12

SERVICING

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SERVICING

DESCRIPTION AND OPERATION

1. GENERAL

Special attention has been given to the aircraft design in order to provide the aircraft with simplified servicing features.

This chapter provides descriptions, illustrations and servicing procedures necessary to locate system or component service points and to replenish and to carry out maintenance practices on equipment as required.

Special attention to all **WARNINGS** and **CAUTIONS** will avoid injury to personnel or damage to the aircraft and associated facilities.

The operational integrity of the aircraft systems can be considerably jeopardized if unapproved or contaminated fuels, oils, fluids, lubricants or other materials are used. Avoid to mix various brands, types or qualities of material.

Replenishment tables are provided within the context of the General Servicing Information. These charts include tank capacities, filling quantities and approved product specifications - refer to 12-10-00.

For further information concerning servicing specific materials and their suppliers - refer to 20-10-00.

For further information concerning servicing of the aircraft systems and components - refer to 12-20-00.

This chapter includes the following sections :

- Servicing points - refer to 12-00-01,
- Bleeding points - refer to 12-00-02,
- Draining points - refer to 12-00-03,
- Replenishing - refer to 12-10-00,
- Scheduled servicing - refer to 12-20-00.

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SERVICING POINTS

DESCRIPTION AND OPERATION

1. GENERAL

The different servicing points are used to prepare the aircraft and to keep it in serviceable conditions.

The servicing points include :

- the fuel system replenishment points,
- the oil system replenishment point,
- the brake hydraulic system replenishment point,

Option Pre-MOD. 151, Standard Post-MOD. 151

- the ground power receptacle,
- the grounding.

2. LOCATION

COMPONENT	QTY	AREA	ACCESS DOOR	REFERENCE
Fuel system replenishment	2	500/600	/	12-11-01
Oil system replenishment	1	100	122	12-12-01
Brake hydraulic system replenishment	1	100	121	12-13-01
Ground power receptacle	1	210	216	12-00-01
Grounding	1	500	/	12-00-01

3. DESCRIPTION (Figure 1)

A. Fuel system replenishment point

The fuel system replenishment points (1 per wing) allow to replenish the structural fuel tanks located into the wings of the aircraft. They are plugged by means of one-quarter rotation filler caps and are located on the upper surfaces of the wings.

B. Oil system replenishment point

The oil system replenishment point allows to replenish or to top up the engine oil casing. It is located on the upper casing of the engine and plugged by means of a dipstick/filler cap. This replenishment point is accessible through inspection door 122, located on the upper engine cowling.

C. Brake hydraulic system replenishment point

The brake hydraulic system replenishment point allows to replenish or to top up the hydraulic fluid reservoir which supplies fluid to the braking system. It is located on the R.H. side of the firewall and is accessible after removal of the upper engine cowling 121.

Option Pre-MOD. 151, Standard Post-MOD. 151

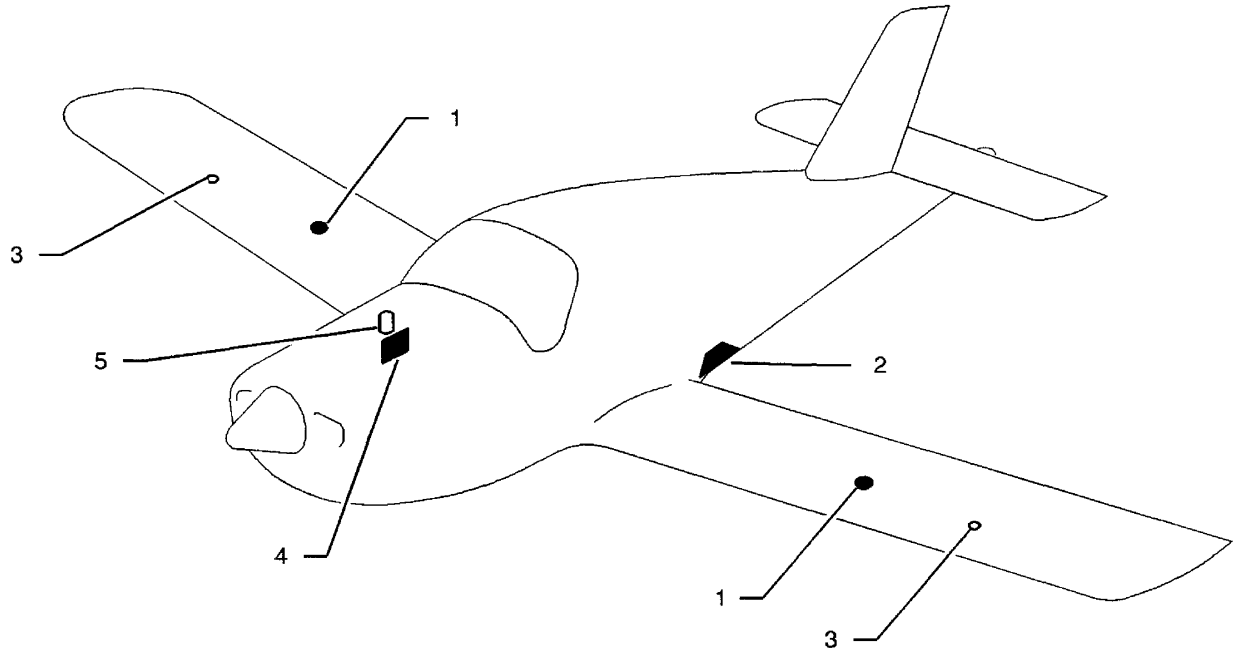
D. Ground power receptacle

The ground power receptacle allows to supply the aircraft with electrical power from an external power source. It is located on the L.H. side beneath the fuselage behind frame C4. This receptacle is accessible through inspection door 216.

E. Grounding

The grounding allows to ground the aircraft during the replenishment of the fuel tanks or when the aircraft is parked. It is located on the upper surface of the L.H. and R.H. wings in the area of rib N9 behind the spar.

1 - Fuel system replenishment
2 - Ground power receptacle
3 - Grounding
4 - Oil system replenishment
5 - Brake hydraulic system replenishment



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Servicing points - Description and operation
Figure 1

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BLEEDING POINTS

DESCRIPTION AND OPERATION

1. GENERAL

The different bleeding points of the aircraft fluid or air systems enable the users to eliminate the water, the air and the deposits trapped into the aircraft systems and which can affect the correct operation of these systems.

The bleeding points include :

- the fuel tank bleed and drain,
- the fuel filter bleed,
- the engine oil system drain,
- the braking system bleed,
- the static system bleed.

2. LOCATION

COMPONENT	QTY	AREA	ACCESS DOOR	REFERENCE
Fuel tank bleed and drain	2	500 / 600	/	12-11-02
Fuel filter bleed	1	210 / 100	/	12-00-02
Engine oil system drain	1	100	131 or 133 (option)	12-12-02
Braking system bleed	2	730 / 740	/	12-13-01
Static system bleed	1	210	/	12-00-02

3. DESCRIPTION (Figure 1)

A. Fuel tank bleed and drain

The bleeding point of the fuel tank (1 per wing) consists of a clapper valve which allows to eliminate any contamination and especially condensation water caused by air humidity and temperature variations. It also allows to drain the fuel tank entirely. It is located on the lower surface of the wing, at the lowest point of the tank, near inspection doors 513 [613] in the vicinity of the main landing gear.

B. Fuel filter bleed

The bleeding point of the fuel filter is a clapper valve which allows to eliminate contamination deposits having passed through the filter and especially condensation water from the fuel tanks.

S / N 1 - 730

The clapper valve is located beneath the fuel filter in the engine compartment against the firewall. It is accessible through an opening made into the lower cowling 131.

S / N 731 - 9999

The clapper valve is located beneath the fuselage, on the R.H. side of the fuel filter and is accessible through an opening made into the cowling under hull 218.

C. Engine oil system drain

The engine oil drain valve is located on the engine lower casing and is accessible through inspection door 133, or after removal of lower engine cowling 131.

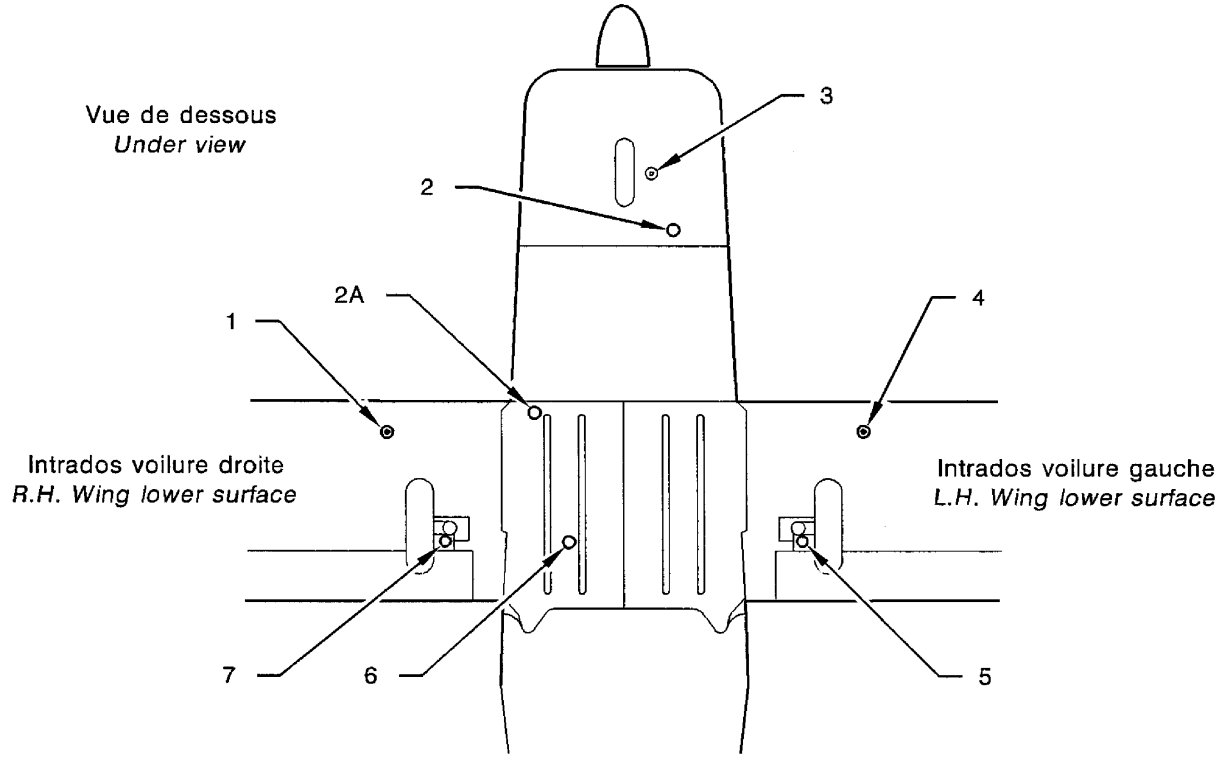
D. Braking system bleed

The bleeding points of the braking system (1 per brake unit) allow to eliminate the air trapped into the system during the replacement or the malfunctioning of a component. They are located on the brake units.

E. Static system bleed

The bleeding point of the static system allows to remove condensation water from the lines. It is plugged with a seal-fitted plug. This bleeding point is located beneath the fuselage in the area of the wing splicing, and is accessible through an opening made into the cowling under hull 218.

1 - R.H. fuel tank bleed and drain
2 - Fuel filter bleed (S / N 1 - 730)
2A - Fuel filter bleed (S / N 731 - 9999)
3 - Engine oil system drain
4 - L.H. fuel tank bleed and drain
5 - L.H. brake unit bleed
6 - Static system bleed
7 - R.H. brake unit bleed



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Bleeding points - Description and operation
Figure 1

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DRAINING POINTS

DESCRIPTION AND OPERATION

1. GENERAL

The airframe draining points allow to eliminate condensation, rain or washing water which gathers inside the fuselage, wings and stabilizers.

The draining points include :

- the draining points of fuselage,
- the draining points of wings,
- the draining points of stabilizers,
- the draining point of fuel mechanical pump,
- the oil breather,
- the draining point of battery tray.

2. LOCATION

COMPONENT	QTY	AREA	ACCESS DOOR	REFERENCE
Draining points of fuselage	8	220 / 230	/	12-00-03
Draining points of wings	4	500 / 600	/	12-00-03
Draining points of stabilizers	7	320 / 330	/	12-00-03
Draining point of fuel mechanical pump	1	100	/	12-00-03
Oil breather	1	100	/	12-00-03
Draining point of battery tray	1	100	/	12-00-03

3. DESCRIPTION (Figure 1)

A. Draining points of fuselage

The draining points of fuselage are located in the area of frames C5, C6, C7 and C8, and on the cowling under hull 218. The draining of the NACA air inlets and of the access doors is located at the wing root.

B. Draining points of wings

The draining points of wings are located in the area of ribs N3 and N8 in front of the spar.

C. Draining points of stabilizers

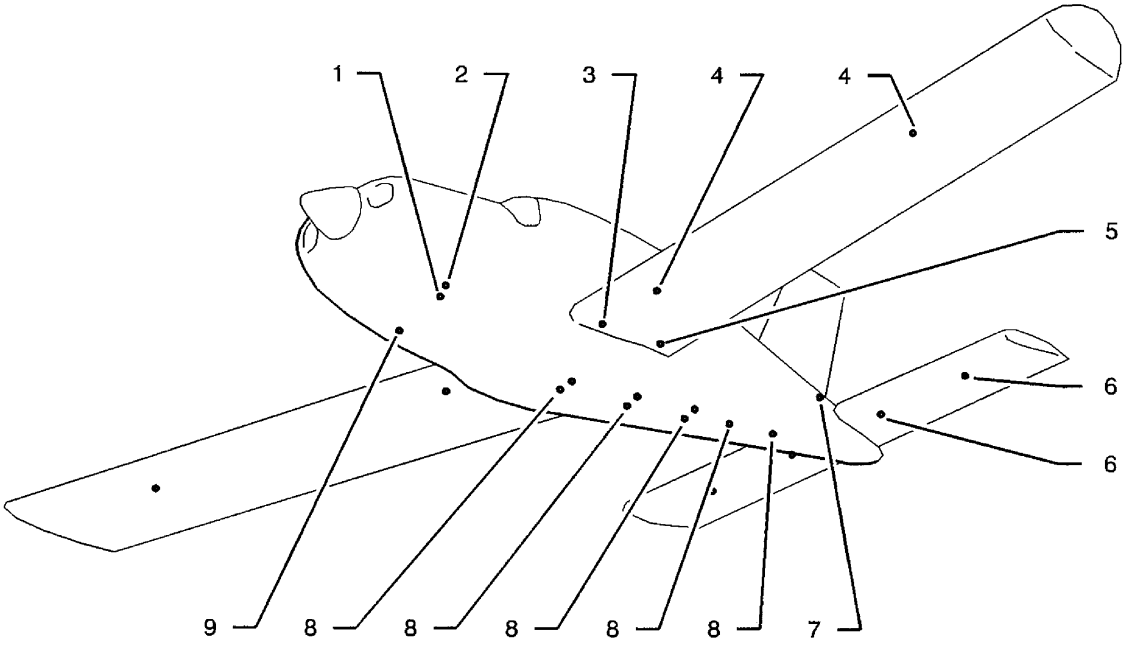
The draining points of horizontal stabilizer are located between ribs N4 and N5 and in the area of ribs N1 and N3 behind the spar.

The draining point of rudder flap is located on rib N1 in the area of the trailing edge.

D. Draining point of fuel mechanical pump, battery tray and oil breather

The draining pipe of the fuel mechanical pump and the oil breather pipe are located on the L.H. side and the draining of the battery tray on the R.H. side, on the firewall.

1 - Draining point of fuel mechanical pump
2 - Oil breather
3 - Draining point of NACA air inlet and access door
4 - Draining point of wings
5 - Draining point of access door
6 - Draining point of horizontal stabilizer
7 - Draining point of rudder flap
8 - Draining point of fuselage
9 - Draining point of battery tray



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Draining points - Description and operation
Figure 1

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REPLENISHING

DESCRIPTION AND OPERATION

1. GENERAL

The procedures concern the following fluids :

- fuel - refer to 12-11-00,
- oil - refer to 12-12-00,
- hydraulic - refer to 12-13-00,
- gas - refer to 12-14-00.

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FUEL

DESCRIPTION AND OPERATION

1. GENERAL

Before the first flight of the day and after each refueling, use the fuel sampler and drain fuel from the fuel tank drains and the fuel filter drain to determine if contaminants are present, and the aircraft has been fueled with the proper grade and type of fuel.

The L.H. and R.H. wing fuel tanks are gravity filled through the filler port located on top of each wing. Procedures for filling both wing tanks are identical - refer to 12-11-01.

The fuel tanks are drained through the draining valves - refer to 12-11-02.

The tanks must be ventilated prior to any operation on the tanks - refer to 12-11-03.

2. FUEL TANK CAPACITY

WARNING : REFUEL THE TANK AFTER EACH FLIGHT AND KEEP FUEL TANKS FULL TO MINIMIZE CONDENSATION IN THE TANKS, RESPECTING WEIGHT AND BALANCE LIMITS.

S / N 1 - 764, 766 - 878 with OPTION 558

Capacity of each tank : 27.7 U.S. Gal. (105 litres)

Total usable quantity : 53.8 U.S. Gal. (204 litres)

S / N 765, 879 - 9999 and S / N 1 - 764, 766 - 878 without OPTION 558

Capacity of each tank : 20.8 U.S. Gal. (79 litres)

Total usable quantity : 40.2 U.S. Gal. (152 litres)

3. APPROVED FUELS

100 LL grade aviation fuel (Blue) (TB 01-901A)

100 grade aviation fuel (Formerly 100 / 130) (Green) (TB 01-901B).

CAUTION : NEVER FLY THE AIRCRAFT WITH CONTAMINATED (WATER, SAND, RUST, DUST...) OR UNAPPROVED FUEL.

NOTE : Isopropyl alcohol (TB 10-002) or ethylene glycol monomethyl ether (TB 10-901) may be added to the fuel supply in quantities not exceeding 1 % or 0.15 %, respectively, of the total volume. Refer to "Fuel Additives" Paragraph 4. for additional information.

4. FUEL ADDITIVES (Figure 1)

Strict adherence to recommended preflight draining instructions as described in Section 4 of the Pilot's Operating Handbook will eliminate free water accumulations from the tank sumps. While small amounts of water may still remain in solution in the gasoline, it will normally be consumed and go unnoticed in the operation of the engine.

One exception to this can be encountered when operating under the combined effect of the use of certain fuels, with high humidity conditions on ground followed by flight at high altitude and low temperature. Under these unusual conditions, small amounts of water in solution can precipitate from the fuel stream and freeze in sufficient quantities to induce partial icing of the engine fuel system.

Although these conditions are quite scarce and will not normally pose a problem to owners and operators, they do exist in certain areas of the world and consequently must be dealt with, when encountered.

Therefore, to alleviate the possibility of fuel icing occurring under these unusual conditions, it is permissible to add ispropyl alcohol (TB 10-002) or ethylene glycol monomethyl ether (EGME) (TB 10-901) compound to the fuel supply.

The introduction of alcohol or EGME compound into the fuel provides two distinct effects :

- it absorbs the dissolved water from the fuel,
- it lowers freezing temperature.

Alcohol, if used, should be mixed with the fuel in a concentration of 1 % of volume. Concentrations greater than 1 % are not recommended since they can be detrimental to fuel tank materials.

The manner in which the alcohol is added to the fuel is significant because alcohol is most effective when it is completely dissolved in the fuel. To ensure proper mixing, the following procedure is recommended :

- For best results, the alcohol should be added during the fueling operation by pouring the alcohol directly on the fuel stream issuing from the fueling nozzle.
- An alternate method that may be used is to premix the complete alcohol dosage with some fuel in a separate clean container (approximately 2 to 3 U.S. Gal. - 7 to 11 litres) and to transfer this mixture to the tank prior to the fueling operation.

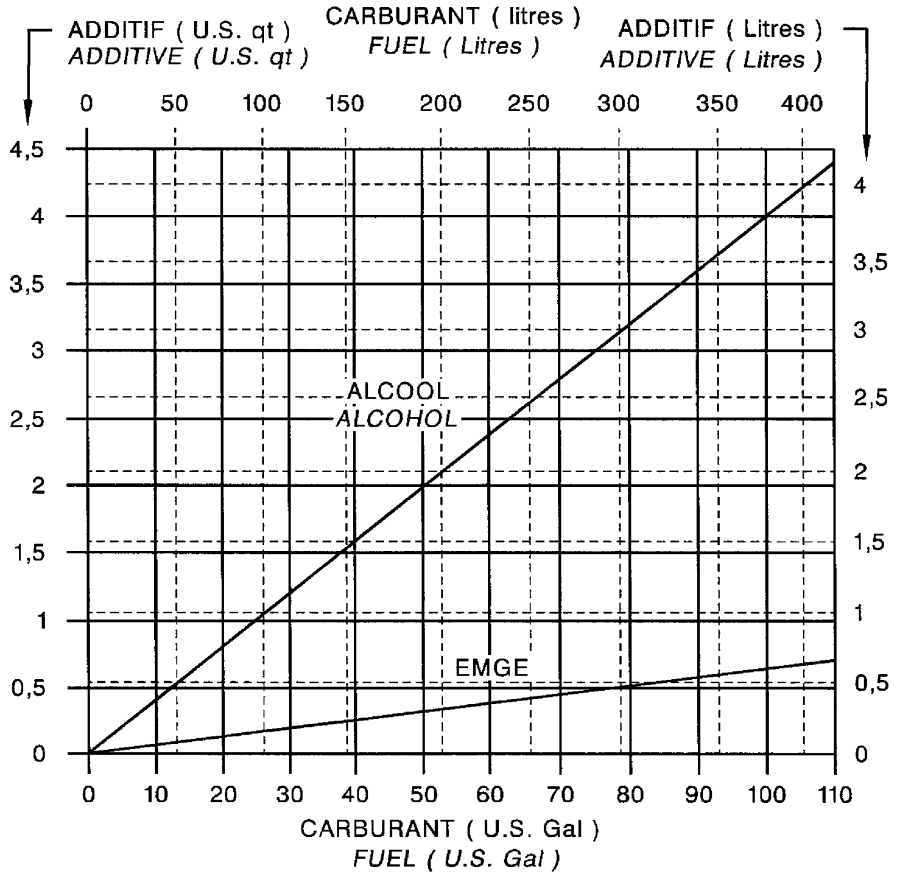
Any high quality isopropyl alcohol may be used, such as anti-icing fluid or isopropyl alcohol (TB 10-002). Figure 1 provides alcohol - fuel mixing ratio information.

Ethylene glycol monomethyl ether (EGME) compounds, in compliance with MIL-I-27686, if used, must be carefully mixed with the fuel in concentration not to exceed 0.15 % of volume. Figure 1 provides EGME - fuel mixing ratio information.

CAUTION : MIXING OF THE EGME COMPOUND WITH THE FUEL IS EXTREMELY IMPORTANT. A CONCENTRATION IN EXCESS OF THAT RECOMMENDED (0.15 % OF VOLUME MAXIMUM) WILL RESULT IN DETRIMENTAL EFFECTS TO THE FUEL TANKS (DETERIORATION OF PROTECTIVE PRIMER AND SEALANTS), TO FUEL SYSTEM AND ENGINE COMPONENTS (DAMAGE TO SEALS). USE ONLY BLENDING EQUIPMENT RECOMMENDED BY THE MANUFACTURER TO OBTAIN PROPER PROPORTIONS.

DO NOT ALLOW CONCENTRATED EGME COMPOUND TO COME INTO CONTACT WITH THE AIRCRAFT FINISH AS THIS CAN CAUSE DAMAGE.

Prolonged storage of the aircraft will result in a water buildup in the fuel which "absorbs" the additive. An indication of this is when an excessive amount of water accumulates in the fuel tank sumps. The concentration can be checked using a differential refractometer. It is imperative that the technical manual for the differential refractometer be followed explicitely when checking the additive concentration.



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Additive mixing ratio
Figure 1

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FUELING

SERVICING

WARNING : OBEY THE SAFETY PRECAUTIONS DESCRIBED IN 28-00-00.

NOTE : This procedure is applicable to L.H. and R.H. installations. Information specific to R.H. installation are given in square brackets.

1. FUELING

A. Tools and consumable materials

- Ground cables
- Extinguisher

B. Procedure

WARNING : PERFORM FUELING IN AREAS WHICH PERMIT FREE MOVEMENT OF FIRE FIGHTING EQUIPMENT.

DURING ALL FUELING OPERATIONS, FIRE FIGHTING EQUIPMENT MUST BE AVAILABLE.

THE POWER PLANT MUST NOT BE OPERATED.

THE AIRCRAFT ELECTRICAL CIRCUIT MUST BE SWITCHED OFF.

HIGH FREQUENCY EQUIPMENT OPERATING IN THE VICINITY OF THE AIRCRAFT DURING FUELING OPERATIONS IS HAZARDOUS.

DURING THUNDERY WEATHER, DO NOT PERFORM FUELING.

CAUTION : ENSURE THE PROPER GRADE AND TYPE OF FUEL IS USED FOR SERVICING THE AIRCRAFT - REFER TO 12-11-00.

1) Connect a ground cable from the aircraft to an approved ground terminal.
2) Connect tanker ground cable to an approved ground terminal.
3) Connect a tanker / aircraft connection cable.
4) Connect ground wires from fuel nozzle to ground points on aircraft (if none, on gear leg).
5) Unlock and remove filler cap.
6) Insert fuel nozzle into filler port and complete fueling.
7) Remove fuel nozzle.
8) Install filler cap and lock securely.
9) Disconnect ground cables.
10) Close main switch-breaker.
11) Make sure the fuel quantity displayed on the gage indicator is correct.
12) Open main switch-breaker.

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BLEEDING AND DEFUELING

SERVICING

WARNING : OBEY THE SAFETY PRECAUTIONS DESCRIBED IN 28-00-00.

NOTE : This procedure is applicable to L.H. and R.H. installations. Information specific to R.H. installation are given in square brackets.

1. FUEL BLEEDING (Figures 301 and 301A)

A. Tools and consumable materials

- Ground cable
- Extinguisher
- Sampler Z00.N6023657220

B. Procedure

WARNING : THE POWER PLANT MUST NOT BE OPERATED.

THE AIRCRAFT ELECTRICAL CIRCUIT MUST BE SWITCHED OFF.

DURING ALL BLEEDING OR DEFUELING OPERATIONS, FIRE FIGHTING EQUIPMENT MUST BE AVAILABLE.

CAUTION : DURING BLEEDING OR DEFUELING OF THE TANKS AND / OR THE SYSTEM, FUEL HAS TO BE KEPT IN A CONTAINER. DO NOT LEAVE THE FUEL FLOW ON THE GROUND.

1) Connect a ground cable from the aircraft to an approved ground terminal.
2) Use sampler (3) to press bleed valve (2).
3) Release once bleeding is completed.
4) Disconnect the ground cable.

2. FUEL SYSTEM DEFUELING (Figures 301 and 301A)

A. Tools and consumable materials

- Ground cable
- Torque wrench 0 - 442 lbf.in (0 - 50 Nm)
- Fork wrench 1"5/16 (33 mm)
- Cleaning agent (TB 11-003)
- Loctite (TB 08-013C)
- Clean lintfree cloths
- Extinguisher
- 2 drain containers [Min. capacity 27.7 US Gal (105 L each)]
- Stainless steel lockwire, dia. 0.02 in (0.6 mm)

B. Tank defueling procedure

WARNING : PERFORM DEFUELING IN AREAS WHICH PERMIT FREE MOVEMENT OF FIRE FIGHTING EQUIPMENT.

THE POWER PLANT MUST NOT BE OPERATED.

DURING THUNDERY WEATHER, DO NOT PERFORM DEFUELING.

DURING ALL BLEEDING OR DEFUELING OPERATIONS, FIRE FIGHTING EQUIPMENT MUST BE AVAILABLE.

CAUTION : DURING BLEEDING OR DEFUELING OF THE TANKS AND / OR THE SYSTEM, FUEL HAS TO BE KEPT IN A CONTAINER. DO NOT LEAVE THE FUEL FLOW ON THE GROUND.

1) Connect a ground cable from the aircraft to an approved ground terminal.
2) Disconnect the battery - refer to 24-30-02, and install the following warning sign :

WARNING
MAINTENANCE WORK IN PROGRESS ON FUEL SYSTEM DO NOT CONNECT

3) Position a drain container below the draining point of each wing.
4) Remove bleed body (4) with the fork wrench.
5) Defuel.
6) Clean base (1) and bleed body (4) with a clean lintfree cloth moistened with cleaning agent (TB 11-003).
7) Inspect seal (5) for correct condition, replace if necessary.
8) Lubricate seal (5) with fuel.
9) Apply Loctite (TB 08-013C) on the threads of bleed body (4) - refer to 20-00-08.
10) Install bleed body (4) on base (1). Torque - refer to 20-00-01.
11) Connect the battery - refer to 24-30-02, and remove the "WARNING" sign.
12) Disconnect the ground cable.

C. Fuel system in fuselage defueling procedure

WARNING : PERFORM DEFUELING IN AREAS WHICH PERMIT FREE MOVEMENT OF FIRE FIGHTING EQUIPMENT.

THE POWER PLANT MUST NOT BE OPERATED.

DURING THUNDERY WEATHER, DO NOT PERFORM DEFUELING.

DURING ALL BLEEDING OR DEFUELING OPERATIONS, FIRE FIGHTING EQUIPMENT MUST BE AVAILABLE.

CAUTION : DURING BLEEDING OR DEFUELING OF THE TANKS AND / OR THE SYSTEM, FUEL HAS TO BE KEPT IN A CONTAINER. DO NOT LEAVE THE FUEL FLOW ON THE GROUND.

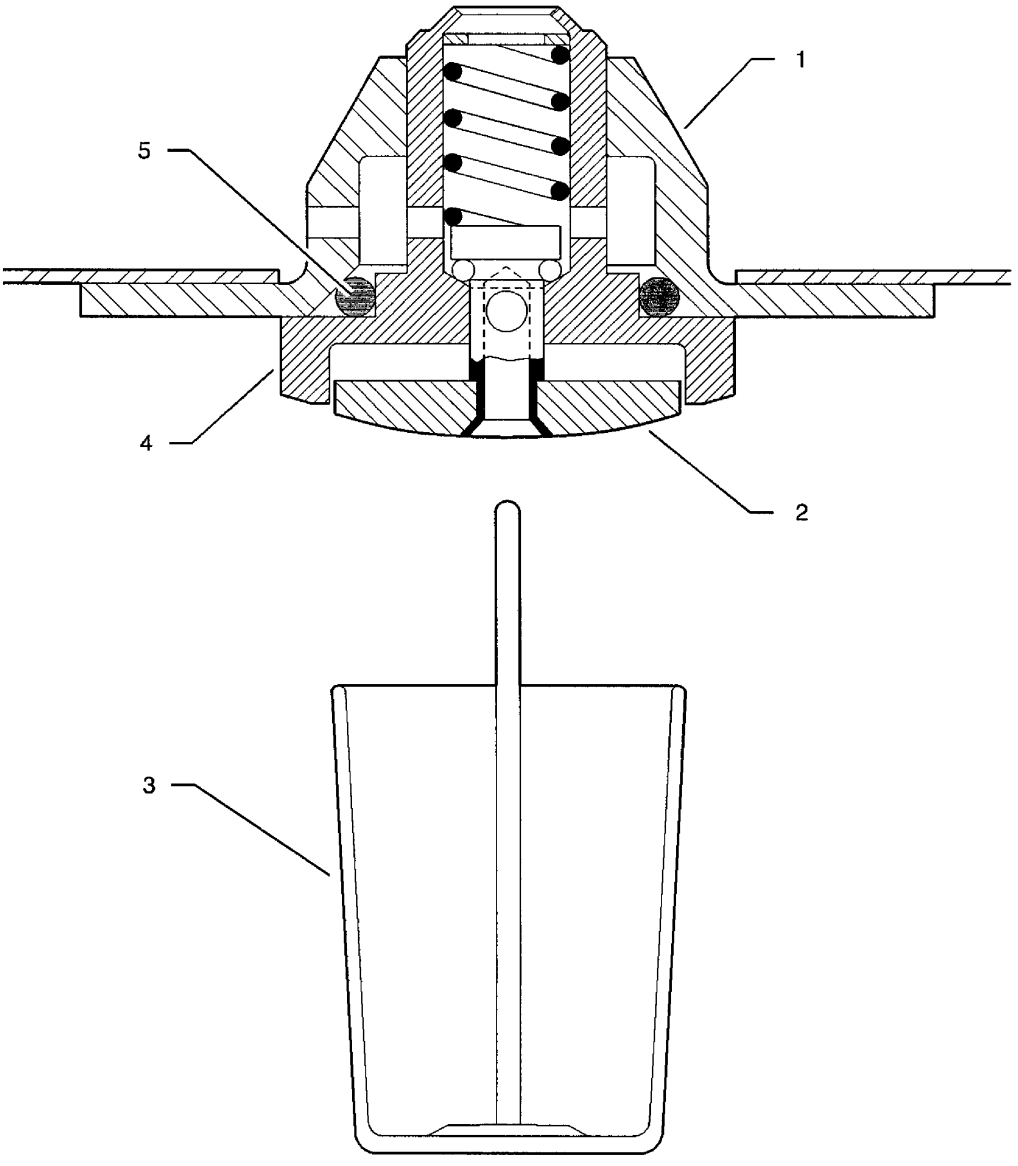
1) Connect a ground cable from the aircraft to an approved ground terminal.
2) Disconnect the battery - refer to 24-30-02, and install the following warning sign :

WARNING

MAINTENANCE WORK IN PROGRESS
ON FUEL SYSTEM
DO NOT CONNECT

3) Position a drain container below the fuel system bleed.
4) If one of the tanks is defueled, position the fuel selector on the empty tank.
5) To defuel the system without defueling one of the two tanks, position the fuel selector to "CLOSED" and temporarily loosen the fuel filter bowl to provide the system with an air inlet.
6) Press the bleed button until defueling is completed, then release the button.
7) If the fuel filter bowl has been loosened, tighten it and lockwire.
8) Connect the battery - refer to 24-30-02, and remove the "WARNING" sign.
9) Disconnect the ground cable.

