

Service–Instruction

COOL
3110

ABSORPTION REFRIGERATOR + OVEN for RECREATION VEHICLES

RMT 7650

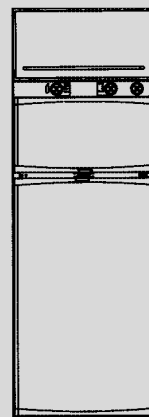
RMT 7850

RMT 7651

RMT 7851

RMT 7655

RMT 7855



Publications–Nr.:
599 5230–23 DE

T.B. MB 10/2005

Table of Contents

	Page
1.0 Description of Model	3
2.0 Operating	5
3.0 Components	6
4.0 Installation	10
5.0 Optionen	16
6.0 Service/Maintenance/Tables	18
7.0 Further Documentation	22

The instruction on hand is completed and revised regularly.

PIEZO RMT 7XX0 Series	MES RMT 7XX1 Series	AES RMT 7XX5 Series
RMT 7650	RMT 7651	RMT 7655
RMT 7850	RMT 7851	RMT 7855

Piezo-fridges are equipped with a manual energy selector and a thermostatic regulation of the cooling compartment temperature during 230V and gas operation.

MES- fridges (**M**anual **E**nergy **S**election) and **AES** fridges (**A**utomatic **E**nergy **S**election) are equip-

ped with electronics for controlling the function elements and status indication of the active operation source. Additionally AES-fridges provide the possibility of manual energy selection.

At both ranges of models, the cooling compartment temperature is regulated thermostatically in all operation sources (12 V-/230 V~/GAS)

1.1 Technical Data

Model	Dimensions H x W x D (mm) depth incl. door	Gross capacity incl. freezer	Usable capacity of freezer comp	Connection Mains / Battery	Consumption electricity / gas in 24hrs	Net weight	Ignition	
							Piezo	automat.
RMT 7650(L)	1515 x 525 x 596	150 lit.	26 lit.	190 W/170 W	ca. 3,2 kWh/380 g	59,0 kg	•	
RMT 7850(L)	1515 x 525 x 651	175 lit.	31 lit.	190 W/170 W	ca. 3,2 kWh/380 g	60,7 kg	•	
RMT 7651(L)	1515 x 525 x 596	150 lit.	26 lit.	190 W/170 W	ca. 3,2 kWh/380 g	59,0 kg		•
RMT 7851(L)	1515 x 525 x 651	175 lit.	31 lit.	190 W/170 W	ca. 3,2 kWh/380 g	60,7 kg		•
RMT 7655(L)	1515 x 525 x 596	150 lit.	26 lit.	190 W/170 W	ca. 3,2 kWh/380 g	59,0 kg		•
RMT 7855(L)	1515 x 525 x 651	175 lit.	31 lit.	190 W/170 W	ca. 3,2 kWh/380 g	60,7 kg		•
Oven only CMBO		28 lit.			100 g/h (gas only)			•



This instruction contains descriptions essentially to MES and AES models . A description of the function components (compact fitting, burner etc.) of the PIEZO models can be found in the SERVICE HANDBOOK "Absorption-Refrigerators for Recreational Vehicles".

1.2 General Remarks

- Main components accessible via ventilation grille and control panel.
- Fridge does not necessarily have to be deinstalled for service and alteration.
- Gas supply point on back of fridge; accessible via lower ventilation grille.
means : **Improved Access for Maintenance !**
- Low voltage control at 230V~ operation
Switching to an other energy source at 200 V +/- 7V
No low voltage control at 12V -- operation
- Lighting with one light bulb 12V/2W ;
Do not use 8V- light bulbs!
- Power supply for burner control device and gas valve: 1,5 V controlled by the electronics / power module.
- Operation with 12V ; 230V is displayed "green" with LED .

If no supply voltage is available the LED lights "red" at **AES** appliances.

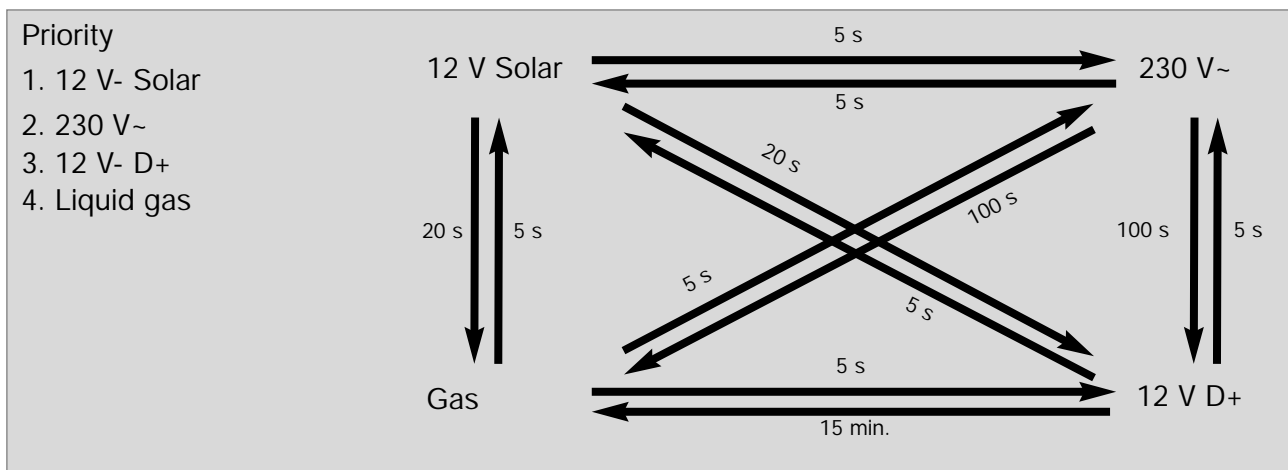
It does not light at **MES** appliances.

At **AES** models the selected energy is displayed by the corresponding **LED** (i.e. 230V) and the "AUTO" LED simultaneously.

During the refuelling stop (switch over time to gas mode 15 min.) the appliance is in stand-by operation mode and only the "AUTO" LED lights up (no supply of energy meanwhile).

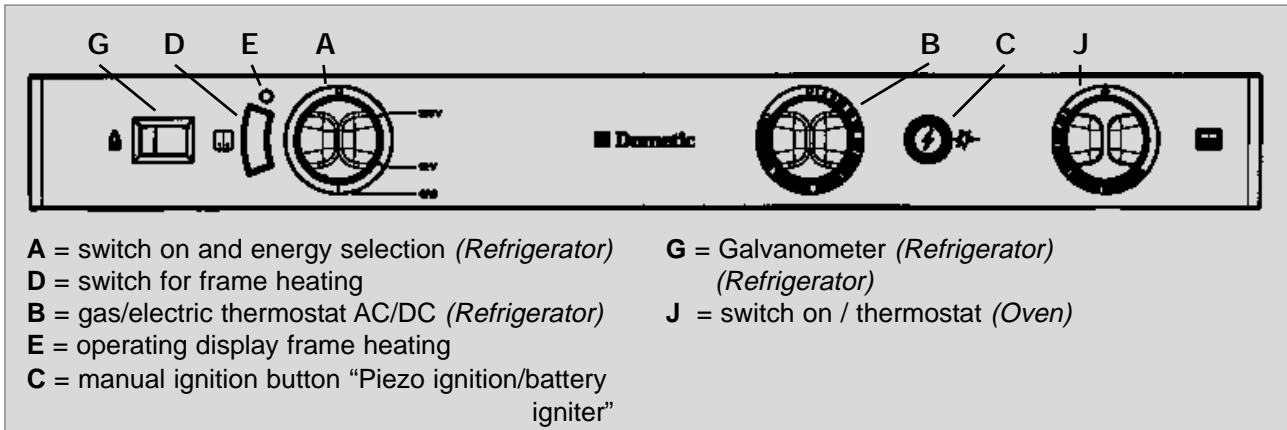
NOTE: The refuelling delay cannot be reseted by switching off/on or manual choice of energy.

