Transport Canada Transport Canada

SMALL AIRCRAFT

24-0055A

MAINTENANCE SCHEDULE APPROVAL

OPERATOR: **LANGLEY FLYING SCHOOL INC**

AIRCRAFT TYPE/MODEL(s): **PIPER PA28-140 (Cherokee)**

TYPE OF OPERATION:
- Flight training operations pursuant to CAR IV ☒
- Commercial operations pursuant to CAR VII ☐
- Private operation pursuant to CAR VI ☐

AIRCRAFT ROLE: Passenger ☐ Cargo ☐ Air Taxi ☐ Aerial Work ☐ Commuter ☐

Other ☒: **FLIGHT TRAINING**

ANNUAL UTILIZATION:[1] Min: **600 HOURS** .....Cycles: **N/A**.....
Max: **1200 HOURS** .....Cycles: **N/A**.....

This approval is conditional upon the information specified above. In the event an aircraft's actual annual utilization is outside the range specified, or the type of operation or aircraft role differs from that stated, the operator must undertake a review of this schedule, identify any amendments necessary to cater for the change in circumstances, and obtain Transport Canada approval to incorporate those amendments.

Signature of Operator — August 1, 2011 — Date

Transport Canada Approval No.: **P0938**

TCR-111 Canada

For Minister of Transport — AUG - 8 2011 — Date

Revision status (Transport Canada use only)[2]				
Pages 1-13	Pages	Pages	Pages	Pages .....
Rev. 4	Rev.	Rev.	Rev.	Rev. .....
Date AUG - 8 2011	Date.....	Date.....	Date.....	Date.....
Pages	Pages	Pages	Pages	Pages .....
Rev.	Rev.	Rev.	Rev.	Rev. .....
Date.....	Date.....	Date.....	Date.....	Date.....

[1] Complete this section only where the maintenance schedule approval is predicated upon an anticipated level of utilization.

[2] Revision section refers to all pages in the approved schedule, including this approval document. Where the same page is referenced in more than one block, the most recent revision indicated supersedes all earlier references.

GENERAL CONDITIONS

- This document, together with any additional pages referenced herein, constitutes the minimum scheduled maintenance to be performed. Nothing contained in, or omitted from the maintenance schedule absolves the operator from the responsibility for ensuring aircraft are maintained in an airworthy condition.
- Nothing in this document shall be construed as exempting the operator from responsibility for compliance with all applicable component life limits, Airworthiness Limitations, or other mandatory requirements.
- The operator shall ensure that all tasks listed in the currently approved revision of this schedule are completed within the intervals specified.
- The operator shall amend the schedule as and when directed by the Minister, and shall evaluate all recommendations made by the manufacturers of the aircraft and its installed engines, propellers and appliances, as published in maintenance manuals, recommended schedules, service bulletins, service difficulty data and other technical documents, for applicability. Where appropriate, the operator shall initiate amendment action.
- Amendments to this schedule must be approved for any change in type of operation or operating role identified overleaf and, where maximum and minimum utilization data are specified, for any variation outside the limits indicated. Approval is also required for any task deletions, increases in intervals, or other significant changes. Transport Canada approval is not required for amendments that involve only the addition of tasks or a reduction of intervals; however the operator shall notify Transport Canada of these changes within 30 days.
- The operator shall ensure that maintenance personnel are provided with such records and other documents as are necessary to enable them to determine to their satisfaction, that the aircraft is in compliance with the airworthiness requirements applicable to the work undertaken. All work required by this schedule shall be released in accordance with CAR 571.10.
- The tolerances specified in this schedule shall not apply to any Airworthiness Limitations or Airworthiness Directives.
- Exceptions or deviations from this maintenance schedule must be submitted to Transport Canada for approval, together with substantiating data.

- **SCHEDULED CHECK CYCLE**

The aircraft will be inspected in accordance with the check cycle specified in table 1 below. Check intervals may be varied within the tolerances specified. Detailed instructions and procedures for scheduled maintenance are contained in the attached check list.

Table 1—Check Cycle

Check	Scheduled Inspection Interval	Tolerance
100 HOUR	100 HOURS	10 HOURS

Notes:

Inspection intervals can be exceeded as indicated above, but only in accordance with Langley Flying School's Maintenance Control Manual.

