TECHNICAL MANUAL

OPERATOR'S, ORGANIZATION, DIRECT SUPPORT AND GENERAL SUPPORT MAINTENANCE MANUAL INCLUDING REPAIR PARTS LIST

FOR

POWER HACK SAW
MODEL 5 HY-DUTY SA
(KELLER MANUFACTURING)
(NSN 3405-00-812-1593)

H E A D Q U A R T E R , D E P A R T M E N T O F T H E A R M Y

JUNE 1981

Technical Manual
No. 9-3405-217-14&P

HEADQUARTERS
DEPARTMENT OF THE ARMY
Washington, DC, *1 June 1981*

Operator's, Organizational, Direct Support and General Support Maintenance Manual Including Repair Parts List

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REPORTING ERRORS AND RECOMMENDING IMPROVEMENTS

You can help improve this manual. If you find any mistakes or if you know of a way to improve the procedures, please let us know. Mail your letter, DA Form 2028 (Recommended Changes to Publications and Blank Forms), or DA Form 2028-2, located in the back of this manual direct to: Commander, US Army Armament Materiel Readiness Command, ATTN: DRSAR-MAS, Rock Island, IL 61299. A reply will be furnished direct to you.

NOTE

This manual is published for the purpose of identifying an authorized commercial manual for the use of the personnel to whom this equipment is issued.

Manufactured by: Keller Manufacturing
1428 Cliff Road
Burnsville, MN 55337

Procured under Contract No. DAAA09-80-C-4214

This technical manual is an authentication of the manufacturers' commercial literature and does not conform with the format and content specified in AR 310-3, Military Publications. This technical manual does, however, contain available information that is essential to the operation and maintenance of the equipment.

INSTRUCTIONS FOR REQUISITIONING PARTS

NOT IDENTIFIED BY NSN

When requisitioning parts not identified by National Stock Number, it is mandatory that the following information be furnished the supply officer.

1 - Manufacturer's Federal Supply Code Number - 6A606N

2 - Manufacturer's Part Number exactly as listed herein.

3 - Nomenclature exactly as listed herein, including dimensions, if necessary.

4 - Manufacturer's Model Number - 5HY-Duty SA

5 - Manufacturer's Serial Number (End Item)

6 - Any other information such as Type, Frame Number, and Electrical Characteristics, if applicable.

7 - If DD Form 1348 is used, fill in all blocks except 4,5, 6, and Remarks field in accordance with AR 725-50.

Complete Form as Follows:

(a) In blocks 4, 5, 6, list manufacturer's Federal Supply Code Number followed by a colon and manufacturer's Part Number for the repair part.

(b) Complete Remarks field as follows:

Noun:	(nomenclature of repair part)
For:	NSN: - 3405-00-812-1593
Manufacturer:	Keller Manufacturing, 1428 Cliff Road
	Burnsville, MN 55337

Model: 5 HY-Duty SA
Serial: (of end item)

Any other pertinent information such as Frame Number, Type, Dimensions, etc.