1 - Base
2 - Bleed valve
3 - Sampler
4 - Bleed body
5 - Seal



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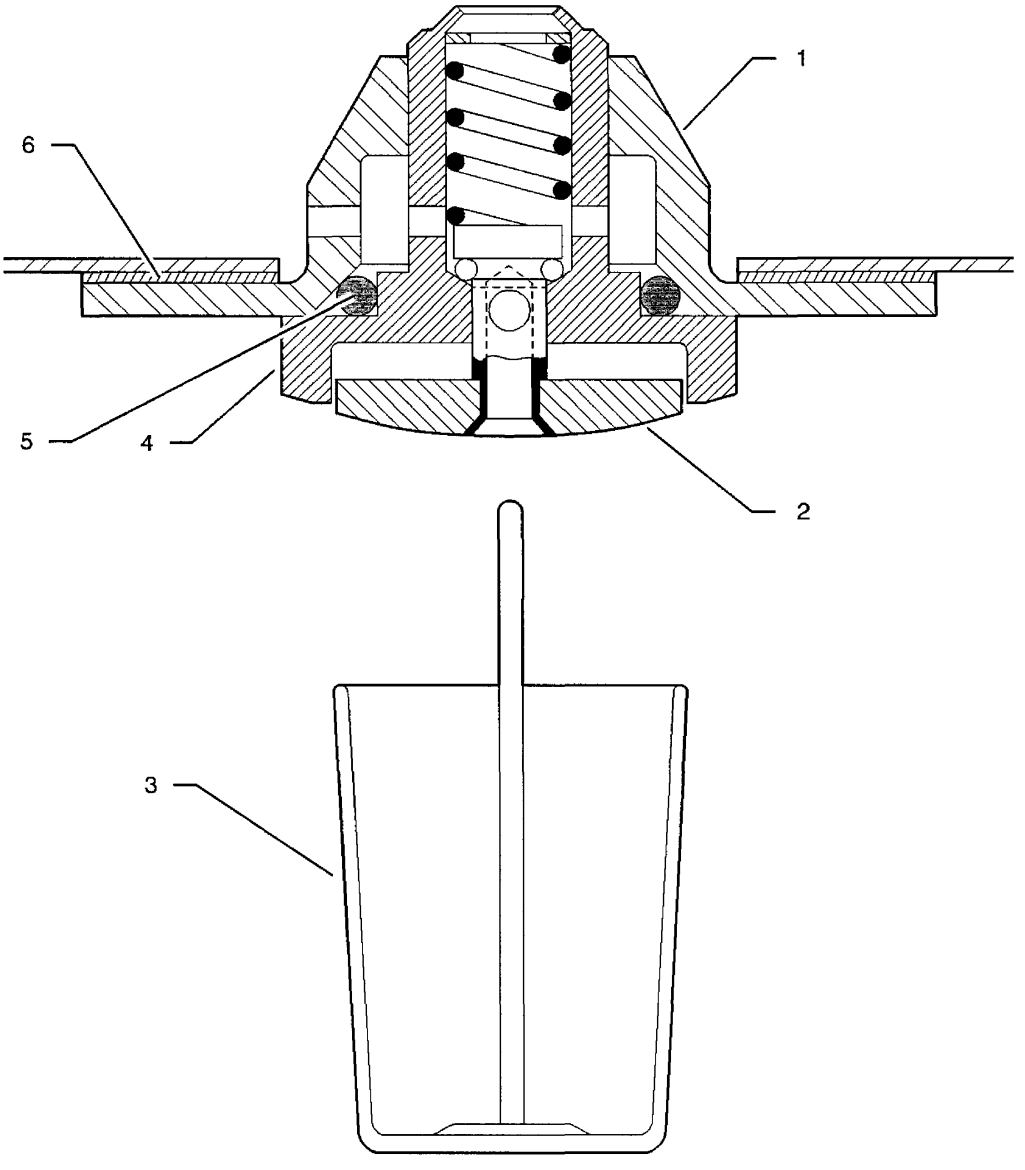
Tank bleeding and defueling - Servicing
Figure 301

1 - Base
2 - Bleed valve
3 - Sampler
4 - Bleed body
5 - Seal
6 - Washer



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Tank bleeding and defueling - Servicing
Figure 301A - OPTION H755 or OPTION H747

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TANK VENTILATION

SERVICING

WARNING : OBEY THE SAFETY PRECAUTIONS DESCRIBED IN 28-00-00.

NOTE : This procedure is applicable to L.H. and R.H. installations. Information specific to R.H. installation are given in square brackets.

1. TANK VENTILATION

A. Tools and consumable materials

- Hose or sponge
- Syphon
- Blanking cap
- Compressed air source

B. Procedure

WARNING : APPLY THE FUEL TANK MAINTENANCE PROCEDURE - REFER TO 28-00-00.

1) Connect a ground cable from the aircraft to an approved ground terminal.
2) Disconnect the battery - refer to 24-30-02, and install the following warning sign :

WARNING
MAINTENANCE WORK IN PROGRESS ON FUEL SYSTEM DO NOT CONNECT

3) Defuel the tank in which the work is to be carried out - refer to 12-11-02.
4) Remove sealed inspection door 513 [613] - refer to 52-40-00.
5) Eliminate the fuel remaining in the non-drainable areas using a hose for suction or a sponge.
6) Make sure all the tools and materials are removed and the work area is clean and free from debris.
7) Temporarily install sealed inspection door 513 [613].
8) Remove inspection door 511 [611] - refer to 52-40-00.
9) Disconnect the fuel outlet pipe and blank off - refer to 28-20-03.
10) On the strainer end fitting, connect a hose connected to a syphon.
11) Open the filler cap and connect the syphon to a compressed air source.
12) Ventilate the tank until the fuel vapor concentration has dropped below explosion limit.
13) Carry out the work which required tank ventilation.
14) Close the filler cap.

15) Make sure all the tools and materials are removed and the work area is clean and free from debris.

16) Remove the blanking cap and connect the fuel outlet pipe - refer to 28-20-03.

17) Install sealed inspection door 513 [613] - refer to 52-40-00.

18) Install inspection door 511 [611] - refer to 52-40-00.

19) Connect the battery - refer to 24-30-02, and remove the "WARNING" sign.

20) Disconnect the ground cable.

OIL

DESCRIPTION AND OPERATION

1. GENERAL

This aircraft was delivered from the factory with a corrosion-preventive aircraft engine oil. If oil must be added during the first 50 hours, use only aviation grade pure mineral oil conforming to specification AIR 3560 D (MIL-L-6082).

To replace the oil and clean the strainer or replace the filtering cartridge of new, remanufactured or recently overhauled engines as well as of engines on which cylinders have been installed recently, refer to TEXTRON LYCOMING Service Bulletin No. 480 at the latest revision.

S / N 1 - 1569 Pre-Kit OPT10 918400

Afterwards, drain the engine oil sump and clean the strainer every 25 hours.

S / N 1570 - 9999 and S / N 1 - 1569 Post-Kit OPT10 918400

Afterwards, drain the engine oil sump and replace the filtering cartridge every 50 hours.

S / N 1 - 9999

Change the engine oil and clean the strainer or replace the filtering cartridge at least every 4 months even if the recommended operating hours have not been reached. Reduce intervals for prolonged operation in dusty areas, cold climates, or in case of flights followed by long periods of non operation which can result in sludging.

NOTE : S / N 1 - 1569
To have a 50-hour drain cycle instead of a 25-hour one, on engines equipped with a strainer, the oil system can be fitted with a filtering cartridge - refer to SOCATA Service Letter No. SL 10-031-79 at its latest revision.

The oil is stored in the oil sump located below the engine. A quick-drain valve, located below the oil sump, allows draining. An inspection door, located on the upper engine cowling, provides access to the filler cap / dipstick.

The oil system servicing operations are the following :

- oil filling - refer to 12-12-01,
- oil drainage - refer to 12-12-02.

2. CAPACITY - CONSUMPTION

NOTE : The oil level is checked with pre-heated engine.

NOTE : The dipstick is graduated in U.S. quarts.

Oil sump capacity	: 8	U.S. qt	(7.6 litres)
Total system capacity	: 8.45	U.S. qt	(8 litres)
Oil maxi consumption	: 0.8	U.S. qt	(0.76 litres)

S / N 1 - 1569 Pre-Kit OPT10 918400

Do not operate the engine when oil quantity is inferior to 4 U.S. qt (3.8 litres). To minimize loss of oil through breather, fill to 6 U.S. qt (5.7 litres) for normal flights of less than 3 hours. For extended flights, fill to 8 U.S. qt (7.6 litres). These quantities correspond to oil dispstick level readings.

S / N 1570 - 9999 and S / N 1 - 1569 Post-Kit OPT10 918400

Do not operate the engine when oil quantity is inferior to 4 U.S. qt (3.8 litres). To minimize loss of oil through breather, fill to 6 U.S. qt (5.7 litres) for normal flights of less than 3 hours. For extended flights, fill to 8 U.S. qt (7.6 litres). These quantities correspond to oil dipstick level readings. During oil and filtering cartridge changes, 0.45 additional U.S. qt (0.4 litres) is required for the filter.

3. GRADE AND VISCOSITY IN RELATION TO TEMPERATURE

CAUTION : IT IS STRONGLY RECOMMENDED TO USE DISPERSANT OILS FOR ALL ENGINES.

IT IS ESSENTIAL NOT TO CONFUSE "DETERGENT" AND "DISPERSANT" TERMS. IN FACT, DETERGENT OILS MAY CAUSE SEPARATION OF THE CARBON DEPOSITS WHICH CAN OBSTRUCT THE INTERNAL OIL SYSTEMS. DISPERSANT OILS PREVENT THE FORMATION OF DEPOSITS BY BRESHING UP THE CARBON DEPOSIT PARTICLES, THUS ELIMINATING THE RISKS OF SEIZING.

SINCE PURE MINERAL AND DISPERSANT OILS ARE MISCIBLE, IT IS POSSIBLE, AS A TEMPORARY MEASURE, TO FILL UP WITH A DIFFERENT GRADE OF OIL.

Outside Air Temperature	MIL.L.6082 Mineral grades First 50 hours	MIL.L.22851 C Dispersant grades After 50 hours
All temperatures	.....	SAE 15W50 or 20W50 (TB 03-903)
Above 27°C (80°F)	SAE 60	SAE 60 (TB 03-902C)
Above 15°C (60°F)	SAE 50 (TB 03-901C)	SAE 40 or SAE 50 (TB 03-902B)
From - 1°C (30°F) to 32°C (90°F)	SAE 40 (TB 03-901B)	SAE 40
From - 18°C (0°F) to 21°C (70°F)	SAE 30 (TB 03-901A)	SAE 30 (TB 03-902A), SAE 40 or SAE 20W40
Below - 12°C (10°F)	SAE 20	SAE 30 (TB 03-902A) or SAE 20W30

4. OIL CROSS-REFERENCE TABLE

NOTE : Oils of the same quality and grade are miscible without any distinction of trade mark.

OIL TYPE	USAGE TEMPERATURE	SAE GRADE	MANUFACTURER	TRADE NAME	SYMBOL / NATO GRADE
PURE MINERAL	- 18° to + 21°C (0° to + 70°F)	30	NYCO	TURBONYCOIL 3560-65	0.113 / 65
			BP	AVIATION OIL 65	
			CASTROL	CASTROLAERO 113	
			ELF	AVIATION ENGINE OIL 65	
			ESSO	ESSO AVIATION OIL 65 F	
			IGOL FRANCE	IGOL AVIATION 65	
			MOBIL	MOBIL AERO WHITE BAND (SAE 30)	
			MOBIL	AVREX 105/1065	
			TOTAL (CFR)	TOTAL AERO 65	
	- 1° to + 32°C (+ 30° to + 90°F)	40	IGOL	IGOL AVIATION M80	0.115 / 80
			TEXACO	AIRCRAFT ENGINE OIL 80	
			ELF	AVIATION ENGINE OIL 80	
			ESSO	ESSO AVIATION OIL 80 F	
			MOBIL	AVREX 105/1080	
			MOBIL	MOBIL AERO GRAY BAND	
			SHELL	AEROSHELL OIL 80	
			TOTAL (CFR)	TOTAL AERO 80	
			NYCO	TURBONYCOIL 3560-80	
			BP	BP AERO OIL 80	
	Above + 15°C (+ 60°F)	50	BP	BP AERO OIL 100	0.117 / 100
			CASTROL	CASTROLAERO 117	
			IGOL FRANCE	IGOL AVIATION 100	
			ELF	AVIATION ENGINE OIL 100	
			ESSO	ESSO AVIATION OIL 100 F	
			MOBIL	AVREX 105/1100	
			MOBIL	MOBIL AERO RED BAND	
			SHELL	AEROSHELL OIL 100	
			TOTAL (CFR)	TOTAL AERO 100	
			NYCO	TURBONYCOIL 3560-100	

OIL TYPE	USAGE TEMPERATURE	SAE GRADE	MANUFACTURER	TRADE NAME	SYMBOL / NATO GRADE
DISPERSING	Above - 18°C (0°F)	30	NYCO	TURBONYCOIL 3570-65	0.123 / 65 D
			BP	BP AERO OIL D 80	
			CASTROL	CASTROL 22851 B type 3	
			ELF	AVIATION ENGINE OIL AD 80	
			ESSO	AVIATION OIL EE-80 F	
			MOBIL	MOBIL AERO OIL 65	
			SHELL	AEROSHELL OIL W 80	
			TOTAL (CFR)	TOTAL AERO D 65	
	Above + 15°C (+ 60°F)	50	NYCO	TURBONYCOIL 3570-65	0.125 / 80 D
			BP	BP AERO OIL D 100	
			ELF	AVIATION ENGINE OIL AD 100	
			ESSO	AVIATION OIL EE-100 F	
			IGOL FRANCE	IGOL AVIATION D 80	
			MOBIL	MOBIL AERO OIL 80	
			SHELL	AEROSHELL OIL W 100	
			TOTAL (CFR)	TOTAL AERO D 80	
	Above + 27°C (+ 80°F)	60	NYCO	TURBONYCOIL 3570-100	0.128 / 100 D
			BP	BP AERO OIL D 120	
			CASTROL	CASTROL 22851 B type 2	
			ELF	AVIATION ENGINE OIL AD 120	
			ESSO	AVIATION OIL EE-120 F	
			IGOL FRANCE	IGOL AVIATION D 100	
			MOBIL	MOBIL AERO OIL 100	
			MOBIL	MOBIL AERO OIL 120	
			SHELL	AEROSHELL OIL W 120	
			TOTAL (CFR)	TOTAL AERO D 100	
DISPERSING MULTIGRADE	All	15W50	TOTAL	TOTAL AERO DM	0.123

OIL FILLING

SERVICING

1. OIL LEVEL CHECK AND OIL FILLING (Figure 301)

A. Tools and consumable materials

- Funnel
- Step ladder 20 in (0.50 m)

B. Procedure

WARNING : PRIOR TO ANY OPERATION, ENSURE THAT THE KEY IS REMOVED FROM MAGNETO SELECTOR AND THAT "MAIN SWITCH" IS OFF.

WARNING : PRIOR TO ANY OPERATION, ENSURE THAT THE ENGINE, EXHAUST PIPE AND MANIFOLDS ARE COLD. IF NOT, TAKE NECESSARY PRECAUTIONS TO AVOID SEVERE BURNS.

NOTE 1 : The oil level is checked with pre-heated engine.

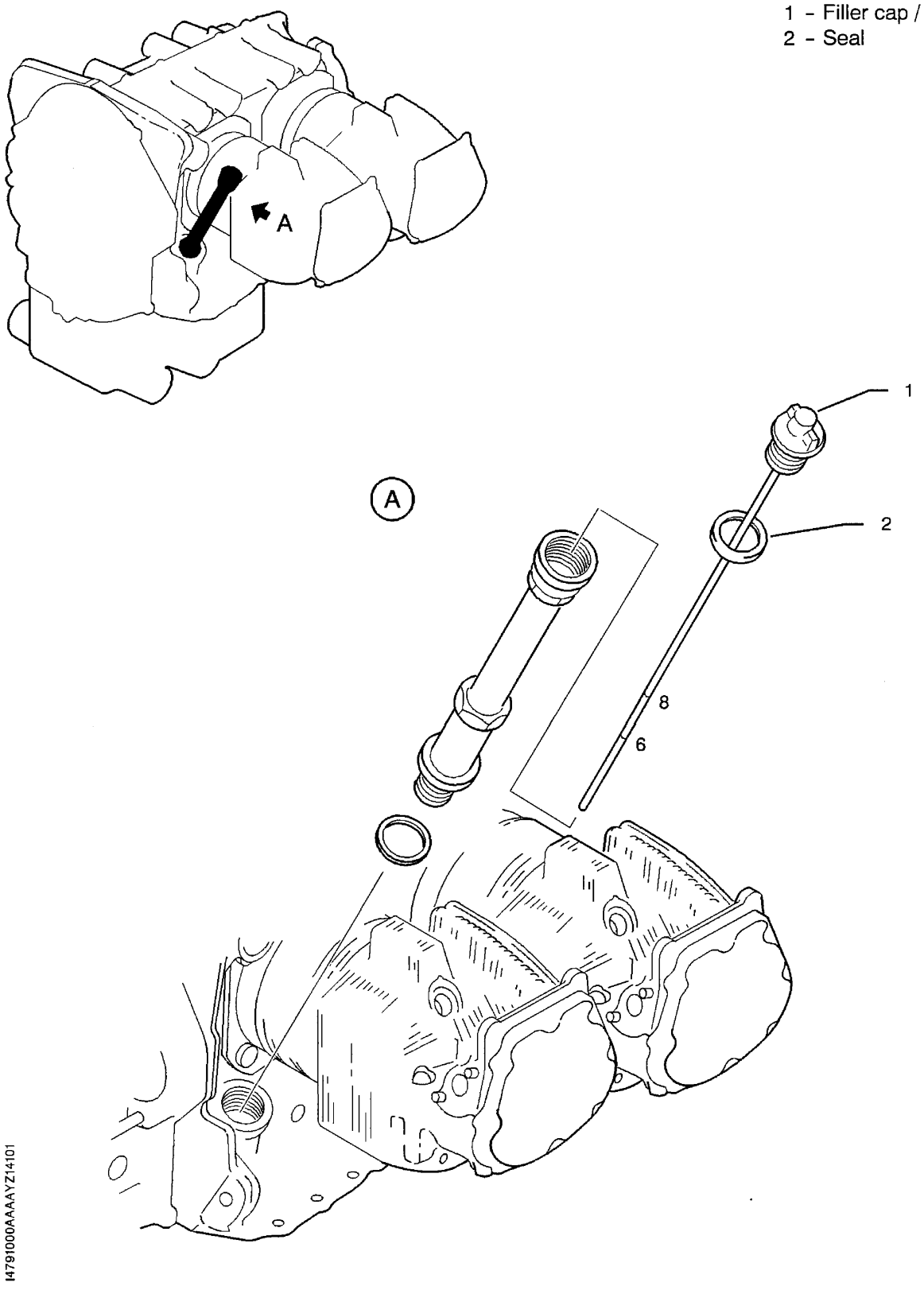
NOTE 2 : Perform oil filling after drainage or for partial filling of the oil system.

1) Open inspection door 122 on power plant upper cowling - refer to 06-30-00.
2) Unscrew and remove filler cap / dipstick (1).
3) Make sure the oil level is correct - refer to 12-12-00.

CAUTION : OBSERVE THE OIL GRADES AND THE OIL QUANTITY NECESSARY - REFER TO 12-12-00.

4) Perform oil filling, if necessary (install a funnel in the filler port).
5) Inspect seal (2) of filler cap / dipstick (1) for correct condition, replace if necessary.
6) Install filler cap / dipstick (1) and tighten moderately.
7) Make sure all the tools and materials are removed and the work area is clean and free from debris.
8) Close inspection door 122.
9) Perform a test run-up - refer to 05-30-02. Heat the engine until the oil temperature ranges between 104°F (40°C) and 122°F (50°C). Check the oil pressure.
10) Shut down the engine - refer to 05-30-02, check the oil level and check for leaks.

1 - Filler cap / dipstick
2 - Seal



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Oil filling - Servicing
Figure 301

OIL DRAINAGE

SERVICING

1. OIL SYSTEM DRAINAGE (Figure 301)

A. Tools and consumable materials

- Vinyl tube, internal dia. 0.47 in (12 mm), length 19.68 in (500 mm) approx.
- Drain container [capacity 5.28 U.S. Gal. (20 L) approx.]

B. Procedure

WARNING : PRIOR TO ANY OPERATION, ENSURE THAT THE KEY IS REMOVED FROM MAGNETO SELECTOR AND THAT "MAIN SWITCH" IS OFF.
IF AIRCRAFT IS EQUIPPED WITH DISCONNECT PLUG ON FIREWALL, DISCONNECT "MAGNETO DISCONNECT" PLUG AND CONNECT IT TO "GROUND MAGNETO FOR SERVICING" PLUG.

WARNING : PRIOR TO ANY OPERATION, ENSURE THAT THE ENGINE, EXHAUST PIPE AND MANIFOLDS ARE COLD. IF NOT, TAKE NECESSARY PRECAUTIONS TO AVOID SEVERE BURNS.

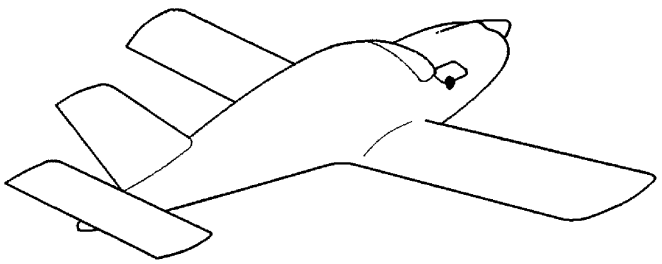
NOTE 1 : The oil system drainage is done with pre-heated engine. Heat the engine until the oil temperature ranges between 104°F (40°C) and 122°F (50°C) - refer to 05-30-02.

NOTE 2 : The quick-drain valve (3) is located below the engine casing (2) on L.H. FWD side.

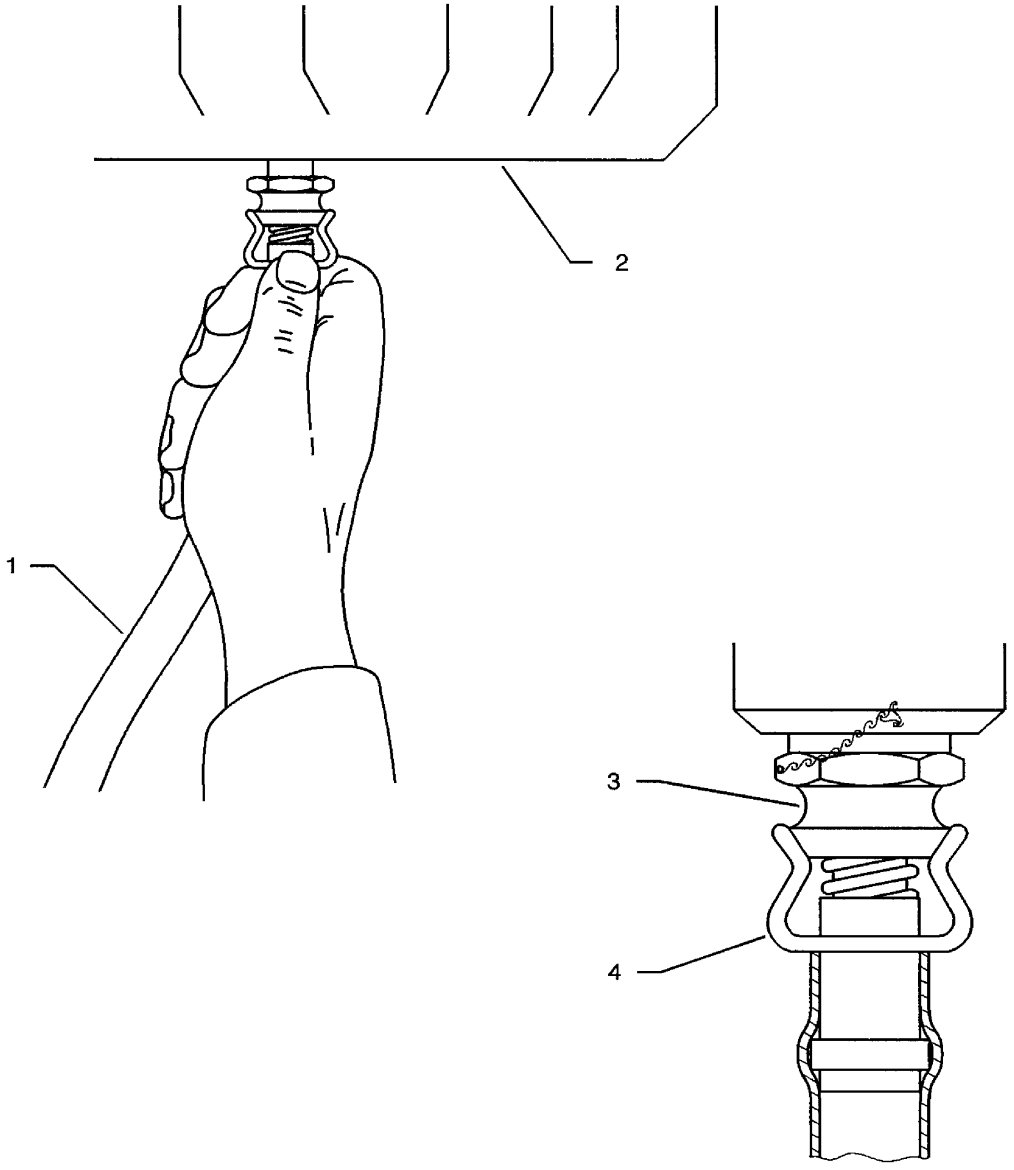
1) Remove the engine cowlings - refer to 71-10-01.
2) Install vinyl tube (1) end on valve (3).
3) Position the drain container.
4) Push clip (4) upwards.
5) Drain oil.

CAUTION : WHEN DRAINAGE IS COMPLETED, RETURN THE CLIP TO ITS INITIAL DOWN POSITION.

6) Push clip (4) downwards to close valve (3).
7) Remove vinyl tube (1).
8) Remove the drain container.
9) Make sure all the tools and materials are removed and the work area is clean and free from debris.
10) Install the engine cowlings - refer to 71-10-01.
11) Fill tank with new oil - refer to 12-12-01.
12) Check valve (3) for leaks.



1 - Vinyl tube
2 - Engine casing
3 - Valve
4 - Clip



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Oil system drainage - Servicing
Figure 301

HYDRAULIC

DESCRIPTION AND OPERATION

1. GENERAL

The brake hydraulic system includes a hydraulic fluid reservoir located in the power plant compartment and secured to the firewall.

The recommended hydraulic fluid is of the mineral type (TB 02-001).

This section deals with the following servicing operations :

- brake hydraulic system filling - refer to 12-13-01,
- brake hydraulic system drainage - refer to 12-13-02.

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BRAKE HYDRAULIC SYSTEM FILLING AND BLEEDING

SERVICING

1. BRAKE HYDRAULIC SYSTEM FILLING

A. Tools and consumable materials

- Hydraulic fluid (TB 02-001)

B. Procedure

NOTE : After brake system drainage, fill with new hydraulic fluid (TB 02-001).

1) Remove engine cowling 121 - refer to 71-10-01.
2) Remove the hydraulic fluid reservoir cover and inspect the seal for correct condition. Replace the seal if necessary.
3) Fill the system with hydraulic fluid (TB 02-001) and pump on the brakes. Perform this procedure until the level in the reservoir is reached.
4) Bleed the hydraulic system - refer to Paragraph 2.
5) Install the hydraulic fluid reservoir cover.
6) Make sure all the tools and materials are removed and the work area is clean and free from debris.
7) Install engine cowling 121 - refer to 71-10-01.
8) Perform a braking test.

NOTE : Do not apply the parking brake when linings are warm as this may lead to blocking.

2. BRAKE HYDRAULIC SYSTEM BLEEDING (Figures 301 and 302)

A. Tools and consumable materials

- Hydraulic fluid (TB 02-001)
- Drip pans
- 1 filling pump ERAM OU4920
- Blanking caps and plugs
- Union tubes
- Bleeding hoses (transparent vinyl)
- 1 syringe

B. Brake system bleeding procedure with a hand pump (Figure 301)

NOTE 1 : This procedure must be carried out by at least two persons.

NOTE 2 : For aircraft equipped with dual-control disk brakes, start the brake system bleeding with the R.H. front seat control, then continue with the pilot seat control according to the procedure below.

1) Check clearances of L.H. and R.H. rudder pedals. Adjust, if necessary (use the threaded part of the master cylinders).

NOTE : Adjust the final clearance at the end of the operation.

2) Install wheel chocks.

3) Remove L.H. and R.H. main landing gear fairing doors (if installed).

4) Remove engine cowling 121 - refer to 71-10-01, and inspection door 211R - refer to 06-30-00.

5) Remove hydraulic fluid reservoir (1) cover.

6) Remove the caps from bleed screws (3).

7) Clean bleed screws (3).

8) Make sure bleeding vinyl hoses (6) are clean.

9) Fill the reservoir of filling pump (4) with new hydraulic fluid (TB 02-001).

10) Drain hydraulic fluid reservoir (1) with a syringe.

11) Disconnect hose (5) from hydraulic fluid reservoir (1). Blank off the outlet of reservoir (1).

12) Connect hose (5) to filling pump (4).

13) Connect bleeding vinyl hoses (6) to bleed screws (3) and to filling pump (4).

14) Unscrew bleed screws (3) by 1 to 2 turns.

15) Have filling pump (4) slowly operated by an operator, slowly and simultaneously compress then release L.H. and R.H. master cylinders (2).

NOTE : It is important to slowly compress then release master cylinders (2) to allow removal of air bubbles.

16) During the first actions, make sure, especially if master cylinders (2) have been replaced, that the thrust rods come back to their initial position.

17) Repeat operation 15), while also operating the parking brake valve, until the air bubbles in vinyl hoses (6) have completely disappeared.

18) Once all air bubbles have disappeared, compress L.H. and R.H. master cylinders (2) and, while still pushing on the brake pedals, tighten bleed screws (3).

19) Disconnect hose (5) and vinyl hoses (6) from filling pump (4), then disconnect vinyl hoses (6) from bleed screws (3).

20) Remove the blanking cap from hydraulic fluid reservoir (1) and connect hose (5) to reservoir (1) - refer to 20-00-02.

21) Fill reservoir (1) with new hydraulic fluid (TB 02-001) - refer to Paragraph 1.

22) Permanently adjust the clearance of the L.H. and R.H. rudder pedals (use the threaded part of the master cylinders). Minimum pedal clearance : 0.19 in (5 mm). This clearance corresponds to the gap left between the master cylinder piston and the lever roller. This gap is necessary in case of temperature changes - see Detail A.

23) Install the caps on bleed screws (3).

24) Perform a braking test and check for leaks.

NOTE : Do not apply the parking brake when linings are warm as this may lead to blocking.

25) Make sure all the tools and materials are removed and the work area is clean and free from debris.

26) If removed, install L.H. and R.H. main landing gear fairing doors.

27) Install engine cowling 121 - refer to 71-10-01, and inspection door 211 R.

C. Brake system bleeding procedure without a hand pump (Figure 302)

NOTE 1 : This procedure must be carried out by at least two persons.

NOTE 2 : During the entire bleeding operation, monitor and top up the hydraulic fluid level in reservoir (1).

NOTE 3 : For aircraft equipped with dual-control disk brakes, start the brake system bleeding with the R.H. front seat control, then continue with the pilot seat control according to the procedure below.

1) Check clearances of L.H. and R.H. rudder pedals. Adjust, if necessary (use the threaded part of the master cylinders).

NOTE : Adjust the final clearance at the end of the operation.

2) Install wheel chocks.

3) Remove L.H. and R.H. main landing gear fairing doors (if installed).

4) Remove engine cowling 121 - refer to 71-10-01.

5) Remove the caps from bleed screws (3).

6) Clean bleed screws (3).

7) Check the hydraulic fluid level in hydraulic fluid reservoir (1).

8) Connect bleeding vinyl hoses (4) to bleed screws (3).

9) Install drip pans (5).

10) Unscrew bleed screws (3) by 1 to 2 turns.

11) Slowly and simultaneously compress then release L.H. and R.H. master cylinders (2).

NOTE : It is important to slowly compress then release master cylinders (2) to allow removal of air bubbles.

12) During the first actions, make sure, especially if master cylinders (2) have been replaced, that the thrust rods come back to their initial position.

13) Repeat operation 11), while also operating the parking brake valve, until the air bubbles in vinyl hoses (4) have completely disappeared.

14) Once all air bubbles have disappeared, compress L.H. and R.H. master cylinders (2) and, while still pushing on the brake pedals, tighten bleed screws (3).

15) Remove vinyl hoses (4) and remove drip pans (5).

16) Install the caps on bleed screws (3).

17) Fill reservoir (1) with new hydraulic fluid (TB 02-001) - refer to Paragraph 1.

18) Permanently adjust the clearance of the L.H. and R.H. rudder pedals (use the threaded part of the master cylinders). Minimum pedal clearance : 0.19 in (5 mm). This clearance corresponds to the gap left between the master cylinder piston and the lever roller. This gap is necessary in case of temperature changes - see Detail A.

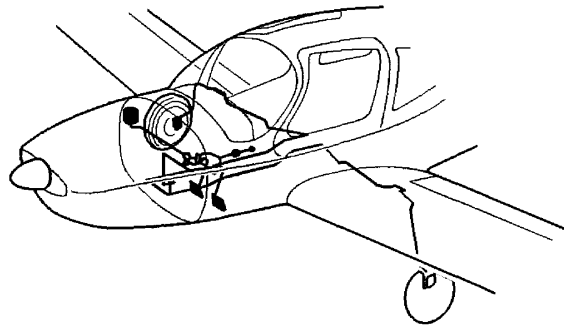
19) Perform a braking test and check for leaks.

NOTE : Do not apply the parking brake when linings are warm as this may lead to blocking.

