

HYDRAULIC AND COOLANT PARTS LISTS AND INSTRUCTIONS

**For K. O. Lee
Tool Grinders and Surface Grinders (6x12 and 6x18 Series)
Applies only to surface grinders**

Not applicable to fully hydraulic models.

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See MPL-100 Price List for Prices



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SET-UP and SERVICING INFORMATION

6. Belts between motor pulley and spindle pulley may be too loose, or pulleys may be misaligned, causing belt rotation & vibration.
7. Inappropriate feeds of the wheel into the work may cause intermittent contact with the work. Check the wheel specification for the type of work being ground, and the rates of feed employed.
8. Vibration from an outside source, such as the floor, may be transferred to grinding machine.

E. Work has a scratchy finish:

1. The wheel employed may be too soft and the grains too large for material being ground.
2. Check for excessive grinding residue in the coolant tank, and clean out tank if necessary, or change coolant.

II. HYDRAULICALLY POWERED GRINDERS (Table only Surface Grinders and Tool Grinders)

A. Hydraulic system makes excessive noise:

1. Pressure relief valve stuck closed. Remove adjustable cap and screw (see schematic on page 4). Remove valve, clean and reassemble and adjust to stated pressure. Piston in valve may have to be polished to remove scratches.
2. Pump running in wrong direction. Check belt direction with arrow on belt guard. Change any two incoming leads (3 phase) at motor contacts.
3. Belts too loose between motor and pumps. Move motor and tighten belts.

B. Excessive heating of hydraulic system:

Hydraulic oil temperatures during normal operation after oil has been heated by the natural friction forces, will be in the range of 120° to 130° F. If oil stays consistently warmer than this, check for the following conditions.

1. Since the unit is designed to be operated in a 70° room temperature condition, additional room temperature will cause correspondingly higher operating temperatures.
2. One or more of the relief valves may be stuck. Remove locking caps and nuts at the end of the relief valve, and attempt to drive the piston out into a soft material by turning on the hydraulic system briefly. When the piston seems to move freely in the valve body, reinstall it and reset the system relief valve to the stated pressure on the unit, or that stated on page 4.
3. Area around the base of the machine must be kept clean so that air can circulate under the base cabinet if hydraulic system is located inside the base. Hydraulic systems which are located outside the machine, should be kept up off the floor and air allowed to circulate around the entire hydraulic tank.

C. Table Stop valve will not stop table from moving, or table has only one speed:

1. Before investigating further, insure that the valve stems in relationship to the valve block body, have been set in accordance with the original factory settings as shown in this instruction manual. (BA933, S633, B1033, S733 Table Speed Valve, page 2.)

2. If table speed is not adjustable, oil is probably by-passing valve No. 26 shown on page 2, therefore, adjust valve setting as mentioned in No. 1 above. Valve tension with the three set screws should be just free enough to turn with fingers.

D. Table Travel not up to speed rating for the grinder; no power, erratic or jumping action of the table:

1. Check hydraulic oil level in tank.
2. Air in table cylinder. Bleed cylinder. See instruction No. 6, page 11.
3. Leakage in cylinder due to worn seals on piston, or worn V-packing in end glands. Replace seals. Leakage around Coupling Tubes caused damaged O-Rings. Replace (see replacement kits in this manual).
4. Relief valve may be stuck. Remove pressure relief valve and clean. Reset to stated pressure. See drawing on page 4, check point A.
5. Leakage in hydraulic lines or hoses. Check and replace.
6. Table ways may require additional lubrication. Adjust valve screw No. 18 on page 4. Turn clockwise to increase flow, and adjust according to instructions.
7. Hydraulic pressure relief valve stuck open. Remove, clean, reset to pressure as stated. See page 4.
8. Oil should be at operating temperature. See II-B in adjacent column.
9. Oil by-passing valve No. 27, page 2. Check position of star on stem and lever arm No. 28. If lever arm moves too freely, remove and adjust set screws No. 39.
10. Belts slipping. Loosen motor hold down screws, and move motor; tighten belts.
11. Oil by-passing valve No. 26, page 2. Check position of stem star, removing No. 7 control knob. If valve lifts up, adjust set screws No. 39. Reset valve stem in correct relationship to knob as shown on page 2.
12. Oil line or control valve obstructed by foreign material. Clean all lines and disassemble and clean valve assembly.
13. Fine screen in tank should be cleaned.
14. Hydraulic oil too heavy, check specifications.
15. Oil is dirty or contaminated from coolant system. Change oil and inspect for coolant source.
16. Check in-line filter (if used). This filter is located near the pump assembly in the pressure line to main control valve assembly.

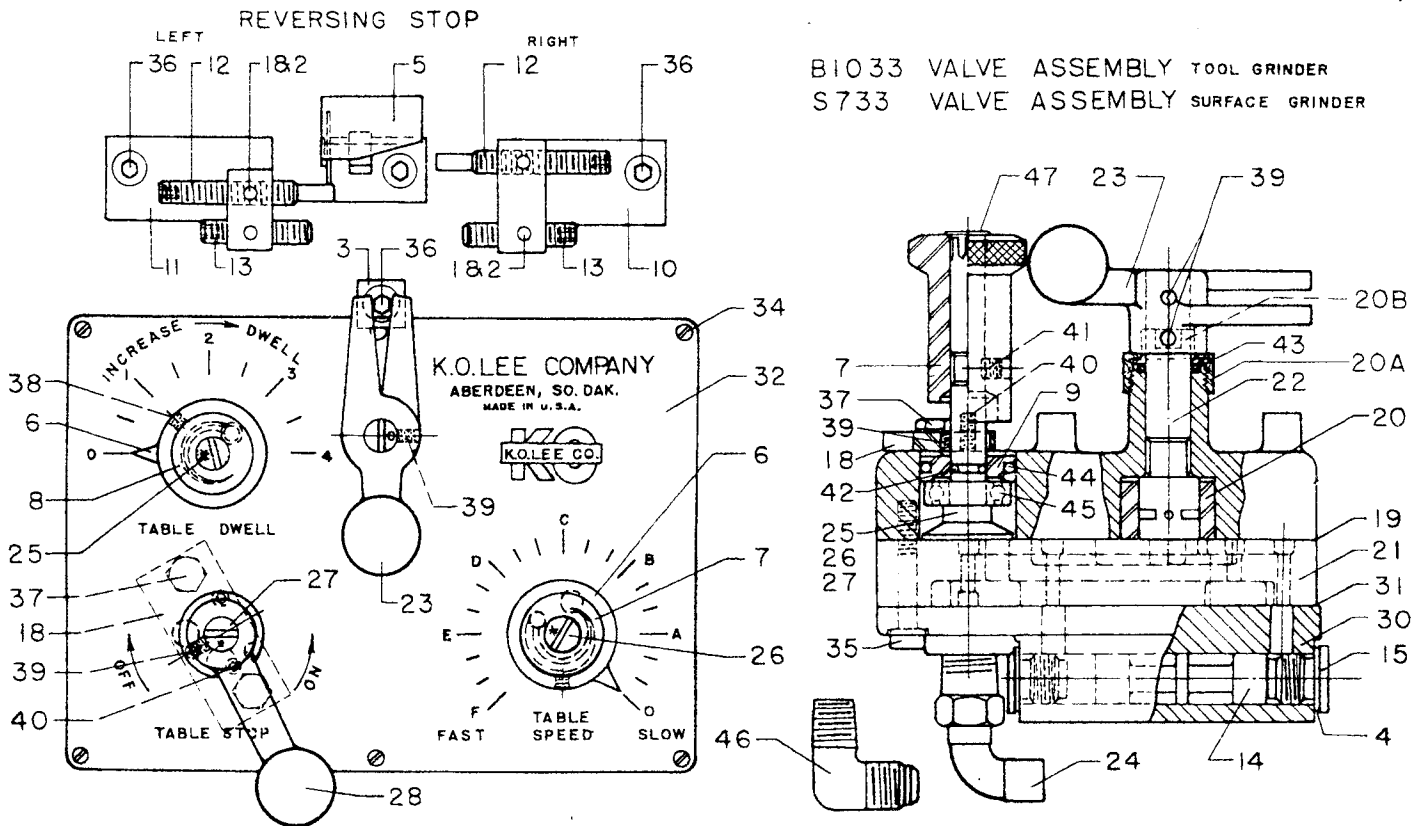
E. Table fails to reverse when Control Arm (No. 23) is moved by Reversing Stops:

1. Control Arm is not properly located relative to directional valve. See correct relation on schematic page 2. Relocate locking set screws on side.
2. Reversing Spool (No. 14) has stuck in valve block. Remove at front end by hydraulic pressure (after tapping) using hydraulic pressure briefly. Clean spool and polish if necessary. Inspect valve block hole for contamination and clean out thoroughly.

B1033, S733 VALVE ASSEMBLY

PARTS LIST MAY ALSO BE USED FOR OBSOLETE (1965) BA933(TG) AND S633(SG) ASSEMBLIES

S833-20 R.H. Rev. and Stop Assembly — S833-30 L.H. Rev. and Stop Assembly



DRAWING SHOWS ORIGINAL FACTORY SETTING OF CONTROL KNOB AND HANDLE ON THIS VALVE.

NOTE POSITION OF ETCHED STAR AND SLOT AT END OF SHAFT.

