

**FILE INFORMATION:**

DIVISION TAB-TRANE REFRIGERATION PRODUCTS
PRODUCT TAB-RECIPROCATING COMPRESSOR-
CONDENSER UNITS
LITERATURE ITEM-GENERAL SERVICE BULLETIN

LITERATURE FILE NO.

HCOM-SB-61**GENERAL
SERVICE BULLETIN**

Since the Trane Company has a policy of continuous product improvement, it reserves the right to change specifications and design without notice. The installation and servicing of the equipment referred to in this booklet should be done by qualified, experienced technicians.

4/30/82
SUPERSEDES G-18
DATED 1/13/67

**SUBJECT: RECIPROCATING COMPRESSOR IDENTIFICATION:
MODEL NUMBERS, DESIGN SEQUENCES AND SERIAL NUMBERS**

INTRODUCTION:

The purpose of this Service Bulletin is to provide model number, design sequence and serial number descriptions for semi-hermetic, hermetic and open reciprocating compressors.

DISCUSSION:**COMPRESSOR MODEL NUMBERS**

The compressor model number consists of a sequence of numbers and letters which describe the physical characteristics of the compressor. The model number contains 6 to 12 digits.

To select parts for any compressor, the design sequence number must be known. The design sequence is changed only when parts interchangeability is affected.

Table 1 contains model number breakdowns for model A,B,C,E,F open compressors and model C,D,E,F and J hermetic compressors. Table 2 shows model number breakdowns for later style H,J,K,M,R compressors.

TABLE 1 - Model Number Breakdown for Early Style Compressors

Model Number Key For Trane Reciprocating Compressors

Item	Letter or Number	Physical Characteristic
1st	Number	Pressure Range or Refrigerant
2nd	Letter	Model of Compressor and Rore
3rd	Number	Speed
4th	Letter	Design Sequence
5th	Number	Displacement
6th	Number	Electrical
7th	Letter	Right-hand Unit
8th	Letter	Low Lift Valves
9th	Letter	Special Characteristics

1st Digit - Pressure Range or Refrigerant Type
A,B,C,E,F Open Compressor

No Number - 200 PSI
2 - 300 PSI
3 - 385 PSI

C,D,E,F,J Semi-Hermetic and Hermetic Compressor

1 - Refrigerant-12
2 - Refrigerant -22

2nd Digit - Type of Compressor and Bore

A - 3.25
B - 2.25
C - 2.00
D - 1.75
E - 3.660
F - 2.75
J - 1.8125 - 2.00

3rd Digit - Speed

3 - 3600 RPM
5 - 1800 RPM
7 - Variable

4th Digit - Design Sequence

Any Letter A through Z

5th Digit - Number of Cylinders/Cubic Inch Displacement

Model A

4 - 91.3
6 - 136.9
8 - 181.6

Model B

4 - 39.3
6 - 58.9
8 - 78.6

Model C

2 - 4.9
3 - 7.3
4 - 9.7

Model D

3 - 7.3
4 - 9.7

Model E

4 - 115.5
5 - 144.5
6 - 173.3
8 - 231.0

Model F

- 3 - 35.6
- 4 - 47.5
- 5 - 173.3
- 6 - 71.4
- 8 - 95.0
- 13 - 42.3 Long Stroke

Model J

- 2 - 4.2
- 3 - 5.0
- 4 - 6.1
- 5 - 7.3
- 6 - 9.1
- 10 - 10.1

6th Digit - Electrical Characteristics

Model J Compressor

- 1 - 208/230-60-1
- 3 - 200-240-60-3
200-50-3
- 4 - 400-480-60-3
400-50-3
- 5 - 575-60-3
- 6 - 230-50-3
- 8 - 200-50/60-3
- 9 - Other

A,B,C,D,E,F Compressors

- 0 - Open Compressor
- *1 - 460-60-3 (6 Leads)
- 3 - 200/230-60-3
- 4 - 460-60-3 (3 Leads)
- 5 - 575-60-3
- 6 - 220-50-3
- 8 - 200/230/460-60-3
- 9 - Other

*Compressor with "1" as the 6th digit in the model number and have the letter "L" as a prefix are for use on 50 hertz systems.

