WK181 10K Endurance Test Full Review

A Canadian Firearms Endurance Testing Report



Agenda

- What is CFET?
- Who assisted in the testing?
- What is the WK181 and what is Quality?
- Kodiak Defence Warranty & Manual
- The scope of the testing
- The M4 Test
- Full findings & CAF Weapons Technician Report
- A look at the rifle
 - When dirty
 - After 10,000 rounds
- Hard Test Data
- Conclusions
- Tester Opinions



What is CFET?

Canadian Firearms Endurance Testing (CFET) is a group of Canadian shooters who are tired of:

- Low quality Canadian semi auto intermediate calibre rifles: being sold as modern sporting rifles to people to whom the \$1000 \$3000 price range is a significant investment
- Low round count reviews: many are <500 rounds and used as a source of information for a large number of Canadian shooters. Sometimes these are made by people with an incentive to not release a negative review
- Manufacturers not testing their products appropriately: we believe firearms are being released without high round count testing and often due to the low size and highly political nature of the market are releasing products to customers earlier than they should be
- 3 Round groups as accuracy tests

How to help CFET

Collectively CFET members spread the cost of purchasing each firearm, accessories and running 10,000 rounds of ammunition through it.

The cost of making this report was >\$7000 once the cost of the ammo, magazines, rifle, postage, fuel and other costs incurred are added together. If you want more reports we need your help

The speed at which we are able to produce new reports on firearms is dictated by how quickly we are able to get the firearm, accessories & ammo

If you want to contribute to the testing you can:

- Help cover the costs by donating funds to the CFET Patreon: https://www.patreon.com/CanadianFirearmsEnduranceTesting
- Donate factory made ammo/magazines by posting them to us, email us at CFET10K@gmail.com to arrange this
- Take part in drop in shoot sessions that will be advertised in advance
- Contact us to request to become part of the team

If you want to help in any way or have questions contact us at: CFET10k@gmail.com

What is CFET not?

Canadian Firearms Endurance Testing (CFET) is a group of Canadian shooters who are NOT:

- Paid for or financially incentivized by industry: we get no money, no bonus gear nothing from manufacturers. Some manufacturers may be aware that we are testing their firearm, and we may receive replacement parts under warranty without cost. We accept ammo if offered (none for this test)
- In a position to profit from conducting the test: where a CFET member is involved in the firearms industry or entertainment they may discuss the use of the firearm but not refer to CFET

Things to note

Some important info to be transparent

- Kodiak Defence were aware we were going to run 10,000 rounds through this gun, how seriously they took us we don't know
- We have spoken to them throughout the process, asked questions where needed, and informed them of results
- Some CFET members have previously tested WK180 Gen 1 and Gen 2 rifles in both 5.56x45 and 7.62x39



In February 2019 Kodiak Defence & Wolverine Supplies <u>unveiled the WK181</u> and stated that the use of the AK magazine was "Firmly designed for the US market and export" and "we're looking at worldwide export".

To our understanding no export or sale of the WK181 ever took place until Dec 2022.

After 4 years of time in which development could have continued further Kodiak Defence now operating independently from Wolverine Supplies released the WK181 Gen 2 which was tested for this report



What is the WK181?

Produced by Kodiak Defence it is a Non-Restricted 7.62x39 AR-180 variant that utilises an AKM magazine

It is a variation of the WK180 Gen 2 lower & upper with a 15' MLOK handguard

It uses the 3rd iteration of the WK180 gas system requiring a bolt carrier that will not function with the WK180 Gen 1 or 2. The gas system is a carbine length short stroke piston

It has a longer firing pin to handle hard surplus ammo primers and is only designed around use of the Magpul PMAG magazine

In KD's words it is a civilian sporting rifle



What is the WK181? (2)

It has a non-reciprocating cocking handle

The barrel is not chrome lined

Uses a paddle magazine release

Has the same recoil springs as the 5.56x45 WK180 Gen 1 and 2 rifles

Take down pins both extend from the same side unlike the WK180 Gen 2



KD Warranty Legal & Practical

Kodiak Defence provides 2 parallel warranties.

One legal official warranty that they can choose to enforce at any time.

Another warranty that they have put in writing that is more practically what they actually do.



KD Warranty (Legal)

The Legal Warranty provided by KD is long, some key snippets include:

- Your rifle is guaranteed to function as designed for you, the original owner, for one year from the date of purchase. Kodiak Defence will, at its sole
 discretion, either repair or replace defective firearms or defective parts of firearms in order to correct the deficiency.
- Kodiak Defence may provide a replacement part or replacement parts to you and require that you install it or them yourself if it deems that it is both
 reasonable and safe for a typical user to do so.
- nor does it cover functional problems when using magazines not purchased directly from Kodiak Defence. It does not cover defects or damage that do not
 affect either the function or the safe operation of the firearm, nor does the warranty cover injury, death, or damage to property that results from a failure
 of your firearm.
- Your warranty is void if you fail to maintain your rife properly, if you modify your rifle in any way (including the installation of aftermarket accessories,) if you use non-standard or corrosive ammunition

Notes:

- Kodiak Defence had to have known that the WK181 would be used by a very significant number of owners with corrosive ammunition but have chosen to immediately void the warranty of any firearm that uses it
- Kodiak Defence contacted us after we published the initial report and clarified that aftermarket accessories that would void warranty are not those designed to be attached to the rifle but those that replace parts of the rifle E.g. An MLOK laser on the handguard is fine but if you replace the trigger with one that does not work they will not cover that
- Kodiak Defence are only guaranteeing the function of the WK181 with Magpul PMAGS that you have bought from them, not other sources

KD Warranty (Practical)

The Practical Warranty provided by KD is very different to that of the legal warranty

• Nobody likes lawyers. While do we reserve the right to enforce the above policy to the letter, if something goes wrong with your rifle please get a hold of us and let us know, even if it's outside of the warranty period. If your story is good enough, we'll likely fix it regardless. We work hard to ensure that our customers' rifles work well, but if you make our Warranty Department laugh when you tell the story of what went wrong, we'll probably work even harder for you. Our employees have all dealt with warranty centres themselves at some point in their lives; they're not looking to make life difficult for you.

Notes:

- Based on nearly 4 years of using WK180 & WK181 rifles while observing the experiences of others we can say that our anecdotal evidence is that Kodiak Defence does go past the 1 year warranty and does seek to help people as much as they can
- Given the failure rates of earlier WK180s we consider it likely that any other approach would have resulted in anything but total failure, especially enforcing the legal warranty
- The legal warranty is brutal but in practice Kodiak Defence do respond well to customers

Kodiak Defence – User Manual

For several months the manual was not published online and purchasers of the rifle were not provided a hard copy

The manual does hold a significant amount of information to help the new owner to effectively utilise the rifle and resolve commonly encountered issues

There are about a million "CAUTION"s that will almost certainly be ignored because guns are not treated gently by people and it simply isn't practical to follow them all

9.2 LOADING, CHAMBERING, AND FIRING A ROUND

CAUTION: BE GENTLE WITH YOUR MAGAZINES. KEEP THEM CLEAN, DRY, AND DON'T SLAM THEM INTO THE FIREARM. DESPITE WHAT YOU SEE IN MOVIES, POUNDING THEM IN CAN DAMAGE THEM. INSERT THE MAGAZINE FULLY INTO THE FIREARM, THEN TUG DOWNWARD ON IT TO ENSURE THAT IT'S SECURELY SEATED IN THE FIREARM.

- Attempt to set the selector (L-5) to "S"
 Note: If the rifle is not cocked, the selector
 will not be able to set to "S".
- Hold the handguard (U-12) of the rifle with one hand, pointing the muzzle in a safe direction. With the other hand, hook the front of the magazine into position.

NOTE: The magazine may be inserted with the bolt carrier assembly open or closed.

- Pull the magazine rearwards until the magazine catch engages. Push forward on the magazine to make sure that the magazine is secure.
- 4. If the bolt is open, push the bolt catch lever (L-8) upwards. A round will be stripped from the magazine and loaded into the chamber.
 If the bolt is closed when the magazine is inserted, pull the charging handle (B-12) fully to the rear and release it, then immediately move the selector (L-5) to "S".

CAUTION: DO NOT RIDE THE CHARGING HANDLE FORWARD. IF THE CHARGING HANDLE IS EASED FORWARD FROM THE OPEN POSITION, THE BOLT MAY FAIL TO ROTATE AND FULLY LOCK, AND THEN THE RIFLE CANNOT FIRE. IF THE BOLT FAILS TO GO ALL THE WAY FORWARD, DRAW THE COCKING HANDLE FULLY TO THE REAR AND RELEASE.

The rifle is now loaded and ready to fire.

Aim through the sights at the target. Set the selector (L-5) to "R" and draw the trigger smoothly to the rear.

What is Quality?

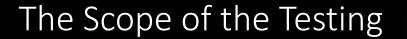
"The standard of something when it is compared to other things like it; how good or bad something is at achieving what is designed to do"

When reading the results of this test ensure to ask yourself:

"What am I comparing it against and what was it designed to achieve at a given price point & production number vs the WK181"

This is not to be used as an excuse, this is to set reasonable expectations.





High round count testing in with mixed rapidity of firing (low, medium and high rates of fire), competition shooting such as 2gun

Shooting in extreme weather conditions and after exposure to dirt, snow, ice, dust, and water

Shooting after being dropped, knocked and otherwise exposed to day to day mishaps (boating accidents included a rope to ensure return of rifle to the surface)

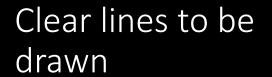
Accuracy testing with different brands & types of ammunition and the same type of ammunition after a defined number of rounds has been fired



To put the rifle through a lifetime of ammunition under varying use cases with different users to gain different information & perspectives for public viewing.

