage that is applied to the head adjusting motor (M2) through terminals 4, 5 and 6. One side of M2 is connected to terminal 4 while the other side of the motor is connected through the limit switches (S5 and S6) to terminals 5 and 6. The HEAD ADJUSTING switch has no 'off' position, when either the HIGH or STD positions are selected, the motor will operate until the head assembly reaches the selected position and the appropriate limit switch opens.

Once started, the tenderizer will continue to operate until either the disconnect switch is turned off, the POWER switch is pushed in or one of the guards is opened. Restoring any of these devices will NOT allow the machine to start, the START switch must be pressed.

3 INSTALLATION

3.1 UNCRATING

The 700MC Tenderizer is shipped in an enclosed crate. The Tenderizer is supported by a wooden skid with wooden framing at the ends of the cabinet. The overall assembly is covered with clear polyethylene film and placed in a complete wooden crate.

Prior to uncrating the Tenderizer, inspect the condition of the packing material; any external damage may have resulted in damage to the Tenderizer itself. After the Tenderizer is uncrated and removed from the skid, it should be thoroughly checked for visual damage to the cabinet, casters, safety guards and the head assembly.

Any damage to the Tenderizer should be reported to the shipper immediately. If the external packing material had been disturbed or torn and visual damage to the Tenderizer itself can be seen, the Tenderizer should not be uncrated until the shipper's representative has been notified.

The Tenderizer is uncrated by first removing the top and sides of the crate and then cutting the two steel bands that hold the base cabinet to the wooden skid. The 2 x 4 end brace is removed from end of the skid frame. The Tenderizer must then be lifted slightly by prying between the side rails of the skid frame and the bottom edge of the base cabinet.

As the cabinet is raised, the support blocks under each end can be removed and the Tenderizer lowered on the skid with the casters supporting it. Before lowering the cabinet, the casters should be aligned so the Tenderizer can easily be rolled from the skid. Use the 2 x 4 end brace that was removed as a step ramp at the end of the skid and roll the Tenderizer slowly from the skid to the floor, being careful not to damage the casters.

3.2 INSTALLATION

The 700MC Tenderizer does not need any installation, as such, since it is considered a portable electrically operated appliance and need simply be rolled into position, have its power cord plugged into a suitable outlet, and it is ready to operate. There are, however, certain site requirements to consider. In as much as the Tenderizer weighs 1,000 pounds and is mounted on casters, the floor on which it is to operate must be sound, level, and capable of supporting the Tenderizer, as well as the operating personnel, meat lugs, etc.

The casters that are furnished with the Tenderizer are designed to support its weight, as well as the shock loads that may be transmitted to them during the normal operation of the machine. The casters allow the Tenderizer to be moved around on any hard, smooth-surfaced floor. Rolling the Tenderizer over uneven floors or over cracks or expansion joints in the floor will greatly shorten the life of the casters. Prior to the actual failure of the casters, they will cease to swivel properly, resulting in extreme difficulty in moving the Tenderizer even on a smooth surfaced floor.

If it is necessary to move the Tenderizer over poor floor surfaces, as much care as possible should be used to avoid excessive shock to the swivel axis of the casters. When moving the Tenderizer, it should be pushed or pulled by the cabinet and NOT by the safety guards or head assembly. Any attempt to

move the Tenderizer by pushing or pulling on the guard assembly can result in misalignment of the guards. This can result in the safety switches being inoperative, which would prevent the Tenderizer from operating.

3.3 ELECTRICAL REQUIREMENTS

The Model 700MC Tenderizer can be supplied to operate from any of the standard world wide three phase line voltages. This would include the following: 208, 220, 230, 240, 380, 415, 440, 460, 480 and 575 volts. The supply frequency can be either 50 or 60 Hz. When the Tenderizer is ordered, the actual plant line supply must be stated, such as 225 volts at 60 Hz. The tenderizer would then be properly set up to operate from that electrical supply. A subsequent deviation of up to plus or minus 10% would have little or no effect on the operation or longevity of the Tenderizer. An exception to this would be to place an absolute minimum on the operating voltage at 200 volts.

The main drive motor in the 700MC tenderizer will operate from line voltages of 208 through 480 volts at either 50 or 60 Hz. A different motor is required for operation from 575 volt lines. Changing the Tenderizer for operation on any voltage between 208 and 480 volts requires only minor changes and can easily be done in the field. Changing to operation from 575 volt lines requires replacement of the main drive motor. Replacement of the motor can certainly be done in the field, but it is somewhat involved as the cam and transmission must be removed to gain access to the motor. Machines supplied for operation from 575 volt lines are furnished with a motor and transformer designed for that specific voltage.

The various items that may need to be changed or reconnected to match a particular line voltage are: the motor itself, the heaters and overload in the motor starter, the phase sensor and line cord. The chart on page 3-4 illustrates the various items required for different line supplies. The numbers after MAIN MOTOR refers to the part number of the motor required for the selected supply. The MOTOR WIRING refers to the connections in the motor junction box for the selected supply. The actual connections are given on the motor's nameplate. The numbers after the HEATERS, PHASE SENSOR, LINE CORD ASSEMBLY AND FUSES refer to the part numbers of the affected parts. The OVERLOAD SETTING gives the required adjustment of the overload on the motor starter and is given in percentage corresponding to the dial markings on the overload.

The overload section of the motor starter provides running overload protection for the main drive motor. Fusing the primary and secondary of the control transformer provides protection of the control circuits and the head adjusting motor. There is no protection from direct short circuits in the main motor, this must be provided by the proper external branch circuit protection as defined by the applicable electrical codes relating to a 2 HP three phase motor.

When operating from any of the low voltage ranges (200 – 240 volts), the branch circuit should be protected to 20 amps with either dual element (time delay) fuses or a motor rated time delay three pole circuit breaker. The correct receptacle to be used would be one that meets NEMA L15-20R. The branch circuit protection required for any of the higher voltage ranges should be 20 amps with either dual element (time delay) fuses or a time delay circuit breaker. The correct receptacle to be used would be one that meets NEMA L16-20R for 440-480 volt lines or L17-20R for 575 volt lines.

The Tenderizer is furnished with a power cord made from approximately twenty feet of SO – 4/12 and terminated with the appropriate plug cap. Substitution of the supplied plug cap with a non-approved type is entirely at the owner's risk and any consequence that may result is the owner's responsibility.

NOTE - Always turn the main power switch OFF before connecting the machine to a power source. If the machine is plugged in with the main power switch ON and the head adjusting motor operating, the primary transformer fuses may blow. This is due to the high magnetizing in-rush current of the transformer added to the reflected starting load of the motor.

3.4 POWER PHASING

As with all three-phase motors, the phase sequence of the incoming power determines the direction of rotation of the motor in the Tenderizer. Although the vertical reciprocating motion of the Tenderizer head is unaffected by the rotational direction of the motor, if the motor was to operate backwards, the drive to the conveyor would occur when the blades were partially down. Under these conditions, the conveyor would attempt to move with the blades still inserted in the product. To prevent this from happening, a phase sensor is incorporated in the electrical system to prevent the main motor's starter from being energized unless the incoming power is correctly phased.

After the Tenderizer has been set up and made ready to operate, the phasing of the incoming power should be checked. Plug the power cord into the receptacle provided and pull the main power switch out to the ON position. With the guard completely closed, press the START button. If the machine starts and continues to operate, the phasing of the incoming power is correct and no further changes are necessary. However, if when pressing the START button nothing happens, the phasing of the incoming power may be incorrect.

To correct the phasing, two of the conductors in the power cord must be interchanged. If a separate branch circuit disconnect box is provided for the Tenderizer, then it would be best to interchange two of the wires inside the box; however, if the same circuit is used for other machines that are phase sensitive, then the correction will have to be made in the plug cap on the Tenderizer's line cord. Disassemble the plug cap and interchange any two of the main conductors (black, white, or red wires). Do NOT change the position of the GREEN wire; this is the ground wire and connects directly to the cabinet of the Tenderizer. Connecting this wire to any other position in the plug cap would result in the Tenderizer cabinet being electrically "hot" with respect to the building ground, an extremely dangerous condition.

After correcting the phasing of the incoming power, check the operation of the Tenderizer again. If it still fails to operate, refer to the TROUBLESHOOTING section of this manual

MN6376431A.DWG

700MC INSTALLATION CHART

Each TENDERIZER is shipped ready to connect to a pre-determined electrical power source and to operate from a specified voltage. If the available voltage is different from that specified on the nameplate, DO NOT attempt to connect the machine to the power source without first ensuring that voltage dependent components identified in the table below are obtained and properly installed and/or adjusted as indicated.

POWER SOURCE	200V 50Hz	208-219V 60Hz	220-240V 60Hz	380/415V 50Hz	440-480V 60Hz	575V 60Hz
FULL LOAD CURRENT	8A	7.3A	7A	4.1A	4A	3A
MAIN MOTOR	14100251	14100251	14100251	14100251	14100251	14100252
MOTOR WIRING	208-230V	208-230V	208-230V	460V	460V	575V
HEATERS	14050070	14050070	14050070	14050074	14050074	14050067
OVERLOAD SETTING	105%	100%	90%	100%	90%	100%
PHASE MONITOR	14160527	14160527	14160527	14160527	14160527	09019180
LINE CORD ASSEMBLY	09041962	09041961	09041961	09041962	09041964	09041963
FUSES F2, F3	14140119 2.5A 600V	14140119 2.5A 600V	14140195 2A 600V	14140194 1.5A 600V	14140132 1A 600V	14140132 1A 600V

4 SPARE PARTS

SPARES LIST

VOLTAGE-DEPENDENT COMPONENTS IDENTIFIED WITH AN "*"

VOLTAGE	DESCRIPTION	PART NO.
ALL	FUSE, 1 AMP, (F5)	14140013
ALL	FUSE, 2A (F4)	14140023
200-219	*FUSE 2.5 AMP 600V, (F2, F3)	14140119
220-240	*FUSE 2 AMP 600V, (F2, F3)	14140195
380/415	*FUSE 1.5 AMP 600V, (F2,, F3)	14140194
440-575	*FUSE 1 AMP 600V, (F2, F3)	14140132
200-480	*PHASE MONITOR (A1)	14160527
575	*PHASE SENSOR ASSEMBLY (A1)	09019180
200-240	*HEATERS FOR K1, 7A (3 EA)	14050070
380-480	*HEATERS FOR K1, 3.7A (3 EA)	14050074
575	*HEATERS FOR K1, 3.3A (3 EA)	14050067
ALL	DISCONNECT SWITCH (S1)	14120367
ALL	RELAY, (K2)	14050005
ALL	TRANSFORMER, (T1)	14080025
ALL	START SWITCH, (S3)	09078501
ALL	POWER SWITCH, (S2)	09093610
ALL	MOTOR STARTER, (K1)	14050066
ALL	HEAD ADJUSTING SWITCH (S4)	09093620
ALL	RECTIFIER (CR1)	14050016
ALL	REED SWITCH (S7)	09019250
ALL	PIN	11090021

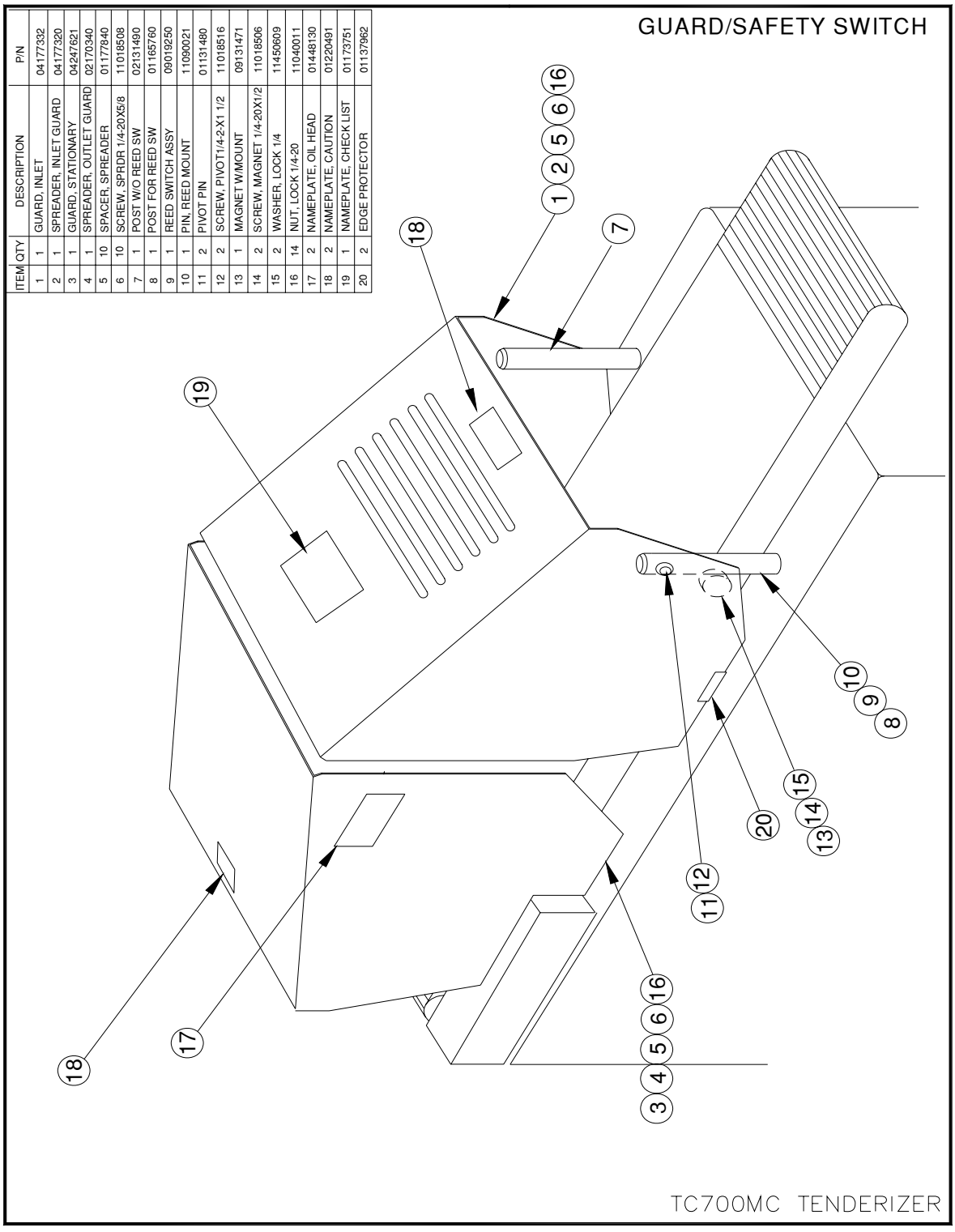
SPARES LIST

VOLTAGE-DEPENDENT COMPONENTS IDENTIFIED WITH AN "*"

