12 Servicing

CHAPTER 12

LIST OF PAGE EFFECTIVITY

CHAPTER SECTION SUBJECT	PAGE	DATE
12-EFFECTIVITY	1	Jan 9/86
12-CONTENTS	1	Nov 30/83
12-00-00	1	Oct 19/77
12-10-00	201	Jan 9/86
	202	Jan 9/86
	202A	Jan 9/86
	203	Nov 2/73
	204	Nov 2/73
	205	Nov 2/73
12-20-00	201	May 12/78
	202	May 12/78
	202A	May 12/78
	203	Apr 18/80
	204	Nov 2/73
	205	Nov 30/83
	206	Nov 30/83
	207	Nov 30/83
	208	Nov 30/83
	209	Nov 30/83
	210	Nov 30/83
	211	Nov 30/83
	212	Nov 30/83
	212A	Nov 30/83
	212B	Nov 30/83
	213	Feb 22/80
	214	May 30/75
	215	Nov 2/73
	216	May 30/75
	217	May 30/75
	218	May 30/75
	219	May 30/75
	220	May 30/75
	221	Nov 2/73
	222	Nov 2/73
	223	Nov 2/73
	224	Oct 27/75
	225	Oct 27/75
	226	Nov 2/73
	227	Nov 30/83
	228	Oct 27/75

"END"

CHAPTER 12 - SERVICING

TABLE OF CONTENTS

"END"

GENERAL - DESCRIPTION AND OPERATION

The information in this chapter pertains to general servicing procedures and maintenance practices used when servicing the various systems of the airplane. Detailed maintenance information pertaining to these systems will be found in the applicable following chapters. For overhaul procedures for components of a system refer to the BEECHCRAFT Duke 60 Beech Manufactured Components Maintenance Manual, P/N 60-590001-27. For electrical wiring diagrams refer to the BEECHCRAFT Duke 60 Wiring Diagram Manual, P/N 60-590001-29.

"END"

REPLENISHING - MAINTENANCE PRACTICES

FILLING THE FUEL CELLS

NOTE

Because the deice boots are made of soft flexible material, care must be exercised against dragging gasoline hoses over them or resting ladder or platforms against the surface of the boots.

The fuel system installation consists of an inboard main fuel cell and an outboard cell in the leading edge, a nacelle tank, a wing panel fuel cell in each wing and a wet wing tip tank (optional on serials P-348, P-365 and after). All of the fuel cells in each wing and wing tip are interconnected in order to make all of the usable fuel in each wing available to its engine when the fuel selector valve is turned ON. The interconnecting fuel cells are serviced either through the single filler on each wing or the filler in each of the optional wet wing tips, providing single point filling for each side. The fuel sight gage (P-402 and after) located outboard of each nacelle may be used for partial filling of the fuel system, or for balancing the fuel load, when the fuel load is within the range of this gage (40 to 60 gallons for each wing). The combined capacity of the standard and optional system is shown below:

SERIALS	CAPACITY IN GALLONS	USABLE IN GALLONS
P-3 thru P-195 inboard leading edge fuel cells unbaffled	207	192
P-3 and after with inboard leading edge baffled fuel cells	207	202
Optional fuel system P-348, P-365 and after	237	232

When filling the airplane fuel cells, always observe the following:

a. Service the fuel cells with grade 100 (blue) or 100LL (green) fuel or if not available, use 115/145 octane fuel (1, Chart 202, 12-20-00).

b. Make sure the airplane is statically grounded to the servicing unit.

c. Do not fill fuel cells near open flame or within 100 feet of any open energized electrical equipment capable of producing sparks.

d. Do not insert the fuel nozzle more than 3 inches into the filler neck; to do so may cause damage to the rubber fuel cell.

DRAINING THE FUEL SYSTEM

To ensure that all fuel is removed from the system, the fuel should be drained through the boost pumps. To expedite the defueling operation, the boost pumps may be used to pump the fuel out of the system. The following steps must be accomplished before energizing the pumps:

a. Apply external power to the airplane electrical system.

b. Place the fuel selector valve in the ON position and the mixture lever in the IDLE CUT-OFF.

c. Remove the filler caps to vent the system.

d. Disconnect the fuel line at the firewall and attach a drain hose. Provide a suitable container for the fuel.

e. Energize the boost pumps.

f. When fuel is no longer pumped from the airplane, open the sump drains to complete the defueling operation.

ENGINE FUEL FILTERS AND SCREENS

Most fuel injection system malfunctions can be attributed to contaminated fuel. Inspecting and cleaning the fuel strainers should be considered to be of the utmost importance as a regular part of preventive maintenance.

Normally the fuel strainers should be inspected and cleaned every 100 hours. However, the strainers should be inspected and cleaned at more frequent intervals depending on service conditions, fuel handling equipment, and when operating in localitites where there is an excessive amount of sand or dust.

Open each of the seven snap-type fuel drains daily to allow condensed moisture to drain from the system. On the optional system (P-348, P-365 and after) open the fuel drain in the wet wing tip using the special tool P/N 101-590020-1.

NOTE

If the cells are to remain unfilled for 10 days or more, apply a thin coating of light engine oil to the inside surface of the cell to prevent deterioration and cracking.

OIL SYSTEM

The engines are equipped with a wet sump, pressure type oil system. Each engine sump has a capacity of 13 quarts. The oil system may be checked through access doors in the

engine cowling. A calibrated dip stick attached to the filler cap indicates the oil level. Due to the canted position of the engines, the dip sticks are calibrated for either right or left engines and are not interchangeable. The oil should be changed every 75 to 100 hours under normal operating conditions and the oil filter changed every 50 hours.

CAUTION

Any Time the oil system has been contaminated by metal particles, the oil cooler must be replaced and the oil system flushed to prevent engine damage.

All TIO-541 series engines are limited to using only MIL-L-22851 ashless dispersant multi-grade oil (2, Chart 202, 12-20-00). Oil equivalent to SAE 50 or SAE 60 above 60°F; below 30°F SAE 40 is recommended. However, newly overhauled engines of this series may be run-in on the test stand with single viscosity, grade SAE 50 oil conforming with MIL-L-6082, (6, Chart 202, 12-20-00).

The oil drain is accessible through the cowl flap opening. The engines should be warmed to operating temperature to assure complete drainage.

NOTE

The engine oil must be of the proper viscosity and meet the requirements of the current Avco Lycoming specification 301 and Avco Lycoming Service Instruction 1014K or subsequent.

The determining factor for choosing the correct grade of oil is the oil inlet temperature observed furing flight; however, inlet temperatures consistently near the maximum allowable indicate a heavier oil is needed. Lycoming recommends use of the lightest weight oil that will give adequate cooling.

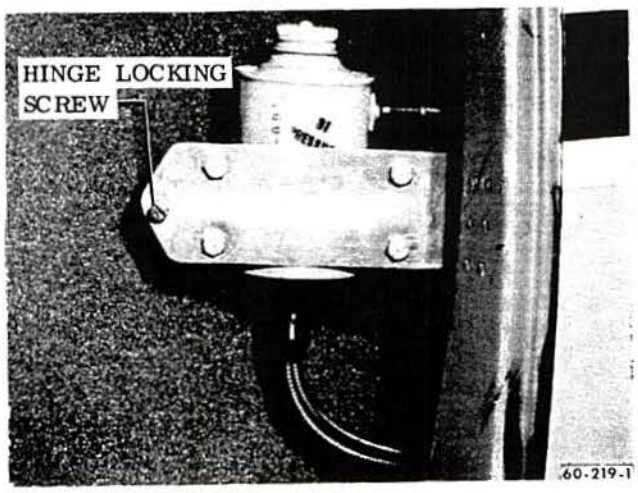
CHANGING THE OIL FILTER

The oil filter should be replaced every 50 hours. Replace the filter as follows.

a. Disconnect the fuel line to the inlet side of the engine-driven fuel pump. Cap the fuel line (P-3 through P-20) and push the line down to allow clearance for oil filter removal.

b. Cut the safety wire and remove the filter housing.

c. After making sure all traces of gasket material and cement are removed from the oil filter adapter recess, install



Brake Fluid Reservoir
Figure 201

the new aluminum ring and O-ring seal which replace the existing rubber gasket. (Refer to Lycoming Service Bulletin No. 337.)

d. Torque the retainer bolt to 30-35 foot-pounds and safety.

e. Remove cap (P-3 through P-20) and reinstall the fuel line.

BRAKE SYSTEM
(Figure 201)

Brake system servicing is limited primarily to maintaining the hydraulic fluid level in the reservoir. The brake fluid reservoir, accessible through the forward baggage compartment door, is hinged on the aft frame of the door.

Loosening the screw securing the reservoir to the airplane structure allows the reservoir to swing out for easy servicing. Fill the reservoir with MIL-H-5606 hydraulic fluid (13, Chart 202, 12-20-00) to the full mark on the dip stick. Maintain fluid level between "full" and "add" marks. Do not overfill. For detailed information relating to the proper inspection and repair procedures for the brake assembly, refer to the Beech Manufactured Component Maintenance Manual, P/N 60-590001-27.

AIR CONDITIONING SYSTEM

Servicing the air conditioning system consits of periodically checking the refrigerant level, checking compressor oil level, and changing the system air filter. Recharge the system as outlined under CHARGING THE AIR CONDITIONING SYSTEM whenever the refrigerant level is low, air has entered the system, or components carrying refrigerant are replaced. Refrigerant leaks may be detected by inspection with a flameless leak detector.

CHARGING THE AIR CONDITIONING SYSTEM

When working on a refrigerative air cooling system, observe the following special servicing precautions:

a. Remember, this is a high pressure system. When disconnecting a line, loosen the fittings just enough to bleed off pressure slowly, then disconnect the fitting.

b. Whenever a line is disconnected, purge the entire system with a vacuum pump operating at the 125 micron level.

c. Use only R-12 refrigerant (17, Chart 202, 12-20-00) in this system. Other refrigerants, particularly those containing methyl chloride, will cause rapid deterioration of the aluminum compressor components.

d. When servicing the system with refrigerant, avoid smoking or working near an open flame. Refrigerant passing over an open flame will produce a highly toxic phosgene gas.

Hook the service unit to the connections on the compressor. The abbreviation DISCH or the letter D on the compressor cylinder head designates the discharge service valve. The word SUCTION or the letter S on the compressor cylinder designates the suction service valve. When charging a completely purged system, charge with 5 pounds of refrigerant. After charging, the sight glass should be observed for bubbles or a milky appearance caused by an insufficient refrigerant level.

If it is necessary to add refrigerant to a partially charged system, add refrigerant slowly until a satisfactory condition is observed through the sight glass, then add an additional ¼ to ½ pound of refrigerant.

NOTE

After the system has been charged, the compressor oil level should be checked as outlined under CHECKING COMPRESSOR OIL LEVEL.

CHECKING COMPRESSOR OIL LEVEL (Figure 202)

The compressor oil level should be checked by a qualified air conditioner man at the following times:

a. After the air conditioner has operated for the first time.
b. At the beginning of each season's operation.
c. When oil is emitted from the compressor during servicing operation.
d. After the air conditioning system has been recharged.
e. If a component is replaced.

