HEADQUARTERS, ARMY AIR FORCES
WASHINGTON 25, D. C.

TECHNICAL ORDER
NO. 02-1-38A

★ SUPPLEMENT TO BASIC TECHNICAL ORDER ★

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AIRCRAFT ENGINES AND MAINTENANCE PARTS

GENERAL – SPECIFIED AND ALTERNATE GRADE FUEL FOR AIRCRAFT-ENGINE COMBINATIONS

NOTE This Technical Order supplements T. O. No. 02-1-38, dated 10 September 1945, to make corrections as indicated herein. A SUITABLE REFERENCE TO THIS SUPPLEMENT WILL BE MADE ON PAGE 1 OF THE BASIC TECHNICAL ORDER AND THE AFFECTED PARAGRAPHS INDICATED ACCORDINGLY.

1. Paragraph 2.a.(1) of T. O. No. 02-1-38, dated 10 September 1945, is hereby amended to read as follows:

2. a. * * * * * * * *

(1) When the grade of fuel specified in Table A is not available and the particular aircraft-engine combination is not listed in Table B, the aircraft may be serviced with the next highest grade as an alternate in order to maintain required flight schedules. In case of transient aircraft, the alternate grade of fuel serviced will be limited to a quantity sufficient to continue to the next nearest Army Air Field enroute having the specified grade of fuel (See T. O. No. 00-35A-2), except airplane-engine combination for which grade 91/96 fuel is recommended, in which case 100/130 fuel will be used until such time as grade 91/96 fuel again is made available, provided the airplane has been modified for the use of aromatic fuel. (See T. O. No. 04-1-17.)

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2. Table A of T. O. No. 02-1-38, dated 10 September 1945, is hereby amended to include on each page the following note:

NOTE Engines that were formerly rated on grade 87 and 100/130 for which grade 91/96 is now recommended, and engines now rated on grade 91/96 fuel will be operated on grade 100/130 fuel with no change in operating instructions contained in the applicable Technical Order of Operating Instructions, until grade 91/96 is again made available, provided the airplane has been modified for use of aromatic fuel. (See T. O. No. 04-1-17.)

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BY COMMAND OF GENERAL SPAATZ:

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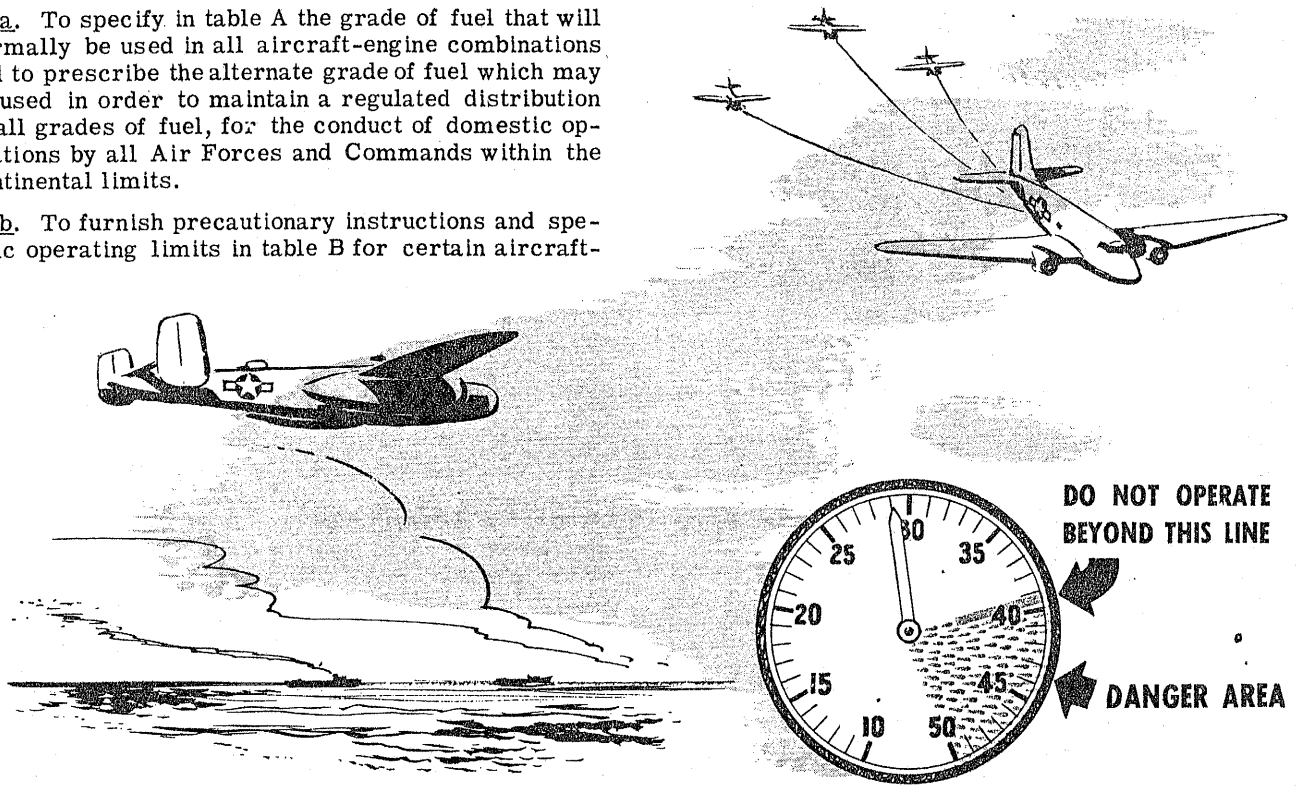
TABLE OF CONTENTS

1. PURPOSE.

a. To specify in table A the grade of fuel that will normally be used in all aircraft-engine combinations and to prescribe the alternate grade of fuel which may be used in order to maintain a regulated distribution of all grades of fuel, for the conduct of domestic operations by all Air Forces and Commands within the continental limits.

b. To furnish precautionary instructions and specific operating limits in table B for certain aircraft-engine combinations normally rated on grade 130 fuel which are permitted to operate on grade 91/96 fuel, Specification No. AN-F-26, in order that Air Forces and Commands can maintain the issue of fuel, grade 130, within the monthly volumes allotted.



