



ROTODYNE S.R.L.

AEROSPACE GROUND SUPPORT EQUIPMENT

Selection for:

AW139



ROTODYNE S.R.L. Via IV Novembre n°5 - 21047 SARONNO (VA) Italy - Tel. +39.02.9602270 Telefax +39.02.96702517
Stabilimento: Via Monte Generoso n° 282 - 21042 CARONNO P. (VA) Italy -Tel. +39.0296458186 Telefax +39.02.96459401
C.F. e P. IVA 01416040127 - R.E.A. Varese N°181266 Capitale Sociale € 51.480,00 WEB: www.rotodyne.it

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AEROSPACE GROUND EQUIPMENT
DATA SHEET



HYDRAULIC TEST STAND ELECTRIC MOTOR DRIVEN
16 GPM AT 3000 PSI, MAX OPERATING PRESSURE
4500 PSI

P/N: 120-1D (DLP)
NSN: 4920-15-1563513

1) **FUNCTION:** HYDRAULIC SYSTEM TEST AND CHECK ON MEDIUM
HELICOPTERS AND AIRCRAFT

2) **ILLUSTRATION:**



3) **MAINTENANCE LEVEL:** 1st 2nd 3rd

4) TO USE IN CONJUNCTION WITH:

Quick disconnect adapters available on request, compliant with specific helicopters or aircraft

5) TECHNICAL DESCRIPTION, PN 120-1D (DLP)**MAIN FEATURES:**

Hydraulic Test Stand mounted on a trolley (steel structure) equipped with four super elastic wheels, two of which on rotating plate. A towing bar can be installed as optional device.

Axial piston type, high pressure, electric motor driven pump with variable displacement and adjustable working pressure up to 16 GPM at 3000 psi or 10 GPM at 4500 psi.

High Pressure 3 μ filter on delivery line equipped with electrical differential pressure switch for filter clogged indication.

Submerged cartridge suction filter 90 μ .

Stainless Steel reservoir, externally painted, volume about 110 litres, operative capacity 70 litres, equipped with inspection hole, oil level visual indicator, drain valve, filling and drain port, suction and return port.

The HTS may be used with aircraft reservoir or test stand reservoir, throughout a 4 ways valve 3 positions.

Sampling port to check the fluid class (according to NAS 1638).

Ambient working temperature: from -20°C to +50°C.

Working fluid: MIL-PRF-5606, MIL-PRF-83282 or MIL-PRF-87257. On request Skydrol fluid.

Proportional electric valve, with by-pass function, to set and control the max working pressure.

Mechanical relief valve, to pilot the pump compensator, for the adjusting of the actual working pressure.

The HTS is Dual System (2 completely independent branches, each branch composed by one delivery line and one return line), it is possible to operate with different pressures (with the aid of two pressure reducing valves) on both circuits simultaneously. On return line the back pressure can be adjusted.

INSTRUMENTATION:

H.P. gauge, branch "A", F.S. 6000 PSI, \varnothing 150 mm, accuracy 0,6% f.s., case filled with silicon oil for low temp

H.P. gauge, branch "B", F.S. 6000 PSI, \varnothing 150 mm, accuracy 0,6% f.s., case filled with silicon oil for low temp

L.P. gauge, return pressure, F.S. 160 PSI, \varnothing 100mm, accuracy 0,6% f.s., case filled with silicon oil for low temp
Flowmeter, LPM or GPM and Thermometer, °C digital indication.

Oil level sight indicator. Clogged filter indicator. Hour-counter.

ELECTRIC MOTOR:

Power rating 15 KW.

Power Supply: 230/400Vac/50Hz threephases +GND, 63A; 200/440 VAC/60Hz, threephases +GND, 63A.

OPTION:

The test stand (DLP version) is equipped with a Laser Particle Counter (P/N KLP-120), for continuous monitoring the hydraulic fluid, without sampling it, for presence of particles and/or water presence inside the fluid.

ACCESSORIES:

Standard: refilling remote control, power supply cable length 10 m with plug 3P+GND 63A according to CEE17 (CEI23-12); two delivery H.P. flexible hoses (size 1/2" length 8m), two return L.P. flexible hoses (size 3/4" length 8m); one drainage flexible hose (Size 1/2" length 8m).

Test stand textile cover, wood crate for transport, O&M manual, CoC, Test report, gauge calibration reports and fluid contamination report, laser particle counter calibration certificate and O&M manual (DLP version). Fuse kit as spare part.

On request: tow bar, max towing speed 5 km/h

COLOUR: Yellow RAL 1007 standard, white for Skydrol version, other colours on request.

6) OVERALL DIMENSIONS AND MASS:

LENGHT (mm)	WIDTH (mm)	HEIGHT (mm)	MASS (KG)
1290	955	1015	441

7) REFERENCE DATA: Leonardo Company H.D., Leonardo Company A.D., CHC, Airbus Helicopters, Luftransport, Italian Navy & Coast Guard, Hawker Pacific, Heliflite, Italian Police, Babcock MCS

8) REMARKS: suitable for AW139, AW149, AW169, AW189, NH90, AW101

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DATA SHEET



HYDRAULIC TEST STAND ELECTRIC MOTOR DRIVEN,
11 GPM AT 3000 PSI, MAX OPERATING PRESSURE
4500 PSI

P/N: 118-1D

1) **FUNCTION:** HYDRAULIC SYSTEM TEST AND CHECK ON MEDIUM
HELICOPTERS AND AIRCRAFT

2) **ILLUSTRATION:**



3) **MAINTENANCE LEVEL:** 1st 2nd 3rd

4) TO USE IN CONJUNCTION WITH:

Quick disconnect adapters available on request, compliant with specific helicopters or aircraft

5) TECHNICAL DESCRIPTION, PN 118-1D**MAIN FEATURES:**

Hydraulic Test Stand mounted on a trolley (steel structure) equipped with four super elastic wheels, two of which on rotating plate. A towing bar can be installed as optional device.

Axial piston type, high pressure, electric motor driven pump with variable displacement and adjustable working pressure up to 11 GPM at 3000 psi or 7 GPM at 4500 psi.

High Pressure 3 μ filter on delivery line equipped with electrical differential pressure switch for filter clogged indication.

Submerged cartridge suction filter 90 μ .

Stainless Steel reservoir, externally painted, volume 110 litres about, operative capacity 70 litres, equipped with inspection hole, oil level visual indicator, drain valve, filling and drain port, suction and return port.

