

Instruction Manual
PL70EN-B4-1229
05/26/2016

Cleco®

B4R Series
Reversible Axial Piston Power Motors



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Cleco®
Nomenclature

Model Number	Maximum Allowable RPM		Stall Torque		Starting Torque		Weight		Gear Ratio	Maximum Overhung Load @ Stall *	
	@ Max. HP	Free Speed	ft. lbs.	Nm	ft. lbs.	Nm	lbs.	kg		lbs.	kg
B4R-2210	270	525	40	54.0	30.0	41.0	14.5	6.57	8:1	800	363
B4R-2213	270	525	40	54.0	30.0	41.0	14.5	6.57	8:1	800	363
B4R-2215	79	150	136	184.0	101.0	137.0	22.5	10.21	27.2:1	800	363

* Note: All models assume overhung load located at 1.75" (44.45mm) from the face of the motor.

The original language of this manual is English.

Product Safety Information:

Intended Use:

This pneumatic motor is to be used exclusively as a power source to be integrated into an application.

For additional product safety information refer to Apex Tool Group, LLC or Apex Tool Group GmbH & Co. OHG document CE-2005, General Safety Instructions for Air Motors.



The motor must not be modified in any manner unless approved in writing by Apex Tool Group, LLC or Apex Tool Group GmbH & Co. OHG. All safety devices must be properly installed and maintained in good working order.

Declaration of Incorporation:

We affirm that this machine complies with the basic requirements of the following directives (2006/42/EC) and is intended for installation / assembly in a / with other machine(s). Commissioning of the incomplete machine is prohibited until such time that the incomplete machine has been incorporated in a machine that complies with the EC Machinery Directive 2006/42/EC and for which there is an EC Declaration of Conformity in accordance with Appendix II A. We furthermore declare that the special technical documentation for the incomplete machine is in accordance with Appendix VII Part B. We undertake to have it passed on to the market surveillance body upon request by our representative for the compilation of technical documentation. The following Sections of Appendix I of Directive 2006/42/EC have been fulfilled: 1.1.2, 1.1.3, 1.1.5, 1.3.2, 1.3.4, 1.5. Applied harmonized standards are ISO 12100-1: 2004-04, ISO 12100-2:2004-04.

The name, job function and address of the person authorized to compile the technical file.

Mr. Vishnu Irigreddy
Director of Global R&D- Mechanical Engineering
Apex Tool Group
670 Industrial Drive
Lexington, SC 29072

Signature: Vishnu Irigreddy
Date: May 26, 2016

Air Line Lubrication:

Use Apex Tool Group, LLC or Apex Tool Group GmbH & Co. OHG's lightweight air tool oil 500021 (available in quantities shown in the following chart) or an SAE-5 lightweight spindle oil.

Part No.	Packaged	Designation
540397	1 Quart (0.94 liter)	Airlube 10W/NR-420LB DR
533485	1 US Gallon (3.78 liter)	Airlube 10W/NR-420LB DR

Recommended Grease:

Part No.	Packaged	Designation
A123771	16 oz. (0.45 kg)	Shell Alvania® EP 00
540450	16 oz. (0.45 kg)	Chevron Black Pearl® EP NLGI

Air Supply Line:

Parameter	Description
Air Hose	Minimum inside diameter: 3/8" (9.5mm) Maximum length: 16.4' (5 m)
Working pressure range	Performance rated at: 90 psi (620 kPa)
Compressed air	Air quality according to ISO 8573-1, quality class 2.4.3 The compressed air must be clean and dry.

Service and Repair:

Tool service and repair should be performed by an authorized Apex Tool Group, LLC or Apex Tool Group GmbH & Co. OHG Center. Refer to the last page of this manual for locations.

Disposal:



Observe local disposal guidelines for all components of this tool and its packaging.

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Repair instructions

Lubrication

“DO NOT SUBSTITUTE LUBRICANTS”

The proper grades of oil and grease are essential too the efficient operation of these air motors. Heavy oil will not flow through a lubricator at a satisfactory rate too insure proper lubrication to the motor. Greases that are too stiff will channel and fail to lubricate properly and greases that are tool thin will blow out of the motor. Improper lubrication or inadequate lubricants can cause extensive motor damage.

Grease fittings are located on the motor housing and the gear housing for each stage of gearing. The following quantities of A123771 (*High Temp 540450*) grease are provided during factory assembly and these same amounts must be provided whenever the air motor is disassembled.