Switch over times / time delay at "AUTO"-function at AES models :

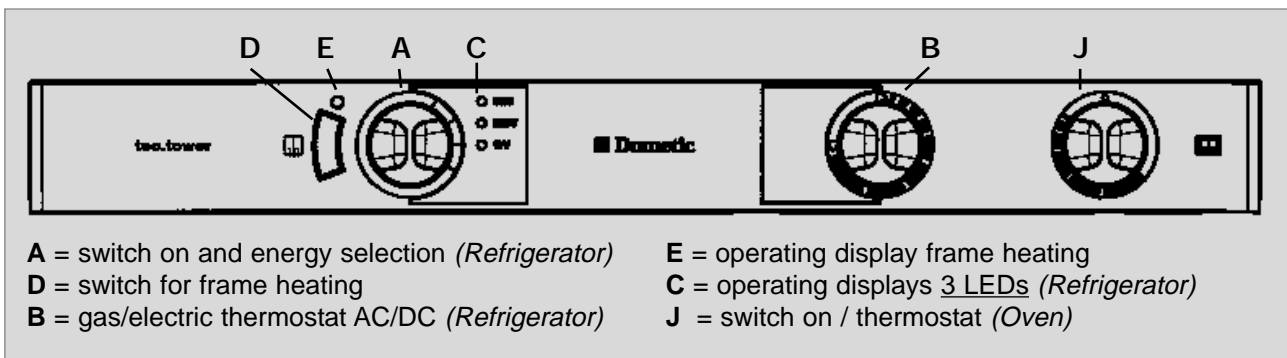


2.1 Controls

Manual energy selection / manual ignition (RMT 7650, RMT 7850)



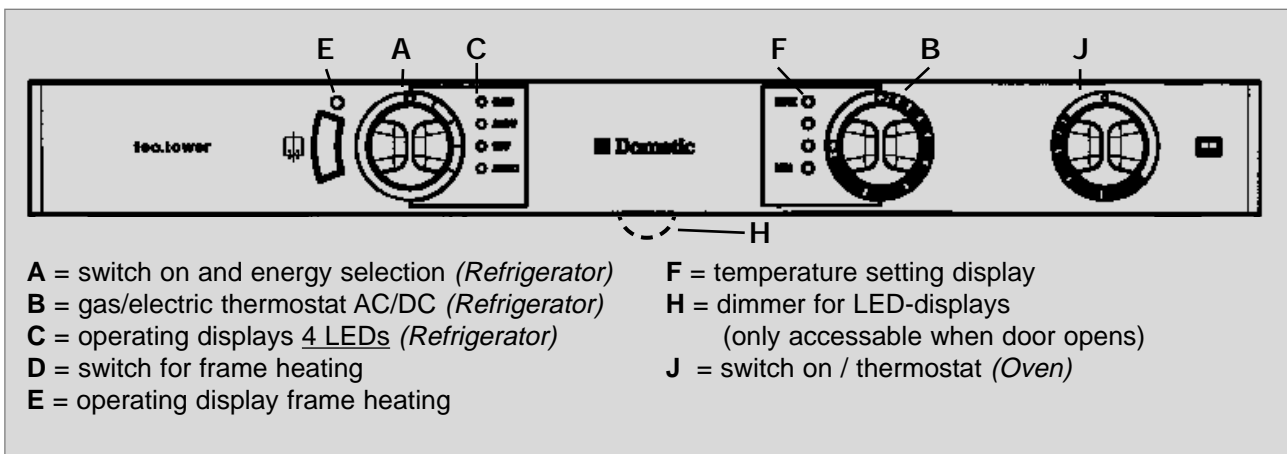
Manual energy selection / automatic ignition MES (RMT 7651, RMT 7851)



Button **A** is used for selection of the wanted energy source; Button **B** is used for setting the temperature. Using the gas modus, the ignition is carried out fully automatically (ticking noise can be heard)

for max. 30 seconds. Operation via electrical energy is indicated with **green**, gas operation is indicated with **yellow**.

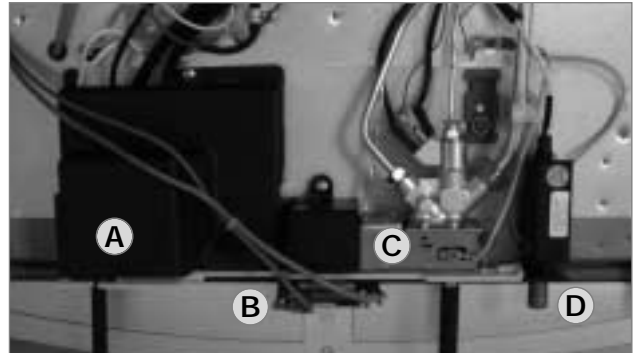
Automatic + manual energy selection / automatic ignition AES (RMT 7655, RMT 7855)



3.1 Components (RMT 7650, RMT 7850 only)

The equipping of the RMT 7XX0 (piezo)-fridges differs from the traditional piezo-fridges of the RM7-series, due to the standard battery-igniter for gas operation.

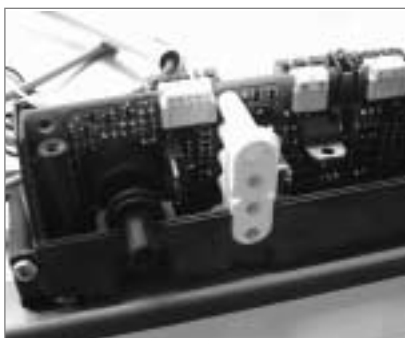
- A = Energy selector switch (underneath cover)
- B = Battery of the oven's igniter
- C = Compact fitting
- D = Battery igniter for gasburner of the fridge



3.2 Electronics/Power module (RMT 7xx1, RMT 7xx5 only)

The space-saving electronics is mounted directly behind the front fascia. The LED for status indication, energy selection switch and temperature regulation are integrated. In conformity with the models RMT 7xx1 and

RMT 7xx5 there are electronics for **MES** and **AES**. The **MES**-electronics does not have contacts for the D+ and solar signal. The **AES**-electronic is additionally equipped with the dimmer.



Typisch AES: 4 LED



Kennzeichnung mit Art.-Nr.