All maintenance will be conducted in accordance with the applicable Piper Service Manual (Part Number 753-586), most current revision status.

Service Bulletins are not mandatory, but will be assessed by the Approved Maintenance Operator and acted upon as deemed necessary.

Unless otherwise indicated on this Approval, related engine and propeller parts or sub-components listed in the most current Piper Service Manual, that requires overhaul, will be overhauled at the same aircraft time limitations specified for the aircraft engine and propeller.

OUT OF PHASE TASKS & EQUIPMENT MAINTENANCE REQUIREMENTS

Engine & propeller overhauls and other maintenance tasks scheduled to occur out of phase with the inspection check cycle, shall be performed as indicated in Table 3 below. Where applicable, the tasks may be identified by reference to separate documents, provided the documents are listed in table 2. Any out of phase tasks not listed shall be performed at the intervals specified in CAR 625 Appendix C.

Note: Reference to other documents or to *CAR* 625 Appendix C, does not relieve the owner/operator from the responsibility for determining the applicability of the tasks and intervals concerned, nor from the responsibility for identifying any other applicable maintenance requirements not listed therein.

Table 2—Reference Documents

Item	Document Name	Document Reference #	Revision No.
1	100-hour Inspection Check Sheet for Piper Cherokee PA-28-140	N/A	1

Table 3 -- Out of Phase Tasks

Out of phase tasks & equipment maintenance requirements[3]			
Item	**Task**	**Interval[4]**	**Tolerance**
Engine (Lycoming 0-320-E2D and E2A)	Overhaul	2150 Hours	50 Hours
Magnetos (Lycoming 0-320-E2D and E2A)	Overhaul/Replace	2150 Hours	50 Hours
Fuel Pump (Lycoming 0-320-E2D and E2A)	Overhaul/Replace	2150 Hours	50 Hours
Engine Hoses	Replace	2150 Hours / 5 Years	50 Hours / 30 Days
Flexible Fuel Tank Supply Hoses (Lycoming 0-320-E2D and E2A)	Replace	2150 Hours / 5 Years	50 Hours / 30 Days
Flexible Fuel Vent Line Connections (Lycoming 0-320-E2D and E2A)	Replace	2150 Hours / 5 Years	50 Hours / 30 Days
Muffler and Tail Pipe	Replace	1000 hours	50 Hours
Exterior Bearings	Inspect & Lube	1000 Hours	50 Hours
Rocker Assembly	Inspect as per Inspection Sheet Note #3	400 Hours	10 Hours
Stabilator Trim	Clean & Lube	500 Hours	50 Hours
Flap Cable Attach Bolt	Inspection	500 Hours	50 Hours
Propeller	Inspection	5 Years	30 Days
ELT	Performance Test	12 Months	5 Days
ELT Battery	Replace	As per Manufacturer	5 Days
Fire Extinguisher	Bottle Inspection/Weight Check	12 Months	5 Days
Transponder	Performance/Test	24 Months	5 Days
Encoder	Performance/Calibrate	24 Months	5 Days
Altimeter & Pitot/Static System(s)	Test/Calibrate	24 Months	5 Days

Continued next page

[3] Include additional pages where required

[4] Insert interval, specifying whether in hours, cycles or calendar time

* Completion of engine and propeller details is mandatory. If applicable, indicate, "On-condition."

Magnetic Compass	Calibrate	12 Months	5 Days
Survival Equipment	Recertify	12 Months	5 Days
First Aid Kit	Recertify	12 Months	5 Days
Tachometer	Check for Accuracy	12 Months	5 Days
Life Limited parts	Remove From Service	As per Manufacturer	Nil

APPLICATION AND MAINTENANCE SCHEDULE DESCRIPTION[5]

Check one of the following:

As a new operator of this aircraft type, the out of phase maintenance intervals specified in CAR 625 Appendix C will be used. ..... ☐

As an experienced operator of this aircraft type, or similar types, the out of phase intervals specified in CAR 625 Appendix C have been revised as indicated in table 3 or in the documents referenced in table 2 ..... ☒

Check one of the following:

The maintenance schedules & interim schedules are based upon:

(a) CAR 625 Appendix B Part 1 ..... ☒

(b) The following manufacturer's recommendations ..... ☐

(c) Another operator's maintenance schedule: ..... ☐

Other operator: ..... ☐

Approval no.: ..... (attach program).