This is NOT a "torture test" but an Endurance test





This isn't a combat rifle, nor does treating it with excessive brutality provide any useful information

Rough usage through sporting/hunting use was encouraged

Dirt, Snow and other such tests are not unreasonable. However, they must be interpreted with the use case of a civilian sporting rifle. These tests will be conducted later in the rifle's testing.

The M4 Test

To provide a simple point of reference we shall refer to the M4 endurance test that was conducted by the US Army for the M4 rifle in 1994 M4s/AR15s have since improved in reliability

No individual rifle over the firing of 6000 rounds could combine 9 or more of all types of malfunctions without the test being considered a fail. Nor could it exceed the max number of any one type of malfunction.

E.g. If the M4 failed to fire on 3 occasions it would have passed the maximum limit of 2 and therefore failed

We shall use this system here for all firearms tests and provide the score.

Something that should be considered when looking at the test score is that the US Army knew it would only use one type of ammunition and could control that

The score given will be based on how the WK181 does over it's first 6000 rounds

Unlike the M4 the rifles we test will be cleaned at 1000 and 4500 rounds (approx)

3.4.7 Endurance. Carbines shall be capable of withstanding the firing of 6,000 rounds for endurance with not more than the number of malfunctions and unserviceable parts allowed for both single carbine and four carbines combined as allowed in TABLE I. The cyclic rate of fire of not more than one reading on a single carbine or not more than two readings on four carbines combined, shall fall outside of 700 to 1025 rounds per minute. Ammunition used shall be Government standard M855, 5.56mm ball cartridges conforming to Drawing 9342868.

TABLE I. Malfunctions and unserviceable parts permitted in 6,000 rounds.

Malfunctions 1/ Sing	<u>le Carbine 7</u>	/ Four Carbines 7
Failure of bolt to lock 2/	2	4
Failure to fire	2	4
Failure to feed (from magazine)	4	9
Failure to eject	2	4
Failure to chamber	3	7
Failure to extract	1	2
Bolts fails/hold rear	3	8
All other malfunctions 4/	0	0
Total - Above malfunctions combine	d 9	22

Unserviceable Parts 1/	Minimum Life <u>5</u> / Rounds	Four Carbines 6 Combined
Ejector spring	3,000	2
Extractor spring	2,000	1
Other parts 3/	3,000	1
Total unserviceable parts -	-	
(above unserviceable parts c	3	

1/ All malfunctions and unserviceable parts occurring during the test shall be recorded and properly identified regardless of whether they are chargeable to the carbine. Malfunctions that are traceable to components determined unserviceable after meeting minimum life round requirements may be replaced and charged against the carbine. When Government representatives have verified that previously recorded malfunctions are attributable to the unserviceable part, they shall not be counted against the carbine provided they occurred within the previous 200 rounds of firing. Malfunctions determined not to be chargeable to the carbine as a result of failure analysis shall be verified by the Government representative witnessing the test and shall not be counted (see 6.6).

The M4 Test – The Results

Type of Failure	M4 Max Allowed	Total WK181 Had
Failure to fire	2	18
Failure to feed	2	15
Failure to eject	4	2
Failure to chamber	2	6
Failure to extract	1	0
Other malfunction	0	0
Max of total of the above allowed	9	NA
Total WK181 Had	NA	41

Note: the WK181 at times suffered numerous failures of the same type and an exact number was not always recorded. The score provided is based on the test conductor's <u>conservative</u> estimates if perfect information was not recorded

3.4.7 Endurance. Carbines shall be capable of withstanding the firing of 6,000 rounds for endurance with not more than the number of malfunctions and unserviceable parts allowed for both single carbine and four carbines combined as allowed in TABLE I. The cyclic rate of fire of not more than one reading on a single carbine or not more than two readings on four carbines combined, shall fall outside of 700 to 1025 rounds per minute. Ammunition used shall be Government standard M855, 5.56mm ball cartridges conforming to Drawing 9342868.

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Full Findings

- Accuracy
- Trigger
- Ergonomics
- Reliability
- Durability
- The spring issue
- Magazines
- The gas system



Accuracy 0 - 5000(1)

The rifle achieved 2.5 – 3MOA with PPU, Chinese, Russian and Czech Surplus ammunition at 100m. You may achieve better

Additional brands of ammunition will be tested but if >50yr old surplus ammo does this well you should be fine

Using a Vortex Strike Eagle 1-8x24 hits were reliably made out to 500m in good conditions



Accuracy 0 - 5000 (2)

POI did not shift significantly through extended firing, the top image shows a 50 round group shot at 100m without great effort toward precision

After firing 400 rounds non-stop we shot a 5 round group using Chinese surplus and achieved a 3moa group as can be seen on the yellow target

NB: On the 50 round group it was known that the rifle was shooting high and left of POA, one should focus on the distribution of shots not the location of the group



Accuracy 5000 – 7500 (1)

Pictured: A 25m quick 5 round group using a 1x magnification old optic and Chinese surplus ammunition at 6800 rounds with a hot barrel from an unstable position. Approx 3.5moa

At 6050 rounds an accuracy test at 100m was conducted with Vortex Strike Eagle 1-8x24

- New production Chinese 123g FMJ 2.5 3moa achieved across 5 & 10 round groups
- Russian surplus ammunition 123gr FMJ 4moa 5 round groups
- Chinese surplus 123g FMJ 2.5 -3moa over 5 & 10 round groups

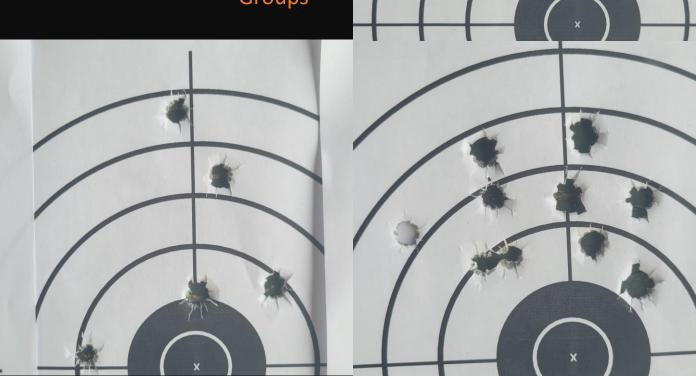


Accuracy after 10,000 (1)

At 10,023 rounds an accuracy test at 100m was conducted with Vortex Strike Eagle 1-8x24

- 1970s surplus Chinese 123g FMJ achieved the following group sizes
 - 5rd group 2.37moa
 - 5rd group 2.81moa
 - 10rd group 2.25moa
- New production PPU 124gr SP ammo achieved the following group sizes
 - 5rd group 1.37moa
 - 5rd group 2.26moa
 - 10rd group 3.3moa

Chinese Surplus Groups



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Additional Accuracy Notes

When shooting even just past 100m the ability to see where you rounds strike is essential to making accurate follow up shots adjusting for wind/elevation/distance etc. The recoil of the 181 with it's carbine length gas system and WK180 5.56 springs is significantly "snappy" for the calibre and at short to intermediate ranges using magnified optics you will struggle/fail to see splash

With 5/30 AK mags the magazine does lend itself to being rested on, in testing this did not cause any stoppages. The size of the AK 5/30 magazine may make resting on the magazine too tall for some people. Reliable 5/20 magazines have yet to be seen commercially available for sale.

The use of the AK-74 style muzzle break sold by Kodiak Defence may assist in reducing this recoil

Trigger

The trigger is a good quality mil-spec trigger. It sits around the 2-3kg (2.78kg/6.13lbs after >9000 rounds) breaking point and does so with little mush.

We would caution against the purchase of a lighter trigger as while the WK181 does have a longer firing pin to assist with surplus primers the rifle suffered from light primer strikes with Czech surplus.





Ergonomics

The Ambidextrous safety is of an AR15 style and gratefully received, some user's may find them a little long.

The bolt hold/release is in line with the safety when on safe. We found that under pressure the right handed user could try to actuate the lever rather than the safety wasting time and causing brief confusion

Using the bolt hold/release was easy and required no specific effort

The magazine release paddle was highly effective and a blessing when shooting in colder weather where using a small button release with thick winter gloves is hard

The handguard was functional and the additional length compared to WK180 Gen 1 models was appreciated

The pistol grip held nothing new as it was a standard A2 grip

Reliability

Over 10,000 rounds the following stoppages occurred under standard shooting conditions (Not including those suffered using Type 81 or KCI magazines):

- Failure to fire / Light primer strike x19 (7x with Czech ammo)
- No primer strike x2
- Failure to go into battery x6
- Failure to feed x27 (NB: this is a low count, many more likely took place)
- Failure to eject x4
- Failure to extract x3 (requiring the use of a ram rod to clear)

A total of 61 stoppages of which 3 completely prevented further use of the gun and the stoppage list does not include parts breakages.

NB: Stoppages from Non-functional magazines & the dirt test were not included in the total

The majority of the FTF, FTB and FTE stoppages can be directly attributed to 2 things in our opinion

- The use of the same springs in the 181 as the 5.56x45 180s
- Magpul magazines with slightly larger feed lips increasing resistance which combined with weaker than ideal springs caused stoppages



Reliability – Failure to feeds / go into battery

The most common cause of the failure to feed / go into battery is believed to be the weak springs

While 27 are recorded the nature of shooting under pressure, time constraints etc. means that many were remediated through manually actuating the action a second time and went un-recorded as unlike a failure to eject or double feed the resolution is very quick.



