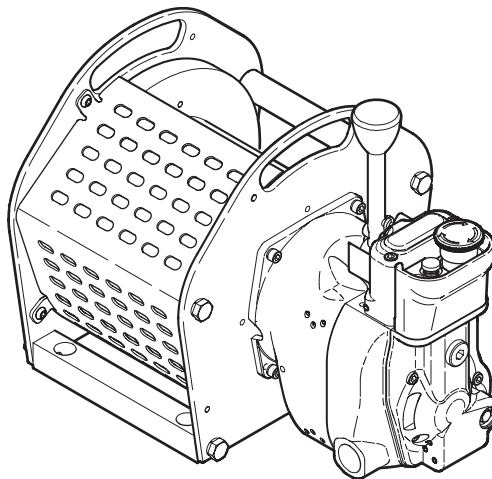


Product Parts Information



Liftstar and Pullstar Air Winch Models LS2-300R, LS2-600R and PS2-1000R



(Dwg. MHP2628)



Save These Instructions



Form MHD56283

Edition 5

January 2006

71402598

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Only allow **Ingersoll Rand** trained Technicians to perform maintenance on this winch. For additional information contact **Ingersoll Rand** factory or nearest Distributor.

Refer to **Product Safety Information Manual for Non-Man Rider Winches Form MHD56250, Product Information Manual Form MHD56282 and Product Maintenance Manual Form MHD56276.**

Manuals can be downloaded from www.winchandhoistsolutions.com

The use of other than genuine **Ingersoll Rand** replacement parts may result in safety hazards, decreased performance and increased maintenance and may invalidate all warranties.

The original language of this manual is English.

Refer all communications to the nearest **Ingersoll Rand** Office or Distributor.

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PARTS ORDERING INFORMATION

The **LS2-300R**, **LS2-600R** and **PS2-1000R** winches are designed and constructed to provide long, trouble-free service. In time it may be necessary to order and install new parts to replace those that have been subjected to wear.

For prompt service and genuine **Ingersoll Rand** replacement parts, provide your nearest Distributor with the following:

1. Complete model number and serial number as it appears on the data (name) plate.
2. Part number(s) and part description as shown in this manual.
3. Quantity required.

For your convenience and future reference it is recommended that the following information be recorded.

Model Number _____

Serial Number _____

Date Purchased _____

The data (name) plate is located on the upright.

NOTICE

- **Continuing improvement and advancement of design may cause changes to this equipment which are not included in this manual. Manuals are periodically revised to incorporate changes. Always check the manual edition number on the front cover for the latest issue.**
- **Sections of this manual may not apply to your winch.**
- **Using other than genuine Ingersoll Rand replacement parts may invalidate the warranty.**

■ Return Goods Policy

Ingersoll Rand will not accept any returned goods for warranty or service unless prior arrangements have been made and written authorization has been provided from the location the goods were purchased.

Winches which have been modified without **Ingersoll Rand** approval, mishandled or overloaded will not be repaired or replaced under warranty. A printed copy of the warranty which applies to this winch is provided inside the back cover of this manual.

■ Disposal



When the life of the winch has expired, it is recommended that it be disassembled, degreased and parts separated as to materials so that they may be recycled.

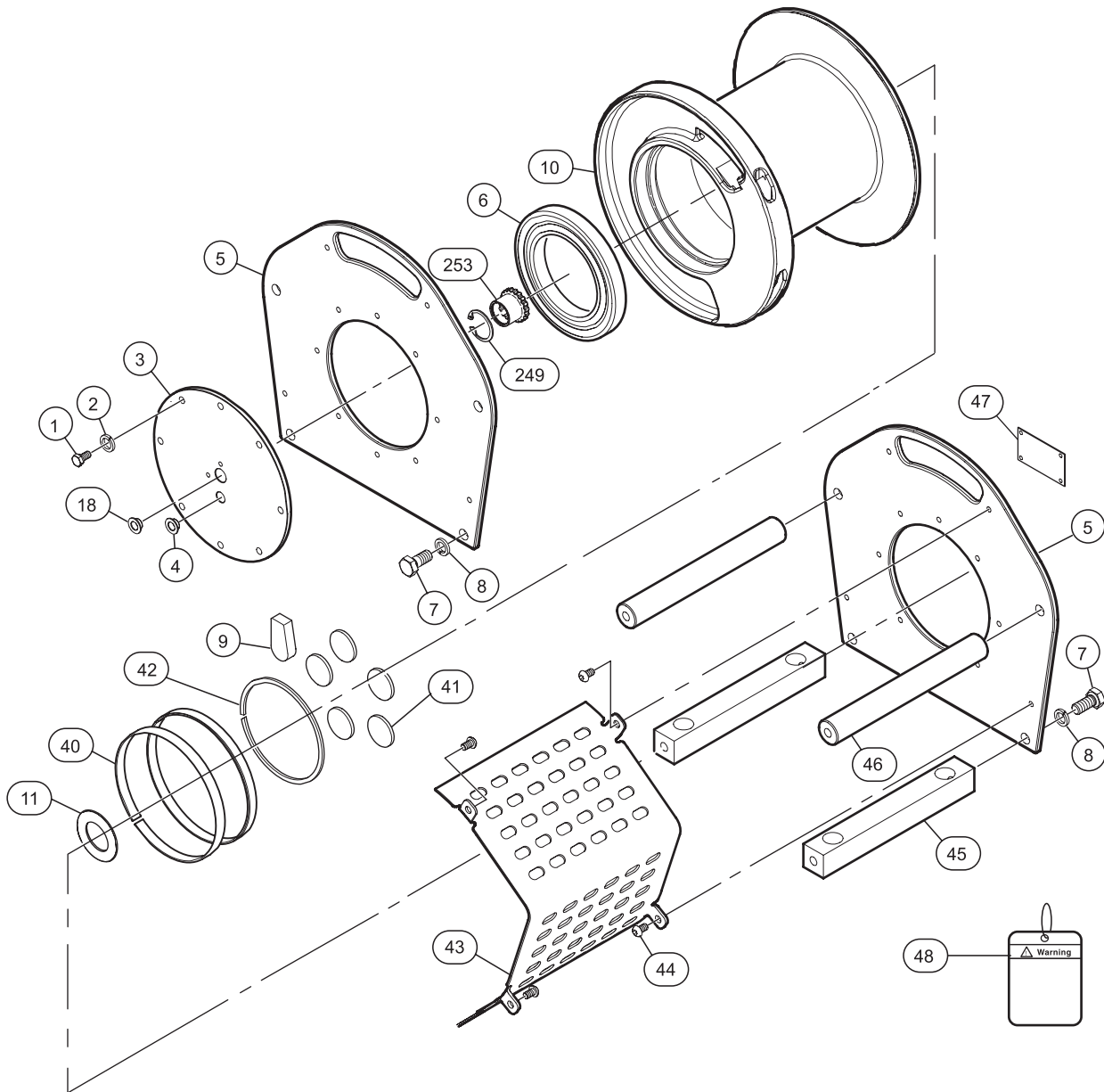
For additional information contact:

Ingersoll Rand
2724 Sixth Avenue South
Seattle, WA 98134 USA
Phone:(206) 624-0466
or (866) 273-3278
Fax: (206) 624-6265

or

Ingersoll Rand
Douai Operations
529, Avenue Roger Salengro
59450 Sin Le Noble, France
Phone:(33) 03-27-93-08-08
Fax: (33) 03-27-93-08-00

WINCH ASSEMBLY DRAWING AND PARTS LIST



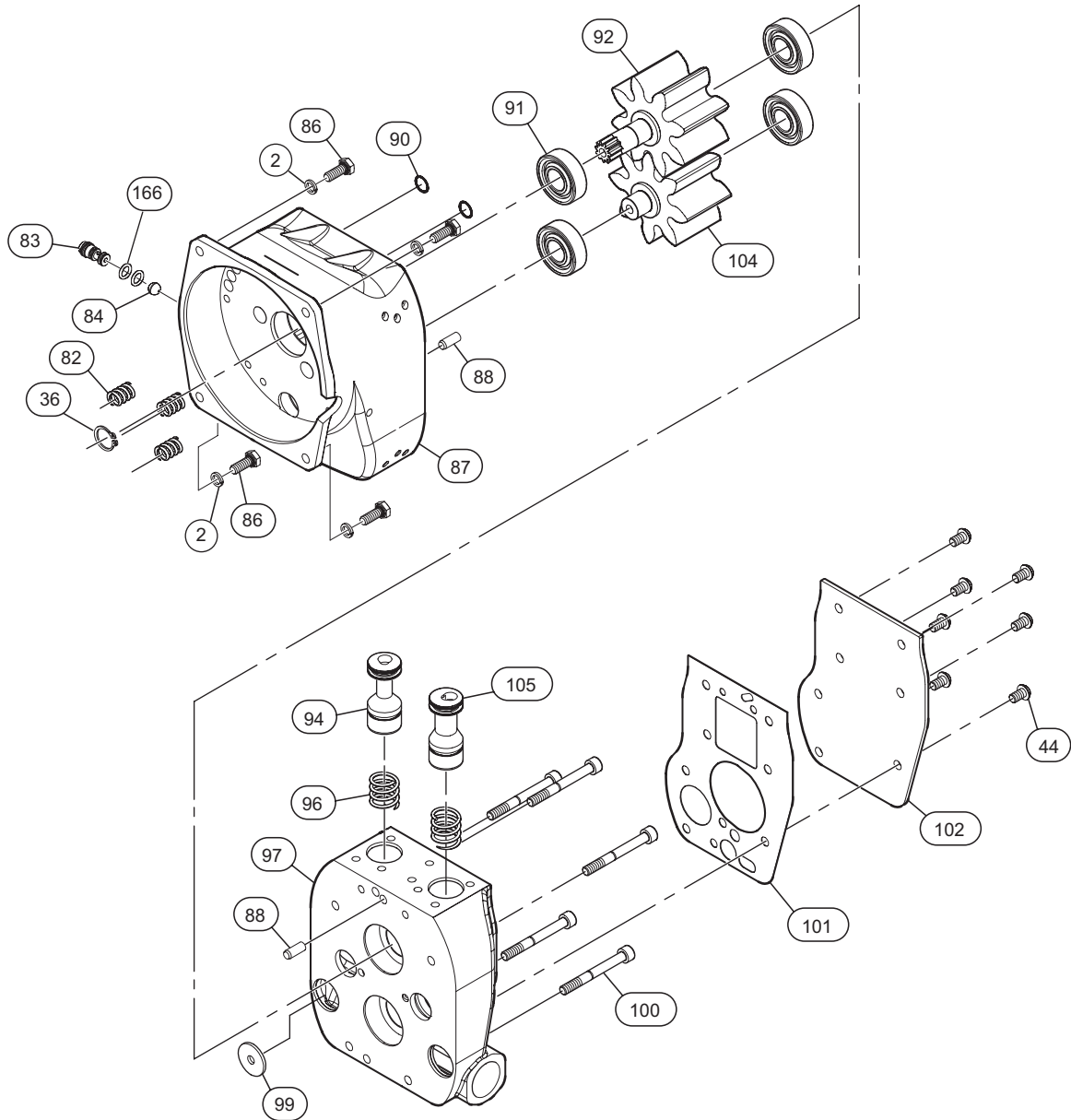
(Dwg. MHP2618)

Item No.	Description of Part	Total Qty	Part Number	Item No.	Description of Part	Total Qty	Part Number
1	Capscrew	8	41022301	• 41	Exhaust Washer	5	67600303
2	Lockwasher	8	45201006	42	Retainer Ring	1	47829332
3	End Cover	1	96442058	43	Guard (short drum)	1	76442141
4	Plug	1	66962941		Guard (long dum)		76442142
5	Upright	2	96442054	44	Capscrew	4	41201604
6	Bearing	1	50800016	45	Spacer (188.5 mm [7.42 in.] long)	2	96442113
7	Capscrew	8	41022501		Spacer (344.5 mm [13.6 in.] long)		96442144
8	Lockwasher	8	45201010	46	Spacer (188.5 mm [7.42 in.] long)	2	96442056
9	Wedge	1	96442079		Spacer (344.5 mm [13.6 in.] long)		96442143
10	Drum (155 mm [6 in.] long)	1	96442049	47	Nameplate	1	66763141-R
	Drum (311mm [12.2 in.] long)		96442089	48	Warning Tag	1	71060529
11	Spacer	1	96442059	249	Retainer Ring	1	477030050
18	Plug	1	66962841	253	Gear	1	96442060
• 40	Wear Ring	2	96180058	*	Drum Guard Tag	1	71449714