VOLTAGE	DESCRIPTION	PART NO.
ALL	LIMIT SWITCH (S5, S6)	14120080
ALL	ROD END	13070013
ALL	BLADE, LONG ANGLE POINT	01019876

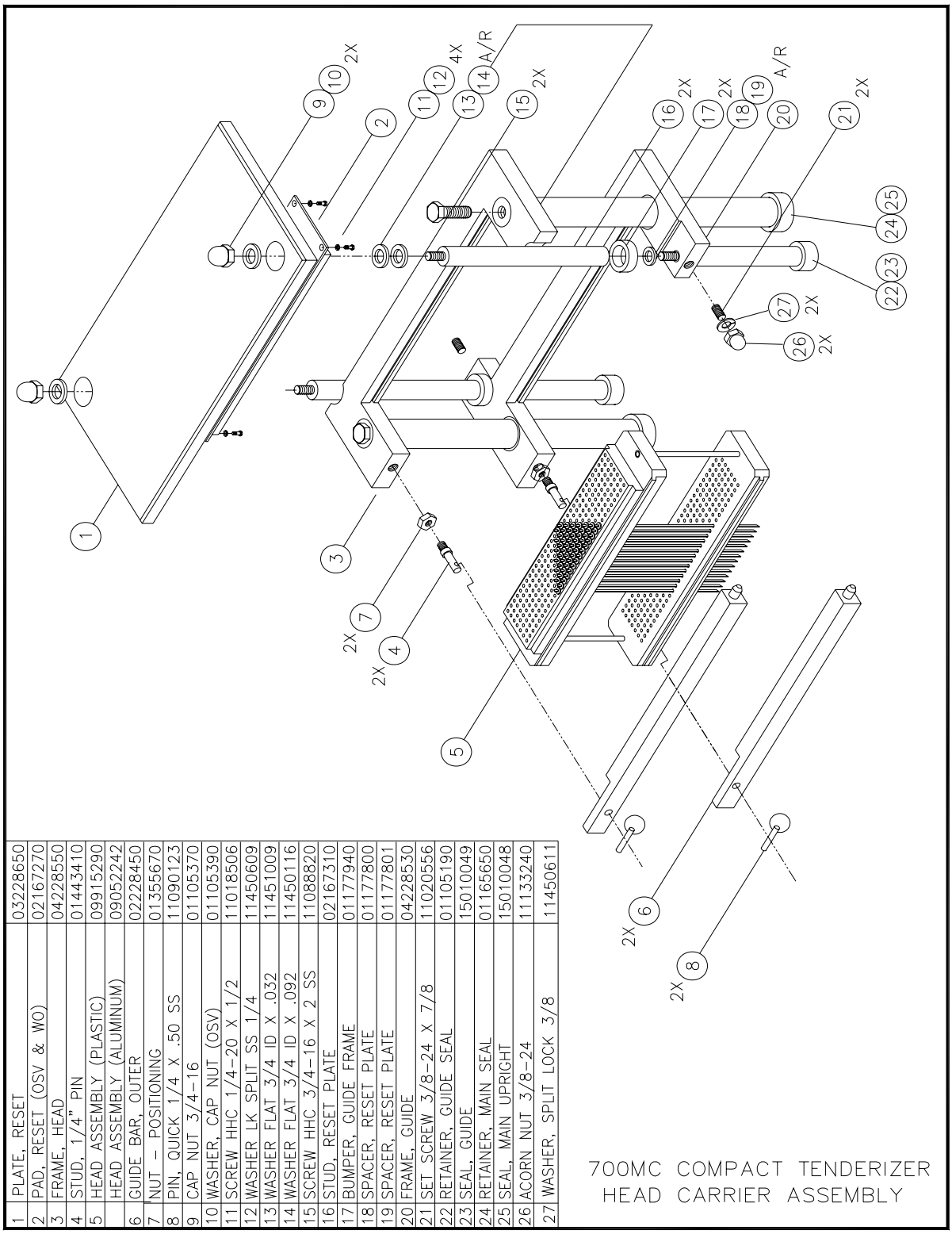
5 ILLUSTRATIONS

5.1 GUARD/SAFETY SWITCH



ITEM	QTY	DESCRIPTION	P/N
1	1	GUARD, INLET	04177332
2	1	SPREADER, INLET GUARD	04177320
3	1	GUARD, STATIONARY	04247621
4	1	SPREADER, OUTLET GUARD	02170340
5	10	SPACER, SPREADER	01177840
6	10	SCREW, SPRDR 1/4-20X5/8	11018508
7	1	POST W/O REED SW	02131490
8	1	POST FOR REED SW	01165760
9	1	REED SWITCH ASSY	09019250
10	1	PIN, REED MOUNT	11090021
11	2	PIVOT PIN	01131480
12	2	SCREW, PIVOT1/4-2-X1 1/2	11018516
13	1	MAGNET W/MOUNT	09131471
14	2	SCREW, MAGNET 1/4-20X1/2	11018506
15	2	WASHER, LOCK 1/4	11450609
16	14	NUT, LOCK 1/4-20	11040011
17	2	NAMEPLATE, OIL HEAD	01448130
18	2	NAMEPLATE, CAUTION	01220491
19	1	NAMEPLATE, CHECK LIST	01173751
20	2	EDGE PROTECTOR	01137962

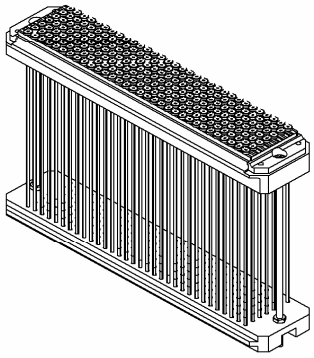
5.2 HEAD CARRIER ASSEMBLY



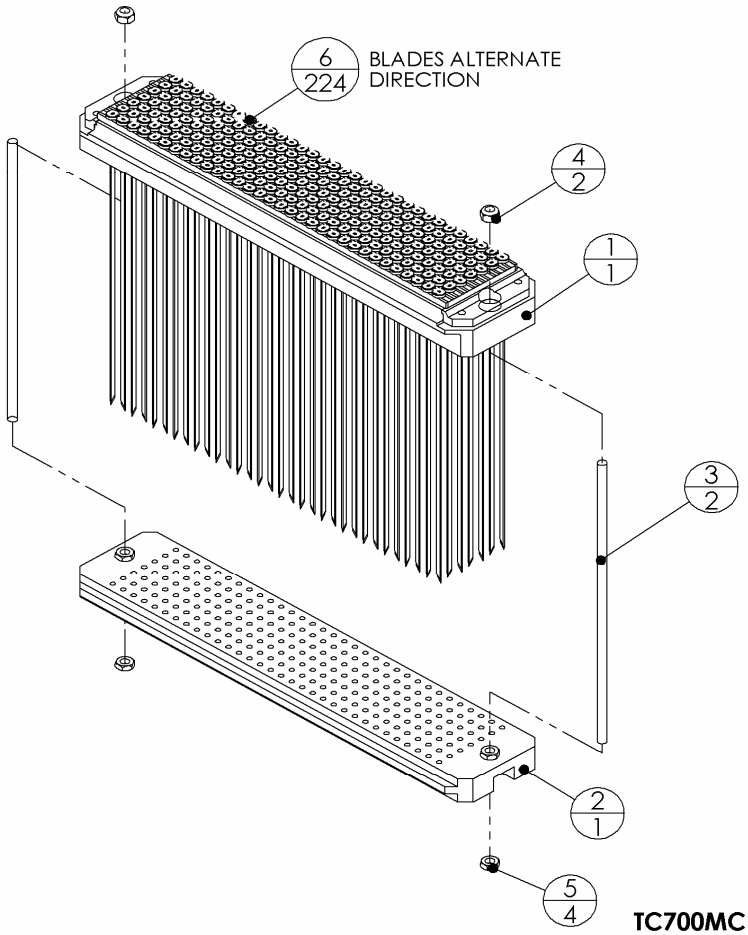
1	PLATE, RESET	03228650
2	PAD, RESET (OSV & WO)	02167270
3	FRAME, HEAD	04228550
4	STUD, 1/4" PIN	01443410
5	HEAD ASSEMBLY (PLASTIC)	09915290
	HEAD ASSEMBLY (ALUMINUM)	09052242
6	GUIDE BAR, OUTER	02228450
7	NUT – POSITIONING	01355670
8	PIN, QUICK 1/4 X .50 SS	11090123
9	CAP NUT 3/4-16	01105370
10	WASHER, CAP NUT (OSV)	01105390
11	SCREW HHC 1/4-20 X 1/2	11018506
12	WASHER LK SPLIT SS 1/4	11450609
13	WASHER FLAT 3/4 ID X .032	11451009
14	WASHER FLAT 3/4 ID X .092	11450116
15	SCREW HHC 3/4-16 X 2 SS	11088820
16	STUD, RESET PLATE	02167310
17	BUMPER, GUIDE FRAME	01177940
18	SPACER, RESET PLATE	01177800
19	SPACER, RESET PLATE	01177801
20	FRAME, GUIDE	04228530
21	SET SCREW 3/8-24 X 7/8	11020556
22	RETAINER, GUIDE SEAL	01105190
23	SEAL, GUIDE	15010049
24	RETAINER, MAIN SEAL	01165650
25	SEAL, MAIN UPRIGHT	15010048
26	ACORN NUT 3/8-24	11133240
27	WASHER, SPLIT LOCK 3/8	11450611

5.3 HEAD ASSEMBLY

HEAD ASSEMBLY (W/ RETAINERS)



ITEM NO.	QTY.	PART NO.	DESCRIPTION
1	1	09915280	MAGNET CARRIER ASSEMBLY
2	1	03167283	BLADE GUIDE - LOWER
3	2	02184934	RETAINER BAR
4	2	11040011	NUT HEX LOCKING 1/4-20 SS
5	4	11131190	NUT HEX JAM 1/4-20
6	224	01019876	BLADE ASSEMBLY, LONG ANGLE POINT



