



Pratt & Whitney Rocketdyne

ROCKET ENGINEERING INSTRUCTION

REI 001

Issued: July 1994

Revised: December 2009

**MASTER SPECIFICATION INDEX
FOR THE SSME TURBOPUMP**

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1.	SUBJECT	2
	1.1 Purpose	2
	1.2 Scope	2
	1.3 Ownership and Approval	2
2.	DOCUMENTS	2
	2.1 Applicable documents:	2
	2.2 Reference documents:	2
3.	ACRONYMS:	3
4.	REQUIREMENTS	3
	4.1 General	3
5.	RESPONSIBILITY	4
6.	PWR DOCUMENT CONTROL PROCEDURES	4
	6.1 Specification Changes:	4
	6.2 Index Maintenance:	4
7.	LIST OF APPENDICES:	5
	APPENDIX B: PWR/PWA-SP SPECIFICATIONS	7
	APPENDIX C: AMS/AS SPECIFICATIONS	12
	APPENDIX D: ROCKET ENGINEERING INSTRUCTIONS	16
	APPENDIX E: NDT METHODS	17
	APPENDIX F: NDT STANDARDS	19
	APPENDIX G: QUALITY ASSURANCE SPECIFICATIONS	20
	APPENDIX H: GOVERNMENT SPECIFICATIONS	21
	APPENDIX I: MCL MANUAL, F-54 ADDENDA	21
	APPENDIX J: SUBCONTRACTOR RESPONSIBILITIES	22
	APPENDIX K: PURCHASE PERFORMANCE SPECIFICATIONS	22
	APPENDIX L: CEI & ICD SPECIFICATIONS	23


Pratt & Whitney

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Pratt & Whitney Rocketdyne

ROCKET ENGINEERING INSTRUCTION

REI 001

Issued: July 1994

Revised: December 2009

MASTER SPECIFICATION INDEX FOR THE SSME TURBOPUMP

1. SUBJECT

This Rocket Engineering Instruction (REI) is a Master Specification Index for the Space Shuttle Main Engine (SSME) High Pressure Turbopump (HPTP) Program at Pratt & Whitney Rocketdyne (PWR) West Palm Beach (WPB).

1.1 Purpose

To list documents applicable to the SSME HPTP Program whose requirements or use are subject to customer or internal change control. The lists include specifications, instructions, test methods and standards, and material controls used under Contract NAS8-01140.

1.2 Scope

This REI is issued to control changes to Engineering Specifications, Rocket Engineering Instructions, Inspection Methods and Standards, Quality Assurance Specifications, or other controlled documents used by PWR or its suppliers, in accordance with specifications on Engineering Drawings, QADs, or other related documents.

1.3 Ownership and Approval

SSME HPTP Product Chief Engineer or his designee, as specified in the REI web site, located within the PWR WPB Master List of Control Documents, owns and approves this instruction. All changes shall be approved by the owner, with the concurrence of organizations affected by the change.

2. APPLICABLE DOCUMENTS

2.1 Applicable documents:

ASQR-01	Aerospace Supplier Quality Requirements
UTCQR 09.1	Process Certification Requirements

2.2 Reference documents: The following documents are reference documents and do not form part of this specification.

NAS8-01140	NASA SSME Contract
RSS-8503-3	SSME Configuration Management Program Plan
SPP 6.8.5.1	SSME Rocket Engineering Instructions
PMI 6100	Processing Changes to SSME Turbopump Documents Identified in REI 001
NHB 5300.4 (1D-2)	Safety, Reliability, Maintainability and Quality Provisions for the Space Shuttle Program
NHB 5300.4 (1E)	Maintainability Program Requirements For Space Systems


Pratt & Whitney

A United Technologies Company

Pratt & Whitney Rocketdyne
ROCKET ENGINEERING INSTRUCTION

REI 001

Issued: July 1994

Revised: December 2009

MASTER SPECIFICATION INDEX FOR THE SSME TURBOPUMP

3. ACRONYMS:

AMS	Aerospace Material Specification
AS	Aerospace Specification
CEI	Component End Item Specification
DCMA	Defense Contract Management Agency
HPTP	High Pressure Turbopump
ICD	Interface Control Document
MCL	Materials Control Laboratory
MSFC	Marshall Space Flight Center
NDT	Non-Destructive Testing
NHB	NASA Handbook
PDMS	Product Data Management System
PPS	Purchase Performance Specification
PWA	Does Not Apply To SSME Hardware
PWA-SP	Pratt & Whitney Space Propulsion Specification
PWR	Pratt & Whitney Rocketdyne
QA	Quality Assurance Specification
QAD	Quality Assurance Data
REI	Rocket Engineering Instruction
SPP	Space Propulsion Process
WPB	West Palm Beach
SSME	Space Shuttle Main Engine

4. REQUIREMENTS

4.1 General

- a. This Master Specification Index is a list of controlled documents that flow down requirements or instructions for producing SSME High Pressure Turbopump (HPTP) hardware. The change control system for these documents is described in the Configuration Management Plan (RSS-8503-3).
- b. Any specification designated by an asterisk (*) is considered a "critical process" as defined by NHB 5300.4 (1D-2)¹. Any revisions to such specifications shall be administered by PWR as Class I engineering changes (ref. RSS-8503-3).