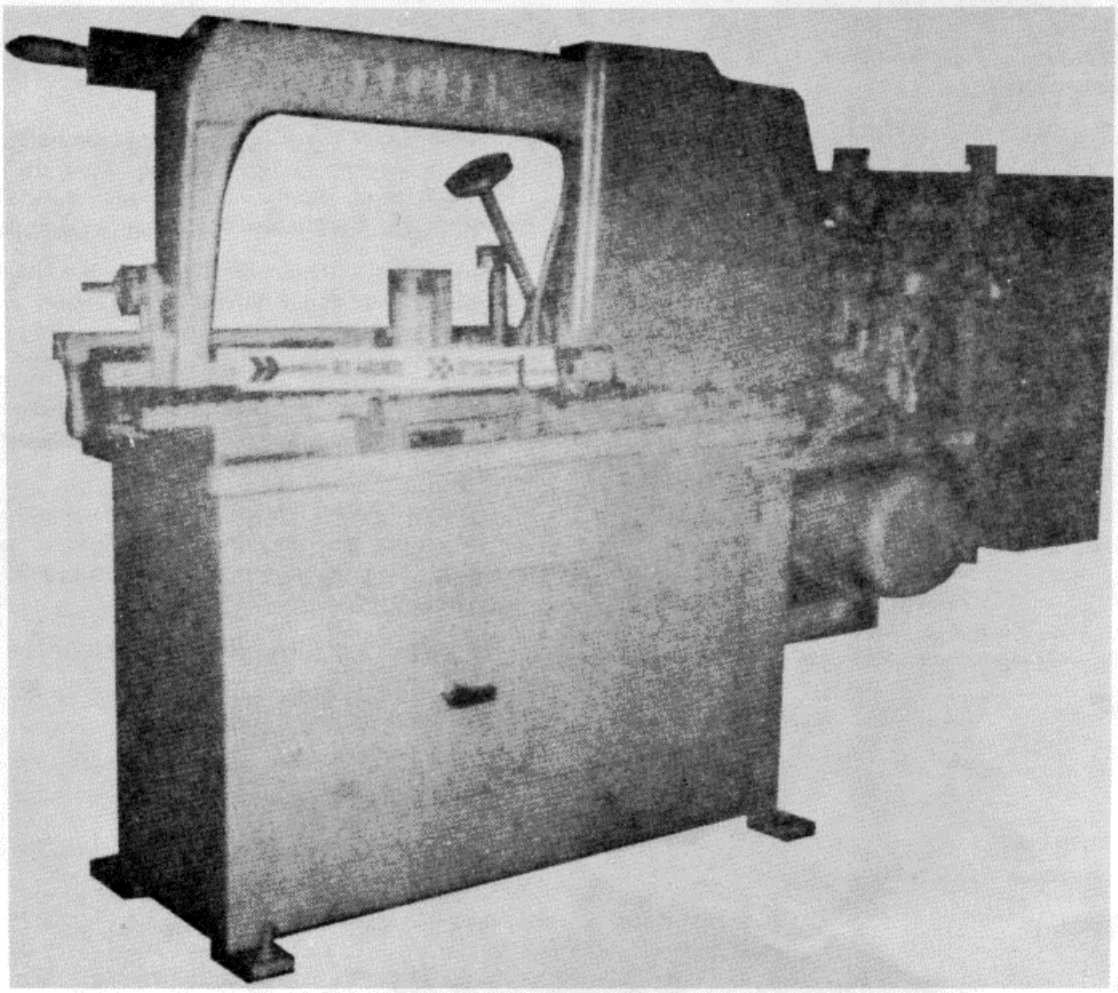


FIGURE 1

OPERATING INSTRUCTIONS

Your saw is an extremely simple machine to operate. However, there are just a few general instructions which should be followed. All Saws are completely wired, ready to run. However, when connecting reversible motors, be sure crank disc is revolving in counter-clockwise direction as shown by the arrow.

Oil each hole daily except the motor. Do not drop the saw blade on the work.

HYDRAULIC INITIAL START UP PROCEDURE

Before using machine for first time, check hydraulic reservoir for proper oil level as indicated on oil sight gauge. Fill oiler on saw frame with #10 non-detergent machine oil. Lubricate all lubricator points for the hydraulic system, use # 30 hydraulic oil.

ADJUSTABLE BRONZE GIBS. Guide bar operates on bronze gibs in saw frame. Gibs may be adjusted by take-up screws in the saw frame to compensate for wear and to maintain proper alignment. The bronze gibs are easily and inexpensively replaced. **TEN HOUR CHECK**. After the new saw has been in operation for about ten hours, the bronze gibs should be tightened to compensate for normal wear in of the machine.

HYDRAULIC LIFT is standard equipment on all Hy-Duty Power Hack Saws. This hydraulic lift mechanism automatically lifts blade on return stroke. Blades last longer, run cooler and cut better.

