

D

Form P6265 Edition 3 January, 1980

MODELS ODR100A24, ODR100A36 AND ODR100A48 OFFSHORE DRILLING RIG WINCHES

WARNING

These Winches are not to be used for lifting or lowering people

LUBRICATION

Warning: Lubricate the motor before using the Winch. To avoid leakage during shipment, the oil was drained from the motor. A quantity of oil sufficient for one filling is contained in the can packed with the Winch. Before using the Winch, make certain both Drain Plugs (2) are securely threaded into place. Unscrew the Vent Cap (3) and pour the entire contents of the can (3 quarts) into the opening in the top of the Motor Case (1).

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 (3) and pour a sufficient quantity of the recommended oil through this opening to bring the oil level up to the side opening. Replace the Plug and Vent Cap.

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 (30) will freeze fast.

For Temperatures 30° to 80°F (-1° to 26° C) use Ingersoll-Rand Medium Oil No. 50 or SAE 20 or 20W motor oil.

For Temperatures below 30° F (-1° C) use SAE 10 or 10W motor oil.

For Temperatures above 80° F (26° C) use SAE 30 motor oil.

Weekly insert a small quantity of Ingersoll-Rand Light Grease No. 28 or a good quality No. 2 Cup Grease into the Grease Fittings (38) located in the Valve Chest (37). Two or three strokes from a hand grease gun are sufficient for each Fitting.

Gearing Lubrication

Every sixty to ninety days, remove the 1-1/4" Pipe Plug (109) from the Gear Case (105) and note if the visible portion of the gears is coated with grease. If the gears appear to lack lubrication, add a sufficient amount of the recommended grease to bring the grease level up to the Grease Plug (111) in the Gear Case Cover (110).

Use Ingersoll-Rand Medium Gear Grease No. 75 or a good quality No. 1 consistency gear grease. Leakage will probably result if gear oil is substituted.

For extremely severe service, or in surrounding temperatures over 120° F (49° C), use Ingersoll-Rand Heavy Gear Grease No. 70, or a good quality No. 2 consistency gear grease.

HOSE AND HOSE CONNECTIONS

Use 1-1/2'' (38 mm) hose with a suitable hose fitting (1-1/2'') hose to 1-1/4'' male pipe) for attaching it to the Valve Chest (37). Smaller hose and fittings will reduce the efficiency of the Winch.

MOUNTING

Mount the Winch so that the axis of the Rope Drum (72) is horizontal, and so that the Vent Cap (3) is not more than 15° off top vertical center.

If the Winch is to be mounted in an inverted position, the Motor Case (1) must be rotated 180° in accordance with the following instructions: 1. Drain the oil.

- 2. Remove the twelve Motor Case Cap Screws (63).
- 3. Rotate the Motor Case 180°. The Vent Cap must not be more than 15° off top vertical center.
- 4. Replace the Cap Screws.
- 5. Fill with oil.

Refer All Communications to the Nearest Ingersoll-Rand Office or Distributor. © Ingersoll-Rand Company 1980 Printed in U.S.A.



MAINTENANCE INSTRUCTIONS

To adjust the brake rotate the Brake Adjusting Nut (127). Threading the Nut farther onto the Brake Adjusting Screw (126) tightens the brake; backing the Nut off loosens the brake.

When replacing a Planet Gear Shaft (76), press the damaged Shaft from the Rope Drum (72) by inserting a suitable rod through the cored hole in the small-seal end of the Rope Drum. Press in the new Shaft, wide-beveled end first, until the trailing face of the Shaft is 2-49/64" from the face of the shaft boss in the Rope Drum.

When installing any needle-type Bearing (75, 79 or 85), always press on the stamped end of the bearing shell. Use the proper needle bearing inserting tool listed in the part list.