7th Digit - Right or Left Hand Unit

- No Letter - Left Hand or Standard
- R - Right Hand Unit

8th Digit - Valves

- No Letter - Standard Lift Valves
- L - Low Lift Valves

9th Digit - Unloaders
 T - 1/3, 2/3, 100% Loading
 W - 100% Unloaders, Actuator on Standard Number of Cylinders
 X - No Unloaders, No Actuator
 Y - 100% Unloaders, No Actuator
 Z - Standard Number of Cylinders Unloaded, No Actuator
 N - Solenoid Unloading
 P - Parallel Units
 U - 50% Unloading with Actuator
 No letter - Standard Number of Cylinders with Actuator

Compressor Model Number examples

Model Number - 2B5A40L

Explanation -

<u>Item</u>	<u>Letter</u>	<u>Characteristic</u>
1st	2	300 PSI Pressure Range
2nd	B	Model "B" Compressor, 2.50" Bore
3rd	5	1800 RPM
4th	A	1st Design Sequence
5th	4	4 Cyl/39.3 Cu.In./Rev. Displacement
6th	O	Open Compressor
7th	L	Low Lift Valves

NOTE: In the above model number example, the compressor is a standard left-hand machine and a characteristic symbol is not required. See "7th Item" table. Therefore, the 7th letter in the model number reverts to the information in the next item table.

Model Number - 2B5A80RLX

Explanation -

<u>Item</u>	<u>Letter</u>	<u>Characteristic</u>
1st	2	300 PSI Pressure Range
2nd	B	Model "B" Compressor, 2.50" Bore
3rd	5	1800 RPM
4th	A	1st Design Sequence
5th	8	8 Cyl/78.6 Cu.In./Rev. Displacement
6th	O	Open Compressor
7th	R	Right-Hand Unit
8th	L	Low Lift Valves
9th	X	No Unloaders, No Actuator

Model Number 2E5B48

Explanation -

<u>Item</u>	<u>Letter</u>	<u>Characteristic</u>
1st	2	300 PSI Pressure Range
2nd	E	Model "E" Compressor, 3.66" Bore
3rd	5	1800 RPM
4th	B	2nd Design Sequence
5th	4	4 Cyl/115.5 Cu.In./Rev. Displacement
6th	8	208/220/440/60/3 Electrical Characteristic

● TABLE 2 - Model Number Breakdown for Later Style Compressors

1st Digit - Compressor

C - Compressor

2nd Digit - Type of Compression

R - Reciprocating Piston

3rd Digit - Type of Drive

H - Hermetic Motor

O - Open

4th Digit - Compressor Model

H - 3450 RPM, Vertical, Welded Steel Shell

J - 3450 RPM, Vertical, Welded Steel Shell

K - 1750 RPM, Vertical, Welded Steel Shell

M - 1750 RPM, Horizontal, Serviceable

R - 1750 RPM, Horizontal, Serviceable

5th, 6th and 7th Digits - Nominal Tonnage, Nominal Size Displacement.

Refrigerant types, cubic inches and number of cylinders for each compressor are also listed.

	<u>Refrigerant Type</u>	<u>Nominal Tonnage</u>	<u>Cubic Inches</u>	<u>Number of Cylinders</u>
Model H				
050	R-22	5	6.82	2
062	R-22	6.25	8.82	3
075	R-22	7.5	10.22	3
083	R-22	8.3	11.07	3
Model J				
020	R-22	2	3.05	2
062	R-22	6.25	9.72	3
075	R-22	7.5	11.61	3
Model K				
200	R-22	20	50.61	4
250	R-22	25	64.50	6
300	R-22	30	75.91	6
Model M				
100	R-22	10	38.29	3
130	R-12	13	51.05	4
150	R-22	15	38.29	3
160	R-22	16	46.06	4
170	R-12	17	63.98	6
190	R-12	19	76.58	6
200	R-22	20	51.05	4
250	R-22	25	63.98	6
300	R-22	30	76.58	6

