**L-39ZA TRAINING AND LIGHT ATTACK AIRCRAFT**

1. AIRCRAFT INSPECTION, REPAIRING, TBO AND LIFE EXTENSION

Our company offers the model L-39 ZA as second-hand fully overhauled aircraft with resource of 1500h/5 and warranty for one year or 100 flight hours.

The aircrafts undergo Service Life Extension Program (SLEP) twice, last time in 2014, and can be used until 2021 year.

Inspection, Overhaul, Service Life Extension Program and Upgrade was made by Ukrainian specialists based on:

* Operational flight loads recording
* Fatigue life analysis and simulation
* Airframe Non Destructive Inspection
* Additional technological treatments and procedures
1. **SOME WORDS FOR AVIONICS UPGRADE**

The original avionics, communication and navigation equipment is replaced by commercial avionics and customers obtain fully ICAO compatible aircraft.

During the modernization some of the equipment has been removed or changed as follow:

* 1. **Removed equipment:**
* Radio R832
* Short range navigation system RSBN-5S
* Marker receiver MRP-56 and power supply unit BP MRP-56
* Transponder SRO-2 (item 020)
* Indicators NPP-MK (1485 MK) in both cabins
* Altimeters VD-20 in both cabins changed with KEA -130A encoding altimeter
* Clock ACHS-1M in first cabin changed with clock type B15 which is smaller
	1. **On board has been installed new equipment as follow:**
* **Garmin GNS-430AW units incorporating function of systems VOR/ILS,COM,GPS in both cabins**

***GPS -*** The Global Positioning System (GPS) is the primary navigation system for the upgraded L-39ZA aircraft

The GPS receiver automatically selects signals from four or more satellites to calculate three-dimensional position, velocity and time.

The unit include two removable data cards, one with a Jeppesen database (to be inserted in the left card slot), and the second being a terrain database (to be inserted in the right card slot).

*Using the unencrypted coarse acquisition navigation signal (C/A code), which is available to all users,* The system accuracy reaches at least 100 meters horizontally and 140 meters vertically, 95 % of the time.

The information is displayed on color LCD screen. *240 by 128pixel*

***COM*** - VHF radio of 16 watts power meeting the ICAO requirements 8.33 kHz channel spacing (in 118.00 to 136.99MHz frequency band).

Radio is reserved by installed two devices working independently.

***VOR/ILS*** - The VOR/ILS navigation receiver provides radio navigation aids for en-route and landing operations according to signals of ground based VOR/ILS localizers with using the course deviation indicator in the cabin.

* **The next new mounted unit is Garmin GI-106A - course deviation indicator**

It is a high-quality course deviation indicator and has a VOR/LOC/GPS needle, TO/FROM indicator and NAV warning flag to displaying information.

* **Distance measuring equipment Bendix King KN-63A with KDI-572 KDI-573 indicators is the next system on upgraded aircraft**

The Bendix King KN- 63 is a remote mounted, 200 channel DME employing solid-state transmitter, enabling of defining range to ground based DME beacon Range, speed, and time-to-station are measured digitally.

The KN 63 is designed to operate with the panel mounted KDI 572 master indicator and the KDI 573 slave indicator (second cockpit). Both indicators receive DME range, speed, and time-to-station as digital serial data from the KN 63.

KDI 572 has a rotary switch for selection N1, Hold, or N2 channeling and also provides a system power switch.

The KDI 573 slave indicator has no mode switch and merely provides a duplicate display of the information shown on the KDI 572

* **New Marker system MKR- 675 with KA-40 indicator was install too**

It is remote mounted, miniature marker beacon receiver, operating on 75 MHz with KA-40 indicators provides both visual and aural indication of flying over three ground beacons to determinate the distance to the runway while performing landing by ILS.

The standard antenna of marker receiver is used.

* **Direction indicator UGR-4UK**

UGR-4UK head indicators have been installed in both cabins to depict heading data from aircraft gyromagnetic compass GMK-1AE (previously indication has been performed by one of the scale of the dismantled combined instrument NPP-MK (1485)

* **The next unit is GARMIN GTX-330 Mode “S” transponder**

The transponder receives and decodes interrogations, encodes a selected reply and transmits the reply through a proper channel.

GTX-330 is a mode “S” data dransmission transponder which in addition to 4096 code and pressure altitude, is capable of transmitting aircraft identification, transponder capability, and maximum speed range.

* **Encoding altimeters Bendix King KEA-130 instead altimeter VD-20 was mounted in both cabins**

The altimeter KEA-130 has a 3 pointer barometric scale and an internal encoder which provides altitude signals in accordance with ICAO altitude code requirements to transmit to GNS-430AW unit. The range of work is 35000 feet range

* **Clock**

Aircraft clock TYPE B15 has been installed in first cabin instead the clock ACHS-1M.

* **Radio altimeter RV-5M and air speed indicator LUN 1170**

The original radio altimeter **RV-5M** and air speed indicator **LUN 1170** have been retained and integrated with the upgraded avionics system The altitude and velocity indicators are in feet and knots

1. **DATA RECORDING MODIFICATION**

The Flight Data Recorder (FDR) is intended for recording aircraft systems operation and crash parameters. The FDR is used as a direct replacement of the SARPP-12G recorder, using the original sensors and system wiring.

The recorder is installed on its original position on the left side of the aircraft tail part.

Data from the FDR can be easily loaded onto a personal computer (PC) for debriefing, failure tracking and storage. The data can be loaded either directly to the PC or via the PMU-F portable memory unit.

1. **WEAPON AND STORES**

Aircraft is able to carry a wide range of Eastern Europe standard aerial weapons (bombs, rockets and missiles).

Weapon system modification is subject to customer demand.

1. **SPARE PARTS**

List of available spare parts can be found on the flash drive or in the offer, annex №3 .

They ensure safe operation of the aircraft for two years and more.

In addition rebuilt engine AI-25TL with resource 10OOh/ 8 years will be delivered.

1. **GROUND SUPPORT EQUIPMENT**

The aircrafts have individual and base tools for ongoing service.

List of ground equipment for the operation is set out in the offer, and on flash drive, annex №2.

1. **ADDITIONAL GOODS**

Together with L-39 ZA aircrafts we supply new fashionable pilot helmets, suits and gloves

* **HGU-55/P**

The HGU-55/P fighter/attack flight helmet is designed to offer protection for today’s high performance aircraft.

The standard HGU-55/P with a Kevlar shell, is ideal for multi-place aircraft and trainers.

Four helmet sizes are available.

* **Oxygen mask**

The HGU-55/P helmets are completed with GENTEX Oxygen Mask Model MBU- 12/P - *U.S. Air Force Specification MIL-M-87163.*

The shape of the MBU-12/P mask provides excellent downward vision. The low profile design brings the mask close to the face and provides excellent stability during high G maneuvers. Four mask sizes are available to assure proper fit and comfort.

* **Anti G suit**

We offer Russian made Anti G suit PPK-3 for using on our aircrafts.

* **Documentation**

The aircrafts’ supplement includes an L-39 technical documentation mostly in English. Some publications are in Russian.

**TECHNICAL DATA L-39ZA**: Qty: 4 UNITS

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **№**  | **L39ZA №1** | **L39ZA №2** | **L39ZA №3** | **L39ZA №4** |
| **Aircraft L-39 ZA №** | **633907** | **633833** | **035145** | **035215** |
| **Date of manufacture** | **31.10.1986** | **20.08.1986** | **20.11.1990** | **29.12.1990** |
| **Date of last repair** | **25.08.2009** | **12.09.2009** | **16.07.2009** | **05.10.2009** |
| **Work hours (h) from the beginning of exploatation** | **1636h 47'** | **1614h 45’** | **1145h 49’** | **904h 54’** |
| **Resource to the next repair(work h/years)** | **1500/5(12)\*** | **1500/5(12)\*** | **1500/5(12)\*** | **1500/5(12)\*** |
| **Date of llife extention (up to 12y)\*** | **23.06.2014** | **23.06.2014** | **23.06.2014** | **23.06.2014** |
| **Resource to the end of total resource** | **2864h 42'/4** | **2886h 32'/4** | **3356h 03'/5** | **3596h 18'/5** |
| **Resource to the next repair, h** | **1500** | **1500** | **1500** | **1500** |
| **Engine AI-25TL №** | **7082523000088**  | **7082524600418**  | **7082523500511**  | **9052524800271**  |
| **Resource (total)** | **4000** | **4000** | **4000** | **3000** |
| **Date of manufacture** | **30.09.1990** | **03.02.1987** | **30.11.1985** | **25.12.1978** |
| **Work h from the beginning of exploatation** | **748h 14’** | **1493h 56’** | **1355h 35’** | **1471h 25’** |
| **Resource to the next repair, (work h/years)** | **1000/8** | **1000/8** | **1000/6** | **500/6** |
| **Date of last repair** | **2012** | **2012** | **2018** | **2018** |
| **Exploatation after the last repair,h** | **4h 35'** | **4h 17'** | **0h 15'** | **0h 22'** |
| **Resource to the next repair, h** | **1000** | **1000** | **1000** | **500** |
| **Resource to the end of total resource** | **3251h 46'** | **2506h 04'** | **2644h 25'** | **1528h 35'** |
| **APU Saphire-5 №** | **3004**  | **2365**  | **3816**  | **3829**  |
| **Resource strarts (total)** | **3000** | **3000** | **3000** | **3000** |
| **Date of manufacture** | **23.12.1987** | **13.11.1991** | **29.06.1990** | **30.07.1990** |
| **Work h from the beginning of exploatation** | **2434** | **1062** | **2262** | **2059** |
| **Resource to the next repair, (starts/years)** | **3100/7** | **3100/7** | **3100/7** | **3100/7** |
| **Exploatation after the last repair,h** | **57** | **59** | **67** | **65** |
| **Date of last repair** | **2014** | **2014** | **2014** | **2014** |

