

Please find the enclosed copies of Hordaland Mek Voss assembly drawing, translation, military parts manual, cable threading and clutch setting details, as requested.

This information is sufficient to enable you to maintain and repair the Nokken R1B winch, other than lubrication! Norway has a severe climate and you will see from the drawing that H.M.V. specify Esso EP2 oil. However, in this country, the military use Hypoy EP90 for the primary drive chain case and the Sadia gearbox lubrication, filling both via the level plugs. The cable storage drum drive chain is lubricated with engine oil via the rubber bung in the outer chain case.

NOTE

Do not use EP90 oil in the vehicle gearbox or transfer box, it is too thick. The oil pump spindle will shear in the gearbox and the thrust washers, in the transfer box, will receive insufficient lubrication leading to wear and failure! Please use engine oil, you have been warned!

The Nokken Winch (Model R1B)

General

The H.M.V. (Nokken) winch is a capstan winch capable of pulling to the front or rear of the vehicle, depending on routing of the cable. Drive to the winch is via a mechanical bottom power take off and maximum load is limited by an integral clutch unit.

Important Points

- (1) A minimum of 5 (five) wraps of cable on storage drum should always be maintained when winching.
- (2) Initial winch load can exceed that to which it was set previously, due to corrosion, temperature, etc.
- (3) The winch must not be used for lifting. Legal restrictions apply!
- (4) Winch rope should be checked prior to load setting and replaced, if necessary, due to damage or excessive corrosion.
- (5) Corroded cable should be cleaned and re-greased prior to load setting.

Setting Winch

The winch clutch is adjusted to ensure slippage between **3800lb.ft.(min.)** and **4500lb.ft.(max.)** cable load. This can be checked using the following process.

Remember winching can be dangerous and operators need to be well protected from broken or frayed cables!!

Process

Two people are required. Connect a load cell, graduated from 1000lb.ft. to 10000lb.ft., to a sturdy tree via a strop. The winch cable of the vehicle is then connected to load cell.

The operator reading the load cell gauge should be protected by another vehicle. The operator adjusting the winch clutch will be protected by the vehicle whose winch is being set.

Operate the winch as in the Military User Handbook, optional equipment section, to pay out approx. 75% of cable. Select 1st. or 2nd. gear and neutral transfer, using the vehicle brakes, slowly increase the vehicle load until winch clutch slips. (Stationary vehicle and jerking motion as clutch slips.)

If load exceeds **4500lb.ft.** stop winching and **reduce** clutch load.

If load fails to achieve **3800lb.ft.** stop winching and **increase** clutch load.