The HTS may be used with aircraft reservoir or test stand reservoir, throughout a 4 ways valve 3 position.

Sampling port to check the fluid class (according to NAS 1638).

Ambient working temperature: from -20°C to +50°C.

Working fluid: MIL-PRF-5606, MIL-PRF-83282 or MIL-PRF-87257. On request Skydrol fluid.

Proportional electric valve, with by-pass function, to set and control the max working pressure.

Mechanical relief valve, to pilot the pump compensator, for the adjusting of the actual working pressure.

The HTS is Dual System (2 completely independent branches, each branch composed by one delivery line and one return line), it is possible to operate with different pressures (with the aid of two pressure reducing valves) on both circuits simultaneously).

On the return line the back pressure can be adjusted.

INSTRUMENTATION:

H.P. gauge, branch "A", F.S. 6000 PSI, \varnothing 150 mm, accuracy 0,6% f.s., case filled with silicon oil for low temp

H.P. gauge, branch "B", F.S. 6000 PSI, \varnothing 150 mm, accuracy 0,6% f.s., case filled with silicon oil for low temp

L.P. gauge, return pressure, F.S. 160 PSI, \varnothing 100mm, accuracy 0,6% f.s., case filled with silicon oil for low temp

Flowmeter, LPM or GPM and Thermometer, °C digital indication.

Oil level sight indicator. Clogged filter indicator. Hour-counter.

ELECTRIC MOTOR:

Power rating 11 KW.

Power Supply: 230/400Vac/ 50Hz threephases+GND, 63A; 200-440 VAC/60Hz, threephases+GND, 63A.

OPTION:

The test stand (DLP version) is equipped with a Laser Particle Counter (P/N KLP-120), for continuous monitoring the hydraulic fluid, without sampling it, for presence of particles and/or water presence inside the fluid.

ACCESSORIES:

Standard: refilling remote control, power supply cable length 10 m with plug 3P+GND 63A according to CEE17 (CEI23-12); two delivery H.P. flexible hoses (size 1/2" length 8m), two return L.P. flexible hoses (size 3/4" length 8m); one drainage flexible hose (Size 1/2" length 8m).

Test stand textile cover, wood crate for transport, O&M manual, CoC, Test report, gauge calibration reports and fluid contamination report. Fuse kit as spare part.

COLOUR:

Yellow RAL 1007 standard, white for Skydrol version, other colours on request.

6) OVERALL DIMENSIONS AND MASS:

LENGHT (mm) 1290	WIDTH (mm) 955	HEIGHT (mm) 1015	MASS (KG) 430
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7) REFERENCE DATA: Leonardo Company H.D., Leonardo Company A.D., State Forestry Corp, Bell Helicopter, Patria Helicopters, Babcock MCS, Swedish Police, Rega Swiss Air Ambulance

8) REMARKS: suitable for AW109 all versions, AW139, AW169, AB212/412, BK117, Bell 429

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AEROSPACE GROUND EQUIPMENT
DATA SHEET



HYDRAULIC TEST STAND DIESEL ENGINE DRIVEN
16 GPM AT 3000 PSI, MAX OPERATING PRESSURE
4500 PSI

P/N: BF120-1D
NSN: 2815-15-1807614

1) **FUNCTION:** HYDRAULIC SYSTEMS TEST AND CHECK ON MEDIUM
HELICOPTER AND AIRCRAFT

2) **ILLUSTRATION:**



3) **MAINTENANCE LEVEL:** 1st 2nd 3rd

4) TO USE IN CONJUNCTION WITH

Quick disconnect adapters available on request, compliant with specific helicopters or aircraft

5) TECHNICAL DESCRIPTION, PN BF120-D**MAIN FEATURES:**

Hydraulic Test Stand mounted on a steerable trailer (steel structure) equipped with four pneumatic wheels, towing through a tow-bar at the maximum speed of 30 Km/h. Rear wheels are equipped with hand operated drum brake.

Axial piston type, high pressure, diesel engine driven pump with variable displacement and adjustable working pressure up to 16 GPM at 3000 psi or 10 GPM at 4500 psi.

High Pressure 2 μ filter on delivery line equipped with differential pressure switch for filter clogged indication

Low pressure 25 μ filter.

Stainless steel reservoir, volume 120 litres, operative capacity 90 litres, equipped with:

- inspection hole
- fluid level sight indicator
- drain valve
- filling and drain port
- suction and return port

The HTS may be used with aircraft reservoir or test stand reservoir.

Sampling port to check the fluid class (according to NAS 1638).

Ambient working temperature: from -20°C to +50°C

Working fluid: MIL-PRF-5606, MIL-PRF-83282 and MIL-PRF-87257. On request Skydrol fluid.

Proportional electric valve, with by-pass function, to set and control the max working pressure.

Mechanical relief valve, to pilot the pump compensator, for the adjusting of the actual working pressure.

The HTS is Dual System (2 completely independent branches, each branch composed by one delivery line and one return line), it is possible to operate with different pressures (with the aid of two pressure reducing valves) on both circuits simultaneously. On return line the back pressure can be adjusted.

INSTRUMENTATION:

H.P. gauge, branch "A", F.S. 6000 PSI, accuracy 0,6% f.s., case filled with silicon oil for low temp

H.P. gauge, branch "B", F.S. 6000 PSI, accuracy 0,6% f.s., case filled with silicon oil for low temp

L.P. gauge, return / booster pressure, F.S. 160 PSI, accuracy 0,6% f.s., case filled with silicon oil for low temp

Flowmeter, LPM or GPM and Thermometer, °C digital indication

Fluid level sight indicator. Diesel fuel level. Engine RPM indicator with hour counter integrated.

DIESEL ENGINE:

Deutz type F4L1011, 4cylinders, air cooled

Power rating: continuous 31 KW @ 2000 RPM

Starting motor: 24 v, 4KW. Ancillary alternator: 40 A at 28 V. N° 2 battery of 70 Ah.

OPTION:

The test stand can be equipped with a Laser Particle Counter (P/N KLP-120), for continuous monitoring the hydraulic fluid, without sampling it, for presence of particles and/or water presence inside the fluid

ACCESSORIES:

Standard: Two delivery H.P. flexible hoses (size 1/2" length 8m), two return L.P. flexible hoses (size 3/4" length 8m); one drainage flexible hose (size 1/2" length 8m).