**SPECIFICATION OF AIRCRAFTS**

**QTY: 4 pcs of L-39 ZA a/c with the following equipment:**

1. **MAIN UNITS ON BOARD OF L-39 A/C AIRCRAFT**

| **№** | **DESCRIPTION** | **PART №** | **QTY** |
| --- | --- | --- | --- |
|   | **POWER UNIT AND INSTALLATION** |
| 1 | Engine complete | AI -25TL | 1 |
| 2 | Gas generator | Sapphire - 5 | 1 |
|   |   |   |   |
|   |   |   |   |
|   | **FUEL SYSTEM** |
| 1 | Fuel pump | LUN 6280.01-8 | 1 |
| 2 | Pressure switch | LUN 1468.01-8 | 3 |
| 3 | Safety valve | LUN 7582-8 | 3 |
| 4 | Non return valve | 10 LUN 7581.03-8 | 2 |
| 5 | Non return valve | 20 LUN 7581.02-8 | 2 |
| 6 | Shut-off valve | LUN 7370-8 | 1 |
| 7 | Shut-off valve | LUN 7370.02-8 | 1 |
| 8 | By-pass valve | LUN 7504-7 | 1 |
| 9 | Fuel tank N 1 | 3967 0124 (L39.6721-A-01) | 1 |
| 10 | Fuel tank N 2 | 3967 0085 (L39.6721-B-01) | 1 |
| 11 | Fuel tank N 3 | 3967 0126 (L39.6722-C-01) | 1 |
| 12 | Fuel tank N 4 | 3967 0090 (L39.6721-D-01) | 1 |
| 13 | Fuel tank N 5 | 3967 0092 (L39.6721-E-01) | 1 |
| 14 | Wing tip tank right | 100 I. 3967 6003 | 1 |
| 15 | Wing tip tank left | 100 I. 3667 6004 | 1 |
| 16 | Drop tank | 350 I. 3667 6600{L39.6737(7)} | 2 |
| 17 | Drain valve | 489 M-01(8) | 2 |
| 18 | Shut-off valve | 3900 0502 (74-6110-250) | 1 |
|   | **ARMAMENT** |
| 1 | Gun | GSH-23 | 1 |
| 2 | Gun sight | ASP-3 NMU-39Z | 1 |
| 3 | Aiming point camera | FKP-2-2A | 1 |
| 4 | Bomb rack | D3-57-D-7 | 4 |
| 5 | Signal flares box | EKSR-46-9 | 1 |
| 6 | Fire control box | PUS-36-DM | 3 |
| 7 | Launching device | APU-13 M1 | 2 |
| 8 | Rocket pack | UB-16-57 UMP | 2 |
| 9 | Weapon pylon inner | 3694 2601 (L39M619) | 1 |
| 10 | Weapon pylon inner | 3694 2701 (L39 M 620) | 1 |
| 11 | Weapon pylon outer | 3694 2801 (L39 M 639) | 1 |
| 12 | Weapon pylon outer | 3694 2901 (L39 M 640) | 1 |
|   | **EJECTION SEAT, CANOPY JETTISONING** |
| 1 | Ejection seat | VS1-BRI-8 | 2 |
| 2 | Pyro-mechanism  | 3992 0063 (L39.9201 A-9) | 2 |
| 3 | Canopy ejection explosive actuation cylinder | 120-3-938 | 4 |
| 4 | Canopy locks realise explosive cylinder | 120-3-935 | 2 |
| 5 | Electro magnet | LUN 2550.1-8 | 2 |
| 6 | Electro magnet | LUN 2550-8 | 2 |
| 7 | Electro engine | 443 920 115 901 | 2 |
| 8 | Combined parachute réaliser | LUN 5931-8 | 2 |
| 9 | Combined seat réaliser | LUN 5820-8 | 2 |
| 10 | Automatic seat realeser | LUN 5821-8 | 2 |
| 11 | Automatic parachute réaliser | LUN 5932-8 | 2 |
| 12 | Ejection seat pyrotechnic device | 122-3-765 | 2 |
| 13 | Rocket engine | URM-1 | 2 |
| 14 | Stabilizing parachute weight pyrotechnic device | VMP-2-8A/S1 -350 2 | 2 |
| 15 | Pyrotechic device | VC1-305.01 | 2 |
| 16 | Pilot’s parachute | PL-70 l/K | 2 |
| 17 | Stabilizing parachute | SP-70 I | 2 |
| 18 | Survival kit | ND-39K(39913300)  | 2 |
|   | **AIR-CONDITIONING AND ANTI-ICING SYSTEM** |
| 1 | Cabin pressure regulator | 39-2013 B | 1 |
| 2 | Pressure regulator valve | 520 T | 2 |
| 3 | Safety valve | 39-127 T | 1 |
| 4 | Sleeve valve with el. Engine | LUN 5678.01-8 | 2 |
| 5 | Sleeve valve with el. Engine | LUN 5678.02-8 | 1 |
| 6 | Air volume limiter | LUN 5677.02-8 | 2 |
| 7 | Air volume limiter | LUN 5677.22-8 | 1 |
| 8 | Turbo-cooler | LUN 5670.48-8 | 1 |
| 9 | Exchanger | LUN 5676.80-8 | 1 |
| 10 | Individual ventil. cock | LUN 5675.02-8 | 2 |
| 11 | Overpressure regulator | LUN 5674.02-8 | 1 |
| 12 | Water separator | LUN 5671.01-8 | 1 |
| 13 | El. engine from the cut-off valve 25.01.07.830 | MPK-14-MTV | 2 |
| 14 | Cut-off valve | LUN 7352-8 | 1 |
| 15 | Non return valve | LUN 7588-8 | 2 |
| 16 | Non return valve | LUN 7589-8 | 1 |
| 17 | Safety valve | LUN 7587.03-8 | 2 |
| 18 | Safety valve | LUN 7559-8 | 1 |
| 19 | Air filter | LUN 5620-8 | 1 |
| 20 | Automatic temperature control (set) | LUN 5623-8 | 1 |
| 21 | Temperature transmitter | LUN 5626.01-8 | 3 |
| 22 | Temperature transmitter | LUN 5627.01-8 | 3 |
| 23 | Temperature regulator | LUN 5624-8 | 2 |
| 24 | Cabin temperature control box | LUN 5606-8 | 1 |
| 25 | Suit temper, control box | LUN 5607.01-8 | 1 |
| 26 | Temperature regulator | LUN 5617.01-8 | 1 |
| 27 | Automatic pressure control | AD-6E | 2 |
| 28 | Ice detector RIO-3 | JA2.556.0004 | 1 |
| 29 | Safety valve | 3900 0691 (AL39.K 7039)  | 2 |
|  |  |  |  |
|   | **FIRE-EXTINGUISHING SYSTEM** |
| 1 | Fire-extinguishing bottle with head (set) | 3900 0379(L29-812108) | 1 |
| 2 | Bottle | 72 - 6600 - 20 | 1 |
| 3 | Head | 20 S 2M.1S | 1 |
| 4 | Pressure gauge | MA-250 M (P) | 1 |
| 5 | Fire signalization | SSP-2I | 1 |
|   | **PNEUMATIC SYSTEM** |
| 1 | Pressure gauge | MA-250 MK | 1 |
| 2 | Filter | 723 900-4 (8) | 1 |
| 3 | Non return valve | LUN 7580-8 | 1 |
| 4 | Manual-operated valve | LUN 7351-8 | 4 |
| 5 | Air valve | 72-0604-150-8 | 1 |
| 6 | Pressure reducing valve | LUN 6652-8 | 1 |
| 7 | Pressure reducing valve | LUN 6653.01-8 | 1 |
| 8 | Air conditioning cock | CT 0603-200-01(8)  | 2 |
| 9 | Air conditioning cock | CT 5500-200-2(8) | 1 |
| 10 | Pressure transmitter | LUN 1555-8 | 1 |
| 11 | Spherical air bottle | 3974 0083 /Sh 2/ | 1 |
| 12 | Front windshield sealing hose | 39 740 066 | 1 |
| 13 | Front canopy sealing hose | 39 740 068 | 1 |
| 14 | Rear canopy sealing hose | 39 740 073 | 1 |
| 15 | Air-fill valve | L39 3509 S-8 | 1 |
|  |  |  |  |
|   | **HYDRAULIC SYSTEM** |
| 1 | Hydraulic pump | LUN 6101.01-8 | 1 |
| 2 | Pressure gauge | MA-60 | 1 |
| 3 | Two-pointer gauge | LUN 1446-8 | 2 |
| 4 | Safety valve | LUN 7518-8 | 1 |
| 5 | Electro hydraulic change-over switch | LUN 2575-7 | 2 |
| 6 | Brake control valve | LUN 7364.06-8 | 1 |
| 7 | Change-over cock | LUN 7547.01-7 | 1 |
| 8 | Change-over cock | LUN 7547-7 | 8 |
| 9 | Fill valve | LUN 7740-8 | 1 |
| 10 | Fill valve | LUN 7741-8 | 1 |
| 11 | Non-return valve | 674 500B (8) | 4 |
| 12 | Non-return valve | 674 600B (8) | 6 |
| 13 | Non-return valve | 671 600B (8) | 1 |
| 14 | U/C lock act. cylinder - left | LUN 7184.03-7 | 1 |
| 15 | U/C lock act. cylinder - right | LUN 7184.04-7 | 1 |
| 16 | Double non-return valve | LUN 7562-8 | 1 |
| 17 | Hydraulic filter | LUN 7614-8 | 2 |
| 18 | Hydraulic accumulator | LUN 6902-8 | 1 |
| 19 | Pressure switch | LUN 1468.01-8 | 1 |
| 20 | Electro hydraulic valve | 39-GA 142/1 | 2 |
| 21 | Electro hydraulic valve | 39-GA 184 | 2 |
| 22 | Electro hydraulic valve | 39-GA 185U | 1 |
| 23 | Manual-operated cock | LUN 6577-8 | 6 |
| 24 | Reduction valve | LUN 7514-8 | 1 |
| 25 | U/C lock emergency act. cylinder - left | LUN 7183.01-7 | 2 |
| 26 | U/C lock emergency act. cylinder - right | LUN 7183.02-7 | 2 |
| 27 | Main U/C act. cylinder - left | LUN 7143.03-7 | 1 |
