

**INSTALLATION - OPERATION AND  
MAINTENANCE INSTRUCTIONS  
WITH PARTS LIST FOR  
TRANSLATING & TRAVELING NUT  
BEVEL BALL JACKS  
MODELS BB150, BB225 & BB300**



**INSTALLATION**

- 1.) Bevel ball jacks **are not** self-locking and require a brakemotor or other restraining device.
- 2.) Load should be centered on the lifting screw. Side loads will result in increased wear and possible failure.
- 3.) Lifting screws should be perpendicular to jack mounting base and connecting shafts should be aligned to within the allowable angular displacement of the couplings used.
- 4.) Auxiliary components assembled to the input shaft should be installed as close as possible to the carrier housing. Parts should not be fitted so tightly that assembly force required could damage the jack.
- 5.) Once the jacks, miter boxes, couplings and shafts are assembled but before connecting power source or applying load, rotate the main shaft manually. The system should operate freely without binding.
- 6.) The jacks are shipped fully lubricated and ready for operation. To verify, remove either the purge/vent on the sleeve cap or the purge plug on the sleeve and perform a visual inspection.
- 7.) Bevel ball jacks can be mounted in any position.

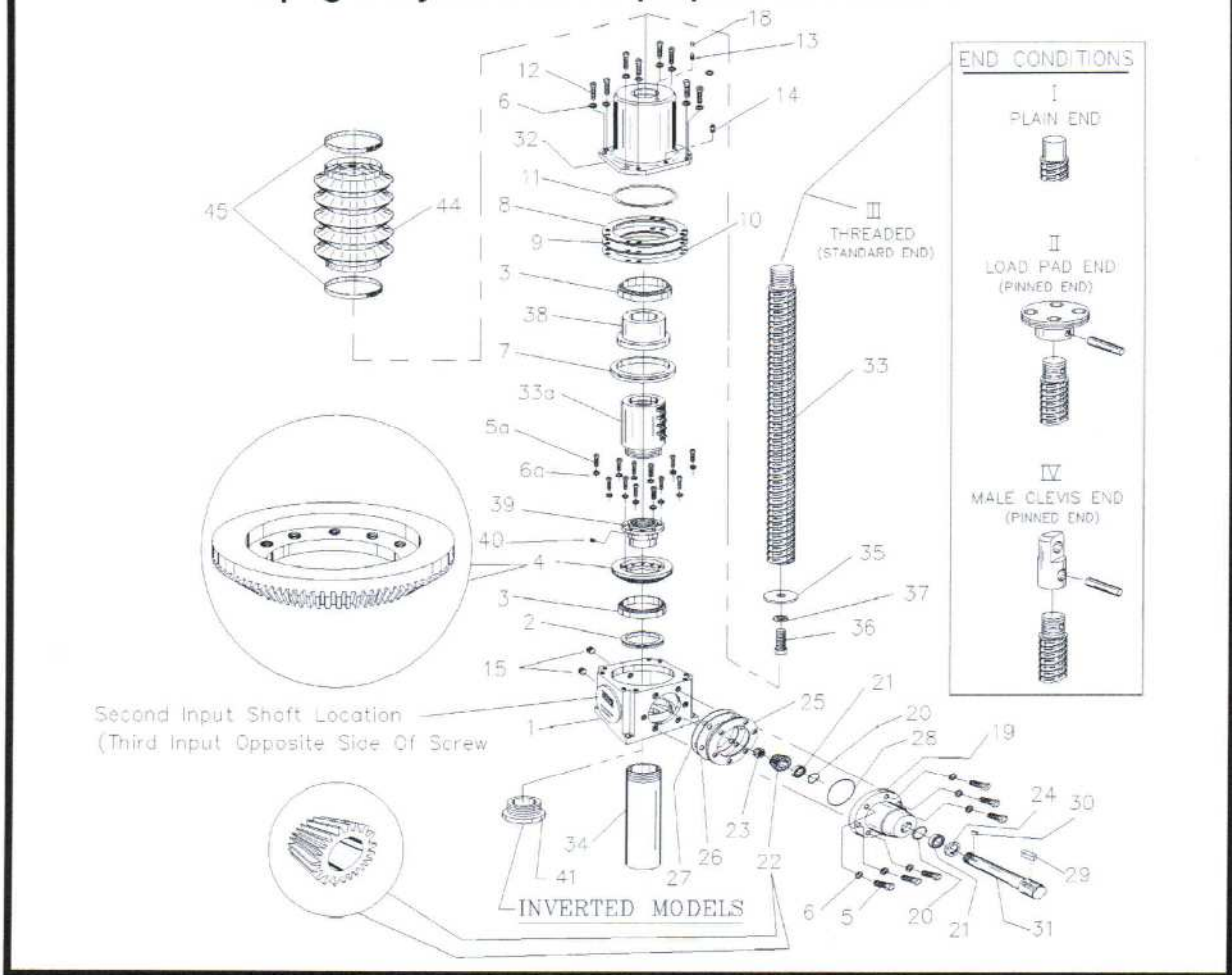
**OPERATION**

- 1.) Pinion shaft speed should not exceed 1750 RPM.
- 2.) Do not operate jacks beyond designated travel. On translating screw models, the ball screw is retained in the housing by a retaining collar for shipping and installation purposes. This collar is not intended to be used as a functional stop.
- 3.) Bellows boots are recommended for screw protection, but for jacks without boots, care should be taken to prevent dust and dirt from accumulating on the ball screw threads; whenever possible return jacks to retracted position.
- 4.) Your Joyce Bevel Ball jack is a precision piece of equipment; treat it as such. Avoid overloading and excessive pinion shaft speeds. If properly installed and maintained, your Joyce jack will give years of satisfactory service. If repair parts are required, refer to the parts list included in this manual.

# PARTS FOR JOYCE BEVEL BALL GEAR SCREW JACKS

## Translating Screw Models No. BB 150, BB 225, and BB 300

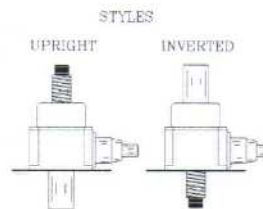
“Upright Style shown for purpose of illustration”



For parts not listed and for custom built jacks, contact Joyce/Dayton Corp.

To order parts give capacity, model and serial number found on the name tag attached to the jack. Also specify whether upright or inverted jack, and end condition of screw.

Below is the name plate as it appears on your jack, mark in the information in the proper spaces exactly as it appears on the jack for your reference.