4.2 This publication will be updated quarterly (see paragraph 6.2 below).

4.3 When a purchase or sales order is received from PWR WPB for SSME hardware, suppliers are required to consult the edition of this publication specified in the purchase order to determine the effective revision letter of all the specifications and other controlled documents that apply to that order. They and their subtier suppliers are then required to work to those revisions. Suppliers may, at their option, work to later revisions of REI 001 provided there are no increases to the Purchase Order price. If PWR decides incorporation of a revision of a specification contained herein is mandatory, the Materiel Procurement Department will issue a supplement to the P.O.

¹ A "critical process" is defined as "A material process (i.e., a process which changes the chemical/physical properties of a material) which could have a significant performance effect on hardware identified on the Critical Items List, hardware designated for fracture control and ordnance, and hardware where design conformance cannot be assured by inspection".



ROCKET ENGINEERING INSTRUCTION

REI 001

Issued: July 1994

Revised: December 2009

MASTER SPECIFICATION INDEX FOR THE SSME TURBOPUMP

- 4.4** Suppliers are required by Specifications, “Aerospace Supplier Quality Requirements” (ASQR-01) to establish and maintain a system for the control of specifications and other applicable data as stipulated on the PWR Purchase Order, to ensure that articles for P&W are processed in accordance with PWR requirements. As part of that system, first-tier suppliers are required to state applicable specification numbers and revision letters on contract documents to their sub-tier suppliers.
- 4.5** Questions about this REI or requests for documents should be directed to the PWR Material Procurement Department, P.O. Box 109600, West Palm Beach, Florida 33410-9600.

5. RESPONSIBILITY

SSME HPTP Production Requirements Engineering (PRE) group is responsible for revising REI 001 and all specifications contained in appendices B, D, E, I, K, & L including those designated as a critical process. Documents listed in other appendices are the responsibility of other PWR groups, the Society of Automotive Engineers, or the U.S. Government. When changes occur to these latter documents, they shall be reviewed by SSME Production Requirements Engineering for applicability to the SSME HPTP Program.

6. PWR DOCUMENT CONTROL PROCEDURES

6.1 Specification Changes:

Changes to the SSME HPTP documents stated herein shall be in accordance with Program Management Instructions PMI 6100.

6.2 Index Maintenance:

- a. This Master Specification Index, REI 001, shall be updated quarterly. The cut-off date for changes shall be the last day of the calendar quarter: March 31, June 30, September 30, and December 31. The updated document shall be published by the end of the month following the end of the quarter: April, July, October, and January. These quarterly updates shall be distributed to PWR personnel via the PWR intranet and to all SSME HPTP suppliers through the Materiel Procurement Department, via the PWR Worldwide Procurement Internet website (www2.pratt-whitney.com/procurement/ then click on “Rocket Engineering Instruction”)
- b. Revision letters on all documents in REI 001 shall be updated only to changes that are validated and shown in the PWR Product Data Management System (PDMS). If a later revision has been issued to any document, PWR and its suppliers may work to that revision in accordance with paragraph 4.3 above.



Pratt & Whitney Rocketdyne

ROCKET ENGINEERING INSTRUCTION

REI 001

Issued: July 1994

Revised: December 2009

**MASTER SPECIFICATION INDEX
FOR THE SSME TURBOPUMP**

- c. To initiate the quarterly update process, a request shall be issued by SSME HPTP Production Requirements Engineering (PRE). The Information Processing group shall perform the update by incorporating changes requested by PRE, if any. PRE shall circulate the revised index for approvals and return the final approved copy to Information Processing for release to the PWR intranet. Additionally, a copy of the revised index, suitable for supplier internet access and marked "(WEB)", will be provided to Material Procurement who shall automatically update the PWR internet website with the revised index.

7. LIST OF APPENDICES:

- APPENDIX A: DELETED, NOT INVOKED ON SSME AT HARDWARE
 APPENDIX B: PWR/PWA-SP SPECIFICATIONS
 APPENDIX C: AMS/AS SPECIFICATIONS
 APPENDIX D: ROCKET ENGINEERING INSTRUCTIONS
 APPENDIX E: NDT METHODS
 APPENDIX F: NDT STANDARDS
 APPENDIX G: QA SPECIFICATIONS
 APPENDIX H: GOVERNMENT SPECIFICATIONS
 APPENDIX I: MCL MANUAL, F-54 ADDENDA
 APPENDIX J: SUBCONTRACTOR RESPONSIBILITIES
 APPENDIX K: PURCHASE PERFORMANCE SPECIFICATIONS
 APPENDIX L: COMPONENT END ITEM AND INTERFACE CONTROL SPECIFICATION (CEI & ICD)

