OPERATION AND MAINTENANCE MANUAL

HELIO COURIER MODEL H-395

Serial #\_\_\_\_ Reg. #\_\_\_\_

### (THIS DOCUMENT MUST BE KEPT IN AIRPLANE AT ALL TIMES)

# HELIO AIRCRAFT CORPORATION Norwood, Mass.

CAA	Identification	No.		Helio	Model H-395
				Normal	Category

## AIRPLANE FLIGHT MANUAL

1. Limitations: The following limitations must be observed in the operation of this airplane:

Engine: Lycoming GO-480-G1D6

Engine Limits: Take-off 3400 rpm (295 hp)

All other operations 3000 rpm (285 hp)

Fuel: 100/130 minimum grade aviation gasoline

Propeller: Hartzell controllable propeller, hub HC93Z20-1B

Blades 10151C-5 (Opt. Prop HC-B3Z20-1/10151C-5

Diameter: not over 96"; not under 95"

Pitch settings at 30 in.sta; Low 11.80; High 30.80

#### Power instruments:

Oil Temperature: Green Arc (Normal Operating Range) 100° to 225°F; Yellow Line (Caution) 100°F; Red Line (Max) 225°F

Oil Pressure: Green Arc (Normal Operating Range) 65 to 85 psi; Red Line (Min) 25 psi; Red Line (Max) 85 psi; Yellow Arc (precautionary range) 25 to 65 psi.

Fuel Pressure: Green Arc (Normal Operating Range) 13 to 15 psi; Red Line (Min) 11 psi; Red Line (Max) 15 psi.

Cylinder Head Temperature: Green Arc (Normal Operating Range) 350° to 475°F; Red Line (Max) 475°F.

Tachometer: Green Arc (Normal Operating Range) 2200 to 3000 rpm;
Yellow Arc (Caution Range, take-off only) 3000-3400 rpm; Red
Line (Max) 3400 rpm.

Airspeed Limits: Never exceed

Max. Structural Cruising

Maneuvering

Flaps extended

189 mph True ind.

98 mph True ind.

80 mph True ind.

Flight Load Factors: Meets Normal Category Limit Load Factors of 3.8g flaps up, 2.0g flaps extended.

- Note: 1. Use controls with caution above 150 mph.
  - In gusty air, it is advisable to reduce cruising speed below normal, and in servere turbulence reduce speed below 98 mph (flaps up) or below 65 mph (flaps down).
  - Up to 300' loss of altitude may be experienced in recovering and flaring to zero rate of descent with no application of power, after reaching stall speed.

Maximum Weight: 3000 lbs. C.G. Range (101.3 to 106.4) 3000 lbs. (96.5 to 106.4) 2200 lbs.

Straight line variation between points given.

Datum is 100.25" fwd of center-line wing spar (center-line wing spar is mid-way between 2 rows of bolts in wing root fitting on bottom side of wing).

NOTE: It is the responsibility of the pilot to insure that the airplane is properly loaded. (See attached loading instruction.)

Maneuvers: All intentional acrobatic manauvers, including spins, are prohibited.

Airspeed Instrument Markings and their Significance:

- (a) Radial red line marks the never-exceed speed which is the maximum safe airspeed (189 mph).
- (b) Yellow Arc on indicator denotes range of speeds in which operations should be conducted with caution and only in smooth air (150 to 189 mph).
- (c) Green Arc denotes normal operating speed range (63 to 150 mph).
- (d) White Arc denotes speed range in which flaps may safely be lowered. (50 to 80 mph).

Placards: In view of the pilot, "One minute limit for take-off power; full throttle and 3400 rpm".

#### PROCEDURES

- A. Fuel System: Fuel valve position is simply "on" or "off", no tank selector being required.
- B. Wing Flap: Full flaps should be used for peak performance on both take-off and landing.

