

# ENGEL

REFRIGERATOR  
OWNER'S MANUAL

EN

DAS HANDBUCH VON  
KÜHLSCHRANK-BESITZER

DE

LE MANUEL DE PROPRIÉTAIRE DE  
RÉFRIGÉRATEUR

FR

KØLESKAB BRUGSVEJLEDNING

DA

## **MT Series**

MT17F-G3-D

MT27F-G3-D

MT35F-G3, MT35F-G3-DM, MT35F-G3-S

MT45F-G3, MT45F-G3-DM, MT45F-G3-S

## **MR Series**

MR040F-G3



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.

 <b>WARNING</b>	Failure to observe this instruction can cause fatal or serious injury.
 <b>CAUTION</b>	Failure to observe this instruction can lead to injury.
 <b>NOTICE</b>	Failure to observe this instruction can cause material damage and impair the function of the product.

## **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.
- The refrigerator is suitable for camping use.
- 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).
- Do not touch the inside and other metal parts of the cabinet with wet hands, as this may cause frostbit.
- 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.
- Never disassemble the refrigerator by yourself. Inadequate repairs may lead to considerable hazards.
- To avoid burnout of wiring from battery to the refrigerator when a short circuit, install 10A fuse in the wiring circuit, nearby the battery.
- Use the DC cord originally accompanying the refrigerator when operating it on DC. Be sure to fully insert the cigarette lighter plug into the socket. Failing to do so may lead to distortion of the socket and/or a fire due to overheat from loose connection.

- When replacing a fuse equipped inside the cigarette lighter socket, always use the Engel-exclusive fuse for replacement. Never use a wire or a lead instead. Doing so may lead to a fire from overheat.
- The fuse equipped inside the cigarette lighter plug has a direction indicated by the arrow printed on it. Make sure the arrow points to the right direction when replacing the fuse. Failing to do so would not let the fuse to blow when overheat, resulting in deformation of the plug and/or a fire.
- When the cigarette lighter plug comes in contact with water or salty substance, be sure to thoroughly wipe it off. Take extra caution when wiping off the head terminal of the plug. Water and salty substance, if remained on the tip of the cigarette lighter plug, will result in rust, causing poor conductivity and abnormal overheat and possibly lead to deformation of the plug and/or a fire.
- Do not touch the metal tip of the cigarette lighter plug. The whole body of the cigarette lighter plug becomes hot during operation even if the plug is securely inserted into the socket. The metal tip in particular will become hot enough to burn your finger.
- This refrigerator runs on both AC i.e. from wall outlet and 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.
- When operating on AC, do not plug in to an extension cable or put too much plugs into one socket. Failure to comply will result in electric shock or a fire.
- When operating on AC, be sure to plug in securely.

Poor connection will result in electric shock or a fire.

- Clean the AC cord plug to remove dust from the terminals and their base. Dust on the plug will lead to a fire or electric shock from degraded insulation.
- 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 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.
- 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 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.

 **CAUTION**

- Disconnect the refrigerator from the AC before cleaning and servicing it as well as after each use.
- Pay due attention to the polarity of the cigarette lighter plug; the center terminal must be connected to the positive line while the side contacts to the negative or earth.
- 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 an engine generator set regardless of whether its output is AC or DC. 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. Utilize an automatic voltage regulator for the refrigerator. Contact your ENGEL dealer if there is any question regarding the use of engine generator set to power the refrigerator..
- The pair of handles accompanying the refrigerator shall be securely fixed to the refrigerator. Poor installation may lead unexpectedly dropping the refrigerator during transportation, which may result in damage to or failure of the refrigerator and possible cause of injuries.
- 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.
- If you wish to install and continuously use the refrigerator in a vehicle for commercial purposes, permanent vehicle installation and wiring is recommended as it would keep the cigarette lighter plug from being overheated and deformed. Refer to 6.2.2 Onboard direct wiring with optional kit. Also consult the Engel dealer nearest to you as needed.

**ⓘ NOTICE**

- Check if the voltage noted on the type plate on the refrigerator matches the one applied by an external power source.
- If the voltage at the DC input terminals of the refrigerator falls below 10.7 V, cooling performance will immediately decrease. Always keep the battery in good condition to ensure it is fully charged.
- Do not pull the wire of the cigarette lighter plug to when removing it from the socket.
- If used on board a vehicle, 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 breaking.
- 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, ice cream 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. Insufficient space between the refrigerator and adjacent walls may reduce the cooling performance.
- To keep the battery from running out, unplug the cigarette lighter socket of the vehicle when the refrigerator is not in use.
- Food shall be kept in its original package or put in other suitable container when stored 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.
- It is recommended to pack watery food or products with

excessive fragrance when putting in the refrigerator.