BUSHING REPLACEMENT

Replace a Reverse Valve Bushing (42) or a Rotary Valve Bushing (40) as follows:

- 1. Remove the Valve Chest Cover Cap Screws (58), Valve Chest Cap Screws (60), and Throttle Valve Cap (55).
- 2. Withdraw the Throttle Valve (50) and Throttle Ball (49). The Throttle Ball may be lifted out with a quantity of sticky grease on the end of a rod.
- 3. Withdraw the Reverse Valve (48) and Rotary Valve (44). A bolt can be threaded into the tapped hole in the valve face to serve as a handle. The Reverse Valve is tapped 1/2"-13 thread. The Rotary Valve is tapped 5/8"-11 thread.
- 4. Thread a No. HU-932 Valve Chest Jack Bolt, or any 5/8"-11 thread bolt having at least 4" of thread, into the tapped hole in the lug on each side of the Valve Chest (37) 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 Case.
- 5. Support the face of the Valve Chest that contacts the Motor Case and, using an arbor that will clear the Bushing Keys (41), press out the old Bushings.
- 6. Turn the Valve Chest over so that the face that contacts the Motor Case is up.
- 7. Align the groove in the new Reverse Valve Bushing with the Bushing Key that protrudes into the small bore of the Valve Chest, and press in the new Bushing until its leading face is flush with the supported face of the Valve Chest.
- 8. Align the groove in the new Rotary Valve Bushing with the Bushing Key that protrudes into the large bore of the Valve Chest, and press in the new Bushing until its leading face is flush with the supported face of the Valve Chest.
- 9. Insert the No. 49265 Throttle Valve Stem Reamer or a .627" dia. reamer into the throttle valve chamber and ream the hole through the bushing wall in which the Throttle Valve Ball (49) operates.
- 10. Check the fit of the Reverse Valve (48) in the Reverse Valve Bushing. If tight, ream the Bushing 2.250". Caution: The Reverse Valve is chrome plated; do not lap.
- 11. Check the fit of the Rotary Valve in the Rotary Valve Bushing. If the Valve is tighter than a good running fit, lap it in with a mild, fine-grain lapping compound whose abrasive agent will break up rapidly. Wash the parts in clean kerosene to remove all trace of the compound. If the Valve is too tight to lap, ream the Bushing 2.875".
- 12. Align the cam groove on the Reverse Valve with the hole through the wall of the Bushing in which the Throttle Valve Ball operates.
- 13. Apply a few drops of light oil to the Throttle Valve Ball and to the stem of the Throttle Valve. Insert the Ball, Valve and Throttle Valve Spring (54) into the valve chamber and retain them with the Throttle Valve Cap (55).
- 14. Place the Throttle Lever Spring (13) on the Control Arm (15) so that the coil encircles the protruding hub. Rotate the Spring until its lower leg contacts the Throttle Spring Stop Pin (16) which projects from the Control Arm. Grasp the upper leg of the Spring and pull it over the top of the Stop Pin so that the Spring legs are now on opposite sides of the Stop Pin.
- 15. Install the Throttle Control Arm so that its square socket slides over the square shank of the Reverse Valve, and the Spring legs are on opposite sides of the Stop Pin on the Valve Chest.
- 16. Align the holes through the Valve Chest with those in the Motor Case (1) and start the protruding end of the Rotary Valve Bushing (40) squarely into the Motor Case. Protect the face of the Valve Chest with a hardwood block and press or drive in the Bushing until the Valve Chest contacts the Motor Case.
- 17. Insert the Rotary Valve (44) into the Rotary Valve Bushing. Rotate the Valve slowly until the Valve Key Screws (46) located in the end of the Valve engage matching holes in the Crank (25).
- 18. Apply the Valve Chest Cover (56) and retain it with the Valve Chest Screws (60) and Valve Chest Cover Cap Screws (58).

CRANK ASSEMBLY

The two sections of the Crank (25) are matched before final machining, and the web of each section is stamped with an identification mark as AA17, CC21, XX19, etc. Only sections bearing identical marking can be used together. If more than one Crank is disassembled at one time, be sure only matched parts are assembled together.

