Form 6323
Second Edition
December, 1975

INSTRUCTIONS AND REPAIR PART LIST

for

SIZES 35UWD962, 35UWD962RC
40UWD965 and 40UWD965RC
POPEYE™ WINCHES

WARNING

These winches are not to be used for lifting or lowering people.

HOW TO ORDER

Order all repair parts for your Ingersoll-Rand Tool by the **NAME** and **NUMBER** shown in the Repair Part List section. **Never** use the illustration numbers which appear in the first column.

For prompt service and genuine Ingersoll-Rand parts, place orders with the nearest Ingersoll-Rand Branch Office.

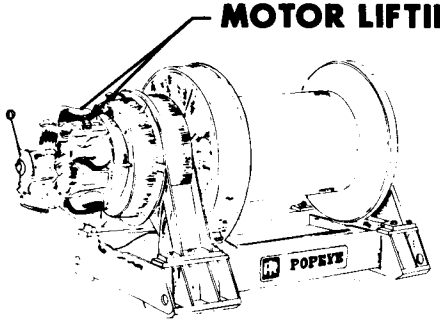
Notice: The use of other than genuine Ingersoll-Rand replacement parts may result in decreased tool performance and increased maintenance, and may, at the Company's option, invalidate all warranties.

* POPEYE Trademark of Ingersoll-Rand Company

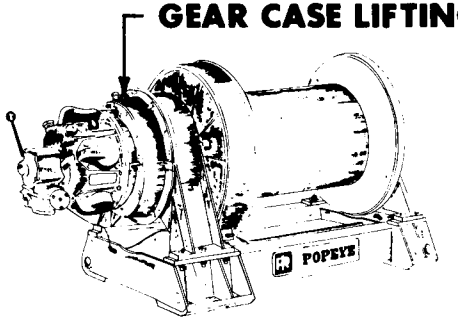
Refer All Communications to the Nearest Ingersoll-Rand Branch Office or Distributor.

Ingersoll-Rand

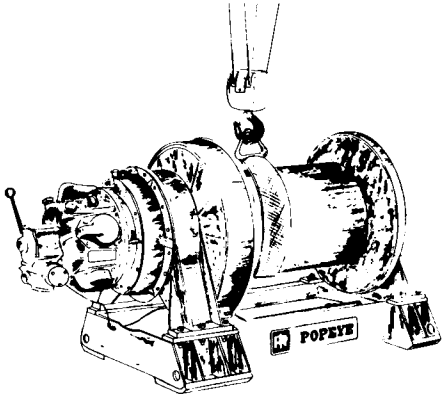
Ingersoll-Rand



Motor Lifting Eyes Are For Installation And Removal of MOTOR ASSEMBLY ONLY - No Attempt Should Be Made To Lift The Winch Using These Eyes.

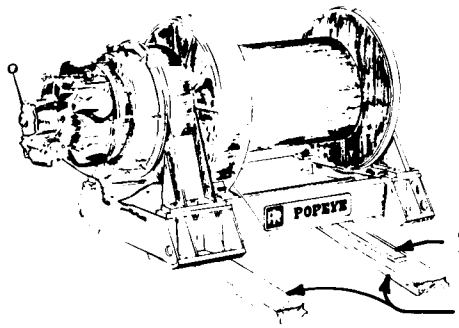


No Attempt Should Be Made to Lift The Winch Using Gear Case Lifting Eye.



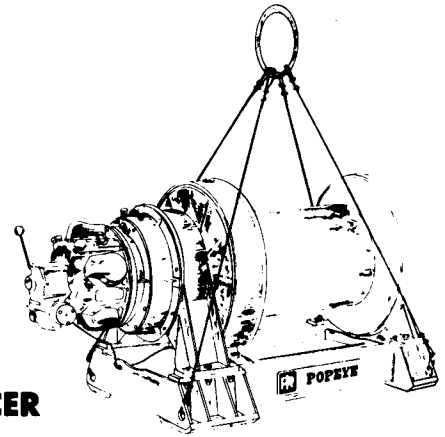
Lifting Method Utilizing Lifting Harness And Overhead Hoist

Harness Should Be Positioned As Close To The Front Drum Flange As Possible.

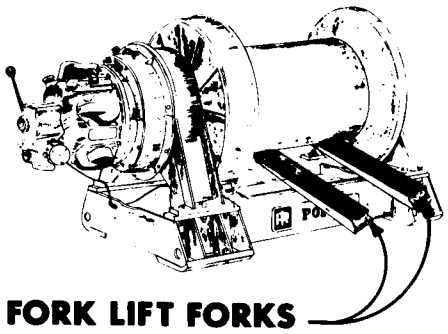


Lifting Method Utilizing A Fork Lift With Forks Beneath Winch Base.

Extreme Care Should Be Taken To Avoid Damaging Brake Parts Located Near This Lifting Area.



"Four-Point" Lifting Method Utilizing Existing Lifting Eyes



Lifting Method Utilizing A Fork Lift With Forks Beneath Winch Drum.

Winch Should Be Balanced on Forks Before Moving.

LUBRICATION

Warning: Lubricate the Motor and Gear Case before operating the Winch. To avoid leakage during shipment all oil was drained from the Motor and Gear Case. A sufficient quantity of oil for filling each unit is packed with the Winch. Make certain the proper lubricant is used for each unit. Make certain the Oil Level Plug and Drain Plug (2) are securely threaded into place. Remove the Vent Cap (5) and pour the entire contents of the can (4 quarts) into the Motor Case (1). Remove the Vent Plug from the Gear Case (90) and pour the entire contents of the can (6 quarts) into the opening in the top of the Gear Case.

Motor Lubrication

Check oil daily and maintain level with opening in the side of the Motor Case.

When the Winch is subjected to temperatures above freezing: After the Winch has been idle for several hours or overnight, loosen the Drain Plug (2) located at the bottom of the Motor Case (1) and allow the accumulated water to drain out. After draining the water, tighten the Plug in the bottom and remove a similar Plug on the side of the Motor Case. Unscrew the Vent Cap (5) and pour a sufficient quantity of the recommended oil through this opening to bring the oil level up to the side opening.

When the Winch is subjected to freezing temperatures: Allow the Winch to remain idle long enough for the water content in the Motor Case (1) to separate from the oil, but not long enough for it to freeze. Drain the water and replenish the oil as above. Should this procedure be impractical, drain the entire contents from the Motor Case immediately after operation ceases, and pour the oil back into the Motor Case before resuming operation. If not drained, a sufficient quantity of water will eventually accumulate so that the Oil Splasher (51) will freeze fast.

For temperatures 30° to 80° F use Ingersoll-Rand Medium Oil No. 50 or SAE 20 or 20W motor oil.

For temperatures below 30° F use SAE 10 or 10W motor oil.

For temperatures above 80° F use SAE 30 motor oil.

Lubricate the Drum Bearing (91) and Locking Dog (147) once weekly with Tenneco Anderol™ No. 786, Ingersoll-Rand Grease No. 11 or a good quality No. 2 chassis grease. Approximately 3 cc is ample for each fitting.

Gearing Lubrication

Every sixty to ninety days remove the Plug at the side of the Gear Case (90) and check the oil level. If the level is not visible, add a sufficient amount of the recommended lubricant to the Gear Case to bring the level to the bottom of the plug hole.

