SK1472-9600

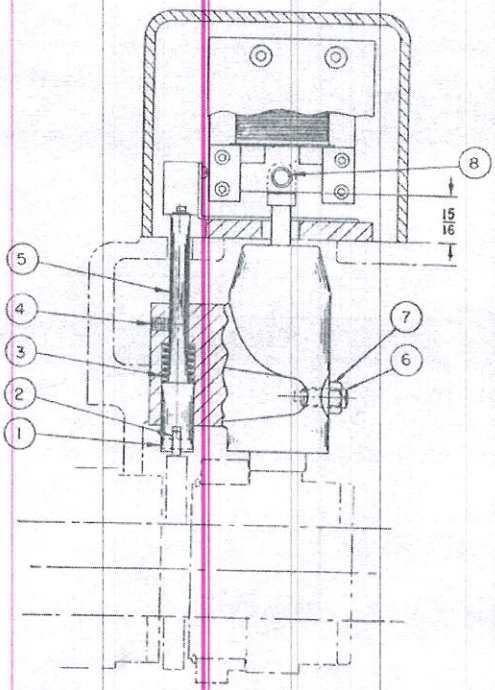
SOLENOID ASSEMBLY

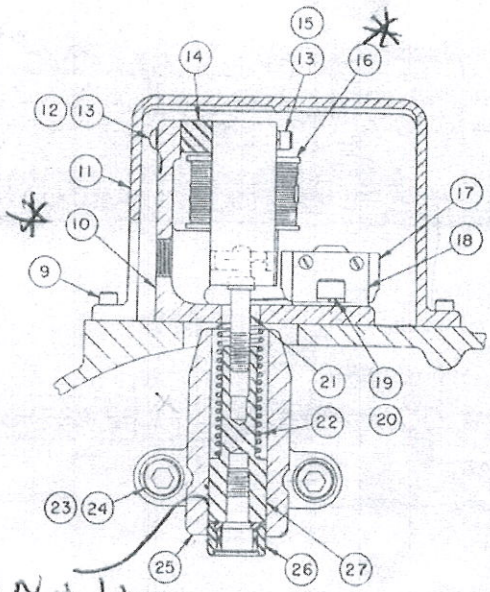
When installing a new solenoid coil make sure:

1. That the end bearing is sitting all the way down on the clutch.
2. That the set screw is tightened to prevent engaging pin from rotating.

Solenoid Assembly (continued)

3. Adjust the solenoid linkage rod accordingly, so that when the solenoid plunger and the linkage rod are pinned, the distance between the machined surface on the gear case and the bottom of the solenoid plunger is no less than 15/16".



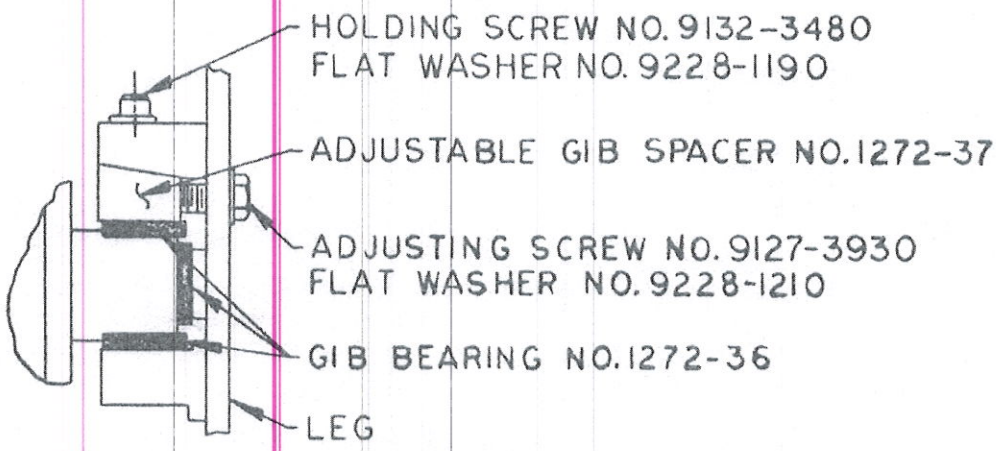


PIN & HOUSING T.020

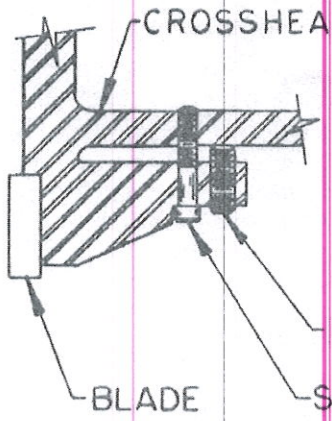
SOLENOID ASSEMBLY

KEY	PART NAME	NUMBER
1	Follower bearing shaft	1672-049
2	Follower bearing	9450-0180
3	Limit switch plunger spring	1672-119
4	Soc set screw	9170-2400
5	Limit switch plunger	1672-048
6	Soc set screw	9170-3460
7	Jam nut - 3/8	9223-2190
8	Solenoid linkage pin	9238-3460
9	Soc hd cap screw - 1/4-20 x 1	9132-2450
10	Clutch solenoid base	1672-092
11	Clutch solenoid cover	1672-093
12	Bt hd cap screw - 1/4-20 x 1	9136-2450
13	Lockwasher - 1/4	9228-5150
14	Solenoid mounting spacer	1672-094

