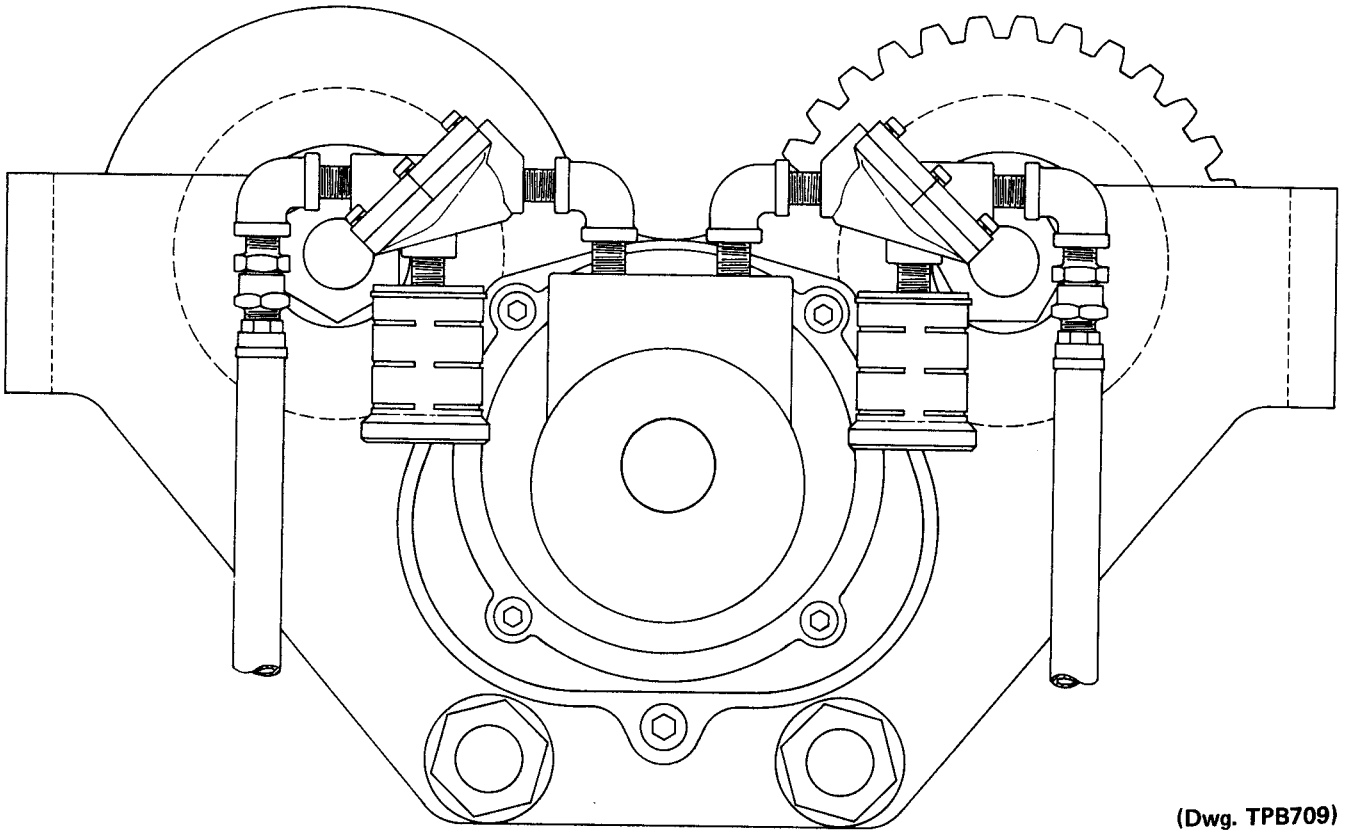
Form P6609
Edition 1

INSTALLATION AND MAINTENANCE MANUAL FOR TWO AND THREE TON MOTOR DRIVEN TROLLEYS

TA3A-K430 Standard; Taper Tread Wheels; 3.33″ to 7.25″ Wide I-beams
TA3A-K430T Standard; Flat Tread Wheels; 3.25″ to 7.25″ Wide Flat-beams
TA3A-K1430 Spark-Resistant; Taper Tread Wheels; 3.33″ to 7.25″ Wide I-beams
TA3A-K1430T Spark-Resistant; Flat Tread Wheels; 3.25″ to 7.25″ Wide Flat-beams

FOR TOP PERFORMANCE AND MAXIMUM DURABILITY OF PARTS, OPERATE THIS MOTOR DRIVEN TROLLEY AT 90 psig (6.2 bar/620 kPa) AIR PRESSURE WITH 1/2″ (13 mm) MINIMUM AIR SUPPLY HOSE.



(Dwg. TPB709)

READ ALL INSTRUCTIONS BEFORE INSTALLING, OPERATING OR REPAIRING THIS MOTOR DRIVEN TROLLEY.

Refer All Communications to the Nearest Ingersoll-Rand Office or Distributor.

Printed in U.S.A.

INGERSOLL-RAND®
AIR HOISTS

HOW TO ORDER REPAIR PARTS FOR YOUR MOTOR DRIVEN TROLLEY

Your Motor Driven Trolley is designed and constructed to give you long, trouble-free service. In time it may become necessary to order and install new parts to replace those that have been subject to wear. For prompt service and genuine Ingersoll-Rand parts, place orders with your nearest Ingersoll-Rand Distributor. The use of other than Ingersoll-Rand replacement parts may result in decreased Trolley performance, and may, at the Company's option, invalidate all warranties.

When ordering parts, give your Distributor the following data:

1. Complete model number of the Motor Driven Trolley as it appears on the nameplate.
2. Complete part number, part name and quantity needed as shown on the pages of this manual.