Reliability – Failure to eject

A rarity of a stoppage comparable to others. We have no specific comment to make on the <5 failure to ejects that took place.



Reliability – Stuck casings (1)

On two occasions between 7305 and 7455 rounds when using Chinese surplus ammunition the rim of the casing was removed and the casing left stuck in the chamber.

A ram rod was needed to remove the casing.

On inspecting the bolt face we could not identify anything preventing the extractor from functioning.

A drop of oil was applied to the bolt face and the chamber was decided to be scrubbed ASAP



Reliability – Stuck casings (2)

At 8731 rounds there was a 3rd stuck casing which again required a ram rod to be removed

On inspecting the bolt face it was seen that the extractor had broken off of the rifle and rendered it inneffective. This will be further explored in the Durability part of this report



Reliability – Dirt Test (1)

One of the key issues with many AR180 variants is how open the action is to the elements. For many Canadian shooters this will not be a significant issue as range sessions don't often involve significant ingress of dirt.

However many dynamic sports shooters and many hunters are likely to place their firearm in the dirt, through brush and more.

A basic dust test was conducted by dropping one handful of dry dirt onto each side of the rifle which was loaded and made ready with Chinese surplus ammo. It was then lifted and given one shake.



Reliability – Dirt Test (2)

The rifle fired 4 rounds before failing to go into battery

After cycling the action repeatedly, and shaking the rifle to release dirt and inserting a fresh magazine the firearm would still not go into battery

A litre of water was used to clear the action and internal working parts

The firearm did not continue functioning



Reliability – Dirt Test (3)

The test did not reveal anything unexpected, however:

- The WS-MCR & R18 Mk2 utilise a bolt the shape which much better seals the action when in battery
- The BCL Siberian & R18 Mk2 utilise cocking handles that fully seal the action

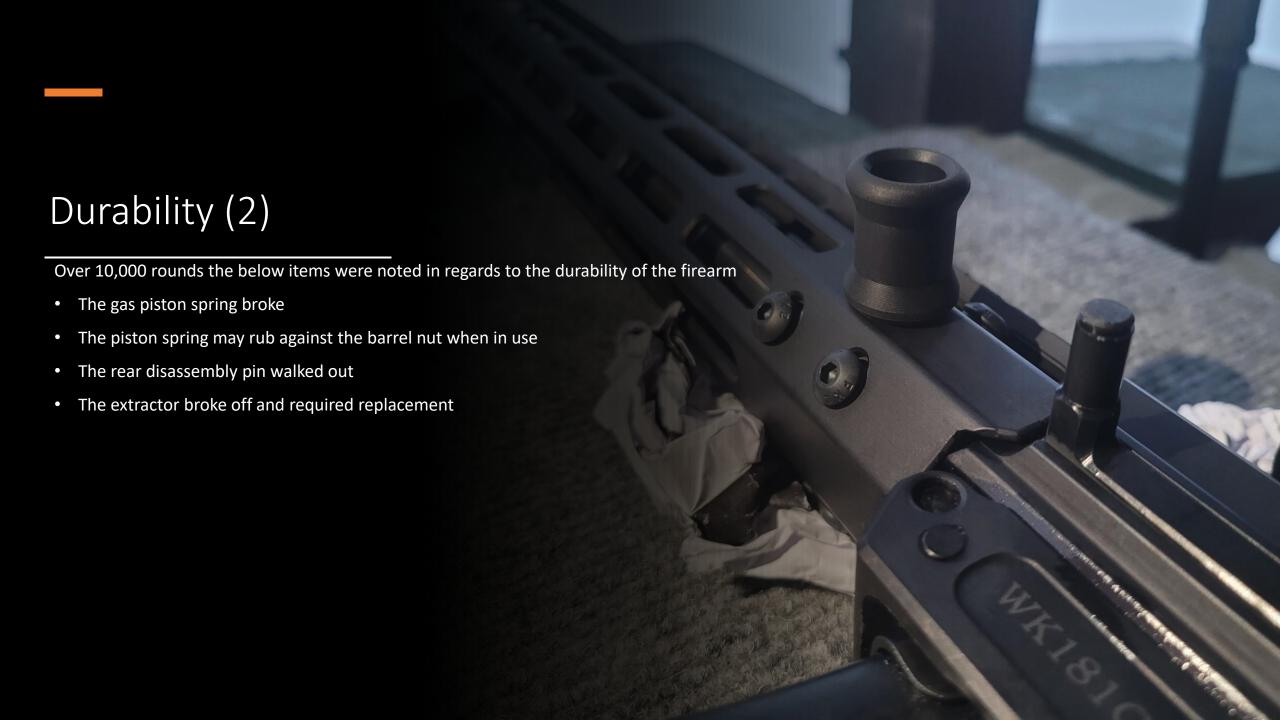
Why has Kodiak not replicated this when going from the WK180 Gen 1 to Gen 2 and then when changing the gas system & bolt carrier for the WK181?

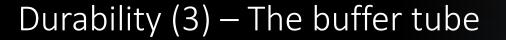


Durability (1)

Over 10,000 rounds the below items were noted in regards to the durability of the firearm

- Snow on ammo in magazines induced failure to feeds
- The handguard screws unwound repeatedly till tightened overly hard
- The Handguard screws also strip easily, 2 had to be replaced
- The cocking handle cover fell off and required a replacement moon clip. A replacement cocking handle assembly was used.
- The pistol grip came loose multiple times
- The buffer tube and castle nut came loose and required tightening
- The buffer tube broke it's threads and require replacement
- The front magazine lug interface pin set screw came loose and NOT having been loctited in place is prone to this
- Gas system components are rust prone after running very hot and having snow used to cool them down
- The ambidextrous safety screw came loose allowing the right side safety lever to fall off





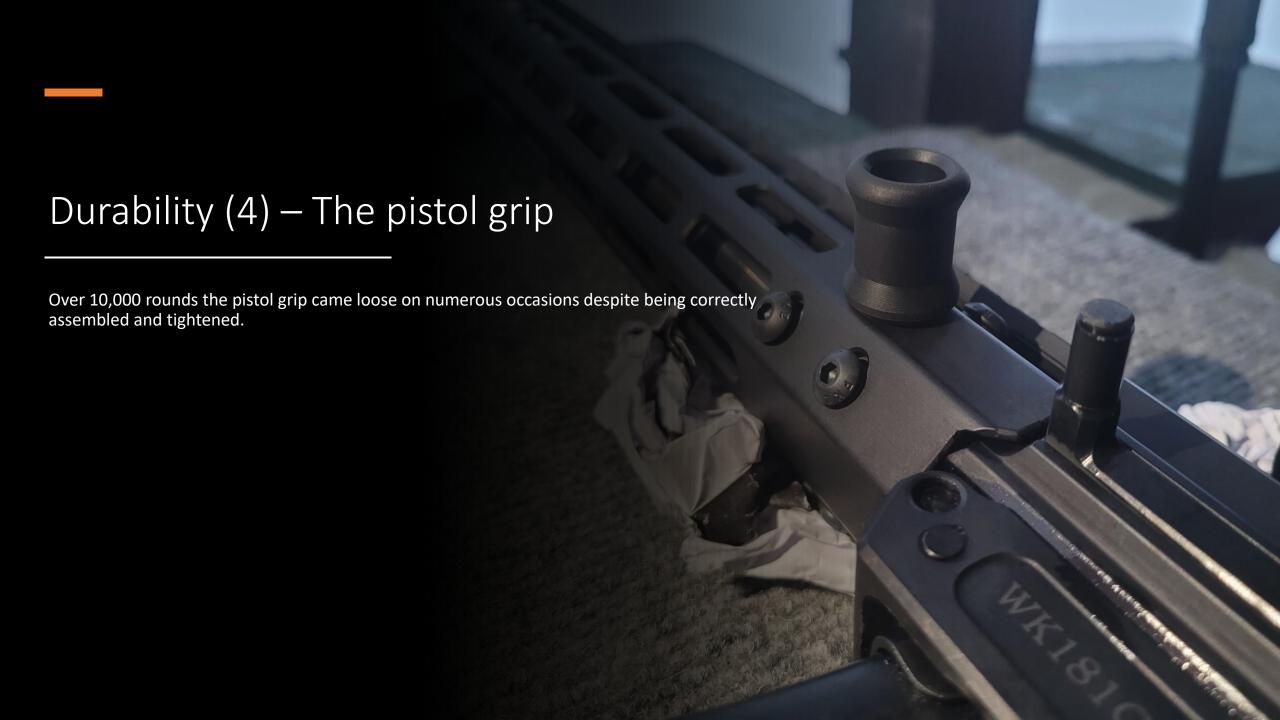
The buffer tubes on WK180s have in one author's experience frequently been an issue. The WK181 was no different

