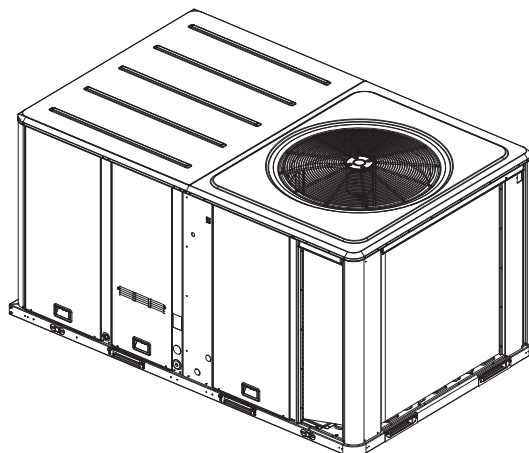


Service Facts

Packaged Rooftop Air Conditioners Precedent™ – Cooling, Gas/Electric 7.5 Ton Standard Efficiency Rooftop Units



Model Numbers TSC090H YSC090H

SAFETY WARNING

Only qualified personnel should install and service the equipment. The installation, starting up, and servicing of heating, ventilating, and air-conditioning equipment can be hazardous and requires specific knowledge and training. Improperly installed, adjusted or altered equipment by an unqualified person could result in death or serious injury. When working on the equipment, observe all precautions in the literature and on the tags, stickers, and labels that are attached to the equipment.

Introduction

Read this manual thoroughly before operating or servicing this unit.

Warnings, Cautions, and Notices

Safety advisories appear throughout this manual as required. Your personal safety and the proper operation of this machine depend upon the strict observance of these precautions.

The three types of advisories are defined as follows:

⚠ WARNING Indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.

⚠ CAUTION Indicates a potentially hazardous situation which, if not avoided, could result in minor or moderate injury. It could also be used to alert against unsafe practices.

NOTICE Indicates a situation that could result in equipment or property-damage only accidents.

Important Environmental Concerns

Scientific research has shown that certain man-made chemicals can affect the earth's naturally occurring stratospheric ozone layer when released to the atmosphere. In particular, several of the identified chemicals that may affect the ozone layer are refrigerants that contain Chlorine, Fluorine and Carbon (CFCs) and those containing Hydrogen, Chlorine, Fluorine and Carbon (HCFCs). Not all refrigerants containing these compounds have the same potential impact to the environment. Trane advocates the responsible handling of all refrigerants-including industry replacements for CFCs and HCFCs such as saturated or unsaturated HFCs and HCFCs.

Important Responsible Refrigerant Practices

Trane believes that responsible refrigerant practices are important to the environment, our customers, and the air conditioning industry. All technicians who handle refrigerants must be certified according to local rules. For the USA, the Federal Clean Air Act (Section 608) sets forth the requirements for handling, reclaiming, recovering and recycling of certain refrigerants and the equipment that is used in these service procedures. In addition, some states or municipalities may have additional requirements that must also be adhered to for responsible management of refrigerants. Know the applicable laws and follow them.

⚠ WARNING

Proper Field Wiring and Grounding Required!

Failure to follow code could result in death or serious injury. All field wiring **MUST** be performed by qualified personnel. Improperly installed and grounded field wiring poses **FIRE** and **ELECTROCUTION** hazards. To avoid these hazards, you **MUST** follow requirements for field wiring installation and grounding as described in **NEC** and your local/state electrical codes.

⚠ WARNING

Personal Protective Equipment (PPE) Required!

Failure to wear proper PPE for the job being undertaken could result in death or serious injury. Technicians, in order to protect themselves from potential electrical, mechanical, and chemical hazards, **MUST** follow precautions in this manual and on the tags, stickers, and labels, as well as the instructions below:

- Before installing/servicing this unit, technicians **MUST** put on all PPE required for the work being undertaken (Examples; cut resistant gloves/sleeves, butyl gloves, safety glasses, hard hat/bump cap, fall protection, electrical PPE and arc flash clothing). **ALWAYS** refer to appropriate Safety Data Sheets (SDS) and OSHA guidelines for proper PPE.
- When working with or around hazardous chemicals, **ALWAYS** refer to the appropriate SDS and OSHA/GHS (Global Harmonized System of Classification and Labeling of Chemicals) guidelines for information on allowable personal exposure levels, proper respiratory protection and handling instructions.
- If there is a risk of energized electrical contact, arc, or flash, technicians **MUST** put on all PPE in accordance with OSHA, NFPA 70E, or other country-specific requirements for arc flash protection, **PRIOR** to servicing the unit. **NEVER PERFORM ANY SWITCHING, DISCONNECTING, OR VOLTAGE TESTING WITHOUT PROPER ELECTRICAL PPE AND ARC FLASH CLOTHING. ENSURE ELECTRICAL METERS AND EQUIPMENT ARE PROPERLY RATED FOR INTENDED VOLTAGE.**

WARNING

Follow EHS Policies!

Failure to follow instructions below could result in death or serious injury.

- **All Trane personnel must follow the company's Environmental, Health and Safety (EHS) policies when performing work such as hot work, electrical, fall protection, lockout/tagout, refrigerant handling, etc. Where local regulations are more stringent than these policies, those regulations supersede these policies.**
- **Non-Trane personnel should always follow local regulations.**

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Revision History

- Updated the outdoor sound rating data in general data chapter.
- Updated the T/YSC090H cooling cycle pressure curve (400 cfm/ton) in the pressure curve chapter.
- Updated the T/YSC090H subcooling charging chart (320, 400 and 480 cfm/ton) in the subcooling charging chart chapter

Table of Contents

General Data	5
Performance Data	6
Evaporator Fan Performance	7
Pressure Curves	13
Subcooling Charging Chart	14
Refrigerant Circuit	17