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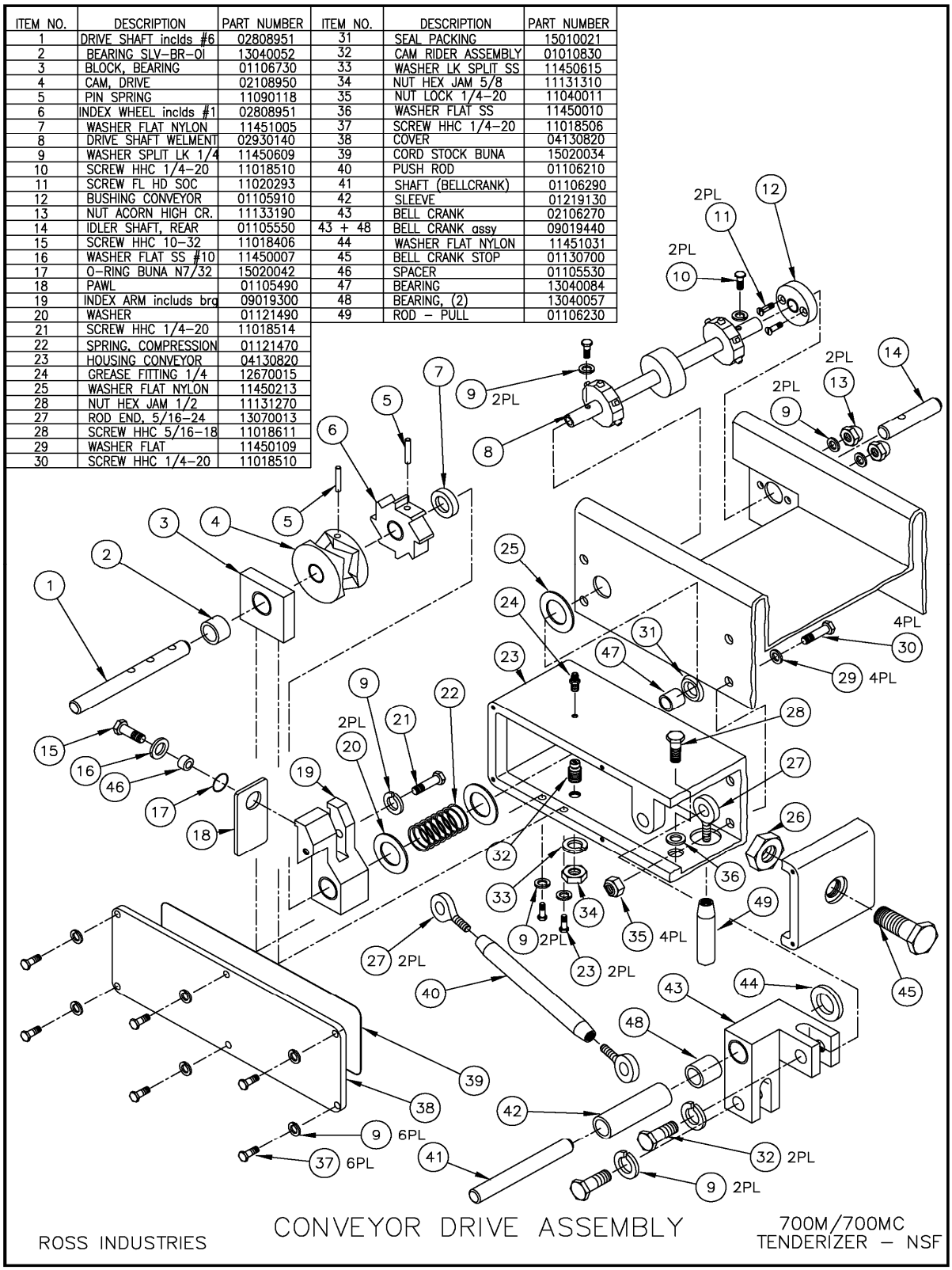
ROSS

TC700MC COMPACT TENDERIZER

5.4 CONVEYOR DRIVE ASSEMBLY

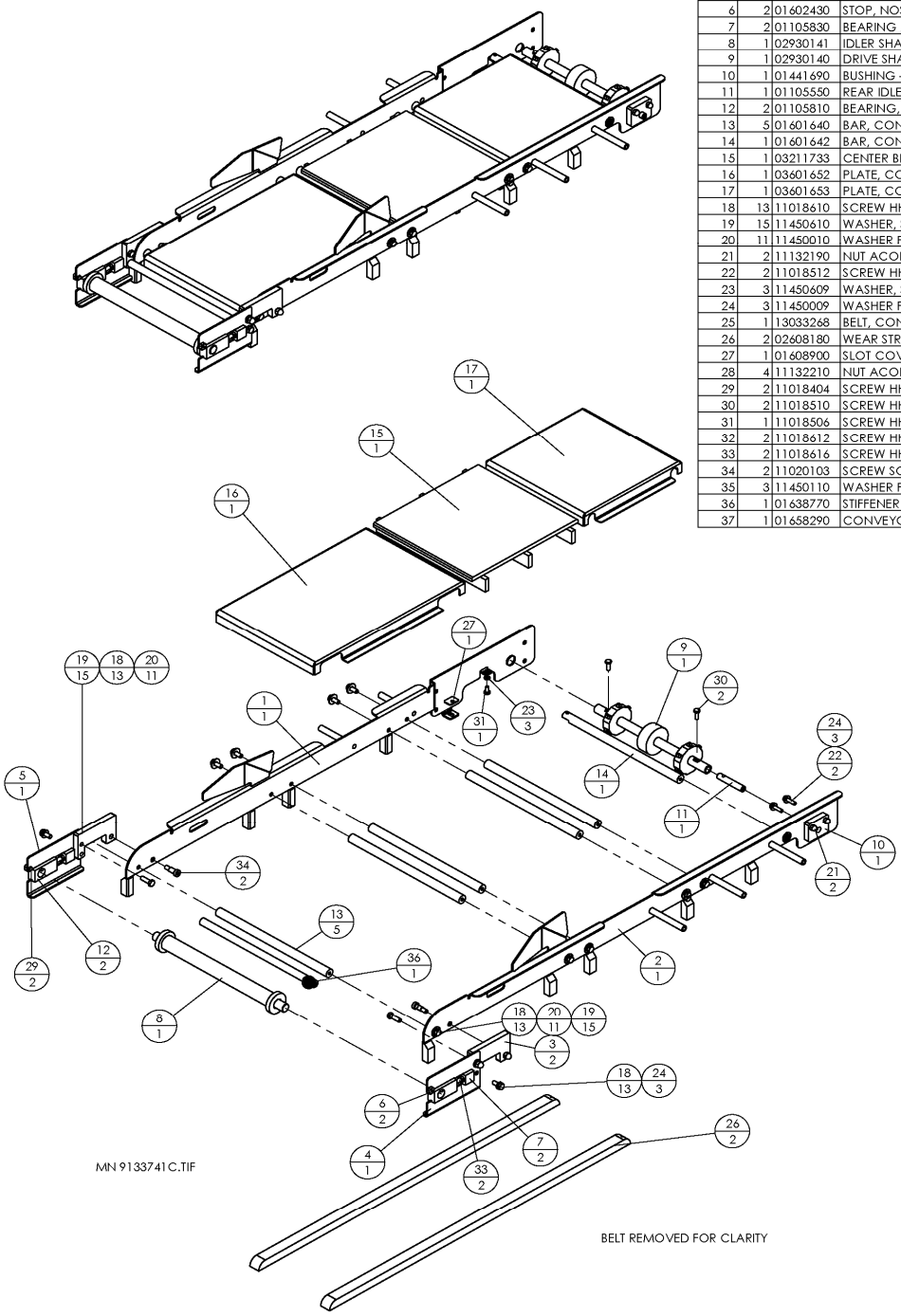
ITEM NO.	DESCRIPTION	PART NUMBER
1	DRIVE SHAFT incldS #6	02808951
2	BEARING SLV-BR-01	13040052
3	BLOCK, BEARING	01106730
4	CAM, DRIVE	02108950
5	PIN SPRING	11090118
6	INDEX WHEEL incldS #1	02808951
7	WASHER FLAT NYLON	11451005
8	DRIVE SHAFT WELMENT	02930140
9	WASHER SPLIT LK 1/4	11450609
10	SCREW HHC 1/4-20	11018510
11	SCREW FL HD SOC	11020293
12	BUSHING CONVEYOR	01105910
13	NUT ACORN HIGH CR.	11133190
14	IDLER SHAFT, REAR	01105550
15	SCREW HHC 10-32	11018406
16	WASHER FLAT SS #10	11450007
17	O-RING BUNA N7/32	15020042
18	PAWL	01105490
19	INDEX ARM includs brg	09019300
20	WASHER	01121490
21	SCREW HHC 1/4-20	11018514
22	SPRING, COMPRESSION	01121470
23	HOUSING CONVEYOR	04130820
24	GREASE FITTING 1/4	12670015
25	WASHER FLAT NYLON	11450213
28	NUT HEX JAM 1/2	11131270
27	ROD END, 5/16-24	13070013
28	SCREW HHC 5/16-18	11018611
29	WASHER FLAT	11450109
30	SCREW HHC 1/4-20	11018510

ITEM NO.	DESCRIPTION	PART NUMBER
31	SEAL PACKING	15010021
32	CAM RIDER ASSEMBLY	01010830
33	WASHER LK SPLIT SS	11450615
34	NUT HEX JAM 5/8	11131310
35	NUT LOCK 1/4-20	11040011
36	WASHER FLAT SS	11450010
37	SCREW HHC 1/4-20	11018506
38	COVER	04130820
39	CORD STOCK BUNA	15020034
40	PUSH ROD	01106210
41	SHAFT (BELLCRANK)	01106290
42	SLEEVE	01219130
43	BELL CRANK	02106270
43 + 48	BELL CRANK assy	09019440
44	WASHER FLAT NYLON	11451031
45	BELL CRANK STOP	01130700
46	SPACER	01105530
47	BEARING	13040084
48	BEARING, (2)	13040057
49	ROD - PULL	01106230

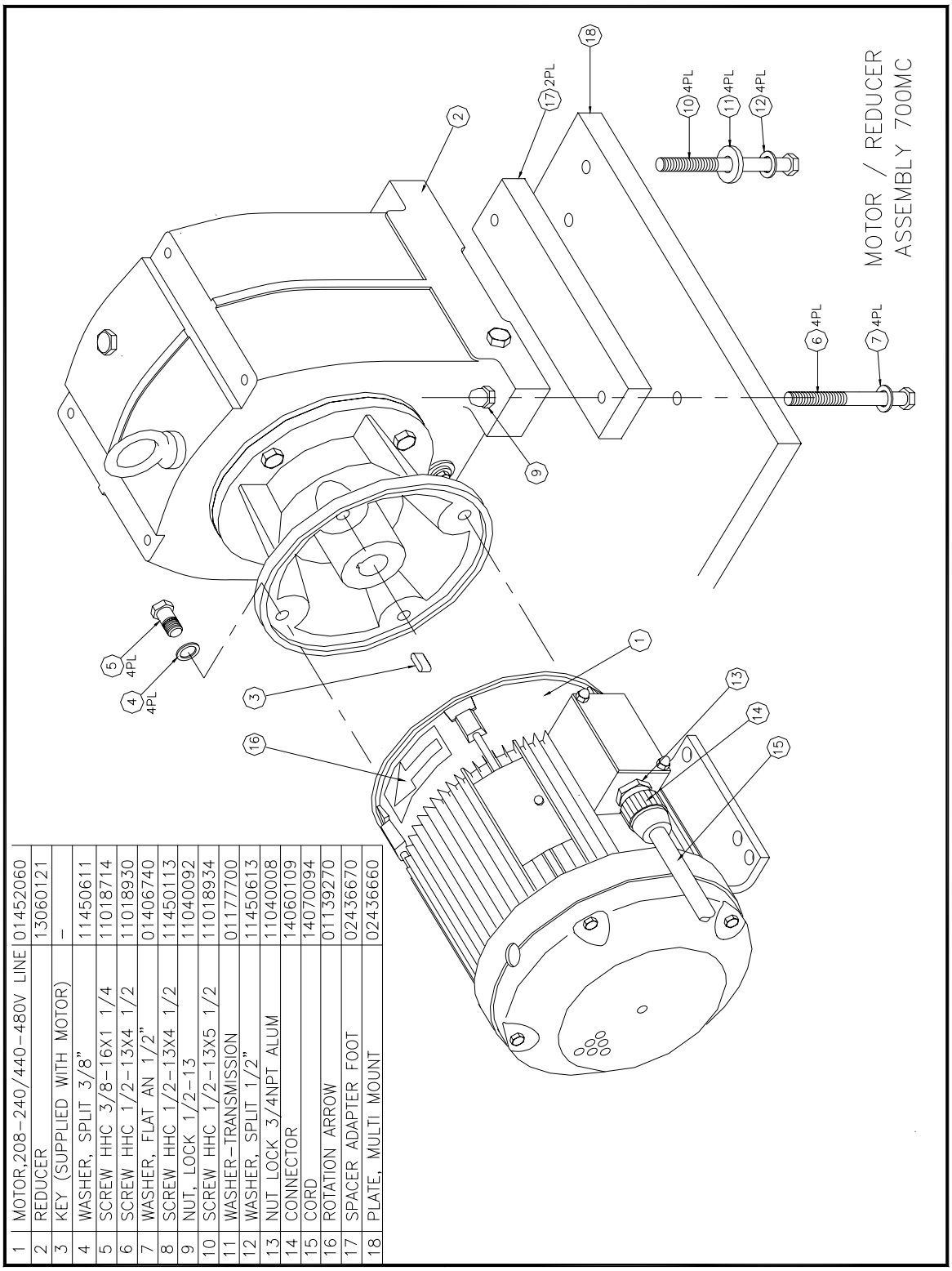


5.5 CONVEYOR ASSEMBLY

ITEM NO.	QTY.	PART NO.	DESCRIPTION
1	1	03441522	WELDMENT, CONVEYOR RAIL LEFT
2	1	03441512	WELDMENT, CONVEYOR RAIL RIGHT
3	2	01202502	BLOCK, HINGE
4	1	01602441	PLATE, RAIL TENSION - RIGHT
5	1	01602440	PLATE, RAIL TENSION - LEFT
6	2	01602430	STOP, NOSEBAR
7	2	01105830	BEARING ADJUSTMENT BLOCK
8	1	02930141	IDLER SHAFT WELDMENT-WIRE MESH BELT
9	1	02930140	DRIVE SHAFT WELDMENT-WIRE MESH BELT
10	1	01441690	BUSHING - REAR CONVEYOR
11	1	01105550	REAR IDLER SHAFT
12	2	01105810	BEARING, CONVEYOR FRONT
13	5	01601640	BAR, CONVEYOR
14	1	01601642	BAR, CONVEYOR SUPPORT
15	1	03211733	CENTER BELT SUPPORT
16	1	03601652	PLATE, CONVEYOR SUPPORT
17	1	03601653	PLATE, CONVEYOR SUPPORT
18	13	11018610	SCREW HHC 5/16-18 X 3/4 SS
19	15	11450610	WASHER, SPLIT 5/16
20	11	11450010	WASHER FLAT SS 5/16"
21	2	11132190	NUT ACORN LOW CROWN 1/4-20
22	2	11018512	SCREW HHC 1/4-20 X 1" SS
23	3	11450609	WASHER, SPLIT 1/4
24	3	11450009	WASHER FLAT SS 1/4"
25	1	13033268	BELT, CONVEYOR
26	2	02608180	WEAR STRIP, CONVEYOR
27	1	01608900	SLOT COVER
28	4	11132210	NUT ACORN LOW CROWN 5/16-18 SS
29	2	11018404	SCREW HHC 10-32 X 3/8 SS
30	2	11018510	SCREW HHC 1/4-20 X 3/4 SS
31	1	11018506	SCREW HHC 1/4-20 X 1/2 SS
32	2	11018612	SCREW HHC 5/16-18 X 1" SS
33	2	11018616	SCREW HHC 5/16-18 X 1-1/2 SS
34	2	11020103	SCREW SOC HD SH 3/8D X 5/8L X 5/16-18T
35	3	11450110	WASHER FLAT SS 5/16 AN
36	1	01638770	STIFFENER ROD
37	1	01658290	CONVEYOR LINK (NOT SHOWN)