If it becomes necessary to return the complete Motor Driven Trolley or certain parts to the factory, contact the Distributor from whom you purchased the Trolley, or the nearest Ingersoll-Rand Distributor in your locality.

INSTALLING THE MOTOR DRIVEN TROLLEY

Make certain your Motor Driven Trolley is properly installed. A little extra time and effort in doing so can contribute a lot toward preventing accidents and helping you get the best service possible.

Always make certain the beam on which the Trolley is mounted is strong enough to support the combined weight of Trolley and Hoist, plus the weight of a maximum rated load of the Hoist, plus a factor of at least 500% of the combined weights. These Motor Driven Trolleys are to operate with a maximum load of three metric tons.

The load must be under the center line of the Trolley and the center line of the supporting beam. To make certain that this condition exists, an equal number of Trolley Mounting Spacers (57) must be located between the Trolley Side Plate (43 or 44) and the mounting lug on the Hoist in all four locations. The remaining Spacers must be equally distributed on the outside of the Side Plates. **Warning: At least one Mounting Spacer must be used between the head of each Trolley Mounting Bolt (55) and the Side Plate, and between each Mounting Bolt Nut (56) and the Side Plate. Failure to do this could cause the Hoist to fall when used improperly.**

Temporarily install the Motor Driven Trolley on the Hoist, spacing the Side Plates so that the distance between the Side Plates is 1-3/4" (44 mm) plus the width of the beam for a straight runway operation. For a beam runway system that has sharp curves, the Side Plates can be spaced a maximum of 2" (50 mm) plus the width of the beam.

After installation, operate the Trolley over the entire length of the beam with a capacity load suspended a few inches off the floor to make certain that adjustment and operation are satisfactory. If the Side Plates can be moved closer together while maintaining satisfactory operation, do so by removing an equal number of Trolley Mounting Spacers from each side.

After the Trolley is properly spaced and mounted, tighten the Mounting Bolt Nuts (56) to 150 ft-lb (203 N m) of torque.

For air supply to the Trolley, install a "T" in the air supply line ahead of the Hoist. Connect the air supply hose for the Trolley to the "T" and, if a single motor Pendent Throttle is used, to the center pipe connection on the Pendent Throttle Handle (100).

Direction of Trolley travel is determined by connection of the two outside control hoses from the Pendent Throttle Handle to the Trolley. If you want the Trolley to travel to the left when the left-hand Pendent Throttle Lever (102) is depressed, connect the Control Hose (108) leading from the **left-hand side** of the Pendent Throttle Handle to the **right-hand** connection on the Trolley. Connect the Control Hose leading from the **right-hand** side of the Pendent Throttle Handle to the **left-hand** side of the Trolley.

Always make certain that the pipe tapped air ports on the motor are toward the top of the Trolley. Failure to properly orient the air ports will affect the operating characteristics of the Trolley.

LUBRICATION

When installing a Motor Driven Trolley, always use an air line filter-lubricator in the air supply line **ahead** of the "T". Mount the filter-lubricator as close to the "T" as practical, and always use a filter-lubricator having a pipe tap inlet and outlet at least as large as the Hoist inlet. Use Ingersoll-Rand Pneu-Lube® Medium Oil No. 50 or a good quality SAE 20 or 20W **nondetergent** motor oil. Adjust the lubricator to provide a slight oil mist in the exhaust.

The gearing and bearings are adequately lubricated at the factory to provide long trouble-free service. However, should the Trolley be disassembled for repairs or replacement of parts, remove the Wheel Bearing Covers (50) and repack the Trolley Wheel Bearings (51) with Ingersoll-Rand No. 28 Bearing Grease.

After each 200 hours of operation, or as experience indicates, remove the Gear Case Mounting Cap Screws (24) and withdraw the entire motor and Gear Case (22) from the Trolley. Wipe the old grease from the gears and then liberally coat all of the gears and bearings with Ingersoll-Rand No. 28 Bearing Grease.

DISASSEMBLY

WARNING: DISCONNECT THE AIR SUPPLY HOSE TO THE HOIST AND MOTOR DRIVEN TROLLEY BEFORE PERFORMING ANY MAINTENANCE OR REPAIRS ON THE HOIST OR TROLLEY.

General Instructions

1. Do not disassemble the Motor Driven Trolley any further than necessary to replace a worn or damaged part.

2. Do not remove any part which is a press fit in or on a subassembly unless the removal of that part is necessary for replacement or repairs.
3. Do not disassemble this Trolley unless you have a complete set of new gaskets, O-rings and seals on hand for replacement.
4. Whenever grasping a part in a vise always use leather-covered or copper-covered vise jaws to protect the surface of the part and help prevent distortion. This is particularly true of threaded members and housings.

Disassembly of the Motor

1. Disconnect all piping at both motor inlets.
2. Unscrew the Motor Mounting Cap Screws (15) and withdraw the motor from the Gear Case (22).
3. Unscrew the Front Head Cap Screws (13) and withdraw the Cylinder (1) and Front Head Seal (12).
4. Remove the Vanes (4) from the slots in the Rotor (3).
5. Slide the Rotor off the Rotor Shaft (6) and remove the Rotor Key (5). **Note**: If the Rotor does not readily slide off the Rotor Shaft, hold the Rotor and tap on the plain end of the Rotor Shaft with a plastic hammer.
6. Remove the Front Rotor Shaft Bearing Retainer (9) from the Front Head (10).
7. Grasp the splined end of the Rotor Shaft, and pull the Rotor Shaft and Front Rotor Shaft Bearing (8) from the Front Head.
8. If the Front Rotor Shaft Bearing is to be removed from the Rotor Shaft, remove the Rotor Shaft Retainer (7) and slide or press the Bearing from the Rotor Shaft.

