

Instruction Manual
PL70-1090EN
10/10/2014

Cleco®

A8R-2223
Reversible Axial Piston Power Motor



For additional product information visit our website at <http://www.apextoolgroup.com>



Zampini Industrial Group
AirToolPro.com
1-800-353-4676

Industrial Air & Electric Tools
We Sell Reliability!
In Business Since 1987
FREE Expert Assistance - Call Now

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
A8R-2223	38	75	638	865	471	639	51	23.1	33.6:1	1000	454

* Note: These motors must be operated with sufficient load to prevent speed from exceeding the maximum allowable free speed.

** Note: All models assume overhung load located at 2.25" (57.15mm) 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: October 10, 2014

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: 1/2" (12.7mm) 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.

Copyright Protection:

Apex Tool Group, LLC or Apex Tool Group GmbH & Co. OHG reserves the right to modify, supplement or improve this document or the product without prior notice. This document may not be reproduced in any way, shape or form, in full or parts thereof, or copied to another natural or machine readable language or to a data carrier, whether electronic, mechanical, optical or otherwise without the express permission of Apex Tool Group, LLC or Apex Tool Group GmbH & Co. OHG

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: 12 oz.
- Gearing assembly (each): 4 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 2.0 oz. of A123771 (*High Temp 540450*) grease to the motor housing.

! CAUTION

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.

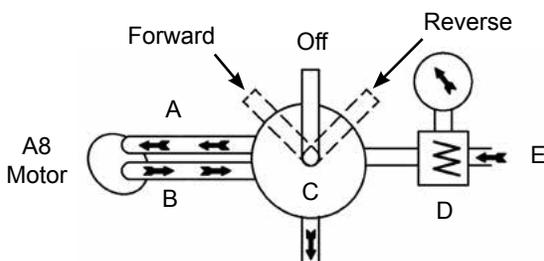
The gear case will lose grease through the motor. The motor will siphon gear grease, saturated with airline oil, through the exhaust. After 200 hours of operation, add 1.0 oz. of A123771 (*High Temp 540450*) grease into each gear housing.

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.

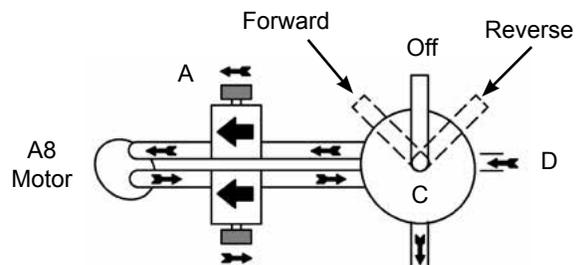
Torque Output Control

- A) When air enters from this side
- B) it must exhaust without restrictions.
- C) Four-Way valve
- D) Pressure regulator
- E) Air supply