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Pratt & Whitney Rocketdyne

ROCKET ENGINEERING INSTRUCTION

REI 001

Issued: July 1994

Revised: December 2009

**MASTER SPECIFICATION INDEX
FOR THE SSME TURBOPUMP****APPENDIX A
(Deleted)**

**For PWA Specification status, see current Pratt & Whitney
Specification Revision List.**



Pratt & Whitney Rocketdyne

ROCKET ENGINEERING INSTRUCTION

REI 001

Issued: July 1994

Revised: December 2009

**MASTER SPECIFICATION INDEX
FOR THE SSME TURBOPUMP**

APPENDIX B: PWR/PWA-SP SPECIFICATIONS		
NOTE	SPECIFICATION	REV.
	PWA-SP Glossary	B
	PWA-SP 4	B
	PWA-SP 10	D
*	PWA-SP 11	G
*	PWA-SP 16	A
	PWA-SP 19	D
	PWA-SP 46	
*	PWA-SP 80	G
	PWA-SP 82	C
	PWA-SP 96	C
	PWA-SP 97	C
	PWA-SP 98	B
	PWA-SP 99	B
	PWA-SP 105	A
	PWA-SP 108	A
	PWA-SP 109	
	PWA-SP 115	A
	PWA-SP 116	A
	PWA-SP 123	A
	PWA-SP 288	A
	PWA-SP 300	F
	PWA-SP 306	B
	PWA-SP 310	C
	PWA-SP 316	
	PWA-SP 318	
	PWA-SP 320	
	PWA-SP 321	B
	PWA-SP 322	
	PWA-SP 330	A
*Critical Process		

² Super D-Gun™ is a Registered Process Trademark of Praxair Surface Technology, Inc.



Pratt & Whitney Rocketdyne

ROCKET ENGINEERING INSTRUCTION

REI 001

Issued: July 1994

Revised: December 2009

**MASTER SPECIFICATION INDEX
FOR THE SSME TURBOPUMP**

APPENDIX B: PWR/PWA-SP SPECIFICATIONS		
NOTE	SPECIFICATION	REV.
	PWA-SP 331	A
	PWA-SP 332	A
	PWA-SP 334	H
	PWA-SP 336	C
	PWA-SP 345	A
	PWA-SP 346	A
	PWA-SP 355	B
	PWA-SP 357	A
	PWA-SP 360	A
	PWA-SP 361	
	PWA-SP 363	A
	PWA-SP 364	
	PWA-SP 367	C
	PWA-SP 371	D
	PWA-SP 373	A
	PWA-SP 381	B
	PWA-SP 383	
	PWA-SP 384	A
	PWA-SP 388	B
	PWA-SP 390	A
	PWA-SP 392	
	PWA-SP 395	A
	PWA-SP 444	B
	PWA-SP 445	
	PWA-SP 449	B
	PWA-SP 482	A
	PWA-SP 1021	A
*Critical Process		

³ Kevlar® is a Registered Trademark of E.I. du Pont de Nemours and Company



Pratt & Whitney Rocketdyne

ROCKET ENGINEERING INSTRUCTION

REI 001

Issued: July 1994

Revised: December 2009

**MASTER SPECIFICATION INDEX
FOR THE SSME TURBOPUMP**

APPENDIX B: PWR/PWA-SP SPECIFICATIONS		
NOTE	SPECIFICATION	REV.
	PWA-SP 1039	A
	PWA-SP 1042	A
	PWA-SP 1052	A
	PWA-SP 1074	B
	PWA-SP 1103	A
	PWA-SP 1104	F
	PWA-SP 1105	A
	PWA-SP 1130	
	PWA-SP 1132	A
	PWA-SP 1133	A
	PWA-SP 1134	A
	PWA-SP 1135	D
	PWA-SP 1136	B
	PWA-SP 1138	A
	PWA-SP 1139	
	PWA-SP 1140	B
	PWA-SP 1141	
	PWA-SP 1142	A
	PWA-SP 1143	G
	PWA-SP 1144	C
	PWA-SP 1145	B
	PWA-SP 1146	A
	PWA-SP 1147	B
*Critical Process		


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A United Technologies Company

Pratt & Whitney Rocketdyne
ROCKET ENGINEERING INSTRUCTION

REI 001

Issued: July 1994

Revised: December 2009

**MASTER SPECIFICATION INDEX
FOR THE SSME TURBOPUMP**

APPENDIX B: PWR/PWA-SP SPECIFICATIONS		
NOTE	SPECIFICATION	REV.
	PWA-SP 1148	E
	PWA-SP 1149	A
	PWA-SP 1150	A
	PWA-SP 1151	B
	PWA-SP 1152	B
	PWA-SP 1153	
	PWA-SP 1154	B
	PWA-SP 1155	B
	PWA-SP 1156	C
	PWA-SP 1157	A
	PWA-SP 1158	A
	PWA-SP 1159	A
	PWA-SP 1160	F
	PWA-SP 1161	B
	PWA-SP 1163	A
	PWA-SP 1171	B
	PWA-SP 1196	
	PWA-SP 1201	B
	PWA-SP 1240	A
	PWA-SP 1489	E
	PWA-SP 1490	C
	PWA-SP 1493	A
	PWA-SP 1494	A
	PWA-SP 6000	A
	PWA-SP 36122	
	PWA-SP 36158	B
*Critical Process		

⁵ Dow Corning® is the Registered Trademark of the Dow Corning Corporation

⁶ Braycote® is the Registered Trademark of Castrol, Inc.