PARTS WITH PROTECTIVE COATING

All exposed parts originally furnished on your ODR Winch were given a special protective coating to help prevent rust and corrosion. If you are replacing a part that originally had this protective coating, and want the new part to be specially coated, it must be so specified on the order. Unless so specified on the order, parts furnished as repair items will not have the special protective coating.



(Dwg. TPA123-2)

Size 0DR100A24 Offshore Drilling Rig Winch (Construction typical of Sizes 0DR100A36 and 0DR100A48 except for length of Rope Drum)



Gear Case End View

Motor End View

٧

*	Motor Assembly	K6U-A501	51A	Throttle Valve Face Spacer	K6U-280
* 1	Motor Case.	K6U-501	52	Throttle Valve Face Cap	K6U-257
2	Drain Plug (2)	D02-402	53	Valve Face Cap Retaining Screw.	G57T-634
3	Vent Cap	D02-303A	• 54	Throttle Valve Spring.	D10-275
4	Vent Cap Cotter	D02-893	55	Throttle Valve Cap	K6U-943
5	Vent Cap Chain.	D02-891	56	Valve Chest Cover	K6U-546
6	S-Hook	D02-421	• 57	Valve Chest Cover Gasket	K6U-928
7	Vent Cap Screen	D02-889	58	Valve Chest Cover Cap Screw (2)	D02-506
8	Vent Cap Screen Retainer	6CND-233-1/2	59	Cover Cap Screw Lock Washer (2)	D02-321
9	Throttle Lever	HU-556	60	Valve Chest Cap Screw (4)	K6U-548
10	Throttle Lever Latch	HU-869	61	Valve Chest Cap Screw Lock	R00 510
• 11	Latch Spring	HU-567		Washer (4)	D10-322
12	Throttle Lever Set Screw	HU-842	62	Motor Evebolt	KU-888
• 13	Throttle Lever Spring	K6U-412	63	Motor Case Cap Screw (12)	215-36
14	Throttle Lever Pin	HU-870	64	Motor Case Cap Screw Lock Washer (12)	A-67
*	Throttle Lever Pin Cotter (2)		65	Motor Case Gasket.	K6U-592
	(3/32" x 3/4")	D02-524	• 66	Base	
15	Throttle Control Arm.	K6U-555		for 0DR100A24	K6UL-564
16	Throttle Lever Spring Stop Pin	D02-553	i i	for 0DR100A36	0DR100A36-564
	Cylinder Assembly (6)	K6U-A505A		for 0DR100A48	0DR100A48-564
17	Head	K6U-H505A	67	Motor Mounting Bracket	02111001110001
17A	Sleeve	K6U-L505A		for 0DR100A24	K6U-502
• 18	Cylinder Gasket (6)	K6U-507		for ODR100A36	0DR100A36-789
19	Cylinder Cap Screw (24).	G8-113		for ODR100A48	0DR100A36-789
20	Cylinder Cap Screw Washer (24)	K6U-504	68	Drum Shaft Short Set Screw	HU-867
21	Piston Assembly (6)	K6U-A513A	69	Base Bolt (8)	K6UL-775
