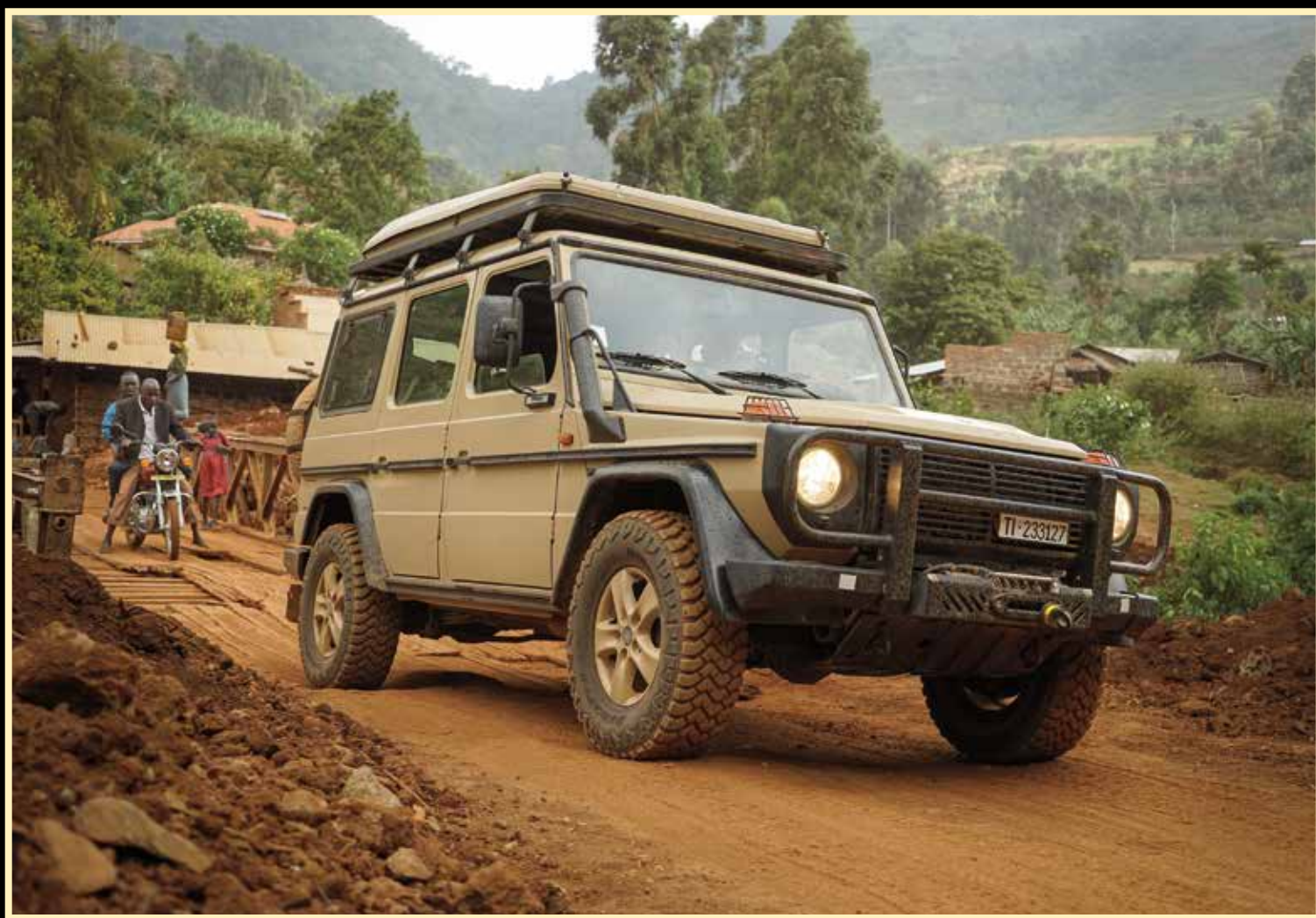


OVERLAND

JOURNAL



Australia | Fridge/Freezers | Uganda | Sahara



Electric Icebox Roundup

Cooler than a cooler, we evaluate six of the industry's best fridge/freezers.

By Christophe Noel

When sorting through the overlander's toy chest, most items can be clearly divided into categories of need or want. Although the portable fridge/freezer typically falls within the latter group, it remains a popular gear acquisition, and for good reason. Who doesn't love a cold beverage at the end of a long day without the headache of sourcing ice?