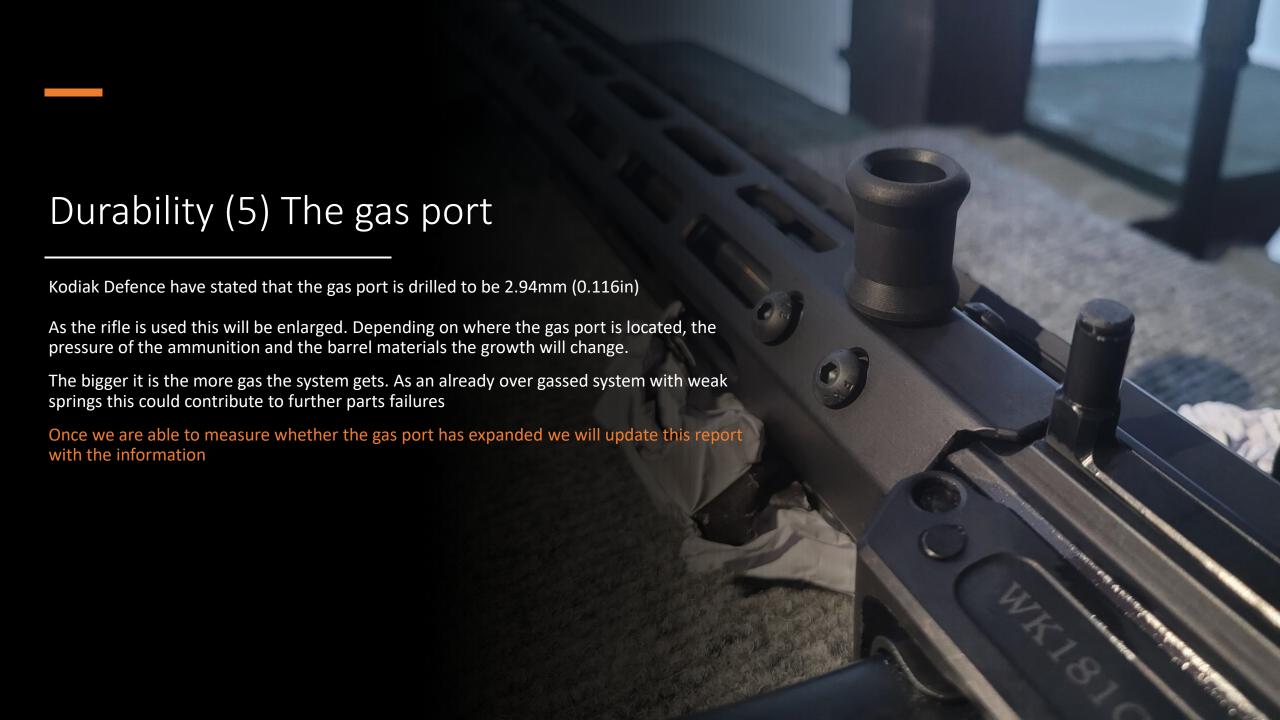
The threading on them often breaks in the shown manner

Whether it is due to poor quality tubes or the over-gassed gun beating itself to death is not clear to us. Though the latter will always accelerate issues with the former

We initially suspected the buffer tube had broken before breaking 5000 rounds, it was then confirmed at approximately 7000 rounds









At 7750 rounds the safety lever on the right side of the rifle fell off after the screw came loose and fell out but was re-attached without issue. Between 7750 and 8730 Rounds after having previously being tightened the safety fell out again twice.

On inspection it was found that torquing the screw as required caused the screw hole to deform, making it harder to screw it back in tight enough for it not to get loose from use

The safety remained detached from the rifle for the remainder of the testing

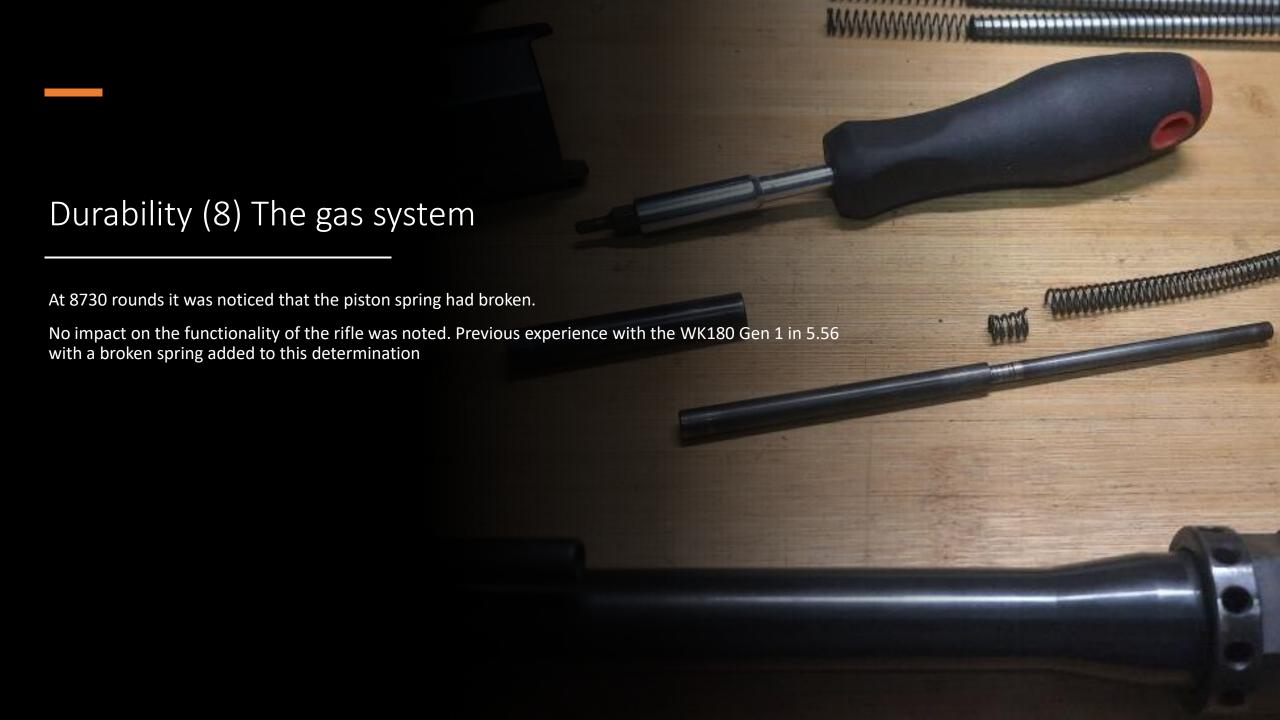
Durability (7) The cotter pin

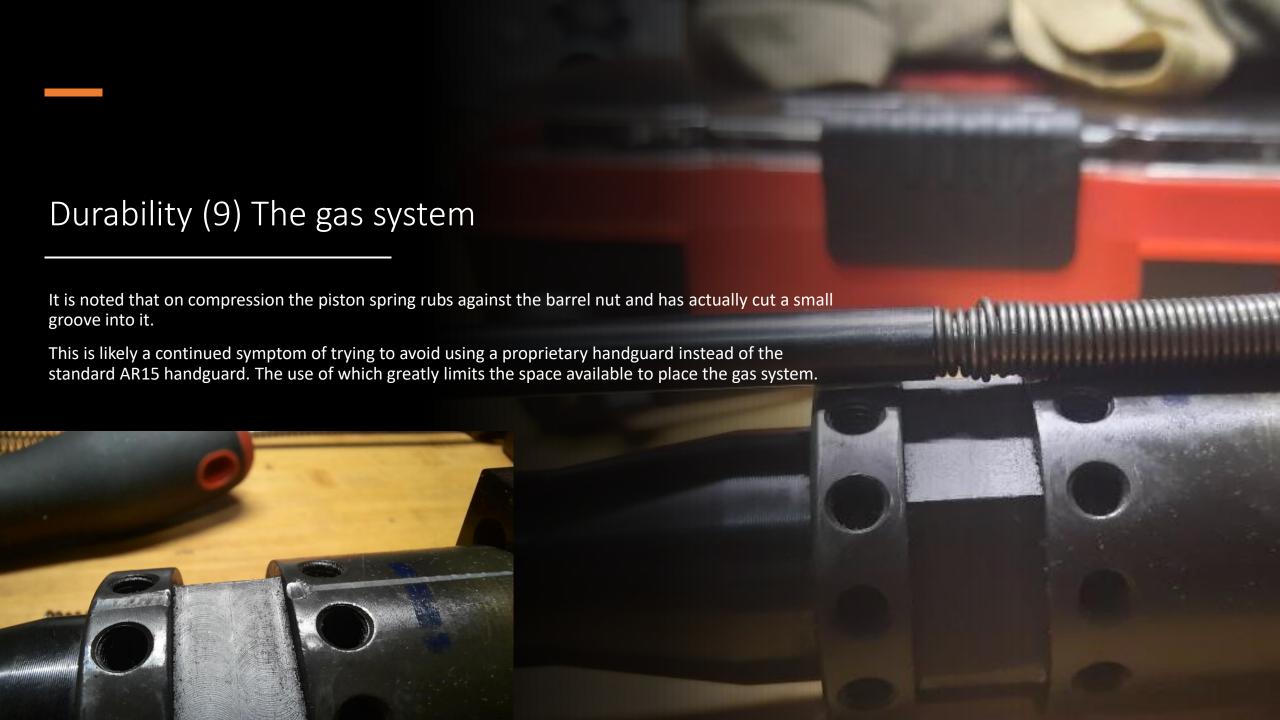
At 7865 rounds the firing pin retaining pin (A cotter pin) broke causing the rifle to completely fail and be unable to fire again safely.