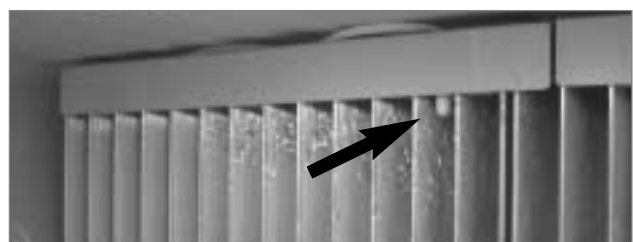


Codierte Kompaktstecker

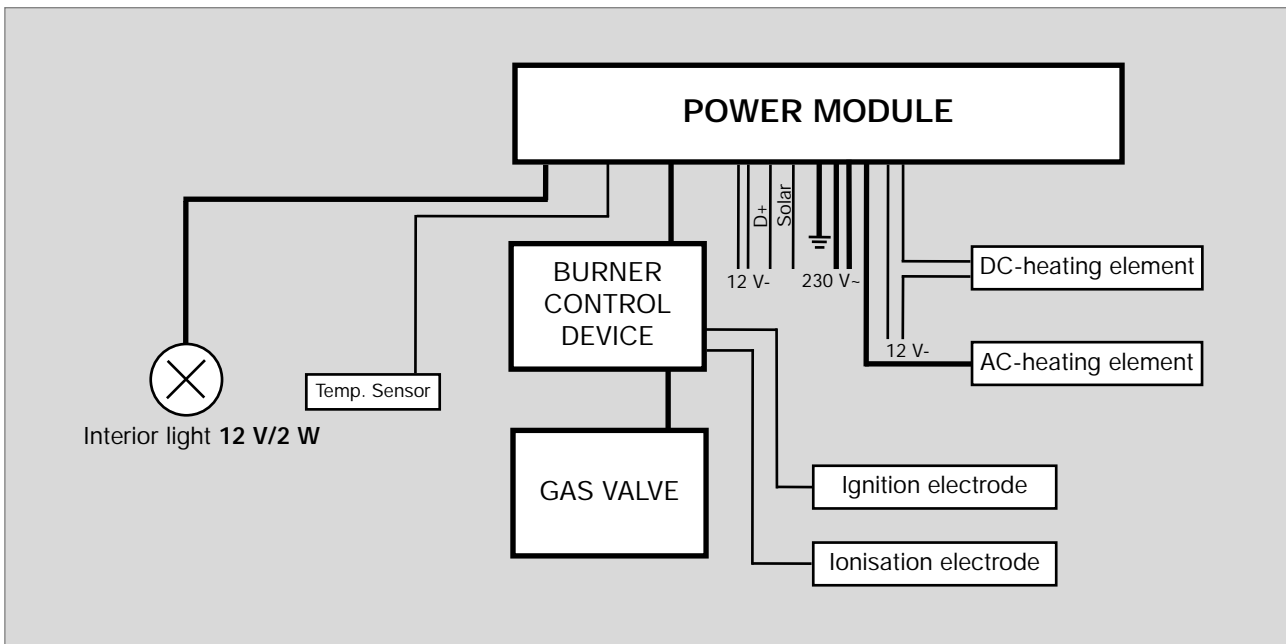
3.3 Temperature-Sensor / NTC (nur RMT 7xx1, RMT

All operation modes (DC/AC/GAS) are controlled thermostatically.

The temperature sensor is fitted at the post evaporator.



3.4 Wiring scheme (MES/AES)



3.5 Operating principle

Function electronics (Power module)

The electronics regulates the controlling of the function elements according to the selected energy source, e.g. power supply of the Burner Control Device. The AES-electronics additionally regulates the selection of the most convenient energy source, according to the priority "230 V~/12 V-/GAS", as well as the 230V~ under voltage control (no under voltage control at 12V-Modus), as well as the delay in switching to the gas mode during a refuelling stop.

The function electronics also controls the temperature sensor and the lighting. The electronics is protected against possible short circuit errors of the Burner Control Device with a 500mA fuse.

Burner Control Device P810

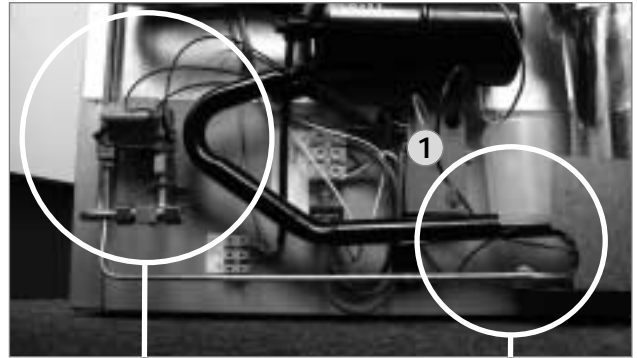
The Burner Control Device controls the ignition of the flame during the gas modus and supervises the ignition (security-ignition ca. 30sec.). Flame recognition and controlling is carried out via an ionization electrode in the burner chamber (flame failure device). For security reasons, there is an additional earth contact on the burner chassis, which leads to the Burner Control Device. The controlling of the gas valve GV100 is also carried out via the Burner Control Device.

Gasvalve GV100

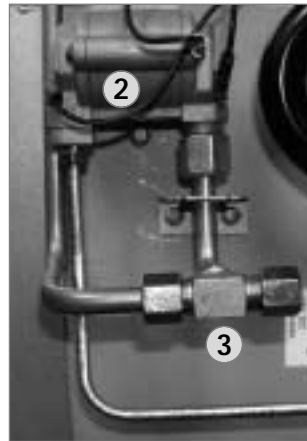
The gas valve GV100 consists of two series-connected valves (increase of security). The valve locks itself at a pressure of > 1 bar.

3.6 Gas operation components

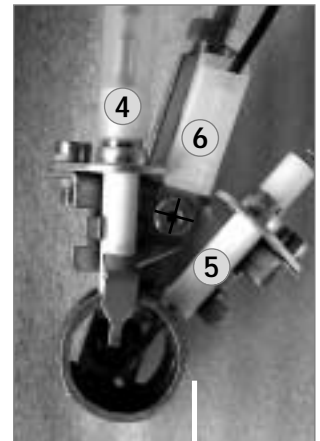
At the backside of the fridge the gas (safety) valve and the burner control device is assembled, which are operated with approx. 1.5V, controlled by the electronics.



- 1 Burner Control Device P810
(igniter, flame control, flame safety device)
- 2 Gasvalve GV100
(gas safety device, includes 2 serial mounted valves; automatically closed at a pressure > 1bar)
- 3 Gas connection below



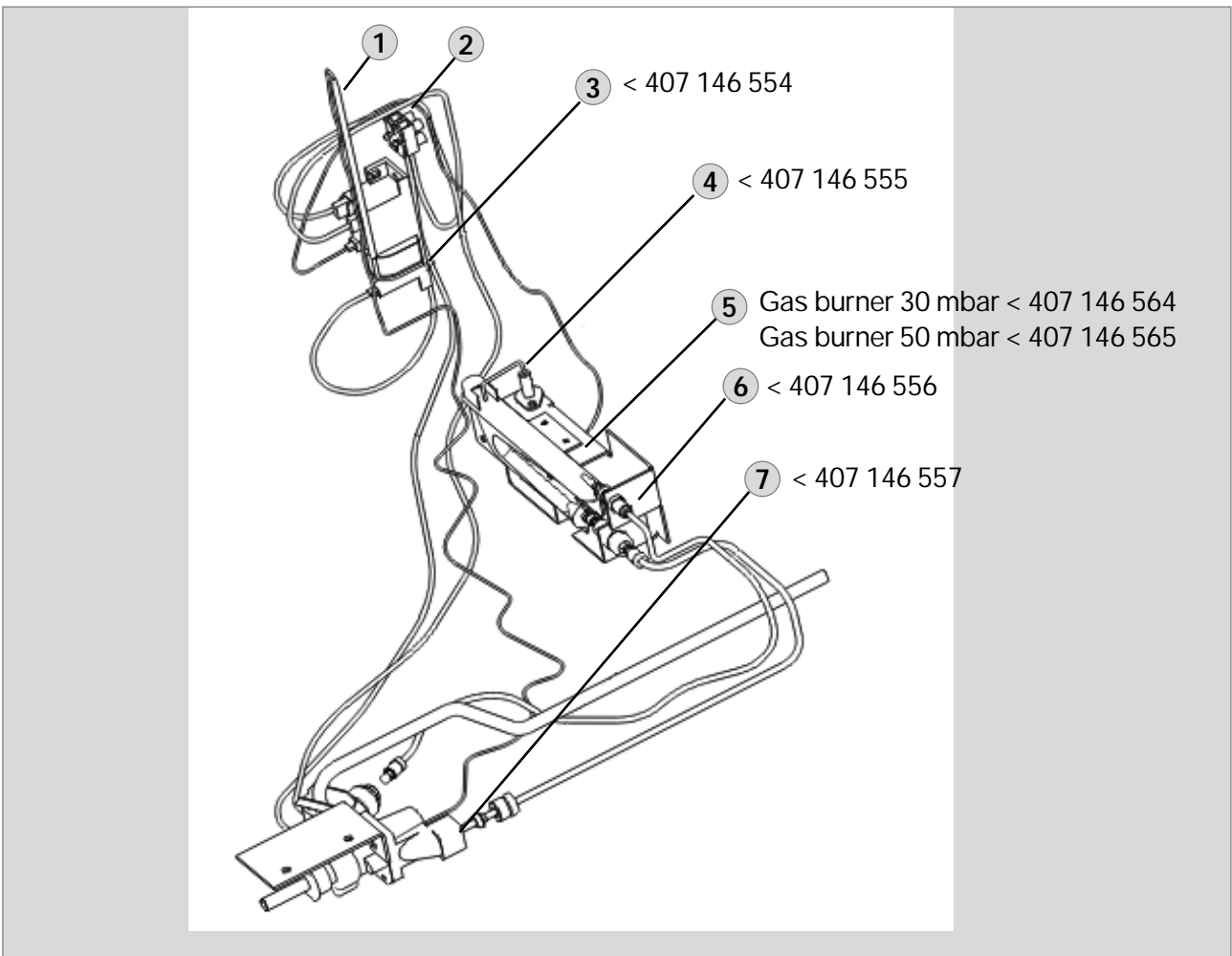
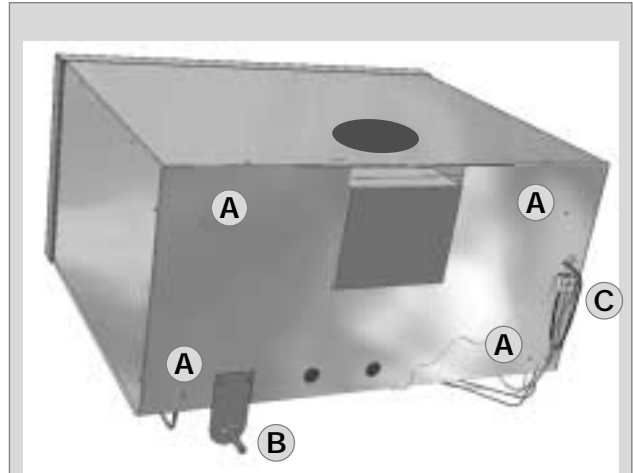
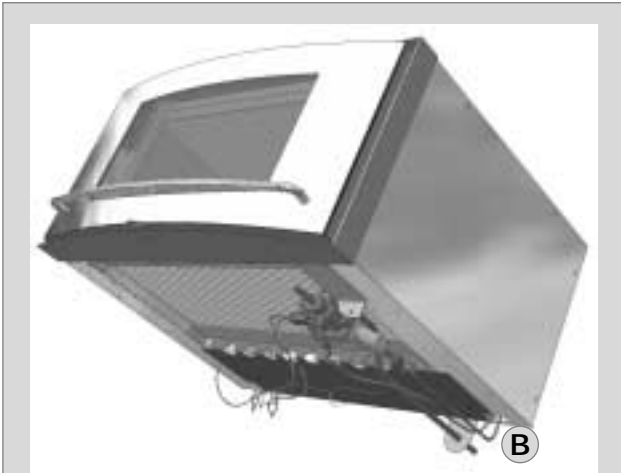
- 4 Ignition electrode
- 5 Ionisation electrode
- 6 Ground
(Connection to burner control device)



