WINCHES

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USER MANUAL

KING COBRA

HIGH MOUNT | ELECTRIC WINCH | MILSPEC

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CONTENTS

IMPORTANT SAFETY INSTRUCTIONS AND PRODUCT WARNINGS.

Before installation or using your new winch read all instructions, guides and safety information provided.

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KING COBRA

- > 7hp Single Motor or 14hp Twin Ox Motor
- > Four gearing options
- > Full drum disconnect freespool design*
- > CNC-machined aerospace aluminium body
- > Load Holding Air Brake System
- > High-Efficiency Electrical Setup
- > Exceptional Pulling Capacity
- > Full cascade gears
- > High-Speed Operation
- > Customisable Fairlead Options

What is a Full Drum Disconnect Freespool?

A winch freespool allows the operator to manually pull rope from the drum.

In traditional winches, the freespool releases the gearbox, but both the drum and gearbox rotate together. This creates resistance, as the operator must turn not only the drum but also the entire gearbox assembly.

With a full drum disconnect freespool, the drum is completely disengaged from the gearbox drive, dramatically reducing resistance. All RED Winches are built with roller bearings supporting the drum, so when freespool is engaged, the operator only rotates the drum on its bearings. This results in minimal resistance and enables the fastest, easiest rope deployment possible.

This winch is a RED Winches designed product, whose designs have undergone extensive testing. The end user can now enjoy a professional highly engineered, precision, high performance electric winch capable of operating in the most demanding of situations. The small compact size combined with its pulling power and solid billet machined CNC housings make it an ideal winch for maximum impact when faced with minimal installation space.

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KING COBRA INTRODUCTION

The King Cobra is a high-performance hybrid winch engineered for both competition and utility applications. Designed with versatility at its core, the King Cobra is available in three drum sizes: Standard, Medium, and XL, offering tailored solutions for a wide range of vehicle builds and winching scenarios.

This winch features a full cascade gearbox, allowing for easily adjustable gear ratios to suit different terrains and pulling requirements. Users can select from four pre-configured gear sets: Race, Overland, Adventure, and Titan, each optimised for specific performance needs.

Despite its robust capabilities, the King Cobra has a smaller depth than the Hornet2, making it easier to install in tighter spaces without sacrificing strength or durability.

Equipped with both an air-operated brake and air freespool a complete drum disconnect further enhances operational flexibility and servicing convenience.

The King Cobra allows for rapid deployment and safe control. Available with either single or twin OX motors in 12V or 24V, the King Cobra delivers powerful and consistent performance across all configurations.

Whether you're tackling the rigours of competition or demanding utility tasks, the King Cobra is built to perform, adapt, and endure.

KING COBRA OPTIONS

Capacities:

Race: 2.5T - Single Motor or 4.5 Twin Motor

Overland: 3.5T Single Motor or 6T Twin Motor

Adventure: 5.5T Single Motor or 9T Twin Motor

Titan: 7T Single Motor or 11T Twin Motor

Choose based on your vehicle's winch capacity and the recoveries you intend to perform.

Drum Width Options:

Standard, Medium or XL Drum providing increased rope capacity for more demanding recovery situations.

Power Supply Options:

12V Single or twin motors

24V Single or twin motors

WHAT'S IN THE BOX

- King Cobra
- Plasma Lock
- Quick Start
- Mounting Bolts

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KING COBRA FEATURES

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RED WINCH AIR BRAKE

The exclusive RED Winch Air Brake comes fitted as standard. The air brake stops the winch drum from moving under load.

COPPER BUS BARS

The ultimate transfer of power

FULL CASCADE GEARBOX

Easily adjustable gear ratios depending on your requirement.

OX MOTOR

The mighty ox motor (see page 12 for more information)

3 DRUM SIZES

The King Cobra comes in three sizes for various rope capacity depending on your need.

COLOUR OPTIONS

All aluminium parts anodised or painted using Cerakote to 25 microns thickness

HAWSE FAIRLEAD

Aluminium, CNC machined with large radius to extend rope life

PRECISION ENGINEERING

Precision engineered billet machined housings and drum ends, the ultimate in strength and design.

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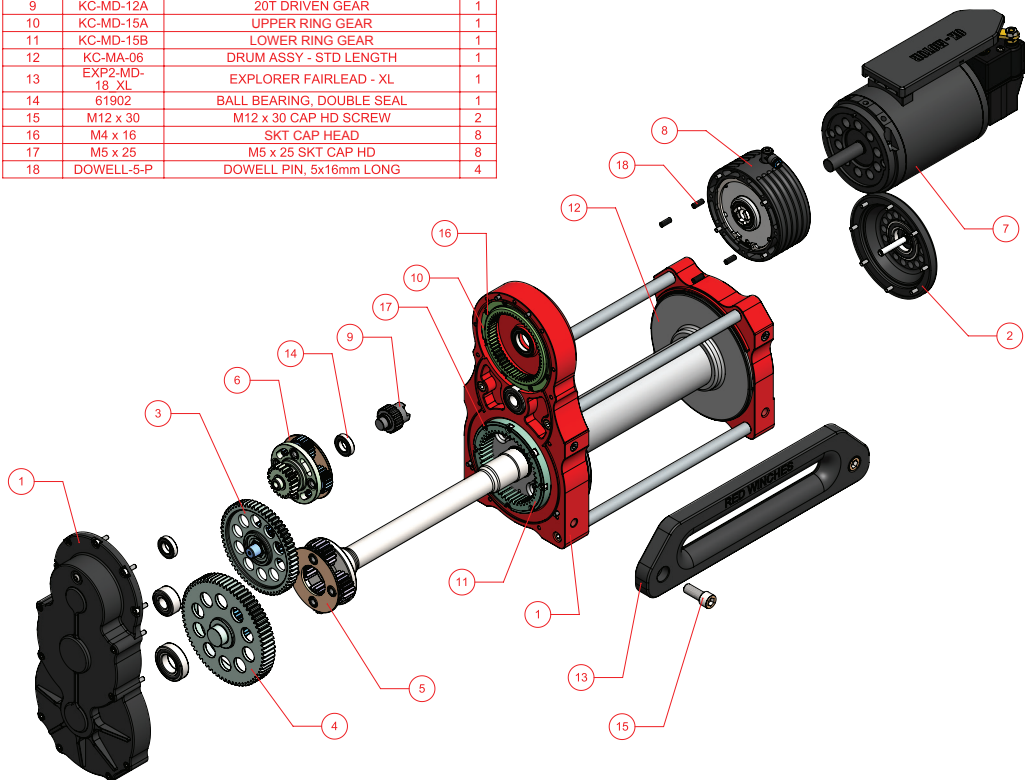
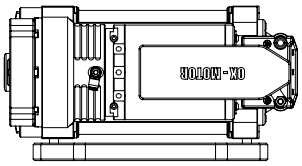
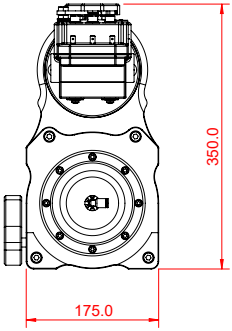
KING COBRA EXPLODED DIAGRAM

