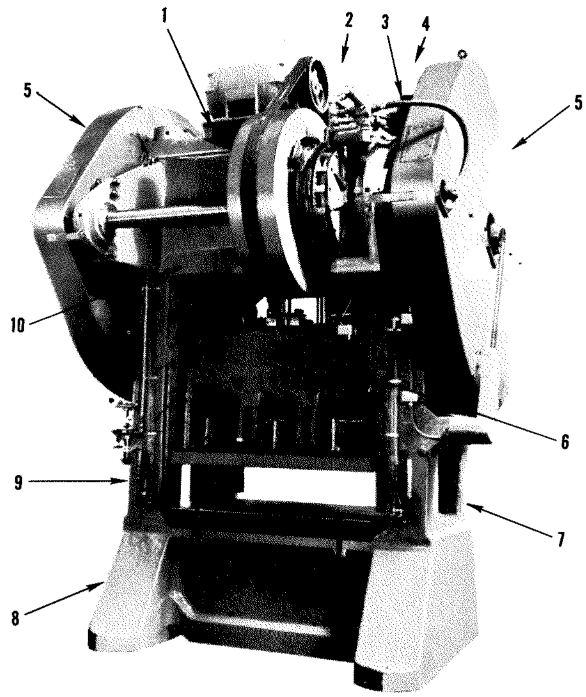

FIGURE 1

Part No.	Part Name
1	—MAIN MOTOR PLATE
2	—AIR CO' BAL. CYLINDER
3	—MAIN TIE ROD NUT
4	—MAIN TIE ROD
5	—MAIN GEAR GUARD
6	—SLIDE-(OR PLUNGER)
7	—UPRIGHT-L.H.
8	—BED
9	—UPRIGHT-R.H.
10	—CROWN

SHIPPING

Your Bliss "S" type press is shipped as completely assembled as practical by either of two methods.

(a) Press completely assembled except for gears, gear guards, flywheel and motor.

(b) The larger sizes will have the frame disassembled or "knocked down" with individual parts skidded to facilitate handling under normal shipping regulations.

In either method all machined surfaces are coated with an anti-rust slushing compound which must be removed before the press is put in operation. Kerosene or any suitable solvent may be used for cleaning. Oilite bearings used on presses with rolling key clutches are covered with waterproof paper for shipment and are not coated with anti-rust slushing compound. Do not use Kerosene on the interior of these bearings.

FRAME CONSTRUCTION

The Bliss "S" type presses are of four piece frame construction which consists of a bed, two uprights and a crown held together by four steel tie rods which are shrunk in at assembly to take the load of the press.

The extra heavy uprights are keyed to the bed and crown to withstand any lateral loads which may occur when an eccentric load is produced on the slide. The uprights also provide a mounting surface for the wear strips and adjustable gibs which in turn guide the slide in its vertical motion.

FRAME ERECTION

Erecting the frame is only necessary when the press is shipped to you "knocked down." This erection may be done by either of two methods, depending on the amount of head room available.

Vertical Method: This is the preferred method but it requires more head room than the horizontal method.

1—Place the bed in position on the foundation. The bed should be set level front to back and right to left with provision for about 1" of grouting.

BLISS S-2 CROWN AND CAP ASSEMBLY

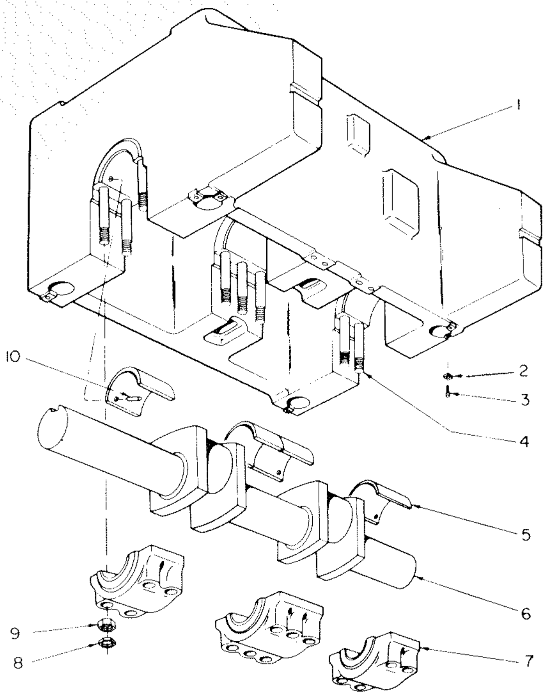

FIGURE 2

Part No.	Part Name
1	CROWN
2	CROWN AND UPRIGHT KEY
3	CROWN AND UPRIGHT KEY SCREW
4	CRANKSHAFT BEARING STUD
5	CRANKSHAFT MAIN BEARING BUSHING
6	CRANKSHAFT
7	CRANKSHAFT MAIN BEARING CAP
8	CRANKSHAFT BEARING STUD LOCK NUT
9	CRANKSHAFT BEARING STUD NUT
10	CRANKSHAFT MAIN BEARING BUSHING DOWEL

