

SECTION V

PERFORMANCE CHARTS

Performance information has been derived from actual flight tests and corrected to standard atmospheric conditions at 1560 pounds maximum gross weight. Aircraft performance data is representative of the AA-1B Trainer equipped with a climb propeller (standard on the trainer) and the AA-1B Tr-2 equipped with a cruise propeller and wheel fairings (both standard on the Tr-2). These aircraft are both available with either propeller, so check the aircraft equipment list and/or the log books to determine how your aircraft is equipped.

Actual performance will vary from standard due to variations in atmospheric conditions, engine and propeller condition, mixture leaning technique, and other variables associated with the particular performance item.

TAKE-OFF DATA

HARD SURFACE RUNWAY - FLAPS UP

AIRCRAFT	GROSS WT. LBS.	IAS AT 50 MPH	HEAD WIND KNOTS	AT S.L. & 39° F.		AT 2000 FT. & 52° F.		AT 4000 FT. & 45° F.		AT 6000 FT. & 35° F.	
				GROUND RUN	TOTAL TO CLEAR 50 FT. OBS.	GROUND RUN	TOTAL TO CLEAR 50 FT. OBS.	GROUND RUN	TOTAL TO CLEAR 50 FT. OBS.	GROUND RUN	TOTAL TO CLEAR 50 FT. OBS.
AA-1B TRAINER WITH CLIMB PROP (STD.)	1560	75	0 10 20	910 569 373	1550 1185 858	912 651 431	1810 1399 1032	1055 758 510	2179 1698 1266	1207 875 599	2635 2093 1586
AA-1B TR-2 WITH CRUISE PROP (STD.)	1560	75	0 10 20	890 625 410	1590 1215 880	1015 725 480	1850 1430 1055	1190 855 575	2220 1730 1290	1380 1000 685	2695 2125 1610

- NOTES:
1. Increase ground run 7% for each 20° F. above standard temperatures.
 2. The increase in total take-off distance varies from 8% at sea level to 14% at 6000 feet for each 20° F. above standard temperature.

Figure 8

Figure 8

MAXIMUM RATE-OF-CLIMB DATA					
1560 POUNDS GROSS WEIGHT - FLAPS RETRACTED					
AIRCRAFT	ALTITUDE FEET	TEMPERATURE °F.	IAS MPH	RATE OF CLIMB FT./MIN.	FUEL USED FROM S.L. GALLONS
AA-1B TRAINER WITH CLIMB PROP (STD.)	S.L.	59°	89	705	1.0
	2500	50°	88	585	1.6
	4500	43°	87	485	2.1
	6500	36°	86	390	2.6
	8500	28°	85	290	3.3
	10500	21°	84	190	4.1
AA-1B TR-2 WITH CRUISE PROP (STD.)	S.L.	59°	89	660	1.0
	2500	50°	88	540	1.8
	4500	43°	87	440	2.1
	6500	36°	86	345	2.7
	8500	28°	85	245	3.4
	10500	21°	84	145	4.2

NOTES:

1. Full throttle climb, mixture leaned above 5,000 feet to smooth engine operation.
2. Fuel used includes taxi and warm up allowance.
3. Power loss attributable to the presence of humidity can be as high as 7%, this represents approximately 100 FPM loss in climb rate at sea level.

Figure 9

CRUISE & RANGE PERFORMANCE						
AA-1B TR-2				GROSS WEIGHT 1560 LBS. STANDARD CONDITIONS ZERO WIND LEAN MIXTURE		
* WITH CRUISE PROPELLER (STD.)						
ALTITUDE	RPM	PERCENT POWER	TRUE AIR SPEED	GALLONS/HOUR	ENDURANCE HOURS	RANGE MILES
2500	2600	86	136	7.4	2.8	379
	2500	78	130	6.6	3.1	404
	2400	71	123	5.9	3.6	433
	2300	64	116	5.3	3.9	449
	2200	58	108	4.8	4.3	460
	2100	52	99	4.5	4.6	456
4500	2600	82	135	7.0	3.0	395
	2500	75	129	6.3	3.3	418
	2400	67	121	5.6	3.7	441
	2300	61	113	5.1	4.0	453
	2200	56	106	4.7	4.4	458
	2100	51	96	4.4	4.6	444
6500	2600	79	134	6.7	3.1	407
	2500	72	127	5.9	3.5	432
	2400	65	119	5.4	3.8	446
	2300	59	112	4.9	4.2	460
	2200	54	104	4.5	4.5	464
8500	2600	75	133	6.3	3.3	426
	2500	68	125	5.7	3.6	440
	2400	62	117	5.2	3.9	454
	2300	57	109	4.7	4.3	459
10,500	2600	72	130	5.9	3.5	435
	2500	66	122	5.4	3.8	447
	2400	60	114	5.0	4.1	455