General Data

Table 1. General data - 7.5 tons (single compressor) - standard efficiency

	7.5 Tons T/YSC090H3,4,W
Cooling Performance^(a)	
Gross Cooling Capacity (400 cfm/ton)	92,500
EER ^(b)	11.2
Nominal cfm/AHRI Rated cfm	3,000/2,400
AHRI Net Cooling Capacity	87,000
IEER (T/Y) ^(c)	12.9/12.7
System Power (kW)	7.77
Compressor	
Number/Type	1/Scroll
Sound	
Outdoor Sound Rating (dB)	88
Outdoor Coil - Type	
Microchannel	
Configuration	Full Face
Tube Size (.in)	1.00
Face Area (sq. ft.)	16.91
Rows/FPI (Fins per inch)	1/21
Indoor Coil - Type	
Lanced	
Configuration	Full Face
Tube Size (in.)	0.3125
Face Area (sq. ft.)	9.89
Rows/FPI (Fins per inch)	4/16
Refrigerant Control	Thermal Expansion Valve
Drain Connection No./Size (in.)	1 $\frac{3}{4}$ NPT
Outdoor Fan - Type	
Propeller	
No. Used/Diameter (in.)	1/26
Drive Type/No. Speeds	Direct/1
CFM	6400
Motor HP	0.70
Motor RPM	1,100
Indoor Fan - Type	
FC Centrifugal	
No. Used/Diameter (in.)/Width (in.)	1/12x12
Drive Type/No. Speeds/RPM	Belt/Variable/1,750
Motor HP (Standard/Oversized)	1.0/3.0
Motor Frame Size (Standard/Oversized)	56/56
Filters^(d)	
Type Furnished	Throwaway
Number Size Recommended	(2) 16x25x2
Refrigerant Charge ^(e)	
Lbs of R-410A	7.5
Heating Performance^(f) (Gas/Electric Only)	
Heating Input	
Low Heat Input (Btu)	120,000
Mid Heat Input (Btu)	150,000/105,000
High Heat Input (Btu)	200,000/140,000

Table 1. General data - 7.5 tons (single compressor) - standard efficiency (continued)

	7.5 Tons T/YSC090H3,4,W
Heating Output	
Low Heat Input (Btu)	96,000
Mid Heat Input (Btu)	120,000/84,000
High Heat Input (Btu)	160,000/112,000
Steady State Efficiency%	
Low Heat Input (Btu)	80
Mid Heat Input (Btu)	80
High Heat Input (Btu)	80
No. Burners	
Low Heat Input (Btu)	3
Mid Heat Input (Btu)	3
High Heat Input (Btu)	4
No. Stages	
Low Heat Input (Btu)	1
Mid Heat Input (Btu)	2
High Heat Input (Btu)	2
Gas Supply Line Pressure	
Natural (minimum/maximum)	4.5/14.0
LP (minimum/maximum)	11.0/14.0
Gas Connection Pipe Size (in)	
Low Heat	1/2
Mid Heat	3/4
High Heat	3/4

- (a) Cooling performance is rated at 95°F ambient, 80°F entering dry bulb, 67°F entering wet bulb. Gross capacity does not include the effect of fan motor heat. AHRI capacity is net and includes the effect of fan motor heat. Units are suitable for operation to ±20% of nominal cfm. Units are certified in accordance with the Unitary Air-Conditioner Equipment certification program, which is based on AHRI Standard 340/360.
- (b) EER is rated at AHRI conditions and in accordance with DOE test procedures.
- (c) Integrated Efficiency Ratio (IEER) is rated in accordance with AHRI Standard 340/360. The IEER rating requires that the unit efficiency be determined at 100%, 75%, 50% and 25% load (net capacity) at the specified in AHRI Standard.
- (d) Optional 2" MERV 8 and MERV 13 filters also available.
- (e) Refrigerant charge is an approximate value. For a more precise value, see unit nameplate and service instructions.
- (f) Heating performance limit settings and rating data were established and approved under laboratory test conditions using American National Standards Institute standards. Ratings shown are for elevations up to 2000 feet. For elevations above 2000 feet, ratings should be reduced at the rate of 4% for each 1000 feet above sea level. Applicable to gas/electric units only.

Performance Data

Table 2. Standard motor & sheave/fan speed (rpm)

Tons	Unit Model Number	Fan Sheave	6 Turns Open	5 Turns Open	4 Turns Open	3 Turns Open	2 Turns Open	1 Turn Open	Closed
7.5	T/YSC090H	AK59x1"	N/A	805	865	925	985	1045	1105

Note: Factory set at 3 turns open.

Table 3. Standard motor & low static drive accessory sheave/fan speed (rpm)

Tons	Unit Model Number	Fan Sheave	6 Turns Open	5 Turns Open	4 Turns Open	3 Turns Open	2 Turns Open	1 Turn Open	Closed
7.5	T/YSC090H	AK74x1"	N/A	602	650	698	746	794	842

Note: Factory set at 3 turns open.

Table 4. Oversized motor & drive sheave/fan speed (rpm)

Tons	Unit Model Number	Fan Sheave	6 Turns Open	5 Turns Open	4 Turns Open	3 Turns Open	2 Turns Open	1 Turn Open	Closed
7.5	T/YSC090H	AK56x1"	N/A	958	1022	1086	1150	1214	1278

Notes: Factory set at 3 turns open.

Table 5. Oversized motor & high static drive sheave/fan speed (rpm)

Tons	Unit Model Number	6 Turns Open	5 Turns Open	4 Turns Open	3 Turns Open	2 Turns Open	1 Turn Open	Closed
7.5	T/YSC090H	BK52x1"	N/A	1127	1197	1268	1338	1409

Notes: Factory set at 3 turns open.

Table 6. Air temperature rise across electric heaters (°F)

kW	Stages	7.5 Tons, 3000 cfm, TSC090H3,4,W
9.0	1	9.5
18.0	1	19.0
27.0	2	28.5
36.0	2	37.9

Notes:

1. For minimum design airflow, see airflow performance table for each unit.
2. To calculate temp rise at different airflow, use the following formula:
Temp. rise across Electric Heater = kWx3414/1.08xCFM.

