COME-UP WINCH

Model: Wolf 8.5
Wolf 12.0

Infinite Hook Up

INSTRUCTION MANUAL

Worm Gear Winch

WINNER·TAIWAN·SYMBOL OF EXCELLENCE

TÜV CERT ISO-9001:2000

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– Worm Gear 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

A 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 winch.

Follow these general safety precautions:

- Don't use unsuitable pulleys or accessories.
- Don't use unsuitable rope in construction, strength or having any defects.
- Check the winch for smooth operation without load before winching operation.
- Make sure the wire rope is wound evenly on the first layer on the drum, rewind it if not evenly wound.

⚠ WARNING

1. The winch is rated for intermittent-periodic duty.
2. The winch is not to be used to lift, support or otherwise transport personnel.
3. A minimum of five (5) wraps of rope around the drum are necessary to support the rated load.
4. When choosing the right winch, you need to consider the vehicle size and weight. As a general guide, you need a winch with a maximum load rating of at least one and a half times greater than the gross vehicle weight.
5. The rated line pull of the winch must be powerful enough to overcome the added resistance caused by whatever the vehicle is stuck in.

I. Safety Precautions

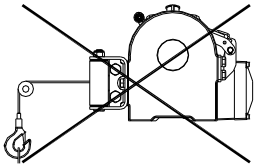
Please read and understand this Instruction Manual before installing your winch.

⚠ Don't use unsuitable wire rope in construction, strength or having any defects.

⚠ Don't use a unsuitable hook and snatch block for rope.

⚠ The operator of a winch in some cases, is required to have qualifications according to applicable laws and ordinances.

⚠ Do not use the winch as a lifting device or a hoist for vertical lifting (Fig1).



(Fig1)

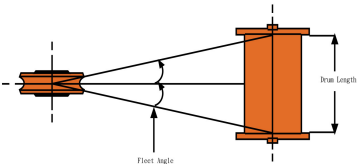
⚠ Do not use winch to move people.

⚠ Do not exceed maximum line pull ratings shown in tables. Shock load must not exceed these ratings.

⚠ Keep hands clear of wire rope and fairlead opening.

⚠ The maximum recommended fleet angle for smooth wire rope reeving is 3° total (Fig2)

CALCULATING FLEET ANGLE



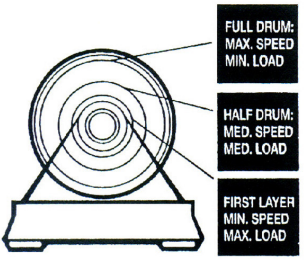
(Fig2)

⚠ Use leather gloves or a heavy rag when handling the wire rope.

⚠ When winching a heavy load lay a heavy blanket or jacket over the wire rope near the hook end.

⚠ CAUTION

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 on their performance first layer of rope on the drum.



II. Performance Data

▶Specifications

Model			WOLF 8.5	WOLF 12.0
Line Pull (first layer)			3,856 kg / 8,500 lb	5,443kg / 12,000lb
Line Speed (first layer, no load)			10.6mpm / 35.0 fpm	6.2mpm / 20.4fpm
Amp. Draw	12V		350 A	350 A
	24V		170 A	190 A
Motor	Type		Series wound	
	Output	12V	3,430 w / 4.6 hp	3,430 w / 4.6 hp
		24V	1,940 w / 2.6 hp	2,238 w / 3.0 hp
Gear Train	Type		3 stage planetary	
	Ratio		225.4:1	424.1:1
Free-spool			Rotating ring gear free-spool	
Brake			Irreversible worm gear brake PULS mechanism ratchet wheel brake	
Control			Integrated solenoid pack	
Wire Rope	Type		A7 x 19 aircraft galvanized	
	Length		45 m / 150 ft	30 m / 100 ft
	Size		7.9 mm / 5/16 in	9.5 mm / 3/8 in

▶Performance

Model		WOLF 8.5	WOLF 12.0
1st layer	Line pull (kg / lb)	3,856 / 8,500	5,443 / 12,000
	Line speed (mpm / fpm)	1.75 / 5.75	1.02 /3.35
	Rope cap (m / ft)	7.6 / 25.0	7.1 / 23.3
2nd layer	Line pull (kg / lb)	3,280 / 7,216	5,575 / 12,292
	Line speed (mpm / fpm)	2.06 / 6.77	1.22 / 4.01
	Rope cap (m / ft)	16.6 / 54.5	15.6 / 51.2
3rd layer	Line pull (kg / lb)	2,853 / 6,277	4,723 / 10,413
	Line speed (mpm / fpm)	2.37 / 7.78	1.42 / 4.66
	Rope cap (m / ft)	26.9 / 88.4	25.5 / 83.8
4th layer	Line pull (kg / lb)	2,525 / 5,555	4,097 / 9,033
	Line speed (mpm / fpm)	2.68 / 8.81	1.61 / 5.29
	Rope cap (m / ft)	38.5 / 125.5	30 / 100
5th layer	Line pull (kg / lb)	2,264 / 4,981	
	Line speed (mpm / fpm)	2.99 / 9.82	
	Rope cap (m / ft)	45 / 150	

▶Line speed and Amp. Draw

At the first layer of wire rope on the drum.

