ENGEL

DC REFRIGERATOR OWNER'S MANUAL

MODELS

SB30F-N-A
SB30F-N-L-A
SB30F-N-R-A

SAWAFUJI SAWAFUJI ELECTRIC CO.,LTD.

Thank you for purchasing an ENGEL refrigerator. Read this manual carefully before starting to use it. Keep this manual in a safe place for future reference. If the product is resold, this operating manual must accompany it.

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1. Explanation of symbols

The following symbols are used in this OWNER'S MANUAL or on the refrigerator.

⚠ **WARNING**	Failure to observe this instruction can cause fatal or serious injury.
⚠ **CAUTION**	Failure to observe this instruction can lead to injury.
ⓘ **NOTICE**	Failure to observe this instruction can cause material damage and impair the function of the product.
⚠ **WARNING**	Risk of fire insulation blowing gas. (CYCLOPENTANE)

2. Safety instructions

Read this manual carefully before starting to use the refrigerator. These instructions are safety measures for preventing accidents.

⚠ WARNING

- This refrigerator can be used by children age 8 and above and persons with reduced physical, sensory or mental capabilities or lack of experience and knowledge if they have been given supervision or instruction concerning the use of the refrigerator in a safe way and understand the hazards involved.
- Children shall not play with the refrigerator. Always keep and use the refrigerator out of the reach of children.

• Cleaning and user maintenance shall not be made by children without supervision.

• Do not store explosive substances such as aerosol cans with a flammable propellant in this refrigerator.

• Never expose the refrigerator to rain.

•Do not put a water-filled container. Water if spilled will degrade the insulation of electric components and may lead to a fire from electric leak.

• If the cable is damaged, it must be replaced to prevent the possibility of electric shock. It must be replaced with a new cord (ENGEL genuine products).

• Never disassemble the refrigerator by yourself. Inadequate repairs may lead to considerable hazards.

• Do not touch the inside and other metal parts of the cabinet with wet hands, as this may cause frostbite.

• Do not contact metal part with positive terminal of battery.

• Cyclopentane is used as in the insulation. The gases in insulation material require a special disposal procedure with the applicable disposal regulations.

• Use the DC cord originally accompanying the refrigerator when operating it on DC. Failing to do so may lead to a fire due to overheat.

• When replacing a fuse equipped inside the fuse holder of DC cord, always use the same rated fuse for replacement. Never use a wire or a lead instead. Doing so may lead to a fire from overheat.

• This refrigerator runs on DC such as battery. Do not attempt to run it on any voltage above the specified voltage, nor use it

with any power source not specified here. Failing to comply will result in product failure or lead to a fire.

- Do not attempt to hang on the refrigerator door. Do not sit on the refrigerator while the door is open. Doing so may lead to injuries due to tumbled refrigerator or the fingers being caught in the door.
- Do not put heavy objects on the refrigerator. Doing so may lead to injury from falling objects when the door opens.
- Be sure that no part of the refrigerator body is pushing its power cable to bend it hard. The cable, when bent hard, may get damaged and lead to overheat and a fire.
- Avoid using flammable sprays near the refrigerator. The electric contacts may catch a fire.
- When using the refrigerator in a trunk of the car, keep adequate ventilation. Failing to do so may overheat and damage the refrigerator and possibly lead to a fire.
- Do not store objects that require precise temperature control such as medicine and scientific specimens. This refrigerator is not suited to store such types of objects.
- When there is a leak of utility gas around you, do not touch the refrigerator or its cable plug. Open the windows and maintain good ventilation. Failing to do so may lead to a fire and/or a burn from explosion.
- When operating on a floor, securely fix the refrigerator so that it would not fall and cause injuries when encountering vibration such as earth quake.
- While the refrigerator is in operation, do not use a quick charger to charge the battery that is supplying power to the refrigerator. The high voltages generated from the charger

may damage the refrigerator and lead to a fire.

- Do not use the refrigerator near a heated object or gas equipment. Doing so not only reduces cooling performance but would cause a fire when leakage of the utility gas.
- Do not use the refrigerator if its power cable is damaged or the catch of its plug is loose. Failing to comply may lead to an electric shock or short or fire.
- Do not damage or modify or bend hard or pull or twist or bundle the power cable. Do not have the power cable caught under or pinched with heavy objects. Doing so may damage the cable and possibly lead to a fire or electric shock.
- Relocating or remote mounting the compressor will void the manufacturer's warranty.