⁷ 3M® is the Registered Trademark of the 3M Company


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A United Technologies Company

Pratt & Whitney Rocketdyne
ROCKET ENGINEERING INSTRUCTION

REI 001

Issued: July 1994

Revised: December 2009

**MASTER SPECIFICATION INDEX
FOR THE SSME TURBOPUMP**

APPENDIX B: PWR/PWA-SP SPECIFICATIONS		
NOTE	SPECIFICATION	REV.
	PWA-SP 36180	K
	PWA-SP 36181	F
	PWA-SP 36182	D SCN006
	PWA-SP 36183	C SCN002
	PWA-SP 36184	C
	PWA-SP 36185	C
	PWA-SP36186	D SCN002
	PWA-SP 36187	B SCN 001
	PWA-SP 36470	A
	PWA-SP 36471	D
	PWA-SP 36472	C
	PWA-SP 36473	B
	PWA-SP 36512	B
	PWA-SP 36683	B
	PWA-SP 36731	C
	PWA-SP 36951	
	PWA-SP 36961	A
	PWA-SP 36964	B
	PWA-SP 36966	C
	PWA-SP 79303	
	PWA-SP 79329	A
	RB0130-107	D
	RF0004-151	R
	RF0004-152	P
	RF0004-444	E
*Critical Process		

⁸ Foamex® is the Registered Trademark of Foamex International, Inc.

⁹ Polyurethane (PR-1578®) is the Registered Trademark of PRC-DeSoto International, Inc.

¹⁰ Hypalon® is the Registered Trademark of Clifton Adhesive, Inc.


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A United Technologies Company

Pratt & Whitney Rocketdyne
ROCKET ENGINEERING INSTRUCTION

REI 001

Issued: July 1994

Revised: December 2009

**MASTER SPECIFICATION INDEX
FOR THE SSME TURBOPUMP**
APPENDIX C: AMS/AS SPECIFICATIONS

NOTE	SPECIFICATION	REV.	TITLE
	AMS 2249	G	Chemical Check Analysis Limits – Titanium and Ti Alloys
	AMS 2269	F	Chemical Checks Analysis Limits – Nickel, Nickel Alloys and Cobalt Alloys
	AMS 2403	L	Plating–Nickel, General Purpose
	AMS 2406	L	Plating–Chromium, Hard Deposit
	AMS 2410	J	Plating–Silver, Nickel Strike, High Bake
	AMS 2422	E	Plating Gold
	AMS 2424	E	Plating, Nickel, Low Stressed Deposit
	AMS 2430	P	Shot Peening, Automatic
	AMS 2431/4	C	Peening Media–General Requirements
	AMS 2470	M	Anodic Chrome Acid Process Treatment of Aluminum Alloys
	AMS 2471	G	Anodic Treatment of Aluminum Alloys, Sulfuric Acid Process, Undyed Coating
	AMS 2473	G	Chemical Film Treatment for Aluminum Alloys, General Purpose Coating
	AMS 2482	C	Hard Coat Treatment of Aluminum Alloys, Teflon–Impregnated or Codeposited
	AMS 2515	E	Polytetrafluoroethylene (PTFE) Resin Coating Low build, 370 to 400°C (698 to 752°F) Fusion
	AMS 3159	F	Leak Test Solution Liquid Oxygen Compatible
	AMS 3417	C	Flux, Brazing High Temperature
	AMS 3650	C	Rods, Sheets, and Molded Shapes, Polychlorotrifluoroethylene (PCTFE) Unplasticized
	AMS 4027	N	Aluminum Alloy Sheet & Plate (6061–T6 Sheet, –T651 Plate)
	AMS 4120	R	Aluminum Alloy, Rolled or Cold Finished Bars, Rods and Wire 4.4 Cu – 1.5mg – 0.60 Mn (2024). Solution Heat Treated and Naturally aged (T4) Solution Heat Treated, Cold Worked, and Naturally Aged (T351)
	AMS 4127	J	Aluminum Alloy Forgings and Rolled or Forged Rings (6061–T6)
	AMS 4219	E	Aluminum Alloy Casting 7.0Si–0.55Mg – 0.12 Ti–0.06 Be (A357.0 T61P) Solution and Precipitation Heat Treated
	AMS 4530	G	Cu–Be Alloy Sheet, Strip & Plate
	AMS 4532	F	Cu–Be Alloy Sheet & Strip Half Hard
	AMS 4650	L	Cu–Be Alloy Bars, Rods, Shapes, TBoo (A) & Forgings Solution Heat Treated
	AMS 4676	E	Nickel–Copper Alloy, Corrosion–Resistant, Bars and Forgings 66.5 Ni – 3.0 Al – 0.62 Ti – 28 Cu Hot–finished, Precipitation Hardenable
	AMS 4786	H	Gold–Palladium–Nickel Alloy Brazing Filler Metal, High Temperature 70Au–8Pd–22Ni
	AMS 4787	F	Gold Nickel Alloy Brazing, Filler Metal, High Temperature
	AMS 4966	N	Titanium Alloy, Forgings (5Al 2.5 Sn, Annealed)


