



Electric Chain Hoist

OPERATION MANUAL & PARTS LIST

Series

- BLFD-100-1
- BLFD-200-2



CHENG DAY MACHINERY WORKS CO., LTD.

SAFETY-IMPORTANT

The use of any hoist and trolley presents some risk of personal injury or property damage.

That risk is greatly increased if proper instructions and warnings are not followed. Before using this hoist, each user should become thoroughly familiar with all warnings, instructions and recommendations herein.



THIS SYMBOL POINTS OUT IMPORTANT SAFETY INSTRUCTIONS WHICH IF NOT FOLLOWED COULD ENDANGER THE PERSONAL SAFETY AND/OR PROPERTY OF YOURSELF AND OTHERS. READ AND FOLLOW ALL INSTRUCTIONS IN THIS MANUAL AND ANY PROVIDED WITH THE EQUIPMENT BEFORE ATTEMPTING TO OPERATE YOUR " U-MEGA " ELECTRIC CHAIN HOIST.



CONTENTS

Safety-Important	1
1.Foreword	3
2.Main Specification	4
2.1 Specification	4
2.2 Mechanical Classification (Grade) and Life	5
2.3 Safety Device	6
2.4 Specification and Dimensions	7
3.Safety Rules	8
4.Installation	10
4.1 Unpacking Information	10
4.2 Voltage	10
4.3 Installation	11
5.Operation	12
6.Maintenance and Inspection	13
6.1 Maintenance	13
6.2 Inspection	13
7.Troubleshooting	16
7.1 Wiring Diagrams	16
7.2 Troubleshooting and Remedial Action	17
7.3 Overload clutch adjustment instruction	18
8.Drawings and Parts	19

1.FOREWORD

This manual contains important information to help you properly install, operate and maintain the U-MEGA electric chain hoist for maximum performance, economy and safety.

Please study its contents thoroughly before putting the electric Chain hoist into operation. By practicing correct operation, procedures and by carrying out the preventative maintenance recommendations, you will be assured of dependable service. In order to help us to supply correct spare parts quickly, please always specify,

- (1) Hoist model
- (2) Serial number
- (3) Part number, plus the description.

We will have your trust of Cheng Day's long term satisfactory service as our belief.

Should you have any queries, please contact:



(Please ask for a company's stamp from your local agent)

2. MAIN SPECIFICATIONS

2.1 Specifications

The following specifications are common to all U-MEGA electric chain hoists.

Table 2-1 Specifications

Item		Detail	
Working temperature range (°C)		-5 to +40	
Working humidity range (%)		85 or less	
Protection	Hoist	IP 55	
	Push button Switch	IP 65	
Electric power supply		Single Phase , 90~130V or 190V~270V, 50Hz/60Hz	
Noise level (dB)		81	
Series No.	WLL (working load limit) (kg)	Nominal diameter (mm)	Pitch (mm)
BLFD-050	500kg	6.3	19.1
BLFD-100	1000kg	7.1	20.2
BLFD-200	2000kg	7.1	20.2

Remarks: (1) Contact an authorized U-MEGA dealer for information on using the hoist outside the working temperature or humidity range.

(2) Intended use : This hoist has been designed for vertically lifting and lowering load under normal atmospheric conditions of work place.

(3) Noise levels were measured at a distance of 1m horizontally from the hoists during normal operation.

2.2 Mechanical Classification (Grade) and Lift

Safety and life for electric chain hoists are guaranteed only when the said equipment is operated in accordance with the prescribed grade.

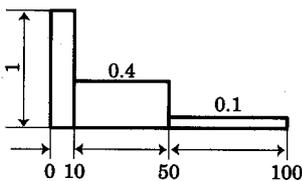
U-MEGA BLFD single phase electric chain hoists have been designed for grade

1Am in the FEM regulations (FEM 9.511).Details are provided in Table 2-2.

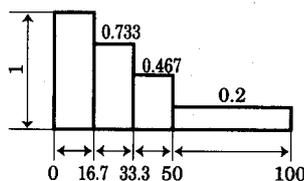
Average daily operating time and total operating time are determined by load distribution.

Table 2-2 Mechanical classification

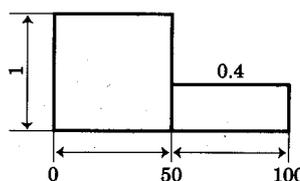
Load Spectrum (Load distribution)	Definitions	Cubic mean value	Average daily operating time(h)	Total operating time(h)
1 (light)	Mechanisms or parts thereof, usually subject to very small loads and in exceptional cases only to maximum loads.	$k \leq 0.50$	2 - 4	6300
2 (medium)	Mechanisms or parts thereof, usually subject to small loads but rather often to maximum loads.	$0.50 < k \leq 0.63$	1 - 2	3200
3 (heavy)	Mechanisms or parts thereof, usually subject to medium loads but frequently to maximum loads.	$0.63 < k \leq 0.80$	0.5 - 1	1600
4 (very heavy)	Mechanisms or parts thereof, usually subject to maximum of almost maximum loads.	$0.80 < k \leq 1.00$	0.25 - 0.5	800



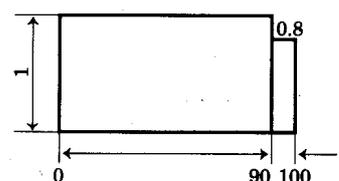
% operating time
Load spectrum 1



% operating time
Load spectrum 2



% operating time
Load spectrum 3



% operating time
Load spectrum 4

2.3 Safety Devices

(1) Mechanical load brake

The mechanical load brake can hold a full capacity load independent of motor brake. This brake assures that load does not accelerate while being lowered.

(2) Hook and hook latch

The hook is drop-forged from high tensile steel and heat treated for strength and toughness.

The button hook is capable of 360° swivel and fitted with safety latch to ensure safe lifting.

(3) Limit Switches

Upper and lower limit switches are fitted for switching off power automatically in case of over lifting or over lowering.

