

**C-125
C-145
O-300**

CONTINENTAL® AIRCRAFT ENGINE

OPERATOR'S MANUAL



Continental Motors, Inc.

FAA APPROVED

Supersedure Notice

This manual revision replaces the front cover and list of effective pages for Publication Part No. X30015, dated August 1982. Previous editions are obsolete upon release of this manual.

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FOREWORD

This booklet is intended to serve pilots and maintenance men as a pocket size reference book and guide to operation and maintenance requirements of models C125, C145, and O-300 engine series. Accordingly, its topics are limited to engine operation, inspection and minor maintenance procedures. Careful observance of these suggested procedures will help the engines to serve faithfully.

The world wide use of Continental engines in personal aircraft has placed upon each factory department a serious responsibility in our endeavor to produce the finest possible engines at fair and reasonable prices. Our responsibilities now extend to many thousands of owners and service organizations. As a result, it has become impossible to advise individuals by direct mail, except through the medium of Service Bulletins, which may be obtained under our annual subscription plan or read at Continental Approved Distributor.

In most parts of the United States Continental Approved Service is as close as your nearest airport. The name and address of your nearest Approved Service Station will be sent on request. It is suggested that you become acquainted with that firm, where mechanics and others will gladly give you the benefit of their thorough knowledge of Continental engines.

No engine leaves our factory until it has passed a rigid operation test and inspection, therefore each new engine is believed to be free from defects. If any Continental engine or part is suspected of failure, advise your nearest Continental Approved Distributor, giving model and serial number, hours operated and complete details. Do not attempt repairs without factory authorization if adjustment is expected.

SPECIFICATIONS

Model	C125	C145	O300
Type Certificate No.	236	253	253
Bore (inches)	4-1/16	4-1/16	4-1/16
Stroke (inches)	3-5/8	3-7/8	3-7/8
Piston Displacement (cu. in.)	282	301.37	301.37
Compression Ratio	6.3:1	7.0:1	7.0:1
Rated Brake Horsepower at Sea Level	125	145	145
Take-Off Brake Horsepower at Sea Level .	125	145	145
Rated R.P.M.	2550	2700	2700
Take-Off R.P.M.	2550	2700	2700
Recommended Cruising R.P.M.	2400	2450	2450
Maximum Allowable Cylinder Head Temperature (°F.)	550	525	525
Minimum Fuel Octane Rating	73*	80*	80/87*
Oil Pressure (cruising) (lbs./sq. In.)	30-40	30-45	30-45
Minimum Oil Pressure (idling) (lbs./sq. In.)	10	10	10
Minimum Oil Temp. (take-off) (°F.)	75	75	75
Maximum Oil Temperature (°F.)	220	225	225
Oil Sump Capacity in Quarts	8	8	8
Average Fuel Consumption in Gallons per Hour (cruising)	8.5	9.27	9.27
Approximate Oil Consumption in Quarts per Hour (cruising) **	1.07	1.22	1.31
Magneto Timing	Rt. Mg. 28° Lt. Mg. 30°	Rt. Mg. 26° Lt. Mg. 28°	Rt. Mg. 26° Lt. Mg. 28°
Valve-Rocker Clearance (operating)	0	0	0
Valve-Rocker Clearance (lifters deflated) (in.)	.030- .110	.030- .110	.030- .110

* See Service Bulletin M77-3

** Worst conditions for a newly installed engine. Average for field use should be 4-6 hours per quart.

LUBRICATING OIL

Like any other fine mechanism, your engine requires continuous lubrication to minimize wear. Operating conditions demand Aviation Quality oil of viscosities indicated in the following table during various seasons.

RECOMMENDED OIL VISCOSITY	AMBIENT AIR TEMPERATURE
SAE No. 20	Below 40°F.
SAE No. 40	Above 40°F.

When operating oil temperatures overlap above column ranges, use the lighter viscosity. Multiviscosity oils are approved. It is recommended that oil be changed every 20 to 30 hours of operation. (See latest Fuels and Lubricants Service Bulletin.)

FUEL

Use only Aviation Quality gasoline of octane rating as listed in the specifications for each respective model. Lead content should not exceed $\frac{1}{2}$ cc. per gallon. See Service Bulletin M77-3.

OPERATING INSTRUCTIONS

1. BEFORE STARTING

- Perform the "Daily Inspection" described herein.
- Place ignition switch in "OFF" position.
- Place mixture control in "FULL RICH" position.
- Turn fuel supply valve to "ON". (full tank).
- During winter operations turn propeller by hand at least six revolutions to loosen congealed oil and to listen for unusual noises.

2. STARTING

- Close throttle to idle stop.
- Place Main Line Switch in "ON" position.

- c. Turn ignition switch to “BOTH” position.
- d. Open throttle approximately 1/10 of range.
- e. Engage starter, and operate primers as required by temperature.