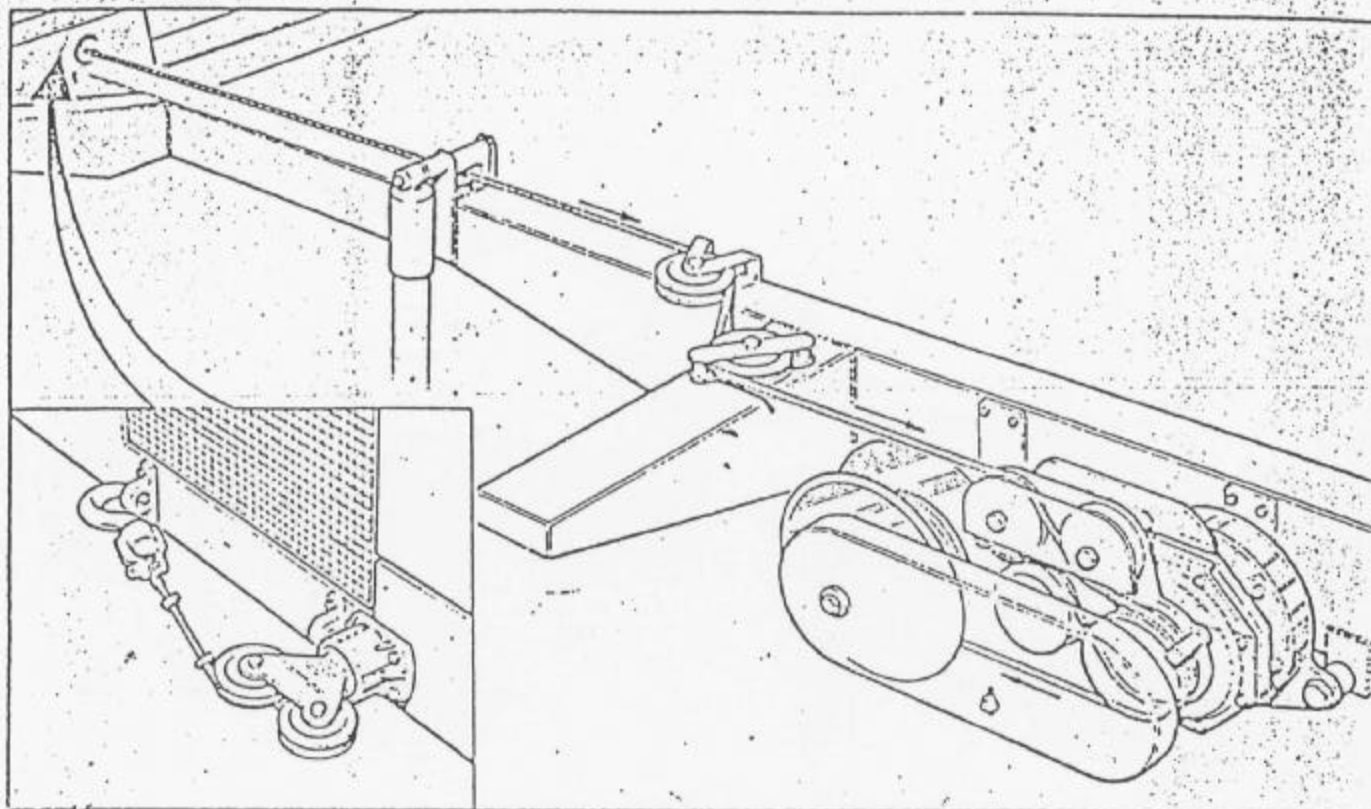
The clutch load is adjusted by rotating adjusting nut on storage drum shaft.

