

3kw Air Heater

Installation & User Manual



D3/D5 Diesel 12V technology instruction

D3/D5 Diesel 24V installation operation user manual

Catalog

I . Introduction.....	01
1. Heater application.....	01
2. Installation,operation safety notice.....	01
II . Product knowledge.....	02
1. Heater installation kits.....	02
2. Data	03
3. Dimension.....	03
III . Installation.....	04
1. Install location.....	04
2. Installation angle and fasten.....	05
3. Air inlet pipe and exhaust pipe installation.....	06
4. Circling air pipe installation and notice.....	07
5. Fuel intake.....	08
IV . Operation and control.....	10
1. Fuel intake.....	10
2. Heater control installation.....	10
3. Control method.....	10
V . Circuit	11
1. Heater wiring.....	11
2. Circuit diagram.....	11
VI . Trouble shooting, maintenance,service.....	12

I Introduction

Heater application

Heater work independent to engine,
Suitable for:

- any kind of vehicle, trailer
- construction machinery
- farm oriented machinery
- boat, ferry and yacht

Application

- Preheat, defrost
- heat and keep warm
 - cabin, work shop
 - Cargo space
 - Bus or mini bus
 - RV

Not allowed:

- keep running for long time:
 - Install in bedroom or in garage
 - Boat cabin while people live in
- using for heating or dry:
 - Creature
 - items
 - Tank or container

- **circling hot air outlet**
when install circling air pipe,
should well protected from temperature
sensitive parts.
- **exhaust pipe**
avoid touching combustible material

Safety knowledge

- not allowed:
 - change heater principal parts.
 - use parts not confirm by dealer.
 - should fellow manual when install.
- only use parts provide by dealer

- not use heater in dust environment
keep away when running heater:
 - fuel storage
 - charcoal storage
 - lumber storage
 - barn or alike

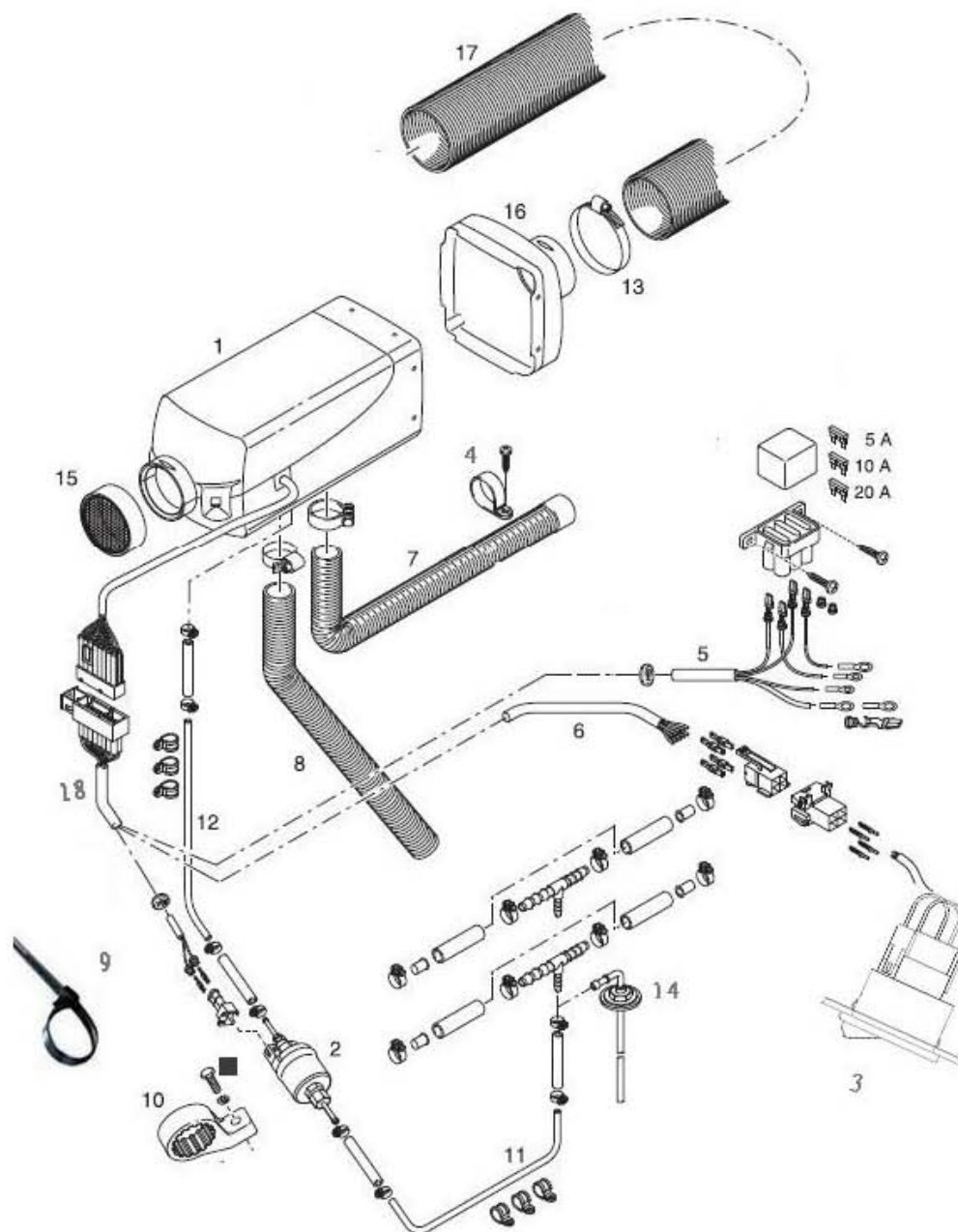
Safety for install and operation

- **location of heater installed**
Avoid using heater in temperature Sensitive
environment
- **exhaust system**
install outlet of fume in this way:
That fume cannot floats in cabin by window
or door
- **burner air intake**
Not draw air for burner from inside cabin
Not blocking burner air intake
- **circling air intake**
Circling air should be fresh air form inside
cabin, And from clean area
Must protect the air inlet with guard fence