• 22	Piston Ring (6)	K6U-337	70	Base Bolt Lock Washer (8)	D01-692
• 23	Oil Regulating Piston Ring (6)	K6U-338	71	Base Bolt Nut (8)	DU-562
23	Piston Wrist Pin (6)	K6U-514	72	Rope Drum	D0-302
	Crank Assembly	K6U-4516	12	for ODR 100 A 24	K6UL-324
25	Crank	K6U-516	į.	for 0DR100A36	0DR100A36324
• 26	Crank Pin Sleeve	K6U-519		for 0DR100A48	0DR100A30-324
20	Crank Lock Pin	KU-520	• 73	Rone Drum Large Seal	K6U.137
28	Crank Lock Pin Nut	D02.317	• 74	Rope Drum Small Seal	20.137
29	Crank Lock Pin Cotter	002 517	• 75	Drum Bearing (2)	20•157A
27	$(1/8'' \times 1 - 1/4'')$	D02-330	- 75	for ODR100A24	K6U-466
30	Oil Splasher	KU-540		for 0DR100A24	000-400
31	Oil Splasher Long Rivet (2)	K6U-541		for ODR100A30	0DR100A48-466
*	Oil Splasher Short Rivet (2)	241.712	75 4	Bearing Retainer (2)	23-406
32	Connecting Bod (6)	K6U-509	76	Planet Gear Shaft (3)	25-400 K611-787
33	Connecting Rod (b): (4)	K6U-510	77	Rone Set Screw (2)	K00-787
• 34	Connecting Rod Bushing (2)	K6U-511	78	Planet Cear (3)	K6U 722
• 35	Crank Valve End Bearing	KU-518	• 79	Planet Gear Bearing (6)	K6U-732 K6U-788
• 36	Crank Splined End Bearing	KU-895	80	Planet Gear Spacer (6)	K00-788
20	Valve Chest Assembly	K6U-4545	81	Planet Gear Retainer (3)	K60-745
37	Valve Chest	K6U-545	82	Drum Thrust Plate (3)	K6U-469
38	Grease Fitting (2)	23.188	83	Drum Shaft	K 00+409
39	Brake Inlet Plug (2)	D02-402	05	for ODR 100A 24	K6UL-459
40	Rotary Valve Bushing	K6U-525S		for 0DR100A36	0DP100A36 450
41	Bushing Key (2)	HU-538		for 0DR100A48	0DP 100A 48, 459
42	Reverse Valve Bushing	K6U-945S	84	Intermediate Gear	K611364
43	Throttle Lever Spring Stop Pin	D02-553	• 85 -	Intermediate Gear Bearing (2)	K6U 366
+ 44	Rotary Valve	K6U-526	854	Bearing Retainer (2)	23 406
45	Rotary Valve Kev	K6U-527	86	Motor Shaft	20-400
46	Rotary Valve Key Screw (2)	4E-638	00	for 0DR 1004 24	K6UL.216
47	Valve Key Screw Lock			for 0DR100A24	008100436316
• 1	Washer (2)	411-58		for 0DR100A30	0DR100A30-310
48	Reverse Valve Assembly	K6U-A944	87	Motor Pinion Key	55C 769
*	Reverse Valve O-ring	R18.311	88	Mator Shaft Nut	215.65
40	Throttle Valve Ball	K6U.941	00 90	Motor Shaft Nut Look	215-05
50	Throttle Valve	K611.040	07	Motor Shaft Bearing	215-00
• 51	Throttle Valve Face	K6U.250	- 90	Motor Shaft Dinion	213-33 W 411 210
- 51		1100-237	91		V00-21A

