Horm

MODEL

horm-180

horm-250

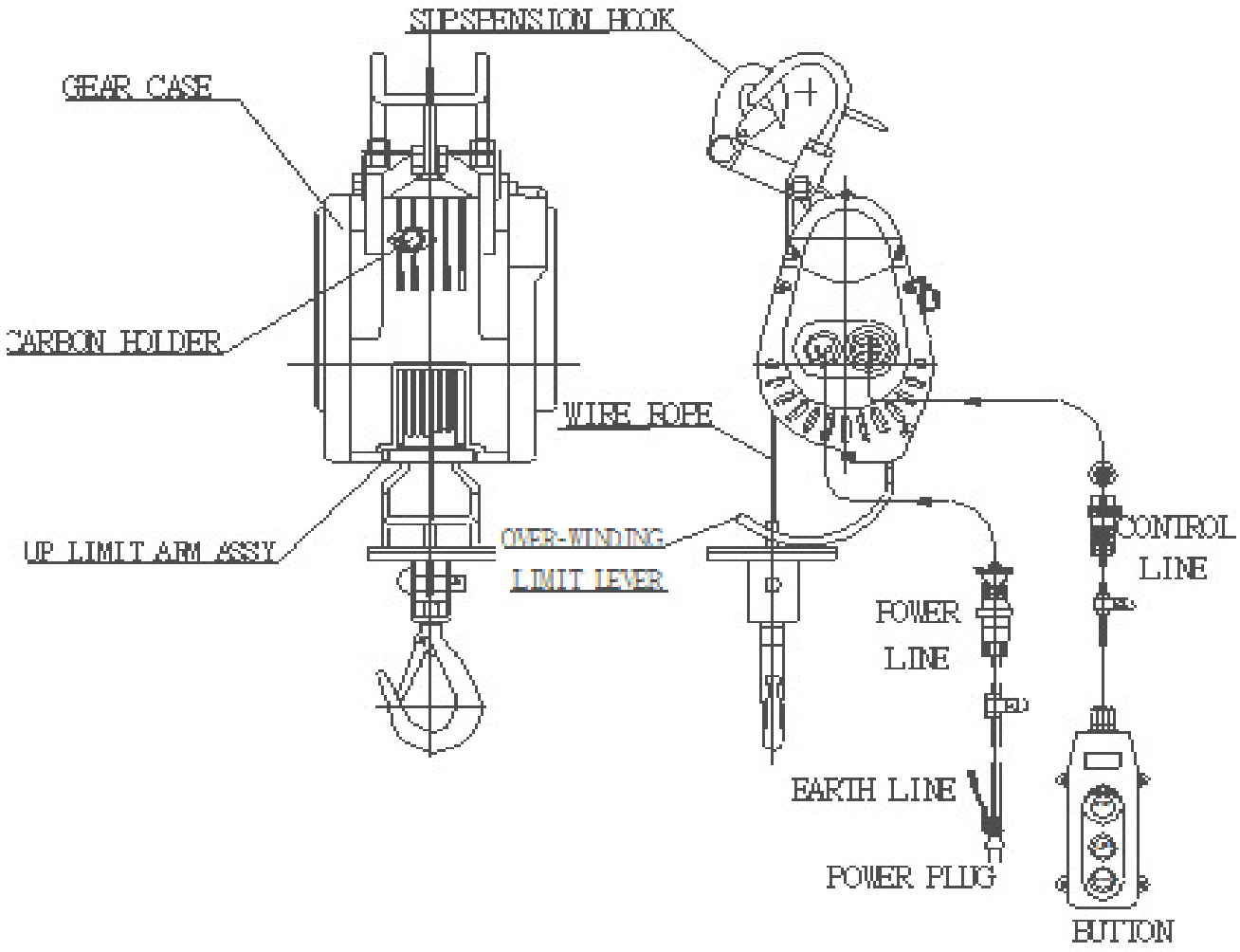
CAUTIONS

Before operation .please carefully read and follow the contents of User's instruction Manuals
Please properly keep User's instuction Manuals in file

USER'S INSTRUCTION MANUALS

MINI WINCH

MODEL		HORM-170		HORM-240
LIFTING LOAD		170KG		240KG
SPEED		22M/min		14M/min
MOTOR		1300W/12A		1300W/min
POWER SOURCE	220V/50-60HZ/1PHASE			
LIFTING HEIGHT		30M		30M
WIRE ROPE		φ4.8mm*30M		φ4.8mm*30M
CABLE LINE		2mm*3C*7M		2mm*3C*7M
BUTTON LINE		1.25mm*7C*7M		1.25mm*7C*7M
SWIVEL HOOK		2		2
NET WEIGHT		18kg		18kg
DIMENSION		23kg		23kg



Warning

1. Do not work, walk or stand under operating winch.
2. Do not carry person.
3. Do not pull out cargo on the moving load.