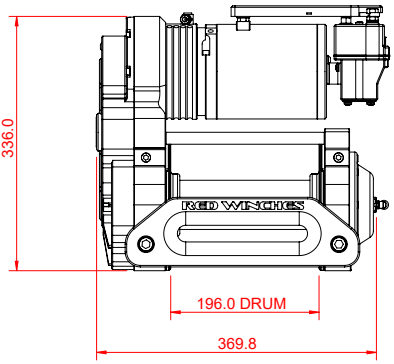
ITEM NO.	PART / DRG NUMBER	DESCRIPTION	QTY.
1	KC-MA-02	KING COBRA CHASSIS	1
2	KC-MA-03	END COVER ASSEMBLY	1
3	KC-MA-04A	GEAR ASSY, MOD 2, 52/26 (177:1)	1
4	KC-MA-04E	LOWER GEAR ASSY - 70T/ 14T	1
5	KC-MA-05	DRIVE SHAFT & FREESPOOL ASSEMBLY	1
6	KC-MA-05A	KC GEARBOX ASSEMBLY - UPPER (177:1)	1
7	RWM-MA-01	OX MOTOR ASSEMBLY	1
8	ABU-MA-01B	MOTOR BRAKE ASSEMBLY (2024)	1
9	KC-MD-12A	20T DRIVEN GEAR	1
10	KC-MD-15A	UPPER RING GEAR	1
11	KC-MD-15B	LOWER RING GEAR	1
12	KC-MA-06	DRUM ASSY - STD LENGTH	1
13	EXP2-MD-18_XL	EXPLORER FAIRLEAD - XL	1
14	61902	BALL BEARING, DOUBLE SEAL	1
15	M12 x 30	M12 x 30 CAP HD SCREW	2
16	M4 x 16	SKT CAP HEAD	8
17	M5 x 25	M5 x 25 SKT CAP HD	8
18	DOWELL-5-P	DOWELL PIN, 5x16mm LONG	4

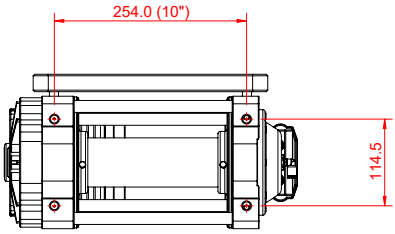


KING COBRA DRAWINGS









STANDARD WIDTH DRUM

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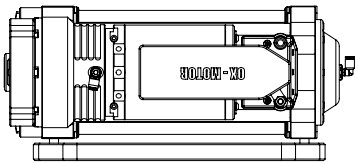
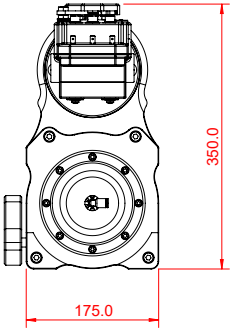
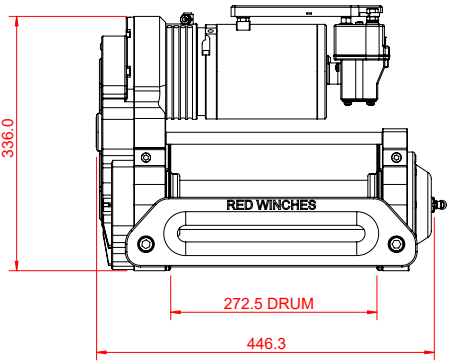
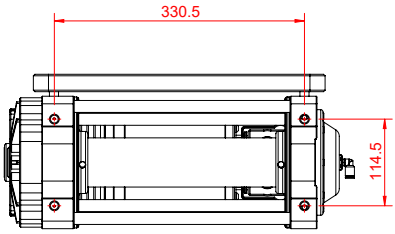
KING COBRA DRAWINGS









MEDIUM WIDTH DRUM

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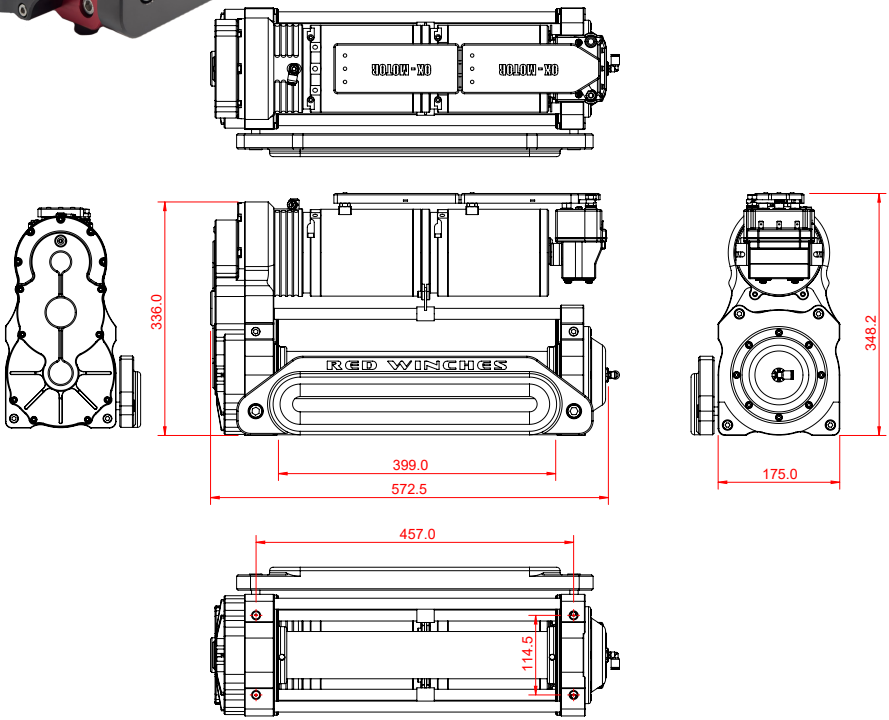
KING COBRA DRAWINGS



XL WIDTH DRUM

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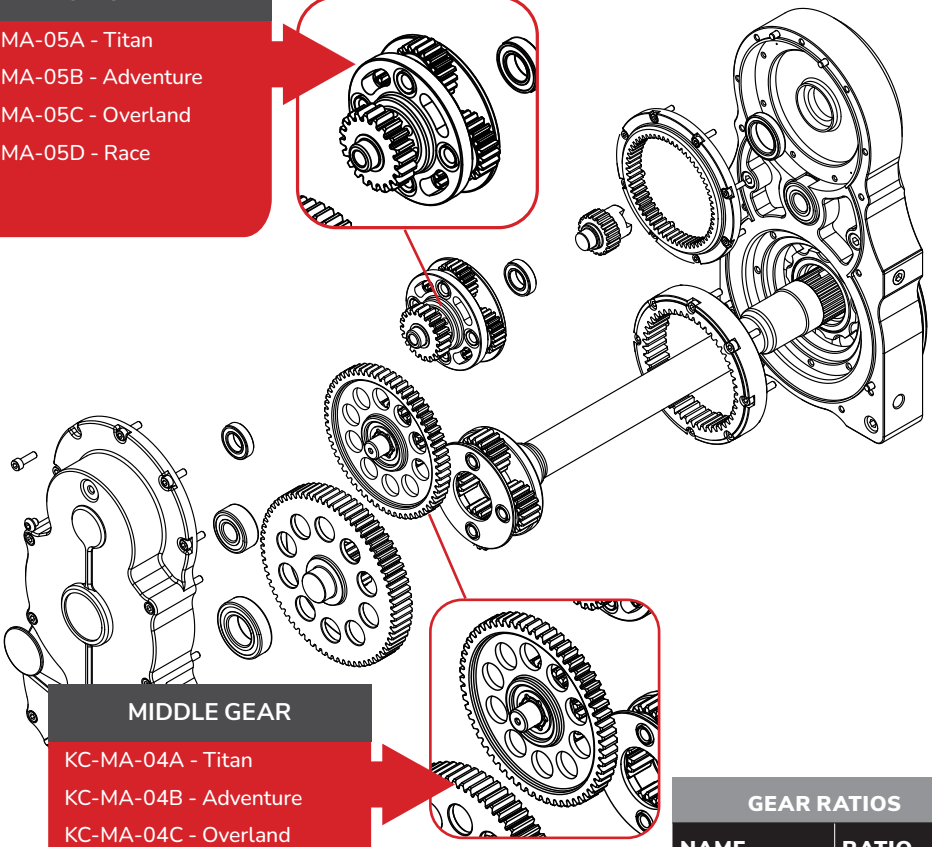
KING COBRA GEARS