VARIABLE FEED PRESSURE CONTROL. Simply turn knob on the side of the manifold block to obtain the corresponding pressure on the pressure gauge. Use heavy pressure for bar stock, etc. Use lighter pressure for sawing thin-wall alloy stock, use a high feed pressure, but the slow feed rate. Do not exceed 400 lbs.

VARIABLE FEED RATE CONTROL. The feed rate control is to be used in conjunction with feed pressure control.

Common sense machining practice will yield the most successful cost efficient cut. Refer to the section in the manual on "How to Select and Use Power Hack Saw Blades" for further information.

FOR ANGLE CUTTING. Simply swivel the vise up to 45-degrees and tighten, or use the “Quick--Set" Angle Vise Block which automatically provides a 45 degree angle.

VARI-SPEED DRIVE provides infinite adjustment of cutting speed from 65 to 170 strokes per minute.

NOTE:

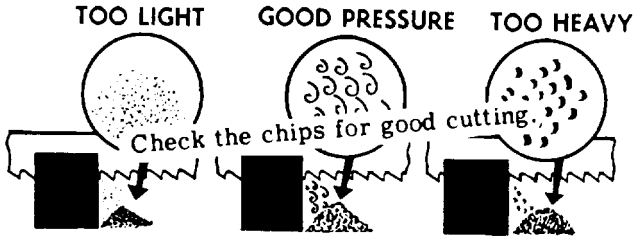
1. **Under normal operation. you may experience surging In the hydraulic system, this is air working Its way out of the system.**
2. **Periodically oil all lubrication points.**

PROBLEM	ANSWER
1. Motor runs, saw frame will not move.	Check for broken belts.
2. Machine leaks oil.	Check all fittings for leakage.
3. Saw frame will not feed up or down.	Check power source for hydraulic solenoids, fuse blown on 110 volt on transformer secondary.
4. Coolant pump fails to operate.	Check coolant level in tank, shut machine down, let machine cool off.
5. Saw frame stalls in cut.	Check for worn belt, excessive feed pressure.
6. Gauge will not respond to adjustment.	Replace relief valve, check for dirt in hydraulic system, check gauge calibration.

HOW TO SELECT AND USE POWER HACK SAW BLADES

Power hack saws automatically take a Full Stroke each time, automatically Lift the blade on reverse stroke and apply steady cutting pressure throughout the length of the stroke

The proper tensioning of the power hack saw blade is most important. Insufficiently tensioned blades wear rapidly, cut inaccurately and deliver a blank with a poor finish. A blade tensioned too tightly breaks prematurely or pulls out at the pin hole.



If chips are burned you are feeding too heavy. If chips are fine and powedery you are feeding too light. A free cut with nicely curley chips indicate ideal feeding pressure, fastest cutting time and longer life.

For most cutting jobs, the all-hard blade is first choice for straight, accurate cutting. The all-hard tungsten blade is unexcelled for retaining its sharp teeth. It handles work hardering materials, abrasive material, stainless, high manganese steel and the low machinability bronzes. Molybdenum blades are good for fast accurate cutting, but especially on low or medium alloy steels, iron and most non-ferrous metals.

You gain more by selecting the COARSEST TOOTH for the work. The is necessary for good chip appearance as more pressure can be applied for a better bite, without clogging. (OF course, the fee-per tooth must be kept below the point of fracturing the teeth).

Large Sections and soft materials require coarse teeth. Thin sections and hard-to-machine materials require fine teeth.

USE HEAVY FEED PRESSURE

Normally you should set the feed pressure as heavy as possible without breaking the teeth or making the blade cut crooked. Excessive pressure and stroke speed increase the cutting rate at the expense of blade wear. (When in doubt, keep pressure at maximum but reduce the stroke speed

The heaviest practical pressure . . . and the fastest reasonable stroke speed produce the most efficient cutting

A feed-rate that is too light results in rubbing instead of cutting; (tooth point overheat, soften and break down).