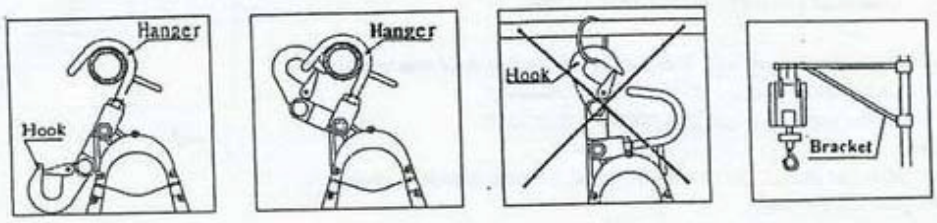
Without following instructions, it may result in personal injury or equipment damage..

1. Do not try to lift more than the rated capacity.
2. Do not ride on the moving load.
3. Do not work, walk or stand under an operating winch.
4. Stop the operation if there is a noise or vibration in the gear.
5. Avoid water splashes on the push button switch.
6. Use a wire rope evenly positioned on the drum.
7. Before the use, make sure the loaded cargo balanced.
8. Make sure to fix a rope in the center of swivel hook.
9. When the wire rope is kinked, distorted or damaged immediately replace with a new one.
10. Always leave the push button switch positioned immediately after use.
11. The original design is not used to lift, hold or carry person, any modification such as to upgrade, change the lifting speed or any other modification in design must be confirmed by the original manufacturer or authorized engineers.
12. **Do not operate under the environment with explosive gas or stuff.**
13. **Make sure if power voltage is supplied within standard voltage ±10% before operating, otherwise, motor could be damaged if operating out of it.**
14. **Do not link with power supply before installation is completed.**
15. **Do not execute maintenance under loading except inspecting brake and limit switch.**
16. **Adopt parts made by the original manufacturer for replacement when repair and maintenance.**
17. **Inspection shall be executed by an authorized technician**
18. **Do not use where the temperature is under 10℃ or above 40℃ as well as the humidity is above 90% and the place is full of acid, alkali or salt, to avoid unexpected accident.**
19. **Do not use where is raining or snowing to avoid leakage to influence with the life time and operator' s safety.**
20. **Do not use where is full of too much dust.**
21. **Do not lift the goods that is fixed on the ground.**
22. **Do not incline to lift the goods.**

1. MOUNTING

The winch designed to be hanged or mounted on a firm or stable bar or a bracket.
When hanging, do not allow the body or load to be caught by any construction of frame, or other obstruction.

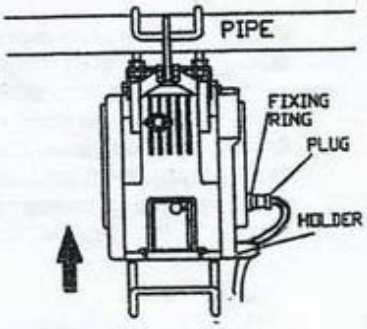
Be sure to lock the hanger for extra safety.



2. PLUG INSERTION

2-1 Power core insertion

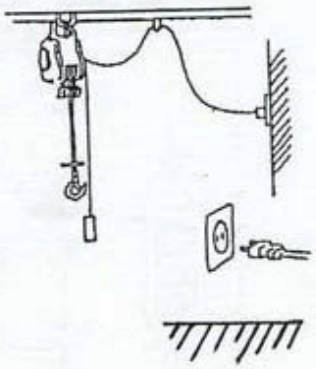
Insert the power plug into the power receptacle of the winch, and tighten it by turning the locking ring, clockwise.



Be sure to lock the cord by a holder. Bo not allow the cords to be caught by wire rope and drum.
The length of power cord is subject to the distance of 20 meter, for any other case, please use a power cable by 3.5 mm2 to prevent a considerable voltage drop to be happened.

