

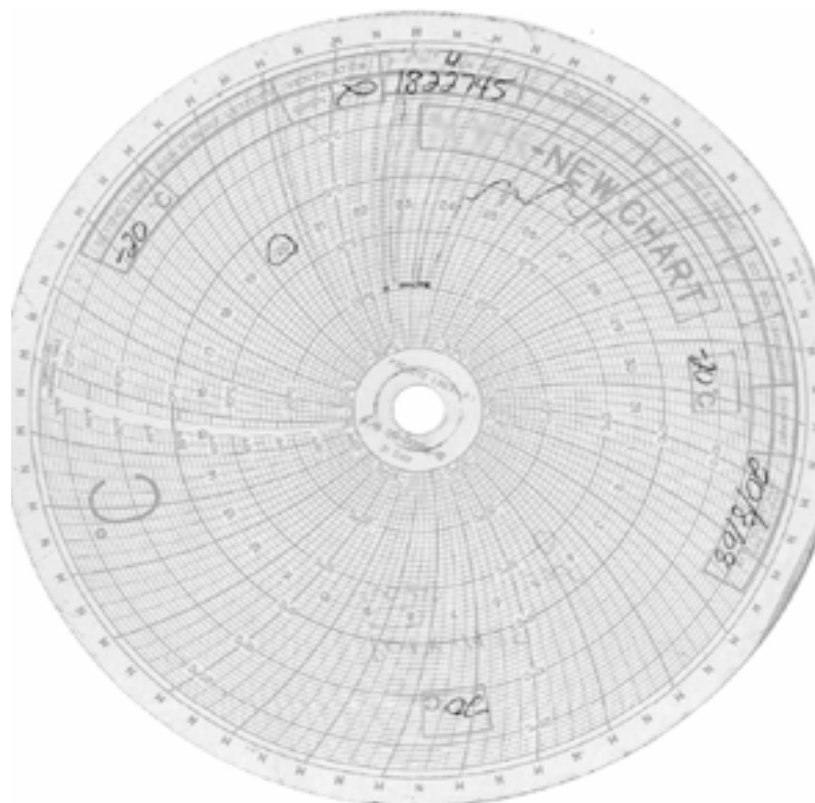
Reefer claims loss prevention

A loss prevention America Focus publication

Phase 9 part (b) - Reefer Claims Handling

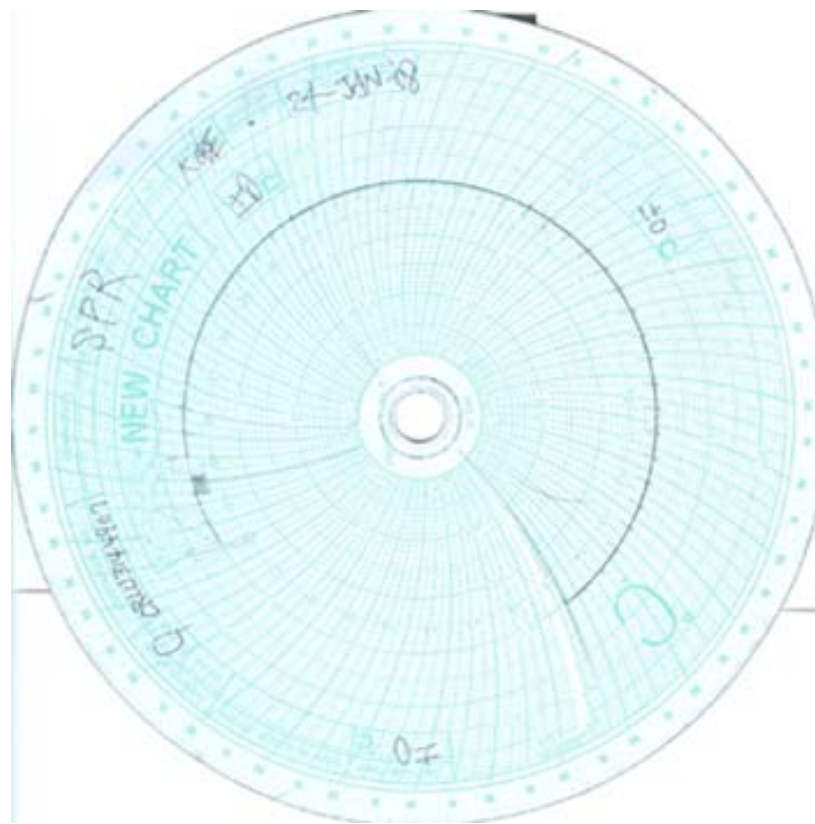
Partlow Charts

Partlow charts may record either supply or return air temperatures depending on the manufacturer and model of the refrigeration unit. Microprocessors record supply and return air temperatures. Partlow charts do not record the cargo pulp temperatures. For chill cargoes, the recorded air temperatures will generally be at or about the shipper's specified thermostat setting if the supply air is recorded⁽¹⁾ and slightly higher than the shipper's specified thermostat setting if the return air temperature is recorded. For freeze cargo, the recorded air temperatures will generally be at or higher than the shipper's specified thermostat setting if the return air is recorded and lower than the shipper's specified thermostat setting if the supply air temperature is recorded.



The above chart covers a shipment, which was booked to be carried at -20°C . Although the chart only covers a few days, you can see that the baseline temperature when the refrigeration unit was not in defrost mode was maintained at the required temperature. Note the large defrost spikes are

normal and customary. Defrosts are needed to melt the ice that builds up on the evaporator coils and to assure optimal management of cargo temperature.



The above chart covers a shipment that was booked and carried at 0°C. The baseline temperature was well maintained during the entire transit period. Brief off-power events and routine defrost spikes were recorded and had no effect on the chilled cargo temperatures.

Microprocessor Downloads