Disassembly of the Gearing

1. Unscrew the Gear Case Mounting Cap Screws (24) and withdraw the Gear Case (22).
2. Remove the Intermediate Gear Retainer (31) and the Outboard Intermediate Gear Thrust Washer (30).
3. Withdraw the Output Gear and the Output Gear Thrust Washer (34).
4. Withdraw the Intermediate Gear (26).
5. If the Intermediate Gear Pin (27) is worn, unscrew the Gear Pin Jam Nut (28) and remove the Intermediate Gear Pin and the Inboard Intermediate Gear Thrust Washer (29). **Note**: For assembly purposes, mark the boss on the Gear Case with a prick punch to show the location of this Pin.
6. If it is necessary to remove the Output Gear Bearing (33), press it from the Gear Case.
7. Grasp the Drive Shaft (36) at the motor side of the Trolley and pull the Shaft from both Drive Gears (37).
8. Remove the Bearing Cover Retaining Screws (41) and the Drive Gear Bearing Cover (40) from the Plain Side Plate (44).
9. Remove the Drive Gear Bearing Retaining Ring (39) from the hub of each Drive Gear.
10. Pull or lightly tap each Drive Gear from the bore of each Drive Gear Bearing (38).
11. If it is necessary to remove the Drive Gear Bearings from the Side Plates, use a shaft or sleeve that will contact the inner ring of the Drive Gear Bearing and gently tap or push the Bearing from the bearing recess in the Side Plate.

Disassembly of the Trolley Wheel

1. Remove the Wheel Bearing Cover (50).
2. Remove the Small Wheel Bearing Retainer (53) from the Trolley Wheel Shaft (47).
3. Pull the Trolley Wheel (45 or 46) and Trolley Wheel Bearing (51) from the Trolley Wheel Shaft.
4. Remove the Large Wheel Bearing Retainer (52) from inside the Trolley Wheel.
5. Slide the Trolley Wheel Bearing from the Trolley Wheel. **Note**: If the Trolley Wheel Bearing will not readily slide from the Trolley Wheel, use a sleeve that contacts the outer ring of the Bearing and gently press or tap the Bearing from the Trolley Wheel.
6. If it is necessary to remove the Trolley Wheel Shaft from the Side Plate (43 or 44), unscrew the Trolley Wheel Shaft Nut (48). Remove the Shaft Nut Lock Washer (49) and gently tap the Trolley Wheel Shaft from the Side Plate.

ASSEMBLY

General Instructions

1. Always press on the inner ring of a ball-type bearing when installing the bearing on a shaft.
2. Always press on the outer ring of a ball-type bearing when installing the bearing in a bearing recess.
3. Always press on the stamped end of a needle-type bearing when installing the bearing in a bearing recess.
4. Whenever grasping a part in a vise, always use leather-covered or copper-covered vise jaws to protect the surface of the part and help prevent distortion. This is particularly true of threaded members and housings.

Assembly of the Trolley Wheel

1. Note that each Trolley Side Plate (43 or 44) has a bearing recess on one side to accommodate the Drive Gear Bearing (38), while the other side of the Side Plate is left flush. Insert a Trolley Wheel Shaft (47), threaded end first, into the wheel shaft hole on the flush side of the Side Plate. This is a snug fit. You may have to tap the Shaft into place with a

soft hammer.

Important: If you are using taper tread wheels, place a Trolley Wheel Spacer (54) over the threaded end of each Trolley Wheel Shaft before installing the Shaft. If you are using flat tread wheels, do not use a Trolley Wheel Spacer.

2. Install the Shaft Nut Lock Washer (49) and Trolley Wheel Shaft Nut (48). Tighten the Wheel Shaft Nut to 250 ft-lb (339 N m) of torque.
3. Wash the Trolley Wheel Bearing (51) in kerosene or some other suitable solvent. Thoroughly dry the Bearing and repack it with Ingersoll-Rand Bearing Grease No. 28.
4. Slide or press the Trolley Wheel Bearing, open side first, into the Trolley Wheel (45 or 46).
5. Install the Large Wheel Bearing Retainer (52) in the groove in the Trolley Wheel.
6. Slide the assembled Trolley Wheel, flange side first, over the end of the Trolley Wheel Shaft.
7. Install the Small Wheel Bearing Retainer (53) in the groove on the end of the Trolley Wheel Shaft.
8. Install the Wheel Bearing Cover (50) in the bore of the Trolley Wheel at the small diameter end of the Wheel.