The selection of power cord section

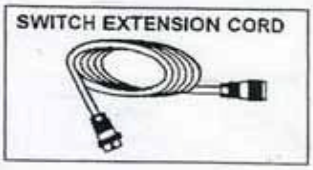
Section	Cord Length
2.0mm²	20m
3.5mm²	35m



2-2 Grounding

To prevent the risk of electric shock, the power plug must be plugged into a matching outlet and grounded in good condition.

2-3 Switch cord connection



1) Insert the switch plug into the switch receptacle of the winch and tighten it by turning the locking ring clockwise.
   Be sure to hook the cord by a holder.

2) To extend the length of to switch cord, please adopt a switch extention cord (10M).

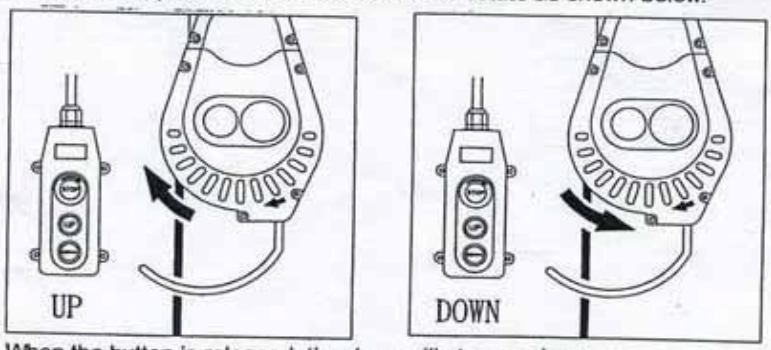
3. WORKING METHODS

3-1 PREPARATION BEFORE WORKING

- Be sure to carefully check all safety and environmental conditions.
- A minimum of five (5) wraps of wire rope wound around the drum is necessary.
  A wire rope should be discarded and not be used again if rope shows sign of excessive wear too many broken wires, corrosion or other defects.
- Make sure to connect the main power source and grounding.
- It's not safe to lift loads exceeding the rated load.
- Connect power source at rated voltage.
  (It will cause maladjusted working if input voltage falls out of rated voltage by ±10%)

3-2 UP AND DOWN SWITCHING

To lift a load, press ↑ button and drum will rotate as shown below operation.
To lower a load, press ↓ button and drum will rotate as shown below.



When the button is released, the drum will stop moving

4. HANDING PRECAUTION

4-1 ENVIRONMENT PRECAUTION

⚠ WARNING

● Pay best attention to the following instruction. Obvious mistakes in operation may result in personal inquiry or equipment damage.

● Never try to lift a load more than the rated cap.

● Never hitch a ride on the hook, sling or load being moving.

※ Winches are not to be used for lifting or lowering people.

● Don't work, walk or stand under an operating winch.

● While working, never stand under a lifting load or within the conveying area.

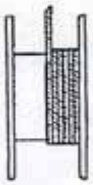
● Always remain in control. Never negiect the winch while actually hoisting a load.

● Always look up when working around winch, there is potential danger overhead.

※ Be sure to lift a load vertically. Slack may allow wires to be caught in the drum.

● Never gravitate a load freely.

● A minimum of five (5) wraps of rope around the drum is necessary to support the load rated.



● Prior to starting of use, carry out the dally checking without fall, and after confirming the safety of function.

● If having a counter rotation incurred, make sure to correct its turning direction.

● Prior to lifting. Make sure to have a precise performance of brake. If any malfunction of brake happened, stop the operation immedlately.

- When load suspended in air, it will not allow to be weiding.
  5Never weld a load whlle actually lifting a load.

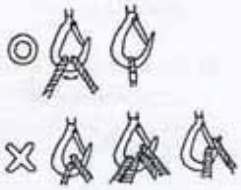
- Wire rope with one or more of the following defects shall be removed or replaced immediately.
  1) kink
  2) distortion
  3) corrosion
  4) showing sings of excessive wear or of having broken wires not less than 10 pcs.

- Stop the oporation if there is any queer noise or vibration in the gear box to be happeded.
- Do not connect the wire rope with the grounding of welding machine.
- while welding, do not have any contact with the welding objects because of having spark.

