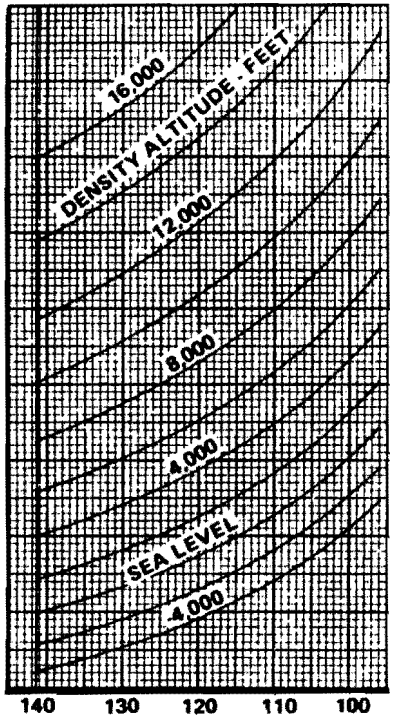
MODEL: C-123K, UC-123K

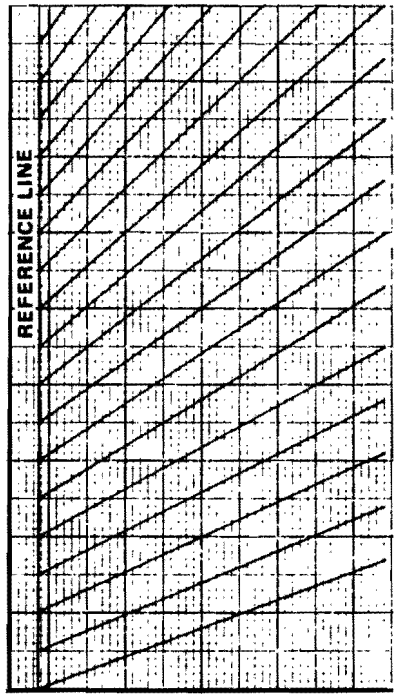
STANDARD TOTAL TAKEOFF DISTANCE TO CLEAR 50 FEET

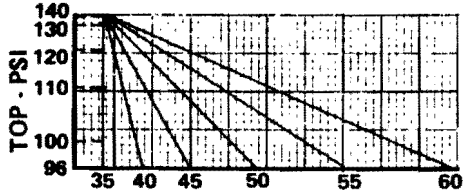
ENGINES: R2800-99W (2)
PROPELLERS: 43E60-607
MAXIMUM POWER
WITHOUT JET THRUST
WING FLAPS UP

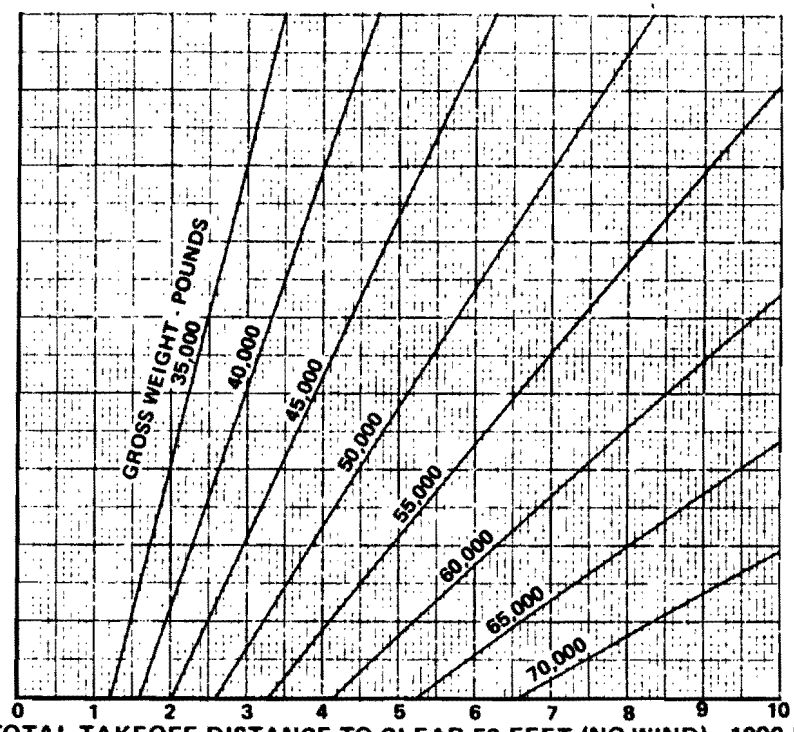
DATA AS OF: SEPTEMBER 15, 1973
DATA BASIS: FLIGHT TEST

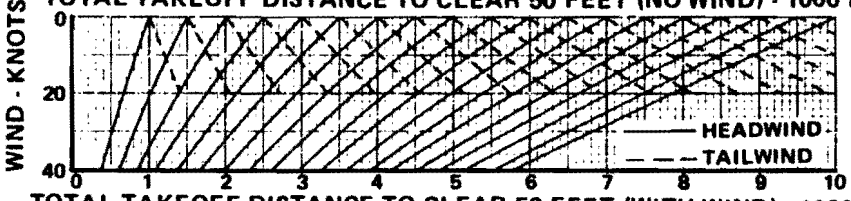
FUEL GRADE: 100/130
FUEL DENSITY: 6 LB/GAL











CONDITIONS:

1. R2800-99W engines - 2800 RPM, rich mixture (see note)
2. J85-GE-17 engines - not operating
3. V_s = Zero thrust stall speed
   V_{to} = Takeoff speed (1.1 V_s)
   V50 = Obstacle clearance speed (1.2 V_s)
   VR = Rotation speed (V_{to} - 10 knots)
4. Level, dry, hard surface runway, μ rolling = 0.025
5. Cowl flaps - takeoff

NOTE:

FOR RECIPROCATING ENGINES OPERATING AT OTHER THAN 2800 RPM, SEE TAKEOFF DISTANCE TEXT, THIS SECTION.

IAS KNOTS	GROSS WEIGHT - 1000 POUNDS							
	35	40	45	50	55	60	65	70
V_s*	80	85	90	95	99	104	108	112
V_s+	79	84	89	93	97	102	106	140
VR*	78	83	80	94	99	104	109	113
V_{to}*	88	93	99	104	109	114	119	123
V50+	93	100	106	112	117	123	128	133

* IN GROUND EFFECT + OUT OF GROUND EFFECT

Figure A3-17 (Sheet 2 of 2).

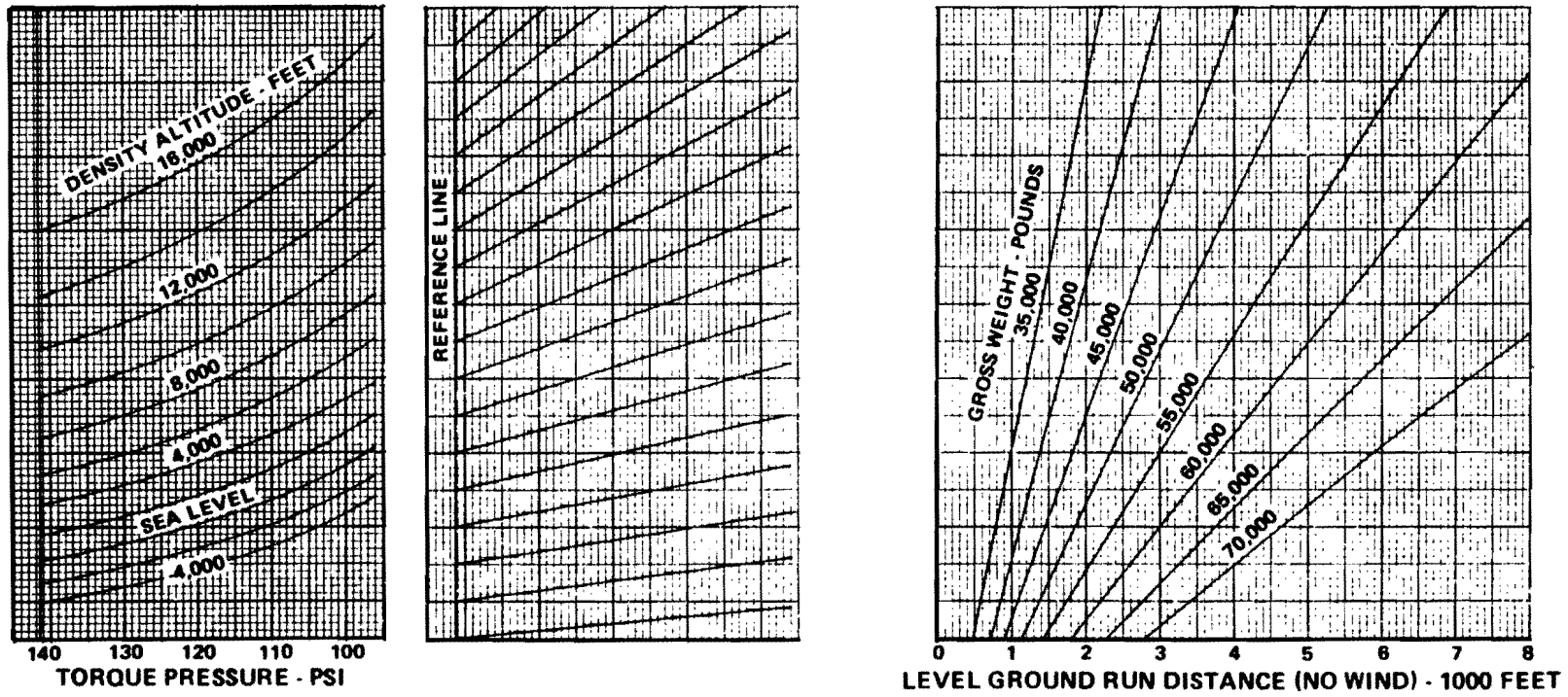
MODEL: C-123K, UC-123K

MINIMUM TAKEOFF GROUND RUN DISTANCE

ENGINES: R2800-99W (2)
PROPELLERS: 43E60-607
MAXIMUM POWER
WITHOUT JET THRUST
WING FLAPS TAKEOFF

DATA AS OF: SEPTEMBER 15, 1973
DATA BASIS: FLIGHT TEST

FUEL GRADE: 100/130
FUEL DENSITY: 6 LB/GAL



CONDITIONS:

1. R2800-99W engines - maximum power applied prior to brake release, 2800 RPM, rich mixture (see note)
2. J85-GE-17 engines - not operating
3. V_s = Zero thrust stall speed
   V_{to} = Takeoff speed (1.1 V_s)
   V_{50} = Obstacle clearance speed (1.2 V_s)
   VR = Rotation speed (V_{to} - 10 knots)
4. Level, dry, hard surface runway, μ rolling = 0.025
5. Cowl flaps - takeoff

NOTE:

FOR RECIPROCATING ENGINES OPERATING AT OTHER THAN 2800 RPM, SEE TAKEOFF DISTANCE TEXT, THIS SECTION.

Figure A3-18 (Sheet 1 of 2).

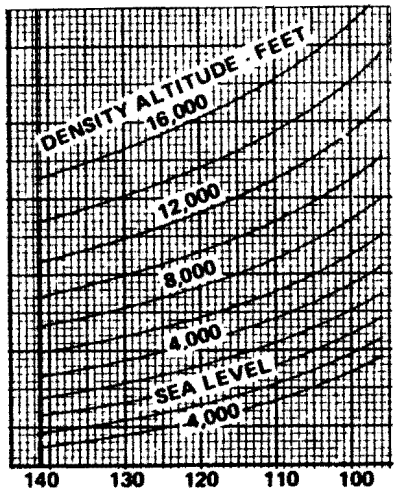
MODEL: C-123K, UC-123K

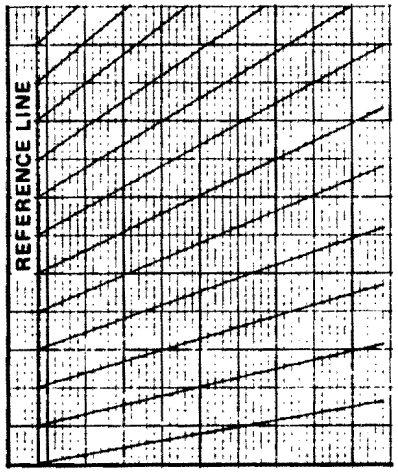
MINIMUM TOTAL TAKEOFF DISTANCE TO CLEAR 50 FEET

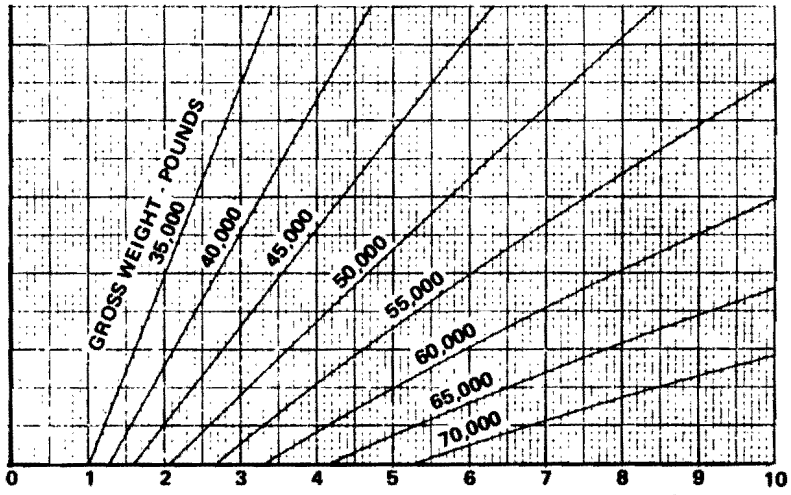
ENGINES: R2800-99W (2)
PROPELLERS: 43E60-607
MAXIMUM POWER
WITHOUT JET THRUST
WING FLAPS TAKEOFF

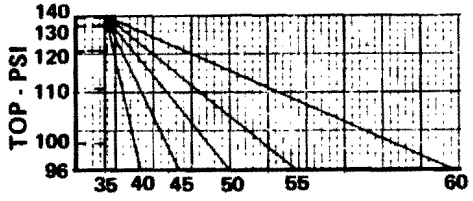
DATA AS OF: SEPTEMBER 15, 1973
DATA BASIS: FLIGHT TEST

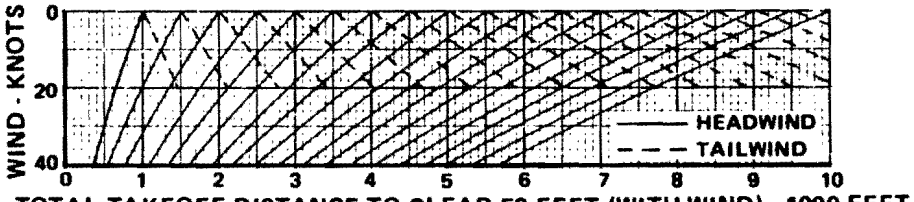
FUEL GRADE: 100/130
FUEL DENSITY: 6 LB/GAL











CONDITIONS:

1. R2800-99W engines - maximum power applied prior to brake release, 2800 RPM, rich mixture (see note)
2. J85-GE-17 engines - not operating
3. V_s = Zero thrust stall speed
   V_{to} = Takeoff speed (1.1 V_s)
   V50 = Obstacle clearance speed (1.2 V_s)
   VR = Rotation speed (V_{to} - 10 knots)
4. Level, dry, hard surface runway, μ rolling = 0.025
5. Cowl flaps - takeoff

NOTE:

FOR RECIPROCATING ENGINES OPERATING AT OTHER THAN 2800 RPM, SEE TAKEOFF DISTANCE TEXT, THIS SECTION.

IAS KNOTS	GROSS WEIGHT - 1000 POUNDS							
	35	40	45	50	55	60	65	70
V_s*	73	77	82	86	90	94	98	102
V_s+	72	76	81	85	89	93	96	100
VR*	69	75	80	85	89	93	89	102
V_{to}*	79	85	90	95	99	103	108	112
V50+	85	91	96	101	106	111	115	120

* IN GROUND EFFECT + OUT OF GROUND EFFECT

Figure A3-18 (Sheet 2 of 2).

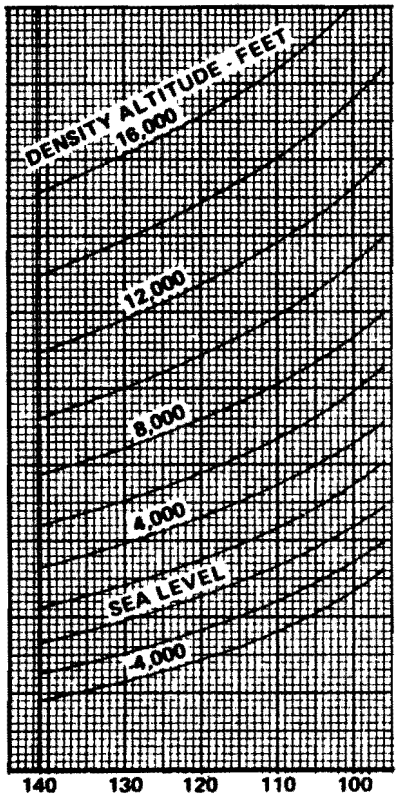
MODEL: C-123K, UC-123K

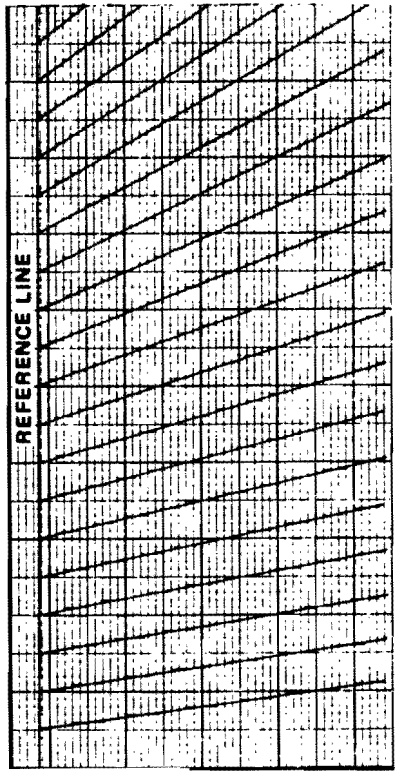
ASSAULT TAKEOFF GROUND RUN DISTANCE

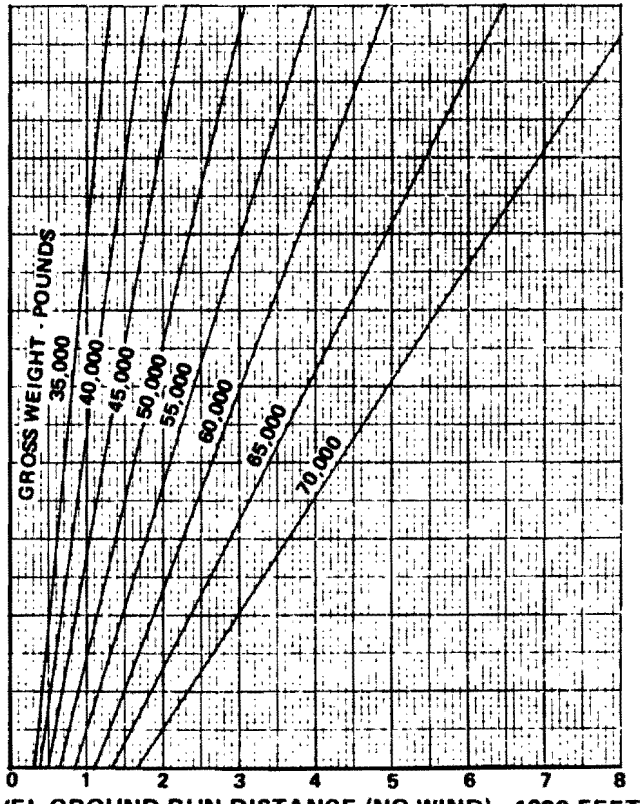
C.G. LOCATION FORWARD OF 26% MAC
ENGINES: R2800-99W (2)
PROPELLERS: 43E-60-607
MAXIMUM POWER
WITHOUT JET THRUST
WING FLAPS TAKEOFF

DATA AS OF: SEPTEMBER 15, 1973
DATA BASIS: FLIGHT TEST

FUEL GRADE: 100/130
FUEL DENSITY: 6 LB/GAL

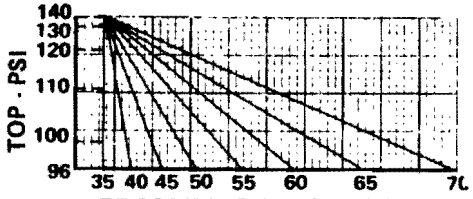


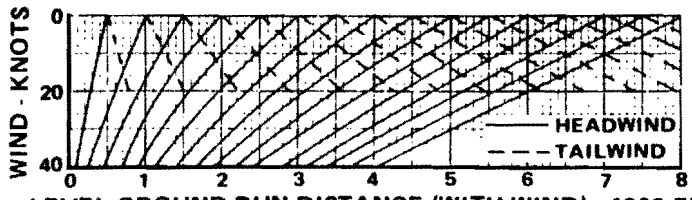




CONDITIONS:

1. R2800-99W engines - maximum power applied prior to brake release, 2800 RPM, rich mixture. (see note)
2. J85-GE-17 engines - not operating
3. V_s = Stall speed
   V_{to} = Takeoff speed (1.06 V_s power on +4 knots)
   V50 = Obstacle clearance speed (1.1 V_s zero thrust stall speed)
   V_R = Rotation speed (V_{to} - 10 knots)
4. Level, dry, hard surface runway, $\mu_{rolling}$ = 0.025
5. Cowl flaps - takeoff





NOTE: FOR RECIPROCATING ENGINES OPERATING AT OTHER THAN 2800 RPM, SEE TAKEOFF DISTANCE TEXT, THIS SECTION.

Figure A3-19 (Sheet 1 of 2)

MODEL: C-123K, UC-123K

ASSAULT TOTAL TAKEOFF DISTANCE TO CLEAR 50 FEET

C.G. LOCATION FORWARD OF 26% MAC

ENGINES: R2800-99W (2)

PROPELLERS: 43E60-607

MAXIMUM POWER

WITHOUT JET THRUST

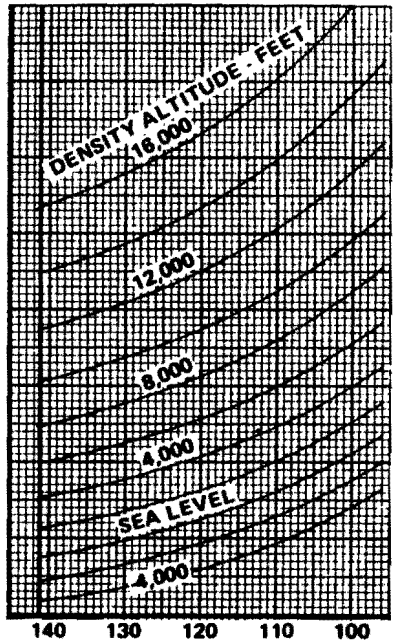
WING FLAPS TAKEOFF

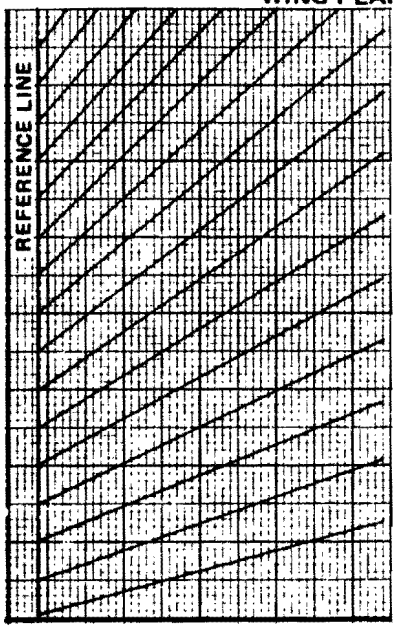
DATA AS OF: SEPTEMBER 15, 1973

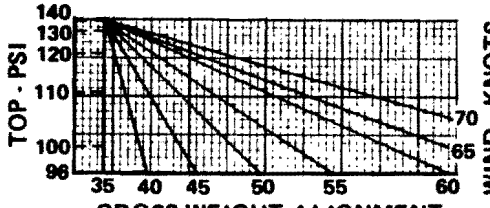
DATA BASIS: FLIGHT TEST

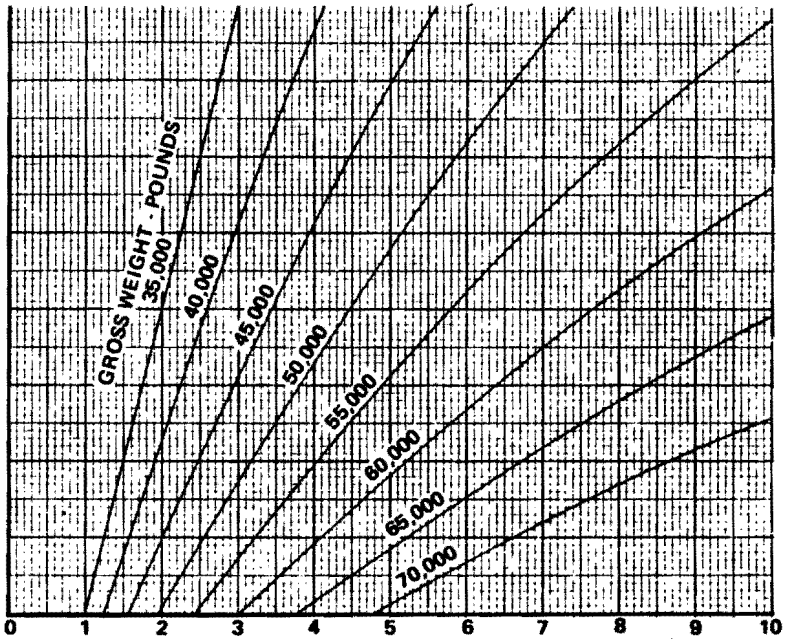
FUEL GRADE: 100/130

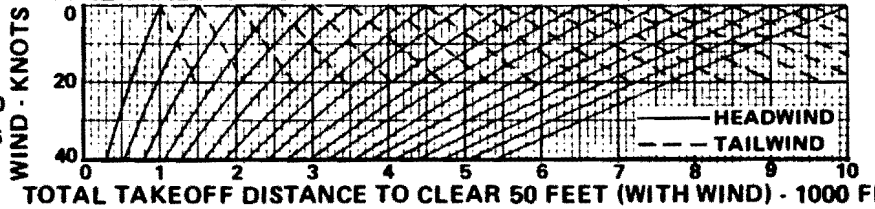
FUEL DENSITY: 6 LB/GAL











CONDITIONS:

1. R2800-99W engines - maximum power applied prior to brake release, 2800 RPM, rich mixture. (see note)
2. J85-GE-17 engines - not operating
3. V_s = Stall speed
   V_{to} = Takeoff speed (1.06 V_s power on +4 knots)
   V50 = Obstacle clearance speed (1.1 V_s zero thrust stall speed)
   VR = Rotation speed (V_{to} - 10 knots)
4. Level, dry, hard surface runway, μ rolling = 0.025
5. Cowl flaps - takeoff

NOTE:

FOR RECIPROCATING ENGINES OPERATING AT OTHER THAN 2800 RPM, SEE TAKEOFF DISTANCE TEXT, THIS SECTION.

IAS KNOTS	GROSS WEIGHT - 1000 POUNDS							
	35	40	45	50	55	60	65	70
V_s*	59	63	67	71	75	79	83	88
V_s+	59	63	67	71	74	78	82	86
VR*	56	61	65	69	74	78	82	87
V_{to}*	66	71	75	79	84	88	92	97
V50+	78	83	88	93	97	102	106	110

* IN GROUND EFFECT + OUT OF GROUND EFFECT

Figure A3-19 (Sheet 2 of 2).

