

Parts List and

MODEL

1220G-72D

Special Purpose Bandsaw
Built better to work stronger and last longer

Operating & Maintenance Manual



Rev 170816



Wellsaw®
Made In The USA

Quality Metal Cutting Bandsaws

2829 N. Burdick St. Kalamazoo, MI 49004

Phone: 269-345-1132 Fax: 269-345-0095

www.wellsaw.com

ONE YEAR LIMITED WARRANTY

This WELLSAW is warranted against defects in material or workmanship installed or performed at the factory. Within one year from date of purchase, we will free of charge and at our option, either repair or replace any part of this WELLSAW which our examination discloses to be defective because of workmanship or a defect in the material. This warranty does not apply if this WELLSAW has been used in a manner not consistent with its' design or which has been subject to accident, alteration, abuse or misuse or which fails due to lack of care or is the result of inadequate power supply and specifically does not apply to normal wear parts. THERE ARE NO WARRANTIES WHICH EXTEND BEYOND THE DESCRIPTION OF THE FACE HEREOF.

WELLSAW shall not be liable for consequential or incidental damages suffered or incurred with respect to defective materials or workmanship.

We do not authorize any person or representative to make any other warranty or to assume for us any liability in connection with the sale of our products other than those contained herein. Any agreements outside of or contradictory to the foregoing shall be void and of no effect.

All transportation costs on products or parts submitted to WELLSAW under this warranty must be paid by the user. No products or parts are to be returned without first obtaining permission.

RECEIVING AND INSTALLATION

Un-crating

Carefully remove the protective crating or shrink wrap and skid so the saw and its parts are not marred or otherwise damaged. In the event of damage in transit, notify the carrier and file a Proof of Loss Claim immediately.

Shortages

Inspect the complete shipment carefully against the itemized packing list. Make sure that all items are present and in good condition. In the event of any shortage, notify the distributor from whom you purchased the saw and the carrier who made the final delivery.

Utility Hook-Up

The use of a qualified electrician is always recommended when connecting the saw to the main power supply. Electrical codes differ from area to area and it is the customer's responsibility to ensure that their saw complies with applicable codes. Your WELLSAW is pre-wired at the factory for a specified voltage. Always check the motor and electrical panel to ensure that they are both wired to correspond to your electrical power supply.

PARTS ORDERING

When contacting your WELLSAW Supplier or the Company for parts or service, it is essential that you have your MODEL NUMBER, SERIAL NUMBER and PURCHASE DATE available. Jot them down here for handy reference.

MODEL: _____

SERIAL NUMBER: _____

PURCHASE DATE: _____

Safety Instructions

⚠ WARNING



⚠ DANGER



⚠ CAUTION



1. Always wear protective eye wear when operating machinery. Eye wear shall be impact resistant, protective safety glasses with side shields which comply with ANSI Z87.1 specifications. Use of eye wear which does not comply with ANSI Z87.1 specifications could result in severe injury from breakage of eye protection.
2. Keep hands in sight and clear of all moving parts and cutting surfaces.
3. Wear proper apparel. No loose clothing or jewelry which can be caught in moving parts. Rubber soled footwear is recommended for best footing.
4. Do not overreach. Failure to maintain proper working position can cause you to fall into the machine or cause your clothing to get caught - pulling you into the machine.
5. Keep guards in place and in proper working order. Do not operate the machine with guards removed.
6. Avoid dangerous working environments. Do not use stationary machine tools in wet or damp locations. Keep work areas clean and well lit. Special electrics should be used when working on flammable materials.
7. Avoid accidental starts by being sure the start switch is "OFF" before plugging in the machine.
8. Never leave the machine running while unattended. Machine shall be shut off whenever it is not in operation.
9. Disconnect electrical power before servicing. Whenever changing accessories or general maintenance is done on the machine, electrical power to the machine must be disconnected before work is done.
10. Maintain all machine tools with care. Follow all maintenance instructions for lubricating and the changing of accessories. No attempt shall be made to modify or have makeshift repairs done to the machine. This not only voids the warranty but also renders the machine unsafe.
11. Secure work. Use clamps or a vise to hold work when practical. It is safer than using your hands and it frees both hands to operate the machine.
12. Never brush away chips while the machine is in operation.
13. Keep work area clean. Cluttered areas invite accidents.
14. Remove adjusting keys and wrenches before turning the machine back on.
15. Use the right tool. Don't force a tool or attachment to do a job it was not designed for.
16. Use only recommended accessories and follow manufacturer's instructions pertaining to them.
17. All visitors should be kept at a safe distance from the work area. Make workshop completely safe by using padlocks, master switches, or by removing starter keys.
18. Know the tool you are using - its application, limitations, and potential hazards.
19. Some dust created by power sanding, sawing, grinding, drilling and other construction activities contains chemicals known to cause cancer, birth defects or other reproductive harm. Some examples of these chemicals are:
 - Lead from lead based paints
 - Crystalline silica from bricks and cement and other masonry products, and
 - Arsenic and chromium from chemically treated lumber.
20. Your risk from these exposures varies, depending on how often you do this type of work. To reduce your exposure to these chemicals: work in a well ventilated area, and work with approved safety equipment, such as dust masks that are specifically designed to filter out microscopic particles.

General Electrical Cautions

This saw should be grounded in accordance with the National Electrical Code and local codes and ordinances. This work should be done by a qualified electrician. The saw should be grounded to protect the user from electrical shock.

Wire Sizes

Caution: for circuits which are far away from the electrical service box, the wire size must be increased in order to deliver ample voltage to the motor. To minimize power losses and to prevent motor overheating and burnout, the use of wire sizes for branch circuits or electrical extension cords according to the following table is recommended:

Conductor Length	AWG (American Wire Gauge) Number	
	240 Volt lines	120 Volt lines
0-50 feet	No. 14	No. 14
50-100 feet	No. 14	No. 12
Over 100 feet	No. 12	No. 8

Safety Instructions

⚠ WARNING



⚠ DANGER



⚠ CAUTION



Misuse of this machine can cause serious injury.

For safety, this machine must be set up, used and properly serviced.

Read, understand and follow instructions in the Parts and Maintenance manual.

DISCONNECT POWER before adjusting or servicing the saw or changing a blade.

STAY CLEAR of all moving parts. Keep hands and fingers away from the saw blade.

WHEN MOVING SAW, with hinged frame (saw head), secure the head in its down position.

WHEN CUTTING MAGNESIUM, take special precautions. Use a sharp saw blade, make only dry cuts, prevent chip accumulation, and keep fire-fighting equipment nearby.

THIS SAW SHOULD BE GROUNDED WHILE IN USE TO PROTECT THE OPERATOR FROM ELECTRICAL SHOCK.

CORD CONNECTED TOOLS. If the saw is equipped with an approved 3-conductor cord and a 3-prong grounding type plug, it should only be connected to a properly equipped and grounded receptacle. The green conductor in the cord is the grounding wire. Never connect the green wire to a live terminal.

Use only a 3-wire extension cord having a 3-pronged receptacle, a 3-pronged plug and ample amperage rating. Replace or repair a damaged or worn cord immediately.

PERMANENTLY CONNECTED TOOLS. The saw should be connected to a grounded, metal-enclosed wiring system or an equipment-grounding conductor should be run with the circuit conductors and connected to the saw's grounding terminal or lead.

To reset the manual starter after a power interruption, return the switch to OFF and press the RESET button before restarting.

KEEP GUARDS IN PLACE and in working order.

REMOVE ADJUSTING KEYS AND WRENCHES. Form a habit. Check to see that all keys and wrenches are removed from the tool before turning the tool on.

KEEP WORK AREA CLEAN. Cluttered areas and benches invite accidents.

AVOID DANGEROUS ENVIRONMENT. Do not use power tools in damp or wet locations. Keep your work area well lighted.

KEEP CHILDREN AWAY. All visitors should be kept a safe distance from work area.

MAKE WORKSHOP KID-PROOF with padlocks, master switches, or by removing starter keys from tools.

DON'T FORCE TOOL. It will do the job better and safer at the rate

USE RIGHT TOOL. Don't use a tool or attachment to do a job for which it was not designed.

WEAR PROPER APPAREL. Don't wear loose clothing or jewelry, it could get caught in moving parts. Rubber-soled footwear is recommended for best footing.

USE SAFETY GLASSES. Also use face or dust mask if operation is dusty.

SECURE WORK. Use clamps or a vise to hold work. Provide adequate support to prevent injury from falling work pieces.

MACHINE SET UP

- Always avoid using machine in damp or poorly lighted work areas.
- Always be sure machine is securely anchored to the floor.
- Always keep machine guards in place.
- Always put start switch in "OFF" position before the machine is connected to a power source.

MACHINE USE

- Never operate with machine guards missing.
- Always wear safety glasses with side shields (See ANSI Z87.1)
- Never wear loose clothing or jewelry.
- Never overreach - you may slip into the machine.
- Never leave machine running while away from it.
- Always shut off the machine when not in use.

MACHINE SERVICING

- Always unplug machine from electrical power while servicing.
- Always follow instructions in Parts and Maintenance manual when changing accessory tools or blades or parts.
- Never modify the machine.

Read and follow these simple rules for best results and full benefits from your machine. Used properly, WELLSAW's machinery is among the best in design and safety. However, any machine used improperly can be rendered inefficient and unsafe. It is absolutely essential that those who use our products be properly trained in how to use them correctly. They should read and understand the Parts and Maintenance manual as well as all labels affixed to the machine. Failure in following all of these warnings can cause serious injury.

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Specifications

Model	72" Capacity
Capacity	78" H (1981 mm) 85" W (2159 mm) 33.75 Throat (857 mm)
Blade Size	1.5" x .050" x 31'-3"
Maximum Height Frame Full "Up"	166" (4216)
Floor Space Required	94" x 174.5" (2388 mm x 4432 mm)
Shipping Weight	5000 lbs (2273 kg)
Shipping Dimension	175" W x 118" H x 94" D (4445 x 2998 x 2388 mm)
Wet Cutting System	Unist
Motor	5 HP (3.73 KW)
Blade Speeds	80, 135, 210 SFPM; selection by stepped pulley
Drive System	Cone Drive

Parts Manual

Wellsaw Model 12 20-GD

Serial number _____

TROUBLE SHOOTING

NOTES ON SAWING

It is widely recognized that a proficient operator is a key to optimum bandsawing. He makes certain the machine is properly maintained and adjusted for dependable operation. He carefully sets up each cutting job to prevent damage to the machine and obtain the best performance from the equipment.

Experienced blade dealers can be very helpful in selecting the grade and proper tooth blade for each sawing job. All blades should be straight, have sharp teeth with uniform set, and be "broken in" at a reduced feed rate to obtain good cutting performance and blade life.

Every cutting situation has special characteristics requiring some experimentation to determine which blade, speed and feed rate will achieve the most satisfactory result. Cutting charts indicate a good starting point, but must be modified by direct experience if optimum performance is desired.

Here are some helpful pointers for adjusting speed and feed for cutting performance.

1. Make sure the saw is cutting a good chip from the workpiece.
2. Watch for blue chips or excessive "smoke" indicating heat in the cut which could damage the blade or work harden the material being cut.
3. Watch for excessive vibration or chatter marks on the cut-off piece indicating possible damage to the saw teeth by "hammering"
4. Check the cut-off for flatness. A dull blade or excessive feed will produce a "belly" in the cut.
5. Inspect the blade for worn, rounded or shiny cutting edges. avoid force cutting which allows chips to "weld" to saw teeth and eventually cause the teeth to be stripped off the blade.
6. When experimenting, start with a slow speed and feed rate. Gradually increase blade speed and then feed pressure by small amounts until adverse effects are noted. You can then set the speed and feed at a reasonable level for continuous cutting. Remember that blade speed and feed pressure must be balanced to keep cutting a good chip.

