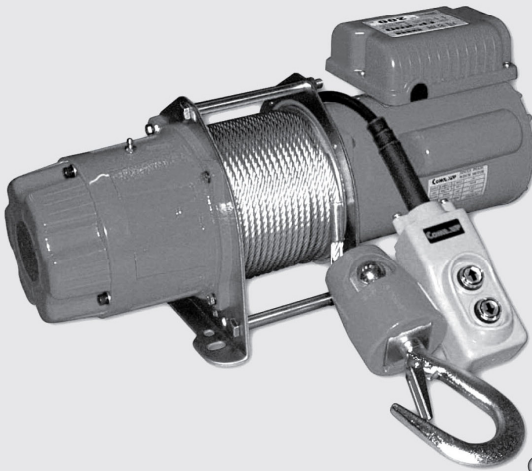




Model: CP-200/250/300  
CP-200B/250B/300B  
CP-500/500T

## Infinite Hook Up



○ INSTRUCTION  
MANUAL

Electric  
Winch





## Electric Winch

Thank you for purchasing a **COME UP** Winch. This manual covers operation and maintenance of the winch. All information in this publication is based on the latest production information available at the time of printing.

### General Safety Precautions

**COME UP** Winch is designed to give safe and dependable service if operated according to the instructions. Read and understand this manual before installation and operation of the winch.

Follow these general safety precautions:



- Confirm that the winch complies with the using conditions.
- Keep the winch secure strongly and the rope is not wound to be deviated to the drum.
- Don't use unsuitable pulleys or accessories concerned.
- Don't use unsuitable rope in construction , strength or having any defects.
- Pay attention to the grounding , it provides a path of least resistance for electric current to reduce the risk of shock.
- Check the winch for smooth operation without load before loading operation.
- Make sure the wire rope to be wound evenly in the first layer on the drum, rewind it if a mixed windings in existence.



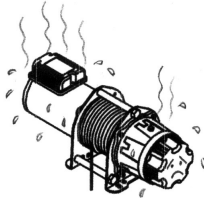
#### **WARNING**

The winch is not to be used to lift, support or otherwise transport personnel.  
A minimum of five(5) wraps of rope around the drum is necessary to support the load rated.

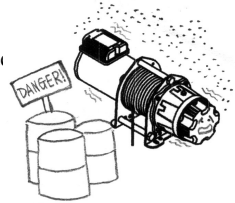
## Environment Precautions

 <b>DANGER</b>	
	<ul style="list-style-type: none"> <li>● The following environmental conditions may result in the possible causes of winch trouble.</li> </ul>

- Low temperature below  $-10^{\circ}\text{C}$  ,high temperature above  $40^{\circ}\text{C}$  or humidity above 90% conditions



- In a organic chemistry or explosive powder condition

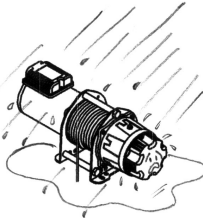


※ Cause malfunction of spare parts

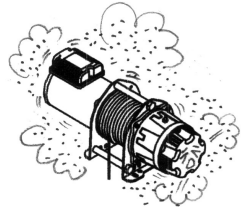
※ Cause explosion

- In heavy acid or salty conditions

※ Cause malfunction of spare parts



- In a heavy general powder



- In the rain or snow

※ Cause rust or short circuit

※ Cause malfunction of performances

- It shall not be possible for rope to run off the side of the rope drum
- The rope winding on the drum shall be remain one or more layers from the outer periphery of flange of drum
- Wire rope can break without warning, please always keep a safe distance from the winch and wire rope while under a load.
- Failure to adequately align, support, or attach the winch to a suitable mounting base could result in a loss of efficiency or premature failure of winch, wire rope or winch base

# I. Specification & Standard Accessories

## 1-1. Specification

Model	Gear Ratio	Drum Size ( mm )			Load Rated ( kg )		Speed ( m / min )		Motor HpX P	Power Source	Percentage Duty Cycle
		Length	Empty Drum Diameter	Full Drum Diameter	50Hz	60Hz	50Hz	60Hz			
CP-	200 200B	43:1	110	94	154	200	200	10 ~ 15	12 ~ 18	0.8 x 4	1 Phase 220V 230V 240V  25% ED
	250 250B	43:1	110	94	154	250	250	10 ~ 15	12 ~ 18	1 x 4	
	300 300B	43:1	110	94	154	300	300	10 ~ 15	12 ~ 18	1.5 x 4	
	500	48:1	220	102	180	500	400	10 ~ 15	12 ~ 19	2.5x4	
	500T	41:1	220	102	180	500	400	12 ~ 18	14 ~ 22	2.5x4	