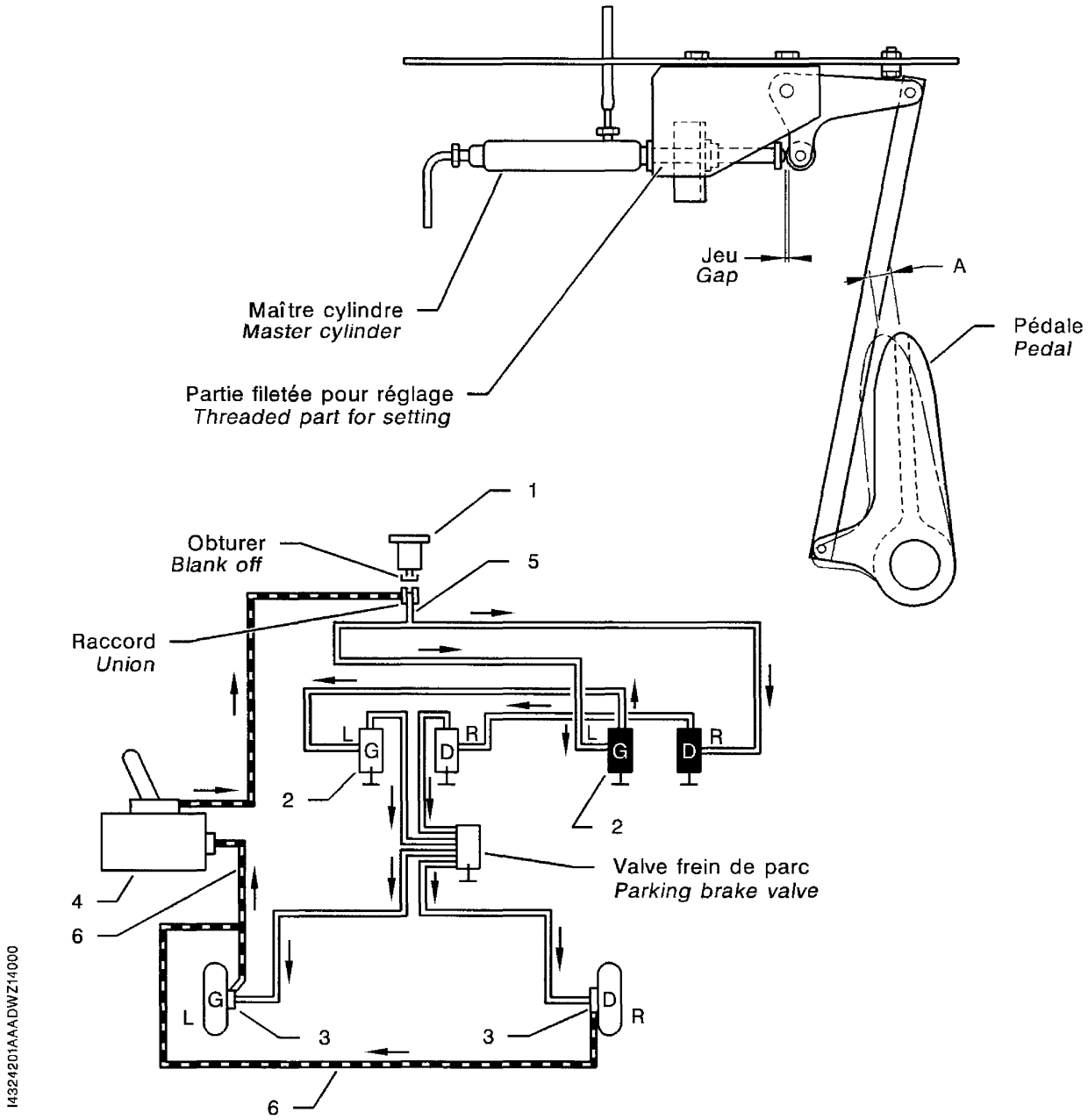
20) Make sure all the tools and materials are removed and the work area is clean and free from debris.

21) If removed, install L.H. and R.H. main landing gear fairing doors.

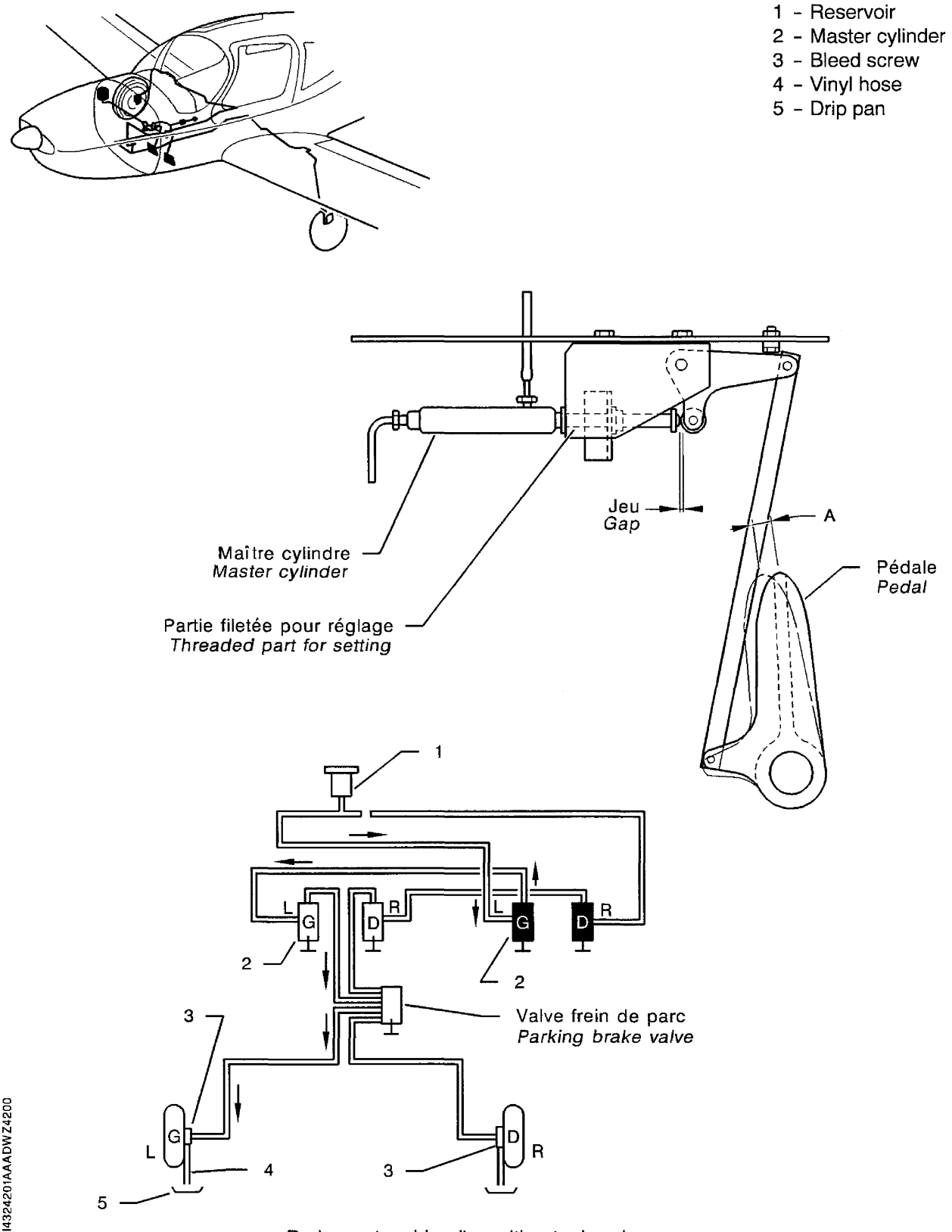
22) Install engine cowling 121 - refer to 71-10-01.



1 - Reservoir
2 - Master cylinder
3 - Bleed screw
4 - Filling pump
5 - Hose
6 - Vinyl hose



Brake system bleeding with a hand pump
Figure 301



Brake system bleeding without a hand pump
Figure 302

BRAKE HYDRAULIC SYSTEM DRAINAGE

SERVICING

1. BRAKE HYDRAULIC SYSTEM DRAINAGE (Figure 301)

A. Tools and consumable materials

- 2 drip pans
- 2 draining hoses

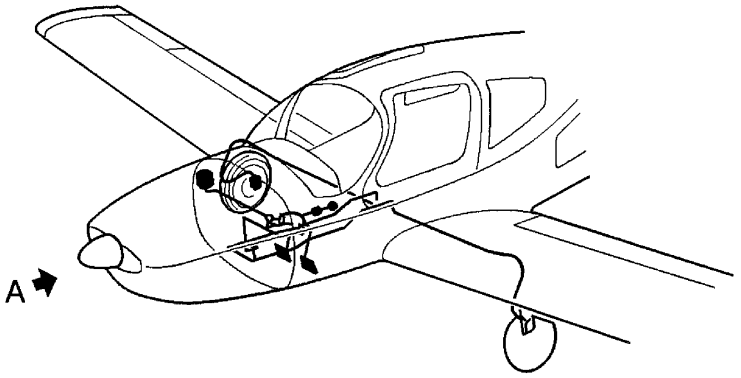
B. Procedure

NOTE : Personnel required for draining :
- **a single-control system : 1 person,**
- **a dual-control system : 2 persons.**

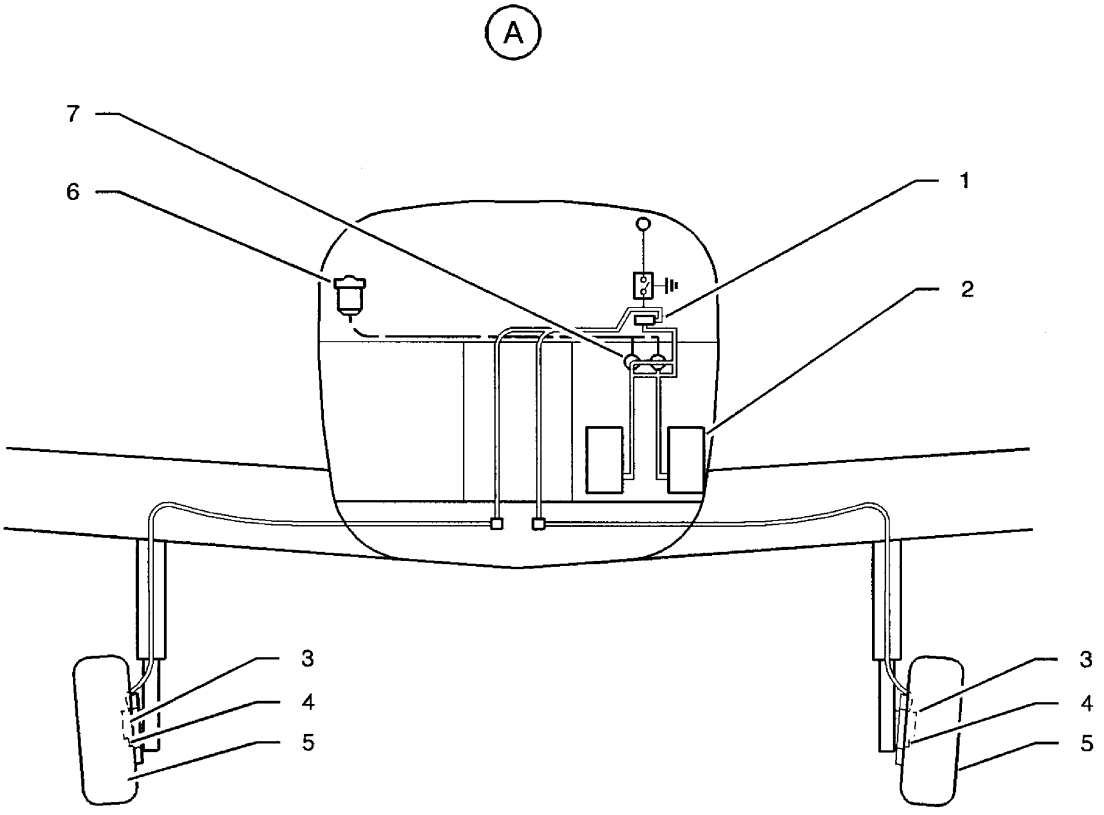
1) Install wheel chocks.
2) Remove L.H. and R.H. main landing gear fairing doors (if installed).
3) Remove engine cowling 121 - refer to 71-10-01.
4) Remove hydraulic fluid reservoir (6) cover.
5) Install a drip pan below each brake unit (3).
6) Connect a draining hose to the bleed union of each brake unit (3).
7) Make sure parking brake (1) is not applied.
8) Unscrew bleed screws (4) by 1 to 2 turns.
9) Slowly and simultaneously pump on the L.H. and R.H. brake pedals (2) until the hydraulic fluid is fully removed from the system.

   NOTE : For a dual-control system, pump simultaneously.

10) Tighten bleed screws (4).
11) Remove the draining hoses and the drip pans.
12) Fill and bleed the brake system - refer to 12-13-01.
13) Make sure all the tools and materials are removed and the work area is clean and free from debris.
14) Install engine cowling 121 - refer to 71-10-01.
15) If removed, install L.H. and R.H. main landing gear fairing doors.
16) Perform a braking test.



1 - Parking brake
2 - Pedal
3 - Brake unit
4 - Bleed screw
5 - Wheel
6 - Reservoir
7 - Master cylinder



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Brake hydraulic system - Drainage
Figure 301

GAS

DESCRIPTION AND OPERATION

1. GENERAL

Dry air and nitrogen are used for inflation on aircraft.

This section includes the following maintenance practices :

- tire inflation - refer to 12-14-01,
- shock absorber inflation - refer to 12-14-02.

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TIRES

SERVICING

1. TIRE INFLATION (Figure 301 and Table 301)

A. Tools and consumable materials

- Tire inflation tool set
- Safety cage
- Pressure gage
- Lintfree clean cloth

B. Procedure

WARNING : IF COLD AIR IS USED TO INFLATE A WARM TIRE, THE LATTER MAY BURST. ALWAYS ALLOW TIRES TO COOL DOWN BEFORE ADJUSTING THE PRESSURE.

WARNING : INFLATE TIRES IN A SAFETY CAGE, EXCEPT WHEN ADJUSTING THE PRESSURE ON AIRCRAFT.

CAUTION : IT IS PROHIBITED TO INSTALL TIRES WITH DIFFERENT TRADE MARKS.

CAUTION : BEFORE INFLATING THE TIRES, MAKE SURE THEY ARE ENTIRELY FREE FROM OIL, WORN PATCHES CAUSED BY BRAKING, STONES, CRACKS, NOTCHES, AND SO ON.

1) Remove valve cap (1) from inflation valve (2).
2) Carefully clean inflation valve (2).
3) Make sure the tire has not rotated on the rim. If the red paint mark on the tire is out of line with the mark on the rim by 0.08 to 0.12 in (2 to 3 mm) minimum, replace the tire - refer to 32-41-01 or 32-41-02.
4) Connect the inflation hose equipped with a pressure gage to inflation valve (2).
5) Inflate the tire at the inflation P pressure - refer to Table 301 :
   - For an ambient temperature of 70°F (21°C), aircraft on jacks
     . Nose tire : 44.9 psi (3.1 bars)
     . Main tires : 33.3 psi (2.3 bars).
   - For an ambient temperature of 70°F (21°C), aircraft on ground
     . Nose tire : 46.4 psi (3.2 bars)
     . Main tires : 34.8 psi (2.4 bars).

   NOTE : When a tire is under load, aircraft on ground, the air chamber volume is reduced due to tire deflection. Therefore, the unloaded, aircraft on jacks, inflation pressure should be increased by 4%.

   NOTE : An ambient temperature change of 5.4°F (3°C) produces approximately 1% pressure change.
6) Remove the inflation hose.
7) Using soapy water, check inflation valve (2) for leaks.

8) Install valve cap (1) on inflation valve (2).

9) Make sure all the tools and materials are removed and the work area is clean and free from debris.

2. TIRE INFLATION PRESSURE CHECK (Figure 301 and Table 301)

NOTE : **Check and adjust the tire inflation pressure when tires are cold once a week and with the aircraft on ground.**

A. Tools and consumable materials

- Tire inflation tool set
- Pressure gage
- Lintfree clean cloth

B. Procedure

1) Remove valve cap (1) from inflation valve (2).

2) Carefully clean inflation valve (2).

3) Connect the inflation hose equipped with a pressure gage to inflation valve (2).

4) Measure the tire pressure.

5) Compare this pressure to P pressure. According to this measure, perform following operations :

Measured pressure	Actions
0.99 P to 0.95 P	Inflate to P.
0.95 P to 0.90 P	Inflate to P. Check after 24 hours. If pressure loss is greater than 0.05 P, check for cause of pressure loss.
0.90 P to 0.80 P	Remove wheel - refer to 32-41-01 or 32-41-02. Inflate to P. If pressure loss is greater than 0.05 P a day, check for cause of pressure loss.
0.80 P to 0	Remove wheel - refer to 32-41-01 or 32-41-02. Check for cause of pressure loss. Replace tire if necessary.

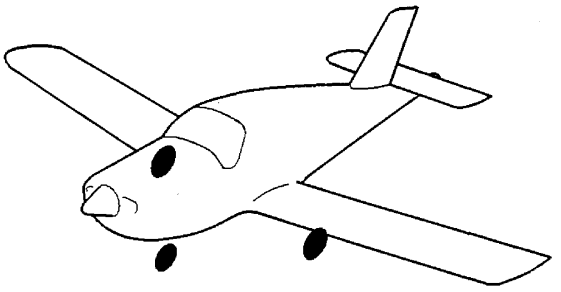
6) Remove the inflation hose.

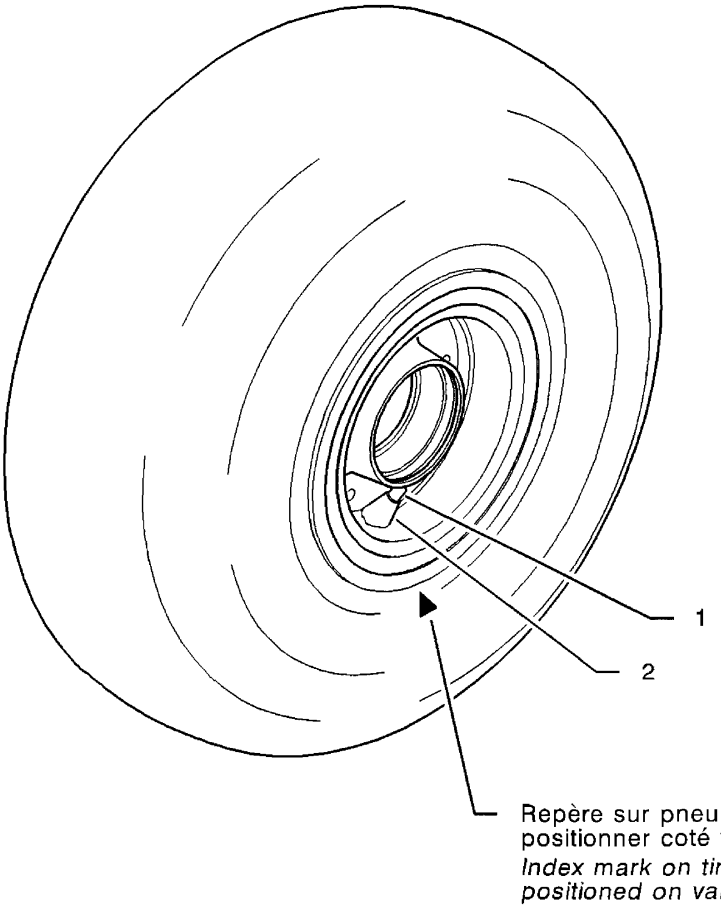
7) Using soapy water, check inflation valve (2) for leaks.

8) Install valve cap (1) on inflation valve (2).

9) Make sure all the tools and materials are removed and the work area is clean and free from debris.

1 - Valve cap
2 - Inflation valve





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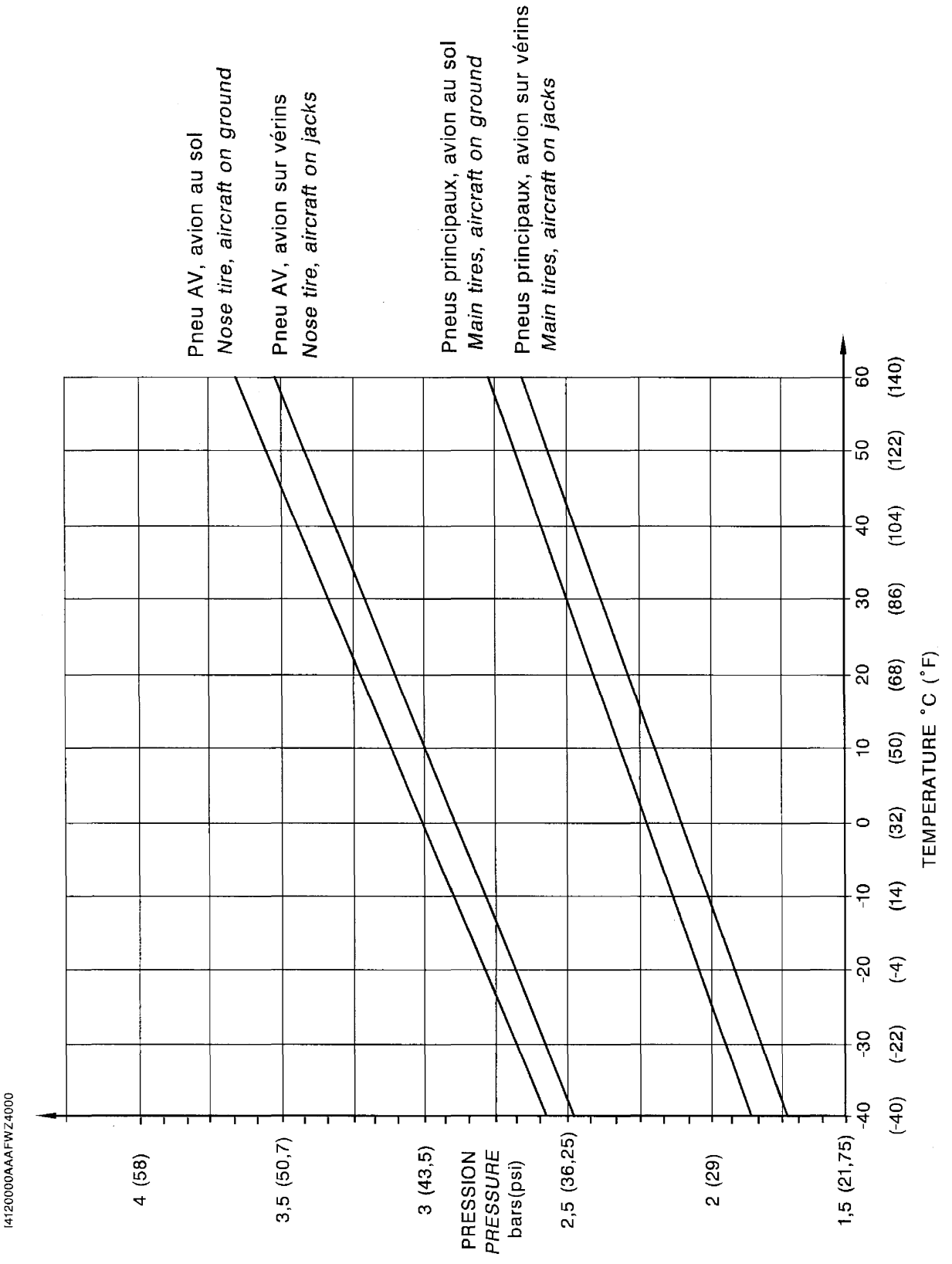
Tires - Inflation
Figure 301



Tires - Temperature / pressure chart
Table 301

AAAA
Validity : S / N 1 - 9999, telescopic leg main landing gear

TIRES

SERVICING

1. TIRE INFLATION (Figure 301 and Table 301)

A. Tools and consumable materials

- Tire inflation tool set
- Safety cage
- Pressure gage
- Lintfree clean cloth

B. Procedure

WARNING : IF COLD AIR IS USED TO INFLATE A WARM TIRE, THE LATTER MAY BURST. ALWAYS ALLOW TIRES TO COOL DOWN BEFORE ADJUSTING THE PRESSURE.

WARNING : INFLATE TIRES IN A SAFETY CAGE, EXCEPT WHEN ADJUSTING THE PRESSURE ON AIRCRAFT.

CAUTION : IT IS PROHIBITED TO INSTALL TIRES WITH DIFFERENT TRADE MARKS.

CAUTION : BEFORE INFLATING THE TIRES, MAKE SURE THEY ARE ENTIRELY FREE FROM OIL, WORN PATCHES CAUSED BY BRAKING, STONES, CRACKS, NOTCHES, AND SO ON.

1) Remove valve cap (1) from inflation valve (2).
2) Carefully clean inflation valve (2).
3) Make sure the tire has not rotated on the rim. If the red paint mark on the tire is out of line with the mark on the rim by 0.08 to 0.12 in (2 to 3 mm) minimum, replace the tire - refer to 32-41-01 or 32-41-02.
4) Connect the inflation hose equipped with a pressure gage to inflation valve (2).
5) Inflate the tire at the inflation P pressure - refer to Table 301 :
   - For an ambient temperature of 70°F (21°C), aircraft on jacks
     . Nose tire : 44.9 psi (3.1 bars)
     . Main tires : 40.6 psi (2.8 bars).
   - For an ambient temperature of 70°F (21°C), aircraft on ground
     . Nose tire : 46.4 psi (3.2 bars)
     . Main tires : 42 psi (2.9 bars).

   NOTE : When a tire is under load, aircraft on ground, the air chamber volume is reduced due to tire deflection. Therefore, the unloaded, aircraft on jacks, inflation pressure should be increased by 4%.

   NOTE : An ambient temperature change of 5.4°F (3°C) produces approximately 1% pressure change.
6) Remove the inflation hose.
7) Using soapy water, check inflation valve (2) for leaks.

8) Install valve cap (1) on inflation valve (2).

9) Make sure all the tools and materials are removed and the work area is clean and free from debris.

2. TIRE INFLATION PRESSURE CHECK (Figure 301 and Table 301)

NOTE : Check and adjust the tire inflation pressure when tires are cold once a week and with the aircraft on ground.

A. Tools and consumable materials

- Tire inflation tool set
- Pressure gage
- Lintfree clean cloth

B. Procedure

1) Remove valve cap (1) from inflation valve (2).

2) Carefully clean inflation valve (2).

3) Connect the inflation hose equipped with a pressure gage to inflation valve (2).

4) Measure the tire pressure.

5) Compare this pressure to P pressure. According to this measure, perform following operations :

Measured pressure	Actions
0.99 P to 0.95 P	Inflate to P.
0.95 P to 0.90 P	Inflate to P. Check after 24 hours. If pressure loss is greater than 0.05 P, check for cause of pressure loss.
0.90 P to 0.80 P	Remove wheel - refer to 32-41-01 or 32-41-02. Inflate to P. If pressure loss is greater than 0.05 P a day, check for cause of pressure loss.
0.80 P to 0	Remove wheel - refer to 32-41-01 or 32-41-02. Check for cause of pressure loss. Replace tire if necessary.

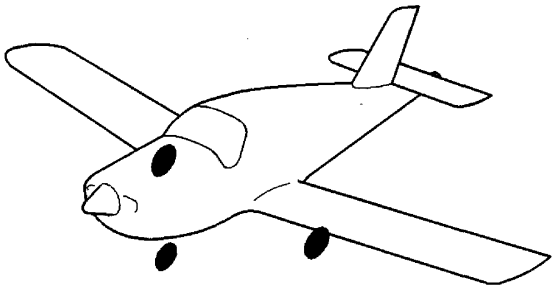
6) Remove the inflation hose.

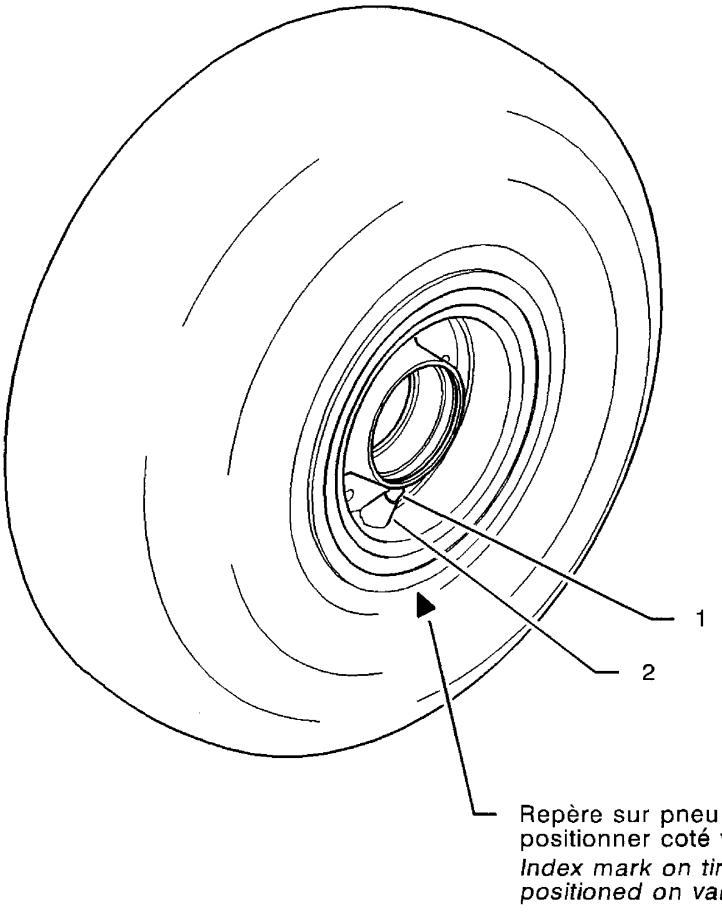
7) Using soapy water, check inflation valve (2) for leaks.

8) Install valve cap (1) on inflation valve (2).

9) Make sure all the tools and materials are removed and the work area is clean and free from debris.

1 - Valve cap
2 - Inflation valve





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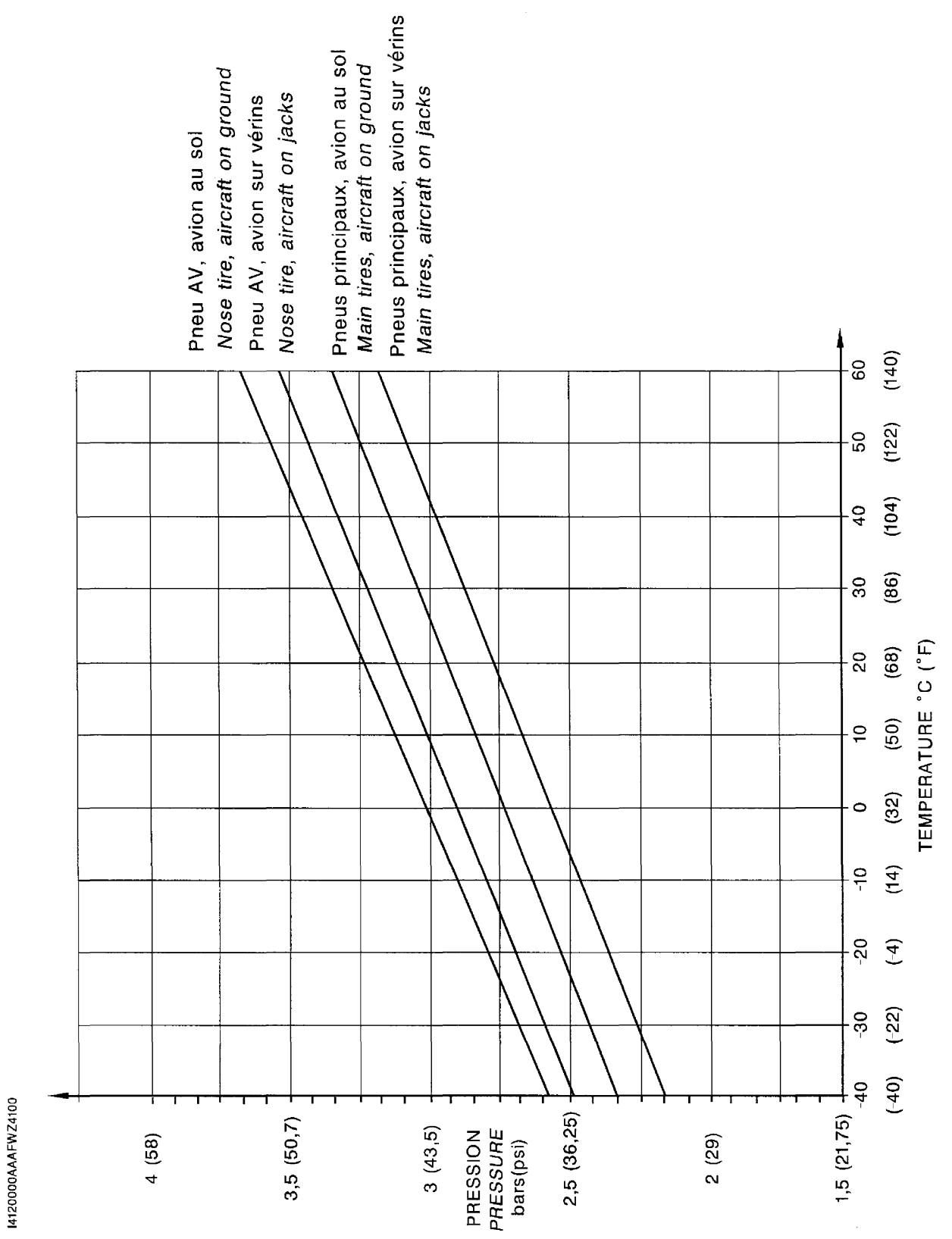
Tires - Inflation
Figure 301



Tires - Temperature / pressure chart
Table 301

TIRES

INSPECTION / CHECK

1. TIRE CHECK

NOTE : The evaluation of tire distortions must be made when the tires are inflated at the working pressure and aircraft on ground.

A. Tire scrap criteria

- Tears which exceed the limits of a circle of dia. 0.98 in (25 mm).
- Cuts of about ten textile cords.
- Deep wound with salient edge with local distortion of the contour.
- Perforation of the tire.
- Central and side lug tread completely worn symmetrically or dissymmetrically depending on the characteristics of the landing gear.
- Nick located at the level of the rim bead.
- Cut of a depth ≥ 0.08 in (2 mm) on the sidewall or if the textile appears in the cut bottom.
- Bulges on the tire sidewalls.
- Unsticking of the tread.
- Creep of the tire on the rim : shift of the marks ≥ 0.08 to 0.12 in (2 to 3 mm).
- If the tire has been accidentally in contact with harmful agents such as petrol, fuel oil, hydraulic fluid.
- On the bead, unsticking of the rubber, blister, rubber merging.

NOTE : The check of the bead can only be performed when the tire is removed from the rim.

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SHOCK-ABSORBERS

SERVICING

1. SHOCK-ABSORBER CHARGING AND INSPECTION (Figure 301)

A. Tools and consumable materials

- Shock-absorber charging unit comprising :
  - . Nitrogen (TB 05-913) or dry compressed air cylinder
  - . Hydraulic fluid (TB 02-001)
  - . Equipped pipe P/N Z00.N7850264853
  - . Plunger valve P/N Z00.N7886114804
  - . Valve end P/N Z00.N6028217238 or Z00.N6034127221
  - . Union P/N TB30 91030105 or TB10 900021000

B. Procedure

NOTE : If there are no apparent hydraulic leaks, it is not necessary to fill the shock-absorbers with hydraulic fluid.

NOTE : If the shock-absorber has completely been deflated, directly go to step 5), do not take steps 9) and 10) into account.