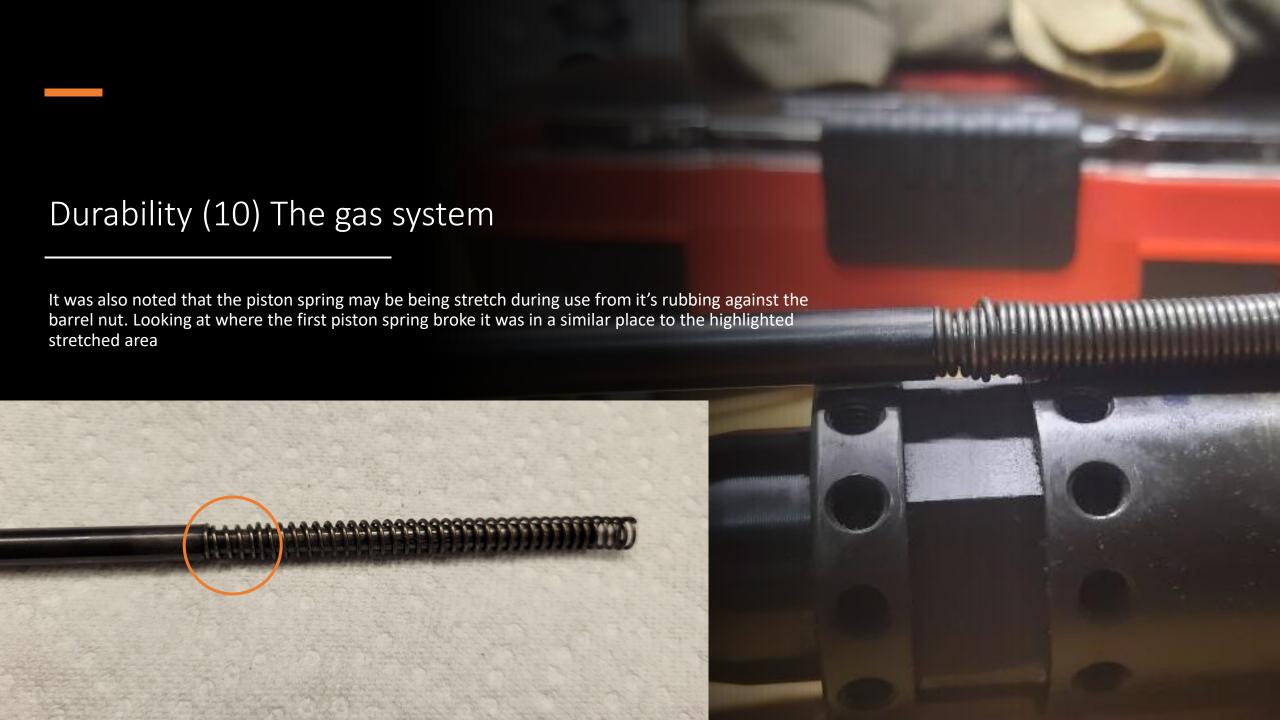
Looking at the pin it appears that the firing pin wore it to the point of breakage

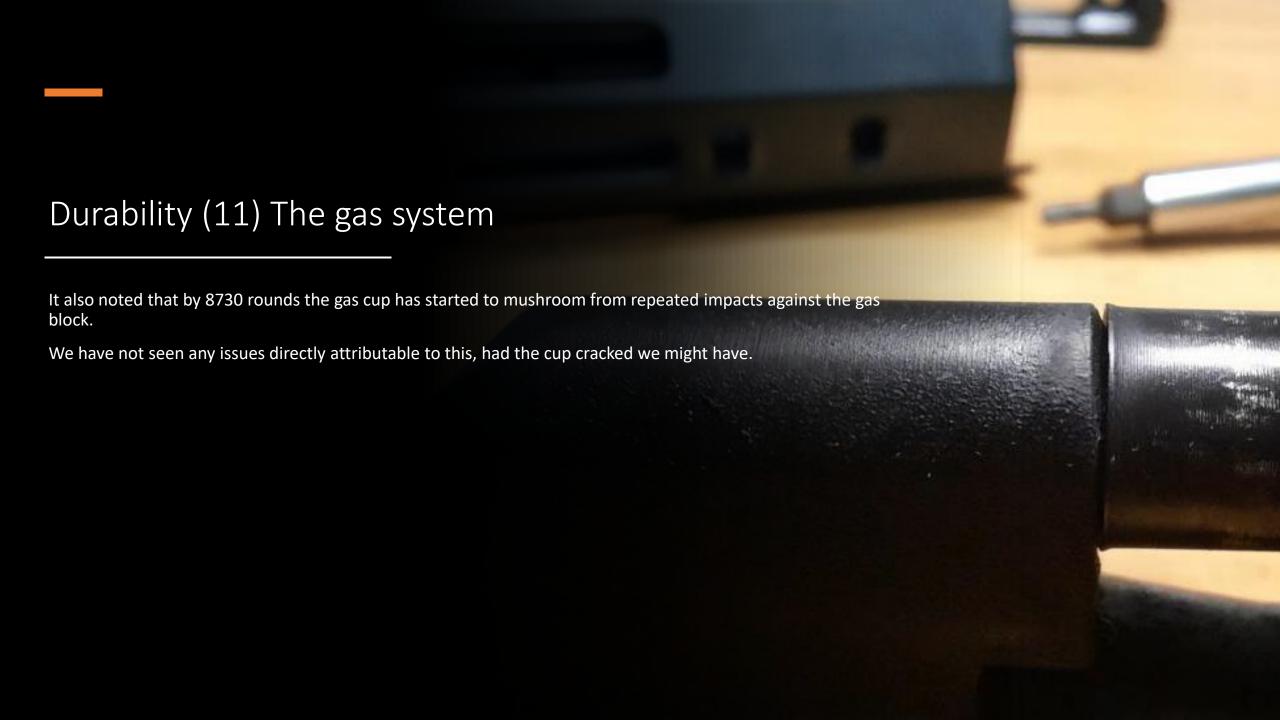
Additionally, after replacing the retaining pin with a new one and firing a few hundred more rounds, the new retaining pin indicated signs of wear again suggesting that this is a component that should be checked and possibly replaced ever few thousand rounds

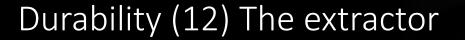












At 8731 rounds the extractor broke off entirely and required replacement.

Bolts that are originally designed around 5.56x45 when used for 7.62x39 have far less material at the rim as can be seen

Those who intend to use firearms utilising such bolts should be aware that the bolts are more frequent to breakage, especially during cold weather where the metal is more brittle





The Spring Issue (1)

Before we proceed with this section it is acknowledged that this could also be referred to as the over gassing issue. This would be fair however it is presumed that the rifle does not reliably function without this level of gassing and thus the choice to use it.

This begins with the WK180 Gen 1

In July 2021 one of the testers purchased a WK180 Gen 1 in 7.62x39 from Kodiak Defence. In the same month the weakness of the springs (the same springs used in the WK180 Gen 1 & 2 in 556) was raised with Kodiak Defence as being an issue by that tester

The rifle performed without hiccup for circa 2000 rounds before starting to self-disassemble while being shot. An example is shown in the image

At first it was presumed that the rifle had not been correctly assembled or pushed on the bread slice (also pictured) while running causing the issue

A video was made to capture the issue in slow motion and is important to view, this can be seen here

As you can see it was NOT from user error

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The Spring Issue (2)



The Spring Issue (3)

Pictured is a WK180 Gen 1 Lower with 14,000 rounds of 5.56 usage (top) and the 7.62x39 lower with circa 2000 rounds usage. The tester sent the below summary of thoughts to Kodiak Defence Jan 2022. Please note: The author of this section is not an engineer nor a firearms specialist, these thoughts are those of a non-expert

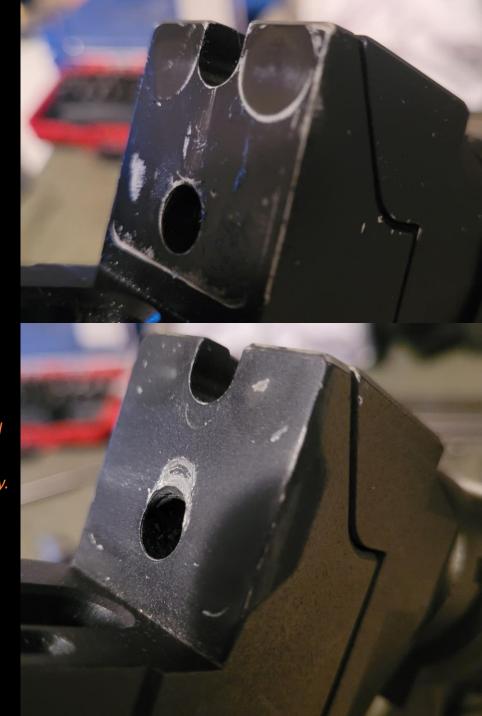
"Where the bread slice mates with the receiver the 5.56 it is in exactly the same condition as new. But on the 7.62 it has been elongated and become more oval shaped.

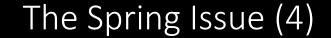
I believe the WK180 762 is beating itself to death. I think that by using the same gas & recoil springs system + BCG as in 5.56 the BCG is being thrown rearward with much more force than 5.56. When the BCG hits the breadslice and moves forwards the breadslice then bounces forwards out of it's slot. It sits on the edge of the interface and the next round causes the BCG to smack against it, steel vs aluminum, steel wins and the hole is gradually elongated.

You can see in the picture just how high the breadslice is moving and making marks on the aluminum. I believe that the erosion has reached the point where when a round is fired the breadslice bounces out of it's slot then if any downward pressure exists on the handguard the upper can hinge downwards and release the recoil assembly.

Based on my experiences so far the recoil assembly is coming out before the BCG fully returns to battery. This poses quite the danger because as the erosion progresses the ease of disassembly likewise increases and thus the time for the BCG to return battery grows shorter.