| 28 | Main U/C act. cylinder - right | LUN 7143.04-7 | 1 |
| 29 | Nose U/C act. cylinder | LUN 7080.02-7 | 1 |
| 30 | Main U/C door act. cylinder | LUN 7081.01-7 | 1 |
| 31 | Nose U/C door act. cylinder | LUN 7103-7 | 1 |
| 32 | Wing flaps act. cylinder | LUN 7081-8 | 1 |
| 33 | Air brake act. cylinder | LUN 7145-7 | 1 |
| 34 | Double hydraulic lock | LUN 7543.03-8 | 1 |
| 35 | Brake emergency valve | LUN 7365.04-8 | 1 |
| 36 | Brake emergency valve | LUN 7382.02-8 | 1 |
| 37 | Safety valve | LUN 7548.01-8 | 1 |
| 38 | Connection | LUN 7742-7 | 4 |
| 39 | Hydraulic filter | LUN 7613-8 | 1 |
| 40 | Hydraulic accumulator | LUN 6953.01-8 | 1 |
| 41 | Two-pointer gauge | LUN 1444-8 | 2 |
| 42 | Hydraulic damper | 10LUN 7573-7 | 1 |
| 43 | By pass valve | LUN 7501-8 | 1 |
| 44 | By pass valve | LUN 7501.01-8 | 1 |
| 45 | Air turbine act. cylinder | LUN 7104-7 | 1 |
| 46 | Manual-operated cock | LUN 6579-8 | 2 |
| 47 | U/C lock door act. cylinder - left | LUN 7083.01-8 | 3 |
| 48 | U/C lock door act. cylinder - right | LUN 7083.02-8 | 3 |
| 49 | Nose U/C lock emergency act. cylinder | LUN 7185.01-7 | 1 |
| 50 | Hydraulic tank  | 3976-0271 (L39 7601F-01 ) | 2 |
| 51 | De-aeration valve | LUN 7357.01-8 | 4 |
| 52 | Non-return valve | LUN 7549-8 | 1 |
|   | **ALIGHTING GEAR** |
| 1 | Main u/c leg-left | 2-151.900-7 | 1 |
| 2 | Main u/c leg-right | 2-152.900-7 | 1 |
| 3 | Nose U/C leg | 2-153.900-7 | 1 |
| 4 | Nose U/C wheel | K 27-0000-7 | 1 |
| 5 | Main U/C wheel | K 28-1100-7 | 2 |
| 6 | Hydraulic brake - left | K 28-1200-7 | 1 |
| 7 | Hydraulic brake - right - | K 28-2200-7 | 1 |
| 8 | Inertial transmitter | UA-27A/1 | 1 |
| 9 | Inertial transmitter | UA-27A/2 | 1 |
| 10 | Main wheel tyre | 610 x 215 | 2 |
| 11 | Nose wheel tyre | 450 x 165 | 1 |
|   | **INSTRUMENTS** |
| 1 | Altimeter | KEA-130 | 2 |
| 2 | Horizon indicator | 1122 B | 2 |
| 3 | Horizon transmitter | 458 M, ser. 2 | 1 |
| 4 | Clock | ACHS-1M&B15 | 1 |
| 5 | Combined air speed-mach indicator | LUN 1170-8 | 2 |
| 6 | Combined turn bank and rate of climb indicator | LUN 1180.01-8 | 2 |
| 7 | Revolution indicator | ITE-2U.1-8 | 2 |
| 8 | Revolution transmitter | DTE-2-8 | 2 |
| 9 | Triple indicator | LUN 1530-8 | 2 |
| 10 | Exhaust gas temperature indicator | TST-2 | 2 |
| 11 | Transmitter | T-99 | 4 |
| 12 | Cabin altitude and differential pressure indicator | LUN 1130-8 | 2 |
| 13 | Magnetic compass | LUN 1221.1-8 | 1 |
| 14 | Pitot tube | LUN 1150-7 | 1 |
| 15 | Pitot tube | LUN 1153-7 | 1 |
| 16 | Low-pressure switch | LUN 7375.02-8 | 4 |
| 17 | Pressure switch | LUN 1461-8 | 1 |
| 18 | Pressure switch | LUN 1461.01-8 | 1 |
| 19 | Cabin dangerous pressure indicator | LUN 1460-8 | 1 |
| 20 | U/C position indicator | LUN 1696-8 | 2 |
| 21 | Fuel quantity indicator | LUN 1671.02-8 | 2 |
| 22 | Fuel quantity transmitter | LUN 1670.01-8 | 1 |
| 23 | Accelerometer | LUN 1722-8 | 1 |
| 24 | Oil temperature transmitter | LUN 1357-8 | 2 |
| 25 | Fuel pressure transmitter | LUN 1550-8 | 1 |
| 26 | Oil pressure transmitter | LUN 1566-8 | 1 |
| 27 | Crash recorder (set) | FDR-39(SARPP-12 GM)  | 1 |
| 28 | Information storage | (K12-51 G1M,ser. 2) | 1 |
| 29 | Synchronizing device | UsS-4-2M | 1 |
| 30 | Pressure transmitter | MDD-Te-1-780 | 1 |
| 31 | Pressure transmitter | MDD-Te-0-1,5 | 1 |
| 32 | Angle transmitter | MU-615 A | 1 |
| 33 | Overload transmitter | MP-95 | 1 |
| 34 | Speed indicator | SSA-120 | 1 |
| 35 | Filter | F-4 | 1 |
| 36 | Gyro magnetic compass (set) | GMK-1AE | 1 |
| 37 | Induction sensor | ID-3 | 1 |
| 38 | Correcting mechanism | KM-8 | 1 |
| 39 | Automat for alignment | AS-1 | 1 |
| 40 | Control box | PU-26 E | 1 |
| 41 | Gyroscope | GA-6 | 1 |
| 42 | Compass indicator | UGR-4UK | 2 |
| 43 |  Torque switch | VK-53 RB-8 | 1 |
| 44 | Engine vibration indicator (set) | IV 300 L | 1 |
| 45 | Indicator | IV-200 (1) | 1 |
| 46 | Vibration transmitter | MV-26 B | 1 |
| 47 | Electrical block | BE-1 | 1 |
| 48 | Pressure signalizator | MSTV1.4 | 1 |
| 49 | Barometric switch | IKRDA-400-280-0  | 1 |
| 50 | Temperature regulator | RT-12-9-2 | 1 |
| 51 | Trim position indicator | LUN 1689-8 | 2 |
| 52 | Trim sensor | LUN 1690-8 | 1 |
| 53 | Angle of attack transmitter | DUA-3 | 1 |
| 54 | Box EVO | L 39Z-K 8247 | 1 |
|  |  |  |  |
|   | **OXYGEN EQUIPMENT** |
| 1 | Oxygen pressure reducing valve | KR-26 A | 2 |
| 2 | Oxygen supply reducing valve | RPK-52 M | 2 |
| 3 | Helmet ventilation | VUSH-6 | 1 |
| 4 | Oxygen set | KR-52 M | 2 |
| 5 | Oxygen indicator | IK-52 | 2 |
| 6 | Pressure gauge | M 2000 K, ser. 2 | 1 |
| 7 | Quick release connector | ORK-9AU | 2 |
| 8 | Parachute oxygen set | KR-27 M | 2 |
| 9 | Cylindrical oxygen bottle | MA-4 (3972 0063)  | 4 |
| 10 | Spherical oxygen bottle | SH-2 (3972 0182)  | 2 |
|  |  |  |  |
|   | **ELECTRIC EQUIPMENT** |
| 1 | Generator | VG-7500 JA L | 1 |
| 2 | Air turbine | V 910-8 | 1 |
| 3 | Battery | 12 SAM 28 | 1 |
| 4 | Battery box | 39 820 911 | 1 |
| 5 | Differential min relay | DMR 400 DSP | 1 |
| 6 | Differential min relay | DMR 200 D | 1 |
| 7 | Voltage regulator (with resistor VS-25-V) | R-27 | 1 |
| 8 | Transformer | TS-9M-2 | 1 |
| 9 | Inverter | PT-500 CHB | 1 |
| 10 | Inverter | LUN 2456.01-8 | 1 |
| 11 | Inverter | LUN 2458-8 | 2 |
| 12 | Light | LFSM 28-200+130 | 2 |
| 13 | Electro-mechanism | UT-6D | 2 |
| 14 | Electro-mechanism | UT-6DM | 1 |
| 15 | Warning indicator panel switch | LUN 2146-8 | 2 |
| 16 | Power supply box | LUN 2145-8 | 2 |
| 17 | Diode box | LUN 3311.01-8 | 1 |
| 18 | Diode box | LUN 3311.02-8 | 1 |
| 19 | Diode box | LUN 3312.01-8 | 2 |
| 20 | Diode box | LUN 3312.02-8 | 1 |
| 21 | Position light flasher | LUN 3240.01-8 | 1 |
| 22 | Pitot tube heating button | LUN 3215-8 | 2 |
| 23 | Horn | 710-8 | 1 |
| 24 | Filter | F-14 A | 1 |
| 25 | Engine control stick position transmitter | LUN 1593-8 | 1 |
| 26 | Circuit breaker | AZP-A2 | 1 |
| 27 | G-transmitter | MP-28 A(8) | 1 |
| 28 | Volt ampere meter | VA-62-8 | 1 |
| 29 | Shunt | SHA-440(8) | 1 |
| 30 | Starting device | L39 K8248 | 1 |
| 31 | Warning indicator panel | LUN 2680-8 | 2 |
| 32 | Warning indicator panel (set) | LUN 2690-8 | 1 |
|   | **RADIO EQUIPMENT** |
| 1 | Automatic direction finder | RKL-41 | 1 |
| 2 | Radio altimeter (set) | RV-5MF | 1 |
|   | a. Receiver-transmitter | PP - 5M | 1 |
|   | b. Altitude indicator | UV-5MF | 2 |
|   | c. Rupor aerial | AR - 5 - 1 | 2 |
|   | d. Springing place | RA-5 | 1 |
| 3 | Marker | KMR-675 | 1 |
| 4 | System | GNS-430 | 2 |
| 5 | System | GTX-330 | 1 |
| 6 | Altimeter encoding | KEA- 130 | 1 |
| 7 | Course deviation indicator | GI-106A | 2 |
| 8 | Range finder, DME | KN-63 | 1 |