APPROVED:

/s/ HAROLD H. HERMES CHIEF
Aircraft Engineering Division
Civil Aeronautics Administration Region 3

- 1. This airplane is certificated for gross weight of 3000 lbs.
- 2. The owner-pilot should be familiar with the latest empty weight and C.G. position for this particular aircraft. For aircraft as delivered from the Helio plant, the weight and balance report is included at the rear of this manual. For aircraft whose empty weight or C.G. position is modified by later addition of equipment, the latest information is required by CAA to be entered on a re air and alteration form No. 337 which must be kept in the aircraft log.
- 3. Permissible center of gravity locations in inches are given in the CAA approved pages included at the front of this manual. A more convenient method for determing proper loading is given in paragraph 4 below.
- 4. Determination of Permissible Loading: Weight and C.G. Position
  - A. From the factory weight and balance report, or from the latest Form 337, find empty weight and moment.

Then, empty weight index units equals  $\frac{\text{MOMENT}}{1000}$ 

- B. From Fig. 7.1 find the index units for each item of useful load.
- C. With total weight and total index units, enter Fig. 7.2. Any point within the envelope meets the weight and balance requirements.
- D. EXAMPLE:

Empty wt. equals 2087 moment equals 204,000.

Then index units equals  $\frac{204,000}{1000}$  equals 204

<u>Item</u>	Weight	Index From Fig. 7.1
Empty weight	2087	204
0il (10 qts)	18	1
Fuel (Full 58.2 Gals usable)	349	39
Pilot plus passenger (front)	340	35
1 passenger (rear)	170	23
Baggage (to make gross weight)	36	6
2499464 (10 11111 )	3000	308

Entering Fig. 7.2 it is seen that this point (3000 lbs and 308 index units) falls within the required envelope and therefore is satisfactory.