(d) Other data (described below): ..... ☐

[5] The data on this page is provided for information purposes only, to facilitate Transport Canada evaluation of the schedule.

100-Hour Inspection Sheet for PIPER CHEROKEE PA-28-140

Description	Initial as Complete
A. PROPELLER GROUP	
1. Inspect spinner and back plate for cracks.	
2. Inspect blades for nicks and cracks.	
3. Inspect spinner-mounting brackets for cracks.	
4. Inspect propeller mounting bolts and safety—check torque if safety is broken.	
5. Inspect hub for cracks and corrosion.	
6. Inspect complete propeller and spinner assembly for security, chafing, cracks, deterioration, wear, and correct installation.	
B. ENGINE GROUP **Caution**: Ground Magnetos to Primary Circuit before working on engine.	
1. Remove and inspect engine cowling for damage.	
2. Clean and inspect cowling for cracks, distortion, and loose or missing fasteners.	
3. Drain oil sump.	
4. Clean suction oil strainer at oil change—Inspect strainer for foreign particles.	
5. Clean pressure oil strainer or change full flow (cartridge type) oil filter element.	
6. Inspect oil temperature sender unit for leaks and security.	
7. Inspect oil lines and fittings for leaks, security, chafing, dents, and cracks—see **Note #1**.	
8. Clean and inspect oil radiator cooling fins.	
9. Fill engine with oil as per information on cowl or service manual.	
10. Clean engine **Caution:** Do not contaminate the vacuum pump with cleaning fluid. (Reference: latest revision of Lycoming Service Instruction No. 1221.)	
11. Inspect condition of spark plugs—clean and adjust gap as required, adjust as per latest revision of Lycoming Service Instruction No. 1042—see **Note #2**. **Note:** If fouling of spark plugs has been apparent, rotate bottom plugs to upper plugs.	
12. Inspect spark plug cable leads and ceramics for corrosion and deposits.	
13. Check cylinder compression (Reference: AC 43.13-1A)	
14. Inspect cylinders for cracked or broken fins—see **Note #3**.	
15. Inspect rocker box covers for evidence of oil leaks. If found, replace gasket,	

Description	Initial as Complete
torque cover screws 50 inch-pounds—see **Note #4**.	
16. Inspect ignition harness and insulators—high tension leakage and continuity.	
17. Inspect magneto for engine timing.	
18. Check magneto to engine timing.	
19. Remove air filter from screen housing and inspect and/or replace—refer to Section II of Service Manual.	
20. Drain carburettor and clean inlet line fuel strainer.	
21. Inspect condition of carburettor heat air door and box—see **Note #5**.	
22. Inspect intake seals for leaks and clamps for tightness.	
23. Inspect all air inlet ducts and alternate heat duct.	
24. Clean screens in electric fuel pump.	
25. Remove, drain and clean fuel filter bowl and screen—drain and clean at least every 90 days.	
26. Inspect condition of flexible fuel lines—see **Note #1**.	
27. Inspect fuel system for leaks.	
28. Inspect fuel pumps—engine driven and electrical—for operation.	
29. Inspect vacuum pump and lines.	
30. Inspect throttle, carburettor heat and mixture controls for security, travel, and operating condition.	
31. Inspect exhaust stacks, connections, and gaskets—replace gaskets as required.	
32. Inspect muffler, heat exchange, and baffles—see ***Note #9***	
33. Inspect breather tube for obstructions and security.	
34. Inspect crankcase for cracks, leaks, and security of seam bolts.	
35. Inspect engine mounts for cracks and loose mountings.	
36. Inspect all engine baffles	
37. Inspect rubber engine mount bushings for deterioration—replace as required.	
38. Inspect firewall seals.	
39. Inspect condition and tension of alternator drive belt.	
40. Alternator and compression idler pulleys—if installed: remove front grease seal and add grease—refer to lubrication chart in Service Manual Section II.	
41. Inspect condition of alternator and starter.	
42. Inspect condition of alternator mounting.	
43. Check fluid in brake reservoir—fill as required.	
44. Inspect and lubricate controls as per lubrication chart—refer to Piper Service	