- **turn off heater before go into gas station**
- **if fuel leak from heater, Turn off heater
at once and contact dealer**
- **when heater is running, Must not stop it by
power cut off**

II Product Information

Heater and installation kits



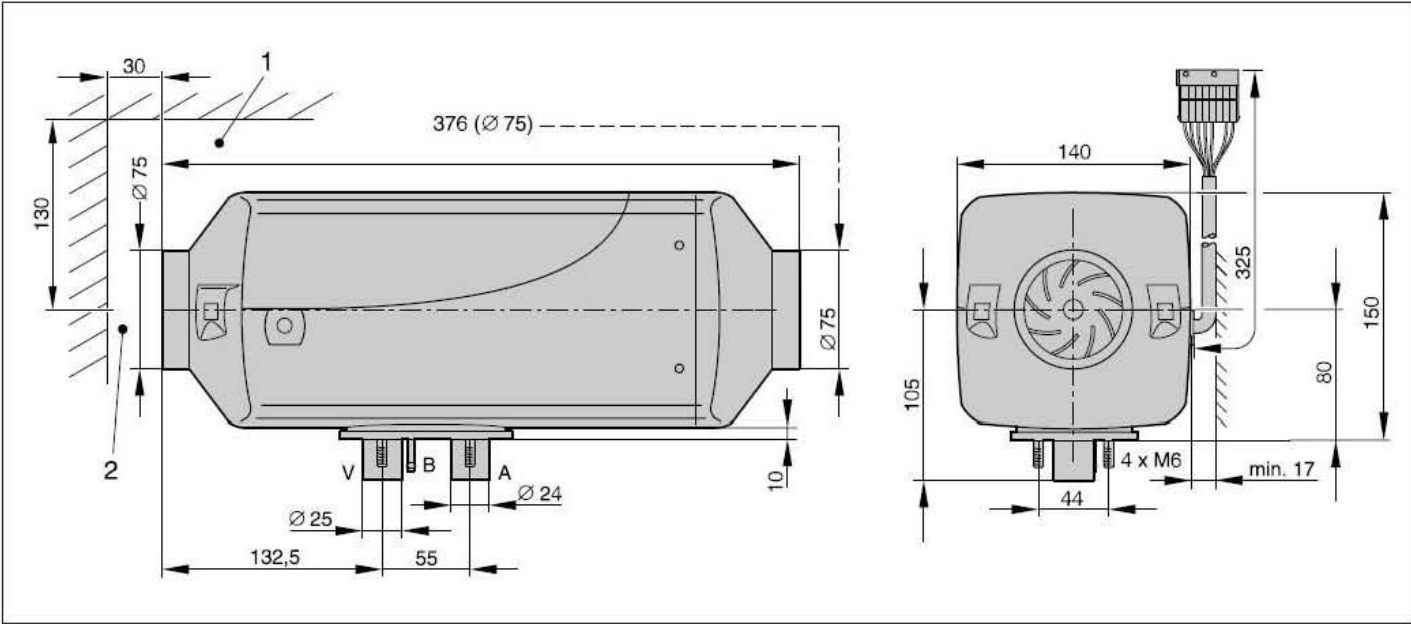
1.heater; 2.dose pump; 3.rocker switch; 4.exhaust duct fastener; 5.power wire, +/-; 6.control model wire; 7.exhaust duct; 8.burner air intake pipe; 9.fastener; 10.dose pump bracket; 11-12.fuel intake hose; 13.air outlet hoop; 14.fuel intake; 15.air intake grille; 16.outlet air housing; 17.outlet air pipe; 18.wire.

II Product Information

Tech Data

model	XL-AIR D5					XL-AIR D3				
Heating medium	air					air				
Heating grade	grade					grade				
	super	high	middle	low	off	super	high	middle	low	off
Heat output (w)	5000	3500	2000	900	—	3000	2200	1600	900	—
Air flux (千克/时)	185	150	110	60	24	150	120	90	60	24
Fuel consumption (l/h)	0.64	0.40	0.28	0.11	—	0.38	0.28	0.2	0.11	—
Power consumption (w)	40	24	13	7	—	24	16	10	7	—
start										
Power voltage	12V or 24V					12V or 24V				
Low voltage limited	10.5V or 21V					10.5V or 21V				
High voltage limited	16V or 32V					16V or 32V				
Environment temp	running		stop			running		stop		
	-40℃ to +70℃		-40℃ to +85℃			-40℃ to +70℃		-40℃ to +85℃		
	-40℃ to +50℃		-40℃ to 125℃			-40℃ or +50℃		-40℃ or 125℃		
Air intake temperature	Highest +40℃					Highest +40℃				
weight	Around 4.5 Kg					Around 4 Kg				

