
WORLD CLASS
AVIATION
LABORATORY
ANALYSIS
SPECTRO® | JET-CARE®
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ROUTINE ANALYSIS AND TRENDING GIVE AN ACCURATE INSIGHT INTO POTENTIAL PERFORMANCE AND RELIABILITY ISSUES.

At the forefront of condition monitoring services for aircraft around the world, Spectro | Jet-Care are privately owned, independent laboratories based in the UK, Switzerland and USA, providing high quality analysis services to the global aviation industry. With accreditations from all major engine and airframe manufacturers, our services are trusted worldwide.

LABORATORY ANALYSIS

Fluid and debris analysis is a central part of maintenance schedules. With comprehensive test suites and quality analysis, plus a carefully tailored approach to each customer, we can provide valuable information and guidance to help you plan maintenance and reduce unscheduled downtime.

QUALITY

Our unrivalled expertise, quality control and integrity are supported by industry recognised accreditation that ensures each of our laboratories maintains the same exacting high standards. UKAS (United Kingdom Accreditation Service) and SAS (Swiss Accreditation Service) verify that our laboratories comply with ISO/IEC 17025:2017, the testing and calibration laboratory standard.

0261 1961

Use of the UKAS accreditation mark does not imply that all activities are accredited by UKAS. Accreditation covers the laboratory activities in accordance with the Schedules of Accreditation available on our website.

MEMBERSHIPS

ANALYSIS OFFERING

Analysis is performed from samples taken from the equipment, using easy to use sample kits.

OIL ANALYSIS

Oil analysis is a key tool for equipment condition monitoring and can identify early indications of problems within engines, APUs, gearboxes and other vital pieces of equipment so you can take appropriate action. Our extensive range of tests includes ICP Spectrometry, Viscosity, Total Acid Number, Water, RULER and Particle Quantifier.

HYDRAULIC FLUID ANALYSIS

Keeping your critical control systems and supply vehicles in perfect condition is vital for safety and efficiency. With regular testing of hydraulic fluid you will get a clearer picture of system cleanliness and performance. Our range of tests includes Particle Count, Water, Viscosity, Total Acid Number, ICP Spectrometry, Chlorine and Specific Gravity.

DEBRIS & FILTER ANALYSIS

We use the analytical capabilities of Scanning Electron Microscopes (SEM), and powerful optical microscopes, for the in-depth examination of debris. Particles can be found within filters, on magnetic chip detectors or during routine visual inspection of fluid test samples. Taking into account the type, form, quantity, size and condition of the particles enables us to make recommendations on the likely source of the debris.

FUEL ANALYSIS

Periodic monitoring of fuel tanks and bowsers is fundamental to ensure that fuel cleanliness is maintained at all times and to identify where treatment is needed. Testing samples for water content and microbiological growth of aerobic bacteria and viable fungal spores provides positive indication of fuel system contamination.

AVIATION SAMPLE KITS

We supply a range of kits to help you prepare and deliver oil, hydraulic fluid, fuel, debris and filter samples for analysis. Click here to view our list of kits available including Spectrometric Oil Analysis Program kits for engines and Auxiliary Power Units.

OIL SAMPLE KIT

HYDRAULIC/FUEL SAMPLE KIT

CHIP CHECK CARD PACK

SOAP KIT

webECHO™

webECHO is a versatile online resource available 24/7/365 to manage your equipment, fleet data and access your latest reports and trends through a single portal. The integrated system allows you to download reports, view graphs, read the advice dialogue and analyse data in real time. Bespoke KPI's are easily produced according to customers requirements.

webECHO can also run on a variety of mobile devices such as iPads® and Android™ tablets. webECHO is available at no extra charge as part of our support service and is a convenient and user-friendly way to manage your analysis results and trend monitoring.