The ionization control is used for flame recognition in the burner chamber. The burner chassis serves as earth contact.



3.7 Components



- A = Screws of the rearwall
- B = Gas connection
- 1 = temperature sensor
- 2/C = Terminal 12 V DC
- 3 = Ignition device

- 4 = Ignition electrode
- 5 = Gas burner
- 6 = Thermo couple
- 7 = Gas thermostat

4.1 Electrical installation

Power line connection

The power must be supplied via a properly earthed socket outlet or hardwired connection. Where a socket outlet is used for the mains connection lead, the outlet must be freely accessible.

It is advisable to run the incoming supply through an 2 Amps on-board fuse or automatic circuit breaker. The power cable must be laid in such a way that it does not come in contact with hot components of the cooling unit/burner or with sharp edges.

Battery connection

The mains 12V connection cable is connected (observing correct polarity) to a terminal strip. The cabling must be by the shortest possible route to the battery and alternator respectively. (Connection A, B)

The 12V circuit must be protected with a 16A (20A RM 76xx) fuse

The heating element circuit A/B must be connected to the vehicle battery by a suitable ignition operated relay in order that the 12V supply is only live while the vehicle ignition is switched on. The connection C/D (interior light, electronics ; cable black / violet) must be permanently attached, and must not be cut-out when the vehicle ignition key is turned off.

Cross-sectional area of cable

Length of cable

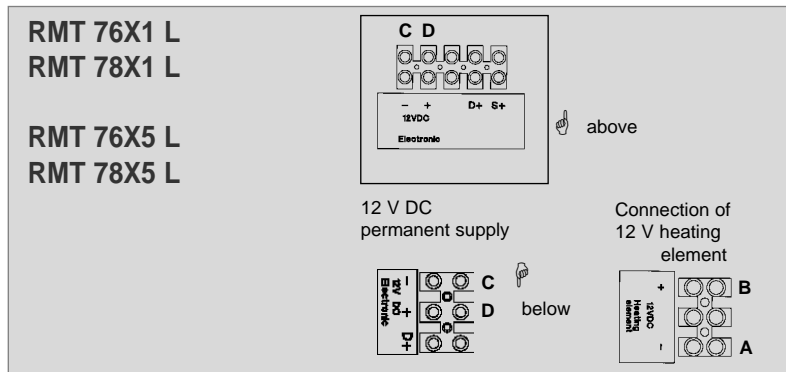
6 mm ²	< 6 m
10 mm ²	> 6 m

Cross sect.-area of cable: recomm. min. 1,5 mm²

Connections:

- A** = Ground heating element DC
- B** = Plus heating element DC
- C** = Ground electronics
- D** = Plus electronics

- D+** = alternator signal
- S+** = AES-input-control signal (solar charge regulator)



For RMT 7xx5 L-models only!

Terminal block

D+ connection:

The D+ control (Dynamo +) must be connected to the respective vehicle terminal.

(D+ = alternator signal while motor is running).

Solar control input (S+):

Connection only when using a solar system with a solar charging controller with AES output. The

respective solar charging controllers are available from a specialized dealer. The "Solar" (S+) control connection must be connected to the respective terminal of the solar charging controller (AES output).

Cable cross-sections

There are no particularly high current flows via the D+ and S+ connection; therefore no particularly large cross-section is required for these connections (approx. 1mm²).

Terminal block *MES RMT 7xx1* above

- red: + cable 12 V heatingelement via ignition operated relay and fuse 20A
- white: - cable 12 V heatingelement
- violett: + cable 12 V permanent connection to electronics
- black: - cable 12 V permanent connection to electronics
- D+ = Input Dynamo+ from alternator
- S+ = Input control signal from solar charge regulator

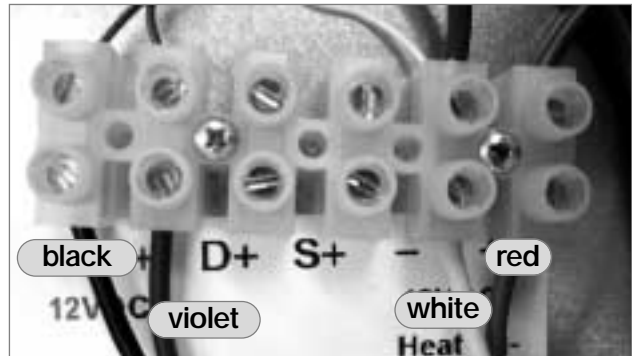


Fig. 1

Terminal block *AES RMT 7xx5* above

- sw: prepared D+ - cable
- red: + cable 12 V heatingelement via ignition operated relay and fuse 20A
- white: - cable 12 V heatingelement
- violett: + cable 12 V permanent connection to electronics
- black: - cable 12 V permanent connection to electronics

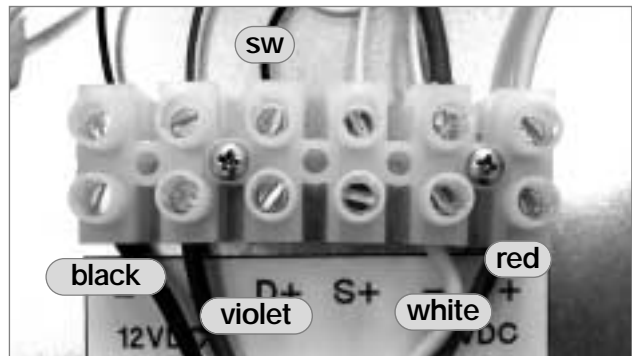


Fig. 2

Terminal block *RMT 7xx1, RMT 7xx5* below

At the models RM76xx additional terminals are assembled on the lower backside, seperated into connetions "Electronics / D+" and "Heating element".