Model		WOLF 8.5				WOLF 12.0			
Line Pull		Line Speed		Amp.		Line Speed		Amp.	
Kg	lb	mpm	fpm	12V	24V	mpm	fpm	12V	24V
0	0	10.65	35.0	55	40	6.2	20.4	70	40
907	2,000	4.01	13.2	120	70	2.33	7.7	100	55
1,814	4,000	2.94	9.7	200	100	1.71	5.6	140	70
2,722	6,000	2.38	7.8	255	130	1.39	4.6	180	85
3,629	8,000	2.00	6.6	320	160	1.17	3.8	270	120
3,856	8,500	1.75	5.7	350	170	*	*	*	*
4,535	10,000	*	*	*	*	1.09	3.6	310	150
5,443	12,000	*	*	*	*	1.02	3.4	350	190

Ⅲ. Installation

Before using the winch, make sure all electrical components have no corrosion or damaged; the environment should be clean and dry. The voltage drop from the battery connections to the winch must not exceed 10% of the nominal voltage under normal operating condition.

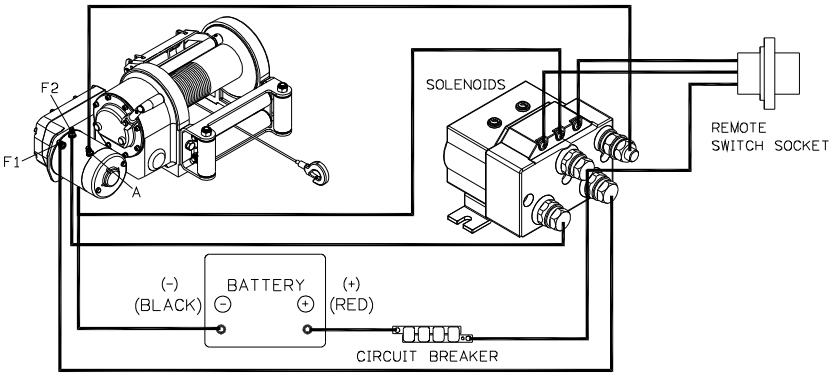
▶Mounting

1. The winch should be mounted as close to center and as perpendicular as possible to the direction of the line pull. This will keep the wire rope fleet angle centered on the drum as small as possible.
2. It is very important that the winch will be mounted on a flat and hard surface in order to make sure the motor, drum and gearbox housing are aligned correctly.
3. The failure to adequately align, support, or attach winch to a suitable mounting base could result in a loss of efficiency of premature failure of winch.
4. Four (4) M12 x 1.75 pitch 8.8 Grade High Tensile Steel Bolts must be used for in order to sustain the loads imposed on the winch mounting.
5. Two (2) M12 x 1.75 pitch 8.8 Grade High Tensile Steel Bolts must be used for fastening the roller fairlead into the winch housings respectively.

▶Battery leads connection

Model		WOLF 8.5	WOLF 12.0
Control Type		Integrated solenoid pack	
Volt	12V or 24V	Red lead: 2AWG x 1.83 m/ 72”	Red lead: 2AWG x 1.83 m/ 72”
		Black lead: 2AWG x 1.83 m/ 72”	Black lead: 2AWG x 1.83 m/ 72”

1. Attach the black lead (grounding) firmly to the negative (**–**) battery terminal.
2. Attach the red lead to the circuit breaker, connect the other end to the positive (**+**) battery terminal.
3. The circuit breaker as option shall be recommended to be fitted.



▶Remote control Connection

1. A remote switch with ϕ 1.25 mm X 3c X 5 m (16AWG X 3c X 17’) lead supplied
2. Open the dust-proof cover of the winch, then insert the switch plug into the socket

Ⅳ. Operation

►Precautions

⚠ **C**heck all safety and environmental conditions prior and during use.

⚠ A wire rope should be replaced if it shows signs of excessive wear, broken wires, corrosion or any other defects.

⚠ The operator must remain with the winch when it is being operated.