Test stand textile cover, wood crate for transport; O&M manual, CoC, Test report, gauge calibration report and fluid contamination report ,Engine O&M manual.

On request: kit for cold starting up to -32°C or up to -40°C

COLOUR: Yellow RAL 1007 standard, other colors on request

6) OVERALL DIMENSIONS AND MASS:

LENGHT (mm)	WIDTH (mm)	HEIGHT (mm)	MASS (KG)
2450	1282	1215	1650

7) REFERENCE DATA: Leonardo Company H.D., CHC, Royal Oman Air Force, Italian army

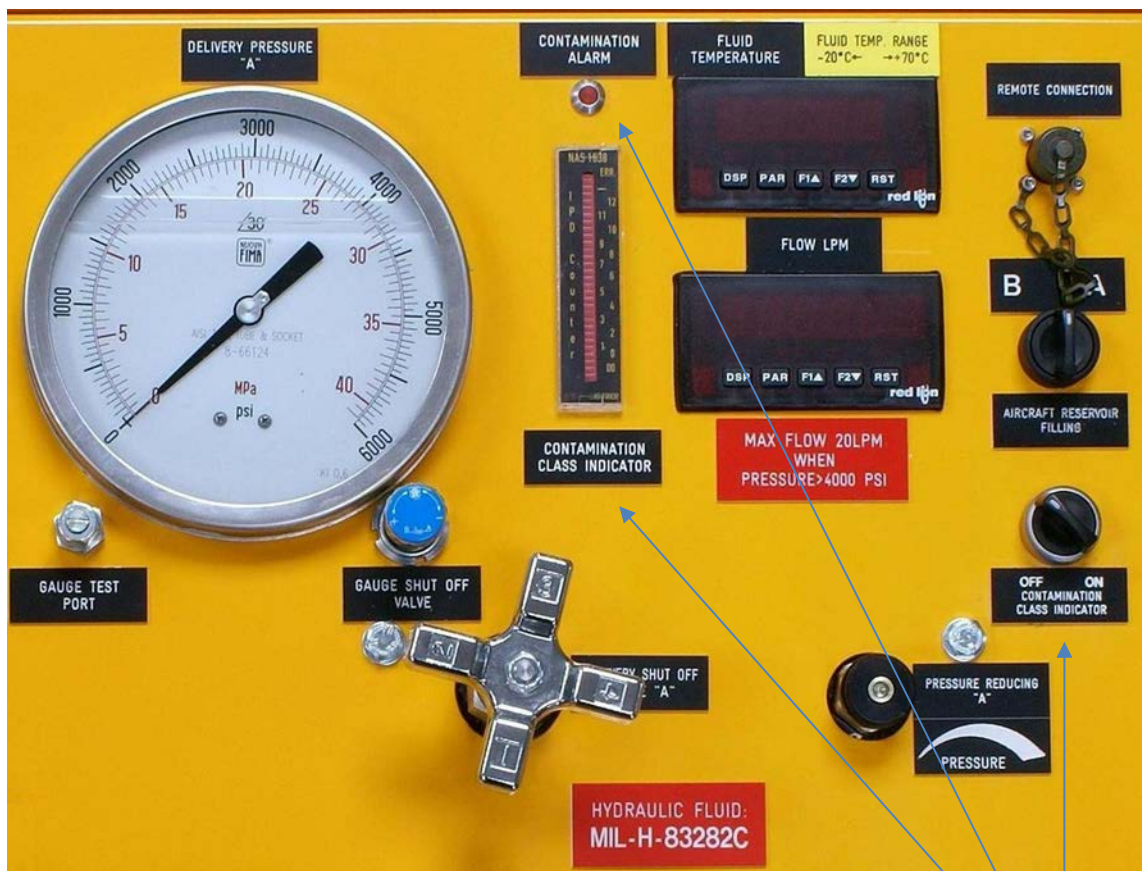
8) REMARKS: suitable for AW139, AW149, AW169, AW189, NH90, EH101

LASER PARTICULATE COUNTER FOR HYDRAULIC
FLUID ANALYSIS

P/N: KLP-120

1) **FUNCTION:** MONITOR HYDRAULIC FLUID CONTAMINATION BOTH FOR
PARTICLES AND/OR WATER PRESENCE

2) **ILLUSTRATION:**



P/N KLP-120 on a P/N 120-1D
Hydraulic Test Stand Control Panel

3) **MAINTENANCE LEVEL:** 1st 2nd 3rd

4) TO USE IN CONJUNCTION WITH

As optional device on new Hydraulic Test Stand P/N 120-1D or as retrofit on already-in-use Test Stand

5) TECHNICAL DESCRIPTION, PN KLP-120**MAIN FEATURES:**

The P/N KLP-120 is a checking system to monitor hydraulic fluid, both for particle and/or water presence.

The system, which includes a digital reading instrument, is designed to be installed on the hydraulic test stand P/N 120-1D (also as retrofit) and on request on bigger hydraulic test stands of our production.

This instrument is equipped with a laser counter device which monitor the contaminating particle and can be fitted with an optional hygrometric sensor to alert about water presence in the fluid; a led bar indicator on the instrument panel allows to identify and read the contamination class. The relative humidity level (if the optional hygrometric sensor is installed) is also available through a direct connection to the sensor.

The contamination level value is given in NAS or ISO class, while the hygrometric sensor gives the percentage value of relative humidity between 0 and 100 (Rh%).

The system is installed to verify at choice the delivery or return line of the test stand P/N 120-1D and allows the operator to monitor continuously the particle contamination and the relative humidity in the hydraulic fluid both in the test stand and from the aircraft hydraulic circuit.

A reference value or a threshold value can be set, in NAS1638 classification value, to avoid the possibility that the test stand or the aircraft works with contaminated fluid.

An output signal can be associated to a desiderate reference value in order to manage different type of alarm systems, such as a visual and/or acoustic alert or test stand automatic stop.

With the aids of this system it is possible to manage the cleaning process of aircraft's hydraulic systems fluid, setting the fluid level NAS/ISO class to be reached and/or monitoring the trend of the contamination by setting an alarm of maximum threshold reached.

The system has a RS232 port for the direct interface with external PC / PLC. With the software given in the kit is possible to download the tests reports and to store test records.

