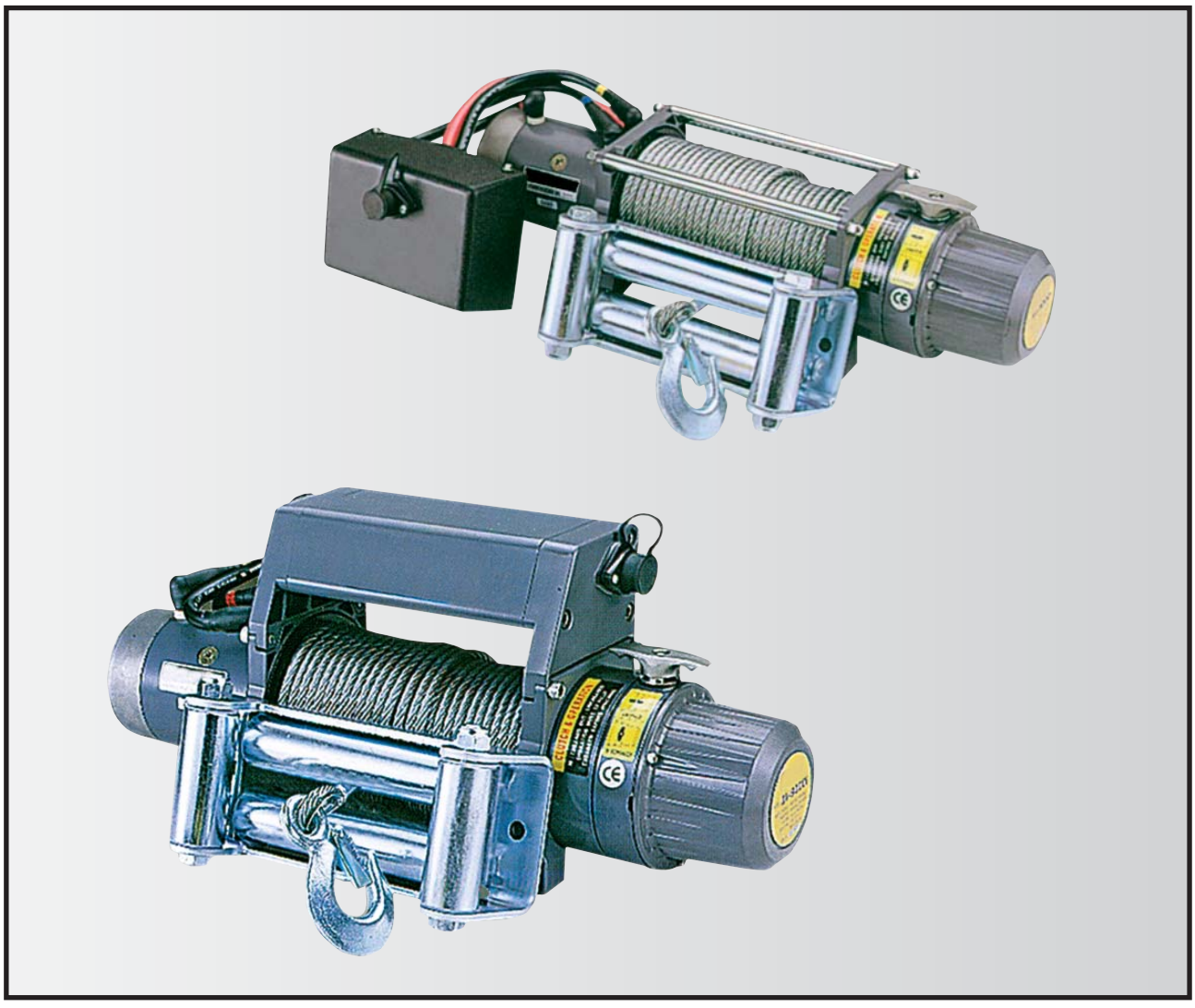
PLANETA

## OPERATING AND MAINTENANCE INSTRUCTIONS FOR

# PLANETA – ELECTRIC WINCHES

# DV-12000/15000



04-02-04-0000-0818-01-BA-EN-PLA

Self-Recovery Winch

Thank you for purchasing a **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 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 is 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.
6. Operate the winch cable in and cable out at no load if a winch has had any ingress of water.