* When ordering a Motor Assembly or Motor Case, the Size of the Winch must be specified on the order to assure that the nameplate on the new Motor Case is stamped with the correct size symbol.

* 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.

† The Rotary Valve listed is for Overwinding Winches only. For Underwinding Winches order Rotary Valve No. K6U-526R. If a Winch is to be converted from Overwinding to Underwinding, the brake parts must be rearranged. Consult the nearest Ingersoll-Rand Office.

92	Motor Pinion Thrust Washer	K6U-397	122	Brake Lever	231-715
93	Drive Shaft.	K6U-358	123	Brake Lever Bolt (2)	23-717
94	Drive Gear Key	23-70	124	Brake Lever Bolt Nut (2)	D02-418
95	Drive Shaft Nut.	215-73	*	Brake Lever Screw.	W99-596
96	Drive Shaft Nut Lock	215-74	*	Brake Lever Screw Lock Washer	L01-67
• 97	Drive Shaft Outer Bearing	215-63	125	Brake Lever Extension	231-625
• 98	Drive Shaft Inner Bearing	215-41	126	Brake Adjusting Screw	231-719
99	Drive Gear	K6U-357	127	Brake Adjusting Nut	D01-341A
100	Drive Gear Spacer	K6U-356	128	Brake Trunnion	215-159
101	Ring Gear	K6U-781	129	Brake Bracket Pin	K6U-147
102	Ring Gear Short Cap Screw	215-148	130	Bracket Pin Cotter (2) (1/8" x 1-1/4")	D02-330
103	Ring Gear Long Cap Screw (5)	2100-457	131	Brake Anchor Pin (2)	K6U-206
104	Ring Gear Cap Screw Lock Washer (6)	D10-322	132	Anchor Pin Cotter (4) (1/8" x 1-1/4")	D02-330
105	Gear Case	K6U-353	133	Brake Support	K6U-161A
106	Gear Case Cover Dowel,	HU-627	134	Brake Support Pin	K6U-206
107	Drum Shaft Long Set Screw	K6U-868	136	Brake Support Cotter (2)	D02-330
108	Grease Plug	22SR-165	*	Exhaust Muffler	KU-674
109	1-1/4" Pipe Plug	E5UD-947	*	Motor Nameplate	K5W-99
110	Gear Case Cover	K6U-352	*	Nameplate Screw (4)	R4K-302
*	Grease Fitting	23-188	*	Winch Nameplate	DU-301
111	Grease Plug	22SR-165	*	Nameplate Screw (4)	R4K-302
112	Gear Case Cover Cap Screw (9)	215-148	*	Caution Tag	TA-147A
113	Gear Case Cover Cap Screw Lock		*	Caution Tag Screw (4)	R4K-302
	Washer (9)	D10-322	*	Grease Gun	P25-228
114	Long Brake Band	K6U-252	*	Valve Chest Jack Bolt	HU-932
• 115	Long Brake Lining.	K6U-255	*	Piston Ring Compressor	HU-933
116	Brake Lining Long Rivet (9)	K6U-157	*	Planet Gear Bearing Inserting Tool	49261
117	Brake Lining Short Rivet (32)	K6U-156	*	Rope Drum Bearing Inserting Tool or	
• 118	Short Brake Band	K6U-152		Intermediate Gear Bearing Inserting	
119	Short Brake Lining	K6U-155		Tool	49262
120	Brake Lining Short Rivet (17)	K6U-156	*	Throttle Valve Stem Reamer	49265
121	Brake Lining Long Rivet (9)	K6U-157			
	1			1	

* 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.

BRAKE LINKAGE PARTS (Used on 0DR100A36 and 0DR100A48)



* Not illustrated.

DISENGAGING CLUTCH PARTS



		V(II C259	511	Drive Gear	K6U-C357
500	Drive Shaft	K0U-C358	511		KCU C252
501	Clutch Jaw Lock Plug.	HU-864	512	Gear Case Cover	K60-C552
501	Clutch Jaw Lock Spring	K4U-863	513	Grease Fitting.	23-188
502	Clutch Jaw Elock Dpling	C601-65	514	Grease Plug	22SR-165
503	Clutch Jaw Lock Ball	0001-05	511	E und in Chaft Look Corow	13-823
504	Drive Gear Washer Retainer	K6U-362	515	Eccentric Shart Lock Screw.	33-623
 505 	Clutch Jaw	K4U-568	516	Clutch Lever	HU-565
- 505	Drive Coor Worker (2)	K6U-363	• 517	Latch Spring.	HU-567
506	Drive Gear washer (2)	K00 905	. 519	Clutch Latch	HU-566
507	Clutch Eccentric Shaft	K6U-857	• 516		110 300
508	Eccentric Pin Lock Screw	HU-860	519	Clutch Lever Pin	HU-801
500	Clutch Eccentric Pin	HU-859	*	3/8" Lock Washer	D02-321
509		HI1858	1		ļ
510	Clutch Eccentric Roller	IU-030	4		

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.