- 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**

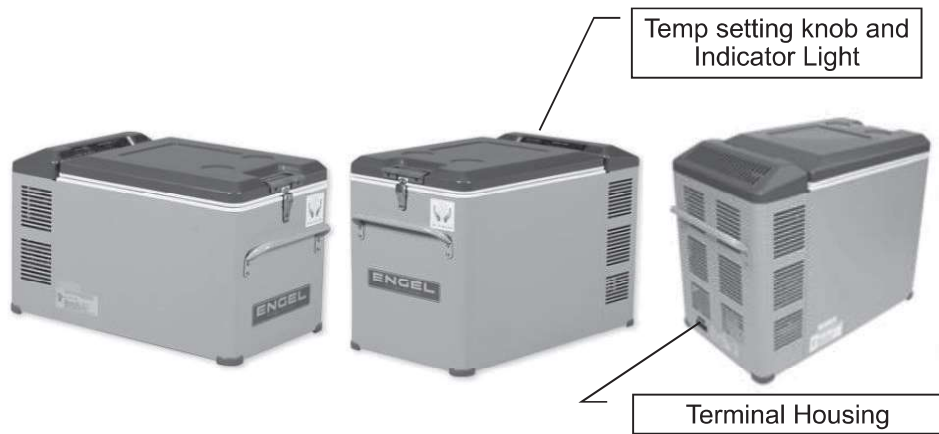
- The refrigerator is suitable for use in cars, boats, caravans or RVs and is designed to operate an angle of less than 30° off level.

### **4. Controller and display**

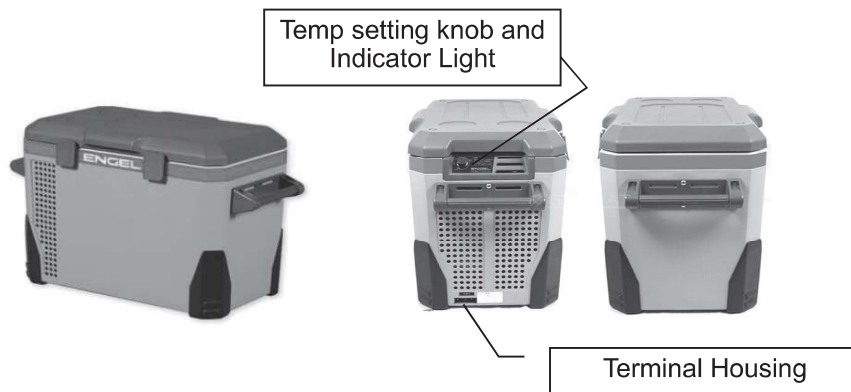
- MT17F-G3-D, MT27F-G3-D



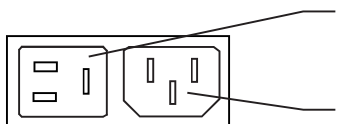
- MT35F-G3, MT45F-G3 (Gray Body)
- MT35F-G3-DM, MT45F-G3-DM (Gray Body with digital thermometer)
- MT35F-G3-S, MT45F-G3-S (Silver Body)



- MR040F-G3



• **Terminal Housing**

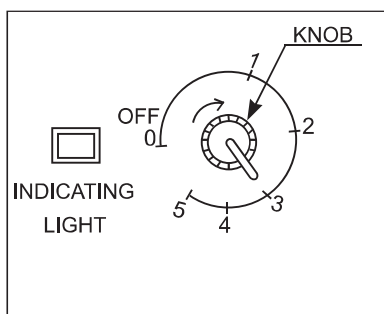


12V or 24V DC: Batteries

220V-240V AC: Mains

• **Temperature setting**

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



Temp setting position	Inside temperature *
0	OFF (Stop)
1	Approx. 5°C
2 - 4	Approx. 0°C - -12°C
5	Approx. -15°C

\* at an ambient temperature of 30°C with the refrigerator door closed

**5. Installation and Ventilation**

The refrigerator shall be used in a dry area where there is no chance of being exposed to water splash or other types of liquids or direct sunlight or heat conducted from hot pipes, warm air outlets, cookers, etc.