• Recommended spares

* Item not illustrated

MOTOR ASSEMBLY WITHOUT EMERGENCY STOP DRAWING AND PARTS LIST



(Dwg. MHP2617)

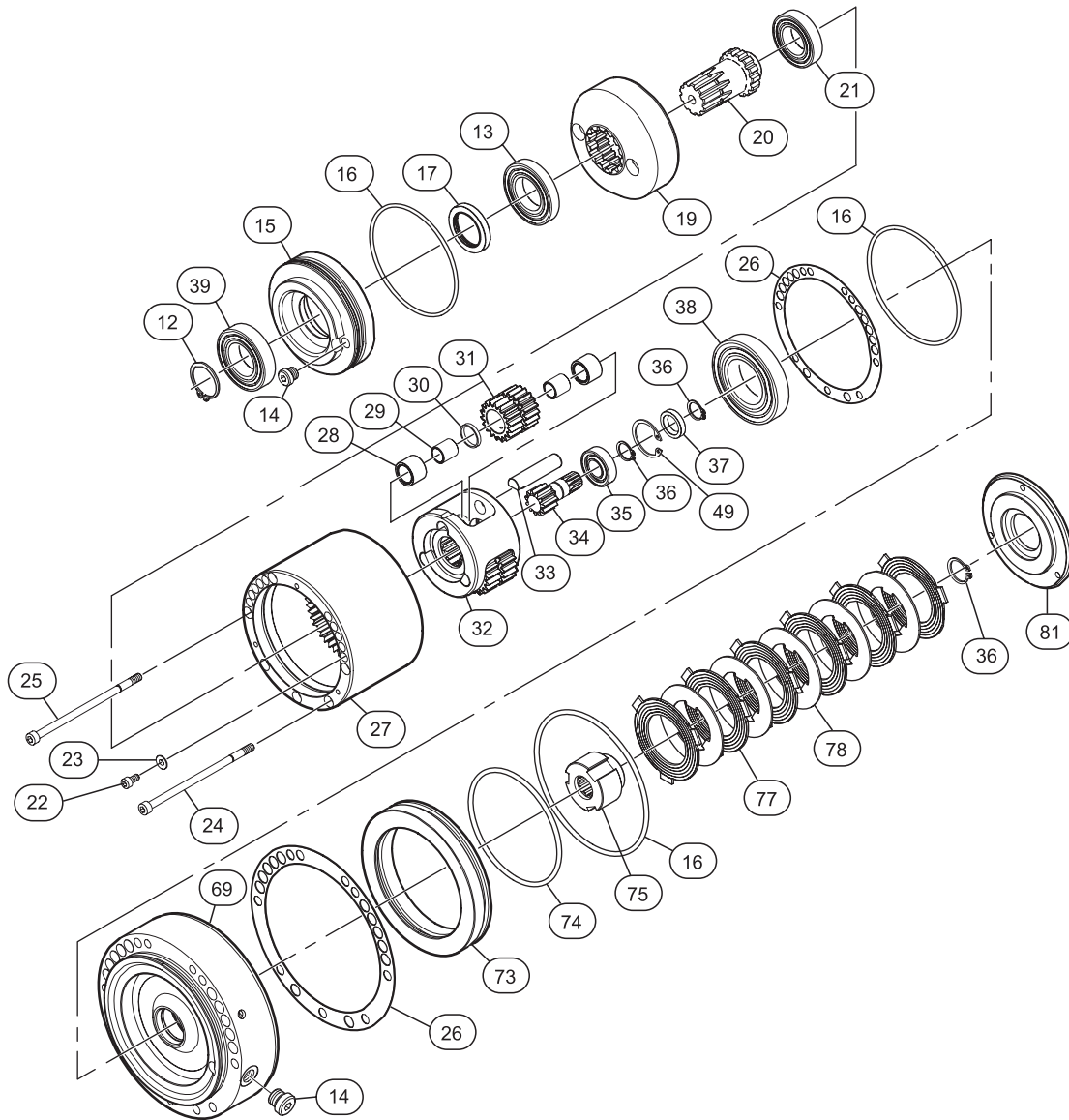
Item No.	Description of Part	Total Qty	Part Number	Item No.	Description of Part	Total Qty	Part Number
• 2	Lockwasher	4	45201006	92	Drive Gear *	1 set	76441256
• 36	Retainer Ring	1	47700015	94	Valve, Lifting (includes 'o' rings) **	1	76441356
44	Capscrew	7	41201604	96	Spring **	2	69190341
82	Spring	3	69165532	97	Motor Cover	1	96441023
83	Check Valve	1	95790106	99	Exhaust Washer	1	96441145
84	Ball	1	69401625	100	Capscrew	5	41332206
• 86	Capscrew	4	41023001	• 101	Gasket	1	96441188
87	Motor Housing	1	96441016	102	Cover Plate	1	96441027
88	Pin	2	46001116	104	Idle Gear *	1 set	76441256
• 90	'O' Ring	2	58237429	105	Valve, Lowering (includes 'o' rings) **	1	76441357
91	Bearing	4	50100002	166	'O' Ring	2	58209229

• Recommended spares

* Not sold separately

** Winches with serial number below 05-05-63 (year-month-chronological number) will have the old style part items 94 and 96, replace when necessary.