NOTE – When no pit is used the bed should be first placed on blocks with sufficient clearance for the tie rod nuts to slide underneath.

2- Place the tie rod nuts in position under the bed.
3- Put the tie rods inside of the upright.
4- Place the uprights and tie rods in position on the bed, lowering the tie rods on the nuts.
5- Put the lower nuts on the tie rods.
6- Place the crown in position.
7- Raise the tie rods and put on the top nuts and screw tight taking up all slack.

Horizontal Position: When head room is limited.

1- Lay the bed on its back and level up.
2- Place the uprights in position.
3- Place the crown in position.
4- Put the nuts on the bottom of tie rods.
5- Insert the tie rods in the frame.
6- Put on top nuts and screw tight, taking up all slack.
7- Raise press and mount on foundation leveling front to back and right to left leaving space for about 1" of grouting.

SHRINKING OR PRELOADING THE TIE RODS

The tie rods should be heated until they have expanded sufficiently to be able to take up the tie rod nuts an additional amount equal to .0083 inch per foot of tie rod length, measured between the nuts.

Method of Heating Tie Rods: Near the bottom of each upright there is an opening for heating the tie rods. Protect the uprights with asbestos 1/4" thick, then apply heat to the tie rods by an acetylene torch, or other means, capable of spreading a generous and equal flame around the full circumference, using an up and down movement to prevent burning the tie rod.

NOTE—Care should be exercised in not giving the rods too much shrink, as this would unduly strain the frame.

If it becomes necessary to dismantle a press of Bliss four-piece tie rod construction, it is advisable to preheat all tie rods and allow an interval of fifteen (15) minutes before applying second heat to remove the nuts.