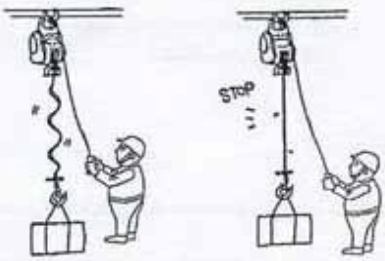
- Do not pull the switch cord to move a load.
- Do not over continuous ratings.

- Never plugging (istant reverse-wind) and inching.

- In order to prevent the layer down due to over loosening of rope, irregular winding, etc., operate according to the suitable operating method.
- Use a winch by fixing so securely that the rope around the drum is uneven.
- Be sure to fix a rope in the center of swivel hook.
- Be sure to stop operation immediately when the wire rope become fully slackened.



- Avoid catching the hook or lifting a load on a fixed obstruction.
- Always leave the push button switch positioned immedlately after use.
- Make sure that the load being lilfting are well balacnced and secured before starting.
- Avoid water splashes on the push button switch.



- Never wrap the load with the wire rope.

5. INSTALLMENT PRECAUTION

5-1 ENVIRONMENT PRECAUTION

⚠ WARNING

● The following environmental conditions may result in the possible causes of winch truouble.

● Low temperature below -10 ℃, high temperature above 40℃ or humidly above 90% conditions.

● In heavy acid or salty conditions

※ Cause malfunction of spare part.

● In a organic chemistry of explosive power conditions

※ Cause explosion

● In the rain or snow

※ Cause rust or short circuit

● In a heavy general powder conditions

※ Cause maifunction of performances

5-2 CONTINUOUS RATING

⚠ PRECAUTION

● Never hois over the rated percentage duty cycle

The life of the winch is depending on the conditions of the load and working frequency.
In the long time operation, make sure to use the machine within its continuous retings.
Continuous ratings means the working duty cycle (%ED) is subject to the rated voltage rated frequency and a 63% of rated load.

$$\text{Percentage duty cycle (\%ED)} = \frac{Tb}{Tb+Ts} \times 100(\%)$$

Tb: total sum of overall loading operating hours
Ts: total sum of stopping hours
Tb+Ts=approximately 1 to 10 min

The maximum of starts of the machine means the unmber of starts of motor per 1 working hour including the pause hours of winch which is value of number working times added with the rumber of inching.

5-3 OIL LUBRICATION

Winch are prefabricated at the factory and do not require initial lubriction.
Relubrication interval depends upon service.
Recommended oil replenishment quantity & intervals are as follows.

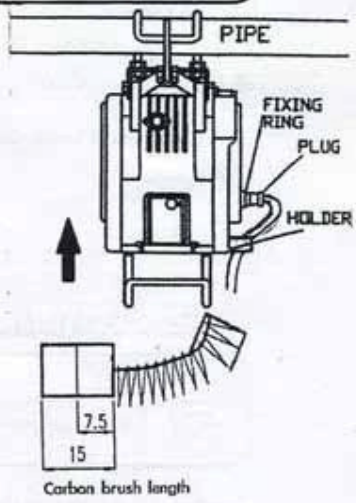
Grease Grade	Quantity		
NLGI NO.0	HORM-170	HORM-240	Intervals
Caltex Multifak Ep Cosmogear SE220	250cc	250cc	1 Year

5-4 CARBON BRUSH REPLACEMENT

⚠ WARNING

- Clean the accumulated powder of corbon brrush periodically to ascertain the insulation resistance up to 1MΩ.

- It is essential to check the carbon brush periodically.
  If its length is left less than 7.5mm resulting from wearing, it is absolute necessary to replace crbon brush immediately.
- While replacing, smoothly insert carbon brush into crbon holder in the first place, then put brush cap into the hole.
- Before tightening the carbon brush holder, make sure to position 0 ring.
- A set of carbon brush consists 2 piece of carbon brush.
  Ascertain to replace 2 pcs of carbon brush on opposite sides of winch body at the same time.