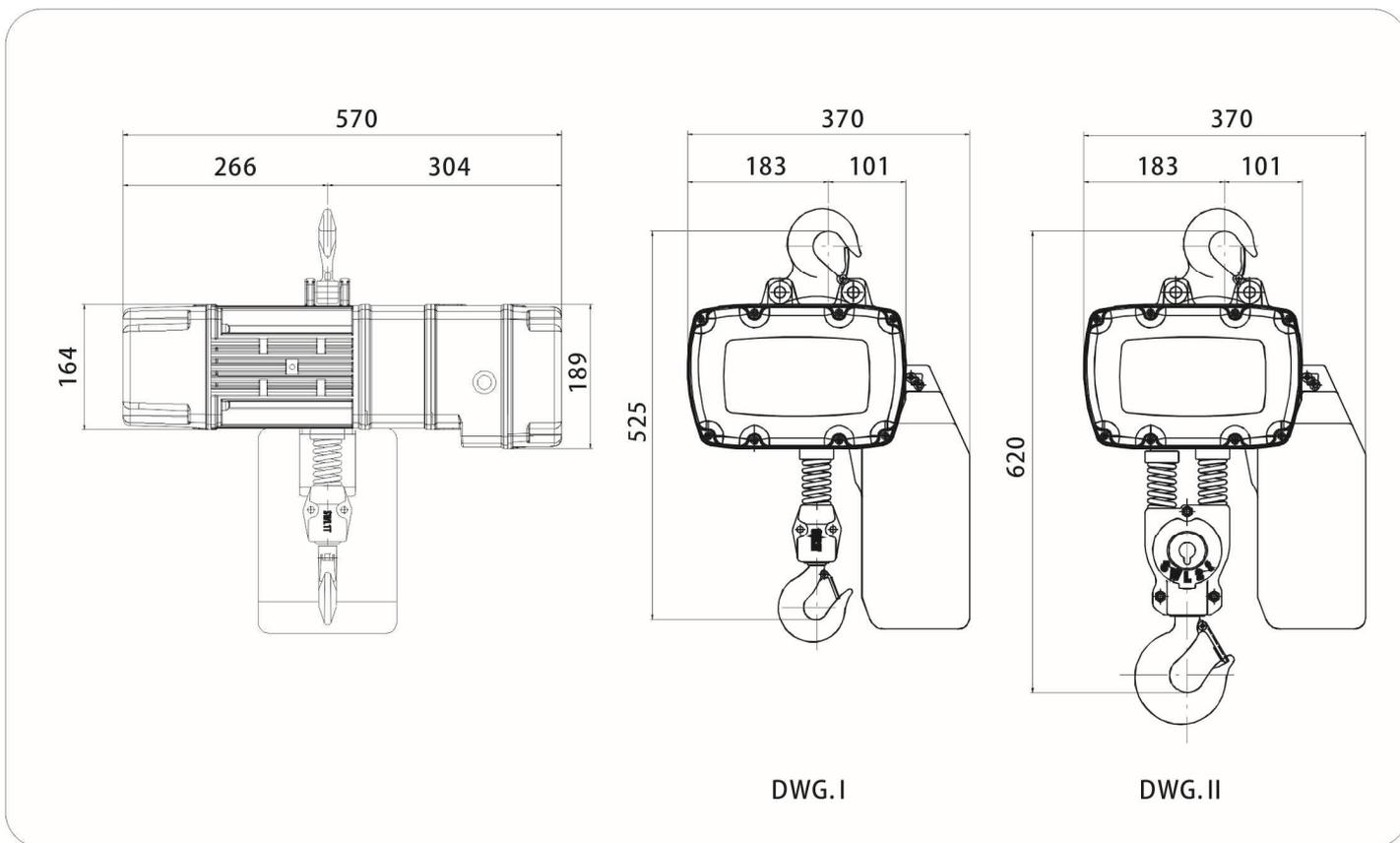
(4) Emergency stop device

This button is used to stop the hoist in an emergency situation. It is red, mushroom type button, located in the uppermost position on the pendant. When pressed, power to the equipment is switch off and button locks automatically. Turning it to the right will release the lock and to enable re-starting.

(5) Shock protection

It cannot run, when you push the button for anti-direction in "UP" or "DOWN" running. You must wait over 1 second.

2.4 Specification and Dimensions



Rated Power Source	Single Phase , 90~130V or 190V~270V,50Hz/60Hz						
Model	DWG.	Capacity (kg)	Motor Output (W)	Intermittent Duty		Rated Current (A)	Lifting Speed (m/min)
				% ED	Max.Starting Frequency (times/hr)		
BLFD - 050	I	500	750	30	180	110V(15A)	8.0/2.0
						220V(10A)	8.0/2.0
BLFD - 100	I	1000	1000	30	180	110V(15A)	5.6/1.4
			1200			220V(10A)	6.0/1.5
BLFD - 200	II	2000	1000	30	180	110V(15A)	2.8/0.7
			1200			220V(10A)	3.0/0.75

Model	Standard Lift (m)	Push Button Cord (m)	Load Chain Diameter (mm)	Fall no.	N.W.(kg)	
					3m	6m
BLFD - 050	3	3	6.3 x 19.1	1	42.7	45.5
BLFD - 100	3	3	7.1 x 20.2	1	46.5	50
BLFD - 200	3	3	7.1 x 20.2	2	50	53.5

3. SAFETY RULES

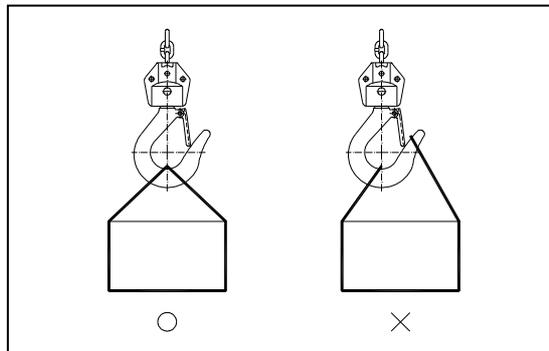
DANGER

The hoist herein is not designed for, and should not be used for, lifting, supporting, or transporting personnel. Any modifications to upgrade, re-rate, or otherwise alter the hoist equipment must be authorized by either the original manufacturer or a qualified professional engineer.

DANGER

Do not use the hoist in explosive atmosphere.

- (1) Prior to each lifting operation, it is essential to make sure that:
 - (a) the correct lifting sling is being used.
 - (b) the lifting sling is located in the hook as shown below (Illust. 2) and that a safety latch has been fitted.



Illust. 2

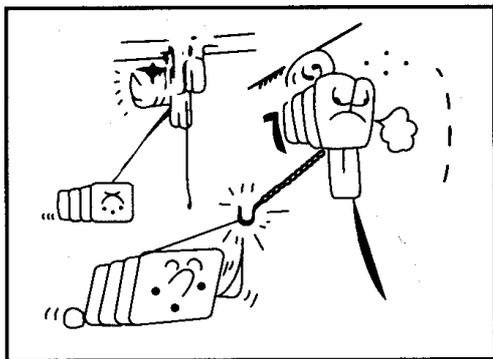
- (c) the object to be hoisted is well secured for direct lifting (a proper lifting frame or apparatus is strongly recommended for direct lifting .)
- (2) Firm and steady button operation is required, never push the button switch intermittently.
 - (3) Always avoid excessive inching operation.
 - (4) Always make sure the hoist motor completely stops before reversing.
 - (5) Always leave the pendant button switch cable and bottom hook load chain vertically static after completion of operation, never leave them at any position, which may allow them swing or slip.

(6) Sling must be applied to load evenly and centrally to ensure correct balance.

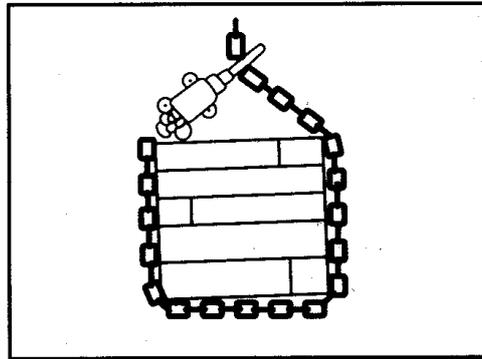
Never lift any object which is insecure or out of balance.