**II. STANDARD INDIVIDUAL SET OF SPARE PARTS, TOOLS AND GROUND**

**EQUIPMENT**

**(1:1 COMPLETION TO EACH L-39 A/C)**

|  |  |  |  |
| --- | --- | --- | --- |
| **№** | **DESCRIPTION** | **PART NO** | **QTY** |
| 1 | Fuel drain unit | AL 39.9960-04 | 1 |
| 2 | Funnel for hydraulic oil | 3999 0199 (KV-537-00) | 1 |
| 3 | Funnel for engine oil | 3999 0402 (L39.9960-03) | 1 |
| 4 | Engine oil drain hose |   | 1 |
| 5 | Tires pressure checking gauge (2,5 - 8,5 kg/cm(1)) |   | 1 |
| 6 | Brake for control unit | 3999 1371 (L39.9940-06) | 1 |
| 7 | Under wheel brake unit | 3999 5415 (L39.9950-01) | 2 |
| 8 | Ejection seat ground secure unit | 3991 3116 (L39.9130-03) | 2 |
| 9 | Air entrance cap (left/right) | 3999 5900 (AL39.9910-01) | 2 |
| 10 | Rear engine cap | 3999 6400 (BL39.9910-02) | 1 |
| 11 | Mounting mat | 3999 5310 (XL229.980-102) | 1 |
| 12 | Under A/C tin | 74-9897-00 | 1 |
| 13 | Canopy cover | 3999 5350 (AL39.9910-03) | 1 |
| 14 | Wing mats (left/right) | 3999 5320 (L39.9920-03) 3999 5321 (L39.9920-04) | 2 |
| 15 | Pitot tube cover | 36 991 721 | 2 |
| 16 | Cap for ORK-9A |   | 2 |
| 17 | ORK-9A radio connector | 9C4.072.002 | 2 |
| 18 | Back-pressure valve cap | 39 990 620 | 1 |
| 19 | Anti-icing transmitter cap |   | 1 |
| 20 | Air entrance cap | 3999 0683 (L39.9910-07/a) | 1 |
| 21 | “Sapphir” cap | 39990663 (L39.9910-08) | 1 |
| 22 | Turbo cooler cap | 3999 0735 (L39.9910-09/A) | 1 |
| 23 | Air entrance cap for radio station R-832M | 3999 1490 (L39.9910-12) | 1 |
| 24 | Signal flares box capInverter cap | 3999 1327 (L39.9910-11) 39992550 | 1 |
| 25 | Inverter air entrance cap | 39 992 580 | 1 |
| 26 | Cover for attack angle transmitter DUA-3 | 36 990 330 | 1 |
| 27 | Covers bag | 3699 1710 (XL229.890-25vx) | 1 |
| 28 | Aircraft covers | 36 991 600 | 1 |
| 29 | Parachute bag | 3999 4250 (L39.9990-07/A) | 1 |
| 30 | Gun box | 36 990 870 | 1 |
| 31 | Box for ejection seat rocket engine | 114 052 | 1 |
| 32 | Mechanic connecting cable | 3999 1709 (L39.9980-04) | 1 |
| 33 | Working chair | E6-9800-550 | 1 |
| 34 | Mobile hand lamp | PL-36/SM-15 | 1 |
| 35 | Flight line mechanic’s tools | 98.39.9720 | 1 |
| 36 | Set of tools | 98.39.9715 | 1 |

**NOTE:**

1. The above quoted List is 1:1 Completion to the L-39 ZA Aircraft
2. Standard Individual Set (1:1) of spare parts, tools and ground equipment shall be delivered to the Buyer with each Aircraft (the price is included in the Aircrafts’ price).

**III. AMMUNITIONS**

|  |  |  |  |
| --- | --- | --- | --- |
| **№** | **DESCRIPTION** | **PART NO** | **QTY** |
| 1 | Cal. 23mm round | GSh | 900 |
| 2 | Cal. 57mm unguided missiles | C-5K (C-5KO) | 192 |
| 3 | Aviation bomb | OFAB-100 NV | 24 |
| 4 | Rocket | R-3S | 12 |
| 5 | Detonator | AVU-ETM | 24 |
| 6 | Pyro charges | PPL | 20 |

**IV. MODERNIZATION OF L-39 ZA A/C**

|  |  |  |
| --- | --- | --- |
| **№** | **DESCRIPTION** | **PART NO** |
| 1 | GNS-430 incl. inst. kit and GA-56 antenna | 010-00139-11 |
| 2 | COM Blade antenna | Cl 211 |
| 3 | VOR/GS antenna | Cl 120 |
| 4 | VOR/GS dual coupler | Cl 1125 |
| 5 | GI-106A cours deviation ind. incl. inst. kit | 013-00049-01 |
| 6 | GTX 330 inkl. Inst kit and antenna | 010-0023-01 |
| 7 | KMR 675 marker receiver w kit and ant | 066-1044-00 |
| 8 | MKR Light KA-40 | 071-0003-00 |
| 9 | DME KN 63 with KDI-572 and 573 ind. and KA-60 antenna | 0066-01070-0001 |
| 10 | Altimeter encoding KEA - 130 | 010-10040-01 |
| 11 | Flight data recorder | FDR-39 |