CUTTING TIPS

1. Select blade and speed for material being cut. Use the coarsest tooth blade suitable for the workpiece while providing for at least two teeth cutting at all times. Use fastest suitable band speed and minimum feed source adequate to produce good cutting action. Work with work-hardening steels, maintain a steady feed; do not let teeth rub without cutting.
2. Keep the blade guides as close as possible to the workpiece.
3. If teeth wear off unusually fast, use a slower band speed.

PREMATURE DULLING OF BLADE

1. Feed rate too high or low. Check recommendation.
2. Blade speed too slow or too fast.
3. Faulty material; heavy scale, hard spots, etc.
4. Verify material analysis
5. If coolant flow is not covering saw teeth, increase coolant flow rate.

6. If saw is vibrating in cut, reduce blade speed or increase feed rate.
7. Chipped or broken tooth may be lodged in cut.
8. "Chip welding" caused by improper feed and speed.
9. Incorrect coolant mixture.
10. Incorrect blade selection.
11. Improper break-in of new blade. New blades should be run initially with reduced feed pressure for approximately 50 to 100 square inches.
12. Saw blade teeth may be hitting blade guides. Check for proper blade size.

SAW BLADE VIBRATION

1. Incorrect blade speed for material.
2. Blade tension insufficient.
3. Back-up bearing (if present) may be worn.
4. Incorrect choice of saw tooth pitch.
5. Incorrect coolant mixture.
6. Incorrect feed setting. Increase feed.
7. Work piece not firmly clamped to vice.
8. Worn or improperly adjusted saw guides. Check and make necessary adjustments.

BLADE TEETH CHIPPING OR RIPPING OUT

1. Blade pitch too coarse. Use a fine pitch saw blade on thin work sections.
2. Improper break-in of new blade. Do not start a new blade in an old cut.
3. Work piece not held firmly enough. Clamp work securely.
4. Introduce cooling if it is not being used.
5. Faulty material; scale or hard spots.
6. Blade gullets may be loaded. Use higher viscosity lubricant or coolant.
7. Blade speed and feed may need adjustment.

PREMATURE BLADE BREAKAGE

1. If break is in the weld, poor weld in the blade.
2. Feed rate set too high. Reduce it.
3. Excessive blade speed. Adjust it.
4. Blade guides set too tight or misaligned.
5. Blade tension set too high.
6. Blade running against flange on wheels. Adjust wheel pitch.

BLADE SQUEAL

1. Feed rate too light for blade speed. Increase feed rate and/or reduce blade speed.

BLADE SLIPS OFF BAND WHEELS

1. Blade not tensioned correctly.
2. Wheel pitch not set properly.
3. Guides set too tight.

GULLETS OF BLADE TEETH LOADING

1. Blade pitch too fine. Review blade selection.
2. Incorrect blade speed. Consult cutting chart.
3. If not using coolant, apply it.

CHIPS WELDING TO BLADE TEETH

1. Cutting rate too high.
2. Chip brush may be out of adjustment.
3. Check coolant and application.

BLADE BECOMING SCORED

1. Saw guides may be worn. Check and replace if necessary.
2. Too much pressure on saw guides. Adjust.
3. Guides may be out of alignment.

BLADE MAKING BELLY-SHAPED CUT

1. Blade tension too light. Increase it.
2. Saw guides too far from work piece.
3. Blade pitch too fine. Use larger pitch and positive rake tooth form.
4. Feed force too heavy. Decrease it.
5. For models with blade micro switches, ensure that the switch is working properly.

INACCURATE CUT-OFF

1. Is conveyor or stock stand level with saw bed?
2. Insufficient blade tension.
3. Blade guides too far apart. Always set blade guides as close to the piece as possible.
4. Blade may be dull. Check and replace if necessary.

5. Feed pressure too high. Reduce it.
6. Blade guides loose, worn or out of alignment.
7. Too many teeth-per-inch. Blade not cutting freely.
8. Chip brush not cleaning teeth properly.
9. Dirty coolant.
10. Check for loose fasteners.

ROUGH CUT / POOR FINISH

1. Excessive feed rate. See recommendations.
2. Blade too coarse. Use finer blade pitch.
3. Inadequate cutting fluid. Replace.

BLADE STALLS IN WORK

1. Insufficient blade tension.
2. Excessive feed pressure.
3. Blade tooth spacing too coarse.
4. Motor worn or defective.
5. Guides too tight against blade.

BLADE DOES NOT TRACK PROPERLY

1. Set wheel pitch so that blade runs to wheel flange but not against it.
2. Is blade tension correct?
3. Is back of blade riding against backup bearing? If not, adjust it.

START UP

Upon receipt of machine, uncrate and check all parts. In case of loss or damage, file Proof of Loss Claim with carrier.

Remove rust preventive from vertical posts using mineral spirits. Coat with light oil.

CAUTION: Do not grease upright posts!

GENERAL INFORMATION

The cutting head, or frame of this machine is raised and lowered by the hydraulic unit in the base.

Working in conjunction with this assembly are the electrical units composed of the control cabinet, front mounted controls, limit switches, blade micro-switch, pump motor (1 HP), and blade drive motor (5 HP)

HYDRAULIC SYSTEM

1. PUMP - positive displacement, rotary type. Forces oil into lifting cylinders.
2. TANK - should contain 10 gallons of **Mobil DTE 25** Hydraulic Oil or equivalent
3. CYLINDER & PISTON - steel cylinder and piston with neoprene cup.
4. SOLENOID VALVE - regulates flow of oil through line as blade pressure increases and decreases, actuated by blade micro-switch.
5. NEEDLE VALVE - governs discharge of oil from cylinder as frame lowers.

ELECTRICAL SYSTEMS

1. LIMIT SWITCHES - Upper limit switch stops upward travel of cutting head at predetermined height set by trip collar. Lower limit switch stops blade motor at end of cut.
2. BLADE MICRO-SWITCH An automatic device is actuated by pressure on the blade and controls the solenoid valve to maintain constant downward blade force. It also activates an indicator light on top of the front mounted controls.
3. PUMP MOTOR - 1 HP
4. BLADE DRIVE MOTOR - 5 HP "V" belt drive to gear case. Standard speeds: 80 FPM, 135 FPM, 210 SFPM.
5. FRONT MOUNTED CONTROLS - push buttons for blade motor, feed, emergency stop.

OPERATING INSTRUCTIONS

1. Remove wheel covers and install blade. Be sure that teeth are pointing toward the drive end of the machine. This is the proper direction of blade travel through the cutting area.
2. Raise frame by pressing RAISE button which starts the hydraulic pump. When frame reaches a position so that the blade is about 1" above stock to be cut, push STOP button which will stop and hold the frame at this point.
3. Move upper set collar to desired height on control rod and lock in position with thumb screw.
4. Place stock in approximate cutting position. Press LOWER button to lower the frame. If more rapid traverse in lowering the frame is desired, this can be accomplished by turning the indicator head in a counter-clockwise direction. When blade is about 1/8" above stock, press LOWER stop button, stopping and holding the frame. Measuring from blade tooth, adjust stock to exact cutting position and secure stock.

5. With stock in proper position for cutting and clamped, push BLADE START button to start blade drive motor and then push LOWER button, which energizes blade micro-switch and solenoid valve circuit. The machine will then start its controlled cutting action. The blade will automatically stop when the frame reaches the lower limit switch.
6. When cutting begins, notice the action of the blade micro-switch located in casting above the blade on the idle end guide assembly.

In case of excessive feed, the tension of the spring is quickly overcome. The excessive pressure on the blade raises the stem linkage that operates the blade micro-switch which closes the solenoid valve. This stops the downward travel of the saw frame. As the cutting action of the blade removes material to relieve this excessive pressure, the micro-switch will function and open the solenoid valve for an instant until pressure again becomes excessive. This can be readily noticed by the operator due to the jumpy action of the saw frame exerting excessive pressure on the blade as the solenoid valve opens and closes.

Decrease feed at indicator head until cutting and feed are equalized. Insufficient feed is easily recognized as the blade will do very little cutting, if any, due to the lack of cutting pressure.

When correct feed is being employed, the blade will cut steadily and the micro-switch will function occasionally to open and close the solenoid valve. The amber light on the top of the front mounted control box indicates that the saw is feeding. When the solenoid valve closes, the light goes out.

After a correct feed has been established, the position of the indicator head should be noticed, and this location maintained while cutting similar size and type material. Always keep the indicator head WITHIN CUTTING LIMITS, as shown on dial, during actual cutting operations.

We call your attention to the adjusting knob on the blade micro-switch assembly. While it may be necessary at times to adjust the spring pressure when radically different materials are to be cut, for instance, from bar stock to thin wall tubing, the operator should not make a habit of changing it casually.

As the spring is compressed, more pressure must be exerted against the blade before the micro-switch functions. The micro-switch spring controls the pressure against the blade and considerable discretion should be used before making any change (**See Adjust Blade Micro-Switch, page XX**)

During the cutting cycle, when frame is in downward travel, all operations can be stopped immediately by pressing STOP or BLADE STOP buttons or EMERGENCY STOP button. When in upward travel, this can be accomplished by pressing the STOP button.

BLADE GUIDES

The blade guides are arranged to hold the blade in alignment both vertically and horizontally.

Before making any adjustments, always try a new blade to be sure that the old blade was not causing the difficulty (**See Blade Guide Alignment, page XX**).

BLADE BRUSHES

Brushes should be cleaned frequently in kerosene and reversed to take advantage of both rows of bristles.

For best results, replace worn, filled or sticky brushes with new ones. In bolting brushes to angles, **be sure wire bristles are bent in the same direction as the blade travels.**

BLADES

Blades for this machine are furnished in 2/3, 4/6, and 8/12 teeth per inch. 2/3 or 6/8 teeth per inch blades should be used when solid stock are being cut. 8/12 blade should be used for cutting tube bundles.

Special purpose blades are also available.

SPEED SELECTION

Saws are equipped with step pulleys, which provide a selection 80 FPM, 135 FPM and 210 FPM speeds.

Use the fast speed to cut thin-walled metal, tubing, thin channels, aluminum, thin brass, or any metal that will not burn the teeth. Use the medium speeds on general cutting, such as cold rolled, machine steels, heavy channels, etc. Use the slow speed for cutting nickel steels or any metals which require a slow speed on a lathe. Brass should always be cut with a blade which has not previously cut other metal.

If teeth wear off unusually fast, use slower speed. **ALWAYS KEEP THE BLADE TIGHT AND FLUSH AGAINST THE FLANGE OF THE BAND WHEELS (See wheel pitch adjustment instructions, page XX)**

BELT

Proper adjustment of the "V" belt is important to prevent overheating of the motor. Be sure the belt guard is closed after changing blade speeds.

PREVENTIVE MAINTENANCE

The proper performance and service life of every machine depends on how well it is maintained. The following should become a regular routine of operations.

Clean & Lubricate Exposed Surfaces

1. Wipe exposed surfaces free of dirty oil, chips and dirt.
2. Apply a thin coat of oil, **Symbol 2190TEP**, or equivalent to machined surfaces.

Inspect Gear Case Lubricant Every 6,000 hours

1. De-energize circuit. Tag "OUT OF SERVICE".
2. Remove gearcase cover.
3. Use **Texico Marfax 'O'** on the gears.
4. Remove excess lubricant.
5. Reinstall gearcase.
6. Remove safety tag. Energize circuit.

Inspect Hydraulic Oil Level

1. De-energize circuit. Tag "OUT OF SERVICE".

WARNING: CUTTING HEAD SHALL BE AT LOWEST EXTREMITY WHEN INSPECTING OIL LEVEL

2. Locate site gauge on the hydraulic tank.
3. Inspect oil level. Proper oil level is 1" from top of tank.
4. Remove safety tag. Energize circuit.