⚠ CAUTION

- Disconnect the refrigerator from the DC before cleaning and servicing it as well as after each use.
- Be careful not to drop the refrigerator when carrying it. The refrigerator will be damaged if dropped and may also lead to injuries of yourself.
- Do not put fingers between the lid and body of the refrigerator.Doing so may lead to injuries when the door closes.
- Do not put living things such as pets in the refrigerator.
- Do not attempt to open or close the refrigerator door while driving a car. It may lead to an accident due to distracted driving.

- This refrigerator is suitable for cooling food. If you wish to cool medicines, check if the cooling capacity of the refrigerator is enough.
- Never use a battery charger or transformer or rectifier or battery eliminator or AC/DC converter to power the refrigerator. Doing so may damage the refrigerator.
- Never connect the refrigerator directly to the DC ouput of an engine generator set. Doing so will lead to poor cooling and may also damage the refrigerator due to the high voltages and surge pulse from the generator set. Contact your ENGEL dealer if there is any question regarding the use of engine generator set to power the refrigerator.
- Do not overstuff the refrigerator. Doing so reduces cooling performance and may spoil the stored food.
- Do not put a bagged cold pack whose inner material is leaking. Some of off-the-shelf bagged ice packs contain a type of chemical that corrodes the metal parts of the refrigerator. If such chemical is spilled in the refrigerator interior, wipe it off with a wet, soft cloth and wipe off again with a dry cloth.
- It is recommended to turn off the refrigerator when the vehicle engine is shut off so as to keep the battery from running out.
- Take extra caution when transporting the refrigerator.

ⓘ NOTICE

- If the voltage at the DC input terminals of the refrigerator falls below 11V, cooling performance will immediately decrease. Always keep the battery in good condition to ensure it is fully charged.
- Fix the refrigerator firmly to the interior of the vehicle. Failing to do so may lead to injuries from a falling or moving fridge during abrupt acceleration and braking.
- Never use this refrigerator inside a refrigerated compartment of a refrigeration truck, where condensation easily occurs and water would drip onto the refrigerator and damage it.
- Do not put glass bottles in the refrigerator. That would result in breakage of bottles due to external shock or vibration.
- Do not set the temperature setting knob at “5” except when storing frozen products such as frozen food and ice. Doing so may result not only in beverages being undrinkable but explosion of cans and possible injuries.
- Do not use a knife, a driver or any sharp object to remove frost from the refrigerator.
- Do not pour water in the refrigerator. Doing so will result in failure from water ingress into the insulation material or mechanical and electrical components. If water collects in the cabinet, wipe it off with a soft cloth.
- The refrigerator needs an adequate ventilation for optimized cooling performance. Please set necessary ventilation opening according to installation instructions.
- Food shall be kept in its original package or put in other suitable container when stored in the refrigerator. It is recommended to pack watery food or products with excessive

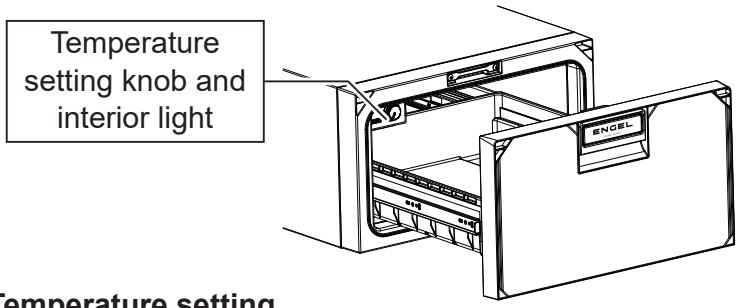
fragrance when putting in the refrigerator.

- Overstuffing the refrigerator will result in insufficient cooling from poor circulation of cool air and may spoil the stored foods. Keep some spaces between the foods.
- Hot or warm food such as boiled product shall be stored after it gets cool enough.
- Pre-cool the food and drinks before putting into the refrigerator. This refrigerator is not capable of cooling food and drink in a short time. It is also recommended to pre-cool inside the refrigerator cabinet before putting in any food.
- When the refrigerator is in operation, do not touch food or its containers, especially those made of metal, stored there with a wet hand. Doing so may lead to frostbite or other injury.

3. Intended use

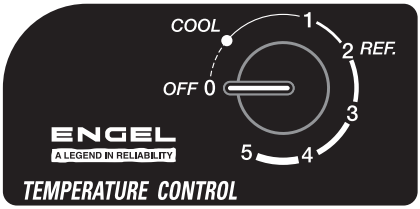
• The refrigerator is suitable for use in cars, boats, caravans or RVs and is designed to operate an angle of less than 30°off level.