	<u>Refrigerant Type</u>	<u>Nominal Tonnage</u>	<u>Cubic Inches</u>	<u>Number of Cylinders</u>
Model R				
260	R-12	26	102.08	4 (Std. Lift Valves)
261	R-12	26	102.08	4 (Low Lift Valves)
320	R-12	32	128.19	6 (Std. Lift Valves)
321	R-12	32	128.19	6 (Low Lift Valves)
380	R-12	38	153.12	6 (Std. Lift Valves)
381	R-1	38	153.12	6 (Low Lift Valves)
400	R-22	40	102.08	4 (Std. Lift Valves)
401	R-22	40	102.08	4 (Low Lift Valves)
500	R-22	50	128.19	6 (Std. Lift Valves)
501	R-22	50	128.19	6 (Low Lift Valves)
600	R-22	60	153.12	6 (Low Lift Valves)
601	R-22	60	153.12	6 (Low Lift Valves)

8th Digit - Electrical Characteristics

	<u>Min. Volts</u>	<u>Max. Volts</u>
A-200-60-3	180	200
B-230/460-60-3	207-253	414-506
C-460-60-3	414	506
D-575-60-3	518	633
E-200/400-50-3	180-220	343-456
F-220-50-3	198	253
G-400-50-3	343	456
H-208/230-60-1	197	253
J-200/230-60-3	180	253*
K-440/480-60-3	396	528
K-460/480-60-3	414	506**
L-208-50/60-3	198	229
M-230-50/60-3	215	253
N-115-60-1	109	128
P-208-400-3	198	229
R-208-60-3	187	253
S-Special		
U-200-50/60-3	180	220
V-346-50-3	311	381
W-230-60-3	207	253
Y-200-50-3	180	220
Z-363-50-3	327	399

*180 Volts Minimum, 264 Volts Maximum for Model J Compressor.

**396 Volts Minimum, 528 Maximum for Model J Compressor

9th Digit - Physical Characteristics

Model K,M,R - Number of Cylinders that Unload

Any Number 0 through 6

Model H,J

A - Air Cooled Overload

W - Water Cooled Overload

M - Military

10th Digit - Design Sequence

Any Letter A through Z

11th Digit - Control Voltage

A - 115 VAC

B - 230 VAC

C - 12 VDC

E - 32 VDC

F - 64 VDC

G - 187 VDC

S - Special

N - None

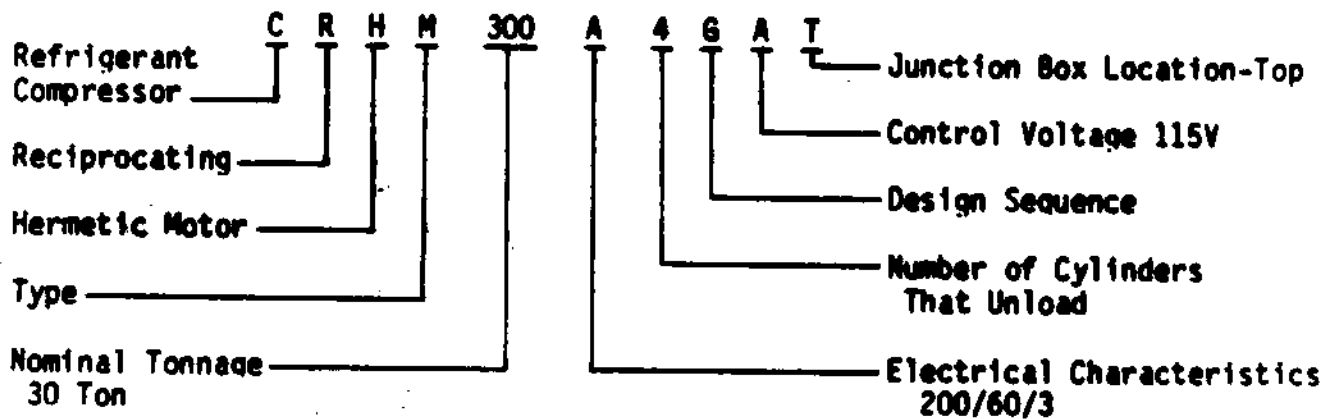
12 Digit - Physical Description

Model M and R Compressors - Junction Box Location

S - Side Junction Box

T - Top Junction Box

EXAMPLE



COMPRESSOR SERIAL NUMBERS

The compressor serial number consists of a series of numbers and letters that designates month and year of production, nominal tonnage or number of cylinders, design sequence and production sequence number.