Pratt & Whitney

A United Technologies Company

Pratt & Whitney Rocketdyne
ROCKET ENGINEERING INSTRUCTION

REI 001

Issued: July 1994

Revised: December 2009

**MASTER SPECIFICATION INDEX
FOR THE SSME TURBOPUMP**
APPENDIX C: AMS/AS SPECIFICATIONS

NOTE	SPECIFICATION	REV.	TITLE
	AMS 5040	M	Steel, Sheet and Strip 0.15 Carbon, Maximum Deep Forming Grade
	AMS 5362	L	Steel Castings, Invest, Corr & Ht Resistant (AISI 347) Solution Heat Treated
	AMS 5510	S	Steel Sheet, Strip & Plate, Corr & Ht Resistant (AISI 321) Solution Heat Treated
	AMS 5512	L	Steel Sheet, Strip & Plate, Corr & Ht Resistant (AISI 347) Solution Heat Treated
	AMS 5513	J	Sheet, Strip & Plate, Corr Resistant (AISI 304) Solution Heat Treated
	AMS 5525	J	Steel Sheet, Strip & Plate, Corr & Ht Resistant (A286) Solution Heat Treated
	AMS 5529	H	Steel, Corrosion Resistant Sheet & Strip (17CR-7Ni) Solution Heat Treated and Cold Rolled, Precipitation Hardenable-Not used in SSME HPTP. Will be removed next revision.
	AMS 5536	M	Nickel Alloy, Sheet, Strip & Plate, Corr & Ht Resistant (Hastelloy-X) Solution Heat Treated
	AMS 5540	M	Nickel Alloy, Sheet, Strip & Plate, Corr & Ht Resistant (INCO 600) Annealed
	AMS 5542	N	Nickel Alloy, Sheet, Strip & Plate, Corr & Ht Resistant Annealed
	AMS 5544	J	Nickel Alloy, Sheet, Strip & Plate, Corr & Ht Resistant (Waspaloy) Consumable Electrode or Vacuum Induction Melted, Annealed
	AMS 5571	H	Steel, Corr and Ht Resistant Solution Heat Treated Tubing, Seamless (AISI 347)
	AMS 5581	E	Nickel Alloy, Corrosion and Heat Resistant, Seamless or Welded Tubing (INCO 625) Annealed
	AMS 5586	G	Nickel Alloy Tubing, Weld, Corr & Ht Resistant (Waspaloy) Consumable Electrode or Vacuum Induction Melted, Annealed
	AMS 5587	E	Nickel Alloy, Corrosion and Heat Resistant, Seamless Tubing (Hastelloy X) Solution Heat Treated
	AMS 5596	K	Nickel Alloy, Corrosion and Heat Resistant, Sheet, Strip, Foil and Plate (INCO 718) Consumable Electrode or Vacuum Induction Melted 1775°F (968°C) Solution Heat Treated
	AMS 5597	E	Nickel Alloy, Corrosion and Heat Resistant, Sheet, Strip, Foil and Plate (INCO 718) Consumable Electrode or Vacuum Induction Melted 1950°F (1066°C) Solution Heat Treated
	AMS 5599	G	Nickel Alloy, Corr & Ht Resistant, Sheet, Strip, and Plate Annealed
	AMS 5608	E	Cobalt Alloy, Corr & Ht Resistant, Sheet, Strip & Plate (Haynes 188) Solution Heat Treated
	AMS 5618	G	Steel, Corr Resistant Bars, Wire & Forgings (AISI 440 C)
	AMS 5645	P	Steel Bars, Wire, Forgings, Tubing & Rings, Corr & Ht Resistant (AISI 321) Solution Heat Treated


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A United Technologies Company

Pratt & Whitney Rocketdyne
ROCKET ENGINEERING INSTRUCTION

REI 001

Issued: July 1994

Revised: December 2009

**MASTER SPECIFICATION INDEX
FOR THE SSME TURBOPUMP**
APPENDIX C: AMS/AS SPECIFICATIONS

NOTE	SPECIFICATION	REV.	TITLE
	AMS 5646	M	Steel Bars, Wire, Forgings, Tubing & Rings Corr & Ht Resistant (AISI 347) Solution Heat Treated
	AMS 5662	M	Nickel Alloy, Corrosion and Heat Resistant, Bars, Forgings and Rings (INCO 718) Consumable Electrode or Vacuum Induction Melted 1775°F (968°C) Solution Heat Treated Precipitation Hardenable
	AMS 5663	M	Nickel Alloy, Corrosion & Heat Resistant, Bars, Forgings & Rings Consumable Electrode or Vacuum Induction Melted, Solution and Precipitation Heat Treated
	AMS 5664	E	Nickel Alloy, Corrosion and Heat Resistant, Bars, Forgings and Rings Consumable Electrode or Vacuum Induction Melted 1950°F (1066°C) Solution Heat Treated Precipitation Hardenable (INCO 718)
	AMS 5665	M	Nickel Alloy, Corrosion and Heat Resistant, Bars, Forgings, and Rings 74Ni – 15.5 Cr – 8.0 Fe – UNS N06600
	AMS 5666	F	Nickel Alloy, Corr & Ht Res, Bars, Forgings, & Rings 62 Ni – 21.5 Cr – 9.0 Mo – 3.65 Extr (Cb + Ta) Annealed
	AMS 5689	F	Steel, Corrosion and Heat Resistant, Wire 18 Cr – 10.5 Ni – 0.40 Ti (SAE 30321) Solution Heat Treated
	AMS 5707	L	Nickel Alloy, Corrosion and Heat Resistant Bars, Forgings, and Rings 58 Ni – 19.5 Cr – 13.5 Co – 4.3 Mo – 3.0 Ti – 1.4 Al – 0.05 Zr – 0.006B Consumable Electrode or Vacuum Induction Melted Stabilization and Precipitation Heat Treated
	AMS 5708	K	Nickel Alloy, Corrosion and Heat Resistant Bars, Forgings, and Rings 58 Ni – 19.5 Cr – 13.5 Co – 4.3 Mo – 3.0 Ti – 1.4 Al Consumable Electrode or Vacuum Induction Melted 1975°F (1079°C) Solution Heat Treated
	AMS 5731	L	Steel, Corrosion and Heat Resistant Bars, Wire, Forgings, Tubing and Rings 15 Cr – 25.5 Ni – 1.2 Mo – 2.1 Ti – 0.006B – 0.30V Consumable Electrode Melted 1800°F (982°C) Solution Heat Treated
	AMS 5732	J	Steel, Corrosion and Heat Resistant Bars, Wire, Forgings, and Rings 15 Cr – 25.5 Ni – 1.2 Mo – 2.1 Ti – 0.006B – 0.30V Consumable Electrode Melted 1800°F (982°C) Solution and Precipitation Heat Treated
	AMS 5737	P	Steel, Corrosion and Heat Resistant, Bars, Wire, Forgings, and Tubing 15 Cr – 25.5 Ni – 1.2 Mo – 2.1 Ti – 0.006B – 0.30V Consumable Electrode Melted 1650°F (899°C) Solution and Precipitation Heat Treated
	AMS 5772	D	Cobalt Alloy, Corrosion and Heat Resistant Bars, Forgings, and Rings 40 Co – 22 Cr – 22 Ni – 14.5 W – 0.07 Solution Heat Treated
	AMS 5832	F	Nickel Alloy, Corrosion & Heat Resistant Welding Wire 52.5 Ni – 19 Cr – 3.0 Mo – 5.1 Cb – 0.9 Ti – 0.50 Al – 18 Fe
	AMS 5842	E	Cobalt-Nickel Alloy, Corrosion and Heat Resistant Bars 19 Cr – 36 Co – 25 Ni – 7.0 Mo – 0.50 Cb – 2.9 Ti – 0.20 Al – 9.0 Fe Vacuum Induction Plus Vacuum Consumable Electrode Melted Solution Heat Treated and Work Strengthened


