

Parts Manual  
PL70-1010  
11/12/2010

# Cleco®

**MB Series**  
Radial Piston Air Motors

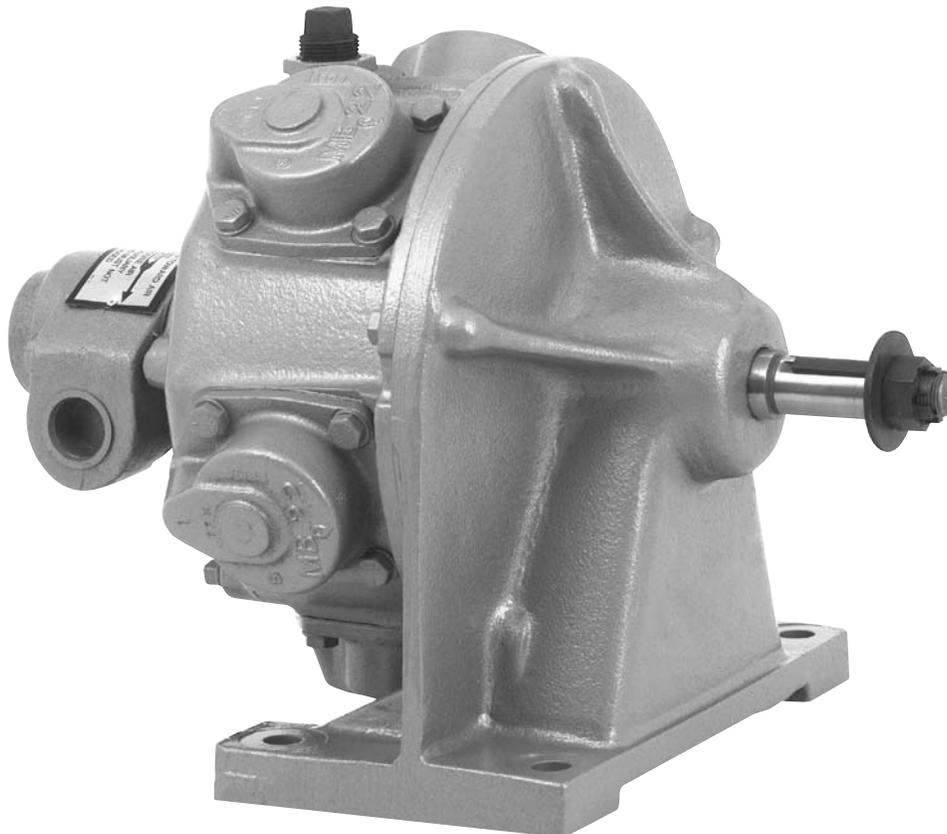
**Model Numbers:**

MBW-2254 (AM2-1546-01)

MBW-2255 (AM2-1546-02)

MBW-2256 (AM2-1546-03)

MBW-2257 (AM2-1546-04)



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**GENERAL INSTRUCTIONS:**

Cleco MB series air motors are of the five-cylinder radial piston type. The five-cylinder radial design, with its overlap of power impulses, provides even torque at all speeds, and full power in either direction of rotation. At least two pistons are always on a power stroke.

These motors are designed for continuous service on 60 to 100 PSI air pressure. If overloaded beyond their power capacity, the air motor will simply stall without damage.

**INSTALLATION:**

Be sure the airline is clean and free of scale and dirt before connecting to the air motor. Check all pipe fittings to make sure there are no air leaks.

During **continuous service**, these air motors should not operate faster than 65% of their rated free speed. An airline filter/lubricator should be installed as close to the air motor as possible.

During **intermittent service**, the splash lubrication from the motor case is adequate.

Check all cap screws to make sure they are properly tightened.

If an excessive amount of water is present in the airline, a water trap should be installed to trap as much as possible before it reaches the machine.

**LUBRICATION:**

Fill the motor case to the proper level before operating the motor.

Use Engine Oil\* API Service Classified "SC" in the following weights:

**Above 32° F - SAE 30W**

**Below 32° F - SAE 10W**

Check the oil level daily and fill as necessary. If an airline lubricator has been installed, check daily and fill as necessary.

**Motor Case:** Approximately one (1) quart of oil is required to fill the motor case to proper level.

To check the motor case for proper oil level, open the oil level cock (90C12). If oil does not flow from the cock, add the appropriate oil until it starts to flow and then close the oil level cock.