TOP GEAR

KC-MA-05A - Titan
KC-MA-05B - Adventure
KC-MA-05C - Overland
KC-MA-05D - Race



MIDDLE GEAR

KC-MA-04A - Titan
KC-MA-04B - Adventure
KC-MA-04C - Overland
KC-MA-04D - Race

GEAR RATIOS	
NAME	**RATIO**
Titan	177:1
Adventure	138:1
Overland	89:1
Race	65:1

KING COBRA
TWIN OX MOTOR

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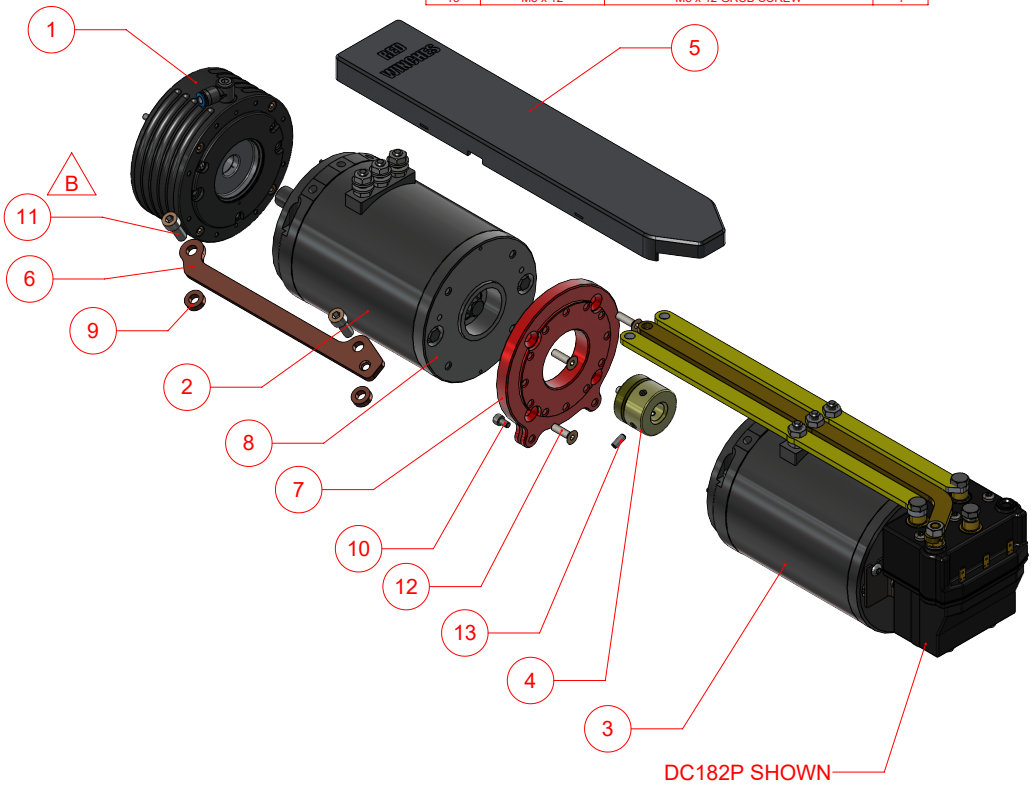
ITEM NO.	PART / DRG NUMBER	DESCRIPTION	QTY.
1	ABU-MA-01B	MOTOR BRAKE ASSEMBLY (2024)	1
2	RWM-MA-01	OX MOTOR ASSEMBLY	1
3	RWM-MA-03	OX MOTOR ASSEMBLY	1
4	RWM-MF-01	DRIVE COLLAR ASSY - QUAD	1
5	RWM-MD-15-5	BUS BAR COVER - OX MOTOR WITH DC182P	1
6	RWM-MD-19A	BUZZ BAR - EARTH (TWIN MOTOR)	1
7	RWM-MD-21	TWIN MOTOR - ADAPTER PLATE	1
8	RWM-MD-24	MOTOR END PLATE ADAPTER	1
9	RWM-MD-30	COPPER EARTH SPACER	2
10	CAP HEAD SCREW	M5 x 8	2
11	M8 x 20	M8 x 20 SKT CP HEAD	2
12	M6 x 20	M6 x 20 C/SNK SKT HD	4
13	M5 x 12	M5 x 12 GRUB SCREW	4



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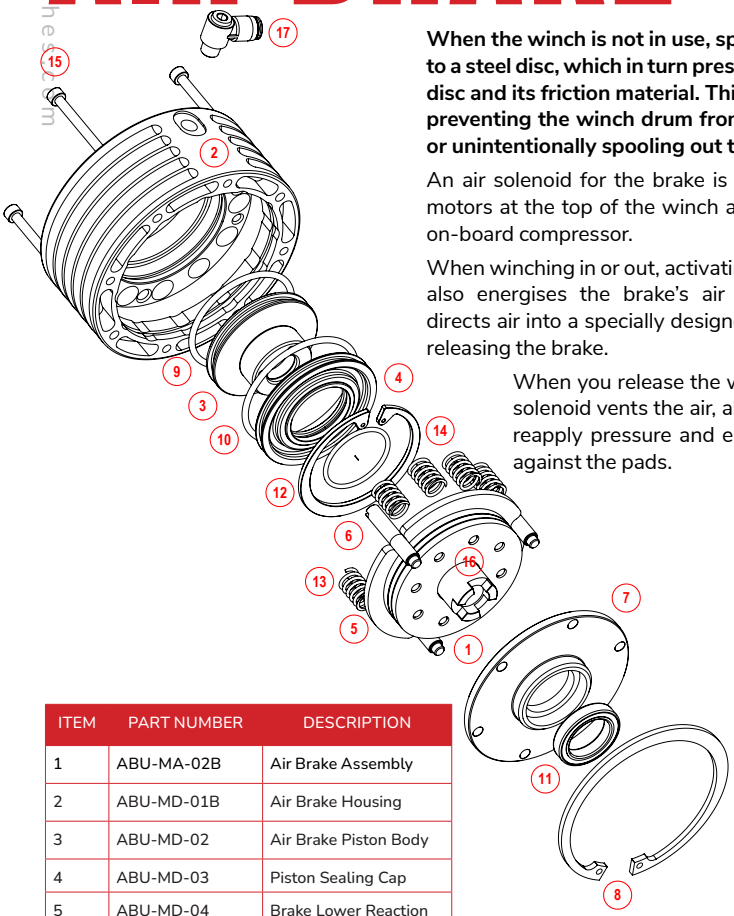
AIR BRAKE



When the winch is not in use, springs apply pressure to a steel disc, which in turn presses against the brake disc and its friction material. This engages the brake, preventing the winch drum from turning under load or unintentionally spooling out the rope.