- Motor assembly: 3 oz.
- Gearing assembly (each): 2 oz.

During normal operation, the motor wil loose a small amount of grease through the exhaust making it necessary to add grease at regular intervals. After each 50 hours of operation add 1.5 oz. of A123771 (*High Temp 540450*) grease to the motor housing.



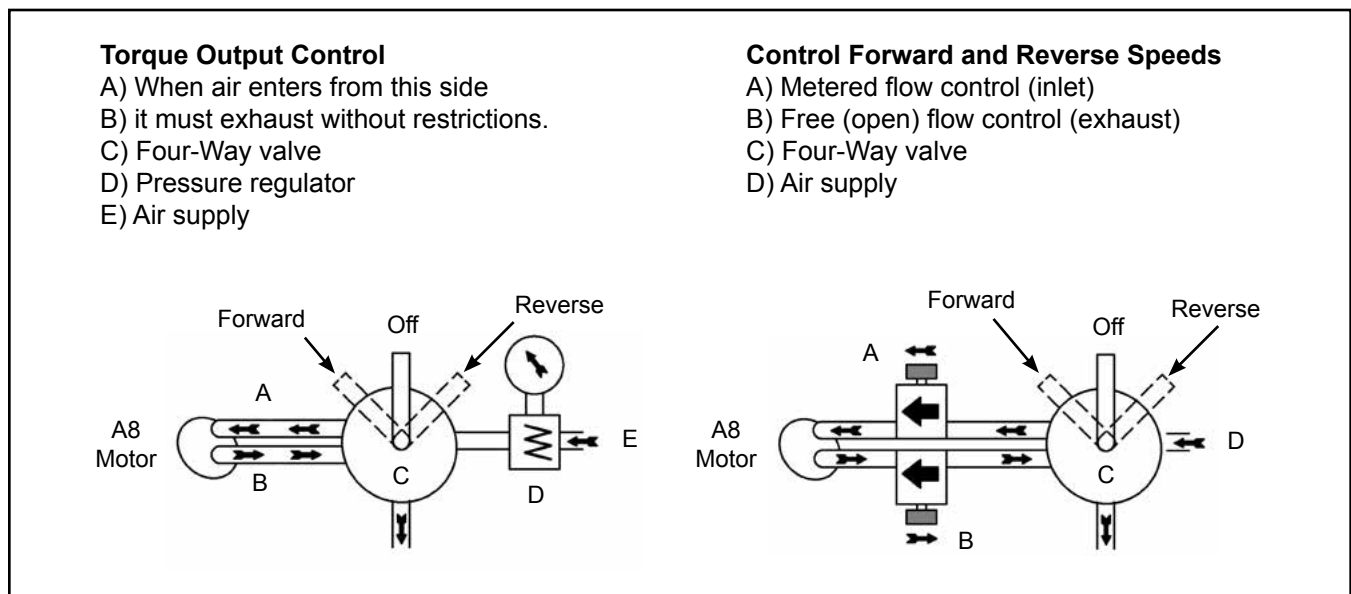
Excessive grease in the motor housing will cause a loss in motor performance. Not enough grease will cause premature motor failure.

Too much grease in the gear case will force the seal out of the front housing.

The gear case will lose grease through the motor. The motor will siphon gear grease, saturated with airline oil, through the exhaust. After 200 hours of operation, add 0.5 oz. of A123771 (*High Temp 540450*) grease into each gear housing.