Fig. 3

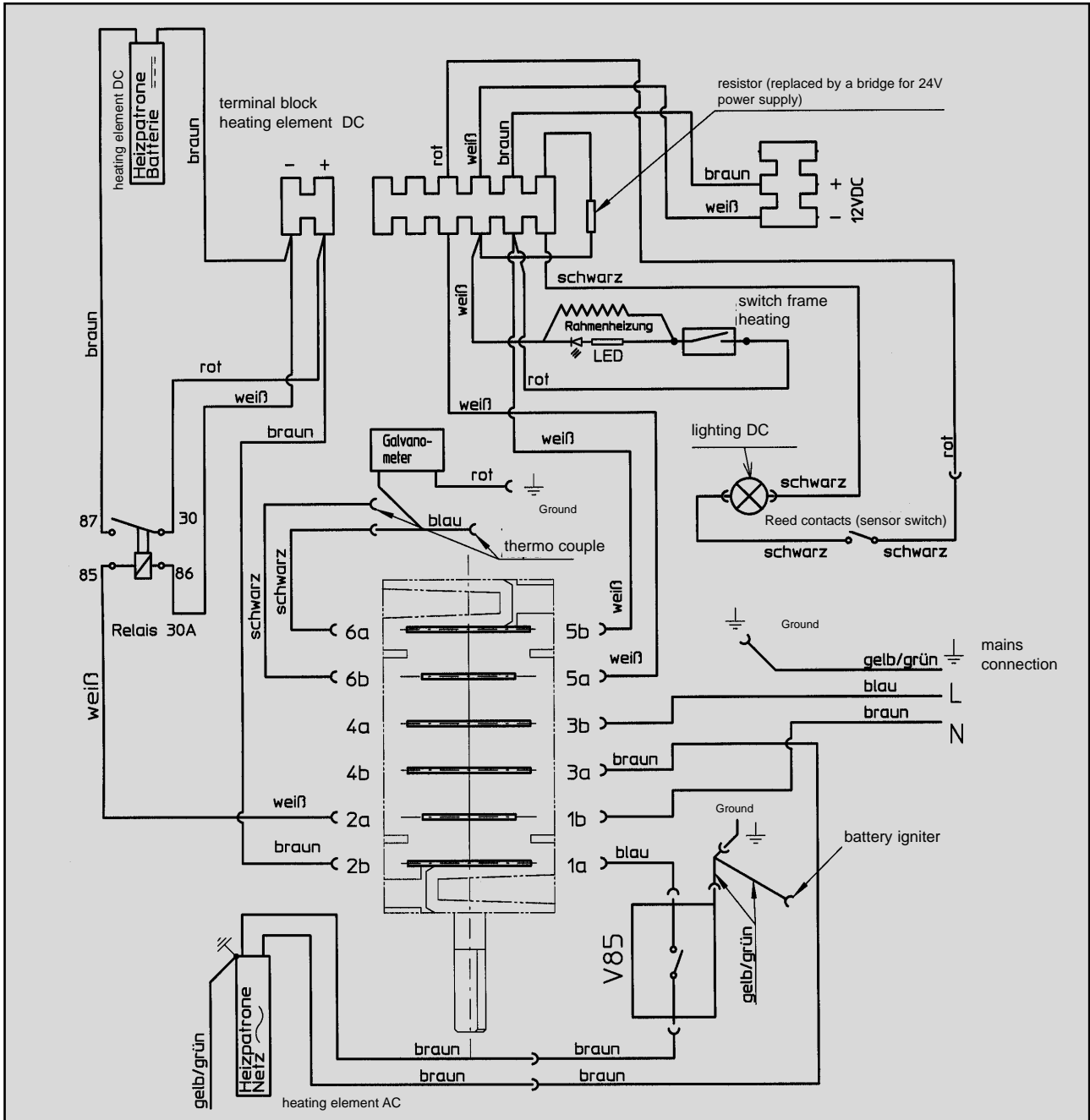


Please note:

12V DC" means 12V connection to heating element via ignition operated relay. Do not compare with "D+" - input signal of the alternator! "D+" and "S+" are different connections (Do not exchange each other) !

4.2 Wiring diagram

1. Wiring diagram RMT 7650, RMT 7850 / manual ignition



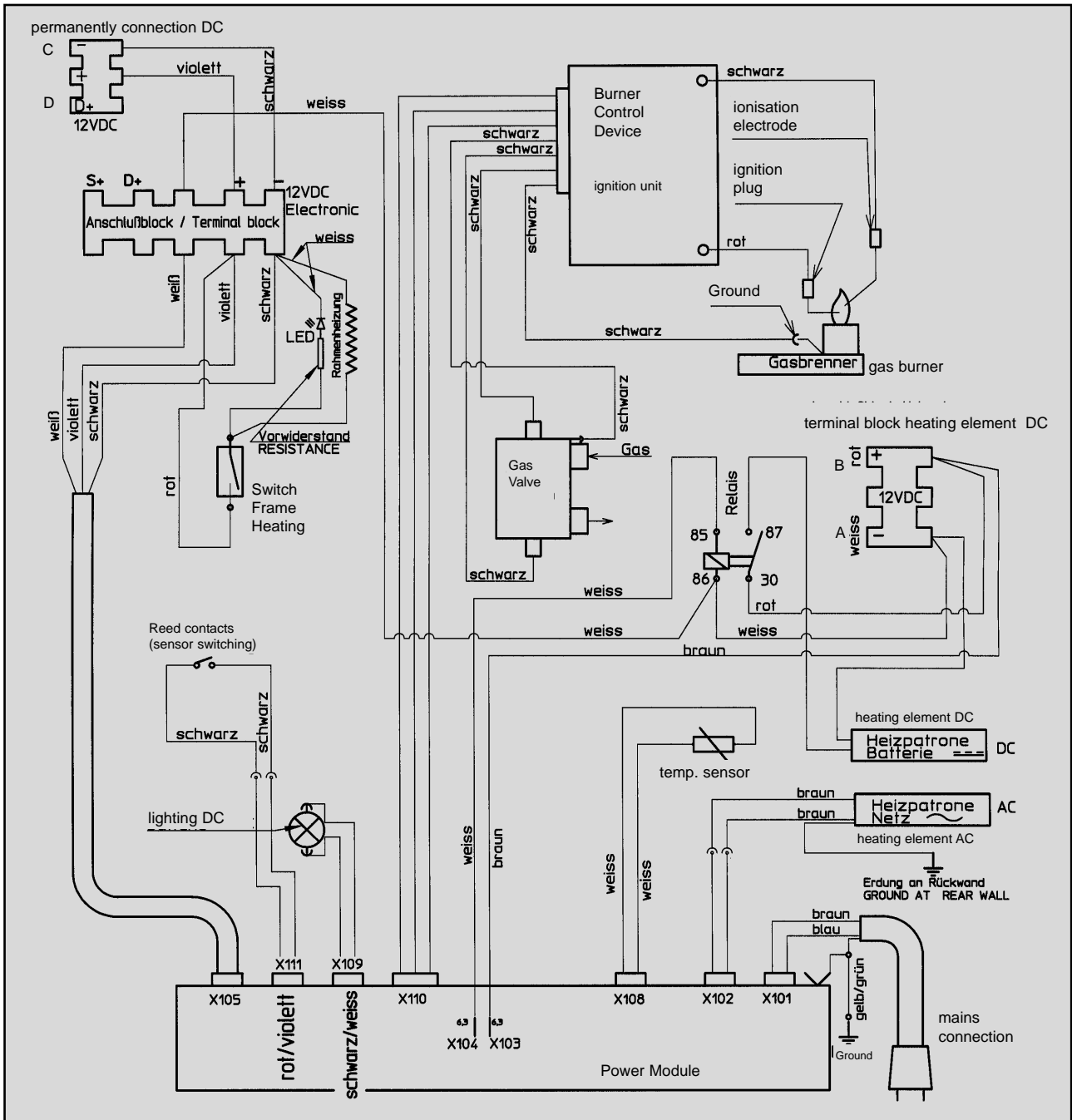
Connections:

- A = Ground heating element DC
- B = Plus heating element DC
- C = Ground frame heating / Interior light
- D = Plus Interior light

Colours:

- schwarz = black
- violett = violet
- braun = brown
- weiss = white
- grün = green
- gelb = yellow
- rot = red

2. Wiring diagram RMT 7651, RMT 7851



Connections:

- A = Ground heating element DC
- B = Plus heating element DC
- C = Ground electronics
- D = Plus electronics

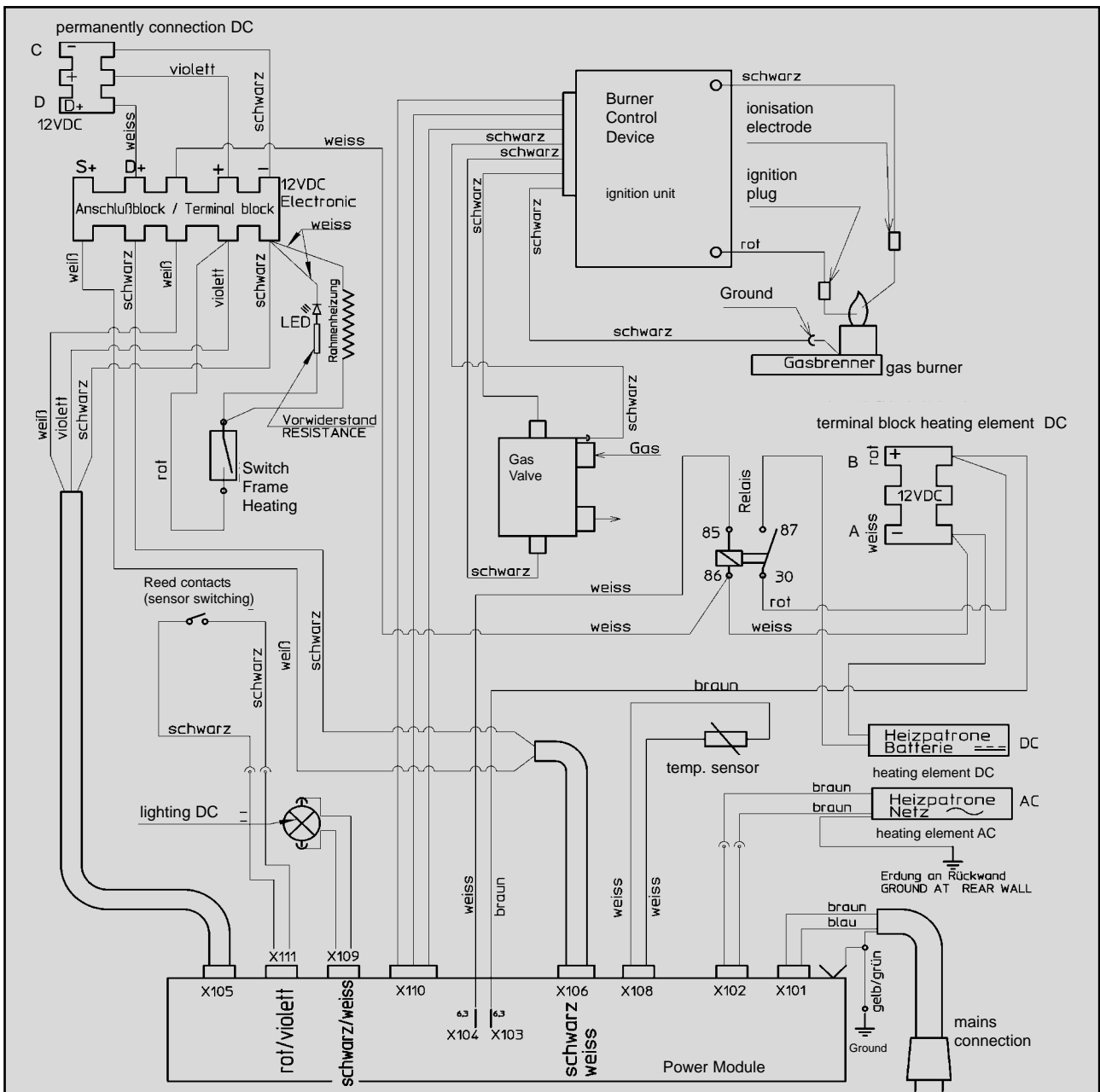
Colours:

- schwarz = black
- violett = violet
- braun = brown
- weiss = white
- grün = green
- gelb = yellow
- rot = red



Retrofitting from MES to AES :
Please note description of retrofitting ch. "5.0"

3. Wiring diagram RMT 7655, RMT 7855



Connections:

- A = Ground heating element DC
- B = Plus heating element DC
- C = Ground electronics
- D = Plus electronics

Colours:

- schwarz = black
- violett = violet
- braun = brown
- weiss = white
- grün = green
- gelb = yellow
- rot = red



Exchange of previous AES II -models with new RM 76xxAES :

The heating element circuit must be connected to the vehicle battery by a suitable **ignition operated relay** in order that the 12V supply is only live while the vehicle ignition is switched on. The connection **C/D** (interior light, electronics ; cable black / violet) must be **permanently** attached.

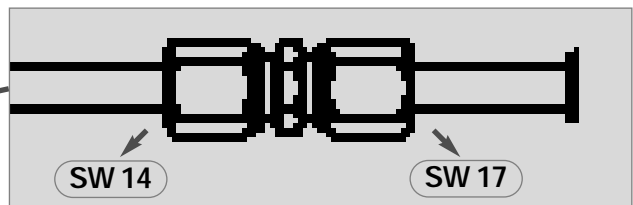
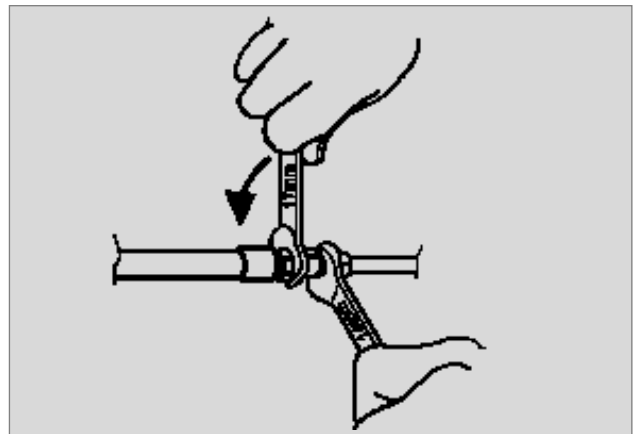
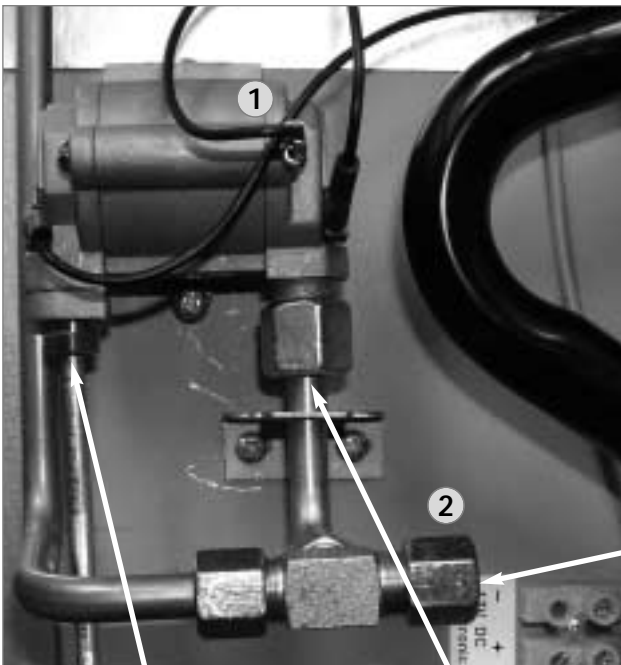
4.3 Gas-Connection

The gas connection to the appliance is effected by means of a suitable coupling tube fitting L8, DIN 2353-ST, complying with EN 1949 (e. g. Ermeto).