2. GENERAL INSTRUCTIONS.

a. It is mandatory that all aircraft-engine combinations be operated on the grade of fuel specified in table A of this Technical Order except as follows:

(1) When the grade of fuel specified in table A is not available and the particular aircraft-engine combination is not listed in table B, the aircraft may be serviced with the next higher grade as an alternate in order to maintain required flight schedules. In the case of transient aircraft, the alternate grade of fuel serviced will be limited to a quantity sufficient to continue to the nearest army air field enroute having the specified grade of fuel. (See T. O. No. 00-35A-2.)

(2) When grade 130 fuel, specified in table A for any aircraft-engine combination is not available and that combination is listed in table B, fuel, grade 91/96, Specification No. AN-F-26, will be serviced as an alternate and the aircraft operated according to the specific operating limits listed in table B observing all precautionary instructions contained in paragraph 3.

TABLE A

SPECIFIC GRADE OF FUEL TO BE USED IN EACH AIRCRAFT-ENGINE COMBINATION

NOTE All aircraft having the same type, model, and series designations and block designations where applicable, and aircraft included therein to which auxiliary prefix symbols having been authorized (Reference No. T.O. No. 01-1-81), will use the same grade of fuel as indicated for the basic type and model. Example: Fuel required for CB-17F, FB-17F, RB-17F, TB-17F, and XB-17F is the same as that specified for the B-17F.

Aircraft Type and Model	Engine Type and Model	Fuel Grade Recommended
BOMBARDMENT (LIGHT) SYMBOL A		
A-17	R-1535-11	91/96
A-17A	R-1535-13	91/96
A-20	R-2600-11	130 #
A-20A	R-2600-11	130 #
A-20B	R-2600-11	130 #
A-20C	R-2600-23/A5BO	91/96 *
A-20G	R-2600-23	91/96 *
A-20H	R-2600-13, 29	130 #
A-20J	R-2600-13	91/96 *
A-20K	R-2600-29	130 #
DB-7B	R-2600-23/A5BO	91/96 *
A-24	R-1820-52	130
A-24A	R-1820-52	130
A-24B	R-1820-60	130
A-25A	R-2600-8	130 #
A-26	R-2800-27	130
A-26A	R-2800-27	130
A-26B	R-2800-27	130
A-26C	R-2800-27	130
A-29	R-1820-87	130 #
A-29A	R-1820-87	130 #
A-29B	R-1820-87	130 #
A-31	R-2600-19	91/96 *
A-31C	R-2600-19	91/96 *
A-33	R-1820-87	130 #
A-34	R-2600-19	91/96 *
A-35A	R-2600-19	91/96 *
A-35A	R-2600-13	130 #
A-35B	R-2600-13	130 #
A-36A	V-1710-87	130 #
B-10B	R-1820-33	91/96 ±
BOMBARDMENT (MEDIUM & HEAVY) SYMBOL B		
B-17B	R-1820-51	130 #
B-17C	R-1820-65	130 #
B-17D	R-1820-65	130 #
B-17E	R-1820-65	130 #
B-17F	R-1820-65/97	130 #
B-17G	R-1820-65/97	130 #
B-18	R-1820-45	91/96
B-18A	R-1820-53	130 #
B-18B	R-1820-53	130 #
B-19A	V-3420-19	130
B-23	R-2600-3	130 #
B-24	R-1830-33/43	130 #
B-24A	R-1830-33/43	130 #
B-24B	R-1830-43	130 #
B-24C	R-1830-43	130 #
B-24D	R-1830-43/65	130 #
B-24E	R-1830-43/65	130 #
B-24F	R-1830-43/65	130 #
B-24G	R-1830-43/65	130 #
B-24H	R-1830-43/65	130 #
B-24J	R-1830-43/65	130 #
B-24K	R-1830-75	130
B-24L	R-1830-43/65	130 #
B-24M	R-1830-43/65	130 #
B-24N	R-1830-75	130
B-25	R-2600-9	130 #
B-25A	R-2600-9	130 #
B-25B	R-2600-9	130 #
B-25C	R-2600-13	130 #
B-25D	R-2600-13	130 #
B-25E	R-2600-13	130 #
B-25G	R-2600-13	130 #
B-25H	R-2600-13	130 #

* Engines formerly rated on grade 130 fuel. Use grade 91 as shown with no change in operating instructions contained in the applicable Technical Order Handbook of Operation Instructions.

\# Engines rated on grade 130 fuel; however, operation may be accomplished on alternate grade 91/96, using power limits listed in table B for all missions except those listed in paragraph 3. of this Technical Order.

± Engines formerly rated on fuel grade 87, which is no longer supplied. Use grade 91/96 with no change in operating instructions contained in the applicable Technical Order Handbook of Operation Instructions.

$ Engines rated on grade 73 fuel; however, operation may be accomplished on alternate grade 80 motor fuel (all purpose) Specification No. 2-103.