Clockwise (tighten) - increase load.

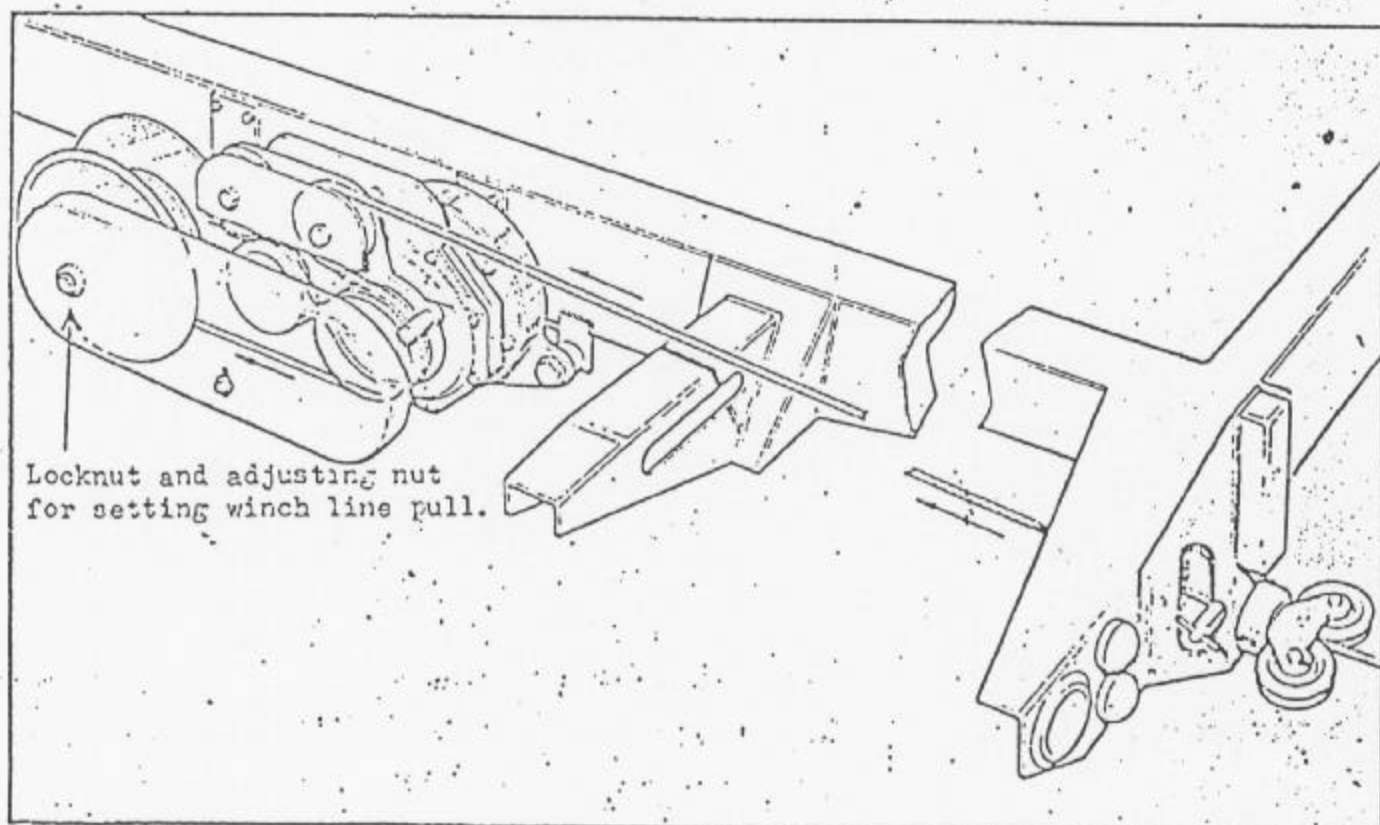
Anti-clockwise (loosen) - decrease load.