The kit KLP-120 can be installed in an existing test stand at our premises as a retrofit. The kit installation need a different configuration of the instrument panel of the test stand and minor internal modification which do not modify standard use procedures.

6) OVERALL DIMENSIONS AND MASS:**7) REFERENCE DATA:****8) REMARKS:**

QUICK DISCONNECT COUPLING KIT

P/N: KQC-139

1) **FUNCTION:** KIT OF QUICK DISCONNECT COUPLING TO CONNECT HYDRAULIC TEST STAND TO PCM OF AW139 HELICOPTER

2) **ILLUSTRATION:**



3) **MAINTENANCE LEVEL:** 1st 2nd 3rd

4) TECHNICAL DESCRIPTION, P/N KQC-139**MAIN FEATURES:**

Original quick disconnect coupling kit KQC, designed to allow the interface of the aircraft hydraulic system lines with the hydraulic test stand lines without leaking and use of tools.

The KQC configuration reflects aircraft redundant dual system hydraulic circuit requirements with its composition:

- 2 Delivery line Quick disconnect
- 2 Return line Quick disconnect
- 1 Short circuit Delivery-Return

The KQC is delivered in a dedicated box, configuration sheet and CoC is provided.

5) OVERALL DIMENSIONS AND MASS:

LENGTH (mm) n.a.	WIDTH (mm) n.a.	HEIGHT (mm) n.a.	MASS n.a.
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6) REFERENCE DATA: Leonardo H.D., Babcock MCS, Karen SA, Heli-One CHC, Kaigai Corporation, Gulf Helicopter, Elilombarda, Abu Dhabi Aviation, Avia-Jet LCC, Ruag Switzerland Ltd, TAI, Hunter Region Rescue, Italian Police, Euroavia, Italian Coast Guard, Italian Fire Department

7) REMARK: suitable for AW139

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STATIC POWER SUPPLY, 28 VDC 250 A CONTINUOUS,
NOT STABILIZED

P/N: 110-6B
NSN: 6130-15-1989843

1) **FUNCTION:** SUPPLY DC POWER TO LIGHT AND MEDIUM AIRCRAFT DURING MAINTENANCE OPERATIONS AND TURBINE ENGINE STARTING

2) **ILLUSTRATION:**



3) **MAINTENANCE LEVEL:** X 1st X 2nd 3rd

4) TO USE IN CONJUNCTION WITH:

Quick disconnect adapters available on request, compliant with specific helicopters or aircraft

5) TECHNICAL DESCRIPTION, PN 110-6B**DESCRIPTION:**

The P/N 110-6B has been designed to supply electric power at 28Vdc to the aircraft allowing electronic and electric circuit as well as instrument test and check. The power supply allows the turboengine start.

MAIN FEATURES:

Electric supply: 230-400V 50Hz, threephases+GND 32A
440-480V 50/ 60Hz, threephases+GND 32A
Output: 28 VDC, 250 A.
Max overload: 1000 A for 2 sec.
Recovery time: 0.1 sec.
Ripple: < 1 Vpp.

PROTECTIONS AND SAFETY DEVICES:

The power supply is protected against overvoltage and this function is implemented on a fully programmable digital card.
The methods and application are compliant with STANAG 3457, Ground Electrical Power Supply For Aircraft. and MIL-STD-704F, Aircraft Electrical Power Characteristics.

INSTRUMENTATION:

Digital Voltmeter, resolution 0,1V
Digital Ammeter, resolution 1A

CONTROLS /VISUAL INDICATION:

Main switch
Output power switch
Voltage regulator selector
Acoustic (buzzer) overvoltage alarm
Overvoltage alarm reset luminous pushbutton
Phase detection lamps (3)(correct phases)

ACCESSORIES:

Standard: 28Vdc output power cable (length 8 m) with plug according to Stanag 3302, power supply cable (length 15 m) with plug 3P+GND 32A according to CEE17 (CEI23-12).
Test stand textile cover, wood crate for transport, O&M manual, CoC, Test report, DC instrument calibration reports. Fuse kit as spare part.

COLOUR:

Yellow RAL 1007 standard, other colors on request.

6) OVERALL DIMENSIONS AND MASS:

LENGHT (mm)	WIDTH (mm)	HEIGHT (mm)	MASS (KG)
712	661	1124	200

7) REFERENCE DATA: Leonardo Company H.D., Elidolomiti, Helicopters Italia, Italian National Fire Corps, State Forestry Corp, Babcock MCS, Italian Coast Guard, Hellenic Air Force, Hawker Pacific, Irish Air Corps, Luftransport, Patria Helicopters

8) REMARKS: suitable for AW109, AW139, AW169, AW189, BK117, AB212/412

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AEROSPACE GROUND EQUIPMENT
DATA SHEET



STATIC STABILIZED POWER SUPPLY, 28VDC 400A
CONTINUOUS, STABILIZED

P/N: 602-6B
NSN: 6130-15-1810519

1) **FUNCTION:** SUPPLY DC POWER TO MEDIUM AND HEAVY AIRCRAFT
DURING MAINTENANCE OPERATIONS AND TURBINE ENGINE
STARTING

2) **ILLUSTRATION:**



3) **MAINTENANCE LEVEL:** 1st 2nd 3rd

4) TECHNICAL DESCRIPTION, PN 602-6B**MAIN FEATURES:**

The P/N 602-6B power supply unit has been developed to supply electric power at 28Vdc stabilized to aircraft allowing electronic and electric circuit as well as instrument test and check. The power supply allows the turbo engine start.

TECHNICAL CHARACTERISTICS:

Electric supply: 230/400, 50/60Hz threephases+GND, 63A
440,50/ 60Hz threephases+GND, 63A
Output: 28 VDC, 400A continuous
Max overload: 2000 A
Stabilization: + / - 1 V from 0 to full load
Recovery time: 0.1 sec.
Ripple: < 2%.
Auxiliary Output: 28Vdc
230Vac 50Hz

PROTECTIONS AND SAFETY DEVICES:

The power supply is protected against overvoltage and this function is implemented on a fully programmable digital card.

The methods and application are compliant with STANAG 3457, Ground Electrical Power Supply For Aircraft and MIL-STD-704F, Aircraft Electrical Power Characteristics.

INSTRUMENTATION:

Digital Voltmeter, resolution 0,1 V
Digital Ammeter, resolution 1A
Hour Counter

CONTROLS/VISUAL INDICATION:

Main switch
Output power switch
Start push button
Stop push button
Stabilization ON/OFF selector
Output voltage readout: cart / plug selector
Voltage regulator selector
Phase detection lamps (3)(correct phases).