Dimension



1.minimum length for uncover or plug change

2.minimum distance for circulate air intake

*chart is for XL-AIR D5, FOR XL-AIR D3, length is 326mm,

Others are the same

A = exhaust

B = fuel

V = burner air intake

III Installation

Location of installation

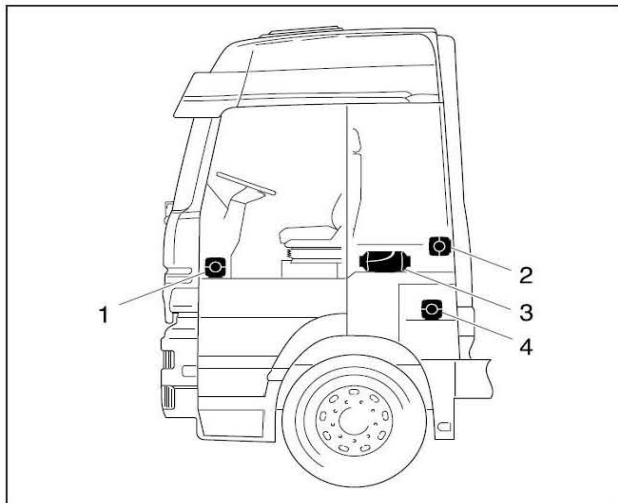
Fasten heater with 4 screws on floor or wall Of cabin.

Keep enough space for heater service or repair
Or plug change(chart show recommend location)

In truck

For truck, basic install inside cabin

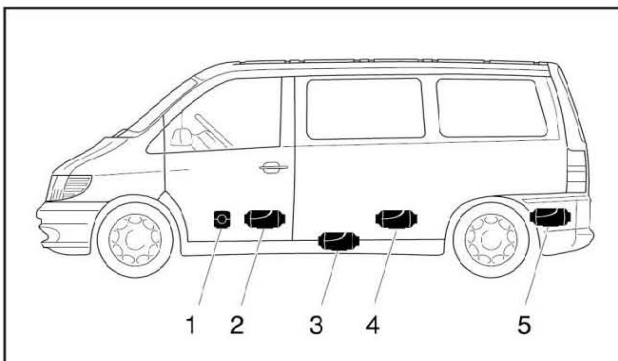
If space is limited , could put it in tool box
Or cargo cabin



- 1 located under seat beside driver
- 2 located back wall of cabin
- 3 located behind driver seat
- 4 in tool box

In car/mini van

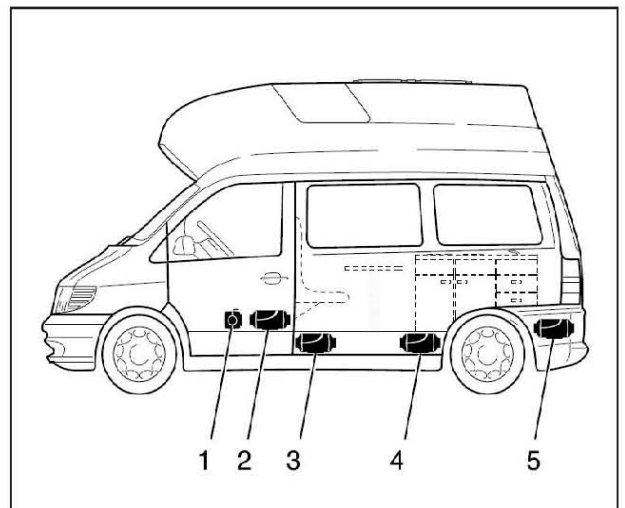
For car/mini van, principal install in cabin
Or in trunk If possible
Also could fit it under cabin floor
(avoid water splash)



- 1 located under seat beside driver
- 2 located between front seats
- 3 located under cabin floor
- 4 located under back seat
- 5 located in trunk

In RV

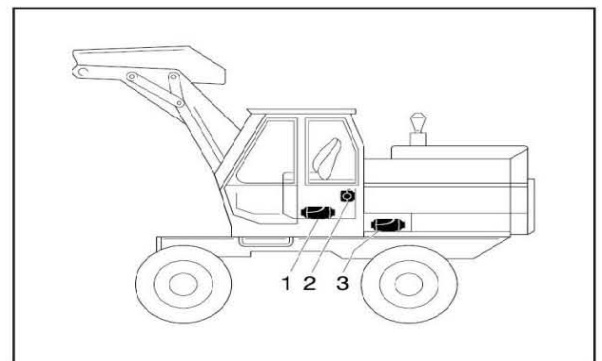
for RV, basic install inside cabin or in trunk
Or under floor of cabin(avoid water splash)



- 1 located under seat beside driver
- 2 located between front seats
- 3 located under cabin floor
- 4 under cargo cabin
- 5 in trunk

In CAT cabin

- 1 on cabin floor
- 2 on cabin wall
- 3 or inside suitable location

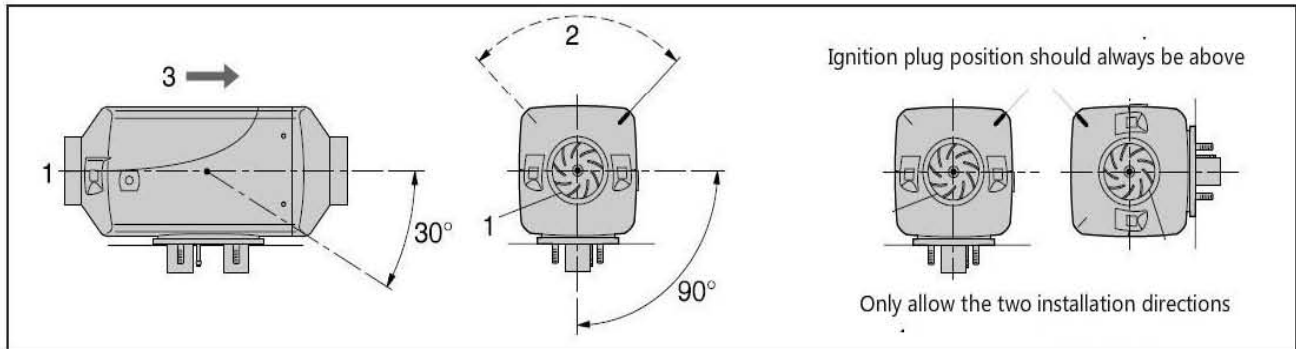


III Installation

Heater Fasten and tilt angle

Tilt angle allowed when install

As show below, install heater evenly. if not possible, 30° down tilt angle allowed of direction of air outlet, or 90° rotation maximum, plug face up.