When the clutch is set lock adjustment nut with locknut.

Note: Adjustment in area required can be rapid. Only adjust one nut flat at a time!



23 Winch cable layout, forward pulling

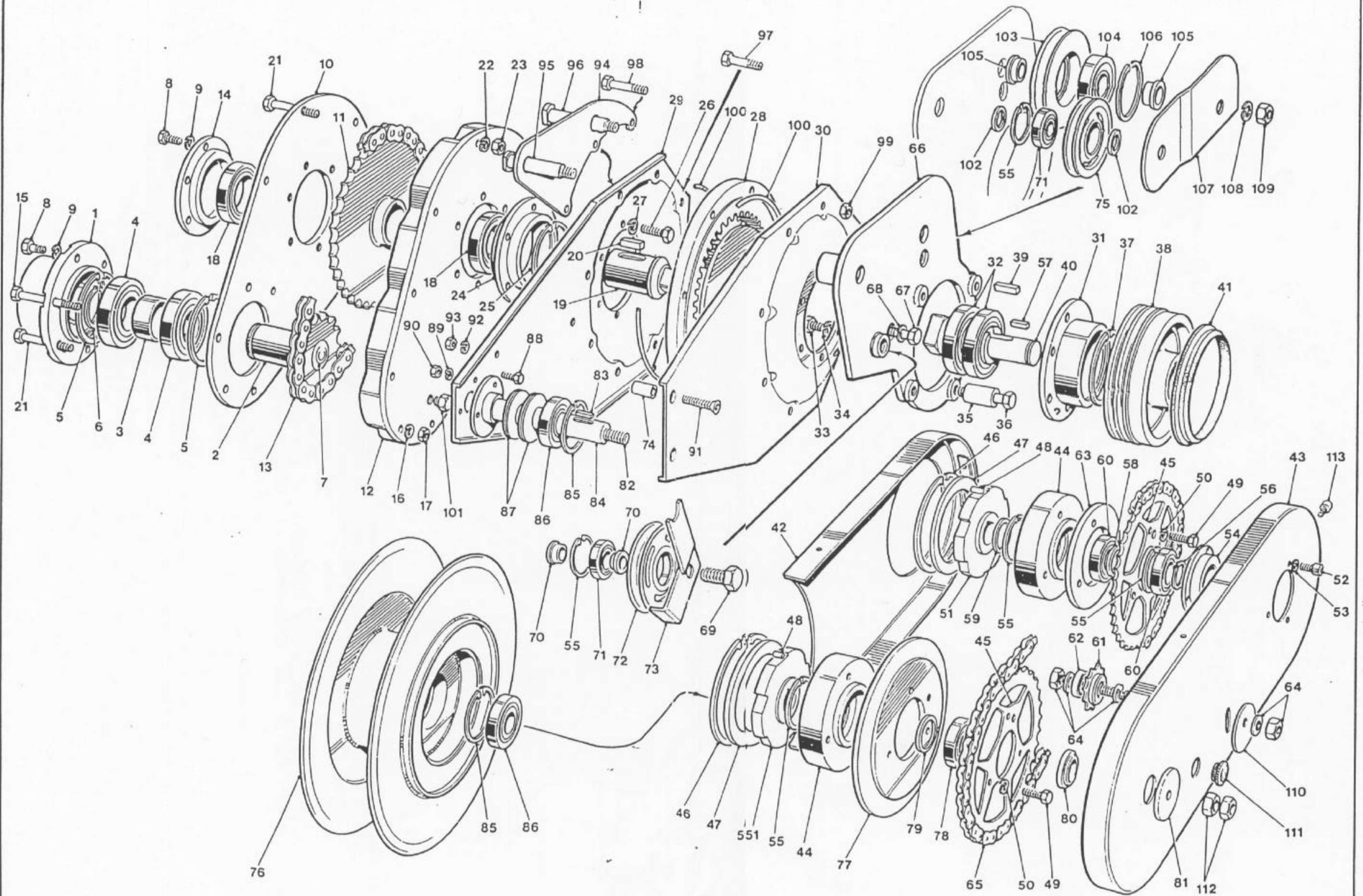


24 Winch cable layout, rearward pulling

Item No.	Catalogue Number	Item Name or Designation	No. Off	Plate Ref.	Drawing/ Part No.	Remarks
1		WINCH - contd			TS	
2	LV7RU/2590-99-822-1906	WINCH, DRUM, VEHICLE MOUNTING: complete assembly	1	1-112	582207	
3	LV7WG/2590-99-823-6982	HOUSING, BEARING: sprocket shaft	1	1	101-200	
4	LV7WG/3040-25-117-8092	SPROCKET SHAFT, steel, 1 sprocket 15 teeth, 3/4 in. pitch	1	2	101-189	
5	LV7WG/5365-99-823-6984	SPACER, SLEEVE: sprocket shaft	1	3	101-292	
6	LV6MT1/3110-99-950-1440	BEARING, BALL, JOURNAL, single row, double seal, 45 mm id x 85 mm od x 19 mm W	2	4	6209 ZRS	
7	LV6MT1/5365-99-910-8335	RING, RETAINING, steel, int, 85 mm dia	2	5		
8	LV6MT1/5365-99-910-8247	RING, RETAINING, steel, ext, 45 mm shaft dia	1	6		
9	LV7WG/3040-25-116-4424	COVER PLATE, ACCESS	1	7	101-313-11/7	
10	G1/5305-99-941-0712	SCREW, MACHINE, UNC, steel, hex hd, 3/8 in. x 3/4 in. lg	9	8		
11	G1/5310-99-941-6656	WASHER, LOCK, steel, single coil, sq sect., 3/8 in.	9	9		
12	NP	COVER: chain wheel, box	1	10	101-283	
13	LV7WG/3020-99-823-6986	SPROCKET WHEEL, steel, 33 teeth, 3/4 in. pitch	1	11	101-188	
14						
15	NP	CASE: chain wheel	1	12	101-282	
16	G1/5305-99-941-3347	BOLT, MACHINE, UNC, 3/8 in. x 2-3/4 in.	1			
17	LV7WE/3020-99-323-6987	CHAIN, ROLLER, steel, 43 links, 3/4 in. pitch	1	13	101-313-11/12	
18	LV7WE/3040-25-116-4426	HOUSING, BEARING: sprocket wheel shaft, outer	1	14	101-289	
19	G1/5306-99-941-1556	BOLT, MACHINE, UNC, steel, hex hd, 3/8 in. x 2-1/2 in. lg	3	15		
20	G1/5310-99-941-6656	WASHER, LOCK, steel, single coil, sq sect., 3/8 in.	3	16		
21	G1/5310-99-941-1650	NUT, PLAIN, HEXAGON, UNC, steel, 3/8 in.	3	17		
22	LV6MT1/3110-99-810-7051	BEARING, BALL, JOURNAL, single row, double seal, 45 mm id x 75 mm od x 16 mm W	2	18	6007 ZRS	
23	LV7WG/3040-25-116-4427	SHAFT, SHOULDERED: sprocket wheel	1	19	101-291	