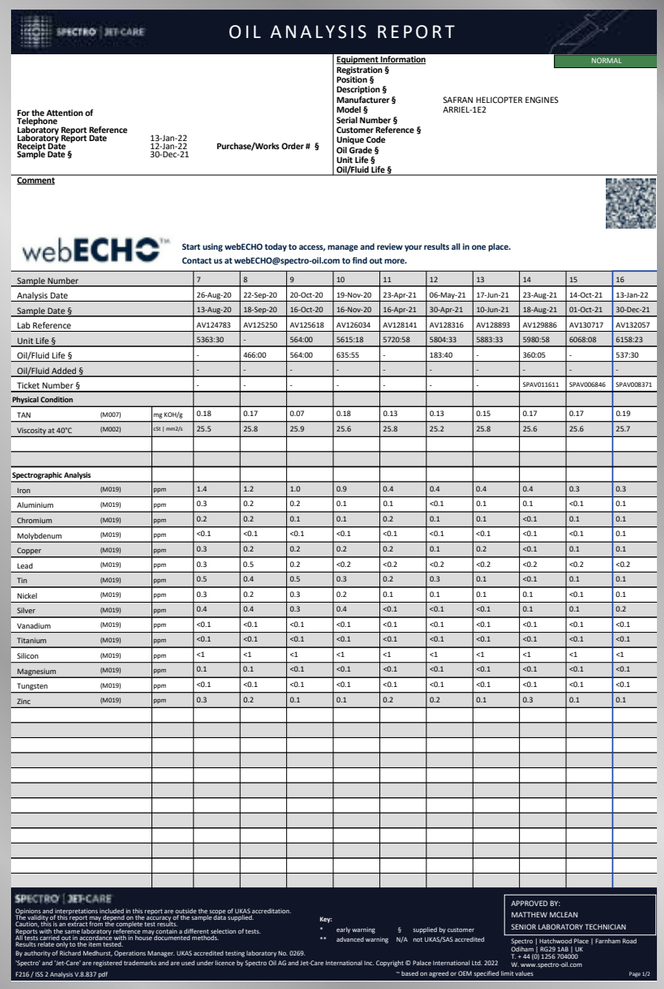
WHY USE webECHO

View your data, statistics and/or PDF reports for:

- Oil, Hydraulic Fluid and Fuel Analysis
- Debris and Filter Analysis by Scanning Electron Microscope.
- Jet-Care Engine Trending by Gas Path Analysis (GPA)
- Filter data by alert level, analysis type or any other searchable parameter.
- Review online trends and analysis of your equipment.
- Download reports, view graphs and analyse data in real time.
- Review and request changes to the information held on your organisation - locations, operators, equipment, reporting and test suites.
- View the last 50 data points used for analysis in tabular format for quick numerical comparison.

REPORTING & TECHNICAL SUPPORT

Within two working days your results are reported either by email or can be accessed through our online portal, webECHO™. The analysis reports are provided in PDF format and show the equipment history as well as a colour coded system - Green – Normal, Yellow - Early Warning or Red - Advanced, which indicate whether the result requires action. The results can be discussed further with our technical team, who not only understand laboratory analysis but aviation equipment and operation.



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OIL ANALYSIS REPORT

NORMAL

Equipment Information
Registration §
Position §
Description §
Manufacturer § SAFRAN HELICOPTER ENGINES
Model § ARRIEL-1E2
Serial Number §
Customer Reference §
Unique Code
Oil Grade §
Unit Life §
Oil/Fluid Life §

For the Attention of
Telephone
Laboratory Report Reference
Laboratory Report Date 13-Jan-22
Receipt Date 12-Jan-22
Sample Date § 30-Dec-21
Purchase/Works Order # §

Comment

webECHO™ Start using webECHO today to access, manage and review your results all in one place.
Contact us at webECHO@spectro-oil.com to find out more.