For optimum feed rate: Use heavy feed for hard, very dense material ---light feed for thin soft material. For maximum production, you can increase feed by using coarse blades on soft materials. But remember to use moderate feed when straight, accurate cutting is required.

USE PLENTY OF COOLANT

Start the coolant flow before the first cutting stroke. Coolant is needed on materials (except cast iron, copper and some brasses) to reduce friction, blade wear, and chip clogging. Keep coolant flowing until job is finished and the blade is stopped. For best blade life and fastest cutting time use TRIM EP, a product of Master Chemical Corporation.

REPAIR PARTS FOR # 5 HY DUTY HACK SAW

1C	Cabinet Base
6C	Saw Table
20C	Guide Bar Support Arm
21C	Crank Shaft Disc Assembly
22C	V-Belt
23C	Main Bearing
24C	Drive Shaft Pinion Assembly
25C	Set Collar
26C	Drive Gear
27C	Gear Guard
29C	V-Drive Pulley
32C	Gauge Bar Clamp
33C	Gauge Bar Assembly
35C	Saw Frame-Only
36C	Guide Bar
36C-1	Guide Bar Handle & Pin
37C	Brass Gibs for Saw Frame (4 to set)
38C	Connecting Rod Wrist Pin
39C	Connecting Rod
40C	Saw Blade Support Bar
41C	Saw Blade Tension Bar
42C	Saw Blade Tension Nut
43C	Saw Blade Tension Clamp
44C	Stud Bolt for Saw Frame
45C	Solid Vise Jaw
46C	Vise Rails (2 to set)
47C	Loose Vise Jaw
48C	Vise Nut
49C	Vise Screw Assembly
50C	Vise Complete
54C	Lower Coolant Line
55C	Flexible Coolant Tube Assembly
56C	Coolant Pump
94C	Automatic Oiler
95C	Hi-Lo Motor Pulley
97C	Variable Speed Control Assembly
98C	Handwheel for Variable Speed Control
100C	Hydraulic Tank Reservoir
102C	Hydraulic Cylinder Assembly
107C	Hydraulic Lines
109C	Brass Hose Fitting Pump