ACCESSORIES:

Standard: 28Vdc output power cable (length 8 m) with plug according to Stanag 3302, input power supply cable length 15 m with plug 3P+GND 63A according to CEE17 (CEI23-12).

Test stand textile cover, wood crate for transport, O&M manual, CoC, Test report, DC instrument calibration reports.

Fuse kit as spare part.

COLOUR:

Yellow RAL 1007 standard, other colours on request

5) OVERALL DIMENSION AND MASS:

LENGHT (mm) 782	WIDTH (mm) 745	HEIGHT (mm) 1085	MASS (KG) 290
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6) REFERENCE DATA: Leonardo Company H.D., Leonardo Company A.D., Italian MoD, Italian Air Forces, Italian Police, CHC/HeliOne, Luftransport, Netherland Police, Patria Helicopters, Babcock MCS

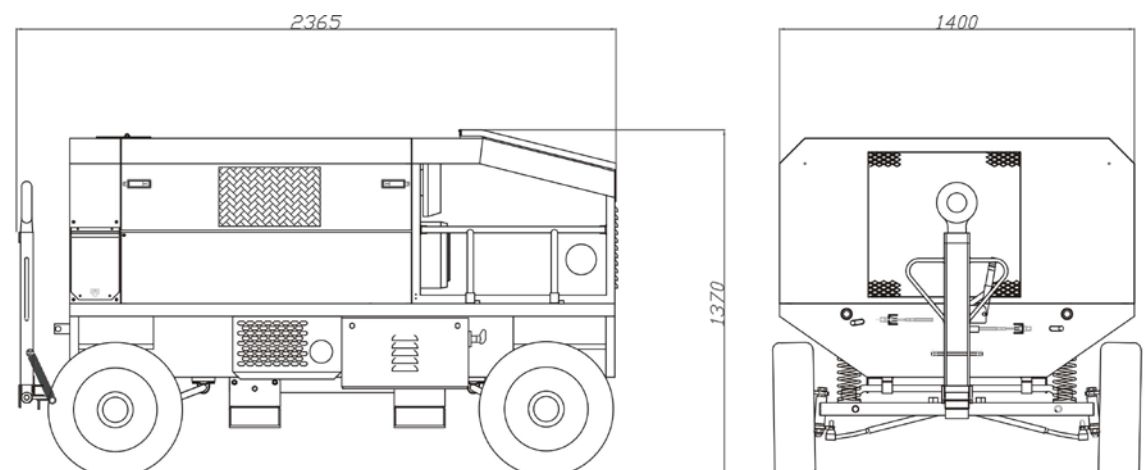
7) REMARKS: suitable for AW139, AW149, AW169, AW189, NH90, AW101

GENERATOR EQUIPMENT

P/N: 140-6 Series
NSN: 6130-15-0185210

- 1) **FUNCTION:** 4 SOLUTIONS DRIVEN BY A MULTIFUEL ENGINE TO FULFILL THE NEEDING OF ALL THE FLIGHT LINES:
- Sole 115Vac 400Hz
 - 115Vac 400Hz with contemporary output 28Vdc
 - 115Vac 400Hz with contemporary output 270Vdc
 - 28Vdc or alternatively 270Vdc

2) **ILLUSTRATION:**



3) **MAINTENANCE LEVEL:** 1st 2nd 3rd

4) TECHNICAL DESCRIPTION, PN 140-6 Series**MAIN FEATURES:**

Ground Power Units, with brushless generator 115VAC 400Hz Diesel driven, depending by the version it could be completed with output 28VDC or alternatively 270Vdc. Trailer steel structure, compliant with SAE-AS-8090, equipped with four pneumatic wheels and a towing bar for a maximum speed of 30 Km/h.

ELECTRICAL OUTPUT:

Main supply for all models:

- AC Output: 115/200Vac 400 Hz 3 phases, 80 kVA cos ϕ 0,8%
- DC Output 28Vdc 800A continuous, 2000A peak
- DC Output 270Vdc 300A continuous, 500A peak

Auxiliary outputs for both models:

Single-phase output (socket according to CEI standard), 115 V 400 Hz, Ph+N+Gnd, 16 A max
Three-phase output (socket according to CEI standard), 115 V 400 Hz, 3Ph+N+Gnd, 16 A max
28 VDC output (socket according to CEI standard), 2 poles, 25A max
270 VDC output (socket according to CEI standard), 2 poles, 15A max

PROTECTIONS AND SAFETY DEVICES:

Every GPU is normally equipped with the following protection / safety devices:

- Overvoltage / undervoltage (1st / 2nd threshold) on AC output
- Overfrequency / underfrequency (1st / 2nd threshold) on AC output

All the above mentioned devices are on digital cards, fully programmable

The methods and application are in compliance with STANAG 3457, Ground Electrical Power Supply For Aircraft, and MIL-STD-704F, Aircraft Electrical Power Characteristics.

INSTRUMENTATION:

P/N 140-6

Line Analyzer including: AC digital ammeter, AC digital voltmeter, AC digital frequency

P/N 140-6D

Line Analyzer including: AC digital ammeter, AC digital voltmeter, AC digital frequency

DC digital ammeter, DC digital voltmeter.

Moreover the following are installed on both models: time counter / RPM readout / fuel level

DIESEL ENGINE:

Deutz TCD2013, 4 cylinder 90kW continuous at 2.000 Rpm, equipped with electronic speed control, working with worldwide diesel, Jet Fuels and BioDiesel without any change.

Ambient operative temperature: -20°C + 50°C;

Certified EPA TIER III / EU STAGE3.

Autonomy: up to 8 hours at engine rated power.

ACCESSORIES:

Standard: 115Vac 400 Hz output power cable (length 10m) with plug according to Stanag 3303, 28Vdc output power cable (length 10 m) with plug according to Stanag 3302, 270Vdc output power cable (length 10 m) with plug R270G5E

Test stand textile cover, O&M manual, CoC, Test report, AC/DC instrument calibration report.