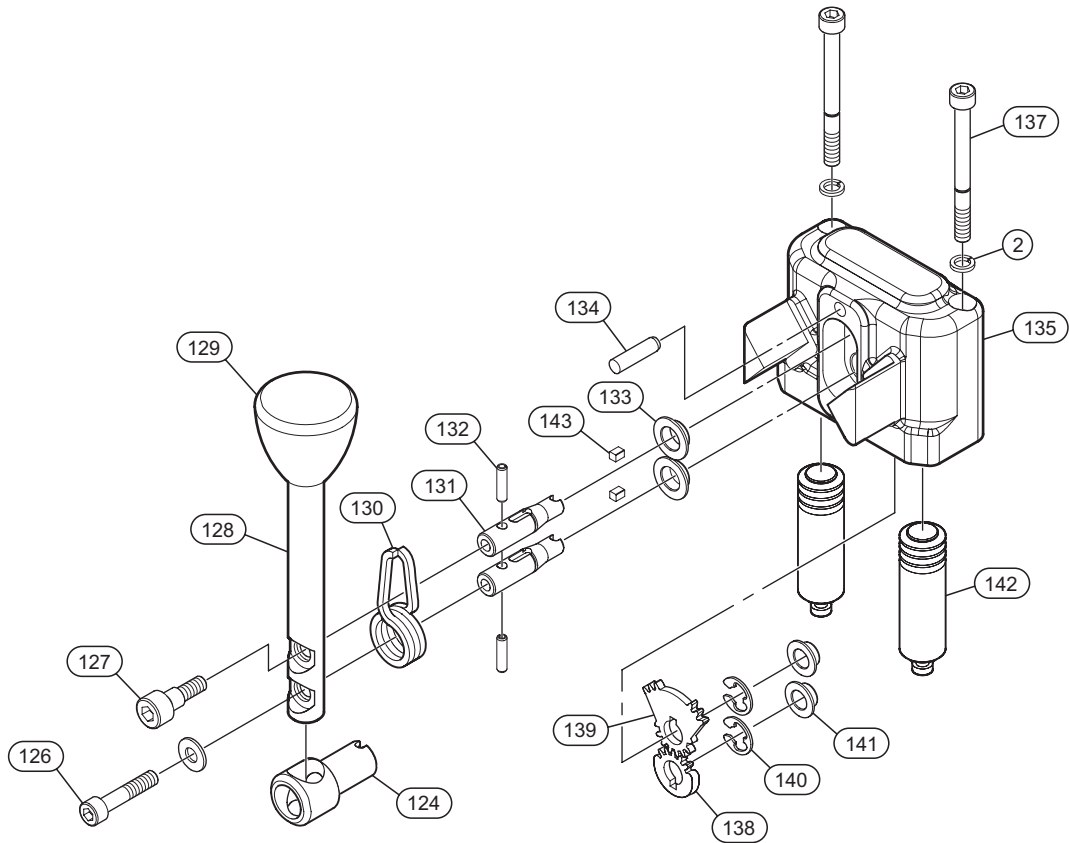
BRAKE AND REDUCTION GEAR ASSEMBLY PARTS DRAWING



(Dwg. MHP2647)

Item No.	Description of Part	Total Qty	Part Number	Item No.	Description of Part	Total Qty	Part Number
12	Retainer Ring	1	47700029	31	Planet Gear (19-17t) LS2-300R	3	96441201
13	Bearing	1	50800006		Planet Gear (48t) LS2-600R/PS2-1000R		96441002
14	Plug	2	65110441	32	Planet Gear Support	1	96441006
15	Reduction Gear End Cover	1	96442010	33	Gear Shaft	3	96441046
• 16	'O' Ring	3	58235229	34	Sun Gear	1	96442004
• 17	Oil Seal	1	58013430	35	Bearing	1	50000002
19	Ring Gear (47t) LS2-300R	1	96441200	• 36	Retainer Ring	3	47700015
	Ring Gear (48t) LS2-600R/PS2-1000R		96441003	• 37	Oil Seal	1	58019830
20	Sliding Gear	1	96442011	38	Bearing	1	50800009
21	Bearing	1	50800005	39	Bearing	1	50050006
22	Capscrew	3	41326306	49	Retainer Ring	1	47703032
• 23	Washer	3	45001105	69	Brake Housing	1	96441012
24	Capscrew	1	41332506	73	Piston	1	96441014
25	Capscrew	5	41332406	• 74	'O' Ring	1	58235129
• 26	Gasket	2	96441048	75	Splined Hub	1	96441013
27	Reducer Housing	1	96441007	• 77	Friction Plate	6	63028241
28	Needle Bearing	6	56562141	• 78	Drive Plate	5	63061941
29	Bearing Ring	6	56362041	81	Brake Reaction Plate	1	96441015
30	Spacer	3	96441047				
•	Recommended spares						