TABLE A (Cont)

Aircraft Type and Model	Engine Type and Model	Fuel Grade Recommended
B-25J	R-2600-13/29	130 #
B-26	R-2800-5/43	130
B-26A	R-2800-5	130
B-26A-1	R-2800-39	130
B-26B	R-2800-5	130
B-26B-1	R-2800-43	130
B-26B-2	R-2800-41	130
B-26C	R-2800-43	130
B-26E	R-2800-43	130
B-26F	R-2800-43	130
B-26G	R-2800-43	130
B-29	R-3350-19/41	130
B-29A	R-3350-23A/57/59	130
B-29B	R-3350-21/21A/23/23A/57/59	130
B-32	R-3350-13/23/23A/57/59	130
B-34	R-2800-31	130 #
B-34A	R-2800-31	130 #
B-34B	R-2800-31	130 #
B-35	R-4360-17/21	130
B-36	R-4360-25	130
B-37	R-2800-31	130
B-39	V-3420-19	130
B-40	R-1820-65	130 #
TRANSPORT (CARGO & PERSONNEL) SYMBOL C OR UC		
C-32A	R-1820-33	91/96 ±
UC-36A	R-985-13	91/96 ±
UC-36B	R-1340-49	91/96 ±
C-39	R-1820-55	91/96
UC-40A	R-985-17	91/96 ±
C-41	R-1830-21	130 #
C-41A	R-1830-21	130 #
C-42	R-1820-53	130 #
UC-43	R-985-AN/1/3	91/96 ±
UC-43A	R-975-11	91/96 ±
UC-43C	R-915-5	91/96
UC-43D	L-5/5M/5MB	73
C-45	R-985-AN-1	91/96 ±
C-45A	R-985-AN-1-3	91/96 ±
C-45B	R-985-AN-1-3	91/96 ±
C-45C	R-985-AN-1-3	91/96 ±
C-45D	R-985-AN-1	91/96 ±
C-45E	R-985-AN-3	91/96 ±
C-45F	R-985-AN-1-3	91/96 ±
C-46	R-2800-51	130 #
C-46A	R-2800-51/75	130 #
C-46D	R-2800-75	130 #
C-46E	R-2800-75	130 #
C-46F	R-2800-75	130 #
C-47	R-1830-92	130 #
C-47A	R-1830-92	130 #
C-47B	R-1830-90C	130 #
C-47C	R-1830-92	130 #
C-48	R-1830-92	130 #
C-48A	R-1830-51/82/92	130 #
C-48B	R-1830-S1C3G	130 #
C-48C	R-1830-S1C3G	130 #
C-49	R-1820-71	91/96 *
C-49B	R-1820-71	91/96 *
C-49C	R-1820-71	91/96 *
C-49D	R-1820-71	91/96 *
C-49E	R-1820-G102A	91/96 *
C-49F	R-1820-G202	91/96 *
C-49G	R-1820-G2E	91/96 *
C-49H	R-1820-G102A	91/96 *
C-49J	R-1820-71	91/96 *
C-49K	R-1820-71	91/96 *
C-50	R-1820-85	91/96 *
C-50A	R-1820-85	91/96 *
C-50B	R-1820-81	91/96 *
C-50C	R-1820-79	91/96 *
C-50D	R-1820-79	91/96 *
C-52C	R-1830-51	130 #
C-53	R-1830-92	130 #
C-53A	R-1830-92	130 #
C-53B	R-1830-90/92	130 #
C-53C	R-1830-92	130 #
C-53D	R-1830-92	130 #
C-54	R-2000-3/7	130 #
C-54A	R-2000-3/7	130 #

* Engines formerly rated on grade 130 fuel. Use grade 91 as shown with no change in operating instructions contained in the applicable Technical Order Handbook of Operation Instructions.

\# Engines rated on grade 130 fuel; however, operation may be accomplished on alternate grade 91/96, using power limits listed in table B for all missions except those listed in paragraph 3. of this Technical Order.

± Engines formerly rated on fuel grade 87, which is no longer supplied. Use grade 91/96 with no change in operating instructions contained in the applicable Technical Order Handbook of Operation Instructions.

$ Engines rated on grade 73 fuel; however, operation may be accomplished on alternate grade 80 motor fuel (all purpose) Specification No. 2-103.

TABLE A (Cont)