Sample Number			7	8	9	10	11	12	13	14	15	16
Analysis Date			26-Aug-20	22-Sep-20	20-Oct-20	19-Nov-20	23-Apr-21	06-May-21	17-Jun-21	23-Aug-21	14-Oct-21	13-Jan-22
Sample Date §			13-Aug-20	18-Sep-20	16-Oct-20	16-Nov-20	16-Apr-21	30-Apr-21	10-Jun-21	18-Aug-21	01-Oct-21	30-Dec-21
Lab Reference			AV124783	AV125250	AV125618	AV126034	AV128141	AV128316	AV128893	AV129886	AV130717	AV132057
Unit Life §			5363:30	-	564:00	5615:18	5720:58	5804:33	5883:33	5980:58	6068:08	6158:23
Oil/Fluid Life §			-	466:00	564:00	635:55	-	183:40	-	360:05	-	537:30
Oil/Fluid Added §			-	-	-	-	-	-	-	-	-	-
Ticket Number §			-	-	-	-	-	-	-	SPAV011611	SPAV006846	SPAV008371
Physical Condition												
TAN	(M007)	mg KOH/g	0.18	0.17	0.07	0.18	0.13	0.13	0.15	0.17	0.17	0.19
Viscosity at 40°C	(M002)	cSt | mm2/s	25.5	25.8	25.9	25.6	25.8	25.2	25.8	25.6	25.6	25.7
Spectrographic Analysis												
Iron	(M019)	ppm	1.4	1.2	1.0	0.9	0.4	0.4	0.4	0.4	0.3	0.3
Aluminium	(M019)	ppm	0.3	0.2	0.2	0.1	0.1	<0.1	0.1	0.1	<0.1	0.1
Chromium	(M019)	ppm	0.2	0.2	0.1	0.1	0.2	0.1	0.1	<0.1	0.1	0.1
Molybdenum	(M019)	ppm	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.1
Copper	(M019)	ppm	0.3	0.2	0.2	0.2	0.2	0.1	0.2	<0.1	0.1	0.1
Lead	(M019)	ppm	0.3	0.5	0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Tin	(M019)	ppm	0.5	0.4	0.5	0.3	0.2	0.3	0.1	<0.1	0.1	0.1
Nickel	(M019)	ppm	0.3	0.2	0.3	0.2	0.1	0.1	0.1	0.1	<0.1	0.1
Silver	(M019)	ppm	0.4	0.4	0.3	0.4	<0.1	<0.1	<0.1	0.1	0.1	0.2
Vanadium	(M019)	ppm	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Titanium	(M019)	ppm	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Silicon	(M019)	ppm	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Magnesium	(M019)	ppm	0.1	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Tungsten	(M019)	ppm	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Zinc	(M019)	ppm	0.3	0.2	0.1	0.1	0.2	0.2	0.1	0.3	0.1	0.1

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Caution, this is an extract from the complete test results.
Reports with the same laboratory reference may contain a different selection of tests.
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Results relate only to the item tested.
By authority of Richard Medhurst, Operations Manager. UKAS accredited testing laboratory No. 0269.
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Key:
* early warning § supplied by customer
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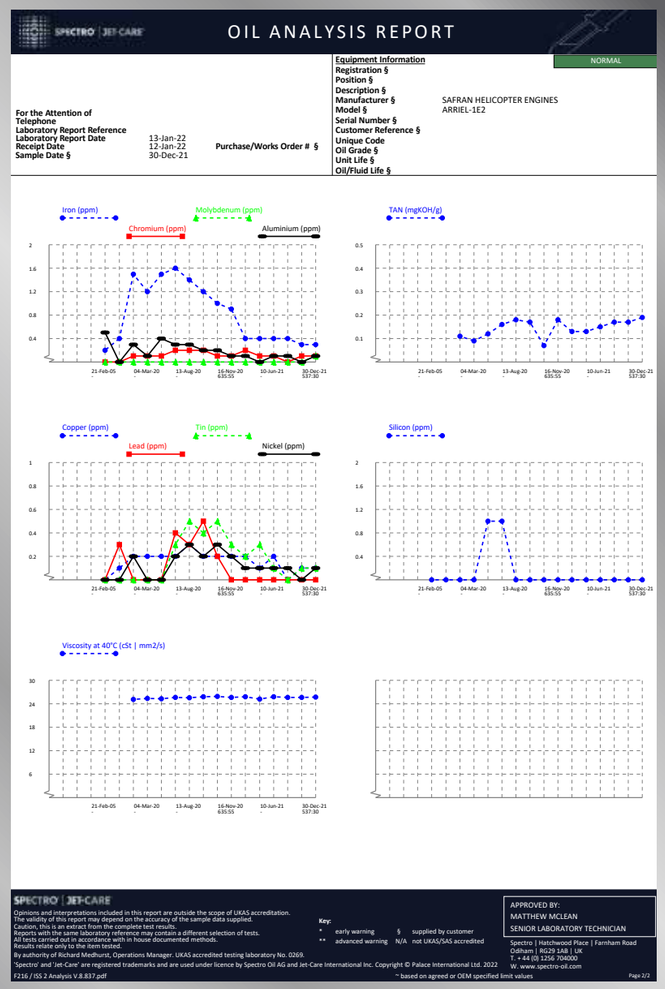
OIL ANALYSIS REPORT PAGE 1