An air solenoid for the brake is mounted next to the motors at the top of the winch and is supplied by the on-board compressor.

When winching in or out, activating the motor solenoid also energises the brake's air solenoid valve. This directs air into a specially designed chamber, instantly releasing the brake.

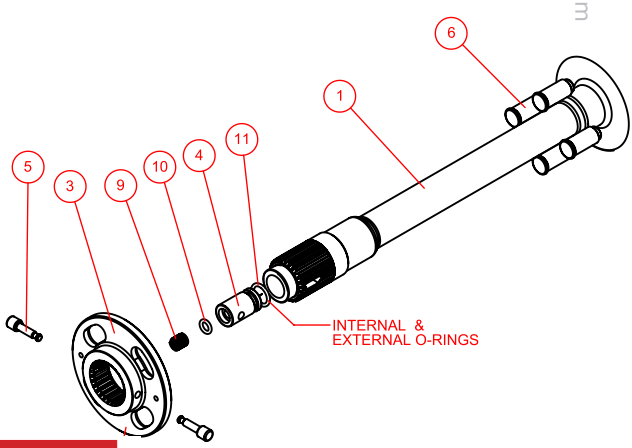
When you release the winch controls, the air solenoid vents the air, allowing the springs to reapply pressure and engage the brake disc against the pads.

ITEM	PART NUMBER	DESCRIPTION
1	ABU-MA-02B	Air Brake Assembly
2	ABU-MD-01B	Air Brake Housing
3	ABU-MD-02	Air Brake Piston Body
4	ABU-MD-03	Piston Sealing Cap
5	ABU-MD-04	Brake Lower Reaction Plate
6	ABU-MD-05B	Brake Distance Pillar
7	ABU-MD-08B	Brake Top Reaction Plate
8	BS 3673-4 B098M	
9 + 10	N228, N230	Nitrile O-Ring

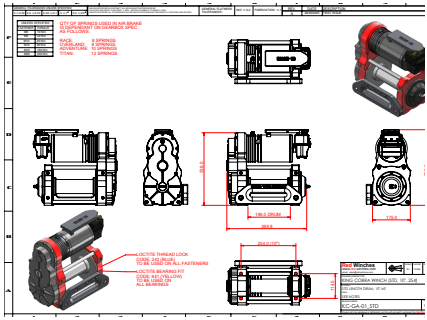
ITEM	PART NUMBER	DESCRIPTION
11	61805	Ball Bearing, Double Seal
12	C1300-070	Circlip 70mm Internal
13	ENTEX-91	Entex Spring No 91
14	MN036X2.5	Nitrile O-Ring
15	M5 x 55	M5 x 55 SKT CP Head
16	M4 x 10	M4 x 10 C/SNK SKT HD
17	153097_QSLV-1_8-6-1	Banjo Fitting 1/8" BSP-6

Tuning your air brake:
Scan QR code to see the video on our website.

AIR FREESPOOL ASSEMBLY



ITEM	PART NO	DESCRIPTION
1	KC-MD-09_M	Drive Shaft
3	HORNET2-MD-10	Drive Selector
4	HORNET2-MD-11	Piston
5	HORNET2-MD-13	Drive Pin
6	KC-MD-16	Gear Drive Pin
9	ENTEX-72	Entex Spring: no72
10	N109	Nitrile O-Ring
11	N809	Nitrile O-Ring



The Freespool

Drive to the drum is provided mechanically by a solid, hardened steel clutch plate. This highly durable plate engages under spring pressure and disengages when supplied with air.

The clutch plate is connected to the gearbox via a solid steel central shaft, ensuring maximum strength and durability. When disengaged, the drum runs only on two roller bearings, allowing it to move with minimal resistance—ideal for fast rope deployment by a co-driver.

The freespool requires a switched air supply of at least 4.5 bar (60 psi). When air is applied, the clutch plate retracts, releasing the drum's drive pins. Once the air is vented, spring pressure forces the clutch plate back into position over the drive pins, re-engaging the drum.

For maintenance, the drive shaft splines should be lightly greased, the freespool assembly lubricated with Duck Oil, and the piston O-rings treated with silicone grease.

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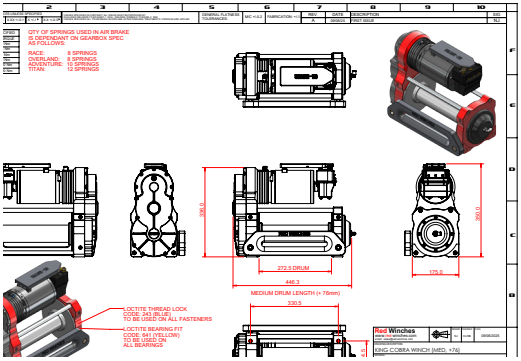
KING COBRA MOUNTING



WINCH MOUNTING:

The King Cobra gearbox is lubricated with grease NOT oil. This allows the user to mount the winch in any orientation.

The Air Brake unit is bi-directional allowing the winch to be mounted in any orientation.

The mounting holes in the winch chassis are M12x1.75 threaded to a depth of 24mm. RED Winches recommend using 8.8 grade bolts with 18mm of engagement into the housings. The torque setting for the mounting bolts is 80 Nm (59 ft-lb)

Please take into account the thickness of your mounting plate and any washers fitted.

Mounting bolts should be lightly greased with copper slip grease.

RED Winches recommend checking the torque of the mounting bolts after the first winch pull under load.

CONNECTIONS OVERVIEW

CONNECTING THE KING COBRA

To connect the King Cobra to your vehicle, three systems must be installed: Motor, Winch Control, and Air Feeds.

Motor: A positive cable must be routed from the vehicle battery, via an isolator, to the positive stud on the motor solenoid (located under the bus bar cover).

An earth cable must be run from the earth terminal on the front of the Ox motor directly back to the vehicle battery. Do not earth to the chassis.

Cable requirements:

Single motor winches: 50 mm² (1/0 AWG) minimum.

Twin motor winches: 70 mm² (2/0 AWG) minimum

Winch Control: The King Cobra is equipped with a control cable that links the motor control solenoid and the air brake solenoid.

When a winch in/out signal voltage is applied, the motor solenoid activates, powering the motor in the selected direction. Simultaneously, the air solenoid opens, allowing air pressure into the brake unit and releasing the brake.

