

Technical Information and Diagnostic Guide

This guide will assist you in becoming more familiar with the working components of the **Day Cab No Idle** System and the proper steps and procedures to completely diagnose the **Day Cab** unit.



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!! Attention **!!**

Before proceeding with any diagnostics please call the Nite line for authorization. Opening the Day Cab Unit without authorization could void your warranty!

Technicians are responsible for verifying all truck batteries and auxiliary system batteries are in good condition and are properly charged. Do not proceed with any diagnostics without checking batteries and connections!

Links:

Battery Manufacturers and Websites for Additional Information;

- Exide Technologies / <u>www.exide.com</u>
- East Penn Manufacturing (DEKA) / www.eastpenn-deka.com
- Concorde (Chairman series) / <u>www.concordebattery.com</u>
- Interstate Batteries / <u>www.interstatebatteries.com</u>





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1-A: Battery Separator

The battery separator is used for separating the truck's main starting batteries from the **NITE** unit batteries. It also allows the charging of the **NITE** batteries after the main truck batteries are charged above 13.2 Volts. Mounting can be inside or outside the truck. It will disconnect when the truck battery voltage falls below 12.8.

This device should be protected from the elements due to corrosion and exposure to short circuits.



2-A: Fuse Panel

This panel located behind the access cover on the lower part of the driver's side, contains all relays and fuses for the controls, compressor, evaporator blower and condenser fan.





R1 100A 12V W/RESISTOR RELAY (COMPRESSOR) F1 20A YELLOW MINIFUSE (CONDENSER FAN) F2 10A RED MINIFUSE (BLOWER MOTOR) F3 10A RED MINIFUSE (SYSTEM CONTROLLER) F4 60A BLUE MAXIFUSE (COMPRESSOR) R2 MICRO 280 FROM 1C RELAY (BLOWER MOTOR) R3 MICRO 280 FROM 1C RELAY (CONDENSER FAN)





B: Day Cab Unit Controller

The lower knob controls the evaporator blower speed and the upper control sets the compressor speed.



C: Day Cab Main / Compressor Controller

This device stores the operating program and controls the **Day Cab** Unit including the compressor.



D: Compressor

This compressor is part of the hermetically sealed refrigeration system.

E: Thermal Limit Switch on Compressor

This is a normally closed switch to protect the compressor from high temperature.







F: Evaporator Blower

This blower pulls air through the evaporator coil to cool the interior of the cab.

G: Condenser Fan

This fan unit draws air through the condenser coil to cool the refrigerant flowing through the system. The hot air is exhausted outside the truck.

H: High Pressure Switch

This pressure switch will stop and prevent the operation of the compressor because of high internal pressure. Photo shows brazed non replaceable switch.

I: Evaporator Temperature/ Freeze Switch

This switch monitors temperature, stops and prevents the operation of the compressor if ice was to form on the evaporator coil.













NITE Day Cab System Diagnostic Table

PROBLEM	POSSIBLE CAUSE	CORRECTIVE ACTION / SEE APPENDIX
Unit Will Not Run or Turn On	 Loose connection No power is available at the unit. Blown fuse or fuses Defective control switch. Broken wire or defective wire harness Main controller/compressor 	 Confirm all connections are tight, including ground lugs, and terminals crimped on wires and battery cables. Check Auxiliary batteries for Voltage. Check main power wire connecters at NITE Day Cab unit for Voltage before the fuse. See appendix A. Check fuses for continuity and/or Voltage. See appendix F Confirm power is available at terminal marked "B" (on switch body), check continuity of switch. See appendix C and wiring diagram. Check for Voltage returning from the control switch to the controller. Check all positions. See appendix C See checking main controller. See appendix I
Unit Runs - But Does Not Blow Cold Air	 Airflow blockage. Compressor Relay. Main/compressor controller connections. Main/compressor controller board. High pressure switch Freeze switch defective Compressor thermal switch Defective compressor Loss of or improper charge (See appendix M for charge instructions). 	 Clear any blockage from recirculation grill, louvers and filter. Also check condenser inlet and outlet for restriction (outside truck). Check relay. See appendix D Confirm all wire harness plugs are connected. Check Main/compressor controller. See appendix I Check pressure switch. See appendix E Check thermal switch. See appendix G Check thermal switch. See appendix H Check power to compressor. See appendix I If all tests check OK a loss of charge may have occurred, please call NITE LINE 1-866-204-8570.
Unit Cycles On And Off	 Poor electrical connection. Condenser fan inoperative. Air flow blockage causing high pressure or freeze condition. 	 Check all electrical connections. Check condenser fan. (outside truck) See appendix J Check for restricted airflow at condenser inlet and outlet and at louvers, filter and recirculation grill. Check pressure switch and/or freeze switch. See appendix E & G
Unit Blows Cold Air, But Low Airflow	 Air flow restricted Evaporator Blower motor inoperative. 	 Check for airflow at louvers, filter and recirculation grill. Check evaporator blower motor. See appendix K.
Unit Runs Correctly, But Less Than Expected Run Time	 Ground terminal(s) loose. Auxiliary batteries weak or not charged correctly. Separator not functioning correctly. Trucks main batteries poor condition High amperage draw 	 Tighten ALL connections. Check Auxiliary batteries for condition and state of charge. See appendix A Check separator connections and operation. See appendix B Check Main truck batteries for condition and state of charge. See appendix A Use DC ammeter to check amps when running.
Unit is Noisy or Vibrates	 Evaporator Blower motor. Condenser fan motor. Compressor mounting. Compressor internal. 	 Check evaporator blower. See appendix K Check condenser fan. See appendix J Check rubber compressor mounts. See appendix L If rubber compressor mounts check out acceptable, and compressor vibrates excessively, call NITE LINE 1-866-204-8570.