CAUTION . . . Never re-engage starter while propeller is turning.

NOTE 1 . . . Do not prime a hot engine. If over-primed, crank with ignition switch “OFF”, throttle wide open to clear.

3. WARM-UP AND GROUND TEST

- a. Immediately after starting adjust throttle to 800 R.P.M. and observe oil pressure. If no pressure is indicated within 30 seconds, stop and investigate.
- b. After at least one minute at 800 R.P.M., increase speed to 1200 R.P.M. and continue warm-up until engine responds to normal throttle movement. Part of this period may be used in taxiing.
- c. Increase engine speed to 1700 R.P.M. only long enough to check performance as follows:

NOTE 2 . . . Due to design changes in today's higher output engines the comparison of single magneto operation versus both magnetos is no longer a sound criteria for evaluation of magneto operation. Therefore all magneto checks should be performed on a comparative basis between individual Right and Left magneto performance.

(1) The purpose of the magneto check is to determine that all cylinders are firing. Magneto drops of up to 150 R.P.M. are not uncommon, but if a cylinder is not firing, engine roughness will be very evident and the magneto drop will be considerably greater.

(2) Move the ignition switch first to “R” position and note the R.P.M., then move switch back to “BOTH” position to clear the other set of plugs. Then move switch to “L” position and note the R.P.M. The difference between the two magnetos operated singly should not differ more than 75 R.P.M.

- e. Check oil pressure. Should be as specified on page 1.
- f. Check oil temperature. Should show a slight rise.

g. Retard throttle, and make sure mixture control is in "FULL RICH" position and carburetor air heat control is in "COLD" position (unless icing conditions exist at airport altitude).

CAUTION . . . If ice forms in carburetor during warm-up it must be cleared. Do not operate at high R.P.M. longer than 30 seconds on the ground under other conditions.

4. TAKE-OFF AND CLIMB

a. Open throttle to full speed stop.

b. R.P.M. may not reach rated speed until craft is air-borne. Maintain rated R.P.M. only until immediate obstacles are cleared; then reduce to climb power setting.

CAUTION . . . Cylinder head temperature must not exceed values listed in specifications during climb.

5. CRUISING

a. Do not exceed recommended cruising R.P.M. or manifold pressure for long periods. Excessive speeds and loads hasten wear and increase operating cost.

b. Abnormal cylinder and oil temperatures or sub-normal oil pressure may indicate depletion of oil, incorrect operation or incipient trouble. Any fluctuation in oil pressure, irregularity in R.P.M., rough running or any sudden or continuous rise in temperature is a warning of trouble. Land quickly and investigate.

c. At any cruising altitude adjust mixture control for best rich power by moving toward "LEAN" position to obtain maximum R.P.M. with fixed throttle; then return toward "FULL RICH" until R.P.M. drops just perceptibly. Readjust for each change in power or altitude.

CAUTION . . . Excessively lean fuel-air mixture will cause overheating and may cause detonation. Do not lean the mixture unless an increase in R.P.M. results.

6. LANDING

a. Before starting approach, return mixture control to "FULL RICH" position.

- b. Apply full carburetor air heat before retarding throttle. Return to "COLD" position.

NOTE 3 . . . If approaching a field whose elevation is 5000 feet or more above sea level adjust fuel-air mixture for best power in level flight near field elevation.

- c. During a long approach maintain 1000 to 1200 R.P.M. and "gun" the engine at intervals to prevent fouling.
- d. Close throttle before landing.

7. STOPPING THE ENGINE

- a. Open cowl flaps, if installed, while taxiing, and leave them open until engine stops.
- b. Allow the engine to idle at 800 R.P.M. until cylinder temperature has been reduced appreciably below normal operating temperature.
- c. If spark plugs tend to foul rapidly at idling speed, advance throttle briefly to clear them before stopping.
- d. Close throttle to idle stop.
- e. Stop the engine by moving mixture control to the "LEAN" limit, where it acts as an idle cut-off.

NOTE 4 . . . Do not open throttle after stopping. Opening the throttle actuates the accelerator pump.

- f. After the engine stops turn ignition switch to "OFF" position, and close the fuel supply valve.

8. CARBURETOR HEAT CONTROL

Carburetor ice can form on the ground with the engine idling. Therefore, just before take-off and during the magneto check, position the carburetor heat to "ON". Leave it in that position until the throttle is advanced for the take-off run, then position the carburetor heat to "cold air". This gives maximum power for take-off. Monitor engine for any indication of ice (roughness or loss of RPM) during climb and add full carburetor heat at the first sign of icing. The correct way to use carburetor heat is to first apply full heat to remove any ice that has formed. Determine the minimum amount of heat required to prevent ice forming, each time removing any ice that has formed by applying full heat.