Assembly of the Gearing

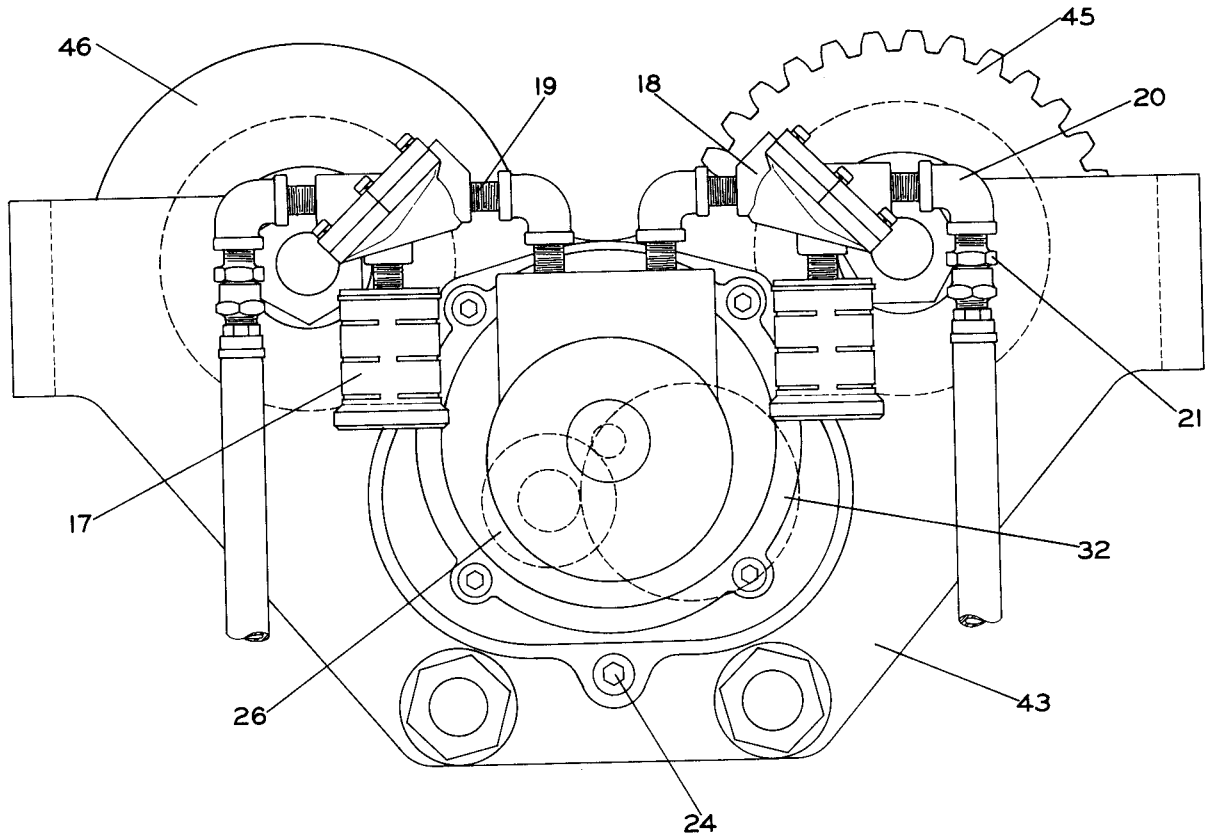
1. Press a Drive Gear Bearing (38) into the bearing recess on each Side Plate (43 or 44).
2. Insert the hub of the Drive Gear (37) through the Drive Gear Bearing from the flush or flat side of the Side Plate, making certain that the gear teeth mesh with the geared Trolley Wheel.
3. Install the Drive Gear Bearing Retaining Ring (39) in the groove on the hub of the assembled Drive Gear.
4. Install the second Drive Gear Bearing and Drive Gear.
5. Install the Drive Gear Bearing Cover (40) on the Plain Side Plate (44). Tighten the Bearing Cover Retaining Screws (41) to 11 ft-lb (15 N m) of torque.
6. Note that the Drive Shaft (36) has a roll pin pressed through it about 1-7/8" from one end.
7. Stand the Motor Side Plate (43) on edge, and insert the Drive Shaft, roll pin end trailing, into the hub side of the Drive Gear until the roll pin contacts the Drive Gear.
8. Stand the Plain Side Plate (44) on edge, and insert the long protruding end of the Drive Shaft into the gear side of the other Drive Gear.
9. Liberally coat the gear teeth on both Drive Gears with Ingersoll-Rand No. 28 Grease.
10. If the Output Gear Bearing (33) was removed, press in a **new** Bearing until it is flush with the inside face of the Gear Case. Pack it with Ingersoll-Rand No. 28 Grease.
11. If the Intermediate Gear Pin (27) and Inboard Intermediate Gear Thrust Washer (29) were removed from the Gear Case (22), install a new Intermediate Gear Pin and Thrust Washer on the internal boss in the Gear Case so that the larger end of the Pin faces the mounting flange side of the Gear Case. Tighten the Gear Pin Jam Nut (28) to 45 ft-lb (61 N m) of torque. **Note**: Make certain you install the new Intermediate Gear Pin at the location you marked with a prick punch during disassembly.
12. Liberally coat the bore, gear teeth and faces of the Intermediate Gear (26) with Ingersoll-Rand No. 28 Grease.
13. Slide the Intermediate Gear, large diameter first, on the Intermediate Gear Pin.
14. Slide the Output Gear Thrust Washer (34) on the hub of the Output Gear until it contacts the shoulder of the hub.
15. Liberally coat the teeth on the Output Gear and the hub of the Output Gear with Ingersoll-Rand No. 28 Grease.
16. Slide the Output Gear (32), hub end first, into the bore of the Output Gear Bearing (33) in the Gear Case (22).
17. Place the Outboard Intermediate Gear Thrust Washer (30) over the Intermediate Gear Pin and against the Intermediate Gear.
18. Install the Intermediate Gear Retainer (31) in the groove on the end of the Intermediate Gear Pin.
19. Dampen the Gear Case Gasket with a little grease, and place the Gasket on the Gear Case so that it matches the contour of the Gear Case.
20. Install the assembled Gear Case on the Motor Side Plate.
21. Install the Gear Case Mounting Cap Screws (24) and Lock Washers. Tighten the Mounting Cap Screws to 20 ft-lb (27 N m) of torque.