⚠ The winches duty rating is S3 (intermittent – periodic)

⚠ If the winch fails to pull a load under normal conditions, stop the operation within 30 seconds otherwise motor damage may occur.

⚠ Ensure that the winch is connected to the correct voltage. 12VDC or 24VDC only

⚠ Check that the free-spool lever is in the "Engaged" position during and after use.

⚠ Remove the switch from the winch when not in use.

⚠ Do not wrap the wire rope around the load and back onto it self. Always use a strap to ensure that the wire rope does not fray or kink.

⚠ Keep hands and clothes away from the winch, wire rope, and fairlead.

⚠ Never unplug the remote control when winching a load.

⚠ Before use, ensure that you are familiar with all winching operations (winch speeds & direction).

⚠ To avoid insufficient power when winching a load, the vehicle should be running and in neutral.

⚠ Keep the remote control clear of the winch cable at all times.

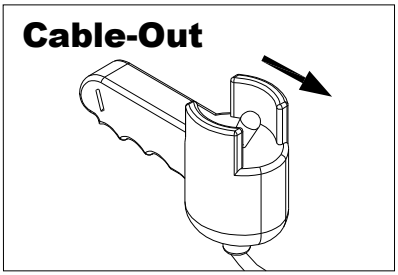
⚠ If noise or vibration occurs when running, stop the winch immediately and return it for repair.

►Cable-in/ Cable-out Operation

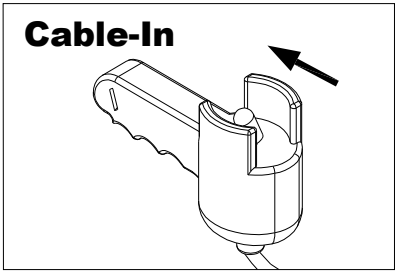
1). To determine "Cable - Out", trigger → out (fig.3)

2). To determine "Cable - In", trigger ← in (fig.4)

To stop winching, release the trigger



(Fig3)



(Fig4)

▶Free-spool function

The free-spool allows rapid pay-out of the wire rope for hooking onto a load or anchor points and is operated by a free-spool lever.

The free-spool lever must be in the "Engaged" position before winching (Fig.5).

1). To disengage the free-spool lift the free-spool lever up and turn it at 90^0 clockwise rotation to the "Disengaged" position, wire rope can now be free-spooled off the drum (Fig.6).

2). To engage the free-spool lift the free-spool lever up and turn it at 90^0 counter-clockwise rotation to the "Engaged" position.

3). If a free-spool lever can't be properly locked in the "Engaged" position, rotate the drum to make the free-spool device coupled to the gear train.

4). Wear leather gloves and use a strap when guiding the wire rope off the drum.

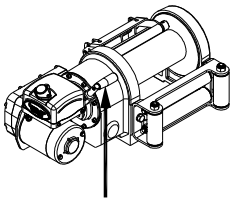


Fig5

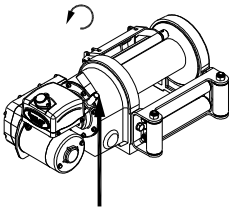


Fig6

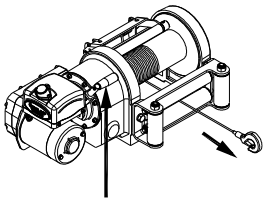


Fig7

▶ Winching Principles

As a general guide you need your winch with a mximum line pull at least 1.5 times greater than the gross vehicle weight. There are three factors have incluenced with the line pull effect required to recover the vehicle.

1). Gross Vehicle Weight (Wt): Contains the vehicle weight and the weight of the supplies and equipments carried

2). Suface Drag (S): The characteristics of the terrains or surface to be traversed

Surface Type	Metal	Sand	Gravel	Soft Sand	Mud	Marsh
Surface Drag(S)	0.15	0.18	0.20	0.22	0.32	0.52

A gradient of 10% is a rise of one foot in ten feet

3). Gradient rsistance: the incline of grade or slope on which the vehicle is being moved. Agradient of 10% is a rise of one foot in tne feet **.** A gradient of 10% is a rise of one meter in ten meters

Gradient	5%	10%	20%	30%	50%	70%	100%
Angle(ref.)	3˚	6˚	11˚	17˚	26˚	35˚	45˚
Value of (G)	0.06	0.11	0.2	0.3	0.44	0.58	0.71

Rolling pull Effect Required = (Wt X S) + (Wt X G)

For example, if a vehicle weighing 3,000 kg is winched up an incline by 100% on the marsh road,

Where, Wt: 3,000 kg (Gross Vehicle Weight) (Wt X S) + (Wt X G)

S: 0.52 (Suface Drag Value for marsh) = (3,000 kg X0.52) +(3,000 kg X 0.71)

G: 0.71 (Gradient Resistance Value) = 1,560 kg + 2,130 kg = 3,690 kg

It requires 3,690 kg of rolling pull effect to recover the vehicle, so a Wolf 8.5 shall be recommended.