4. Controller and display



■ Temperature setting

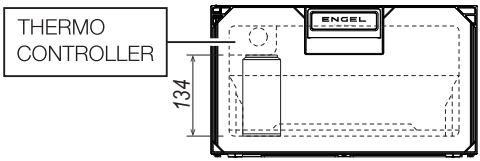
Turn the temperature setting knob to change the air temperature inside the refrigerator.



Dial setting position	Inside temperature*
0	OFF (Stop)
1	Approx. 8°C
3	Approx. -2°C
5	Approx. -8°C

* At an ambient temperature of 30°C with the free-standing refrigerator door closed.

The space between the bottom of the controller and the bottom of the tray is less than 134mm. Please note so the controller is not damaged.



5. Installation and Ventilation

Installation

1) Make sure the refrigerator in fitted horizontally. When installing in the Vehicle, make sure the refrigerator is not fitted to an unstable position.

2) Make sure to install the refrigerator where air flow is available. If the cooling unit air flow is contaminated, the cooling system will be degraded.

3) Avoid direct Sunlight, heat from a stove, or anything related to heat. If you install the refrigerator near a gas stove, a heater, or any other heat generating appliances, or place in direct sunlight, the cooling performance will be affected. And there is a risk of discoloration or deformation.

4) Avoid installing the refrigerator close to a kitchen sink or water faucet. If installed in locations subject to water the electrical circuits and other parts may be effected.

5) To achieve good cooling performance and less current consumption, adequate ventilation for the refrigerator is needed.

   a) In the drawing below (Fig.1) :
      the ventilation air will flow in the direction of the arrow.

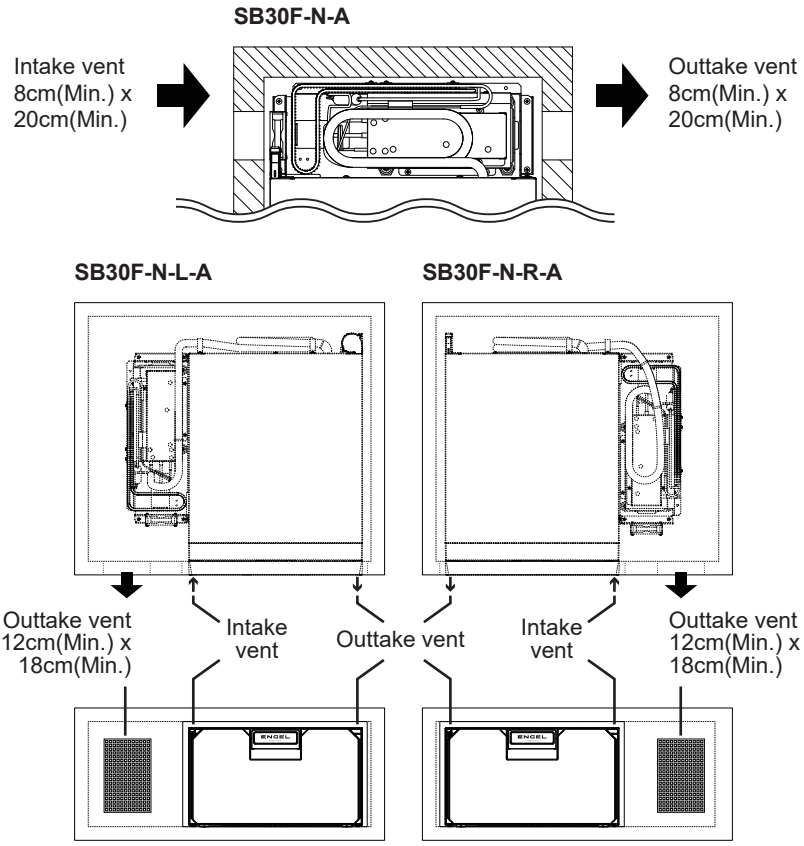
   b) Make sure NOT to block the intake vent and outtake vent of the compressor unit.

   c) Recommended vent size
      SB30F-N-A :
      vertical length of 20cm and side length of 8cm.
      SB30F-N-L-A / SB30F-N-R-A :
      vertical length of 18cm and side length of 12cm.
      If blocked, the cooling performance will be affected. And there is a risk of the failure of the cooling system.