We strongly recommend that the technician downloading the refrigeration unit's microprocessor for the claims handler or subject matter expert provide original "text files" that include dates, times, set points, atmosphere, humidity, air temperatures, cargo temperatures (if cold treatment is required), pre-trips, alarms and event logs. The formats and types of information available from refrigerated container microprocessor download reports can vary greatly depending on the manufacturer, the model/type of refrigeration unit and the user specified format. Different formats, alarm codes and configurations of microprocessor download reports make the evaluation of these reports by non-subject experts very challenging and, as a result, may require the support and interpretation of a subject matter expert.

DATE MODE/ALARM/EVENTCODE	TIME	SP	SUP	RET	RECORDED TEMP.	AMBS
'09/07/10	07:00	-1.0C	-0.9C	0.1C	-1.1C	21.0C
'09/07/10	07:33					
'09/07/10	07:55					
'09/07/10	08:00	-1.0C	-0.4C	2.3C	-0.1C	23.0C
'09/07/10	09:00	-1.0C	-0.9C	0.1C	-1.2C	20.0C
'09/07/10	10:00	-1.0C	-0.9C	0.1C	-1.1C	19.0C
'09/07/10	11:00	-1.0C	-0.9C	0.1C	-1.1C	21.0C
'09/07/10	12:00	-1.0C	-0.9C	0.1C	-1.1C	21.0C
'09/07/10	13:00	-1.0C	-0.9C	0.1C	-1.1C	20.0C
'09/07/10	13:49					
'09/07/10	14:00	-1.0C	-0.8C	8.6C	-1.1C	22.0C
'09/07/10	14:14					
'09/07/10	15:00	-1.0C	-0.9C	0.1C	-0.1C	21.0C
'09/07/10	16:00	-1.0C	-0.9C	0.1C	-1.1C	22.0C
'09/07/10	17:00	-1.0C	-0.9C	0.1C	-1.1C	21.0C
'09/07/10	18:00	-1.0C	-0.9C	0.1C	-1.1C	23.0C
'09/07/10	19:00	-1.0C	-0.9C	0.1C	-1.1C	23.0C
'09/07/10	20:00	-1.0C	-0.9C	0.1C	-1.1C	23.0C

SP = thermostat set point, which in this case is -1°C. It is highly recommended that the bill of lading specify the shipper's specified thermostat setting and not the carrying temperature.

SUP= Supply air is the temperature of the air delivered to the cargo space. In this case, the air delivered to the cargo space was -0.9°C.

RET= Return air is the temperature of the air returning to the refrigeration unit from the cargo space. In this case the return air temperature is 0.1°C.