On request: kit for cold starting up to -32°C or up to -40°C

COLOUR:

Yellow RAL 1007 standard, other colours on request

5) OVERALL DIMENSION AND MASS:

LENGHT (mm)
2365

WIDTH (mm)
1400

HEIGHT (mm)
1370

MASS (KG)
1710

6) REFERENCE DATA: Leonardo H.D., Italian Navy, Royal Danish Air Force,
Gulf Helicopters**7) REMARKS:** suitable for Helicopters AW109, AW139, AW169, AW189, NH90,
EH101, CH47 and similar; suitable for Aircraft C130J, F16, EFA2000 and similar

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HYDRAULIC LIFTING JACK

P/N: AM250BM

1) FUNCTION: LIFT THE HELICOPTERS DURING MAINTENANCE OPERATIONS

2) ILLUSTRATION:



3) MAINTENANCE LEVEL: 1st 2nd 3rd

4) TO USE IN CONJUNCTION WITH:

Specific lifting helicopter jack point adapters

5) TECHNICAL DESCRIPTION, PN AM250BM**MAIN FEATURES:**

The AM250 BM lifting jack is an oleodynamic device developed for aircraft jacking.

The lifting jack is composed of a solid base equipped with wheel, on which the tank, the body pump and the three hydraulic sections cylinder are fixed. It is driven by an hand-pump.

TECHNICAL CHARACTERISTICS:

The particular shape of the base allows the location of the jack also in difficult position, allowing in the same time to distribute correctly the masses and to keep the correct and excellent stability.

Each cylinder section when extended can be locked in a safety position by locking rings preventing accidental lowering also after long rising time.

Minimum height: 250mm
Maximum height: 750mm
Load capacity: 4000 Kg

ACCESSORIES:

Wooden crate for transport, O&M manual, CoC, Test report

6) OVERALL DIMENSIONS AND MASS:

LENGHT (mm)	WIDTH (mm)	HEIGHT (mm)	MASS (KG)
670	500	250-750	40

7) REFERENCE DATA: Leonardo Company H.D., Centeravia, Denel Aviation, RUAG, Russair, Gulf Helicopters, Elilombarda, Heliflite, Babcock MCS, Patria Helicopters, Italian National Fire Corps

8) REMARKS: suitable for AW109, AW139, AW169

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ELECTROMECHANICAL LIFTING SYSTEM

P/N: 440-9
NSN: 1730-15-1989842
PAT.: n° 1.340.714

1) **FUNCTION:** AW139 AND NH90 HELICOPTERS JACKING DURING MAINTENANCE OPERATION

2) **ILLUSTRATION:**



3) **MAINTENANCE LEVEL:** 1st 2nd 3rd

4) TECHNICAL DESCRIPTION, PN 440-9

MAIN FEATURES:

The electromechanical lifting system is composed by four electromechanical jacks and a separated console where all the functional indicators are allocated. All the operation has been controlled by a radio remote control, stowed on the console.

ELECTRIC LIFT:

The structure is made by painted steel, while all the movable parts and the self-braking worm are made by high resistance nickel-chromo steel. The jacks are powered by a DC bidirectional electric motor equipped with a parallel shaft speed reduction. The jacks can be easily moved by a removable handle and two rubber wheels mounted in its centre of gravity.

No needs of safety rising locking device , the worm screw movement is not reversible.

CONTROL CONSOLE:

Realized using a standard power board, the control console contains all the electromechanical components, the batteries the battery charger and the radio remote control receiver. The power cable outputs are positioned on the upper left and right sides of console.

Utilizing the remote control, it is possible to select the jacks one by one and move one single jack at the time, during the approach, or select all jacks and move them all together.

MAIN CHARACTERISTICS:

Lift capacity:	4 ton for single jack
Minimum height:	315mm
Maximum height:	1010mm
Motor, power rating:	2 kW
Speed ratio:	1:40
Battery:	24VDC, "Dual AGM" technology, deep cycle, high capacity
Battery charger:	24VDC / 40A charging time 6 h
Battery charger power supply:	230VAC, 50Hz, single phase
Auxiliary power supply:	28VDC with STANAG 3302 plug
Power supply cable length:	8.0 m
Jack connection cable length:	8.0 m
Jack standard colour:	yellow RAL 1007
Console standard colour:	blue RAL 5012

ACCESSORIES:

Control console textile cover, wood crates for transport, O&M manual, CoC, Test report.
Fuse kit as spare part.

5) OVERALL DIMENSIONS AND MASS:

JACK LENGHT (mm)	JACK WIDTH (mm)	JACK HEIGHT (mm)	JACK MASS (KG)
1375	562	"all recovered 315" – "all extended" 1010	154

6) REFERENCE DATA: Leonardo Company H.D., Airbus Helicopters, Italian Navy, Heli-One, Babcock MCS, Italian Army, Irish Air Corp, Karen, Italian Police, Netherland MOD, Avia Jet

7) REMARKS: suitable for AW139, NH90

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AEROSPACE GROUND EQUIPMENT
DATA SHEET



DRAINING AND REFILLING STATION FOR ECS

P/N: 416-9

NSN: 4920-15-0077908

1) **FUNCTION:** AIRCRAFT AIR-CONDITIONING SYSTEMS GAS-RECOVERY, USED-OIL DISCHARGE, VACUUM, LEAKAGE CHECK, OIL INJECTION, GAS INJECTION AND DISCHARGE OF INCONDENSABLE GASES.

2) **ILLUSTRATION:**



3) **MAINTENANCE LEVEL:** 1st 2nd 3rd

4) TO USE IN CONJUNCTION WITH

Quick disconnect adapters available on request, compliant with specific helicopters or aircraft

5) TECHNICAL DESCRIPTION, PN 416-9

MAIN FEATURES:

This equipment is a semi-automatic, multifunctional digital-setting system, manufactured to perform maintenance on aircraft air-conditioning systems like gas-recovery (R134A), used-oil discharge, vacuum, leakage check, oil injection, gas injection and discharge of incondensable gases.

MAIN TECHNICAL CHARACTERISTICS:

Power supply:	220V – 50hz / 110V – 60hz; 900 W
Vacuum flow rate.	72 Litres/min
Filter absorption capacity (rate)	160 gr H ₂ O
System recovery rate	400 gr/min
Vacuum limit	0.1 mbar
Refrigerant cylinder capacity	12 lt
Max operating temperature	50°C
Minimum operating temperature	5°C
Max. pressure of the pneumatic circuit	16 bar

INSTRUMENTATION:

Digital function display
High pressure and Low pressure gauges, class .1.0 pulse free
Oil discharge valve / Oil discharge tank connection
New oil injection tank connection / New oil injection valve
UV tracer tank connection / UV tracer injection valve
HP and LP valve / quick coupling

COMPATIBILITY:

Fully compatibility with different oil as PLANETELF PAG 244, SANDEN SP-10 for mechanically driven compressor, or oil for electrically driven compressor as TOTAL PLANETELF ACD 68M, ISO grade 68.