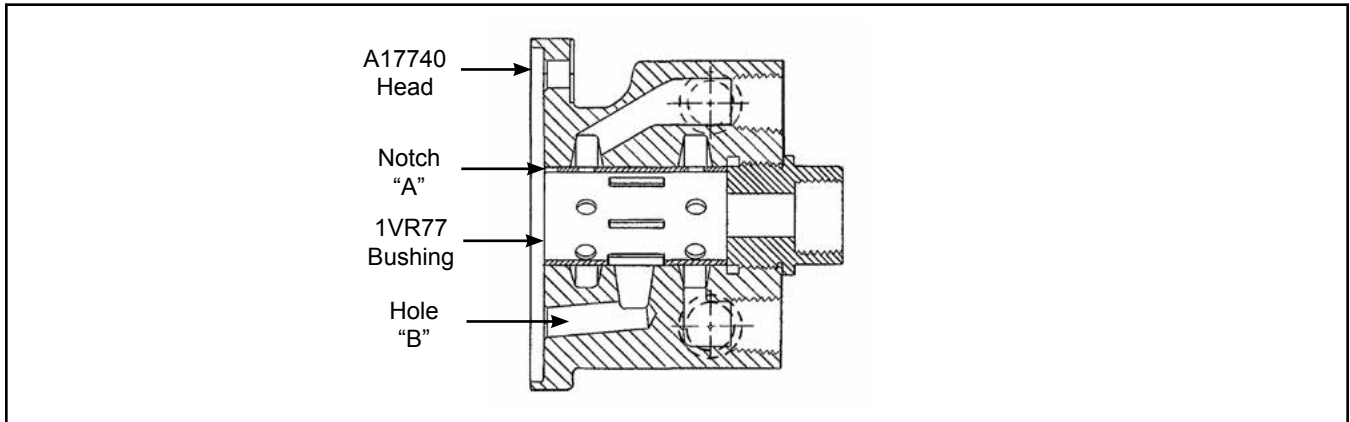
Valving

If a valve is used, it should have a full flow air passage to utilize full powe of the motor. For quick motor stops, an all-ports closed-in-neutral type valve with a spring return should be used.



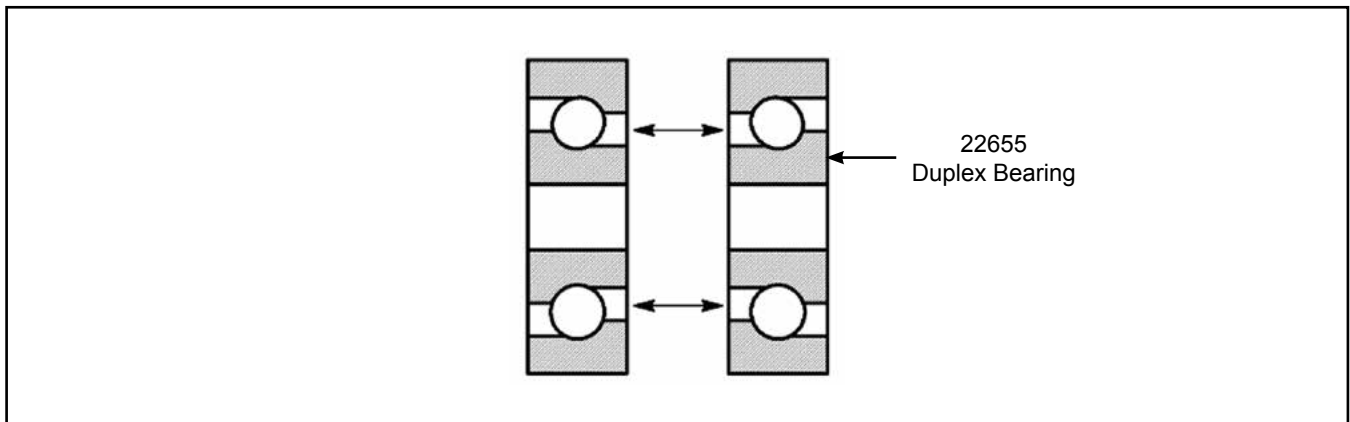
Distributor bushing assembly

Press the new bushing into the head as shown. Notch "A" in the bushing must be opposite hole "B" in the head.