CONTROL VALVE ASSEMBLY DRAWING AND PARTS LIST

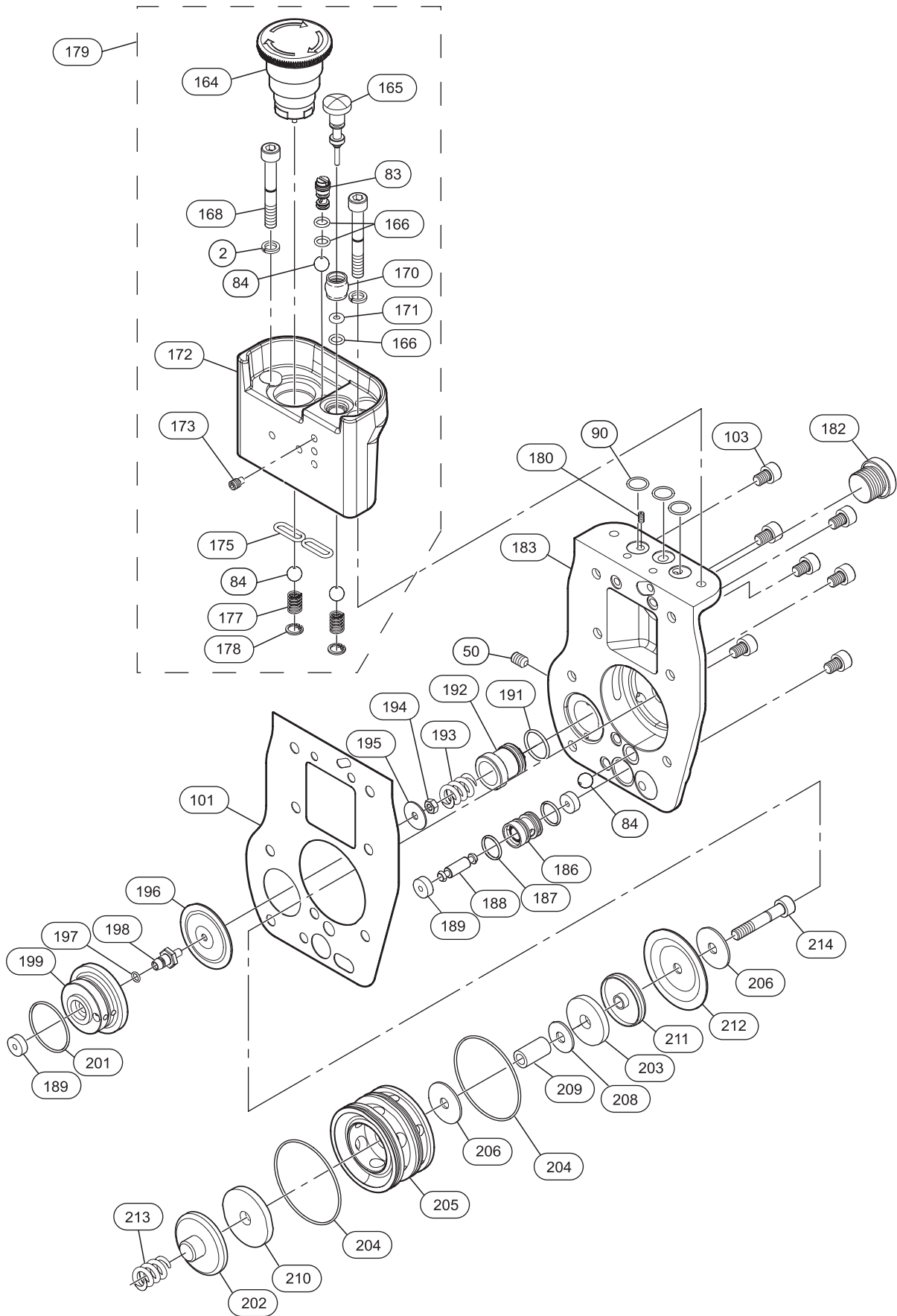


(Dwg. MHP2622)

Item No.	Description of Part	Total Qty	Part Number	Item No.	Description of Part	Total Qty	Part Number
60	Control Valve Assembly *	1	76441112	133	Bushing	2	59008706
2	Lockwasher	2	45201006	134	Pin	1	46001216
124	Coupling	1	96441422	135	Valve Housing	1	96441082
125	Washer	1	45001106	137	Capscrew	2	41332106
126	Capscrew	1	41322306	138	Gear	1	76440417
127	Shoulder Screw	1	96441108	139	Gear Cam	1	
128	Lever	1	96441083	140	Retainer	2	47837241
129	Knob	1	69561841	141	Bushing	2	59008826
130	Spring	1	96441421	142	Spool	2	96440414
131	Spindle Shaft	2	96440413	143	Key	2	96440415
132	Roll Pin	2	46508320				

* Control Valve Assembly (60) includes items 2,124-135, and 137-142.

EMERGENCY STOP AND OVERLOAD ASSEMBLY PARTS DRAWING



(Dwg. MHP2621)

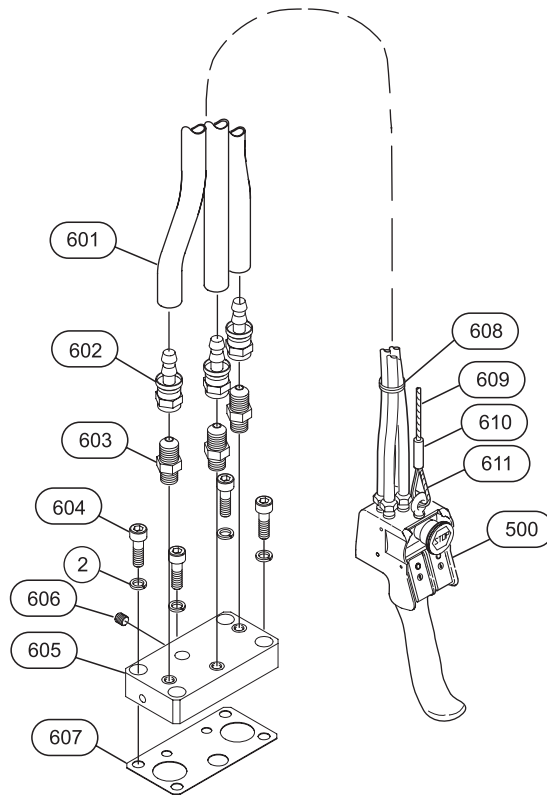
EMERGENCY STOP AND OVERLOAD ASSEMBLY PARTS LIST

Item No.	Description of Part	Total Qty	Part Number	Item No.	Description of Part	Total Qty	Part Number
179	Emergency Stop Assembly (includes items 2, 83, 84, 164-166, 168, 170-175, 177 and 178)	1	76441116	• 187	'O' Ring	2	58205029
				188	Axle	1	96441105
				• 189	Seal	3	96441103
2	Lockwasher	2	45201006	• 191	'O' Ring	1	58211729
50	Screw	1	42009407	192	Regulating Screw	1	96441096
83	Check Valve	1	95790106	193	Spring	1	69137041
84	Ball	4	69401625	194	Stop Nut	1	43001111
• 90	'O' Ring	3	58237429	195	Washer	1	45701004
• 101	Gasket	1	96441188	• 196	Diaphragm	1	96441097
103	Capscrew	7	41332306	• 197	'O' Ring	1	58222329
164	Valve, Emergency Stop	1	95790108	198	Plunger	1	96360017
165	Valve	1	95790104	199	Base Plate	1	96441095
• 166	'O' Ring	3	58209229	• 201	'O' Ring	1	58237029
168	Capscrew	2	41321706	202	Cap	1	96441101
170	Protector	1	95790107	203	Seal	1	96170056
• 171	'O' Ring	1	58235329	• 204	'O' Ring	2	58237129
172	Emergency Stop Housing	1	96442091	205	Valve Seat	1	96441098
173	Screw	1	42008307	206	Washer	2	45701006
• 175	'O' Ring	2	58216529	208	Washer	1	45601006
177	Spring	2	69128541	209	Sleeve	1	96441102
178	Retainer Ring	2	47713009	210	Seal	1	96441104
180	Setscrew	1	96441187	211	Cap	1	96441100
182	Plug	1	65128928	• 212	Diaphragm	1	96441099
183	Emergency Stop End Cover	1	96441077	213	Spring	1	69158732
186	Valve Seat	1	96441106	214	Capscrew	1	41301106