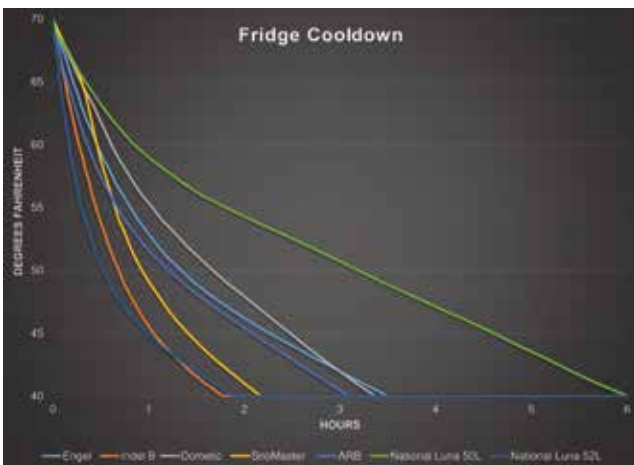
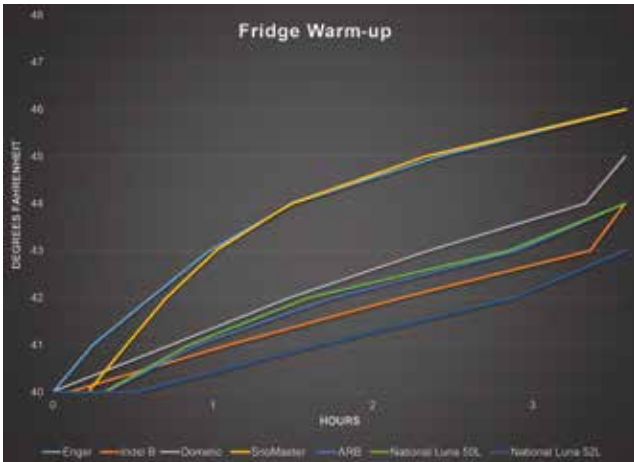
In the early months of *Overland Journal*, going back to our second issue in the summer of 2007, we set out to test the leading refrigerators of the day. That feature was so well received we conducted a reprise evaluation 3 years later in the summer of 2010. In the time since, the fridge market has continued to evolve with enough new technologies, models, and manufacturers entering the mix that we felt it was high time for another refresh.

With so many available choices, over 50 by my last count, we carefully constructed this latest comparison to help buyers understand which products best suit their needs. By leveraging a decade of hands-on experience scrutinizing portable chillers, we have come to realize there's more to a good unit than the ability to quickly get cold and stay cold, and to be able to do so with minimal power draw. Features, price, and the user interface play an equal part in how well a particular product functions.

TESTING PROCEDURES

The most important metrics we quantified were relative to power consumption and insulation properties. To ensure consistent results, our sample subjects were tested in pairs, each connected to identical capacitors (lithium) and 13.6-volt supply systems delivering a constant output commensurate with a typical 12-volt power source. We used 23 cans of beer placed in each fridge at a controlled temperature for our thermal load. Inside the main compartment we inserted two temperature gauges to monitor cooldown and warm-up times.

To judge energy expenditure, we determined how much power was required to cool the contents to our target temperature of 40°F, the minimum food-safe number established by the Food and Drug Administration. We then observed the amount of power used to maintain that target. The ambient temperature was regulated for every session at a consistent 72°F, established as a median value between a typical trip's high and low. At the end of each cooldown period, we simulated a loss of power and recorded the speed at which the thermal load warmed to the ambient outside temperature. In an effort to draw the most accurate conclusions, we kept our test selection to the most commonly used 40- to 50-liter fridge/freezers, keeping in mind their numeric labels don't perfectly correlate with a given unit's actual size.



With each testing session we gauged accumulated power consumption during the cooldown and sustained temperature tests and employed multiple temperature measuring devices to ensure maximum accuracy from one test to the next. For consistency we arranged the cluster of cans in each test unit in the same configuration, with none of them touching the sides of the inner compartment.