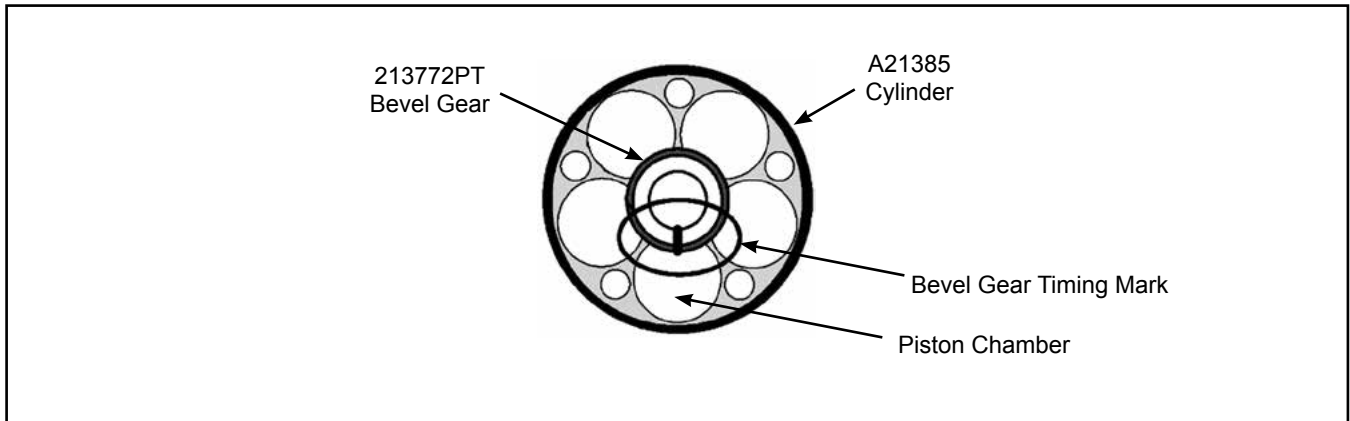
Duplex bearing assembly

The small diameters of the bearings must face each other when assembled.



Bevel gear timing mark

Make sure the timing mark on the bevel gear is aligned with the center of a piston chamber before assembling the driveshaft assembly into the cylinder.