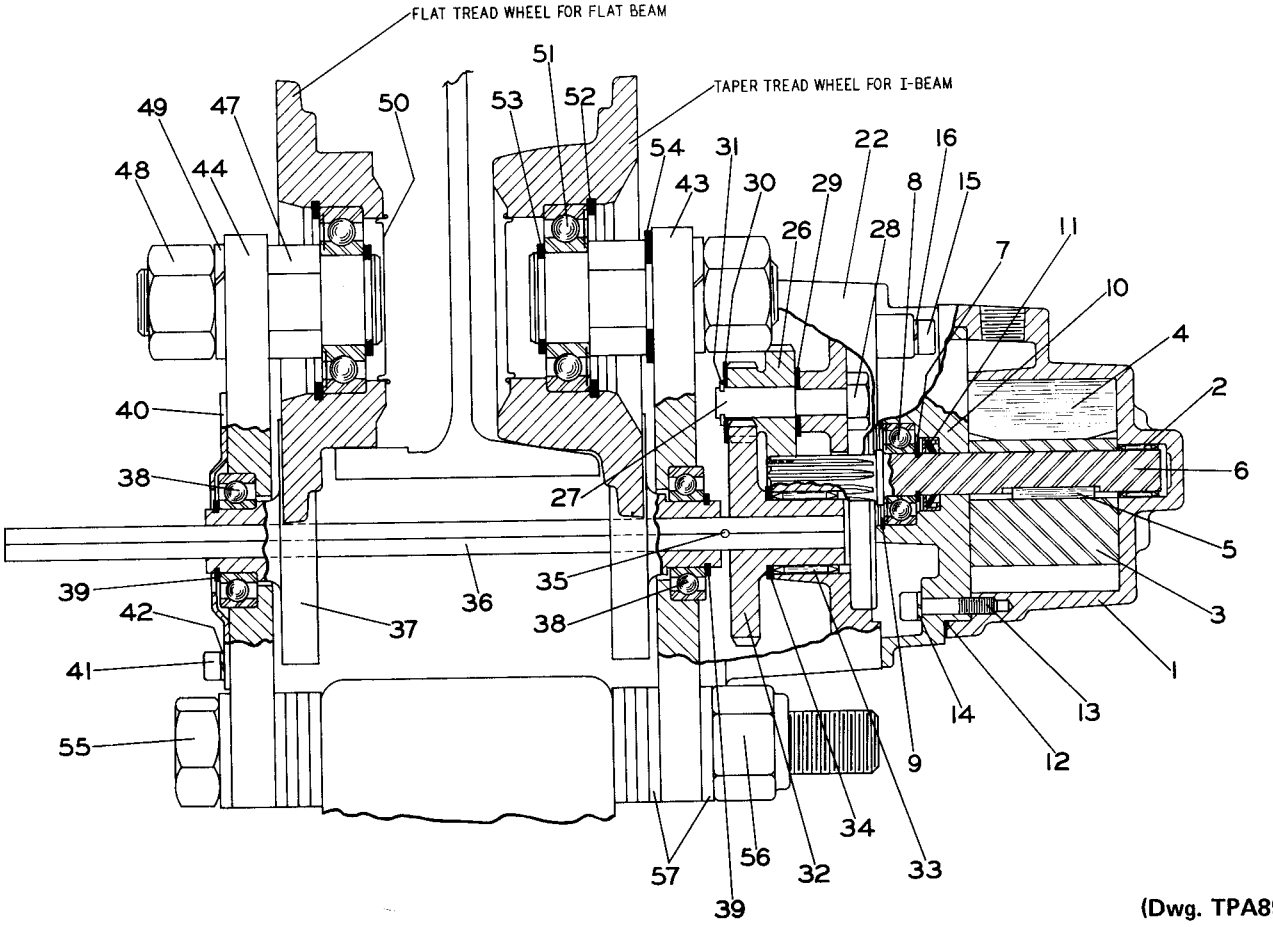
Assembly of the Motor

1. If the Rear Rotor Shaft Bearing (2) was removed from the Cylinder (1), press a **new** Bearing into the recess at the bottom of the Cylinder until the trailing edge of the Bearing is flush or slightly below flush with the face of the bearing recess. Pack the Bearing with Ingersoll-Rand No. 28 Grease.
2. If the Rotor Shaft Seal (11) was removed from the Front Head (10), press a **new** Seal, open side first, into the Front Head until it seats.
3. Press the Front Rotor Shaft Bearing (8), shielded side first, on the plain end of the Rotor Shaft (6) until it seats against the shoulder near the splined end of the shaft.
4. Install the Rotor Shaft Retainer (7) in the groove on the Rotor Shaft.
5. Insert the plain end of the Rotor Shaft through the Rotor Shaft Seal and Front Head until the Front Rotor Shaft Bear-

ing seats in the bearing recess in the Front Head.

6. Install the Front Rotor Shaft Bearing Retainer (9) in the groove of the bearing recess in the Front Head.
7. Grasp the splined end of the Rotor Shaft in copper-covered vise jaws so that the Rotor Shaft is vertical with the plain end upward.
8. Place the Rotor Key (5) in the key slot in the Rotor Shaft.
9. Slide the Rotor (3) on the Rotor Shaft until it contacts the Front Head. **Note:** The Rotor must just contact the Front Head; it must not bind against the Front Head.
10. Wipe each Vane (4) with a film of light machine oil, and place a Vane in each slot in the Rotor.
11. Place the Front Head Seal (12) over the cylinder pilot on the Front Head.
12. Place the Cylinder, open end first, down over the Rotor so that the Rotor Shaft enters the Rear Rotor Shaft Bearing in the Cylinder.
13. Install the Front Head Cap Screws (13) and Lock Washers (14). Tighten the Cap Screws to 15 ft-lb (20 N m) of torque.
14. Liberally coat the splined end of the Rotor Shaft with Ingersoll-Rand No. 28 Grease.
15. Mount the assembled motor on the Gear Case so that the Rotor Shaft meshes with the Intermediate Gear, **and so that the motor inlets face the top of the Trolley.**
16. Install the Motor Mounting Cap Screws (15) and Lock Washers (16). Tighten the Motor Mounting Cap Screws to 11 ft-lb (15 N m) of torque.