Evaporator Fan Performance

Table 7. Belt drive evaporator fan performance - 7.5 tons standard efficiency - TSC090H3,4,W downflow airflow

External Static Pressure (Inches of Water)																					
		.10		.20		.30		.40		.50		.60		.70		.80		.90		1.00	
cfm	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	
1-hp Standard Motor & Field Supplied Low Static Drive^(a)											1-hp Standard Motor & Drive										
2400	613	0.42	668	0.50	711	0.57	756	0.65	798	0.72	838	0.80	875	0.88	911	0.96	945	1.04	978	1.12	
2700	676	0.56	733	0.69	767	0.74	808	0.83	848	0.91	886	1.00	922	1.09	956	1.18	989	1.27	1021	1.36	
3000	741	0.75	793	0.89	832	0.98	863	1.04	901	1.14	936	1.24	971	1.33	1003	1.43	1036	1.53	1067	1.63	
3300	807	0.98	849	1.10	897	1.26	925	1.32	954	1.40	989	1.51	1022	1.62	1053	1.73	1084	1.83	1113	1.94	
3600	874	1.25	909	1.36	957	1.55	990	1.67	1015	1.73	1042	1.82	1074	1.95	1104	2.07	1134	2.18	1163	2.30	
3-hp Oversized Motor & Drive																					

continued

External Static Pressure (Inches of Water)																					
		1.10		1.20		1.30		1.40		1.50		1.60		1.70		1.80		1.90		2.00	
cfm	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	
1-hp Standard Motor & High Static Drive Kit (or 2-hp Oversized Motor & Drive)																					
2400	1011	1.20	1041	1.28	1070	1.36	1099	1.44	1127	1.52	1153	1.60	1178	1.68	1203	1.76	1229	1.84	1252	1.92	
2700	1051	1.45	1082	1.54	1111	1.63	1139	1.72	1166	1.81	1192	1.90	1217	1.98	1243	2.08	1268	2.17	1291	2.25	
3000	1096	1.73	1124	1.83	1153	1.93	1180	2.03	1207	2.13	1233	2.23	1258	2.33	1283	2.43	1308	2.53	1331	2.63	
3300	1142	2.05	1170	2.16	1197	2.27	1223	2.37	1249	2.48	1275	2.59	1300	2.71	1324	2.82	1347	2.92	1371	3.03	
3600	1191	2.41	1218	2.53	1244	2.65	1269	2.77	1294	2.89	1319	3.01	1342	3.12	1366	3.24	1389	3.36	—	—	
3-hp Oversized Motor & Field Supplied High Static Drive^(b)																					

Notes:

1. For standard evaporator fan speed (rpm), reference the standard motor and sheave/fan speed applicable table in the fan performance section.
2. Data includes pressure drop due to standard filters and wet coils. No accessories or options are included in pressure drop data.
3. 1-hp Fan Motor Heat (MBh) = 2.829 x Fan bhp+.4024. 3-hp Fan Motor Heat (MBh) = 2.900 x Fan bhp+.4750
4. Factory supplied motors, in commercial equipment, are definite purpose motors, specifically designed and tested to operate reliably and continuously at all cataloged conditions. Using the full horsepower range of our fan motors as shown in our tabular data will not result in nuisance tripping or premature motor failure. Our product's warranty will not be affected.

(a) Field Supplied Fan Sheave AK74 and Belt AX35
 (b) Field Supplied Fan Sheave BK52 and Belt BX30

Performance Data

Table 8. Belt drive evaporator fan performance - 7.5 tons standard efficiency - TSC090H3,4,W horizontal airflow

External Static Pressure (Inches of Water)																						
		.10		.20		.30		.40		.50		.60		.70		.80		.90		1.00		
cfm	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp
1-hp Standard Motor & Field Supplied Low Static Drive ^(a)											1-hp Standard Motor & Drive											
2400	681	0.52	726	0.60	770	0.69	811	0.77	852	0.85	892	0.94	931	1.02	969	1.11	1007	1.20	1046	1.31		
2700	754	0.72	796	0.81	835	0.90	874	0.99	910	1.08	947	1.18	983	1.27	1018	1.37	1052	1.47	1087	1.57		
3000	828	0.97	868	1.07	903	1.17	938	1.27	973	1.37	1005	1.47	1039	1.57	1072	1.68	1103	1.78	1135	1.90		
3300	904	1.26	940	1.37	974	1.48	1004	1.59	1037	1.71	1069	1.82	1098	1.93	1129	2.04	1159	2.15	1188	2.27		
3600	979	1.62	1013	1.74	1045	1.86	1074	1.98	1103	2.10	1133	2.22	1162	2.35	1189	2.46	1217	2.58	1245	2.71		
3-hp Oversized Motor & Drive																						

continued

External Static Pressure (Inches of Water)																						
		1.10		1.20		1.30		1.40		1.50		1.60		1.70		1.80		1.90		2.00		
cfm	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp
											3-hp Oversized Motor & Drive											
2400	1083	1.42	1119	1.52	1153	1.63	1185	1.73	1218	1.84	1249	1.95	1278	2.06	1307	2.16	1337	2.28	1364	2.38		
2700	1120	1.67	1154	1.79	1188	1.91	1220	2.02	1252	2.14	1283	2.26	1313	2.39	1342	2.51	1370	2.63	1397	2.74		
3000	1166	2.00	1197	2.12	1227	2.23	1256	2.34	1288	2.47	1318	2.61	1347	2.73	1377	2.87	1406	3.01	1433	3.14		
3300	1217	2.39	1246	2.51	1274	2.63	1302	2.75	1330	2.88	1357	3.00	1384	3.13	1413	3.27	1441	3.42	—	—		
3600	1272	2.83	1299	2.96	1326	3.09	1352	3.22	1378	3.35	—	—	—	—	—	—	—	—	—	—		
3-hp Oversized Motor & Field Supplied High Static Drive^(b)																						

Notes:

1. For standard evaporator fan speed (rpm), reference the standard motor and sheave/fan speed applicable table in the fan performance section.
2. Data includes pressure drop due to standard filters and wet coils. No accessories or options are included in pressure drop data.
3. 1-hp Fan Motor Heat (MBh) = 2.829 x Fan bhp+.4024. 3-hp Fan Motor Heat (MBh) = 2.900 x Fan bhp+.4750
4. Factory supplied motors, in commercial equipment, are definite purpose motors, specifically designed and tested to operate reliably and continuously at all cataloged conditions. Using the full horsepower range of our fan motors as shown in our tabular data will not result in nuisance tripping or premature motor failure. Our product's warranty will not be affected.