The compressor is charged with Texaco Capella E or Suniso No. 5 oil (18, Chart 202, 12-20-00). Only these or equivalent oils should be used when adding oil. To check the compressor oil level, use the following procedure:

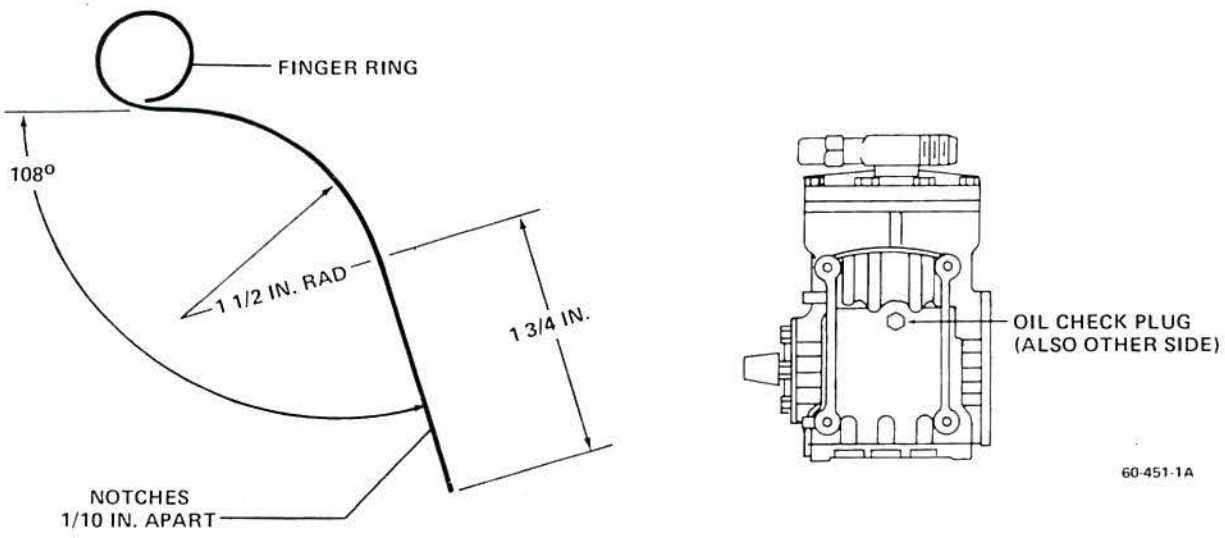
a. Operate the air conditioner for approximately 15 minutes in which the last 5 minutes should be at low engine rpm (1,000 to 1,100). This allows the oil to accumulate in the compressor for an accurate oil level reading.
b. Attach service gages to compressor service valve ports.
c. With air conditioner operating, slowly close the suction service valve until the suction pressure gage reads zero or slightly below.
d. Stop the air conditioner and quickly close the suction service valve when the suction gage reads a little above zero.
e. Close the discharge service valve.
f. With both service valves closed, the suction pressure will slowly rise to about five pounds gage pressure.
g. The remaining pressure is relieved by unscrewing the plug for 5 full turns and bleed to zero pressure.
h. Remove the oil plug and O-ring.
i. To place the crank throw in the best position for dip stick insertion, point the keyway on the compressor shaft up toward the cylinder head.
j. Insert an oil dipstick until the end contacts the bottom of the crankcase. Remove and measure the oil depth.

NOTE

A compressor oil level depth of 1.5 to 1.8 inches is satisfactory. If the oil level is below 1.5 inches, add oil per Chart 202, then remeasure.

CHART 202
CHECKING COMPRESSOR OIL LEVEL

Dip Stick Depth (In.)	Oil to be Added (Oz.)
.6	8.0
.8	6.5
1.0	5.0
1.2	3.0
1.4	1.5



Dipstick and Compressor Oil Check Plug
Figure 202

Oil should be removed when depths greater than 1.8 inch are observed.

Compressor oil level reduces .4 to .7 inches during operation at maximum rpm and also drops slightly with reduced evaporator loads. Approximately 7 ounces of oil is required to initially wet the system and circulate with the refrigerant. When an evaporator or condenser coil is changed, add approximately 2 ounces of oil on installation, then check and adjust the oil level as recommended. A locally manufactured dip stick (see Figure 202) may be fabricated from 1/8 inch diameter rod; a nonferrous material, which is not subject to corrosion, is preferred. Notches cut 1/10 inch apart will aid in visually detecting oil depth.

k. Install the oil plug and O-ring and check for leaks using a flameless leak detector.

l. Unseat both the suction service valve and the discharge service valve and turn to the full aft position.

m. Remove the service gages and install the caps to the service ports.

n. The aircraft may now be returned to service.

EVAPORATOR AIR FILTER REPLACEMENT

The evaporator air filter should normally be replaced annually. Actual replacement may be required more often due to extremely dusty operating conditions.

a. Remove the necessary equipment in the nose compartment to gain access to the floorboards forward of the pressure bulkhead.

b. Remove the screws securing the top of the evaporator filter access plate.

c. Cut the cord securing the filter to the evaporator plumbing.

d. Remove the old filter.

e. When installing the new filter, be sure the reinforced backing of the filter is placed against the evaporator coil.

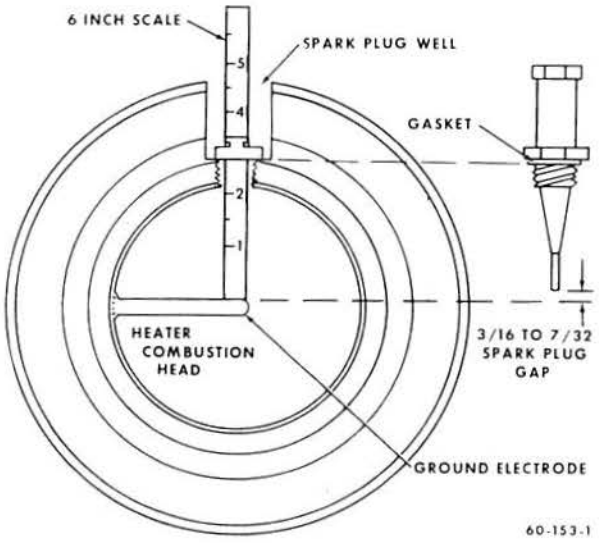
COMPRESSOR BELT TENSION ADJUSTMENT

After 36 to 48 hours operating time, a new belt will stretch to its normal operating length. The belt tension should be checked at this time and adjusted (by moving the compressor up and down in its slotted mounts) so that a belt tension gage, placed at a point midway between the longest span will register a tension of 100 to 105 pounds. After adjusting tension on a new belt, be sure the belt has ample clearance on all sides.

HEATING SYSTEM

HEATER SPARK PLUG
(Figure 203)

If the spark plug appears to be in good condition, except for a mild coating of oxide on the procelain and electrodes, it may be cleaned and reused. Cleaning is accomplished on a conventional aircraft type spark plug cleaner, except that it will be necessary to use two or more adapters in order to raise the long extension of the plug far enough out of the cleaner nozzle opening to provide an effective job. Plug the ceramic insert cavity at the terminal end of the plug with a piece of paper or cloth to keep out any of the cleaning sand. Wipe this cavity out thoroughly with a cloth, wet with carbon tetrachloride. If, after cleaning, the spark plug porcelain is white, and the electrode is not eroded, the spark plug gap may be set as follows: Insert a six inch scale with a sliding clip into the spark plug well until it touches the ground electrode welded inside the combustion head. Withdraw the scale and note the dimension between the sliding clip and the end of the scale. Place the scale against the bottom of the spark plug gasket and determine the length of the spark plug positive electrode. The difference between the two measurements is the spark plug gap. The gap should be 3/16 to 7/32 (.188 to .218) inches. If the plug gap must be adjusted, the ground electrode may be bent up or down by reaching through the spark plug hole with the appropriate shaped tool.



Heater Spark Plug Gap
Figure 203

NOTE

If the spark plug fails to clean up properly and/or if the electrode is badly eroded, it should be replaced.

If a new spark plug is being installed, be sure to measure the gap. Do not bend the positive electrode. Torque the spark plug to 28 foot-pounds.

NOTE

The spark plug can be checked visually for sparking prior to installing the plug as follows: Disconnect the wire from the terminal on the heater wiring side of the terminal strip to de-energize the fuel solenoid valve. Connect the high-voltage lead temporarily and lay the spark plug on the heater jacket.

WARNING

Be sure to plug the spark plug hole in the heater to prevent any possibility of residual fuel blowing out and igniting. Do not touch the spark plug while energized because of dangerously high voltage.

OXYGEN SYSTEM

CAUTION

All persons handling and servicing oxygen systems should review proper precautions to be observed during servicing. FAA Advisory Circular 43.13-1 contains the necessary information.

The oxygen system consists of an oxygen regulator, six outlets, a nose or rear mounted cylinder and recharging valve. The system may be fitted with an 11, 22, 49 or 65 cubic foot cylinder. When the system is not in use, the control valve on the console should be shut off to prevent oxygen loss.

To recharge the oxygen system, remove the protective cap from the filler valve.

WARNING

Keep fires, cigarettes and sparks away when outlets are in use. Open and close all oxygen valves slowly. Inspect the filler connection for cleanliness before attaching it to the filler valve. Keep tools, hands and components clean, as fire or explosion may occur when pure oxygen under pressure comes in contact with organic material such as grease or oil.

Attach a hose from an oxygen recharging cart to the filler valve. To prevent overheating, fill the oxygen system slowly by adjusting the recharging rate with the pressure regulating valve on the cart. The oxygen cylinder should be filled to a pressure of 1800 ± 50 psi at a temperature of 70°F. This pressure may be increased an additional 3.5 psi for each degree of increase in temperature; similarly, for each degree of drop in temperature, reduce the pressure by 3.5 psi. When the oxygen system is properly charged, disconnect the hose from the filler valve and replace the protective cap. If at any time, in the process of servicing and purging the system or replacing the oxygen cylinder, it becomes necessary to disconnect a fitting, the threads should be treated with MIL-T-27730 tetrafluoroethylene tape (Chart 201, 12-20-00). The system should then be checked for leaks with MIL-L-25567 leak testing compound (14, Chart 202, 12-20-00). After testing, if no leaks are found, wipe the system clean and dry.

"END"

SCHEDULED SERVICING - MAINTENANCE PRACTICES

TIRES

NOTE

"Aero Seal" is a tire additive which is very effective in stopping small leaks and weep-hole leaks in tubeless tires. The proper procedure for the use of this additive may be obtained by referring to Service Instructions No. 0916.

The nose gear is equipped with a 15 x 6.00 x 6, 4 ply, type VI, tube type tire. The main gear tires are either 6.50 x 8, 8 ply tubeless, rim-inflated type (P-4 through P-191, except P-190) or 19.5 x 6.75 x 8, 10 ply, tube type (P-190 and after, except P-191 and those airplanes prior to P-190 which have complied with Service Instructions No. 0536-202, Rev II). A maximum outside diameter of 15 inches on the nose gear tire is required to ensure proper clearance of the nose gear shock absorber assembly. Inflate the nose gear tire to 47-50 psi. Inflate the 8 ply main gear tires to 69-75 psi and the 10 ply main gear tires to 76-82 psi. If necessary to comply with landing restrictions, main gear tire inflation may be reduced to 65 psi for 8 ply tires. Maintaining recommended tire inflation will help to avoid damage from landing shock and contact with sharp stones and ruts, and will minimize tread wear. When inflating tires, inspect them visually for cracks, breaks or evidence of external damage.