Ventilation

⚠ CAUTION

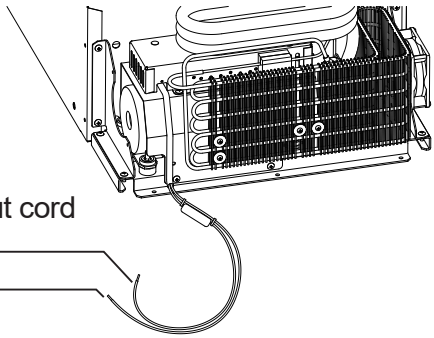
Failing to keep enough ventilation for cooling will result in reduced product life, poor cooling performance, and excessive current draw from the battery and will also invalidate the warranty. Please never block up the vent. Refer to the picture below to find the correct ventilation. (See Fig. 1)



(Fig.1)

6. Operation

Connect only to the following power sources :
12V or 24V DC battery



ⓘ NOTICE

Before starting to use your new refrigerator, its interior as well as exterior shall be thoroughly cleaned with a wet cloth to avoid hygienic issue.

6.1 Connection to 12V or 24V DC battery

This refrigerator can operate on both 12V and 24V DC. Make sure the battery voltage matches with the voltage stated on the refrigerator label. If the battery voltage is too high it will damage the refrigerator.
First, set the temperature setting knob to "0" (OFF). Then, set it anywhere between 1 and 5, and the LED interior light will go on. Turn the temperature setting knob to a required setting.

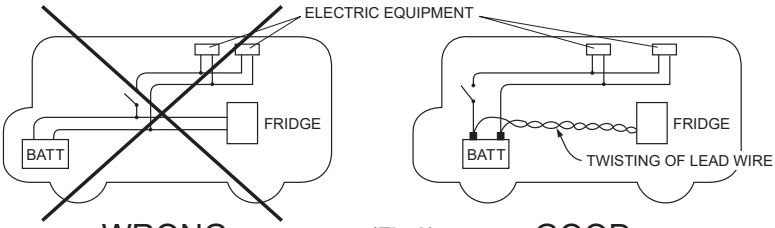
6.1.1 Onboard direct wiring

1) Twisting lead wire

To further reduce the radio interference during DC operation, twist the negative and positive cables (use separate cables) together into a spiral form, between the battery.

2) Connecting refrigerator directly to battery

Any switches and lead wires for other electrical equipment should not be shared with the wiring between the refrigerator and the battery. Other equipment can generate high voltage pulses which may cause transistor damage to the refrigerator power supply. (See Fig. 2)



WRONG (Fig.2) GOOD

3) To prevent radio noise and avoid absorbing high surge frequency, insert a capacitor of 10000μ-F as shown in (Fig. 3) below.



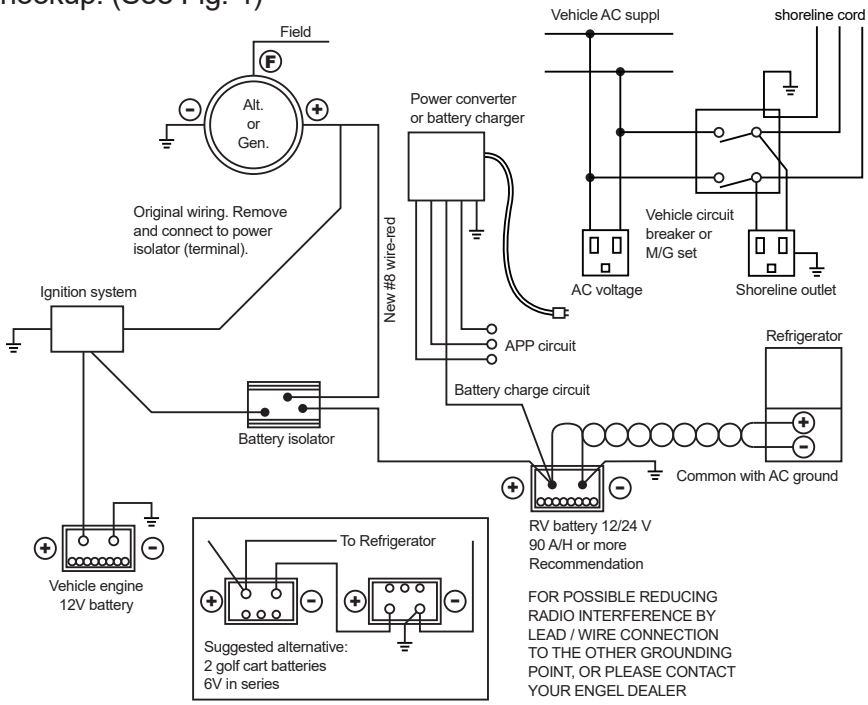
(Fig.3)

4) Selecting the correct gauge for wiring is important to avoid voltage drop. Follow the chart below when wiring the refrigerator to the battery.