(a) Field Supplied Fan Sheave AK74 and Belt AX35

(b) Field Supplied Fan Sheave BK52 and Belt BX30

Table 9. Belt drive evaporator fan performance - 7.5 tons standard efficiency with gas heat - YSC090H3,4,W low & medium gas heat downflow airflow

External Static Pressure (Inches of Water)																					
		.10		.20		.30		.40		.50		.60		.70		.80		.90		1.00	
cfm	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	
1-hp Standard Motor & Field Supplied Low Static Drive^(a)											1-hp Standard Motor & Drive										
2400	655	0.47	707	0.55	758	0.64	802	0.72	845	0.80	886	0.88	925	0.97	961	1.05	997	1.14	1028	1.22	
2700	724	0.64	770	0.73	817	0.83	861	0.92	900	1.02	939	1.11	976	1.20	1011	1.30	1045	1.39	1077	1.49	
3000	794	0.86	837	0.96	878	1.06	920	1.17	958	1.27	994	1.38	1029	1.48	1063	1.58	1096	1.69	1128	1.79	
3300	865	1.12	905	1.23	942	1.34	980	1.45	1018	1.57	1053	1.69	1085	1.80	1117	1.92	1148	2.03	1179	2.14	
3600	937	1.43	973	1.55	1008	1.67	1042	1.79	1077	1.91	1112	2.05	1144	2.18	1174	2.30	1203	2.42	1232	2.55	
3-hp Oversized Motor & Drive																					

Continued

External Static Pressure (Inches of Water)																					
		1.10		1.20		1.30		1.40		1.50		1.60		1.70		1.80		1.90		2.00	
cfm	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	
1-hp Standard Motor & Drive											3-hp Oversized Motor & Field Supplied High Static Drive^(b)										
2400	1060	1.30	1091	1.39	1120	1.48	1150	1.57	1178	1.65	1204	1.74	1231	1.83	1256	1.91	1281	2.00	1304	2.09	
2700	1109	1.58	1139	1.68	1167	1.77	1195	1.86	1223	1.96	1249	2.06	1275	2.16	1301	2.26	1325	2.35	1349	2.45	
3000	1158	1.90	1188	2.00	1216	2.11	1244	2.21	1271	2.32	1296	2.42	1321	2.53	1346	2.64	1371	2.75	1393	2.85	
3300	1209	2.26	1238	2.37	1265	2.49	1293	2.61	1319	2.72	1344	2.84	1369	2.95	1393	3.07	1416	3.18	1441	3.30	
3600	1261	2.67	1289	2.80	1316	2.92	1342	3.04	1368	3.17	1393	3.30	1419	3.43	—	—	—	—	—	—	

Notes:

1. For standard evaporator fan speed (rpm), reference the standard motor and sheave/fan speed applicable table in the fan performance section.
2. Data includes pressure drop due to standard filters and wet coils. No accessories or options are included in pressure drop data.
3. 1-hp Fan Motor Heat (MBh) = 2.829 x Fan bhp+.4024. 3-hp Fan Motor Heat (MBh) = 2.900 x Fan bhp+.4750
4. Factory supplied motors, in commercial equipment, are definite purpose motors, specifically designed and tested to operate reliably and continuously at all cataloged conditions. Using the full horsepower range of our fan motors as shown in our tabular data will not result in nuisance tripping or premature motor failure. Our product's warranty will not be affected.

(a) Field Supplied Fan Sheave AK74 and Belt AX35
 (b) Field Supplied Fan Sheave BK52 and Belt BX30

Performance Data

Table 10. Belt drive evaporator fan performance - 7.5 tons standard efficiency with gas heat - YSC090H3,4,W low & medium gas heat - horizontal airflow

External Static Pressure (Inches of Water)																						
		.10		.20		.30		.40		.50		.60		.70		.80		.90		1.00		
cfm	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp
1-hp Standard Motor & Field Supplied Low Static Drive ^(a)											1-hp Standard Motor & Drive											
2400	739	0.61	783	0.69	825	0.77	866	0.85	903	0.93	941	1.02	978	1.11	1013	1.20	1046	1.28	1078	1.37		
2700	821	0.85	861	0.94	898	1.03	935	1.12	972	1.21	1005	1.30	1038	1.39	1072	1.49	1104	1.59	1135	1.69		
3000	904	1.14	940	1.24	974	1.34	1008	1.44	1042	1.54	1075	1.65	1105	1.74	1135	1.85	1164	1.95	1195	2.06		
3300	987	1.49	1020	1.60	1052	1.71	1083	1.82	1113	1.93	1144	2.04	1174	2.16	1203	2.27	1230	2.38	1257	2.49		
3600	1071	1.92	1101	2.04	1131	2.15	1160	2.27	1188	2.39	1216	2.51	1244	2.64	1272	2.76	1298	2.88	1323	3.00		
3-hp Oversized Motor & Drive											3-hp Oversized Motor & Field Supplied Drive ^(b)											

Continued

External Static Pressure (Inches of Water)																						
		1.10		1.20		1.30		1.40		1.50		1.60		1.70		1.80		1.90		2.00		
cfm	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp
3-hp Oversized Motor & Drive																						
2400	1110	1.46	1140	1.55	1169	1.64	1198	1.73	1225	1.82	1251	1.91	1277	2.01	1301	2.10	1326	2.19	1350	2.28		
2700	1165	1.78	1195	1.88	1223	1.98	1251	2.08	1277	2.18	1304	2.29	1330	2.39	1355	2.49	1378	2.59	1402	2.70		
3000	1224	2.17	1252	2.28	1279	2.39	1306	2.49	1332	2.60	1358	2.71	1383	2.83	1407	2.94	1430	3.05	1454	3.16		
3300	1283	2.61	1311	2.73	1338	2.85	1364	2.97	1389	3.09	1413	3.21	1439	3.33	—	—	—	—	—	—		
3600	1349	3.13	1373	3.25	1398	3.38	—	—	—	—	—	—	—	—	—	—	—	—	—	—		
3-hp Oversized Motor & Field Supplied High Static Drive ^(b)																						