KEY	PART NAME	NUMBER
15	Soc hd cap screw - 1/4-20 x 1-3/4	9132-2480
16	Solenoid	9503-5040
17	Limit switch	9503-4060
18	Limit switch bracket	1672-132
19	Lockwasher - 3/8	9228-5190
20	Soc hd cap screw - 3/8-16 x 1	9132-3450
21	Solenoid linkage rod	1672-100
22	Clutch engaging pin spring	59-101
23	Lockwasher - 1/2	9228-5210
24	Soc hd cap screw - 1/2-13 x 1	9132-3900
25	Clutch engaging pin housing	1672-104
26	Engaging pin end brg	9451-0080
27	Clutch engaging pin	59-099A

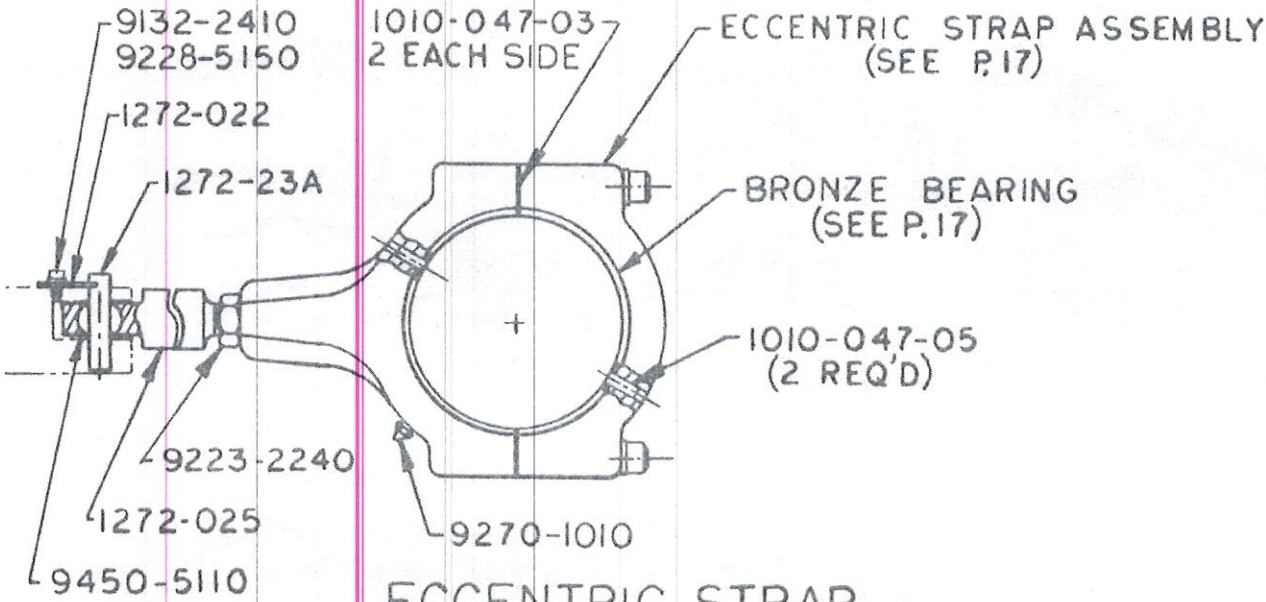


GIB ADJUSTMENT



ITEM	1048	1252	1260	1272	1496
1	1272-2-8	1272-2-8	1272-2-8	1010-133	1010-133

UPPER BLADE ADJUSTMENT



ECCENTRIC STRAP

MAINTENANCE CHECK LIST

These intervals are based on average use of one shift operation.

CHECK OR ADJUSTMENT	DAILY	MONTHLY	THREE MONTHS	SIX MONTHS
1. Check holddowns for proper operation.	X			
2. Check crosshead (ram) stopping point at top of stroke - adjust brake if necessary.	X			
3. Inspect blade for nicks or wear; turn, replace or sharpen if necessary.	X			
4. Clean back gage probes (optional equipment).	X			
5. Drain air filters and surge tank of condensate (machines equipped with air-operated equipment).	X			
6. Check blade bolts (if they have not been turned); tighten if necessary.		X		
7. Check blade clearance; adjust if necessary.		X		
8. Check gib adjustment; adjust if necessary.		X		
9. Check machine level; relevel if necessary.		X		
10. Check entire machine for loose fasteners - especially back gage and holddown beam bolts; tighten if necessary.		X		
11. Check for broken counterbalance springs; replace if necessary. (Models 1496, 1410, 1612)				X
12. Check back gage bar parallelism; adjust if necessary.			X	
13. Check tightness of main drive vee belts (where applicable).			X	

ELECTRICALS

Electrical Connections

Unless otherwise specified, power connections are all for 220V, three phase, 60 hertz operation. Power connections are made to the disconnect switch. (Terminals L1, L2 and L3.)