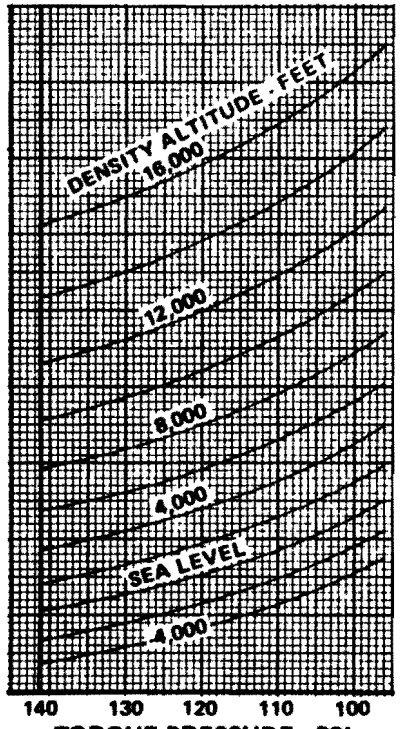
MODEL: C-123K, UC-123K

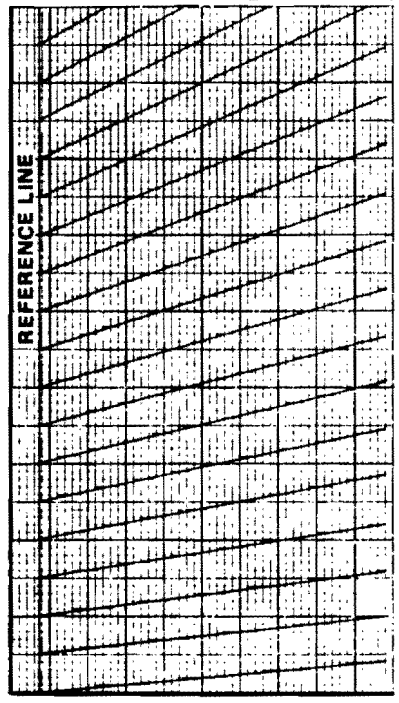
ASSAULT TAKEOFF GROUND RUN DISTANCE

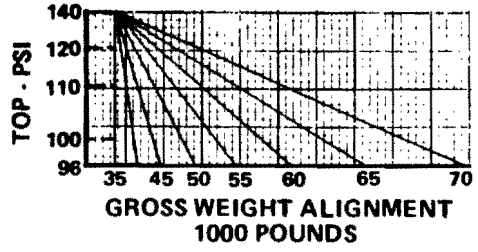
C.G. LOCATION 26% MAC OR AFT
ENGINES: R2800-99W (2)
PROPELLERS: 43E60-607
MAXIMUM POWER
WITHOUT JET THRUST
WING FLAPS TAKEOFF

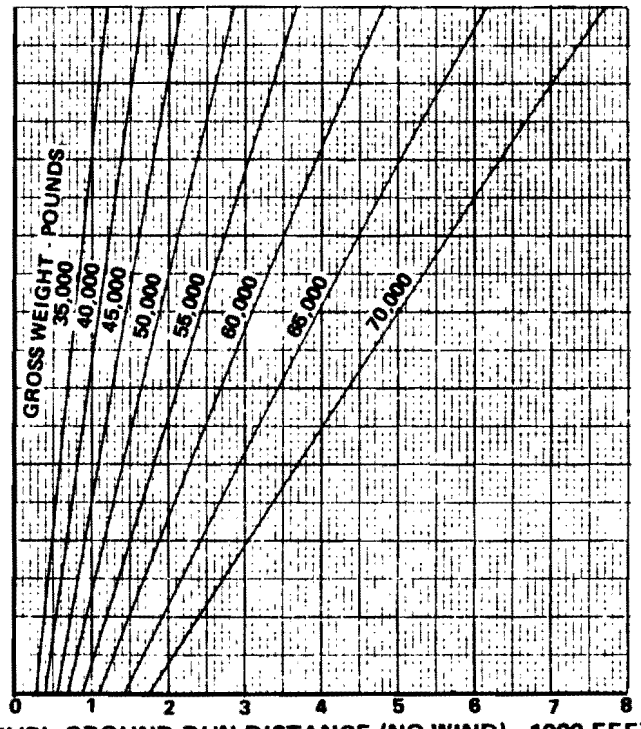
DATA AS OF: SEPTEMBER 15, 1973
DATA BASIS: FLIGHT TEST

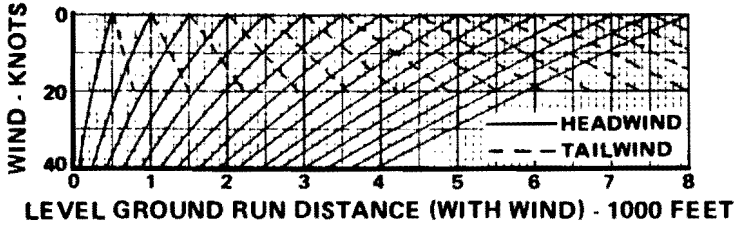
FUEL GRADE: 100/130
FUEL DENSITY: 6 LB/GAL











CONDITIONS:

1. R2800-99W engines - maximum power applied prior to brake release, 2800 RPM, rich mixture. (see note)
2. J85-GE-17 engines - not operating
3. V_s = Stall speed
   V_{to} = Takeoff speed (1.06 V_s power on)
   V50 = Obstacle clearance speed (1.1 V_s zero thrust stall speed)
   VR = Rotation speed (V_{to} - 10 knots)
4. Level, dry, hard surface runway, $\mu_{rolling}$ = 0.025
5. Cowl flaps - takeoff

NOTE:

FOR RECIPROCATING ENGINES OPERATING AT OTHER THAN 2800 RPM, SEE TAKEOFF DISTANCE TEXT, THIS SECTION.

Figure A3-20 (Sheet 1 of 2).

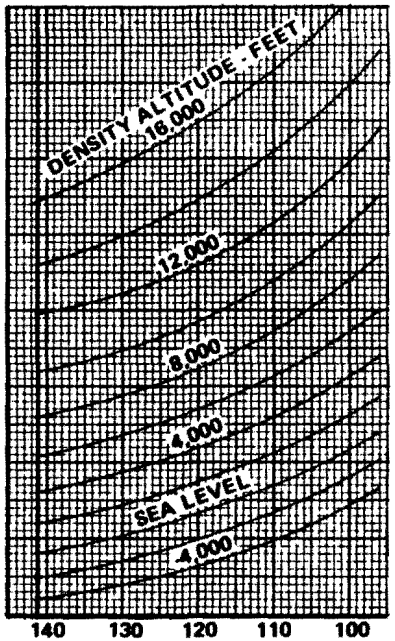
MODEL: C-123K, UC-123K

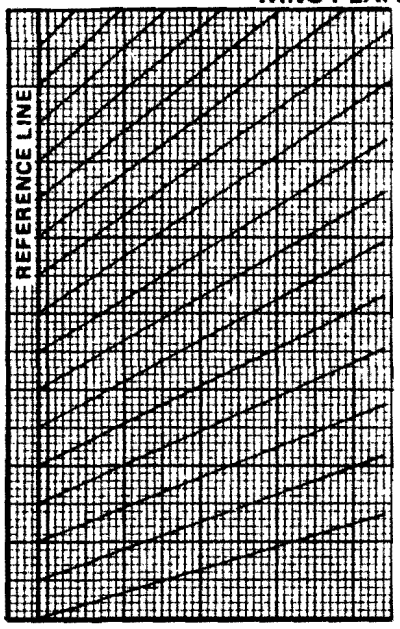
ASSAULT TOTAL TAKEOFF DISTANCE TO CLEAR 50 FEET

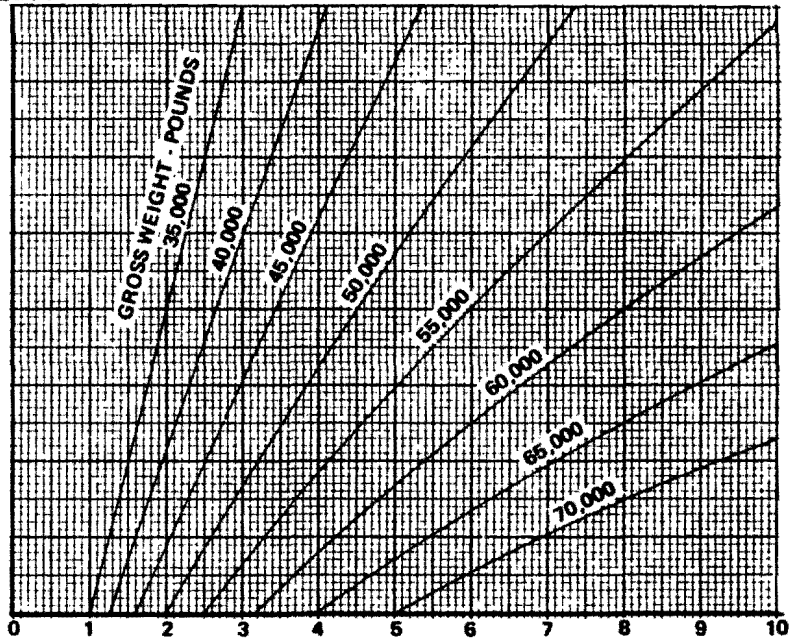
C.G. LOCATION 26% MAC OR AFT
ENGINES: R2800-99W (2)
PROPELLERS: 43E60-607
MAXIMUM POWER
WITHOUT JET THRUST
WING FLAPS TAKEOFF

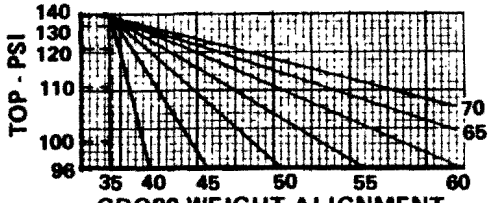
DATA AS OF: SEPTEMBER 15, 1973
DATA BASIS: FLIGHT TEST

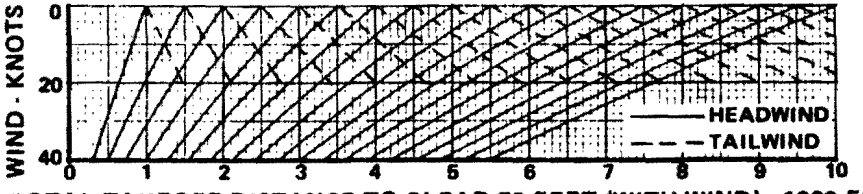
FUEL GRADE: 100/130
FUEL DENSITY: 6 LB/GAL











CONDITIONS:

1. R2800-99W engines - maximum power applied prior to brake release, 2800 RPM, rich mixture. (see note)
2. J85-GE-17 engines - not operating
3. V_s = Stall speed
   V_{to} = Takeoff speed (1.06 V_s power on)
   V_{50} = Obstacle clearance speed (1.1 V_s zero thrust stall speed)
   V_R = Rotation speed (V_{to} - 10 knots)
4. Level, dry, hard surface runway, μ rolling = 0.025
5. Cowl flaps - takeoff

NOTE:
FOR RECIPROCATING ENGINES OPERATING AT OTHER THAN 2800 RPM, SEE TAKEOFF DISTANCE TEXT, THIS SECTION.

IAS KNOTS	GROSS WEIGHT - 1000 POUNDS							
	35	40	45	50	55	60	65	70
V_s*	59	63	67	71	75	79	83	88
V_s+	59	63	67	71	74	78	82	86
V_R*	52	57	61	65	70	74	78	83
V_{to}*	62	67	71	75	80	84	88	93
V_{50}+	78	83	88	93	97	102	106	110

* IN GROUND EFFECT, + OUT OF GROUND EFFECT

Figure A3-20 (Sheet 2 of 2).

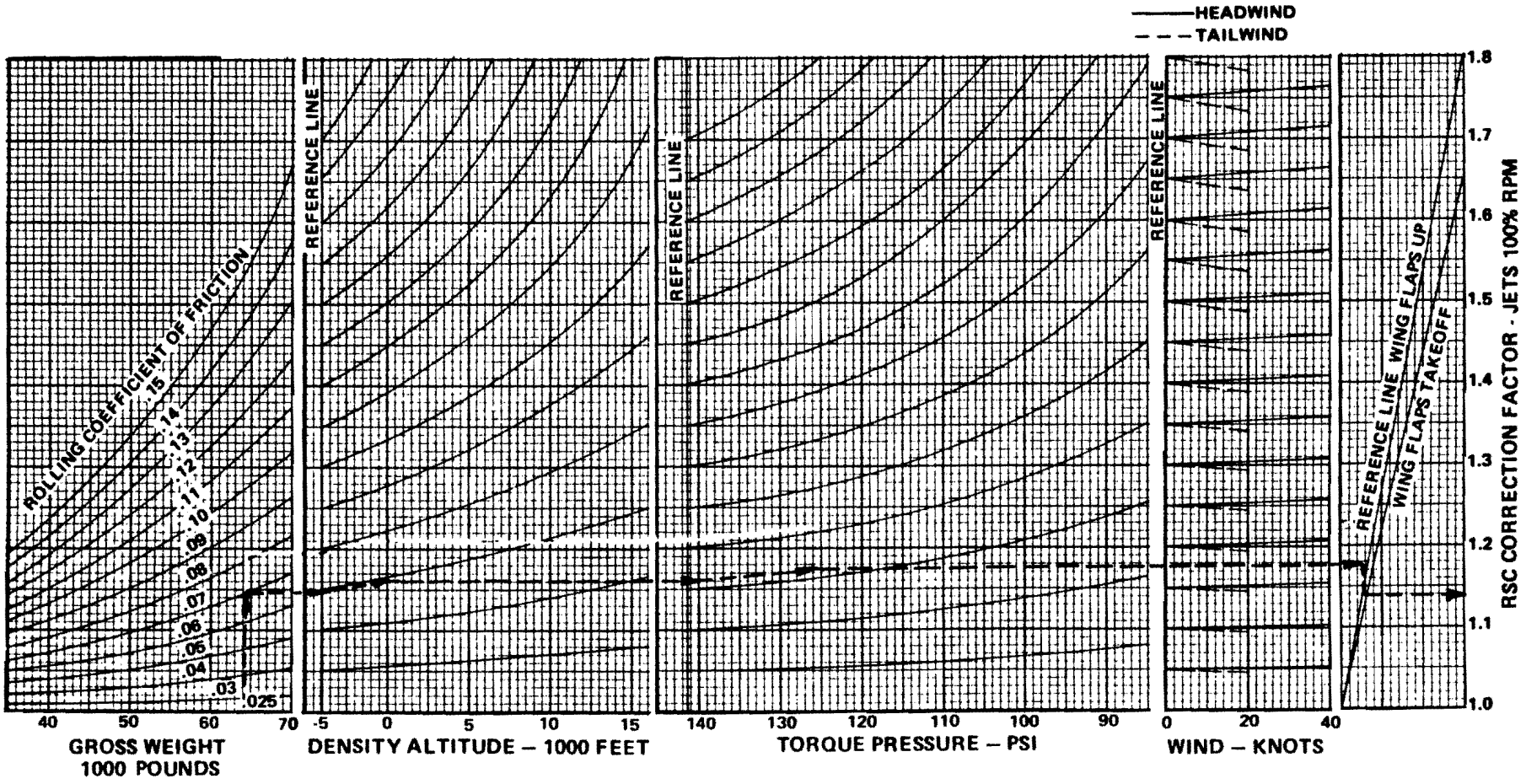
MODEL: C-123K, UC-123K

TAKEOFF GROUND RUN DISTANCE CORRECTION FACTOR FOR RUNWAY SURFACE COVERING (RSC)

DATA AS OF: SEPTEMBER 15, 1973
DATA BASIS: FLIGHT TEST

WITH JET THRUST

FUEL GRADE: 100/130
FUEL DENSITY: 6 LB/GAL



RUNWAY SURFACE COVERING	ROLLING COEFFICIENT OF FRICTION
DRY HARD SURFACE	0.025
WET HARD SURFACE, STANDING WATER	0.050
DRY HARD TURF, SHORT GRASS	0.050
DRY SOFT TURF, SHORT GRASS	0.070
WET TURF	0.100
DRY SOFT GRAVEL, NO GRASS	0.100-0.300

NOTE:

FOR RECIPROCATING ENGINES OPERATING AT OTHER THAN 2800 RPM, SEE TAKEOFF DISTANCE TEXT, THIS SECTION.

Figure A3-21.

MODEL: C-123K, UC-123K

TAKEOFF GROUND RUN DISTANCE CORRECTION FACTOR FOR RUNWAY SURFACE COVERING (RSC)

WITHOUT JET THRUST

DATA AS OF: SEPTEMBER 15, 1973
DATA BASIS: FLIGHT TEST

FUEL GRADE: 100/130
FUEL DENSITY: 6 LB/GAL

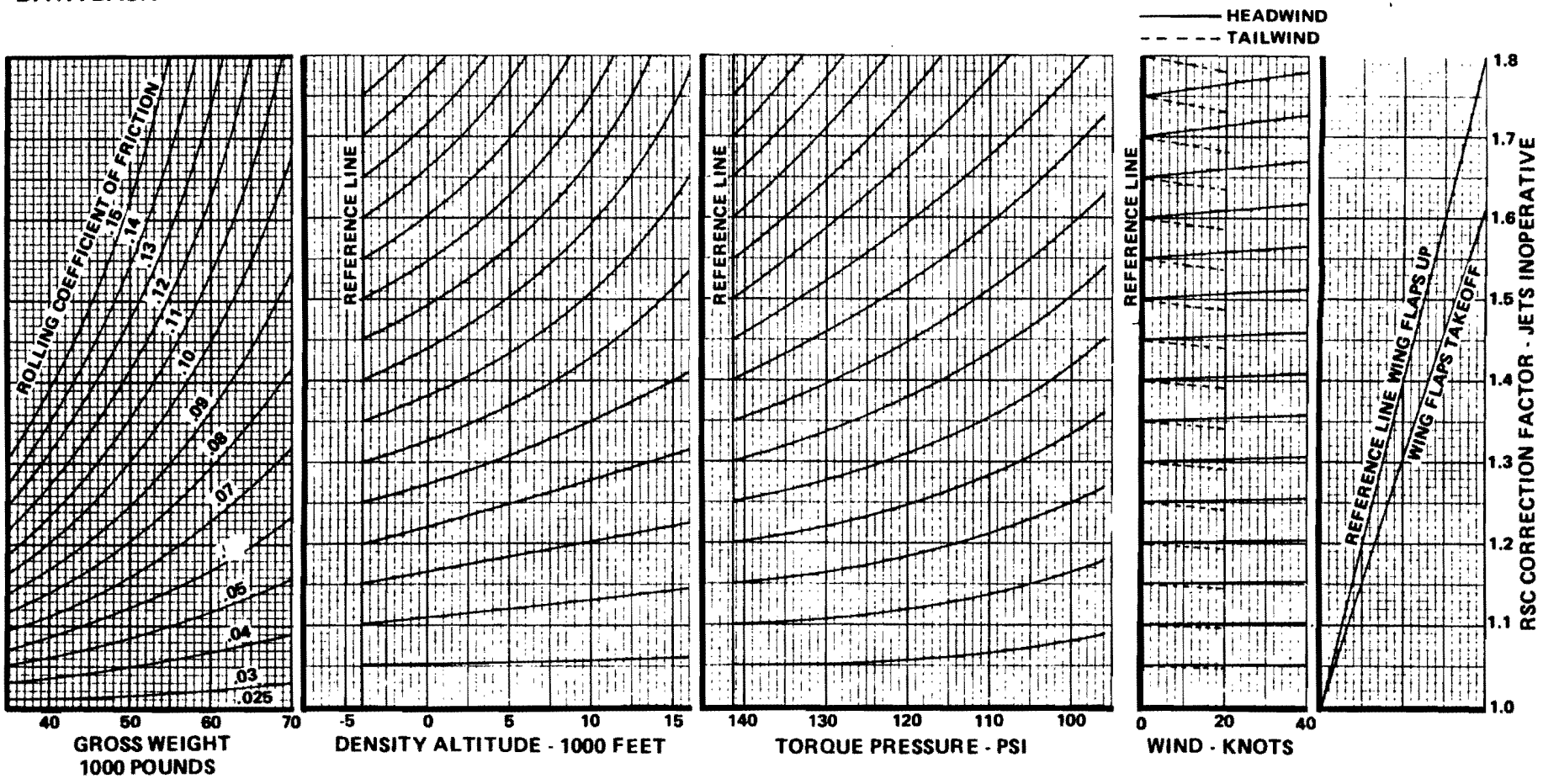


Figure A3-22.

RUNWAY SURFACE COVERING	ROLLING COEFFICIENT OF FRICTION
DRY HARD SURFACE	0.025
WET HARD SURFACE, STANDING WATER	0.050
DRY HARD TURF, SHORT GRASS	0.050
DRY SOFT TURF, SHORT GRASS	0.070
WET TURF	0.100
DRY SOFT GRAVEL, NO GRASS	0.100-0.300

NOTE:
FOR RECIPROCATING ENGINES OPERATING AT OTHER THAN 2800 RPM, SEE TAKEOFF DISTANCE TEXT, THIS SECTION.

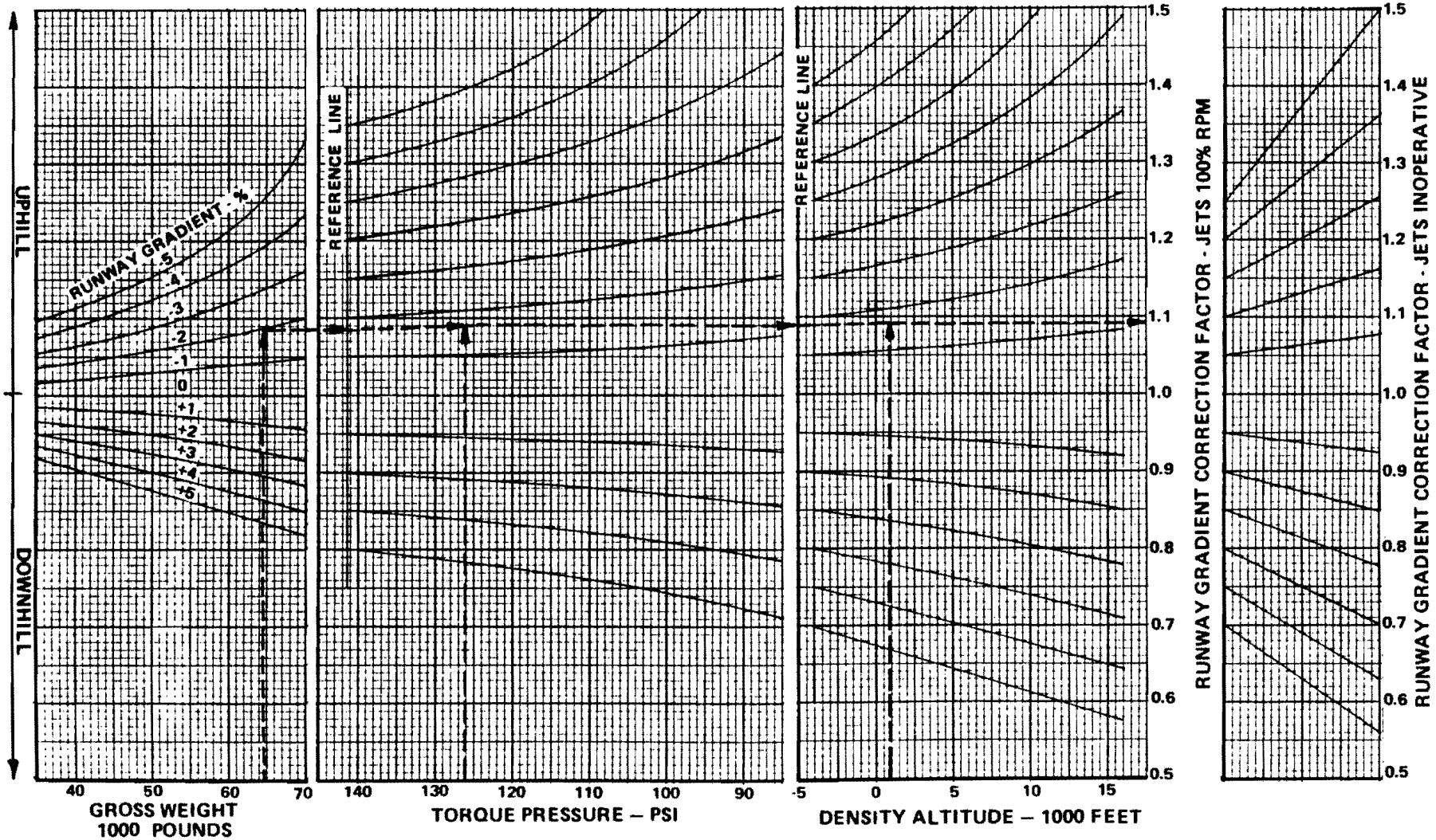
MODEL: C-123K, UC-123K

TAKEOFF GROUND RUN DISTANCE CORRECTION FACTOR FOR RUNWAY GRADIENT

DATA AS OF: SEPTEMBER 15, 1973
DATA BASIS: FLIGHT TEST

WING FLAPS UP OR TAKEOFF

FUEL GRADE: 100/130
FUEL DENSITY: 6 LB/GAL



NOTE:

FOR RECIPROCATING ENGINES OPERATING AT OTHER THAN 2800 RPM, SEE TAKEOFF DISTANCE TEXT, THIS SECTION.

Figure A3-23.

MODEL: C-123K, UC-123K

CORRECTED GROUND DISTANCE

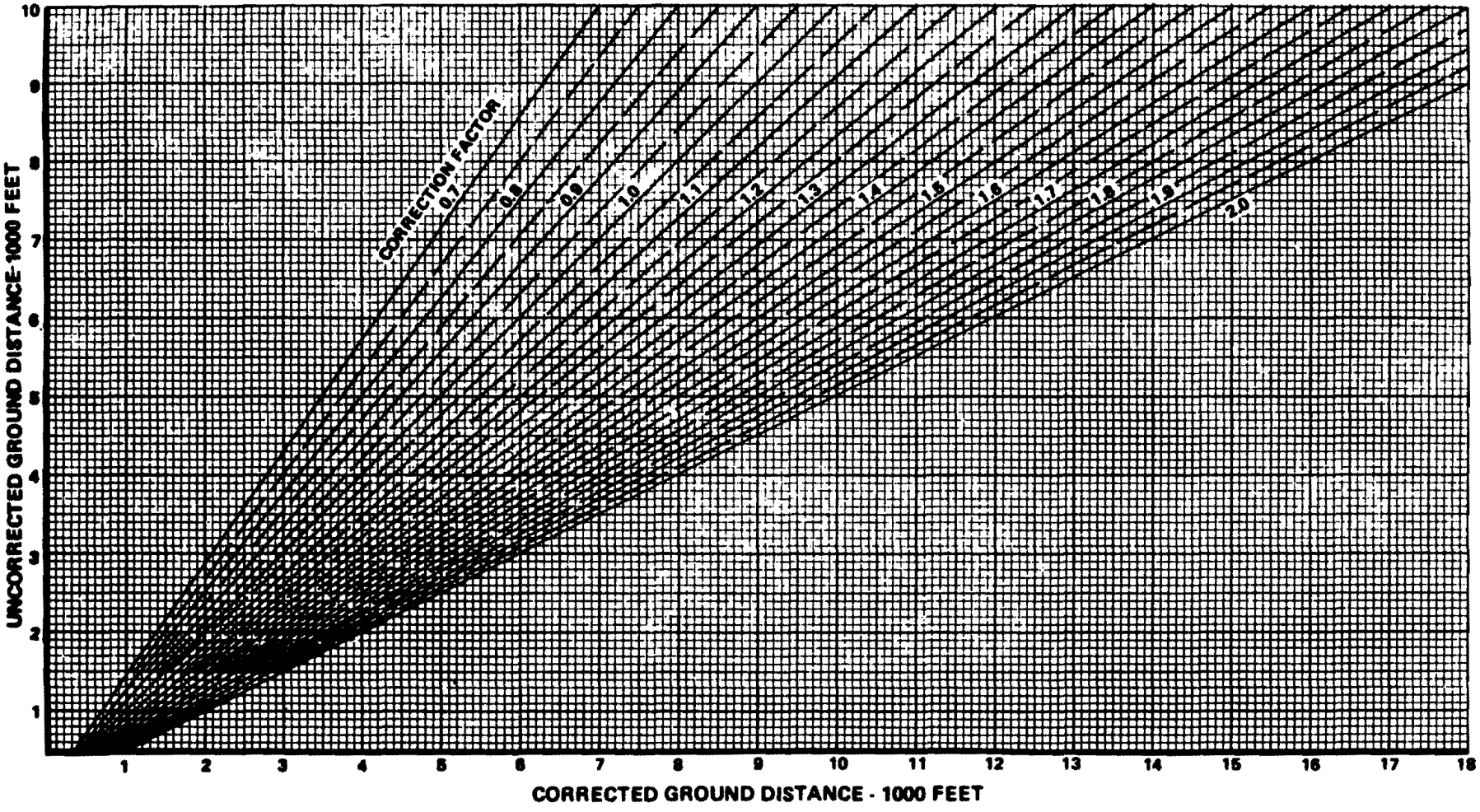


Figure A3-24.

NOTE:

CORRECTION FACTORS ARE THOSE USED TO CORRECT FOR RUNWAY GRADIENT, RUNWAY CONDITION READING (RCR), AND RUNWAY SURFACE COVERING (RSC). GROUND DISTANCES REFER TO TAKEOFF GROUND RUN DISTANCES, CRITICAL FIELD LENGTH AND EFFECTIVE RUNWAY LENGTH.