Distance between product and battery	Wire Gauge	
	DC 12 VOLT USE	DC 24 VOLT USE
Less than 6m (19ft.)	SWG#16 (AWG#14) / 2.1mm^2 or more	SWG#18 (AWG#16) / 1.25mm^2 or more
From 6m (19ft.) to 10m (32ft.)	SWG#14 (AWG#12) / 3.3mm^2 or more	SWG#16 (AWG#14) / 2.1mm^2 or more
More than 10m (32ft.) (Not recommended,too long)	SWG#12 (AWG#10) / 5.3mm^2 or more	SWG#14 (AWG#12) / 3.3mm^2 or more

6.1.2 Wiring diagram of dual battery hookup

The wiring diagram shown below is recommended for dual battery hookup. (See Fig. 4)



(Fig.4)

⚠ CAUTION

To avoid damage to the refrigerator in the event of reverse polarity or short circuit, install a 10A fuse (12V DC) or a 10A fuse (24V DC) in the wiring circuit nearer to the battery.

Battery protection

This refrigerator is equipped with a battery monitor cutting the compressor in or out in order to protect the battery.

Cut out Voltage 12V	9.6V
Cut in Voltage 12V	11.5V
Cut out Voltage 24V	20.4V
Cut in Voltage 24V	23.1V

7. Maintenance of refrigerator

7.1 Cleaning interior and door

Always disconnect the refrigerator from the power source before you clean or service it.

- Clean the interior with a cloth moistened with warm water and wipe again with a dry cloth.
- Clean the door of the refrigerator with a wet cloth.
- Clean the interior condenser to remove dirt (dust etc.) at regular intervals.

ⓘ NOTICE

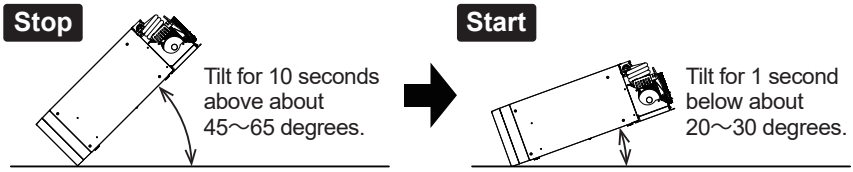
Never use a brush, powder soap, cleanser, acid, benzene, gasoline, or mineral thinners to clean the refrigerator, as these tend to leave scratches on the plastic coating and painting.

7.2 Defrosting

Due to the humidity within the cabinet, frost will form on the evaporator surface after it has been used for a while.
Frost with as thick as 6mm or more (1/4in) will reduce cooling efficiency. To avoid this, the evaporator needs to be defrosted regularly. To defrost, turn off and unplug the refrigerator to allow for complete removal of frost from the evaporator.

8. Tilt protection

This refrigerator senses the tilt and stops.



※ Tilt protection still works when tilted in all directions.Operating angle changes depending on the tilt speed.

9. Trouble shooting

Fault	Possible cause	Action
Compressor not working	No power supplied. Battery in poor condition.	Check if power is supplied to electronic unit.
	Faulty electronic unit.	Check fuse.
	Electronic unit failure.	Check polarity of connectors and cables.
	Tilt protection.	Check refrigerator is horizontal.
Interior not cold	Ambient temperature too high. Insufficient ventilation.	Keep refrigerator sufficiently ventilated.
	Frost on evaporator	Defrost evaporator. (see 7.2 Defrosting)
	Condenser clogged	Clean condenser.

If the problem still persists after going through the chart above, consult an ENGEL service agent near you. Never disassemble the refrigerator by yourself. Inadequate repairs can lead to considerable hazards.

10. Disposal

⚠ WARNING

If you wish to dispose of this refrigerator, contact your local authorities and ask for the correct method of disposal, or specialist dealer for details about how to do this in accordance with the applicable disposal regulations.
Cyclopentane is used in the insulation, which requires a special disposal procedure. Contact your local authorities to find the environmentally safe disposal of the refrigerator.

11. Warranty

The statutory warranty period applies.
If the refrigerator is found to be defective, contact either of the agents whose contact information is found on page 25 of this manual or an ENGEL dealer near your location.
For repair and warranty processing, have the following documents accompany the refrigerator

- A copy of the receipt with purchasing date
- Reason for the claim and/or description of the failure