TROUBLE SHOOTING

1. FAILURE OF ENGINE TO START

a. Lack of Fuel

- (1) Check whether there is sufficient gasoline in airplane tank and a definite flow of gasoline to the carburetor.
- (2) Check gasoline shut-off valve for being in the FULL OPEN position.
- (3) Check for carburetor float being stuck, and for clogged screen and jets.
- (4) Check the gasoline tank caps to make sure their vent holes are open.

b. Improper Priming.

- (1) Weak intermittent explosions followed by puffs of black smoke from the exhaust pipe would indicate overpriming or flooding. Excess fuel may be cleared out of the combustion chamber by setting the throttle to the FULL OPEN position and cranking engine three or four revolutions with the ignition switch in the OFF position.
- (2) If the engine is underprimed, which is most likely in cold weather and with a cold engine, repeat the same instructions given for starting.

c. Defective Ignition.

- (1) Check the ground wire between the magnetos and switch. The grounding of this wire will prevent magnetos from firing.
- (2) Check all spark plugs for being clean and having correct gap setting. Gap should not exceed .025". For recommended gap refer to latest Spark Plug Service Bulletin.
- (3) Check the magneto breaker points and see that they are clean and free from oil.

d. Cold Oil. In extremely cold weather it is advisable to preheat the cylinder oil before attempting to start the engine, to insure lubrication and obviate having to run the engine an excessively long time to get oil temperature up to 75°.

It is also recommended that the engine be cranked by pulling propeller through several revolutions by hand (make sure the ignition switch is at the OFF position) to help break the drag created by cold oil between the pistons, piston rings, and cylinder walls.

e. Hot Engine. Do not prime. The engine will usually start without priming. If over-primed, remove excess fuel vapor from cylinders by cranking the engine at least six revolutions with ignition switch "OFF" and throttle wide open.

2. LOW OIL PRESSURE

- a. Check the quantity and quality of oil in the oil sump.
- b. Check for dirt in the oil screens and clean thoroughly.
- c. Check oil pressure relief valve for having dirt at seat, and for plunger sticking in its guide.
- d. Check for worn bearings.
- e. Check for proper functioning of oil pressure gauge.

3. HIGH OIL TEMPERATURE

- a. Insufficient cooling.
- b. Insufficient oil supply. Should be 8 quarts.
- c. Check oil for proper viscosity (See lubrication chart page 2.)
- d. Check for excessively lean fuel mixtures.

4. LOW POWER

- a. Check ignition system in general.
- b. Check for full opening of throttle and for proper closing of carburetor air heater valve.
- c. Check gasoline for proper octane and volatility. Automobile gasolines regardless of octane rating are unsuitable for use in aircraft engines, and will not only cause loss of power and overheating but will result in serious damage.
- d. Check for low compression in cylinders.

5. ROUGH RUNNING

- a. Check propeller for balance, pitch, track and tightness of attaching bolts.
- b. Remove and clean spark plugs. Set electrode gaps as specified in latest Spark Plug Service Bulletin. Test plugs in dry compressed air.
- c. Test for uneven cylinder compression by turning propeller, with ignition switch "OFF", or, with a gage installed alternately in upper spark plug holes. Crank engine with a starter and compare indicated pressures.
- d. Test ignition cables for high tension breakdown.
- e. Remove magnetos. Test condensers, timing, operation.
- f. Remove carburetor; disassemble, clean, test it.
- g. Check engine mount bolts and Lord bushings.

6. ENGINE FAILS TO ACCELERATE PROPERLY

- a. Engine not sufficiently warm.
- b. Mixture too lean (use "FULL RICH" on ground).
- c. Carburetor idling jet mis-adjusted or plugged.
- d. Carburetor accelerator pump inoperative.
- e. Low octane fuel, water in fuel, dirty fuel.
- f. Carburetor air filter valve improperly adjusted.
- g. Air intake restricted.

DAILY INSPECTION

1. Check oil and fuel levels and replenish if necessary.
2. Check oil and fuel systems for leaks and plugged vents. Remove any oil from exterior.
3. Check for free operation of throttle, mixture control, and carburetor heat control. Clean fuel filter bowl if necessary.

4. Check the entire engine for missing or loose nuts, screws, bolts, etc.
5. Check safety wiring, baffles, and ignition system.
6. Check propeller for pits, cracks, nicks, and security of mounting.
7. The air filter should be checked daily for:
 - a. Cleanliness.
 - b. Condition of seals and gaskets.
 - c. Condition of air box and ducting.
 - d. Be absolutely sure that no air leaks exist in induction system at any point that would allow unfiltered air into engine.

