

Life Limited Parts

AMP Reference: IAL/777/T Revision 00 Initial

Life limited Parts / Safe Life Items

This section of the Maintenance Programme consists of 'Life-Limited Parts' (LLP) or 'Safe Life Items' SLI and the 'Time Controlled Components'.

As per (Regulation (EU) No 1321/2014), M.A 305, term 'life-limited part' embraces any component/part for which the maintenance schedule of the aircraft maintenance programme requires the permanent removal from service when, or before, the specified mandatory life limitation in accordance with Commission Regulation (EU) No 748/2012 if any of the applicable parameters is reached.

Engines

Engine Limitations of life-limited parts are controlled by the engine manufacturers and are published in the Rolls Royce ATA 05 of the Time Limits Manual for RB211 Trent 800 Series Engines Installed in Boeing 777-200 series aircraft (T-TRENT-8RR) 05-10-01 Date 18/NOV/2021

Life Monitor, Part Numbers, Life Limits and Beta Factors

A. Life monitor:

The lives of Critical and Critical Group A parts are given in Standard Duty Cycles. Refer to TASK 05-00-01-800-801 for the data on recording and control of the lives of parts. Refer to the Aircraft Maintenance Manual, Chapter 70-01-10, for the data on selection of the appropriate Flight Profile.

B. Part numbers:

The part numbers given in this section are those which can be seen in the Illustrated Parts Catalog (IPC) for the part or assembly. They are identified by part description, Chapter/Section/Subject and by Fig/item number in the SUBTASK titles.

IPC's supplied to airlines are customized or are for some engine marks only, and therefore it is possible that they will not contain all the part numbers given in this section.

C. Life limits

Unless specified differently the life limits given in this section are total lives which must be counted continuously for each part from the start of its first operation. This must also be done if a Service Bulletin or related Repair is done during the life of a part, if the work done extends the total life of the part or not. The life completed before the Service Bulletin or Repair must be subtracted from the total declared life to give the life remaining.

Part numbers with a prefix of one or more letters, for example BCLK12345, shows that a Service Bulletin or Repair was done during the life of the part.

The prefix is only to show an interchangeability effect with related parts. The declared life will be the same as that for the basic part number (LK12345).

The prefix letters are not given in this section.

D. Beta Factors

For the Beta Factors for each part and Flight Profile combination, refer to the relevant SUBTASK below. Beta Factors must be used to determine the Standard Duty Cycles accrued by a part. Refer to TASK 05-00-01-800-801, SUBTASK 05-00-01-890-013 for example calculations.

LLP Life Limits

Low Pressure (LP) Compressor Rotor Disk (72-31-16,01-210) Maximum Approved Life

PART NO.	DECLARED LIFE (STANDARD DUTY CYCLES)
FK14399	13650
FK30901	13650

Flight Profile Beta Factors:

Part No.	Flight Profile - Refer to Boeing 777 Aircraft Maintenance Manual Chapter 70-01-10					
	A	B	C	D	E	F
FK14399	0.910	0.910	1.000	1.000	1.000	1.000
FK30901	0.910	0.910	1.000	1.000	1.000	1.000

Low Pressure (LP) Compressor Rotor Shaft (72-31-20,01-182)

Maximum Approved Life

PART NO.	DECLARED LIFE (STANDARD DUTY CYCLES)
FK20840 (see Note)	15000
NOTE: FK20840 is part of FK20839 (72-31-20,01-170) and FK20839 is part of the LP turbine assembly FK23192 or FW44272 (72-31-20,01-100).	

Flight Profile Beta Factors:

Part No.	Flight Profile - Refer to Boeing 777 Aircraft Maintenance Manual Chapter 70-01-10					
	A	B	C	D	E	F
FK20840	1.000	1.000	1.000	1.000	1.000	1.000

Intermediate Pressure (IP) Compressor Rotor Shaft (72-32-31,01-080)

Maximum Approved Life

PART NO.	DECLARED LIFE (STANDARD DUTY CYCLES)
FK24100	12500
FK24496	8860

Flight Profile Beta Factors:

Part No.	Flight Profile - Refer to Boeing 777 Aircraft Maintenance manual Chapter 70-01-10					
	A	B	C	D	E	F
FK24100	0.833	0.833	0.833	0.833	0.893	1.000
FK24496	0.780	0.813	0.848	0.886	0.975	1.000

Intermediate Pressure (IP) Rear Shaft (72-33-21,01-260)

Maximum Approved Life

"CAUTION: THE DECLARED LIFE (STANDARD DUTY CYCLES) THAT FOLLOWS IS ONLY APPLICABLE TO SHAFTS THAT ARE EXAMINED AS GIVEN IN NON MOD SB 72-D339 WHICH HAS BEEN MANDATED BY AIRWORTHINESS DIRECTIVE.