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OIL ANALYSIS REPORT

NORMAL

Equipment Information
Registration §
Position §
Description §
Manufacturer § SAFRAN HELICOPTER ENGINES
Model § ARRIEL-1E2
Serial Number §
Customer Reference §
Unique Code
Oil Grade §
Unit Life §
Oil/Fluid Life §

For the Attention of
Telephone
Laboratory Report Reference
Laboratory Report Date 13-Jan-22
Receipt Date 12-Jan-22
Sample Date § 30-Dec-21
Purchase/Works Order # §

Iron (ppm) Molybdenum (ppm) Chromium (ppm) Aluminium (ppm)

TAN (mgKOH/g)

Copper (ppm) Tin (ppm) Lead (ppm) Nickel (ppm)

Silicon (ppm)

Viscosity at 40°C (cSt | mm2/s)

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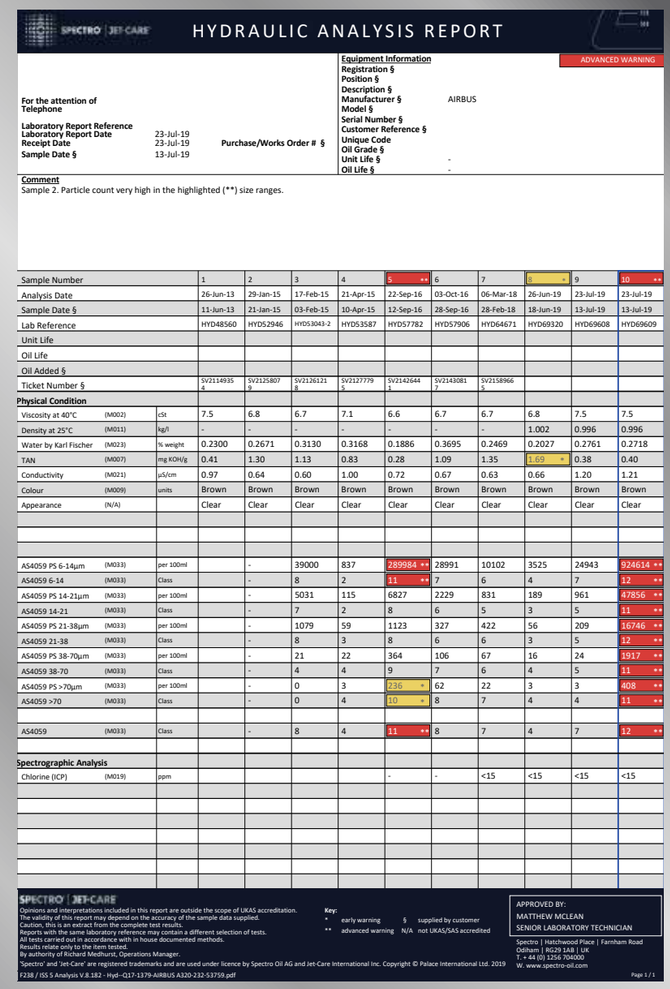
OIL ANALYSIS REPORT PAGE 2