BLISS SLIDE ADJUSTMENT ASSEMBLY

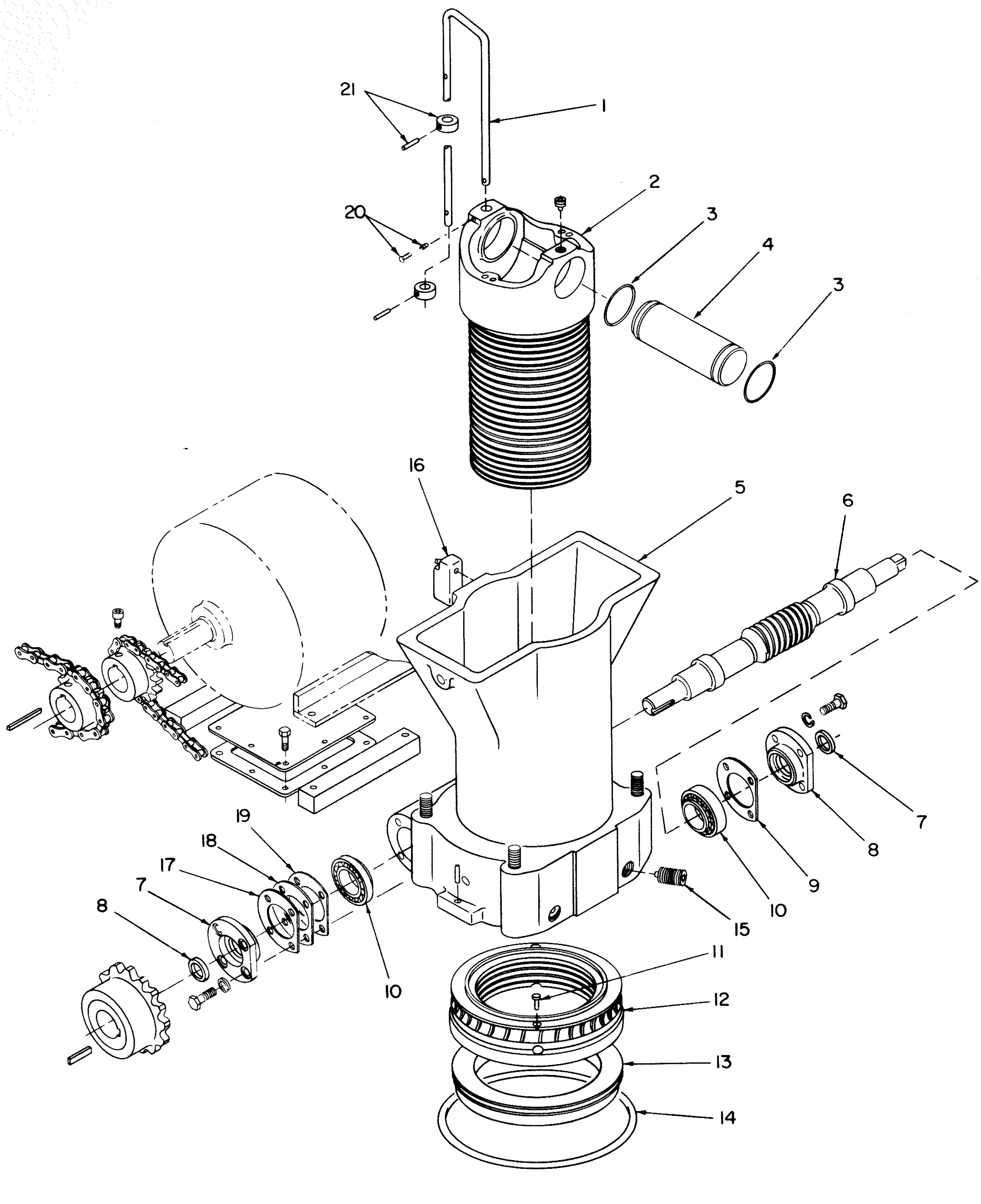

FIGURE 3

Part No.	Part Name
1.	LIMIT SWITCH TRIP BRACKET
2.	CONNECTION SCREW
3.	"O" RING
4.	WRIST PIN
5.	ADJUSTING SLEEVE
6.	WORM SHAFT
7.	OIL SEAL
8.	BEARING RETAINER
9.	GASKET
10.	BEARING

Part No.	Part Name
11.	REST BUTTON
12.	ADJUSTING NUT
13.	ADJUSTING SLEEVE PLATE
14.	TYGON OIL SEAL OUTER
15.	SET SCREW
16.	LIMIT SWITCH
17.	SHIM
18.	SHIM
19.	SHIM
20.	DOUBLE SET SCREW
21.	COLLAR AND PIN

The press is arranged with one slide adjustment overtravel limit switch which is wired through its normally closed contacts, between the adjusting motor starter and its "RAISE" or "UP" and "LOWER or "DOWN" buttons. This limit switch is mounted on the barrel in the slide as shown. (See Figure 3). It is important that this limit switch be properly set to eliminate jamming of the connecting screw and the nut at the up position of the adjustment and to prevent the screw from coming out of the nut at the down position.

The limit switch and its actuating arm is properly set before shipment but either or both may become damaged or misaligned in shipment. Before starting the slide adjusting motor the following checkups should be made.

1. Make sure that the limit switch arm is securely fastened to the limit switch shaft.
2. Check to see that the limit switch roller can be actuated by the limit switch trip bracket.
3. Set selector switch to "Slide Adjusting" position. Start the slide adjusting motor by pressing either the "RAISE" or "LOWER" button (dependent on the position of the slide) and then actuate the limit switch arm by hand to see that it actually interrupts the circuit to the starter.

The following procedure should be used to set the limit switch. The limit switch requires a travel of 5 degrees, or approximately 1/8" (measured at the center of the roller) before the switch breaks the circuit after the dog has contacted the roller. This must be allowed for, in setting the switch.

A. Set selector switch to "Press Operating" position.
B. Use "Inch" button to run slide to its bottom stroke position (crank pin down).
C. Set selector switch to "Slide Adjusting" position.
D. Adjust the slide to the minimum die height by carefully inching the slide down by pressing the "LOWER" or "DOWN" button. Set arm of limit switch to break at this point, allowing for 5 degrees travel as described above.
E. After the low position limit switch has been set, then the slide should be carefully inched upward by use of the "RAISE" or "UP" button. When the maximum die height is reached then the limit switch arm should be set accordingly, allowing for the 5 degrees travel as described above.