ACCESSORIES:

Standard: power supply cable length 2m with plug 1P+ Neutral + GND 10A, type SCHUKO, HP & LP output flexible hoses, length 6 m with quick disconnect coupling.
Test stand textile cover, wood crate for transport; O&M manual, CoC, Test report, port. Fuse kit as spare part.

6) OVERALL DIMENSIONS AND MASS:

LENGHT (mm)
460

WIDTH (mm)
660

HEIGHT (mm)
1000

MASS (KG)
68

7) REFERENCE DATA: Leonardo Company H.D., Centeravia, Hawker Pacific, Heli-One, Kaigai Corporation, Babcock MCS

8) REMARKS: suitable for AW109, AW139, AW169, AW189, NH90

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AEROSPACE GROUND EQUIPMENT
DATA SHEET



HYDRAULIC BENCH FOR TURBINE COMPRESSOR
WASHING

P/N: 152-1B
NSN: 4920-15-0176089

1) **FUNCTION:** LIGHT AND MEDIUM HELICOPTERS TURBINE ENGINE
COMPRESSOR WASHING

2) **ILLUSTRATION:**



3) **MAINTENANCE LEVEL:** 1st 2nd 3rd

4) TECHNICAL DESCRIPTION, PN 152-1B**MAIN FEATURES:**

The A/C turbo engine compressor washing unit is made in stainless steel and it has a tubular light structure easily hand towing, mounted on a tubular steel structure and it is powered by compressed air supplied by an external source.

Three stainless steel bottles:

Cleaning fluid reservoir capacity	30 litres
Compressed air reservoir capacity	20 litres
Water reservoir capacity	30 litres.
Three pressure gauges, diam. 63mm, f.s.	10 bar (class 1.6)
Air compressed inlet max pressure	7 bar.
Safety valves	8 bar
Filtration	50 microns

ACCESSORIES:

Standard: output flexible hose, size 1/2" length 8 m, FC332 AQP type or equivalent MULTIFIT, wooden crate for transport; O&M manual, CoC, Test report, gauge calibration report.

On request: quick disconnect coupling kit

5) OVERALL DIMENSION AND MASS:

LENGHT (mm) 890	WIDTH (mm) 630	HEIGHT (mm) 1145	MASS (KG) 75
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6) REFERENCE DATA: Leonardo Company H.D., Leonardo Company A.D., Centeravia, Heli-One, State forestry Corp, Luftransport, Pratt & Whitney

7) REMARKS: suitable for AW109, AW139, AW189, AB212/412, CH47

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AEROSPACE GROUND EQUIPMENT
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ENGINE COMPRESSOR WASHING STAND

P/N: 152-1D/T3

NSN: 4920-15-0006687

1) **FUNCTION:** AIRCRAFT TURBINE ENGINE COMPRESSOR WASHING AND PRESERVING

2) **ILLUSTRATION:**



3) **MAINTENANCE LEVEL:** 1st 2nd 3rd

4) TO USE IN CONJUNCTION WITH:

Quick disconnect adapters available on request, compliant with specific helicopters or aircraft

5) TECHNICAL DESCRIPTION, PN 152-1D/T3

MAIN FEATURES:

The A/C turbine engine compressor washing unit is realized on a steerable trailer equipped with four pneumatic wheels, towing through a tow-bar at the maximum speed of 30 Km/h.

Rear wheels are equipped with hand operated drum brake.

The unit is powered by an air compressor driven by a gasoline mono cylinder engine.

An auxiliary power outlet 28Vdc 5A is provided.

ENGINE: Mono cylinder, with electrical and hand starter, nominal rotation speed 2840 RPM

ENGINE POWER: 5,5 CV

COMPRESSOR: Mono cylinder, maximum delivery 200 LPM at 10 bar, 50 Lt tank capacity, nominal rotation speed 1420 RPM

PRIMING: Belt with pulleys coupling. Transmission ratio 1:2

DELIVERY: 55 LPM at 20psi

WORK PRESSURE: adjustable from 5 to 110 PSI

SAFETY RELIEF VALVE: 4 safety valves: 8 bar valves (2) on compressor tank, 8 bar valve on each fluid tank

PRESSURE GAUGE: 4 pressure gauges:
 - Compressed air inlet ,Dia 100mm F.S. 160PSI, accuracy 0,6 %
 - Fluid delivery pressure, Dia 100mm F.S. 160PSI, accuracy 0,6 %
 - Reservoir compressed air pressure (1&2) Dia 63mm F.S 10bar

FILTERING: $\beta_{50} > 100$

EQUIPMENT: Two stainless steel tank 83 Lt. capacity each; output flexible hose Aeroquip FC 332-8, type in AQP, or equivalent MULTIFIT, length 10 m

STRUCTURE: Steel and painted structure Mounted on four pneumatic wheels provided with rear parking brake, towing bar in accordance to STANAG 4101or 3510 standards

ACCESSORIES: Test stand textile cover, wood crate for transport; O&M manual, CoC, Test report, gauge calibration report.

6) OVERALL DIMENSION AND MASS:

LENGHT (mm) 1790	WIDTH (mm) 1310	HEIGHT (mm) 1525	MASS (empty) 340 Kg
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7) REFERENCE DATA: Leonardo Company H.D., Airbus Helicopters, Italian Navy, Italian Army

8) REMARKS: suitable for AW139, AW189, NH90, SH90, EH101

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AIRCRAFT WEIGHING KIT

P/N: WK440

NSN: 6670-15-0147583

1) FUNCTION: PERFORM THE AIRCRAFT WEIGHT AND BALANCE ACTIVITY

2) ILLUSTRATION:



3) MAINTENANCE LEVEL: 1st 2nd 3rd

4) TECHNICAL DESCRIPTION, PN WK440

MAIN FEATURES:

The P/N WK440 weighing kit is realized as an accessory of the P/N 440-9 mechanical lifting system and is designed to carry out the A/C weight and balance activity (weight distribution on weighing points, total weight, and coordinates from datum of the centre of gravity).