# I. Safety Precautions

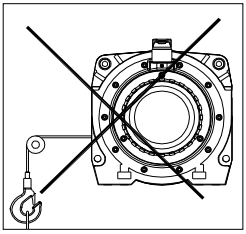
Please read and understand this Instruction Manual before installing your winch.

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

⚠ Don't use an unsuitable hook or snatch block for wire 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).



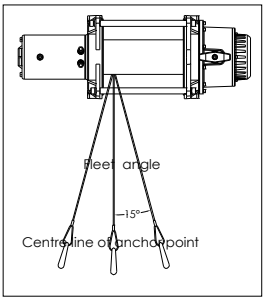
**(Fig1)**

⚠ 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.

⚠ Pull from an angle below 15 degree to straighten up the vehicle or load. (Fig2)

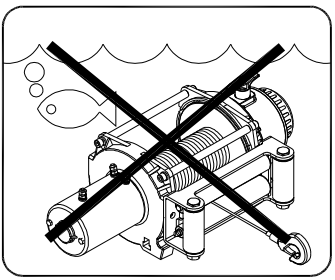



**(Fig2)**

⚠ 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.

⚠ Do not operate the winch under the water.



# II. Performance Data

## ▶Specifications

| Model | | | DV-12000ES | DV-15000ES |
|---|---|---|---|---|
| Line Pull (first layer) | | | 5,443kg / 12,000lb | 6,803kg / 15,000lb |
| Line Speed (first layer, no load) | | | 8.3mpm / 27fpm | 6.9mpm / 22fpm |
| Amp. Draw | 12V | | 440 A | 460 A |
| | 24V | | 290 A | 340 A |
| Motor | Type | | Series wound | |
| | Output | 12V | 4,175 w / 5.6 hp | |
| | | 24V | 2,684 w / 3.6 hp | |
| Gear Train | Type | | 3 stage planetary | |
| | Ratio | | 261:1 | 315:1 |
| Free-spool | | | Rotating ring gear | |
| Brake | | | Automatic, full load cone brake | |
| Control | | | Detachable Solenoid pack | |
| Wire Rope | Type | | A7 x 19 aircraft galvanized 6 x W(19) | |
| | Length | | 38 m / 125 ft | 27 m / 89 ft |
| | Size | | 9.5 mm / 3/8 in | 11 mm / 7/16 in |