• Recommended spares

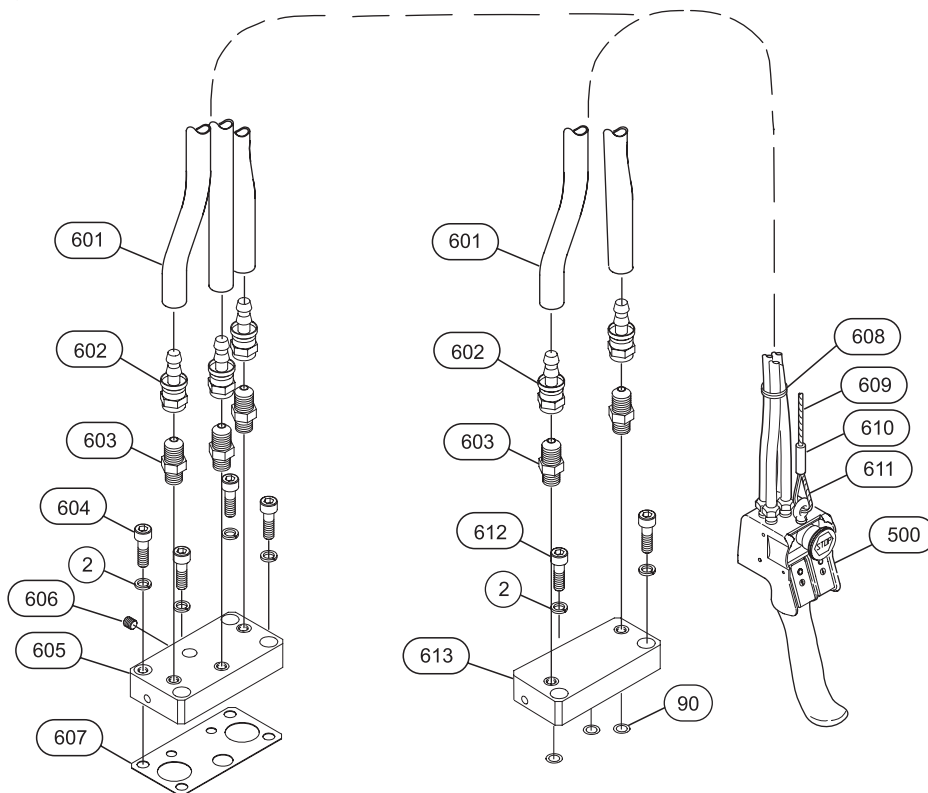
REMOTE CONTROL PENDANT PARTS ASSEMBLY DRAWINGS

Without Emergency Stop



(Dwg. MHP2640)

With Emergency Stop



(Dwg. MHP2641)