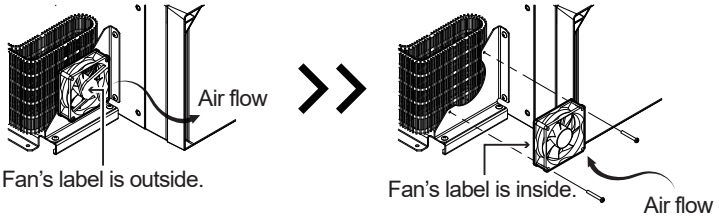
12. Before initial use

Direction of fan for free-standing

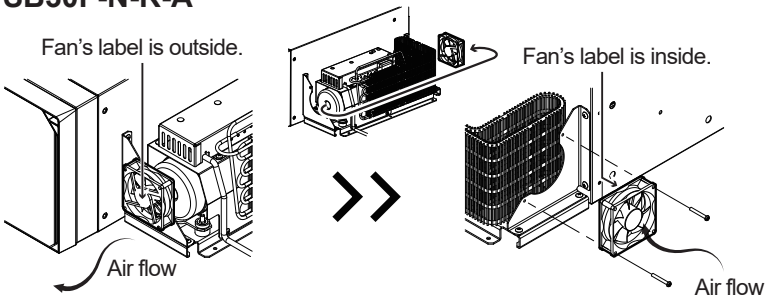
ⓘ NOTICE

This refrigerator is for built-in.
If you use for free-standing, please change the directly of the fan as follows. Failure to do so will adversely affect the cooling performance.

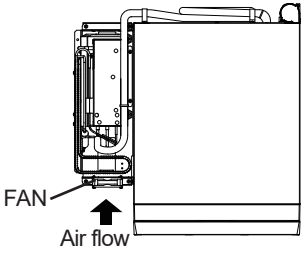
■ **SB30F-N-L-A**



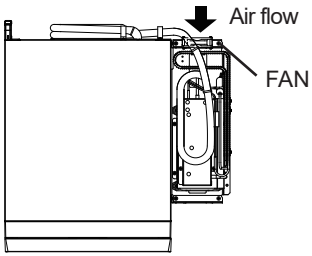
■ **SB30F-N-R-A**



SB30F-N-L-A (Free-standing)



SB30F-N-R-A (Free-standing)



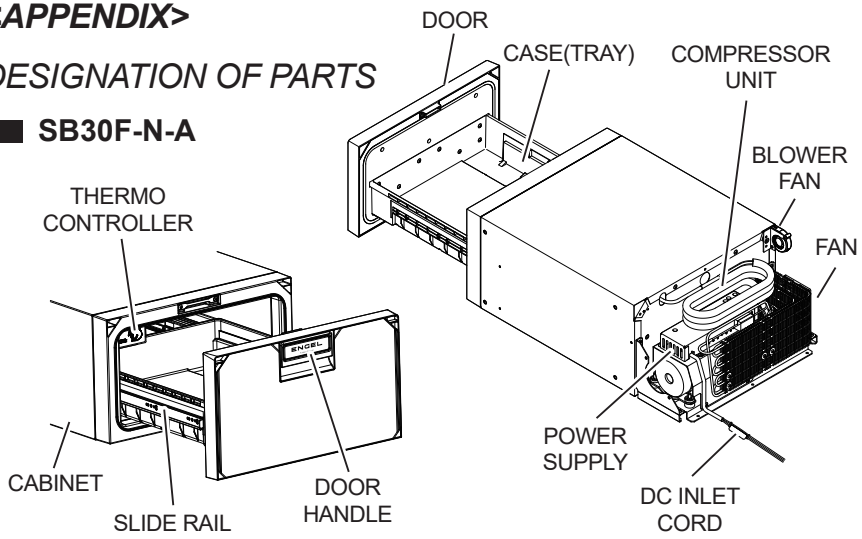
13. Technical data

MODEL	SB30F-N-A	SB30F-N-L-A	SB30F-N-R-A
Compressor unit location:	End	Left side	Right side
Input voltage:	12/24V ⎓		
Rated current:	12V ⎓ :3.4A 24V ⎓ :1.7A		
Cooling capacity:	+8˚C to -8˚C		
Gross volume:	30 L		
Climate class:	T (+16˚C～+43˚C)		
Refrigerant:	HFC-134a		
Insulation blowing gas:	Cyclopentane		
Sound level:	39dB(A)	42dB(A)	
Dimensions WxDxH(mm)	440 x 716 x 250	596 x 612 x 250	
Weight:	21.5 kg		