(Dwg. TPA896)

Series TA3A Motor Driven Trolley

		PART NUMBER FOR ORDERING
1	Cylinder Assembly	MVA017-A3
• 2	Rear Rotor Shaft Bearing	MVA008-22
3	Rotor	MVA017-53
• 4	Vane Packet (set of 6 Vanes)	MVA017-42-6
• 5	Rotor Key	J5-754
6	Rotor Shaft	TA3-52
7	Rotor Shaft Retainer	MVA008-218
• 8	Front Rotor Shaft Bearing	R2H-97
9	Front Rotor Shaft Bearing Retainer	S12-118
10	Front Head Assembly	MVA008-A240A
• 11	Rotor Shaft Seal	M0V010AA-271
• 12	Front Head Seal	MVA008-103
13	Front Head Cap Screw (4)	R3F-7
14	Front Head Cap Screw Lock Washer (4)	8U-58
15	Motor Mounting Cap Screw (4)	834-638
16	Motor Mounting Lock Washer (4)	34U-58
17	Muffler (2)	TA223A-311
18	Quick-Exhaust Valve (2)	MR-939
19	3/8" Close Pipe Nipple (6)	D02-908
20	3/8" x 90° Elbow (4)	TA3-315
21	3/8" Control Hose Union (2)	MR-129
22	Gear Case	TA3-353
• *	Gear Case Gasket	TA3-354
24	Gear Case Mounting Cap Screw (3)	21-702
*	Gear Case Mounting Lock Washer (3)	UW50A30-58
26	Intermediate Gear	MR-10
27	Intermediate Gear Pin	TA3-191
28	Gear Pin Jam Nut	D02-418A
29	Inboard Intermediate Gear Thrust Washer	TA3-192
30	Outboard Intermediate Gear Thrust Washer	TA3-11
31	Intermediate Gear Retainer	RX3-729
32	Output Gear	TA3-843
33	Output Gear Bearing	20BM-399A
34	Output Gear Thrust Washer	CE110-596
35	Output Gear Retaining Pin	MR-100
36	Drive Shaft	TA3-029
37	Drive Gear (2)	
	for standard Trolley	TA3-028
	for spark-resistant Trolley	TA3-1028
38	Drive Gear Bearing (2)	AM-318
39	Drive Gear Bearing Retaining Ring (2)	C6H20A-6
40	Drive Gear Bearing Cover	TP223A-314
41	Bearing Cover Retaining Screw (3)	34U-150
42	Retaining Screw Lock Washer (3)	34U-58
43	Motor Side Plate	
	standard	TA3-006
	spark-resistant	TA3-1006
44	Plain Side Plate	
	standard	TA3-007
	spark-resistant	TA3-1007
45	Geared Trolley Wheel (2)	
	standard taper tread	TA3-472
	standard flat tread	TA3-T472
	spark-resistant taper tread	TA3-1472
	spark-resistant flat tread	TA3-1472T

Continued on next page.

		PART NUMBER FOR ORDERING
46	Plain Trolley Wheel (2)	
	standard taper tread	TP3-431
	standard flat tread	TP3-T431
	spark-resistant taper tread	TP3-1431
	spark-resistant flat tread	TP3-1431T
47	Trolley Wheel Shaft (4)	TP223A-102
48	Trolley Wheel Shaft Nut (4)	C04-289A
49	Shaft Nut Lock Washer (4)	D04-960
50	Wheel Bearing Cover (4)	CE220-632
51	Trolley Wheel Bearing (4)	TP223A-160
52	Large Wheel Bearing Retainer (4)	150BM-677
53	Small Wheel Bearing Retainer (4)	CE210-209
54	Trolley Wheel Spacer (4) (for taper tread wheels only)	TP223A-157
55	Trolley Mounting Bolt (2)	C6H40A-439-12
56	Mounting Bolt Nut (2)	D02-440B
57	Trolley Mounting Spacer (60)	TP223A-038
*	Caution Tag	TP200-943
*	Nameplate	TP200-914
*	Nameplate Drive Screw (4)	R4K-302