APPENDIX

A. Battery Condition and Performance:

Battery Voltage is critical for system operation. Special attention should be given to both sets of batteries.

Attention: Poor quality truck batteries or an alternator that is too small will have a Negative impact on the NITE **Day Cab** unit run time. Always maintain the best possible batteries and charging system. Load test and maintain batteries as required by the manufacturer. **SEE Page 2 for links.**

B. Separator:

Check for proper ground connection to the rcm and gnd terminals of the separator and connector. This wire should go directly to a battery negative terminal. Also check the red battery sense wire is connected to the separator main – truck starting battery terminal.

Check the Voltage of the trucks main batteries on the separator (main) battery terminal. With the truck not running the truck battery Voltage should be under 13 Volts. Anytime the truck main battery Voltage is **below 12.8** the separator will be open.

Start the truck. When a voltage of 13.2 on the truck batteries is reached, the separator will close, and allow power to begin charging the **AUX**. System batteries. You should see a voltage increase going into the **AUX**. Batteries. Using a clamp on DC ammeter you will see the rate of charge going to the batteries.

When this occurs, the separator is working correctly. If the separator does not close or closes and does not allow charging to the **AUX** batteries, replace the separator.

Please note: It is normal for the separator to change back and forth between charging the truck bank of batteries and the **AUX.** system bank of batteries, especially in the first two hours. As the truck batteries regain charge the separator will stay engaged for longer periods of time.

C. Control Switch Testing: You must unplug wire harness from switch! See page 6.

When switch is in **Low** position, there is continuity between contacts $\mathbf{L}, \mathbf{B}, \& \mathbf{C}$.

The diagram below shows which terminals should be 'electrically connected' (have continuity) at the given blower positions.

When switch is in **Off** position, there is continuity between contacts **L** & **H** only.







М

H C



D. Compressor / Evaporator / Condenser Relay Testing: Relays are INSIDE THE DAY CAB UNIT on the control panel. Remove access cover located on the lower left side to service relays

Confirm there is 12 VOLT on terminals 85 and 30. Make sure you have a good chassis ground for all testing. If you do not have 12 VOLT here – check battery voltage, main fuse and connections.

Now confirm there is 12 VOLT on terminal 86. If there is 12 VOLT on terminal 86, the coil inside the relay is good. If you do not have 12 VOLT, the coil is open and the relay is defective. Replace the relay.

With 12 VOLT on terminals 85, 86 and 30, turn the NITE Day Cab system control switch on.

As soon as you turn the control switch on, terminals 86 become a ground connection internally in the controller. When this happens the relays will pull in the contacts and allow voltage through the relay main contacts. You should now have 12 VOLT on terminals 87.

Compressor relay terminal 87 allows power to be sent to the 60 amp compressor fuse and then to the main/compressor controller.

Evaporator relay terminal 87 allows power to be sent to the 10 amp (F2) evaporator blower fuse and then to the blower.