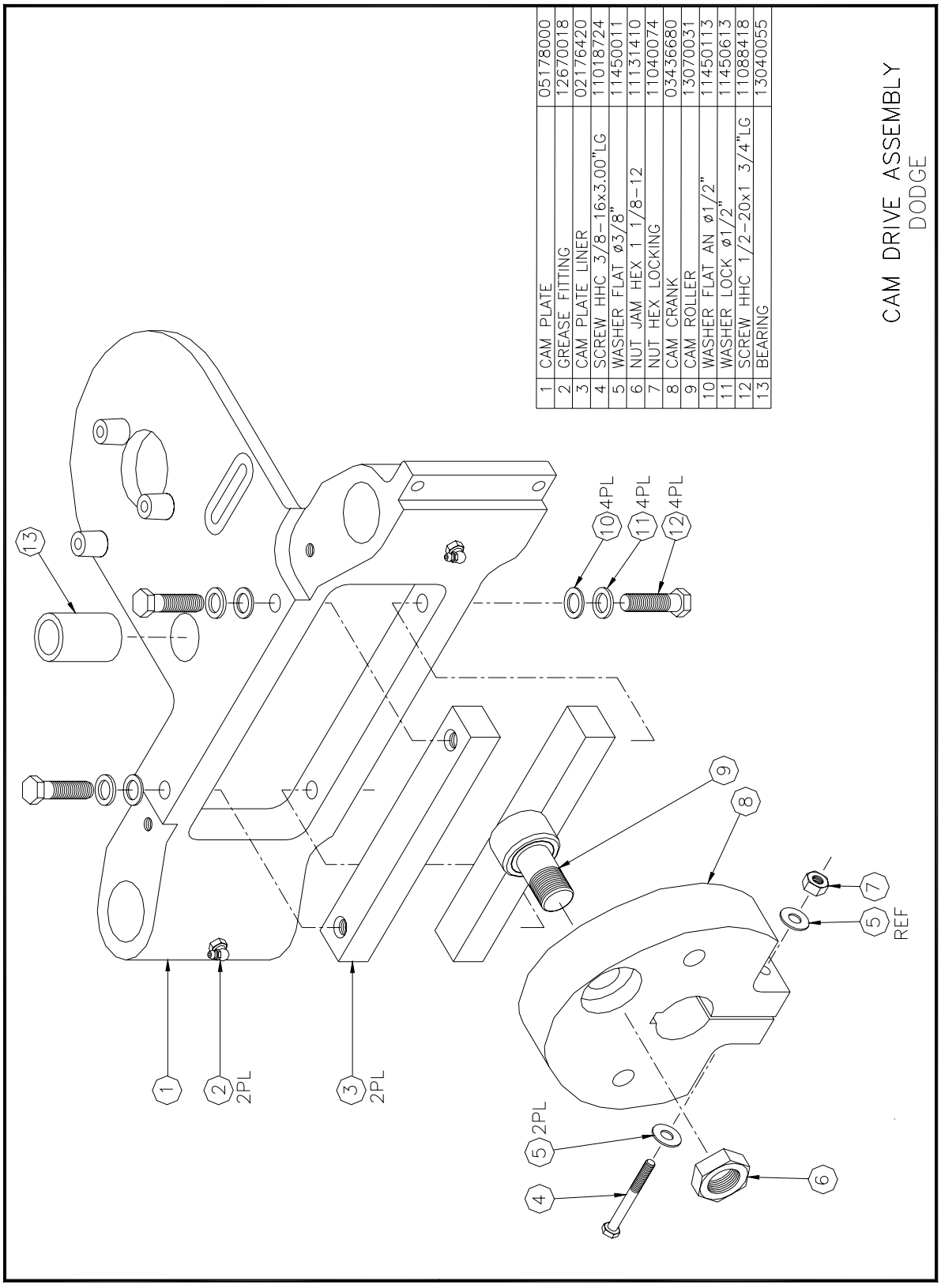


5.6 MOTOR/REDUCER ASSEMBLY

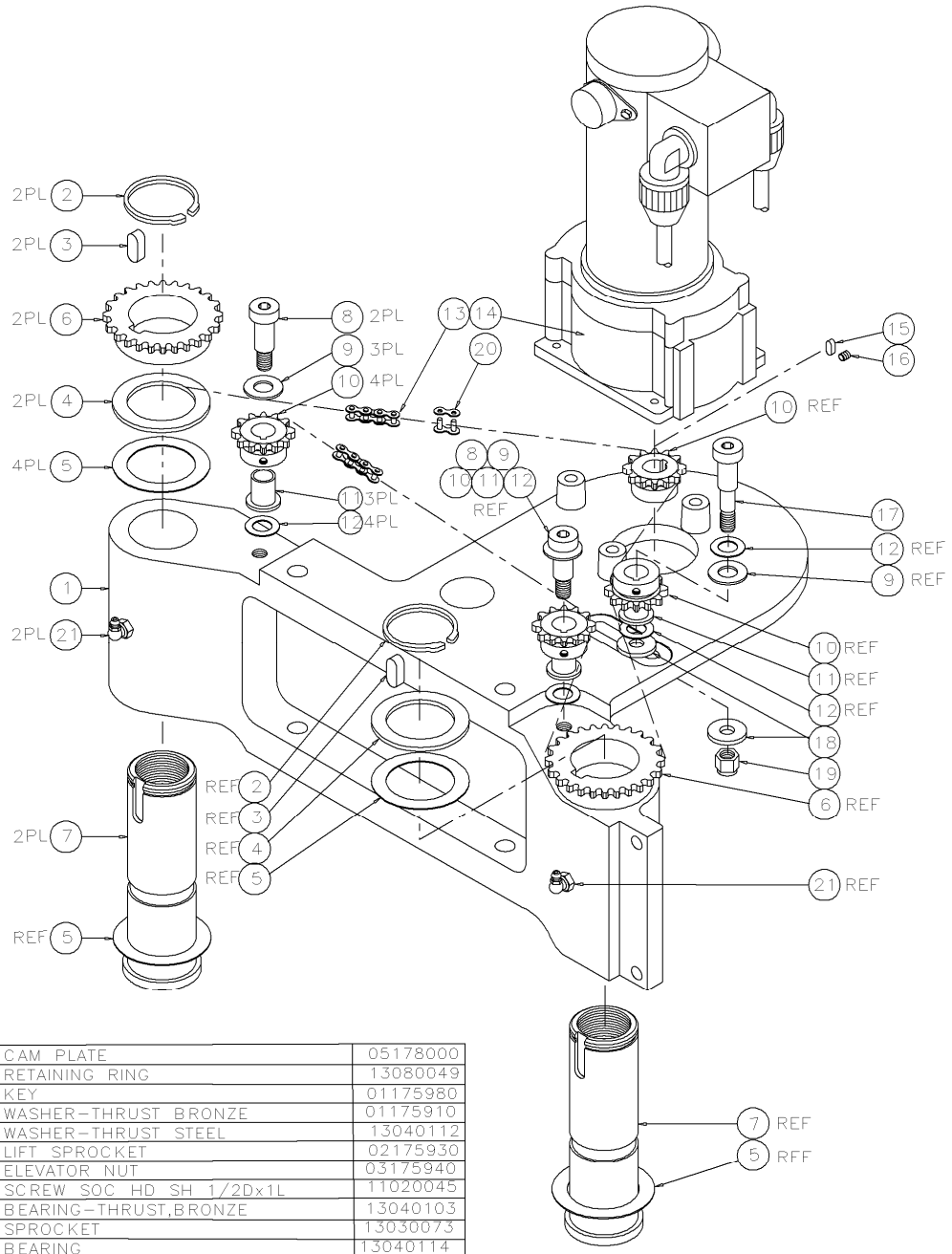


1	MOTOR,208-240/440-480V LINE	01452060
2	REDUCER	13060121
3	KEY (SUPPLIED WITH MOTOR)	–
4	WASHER, SPLIT 3/8"	11450611
5	SCREW HHC 3/8-16X1 1/4	11018714
6	SCREW HHC 1/2-13X4 1/2	11018930
7	WASHER, FLAT AN 1/2"	01406740
8	SCREW HHC 1/2-13X4 1/2	11450113
9	NUT, LOCK 1/2-13	11040092
10	SCREW HHC 1/2-13X5 1/2	11018934
11	WASHER-TRANSMISSION	01177700
12	WASHER, SPLIT 1/2"	11450613
13	NUT LOCK 3/4NPT ALUM	11040008
14	CONNECTOR	14060109
15	CORD	14070094
16	ROTATION ARROW	01139270
17	SPACER ADAPTER FOOT	02436670
18	PLATE, MULTI MOUNT	02436660

5.7 CAM DRIVE ASSEMBLY



5.8 CAM ASSEMBLY



1	CAM PLATE	05178000
2	RETAINING RING	13080049
3	KEY	01175980
4	WASHER-THRUST BRONZE	01175910
5	WASHER-THRUST STEEL	13040112
6	LIFT SPROCKET	02175930
7	ELEVATOR NUT	03175940
8	SCREW SOC HD SH 1/2Dx1L	11020045
9	BEARING-THRUST,BRONZE	13040103
10	SPROCKET	13030073
11	BEARING	13040114
12	WASHER FLAT AIRCRAFT THIN	11451011
13	CHAIN-ROLLER	13030074
14	MOTOR GEAR	14100094
15	KEY	01168391
16	SET SCREW 1/4-20x1/4"LG	11020006
17	SCREW SOC HD SH 1/2Dx1 3/4"LG	01176170
18	BUSHING-IDLER	01176500
19	NUT-HEX LOCKING 3/8	11040074
20	CONNECTING LINK	13030075
21	GREASE FITTING	12670018

