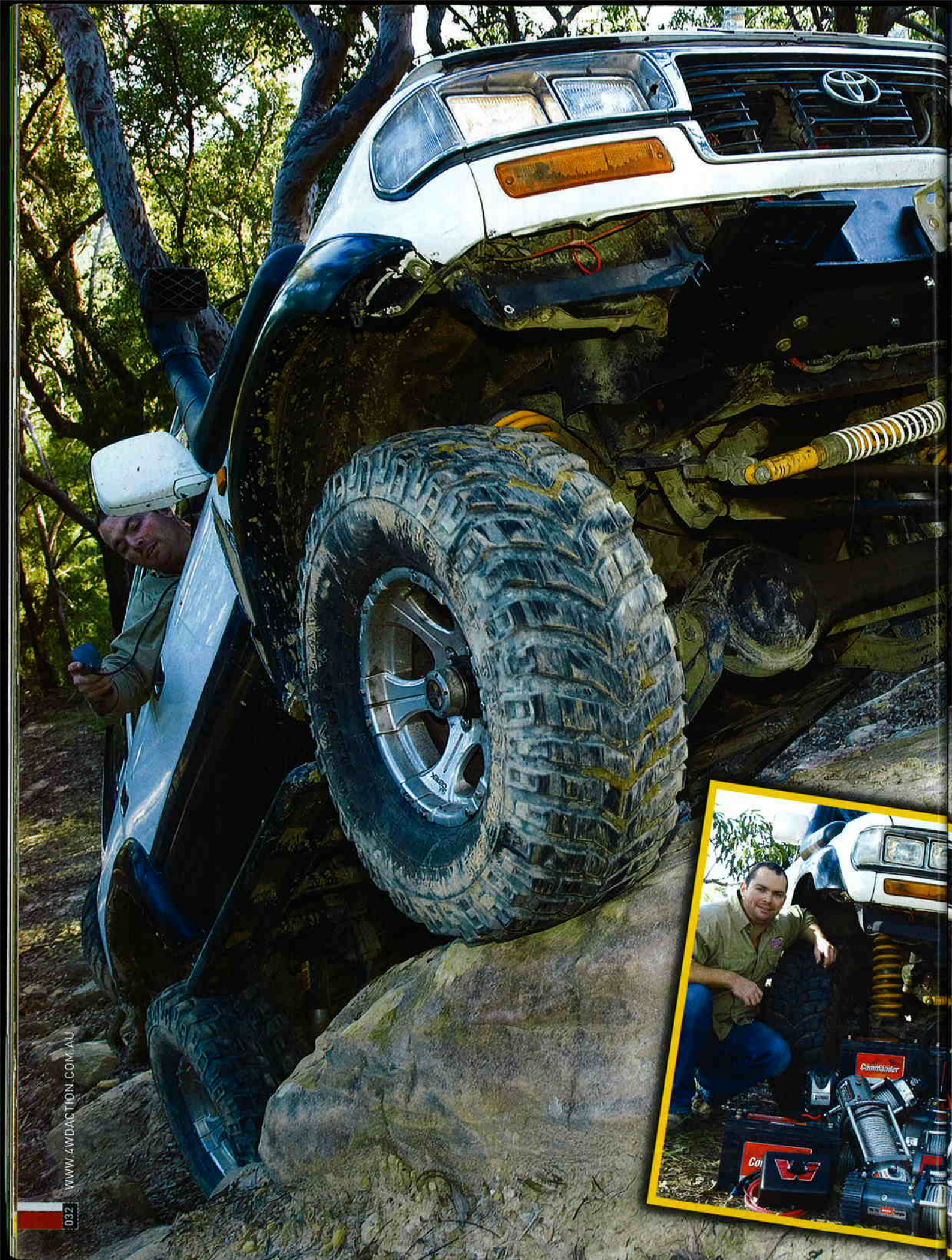




WORDS BY NATHAN CAMPBELL-COWIE PHOTOGRAPHY BY TIM MUNRO,
JAMIE CLEARY, TOMMY SALMON AND NATHAN CAMPBELL-COWIE

We take 10 winches to hell and back to find out
which ones give you the best value for money

MASSIVE WINCH COMPARO



An electric winch is something we buy as insurance in the event we get really stuck during our adventures in the scrub. While the initial purchase price isn't necessarily cheap, the choice of self-recovery over staying stuck is the better option. For the majority of us, these rescue devices sit dormant behind our bullbars and rarely, if ever, see any action. The reality is that most winches purchased with good intentions do little more than add extra weight to the vehicle and suffer a slow death from lack of use. However, with Murphy's Law lurking in the background, you're better safe than sorry. With so many winches on the market and each brand claiming to be built

better, pull faster or last longer than the other, we as the customer can do little other than believe the hype... Until now!

We gathered 10 of the most popular winches currently on the market and put them through a series of tests that would take each one to their limit and, in some cases, beyond. In a world of 'you get what you pay for', our testing put some of the big-dollar winches in their places while the cheaper ones jogged across the finish line.

The results may shock some manufacturers, but hopefully once the dust has settled, winch technicians will take the necessary steps to produce a product that really is up to the task of putting its money where its mouth is.