Clean Coolant Reservoir

1. De-energize circuit. Tag "OUT OF SERVICE".
2. Remove and clean chip pan.
3. Remove coolant.
4. Remove residue, sediment, and sludge from reservoir.
5. Clean coolant pump.
6. Reinstall chip pan.
7. Fill coolant reservoir to operating level.
8. Remove safety tag and energize circuit.
9. Return cooling systems to normal operation.

Inspect Flexible Hoses & Fittings

1. Inspect hoses for cracks, breaks and deterioration.
2. Inspect hoses for chafing or evidence of unusual wear.
3. Inspect fittings for tightness.

Inspect Drive Belt For Wear

1. De-energize circuit. Tag "OUT OF SERVICE".
2. Remove covers for access to belt.
3. Inspect belt for deterioration.
4. Depress belt half-way between pulleys. Belt should depress 1/2" to 3/4".

CAUTION: A BELT THAT IS TOO TIGHT WILL DAMAGE BEARINGS

5. Remove safety tag. Energize circuit.

Provide Hydraulic Oil Sample For Analysis

1. De-energize circuit. Tag "OUT OF SERVICE".

NOTE: CLEANLINESS OF TOOLS AND EQUIPMENT IS ESSENTIAL FOR PROVIDING TRUE SAMPLE

2. Operate machine 5-8 minutes to allow a true sample to be drawn after liquid is mixed; stop machine.
3. Fill sample bottle from hydraulic reservoir.
4. Tag sample bottle to identify equipment, and location.
5. Deliver to oil/water laboratory.
6. Renew hydraulic oil when one or more of the following limits is exceeded:
 - WATER: 0.001 %
 - SEDIMENT: 0.1 %
 - ACID TEST: Indicates Positive

Clean Oil Line Screen (**Part #100237-002**)

To clean hydraulic line oil screen, which is located at the base of the machine between the lifting cylinders. Lower frame to remove all pressure from hydraulic lines. The screen can then be removed and cleaned by unscrewing the hex nut.

Clean, Inspect & Lubricate Wheel Ball Bearing

1. De-energize circuit. Tag "OUT OF SERVICE".
2. Remove wheel covers.
3. Remove cutting blade.
4. Remove jamnut and hexnut.
5. Remove band Idler Wheel and Drive Wheel.
6. Remove ball bearing.
7. Clean ball bearing.
8. Clean Idler wheel and drive wheel hub.
9. Inspect ball bearing for rough turning and head discoloration.
10. Pack ball bearing with grease, **VV-G-632, Type B, Grade 2**.
11. Reinstall ball bearing.
12. Reinstall band idler wheel and drive wheel.
13. Reinstall hexnut and jamnut.
14. Repeat steps 4 through 13 for other wheel bearings.
15. Reinstall blade.
16. Reinstall wheel covers.
17. Remove safety tag. Energize circuit.

6. Move the lower limit collar until the switch moves enough to activate the switch. When the contacts close you will hear a click.

Blade Force Limit (Spring Loaded Blade Micro-Switch, Reference page XXX)

Blade Force Limit is set by the knob on the Guide Arm. This sets a spring force on the blade back-up bearing to interrupt excessive frame feed, and is indicated by the LOWER light blinking off during a cut. A setting of "3" will normally protect the blade from excessive force when the feed rate is set so the LOWER light remains on through the cut. This setting may be changed as needed for particular cutting applications. For a few applications at slow feed rates, the blade force switch may be set to control feed rate by interrupting down feed during the cut.

Lubrication

Correct and adequate lubrication is a very important factor in determining the life and service of your machine. It is essential that all dust, dirt, chips, etc. are thoroughly removed before lubricating the saw. The following lubrication recommendations cover usual applications. Heavy use and hostile environments may indicate more frequent lubrication for best saw performance.

Ring Gear, Drive Pinion

1. Inspect monthly.
2. Use **Lubriplate grease 130-A** or equivalent.
3. Viscosity at 100°F: SUS750-800.
4. Military Specification: Mil-G-46003

Gear Case

1. Inspect after 3 years (6,000 hours).
2. Grease - **Texaco Marfax Grade "0"** or equivalent.
3. Viscosity at 100°F: SUS 4125.
4. Military Specification: None

Hydraulic Tank

1. Inspect annually. Drain and replace every 5 years (10,000 hours).
2. Fill with **Mobil DTE 25** or equivalent.
3. Viscosity at 100°F: SUS 220.0
4. Military Specification: None

Motor

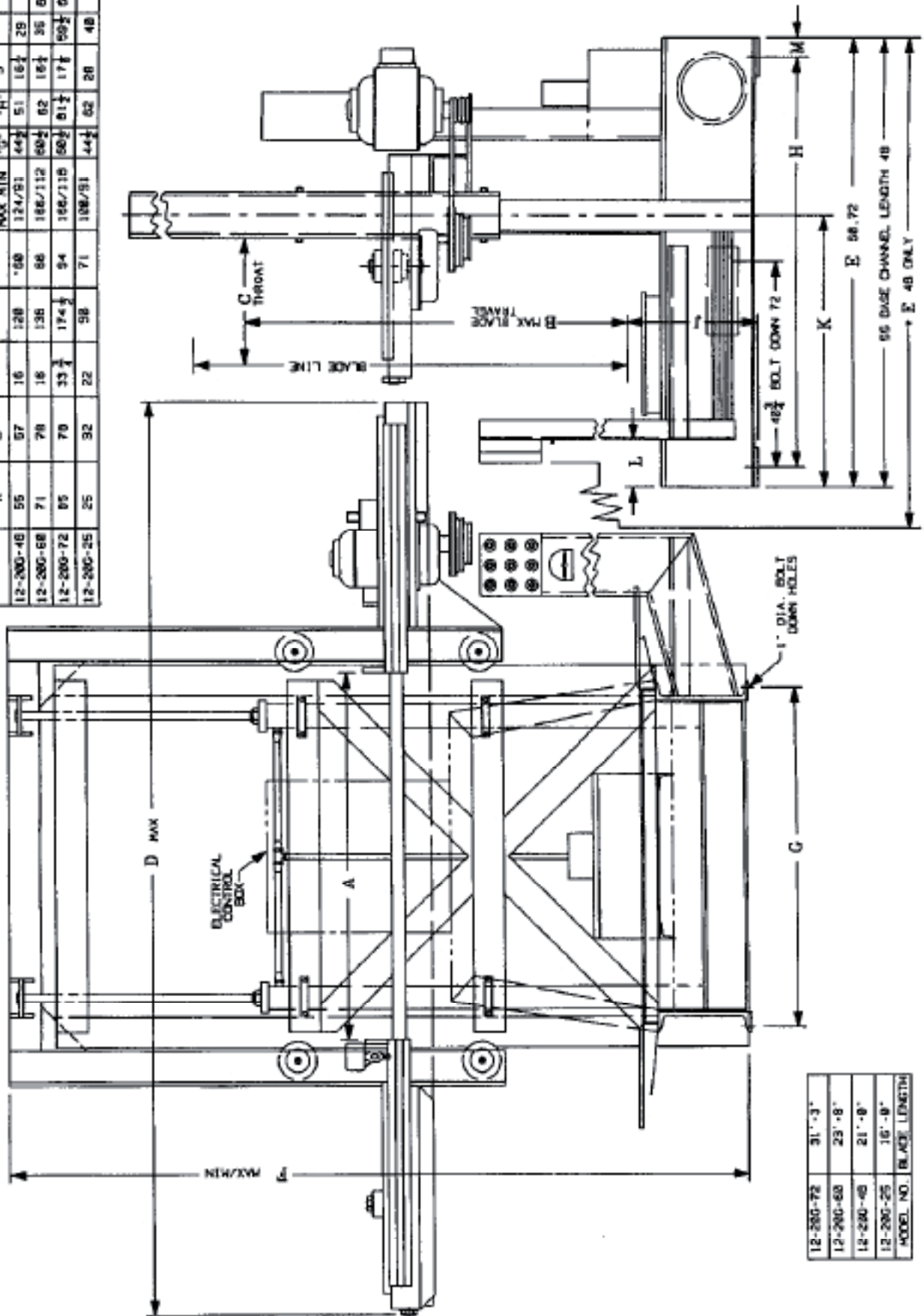
1. Inspect annually. Re lubricate every 2 years (4,000 hours) 1 to 2 full strokes.
2. Use **Shell Dolium R** or equivalent.
3. Viscosity: Heavy Grease, Drop Point 219° C
4. Military Specification: None

Recommended Service Kits for 2 Years As Insurance Against Downtime

20	100406-002	Bearing Blade Guide
4	100403-005	Bearing - Drive & Idle Wheel
1	100067-021	"V" Belt - Blade Motor
12	M-426	Blade Brushes
1	370277	Ring Gear, Steel
1	102037	Ring Gear, Cast Iron
1	105721	Drive Pinion
1	100543	Micro-Switch, Blade Pressure
1	100577-005T	Replacement Bulb, Frame Feed
	Light	
1	100249-002	Coolant Pump
2	100628-006	Fuse, 10 amp FNM-10
2	100628-021	Fuse, 15 amp FNM-8
3	100628-020	Fuse, 15 amp TRS-15R
1	G-183	Roller Support, Idle End
1	102054	Roller Support, Drive End
1	F-096A	Intermediate Gear, Cast Iron
12	105718-001	Shear Key, Brass

