We Claim:

1. A method for managing a flooded start of a compressor in a vapor compression system, comprising;

initiating an initial bump start of the compressor, wherein the bump start comprises turning the compressor on for a predetermined period of time;

terminating the initial bump start;

determining whether a working fluid in a liquid state remains in a sump of the compressor; and

if working fluid in a liquid state remains in the compressor sump, initiating an additional bump start of the compressor.

2. The method as set forth in claim 1 further comprising;

following termination of the additional bump start of the compressor, determining whether working fluid in a liquid state still remains in the compressor sump;

if working fluid in a liquid state remains in the compressor sump, initiating another additional bump start of the compressor; and

repeating the aforesaid sequence until no working fluid in the liquid state remains in the compressor sump.

3. The method as set forth in claim 2 further comprising initiating a normal start of the compressor after determining no working fluid in the liquid state remains in the compressor sump.

4. The method as set forth in claim 3 wherein the compressor comprises a scroll compressor.

5. A method for managing a flooded start of a compressor in a refrigerant vapor compression system, comprising:

reading an initial saturated suction pressure prior to initiating the flooded start of the compressor;

initiating an initial bump start of a potential sequence of bump starts of the compressor, wherein the initial bump start comprises turning the compressor on for a predetermined period of time;

terminating the initial bump start of the compressor;

upon termination of the initial bump start, pausing for a preset period of time;

upon lapse of the preset period of time, reading the current saturation suction pressure;

comparing the current saturation suction pressure to the initial saturation suction pressure; and

if the current saturation suction pressure is not less than the initial saturation suction pressure by an amount greater than a preselected pressure differential, continuing the sequence of bump starts and comparing the then current saturation suction pressure to the initial saturation suction pressure until the then current saturation suction pressure is less than the initial saturation suction pressure by an amount greater than the preselected pressure differential.

6. The method as set forth in claim 5 wherein the preselected pressure differential is 5 pounds per square inch gauge.

7. The method as set forth in claim 5 further comprising:

reading an ambient air temperature;

if the then current saturation suction pressure is less than the initial saturation suction pressure by an amount greater than the preselected pressure differential, calculating a then current saturated suction temperature based on the then current saturation suction pressure;

comparing the calculated current saturated suction temperature to the ambient air temperature; and

if the calculated current saturated suction temperature is less than the ambient air temperature by an amount greater than a preselected temperature differential, discontinuing the sequence of bump starts and performing a normal start of the compressor.

8. The method as set forth in claim 7 wherein the preselected temperature differential is 20 degrees F (11.1 degrees C).

9. The method as set forth in claim 5 wherein the compressor comprises a scroll compressor.

10. The method as set forth in claim 5 wherein the refrigerant vapor compression system comprises a transport refrigeration unit for conditioning an atmosphere within a mobile cargo box.

11. The method as set forth in claim 5 wherein the refrigerant vapor compression system comprises a transport refrigeration unit for conditioning an atmosphere within a refrigerated trailer.

We claim:

1. A method for managing a flooded start of a compressor (22) in a vapor compression system (20), comprising;

initiating an initial bump start of the compressor (22), wherein the bump start comprises turning the compressor (20) on for a predetermined period of time;

terminating the initial bump start;

determining whether a working fluid in a liquid state remains in a sump of the compressor (22); and

if working fluid in a liquid state remains in the compressor (22) sump, initiating an additional bump start of the compressor (22).

2. The method as set forth in claim 1 further comprising;

following termination of the additional bump start of the compressor (22), determining whether working fluid in a liquid state still remains in the compressor sump;

if working fluid in a liquid state remains in the compressor sump, initiating another additional bump start of the compressor (22); and

repeating the aforesaid sequence until no working fluid in the liquid state remains in the compressor sump.

3. The method as set forth in claim 2 further comprising initiating a normal start of the compressor (22) after determining no working fluid in the liquid state remains in the compressor sump.

4. The method as set forth in claim 3 wherein the compressor (22) comprises a scroll compressor.

5. A method for managing a flooded start of a compressor (22) in a refrigerant vapor compression system (20), comprising:

reading an initial saturated suction pressure prior to initiating the flooded start of the compressor (22);

initiating an initial bump start of a potential sequence of bump starts of the compressor (22), wherein the bump start comprises turning the compressor (20) on for a predetermined period of time;

terminating the initial bump start of the compressor (22);

upon termination of the initial bump start, pausing for a preset period of time; upon lapse of the preset period of time, reading the current saturation suction pressure;

comparing the current saturation suction pressure to the initial saturation suction pressure; and if the current saturation suction pressure is not less than the initial saturation suction pressure by an amount greater than a preselected pressure differential, continuing the sequence of bump starts and comparing the then current saturation suction pressure to the initial saturation suction pressure until the then current saturation suction pressure is less than the initial saturation suction pressure by an amount greater than the preselected pressure differential.

6. The method as set forth in claim 5 wherein the preselected pressure differential is 34 475 Pa (5 pounds per square inch gauge).

7. The method as set forth in claim 5 further comprising:

reading an ambient air temperature;

if the then current saturation suction pressure is less than the initial saturation suction pressure by an amount greater than the preselected pressure differential, calculating a then current saturated suction temperature based on the then current saturation suction pressure; comparing the calculated current saturated suction temperature to the ambient air temperature; and

if the calculated current saturated suction temperature is less than the ambient air temperature by an amount greater than a preselected temperature differential, discontinuing the sequence of bump starts and performing a normal start of the compressor (22).

8. The method as set forth in claim 7 wherein the preselected temperature differential is 11.1 degrees C (20 degrees F).

9. The method as set forth in claim 5 wherein the compressor (22) comprises a scroll compressor.

10. The method as set forth in claim 5 wherein the refrigerant vapor compression system (20) comprises a transport refrigeration unit for conditioning an atmosphere within a mobile cargo box (16).

11. The method as set forth in claim 5 wherein the refrigerant vapor compression system (20) comprises a transport refrigeration unit for conditioning an atmosphere within a refrigerated trailer.