Condenser relay terminal 87 allows power to be sent to the 20 amp (F1) condenser fan fuse and then to the condenser fan.

If you do not have 12 VOLT on terminals 87, check across terminals 85 (+) an 86 (-). You should have 12 VOLT. If you have 12 VOLT here and do not have 12 VOLT on terminal 87 your relay is defective. Replace the relay.

If you have 12 VOLT on terminals 87 and the component does not run you could have a defective component or wire harness. See testing compressor controller, condenser fan, or evaporator blower appendix **I**, **J** or **K**.

E. Pressure Switch Testing:

and fuses

You must remove the fuse block cover to access the switch. To aid in accessing the pressure switch remove 2 screws from the fuse panel and carefully lay it down.

The brazed switch is not removable.

This switch is **normally closed.** When the unit is off for a few minutes, check across the two terminals, you should always have continuity. If you do not, the unit will have to be replaced. Call the **NITE LINE** 1-866-204-8570



F. Check continuity across fuse body (fuse does not look blown but is)

Remove fuse from fuse holder. Using a meter, check for continuity across the fuse. You can check for voltage across the fuse using a dc volt meter.





Evaporator Sensor / Freeze Switch Testing:

You must remove the front/right cover to access the sensor.

The evaporator sensor is a thermistor type sensor. To verify the condition you will need a DC Volt meter set to measure resistance.

There are two wires connected to the switch. Using the chart on page 15, check across the two sensor wires. Use the appropriate temperature range to determine the OHMS value.

You can check at the sensor connector and at the controller pins D3 and D5. You must unplug the 32 pin connector from the controller to check any OHMS value!

If a freeze condition occurs, the unit will shut down the compressor and during a short time period it will attempt to restart the compressor. If the freeze condition leaves, the compressor will restart and the **NITE** Day Cab unit will continue to run.

After several attempts the NITE Day Cab unit will go into lockout. You must turn the control power off and on to restart the unit.

H. Compressor Thermal Limit Switch:

You must remove the front/right cover to access the switch.

This device is a normally closed switch. If the compressor gets too hot, the thermal limit switch will open and the compressor will stop. Checking with a meter, you should always have continuity between the two terminals when it is cool.

I. Main Controller/Compressor Controller: You must remove the front/right cover. Do not attempt to test the controller or compressor until you have completely eliminated all other possibilities.

Overview

G.

When you turn the **NITE Day Cab** unit on low, med or high, the Main / Compressor controller will connect the compressor relay, condenser fan relay and the evaporator blower relay terminals 86 to ground at their respective terminals D 10, 11 and 12 at the controller. This will close the contacts 30 and 87 of all 3 relays and allow power to each component. If all other conditions are ok, such as the high pressure switch, temperature sensor / freeze switch and the compressor thermal limit switch, the main / compressor controller will start the unit. The compressor and evaporator blower will begin to operate at a speed determined by the manual control panel. The condenser fan will run at normal operational speed. *Continued on next page...*









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Use the following steps to check the controller

- 1. With the control switch off check for 12 VOLT from F3 10 amp fuse to the control switch terminal B
- 2. Turn blower control switch on, now check for 12 volts from switch terminal C going to main/ compressor controller terminal C1. Also, with the switch on, check for input voltage (12 volt) from the switch terminal L, M or H at controller terminals C3, C4 or D2 respectively.
- 3. With a correct 12 volt signals from the switch, now check for (ground) signals to relays on D 10, D11 and D12. All relays should be closed and all terminals # 87 should have 12 volts. If you lose any signals from controller it must be replaced.
- 4. With relays closed, the main controller will now signal each component to start. The fan and blower receive their signals from the main controller terminals (condenser fan C7) and (evaporator blower C13). Safety controls must be in a normal state for the above signals to operate the unit.
- If all signals are correct and the safety controls <u>thermal limit on compressor</u>, <u>high pressure switch</u> and <u>temp sensor</u> <u>/freeze switch</u> are ok, and you have the compressor run signal from the control panel potentiometer, you should have voltage out on the three wires connected to the compressor terminals, A – Blue, B – Orange and C – Yellow. (ABC – BOY), and the compressor should run.
- 6. If the compressor does not operate, disconnect the three wires from the compressor. You will have to remove plastic cap from the top of compressor.