**PARTS LIST FOR JOYCE BEVEL BALL GEAR TRANSLATING SCREW JACK**

		Model Number								
		BB 150			BB 225			BB 300		
Screw Diameter		1 1/2"			2 1/4"			3"		
Item	Description	Quantity								
1	Sleeve	1			1			1		
2	Seal	1			1			1		
3	Thrust Bearing	2			2			2		
4	Gear	1			1			1		
<b>Note: Item 5 &amp; 6 and Item 19-31 below quantities are shown according to number of input shafts</b>										
Number Of Shaft Inputs		1	2	3	1	2	3	1	2	3
5	Screw, Carrier Mtg.	4	8	12	6	12	18	6	12	18
6	Lockwasher, Carrier Mtg.	4	8	12	6	12	18	6	12	18
5a	Screw, Bevel Gear Mtg	6			6			6		
6a	Lockwasher, Bevel Gear Mtg. And Sleeve Cap	14			14			14		
7	Upper Seal	1			1			1		
8	Shim, Blue	3			3			3		
9	Shim, Clear	3			3			3		
10	Shim, Yellow	1			1			1		
11	"O" Ring, Large	1			1			1		
12	Sleeve Cap Screw	8			8			8		
13	Grease Fitting	1			1			1		
14	Fill Vent	1			1			1		
15	Pipe Plug	2			2			2		
16	Name Plate	1			1			1		
17	Name Plate Screw	2			2			4		
18	Grease Fitting Cap	1			1			1		
Number Of Shaft Inputs		1	2	3	1	2	3	1	2	3
19	Carrier Housing	1	2	3	1	2	3	1	2	3
20	Retaining Ring	2	4	6	2	4	6	2	4	6
21	Bearing	2	4	6	2	4	6	2	4	6
22	Bevel Pinion	1	2	3	1	2	3	1	2	3
23*	Locknut	1	2	3	1	2	3	1	2	3
24	Seal	1	2	3	1	2	3	1	2	3
25	Carrier Shim, Blue	6	12	24	6	12	24	5	12	24
26	Carrier Shim, Clear	6	12	24	6	12	24	6	12	24
27	Carrier Shim, Yellow	2	4	6	2	4	6	2	4	6
28	"O" Ring	1	2	3	1	2	3	1	2	3
29	Key, Shaft	1	2	3	1	2	3	1	2	3
30**	Woodruff Key	1	2	3	1	2	3	1	2	3
31	Input Shaft	1	2	3	1	2	3	1	2	3
32	Sleeve Cap	1			1			1		
33	Ball Screw Assembly (Includes Screw End Condition)	1			1			1		
33a	Bull Nut Assembly	1			1			1		
34	Protection Tube Assembly	1			1			1		
35	Screw Stop	1			1			1		
36	Screw Stop Screw	1			1			1		
37	Screw Stop Lockwasher	1			1			1		
38	Top Bearing Adapter	1			1			1		
39	Ball Nut Adapter	1			1			1		
40	Set Screw, Ball Screw Thd.	1			1			1		
41	Inverted Bushing	1			1			1		
44	Boot, Translating Screw Protection	1			1			1		
45	Boot Clamps	2			2			2		

\* - Locknut Is On Opposite End Of The Input Shaft On The BB 225 And BB250 Jacks.  
 \*\* - Not Used On BB 150.

