



Carrier

A United Technologies Company

REPLACEMENT COMPONENTS DIVISION

SERVICE BULLETIN

SUBJECT: Clearances and Fits

NUMBER: CA-SB-19-C-72-64

DATE: 12-8-72

SUPERSEDES:

DATE:

PAGE: 1 **OF:** 4

MODELS AFFECTED: 19C Chillers

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PURPOSE:

To transmit the attached list of clearances and fits.

PROCEDURE:

The clearances given are to be used as a guide when making repairs or determining the cause of trouble. The clearances denoted by an asterisk (*) have changed or have been added since the previous bulletin on this subject.

The various bearing designs referred to are identified in Service Bulletin CA-SB-19-C-60-9.

Some of these clearances and fits are listed in the operation and maintenance manuals. Should they differ from those in this bulletin, use the information printed most recently.

Use good judgement and past performance when working with clearances. For example, if a part is working satisfactorily and has caused no trouble, it need not be replaced strictly on the basis of measurement. However, if trouble has occurred and a part or fit which could contribute to it shows excessive clearance, then the part should be changed.

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CLEARANCES AND FITS

DESCRIPTION	MACHINES	MEASUREMENT	CLEARANCE (inches)	
			MIN.	MAX.
MAIN BEARING				
Bearing Orifice	R-113 - Design #1 & #2	Diameter of Orifice	.210	.219
	R-11 - Design #1	Diameter of Orifice	.262	.270
	R-11 & R-114 Design #2	Diameter of Orifice	.240	.260 *
Journal Bearing	19C3 thru 19C5	Diametrical	.006	.008 *
	19C6 thru 19C8	Diametrical	.009	.011 *
Thrust Bearing	All Machines	Axial	.010	.014 *
Bearing Oil Seal Ring to Shaft	R-113 Design #3, R-114 and R-11 Design #2	Diametrical	.004	.007 *
MOTOR END BEARING				
3 Shoe Bearing to Journal	Design #3	Diametrical	.0025	.004
Service Replacement 3 Shoe Bearing	Design #2	Diametrical	.002	.004
Split Bearing to Journal	Design #1	Diametrical	.0025	.004
Sleeve Bearing - 19C8	Design #4	Diametrical	.004	.006 *
Carbon Ring to Shaft	Design 1 & 2	Diametrical	.001	.005
Shaft Concentricity to 3 Shoe Bearing Housing	19C3 thru 19C7	T.I.R. **	-----	.002
Oil Retaining Ring to Shaft	Design #2	Diametrical	.010	.012
	Design #3	Diametrical	.005	.008 *

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DESCRIPTION	MACHINES	MEASUREMENT	CLEARANCE (inches)	
			MIN.	MAX.
IMPELLER				
Impeller Blades to Intake Walls	19C3 & 19C4	Axial	.045	.055
	19C5 thru 19C8	Axial	.055	.065 *
Impeller Blades to Inlet Ring	All Machines	Radius	.035	.050
Back of Impellers	All Machines	Axial	.070	-----
Tip of Impeller to Diaphragm	All Machines	Radius	1/16"	1/8"
1st Stage Impeller Bore to Shaft (Shrink Fit)	All Machines	Diametrical	.000	-.002
2nd Stage Impeller Bore to Shaft (Shrink Fit)	All Machines	Diametrical	.000	-.002
1st Stage Labyrinth to Impeller Flange	All Machines	Radius	.012	.020
Shaft Labyrinth to Impeller Spacer	All Machines	Radius	.008	.014
2nd Stage Labyrinth to Impeller Flange	19C3 thru 19C5	Radius	.012	.017
	19C6 thru 19C8 (R-11)	Radius	.017	.022
	19C8 (R-114)	Radius	.022	.028 *
GENERAL				
Air Gap-Rotor to Stator	All Machines	Radius	Concentric within $\pm 10\%$	
Shaft Cap Runout	All Machines	T.I.R. **	-----	.007
Shaft End Runout	All Machines	T.I.R. **	-----	.001

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DESCRIPTION	MACHINES	MEASUREMENT	CLEARANCE (inches)	
			MIN.	MAX.
PRE-WHIRL VANE ASSEMBLY				
Vane Shaft Bearing	All Machines	Diametrical	.002	.009
Vane Shaft End Float	All Machines	Axial	.005	.010 *
Idler Wheel Bearing	All Machines	Diametrical	.003	.007
Idler Wheel End Play	All Machines	-----	.012	.050
Gear Backlash	All Machines	-----	.004	.020
Hydraulic Motor Cylinder to Piston	All Machines	Diametrical	.004	.020
Inner Bushing to Drive Shaft	All Machines	Diametrical	.0015	.003
Inner Bushing to Housing	All Machines	Diametrical	.0005	.004
Outer Bushing to Drive Shaft	All Machines	Diametrical	.001	.003
Outer Bushing to Housing	All Machines	Diametrical	.0005	.004
Blade to Shaft Cap	19C3 & 19C4	Radius	.035	.090
	19C5	Radius	.045	.098
	19C6 thru 19C8	Radius	.068	.120

** T.I.R. -- Total Indicator Reading

* Clearance Changed Since Previous Clearances & Fits Bulletin