Aircraft Type and Model	Engine Type and Model	Fuel Grade Recommended
C-54B	R-2000-3/7	130 #
C-54D	R-2000-11	130
C-54E	R-2000-11	130
C-54F	R-2000-11	130
C-54G	R-2000-9	130
C-56	R-1820-79	130 #
C-56E	R-1820-G202A	130
C-57	R-1830-51/55	130
C-59	R-1690-25	91/96
C-60	R-1820-87	130 #
C-60A	R-1820-87	130 #
C-60B	R-1820-87	130 #
UC-61A	R-500-1	73
UC-61E	6-410-B1	73
C-64A	R-1340-AN-1	91/96 ±
C-64B	R-1340-AN-1	91/96 ±
UC-67	R-2600-3	130 #
C-69	R-3350-35	130
UC-70	WASP JR. SB	91/96 ±
UC-70B	L-6MB	73
UC-71	R-985-13/17	91/96 ±
UC-72	R-985-13	91/96 ±
UC-72D	W-670M	73
C-73	R-1340-S1H1G	91/96 ±
C-74	R-4360-27	130
C-75	R-1820-G105A	91/96
C-76	R-1830-92	130 #
C-76A	R-1830-92	130 #
UC-78	R-755-9	73
UC-78A	R-755-9	73
C-78B	R-755-9	73
C-78C	R-755-9	73
C-78E	R-755-9	73
C-78F	R-755-9	73
UC-81	R-680	91/96 ±
C-81C	R-680	91/96 ±
C-81D	R-985	91/96 ±
C-81F	R-985	91/96 ±
C-81K	R-680	91/96 ±
C-82A	R-2800-85	130
UC-86	6-410-33	73
C-87	R-1830-43/65	130 #
C-97	R-3350-57/59/23/23A	130
C-99	R-4360-25	130
C-108	R-1820-97	130
C-109	R-1830-43/43A/65/65A	130
C-117A	R-1830-90C	130 #
DC-2	SGR-1820-30	130 #
DC-3	R-1830-92	130 #
	ARMY RECONNAISSANCE (PHOTOGRAPHIC) SYMBOL F	
F-2	R-985-19/23	91/96 ±
F-2A	R-985-23	91/96 ±
F-2B	R-985-23	91/96 ±
F-3A	R-2600-11	130 #
F-5A	V-1710-49/53	130 #
F-5A-1/3/5/10	V-1710-51/55	130 #
F-5C	V-1710-89/91	130 #
F-5D	V-1710-89/91	130 #
F-5E	V-1710-89/91/111/113	130 #
F-5F	V-1710-89/91/111/113	130 #
F-5G	V-1710-111/113	130 #
F-6C	V-1650-3/7	130
F-6D	V-1650-3/7	130
F-6K	V-1650-3/7	130
F-7	R-1830-43/65	130 #
F-7A	R-1830-43/65	130 #
F-7B	R-1830-43/65	130 #
F-9	R-1820-39	130
F-9A	R-1820-97	130 #
F-9B	R-1820-97	130 #
F-9C	R-1820-97	130 #
F-10	R-2600-13/29	130 #
F-11	R-4360-31	130
F-13	R-3350-23A	130
F-13A	R-3350-23A	130
	LIAISON - SYMBOL L	
L-1A (0-49A)	R-680-9	73
L-1B (0-49B)	R-680-9	73
L-1C	R-680-9	73
L-2 (0-57)	0-170-3	73 $
L-2A (0-57A)	0-170-3	73 $
L-2B	0-170-3	73 $
L-2C	0-170-3	73 $
L-2M	0-170-3	73 $
L-3 (0-58)	0-170-3	73 $
L-3A (0-58A)	0-170-3	73 $
L-3B (0-58B)	0-170-3	73 $
L-3C	0-170-3	73 $
L-3H	0-170-3	73 $
L-4 (0-59)	0-170-3	73 $
L-4A (0-59A)	0-170-3	73 $

* Engines formerly rated on grade 130 fuel. Use grade 91 as shown with no change in operating instructions contained in the applicable Technical Order Handbook of Operation Instructions.

\# Engines rated on grade 130 fuel; however, operation may be accomplished on alternate grade 91/96, using power limits listed in table B for all missions except those listed in paragraph 3. of this Technical Order.

± Engines formerly rated on fuel grade 87, which is no longer supplied. Use grade 91/96 with no change in operating instructions contained in the applicable Technical Order Handbook of Operation Instructions.

$ Engines rated on grade 73 fuel; however, operation may be accomplished on alternate grade 80 motor fuel (all purpose) Specification No. 2-103.

TABLE A (Cont)

Aircraft Type and Model	Engine Type and Model	Fuel Grade Recommended
L-4B	0-170-3	73 $
L-4C	0-145-B1	73 $
L-4E	A-75-8/9	73 $
L-4F	A-75-8	73 $
L-4G	0-145-2	73 $
L-4H	0-170-3	73 $
L-4J	0-170-3	73 $
L-5	0-435-1	73 $
L-5B	0-435-1/11	73 $
L-5C	0-435-1/11	73 $
L-5E	0-435-1/11	73 $
L-5F	0-435-1/11	73 $
L-6	0-200-5	73 $
L-9B	4AC-199-E2/E3	73 $
L-12	R-680-6	73 $
L-14	0-290-3	73 $
	OBSERVATION - SYMBOL O	
0-46A	R-1535-7	91/96
0-47A	R-1820-49	91/96
0-47B	R-1820-57	130 #
0-52	R-1340-51	91/96 ±
0-54	0-170-1	73
0-55	0-170-3	73
0-60	R-915-3	91/96
	HELICOPTER - SYMBOL R	
R-3	R-755-3	73
R-4	R-500-1	73
R-4A	R-550-1	73
R-4B	R-550-1	73
R-5A	R-985-AN-5	91/96
R-6	0-405-9	91/96
R-6A	0-405-9	91/96
	AMPHIBIAN - SYMBOL 0A	
0A-9	R-985-17	91/96 ±
0A-10	R-1830-90C/92	130 #
0A-10A	R-1830-92	130 #
0A-13A	R-985	91/96 ±
0A-13B	R-985	91/96 ±
0A-14	L-440-5	73
	FIGHTER - SYMBOL P	
P-38	V-1710-27/29	130 #
P-38A	V-1710-27/29	130 #
P-38D	V-1710-27/29	130 #
P-38E	V-1710-27/29	130 #
P-38F	V-1710-49/53	130 #
P-38G	V-1710-51/55	130 #
P-38H	V-1710-51/55	130 #
P-38J	V-1710-89/91	130 #
P-38K	V-1710-111/113	130 #
P-38L	V-1710-111/113	130 #
P-38M	V-1710-111/113	130 #
P-39	V-1710-37	130 #
P-39D	V-1710-35	130 #
P-39E	V-1710-35	130 #
P-39F	V-1710-35	130 #
P-39K	V-1710-63	130 #
P-39L	V-1710-63	130 #
P-39M	V-1710-83	130 #
P-39N	V-1710-83/85	130 #
P-39Q	V-1710-83/85	130 #
P-40	V-1710-33	130 #
P-40B	V-1710-33	130 #
P-40C	V-1710-33	130 #
P-40D	V-1710-39	130 #
P-40E	V-1710-39	130 #
P-40F	V-1650-1	130 #
P-40K	V-1710-73	130 #
P-40L	V-1650-1	130 #
P-40M	V-1710-81	130 #
P-40N	V-1710-81/99	130 #
P-40Q	V-1710-85/99	130 #
P-40R	V-1710-81/99	130 #
P-42	R-1830-31	130
P-43	R-1830-47	130 #
P-43A	R-1830-57	130 #
P-43B	R-1830-49	130
P-43C	R-1830-49	130
P-43E	R-1830-35/47/57	130 #
P-47B	R-2800-21	130 #
P-47C	R-2800-21/59/63	130
P-47D	R-2800-21/59/63	130
P-47E	R-2800-59/63	130
P-47G	R-2800-21/59/63	130
P-47J	R-2800-57	130
P-47K	R-2800-59	130
P-47L	R-2800-59	130
P-47M	R-2800-57	130
P-47N	R-2800-57/73/77	130
P-51	V-1710-39	130 #
P-51A	V-1710-39/81	130 #
P-51B	V-1650-3/7	130
P-51C	V-1650-3/7	130
P-51D	V-1650-3/7	130
P-51F	V-1650-3/7	130
P-51G	V-1650-7	130