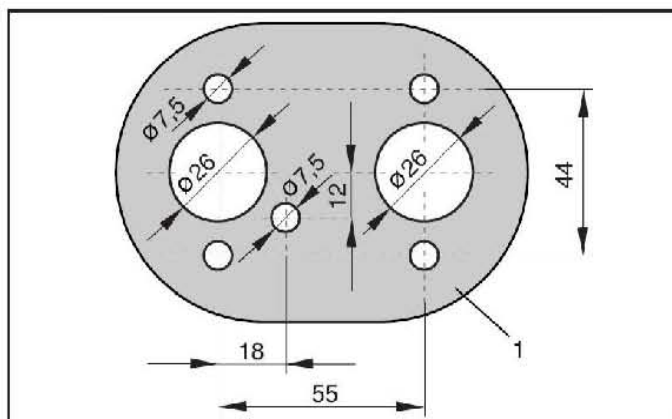


1 circling air intake; 2 plug; 3 direction of air blow .

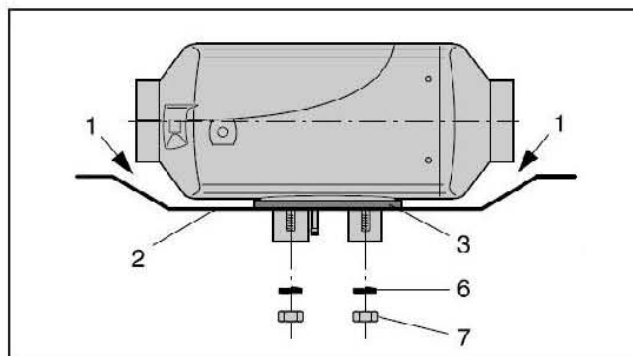
Install and fasten

Cut Holes for burner air inlet and outlet and fuel pipe on the cabin wall or floor before install. Make the heater install location even and smooth.

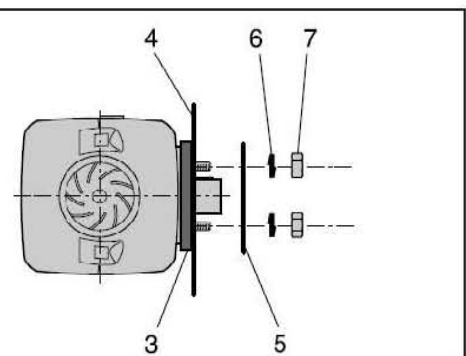
hole plan



Fasten the heater on the floor



on the wall



1 leave enough space for heater in case for checking, and air circling; 2 smooth the surface after hole cutting; 3 must install washer between heater and wall; 4 chose smooth space of wall or floor to install; 5 install backing if need; 6 spring washer; 7 nuts M6.

III Installation

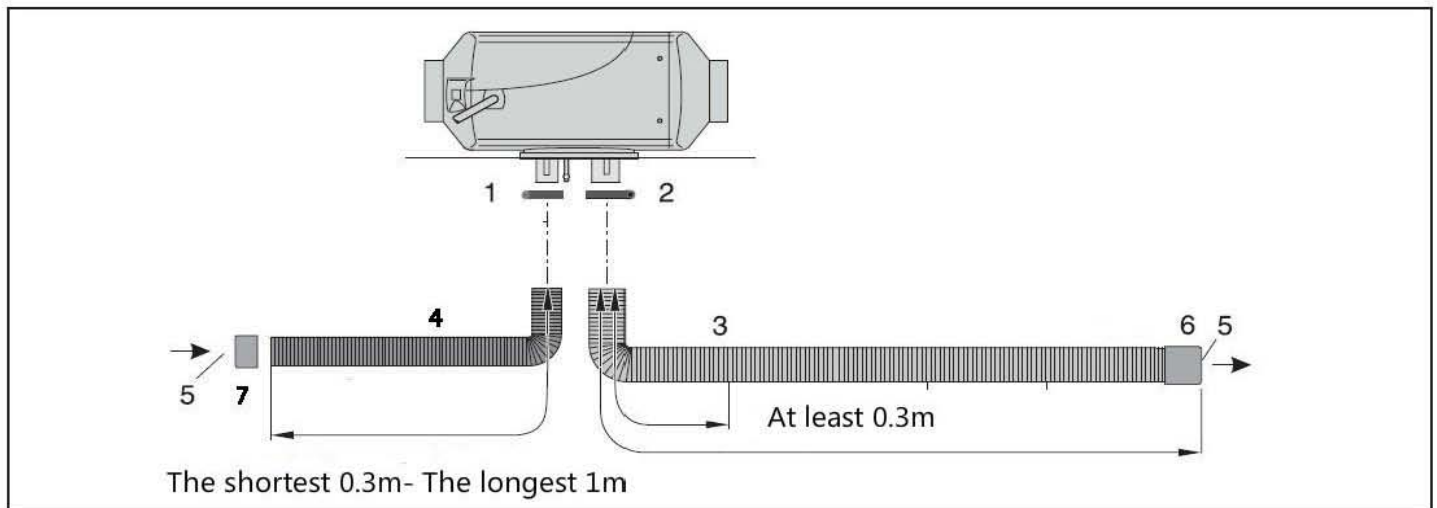
Burner air intake and exhaust pipe installation