BLISS "K" CLUTCH SHAFT ASSEMBLY

SINGLE GEARED PRESSES

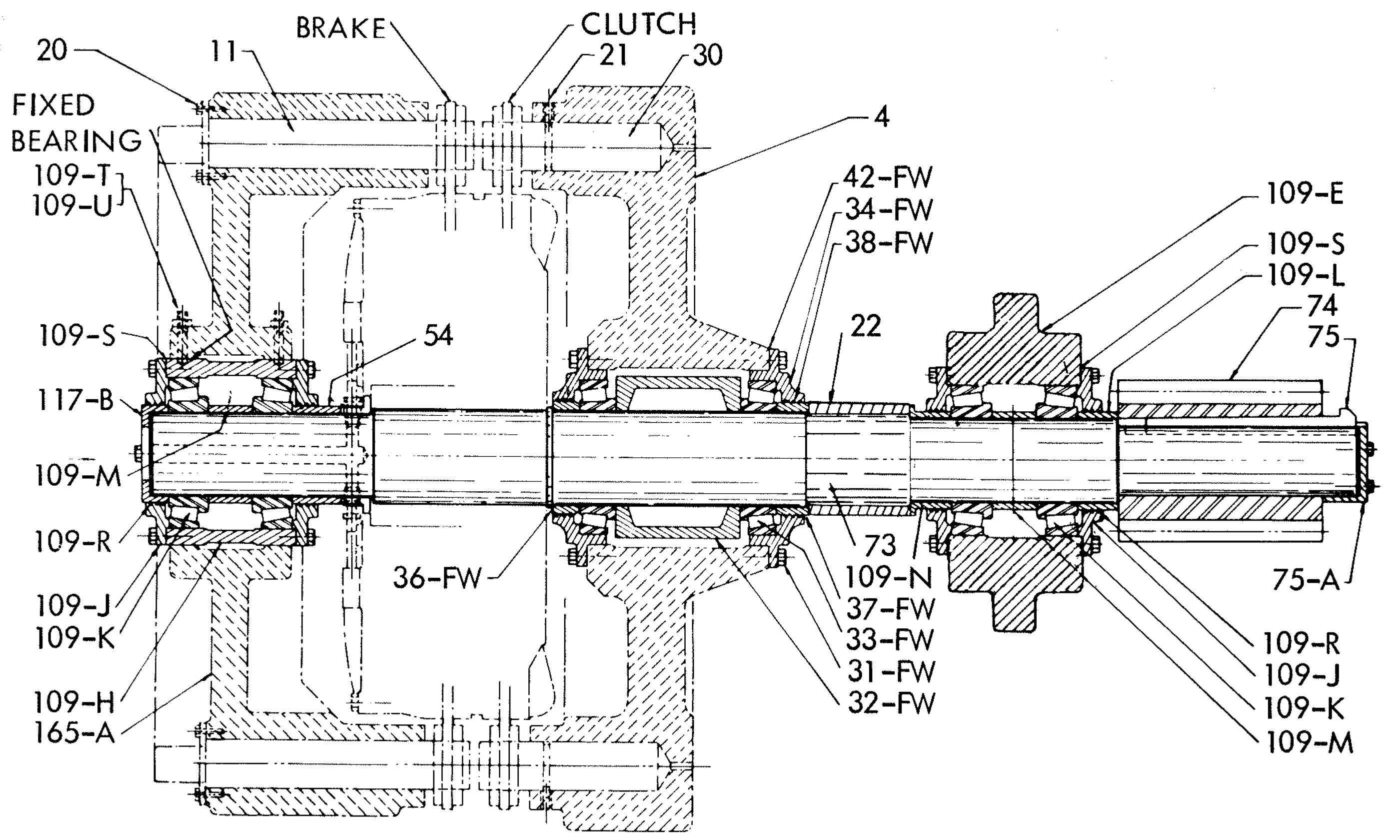

FIGURE 4

Part No.	Part Name
4	—CLUTCH WHEEL—OR FLYWHEEL
11	—BRAKE FRICTION DISC PIN
20	—BRAKE FRICTION DISC PIN SCREW
21	—CLUTCH FRICTION DISC PIN SCREW
30	—CLUTCH FRICTION DISC PIN
31-FW	—FLYWHEEL BEARING RETAINER SCREWS
32-FW	—FLYWHEEL BEARING SPACER—CENTER
33-FW	—FLYWHEEL BEARING
34-FW	—FLYWHEEL BEARING RETAINER
36-FW	—FLYWHEEL BEARING SPACER—INNER
37-FW	—FLYWHEEL BEARING SPACER—OUTER
38-FW	—FLYWHEEL BEARING RETAINER PACKING
42-FW	—FLYWHEEL BEARING ADJUSTING SHIMS
54	—SHAFT SPACER (To Clutch)
73	—MAIN OR 1ST INTER. SHAFT
74	—MAIN OR 1ST INTER. PINION
75	—MAIN OR 1ST INTER. PINION KEY
75-A	—MAIN OR 1ST INTER. SHAFT END COLLAR
109-E	—DRIVE SHAFT BRACKET (Floating)
109-H	—DRIVE SHAFT BEARING SLEEVE (Fixed)
109-J	—DRIVE SHAFT BEARING COLLAR (Fixed)
109-J	—DRIVE SHAFT BEARING COLLAR (Floating)
109-K	—DRIVE SHAFT BEARING (Fixed)
109-K	—DRIVE SHAFT BEARING (Floating)
109-L	—DRIVE SHAFT BEARING SPACER (Outer) (Floating)
109-M	—DRIVE SHAFT BEARING SPACER (Middle) (Fixed)
109-M	—DRIVE SHAFT BEARING SPACER (Middle) (Floating)
109-N	—DRIVE SHAFT BEARING SPACER (Inner) (Floating)
109-R	—DRIVE SHAFT BEARING COLLAR PACKING (Fixed)
109-R	—DRIVE SHAFT BEARING COLLAR PACKING (Floating)
109-S	—DRIVE SHAFT BEARING COLLAR SHIM (Fixed)
109-S	—DRIVE SHAFT BEARING COLLAR SHIM (Floating)
109-T	—DRIVE SHAFT BEARING SLEEVE DOWEL
109-U	—DRIVE SHAFT BEARING SLEEVE DOWEL NUT
117-B	—MAIN DRIVE SHAFT END BEARING SPACER
165-A	—BRAKE BRACKET