Using a volt meter check each wire, positive on (blue, orange or yellow) negative to battery ground. If you do not have a 6 volt pulse voltage out on each wire, replace the controller. Pulse voltage means the controller will cycle to each colored wire. You should see the voltage appear and disappear continuously.

If you do have a 6 volt pulse voltage out and the compressor does not run you have a defective compressor. Call the **NITE LINE** 1-866-204-8570

J. Condenser Fan Motor Testing: First do a visual inspection of all fan parts.

Check that both ends of the wiring harness from the inside unit to the condenser fan are plugged in properly. Turn the Day Cab control ON. Using a DC ammeter, check the amperage draw of the condenser fan. It should be about 9.5 Amps. If the current is very high, the fan is defective and needs to be replaced.

If there is no current or the current is low, leave the Day Cab control in the ON position and use the following steps to trace power to the condenser fan. Check for 12 Volts on the red and black wires in the wiring harness coming from inside the cab. This is power from the condenser fan relay terminal 87, through the F1 20 Amp fuse. Check for 8 Volts on the white wire at the fan from terminal C7 of the main controller. If all voltages are measuring correctly and the fan does not run, it is defective and needs to be replaced.

Caution: Do not attempt to connect the condenser fan motor to an outside power source. Internal electronic components are sensitive to arcing or reverse polarity. Damage will occur!

K. Evaporator Blower Motor Testing: First do a visual inspection of all blower parts.

To check the evaporator blower, remove the Day Cab unit front/right cover. The connector is in the rear of the unit, above the fuse panel. Reconnect any wires or plugs you might have disconnected when removing the cover.

Turn the Day Cab control ON. Using a DC ammeter, check the amperage draw of the blower. It should be about 4 Amps. If the current is very high, the blower is defective and needs to be replaced.





If there is no current or the current is low, leave the Day Cab control in the ON position and use the following steps to trace power to the blower. Check for 12 Volts on the red and black wires at the unit side of the wiring harness. This is power from the evaporator relay terminal 87, through the F2 10 Amp fuse. Check the voltage on the yellow wire at the blower connector from terminal C13 of the main controller. This voltage should be about 8 Volts in the Low blower fan position, 9 Volts on Med, and 9.5 Volts on High. If all voltages are measuring correctly and the blower does not run, it is defective and needs to be replaced.

Caution: Do not attempt to connect the condenser fan motor to an outside power source. Internal electronic components are sensitive to arcing or reverse polarity. Damage will occur!

L. Compressor Rubber Mounts: You must remove front /right cover to access the mounts.

Visual inspection of the compressor rubber mounts may be necessary if excessive vibration is present. Check for loose mounting nuts. If mounting nuts and captive studs are OK, vibration could be from the internal part of the compressor. If so call the **NITE LINE** 1-866-204-8570.

M. CONNECTING THE SYSTEM

WARNING!

Before doing any of the work below, be aware of the dangers involved. Working with refrigerant could lead to serious personal injury.

CAUTION

The NITE Day Cab uses POE lubricant in the refrigerant system. POE oils absorb atmospheric moisture very quickly. Never leave POE oil exposed to air for a prolonged time. Tightly reseal the system after each charge or service.

CAUTION

Do not add oil. NITE Day Cab uses special POE oil which is different than standard PAG oil in most AC systems. Addition of PAG oil to the system will greatly reduce performance and void NITE Day Cab warranty.

NOTE – Although your service equipment may appear physically different from the equipment shown here, the function of the equipment used to perform each service procedure is similar. If you are performing these service procedures using service equipment different from that shown, refer to the manufacturer's instructions supplied with that equipment





Typical Equipment Hookup for Servicing the NITE Day Cab System

1. Remove the protection cap from service port. The NITE Day Cab system uses smaller lines than conventional AC systems. In order to simplify the installation and charging only one service port has been given for the system.

On the recovery station and hose fittings, verify that all valves are closed. The valves at the recovery station must be set to the **CLOSED** position. The valves at the quick-disconnect fittings must be set fully counterclockwise (CCW).



- 2. Connect the recovery station to the system as follows:
 - a. Connect the red hose to service port located on the compressor-to-condenser line of the Day Cab outdoor unit.
 - b. Open (turn CW) the valves on the quick-disconnect fittings connected to the service ports on the units.
- 3. Work may now begin on the air conditioning system.