EXTERNAL POWER

The airplane electrical system is protected against damage from reverse polarity by a relay and diodes in the external power circuit. The external power receptacle is located just outboard of the left engine nacelle. The receptacle is designed for a standard AN type plug. To supply power for ground checks and air conditioner operation, a ground power source capable of delivering a continuous load of 300 amperes at 24 to 30 volts is required. Use of an inadequate ground power unit can cause a voltage drop below the drop-out voltage of the starter relay, resulting in relay chatter and welded contacts. By the same token, a maximum continuous load in excess of 350 amperes will damage the external power relay and power cables of the airplane. Observe the following precaution when using an external power source.

a. Use only an auxiliary power source that is negatively grounded. If the polarity of the power source is unknown, determine the polarity with a voltmeter before connecting the unit to the airplane.

b. Before connecting the external power unit, turn off all radio equipment and generator switches, but leave the battery on to protect transistorized equipment against transient voltage spikes.

CAUTION

When the battery switch is turned off for extended ground power operation, place an external battery in parallel with the output of the external power unit before operating any transistorized avionics equipment.

c. If the unit does not have a standard AN plug, check the polarity and connect the positive lead from the external power unit to the center post and the negative lead to the front post of the airplane's external power receptacle. The small pin of the receptacle must be supplied with + 24 vdc to close the external power relay that provides protection against damage by reverse polarity.

BATTERY

Airplanes prior to P-446 are equipped with 24 volt, 13.5 ampere-hour batteries. To obtain optimum service from the nickel-cadmium battery, proper and regular maintenance of the battery must be performed.

Serials P-4 through P-225 are equipped with either General Electric or Gulton batteries. Serials P-226 through P-445 are equipped with General Electric air cooled batteries.

Airplanes, P-446 and after, are equipped with two 25 ampere-hour, 12 volt, lead-acid batteries connected in series and supplying a total system capacity of 24 volts.

A Systematic Battery Maintenance Program should be established and carefully followed:

a. The battery should be removed from the airplane for service.

b. A log of the services performed on each battery should be maintained.

c. The battery should be removed from the airplane and serviced after: 100 Flight Hours or 30 days, whichever occurs first. If the ambient temperatures are above 90°F or the time between engine starts averages less than 30 minutes, the duty cycle should be reduced.

d. The log of battery services performed should be evaluated to determine the need to service the battery at the above recommended intervals or to extend the intervals if justified. Accurate water consumption data is a valid barometer to use for adjustment of the servicing intervals.

CAUTION

Methods of servicing lead-acid batteries do not apply for the servicing of nickel-cadmium batteries.

Since the proper servicing of nickel-cadmium batteries requires two days, an additional battery (or batteries) will be required where airplane utilization warrants. For additional information on battery maintenance, refer to Gulton Instructions for Use and Care of Sintered Plate Vented Nickel-Cadmium Storage Batteries (P/N ABD-1100), or Marathon Battery Instruction Manual (P/N BA-89), or Operating and Service Manual for General Electric Nickel-Cadmium Vented-Cell Batteries (P/N GET-3593A), which ever the airplane is equipped with. Advisory Circular AC 00-33, printed by Department of Transportation, Federal Aviation Administration, is another good source of battery maintenance information.

DEICE BOOTS

Because the deice boots and related components operate on clean air supplied from the pressure manifold, little is required in the form of servicing the system. The boots should be checked for engine oil after servicing and at the end of each flight, and any oil found should be removed. This can be accomplished by the use of a neutral soap and water solution. Care should be exercised to avoid scrubbing the surface of the boot as this will tend to remove the special conductive surfacing.

NOTE

Because the deice boots are made of soft flexible material, care must be exercised against dragging gasoline hoses over them or resting ladder or platforms against the surface of the boots.

For surface deice boot maintenance, refer to Chapter 30-10-00.

SHOCK STRUTS

The shock struts are filled with compressed dry air or nitrogen and MIL-H-5606 or MIL-H-83282 hydraulic fluid (13, Chart 202). The same procedure is used for servicing both the main and nose gear shock struts. The shock strut may be serviced as follows:

a. Remove the air valve cap and depress the valve core to release the air pressure.

CAUTION

Do not unscrew the air valve assembly until the air pressure has been released or it may be blown off with considerable force, causing injury to personnel or property damage.

b. Remove the air valve assembly.

c. Compress the strut and fill through the air valve assembly hole with MIL-H-5606 or MIL-H-83282 hydraulic fluid (13, Chart 202) (approximately one pint) until the fluid overflows.

d. Cycle the strut (full extension to compressed) and refill. Repeat until fluid can not be added to the strut in the compressed position.

NOTE

Cycling of shock strut is necessary to expel any trapped air within the strut housing.

e. Install the air valve assembly.

f. With the airplane resting on the ground and the fuel cells full; inflate the nose gear strut until 4-1/16 to 4-5/16 inches of the piston is exposed, and inflate the gear strut until 3 inches of pistion is exposed. Rock the airplane gently to prevent possible binding of the pistion in the barrel while infating.

NOTE

It is recommended that the nose strut inflation dimension and the tire inflation pressure be carefully adheared to. Properly inflated tires and struts reduce the possibility of ground damage occurring to the propellers. Exercise caution when taxiing over rough surfaces.

g. The shock strut pistion must be clean. Remove foreign material by wiping the strut with a cloth dampened in hydraulic fluid.

PROPELLER BLADE BEARING LUBRICATION (Figure 201)

a. Remove the propeller spinner.

b. Remove the safety wire and covers from the six zerks. See Figure 201 for location.

c. Remove one zerk from each blade.

d. Lubricate the blade bearings with Hartzell DG Grease by placing the grease gun fitting on the remaining

zerk of each blade. Fill until the grease is visible in the hole where the opposite zerk was removed.

e. Reinstall the zerk on each blade.

f. Clean excess grease from the propeller, reinstall the grease zerk covers and safety.

g. Reinstall the spinner.

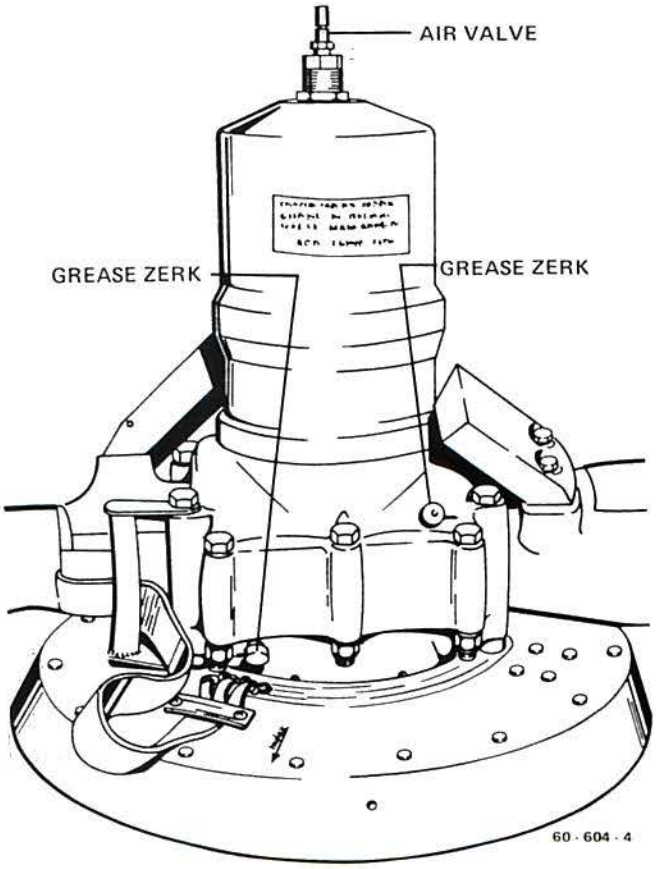
PROPELLER SERVICING POINTS
(Figure 201)

a. Remove the access cap from the propeller spinner to expose the filler valve.

b. Charge the dome with dry air or nitrogen to a pressure of 80 psi at 70°F. Increase the pressure an additional 2 psi for every 10 degrees of increase in temperature similarly for every 10 degrees of drop in temperature, reduce the pressure by 2 psi.

PROPELLER ACCUMULATOR

The propeller accumulators are located on the lower rear section of each engine. The accumulators should be inspected every 100 hours and charged with dry air or nitrogen to 125 psi. If a unit will not hold 70% of its normal charge, from inspection to the next, it should be replaced.



Propeller Servicing Points
Figure 201

INDUCTION AIR FILTER
(Wet or Dry Element)

The induction air filter should be cleaned every 50 hours and replaced every 500 hours of service. Clean the filter as specified by the manufacturer's instructions stamped on the filter.

ROTON LOCKS
(Figure 202)

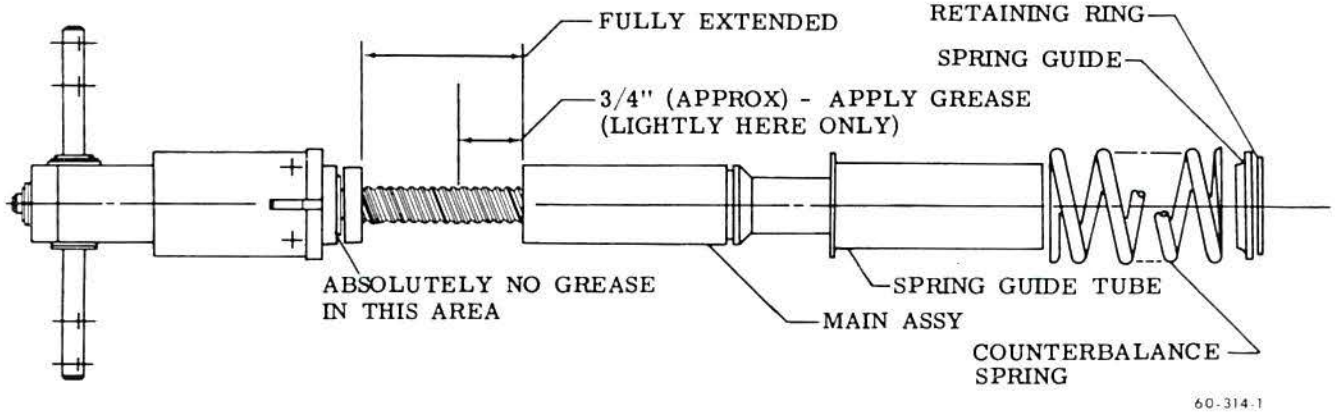
Usually, Roton locks will need no service. If there is a grinding and binding in the lock as the seat reclines or the return action becomes jerky, a little grease properly applied as follows should improve the operation.

a. Apply grease (30, Chart 207, 91-00-00) to the threads as shown in Figure 202.
b. Compress the spring guide and counter-balance spring approximately one inch.
c. Remove the retaining ring.
d. Relax pressure on the spring guide and counter-balance spring slowly until the spring is fully extended.
e. Remove the lock from the fixture and remove the spring guide, counter-balance spring, and spring guide tube.
f. Apply a small quantity of grease to the completely extended thrust screw.
g. Reassemble the lock. For service other than lubrication a new lock will need to be purchased.