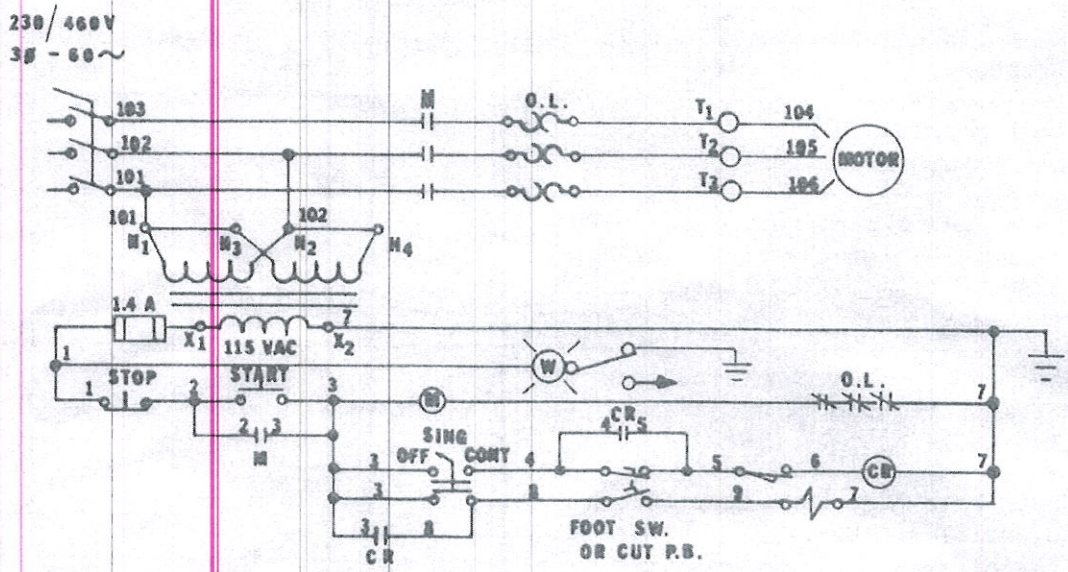
The motor is protected by automatic reset overload relays in the magnetic starter. The solenoid, limit switch and control relays operate at the step down voltage of 115V.

Before making power connections check to be sure that power characteristics match the electrical specifications of the machine.

Observe all local electrical codes and provide adequate grounding.