EVACUATING THE SYSTEM

EVACUATING THE NITE DAYCAB SYSTEM SERVICE PROCEDURES FOR R-134A

Whenever the air conditioning system has been installed, the system must be completely evacuated of air and moisture before being charged. After evacuation, the system vacuum should measure between 750 and 1000 microns.

- 1. On the recovery station and hose fittings, verify that all valves are closed. The valves at the recovery station must be set to the CLOSED position. The valves at the quick-disconnect fittings must be set fully counterclockwise (CCW).
- 2. Connect the electronic vacuum gauge to the recovery station, at the vacuum manifold, using a valve and 'T' fittings.
- 3. Connect the recovery stations red hose to the service port located on the NITE Day Cab system.
- 4. On the red hose, open the valves on the quick-disconnect fittings (turn the knobs fully CW).
- 5. On the recovery station, set both hand valves to the RECOVERY/VACUUM position.
- 6. On the recovery station, turn on main power switch and press the VACUUM button.
- 7. After the low pressure gauge on the station shows that vacuum is being established in the system, continue to operate the vacuum pump for fifteen minutes.
- 8. After 15 minutes, set both valves on the recovery station to the CLOSED position, and observe low side gauge for one minute. The gauge should not indicate a rise of more than 2 inches-Hg. If the gauge rises more than 2 inches-Hg in one minute, the system has a leak, which must be repaired

The valve for the electronic vacuum gauge must be in the closed position until instructed to open. If the valve is open during system charging, excess pressure may damage the electronic vacuum gauge.



9. If there are no leaks:

- A. Set both hand valves on the recovery station to the RECOVERY/VACUUM position and press the VACUUM button.
- B. Open the valve connecting the electronic vacuum gauge to the recovery station low side line.
- C. Continue to operate the recovery station vacuum pump until the system has
- pulled a vacuum of 750 1000 microns as measured by the electronic vacuum gauge (15 minutes minimum).





- D. Close both hand valves on the recovery station, and the valve connecting the electronic vacuum gauge to the recovery station low side line.
- 10. The A/C system is ready to be charged.

NOTE: The full amount of refrigerant oil has already been added to the system, **DO NOT ADD OIL** when charging the NITE Day Cab system.

NOTE: DO NOT disconnect the recovery/recycling/charging station from the A/C system before charging the system.

CHARGING THE NITE DAYCAB SYSTEM

WARNING!

Before doing any of the work below, be aware of the dangers involved. Working with refrigerant could lead to serious personal injury.

CAUTION

Use only new or clean recycled R-134a refrigerant; not any of the so called –direct replacement refrigerants. Use of equipment dedicated for R-134a is necessary to reduce the possibility of oil and refrigerant incompatibility concerns.

CAUTION

When charging the A/C system, the refrigerant tank must be kept upright. If the tank is not in the upright position, liquid refrigerant may enter the system and cause compressor damage.

NOTE – Although your service equipment may appear physically different from the equipment shown here, the function of the equipment used to perform each service procedure is basically the same. If you are performing these service procedures using service equipment different from that shown, refer to the manufacturer's instructions supplied with that equipment.

NOTE – If recycled refrigerant is to be used, follow the instructions supplied with the recycling equipment to purge the air from the refrigerant before charging the system.

Perform the charging procedure, using new or recycled refrigerant, only after the following actions have been completed:

- System components completely installed
- System completely evacuated

CAUTION

If the equipment being used adds system refrigerant oil during the evacuation/charging procedure, you must first DISABLE this feature. Follow the instructions furnished with the recovery station, or refrigerant oil injector tool, to disable this feature.

DO NOT ADD OIL TO THE NITE DAY CAB SYSTEM

The recovery station red (discharge) hose should still be connected as it was during the evacuation operation.

CAUTION

Due to the density of R-134a, the amount of refrigerant required to charge a typical air conditioning system has been reduced. Overcharging the system will result in excessively high head pressures during operation and may damage the compressor.





- 1. Determine the amount of refrigerant needed to charge the A/C system.
 - 7.0 Feet of hose: 28 oz. (1.75 lbs.)
 - + 3.5 Feet of hose + 4 oz. (+0.25 lbs.)
 - 3.5 Feet of hose 4 oz. (-0.25 lbs.)

Above shows tested charge levels. If your installation calls for something other than what is listed, adjust your charge level accordingly. When in doubt use the lesser charge level. Following the instructions provided with the recovery station, set the recovery station to charge the system with the specified amount of refrigerant.

