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SLA THERMO

**TRUCK REFRIGERATION UNIT
OPERATING INSTRUCTION MANUAL**

SLA 550



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Operating Manual



FOREWORD

Thank you for buying **SLA THERMO** series, truck refrigeration Units. Honoured customer, **SLA THERMO** is a professional manufacturer and supplier of truck refrigeration units **SLA THERMO** refrigeration and air conditional products are sold all over China and South East Asia

The company has a strong engineering team, up to date manufacturing equipment perfect testing means, and scientific and modern enterprise management in developing manufacturing and sales high quality **SLA THERMO** products, serving customers. Which satisfy there needs and requirements

Honoured customer, **SLA THERMO** strictly advises you to go through this Operating Manual before using.

If you require further assistance please contact **SLA THERMO** via www.srilankanauto.com

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UNIT GENERAL DESCRIPTION

SLA 550 split direct drive unit series are specially designed and manufactured for small size refrigeration trucks suitable for 20 through 40 cubic meters truck box volumes and inside temperature 15 to 20 application, has following characteristics:

- Split unit with new unique appearance design, reasonable parts arrangement easy to install and operate.
- Import compressor especially for transport refrigeration, using environment friendly refrigerant R404A.
- Heat exchanger coil waved Aluminum fins has long life and high performance.
- Control and safety parts are all internationally famous brand, reliable and accurate.
- Automatic microprocessor controller has functions of temperature display; temperature setting, automatic temperature control, and hot gas defrost etc.
- Every unit is checked and test run before rolling out from factory.

UNIT ASSEMBLY PICTURE



SLA 550
Condenser unit



SLA 400 EVAPORATOR UNIT:
MATING



SLA 550 EVAPORATOR UNIT:
MATING

MAIN TECHNICAL PARAMETER

Unit models		SLA 350	SLA 550	SLA 650	SLA 750	SLA 850
Application temperature (°C)		15~-20				
Type		Split direct drive				
Suitable box volume (m ³)		6~19	20~40	30~60		
Cooling capacity (W)	2°C	4150	6100	7900		
	-18°C	2150	3350	4300		
Compressor	Model	TM16	TM21	GDC320A		
	Type	Swash plate				
	Displacement cc	162	215	313		
	Oil	RL 32H				
Condenser	Type	Front mount				
	Fan	Axial flow fan				
	Voltage	DC12V / DC24V	DC12V / DC24V	DC24V		
Evaporator	Type	Roof mount inside box				
	Fan	Axial flow fan	Axial flow fan	Centrifugal blower		
	Voltage	DC12V / DC24V	DC12V / DC24V	DC24V		
Throttle		TXV w/outside balance				
Refrigerant		R404A				
Refrigerant charge (kg)		1.3	1.4	3.1	3.2	4.2 4.3
Defrost		Hot gas				
Dimensions	Evap. assembly mm	1020X660X213		1670X620X233		1776X772X238
	Cond. Assembly mm	1070X520X355		1460X510X422		1460X510X422
	S/B assembly mm	N/A	579X401X286	N/A	610X420X355	N/A 610X420X355
Unit current DC12V/DC24V		DC12V/DC24V: 38A/19A		DC12V/DC24V: 62.4A/31A		DC24V: 49A
Weight (kg)	Evap. Assembly	26		45		55
	Cond. assembly	38		70		70
	Electric. Standby	N/A	60	N/A	80	N/A 80

Note

- Box volumes listed above is for reference, and actual volumes should be decided by box insulation and sealing, application inside and outside box temperatures, the kind of transport perishable products etc.
- SLA THERMO reserves the right to change above specification without pre-notice.
- Contact SLA THERMO for application and special requirement.