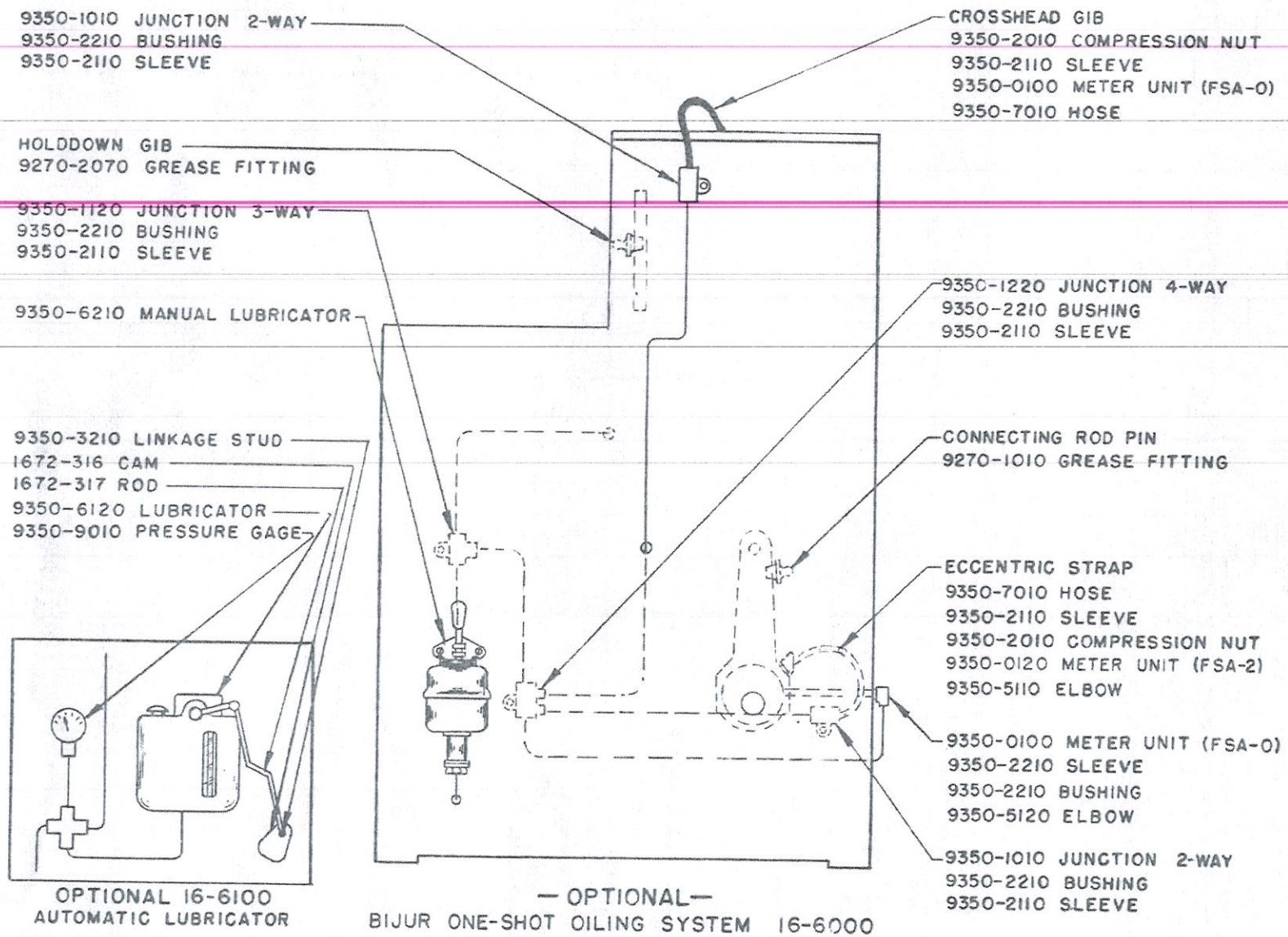
Electrical Components

PART NAME	NUMBER
Control box	1472-390
Control box bracket	1472-392
Control box panel	1272-391
Push button plate	1272-129
Foot switch	9501-4020
Disconnect switch	9501-5010
Motor starter	9502-1040
Control relay	9502-2030
Push to test button	9503-2530
Push button "cut" (optional)	9503-3220
Stop push button	9503-3280
Start push button	9503-3290
Selector switch	9503-3310
Transformer 150 VA (fused)	9503-6050
Terminal block	9504-7010
Fuse - 1.4 AMP	9504-8050
Fuse - 600V - 15 AMP	9504-8200



'S' SERIES

1272-925 SERIAL NO._____



OPTIONAL 16-6100
AUTOMATIC LUBRICATOR

— OPTIONAL —
BIJUR ONE-SHOT OILING SYSTEM 16-6000

LUBRICATION

These intervals are based on average use of one shift operation.

	LUBRICANT	DAILY	WEEKLY	MONTHLY	6 MO.	YEARLY
1. Check and lubricate eccentric strap bearing.	Mobilux Grease #1	X				
2. Lubricate crosshead gib bearings.	Mobilux Grease #1	X				
3. Lubricate driveshaft, leg and bearings.	Mobilux Grease #1	X				
4. Lubricate connecting rod pins.	Mobilux Grease #1		X			
5. Lubricate holddown ways (except "W" series).	Mobilux Grease #1	X				
6. Lubricate back gage ways and lead screw nut.	Mobilux Grease #1		X			
7. Lubricate flywheel bearings (W, PC and B series).	Mobilux Grease #1			X		
8. Transmission - check oil level		X				
9. Transmission - empty, clean and refill-"S" series	Mobil Compound DD					X
"W" series	Mobil 600W Cyl. Oil					X
10. Empty, clean and refill power back gage gear motor (optional equipment).	Mobil Compound DD					X
11. Check air pressure, air line lubricator oil level - add if necessary.		X				
Drain air line filter (when air equipment used).		X				
12. Centralized "one-shot" grease system.	Mobilux Grease #1	2X				
Check for pinched or broken lines.			X			
13. For "one-shot" and "automatic" oiling systems - pull lever	Mobil Vactra #2	3X				
Check oil reservoir - add oil if necessary		X				
Check for broken or pinched lines.			X			
Check for blocked oil meters.		X				
Check for broken linkage			X			
Empty, clean, change filter and refill reservoir.					X	

LUBRICATION

One-Shot Centralized Grease

This is a progressive lubricating system, used as standard equipment on all "P" model machines.

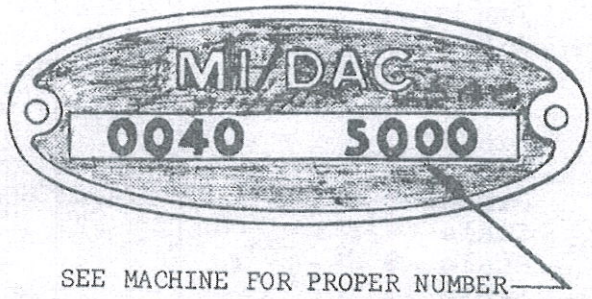
Measuring valve pistons are in each lube line. Each piston must operate positively forcing a full measured shot of grease into the bearing line, before the main flow operates the next piston in sequence.

Since each piston must complete its stroke before grease can flow to the next piston, it is apparent that you should NEVER block any lube points. Do not "pinch" any lube lines. Repair blockage immediately! Excessive pressure at the grease gun handle indicates a blocked condition. You must trace and clear the blockage before you operate the machine.