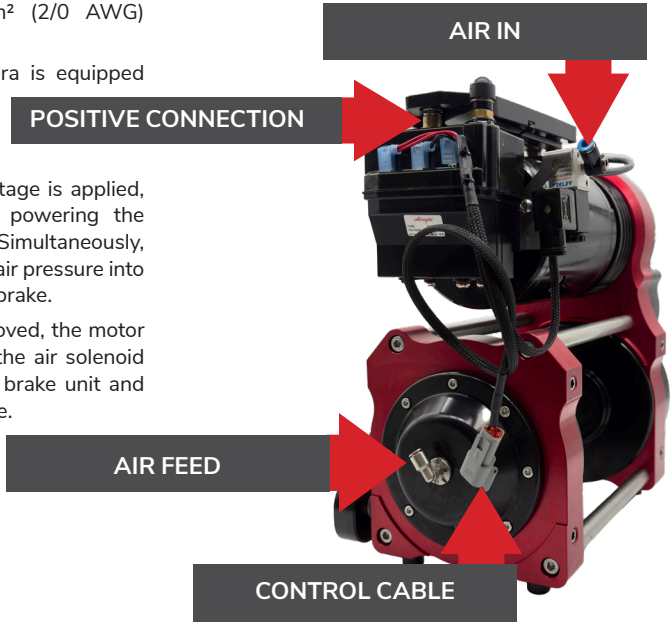
When the signal voltage is removed, the motor solenoid stops the motor, and the air solenoid closes, exhausting air from the brake unit and immediately reapplying the brake.

The wiring loom terminates with a 3-pin plug. A matching extension loom is supplied with the winch. This extension has three wires—see page ** for detailed connection instructions.

Air Feeds: The King Cobra requires two independent air feeds at a minimum pressure of 4.5 bar (60 psi):

Air Brake : Constant supply into the air solenoid, mounted next to the motor control solenoid.

Freespool: Switched supply into the freespool air feed, located at the end of the driveshaft.



KING COBRA CONNECTIONS

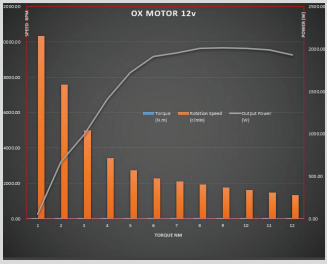
BUS BAR & COVERS

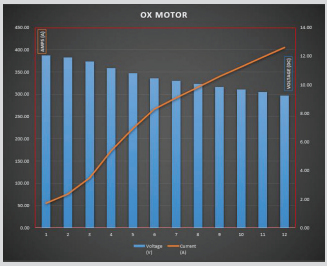
Copper bus bars provide ultimate power connection coupled with a sleek cover for protection

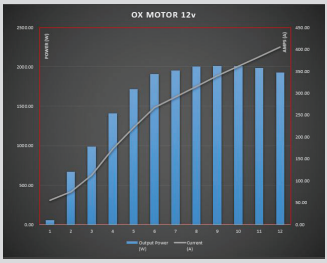
OX MOTOR

The powerful Ox Motor either 12 or 24v options. Single or twin.

With the appropriate alternator and battery setup these ox motors will provide high speed and high power for your winch.







WARNING

Never allow the OX motor to overheat or stall — doing so may damage the armature and result in motor failure.

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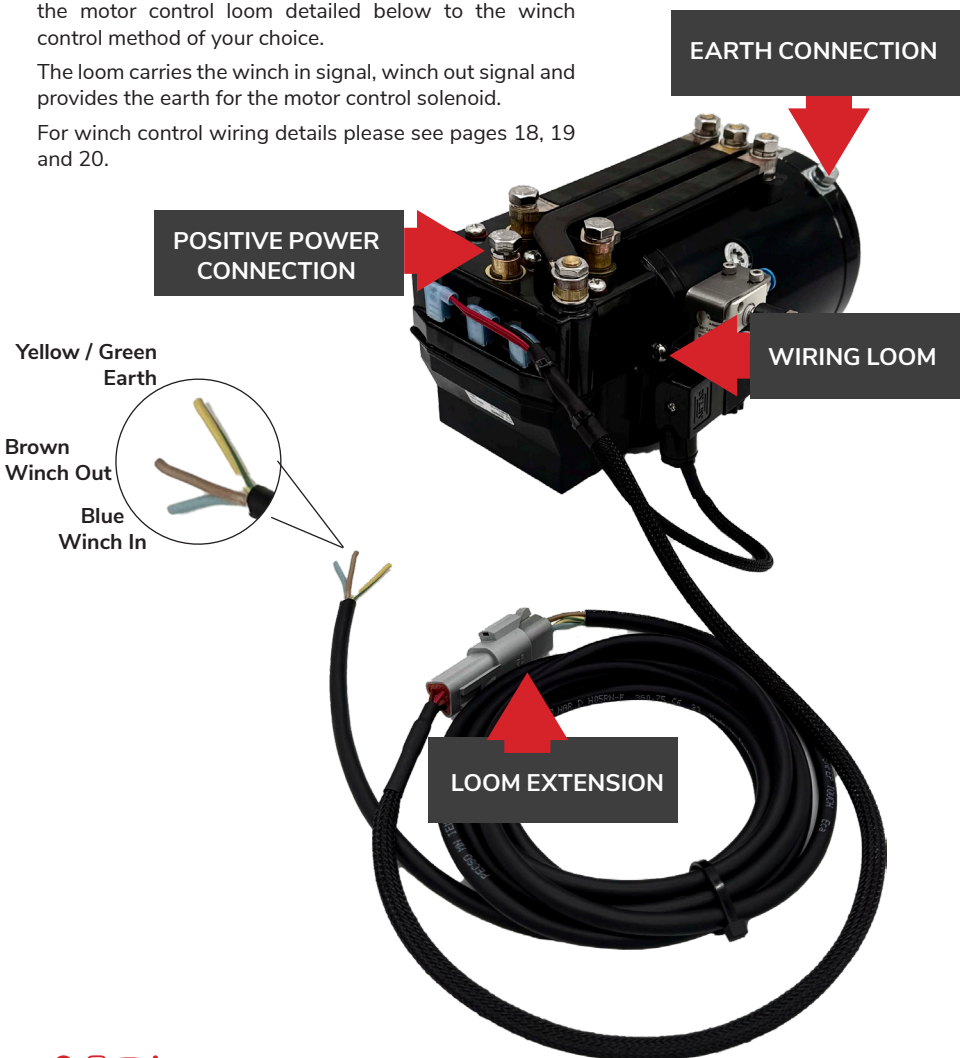
KING COBRA WIRING LOOM

Supplied with the King Cobra is a 3 meter wiring loom extension. The cable is 3 core and enables you to connect the motor control loom detailed below to the winch control method of your choice.

The loom carries the winch in signal, winch out signal and provides the earth for the motor control solenoid.

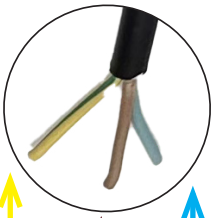
For winch control wiring details please see pages 18, 19 and 20.