* Engines formerly rated on grade 130 fuel. Use grade 91 as shown with no change in operating instructions contained in the applicable Technical Order Handbook of Operation Instructions.

\# Engines rated on grade 130 fuel; however, operation may be accomplished on alternate grade 91/96, using power limits listed in table B for all missions except those listed in paragraph 3. of this Technical Order.

± Engines formerly rated on fuel grade 87, which is no longer supplied. Use grade 91/96 with no change in operating instructions contained in the applicable Technical Order Handbook of Operation Instructions.

$ Engines rated on grade 73 fuel; however, operation may be accomplished on alternate grade 80 motor fuel (all purpose) Specification No. 2-103.

TABLE A (Cont)

Aircraft Type and Model	Engine Type and Model	Fuel Grade Recommended
P-51H	V-1650-9	130
P-51J	V-1650-7	130
P-51K	V-1650-7	130
P-51M	V-1650-9A	130
P-59A	I-16-1	JP-1
P-59B	I-16-1	JP-1
P-60C	R-2800-10	130
P-60E	R-2800-10	130
P-61	R-2800-10/65	130
P-61A	R-2800-10/65	130
P-61B	R-2800-10/65	130
P-61C	R-2800-57/73/77	130
P-61F	R-2800-57/73/77	130
P-62	R-3350-17	130
P-63A	V-1710-47/93/117	130
P-63C	V-1710-11-7	130
P-63E	V-1710-109	130
P-63F	V-1710-133	130
P-64	R-1820-77	91/96 ±
P-70	R-2600-11	130 #
P-70A	R-2600-23	91/96 *
P-70B	R-2600-23	91/96 *
P-75A	V-3420-23	130
P-77	V-770-6/7	91/96
P-80	I-40	JP-1
P-80A	I-40	JP-1
P-322	V-1710-49/53/51/55	130 #
P-400	V-1710-35	130 #
TRAINING (ADVANCE) - SYMBOL AT		
AT-6	R-1340-47	91/96 ±
AT-6A	R-1340-49	91/96 ±
AT-6B	R-1340-AN-1	91/96 ±
AT-6C	R-1340-AN-1	91/96 ±
AT-6D	R-1340-AN-1	91/96 ±
AT-6F	R-1340-AN-1	91/96 ±
AT-7	R-985-AN-1/3	91/96 ±
AT-7B	R-985-23/25	91/96 ±
AT-7C	R-985-AN-1/3	91/96 ±
AT-8	R-680-9	91/96 ±
AT-9	R-680-9/13	91/96 ±
AT-9A	R-680-13	91/96 ±
AT-10	R-680-9/13	91/96 ±
AT-11	R-985-AN-1/3	91/96 ±
AT-17	R-755-9	73
AT-17A	R-755-9	73
AT-17B	R-755-9	73
AT-17C	R-755-9	73
AT-17E	R-755-9	73
AT-17G	R-755-9	73
AT-18	R-1820-87	130 #
AT-18A	R-1820-87	130 #
AT-19	R-680-13	91/96 ±
AT-20	R-915-5/7	73
AT-21	V-770-11/15	91/96
TRAINING (ADVANCE) - SYMBOL BC (AT)		
BC-1	R-1340-47	91/96 ±
BC-1A	R-1340-47	91/96 ±
TRAINING (BASIC) - SYMBOL BT		
BT-9	R-975-7	91/96 ±
BT-9A	R-975-7	91/96 ±
BT-9B	R-975-7	91/96 ±
BT-9C	R-975-7	91/96 ±
BT-12	R-985-AN-1	91/96 ±
BT-13	R-985-25	91/96 ±
BT-13A	R-985-AN-1/3	91/96 ±
BT-13B	R-985-25	91/96 ±
BT-14	R-985-11A/25/27	91/96 ±
BT-15	R-975-11	91/96 ±
TRAINING (PRIMARY) - SYMBOL PT		
PT-13	R-680-5	73
PT-13A	R-680-7	73
PT-13B	R-680-11/17	73
PT-13C	R-680-11	73
PT-13D	R-680-17	73
PT-15	R-670-1	73
PT-16A	R-440-1	73
PT-17	R-670-5	73
PT-17A	R-670-5	73
PT-18	R-755-7	73
PT-19	L-440-1	73
PT-19A	L-440-1	73
PT-19B	L-440-1	73
PT-21	L-440-3	73
PT-22	R-540-1	73
PT-22A	R-540-1	73
PT-23	R-670-4	73
PT-23A	R-670-4	73
PT-26	L-440-3/7	73
PT-26A	6-440-C-5	73
PT-27	R-670-5	73
TARGET - SYMBOL PQ		
PQ-8	0-200-1	73
PQ-8A	0-290-1	73
PQ-12A	0-435	73
PQ-14A	0-300-11	91
PQ-14B	0-300-11	91

* Engines formerly rated on grade 130 fuel. Use grade 91 as shown with no change in operating instructions contained in the applicable Technical Order Handbook of Operation Instructions.