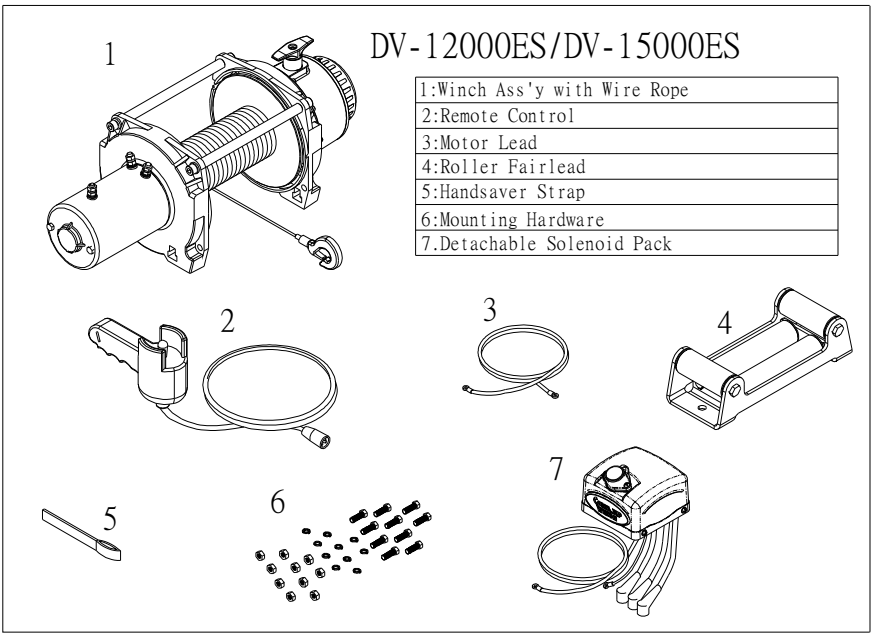
## ▶Performance

| Model | | DV-12000ES | DV-15000ES |
|---|---|---|---|
| 1st layer | Line pull (kg / lb) | 5,443 / 12,000 | 6,803 / 15,000 |
| | Line speed (mpm / fpm) | 1.2 / 4 | 0.76 / 2.5 |
| | Rope cap (m / ft) | 6.2 / 20.3 | 5.3 / 17.4 |
| 2nd layer | Line pull (kg / lb) | 4,561 / 10,056 | 5,575 / 12,292 |
| | Line speed (mpm / fpm) | 1.43 / 4.7 | 0.92 / 3.01 |
| | Rope cap (m / ft) | 13.6 / 44.6 | 11.8 / 38.7 |
| 3rd layer | Line pull (kg / lb) | 3,926 / 8,657 | 4,723 / 10,413 |
| | Line speed (mpm / fpm) | 1.67 / 5.47 | 1.09 / 3.57 |
| | Rope cap (m / ft) | 22.1 / 72.5 | 19.5 / 64 |
| 4th layer | Line pull (kg / lb) | 3,446 / 7,599 | 4,097 / 9,033 |
| | Line speed (mpm / fpm) | 1.9 / 6.23 | 1.26 / 4.13 |
| | Rope cap (m / ft) | 31.9 / 105 | 27 / 89 |
| 5th layer | Line pull (kg / lb) | 3,070 / 6,770 | |
| | Line speed (mpm / fpm) | 2.13 / 6.98 | |
| | Rope cap (m / ft) | 38 / 125 | |

## ▶Line speed /Amp Draw

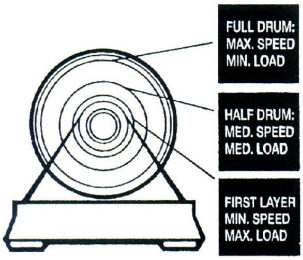
At the first layer of wire rope on the drum.

| Model | | DV-12000ES | | | | DV-15000ES | | | |
|---|---|---|---|---|---|---|---|---|---|
| Line Pull | | Line Speed | | Amp. | | Line Speed | | Amp. | |
| Kg | lb | mpm | fpm | 12V | 24V | mpm | fpm | 12V | 24V |
| 0 | 0 | 8.3 | 27 | 60 | 50 | 6.9 | 22 | 60 | 50 |
| 907 | 2,000 | * | * | * | * | * | * | * | * |
| 1,814 | 4,000 | 2.6 | 8.6 | 200 | 100 | 1.6 | 5.4 | 180 | 90 |
| 2,722 | 6,000 | * | * | * | * | * | * | * | * |
| 3,629 | 8,000 | 1.7 | 5.8 | 310 | 190 | 1.2 | 3.8 | 280 | 190 |
| 4,082 | 9,000 | * | * | * | * | * | * | * | * |
| 4,535 | 10,000 | 1.4 | 4.4 | 370 | 230 | 1.0 | 3.3 | 330 | 220 |
| 5,443 | 12,000 | 1.2 | 4.0 | 440 | 290 | 0.9 | 2.9 | 385 | 260 |
| 6,805 | 15,000 | * | * | * | * | 0.8 | 2.5 | 460 | 340 |



▶**Main Components**
▶How the winch is 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 on their performance first layer of rope on the drum.

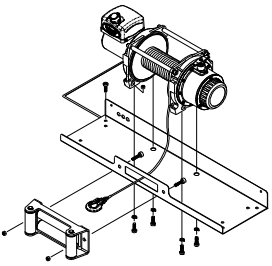



## Ⅲ. Installation

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.
Note：Roller Fairlead does not mount to winch.