ARB

Fridge/Freezer, 47L Size



Clockwise from top: The low and long profile of the ARB is ideally suited to vehicles with minimal headroom. Power connections are conveniently located at the lower center portion of the unit, below the heavily reinforced handles which make for sturdy tie-down points. The rear placement of the crisper makes reaching into the lowest part of the main compartment much easier. A removable divider in the basket helps keep contents organized and secure. The control panel is conveniently placed on the front of the ARB with an easy to read digital display.

In our 2010 test, the nascent ARB fridge introduced a brand-new set of user features in a contemporary package, but it was a relative unknown at the time. Since then, four members of our *Overland Journal* team, myself included, have acquired units and put them to hard use over the span of hundreds of combined travel days. I would be remiss to not mention a few hiccups in those early production months. Two of the four needed warranty replacement for the same malfunctioning component, but once remedied through ARB's superb customer service department, have performed flawlessly.

The recipient of the Value Award in our last shootout, it was the item's innovative design elements that won us over. With the Indel B and Dometic units now offering similar features for equal or less money, it's safe to say the competition is knocking at the door. Which one deserves your hard-earned cash now comes down to individual preference and perhaps a pinch of brand loyalty. Judging by the performance metrics, the ARB held its own but only scored midfield. Not the fastest to cool, most efficient, or best insulated, there are still very compelling reasons to own this model.

Perhaps we have become overly familiar with this fridge/freezer, but it took spending considerable time with other options to fully appreciate its smart layout. The brightly lit and intuitive control panel is located front and center, not tucked on the side or far at the back where the power plug is—and should be. The lid, though rather long, is one of the best designs in the test, despite its plastic construction. Whereas some lids are secured with small metal buckles, sometimes

PROS

- Convenient lid design
- Strong built-in handles
- Shallow depth
- Front-placed control panel
- Many available accessories
- Lightweight

CONS

- Average performance
- Plastic lid
- Large footprint relative to internal volume

two of them, the large cam-actuated latch locks or releases with one fluid motion. Raising the lid requires significant headroom and a long reach, but it can be removed quickly with a simple sideways twist. Unlike other detachable tops that require diligent fiddling, the lid snaps into position with a gentle push and a pronounced click once it is returned to the hinges.

Adding to user conveniences, the large diameter handles provide stout lashing points and feel comfortable and secure when portaging the unit by hand. Internal features include a metal basket with divider, a bright interior light, and a rather small crisper section above the compressor. ARB offers a full assortment of accessories including an insulated cover, large-gauge wiring harness, wireless remote, heavy-duty tie-downs, and a sliding mount. Made in China, limited 3-year warranty.

\$924 | ARBUSA.COM | 866-427-2872

Although omitted from our last test, our 2007 review included a popular fridge wearing the Waeco badge. Newly redesigned, rebranded, and sold under the Dometic name, the 52-liter CFX-50 is now one of the better values in portable refrigeration. Drawing on 4 decades of cooling technology, it was engineered specifically for vehicle use. Like the ARB which was also designed for that application, the CFX-50 has nearly identical features.

The Dometic has a large digital control panel located on the upper front portion of the unit. The soft-touch buttons access temperature settings, voltage cutoff levels, and in future units slated for release as this issue goes to print, WiFi connectivity to link a mobile device to the unit with full remote controls and real-time temperature readings. There is even a USB charging port that I found particularly handy given the number of electronic devices most of us use.

One of two units we tested with a side opening lid, the Dometic is the only one that cannot be converted to a front-opening configuration. Although it requires tools to facilitate, the lid can be swapped to open from the left or right.

PROS

- Well-placed control panel
- Multiple low-voltage cutoffs
- Large handles
- Left/right lid configurations
- Available accessories
- Lightweight

CONS

- Poor insulation performance
- Large external size
- Almost entirely made of plastic

It seems like an innocuous detail, but some of our height-challenged testers found it easier to hold the lid open with side hinges, as aft-mounted hinges required a longer and higher reach.

By the numbers, the Dometic also shared ARB's middling performance. While it couldn't be construed as good or bad, my anecdotal observations—having used the CFX-50 for several months—suggest it will meet the demands imposed by most (if not all) overland travelers. Similar to the ARB, it has an internal light, crisper compartment, and divided metal basket. Easy to lash and carry with the large folding handles, it is also surprisingly light for its size. On the downside, it has the largest external volume of the bunch relative to its storage capacity.