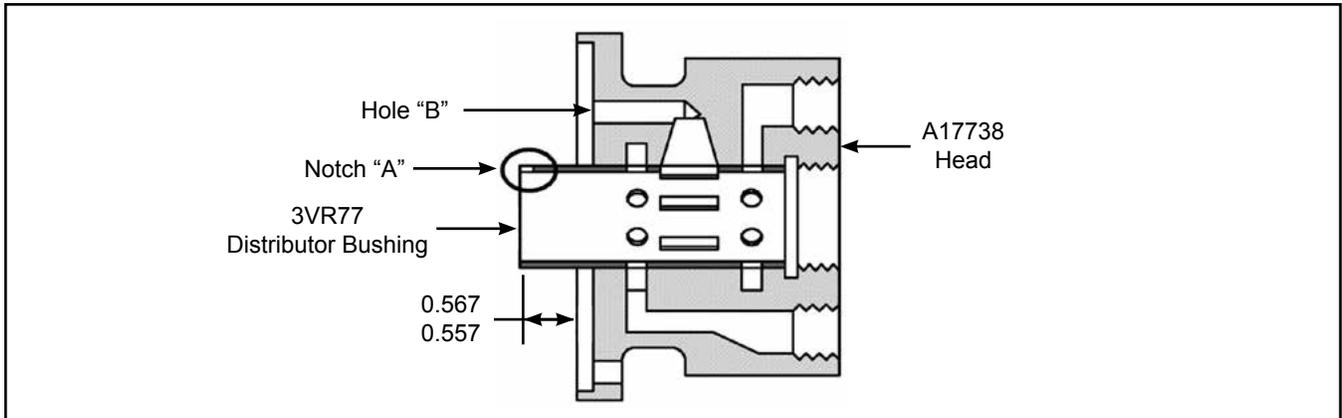
Control Forward and Reverse Speeds

- A) Metered flow control (inlet)
- B) Free (open) flow control (exhaust)
- C) Four-Way valve
- D) Air supply