CLEANING AND WAXING THE AIRPLANE FINISH

Because the wax seals the paint from the outside air, a new paint job should not be waxed for a period of 90 days to allow the paint to cure. Wash uncured painted surfaces with only cold or lukewarm (never hot) water and a mild non-detergent soap. Any rubbing of the painted surface should be done gently and held to a minimum to avoid cracking the paint film.

After the paint cures, a thorough waxing will protect painted and unpainted metal surfaces from a variety of



Roton Lock
Figure 202

highly corrosive elements. Flush loose dirt away first with clear water, then wash the airplane with a mild soap and water. Harsh, abrasive, or alkaline soaps or detergents should never be used. Use soft cleaning cloth or chamois to prevent scratches when cleaning and polishing. Any good grade automobile wax may be used to preserve painted surfaces. To remove stubborn oil and grease, use a soft cloth dampened with naphtha. After cleaning with naphtha, the surface should be polished and rewaxed.

NOTE

Frequently inspect the underside of the wing and flaps in the area covered by the engine turbocharger exhaust stream for fuel lead deposits. If such deposits are discovered, they should be removed immediately with a water and mild detergent solution and the surface rewaxed.

CLEANING PLASTIC WINDOWS

A commercial cleaning compound made specifically for acrylic plastic windows may be used. When using a commercial cleaner, follow the instructions on the container.

If a commercial cleaner is not available, the following instructions should be followed:

Cleaning of the acrylic plastic windows should never be attempted when dry. The window should first be flushed with water or a mild soap solution, then rubbed slightly with a grit-free soft cloth, chamois or sponge. Stubborn grease or oil deposits are readily removed with aliphatic naphtha or hexane. Rinse with clear water.

CAUTION

Do not use thinner or aromatic abrasive cleaners to clean the windows as they will damage the surface of the plastic. Aliphatic naphtha and similar solvents are highly inflammable, and extreme care must be exercised when used.

CHART 201
THREAD LUBRICANTS

The vendor products appearing in this chart have been selected at random to help field personnel determine products conforming to the specifications listed in this publication. The brand names are listed for ready reference and are not specifically recommended by Beech Aircraft Corporation. Any product which conforms to the referenced specification may be used.

SYSTEM	*MATERIAL*	*SPECIFICATION*	*VENDOR PRODUCTS*
Fuel	Petrolatum	VV-P-236	
Oil, Manifold Pressure, Air Pressure	Lubricating Grease (Gasoline and Oil Resistant)	MIL-G-6032	L-237, Lehigh Chemical Co. Chestertown, Maryland Rockwell 950, Rockwell Mfg. Pittsburg, 8 Pa. Royco 32, Royal Lubricants Co. Hanover, New Jersey
Deicer, Static, Pitot	Anti-Seize, White Lead Base	TT-A-580	Armite Product, Armite Laboratories, Los Angeles, California
Autopilot (Pipe Threads Only)	Anti-Seize, White Lead Base	JAN-A-669	
Brakes	Hydraulic Fluid or Anti-Seize, White Lead Base	MIL-H-5606 or TT-A-580	

CHART 201 (Cont'd)
THREAD LUBRICANTS

SYSTEM	MATERIAL	SPECIFICATIONS	VENDOR PRODUCTS
Air Conditioner	Anti-Seize, Graphite Petrolatum or Anti-Seize, White Lead Base	MIL-T-5544 or TT-A-580	
Oxygen	Tetrafluoroethylene Tape	MIL-T-27730	Johnson and Johnson Inc., Permacel Div., U.S. Highway 1, New Brunswick, New Jersey 08901
Turbocharger Inlet Probe	Anti-Seize Compound	MIL-A-907D	Anti-Seize Compound C5A, Fel-Pro Inc., 7450 McCormick, Skokie, Illinois

CHART 202
CONSUMABLE MATERIALS

Only the basic number of each Military Specification is included in the Consumable Materials Chart. No attempt has been made to update the basic number with the letter suffix that designates the current issues of the various specifications.

Vendors that are listed as meeting the Federal and Military Specifications are provided as reference only and are not specifically recommended by Beech Aircraft Corporation; consequently, any product conforming to the specification listed may be used. The products listed below have been tested and approved for aviation usage by Beech Aircraft Corporation, the vendor, or by compliance with the applicable specifications. Other products that are locally procurable which conform to the requirements of the applicable Military Specification may be used even though not specifically included herein.

It is the responsibility of the operator/user to determine the current revision of the applicable Military Specification prior to usage of that item. This determination may be made by contacting the vendor of a specific item.

ITEM	*MATERIAL*	*SPECIFICATIONS*	*VENDOR PRODUCTS*
1.	Fuel, Engine	100/130 octane (If not available, use 115/145) Never use 91/96 octane fuel.	
2.	Oil, Engine (Ashless Dispersant)	MIL-L-22851	Global Concentrate A Delta Petroleum Company Inc. P.O. Box 10397 New Orleans, La. 70121 Paranox 160 and 165 Enjay Chemical Company 60 West 49th Street New York, N.Y. 10020 RT-451, RM-173E, RM-180E Mobil Oil Corporation 150 East 42nd Street New York, N.Y. 10017

CHART 202 (Cont'd)
CONSUMABLE MATERIALS

ITEM	MATERIAL	SPECIFICATIONS	VENDOR PRODUCTS
2. Oil, Engine (Ashless Dispersent Cont'd.)			Shell Concentrate A Code 60068 Aeroshell W120, Aeroshell W80 Shell Oil Company One Shell Plaza Houston, Texas 77002 TX-6309 Aircraft Engine Oil, Premium AD120, Premium AD80 Texaco Inc. 135 East 42nd Street New York, N.Y. 10017 PQ Aviation Lubricant 753 American Oil and Supply Co. 238 Wilson Avenue Newark, N.J. 07105 Chevron Aero Oil Grade 120 Chevron Oil Co. 1200 State Street Perth Amboy, N.J. 08861 Esso Aviation Oil E-120, Enco Aviation Oil E-120, Esso Aviation Oil A-100, Enco Aviation Oil A-100, Esso Aviation Oil E-80, Enco Aviation Oil E-80 Exxon Company, U.S.A. P. O. Box 2180 Houston, Texas 77001 Chevron Aero Oil Grade 120 Standard Oil Co. of Calif. 225 Bush Street San Francisco, Calif. 94120
3.	Corrosion Preventive Compound	MIL-C-6529	Anti-Corrode No. 205, Cities Service Oil Co. 60 Wall Tower, New York 5, N.Y. Rust Foil No. 652-2 Franklin Oil and Gas Co. Bedford, Ohio Kendex No. 7038, Kendall Refining Co., Bradford, Pa.

CHART 202 (Cont'd)
CONSUMABLE MATERIALS

ITEM	MATERIAL	SPECIFICATIONS	VENDOR PRODUCTS
4.	Lubricating Oil	MIL-L-6081	Gulflite Turbojet Oil No. 1010, Gulf Oil Corp. Pittsburg, Pa. Aeroshell No. 3-1286 Shell Oil Co., 50 West 50th Street, New York, N.Y. 10020 Jet Engine Oil No. 1010 Texaco Inc., 135 East 42nd Street, New York, N.Y. 10017
5.	Lubricating Oil	SAE 20 or SAE 10W30	
6.	Lubricating Oil, Aircraft Reciprocating (Piston) Engine	MIL-L-6082	Conoco Aero Oil No. 1065 Continental Oil Co. Ponca City, Oklahoma Phillips 66 Aviation Engine Oil, Grade 1065 Phillips Petroleum Co. Bartlesville, Oklahoma Skilflite No. 100, Skelly Oil Co., El Dorado, Kansas Avrey 10V1100, Socony Mobil Oil Co. Inc., 150 East 42nd Street New York, N.Y. 10017 Or any approved aircraft engine oil (graded at 1065 or 1100).
7.	Lubricating Oil (Gear)	MIL-L-6086 Grade M	Trojan Gear Oil No. 6086 M. Cities Service Oil Co. 60 Wall Tower, New York 5, N.Y. Aeroshell Fluid 5 M, Shell Oil Co., 50 West 50th Street, New York, N.Y. 10020 L-1195, Sinclair Refining Co., 600 Fifth Avenue, New York, N.Y.

CHART 202 (Cont'd)
CONSUMABLE MATERIALS

ITEM	MATERIAL	SPECIFICATIONS	VENDOR PRODUCTS
8.	Lubricating Grease	MIL-G-7711 (Superseded by MIL-G-81322, see Item 9)	
9.	Lubricating Grease NOTE MIL-G-81322 is not compatible with Aeroshell No. 5 and contains chemicals harmful to painted surfaces.	MIL-G-81322	Mobilgrease 28 Mobil Oil Corporation Shoreham Building Washington, D.C. 20005 Aeroshell Grease 22 Shell Oil Co., 50 West 50th Street, New York, N.Y. 10020
10.	Lubricating Grease (Gear)	Mobile Compound G.G.	
11.	Lubricating Grease (Aircraft and Instruments, Low and High Temperature) NOTE Precautions should be taken when using MIL-G-23827 and MIL-G-81322, since these greases contain chemicals harmful to painted surfaces.	MIL-G-23827	Supermil Grease No. A72832, American Oil Co., 910 South Michigan Avenue Chicago, Ill. 60680 Royco 27A, Royal Lubricants Co., River Road, P.O. Box 95, Hanover, N.J. 07936 Shell 6249 Grease, Shell Oil Co., 50 West 50th Street, New York 20, N.Y.
12.	Lubricant, Molybdenum Disulfide Powder	MIL-M-7866	Molykote Z Wilco Co. Wichita, Kansas Molykote Z Standard Oil of Kentucky Molykote Z, Haskell Engineering and Supply Company 100 East Graham Place Burbank, California 91502 Moly-Paul No. 4, K.S. Paul Products Ltd. Nobel Road, London, England

CHART 202 (Cont'd)
CONSUMABLE MATERIALS

ITEM	*MATERIAL*	*SPECIFICATION*	*VENDOR PRODUCTS*
13.	Hydraulic Fluid	MIL-H-5606	Brayco 756D, Bray Oil Co. 3344 Medford Street Los Angeles 63, California PED 3656, Standard Oil Co. of California, 225 Bush Street, San Francisco 20, California
14.	Oyxgen-System, Leak Testing Compound	MIL-L-25567	
15.	Solvent, Dry Cleaning or White Spirit	PD680 or British Specification 245	
16.	Lubricating Oil	SAE-10	
17.	Air Conditioner Refrigerant	R-12	
18.	Oil (Air Conditioner Compressor) 500 Viscosity		Suniso No. 5, Virginia Chemical and Smelting Co. West Norfolk, Virginia Texaco Capella E, Texaco Inc., 135 East 42nd Street, New York, N.Y. 10017
19.	Aviator's Breathing Oxygen	MIL-O-27210	
20.	Naphtha	TT-N-95	
21.	Methyl Ethyl Ketone	MIL-M-13999	
22.	Toluol (Toluene)	TT-T-548	
23.	Paint Remover		Turco No. 4260, Turco Products Inc., Los Angeles, California
24.	Epoxy Primer		Ameron Industrial Coatings Division, P.O. Box 2153, Wichita, Kansas
25.	Wash Primer	EX2016G	Ameron Industrial Coatings Division, P.O. Box 2153, Wichita, Kansas