DO NOT UNSCREW THE PRE-INSTALLED GAS CONNECTIONS ON THE VALVE WHILE INSTALLING THE FRIDGE !

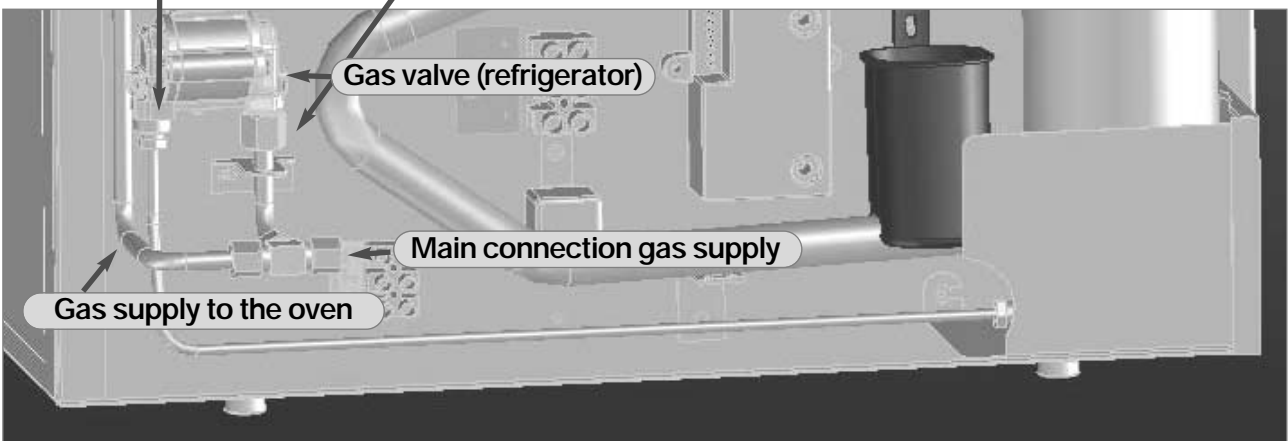
- 1 Gas valve GV100
- 2 Gas connection



max.
15 Nm

max.
20 Nm

Observe torques in the case of exchange the gas valve.



5.1 Upgrading MES – AES

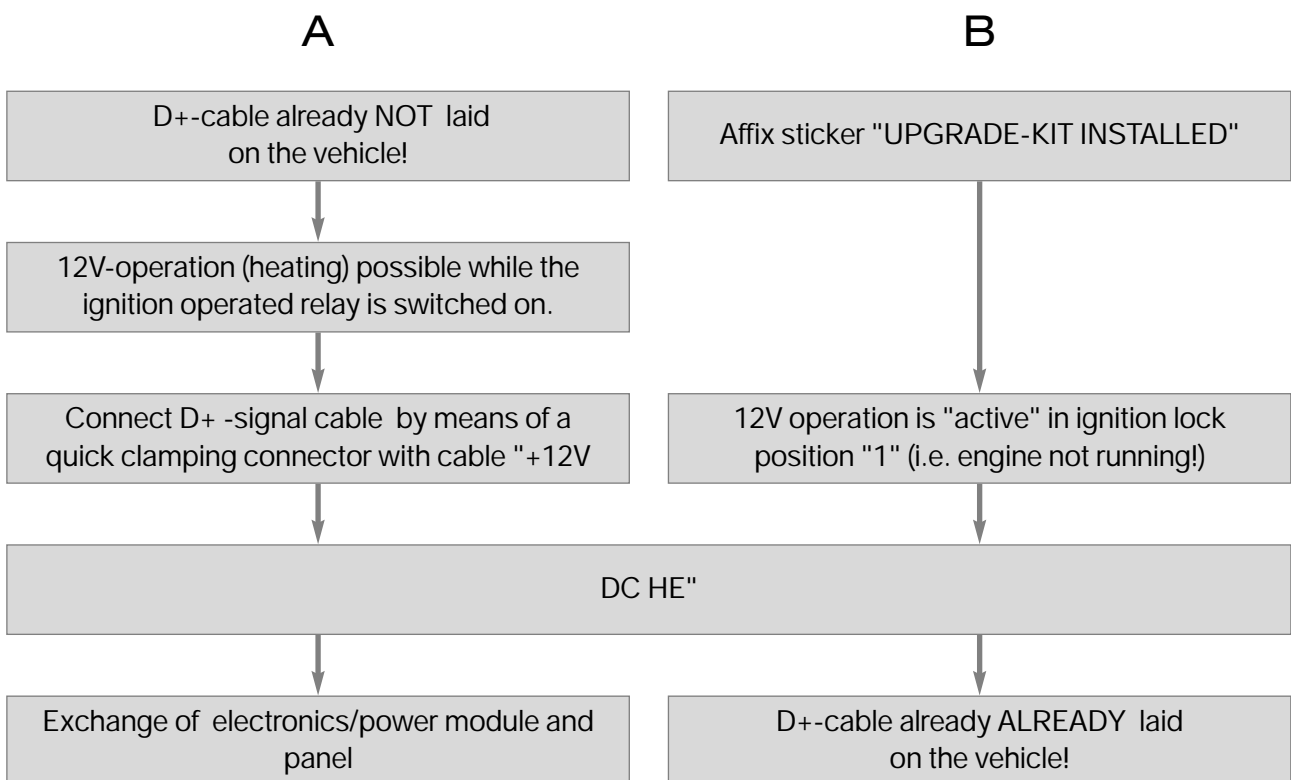
Purchasing an appliance RMT 7xx1 for manual operation, the customer has also the possibility to upgrade the appliance to the RMT 7xx5 with automatic energy selection. The possibility of free manual energy selection remains.

Changing the function electronics and setting in an appropriate front fascia, as well as changing the rating label (obtainable in a set) the upgrade

can fast and easily be carried out by an authorised service partner or a dealer.

An MES-fridge can be upgraded without taking it out of the recess.

Note: RMT 7xx0 - models with piezo ignition cannot be upgraded.



with "D+" - terminal

Connect prepared D+ -wire (of the vehicle)



12V operation is only "active" while engine is running (D+ signal from alternator).

Upgrade kit

The kit includes :

- AES-Power-Module
- Sitck-on lable
- D+/S+-Upgrade-cable

- Quick clamping connector
- New panel



Alteration of RMT 7XX1 into model RMT 7XX5

Pull off control knobs and put aside.



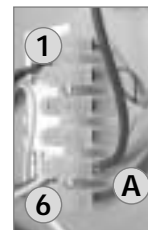
D+/S+ upgrade cable included in the supply



Loosen both screws and remove panel.

Loosen retaining screws of electronics housing
Pull out **MES** function electronics and pull off connectors (these are coded).

Situation A : D+ signal cable installed in vehicle.



Connect black strand of "D+/S+" cable to terminal "D+" and connect vehicle's "D+" signal cable.



12V operation is only "active" while engine is running (D+ signal from alternator).



Mount electronics module and secure.



Fit NEW panel and mount control knobs.



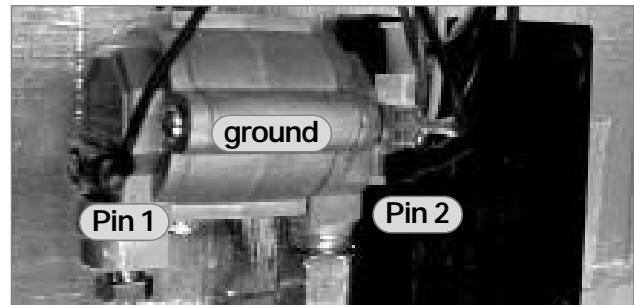
Attach sticker "AES Upgrade-Kit installed" next to data plate.

