FLIGHT MANUAL

Doc. n° 92/61 Issue n°3: 25th May 2010
Revision No.5: 12th July 2022

P92-JS

MANUFACTURER: *COSTRUZIONI AERONAUTICHE* ***TECNAM*** S.r.l.

AIRCRAFT MODEL: ***P92-JS***

TYPE CERTIFICATION: n° EASA A.412 (SO/A-340)

SERIAL NUMBER: .....

BUILD YEAR: .....

REGISTRATION MARKINGS: .....

This manual contains information to be furnished to the pilot as required by EASA in addition to further information supplied by manufacturer.

This manual must always be present on board the aircraft.

The aircraft is to be operated in compliance with information and limitations contained herein.

RECORD OF REVISIONS

Any revisions to the present Manual, except actual weighing data, must be recorded in the following table and, in case of approved Sections, endorsed by the responsible airworthiness authority.

New or amended text in the revised pages will be indicated by a black vertical line in the left-hand margin; Revision No. and date will be shown on the left-hand side of the page.

RECORD OF REVISIONS

Revision No.	Affected sections	Affected pages	Date	Approval EASA/DOA
1	6	10 to 14	25/02/2015	DOA
	7	14,16	25/02/2015	DOA
	9	22,24	25/02/2015	DOA
	9	25 to 28	25/02/2015	DOA
2	1	6	16/06/2015	DOA
	2	4,5,7,11	16/06/2015	EASA
	4	8,9	16/06/2015	EASA
	7	12,14,16	16/06/2015	DOA
	9	29 thru 32	16/06/2015	DOA
3	0	All	09/09/2016	DOA
	6	10 thru 13	09/09/2016	DOA
4	0	All	15/07/2019	DOA
	6	11 thru 13	15/07/2019	DOA
5	0	1,2,4,6	12/07/2022	DOA
	2	3	12/07/2022	DOA
	4	5, 9	12/07/2022	DOA
	5	13	12/07/2022	DOA
	7	18	12/07/2022	DOA

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LIST OF EFFECTIVE PAGES

Section	Revision
Section 0	*Rev 5*
Section 1	*Rev 2*
Section 2	*Rev 5*
Section 3	*Rev 0*
Section 4	*Rev 5*
Section 5	*Rev 5*
Section 6	*Rev 4*
Section 7	*Rev 5*
Section 8	*Rev 0*
Section 9	*Rev 2*

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*Section approved by EASA

**Section partially approved by EASA

Sections 2, 3, 4, 5 are approved by EASA: n° 10030344 on 11.06.2010

Section 9 (supp.1) is approved by EASA: n° 2004-1787 on 02.03.2004

Section 9 (supp. 2) is approved by EASA: n° 2004-6324 on 17.06.2004

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SECTION 1

GENERAL

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INTRODUCTION

The P92-JS is a twin seat single engine aircraft with a strut-braced rectangular high wing, fixed main landing gear and steerable nosewheel.

This Flight Manual has been prepared to provide pilots and instructors with information for the safe and efficient operation of this aircraft.

This Flight Manual contains 9 sections. Section 1 provides basic data and information of general interest. It also contains definitions and explanations of symbols, abbreviations and commonly used terminology.

CERTIFICATION BASIS

Aircraft

This type of aircraft has been approved by EASA/ENAC in accordance with JAR-VLA of April 26 1990 with amendments 91/1 and 92/1.

Noise Certification Basis

JAR-36 Sub. C Issue: 23 May 1997 ICAO/Annex 16 Chap.10 issue 1993

WARNINGS - CAUTIONS - NOTES

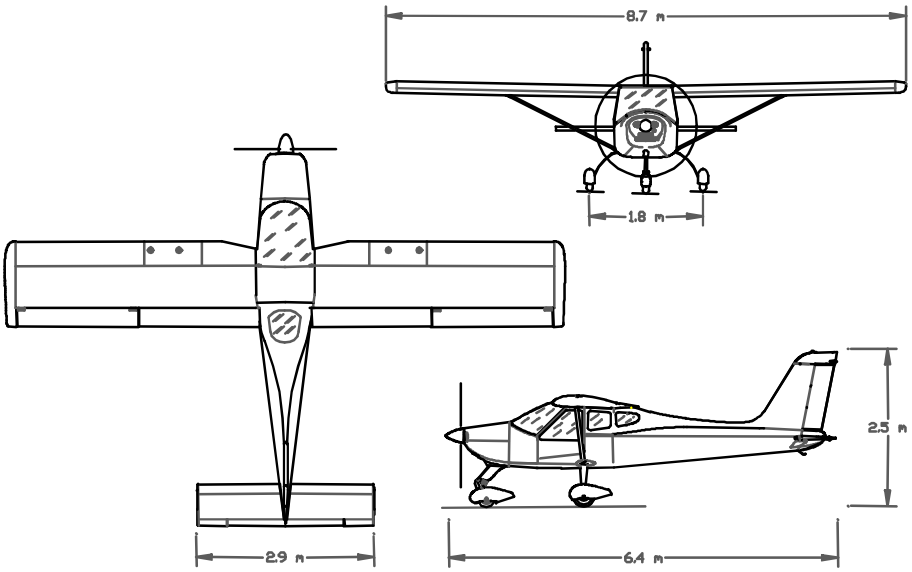
The following definitions apply to warnings, cautions and notes used in the Flight Manual.