Maybe, just maybe there is something inherently special about my firearm that has caused this but I have no reason to believe so. Quite the opposite stands true. My concern is that other people's rifles have a similar issue and that someone is going to lose an eye. Its funny when I get a Harry Potter scar but less so when someone starts sharing pictures of their kid's eye damage. Therefore it is my belief that every single 7.62x39 upper or full rifle you have sold will have this issue because there is nothing different about how I used mine. I genuinely believe you need to recall them and I do not say this thinking it is a small issue."





Dwelling on history is not always useful. What is useful is seeing what has changed

Did Kodiak Defence change anything with the WK180 Gen 1 7.62x39 design after getting this info? No

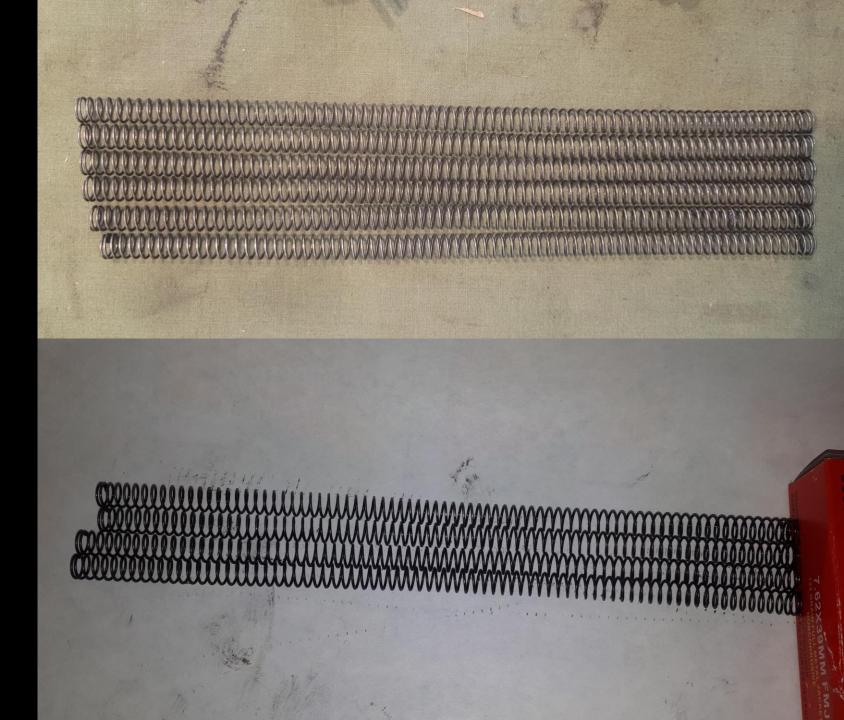
For the WK181

- Has the BCG weight changed? No
- Are the recoil springs still the same as the 556? Yes
- Is there now a 2nd pin to prevent spontaneous disassembly? Yes
- Is the 181 showing the same lower receiver damage as the 180? No
- Is the use of the same springs increasing recoil? Yes
- Are the springs shortening? **Yes**
- Does the Kodiak Defence warranty cover your injury/death in event of firearm failure? No

The Spring Issue (5)

Top image: The bottom 2 springs after 4476 rounds compared to unused springs

Bottom image: The same springs after 6800 rounds



The Spring Issue (6)

We believe the weak springs consistently from the start of the test have been a significant cause of:

- Failure to feeds
- Higher than necessary recoil which in turn causes:
 - Excessive wear on the buffer tube and causes threads to break and it to come loose
 - Increased time to get on target and missed spotting opportunities
 - Increased likelihood of parts breakages during cold weather where metal is more brittle
 - Screws to come loose such as the handguard screws and the front magazine pin retaining screw

Ultimately the weak springs are one component of an over gassed gun that is beating itself into pieces. Yes the rear retaining pin prevents the gun opening, no it doesn't stop premature parts wear



Magazines

The rifle is only guaranteed to function with Magpul PMAGs

- Magpul 95% function well but some will have seating and feeding issues from slight variation in feed lip size
- Type 81 Will fit but are highly unreliable
- KCI Will fit but range from non-functional to unreliable
- Yugoslavian/Croatian Recommended by retailers to be non-functional
- US Palm Will not seat in the rifle due to rear lug protruding too far
- Chinese steel Highly unreliable
- Bulgarian steel TBC

The complete failure to reliably function with anything but 1 generation of 1 magazine is highly concerning. While having a US producer brings reliability of future supply any interruption to that supply places the WK181 owner in a pickle. At the time of writing Type 81 owners have no new magazines to buy and must alter AK mags. If the same occurs to WK181 owners they can not do the same thing. Worse Type 81s seeming function with all altered AK mags, WK181 owners will be limited to only AK PMAGs they can find

The picatinny rail

The picatinny rail of the WK181 Gen 2 like the WK180 Gen 2 and the Gen 1 before it is not to spec, to quote KD's manual:

"uses a STANAG 4694 rail system (Picatinny rail) on the top of the upper receiver and handguard; however, the clearance under the rail system on the upper receiver is not within specification for STANAG 4694 and interferes with mounting a select few sights available on the market"

This mostly includes any optics which utilise a quick detach mount such as Elcan optics and more.

The Gas System

The WK181 gas system is a marked change from previous iterations used in the WK180 Gen 1 and 2

Where previously hex keys, screw drivers and often a ram rod were required the new 2 piece system is very user friendly and is easy to take apart and reassemble

The only downside is the 8 screw handguard of the WK180/181 must come off for the gas system to be taken apart

The gas system runs cleanly with little residue being left on the gun after approximately 3500 rounds without cleaning

The coating on the metal of the gas block however is rust prone but cleaned up nicely

As covered previously the piston spring did fail seemingly without impacting the function of the rifle



CAF Weapons Technician Report at 10k

An active service weapons technician conducted an assessment after the rifle reached 10k

- The buffer and butt stock of the receiver had no defects or abnormalities. Rear plate of the receiver has slight grooving. The rear plate of the receiver where the springs and plate rest shows slight grooving of the metal from use
- Safety selector missing right side (Is present but missing screw)
- Overall finish of the lower receiver was still present and in good condition. Most of the wear being found
 on expected components such as the magazine catch and mag well. The Upper receiver is in fairly good
 condition for 10K Rounds. Majority of wear located where ejection is impacting the receiver to the point
 of metal peening. A deflector would be a welcome addition.
- The charging handle groove and other surfaces with metal moving had an expected amount of finish removed
- The bolt bearing surface (behind the locking lugs) had uneven wear of the finish and when inside the bolt was loose fit (wobble) Locking lugs have peening towards the rear of the lugs and the peening is uneven
- The bolt carrier has normal wear from trigger group on the underside of the carrier However large peening from hammer impacts where the firing pin is struck

 The information expressed here

CAF Weapons Technician Report at 10k (2)

- The firing pin is in good shape.
- Barrel is in okay- poor condition. Rifling starts off strong and sharp in the chamber slowly becoming worse/Lighter with pitting towards the muzzle.
 - NB: This is consistent with the high round count shooting sessions the firearm has been used for
- Trigger group passes a function test and a safety reset test with no issues. No large wear areas. Bents are still strong.
- Overall rifle is finish is in okay good condition.
- Mechanical for myself cycled fine. With two failures to feed out of 623 rounds.
- If this was a service rifle the barrel would certainly be replaced.
- However, barrel wear is highly impacted by individual shooting styles with large quantities
 of shooting exacerbating barrel wear (e.g. A 623 mag dump vs bench shooting)



A look at the rifle

A look at the rifle and it's parts

A look at the dirt from 3226 rounds then the wear and tear from 4476 rounds and then 10,000 rounds

A look at the rifle (1)

The 181 is using the same muzzle device, barrel profile and handguard as the WK180 gen 2

The magwell is tailored to the AKM magazine, and uses a paddle release vs a push button

Unlike the 180 Gen 1 and presumably Gen 2 one cannot reach into the magwell to actuate the bolt hold open device





A look at the rifle (2)

The castle nut looks to be staked at the factory

Machine markings are present but irrelevant to function

Unlike on the WK180C Gen 2s the retention pins for the upper/lower face the same side on the 181, perhaps because of the new wider magwell





A look at the rifle (3)

The 181 has a different gas system than the 180 gen 1 or 2 it uses a shorter piston rod, an extended gas tube which is shrouded by a has cup

The lower picture shows the Gas system after 1045 rounds of Chinese surplus and 5 PPU hunting rounds, not bad, much cleaner than the same amount of ammo through a Type 81 or SKS





A look at the rifle (4)

The simplicity is good, ease of disassembly is not

The handguard requires EIGHT screws to be undone this sucks

The screws easily strip and two had to be replaced in the earlier stages of the test before it was decided to cease removing the handguard as frequently.

