European Aviation Safety Agency

EASA

SPECIFIC AIRWORTHINESS SPECIFICATION

for

SUKHOI SU-29

This Specific Airworthiness Specification is issued in accordance with Regulation (EC) 216/2008 Article 20(1)(b). This document is generic and it should be read in association with any Airworthiness Approval Note for the approval of Flight Conditions for any aircraft issued with an EASA Permit to Fly prior to 31 October 2008, which is specific to a particular serial number. In the event of conflict, please contact EASA; roger.hardy@easa.europa.eu.

The Su-29 has obtained full Russian Certification to AR-23 standard, according to Type Certificate Data Sheet number 60-29.

The Russian Type Certificate holder is:

Advanced Aircraft Construction Technologies
Lugneckaya Quay 2/4
Moscow 119270
Russian Federation

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Email: aact@online.ru

The Su-29 has also obtained Type Certification by the Hungarian Civil Aviation Authority with Type Certificate 38RK29.

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SECTION 1: Aircraft Design Definitions

1.1 Aircraft designed and built to conform to Russian Type Certificate code AR-23 and this was accepted for the issue for a Hungarian Type Certificate by the Hungarian CAA.

1.1.1 Technical Characteristics and Operating Limitations

Engine	One Vedeneyev (OKBM) M14P of 360 HP or M14PF of 400HP. 9 cylinder radial piston engine, which is geared and supercharged.
Fuel	To Russian standard B91/115 GOST 1012-72. Octane rating minimum 91.
Engine Limits	M14P At maximum speed (99%; 2892 rpm) 5 minutes At 101% (2950 rpm) up to 1 minute Maximum continuous revolutions 82% (2395 rpm) M14PF Maximum revolutions 103% (3010 rpm) for one minute. **Oil Temperature** Oil temperature minimum 40° centigrade Maximum prolonged 75° centigrade Maximum permissible for 15 minutes 85° centigrade **Cylinder Temperature** Cylinder temperature minimum 120° centigrade Maximum prolonged operation 220° centigrade Maximum permissible up to 15 minutes 240° centigrad e
Propeller	The following propellers are approved: V-530TA-D35 2-blade propeller manufactured by Speriot of Stupino, Russia. MTV-3-250 or 260 –27 or -29 3-blade propeller manufactured by MT Propeller of Straubing, Germany. MTV-9-250 or 260 -27 or -29 3-blade propeller manufactured by MT Propellers of Straubing, Germany. Diameter of V-530 propeller is 240cm, and of MTV-3 and MTV-9 propellers of either 250 or 260cm.
Airspeed Limits	Vne 450 km/h Vmo 380 km/h Vma 360 km/h Vso 113 km/h
C.G. Range	22% MAC to 30.5% MAC
Maximum Weight	Certificated empty weight 760 kgs. Maximum all-up weight 1220 kgs.
Aerobatic Limitations	Aerobatic manoeuvres are permitted. Intentional spinning is permitted Load factor limitations: +11g / -9g
Number of Seats	Two

Maximum Baggage	Weight limit in rear baggage compartment 15kgs. However this significantly affects Centre of Gravity and the AFM must be consulted before flights, particularly aerobatic, with any baggage.
Fuel Capacity	Fuselage tank 58 litres Two wing tanks of 105 litres each Fuselage collector tank 3 litres (In the case of the wing tanks and main fuselage tank, useable fuel can be up to two litres less than the above).
Oil Capacity	16 litres total for ferry version; 10 litres for aerobatic version
Oil Cooler	It is permitted to change the standard oil cooler, part number 2281B, for the larger oil cooler, part number 2281B-OM, for use in hot conditions.

Control Surface Movements

Wing flaps	N/A	
Aileron	+/-	28°
Elevator	+/-	25°
Rudder	+/-	32°
Elevator trim tap	+/-	20°

Tyre pressures	Main wheels – 3.5 / 4 kgf / cm² Tail wheel – 3.0 kgf / cm² (many Su-29 are fitted with solid tail wheel)
Stall Warning	N/A
Equipment	Apart from normal equipment necessary for flight, the Su-29 is additionally equipped with the following: A second set of controls and principal instruments for the front cockpit. One “Briz” radio in rear cockpit (P1). (A variety of normal avionics installations have also been installed). Smoke system (comprising of 2 x 15litre tanks, one in each wing root, with a bleed from the aircraft compressed air system controlled by solenoids to pump smoke oil into the exhaust pipe.
Flight Manual	Approved Sukhoi Su-29 flight manual.

1.2 Pertinent Data

Centre of Gravity	The Su-29 AFM gives the method for detailed calculations of Centre of Gravity according to loadings in each cockpit; fuel; oil; smoke oil; baggage.

1.3 Lifetime

Su-29 is cleared for an initial ‘Lifetime’ before major inspection of 1250 hours or 12 years, whichever comes first.

Lifetime can be extended by the execution of the Sukhoi Lifetime Extension Programme, identified as AST Lifetime Doc. A, Version II.

Subject to successful completion of the Lifetime Extension Programme above, the aircraft will be cleared for a further 6 years or 600 hours, whichever comes first.

This Lifetime Extension Procedure is performed repetitively.

There are certain other 'lifed' items, importantly: engine/propeller/air-bottle/flexible hoses. These are referred to in the appropriate Maintenance Manuals, and also the AAN for the Su-29 issued by EASA.

1.4 Life-Limited Parts

The list of lifed items applicable to the Su-29 aircraft are as follows, and must be incorporated in the maintenance schedule for the aircraft.