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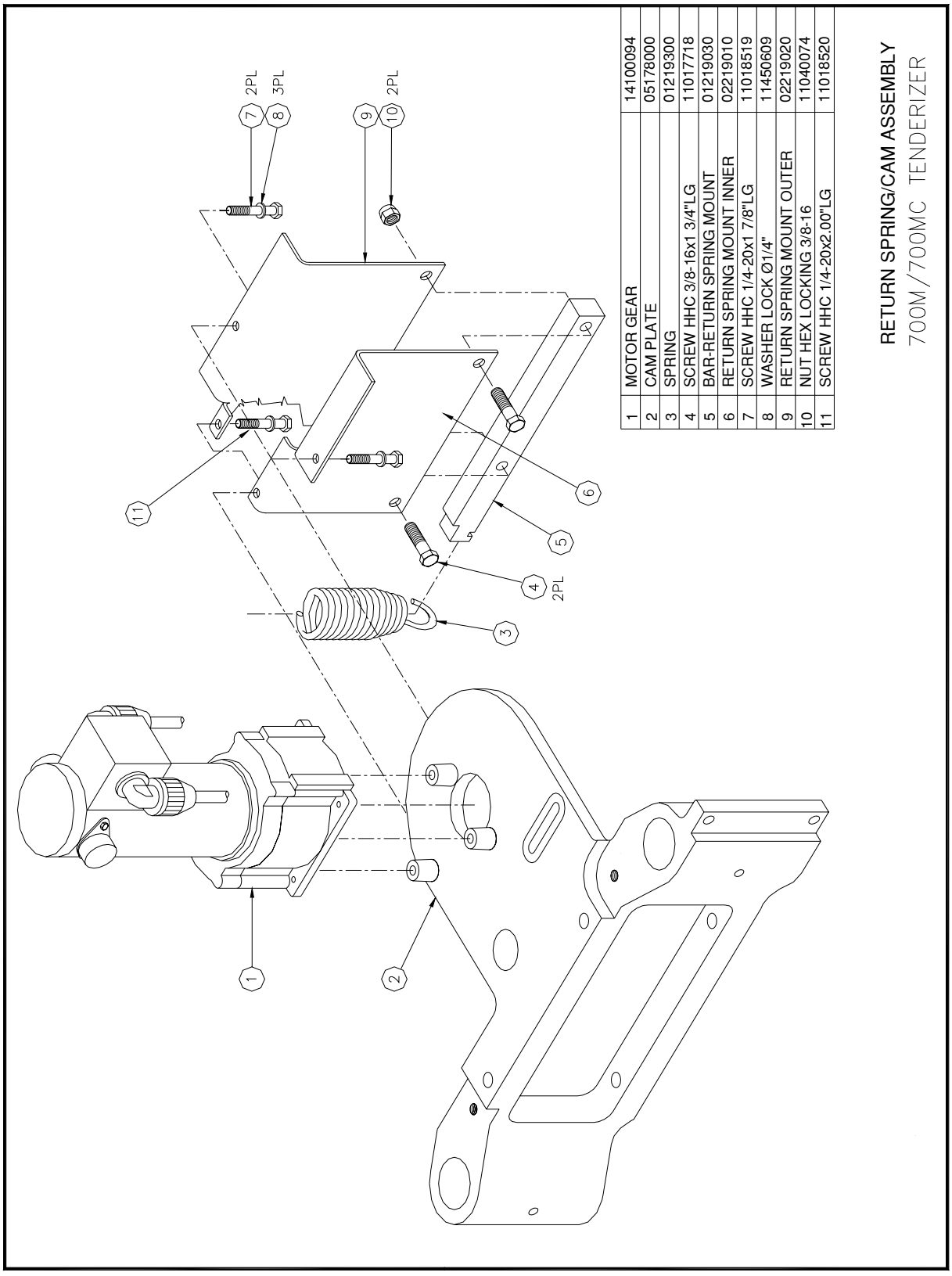
5.9 RETURN SPRING/CAM ASSEMBLY

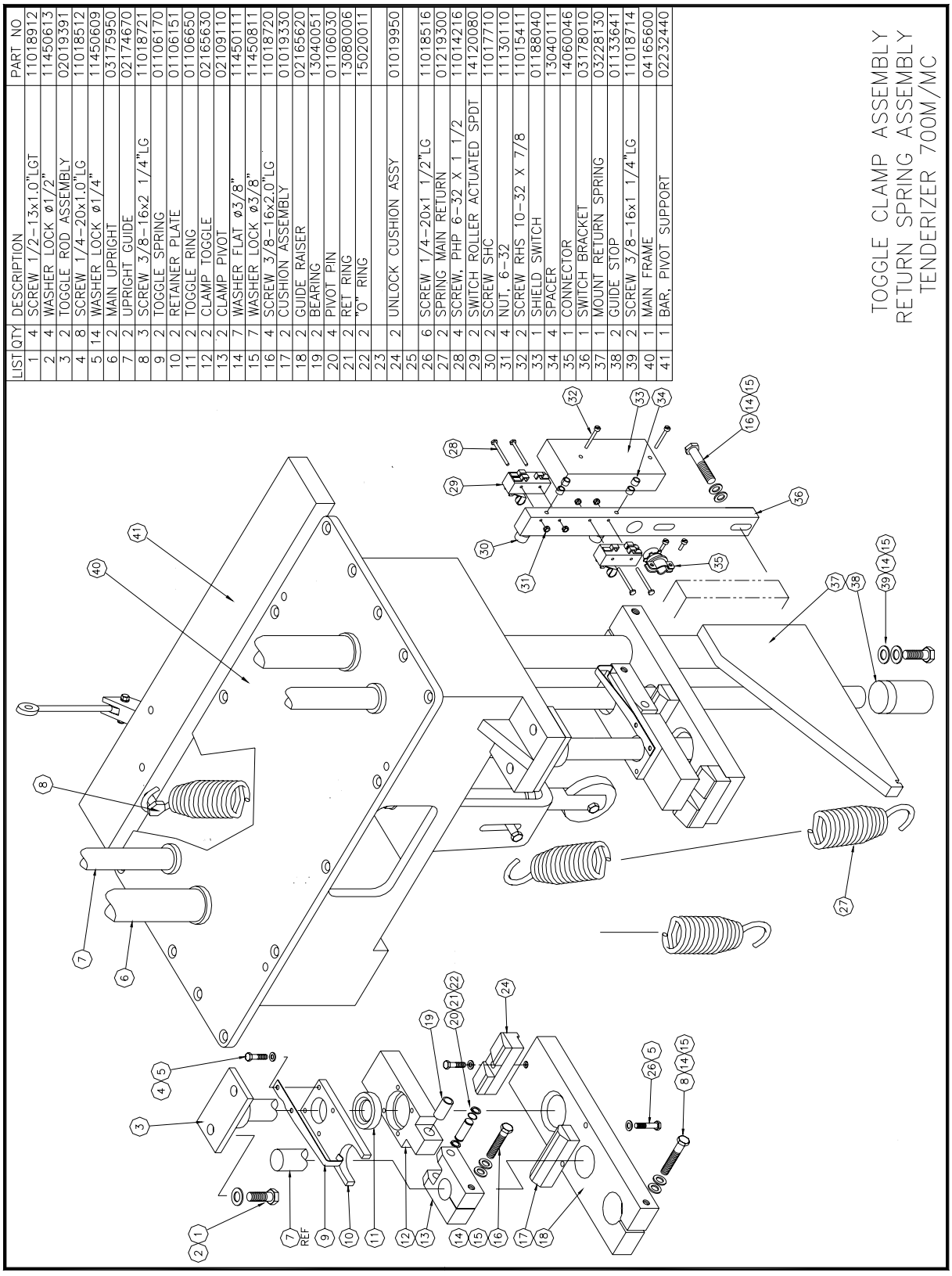


1	MOTOR GEAR	14100094
2	CAM PLATE	05178000
3	SPRING	01219300
4	SCREW HHC 3/8-16x1 3/4"LG	11017718
5	BAR-RETURN SPRING MOUNT	01219030
6	RETURN SPRING MOUNT INNER	02219010
7	SCREW HHC 1/4-20x1 7/8"LG	11018519
8	WASHER LOCK Ø1/4"	11450609
9	RETURN SPRING MOUNT OUTER	02219020
10	NUT HEX LOCKING 3/8-16	11040074
11	SCREW HHC 1/4-20x2.00"LG	11018520

5.10 TOGGLE CLAMP/RETURN SPRING ASSEMBLY

LIST	QTY	DESCRIPTION	PART NO
1	4	SCREW 1/2-13x1.0"LGT	11018912
2	4	WASHER LOCK ø1/2"	11450613
3	2	TOGGLE ROD ASSEMBLY	02019391
4	8	SCREW 1/4-20x1.0"LG	11018512
5	14	WASHER LOCK ø1/4"	11450609
6	2	MAIN UPRIGHT	03175950
7	2	UPRIGHT GUIDE	02174670
8	3	SCREW 3/8-16x2 1/4"LG	11018721
9	2	TOGGLE SPRING	01106170
10	2	RETAINER PLATE	01106151
11	2	TOGGLE RING	01106650
12	2	CLAMP TOGGLE	02165630
13	2	CLAMP PIVOT	02109110
14	7	WASHER FLAT ø3/8"	11450111
15	7	WASHER LOCK ø3/8"	11450811
16	4	SCREW 3/8-16x2.0"LG	11018720
17	2	CUSHION ASSEMBLY	01019330
18	2	GUIDE RAISER	02165620
19	2	BEARING	13040051
20	4	PIVOT PIN	01106030
21	2	RET RING	13080006
22	2	"O" RING	15020011
23			
24	2	UNLOCK CUSHION ASSY	01019950
25			
26	6	SCREW 1/4-20x1 1/2"LG	11018516
27	2	SPRING MAIN RETURN	01219300
28	4	SCREW, PHP 6-32 X 1 1/2	11014216
29	2	SWITCH ROLLER ACTUATED SPDT	14120080
30	2	SCREW SHC	11017710
31	4	NUT, 6-32	11130110
32	2	SCREW RHS 10-32 X 7/8	11015411
33	1	SHIELD SWITCH	01188040
34	4	SPACER	13040111
35	1	CONNECTOR	14060046
36	1	SWITCH BRACKET	03178010
37	1	MOUNT RETURN SPRING	03228130
38	2	GUIDE STOP	01133641
39	2	SCREW 3/8-16x1 1/4"LG	11018714
40	1	MAIN FRAME	04165600
41	1	BAR, PIVOT SUPPORT	02232440

TOGGLE CLAMP ASSEMBLY
RETURN SPRING ASSEMBLY
TENDERIZER 700M/MC



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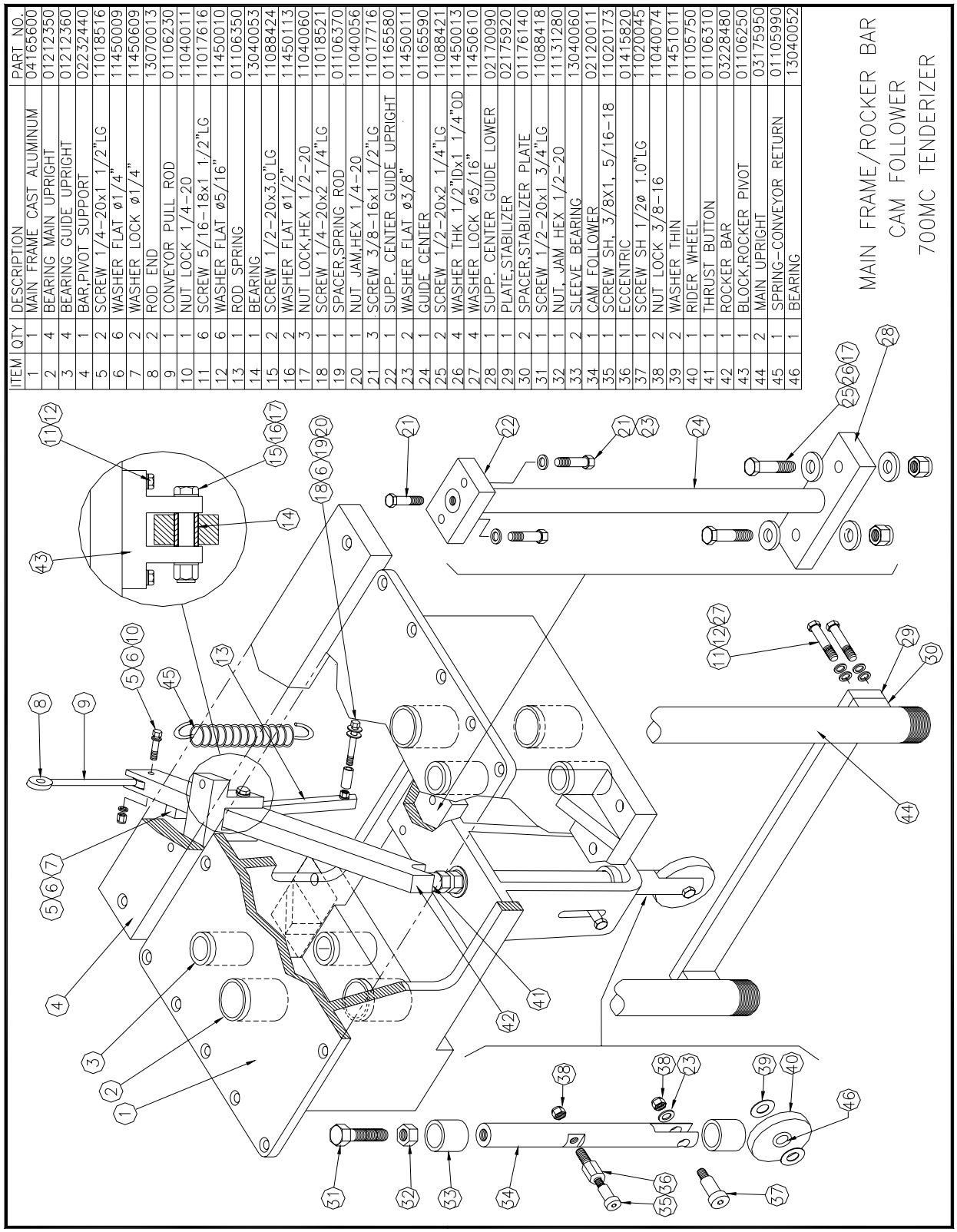
5.11 MAIN FRAME/ROCKER BAR CAM FOLLOWER