The use of Torx screws would reduce this issue and the use of a different handguard with 2-3 screws would be a welcome change





A look at the rifle (5)

It looks like at least one of the gas block screws was staked and an attempt at the second one made but missed

Look how narrow the gap is between the barrel nut and the gas system, this may reduce room to use a thicker piston





A look at the rifle (6)

The new gas system requires a different bolt carrier than the WK180 Gen 1 or 2

A newer longer firing pin is in use to combat hard primers

Cheap cotter pin should be replaced with a higher quality one





The rifle after 4476 rounds and 3226 without cleaning (1)

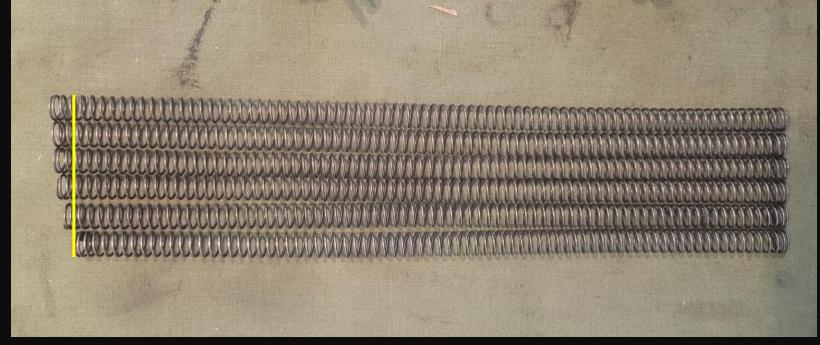


The rifle after 4476 rounds and 3226 without cleaning (2)

The recoil springs have started to shorten (Bottom 2 are WK181 springs, remainder are un-used 180 springs)

On the WK180 this contributed to the gun self-disassembling while shooting





The rifle after 4476 rounds and 3226 without cleaning (3)

Firing pin assembly was not too bad,

The bread slice has indentations from the BCG hitting it

The cocking handle while dirty had no functioning issues beyond the plastic cover coming off







The rifle after 4476 rounds and 3226 without cleaning (4)

The gas system was surprisingly clean

The rust came from heating the gun up VERY hot then using snow to cool it down on a humid wet day at about +2c









A collection of images highlighting those areas that encountered wear and tear over 10,000 rounds

To save this section becoming onerously large we have provided a link to the full album of pictures so that you can view them in full screen size at your own discression.

CLICK HERE TO VIEW ALL PARTS PHOTOS AFTER 10,000 ROUNDS SHOT



Rifle parts after 10,000 rounds

Gas Block



Gas piston



Gas cup



Gas Block, Locking Nut & Brass piston guide



Cocking handle rail



Cocking handle (NB: This is not the original, the first was replaced after the plastic cover came off within <1000 rds)



Stock assembly



Lower receiver





Lower receiver



Magwell



Magwell



Recoil assembly



Recoil assembly

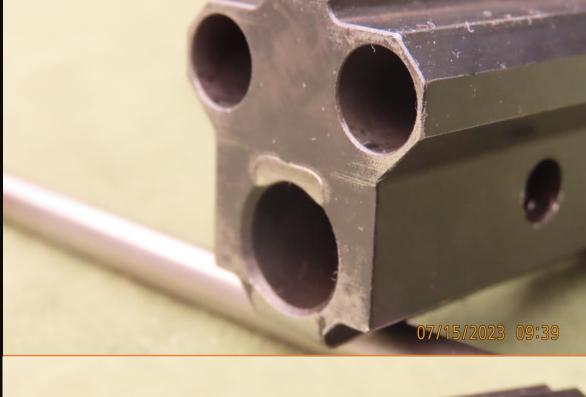


Bolt carrier





Bolt carrier





Bolt



Bolt





Cam pin





Firing pin and firing pin spring



Firing pin and Cotter pin (which had equal wear on both sides and was a replacement part after the first broke)

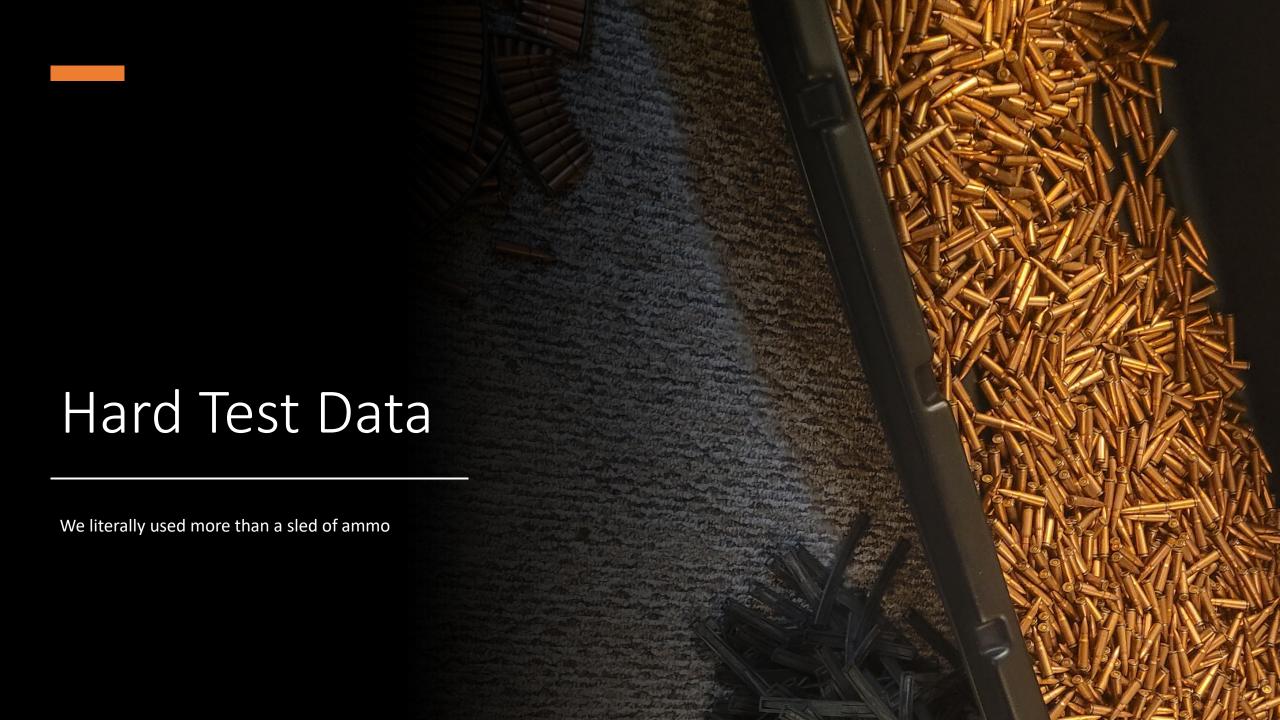


Outer receiver case marks and barrel



Upper receiver internal surfaces





Test Data (1)

0 rounds

- Failure to go into battery on the first round we tried to load

80 rounds

- 2x click no bang with round in the chamber
- 1x failure to feed
- Type 81 magazines fed at 70% reliability, any malfunctions with them not included

160 rounds

- 1x sticky AK PMAG (Lots of effort needed to manually cycle the action to feed a round, feed lip size caused this)
- Type 81 mags 80% functional

240 rounds

- 2x sticky PMAGs
- 1x light primer strike

575 rounds

- Some handguard screws fell out, KD has previously been accused of over and under tightening them and seems to have settled with tightish but not so tight you can just leave them forever nor have any issues taking them out

- The cocking handle fell off, on inspection the retaining ring had disappeared. A hammer was used to put the handle back on
- The handguard screws came out again (We had tried to avoid tightening them too much)

Test Data (2)

1050 rounds

- Rifle was cleaned and oiled

1250 rounds

- 1x sticky magazine failure to feed (feed lips increase resistance to movement of BCG)
- 1x sticky magazine failure to eject (feed lips increase resistance to movement of BCG)

1450 rounds

- 7x failure to fire of Czech surplus ammunition (no issues with Chinese or Russian Surplus)

2300 rounds

- 3x Failure to Ejects

2480 rounds

- Multiple failure to feeds with snow on the magazines. It is suspected that the use of the same springs as the WK180 models (including the 556) causes this

- 1x Failure to feed from sticky magazine
- Rifle was oiled in the receiver

Test Data (3)

3275 rounds

- Czech ammo was tried again and did not work well due to hard primers.

4476 rounds

- Multiple failure to fully feeds
- 1x light primer strike
- Buffer tube threading broke
- 3x 5/30 magazines and 1x 5/40 KCI AK Magazines were purchased to increase the variety of magazines being utilised (previously only PMAGs were being used)

4566 rounds

- The 5/40 KCI magazine failed to feed 4 out of 5 rounds. After a couple more attempts to use this magazine it was removed from use
- 5/30 KCI magazines will likewise be removed if needed
- Pistol grip came loose
- Rifle was cleaned and lubricated heavily

- Some failures to go fully into battery started to occur. The rifle was becoming increasingly dry within the receiver and it is suspected that like with the WK180 Gen 1 in 7.62x39 that the springs are becoming increasingly compressed and weak. The build of carbon increases resistance and with weak springs and/or feed lips rubbing (even with magazines previously not seen as sticky) failures may increase. Lubricating the rifle fully resolves this.
- Pistol grip came loose twice

Test Data (4)

5193 rounds

- 2x Click no primer strike
- 1x FTF with KCl magazine

5413 rounds

- Multiple failure to fully feeds, gun was dry and dirty, springs had shortened
- Gun was oiled

5713 rounds

- No issues

- No issues
- Accuracy test at 100m conducted with Vortex Strike Eagle 1-8x24
 - New production Chinese 123g FMJ 2.5 3moa achieved across 5 & 10 round groups
 - Russian surplus ammunition 123gr FMJ 4moa 5 round groups
 - Chinese surplus 123g FMJ 2.5 -3moa

Test Data (5)

Dust Test conducted (6054 rounds)

- Fired 4 round of Chinese surplus from Magpul 5/30, gun was then failed to function completely and required a full strip, clean and oiling of the BCG & recoil assembly

6300 rounds

No issues

6360 rounds

- No issues

6440 rounds

- Multiple FTFs with standard capacity Chinese AK metal magazines. Could be resolved by partially pulling the BCG rearward then releasing, but moving the BCG to far rearwards resulted in a double feed stoppage
- Chinese AK metal magazines determined to be unreliable with current recoil springs

- FTFs with standard capacity Magpul PMAGs on first round, weak springs again suspected as cause
- Castle nut came loose with 45 degrees of play threads on the budder tub damaged, receiver threads ok, buffer tube replaced

Test Data (6)

6625 rounds

- FTFs with standard capacity Magpul PMAGs on first round, weak springs again suspected as cause

6800 rounds (175 rounds shot while holding magazine or resting on it which can cause failures in WK180s)

- 3x sluggish loading of rounds into chamber.