TOOL GRINDERS:

TABLE DWELL VALVE POSITION IS WITH NO DWELL. TO INCREASE DWELL ROTATE CLOCKWISE.

SURFACE GRINDERS:

DWELL VALVE HAS BEEN PRE-SET FOR TABLE REVERSAL DAMPENING.

Index No.	Part No.	Quan. Req.	Description	Index No.	Part No.	Quan. Req.	Description
1	A630BS	4	Spring	25	S833J	1	Dwell Valve (Surface Grinder)
2	B629P	4	Plug	25	BA933H	1	Dwell Valve (Tool Grinder)
3	B833RC	1	Center Stop Block	26	BA933J	1	Control Valve (Tool Grinder)
4	B833W	2	Aluminum Washer	26	S633J	1	Control Valve (Surface Grinder)
5	B933F	1	Swinging Stop	27	BA933L	1	Control Valve
6	B933M	1	Pointer	28	BA933LA	1	Lever Arm
7	S837K	1	Knurled Hand Nut	30	BA933P	1	Bottom Plate
8	B933N	1	Knurled Hand Nut (Tool Grinder)	31	BA933PG	1	Gasket
9	B933R	3	Valve Thrust Ring	32	KO-32	1	Data Plate (Surface Grinder)
10	B933RL	1	Left Hand Rev. Stop	32	KO-22	1	Data Plate (Tool Grinder)
11	B933RR	1	Right Hand Rev. Stop	34	No. 2 x 3/16	6	S. T. Rd. Hd. Screw
12	S833RS	2	Control Arm Rev. Screw	35	1/4x1 1/2 S.A.E.	14	Hex Socket Cap Screw
13	S833RT	2	Adjustable Stop Screw	36	3/16x3/8 S.A.E.	4	Hex Socket Cap Screw
14	B933S	1	Spool (Tool Grinder)	37	1/4x1/2 S.A.E.	6	Hex Cap Screw
14	S733S	1	Spool (Surface Grinder)	38	10-32 x 3/16	2	Socket Set Screw
15	B933T	2	Spool Stop	39	10-32 x 1/4	11	Socket Set Screw
18	BA933BC	3	Bearing Clamp Bar	40	10-32 x 1/2	4	Socket Set Screw
19	BA933BG	1	Gasket	41	1/4x1/4 S.A.E.	2	Socket Set Screw
20	S833B	1	Body and Insert Ring Assembly	42	8011	3	O-Ring 1/8 x 3/8 x 1/8 Old No. 6
20A	S833BN	1	Nut	43	8015	1	O-Ring 1/8 x 3/8 x 1/8 Old No. 203
20B	S833BS	1	Stop Collar	43	8110	1	O-Ring (BA933, S633)
21	BA933C	1	Oil Channel Plate	44	8213	3	O-Ring 1/8 x 1/8 x 1 1/8 Old No. 18
22	B1033D	1	Directional Valve	45	9101K	3	Ball Bearing
23	S833EH	1	Control Arm	46	5822 x 6	3	Steel Male Elbow
24	BA933G	1	90° Elbow Assembly	47	3/8	1	Snap Button

SET-UP and SERVICING INFORMATION

Machine Set-Up Instructions

It is essential that the machine be leveled both longitudinally (left to right) and transversely (front to rear). A special foundation is generally not necessary, as any solid floor, reasonably free of vibration, will carry the weight of this machine. Construction of the machine base cabinet includes either cast iron leveling pads, or a 4-point leveling system incorporating set screw bolts and locking nuts. Consult set-up information instruction cards attached to the machine for further details.

Unless otherwise specified by special instructions, the machine is completely wired, and it is only necessary to connect power source wires to the proper terminals in the junction box, according to the enclosed electrical schematic.

Start-Up of Hydraulic Machines

1. Do not start pump motor until hydraulic system has been filled with the proper grade of oil, and the start-stop valves turned to OFF.
2. Use the correct grade of hydraulic oil required for this machine, as specified on page 10 in this instruction manual. Use of heavier oil than specified or oil with non-lubricating qualities, may result in slower table travel speeds, as well as increased wear on cylinder and valve parts.
3. Most hydraulic machines have table ways lubricated from the hydraulic system. Regulation of the oil flow to the ways is described on page 4 in this manual. Adequate oil to the table ways may be observed by watching oil drip from the small return tubes on the inside of the saddle near both the 'V' and flat ways. If oil does not drip from these return tubes, by observation from either end of the saddle, adjust way oil pressure until some flow is observed.
4. After hydraulic system has been filled with oil, check immediately for correct pump rotation by observing the arrow on the belt guard.
5. Other way systems on hydraulic machines are either lubricated by One-Shot, electric automatic, or spool roller way lube systems, which are described more fully in other instructions accompanying the machine.
6. **Bleeding of hydraulic cylinders:** On machines which have just been shipped from the factory, distributor floor, or which have not been used for several days, the following procedures are available for bleeding the cylinders of any air which may have entered them.
 - a. Either remove the reversing stops from the grinder table, or use the hydraulic cancel reversal switch, which will allow the table to continue traveling to the extreme end of the cylinder travel in each direction. Manually activate the reversal of the table by use of the reversing fork, and activate the table slowly so that the cylinder piston touches the end of the cylinder at each end of the grinder several times.
 - b. An alternate method for bleeding the table cylinder is to remove the thumb nut at the right end of the table, and after removing the collar from the table inside on the piston rod, allow the piston to travel the full stroke of cylinder several times in both directions.

General Procedure For Grinding

SURFACE GRINDER "S.G." — TOOL GRINDER "T.G."

After all table speed controls have been set to zero or OFF position, start hydraulic system motor. Observe the grinding wheel, and make sure that it will clear

the work which has been placed on the magnetic table. Set the table reversal stops for the maximum length of work, and lock. Set the table speed control for a slow speed, and then turn table stop valve to ON. Table should start to move in one direction or the other. Reversal of the table is accomplished by either reversing fork contacting reversing dogs, or by manually turning the reversing fork. Move the grinding wheel (Saddle—T.G.) so that wheel just contacts the work, and then increase table speed control as necessary. Continue down feeding (crossfeeding—T.G.) with crossfeed movement by handwheel, or by hydro-mechanical means. Machines with hydro-mechanical crossfeed should be operated in accordance with instructions printed on page 6. Finally turn on machine coolant or dust collector, if available. Adjust table dwell valve (No. 25, T.G.) between "0" and "4" on dial, as necessary.

Servicing & Trouble-Shooting

I. MECHANICAL AND OPERATIONAL (S.G.)

A. Column slide (spindle/wheel) sticking, dropping:

1. Add way oil to reservoirs on the top of the slide at the rear of the column.
2. Clean the slide column ways and lightly re-oil with way lube by hand with cloth.
3. Clean and oil feed screw and feed nut.

B. Inaccurate grinding (work not flat) or heavier grinding in one direction of table than the other:

1. Magnetic chuck bolts may be loose.
2. Wheel not dressed evenly, or wheel glazed and not cutting freely.
3. Magnetic chuck in need of grinding to bring it into flatness tolerance with table ways.
4. Grinding particles or other obstructions, such as nicks on the work. Clean the chuck and make sure work has a smooth surface which can be attracted to the magnetic chuck.

C. Longitudinal lines or herringbone pattern on work surface, excessive:

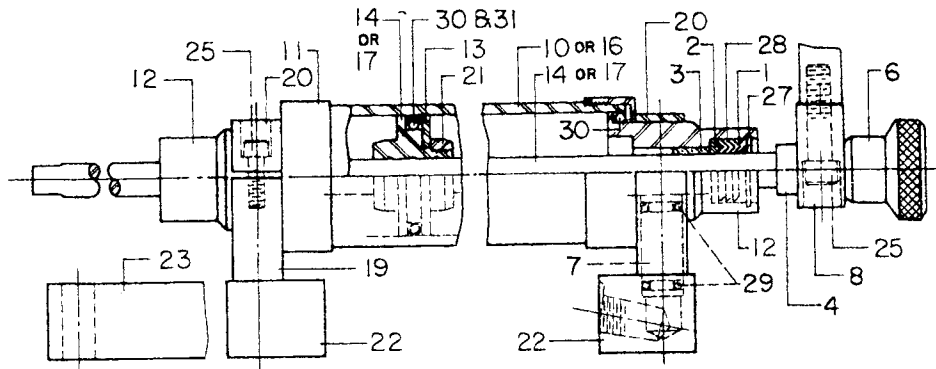
1. Possibly caused by edge of wheel not wearing as rapidly as other portions of the wheel, or because wheel was dressed without breaking the edge of the wheel slightly. Use a wheel dressing abrasive device to break the edge of the wheel before grinding.
2. Wheel may be dressed too finely, and thus is not cutting freely. Increase the speed of dress traverse (crossfeed).
3. Wheel dressed unevenly. Redress the wheel with a good diamond point held correctly in relation to the wheel.

D. Chatter or vibration marks on work surface: (S.G. & T.G.)

1. Wheel used may be too hard, and with grit too fine, thus causing bouncing action.
2. Wheel may be in need of dressing.
3. Wheel may be sufficiently out of balance in its lock position on the wheel collet. Try relocating the wheel on the wheel collet, or balance the wheel after it is locked on the wheel collet using a wheel balancing device.
4. Wheel may be loose on the collet. Check collet locking ring with spanner wrench.
5. Spindle bearings may be worn and loose.