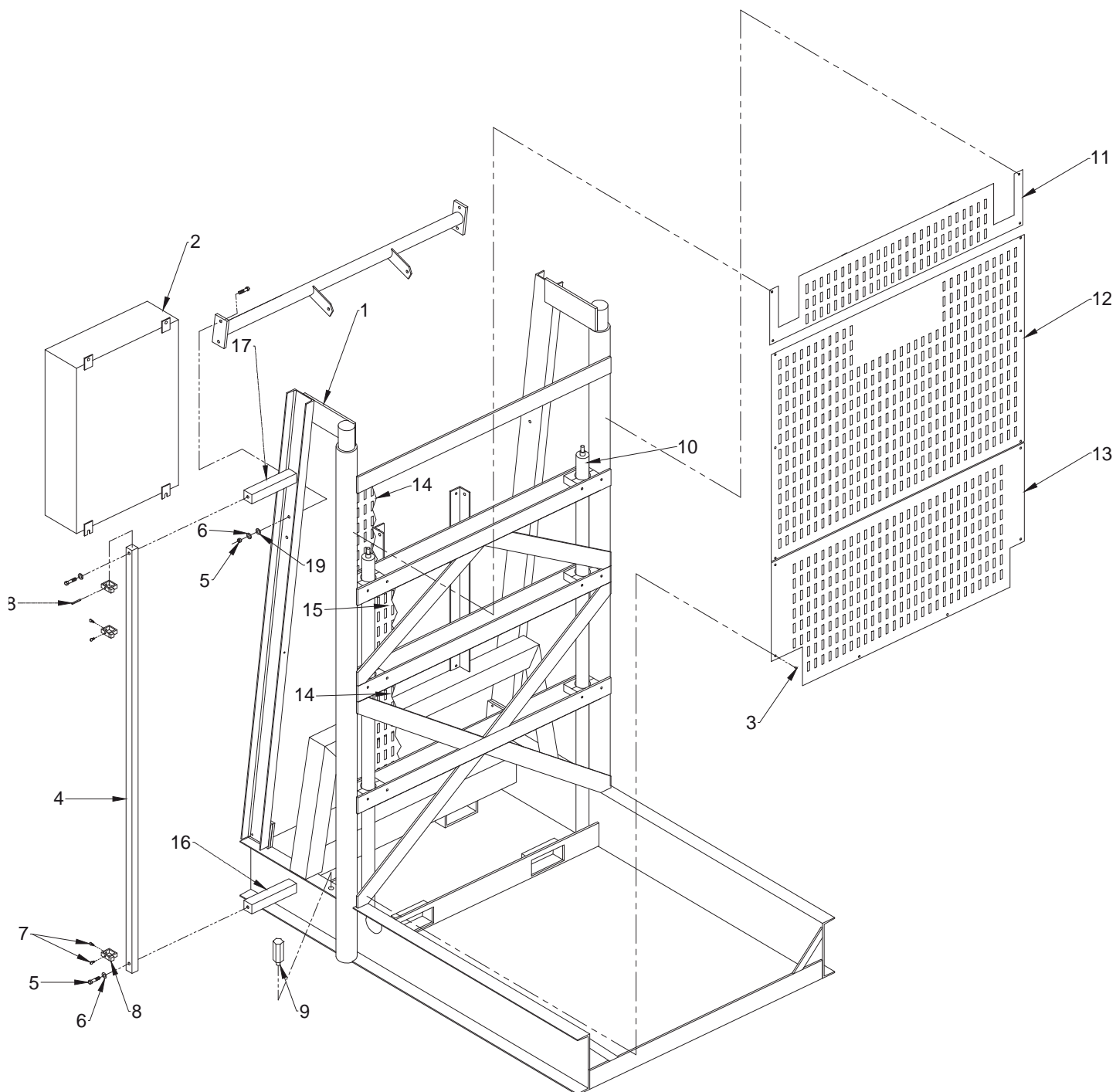
Dimensional Drawing

SAW MODEL NUMBER	CAPACITY VERTICAL TRAVEL BETWEEN GUIDES "A"	THROAT DEPTH "C"	OVERALL WIDTH "D"	OVERALL HEIGHT "E"	OPERATING HEIGHT TO FLOOR		"K" - SPACING BLADE	"L" - "H"			
					MAX	MIN					
12-200-48	55	57	128	60	124/81	44 1/2	51	18 1/2	29	1 1/2	2
12-200-68	71	78	138	86	188/112	60 1/2	82	18 1/2	35	8 1/2	2
12-200-72	85	70	174 1/2	94	188/118	60 1/2	81 1/2	17 1/2	50 1/2	8 1/2	18
12-200-25	25	32	58	71	108/51	44 1/2	52	28	48	1 1/2	2



12-200-72	31'-3"
12-200-68	23'-8"
12-200-48	21'-8"
12-200-25	16'-8"
MODEL NO.	BLADE LENGTH

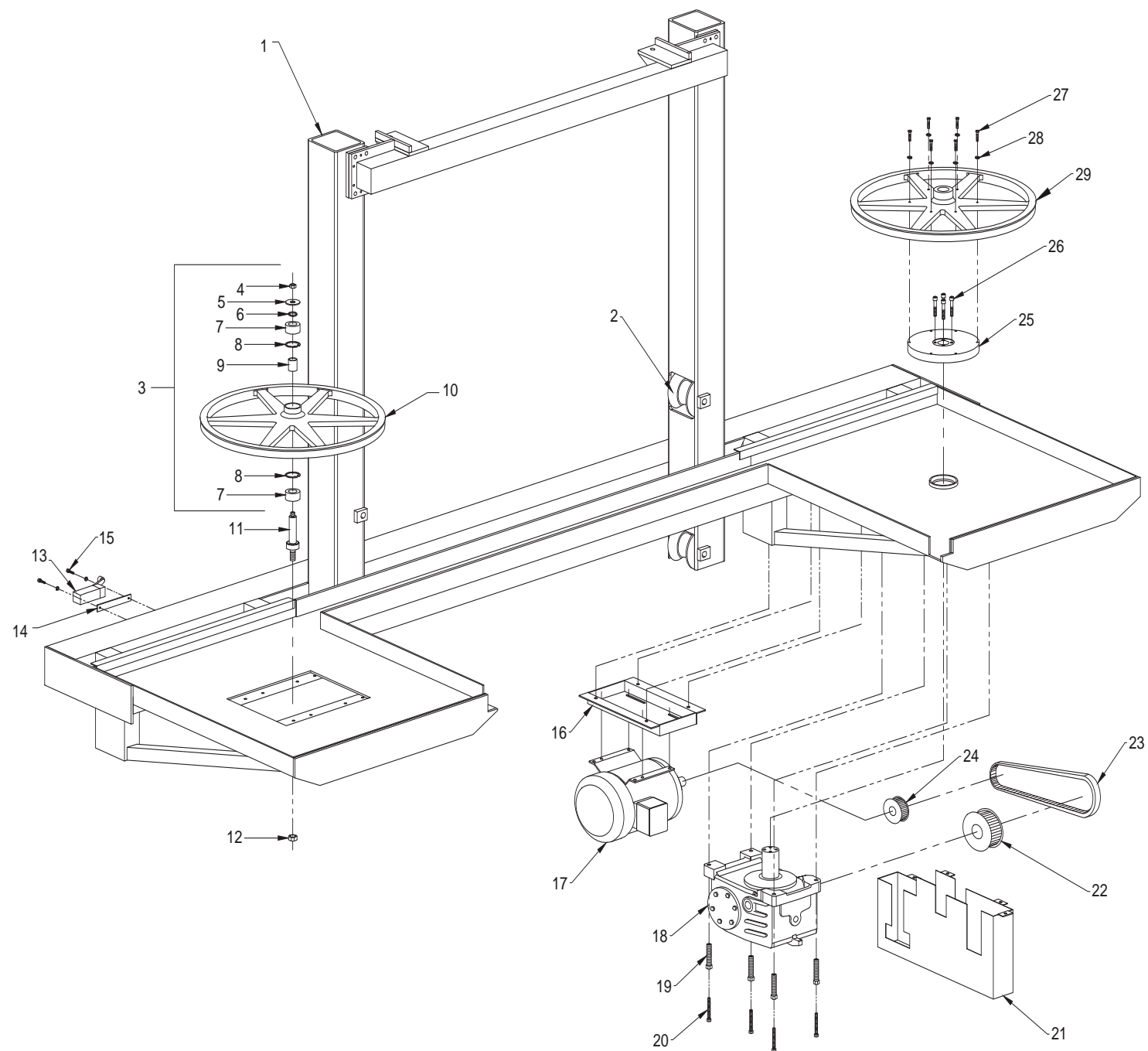
Base Assembly



Base Assembly

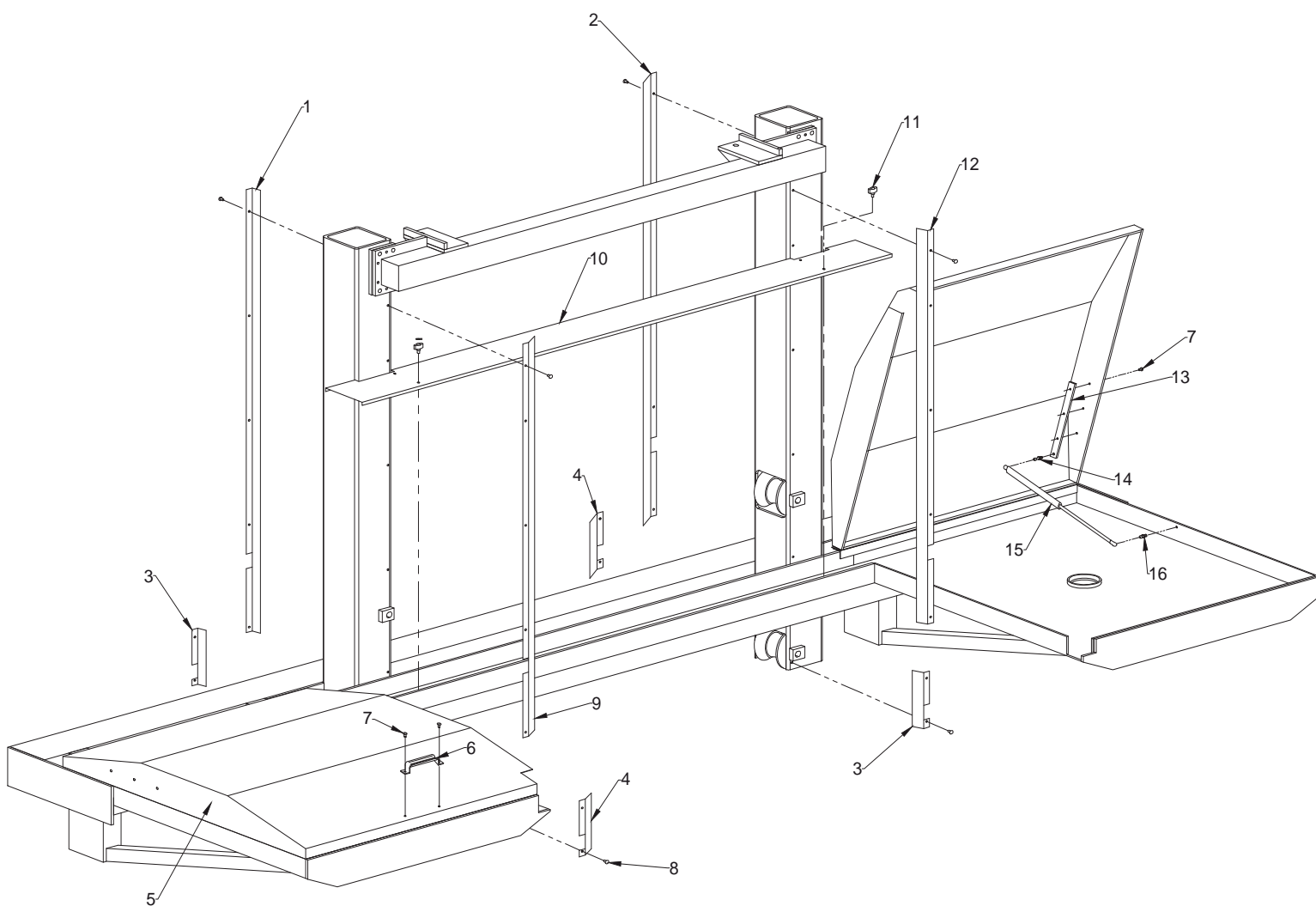
1	105118-001	BASE WELDMENT
2	100690-027	CONTROL BOX
3	100013-006	CAP SCREW, BUTTON HD, $\frac{1}{4}$ -20 X 3/8
4	105110	LIMIT SWITCH ACTUATING BAR
5	100004-038	CAP SCREW, HEX HD, $\frac{1}{2}$ -13 X 2
6	100025-005	LOCK WASHER, $\frac{1}{2}$
7	100042-002	THUMB SCREW, $\frac{1}{4}$ -20 X $\frac{1}{2}$
8	105111	LIMIT SWITCH ACTUATING COLLAR (3 REQ'D)
9	G-082	STOP BLOCK (2 REQ'D)
10	105723	HYDRAULIC CYLINDER (2 REQ'D)
11	102684	UPPER FRONT GUARD
12	104117	MIDDLE FRONT STATIONARY GUARD
13	102683	BOTTOM FRONT GUARD
14	102681	BACK STATIONARY GUARD (2 REQ'D)
15	102682	BACK STATIONARY GUARD
16	105109-001	ACTUATING BAR WELDMENT
17	105109-002	ACTUATING BAR WELDMENT
18	100053-036	SPRING PIN, $\frac{1}{4}$ X 2
19	100029-006	FLAT WASHER, $\frac{1}{2}$