Description	Initial as Complete
Bulletin No. 538.	
45. Reinstall engine cowl.	
C. CABIN GROUP	
1. Inspect cabin entrance door and windows for damage, operation and security.	
2. Inspect upholstery for tears.	
3. Inspect crew/passenger headset jack receptacles for looseness; tighten as required.	
4. Inspect seat and seat belts for security of brackets and bolts.	
5. Inspect trim control operation.	
6. Inspect rudder pedals for operation and adjustment.	
7. Inspect parking brake and brake handle for operation and cylinder leaks.	
8. Inspect control column, pulleys and cables.	
9. Check landing, navigation, cabin and instrument lights.	
10. Inspect instruments, lines and attachments—see latest revision of Piper Service Bulletin No. 582.	
11. Inspect gyro-operated instruments and electric turn and bank or turn co-ordinator—overhaul or replace as required.	
12. Replace central air filter.	
13. Clean or replace vacuum regulator filter.	
14. Inspect altimeter.	
15. Inspect operation of fuel selector valve.	
16. Inspect condition of heater controls and ducts.	
17. Inspect condition and operation of air vents.	
D. FUSELAGE and EMPENAGE GROUP	
1. Remove inspection plates and panels.	
2. Inspect battery, box, and cables.	
3. Inspect electronic installations—inspect at least every 30 days—flush box as required and fill battery as per instructions on box.	
4. Inspect bulkheads and stringers for damage.	
5. Inspect condition and security of antenna mounts and electric wiring.	
6. Inspect fuel lines, valve and gauges for damage and operation—see **Note #1**.	
7. Inspect security of all fuel lines.	

Description	Initial as Complete
8. Inspect vertical fin and rudder surfaces for damage.	
9. Inspect rudder hinges, horn, and attachments for damage and operation.	
10. Inspect rudder control stop to insure stop has not loosened and lock nut is tight.	
11. Inspect vertical fin attachments.	
12. Inspect rudder hinge bolts for excess wear—replace as required.	
13. Inspect stabilator surfaces for damage.	
14. Inspect stabilator, tab hinges, horn and attachments for damage and operation.	
15. Inspect stabilator control stops to insure stop has not loosened and lock nut is tight.	
16. Inspect stabilator attachments.	
17. Inspect stabilator and tab hinge bolts and bearings for excess wear—replace as required.	
18. Inspect stabilator trim mechanism.	
19. Check all control cable tensions—use a tensionmeter—see **Note #6**.	
20. Inspect aileron, rudder, stabilator trim cables, turnbuckles, guides, and pulleys for safety, damage and operation.	
21. Lubricate as per lubrication chart.	
22. Inspect strobe light for security and operation.	
23. Inspect all control cables, air ducts, electrical leads, lines, radio antenna leads, and attaching parts for security, routing, chafing, deterioration, wear and correct installation.	
24. Check Emergency Locator Transmitter battery replacement date and transmitter for operation.	
25. Reinstall inspection plates and panels.	

E. WING GROUP

1. Remove inspection plates and fairings.	
2. Inspect surfaces and tips for damage and loose rivets—also check condition of walkway.	
3. Inspect aileron hinges and attachments.	
4. Inspect aileron control stop to insure stop has not loosened and lock nut is tight.	
5. Inspect aileron cables, pulleys, and bellcranks for damage and operation.	
6. Inspect flaps and attachments for damage and operation.	
7. Inspect condition of bolts used with hinges—replace as required.	
8. Lubricate as per lubrication chart.	