	11411				Ш					1111		1	1	1111	17:			1111	141	44	17.	iţi;	151	11:11	111		100
			0	O CH			Litte	1111	H.	10 quarts:	uo.			5				3			1111	1		1		1111	11
				0					/00"on/	00		-		\$			netelled	1141		: ;-	, iii					11.	
		1	1	19	:		71	1	-80	0	P	Sillo		gals	111		910			: ::	Fiii	-11	iiii	Tit:	Ī		E
	- !	-	-	ļ.,	-		-		. 8	-			- 6	-01	11:17	id	5	0				11111	111	1	-		
	: :::	ļ	1:::	- 1					8 108	181.37	9009	hight		-	insialed.	0	2	in th	١Ļ.		1 11	1111	1111				T
		1				is.			-	8				135	Ü	· ·			1		:11;		1,1,	::		::1	
						יט	i:	1:::	0	ŧ	Fuel	949		alle	요:		, co	Illter	::::		E.	H			ii	HH.	lī;
	11/11/	1	1			. 3	2		Eng	=	0		- 0	Ins Palletton	19-	1000	5000	<b>=</b>	===				ia:	H	150	5,2	
		1		١÷,	-		W.		t.	0	-	-	- 6	-	°.		302				1:1	1-15	O <sub>TT</sub>	174	111	;in!	= :
		+	ļ	4	B.		:		1					tent	30100				mont	1111	-	2-11 11 11	1111	1111	144		111
		10	,		100		-	6		-		.: .	_		30	0	1 :11	oug	_		1.7		T:	ill:	lii)	11:1	11:
3	1	1	n			d	. :		6			1.	NOTE	philone	***	OTF	200159		comper	: .::	ļΞ	#		1	1111	ini	
3	1 7	0	-06	-	1	E	est.		3				0	p	Ĉ.	::C	) ŏ	00	om		1 🖂	H					H
9		O		1		- '	ST.	-		2	1							T:::		1.11	i TE		211			141	£1,
		Ħ.	40	3	3					FAC				: -:		- :::	:::	: :	1111	: :::	l:E			1111	曲	H	
3	4-1 -1	1:	-	0.	. 2	3		1	-		Ġ		-							-111	1111		1111	141	12:51		14-
2		1			-	0	5	Ŀ.	1.				Dello S				**:		:			1111			Hin	- 1	11
		iiii	1		.ii		V		1	:	:	W.	10	1:		.:::	:-:	::!:	Hi	11:	-		Щ	0.1	1711	詞	
5 (0)		1:11		M:	1;::-	4	- 5	8		1	1	NO.	2	2			1	:171		hi	Η	1115		73	İ#		15
9		l:::				-	1:	/		1	1		Ad	4	7			::::		£11:	1:			3		İ	
art	~	1::	1:::				-	1	1		1	1	3		ÿ*:	::12	1111		3	1							===
10.5	(5)		111			-:-	2		1	1	1:::	1	3	Ş	2		::::		hatche	11.1	==						
当今	$\simeq$			::::		:::	1:.				0		1	1	100		::::	151	63	ЩH	H		Щ		1111	Ш	
	L	1					:::			1	1/		1	3	1	Hd		H			ĒΞ			7		#5	H
				1	::::	11:			1	=	/	/		1	16	Q			N.							##	H
	371 111	Hiii		E	1:1:					L	1.11	1	1	1	N. Y	V Q	3	1111	1								111
or is a			1 1 1 1	1111	i:1:		::::	111	-	10	-	1111	1	1	1	11			H	1	11	H				1111	
3	tettirii		-:1:		11:			***	1. 1.	W	1	1111	.::	/Z	(:.)		1.5		1116			HHE	3111		##	74-7	1
3 1111	11	1:::			D.	:::i		::.:					1	-	1	1	1	1		C.	==		1111		1		
			ii.i		High round	:						: '!	1		1		//	1		College		#	Hill		Hi		
		111	1111		1				.:		;	::::	0					11.	OH	3	HE		HH	卌	臘		H
2		ļ	!	li	6	7.1			. :	Ti.			=	·			11	T	11	1111	HE	14		亷	HHI	mi	1
		1	· · · ·				1	111		111	1	.;:-		1111	T		1117	3	14						1211	445	
		100	- α	C.	200				-	#	ļi:	***	1		1111		1111		11	1			1111	11:12		in E	F
	0'	->	an wasop		Caproved	1	1111		11.	-						::::		411	::/		1	HH		Hii			
	ō	du	1,0	1-15	6	111	Hii		1;:1		Hi:		1:::	1111	111	HH	1 2				, o			111	Hill		111
	64	r ampty	10	webla limit on wt. @	N	iiii	ilit	IIII	11	i   j	lilli	lili	iii;	iiii	Hi	+	Hir			9	o-	Щ,	H	1	H	198	0
	1811	35	C	:0	EC.	1		111	11.	111		III.						Hi	Hiji	H				1111	間	4	15
	Sms	13	Ö	=	P.D.				111				11:	[]]					HH	ĮįH.		HH	[GI	H	HH	HZ	17
100	ford Index u	-5	1	- 12	Lec	2				5	ili.	1	C	5	11.1	111	1116	H				5	1111	Ш	127	-1-	74
SEDUTION OF	D D	- XO	- 5	O	100	3			11:5	2			- 5	3	1111		1116	2	1111	1111	1	H	H		FI	- In	
13	0	F		: 0	8	11			إرا		11			111	11	Hi	1:1:	i i	HT.	111	111	Щ	itii	iii.	14.3	: vi	H
9	pul-	95	0	110	60		11.	!:		iii		H			Hill		tiji	iH;	Fif	H			THE	114:			
- 2	Puge.	A	14	0:	5						11.7		and to h	-	S	111			Hill	蜡		ĪĦi	il:i	111		:: ш	
	Indiana and aire	T.	3 Fotor Fin 70		Tin.		111				i i	iii	1	36160	S	Hiii	rii;	111	HE	HH	111	hii	HH	111	i i	REVISE	
			1	liiii Iiiii		17	11.		144	HH	1	H		A B	and	111		111	1111	1111			HH			- 1×	
Till	15.11	1	1::::	1	liili	1:::	1111	11,1	į		1117	L. Li	1	177	11::	141	1	141		1111		111		1:1:11	Hii:		lil.