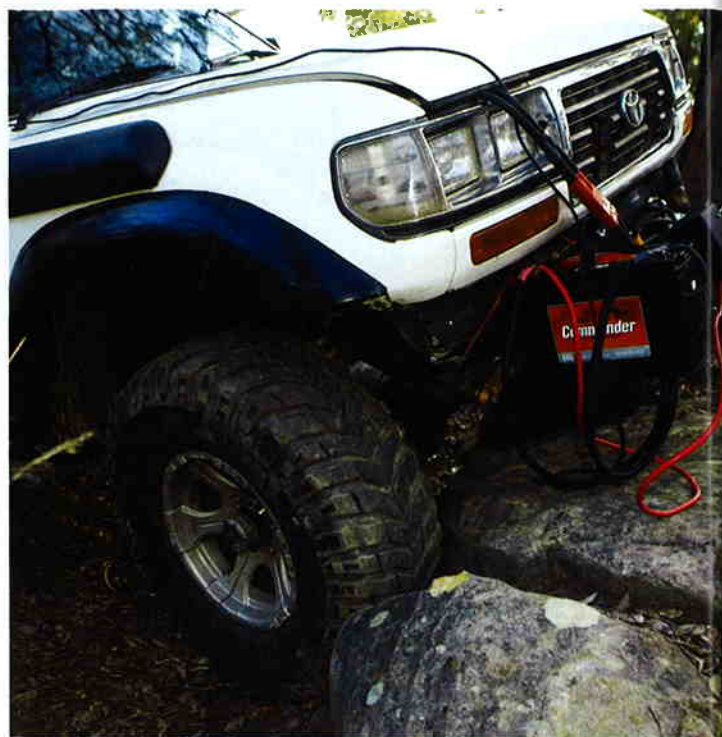
FIELD TESTING

ENERGY CONSERVATION

The aim of this test was to determine how power efficient each winch was over a given distance. While some 4WDs have multiple batteries under the bonnet, others have our winch connected to a single battery. With this in mind, it's critical that the winch you purchase uses as little power as possible to better utilise the battery's limited available power supply.

The test track used was typical of where the average 4WD may require the use of a winch. The test track was an incline of about 25° and included a mix of loose dirt and gravel coupled with a series of rock steps.

When test-driving the hill in my 80 Series with 35in tyres and only the centre diff lock engaged, the hill could be driven, but there was noticeable wheel spin most of the way. The final rock step could only be safely driven with diff locks engaged. Attempting to drive it in standard 4WD was unsuccessful without excessive wheel spin and unnecessary abuse of the vehicle. This type of driving style only increases the potential for mechanical damage and occupant injury – not good – and it's much safer to winch it.



TESTING PROCEDURES

Original test planning using a battery independently, resulted in the vehicle only being moved a single car length before running out of power. As we weren't testing batteries and 99 percent of vehicle recoveries will still be able to have the engine operating during winching, we replicated this by connecting it to the alternator. This gave each winch a better opportunity to perform over a greater distance.

- Each winch was fitted to a new battery via a heavy-duty Anderson plug that was connected to the vehicle's alternator to trickle-charge the battery for the hard task ahead
- The starting temperatures of the gearbox and motor were measured using a digital pyrometer available from Jaycar Electronics
- Each winch cable was fully un-spooled, leaving only six wraps on the drum
- The cable was connected to a tree trunk protector via a load cell, which recorded the load on the winch as the vehicle was winched up the track. Readings were taken at random and also at peak loads during the larger obstacles. With a minimum reading of 862kg at the start and 1971kg at the last rock step, the LandCruiser's rolling mass averaged 1161kg
- With winch cable dampers fitted, the vehicle's weight was used to take up cable slack prior to starting and to bed the cable in under load before use
- With the engine at idle, each winch was activated non-stop until it failed to proceed or it completed the test track
- Recovery times and amperage draw were recorded when the cable had fully wound itself from one end of the drum to the other before starting the next layer. Each winch held 4–5 layers of cable depending on the amount of cable on each winch
- The overall time was recorded when the winch bar touched a star picket – one metre before the hook, or the winch could no longer retrieve the vehicle. Gearbox and motor temperatures were again recorded at this point

NOTE: While we took every effort to ensure accurate times and amp readings, there were a number of factors we couldn't allow for. Discrepancies in differing cable stretch and overall cable lengths meant that some measurements couldn't be taken at exactly the same place. However, taking these minor variances into account, the overall results realistically indicate the power efficiencies of each winch.

Because this is testing in the real world where it counts, and not in the factory where conditions favour the manufacturers, we tested them the way you would want us to – straight out of the box, and into the thick of it.



DATA LOGGING

Amperage is a measure of the flow of electric current. By likening a battery to a full tank of fuel and a winch to a vehicle's engine, amperage draw can be likened to the amount of fuel flowing from the fuel tank to the engine. When the motor is asked to do more work more fuel, or current is used. Since a battery is nothing more than stored power, the slower the amperage drawn, the longer you can winch for.

The main contributor to high amp draw is resistance, and in a winch this can be found in many places. Undersized cables, poorly designed solenoids, incorrect gear ratios and/or lubrication, inefficient motor design and poor-fitting connections are just a few reasons for high amp draw.

Below is the data recorded during testing. The winches that didn't complete the test had an amp reading taken where they stopped. For comparative sake, the winches that did complete the test had an amperage reading taken at the same point and at the end. In this case, two amperage readings are listed, with the last reading being at the end of the test where the terrain became level.

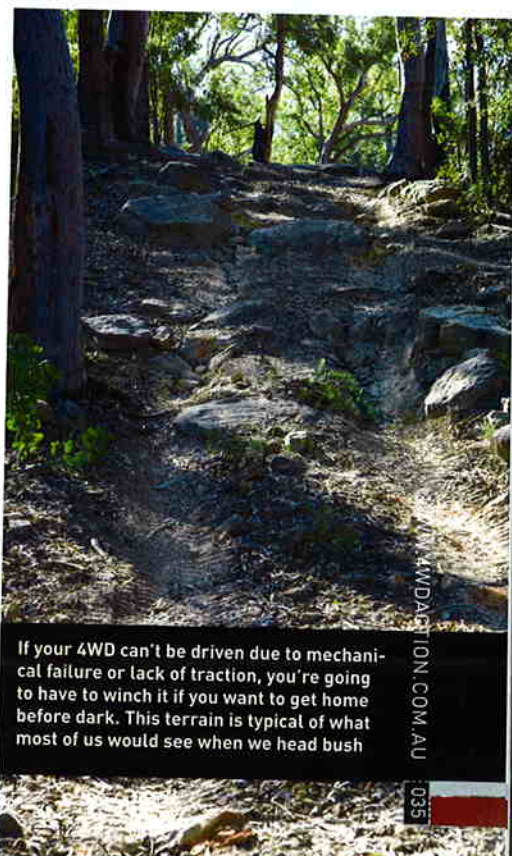
The times recorded for each layer are based on a continuous run. Using the T-Max 9000LB as an example, the first layer took 1.02min to complete, while it took 3.15min to complete two layers, 5.30min for three layers before it failed to proceed at 7.26min, completing only one third of the fourth and final layer. My initial impressions and performance of each winch is listed in the bottom row.