The acquisition unit is programmed to perform the tasks using three or four load cell in accordance to the aircraft under test weight and balance procedures

The kit is composed as follow:

- N°1 power supply cable. The unit can run with powered by internal batteries or external power grid
- N°1 P/N WK440 Acquisition unit with integrated printer
- N°4 load cells
- N°4 calibrated connection cables from acquisition unit and load cells.

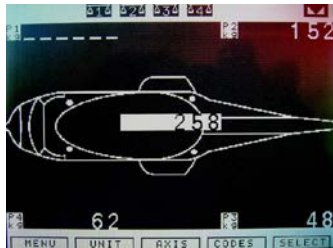
Through the acquisition unit keyboard it is possible to set the system to perform weight and balance on different A/C. The setting procedure is "user friendly" and it is carried out through a series of questions, which appears on the unit display.

The weight and balance calculation is automatically performed, shown on the display, printed on paper or sent to an outside remote device at your choice.

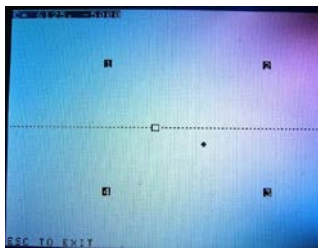
TECHNICAL FEATURES:

Electronic Balance WK440

Working conditions: from -10°C to +40°C
 Power Supply: Ni-Cd cells with integrated 230V 50/60Hz recharger
 Electrical input 60W
 Display: Display LCD 320x240dots retro illuminated



Display in "weighing" mode



Display in "CoG" mode

keyboard: 58 push button
 Protective structure: Stainless steel
 Printer: dot matrix on thermal paper roll
 Printed Data: date and hour, operator, A/C model, S/N, image of the A/C shape, weight on single cell, A/C total weight, centre of gravity coordinates.
 Type of exported files: Text File .txt
 Interface of communication: RS232

Load Load cells 5.000 Kg /10.000Kg

Generality: Stainless steel AISI 316
 Precision class 0.030%
 Protection degree EN60529 IP68
 Maximum load 150% of the nominal value

5) OVERALL DIMENSIONS AND MASS:

LENGHT (mm)	WIDTH (mm)	HEIGHT (mm)	MASS (KG)
440	400	400	26

6) REFERENCE DATA:

7) REMARKS:

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AEROSPACE GROUND EQUIPMENT
DATA SHEET



NITROGEN BOTTLES HANDLING BOOSTER CART

P/N: 410-9D3H

NSN: 3920-15-0160450

1) **FUNCTION:** THE EQUIPMENT ALLOWS THE CHARGE AND REFILL OF ANY NITROGEN USER AT THE LOW AND HIGH PRESSURE, WITH THE POSSIBILITY TO EXCEED THE BOTTLE PRESSURE UP TO 240 BAR

2) **ILLUSTRATION:**



3) **MAINTENANCE LEVEL:** 1st 2nd 3rd

4) TECHNICAL DESCRIPTION, PN 410-9D3H**MAIN FEATURES:**

The Nitrogen bottle handling booster cart has been designed in order to give the possibility to perform the nitrogen charge and the refill at low and high pressure also when the pressure inside the bottles is lower than the pressure required.

The use of pressure booster, driven by nitrogen or by compressed air, allows the delivery pressure up to 240 bar.

The cart has been designed in order to grant a great stability when is request to carry and operate two 40 liters or 50 liters nitrogen bottles, in addition, safety device has been provided to make safe the bottles load on the cart.

All the controls and instruments are located on ergonomic instrument panel and all the actions can be carried out with having all the instruments and controls in view.

The charge and refilling monitoring has been done through:

- One large pressure gauge (Ø 100mm) on the delivery line (0-400bar) class 0.6. gauge. This pressure gauge is working both when the nitrogen is supplied directly from the bottles or the nitrogen in pressure is supplied by the booster. Downstream the pressure gauge a delivery check valve is provided.
- One pressure gauge (Ø 63mm) downstream the booster (0-10bar) on the driving line give the indication of the booster driving pressure (nitrogen or compressed air). Downstream the booster one pressure regulator is provided to adjust the feeding nitrogen/air pressure. Upstream the pressure gauge a booster check valve is provided.
- One pressure gauge (Ø 63mm), (0-250bar) installed on the feeding line after the nitrogen bottles gives the indication of nitrogen existing pressure inside the bottles. Through pressure regulator downstream the pressure gauge it is possible the pressure adjustment directly to the user (when the booster is excluded) or adjust the nitrogen driving and the feeding pressure to the booster.

5) OVERALL DIMENSION AND MASS:

LENGHT (mm)	WIDTH (mm)	HEIGHT (mm)	MASS (KG)
994	920	1655 (with 40 liters bottles)	180 (without bottles)

6) REFERENCE DATA: Italian Navy**7) REMARKS: suitable for all aircraft**

PRESSURE DIGITAL CONTROL SYSTEM

P/N: 390-9 Series

NSN: 6685-15-028505/6

1) FUNCTION: THIS TOOL CAN BE USED WITH ANY SOURCE OF NITROGEN OR AIR UP TO 30 BAR, 100 BAR AND 3 BAR (DEPENDING BY THE MODEL). IT CAN BE USED IN ANY SITUATION WHERE IT IS REQUESTED THE POSSIBILITY TO MONITOR AND ADJUST THE NITROGEN/AIR PRESSURE

2) ILLUSTRATION:



3) MAINTENANCE LEVEL: 1st 2nd 3rd

4) TECHNICAL DESCRIPTION, PN 390-9 Series

MAIN FEATURES:

Pressure gauge for nitrogen charge / discharge and pressure verify.

N. 3 different tools with different ranges of measures:

- P/N 390-9C: -1 bar + 3 bar
- P/N 390-9: -1 Bar + 30 Bar
- P/N 390-9B: 0 Bar + 100 Bar

Accuracy: 0,1% (Typ)

Multiple units reading: Bar, mBar, HPa, KPa, MPa, psi and Kg/Cm²

5) OVERALL DIMENSION AND MASS:

LENGHT (mm)	WIDTH (mm)	HEIGHT (mm)	MASS (KG)
140	330	80	2

6) REFERENCE DATA: Leonardo Company H.D., Italian Army

7) REMARKS: suitable for all aircraft

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