PART NO.	DECLARED LIFE (STANDARD DUTY CYCLES)
FK23564	15000
FW18545	15000

Flight Profile Beta Factors:

Part No.	Flight Profile - Refer to Boeing 777 Aircraft Maintenance manual Chapter 70-01-10					
	A	B	C	D	E	F
FK23564	1.000	1.000	1.000	1.000	1.000	1.000
FW18545	1.000	1.000	1.000	1.000	1.000	1.000

High Pressure (HP) Compressor Stage 1 to 4 Rotor Disks Shaft (72-41-31,01-170) Maximum Approved Life

CAUTION: PART NUMBER FK24009 MUST ONLY BE USED IN TRENT 875, 877 AND 884 SERIES OF ENGINES.

PART NO.	DECLARED LIFE (STANDARD DUTY CYCLES)
FK24009	4560
FK26167	5580
FK32580	5580
FW11590	8550
FW61622	8550
FW88723	8550
FW88724	5580
FW88725	8550

Flight Profile Beta Factors:

Part No.	Flight Profile - Refer to Boeing 777 Aircraft Maintenance manual Chapter 70-01-10					
	A	B	C	D	E	F
FK23564	1.000	1.000	1.000	1.000	1.000	1.000
FK24009	0.831	0.891	0.895	0.949	0.956	1.000
FK26167	0.737	0.782	0.784	0.817	0.967	1.000
FK32580	0.737	0.782	0.784	0.817	0.967	1.000
FW11590	0.734	0.819	0.823	0.916	0.937	1.000
FW61622	0.734	0.819	0.823	0.916	0.937	1.000
FW88723	0.734	0.819	0.823	0.916	0.937	1.000
FW88724	0.737	0.782	0.784	0.817	0.967	1.000
FW88725	0.734	0.819	0.823	0.916	0.937	1.000

High Pressure (HP) Compressor Stage 5 and 6 Disks and Cone (72-41-31,01-370) Maximum Approved Life

The Declared life (Standard Duty Cycles) of the part numbers that follow can be extended by the incorporation of SB 72-E160 from the threshold lives as detailed in Section C below.

PART NO.	DECLARED LIFE (STANDARD DUTY CYCLES)
FK25230	5000
FK27899	5000

CAUTION: THE PART LIFE AT REWORK RELATIVE TO THE THRESHOLD LIVES BELOW MUST BE CALCULATED USING THE RELATED BETA FACTORS FOR FW24633 OR FW24634. REFER TO SB 72-E160.

CAUTION: IF SB 72-E160 WAS INCORPORATED BEFORE 31 JANUARY 2007 AND THE PART WAS NOT ARTIFICIALLY AGED TO THE CURRENT REWORK THRESHOLD GIVEN BELOW, THEN THE PART MUST BE ARTIFICIALLY AGED TO THE CURRENT REWORK THRESHOLD LIFE FOR THAT PART NUMBER AND THE CURRENT LIFE REMAINING MUST BE RECALCULATED.

C.

Following rework of FK25230 to FW24634 by the incorporation of SB 72- E160, the Declared Life (Standard Duty Cycles) can be extended from the threshold life of 3735 Standard Duty Cycles. Incorporation of SB 72-E16 before 3735 Standard Duty Cycles is permitted if the shaft is artificially aged to 3735 Standard Duty Cycles at the point of SB incorporation.

Following rework of FK27899 to FW24633 by the incorporation of SB 72- E160, the Declared Life (Standard Duty Cycles) can be extended from the threshold life of 4240 Standard Duty Cycles. Incorporation of SB 72-E160 before 4240 Standard Duty Cycles is permitted if the shaft is artificially aged to 4240 Standard Duty Cycles at the point of SB incorporation.