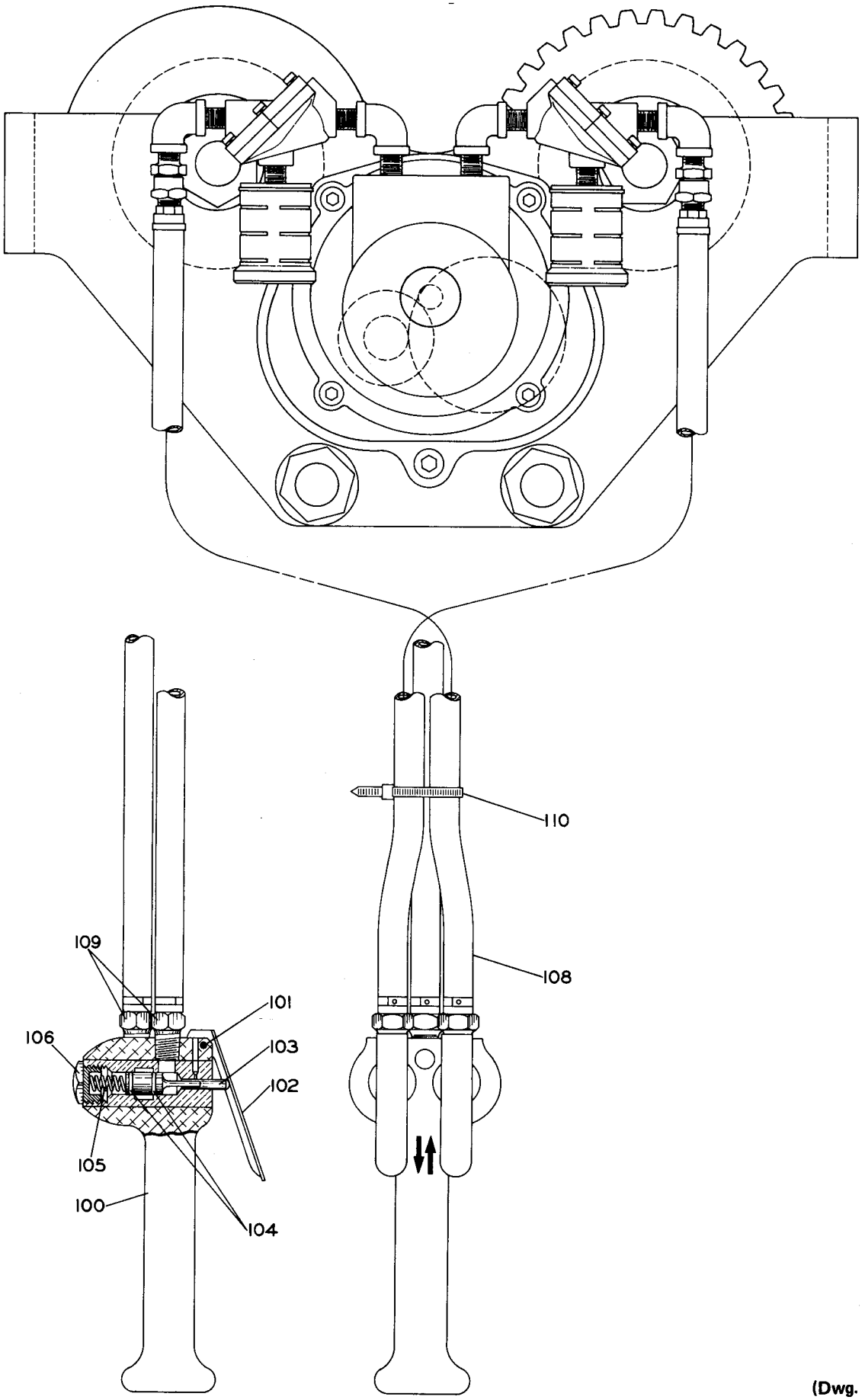
* Not illustrated.

• To keep downtime to a minimum, it is desirable to have on hand certain repair parts. We recommend that you stock one (pair or set) of each part indicated by a bullet (•) for every four tools in service.

PENDENT THROTTLE HANDLE AND HOSE PARTS

		PART NUMBER FOR ORDERING
100	Pendent Throttle Handle Assembly (for Trolley motor only)	
	standard	MR-269
	spark-resistant	MR-AR269
101	Throttle Lever Pin	DLC-120
102	Pendent Throttle Lever (2)	
	standard	R00H-273A
	spark-resistant	MLK-R273
103	Pendent Throttle Valve (2)	MR-264
• 104	Pendent Throttle Valve Seal Ring (2 for each Valve)	AF120-289
105	Pendent Throttle Valve Spring (2)	D10-51
106	Pendent Throttle Valve Cap (2)	
	standard	D02-180
	spark-resistant	D02-1180
108	Control Hose (3)	
	7 ft. long	H6A-7
	length as specified	BH6A
109	Hose Nipple (2 for e ach Hose)	RV1-46
110	Hose Binder (3)	CE110-4

• To keep downtime to a minimum, it is desirable to have on hand certain repair parts. We recommend that you stock one (pair or set) of each part indicated by a bullet (•) for every four tools in service.



(Dwg. TPA897)

Pendent Throttle Handle Assembly

▲Atlanta, Ga.
111 Ingersoll-Rand Drive
Chamblee, Georgia 30341

★Baton Rouge, La. 70816
4252 Rhoda Drive

★Boston, Mass.
2 Kuniholm Dr.
Holliston, Mass. 01746

★Charlotte, N. C. 28208
4840 Wilmont Rd.

●Chicago, Ill.
888 Industrial Drive
Elmhurst, Illinois 60126

●Dallas, Texas 75247
8901 Directors Row

★Denver, Colo. 80207
5805 E. 39th Ave.

●Detroit, Mich.
22122 Telegraph Road
Southfield, Mich. 48037

●Houston, Texas 77001
6800 Sands Point, P.O. 1455

●Los Angeles, Calif. 90022
5533 East Olympic Blvd.

INGERSOLL-RAND®

Power Tool Division
28 Kennedy Blvd.
East Brunswick, N. J. 08816

★Milwaukee, Wis.
N84 W13540 Leon Rd.
Menomonee Falls, Wis.
53051

★Minneapolis, Minn. 55404
Corner Franklin & Cedar

★Newark, N. J.
28 Kennedy Blvd.
East Brunswick, N. J. 08816

●New Orleans, La. 70005
939 Lake Ave. Metairie

★Norfolk, Va.
1431C Air Rail Ave.
Virginia Beach, Va. 23455

●Philadelphia, Pa.
651 Park Ave.
King of Prussia, Pa. 19406

▲Pittsburgh, Pa. 15220
6 Parkway Ctr.

★Portland, Oregon 97214
240 S. E. Clay St.