▶\*CP-200B,250B,300B, are equipped with switch socket

▶Percentage duty cycle: The ratio of overall operating hours of motor to the working hours including the pause hours of the motor. It's expressed by percentage.

$$\text{Percentage Duty Cycle ( \%FD )} = \frac{T_b}{T_b + T_s} \times 100 ( \% )$$

Where,  $T_b$ =Total sum of loading hours  $T_s$ =Total sum of stopping hours

$T_b + T_s$  = Approximately 1 to 10 min

## 1-2. Standard accessories

Model	Wire Rope	Low Voltage Control	Switch		Weight Hook		
			CPB-213	PB-061	CWH-0031	CWH-0005	
CP-	200 200B	$\phi$ 6mm x 30M		V		V	
	250 250B	$\phi$ 6mm x 30M		V		V	
	300 300B	$\phi$ 6mm x 30M		V		V	
	500	$\phi$ 7mm x 60M		V			V
	500T	$\phi$ 7mm x 60M	Option	V	Option		V

▶ The “V” means standard accessories, on the other hand the “Option” means as option.

▶ PB-330 means the switch includes an emergency stop

▶ Switch with an emergency stop is also available upon request.

## 1-2. Drum and wire rope specification

Model	Lifting Capacity	Drum			Wire rope		
		Length	Diameter	D/d ratio	Breaking	Safety Factor	
CP-	200 200B	200 kg	110 mm	94 mm	16.7	2,010 kg	10
	250 250B	250 kg	110 mm	94 mm	16.7	2,010 kg	8
	300 300B	300 kg	110 mm	94 mm	16.7	2,010 kg	6.7
	500	500 kg	220 mm	102 mm	15.5	2,7000 kg	5.4
	500T	500 kg	220 mm	102 mm	15.5	2,7000 kg	5.4

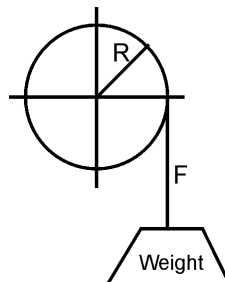
## II. Performance Data

Winch Model		CP-200	CP-250	CP-300	CP-500	CP-500T	
		CP-200B	CP-250B	CP-300B			
Motor	Hp x P	0.8 x 4	1.0 x 4	1.5 x 4	2.5 x 4	2.5 x 4	
Recommend Wire	Size ( mm )	6	6	6	7	7	
Rope	Breaking (kg )	1,820	1,820	1,820	2,625	2,625	
1st Layer	Rated Load	300	375	450	755	755	
	Speed ( m/min )	50Hz	300	375	378	605	605
		60Hz	10.0	10.0	12.0	10.0	12.0
	Rope-Winding	50Hz	10.0	10.0	12.0	10.0	12.0
		60Hz	12.0	12.0	14.0	12.0	14.0
Cumulating Sum ( m )	5.4	5.4	5.4	10.4	10.4		
1st Layer	Rated Load	260	330	402	670	670	
	Speed ( m/min )	50Hz	260	330	335	537	537
		60Hz	11.4	11.4	13.3	11.5	13.3
	Rope-Winding	50Hz	11.4	11.4	13.3	11.5	13.3
		60Hz	13.7	13.7	16.0	13.8	16.0
Cumulating Sum ( m )	11.5	11.5	11.5	22.2	22.2		
1st Layer	Rated Load	235	295	361	602	602	
	Speed ( m/min )	50Hz	235	295	301	482	482
		60Hz	12.7	12.7	14.8	12.8	14.9
	Rope-Winding	50Hz	12.7	12.7	14.8	12.8	14.9
		60Hz	15.2	15.2	17.8	15.4	17.8
Cumulating Sum ( m )	18.3	18.3	18.3	35.3	35.3		
1st Layer	Rated Load	215	270	328	546	546	
	Speed ( m/min )	50Hz	215	270	273	437	437
		60Hz	13.9	13.9	16.3	14.1	16.4
	Rope-Winding	50Hz	13.9	13.9	16.3	14.1	16.4
		60Hz	16.7	16.7	19.6	17.0	19.6
Cumulating Sum ( m )	25.7	25.7	25.7	49.7	49.7		
1st Layer	Rated Load	200	250	300	500	500	
	Speed ( m/min )	50Hz	200	250	250	400	400
		60Hz	15.0	15.0	19.0	15.0	18.0
	Rope-Winding	50Hz	15.0	15.0	19.0	15.0	18.0
		60Hz	18.0	18.0	21.0	19.0	22.0
Cumulating Sum ( m )	30	30	30	60	60		

► In usual cases, the increase of winding layers of rope accompanies the increase of required motor output.