BLISS "K" CLUTCH SHAFT ASSEMBLY

DOUBLE GEARED PRESSES

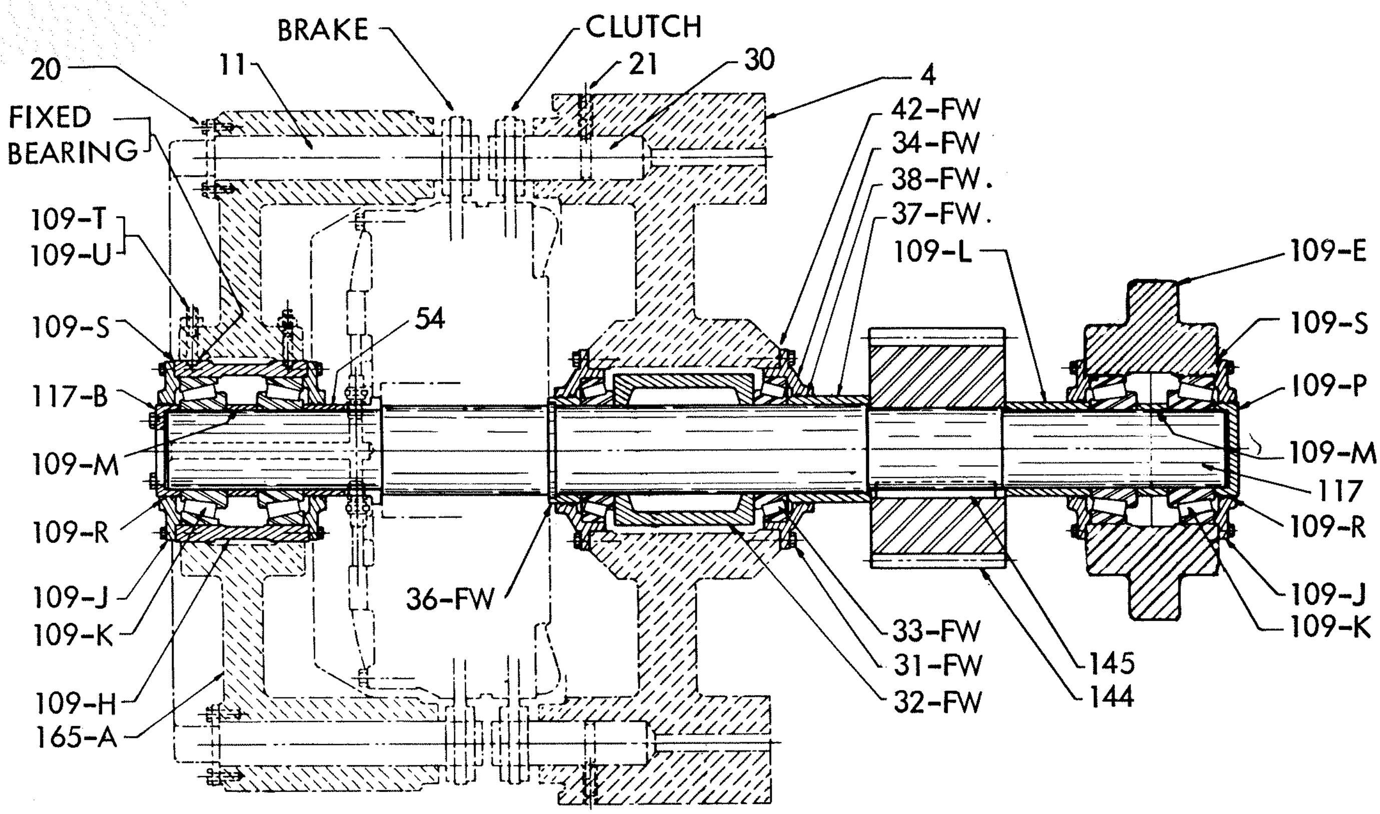

FIGURE 5

Part No.	Part Name	Part No.	Part Name
4	—CLUTCH WHEEL—OR FLYWHEEL	109-K	—DRIVE SHAFT BEARING (Fixed)
11	—BRAKE FRICTION DISC PIN	109-K	—DRIVE SHAFT BEARING (Floating)
20	—BRAKE FRICTION DISC PIN SCREW	109-L	—DRIVE SHAFT BEARING SPACER (Inner) (Floating)
21	—CLUTCH FRICTION DISC PIN SCREW	109-M	—DRIVE SHAFT BEARING SPACER (Middle) Fixed)
30	—CLUTCH FRICTION DISC PIN	109-M	—DRIVE SHAFT BEARING SPACER (Middle) (Floating)
31-FW	—FLYWHEEL BEARING RETAINER SCREWS	109-P	—DRIVE SHAFT BEARING END PLATE
32-FW	—FLYWHEEL BEARING SPACER—CENTER	109-R	—DRIVE SHAFT BEARING COLLAR PACKING (Fixed)
33-FW	—FLYWHEEL BEARING	109-R	—DRIVE SHAFT BEARING COLLAR PACKING (Floating)
34-FW	—FLYWHEEL BEARING RETAINER	109-S	—DRIVE SHAFT BEARING COLLAR SHIM (Fixed)
36-FW	—FLYWHEEL BEARING SPACER—INNER	109-S	—DRIVE SHAFT BEARING COLLAR SHIM (Floating)
37-FW	—FLYWHEEL BEARING SPACER—OUTER	109-T	—DRIVE SHAFT BEARING SLEEVE DOWEL
38-FW	—FLYWHEEL BEARING RETAINER PACKING	109-U	—DRIVE SHAFT BEARING SLEEVE DOWEL NUT
42-FW	—FLYWHEEL BEARING ADJUSTING SHIMS	117	—MAIN DRIVE SHAFT
54	—SHAFT SPACER (To Clutch)	117-B	—MAIN DRIVE SHAFT END BEARING SPACER
109-E	—DRIVE SHAFT BRACKET (Floating)	144	—MAIN DRIVE PINION
109-H	—DRIVE SHAFT BEARING SLEEVE (Fixed)	145	—MAIN DRIVE PINION KEY
109-J	—DRIVE SHAFT BEARING COLLAR (Fixed)	165-A	—BRAKE BRACKET
109-J	—DRIVE SHAFT BEARING COLLAR (Floating)		