Compressors Produced Prior to 1966

Compressors manufactured through the end of 1965 had serial numbers that indicated year and month of production and the specific compressor production sequence number.

Serial Number Example: 65 A 456

65 - Year of Production - 1965
A - Month of Production - January
456 - Production Sequence Number

Compressors Produced During 1966

Compressors manufactured during 1966 had an expanded serial number to provide additional information for reliability statistics. The additional items were nominal tonnage or number of cylinders and a design sequence designator.

Serial Number Example: 66A05A789

66 - Year of Production - 1966
A - Month of Production - January
05 - Nominal Tonnage for Model "D" and "J" Compressors. On all other compressors, this number denotes number of cylinders.
A - Design Sequence
789 - Production Sequence Number

Compressors Produced 1967 to Present

In January of 1967, a prefix letter was added to the serial number to indicate motor manufacturer on hermetic compressors and shaft seal manufacturer on open compressors. Refer to Table 3 for a listing of motor and shaft seal manufacturers.

TABLE 3 - MOTOR AND SEAL MANUFACTURERS

SERIAL NUMBER LETTER	MOTOR MANUFACTURER	SERIAL NUMBER LETTER	SHAFT SEAL MANUFACTURER
A	A.O. SMITH	J	JOHN CRANE
C	CENTURY	R	ROTARY
D	DELCO		
E	EMERSON		
G	GENERAL ELECTRIC		
W	WAGNER ELECTRIC		

Serial Number Example: G67A05C976

- G - Hermetic Compressor with General Electric Motor
- 67 - Year of Production - 1967
- A - Month of Production - January
- 05 - Nominal Tonnage for Model "D", "H", "J", "K", "M" and "R"
Compressors. On all other compressors this letter denotes number of
cylinders.
- C - Design Sequence
- 976 - Production Sequence Number

DESIGN SEQUENCES

Tables 4,5,6 and 7 list descriptions of design changes on Hermetic Model E,F,M and R Compressors respectively.

TABLE 4 - DESCRIPTION OF DESIGN CHANGES TO OPEN MODEL E COMPRESSOR

Model No. Design Sequence	Serial No. Design Designator	Description of Change	Compressor Serial No.
A	-	Original Design	-
B	-	Crankshaft and connecting rod change. The crankshaft rod journals were changed by replacing the undercut shoulder with a fillet. Rods were machined to match the fillet on the crankshaft. When replacing the crankshaft on the "A" design sequence, it is also necessary to replace rods. The new rod can be used with either crankshaft.	-
C	-	Cylinder unloader and suction valve plate changed. This change was made to reduce noise level during unloader transition. To convert to new design, it is necessary to replace suction valve plate, suction valve springs, lift pins, retaining ring, O-rings - cylinder liner to unloader.	-
D	-	Sight glass changed to bolt-on type.	-
E	A	Discharge valve assembly changed. On A,B,C,D and E design compressors, it is necessary to replace any discharge valve cage assembly component with the new style gas cushion valve cage assembly. Note: This change made prior to new serial number system.	Starting with 64K280
E	B	HSV valve material used on suction and discharge valve rings.	Starting with 66D06R2473
E	C	Two pier suction valve plate. The new plate is physically different because it has two piers or stops between each spring pocket instead of one. If valve plate requires replacing, update to current style.	Starting with 66H08C676

TABLE 4 - DESCRIPTION OF DESIGN CHANGES TO OPEN MODEL E COMPRESSOR (CONTINUED)