MODEL: C-123K, UC-123K

CRITICAL FIELD LENGTH

ENGINES: R2800-99W, J85-GE-17 (2)

PROPELLERS: 43E60-607

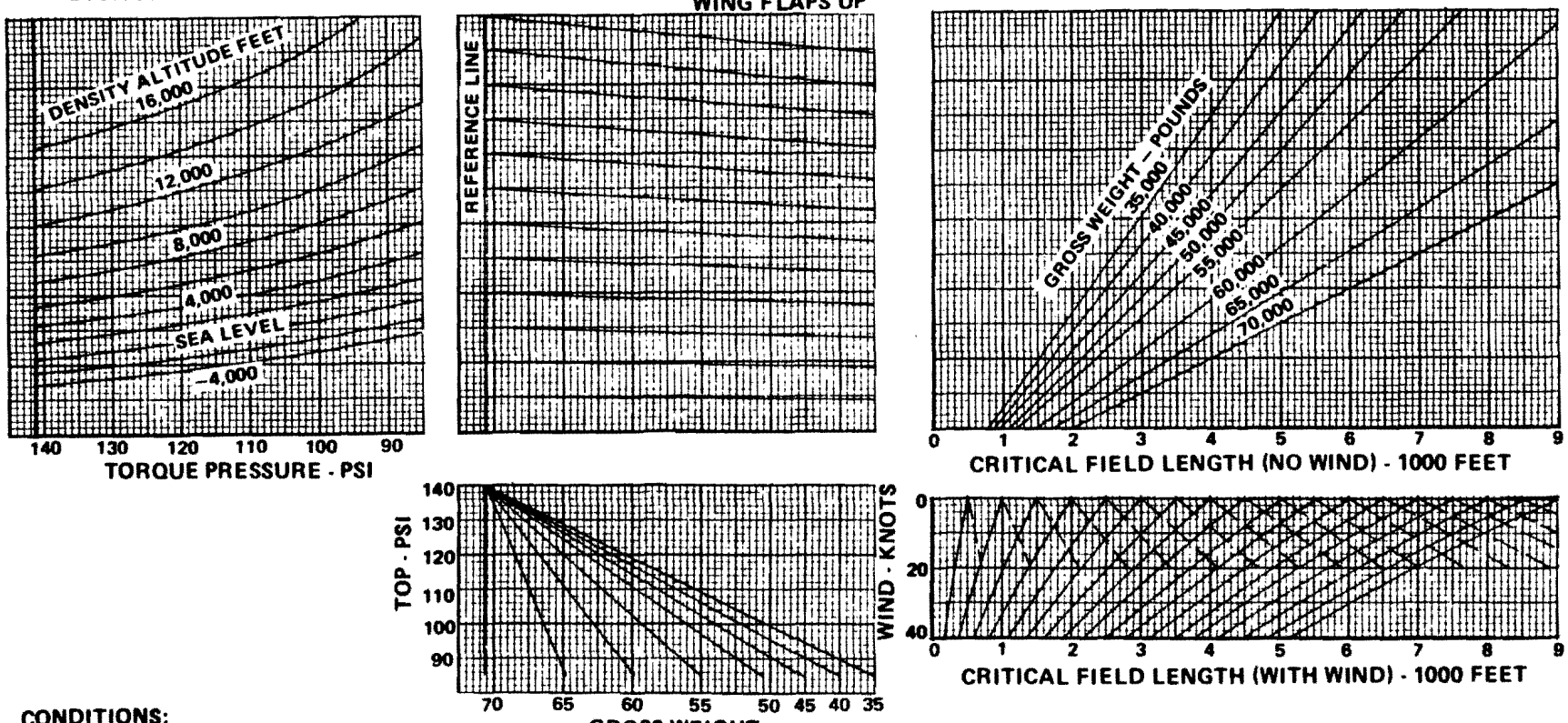
MAXIMUM POWER
WITH JET THRUST
WING FLAPS UP

DATA AS OF: SEPTEMBER 15, 1973

DATA BASIS: FLIGHT TEST

FUEL GRADE: 100/130

FUEL DENSITY: 6 LB/GAL



CONDITIONS:

1. R2800-99W engines - 2800 RPM, rich mixture (see note)
2. J85-GE-17 engines - 100% RPM
3. V_s = Zero thrust stall speed
   V_{to} = Takeoff speed (greater of 1.1 V_s or 108 KIAS)
   VR = Rotation speed (V_{to} - 10 knots)
4. Brakes only for aborted takeoff, both propellers windmilling
5. Level, dry, hard surface runway, μ rolling = 0.025 and RCR = 23
6. Engine failure is assumed to occur at critical engine failure speed.

NOTE:

FOR RECIPROCATING ENGINES OPERATING AT OTHER THAN 2800 RPM, SEE CRITICAL FIELD LENGTH TEXT, THIS SECTION.

IAS KNOTS	GROSS WEIGHT - 1000 POUNDS							
	35	40	45	50	55	60	65	70
V_s*	80	85	90	95	99	104	108	112
V_s+	79	84	89	93	97	102	106	110
VR*	98	98	98	98	99	104	109	113
V_{to}*	108	108	108	108	109	114	119	123
V_{50}+	107	107	107	112	117	123	128	133

* IN GROUND EFFECT + OUT OF GROUND EFFECT

Figure A3-25.

MODEL: C-123K, UC-123K

TOTAL DISTANCE TO 50 FEET FOR SINGLE ENGINE TAKEOFF

ENGINES: R2800-99W (1), J85-GE-17 (2)

PROPELLERS: 43E60-607

DATA AS OF: SEPTEMBER 15, 1973

DATA BASIS: FLIGHT TEST

MAXIMUM POWER
WITH JET THRUST
WING FLAPS UP

FUEL GRADE: 100/130

FUEL DENSITY: 6 LB/GAL

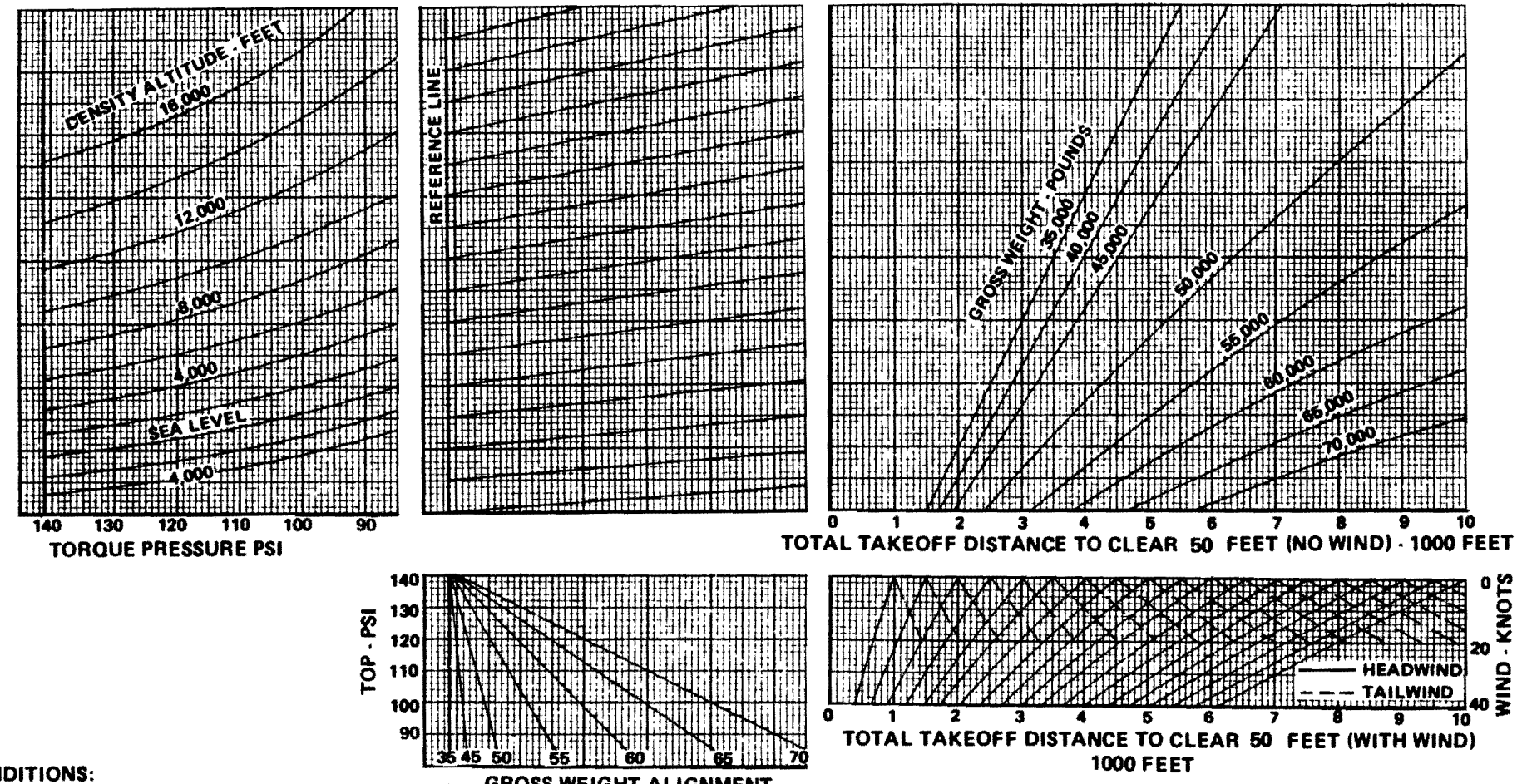


Figure A3-26.

CONDITIONS:

1. R2800-99W engines - 2800 RPM, rich mixture (see note)
2. J85-GE-17 engines - 100% RPM
3. V_s = Zero thrust stall speed
   V_{to} = Takeoff speed (greater of 1.1 V_s or 108 KIAS)
   V_{50} = Obstacle clearance speed (greater of 1.2 V_s or 107 KIAS)
   V_R = Rotation speed (V_{to} - 10 knots)
4. Propeller feathered and cowl flaps closed on inoperative engine.
   Cowl flaps - takeoff on operative engine.
5. Level, dry, hard surface runway, μ rolling = 0.025 and RCR = 23
6. Engine failure is assumed to occur at critical engine
   f[redacted] speed.

NOTE:

FOR RECIPROCATING ENGINES OPERATING AT OTHER THAN 2800 RPM, SEE CRITICAL FIELD LENGTH TEXT, THIS SECTION.

MODEL: C-123K, UC-123K

CRITICAL FIELD LENGTH

ENGINES: R2800-99W, J85-GE-17 (2)
PROPELLERS: 43E60-607
MAXIMUM POWER
WITH JET THRUST
WING FLAPS TAKEOFF

DATA AS OF: SEPTEMBER 15, 1973
DATA BASIS: FLIGHT TEST

FUEL GRADE: 100/130
FUEL DENSITY: 6 LB/GAL

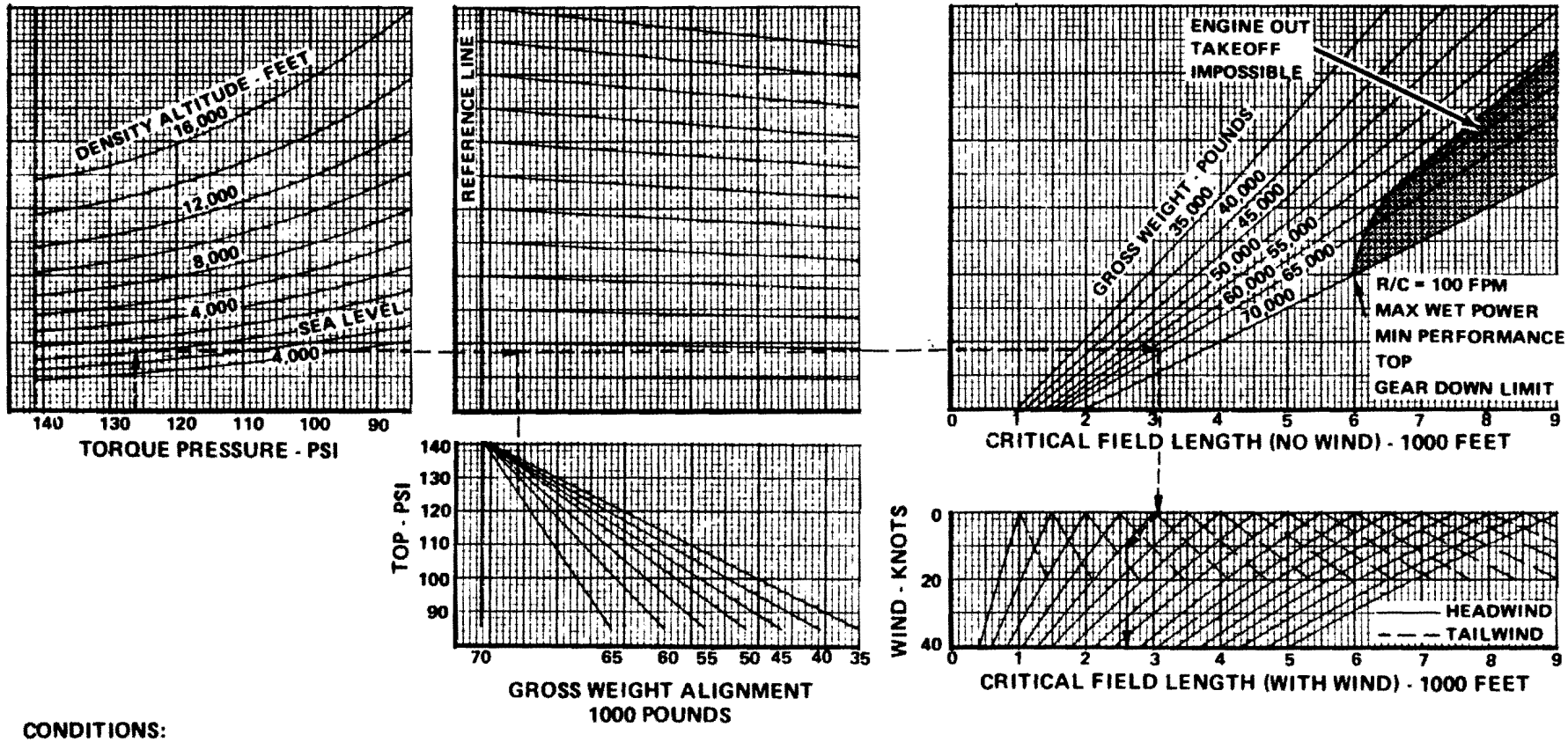


Figure A3-27.

CONDITIONS:

1. R2800-99W engines - maximum power applied prior to brake release, 2800 RPM, rich mixture (see note)
2. J85-GE-17 engines - 100% RPM
3. V_s = Zero thrust stall speed
   V_{to} = Takeoff speed (greater of 1.1 V_s or 108 KIAS)
   VR = Rotation speed (V_{to} - 10 knots)
4. Brakes only for aborted takeoff, both propellers windmilling
5. Level, dry, hard surface runway, μ rolling = 0.025 and RCR = 23
6. Engine failure is assumed to occur at critical engine failure speed.

NOTE:
FOR RECIPROCATING ENGINES OPERATING AT OTHER THAN 2800 RPM, SEE CRITICAL FIELD LENGTH TEXT, THIS SECTION.

IAS KNOTS	GROSS WEIGHT - 1000 POUNDS							
	35	40	45	50	55	60	65	70
V_s*	73	77	82	86	90	94	98	102
V_s+	72	76	81	85	89	93	96	100
VR*	98	98	98	98	98	98	98	102
V_{to}*	108	108	108	108	108	108	108	112
V_{50}*	107	107	107	107	107	111	115	120

* IN GROUND EFFECT + OUT OF GROUND EFFECT

MODEL: C-123K, UC-123K

TOTAL DISTANCE TO 50 FEET FOR SINGLE ENGINE TAKEOFF

ENGINES: R2800-99W (1), J85-GE-17 (2)
PROPELLERS: 43E60-607
MAXIMUM POWER
WITH JET THRUST
WING FLAPS TAKEOFF

DATA AS OF: SEPTEMBER 15, 1973
DATA BASIS: FLIGHT TEST

FUEL GRADE: 100/130
FUEL DENSITY: 6 LB/GAL

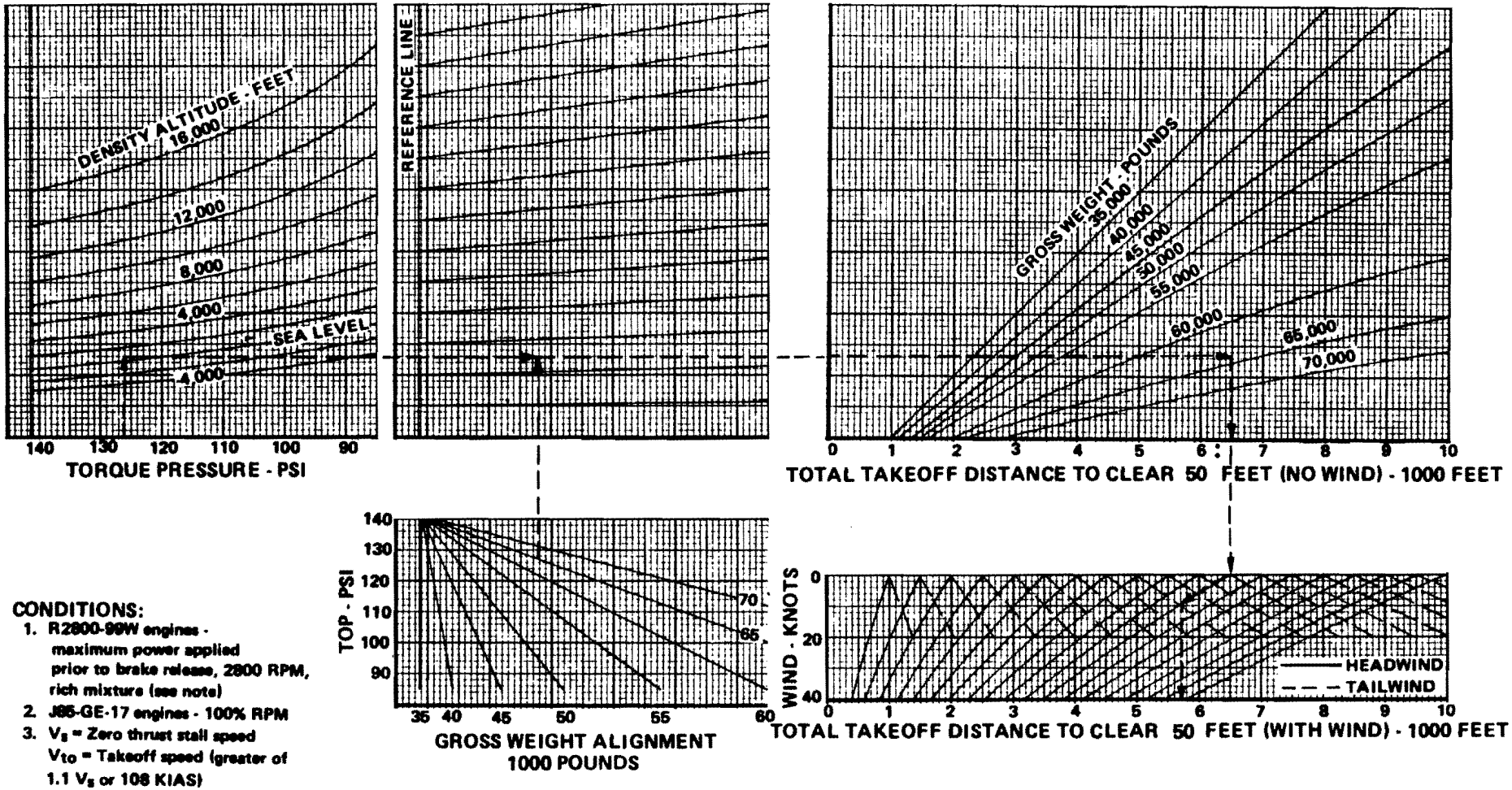


Figure A3-28.

CONDITIONS:

1. R2800-99W engines - maximum power applied prior to brake release, 2800 RPM, rich mixture (see note)
2. J85-GE-17 engines - 100% RPM
3. V_s = Zero thrust stall speed
   V_{to} = Takeoff speed (greater of 1.1 V_s or 108 KIAS)
   V_{50} = Obstacle clearance speed (greater of 1.2 V_s or 107 KIAS)
   V_R = Rotation speed (V_{to} - 10 knots)
4. Propeller feathered and cowl flaps closed on inoperative engine. Cowl flaps - takeoff on operative engine.
5. Level, dry, hard surface runway, μ rolling = 0.025 and RCR = 23
6. Engine failure is assumed to occur at critical engine failure speed.

NOTE:

FOR RECIPROCATING ENGINES OPERATING AT OTHER THAN 2800 RPM, SEE CRITICAL FIELD LENGTH TEXT, THIS SECTION.

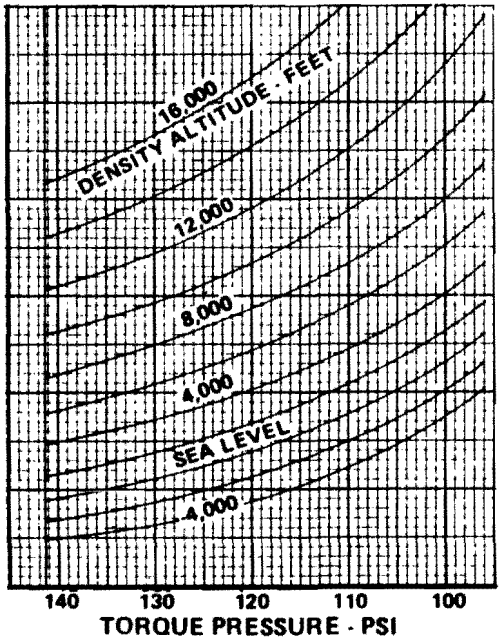
MODEL: C-123K, UC-123K

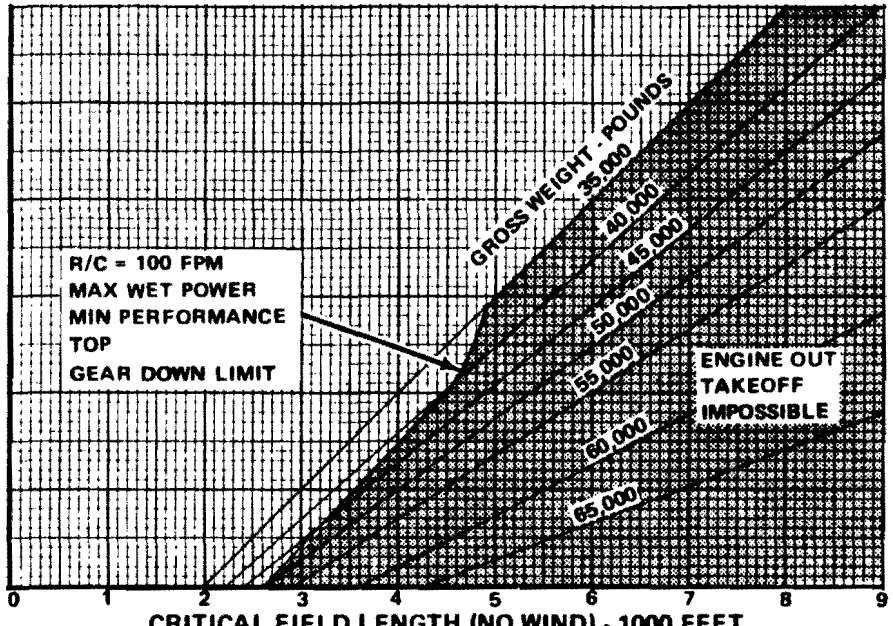
CRITICAL FIELD LENGTH

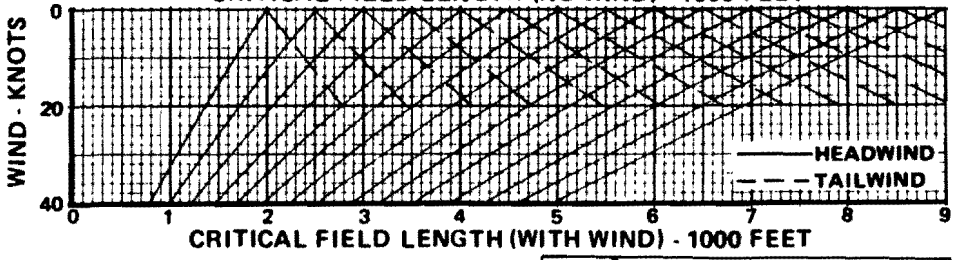
ENGINES: R2800-99W
PROPELLERS: 43E60-607
MAXIMUM POWER
WITHOUT JET THRUST
WING FLAPS UP

DATA AS OF: SEPTEMBER 15, 1973
DATA BASIS: FLIGHT TEST

FUEL GRADE: 100/130
FUEL DENSITY: 6 LB/GAL







CONDITIONS:

1. R2800-99W engines - 2800 RPM, rich mixture (see note)
2. J85-GE-17 engines - not operating
3. V_s = Zero thrust stall speed
   V_{to} = Takeoff speed (greater of 1.1 V_s or 108 KIAS)
   V_R = Rotation speed (V_{to} - 10 knots)
4. Brakes only for aborted takeoff, both propellers windmilling
5. Level, dry, hard surface runway, μ rolling = 0.025 and RCR = 23
6. Engine failure is assumed to occur at critical engine failure speed.

NOTE:

FOR RECIPROCATING ENGINES OPERATING AT OTHER THAN 2800 RPM, SEE CRITICAL FIELD LENGTH TEXT, THIS SECTION.

IAS KNOTS	GROSS WEIGHT - 1000 POUNDS							
	35	40	45	50	55	60	65	70
V_s*	80	85	90	95	99	104	108	112
V_s+	79	84	89	93	97	102	106	110
V_R*	98	98	98	98	99	104	109	113
V_{to}*	108	108	108	108	109	114	119	123
V_{50}+	107	107	107	112	117	123	123	133

* IN GROUND EFFECT + OUT OF GROUND EFFECT

Figure A3-29.

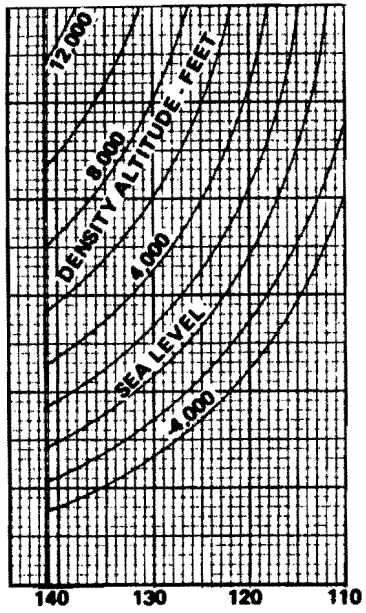
MODEL: C-123K, UC-123K

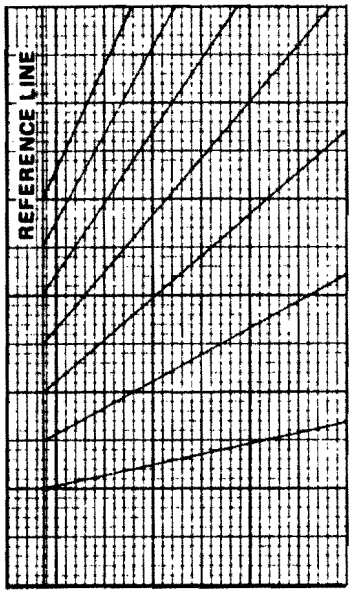
TOTAL DISTANCE TO 50 FEET FOR SINGLE ENGINE TAKEOFF

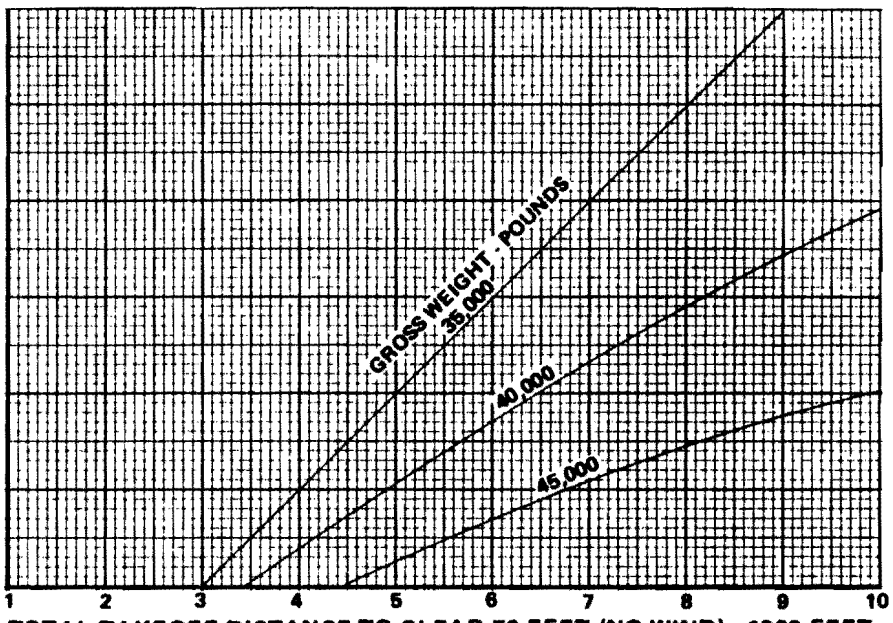
ENGINES: R2800-99W (1)
PROPELLERS: 43E60-607
MAXIMUM POWER
WITHOUT JET THRUST
WING FLAPS UP

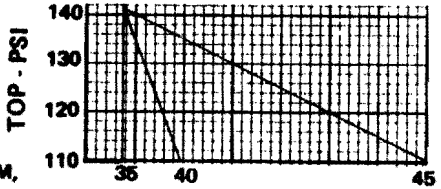
DATA AS OF: SEPTEMBER 15, 1973
DATA BASIS: FLIGHT TEST

FUEL GRADE: 100/130
FUEL DENSITY: 6 LB/GAL









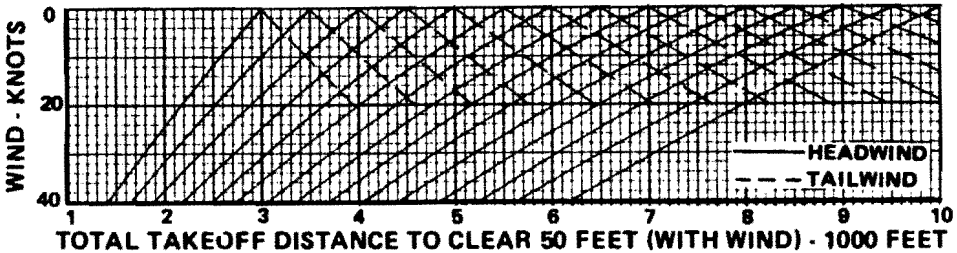


Figure A3-30.