ITEM	QTY	DESCRIPTION	PART NO.
1	1	MAIN FRAME CAST ALUMINUM	04165600
2	4	BEARING MAIN UPRIGHT	01212350
3	4	BEARING GUIDE UPRIGHT	01212360
4	1	BAR,PIVOT SUPPORT	02232440
5	2	SCREW 1/4-20x1 1/2"LG	11018516
6	6	WASHER FLAT ø1/4"	11450009
7	2	WASHER LOCK ø1/4"	11450609
8	2	ROD END	13070013
9	1	CONVEYOR PULL ROD	01106230
10	1	NUT LOCK 1/4-20	11040011
11	6	SCREW 5/16-18x1 1/2"LG	11017616
12	6	WASHER FLAT ø5/16"	11450010
13	1	ROD SPRING	01106350
14	1	BEARING	13040053
15	2	SCREW 1/2-20x3.0"LG	11088424
16	2	WASHER FLAT ø1/2"	11450113
17	3	NUT LOCK,HEX 1/2-20	11040060
18	1	SCREW 1/4-20x2 1/4"LG	11018521
19	1	SPACER,SPRING ROD	01106370
20	1	NUT JAM,HEX 1/4-20	11040056
21	3	SCREW 3/8-16x1 1/2"LG	11017716
22	1	SUPP. CENTER GUIDE UPRIGHT	01165580
23	2	WASHER FLAT ø3/8"	11450011
24	1	GUIDE CENTER	01165590
25	2	SCREW 1/2-20x2 1/4"LG	11088421
26	4	WASHER THK 1/2"IDx1 1/4"OD	11450013
27	4	WASHER LOCK ø5/16"	11450610
28	1	SUPP. CENTER GUIDE LOWER	02170090
29	1	PLATE,STABILIZER	02175920
30	2	SPACER,STABILIZER PLATE	01176140
31	1	SCREW 1/2-20x1 3/4"LG	11088418
32	1	NUT, JAM HEX 1/2-20	11131280
33	2	SLEEVE BEARING	13040060
34	1	CAM FOLLOWER	02120011
35	1	SCREW SH, 3/8X1, 5/16-18	11020173
36	1	ECCENTRIC	01415820
37	1	SCREW SH 1/2ø 1.0"LG	11020045
38	2	NUT LOCK 3/8-16	11040074
39	2	WASHER THIN	11451011
40	1	RIDER WHEEL	01105750
41	1	THRUST BUTTON	01106310
42	1	ROCKER BAR	03228480
43	1	BLOCK,ROCKER PIVOT	01106250
44	2	MAIN UPRIGHT	03175950
45	1	SPRING-CONVEYOR RETURN	01105990
46	1	BEARING	13040052

6 OPERATION

6.1 MACHINE OPERATION

NOTE: The 700MC Tenderizer will not operate unless the safety guard is closed.

Once the Tenderizer has been correctly installed and properly phased, the operation is extremely simple.

A. Connect the line cord to a suitable source of power.

B. Turn the Disconnect switch located near the center of the electrical access panel, to the ON position.

C. Pull out on the red "POWER" switch.

D. Select either the "STD" or "HIGH" position on the Head Adjust switch.
This switch selects the range of product thickness that the tenderizer can accommodate. In the "STD" position, boneless cuts up to 7 1/2" thick or bone-in cuts up to 7" can be processed. The "HIGH" position allows cuts up to 9 1/2" to be processed, however in this position the blades only reach to 2" above the conveyor on their downward stroke requiring the product to be at least 4" thick and it is necessary to turn it over for a second pass through the tenderizer to provide complete tenderization. **NOTE** – Changing the position of this switch while the main and head adjusting motors are operating may cause the main motor to turn off. You should wait for the head adjusting motor to reach its destination and stop before changing the switch position.

E. Place the meat centrally on the conveyor.
CAUTION: ATTEMPTING TO PROCESS MEAT THICKER THAN MACHINE CAPACITY OR FORCING MEAT UNDER THE HEAD WILL SERIOUSLY DAMAGE THE MACHINE.
NEVER CHANGE THE HEAD ADJUST SWITCH FROM THE "HIGH" TO THE "LOW" POSITION WHILE PROCESSING PRODUCT THAT IS OVER 7 1/2" HIGH OR WHILE SUCH PRODUCT IS IN THE MACHINE.

F. Press the green "START" button. The tenderizer will start and continue to operate until stopped by pushing in on the "POWER" switch.

G. Meat less than one and one half inches thick may not be held in place properly by the guide frame. Better and more rapid tenderizing will be obtained if such thin cuts are stacked to near machine capacity.

H. It is desirable to keep the conveyor belt filled with meat without any gaps between cuts. Not only does this maximize production, but it also assures that the meat moves intimately with the conveyor and avoids the possibility of over-processing as a result of slippage.

I. To stop machine, push in the red knob on the "POWER" switch. The machine can also be stopped by turning the disconnect switch to the OFF position or by opening a guard. The tenderizer will NOT restart with either of these returned to their operating condition, the "START" switch must be pressed.

6.2 CLEANING AND BLADE REPLACEMENT

The Tenderizer should be cleaned DAILY with a mild detergent and hot water or steam. The machine is fully sealed and may be liberally flushed without fear of damage. Approved detergents (between 4.5 pH and 10 pH) used in proper concentrations will not damage the finish even though allowed to remain for prolonged periods. However, immediate clean water or steam rinsing is recommended. **DO NOT USE CAUSTIC CLEANING SOLUTIONS** since these may damage the magnetic head plates and seals. The following is the necessary DAILY cleaning procedure:

1. Stop the machine near the top of the stroke.

2. Turn off the disconnect switch or disconnect power cord.

3. Flush the entire machine with clean hot water or steam concentrating on the blade assembly.

4. Remove the Blade Assemblies:

- Remove the detent pins and remove the lower outer guide bars first.
- While holding the blade assembly in place, loosen the detent pins and remove the upper outer guide bars.
- Slide the blade assembly out. HOLD BY RETAINING RODS OR TOP ONLY. NEVER PLACE HANDS UNDER THE HEAD ASSEMBLY.
- Remove the two acorn nuts on top of the reset plate using a 1 1/8" wrench.

5. The blade assembly can now be taken to a separate cleaning station and immersed in a mild detergent solution (100% immersed.) The use of a plastic tub is recommended so as not to damage the sharp edge of the blades.

DO NOT SET BLADE ASSEMBLY (WITH BLADE TIPS DOWN) ON ANY METAL SURFACE.

The following is the recommended cleaning process:

A. Soak blade assembly for a minimum of 15 minutes with a mild hand agitation every 5 minutes. **USE CAUTION WHEN HANDLING THE SHARP BLADE TIPS!**
B. After soaking, clean the blade assembly with a brush paying attention to the top of the blades, magnetic head plates and lower blade guides.
C. Rinse blade assembly with clean hot water or steam.
D. Visually inspect blade assembly paying attention to areas where the blades move through the magnetic head plates, guides and tops of blades. If any contamination is found, repeat the above steps.
E. Sanitize blade assembly (maximum time in sanitizer 5 minutes).
F. Blow dry blade assembly.

6. Oil blade assembly with Ross 601 white mineral oil (or equivalent) paying particular attention to the tops of the blades and magnetic head plates. While the blade assemblies are out, the entire machine can now be cleaned with detergent, or steam and a bristle brush.

SPECIAL ATTENTION SHOULD BE GIVEN TO THE UNDERSIDE OF THE GUIDE FRAME.

7 The machine's belt can be manually moved without the blade assemblies in place to allow for the cleaning of the belt with a spray of soap and water. Inspect conveyor belt for damaged sections and replace as required.

8. Reinstall the blade assemblies by sliding the head plate into position on the head frame making sure that the rib on the magnetic head carrier is positioned in the corresponding slot on the head frame.

9. Install the upper outer guide bar ('top' marked on bar – slot goes down)

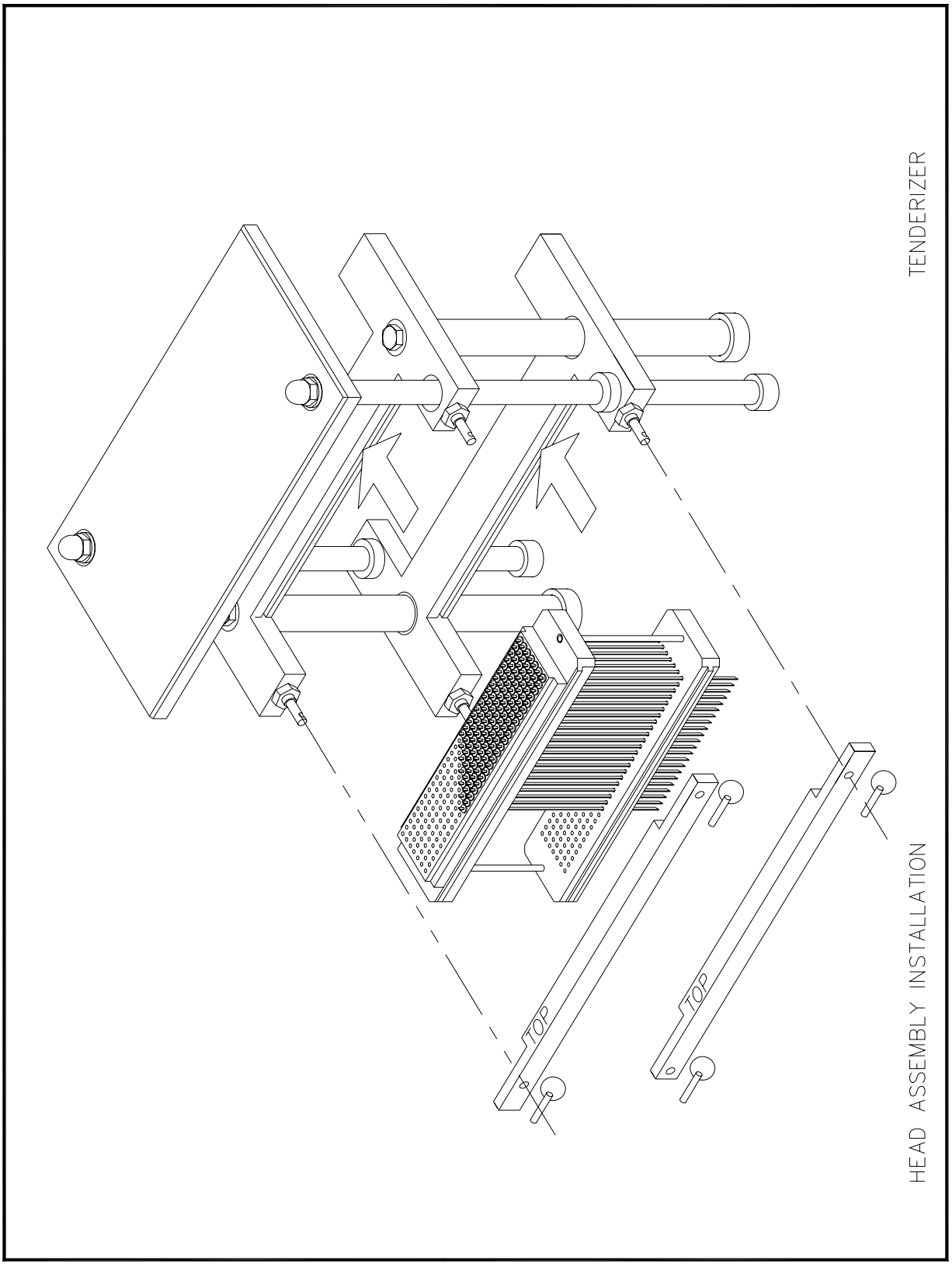
10. Then slide the lower blade guide into position on the guide frame and install the lower outer guide bar. To accomplish this sometimes it is necessary to slightly lift the lower blade guide **USE CAUTION NOT TO PUSH HANDS INTO THE BLADES AT THE BOTTOM OF THE LOWER BLADE GUIDES.**

11. Check that the installed head assembly moves freely in its installed position. It should slide within the slots on the guide bar and head/guide frames.

12. Reinstall the Reset Plate and fasten with the original acorn nuts and washers. Tighten to a torque of 50 ft lbs.

13. **After every cleaning, spray the blade assemblies, tops of the blades, main uprights and guide uprights with ROSS 601 white mineral oil (or equivalent).**

6.3 HEAD ASSEMBLY INSTALLATION



7 MAINTENANCE

7.1 INSPECTION

NATURE AND FREQUENCY

Inspect for and replace bent blades daily. See “cleaning and blade replacement”, page 6-2.

Run height control adjustment up and down twice a week to keep running free.

7.2 LUBRICATION

DAILY OR AFTER EVERY CLEANING

The magnetic head plates, tops of the blades, blade assemblies, main uprights and guide uprights should be sprayed with Ross 601 white mineral (or equivalent).

EVERY 200 HOURS OR ONCE EVERY MONTH

◆ CRUSHING HAZARD ◆
TAG OUT, LOCK-OUT POWER. ROTATION OF DRIVE COMPONENTS WHILE INSIDE TENDERIZER COULD BE FATAL

◆ CRUSHING HAZARD ◆
INSPECT MAIN RETURN SPRINGS FOR CONDITION AND PROPER ATTACHMENT. WITHOUT MAIN RETURN SPRINGS IN PLACE, THERE IS A DANGER OF THE DRIVE MECHANISM MOVING ON ITS OWN WEIGHT WHEN THE MACHINE IS STOPPED WITH THE HEAD IN THE UP POSITION.

The cam plate and cam roller should be lubricated with a high quality, water-resistant grease, such as Chevron SR1 Grease - 2.