Model No. Design Sequence	Serial No. Design Designator	Description of Change	Compressor Serial No.
E	C	Discharge valve retainer changed. If retainer requires replacement, update discharge valve assembly to current design.	
F 4,5,6	D Cylinder Only	Discharge valve cushion changed. New cushion has larger O.D. Cushion retainer has tapered flange. Cage has larger hub diaphragm and cushion groove. If cage does not require replacing - valve can be rebuilt with new valve, cushion and retainer.	69F08C4360
E	F	Suction valve spring changed. If require replacing, update with current style plate and springs.	
F	F	Oil pressure pickup moved from pump discharge to hand hole cover. Oil pressure setting changed from 17 to 30 psig.	
G	G	Cylinder liners, discharge valve cushion and retainer, hardened suction valve seat, thicker suction valve. Discharge valve cage changed to gas cushion and cushion and retainer removed.	
H	H	Shaft seals, bearing head and seal cover changed from an insert type gland plate to a bolt in gland plate.	
H	J	Cylinder head spring material and design change. Total turns changed from 3 to 3.5 turns.	
H	K	Suction valve spring. If replacement required use current design valve plate and springs.	
H	L (8 Cyl. only)	Unloader removed from CYL #7. To improve motor cooling and oil return. Unloading of 100/75/62-1/2/37-1/2. Modify unit when overhaul is done.	

TABLE 4 - DESCRIPTION OF DESIGN CHANGES TO OPEN MODEL E COMPRESSOR (CONTINUED)

Model No. Design Sequence	Serial No. Design Designator	Description of Change	Compressor Serial No.
H	M (8 cyl. only)	Crankcase vents changed from check valves to orifice. Motor barrel 90° street elbow check valve changed to stand pipe. Change to orifice and stand pipe when overhauling compressor.	
H	N	Changed unloading sequence to 100/75/50/37-1/2 either above or 100/75/62-1/2/37-1/2 acceptable.	
J	S	Suction valve plate and springs. Spring configuration and pocket depth changed. Current design.	
J	T	Discharge valve cage changed. More pads 6 compared to 3 for discharge valve head spring and 6 discharge valve cage feet compared to 3. Change was made to improve positioning of head spring and discharge valve. Not necessary to update previous design when rebuilding compressor.	
J	U	Oil pump increase bearing diameter. Bearing area increased to reduce possibility of oil pump seizure due to copper plating. When rebuilding a compressor, it is not necessary to replace the new style. For more discussion see HCOM-SB-28.	7C0802705
J	V (4,5,6 cyl. only)	Crankcase vents changed to orifice and stand pipe added. Install when rebuilding compressor.	7J06V761
J	W	Connecting rod clearance increased. Clearances increased to improve reliability.	
J	Y	Crankshaft oil feed holes increased and drilled thru crank-pin. Recommended change when rebuilding. See HCOM-SB-28.	
J	Z	Trane manufactured suction valve. No affect on compressor reliability or parts interchangeability.	
G	N (8 cyl. only)	Unloader removed from CYL #7. To improve motor cooling and oil return. Unloading of 100/75/62-1/2/37-1/2. Modify unit when overhaul is done.	

TABLE 5 - DESCRIPTION OF DESIGN CHANGES TO OPEN MODEL F COMPRESSORS

Model No. Design Sequence	Serial No. Design Designator	Description of Change	Compressor Serial No.
A	-	Original Design	-
B	A	Sight glass changed to bolt-on type.	-
C	-	5 and 6 Cylinder Hermetic Model F Compressors only. Field Test Only. Motor diameter changed from 12.375" to 8.77". Cartridge style oil pump, separate motor cooling ring.	65H442 thru 65H456
D	A	5 and 6 Cylinder Hermetic Model F Compressors only.	-
C	A	4 and 8 Cylinder Hermetic Model F Motor diameter 8.77". Cartridge-type oil pump.	-
C	A - Cyl. 4, 5, 6, 8	Gas cushion discharge cage. If teflon cushion discharge cage is reusable, cushion and retainer are available for rebuild.	-
E	B - 3 Cyl.		-
C	B - Cyl. 4, 5, 6, 8	Suction and Discharge Valve Material Change. Does not affect parts interchangeability or reliability.	-
E	B- 3 Cyl.		-