24	LV7WG/5315-25-116-4428	KEY, MACHINE, steel, 9 mm x 14 mm x 30 mm o/a dim.	1	20	101-304-1	
25	G1/5306-99-941-1555	BOLT, MACHINE, UNC, steel, hex hd, 1/2 in. x 2-1/4 in. lg	7	21		
26	G1/5310-99-941-6656	WASHER, LOCK, steel, single coil, sq sect., 3/2 in.	7	22		
27	G1/5310-99-941-1650	NUT, PLAIN, HEXAGON, UNC, steel, 3/2 in.	7	23		
28	LV7WG/3040-25-116-4429	HOUSING, BEARING: sprocket wheel shaft, inner	1	24	101-290	
29	LV6MT1/5315-99-808-2140	RING, RETAINING, steel, int, 75 mm bore dia	1	25		
30						
31	G1/5305-99-941-0714	SCREW, MACHINE, UNC, steel, hex hd, 3/8 in. x 1 in. lg	6	26		
32	LV7WG/5310-99-827-3652	LOCKING PLATE: washer, spring	6		101-376	
33	G1/5310-99-941-6656	WASHER, LOCK, steel, single coil, 3/8 in.	6	27		Alternative
34	LV7WG/3010-99-323-6992	GEAR ASSEMBLY, SPEED DECREASER: 'SADI' planet cell No. 5	1	28	101-313-11/22	
35	NP	CASING, REAR: 'SADI' planet cell	1	29	101-279	
36	NP	CASING, FRONT: 'SADI' planet cell	1	30	101-280	
37						
38	LV7WG/3130-25-116-4430	HOUSING, BEARING: traction wheel shaft	1	31	101-284	
39	LV6MT1/3110-99-815-4012	BEARING, BALL, JOURNAL, single row, double seal, 40 mm id x 80 mm od x 23 mm W	2	32	6208 ZRS	
40	G1/5305-99-941-0711	SCREW, MACHINE, UNC, steel, hex hd, 3/8 in. x 5/8 in. lg	6	33		
41	G1/5310-99-941-6656	WASHER, LOCK, steel, single coil, sq sect., 3/8 in.	6	34		
42	LV7WG/5365-25-116-4431	SPACER, SLEEVE: pulley guide	4	35	101-303	
43	G1/5306-99-941-1553	BOLT, MACHINE, UNC, steel, hex hd, 3/8 in. x 1-3/4 in. lg	4	36		
44	LV6MT1/5365-99-910-8334	RING, RETAINING, steel, int, 50 mm dia	1	37		
45	LV7WG/3020-25-116-4432	PULLEY, CONE, 2 grooves, straight bore; w/keyway	1	38	101-258	
46	LV7WG/5315-25-116-4433	KEY, MACHINE, steel, 8 mm x 12 mm x 35 mm o/a dim	1	39	101-304/2	
47	LV7WG/3040-25-116-4434	SHAFT, SHOULDERED: traction pulley	1	40	101-288	
48	LV7WG/5330-25-117-5093	PACKING, PREFORMED, rubber: traction pulley	1	41	101-313-11/34	
49						
50	NP	PLATE, ANCHOR: chain guard	1	42	101-294	
51	LV7WG/3005-25-117-1542	SHIELD, ROLLER CHAIN: winch drum drive	1	43	101-293	