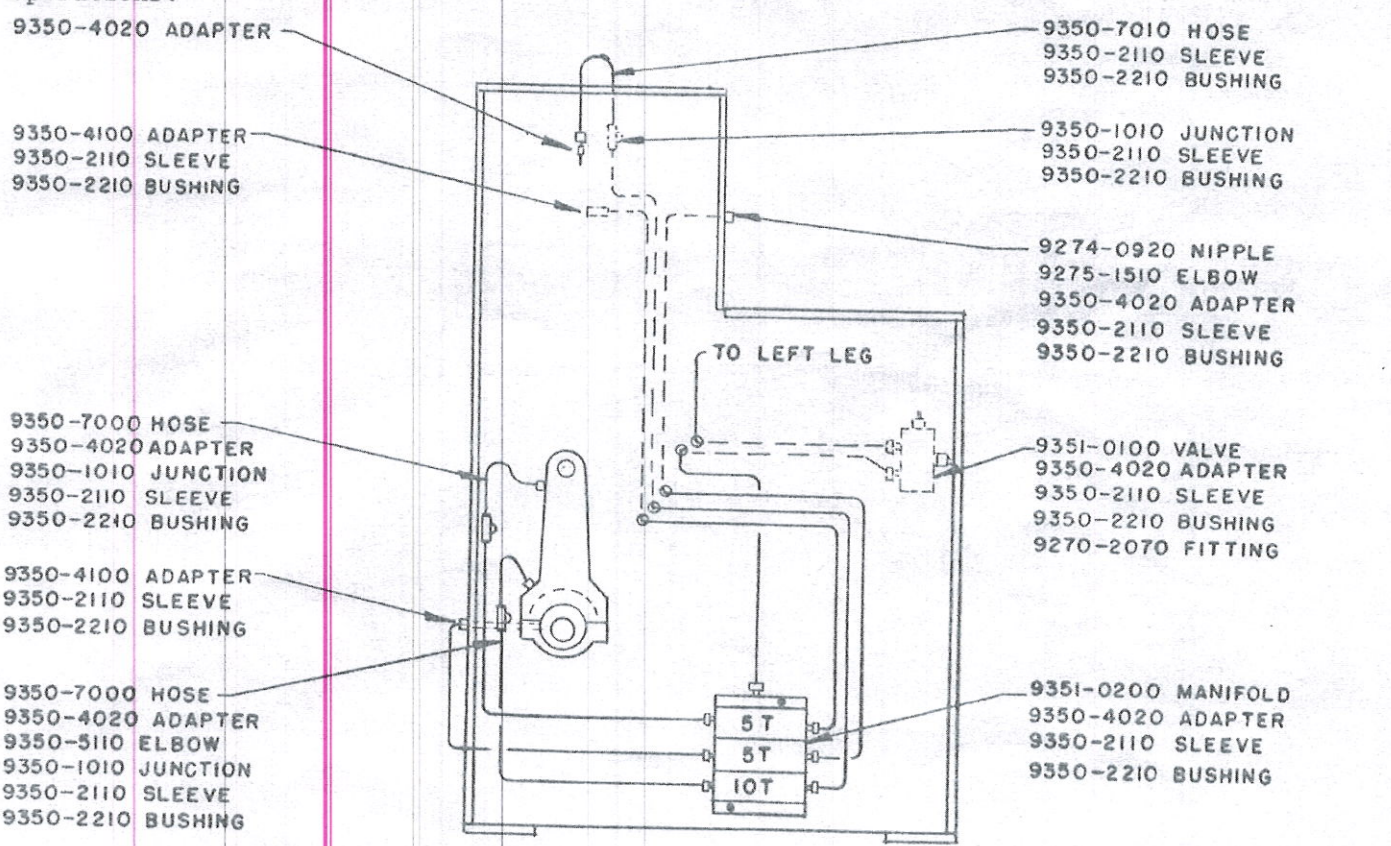
Use one shot of Mobilux Grease #1 twice per eight (8) hour shift, for normal operations.

MI/DAC

The MI/DAC tag shown below is attached to the holddown of the machine. It indicates that preventive maintenance and lubrication information has been programmed for automatic data processing or computer equipment.



The Mobil Oil Company developed MI/DAC and maintains the necessary system for "Management Information for Decision and Control". To receive the preventive maintenance and lubrication instructions programmed for this machine, or for further information on MI/DAC, contact the office indicated on the cover sheet, or the Mobil Oil Corporation.