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ROCKET ENGINEERING INSTRUCTION

REI 001

Issued: July 1994

Revised: December 2009

**MASTER SPECIFICATION INDEX
FOR THE SSME TURBOPUMP**
APPENDIX C: AMS/AS SPECIFICATIONS

NOTE	SPECIFICATION	REV.	TITLE
	AMS 5843	E	Cobalt-Nickel Alloy, Corrosion and Heat Resistant Bars 19 Cr – 36 Co – 25 Ni – 7.0 Mo – 0.50 Cb – 2.9 Ti – 0.20 Al – 9.0 Fe Vacuum Induction Plus Vacuum Consumable Electrode Melted Solution Heat Treated and Work Strengthened and Aged
	AMS 5844	G	Alloy, Corrosion Resistant, Round Bars 20 Cr – 35 Ni – 35 Co – 10 Mo Vacuum Induction Consumable Electrode Vacuum Melted Solution Heat Treated and Work Strengthened
	AMS 5845	H	Alloy, Corrosion Resistant, Round Bars 20 Cr – 35 Ni – 35 Co – 10 Mo Vacuum Induction Consumable Electrode Vacuum Melted Solution Heat Treated and Work Strengthened and Aged
	AMS 5876	D	Cobalt Alloy, Corrosion and Heat Resistant, Strip 20 Cr – 15 Ni – 40 Co – 7.0 Mo – 16 Fe Vacuum Induction Plus Consumable Electrode Melted Solution Heat Treated and Cold Rolled
	AMS 5895	E	Steel, Corrosion and Heat Resistant, Bars, Wire, Forgings, Tubing, and Rings 15 Cr – 25.5 Ni – 1.2 Mo – 2.1 Ti – 0.006B – 0.30 V Consumable Electrode Melted, 1750°F (954°C) Solution Heat Treated, Welding Grade Precipitation Hardened
	AMS 6265	M	Steel, Bars, Forgings, and Tubing 1.2 Cr – 3.25 Ni – 0.12 Mo (0.07 – 0.13C) SAE 9310 Vacuum Consumable Electrode Remelted
	AMS 6322	N	Steel Bars, Forgings, and Rings 0.50 Cr – 0.55 Ni – 0.25 Mo (SAE 8740)
	AMS 7228	J	HAS BEEN SUPERCEDED BY AS7228
	AMS 7233	D	HAS BEEN SUPERCEDED BY AS7233
	AMS 7310	K	Rings, Pistons, Cast Iron As Cast UNS A96061
	AMS 7320	E	Sealing Rings, Cast Leaded-Tin Bronze 80 Cu – 16 Sn – 5Pb as Cast
	AMS 7467	C	HAS BEEN SUPERCEDED BY AS7467
	AMS 7475	B	HAS BEEN SUPERSEDED BY AS7475
	AMS 7490	Q	Rings, Flash Welded Corrosion and Heat-Resistant Austenitic Steels, Austenitic-Type iron, Nickel or Cobalt Alloys, or Precipitation-Hardenable Alloys
	AS870	D	(R) Wrenching Configuration, B. Hexagonal (12 Point) Drive, Design Standard For
	AS1310	B	Fasteners Torque for Threaded Applications, Definition of
	AS3062	C	Bolts, Screws, & Studs, Screw Thread Requirements
	AS7228		Rivets, Steel, Corrosion Resistant 18 Cr – 9 Solution Heat Treated, Procurement Specification For
	AS7233		Rivets, Solid, UNS N04400, Corrosion Resistant 67 Ni – 31 Cu Procurement Specification For
	AS7251	B	Nuts, Self-Locking, Steel, Corr & Ht Resistant High Strength, All Metal
	AS7452	A	Bolts & Screws, Steel, Low-Alloy Heat Treated, 1200°F USN, Rolled Threaded, UNJ Thread Form
	AS7461	B	Bolts & Screws, Titanium Alloy 6 Al – 4 V Fatigue Rated, Procurement Specification For