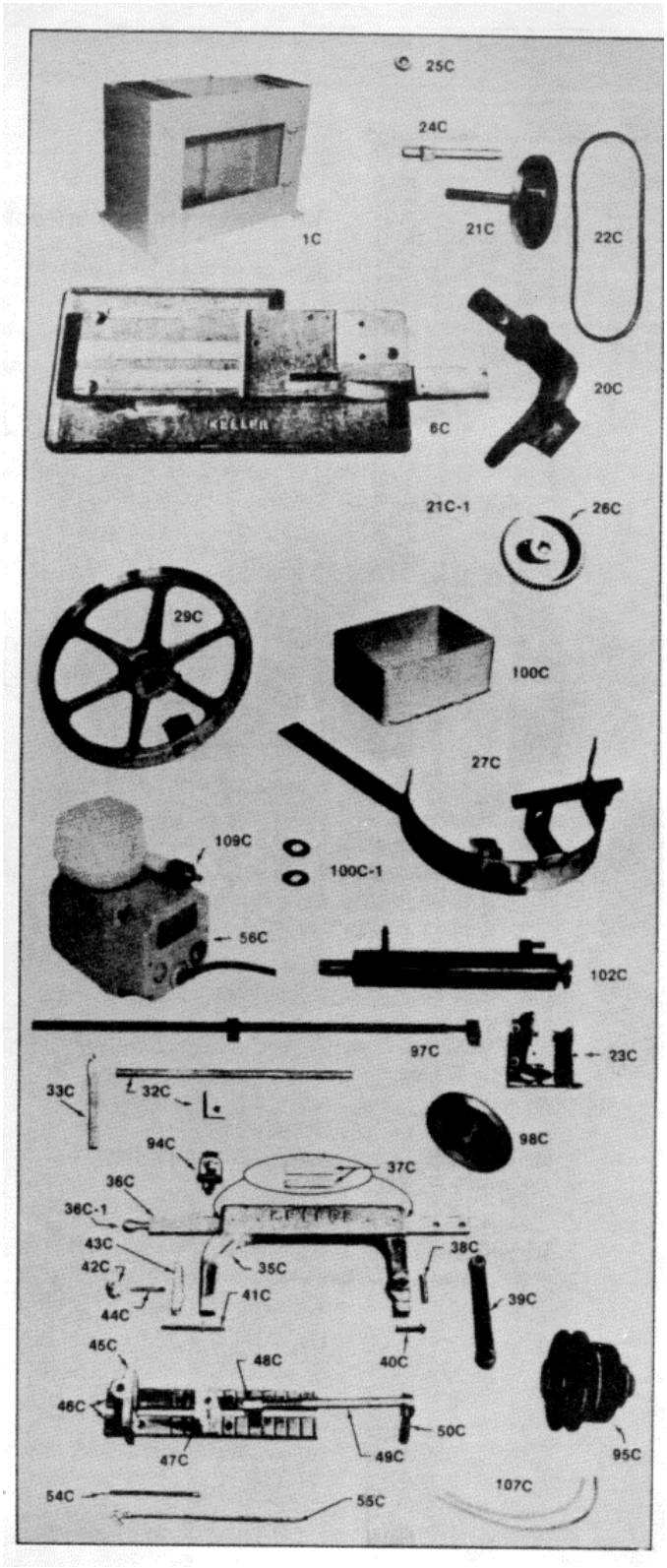
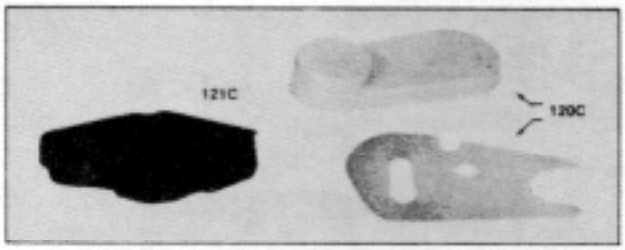
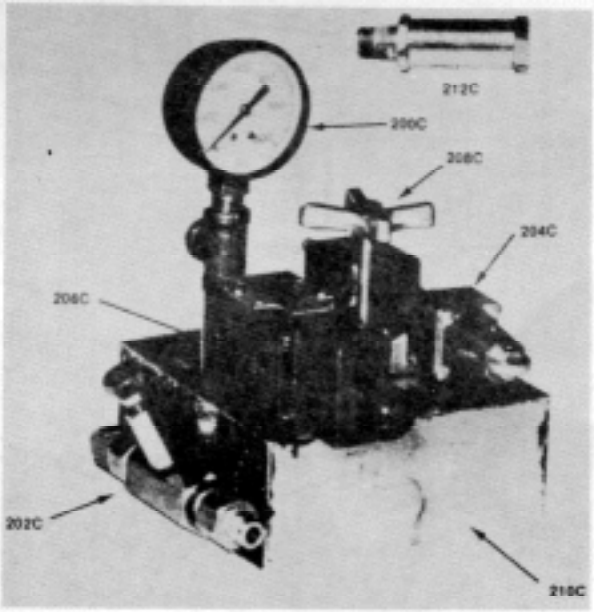


FIGURE 2



120C Belt Guard Assembly
121C Crank Disc Guard

FIGURE 3



200C Pressure Gauge
202C Pressure Regulating Valve
204C Stroke Relief Valve
206C Directional Control Valve
208C Feed Rate Valve
210C Manifold Block
212C Check Valves (3)