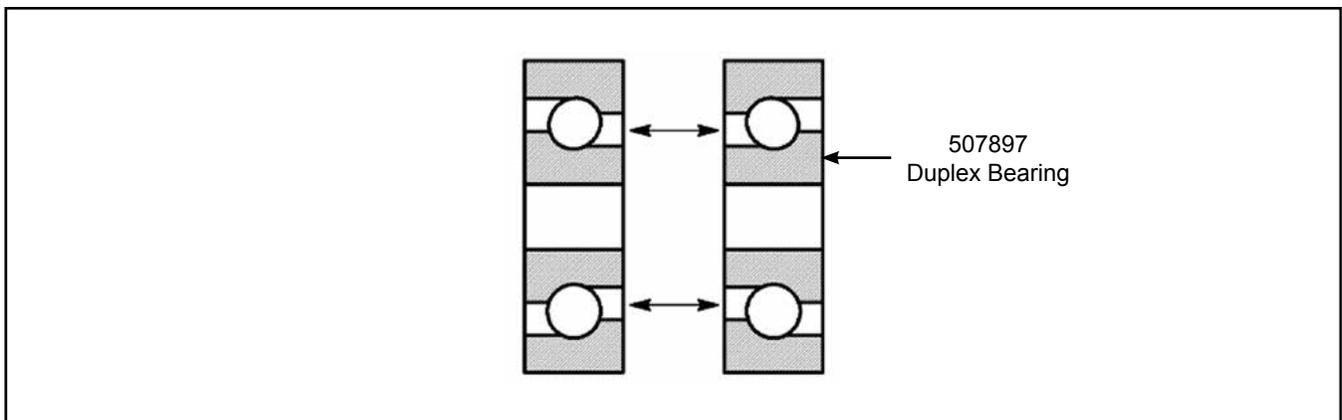
Distributor bushing assembly

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



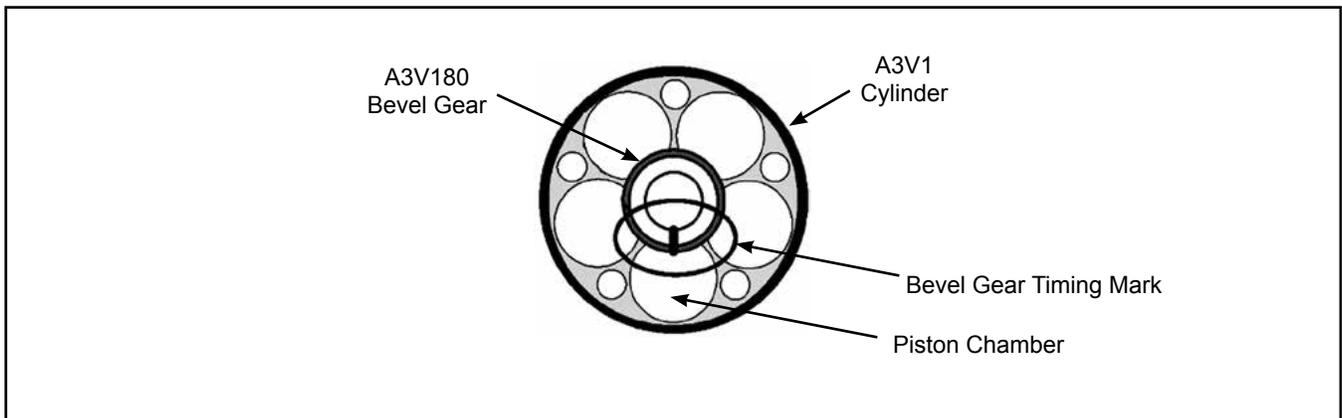
Duplex bearing assembly

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.