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ROCKET ENGINEERING INSTRUCTION

REI 001

Issued: July 1994

Revised: December 2009

**MASTER SPECIFICATION INDEX
FOR THE SSME TURBOPUMP**
APPENDIX C: AMS/AS SPECIFICATIONS

NOTE	SPECIFICATION	REV.	TITLE
	AS7466	B	Bolt and Screw, Nickel Alloy, UNS N07718 Tensile Strength 185 KSI Fatigue Rated Procurement Specification
	AS7467	A	Bolt and Screw, Nickel Alloy, UNS N07718 Tensile Strength 185 KSI Stress Rated Procurement Specification
	AS7468	B	Bolts, Cobalt – Chromium–Nickel Alloy UNS R30035, Tensile Strength 260 KSI, Procurement Specification
	AS7475	C	Bolts, Cobalt – Chromium–Nickel Alloy UNS R30159, Tensile Strength 260 KSI Procurement Specification
	AS7477	D	Bolt and Screws, Steel, UNS S66286 Tensile Strength 130 KSI, Procurement Specification
	AS7478	B	Bolt and Screws, Steel, UNS S66286 Classification: 130 KSI/1200°F 1800°F Solution Heat Treated, aged After Roll Threaded Procurement Specification for
	AS7482	B	Studs, Corrosion and Heat Resistant Steel, UNS S66286 Tensile Strength 130 KSI 1800°F Solution Heat Treated, Aged Before Roll Threading Procurement Specification

APPENDIX D: ROCKET ENGINEERING INSTRUCTIONS

REI	REV.
REI 001	91
REI 004	U
REI 005	K
REI 007	G
REI 008	D
REI 011	B
REI 012	N
REI 013	AA
REI 014	J
REI 016	F
REI 017	G
REI 018	F
REI 020	K
REI 022	B
REI 025	L
REI 026	G
REI 028	F
REI 029	C
REI 030	B
REI 031	B



Pratt & Whitney Rocketdyne

ROCKET ENGINEERING INSTRUCTION

REI 001

Issued: July 1994

Revised: December 2009

**MASTER SPECIFICATION INDEX
FOR THE SSME TURBOPUMP**

APPENDIX E: NDT METHODS

NOTE	METHODS	REV.
	ATTM-MASTER	C
	BSQ	5
	BTM-13	G
	CDM-2	E
	HIM-1	R
	PTM-MASTER	G
	PTM-CODE-A	A
	PTM-CODE-B	A
	PTM-CODE-C	C
	PTM-CODE-D	A
	PTM-CODE-E	A
	PTM-CODE-F	
*	SP-BTM 2	A
	SP-CTM 1	
*	SP-CVM1 CODE 1	
*	SP-CVM1 MASTER	
*	SP-CVM 2	B
*	SP-CVM 2H	C
*	SP-ECM MASTER	C
*	SP-ECM CODE 1	
*	SP-ECM CODE 1F	A
*	SP-ECM CODE 2F	A
*	SP-ECM CODE 4	
*	SP-ECM CODE 5	B
*	SP-EIM MASTER	C
*	SP-EIM CODE 2	B
*	SP-EIM CODE 3	
*	SP-EIM CODE 5	A
*	SP-EIM CODE 7	B
*	SP-EIM CODE 7L	B
*	SP-EIM CODE 7W	
*	SP-EIM CODE 8	
*	SP-FPM MASTER	J
*	SP-FPM CODE 2	
*	SP-FPM CODE 4	B
*	SP-FPM CODE 5	
*	SP-FPM CODE 7	
*	SP-MPM	
	SP-NDTQ	C

*Critical Process



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ROCKET ENGINEERING INSTRUCTION

REI 001

Issued: July 1994

Revised: December 2009

**MASTER SPECIFICATION INDEX
FOR THE SSME TURBOPUMP**

APPENDIX E: NDT METHODS

NOTE	METHODS	REV.
*	SP-SIM 1	A
*	SP-SIM 4	
*	SP-SIM 11	A
*	SP-SIM 12	B
*	SP-SIM 13	B
*	SP-SIM14	A
*	SP-SIM 309	
*	SP-SIM 314	
*	SP-SIM 315	A
*	SP-XRM MASTER	D
*	SP-XRM CODE 1	
*	SP-XRM CODE 3	
*	SP-XRM CODE 4	
	TDM-7	H
*Critical Process		



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ROCKET ENGINEERING INSTRUCTION