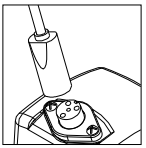
**▶Mounting**

1. 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.
2. It is recommended that you use a mounting channel to prevent from damaging winch or vehicle.
3. Eight (8) M12 x 1.75 pitch 8.8 Grade High Tensile Steel Bolts must be used in order to sustain the load imposed on the winch mounting.
4. Two (2) M12 x 1.75 pitch 8.8 Grade High Tensile Steel Bolts must be used for fastening the roller fairlead into the mounting channel.



**▶Remote control Connection**

1. A remote switch with $\phi$ 1.25 mm X 3c X5 m (16AWG X 3c X 17') lead supplied
2. Open the dust-proof cover of the winch, and then insert the switch plug into the socket (fig3).



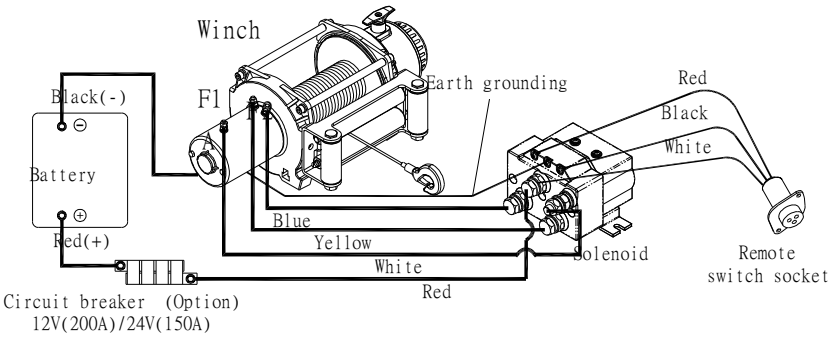
**(Fig3)**

**▶Battery lead connection**

Battery lead specification:

| Model | | DV-12000ES | DV-15000ES |
|---|---|---|---|
| Control Type | | Detachable solenoid pack | |
| Volt | 12V or 24V | Red 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 shall be recommended to be fitted.




# 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 be occurred.

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

⚠ Check that the free-spool T-handle 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 itself. 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 roller 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.

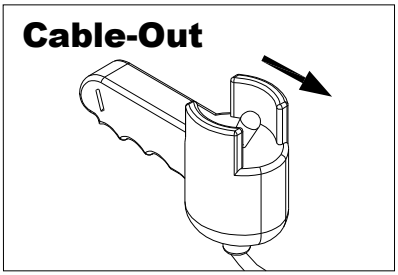
⚠ Keep the remote control clear of the wire rope at all times.

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

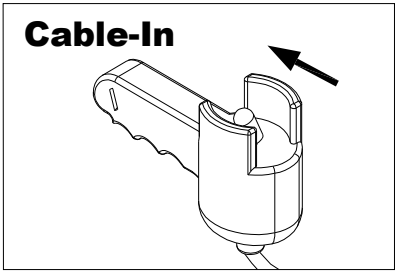
**▶Cable-in/ Cable-out Operation**

1). To determine “Cable - Out”, trigger → out (fig.4)
2). To determine “Cable - In”, trigger ← in (fig.5)

To stop winching, release the trigger




**(Fig4)**

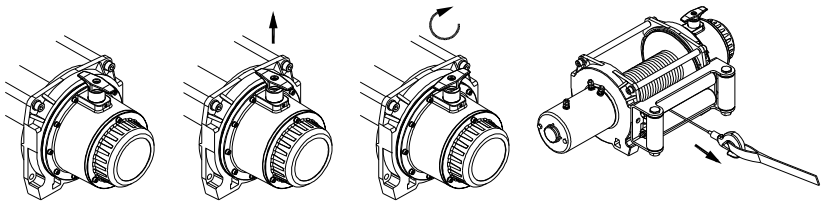



**(Fig5)**

**▶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 knob.
The free-spool T-handle must be in the “Engaged” position before winching.