— OPTIONAL —

ONE-POINT CENTRALIZED GREASE SYSTEM- S SERIES

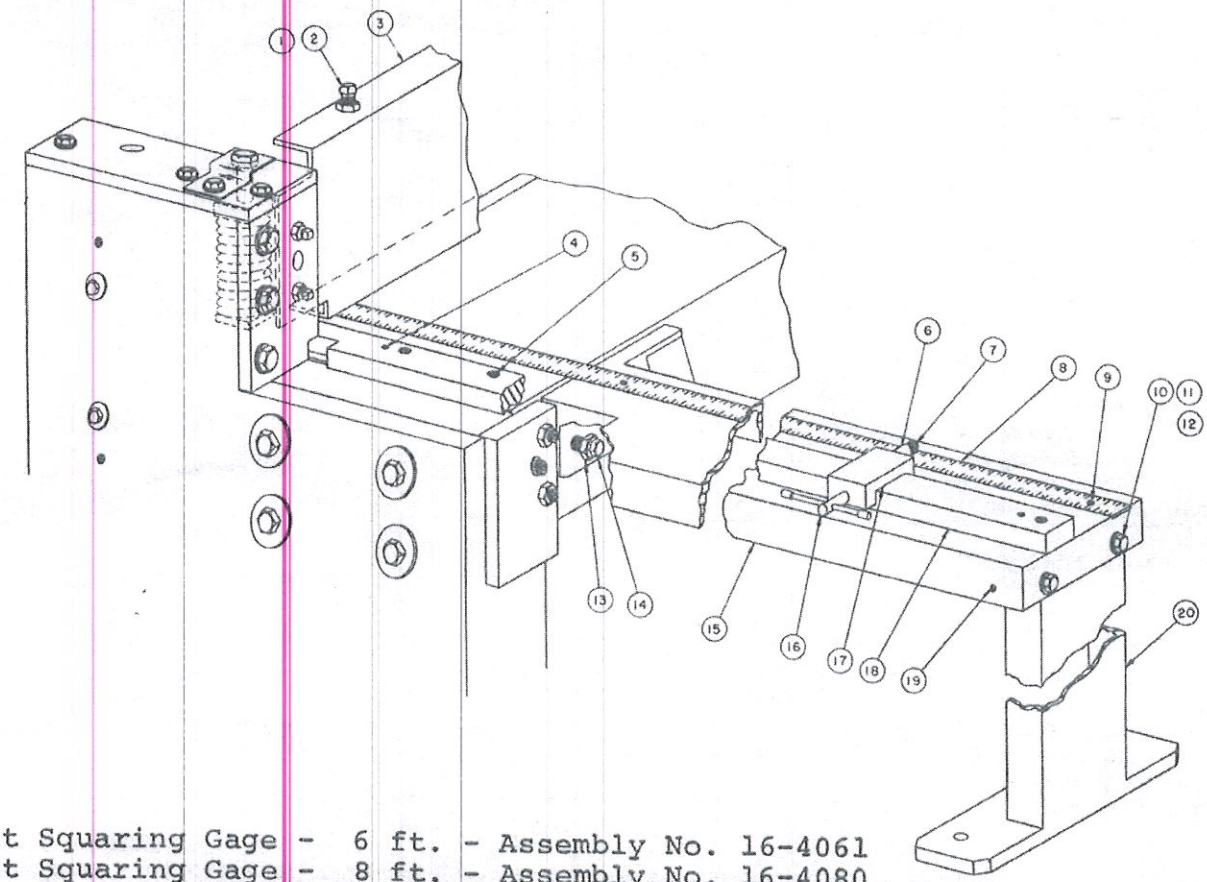
USE: MOBILUX GREASE NO. 1

- OPTIONAL -

SOLID HOLDDOWN -- FRONT SQUARING GAGE

KEY	PART NAME	NUMBER	KEY	PART NAME	NUMBER
1	Sq Hd Set Screw	9144-4440	14	Hex Hd Cap Screw	9126-3530
2	Jam Nut	9223-2230	15	Bed 16-4061	1272-141A
3	Solid Holddown	See Below		Bed 16-4080	1272-152
4	Roll Pin	9238-3220		Bed 16-4095	1272-153
5	Soc Hd Cap screw	9132-3450	16	Lock Handle	1272-149
6	Latch	1272-147	17	Gage Block	1272-146A
7	Stripper Bolt	9174-3900	18	Guide 16-4061	1272-144A
8	Scale 6 ft.			Guide 16-4080	1272-154
	Scale 8 ft.			Guide 16-4095	1272-155
	Scale 10 ft.			Guide 16-4095	1272-255
9	Not Used		19	Soc Set Screw	9162-3800
10	Hex Hd Cap Screw	9126-3450	20	Leg	1272-148A
11	Lock Washer	9228-5190			
12	Hex Nut	9223-1190			
13	Adj. Bushing	1272-145			

KEY	1048	1252	1260	1272	1496
3	16-5249	16-5253	16-5261	16-5273	16-5280



Front Squaring Gage - 6 ft. - Assembly No. 16-4061
Front Squaring Gage - 8 ft. - Assembly No. 16-4080
Front Squaring Gage - 10 ft. - Assembly No. 16-4095