► Torque(T): Torque is a twisting force. Torque causes rotation of a shaft, or it will set up a twist in a stationary shaft. It is generally expressed in Newton-Meters.

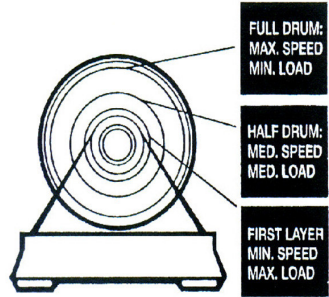
T: Torgue  
 $T = F \times R$  R: Radius  
 F: Load



### III. Instruction For Installation

#### 3-1. Load rated

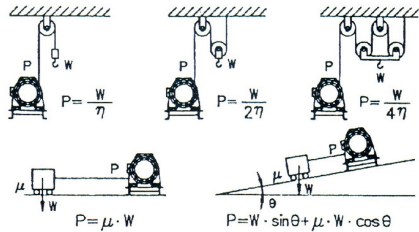
Load and speed vary according to how much wire rope is on the drum. The first layer of rope on the drum delivers the slowest speed and the maximum load. A full drum delivers the maximum speed and the minimum load. For this reason, winches are rated at their full drum capacities.



#### 3-2. Calculating head load

►  $\eta$  sheave coefficient:

No. of sheaves	1	2
Roller bearing	0.98	0.96
Sleeve bearing	0.96	0.92



P: Rope tension     $\eta$ : Sheave coefficient  
 $\theta$ : Angle    W: Load     $\mu$ : Friction factor

#### 3-3. Lubrication

All moving parts in the winch are permanently lubricated at the time of assembly. Under normal conditions factory lubrication will suffice. If re-lubrication is necessary after repair or disassembly use Shell Alvania EPLF2 or similar Castrol Alpha Spherol L-EP 2 grease, 150 Viscosity (cSt) at 40° C.

#### 3-4. Lead selection

Model	Power Lead	Switch Lead	Optional Switch Lead		
		CPB-213	PB-330	PB-306	PB-061
CP-200/250/300	3.5 mm <sup>2</sup>	1.25 mm <sup>2</sup>	2.0 mm <sup>2</sup>		
CP-200B/250B/300B		2.0 mm <sup>2</sup>	2.0 mm <sup>2</sup>		
CP-500	3.5 mm <sup>2</sup>	3.5 mm <sup>2</sup>	3.5 mm <sup>2</sup>		
CP-500T	3.5 mm <sup>2</sup>	3.5 mm <sup>2</sup>	3.5 mm <sup>2</sup>	1.25 mm <sup>2</sup>	1.25 mm <sup>2</sup>

- PB-330 and PB-306 switch comes with an emergency stop. Low voltage control comes with a PB-061 as standard.
- The length of power lead is subject to the distance less than 30 meters.
- The length of switch lead is subject to the distance less than 3 meters.
- For any other cases, the lead should use a bigger section or adopt a magnetic switch.
- Considerable voltage drop can provoke non-opening of brake, it will cause winch failure.

### 3-5. Cart puller capacity

Resistance to rolling is mostly influenced by the total load, track gradient, track curvature, temperature range, and surface conditions.

Running line pull required per ton being moved are listed below for reference.

- 1). Total load ... 12 kg required per ton
- 2). Track grade...10 kg required per ton for each one percent gradient
- 3). Track curvature... 0.5 kg required per ton for each one degree of curvature.
- 4). Surface condition...Varies considerably according to surface drag.

#### ► Application conditions

- 1).Horizontal dual direction pulling of a rolling cart in and out of an oven using a single wire rope extending from the winch drum
- 2).10 ton total load being moved included weight of cart
- 3).Rolling steel on steel
- 4).New track, no curves and 2% gradient

#### ► Cart puller calculator

Required cart puller capacity

10 ton... total weight being moved

X  $(12\text{kg}+20\text{kg})$  12kg....Pull required per ton being moved

320 kg 20kg....Pull required for 2% gradient

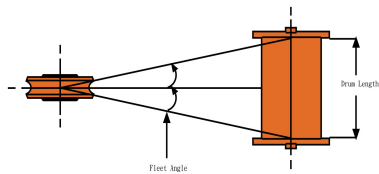
X  $1.2$  ....20% contingency for unpredictable track or cart conditions

384 kg .....Minimum calculated effort to pull the cart of 10 ton.