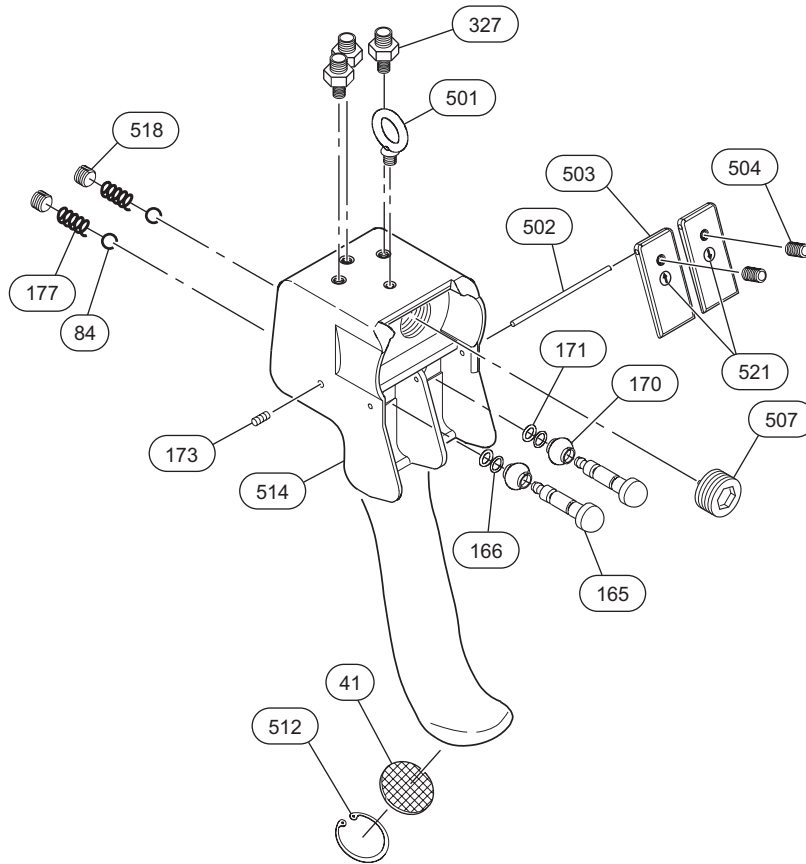
REMOTE CONTROL PENDANT PARTS LIST

Item No.	Description of Parts	Total Qty	Part Number	
			Without E-Stop	With E-Stop
500	Pendant Assembly (Incl's item 327, Refer to page 12)	1	PHS2E	PHS2E-U
2	Lockwasher	4(6)	45201006	
• 90	'O' Ring	3	---	58237429
601	Hose (specify length when ordering)	**	50923	
602	Fitting, Adapter	3(5)	51029	
603	Fitting, Nipple	3(5)	68237528	
604	Capscrew	4	41322206	
605	Adapter Plate	1	96441026	
606	Setscrew	1	42007407	
• 607	Gasket	1	96441093	
608	Hose Tie	1	54235	
609	Strain Relief Wire (specify length when ordering)	1	71073506	
610	Sleeve Clamp	1	6112-5032	54799
611	Thimble	1	6932-5332	71111827
612	Capscrew	2	---	41324306
613	Adapter	1	---	96441173
614	Fitting, Barbed *	3(5)	61652632	
---	Shut-off Valve Assembly	1	---	36170015
---	Exhaust Valve Kit (required for hose lengths greater than 20 ft (6 m))	**	20417	

- Recommended spares
- () Quantity required for Remote Control with Emergency Stop
- * Fittings may also be used on pendant in place of item 602.
- ** 0 - 19 ft (0 - 6 m) Hose Length, 0 Exhaust Valve Kits Required.
20 - 39 ft (6 - 12 m) Hose Length, 2 Exhaust Valve Kits Required.
40 - 59 ft (12 -18 m) Hose Length, 4 Exhaust Valve Kits Required.

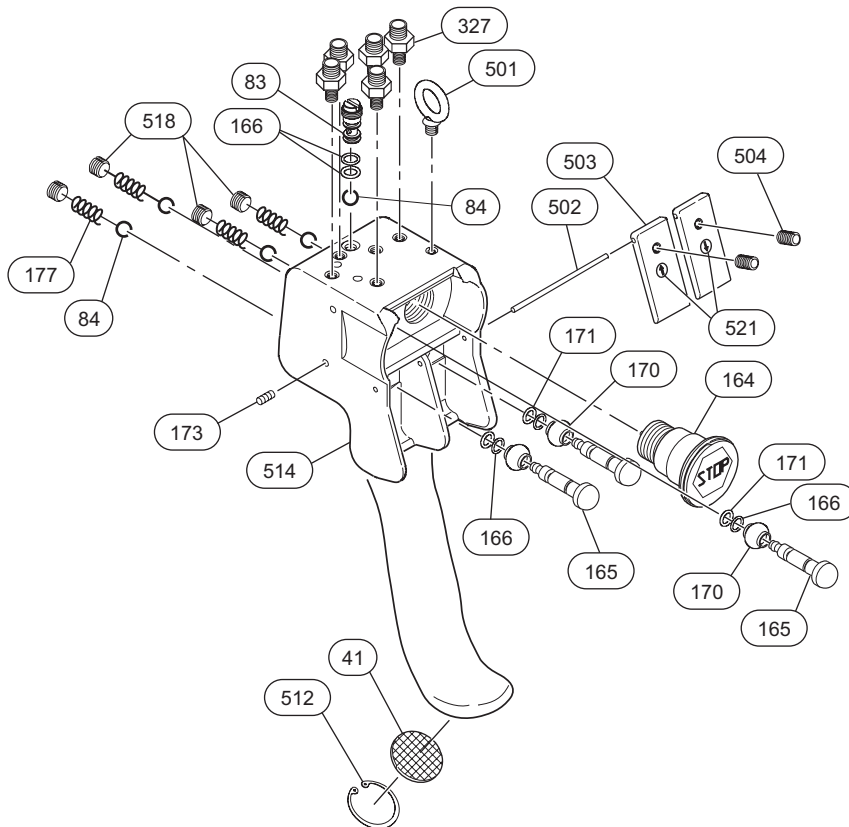
TWO FUNCTION PENDANT ASSEMBLY PARTS DRAWINGS

Pendant without Emergency Stop



(Dwg. MHP2642)

Pendant with Emergency Stop



(Dwg. MHP2643)

TWO FUNCTION PENDANT ASSEMBLY PARTS LIST

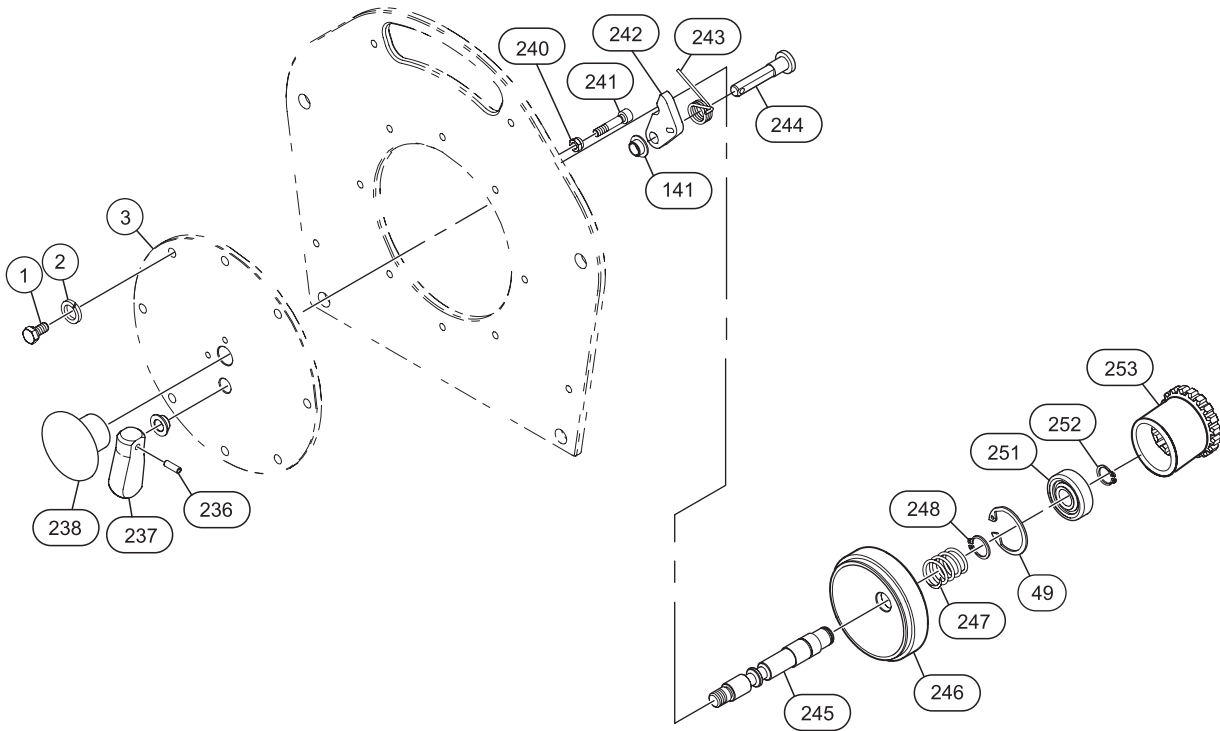
Item No.	Description of Part	Total Qty	Part Number	
			Without E-Stop	With E-Stop
500	Pendant Assembly	1	PHS2E*	PHS2E-U**
41	Exhaust Washer	1	67600303	
83	Check Valve	1	---	95790106
• 84	Ball	2(5)	69401625	
164	Valve, Emergency Stop	1	---	95790108
165	Valve	2(3)	95790104	
• 166	'O' Ring	2(5)	58209229	
170	Protector	2(3)	95790107	
• 171	'O' Ring	2(3)	58235329	
173	Screw	2(3)	42008307	
177	Spring	2(4)	69128541	
327	Fitting	3(5)	61652632	
501	Lifting Eye	1	64222332	
502	Pin	1	95790040	
503	Lever	2	95790122	
504	Screw	2	42006207	
507	Plug	1	65129541	---
512	Retainer Ring	1	47713030	
514	Pendant handle	1	95790129	95790116
518	Plug	2(4)	65107741	
521	Label Kit	1	95790111	
---	Repair Kit	1	75790183	Contact Factory
***	Label: "Read the Manual"	1	96180098	
***	Label: "Do Not Use for Lifting Personnel"	1	96180100	