1). To disengage the free-spool lift the free-spool T-handle up and turn it at $90^0$ clockwise rotation to the “Disengaged” position, wire rope can now be free-spooled off the drum.
2). To engage the free-spool lift the free-spool T-handle up and turn it at $90^0$ counter-clockwise rotation to the “Engaged” position.
3). If a free-spool T-handle 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.

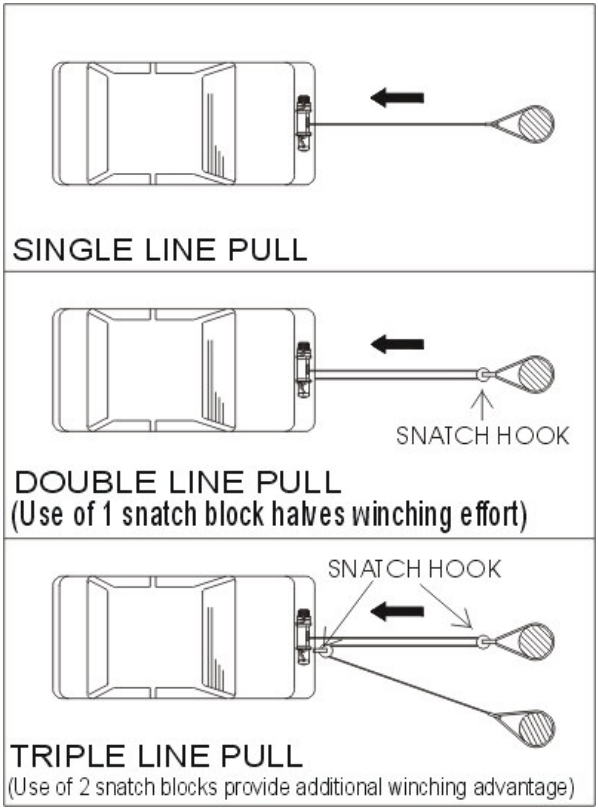


**(Engaged)** **(Disengaged)**

**▶Recovery Procedures**

Followings are some safety tips to get out
of trouble during a recovery.

1).Using a snatch block will increase the capacity, but the speed will decrease accordingly.
2).Experience has shown the best wire rope service is obtained when the maximum fleet angle is not more than 15 degree. Keep the wire rope as close as possible to the centre line of the anchor point.
3).It is the best to work with the most of wire rope unreeled from the drum to get more pulling power, but a minimum of five (5) wraps of wire rope should be wound around the drum to support the rated load.



# Ⅴ. Maintenance

**▶ Wire rope Replacement**

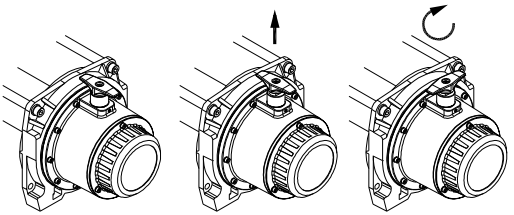
- Never use a wire rope of a different size or material and only use genuine Re-placement parts.
- If the winch is subjected to a high duty or excess load, the wire rope may require frequent replacement.

1). Disengage the free-spool T-handle (Fig6)

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

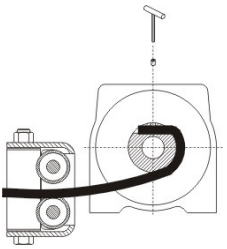
3). Place the replacement wire rope through the fairlead opening, pass below the drum, and insert it into the hole on the drum core. (Fig7)

4). Tighten the screw downwards to secure the wire rope (Fig7).