UNIT WORK PRINCIPLE AND SYSTEM CYCLE DIAGRAM

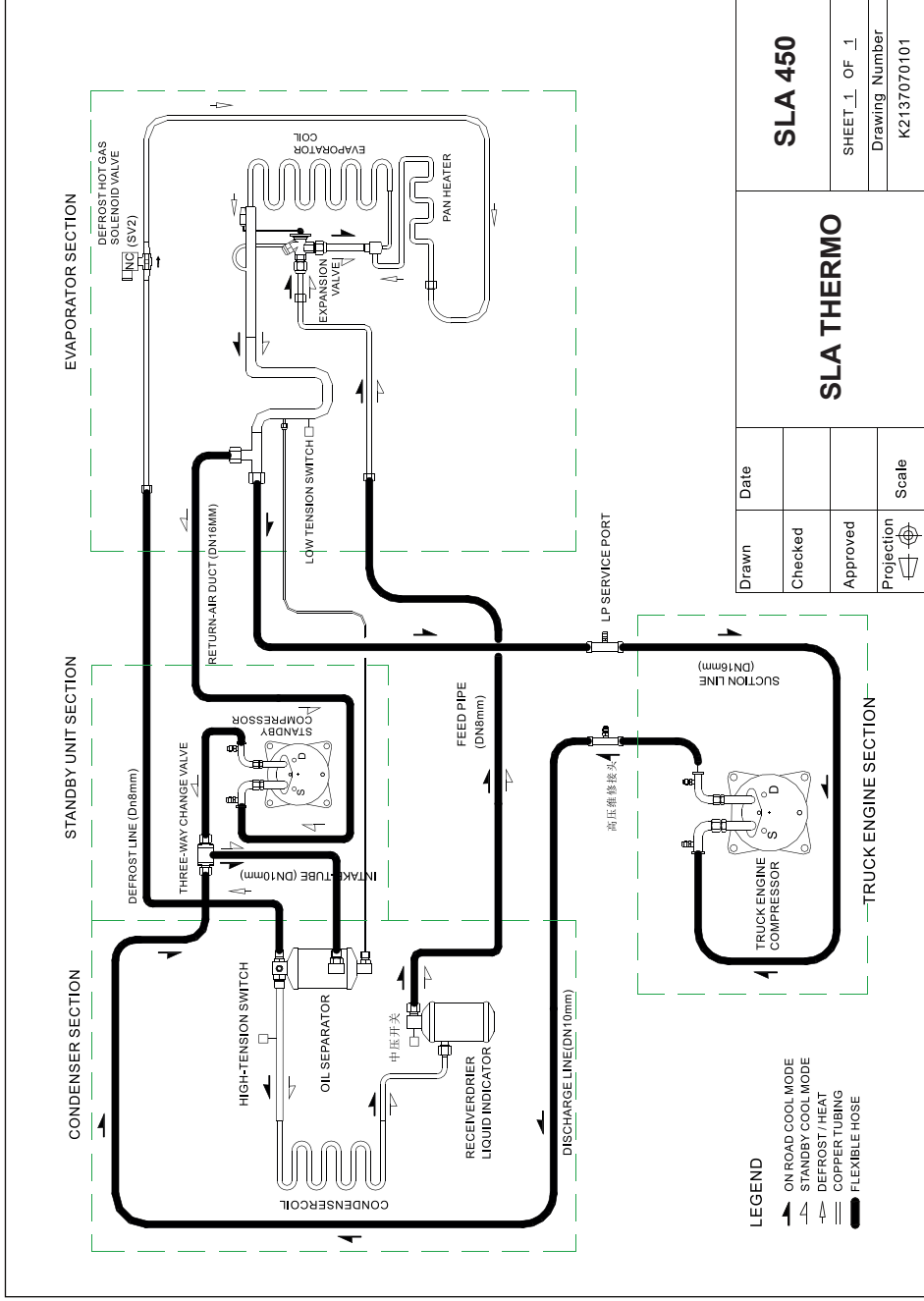
• Refrigeration principle:

The compressor driven by truck engine (S/B engine), then discharges high temperature high pressure refrigerant gas to condenser. And the gas condenses in the aircooled condenser, changes to liquid, and flows into receiver. Then the liquid passes filter-drier which removes water and impurity in the fluid and thermo-expansion valve (TXV) which reduces liquid pressure. Then, the fluid flows through evaporator and evaporates, and absorbs heat from and reduces temperature of air inside truck box. Finally, the gas refrigerant sucks back to complete the refrigeration cycle. The refrigeration system in this way and therefore reduce the truck box inside air temperature. When the inside temperature near to set temperature, compressor clutch is open, compressor stops working. Otherwise when air temperature inside truck box rise up to higher than set temperature, compressor clutch closes, compressor starts to work.