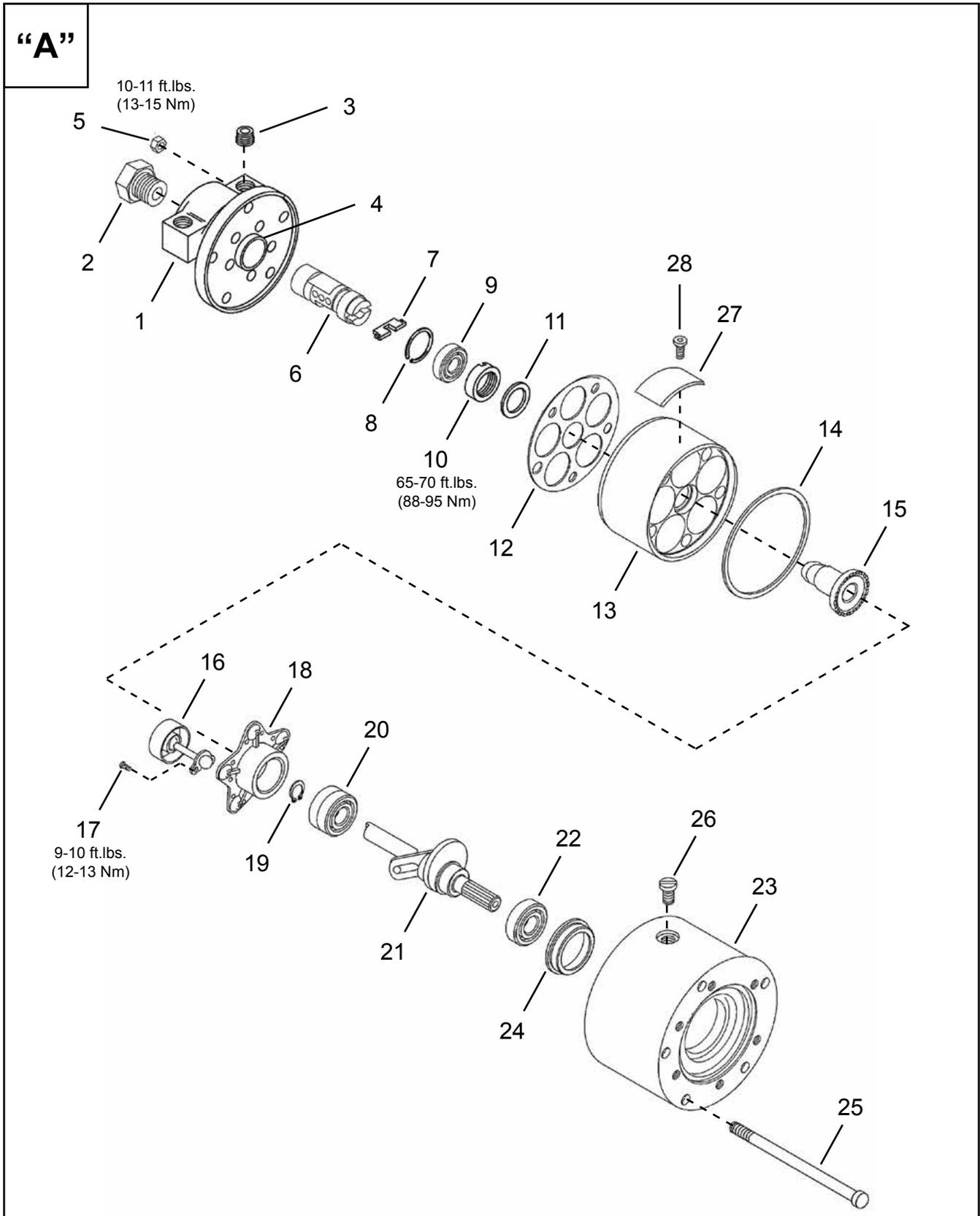


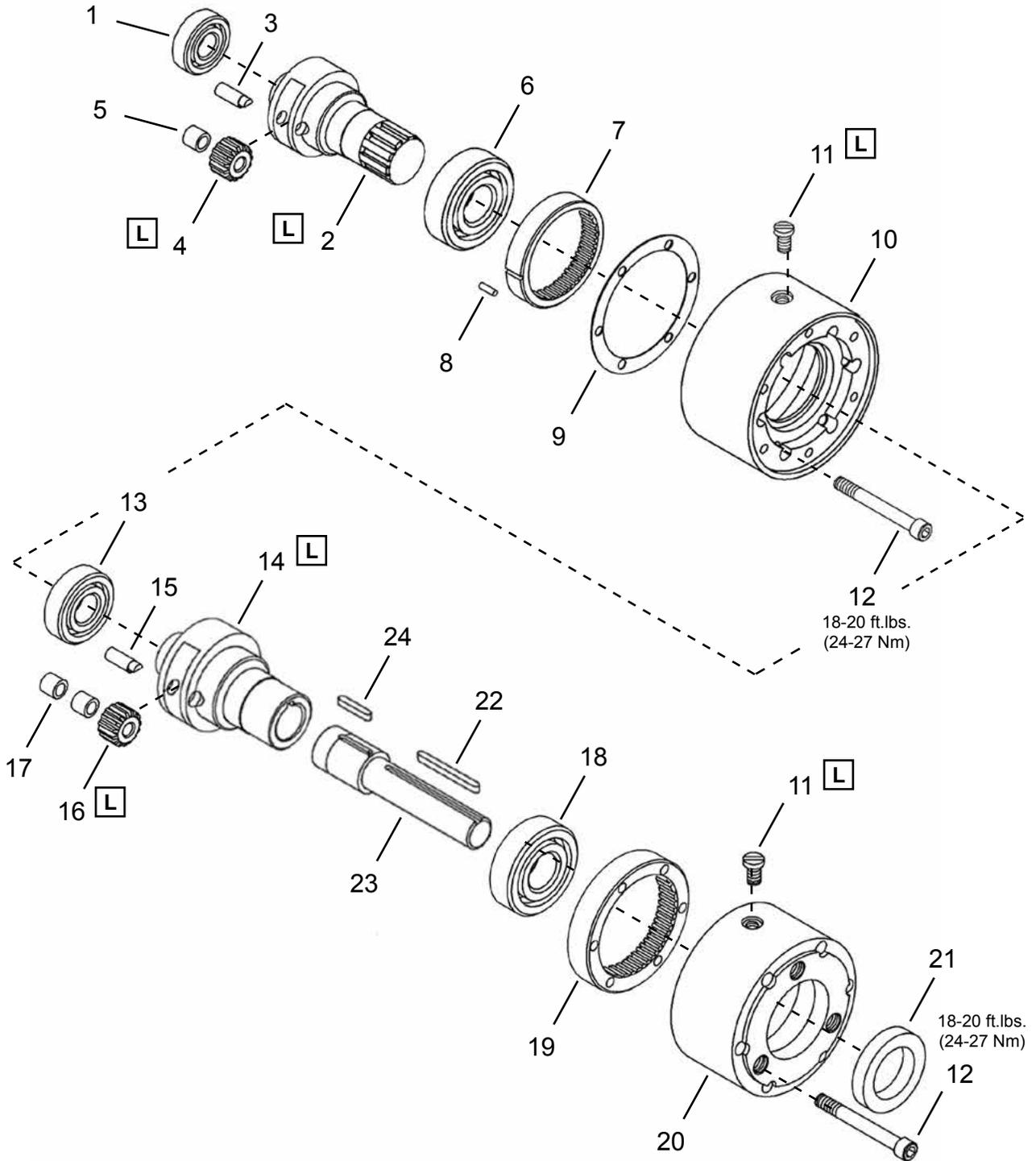
Illustration "A": Power Unit

Ref	Number	#	X	EN
				Description
--	507491	1		Power Unit (includes Ref. 1-26)
1	A17738	1		Head Assembly (includes Ref. 2-4)
2	17749	1	1	Reducer Bushing
3	B110E	2	2	Square Head Pipe Plug (1/2-14 NPT)
4	3VR77	1	1	Distributor Bushing
5	C108S	5	10	Head Assembly Nut
6	508321	1		Distributor (includes Ref. 7-8)
7	3V43	1	1	Drive Key
8	3V235	1	3	Distributor Spring
9	OG196	1	2	Ball Bearing
10	3V169	1		Lock Nut
11	3V272	1		Washer
12	10012PT	1	3	Head Gasket
13	A3V1	1		Cylinder
14	10011	1	3	Cylinder Gasket
15	A3V180	1	1	Bevel Gear
--	542241	1		Socket Plate Assembly (includes Ref. 16-18)
16	542240	5	5	Piston Assembly
17	3V188	10	20	Socket Head Cap Screw (12-24 NC-2 x 5/16)
18	507742	1		Socket Plate
19	500741	1	3	Retaining Ring
20	507897	1	2	Duplex Ball Bearing
21	508056	1		Driveshaft
22	22G155	1	2	Ball Bearing
23	526546	1		Rear Housing (includes Ref. 24-25)
24	18364PT	1	1	Rear Housing Bearing Liner
25	526543	5	5	Rear Housing Stud (5/16-24 x 7.81)
26	30775PT	1	1	Flush Type Grease Fitting
27	530322	1		Nameplate (not included in 507491 power unit)
28	534820	2		Drive Screw (not included in 507491 power unit)

(#) Quantity

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

“B”



L Lubricate with A123771 Grease (16 oz. can)

Illustration "B": Double Stage Gearing Assembly

Ref	Number	#	X	EN