**(Engaged)** **(Disengaged)**

**(Fig 6)**



**(Fig 7)**

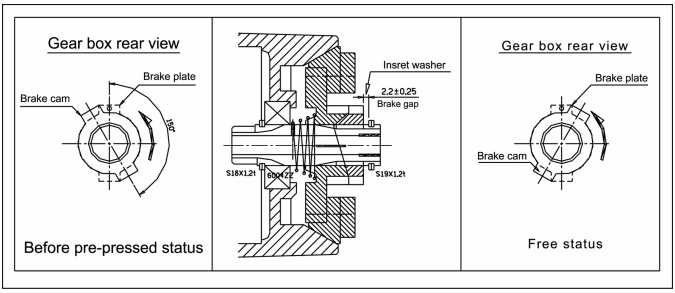
**▶Brake adjustment**

When the brake wears to the point that the load begins to slip. The brake can be adjusted as follows:

1). Loosen the bolt on the brake cover and take out retaining rings

2). Insert few washers to maintain the brake spacer between to be 2.2 ±0.25 mm

3). Make sure to keep the free-spool base plate counter-clockwise by 150 – 180 degree



## ▶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 of gear box is necessary after repair or disassembly use Shell EP2 or equivalent grease with 0.25 litre. Free-spool T-handle lubricates regularly with light oil. It is not allowed to have brake ass'y lubricated.

## ▶ 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 | | | | |
| ○ | | | Installation | Mounting bolts & alignment. | Bolt tension & wear. | Existence of abnormalities |
| ○ | | | Remote control | Working | Manual | Reasonable actuation |
| | | ○ | | Wearing in contact points | Visual. | Free of wear or damage. |
| ○ | | | Wire rope | Broken strands | Visual, measuring | Less than 10% |
| ○ | ○ | | | Decrease in rope diameter | Visual, measuring | 7% of nominal diameter max |
| ○ | | | | Deforming or corrosion | Visual | Existence of abnormalities |
| ○ | | | | Fastening condition of end | Visual | Existence of abnormalities |
| | | ○ | Free-spool assembly | Wear in free-spool assembly | Visual evidence of wear | Free of wear or damage. |
| | | ○ | Motor | Staining, damage | Visual evidence of wear | Existence of abnormalities |
| | | ○ | Brake | Wearing of brake disc | Visual evidence of wear | Free of wear or damage. |
| ○ | | | | Performance | Visual | Reasonable actuation |
| | | ○ | Gear | Damage, wearing | Visual evidence of wear | Free of wear or damage. |

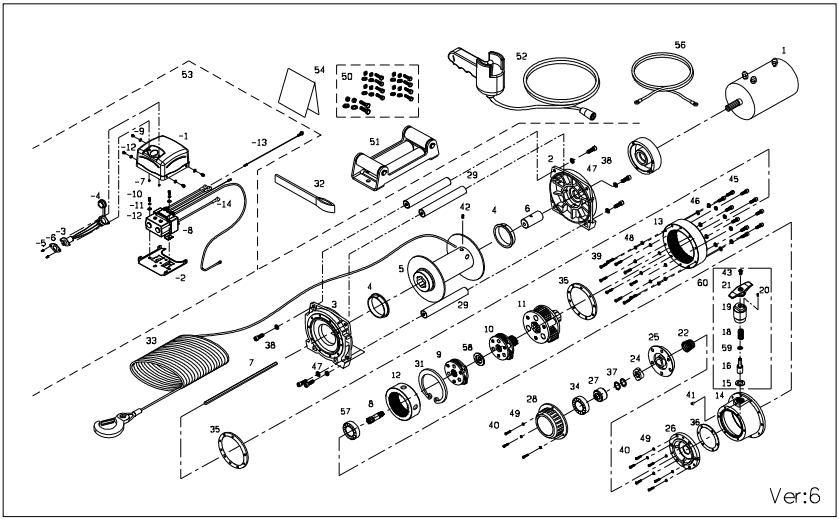
## Ⅶ. Trouble Shooting

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

| 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 does 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 cavity | 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 cavity | 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 |