100-HOUR INSPECTION

1. Remove and inspect general condition of engine cowling.
2. Wash the exterior of the engine thoroughly with a good cleaning solvent. This may be done with a brush but spraying is preferable. Keep away from electrical equipment.
3. Check engine mounting bolts and brackets for tightness and security.
4. Remove rocker box covers and inspect general condition of all parts. Interior of covers should show complete coverage with oil for proper lubrication.
5. Check intake manifold, elbows and rubber connections for condition and security.
6. Remove spark plugs, clean, check gap clearance for being between .015" and .018", test and replace, using solid copper gaskets.
7. Check all high tension cables and terminals for condition and security.
8. Check propeller for condition, security of mounting and proper track. Blades should track within 1/8 inch.
9. Remove and clean sediment bowl and screen, replace, tighten and safety.

10. Remove drain plug from bottom of carburetor float chamber, remove and clean strainer. Turn fuel on and flush out any water or sediment or trapped air, replace strainer and plug, safety same.
11. Check for full range movement of carburetor throttle, mixture control lever and carburetor heater control valve.
12. Check all air pressure baffles for cracks, position and security of fastening.
13. Remove, clean in fresh cleaning solvent and inspect the carburetor air filter. If the flocking on the surfaces is worn through so as to expose the metal screen the filter will not be effective and must be replaced with a new part. If the original filter is satisfactory, dry it thoroughly; then dip it in clean engine lubricating oil, and allow it to drain for eight hours or so before installing. Inspect the air scoop for cracks, deformation of the air filter retaining parts and obstruction of the drain tube. Repair or replace parts as necessary to correct such conditions.
14. Remove oil screens from bottom of crankcase cover. Clean, inspect and replace them. Use new gaskets.
15. Remove magneto breaker cover and thoroughly clean and dry the breaker mechanism; check contact points for condition in general. (See Section on Magnetos for further instructions.)
16. Check the exhaust system for cracks or looseness in mounting and connections. Check exhaust ports for blown gaskets. Check cabin heater for any possibility of exhaust gas leaks.
17. Check starter and generator for leaks and security. Leakage at generator mounting may mean a defective or worn oil seal. Wipe or wash off any oil seepage at pinion gear shaft in starter adapter. Should the oil seal ever need replacing on this shaft replace only with a seal furnished by the manufacturer of the starter.
18. Check engine instruments for tightness of mounting and for proper functioning.