The refrigerator should be positioned and secured on a solid surface in the vehicle.

Keep the refrigerator away from direct sunlight or a gas stove or heater or heat-generating refrigerator.

Avoid installing your refrigerator close to hot water lines or warm air ducts.

Adequate ventilation and suitable distance from each wall

(at least 150 mm) will enable optimized cooling performance and minimized power consumption.

## **6. Operation**

Connect only to either of the following power sources:

- 220–240V AC from wall outlet (the mains)
- 12V or 24V DC battery.

AC and DC voltages may be connected simultaneously, when AC will be automatically selected if both voltages are applied.

**⚠ 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 220V-240V AC**

This refrigerator can be connected to a standard domestic power source by using the three-core lead accompanying the refrigerator.

Insert the plug into the input terminal housing on the refrigerator.

Next, set the temperature setting knob to "0" (OFF). Then, set it anywhere between 1 and 5 and the green LED will go on. Turn the temperature setting knob to a required setting.

### **6.2 Connection to 12V or 24V DC battery**

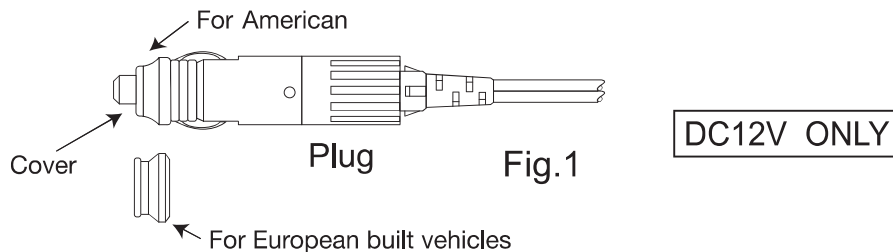
Make sure the battery voltage matches with the voltage stated on the refrigerator label. If the battery voltage is too high it will damage the refrigerator.

### 6.2.1 Connection to 12V DC cigarette lighter socket

Insert the square molded DC plug into the terminal housing on the refrigerator. The other end of the cable has a cigarette lighter plug.

Ensure that the cigarette lighter socket is clean and free from dust, corrosion or other foreign objects.

To change the plug head type, refer to Fig 1 below.



Insert the plug securely into the cigarette lighter socket to prevent it from coming loose. Loose connection may result in overheating which will damage the cigarette lighter socket.

First, set the temperature setting knob to "0" (OFF). Then, set it anywhere between 1 and 5 and the green LED will go on. Turn the temperature setting knob a required setting.

To stop the refrigerator, remove the cigarette lighter plug from the socket.

**⚠ CAUTION:** The center terminal of the plug must be connected to the positive line while the side contacts to the negative or earth. If reversely connected, the fuse in the plug will blow and the refrigerator will become inoperable until the fuse is replaced.

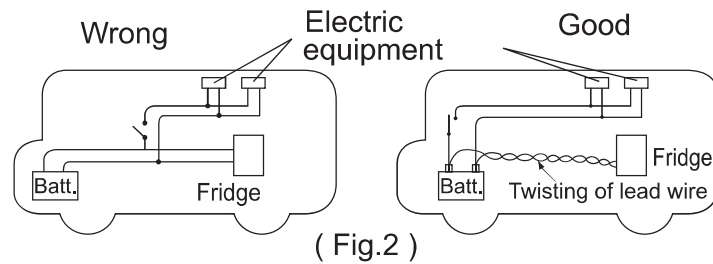
## 6.2.2 Onboard direct wiring with optional kit

### 1) Twisting lead wire

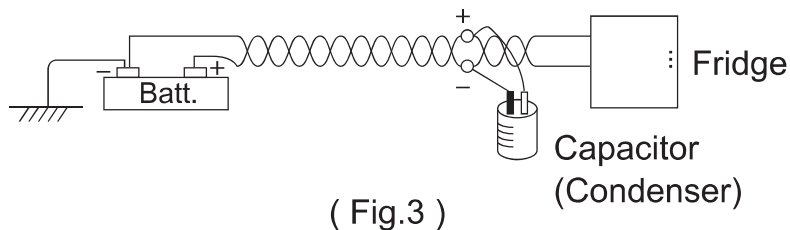
To further reduce the radio interference during DC operation, twist the negative and positive cables (use separate cables) together into a spiral form, between the battery and the DC outlet socket.