CONDITIONS:

1. R2800-99W engines - 2800 RPM, rich mixture (see note)
2. J85-GE-17 engines - not operating
3. V_s = Zero thrust stall speed
   V_{to} = Takeoff speed (greater of 1.1 V_s or 108 KIAS)
   V50 = Obstacle clearance speed (greater of 1.2 V_s or 107 KIAS)
   VR = Rotation speed (V_{to} - 10 knots)
4. Propeller feathered and cowl flaps closed on inoperative engine. Cowl flaps - takeoff on operative engine.
5. Level, dry, hard surface runway, rolling = 0.025 and RCR = 23
6. Engine failure is assumed to occur at critical engine failure

NOTE:

FOR RECIPROCATING ENGINES OPERATING AT OTHER THAN 2800 RPM, SEE CRITICAL FIELD LENGTH TEXT, THIS SECTION.

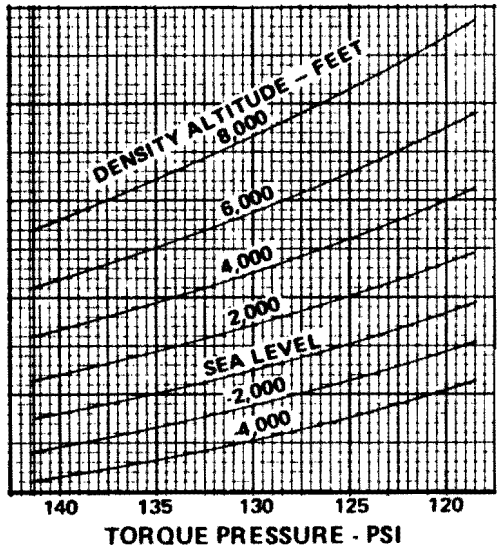
MODEL: C-123K, UC-123K

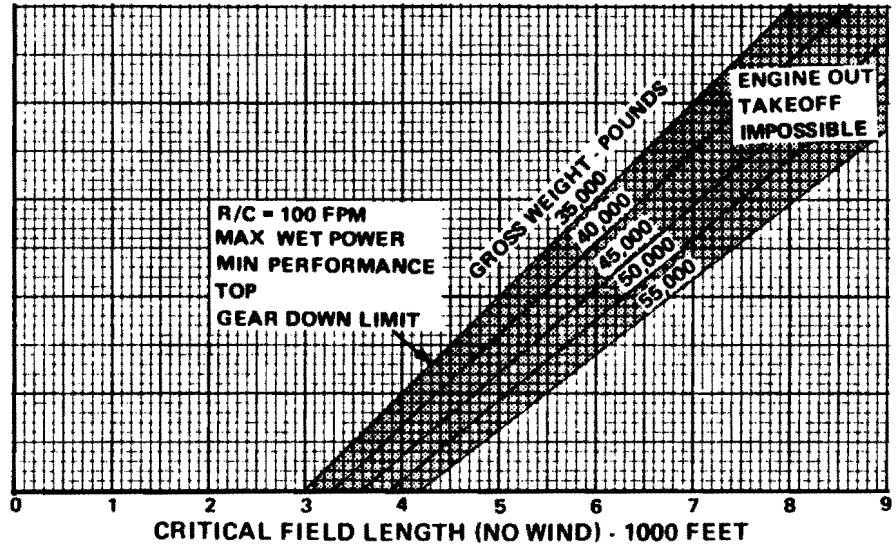
CRITICAL FIELD LENGTH

ENGINES: R2800-99W
PROPELLERS: 43E60-607
MAXIMUM POWER
WITHOUT JET THRUST
WING FLAPS TAKEOFF

DATA AS OF: SEPTEMBER 15, 1973
DATA BASIS: FLIGHT TEST

FUEL GRADE: 100/130
FUEL DENSITY: 6 LB/GAL





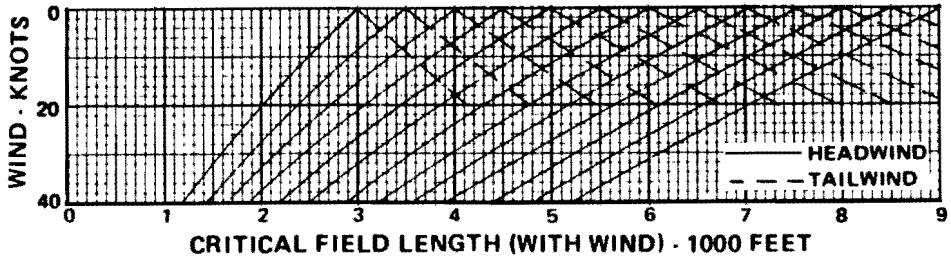


Figure A3-31.

CONDITIONS:

1. R2800-99W engines - maximum power applied prior to brake release, 2800 RPM, rich mixture (see note)
2. J85-GE-17 engines - not operating
3. V_s = Zero thrust stall speed
   V_{to} = Takeoff speed (greater of 1.1 V_s or 108 KIAS)
   V_R = Rotation speed (V_{to} - 10 knots)
4. Brakes only for aborted takeoff, both propellers windmilling
5. Level, dry, hard surface runway, μ rolling = 0.025 and RCR = 23
6. Engine failure is assumed to occur at critical engine failure speed.

NOTE:

FOR RECIPROCATING ENGINES OPERATING AT OTHER THAN 2800 RPM, SEE CRITICAL FIELD LENGTH TEXT, THIS SECTION.

IAS KNOTS	GROSS WEIGHT - 1000 POUNDS							
	35	40	45	50	55	60	65	70
V_s *	73	77	82	86	90	94	98	102
V_s +	72	76	81	85	89	93	96	100
V_R *	98	98	98	98	98	98	98	102
V_{to} *	108	108	108	108	108	108	108	112
V_{50} *	107	107	107	107	107	111	115	120

*IN GROUND EFFECT +OUT OF GROUND EFFECT

MODEL: C-123K, UC-123K

CRITICAL FIELD LENGTH CORRECTION FACTOR FOR RUNWAY GRADIENT

WING FLAPS UP OR TAKEOFF

DATA AS OF: SEPTEMBER 15, 1973
DATA BASIS: FLIGHT TEST

FUEL GRADE: 100/130
FUEL DENSITY: 6 LB/GAL

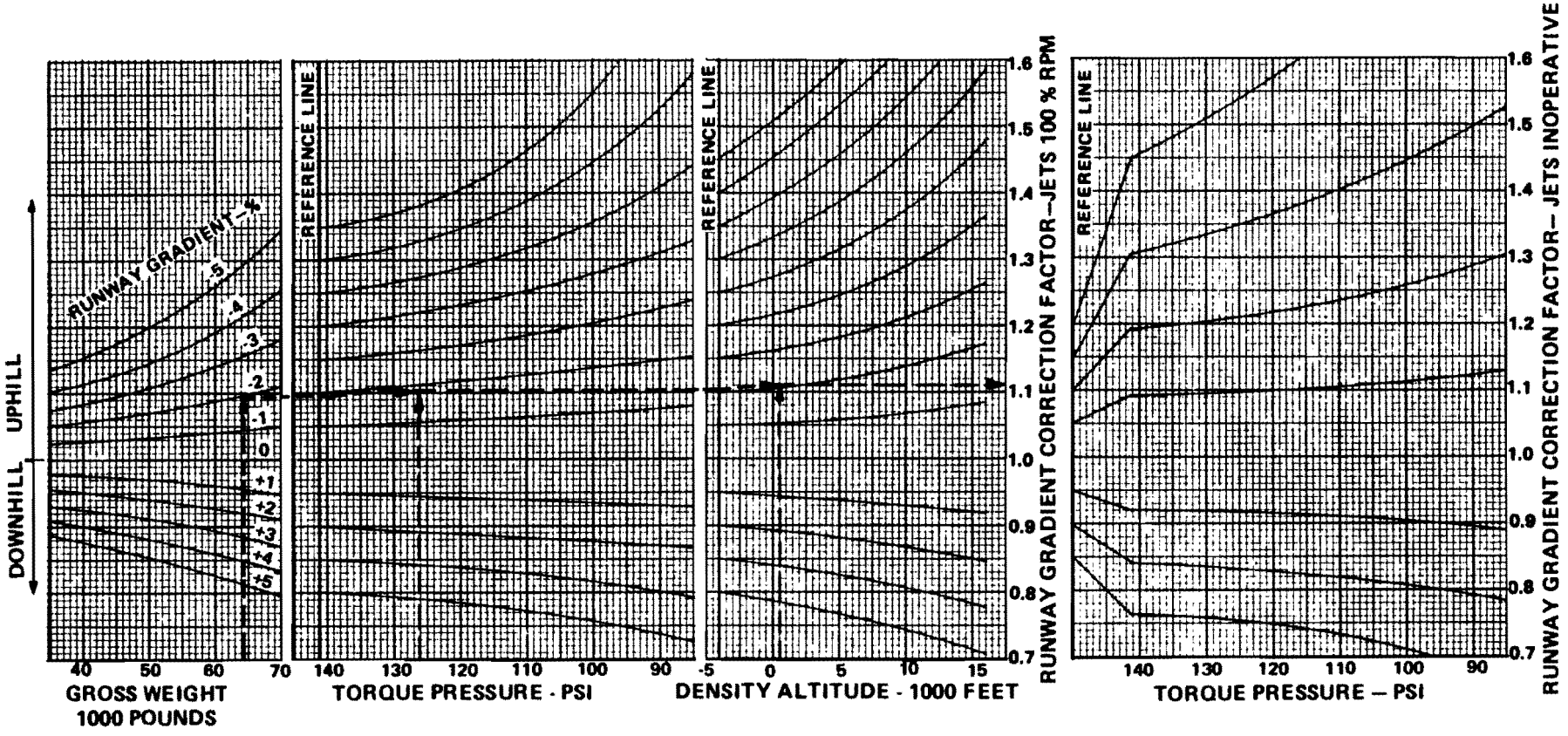


Figure A3-32.

NOTE:

FOR RECIPROCATING ENGINES OPERATING AT OTHER THAN 2800 RPM, SEE CRITICAL FIELD LENGTH TEXT, THIS SECTION.

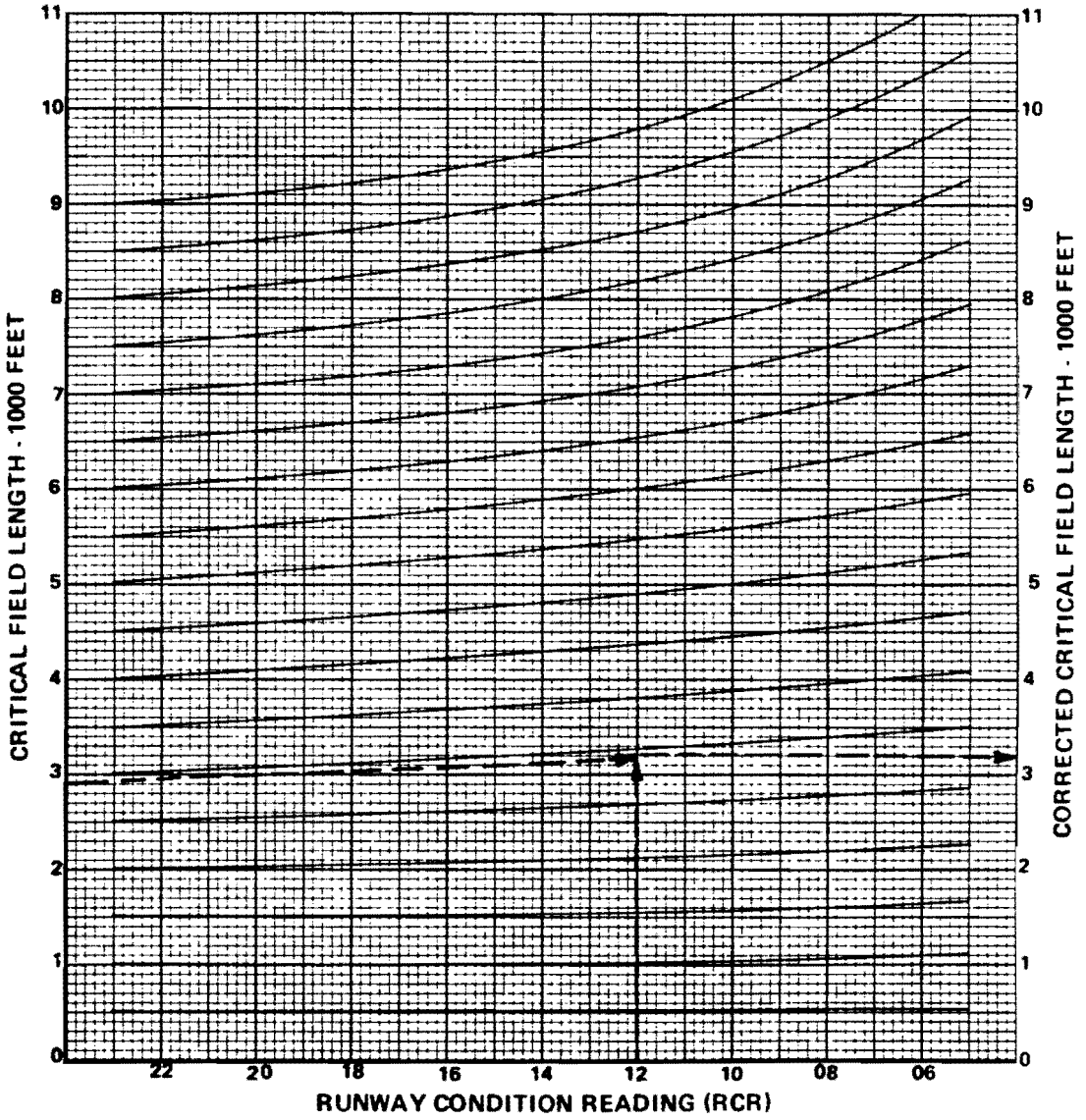
MODEL: C-123K, UC-123K

VARIATION IN CRITICAL FIELD LENGTH WITH RUNWAY CONDITION READING (RCR)

WITH JET THRUST
WING FLAPS UP OR TAKEOFF

DATA AS OF: SEPTEMBER 15, 1973
DATA BASIS: FLIGHT TEST

FUEL GRADE: 100/130
FUEL DENSITY: 6 LB/GAL



NOTES:

1. IF RCR IS NOT AVAILABLE, FOR DRY HARD RUNWAY (ICAO GOOD) USE RCR 23, FOR WET RUNWAY (ICAO MEDIUM) USE RCR 12, FOR ICY RUNWAY (ICAO POOR) USE RCR 05.
2. REFER TO FIGURE A3-21 OR A3-23 FOR CONDITIONS.

Figure A3-33.

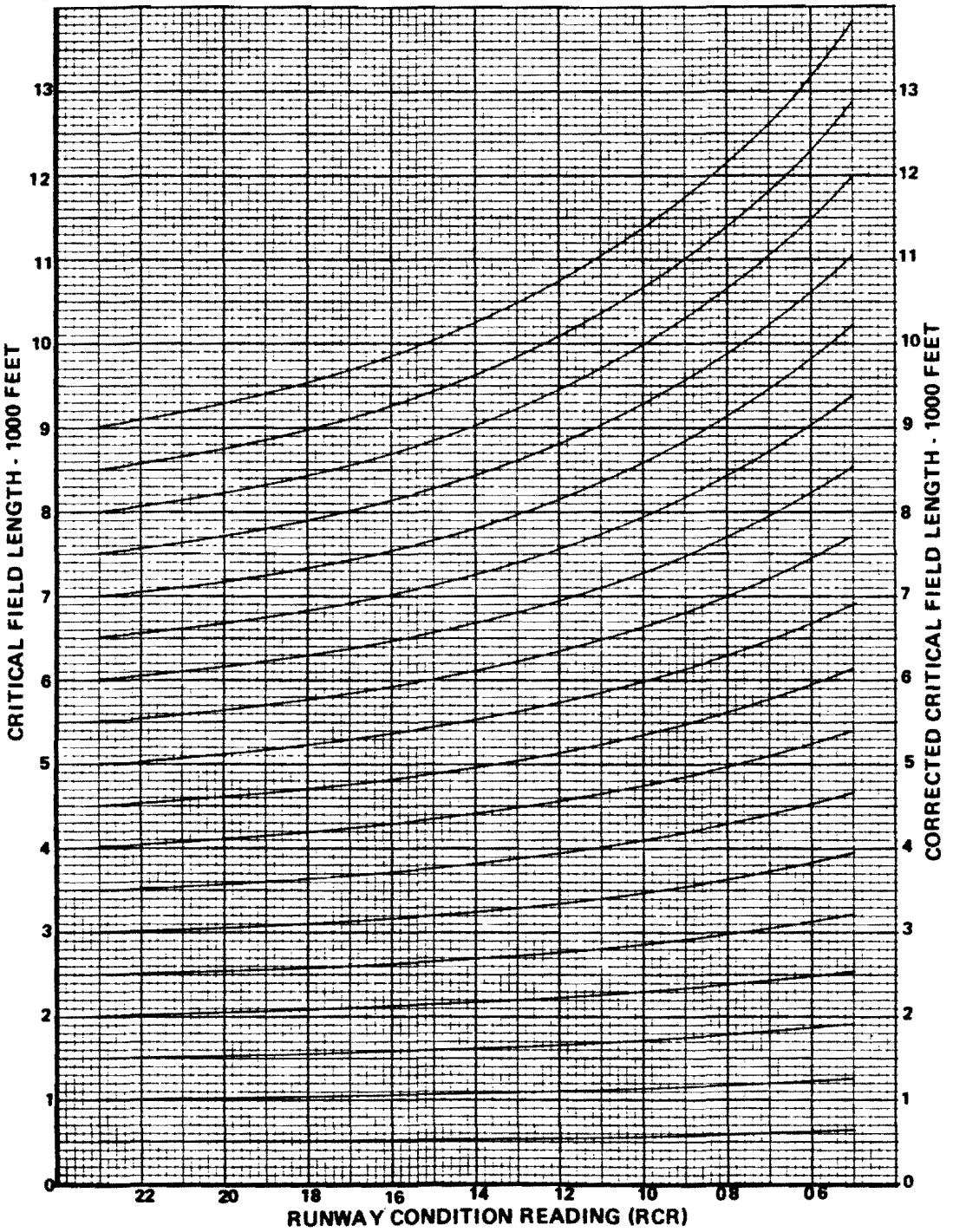
MODEL: C-123K, UC-123K

VARIATION IN CRITICAL FIELD LENGTH WITH RUNWAY CONDITION READING (RCR)

WITHOUT JET THRUST

DATA AS OF: SEPTEMBER 15, 1973 WING FLAPS UP OR TAKEOFF FUEL GRADE: 100/130

DATA BASIS: FLIGHT TEST FUEL DENSITY: 6 LB/GAL



NOTES:

1. IF RCR IS NOT AVAILABLE, FOR DRY HARD RUNWAY (ICAO GOOD) USE RCR 23, FOR WET RUNWAY (ICAO MEDIUM) USE RCR 12, FOR ICY RUNWAY (ICAO POOR) USE RCR 05.
2. REFER TO FIGURE A3-25 OR A3-26 FOR CONDITIONS.

Figure A3-34.

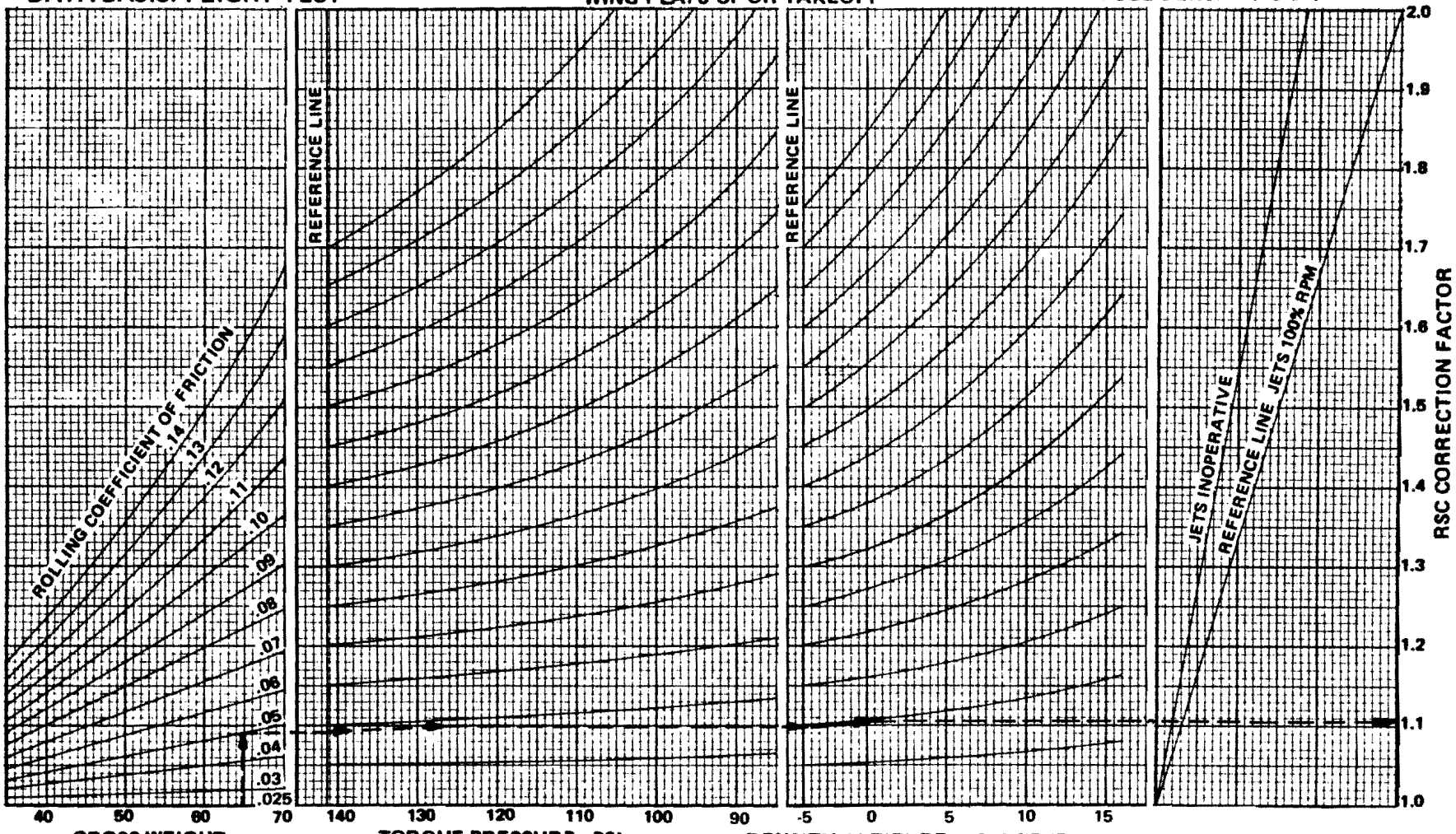
MODEL: C-123K, UC-123K

CRITICAL FIELD LENGTH CORRECTION FACTOR FOR RUNWAY SURFACE COVERING (RSC)

DATA AS OF: SEPTEMBER 15, 1973
DATA BASIS: FLIGHT TEST

WING FLAPS UP OR TAKEOFF

FUEL GRADE: 100/130
FUEL DENSITY: 6 LB/GAL



RUNWAY SURFACE COVERING	ROLLING COEFFICIENT OF FRICTION
DRY HARD SURFACE	0.025
WET HARD SURFACE, STANDING WATER	0.050
DRY HARD TURF, SHORT GRASS	0.050
DRY SOFT TURF, SHORT GRASS	0.070
WET TURF	0.100
DRY SOFT GRAVEL, NO GRASS	0.100-0.300

NOTE:

FOR RECIPROCATING ENGINES OPERATING AT OTHER THAN 2800 RPM, SEE CRITICAL FIELD LENGTH TEXT, THIS SECTION.

Figure A3-35.

MODEL: C-123K, UC-123K

EFFECTIVE RUNWAY LENGTH CORRECTION FACTOR FOR RUNWAY GRADIENT

DATA AS OF: SEPTEMBER 15, 1973

DATA BASIS: FLIGHT TEST

WITH JET THRUST

WING FLAPS UP OR TAKEOFF

FUEL GRADE: 100/130

FUEL DENSITY: 6 LB/GAL

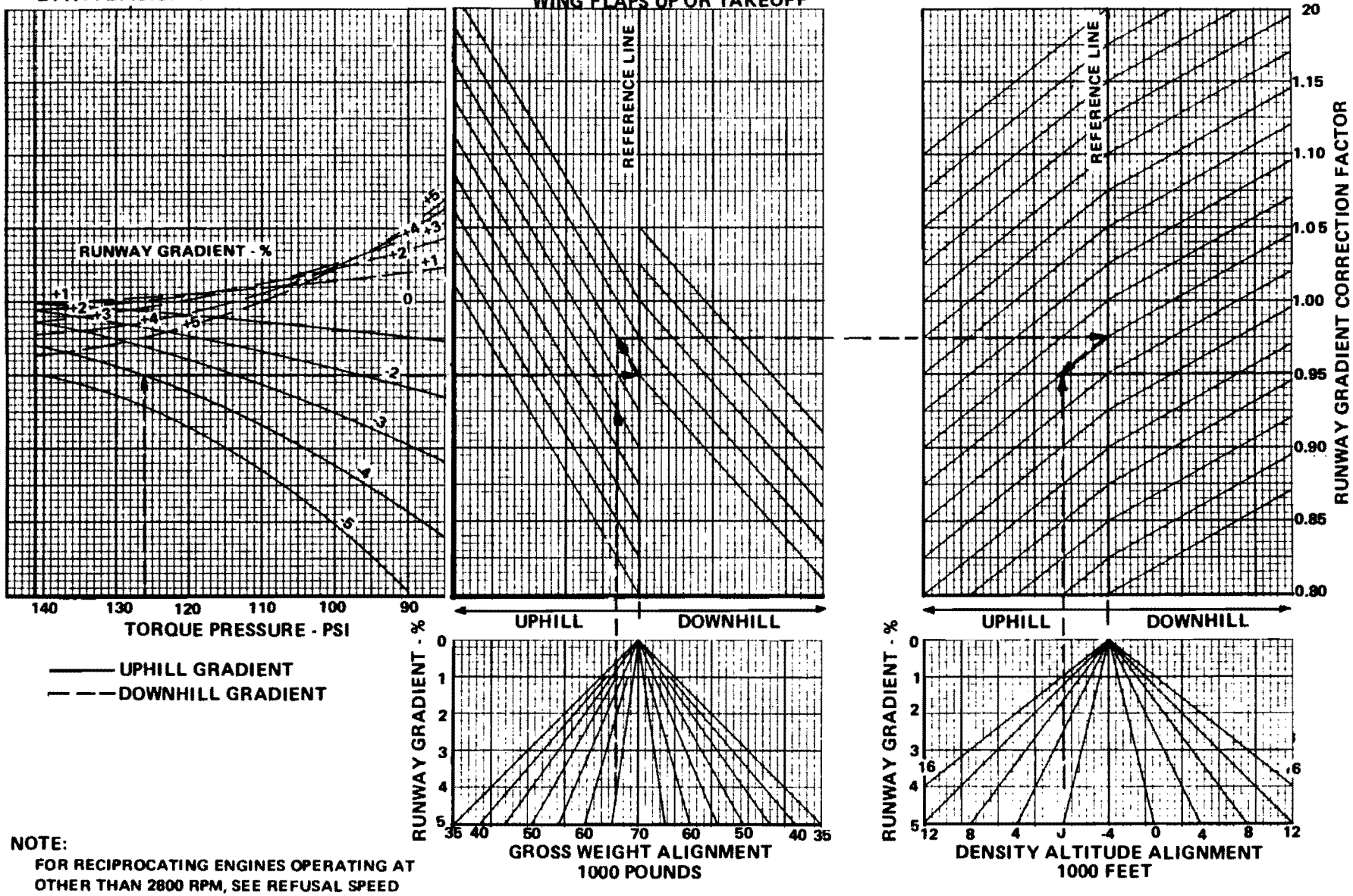


Figure A3-36.