B3034 (1 1/4 x 14) or B4034 (1 1/4 x 20) HYDRAULIC CYLINDER ASSEMBLY

CONTACT FACTORY FOR PARTS INFORMATION ON OBSOLETE (1966) BA934 or B2034 ASSEMBLIES
BA934RK CYLINDER SEAL REPAIR KIT AVAILABLE FOR BA934 or B2034 ASSEMBLIES



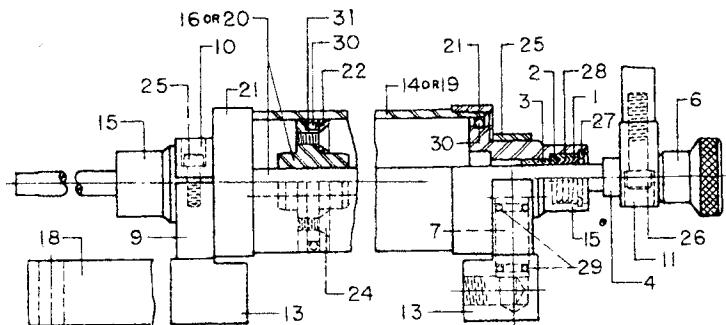
Index No.	Part No.	Description	Quan. Req.
1	B834GF	Female Support Ring	2
2	B834GM	Male Support Ring	2
3	B834GR	Gland Bushing	2
4	B934R	Rod Drive Collar	1
6	BA934N	Thumb Nut	1
7	BA934T	Coupling Tube	2
8	BA934Y	Yoke (Not Part of Cylinder Assembly)	1
10	B3034C	Cylinder (14")	1
11	B3034E	End Cap	2
12	B3034GB	Gland Body	2
13	B3034PC	Cap For Piston	1
14	B3034PR	Piston & Rod Assembly (14" Cylinder)	1
16	B4034C	Cylinder (20")	1
17	B4034PR	Piston & Rod Assembly (20" Cylinder)	1
19	B5034BL	Bracket — Lower	2
20	B5034BU	Bracket — Upper	2

Index No.	Part No.	Description	Quan. Req.
21	B5034PN	Piston Nut	1
22	B7034B	Coupling Block (14" Cylinder)	2
22	B7034B	Coupling Block (20" Cylinder)	1
23	B8034B	Coupling Block (20" Cylinder)	1
25	10-32 x 5/8	Socket Head Cap Screw	4
*27	RR81	Spirolox — Internal	2
	3/8 x 1 1/2 NC	Hex Cap Screw	2
*28	S2-6	Hydraulic V-Packing	4
*29	8012	O-Ring 1/4 x 3/8 x 1/2 (Old No. 7)	4
*30	8214	O-Ring 1/8 x 1 x 1 1/4 (Old No. 19)	3
*31	KEX6214	Kapseal — External	1

B4034RK CYLINDER SEAL REPAIR KIT FOR B3034 OR B4034
CONSISTS OF ITEMS STARRED AND ONE B5034RT THIMBLE

CONTACT FACTORY FOR PARTS INFORMATION ON OBSOLETE (1969) B5034 or B6034 ASSEMBLIES
B5034RK CYLINDER SEAL REPAIR KIT AVAILABLE FOR B5034 or B6034 ASSEMBLIES

B7034 (2 x 14) or B8034 (2 x 20) HYDRAULIC CYLINDER ASSEMBLY



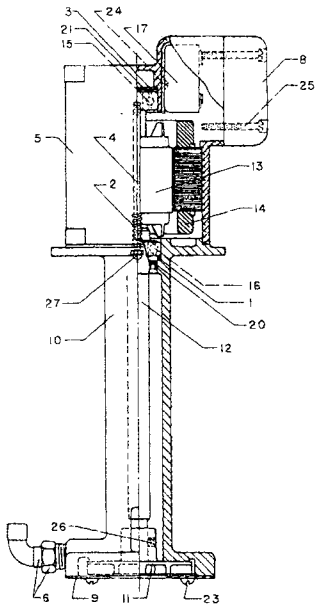
Index No.	Part No.	Quan. Req.	Description
1	B834GF	2	Female Support Ring
2	B834GM	2	Male Support Ring
3	B834GR	2	Gland Bushing
4	B934R	1	Rod Drive Collar
6	BA934N	1	Thumb Nut
7	BA934T	2	Coupling Tube
9	B5034BL	2	Bracket—Lower
10	B5034BU	2	Bracket—Upper
11	B5034Y	1	Yoke (Not Part of Cyl. Assembly)
13	B7034B	2	Coupling Block (14 Cylinder)
14	B7034C	1	Cylinder (14 Cylinder)
15	B7034GB	2	Gland Body
	B7034N	1	Name Plate
16	B7034PR	1	Piston & Rod Assm. (14 Cylinder)
18	B8034B	1	Coupling Block (20 Cylinder)
19	B8034C	1	Cylinder (20 Cylinder)

Index No.	Part No.	Quan. Req.	Description
20	B8034PR	1	Piston & Rod Assm. (20 Cylinder)
21	S234E	2	End Cap
22	S234PC	1	Cap for Piston
24	10-32 x 3/8	4	Flat Head Socket Cap Screw
25	10-32 x 5/8	4	Hex Socket Cap Screw
26	3/8 x 1 1/8 NC	2	Hex Socket Cap Screw (Not Part of Cylinder Assembly)
*27	RR-81	2	Spirolox—Internal
*28	S2-6	4	V-Packing
*29	8012	4	O-Ring (1/4 x 3/8 x 1/2)
*30	8224	3	O-Ring (1/8 x 1 1/4 x 2)
*31	KEX6224	1	Kapseal—External

B7034RK CYLINDER SEAL REPAIR KIT FOR B7034 OR B8034
CONSISTS OF ITEMS STARRED AND ONE B5034RT THIMBLE

15 GALLON PUMP ASSEMBLIES

S1635A Pump Assembly, 115V, 1 Ph., 60 Cycle
S1635E Pump Assembly, 220V, 3 Ph., 60 Cycle
S1635GA Pump Assembly, 440V, 3 Ph., 60 Cycle



Index No.	Part No.	Description	Quan. Req.
1	B637W	Thrust Ring	1
2	B6043AP	Field Positioner	2
3	B943AT	Thrust Plate	1
4	B943MDL	Stud Offset	2
5	B943MH	Motor Housing	1
6	BA933C	90° Elbow	1
7	S1635AN	Data Plate	1
7	S1635EN	Data Plate	1
7	S1635GAN	Data Plate	1
8	S635B	Switch Box	1
9	S635C	Impeller Cover	1
10	S635H	Pump Housing	1
11	S635R	Impeller	1
12	S635S	Pump Shaft	1
13	K10FG21	Field (220V, 3 Ph., 60 Cy.)	1
13	K10FG22	Field (440V, 3 Ph., 60 Cy.)	1

Index No.	Part No.	Description	Quan. Req.
13	KH10FG11	Field (115V, 1 Ph., 60 Cy.)	1
14	K10FG21	Rotor (220V, 3 Ph., 60 Cy.)	1
14	K10FG22	Rotor (440V, 3 Ph., 60 Cy.)	1
14	KH10FG11	Rotor (115V, 1 Ph., 60 Cy.)	1
15	39KVTD	Ball Bearing	1
16	202KLL3	Ball Bearing	1
17	91252-45	Start. Switch (115V, 1 Ph.)	1
17	91252-250	Start. Switch (220V, 1 Ph.)	1
20	63 x 87	Seal (5/8 x 1 1/8 x 3/8)	1
21	5Z	Adjusting Spring	1
23	10-32 x 3/8	S. T. Rd. Hd. Screw (NP)	4
24	8-32 x 3/8	Rd. Hd. Mach. Sc. (NP)	2
25	8-32 x 1 1/8	Rd. Hd. Mach. Sc. (HB)	2
26	1/4 x 1/4 NF	Hex Socket Set Screw	1
27	8-32	Acorn Nut — Light (NP)	2

Light Hydraulic Oil & Lubricant

SUPPLIER	PRODUCT NAME
Amoco Oil Co. (Standard Oil Co. Division of American Oil Co.)	American Industrial Oil No. 15
Atlantic Richfield Co.	Duro S-150
BP Trading Ltd. and its Affiliated Companies	BP Energol HL-65
Chevron U.S.A. Inc.	Chevron O.C. Turbine Oil 9
Exxon Co. U.S.A. Esso-Affiliated Companies	Teresstic 32, Nuto 32 Teresso 32, Nuto 32
Getty Oil Co.	Veedol Aturbrio 50
Gulf Oil Canada Ltd.	Gulf Harmony 44
Gulf Oil Corp. & Subsidiaries	Gulf Harmony 44
Mobil Oil Corp.	Mobil D.T.E. Oil Light
Petrofina Group	Fina Cirkan 31
Shell Oil Co.	Turbo 25
Standard Oil Co. (Ohio)/ Boron Oil Co. BP Oil Corp.	Factovis 43 Factovis 43 BP Energol HL-C32
Sun Petroleum Products Co.	Sunvis 916
Texaco Inc.	Regal A R & O
Union Oil Co.	Union Unax RX 150 and Turbine Oil 150

Viscosity System (ASTM D 2422) No. 150
(SUS at 100° F) (ASTM D 2161) 135 to 165
(Centistokes at 100° F) (ASTM D 445) 28.8-- 35.2

No inference should be made that all products are of the same quality. This lubricant must have all of the general qualities and properties required to insure its satisfactory performance as a machine tool lubricant and hydraulic medium. It is recommended to be changed at a semi-annual frequency (or after 1000 hours of operation) and to be used under conditions consistent with good machine tool practice.