For temperatures above 32° F use Texaco Meropa™ No. 3 (AFMA 3EP) or its equivalent.

For temperatures below 32° F use Texaco Meropa No. 1 (AGMA 1EP) or its equivalent.

Brake Lubrication

Warning: Lubricate Brake parts before operating the Winch. Apply a coating of the recommended lubricant to each of the following parts before initial operation and after Brake maintenance.

For Brake Adjusting Screw (166), Brake Band Clevis (164), Brake Pin (171), Brake Crank Bearings (179 and 180), Brake Crank Arm (176) and Cylinder Clevis Pin (206) use Tenneco Anderol No. 786.

For Crank Link Bushing (186), Brake Cylinder Rod and Cylinder supports use Tenneco Anderol No. 786, Ingersoll-Rand No. 11 grease or a good quality No. 2 chassis grease.

HOSE AND HOSE CONNECTIONS

Use 2" hose with a suitable hose fitting (2" hose to 2" male pipe for Manual Throttle; 2" hose to 2½" male pipe for Remote Control) for attaching it to the Valve Chest (11). Smaller hose and fittings will reduce the efficiency of the Winch.

MOUNTING

Mount the Winch so that the axis of the Rope Drum (130) is horizontal and so that the Cylinder (61) between the two Vent Caps (5) is at top vertical center. The Gear Case Vent Plug must not be more than 25° off top vertical center.

MAINTENANCE

Apply the Wire Rope to wind on the Rope Drum in the direction indicated by the instruction plate on the Winch.

Brake Tension–Torsion Bar Adjustment

Caution: Factory adjusted Torsion Bar tension may be in excess of 400 ft-lbs. Make certain that ¾" drive breaker bar is of sufficient length to accommodate this torque.

Braking force is adjusted to the rated capacity of the Winch at the factory and does not require adjustment for normal operation. When necessary increase or decrease the brake setting force as follows:

1. Engage the Locking Dog (147) by rotating the Locking Dog Handle (150) until it is released from its detent position.
2. Slowly run the Winch in the down direction until the Locking Dog firmly engages a Rope Drum flange.
3. Apply full throttle in the down direction while loosening the Adjusting Screw Lock Nut (167).
4. With full throttle being applied, rotate the Brake Adjusting Screw (166) in a clockwise direction as far as possible.
5. Release the throttle. Insert a ¾" square drive breaker bar into the Torsion Bar Anchor (190) and secure the bar.
6. Loosen and remove the four (4) Torsion Bar Anchor Bolts (191).
7. To increase Brake setting force rotate Torsion Bar Anchor in a clockwise direction when facing the Torsion Bar Anchor. Rotate in a counterclockwise direction to decrease Brake setting force.

8. Insert four Torsion Bar Anchor Bolts and tighten.
9. With Locking Dog engaged, apply full throttle and rotate Brake Adjusting Screw in a counterclockwise direction until snug. Rotate Adjusting Screw 1/2 turn in a clockwise direction and tighten Adjusting Screw Lock Nut.
10. Release throttle and return Locking Dog to its operating position.

Brake Band Replacement

The Brake Band Assembly may be replaced as follows:

1. Decrease Brake Band tension as in steps 1-4 in Brake Tension–Torsion Bar Adjustment section.
2. Remove Cotter Pin (169) and Washer (170) from Brake Anchor Pin (168) and drive Brake Anchor Pin from its insertion with the Winch Base.
3. Remove Cotter Pin (172) and Washer (173) from the Drum side of the Brake Pin (171) and remove Brake Pin from the Brake Adjusting section.
4. Remove the Brake Band Assembly from the Winch by springing it over the Gear Case (90).
5. Remove Brake Band Clevis (164), Adjusting Screw Lock Nut (167) and Adjusting Screw (166) by rotating the Adjusting Screw in a clockwise direction. Inspect these parts and replace them if wear is evident before reassembling a new Brake Band Assembly. New Brake Band Clevis Bushings (165) may be replaced by pressing out old Bushings and using Pin (171) as a sizing tool, pressing in new Bushings until flush.
6. Assemble the Adjusting Screw, Lock Nut and Adjusting Screw on a new Brake Band Assembly by rotating the Adjusting Screw counterclockwise until the Lock Nut contacts the Brake Adjusting box. At this point the outer face of the Adjusting Screw should be flush with the outer face of the Lock Nut. Lubricate all joints with the recommended lubricant.
7. Install the Brake Band Clevis by rotating the Adjusting Screw in a clockwise direction until the cross holes align with the extreme end of the slots in the Brake Band Adjustment box.
8. Put Brake Band Assembly in place on the Winch.
9. Insert the Brake Pin and attach the Washer and Brake Pin Cotter.
10. Slide the Brake Anchor Pin in place from the Motor side and attach Washer and Cotter Pin.
11. Adjust the Brake as in steps 9 and 10 in Brake Tension-Torsion Bar Adjustment section.

Assembly of Brake Crank

Service of Brake parts may require removing the Brake Crank (174) and Brake Crank Arm (176) from the Brake Crank Bracket (178). Assemble a Brake Crank as follows:

1. Insert Brake Crank into Motor end of Brake Crank Bracket, engaging splines of Brake Crank Arm. When correctly assembled, before connecting with Brake Cylinder Clevis, the Brake Crank Arm will hang vertically below the Crank, and the Brake Crank Pin (175) will appear at the top center to 20° left of top center when viewed from the Motor end. See illustration on Page 6.
2. Slide Brake Crank with Brake Crank Arm in place through Brake Crank Spacer (181) and Brake Crank Washer (182).
3. Fasten Brake Crank in the Brake Crank Bracket using a Brake Crank Washer (182) and Retainer (183).
4. Attach Brake Crank Arm to Brake Cylinder Clevis (203) by inserting Clevis Pin (206) through aligned holes in Clevis and Brake Crank Arm.
5. Attach Clevis Pin Washers (208) and Cotter Pins (207).
6. Proceed with Brake Band assembly and Brake adjustment.

Bushing Replacement

Should it be necessary to replace the Spool Valve Bushing (13), the Valve Chest (11) must be returned to the factory. Remove the Valve Chest as follows:

1. Remove the Valve Chest Bolts (22) and the Valve Chest Cover (20).
2. Thread a No. HU-932 Valve Chest Jack Bolt into the tapped hole in the lug on each side of the Valve Chest (11) until the end of the Bolt contacts the Motor Case (1). Tighten each Bolt a fraction of a turn at a time until the Valve Chest is removed from the Motor.
3. Remove the Rotary Valve (47) and the Rotary Valve Bearing (49).
4. Remove the Spool Valve Cap Screws (37), Spool Valve Caps (35) and Spool Valve (30).
5. Remove the Brake Valve Cap (26), Brake Valve Seat (25) and Brake Valve (24).
6. To install the Valve Chest on the Motor, align the holes through the Valve Chest with those in the Motor Case (1). Protect the face of the Valve Chest with a hardwood block and press or drive the Valve Chest onto the Motor Case.
7. Insert the Rotary Valve (47) into the Valve Chest. Rotate the Valve slowly until the Valve Pin (48) located in the end of the Valve engages the matching hole in the Crank (50).
8. Apply the Valve Chest Cover (20) and Valve Chest Cover Gasket (21) and retain them with the Valve Chest Bolts (22).