If the airline carries an excessive amount of water and a water trap can't be installed, use a good grade of motor oil (an oil that will emulsify with water) to prevent damage to vital motor parts.

**Gear Case:** Approximately one (1) quart of oil is required to fill the gear case to the proper oil level.

Use Engine Oil\* API Service Classified "SC" in the following weights:

**Above 32° F - SAE 30W**

**Below 32° F - SAE 10W**

The oil must flow at all times to properly lubricate the gears and bearings.

To check the gear case for proper oil level, open the oil level cock (90C12). If oil does not flow from the cock, add the appropriate oil until it starts to flow and then close the oil level cock.

**CARE AND MAINTENANCE:**

Service the air motor regularly. The breather cap should be inspected frequently to make sure it is not plugged with dirt.

The drain plug in the motor case should be removed occasionally to allow any water or condensate in the bottom of the case to drain off. This should be done before adding new oil and after the motor has been idle long enough to permit the water and oil to separate.

Excessive use of oil is usually due to worn pistons and rings, a worn distributing valve and bushing, a damaged oil seal or a clogged breather cap.

**ASSEMBLY INSTRUCTIONS:**

Place the motor case face up (cylinder opening up) on a table. Install the valve bushing into the motor case counterbore from the outside until it bottoms out. *NOTE: The valve bushing must be put in a freezer before assembling into the motor case.*

Install the piston rings into the grooves on the pistons (step on ring toward open part of piston). Put a retainer in one end of the hole in the pistons. Slip the bushing (MB33), chamfer down, over the drive end of the crankshaft until it bottoms out. Line up the oil holes with the groove in the crankshaft. Put a light coating of oil on the bushing (MB28) and slide it over the bushing (MB33) on the crankshaft.

## MBW Series Radial Piston Motors

Tap the key (35D13) into the keyway on the crankshaft.

Place one connecting rod retainer over the bushing (MB28). Place the five (5) connecting rods into the connecting rod retainer (lettering on rod up). Place the other connecting rod retainer over the connecting rods and the bushing (MB28). Assemble the crankshaft (drive end) to the crankshaft (valve end). Line up the shaft groove with the hole in the crankshaft and insert the screw (75S44). Secure with the nut (50E3) and cotter pin (P101J).

Press the bearing (18327) onto the crankshaft assembly until it bottoms out. Place the crankshaft assembly into the motor case and tap into position. Attach the five (5) pistons to the connecting rods with the piston pins and secure with the retainers (MB26).

Oil the inside wall of each cylinder. Place a gasket (MB23) on each cylinder. Compress the piston rings and slide a cylinder over each piston. Secure each cylinder with four (4) washers (95G33) and four (4) screws (75A1). Tighten to 21 ft. lbs. torque.

Oil the valve bushing and distributor valve, then insert the distributor valve into the valve bushing (locate in dowel pin). Slide the valve chest over the bushing and secure with two (2) washers (95G33) and two (2) screws (75A24). Tighten to 21 ft. lbs. torque. Apply air to the unit and test run in one direction only.

Press the bearing (18327) onto the large gear end of the gear and pinion. Press the bearing (12J36) onto the geared end of the gear and shaft until it bottoms out. Press the bearing (12J30) and then the wear ring (MBG40R) onto the threaded end of the gear and shaft until they bottom out.

Press the oil seal (60G115) into the gear housing until it is flush with the outside edge of the housing. Press the bearing (12J36), for the gear and pinion, into the housing until it bottoms out. Insert the gear and shaft into the gear housing and tap in until it bottoms out. Install the gear and pinion into the gear housing.

Place the bearing housing (HBD39) onto the bearing housing (MBG20) and secure with three (3) washers (W161) and three (3) screws (75AE11). Tighten to

21 ft. lbs. torque. Thread the wire through the holes in the screws and secure the ends.

Place the gasket (MBG25) over the gear housing and assemble the bearing housing. Secure with three (3) washers (95G33) and three (3) screws (75A7). Tighten to 21 ft. lbs. torque.