▶ Use a snatch block

Using a snatch block for double line operation to increase line pull by approximately 85%, but the speed will decrease accordingly.

▶Winching VS. Hoisting

If you intend to use your winch for raising and lowering temporarily, there are few things you should know before making your decision.

1). There are a lot of standards set for machinery used in lifting, but your winch fails to be in compliance.
2). Remove the free-spool function
3). Divide your winch rated load by 7 times, the result of this calculation will be the load that you can lift
4). Never lift people or lift load over people
5). You and all others stand well clear of the lifting area.

Ⅴ. Maintenance

▶ Wire rope Replacement

- Never use a wire rope of a different size or material and only use genuine replacement parts.
- If the winch is subjected to a high duty or excess load, the wire rope may require frequent replacement.

1). Disengage the free-spool lever(Fig.6)

2). Spool the entire wire rope, and then remove it from the drum.

3). Place the replacement wire rope through the fairlead opening, pass below the drum, and insert it into the hole on the drum core. (Fig.7)

4). Tighten the screw downwards to secure the wire rope (Fig.8).

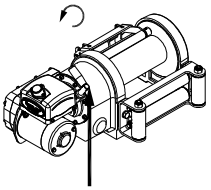


Fig6

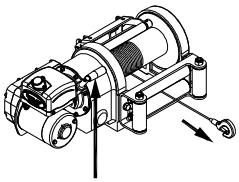


Fig7

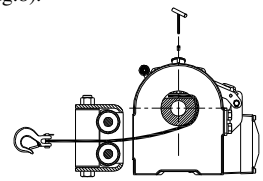


Fig8

▶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 a marine type grease.

▶ Maintenance Schedule

- Ensure that a responsible person carries out all inspections as per schedule.
- Inspections are dived into Daily, Monthly and 3 Monthly.

Classification of check			Item		Checking method	Checking reference
Daily	Periodical					
	One month	Three month				
O			Installation	Mounting bolts & alignment.	Bolt tension & wear.	Existence of abnormalities
O			Remote control	Working	Manual	Reasonable actuation
		O		Wearing in contact points	Visual.	Free of wear or damage.
O			Wire rope	Broken strands	Visual, measuring	Less than 10%
O	O			Decrease in rope diameter	Visual, measuring	7% of nominal diameter max
O				Deforming or corrosion	Visual	Existence of abnormalities
O				Fastening condition of end	Visual	Existence of abnormalities
		O	Free-spool	Wear in spring	Visual evidence of wear	Free of wear or damage.
		O	Motor	Staining, damage	Visual evidence of wear	Existence of abnormalities
		O	Brake	Wearing of lining	Visual evidence of wear	Free of wear or damage.
O				Performance	Visual	Reasonable actuation
		O	Gear	Damage, wearing	Visual evidence of wear	Free of wear or damage.

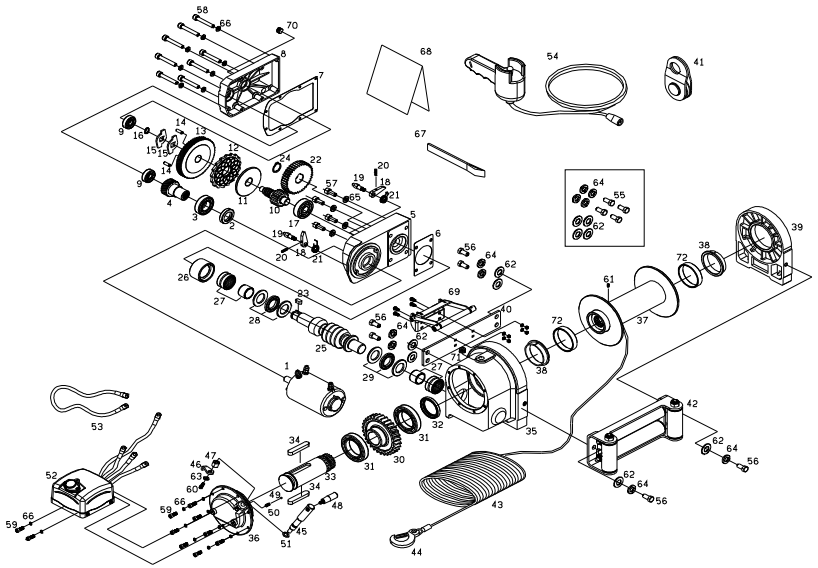
Ⅶ. Trouble Shooting

When the winch fails to operate after several attempts, or if there is any fault while