Frame Assembly



1	105737-001	FRAME AND ROLLER SUPPORT WELDMENT
2	G-001	FRAME ROLLER
3	103145-005	BAND WHEEL ASSEMBLY (INCLUDES 7-10)
4	100019-008	HEX JAM NUT, $\frac{3}{4}$ -10
5	100029-009	FLAT WASHER, $\frac{3}{4}$
6	H-048-002	SPACER
7	100421-002	BEARING
8	100068-004	SNAP RING
9	H-048-001	SPACER
10	C-103145-005	BAND WHEEL
11	H-035	WHEEL AXLE
12	100065-010	HEX NUT, 1" -14
13	100782-006T	LIMIT SWITCH
14	105108	LIMIT SWITCH BRACKET
15	100004-018	CAP SCREW, HEX HD, $\frac{5}{16}$ -18 X 1
16	100898-001	MOTOR BASE
17	100835-022	MOTOR
18	155236	GEARBOX
19	100175	LEVELING SCREW
20	100008-081	CAP SCREW, SOCKET HD, $\frac{1}{2}$ -13 X 4 $\frac{1}{2}$
21	105792	BELT GUARD
22	100141-013	TIMING PULLEY
23	100140-007	TIMING BELT
24	100141-012	TIMING PULLEY
25	105782	BAND WHEEL ADAPTER
26	100008-032	CAP SCREW, SOCKET HD, $\frac{1}{2}$ -13 X 1 $\frac{1}{2}$
27	100004-030	CAP SCREW, HEX HD, $\frac{3}{8}$ -16 X 1 $\frac{1}{2}$
28	100025-003	LOCK WASHER, $\frac{3}{8}$
29	103145-008	BAND WHEEL, CONE DRIVE
30	100025-002	LOCK WASHER, $\frac{5}{16}$

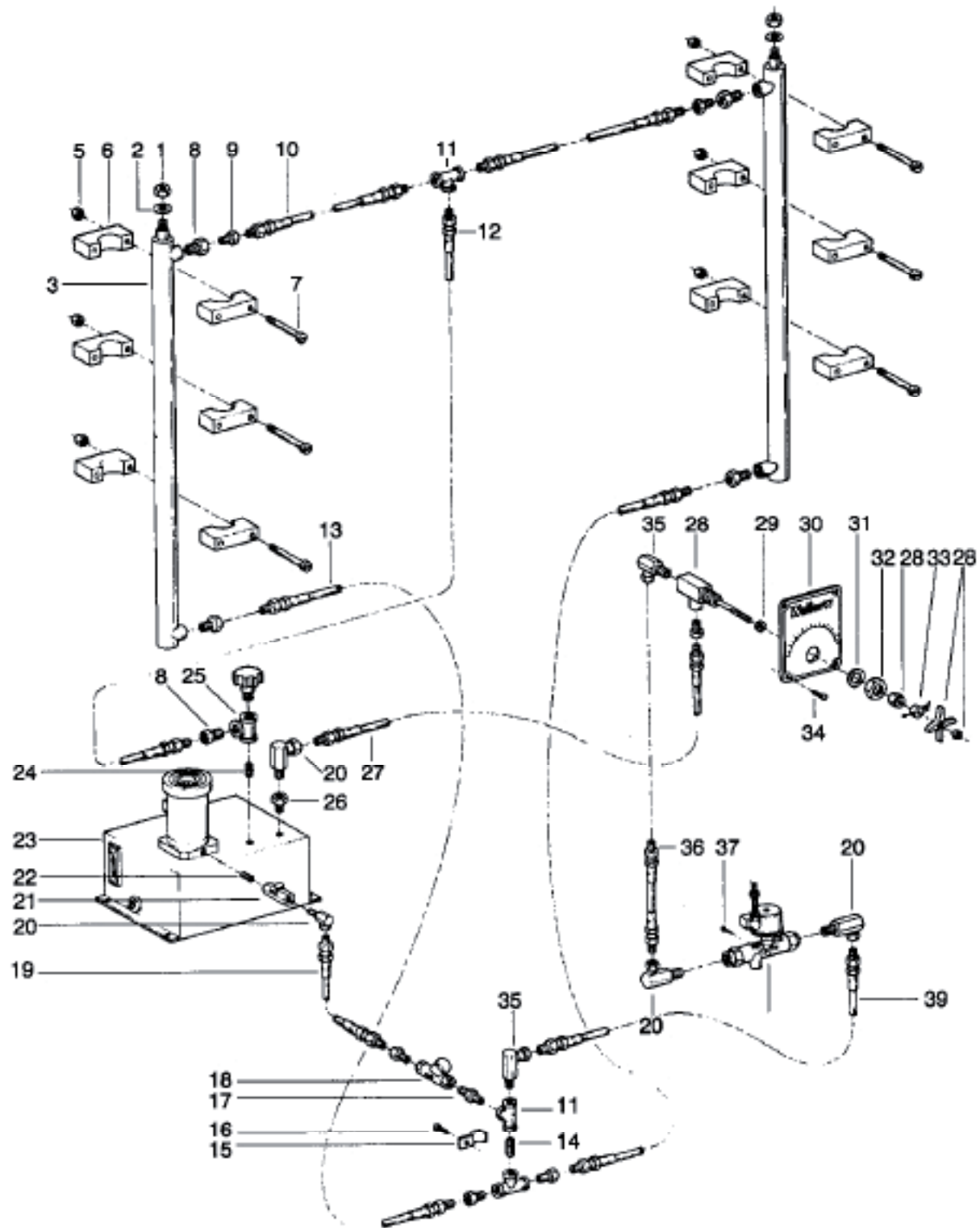
Frame Guards



Frame Guards

1	105113	ROLLER GUARD
2	103185	ROLLER GUARD
3	103119	ROLLER GUARD
4	103139	ROLLER GUARD
5	105128	WHEEL COVER, IDLE END
6	100104-001	HANDLE (2 REQ'D)
7	100155-001	MACHINE SCREW, TRUSS HD, $\frac{1}{4}$ -20 X $\frac{1}{2}$
8	100013-006	CAP SCREW, BUTTON HD, $\frac{1}{4}$ -20 X $\frac{1}{2}$
9	105114	ROLLER GUARD
10	105129	BLADE GUARD BACK
11	100063	THUMB SCREW
12	105115	ROLLER GUARD
13	105710-001	DOOR SUPPORT
14	9512K63	BALL STUD, LONG
15	9416K137	GAS SPRING, STEEL (2 REQ'D)
16	9512K73	BALL STUD, $\frac{5}{16}$ -18