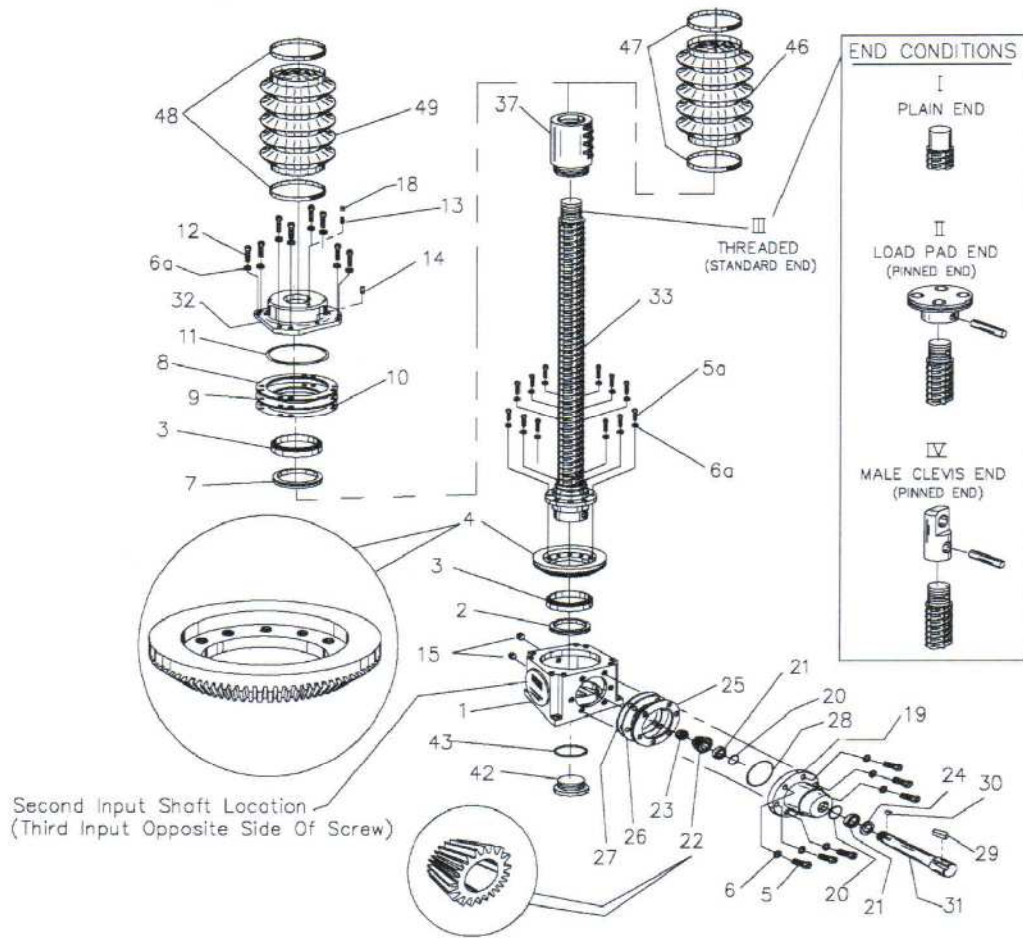
**HOW TO ORDER REPLACEMENT PARTS**

In ordering spare parts list the model number of the Jack and the item number required. The serial number is the only means to positively identify your Jack.

The quantities listed under the various models number indicate the quantity required for a complete jack.

# PARTS FOR JOYCE BEVEL BALL GEAR SCREW JACKS

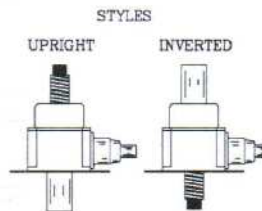
Keyed For Traveling Nut Screw Models No. BB 150, BB 225, and BB 300  
 "Upright Style shown for purpose of illustration"



For parts not listed and for custom built jacks, contact Joyce/Dayton Corp.

To order parts give capacity, model and serial number found on the name tag attached to the jack. Also specify whether upright or inverted jack, and end condition of screw.

Below is the name plate as it appears on your jack, mark in the information in the proper spaces exactly as it appears on the jack for your reference.



## PARTS LIST FOR JOYCE BEVEL BALL GEAR JACK KEYED FOR TRAVELING NUT JACK

Screw Diameter		Model Number								
		BB 150			BB 225			BB 300		
		1 1/2"			2 1/4"			3"		
Item	Description	Quantity								
1	Sleeve	1			1			1		
2	Seal	1			1			1		
3	Thrust Bearing	2			2			2		
4	Gear	1			1			1		
<b>Note: Item 5 &amp; 6 and Item 19-31 below quantities are shown according to number of input shafts</b>										
Number Of Shaft Inputs		1	2	3	1	2	3	1	2	3
5	Sleeve, Carrier Mtg.	4	8	12	6	12	18	6	12	18
6	Lockwasher	4	8	12	6	12	18	6	12	18