NOTE:

FOR RECIPROCATING ENGINES OPERATING AT OTHER THAN 2800 RPM, SEE REFUSAL SPEED TEXT, THIS SECTION.

MODEL: C-123K, UC-123K

EFFECTIVE RUNWAY LENGTH CORRECTION FACTOR FOR RUNWAY GRADIENT

DATA AS OF: SEPTEMBER 15, 1973

DATA BASIS: FLIGHT TEST

WITHOUT JET THRUST

WING FLAPS UP OR TAKEOFF

FUEL GRADE: 100/130

FUEL DENSITY; 6 LB/GAL

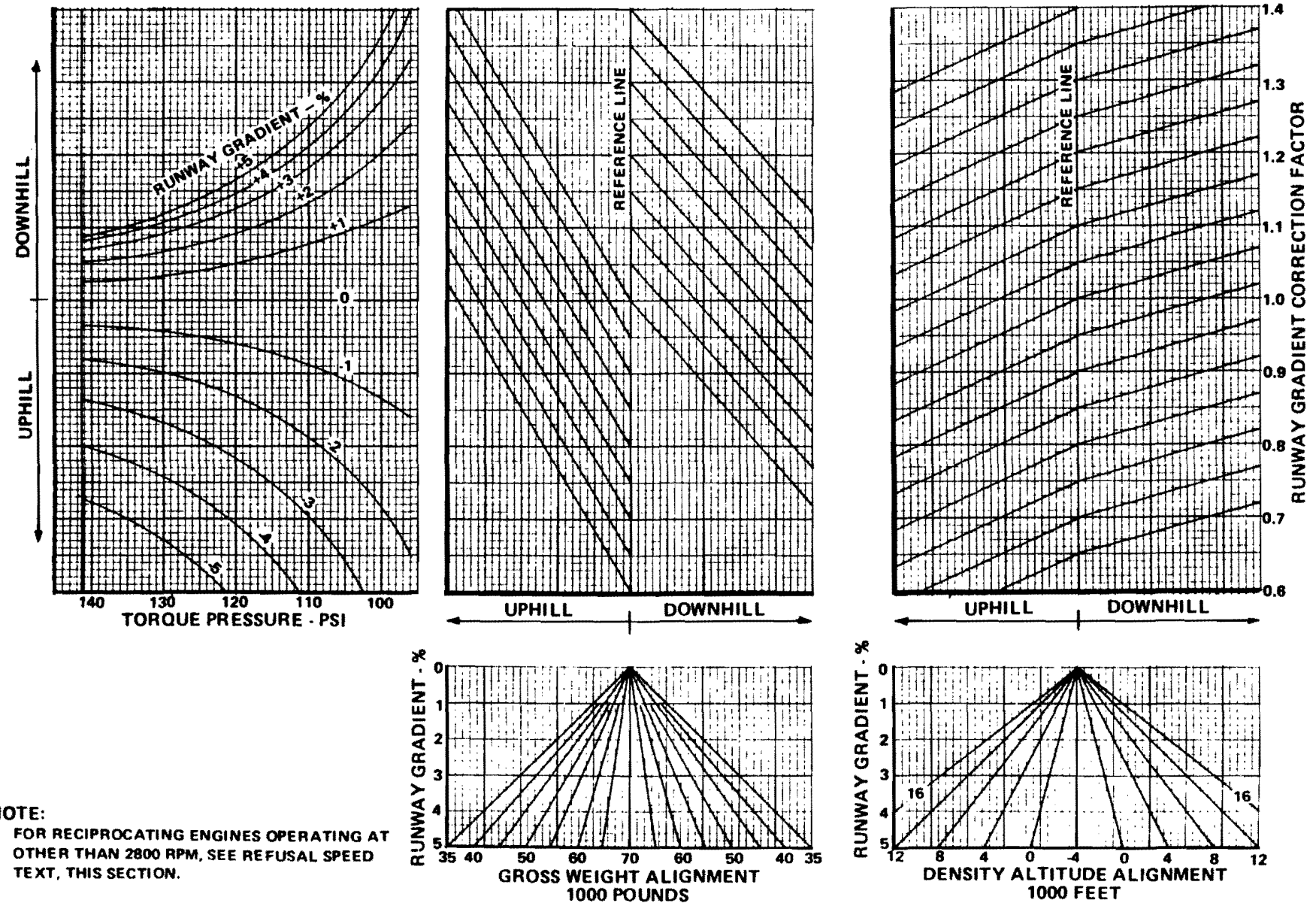


Figure A3-37.

NOTE:

FOR RECIPROCATING ENGINES OPERATING AT OTHER THAN 2800 RPM, SEE REFUSAL SPEED TEXT, THIS SECTION.

MODEL: C-123K, UC-123K

EFFECTIVE RUNWAY LENGTH CORRECTION FACTOR FOR RUNWAY CONDITION READING (RCR)

DATA AS OF: SEPTEMBER 15, 1973
DATA BASIS: FLIGHT TEST

WITH JET THRUST
WING FLAPS UP OR TAKEOFF

FUEL GRADE: 100/130
FUEL DENSITY: 6 LB/GAL

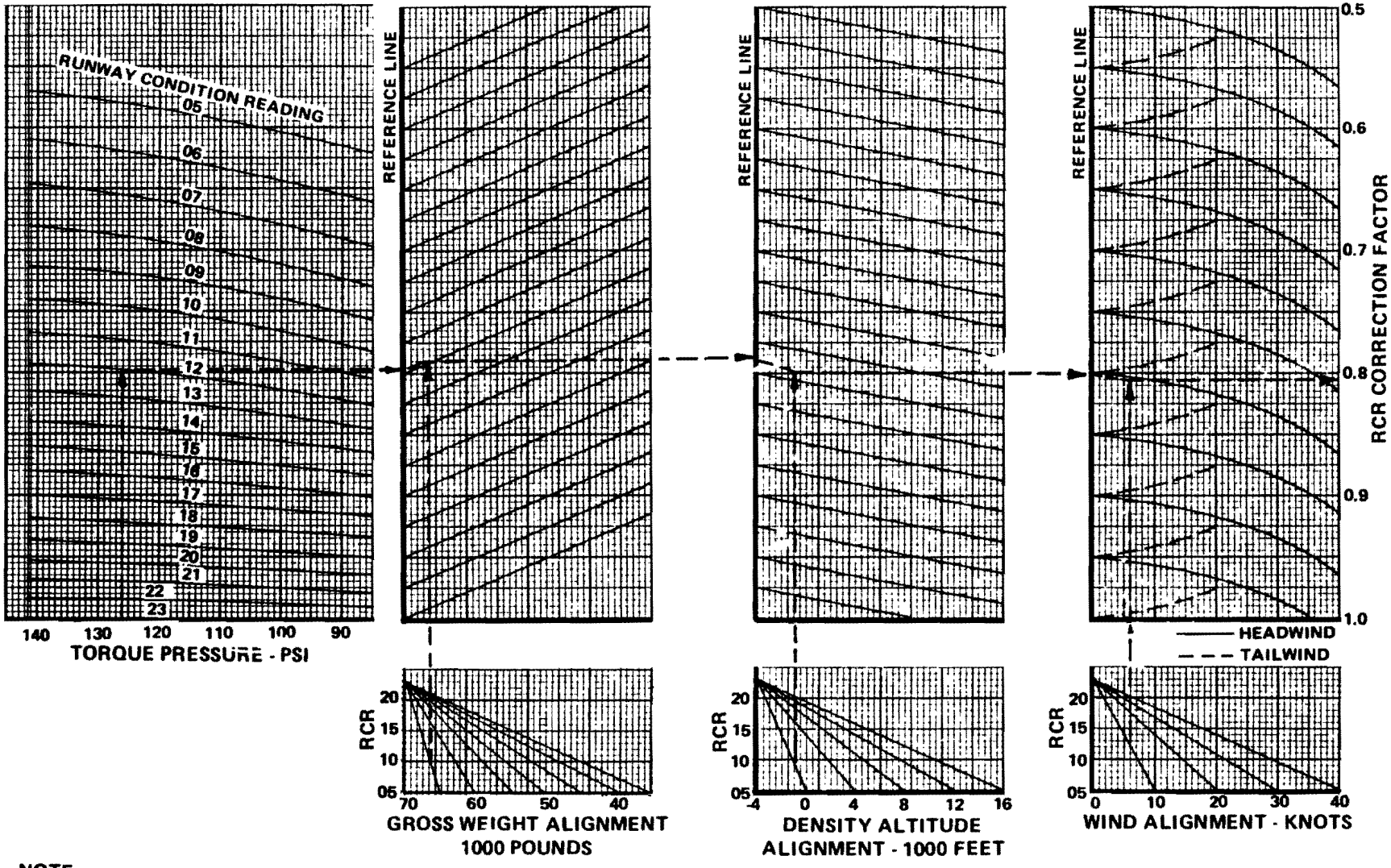


Figure A3-38.

NOTE:

1. IF RCR IS NOT AVAILABLE, FOR DRY RUNWAY (ICAO GOOD) USE RCR 23, FOR WET RUNWAY (ICAO MEDIUM) USE RCR 12, FOR ICY RUNWAY (ICAO) POOR) USE RCR 05.
2. FOR RECIPROCATING ENGINES OPERATING AT OTHER THAN 2800 RPM, SEE REFUSAL SPEED TEXT, THIS SECTION.

MODEL: C-123K, UC-123K

EFFECTIVE RUNWAY LENGTH CORRECTION FACTOR FOR RUNWAY CONDITION READING (RCR)

DATA AS OF: SEPTEMBER 15, 1973

DATA BASIS: FLIGHT TEST

WITHOUT JET THRUST

WING FLAPS UP OR TAKEOFF

FUEL GRADE: 100/130

FUEL DENSITY: 6 LB/GAL

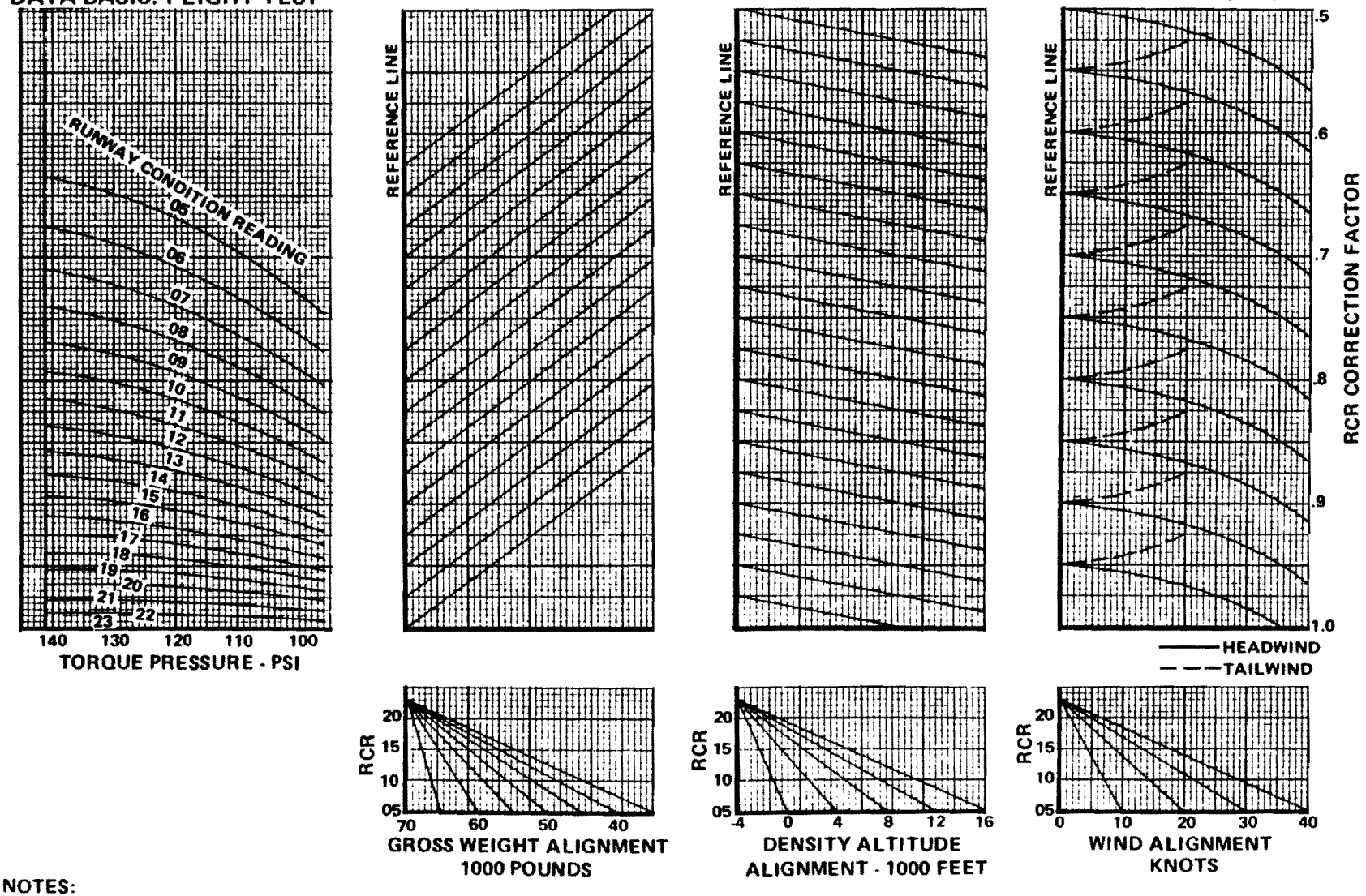


Figure A3-39.

NOTES:

1. IF RCR IS NOT AVAILABLE, FOR DRY RUNWAY (ICAO GOOD) USE RCR 23, FOR WET RUNWAY (ICAO MEDIUM) USE RCR 12, FOR ICY RUNWAY (ICAO POOR) USE RCR 05.
2. FOR RECIPROCATING ENGINES OPERATING AT OTHER THAN 2800 RPM, SEE REFUSAL SPEED TEXT, THIS SECTION.

MODEL: C-123K, UC-123K

EFFECTIVE RUNWAY LENGTH CORRECTION FACTOR FOR RUNWAY SURFACE COVERING (RSC)

WITH JET THRUST

DATA AS OF: SEPTEMBER 15, 1973

DATA BASIS: FLIGHT TEST

FUEL GRADE: 100/130

FUEL DENSITY: 6 LB/GAL

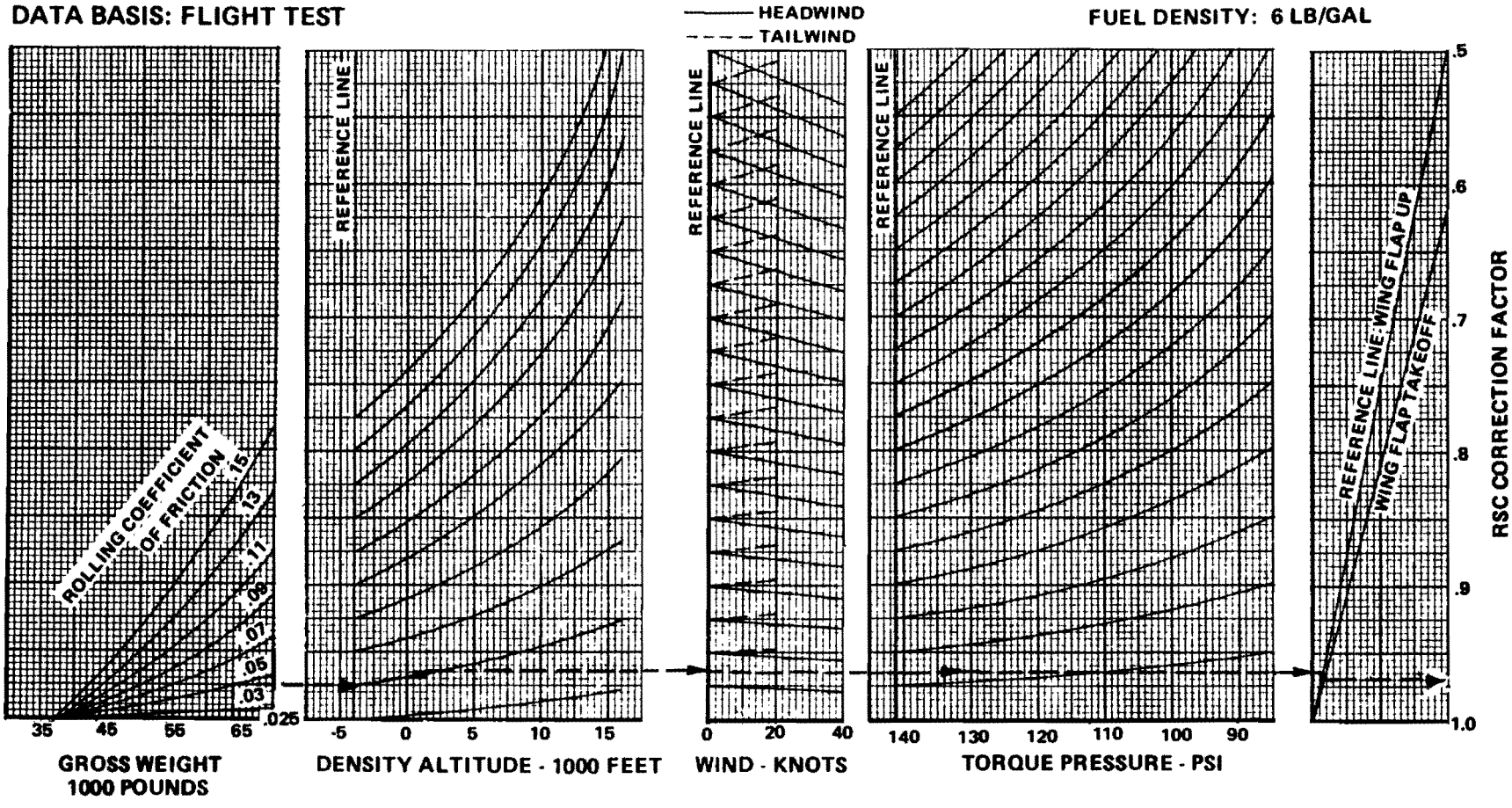


Figure A3-40.

NOTE:

FOR RECIPROCATING ENGINES OPERATING AT OTHER THAN 2800 RPM, SEE REFUSAL SPEED TEXT, THIS SECTION.

RUNWAY SURFACE COVERING	ROLLING COEFFICIENT OF FRICTION
DRY HARD SURFACE	0.025
WET HARD SURFACE, STANDING WATER	0.060
DRY HARD TURF, SHORT GRASS	0.050
DRY SOFT TURF, SHORT GRASS	0.070
WET TURF	0.100
DRY SOFT GRAVEL, NO GRASS	0.[illegible]0

MODEL: C-123K, UC-123K

EFFECTIVE RUNWAY LENGTH CORRECTION FACTOR FOR RUNWAY SURFACE COVERING (RSC)

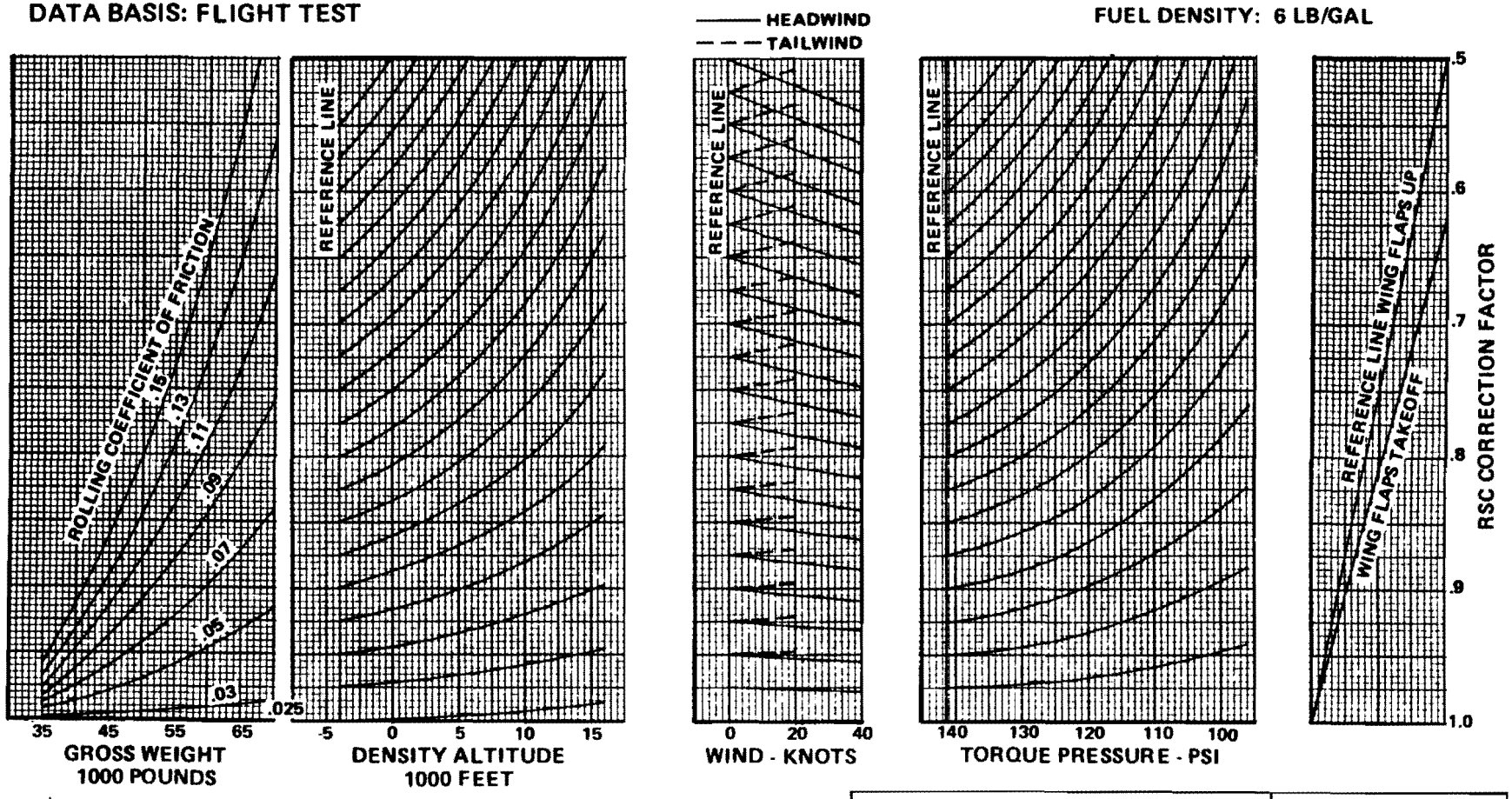
WITHOUT JET THRUST

DATA AS OF: SEPTEMBER 15, 1973

DATA BASIS: FLIGHT TEST

FUEL GRADE: 100/130

FUEL DENSITY: 6 LB/GAL



RUNWAY SURFACE COVERING	ROLLING COEFFICIENT OF FRICTION
DRY HARD SURFACE	0.025
WET HARD SURFACE, STANDING WATER	0.050
DRY HARD TURF, SHORT GRASS	0.050
DRY SOFT TURF, SHORT GRASS	0.070
WET TURF	0.100
DRY SOFT GRAVEL, NO GRASS	0.100-0.300

NOTE:

FOR RECIPROCATING ENGINES OPERATING AT OTHER THAN 2800 RPM, SEE REFUSAL SPEED TEXT, THIS SECTION.

Figure A3-41.

MODEL: C-123K, UC-123K

REFUSAL SPEED

ENGINES: R2800-99W (2), J85-GE-17 (2)
PROPELLERS: 43E60-607
MAXIMUM POWER
WITH JET THRUST
WING FLAPS UP

DATA AS OF: SEPTEMBER 15, 1973
DATA BASIS: FLIGHT TEST

FUEL GRADE: 100/130
FUEL DENSITY: 6 LB/GAL

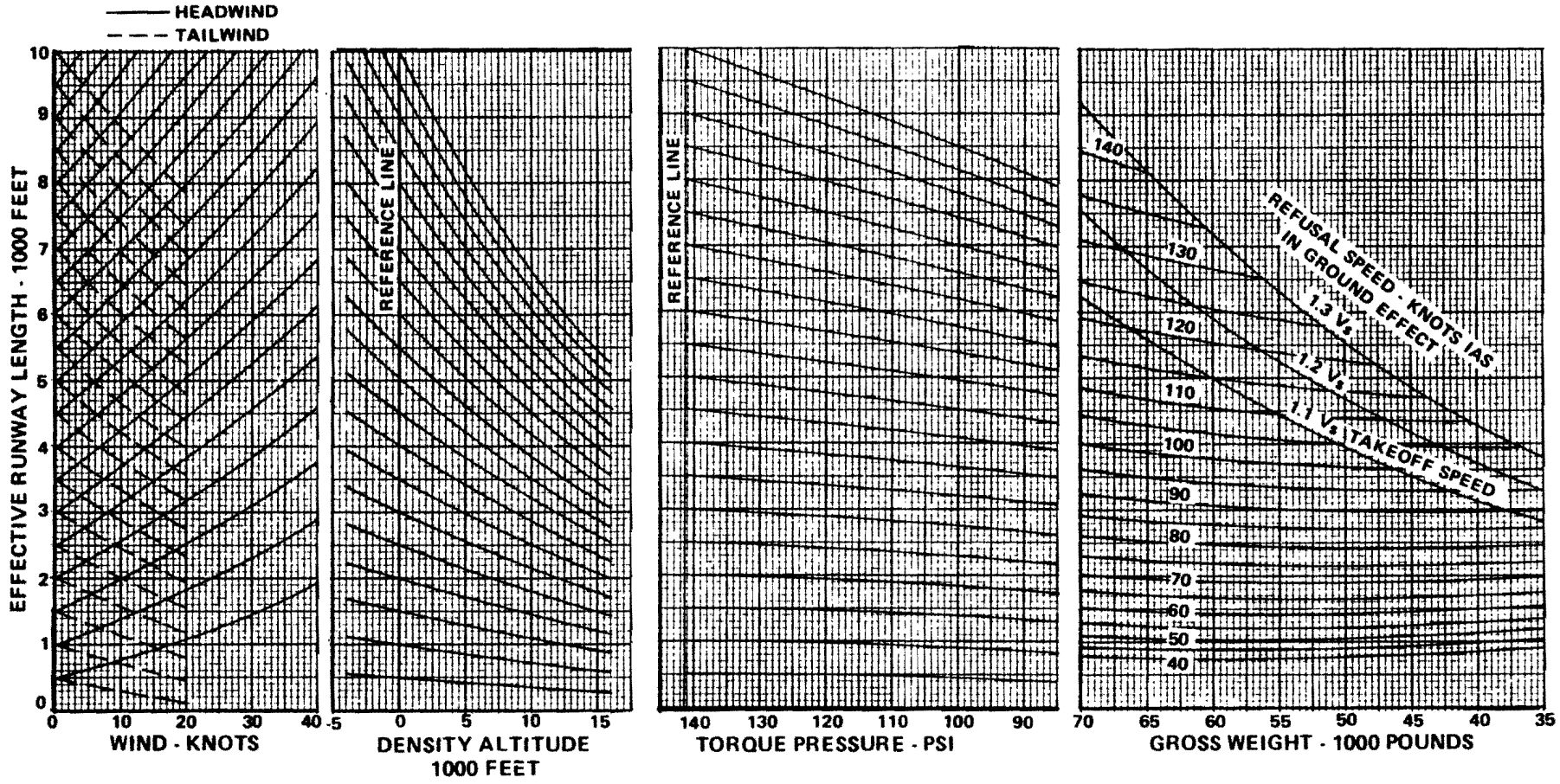


Figure A3-42.

CONDITIONS:

1. R2800-99W engines - 2800 RPM, rich mixture (see note)
2. J85-GE-17 engines - 100% RPM
3. Effective runway length equals actual runway length corrected for slope/RCR/RSC
4. Brakes only for aborted takeoff, both propellers windmilling

NOTE:

FOR RECIPROCATING ENGINES OPERATING AT OTHER THAN 2800 RPM, SEE REFUSAL SPEED TEXT, THIS SECTION.