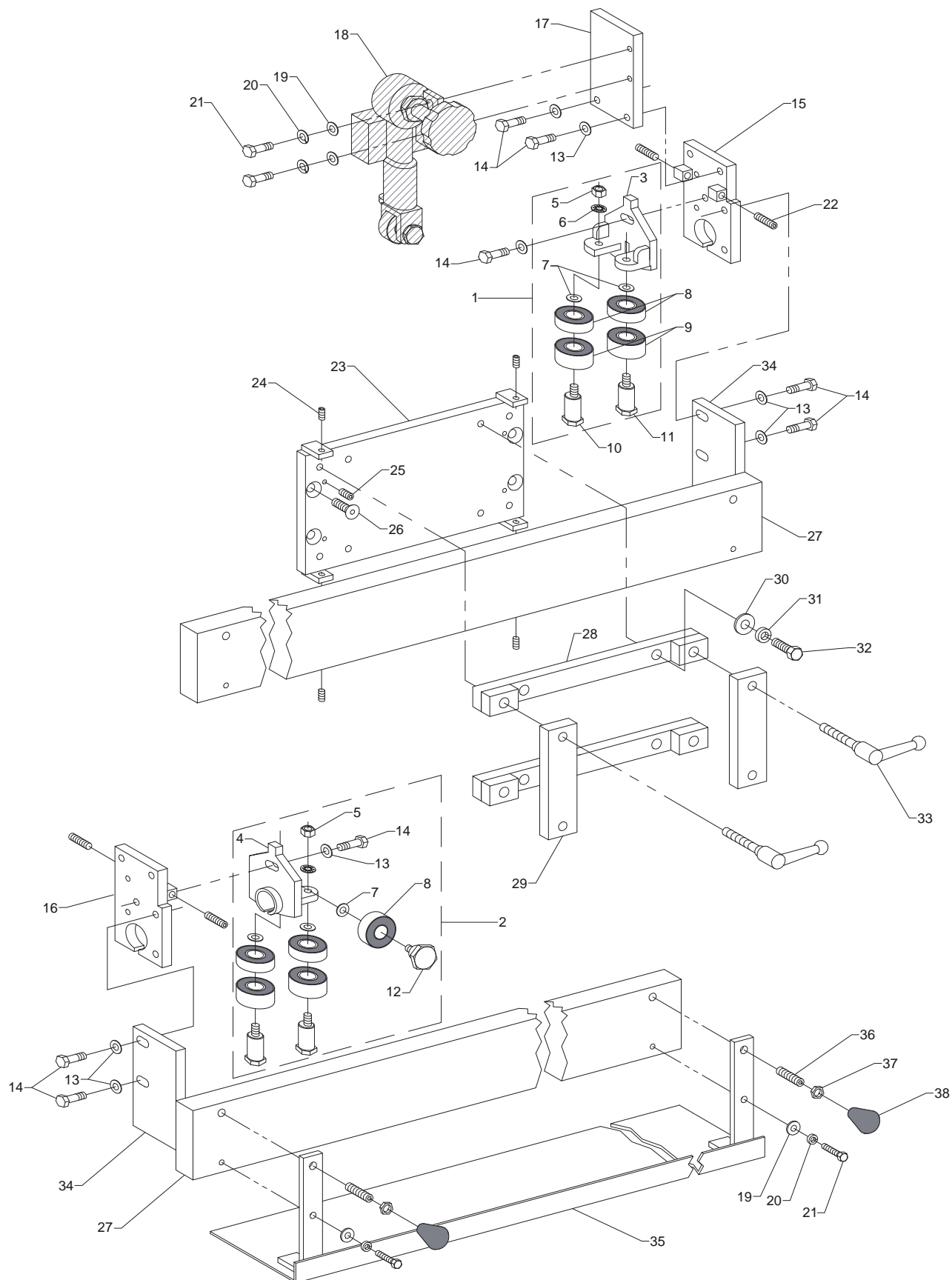
Hydraulic System



Hydraulic System

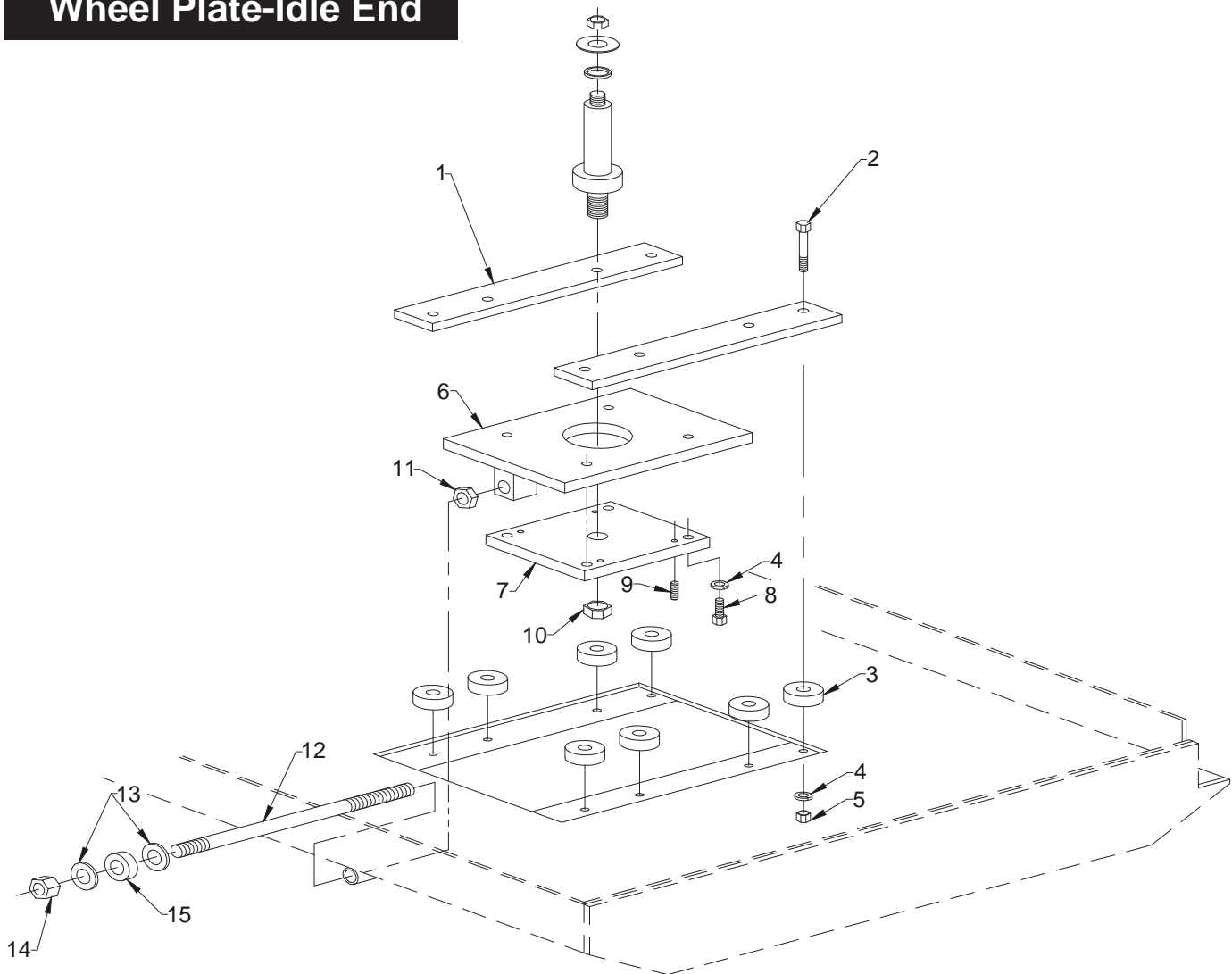
1	100023-006	LOCK NUT, NYLON, 3/4-16			
2	100029-009	FLAT WASHER, 3/4			
3	105723	HYDRAULIC CYLINDER COMPLETE, AFTER SN 258 (1220G - 60 - 72)	29	107065	NYLON WASHER (STD. W/100238-001)
	102672	'G TYPE' HYDRAULIC CYLINDER, COMPLETE BEFORE SN 258 (1220G - 60 - 72)	30	106134	NAME PLATE, WELLSAW WITH SN
	G-314	'G TYPE' HYDRAULIC CYLINDER, COMPLETE (1220G - 48) (ORDER LEFT OR RIGHT CYLINDER)	31	100238-003	PANEL WASHER (STANDARD WITH 100238-001)
4	105724	HYDRAULIC CYLINDER SEAL KIT (1220G-60-72 AFTER SN 258)	32	100238-004	PANEL NUT
	100210-005	REPLACEMENT PACKING FOR 'G TYPE' HYDRAULIC CYLINDER	33	150278	POINTER, W/ SET SCREW
	F-146	REPLACEMENT CUP LEATHER FOR 'G TYPE' HYDRAULIC CYLINDER (2 REQ'D. PER CYLINDER)	34	100000-017	MACHINE SCREW, RD HD, 10-32 X 1/4
5	100019-003	HEX JAM NUT, 3/8-16	35	100313-001	SWIVEL ADAPTER, 90 DEG, 1/4
6	105725	HYDRAULIC CYLINDER STABILIZER (1220G - 60 - 72)	36	100331-038	HOSE ASSY, 7' LONG
	G-028	HYDRAULIC CYLINDER STABILIZER (1220G - 48 AND OLD 'G TYPE' HYDRAULIC CYLINDERS)	37	100000-031	MACHINE SCREW, RD HD, 10-32 X 1 1/2
7	100006-003	CAP SCREW, FLAT HD, 3/8-16 X 5 1/2	38	100523-012	MAGNETIC VALVE
8	100306-007	REDUCING BUSHING, 3/8-1/4	39	100331-039	HOSE ASSEMBLY, 125' LONG
9	100329-001	SWIVEL ADAPTER, STRAIGHT, 1/4			
10	100331-002	HOSE ASSY, 23' LONG			
11	100207-002	PIPE TEE, 1/4			
12	100331-015	HOSE ASSY, 116' LONG			
13	100331-011	HOSE ASSY, 24' LONG			
14	100203-018	CLOSE NIPPLE, 1/4			
15	100218-006	TUBING CLAMP, 1/2			
16	100155-001	MACHINE SCREW, TRUSS HD, 1/4-20 X 1/2			
17	100332-001	HIGH PRESSURE NIPPLE, 1/4			
18	100237-002	STRAINER, ASCO 8600A2			
19	100331-001	HOSE ASSY, 35' LONG			
20	100313-003	SWIVEL ADAPTER, 90 DEG, 3/8 - 1/4			
21	100241	CHECK VALVE (NOTE DIRECTION OF FLOW)			
22	100332-003	HIGH PRESSURE NIPPLE, 3/8			
23	105729	HYDRAULIC PUMP, 1HP-10 GAL 208-230-380-460, 3.6-3.4-1.7-1.7A			
24	100203-035	CLOSE NIPPLE, 3/8			
25	100207-003	PIPE TEE, 3/8			
26	100208-006	REDUCING BUSHING, 1/2-3/8			
27	100331-037	HOSE ASSY, 160' LONG			
28	100238-001	CONTROL VALVE, W/ NYLON WASHER (#107065)			

Blade Guides

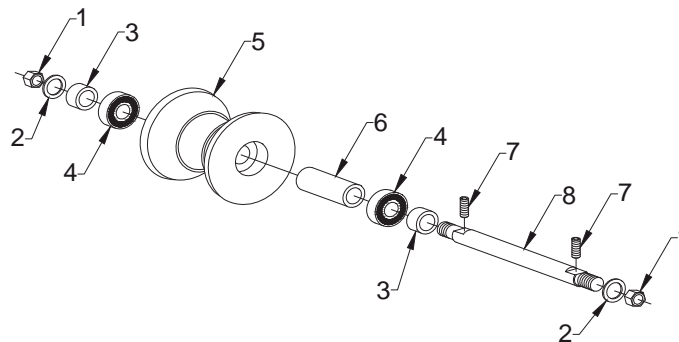


1	G-343	ROLLER SUPPORT ASSEMBLY, IDLE END ITEMS 3-10 LESS 4
2	G-344	ROLLER SUPPORT ASSEMBLY, DRIVE END ITEMS 4 - 11
3	G-183	ROLLER SUPPORT, IDLE END
4	102054	ROLLER SUPPORT, DRIVE END
5	101300	HEX NUT, $\frac{5}{16}$
6	100027-005	INTERNAL TOOTH LOCK WASHER, $\frac{5}{16}$
7	101186	ROLLER GUIDE WASHER
8	100406-002	BEARING (5 REQ'D)
9	100416-003	BEARING (4 REQ'D)
10	101973-001	ECCENTRIC ROLLER AXLE (2 REQ'D)
11	101974-002	ROLLER AXLE (2 REQ'D)
12	101179	ROLLER AXLE, TOP
13	100029-003	FLAT WASHER, $\frac{5}{16}$
14	100004-018	CAP SCREW, HEX HEAD, $\frac{5}{16}$ -18 X 1
15	101106	ROLLER ADJUSTER, IDLE END
16	101107	ROLLER ADJUSTER, DRIVE END
17	G-194	MICRO SWITCH MOUNTING BRACKET
18		MICRO SWITCH (SEE PAGE XX)
19	100029-002	FLAT WASHER, $\frac{1}{4}$
20	100025-001	LOCK WASHER, $\frac{1}{4}$
21	100004-053	CAP SCREW, HEX HEAD, $\frac{1}{4}$ -20 X 1
22	100034-007	SET SCREW, SOCKET HEAD, $\frac{5}{16}$ -18 X 1
23	105144	SLIDE BAR ADJUSTING PLATE
24	100034-005	SET SCREW, SOCKET HEAD, $\frac{1}{4}$ -20 X $\frac{3}{4}$
25	100034-004	SET SCREW, SOCKET HEAD, $\frac{5}{16}$ -18 X $\frac{1}{2}$
26	100006-002	CAP SCREW, FLAT HEAD, $\frac{3}{8}$ -16 X 1
27	105145-001	SLIDE BAR (2 REQ'D)
28	105149	SLIDE GUIDE (4 REQ'D)
29	105150	CLAMP BAR (4 REQ'D)
30	100025-003	WASHER, $\frac{3}{8}$
31	100029-003	LOCK WASHER, $\frac{3}{8}$
32	100004-028	CAP SCREW, HEX HEAD, $\frac{3}{8}$ -16 X 1
33	155298	HANDLE, ADJUSTABLE, $\frac{3}{8}$ -16 (8 REQ'D)
34	103153	GUIDE BRACKET PIVOT PLATE (2 REQ'D)
35	105779	BLADE GUARD (2 REQ'D)
36	100034-017	SET SCREW, SOCKET HEAD, $\frac{3}{8}$ -16 X 1 $\frac{1}{2}$
37	100019-014	HEX JAM NUT, $\frac{3}{8}$ -16
38	100139-001	KNOB, BLACK, OVAL