## Ⅶ. Replacement parts List

**▶DV-12000/15000ES**




| No. | Description | Q'ty | No. | Description | Q'ty | No. | Description | Q'ty |
|---|---|---|---|---|---|---|---|---|
| 1 | Motor 12V | 1 | 26 | Brake base | 1 | 52 | Remote control | 1 |
| | Motor 24V | | 27 | Brake free-spool base | 1 | 53 | Solenoid passembly 12V | 1 |
| 2 | Motor support rack | 1 | 28 | Brake cover | 1 | | Solenoid assembly 24V | |
| 3 | Gearbox support rack | 1 | 29 | Tie bar | 3 | -1 | Solenoid upper box | 1 |
| 4 | Drum bushing | 2 | 31 | Retaining ring | 1 | -2 | Solenoid lower plate | 1 |
| 5 | Drum | 1 | 32 | Handsaver strap | 1 | -3 | Remote socket assembly | 1 |
| 6 | Motor coupling | 1 | 33 | Wire rope w/hook | 1 | -4 | Socket gland | 1 |
| 7 | 1st shaft | 1 | 34 | Bearing | 1 | -5 | Cross screw | 2 |
| 8 | 1st pinion | 1 | 35 | Anti-leakage seal A | 2 | -6 | Remote socket plate | 1 |
| 9 | 1st stage carrier | 1 | 36 | Anti-leakage seal B | 1 | -7 | Hex nut | 2 |
| 10 | 2nd stage carrier | 1 | 37 | Retaining ring | 2 | -8 | Solenoid 12 | 1 |
| 11 | 3rd stage carrier | 1 | 38 | Tie bar screw | 6 | | Solenoid 24V | |
| 12 | 1st & 2nd ring gear | 1 | 39 | Hex. bolt | 10 | -9 | Hex cross screw | 4 |
| 13 | 3rd ring gear | 1 | 40 | Hex. bolt | 9 | -10 | Round cross screw | 2 |
| 14 | Gear box | 1 | 41 | Hex. bolt | 1 | -11 | Spring washer | 2 |
| 15 | Plain washer | 1 | 42 | Hex. bolt | 1 | -12 | Plain washer | 6 |
| 16 | Free-spool lever | 1 | 43 | Hex. bolt | 1 | -13 | Lead | 1 |
| 18 | Pressed Spring | 1 | 45 | Hex. bolt | 10 | -14 | Lead gland | 3 |
| 19 | Free-spool barrel | 1 | 46 | Spring washer | 10 | 54 | Foot print | 1 |
| 20 | Spring pin | 1 | 47 | Spring washer | 6 | 56 | Grounding lead | 1 |
| 21 | Free-spool T-handle | 1 | 48 | Spring washer | 10 | 57 | Bearing | 1 |
| 22 | Spiral spring | 1 | 49 | Spring washer | 9 | 58 | Packing | 1 |
| 24 | Brake cam A | 1 | 50 | Mounting hardware | 1 | 59 | O-ring | 1 |
| 25 | Cone brake disc | 1 | 51 | Roller fairlead | 1 | 60 | Free-spool assembly | 1 |

EG-DECLARATION OF INCORPORATION
Declaration of incorporation of partly completed machinery according to EU directives 2006/42/EC, Appendix II B

We hereby declare,

**PLANETA-Hebetechnik GmbH, Resser Straße 17, D-44653 Herne**

that the partly completed machinery

| | |
|---|---|
| **ELECTRIC-WINCHES** | **Type DV 15000** |
| **Capacity** | **6.800 kg** |

are in the standard version, including load control, intended for installation in a machine and the basic requirements of the EC Directives listed below, as applicable for the supplied scope correspond to:

**EG-Machinery Directive 2006/42/EG**

We also declare that the technical documentation referred to in Annex VII, Part B of Directive 2006/42/EC were created. We commit ourselves to the special documents to the above mentioned Products to submit a reasoned request to national bodies. The transmission is electronic.

**This statement applies only to the above-mentioned Products. Commissioning is prohibited until it has been determined that the above-mentioned Products have been installed properly and the provisions of the above EC Directives.**

**Authorized to compile the relevant technical documentation:**

**Dipl.-Ing. Matthias B. Klawitter, CE-Koordinator,**
**PLANETA-Hebetechnik GmbH, Resser Straße 17, D-44653 Herne**

Herne, 21.08.2018

PLANETA-Hebetechnik GmbH

Dipl.-Ök. Christian P. Klawitter
(General Manager)

Is responsible for the completion, installation and commissioning according to the manual responsible:

Location: ..... Date: .....

Responsible for: .....

Company: .....