	T-MAX 9000LB	T-MAX 10000LB	TJM 9500LB	PREMIER 9000LB	OPP. LOCK 10000LB	IRON MAN 9500LB
1st layer amps/time	206amps 1.02min	185amps 1.08min	142 amps 1.06min	115amps 1.02min	184amps 1.20min	160amps 1.42min
2nd layer amps/time	275amps 3.15min	329amps 3.05min	215amps 2.40min	130amps 2.20min	223amps 3.10min	180amps 4.10min
3rd layer amps/time	230amps 5.30min	240amps 5.28min	189amps 4.55min	160amps 3.55min	398amps 5.55min	287amps 6.20min
4th layer amps/time	337amps 7.26min (1/3 complete)	470amps 7.09min (1/3 [1/3complete])	320/105 amps 6.44min	290/90amp 6.25min	480amps 6.30min (1/3 complete)	330/102amps 9.10min
5th layer amps/time	N/A	N/A	N/A	N/A	N/A	N/A
Finished Test	NO	NO	YES	YES	NO	YES
Failed by	7.5 metres	7.5 metres	-----	-----	7.5 metres	-----
Start/Finish Motor Temp	10°C 103°C	10°C 89°C	10°C 57°C	10°C 47°C	11°C 60°C	11°C 57°C
Start/Finish Gearbox Temp	10°C 42°C	10°C 55°C	10°C 32°C	10°C 31°C	11°C 28°C	11°C 32°C
Field Notes	Smoke was visible at the motor/drum junction towards end of test	Smoke was visible at the motor/drum junction towards end of test	Winched rather quickly, though the motor was extremely noisy.	Never looked like stopping at any point. It barely noticed the large rock step at the top, either	This winch really bogged down on the harder parts of the track	This winch gets an 'A' for effort. It battled all the way to the finish line and made it

	WARN MAGNUM 9000 LB	WARN 9.5XP 9500LB	WARN 12000LB (current model)	MILE MARKER V9 9000LB
1st layer amps/time	250amps 1.10min	230amps 1.05min	148amps 1.03min	163amps 1.20min
2nd layer amps/time	235amps 3.20min	240 amps 2.37min	198amps 3.00min	187amps 3.31min
3rd layer amps/time	310amps 9.06min	231amps 4.20min	251amps 5.50min	167amps 5.33min
4th layer amps/time	Stopped at end of 3rd layer	522 amps 6.45min (1/3 complete)	478amps 8.35min	312/67amps 7.20min
5th layer amps/time	N/A	N/A	Stopped at end of 4th layer	N/A
Finished Test	NO	NO	NO	YES
Failed by	10 metres	7.5 metres	10 metres	N/A
Start/Finish Motor Temp	10°C 140°C	10°C 42°C	10°C 113°C	11°C 50°C
Start/Finish Gearbox Temp	10°C 43°C	10°C 66°C	10°C 97°C	11°C 47°C
Field Notes	Disappointing considering it's a big brand name. Smoke was visible from drum/motor junction by start of 3rd layer	Fast as advertised, but very power hungry, which was its downfall at the end	Pulled at a slow and steady pace with its high gear reduction but slowed to a stop as the going got easier	Pulled steady the whole way, leaving just enough to get up the last rock step to the finish line



The winches that used less power made it up this last rock step with varying degrees of effort, while the power-hungry winches didn't



If your 4WD can't be driven due to mechanical failure or lack of traction, you're going to have to winch it if you want to get home before dark. This terrain is typical of what most of us would see when we head bush

LAB TESTING

Most vehicle recoveries only need to use a winch to move the vehicle a short distance, such as from a bog hole. But when you're relying on your winch to haul your stricken vehicle up a steep embankment, the outcome can depend on the safety margins and materials used in the manufacture of the winch. In short, your life can be hanging by an 8-10mm diameter wire. If the cable breaks before the winch stalls, you could be saying goodbye to your 4WD, or worse, yourself.

In the event that the winch fails during a recovery, it's critical that the winch motor stalls before the cable breaks. To determine this, I took all the winches to Noble & Sons, who are specialist riggers, suppliers and certified testers of cables, straps and machinery for a range of lifting and pulling industries.

WINCH STALL TESTS PROCEDURES

- Each winch was installed onto a 300-tonne test bed
- An over-rated cable replaced the factory offering using the winch's factory mounting point to determine the winch stall load - irrespective of the supplied cable strength
- The other end was shackled to a load cell anchored at the other end of the test bed. The load cell was used to measure the pulling capacity of each winch
- A fully charged battery was connected
- Cable slack was taken up on the first layer before each winch was activated continuously until it stalled
- Maximum stall measurements were recorded from the load cell

CABLE AND HOOK DESTRUCTION TESTS

I was curious about the strength of the hooks supplied with each winch too. While some hooks looked visually stronger than others, their strength is also critical to everyone getting home safely. With this in mind, I had all cables and hooks destruction tested. The steel crimp lug used to secure the loop end for the hook is considered the weakest point as the cable is affected by distortion from the hydraulic press.