(7) Never use hoist to end or side pull a load. (Illust. 3)

(8) Never wrap around and hook back the load chain as a sling to lift a load. (Illust. 4)



Illust. 3



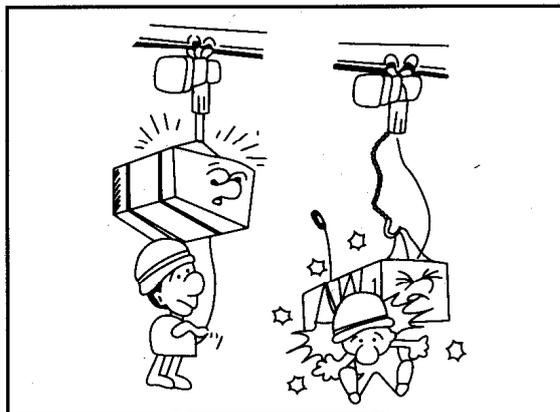
Illust. 4

! WARNING

Do not use the hoist chain as a welding electrode.

! DANGER

Never stand under a raised load (Illust. 5)



Illust. 5

(9) Lifting must always be personally attended, never leave a raised load unattended.

(10) Over-capacity-load lifting is hazardous and should not be undertaken.

(11) Never lift a load when the load chain is twisted.

(12) Regularly inspect and check the condition of load chain. Do not operate with damaged chain.

4. INSTALLATION

4.1 Unpacking Information

After removing the hoist from its packing box, carefully inspect the external condition of the electrical cables, contactor, gear box and motor casing for damage.

Check and ensure that these items are present.

Each hoist is supplied as standard with the following accessories.

1. Chain bucket	1 piece
2. Power cable	3 meters
3. Separated control cable with PBS and male plug	1 set

Table. 4-1

4.2 Voltage

CAUTION

If power supply deviates from standard by more than $\pm 10\%$, abnormal operation or damage to the motor may result. It is imperative to ensure correct voltage supply before commencing operation.

4.3 Installation

WARNING

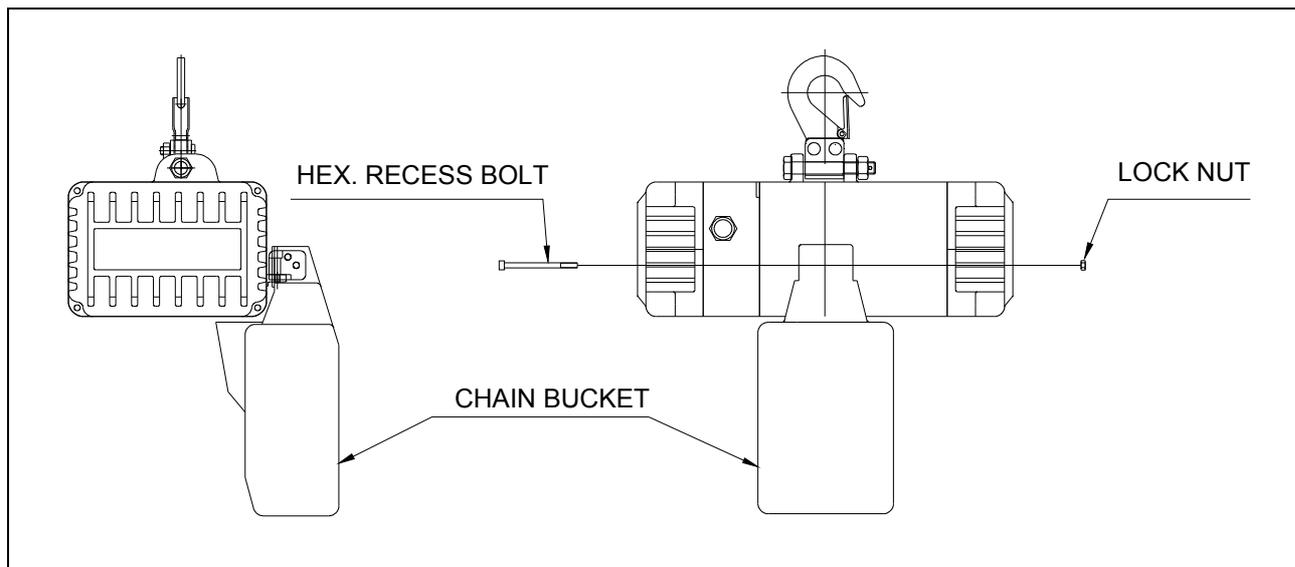
Connection to power supply before installation procedures having been completed is strictly prohibited.

The equipment safety earth connection on the plug must NEVER be removed.

(1) Prior to installation check and ensure that the top hook assembly is securely attached to the hoist by means of the lock bolt (key No.1~6, page.23).

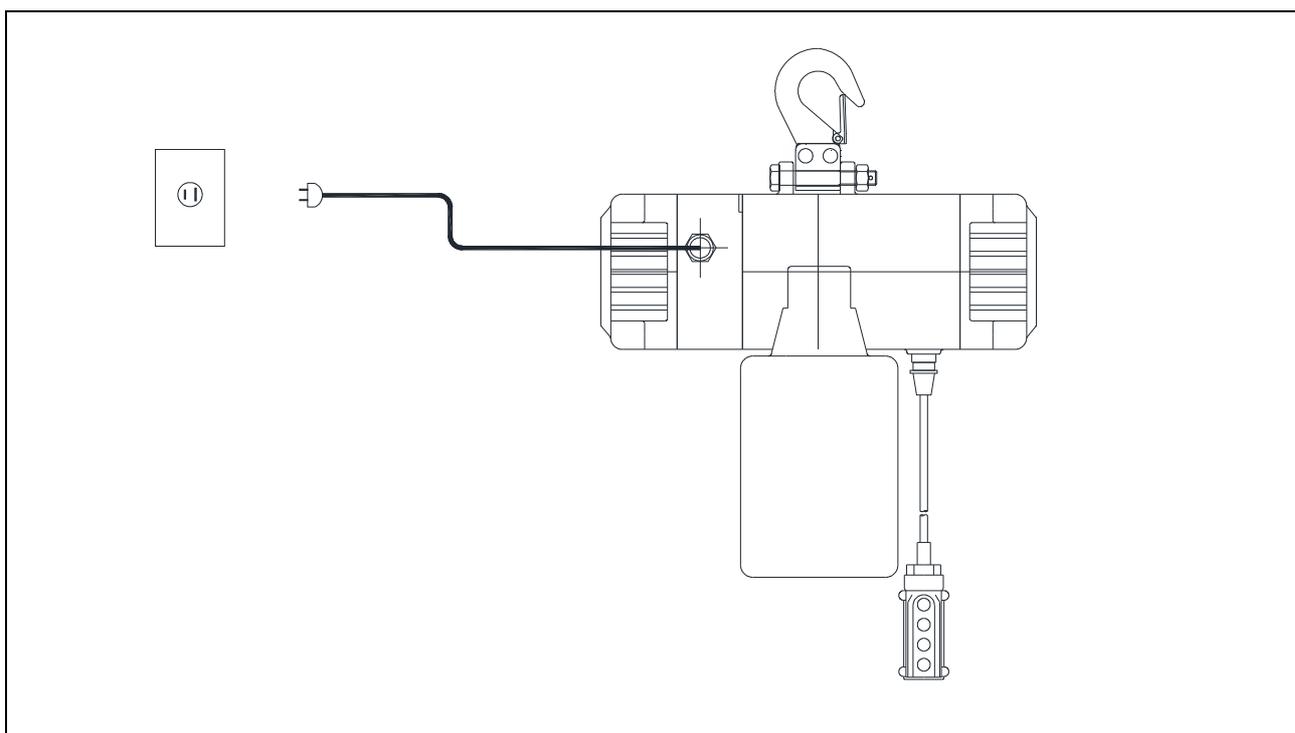
NOTE: If the hoist is to be installed under a trolley, remove the top hook and install the trolley on the hoist.