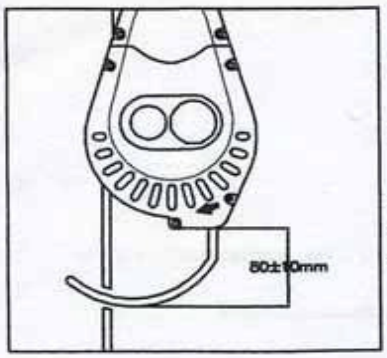


5-5 BRAKING

- Braking device are composed of a mechanic brake and a electronic generated brake. The brake distance from the time of braking until stopping completely should be within 1.5% of rope length to the wound in during 1 minute.
- Owing to the rope speed on no load is faster than that on rated load, the brake distane on no load will be longer, but still within 1.5% of rope length.
- The rope speed on no load is 1.5-1.8 times of rated speed on rated load.

5-6 OVER-WINDING LIFT PREVENTION DEVICE

- A special mechanism prevents a over-winding when lifting.
- When the swivel hook touces the limit lever. Lifting is automatically stopped.

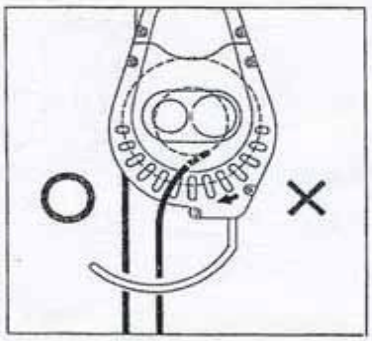


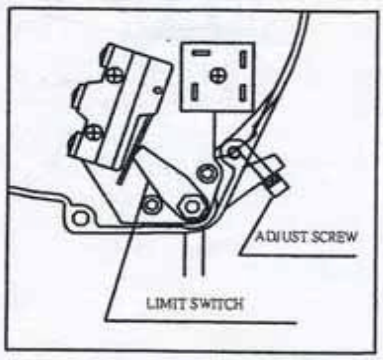
- However, if the limit lever is set too close to the winch body, it will cause serious damge to the limit lever and the winch body.
- A sdoosted distance (S) botwoon the limit leve and winch body is as follows.

MODEL	HORM-170	HORM-240
DISTANCE	70-90mm	70-90mm

5-7 REVERSE WINDING PREVENTION DEVICE

- A special mechaning provonts a over reverse-winding when lowering.
- Whan lawsning, a wire rope is fully extended , the wire rope will be shifted its position form 0 to ×.
- When a wire rope thouches the limit lever of over-winding prevention device. Lowing will be automatically stopped.
- When the wire rope is shifted to the position of ×. Pull it and press the ↑ button to return its position to 0.





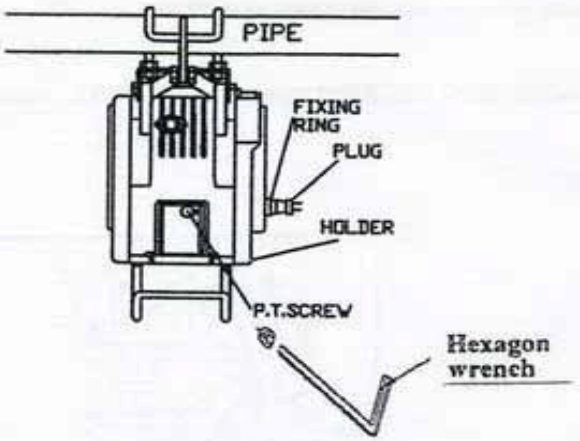
6. WIRE ROPE REPLACEMENT

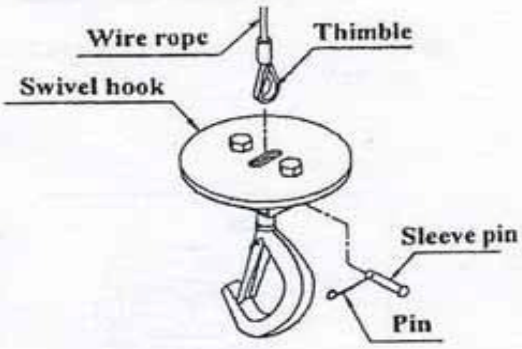
6-1 Swivel hook

- Put a new wire rope throught the hole of the round plate of swivel hook.
- Insert a sleeve pin through the thimble of wire rope.
- Insert a pin throught the sleeve pin and bent it by a pliers.

6-2 Drum

- Let a newe wire rope w/clamp throught the limit lever and insert it into the hole of the drum.
- Put a P.T. screw into the hope of the drum and tighten it by a hexagon wrench.
- Press the ↑ button to rotate the drum in the lifting direction.
- A uneven winding of wire rope may cause the load to be swing, thus damaging the rope and reducing its life.