DESTRUCTION TESTING PROCEDURES

- We tested the first 1.5m of cable from the hook end with the hook attached to see if there was any deformation of the hook within the cable's breaking capacity
- The hook end was anchored to a fixed point and the other end fastened to the end of a 50-tonne ram
- With safety cages installed, the ram was slowly activated until each hook snapped, at which point the breaking load was recorded.
- With the hooks removed from the cable, the same procedure was used to test them, but the chain was used in place of cable for its added strength

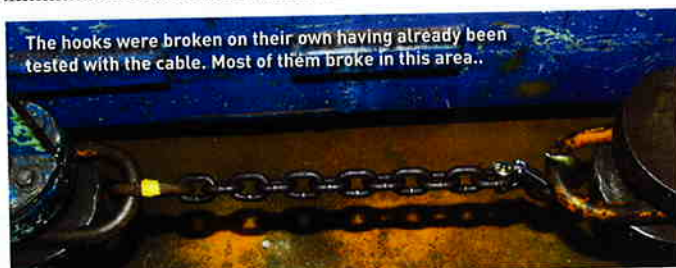
This stage of testing produced some interesting, even surprising, results as the bar graph shows. When reading the graph, the top bar shows the manufacturer's rating and the second bar shows the actual stall load, with a percentage over the manufacturer's rating. The third bar shows the cable's breaking strain with a percentage over the stall load, while the fourth bar has the hook breaking load with a percentage over the cable breaking strain.



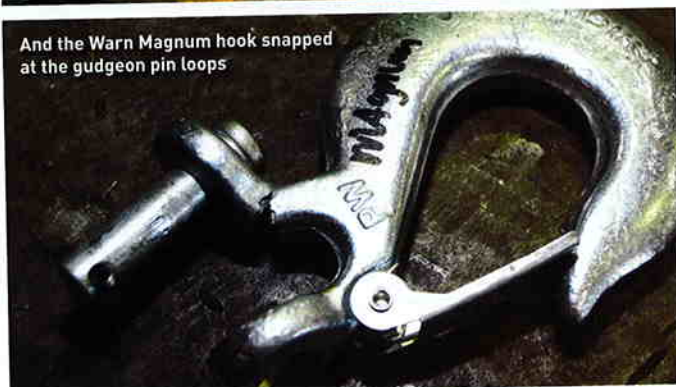
Pulling force is measured within this load cell device...



...and gives a real-time reading here



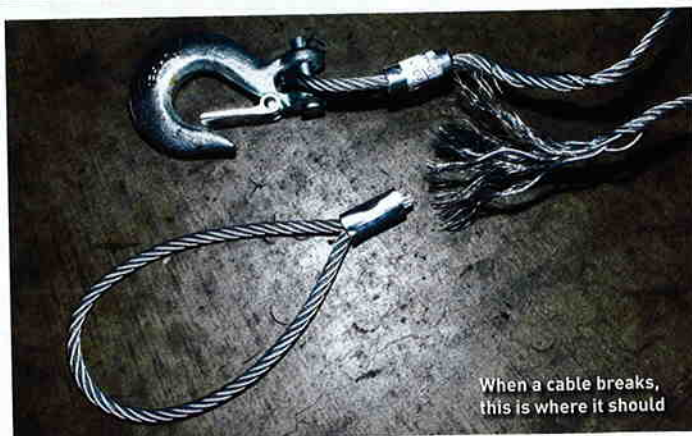
The hooks were broken on their own having already been tested with the cable. Most of them broke in this area..



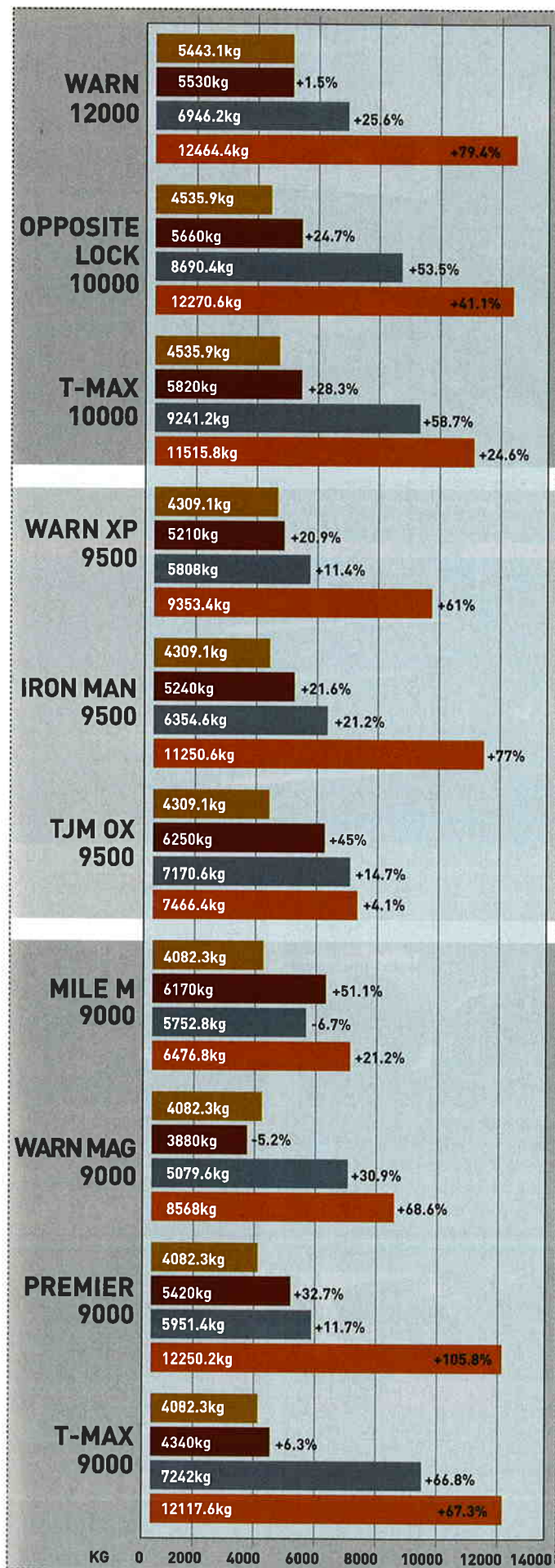
And the Warn Magnum hook snapped at the gudgeon pin loops