Heavy - Medium Way Oil

SUPPLIER	PRODUCT NAME
Amoco Oil Co. (Standard Oil Co. Division of American Oil Co.)	Waytac Oil 31
Ashland Oil Co.	Waylube W-30
Atlantic Richfield Co.	Truslide S-315
BP Trading Ltd. and Affiliated Companies	BP Energol HP 20-C
Chevron U.S.A. Inc.	Chevron Vistac Oil 68 X
Cities Service Oil Co.	Sliderite No. 2
Continental Oil Co.	HD Way Lubricant 31
Exxon Co. USA	Febis K-68
Gulf Oil Canada Ltd.	Gulfway 56
Gulf Oil Corp. and Subsidiaries	Gulfway 52
Imperial Oil and Grease Co.	Moluballoy Astrol Way Oil 20
Imperial Oil Enterprises, Ltd.	BE-16
Mobil Oil Corp.	Mobil Vactra Oil No. 2
Petrofina Group	Fina Artac EP 37
Shell Canada Ltd.	Tonna 33
Shell International	Tonna T-33
Shell Oil Co.	Tonna 33
Standard Oil Co. (Ohio)/ Boron Oil Co. BP Oil Corp.	Factoway 50 Factoway 50 BP Energol HP C68C
Sun Petroleum Products Co.	Sun Waylube 11-80
Texaco Inc.	Way Lubricant D
Total Compagnie Francaise De Raffinage	Total Drosera 40
Union Oil Co.	Union Way Oil HD-315

Viscosity System (ASTM D 2422) No. 315
(SUS at 100° F) (ASTM D 2161) 284 — 346
(Centistokes at 100° F) (ASTM D 445) 61.2 — 74.8

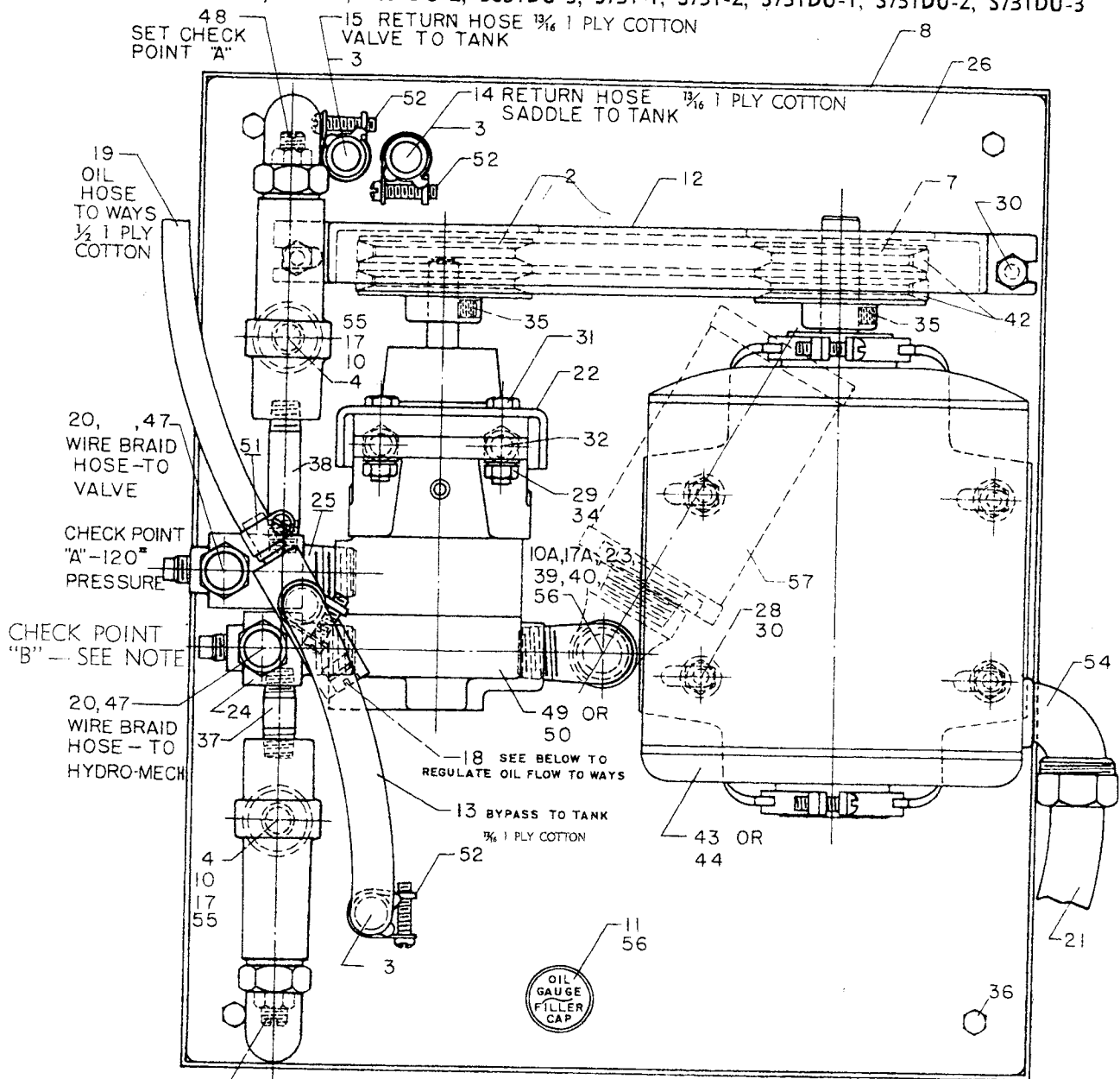
No inference should be made that all products are of the same quality. This lubricant must have all the general qualities and properties required to insure its satisfactory performance as a machine tool slideway lubricant. It is recommended to be changed every 3 months and to be used under conditions consistent with good machine tool practice.

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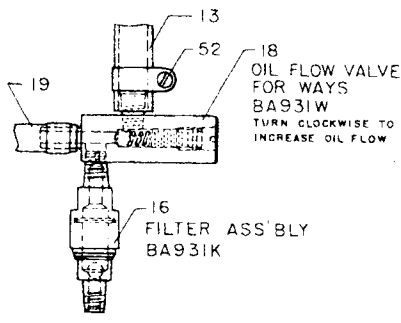
HYDRAULIC PUMP & TANK ASSEMBLY

CURRENT: B831-3, S731-3, S731DU4, S731DU5, S731DU6, S731DU7, S731DU-8

OBSOLETE: B831-1, B831-2, B831DU-2, B831DU-3, S731-1, S731-2, S731DU-1, S731DU-2, S731DU-3



48 SET CHECK POINT "B"
TURN CLOCKWISE TO INCREASE PRESSURE
1/2 TURN CHANGES PRESSURE APPROX. 5"

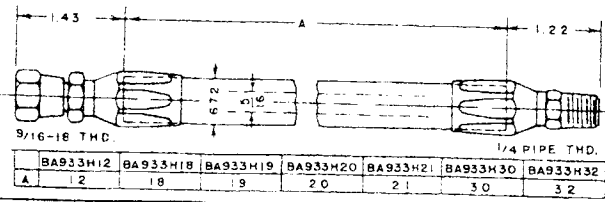


CHECK POINT "A"

To check pressure point "A" — Table Speed. Lever in ON position. Table Speed Control on 18 — Tool Grinder or 36 — Surface Grinder. Pressure is set at 160 lbs.

CHECK POINT "B"

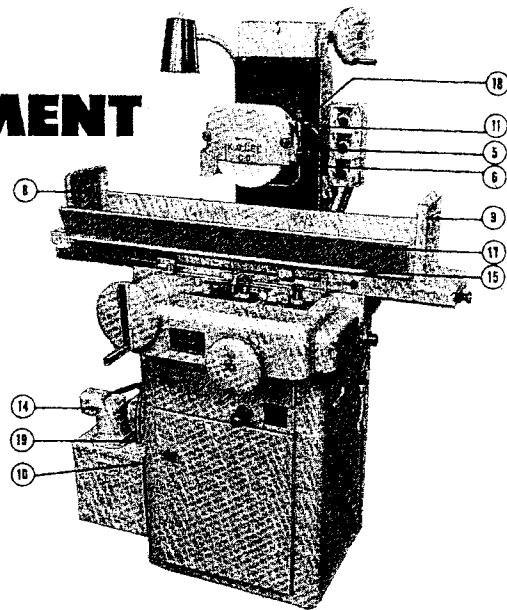
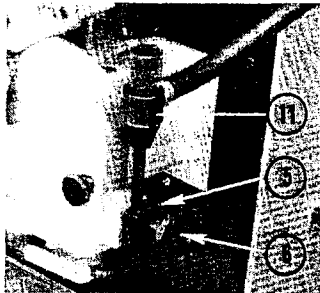
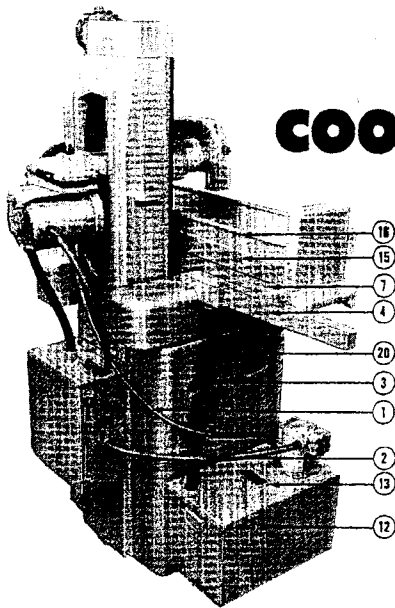
To check Crossfeed pressure point "B". Base Valve must be in hydraulic position. Crossfeed Valve lever must be on feed and speed control on "O". Pressure is set at 160 lbs.