Available accessories include a wireless remote, sliding mount, and a heavily insulated cover. If there was one area where the Dometic struggled, it was its ability to retain a low temperature when switched off, so the cover is a smart add-on. That one peccadillo aside, it made a serious run for our Value Award, just missing the prize based on its cooldown and warm-up scores. Made in China, limited 1-year warranty.

\$766 | DOMETIC.COM | 800-544-4881



DOMETIC CFX-50



Clockwise from top: With the largest footprint of any fridge in the test, the Dometic may not fit in all vehicles. The power connections are located low on the back panel of the unit. The Dometic offers a generously sized crisper section and a bright internal light. The Dometic control panel is almost identical to the ARB and also placed on the leading face of the unit for easy access.



ENGEL MT45F-U1



Clockwise from top: With excellent external dimensions relative to its internal capacity, Engel's all-metal MT45F is a popular choice where space is limited. Internal features are sparse; there is no light or even a crisper section. The lack of a digital display can be a nuisance and the one control dial makes setting the temperature a matter of trial and error.

In contrast to the latest crop of portable refrigerators festooned with high-tech bells and whistles, the 45-liter Engel MT45F seems almost antiquated. In place of a multi-faceted control panel it has a humble dial with vague settings ranging from *off to freeze*. There are no low-voltage protections and it lacks basics like an internal light or temperature gauge. With a dearth of features, some might ask why it is still relevant and worthy of inclusion in this test.

This is its fourth appearance in *Overland Journal*. The MT45F earned a spot here based on one attribute alone: reliability. Based in Australia, Engel has sold more than three million portable refrigerators over the course of a half-century, and the unassuming MT45F has gone virtually unchanged that entire time. Stories abound of owners leaving their Engel units running for years, even decades, lending it a legendary reputation.

With an all-metal construction, the MT45F represents the halcyon days of a pre-plastic age when things were made well and made to last. The only non-metal component of any significance is the control dial which could also be considered one of only three moving parts. The others are the fan and piston housed within the unit's famous Sawafuji swing motor, a component known for its near infallible operation that also contributes to the unit's efficiency. During our tests, the MT45F consumed a reasonable amount of power getting to our target temperature, but once there, sipped electricity at the most economical rate. This might be a necessary attribute considering our warm-up test showed the MT45F was perhaps not as well insulated as other units. As such, the compressor needs to run more consistently to maintain a desired temperature.

PROS

- Reliability
- Durable all-metal construction
- Several useful accessories available
- Removable lid for easy loading
- High-placed vents
- Low peak amp draw
- Most energy efficient at constant temperature

CONS

- No temp gauge
- Difficult to precisely regulate temperature
- Weight (64 pounds)
- No internal light

consistently to maintain a desired temperature.

The only real knock against the Engel is the quirky user interface. Only with practice did we determine that somewhere between the 1 and 2 settings did the inside temperature hover around our ideal 40°F mark. To best manage the thermal settings, it would be helpful to use one of the many available wireless temperature displays. Another welcome benefit of the Engel is the efficient use of space. With the

second-best internal volume to footprint ratio, the MT45 will likely fit in tight confines where others will not. Those buyers easily won over by proven reliability and burly construction might overlook the unit's paucity of features. Made in Taiwan, limited 2-year warranty.

\$910 | ENGELCOOLERS.COM | 561-743-7419

Indel B has been an innovator in the portable refrigeration industry for more than 45 years. In 1982 they were commissioned to produce a refrigerator for one of the most well-known adventure vehicles of all time: NASA's Space Shuttle Columbia. That pedigree is evident in their 50-liter Travel Box. The first thing to catch our attention was the unusually low asking price, reason enough to consider it for our Value Award. After testing it thoroughly and putting it through our battery of subjective and objective evaluations, it had that accolade on lockdown.

PROS

- Excellent technical performance
- Unbeatable value
- Compact overall size relative to capacity
- Three-level low-voltage cutoff
- Digital readout atop the unit

CONS

- Control panel is backwards
- Crisper may be too large for some users
- Tall exterior height and deep interior
- Predominantly plastic construction

A compact refrigerator with the smallest dimensions in the bunch, the Travel Box was the quickest to cool to our 40°F target because of the large crisper and smaller refrigerated zone. It didn't consume an unusual amount of power to maintain that temperature and despite what appear to be rather thin walls, was in the top half for insulation performance. It has a three-level battery protection cutoff system, max cool and economy modes to help expedite cooldown and conserve energy, and a brightly lit digital

temperature display. The front opening lid has a strong but simple latch to keep the unit sealed tight, and two large removable handles make for strong tie-down and carry points.