..... Selected a CP-500 for 1 phase or a CP-500T for 3 phase

### 3-6. Calculating fleet angle

#### CALCULATING FLEET ANGLE



- The winch should be mounted as close to center and as perpendicular as possible to the direction of the winching operation. This will keep the wire rope fleet angle centered on the drum as small as possible.
- If the proper fleet angle is not maintained, the wire rope could wind onto one side of the drum. This could cause failure of the winch or wire rope, resulting in damage, injury or death.
- Experience has shown that the best wire rope service is obtained when the maximum fleet angle is not more than  $1.5^\circ$  for smooth drums.
- Fleet angle of  $1.5^\circ$  is the equivalent of approximately 19 cm of lead for each centimeter of overall drum length.
- Based on the above information, the correct distance between center of drum and of sheave should be derived by using the following formula For example, A CP-200/250/300 with 11 cm and CP-500/500T with 22 cm drum length, so the correct distance shall be 209 cm and 418 cm respectively.

## IV. Maintenance and Inspection

### 4-1. Checking reference 1

Classification of checks				Checking Item		Checking Method	Checking Reference
Daily	Periodical						
	One month	Three month	One year				
			⊙	Marking	Label and the like	Visual	Existence of label
		⊙		Installation	Winding-in direction of wire rope	Visual , measuring	Fleet angle $\theta$ =within 1.5 degree
		⊙			Loosing and centre run-out foundation	Checking of installing bolts	Existence of abnormalities
⊙				Control Switch	Working	Manual	Reasonable actuation
	⊙				Condition of clamping of wiring	Decomposition checking	Confirming of accuracy of fastening condition
		⊙			Wearing of contact point	Decomposition checking	To be free from remarkable wearing and damage
		⊙			Outer damage of lead	Visual	To be free from exposure of conductive wire
⊙	⊙				Attaching condition of earth line	Visual	Existence of abnormalities of connecting wires
		⊙			Condition of insulation	Measure with 500v insulation-Resistance tester	1M $\Omega$ min
			⊙		Motor	Condition of insulation	Measure with resistance tester
			⊙	Staining damage		Decomposition check	Existence of abnormalities
	⊙			Brake	Loosing of set screws	Decomposition check	To be free from loosening
		⊙			Wearing of disc	Decomposition check	To be free from remarkable wear and damage
⊙	⊙				Performance	Visual	Distance to be not more than 1.5% of rope length to be wound-in during 1 minute
			⊙	Gear	Damage , wearing	Decomposition check	To be free from remarkable wear and damage
		⊙			Condition of grease feeding	Measuring	Existence of suitability of amount and deterioration with grease Mobilux EP2.Shell Unedo 2 or Esso Beacon EP2



## 4-2. Checking reference 2

Classification of Checks				Checking Item	Checking Method	Checking Reference		
Daily	Periodical							
	One month	Three month	One year					
◎				Wire Rope	Breaking of base wire	Visual	Less than 10%	
◎					Decreasing of diameter	Visual	7% of normal diameter max	
◎					Kink phenomena run-out of foundation	Visual	To be free from kink phenomena	
◎					Deforming or corrosion	Visual	To be not remarkable	
◎					Fastening condition of end	Visual	To be sufficient for hanging up of load	
◎					Condition of rope winding-in	Visual	To be free from irregular winding	
◎					Condition of feed oil	Visual	To be not insufficient in feed-out	
	◎				Confirming of dead turn of rope	Visual	Confirming of normalities of operating-out	
◎	◎				Frame	Structure	Visual	To be free cracks, rupture harmful deformation
◎	◎			Drum		Return of flange	Visual	To be free cracks, rupture, harmful deformation
		◎				Wear of drum	Visual	To be free from remarkable wearing
◎				Operation	Rotary direction	Visual	Winding-in direction is normal	
◎					Rotary abnormal sound	Hear out	To be free from oscillation and impact sound	
			◎		Over load test	Working	Existence of abnormalities	

## V. Trouble Shooting

### 5-1. Possible causes

Before operation, open terminal box of motor to ascertain the corrective wirings.