				Description
1	525424	1	2	Ball Bearing
2	30060	1		Gear Cage
3	10032	2	4	Planetary Gear Pin
4	540766	2	4	Planetary Gear (19T) (includes Ref. 5)
5	845845	2	4	Planetary Gear Needle Bearing (Bushing)
6	30075	1	2	Ball Bearing
7	10019	1		Ring Gear
8	DP120PT	1	2	Ring Gear Pin
9	10010	1	3	Center Housing Gasket
10	30050	1		Center Housing
11	30775PT	2	2	Flush Type Grease Fitting
12	B127D	12	12	Socket Head Cap Screw (5/16-18 x 3)
13	30076PT	1	2	Ball Bearing
14	30059	1		Output Gear Cage
15	30058PT	2	4	Planetary Gear Pin
16	A30061	2	4	Planetary Gear (21T) (includes Ref. 17)
17	11700	4	8	Planetary Gear Needle Bearing
18	30063PT	1	2	Ball Bearing
19	30056PT	1		Ring Gear
20	30049	1		Front Housing
21	30057PT	1	3	Oil Seal
22	30072PT	1	3	Output Gear Cage Key
23	510279	1		Output Spindle
24	30071PT	1	3	Output Spindle Key

(#) Quantity

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

(T) Teeth



Zampini Industrial Group
AirToolPro.com
1-800-353-4676

Industrial Air & Electric Tools
We Sell Reliability!
In Business Since 1987
FREE Expert Assistance - Call Now



Zampini Industrial Group
AirToolPro.com
1-800-353-4676

Industrial Air & Electric Tools
We Sell Reliability!
In Business Since 1987
FREE Expert Assistance - Call Now

Sales & Service Centers

Note: All locations may not service all products. Please contact the nearest Sales & Service Center for the appropriate facility to handle your service requirements.