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1		WINCH - contd		15		
2		WINCH, DRUM, VEHICLE MOUNTING - contd				
3	LV7WG/3040-25-116-4435	HUB, FREEWHEEL, WINCH	2	44	101-278	
4	LV7WG/3020-25-116-4436	SPROCKET WHEEL, steel, 46 teeth, 1/2 in. pitch	2	45	101-363	
5	LV6MT1/5365-99-823-7252	RING, RETAINING, steel, int, 105 mm bore dia	2	46	101-313-11/40	
6	LV7WG/2590-99-823-7253	PACKING PIECE, 85 mm id x 105 mm od x 35 mm thk	2	47		
7	LV6MT7/3110-99-823-7254	ROLLER, BEARING, parallel, steel, 6 mm dia x 12 mm lg	12	48		
8	G1/5305-99-941-0687	SCREW, MACHINE, UNC, steel, hex hd, 1/4 in. x 3/4 in. lg	6	49		
9	G1/5310-99-941-6654	WASHER, LOCK, steel, single coil, sq sect., 1/4 in.	6	50		
10	LV7WG/3950-25-117-8094	FREEWHEEL, WINCH	2	51	101-287	
11	LV7WG/5305-99-823-7257	SCREW, CAP, SOCKET HEAD, steel, 1/4 in. x 3/8 in. lg	3	52	101-313-11/44	
12						
13	G1/5310-99-941-6654	WASHER, LOCK, steel, single coil, sq sect., 1/4 in.	3	53		
14	LV7WG/3130-25-116-4437	HOUSING, BEARING	1	54	101-298	
15	LV6MT1/5365-99-910-8330	RING, RETAINING, steel, int, 47 mm bore dia	4	55		
16	LV6MT1/5365-99-910-8242	RING, RETAINING, steel, ext, 25 mm id	1	56		
17	LV7WG/5315-25-116-4438	KEY, MACHINE, steel, 7 mm x 8 mm x 18 mm o/a dia.	2	57	101-304/3	
18	LV7WG/5365-25-116-4439	PACKING PIECE: freewheel, inner	1	58	101-302/1	
19	LV7WG/5365-25-116-4440	PACKING PIECE: freewheel, outer	1	59	101-302/2	
20	LV6MT7/3110-99-817-9348	BEARING, BALL, JOURNAL, single row, double seal, 25 mm id x 47 mm od x 12 mm w	2	60	6005 2RS	
21	LV7WG/3020-25-116-4441	SPROCKET WHEEL, steel, 12 teeth, 1/2 in. pitch: chain tensioner	1	61	101-299	
22	LV6MT7/3110-99-580-1889	BEARING, BALL, JOURNAL, single row, double seal, 10 mm id x 30 mm od x 9 mm w	1	62	6200 2RS	
23	LV7WG/5330-25-117-8543	PACKING PIECE: freewheel housing	1	63	101-300	
24	LV7WG/5307-25-116-4442	STUD, ASSEMBLY, steel, shouldered, 3/8 in. UNC thd; c/w nuts	1	64	101-320	
25	G1/5310-99-135-2151	NUT, PLAIN, HEXAGON, UNC, steel, 3/8 in.	2			
26	LV7WG/3020-99-823-7271	CHAIN, ROLLER, single, 1/2 in. pitch	1	65	101-313-11/56	
27						
28	NP	CONSOL: guide pulley mounting	1	66	101-360	
29	G1/5306-99-941-0317	BOLT, MACHINE, UNF, steel, hex hd, 3/8 in. x 2-1/2 in. lg	2	67		
30	G1/5310-99-941-6656	WASHER, LOCK, steel, single coil, sq sect., 3/8 in.	2	68		
31						
32	G1/5306-99-941-1597	BOLT, MACHINE, UNC, steel, hex hd, 5/8 in. x 2 in. lg	1	69		
33	LV7WG/3120-25-116-4445	BUSHING, SLEEVE: pulley bearing	2	70	101-175/2	
34	LV6MT7/3110-99-119-9545	BEARING, BALL, JOURNAL, single row, double seal, 20 mm id x 47 mm od x 14 mm w	2	71	6204	Guide pulleys
35	LV7WG/3020-25-116-4447	FULLEY, GROOVE, single groove, V shape	2	72	101-175/1	
36	LV7WG/3020-99-827-3653	BRACKET, GUIDE, PULLEY	1	73	101-424	
37	NP	DISTANCE PIECE	2	74	101-366	
38	LV7WG/3020-25-116-4448	FULLEY, GROOVE	1	75	101-365	
39						
40	LV7WG/3950-25-117-8097	DRUM, WINCH, steel, fabricated	1	76	101-281	
41	LV7WG/3010-25-116-4445	PLATE, CLUTCH: winch drum drive	1	77	101-286	
42	LV6MT7/3110-99-817-9348	BEARING, BALL, JOURNAL, single row, double seal, 25 mm id x 47 mm od x 12 mm w	1	78	6005 2RS	
43	LV7WG/5330-25-117-8095	PACKING PIECE: winch drum sprocket, inner	1	79	101-301/3	
44	LV7WG/5330-25-117-8096	PACKING PIECE: winch drum sprocket, outer	1	80	101-301/1	
45	LV7WG/5310-25-116-4443	THRUST WASHER: winch drum, sprocket shaft	1	81	101-301/2	
46	LV7WG/5315-99-827-3658	KEY, MACHINE, 7 mm x 8 mm x 23 mm lg	1	83	101-304-4	
47	LV7WG/3047-25-116-4444	SHAFT, SHOULDERED: winch drum	1	84	101-297	
48	LV6MT1/5365-99-910-8331	RING, RETAINING, steel, int, 52 mm bore dia	2	85		
49	LV6MT7/3110-99-914-4250	BEARING, BALL, JOURNAL, single row, double seal, 25 mm id x 52 mm od x 15 mm w	2	86	6205 2RS	
50	LV7WG/5310-99-137-4979	WASHER, SPRING TENSION, steel, 25.4 mm id x 50 mm od x 3 mm c/a h	4	87	101-313-11/73	
51	G1/5305-99-941-0687	SCREW, MACHINE, UNC, steel, hex hd, 1/4 in. x 1/2 in. lg	3	88		