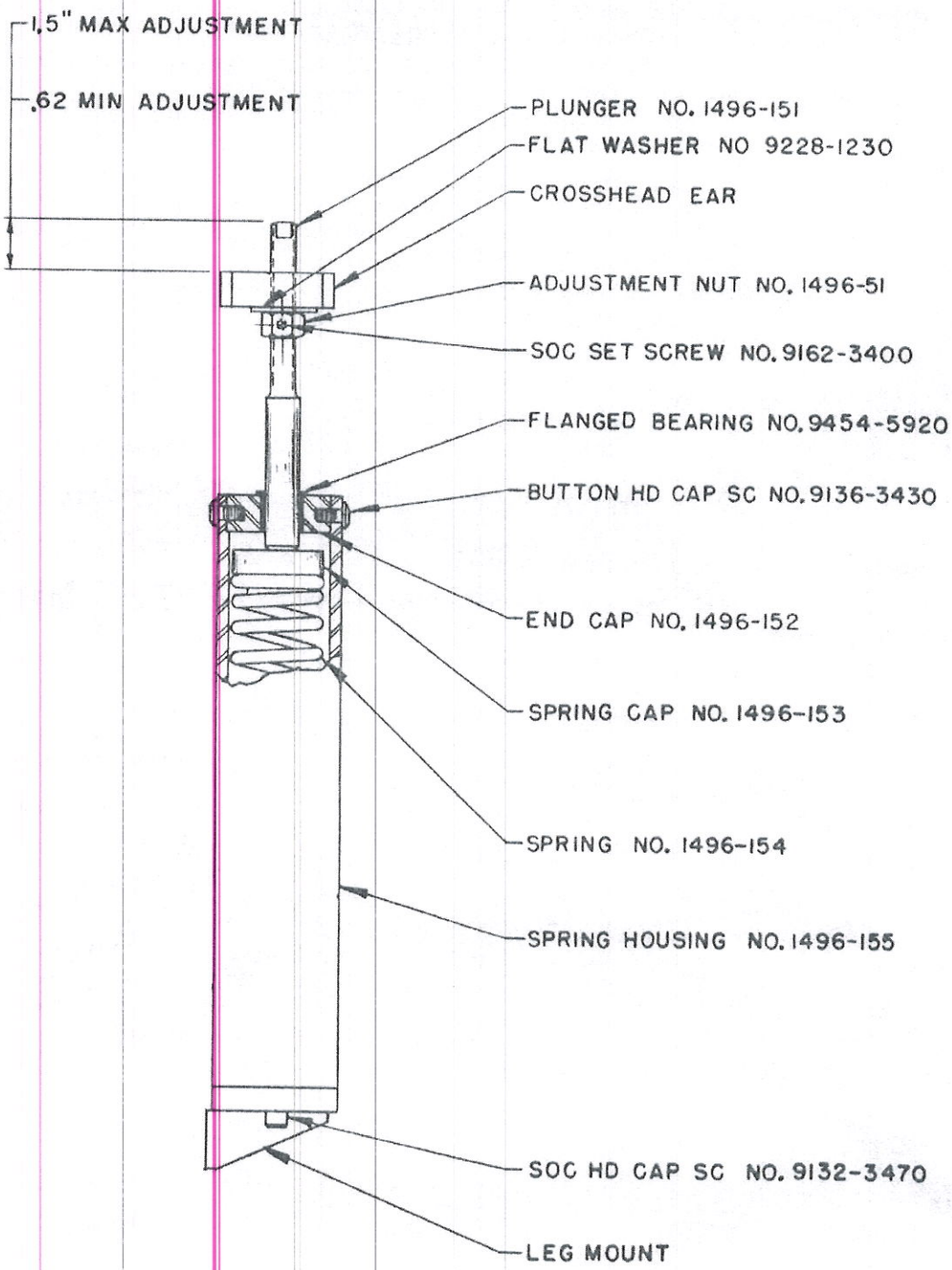
RECOMMENDED SPARE PARTS - FOR S-12

PART NAME	NUMBER
Brake lining	1010-121
Gear case cover gasket	1672-103
Drive shaft end cap gasket	1672-067
Clutch engaging pin end bearing	9451-0080
Clutch engaging pin spring	59-101
Solenoid linkage rod	1672-100
Limit switch	9503-4060
Solenoid coil - 110V AC	9503-5041
Clutch relay coil - 110V AC	9502-2031
Blades, HC-HC	See Page 8
Solenoid linkage pin	9238-3460
Flexible coupling insert	1272-097-01

PARTS NOT ILLUSTRATED

PART NAME	1048	1252	1260	1272	1496
Connecting rod pin	1272-23A	1272-23A	1272-23A	1272-23A	1272-23A
Right leg	1272-3	1272-3	1272-3	1272-3	1496-3
Holddown bar gib	1672-7A	1672-7A	1672-7A	1672-7A	1672-7A
Eccentric cam key	9001-2190	9001-2190	9001-2190	9001-2190	9001-2190
Drive shaft collar	1272-43	1272-43	1272-43	1272-43	1272-43
Gear case mounting sleeve	1272-114	1272-114	1272-114	1272-114	1272-114
Top center pointer tag	59-57	59-57	59-57	59-57	59-57
Top center indicator tag	59-58	59-58	59-58	59-58	59-58
Connecting rod bearing	9450-5110	9450-5110	9450-5110	9450-5110	9450-5110
Gear case side cover	1272-92	1272-92	1272-92	1272-92	1272-92
Side cover gasket	1272-93	1272-93	1272-93	1272-93	1272-93
Crosshead	1048-2	1252-2	1260-2	1272-2	1496-2
Front skirt	1048-111	1252-111	1460-111	1272-111	--
Rear skirt	1048-112	1652-112	1460-112	1672-112	1496-112
Upper blade bolt	9188-3940	9188-3470	9188-3470	9188-3940	9188-3940
Bed blade bolt	9188-3970	9188-3470	9188-3470	9188-3970	9188-3970
Locking cap	1272-22	1272-22	1272-22	1272-22	1272-22

COUNTER-BALANCE SPRING ASSEMBLY 1496-4100



POSSIBLE PROBLEMS AND THEIR CAUSES
"S" SERIES

1. Crosshead stopping short of top-dead-center and/or clutch chattering.

   a) Not enough lubrication - see lube instructions.
   b) Brake too tight - see brake adjustment.
   c) Overloading conditions - stay within shear capacity.
   d) Excessive clutch gap - clutch disengages too soon - see clutch adjustment.
   e) Eccentric straps too tight.