5a	Screw, Bevel Gear Mtg.	6			6			6		
6a	Lockwasher, Bevel Gear Mtg. and Sleeve Cap	14			14			14		
7	Upper Seal	1			1			1		
8	Shim, Blue	3			3			3		
9	Shim, Clear	3			3			3		
10	Shim, Yellow	1			1			1		
11	"O" Ring, Large	1			1			1		
12	Sleeve Cap Screw	8			8			8		
13	Grease Fitting	1			1			1		
14	Fill Vent	1			1			1		
15	Pipe Plug	2			2			2		
16	Name Plate	1			1			1		
17	Name Plate Screw	2			2			4		
18	Grease Fitting Cap	1			1			1		
Number Of Shaft Inputs		1	2	3	1	2	3	1	2	3
19	Carrier Housing	1	2	3	1	2	3	1	2	3
20	Retaining Ring	2	4	6	2	4	6	2	4	6
21	Bearing	2	4	6	2	4	6	2	4	6
22	Bevel Pinion	1	2	3	1	2	3	1	2	3
23*	Locknut	1	2	3	1	2	3	1	2	3
24	Seal	1	2	3	1	2	3	1	2	3
25	Carrier Shim, Blue	6	12	24	6	12	24	5	12	24
26	Carrier Shim, Clear	6	12	24	6	12	24	6	12	24
27	Carrier Shim, Yellow	2	4	6	2	4	6	2	4	6
28	"O" Ring	1	2	3	1	2	3	1	2	3
29	Key, Shaft	1	2	3	1	2	3	1	2	3
30**	Woodruff Key	1	2	3	1	2	3	1	2	3
31	Input Shaft	1	2	3	1	2	3	1	2	3
OIL AMOUNT IN OUNCES		18	20	22	45	48	51	100	104	108
32	Sleeve Cap	1			1			1		
33	Ball Screw Assembly (Includes End Condition)	1			1			1		
37	Ball Nut Assembly	1			1			1		
38	Top Bearing Adapter	1			1			1		
39	Ball Nut Adapter	1			1			1		
40	Set Screw, Ball Screw Thd.	1			1			1		
42	Plug, Sleeve Bottom	1			1			1		
43	"O" Ring, Bottom Plug	1			1			1		
46	Top Boot, Keyed For Traveling Nut Screw Protection	1			1			1		
47	Top Boot Clamps	2			2			2		
48	Bottom Boot, Keyed For Traveling Nut Screw Protection	1			1			1		
49	Bottom Boot Clamps	2			2			2		