Checking the winch for smooth operation by pressing up and down button of push button switch. When winch fails to start after several attempts, or if any defective operation to be happened, check followings:

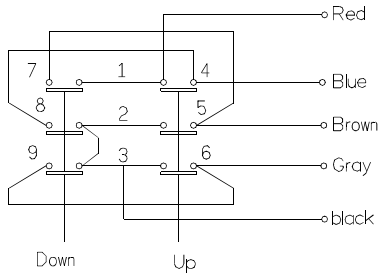
Condition	Possible Cause	Correction
Fail to start	No power	Check the input power source
	Improper voltage or cycle	Check with motor markings
	Wrong wirings	Check the wirings of motor and of switch
	Defective brake coil or bridge rectifier	Check those according to its value
	Defective centrifugal switch, starting, switch.	Check those parts
Fall to lift load	Over-load	Reduce load
	Over-load	Reduce load
	Considerable voltage drop	It can provoke non-opening of brake.
		Relocate power source
Braking distance unsatisfied	Defective brake coil	Check brake coil
	Brake disc wear	Replace brake disc
	Conductor disc wear	Replace conductor disc
	Weak brake spring	Replace brake spring
	Considerable voltage drop	Same as the above
	Winch is mechanically binding up	Remove and disassemble the winch for repair
Reversing operation	Wrong wiring of 1 phase winch	Exchange the blue and brown wires of switch
	Wrong wiring of 3 phase winch	Exchange any two wires of motor alternately

### 5-2. Standard value for capacitors, brake coil and bridge rectifier

Model	Starting cap.	Running cap.	Brake coil	Bridge rectifier
CP-200/200B	250MFD 125VAC	x	107Ω DC110V	CBR-061
CP-250/250B	250MFD 125VAC	25MFD 250VAC	107Ω DC110V	CBR-061
CP-300/300B	250MFD 125VAC	35MFD 350VAC	107Ω DC110V	CBR-061
CP-500	40MFD 125VAC	50MFD 250VAC	228Ω DC220V	CBR-061
CP-500T	x	x	228Ω DC220V	CBR-061