Planet Gear Assembly

To maintain proper timing of drive train when inserting Planet Gears (101) and Gear Frame (99) into the Gear Case (90) proceed as follows:

1. Mark 3 teeth on the 72-tooth Ring Gear (113) spaced 24 teeth apart.
2. With Planet Gears mounted in the Gear Frame, align the tooth space marked with an arrow on each Planet Gear with the marked teeth on the Ring Gear.
3. Slide the Planet Gears and Gear Frame, small end first, into the mounted Ring Gear.

CRANK ASSEMBLY

The three sections of the Crank (50) are matched before final machining. There are identification marks stamped on the web of each section. Only sections bearing identical markings can be used together. If more than one Crank is disassembled at one time, be sure only matched parts are assembled together.

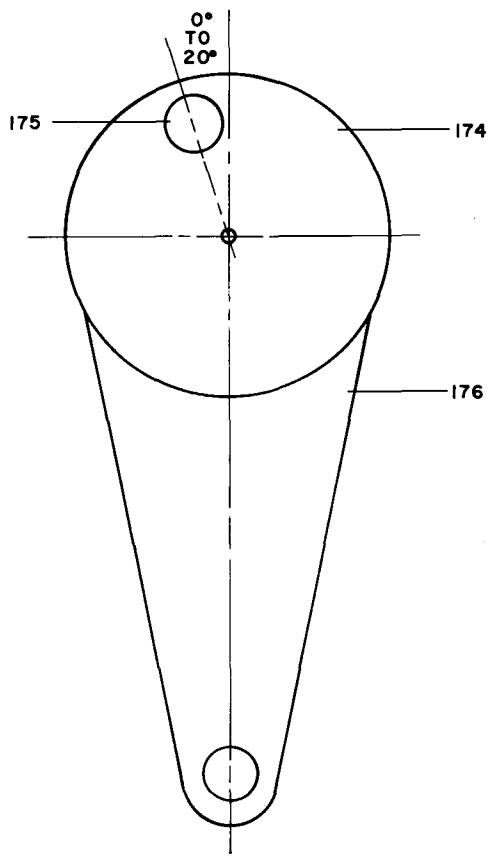
ROPE DRUM LOCKING DOG

The Rope Drum Locking Dog (147) may be hand actuated by pulling out on the Handle (150), rotating it to a vertical position and releasing it to engage with Rope Drum flanges. **Note: Do not actuate the Locking Dog while Rope Drum is rotating.** One edge of the Locking Dog is beveled to allow ratcheting of pulled loads. To engage in the ratcheting position move the Locking Dog to the vertical position with the beveled edge facing the opposite direction of Rope Drum rotation. To use as a Drum stop engage the flat edge with the Rope Drum flange. When not in use the Locking Dog handle may be held in a detent position by pulling out on the Handle, rotating it to a position parallel with the Base and releasing it.

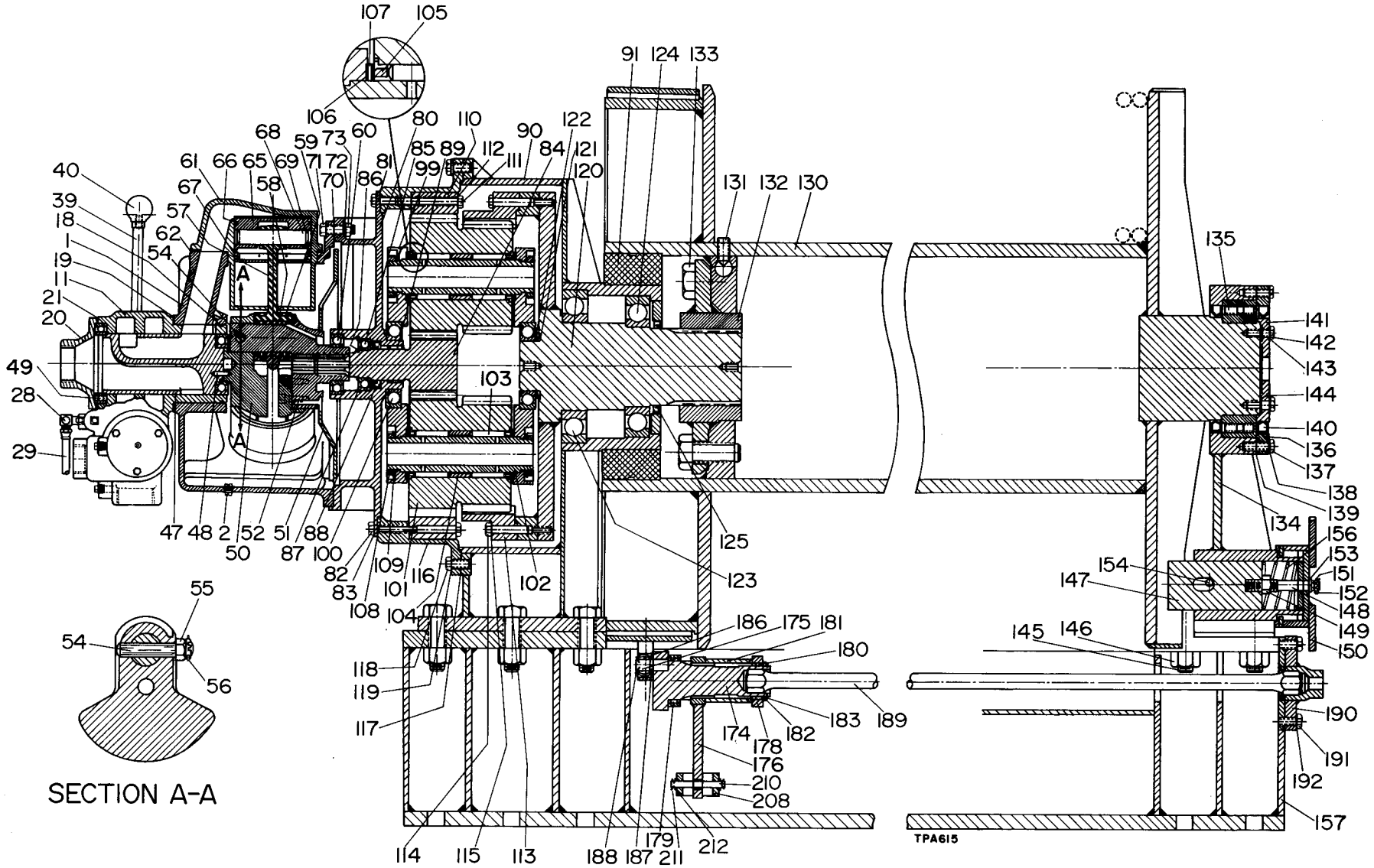
REPAIR PARTS

To keep costly downtime to a minimum, it is desirable to have on hand certain repair parts. To guide you in the stocking of repair parts, certain Illustration Numbers of the Repair Part List are marked with a bullet (•). We recommend that with parts so indicated, you stock one (pair or set) repair part for every four Winches in service.