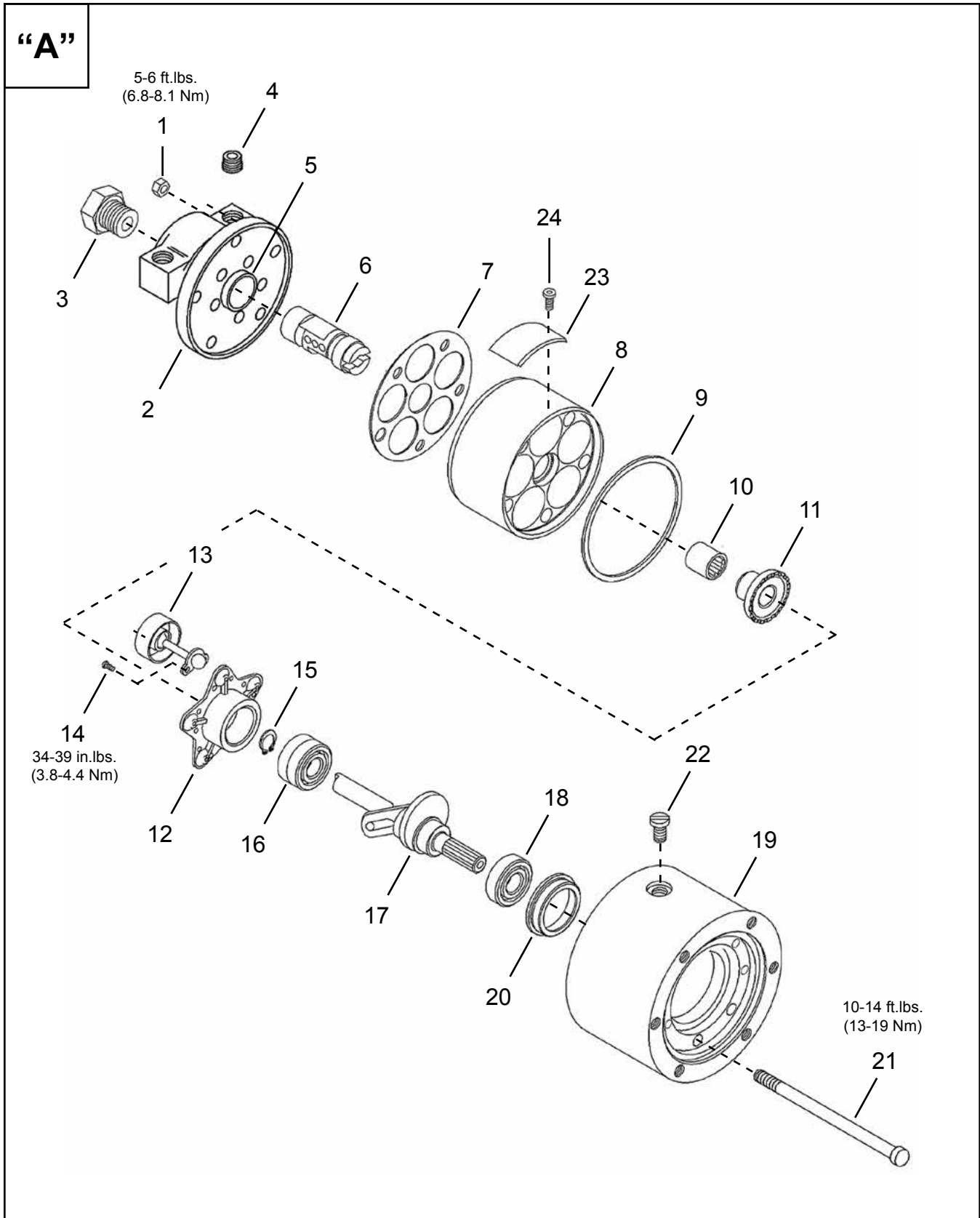


Illustration "A": Power Unit

Ref	Number	#	X	EN
				Description
1	C109C	5	10	Head Assembly Nut
2	A17740	1		Head Assembly (includes Ref. 3-5)
3	17747	1	1	Reducer Bushing
4	B112E	2	2	Pipe Plug
5	1VR77	1	1	Bushing
6	10100	1		Distributor
7	1V189	1	3	Head Gasket
8	A21385	1		Cylinder (includes Ref. 10)
9	9D7916	1	3	Cylinder Gasket
10	535712	1	2	Needle Bearing
11	213772PT	1	1	Bevel Gear
--	511500	1		Driveshaft Assembly (includes Ref. 12-17)
--	511503	1		Socket Plate Assembly (includes Ref. 12-14)
12	511505	1		Socket Plate
13	511504	5	5	Piston Assembly
14	B122R	10	10	Screw
15	500740	1	3	Retaining Ring
16	22655	1	2	Duplex Bearing
17	511511	1		Driveshaft
18	1V155	1	2	Ball Bearing
19	520293	1		Rear Housing (includes Ref. 20-21)
20	22761	1	1	Bearing Liner
21	520294	4	4	Stud
22	30775PT	1	1	Flush Type Grease Fitting (B4R-2210)
	RG-78	1	1	Ball Type Grease Fitting (B4R-2213, B4R-2215)
23	530322	1		Nameplate
24	534820	2		Drive Screw