NOTE:
The two grease fittings on the cam plate for the Dual Height Range Option Kit must be lubricated every month. One or two pumps from a grease gun containing Chevron SR1-2 or equivalent should be sufficient.

The cover panel on the conveyor box should be removed and the cam drive wheel should be lubricated with Chevron SR1-2 (or equivalent).

EVERY SIX MONTHS OR 500 HOURS OR OPERATION

The side panel should be removed and all moving parts, except the cam plate assembly, should be sprayed with Ross 601 oil.

ONCE A YEAR

The oil level in the transmission should be checked. To check oil level, remove the oil level plug on the far side of the transmission from the main side door.

To add oil, remove the plug on the top of the transmission and fill with USP extra-heavy white mineral oil (Ross Oil No. 15040014, or Exxon Primol 355, or equivalent) until oil level is even with the oil level plug. Replace the plug on the top and the side of the transmission.

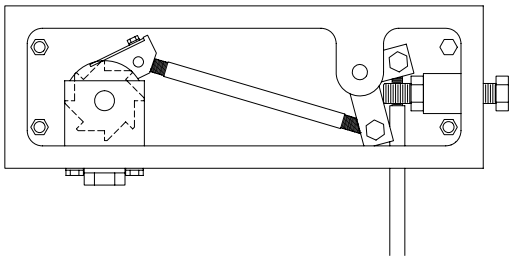
To drain the oil a drain tube may be used from the drain plug on the side of the transmission and placed through the drainage hole nearby in the bottom of the tenderizer cabinet.

7.3 ADJUSTMENTS/SPECIFIC REPAIRS

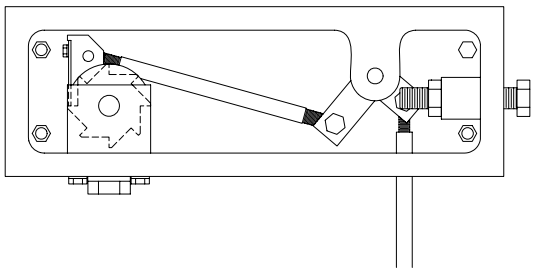
Conveyor link belt may stretch after use. Do no allow conveyor chain to drag on the tenderizer cabinet. To tighten belt use adjuster screws item number 33 shown on page 5-5 of this Instruction handbook. If there is still too much slack, remove one of the belt links.

Do not allow the chain drive for the height adjusting mechanism to become too loose. If the chain gets loose enough to skip a tooth on the sprocket, a complete readjustment of the height mechanism would be necessary. See “Head Height Adjustment” on next page.

7.3.1 CONVEYOR BOX



This is how the conveyor box should appear when the conveyor is at rest and not advancing. The ***index arm*** and ***pawl*** has pivoted back almost far enough to drop behind a ***second*** tooth. The pull rod (see page 5-11), shown going though the bottom of the box, is being pushed up by the conveyor return spring located inside of the cabinet, and the ***bell crank*** is resting against the ***bell crank stop bolt.*** See figure on page 5-4.



When the conveyor is fully advanced the ***index arm*** is pointing almost straight down.

When set as shown, the conveyor should advance correctly when loaded with product. See the troubleshooting section for problems concerning the conveyor drive system.

7.3.2 HEAD HEIGHT ADJUSTMENT
(blade-to-belt clearance)

The blade to conveyor clearance has been set at the factory and should not change as a result of normal use. Although unlikely to occur, there are several reasons why this mechanism may need to be checked or adjusted:

- If the blades are coming in contact with the conveyor tray or belt. **NOTE:** It is normal for the blades to just touch the knuckle part of the conveyor belt. Some "float" is inherent to the blade design, so that the blade will push up .030 to .060 inches ,(.8 to 1.5 mm), before applying pressure on the blade point.

- If the blades are not coming close enough to the conveyor belt in the standard position.

- If the blade height adjustment mechanism has to be repaired, or if the adjustment chain slips, (this will normally bind up the high low mechanism).

To check for proper head height the following step must be followed:

The diagrams referred to below in parenthesis are located in the **MACHINE INFORMATION** section of this Information Handbook.

- Set HEAD ADJUST to the STD (standard) position

- Jog (stop and start) machine until head is stopped as close as possible to the down position

- Disconnect power to machine

- Remove the main side cover

- Use a 9/16 inch wrench or socket on the nut welded to the back of the gear box drive motor. Turn the electric motor until the ***cam roller*** (p5-7, item 9), is located directly below the gear box output shaft.

The height of the head frame is controlled by the adjustment of the ***roller switches,*** (p5-10, item 29). They are mounted on a ***switch bracket,*** (p5-10, item 36). By slightly loosening the two securing screws, (p5-10, item 16), the whole bracket can be carefully shifted in the direction of desired adjustment. **DO NOT OVER-RUN ROLLER SWITCH BY FORCING BRACKET IN THE DIRECTION OF A ROLLER SWITCH BEING CONTACTED.** The best way to adjust the switch(es) is given here by the following example.

◆**EXAMPLE -** The head is in the standard position and stopped all the way at the bottom of the stroke as detailed above. The blades are too low. Turn the HEIGHT ADJUST switch to the HIGH position while watching the blade to belt clearance carefully. When the blades show the proper clearance to the belt, push in the EMERGENCY STOP button. Disconnect the power and remove the main side door to the cabinet. Slightly loosen the ***switch bracket*** securing bolts and gently pry the ***switch bracket*** in the direction of the closest ***roller switch***. Listen closely for the switch to close. Tighten the bolts and replace the side door. Turn on the machine and allow the head to be raised by the height control motor enough to be sure the ***guide raiser*** (p5-10, item 18, actuates roller switches) has cleared the switch. Change the

switch to the STD setting and observe blade to belt clearance when the head stops its' travel. Re-adjust if necessary.◆

The adjustable ***main upright(s)*** (p5-11, item 44) should never thread too far into the ***elevator nut(s)*** (p5-8, item 7). There should always be 2 to 4 threads showing in the STD position.

◆ CRUSHING HAZARD ◆
TAG OUT, LOCK-OUT POWER. ROTATION OF DRIVE COMPONENTS WHILE INSIDE TENDERIZER COULD BE FATAL

◆ CRUSHING HAZARD ◆
INSPECT MAIN RETURN SPRINGS FOR CONDITION AND PROPER ATTACHMENT. WITHOUT MAIN RETURN SPRINGS IN PLACE, THERE IS DANGER OF THE DRIVE MECHANISM MOVING FROM ITS OWN WEIGHT WITH THE MACHINE STOPPED WITH THE HEAD IN THE UP POSITION.

7.3.3 HEIGHT ADJUST CAM MECHANISM

The cam assembly is shown on page 5-8. Under normal conditions the DC amperage draw during the function of the high low motor should not exceed the 1.5 amps shown on the motor nameplate. This is checked on every tenderizer from the factory with amperage ranges normally between .7 to 1.25 amps. The following conditions will effect this function:

1. If one ***main upright*** is set higher that the other, the high low mechanism will be overworked and will eventually fail. This will only happen if the chain has slipped on one of the ***lift sprockets*** . To check for level of the ***main uprights***, remove the head frame and check across the tops of the ***main uprights*** with a straight edge. Disconnect the chain and turn one of the ***lift sprockets*** to even ***main uprights***. Reconnect chain and tension.

2. If the high low mechanism is not used on a regular basis, the grease will harden and increase turning resistance.

3. If the chain is adjusted too tight extra effort will be required to turn the mechanism

4. The ***main uprights*** must not be allowed to thread too far into the ***elevator nuts.***

Always make sure that the ***main return springs*** (p5-9, item 3, p5-10, item 27) are in good condition and firmly attached to their mounts.

7.3.4 RESET PAD/PLATE CLEARANCE

These soft reset pads push the blade assemblies which have been released from their ***magnet carrier,*** (p5-3, item 1), to within the magnetic forces of the ***magnet carrier***. They then will be pulled into place by these magnetic forces. If clearance does not exist and the soft reset pads where to be pressed against the end of the blades, eventually the reset pad will be destroyed. Once perforated or torn, the reset pad becomes a place for bacteria and can even damage blade assemblies with this extra force.

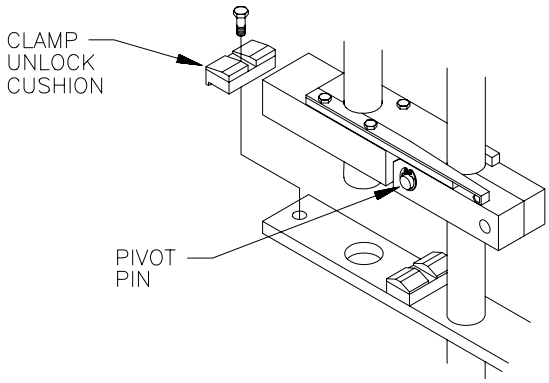
After the head height has been set correctly, the clearance between the tops of the ***blade assemblies,*** (p5-3, item 6), and the ***reset pad,*** (p5-2, item 2), should be checked. To do this, run the head assembly to the top of the stroke. Open the ***pivoting guard,*** (p5-1, item 1), and look for a space between the blade assembles tops and the bottom of the reset pad. Hold onto each ***retainer bar,*** (p5-3, item 3), in turn and try to move the head assembly ***magnet carrier*** within its' mounting slot. The head should move around easily without the blade assemblies touching the ***reset pad.*** There should be no greater clearance than approximately .06 inches, (1.5 mm), between the tops of the blades and the reset pads.

To correct clearance add or delete shim washers between the top of the ***reset plate studs,*** (p5-2, item 16) and the reset plate. Shim washer numbers are:

- 11451009 ..... Washer, flat 3/4 id x .032 thk
- 11450116 ..... Washer, flat 3/4 id x .092 thk

There may already be washers on top of the reset posts to adjust the height of the reset plate. The 700M is carefully adjusted at the factory. If, for any reason, the reset plate, head frame or guide frame is removed from the machine, be sure to keep track where each shim washer goes. During reassemble, make sure that the washers go back in exactly the same position.

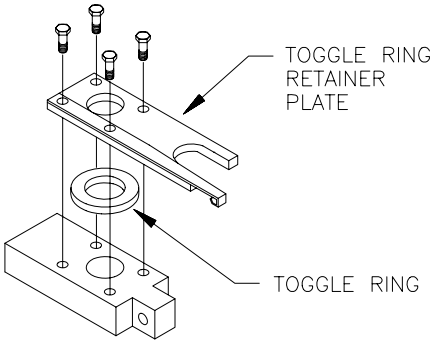
7.3.5 TOGGLE RING REPLACEMENT

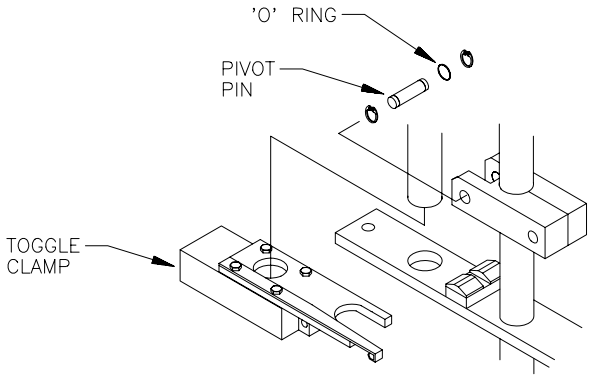


A. Disconnect the machine power cord. Remove the side cover panel.
B. Rotate motor coupling (in direction of arrow) until head assembly is in full down position.
C. Remove unlock cushion
D. Remove pivot pin, turn toggle clamp and remove from shaft
E. Remove toggle ring retainer plate and toggle ring
F. Install new toggle ring; replace toggle ring retainer plate.

NOTE - Always install new toggle rings on both sides.

G. Replace toggle clamp. Install pivot pin
Make sure snap rings are in position





H. Check the snap ring position on the guide uprights. There should be one snap ring above and one below the clamp pivot, the snap rings go in the lower two grooves on the guide uprights

I. Replace unlock cushion
J. Make sure that the guide raisers (page 5-10, item 18), on the main uprights, are seated all the way down on the stabilizer bars and spacers (page 5-11, items 29,30)
K. Make sure toggle assembly is centered on toggle rod.
L. Check mechanism for free movement. Toggle assembly should pivot up and down approximately 1/8".
M. Turn motor coupling (in direction of arrow) so machine makes two complete cycles. Check for proper clamp and guide operation throughout cycle.

8 TROUBLESHOOTING

TROUBLESHOOTING CHART

TC700MC
TENDERIZER

TROUBLE	CAUSE	REMEDY
1) Machine plugged in, guards closed, main power switch pulled out, nothing happens when START button is pressed	No incoming power	Check by measuring voltage at power socket, measure from phase to phase to phase – NOT to ground.
	Power cord or plug faulty	Disassemble plug cap and check connections or open electrical compartment and measure voltage from terminals 1 to 2 to 3, do NOT measure from either terminal to ground.
	Safety guard switches not operating	With the electrical panel attached to the front of the machine with the plate hook, temporarily connect terminal 7 of relay K2 to ground. Turn the machine on and press the START button. If it starts, then one or both of the guard switches were not operating. Remove the temporary connection and open the main access panel. Disconnect one guard switch at a time and connect together the ends of the wires to which the guard switch had been connected. Attempt to start the machine; if it operates, the guard switch just removed was faulty. Check to see if the guard had been bent—forcing the magnet out of the correct position. Replace the Reed Switch if required.
	Fuse, F5 blown	Check the fuse or replace with a known good one.