SEA LEVEL PERFORMANCE

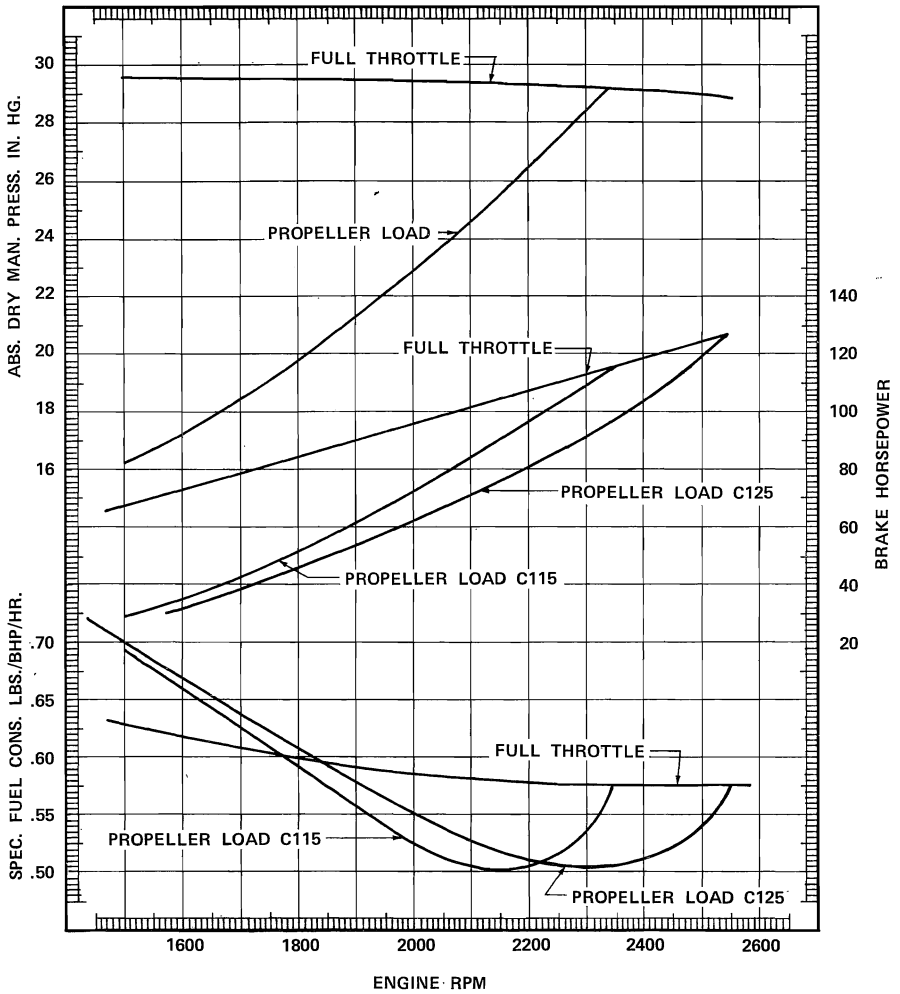


Figure 1. SEA LEVEL PERFORMANCE CURVES, C-115-1, 2 & C-125-1, 2

SEA LEVEL PERFORMANCE

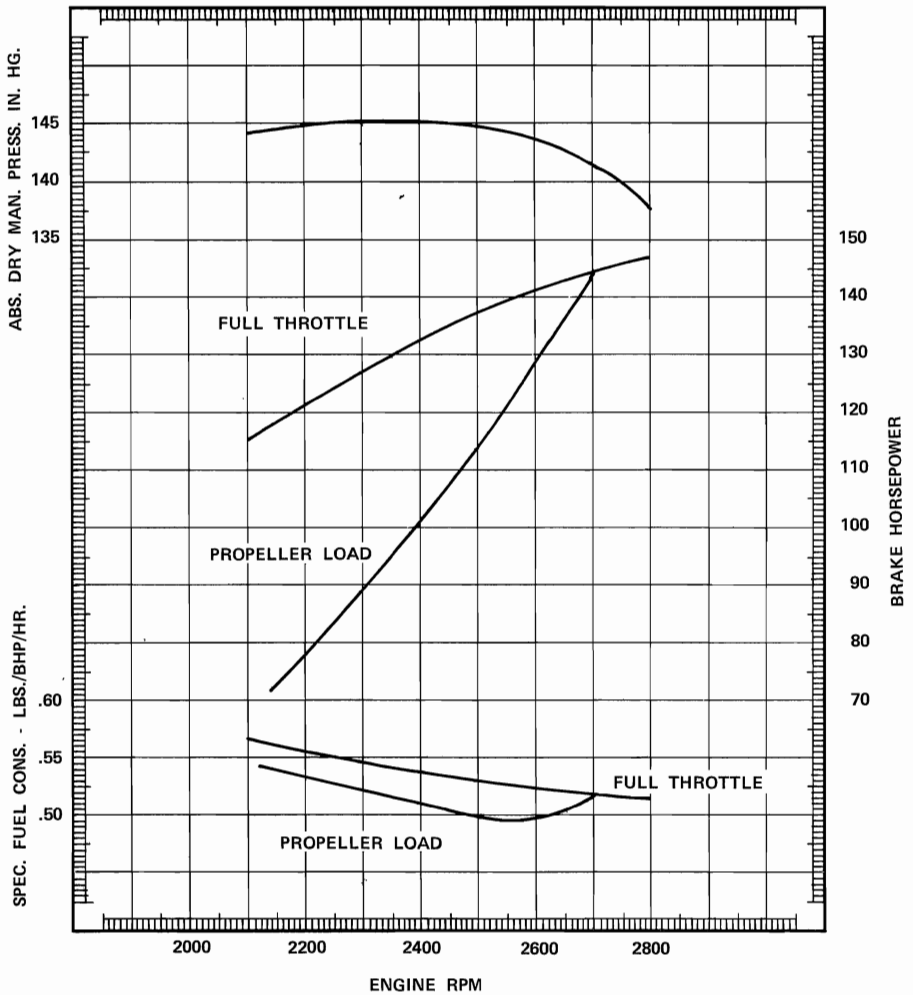


Figure 2. SEA LEVEL PERFORMANCE CURVES, C-145-2, 2H

SEA LEVEL PERFORMANCE

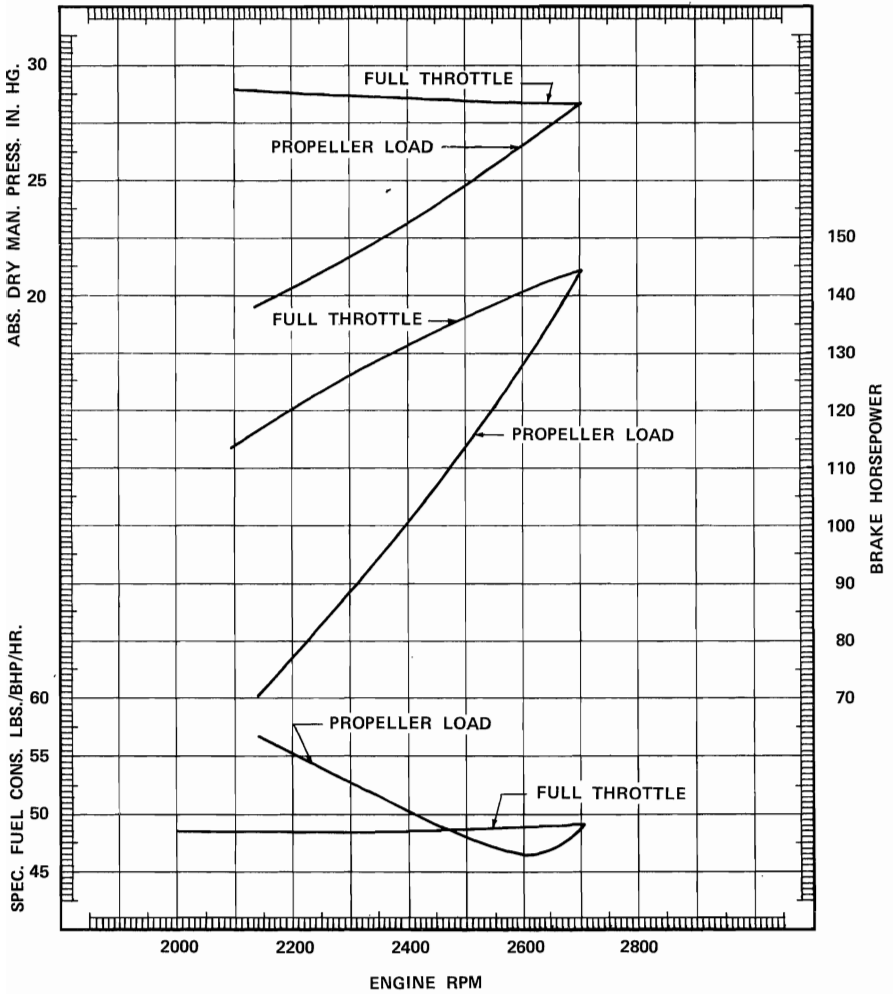


Figure 3. SEA LEVEL PERFORMANCE CURVES, 0-300-A, B, C, D, E

ALTITUDE PERFORMANCE CURVE

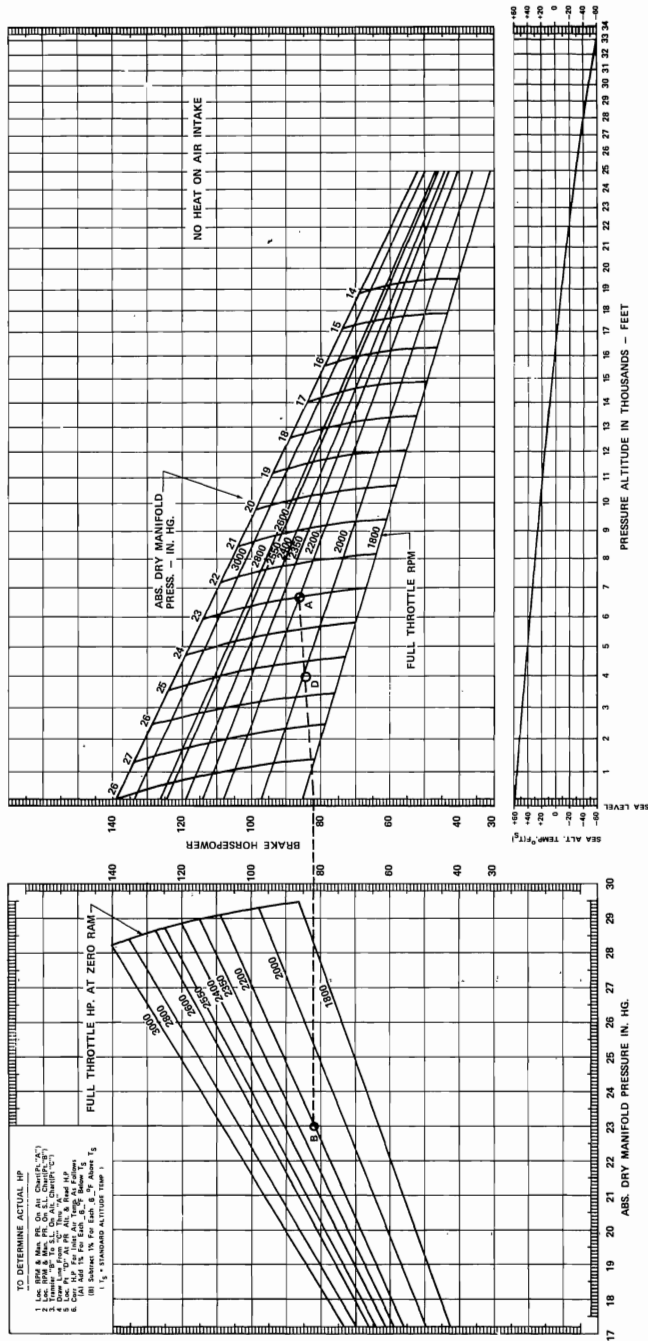


Figure 4. ALTITUDE PERFORMANCE CURVES, C-115-1, 2 & C-125-1, 2

ALTITUDE PERFORMANCE CURVE

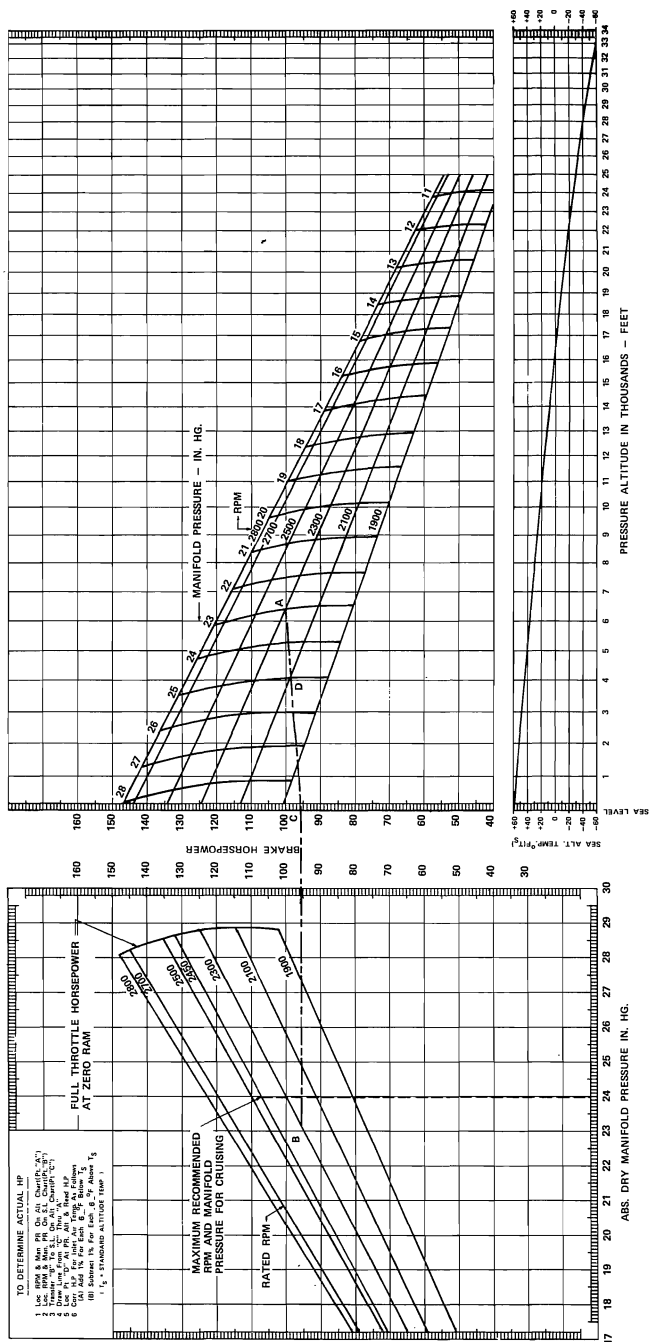


Figure 5. ALTITUDE PERFORMANCE CURVES, C-145-2, 2H

ALTITUDE PERFORMANCE CURVE

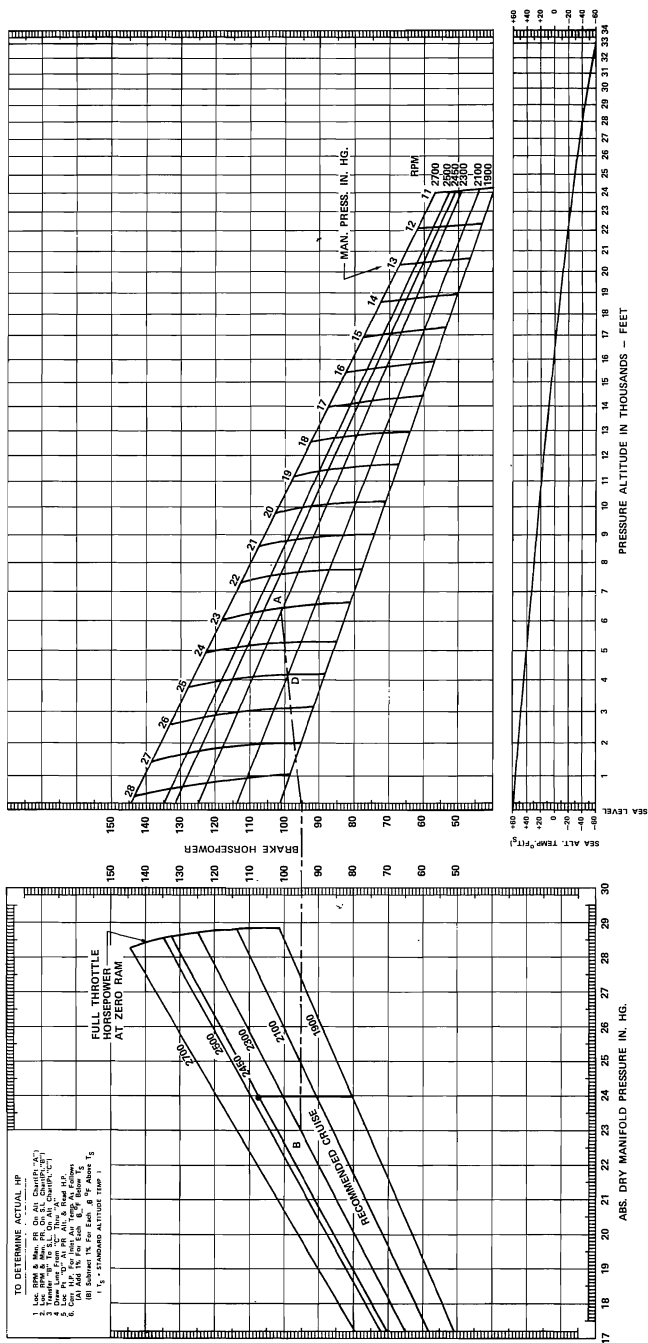


Figure 6. ALTITUDE PERFORMANCE CURVES, 0-300-A, B, C, D, E

MODEL 664 SERIES SLICK AIRCRAFT MAGNETOS

The Slick Model 664 Magnetos are designed for aircraft use. The outstanding features of the magnetos are their simplicity and the ease in servicing and timing to the engine. The suppression (or radio interference elimination) is designed in the magneto. The coaxial capacitor serves as a filter for suppression as well as the condenser for the magneto, therefore no additional filters are required.