Except for the T Max 10000 - it stretched open and slipped



When a cable breaks, this is where it should



- RATED LOAD (KG)
- WINCH STALL LOAD (KG)
- CABLE BREAK LOAD (KG)
- HOOK BREAK LOAD (KG)

	WINCH STALLED AT / % + or - AS STATED	CABLE BROKE AT / % + or - STALL TEST	HOOK BROKE AT / % + or - CABLE TEST
T-MAX 9000LB (4082.3kg)	4340kg or 6.3%	7242kg or 66.8%	12,117.6kg or 67.3%
T-MAX 10000LB (4535.9kg)	5820kg or 28.3%	9241.2kg or 58.7%	11,515.8kg or 24.6%
TJM/OX 9500LB (4309.1kg)	6250kg or 45%	7170.6kg or 14.7%	7466.4kg or 4.1%
PREMIER 9000LB (4082.3kg)	5420kg or 32.7%	5951.4kg or 11.7%	12,250.2kg or 105.8%
OPPOSITE LOCK 10,000LB (4535.9kg)	5660kg or 24.7%	8690.4kg or 53.5%	12,270.6kg or 41.1%
IRON MAN 9500LB (4309.1kg)	5240kg or 21.6%	6354.6kg or 21.2%	11,250.6kg or 77%
WARN MAGNUM 9000LB (4082.3kg)	3880kg or - 5.2%	5079.6kg or 30.9%	8568kg or 68.6%
WARN 9.5 XP 9500LB (4309.1kg)	5210kg or 20.9%	5808kg or 11.4%	9353.4kg or 61%
WARN 12,000LB (5443.1kg)	5530kg or 1.5%	6946.2kg or 25.6%	12,464.4kg or 79.4%
MILE MARKER 9000LB (4082.3kg)	6170kg or 51.1%	5752.8kg or -6.7%	6976.8kg or 21.2%

WHAT DOES IT ALL MEAN?

A winch is given a maximum working load based on the first layer of wire rope on the drum (ie: the innermost layer). Gearing, drum diameter and motor size are also considered when determining this. As the layers increase, the pulling capacity decreases because the original drum diameter increases with each layer – just like driving a vehicle with 30in tyres and then fitting 33s, 35s and then 37s. With each increase in tyre size, engine power is reduced because overall gearing has changed from optimum.

What this test shows is the actual stall load of each winch and breaking load of the supplied cables. For example, looking at the results for the T-Max 10,000, the winch stalled at 1284.1kg over its rating while the cable broke at 3421.2kg over the stall load and the hook another 2274.6kg over that.

On the other hand, the Warn Magnum 9000 stalled at 202.3kg less than its rated capacity, but the cable still broke at 1199.6kg over

the stall speed and the hook another 3488.4kg on top again.

Both these winches have good safety margins compared to the Mile Marker that stalled at a massive 1860.9kg over its rating, while the cable broke 417.2kg sooner. The fact the hook broke 1224kg more than the cable means little since the winch has already broken the cable much sooner.



Generally, a figure-eight crimp lug will offer better strength as it supports more cable surface while a standard crimp will tend to flatten the cable and dislodge the wire strands

SUBMERSION TESTING

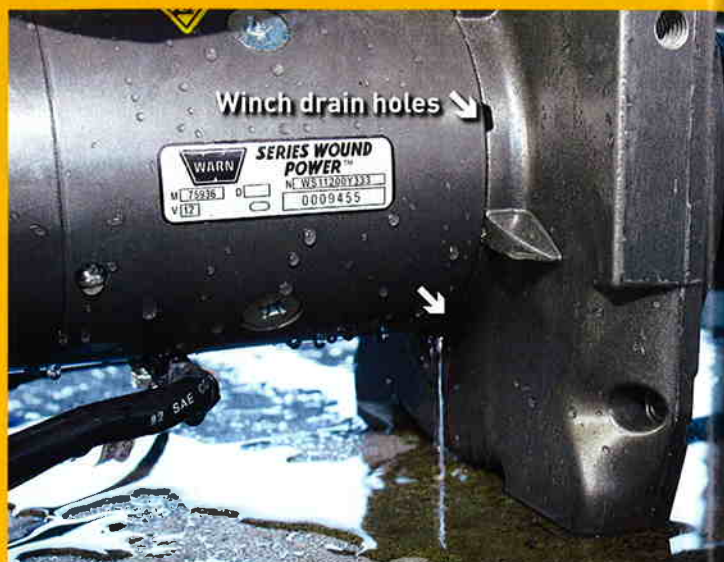
Let's be honest, not everyone services their winch, yet water is one of the biggest killers to anything electrical or metal. Even traces of moisture will lead to corrosion, and this has the ability to render your winch completely useless when needed most.

While most winches look the same, they each had minor characteristics that can affect them differently and how well they cope with moisture is just what this test is all about. Whereas some winches have several drainage ports, others have none and neither system works well if not designed properly.

While I'm happy to report they all worked after a good dunking, stripping down the motors and gearboxes the following day revealed some less than desirable results.