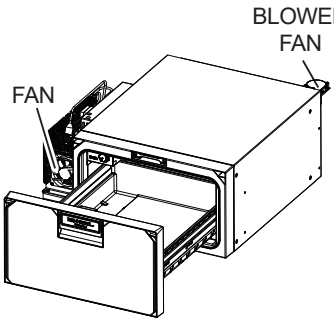
<APPENDIX>

DESIGNATION OF PARTS

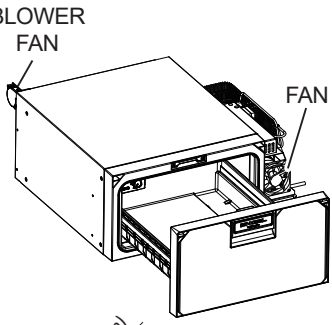
■ SB30F-N-A



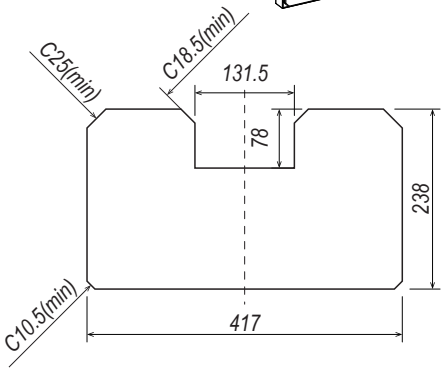
■ SB30F-N-L-A



■ SB30F-N-R-A



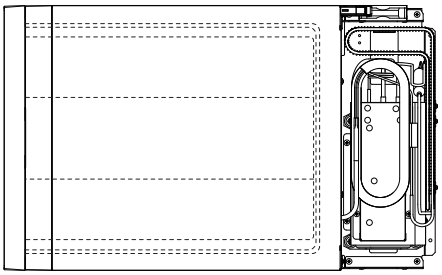
To customize the drawer front please use these measurements to cut your panel or sticker for best fit.

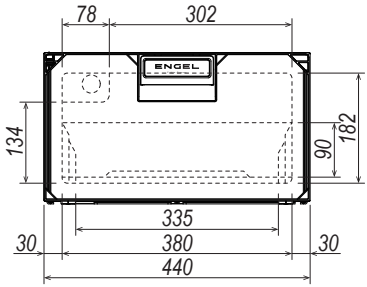


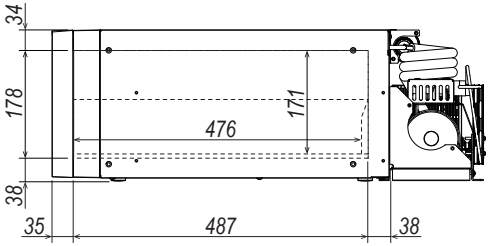
REFRIGERATOR DIMENSIONS

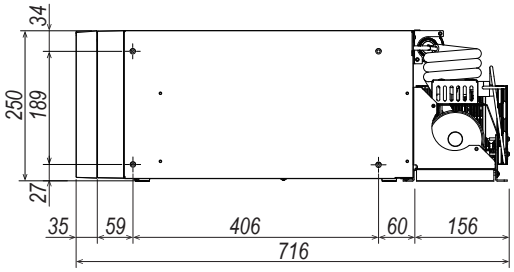
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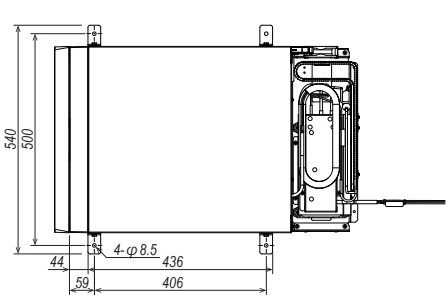
■ SB30F-N-A

