

BAC5613

REVISION
T
3/30/2007

HEAT TREATMENT OF TITANIUM AND
TITANIUM ALLOYS



<u>BAC 5613 DEPARTURES</u>	<u>EFF DATE</u>	<u>SUBCONTRACTOR(S) AFFECTED</u>	<u>ON MODELS</u>	<u>MFG DEPTS OF DIV BELOW AFFECTED</u>
BAC5613 QPL REV G	12/9/2014			
6-29	6/18/1986	CARLSON FORMETECH INC.	ALL COMMERCIAL AIRPLANES AND DERIVATIVES THEREOF	NONE
6-39	11/19/2002	ALL	ALL COMMERCIAL AIRPLANES AND DERIVATIVES THEREOF	ALL BCAG AND SUPPORTING
6-44	1/16/2006	ALL	ALL COMMERCIAL AIRPLANES AND DERIVATIVES THEREOF	ALL BCAG AND SUPPORTING
6-46	6/19/2006	ALL	ALL COMMERCIAL AIRPLANES AND DERIVATIVES THEREOF	ALL BCAG AND SUPPORTING
6-48	3/11/2008	ALL	ALL COMMERCIAL AIRPLANES AND DERIVATIVES THEREOF	ALL BCAG AND SUPPORTING
6-49	10/30/2013	ALL	ALL COMMERCIAL AIRPLANES AND DERIVATIVES THEREOF	ALL BCAG AND SUPPORTING
6-53	1/26/2016	ALL	737MAX	NONE
6-54	3/22/2016	ALL	777X	NONE
8-3	11/23/1992	ALL	ALL BH	BH
8-5	5/29/2012	ALL	ALL CH-47 AND DERIVATIVES	NONE
8-6	8/28/2015	ALL	ALL BDS PHILADELPHIA	ALL BDS PHILADELPHIA AND SUPPORTING
9-15	11/3/1997	ALL EXCEPT SCHLOSSER	494 (F-22)	BOEING DEFENSE AND SPACE GROUP
9-26	3/2/2009	CHEMTRONICS - EL CAJON, CA	494 (F-22)	NONE

9-28	5/8/2009	ALL, EXCEPT SCHLOSSER FORGE, WASHINGTON METTALLURGICAL AND	494 (F-22)	IDS AND SUPPORTING
9-29	5/8/2009	BARNES AEROSPACE	494 (F-22)	NONE
9-30	10/16/2009	GKN CHEMTRONICS, INC. THERMAL JOINING CENTER KENT, WA	494	NONE

THIS SPECIFICATION ESTABLISHES THE REQUIREMENTS FOR THE HEAT TREATMENT OF TITANIUM AND TITANIUM ALLOYS. REQUIREMENTS FOR ANNEALING, SOLUTION TREATING, AGING, STRESS RELIEVING, AND BETA ANNEALING ARE INCLUDED ALONG WITH THERMAL LIMITATIONS FOR ELEVATED TEMPERATURE FORMING AND STRAIGHTENING. ALSO INCLUDED ARE REQUIREMENTS FOR REMOVAL OF CONTAMINATED SURFACE METAL AFTER THERMAL TREATMENT AND REQUIREMENTS FOR EQUIPMENT USED FOR THERMAL TREATMENT.

REASON

QPL
TO ALLOW USE OF EXISTING FACILITIES AND TAKE ADVANTAGE OF THEIR PROTECTIVE COATING AND SHORT HEATING TIMES.
ALLOW NO MATERIAL REMOVAL WHEN NO SURFACE CONTAMINATION IS MEASURED AT 1.5 TIMES THE EXPOSURE
TO ADD STRESS RELIEF REQUIREMENTS FOR TI5553 BASCA-160.
TO INCLUDE 1) BAC5750 IN 8.1.1 AND 2) TI-5AL-5V-5MO-3CR BASCA-160 HEAT TREATMENT IN TABLE.
TO UPDATE PROCESS FOR BASCA TI 5AL-5V-5MO-3CR. ADD COVERAGE FOR SOLUTION TREAT AND AGING TI-5AL-5V-5MO-3CR. ADD A RANGE FOR AGING TEMPERATURE OF TI-15V-3CR-3AL-3SN. REVISE SOLUTION TREATMENT OF TI-6AL-2SN-4ZR-2MO. UPDATE SURFACE ACCEPTANCE CONDITION AFTER HEAT TREATMENT. REVISE AND ADD CHANGES FOR TI-5AL-5V-5MO-3CR TO CONFORM WITH BMS7-360.
ADD OPTIONAL COOLING RATE TO TI 6AL-4V MILL ANNEALED HEAT TREATMENT IN TABLES II, III AND IV.
ADD REQUIREMENTS FOR BETA 21S; ALIGN REQUIREMENTS WITH THE DESIGN ALLOWABLES ESTABLISHED FOR THE 737MAX INNER WALL. ALLOW FOR COMPETITIVE SOURCING.
ADD REQUIREMENTS FOR THE STA-1275 HEAT TREATMENT APPLIED TO TITANIUM ALLOY BETA 21S. STANDARDIZE ON ARGON REQUIREMENT AND METALLURGICAL ETCHANTS.
TO ADAPT THE LATEST REVISION OF BAC 5613 FOR USE AT BOEING HELICOPTERS.
TO SPECIFY THERMAL TREATMENT OF TITANIUM 4AL-2.5V-1.5FE ALLOY AND EVALUATION OF SURFACE CONTAMINATION.
TO REVISE THE METAL REMOVAL REQUIREMENTS AFTER HOT FORMING IN ACCORDANCE WITH BAC 5300-2.
ALLOW COATINGS TO BE OMITTED FOR HOT BRAKE FORMING/STRESS RELIEF BELOW 145 F.
TO ALLOW CHEMTRONICS - EL CAJON, CA TO HOT FORM BA TI-6AL-4V ELI PLATE AT TEMPERATURES UP TO 1660 F.

TO REPLACE PSD 9-17 TO BRING SECTION REFERENCES UP TO DATE AND REPLACE KSALT TEST WITH K1SCC TEST.

TO REPLACE PSD 9-17 TO BRING SECTION REFERENCES UP TO DATE AND REPLACE KSALT TEST WITH K1SCC TEST.

TO ALLOW STRESS RELIEF OF WELDMENTS AT GKN CHEMTRONICS - TJC USING TJC'S ELNIK VACUUM FURNACE.