SUBMERSION TESTING PROCEDURES

- Their operational status was confirmed prior to submersion, so I knew if the water had affected their operation after the test
- Each winch was submerged for two minutes in 30cm of water, then left to drain for 30 minutes
- The control boxes were not submerged, as the cabling allows for them to be placed out of harm's way
- Each winch was then operated in forward and reverse for two minutes each way until the motors became warm



Not all winches were equipped with drain holes, and this was to their detriment when I pulled them apart

WARN 12,000LB



While the motor showed signs of soaking, the drain ports worked well, leaving only residue



The gearbox still had a dribble of water that had bypassed the end support bush that also helps with sealing

WARN MAGNUM



The motor was still soaked and water droplets still present. The motor showed the effects of high heat as the motor insulation had started to flake off



Water was still present on the motor mounting face and inside the drum

The bubbles showed each winch taking in water and they were all full within two minutes

WARN 9.5XP



The Warn was the only winch to remain bone dry. This motor isn't even damp



The gearbox was bone dry too



The reason the Warn XP remained so dry was because of this lip seal at each end. It allows parts to move, while keeping water out at the same time, very impressive

OPPOSITE LOCK 10,000LB



A large amount of water was present even though it had dual drainage holes. The resin around the windings had started to break down due to excessive heat. The amount of heat can be seen in the bubbling paint on the drum housing



The motor was full of water too and had mixed with the grease. Note how thick and stringy the grease is. It was very tacky to the touch, and I can only imagine how much resistance this would create on the gears as they tried to fight through this muck

IRONMAN 9500LB



The motor housing had no venting for water or heat, yet it was still wet inside



The water had made its way into the gearbox and mixed with the grease, making a right mess of things. The gearbox is geared low and uses a small motor, which accounts for the low amp draw and slow speed during winching

TJM/OX 9500LB



Plenty of water still present in the motor end of the drum. Needless to say, the motor was still soaked



Water that hadn't yet mixed with the grease pooled onto the table when I removed the gearbox housing. Leaving your winch like this for even a week can make for expensive repairs

PREMIER 9000LB



Even with good drainage and venting ports, the Premier still had water droplets present



Water had found its way into the gearbox too, though not as bad as some. The end support bush appeared to be miss-aligned during manufacture. Had this been properly seated, it may have been a different story



For the purpose of illustration, this is the external cone brake used on the Premier winch. Drive dogs contact on one side of the brake coupler but not the other. This means when the winch is operated in reverse, the drum isn't driving over the brake and generating heat in the drum like the others do. The Premier external brake is the reason why it's suitable for lifting as well as pulling

MILE MARKER V9



Water managed to get into this sealed motor housing, soaking the motor and slowing the water's escape



Water also got into the gearbox and mixed with the grease. The excess water ran out as I cracked the housing open, and this beefy-looking plastic gasket appeared to do little in stopping water ingress



I noticed that the two metal sandwich plates that hold the gear sets together showed obvious signs of rubbing between the first and second stage. Even after only 10 minutes of use, these metal filings were smeared in the grease and it would only get worse the more you used it

T-MAX 9000 LB & 10000 LB



Both T-Max winches showed identical water ingress, and this was the water remaining in the drum



Both motors were completely soaked, despite having drainage ports. They also showed the effects of excessive heat, as indicated by the motor insulation starting to flake off



This mess was created after only two minutes in water. Not good at all



Servicing your winch is paramount if you want to avoid this happening. It won't take long for water to seize moving parts, no matter how much you shout and curse at it in a time of need

SUBMERSION TEST CONCLUSION

To be honest, I was very unimpressed with the overall results. Winches that had performed well to this point let themselves down, while others that hadn't done so well, only got worse. The Warn 9.5XP was the only winch to remain bone-dry inside, and this is mostly due to the lip seals used to seal the motor and gearbox housings.

The test I did was only for two minutes in clean fresh water. In a real situation, your winch could be sitting submerged of up to an hour in muddy or salty water, and this will only accelerate the corrosion process. What the results do show is that winches aren't something that can be bolted to the bullbar and forgotten about. In the same way you service your 4WD to ensure reliability,

winches need the same kind of attention if you're to get any kind of value and reliability from it.

While winches can be modified to better protect them from water ingress, they can be fiddly to set up, require a bit of mechanical nous, and will most probably void your warranty. Considering the amount of cash being asked for some of these winches, it's fair to expect this kind of thing to be taken care of in the factory, as we now know it's easily done.

No-one wants to go to the hassle of removing the winch from the bullbar and paying someone to service it every time it gets wet, but as this test shows, there are sure to be a few winches out there quietly self-destructing and rusting away.

FREE SPOOL

To conserve battery power and for a more speedy recovery, turning the lever on the gearbox to free spool will disengage the ring gear from the main gear set and allow you to remove the cable more easily. The problem with some winches is that this ring gear binds to the inside face of the gearbox, making free-spool difficult.

In most cases, it will work loose if the winch is operated while in free-spool mode, as this helps to release the binding effect. Each winch I tested required me to drag the cable up the hill to be secured to the anchor point. I only needed to take a couple of steps with the cable in hand to realise how critical the free-spooling abilities of a winch really are. Now, I'm a fair lump of a lad and un-spooling some of them was exhausting!

This simple chart rates the ease of free spool for each winch between '1' (being extremely easy) and '5' (an absolute mission).

WARN MAGNUM	1
WARN 9.5XP	2
IRONMAN	2
PREMIER	2
TJM/OX	2
WARN 12,000LB	3
T-MAX 9000LB	4
T-MAX 10,000LB	4
OPPOSITE LOCK 10000lb	4
MILE MARKER	5+

[I knew from testing in the field that the Mile Marker's free spool was very hard, so I enlisted the services of a forklift to remove the cable for the stall test – it was that hard].

Turning the lever disengages this gear, but they can bind to the casing by friction. While they tend to loosen up after a few uses, they can bind again when not used for a while

Winch Compare

FEATURE

WHICH WINCH FOR ME?