- 2. On the recovery station, set the low side valve to CLOSED, and the high side valve to CHARGE.
- 3. Press the CHARGE button to start the charge procedure. When the system is fully charged, the recovery station will turn off.
- 4. Complete the charging procedure by setting both hand valves on the recovery station to the CLOSED position.
- 5. Close valve on hose at condenser, then disconnect the red hose quick-disconnect fitting from the NITE Day Cab service port.
- 6. Install the protective cap on the NITE Day Cab service port fitting.





RESISTANCE CHART

TEMP (°C)	R (min)	R (cent)	R (max)	R (min)	R (max)
-30	84.45	86.75	89.11	-2.7%	2.7%
-29	79 39	81.51	83 68	-2.6%	2 7%
-28	71 68	76.62	78 61	-2 54	2.6%
-27	70.28	72 06	73 80	_2.5M	2.5%
- 21	10.20	12.00	10.00	- L. JA 2 11	2.3%
-20	00.10	01.00	09.40	- 1.4%	2.36
-25	62.32	63.82	65.36	-2.4%	2.4%
-24	58.72	60.10	61.5	-2.3%	2.3%
-23	55.35	56.62	51,92	-2.2%	2.3%
-22	52.20	53.37	54.55	-2.2%	2.2%
-21	49.25	50.32	51.41	-2.1%	2.2%
-20	46.49	47.47	48.47	-2.1%	2.1%
- 9	43.89	44.80	45.71	-2.0%	2.0%
-18	41.46	42.29	43.13	-2.0%	2.0%
-17	39 18	39 94	40 71	-1 9%	1 9%
-16	37 04	37 71	38 11	-1.8%	9%
-15	35.03	35 67	36 32	- 89	1.8%
-14	22 1	22.07	31 32	-1.7%	1.0%
12	21 27	21 00	22 15	-1.1A	1.0%
-13	31.31	31.90	20,40	1 /a	1.1%
-12	29.10	30.19	30.69	-1.6%	1.6%
-	28.13	28.58	29.03	-1.6%	1.6%
-10	26.65	27.06	27.48	-1.5%	1.5%
- 9	25.26	25.64	26.02	-1.5%	1.5%
- 8	23.95	24.30	24.64	- . 4%	1.4%
- 7	22.72	23.03	23.35	-1.4%	1.4%
- 6	21.56	21.84	22.13	-1.3%	1.3%
- 5	20.46	20.72	20.98	- 3%	1.3%
- 4	19 43	19 66	19 90	-1.2%	1.2%
- 3	18 45	18 67	18 88	-1.2%	1.2%
- 2	17 53	17 73	17 92	- 1 1 %	1.2.1
-	16.66	16.81	17.01	- 1 9	1.1%
0	15.81	10.04		-1.0%	1.1%
	15.04	10.00	15.10	1.0%	1.0%
2	11.00	13.21	11.01	- 1. 1/2	1.1%
2	14.30	14.40	14.02	%	1.16
3	13.60	13. (5	13.91	- . %	1.2%
4	12.93	13.09	13.24	-1.2%	1.2%
5	12.30	12.46	12.6	-1.2%	1.3%
6	11.70	11.86	12.01	-1.3%	1.3%
7	. 4	11.29	11.45	-1.3%	1.4%
8	10.61	10.76	10.91	- 1.4%	1.4%
9	10.10	10.25	10.40	-1.4%	1.5%
0	9,626	9.771	9.918	-1.5%	1.5%
	9.174	9.316	9.461	-1.5%	1.5%
2	8 745	8 885	9 027	- 6%	61
13	8 339	8 477	8 616	- 6%	6%
13	7 05/	8 0.917	2010.0	- 78	1.0%
14	7 5904	0.000	7 956	-1 79	1.1%
10	7 3/3	1.166	7 501	-1.16	1.16
10	0.243	7.041	1.004	-1.0%	0.0%
	0.914	1.041	1.110	-1.0%	1.0%
18	6.602	b.121	6.853	-1.9%	. 9%
19	6.306	6.428	6.552	-1.9%	1.9%
20	6.025	6. 44	6.265	-1.9%	2.0%
21	5.758	5.875	5.993	-2.0%	2.0%
22	5.504	5.618	5.734	-2.0%	2.1%
23	5.263	5.374	5.488	-2.1%	2.1%
24	5.034	5.142	5.253	-2.1%	2.2%
25	4.816	4.922	5.030	-2.2%	2.2%
26	4,608	4.712	4.818	-2.2%	2.2%
	1	1 510	1 015	2.2.	1 2%