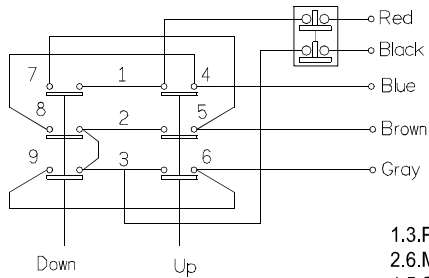
## VI. Wiring Diagram

### PUSH BUTTON SWITCH CPB-213



1.3. Power Source  
2.6. Main Winding  
4.5. Starting Winding

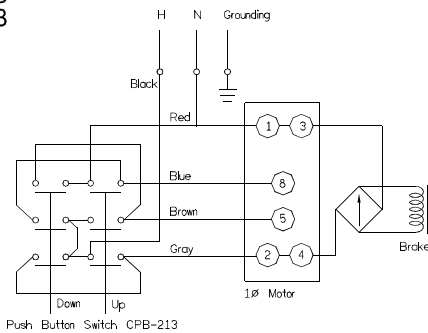
### EMERGENCY PUSH BUTTON SWITCH PB-330



1.3. Power Source  
2.6. Main Winding  
4.5. Starting Winding

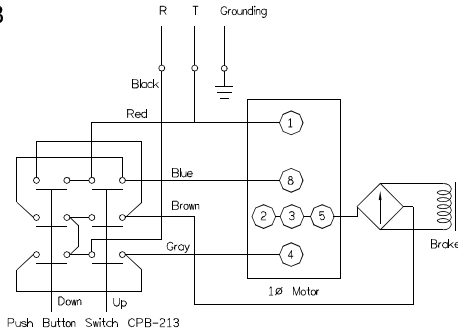
CP-200/200B  
CP-250/250B

1∅ 100V  
1∅ 110V  
1∅ 115V



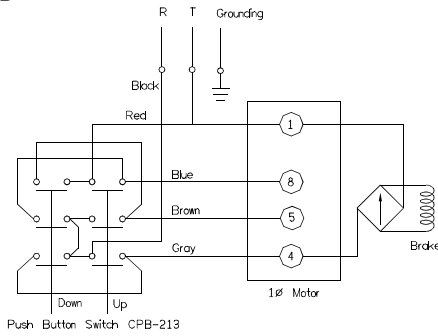
**CP-200/200B**  
**CP-250/250B**

- 1∅ 200V
- 1∅ 220V
- 1∅ 230V
- 1∅ 240V



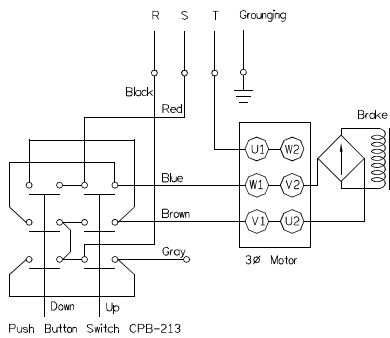
**CP-300/300B**  
**CP-500**

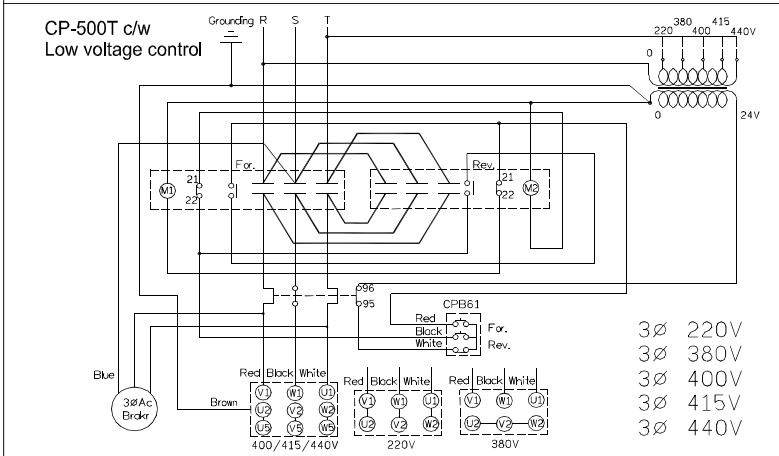
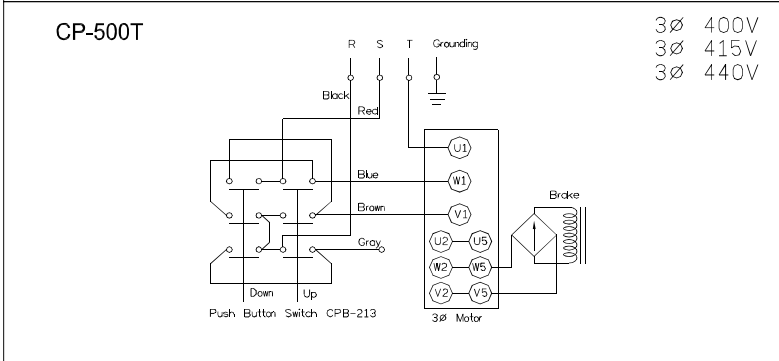
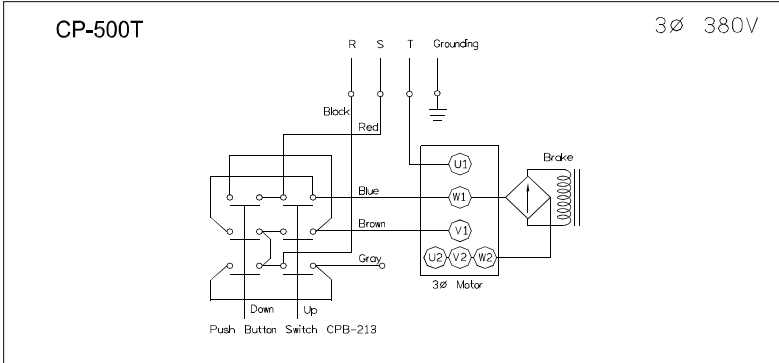
- 1∅ 200V
- 1∅ 220V
- 1∅ 230V
- 1∅ 240V