Burner air intake

There is soft burner air intake pipe in kits
Ø25mm
Could cut it shorter to 30cm
Or extend it to 1m.
Fasten it with hoop on heater and
Fasten the other end with strap

safety knowledge

- install burner air intake in clear area.
- avoid hot air draw directly to inlet
- avoid burner air inlet face direction of vehicle going
- tilt down a little in case condensate water flow out



Exhaust system

There is a Ø24 exhaust pipe in kits.
If needing, could cut exhaust shorter to 30cm
Or extend it to 1m
Fasten one end to heater with hoop,
Other end fasten to vehicle body

1, 2 hoop; 3 exhaust pipe;
4 burner air intake; 5 inlet & outlet;
6 exhaust pipe end ring; 7 air intake rand

Safety knowledge

Exhaust pipe and parts attach to it will be very hot when heater is running.

so, properly install exhaust pipe.

- exhaust pipe must be outside cabin
- exhaust pipe must not exceed to car body wideness
- tilt exhaust pipe outlet down a little
- not affect the vehicle function when heater installation
- keep away temperature sensitive vehicle parts
For example fuel pipe, wire etc
- fasten exhaust pipe properly in case loosen
(fasten both end and centre of exhaust pipe)
- avoid fume be draw in burner air intake

- check exhaust outlet often, clear the blocking
- exhaust outlet should not face the direction vehicle going

Warning

fume is poison

So install the exhaust pipe properly

- keep away the exhaust pipe while heater is running
- if working around exhaust pipe, turn off heater and waiting it cool down
- avoid breath in fume

III Installation

Circling air pipe install

Circling air pipe

There is one Ø75mm soft pipe in kits

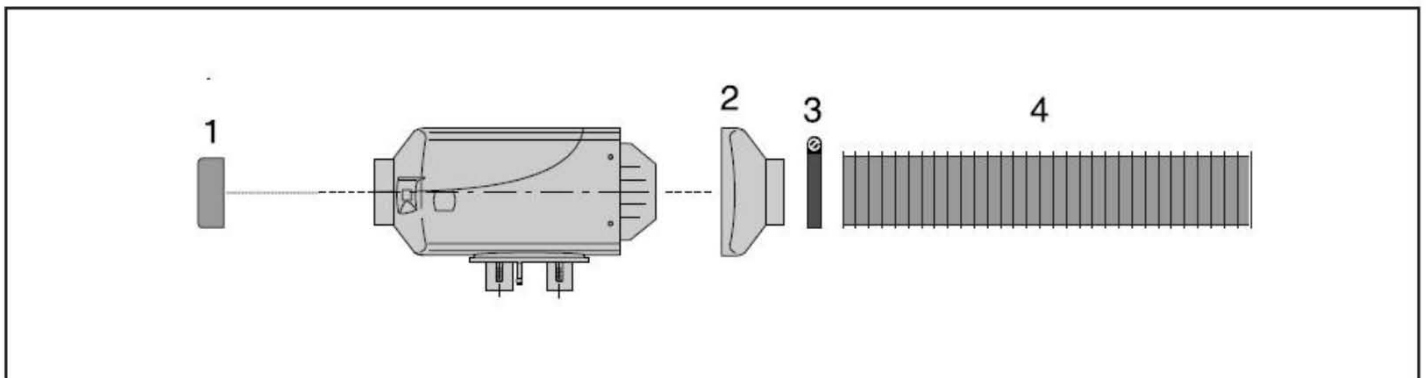
Safety knowledge

- when install circling air pipe, keep away Hot air outlet from temperature sensitive Vehicle parts or person,
In case burning hurt
- keep away from the hot air pipe when heater Is running. if working near hot pipe,
Turn off heater and waiting it cool down



Notice

- avoid circling hot air be draw into air inlet Make sure no dust or salt mist be draw in
- avoid circling hot air be draw into air inlet
- if heater not work properly, the air pipe the air pipe could over hot, hot air may be 150°C, pipe surface could be 90°C. So only use original parts
- check the hot air temperature, should not exceed 110°C after heater running 10m, measure it 30cm away air outlet (20°C is air intake)
- keep air pipe in good shape, avoid step on, Jam, in case damage or hot hurt.



- 1 protecting rack
3 soft air pipe ring

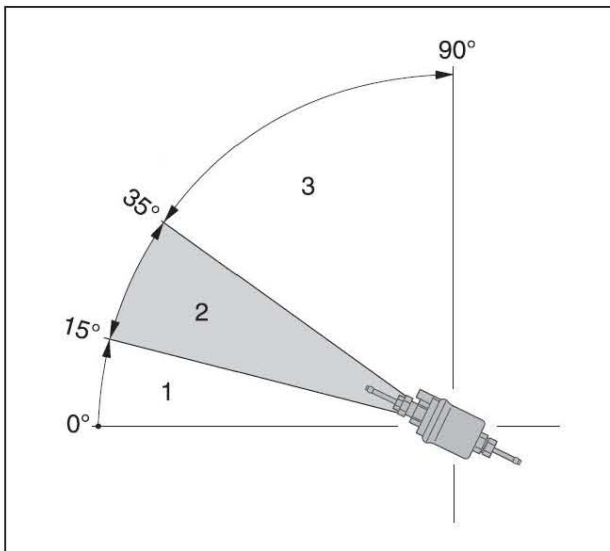
- 2 air outlet rack
4 soft hot air pipe

III Installation

Fuel intake

Dose pump installation

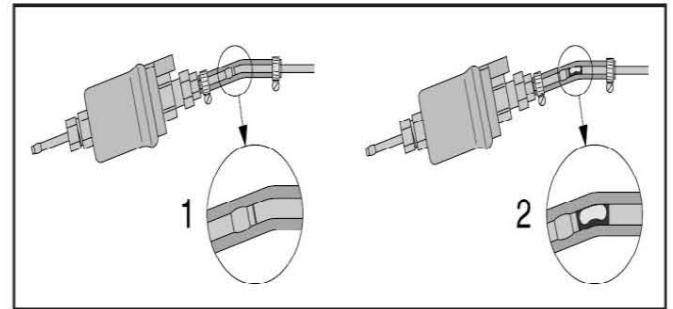
Tilt up the outlet of dose pump when install
Tilt angle should be 15° to 35°
As show below:



- 1 avoid 0° -15° installation
- 2 perfect 15° -35°
- 3 allowed 35° -90°

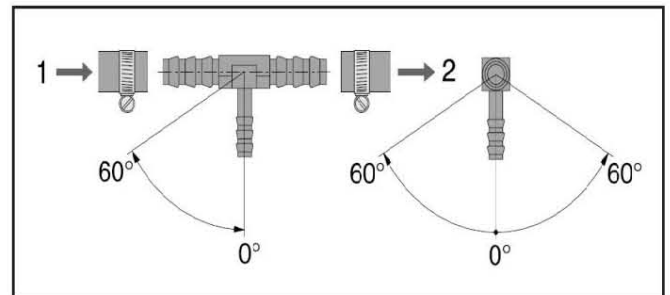
Fuel pipe connecting

well-connect the pump, fuel pipe with soft connector or T connector avoid air bubble in side the pipe



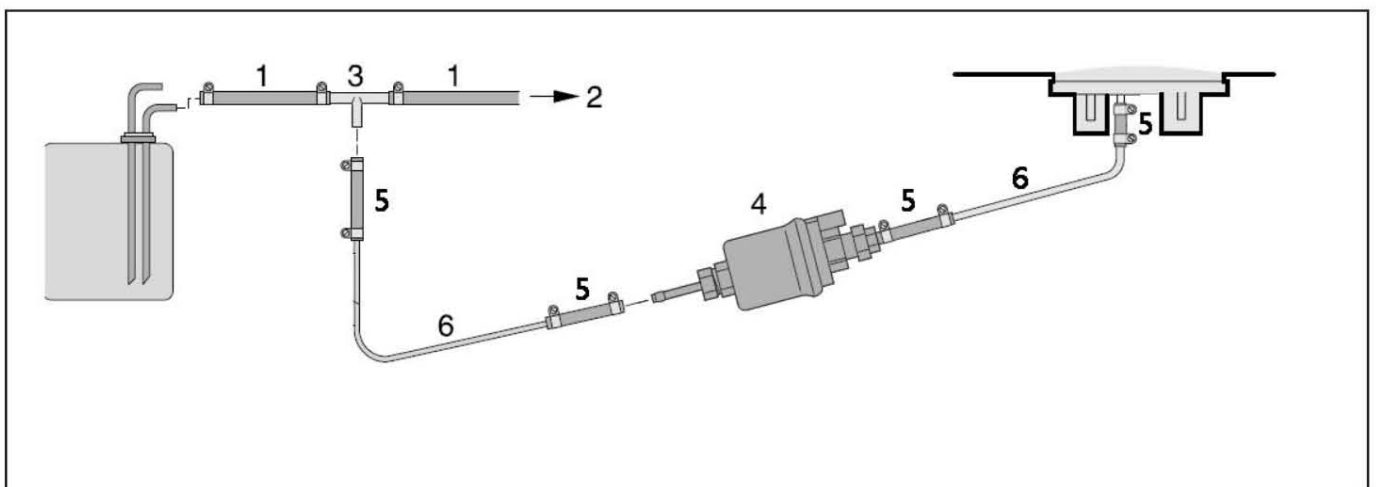
1 right; 2 wrong-bubble formation

T connector angle



1 from tank; 2 to engine.