Notes:

1. For standard evaporator fan speed (rpm), reference the standard motor and sheave/fan speed applicable table in the fan performance section.
2. Data includes pressure drop due to standard filters and wet coils. No accessories or options are included in pressure drop data.
3. 1-hp Fan Motor Heat (MBh) = 2.829 x Fan bhp + .4024. 3-hp Fan Motor Heat (MBh) = 2.900 x Fan bhp + .4750
4. Factory supplied motors, in commercial equipment, are definite purpose motors, specifically designed and tested to operate reliably and continuously at all cataloged conditions. Using the full horsepower range of our fan motors as shown in our tabular data will not result in nuisance tripping or premature motor failure. Our product's warranty will not be affected.

(a) Field Supplied Fan Sheave AK74 and Belt AX35
 (b) Field Supplied Fan Sheave BK52 and Belt BX30

Table 11. Belt drive evaporator fan performance - 7.5 tons standard efficiency with gas heat - YSC090H3,4,W high gas heat downflow airflow

External Static Pressure (Inches of Water)																					
		.10		.20		.30		.40		.50		.60		.70		.80		.90		1.00	
cfm	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	
1-hp Standard Motor & Field Supplied Low Static Drive ^(a)										1-hp Standard Motor & Drive											
2400	675	0.51	727	0.60	772	0.68	815	0.76	857	0.85	896	0.93	935	1.02	971	1.11	1006	1.19	1041	1.29	
2700	748	0.70	793	0.80	837	0.89	877	0.98	915	1.08	952	1.17	988	1.27	1022	1.37	1056	1.47	1089	1.57	
3000	821	0.94	862	1.04	903	1.15	941	1.25	976	1.35	1011	1.46	1045	1.57	1077	1.67	1109	1.78	1140	1.89	
3300	895	1.23	932	1.34	970	1.46	1007	1.58	1040	1.69	1072	1.79	1104	1.91	1134	2.03	1164	2.15	1194	2.27	
3600	969	1.57	1004	1.70	1038	1.82	1073	1.95	1106	2.07	1136	2.19	1166	2.32	1195	2.44	1223	2.57	1251	2.70	
3-hp Oversized Motor & Drive																					

Continued

External Static Pressure (Inches of Water)																					
		1.10		1.20		1.30		1.40		1.50		1.60		1.70		1.80		1.90		2.00	
cfm	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	
3-hp Oversized Motor & Drive										3-hp Oversized Motor & Drive											
2400	1074	1.37	1105	1.46	1136	1.55	1165	1.64	1194	1.73	1222	1.83	1250	1.92	1275	2.00	1301	2.10	1326	2.18	
2700	1121	1.66	1151	1.76	1181	1.86	1211	1.97	1238	2.06	1266	2.17	1292	2.27	1318	2.37	1344	2.47	1369	2.57	
3000	1170	2.00	1199	2.11	1229	2.22	1256	2.33	1285	2.44	1311	2.55	1336	2.66	1363	2.77	1388	2.89	1413	3.00	
3300	1223	2.39	1251	2.50	1279	2.62	1305	2.74	1333	2.87	1358	2.98	1384	3.11	1408	3.23	1434	3.35	—	—	
3600	1279	2.83	1305	2.95	1331	3.08	1357	3.21	1383	3.34	—	—	—	—	—	—	—	—	—	—	
3-hp Oversized Motor & Field Supplied High Static Drive^(b)																					

Notes:

1. For standard evaporator fan speed (rpm), reference the standard motor and sheave/fan speed applicable table in the fan performance section.
2. Data includes pressure drop due to standard filters and wet coils. No accessories or options are included in pressure drop data.
3. 1-hp Fan Motor Heat (MBh) = 2.829 x Fan bhp + .4024. 3-hp Fan Motor Heat (MBh) = 2.900 x Fan bhp + .4750
4. Factory supplied motors, in commercial equipment, are definite purpose motors, specifically designed and tested to operate reliably and continuously at all cataloged conditions. Using the full horsepower range of our fan motors as shown in our tabular data will not result in nuisance tripping or premature motor failure. Our product's warranty will not be affected.

(a) Field Supplied Fan Sheave AK74 and Belt AX35
 (b) Field Supplied Fan Sheave BK52 and Belt BX30

Performance Data

Table 12. Belt drive evaporator fan performance - 7.5 tons standard efficiency with gas heat - YSC090H3,4,W high gas heat horizontal airflow

External Static Pressure (Inches of Water)																						
		.10		.20		.30		.40		.50		.60		.70		.80		.90		1.00		
cfm	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp
1-hp Standard Motor & Field Supplied Low Static Drive ^(a)											1-hp Standard Motor & Drive											
2400	776	0.70	819	0.79	859	0.87	898	0.96	936	1.05	972	1.13	1007	1.22	1039	1.31	1071	1.40	1102	1.49		
2700	863	0.97	901	1.07	938	1.16	974	1.26	1009	1.36	1043	1.46	1075	1.55	1106	1.65	1136	1.75	1165	1.85		
3000	951	1.31	985	1.42	1019	1.52	1052	1.63	1084	1.73	1116	1.84	1146	1.95	1176	2.06	1205	2.17	1232	2.28		
3300	1039	1.72	1071	1.84	1102	1.95	1132	2.07	1162	2.18	1191	2.30	1220	2.42	1248	2.54	1275	2.66	1302	2.78		
3600	1128	2.21	1157	2.34	1186	2.46	1214	2.59	1242	2.71	1269	2.84	1296	2.97	1322	3.10	1348	3.23	1373	3.36		
3-hp Oversized Motor & Drive											3-hp Oversized Motor & Field Supplied High Static Drive ^(b)											