\* - Locknut Is On Opposite End Of The Input Shaft On The BB225 And BB250 Jacks.

\*\* - Not Used On BB150.

### HOW TO ORDER REPLACEMENT PARTS

In ordering spare parts list the model number of the Jack and the item number required. The serial number is the only means to positively identify your Jack.

The quantities listed under the various models number indicate the quantity required for a complete jack.

## LUBRICATION

- 1.) Bevel Ball Jacks are lubricated before leaving the factory and are ready for operation.
- 2.) The ball screw thread requires a constant film of lubrication. Visually inspect the ball screw (Ref. No. 33) at appropriate intervals for your application. For frequent use (daily), a spindle or 10 weight oil is recommended. For infrequent use (once a week), use one of the greases listed below.
- 3.) Jack internal lubrication should be checked once a month. To check the lubrication, remove the purge/vent plug (Ref. No. 14) on the sleeve cap (Ref. No. 32) and the purge plugs (Ref. No. 15) on the sleeve (Ref. No. 1) and perform a visual inspection. If the housing appears low on grease (internal parts partially or not coated) in either of these areas then lubrication is required. If the housing is adequately lubricated (all parts coated) and the duty cycle is constant, the internal inspection schedule can be changed to every other month.
- 3.) Internal lubrication is best performed by pumping grease through the fitting on the side of the sleeve with the purge/vent on the sleeve cap removed. Continue pumping until grease is visible at the purge/vent hole. Allow excess grease to escape then replace the purge/vent plug and continue operation.

**Note:** Joyce suggested lubrication interval is only a guideline, documentation of lubricant usage is recommended to assist you in determining the best lubrication schedule for your application.

Joyce/Dayton Corp. assumes no responsibility for the quality, performance or availability of any of the listed lubricants. Alternative lubricants with characteristics equal to the lubricants listed below can be used.

<b>COMPANY</b>	<b>BRAND NAME</b>
Chevron Lubricants	Dura-lith EP NLGI #1
Texaco, Inc.	Multifax EP NLGI #1
Shell Oil Co.	Alvania EP NLGI #1
Citgo	Premium Lithium EP NLGI #1
Mobil Oil	Mobilux EP NLGI #1

## MAINTENANCE

- 1.) Check pinion for excessive backlash (more than 10 degrees angular movement). Excessive backlash can be reduced by removing carrier housing (Ref. No. 19) and removing shims (Ref. No's. 25,26 & 27) as required. Replace carrier housing and tighten screws. If this does not reduce backlash, then the bevel pinion (Ref. No. 22) should be replaced.



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