CHART 202 (Cont'd)
CONSUMABLE MATERIALS

ITEM	MATERIAL	SPECIFICATIONS	VENDOR PRODUCTS
26.	Zinc Chromate Primer	MIL-P-8585	
27.	Rubber Hose	MIL-H-5593	
28.	Oil, Engine Preservative	MIL-H-5593	
29.	Graphite, Lubricating NOTE Lubricating Graphite Superseded by Item 12	SS-G-659 (Supersedes MIL-G-6711)	
30.	Lubricating Grease	Enco Andok-B	Humble Oil Co. Houston, Texas
31.	Solvent		CRC-2-26, Corrosion Reaction Consultants Limeklim Pike Dresher, Pa.
32.	Laminated Glass Cloth	MIL-F-9084	Trevano, Coast Manufacturing and Supply Inc., Box 71 Livermore, California Uniglass, United Merchants and Manufacturing Inc. 1407 Broadway, New York, New York 10018
33.	Resin	MIL-R-7575	Laminac 4116, American Cyanamid Co., Wallingford, Connecticut Glidpol 1001, The Glidden Company, 925 Euclid Ave. Cleveland, Ohio 44114
34.	Lubricating Grease	Aeroshell 7A	Shell Oil Co., 50 West 50th Street, New York, N.Y.
35.	Urethane Primer		U.S. Paint Lacquer and Chemical Co., 1501 N. Belmont P.O. Box 8151 Wichita, Kansas 67208 Ameron Industrial Coating Division, P.O. Box 2153, Wichita, Kansas

CHART 202 (Cont'd)
CONSUMABLE MATERIALS

ITEM	MATERIAL	SPECIFICATIONS	VENDOR PRODUCTS
36.	Thread Locking Compound	Loctite Sealant, Grade A	Loctite Corp. 705 N. Mountain Road Newington, Conn. 06111
37.	Penetrating Oil	Mouse Milk	Worldwide Aircraft Filters Corp., 1685 Abram Ct. San Leandro, Calif. 94577
		Kano Kroil	Kano Labratories Inc. Nashville, Tennessee
38.	Lubricating Grease	MIL-G-3545	Aeroshell Grease 5 Shell Oil Co., 50 West 50th Street, New York, N.Y.
39.	Cement	EC2262	Minnesota Mining and Manufacturing Company St. Paul, Minnesota
40.	Primer	Locquic "N"	Loctite Corp. 705 N. Mountain Road Newington, Conn. 06111
41.	Cleaner	Turco Metal-glo No. 3	Turco Products Inc. 24600 S. Main Los Anglels, California 90746
42.	Paint Stripper	Turco 4260	Turco Products Inc. 26400 S. Main Los Angeles, California 90746
43.	Corrosion Preventive Compound	MIL-C-16173 Grade 2	Braycote 137, Bray Oil Co. 1925 N. Marianna Ave. Los Angeles, California 90032 Petrotech 1-4 Pamreco, P.O. Box 671, Butler, Pa. 16001
44.	Lubricating Grease	MIL-G-7118	
45.	Primer, Degreasing	EC3911	Minnesota Mining and Manufacturing Co., St. Paul, Minnesota

ITEM	MATERIAL	SPECIFICATIONS	VENDOR PRODUCTS
46.	Lubricating Silicone	G-322L	General Electric Waterford, New York 12188
47.	Anti-Seize Compound	Locatite 76764 Paste Form 1 lb. Brush Top Can	Loctite Corp. 705 N. Mountain Road Newington, Conn. 06111
48.	Coating	Alodine 1200, 1200S or 1201	Amchem Products Inc. Spring Garden Street Ambler, Pennsylvania

CHART 203
SERVICING

ITEM	*LOCATION*	*SERVICE WITH*	*INTERVAL*
CHECK			
Engine Oil Level	Access door on upper cowling (2)	MIL-L-22851	Preflight
Battery Electrolyte	Access plate on LH rear nacelle (1)	See Chapter 24 for detailed instructions	Every 100 hrs.
Air Conditioner Compressor Oil Level	See Chapter 21 for location and special instructions	Suniso No. 5 or Texaco Capella E, 500 Viscosity oil	As Required
Air Conditioner Refrigerant	See Chapter 21 for location and special instructions.	Refrigerant No. 12	As Required
Propeller Air Dome	Access cap on propeller spinner (2)	Dry air or nitrogen	Every 100 hrs.
Propeller Accumulator	Lower rear of engine (2)	Dry air or nitrogen	Every 100 hrs.
Differential Control Valve and Safety Valve (P-4 thru P-307)	Aft pressure bulkhead	Refer to Chapter 21-30-00	Every 100 hrs. or Annually
Outflow and Safety Valve (P-308 and After)	Aft pressure bulkhead	Refer to Chapter 21-30-00	Perform Functional Test Every 500 Hours
CHANGE			
Engine Oil	Access plate on lower nacelle (2)	MIL-L-22851	Every 75 - 100 hrs.
Engine Oil Filter	RH side of engine (2)		Every 50 hrs.
CLEAN			
Air Pump Intake Filter	Forward side of aft engine baffle (2) (P-3 through P-246)	Wash with soap and water, rinse and dry	Every 100 hrs.
Induction Air Filter	RH rear side of engine (2)	Clean per instructions on filter	Every 50 hrs.
Servo Fuel Filter	Fuel injection (2)	Clean with solvent and blow dry with air pressure.	Every 100 hrs.
Manual Cabin Altitude Control Filter (P-3 thru P-307)	RH subpanel (1)	Clean with solvent and blow dry with air pressure.	Every 100 hrs.
Cabin Pressurization Controller Filter and Orifice (P-308 and after)	RH Subpanel (1)	Remove filter, disassemble, clean with solvent and air dry. Ensure orifice is open, reassemble and reinstall.	Every 500 hrs.

CHART 203 (Cont'd)
SERVICING

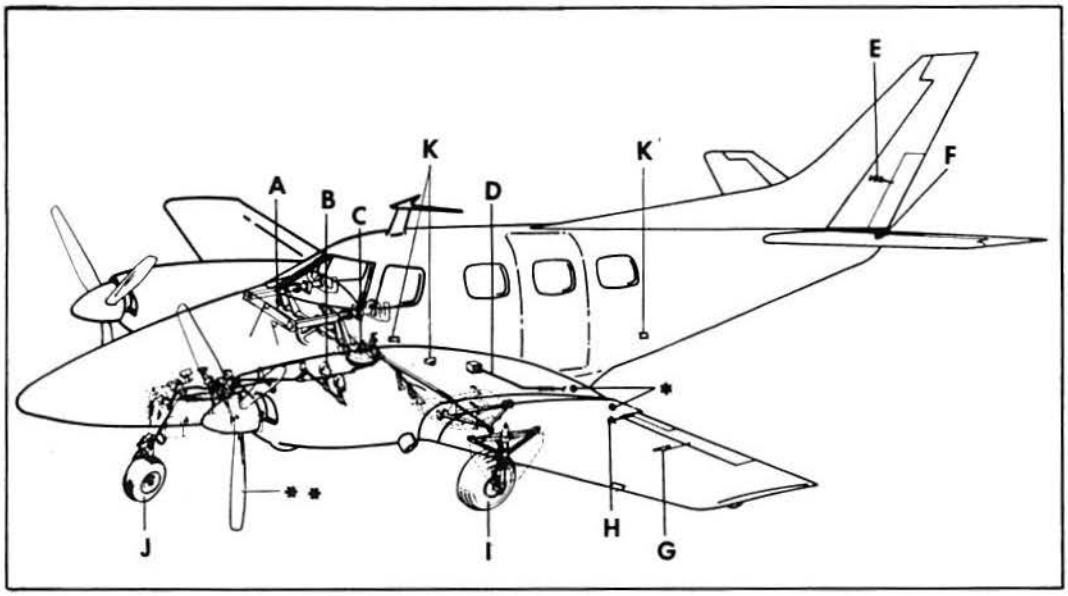
ITEM	*LOCATION*	*SERVICE WITH*	*INTERVAL*
CLEAN (Cont'd)			
Cabin Pressurization Safety Valve Filter and Orifice (P-308 and after)	Aft Pressure Bulkhead (1)	Remove filter, disassemble, clean with solvent and air dry. Ensure orifice is open, reassemble and reinstall.	Every 1000 hrs.
Static Air Button	Aft fuselage skin (4)	Clean with solvent and wipe dry with clean rag.	Every 100 hrs.
Engine Oil Screen	Engine oil sump (2)	Clean with solvent and blow dry with air pressure.	At Oil Change.
Heater Fuel-Supply Strainer	LH wing stub (1)	Clean with solvent and blow dry with air pressure.	Every 100 hrs. of heater operation.
Heater Fuel Pump Filter	LH wing stub (1)	Clean with solvent and blow dry with air pressure.	Every 100 hrs. of heater operation.
Heater Inline Fuel Filter	Nose Wheel Well (1)	Clean with solvent and blow dry with air pressure.	Every 100 hrs. of heater operation.
DRAIN			
Fuel Sump Drain	Lower wing surface (2)		Preflight
Fuel Strainer Drain	Lower wing surface (2)		Preflight
Fuel Tank Drain	Lower wing surface (2)		Preflight
Heater Fuel Drain	Aft bulkhead of nose wheel well		Preflight
Static Drain	On upholstery panel below copilot's subpanel (1)		Every 100 hrs.
REPLACE			
Pressure System Inline Air Filter	RH rear side of nacelle (2) (P-3 through P-159, except P-158)		Every 150 hrs.
Pressure System Inline Air Filter	RH rear side of nacelle (2) (P-158, P-160 and after)		Every 300 hrs.
Air Pump Intake Filter	Forward side of aft engine baffle (P-247 and after)		Every 300-500 hrs.
Induction Air Filter	RH rear side of each engine (2)		Every 500 hrs.
Motorized Cabin Altitude Controller Filter	Mounted on controller behind RH subpanel		Every 1000 hrs.
Electric Trim Tab Actuator Motor Brushes	Aft fuselage		Every 1000 hrs.

CHART 203 (Cont'd)
SERVICING

ITEM	*LOCATION*	*SERVICE WITH*	*INTERVAL*
REPLACE (Cont'd)			
Emergency Locator Transmitter (ELT) Battery	Aft fuselage		One half of battery service life or when in use for one cumulative hour, or after inadvertant activation of unknown duration.
SERVICE			
Brake Fluid Reservoir	Forward baggage compartment (1)	MIL-H-5606 hydraulic fluid	As Required
Oxygen Cylinder	Forward baggage compartment (1)	MIL-O-27210, aviators breathing oxygen	As Required
Main and Nose Landing Gear Struts	Top of each strut (3)	MIL-H-5606, hydraulic fluid and compressed air.	Every 100 hrs.

( ) Indicates number of points to be serviced.

CHART 204
LUBRICATION SCHEDULE



NOTE

Apply MIL-G-81322 lubricating grease at all points of friction in the cabin door except where Oilite bearings are installed. The time interval for lubrication is as required.

Precaution should be taken when using MIL-G-23827 and MIL-G-81322, since these greases contain chemicals harmful to painted surfaces.

* Flaps track rollers (pre-lubed sealed bearings). Pressure lubricate at 1000 hours inspection using MIL-G-23827 lubricating grease.