WARNING Means that the non-observation of the corresponding procedure leads to an immediate or important degradation of the flight safety.

CAUTION Means that the non-observation of the corresponding procedure leads to a minor or to a more or less long term degradation of the flight safety.

NOTE Draws the attention to any special item not directly related to safety but which is important or unusual.

THREE-VIEW DRAWING



NOTE

- Dimensions shown refer to aircraft weight of 550kg (and 600 kg) and normal operating tire pressure.
- Propeller ground clearance 320mm
- Propeller ground clearance with deflated front tire and nosewheel shock absorber compressed by 102mm
- Minimum ground steering radius 5.5m

DESCRIPTIVE DATA

WING

	For 550 kg MTOW	For 600 kg MTOW
Wing span:	8.7 m	8.7 m
Wing chord	1.4 m	1.4 m
Wing surface	12 m^2	12 m^2
Wing loading	45.8 kg/m^2	50.0 kg/m^2
Aspect ratio	6.31	6.31
Taper ratio	1.0	1.0
Dihedral	1.5°	1.5°
FUSELAGE		
Overall length	6.400 m	6.400 m
Overall width	1.100 m	1.100 m
Overall height	2.500 m	2.500 m
EMPENNAGE		
Stabilator span	2.900 m	2.900 m
Vertical tail span	1.230 m	1.230 m
LANDING GEAR		
Wheel track:	1.800 m	1.800 m
Wheel base:	1.600 m	1.600 m
Main gear tires: Air Trac;	5.00-5	5.00-5
Cleveland wheel hub and brakes kit:	199-102	199-102
Nose gear tire: Sava	4.00-6	4.00-6

CONTROL SURFACES TRAVEL LIMITS

Ailerons	Up 20° down 15 ° ± 2°
Stabilator	Up 18° down 3° ± 1°
Trim-Tab	2° ; 12° ± 1°
Rudder	RH 25° LH 25° ± 1°
Flaps	0° -38° ± 1°

ENGINE

Manufacturer:	Bombardier-Rotax GmbH
Model	912 S2
Certification basis	FAR 33 Amendment 15
Austrian Type-Certification No.	n° TW 9-ACG of 27 Nov. 1998
Type:	4 cylinder horizontally-opposed twins with overall displacement of 1352 c.c., mixed cooling, (water-cooled heads and air-cooled cylinders), twin carburettors, integrated reduction gear with torque damper.
Maximum power:	73.5 kW (98.6 hp) @ 5800 rpm *(max.5 min.)*
(engine's rpm)	69.0 kW (92.5 hp) @ 5500 rpm *(continuous)*

PROPELLER

Manufacturer:	HOFFMANN Propeller
Certification basis:	CAR Part 14
Type-Certification No.:	SO/E 30 of 10/12/1999
Model:	HO17GHM A 174 177C
Number of blades:	2
Diameter:	1740 mm (no reduction permitted)
Type:	Fixed pitch - wood

FUEL

Fuel grade:	• EN 228 Premium • EN 228 Premium plus • AVGAS 100LL (see *Section 2.9)*
Fuel tanks:	2 wing tanks integrated within the wing's leading edge with fuel strainer located in engine cowling.
Capacity of each wing tank	35 liters (*optional 45 liters*)
Total capacity:	70 liters (*optional 90 liters*)
Total usable fuel	66.8 liters. (*86.8 liters*)

OIL SYSTEM

Oil system type:	Forced, with external oil reservoir
Oil:	Automotive grade API "SF" or "SG" type oil preferably synthetic or semi-synthetic
Oil Capacity:	3.0 liters

COOLING

Cooling system:	Mixed air and liquid pressurized closed circuit system
Coolant:	Antifreeze and water liquid mixture
Capacity	3 liters

MAXIMUM CERTIFIED WEIGHTS

Maximum take-off weight:	550 kg	600 kg
Maximum landing weight:	550 kg	600 kg
Maximum baggage weight	20 kg	20 kg