EMP (°C)	R (min) F	(cent)	R (max)	R (min)	R (max
28	4.223	4.322	4.422	-2.3%	2.3%
29	4.044	4, 40	4,239	-2.3%	2.4%
30	3.874	3,968	4.064	-2.4%	2.4%
31	3 711	3 803	3 897	-2 4%	2 5%
32	3 557	3 646	3 738	-2 5%	2 5%
23	3 110	3 197	3 586	-2.5%	2 5%
3/	3 260	3 25/	3 1/1	-2.5%	2.6%
25	2 1 2 5	3 319	2 202	-7 6%	2 69
20	2.1007	2.000	3.303	2.0%	2.0%
20	3.007	3.000	0.111	-2.0%	2.16
31	2.000	2.904	3.043	-2.16	C.16
38	2.769	2.846	2.920	-2.1%	2.0%
39	2.658	2.133	2.810	-2.1%	2.8%
40	2.553	2.625	2.700	-2.8%	2.8%
41	2.45	2.522	2.595	-2.8%	2.9%
42	2.355	2.424	2.495	-2.9%	2.9%
43	2.262	2.330	2.399	-2.9%	3.0%
44	2.174	2.240	2.307	-2.9%	3.0%
45	2.090	2.154	2.219	-3.0%	3.0%
46	2.009	2.072	2.136	-3.0%	3.1%
47	1,932	1,993	2.055	-3.0%	3.1%
48	1.859	1.918	1,978	-3.1%	3.2%
49	1 788	846	905	-3.1%	3.2%
50	1 721	1 777	1 834	-3.2%	3.2%
51	1 656	1 711	1.767	-3.2%	3 3%
52	1.59/	1 6/7	1 702	-3.2%	3.3%
52	1.534	1.041	1.102	-3 38	2 14
54	1.000	1.520	1.040	-3.3%	3 19
55	1.470	1.323	1.501	2.0%	3.4%
50	1.424	1.410	1. JE4	-3.36	3.46
50	1.372	1.420	1.409	- 3.4%	3.3% 3.5%
51	1.322	1.309	1.411	-3.4%	3.3%
<u> </u>	1.274	1.320	1.361	-3.4%	3.6%
59	1.228	1.213	1.318	-3.3%	3.6%
60	1.185	1.228	1.212	-3.5%	3.6%
61	1.142	1.184	1.228	-3.5%	3.1%
62	1.102	1.143	1.185	-3.6%	3.7%
63	1.063	1.103	1.144	-3.6%	3.7%
64	1.026	1.065	1.105	-3.6%	3.8%
65	0.9902	1.028	1.067	-3.7%	3.8%
66	0.9559	0.993	1.031	-3.7%	3.8%
67	0.9229	0.9589	0.9960	-3.7%	3.9%
68	0.8913	0.9263	0.9630	-3.8%	3.9%
69	0.8609	0.8950	0.9304	-3.8%	4.0%
70	0 8317	0 8649	0 8994	-3.8%	4 0%
71	0 8036	0.8360	0 8697	-3 9%	4 0%
72	0.7766	0.8082	0.8/10	- 3 9%	1 1 %
72	0.7506	0.7815	0.0410	- 2 0%	1 19
71	0.7257	0.7559	0.0100	- 1 0%	4.18
75	0.7017	0.7310	0.7010	4.0%	4,1/0
70	0.1011	0.1010	0.1010	-4.0%	4.2%
10	0.6786	0.1012	0.7309	-4.0%	4.2%
11	0.6564	0.6843	0.1133	-4. 1%	4.2%
18	0.6351	0.6622	0.6905	-4.1%	4.3%
79	0.6145	0.6410	0.6686	-4. %	4.3%
80	0.5947	0.6206	0.6475	-4.2%	4.3%
81	0.5756	0.6009	0.6271	-4.2%	4.4%
82	0.5573	0.5819	0.6075	-4.2%	4.4%
83	0.5396	0.5636	0.5886	-4.3%	4.4%
84	0.5226	0.5460	0.5704	-4.3%	4.5%
85	0.5062	0.5290	0.5528	-4.3%	4.5%
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WIRING DIAGRAM