★Salt Lake City, Utah 84115
3007 South West Temple
Suite G

★San Francisco, Calif.
14299 Wicks Blvd.
San Leandro, Calif. 94577

★Seattle, Wash. 98188
345 Andover Park East

★Shreveport, La. 71106
454 W. 61st St.

★Syracuse, N. Y. 13208
505 Factory Ave.

▲St. Louis, Mo. 63132
1515 Page Industrial Blvd.

Washington, D. C. 20006
1666 K. St., N. W.

● *Regional Sales Office and Authorized Servicenter.*
▲ *Regional Sales Office only.*
★ *Authorized Servicenter only.*

CANADA

Calgary, Alberta, T2R 0E1
611 11th Ave, S. W.

Montreal, Quebec
620 Cathcart St., H3B 1M2
P.O. Box 1148, H3B 3K9

★Sherbrooke, Quebec
375 Courcelette St., J1H 3X4
Box 1500, J1H 5M3

Sudbury, Ontario, P3A 3T3
P.O. Box 2220

Ingersoll-Rand Canada Inc.
Montreal, Quebec, H3B 1S6
630 Dorchester Blvd. West

★Toronto
Don Mills, Ontario M3B 2V1
255 Lesmill Road

★Vancouver
British Columbia, V6A 2W7
1695 Main St.

Winnipeg, Manitoba, R3H 0M6
1234 Border St.

★ *Authorized Servicenter.*

AUTONOMOUS COMPANIES

Argentina, Buenos Aires
Ingersoll-Rand Argentina
S.A.I.y C.
Casilla Correo 2412, Correo Central

Australia, South Melbourne
Ingersoll-Rand (Australia) Ltd.
P.O. Box 219
42 Moray Street, 3205 Victoria

Austria A 1120, Vienna
Ingersoll-Rand Ges M.B.H.
Schoenbrunnerstrasse 213-215/2/5

Belgium, Diegem (Brussels)
Ingersoll-Rand Benelux S.A.
Kouterveldstraat 10-12, 1920 Diegem

Brazil, Sao Bernardo
Ingersoll-Rand S.A. Ind. e Com.
Caixa Postal 911

Chile, Santiago
Ingersoll-Rand Chile
Morande 341
Casilla 126-D

Colombia, Bogota
Macquinarias Ingersoll-Rand
de Colombia, S.A.
Apartado Aero 7451

Egypt, Cairo
Ingersoll-Rand North East Africa
P.O. Box 820
23A Ismail Mohamed St.
Zamalek

England, London, SW1X, 7LU
Ingersoll-Rand Co., Ltd.
Bowater House, Knightsbridge

France, 78 190 Trappes Yvelines
Compagnie Ingersoll-Rand
Avenue Albert Einstein
Zone Industrielle

Germany, 403 Ratingen
Ingersoll-Rand GmbH
Robt. Zapp Str. 7
Postfach 1380

Greece, Athens 610
Ingersoll-Rand Central Middle East
17th Floor Athens Tower
Mesogion 2-4

Hong Kong
Ingersoll-Rand Far East
19th Floor, Lap Heng House
50, Gloucester Road

India, Bombay 400018
Ingersoll-Rand (India) Private Ltd.
44 Maulana Abdul Gaffar Rd.
P.O. Box 16564, Worli

Ireland, Dublin
Ingersoll-Rand Company (Ireland) Ltd.
John F. Kennedy Drive
Bluebell

Italy, 20100 Milano
Ingersoll-Rand Italiana, S.p.A.
Strada Provinciale Cassanese
Caselle Postale 1232
Vignate, Italy

Japan, 106 Tokyo
Ingersoll-Rand (Japan) Ltd.
Kowa Bldg. No. 17
2-7-Nishi-Azabu 1-Chome
Minato-Ku

Kenya, Nairobi
Ingersoll-Rand Mid Africa
P.O. Box 14240

Malaysia, Petaling Jaya
Ingersoll-Rand Malaysia, Sdn, Bhd.
P.O. Box No. 125

Mexico, 10 D.F. Mexico
Ingersoll-Rand S.A. de C.V.
Apartado 41-666

Netherlands, Zoeterwoude
Ingersoll-Rand Benelux N.V.
P.O. Box 33, Zoeterwoude

Norway, Oslo 1
Ingersoll-Rand AB
P.O. Box 143-Sentrum

Peru, Lima
Ingersoll-Rand Co. of Peru, S.A.
Casilla 2261

Philippines, Makati, Rizal 3117
Ingersoll-Rand Philippines, Inc.
P.O. Box 445 MCC

Portugal, Lisbon 5
Ingersoll-Rand Lda.
Apartado 2933

Puerto Rico, San Juan 00936
Ingersoll-Rand de Puerto Rico Inc.
G.P.O. Box 1222

Singapore 22
Ingersoll-Rand Southeast Asia (Pte.) Ltd.
G.P.O. Box 2062, Singapore 1

South Africa, Alberton
Ingersoll-Rand Co. S.A. (Proprietary) Ltd.
P.O. Box 3720
Alrode, 1451

Spain, Madrid
Cia. Ingersoll-Rand, S.A.
Apartado 518

Sweden, Bromma
Ingersoll-Rand A.B.
Fack
S-16125 Bromma 1

Venezuela, Caracas
Ingersoll-Rand de Venezuela S.A.
Apartado 70588, Los Ruices

Distributors in principal cities throughout the world. Contact the nearest Ingersoll-Rand office for the name and address of the distributor in your country or write to Ingersoll-Rand International, Woodcliff Lake, New Jersey.

T2-HO

AUTHORIZED I-R SALES AND SERVICE

INGERSOLL-RAND®