NOTE : If the valve core is removed, valve core replacement is mandatory.

1) Jack up the aircraft - refer to 07-10-00.
2) Nose landing gear : remove the engine cowlings - refer to 71-10-01.

   Main landing gear : remove the special plug on the wing upper surface.
3) Carefully clean valve (12).
4) Remove valve cap (11).
5) Install plunger valve (7) equipped with union (9) and valve end (8) on valve (12).

   NOTE : Make sure the plunger of plunger valve (7) is fully loosened before installation on valve (12).
6) Connect pipe (6) to union (9) and to a nitrogen (TB 05-913) cylinder or dry compressed air cylinder equipped with a pressure reducer (3) and a pressure gage (2).

   NOTE : Pipe (6) is fitted with a pressure gage (5) (with 1 % sensitivity and 1 % accuracy), an isolating valve (4) and a bleed valve (10).
7) Close isolating valve (4) and bleed valve (10).
8) Tighten the plunger of plunger valve (7).
9) Once stable, read the pressure displayed on pressure gage (5).

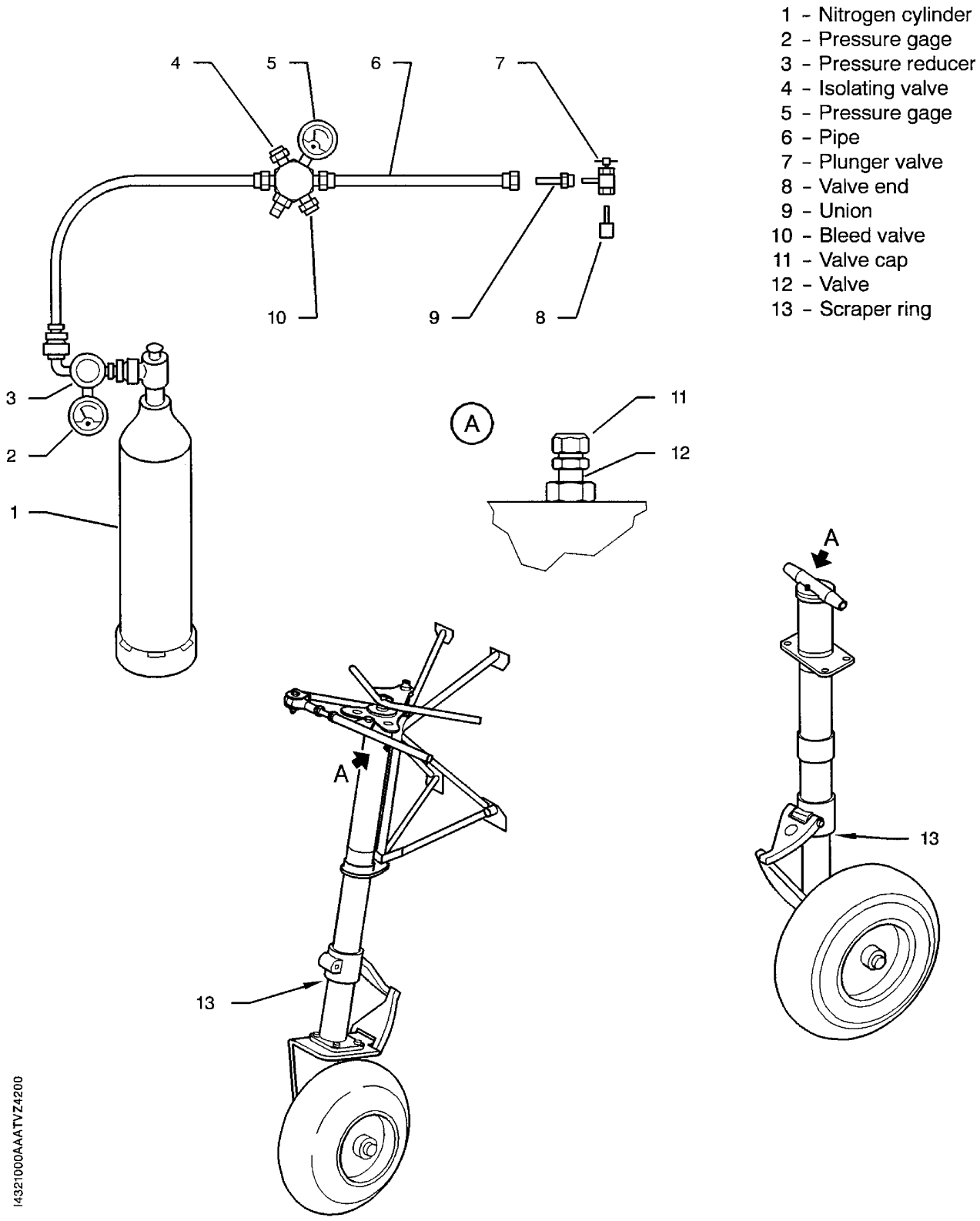
10) Compare this pressure to the pressures indicated in the table in Paragraph C.
    - If the measured pressure is higher, adjust with bleed valve (10).
    - If the measured pressure is correct, go to step 19).
    - If the measured pressure is lower, perform the following operations.
11) Fully loosen pressure reducer (3) adjusting screw.

WARNING : OPEN THE NITROGEN OR DRY AIR CYLINDER WITH CARE.

12) Open nitrogen cylinder (1), establish the theoretical charging pressure of the shock-absorber - refer to Paragraph C., read on pressure gage (2) of pressure reducer (3).
13) Open isolating valve (4) progressively to avoid damaging the shock-absorber when charging.
14) Once the shock-absorber has been charged to the previously displayed pressure, close isolating valve (4).
15) Allow a few minutes for stabilization and read the pressure on pressure gage (5). Correct the pressure if necessary.
16) Allow the assembly to stand for ten minutes approximately.
17) Make sure there are no leaks at scraper ring (13) located at the lower section of the leg and the pressure displayed on pressure gage (5) has remained stable. If not, locate and repair leaks.
18) Close nitrogen cylinder (1).
19) Fully loosen the plunger of plunger valve (7) to release the valve core.
20) Open bleed valve (10) to make pressure drop in pipe (6).
21) Fully loosen pressure reducer (3) adjusting screw.
22) Remove valve end (8) from valve (12).
23) Check valve (12) core for leaks.
24) Install valve cap (11).
25) Remove the charging equipment.
26) Make sure all the tools and materials are removed and the work area is clean and free from debris.
27) If removed, install the engine cowlings - refer to 71-10-01.
28) If removed, install the special plug on the wing upper surface.
29) Lower the aircraft to ground and remove the jacks - refer to 07-10-00.

C. Shock-absorber charging pressure

SHOCK-ABSORBER PART NUMBER	CHARGING PRESSURE			
	NOSE LANDING GEAR		MAIN LANDING GEAR	
	BAR	PSI	BAR	PSI
TB10 42000003	6.5 ± 0.3	94.2 ± 4	/	/
TB10 42001003 TB10 42001005	6.8 ± 0.3	98.6 ± 4	/	/
TB10 41000007 TB10 41000008 TB9 41001007 TB9 41001008 TB9 41001011 TB9 41001012 TB9 41001013	/	/	9 ± 0.3	130.5 ± 4



Shock-absorbers - Charging
Figure 301

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Validity : S / N 1 - 9999, telescopic leg main landing gear

SHOCK-ABSORBERS

SERVICING

1. SHOCK-ABSORBER CHARGING AND INSPECTION (Figure 301)

A. Tools and consumable materials

- Shock-absorber charging unit comprising :
  - . Nitrogen (TB 05-913) or dry compressed air cylinder
  - . Hydraulic fluid (TB 02-001)
  - . Equipped pipe P/N Z00.N7850264853
  - . Plunger valve P/N Z00.N7886114804
  - . Valve end P/N Z00.N6028217238 or Z00.N6034127221
  - . Union P/N TB30 91030105 or TB10 900021000

B. Procedure

NOTE : If there are no apparent hydraulic leaks, it is not necessary to fill the shock-absorbers with hydraulic fluid.

NOTE : If the shock-absorber has completely been deflated, directly go to step 5), do not take steps 9) and 10) into account.

NOTE : If the valve core is removed, valve core replacement is mandatory.

1) Jack up the aircraft - refer to 07-10-00.
2) Nose landing gear : remove the engine cowlings - refer to 71-10-01.
3) Carefully clean valve (12).
4) Remove valve cap (11).
5) Install plunger valve (7) equipped with union (9) and valve end (8) on valve (12).

   NOTE : Make sure the plunger of plunger valve (7) is fully loosened before installation on valve (12).

6) Connect pipe (6) to union (9) and to a nitrogen (TB 05-913) cylinder or dry compressed air cylinder equipped with a pressure reducer (3) and a pressure gage (2).

   NOTE : Pipe (6) is fitted with a pressure gage (5) (with 1 % sensitivity and 1 % accuracy), an isolating valve (4) and a bleed valve (10).

7) Close isolating valve (4) and bleed valve (10).
8) Tighten the plunger of plunger valve (7).
9) Once stable, read the pressure displayed on pressure gage (5).
10) Compare this pressure to the pressures indicated in the table in Paragraph C.
    - If the measured pressure is higher, adjust with bleed valve (10).
    - If the measured pressure is correct, go to step 20).
    - If the measured pressure is lower, perform the following operations.

11) Fully loosen pressure reducer (3) adjusting screw.

WARNING : OPEN THE NITROGEN OR DRY AIR CYLINDER WITH CARE.

12) Open nitrogen cylinder (1), establish the theoretical charging pressure of the shock-absorber - refer to Paragraph C., read on pressure gage (2) of pressure reducer (3).

13) Open isolating valve (4) progressively to avoid damaging the shock-absorber when charging.

14) Once the shock-absorber has been charged to the previously displayed pressure, close isolating valve (4).

15) Allow a few minutes for stabilization and read the pressure on pressure gage (5). Correct the pressure if necessary.

16) Allow the assembly to stand for ten minutes approximately.

17) On the nose landing gear, make sure there are no leaks at scraper ring (13) located at the lower section of the leg and the pressure displayed on pressure gage (5) has remained stable. If not, locate and repair leaks.

18) On the main landing gear shock-absorber, make sure there are no leaks at scraper ring (13) located at the upper section of the body and the pressure displayed on pressure gage (5) has remained stable. If not, locate and repair leaks.

19) Close nitrogen cylinder (1).

20) Fully loosen the plunger of plunger valve (7) to release the valve core.

21) Open bleed valve (10) to make pressure drop in pipe (6).

22) Fully loosen pressure reducer (3) adjusting screw.

23) Remove valve end (8) from valve (12).

24) Check valve (12) core for leaks.

25) Install valve cap (11).

26) Remove the charging equipment.

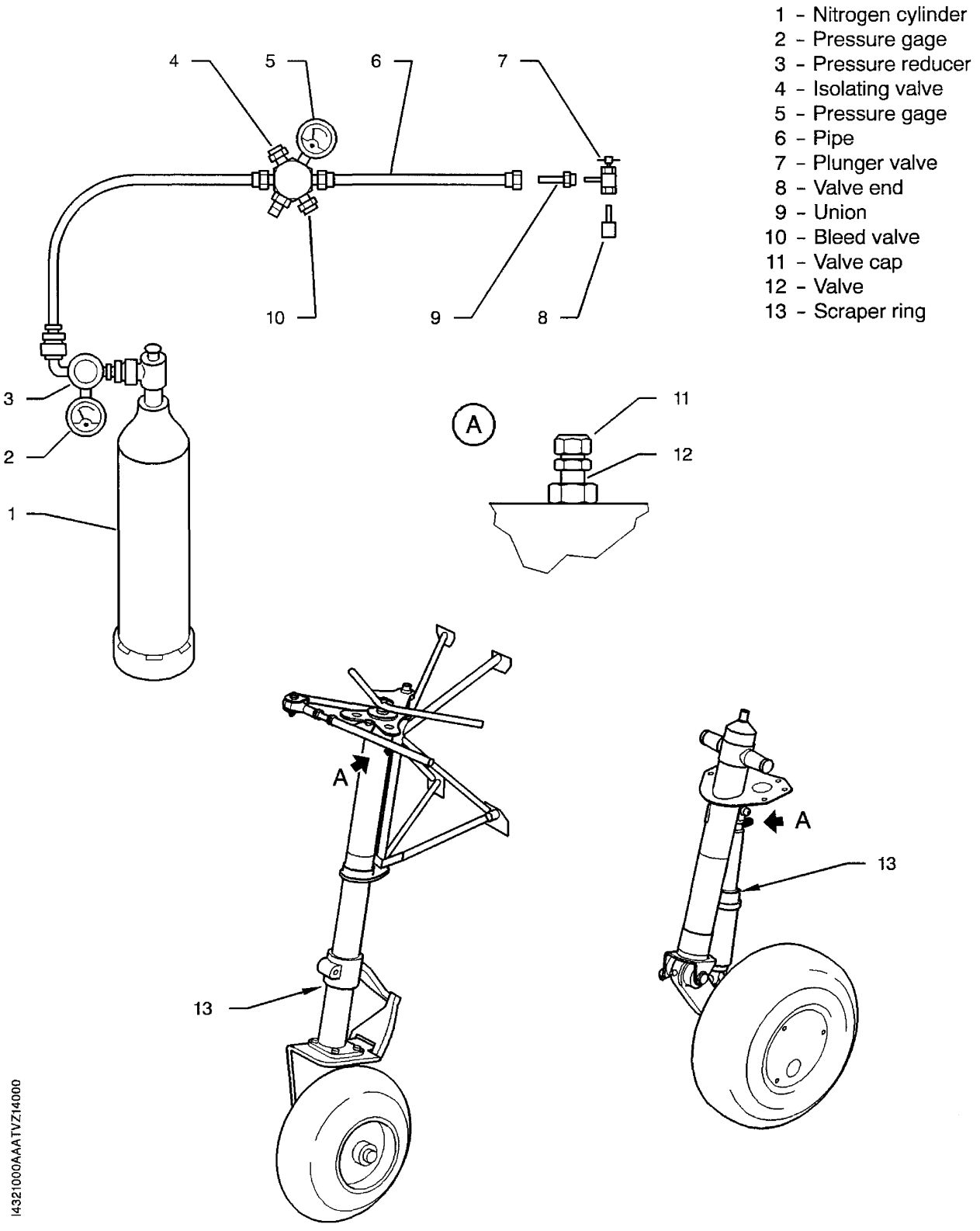
27) Make sure all the tools and materials are removed and the work area is clean and free from debris.

28) If removed, install the engine cowlings - refer to 71-10-01.

29) Lower the aircraft to ground and remove the jacks - refer to 07-10-00.

C. Shock-absorber charging pressure

SHOCK-ABSORBER PART NUMBER	CHARGING PRESSURE			
	NOSE LANDING GEAR		MAIN LANDING GEAR	
	BAR	PSI	BAR	PSI
TB10 42000003	6.5 ± 0.3	94.2 ± 4	/	/
TB10 42001003 TB10 42001005	6.8 ± 0.3	98.6 ± 4	/	/
TB10 41066000	/	/	33 (+ 1 ; 0)	479 (+ 14.5 ; 0)



Shock-absorbers - Charging
Figure 301

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SCHEDULED SERVICING

DESCRIPTION AND OPERATION

1. GENERAL

The scheduled servicing operations are :

- lubrication - refer to 12-21-00,
- cleaning - refer to 12-22-00.

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CLEANING

MAINTENANCE PRACTICES

CAUTION : AS WASHING MAY CAUSE ELIMINATION OF GREASE AT JOINTS AND PARTICULARLY AT THE STABILATOR ANTI-TAB AND AT THE LANDING GEARS, REGREASE ALL JOINTS AS REQUIRED.

NOTE 1 : Cleanliness of the aircraft is essential for its safety and correct operation. Accumulated oil, grease or dirt may hide areas or equipment items requiring servicing. Moreover, they constitute fire risks and cause air resistance.

NOTE 2 : It is strongly preferable not to use nylon brushes to clean aluminium alloy parts and surfaces. The nylon fibres which form these brushes are often impregnated with silicon carbide, a product which favours the corrosion.

1. EXTERNAL CLEANING OF AIRFRAME

CAUTION : DO NOT USE HIGH PRESSURE WATER (KARCHER).

NOTE : Ensure that holes for water evacuation are not clogged under wing and fuselage.

Before external cleaning, fit protection covers on wheels.

Blank all ports, and particularly the two static and dynamic ports, before washing or applying a cleaning compound.

Cleaning and glazing must be carried out in accordance with Paragraph 3.

Powder products are prohibited.

To remove dust or insect marks on the leading edges and on the engine cowling, use a neutral soap and a sponge. Rinse the surfaces with water to completely eliminate the soap.

In all cases, rinse and dry thoroughly using chamois leather.

2. CLEANING OF CORROSION POINTS

Refer to 20-00-04.

3. CLEANING OF PAINTED SURFACES

Generally, painted surfaces can be kept bright by washing with water and neutral soap, followed by a rinse with water and drying with clothes or a chamois leather. Harsh or abrasive soaps or detergents which cause corrosion or scratches should never be used. Remove stubborn oil and grease with a cloth.

Waxing is unnecessary to keep the painted surfaces bright. However, if desired, the aircraft may be waxed with a good automotive wax. A heavier coating of wax on the leading edges of the wings and tail and on the engine cowlings and propeller cone will help reduce the abrasion encountered in these areas.

When the aircraft is parked outside in cold climates and it is necessary to remove ice before flight, care should be taken to protect the painted surfaces during ice removal with chemical liquids. Isopropyl alcohol (TB 10-002) will satisfactorily remove ice accumulations without damaging the paint. However keep the isopropyl alcohol (TB 10-002) away from the windshield and cabin windows since it will attack the plastic and may cause it to craze.

4. CLEANING OF LANDING GEAR AND TIRES

Clean the landing gear with usual products and avoid spilling any on the joints and on the tires which must be cleaned with water only. In case fuel or thinner is spilt over the tires, immediately wipe them off and rinse thoroughly with water.

Clean the slide rod scraper rings and hinge ball joints with a cloth only, without any cleaning product.

5. PROPELLER CARE

Preflight inspection of propeller blades for nicks, and clean them periodically with soft soapy water and a rinse of clean water without pressure to remove grass and bug stains will assure long blade life. Small nicks on the propellers, particularly near the tips and on the leading edges, should be dressed out as soon as possible since these nicks produce stress concentrations, and if ignored, may result in cracks. Never use an alkaline cleaner on the blades.

6. CLEANING OF POWER PLANT

Some precautions should be taken before using cleaning products :

- Protect the engine (and the aircraft if the engine is installed) to prevent infiltration of washing products or rinsing water into pressure inlets, valves and various lines, and especially the cabin air conditioning duct which should be disconnected and blanked-off. Use covers and adhesive tape.
- Make sure that the engine is cold.

  An engine and accessory wash-down should be accomplished to remove oil, grease, salt corrosion or other residues that might conceal component defects during inspection. Also periodic cleaning can be very effective in preventive maintenance.

  Precautions should be taken when working with cleaning agents such as the wearing of rubber gloves, an apron or coveralls and a face shield or goggles. Use the least toxic of available cleaning agents that will satisfactorily accomplish the work.

External cleaning of the various engine components :

CAUTION : IT IS IMPERATIVELY NECESSARY TO PROTECT THE VACUUM PUMP, INSTALLED ON THE ENGINE REAR TABLE, FROM CLEANER PROJECTIONS WHILE WASHING THE ENGINE.

White spirit (TB 11-002) is to be used, to the exclusion of other solvents which are often more volatile and dangerous such as white gasoline, kerosene, etc... It may be applied with a brush or cloth. It is better to apply the white spirit (TB 11-002) in 2 steps. The second application is made 5 or 10 minutes after the first one and is considered as rinsing.

Drying is generally obtained by natural evaporation but it may be necessary to use a compressed air device to eliminate excess solvent.

WARNING : DO NOT USE GASOLINE OR OTHER HIGHLY FLAMMABLE SUBSTANCES FOR WASH-DOWN.

Perform all cleaning operations in well ventilated working areas, and ensure that adequate fire-fighting and safety equipment is available. Do not smoke or expose a flame within 100 feet of the cleaning area. Compressed air, used for cleaning agent application or drying, should be adjusted to the lowest practical pressure. The use of a stiff bristle fiber brush rather than a steel brush is recommended if cleaning agents do not remove excess grease and grime during spraying.

7. INTERIOR CARE

NOTE : Generally and whatever the spot may be, act as follows :

1) **Operate immediately.**
2) **Reduce spot from edges to centre to avoid ring.**
3) **Remove the maximum of the spot with a knife and pat with a white and clean rag.**
4) **Identify the spot and use the proper products and methods.**
5) **If solvent is necessary, never pour directly on the surface to be cleaned but on a clean rag.**
6) **Apply solvent, rub up with a clean and dry rag and brush the wrong way.**
7) **Allow to dry and avoid contacts with humid part. When it is dry, vacuum-clean and brush.**

A. Upholsterings and ground carpet

To remove dust and loose dirt from the upholstery and carpet, clean the interior regularly with a vacuum cleaner.

Blot up any spilled liquid promptly with cleansing tissue or rags. Do not pat the spot ; press the blotting material firmly and hold it for several seconds. Continue blotting until no more liquid is taken up. Scrape off sticky materials with a dull knife, then spot-clean the area.

Oily stains may be cleaned with household stain removers, used sparingly. Before using any solvent, read the instructions on the container and test it on an obscure place on the fabric to be cleaned. Never saturate the fabric with a volatile solvent ; it may damage the padding and backing materials.

Soiled upholstery and carpet may be cleaned with foam-type detergent, used according to the manufacturer's instructions. To minimize wetting the fabric, use a foam as dry as possible and remove it with a vacuum cleaner.

B. Seats

1) Leather seats

If your aircraft is equipped with leather seats, cleaning of the seats is accomplished using a soft cloth or sponge dipped in mild soap suds. The soap suds, used sparingly, will remove traces of dirt and grease. The soap should be removed with a clean damp cloth.

2) Fabric seats

If your aircraft is equipped with fabric seats, cleaning is accomplished using mild water and neutral soap. Allow to dry sheltered from sun.

If dry cleaning with a solvent is necessary, only use perchlorethylene.

After cleaning, brush the wrong way fabric to eliminate any product traces.

C. Instructions to clean current spots

SPOT TYPE	PRODUCTS TO BE USED AND DIRECTIONS FOR USE
Spirits, liquor	Shampoo and pat with methylated alcohol.
Beer	Pat with mild water (max 50°C) and methylated spirit (3%).
Coffee, tea, milk	Shampoo. If spots persist, pat with methylated spirit or ammonia diluted to 10 %
Sweets, chocolate	Pat with mild water (max 50°C) or with ammonia diluted to 5%.
Paint	Oil paint : pat with ethyl alcohol and shampoo. If distemper : if the spot is fresh, pat with cold water. It is very difficult to remove old spots. Consult a specialist.
Make-up	Use ethyl alcohol and perchlorethylene and shampoo. If spot persists, use ammonia diluted to 5 % or methylated spirit.
Fruits	Pat with mild water (max 50°C) and shampoo.
Chewing-gum	Pat with acetone or perchlorethylene.
Ink	Remove the maximum with a blotting paper and pat with methylated spirit (30 %) and water (70 %), then shampoo. Lemon juice gives also good results.
Jam, sirup, fruit juice	Pat with mild water (maxi 50°C). If spot persists, use ethyl alcohol or perchlorethylene.
Ball-point pen	Use perchlorethylene or methylated spirit.
Wine, drinks	Use water and vinegar at 50 % and shampoo.

D. Instrument panel

The plastic trim, instrument panel and control knobs need only be wiped off with a damp cloth. Oil and grease on the control wheel and control knobs can be removed with a cloth moistened with solvent. Volatile solvents, such as those mentioned in paragraphs on care of the windshield, must never be used since they soften and craze plastic.

E. Harnesses and safety belts

Harnesses and safety belts - refer to 25-13-00.

LUBRICATION

DESCRIPTION AND OPERATION

1. GENERAL

This section is provided to assist the operator and recommend the lubrication operations necessary for the aircraft maintenance.

Before performing the various lubrication tasks in each area, it is important to obey proper safety directives and to prepare access to the specific areas.

Use only clean and approved lubricants. Remove excess oil and grease that tend to accumulate near the fittings and lubrication areas.

Aircraft lubrication includes different lubrication areas :

- area 100 lubrication - refer to 12-21-01,
- area 200 lubrication - refer to 12-21-02,
- area 300 lubrication - refer to 12-21-03,
- areas 500 / 600 lubrication - refer to 12-21-04,
- area 700 lubrication - refer to 12-21-05.

2. LUBRICATION SERVICE NOTES

NOTE : Before lubrication, clean and wash, as necessary, the areas to be lubricated.

A. Lubricant application

1) Cleanliness is essential for good lubrication. Lubricants and dispensing equipment must be kept clean. Use only one lubricant in a grease gun or an oil can.
2) Store lubricants in a protected area. Containers should be closed at all times when not in use.
3) Wipe grease fittings and areas to be lubricated with clean lintfree cloths before lubrication.
4) Movable parts should be moved when possible in order to insure a complete lubrication.
5) When lubricating bearings which are vented, apply the lubricant sparingly and wipe off any excess.
6) After any lubrication, remove excess lubricant from all parts except the working ones.

B. Special instructions

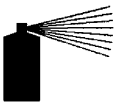
1) After lubricating the pulleys, rotate them so that the cable bears on a new surface.

3. LUBRICANT APPLICATION METHOD

I4122100AAAAMA4100

Pompe à graisse
Grease gun

Burette
Oil can



Aerosol
Spray

Pinceau
Brush

Main
Hand

It is recommended that the aircraft be parked in an area free from contamination due to sand, dust or other environmental conditions that may contribute to improper lubrication practices.

AREA 100 LUBRICATION

MAINTENANCE PRACTICES

1. AREA 100 LUBRICATION

A. Tools and consumable materials

- Oil (TB 03-900)
- Petrolatum (TB 04-012)
- Oil (TB 03-902) or (TB 03-903)
- Lubricant (TB 06-903)
- Grease (TB 04-004A)
- Clean lintfree cloths
- Brush
- Oil can
- Grease gun
- Cleaning agent (TB 11-003)
- Cleaning agent (TB 11-019)
- Filtered compressed air source

B. Preparation

1) Remove upper engine cowling 121 and lower engine cowling 131 - refer to 71-10-01.
2) Remove spinner 111 - refer to 61-10-00.

C. Lubrication of engine compartment (Figures 201, 202 and 203)

1) Using a brush soaked with petrolatum (TB 04-012), protect the battery lugs.
2) Using a brush soaked with cleaning agent (TB 11-003), clean the engine controls.
3) Remove excess cleaning agent with a clean lintfree cloth.
4) Using an oil can filled with oil (TB 03-900), lubricate :
   - air conditioning box intake valve,
   - throttle control,
   - mixture control,
   - carburettor heating control,

   S / N 1 - 764, 766 - 878 with constant speed propeller

   - propeller governor control.
5) Remove excess oil with a clean lintfree cloth.
6) Using a brush and grease (TB 04-004A), lubricate :
   - throttle control end,

- mixture control end,
- carburettor heating control end,

S / N 1 - 764, 766 - 878 with constant speed propeller

- control attachment on propeller governor.

7) Remove excess grease with a clean lintfree cloth.

8) Remove the distributor cover on L.H. and R.H. magnetos. Using an oil can filled with oil (TB 03-902) or (TB 03-903), lubricate the felt slightly.

9) Spray the lubricant (TB 06-903) on the two sides of the carburettor heating flap gasket.

10) Remove excess lubricant with a clean lintfree cloth.

D. Lubrication of propeller (Figure 201)

S / N 1 - 764, 766 - 878 with constant speed propeller

1) Remove one of the two grease fittings before lubricating.

2) Lubricate with a grease gun.

NOTE : Refer to Service Advisory No. 17 and Service Bulletin No. 159 at the latest revision published by Hartzell for all information on greases that can be used.

3) Install the grease fitting and wipe off excess grease.

4) Repeat the procedure for the second grease fitting.

E. Lubrication of starter (Figure 204)

"PRESTOLITE" / "ELECTROSYSTEMS" starter

1) Make sure the evacuation hole located below the starter drive is not blocked. Clear it if necessary.

All

2) Using a brush soaked with cleaning agent (TB 11-019), clean the drive shaft and the drive gear.

3) Dry with filtered compressed air.

4) Spray the drive shaft and the drive gear with lubricant (TB 06-903).

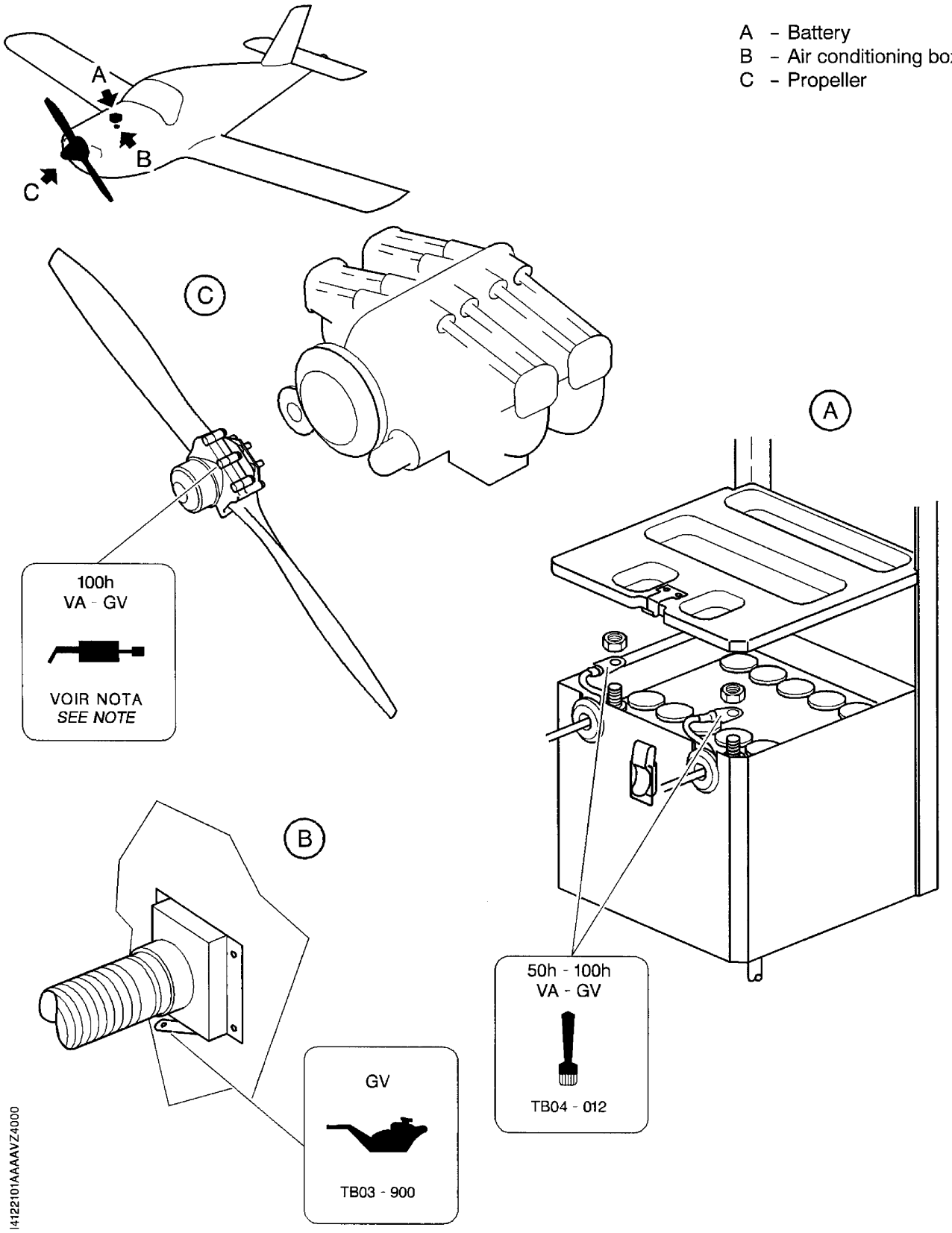
5) Remove excess lubricant with a clean lintfree cloth.

F. Reconditioning

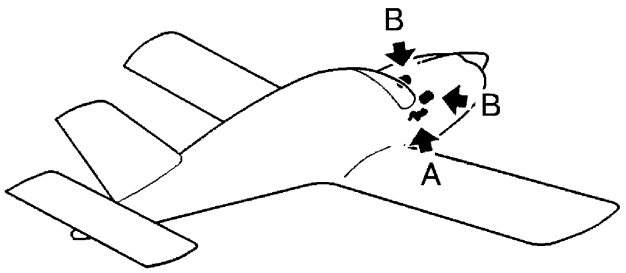
1) Make sure all the tools and materials are removed and the work area is clean and free from debris.

2) Install spinner 111 - refer to 61-10-00.