Brazil

**Apex Tool Group
Ind. Com. Ferram. Ltda**
Av. Liberdade, 4055
Zona Industrial Iporanga
Sorocaba, São Paulo
CEP# 18087-170
Brazil
Tel: +55 15 3238 3820
Fax: +55 15 3238 3938

Canada

**Apex Tool Group
Sales & Service Center**
7631 Bath Road
Mississauga, Ont. L4T 3T1
Canada
Tel: (866) 691-6212
Tel: (905) 673-4400

China

**Apex Power Tool Trading
(Shanghai) Co., Ltd**
Building A8, No. 38
Dongsheng Road
Pudong, Shanghai
China 201201
Tel: +86-21-60880320
Fax: +86-21-60880298
www.apxpowertools.com.cn

England

**Apex Tool Group
GmbH & Co. OHG**
C/O Spline Gauges
Piccadilly, Tamworth
Staffordshire B78 2ER
United Kingdom
Tel: +44 1827 872 771
Fax: +44 1827 8741 28

France

Apex Tool Group S.N.C.
25 rue Maurice Chevalier
B.P. 28
77831 Ozoir-La-Ferrière
Cedex, France
Tel: +33 1 64 43 22 00
Fax: +33 1 64 43 17 17

Germany

**Apex Tool Group
GmbH & Co. OHG**
Industriestraße 1
73463 Westhausen
Germany
Tel: +49 (0) 73 63 81 0
Fax: +49 (0) 73 63 81 222
www.apxpowertools.eu

Hungary

**Apex Tool Group
Hungaria Kft**
Platánfa u.2
9027 Györ
Hungary
Tel: +36 96 66 1383
Fax: +36 96 66 1135

India

**Apex Power Tools India
Private Limited**
Gala No. 1, Plot No. 5
S. No. 234, 235 & 245
Indialand Global
Industrial Park
Taluka-Mulsi, Phase I
Hinjawadi, Pune 411057
Maharashtra, India
Tel: +91-20-66761111

Mexico

**Apex Tool Group
Manufacturing México**
S. de RL de CV
Vialidad El Pueblito #103
Parque Industrial Querétaro
Querétaro, QRO
CP# 76220
Mexico
Tel: +52 (442) 211-3800
Fax: +52 (800) 685-5560

USA - Detroit, Michigan

**Apex Tool Group
Sales & Service Center**
2630 Superior Court
Auburn Hills, MI 48326
Tel: (248) 393-5640
Fax: (248) 391-6295

USA - Lexington, South Carolina

Apex Tool Group
670 Industrial Drive
Lexington, SC 29072
Tel: (800) 845-5629
Tel: (803) 951-7544
Fax: (803) 358-7681

USA - Los Angeles, California

**Apex Tool Group
Sales & Service Center**
6881 Stanton Avenue
Unit B
Buena Park, CA 90621
Tel: (714) 994-1491
Fax: (714) 994-9576

USA - Seattle, Washington

**Apex Tool Group
Sales & Service Center**
2865 152nd Avenue N.E.
Redmond, WA 98052
Tel: (425) 497-0476
Fax: (425) 497-0496

USA - York, Pennsylvania

**Apex Tool Group
Sales & Service Center**
3990 East Market Street
York, PA 17402
Tel: (717) 755-2933
Fax: (717) 757-5063

Apex Tool Group, LLC
1000 Lufkin Road
Apex, NC 27539
Phone: 919-387-0099
Fax: 919-387-2614
www.apextoolgroup.com

Cleco®