7/16-18 THD.			1/4 PIPE THD.				
	BA933H12	BA933H18	BA933H19	BA933H20	BA933H21	BA933H30	BA933H32
A	12	18	19	20	21	30	32

K. O. LEE COMPANY

S632 & S732
COOLANT ATTACHMENT



Index No.	Part No.	Description	Quan. Req.
1	BA931H76	Plastic Hose (1/2)	1
2	BA967H28	Flexible Conduit (1/2)	1
	BA967H34	Flexible Conduit (1/2)	1
	BA967Y84	Power Wire (in conduit)	2-1 Ph., 3-3 Ph.
3	B2035DH	Drain Hose	1
4	B6035DT	Drain Trough	1
	B6035DS	Drain Spout	1
	KO-19	On-Off Plate	1
	K510-PP	Knurled Pin	1
5	S632W	Thumb Screw	1
6	S632B	Bracket	1
7	S732DC	Drain Cap	1
8	S632GL	Left Splash Guard	1
9	S632GR	Right Splash Guard	1
10	S632H	Hanger	2
11	S832N	Nozzle Assembly	S632N 1
	S832NA	Body & Tube Assm.	S632NA 1
	S632NT	Tube	S632NT 1
	S832NP	Nozzle	1
	K518S	Valve Shaft	S632NV 1
	K518K	Control Knob	K518K 1
	10-32 x 3/16	Hex Socket Set Screw	10-32 x 3/16 1
	8011	O-Ring	8110 1
			B833EP Pin 1
12	S632TA	Tank Assembly	1

Index No.	Part No.	Description	Quan. Req.
13	S632TC	Cover	1
14	S635A	Pump Assembly (See Listing Page 8)	1
15	S732GA	Splash Guard (S732)	2
15	S632GA	Splash Guard (S632)	2
16	S732GB	Splash Guard (S732)	1
16	S632GB	Splash Guard (S632)	1
17	S732GC	Splash Guard (S732)	1
17	S632GC	Splash Guard (S632)	1
18	HP-11	Hose Clamp (on guard)	1
19	HP-12	Hose Clamp (on tank)	1
20	No. 16	Hose Clamp	1
	767 (73-B)	Bryant Wire Connector	1
	31881	Terminal	1
	34070	Connector	3
	7610K2	Switch	1
	75-221	Connector Straight 1/2"	2
	10-32 x 1/2	Round Head Machine Screw (HB)	4
	1/4 x 1/2 NF	Hex Head Cap Screw (HB)	2
	1/4 x 3/4 NF	Hex Head Cap Screw (HB)	6
	1/4 x 1/2 NF	Hex Socket Cap Screw	2
	5/16 x 3/8 NF	Hex Socket Cap Screw	2
	10-32	Hex Nut	4
	5/16 NF	Hex Nut	2
	3/16	Lock Washer	4
	3/16	Lock Washer	2
	No. 1111	Rubber Pads	1

B935-15, B2035-15, B632-15,
S732-15 COOLANT ATTACHMENTS

These attachments are similar to the B935, B2035, S632 and S732 except for S612-233 (15 gallon) Tank Assembly, and Pump Assemblies. For parts, refer to photographs on pages 8 and 9. The S612-233 parts are listed below and the Pump Assemblies are listed at the top of page 10.

S612-233 TANK AND FILTER
ASSEMBLY

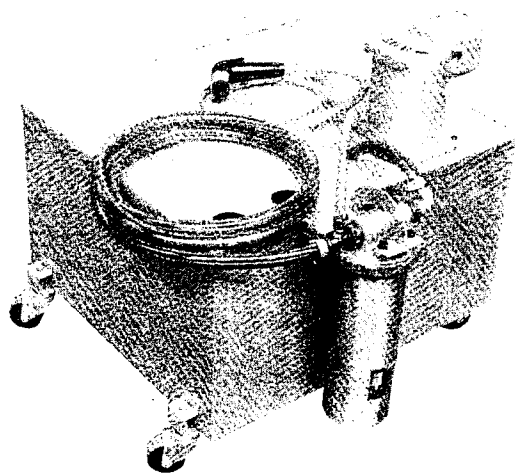
You may order this unit as a replacement for any Lee Coolant Attachment. It includes items listed below, BUT NOT THE PUMP, SPLASH GUARDS, NOZZLE ASSEMBLY, ETC., which are parts of original Coolant Attachment.

Part No.	Description	Quan. Req.
BA931H17	Hose, 17"	1
BA931H84	Hose, 84"	1
BA933C	Elbow	1
S612-44	Hose Coupling	1
S832TA	Tank Assbly, 15 gal.	1

Part No.	Description	Quan. Req.
S612-232C	Cover Assembly	1
CT101	Cuno Filter	1
1-2251-51-2	Caster	4
S612-232F	Flushing Attachment	1
3/4 - 3/8	Reducer Bushing	2

Part No.	Description	Quan. Req.
1/4 x 3/8 NC	Hex Cap Sc. H.B.	4
1/4 STD.	Lock Washer	4
HP11	Hose Clamp	3
HP12	Hose Clamp	1
2278-L1	Replacement 50 Micron Filter Cartridge Available	