When you consider the field, laboratory and water testing results, no single winch really stood apart from the others in all areas. So, when some winches cost 2–3 times more than others, we like to know our money has been well spent.

The one factor in this test that hasn't been tested is long-term durability, and this can be where the extra money spent on a dearer winch now (like Warn 9.5XP and Premier) may pay itself back in the years to come. Let's compare the statistics and price of each winch to see how they rate in the real world.

WWW.4WDACTION.COM.AU

043

WARN MAGNUM

SPECS:

SINGLE-LINE RATED PULL: 4100kg/9000lb

MOTOR: 3.2kW, series wound

CONTROL REMOTE: 3.7m lead

GEAR TRAIN: 3-stage planetary

GEAR RATIO: 261:1

CLUTCH: (free spooling) sliding ring gear

CABLE: 30m x 8mm diameter

BRAKE: Internal automatic

WEIGHT: 35kg

FAIRLEAD: Roller

WARRANTY: 1 year

PRICE: \$934

COMMENTS:

This is Warn's entry-level winch. Priced and built accordingly, this winch stumbled its way through all testing procedures. It was power hungry in the field, the motor temps hit 140°C and didn't meet the manufacturer's maximum stall load.

Despite this, the cable and hook did better, which is the preferred outcome considering the alternative. It didn't do too well in the water test and the stench of burnt motor was obvious. While this winch may be better suited to smaller vehicles, I'd be considering my options before handing over the cash.



4/10

WARN 12,000

SPECS:

SINGLE-LINE RATED PULL: 12000lb/5440kg

MOTOR: 12V 4.6hp series wound

REMOTE CONTROL: (3.7m) lead

GEAR TRAIN: 3-stage planetary

GEAR RATIO: 261:1

CLUTCH (FREE SPOOLING): Rotating ring gear

BRAKE: Automatic direct drive cone

WEIGHT: 62kg

WIRE ROPE: 38m, 9.5mm diameter

FAIRLEAD: Roller

WARRANTY: 1 year

PRICE: \$2432

COMMENTS:

The Warn 12000-pounder certainly looked like it meant business, weighing about 20kg more than all the others and needing two people to safely move it. Despite the super-low gearing, it was power hungry during the field test and that's why it didn't complete it.

The motor temps hit 113°C and the gearbox got the hottest of them all at 97°C. It did well in the stall load and cable breaking tests, but held a reasonable amount of water after being submerged.



5/10

MILE MARKER

SPECS:

SINGLE-LINE RATED PULL: 9000lb (4082kg)

MOTOR: 4.5hp/3.3kW, series wound

CONTROL REMOTE: Remote switch, 3.7m lead

GEAR TRAIN: 3-stage planetary

GEAR RATIO: 212:1

CLUTCH: Rotating ring gear

BRAKE: Automatic in-the-drum

CABLE: 28m of 8.2mm diameter

FAIRLEAD: 4-way roller fairlead

WEIGHT: 30kg (winch only)

WARRANTY: 2 years

PRICE: \$1539

COMMENTS:

The Mile Marker winch uses a 100 percent MOSFET (Metal Oxide Semiconductor Field Effect Transistor) that's activated by volts rather than current. It offers fast switching speed, generates little heat and is highly efficient. It's a solid state control box that's set in casting gel, (meaning it's not repairable) inside a heat-sink style control box. While this is meant to make it more power efficient, it still performed slower than its more simply designed brother, the TJM OX. After spending a good half an hour fiddling with the control lead that seemed to have a loose connection where it plugged into the control box, the winch completed the test track, only just getting up the last obstacle seconds before I was about to call stop.

The winch pulled beyond the capacity of the cable and had a lot of water in the grease after the submersion test. What it gains with fancy lights and variable speed on the remote control, it loses on critical cable safety margins and questionable control box reliability.



3.5/10

T MAX 9000/T-MAX 10,000

SPECS:

SINGLE-LINE RATED PULL: 4080kg/9000lb

MOTOR: 6.6hp/12V series wound

CONTROL REMOTE: 3.7m lead

GEAR TRAIN: 3-stage planetary

GEAR RATIO: 172.8:1/218:1

CLUTCH: Shift pin ring gear/sliding ring gear

CABLE: 28.5m x 8.2mm diameter/9.2mm x 28.5m

BRAKE: Automatic in-the-drum

WEIGHT: 36.5kg

FAIRLEAD: 4-way roller

WARRANTY: 1 year/1 year

PRICE: \$699/\$799

COMMENTS:

Both T-Max winches performed near identically during testing. They were both considerably noisy in operation and got so hot towards the end, smoke wafted out of the motor/drum junction. Without finishing the test track, the heat gun showed motor readings of 103°C and 89°C respectively. This didn't stop them in the lab, though, where they both performed well in the stall, cable and hook tests.

The submersion test didn't do them any favours as they retained considerable water. The motors were still soaked and the motor insulation had started to break down. While they still worked after all the testing, I'm not sure how many more recoveries were left in these two.



5/10

OPPOSITE LOCK

SPECS:

SINGLE-LINE RATED PULL: 9500lb/4309kg

MOTOR: 6.6hp/4.0kW

CONTROL REMOTE: 3.7m lead

GEAR TRAIN: 3-stage planetary

GEAR RATIO: 265:1

CLUTCH: Sliding ring gear

BRAKE: Automatic in-the-drum

CABLE: 28m x 9.4mm diameter

FAIRLEAD: 4-way roller fairlead

WEIGHT: 36.5kg

6/10

WARRANTY: 1 year

PRICE: \$950

COMMENTS:

Branded as an Opposite Lock winch but internally stamped as T-Max, this winch pulled slow and steady. It slowed down noticeably on the bigger obstacles, where it showed a greatly increased amp draw. Using too much power too soon, meant it stopped at the rock step. Another solid performer in the test lab, it didn't do too well in the water test. That thick, tacky grease would be chewing extra power as the gears plough their way through it. Flaking motor insulation was also present, even though temperatures remained acceptable. I think changing that grease for something more suitable would improve its power efficiency noticeably.