Available in 30-, 40-, and 50-liter sizes, all with the same footprint, the largest is quite tall at 20.5 inches. At just 23 by 14 inches (with the handles removed) it is ideal for vehicles with minimal floor space but ample headroom. Inside the unit is a metal basket, bright light, and proportionately one of the largest and deepest crisper compartments in the group. For those like me who are apt to carry large amounts of fresh produce, that is a definitive bonus.

No product is perfect, and the Indel B did earn a couple of minor demerits. The front-opening layout is bound to invite a particular mounting orientation in most vehicles for the most convenient access. The control panel is not only at the aft end of the unit, it reads facing backwards. The interior is also as deep as a well. Reaching that last baby carrot in the bottom of the crisper requires arms with a high-ape index, which is to say—long. The depth means more of your contents will be stacked atop each other and also invites a greater variance in temperatures between the lower and upper levels of the interior, sometimes as great as 5 to 6°F. Then again, that could be leveraged as an advantage. Made in China, limited 1-year warranty.

\$570 | EQUIPT1.COM | INDELB.COM | 866-703-1026



INDEL B | VALUE AWARD
TB51A



Clockwise from top: With the smallest footprint the Indel B is also the tallest in the group. The three-level low-voltage cutoff switch is well marked and less complicated to use than similar features on other fridges. The crisper section is extremely deep making access to its contents a challenge. Although we felt the control panel would be better positioned facing forward instead of backward, it is easy to use and the display is bright and legible.



NATIONAL LUNA | EDITOR'S CHOICE
 Weekender 50 Twin and
 52 Single Compartment



Clockwise from top: The use of stainless steel lends the National Luna a durable and aesthetically pleasing exterior. The Weekender 50 has a dedicated freezer section. The dual-level baskets in the main compartment help keep contents organized. Although we would prefer the control panel to not be located so low on the side of the Weekender, it is well labeled and easy to understand at a glance.

With their extensive catalog of products, selecting a particular National Luna sample to evaluate was surprisingly nuanced. Their 40-liter fridge with thick 60-millimeter walls would have likely bested every other contender in our performance tests. The Weekender 52, with slightly thinner 45-millimeter walls, is most similar to the others in our roundup with a main refrigerated compartment and a smaller shelf above the compressor. Also meeting our size requirements is the Weekender 50 Twin. Its unique design directs maximum cooling power to the small 10-liter freezer box. Unsure of which to test, we elected to include both the 50 and 52 Weekenders.

Every sample on our list, including the Weekender 52 is billed as a fridge/freezer, meaning the main bin can cool below freezing with the smaller crisper left slightly warmer. The 50-liter fridge *and* freezer is the opposite. When the temperature is lowered to the freezing point, the main compartment is approximately 10°F warmer than the smaller freezer box. In our tests this became a significant detail, muddying our data collecting waters. With our warm cans placed in the Twin, it required far more cooldown time than it did in the single compartment fridge. In the end, the sole purpose of this exercise is to help buyers suss out the product which best suits their needs. Simply put, if you don't have a need to store frozen foods, the performance advantage would be with the single compartment Weekender 52.

Beyond those rather significant differences the two are nearly identical. Both are made of stainless steel, have low-voltage cutoff

PROS

- Optional freezer compartment (50-liter model)
- Solid construction
- Multi-level low-voltage cutoffs with audible alarm
- Front or side opening
- Superb cooling and insulation properties
- Legendary reliability
- Best internal basket system

CONS

- Side-mounted control panel
- Buttons and labels on the control panel are small
- Dark interior color

protections, a digital temperature display, interior stacking storage baskets, an internal light, and a hinge system that permits front or side opening configurations. Although the control panel is placed low on the side, perhaps not the most ideal location, the power plugs are appropriately positioned at the back of the unit.

There is no denying National Luna products are built to a standard of quality second to none, and failures are virtually unheard of. Every component is made of superior materials and

no minor detail of its construction has been overlooked. After multiple rounds of careful tests spanning 10 years, our team had a tough time awarding our coveted Editor's Choice Award to anything else. Within that decision, we deliberately try to not make price a factor and despite the lofty sum either Weekender fetches, it is our collective opinion the cost is justified by the performance, features, quality, and legendary reliability. Made in South Africa, limited 1-year warranty.