Continued

External Static Pressure (Inches of Water)																						
		1.10		1.20		1.30		1.40		1.50		1.60		1.70		1.80		1.90		2.00		
cfm	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp
3-hp Oversized Motor & Drive																						
2400	1132	1.58	1161	1.68	1189	1.77	1216	1.86	1242	1.95	1268	2.04	1293	2.13	1318	2.23	1342	2.33	1364	2.42		
2700	1194	1.95	1222	2.05	1249	2.16	1276	2.26	1301	2.37	1327	2.48	1350	2.57	1374	2.68	1398	2.78	1421	2.88		
3000	1260	2.39	1286	2.50	1312	2.61	1337	2.72	1363	2.84	1387	2.96	1410	3.07	1434	3.19	1457	3.31	—	—		
3300	1328	2.90	1353	3.02	1378	3.14	1402	3.26	1426	3.39	—	—	—	—	—	—	—	—	—	—		
3600	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—		
3-hp Oversized Motor & Field Supplied High Static Drive ^(b)																						

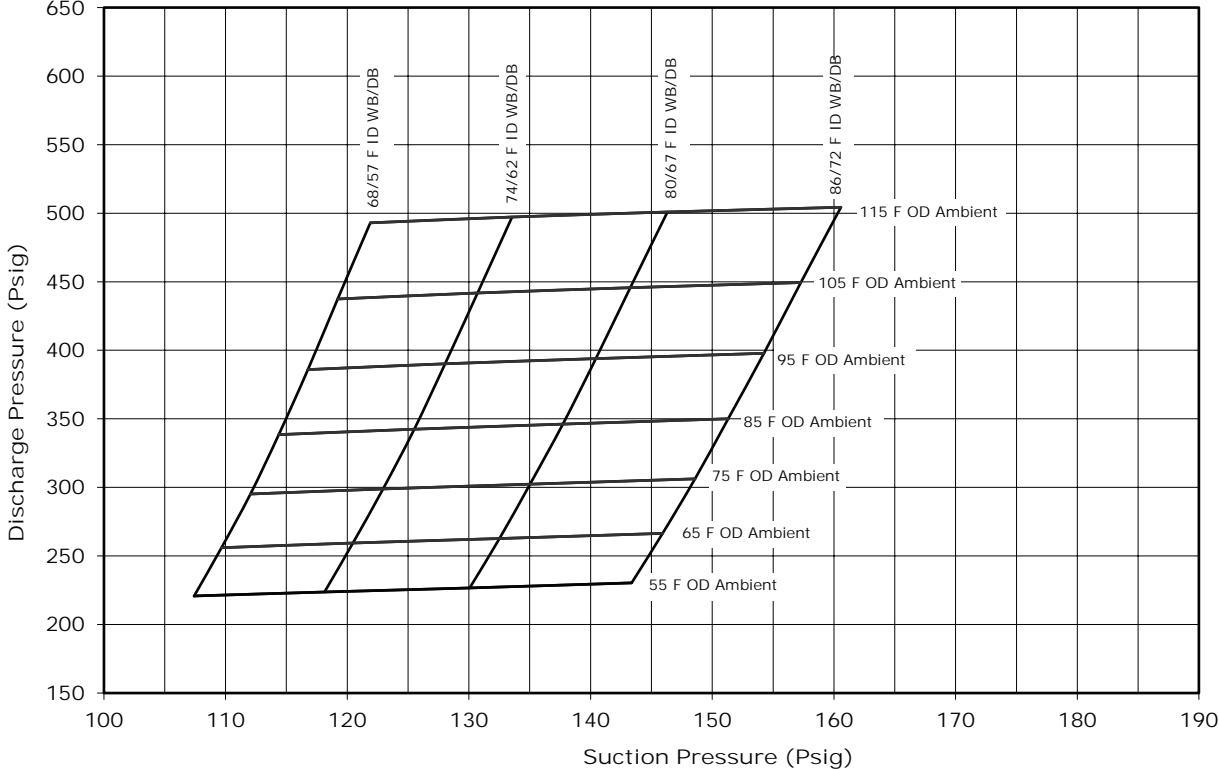
Notes:

1. For standard evaporator fan speed (rpm), reference the standard motor and sheave/fan speed applicable table in the fan performance section.
2. Data includes pressure drop due to standard filters and wet coils. No accessories or options are included in pressure drop data.
3. 1-hp Fan Motor Heat (MBh) = 2.829 x Fan bhp + .4024. 3-hp Fan Motor Heat (MBh) = 2.900 x Fan bhp + .4750
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(a) Field Supplied Fan Sheave AK74 and Belt AX35
 (b) Field Supplied Fan Sheave BK52 and Belt BX30

Pressure Curves

Figure 1. T/YSC090H Cooling cycle pressure curve (Based on Indoor Airflow of 400 CFM/Ton)