** MIL-G-23827 grease is recommended for use in lubricating the blade bearings in the Hartzell Propeller. This grease will insure against a possible freeze up of the pitch change mechanism when prolonged flights are made at altitudes where the ambient temperature is below -20°C. Lubricate at 100 hours inspection. (6)

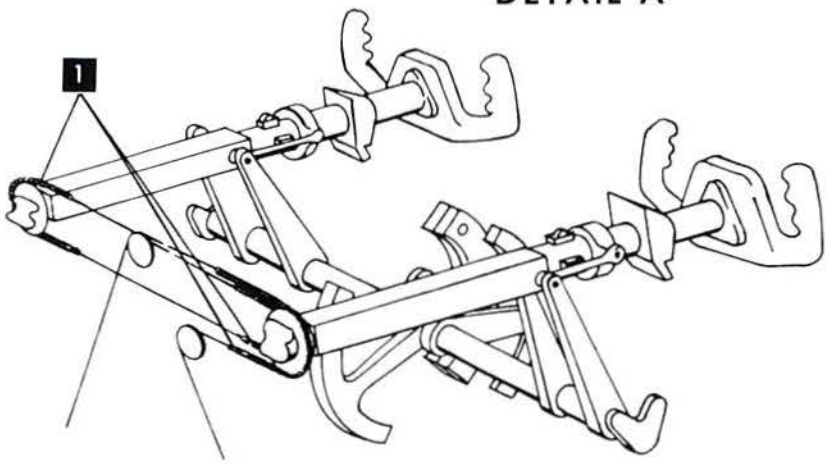
( ) Indicates the number of points to be lubricated.

A60-604-7B

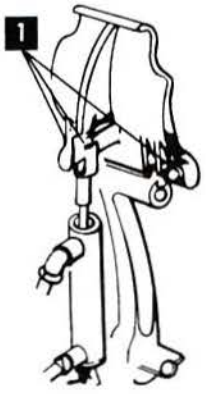
CHART 204 (Cont'd)
LUBRICATION SCHEDULE

INDEX	LOCATION	LUBRICANT	INTERVAL
	CONTROL COLUMN	DETAIL A	
1	Control column chain (3)	SAE-20	100 hrs.

DETAIL A



DETAIL B



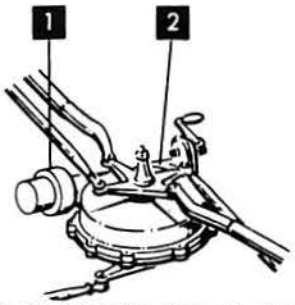
INDEX	LOCATION	LUBRICANT	INTERVAL
	RUDDER PEDALS	DETAIL B	
1	Pedals linkage (6)	SAE-20	100 hrs.

A60-604-8A

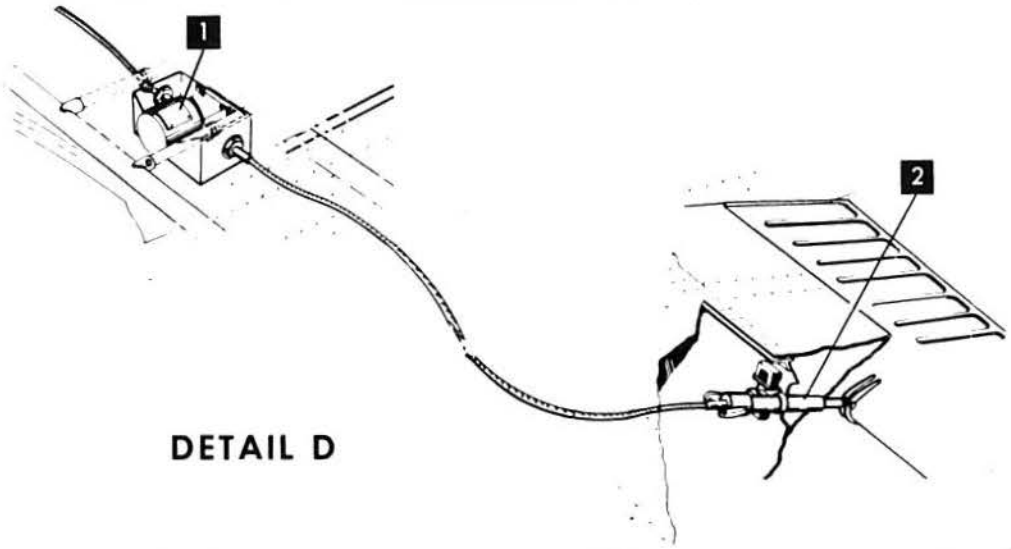
CHART 204 (Cont'd)
LUBRICATION SCHEDULE

INDEX	LOCATION	LUBRICANT	INTERVAL
	LANDING GEAR ACTUATOR	DETAIL C	
1	Landing gear motor gear box (1)	MIL-G-81322	300 hrs.
2	† Landing gear actuator gear box (1)	Mobile Compound GG	300 hrs.

DETAIL C



† When properly filled, the oil level on a dip stick inserted through the filler hole will be approximately ¼ inch.



DETAIL D

INDEX	LOCATION	LUBRICANT	INTERVAL
	FLAP ACTUATOR	DETAIL D	
1	Flap motor gear box (1)	MIL-G-23827	300 hrs.
2	Flap actuator (2)	MIL-L-6086 Grade M	1000 hrs.

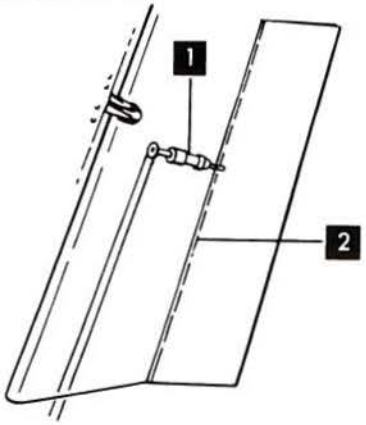
A60-604-9B

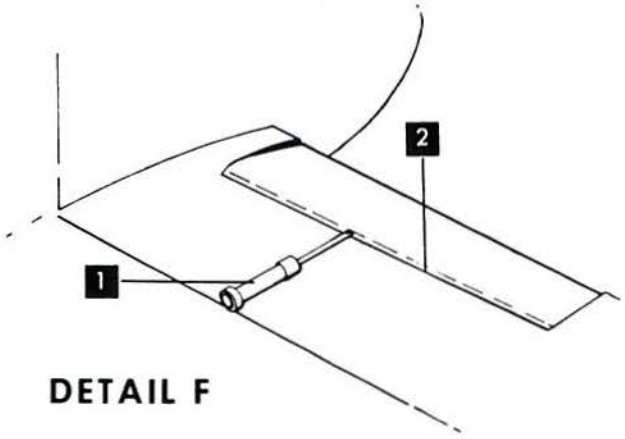
CHART 204 (Cont'd)
LUBRICATION SCHEDULE

INDEX	LOCATION	LUBRICANT	INTERVAL
	RUDDER TRIM	DETAIL E	
1	Rudder trim tab actuator (1)	MIL-G-23827	AR
2	†Rudder trim tab hinge (1)	MIL-M-7866	100 hrs.

† Mix MIL-M-7866 with naptha and apply with a brush

DETAIL E





DETAIL F

INDEX	LOCATION	LUBRICANT	INTERVAL
	ELEVATOR TRIM	DETAIL F	
1	Elevator trim tab actuator (1)	MIL-G-23827	AR
2	†Elevator trim tab hinge (1)	MIL-M-7866	100 hrs.

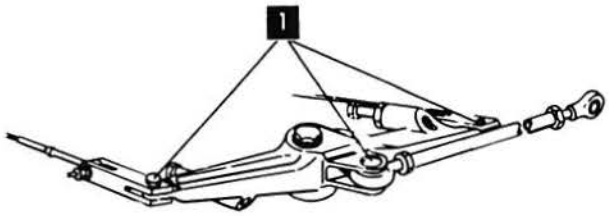
†Mix MIL-M-7866 with Naphtha and apply with a brush.

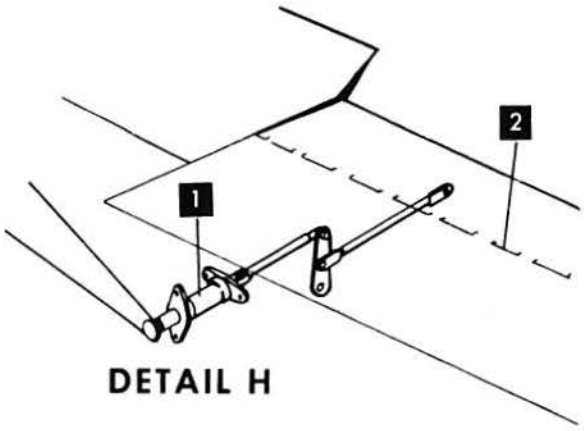
A60-604-10B

CHART 204 (Cont'd)
LUBRICATION SCHEDULE

INDEX	LOCATION	LUBRICANT	INTERVAL
	AILERON BELL CRANK	DETAIL G	
1	Aileron bell crank (6)	SAE10W-30	100 hrs.

DETAIL G





DETAIL H

INDEX	LOCATION	LUBRICANT	INTERVAL
	AILERON TRIM TAB	DETAIL H	
1	Aileron trim tab actuator (1)	MIL-G-23827	AR
2	†Aileron trim tab hinge (1)	MIL-M-7866	100 hrs.

†Mix MIL-M-7866 with naphtha and apply with a brush

A60-604-11B

CHART 204 (Cont'd)
LUBRICATION SCHEDULE

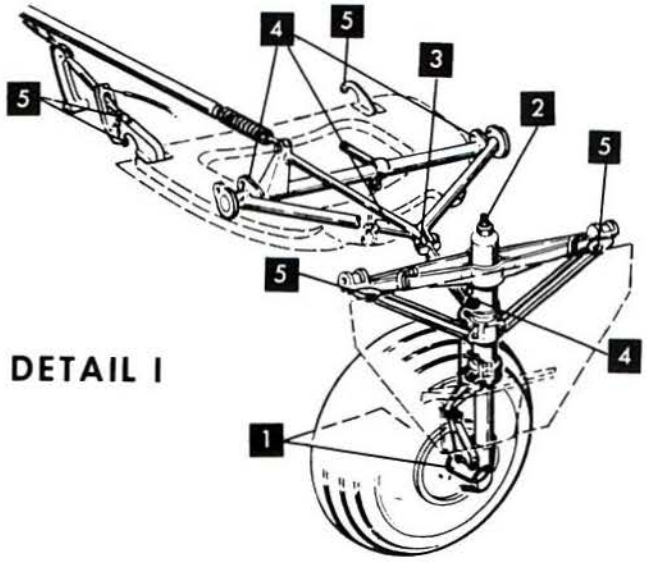
INDEX	LOCATION	LUBRICATION	INTERVAL
	MAIN LANDING GEAR	DETAIL I	
1	Main wheel bearings (4)	MIL-G-3545	100 hrs.
2	Main shock struts (2)	MIL-H-5606	100 hrs.
3	Uplock rollers (2)	*SAE10W-30 HAND PACK WITH MIL-G-23827	50 hrs. 100 hrs.
		**MIL-G-23827	100 hrs.

*P-3 THRU P-154, P-156 THRU P-162, P-167 THRU P-171 AND P-182, PRIOR TO COMPLIANCE WITH S.I. 0482-211.