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HYDRAULIC ANALYSIS REPORT

ADVANCED WARNING

Equipment Information
Registration §
Position §
Description §
Manufacturer § AIRBUS
Model §
Serial Number §
Customer Reference §
Unique Code
Oil Grade §
Unit Life § -
Oil Life § -

For the attention of
Telephone
Laboratory Report Reference
Laboratory Report Date 23-Jul-19
Receipt Date 23-Jul-19
Sample Date § 13-Jul-19
Purchase/Works Order # §

Comment
Sample 2. Particle count very high in the highlighted (**) size ranges.

Sample Number			1	2	3	4	5	6	7	8	9	10
Analysis Date			26-Jun-13	29-Jan-15	17-Feb-15	21-Apr-15	22-Sep-16	03-Oct-16	06-Mar-18	26-Jun-19	23-Jul-19	23-Jul-19
Sample Date §			11-Jun-13	21-Jan-15	03-Feb-15	10-Apr-15	12-Sep-16	28-Sep-16	28-Feb-18	18-Jun-19	13-Jul-19	13-Jul-19
Lab Reference			HYD48560	HYD52946	HYDS3043-2	HYD53587	HYD57782	HYD57906	HYD64671	HYD69320	HYD69608	HYD69609
Unit Life												
Oil Life												
Oil Added §												
Ticket Number §			SV2114935 4	SV2125807 9	SV2126121 8	SV2127779 5	SV2142644 1	SV2143081 7	SV2158966 5			
Physical Condition												
Viscosity at 40°C	(M002)	cSt	7.5	6.8	6.7	7.1	6.6	6.7	6.7	6.8	7.5	7.5
Density at 25°C	(M011)	kg/l	-	-	-	-	-	-	-	1.002	0.996	0.996
Water by Karl Fischer	(M023)	% weight	0.2300	0.2671	0.3130	0.3168	0.1886	0.3695	0.2469	0.2027	0.2761	0.2718
TAN	(M007)	mg KOH/g	0.41	1.30	1.13	0.83	0.28	1.09	1.35	1.69 *	0.38	0.40
Conductivity	(M021)	µS/cm	0.97	0.64	0.60	1.00	0.72	0.67	0.63	0.66	1.20	1.21
Colour	(M009)	units	Brown	Brown	Brown	Brown	Brown	Brown	Brown	Brown	Brown	Brown
Appearance	(N/A)		Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear
AS4059 PS 6-14µm	(M033)	per 100ml		-	39000	837	289984 **	28991	10102	3525	24943	92464 **
AS4059 6-14	(M033)	Class		-	8	2	11 **	7	6	4	7	12 **
AS4059 PS 14-21µm	(M033)	per 100ml		-	5031	115	6827	2229	831	189	961	47856 **
AS4059 14-21	(M033)	Class		-	7	2	8	6	5	3	5	11 **
AS4059 PS 21-38µm	(M033)	per 100ml		-	1079	59	1123	327	422	56	209	16746 **
AS4059 21-38	(M033)	Class		-	8	3	8	6	6	3	5	12 **
AS4059 PS 38-70µm	(M033)	per 100ml		-	21	22	364	106	67	16	24	1917 **
AS4059 38-70	(M033)	Class		-	4	4	9	7	6	4	5	11 **
AS4059 PS >70µm	(M033)	per 100ml		-	0	3	236 *	62	22	3	3	408 **
AS4059 >70	(M033)	Class		-	0	4	10 *	8	7	4	4	11 **
AS4059	(M033)	Class		-	8	4	11 **	8	7	4	7	12 **
Spectrographic Analysis												
Chlorine (ICP)	(M019)	ppm					-	-	<15	<15	<15	<15

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HYDRAULIC ANALYSIS REPORT

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