Subcooling Charging Chart

Figure 2. T/YSC090H subcooling charging chart - 320 cfm/ton

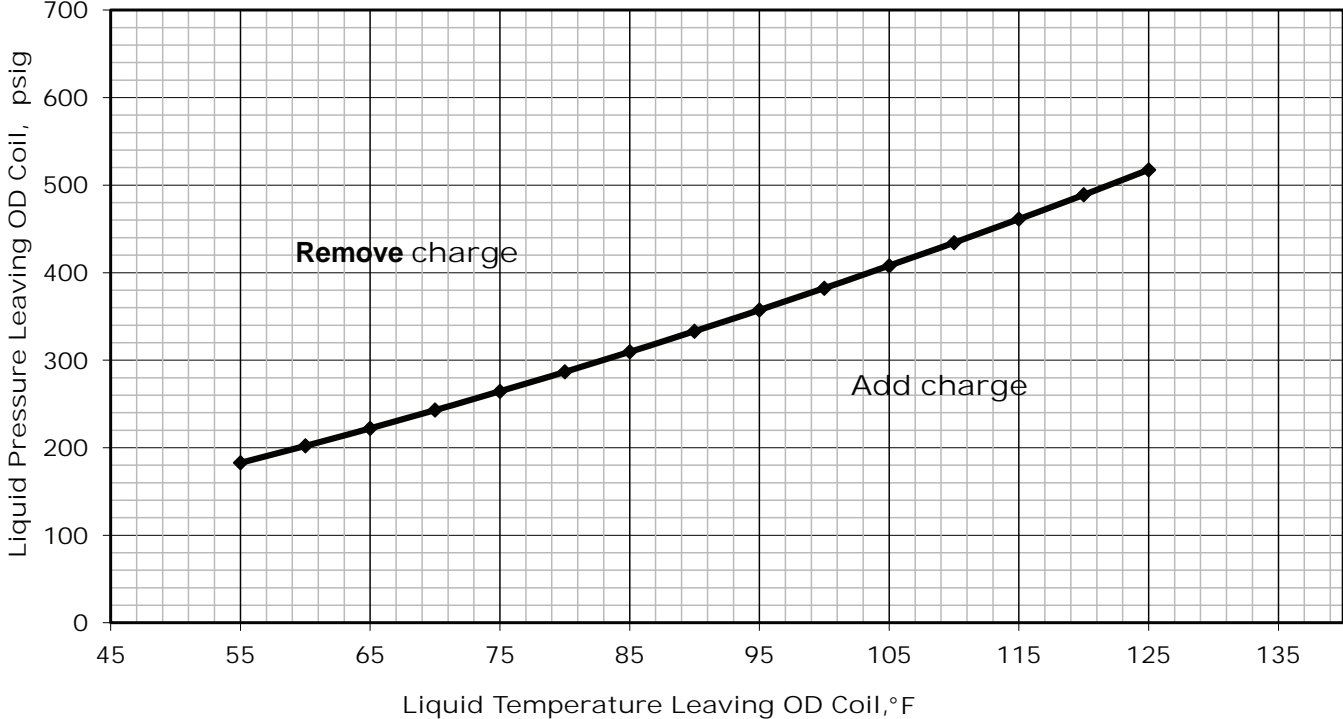
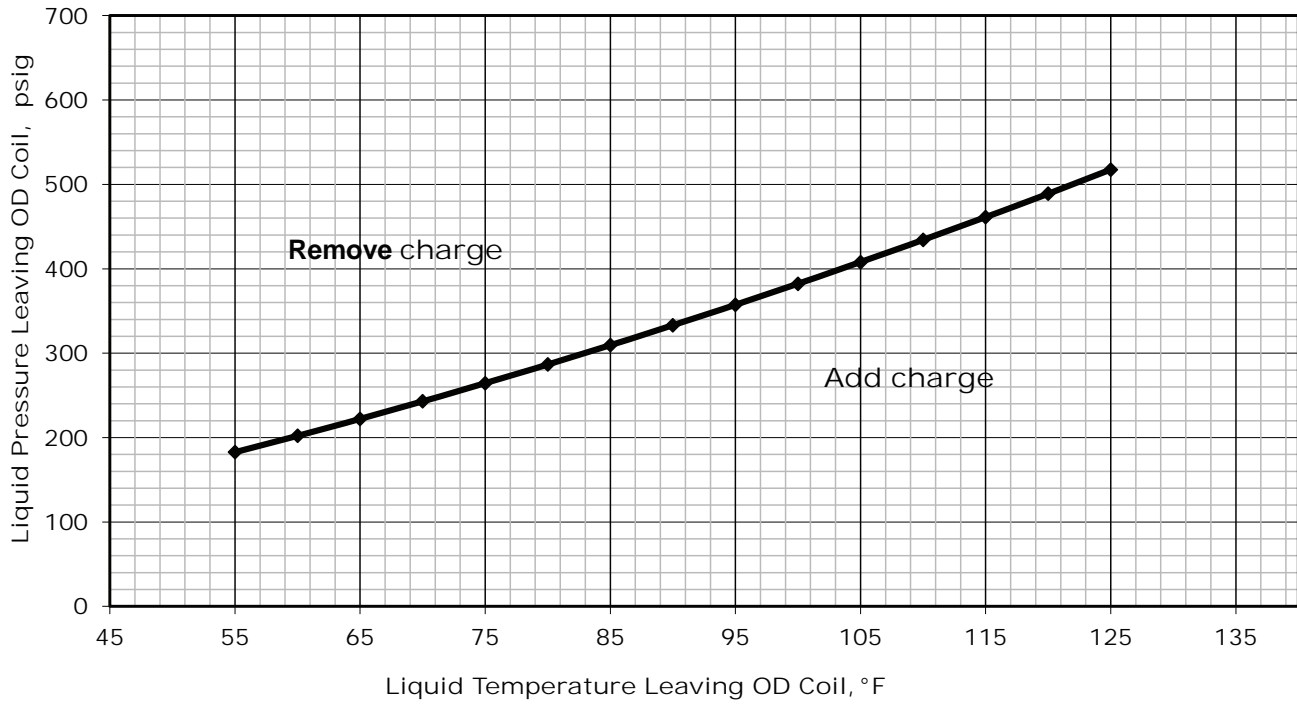
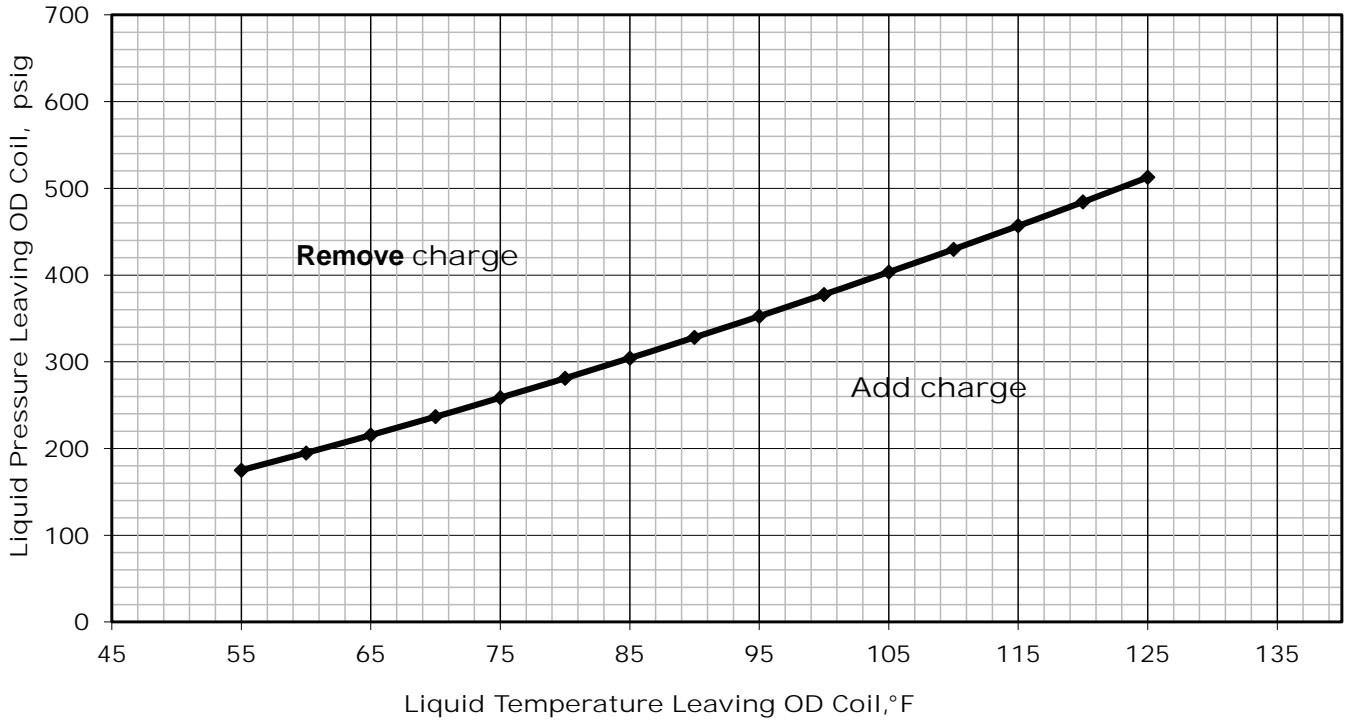