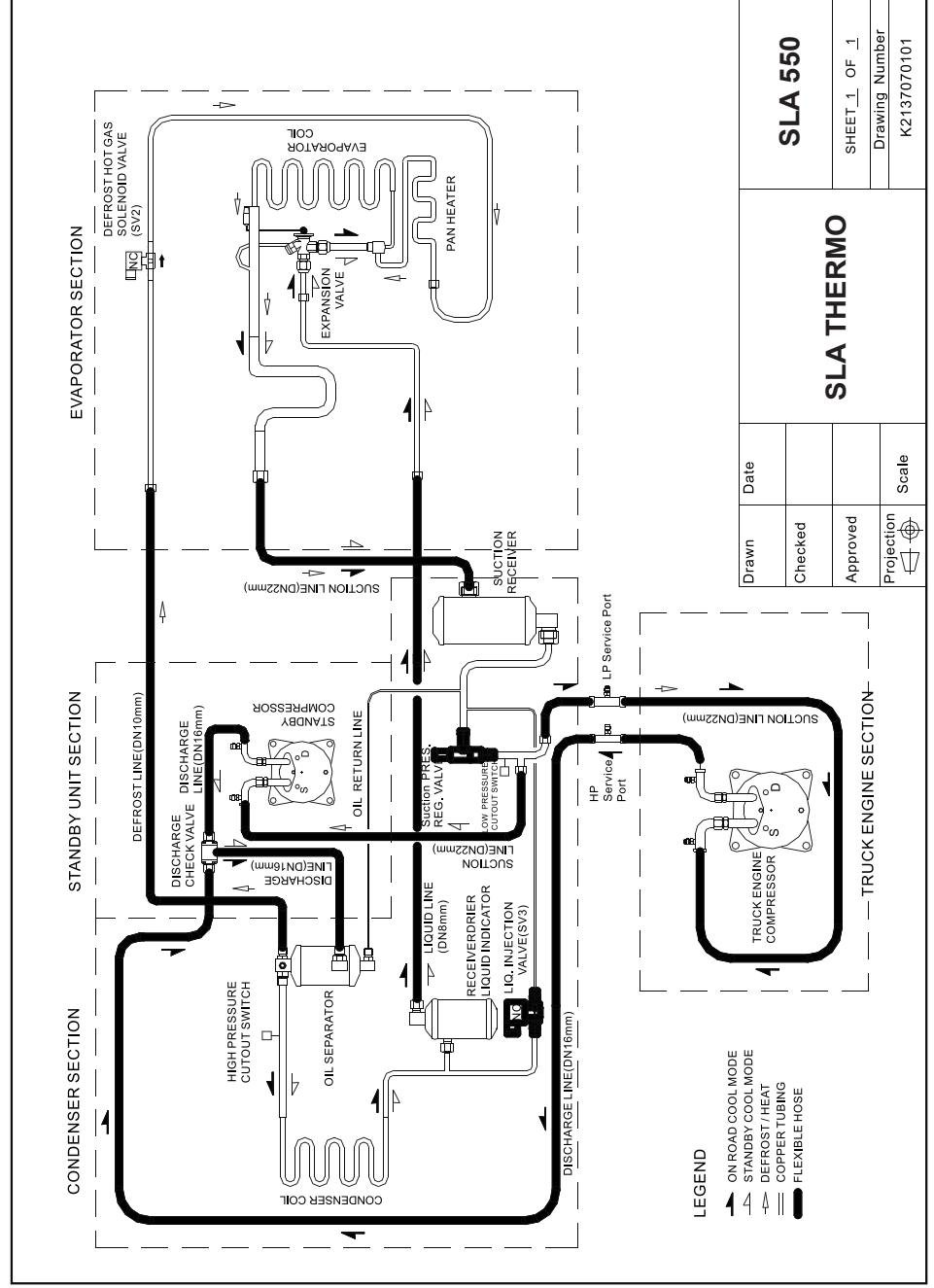
• Defrost principle:

During defrost, defrost valve is open, most high temperature gas refrigerant flows into defrost tube in water pan and evaporator coils to melt frost icing on evaporator coils. Refrigerant flows back to compressor by suction line. After defrost, the defrost valve close, system starts to refrigeration cycles.