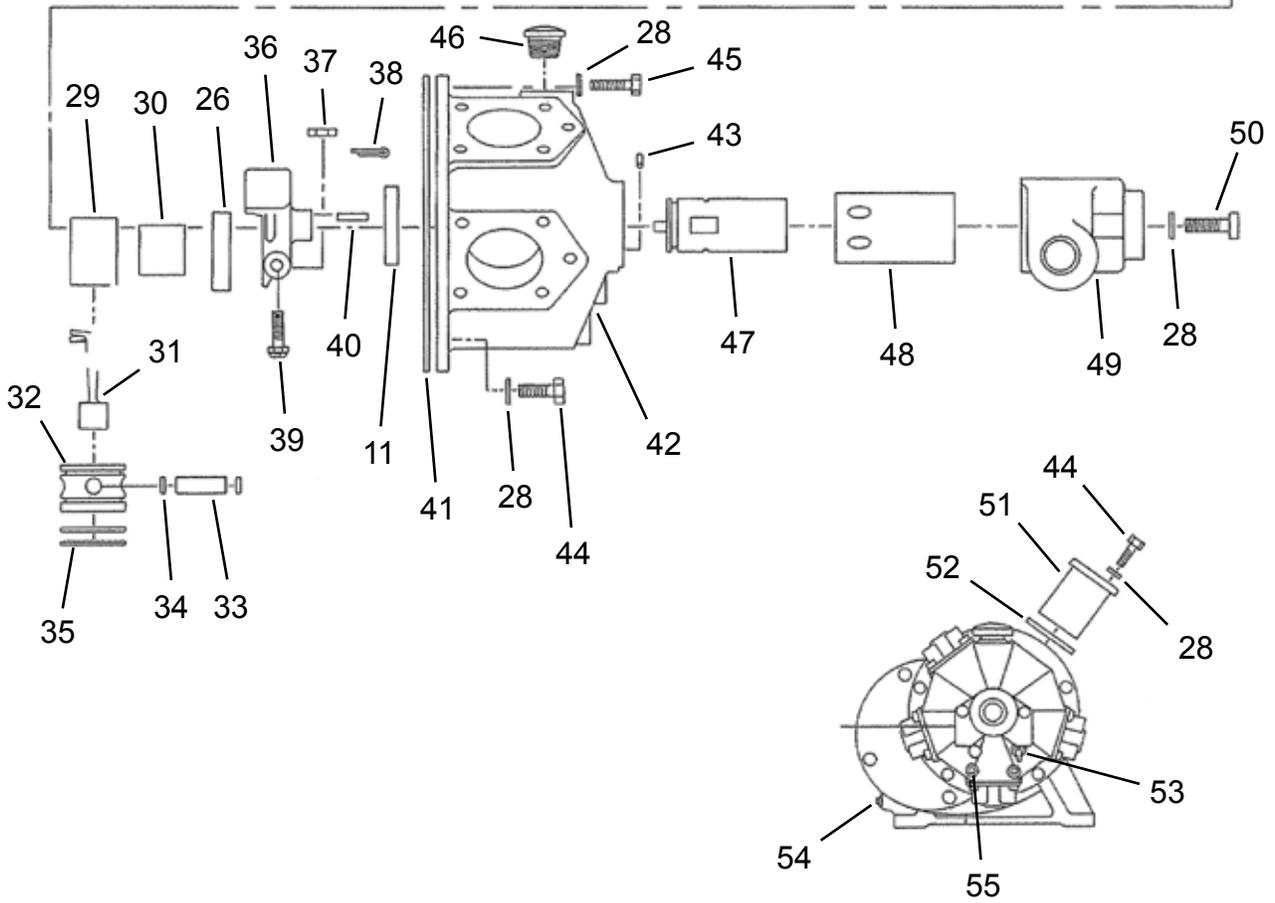
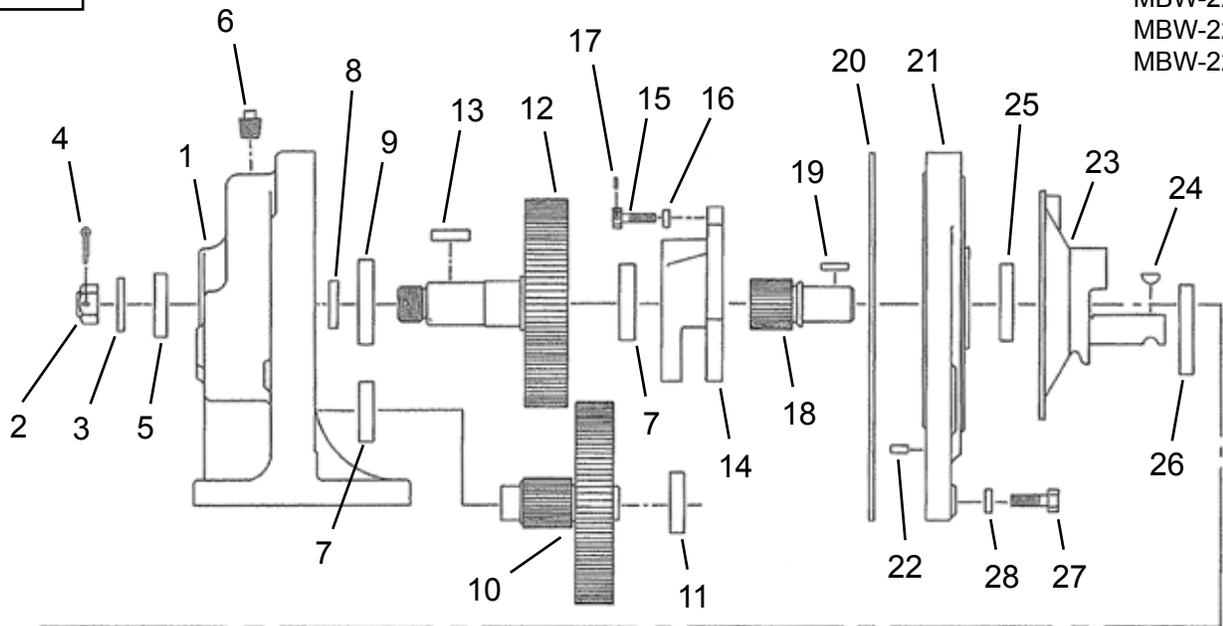
Press the bearing (12GG1) onto the pinion gear until it bottoms out. Tap the key (35B143) into the keyway on the pinion gear. Insert the pinion gear into the crankshaft assembly until it bottoms out. Place the gasket (MB19) on the motor case and assemble the motor case to the gear housing assembly (breather hole up). Secure with five (5) washers (95G33), two (2) screws (75A1) - left of breather hole, and three (3) screws (75A23) - right of breather hole. Tighten all screws to 21 ft. lbs. torque.