(2) Assemble chain bucket.



Illust. 6

(3) Plug power supply to hoist and operate the push button switch. This operation must be carried out by a trained person.



Illust. 7

(4) Operation Test

- (a) Firmly push  switch button to lower load chain until the chain end buffer touches the limit switch. Power should be cut off automatically.
- (b) Firmly push  switch button to check the collection of load chain into chain bucket.
- (c) Check load chain lubrication. (It has been lubricated at our works, but the lubricant may dry out during transportation) Any readily available lubricant is recommended. It is further advisable to keep a small amount of lubricant in chain bucket to allow chain in oil bath.
- (d) Check the emergency stop device function :
While holding down either  or  button on the push button switch, push the emergency stop button. Check that the hook stops when the emergency stop button is pushed. Also, check the hoist does not move in response to the push button switch. Finally, check that the emergency stop device pops out when turned to the right and that operation can be resumed thereafter. If the equipment fails to pass another above checks, check the wiring and automatic locking function of the emergency stop device.

5. OPERATION

After running test and checks have been completed, the hoist will be ready for normal operation.

WARNING

Since dealing with heavy loads may involve unexpected danger all of the "SAFETY RULES" (Ref 3.) must be followed and the operator must be aware of the following points while using the hoist.

- (1) On connection of power supply allow 15 seconds to initiate start up.
- (2) The operator must have a clear and unobstructed view of the entire working area before operating the hoist.
- (3) The operator must check that the entire working area is safe and secure before operating the hoist.
- (4) When using the hoist with a plain trolley, the operator must take care to prevent excessive load swinging by sympathetic push trolley movements.

6. MAINTENANCE AND INSPECTION

DANGER

Do not perform maintenance on the hoist while it is carrying a load except monthly checking for the brake, limit switch or slip clutch.

DANGER

Before performing maintenance do not forget to affix tags to the power source and the push button switch reading : "DANGER", "EQUIPMENT BEING REPAIRED".

6.1 Maintenance

- (1) Check the level of gear box lubricant after first 100 hours of operation, thereafter every 3 months and lubricant accordingly. Lubricant use ISO VG460 or equivalent.
- (2) Always keep the hoist unit dry and never misuse it in a manner likely to reduce its durability.
- (3) When it is necessary to keep the unit outdoors, a protective covering should be fitted.

6.2 Inspection

- (1) Daily inspection: Before starting daily operation, check the following,
 - (a) Correct power supply.
 - (b) "Up" , "Down" and "Emergency stop" (where fitted) test runs under no load.
 - (c) Correct motor performance.
 - (d) No abnormal or excessive noise.
 - (e) No malfunction of the bottom hook safety latch.
 - (f) Proper function of moving/turning parts, limit switches and brake.
 - (g) Well lubricated load chain.

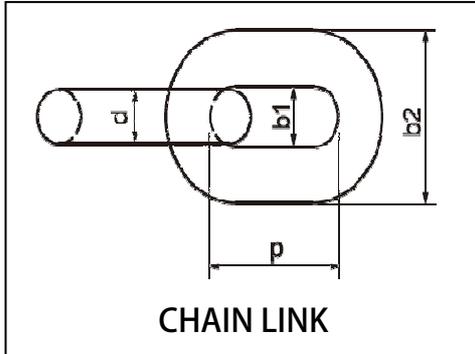
- (2) Monthly inspection

WARNING

Always use the hoist manufacture's recommended parts when repairing a hoist.

(a) Load chain:

Distorted, elongated or worn chain link will not sit properly on the load sprocket wheel and may cause chain breakage and/or damage to hoist unit. To ensure safe and efficient operation, the chain links must be checked for their pitch (inside length, inside width) and outside width monthly according to following table.



Model	Dia-Meter (mm) (d)	Inside Length (mm) (p)	Inside Width (mm) (b1)	Outside Width (mm) (b2)	Breaking Load (kN)
BLFD-050	Ø6.3	19.1	7.9	21.4	50
BLFD-100	Ø7.1	20.2	8.1	23.2	63.3
BLFD-200	Ø7.1	20.2	8.1	23.2	63.3

Chain Gauge — Wear and Stretch Measuring

- (1) The chain gauge is useful and convenience for measuring.
- (2) Please use a chain gauge to measure the chain pitch and diameter, such as illustrations (1) and (2).
- (3) Every chain ring must be measured, and the chain must be replaced when one of chain ring is wear or stretch.
- (4) It will be a cutting-out possibility if you use a chain fall either wear or stretch during operation.
- (5) Do not replace a chain fall by yourself and do please contact specific either service centers or contractors to help you out.
- (6) The chain fall must be replaced whole instead of a partial part.
- (7) The load sheave, regulator, and chain compressing wheel must be replaced the same time as you do a second time replacement.

Remark :

- (1) Chain must be perfect condition without any defects and attachments.

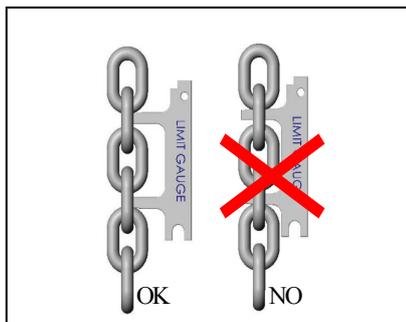


Illustration (1)
Chain pitch measure

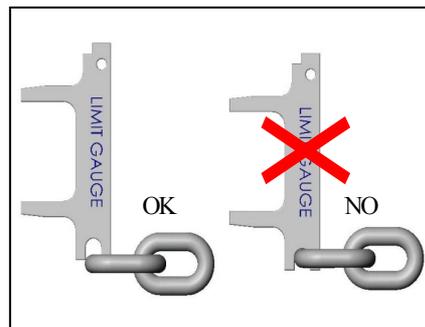
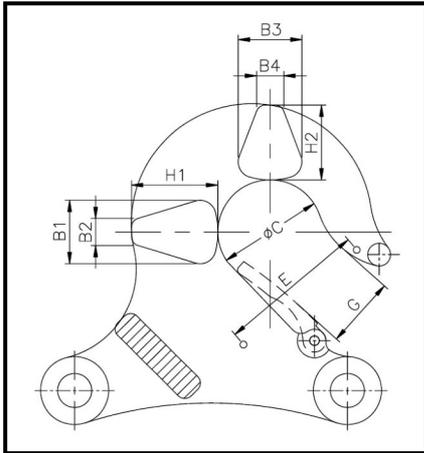


