Klinge Corporation

PTI form for NMR 282 and NMG-118-T4 systems

Date:	Container #:	Location:
NMG Serial #:		Hour meter reading:
NMR Serial #:		Date of last PTI (if known):

Note: Manuals can be requested by contacting technical@klingecorp.com

If system is not supplied with NMG-118-T4, disregard items referring to generator set, skip to *****

With generator set power turned OFF, check unit visually for physical damage:	Check if **OK**
Inspect generator set for damage, missing parts and loose mounting bolts.	
Check fuel level. If necessary, add appropriate diesel fuel.	
Inspect both fuel pre-filter and main filter fuel sediment bowls and strainers for water contaminates. Drain water from bowls, clean bowls and strainers if necessary.	
Check engine oil level. Add appropriate oil to dipstick mark, if needed.	
Check that no more than 500 hours or one year has passed since the fuel and oil filters have been replaced. If this time has passed replace filters and change oil. Write date and hours on new filters with permanent marker.	
Check air filter and air intake hoses are in good condition. Ensure all air system rubber hoses are clamped tightly. Check that the rubber vacuator valve is in good condition and faces down.	
Check fan belt for wear, cracks and proper tension. Tighten or replace if necessary.	
Make sure that the fan is not damaged and that the cooling air circulation is not obstructed.	
Check for frayed battery cables, cracked wire insulation and for clean and secure electrical connections. Clean and or replace as needed.	
Connect the refrigeration unit power cable to the generator set. Make sure that power switches on the generator set and both on the refrigeration unit are in the OFF position.	
Record genset battery voltage.	

***** With **NO POWER** to the refrigeration unit, check unit visually for physical damage:	Check if **OK**
Ensure major hold-down bolts are tightened and main power cable fittings are in good condition.	
Open control box cover and check that all electric components are secured and that the terminal connections are tight using a screwdriver.	
Check the gasket on control box covers. Be sure the latches hold the covers tightly closed by confirming an indentation in the gasket from the control box lid.	
Check cleanliness of the condenser coils and steam or air clean if necessary.	
Check all refrigerant joints and connections thoroughly for traces of oil or stains indicating small refrigerant leak.	
Check and record voltage of generator set battery. The reading should be between 10 – 13 volts.	
Connect main power to unit and ensure battery charging cable connected between unit and generator set (must be connected even when running on shore/mains power).	
Open the control box lids and turn the main circuit breakers in both System 1 and 2 to ON.	
Start generator set.	
Reference the Power View, observe and record the “MACH HRS”.	
Check intake air hose restriction indicator to ensure red indicator is not visible, if so, service air cleaner.	
After a minimum of 10 seconds of the engine running at 1000 PRM, move Engine Speed switch to 1800 RPM.	
Wait until engine speed stabilizes and oil pressure reaches a minimum of 30 psi.	
Turn the generator circuit breaker ON.	
Turn both System 1 and System 2 ON and set both set points to -18C. NOTE: If too long of a time is taken between setting the two systems to the set point, alarm A41 may register, indicating that the set point of the two systems is more than 1C apart. This alarm is only an added safety measure and will go away as soon as the proper set points are entered on both systems. Turn both systems OFF.	

System 1	**System 1**
On System 1, initiate the function test by holding "Manual Defrost" switch ON while switching its ON/OFF switch to the ON position. All System 1 thermostat LEDs will flash to indicate they work. Turn on System 2.	
Watch the LEDs and follow the side label on the System 1 thermostat as it steps through the test. If it stops at any step there is a fault associated with the item indicated. After the function test ends, System 1 will go into normal operation and indicate it is the “primary system” via the controller LED.	
Wait 5 minutes and then check and record voltage of battery. The reading should be between 13 – 14 volts when on generator power and approximately 12 – 13 volts when on shore/mains power.	
Record incoming main power voltage.	