\# Engines rated on grade 130 fuel; however, operation may be accomplished on alternate grade 91/96, using power limits listed in table B for all missions except those listed in paragraph 3. of this Technical Order.

± Engines formerly rated on fuel grade 87, which is no longer supplied. Use grade 91/96 with no change in operating instructions contained in the applicable Technical Order Handbook of Operation Instructions.

$ Engines rated on grade 73 fuel; however, operation may be accomplished on alternage grade 80 motor fuel (all purpose) Specification No. 2-103.

TABLE B

SPECIFIC OPERATING LIMITS FOR CERTAIN AIRCRAFT WITH ALTERNATE GRADE OF FUEL

Engine Designation	Installed Aircraft Designation	TAKE-OFF OR MAXIMUM CONDITION OF OPERATION			MAX CONTINUOUS CONDITION			RICH CRUISING CONDITION			LEAN CRUISING CONDITION			COMMENTS
		Max R.P.M.	Take-Off Manifold Pressure In. Hg.	Mixture	Min R.P.M.	Max Manifold Pressure In. Hg.	Mixture	Min R.P.M.	Max Manifold Pressure In. Hg.	Mixture	Min R.P.M.	Max Manifold Pressure In. Hg.	Mixture	
R-1830-17	P-36	2700	43.0	Auto-Rich	2550	43.0	Auto-Rich	2230	36.0	Auto-Rich	1650	30.0	Auto-Lean	
-21	C-41	2700	43.0	Auto-Rich	2550	38.6	Auto-Rich	2230	27.5	Auto-Rich	1650	30.0	Auto-Lean	
-33	B-24	USE FUEL, GRADE 91/96 SPECIFICATION NO. AN-F-26, ACCORDING TO INSTRUCTIONS CONTAINED IN T.O. No. 01-5-75.												
-35	P-43	2700	43.0	Auto-Rich	2550	43.0	Auto-Rich	2230	36.0	Auto-Rich	1650	30.0	Auto-Lean	
-43	B-24,C-87,F-7 #	USE FUEL, GRADE 91/96 SPECIFICATION NO. AN-F-26, ACCORDING TO INSTRUCTIONS CONTAINED IN T.O. NO. 01-5-75.												
-47	P-43	2700	43.0	Auto-Rich	2550	43.0	Auto-Rich	2230	36.0	Auto-Rich	1650	30.0	Auto-Lean	
-51	C-52	2700	46.0	Auto-Rich	2550	42.0	Auto-Rich	2250	34.5	Auto-Rich	1700	32.5	Auto-Lean	
-53		2700	46.0	Auto-Rich	2550	42.0	Auto-Rich	2250	34.5	Auto-Rich	1700	32.5	Auto-Lean	
-57	P-43	2700	43.0	Auto-Rich	2550	43.0	Auto-Rich	2230	36.0	Auto-Rich	1650	30.0	Auto-Lean	
-65	B-24,C-87 #	USE FUEL, GRADE 91/96 SPECIFICATION NO. AN-F-26, ACCORDING TO INSTRUCTIONS CONTAINED IN T.O. NO. 01-5-75.												
-67	A-28	2700	43.0	Auto-Rich	2550	38.6	Auto-Rich	2230	27.5	Auto-Rich	1650	30.0	Auto-Lean	
-82	C-48	2700	46.0	Auto-Rich	2550	42.0	Auto-Rich	2250	34.5	Auto-Rich	1700	32.5	Auto-Lean	
R-1830-90C	C-47,C-117	2700	43.0	Auto-Rich	2550	43.0	Auto-Rich	2230	36.0	Auto-Rich	1700	32.0	Auto-Lean	(Low Blower)
		(*			2550	36.0	Auto-Rich	2230	26.0	Auto-Rich	1700	24.0	Auto-Lean	(High Blower)
-92	C-47,C-48,C-53 C-76, DC-3,OA-10	2700	46.0	Auto-Rich	2550	42.0	Auto-Rich	2250	34.5	Auto-Rich	1700	32.5	Auto-Lean	
R-2000-3	C-54	2700	43.5	Auto-Rich	2550	35.0	Auto-Rich	2230	27.8	Auto-Rich	1700	27.0	Auto-Lean	(Low Blower)
		(*			2550	35.5	Auto-Rich	2230	26.2	Auto-Rich	1700	26.0	Auto-Lean	(High Blower)
-7	C-54	2700	43.5	Auto-Rich	2550	35.0	Auto-Rich	2230	27.8	Auto-Rich	1700	27.0	Auto-Lean	(Low Blower)
					2550	35.5	Auto-Rich	2230	26.2	Auto-Rich	1700	26.0	Auto-Lean	(High Blower)
R-2800-21	P-47	USE FUEL, GRADE 91/96 SPECIFICATION NO. AN-F-26, ACCORDING TO INSTRUCTIONS CONTAINED IN T. O. NO. 01-65B-55.												
R-2800-31	B-34	USE FUEL, GRADE 91/96 SPECIFICATION NO. AN-F-26, ACCORDING TO INSTRUCTIONS CONTAINED IN T. O. NO. 01-1-192.												
R-2800-51	C-46	USE FUEL, GRADE 91/96 SPECIFICATION NO. AN-F-26, ACCORDING TO INSTRUCTIONS CONTAINED IN T. O. NO. 01-1-192												
R-2800-75	C-46	USE FUEL, GRADE 91/96 SPECIFICATION NO. AN-F-26, ACCORDING TO INSTRUCTIONS CONTAINED IN T. O. NO. 01-1-192.												
SGR-1820-30	DC-2	1950	33.5	Auto-Rich	1950	32.0	Auto-Rich	1700	27.0	Auto-Rich	1270	22.0	Auto-Lean	
R-1820-51	B-17	2200	42.0	Auto-Rich	2100	36.5	Auto-Rich	1840	32.0	Auto-Rich	1365	27.0	Auto-Lean	
-52	A-24	2350	41.0	Auto-Rich	2300	37.0	Auto-Rich	2020	30.0	Auto-Rich	1500	27.0	Auto-Lean	(Low Blower)
		(*			2300	35.5	Auto-Rich	2020	28.0	Auto-Rich	1500	26.0	Auto-Lean	(High Blower)
-53	B-18	2200	40.0	Auto-Rich	2100	35.0	Auto-Rich	1840	30.0	Auto-Rich	1365	27.0	Auto-Lean	(Low Blower)
		(*			2100	38.0	Auto-Rich	1840	31.0	Auto-Rich	1365	27.0	Auto-Lean	(High Blower)
-57	0-47	2350	42.0	Auto-Rich	2200	35.5	Auto-Rich	1925	30.0	Auto-Rich	1430	27.0	Auto-Lean	
-60	A-24	2550	42.0	Auto-Rich	2300	35.0	Auto-Rich	2020	29.0	Auto-Rich	1500	25.0	Auto-Lean	(Low Blower)
		(*			2300	36.0	Auto-Rich	2020	30.0	Auto-Rich	1500	22.0	Auto-Lean	(High Blower)
-65	B-17	2500	41.0	Auto-Rich	2300	35.0	Auto-Rich	2200	31.0	Auto-Rich	1700	28.0	Auto-Lean	
-79	C-50,C-56	2350	43.0	Auto-Rich	2300	35.0	Auto-Rich	2020	32.0	Auto-Rich	1700	25.5	Auto-Lean	
-87	A-29,A-33, C-60,AT-18,AT-18A	2500	42.0	Auto-Rich	2300	35.0	Auto-Rich	2020	29.0	Auto-Rich	1700	25.0	Auto-Lean	(Low Blower)
		(*			2300	36.0	Auto-Rich	2020	30.0	Auto-Rich	1700	23.0	Auto-Lean	(High Blower)
-97	B-17	2500	41.0	Auto-Rich	2300	35.0	Auto-Rich	2200	31.0	Auto-Rich	1700	28.0	Auto-Lean	