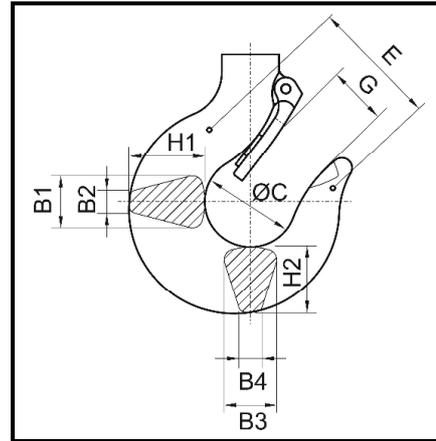
Illustration (2)
Diameter measure

(b) Load chain:

Check hook with care. If hook shows crack deformation or wear in excess of 5% of its original size, it should be replaced. (Ref. following table)



Top Hook



Bottom Hook

Model	Capacity (kg)	Hook	Dimensions (mm)									Allow Stress (kg/mm ²)
			H1	B1	B2	H2	B3	B4	C	G	E	
BLFD-100	1000	T	38	28	12	33	28	12	46	31	65	100
		B	33	23	9	29	23	9	40	28	61	70
BLFD-200	2000	T	38	28	12	33	28	12	46	31	65	100
		B	45	31	10	41	31	10	46	36	75	70

(3) Annual inspection

⚠ WARNING
Your dealer should be asked to perform this inspection.

- (a) check gearing for any excessive wear or damage.
- (b) Replace gear box lubricant completely (800C.C ± 10%) as following table for your reference.

※Table of recommended oils

ISO-VGDIN 51519 viscosity At 40°C mm ² /s (cST)	Approximate viscosity of the VG Categories 50°C mm ² /s (cST)	ARAL	BP	ESSO	MOBIL OIL
VG460	251	Aral Degol BG 460-BMB 460	BP Energol GR-XP 460	Spartan EP-460	Mobilgear 634

ISO-VGDIN 51519 Viscosity at 40°C mm ² /s (cST)	Approximate viscosity of the VG Categories 50°C mm ² /s (cST)	SHELL	TEXACO	I..P.	AGIP
VG460	251	Omala oil 460	Meropa 460	Mellana 460	Blasia 460

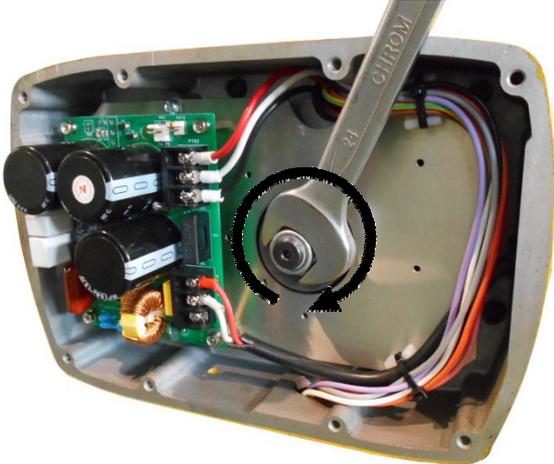
- (c) Check brake lining and ratchet pawl for any wear or damage.
- (d) Check operation of pawl spring.
- (e) After reassembly of above check, lifting a load several times to ensure good performance of the hoist before starting duty operation.

7.2 Troubleshooting and Remedial Action

SITUATION	CAUSE	REMEDY
Hoist will not operate	(1) Broken/disconnected power or control circuit wire.	Locate and repair/reconnect (take the power supply away until 10 min. later)
	(2) Low supply voltage	Check if 10% reduction in voltage, have mains supply checked
	(3) Emergency stop button release pushed	Check the cause as necessary
	(4) The button of PBS is fixed (5) The button or Elect. wire of PBS is broken	Release the button of PBS Replace or repair it (take the power supply away until 5 min. later)
Brake slips	Abrasion of motor brake	Replace
Hoist runs but does not lift	(1) Clutch slipping	Contact your authorized " U-MEGA " dealer — this adjustment needs to be carried out on a test rig
Abnormal sound on load chain/chain sprocket	(1) Chain dry (2) Worn chain sprocket	Lubricate Replace load chain and chain sprocket
Electric shock	(1) Poor earth connection (2) Accumulated foreign matter/ moisture on electrical parts	Provide correct earth connection Remove foreign matter/dry electrical parts
Oil leak	(1) No oil plug (2) Loose fitting of oil plug (3) No plug packing (4) Worn or deteriorated oil packing	Attach the normal oil plug Fasten the plug tightly Attach normal packing Attach the new packing

7.3 Overload clutch adjustment instructions

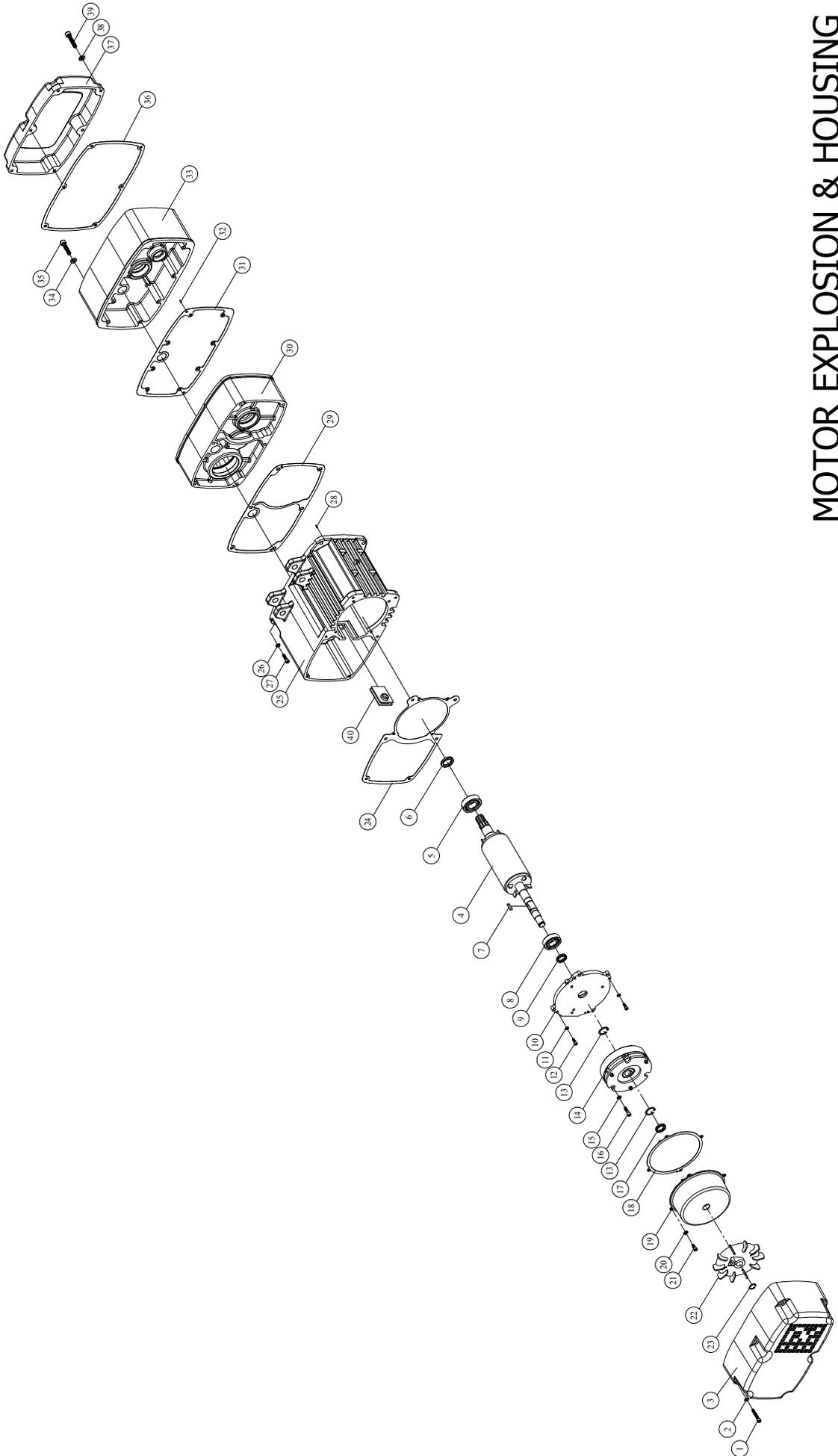
This procedure requires professional personnel to operate.