REI 001

Issued: July 1994

Revised: December 2009

**MASTER SPECIFICATION INDEX
FOR THE SSME TURBOPUMP**

APPENDIX F: NDT STANDARDS

NOTE	STANDARD	REV.
	CDS-3	D
	CVS-10	A
	DCS-1-MASTER	P
	DCS-23	R
	DCS-35	C
	DCS-48	F
	DCS-72	D
	DCS-131	C
	DCS-152	C
	ECS-MASTER	B
	ECS-45	F
	ECS-50	F
	ECS-51	A
	EIS-13	W
	EIS-17	F
	EISMASTER	M
	FCPS-2	H
	FPS-25	C
	FPS-38	M
	FPS-89	B
	FPSMASTER	W
	FPVS-6	E
	FPVS-9	D
	FPVS-24	A
	SIS-MASTER	E
	SIS-42	D
	SIS-43	G
	SIS-44	G
	SIS-45	E
	SIS-315	B
	SIS-322	H
	SIS-328	B
	SIS-330	B
	STS-MASTER	C
+	STS-A-VENDOR	C
	VIM-MASTER	C
	VIS-4	AC
	VIS-7	R
	VIS-14	K
	VIS-22	H
	VIS-23	AB
	VIS-45	G


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ROCKET ENGINEERING INSTRUCTION

REI 001

Issued: July 1994

Revised: December 2009

**MASTER SPECIFICATION INDEX
FOR THE SSME TURBOPUMP**
APPENDIX F: NDT STANDARDS

NOTE	STANDARD	REV.
	VIS-46	L
	VIS-104	D
	VIS-114	T
	VIS-219	
	VIS-226	G
	VIS-454	J
	VIS-459	A
	VIS-460	A
	VIS-479	
	VIS-480	A
	VIS-530	C
	VIS-531	B
	VIS-536	A
	VIS-553	A
	VIS-559	B
*	VIS-578	A
	VIS 603	
	VIS-MASTER	Y
	XRS-33	N
	XRS-71	E
	XRS-90	B
	XRS-92	A
	XRS-94	B
	XRS-99	A
	XRS-107	A
	XRS-302	B
	XRSMaster	N
* Critical Process + Cancelled-Refer to STS-Master		

APPENDIX G: QUALITY ASSURANCE SPECIFICATIONS

NOTE	QA-SPEC	REV.
	PW-QA6071	T
	PW-QA6076	AD
	PW-QA6077	K
	PW-QA6078	AD
	PW-QA6084	AA
	PW-QA6088	AA
	PW-QA6088 Appendix A	2


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ROCKET ENGINEERING INSTRUCTION

REI 001

Issued: July 1994

Revised: December 2009

**MASTER SPECIFICATION INDEX
FOR THE SSME TURBOPUMP**
APPENDIX G: QUALITY ASSURANCE SPECIFICATIONS

NOTE	QA-SPEC	REV.
	PW-QA6091	D
	PW-QA6096	6
	PW-QA6099	A
	ASQR-01	6
	ASQR-20.1	4
	PW-QA6097	

APPENDIX H: GOVERNMENT SPECIFICATIONS

NOTE	SPECIFICATION	REV.
%	QQ-P-35 Cancel	C
	QQ-N-281	D

%See ASTM-A967

APPENDIX I: MCL MANUAL, F-54 ADDENDA

NOTE	ADDENDUM NO.	REV.
	MCLMF-54ADD1	C
	MCLMF-54ADD2	C
	MCLMF-54ADD3	E
	MCLMF-54ADD4	D
	MCLMF-54ADD10	C
	MCLMF-54ADD11	G
	MCLMF-54ADD12	C
	MCLMF-54ADD14	D
	MCLMF-54ADD15	C
	MCLMF-54ADD16	D
	MCLMF-54ADD17	F
	MCLMF-54ADD18	C
	MCLMF-54ADD22	C
	MCLMF-54ADD23	C
	MCLMF-54ADD24	C
	MCLMF-54ADD25	B
	MCLMF-54ADD26	D
	MCLMF-54ADD28	C
	MCLMF-54ADD29	C
	MCLMF-54ADD32	D
	MCLMF-54ADD35	B
	MCLMF-54ADD36	C
	MCLMF-54ADD38	C
	MCLMF-54ADD40	E



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ROCKET ENGINEERING INSTRUCTION

REI 001

Issued: July 1994

Revised: December 2009

**MASTER SPECIFICATION INDEX
FOR THE SSME TURBOPUMP**

APPENDIX I: MCL MANUAL, F-54 ADDENDA

NOTE	ADDENDUM NO.	REV.
	MCLMF-54ADD42	B
	MCLMF-54ADD43	C
	MCLMF-54ADD44	G
	MCLMF-54ADD45	C
	MCLMF-54ADD52	C
	MCLMF-54ADD56	B
	MCLMF-54ADD58	A

APPENDIX J: SUBCONTRACTOR RESPONSIBILITIES

NOTE	SR NO.	REV.
	SR-010	
Cancel 4-19-06	SR-031	C
	SR-034	B
	SR-036	G
	SR-043	C
	SR-044	C
	SR-045	A
	SR-046	A
	SR-049	
	SR-050	B
	SR-058	A
	SR-1001	N

APPENDIX K: PURCHASE PERFORMANCE SPECIFICATIONS

NOTE	PPS NO.	REV.
	PPS F-768	D



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ROCKET ENGINEERING INSTRUCTION

REI 001

Issued: July 1994

Revised: December 2009

**MASTER SPECIFICATION INDEX
FOR THE SSME TURBOPUMP**

APPENDIX L: CEI & ICD SPECIFICATIONS		
NOTE	SPECIFICATION	REV.
	CP11369	D SCN003
	CP11370	B SCN003
	CP11371	G IRN PW 0071
	CP11372	D IRN PW 0072