Annex №2

**LIST OF GROUND SUPPORT EQUIPMENT / TECHNICAL EQUIPMENT (GSE/TE) FOR THE FLIGHT LINE AND 100 FLIGHT HOURS INSPECTION/**

**Перечень наземного и технического оборудования (КИА и КПА) для эксплуатации и 100-часовых регламентных работ**

| **Nos. / № п/п** | **DESCRIPTION** | **PART No.** | **DESCRIPTION/Russian** | **QTY (РС)** |
| --- | --- | --- | --- | --- |
| 1 | AD - 6E checking device | 242-7632-60 | Приспособление для испытания АД-6Е | 1 |
| 2 | U/C checking device | 3999 0070 (L39.9950-04) | Приспособление для замера люфтов шасси | 1 |
| 3 | Air and fuel systems checking device | KV 530-00A | Приспособление для контроля герметичности кабины и топливной системы | 1 |
| 4 | Pressure checking device | 3999 0196 (KV-438-00 ) | Приспособление для контроля давления | 1 |
| 5 | Brake bar cross-shaft | 3999 1710 (AL39.9910-05) | Страховочный штифт поперечного вала | 1 |
| 6 | Steering brake | 3999 0634 (L39.9940-02) | Струбцина фиксации рулей | 1 |
| 7 | Drop tanks pressure checking device | 3999 5860 (XL229.8025-00) | Приспособление для замера давления в крыльевых баках | 1 |
| 8 | U/C and hydraulic accumulato filling device | CT 5500-1506/L | Приспособление для заправки азотом амортизаторов шасси и гидроаккумуляторов | 1 |
| 9 | Tires filling device | 3999 1298 (L39.9950E) | Приспособление для заправки пневматиков | 1 |
| 10 | Air filling hose | 3999 0653 (L39.9970-010 | Шланг для заправки воздухом | 1 |
| 11 | Hose | 3999 0656 (39.9970-04) | Удлинительный шланг | 1 |
| 12 | Hose tag | CT 5500-1300 | Наконечник шланга | 1 |
| 13 | Fuel drain hose | 3999 2220 (L39.9960C) | Шланг для слива топлива | 1 |
| 14 | Ground air supply adapter | 3999 2200 (72-7600-200) | Наконечник наземного питания воздухом системы поддува кабины | 1 |
| 15 | Fuel drain unit | LUN 7346.01 | Сливная горловина топлива | 1 |
| 16 | Engine oil drain hose |   | Шланг для слива масла из двигателя тип 2У-16-15 (вн. 0 16 мм длина 600 мм) | 1 |
| 17 | Oil fill unit | 3999 1292 (L39.9960-07) | Насадок для заправки масла | 1 |
| 18 | Hydraulic oil drain hose | 3999 1467 (L39.9970-07) | Сливной шланг для гидравлического масла | 1 |
| 19 | AMG-10 filling device | L39.9950-06 | Приспособление для заправки АМГ-10 в амортизаторы шасси | 1 |
| 20 | Set of caps for pipes | 39 992 360 | Комплект заглушек для трубопроводов | 2 |
| 21 | Rear jack | 3999 1390 (AL39.9910A) | Гидравлический подъемник | 4 |
| 22 | Front jack | 3999 1397 (L39.9910K) | Гидравлический подъемник передний | 2 |
| 23 | A/C tail mobile platform | 3999 7450 (L39.99 UB) | Тележка под хвостовую часть фюзеляжа для Ф-2 | 1 |
| 24 | Mobile canopy storage platform | 3999 5750 (L39.9910H) | Тележка для фонарей кабины | 1 |
| 25 | Mobile wing platform | 39 995 000 | Тележка для крыла | 1 |
| 26 | Wing assembly device | 3999 0279 (L39.9920-02) | Приспособление для узлов подвески крыла | 1 |
| 27 | Towing bar | 3999 6380 (L3999 5003) | Водило для манипуляций | 1 |
| 28 | Towing bar | 3999 6350 (L3999 50D) | Водило для манипуляций | 1 |
| 29 | Engine platform | 3999 7050 (L39.9960A) | Тележка для двигателя | 1 |
| 30 | Engine hanging device | 3999 7020 (L39.9960-01/A) | Приспособление для подвески двигателя | 1 |
| 31 | Storage platform | 3999 0216 (KV-531-00) | Стол для удлинительной трубы | 1 |
| 32 | Drop tanks mobile cart | 36 991 150 | Мобильная тележка для подвесных баков | 1 |
| 33 | Wing assembling device | 3999 0556 (L39.9920-05) | Сборочное приспособление для болтов навески крыла | 1 |
| 34 | Airframe connecting rod | 3999 0484 (L39.9910-06) | Соединительная штанга фюзеляжа | 1 |
| 35 | Front wheel axle removing unit | 3999 0278 (L39.9950-00.01) | Выталкиватель оси колеса передней стойки | 1 |
| 36 | Main tyre mechanical removing unit | 3999 6950 (L39 9950A) or МОИ 1974 | Пневматический съемник пневматиков | 1 |
| 37 | Nose tyre mechanical removing unit | МОН 1976 | Механический съемник для пневматика носовой стойки шасси | 1 |
| 38 | Long-term engine conservation device | 39 992 240 | Приспособление для долгосрочной консервации двигателя | 1 |
| 39 | Ladder 1,3 m | 74-98219-00 | Лестница 1,3 м | 1 |
| 40 | Ladder 3,25 m | 39 991 800 | Лестница 3,25 м | 1 |
| 41 | Ladder-platform | 3999 1500 (AL39.9910-15) | Лестница-платформа | 1 |
| 42 | Linder A/C works chair | E6-9800-550 | Стул для работы под самолетом | 1 |
| 43 | Mobile hand lamp | PL-36/SM-15 | Переносной фонарь | 1 |
| 44 | Grease squirt with nose | 03697/07825 or 03697/07692 | Смазочный шприц с наконечником | 1 |
| 45 | Grease squirt with nose | 03646/07731 or 03640/07731 | Смазочный шприц с наконечником | 1 |
| 46 | Cabin pressurization checking set | 39 991 130 | Приспособление для проверки герметичности кабины и топливной системы | 1 |
| 47 | Aileron angle measuring unit | 3999 0039 (L39.9920-01) | Угломер для элеронов | 1 |
| 48 | Stabilizator angle measuring unit | 3999 0057 (L39.9930-01/A) | Угломер для руля направления | 1 |
| 49 | Control device | KPA-PVD | Универсальный пульт для проверки анероидно-мембранных приборов | 1 |
| 50 | Megaom-meter | M 1101 | Мегаомметр с напряжением на зажимах 500 В | 1 |
| 51 | Set of resistors | R 333 | Мост универсальный | 1 |
| 52 | Horizon transmitter control device | KP-AGD | Проверочная аппаратура для контроля авиагоризонта | 1 |
| 53 | Control device for RIO-3 | TPS-3 | Контрольное устройство для РЮ-3 | 1 |
| 54 | Control device | LUN 5810 | Блок для системы «Сапфир» | 1 |
| 55 | Control device for RTSS-2M | PP-RTSS-2M | Проверочная установка РТСС-2М | 1 |
| 56 | Revolution transmitter control device | KTU-1M | Контрольное устройство для проверки тахометров | 1 |
| 57 | Horizon transmitter checking device | PA-AGD-1 | Контрольное устройство авиагоризонта | 1 |
| 58 | Gyro-units control device | UPG-48 | Установка проверки гироприборов | 1 |
| 59 | Gyro-magnetic compass control device | UPP-GMK | Установка для проверки ГМК-1АЭ | 1 |
| 60 | Pressure units control device | GUMP | Контрольное устройство блоков давления | 1 |
| 61 | Vibrations check unit (IV-300) control device | UP IV-300 | Установка для проверки измерителя вибрации ИВ-300 | 1 |
| 62 | Control devise for temperature regulator RT-12-9 | PKRT-12, 3 ver. | Пульт проверки регулятора температуры РТ-12-9 3 серии | 1 |
| 63 | Connector with cable | 2999 0115 (KV-428-00) | Штепсельный разъем аэродромного питания с кабелем | 1 |
| 64 | Control target | 36990280 | Контрольная цель | 1 |
| 65 | Front target adjustment unit | 36990500 | Передний узел установки цели | 1 |
| 66 | Rear target adjustment unit | 36990400 | Задний узел установки цели | 1 |
| 67 | Target adjustment periscope | THP-23 | Трубка холодной пристрелки ТХП-23 | 1 |
| 68 | Periscope support | 3999 0109 (L39.9990-11) | Консоль для пристрелочного перископа | 1 |
| 69 | Level | CSN 255727-150 (200) | Уровень | 1 |
| 70 | Level support | 9890 168 (KV-538) | Опора уровня | 1 |
| 71 | Control device | PKPI-1 | Прибор для проверки ПУС-36ДМ цепей пуска с-мы неуправляемого ракетного вооружения | 1 |
| 72 | Target for armament units adjustment | 3999 1389 (AL39.9990A) | Ферма-мишень для регулировки блоков вооружения | 1 |
| 73 | Auxiliary profile, rear | 36 990 161 | Вспомогательный профиль, задний | 1 |
| 74 | Auxiliary profile, front | 36 990 162 | Вспомогательный профиль, передний | 1 |
| 75 | Shell band winch | 36 990 550 | Лебедка снарядной ленты | 1 |
| 76 | Shell band filling unit | 36 990 210 | Блок снаряжения снарядной ленты | 1 |
| 77 | Gun load handle | 36 990 130 | Рукоятка заряжания ГШ-23 | 1 |
| 78 | Dynamometer 25 kg | PN 074-68 | Динамометр 25 кг | 1 |
| 79 | Imitator unit | 11-1 ЗА | Имитатор изделия ИИ-1 ЗА | 1 |
| 80 | Control device for 11-13A | PPII-13A | Пульт проверки ИИ-1 ЗА | 1 |
| 81 | Imitator unit | II-13T | Имитатор изделия ИИ-13Т | 1 |
| 82 | Tools for launcher device (APU-13M1) |   | Инструмент для пускового устройства (АПУ-13М1) | 1 |
| 83 | Support unit for control device for APU-13M1 | L39.9990-11 (PHP-13) | Консоль для пристрелочного перископа | 1 |
| 84 | Tools for bomb rack (D3-57-D-7) |   | Инстр для балочного замка ДЗ-57-Д | 1 |
| 85 | Ejection seat adjusting pattern | 3998 4010 (L39.9990-19) | Шаблон для регулировки механизма кресла ВС1-БРИ | 1 |
| 86 | Ejection seat cover | 3999 0588 (L39.9990-05) | Защитный чехол катапультного кресла | 1 |
| 87 | Ejection seat transport cart | 3999 6100 (L39.9990D) | Транспортировочная тележка катапультного кресла | 1 |
| 88 | Ejection seat inspections cart | 3999 7580 (L39.9990-14) | Тележка для осмотра катапультного кресса | 1 |
| 89 | Ejection seat (VS1-BRI) shaft mounting pattern | 3998 4080 (L39.9990-20) | Шаблон для установки валов сиденья | 1 |
| 90 | Parachute protect case | L39.9990-07A | Чехол крепления парашюта в кресле | 2 |
| 91 | Ejection seat hanging ropes | 3999 5720 (L39.9990-03/A) | Подвесные троса сидений | 1 |
| 92 | Ejection seat hanging hoop | 3999 5870 (L39.9990-21) | Скоба подвески сидений | 1 |
| 93 | Ejection seat crane | 39 996 500 | Кран катапультного кресла | 1 |
| 94 | ORK-9A radio connector | 9C4.072.002 | Радиоразъем ОРК-9А | 1 |
| 95 | Flight line mechanic’s tools | 98.39.9720 | Инструмент механика | 1 |
| 96 | Engine tools | 25TL. 19.00.020 | Инструмент для двигателя | 1 |
| 97 | Armament equipment tools | 98.39.9850 | Инструмент для авиационного вооружения | 1 |
| 98 | Instruments equipment tools | 98.39.9860 | Инструмент приборного оборудования | 1 |
| 99 | Ejection seat equipment tools | 98.39.9870 | Инструмент оборудования катапультного кресла | 1 |
| 100 | Set of vice | 39 992 620 | Комплект зажимов | 1 |
| 101 | Mobile platform for rockets | 39. 0001 | Тележка для ракет | 1 |
| 102 | Storage platform for rockets | 39. 0000 | Подставка для ракет | 1 |
| 103 | Portable unit for FDR-39 (set) | PMU-F | Тестер для РРИ-ЗЭ (к-т.) | 1 |
| 104 | Tester DME/ATC Mode S | TIC TR 211 | Универсальный тестер | 1 |
| 105 | NAV tester | NAV-402AP | Радио тестер | 1 |