Description	Picture
<p>Tool for Overload clutch adjustment < Open wrench no. 24 ></p>	
<p>Setting is 125% rated load</p> <ol style="list-style-type: none"> 1. Remove the Cover.(Illust 1) 2. Adjust/tighten the screw nut of clutch by using a wrench. (Illust 3) 3. It can be able to lift in 125% rated load. 4. Adjust the load to 150% rated load 5. Clutch is slipping, cannot lift, setting complete. 6. Setting the clutch does not slip when lifting a load <ol style="list-style-type: none"> 1).Loosen the adjusting nut, and set the clutch slip, be unable to lift the load. 2).Adjust load to 125% rated load, clutch does not slip and can be able to lift the load. 3).Adjust the load to 150% rated load, clutch slip the loading material. Setting complete. 7. Setting of overload is 125% rated load can be able to lift and 150% rated load have to slip. 	 <p style="text-align: center;">Illust 1</p>  <p style="text-align: center;">Illust 2</p>  <p style="text-align: center;">Illust 3</p>

8. DRAWINGS AND PARTS LISTS

(1) MOTOR ASSEMBLY & HOUSING B.O.M	20~22
(2) HOOK ASSEMBLY B.O.M	23~24
(3) LOAD CHAIN ASSEMBLY B.O.M	25~26
(4) GEARBOX ASSEMBLY B.O.M	27~28
(5) ELECTRIC ASSEMBLY B.O.M	29~30

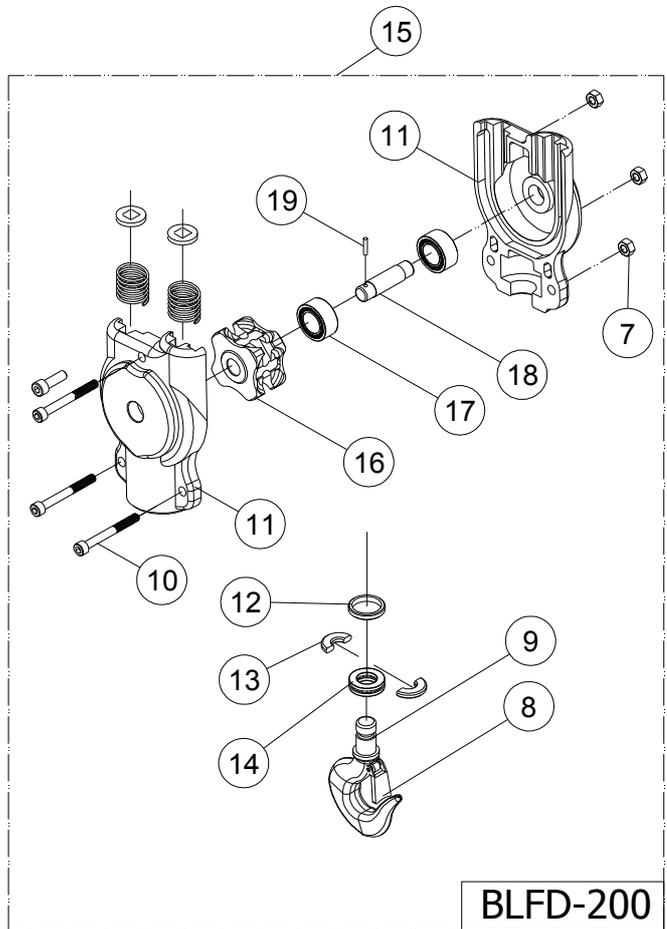
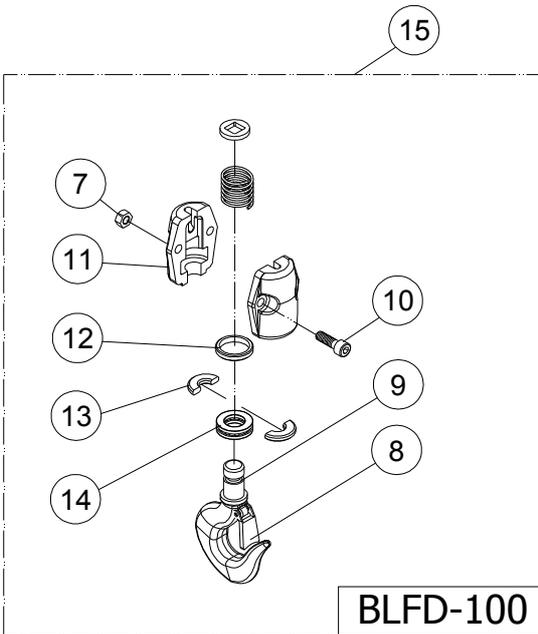
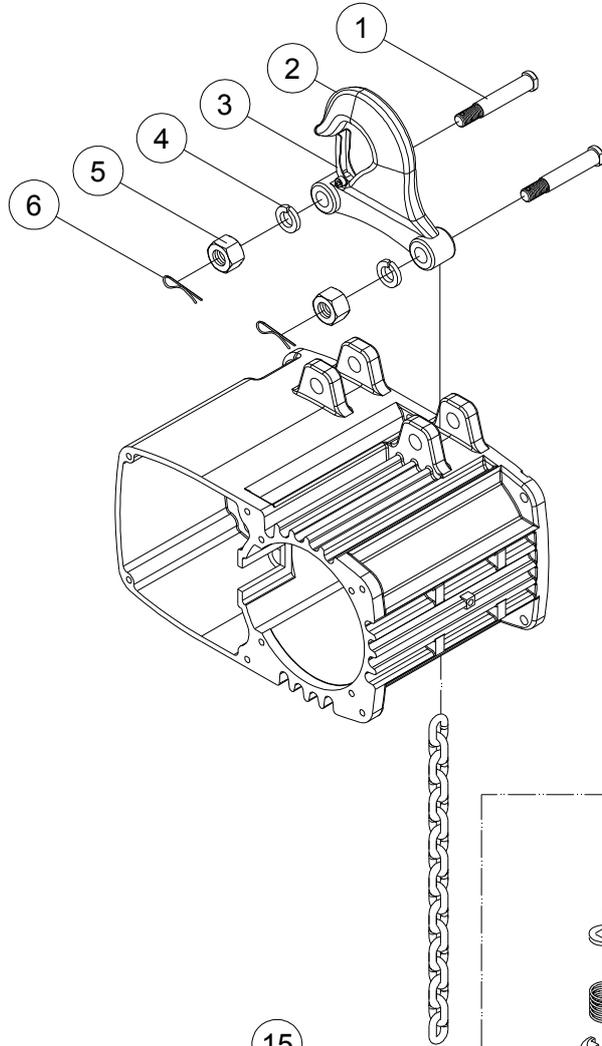
MOTOR EXPLOSION & HOUSING