Description	**Life Limit Hours/years**
Engine M14P/PF	500 hrs from new or o/h
Engine M14R/M9F	300 hrs from new or o/h
Propeller V530TA-D35	500 hours / 6 years
Propeller MTV-9-B-C/CL250-27 / 29	1000 hours / 6 years
Air Bottle	-/5 or by appropriate inspection
Flexible Pipes	-/10

SECTION 2: Airworthiness Directives (Service Bulletins)

№	The reason of issue	Bulletin works contents	Bulletin No	Applied to	Delivered
		SUKHOI			
8	Directive Su-29-64 -014-92	The replacement of the engine mount ring attachment	29.001-BD	S/N from 72-01 to 73-03	Delivered in February 1993
9	No24-015 -93 dated 19.03.93	The canopy operational handles replacement	29.002-BU	S/N from 72-01 to 73-03	Delivered on 08.04.93
10	Directive Su-24 -7-93 dated 30.03.93	The installation of Teflon seal instead of rubber seals on 768600MA electric valves (due to the life time increase up to 1250 h 12 years)	29.004-BD	S/N from 72-03 to 74-02	Delivered on 13.01.94
11	Statement	The replacement of the exhaust	29.003-BD	S/N from 72-03 to	Delivered

	1.1.1.4/979	system end sections		73-03	on 28.04.93
12	C42C-24 -15-93	The replacement of intake hoses in the smoke system tanks made due to the drawing 09.0089.6.195.000	29.005-BD	S/N 74-05 ; 75-01	Delivered on 29.06.93
13	Directive SU-29-24 -10-93 dated 14.01.93	Definition of the text in the Maintenance Schedule and Operation Manual of the Su-29 regarding brake discs	29.006-BE	S/N from 72-01 to 75-05	Delivered
14	Directive SU-29-48 -16-93 dated 17.06.93	Reinforcement of the fuselage side panels	29.007.-BD	S/N from 72-01 to 74-02	Delivered on 1.10.93
15	Directive SU-29-9 -13-93	The Su-29 fuel breathing system modification	29.008-BD	S/N from 72-01 to 74-01	Delivered
16	Directive dated 22.04.94	The installation of loops along the rudder cable linkage in order to limit cables play	29.010-BD	S/N from 72-01 to 77-01	Delivered 18.06.94
17	Directive dated 21.01.94	The installation of the spring on the crotch seat belt attachment	29.009-BU	S/N from 72-01 to 75-04	Delivered on 01.04.94
18	Directive dated 19.06.94	Reinforcement of the front spar and attachment points of the stabilizer	29.011-BD	S/N from 72-01 to 77-01	Delivered on 20.06.94
19	Directive Su-29-64 -14-94	Definition of the text in the Maintenance Schedule and Operation Manual of the Su-29 regarding the replacement of the engine mount ring studs every 300 hours.	29.012-BE	S/N from 72-01 to 77-04	Delivered on 14.05.96
20	Chief designer directive 29-46-94 , strength dept.directive 29-43-94	Definition of the text in the Maintenance Schedule and Operation Manual of the Su-29 regarding the inspection of the stabilizer attachment points for the lack of cracks and plays	29.013-BE	S/N from 72-01 to 78-05	Delivered on 01.06.95
21	Chief designer directive	Wing replacement	GK-285/29 - 020BA	80-05	Done on 05.09.96

NOTE

No Service Bulletins (Airworthiness Directives) have been issued subsequent to 1996.

Designer and organisation responsible for the Type: Advanced Aircraft Construction Technologies, will provide details of any further Service Bulletins, contacts on Page 1. In addition they can be obtained from either of the following:

Richard Goode Aerobatics
Rhodds Farm,
Lyonshall

Herefordshire
HR5 3LW
United Kingdom

Tel: +44 (0) 1544 340 120
E-mail: richard.goode@russianaeros.com

LETECKÉ AKROBATICKÉ CENTRUM CR
Letiste Moravská Trebová
569 32 Staré Mesto
Czech Republic

Tel: +421 461 312310
E-mail: Lsc@mtrebova-city.cz

SECTION 3: Occurrence Reporting

The Specific Airworthiness Specification may be used as a basis for the issue of a Restricted Certificate of Airworthiness in accordance with 21A.173(b)(2) under the following conditions:

a) The holder of a Restricted Certificate of Airworthiness based on this Specific Airworthiness Specification shall report to the State of Registry all information related to occurrences associated with the operation of the aircraft which affects or could affect the safety of operation[1].

b) Such reports shall be despatched within 72 hours of the time when the occurrence was identified unless exceptional circumstances prevent this.

c) The State of Registry shall forward the information received under (a) to the Agency when it relates to failures, malfunctions, defects or other occurrences which cause or might cause adverse effects on the continuing airworthiness of the aircraft.

SECTION 4: Other Limitations

This aircraft is limited to non-commercial operations

Aircraft should be flown by day in visual meteorological conditions only.
Maximum permitted altitude 10,000 feet.

Flight shall be limited to the following:

1. Aerobatic competition flights
2. Training for aerobatic competition flights
3. Positioning flights
4. Aerobatic displays
5. Aerobatic instruction

All limitations in the applicable flight manual must be complied with.

SECTION 5 Change Record

Issue 1 dated 31 October 2008
Issue 2 dated 21 June 2011 Change to allow alternate oil cooler to be fitted.

[1] AMC 20-8 contains guidance describing the occurrences which are to be reported