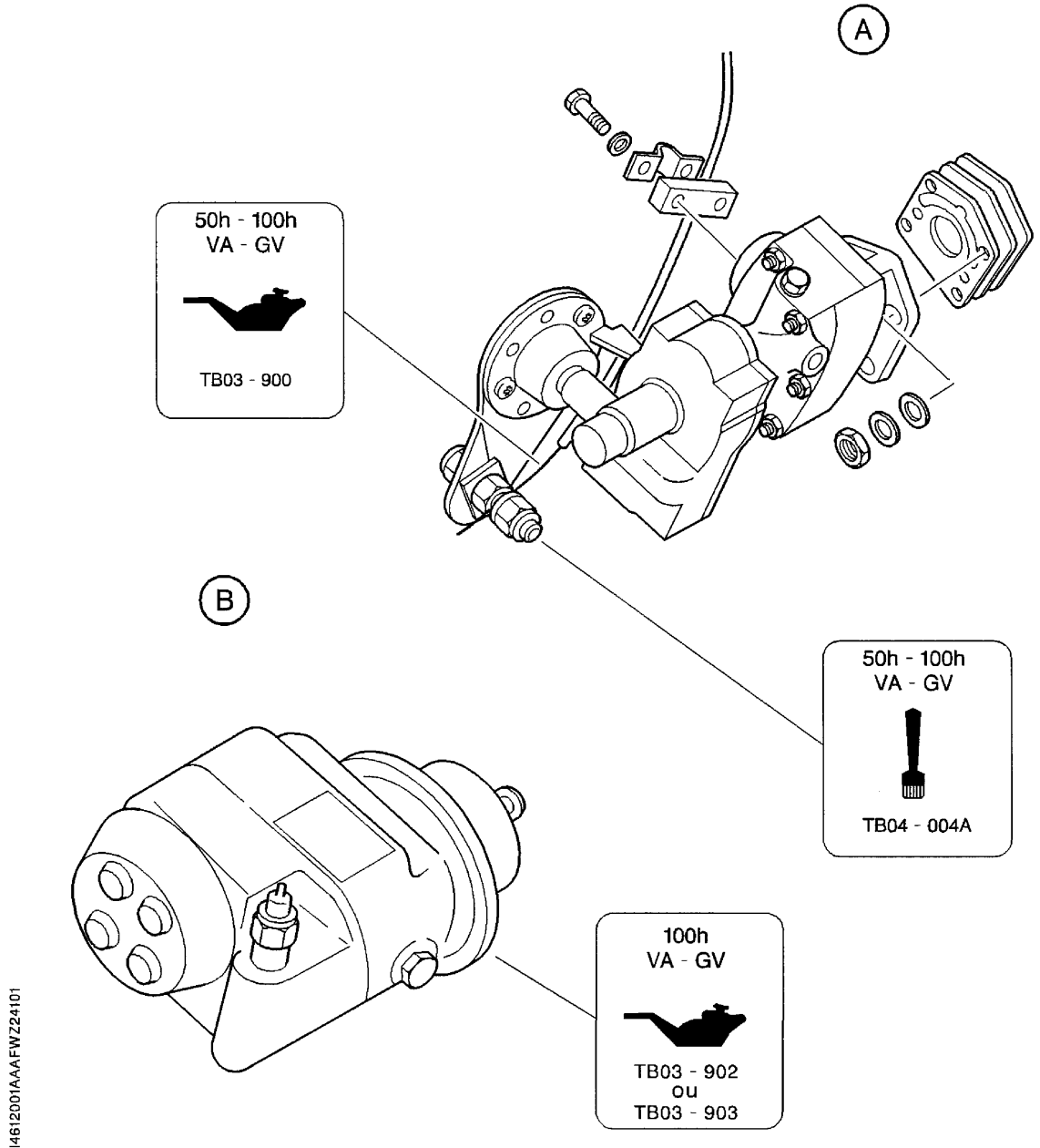
3) Install lower engine cowling 131 and upper engine cowling 121 - refer to 71-10-01.



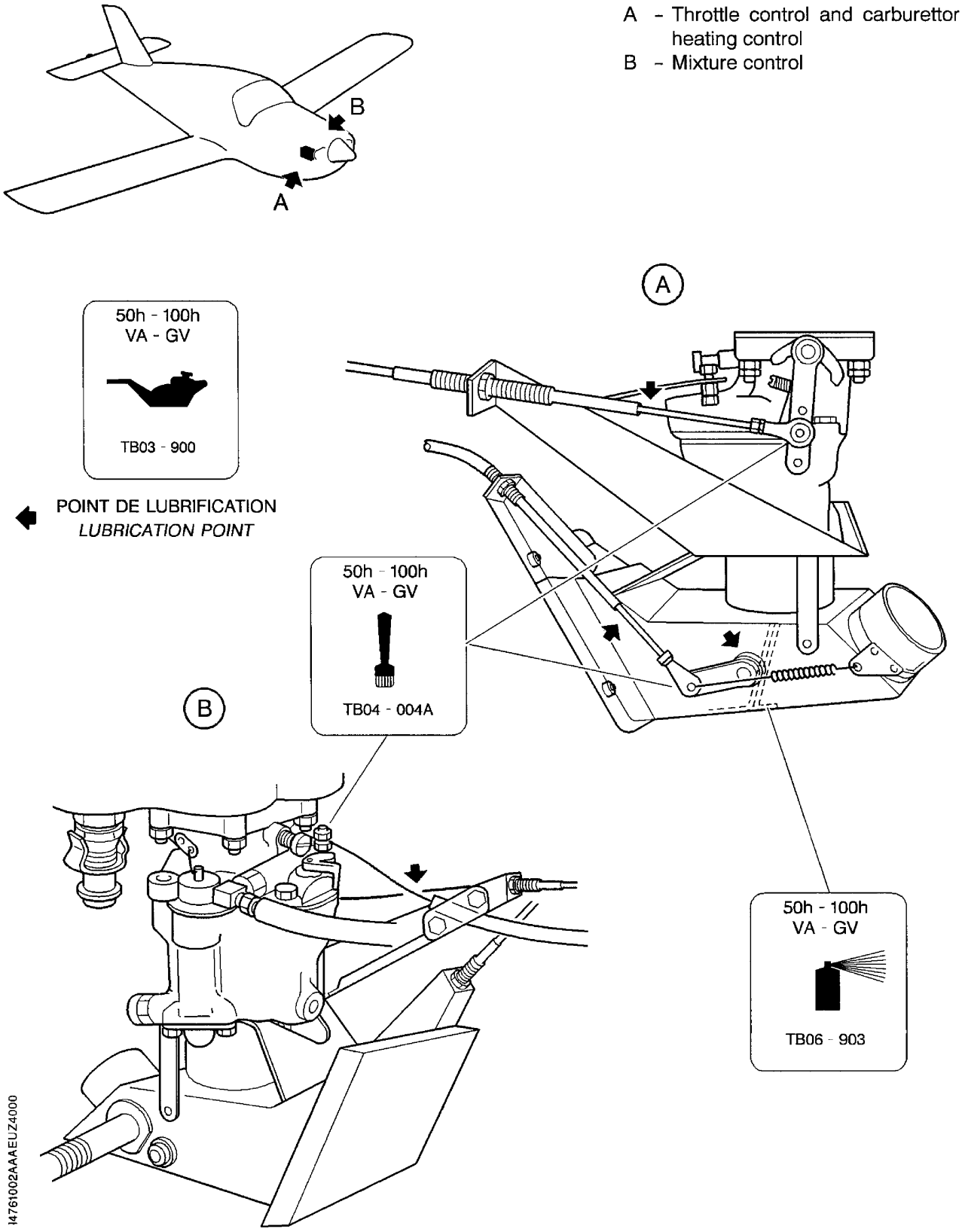
Area 100 lubrication - Battery and propeller
Figure 201 - Detail C : S / N 1 - 764, 766 - 878 with constant speed propeller



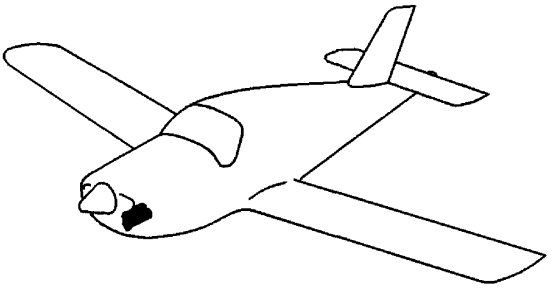
A - Propeller governor
B - Magneto



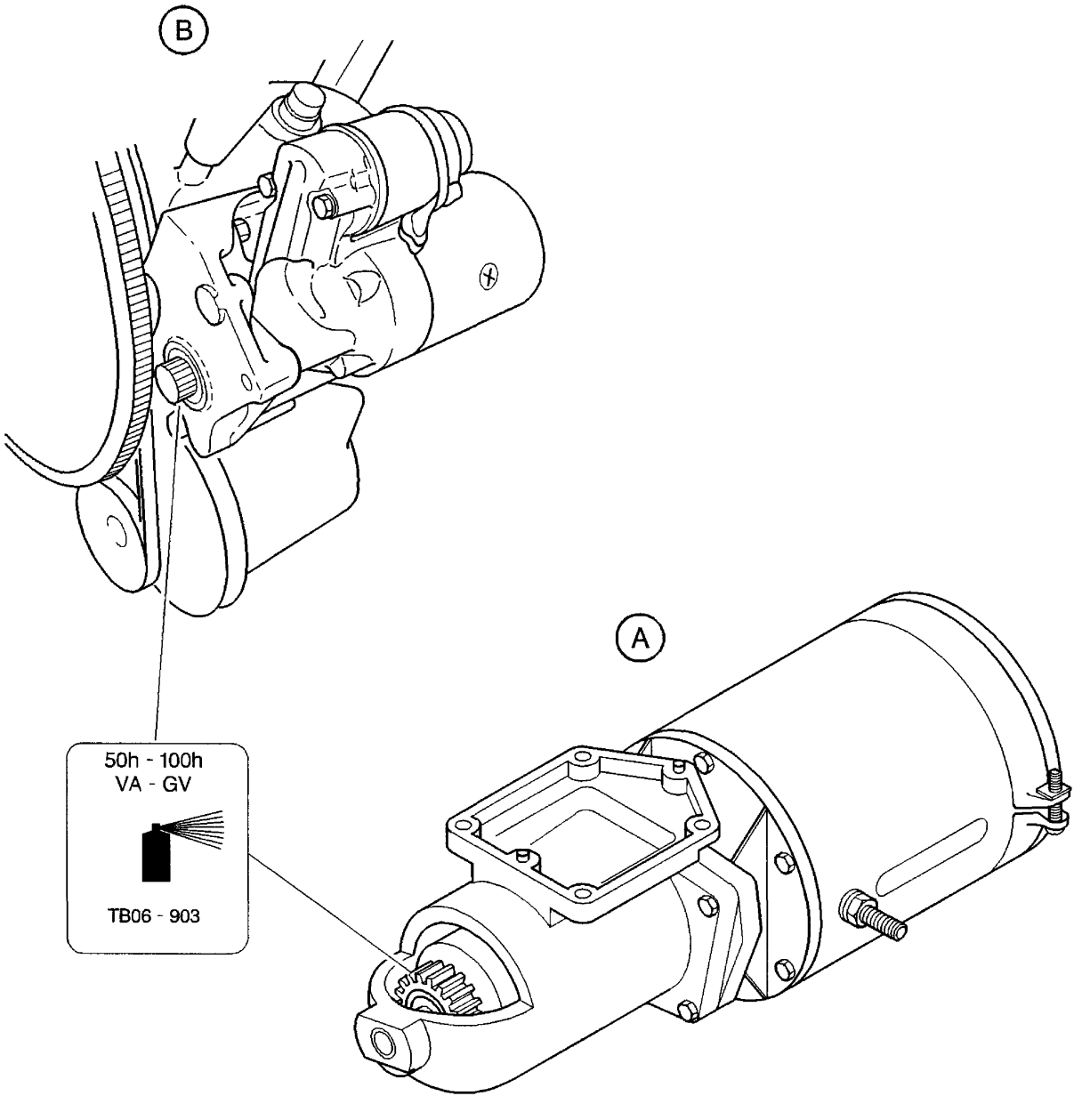
Area 100 lubrication - Governor control and magnetos
Figure 202 - Detail A : S / N 1 - 764, 766 - 878 with constant speed propeller



Area 100 lubrication - Engine controls
Figure 203



A - "PRESTOLITE" / "ELECTROSYSTEMS" starter
B - "LYCOMING" starter



Area 100 lubrication - Starter
Figure 204

AREA 200 LUBRICATION

MAINTENANCE PRACTICES

1. AREA 200 LUBRICATION

CAUTION : PRIOR TO ANY LUBRICATION IN THE CABIN, INSTALL COVERS ON SEATS AND PROTECT CARPET.

A. Tools and consumable materials

- Grease (TB 04-004A)
- Oil (TB 03-900)
- Clean lintfree cloths
- Brush
- Oil can
- Cleaning agent (TB 11-003)
- Lubricant (TB 05-027D)
- Lubricant (TB 06-904)

B. Preparation

1) Remove inspection doors 211R, 211L, 235R, 235L, cowling under hull 218 and baggage compartment bottom door 242 - refer to 06-30-00.

2) Remove tail cone 222 - refer to 53-20-04.

S / N 341 - 9999 and S / N 1 - 340 Post-Kit OPT10 907300 or Kit OPT10 908700

3) Remove the elevator tab actuator cover.

S / N 1 - 9999

4) Remove FWD pedestal cover 252 and aft pedestal cover 253 - refer to 06-30-00.

5) Remove the front seats - refer to 25-11-00.

6) Remove the cabin upholstering.

7) Remove the tightness cloth.

C. Lubrication of flight controls (Figures 201, 202, 203, 204, 205 and 205A)

1) Using a brush soaked with cleaning agent (TB 11-003), clean :

- hinges,
- lever ends,
- rudder pedal and control wheel hinges and rods,
- roll / yaw interconnection actuator (if installed),

S / N 1 - 274

- elevator tab rack,
- elevator tab actuator,

S / N 275 - 9999

- cables and pulley grooves,
- elevator tab actuator.

2) Remove excess cleaning agent with a clean lintfree cloth.

3) Using a brush and grease (TB 04-004A), lubricate :

- hinges,
- lever ends,
- control rod ends,
- rudder pedal hinges and rods,
- roll / yaw interconnection actuator (if installed),

S / N 1 - 274

- elevator tab rack,
- elevator tab actuator,

S / N 275 - 9999

- cables and pulley grooves,
- elevator tab actuator.

NOTE : Lubricate abundantly the cable winding area.

4) With a spray can of lubricant (TB 06-904) equipped with an extension tube to direct the injections, spray control wheels ball joints and pedestal hinge points.

NOTE : If elements to lubricate are removed, replace lubricant (TB 06-904) with grease (TB 04-004A).

S / N 275 - 9999

5) Using an oil can filled with oil (TB 03-900), lubricate the pulley hinge pin.

6) Remove excess oil with a clean lintfree cloth.

S / N 1 - 9999

7) Using an oil can filled with oil (TB 03-900), lubricate :

- rudder pedal pin,
- brake master-cylinder control roller pin.

8) Remove excess oil with a clean lintfree cloth.

D. Lubrication of fuel unit controls (Figures 206 and 206A)

S / N 1 - 730

1) Using a brush and grease (TB 04-004A), lubricate fuel selector valve pin.

S / N 731 - 9999

1) Using a brush and grease (TB 04-004A), lubricate fuel selector gimbal joint and fuel selector pin.

2) Using an oil can filled with oil (TB 03-900), lubricate fuel selector valve pin.

S / N 1 - 9999

3) Remove excess oil and grease with a clean lintfree cloth.

E. Lubrication of engine controls (Figures 207 and 207A)

1) Using an oil can filled with oil (TB 03-900), lubricate engine control cables.

2) Using a brush and grease (TB 04-004A), lubricate hinges.

3) Remove excess oil and grease with a clean lintfree cloth.

F. Lubrication of air conditioning controls (Figures 208 and 208A)

1) Using an oil can filled with oil (TB 03-900), lubricate air conditioning control cables.

2) Remove excess oil with a clean lintfree cloth.

G. Lubrication of front seat guide bars and rear bench latch (Figure 209)

NOTE : Slightly lubricate in order not to stain the cockpit.

1) Using a brush and grease (TB 04-004A), lubricate the two front seat guide bars.

2) Using an oil can filled with oil (TB 03-900), lubricate the two rear bench latches.

3) Remove excess oil and grease with a clean lintfree cloth.

H. Lubrication of baggage compartment and access doors (Figures 210, 210A, 211 and 211A)

1) Using a brush and grease (TB 04-004A), lubricate closing system hinges.

2) Using a lubricant (TB 05-027D), lubricate (slightly in order not to stain the cockpit) :

a) On access doors :

- lock hole,
- rod ends,
- hinges,

Post-MOD. 151

- hinge fittings,

S / N 1 - 9999

- hook pin.

b) On the baggage compartment door :

- hinges,
- closing system.

3) Remove excess grease and lubricant with a clean lintfree cloth.

I. Reconditioning

1) Make sure all the tools and materials are removed and the work area is clean and free from debris.

2) Install the tightness cloth.

3) Install the cabin upholstering.

4) Install the front seats - refer to 25-11-00.

5) Install inspection doors 211R, 211L, 235R, 235L, cowling under hull 218 and baggage compartment bottom door 242 - refer to 06-30-00.

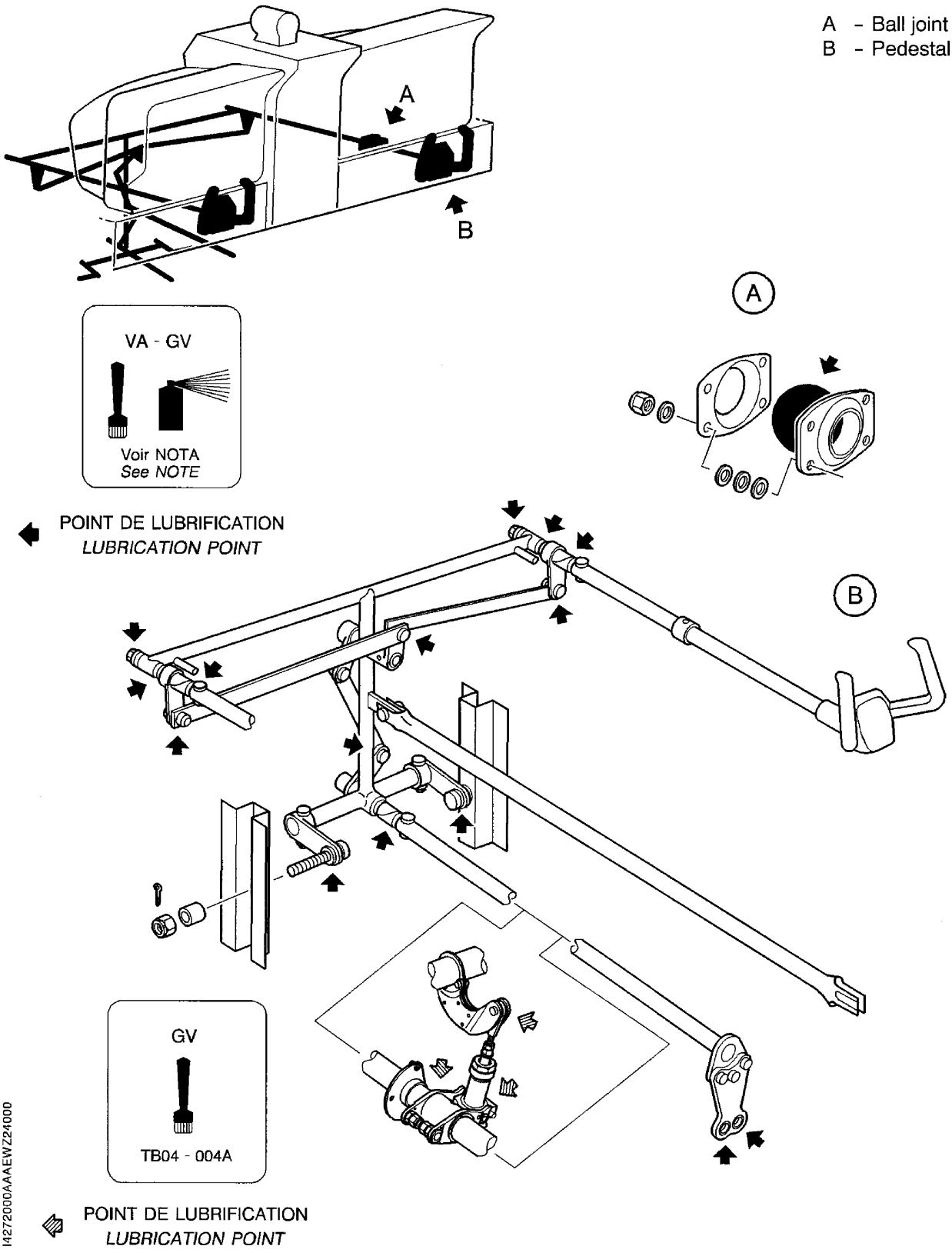
S / N 341 - 9999 and S / N 1 - 340 Post-Kit OPT10 907300 or Kit OPT10 908700

6) Install the elevator tab actuator cover.

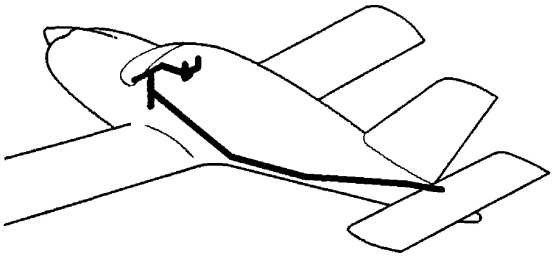
S / N 1 - 9999

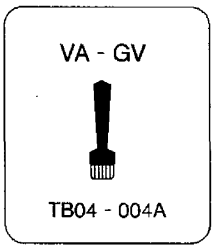
7) Install tail cone 222 - refer to 53-20-04.

8) Install FWD pedestal cover 252 and aft pedestal cover 253 - refer to 06-30-00.

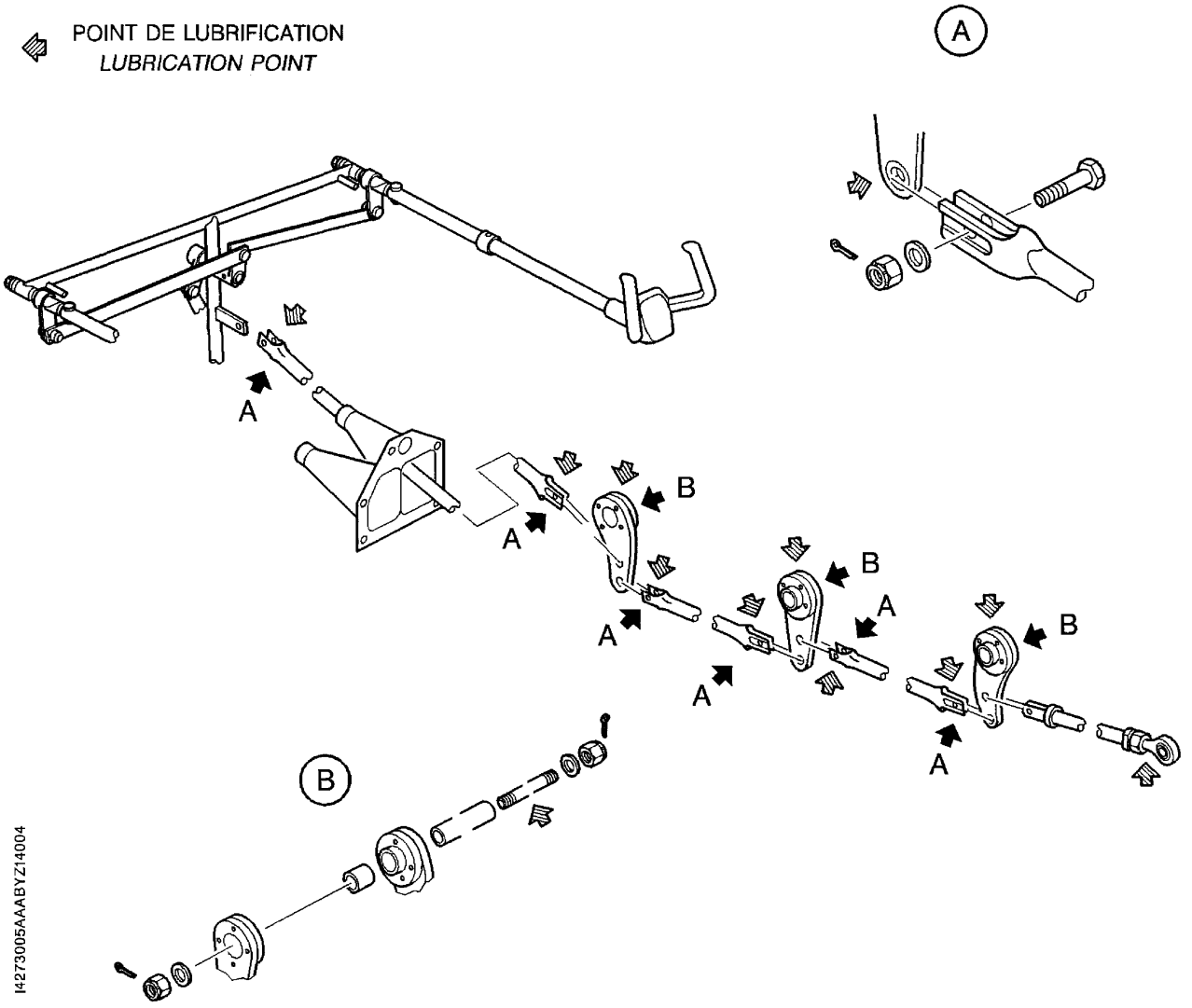


Area 200 lubrication - Control wheel and pedestal
Figure 201

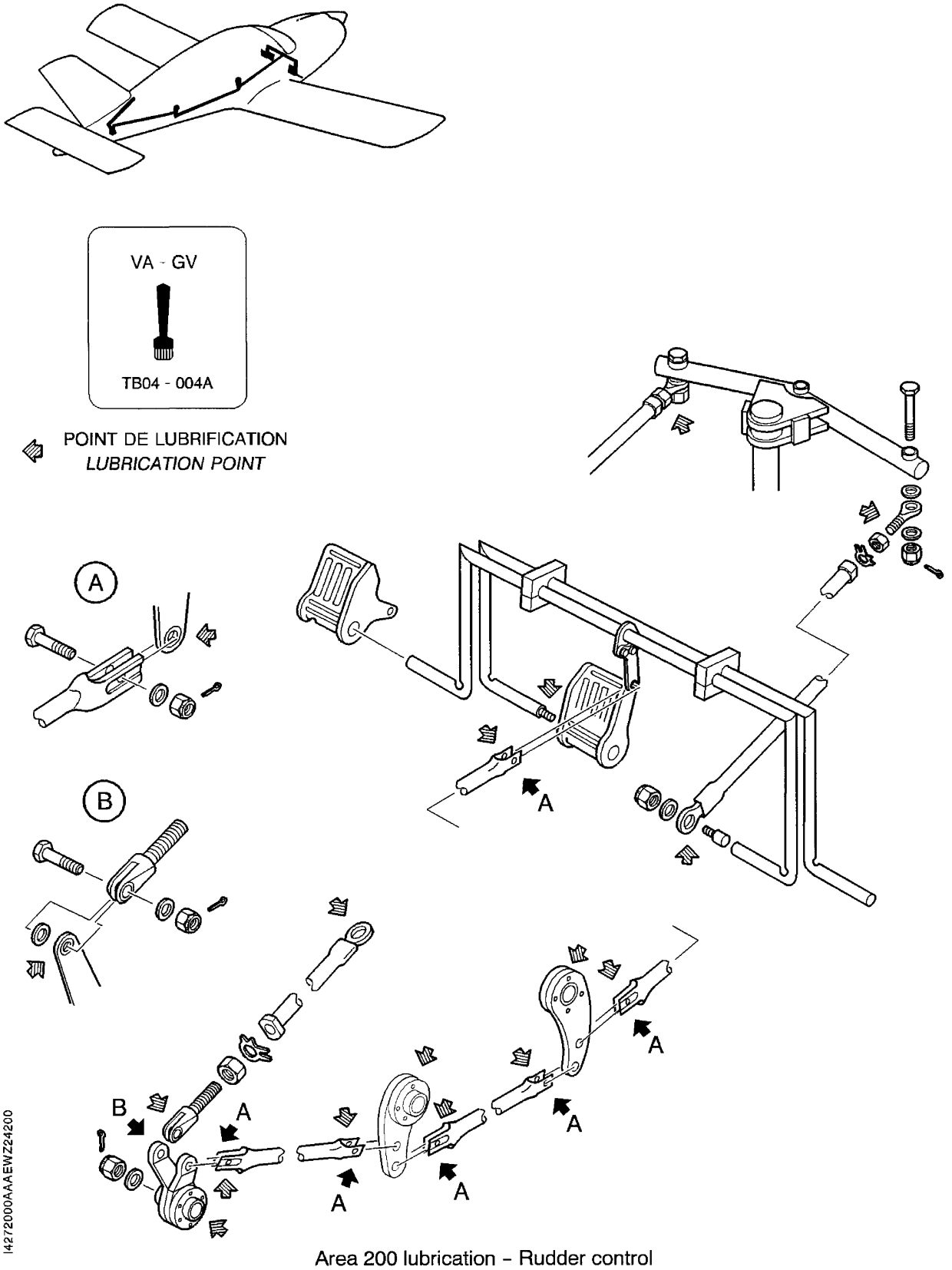




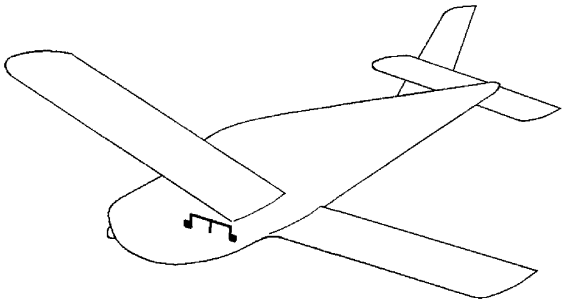
POINT DE LUBRIFICATION
LUBRICATION POINT



Area 200 lubrication - Elevator control
Figure 202



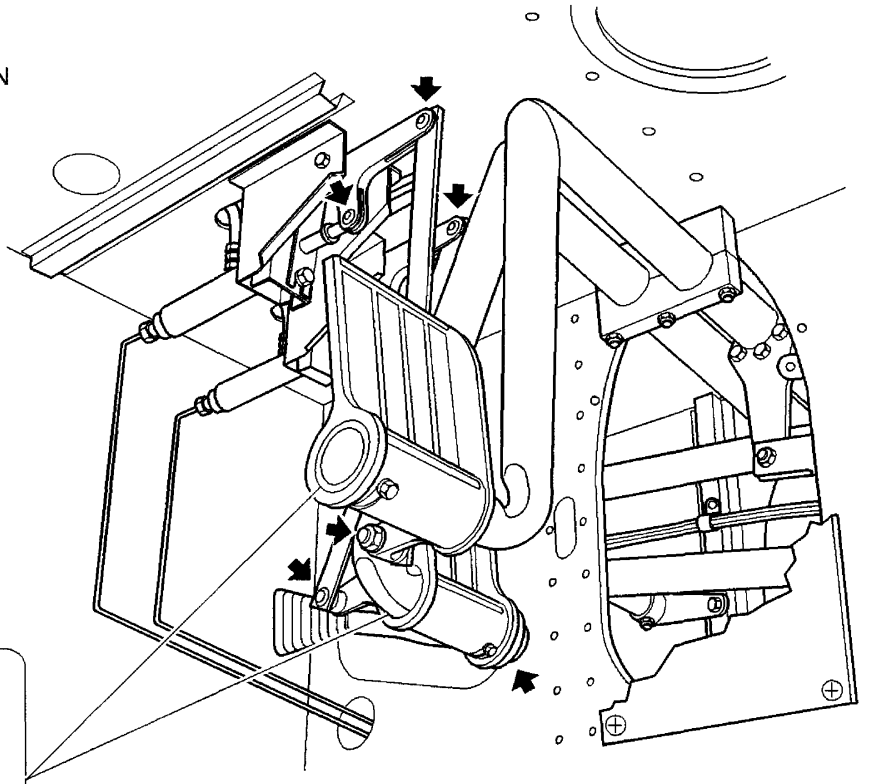
Area 200 lubrication - Rudder control
Figure 203