MOTOR ASSEMBLY & HOUSING

NO.	PARTS CODE	DESCRIPTION	QTY REQ'D EACH UNIT	
			BLFD-100	BLFD-200
1	408330	Hex. Recess Bolt <M5 × 0.8 × 45>		6
2	400854	Spring Washer <M5>		6
3	106057	End Cover		1
4	101566	Motor Rotor		1
5	405577	Bearing <6204 2RS>		1
6	400186	Oil Seal < Ø20 × Ø35 × 8t>		1
7	405925	Key <6 × 6 × 20L>		1
8	405577	Bearing <6204 2RS>		1
9	400186	Oil Seal < Ø20 × Ø35 × 8t>		1
10	105920	Motor End Cover		1
11	400854	Spring Washer <M5>		4
12	408329	Hex. Recess Bolt <M5 × 0.8 × 20>		4
13	404182	Retaining Ring <S-19>		2
14	100516	Brake Ass'y <SNT-102-075>		1
15	400855	Spring Washer <M6>		3
16	408660	Hex. Recess Bolt <M6 × 1.0 × 35>		3
17	404533	Oil Seal <VA18>		1
18	402446	Brake End Cover Gasket		1
19	108195	Brake End Cover		1
20	400854	Spring Washer <M5>		4
21	408662	Hex. Recess Bolt <M5 × 0.8 × 10>		4
22	100563	Fan < Ø124 × Ø14 >		1
23	404001	Retaining Ring <S-14>		1
24	402660	End Cover Gasket		1
25	100693	Motor Stator Ass'y		1
26	400856	Spring Washer <M8>		6
27	408346	Hex. Bolt <M8 × 1.25 × 35>		6
28	400615	Pin < Ø5 × 12>		2
29	402664	Motor Gasket		1
30	200830	Gearbox		1
31	402445	Gearbox Gasket		1
32	400615	Pin < Ø5 × 12>		2