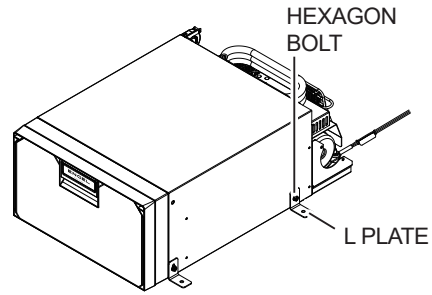




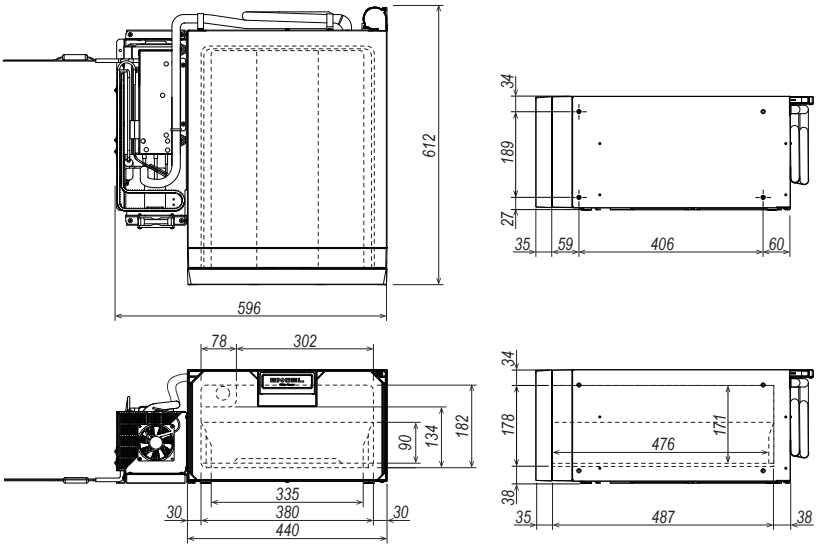




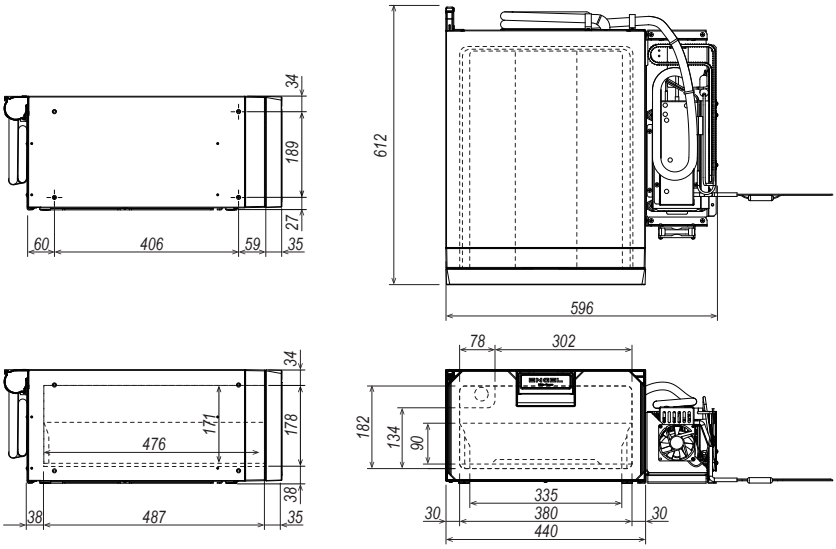




■ SB30F-N-L-A



■ SB30F-N-R-A



M E M O

M E M O

<AGENT in AUSTRALIA and NEW ZEALAND>

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ENGEL

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< CUT >

THIS ENGEL REFRIGERATOR WAS TESTED BEFORE DELIVERY.

"Our goods come with guarantees that cannot be excluded under the Australian Consumer Law. You are entitled to a replacement or refund for a major failure and for compensation for any other reasonably foreseeable loss or damage. You are also entitled to have the goods repaired or replaced if the goods fail to be of acceptable quality and the failure does not amount to a major failure."
ENGEL AUSTRALIA (Warrantor) warrant that they will repair free of cost or replace at their Capital City premises any part of the appliance which in their opinion is defective due to faulty materials or workmanship.

*Calculated from the proven date of purchase the warranty period is:

SB30F

Trouble & deficient part
Cooling system (with cabinet), Inverter, Thermostat, Door, & Tray
Perform exchange and repair gratis for 24 months for consumer use or, 12 months or 100,000km for commercial use.

■ Specifically precluded from warranty is:

1. Damage caused as a result of connection to incorrect or fluctuating voltage supply.
2. Labour charge involved where sole cause of multifunction is a blown fuse.
3. Damage which in the opinion of the Warrantor is caused by faulty installation, normal wear and tear,misuse, dirt, neglet, accident or other similar causes.

■ The Warrantor does not accept any responsibility for:

1. Liability in respect of loss or expenses arising from the malfunction of this appliance.
2. Freight cost to our Capital City Service Centers.
3. The damage which may be incurred during transit to and from our Capital City Service Centers.
4. Repair to appliance on which modification or repairs have been carried out by persons not specifically nominated by the Warrantor as being authorized service personnel.

"Your attention is drawn to the fact that this warranty is authorized by ENGEL DISTRIBUTION PTY. LTD and cannot be varied by others.

Please staple your purchase receipt to this card. For your nearest service agent. Please call our Engel Customer Service Center Hotline on 1300 302 653

Address:	Engel Distribution Pty Ltd P.O. Box155 25 SILICA ST CAROLE PARK QLD 4300
Email Address:	**admin@engelaustralia.com.au**

Note: So that all relevant information is at hand in case of warranty repair, we suggest that this card is kept within easy reach (ie. glove box of vehicle or pocket of transit bag).

Appliance Model No. _____

Serial No. _____ **Date Of Purchase.** _____