Install T connector near tank

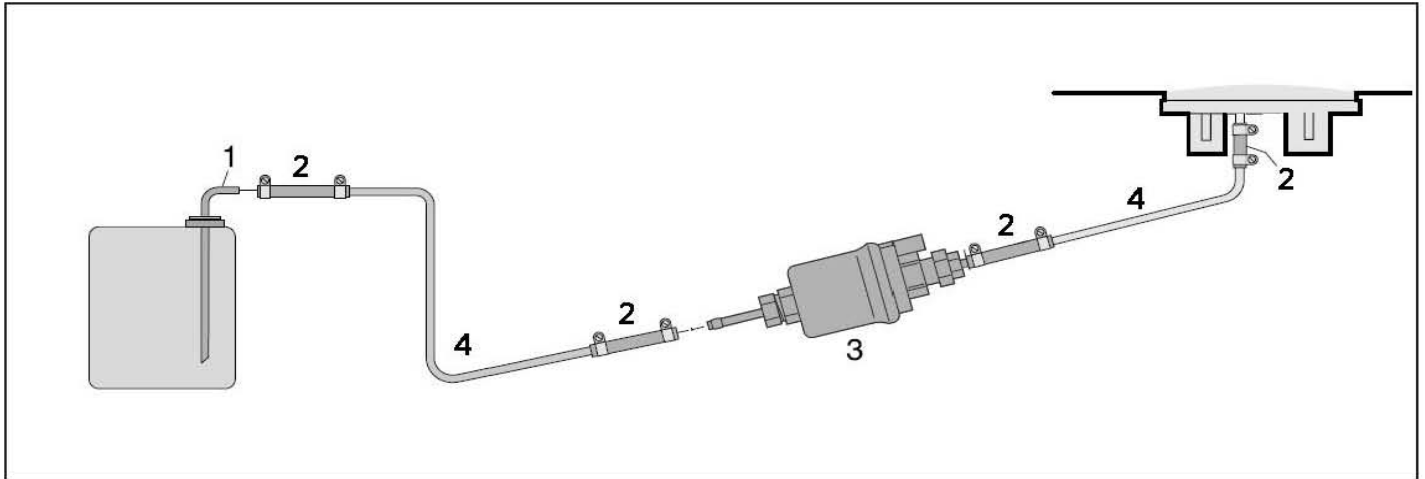


- 1 from fuel tank
- 3 T connector
- 5 soft connector

- 2 to engine pump
- 4 dose pump
- 6 fuel pipe

III Installation

Sketch of fuel intake



1 fuel intake module
3 dose pump

2 flexible connection nipple
4 fuel pipe

1.height dose pump to heater
2.maximum fuel height
3.minimum fuel height



Notice:

- a .vertical height of fuel below tank, **a=max 3m**
- b .maximum height dose pump to tank,
Diesel, **b = max 1m**
gas , **b = max 0.5m**
- c .maximum height pose pump to heater (dose pump should below the heater) **c = maximum 2m**

Notice for fuel pipe install

- well fasten the pipe, avoid vibration
- when install fuel pipe, make sure the pipe not Too tense and avoid traction,friction,vibration
- keep away fuel pipe high temperature parts
May run alongside vehicle fuel pipe
Should protect it if cross hot pipe.
- after heater running for a while,
Double check fuel pipe and connector,
make sure no loosen,leakage.
- never supply fuel by vehicle pump

Requirement for T connector install:

should be install between tank and vehicle pump
Never install between vehicle pump and engine
never use T connector if vehicle fuel pump is inside in tank, use fuel intake module instead.

Fuel pipe service notice

- winter time before using heater,check fuel pipe And connector,make sure no loosen,worn out,leakage
If anything wrong,fix it
- long time not running,fuel pipe could be empty
Its normal that several time fail start procedure will lead success start

IV Operation and control

Fuel intake

- after heater install, should take procedure
To supply fuel to heater. otherwise
Heater could fail to start
- right fuel supply procedure: After heater install and well wiring, Turn on ls, then turn off ls , repeat 8 time . Then heater will automatic matic pump fuel. The dose pump will work for 5m ,and switch lighting. Will flash on and off with 1hz, and buzzer blip. At this time, keeping watch the fuel pipe If fuel inside the pipe come to near heater fuel inlet, say 10cm, stop fuel supply by flip switch once.

Control by the Rotary Controller

1. The rotary controller can be used to modulate four main gears: the low gear, the middle gear, the high gear and the super high gear. The position of every main gear is at the position of about one quarter of **the gear shift knob**. There is one modulating gear between every adjacent gear. The user can modulate according to the position of the main gears.
2. When in the shutdown state, press the “on” (开) key for 3 seconds and one can start the heater. At this time, the red light is on. The heater will change gears according to the position of the gear in **the gear shifting knob**. When the heater stays in the working state, press the “off” (关) key for 3 seconds and then the heater can be stopped. Then the red light becomes dark. When the heater is started or stopped, it should be operated according to certain steps. There is no allowing of operating them for too many times.
4. When the heater stays in the working state, turn **the gear shifting knob** clockwise until it cannot be turned. At this time, the gear has been changed into the highest gear. Turn **the gear shifting knob** anti-clockwise until it cannot be turned. At this time, the gear has been changed into the lowest gear. When **the gear shifting knob** is turned to the main gears, the main board buzzer will release accordingly times of warning tone according to the position of the main gear. The green light of the rotary knob twinkles. The times of twinkling depends on the position of the main gear.