VA - GV

TB04 - 004A

POINT DE LUBRIFICATION
LUBRICATION POINT

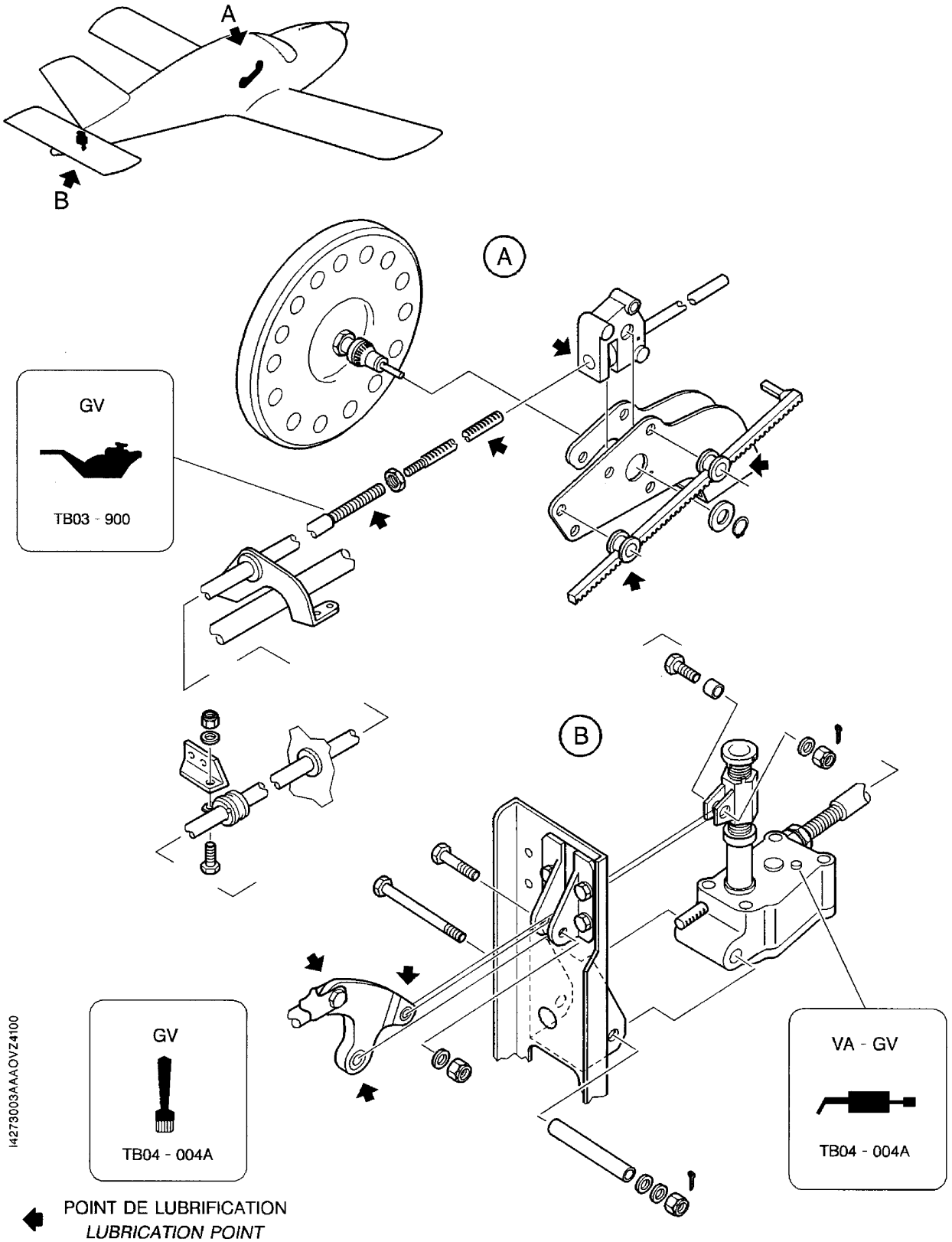


VA - GV

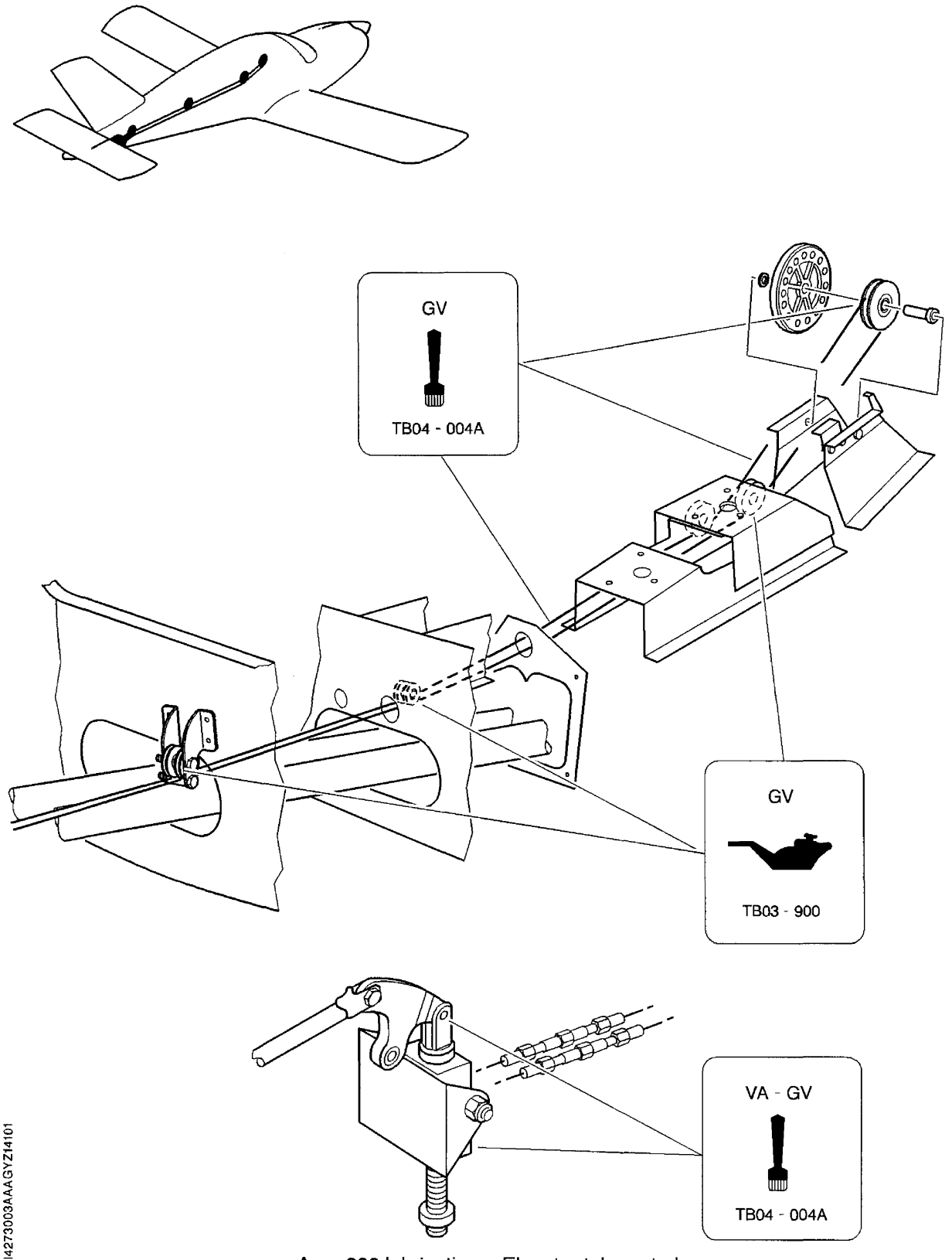
TB03 - 900

I4272001AAAAYZ24200

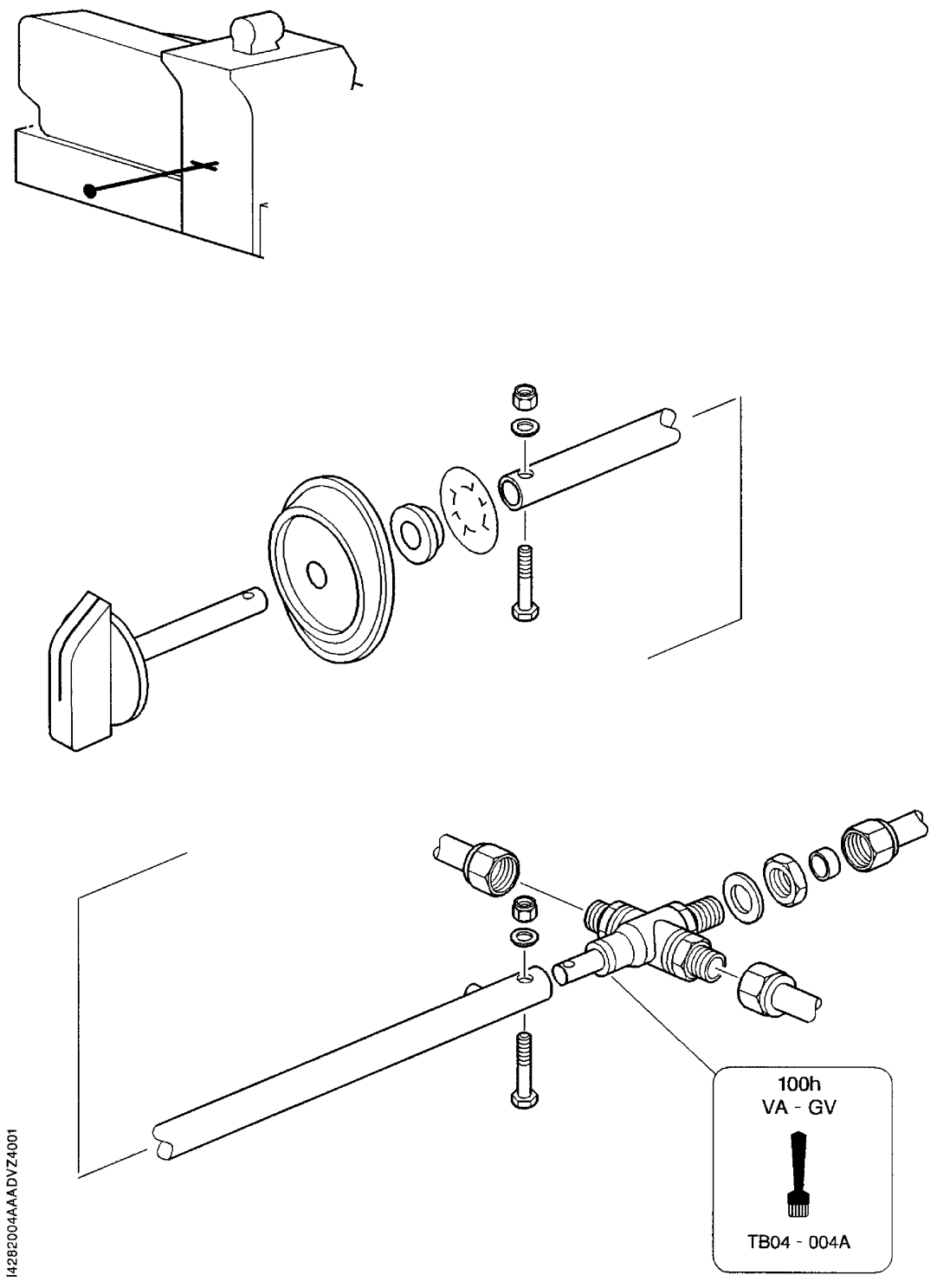
Area 200 lubrication - Brake control
Figure 204



Area 200 lubrication - Elevator tab control
Figure 205 - S / N 1 - 274

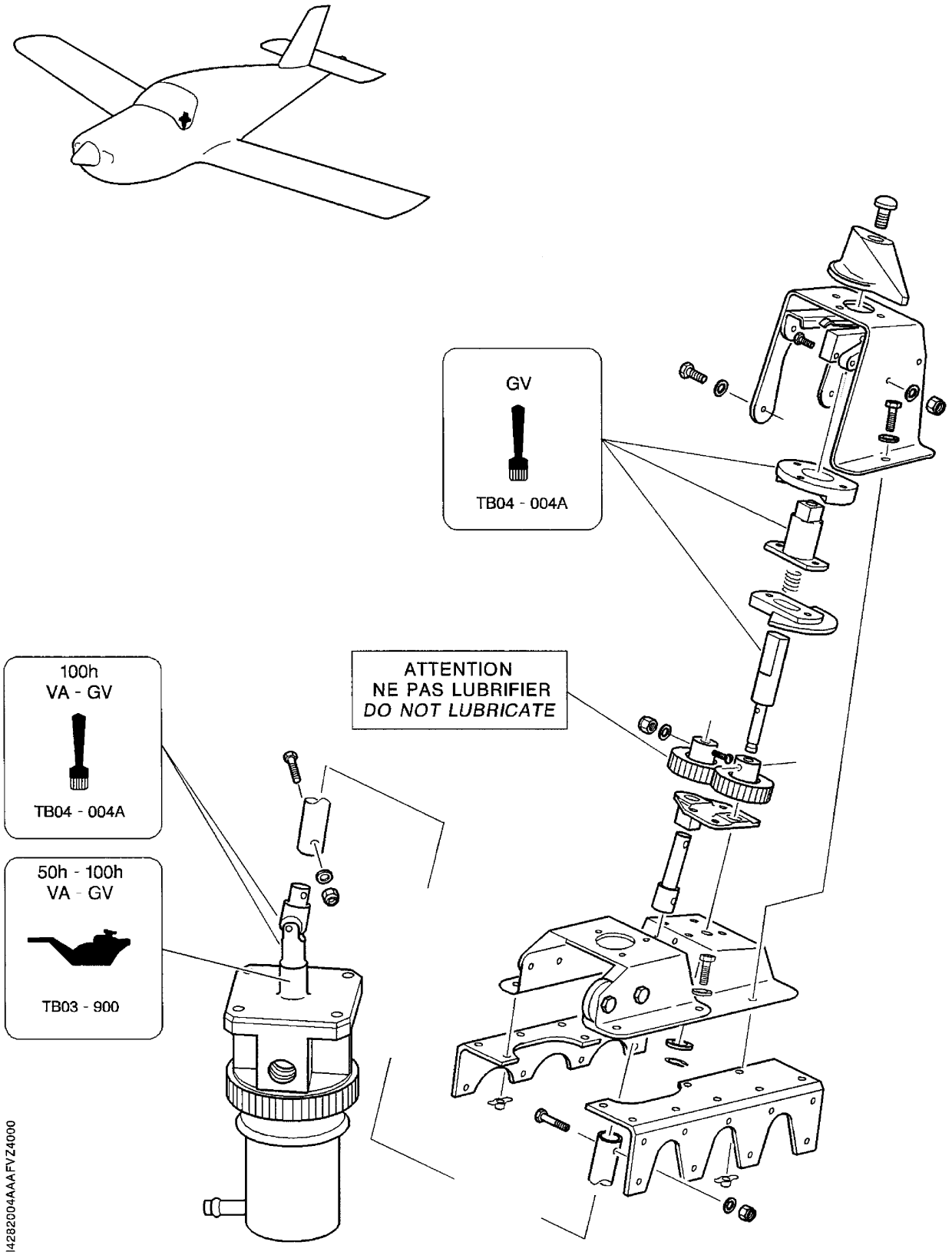


Area 200 lubrication - Elevator tab control
Figure 205A - S / N 275 - 9999



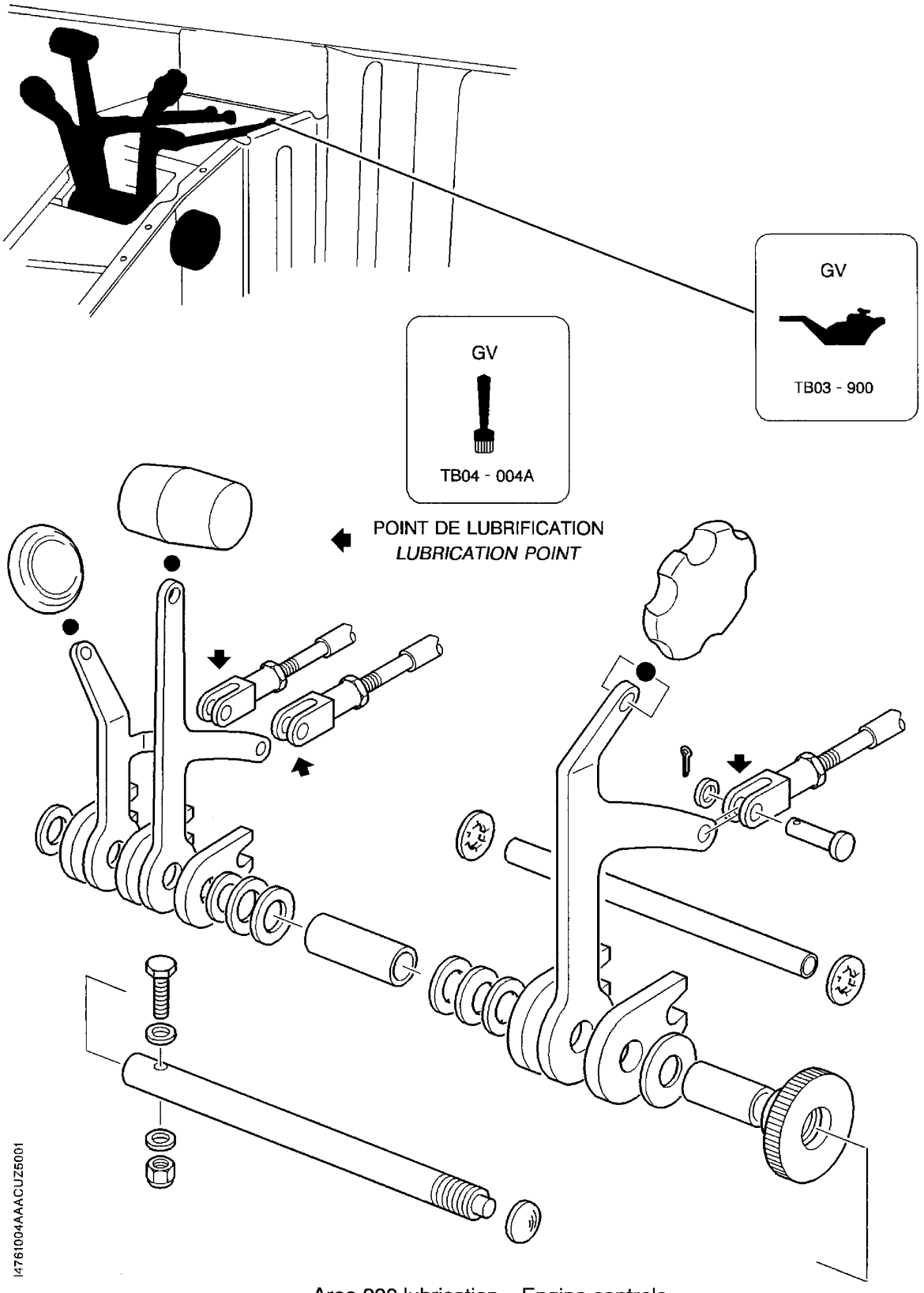
Area 200 lubrication - Fuel selector
Figure 206 - S / N 1 - 730

AAAA
Validity : S / N 1 - 9999



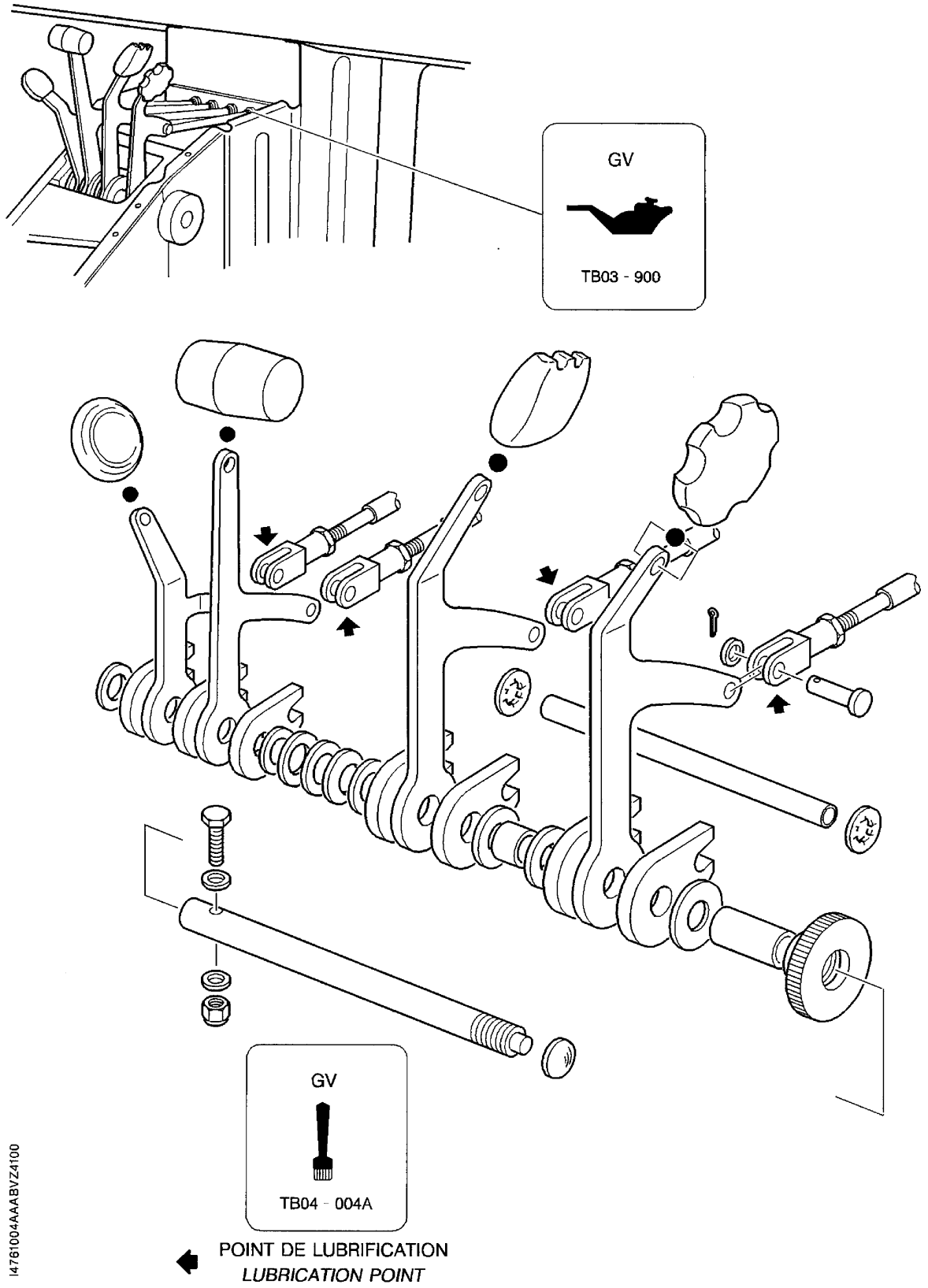
Area 200 lubrication - Fuel selector
Figure 206A - S / N 731 - 9999

AAAA
Validity : S / N 1 - 9999

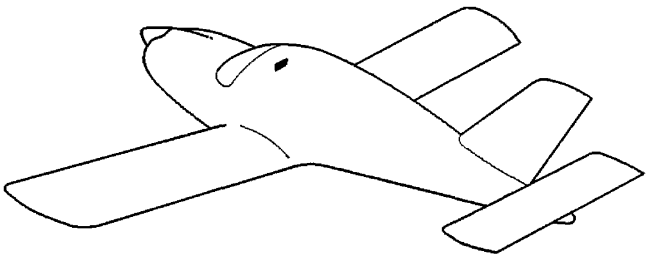


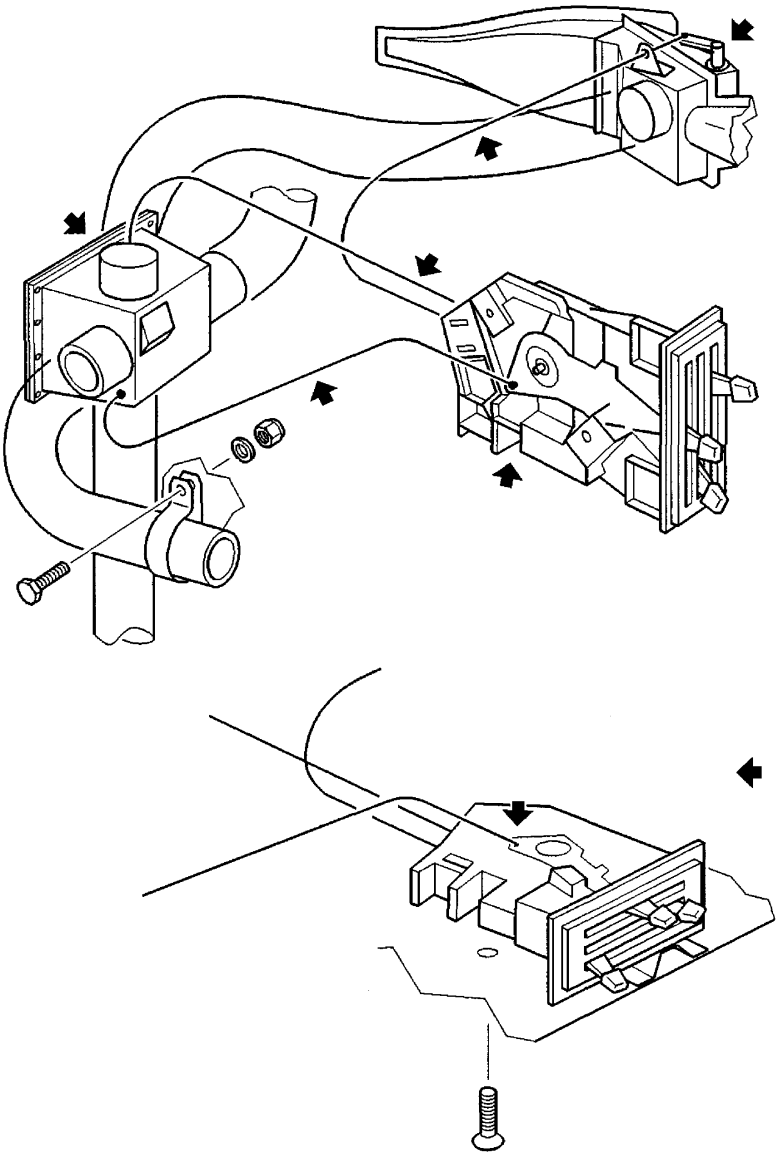
Area 200 lubrication - Engine controls
Figure 207

AAAA
Validity : S / N 1 - 9999



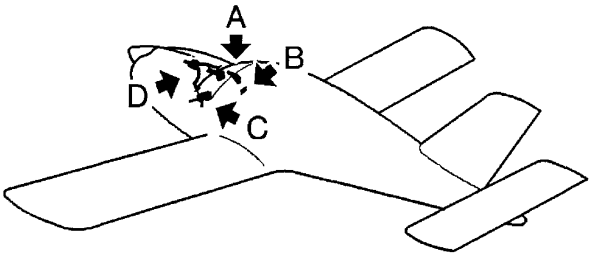
Area 200 lubrication - Engine controls
Figure 207A - With constant speed propeller



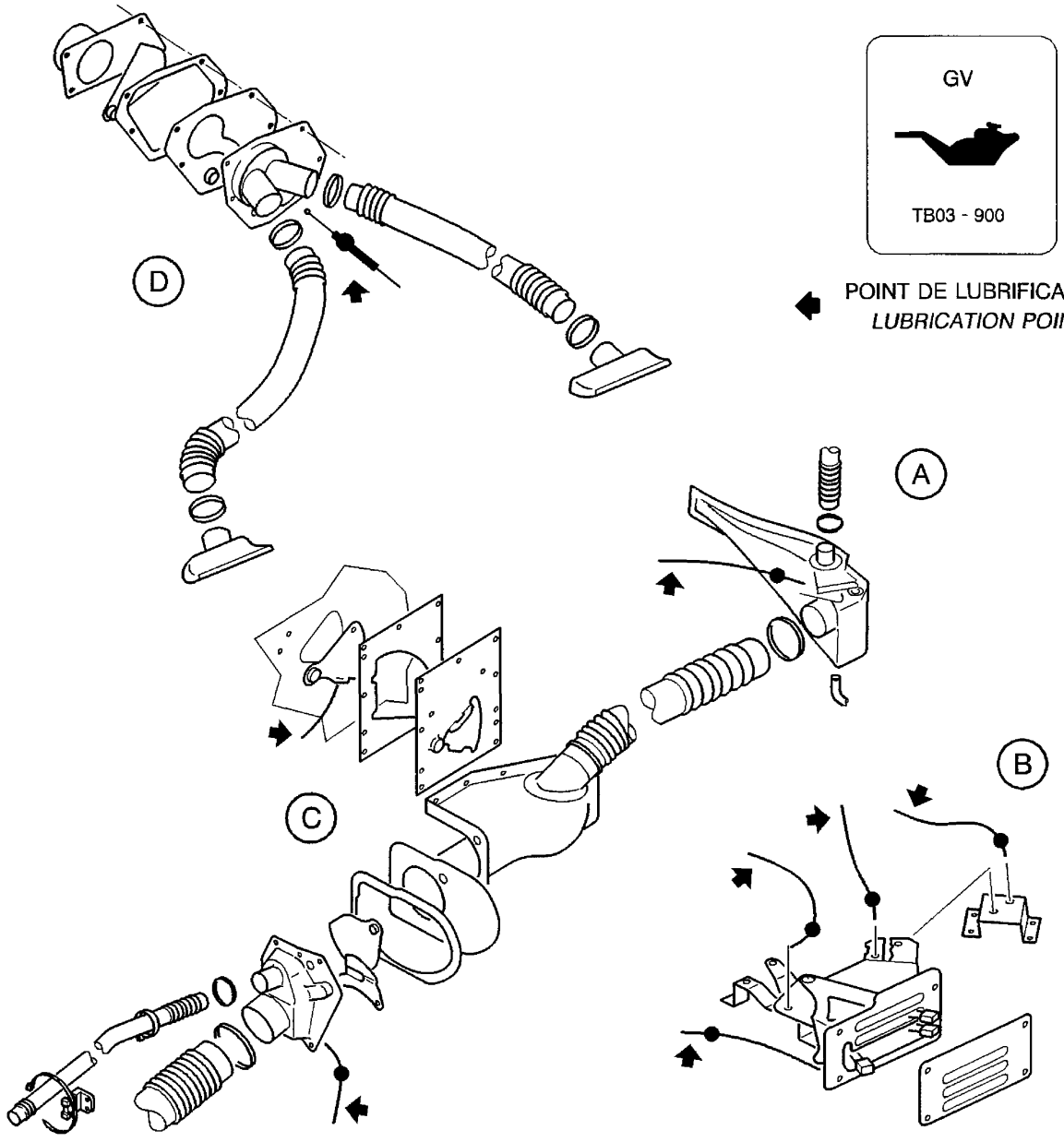


Area 200 lubrication - Air conditioning controls
Figure 208 - S / N 1 - 584

AAAA
Validity : S / N 1 - 9999

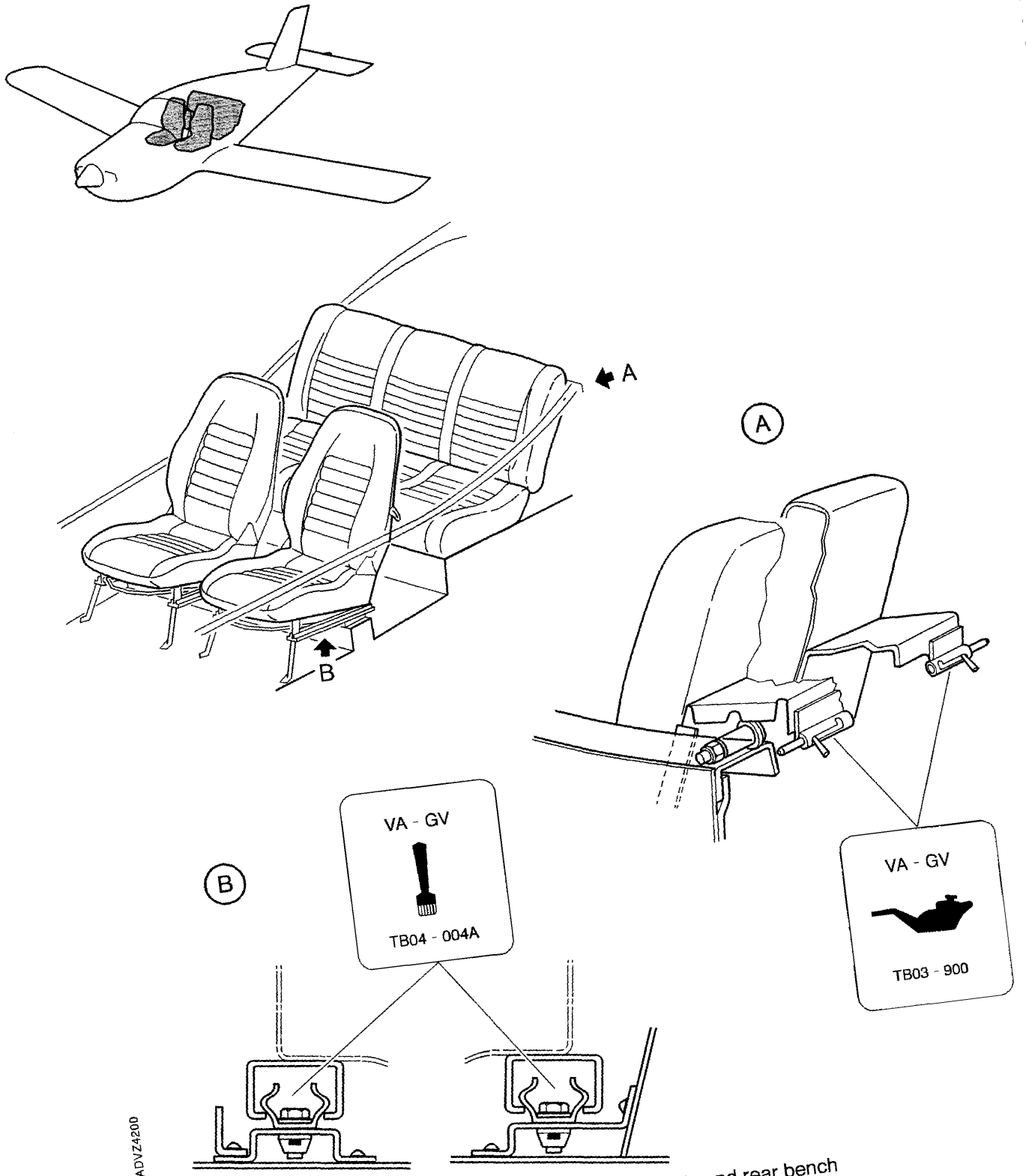


A - R.H. NACA air intake
B - Air conditioning control
C - Cabin air mixer
D - Windshield demisting box