**Annex №3**

**Spare Parts for L-39ZA / Запасные части для самолета L-39ZA**

| **№ п/п** | **DESCRIPTION** | **PART No** | **DESCRIPTION Russian** | **QTY** |
| --- | --- | --- | --- | --- |
| 1 | Filter element for filter 723-900-4 | 19 432 830 | Фильтрирующий елемент для фильтра 723-900-4 | 1 |
| 2 | Pressure reducing valve | LUN 6652-8 | Клапан редукционный | 1 |
| 3 | Front windshield sealing hose | 3974 0066 / L-39.7401.01/ | Шланг герметизации козырька кабины | 1 |
| 4 | Front canopy sealing hose | 3974 0068 / L-39.7403.01/ | Шланг герметизации передней откидной части фонаря | 1 |
| 5 | Rear canopy sealing hose | 3974 0073 / L-39.7404.01/ | Шланг герметизации задней откидной части фонаря | 1 |
| 6 | Air conditioning cock | CT0603-200-0K8) | Клапан герметизации | 1 |
| 7 | Manual-operated valve | LUN 7351-8 | Ручной кран | 1 |
| 8 | Pressure reducing valve | LUN 6653.01-8 | Редукционный клапан | 1 |
| 9 | Pressure transmitter | LUN 1555-8 | Датчик давления | 1 |
| 10 | Pressure gauge | MA-60 К | Манометр | 1 |
| 11 | Shut-off valve | 3900 0502 /74.6110.250/ | Клапан обратный | 1 |
| 12 | Клапан сливной | 39 660 083 | Клапан сливной | 1 |
| 13 | Membrane | 3966 0089 /L39.6601.01.06/ | Мембрана топливного аккумулятора 3966 0117 | 2 |
| 14 | Valve | 39 660 136 | Клапан | 1 |
| 15 | Reducer | 39 666 050 | Редуктор | 1 |
| 16 | Fuel pump | LUN 6280.01-8 | Насос топливный | 1 |
| 17 | Shut-off valve | LUN 7370-8 | Топливный кран | 1 |
| 18 | Shut-off valve | LUN 7370.02-8 | Топливный кран | 1 |
| 19 | By-pass valve | LUN 7504-7 | Клапан перепуска | 1 |
| 20 | Non return valve | 20LUN 7581.02-8 | Клапан обратный | 1 |
| 21 | Non return valve | 10LUN 7581.03-8 | Клапан обратный | 1 |
| 22 | Safety valve | LUN 7582/01/-7 | Клапан | 1 |
| 23 | Drain valve | 489M-0K8) | Кран консервации | 1 |
| 24 | The automatic device of pressure | AD-6E | Автомат давления | 1 |
| 25 | Temperature transmitter | LUN 5626-01-8 | Датчик температуры | 5 |
| 26 | Temperature transmitter | LUN 5627.01-8 | Датчик температуры | 5 |
| 27 | Temperature regulator | LUN 5624-8 | Автоматический регулятор температуры | 1 |
| 28 | Safety valve | 39-127T | Клапан предохранительный | 1 |
| 29 | Turbo-cooler | LUN 5670.48-8 | Турбохолодильник | 1 |
| 30 | Water separator | LUN 5671.01-8 | Водоотделитель | 1 |
| 31 | Overpressure regulator | LUN 5674.02-8 | Регулятор сверхдавления | 3 |
| 32 | Individual Ventilation cock | LUN 5675.02-8 | Вентиль воздушного душа | 2 |
| 33 | The terminator of quantuty of air | LUN 5677.02-8 | Ограничитель количества воздуха | 2 |
| 34 | Sleeve valve with el. Engine | LUN 5678.01-8 | Электромеханизм золотниковый | 1 |
| 35 | Sleeve valve with el.Engine | LUN 5678.02-8 | Электромеханизм золотниковый | 1 |
| 36 | Safety valve | LUN 7559-8 | Клапан предохранительный | 1 |
| 37 | Non return valve | LUN 7588-8 | Клапан обратный | 1 |
| 38 | Non return valve | LUN 7589-8 | Клапан обратный | 1 |
| 39 | Block | BI-2I | Блок сигнализации пожара | 1 |
| 40 | Fire extinguisher | 72.6600.20 / Л29.8121.08/ | Противопожарный баллон | 1 |
| 41 | El. magnetic valve | LUN 2475-8 | Электромагнитный клапан | 1 |
| 42 | Fuel pump | LUN 6223-8 | Насос топливный | 1 |
| 43 | Oil pump | LUN 6320-8 | Насос масляный | 1 |
| 44 | Fuel distributor | LUN 6743-8 | Распределитель топлива | 1 |
| 45 | Oil distributor | LUN 6750-8 | Распределитель масла | 1 |
| 46 | Non return valve | LUN 7354-8 | Клапан обратный | 1 |
| 47 | Drain valve | LUN 7503-8 | Дренажный клапан | 1 |
| 48 | Fuel filter | LUN 7615-8 | Фильтр топливный | 1 |
| 49 | Filter element for fuel filter LUN 7615-8 | 144-806 | Фильтрирующий елемент для LUN 7615-8 | 5 |
| 50 | Fuel filter | LUN 7616-8 | Фильтр топливный | 2 |
| 51 | Filter element for fuel filter LUN 7616-8 | 144-813 | Фильтрирующий елемент для LUN 7616-8 | 5 |
| 52 | Safety valve | E5-6100-900.1 | Клапан предохранительный | 1 |
| 53 | Sparking plug | N 48F-3 | Свечь зажигательная | 4 |
| 54 | Sediment bowl | 39 001 576 | Стакан остойника | 4 |
| 55 | Drier | 39 760 872 | Осушитель | 2 |
| 56 | Electro-hydraulic valve | 39-GA185U | Электрогидравлический клапан | 1 |
| 57 | Electro-hydraulic valve | 39-GA184 | Электрогидравлический клапан | 1 |
| 58 | Electro-hydraulic valve | 39-GA 142/1 | Электрогидравлический клапан | 1 |
| 59 | Filter element for LUN 7613-8 | 340 042A | Фильтрирующий елемент для LUN 7613-8 | 3 |
| 60 | Filter element for LUN 7614-8 | 340 044A | Фильтрирующий елемент для LUN 7614-8 | 3 |
| 61 | Oil ring | L 39.501-10.R /2101904/ | Кольцо маслособирательное | 10 |
| 62 | Electro-hydraulic change-over switch | LUN 2575/01/-7 | Кран электрогидравлический | 1 |
| 63 | Hydraulic pump | LUN 6101.01-8 | Насос гидравлический | 1 |
| 64 | Manual-operated cock | LUN 6579-8 | Клапан ручной | 1 |
| 65 | Hydraulic accumulator | LUN 6902-8 | Гидроаккумулятор цилиндрический | 1 |
| 66 | Hydraulic accumulator | LUN 6953.01-8 | Г идроаккумулятор сферический | 1 |
| 67 | Nose U/C act. Cylinder | LUN 7080.02-7 | Цилиндр выпуска носовой стойки шасси | 1 |
| 68 | Wing flaps act. Cylinder | LUN 7081-8 | Цилиндр крыльевых закрылков | 1 |
| 69 | Main U/C door act. Cylinder | LUN 7081.01-7 | Цилиндр створки основной стойки шасси | 1 |
| 70 | U/C left lock door act. Cylinder | LUN 7083.01-8 | Цилиндр замка левой створки шасси | 1 |
| 71 | U/C right lock door act. Cylinder | LUN 7083.02-8 | Цилиндр замка правой створки шасси | 1 |
| 72 | Nose U/C door act. Cylinder | LUN 7103-7 | Цилиндр щитка носовой стойки | 1 |
| 73 | Air turbine act. Cylinder | LUN 7104-7 | Цилиндр выпуска аварийной турбины | 1 |
| 74 | Main U/C act. cylinder left | LUN 7143.03-7 | Цилиндр выпуска основной стойки шасси, левый | 1 |
| 75 | Main U/C act. cylinder right | LUN 7143.04-7 | Цилиндр выпуска основной стойки шасси, правый | 1 |
| 76 | Air brake act. Cylinder | LUN 7145-7 | Цилиндр тормозных щитков | 1 |
| 77 | U/C lock emergency act. cylinder left | LUN 7183.01-7 | Аварийный цилиндр замка левого шасси | 1 |
| 78 | U/C lock emergency act. cylinder right | LUN 7183.02-7 | Аварийный цилиндр замка правого шасси | 1 |
| 79 | U/C lock act. cylinder left | LUN 7184.03-7 | Цилиндр замка левого шасси | 1 |
| 80 | Nose U/C lock emergency act. cylinder | LUN 7185.01-7 | Цилиндр аварийного привода замка носовой стойки шасси | 1 |
| 81 | Manual-operated cock | LUN 7351-8 | Ручной клапан | 1 |
| 82 | De-aeration valve | LUN 7357.01-8 | Клапан деаэрирования | 2 |
| 83 | Brake control valve | LUN 7364.06-8 | Клапан диференциальный | 1 |
| 84 | Brake emergency valve | LUN 7365.04-8 | Кран аварийный | 1 |
| 85 | Brake emergency valve | LUN 7382.02-8 | Аварийный клапан торможения | 1 |
| 86 | By pass valve | LUN 7501.01-8 | Клапан | 1 |
| 87 | Reduction valve | LUN 7514-8 | Редукционный клапан | 1 |
| 88 | Safety valve | LUN 7518-8 | Предохранительный клапан | 1 |
| 89 | Double hydraulic lock | LUN 7543.03-8 | Двойной гидравлический замок | 1 |
| 90 | Hydraulic lock | LUN 7544.01-7 | Одноходовой гидравлический замок | 2 |
| 91 | Change-over cock | LUN 7547.01-7 | Клапан | 1 |
| 92 | Safety valve | LUN 7548.01-8 | Предохранительный клапан | 1 |
| 93 | Valve | LUN 7549-8 | Клапан | 1 |
| 94 | Double non-return valve | LUN 7562-8 | Двойной обратный клапан | 1 |
| 95 | Valve | LUN 7549.01-8 | Клапан | 1 |
| 96 | Hydraulic filter | LUN 7613-8 | Фильтр гидравлический | 1 |
| 97 | Hydraulic filter | LUN 7614-8 | Фильтр гидравлический | 1 |
| 98 | Fill valve | LUN 7740-8 | Зарядный штуцер | 1 |
| 99 | Fill valve | LUN 7741-8 | Зарядный штуцер | 1 |
| 100 | Hydraulic connection | LUN 7742-7 | Поворотное соединение | 2 |
| 101 | Non-return valve | 674500B-8 | Обратный клапан | 2 |
| 102 | Non-return valve | 674600B-8 | Обратный клапан | 4 |
| 103 | Non-return valve | 671600B-8 | Обратный клапан | 1 |
| 104 | Pressure switch | LUN 1468.01-8 | Реле давления | 1 |
| 105 | Hydraulic damper | 10 LUN 7573-7 | Г идравлический демпфер | 1 |
| 106 | Main u/c leg-left | 2-151-900-7 | Основная стойка шасси, левая | 1 |
| 107 | Main u/c leg-right | 2-152-900-7 | Основная стойка шасси, правая | 1 |
| 108 | Nose U/C leg | '2-153-900-7 | Носовая стойка шасси | 1 |