BLISS S-2 PRESS MAIN SHAFT ASSEMBLY

FIRST INTERMEDIATE SHAFT - TWIN END DRIVE

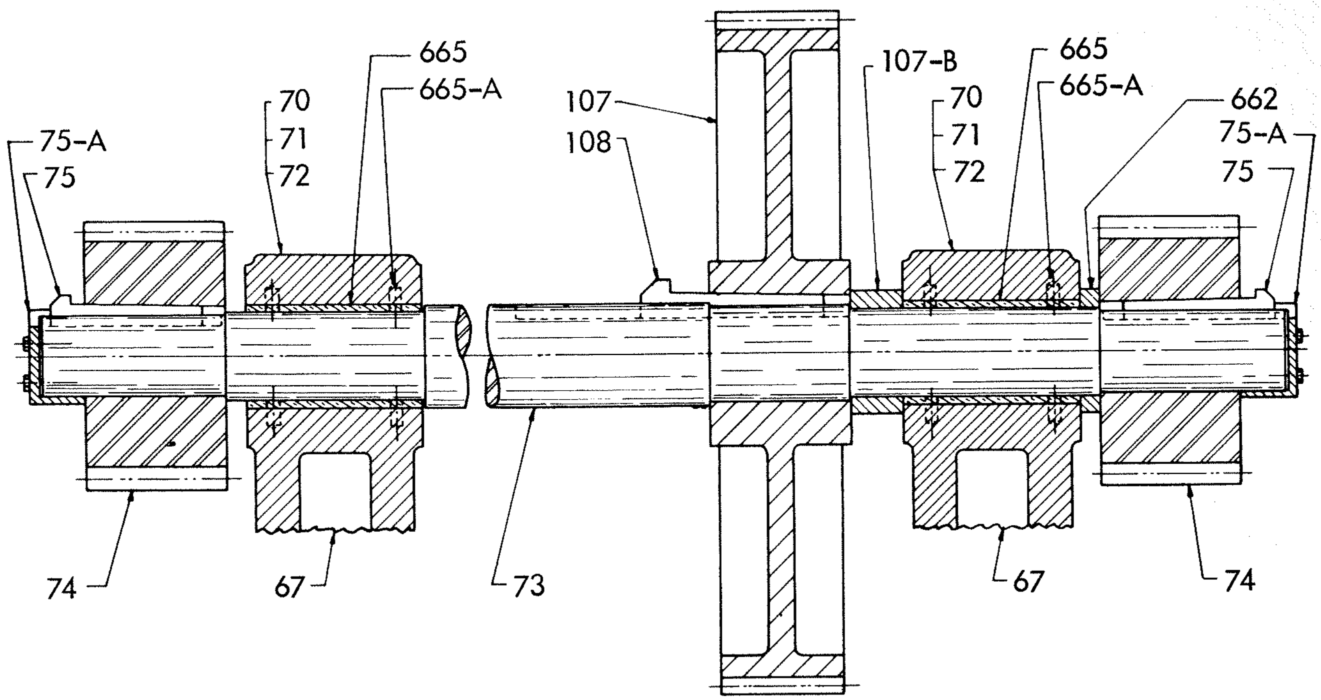

FIGURE 6

Part No.	Part Name
67	—MAIN OR 1ST INTER. SHAFT BRACKET—L.H.
67	—MAIN OR 1ST INTER. SHAFT BRACKET—R.H.
70	—MAIN OR 1ST INTER. SHAFT BRACKET CAP—L.H.
70	—MAIN OR 1ST INTER. SHAFT BRACKET CAP—R.H.
71	—MAIN OR 1ST INTER. SHAFT BRACKET CAP STUD
72	—MAIN OR 1ST INTER. SHAFT BRACKET CAP STUD NUT
73	—MAIN OR 1ST INTER. SHAFT
74	—MAIN OR 1ST INTER. PINION—L.H.
74	—MAIN OR 1ST INTER. PINION—R.H.
75	—MAIN OR 1ST INTER. PINION KEY—L.H.

Part No.	Part Name
75	—MAIN OR 1ST INTER. PINION KEY—R.H.
75-A	—MAIN OR 1ST INTER. SHAFT END COLLAR—L.H.
75-A	—MAIN OR 1ST INTER. SHAFT END COLLAR—R.H.
107	—MAIN DRIVE 1ST INTER. GEAR
107-B	—MAIN DRIVE 1ST INTER. GEAR SPACER
108	—MAIN DRIVE 1ST INTER. GEAR KEY
662	—MAIN OR 1ST INTER. PINION SPACER
665	—MAIN OR 1ST INTER. SHAFT BUSHING—L.H.
665	—MAIN OR 1ST INTER. SHAFT BUSHING—R.H.
665-A	—MAIN OR 1ST INTER. SHAFT BUSHING DOWEL

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