V Circuit

Wire of heater

Safety knowledge

Wiring the heater follow vehicle wiring code

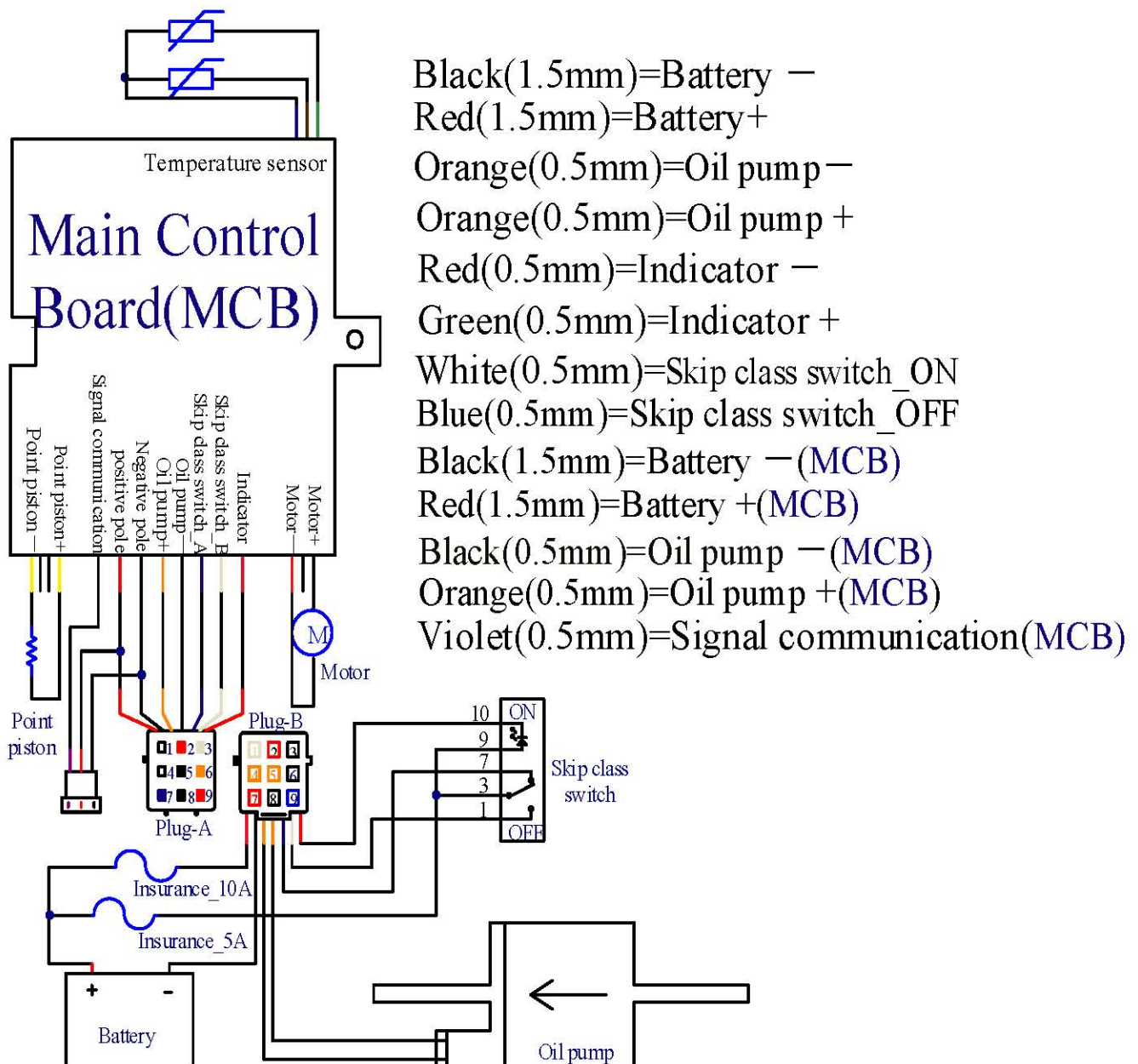
- keep wire insulation in good condition avoid scratch, twist, fold. And keep away form high temperature parts
- for water proof connector, Seal not used pin hole
- avoid connector from corruption



Warning

- install switch, control module inside cabin
In case damage or corruption
- not fasten wire to the moving or vibration location, In case wire damage or loosen connector
- not extend power wire without dealer agree

Circuitchart



VI Fault,Repair,Service

Troubleshooting

- not start when turn on:
 - turn off, waiting 10s turn on again.
- double check heater running requirement
As below.

items	measure	min	normal	max
voltage	V	21	27	32
current	A	0.06	2	10
noise	dB	35	55	65
Fuel com	Litre/hr	0.138	--	0.472
Air circling	cfm	30	--	85

- if not running, check:
 - enough fuel in tank?
 - fuse?
 - connector or wire?
 - blocking of air intake, burner air intake, Exhaust pipe?

- heater will stop when parts fail and show the fault by buzzer and light flash. If heater is control by flip-flap switch, You will read the fault code by buzzer and light. Light flash 1Hz, cycle 10s. According to light flash and buzzer blip look up in chart below to figure out the fault. If every thing is fine, waiting 10s and start again

Fault hint	Possible fault	How Fix
Buzzer blip 1 , light flash 1.	High voltage	1、 Check power wire and connector。
	Low voltage	2、 check fuse
		3、 battery need charge or replace if fault happen from time to time
Buzzer blip 2 , light flash 2.	High temperature	1、 check if air intake is blocking。
	Low temp when running	2、 check if exhaust pipe is blocking。
	Failure sensor	3、 check if blocking inside heater
		4、 fuel pipe check, or fuel level in tank。
Buzzer blip 3 , light flash 3.	Low Running voltage or plug failure	1、 check plug connector
		2、 check power wire。
		3、 make sure the gauge of power extension wire are large enough
Buzzer blip 4 , light flash 4.	Failure dose pump or wire	1、 check dose pump connector
		2、 check wire of dose pump
Buzzer blip 5 , light flash 5.	Burner fan block Or fan failure	1、 re start, watch the fan running or not
		2、 over noise of fan。
		3、 over length of burner air pipe or blocking
		4、 loosen coupling of fan。

- if heater cannot work after double check all the items, contact dealer.



Notice

you could lost the warrant if part changing by yourself, or misoperation.

VI Fault,Repair,Service

Service instruction

- running the heater 10m/month when in summer time or not in use.
- before winter season, should running heater for a while to test.If long time smoke, huge noisy,strong fuel smell,Over heat of electronic parts, Turn off the heater, pull out the fuse and contact the dealer to check.
- before turn on the heater after longtime not use, check fuel pipe. Avoid loosen and wear out and leakage.
- clean air inlet pipe, air intake pipe,fume pipe before running the heater When the heater is long time not use.

Service

any question,Contact the dealer.

Guarantee

Dealer:

y m d

Client:		phone:	
Heater type:		Heater location:	
Plate No:		Inst date:	
Vehicle:		installation	
Service date:	Service items		

A world of comfort



**Warn
ing**

1. While heater installation, should seal the gap between heater and , compartment, in case fume come in cabin.
2. Exhaust pipe should be longer the 30cm.
3. Exhaust outlet should keep far away combustibile material.
4. Exhaust outlet should not face the vehicle heading direction.

Suggest:fasten the heater, seal all the gap.