KING COBRA WINCH CONTROL

3 Position momentary
Rocker Switch
On / Off / On

Connecting the loom extension to a rocker switch

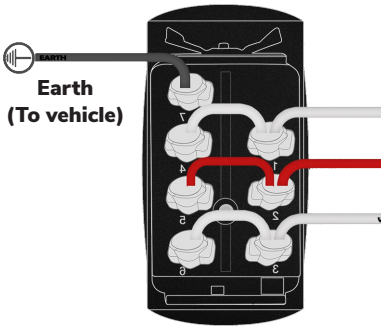


Loom Extension

Yellow / Green
(Earth to vehicle)

Brown
(Winch Out to switch)

Blue
(Winch In to switch)



Earth
(To vehicle)

Positive 12v / 24v
(To Vehicle)

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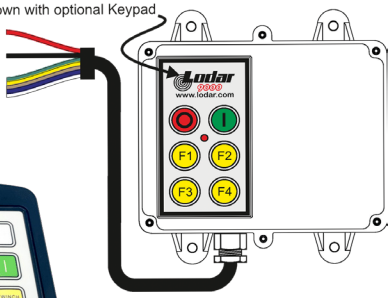
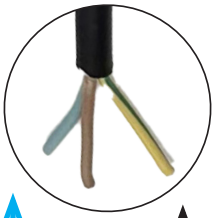
KING COBRA WINCH CONTROL

Positive 12v/ 24v (To vehicle)
Earth (To vehicle)
See wire chart for colours

Shown with optional Keypad





Earth Green / Yellow (To Vehicle)

Winch Out Yellow wire from Lodar to Brown wire on loom extension

Winch In Green wire from Lodar to Blue wire on loom extension

WIRE COLOUR	WIRE USED FOR
RED	12/24 V DC Nominal Positive Supply
BLACK	Earth to Vehicle
GREEN	Winch In
YELLOW	Winch Out
BROWN	Freespool
BLUE	Not Used
WHITE	Output Function Master

Earth (To Vehicle)

Drum Freespool Brown wire from Lodar

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KING COBRA WINCH CONTROL

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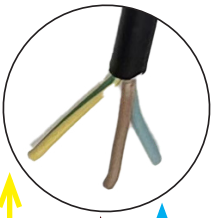
Connecting the loom extension to a basic wireless system - RW-WWC



Loom Extension

Yellow / Green
(Earth to vehicle)

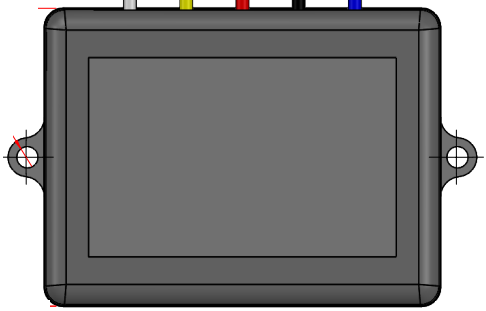
Blue
(Winch In to yellow wire on receiver)

Brown
(Winch Out to white wire on receiver)

Red; Positive 12v / 24v (To vehicle)

Black; Earth (To Vehicle)

Blue; Ariel receiver wire



PART NUMBERS

Receiver: WR-01

Hand Controller: WH-01

Kit: RW-WWC

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FREESPOOL CONTROL

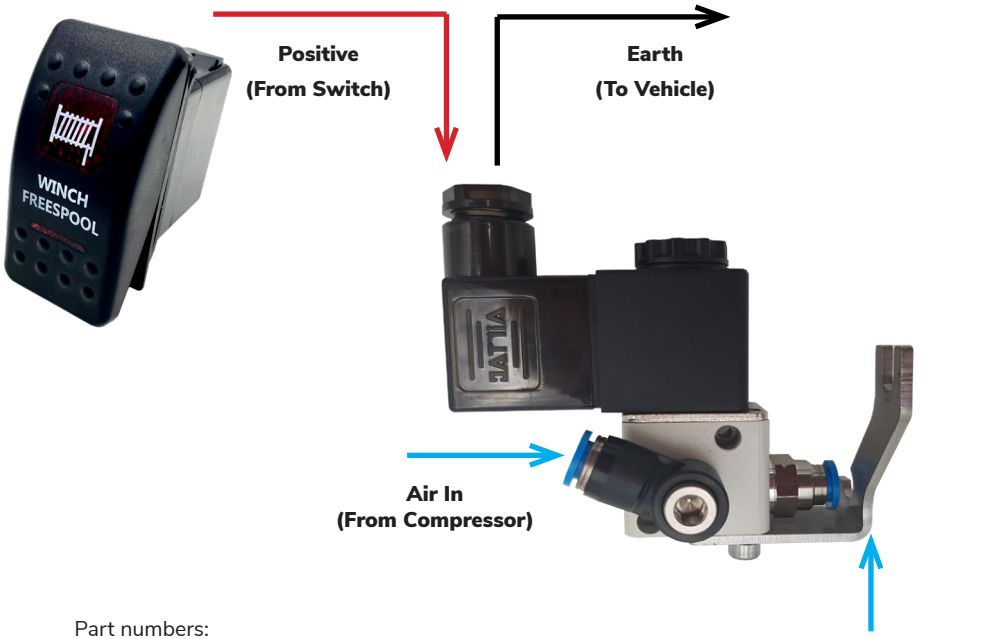
The King Cobra requires a switched air supply to operate the freespool function.

RED Winches recommend method is to use an air solenoid controlled by an ON/OFF rocker switch. Alternatively an air toggle switch can be used.

When using an air solenoid the solenoid can be located in any convenient location on the vehicle between the air compressor and the winch.

Minimum operating pressure 4.5bar (60psi)

All air fittings take 6mm airline.



Part numbers:

Winch Freespool switch – SWITCH-3

12v Air solenoid - AIRTAC3V1-06

24v air solenoid - AIRTAC3V1-06B

KING COBRA CAPACITIES

Standard Drum:

30m of 11mm plasma or synthetic rope.

25m of 12mm plasma or synthetic rope.

Medium (+76) Drum:

48m of 11mm plasma or synthetic rope.

36m of 12mm plasma or synthetic rope.

XL (+203) Drum:

55m of 11mm plasma or synthetic rope.

48m of 12mm plasma or synthetic rope.

35m of 14mm plasma or synthetic rope.

King Cobra - Single Motor						
Model	**Pulling Capacity Kg**	**Pulling Capacity Lbs**	**No Load Line Speed M/Min**	**No Load Line Speed Ft./Min**	**Line Speed @ 1000kg M/Min**	**Line Speed @ 2200lbs Ft/Min**
Race	2,500	5,511	58	190	10.5	34.4
Overland	3,500	7,716	36	118	12	39.4
Adventure	5,500	12,125	27.7	90.9	9	29.5
Titan	7,000	15,432	22.8	74.8	7.5	24.6

King Cobra - Twin Motor						
Model	**Pulling Capacity Kg**	**Pulling Capacity Lbs**	**No Load Line Speed M/Min**	**No Load Line Speed Ft./Min**	**Line Speed @ 1000kg M/Min**	**Line Speed @ 2200lbs Ft/Min**
Race	4,500	10,000	58	190	18.5	60.7
Overland	6,000	13,227	36	118	15.8	51.8
Adventure	9,000	19,841	27.7	90.9	11.5	37.7
Titan	10,000	22,000	22.8	74.8	10	32.8

WINCH MAINTENANCE

These notes are general guidelines only. Also use your own judgment when to service the winch based on how and where the winch has been used.

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GENERAL MAINTENANCE

The winch is protected from water and rain, but avoid submerging the winch for a prolonged time, particularly if the winch casing is warm / hot.