Assemble the plugs and cock, then fill the motor case with one (1) quart of oil and the gear housing with one (1) quart of oil.

**Cleco®**  
MBW Series Radial Piston Motors

**Models**  
MBW-2254  
MBW-2255  
MBW-2256  
MBW-2257

**“A”**



## MBW Series Radial Piston Motors

Illustration "A"

Ref	Number	#	X	EN	
				Description	
1	MBG1	1			Gear Housing
2	MKU52	1	2		Nut
3	95A11	1	2		Washer
4	62E66	1	3		Cotter Pin
5	60G115	1	3		Oil Seal
6	64A6	1	1		Pipe Plug
7	12J36	2	4		Bearing
8	MBG40R	1	2		Wear Ring
9	12J30	1	2		Bearing
10	MEG38	1			Gear and Pinion
11	18327	2	4		Bearing
12	MEG40A	1			Gear and Shaft
13	35C113	1	2		Key
14	HBD39	1			Bearing Housing
15	75AE11	3	6		Screw
16	W161	3	6		Washer
17	97A29	1	3		Wire
18	MEG13A	1			Pinion Gear
19	35B143	1	2		Key
20	MBG25	1	3		Gasket
21	MBG20	1			Bearing Housing (includes Ref. 22)
22	DP162	3	6		Pin
23	1MB30X	1			Crankshaft - Gear End
24	35D13	1	2		Key
25	12GG1	1	2		Bearing
26	MB29	2			Connecting Rod Retainer
27	75A7	3	6		Screw
28	95G33	30	60		Washer
29	MB28	1			Bushing
30	MB33	1			Bushing
31	MB27	5			Connecting Rod
32	MB24	5			Piston
33	MB25	5			Piston Pin
34	MB26	10	20		Piston Pin Retainer
35	65A219	10	20		Piston Ring
36	1MB31	1			Crankshaft - Valve End
37	50E3	1	2		Nut
38	P101J	1	3		Cotter Pin
39	75S44	1	2		Screw
40	62E5	1	2		Pin
41	MB19	1	3		Gasket
42	MB18	1			Motor Case (includes Ref. 43)
43	DP114	1	2		Pin
44	75A1	22	44		Screw
45	75A23	3	6		Screw
46	MK42S	1	1		Breather Cap
47	ME13	1			Distributor Valve
48	ME11	1			Valve Bushing
49	533690	1			Valve Chest
50	75A24	2	4		Screw
51	MB22	5			Cylinder
52	MB23	5	15		Gasket
53	90C12	2	4		Cock
54	64AA4	1	1		Pipe Plug
55	64AA5	3	3		Pipe Plug

(#) Quantity

(X) Recommended Spare Parts



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