ABERDEEN, SOUTH DAKOTA

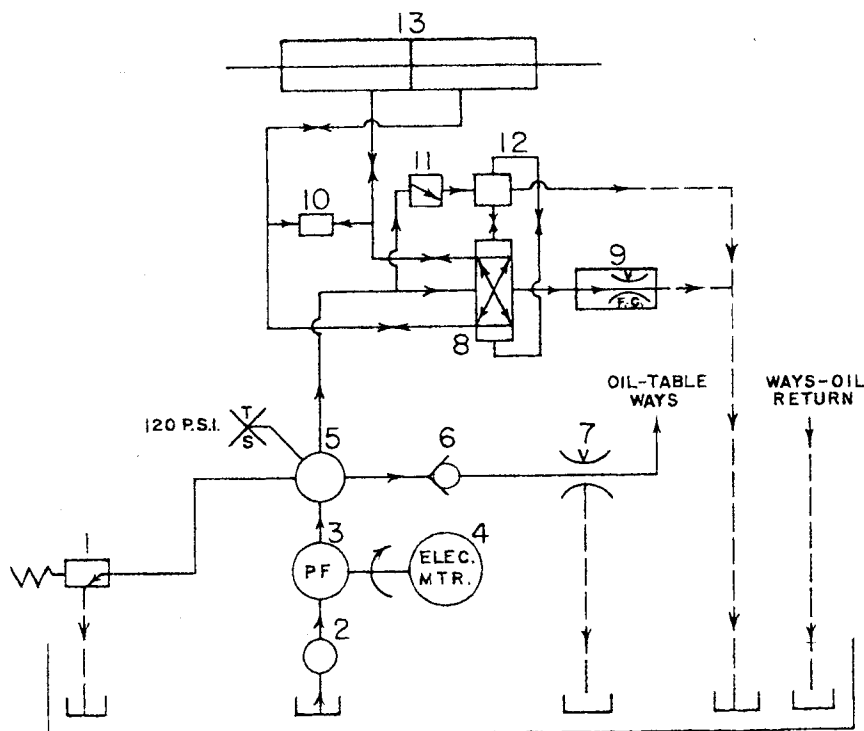


HYDRAULIC PUMP & TANK ASSEMBLY

Index No.	Part No.	Quan. Req.	Description
2	B831J	1	Pulley—2 $\frac{1}{8}$ " Single Gr., $\frac{1}{2}$ " Bore
2	B831JV	1	Pulley—2 $\frac{3}{4}$ " Dbl. Gr., $\frac{1}{2}$ " Bore
2	B1031JV	1	Pulley—4" Double Gr., $\frac{1}{2}$ " Bore
3	B831L	3	Oil Return Tube
4	B831PS	2	Pipe
7	B931J	1	Pulley—2 $\frac{1}{8}$ " Sgl. Gr., $\frac{5}{8}$ " Bore
7	B931JV	1	Pulley—2 $\frac{3}{4}$ " Dbl. Gr., $\frac{5}{8}$ " Bore
7	B1031P	1	Pulley—4" Dbl. Gr., $\frac{5}{8}$ " Bore
7	S931JV	1	Pulley—2 $\frac{1}{2}$ " Dbl. Gr., $\frac{5}{8}$ " Bore
8	S631T	1	Fluid Tank
9	B931W27	1	Washer ($\frac{7}{32}$ x $1\frac{1}{8}$ x $\frac{1}{16}$)
10	B931W36	2	Washer ($\frac{9}{16}$ x $1\frac{1}{8}$ x $\frac{1}{16}$)
10A	B931W56	1	Washer ($\frac{9}{8}$ x $1\frac{1}{8}$ x 20 ga.)
11	B2031F	1	Oil Gauge and Filler Cap
12	BA931G	1	Belt Guard
13	BA931H15	1	Hose
14	BA931H30	1	Hose
15	BA931H36	1	Hose
16	BA931K	1	Filter Assembly
	(BA931KB)	1	Body
	(BA931KC)	1	Cap
	(BA931KS)	1	Screen
	(BA931KW)	2	Washer
	($\frac{3}{32}$)	1	Steel Ball
17	B2031B	1	Lock Ring
17A	B2031R	1	Lock Ring
18	BA931W	1	Oil Flow Valve For Ways
	(B931WN)	1	Needle Valve
	(B931WS)	1	Spring
	(BA931WB)	1	Valve Body
	(BA931WT)	1	Tube
	(8011)	1	O-Ring
	($\frac{3}{32}$)	1	Steel Ball
19	BA931W34	1	Hose
20	BA933H32	2	Pressure Hose (See Page 4)
21	BA967H34	1	$\frac{1}{2}$ " Flexible Conduit
22	B1031B	1	Bracket
23	B1031D	1	Spec. Street Ell
24	B1031F	1	Spec. Short Tee
25	B1031H	1	Spec. Long Tee

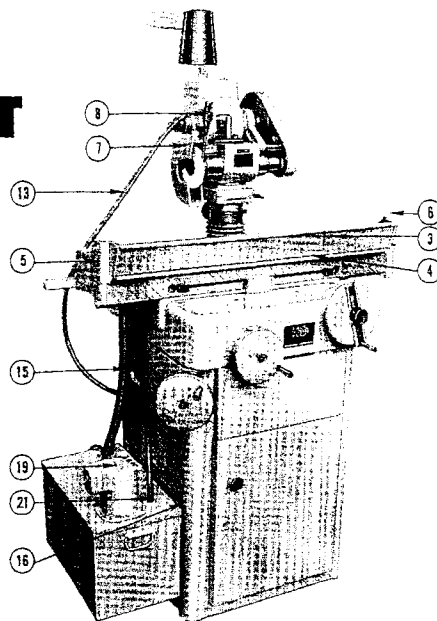
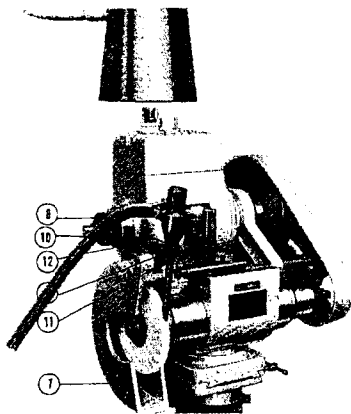
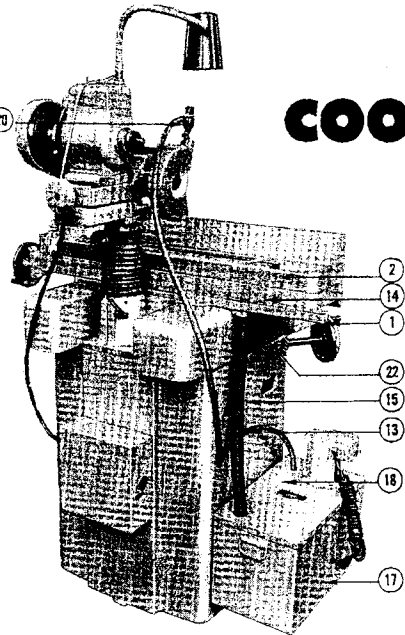
Index No.	Part No.	Quan. Req.	Description
26	B2031K	1	Tank Cover—Duplex
26	B2031C	1	Tank Cover—Single
	S831-20 ($\frac{3}{4}$ H.P.)		or S831-30 (1 H.P.) Sh. Metal Cov.
27	KO-23	1	Data Plate
28	$\frac{5}{16}$ NF	4	Washer (H.B.)
29	$\frac{5}{16}$ Std.	4	Lock Washer
	No. 2 x $\frac{3}{16}$	4	Rd. Hd. Screw (N.P.)
30	$\frac{5}{16}$ x $\frac{5}{8}$ NC	6	Hex Cap Screw (H.B.)
31	$\frac{5}{16}$ x $1\frac{1}{4}$ NC	4	Hex Cap Screw (H.B.)
32	$\frac{5}{8}$ x $\frac{5}{8}$ NC	2	Hex Cap Screw (H.B.)
34	$\frac{5}{8}$ NC	4	Hex Nut (H.B.)
35	$\frac{5}{8}$ x $\frac{5}{16}$ NC	2	Socket Set Screw
36	No. 10 x $1\frac{1}{4}$	1	Hex Hd. Tapping Screw
37	$\frac{1}{4}$ x $1\frac{1}{2}$	1	Pipe—Long Nipple
38	$\frac{1}{4}$ x $2\frac{1}{2}$	1	Pipe—Long Nipple
39	$\frac{1}{2}$ x 6	1	Pipe—Long Nipple
40	1 to $\frac{1}{2}$	1	Reducing Elbow
41	$\frac{1}{4}$ Pipe	2	Plug
42	1220 or 1240	2	V-Belt (1220 Single, 1240 Duplex)
43	Motors Used—Single Pump		
	KC43KG1749, $\frac{1}{2}$ HP, 1725, 115/230V, 1 Ph., 60 Cy.		
	K35KG378, $\frac{1}{2}$ HP, 1725, 200V, 3 Phase, 60 Cycle		
	K35KG379, $\frac{1}{2}$ HP, 1725, 220/440V, 3 Ph., 60 Cycle		
	K42JG815, $\frac{1}{2}$ HP, 1725, 550V, 3 Phase, 60 Cycle		
44	Motors Used—Duplex Pump		
	KC45NG1005, $\frac{3}{4}$ HP, 1725, 115-230V, 1 Ph., 60 Cy.		
	K43KG3967, $\frac{3}{4}$ HP, 1725, 200V, 3 Phase, 60 Cycle		
	K43KG3002, $\frac{3}{4}$ HP, 230/460V, 3 Phase, 60/50 Cycle		
45	73B		Wire Lock (4—220V, 6—440V)
47	5816 x 6	2	Steel Male Connectors
48	VJ-1	2	Relief Valve— $\frac{1}{4}$ Fullflow
49	GC5235A12RD	1	Pump Duplex (John S. Barnes)
50	GC5074		Pump—Single (John S. Barnes)
51	HP-8	2	Hose Clamp $\frac{1}{2}$ "
52	HP-13	5	Hose Clamp $1\frac{1}{16}$ "
54	$\frac{1}{2}$	1	Connector 90°
55	8210	1	O-Ring ($\frac{1}{8}$ x $\frac{3}{4}$ x 1)
56	8214	1	O-Ring ($\frac{1}{8}$ x 1 x $1\frac{1}{4}$)
57	4840	1	Filter

CIRCUIT DRAWING FOR K. O. LEE GRINDERS LONGITUDINAL TRAVEL ONLY



Parts List Index Nos.	Circuit Index Nos.	Part Name
Page 5		
48	1	Relief Valve
57	2	Filter Assembly
49, 50	3	Constant Flow Rotary Gear Pump
43, 44	4	Motor
24, 25	5	Special Elbow
16	6	Oil Filter and Check Valve
18	7	Pressure Relief Valve — Oil Ways
Page 2		
14	8	4-Way Reversing Spool
26	9	Table Speed
27	10	Table Stop
25	11	Dwell
22	12	Directional Valve
Page 3		
All Nos.	13	Cylinder

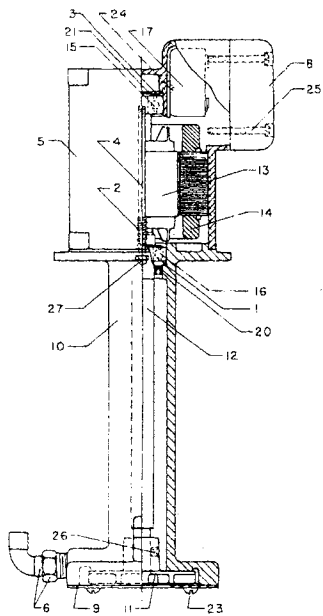
B935 & B2035 COOLANT ATTACHMENT



Index No.	Part No.	Description	Quan. Req.
	A657B	T-Slot Bolt	1
1	B935DT	Drain Trough (B935) Out in 1972	1
1	B6035DT	Drain Trough (B935 & B2035)	1
2	B935GA	Splash Guard (B935)	1
2	B2035GA	Splash Guard (B2035)	1
3	B935GB	Splash Guard (B935)	1
3	B2035GB	Splash Guard (B2035)	1
4	B935GD	Splash Guard (B935)	1
4	B2035GD	Splash Guard (B2035)	1
5	B935GL	Left Splash Guard	1
6	B935GR	Right Splash Guard	1
7	B935GS	Wet Wheel Guard	1
	B2035GR	Coolant Return	1
	B2035GW	Spacer Washer	1
	S609W	Thumb Screw	1
8	B6035N	Nozzle Assembly	1
	B6035NA	Body and Tube Assembly	1
	K518K	Control Knob	1
	K518S	Valve Shaft	1
	S632NT	Tube	1
	8011	O-Ring	1
	10-32 x 3/16	Hex Socket Set Screw	1
9	B935NB	Bracket	1
10	B935NP	Nozzle Stud	1
11	B935NS	Guard Stud	1
12	B935NT	T-Slot Plate	1
13	BA931H76	Plastic Hose (1/2)	1