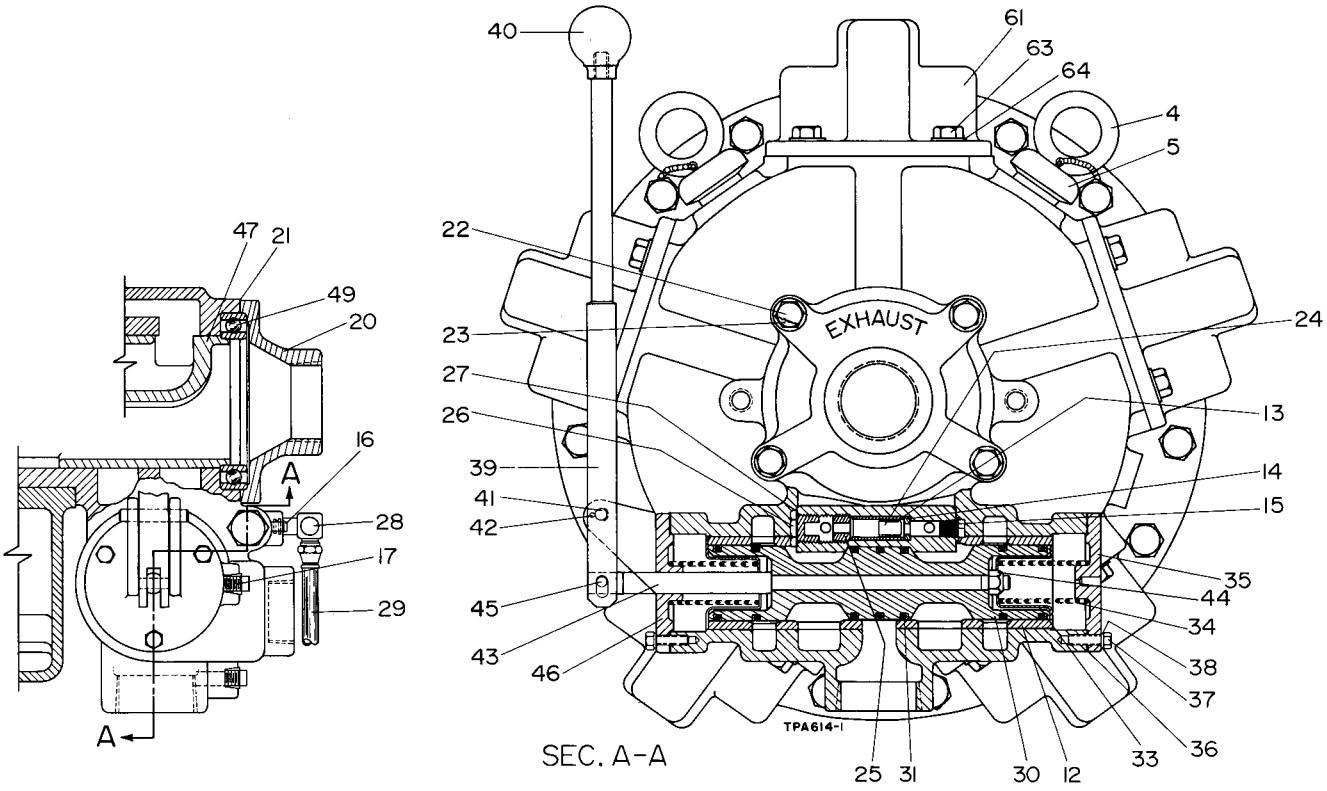
If the Winches are being used in remote geographical areas, or are subject to unusually severe service, the items and quantities should be increased. Contact the nearest Ingersoll-Rand Company Branch for recommendations.



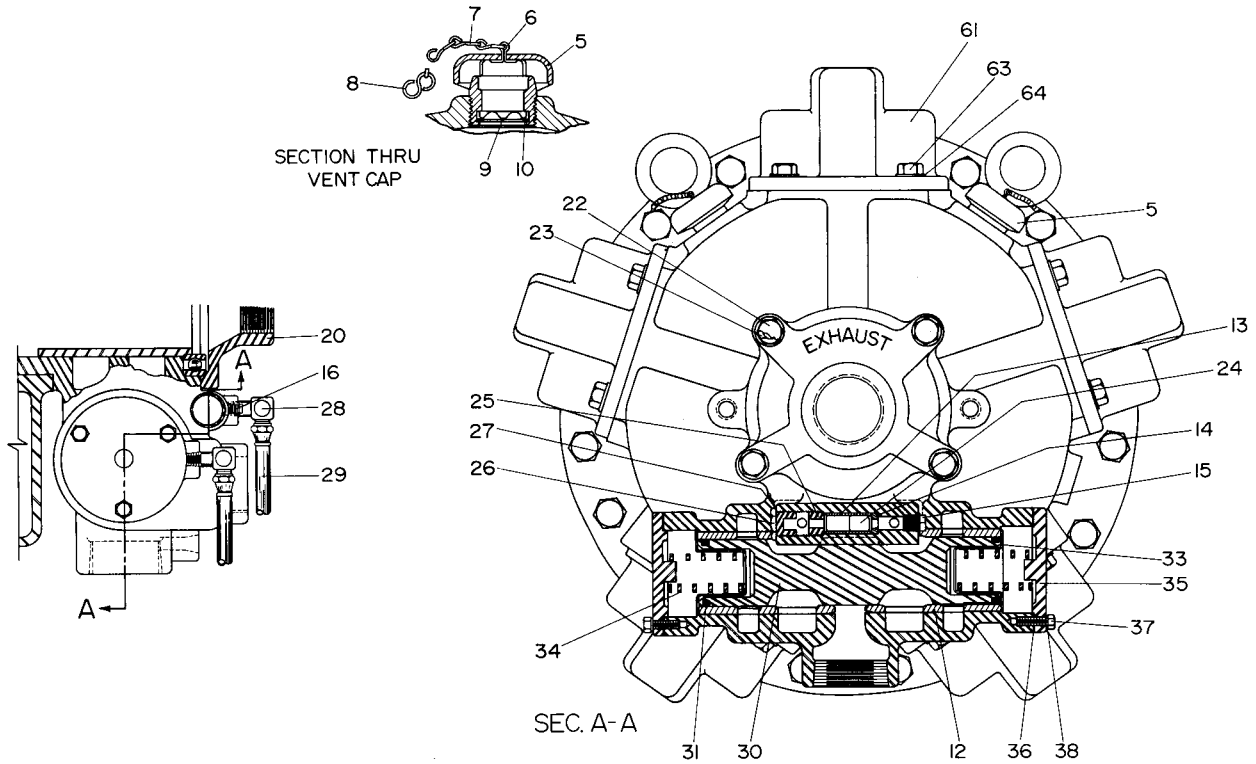
Correct Arrangement of Brake, Crank and Brake Crank Arm