TABLE 6 - DESCRIPTION OF DESIGN CHANGES TO MODEL M COMPRESSORS

Model No. Design Sequence	Serial No. Design Designator	Description of Change	Compressor Serial No.
A	A	Original Design	-
A	B	Field trial - should be rebuilt	
B	A	Revised cycle head unloader check valve, compressor housing, crankshaft and bearing head. If valve plate, suction valve, discharge valve, valve plate gasket need replacing replace with components for "F" design or later compressor.	10T-2E 10A6335 15T-2E 15A6333 20T-2E 20A6152 25T-2E 25A6170 30T-2E 30A2782
C	A	Revised suction valve, valve plate, gasket, and housing insert. These laminated valve plates and associated parts can be reused if the valve plates and discharge valves are not damaged or worn.	
D	A	New oil pump spring. Reuse cover and plate when rebuilding previous design compressor oil pump plate and spring should be updated to "D" design.	
D	B	Heat treated unloader check valve stem with piston ring. Check valve should be replaced with "D" style check valve. NOTE: In general compressor built before design sequence "D" should be rebuilt to design sequence "D".	
E	A	Model "M" junction box with hole for oil safety control bolted to term plate with separate screws.	
F	A	Cast iron valve plate with new disc valve cage. Previous design compressor need not be updated to this design sequence unless the discharge cage, or suction valve plate has been damaged.	

TABLE 6 - DESCRIPTION OF DESIGN CHANGES TO MODEL M COMPRESSORS (CONTINUED)

Model No. Design Sequence	Serial No. Design Designator	Description of Change	Compressor Serial No.
G	A	Model "R" 40 Ton junction box and new terminal plate.	-
H	F	Field Trial	-
G	B	Revised connection rod clearance	-
G	C	Trane manufactured discharge valve. No affect on compressor part interchangeability.	-
J	D	Unloader solenoid manufacturing Changed from 2 bolt to 3 bolt. Improved manufactureability either may be used during re-building.	-

TABLE 7 - DESCRIPTION OF DESIGN CHANGES TO MODEL R COMPRESSORS

Model No. Design Sequence	Serial No. Design Designator	Description of Change	Compressor Serial No.
A	A	Original Design	
B	A	Original Design - 40 Ton	
C	A	Original Design - 50 & 60 Ton	
C	R 40 ton	Suction valve plate and spring change pocket depth of valve. If replacement of valve plate is necessary the current model design sequence (F & H) must be used with F and H springs. Springs for model design sequence 40 ton C and 50 and 60 ton D, E and G are still available.	
D	C 40 ton	Motor wire insulation changed.	
D	B 50 & 60 ton	No affect on compressor reliability or parts interchangeability.	
D	D	Increased connection rod crank pin clearance to improve compressor reliability. If compressor is rebuilt, larger diameter crankpin bore rods should be used.	
D	E	Motor wire insulation changed. No affect on compressor reliability or parts interchangeability.	
D	F	Trane manufactured suction and discharge valve. No affects on reliability or parts interchangeability.	

TABLE 7 - DESCRIPTION OF DESIGN CHANGES TO MODEL R COMPRESSORS (CONTINUED)

Model No. Design Sequence	Serial No. Design Designator	Description of Change	Compressor Serial No.
D	G	Compressor check valve assembly changed to incorporate a spring when rebuilding compressor it is suggested that the check valve assembly be changed. See HCOM-SB-27.	8J60G3173
E	H	Solenoid valve mounting changed from 2 bolt to 3 bolt. To reduce refrigerant leakage. This is not a mandatory change since the refrigerant leakage problem occurs during compressor manufacturing where the leak test criteria is more stringent than can be measured in the field. See HCOM-SB-29.	8K60H2823
F	J	Suction valve plate and springs changed to improve compressor efficiency (.115 lift) previous design valve plates no longer available. When suction plate requires changing current design plate and spring must be used. previous design valve springs are still available.	9L60L2666
G	K	Immersion type 140 watt heater mounted in pump end of compressor housing. Suction valve plate and springs same as compressor model design sequence D and E.	9K60K916
H	L	Suction valve plate and springs changed (.115 lift) same as model designator F to improve compressor efficiency. Also incorporates 140 watt immersion type heater provided in model design sequence G.	9L60L2698