\$1,650 EACH | EQUIPT1.COM | NATIONALLUNA.COM | 866-703-1026

Another newcomer in this test with a decidedly similar design to the National Luna is the 42-liter SnoMaster Traveler. Like its fellow South African counterpart, this unit is made of stainless steel with highly insulated walls, and has several features shared with the more expensive Weekender 50 Twin and 52 single-compartment units. A near clone of the National Luna fridges, there are a few notable differences, some for the better, a few for the worse.

During our cooldown test, the SnoMaster was only bested by the Indel B and 52L National Luna, all of them far superior to the others in that regard.

PROS

- All-metal construction
- Excellent cooling and insulation performance
- Front control panel
- Large buttons and display readout
- Lid open alarm
- Interior light
- Included wireless remote/display
- Superb value

CONS

- Small handles
- Front opening only
- Power cord placement
- Not as energy efficient as some

The Traveler also had a respectable warm-up score, surprisingly average though given the generous thickness of the walls. The compressor used in the SnoMaster is made in-house and according to their U.S. distributor is similar to the popular Danfoss unit used in all but the Engel fridge. We did notice slightly more energy draw required to attain our ideal low temperature and while it isn't a power hog, it did require a tad more juice to maintain the target.

During that phase the compressor cycled on and off with increased frequency compared to some.

Although placed low on the front of the unit, the control panel is easy to read and has large tactile buttons. The low-voltage protections are accompanied by a battery charge indicator to help manage reserve power levels. The internal temperature readout was the most accurate of the group and was quick to respond to incremental adjustments. Inside, you'll find a light, metal basket, and large crisper compartment over the compressor with its own small basket. On the exterior, two metal handles offer strong lash points, but not the most comfortable carry since they're quite small. The front opening lid cannot be reconfigured with side hinges, but it is removable and connected with heavy-duty hardware.

As much as we liked the placement of the control panel at the front of the unit, we wished the power plugs were located at the back. The orientation of the plug itself is also a bit odd as it seems to be upside down, wrapping the cord the long way around the fridge. It's a minor nitpick considering the quality of construction, excellent performance, and reasonable asking price. The SnoMaster also comes with a hard-mounted bottle opener and solar-charged wireless remote controller. Made in China, limited 5-year warranty.

\$1,000 | SNOMASTERUSA.COM



SNOMASTER
Traveler BD/C-42SS



Clockwise from top: Strikingly similar to the National Luna, the SnoMaster impressed us with the quality of construction and better than average performance. A locking latch and bottle opener round out some of the extra features, including a solar-powered remote control. Dual organizing baskets are a nice touch. We appreciated the layout of the control panel and its placement on the front of the case, but wish the power plug wrapped the other way around the unit or had been placed at the back.

CONCLUSIONS

It's a tiresome but accurate cliché: numbers do not lie. Equally true is that raw data doesn't tell the whole story and is only helpful within context. Despite our predilection for controlled and objective assessments, we also place equal importance on real-world user experience. Long before we compiled our latest batch of spreadsheets, graphs, and scorecards, we put these refrigerators to use. While the numeric results might indicate winners and losers, we don't think there is a bad choice in the bunch.

In our last review, Graham lamented Engel's insistence that we test their tried and true MT45F and not the newly released MR40. I'm glad we chose to omit the MR40 this time around as well. I liken the classic Engel to an FJ40 Land Cruiser, and it almost looks like one. It isn't fancy, but it works. Somehow over the years the MT45F managed to escape obsolescence and reinvent itself as the timeless stalwart. It functions so well that despite its quirks I hope the design goes unchanged forever. That said, the lack of a low-voltage shutoff could spell disaster for the unprepared.

At the other end of the spectrum is the ARB fridge/freezer. Full-featured and smartly designed, it just can't muster the performance numbers of the unassuming Engel. That doesn't mean it isn't a good product worth owning, which I do. This proves once again it isn't all about the digits; the low-profile shape of the ARB made for the best fit in my vehicle, and might be for yours as well.

It's difficult to not lump many of the evaluations of the Dometic CFX-50 in with the ARB as they are functionally comparable. Over the span of several summer months I used the Dometic daily and was convinced it was quick to cool, efficient to run, and well insulated. In our controlled setting those perceptions were tempered with hard facts—it's good, but not great. Our lab stats aside, I enjoyed the thoughtful layout of the control panel, various features, and look forward to using the newest units with WiFi connectivity.