**P-155, P-163 THRU P-166, P-172 THRU P-181, P-183 AND AFTER, AND PREVIOUS AIRPLANE SERIALS IN COMPLIANCE WITH S.I. 0482-211.

NOTE

Refer to Chapter 32 of the Maintenance Manual for instructions on periodic lubrication of uplock rollers.



DETAIL I

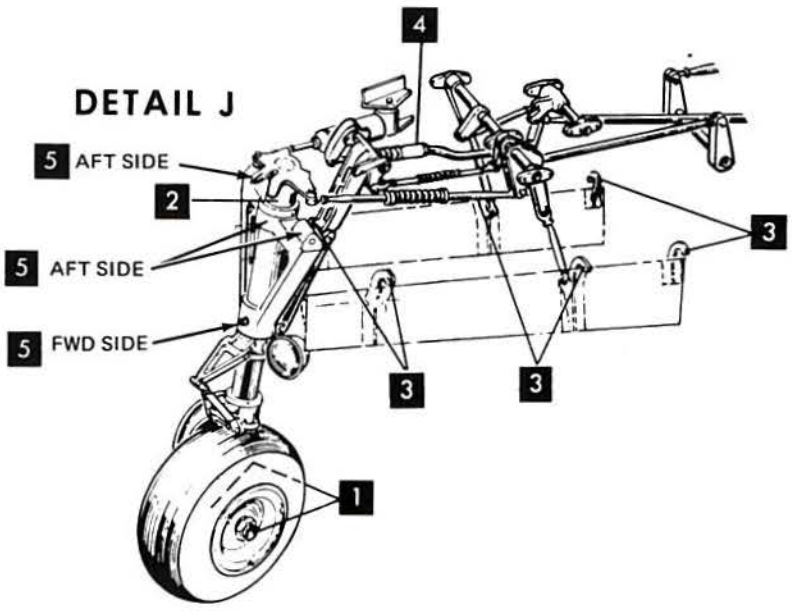
INDEX	LOCATION	LUBRICANT	INTERVAL
4	Main retract fittings (8)	MIL-G-81322	100 hrs.
5	Main gear door hinges (10)	SAE10W-30	100 hrs.

A60-604-15

CHART 204 (Cont'd)
LUBRICATION SCHEDULE

INDEX	LOCATION	LUBRICANT	INTERVAL
	NOSE LANDING GEAR	DETAIL J	
1	Nose wheel bearings (2)	MIL-G-3545	100 hrs.
2	Nose shock strut (1)	MIL-H-5606	100 hrs.
3	Nose gear door hinges (6)	SAE10W-30	100 hrs.
4	Nose gear forward retract rod (1)	MIL-G-7118	600 hrs.
*5	Nose gear brace bushings (4)	MIL-G-81322	100 hrs.

*P-297 and after

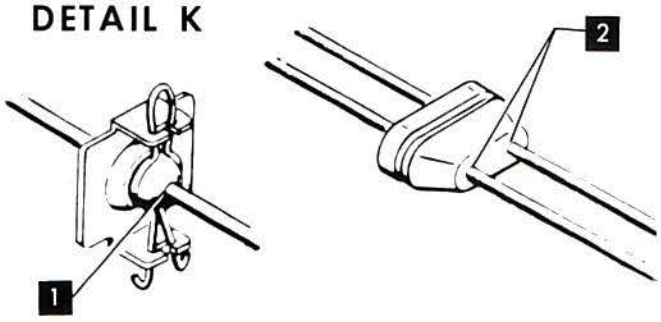


A60-604-13B

CHART 204 (Cont'd)
LUBRICATION SCHEDULE

INDEX	LOCATION	LUBRICANT	INTERVAL
	CABLE PRESSURE SEALS	DETAIL K	
1	Control cable pressure seals (8)	MIL-G-23827	1000 hrs.
2	Trim tab cable pressure seals (3)	MIL-G-23827	1000 hrs.

DETAIL K



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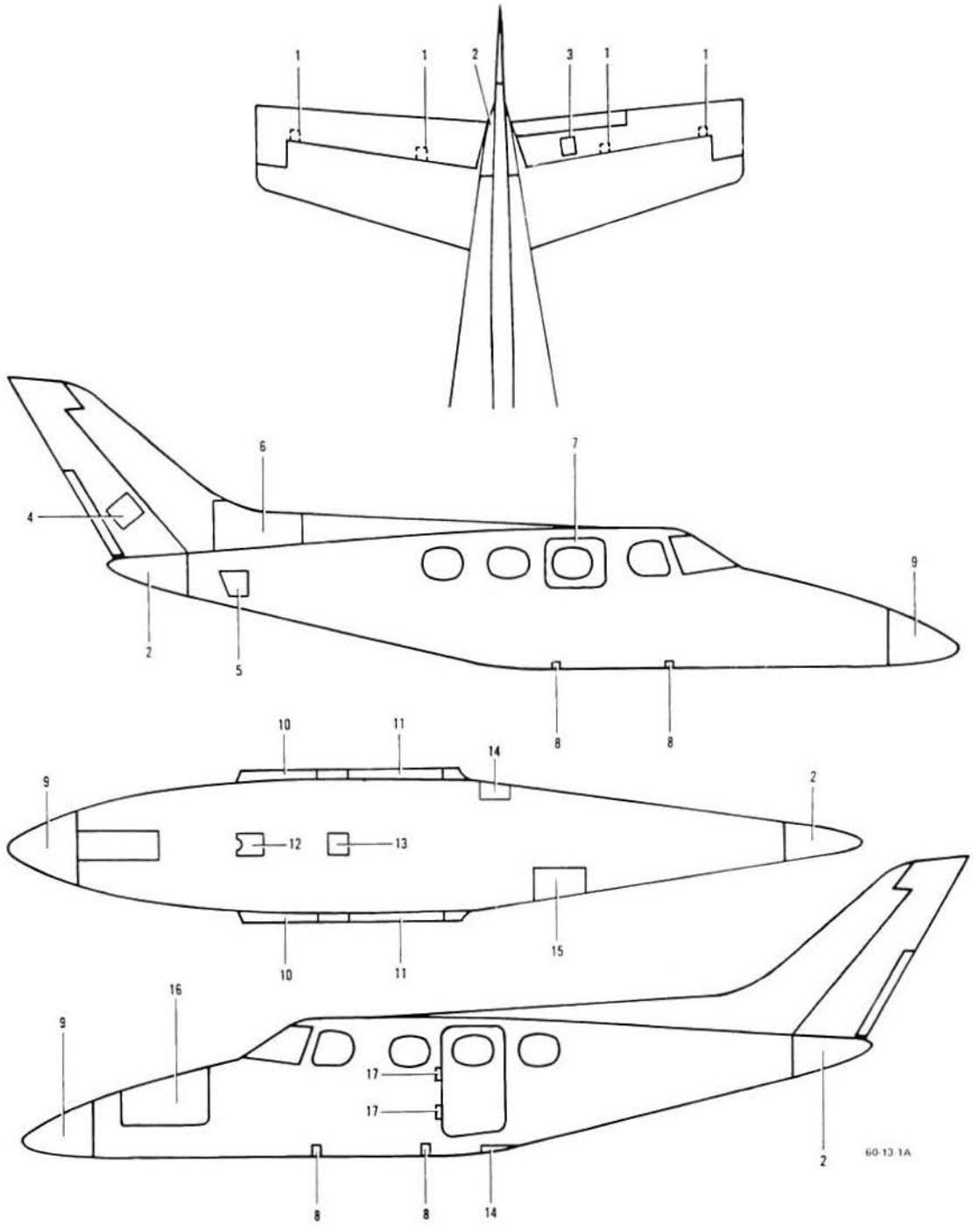
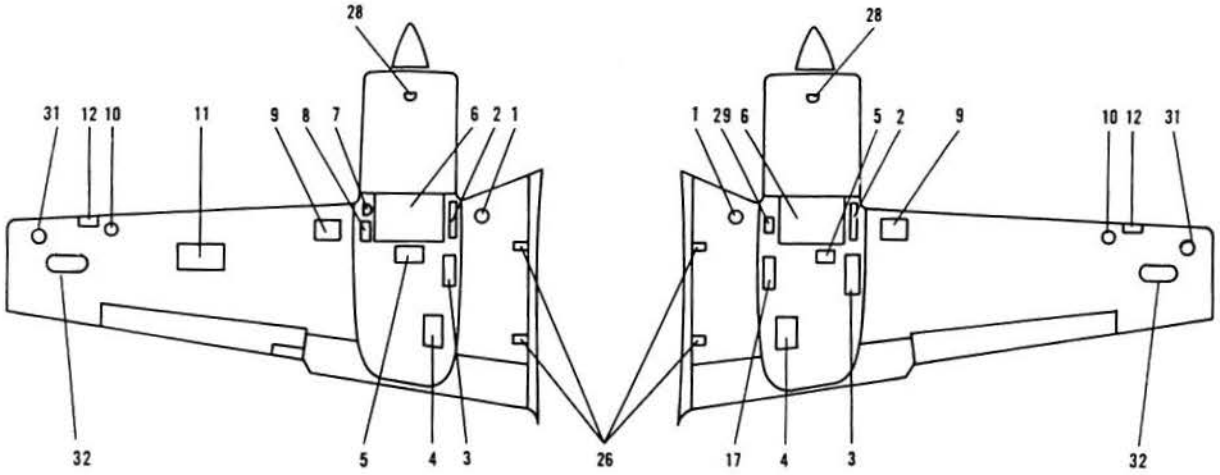


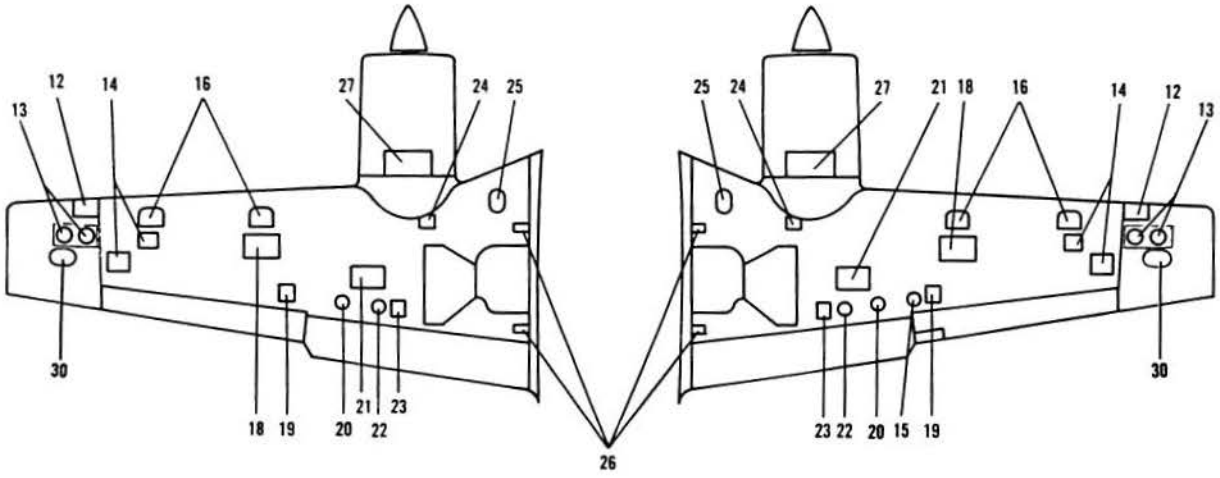
Fuselage Access Openings (Sheet 1 of 2)
Figure 203