7. CHECKING

7-1 CHECKING REFERENCE

	CHECKING ITEMS		CHECKING METHODS	CLASSIFICTION OF CHECKS			
					PERIODICAL		
				DAILY	3 MONTH/ 20 HOURS	1 YEAR	3 YEAR
1	●BRAKE	performance	Visual	▲			
		Wearing of lining, and pressed plate	Decomposition check				▲
		Break or escáping of spning	Decomposition check				▲
2	●CARBON BRUSH	Wearing	Decomposition check				
3	●MOTOR	Condition of insulation	Measuring, 50MW min		▲		
		Staining, damage	Visual	▲			
		Carbon powder accumulation	Decomposition check			▲	
4	●CONTROL ASS'Y	Working	Manual	▲			
		Outer damage of switch Cords	Visual	▲			
		Attaching condition of earth line	Visual	▲			
		Condition of insulation	Measuring, 50MW min		▲		
5	●Safety device	Over-prevention function	Visual	▲			
		Reverse winding prevention function	Visual	▲			
		Distortion of over winding lever	Visual	▲			
		Wrong rotary direction-winding	Visual	▲			
6	●WIRE ROPE	Kink phenomena	Visual	▲			
		Broken wires	Visual	▲			
		Decreasing of diameter more than 10%	Visual	▲			
		Deforming or corrosion	Visual	▲			
7	●SWIVEL HOOK & HANGER	Distortion	Visual	▲			
		Damage	Visual	▲			
		Loosening	Visual	▲			
8	●DRUM	Rupture of flange	Visual	▲	▲		
		Wearing	Visual		▲		
9	●GEAR CASE	Damage, wering	Visual	▲			
		Condition of oil feeding	Measuring			▲	
		Lubrication for couplings	Measuring			▲	
10	●FASTENINGS	Loosening	Manual	▲		▲	
11	●MARKING	Label and the like	Manual			▲	

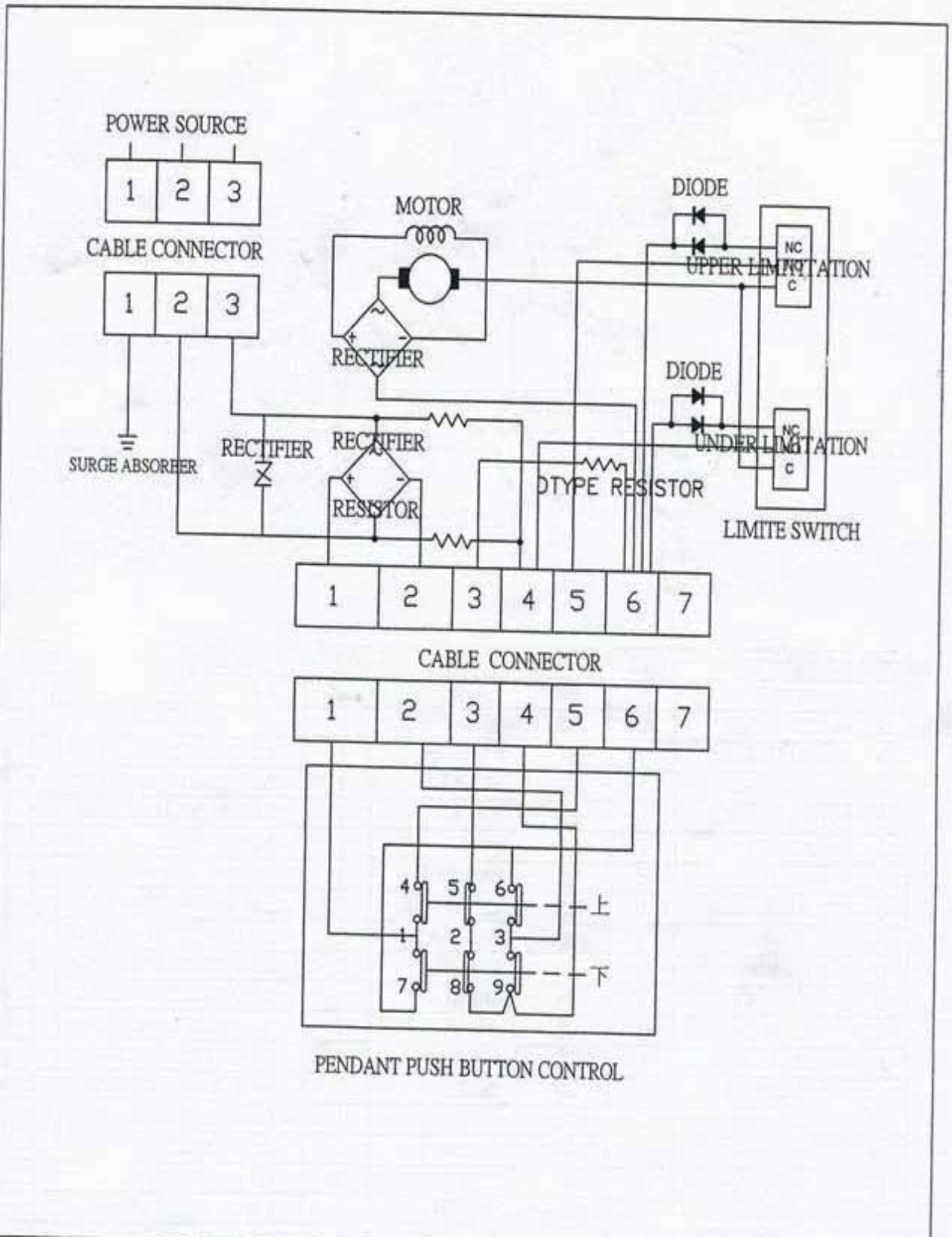
Remark: 1. The specified person performs the checking of winch.
2. Divide the checking into daily checking and periodic checking.
3. The checking items and checking method in daily and periodic checking are to be carried out and different according to the using frequency.