### 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)



### 3) To prevent radio noise and avoid absorbing high surge frequency, insert a capacitor of $10000\mu\text{-F}$ as shown in fig 3 below.





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

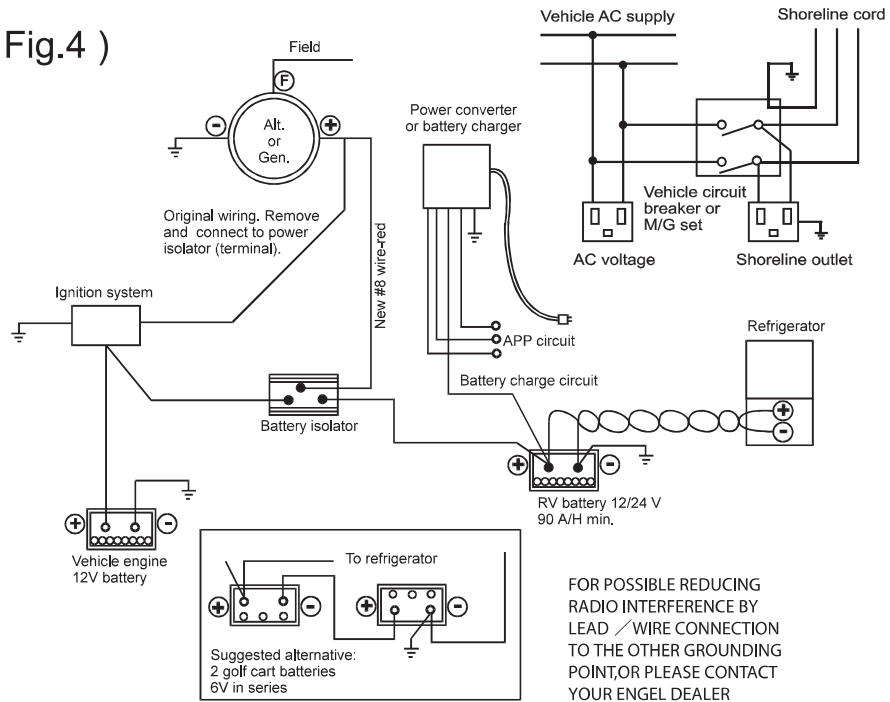
Distance between device and battery	Wire Gauge	
	DC 12 Volt use	DC 24 Volt use
Less than 6m. (19ft.)	SWG#16 (AWG#14) /2.1mm <sup>2</sup>	SWG#18 (AWG#16) /1.25mm <sup>2</sup>
From 6m (19ft.) to 10m (32ft.)	SWG#14 (AWG#12) /3.3mm <sup>2</sup>	SWG#16 (AWG#14) /2.1mm <sup>2</sup>
More than 10m (32ft.) (Not recommended, too long)	SWG#12 (AWG#10) /5.3mm <sup>2</sup>	SWG#14 (AWG#12) /3.3mm <sup>2</sup>

- 5) To avoid burn of wires between the battery and the refrigerator in the event of a short circuit, install a 10A fuse in the wiring circuit nearer to the battery.

### 6.2.3 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 15A fuse (12V DC) or a 10A fuse (24V DC) in the wiring circuit nearer to the battery.

## **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.

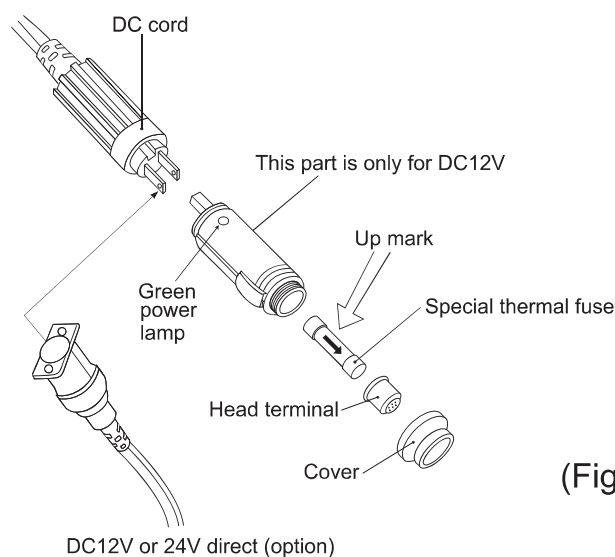
Frost with as thick as 6mm or more (1/4in) will reduce cooling efficiency. To avoid this, the evaporator needs to be defrosted regularly.