Index No.	Part No.	Description	Quan. Req.
	BA967H28	Flexible Conduit (1/2)	1
	BA967Y84	Power Wire	2-1 Ph., 3-3 Ph.
14	S732DC	Drain Cap	1
15	B2035DH	Drain Hose (1 1/8)	1
	B6035DS	Drain Spout	1
16	S632H	Hanger	2
17	S632TA	Tank Assembly	1
18	S632TC	Cover	1
19		Pump Assembly (See Listing Below)	1
	75-201	Connector Straight 1/2"	1
	7610K2	Switch	1
20	HP11	Hose Clamp (on Guard)	1
21	HP12	Hose Clamp (on Tank)	1
22	HP16	Hose Clamp	1
	10-32 x 1/2	Round Head Machine Screw (HB)	4
	1/4 x 1/2 NF	Hex Cap Screw (HB)	2
	1/4 x 3/4 NF	Hex Cap Screw (HB)	4
	1/4 x 1/2 NF	Hex Socket Cap Screw	2
	3/16 x 1/2 NC	Hex Socket Cap Screw	1
	3/16 x 1 NC	Hex Socket Cap Screw	1
	3/16 x 7/8 NF	Hex Socket Cap Screw	4
	10-32	Hex Nut (HB)	4
	3/8 NC	Hex Nut (H)	1
	1/2 NF	Hex Jam Nut (HB)	1
	3/16	Lock Washer	4
	3/8 NF	Washer (H)	1
	No. 1111	Rubber Pads	2

S635AH Pump Assembly, 115V, 1 Ph., 60 Cycle S635EH Pump Assembly, 220V, 3 Ph., 60 Cycle S635GAH Pump Assembly, 440V, 3 Ph., 60 Cycle S635KH Pump Assembly, 230V, 1 Ph., 60 Cycle



Index No.	Part No.	Description	Quan. Req.
1	B637W	Thrust Ring	1
2	B6043AS	Field Positioner (all 1 Ph.)	2
2	B6043EP	Field Positioner (440V)	2
2	R55FP1 1/2	Field Pos. (230V, 3 Ph.)	2
3	B943AT	Thrust Plate	1
4	B943MDE	Stud Offset (115V, 1 Ph.)	2
4	B943MDL	Stud Offset	2
5	B943MH	Motor Housing	1
5	B6043MH	Motor Hsg. (115V, 1 Ph.)	1
6	BA933C	90° Elbow	1
7		Data Plate	1
8	B943BL	Switch Box (Lower 115V)	1
8	B943BU	Switch Box (Upper 115V)	1
8	S635B	Switch Box	1
9	S635C	Impeller Cover	1
10	S635H	Pump Housing	1
11	S635R	Impeller	1
12	S635S	Pump Shaft	1
12	S635SL	Pump Shaft (115V)	1
13	K10KG26	Field (220V, 3 Ph., 60 Cy.)	1

No. Index	No. Part	Description	Quan. Req.
13	K10KG27	Field (440V, 3 Ph., 60 Cy.)	1
13	KH10NG12	Field (115V, 1 Ph., 60 Cy.)	1
13	KH10NG32	Field (220V, 1 Ph., 60 Cy.)	1
14	K10KG26	Rotor (220V, 3 Ph., 60 Cy.)	1
14	K10KG27	Rotor (440V, 3 Ph., 60 Cy.)	1
14	KH10NG12	Rotor (115V, 1 Ph., 60 Cy.)	1
14	KH10NG32	Rotor (220V, 1 Ph., 60 Cy.)	1
15	39KVTD	Ball Bearing	1
16	202KLL3	Ball Bearing	1
17	91252-45	Start. Switch (115V, 1 Ph.)	1
17	91252-250	Start. Switch (220V, 1 Ph.)	1
19	31881	Terminal (1 Ph. only)	2
20	63 x 87	Seal (3/4 x 1 1/4 x 3/16)	1
21	5Z	Adjusting Spring	1
23	10-32 x 3/8	S. T. Rd. Hd. Screw (NP)	4
24	8-32 x 3/8	Rd. Hd. Mach. Sc. (NP)	2
25	8-32 x 1 1/8	Rd. Hd. Mach. Sc. (HB)	2
27	8-32	Acorn Nut — Light (NP)	2
	BA967CP	Plug	1
	73B	Bryant Wire Conn.	1
	6502	Cord Grip Conn.	1

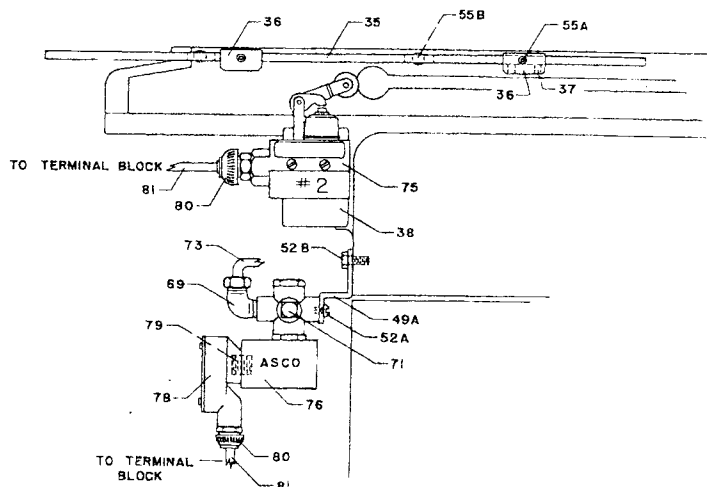
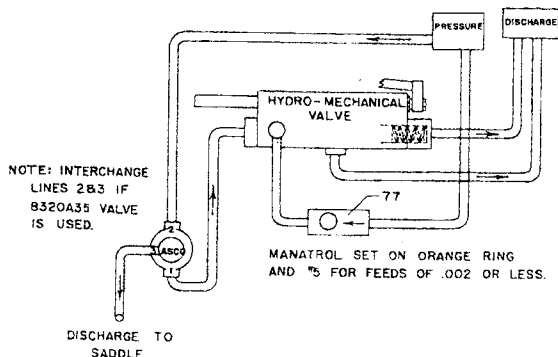
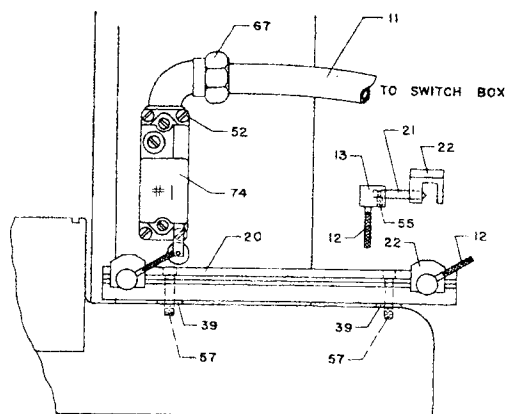
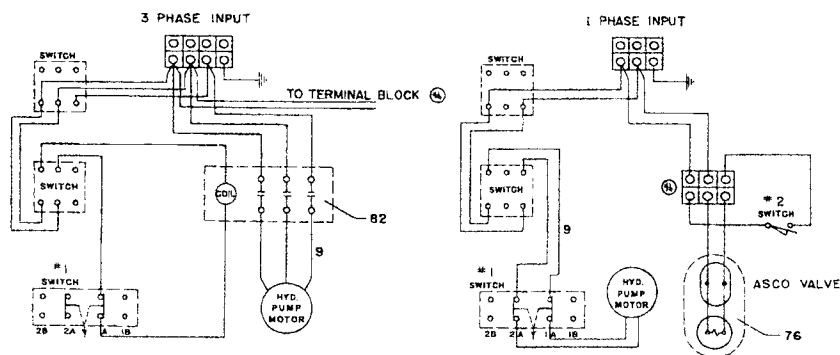
INSTRUCTIONS FOR OPERATING S736-1 HYDRO-MECHANICAL CROSSFEED

Before operating the S736-1, machine set up and start up instructions on pages 11 and 12 should be completed. See page 4, check point "B". Hydro-mechanical grinder pressure is set at 120 pounds. See page 7 for Index Numbers in following instructions. Additional electrical information is located on the electrical print included with grinder instructional material.