MODEL: C-123K, UC-123K

REFUSAL SPEED

ENGINES: R2800-99W (2), J85-GE-17 (2)
PROPELLERS: 43E60-607
MAXIMUM POWER
WITH JET THRUST
WING FLAPS TAKEOFF

DATA AS OF: SEPTEMBER 15, 1973
DATA BASIS: FLIGHT TEST

FUEL GRADE: 100/130
FUEL DENSITY: 6 LB/GAL

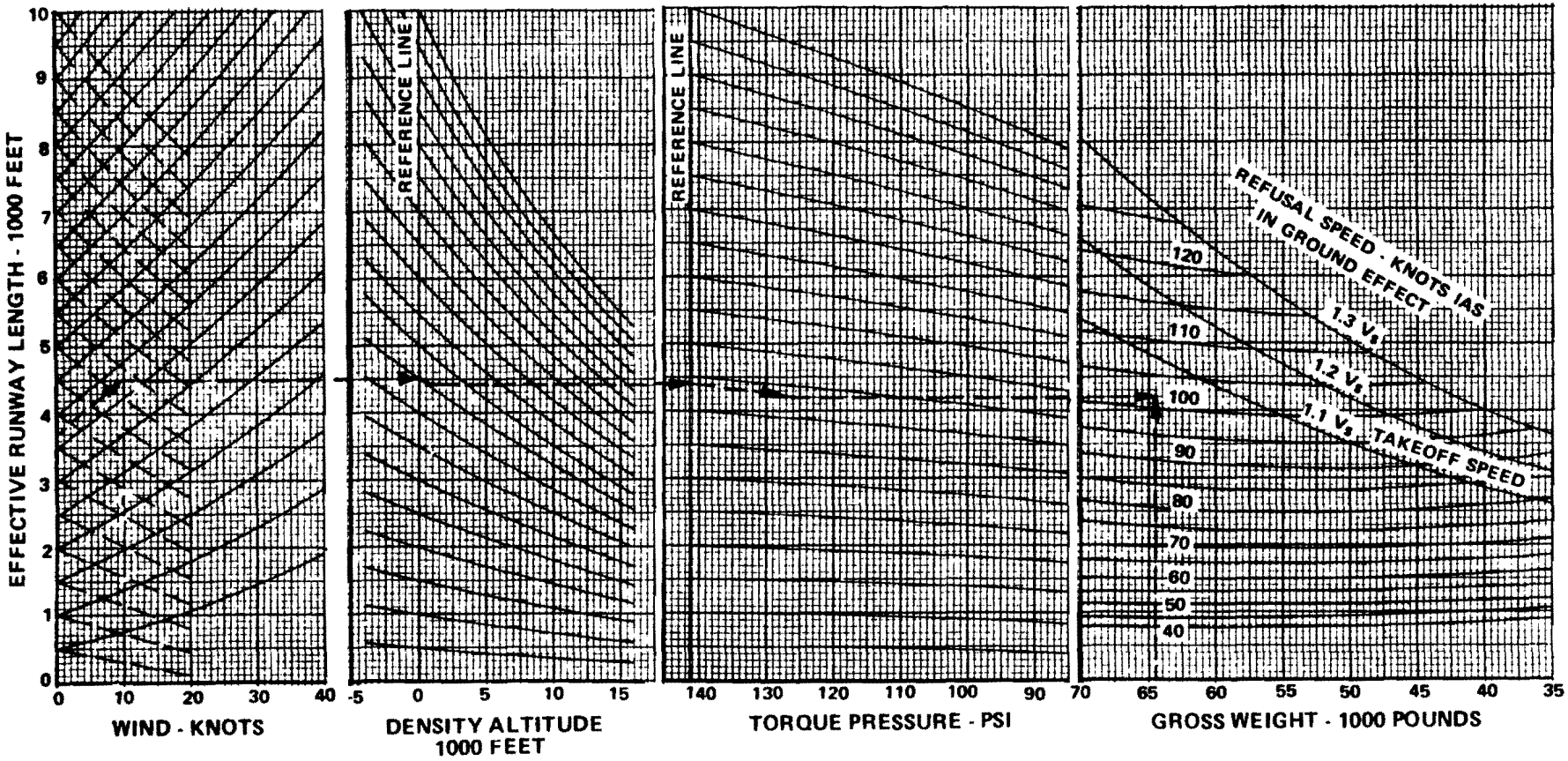


Figure A3-43.

CONDITIONS:

1. R2800-99W engines - maximum power applied prior to brake release, 2800 RPM, rich mixture (see note)
2. J85-GE-17 engines - 100% RPM
3. Effective runway length equals actual runway length corrected for slope/RCR/RSC
4. Brakes only for aborted takeoff, both propellers windmilling

NOTE:

FOR RECIPROCATING ENGINES OPERATING AT OTHER THAN 2800 RPM, SEE REFUSAL SPEED TEXT, THIS SECTION.

MODEL: C-123K, UC-123K

REFUSAL SPEED

ENGINES: R2800-99W (2)
PROPELLERS: 43E60-607
MAXIMUM POWER
WITHOUT JET THRUST
WING FLAPS UP

DATA AS OF: SEPTEMBER 15, 1973
DATA BASIS: FLIGHT TEST

FUEL GRADE: 100/130
FUEL DENSITY: 6 LB/GAL

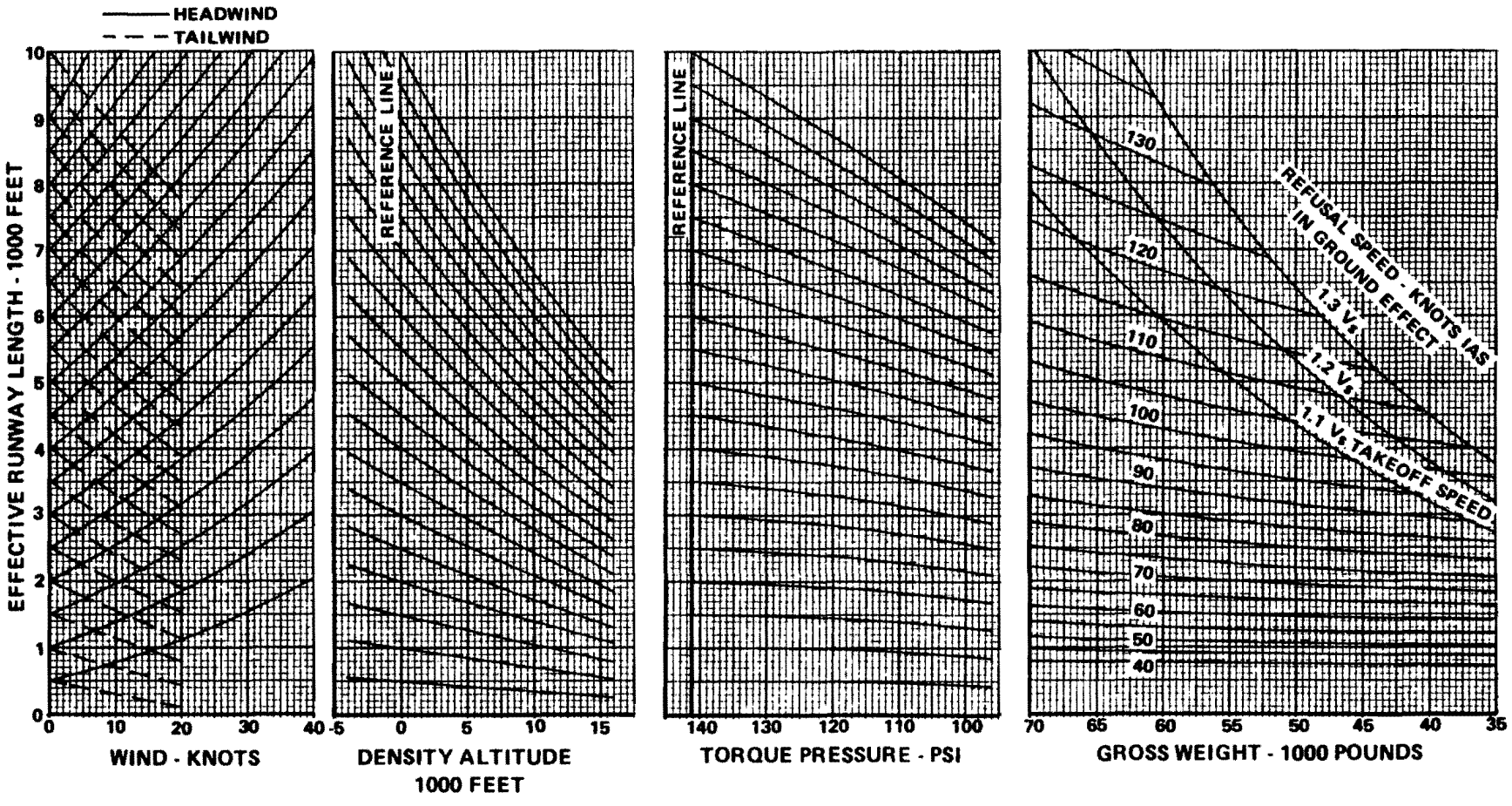


Figure A3-44.

CONDITIONS:

1. R2800-99W engines - 2800 RPM, rich mixture (see note)
2. J85-GE-17 engines - not operating
3. Effective runway length equals actual runway length corrected for slope/RCR/RSC
4. Brakes only for aborted takeoff, both propellers windmilling

NOTE:

FOR RECIPROCATING ENGINES OPERATING AT OTHER THAN 2800 RPM, SEE REFUSAL SPEED TEXT, THIS SECTION.

MODEL: C-123K, UC-123K

REFUSAL SPEED

ENGINES: R2800-99W (2)
PROPELLERS: 43E60-607
MAXIMUM POWER
WITHOUT JET THRUST
WING FLAPS TAKEOFF

DATA AS OF: SEPTEMBER 15, 1973
DATA BASIS: FLIGHT TEST

FUEL GRADE: 100/130
FUEL DENSITY: 6 LB/GAL

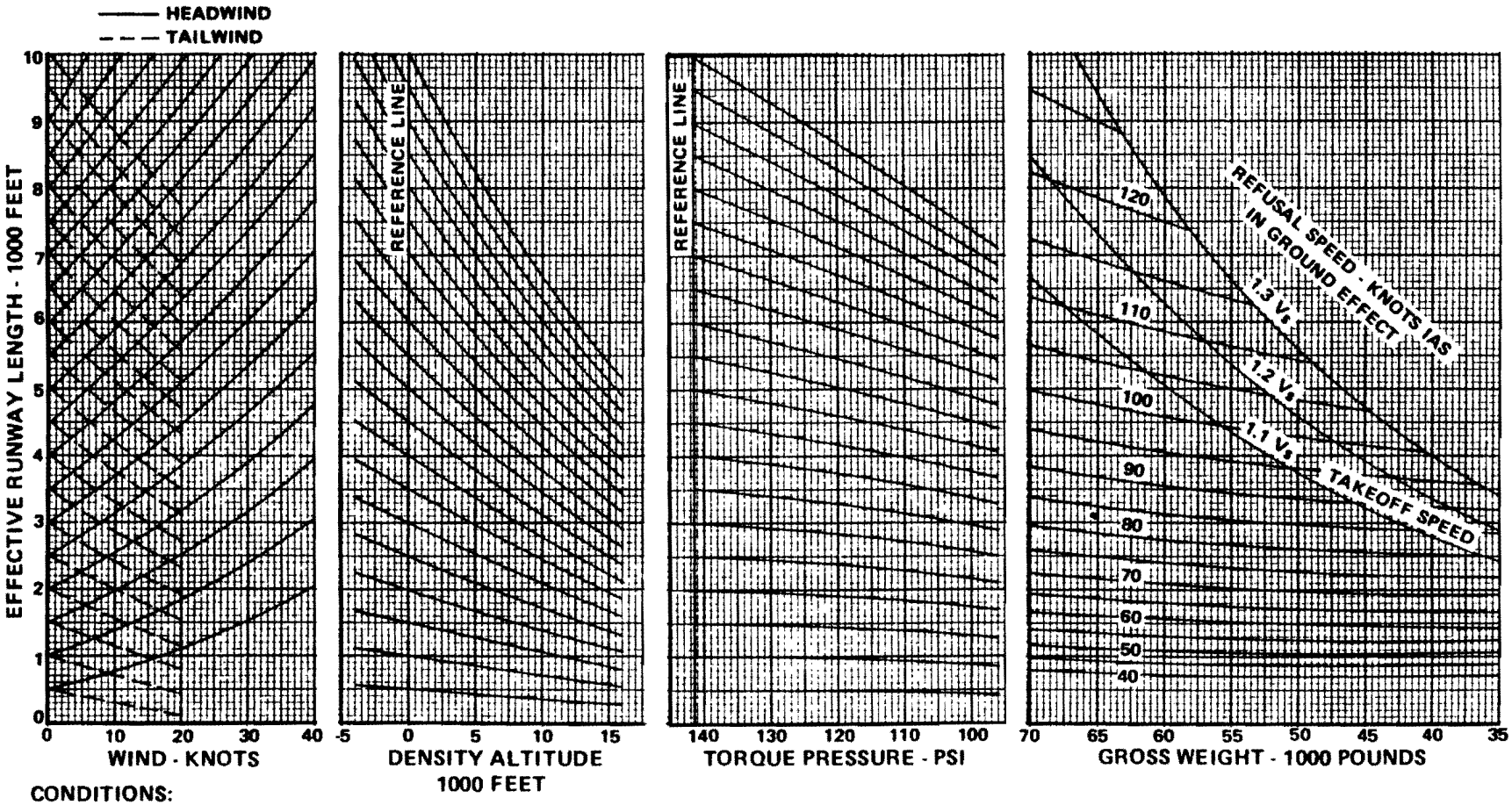


Figure A3-45.

CONDITIONS:

1. R2800-99W engines - maximum power applied prior to brake release, 2800 RPM, rich mixture (see note)
2. J85-GE-17 engines - not operating
3. Effective runway length equals actual runway length corrected for slope/RCR/RSC
4. Brakes only for aborted takeoff, both propellers windmilling

NOTE:

FOR RECIPROCATING ENGINES OPERATING AT OTHER THAN 2800 RPM, SEE REFUSAL SPEED TEXT, THIS SECTION.

MODEL: C-123K, UC-123K

TAKEOFF ACCELERATION
DISTANCE DURING TAKEOFF GROUND RUN

ENGINES: R2800-99W (2)
PROPELLERS: 43E60-607
MAXIMUM POWER
WITH OR WITHOUT JET THRUST
WING FLAPS UP OR TAKEOFF

DATA AS OF: SEPTEMBER 15, 1973
DATA BASIS: FLIGHT TEST

FUEL GRADE: 100/130
FUEL DENSITY: 6 LB/GAL

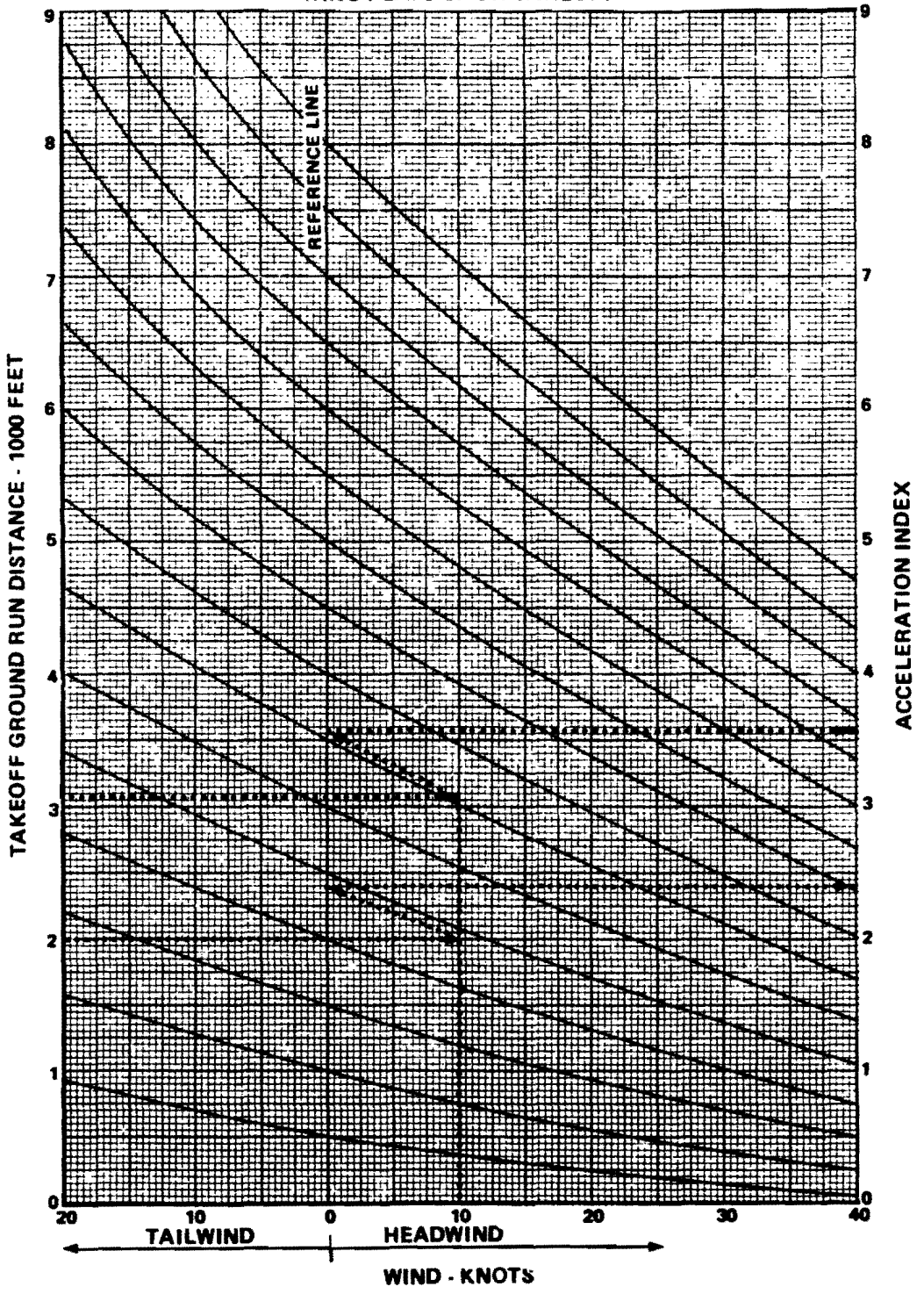


Figure A3-46 (Sheet 1 of 2).

MODEL: C-123K, UC-123K

TAKEOFF ACCELERATION DISTANCE DURING TAKEOFF GROUND RUN

ENGINES: R2800-99W (2)
PROPELLERS: 43E60-607
MAXIMUM POWER
WITH OR WITHOUT JET THRUST
WING FLAPS UP OR TAKEOFF

DATA AS OF: SEPTEMBER 15, 1973
DATA BASIS: FLIGHT TEST

FUEL GRADE: 100/130
FUEL DENSITY: 6 LB/GAL

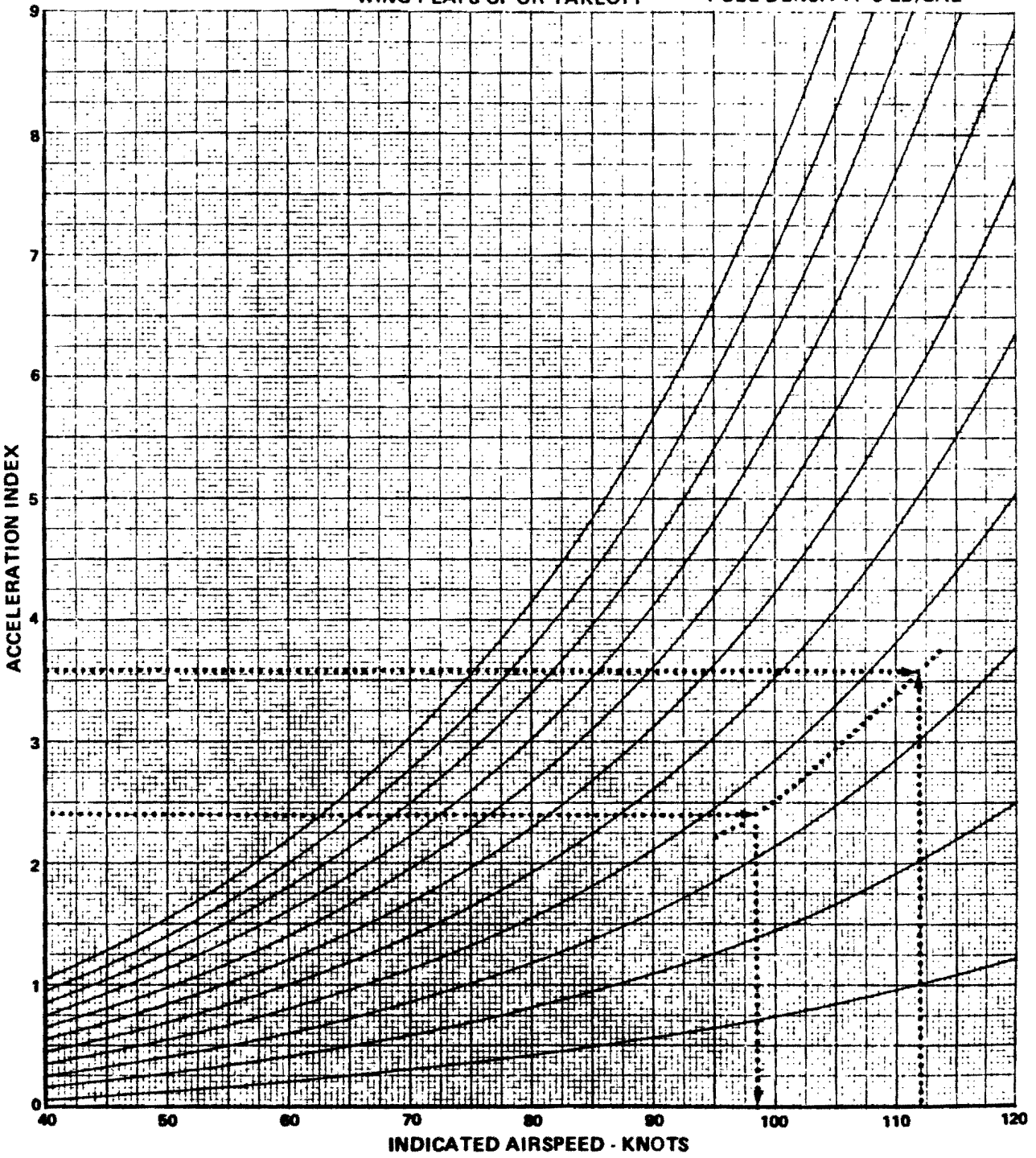


Figure A3-46 (Sheet 2 of 2).

MODEL: C-123K, UC-123K

TAKEOFF ACCELERATION
TIME DURING TAKEOFF GROUND RUN

ENGINES: R2800-99W (2)
PROPELLERS: 43E60-607
MAXIMUM POWER
WITH OR WITHOUT JET THRUST
WING FLAPS UP OR TAKEOFF

DATA AS OF: SEPTEMBER 15, 1973
DATA BASIS: FLIGHT TEST

FUEL GRADE: 100/130
FUEL DENSITY: 6 LB/GAL

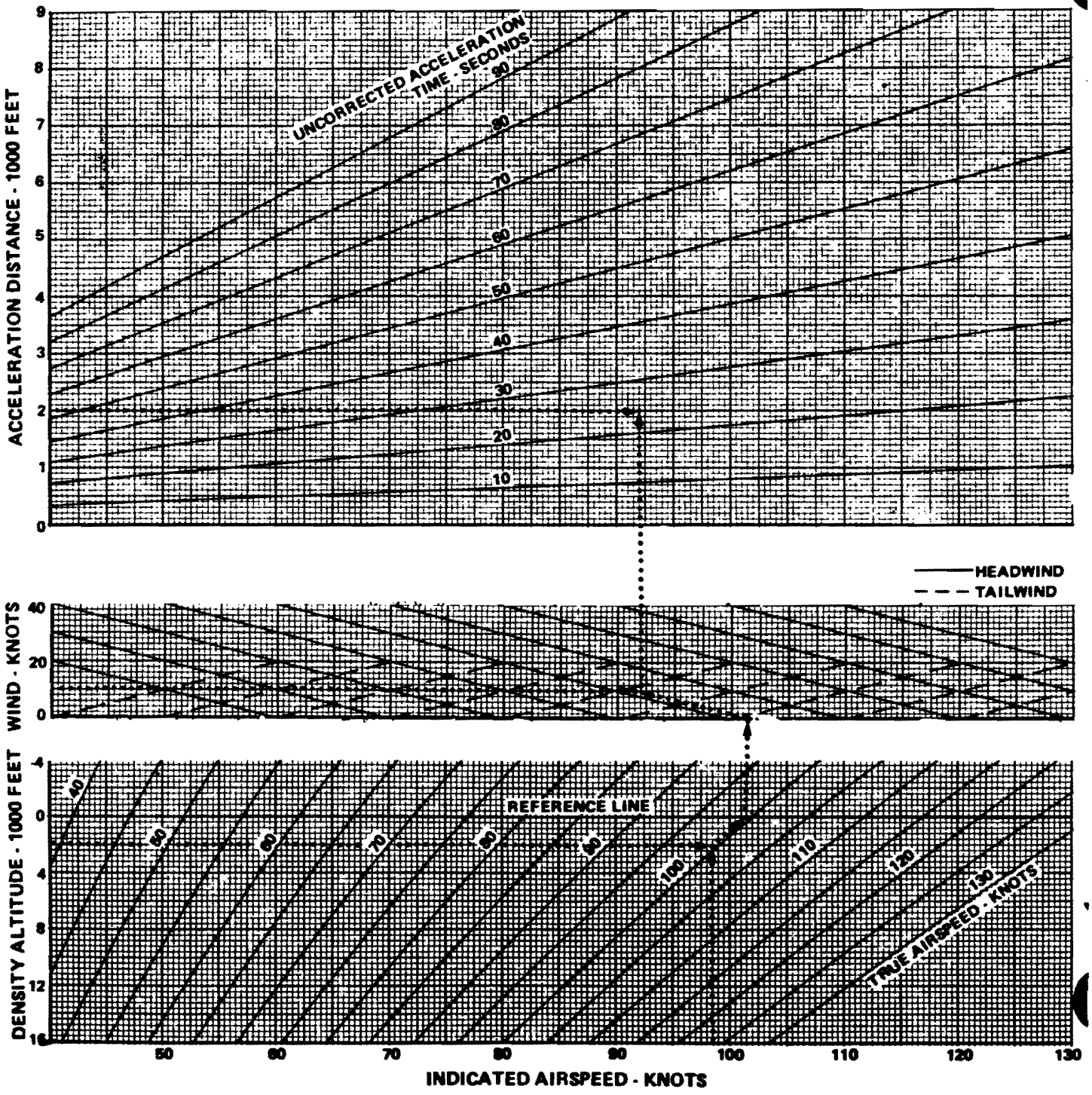


Figure A3-47 (Sheet 1 of 2)

MODEL: C-123K, UC-123K

TAKEOFF ACCELERATION
TIME DURING TAKEOFF GROUND RUN

ENGINES: R2800-99W (2)
PROPELLERS: 43E60-607
MAXIMUM POWER
WITH OR WITHOUT JET THRUST
WING FLAPS UP OR TAKEOFF

DATA AS OF: SEPTEMBER 15, 1973
DATA BASIS: FLIGHT TEST

FUEL GRADE: 100/130
FUEL DENSITY: 6 LB/GAL

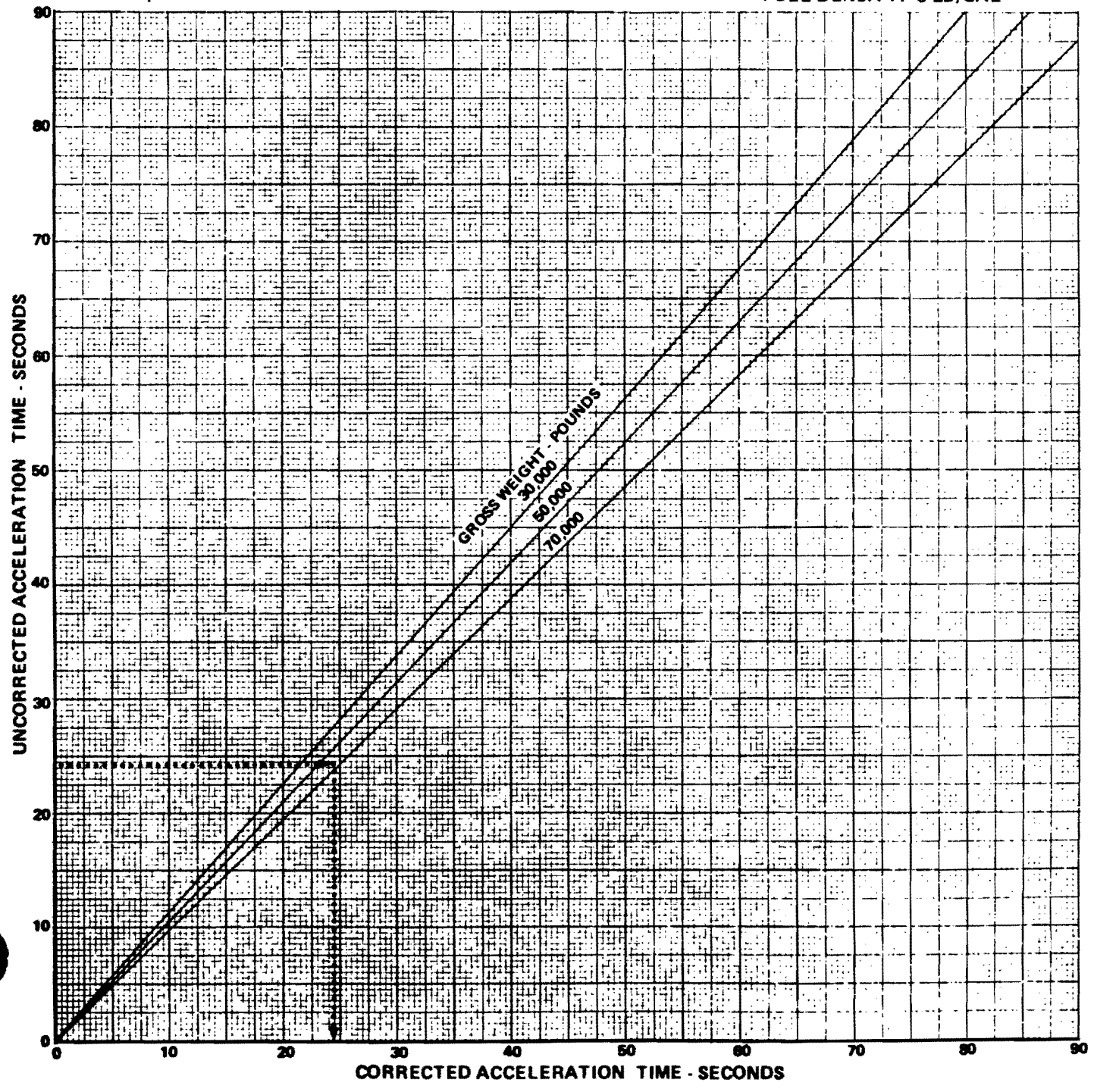


Figure A3-47 (Sheet 2 of 2).