Wheel Plate-Idle End



Frame Roller



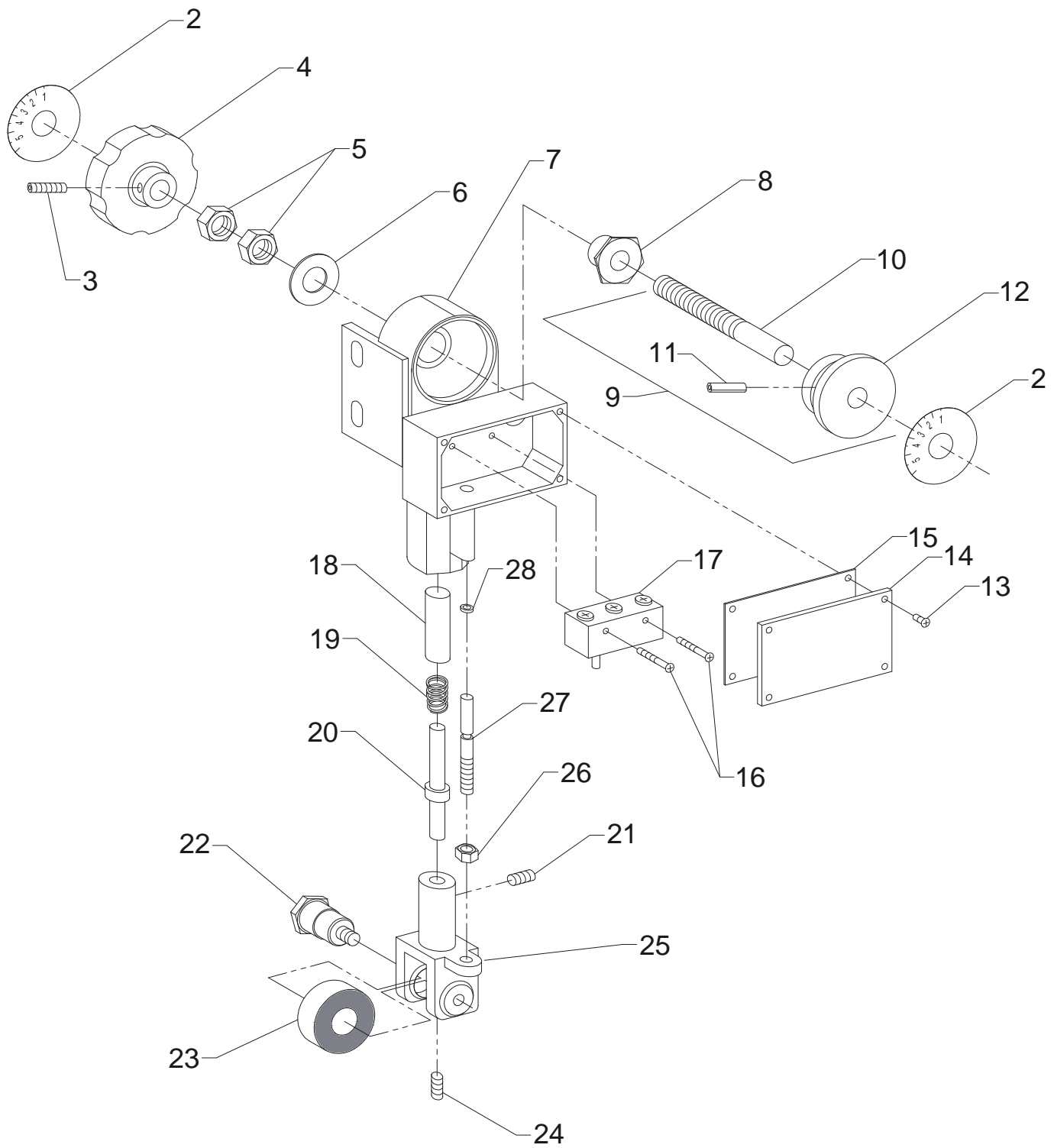
Wheel Plate-Idle End

1	H-011	SLIDE PLATE GUIDE (2 REQ'D)
2	100004-039	CAP SCREW, HEX HD, $\frac{1}{2}$ -13 X 2 $\frac{1}{2}$
3	H-013	SLIDE PLATE SPACER (8 REQ'D)
4	100025-005	LOCK WASHER, $\frac{1}{2}$
5	100017-005	HEX NUT, $\frac{1}{2}$ -13
6	R-330	SLIDE PLATE
7	H-014	ADJUSTING PLATE
8	100004-037	CAP SCREW, HEX HD, $\frac{1}{2}$ -13 X 1
9	100034-024	SET SCREW, CUP PT. $\frac{3}{8}$ -16 X 1 $\frac{1}{4}$
10	100065-010	HEX NUT, 1-14
11	100019-008	HEX JAM NUT, $\frac{3}{4}$ -10
12	G-122	TAKE UP SCREW
13	100029-009	FLAT WASHER, $\frac{3}{4}$
14	100017-008	HEX NUT, $\frac{3}{4}$ -10
15	100410-004	THRUST BEARING

Frame Roller

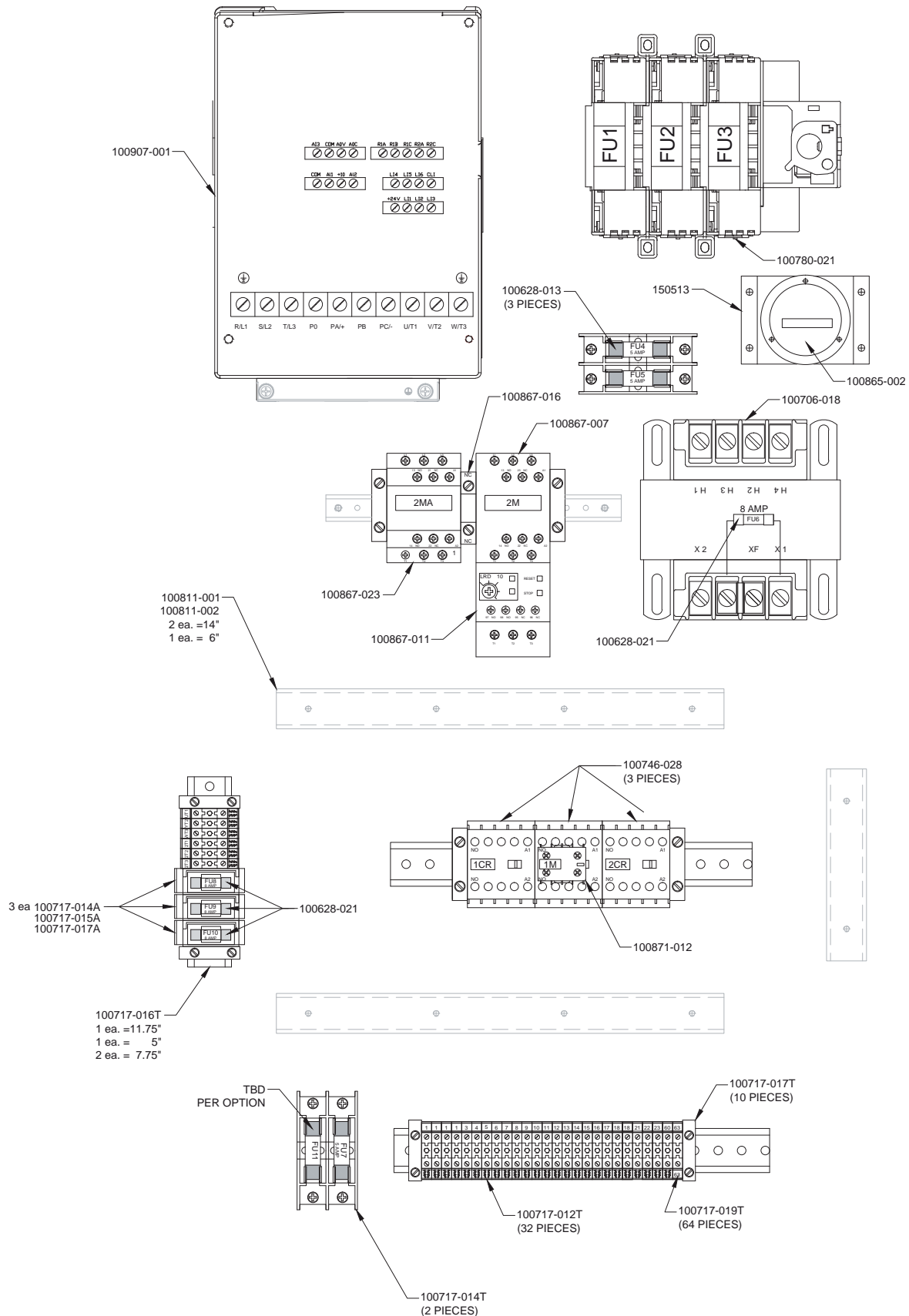
1	100019-008	HEX JAM NUT, $\frac{3}{4}$ -10
2	100029-009	FLAT WASHER, $\frac{3}{4}$
3	105208	SPACER
4	100414-003	BEARING
5	G-001	FRAME ROLLER
6	105209	SPACER
7	100034-024	SET SCREW, CUP PT, $\frac{3}{8}$ -16 X 1 $\frac{1}{4}$
8	103114	ROLLER AXLE

Micro Switch Assembly



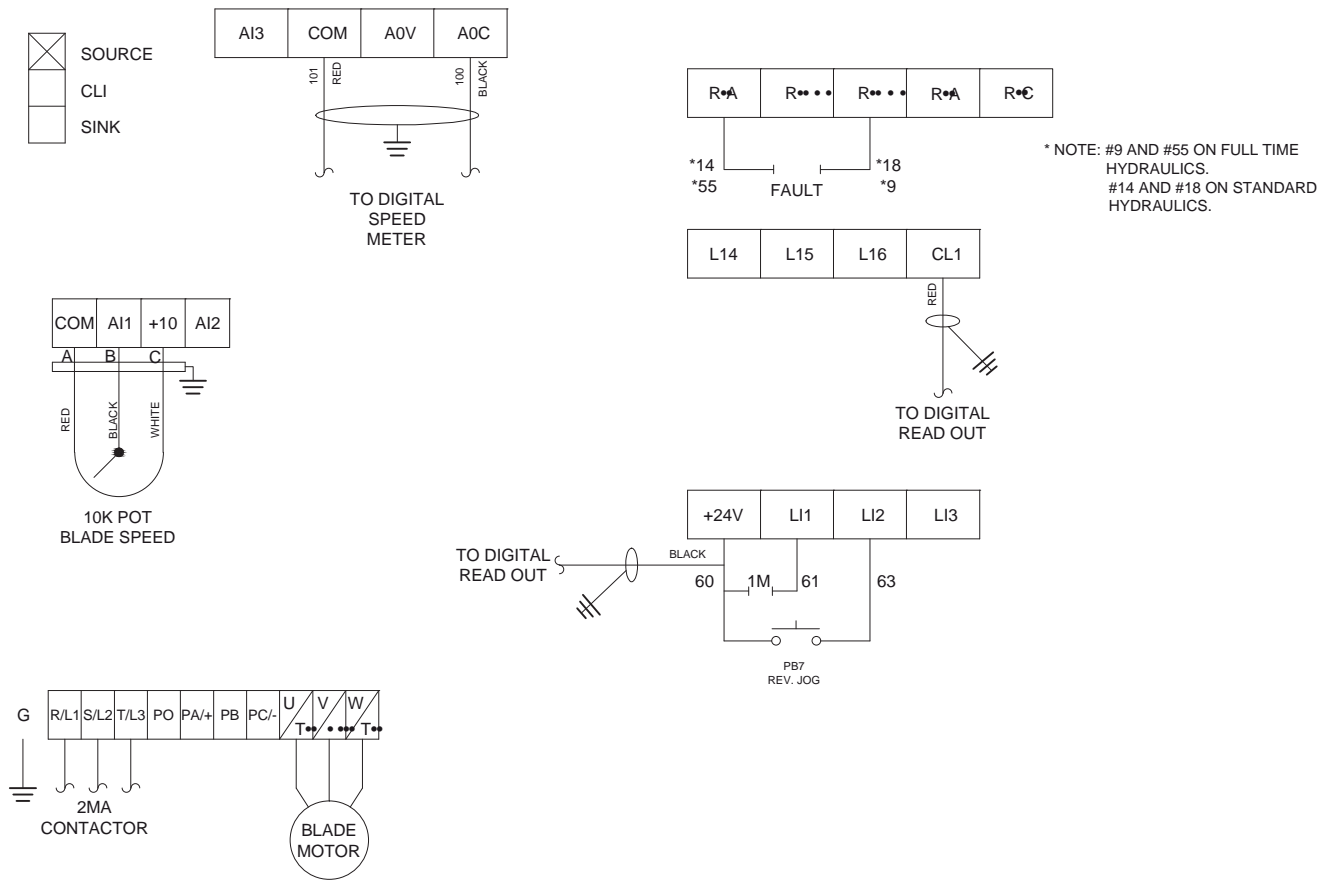
1	105218-001	MICRO-SWITCH ASSEMBLY (ITEMS 2 - 28)
2	106339	LABEL (2 REQ'D)
3	100127-003	SET SCREW, NYLON POINT
4	105216	HAND WHEEL
5	100019-005	HEX JAM NUT, $\frac{1}{2}$ -13 (2 REQ'D)
6	100030-007	WASHER, $\frac{1}{2}$
7	106331-001	MICRO-SWITCH HOUSING
8	106332	BUSHING
9		CAM ASSEMBLY (ITEMS 10 - 12)
10	105217	SHAFT
11	100053-005	ROLL PIN, $\frac{3}{16}$ X 1
12	106340	CAM
13	100000-009	MACHINE SCREW, ROUND HEAD, 8-32 X $\frac{7}{8}$
14	106342	COVER PLATE
15	106341	GASKET
16	100000-061	MACHINE SCREW, ROUND HEAD, 6-32 X $\frac{1}{4}$
17	100543	MICRO-SWITCH
18	106336	CAM FOLLOWER
19	101369-001	SPRING
20	106335	SPRING STUD
21	100034-002	SET SCREW, CUP POINT, $\frac{1}{4}$ -20 X $\frac{1}{2}$
22	101372	ROLLER AXLE
23	100406-002	BEARING
24	100034-026	SET SCREW, CUP POINT $\frac{1}{4}$ -20 X $\frac{3}{4}$
25	106333	ROLLER YOKE
26	100015-015	HEX NUT, $\frac{1}{4}$ -20
27	106334	MICRO-SWITCH STUD
28	100305-003	O - RING