To defrost, turn off and unplug the refrigerator to allow for complete removal of frost from the evaporator.

### 7.3 Caution about fuse and replacement


The cigarette lighter plug of the DC cord has a special thermal fuse inside which cuts off current during abnormal situations, e.g. overheated plug.

- 1) Remove the cover on the tip of the DC cord plug by turning it counterclockwise.
- 2) When removing the cover, also remove the head terminal and the fuse.
- 3) Pull out the fuse from the head terminal.
- 4) Replaced the fuse with a new one after making sure that its polarity direction is correct (fig 5). Always use the special thermal fuse supplied through Engel dealer. The arrow printed on the fuse shall point to the head terminal as shown in figure 5 below.



- 5) Re-assemble the DC cord plug in a reverse order of disassembly and tighten the cover firmly.
- 6) Check whether the refrigerator runs normally.

If you encounter any further trouble, please contact an authorized ENGEL dealer near you.

 **CAUTION:** Do not use conventional glass tube fuses. Use only those designed exclusively for ENGEL refrigerator and distributed through its dealers.

## **8. Trouble shooting**

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

If the problem still persists after going through the chart above, consult an ENGEL service agent or dealer near you..

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

## **9. Disposal**

### **WARNING**

- To prevent the risk of child entrapment inside the refrigerator, do the following before discarding it:
  - Remove the door from the refrigerator.
- This refrigerator is marked with the symbol shown below, meaning the refrigerator should not be mixed with household waste when being disposed of.



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.

## **10. Warranty**

The statutory warranty period applies.

If the refrigerator is found to be defective, contact either of the agents whose contact informant is found on page 28 of this manual or an ENGEL dealer near your location.

For repair and warranty processing, have the following documents accompany the refrigerator.

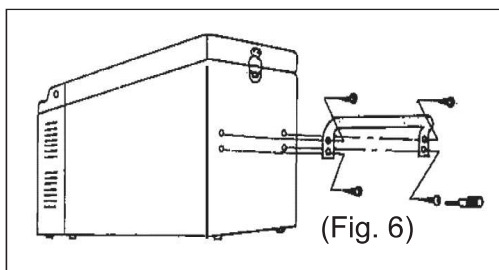
- A copy of the receipt with purchasing date
- Reason for the claim and/or description of the failure

## **11. Before initial use**

### **11.1 Installation of handles**

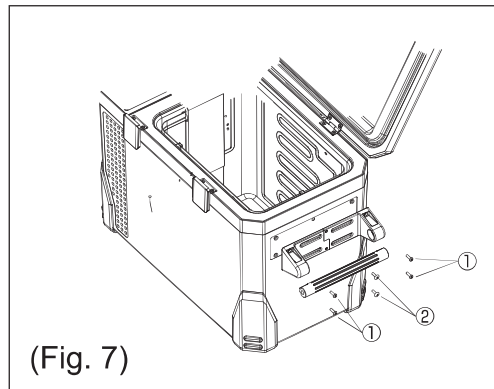
**Install a pair of handles found in the interior according to the following.**

- MT series



Handles can be screwed onto the sides of the refrigerator. (Fig. 6)

- MR040F-G3



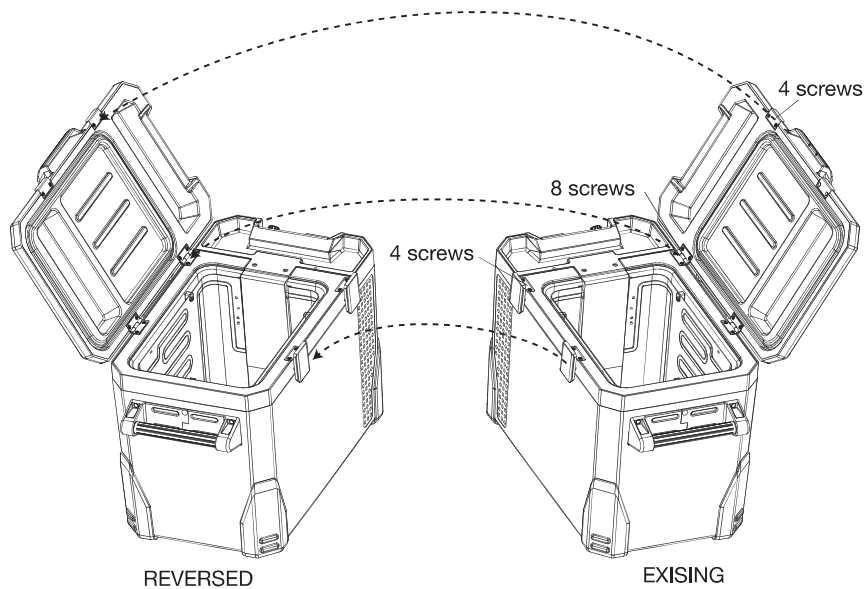
Handles can be screwed onto the sides of the refrigerator. (Fig. 7)