Record amperage of the compressor motor, the condenser motor and the evaporator motor. Should **not exceed** the following:

Compressor	26.6 Amps	L_1	L_2	L3	
Condenser Fan	1.5 Amps	L_1	L_2	L3	
Evaporator Fan	0.7 Amps	L_1	L_2	L3	

Check the rotation of all fans. See arrows marking correct direction. This includes both checking the external condenser fan and opening the evaporator door to make sure that evaporator fans are properly rotating. Keep evaporator door open for the next step.	
In the evaporator section, verify proper location of defrost probes. Defrost probes should be securely inserted in probe well(s) on suction line. Close and latch evaporator section door.	
After temperature reaches at least -5°C put unit on manual defrost by holding the defrost switch on for 5 seconds. The compressor will continue to run, the fans will stop.	
After defrost terminates, the unit will switch over to System 2 running as primary. This is normal operation. Turn OFF both systems and turn them back ON again. Run system 1 for 15 minutes to allow temperature to stabilize, then check the receiver sight glasses. The balls in the upper sight glass should be on the bottom of the sight glass, the balls in the lower sight glass should be floating.	
While the unit is running, enter the container and verify air is circulating from the unit into the T-sections of the container floor.	
While inside the container, verify proper location of return probes – securely fastened to vertical fixture prior to evaporator coil.	
Switch main circuit breaker of System 1 OFF and verify activation of alarm horn and light	
Verify that alarm condition causes System 2 to take over as the Primary System (as indicated on System 2 controller). NOTE: Changeover from System 1 to System 2 may take a few minutes.	
Turn OFF both systems.	

System 2	**System 2**
On System 2, initiate the function test by holding "Manual Defrost" switch ON while switching its ON/OFF switch to the ON position. All System 2 thermostat LEDs will flash to indicate they work. Do not turn on System 1.	
Watch the LEDs and follow the side label on the System 2 thermostat as it steps through the test. If it stops at any step there is a fault associated with the item indicated. After the function test ends, System 2 will go into normal operation and indicate it is the “primary system” via the controller LED. NOTE: System 2 will also show an A42 alarm indicating that it cannot communicate with System 1. This is normal when only one system is initiated, disregard during this part of the PTI.	
Wait 5 minutes and then check and record voltage of battery. The reading should be between 13 – 14 volts when on generator power and approximately 12 – 13 volts when on shore/mains power.	

Record amperage of the compressor motor, the condenser motor and the evaporator motor. Should **not exceed** the following:

Compressor	26.6 Amps	L_1	L_2	L3	
Condenser Fan	1.5 Amps	L_1	L_2	L3	
Evaporator Fan	0.7 Amps	L_1	L_2	L3	

Check the rotation of all fans. See arrows marking correct direction. This includes both checking the external condenser fan and opening the evaporator door to make sure that evaporator fans are properly rotating.	
After temperature reaches at least -5°C put unit on manual defrost by holding the defrost switch on for 5 seconds. The compressor will continue to run, the fans will stop. Immediately turn ON System 1. System 2 will continue to act as the “primary system”.	
After defrost terminates, the unit will switch over to System 1 running as primary. This is normal operation. Turn OFF both systems and turn ON System 2 ONLY. Run system 2 for 15 minutes to allow temperature to stabilize, then check the receiver sight glasses. The balls in the upper sight glass should be on the bottom of the sight glass, the balls in the lower sight glass should be floating.	
While the unit is running, enter the container and verify air is circulating from the unit into the T-sections of the container floor.	
Turn on System 1. System 2 will continue to act as the “primary system”.	
Switch main circuit breaker of System 2 OFF and verify activation of alarm horn and light	
Verify that alarm condition causes System 1 to take over as the Primary System (as indicated on System 1 controller).	
Turn OFF both refrigeration systems.	
Turn the generator circuit breaker OFF.	

Move Engine Speed switch to 1000 RPM.	
Wait a minimum of 3 minutes, then move generator OFF-ON-START switch to OFF.	

General

Ensure both control boxes are properly secured in their locked positions and control box lid is firmly closed.	
If bottom receiver sight glass balls are not floating, check thoroughly for refrigerant leaks.	
Check spare parts box security seal, if broken or missing. Ensure Spare Parts box is complete (comparing to label inside box lid). List any missing items in “Notes” section below.	

Data logger

Press the blue button on the data logger until “Journey Ticket Numerical” is displayed. Attach data logger printout to this PTI form. - If data logger does not print ticket, check for printer paper. Insert new paper roll in printer. - If data logger printout has vertical stripe of color (red or purple), paper roll is close to end. Replace with new paper roll.	
Set data logger to customer's required product limits; verify entry and storage of the values.	
Verify that the alarm function of the data logger is activated if customer has required this.	

Notes:

Signature:	