6.1 Gas valve GV100

Situation B : no D+/S+ signal cable installed in vehicle

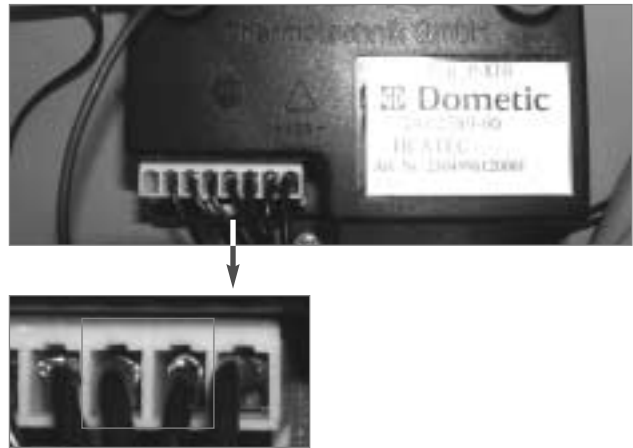
Insert black strand of "D+/S+" cable up to the stopper into the quick clamping connector together with the red cable **A** (+ terminal heating element, terminal **6**) and press connector together.

12V operation is "active" in ignition lock position "1" (i.e. engine not running!)



6.2 Burner Control Device P810

Connect D+/S+ upgrade cable (black/white) with plug-in contact **X106** on the electronics. Install **AES** function electronics.



6.3 Temperature sensor NTC

This component includes two gas valves in serial mounting (as part of gas safety device).

voltage supply : per valve approx. 0,7V - 0,9V (switched on gas rnode)

inductive resistance : per valve approx. 48-50 Ohm

Measuring points: voltage and resistance

valve 1 : pin 1 - ground

valve 2 : pin 2 - ground

Power supply : approx. 1.5 V

Measuring points: flat plug connector between pin 2 and pin 3

6.4 Electronics / Power module

NTC - Table of resistance

Temperature in °C	resistance in kOhm
0	27,70
5	22,29
10	18,07
15	14,74
20	12,11



6.5 12 V DC/Current draw

	AC mode	Gas mode	Auto AC mode	Auto Gas mode
MES RMT 7XX1	ca. 50 – 60 mA	ca. 60 – 70 mA	•	•
AES RMT 7XX5	ca. 60 – 80 mA*	ca. 70 – 90 mA*	ca. 70 – 90 mA*	ca. 90 – 100 mA*

*depends on temperature setting (switched on LEDs) and dimmed LEDs

6.6 Malfunction of the fridge

Failure		Possible cause
25	10,00	Fuse 500 mA: Protection of burner control device In case of a defective fuse, exchange the complete power module

Measuring point:

electronics / power module

loosen contacts X108

cable white / brown

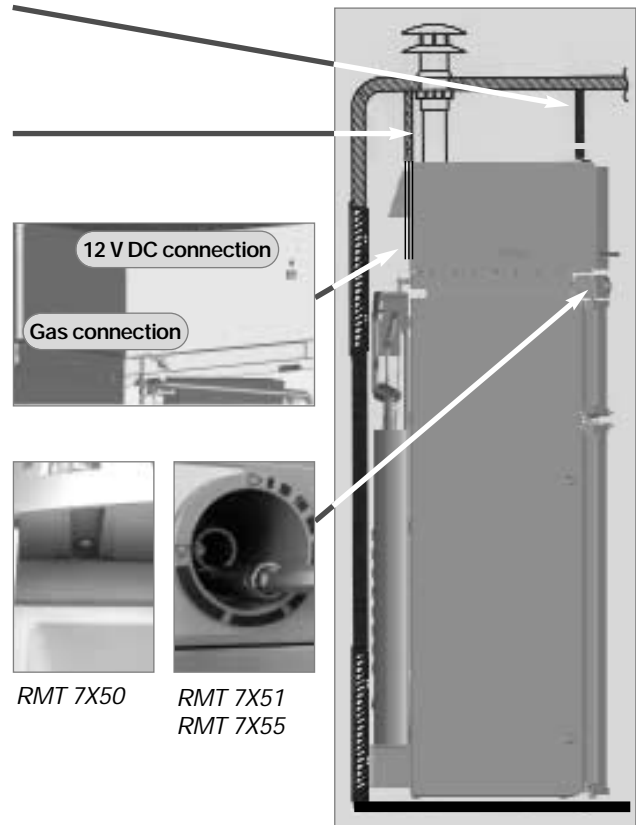
In case of a defective sensor, the fridge is in operation steadily (recognisable : temperature drops, cooling compartment rather cold)

6.7 Removal of oven

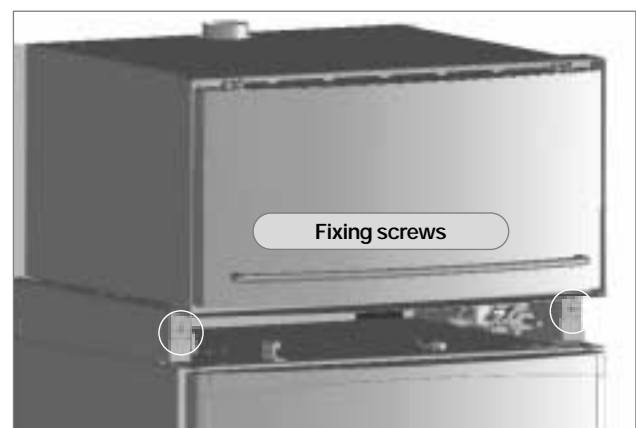


Before removing the oven, make sure, that the fridge is electrically voltage free and that the stop valve of the gas supply is closed!

- **Electrical operation (MES + AES)**
Buzzing noise when switching on = "blinking relay" on the electronics
- **Gas operation**
Yellow LED flashes immediately when changing into gas modus
- **Gas operation**
Deflagration when first ignition



- **Electrical operation**
12 V- connection faulty on the vehicle, voltage collapses under electrical load
- **Gas operation**
Burner Control Device or power module defective
- **Gas operation**
Ignition plug too close to the burner housing, Adjust according to Bulletin 599 5202-38



7.1 Service Bulletin

1. Dismantle the fascia (grid) above the fridge, installed by the OEM. The chimney is accessible.
2. Release the chimney tube and push it up.
3. Disconnect the 12V- and the gas connection. The connections are on the backside of the oven. When the fridge is built in correctly, the connections are accessible after taking out the upper vent grill.
4. Take off all turning knobs cautiously. Loosen two screws (see picture) and take off the front fascia

Pls note:

The flame indicator is tightened to the front fascia of piezo-fridges RMT 7xx0

After having loosened the screws, put down the fascia cautiously.

5. In order to be able to take out the oven more easily, demount the function electronics if you have a MES or AES fridge

Loosen the screws of the fixing of the oven. Then pull out the oven.

Pls note: Putting down the fridge, make sure the fittings will no be damaged.

Put down the oven sideways.

■ **RM 6XX0, RM6XX1, RM 7XX0
Zu hoher Prüfdruck**

Publication-Nr.: 599 5178-77 de/
Service 2003.07.31 BO/KV

■ **Umbau der Türverriegelung**

Publication-Nr.: 599 5182-05 de/
Service 2003.10.01 BO/KV

■ **Flamme hält nicht**

Publication-Nr.: 599 5183-07 de/
Service 2003.10.16 BO/KV

■ **Service-Kit Gasanschlussrohr**

Publication-Nr.: 599 5190-29 de/
Service 2004.01.21 BO/KV

■ **Leak test valve GV100**

Publication-Nr.: 599 5194-66 en/
Service 2004.02.26 BO/KV

■ **Ignition problems RM 7XX1 and RM 7XX5**

Publication-Nr.: 599 5202-38 en/
Service 2004.06.08 BO/KV



Dometic GmbH
Technisches Büro **Service Dokumentation**

In der Steinwiese 16
D-57074 Siegen

Tel.: +49 (0) 271 / 692-0
Fax.: +49 (0) 271 / 692-322
www.dometic.de/caravan
www.dometic.com