35UWD962 Winch with Manual Throttle



Manual Throttle Valve Chest



Remote Control Valve Chest

MOTOR AND VALVE CHEST PARTS

ILLUSTRATION NUMBER (Do not use for ordering)	PART NAME FOR ORDERING (Parts indented after an item are included with that item)	PART NUMBER FOR ORDERING
1	Motor Case	K5W-501
2	Drain Plug	K5W-29
*	Oil Level Plug	D02-402
4	Motor Case Eye Bolt (2)	KU-888
5	Vent Cap (2)	D02-303A
6	Vent Cap Cotter	D02-893
7	Vent Cap Chain	D02-891
8	S-Hook	D02-421
9	Vent Cap Screen	D02-889
10	Vent Cap Screen Retainer	6CND-233-1/2
11	Valve Chest	K5W-245
12	Spool Valve Bushing (2)	K5W-247
13	Brake Valve Bushing	K5W-63
14	Brake Valve Disc	K5W-44
15	Brake Valve Plug	D02-402
16	1/8" Plug (2)	P250-368
17	3/8" Plug (3 for Manual Throttle; 1 for Remote Control)	JC3350-368
● 18	Valve Chest Seal	SM450B-607-1
● 19	Valve Chest Gasket	K5W-547
20	Valve Chest Cover	K5W-546
● 21	Valve Chest Cover Gasket	K5W-928
22	Valve Chest Bolt (4) (1/2"-13 thd. x 6" long, Grade 5)	K5W-548
23	1/2" Lock Washer (4)	D10-322
24	Brake Valve	K5W-62
25	Brake Valve Seat	K5W-65
26	Brake Valve Cap	D01-943
27	Valve Cap Gasket	D01-946
28	Brake Hose Elbow	UWD-161
29	Brake Hose (37" - 940 mm long)	UWD-163-3
29A	Hose Swivel (2)	UWD-162
*	Hose Clip (2)	UWD-727
30	Spool Valve	
	for Manual Throttle	K5W-A246
	for Remote Control	K5W-ARC246
● 31	Spool Valve Seal (7 for Manual Throttle; 2 for Remote Control)	K5W-248
33	Spool Valve Spring Cap (2)	K5W-249
● 34	Spool Valve Spring (2)	
	for Manual Throttle	K5W-250
	for Remote Control	K5W-RC250
35	Spool Valve Cap	
	for Manual Throttle	K5W-251
	for Remote Control (2)	K5W-RC251
● 36	Spool Valve Cap Gasket (2)	K5W-946
37	Valve Cap Screw (6) (5/16"-18 thd. x 1" long)	B8-240
38	5/16" Lock Washer (6)	T11-58

* Not illustrated.

MOTOR AND VALVE CHEST PARTS (Continued)

ILLUSTRATION NUMBER (Do not use for ordering)		PART NAME FOR ORDERING (Parts indented after an item are included with that item)	PART NUMBER FOR ORDERING
Manual Throttle Parts	39	Throttle Lever	K5W-556
	40	Throttle Lever Knob	K5W-305
●	41	Throttle Lever Pin	K5W-557
	42	Lever Pin Cotter (2)	D02-524
	43	Spool Valve Rod	K5W-255
	44	Valve Rod Nut	599-639
●	45	Valve Rod Pin	K5W-870
	*	Valve Rod Pin Retainer	FEA100-118
	46	Throttle Lever Bracket	K5W-596
	47	Rotary Valve	
		for 35UWD962 and 35UWD962RC	K5W-526
		for 40UWD965 and 40UWD965RC	K5W-H526
●	48	Rotary Valve Pin	510-669A
●	49	Rotary Valve Bearing (MRC No. XLS 3¾ or its equivalent)	21-703
		Crank Assembly	K5W-A516
	50	Bare Crank (consists of 3 parts which are not sold separately)	K5W-516
	51	Oil Splasher	KU-540
	52	Oil Splasher Long Rivet (2)	K5W-541
	*	Oil Splasher Short Rivet (2)	KU-542
	54	Crank Lock Pin	K5W-520
	55	Crank Lock Pin Nut	D02-317
	56	Crank Lock Pin Cotter	D02-330
●	57	Connecting Rod (5)	K5M-509
●	58	Connecting Rod Bushing	K5W-511
●	59	Connecting Rod Ring (2)	KU-510
	60	Crank Bearing (2) (AFBMA No. 55BC02)	KU-518
	61	Cylinder (5)	K5W-505
●	62	Cylinder Gasket (5)	K5W-507
	63	Cylinder Bolt (20) (⅝"-11 thd. x 1¼" long)	215-13
	64	Cylinder Bolt Washer (20)	KU-504
	65	Piston (5)	K5W-513
●	66	Piston Ring (5)	KU-337
●	67	Oil Regulating Ring (5)	KU-338
	68	Wrist Pin (5)	K5W-514
●	69	Wrist Pin Retainer (10)	ILA902A9-589
●	70	Motor Gasket	K5W-592
	71	Motor Case Bolt (10) (⅝"-11 thd. x 2" long)	KX-36
	72	⅝" Lock Washer (10)	A-67
	73	Motor Case Nut (10) (⅝"-11 thd.)	HU-776

* Not illustrated.