| 109 | Nose U/C wheel | K27-0000-7 | Колесо носовой стойки шасси | 1 |
| 110 | Main U/C wheel | K28-1100-7 | Колесо основное | 1 |
| 111 | Inertial transmitter | UA-27A/2 | Датчик инерционный | 1 |
| 112 | Main wheel tire | 610x215 | Пневматик колеса осн. стойки шасси | 80 |
| 113 | Nose wheel tire | 450x 165 | Пневматик колеса нос. стойки шасси | 40 |
| 114 | Shimmy damper | L39.503-P10-7 | Демпфер шимми | 1 |
| 115 | Headlight glass | L39.6707.01 | Обтекатель фара | 10 |
| 116 | Box of the accumulator | 39820911 | Коробка аккумулятора | 1 |
| 117 | Battery | 12 SAM 28 | Аккумулятор | 2 |
| 118 | Electro-mechanism | UT-6D | Электромеханизм | 1 |
| 119 | Electro-mechanism | UT-6DM | Электромеханизм | 1 |
| 120 | Circuit breaker | AZP-A2 | Автомат защиты сети | 1 |
| 121 | Terminal switch | LUN 3158-8 | Концевой выключатель | 2 |
| 122 | Safety aut. | AZSGK-30 | Автомат предохранительный | 1 |
| 123 | Lamp let orange | SLC-51 | Светофильтр для лампы, оранжевый | 10 |
| 124 | Safety fuse | 1A/250V | Плавкий предохранитель | 20 |
| 125 | Safety fuse | 2.5A/250V | Плавкий предохранитель | 20 |
| 126 | Resistor | ВС-25Б | Сопротивление | 3 |
| 127 | Differential min relay | DMR400 DSP | Дифференциальное реле | 1 |
| 128 | Position light-green | BANO-45.7 | Позиционный огонь, зеленый | 2 |
| 129 | Position light-white | CHS-39.7 | Позиционный огонь, белый | 3 |
| 130 | Position light-red | BANO-45.7 | Позиционный огонь, красный | 2 |
| 131 | Starting device | L39-K8248 /3900 1125/ | Пусковая панель | 1 |
| 132 | El-engine for fuel pump LUN 6280-8 | MGP-180B | Электродвигатель для топл. насоса LUN 6280-8 | 1 |
| 133 | Pitot tube heating button | LUN 3215-8 | Кнопка ПВД- контроля | 1 |
| 134 | Terminal switch | LUN 3159.01-7 | Переключатель концевой | 6 |
| 135 | Button | 2 KNR | Кнопка | 6 |
| 136 | Micro-button | D-701 (KV-9) | Микрокнопка | 5 |
| 137 | Safety fuse | 0.16A/250V | Плавкий предохранитель | 20 |
| 138 | Safety fuse | I.6A/250V | Плавкий предохранитель | 20 |
| 139 | Safety fuse | 2A/250V | Плавкий предохранитель | 20 |
| 140 | Safety fuse | 3 A/250V | Плавкий предохранитель | 20 |
| 141 | Safety fuse | 4A/250V | Плавкий предохранитель | 20 |
| 142 | Inert. Fuse | IP-30 | Инерционный предохранитель | 2 |
| 143 | Inert. Fuse | IP-100 | Инерционный предохранитель | 2 |
| 144 | Brush for PT-500CB |   | Щетка для РТ-500СВ | 10 |
| 145 | Brush for UT-6D |   | Щетка для UT-6D | 10 |
| 146 | Brush for MGP-180A(B) |   | Щетка для MGP-180A(B) | 20 |
| 147 | Brush for the fuel pump of SAPPHIRE LUN 6223 |   | Щетка для топливного насоса SAPPHIRE LUN6223 | 10 |
| 148 | Brush for VG-7500 AL | 555182 6x3 | Щетка для VG-7500 AL | 10 |
| 149 | Bulb for BANO | BANO-45-28V-28W | Лампочка для BANO | 20 |
| 150 | Bulb | 28V-5W | Лампочка | 20 |
| 151 | Bulb | 28V-2W | Лампочка | 40 |
| 152 | Lamp | LFSM28-200+130 | Лампа-фара посадочная | 18 |
| 153 | Inert. Fuse | IP-150 | Инерционный предохранитель | 2 |
| 154 | Inert fuse | IP-200 | Инерционный предохранитель | 2 |
| 155 | Safety aut. | AZSGK-5 | Автомат предохранительный | 5 |
| 156 | Safety aut. | AZSGK-10 | Автомат предохранительный | 5 |
| 157 | Safety aut, | AZSGK-15 | Автомат предохранительный | 5 |
| 158 | Safety aut. | AZSGK-50 | Автомат предохранительный | 1 |
| 159 | Button | KNR | Кнопка | 6 |
| 160 | Micro-button | D-703 (KV-9 A) | Микрокнопка | 5 |
| 161 | Electrical block | BE-1 | Блок электрический | 1 |
| 162 | Thermometer of exhaust gases | T-99 | Термопара | 4 |
| 163 | Revolution indicator | ITE-2U.1-8 | Указатель оборотов | 1 |
| 164 | Revolution transmitter | DTE-2-8 | Датчик оборотов | 1 |
| 165 | Speed indicator | SSA-120 | Сигнализатор скорости | 1 |
| 166 | Altimeter | VD-20 K, ver. 2 | Высотомер двухстрелочный | 1 |
| 167 | Triple indicator | LUN 1530-8 | Трехстрелочный указатель | 1 |
| 168 | Exhaust gas temper. Transmitter | TST-2 | Датчик температуры выхлопных газов | 1 |
| 169 | Cabin altitude and differ, pressure indicator | LUN 1130-8 | Указатель высоты и перепада давления в кабине | 1 |
| 170 | Magnetic compass | LUN 1221.1-8 | Компас магнитный | 1 |
| 171 | Compass lighting | LUN 2880.1-8 | Арматура подсвета компаса | 1 |
| 172 | Pitot tube | LUN 1153-7 | Приемник воздушного давления | 1 |
| 173 | Pressure switch | LUN 1461-8 | Реле давления | 1 |
| 174 | Pressure switch | LUN 1461.01-8 | Реле давления | 1 |
| 175 | U/C position indicator | LUN 1696-8 | Указатель положения шасси | 1 |
| 176 | Fuel quantity indicator | LUN 1671.02-8 | Указатель количества топлива | 3 |
| 177 | Accelerometer | LUN 1722-8 | Акселерометр | 1 |
| 178 | Oil temperature transmitter | LUN 1357-8 | Датчик температуры масла | 1 |
| 179 | Oil pressure transmitter | LUN 1566-8 | Датчик давления масла | 1 |
| 180 | Induction sensor | ID-3 | Индукционный датчик | 1 |
| 181 | Correcting mechanism | KM-8 | Механизм коррекции | 1 |
| 182 | Autom. for alignment (from set GMK) | AS-1 | Автомат согласования (из комплекта ГМК) | 1 |
| 183 | Control box | PU-26 E | Панель управления | 1 |
| 184 | Gyroscope | GA-6 | Г ироагрегат | 1 |
| 185 | Compass indicator | LUN 3615.07-8 | Указатель компаса | 1 |
| 186 | Fuel quantity indicator power supply | LUN 1643-8 | Коробка питания топливомера | 1 |
| 187 | Engine vibration indicator (set) | IV-200(I) | Указатель вибрации двигателя (к-кт) | 1 |
| 188 | Pressure signalization | MSTV-1,4 | Сигнализатор давления | 1 |
| 189 | Angle of attack transmitter | DUA-3 | Датчик угла атаки | 1 |
| 190 | Clock | ACHS-1M | Часы | 1 |
| 191 | Horizon indicator | 1122 В | Указатель авиагоризонта | 1 |
| 192 | Horizon transmitter | 458 M | Г иродатчик | 1 |
| 193 | Cabin dangerous pressure indicator | LUN 1460-8 | Указатель опасного давления в кабине | 1 |
| 194 | Temperature regulator | RTSS-2M | Регулятор температуры | 1 |
| 195 | Filter | F-4 | Фильтр | 1 |
| 196 | Filter | F-14A | Фильтр | 1 |
| 197 | Overload transmitter | MP-95 | Датчик перегрузки | 1 |
| 198 | Trim position transmitter | LUN 1690-8 | Датчик триммера | 1 |
| 199 | Pressure switch | LUN 1464.01-8 | Сигнализатор давления | 1 |
| 200 | Quick release connector | ORK-9AU | Объединенный разъем коммуникаций | 1 |
| 201 | Oxygen pressure reducing valve | KR-26A | Редуктор кислородный | 1 |
| 202 | Pressure gauge | M 2000 K, ver. 2 | Манометр избыточного давления | 1 |
| 203 | Oxygen supply reducing valve | RPK-52 M | Регулятор подачи кислорода | 1 |
| 204 | Pressure gauge | MA-250 MK | МА-250 МК Манометр | 2 |
| 205 | Oxygen set | KP-52M | Кислородный прибор | 1 |
| 206 | Oxygen indicator | IK-52 | Кислородный указатель | 1 |
| 207 | Helmet ventilation | VUSH-6 | Устройство вентиляции шлема | 1 |
| 208 | Parachute oxygen set | KP-27 M | Кислородный прибор | 1 |
| 209 | Pyro cylinder switching- off of locks | 120-3-935 | Пироцилиндр отключения замков | 1 |
| 210 | Pyro cylinder dump canopy | 120-3-938 | Пироцилиндр сброса фонаря | 1 |
| 211 | Left canopy lock | 39 111 700 | Левый замок откидной части фонаря | 1 |
| 212 | Right canopy lock | 39 111 723 | Правый замок откидной части фонаря | 1 |
| 213 | Windshield (glass) | 39 130 015 | Передный щиток фонаря (стекло) | 1 |
| 214 | Front tiltable canopy | 39 010 045 | Фонарь передный | 1 |
| 215 | Mirror | 39 140 069 | Зеркало | 1 |
| 216 | Rear tiltable canopy | 39 010 046 | Фонарь задный | 1 |
| 217 | Lock | ДЗ-57Д-7 | Замок бомбодержателя | 4 |
| 218 | Electro-engine | MU-320 | Электродвигатель | 1 |
| 219 | nupouunnHflp | 39 910 088 | Пироцилиндр | 1 |
| 220 | The ejection seat handle | 39 915 794 | Рукоятка катапультирования | 4 |
| 221 | Electro-magnet | LUN 2550-8 | Электромагнит блокирующий | 1 |
| 222 | Electro-magnet | LUN 2550.1-8 | Электромагнит блокирующий | 1 |
| 223 | Combined seat réaliser | LUN 5820-8 | Комбин.автом. прибор | 1 |
| 224 | Autom. parachute réaliser | LUN 5821-8 | Комбин.автом. прибор | 1 |
| 225 | Aileron left | 39 270 000 | Еперон левый | 1 |
| 226 | Aileron right | 39 280 000 | Елерон правый | 1 |
| 227 | Trim | 79 270 009 | Триммер | 1 |
| 228 | Trim | 79 280 005 | Триммер | 1 |
| 229 | Line | 79 700 266 | Трос | 2 |
| 230 | Traction | 39 440 014 | Тяга | 1 |