REMOTE CONTROL PARTS



Remote Control Valve Chest Assembly



Remote Control Block Assembly

(Dwg. TPC156)

PART NUMBER FOR ORDERING				PART NUMBER FOR ORDERING			
	Remote Control Block Assembly	KU-A685	517	Control Block Valve Chest Cover	KU-546A		
500	Remote Control Block	KU-685	518	Control Block Valve Chest	KU-876A		
501	Control Arm Retainer	HU-687	519	Bushing Key (2)	HU-538		
502	3/8" Lock Washer (2)	D02-321	520	Throttle Lever Spring Stop Pin.	D02-553		
503	Control Arm Retainer Screw (2)	HU-865	521	Control Block Reverse Valve	202000		
504	Throttle Lever Pin	HU-870		Bushing	KU-945		
*	Throttle Lever Pin Cotter (2)	D02-524	*	Grease Fitting (2)	23-188		
505	Control Block Throttle Lever Spring	KU-412	*	Brake Inlet Plug (2)	D02-402		
506	Control Block Throttle Control Arm	KU-555A		Remote Control Valve Chest Assembly	K6U-A686		
507	Throttle Lever Spring Stop Pin	D02-553	522	Remote Control Valve Chest	K6M-545		
508	Control Block Throttle Lever	HU-556	523	Rotary Valve Bushing.	K6U-525		
• 509	Throttle Lever Latch	HU-869	524	Bushing Key	HU-538		
510	Throttle Lever Set Screw	HU-842	525	Rotary Valve	K6U-526		
• 511	Latch Spring	HU-567	526	Rotary Valve Key	K6U-527		
512	Control Block Throttle Valve Cap	KU-943	527	Rotary Valve Key Screw (2)	4F-638		
513	Control Block Throttle Valve Spring	HU-942	528	Valve Key Screw Lock Washer (2)	411-58		
514	Control Block Poppet Throttle Valve	KU-940	529	Remote Control Valve Chest Cover	K6M-546		
515	Control Block Throttle Valve Ball	D10-280	• 530	Remote Control Valve Chest Cover	ILONI J-10		
516	Control Block Reverse Valve	KU-944		Gasket	K6M-928		

* 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.

AIR STRAINER ASSEMBLY



(Dwg. TPD122-1)

PART NUMBER FOR ORDERING

400	Air Strainer Assembly	VALLAGE AN
401	Air Strainer Screen	K4U-A207A
403	Air Strainer Plug	K40-61A1
404	Air Strainer fug	22SR-165
+0+	An Strainer Cap	K4U-268AT
Ť	Air Strainer Nipple (1-1/4" x 2" long).	KKM-286

* Not illustrated.

WIRE ROPE AND FITTINGS



(Dwg. TPD121-1)

PART NUMBER FOR ORDERING

		*	V
		5/8″ Wire Rope	3/4" Wire Rope
420	Wire Rope (length as specified) Swivel Type Latch Hook Assembly	235-372 K4U-AS601-5/8	275-372 K6U-AS601-3/4
421 422	Rope Clamp (3)	235-375 235-602 K6U-8601	275-375 275-602 K6U-S601
423 424	Swivel Hook Hook Latch Kit (individual parts not sold separately)	D04-S4055	D04-S4055

MUFFLER EQUIPMENT

PART NUMBER FOR ORDERING	
Exhaust Muffler	KU-674
Muffler Nipple (2" x 2-1/2" long pipe nipple)	K6U-675
Reducing Coupling	K6U-677

DRUM GUARDS



	PART NUMBER FOR ORDERING			PART NUMBER FOR ORDERING	
600	Drum Guard for 0DR100A24 for 0DR100A36 for 0DR100A48	K6UL-298 K6UL38-298 K6UL48-298 K6U-8	602	Plate (4) for 0DR100A24 for 0DR100A36 and 0DR100A48	K6U-299 K6UL36-299