CONTROL BOX LAYOUT



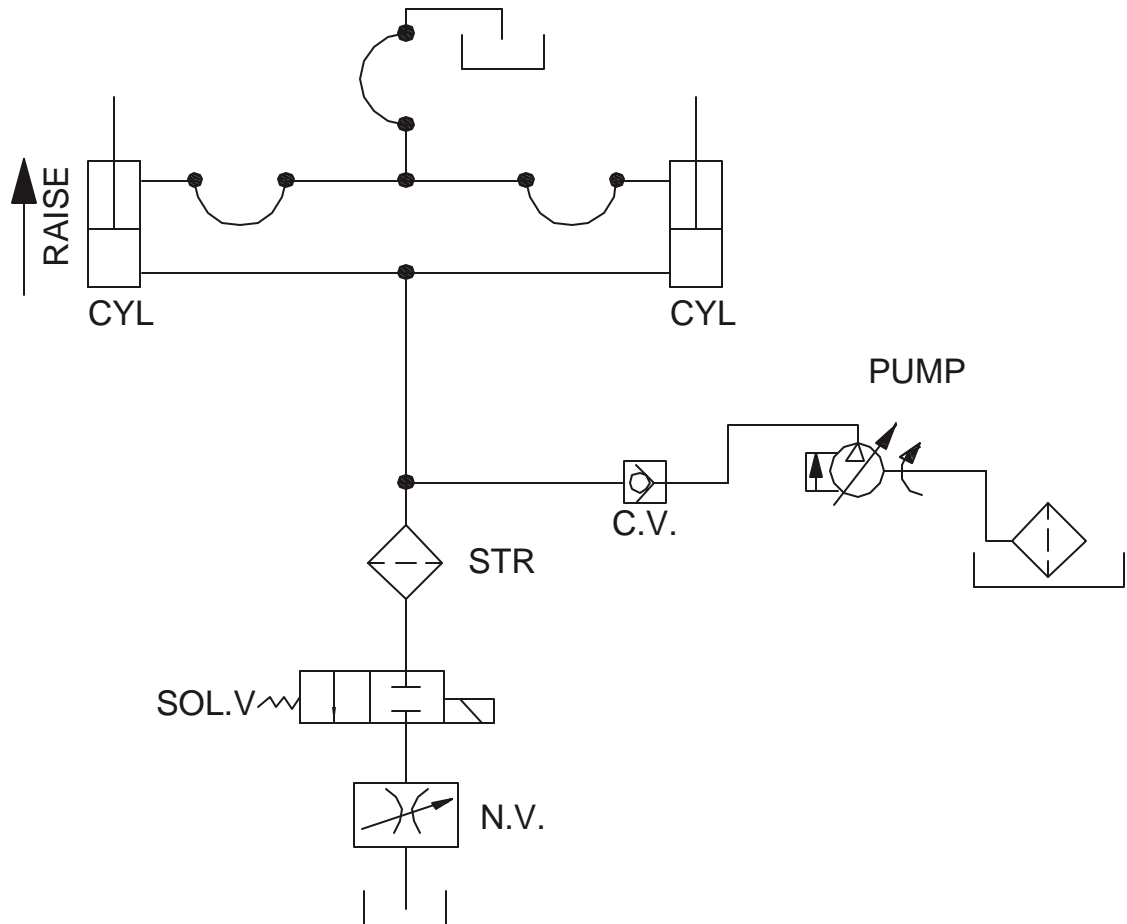
150498E

ALTVAR 31•••••
ELECTRIC SCHEMATIC



ALTIVAR 31 & 312 SETTINGS			
DRC		BFR=	60 HRZ
		TFR=	120.0
		FRS=	60.0
SET		ACC=	5
		DEC=	3.5
		LSP=	28.0
		HSP=	7E.6 (74.3 5:1 RATIO)
		UFR=	15.0
I_O		AULT=	OA
		DO=	OFR
DRC		UFT=	L
		SC5=	STRL

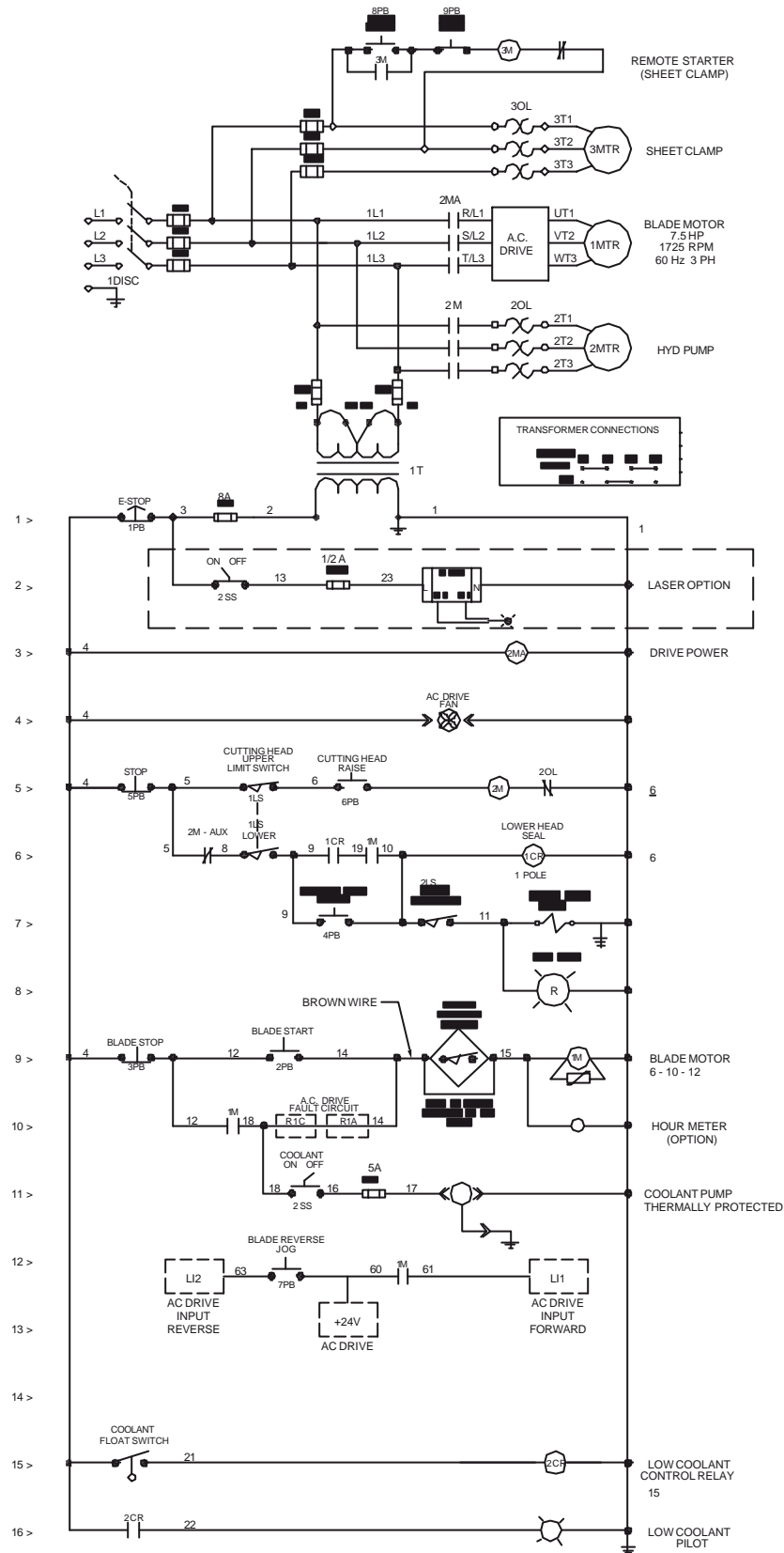
CONTROL BOX LAYOUT



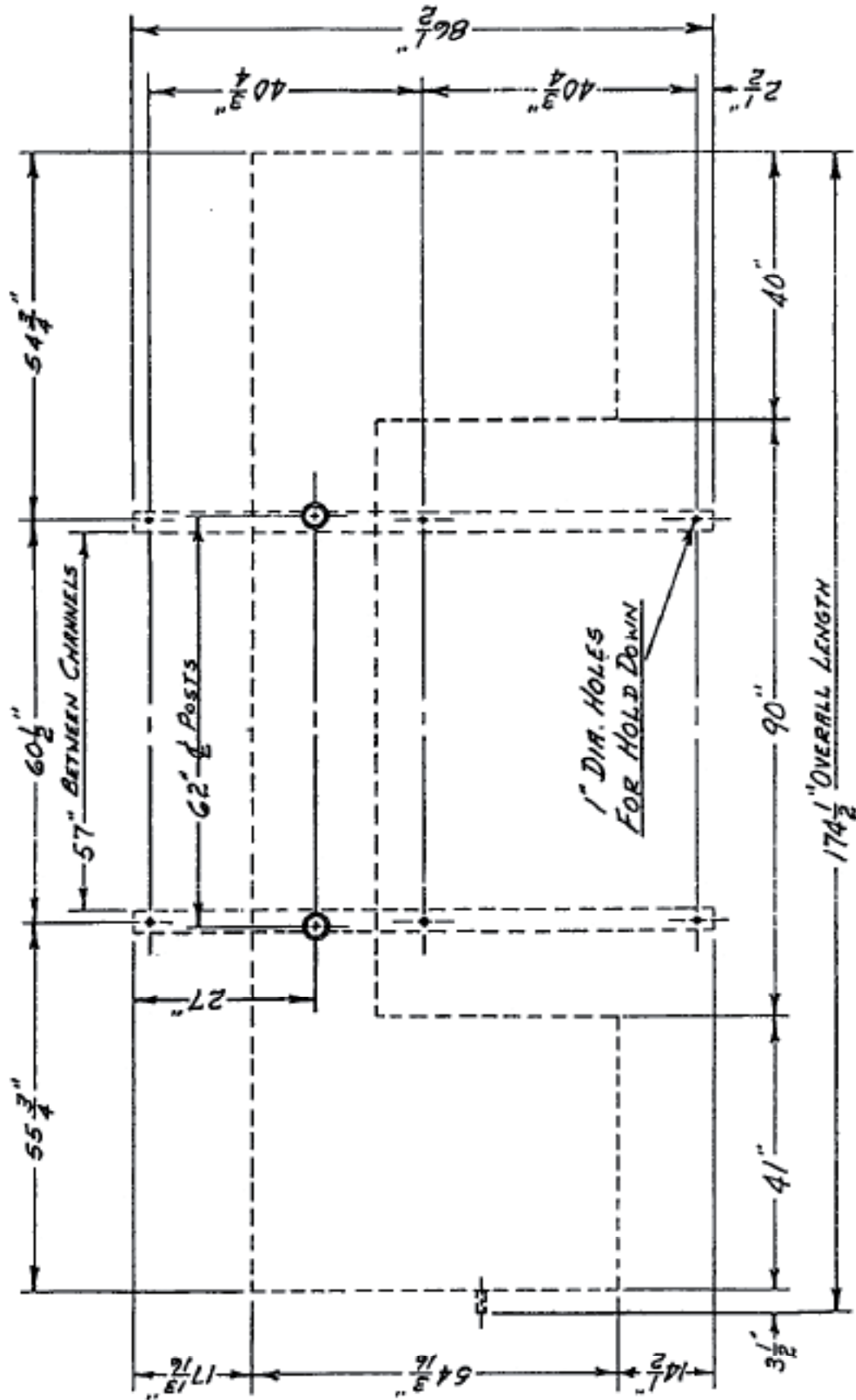
PARTS LIST		
SYMBOL	PART #	DESCRIPTION
PUMP	105729	POWER UNIT
CYL	105723	HYD. CYLINDER
STR	100237-002	STRAINER
SOL V	100523-012	SOLENOID VALVE
N.V.	100234-001	NEEDLE VALVE
C.V.	100241	CHECK VALVE

105727E

ELECTRIC SCHEMATIC



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