If it does become submerged, once clear, run the winch in and out for about 10 meters of rope to clear water from the seals.

To properly care for anodised products, avoid harsh chemicals like TFR (Traffic Film Remover) and caustic-based cleaners, as they can damage anodised surface. Instead, use pH-neutral, synthetic cleaning products, preferably diluted in warm water for regular maintenance. For stubborn contamination, a non-scratch cleaning pad and water can be used, working with the material's grain. For removing oils or waxes, acetone or a similar solvent can be used, following safety precautions.

When fitting, use anti-seize grease or lubrication on stainless steel bolt threads to prevent them from seizing.

If you were not the last person to use the winch, always inspect the full length of the winch rope before applying any load to it.

Have the winch serviced regularly at an authorised RED Winch centre / Partner / Distributor.

BASIC TROUBLE SHOOTING

Powers in only one direction

Faulty Albright solenoid, damaged remote control or remote control cable. Check remote control plug pins for damage. Check wireless remote is correctly connected.

Completely Dead

Burned motor, poor earth, discharged battery, faulty isolator switch, damaged earth wire, damaged remote control cable or switch. Check remote control pins for damage. Check isolator switch is on. Check power is getting to the winch.

Low Power

Check the condition of the battery and if the alternator is charging correctly, check the voltage to the battery. Are the battery terminals corroded or the cables damaged?

Turn off any electrical items in the vehicle; Radio, lights, heated seats etc.

Winch Will Not Free Spool

Warped mount plate, winch rope bound up on one side of the drum, bent drum flange or gear damage inside the winch.

Check freespool lever is fully dis-engaged (scan QR code for video)

Winch Motor Overheats

Overloaded or stalled during winching operation, Poor earth to battery, worn motor, water or mud in motor. Check the load is not heavier than the rated load. Check all connections and cables.

Connecting power cables are too small.

Winch Brake Will Not Hold

Worn friction material or brake overheated from extended period of powering out.

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KING COBRA OPERATION

A REFERENCE GUIDE TO WINCHING

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LOADING & ELECTRICAL SUPPLY

ROPE LAYERS AND WINCH CAPACITY

The maximum operating capacity of a winch is directly affected by the number of rope wraps on the drum. To maximise mechanical advantage during a recovery, as much rope as possible should be spooled off the drum before applying the recovery load.

Winch pull ratings are based on the rope being on the bottom (first) layer of the drum. As additional layers build up, the effective pulling capacity decreases.

Please note that maximum drum loads cannot typically be sustained for extended periods on most electric winches. For prolonged winching operations, the applied load should be significantly lower than the winch's rated capacity on the first layer.

In such cases, the use of a pulley system, such as RED Winches' Snatch Rings or Pulley Blocks, can improve mechanical advantage and reduce strain on the winch.

VEHICLE ELECTRICAL SYSTEM

It is essential to understand how much power your winch draws from the vehicle's battery. Before installation, determine the winch's power requirements and ensure they are within the maximum output your vehicle's electrical system can deliver.

Always use correctly sized power cables. Undersized cables can starve the winch motor of current, increase electrical resistance, and may lead to motor failure. Ensure that earth (negative) cables are the same size as the positive cables to maintain proper balance in the system.

Keep in mind that a battery discharges faster than it can recharge. To help maintain charge levels:

- Increase engine revs while winching, and consider raising revs between winch operations.
- Most vehicles achieve maximum alternator output at around 1,800 rpm.

Never winch with the engine off, as this will rapidly discharge the battery and may leave you unable to restart the vehicle.

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WINCH ROPE

The lifespan of a synthetic rope can be significantly extended through good working practices and regular maintenance. Synthetic ropes should be inspected frequently for signs of damage, we recommend that ropes are checked before every use.

In the UK, under PUWER (Provision and Use of Work Equipment Regulations), winch ropes used in commercial or work settings must be inspected at least every six months.

Always follow the manufacturer's guidelines for care, inspection, and replacement intervals.

HANDLING GUIDELINES

Avoid Overloading or Shock Loading

Do not overload or shock load the rope. Shock loading, defined as a sudden load exceeding the recommended limit by 10%, can cause internal, invisible damage that may lead to rope failure.

Bending Radius

Avoid bending the rope around a radius smaller than six times its diameter.

Example: 9 mm rope × 6 = 54 mm minimum bend radius.

Cleaning and Maintenance

To prolong rope life, keep it clean and dry.

Do not use a pressurised hose, as it may drive abrasive material into the fibres.

Instead, remove the rope and wash it in a container of cold water. Allow it to dry fully before reloading it onto the drum.

Chemical Exposure

Avoid direct contact with chemicals and their fumes, as these can degrade synthetic rope fibres.

UV Protection

When not in use, protect the rope from ultraviolet (UV) exposure by fitting a winch cover.

Heat Exposure

Synthetic ropes are susceptible to heat damage, especially from an overheated drum. Monitor drum temperature during prolonged or heavy use.

Winching Out Under Load

Do not winch out under load if using an electric winch that features an enclosed overrun brake within the drum. This can generate excessive heat and damage the rope.

Avoid Ground Contact

Where possible, prevent the rope from coming into contact with the ground.

Do not step on the rope, as this can embed dirt or grit into the fibres, accelerating wear.

Rope Identification and Inspection

Each rope should be clearly marked with a unique identification number.

Maintain a log of usage and inspections, including all inspection dates and any issues found.

CARE & INSPECTION

ROPE INSPECTION GUIDELINES

Routine Inspection

RED Winches recommends inspecting the winch rope before every use.

Commercial Use – PUWER Compliance

In all commercial applications, ropes must be inspected every 6 months in accordance with PUWER regulations. Always refer to the Manufacturer's Guidelines.

Inspection Procedure

Inspect the entire length of the rope. It is normal for the outer fibres to become fluffy during regular use. Look for inconsistencies, including:

Lumps, Bumps, Flat spots.

These may indicate shock loading. If found, the rope must be destroyed. Assess the internal fibres by gently opening out the rope. The presence of powdered fibre is a sign of internal wear.

Winch Equipment Compatibility

If the winch or associated equipment has previously been used with wire rope, check for sharp or rough surfaces. Any such areas should be lightly sanded smooth to prevent damage to synthetic rope.

Damage Criteria

Ropes with 25% or more broken fibres should be destroyed. For 12-strand ropes, if two or more adjacent strands are cut, the rope must be destroyed. Rope can suffer from invisible damage, particularly due to heat or internal wear.

Heat Damage

Heat from an overheated drum or friction can significantly reduce rope strength without visible signs. Any suspicion of heat damage should result in the rope being destroyed.

Chemical and UV Damage

Exposure to chemicals or UV light may cause discolouration. If the rope is brittle or stiff in affected areas, determine the cause and destroy the rope if integrity is compromised.

Rope Records

Always keep a detailed log of the rope's history, including inspections and incidents. If in any doubt about the rope's condition, destroy it immediately.

Emergency Repairs

Synthetic rope can be spliced. In an emergency, it is possible to cut out the damaged section and re-splice the rope. This should only be considered a temporary repair—the rope must be destroyed and replaced as soon as possible.