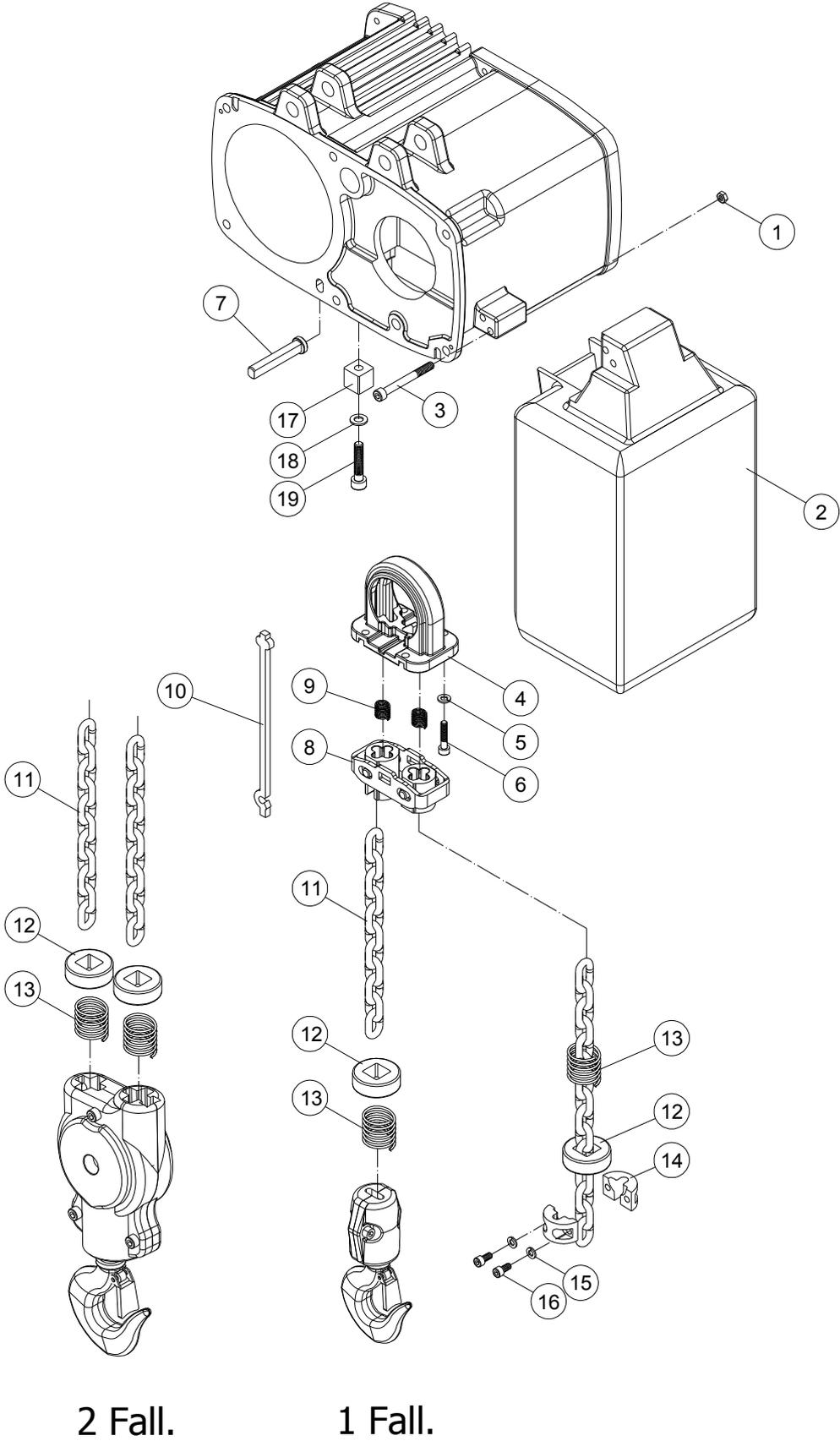
HOOK EXPLOSION



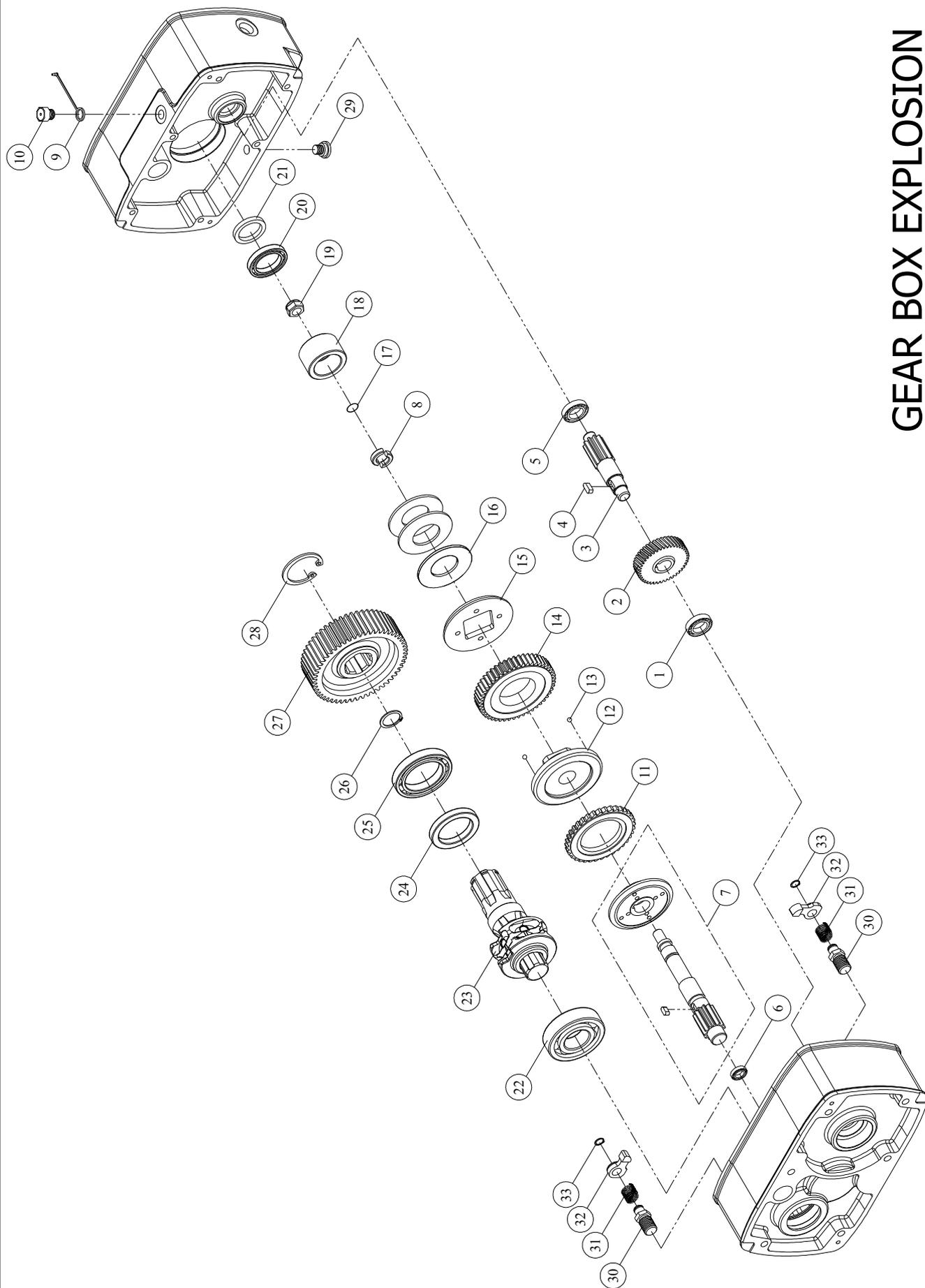
HOOK ASSEMBLY

NO.	PARTS CODE	DESCRIPTION	Q'TY REQ'D EACH UNIT	
			BLFD-100	BLFD-200
1	201310	Lock Bolt <Ø14×83>	2	2
2	200018K	Top Hook Ass'y	1	1
3	400300	Safety Latch Ass'y	1	1
4	400097	Spring Washer <M12>	2	2
5	400084	Nut <M12×1.75>	2	2
6	400610	Cotter Pin < Ø3×30>	2	2
7	400088	Nylon Nut <M8×1.25>	2	3
8	400487	Safety Latch Ass'y	1	
	400488			1
9	209352K	Bottom Hook Ass'y	1	
	209353K			1
10	408340	Hex. Recess Bolt <M8×1.25×30>	2	
	408345	Hex. Recess Bolt <M8×1.25×35>		3
11	207073K	Bottom Block Cover	1	
	207074K	Bottom Block Cover A		1
	207075K	Bottom Block Cover B		1
12	200131	End Spacer	1	
	200132			1
13	200127	Half Spacer	2	
	200128			2
14	400157	Thrust Bearing <2904>	1	
	400158	Thrust Bearing <2905>		1
15	201377K	Bottom Hook Cover Ass'y	1	
	200029K			1
16	200108	Sprocket	-	1
17	400171	Needle Bearing <HK 25/26>	-	1
18	200114	Sprocket Axle	-	1
19	400212	Spring Pin < Ø5×16>	-	1

LOAD CHAIN EXPLOSION



GEAR BOX EXPLOSION



GEAR BOX ASSEMBLY

NO.	PARTS CODE	DESCRIPTION	Q'TY REQ'D EACH UNIT	
			BLFD-100	BLFD-200
1	407869	Bearing <6002 ZZ>		1
2	202190	2nd Gear <M1.25 × 50T × 14L>		1
3	202191	3rd Gear <M2 × 12T × 88L>		1
4	400962	Key <6 × 6 × 12L>		1
5	407869	Bearing <6002 ZZ>		1
6	400132	Bearing <6204>		1
7	202626	5th Gear Ass'y <M2 × 13T>		1
8	200272	Load Brake Gear Spacer		2
9	200927	Air Plug		1
10	200926	Hex. Oil Plug		1
11	217687	Ratchet Ass'y		1
12	217690	Brake Bushing		1
13	400289	Ball < Ø6>		3
14	210434	4th Gear Ass'y <M2 × 49T>		1
15	209440	Brake Body < Ø90 × 7.6L>		1
16	400799	Disc Spring < Ø70 × Ø35.5 × 3t>		3
17	404509	O-Ring <P-14>		1
18	202632	Disc Spring Bushing		1
19	400632	Lock Nut <M16 × 1.5>		1
20	405593	Bearing < 6910 ZZ >		1
21	404460	Oil Seal < Ø50 × Ø68 × 9t>		1
22	400108	Bearing < 6006ZZ >		1
23	260083	Load Sheave		1
24	400187	Oil Seal < Ø35 × Ø50 × 8t>		1
25	400108	Bearing < 6006ZZ >		1
26	400192	Retaining Ring <S-25>		1
27	202201	6th Gear <M2 × 42T>		1
28	400906	Retaining Ring <R-55>		1
29	300523	Lubricant Drain Bolt		1
30	217686	Ratchet Pawl Pin		2
31	400038	Ratchet Pawl Spring		2
32	200415	Ratchet Pawl		2
33	400907	Retaining Ring <S-11>		2

ELECTRIC ASSEMBLY