NOTES

1. Range and endurance data include allowance for take-off and climb.
2. Fuel consumption is for level flight with mixture leaned. See Section III for proper leaning technique. Continuous operations at powers above 75% should be with full rich mixture.
3. Speed performance is with wheel fairings. Subtract 2 MPH for speed performance without wheel fairings.
4. For temperatures other than standard, add or subtract 1% power for each 10⁰ F. below or above standard temperature respectively.
5. Cruise propeller is standard on TR-2. For TR-2's equipped with optional climb propeller use Trainer data and add 2 MPH.

Figure 10

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CE	
GHT 1560 LBS. CONDITIONS	
URE	
NCE	RANGE MILES
S	
	379
	404
	433
	449
	460
	456
	395
	418
	441
	453
	458
	444
	407
	432
	446
	460
	464
	426
	440
	454
	459
	435
	447
	455
-off and climb. led. See operations	
2 MPH for	
at 1% power respectively. equipped with MPH.	

CRUISE & RANGE PERFORMANCE						
AA-1B TRAINER				GROSS WEIGHT 1560 LBS. STANDARD CONDITIONS ZERO WIND LEAN MIXTURE		
* WITH CLIMB PROPELLER (STD.)						
ALTITUDE	RPM	PERCENT POWER	TRUE AIR SPEED	GALLONS/HOUR	ENDURANCE HOURS	RANGE MILES
2500	2600	77	125	6.5	3.2	400
	2500	70	118	5.8	3.6	420
	2400	64	112	5.3	3.9	437
	2300	59	106	4.9	4.2	445
	2200	54	100	4.7	4.5	444
	2100	52	95	4.5	4.6	441
4500	2600	74	124	6.2	3.3	410
	2500	68	117	5.6	3.7	428
	2400	62	110	5.1	4.0	438
	2300	57	105	4.8	4.3	444
	2200	54	100	4.6	4.4	442
	2100	52	97	4.5	4.5	437
6500	2600	71	122	5.9	3.5	419
	2500	65	116	5.4	3.8	431
	2400	60	109	5.0	4.0	439
	2300	57	104	4.8	4.3	443
	2200	54	100	4.6	4.4	439
	2100	52	97	4.5	4.5	437
8500	2600	68	120	5.7	3.6	428
	2500	63	114	5.3	3.9	437
	2400	59	108	4.9	4.1	442
	2300	57	104	4.8	4.2	438
10,500	2600	66	119	5.5	3.7	433
	2500	62	114	5.2	3.9	438
	2400	59	109	4.9	4.1	440

NOTES:

1. Range and endurance data include allowance for take-off and climb.
2. Fuel consumption is for level flight with mixture leaned. See Section III for proper leaning technique. Continuous operations at powers above 75% should be with full rich mixture.
3. Speed performance is without wheel fairings. Add 2 MPH for wheel fairings.
4. For temperatures other than standard, add or subtract 1% power for each 10° F. below or above standard temperature respectively.
- * 5. Climb propeller is standard on Trainer. For Trainers equipped with optional cruise propeller use TR-2 data and subtract 2 MPH if not equipped with wheel fairings.

Figure 11

Speed 89 MPH (IAS)

LANDING DATA				
LANDING DISTANCE ON HARD SURFACE RUNWAY ZERO WIND—FLAPS DOWN—1560 LBS. GROSS WEIGHT 72 MPH IAS AT 50 FEET				
ALTITUDE TEMPERATURE	SEA LEVEL, 59° F.	2000 FT, 52° F.	4000 FT, 45° F.	6000 FT, 37° F.
GROUND RUN	410	430	460	490
TOTAL DISTANCE	1100	1155	1210	1265
NOTE: 1. Reduce total landing distance 10% for each 5 knots of head wind.				