If the return air temperature is much higher than the supply air for a prolonged period of time following the stuffing of the cargo into the refrigerated container, this is often a telltale sign that the cargo was stuffed "hot" into the refrigeration container and was not at the shipper's specified carrying temperature or thermostat setting.

Recorded temperature is the cargo temperature, which in this case is -1.1°C. This indicates that the reefer unit is running properly.

AMBS= Ambient air temperature is the temperature of the air outside the reefer unit. Since this shipment is moving in the middle of July in California, relatively warm ambient temperatures would be expected.

Comments- This graph only shows 1 day in the transit period. The length of microprocessor downloads can be 20 pages or more and, as a consequence, the claims examiner will need to carefully go through each page and line item to locate any major temperature or performance discrepancies

DATE	TIME	SP	SS	RS	SENSOR TEMP.	AMBS	SHu(%)	Hu(%)	CONTROL
'07/03/27	02:00	18.3C	18.5C	17.5C	18.0C	15.0C	***	***	Modulation
'07/07/06	23:00	18.3C	30.9C	31.1C	30.7C	35.0C	***	***	Non Control
'07/07/06	23:55								Unit ON
'07/07/06	23:55								Unit OFF
'07/07/06	23:55								Unit ON
'07/07/06	23:55								SPTI START(PANEL)
'07/07/07	00:00	18.3C	26.2C	29.9C	27.6C	36.0C	***	***	Short PTI
'07/07/07	00:15								PTI RESULT=OK(E000)
'07/07/07	00:31								Unit OFF
'07/07/07	00:31								Unit ON
'07/07/07	01:00	18.3C	18.3C	19.6C	18.1C	36.0C	***	***	Modulation
'07/07/07	02:00	18.3C	17.0C	18.4C	17.7C	35.0C	***	***	Modulation
'07/07/07	03:00	18.3C	18.5C	18.9C	18.0C	34.0C	***	***	Modulation
'07/07/07	04:00	18.3C	18.4C	18.9C	18.1C	32.0C	***	***	Modulation
'07/07/07	05:00	18.3C	18.5C	18.8C	18.1C	30.0C	***	***	Modulation
'07/07/07	06:00	18.3C	18.3C	18.8C	18.1C	28.0C	***	***	Modulation
'07/07/07	06:25								DEFROST IN
'07/07/07	06:29								DEFROST OUT

SP= Set Point which is 18.3°C

SS= Supply Air which is 18.5°C

RS= Return Air which is 17.5°C

Sensor Temp= is the cargo temperature which is 18.0°C

AMBS= Ambient Air which is 15°C then increases to 35°C



The above photo is a reefer container control panel, which is where the reefer technician inputs the shipper specified thermostat setting for the carriage of the perishable cargo. The vessel and yard checker record the temperatures from these screens on the monitoring logs.

Control Atmosphere Records

S. S. _____
M. S. _____ **CA-MONITORING SHEET 1**

NO.	LOCATION CONT. NO.	LOAD. PORT DISC. PORT	UNIT MAKER UNIT TYPE	DATE SEL. TIME	14.7.2008	
					16:30	17:00
1.	9001509	MNB LNB	40'	CO ₂ - 6	6.2	6.4
				O ₂ - 4	3.9	3.7
				Deg. C 4.5	4.4	4.5
2.	9001610	MNB LNB	40'	CO ₂ - 6	6	6.4
				O ₂ - 4	3.9	3.8
				Deg. C 4.5	4.5	4.5
3.	9000037	MNB LNB	40'	CO ₂ - 6	6.2	5.9
				O ₂ - 4	3.8	3.7
				Deg. C 4.5	4.5	4.6
4.	9001368	MNB LNB	40'	CO ₂ - 6	6.1	6.3
				O ₂ - 4	3.9	3.9
				Deg. C 4.5	4.5	4.5
5.	9001619	MNB LNB	40'	CO ₂ - 6	6.3	6.3
				O ₂ - 4	3.7	3.8
				Deg. C 4.5	4.5	4.4

In the above log, the vessel's reefer engineer recorded the container number, the load and discharge ports, the unit size, and the CO₂ set point; the O₂ set point and temperatures in "degrees C". All 3 readings are within acceptable ranges on this date.

Notes

(1) Supply air is the air delivered to the cargo space from the refrigeration unit

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