Figure 3. T/YSC090H subcooling charging chart - 400 cfm/ton



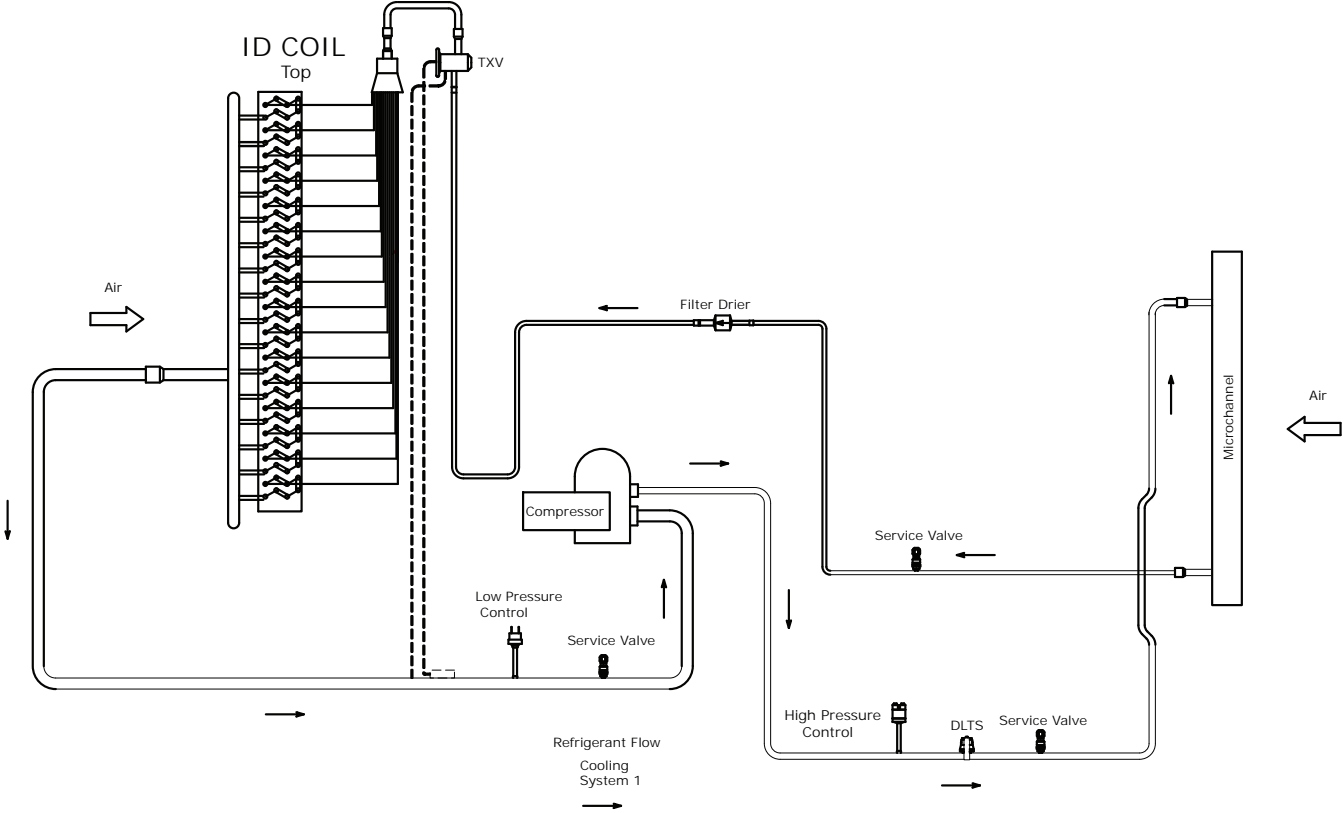
Subcooling Charging Chart

Figure 4. T/YSC090H subcooling charging chart - 480cfm/ton



Refrigerant Circuit

Figure 5. T/YSC090H refrigerant circuit



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