GEAR CASE AND GEARING PARTS

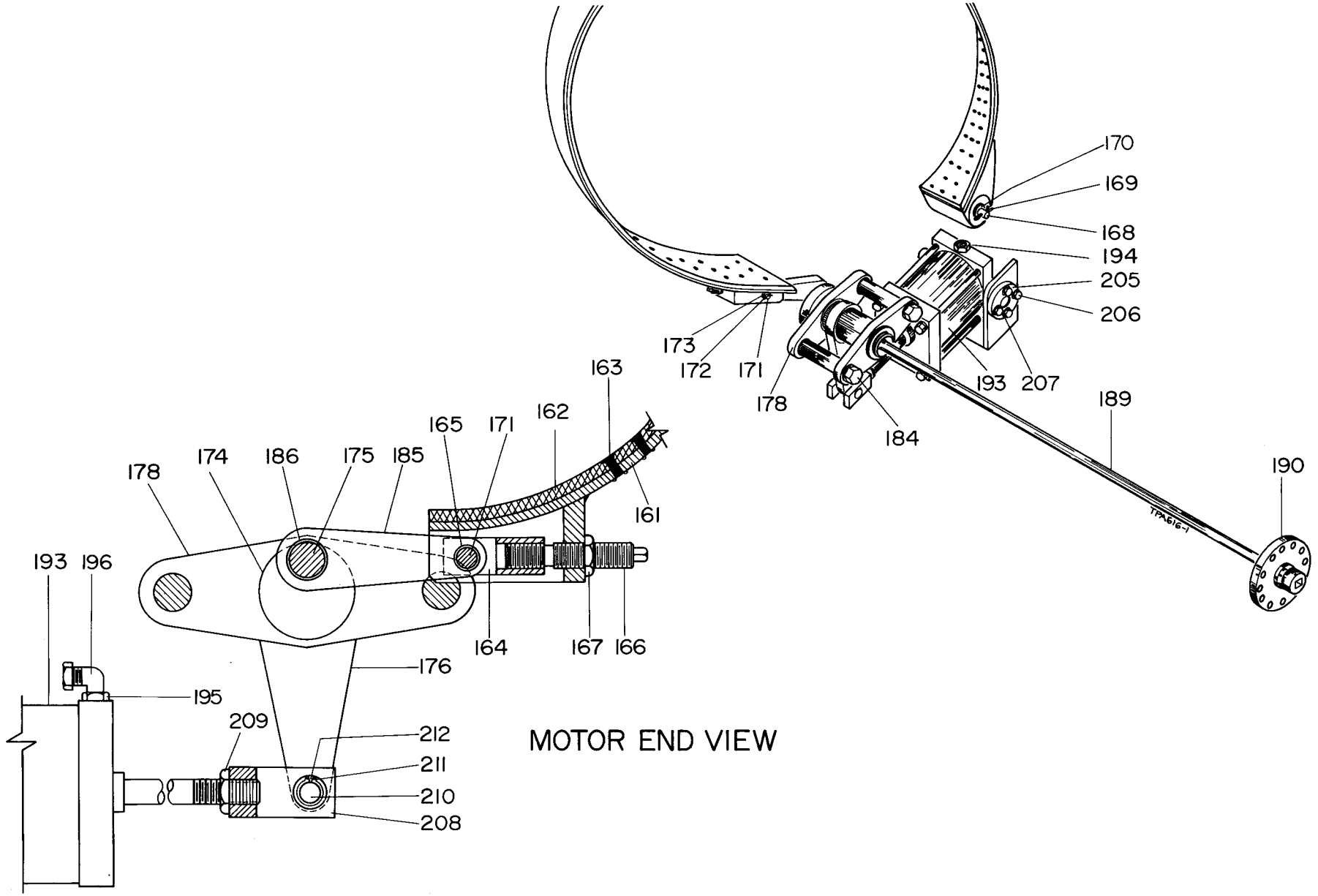
ILLUSTRATION NUMBER (Do not use for ordering)	PART NAME FOR ORDERING (Parts indented after an item are included with that item)	PART NUMBER FOR ORDERING
80	Motor Cover	UWD-502
● 81	Motor Cover Gasket	UWD-592
82	Motor Cover Bolt (12) (1/2"-13 thd. x 1" long)	D10-354
83	1/2" Lock Washer (12)	D10-322
84	Motor Pinion (15 teeth)	UWD-319
85	Motor Pinion Bearing(AFBMA No. 45BC02)	UWD-589
86	Inner Bearing Retainer	UWD-313
87	Outer Bearing Retainer	UWD-317
● 88	Motor Pinion Seal	UWD-315
● 89	Pinion Needle Bearing (Torrington No. J-3216 or its equivalent)	UWD-318
	Gear Case Assembly	UWD-A353
90	Gear Case	UWD-353
91	Drum Bearing	UWD-466
*	Grease Fitting (3)	23-189
*	1/8" Pipe Plug	R2-227
*	3/4" Plug (Magnetic) (3)	UWD-29
*	Vent Plug	C6H20A-19
99	Planet Gear Frame (2)	UWD-367
100	Planet Frame Bearing (2)(AFBMA No. 80BC02)	UWD-368
101	Planet Gear (3)(30 teeth and 27 teeth)	UWD-364-96
102	Planet Gear Shaft (3)	UWD-365
● 103	Planet Gear Roller (144)	UWD-366
104	Roller Spacer (3)	UWD-363
105	Thrust Plate (6)	UWD-360
106	Thrust Bearing Race (12) (Torrington No. TRB-3648)	UWD-362
● 107	Thrust Bearing (6) (Torrington No. NTA-3648 or its equivalent)	UWD-361
108	Shaft Lock Nut (6)	235-43
● 109	Lock Washer (6)	235-44
110	Ring Gear, Motor End (75 teeth)	UWD-797
111	Ring Gear Bolt (12) (1/2"-13 thd. x 4" long, Grade 5 minimum)	207-W37
112	1/2" Lock Washer (12)	D10-322
113	Ring Gear, Drum End (72 teeth)	UWD-798-96
114	Ring Gear Bolt (12) (1/2"-13 thd. x 4" long, Grade 5 minimum)	207-W37
115	1/2" Lock Washer (12)	D10-322
116	Gear Case Cover	UWD-352
● 117	Gear Case Cover Gasket	UWD-931
118	Gear Case Cover Bolt (20) (1/2"-13 thd. x 1 1/2" long, Grade 5)	235-146
119	1/2" Lock Washer (20)	D10-322
120	Output Shaft	UWD-459
121	Wave Washer	UWD-278
122	Washer	UWD-369
123	Output Shaft Bearing, Gear End (AFBMA No. 140BC02)	UWD-465
124	Output Shaft Bearing, Drum End (AFBMA No. 130BC02)	UWD-464
● 125	Output Shaft Seal	UWD-137

* Not illustrated.

MAIN WINCH PARTS

ILLUSTRATION NUMBER (Do not use for ordering)	PART NAME FOR ORDERING (Parts indented after an item are included with that item)	PART NUMBER FOR ORDERING
130	Rope Drum	
	for Sizes 35UWD962 and 35UWD962RC (16" root diameter) (406 mm).	UWD-324-2
	for Sizes 40UWD965 and 40UWD965RC (22" root diameter) (559 mm).	UWD-324-5
131	Rope Set Screw (2) (3/4"-10 thd. x 1 1/2" long).	K6U-381
132	Spline Coupling	UWD-325
133	Coupling Bolt (6) (1 1/4"-7 thd. x 3" long, Grade 5)	UWD-326
134	Drum Support Bracket	UWD-677
*	Grease Fitting	23-188
135	Outer Drum Bearing (Torrington No. 150SD30 or its equivalent).	UWD-665
136	Outer Thrust Ring	UWD-660
137	Thrust Ring Bolt (6) (1/2"-13 thd. x 1 3/4" long, Grade 5)	215-37
138	1/2" Lock Washer (6)	D10-322
● 139	Thrust Ring Gasket	UWD-662
140	Bearing Seal (2)	UWD-661
141	Inner Thrust Cap	UWD-663
142	Thrust Cap Bolt (5) (1/2"-13 thd. x 1 1/2" long, Grade 5)	235-146
143	1/2" Lock Washer (5)	D10-322
● 144	Thrust Cap Gasket	UWD-664
145	Base Mounting Bolt (10) (1"-8 thd. x 3 1/2" long, Grade 5 minimum)	UWD-562
146	Mounting Bolt Nut (10) (1"-8 thd., Stover)	UWD-563
147	Locking Dog.	UWD-671
148	Locking Dog Shaft	UWD-672
149	Lock Nut.	DU-562
150	Locking Dog Handle	UWD-673
151	Handle Lock Nut	D02-317
152	Cotter Pin	D02-330
153	5/8" Washer	PDA312-56
154	Locking Dog Bolt.	D10-354
*	1/2" Lock Washer	D10-322
*	Grease Fitting	UWD-188
156	Locking Dog Spring.	101BMPD-700-1
157	Mounting Base	UWD-564-2

* Not illustrated.