1. Elevator Hinges
2. Tail Cone
3. Elevator Trim Tab Actuator
4. Rudder Trim Tab Actuator
5. Deicer Dump Valve, Elevator Bell Crank, Rudder Bell Crank and Control Cables
6. Vertical Stabilizer Deicer Hose
7. Emergency Exit
8. Wing Bolts
9. Nose Cone
10. Intercooler
11. Uplock Cable, Retract Rods, Retract Rod Pressure Seals and Wing Stub Fuel Fittings
12. Lower Pedestal
13. Landing Gear, Gearbox and Actuator
14. Assist Step Mechanism
15 Autopilot Aileron, Rudder and Elevator Servos, Magnetic Navigation Sensing Element (B-5P Autopilot) and Autopilot Computer (H-14 Autopilot)
16. Oxygen Filler and Bottle, Heater, Ram Air Plenum, Brake Fluid Reservoir, Avionics Equipment and Baggage Compartment
17. Cabin Door Hinges

Fuselage Access Openings (Sheet 2 of 2)
Figure 203



LEFT WING (UPPER) RIGHT WING (UPPER)



RIGHT WING (LOWER) LEFT WING (LOWER)

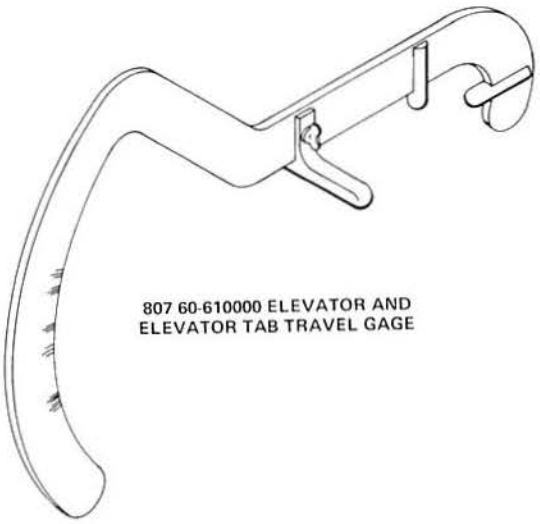
60-12-1A

Wing Access Openings
Figure 204 (Sheet 1 of 2)

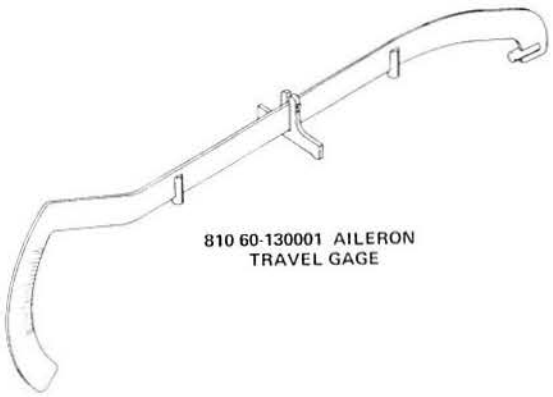
1. Leading Edge Fuel Cell Transmitter
2. Alternate Air and Fuel Pressure Solenoid
3. Nacelle Fuel Cell Transmitter and Plumbing
4. Nacelle Fuel Cell and Vent Line Plumbing
5. Fuel Vent Check Valve and Plumbing
6. Battery, Battery Relays, Voltage Regulators, Overvoltage Relays, Starter Relays, Paralleling Rheostat, Fuel Flow Inverter, Loadmeter Shunt, Fuse Block, Radio Inverter, Radio Inverter Circuit Breaker and Relay, External Power Diode and Current Limiter for Battery
7. External Power Receptacle
8. Reverse Current Diode, External Power and LH Control Relay
9. Leading Edge Fuel Cell Transmitter and Fuel Cell Installation
10. Fuel Filler
11. Remote Compass
** 12. Landing Light
* 13. Wing Tip Wiring and Fuel Vent Float Valve
14. Fuel Siphon Valve
15. Aileron Tab Actuator
16. Leading Edge Fuel Cell
17. Nacelle Fuel Cell Plumbing
18. Box Section Fuel Cell
19. Aileron Actuator and Pulley
20. Aileron Cable, Fuel Vent and Battery Vent
21. Box Section Fuel Cell
22. Fuel Vent Line and Aileron Tab Cable
23. Fuel Vent Line
24. Landing Gear Attach Bolt
25. Fuel Boost Pump
26. Wing Attach Bolt
27. Cowl Flap
28. Oil Level Indicator
29. Reverse Current Diode
** 30. Remote Compass Detector
† 31. Fuel Filler
† 32. Wing Tip Access Openings

* One rectangular opening on P-223 through P-347, P-349 through P-364
** P-223 through P-347, P-349 through P-364
† Optional P-348, P-365 and after

Wing Acess Openings (Sheet 2 of 2)
Figure 204



807 60-610000 ELEVATOR AND
ELEVATOR TAB TRAVEL GAGE



810 60-130001 AILERON
TRAVEL GAGE

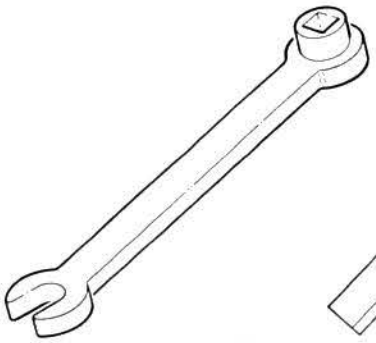
810-1 60-130001 AILERON TAB
TRAVEL GAGE

807 60-630001 RUDDER AND
RUDDER TAB TRAVEL GAGE

810-2 96-524000 FLAP
TRAVEL GAGE

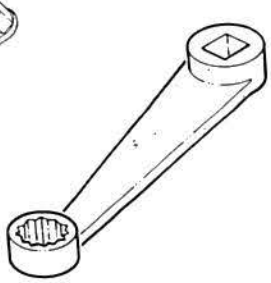
60-17-4

Special Tools (Sheet 1 of 3)
Figure 205

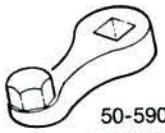


922 60-960000 PROPELLER TORQUE WRENCH ADAPTER

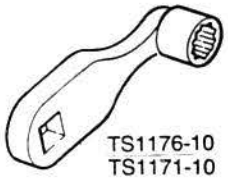
TS1222-4
TS1222-8



50-590014



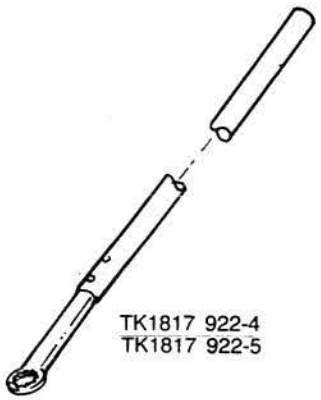
50-590013
TS1171-1
TS1176-1
TS1176-2
TS1171-2



TS1176-10
TS1171-10

WING BOLT WRENCHES

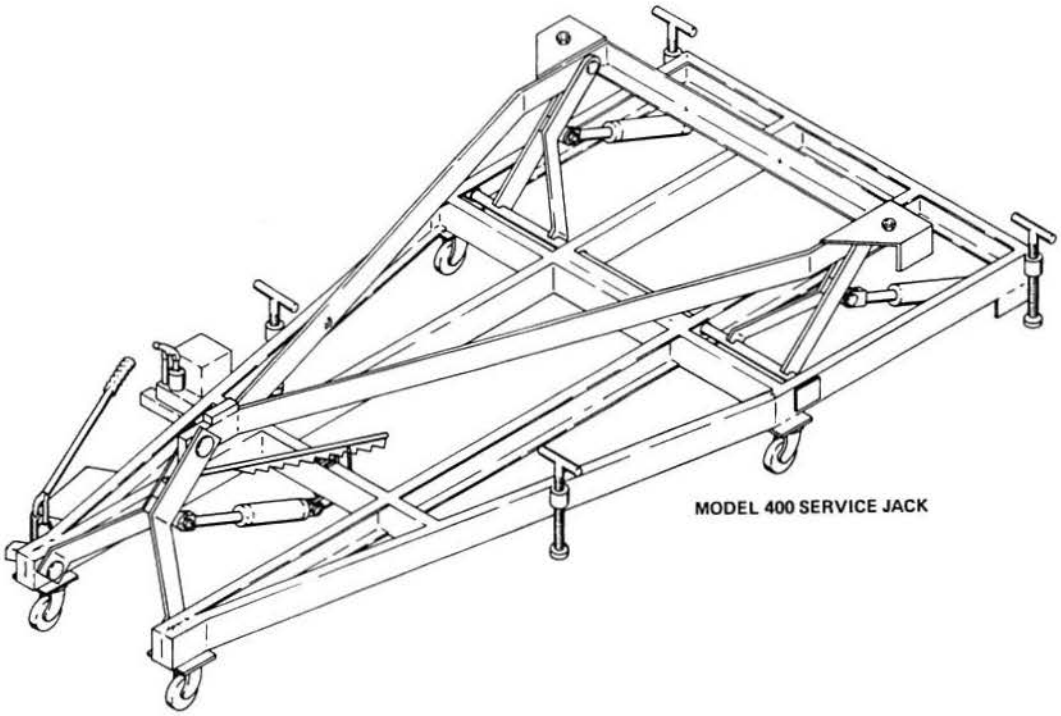
TK1817 922-4	UPPER FORWARD WING BOLT WRENCH.
TS1171-2 or TS1176-2	UPPER FORWARD WING NUT TORQUE WRENCH ADAPTER (for internal wrenching nut).
TS1171-10 or TS1176-10	UPPER FORWARD WING NUT TORQUE WRENCH ADAPTER (for external wrenching nut).
TK1817 922-5	LOWER FORWARD WING BOLT WRENCH.
50-590014	LOWER FORWARD WING NUT TORQUE WRENCH ADAPTER.
TS1222-4 or TS1222-8	UPPER AFT WING BOLT WRENCH.
TS1171-1 or TS1176-1 or 50-590013	UPPER AFT WING NUT TORQUE WRENCH ADAPTER.
TK1817 922-4	LOWER AFT WING BOLT WRENCH.
TS1171-2 or TS1176-2	LOWER AFT WING NUT TORQUE WRENCH ADAPTER (for internal wrenching nut).
TS1171-10 or TS1176-10	LOWER AFT WING NUT TORQUE WRENCH ADAPTER (for external wrenching nut).



TK1817 922-4
TK1817 922-5

60-17-7

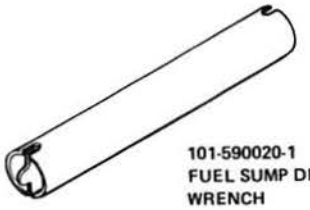
Special Tools (Sheet 2 of 3)
Figure 205



MODEL 400 SERVICE JACK

P/N 60-590013 (P-3 thru P-61)
P/N 60-590013-1 (P-62 and after)

SERVICE JACK ADAPTER



101-590020-1
FUEL SUMP DRAIN
WRENCH

60-17-8A

Special Tools (Sheet 3 of 3)
Figure 205

"END"