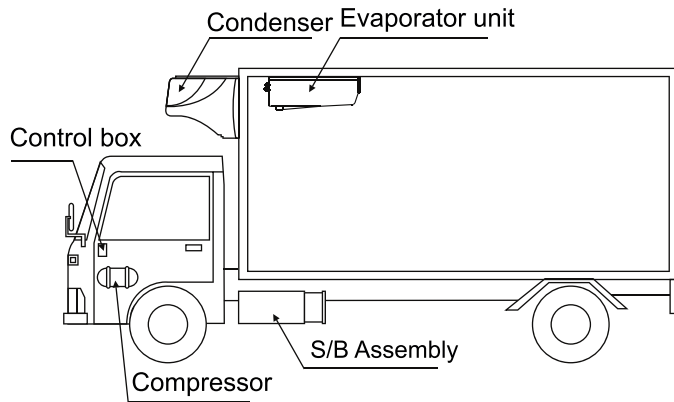
SLA 400 SCHEMATIC DIAGRAM



SLA 550 SCHEMATIC DIAGRAM



INSTALLATION INSTRUCTIONS



INSTALLATION PROCEDURE

- Remove unit condenser assembly cover, use bolts in spare part kits to fix the condenser assembly to truck box body wall or roof (see installation schematics for position). Note that the installation height must not be higher than truck box.
- Use bolts in spare part kits to fix the evaporator to truck box body inside.
- Install compressor and accessories.
- Use connectors, o-rings, and rubber hose connect system separate assemblies and parts together (drill holes or opening on the truck box body for passing through hoses).
- Install control box, wiring electric harness. Note unit application voltage and electric poles.
- Fix rubber hose and electric harness.
- Use Nitrogen to test refrigeration system sealing. The system should be charged to 3.5 MPa and can keep the pressure for 5 min. to check leakage. Be sure no leak on every connecting points.
- Use vacuum pump to vacuum the refrigeration system to lower than 0.67 Mbar.
- Charge the refrigeration system to prescript refrigerant and weight.
- Run engine, commission the unit, keep watch its operation at least 2 hours.

Note: Unit should be installed by professionals. If there are any problems in installation, please contact **SLA THERMO**

RECOMMENDED PERISHABLE PRODUCT TRANSPORT TEMPERATURES

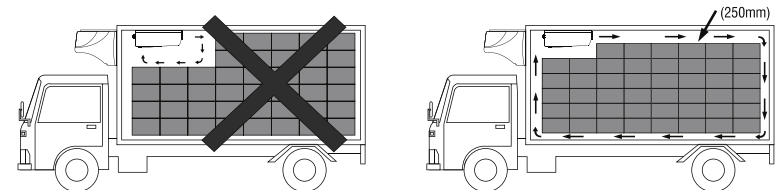
Below are recommended perishable products transport temperature for you reference. Actual set temperature depends on special transport and store provisions and conditions.

Transport products	Set temperature
Ice and ice cream	-20
Deep frozen products	-18
Organ, transplant organ	-18
Sea food	-18
Butter, cream	-14
Eggs, offal, poultry, and game	-12
Meat	-10
Fresh seafood and meat	2
Dairy products	3
Fresh fruits and vegetables	5
Banana	15

LOADING NOTICE

1. Transport refrigeration unit is only for keeping transport product at its temperature. Please low product to its required temperature before loading.
2. User can set truck box temperature at the transport products required.
3. Low truck box air temperature to required set value and defrost once before loading.
4. Products should keep 150 mm from front wall, 200 mm from roof, and leave rooms on floor when loading for air return flow. (Wood pallets or Aluminum channel is suggested).
5. User should clean condenser air side periodically to ensure its heat exchange efficient.
6. Please shut down unit immediately if abnormal situation appears, and restart the unit only fix the malfunction.

Special notice: SLA THERMO is responsible only for its refrigeration unit quality and is not liable in any special, indirect, or consequential damages and losses.



COMMON TROUBLESHOOTING

Trouble phenomena	Possible reasons	Disposals
Unit dose no cooling Compressor dose no work	Clutch Loss Belt Compressor Electricity	Repair/change Tighten/change Repair/change Check/repair
Unit runs w/o cooling or w/weak cooling	Compressor Valve System Pressure Loss Belt Box Body Insulation Or Door Air Leak Blocked Evap. Air Flow	Repair See item 3 Tighten Repair See item 4
System pressure abnormal High condensing pressure Low suction pressure High suction pressure	Very dirty condenser Condenser fan air in system Over charged System dirty/ice block inside Refrigerant leak Txv heavy frost evaporator Compressor valve Defrost solenoid	Clean/Repair Discharge off & recharge Discharge the extra Repair check/repair Repair/change Defrost Change Repair/change
Blocked evaporator	Heavy frost coil Evaporator fan	See item 5 Repair/change
Abnormal defrost cycles Auto start defrost fault Auto start but no defrost	Electricity/electricity Defrost solenoid Clutch/compressor	Check/repair Check/repair Repair/change Repair/Repair
Controller malfunction	Incorrect parameter setting Sensor Wiring/control box	Re-setting Repair/change Check/repair Repair/change