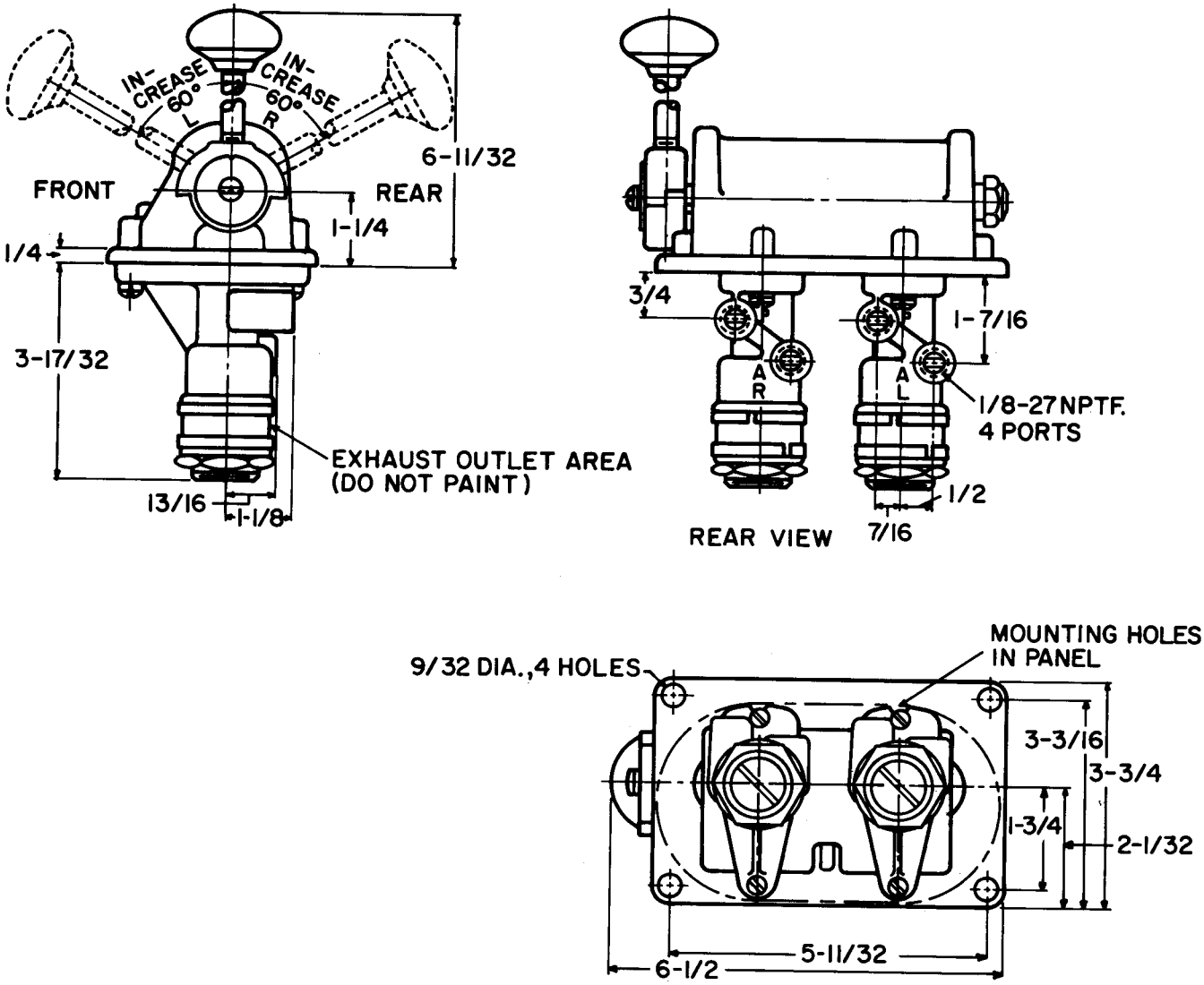
MOTOR END VIEW

BRAKE PARTS

ILLUSTRATION NUMBER (Do not use for ordering)	PART NAME FOR ORDERING (Parts indented after an item are included with that item)	PART NUMBER FOR ORDERING
	Brake Band Assembly	UWD-A101
161	Brake Band	UWD-101
● 162	Brake Lining	UWD-102
● 163	Brake Lining Rivet (113)	UWD-103
164	Brake Band Clevis	UWD-104
● 165	Clevis Bearing (2)	UWD-105
166	Adjusting Screw	UWD-106
167	Adjusting Screw Lock Nut	DU-562
168	Brake Anchor Pin	UWD-107
169	Anchor Pin Cotter (3/16" x 2 1/2")	UWD-108
170	Anchor Pin Washer	UWD-110
*	Grease Fitting	23-188
171	Brake Pin	UWD-109
172	Brake Pin Cotter (2) (1/8" x 1 1/4")	D02-330
173	5/8" Washer (2)	235-309
174	Brake Crank	UWD-111
175	Brake Crank Pin	UWD-112
176	Brake Crank Arm	UWD-113
● *	Crank Arm Bushing	UWD-114
178	Brake Crank Bracket	UWD-115
179	Bearing, Crank End (Torrington No. NB-408 or its equivalent)	UWD-116
180	Bearing, Torsion Bar End (Torrington No. B-328 or its equivalent)	UWD-117
181	Spacer	UWD-118
182	Washer (2) (Torrington No. TRB-3244)	UWD-119
183	Retainer	UWD-120
184	Crank Bracket Bolt (2) (1"-8 thd. x 7" long, Grade 5)	UWD-121
185	Crank Link	UWD-122
● 186	Crank Link Bushing	UWD-123
187	Bushing Spacer	UWD-124
188	Crank Link Retainer	UWD-125
189	Torsion Bar	UWD-131-2
190	Torsion Bar Anchor	UWD-132
191	Torsion Bar Anchor Bolt (4) (1/2"-13 thd. x 1 1/2" long, Grade 5 minimum)	235-146
192	1/2" Lock Washer (4)	D10-322
193	Brake Cylinder	UWD-141
194	Breather Vent Plug	UWD-142
195	Reducing Bushing	UWD-167
196	Brake Pipe Elbow	UWD-161
197	Hose Swivel (2)	UWD-162
198	Brake Hose	UWD-163
*	Bulkhead Elbow	UWD-164
200	Exhaust Valve Elbow	UWD-168
201	Elbow	UWD-169
202	Reducing Bushing	UWD-82
203	Exhaust Valve	MR-939
204	Brake Hose Adapter	UWD-170
205	Cylinder Mounting Cap	UWD-143
206	Mounting Cap Bolt (4) (3/8"-16 thd. x 1" long)	D02-354
207	3/8" Lock Washer (4)	D02-321
208	Cylinder Clevis	UWD-144
209	Clevis Lock Nut	UWD-146
210	Clevis Pin	UWD-147
211	Pin Retainer (2)	UWD-148
212	5/8" Washer (2)	UWD-149

* Not illustrated.

MOUNTING DIMENSIONS FOR REMOTE CONTROL BLOCK



HANDLE NORMALLY ON RIGHT-HAND SIDE
DRAWING ROTATED 180° TO SHOW PORT CONFIGURATION

MAINTENANCE TOOLS

TOOL NUMBER FOR ORDERING	TOOL NAME FOR ORDERING	OPERATION
P25-228	Grease Gun	Lubrication.
HU-932	Valve Chest Jack Bolt (2 required)	Removing the Valve Chest (11) from the Motor Case (1).
KU-933	Piston Ring Compressor	Compressing the Piston Rings (66 and 67) when installing the Cylinder (61).