*Do not take off in high blower.

All ferry missions of new B-24 aircraft (not C-87 or F-7) will be accomplished with fuel, grade 130, Specification No. AN-F-28, until accepted by tactical organization for permanent assignment.

NOTE: Operating conditions specified above are for the maximum allowable B.M.E.P. - To decease wear on engine, decrease manifold pressure and increase R.P.M. - Fuel consumption will increase appreciably.

TABLE B

Engine Designation	Installed Aircraft Designation	TAKE-OFF OR MAXIMUM CONDITION OF OPERATION: Max R.P.M.	Take-Off Manifold Pressure In. Hg.	Mixture	MAX CONTINUOUS CONDITION: Minimum R.P.M.	Max Manifold Pressure In. Hg.	Mixture	RICH CRUISING CONDITION: Min R.P.M.	Max Manifold Pressure In. Hg.	Mixture	LEAN CRUISING CONDITION: Max Manifold Minimum R.P.M.	Max Manifold Pressure In. Hg.	Mixture	COMMENTS
R-1820-G102A	C-49	2350	43.0	Auto-Rich	2300	35.0	Auto-Rich	2020	32.0	Auto-Rich	1700	25.5	Auto-Lean	
-G202	C-49	2500	43.5	Auto-Rich	2300	37.0	Auto-Rich	2020	31.0	Auto-Rich	1700	25.5	Auto-Lean	
R-2600-3	B-23,C-67	2400 (*	38.5	Auto-Rich	2300	33.0	Auto-Rich	2020	28.0	Auto-Rich	1500	25.0	Auto-Lean	(Low Blower)
					2300	36.0	Auto-Rich	2020	29.0	Auto-Rich	1500	25.0	Auto-Lean	(High Blower)
-8	A-25	2800 (*	39.5	Auto-Rich	2400	34.0	Auto-Rich	2100	29.0	Auto-Rich	1500	26.0	Auto-Lean	(Low Blower)
					2400	35.0	Auto-Rich	2100	29.0	Auto-Rich	1560	26.0	Auto-Lean	(High Blower)
-9	B-25	2600 (*	39.5	Auto-Rich	2400	34.0	Auto-Rich	2100	29.0	Auto-Rich	1560	26.0	Auto-Lean	(Low Blower)
					2400	33.0	Auto-Rich	2100	27.0	Auto-Rich	1560	24.0	Auto-Lean	(High Blower)
-11	A-20,F-3,P-70	2400 (*	38.5	Auto-Rich	2300	33.0	Auto-Rich	2020	28.0	Auto-Rich	1500	25.0	Auto-Lean	(Low Blower)
					2300	36.0	Auto-Rich	2020	29.0	Auto-Rich	1500	25.0	Auto-Lean	(High Blower)
-13	B-25,B-37,A-35, A-30,A-20	2600 (*	39.5	Auto-Rich	2400	34.0	Auto-Rich	2100	29.0	Auto-Rich	1560	26.0	Auto-Lean	(Low Blower)
					2400	35.0	Auto-Rich	2100	29.0	Auto-Rich	1560	26.0	Auto-Lean	(High Blower)
-29	B-25	2600 (*	39.5	Auto-Rich	2400	34.0	Auto-Rich	2100	29.0	Auto-Rich	1560	26.0	Auto-Lean	(Low Blower)
					2400	35.0	Auto-Rich	2100	29.0	Auto-Rich	1560	26.0	Auto-Lean	(High Blower)
V-1650-1	P-40	3000 (**	***48.0	Auto-Rich	2650	44.2	Auto-Rich	2320	37.3	Auto-Rich	1850	31.0	Auto-Lean	(Low Blower)
					2650	44.2	Auto-Rich	2320	36.0	Auto-Rich	1850	32.0	Auto-Lean	(High Blower)
V-1710-27	F-4,P-38,P-322	USE FUEL, GRADE 91/96 SPECIFICATION NO. AN-F-26, ACCORDING TO INSTRUCTIONS CONTAINED IN T.O. NO. 02-5A-66.												
-29	F-4,P-38,P-322	USE FUEL, GRADE 91/96 SPECIFICATION NO. AN-F-26, ACCORDING TO INSTRUCTIONS CONTAINED IN T.O. NO. 02-5A-66.												
-33	P-40	USE FUEL, GRADE 91/96 SPECIFICATION NO. AN-F-26, ACCORDING TO INSTRUCTIONS CONTAINED IN T.O. NO. 02-5A-66.												