Recommended spares

- () Quantity Required for Pendants with Emergency Stop
- * PHS2E Pendant Assembly (includes items 41, 84, 165, 166, 170, 171, 173, 177, 501-504, 507, 512, 514, 518 and 521)
- ** PHS2E-U Pendant Assembly (includes items 41, 83, 84, 164, 165, 166, 170, 171, 173, 177, 501-504, 512, 514, 518 and 521)
- *** Item not illustrated

FREE SPOOL CLUTCH ASSEMBLY DRAWING AND PARTS LIST



(Dwg. MHP2620)

Item No.	Description of Part	Total Qty	Part Number	Item No.	Description of Part	Total Qty	Part Number
200	Free Spool Clutch Assembly (Short drum)	1	96442076	242	Cam	1	96442068
	Free Spool Clutch Assembly (Long drum)		96442157	243	Spring	1	96442075
1	Capscrew	8	41022301	244	Spindle	1	96442067
2	Lockwasher	8	45201006	245	Shaft (Short drum)	1	96442070
49	Retainer Ring	1	47703032		Shaft (Long drum)		96442126
141	Bushing	2	59008826	246	Spring Stopper	1	96442069
236	Pin	1	46506820	247	Spring	1	69188932
237	Lever	1	96442149	248	Retainer Ring	1	47700014
238	Knob	1	69566232	251	Bearing	1	50150001
240	Locknut	1	43707211	252	Retainer Ring	1	47700012
241	Capscrew	1	41330506	253	Gear	1	96442060

WARRANTY

Ingersoll Rand Company (I-R) warrants to the original user its Winch and Hoist Solutions (Products) to be free of defects in material and workmanship for a period of one year from the date of purchase. **I-R** will repair, without cost, any Product found to be defective, including parts and labor charges, or at its option, will replace such Products or refund the purchase price less a reasonable allowance for depreciation, in exchange for the Product. Repairs or replacements are warranted for the remainder of the original warranty period.

If any Product proves defective within its original one year warranty period, it should be returned to any Authorized Hoist and Winch Service Distributor, transportation prepaid with proof of purchase or warranty card.

This warranty does not apply to Products which **I-R** has determined to have been misused or abused, improperly maintained by the user, or where the malfunction or defect can be attributed to the use of non-genuine **I-R** parts.

I-R makes no other warranty, and all implied warranties including any warranty of merchantability or fitness for a particular purpose are limited to the duration of the expressed warranty period as set forth above. I-R's maximum liability is limited to the purchase price of the Product and in no event shall I-R be liable for any consequential, indirect, incidental, or special damages of any nature arising from the sale or use of the Product, whether based on contract, tort, or otherwise.

Note: Some states do not allow limitations on incidental or consequential damages or how long an implied warranty lasts so that the above limitations may not apply to you.

This warranty gives you specific legal rights and you may also have other rights which may vary from state to state.

IMPORTANT NOTICE

It is our policy to promote safe delivery of all orders.

This shipment has been thoroughly checked, packed and inspected before leaving our plant and receipt for it in good condition has been received from the carrier. Any loss or damage which occurs to this shipment while en route is not due to any action or conduct of the manufacturer.

VISIBLE LOSS OR DAMAGE

If any of the goods called for on the bill of lading or express receipt are damaged or the quantity is short, do not accept them until the freight or express agent makes an appropriate notation on your freight bill or express receipt.

CONCEALED LOSS OR DAMAGE

When a shipment has been delivered to you in apparent good condition, but upon opening the crate or container, loss or damage has taken place while in transit, notify the carrier's agent immediately.

DAMAGE CLAIMS

You must file claims for damage with the carrier. It is the transportation company's responsibility to reimburse you for repair or replacement of goods damaged in shipment. Claims for loss or damage in shipment must not be deducted from the **Ingersoll Rand** invoice, nor should payment of **Ingersoll Rand** invoice be withheld awaiting adjustment of such claims as the carrier guarantees safe delivery.

You may return products damaged in shipment to us for repair, which services will be for your account and form your basis for claim against the carrier.