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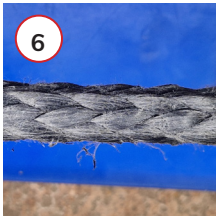
WINCH ROPE ASSESSMENT



1) Rope prior to use

2) Rope displaying 25% reduction from abrasion

3) Full volume Rope Strand

4) Strand reduced by 25% abrasion

5) Rope displays two adjacent cut strands. This rope should be destroyed. In an emergency, the damaged section can be removed and the rope re-spliced. However, this should be seen as a temporary repair. The rope should then be destroyed as soon as possible.

6) **This rope is showing signs of compression. If the rope is manipulated, it should return to its original state. This should not be confused with a rope affected by heat.**

7) This rope has been exposed to extreme heat. Unlike the compressed rope, it will not return to its original state if manipulated. This rope should be destroyed. In an emergency, the damaged section can be removed and the rope re-spliced. However, this should be seen as a temporary repair. The rope should then be destroyed as soon as possible.

SAFETY GUIDELINES

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General Operating Safety

- **Read All Product Literature:** Familiarise yourself with the manual and all safety instructions before use.
- **Know Your Winch:** Understand its capabilities and limitations.
- **Wear Suitable Gloves:** Always use protective gloves when handling the winch rope.
- **Use the Supplied Equipment:** If provided, always use the manufacturer-supplied hook or soft loop.
- **No Improvised Use:** Never use the winch as a hoist.
- **Not for Load Securing:** Do not use the winch to secure loads in transit.
- **Do Not Tow with Winch:** It is not designed to absorb towing shock loads.
- **Stay Sober:** Do not operate under the influence of drugs, alcohol, or medication.
- **Age Limit:** Operators must be 16 years or older.

Installation Safety

- **Mount Securely:** Choose a mounting location that can handle the winch's full pulling capacity.
- **Correct Fasteners Only:** Use Class 8.8 metric (Grade 5) or stronger bolts
- Never weld mounting hardware.
- **Install Mechanically Before Wiring:** Complete winch and hook installation before connecting electrics.
- **Fairlead Alignment:** Ensure correct positioning to avoid rope abrasion, *the fairlead is a pinch point.*
- **Keep Hands Clear:** During installation, operation, and spooling, keep hands away from rope, hook, and fairlead.
- **Pre-Stretch Rope:** Re-spool under load before first use to prevent binding.
- Never route electrical cables across:
  - Sharp edges
  - Hot surfaces
  - Moving parts
- Always use terminal boots and use appropriate sheathing
- Never lean over the battery during connection.
- Never short battery terminals or place tools across terminals.

Pre-Operation Checks

- **Inspect Before Use:** Check rope, hook, slings, and fasteners. Replace damaged components immediately.
- **Anchor Strength:** Ensure the anchor can withstand the load. Use correct rigging.
- **Clear Work Area:** Remove obstructions and keep bystanders clear of the winching zone.
- **Use Correct Hooking Techniques:** Never hook the rope back onto itself, use a recovery strap.

Operating Procedures

- **Use Safe Rigging Techniques:** Take time to rig correctly and spool out as much rope as possible.

SAFETY GUIDELINES

- **Maintain Vehicle Stability:** Monitor vehicle/ load during operation.
- Always seat the load in the throat of the hook.
- Never apply load to the hook tip or latch.
- Always use a hook with a safety latch.
- Never use a damaged hook.
- Hot Surface Hazard: Avoid contact with hot components during or after winch operation.

HAZARD WARNINGS

Falling or Crushing Hazard – Risk of Serious Injury or Death

- Always stand clear during operation; keep hands and others away.
- Never operate with fewer than 6 wraps of rope on the drum, the rope may detach.

Moving Parts Entanglement Hazard – Risk of Serious Injury or Death

- Never leave the remote (wired or wireless) connected or powered during free spooling or rigging.
- Always disconnect wireless controls when not actively operating the winch.
- Remove jewellery.

Avoid Winch and Equipment Damage

- Avoid side pulls — rope can pile up and damage winch or drum.
- Do not damage vehicle frame when anchoring.
- Avoid off-centre pulls to prevent rope pile, up and equipment damage.
- Avoid continuous pulls at extreme angles to prevent jamming.

WINCH LOADINGS

Rolling Resistance Table (Tonne)

Tonne	1.0	1.5	2.0	2.5	3.0	3.5	4.0	4.5	5.0	5.5	6.0	6.5	7.0	7.5
Road	40	60	80	100	120	140	160	180	200	220	240	260	280	300
Grass Dry Ground	143	214	286	357	429	500	571	643	714	786	857	929	1000	1071
Grass Wet Ground	250	375	500	625	750	875	1000	1125	1250	1375	1500	1625	1750	1875
Gravel	200	300	400	500	600	700	800	900	1000	1100	1200	1300	1400	1500
Shingle	500	750	1000	1250	1500	1750	2000	2250	2500	2750	3000	3250	3500	3750
Mud	333	500	667	833	1000	1167	1333	1500	1667	1833	2000	2167	2333	2500
Wet Sticky Mud	500	750	1000	1250	1500	1750	2000	2250	2500	2750	3000	3250	3500	3750

Vehicles Bogged Down in Mud (Casualty Weight Limit: X tonne / X,000 kg)

Tonne	1.0	1.5	2.0	2.5	3.0	3.5	4.0	4.5	5.0	5.5	6.0	6.5	7.0	7.5
Axle	1000	1500	2000	2500	3000	3500	4000	4500	5000	5500	6000	6500	7000	7500
Wheel Tops	2000	3000	4000	5000	6000	7000	8000	9000	10000	11000	12000	13000	14000	15000
Bonnet	3000	4500	6000	7500	9000	10500	12000	13500	15000	16500	18000	19500	21000	22500

Damage Resistance Table (4-Wheeled Vehicles Only – Casualty Weight in Tonne, 1 tonne = 1000 kg)

No. Of Damaged Wheels	1.0	1.5	2.0	2.5	3.0	3.5	4.0	4.5	5.0	5.5	6.0	6.5	7.0	7.5
1	250	375	500	625	750	875	1000	1125	1250	1375	1500	1625	1750	1875
2	500	750	1000	1250	1500	1750	2000	2250	2500	2750	3000	3250	3500	3750
3	750	1125	1500	1875	2250	2625	3000	3375	3750	4125	4500	4875	5250	5625
4	1000	1500	2000	2500	3000	3500	4000	4500	5000	5500	6000	6500	7000	7500

Gradient Resistance Table Casualty Weight in Tonne (1 ton = 1000 kg)

Slope Degrees	1.0	1.5	2.0	2.5	3.0	3.5	4.0	4.5	5.0	5.5	6.0	6.5	7.0	7.5
10	167	250	333	417	500	583	667	750	833	917	1000	1083	1167	1250
20	333	500	667	833	1000	1167	1333	1500	1667	1833	2000	2167	2333	2500
30	500	750	1000	1250	1500	1750	2000	2250	2500	2750	3000	3250	3500	3750
40	667	1000	1333	1667	2000	2333	2667	3000	3333	3667	4000	4333	4667	5000
45	750	1125	1500	1875	2250	2625	3000	3375	3750	4125	4500	4875	5250	5625
50	833	1250	1667	2083	2500	2917	3333	3750	4167	4583	5000	5417	5833	6250
60	1000	1500	2000	2500	3000	3500	4000	4500	5000	5500	6000	6500	7000	7500

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