2. Crosshead overtraveling past top-dead-center.

   a) Loose brake - see brake adjustment.
   b) Oil on brake lining - clean lining with non-flammable liquid, roughen with sandpaper.
   c) Not enough clutch gap - see gib adjustment.
   d) Loose gibs - see gib adjustment.

3. Crosshead stops at bottom of stroke.

   a) Loose brake - crosshead comes down under its own weight and clutch is disengaged at this point - see brake adjustment.
   b) Loose crosshead gibs - see gib adjustment.
   c) Clutch disengages prematurely - excessive gap - see clutch adjustment.
   d) Limit switch set to disengage prematurely - re-set limit switch arm.

4. Motor running - shear does not actuate.

   a) Loose motor coupling - repair or replace coupling.
   b) Clutch relay is not pulled in.
   c) Clutch solenoid not actuating - weak solenoid coil.
   d) Broken clutch engaging pin - replace pin.

5. Burr on sheared edge.

   a) Dull blades - sharpen - see blade adjustment.
   b) Improper blade clearance - see blade adjustment.
   c) Crosshead loose in gibways - see gib adjustment.

6. Kick-back of stock.

   a) Not enough holddown pressure - see holddown adjustment.
   b) Dull blades - sharpen - see blade adjustment.

7. Shear runs continuously - does not single stroke.

   a) Limit switch actuating leaf improperly - reset limit switch.
   b) Limit switch actuating pin lodged in the housing or broken - open gear case and replace pin.
   c) Short in the wiring system, thus clutch solenoid and/or clutch relay stay energized.
   d) Selector switch set for continuous operation - reset into single mode.
   e) Broken engaging pin end bearing - open gear case and replace bearing.
   f) Loose drive gear nut.
   g) Loose clutch cam ring - reset per drawing.

8. Back gage not holding size.

   a) Lead screw backlash.
   b) Back gage bar not zeroed in.
   c) Improper set-up procedure.
   d) Loose crosshead gibs.
   e) Dial and/or pointer not zeroed in.

INDEX

NUMERICAL

ALPHABETICAL

MATERIAL COMPARISON

EQUIVALENT CAPACITY OF FAMCO SHEARS FOR MATERIALS OTHER THAN MILD STEEL

MILD STEEL GAGE 50,000 PSI SHEAR STRENGTH	3/16	8 .166	10 .135	12 .105	14 .075	16 .060	18 .048	20 .036
STAINLESS STEEL								
TYPE 302 ANNEALED	.141	.125	.109	.078	.063	.050	.038	.031
TYPE 302 COLD WORKED	.109	.094	.078	.063	.044	.038	.025	.018
SILICON STEEL	.166	.149	.120	.075	.060	.048	.036	.030
SAE 1050 COLD ROLLED	.135	.120	.105	.075	.060	.048	.036	.030
ALUMINUM								
1100-0	.313	.250	.250	.190	.125	.100	.090	.063
1100-H14	.250	.250	.190	.160	.125	.100	.090	.063
1100-H18	.250	.250	.190	.160	.100	.090	.080	.063
3003-0	.313	.250	.190	.160	.125	.100	.080	.063
3003-H14	.250	.250	.190	.160	.100	.090	.080	.063
3003-H18	.250	.250	.190	.160	.100	.090	.080	.063
5005-H14	.250	.250	.190	.160	.100	.090	.080	.063
5052-0	.250	.190	.190	.125	.100	.080	.063	.050
5052-H34	.250	.190	.160	.125	.100	.080	.063	.050
5052-H38	.190	.190	.160	.125	.100	.080	.063	.050
2024-0	.250	.190	.190	.125	.100	.080	.063	.050
2024-T3	.190	.160	.160	.125	.090	.071	.063	.050
6061-0	.250	.250	.190	.160	.125	.100	.090	.063
6061-T4	.190	.190	.160	.125	.100	.080	.063	.050
6061-T6	.190	.190	.160	.125	.100	.080	.063	.050
7075-0	.250	.190	.160	.125	.100	.080	.063	.050
7075-T6	.190	.160	.125	.100	.080	.063	.050	.040
BRASS—YELLOW 65%—35%								
SOFT	.229	.204	.162	.129	.091	.072	.064	.051
½ HARD	.187	.187	.144	.114	.081	.064	.051	.036
HARD	.187	.162	.129	.102	.072	.064	.051	.036
BRONZE, PHOSPHOR								
ANNEALED	.204	.187	.144	.114	.081	.064	.051	.040
SPRING TEMPER	.162	.144	.114	.091	.064	.051	.041	.032
COPPER								
SOFT	.229	.204	.162	.129	.091	.072	.064	.051
HARD	.204	.187	.144	.114	.081	.064	.051	.040
GOLD—SOFT 14 CARAT	.200	.170	.140	.110	.080	.060	.050	.040
SILVER—½ HARD STERLING	.200	.170	.140	.110	.080	.060	.050	.040
PLASTIC—ABS COMPOUNDS	.560	.500	.500	.375	.250	.200	.150	.120

FAMCO MACHINE DIVISION

BELCO INDUSTRIES, INC. 1001 · 31st STREET, KENOSHA, WISCONSIN 53140 · 1-414-654-3516

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