-35	P-39,P-400	USE FUEL, GRADE 91/96 SPECIFICATION NO. AN-F-26, ACCORDING TO INSTRUCTIONS CONTAINED IN T.O. NO. 02-5A-66.												
-37	P-39	USE FUEL, GRADE 91/96 SPECIFICATION NO. AN-F-26, ACCORDING TO INSTRUCTIONS CONTAINED IN T.O. NO. 02-5A-66.												
-39	P-40,P-51	USE FUEL, GRADE 91/96 SPECIFICATION NO. AN-F-26, ACCORDING TO INSTRUCTIONS CONTAINED IN T.O. NO. 02-5A-66.												
-49	F-4,P-38	USE FUEL, GRADE 91/96 SPECIFICATION NO. AN-F-26, ACCORDING TO INSTRUCTIONS CONTAINED IN T.O. NO. 02-5A-66.												
-51	F-5,P-38	USE FUEL, GRADE 91/96 SPECIFICATION NO. AN-F-26, ACCORDING TO INSTRUCTIONS CONTAINED IN T.O. NO. 02-5A-66.												
-53	F-4,P-38	USE FUEL, GRADE 91/96 SPECIFICATION NO. AN-F-26, ACCORDING TO INSTRUCTIONS CONTAINED IN T.O. NO. 02-5A-66.												
-55	F-5,P-38	USE FUEL, GRADE 91/96 SPECIFICATION NO. AN-F-26, ACCORDING TO INSTRUCTIONS CONTAINED IN T.O. NO. 02-5A-66.												
-63	P-39	USE FUEL, GRADE 91/96 SPECIFICATION NO. AN-F-26, ACCORDING TO INSTRUCTIONS CONTAINED IN T.O. NO. 02-5A-66.												
-73	P-40	USE FUEL, GRADE 91/96 SPECIFICATION NO. AN-F-26, ACCORDING TO INSTRUCTIONS CONTAINED IN T.O. NO. 02-5A-66.												
-81	P-40,P-51	USE FUEL, GRADE 91/96 SPECIFICATION NO. AN-F-26, ACCORDING TO INSTRUCTIONS CONTAINED IN T.O. NO. 02-5A-66.												
-83	P-39	USE FUEL, GRADE 91/96 SPECIFICATION NO. AN-F-26, ACCORDING TO INSTRUCTIONS CONTAINED IN T.O. NO. 02-5A-66.												
-85	P-39	USE FUEL, GRADE 91/96 SPECIFICATION NO. AN-F-26, ACCORDING TO INSTRUCTIONS CONTAINED IN T.O. NO. 02-5A-66.												
-87	A-36	USE FUEL, GRADE 91/96 SPECIFICATION NO. AN-F-26, ACCORDING TO INSTRUCTIONS CONTAINED IN T.O. NO. 02-5A-66.												
-89	P-38	USE FUEL, GRADE 91/96 SPECIFICATION NO. AN-F-26, ACCORDING TO INSTRUCTIONS CONTAINED IN T.O. NO. 02-5A-66.												
-91	P-38	USE FUEL, GRADE 91/96 SPECIFICATION NO. AN-F-26, ACCORDING TO INSTRUCTIONS CONTAINED IN T.O. NO. 02-5A-66.												
-99	P-40	USE FUEL, GRADE 91/96 SPECIFICATION NO. AN-F-26, ACCORDING TO INSTRUCTIONS CONTAINED IN T.O. NO. 02-5A-66.												
-111	P-38	USE FUEL, GRADE 91/96 SPECIFICATION NO. AN-F-26, ACCORDING TO INSTRUCTIONS CONTAINED IN T. O. NO. 02-5A-66.												
-113	P-38	USE FUEL, GRADE 91/96 SPECIFICATION NO. AN-F-26, ACCORDING TO INSTRUCTIONS CONTAINED IN T. O. NO. 02-5A-66.												
-115	P-40	USE FUEL, GRADE 91/96 SPECIFICATION NO. AN-F-26, ACCORDING TO INSTRUCTIONS CONTAINED IN T. O. NO. 02-5A-66.												

* Do not take off in high blower.

** Do not take off in high blower and do not use high blower below 12000 feet.

*** When ground air temperature exceeds 100° F., reduce manifold pressure for take-off 2" for every 10° F. increase.

NOTE: Operating conditions specified above are for the maximum allowable B.M.E.P. - To decrease wear on engine, decrease manifold pressure and increase R.P.M. - Fuel consumption will increase appreciably.