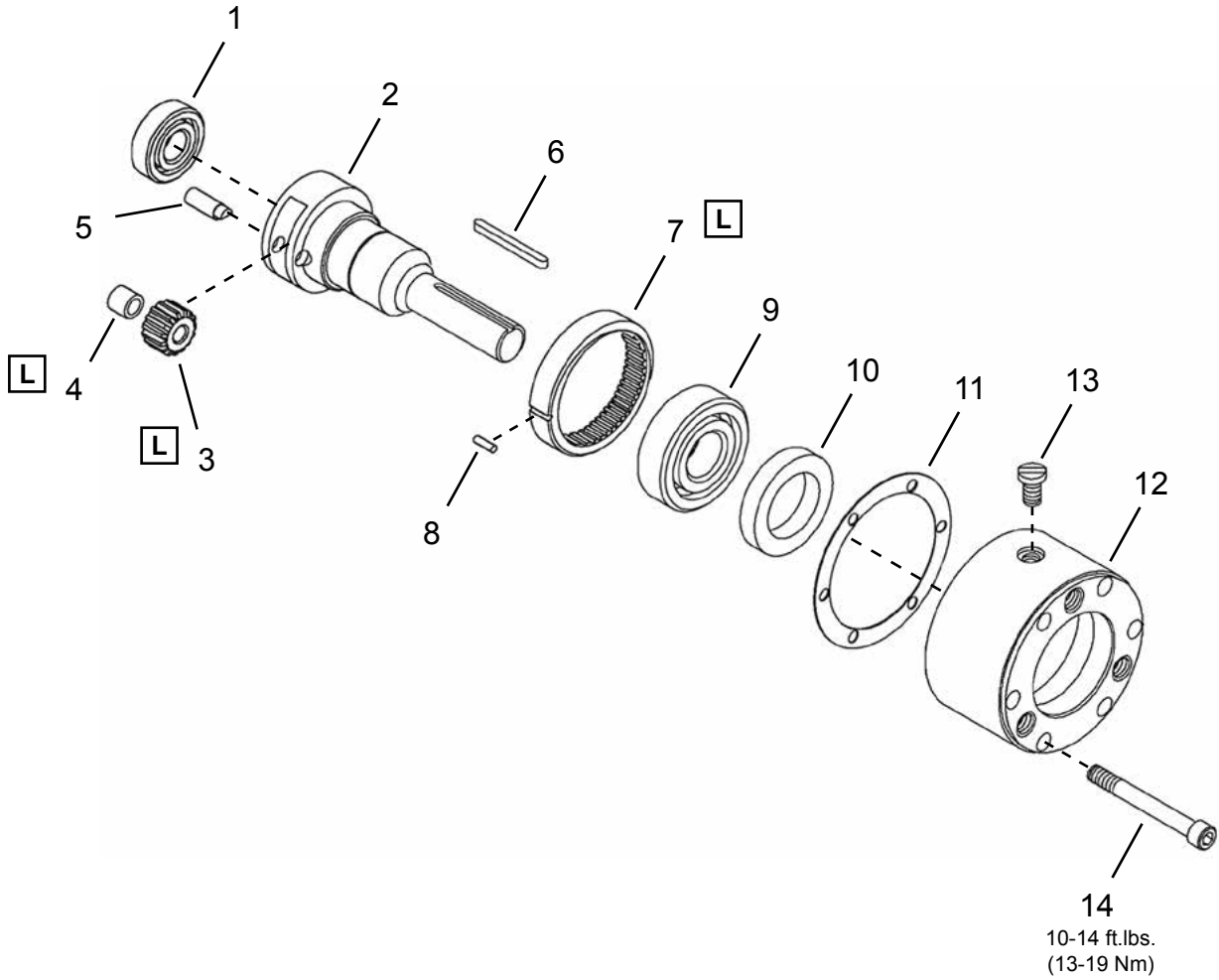
(#) Quantity

(X) Recommended Spare Parts (quantity shown based on 1-5 tools in operation)

Cleco® Single Stage Gearing

“B”

Models
B4R-2210
B4R-2213



L Lubricate with A123771 Grease (16 oz. can)

Cleco®
Single Stage Gearing

PL70EN-B4-1229
05/26/2016

Illustration "B": Single Stage Gearing Assembly

Ref	Number	#	X	EN	
				Description	
1	RS196	1	2	Ball Bearing	
2	544040	1		Gear Cage Output Spindle	
3	A9D7891	2	4	Planetary Gear (includes Ref. 4)	
4	16113	2	4	Planetary Gear Bearing	
5	9D7890	2	4	Planetary Gear Pin	
6	18308	1	2	Gear Cage Output Spindle Key	
7	9D7892	1		Ring Gear	
8	80G216	1	2	Ring Gear Pin	
9	18304	1	2	Ball Bearing	
10	18307	1	3	Oil Seal	
11	9D7908	1	3	Front Housing Gasket	
12	18296	1		Front Housing	
13	30775PT	1	1	Flush Type Grease Fitting (B4R-2210)	
	RG-78	1	1	Ball Type Grease Fitting (B4R-2213)	
14	B117B	6	6	Front Housing Bolt	