PART NO.	DECLARED LIFE (STANDARD DUTY CYCLES)
FW24633	8480
FW24634	7470

Flight Profile Beta Factors:

Part No.	Flight Profile - Refer to Boeing 777 Aircraft Maintenance manual Chapter 70-01-10					
	A	B	C	D	E	F
FK25230	1.000	1.000	1.000	1.000	1.000	1.000
FK27899	1.000	1.000	1.000	1.000	1.000	1.000
FW24633	0.848	0.848	0.852	0.907	0.938	1.000
FW24634	0.747	0.849	0.865	0.908	0.937	1.000

High Pressure (HP) Turbine Rotor Disk (72-41-51,01-350) Maximum Approved Life

PART NO.	DECLARED LIFE (STANDARD DUTY CYCLES)
FK24651	4500
FK24790	4500
FK26893	7000

Flight Profile Beta Factors:

Part No.	Flight Profile - Refer to Boeing 777 Aircraft Maintenance manual Chapter 70-01-10					
	A	B	C	D	E	F
FK24651	1.000	1.000	1.000	1.000	1.000	1.000
FK24790	1.000	1.000	1.000	1.000	1.000	1.000
FK26893	1.000	1.000	1.000	1.000	1.000	1.000

Intermediate Pressure (IP) Turbine Rotor Disk (72-51-31,01-150) Maximum Approved Life

PART NO.	DECLARED LIFE (STANDARD DUTY CYCLES)
FK21117	11610
FK33083	Zero (see Note)
FK33049	11610
FW70564	11610

NOTE: All part number FK33083 IP turbine disks have been removed from service at first overhaul and must not be installed again, refer to Non-Mod SB 72-E058.

Flight Profile Beta Factors:

Part No.	Flight Profile - Refer to Boeing 777 Aircraft Maintenance manual Chapter 70-01-10					
	A	B	C	D	E	F
FK21117	0.774	0.805	0.867	0.879	0.985	1.000
FK33049	0.774	0.805	0.867	0.879	0.985	1.000
FW70564	0.774	0.805	0.867	0.879	0.985	1.000

Intermediate Pressure (IP) Turbine Rotor Shaft (72-51-33,01-185)

Maximum Approved Life

CAUTION: THE DECLARED LIVES (STANDARD DUTY CYCLES) THAT FOLLOW ARE ONLY APPLICABLE TO SHAFTS THAT ARE EXAMINED AS GIVEN IN NON-MOD SB 72-D339 WHICH HAS BEEN MANDATED BY AIRWORTHINESS DIRECTIVE.

PART NO.	DECLARED LIFE (STANDARD DUTY CYCLES)
FK23295	15000
FK25180	15000
FW18550	15000
FW19626	15000

Flight Profile Beta Factors:

Part No.	Flight Profile - Refer to Boeing 777 Aircraft Maintenance manual Chapter 70-01-10					
	A	B	C	D	E	F
FK23295	1.000	1.000	1.000	1.000	1.000	1.000
FK25180	1.000	1.000	1.000	1.000	1.000	1.000
FW18550	1.000	1.000	1.000	1.000	1.000	1.000
FW19626	1.000	1.000	1.000	1.000	1.000	1.000

Low Pressure (LP) Turbine Stage 1 Rotor Disk (72-52-31,01-300)

Maximum Approved Life

PART NO.	DECLARED LIFE (STANDARD DUTY CYCLES)
FK24971	15000

Flight Profile Beta Factors:

Part No.	Flight Profile - Refer to Boeing 777 Aircraft Maintenance manual Chapter 70-01-10					
	A	B	C	D	E	F
FK24971	1.000	1.000	1.000	1.000	1.000	1.000

Low Pressure (LP) Turbine Stage 2 Rotor Disk (72-52-31,01-350)

Maximum Approved Life

CAUTION: PART NUMBER FK23208 MUST ONLY BE USED IN TRENT 875, 877, 884, 884B, 892 AND 892B SERIES OF ENGINES.

PART NO.	DECLARED LIFE (STANDARD DUTY CYCLES)
FK23208	15000
FK26625	15000

Flight Profile Beta Factors:

Part No.	Flight Profile - Refer to Boeing 777 Aircraft Maintenance manual Chapter 70-01-10					
	A	B	C	D	E	F
FK23208	1.000	1.000	1.000	1.000	1.000	1.000
FK26625	1.000	1.000	1.000	1.000	1.000	1.000

Low Pressure (LP) Turbine Stage 3 Rotor Disk (72-52-31,01-470)

Maximum Approved Life

CAUTION: PART NUMBER FK24199 MUST ONLY BE USED IN TRENT 875, 877, 884, 884B, 892 AND 892B SERIES OF ENGINES.