Area 200 lubrication - Air conditioning controls
Figure 208A - S / N 585 - 9999

A - Rear bench backrest lock
B - Front seat guide bar



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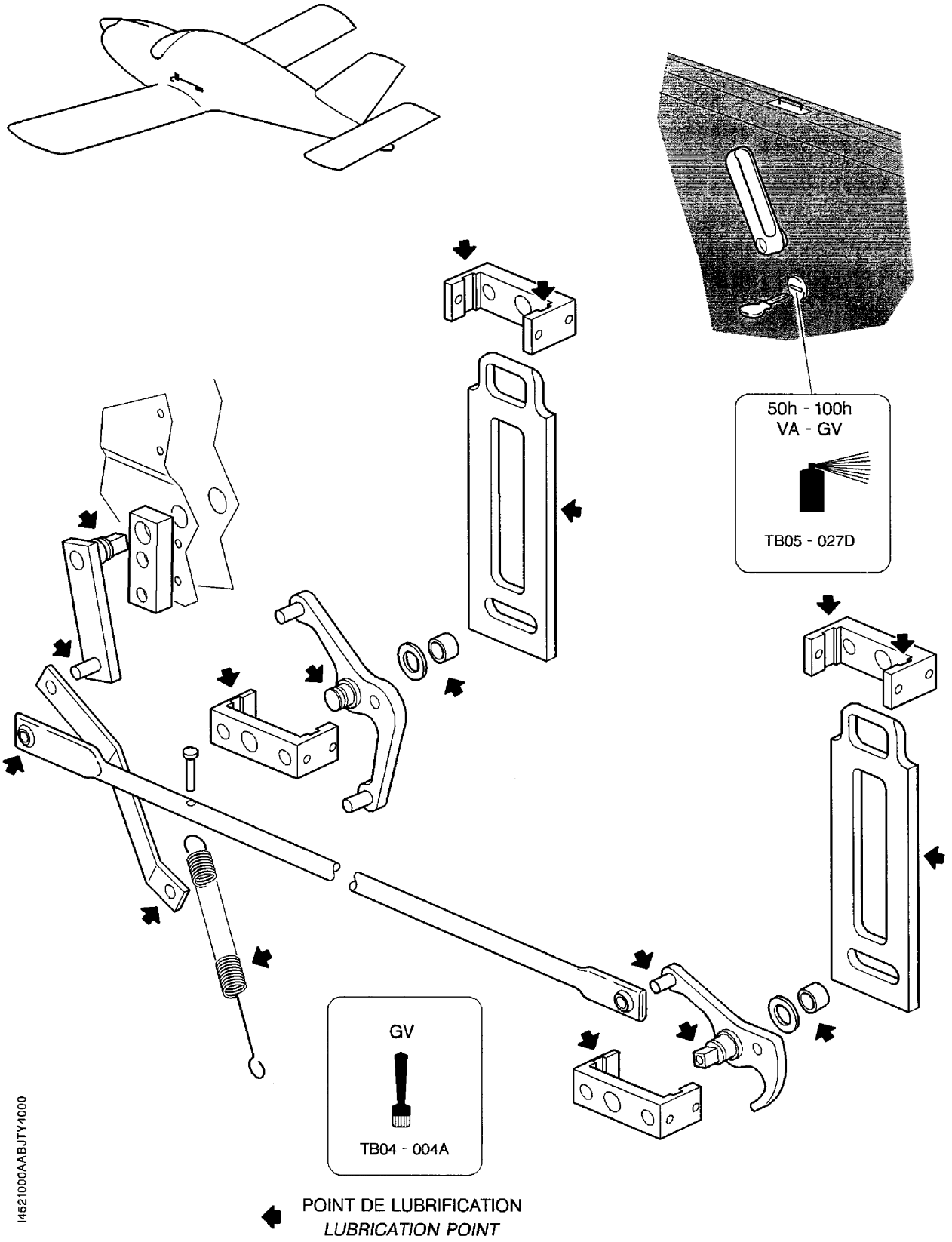
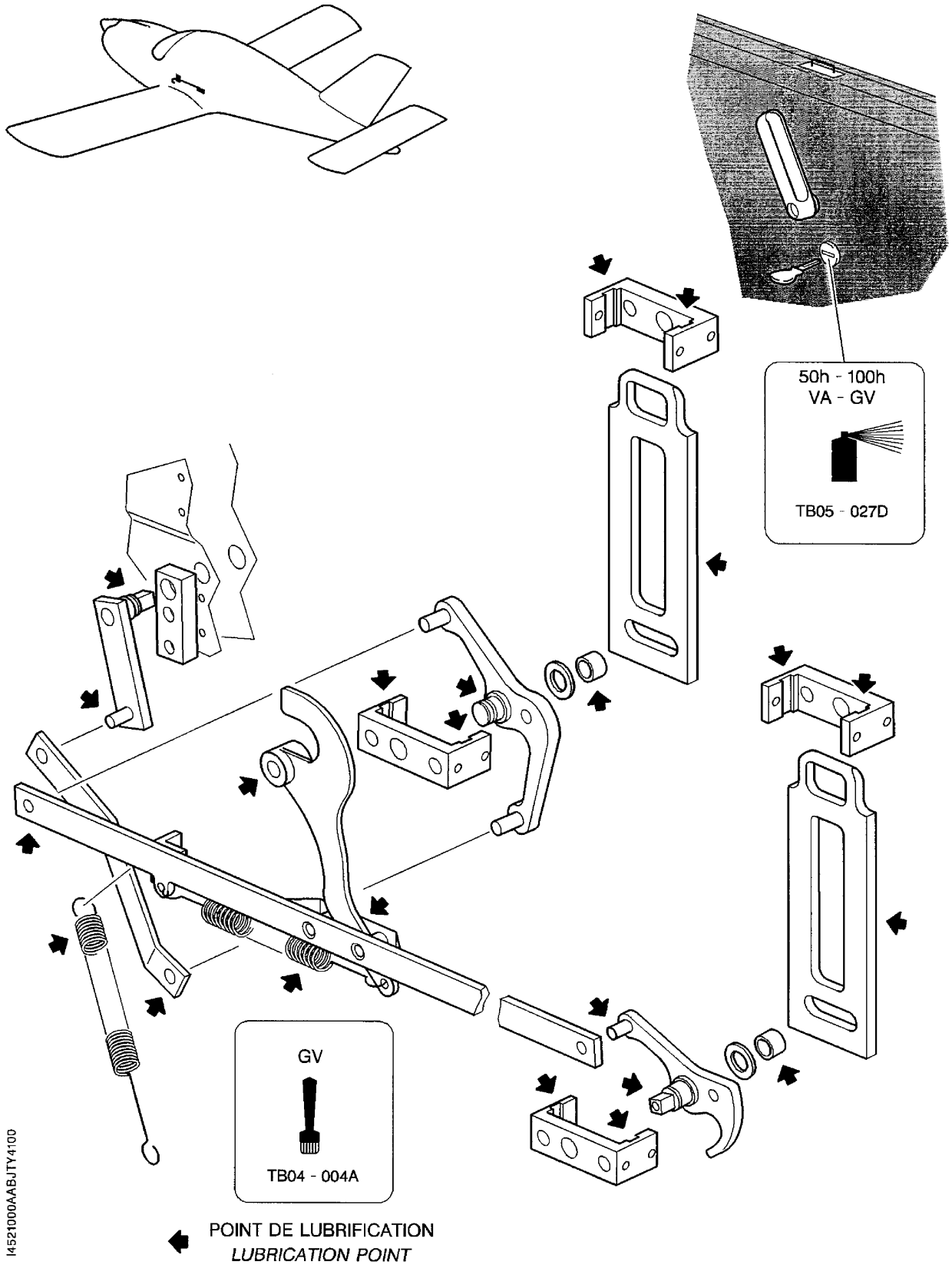
Area 200 lubrication - Front seats and rear bench
Figure 209

AAAA
Validity : S / N 1 - 9999

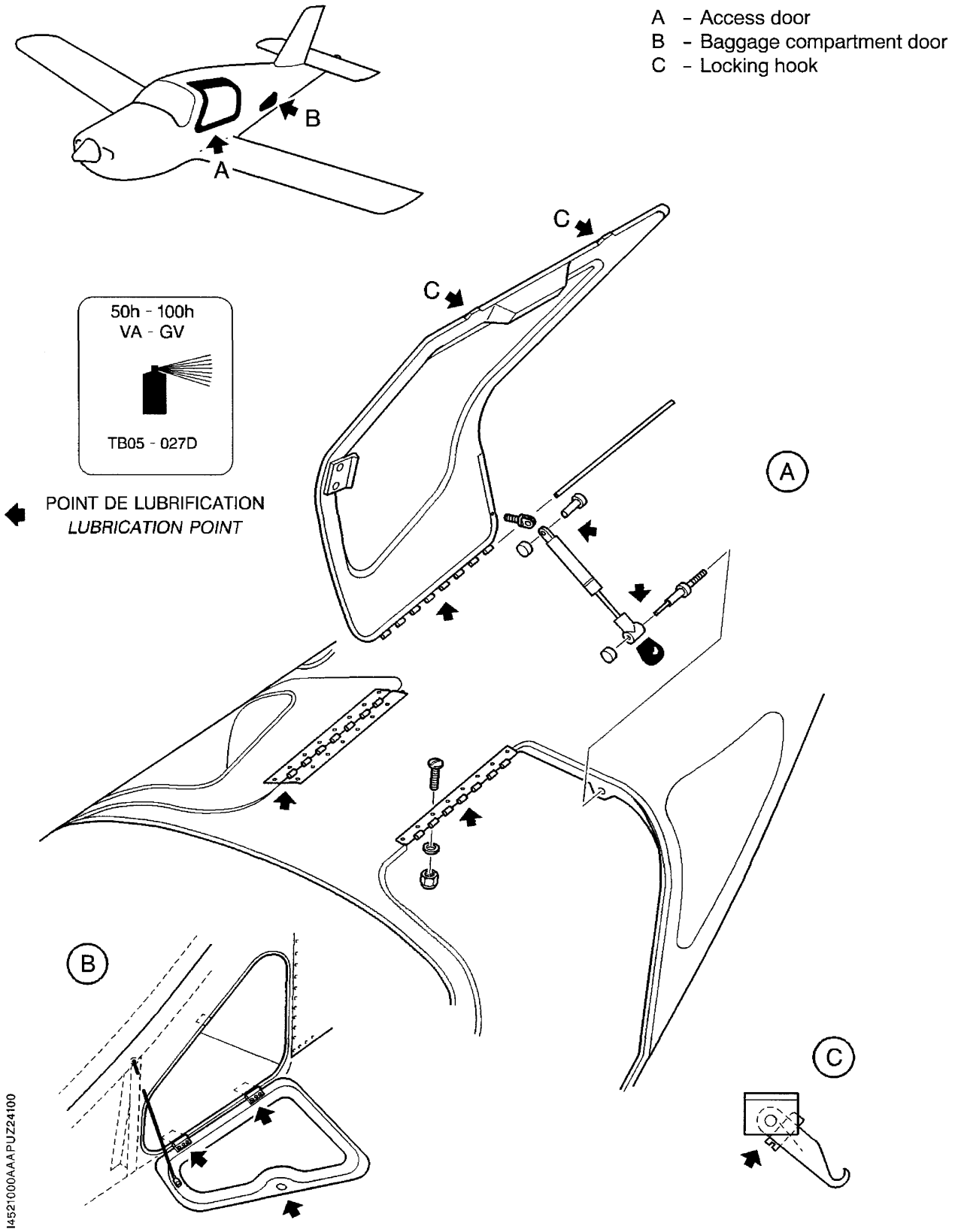


POINT DE LUBRIFICATION
LUBRICATION POINT

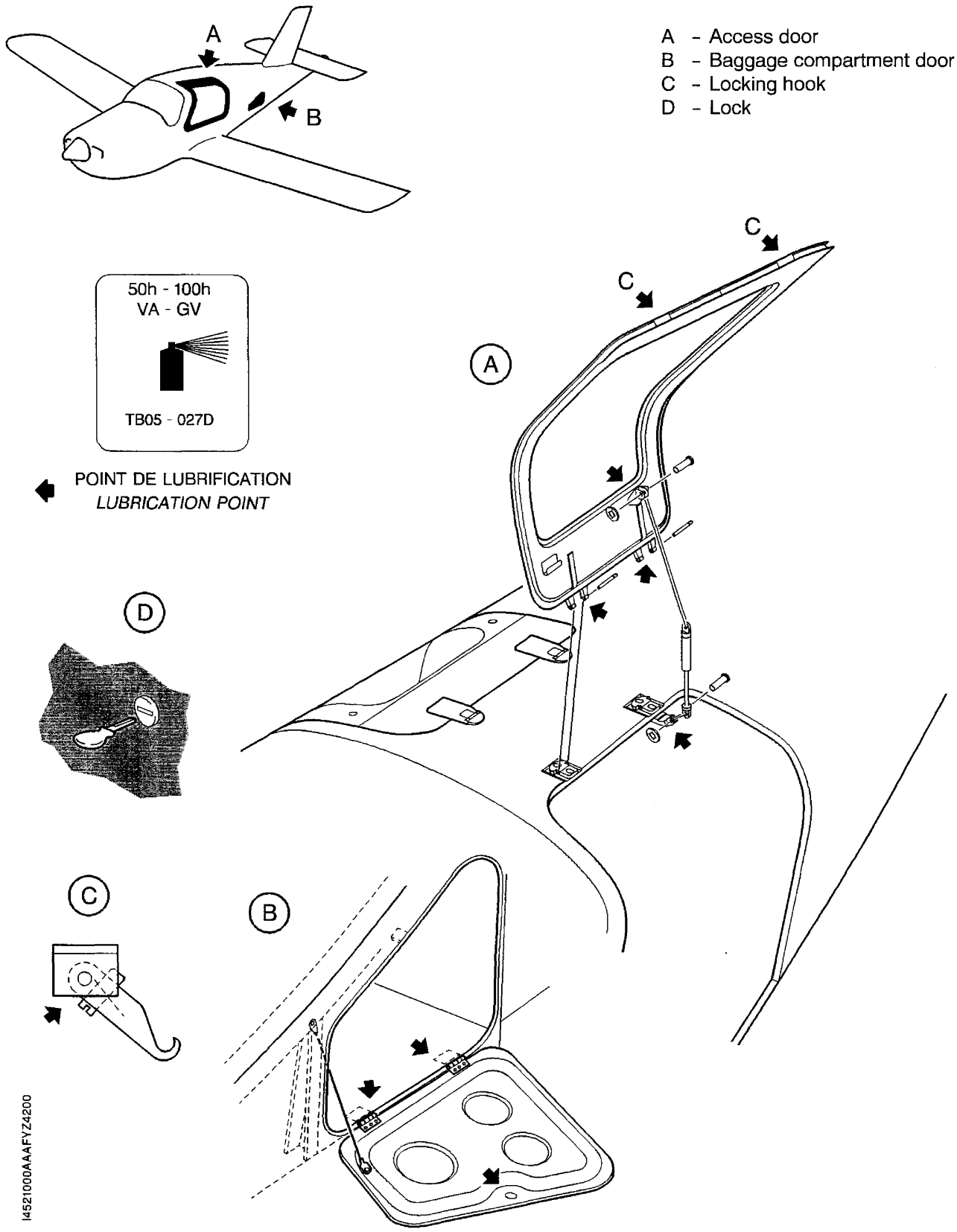
Area 200 lubrication - Door closing and locking devices
Figure 210 - Pre-MOD. 151



Area 200 lubrication - Door closing and locking devices
Figure 210A - Post-MOD. 151



Area 200 lubrication - Baggage compartment and access doors
Figure 211 - Pre-MOD. 151



Area 200 lubrication - Baggage compartment and access doors
Figure 211A - Post-MOD. 151

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AREA 300 LUBRICATION

MAINTENANCE PRACTICES

1. AREA 300 LUBRICATION

A. Tools and consumable materials

- Grease (TB 04-004A)
- Siccative oil (TB 05-914)
- Clean lintfree cloths
- Brush
- Cleaning agent (TB 11-003)

B. Lubrication of rudder (Figure 201)

1) Remove blanking cap 221 - refer to 06-30-00.
2) Using a brush soaked with cleaning agent (TB 11-003), clean :
   - rudder hinge pins,
   - ball joints,
   - rudder actuating rod end.
3) Remove excess cleaning agent with a clean lintfree cloth.
4) Using a brush and grease (TB 04-004A), lubricate :
   - rudder hinge pins,
   - ball joints,
   - rudder actuating rod end.
5) Remove excess grease with a clean lintfree cloth.
6) Make sure all the tools and materials are removed and the work area is clean and free from debris.
7) Install blanking cap 221 - refer to 06-30-00.

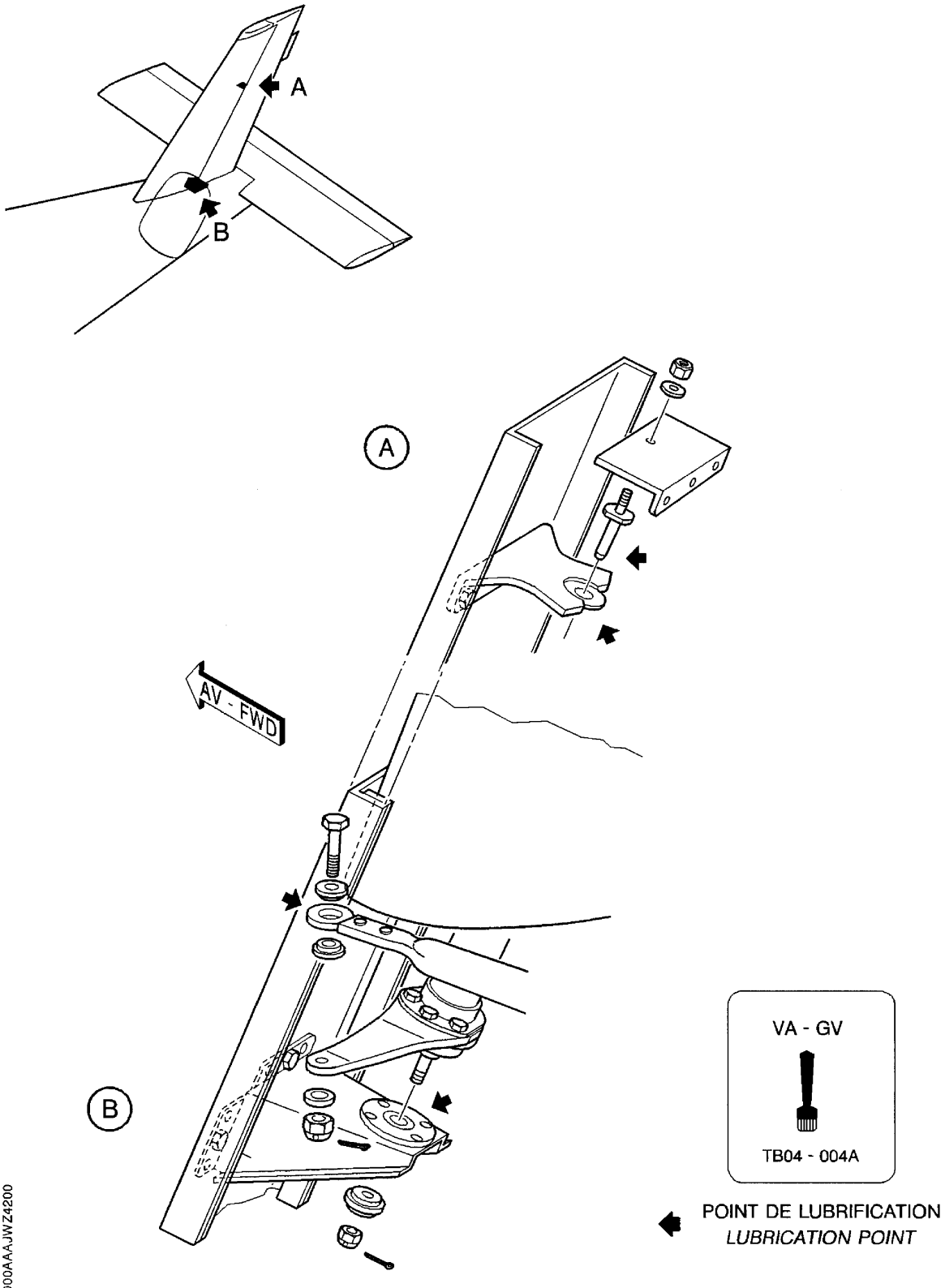
C. Lubrication of elevator (Figure 202)

1) Remove tail cone 222 - refer to 53-20-04.
2) Remove the elevator - refer to 55-20-01.
3) Using a brush soaked with cleaning agent (TB 11-003), clean :
   - elevator attachment point pin,
   - elevator tab hinges.
4) Remove excess cleaning agent with a clean lintfree cloth.
5) Using a brush and grease (TB 04-004A), lubricate :
   - elevator attachment point pin,

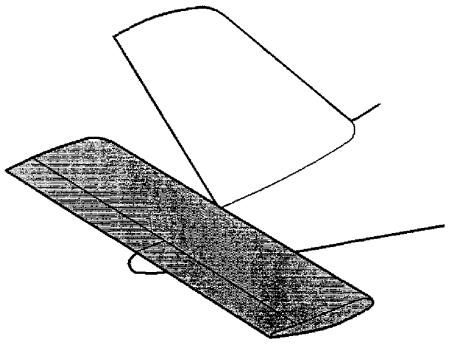
CAUTION : DO NOT LUBRICATE TAB HINGE PINS COATED WITH TEFLON FILM.

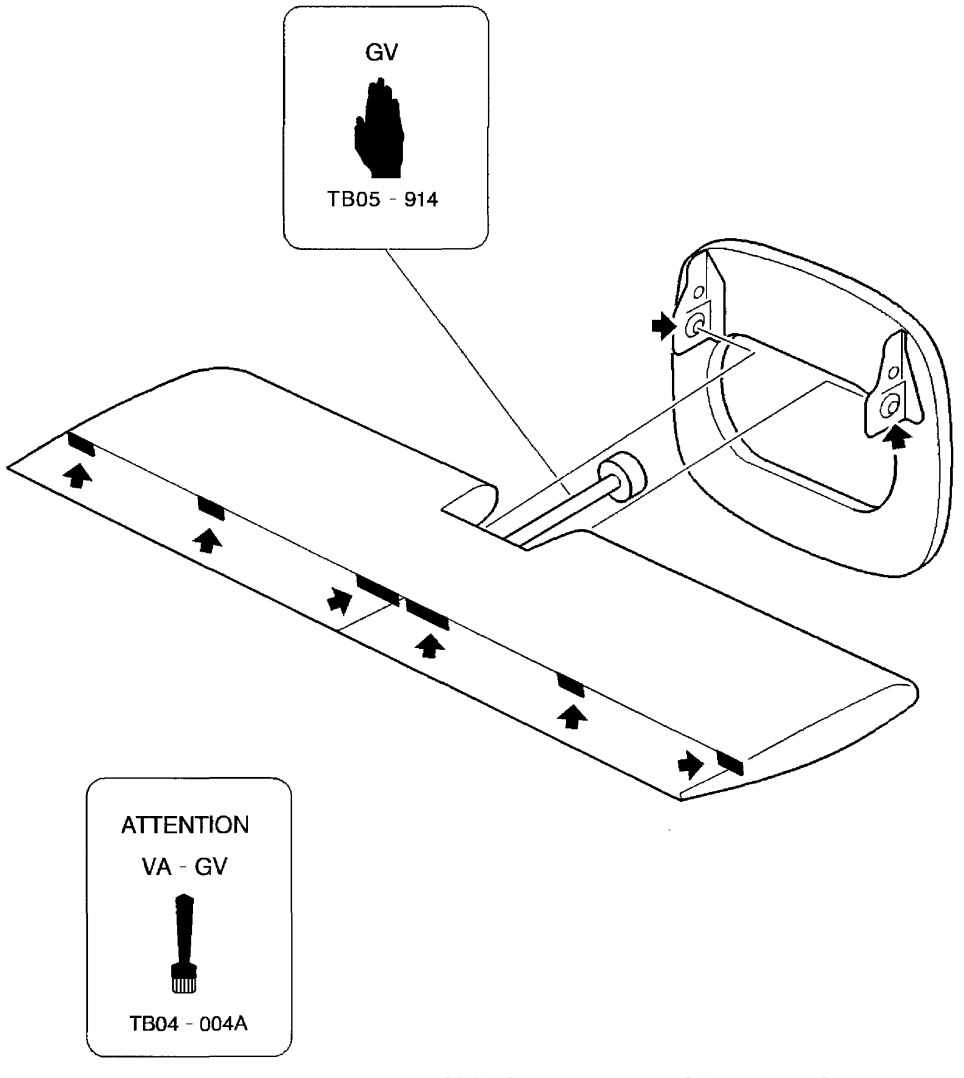
- elevator tab hinges.

6) Remove excess grease with a clean lintfree cloth.
7) Coat the interior of the balance weight tube with siccative oil (TB 05-914) - refer to 55-20-01.
8) Make sure all the tools and materials are removed and the work area is clean and free from debris.
9) Install the elevator - refer to 55-20-01.
10) Install tail cone 222 - refer to 53-20-04.



Area 300 lubrication - Rudder
Figure 201





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POINT DE LUBRIFICATION
LUBRICATION POINT

CAUTION : DO NOT LUBRICATE TAB HINGE PINS COATED WITH TEFLON FILM.

Area 300 lubrication - Elevator
Figure 202

AREAS 500 / 600 LUBRICATION

MAINTENANCE PRACTICES

1. AREAS 500 / 600 LUBRICATION

NOTE : This procedure is applicable to areas 500 and 600.

A. Tools and consumable materials

- Grease (TB 04-004A)
- Grease (TB 06-900)
- Clean lintfree cloths
- Brush
- Cleaning agent (TB 11-003)

B. Lubrication of wings / fuselage attachments (Figure 201)

1) Remove cowling under hull 218 - refer to 06-30-00.
2) Using a brush soaked with cleaning agent (TB 11-003), clean :
   - front attachment,
   - main attachment.
3) Remove excess cleaning agent with a clean lintfree cloth.
4) Using a brush and grease (TB 04-004A), lubricate :
   - front attachment,
   - main attachment.
5) Remove excess grease with a clean lintfree cloth.
6) Make sure all the tools and materials are removed and the work area is clean and free from debris.
7) Install cowling under hull 218 - refer to 06-30-00.

C. Lubrication of flight controls (Figures 202, 203 and 203A)

1) Remove the cowling under hull 218 and inspection doors 512, 612, 516 and 616 - refer to 06-30-00.

CAUTION : MAKE SURE THE FLAP AREA IS CLEAR.

2) Extend the flaps.
3) Open main switch-breaker.
4) Install the warning sign prohibiting main switch-breaker operation.

WARNING

DO NOT OPERATE
MAINTENANCE WORK IN PROGRESS

5) Using a brush soaked with cleaning agent (TB 11-003), clean :
   - aileron and flap control rod ends and hinges,
   - control lever ends.
6) Remove excess cleaning agent with a clean lintfree cloth.
7) Using a brush and grease (TB 04-004A), lubricate :
   - aileron and flap control rod ends and hinges,
   - control lever ends.
8) Remove excess grease with a clean lintfree cloth.

AVIAC flap actuator

9) Using a brush and grease (TB 04-004A), lubricate the flap actuator.

LPMI flap actuator

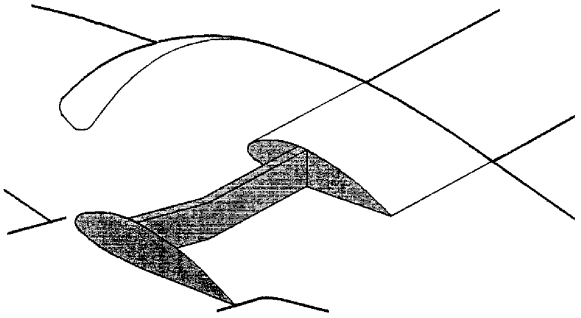
9) Using a brush and grease (TB 06-900), lubricate the flap actuator.

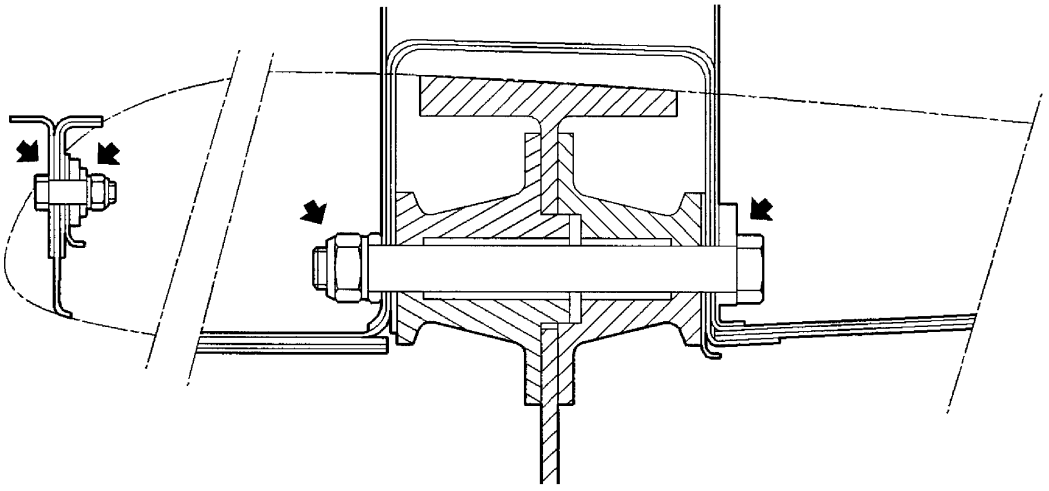
All

10) Make sure all the tools and materials are removed and the work area is clean and free from debris.
11) Install cowling under hull 218 and inspection doors 512, 612, 516 and 616 - refer to 06-30-00.
12) Remove the warning sign prohibiting main switch-breaker operation.
13) Close main switch-breaker.

CAUTION : MAKE SURE THE FLAP AREA IS CLEAR.

14) Retract flaps.





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TB04 - 004A

POINT DE LUBRIFICATION
LUBRICATION POINT

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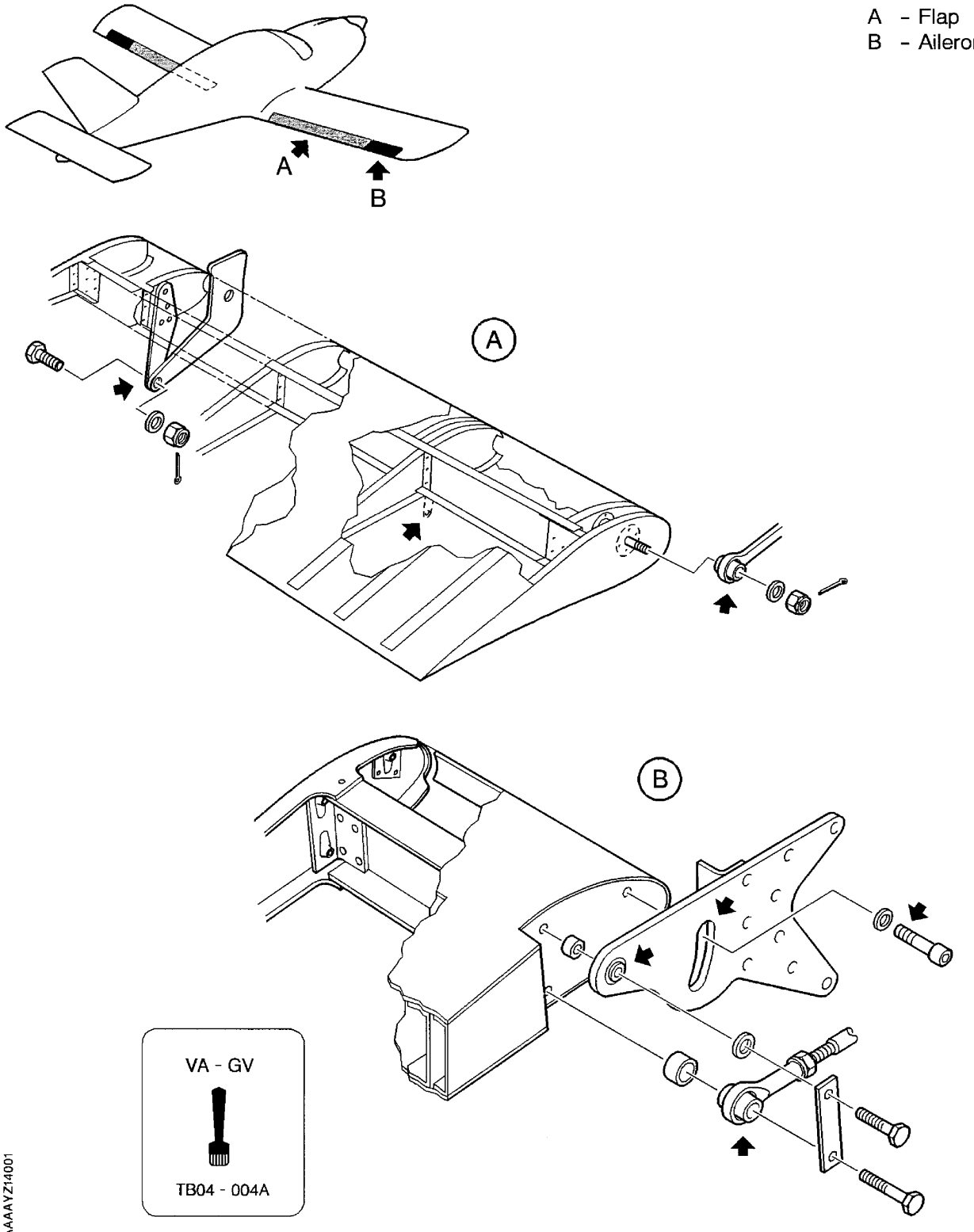
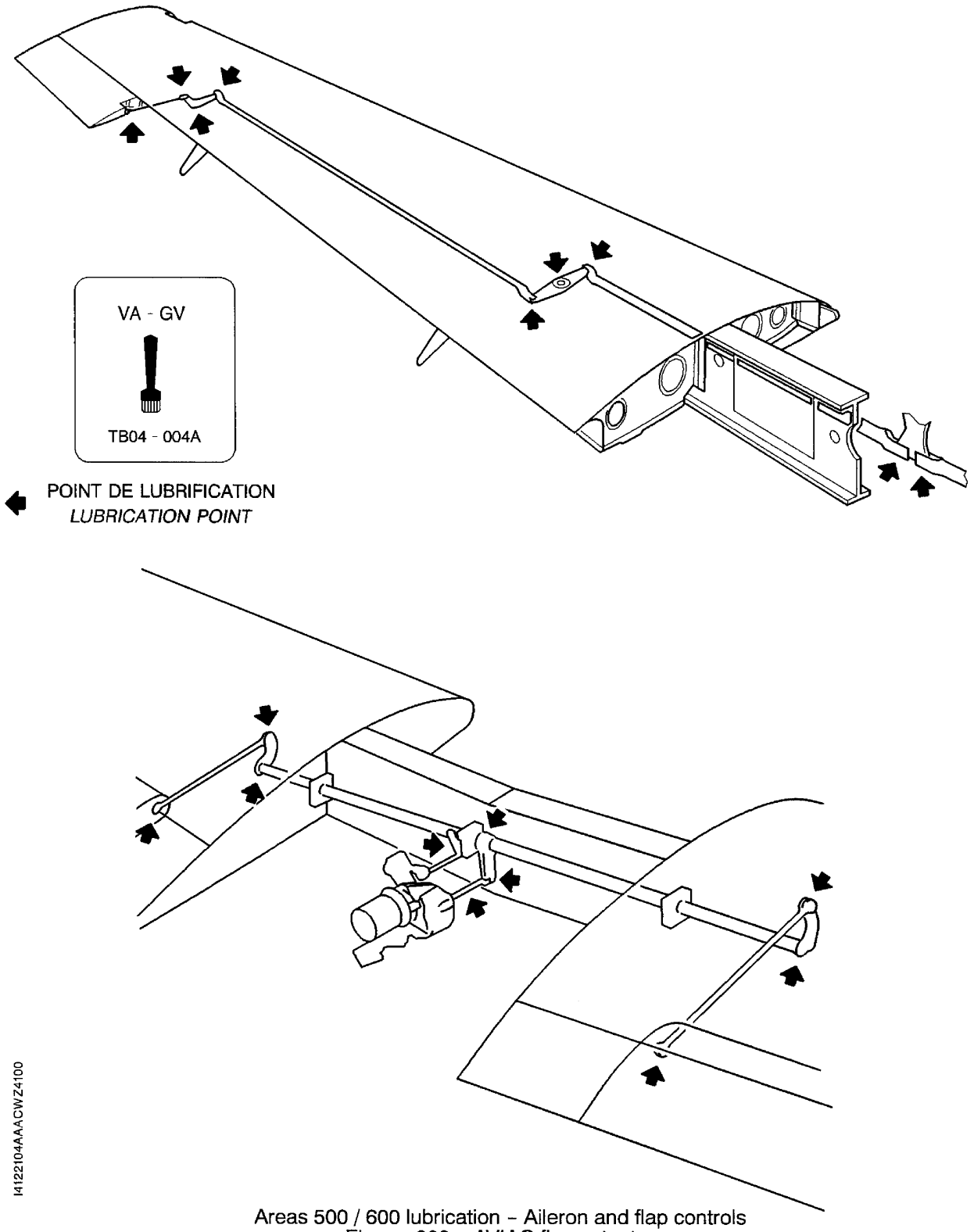
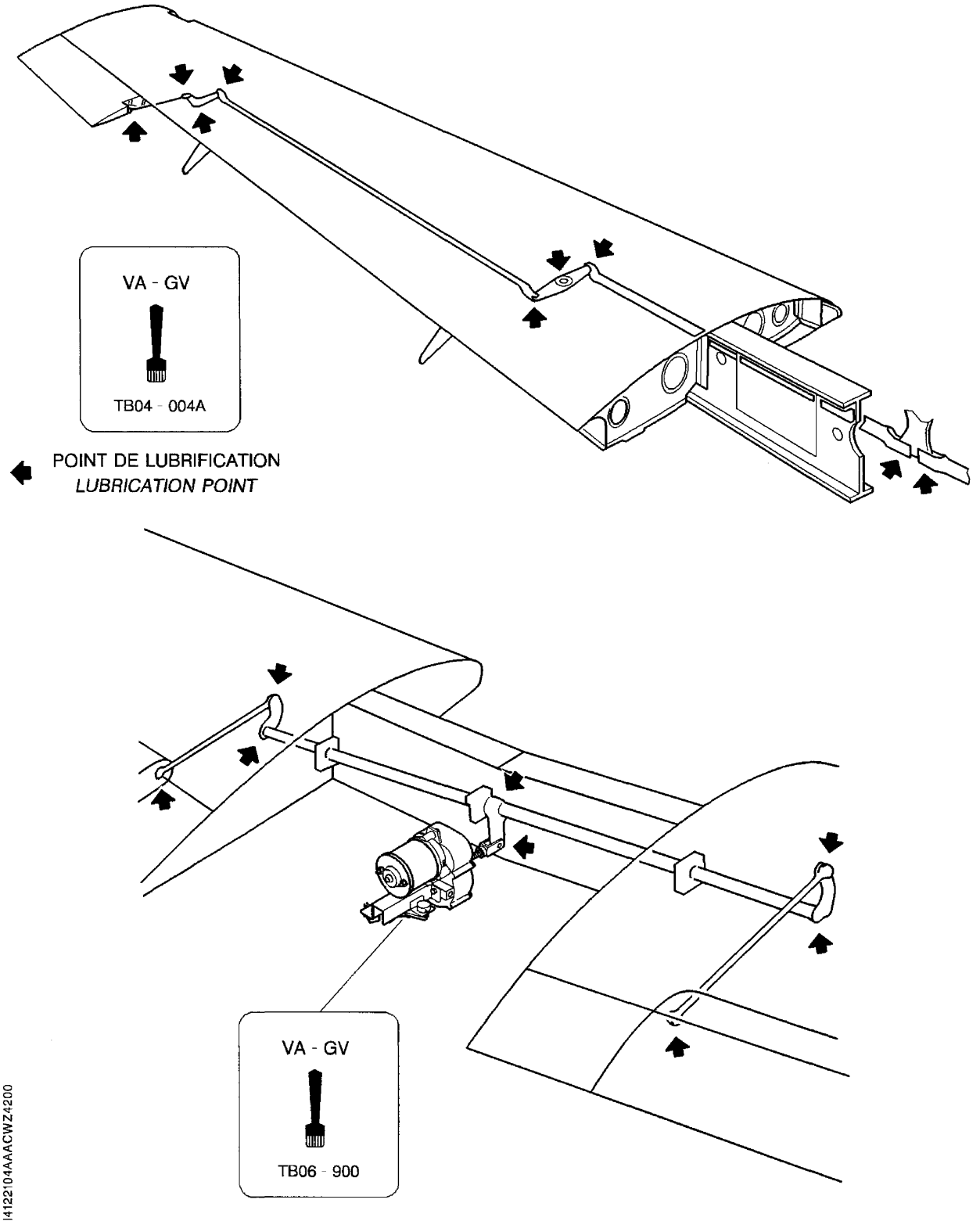
Areas 500 / 600 lubrication - Wing / fuselage attachments
Figure 201



Areas 500 / 600 lubrication - Flaps and ailerons
Figure 202



Areas 500 / 600 lubrication - Aileron and flap controls
Figure 203 - AVIAC flap actuator



Areas 500 / 600 lubrication - Aileron and flap controls
Figure 203A - LPMI flap actuator

AREA 700 LUBRICATION

MAINTENANCE PRACTICES

1. AREA 700 LUBRICATION

A. Tools and consumable materials

- Cleaning agent (TB 11-002)
- Grease (TB 04-004A)
- Oil (TB 03-900)
- Clean lintfree cloths
- Drip pan
- Brush
- Oil can
- Grease gun

B. Lubrication of nose landing gear (Figures 201 and 202)

1) Remove the engine cowlings - refer to 71-10-01.
2) Jack up the aircraft - refer to 07-10-00.
3) Remove the nose wheel - refer to 32-41-02.
4) Using a brush soaked with cleaning agent (TB 11-002), clean :
   - nose wheel bearings,
   - landing gear leg axle,
   - rod ends and hinges of landing gear and landing gear steering system.
5) Remove excess cleaning agent with a clean lintfree cloth.
6) Using a grease gun filled with grease (TB 04-004A), lubricate the three scissors grease fittings.
7) Remove excess grease with a clean lintfree cloth.
8) Visually check the wheel bearing condition, lubricate them with grease (TB 04-004A).
9) Remove excess grease with a clean lintfree cloth.
10) Using a brush and grease (TB 04-004A), lubricate the rod ends and hinges of landing gear and landing gear steering system.
11) Remove excess grease with a clean lintfree cloth.
12) Using an oil can filled with oil (TB 03-900), lubricate :
    - wheel centering device roller,
    - landing gear steering shaft,
    - wheel centering device shaft.
13) Make sure all the tools and materials are removed and the work area is clean and free from debris.