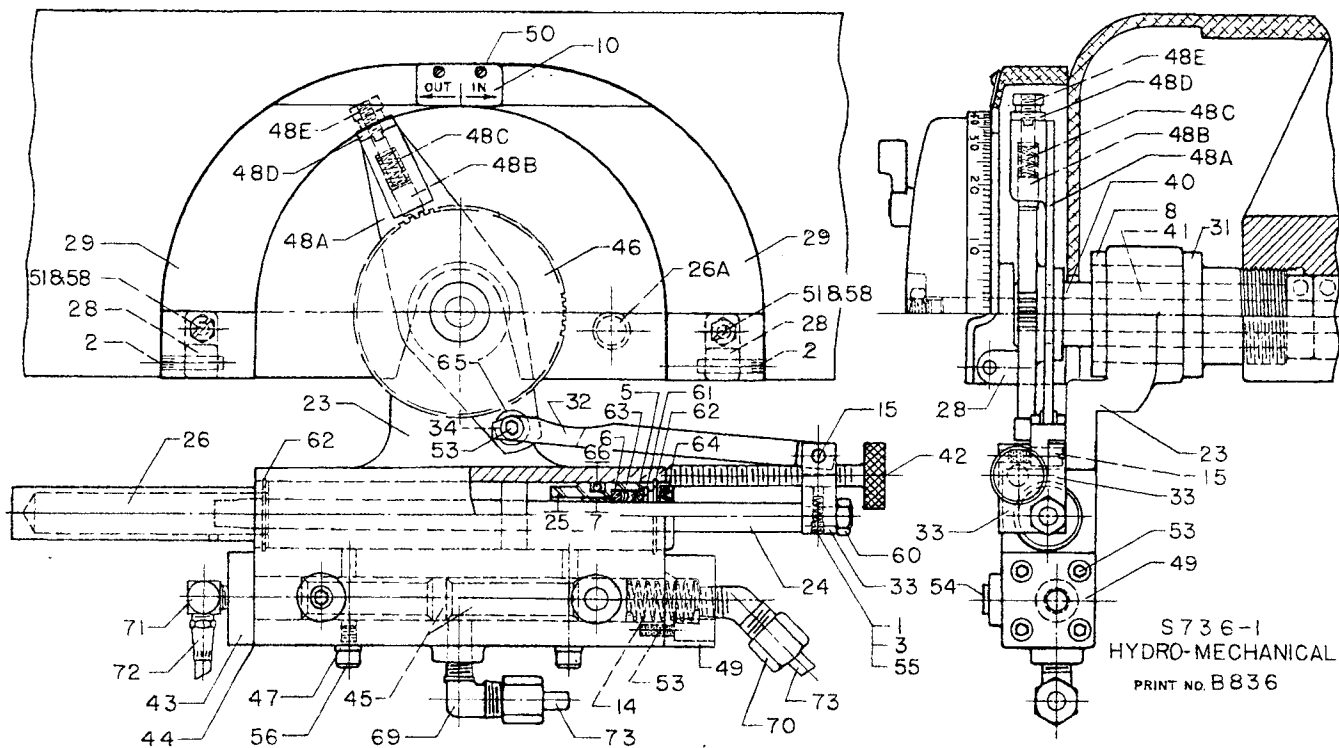
1. Set both of Switch No. 1 (Index 74) Adjustable Trip cams (Index 22) for desired crossfeed, making sure wheel clears work surface in each direction of saddle travel. When table traverse has stopped (hydraulic motor off), or red light is on (optional), Switch No. 1 is activated and infeed (or outfeed) stops.
2. To insure unit indexes at each end of table travel, move Table Adjustable Trip cams (Index 36) so that DURING HYDRAULIC TABLE REVERSAL, Switch No. 2 (Index 75) is continuously activated, thus causing unit piston and rod assembly to move out AND in at each reversal.
3. Adjust increment of crossfeed while table is traversing by rotating Limit Thumb Screw (Index 42) (Maximum is .020"), and observing amount of infeed on handwheel

index dial. Each Ratchet Wheel cog is equal to .001" or .02mm.

4. Move cover Guard (Index 29) down. Lift and turn the pick plunger (Index 48B) to the desired setting: Neutral, In or Out. In and Out settings are 180 degrees apart and Neutral setting is half way between In and Out settings. A red paint dot on Pick Plunger top should be on the side indicating direction of feed desired.
5. After the Switch No. 1 (Index 74) has been tripped by the adjustable Trip cam (Index 22) either: (a) manually return saddle to original starting position, or (b) lift and rotate Pick Plunger (Index 48B) 180 degrees and manually move saddle cam away from the Switch No. 1 until the hydraulic motor starts, or red light is no longer lit.
6. FINE ADJUSTMENT: When feeds of .002" or less are desired, use the Manitol slowspeed valve (Index 77) on the front of the unit to slow piston travel so pick will not drive Ratchet Wheel (Index 46) beyond number of thousandths required. Set valve throttle screw at approximately the Orange No. 5 ring of screw dial.



S736-1 HYDRO-MECHANICAL CROSS FEED



Index No.	Part No.	Quan. Req.	Description
1	A619D	1	Plug
2	A629J	2	Knurled Pin
3	A630BS	1	Spring
5	B834GF	2	Female Support Ring
6	B834GM	2	Male Support Ring
7	B834GR	2	Gland Bushing
8	BA805R	1	Lock Ring
9	B966WS	4	Power Wire
10	BA930P	1	Indicator Plate
11	BA967H19	1	Flex Conduit 1/2
12	BA985XA	2	Handle
13	BA985XH	2	Head
14	P193	1	Compression Spring
15	P372V	1	Screw
20	S736AB	1	Slide Bar for Limit Switch
21	S736AS	2	Screw
22	S736AT	2	Adjustable Trip
23	S736B	1	Body
*24	S736CC	1	Hyd. Piston and Rod Assembly
25	S736CG	2	Gland for Cylinder
26	S736CW	1	Cover Tube
26A	S736E	1	Friction Collar Assembly
28	S736GB	2	Bracket for Guard
29	S736GG	1	Guard
31	S736K	1	Spacer for Cylinder
32	S736L	1	Link
33	S736M	1	Bracket for Link
34	S736N	4	Washer for Link
35	S612-217B	1	Bar for Adj. Cam — 18"
or	S612-218B	1	Bar for Adj. Cam — 24"
36	S612-219CB	2	Cam Blank
37	S612-219CP	4	Knurled Pin
38	S612-216L	1	Bracket for Switch
or	S612-216R	1	Bracket for Switch
40	S736SC	1	Spacer for Handwheel
41	S736SL	1	Spacer
42	S736T	1	Limit Thumb Screw
43	S736VC	1	Cap for Valve Body
44	S790-VG	2	Gasket
45	S736VS	1	Spool
46	S736W	1	Ratchet Wheel
47	S736X	2	Aluminum Washer

S736RK CYLINDER SEAL AND PISTON REPAIR KIT
CONSISTS OF THE ITEMS STARRED ABOVE ON PARTS LIST

Index No.	Part No.	Quan. Req.	Description
48	S736-10	1	Swinging Arm Assembly
48A	S736-11	1	Swinging Arm
48B	S736-12	1	Pick Plunger
48C	S736-13	1	Spring
48D	S736-14	1	Stop
48E	1/4 x 1/4 N.F.	1	Hex Socket Set Screw
49	S790-10	1	Cap for Valve Body
49A	S790-13A	1	Bracket for Solenoid
50	No. 2 x 1/8	2	S. T. Rd. Hd. Screw N.P.
51	10-32 x 5/8	2	Rd. Hd. Machine Screw (H.B.)
52	10-32 x 2	4	Rd. Hd. Machine Screw (H.B.)
52A	10-32 x 3/8	2	Rd. Hd. Machine Screw (H.B.)
52B	1/4 x 5/8 N.F.	1	Hex Head Cap Screw
53	10-32 x 1/2	9	Hex Socket Cap Screw
54	1/8	1	Hex Socket Pipe Plug
55	10-32 x 3/4	3	Hex Socket Set Screw
55A	5/16 x 1/2 NC	2	Hex Soc. Set Sc. (Dog Pt.) (H.B.)
55B	8-32 x 3/4	2 or 3	Hex Socket Cap Sc. (H.B.)
56	1/2 x 3/8 S.A.E.	2	Hex Socket Cap Screw
57	1/2 x 1/4 S.A.E.	2	Hex Socket Cap Screw
58	10-32	2	Hex Nut (H.B.)
60	5/16 S.A.E.	1	Hex Nut (H.B.)
*61	RR-81	2	Spirolox-Internal
*62	RR-100	2	Spirolox-Internal
*63	S2-6	4	Hyd. Vee Packing (3/16 x 1/16 x 1/16)
*64	01W100-28-4	1	Trostel Seal
65	33KDD5	1	Ball Bearing
*66	8210	2	O-Ring 1/8 x 1/4 x 1
67	1/2	1	Connector 90°
69	8405 x 4	6	Ermeto 90° Male Elbow
70	8355 x 4	2	Ermeto 45° Male Elbow
71	A2768	2	Weatherhead 90° Fitting
72	81430-24	2	Weatherhead Hose
73	1/4 x 20 ga.	25'	Hyd. Fluid Line Tubing
74	9007-AW-38	1	Switch Square D
75	BZE6-2RN2	1	Micro Switch
76	8320A21	1	Solenoid
or	8320A35	1	Solenoid
77	EF1.20B	1	Fulflow Valve
78	SLB-1	1	Junction Box
79	CN50	1	Chase Nipple
80	6502	4	Cord Grip Connector
81	8422	9'	Microphone Cable
82	700-N200A1	1	Relay