8. TROUBLE SHOOTINGS

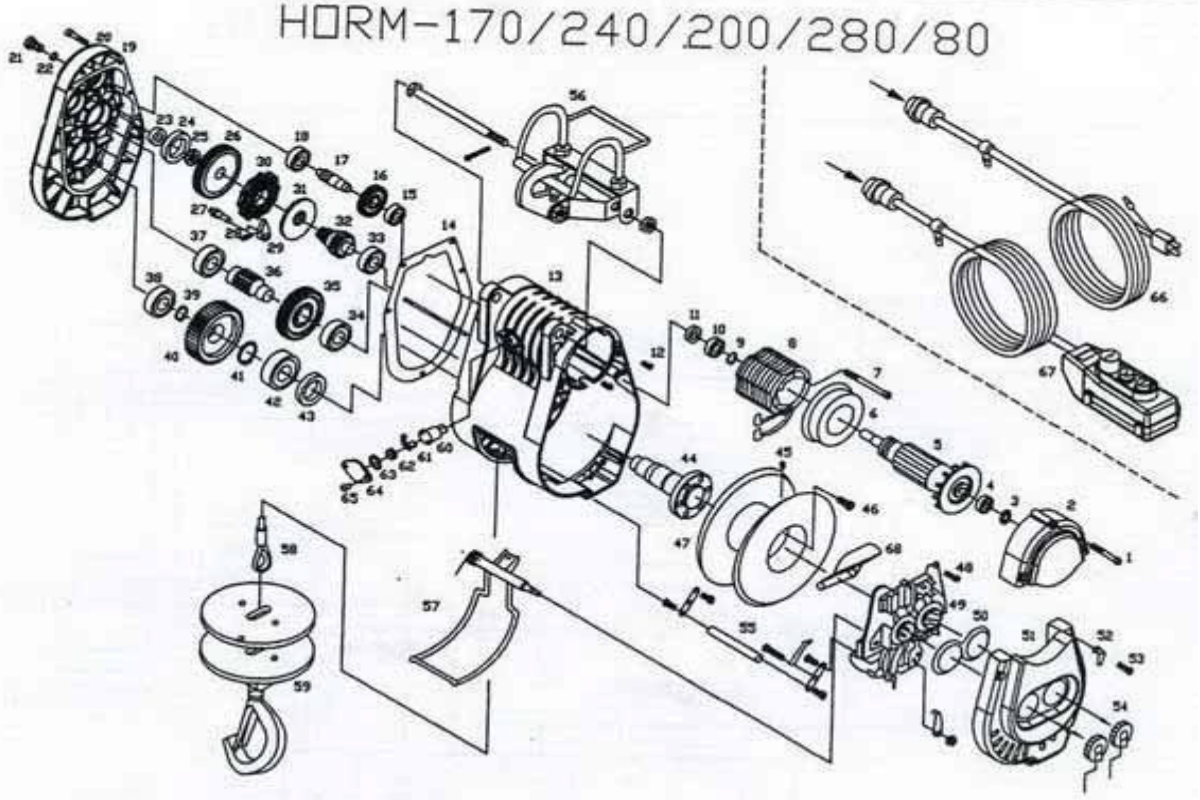
Checking the winch for smooth operation by pressing up and down button of pushbutton swithc. When winch fails to start after several attempts, or if any defective operation to be happened, check followings.