**CP-500T**

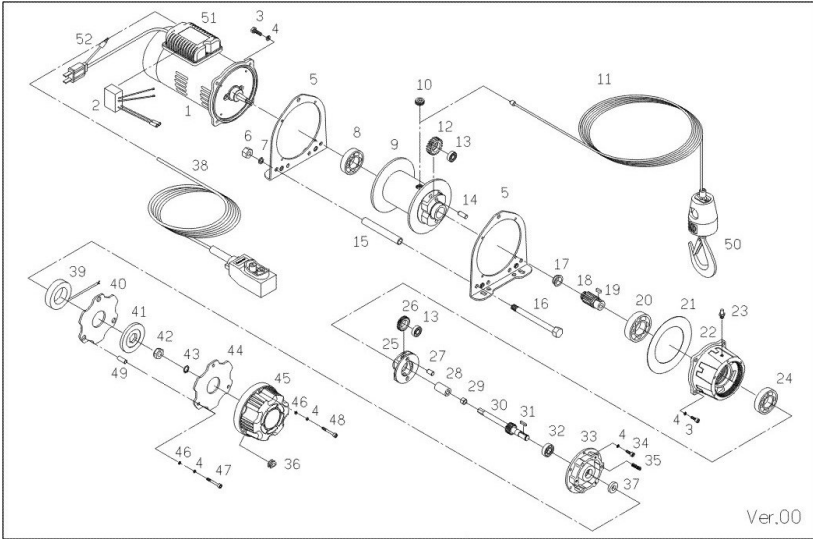
- 3∅ 200V
- 3∅ 220V





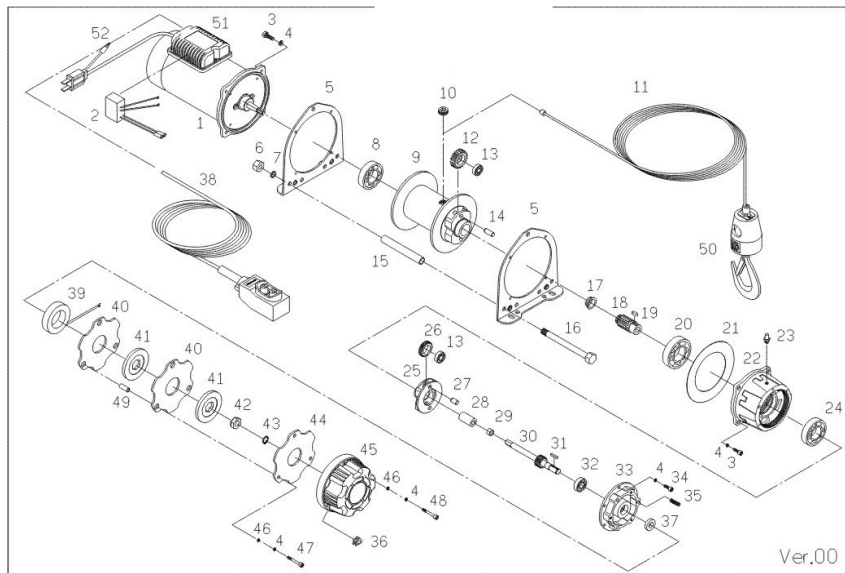
## VII. Replacement Spare Parts

### 7-1. CP-200 or CP-200B



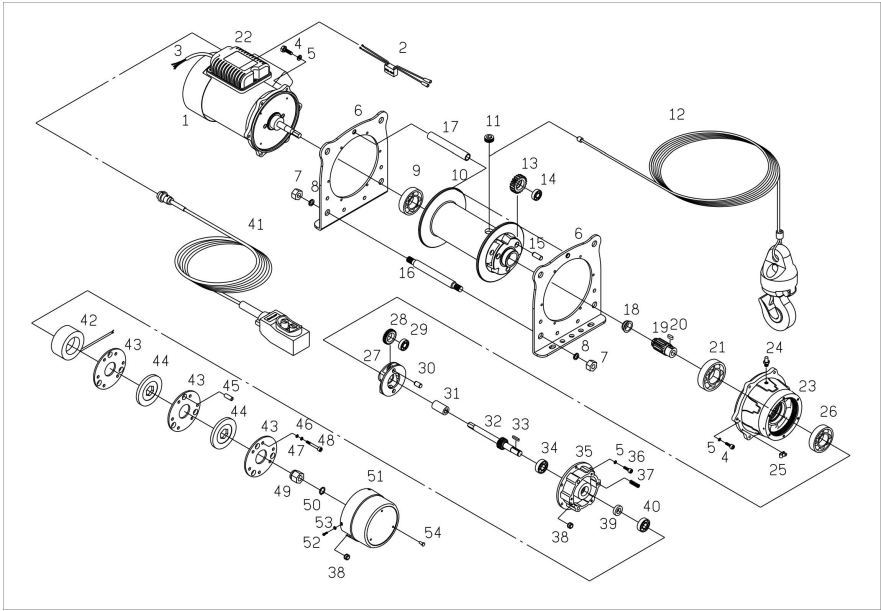
No.	Description	qty	No.	Description	qty	No.	Description	qty
1	Motor	1	19	Double round key	1	37	Oil seal	1
2	Ridge rectifier	1	20	Bearing	1	38	Switch	1
3	Hex bolt	8	21	Plate	1	39	Brake coil	1
4	Spring washer	17	22	Gear box	1	40	Conductor disc A	1
5	Gearbox housing	2	23	Nozzle	1	41	Brake disc	1
6	Nut	3	24	Bearing	1	42	Hex sleeve	1
7	Spring washer	3	25	1 <sup>st</sup> transmitsheet	1	43	Retaining ring	1
8	Bearing	1	26	1 <sup>st</sup> stage carrier	2	44	Conductor disc B	1
9	Drum	1	27	Locking pin	2	45	Brake cover	1
10	P.T. screw	1	28	Transmit sheet	1	46	Plain washer	6
11	Wire rope	1	29	Bearing	1	47	Hex bolt	3
12	2 <sup>nd</sup> stage carrier	2	30	1 <sup>st</sup> shaft	1	48	Hex bolt	3
13	Bearing	4	31	Double round key	1	49	Brake pipe	3
14	2 <sup>nd</sup> locking pin	2	32	Bearing	1	50	Weight hook	1
15	Tie bar	3	33	Conductor	1	51	電氣組	1
16	Hex bolt	3	34	Hex bolt	3	52	電源線	1
17	Bushing	1	35	Brake spring	3			
18	2 <sup>nd</sup> shaft	1	36	Plug	1			