STANDARD WEIGHTS

Standard Empty Weight	325 kg	325 kg
Maximum Useful Load	225 kg	275 kg

SPECIFIC LOADINGS

Wing Loading	45.8 kg/m^2	50 kg/m^2
Power Loading	5.6 kg/hp	6.1 kg/hp

ABBREVIATIONS AND TERMINOLOGY

GENERAL AIRSPEED TERMINOLOGY AND SYMBOLS

KCAS	Knots Calibrated Airspeed is indicated airspeed corrected for position and instrument error and expressed in knots.
KIAS	Knots Indicated Airspeed is the speed shown on the airspeed indicator and expressed in knots.
KTAS	Knots True Airspeed is the airspeed expressed in knots relative to undisturbed air which is KCAS corrected for altitude and temperature.
V_{FE}	Maximum Flap Extended Speed is the highest speed permissible with wing flaps in a prescribed extended position.
V_{NO}	Maximum Structural Cruising Speed is the speed that should not be exceeded except in smooth air, then only with caution.
V_{NE}	Never Exceed Speed is the speed limit that may not be exceeded at any time.
V_S	Stalling Speed.
V_{S0}	Stalling speed in landing configuration
V_{S1}	Stalling speed in clean configuration (flap 0°)
V_X	Best Angle-of-Climb Speed is the speed which results in the greatest gain of altitude in a given horizontal distance.
V_Y	Best Rate-of-Climb Speed is the speed which results in the greatest gain in altitude in a given time.
Vr	Rotation speed: is the speed at which the aircraft rotates about the pitch axis during takeoff
V_{LO}	Lift off speed: is the speed at which the aircraft generally lifts off from the ground.
Vobs	Obstacle speed: is the speed at which the aircraft flies over a 15m obstacle during takeoff or landing

METEOROLOGICAL TERMINOLOGY

OAT	Outside Air Temperature is the free air static temperature expressed in degrees Celsius (°C).
T_S	Standard Temperature is 15°C at sea level pressure altitude and decreased by 2°C for each 1000 ft of altitude.
H_P	Pressure Altitude is the altitude read from an altimeter when the barometric subscale has been set to 1013 mb.

ENGINE POWER TERMINOLOGY

RPM	Revolutions Per Minute: is the number of revolutions per minute of the propeller, multiplied by 2.4286 yields engine RPM.

AIRPLANE PERFORMANCE AND FLIGHT PLANNING TERMINOLOGY

Crosswind Velocity	is the velocity of the crosswind component for which adequate control of the airplane during takeoff and landing is guaranteed.
Usable fuel	is the fuel available for flight planning.
Unusable fuel	is the quantity of fuel that cannot be safely used in flight..
g	is the acceleration of gravity.
TOR	is the takeoff distance measured from actual start to wheel liftoff point
TOD	is total takeoff distance measured from start to 15m obstacle clearing
GR	is the distance measured during landing from actual touchdown to stop point
LD	is the distance measured during landing, from 15m obstacle clearing to actual stop.
S/R	is specific range, that is, the distance (in nautical miles) which can be expected at a specific power setting and/or flight configuration per kilo of fuel used.

WEIGHT AND BALANCE TERMINOLOGY

Datum	is an imaginary vertical plane from which all horizontal distances are measured for balance purposes.
Arm	is the horizontal distance from the reference datum to the center of gravity (C.G.) of an item.
Moment	is the product of the weight of an item multiplied by its arm.
C. G.	Center of Gravity is the point at which the airplane, or equipment, would balance if suspended. Its distance from the reference datum is found by dividing the total moment by the total weight of the airplane.
Standard Empty Weight	Standard Empty Weight is the weight of a standard airplane, including unusable fuel, full operating fuels and full engine oil.
Basic Empty Weight	is the standard empty weight plus the weight of optional equipment.
Useful Load	is the difference between takeoff weight and the basic empty weight.
Maximum Weight	is the maximum certified weight of the aircraft.
Maximum Takeoff Weight	is the maximum weight approved for the start of the takeoff run.
Maximum Landing Weight	is the maximum weight approved for the landing touch down.
Tare	is the weight of chocks, blocks, stands, etc. used when weighing an airplane, and is included in the scale readings. Tare is deducted from the scale reading to obtain the actual (net) airplane weight.

UNIT CONVERSION CHART

MULTIPLYING		BY ➔	YIELDS	
TEMPERATURE				
Fahrenheit	[°F]	$\frac{5}{9}\cdot(F-32)$	Celsius	[°C]
Celsius	[°C]	$\left(\frac{9}{5}\cdot C\right)+32$	Fahrenheit	[°F]
FORCES				
Kilograms	[kg]	2.205	Pounds	[lbs]
Pounds	[lbs]	0.4536	Kilograms	[kg]
SPEED				
Meters per second	[m/s]	196.86	Feet per minute	[ft/min]
Feet per minute	[ft/min]	0.00508	Meters per second.	[m/s]
Knots	[kts]	1.853	Kilometers / hour	[km/h]
Kilometers / hour	[km/h]	0.5396	Knots	[kts]
PRESSURE				
Atmosphere	[atm]	14.7	Pounds / sq. in	[psi]
Pounds / sq. in	[psi]	0.068	Atmosphere	[atm]
LENGTH				
Kilometers	[km]	0.5396	Nautical miles	[nm]
Nautical miles	[nm]	1.853	Kilometers	[km]
Meters	[m]	3.281	Feet	[ft]
Feet	[ft]	0.3048	Meters	[m]
Centimeters	[cm]	0.3937	Inches	[in]
Inches	[in]	2.540	Centimeters	[cm]
VOLUME				
Liters	[l]	0.2642	U.S. Gallons	[US Gal]
U.S. Gallons	[US Gal]	3.785	Liters	[l]
AREA				
Square meters	[m^2]	10.76	Square feet	[sq ft]
Square feet	[sq ft]	0.0929	Square meters	[m^2]

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