TJM/OX

SPECS:

SINGLE-LINE RATED PULL: 9500lb [4309kg]

MOTOR: 5.5hp/4.0kW, series wound

CONTROL REMOTE: 3.7m lead

GEAR TRAIN: 3-stage planetary

GEAR RATIO: 196:1

CLUTCH: Sliding ring gear

BRAKE: Automatic in-the-drum

CABLE: 28m of 8.2mm diameter

FAIRLEAD: 4-way roller fairlead

WEIGHT: 36.5kg

7/10

3rd

WARRANTY: 2 years

PRICE: \$999

COMMENTS:

No other winch was this loud during operation and is best described as a loud gargle. It struggled at the last obstacle, but its efficient power usage got it to the finish line in good time, with good final motor and gearbox temps. It performed very well during the stall test and cable destruction, and the hook just passed, but it retained a fair amount of water in the submersion test. Overall, it was a good performer and you can't ignore its value for money.



IRONMAN

SPECS:

SINGLE-LINE RATED PULL: 9500lb/4310kg

MOTOR: 5.5hp/4.1kW, series wound

CONTROL: Wireless remote and 3.7m lead remote

GEAR TRAIN: 3-stage planetary gear reduction

GEAR RATIO: 265:1

CLUTCH: Sliding ring gear

BRAKE: Automatic cam lock in the drum

CABLE: 28m x 9.4mm diameter

FAIRLEAD: 4-way roller fairlead

WEIGHT: 38kg

6.5/10

WARRANTY: 3 years

PRICE: \$799

COMMENTS:

One of the cheapest winches on the market, and in this test, I was keen to see what you get for your money. By far the slowest in the field, it approached the last rock step, and as it looked like it was going to stop, the motor seemed to power pulse its way up to the finish line.

It did well during the stall test and cable destruction, only to be let down in the water test where it had the worst result. The build quality is lacking compared to some of the more expensive units, but it has the numbers on the board where it counts and you get a free cable damper too.



WARN 9.5 XP

SPECS:

SINGLE-LINE RATED PULL: 4320kg/9500lb

MOTOR: 6hp, series wound

CONTROL REMOTE: 3.7m lead

GEAR TRAIN: 3-stage planetary

GEAR RATIO: 156:1

CLUTCH: [free spooling] sliding ring gear

CABLE: 30m x 8mm diameter

BRAKE: Automatic, direct drive cone

WEIGHT: 40kg

FAIRLEAD: Roller

8.5/10

2nd

WARRANTY: 1 year

PRICE: \$2028

COMMENTS:

The 6hp motor retrieved the cable quickly, but it sucked the power and this was why it failed the field test.

It performed well in the stall test and cable destruction test, and the hook didn't want to break. It was the only winch to pass the water test with full honours. What the pictures don't show, though, is the build quality inside, and it does convince you this winch is built to last.



PREMIER

SPECS:

SINGLE-LINE RATED PULL: 9000lb/4082kg

MOTOR: 4.6hp heavy-duty 12V motor

REMOTE: Switch with 5m cord

FAIRLEAD: 4-way roller

BRAKE: Automatic external load-holding brake

CLUTCH: Rotating ring gear clutch in steel housing

CABLE: 38.1m x 8mm diameter

WARRANTY: 1 year

PRICE: \$1495

COMMENTS:

During field testing, this winch blitzed them all and never looked like stopping. The large rock step at the end didn't seem to bother it, as it ran straight over it to the finish line while staying cool to the touch the whole time. In the laboratory, it performed very well, stalling way beyond the factory rating while the cable had a good 531kg safety margin over the stall load.

Yes, it did let water in during testing and the support bush appeared to have been misaligned during manufacture. However, it also had the best-placed drainage holes and appeared to be the 'driest' out of all the soaked winches.



1st

CLOSING THOUGHTS

Our winch testing highlighted performance characteristics like amperage draw, stall load and the safety factor on each cable and hook that's critical to those considering purchasing them. As previously discussed, correctly matching a winch to your 4WD is the most important first step. From there, you can choose the brand that best suits your needs for performance efficiency, suitable safety margins and reliability in the field. While cost may be the ultimate determining factor, don't let it be to the detriment of your vehicle or personal safety.

Despite what our testing shows, winch manufacturers still have a lot of work ahead of them to make a product that really stands out in the field and represents good value for money.

In my opinion, the ultimate low-mount 12V winch would have the build quality and water proofing characteristics of the Warn 9.5 XP, the external brake and power efficiency of the Premier, a motor that can reliable work at it's maximum load rating and with a cable and hook offering suitable safety margins. Back all this up with a three-year parts and labour warranty, to show you genuinely back your own product.

THANKS AND CONTACTS

Thank you to Battery World for supplying brand new, fully charged batteries for the test and Jaycar Electronics for supplying the digital thermometer – it proved an easy to use and valuable tool to have. Check out each manufacturer for their full product range:

www.ironmansuspension.com

www.4wdmegastores.com.au

www.oppositelock.com.au

www.aunger.com.au

www.atecoequipment.com.au

www.arb.com.au

www.batteryworld.com.au

www.jaycar.com.au

Premier, TJM OX, Mile Marker

T-max

Warn

Warn

WINCH TIPS

When it's time to call your winch into action, chances are the situation will already be dangerous. Rushing around and not paying attention to how you set up your recovery gear can quickly turn a bad situation much worse. If you're a smart 4WDer, you'll have at least one other 4WD in convoy, and this will make the recovery much easier. By following these six easy winch tips, you'll be on your way quickly and without further damage.

Fitting a cable damper helps slow the cable recoil should it break