Item No.	Catalogue Number	Item Name or Designation	No. Off	Plate Ref.	Drawing/ Part No.	Remarks
1		WINCH - contd		T 5		
2		WINCH, DRUM, VEHICLE MOUNTING - contd				
3	G1/5310-99-941-6654	WASHER, LOCK, steel, single coil, sq sect., 1/4 in.	3	89		
4	G1/5310-99-122-4413	NUT, PLAIN, HEXAGON, UNC, steel, 1/4 in.	3	90		
5	G1/5305-99-102-4970	SCREW, CAP, SOCKET HEAD, UNC, steel, flat csk hd, 3/8 in. x 1-1/2 in. lg	2	91		
6	G1/5310-99-941-6656	WASHER, LOCK, steel, single coil, sq sect., 3/8 in.	2	92		
7	G1/5310-99-941-1650	NUT, PLAIN, HEXAGON, UNC, steel, 3/8 in.	2	93		
8						
9	NP	CONSOLE	1	94	101-360/7	
10	LV7WC/5306-99-827-3650	BOLT, SPECIAL, UNC, 5/8 in. 20 mm & 25 mm od x 112 mm lg	1	95	101-372-1	
11	LV7WC/5306-99-827-3651	BOLT, SPECIAL, UNC, 5/8 in. 20 mm & 25 mm od x 114 mm lg	1	96	101-372-3	
12	G1/5306-99-941-0313	BOLT, MACHINE, UNF, steel, hex hd, 3/8 in. x 1-1/2 in. lg	6	97		
13	G1/5306-99-941-0314	BOLT, MACHINE, UNF, steel, hex hd, 3/8 in. x 1-3/4 in. lg	1	98		
14	G1/5310-99-941-6570	NUT, PLAIN, HEXAGON, UNF, steel, 3/8 in.	7	99		
15	LV7WC/2590-99-823-7267	STRIP, SEALING, rubber, 665 mm lg: planet cell housing	2	100	101-313-11/80	
16						
17	LV7WC/3120-99-827-3657	WASHER, THRUST, 20 mm id x 28 mm od x 4.50 mm thk	2	102	101-372-2	
18	LV7WC/3020-99-827-3654	PULLEY, GROOVE, single groove	1	103	101-419	
19	LV6KT7/3110-99-204-8024	BEARING, BALL, JOURNAL, single row, 30 mm bore x 72 mm od x 19 mm w, oo fit	1	104	6306	
20	LV7WC/3120-99-827-3655	OO fit; w/two rubber seals BUSHING HALF, SLEEVE	1 pr	105	101-313-111	Supplied - item 91
21	LV7WC/5365-99-827-3660	RING, RETAINING	1	106	172	
22	NP	PLATE, SIDE: for pulley	1	107	101-360/6	
23	G1/5310-99-941-6660	WASHER, LOCK, steel, single coil, sq sect., 5/8 in.	2	108		
24	G1/5310-99-941-1665	NUT, PLAIN, HEXAGON, UNC, steel, zinc coated, 5/8 in.	2	109		
25	LV7WC/5325-99-827-3663	GROMMET BLANK, NONMETALLIC, rubber	1	111	101-437	
26	G1/5305-99-120-7950	SCREW, SOCKET HEAD, UNC, steel, flat fillister hd, cadmium plated, 1/4 in. x 3/8 in. lg	3	113		



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