(#) Quantity

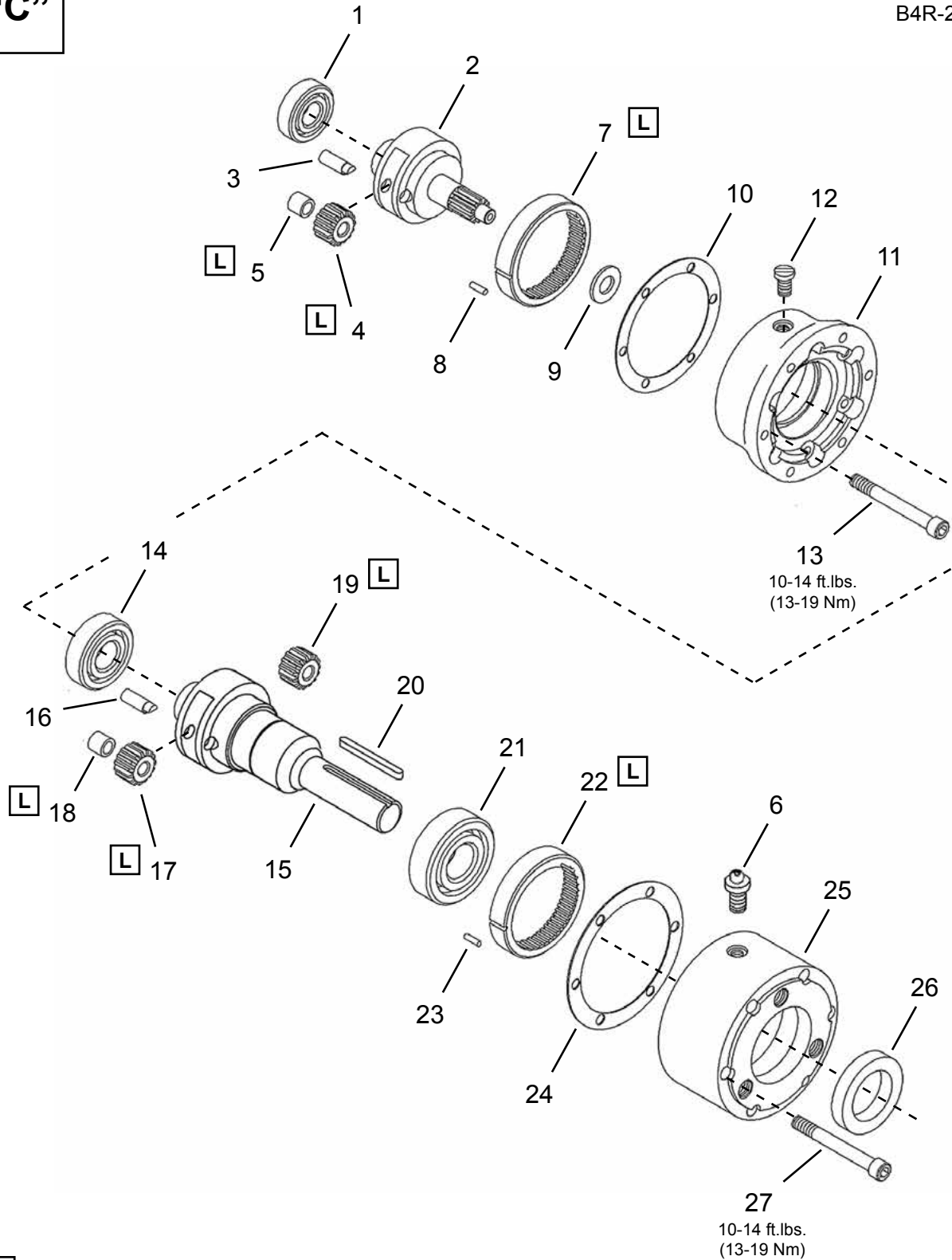
(X) Recommended Spare Parts (quantity shown based on 1-5 tools in operation)



Cleco®
Double Stage Gearing

Models
B4R-2215

"C"



L Lubricate with A123771 Grease (16 oz. can)

Cleco®
Double Stage Gearing

PL70EN-B4-1229
05/26/2016

Illustration "C": Double Stage Gearing Assembly

Ref	Number	#	X	EN
				Description
1	RS196	1	2	Ball Bearing
2	30080PT	1		Gear Cage
3	9D7890	2	4	Planetary Gear Pin
4	A9D7891	2	4	Planetary Gear (24T) (includes Ref. 5)
5	16113	2	4	Planetary Gear Needle Bearing
6	RG78	1	1	Ball Type Grease Fitting
7	9D7892	1		Ring Gear
8	80G216	1	2	Ring Gear Pin
9	12686	1	2	Washer
10	9D7908	1	3	Center Housing Gasket
11	30078PT	1		Center Housing
12	30775PT	1	1	Flush Type Grease Fitting
13	B115M	6	6	Socket Head Cap Screw
14	525424	1	2	Ball Bearing
15	544121PT	1		Gear Cage Output Spindle
16	10032	2	4	Planetary Gear Pin
17	A18322	2	4	Planetary Gear (14T) (includes Ref. 18)
18	21155	2	4	Planetary Gear Needle Bearing
19	18323	1	2	Pinion Gear
20	18308	1	3	Output Spindle Key
21	18304	1	2	Ball Bearing
22	10019	1		Ring Gear
23	DP120PT	1	2	Ring Gear Pin
24	29719PT	1	3	Front Housing Gasket
25	29715PT	1		Front Housing
26	18307	1	3	Oil Seal
27	B117B	6	6	Socket Head Cap Screw

(#) Quantity

(X) Recommended Spare Parts (quantity shown based on 1-5 tools in operation)



POWER TOOLS SALES & SERVICE CENTERS

Please note that all locations may not service all products.

Contact the nearest Apex Tool Group Sales & Service Center for the appropriate facility to handle your service requirements.

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