**L-39ZA TRAINING AND LIGHT ATTACK AIRCRAFT**

**ARMAMENT**

A) ON WEAPON PYLONS

|  |  |  |  |
| --- | --- | --- | --- |
| WEAPON PYLON OUTER(L39.M640) | WEAPON PYLON INNER( L39 M620J | WEAPON PYLON INNER(L39M619) | WEAPON PYLON OUTER(L39.M639 ) |
| LAUCNNING DEVICE (APU-13M1 )lorR - 3S or R- 3U | |* Drop (fuei) tank - 1501
* Drop (fuel) tank - 350 I
* Bomb - 3B - 360
* Demolition bomb -

( FAB - 500M - 54 ) | * Drop (fuel) lank - 150 I
* Drop (fuel) lank - 350 I
* Photo container ( PFK-5)
* Bomb - 3B - 360
* Demolition bomb - (FAB- 500M-54)
 | LAUCHNING DEVICE ( APU-13 M1 )forR-3S or R - 3U |
| * 7,62 mm three barrel machine gun in container

(PK-3). Bomb (OFAB-100M)* Bomb (OFAB-100MB)

. Bomb (FAB- 250 )* Rocket pack ( UB - 16 - 57UMP )

lor rockets C - 5M or C - 5K* Multi look bomb rack ( L39.M 559 )
 | * 7,62 mm three barrel machine gun in container

(PK-3)* Bomb ( OFAB - 100M )
* Bomb (OFAB-100MB)
* Bomb (FAB- 250 )
* Rocket pacK ( UB - 16 - 57UMP )

for rockets C - 5M or C - 5K* Multi look bomb rack ( L39.M 559 )
 |

**B) ON THE AIRCRAFT**

* Gun - GSh - 23, with 3 x 50 shells;
* Gun sight ASP - 3 NMU - 39Z;
* Aiming point camera - FKP - 2 - 2A
* Signal flares box – EKSR – 46 – 9