MODEL: C-123K

CLIMBOUT FLIGHT PATH

ENGINES: R2800-99W (2), J85-GE-17 (2)
PROPELLERS: 43E60-607
MAXIMUM POWER
WITH JET THRUST

DATA AS OF: SEPTEMBER 15, 1973
DATA BASIS: FLIGHT TEST

FUEL GRADE: 100/130
JEL DENSITY: 6 LB/GAL

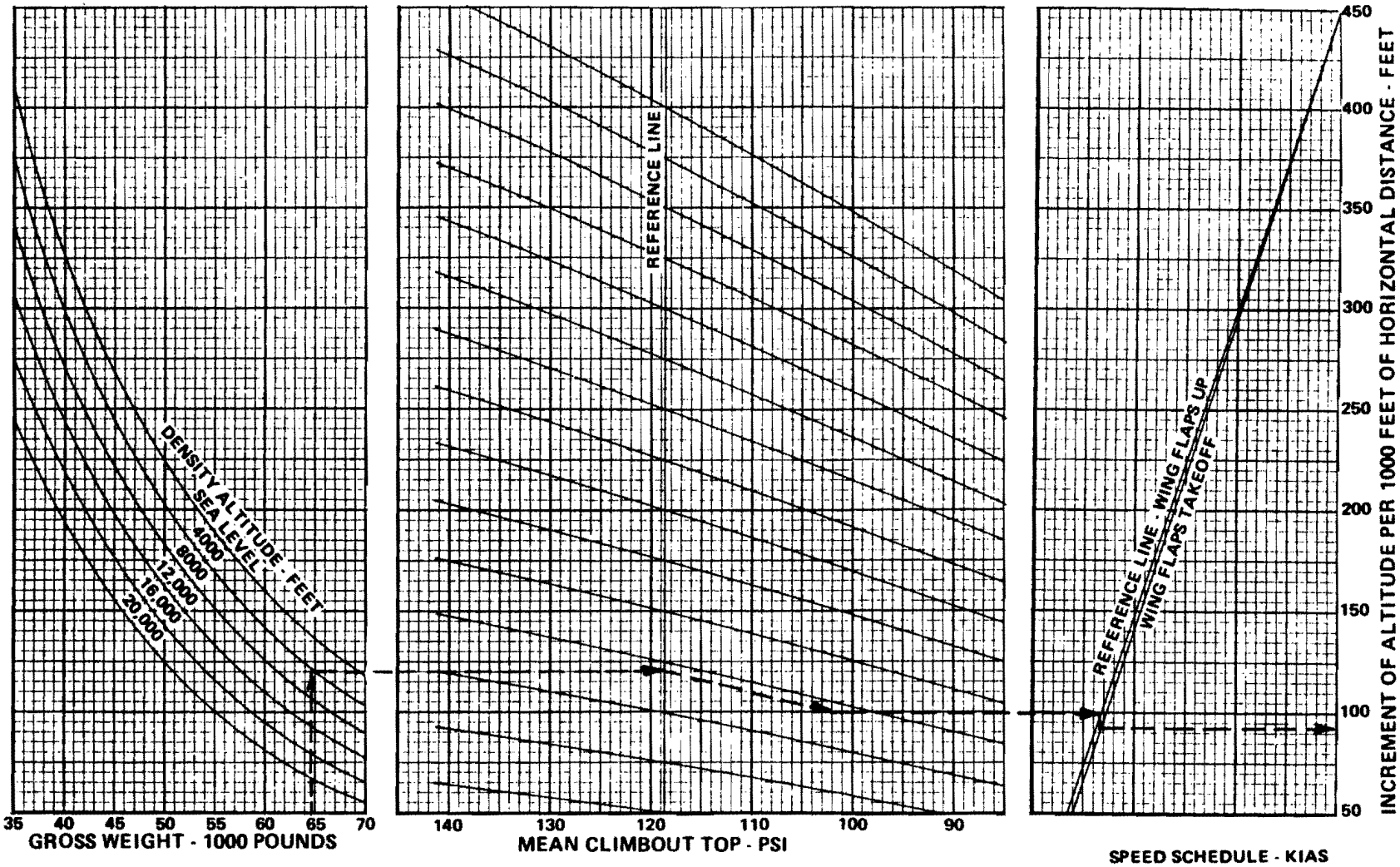


Figure A3-48.

CONDITIONS:

1. R2800-99W engines - 2800 RPM, rich mixture (see note)
2. J85-GE-17 engines - 100% RPM
3. Speed: 1.2 V_S zero thrust
4. Landing gear up.
5. Cowl flaps - as required

NOTE:

FOR RECIPROCATING ENGINES OPERATING AT OTHER THAN 2800 RPM, SEE CLIMBOUT FLIGHT PATH TEXT, THIS SECTION.

SPEED SCHEDULE - KIAS

FLAP SETTING	GROSS WEIGHT - 1000 POUNDS							
	35	40	45	50	55	60	65	70
UP	93	100	106	112	117	123	128	133
TAKEOFF	85	91	96	101	106	111	115	120

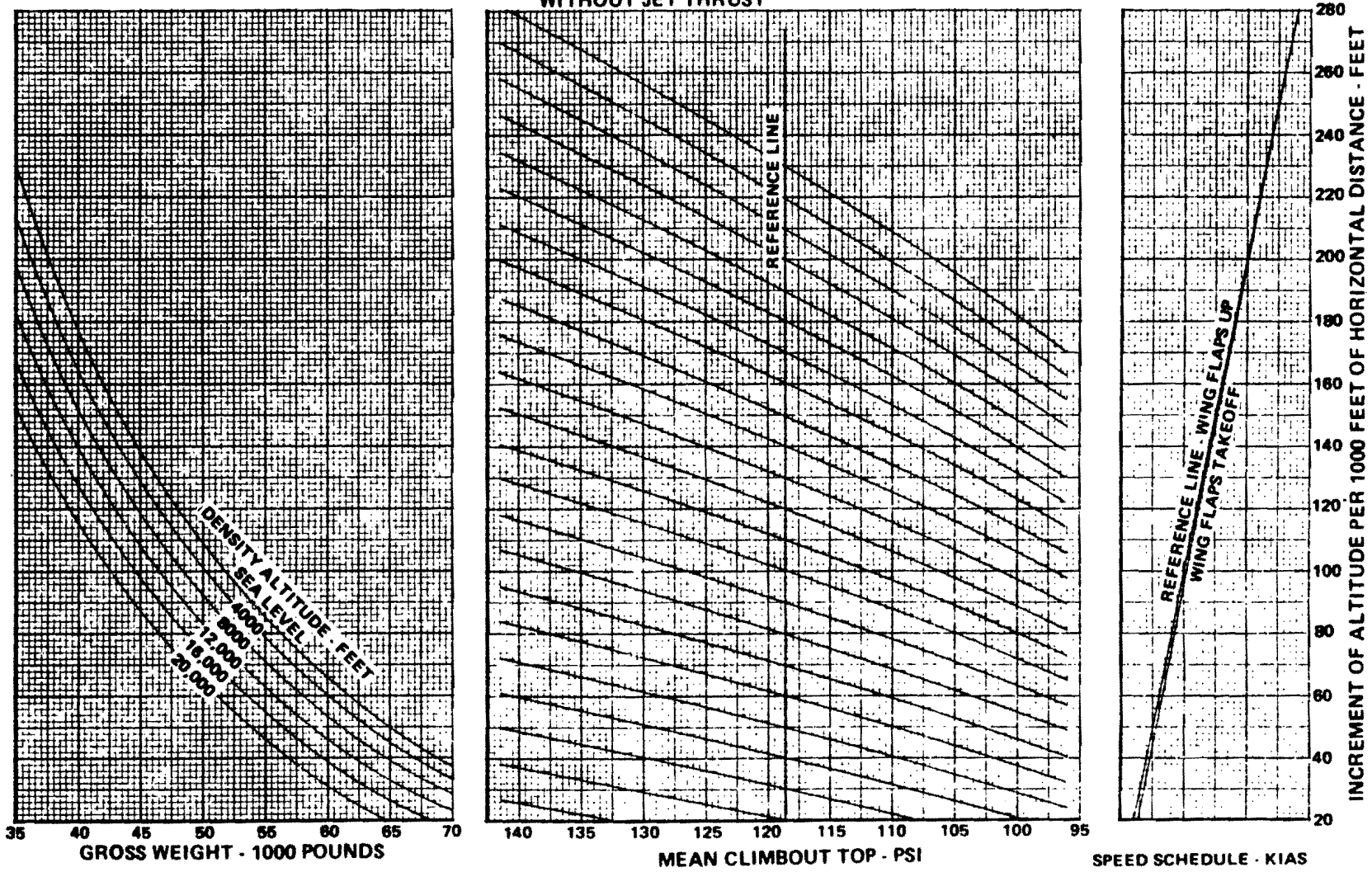
MODEL:C-123K

CLIMBOUT FLIGHT PATH

ENGINES: R2800-99W (2)
PROPELLERS: 43E60-607
MAXIMUM POWER
WITHOUT JET THRUST

DATA AS OF: SEPTEMBER 15, 1973
DATA BASIS: FLIGHT TEST

FUEL GRADE: 100/130
FUEL DENSITY: 6 LB/GAL



CONDITIONS:

1. R2800-99W engines - 2800 RPM, rich mixture (see note)
2. J85-GE-17 engines - not operating
3. Speed: 1.2 V_S zero thrust
4. Landing gear up.
5. Cowl flaps - as required

NOTE:

FOR RECIPROCATING ENGINES OPERATING AT OTHER THAN 2800 RPM, SEE CLIMBOUT FLIGHT PATH TEXT, THIS SECTION.

SPEED SCHEDULE - KIAS

FLAP SETTING	GROSS WEIGHT - 1000 POUNDS							
	35	40	45	50	55	60	65	70
UP	93	100	106	112	117	123	128	133
TAKEOFF	85	91	96	101	106	111	115	120

Figure A3-49.

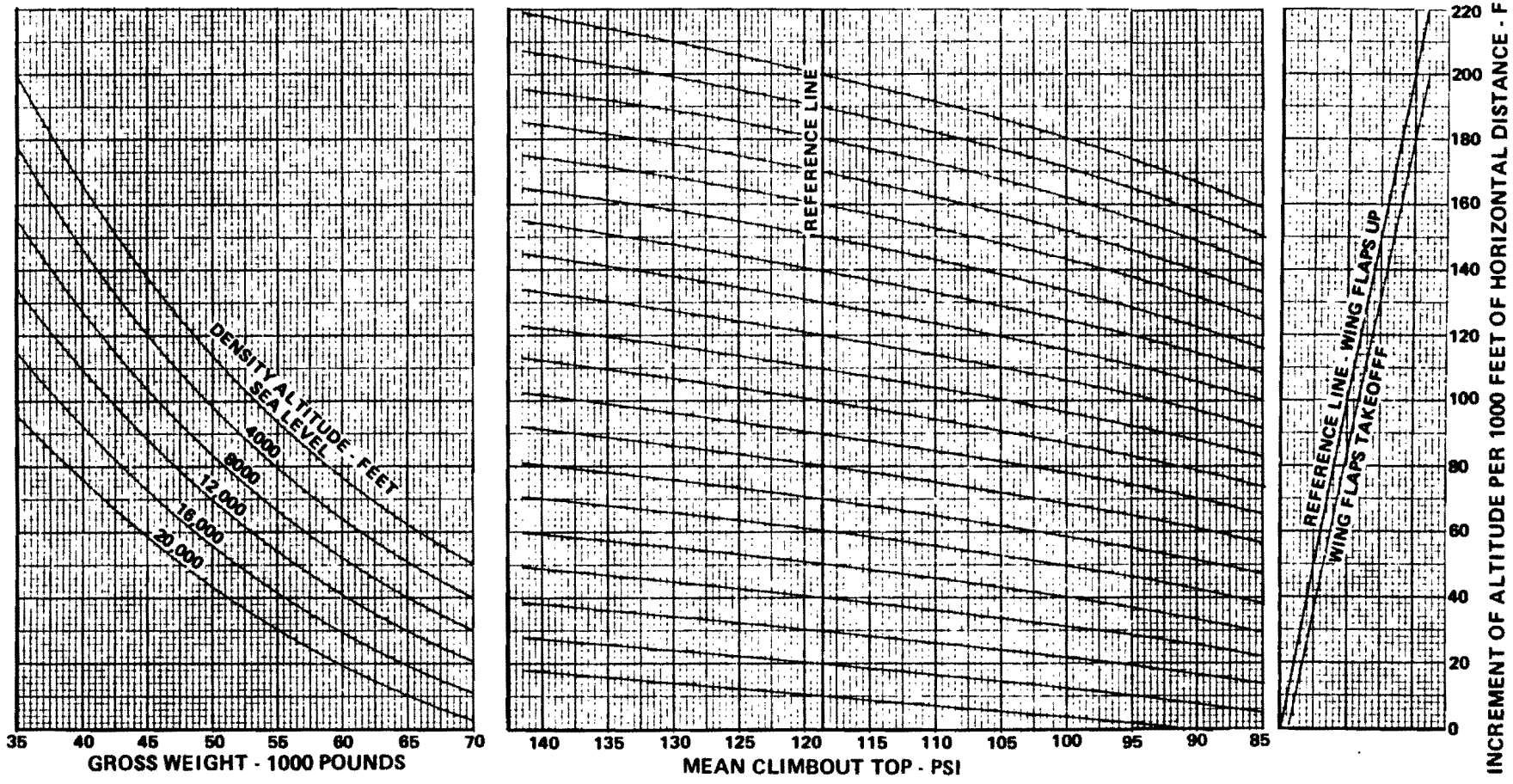
MODEL: C-123K

CLIMBOUT FLIGHT PATH

ENGINES: R2800-99W (1), J85-GE-17 (2)
PROPELLERS: 43E60-607
MAXIMUM POWER
WITH JET THRUST

DATA AS OF: SEPTEMBER 15, 1973
DATA BASIS: FLIGHT TEST

FUEL GRADE: 100/130
FUEL DENSITY: 6 LB/GAL



CONDITIONS:

1. R2800-99W engine - 2800 RPM, rich mixture (see note)
2. J85-GE-17 engines - 100% RPM
3. Speed: Greater of 1.2 V_S zero thrust or 107 KIAS
4. Landing gear up.
5. Propeller feathered and cowl flaps closed on inoperative engine. Cowl flaps - as required on operative engine.

NOTE:

FOR RECIPROCATING ENGINES OPERATING AT OTHER THAN 2800 RPM, SEE CLIMBOUT FLIGHT PATH TEXT, THIS SECTION.

SPEED SCHEDULE - KIAS

FLAP SETTING	GROSS WEIGHT - 1000 POUNDS							
	35	40	45	50	55	60	65	70
UP	107	107	107	112	117	123	128	133
TAKEOFF	107	107	107	107	107	111	115	120

Figure A3-50.

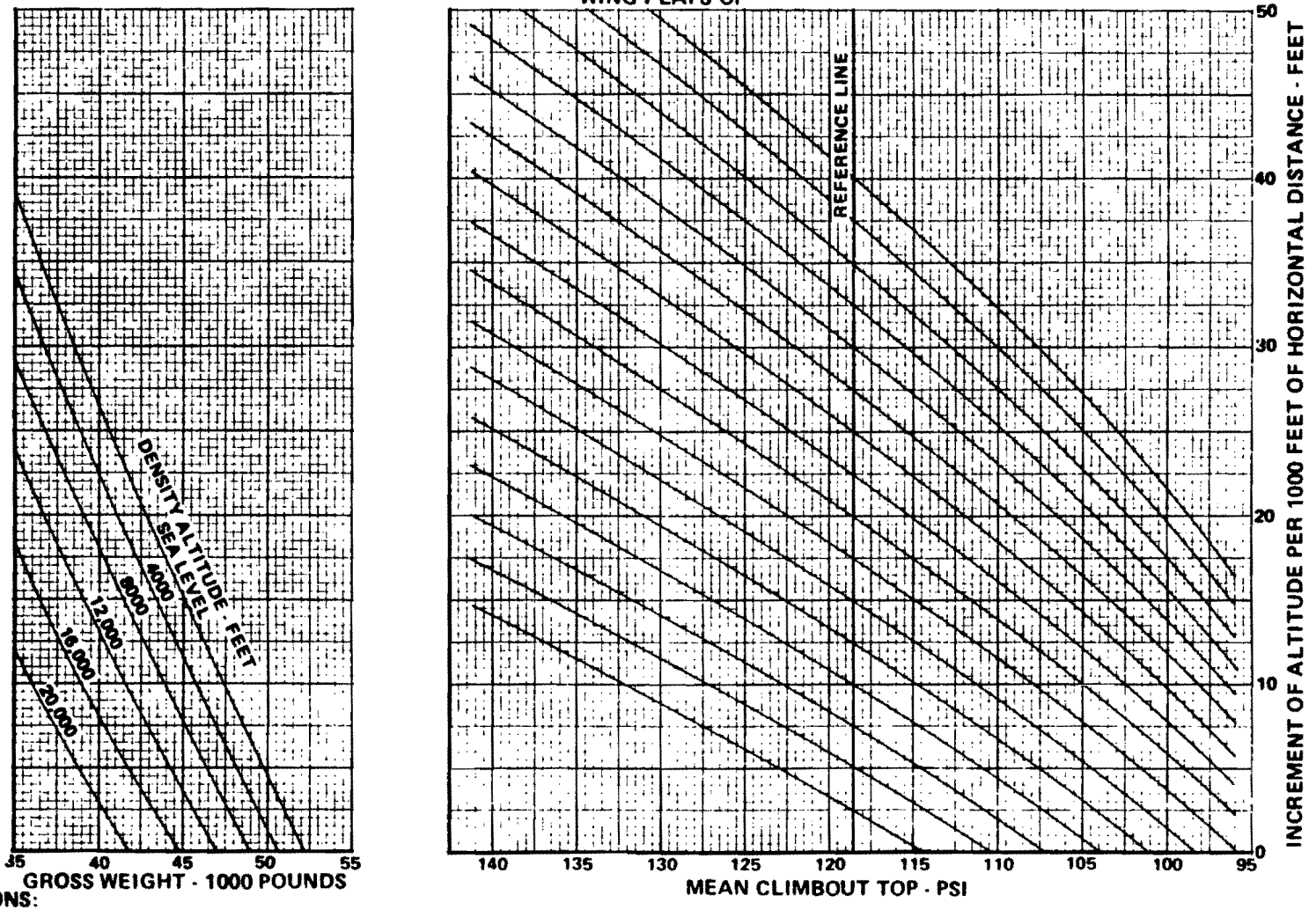
MODEL: C-123K

CLIMBOUT FLIGHT PATH

ENGINES: R2800-99W (1)
PROPELLERS: 43E60-607
MAXIMUM POWER
WITHOUT JET THRUST
WING FLAPS UP

DATA AS OF: SEPTEMBER 15, 1973
DATA BASIS: FLIGHT TEST

FUEL GRADE: 100/130
FUEL DENSITY: 6 LB/GAL



CONDITIONS:

1. R2800-99W engine - 2800 RPM, rich mixture (see note).
2. J85-GE-17 engines - not operating
3. Speed: Greater of 1.2 V_S zero thrust or 107 KIAS
4. Landing gear and wing flaps - Up
5. Propeller feathered and cowl flaps closed on inoperative engine. Cowl flaps - as required on operetive engine.

NOTE:
FOR RECIPROCATING ENGINES OPERATING AT OTHER THAN 2800 RPM, SEE CLIMBOUT FLIGHT PATH TEXT, THIS SECTION.

SPEED SCHEDULE - KIAS

FLAP SETTING	GROSS WEIGHT - 1000 POUNDS							
	35	40	45	50	55	60	65	70
UP	107	107	107	112	117	123	128	133
TAKEOFF	107	107	107	107	107	111	115	120

Figure A3-51.

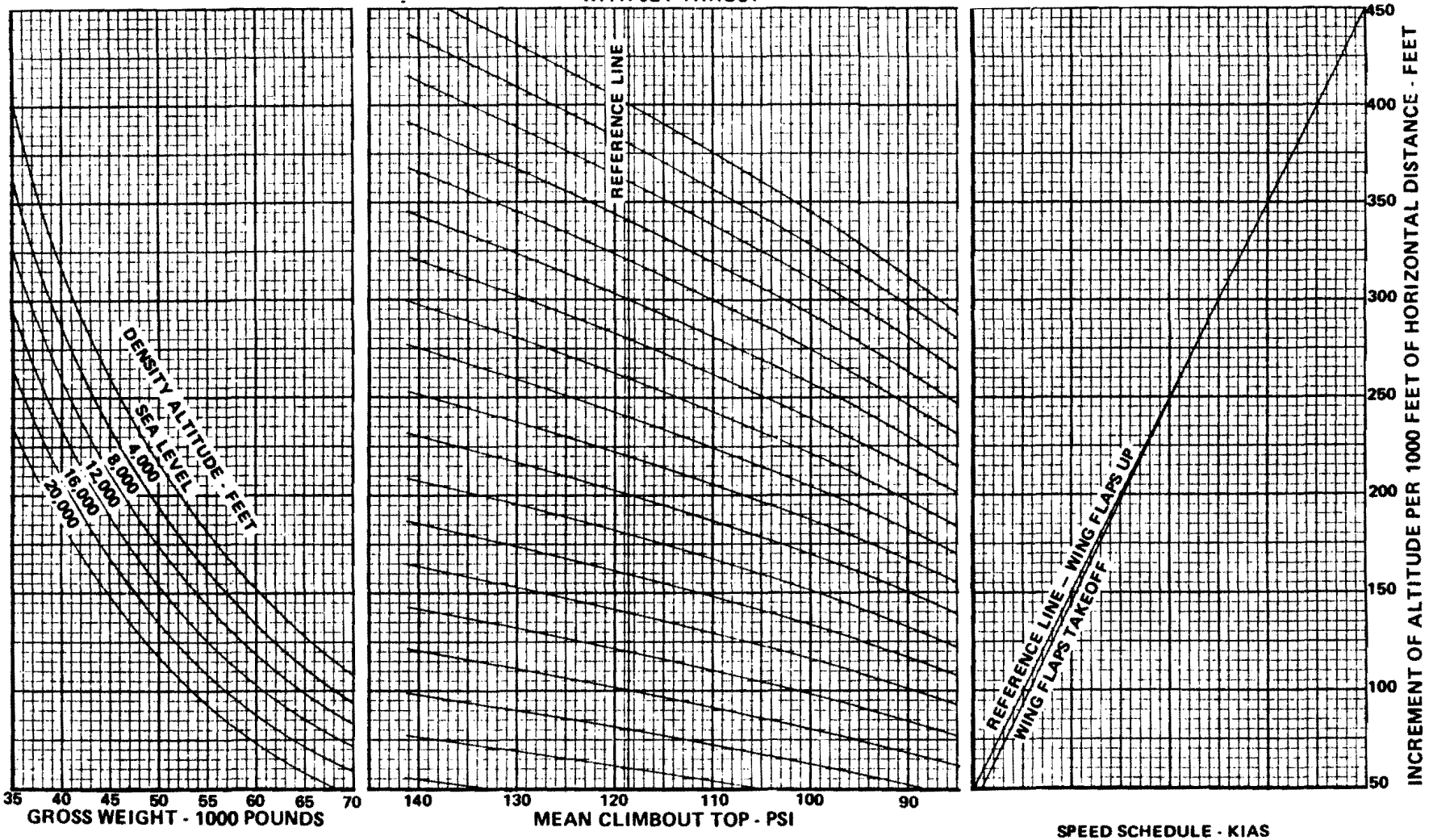
MODEL: UC-123K

CLIMBOUT FLIGHT PATH

ENGINES: R2800-99W (2), J85-GE-17 (2)
PROPELLERS: 43E60-607
MAXIMUM POWER
WITH JET THRUST

DATA AS OF: SEPTEMBER 15, 1973
DATA BASIS: FLIGHT TEST

FUEL GRADE: 100/130
FUEL DENSITY: 6 LB/GAL



CONDITIONS:

1. R2800-99W engines - 2800 RPM, rich mixture (see note)
2. J85-GE-17 engines - 100% RPM
3. Speed: 1.2 V_S zero thrust
4. Landing gear up.
5. Cowl flaps - as required

NOTE:

FOR RECIPROCATING ENGINES OPERATING AT OTHER THAN 2800 RPM, SEE CLIMBOUT FLIGHT PATH TEXT, THIS SECTION.

SPEED SCHEDULE - KIAS

FLAP SETTING	GROSS WEIGHT - 1000 POUNDS							
	35	40	45	50	55	60	65	70
UP	93	100	106	112	117	123	128	133
TAKEOFF	85	91	96	101	106	111	115	120

Figure A3-52.

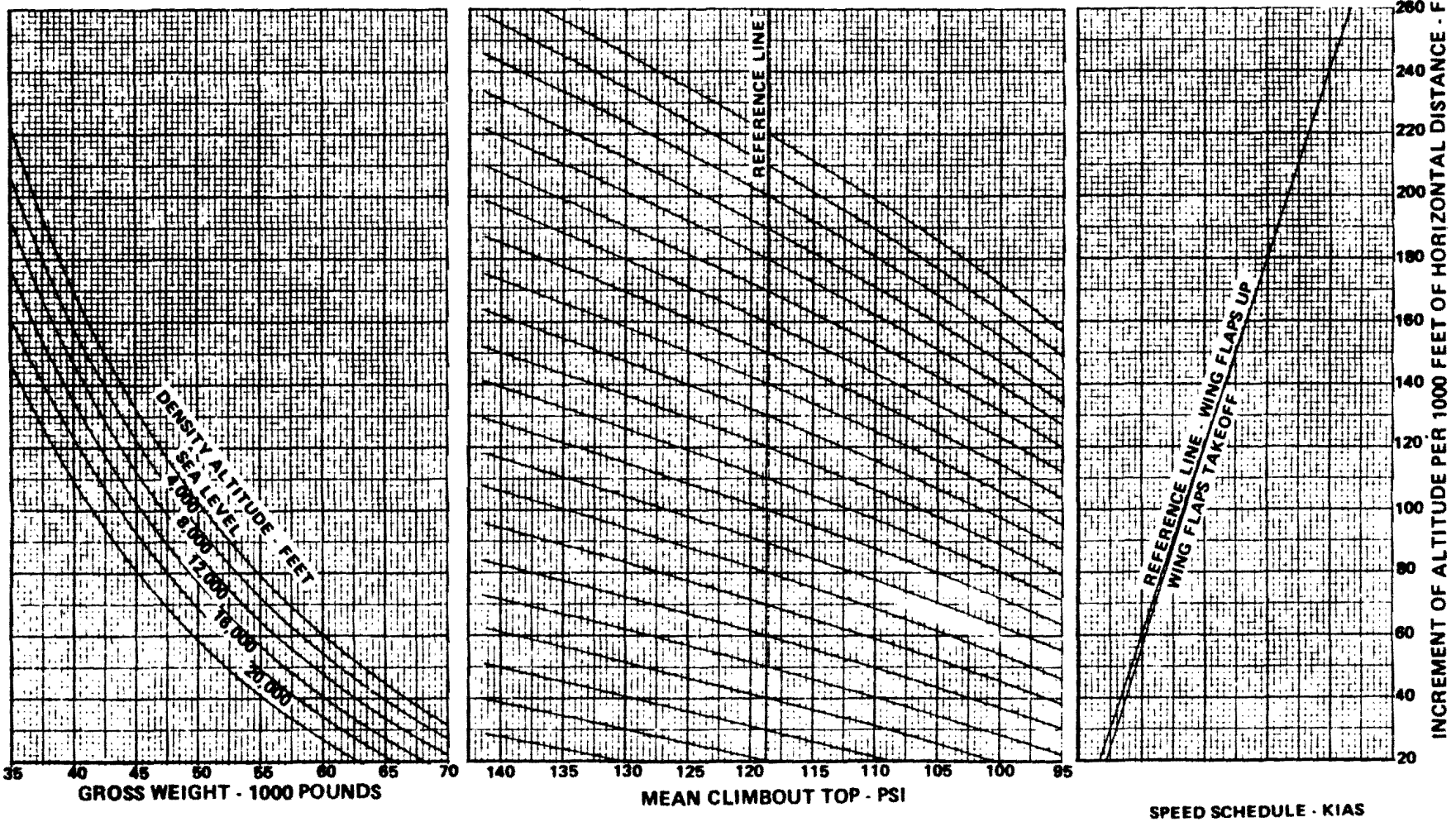
MODEL: UC-123K

CLIMBOUT FLIGHT PATH

ENGINES: R2800-99W (2)
PROPELLERS: 43E60-607
MAXIMUM POWER
WITHOUT JET THRUST

DATA AS OF: SEPTEMBER 15, 1973
DATA BASIS: FLIGHT TEST

FUEL GRADE: 100/130
FUEL DENSITY: 6 LB/GAL



CONDITIONS:

1. R2800-99W engines - 2800 RPM, rich mixture (see note)
2. J85-GE-17 engines - not operating
3. Speed: 1.2 V_S zero thrust
4. Landing gear up.
5. Cowl flaps - as required

NOTE:

FOR RECIPROCATING ENGINES OPERATING AT OTHER THAN 2800 RPM, SEE CLIMBOUT FLIGHT PATH TEXT, THIS SECTION.