OBSERVED ANOMALY	POSSIBLE CAUS	SOLUTION
No reaction after pressing the buttons of switch	No power	Check power source
	Disconncetion of plug, powder cord or switch cord	Replace or repair
	Burnt of communicated motor resulting from over load	Replace
	Burnt diode ass'y	Replace
		Clean motor
	Considerable voltage drop	Adjust to rated voltage
	Wearing of carbon bursh	Replace carbon brush
Brake distance too long	Wearing of lining, pressed plate and pawl	Replace
	Disconnection of electronic generated feed-back braking	Repair nut and cord
		Replace D type resistor
	Too high voltage	Adjust to rated voltage
No over-winding prevention while swivel hook touches limit lever	Disconnection of electronic generated feed-back braking	Repair of nut and cord Replace D type resistor
	Malfunction of limit switch	Replace
Lifting speed too slow	Overload	Reduce load
	Considerable voltage drop	Adjust to rated voltage
		Check the section of power cord
Electricity leaskage or shock	Burnt motor resulting from overload	Replace motor
	Wearing of carbon brush	Replace carbon brush and Clean carbon powder left in the motor
	Water invaded in motor or push button switch	Dry it
		Replace motor if too heavy water invaded
Abnormal sound in geart box	Insufficient oil resulting from oil leakage	Replace oil seal
		Fill with sufficient oil
	Distortion of gear box	Repair

CIRCUIT DIAGRAM



HORM-170/240/200/280/80



	DESCRIPION	QTY		DESCRIPION	QTY		DESCRIPION	QTY
1	HEX BOLT	3	24	BUST	1	47	DRUM	1
2	MOTORCOVER	1	25	1/2CIRCLE-KEY	1	48	SCREW	4
3	WASHER	1	26	2ND GEAR	1	49	CONTROL ASS'Y	1
4	BEARING	1	27	SET BOLT	1	50	PLASTIC PACKING	1
5	ROTOR+1ST PIONIN	1	28	SPRING	1	51	ELECTRIC COVER	1
6	FAN COVER	1	29	PAWL	1	52	RING	1
7	HEX-BOLT	2	30	RATCHET	1	53	HEX BOLT	4
8	FIELD COIL ASSY	1	31	BRAKE-DISK	1	54	CONNECTORS CAP	2
9	C RING	1	32	3RD SHAFT	1	55	DOWN LIMIT ARM ASSY	1
10	BEARING	1	33	BEARING	1	56	SUPSPENSION HOOK ASSY	1
11	OIL RING	1	34	BEARING	1	57	UP LIMIT ARM ASSY	1
12	KNOB PIN	2	35	3RD GEAR	1	58	WIRE ROPE ASSY	1
13	GEAR CASE	1	36	4TH SHAFT	1	59	SWIVEL HOOK	2
14	PACKING	1	37	BEARING	1	60	CARBON HOLDER	2
15	BEARING	1	38	BEARING	1	61	CARBON BRUSH	2
16	1ST GEAR	1	39	C RING	1	62	BRUSH CAP	2
17	2ND SHAFT	1	40	4TH GEAR	1	63	O RING	2
18	BEARING	1	41	C RING	1	64	BRUSH COVER	2
19	GEAR CASE COVER	1	42	BEARING	1	65	SCREW	4
20	HEX BOLT	7	43	OIL RING	1	66	POWER CORD ASSY	1
21	HEX BOLT	1	44	OUTPUTSHAFT	1	67	BUTTON CORD ASSY	1
22	O RING	1	45	P.T.SCREW	1	68	ROPE STOPPER	1
23	BEARING	1	46	HEX BOLT	6			