TROUBLESHOOTING CHART

TC700MC
TENDERIZER

TROUBLE	CAUSE	REMEDY
1) (cont.) Machine plugged in, guards closed, main power switch pulled out, nothing happens when START button is pressed	Transformer, T1 faulty or connected wrong	Check by measuring the voltage between terminals X1 and X3 of the Transformer, this should be 120 VAC.
	Power switch S1 faulty	Check by measuring the voltage between the left terminal of the switch and ground, this should be 120 VAC with the switch pulled on.
	START switch S2 faulty	Check by measuring the voltage between the right terminal of the START switch and ground with the power switch pulled on and the START switch pressed, this should be 120 VAC.
	Relay K2 faulty	Check by measuring voltage between terminals 2 and 7 of the relay while attempting to start the machine, this should be 120 VAC.
2) Machine plugged in, guards closed, main power switch pulled out, only a small click is heard when the START switch is pressed. (Relay is operating).	Incoming power out of phase Phase Monitor faulty	Exchange gray and black wires in plug cap. Replace phase sensor with a known good unit or temporarily bypass by connecting together the leads that are on terminals1 and 8 of the phase monitor.
	Relay contacts faulty	Although the relay is pulling in, its contacts may be faulty, check by measuring the voltage between terminal 6 of the relay and ground. This should be 120 VAC when the relay is energized.

TROUBLESHOOTING CHART

TC700MC
TENDERIZER

TROUBLE	CAUSE	REMEDY
2) (cont.) Machine plugged in, guards closed, main power switch pulled out, only a small click is heard when the START switch is pressed. (Relay is operating).	Motor starter coil faulty (open)	Check by measuring the voltage across the two coil terminals of the starter after turning the machine on and pressing the START switch. This should be 120 VAC. If the voltage is present and the starter does not pull in, the coil is faulty.
	Overload switch in starter open	Overload tripped, press reset button on starter. Tenderizers are normally shipped with the starters set up for automatic reset so if the motor is subjected t overload, it would not be necessary to manually reset the starter.
	Overload switch in starter faulty	Check by measuring the voltage from the NC terminal on the starter to ground, this should be 0 volts; if not, the overload section of the starter should be replaced.
3) Machine plugged in, guards closed, main power switch pulled out, a large click or thump is heard when pressing the START switch but the machine does not start. (Motor starter is pulled in). Motor may hum and draw excessive line current.	One or more heaters in motor starter burned out	Check by measuring the voltage from terminals T1 to T2, T2 to T3, and T1 to T3; all should be equal and the same as the line voltage.
	Motor faulty or poor connections in motor box	Check connections in motor box and replace motor as required.
4) Motor operates when START switch pressed, but machine does not run.	Coupling or key between motor and transmission faulty	Check visually and replace as required.
	Transmission faulty	Check by noting rotation of input and output shafts on transmission.

TROUBLESHOOTING CHART

TC700MC
TENDERIZER

TROUBLE	CAUSE	REMEDY
5) Machine runs but makes a loud banging noise at bottom of each stroke. Guide frame may be hitting side of conveyor.	Guide stop worn or broken	Inspect and replace as required.
6) Machine runs but makes a loud banging noise on the up stroke. Severe vibration. Excessive blade bending. *NOTE: Damage to toggle assemblies and blade will occur if meat to thick for machine capacity is processed.*	Toggle not unlocking properly	Check toggle and guide raiser assemblies. Toggle clamp should pivot freely on the clamp pivot, and both assemblies should be centered on the uprights and toggle rod. Inspect for any signs of wear or damage to the toggle and guide raiser assemblies. Check condition of unlock cushions. Replace any worn or damaged parts. Both toggles must unlock at the same time. Check position of snap-rings on main and guide uprights. (See section 7.3 for proper position). *NOTE: Severe vibration may loosen fastenings throughout machine. Check <u>all</u> nuts and bolts for tightness.*
	Toggle ring broken	Replace toggle ring. (See p 7-5).
7) Machine runs, but constant vibration on up and down strokes. Uprights may heat up or be scored.	Bearings and/or uprights worn	Inspect and replace bearings and uprights as required.

ROSS

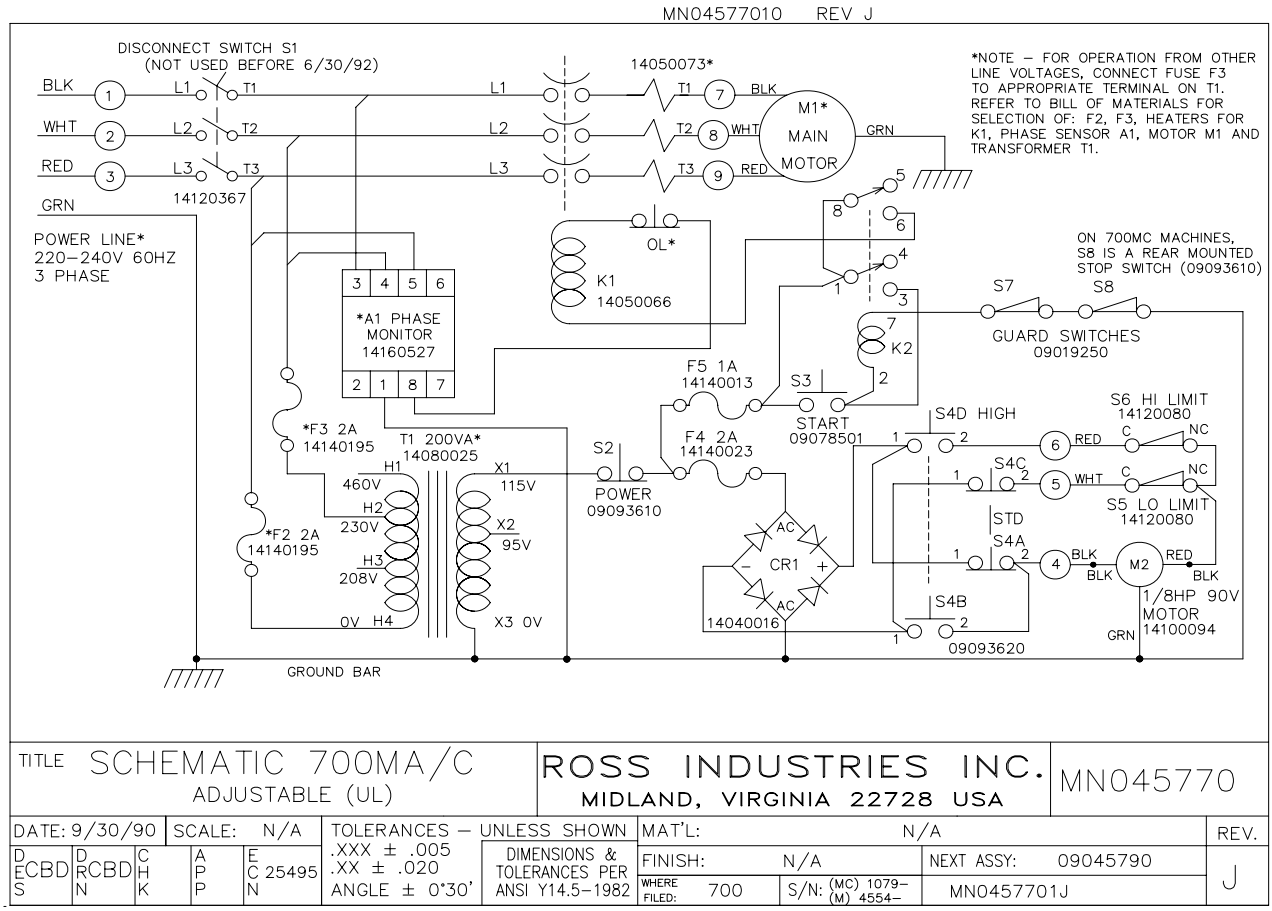
TROUBLESHOOTING CHART

TROUBLE	CAUSE	REMEDY
8) Machine runs, but conveyor does not advance, or advances irregularly.	Cam follower out of adjustment	Remove side panel from the cabinet and remove the conveyor box cover panel. Rotate the conveyor drive shaft assembly until it is at the extreme end of its lateral movement (either way is OK). Loosen the lock nut on top of cam follower (located in the center of the main frame). Rotate the motor manually until the cam plate is at the top of its stroke. Adjust the screw at the top of the cam follower so that the index pawl in the conveyor box just contacts a tooth on the index wheel. Tighten the lock nut on the top of the cam follower.
	Index pawl broken	Replace as required.
	Rocker bar spring broken	Replace as required.
	Pin holding index wheel to drive shaft broken	Replace as required.
9) Conveyor advances further than normal.	Belt too loose.	Tighten belt tensioning screws until overshoot stops. Tighten both screws the same amount. DO NOT OVER TIGHTEN. If necessary, remove a link from the conveyor chain.
10) Conveyor belt jumps off of drive shaft	Belt too loose	Tighten belt tensioning screws until overshoot stops. Tighten both screws the same amount. DO NOT OVER TIGHTEN. If necessary, remove a link from the conveyor chain.

TROUBLESHOOTING CHART

TROUBLE	CAUSE	REMEDY
11) Excessive blade bending. See Section **6**	Operator not removing bent blades promptly	Train operator on the proper cleaning and maintenance of machine. Blade assemblies must be removed for daily cleaning and any BENT OR DAMAGED BLADES REMOVED. See Maintenance Section.
	Reset pads worn	Replace as required.
12) Meat lifts off of conveyor	Meat too thin to be held down by guide frame	Stack thin cuts of meat so they will be held down by the guide frame. See Operating Procedures Section.

9 WIRING/SCHEMATIC



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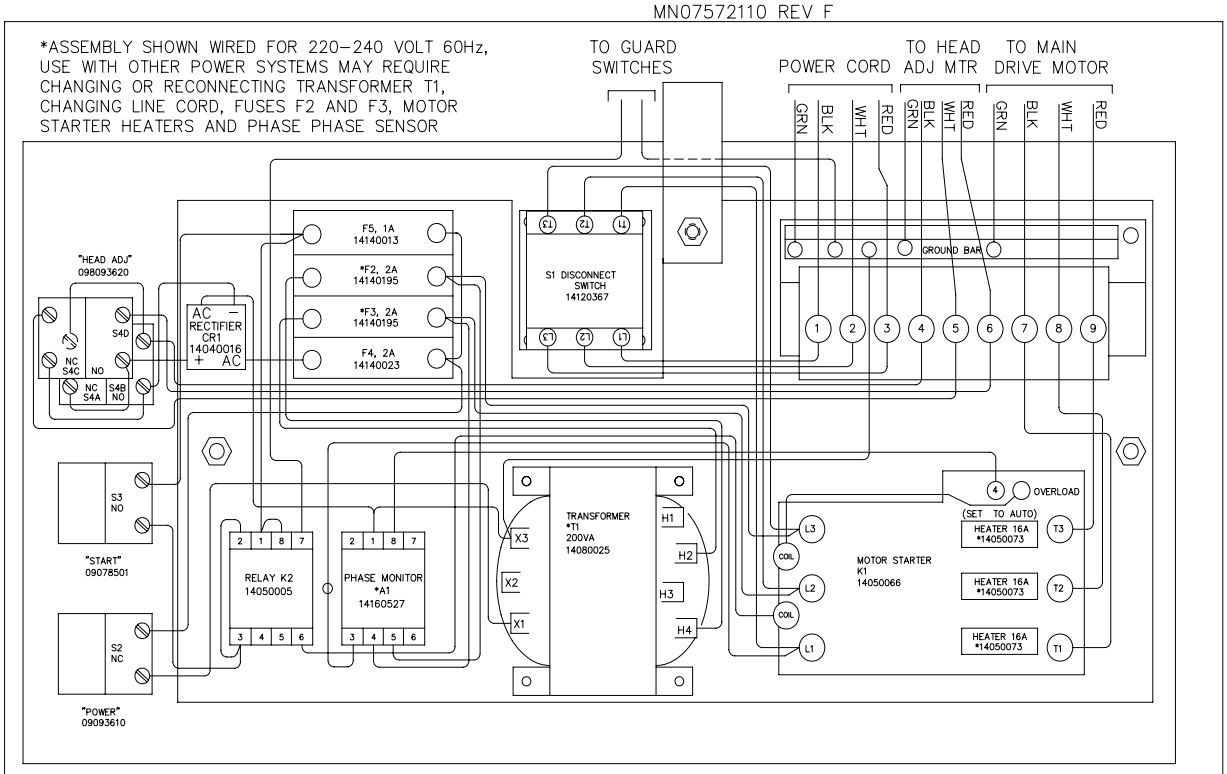
							WHERE FILED: 700	S/N: (MC) 1079– (M) 4554–	MN0457701J

MN07572110 REV F



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						WHERE FILED: 700	S/N: 4554-1079-	MN0757211F	