SPEED SCHEDULE - KIAS

FLAP SETTING	GROSS WEIGHT - 1000 POUNDS							
	35	40	45	50	55	60	65	70
UP	93	100	106	112	117	123	128	133
TAKEOFF	85	91	96	101	106	111	115	120

Figure A3-53.

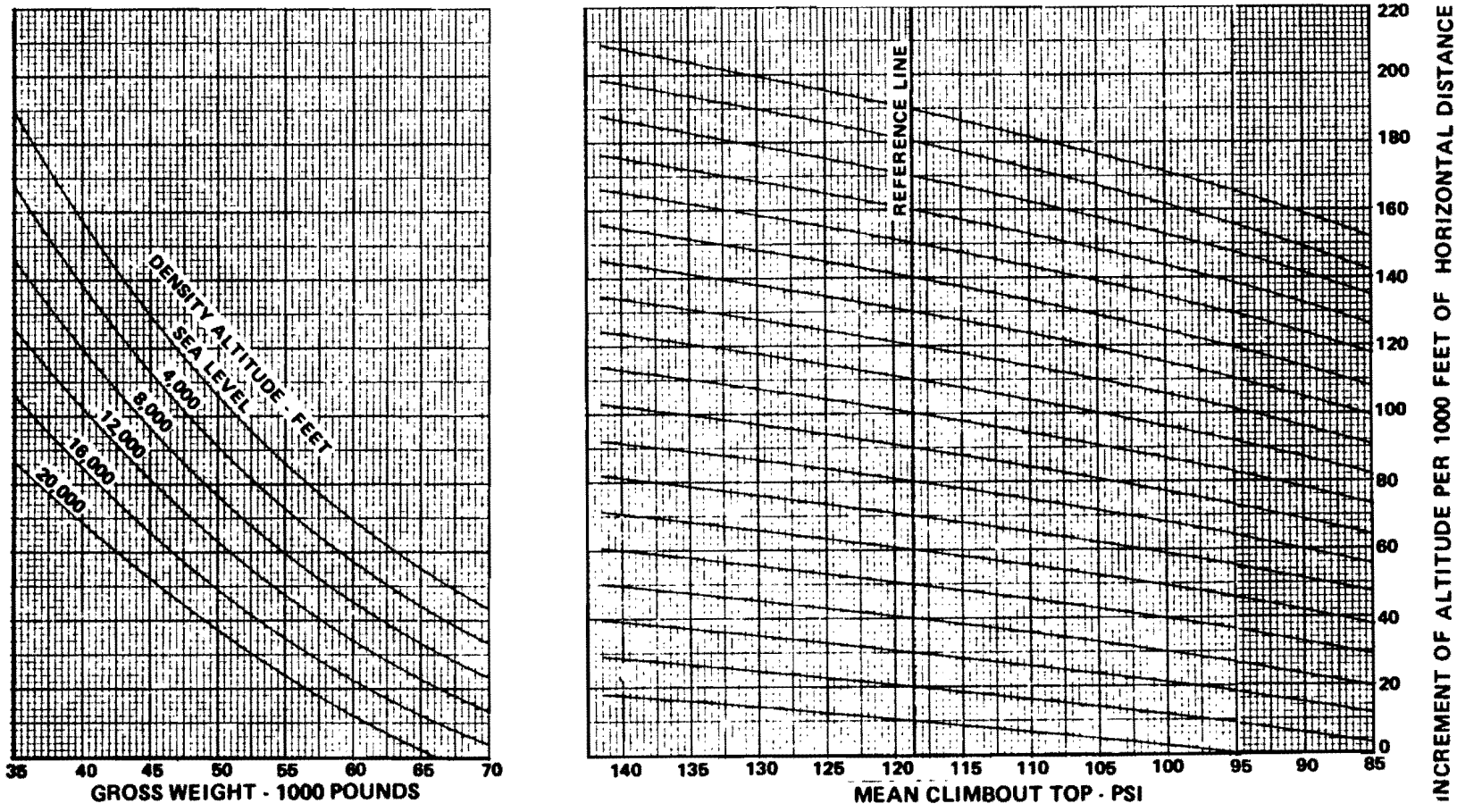
MODEL: UC-123K

CLIMBOUT FLIGHT PATH

ENGINES: R2800-99W (1), J85-GE-17 (2)
PROPELLERS: 43E60-607
MAXIMUM POWER
WITH JET THRUST
WING FLAPS UP

DATA AS OF: SEPTEMBER 15, 1973
DATA BASIS: FLIGHT TEST

FUEL GRADE: 100/130
FUEL DENSITY: 6 LB/GAL



CONDITIONS:

1. R2800-99W engine - 2800 RPM, rich mixture (see note)
2. J85-GE-17 engines - 100% RPM
3. Speed: Greater of 1.2 V_S zero thrust or 107 KIAS
4. Landing gear up.
5. Propeller feathered and cowl flaps closed on inoperative engine. Cowl flaps - as required on operative engine.

NOTE:

FOR RECIPROCATING ENGINES OPERATING AT OTHER THAN 2800 RPM, SEE CLIMBOUT FLIGHT PATH TEXT, THIS SECTION.

SPEED SCHEDULE - KIAS

FLAP SETTING	GROSS WEIGHT - 1000 POUNDS							
	35	40	45	50	55	60	65	70
UP	107	107	107	112	117	123	128	133

Figure A3-54.

MODEL: UC-123K

CLIMBOUT FLIGHT PATH

ENGINES: R2800-99W (1), J85-GE-17 (2)
PROPELLERS: 43E60-607
MAXIMUM POWER
WITH JET THRUST
WING FLAPS TAKEOFF

DATA AS OF: SEPTEMBER 15, 1973
DATA BASIS: FLIGHT TEST

FUEL GRADE: 100/130
FUEL DENSITY: 6 LB/GAL

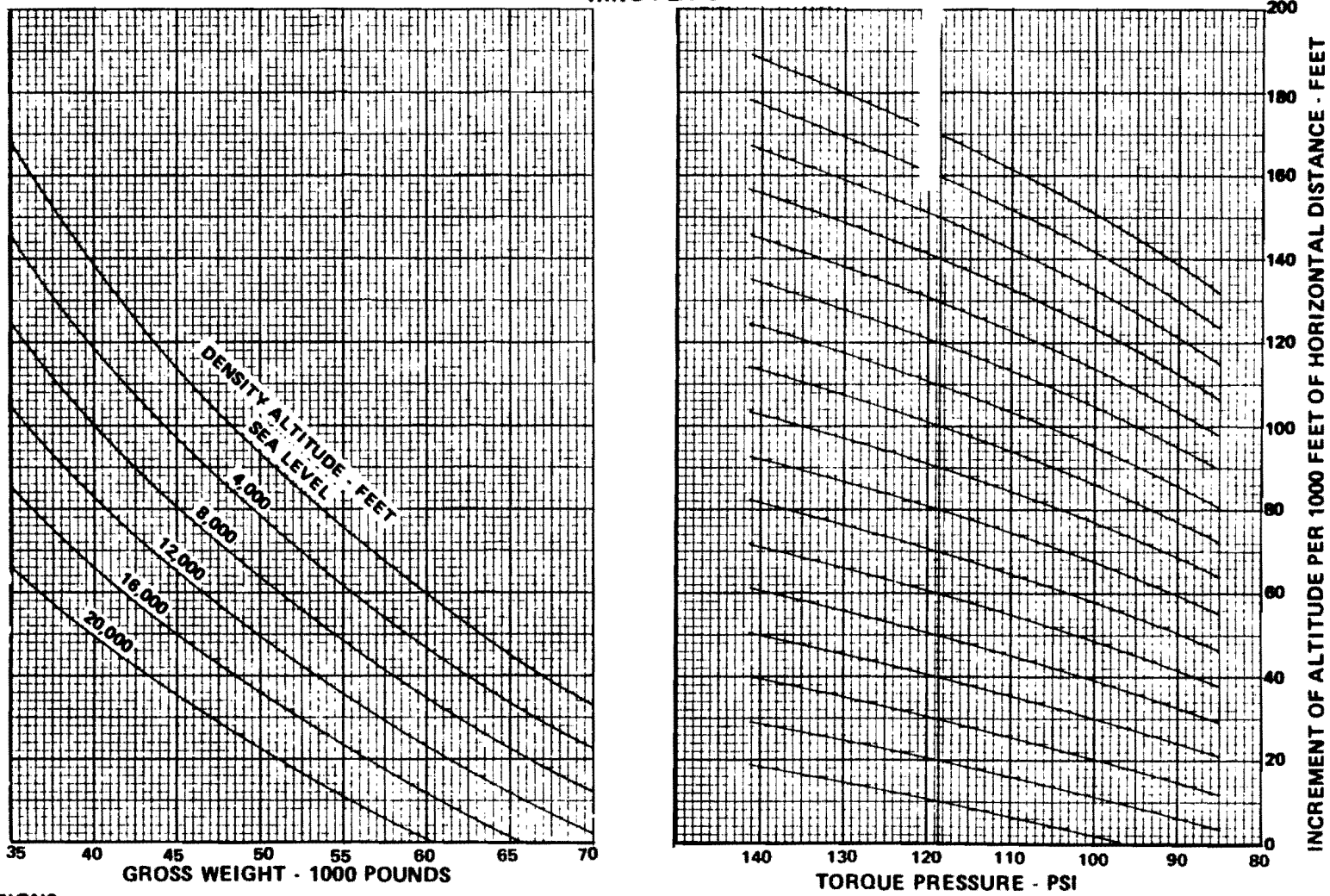


Figure A3-55.

CONDITIONS:

1. R2800-99W engine - 2800 RPM, rich mixture (see note)
2. J85-GE-17 engines - 100% RPM
3. Speed: Greater of 1.2 V_S zero thrust or 107 KIAS
4. Landing gear up.
5. Propeller feathered and cowl flaps closed on inoperative engine. Cowl flaps - as required on operative engine.

NOTE:

FOR RECIPROCATING ENGINES OPERATING AT OTHER THAN 2800 RPM, SEE CLIMBOUT FLIGHT PATH TEXT, THIS SECTION.

SPEED SCHEDULE - KIAS

FLAP SETTING	GROSS WEIGHT - 1000 POUNDS							
	35	40	45	50	55	60	65	70
TAKEOFF	107	107	107	107	107	111	115	120

MODEL: UC-123K

CLIMBOUT FLIGHT PATH

ENGINES: R2800-99W (1)
PROPELLERS: 43E60-607
MAXIMUM POWER
WITHOUT JET THRUST
WING FLAPS UP

DATA AS OF: SEPTEMBER 15, 1973
DATA BASIS: FLIGHT TEST

FUEL GRADE: 100/130
FUEL DENSITY: 6 LB/GAL

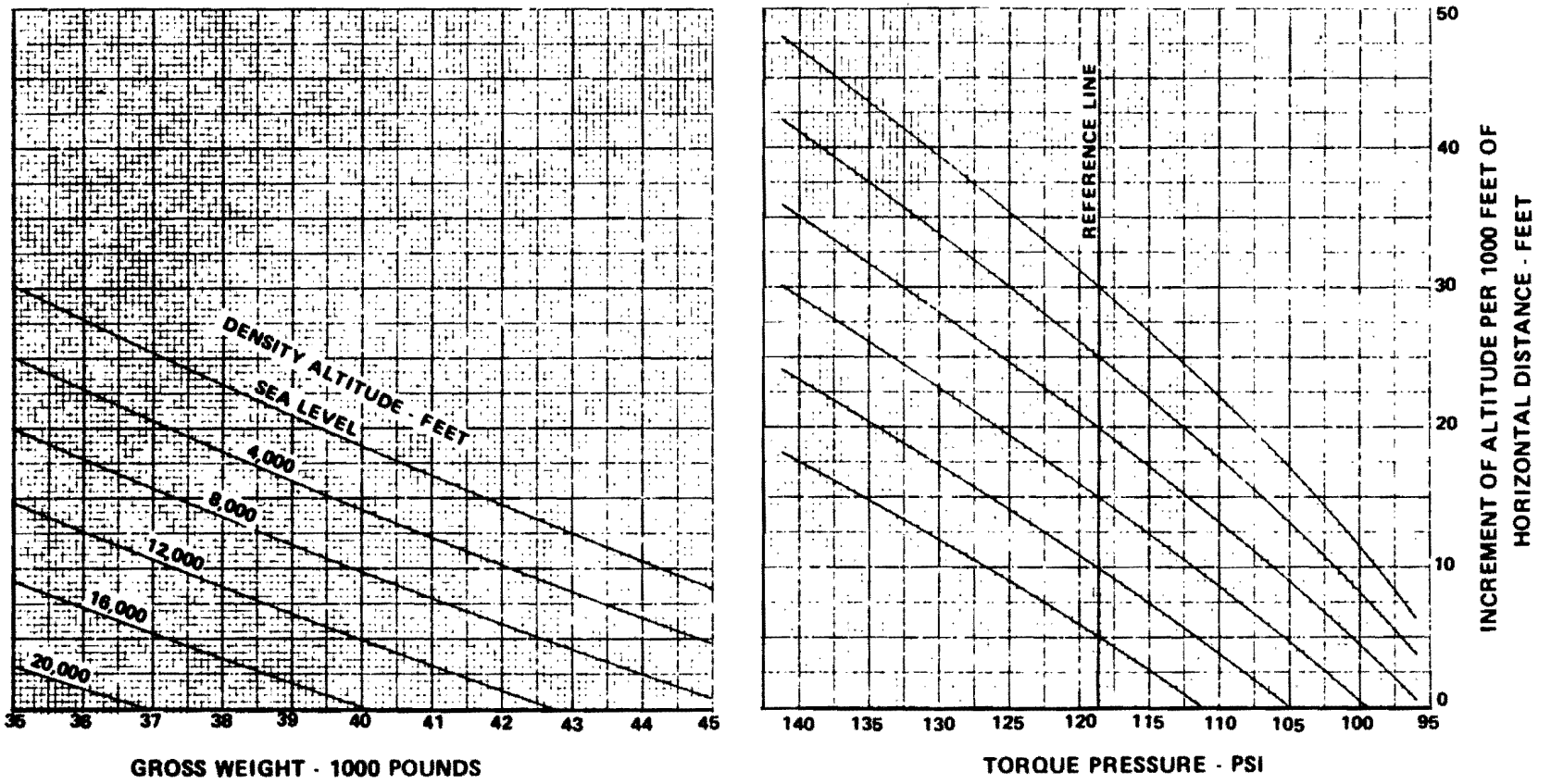


Figure A3-56.

CONDITIONS:

1. R2800-99W engine - 2800 RPM, rich mixture (see note).
2. J85-GE-17 engines - not operating
3. Speed: Greater of 1.2 V_S zero thrust or 107 KIAS
4. Landing gear and wing flaps - Up
5. Propeller feathered and cowl flaps closed on inoperative engine. Cowl flaps - as required on operative engine.

NOTE:

FOR RECIPROCATING ENGINES OPERATING AT OTHER THAN 2800 RPM, SEE CLIMBOUT FLIGHT PATH TEXT, THIS SECTION.

SPEED SCHEDULE - KIAS

FLAP SETTING	GROSS WEIGHT - 1000 POUNDS							
	35	40	45	50	55	60	65	70
UP	107	107	107	112	117	123	128	133

CLIMB DATA

part 4

table of contents

CLIMB DATA.

Because of the effects of drag on climb performance, separate charts are presented for the C-123K and the UC-123K.

Climb At METO Power.
(Figures A4-1 through A4-9)

Climbs At METO Power At 140 KIAS for two reciprocating engine operation with jet thrust or 130 KIAS for all other configurations are presented to determine the distance travelled in climb, time to climb and fuel used in climb under Standard Day conditions.

NOTE

The altitude lines may be used as either pressure or density altitude for standard day conditions. For non-standard day conditions, use the greater of the two.

The charts are based on operation with drop tanks on, with or without jet thrust, and drop tanks off, with or without jet thrust. A cruise ceiling (300 fpm rate of climb) line is presented where it occurs within the scope of the chart. The charts are entered with gross weight and altitude at the start of climb and altitude at the completion of climb. The distance travelled in climb is given in air nautical miles. Under no wind conditions, this is the same as the distance covered over the ground. With headwinds, the ground distance covered will be less; with tailwinds, more than the indicated value. Data derived from these charts are simply modified to the prevailing wind condition by the following expression:

$$\text{Ground Distance in Climb} = \text{Air Distance in Climb} \times \frac{GS}{TAS}$$

where ground speed (GS) is true airspeed (TAS) minus the headwind or plus the tailwind.

Use Of The Charts.

Select the appropriate chart and enter the gross weight scale at the bottom of the chart with the gross weight anticipated for the start of the climb. Read vertically upward to the altitude at the start of the climb, letting the base line represent sea level. An approximate visual interpolation may be necessary since altitude lines are plotted at intervals of 5,000 feet. At this point, record the time, visually interpolating between the time lines as necessary. Reading horizontally to the left, record the distance from the scale on the edge of the chart. Starting again from the point of intersection of the gross weight line and the altitude line at the start of climb, follow along or parallel to the weight reduction guide lines upward to the altitude at the end of the climb. From this point, again record the time and distance. Drop vertically to the gross weight scale at the bottom. The fuel used during the climb is represented by the difference between the gross weights at the beginning and completion of climb; the distance travelled is the difference between the two recorded points on the distance scale; and the time elapsed during the climb is the difference between the two recorded times. The charts are based on a constant IAS, either 130 or 140 knots.

Example.

GIVEN: climb from sea level pressure altitude (900 feet density altitude) to 4,200 feet pressure altitude (5,000 feet density altitude) with a gross weight at the start of the climb of 57,000 pounds. The landing gear and wing flaps are up, drop tanks are ON, METO power on both reciprocating engines and jets at 100% RPM.

FIND: fuel used during climb, distance covered during climb and time required to climb.

1. Select figure A4-1 for this problem. Since the values of density altitude are greater than those for pressure altitude, the performance is evaluated in terms of density altitude.

2. Note that 140 knots is the recommended indicated airspeed. Fly this airspeed during the climb.

3. Enter the gross weight scale at the bottom of the chart with 57,000 pounds and proceed vertically upward to the 900-foot density altitude.

4. From this point read the initiating distance of 1.2 air nautical miles from the scale at the left and the initiating time of 0.5 minutes by interpolating between the time lines as necessary.

5. Returning to the point of intersection of starting gross weight and starting altitude, follow along or parallel to the weight reduction guide lines upward and to the right until the 5,000-foot altitude line is intersected.

6. From this point read the final distance of 6.6 air nautical miles from the scale at the left and the final time of 2.7 minutes by interpolating between the time lines as necessary.

7. From the intersection of the decreasing gross weight line and altitude at the completion of climb, drop vertically downward to the gross weight scale and record a final gross weight of 56,650 pounds.

8. Compute the fuel consumed during the climb by subtracting the gross weight at completion of climb from the gross weight at the start of climb (57,000 - 56,650 = 350 pounds).

9. The distance travelled during climb is found by subtracting the recorded distance at the initiation of the climb from the distance found at the end of climb (6.6 - 1.2 = 5.4 air nautical miles).

10. Finally, compute the time elapsed during the climb by subtracting the recorded time at the initiation of the climb from the time found at the end of climb (2.7 - 0.5 = 2.2 minutes).

Engine-Out Rate Of Climb.
(Figures A4-10 through A4-23)

In the event of a reciprocating engine failure, the immediate concern is control of the aircraft and the ability to maintain altitude. If the failure occurs at takeoff, continued climb may be required, while failure enroute may necessitate holding a certain minimum altitude or climbing to a higher altitude. Since the instantaneous rate of climb at the time of engine failure will normally be of primary importance, rather than the overall performance throughout a sustained climb, the engine out climb performance is presented in terms of rate of climb rather than distance covered, fuel

consumed, and time to climb. As in other plots of aerodynamic performance, the effects of density altitude, engine power, gross weight, and aircraft configuration must be introduced. Density altitude, which combines the effects of pressure altitude and free air temperature, is plotted on the left grid of the charts. Engine power, expressed in terms of torque pressure (at 2800 RPM for Maximum Power in low blower and 2600 RPM for Maximum Power in high blower, 2600 RPM for METO Power), is plotted along the bottom edge of the charts at the left hand side. Centrally located on the chart are two lines for the "drop tanks on" or "drop tanks off" configuration. Plotted on the right side of the charts are gross weight lines from which to enter the rate of climb scale presented below. Charts are presented for Maximum and METO Power, with and without jet thrust for the propeller feathered condition and for Maximum Power with jet thrust for the propeller windmilling configuration. Also presented are charts for Maximum and METO Power for two engines out on the same side. Included on the gross weight lines are recommended engine out climb speeds, presented in IAS, for the range of gross weights. Speed values between those presented may be interpolated. On all charts, the landing gear and wing flaps are assumed retracted. All engine out rate of climb charts except that for one reciprocating engine operating at maximum power with both jets operating at 100% RPM, propeller windmilling, contain a gross weight alignment correction in the center of the chart.

Use Of The Charts.

NOTE

These charts adjust for power level by use of torque pressure and altitude and are based on operation in low blower at 2800 RPM. In low blower operation, these charts must always be entered with the TOP corresponding to 2800 RPM, regardless of what RPM is to be used on the aircraft. When the aircraft is to be operated in low blower at other tahn 2800 RPM, the performance predicted by these charts can be attained only if the torque meters on the aircraft are set to the equivalent torque determined by the equation:

$$\text{Equiv. TOP} = \frac{(\text{TOP @ 2800 RPM}) \; 2800}{\text{Desired RPM}}$$

For operation in high blower, 2600 RPM, enter the charts with a TOP value equal to 92% of the charted TOP determined from the BRAKE HORSEPOWER AVAILABLE, HIGH BLOWER, chart in Part 2. The TOP set on the torque meters, in this case, would be the charted TOP.

To determine the rate of climb, select the appropriate chart and enter on the appropriate vertical line corresponding to the torque pressure as read on the good engine. Follow this torque line upward to the appropriate density altitude line. Some engine out rate of climb charts contain an intermediate gross weight alignment grid which corrects for coupling effects of gross weight and density altitude. For charts with this correction, proceed from the TOP and altitude intersection horizontally to the right to the reference line and following the guide line slope, establish a tentative guide line. Next, locate the intersection of the gross weight and density altitude on the gross weight alignment grid and project vertically upward to the tentative guide line. From this intersection move horizontally to the right until the "tanks on" line is reached. For those charts that do not contain the alignment grid, proceed directly from the TOP and altitude intersection horizontally right to the "tanks on" line. The "drop tanks on" line is the reference line for the drop tank configuration for all engine out rate of climb charts except the condition of two engines out on the same side where "drop tanks off" is the reference line. Should the configuration of the drop tanks be other than that of the reference, proceed either vertically upward or vertically downward to the drop tank configuration present and then horizontally right to the appropriate gross weight line. When the drop tank configuration is that of the reference line, proceed horizontally right to the appropriate gross weight line. From the point of intersection with the gross weight line, drop vertically downward and read the engine out rate of climb on the scale at the bottom of the chart.

The recommended engine out climb speed may be read (or interpolated) by reference to the speeds presented on the gross weight lines.

WARNING

Do not attempt to fly at speeds less than the climb speeds read from these charts. Failure to follow this warning may result in speeds which are below minimum control speeds.

Example.

GIVEN: engine failure (propeller feathered) at a density altitude of 4,000 feet, gross weight 50,000 pounds. Maximum Power on the operating engine, 2800 RPM, 130 psi TOP, without jet thrust. Drop tanks are not installed.

NOTE

Under actual conditions, the TOP may be read directly from the torque pressure indicator while operating at 2800 RPM and either limit MAP or limit TOP. For planning purposes, minimum performance TOP at Maximum Power may be taken from the Brake Horsepower Available Charts, figures A2-22 through A2-27, using assumed values for fuel grade, pressure altitude, carburetor air temperature, and dew point.

FIND: engine-out rate-of-climb and recommended engine-out climb speed.

1. Select the chart with jet engines inoperative and maximum power (2800 rpm) (figure A4-11).

2. Starting at 130 psi on the torque pressure scale at the bottom of the left grid, proceed upward vertically to the point of intersection with the 4,000-foot density altitude line.

3. Proceed horizontally right to the reference line and establish a tentative guide line.

4. Locate the intersection of the 50,000-pound gross weight and density altitude of 4,000 feet on the gross weight alignment grid and project vertically upward to intersect the tentative guide line of step 3.

5. From this point, proceed horizontally to the right to the point of intersection with the drop tanks on line.

6. Proceed vertically downward to the drop tanks off line.

7. From this point of intersection with the drop tanks off line, proceed horizontally to the right to the point of intersection with the 50,000–pound gross weight line.

8. From this point drop vertically, reading 120 feet per minute rate-of-climb.

9. Read recommended engine out climb speed of 107 knots IAS.

Emergency Service Ceiling.
(Figures A4-24 through A4-31)

The emergency service ceiling of the aircraft is the highest altitude at which a rate of climb of 100 feet per minute can be maintained on one reciprocating engine at a specified gross weight and given power setting on the operative reciprocating engine. The configurations of the jet engines are with and without jet thrust and also for a single jet operating on the same side as the operative reciprocating engine. Since the amount of power on the operating engine drastically affects the service ceiling, three power settings are presented on some charts as parameters; minimum performance torque pressure maximum wet power, minimum performance torque pressure maximum dry power and METO power. The ceiling is also affected by gross weight, which is plotted along the bottom edge of the chart. Thus by limiting the gross weight of the aircraft, the emergency service ceiling can be raised to exceed terrain elevations by a reasonably safe margin. Charts are provided for operation with the propeller of the inoperative engine feathered, both with and without jet thrust, and for operation with the propeller of the inoperative engine windmilling, with jet thrust. All these charts are based on the recommended engine out climb speed with landing gear and wing flaps retracted and the drop tanks on. A chart is also provided for two engines inoperative on the same side with the propeller of the inoperative reciprocating engine feathered.

Use Of The Charts.

When the gross weight of the aircraft is known, the charts may be used to determine the emergency service ceiling for minimum performance maximum power (wet), minimum performance maximum power (dry), or METO power under Standard Day conditions.

NOTE

Altitude values may be either pressure or density altitude for standard day conditions. For non-standard day conditions, use the greater of the two.

This is accomplished by reading vertically upward from the gross weight scale until the appropriate power setting line is reached, and from this point horizontally left to the altitude scale. In some cases, operational requirements will include takeoff from field elevations well above sea level and require passage over higher terrain features enroute. This may necessitate limiting the gross weight to provide a safe operating margin. To read the charts for this purpose, enter the altitude scale at the left edge and read horizontally to the right until the appropriate power setting line is reached. Altitude should be determined considering the flight level temperature and pressure altitude at the higher terrain location. Vertically below, read the gross weight limit which should be met at the point in the flight plan where the altitude limitation exists. Prior to takeoff, the expected torque pressures from each engine should be established to determine whether the minimum torque pressures are available.

Example.

GIVEN: near standard atmospheric conditions, gross weight 63,000 pounds, drop tanks on, propeller feathered, jets at 100% RPM.

FIND: emergency service ceiling using METO Power. Select figure A4-24 for this problem.

1. Enter the gross weight scale at the 63,000-pound mark and read vertically upward to the power line.

2. Horizontally to the left read emergency service ceiling of 17,960 feet.

Engine-Out Absolute Ceiling.
(Figures A4-32 through A4-33)

Engine out absolute ceiling is defined as the altitude at which the rate of climb at maximum dry power, gear and flaps up, at recommended climb speed, without jets, is zero. This altitude can only be attained in descent and not in climb.

NOTE

It is extremely difficult to maintain altitude at the absolute ceiling. The highest practical altitude for flight is the service ceiling.