The two newcomers, the Indel B and SnoMaster, were the most exciting discoveries and we look forward to the results of our long-term recap with each of them. The SnoMaster's unapologetic attempt to mimic National Luna might have set it up for criticism, but it came extremely close to matching the performance of its South African counterpart. Despite thick walls, and a second test to confirm our results, it didn't have the thermal retention of the National Luna. Although we try to not let price drive anything other than our Value Award, we were extremely impressed with the build quality, features, and efficiency of the SnoMaster. It would have won our Editor's Choice Award, but one criterion has yet to be met: the service life and reliability of the unit. We have no reason to believe it won't excel on that score as well, and who knows, in a year's time we may have to reshuffle and pin our top accolade on the SnoMaster. Time will tell.



With such a low asking price, we may have initially dismissed the potential of the Indel B. After double-checking the data and revisiting its many thoughtful features, we didn't hesitate to give the Indel B the Value Award—without the threat of a close second. It has a few issues, namely the orientation of the control panel and the overall height and depth of the interior, but there isn't a better bang for your buck to be had.

When it comes to bestowing any product with our highest honor, we do so conscientiously knowing it will likely influence purchasing decisions, and none of these products, even the Indel B, come cheaply. Within that context, and knowing we've made this determination twice before, the National Luna once again made it to the top. By the numbers, it bested the others and not only offers the option of a fridge/freezer, but a fridge *and* freezer for the same price. The build quality is unsurpassed and forgiving a few very minor quibbles, sets a lofty standard few can rival. Potential buyers will want to carefully consider their need for a dedicated freezer compartment, as it does come at a significant offset to cooldown efficiency and energy consumption.

There's no telling when we'll need to scribe a fourth fridge/freezer comparison, but like the two previous, this edition was illuminating. The old heroes confirmed once again why they are still relevant in an ever-evolving field, and the newcomers offer the promise of fresh features and conveniences. One thing has remained a constant from our first test to the last—the electric icebox is here to stay. 🌐

Clockwise from top: Indel B TB51A, Engel MT 45F-U1, Dometic CFX-50, National Luna Weekender 50 Twin and 52 single compartment, ARB Fridge/freezer 47L, and SnoMaster Traveler BD/C-42SS.

FRIDGE/FREEZER COMPARISON

MANUFACTURER	ARB	DOMETIC	ENGEL	INDEL B	NATIONAL LUNA	SNOMASTER
Model	Fridge/freezer 47L	CFX-50	MT45F-U1	TB51A	Weekender 50/52	BD/C-42SS
Cost	\$924	\$766	\$910	\$570	\$1,650	\$1,000
Listed volume (L/qt)	47.3/49.7	50/52.8	45/43	50/52.8	50/52.8	42/44.38
Weight empty (lb)	47.3	45	64	35	53	54
Internal dimensions, LxWxH (in)	25.6x11.2x13.3	26.4x13.3x14.7	15.4x10.8x16.4	20.7x12.5x17.2	25.6x12.8x16.2	24.6x12.1x16.4
External dimensions, LxWxH (in)	27.8x15x20	28.5x18.5x17.9	25.5x14.3x20	23x14x20.5	27.8x15.2x20	26.7x14.4x20.3
Interior light	Yes	Yes	No	Yes	Yes	Yes
Lid and hinge orientation	Front opening, fixed	Side opening, left or right	Front opening, fixed	Front opening, fixed	Front or side opening	Front opening, fixed
Display temp units	°F/°C, digital	°F/°C, digital	None	°F/°C, digital	°F/°C, digital	°F/°C, digital
Battery protection levels	High, medium, low	High, medium, low	None	High, medium, low	High, medium, low	High, medium, low
Cabinet material (exterior)	Zinc-plated steel	Polypropylene plastic	Galvanized steel	High-impact plastic	Stainless steel	Stainless steel
Compressor	Danfoss BD35F	Danfoss BD35F	Sawafuji swing motor	Danfoss BD35F	Danfoss BD35F	SnoMaster 66-watt
Max incline	30°	30°	30°	30°	30°	30°
Warranty	3-year	1-year	2-year	1-year	1-year	5-year



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