STALL SPEEDS — MPH CAS					
CONDITION		BANK ANGLE			
1560 LBS. GROSS WT. POWER OFF		0°	20°	40°	60°
AFT CG LOADING	FLAPS UP	62	64	71	88
	FLAPS DOWN	60	62	69	85
FORWARD CG LOADING	FLAPS UP	64	66	73	91
	FLAPS DOWN	61	63	70	86

AIRSPEED CORRECTION TABLE												
IAS	60	70	80	90	100	110	120	130	140	150	160	170
CAS	61	70	80	90	99	109	118	128	138	147	157	166
1560 LBS. GROSS WEIGHT — FLAPS UP — FLAPS DOWN												

Figure 12

AA1B-1

6000 FT 37° F.
490 1265
wind

60°
88
85
91
86

E	50	160	170
	47	157	166
N			

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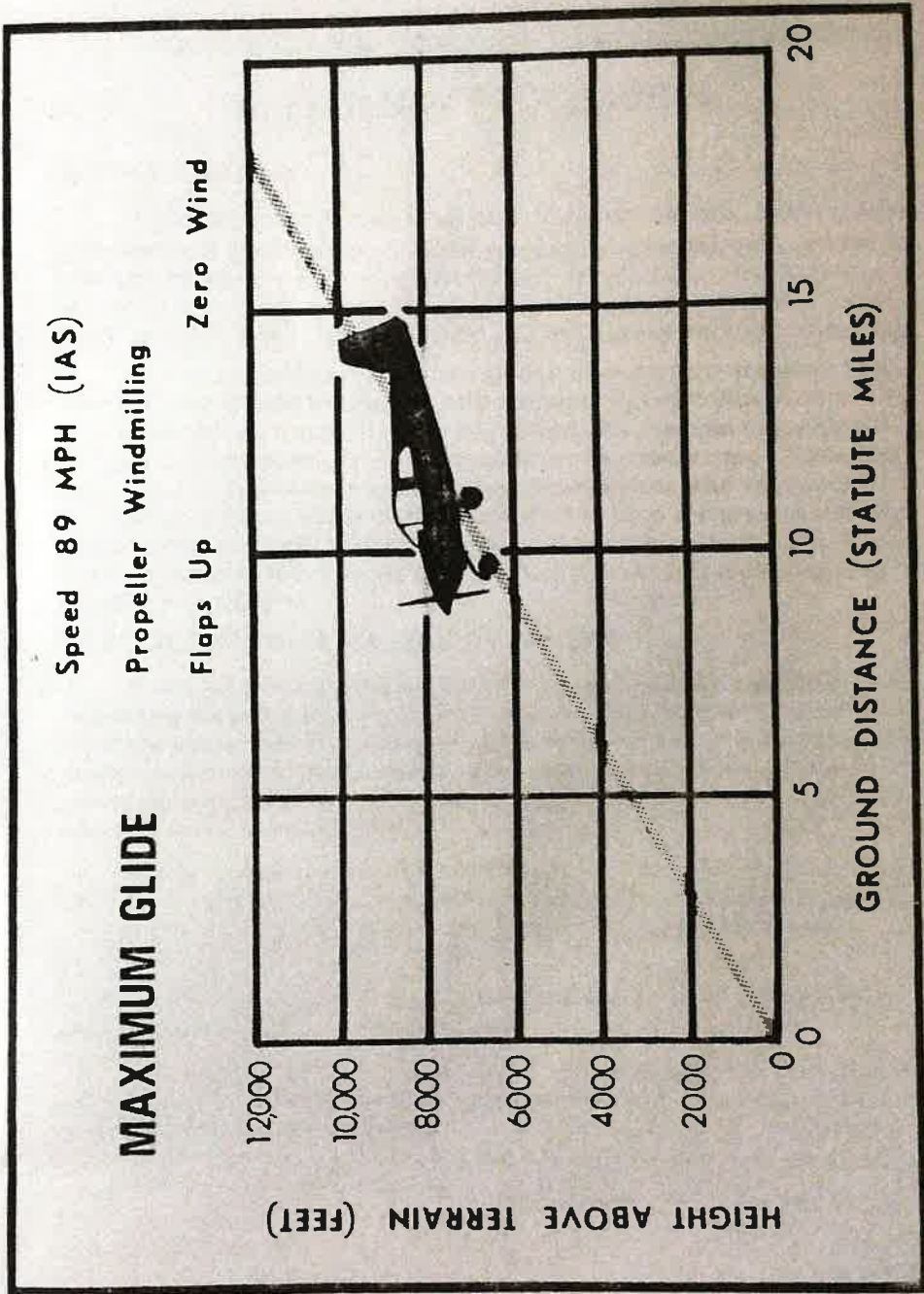


FIGURE 13