## 7-1. CP-250/CP-300 or CP-250B/300B



No.	Description	qty	No.	Description	qty	No.	Description	qty
1	Motor	1	19	Double round key	1	37	Oil seal	1
2	Ridge rectifier	1	20	Bearing	1	38	Remote control	1
3	Hex bolt	8	21	Plate	1	39	Brake coil	1
4	Spring washer	17	22	Gear box	1	40	Conductor disc A	2
5	Gearbox housing	2	23	Nozzle	1	41	Brake disc	2
6	Nut	3	24	Bearing	1	42	Hex sleeve	1
7	Spring washer	3	25	1 <sup>st</sup> transmitsheet	1	43	Retaining ring	1
8	Bearing	1	26	1 <sup>st</sup> stage carrier	2	44	Conductor disc B	1
9	Drum	1	27	Locking pin	2	45	Brake cover	1
10	P.T. screw	1	28	Transmit sheet	1	46	Plain washer	6
11	Wire rope	1	29	Bearing	1	47	Hex bolt	3
12	2 <sup>nd</sup> stage carrier	2	30	1 <sup>st</sup> shaft	1	48	Hex bolt	3
13	Bearing	4	31	Double round key	1	49	Brake pipe	3
14	2 <sup>nd</sup> locking pin	2	32	Bearing	1	50	Weight hook	1
15	Tie bar	3	33	Conductor	1	51	Terminal box	1
16	Hex bolt	3	34	Hex bolt	3	52	Power lead	1
17	Bushing	1	35	Brake spring	3			
18	2 <sup>nd</sup> shaft	1	36	Plug	1			

## 7-2. CP-500/CP-500T



No.	Description	qty	No.	Description	qty	No.	Description	qty
1	Motor	1	19	2 <sup>nd</sup> shaft	1	37	Brake spring	3
2	Bridge rectifier	1	20	Double round key	1	38	Rubber gland	2
3	Terminal box unit	1	21	Bearing	1	39	Oil seal	1
4	Hex bolt	12	22	Terminal box	1	40	Bearing	1
5	Spring washer	18	23	Gear box	1	41	Remote control	1
6	Gearbox housing	2	24	Nozzle	1	42	Brake coil	1
7	Nut	8	25	Relief bushing	1	43	Conductor A	3
8	Spring washer	8	26	Bearing	1	44	Brake disc	2
9	Bearing	1	27	1 <sup>st</sup> transmitsheet	1	45	Brake pipe	3
10	Drum	1	28	1 <sup>st</sup> stage carrier	2	46	Spring washer	3
11	P.T. screw	1	29	Bearing	2	47	Plain washer	3
12	Wire rope w/hook	1	30	Locking pin	2	48	Hex bolt	3
13	2 <sup>nd</sup> stage carrier	3	31	Trans sleeve	1	49	Transit sleeve	1
14	Bearing	3	32	1 <sup>st</sup> shaft	1	50	Retaining ring	1
15	Locking pin	3	33	Double round key	1	51	Brake cover	1
16	Stud	4	34	Bearing	1	52	Hex bolt	3
17	Tie bar	1	35	Conductor	1	53	Plain washer	3
18	Bushing	1	36	Hex bolt	6	54	Rivet	3



# Limited Warranty

This Limited Warranty is given by the COMEUP INDUSTRIES INC (the “Seller”) to the original purchaser (the “Purchaser”) of a **COMEUP Winch** specified in this manual. This Limited Warranty is not transferable to any other party.

The Seller takes the responsibility for all parts and components, with the exception of the wire rope and electrical components, to be free from defects in materials and workmanship appearing under normal use for ed Any **COMEUP Winch**, which is defective, will be repaired or replaced without charge to the Purchaser.

Upon discovering any defect, the Purchaser under this Limited Warranty is requested to return the complete winch and inform the seller or their authorized distributors of any claims. The Purchaser must provide a copy of the proof of purchase bearing the winch serial number, date of purchase, owners name and address, vehicle details and registration number.

The Limited Warranty does not cover any failure that results from improper installation, operation or the Purchaser’s modification in design. The winch is designed for vehicle self-recovery use only and should not be used in industrial applications or for moving people. The Seller does not warrant them to be suitable for such use.

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