PART NO.	DECLARED LIFE (STANDARD DUTY CYCLES)
FK24199	15000
FK26626	15000

Flight Profile Beta Factors:

Part No.	Flight Profile - Refer to Boeing 777 Aircraft Maintenance manual Chapter 70-01-10					
	A	B	C	D	E	F
FK24199	1.000	1.000	1.000	1.000	1.000	1.000
FK26626	1.000	1.000	1.000	1.000	1.000	1.000

Low Pressure (LP) Turbine Stage 4 Rotor Disk (72-52-31,01-650)

Maximum Approved Life

PART NO.	DECLARED LIFE (STANDARD DUTY CYCLES)
FK23210	15000

Flight Profile Beta Factors:

Part No.	Flight Profile - Refer to Boeing 777 Aircraft Maintenance manual Chapter 70-01-10					
	A	B	C	D	E	F
FK23210	1.000	1.000	1.000	1.000	1.000	1.000

Low Pressure (LP) Turbine Stage 5 Rotor Disk (72-52-31,01-800)

Maximum Approved Life

PART NO.	DECLARED LIFE (STANDARD DUTY CYCLES)
FK24200	15000

Flight Profile Beta Factors:

Part No.	Flight Profile - Refer to Boeing 777 Aircraft Maintenance manual Chapter 70-01-10					
	A	B	C	D	E	F
FK24200	1.000	1.000	1.000	1.000	1.000	1.000

Low Pressure (LP) Turbine Rotor Shaft (72-52-33,01-218) Maximum Approved Life

PART NO.	DECLARED LIFE (STANDARD DUTY CYCLES)
FK20817 (see Note)	15000

NOTE: Part of assembly (72-52-33,01-200, FK24153 or FK26159)

Flight Profile Beta Factors:

Part No.	Flight Profile - Refer to Boeing 777 Aircraft Maintenance manual Chapter 70-01-10					
	A	B	C	D	E	F
FK20817	1.000	1.000	1.000	1.000	1.000	1.000

Life Monitor, Part Numbers, Life Limits and Categories

A. Life monitor:

The lives of Group B parts are given in flight cycles. Refer to the Aircraft Maintenance Manual, Chapter 70-01-10 for this data and to the TASK 05-00-01-800-801 for the data on recording and control of the lives of parts.

B. Part numbers:

The part numbers given in this section are those which can be seen in the Illustrated Parts Catalog (IPC) for the group B part or assembly. They are identified by part description, Chapter/Section/Subject and by Fig/item number in the SUBTASK titles.

IPCs supplied to airlines are customized or are for some engine marks only, will not contain all the part numbers given in this section.

C. Life limits:

Unless specified differently the life limits given in this section are total lives which must be counted continuously for each part from the start of its first operation. This must also be done if a Service Bulletin or related Repair is done during the life of a part if the work done extends the total life of the part or not. The life completed before the Service Bulletin or Repair must be subtracted from the total declared life to give the life remaining.

Part numbers with a prefix of one or more letters, for example BCLK12345, shows that a Service Bulletin or Repair was done during the life of the part. The prefix is only to show an interchangeability effect with related parts. The declared life will be the same as that for the basic part number (LK12345). The prefix letters are not given in this section.

LP Compressor Blades (72-31-11,01-280) Maximum Recommended Life

PART NO.	DECLARED LIFE (STANDARD DUTY CYCLES)
FK30840	Zero (See Note)
FK30842	Zero (See Note)
FW12960	Zero (See Note)
FW12961	Zero (See Note)
FW13175	Zero (See Note)

NOTE: All part numbers FK30840, FK30842, FW12960, FW12961 and FW13175 LP Compressor Fan Blades have been removed from service and must not be installed again.

CAUTION: THE DECLARED LIVES (FLIGHT CYCLES) THAT FOLLOW ARE ONLY APPLICABLE TO BLADES THAT ARE LUBRICATED AS GIVEN IN NON-MOD SB 72-D347.

PART NO.	DECLARED LIFE (STANDARD DUTY CYCLES)
FW21421	10000
FW21422	10000
FW21424	10000
FW22128	10000
FW22129	10000
FW23552	Zero (See Note)
FW18548	Zero (See Note)
FW29479	15000
FW29481	15000

NOTE: All part numbers FW23552 and FW18548 LP Compressor Fan Blades have been removed from service and must not be installed again.

LP Compressor Annulus Filler Assembly (72-31-11,01-350) Maximum Recommended Life

PART NO.	DECLARED LIFE (STANDARD DUTY CYCLES)
FK21221	6490
Deleted	
FW32707	6700