REMOTE CONTROL PARTS

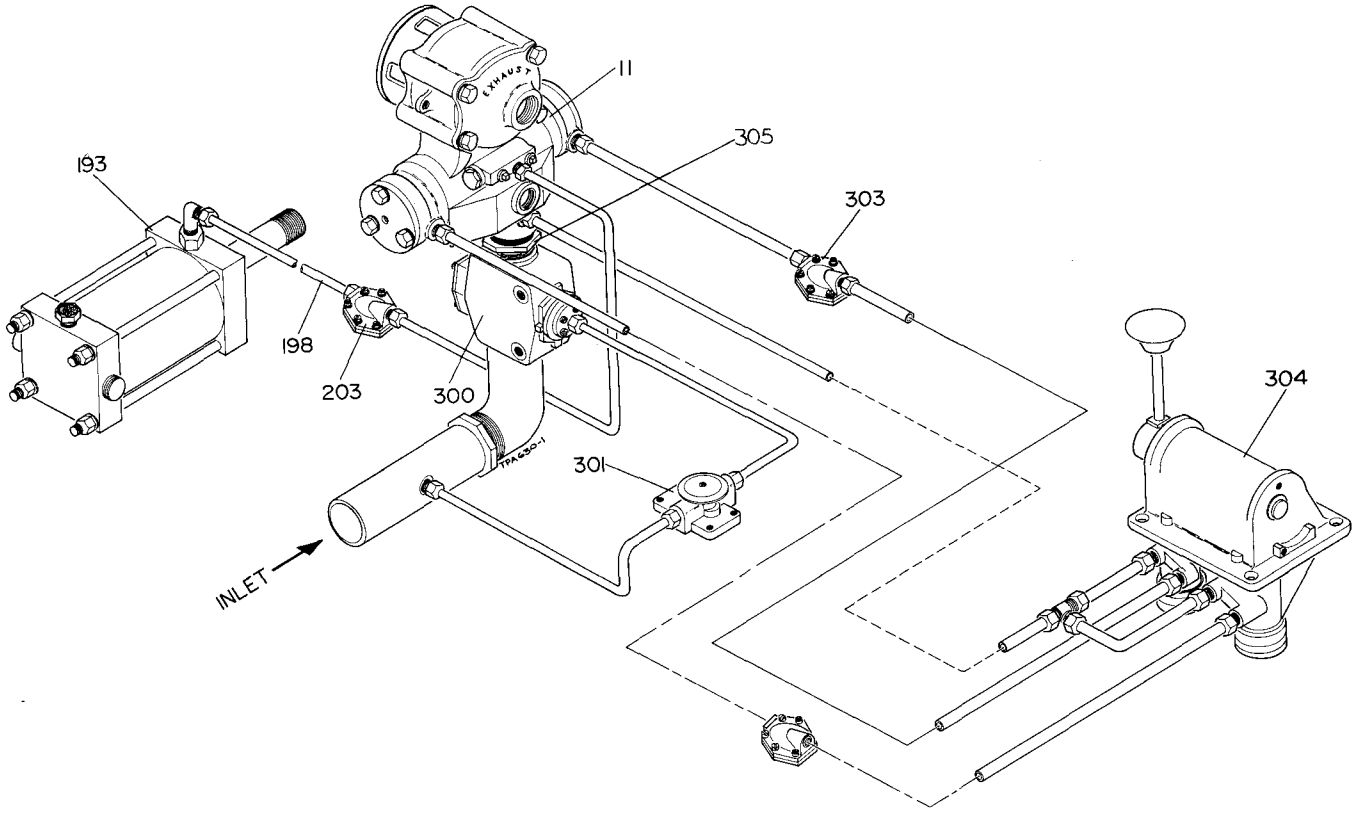


ILLUSTRATION NUMBER (Do not use for ordering)	PART NAME FOR ORDERING (Parts indented after an item are included with that item)	PART NUMBER FOR ORDERING
300	Control Valve	UWD-900
301	Palm Button Valve	UWD-905
302	Reducer Bushing	UWD-284
★ 303	Exhaust Valve (2) (used when Remote Control hose exceeds 50 feet and every 50 feet thereafter)	MR-939
304	Remote Control Block (WABCO MC-2 three-way valve)	UWD-A686
305	2" Pipe Nipple	PCG208AC-286

★ Contact the Ingersoll-Rand Sales Engineer when Remote Control hose exceeds 100 feet.

Ingersoll-Rand

28 Kennedy Blvd.

East Brunswick, N. J. 08816

- **Atlanta, Ga.** 111 Ingersoll-Rand Drive Chamblee, Georgia 30341
- ★ **Beaumont, Texas 77640** 5336 Twin City Highway Port Arthur, Texas
- ★ **Birmingham, Ala. 35233** 1516 Second Ave., South
- ★ **Buffalo, N. Y. 14225** 195 Sugg Rd.
- **Charlotte, N. C. 28208** 4840 Wilmont Rd.
- **Chicago, Ill.** 888 Industrial Drive Elmhurst, Illinois 60126
- **Cincinnati, Ohio** 619 Redna Terrace Woodlawn, Ohio 45215
- **Cleveland, Ohio 44125** 9257 Midwest Ave.
- ★ **Corpus Christi, Texas 78408** 4540 Baldwin Blvd.
- **Dallas, Texas 75247** 8901 Directors Row
- **Denver, Colo. 80216** 4045 Elati St.
- **Detroit, Mich.** 22122 Telegraph Road Southfield, Mich. 48075
- **Hartford, Conn. 06114** 203 Locust St.
- **Houston, Texas 77001** 6800 Sands Point, P. O. 1455
- ★ **Indianapolis, Ind. 46220** 2120 East 54th St.

  Kansas City, Mo. 64114 8900 Ward Parkway
- **Los Angeles, Calif. 90022** 5533 East Olympic Blvd.

  Memphis, Tenn. 38116 1231 E. Raines Rd. P. O. Box 16248 Whitehaven Station
- **Milwaukee, Wis. 53225** 12311 W. Silver Springs Dr.
- **Minneapolis, Minn. 55404** Corner Franklin and Cedar
- **Moline, Ill.** 1808 11th St. Rock Island, Ill. 61201
- **Newark, N. J.** 28 Kennedy Blvd. East Brunswick, N. J. 08816
- **New Orleans, La. 70005** 939 Lake Ave. Metairie
- **Philadelphia, Pa.** 651 Park Ave. King of Prussia, Pa. 19406
- **Pittsburgh, Pa. 15220** 6 Parkway Ctr.
- ★ **Portland, Oregon 97214** 240 S.E. Clay St.
- ★ **Richmond, Va. 23230** 3431 West Leigh St.
- **San Francisco, Calif.** 14299 Wicks Blvd. San Leandro, Calif. 94577
- ★ **Schenectady, N. Y. 12303** 723 Crane St.
- **Seattle, Wash. 98188** 345 Andover Park East
- **St. Louis, Mo. 63132** 1515 Page Industrial Blvd.
- ★ **Tampa, Fla. 33609** 3307 South Westshore Blvd.
- ★ **Tulsa, Oklahoma 74135** 6106 E. 32 Place

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

• Branch and Factory Repair Servicecenter.
★ Factory Repair Servicecenter only.

CANADA

Calgary, Alberta, T2H 0B4 210 61st. Ave., S. W.

Edmonton, Alberta, T5L 2Y3 14530 123rd. Ave.

Montreal III, Quebec 620 Cathcart St. P. O. Box 1148

• **Sherbrooke, Quebec** 375 Courcelette St.

Canadian Ingersoll Rand Co., Limited Montreal III, Quebec 620 Cathcart St. P. O. Box 610

Sudbury, Ontario P. O. Box 2220

• **Toronto 12, Ontario** 255 Lesmill Road, Don Mills

• **Vancouver 4, British Columbia** 1695 Main St.

Winnipeg, Manitoba, R3H 0M6 1234 Border St., St. James

• Branch Repair Depots