- ① Pan head screws, 8 pcs
- ② Truss head screws, 4 pcs

## 11.2 Reversing door-swing direction (MR040F-G3)

Follow the process below to change the door-swing direction.





- 1) Remove the 16 screws fixing the hinges and the latches.  
(See Fig 8)
- 2) Put them on the other side including the latch plates and screw them again with the door and the cabinet.



(Fig 8)






## 12. Power cord list

<b>A</b>	<b>AC CORD</b>	MT17F-G3-D MT27F-G3-D MR040F-G3	
<b>B</b>	<b>AC CORD</b>	MT35F SERIES MT45F SERIES	
<b>C</b>	<b>DC CORD</b>	ALL MODEL	
<b>D</b>	<b>DC CORD</b>	BATTERY CORD (OPTION)	 <p>( PART OF DC CORD ) DC12V or DC24V DIRECT</p>

### **13. Technical data**

Model	MT17F-G3-D	MT27F-G3-D
Input voltage:	12/24V $\overline{\text{---}}$ and 220-240V $\sim$ 50/60Hz	
Rated current:	12V $\overline{\text{---}}$ : 2.5A 24V $\overline{\text{---}}$ : 1.2A 220-240V $\sim$ : 0.37A	
Cooling capacity:	+8°C to -18°C	+8°C to -16°C
Category:	1	
Energy efficiency class:	A+	
Energy consumption:	106 kWh/annum	103 kWh/annum
Gross volume:	16L	23L
Storage volume:	15L	20L
Climate class:	T	
Ambient temp:	+ 16°C $\sim$ +43°C	
Sound level:	44dB (A)	
Dimensions W x D x H (mm)	307 X 549 X 364mm	307 X 549 X 465mm
Weight:	16kg	15kg

Model	<b>MT35F-G3 MT35F-G3-DM MT35F -G3-S</b>	<b>MT45F-G3 MT45F-G3-DM MT45F -G3-S</b>
Input voltage:	12/24V $\overline{\text{---}}$ and 220-240V $\sim$ 50/60Hz	
Rated current:	12V $\overline{\text{---}}$ : 2.5A 24V $\overline{\text{---}}$ : 1.2A 220-240V $\sim$ : 0.37A	
Cooling capacity:	+8°C to -18°C	
Category:	1	
Energy efficiency class:	A+	
Energy consumption:	105 kWh/annum	97 kWh/annum
Gross volume:	34L	45L
Storage volume:	32L	40L
Climate class:	T	
Ambient temp:	+ 16°C $\sim$ +43°C	
Sound level:	46dB (A)	47dB(A)
Dimensions W x D x H (mm)	364 X 647 X 407mm	364 X 647 X 497mm
Weight:	21kg	24kg

Models	<b>MR040F-G3</b>
Input voltage:	12/24V  and 220-240V~ 50/60Hz
Rated current:	12V  : 2.75A 24V  : 1.4A 220-240V~: 0.37A
Cooling capacity:	+8°C to -18°C
Category:	1
Energy efficiency class:	A+
Energy consumption:	104 kWh/annum
Gross volume:	41L
Storage volume:	38L
Climate class:	T
Ambient temp:	+ 16°C ~ +43°C
Sound level:	44dB (A)
Dimensions W x D x H (mm)	636 X 396 X 471mm
Weight:	22kg

### NOTICE

If the ambient temperature exceeds +32°C (+90 °F), the lowest temperature noted above cannot be attained.

Refrigerant R134a contained in the coolant.

### Tests / Certificates