FIGURE 4

MODEL 5 HY-DUTY SA POWER HACKSAW

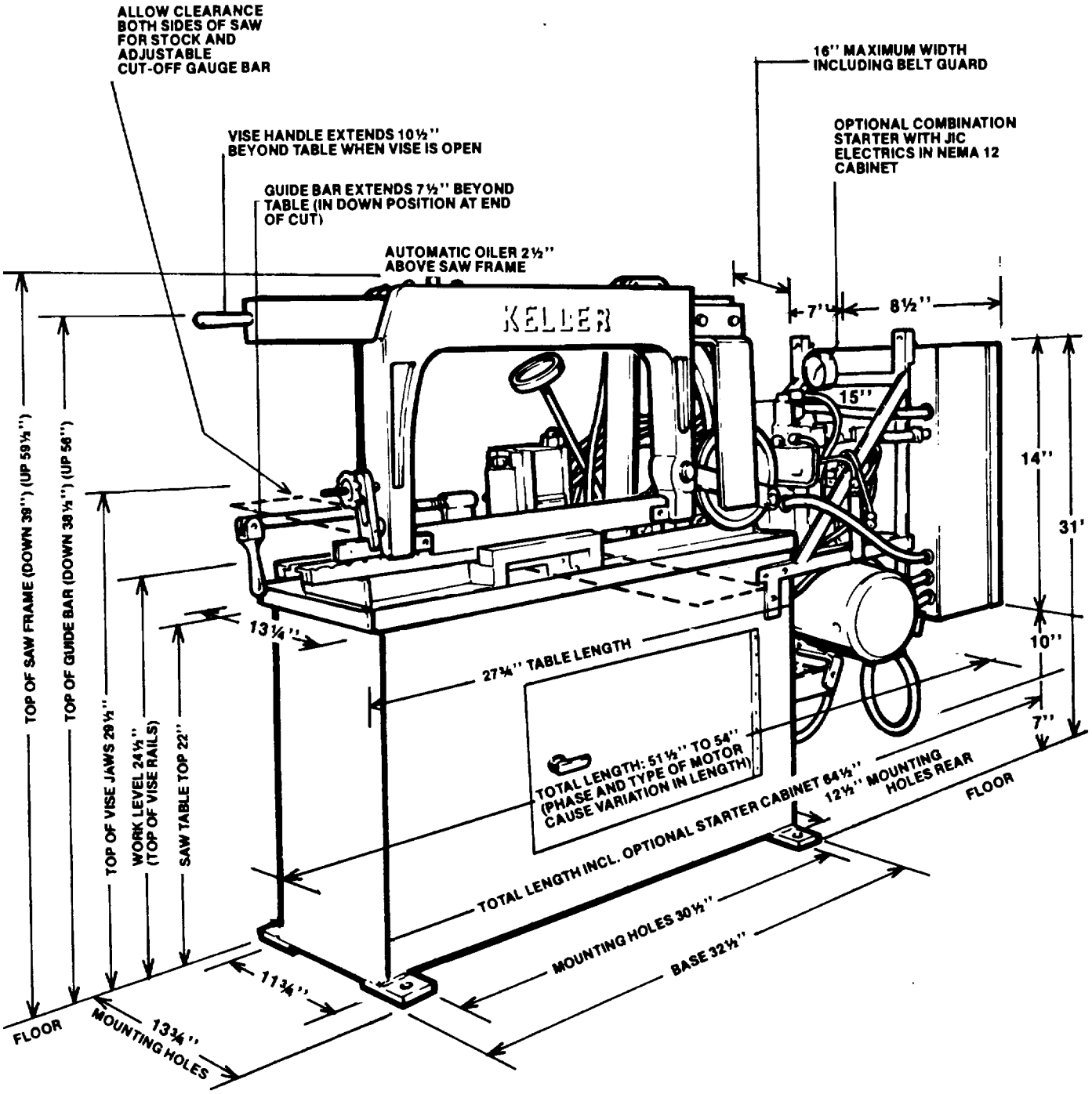


FIGURE 5

(GUARDS REMOVED)

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