Manitowoc

B , J or Q Model Single Expansion Valve
Refrigeration System Operational Analysis Table

This table must be used with charts, checklists and other references to eliminate refrigeration components not listed on the table and external items and problems which can cause good refrigeration components to appear defective.

Operational Analysis	1	2	3	4
Ice Production	Published 24 hour ice production_____ Calculated (actual) ice production_____ NOTE: The ice machine is operating properly if the ice fill patterns is normal and ice production is within 10% of charted capacity.			
Installation and Water System	All installation and water related problems must be corrected before proceeding with chart.			
Ice Formation Pattern	Ice formation is extremely thin on top of evaporator -or- No ice formation on the entire evaporator ☐	Ice formation is extremely thin on top of evaporator -or- No ice formation on entire evaporator ☐	Ice formation normal -or- Ice formation is extremely thin on bottom of evaporator -or- No ice formation on entire evaporator ☐	Ice formation normal -or- No ice formation on entire evaporator ☐
Safety limits Refer to "Analyzing Safety Limits" to eliminate all non-refrigeration problems.	Stops on safety limit: 1 ☐	Stops on safety limit: 1 ☐	Stops on safety limit: 1 or 2 ☐	Stops on safety limit: 1 ☐
Freeze Cycle Discharge Pressure _____ _____ _____ 1 minute Middle End into cycle	If discharge pressure is high or Low refer to freeze cycle high or low discharge pressure problem checklist to eliminate problems and/or components not listed on this table before proceeding.			
Freeze Cycle Suction Pressure _____ _____ _____ 1 minute Middle End	If suction pressure is High or Low refer to freeze cycle high or low suction pressure problem checklist to eliminate problems and/or components not listed on this table before proceeding.			
	Suction pressure is High ☐	**Suction pressure is Low or Normal** ☐	**Suction pressure is High** ☐	**Suction pressure is High** ☐
Wait 5 minutes into the freeze cycle. Compare temperatures of **evaporator inlet** and **evaporator outlet.** Inlet _____ °F Outlet _____ °F Difference_____ °F	Inlet and outlet **within 7°F** of each other ☐	Inlet and outlet **not within 7°F** of each other -and- Inlet is colder than outlet ☐	Inlet and outlet **within 7°F** of each other -or- Inlet and outlet **not within 7°F** of each other -and- Inlet is warmer than outlet ☐	Inlet and outlet **within 7°F** of each other ☐
Wait 5 minutes into the freeze cycle. Compare temperatures of **compressor discharge line** and **hot gas valve inlet.** Comp. Disc._____ °F Hot Gas Inlet _____ °F	The hot gas valve inlet is **Hot** -and- approaches the temperature of a **Hot** compressor discharge line. ☐	The hot gas valve inlet is **cool** enough to hold hand on -and- the compressor discharge line is **Hot**. ☐	The hot gas valve inlet is **cool** enough to hold hand on -and- the compressor discharge line is **cool** enough to hold hand on. ☐	The hot gas valve inlet is **cool** enough to hold hand on -and- the compressor discharge line is **Hot**. ☐
Discharge Line Temperature Record freeze cycle discharge line temperature **at the end of the freeze cycle** _____	Discharge line temperature **160°F or higher** at the end of the freeze cycle. ☐	Discharge line temperature **160°F or higher** at the end of the freeze cycle. ☐	Discharge line temperature **less than 160°F** at the end of the freeze cycle. ☐	Discharge line temperature **160°F or higher** at the end of the freeze cycle. ☐
Final Analysis Enter total number of boxes checked in each column.	**Hot Gas Valve Leaking** ☐	**Low on Charge -or- TXV Starving** ☐	**TXV Flooding** ☐	**Compressor** ☐

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B Model Dual Expansion Valve
Refrigeration System Operational Analysis Table

This table must be used with charts, checklists and other references to eliminate refrigeration components not listed on the table and external items and problems which can cause good refrigeration components to appear defective.

Operational Analysis (listed below)	**1**	**2**	**3**	**4**
Ice Production	Published 24 hour ice production _____ Calculated (actual) ice production _____ NOTE: The ice machine is operating properly if the ice production and ice formation pattern is normal			
Installation and Water System	Installation an /or water related problems can simulate a refrigeration component malfunction. Refer to "Installation/Visual Inspection Checklist" and "Water System Checklist" and correct all problems before proceeding.			
Ice Formation Pattern **Left side**_____ _____ **Right side**_____ _____	Ice formation is extremely thin on top of one side of evaporator -or- No ice formation on one side of evaporator ☐	Ice formation is extremely thin on top of one or both sides of evaporator -or- No ice formation on entire evaporator ☐	Ice formation normal -or- Ice formation is extremely thin on bottom of one side of evaporator -or- No ice formation on entire evaporator ☐	Ice formation normal -or- No ice formation on both evaporators ☐
Safety limits Refer to "Analyzing Safety Limits" to eliminate problems and/or components not listed on this table	Stops on safety limit: 1 ☐	Stops on safety limit: 1 or 4 ☐	Stops on safety limit: 1, 2 or 3 ☐	Stops on safety limit: 4 ☐
Wait 5 minutes into the freeze cycle. Compare temperatures of **compressor discharge line** and to the inlet temperature of **both hot gas valve inlets.** Comp. Disc. _____ °F Left gas inlet _____ °F Right gas inlet _____ °F	One hot gas valve inlet is **Hot** -and- approaches the temperature of a **Hot** compressor discharge line. ☐	Both hot gas valve inlets are cool enough to hold hand on -and- the compressor discharge line is **Hot**. ☐	Both hot gas valve inlets are cool enough to hold hand on -and- the compressor discharge line is cool enough to hold hand on. ☐	Both hot gas valve inlets are cool enough to hold hand on -and- the compressor discharge line is **Hot**. ☐
Freeze cycle DISCHARGE pressure _____ _____ _____ 1 minute Middle End into cycle	**Normal** discharge pressure refer to "Analyzing Discharge Pressure" to determine if normal. If discharge pressure is **High or Low** refer to a freeze cycle high or low discharge pressure problem checklist to eliminate problems and/or components not listed on this table before proceeding.			
Freeze cycle SUCTION pressure _____ _____ _____ Beginning Middle End	**Normal** Suction Pressure - suction pressure drops through freeze cycle. Refer to "Analyzing Suction Pressure" to determine if dropping is normal **High or Low** Suction Pressure - Refer to a freeze cycle high or low discharge pressure checklist, to eliminate problems and/or components not listed on this table, before proceeding.			
	Suction pressure is **High** ☐	Suction pressure is **Low** ☐	Suction pressure is **High** ☐	Suction pressure is **High** ☐
Discharge Line Temperature Record freeze cycle discharge line temperature **at the end of the freeze cycle** _____	Discharge line temperature **160°F or higher at the end of the freeze cycle** ☐	Discharge line temperature **160°F or higher at the end of the freeze cycle**. ☐	Discharge line temperature **less than 160°F at the end of the freeze cycle** ☐	Discharge line temperature **160°F or higher at the end of the freeze cycle**. ☐
Final Analysis Enter total number of boxes checked in each column.	**Hot Gas Valve Leaking**	**Low on Charge -or- TXV Starving**	**TXV Flooding**	**Compressor**