14) Install the nose wheel - refer to 32-41-02.

15) Lower the aircraft to ground and remove the jacks - refer to 07-10-00.

16) Make sure all the tools and materials are removed and the work area is clean and free from debris.

17) Install the engine cowlings - refer to 71-10-01.

C. Lubrication of main landing gear (Figures 203 and 203A)

1) Jack up the aircraft - refer to 07-10-00.

2) Remove the main landing gear wheels - refer to 32-41-01.

3) Install a drip pan under the landing gear leg.

4) Using a brush soaked with cleaning agent (TB 11-002), clean :

   - wheel bearings,
   - landing gear leg axle.

5) Remove excess cleaning agent with a clean lintfree cloth.

Telescopic leg main landing gear

6) Using a grease gun filled with grease (TB 04-004A), lubricate the three scissors grease fittings.

7) Remove excess grease with a clean lintfree cloth.

Trailing arm main landing gear

6) Using a grease gun filled with grease (TB 04-004A), lubricate the hinge arm grease fitting.

7) Remove excess grease with a clean lintfree cloth.

All

8) Visually check the wheel bearing condition and lubricate them with grease (TB 04-004A).

9) Remove excess grease with a clean lintfree cloth.

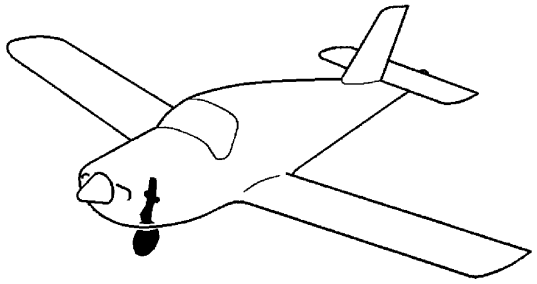
10) Using a brush and grease (TB 04-004A), lubricate :

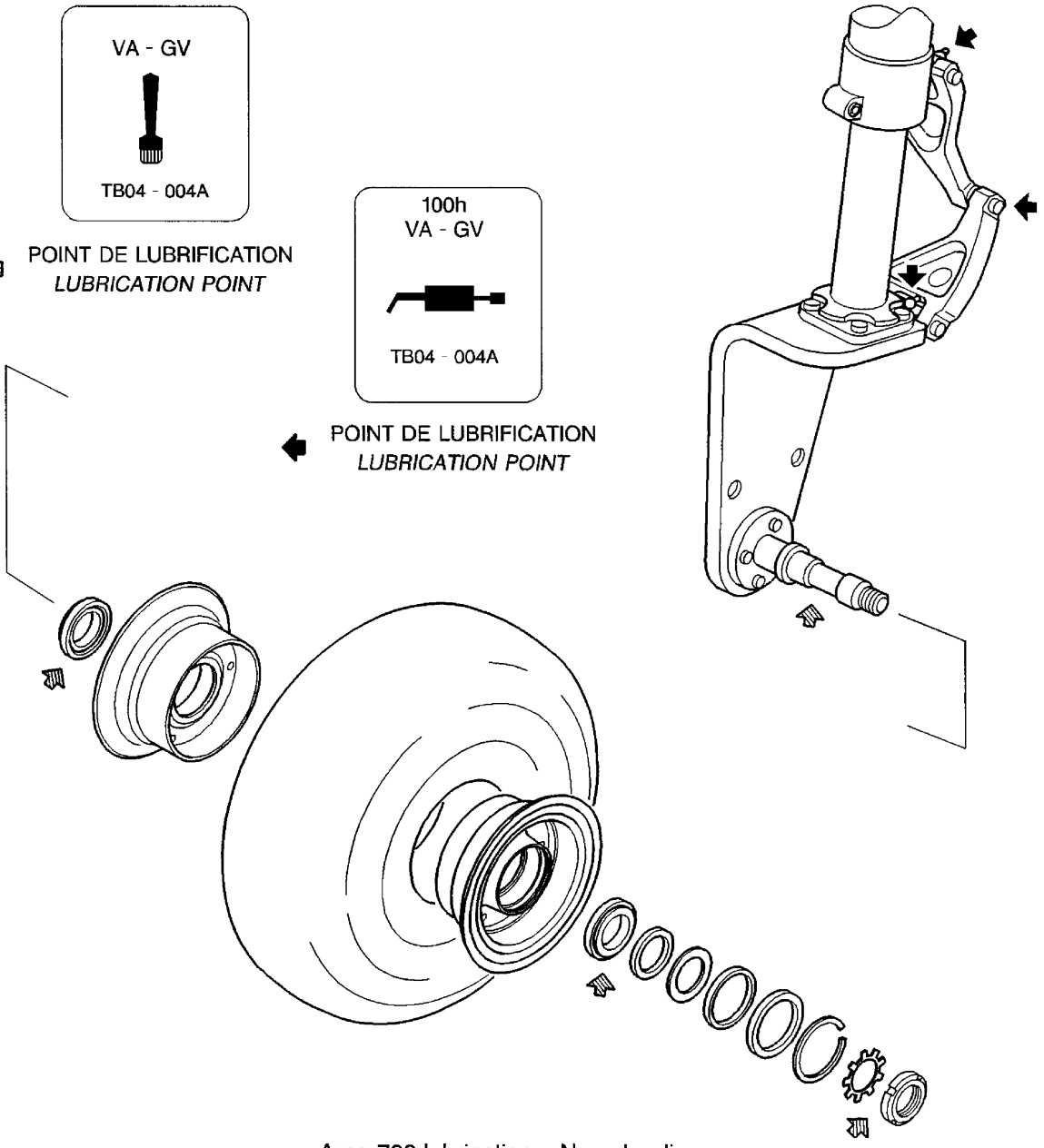
   - landing gear attachment on wings,
   - landing gear leg axle.

11) Install the main landing gear wheels - refer to 32-41-01.

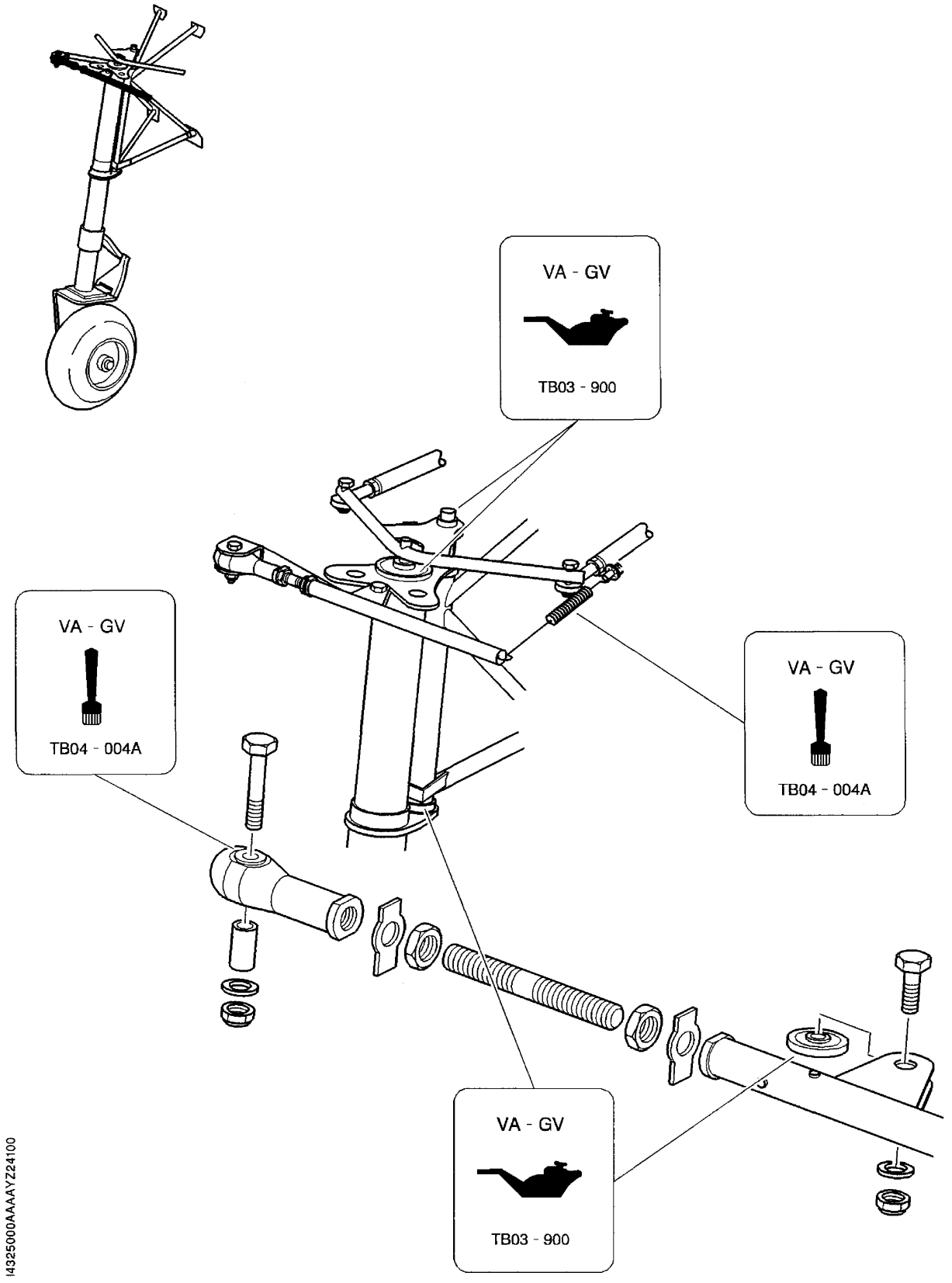
12) Lower the aircraft to ground and remove the jacks - refer to 07-10-00.

13) Make sure all the tools and materials are removed and the work area is clean and free from debris.

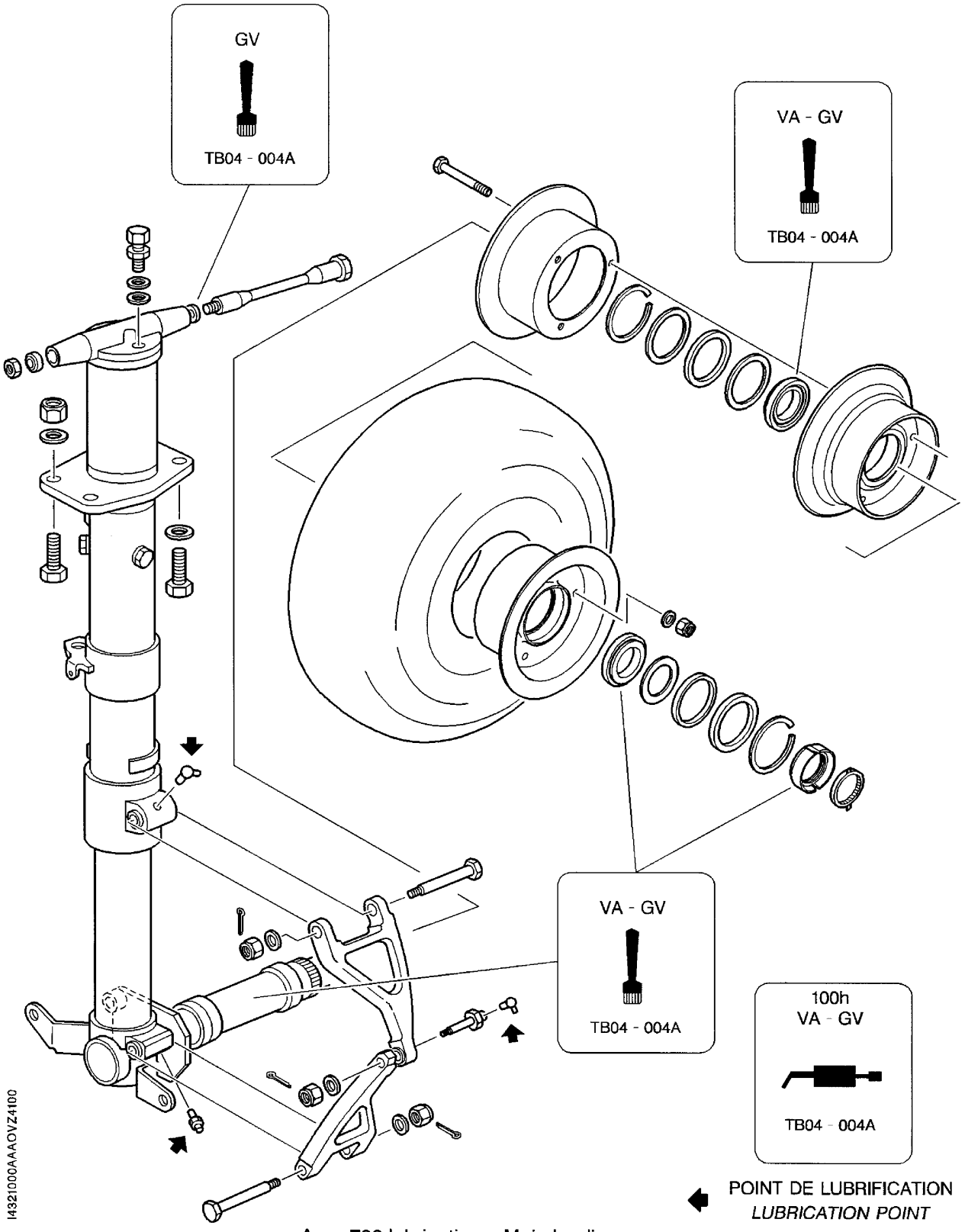




Area 700 lubrication - Nose landing gear
Figure 201



Area 700 lubrication - Nose landing gear wheel centering
Figure 202



Area 700 lubrication - Main landing gear
Figure 203 - Telescopic leg main landing gear

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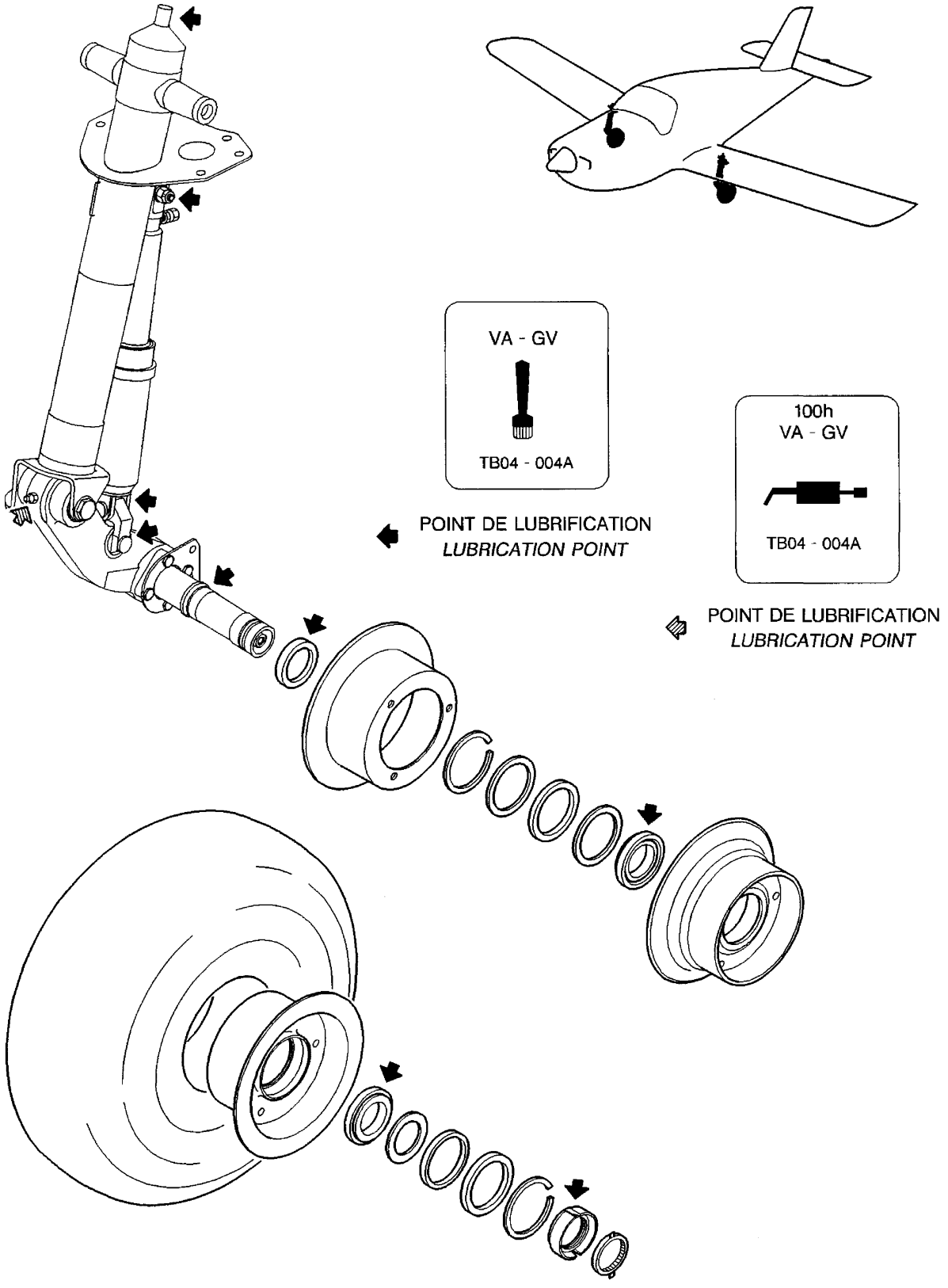

Area 700 lubrication - Main landing gear
Figure 203A - Trailing arm main landing gear

CLEANING

DESCRIPTION AND OPERATION

1. GENERAL

This section is designed to assist the operator and give recommendations on the different types of cleaning products and methods of the aircraft.

The cleaning operations are :

- exterior cleaning - refer to 12-22-01,
- interior cleaning - refer to 12-22-02,
- power plant compartment cleaning - refer to 12-22-03,
- windows cleaning - refer to 12-22-04.

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EXTERIOR CLEANING

SERVICING

1. EXTERIOR CLEANING

A. Tools and consumable materials

- Soft-bristle brush
- Chamois leather
- Cleaning agent (TB 11-904)
- High pressure cleaner adjusted to 60 bars maximum with spraying nozzle
- Low pressure tap water
- Container
- Protective clothes (goggles, gloves, ...)
- Waterproof covers for wheels
- Blanking cap for pitot tube
- Blanking caps for static ports

B. Cleaning procedure

1) Make sure water outlets under wings and fuselage are not clogged.
2) Put blanking caps and blank off air intakes.
3) Cover wheels with waterproof covers.
4) Close access doors and baggage compartment door.
5) In a container filled with clean water, dilute one cleaning agent (TB 11-904) volume for 10 water volumes.

   NOTE : If the pollution is reasonable, dilute one cleaning agent volume into 3 to 9 water volumes. For heavy pollution like exhaust trails, dilute up to one cleaning agent volume into 3 water volumes.

6) Spray the detergent solution on aircraft external surfaces, except on landing gears, windshield and side window panels ; if necessary, use a soft-bristle brush.
7) Keep the detergent solution on the area to be cleaned for 5 to 10 minutes, then abundantly rinse with low-pressure tap water.

   NOTE : Do not allow the solution to dry before rinsing, as cleaning may be less effective.

8) Dry with a chamois leather.
9) Remove blanking caps except those used for parking.
10) Remove waterproof covers.
11) Make sure all the tools and materials are removed and the work area is clean and free from debris.
12) Lubricate flight controls - refer to 12-21-04.
13) If it is necessary to remove ice deposits, use isopropyl alcohol (TB 10-002).

2. CLEANING OF LANDING GEARS

A. Tools and consumable materials

- Soft-bristle brush
- Cleaning agent (TB 11-905)
- Lintfree clean cloths
- Protective clothes (goggles, gloves, ...)
- Low pressure tap water
- Waterproof covers for wheels

B. Cleaning procedure

1) Cover wheels with waterproof covers.
2) Apply some cleaning agent (TB 11-905) with a soft-bristle brush to the areas to be cleaned, except on sliding tube scraper ring and hinge ball joints.
3) Keep the detergent solution on aircraft for 5 to 10 minutes, then abundantly rinse with low-pressure tap water.

   NOTE : Do not allow the solution to dry before rinsing, as cleaning may be less effective.

4) Dry with lintfree clean cloths.
5) Clean sliding tube scraper ring and hinge ball joints with a lintfree clean cloth without any cleaning agent.
6) Remove waterproof covers.
7) If necessary, clean tires but with water only.
8) Lubricate the landing gear - refer to 12-21-05.

   NOTE : For aircraft operating in salt laden environment, protect landing gears and landing gear wells - refer to 20-00-04.

INTERIOR CLEANING

SERVICING

1. INTERIOR CLEANING

A. Tools and consumable materials

- Vacuum cleaner
- Clean cotton cloth
- Mild detergent or soap
- Dry cleaning product
- Wet shampoo for carpets
- Solvent for fabrics

B. Dry cleaning of carpet, carpet mats, upholstery and seats

1) Clean the carpet, seats, carpet mats and upholstery with a vacuum cleaner.
2) Apply the dry cleaning product in accordance with the manufacturer instructions.
3) Rub the cleaning product into the soiled area.
4) Remove the product with the vacuum cleaner.

C. Wet shampoo

CAUTION : THE USE OF A MECHANICAL SHAMPOO APPLICATION DEVICE MAY WRINKLE THE CARPET.

1) Whenever possible, use the spot-cleaning method - refer to Paragraph D.
2) Clean the carpet, carpet mats and upholstery with a vacuum cleaner.
3) Place the required amount of shampoo in a bail and direct a jet of water into the shampoo to produce abundant foam.
4) Apply the foam uniformly over the surface to be cleaned.
5) Wipe off the foam with a clean cotton cloth. As there is very little moisture in the foam, wetting of the fabric or retention of moisture will not occur.
6) If tar, asphalt or chewing gum is present, scrape off as much as possible and repeat steps 1) to 5).

D. Spot cleaning

CAUTION : DO NOT POUR SOLVENT DIRECTLY ON THE CARPET. TRY SPOT CLEANING ON A NON-VISIBLE AREA.

NOTE : Whenever possible, spot-clean carpet in the aircraft rather than completely removing it for shampooing. For acrylic plastic cleaning - refer to 12-22-04.

1) Soak a clean cloth with solvent.
2) Hand-rub the stain with the solvent-soaked cloth following a circular pattern.
3) Clean instrument panel, plastic control knobs and control wheels with a damp cloth.
4) Remove oil or grease stains with a solvent-soaked cloth.

5) If the aircraft is equipped with leather seats, clean with a soft cloth or a sponge soaked with soft soapy water ; dry with a clean cloth.

6) If the aircraft is equipped with fabric seats, clean with a soft cloth or a sponge soaked with neutral soapy water ; dry with a clean cloth protected from sunbeams.

NOTE : When cleaning is over, brush fabric to have hair out.

E. Instructions to clean current stains

STAIN TYPE	PRODUCTS TO BE USED AND INSTRUCTIONS FOR USE
Spirits, liquor	Shampoo and impregnate with methylated alcohol.
Beer	Impregnate with lukewarm water (50°C max) mixed with methylated alcohol (3 %)
Coffee, tea, milk	Shampoo. If stains persist, impregnate with methylated alcohol or ammonia diluted to 10 %.
Sweets, chocolate	Impregnate with lukewarm water (50°C max) or with ammonia diluted to 5 %.
Paint	Oil paint : impregnate with ethyl alcohol and shampoo. Distemper : if the stain is fresh, impregnate with cold water. It is very difficult to remove old stains. Consult a specialist.
Make-up	Use ethyl alcohol and perchlorethylene, then shampoo. If stain persists, use ammonia diluted to 5 % or methylated alcohol.
Fruits	Impregnate with lukewarm water (50°C max), then shampoo.
Chewing gum	Impregnate with acetone or perchlorethylene.
Ink	Remove as much as possible with blotting paper and impregnate with methylated alcohol (30 %) mixed with water (70 %), then shampoo. Lemon juice gives also good results.
Jam, sirup, fruit juice	Impregnate with lukewarm water (50°C max). If stain persists, use ethyl alcohol or perchlorethylene.
Ball-point pen	Use perchlorethylene or methylated alcohol.
Wine, drinks	Use a mixture of 50 % water, 50 % vinegar, then shampoo.

POWER PLANT COMPARTMENT CLEANING

SERVICING

WARNING : PRIOR TO ANY OPERATION, ENSURE THAT THE KEY IS REMOVED FROM MAGNETO SELECTOR AND THAT "MAIN SWITCH" IS OFF.
PRIOR TO ANY OPERATION, MAKE SURE THE ENGINE, EXHAUST PIPE AND MANIFOLDS ARE COLD.

CAUTION : DO NOT USE GASOLINE OR OTHER HIGHLY FLAMMABLE PRODUCTS.

PERFORM ALL CLEANING OPERATIONS IN WELL VENTILATED AREAS AND ENSURE THAT ADEQUATE FIREFIGHTING AND SAFETY EQUIPMENT ARE AVAILABLE. DO NOT SMOKE OR USE AN OPEN FLAME SOURCE WITHIN 100 FEET FROM THE CLEANING AREA.

USE SAFETY GOGGLES, PROPER CLOTHES AND GLOVES.

WEAR A MASK TO AVOID INHALING HARMFUL VAPORS.

1. POWER PLANT COMPARTMENT CLEANING

A. Tools and consumable materials

- Cleaning agent (TB 11-002)
- Lintfree clean cloths
- Non metallic hard-bristle brush
- Filtered compressed air source
- Container
- Adhesive tape
- Blanking caps
- Compressed air gun with reservoir
- Waterproof wheel covers
- Protective covers

B. Procedure

1) Make sure the engine is cold.
2) Remove engine cowlings - refer to 71-10-01.
3) Protect aircraft and engine to avoid infiltration and splashing of cleaning agents.
4) Blank off all ducts and apertures with blanking caps and adhesive tape.
5) Protect nose wheel with waterproof cover.
6) Install a container under the engine.
7) Apply cleaning agent (TB 11-002) with a low pressure compressed air gun. If necessary, use also a non metallic hard-bristle brush or a paint brush.
8) Swab excess cleaning agent with lintfree clean cloths.

9) Dry engine compartment using a low pressure compressed air gun.

10) Clean internal side of removed cowlings as per operations 7), 8) and 9).

11) Remove the container installed under the engine.

12) Remove blanking caps, covers and aircraft protections.

13) Make sure all the tools and materials are removed and the work area is clean and free from debris.

14) Lubricate engine compartment - refer to 12-21-01.

15) Install engine cowlings - refer to 71-10-01.

WINDOWS CLEANING

SERVICING

1. CLEANING OF WINDSHIELD AND SIDE WINDOW PANELS

A. Tools and consumable materials

- Cleaning agents (TB 11-001), (TB 11-903) and (TB 11-910)
- Cheese cloth (TB 11-911)
- Polishing product (TB 05-902)
- Clean chamois leather
- Tap water
- Lintfree mild cloth

B. Procedure

CAUTION : DO NOT USE ANY OF THE FOLLOWING PRODUCTS ON, OR FOR CLEANING WINDOWS : METHANOL, METHYLATED ALCOHOL, GASOLINE, BENZENE, XYLENE, M.E.K., ACETONE, CARBON TETRACHLORIDE, LACQUER PAINT THINNERS, COMMERCIAL OR HOUSEHOLD WINDOW CLEANING SPRAYS ; IN CASE OF DOUBT CONCERNING A PRODUCT, DO NOT USE IT.

DURING CLEANING OPERATIONS, AVOID WEARING OBJECTS SUCH AS RINGS, WATCHES, BRACELETS AND EXERCISE CARE TO PREVENT BUCKLES, BUTTONS AND ANY HARD OBJECTS FROM TOUCHING THE WINDSHIELD AND SIDE WINDOW PANELS.

NEVER USE BUFFING MACHINES AS EXCESSIVE FORCES OR SPEEDS MIGHT PRODUCE ON ACRYLIC PLASTIC SURFACES DEFECTS.

NOTE : During parking, do not leave sun visors down against windshield. The reflected heat from these items causes a temperature increase which accelerates crazing.

1) If the aircraft has been exposed to sun, place it inside a hangar or a shaded area to allow it to cool down.
2) Abundantly sprinkle the surfaces with clean tap water. Rub with bare hands to feel and dislodge any dirt or abrasive materials.
3) Wash the surfaces with a solution of water and cleaning agent (TB 11-001). Only use bare hands to rub (a clean cloth or a natural sponge may be used to transfer the soapy solution onto the surface but exercise care not to scratch the surface).
4) Apply cleaning agent (TB 11-903) with a lintfree mild cloth. Wipe without rubbing with special absorbant paper or a lintfree mild cloth.
5) For soils that resist cleaning agent (TB 11-903) - refer to Table 301.

NOTE : Do not rub the plastic with a dry cloth as this generates static electricity and attracts dust.

NOTE : Do not use rain repellent products on acrylic plastic surfaces.

SOIL	CLEANING METHOD
Dust	If possible, blow the surface with compressed air. Rinse with tap water. Wipe with cheese cloth.
Dirt	Remove as much dirt as possible with a cheese cloth. Wash the surface with mild soap. Rinse with water and dry with a cheese cloth.
Greasy or tacky stains	Apply a small quantity of cleaning agent (TB 11-910) on the stain.
Squashed bugs	Antistatic products for plastics are efficient. Apply with soaked cheese cloth.
Paint	If possible, remove it when still wet using cleaning agent (TB 11-910) or polishing product (TB 05-902). If dry, remove most of it with a sharpened piece of tender wood. If the surface is damaged, repair. If not, apply polishing product (TB 05-902).
Sealant	Allow the sealant to dry. Remove it with a sharpened piece of tender wood. Apply polishing product (TB 05-902).

Cleaning of windshield and side window panels
Table 301