Ⅶ. Replacemet Parts List

Symptom	Possible Cause	Remedy
Winch will not operate	Cut circuit	Check battery lead.
	Weak battery	Recharge or replace battery (at least 650CCA)
	Damaged over-load protector(option)	Replace over-load protector(option)
	Bad connection of wirings	Reconnect tightly
	Damaged solenoid	Replace solenoid
	Cut circuit on switch	Replace switch
	Damaged motor or worn carbon brush.	Replace motor or carbon brush
	Dropt or lost motor wirings.	Replace wirings or tight it.
Motor runs in one direction.	Broken wirings or bad connections	Reconnect or replace wirings
	Damaged or stuck solenoid	Replace solenoid
	Switch inoperative	Replace switch
	Dropt or lost wirings.	Replace wirings and tighten.
Drum will not free spool.	Free-spool not disengaged	Engaged free-spool
	Damaged 1st shaft	Replace 1st shaft
	Damaged brake cam and disc	Replace brake cam and disc
	Damaged output shaft	Replace output shaft
No brake	Damaged brake cam and disc	Replace brake cam and disc
	Damaged gear box	Replace gear box
	Dropt retaining ring	Replace retaining ring
	Oil leakage at brake	Clean oil leakage
	Damaged or inoperative spiral spring	Replace and position spiral spring
Brake distance is too long	Worn or damaged brake	Replace or adjust brake
	Oil leakage at brake.	Clean oil leakage
Brake will be locked	Too much brake powder	Clean brake ass'y
	Over pre-pressed spiral spring	Adjust pre-pressed spiral spring
	Stuck between brake lining and gear box	Replace a new winch
Damaged gear box	Hit by certain exterior force.	Replace the damaged components
	Damaged gear train.	Replace the damaged components
	Over load operation.	Replace a new winch
Motor runs extremely hot	Long period of operation	Allow to cool
	Damaged motor	Replace or repair motor
	Damaged or inoperative brake	Replace or repair brake

▶WOLF 8.5 & 12.0



N	Description	Q'ty	No.	Description	Q'ty	No.	Description	Q'ty
1	Motor 12V	1	25	Worm	1	50	Pressed spring	1
	Motor 24V		26	Bearing socket	1	51	O ring	1
2	Oil seal	1	27	Needle bearing	2	52	Solenoid pack	1
3	Bearing 6005	1	28	Thrust bearing	1	53	Battery leads	1
4	1st shaft	1	29	Thrust bearing	1	54	Remote control	1
5	Gearbox base	1	30	Worm wheel	1	55	Hex bolt	4
6	Packing C	1	31	Bearing 6012ZZ	2	56	Hex bolt	6
7	Packing A	1	32	seal	1	57	Hex bolt	4
8	Gearbox up cover	1	33	Output shaft	1	58	Hex bolt	8
9	Bearinbg 6201	2	34	Double key	2	59	Hex bolt	10
10	2nd shaft	1	35	Gear box	1	60	Hex bolt	1
11	Brake disc	1	36	Gearbox rear box	1	61	Hex bolt	1
12	Ratchet	1	37	Drum	1	62	Plain washer	10
13	1st gear	1	38	Drum bushing	1	63	Plain washer	1
14	Spring pin	1	39	Housing	1	64	Spring washer	10
15	Tie bar	1	40	Tie bar	1	65	Spring washer	4
16	Retaining ring	1	41	Snatch block	1	66	Spring washer	18
17	Bearing 6303	1	42	Roller fairlead	1	67	Handsaver strap	1
18	Ratchet stopper	2	43	Wire rope	1	68	Foot print	1
19	Fix bolt	2	44	Safety hook	1	69	Cable tensiorer	1
20	Pressed spring	2	45	Free-spool lever	1	70	Cap screw	1
21	Returned spring	2	46	Transmitting arm	1	71	Cap screw	1
22	2nd gear	1	47	Socket	1	72	Bushing(Wolf 8.5 only)	1
23	Double key	1	48	Free-spool pipe	1			
24	Retaining ring	1	49	Steel ball	1			

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, to be free from defects in materials and workmanship appearing under normal use for as long as the said Purchaser owns the vehicle that the hoist was originally mounted on. Electrical components are warranted for 1 Year from date of purchase under the same conditions. 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 authorised distributors of any claims. The Purchaser must provide a copy of the proof of purchase bearing the hoist 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 hoist 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.

WOLF 2008-1-500