6360 rounds

- No issues

6440 rounds

- Multiple FTFs with standard capacity Chinese AK metal magazines. Could be resolved by partially pulling the BCG rearward then releasing, but moving the BCG to far rearwards resulted in a double feed stoppage
- Chinese AK metal magazines determined to be unreliable with current recoil springs

- FTFs with standard capacity Magpul PMAGs on first round, weak springs again suspected as cause
- Castle nut came loose with 45 degrees of play threads on the budder tub damaged, receiver threads ok, buffer tube replaced

Test Data (7)

6950 rounds

No issues

Decision made: Recoil springs changed to new un-used pair of springs. Spring weakness from use can no longer be a cause of weak spring issues only the weakness of the springs

7230 rounds

- 1x Czech surplus failure to fire, fired on second attempt

7305 rounds

- 1x Failure to eject
- Pistol grip loose again
- Gun given a few drops of oil

- 2x stuck cases in chamber requiring the use of cleaning rod to remove, both surplus Chinese cases had had their rims removed. Extractor, bolt face and chamber inspected. A drop of oil was applied to the extractor
- 1x FTF weak springs again

Test Data (8)

7455 Rounds – Rifle inspected

- Front magazine lug interface pin set screw found to be loose and NOT having been loctited in place. Loss of screw then pin would prevent magazines seating correctly and possibly entirely prevent rifle function

Decision made: Screw was tightened but not loctited, any failure sits with KD failing to Loctite it and should not be a user requirement to do this

7865 rounds

- The safety lever on the right side of the rifle fell off after the screw came loose and fell out
- Firing Pin Retaining Pin broke. The broken piece caused the BCG to be locked to the rear without use of the bolt hold open lever. On freeing the BCG it was disassembled and the broken pin discovered. A replacement cotter pin was not available at the range so shooting stopped.

8730 Rounds

- Numerous failure to feeds
- The rear takedown pin walked halfway out before being spotted and returned
- The safety lever on the right side of the rifle fell off twice after the screw came loose and fell out. It was not put back in until the threading could be inspected for damage
- The piston spring broke into two parts. No impact on the rifle's function was noticed from this breakage.

Test Data (9)

8731 Rounds

- A case was stuck in chamber requiring the use of cleaning rod to remove
- The extractor broke off of the bolt and required a replacement. A case was stuck in chamber requiring the use of cleaning rod to remove

9400 Rounds

- No issues

10,023 Rounds

- 2x Failure to feed stoppages with the springs not having enough force to push rounds out of the magazine

Was this presentation useful? Help us do more!

Collectively CFET members spread the cost of purchasing each firearm, accessories and running 10,000 rounds of ammunition through it.

The cost of making this report was >\$7000 once the cost of the ammo, magazines, rifle, postage, fuel and other costs incurred are added together. If you want more reports we need your help

The speed at which we are able to produce new reports on firearms is dictated by how quickly we are able to get the firearm, accessories & ammo

If you want to contribute to the testing you can:

- Help cover the costs by donating funds to the CFET Patreon: https://www.patreon.com/CanadianFirearmsEnduranceTesting
- Donate factory made ammo/magazines by posting them to us, email us at CFET10K@gmail.com to arrange this
- Take part in drop in shoot sessions that will be advertised in advance
- Contact us to request to become part of the team

If you want to help in any way or have questions contact us at: CFET10k@gmail.com

It was important to us that we present as much objective information before reaching our own opinions. We want you to form your own conclusions and not parrot ours because they happen to be the first you read. As such we have added a little info on each shooter so you see the context of where their opinions have come from.

Judge the firearm on the objective information that has been presented to you, our opinions are just that, opinions

Tom – CFET Creator, Canadian Multigun Creator, 2 Gun match operator, ex-infantry, hunter/sports shooter, former defence industry manager

This is a gun that had 5 years and 2 "generations" to get it right, with competitor products available to take notes from, 60+ year old technology to replicate, historical products to refer to and an understanding that the Canadian shooter doesn't want a 5rd mag where 10 is possible.

The majority of the design decisions I hold issue with come in my view from cost saving measures which while understandable in the political environment we exist in continue to plague the market across many Canadian made semi autos. I just want the mindset to be "lets make this good", not 'good enough to get away with it". This gun was less than 25% as reliable as an AR15 made 30 years ago....

The gas system, a positive change in terms of durability compared to the 180 is still too short/overgassed and the recoil spring issue just keeps on going. The inability to work with more than one type of magazine is completely unacceptable especially with a legal warranty that only covers magazines bought from KD.

The lack of a chrome lined barrel when your target market is very often going to use corrosive ammo is a disappointment. The continuation of having large windows on the side of the gun that let dirt in just doesn't help. Using 5 round mags that don't lock back provides a serious handicap to any competitive shooter, the lack of Loctite to hold magazine retention pins in place is concerning. The frequent breakage of the buffer tube from recoil tells me either cheap parts are being used and/or the gun is bashing itself to death.

The rifle is reasonably accurate especially with the ammo being used. It has the opportunity to be more than it is.

This gun is an ok gun to take to the range and never really take to a high round count or do anything that requires it to work when you need it to. People can and will enjoy this gun at the range, but it is absolutely not reaching it's potential and doing so will require a major overhaul of all working parts and the attitude it is designed with

Hunting Gear Guy, 3 Gun Shooter, Hunter, Youtube channel operator and general sporting shooter

"While I like the redesigned piston and charging handle that eliminate 2 common failure points, I don't know who the typical buyer of a rifle like this would be. It's cool that you can easily mount optics, but the large 5/30 mags are going to necessitate a big chest rig. The mags and cartridge are not practical at all for most action shooting competitions. If you shoot corrosive ammo, make sure you take down and clean the rifle thoroughly as nothing is chrome lined and everything will rust."

HGG's WK181 Video

Cole, 2 gun, IPSC and general competitive sports shooter

The gun provides another affordable option for Canadian shooters. The biggest positive to me is that it can run the cheapest rifle calibre centrefire ammunition there is. The 5 round magazine limit definitely constrains it's use in competition.

David, Operator of Foothills Firearms Training

Kodiak Defense's WK181 is a waste of potential. KD has had 5 years to establish itself as a well known manufacturer in the Canadian market, release multiple generations of the WK180c, and work out issues. Yet, KDs inability to deliver a product that will perform adequately is unfortunate but not surprising. The WK181 should work. The knowledge, tools, materials, and skills are available for KD to make a firearm that not only works, but excels in all quantifiable measures. Yet baffling design choices, an apparent lack of any sort of quality control, and below average performance kneecap the WK181 before it even leaves the starting line. For the price of one WK181 you could buy the fanciest SKS available, thousands of rounds of ammunition, and have confidence the gun will fire flawlessly each of those thousands of rounds

Mag, Winter Brutality 2023 Victim and sports shooter

In my experiences with the Kodiak Defence WK181, I found it to be an improvement over the WK180 with better build quality and reliability. The AK magazines it takes enhance its reliability from the abysmal rating that the 180 would have, to merely bad, and the rock and lock mechanism adds to the shooting experience. However, the limited 5-round magazine capacity makes it impractical, leading me to prefer an SKS in an ATI stock instead. While the WK181 falls short of delivering the authenticity of a true AK in Canada, it still offers a shooting experience. Given the choice, I would opt for a genuine AK variant to satisfy my desire for an authentic AK experience.

Tyler, General sport shooter, lifelong firearms enthusiast

I wanted to like this gun. I really did. I purchased one of the first 500 Gen 1 WK180C's that were made as a birthday present to my self on my 18th birthday and somehow it has yet to stop working 5 years later with a number of malfunctions I can count on one hand, despite the reports of parts failures and design flaws from pretty well every other person who's gotten their hands on one.

Unfortunately, my experience with the 181 has been very different. The 181 despite the efforts made to revise the design and fix some of the fatal flaws still has a lot of problems. the upgrades they have made are comparable to a cheap renovation right before putting a property on the market. sure, you put on new light fixtures and door handles, ripped down the dated wall paper, and put in a one size fits all glass door on the shower, but its still that same 40 year old apartment with asbestos in the walls and aging large appliances that the owner was too cheap or too lazy to replace.

The non reciprocating charging handle, exterior bolt release, and takedown pins give the gun enough of a different look on the outside. looking deeper reveals the same fundamental flaws of the original design, that are only exacerbated by the move to a higher recoiling caliber feeding from a magazine that the 5.56 derived bolt face and recoil springs cannot handle reliably.

MooseMilk, CAF Weapons Technician, Sports shooter and Hunter

Overall the WK-181 is objectively Meh. It doesn't have the cool factor of a Type 81 or a M10x. It feels cheaper even though it is more functional than the M10X

Note: Opinions expressed remain those of the author and do not represent Department of National Defence or Canadian Forces policy

Have a beer

Seriously, if you made it this far, have a beer