Description	Initial as Complete
9. Inspect wing attachment bolts and brackets.	
10. Inspect fuel tanks and lines for leaks, water and contamination—see **Note #7**.	
11. Fuel tanks marked for capacity.	
12. Fuel tanks marked for minimum octane rating.	
13. Inspect fuel tank vents—see **Note #8**.	
14. Inspect all control cables, air ducts, electrical leads, lines and attaching parts for security, routing, chafing, deterioration, wear, and correct installation.	
15. Reinstall inspection plates and fairings.	
F. LANDING GEAR GROUP	
1. Inspect oleo struts for proper extension (N-3.25 inches; M-4.50 inches)—check for proper fluid level as required.	
2. Inspect nose gear steering control and travel.	
3. Inspect wheel alignment.	
4. Put aeroplane on jacks.	
5. Inspect tires for cuts, uneven or excessive wear and slippage.	
6. Remove wheels—clean, inspect and repack bearings.	
7. Inspect wheels for cracks, corrosion and broken bolts.	
8. Check tire pressure (N-30 psi; M-24 psi).	
9. Inspect brake lining and disc for wear.	
10. Inspect brake backing-plates for corrosion.	
11. Inspect brake lines for condition and security.	
12. Inspect shimmy dampener operation.	
13. Inspect gear forks for damage.	
14. Inspect main gear torque links for cracks.	
15. Inspect oleo struts for fluid leaks and scoring.	
16. Inspect gear struts, attachments, torque links and bolts for condition and security—refer to latest revision of *Piper Service Letter* No. 842.	
17. Lubricate as per lubrication chart.	
18. Inspect all hydraulic lines and attaching parts for security, routing, chafing, deterioration, wear and correct installation.	
19. Remove aeroplane from jacks.	

G. OPERATIONAL INSPECTION

1. Check fuel pump and fuel tank selector.	
2. Check fuel quantity and pressure.	
3. Check oil pressure and temperature.	
4. Check alternator output.	
5. Check carburettor heat.	
6. Check parking brake.	
7. Check vacuum gauge.	
8. Check gyros for noise and roughness.	
9. Check cabin heater operation.	
10. Check magneto switch operation.	
11. Check magneto RPM variation.	
12. Check throttle and mixture operation.	
13. Check propeller smoothness.	
14. Check engine idle speed.	
15. Check electronic equipment operation.	

H. GENERAL

1. Aircraft conforms to Type Certificate specifications.	
2. All Airworthiness Directives complied with.	

NOTES:

1. Replace ***flexible oil and fuel lines*** as required but no later than engine overhaul or 5 years, whichever occurs first.
2. When using ***alternate fuels***, refer to the latest revision of Lycoming Service Letter No. L185 for additional information and service procedures.
3. Check ***cylinders*** for evidence of excessive heat, which is indicated by burned paint on the cylinders. This condition is indicative of internal damage to the cylinder and, if found, its cause must be determined and corrected before the aircraft is returned to service. Heavy discoloration and appearance of seepage at the cylinder head and barrel attachment area is usually due to emission of thread lubricant used during assembly of the barrel at the factory, or by slight gas leakage which stops after the cylinder has been is service for a while. This condition is neither harmful nor detrimental to engine performance and operation. If it can be proven that leakage exceeded these conditions, the cylinder should be replaced.
4. At every 400 hours of engine operation, remove **the rocker box covers** and check for freedom of ***valve rockers*** when valves are closed. Look for evidence of abnormal wear or broken parts in the area of the valve tips, valve keeper springs and spring seats. If any indications are found, the cylinder and all of its components should be removed (including the piston and connecting rod assembly) and inspected for further damage. Replace any parts that do not conform with limits shown in the latest revision for Lycoming Service Table of Limits No. SSP1776.
5. Check ***carburettor throttle body attaching screws*** for tightness; the correct torque for these screws is 40 to 50 inch-pounds.
6. Maintain ***control cable tensions*** as specified in Section V of Service Manual.
7. Replace ***flexible fuel tank supply hoses*** as required but no later than engine overhaul or 5 years, whichever occurs first.
8. Replace ***fuel tank vent line flexible connections*** as required but no later than engine overhaul or 5 years, whichever occurs first.
9. Special attention must be given during the inspection to ensure the ***flame tube*** welded inside the ***muffler*** remains sound and secure; a deteriorated fame tube could emit pieces of metal that could block the flow of exhaust and cause power loss during flight. Also, ensure the ***"bird cage"*** remains sound and secure at the top of the ***exhaust pipe***; this feature is a critical second line of defence against exhaust flow blockage. Piper recommends replacement every 1000 hours, and this is a mandatory out-of-phase task for Langley Flying School aircraft. See special instructions number 3-9 in the *Piper Cherokee Service Manual.*