VENTING THE MAGNETO

The magneto is sufficiently ventilated with four (4) vent holes. These must be kept clean for free flow of air.

CONTACT POINTS & ADJUSTMENT

The contact points are tungsten. When replacing, a kit is available which includes the contact point assembly with a new cam (black plastic) a cam oiler and snap ring. To remove the cam, remove the snap ring on end of shaft and push out by prying the nylon gear off the shaft. When assembling, press the nylon gear on the shaft. Be sure the timing mark on the nylon gear is on the same side as the timing mark on the shaft and slot in the nylon gear is in line with the cam slot in the shaft. Place the cam in the slot in the shaft and the nylon drive gear. The cam is the key for the nylon gear. Clean new contact points before assembling with oleum spirits. Saturate the wick with SAE 70 oil and remove excessive oil around the oil wick. Assemble contact points on the magneto. To adjust the contact points, a timing hole is located in the bottom of the frame next to the flange. There is also a mating hole in the shaft. Insert a pin (.093" 6-penny nail) through the hole in the frame into the hole in the shaft. This locks the rotor in the position where the spark should occur. With the rotor in this position, adjust the points so they are just breaking. Remove the pin and turn the rotor so the cam opens the points. This should be .010" to .012" total point opening. The cam oiler felt should touch the cam lobe slightly. Adjust by bending the support. Use SAE 70 oil in the felt. Use sparingly so oil will not seep onto the contact points.

TIMING GEARS

The large nylon distributor gear is marked R.H. for clockwise rotation and L.H. for counterclockwise rotation. Rotation is determined looking at the flange end of the magneto. The timing arrow should point to the timing mark on the rotor drive gear. The black or red marks on the outer edge of the teeth are for timing the magneto to engine. (See paragraph on Timing).

CONDENSER

The condenser is a coaxial capacitor so the terminals at both ends of the condenser are common. The ground is the body or housing. The condenser can be checked in the distributor block housing and should not be removed unless necessary.

DISTRIBUTOR BLOCK & HOUSING

The distributor housing contains the condenser which is connected to the circuit with a slip terminal. Do not remove the condenser from the housing until the housing is removed from the magneto and this terminal disconnected. During re-assembly be sure to slip the terminals together before assembling. The terminal in the distributor block for the spark plug wire is a flat surface to make contact with a spring on the end of the spark plug wire. There is a ceramic bushing over the wire which presses against a washer to hold the spring in compression against the flat surface. Be sure this assembly is in place.

IMPULSE COUPLING

The impulse coupling is a standard design with adjustable lag angle. Adjusting the lag angle is accomplished by moving the stop pin plate. With the impulse removed there is an arrow on the plate pointing to an "O" stamped in the frame. This setting gives the lag angle stamped on the side of the frame. This is adjustable in increments of 5° . Removing the impulse coupling is accomplished with an impulse coupling puller which is a 5/8-11 cap screw with a 13/32" flat bottom hole 5/8" deep in the thread end, Slick Part No. 021-CMT should the impulse assembly be disassembled. When reassembling, wind tension in spring turning impulse hub into stop in shell 1/2 turn, or approximately 180° of wind up.

TIMING THE MAGNETO TO THE ENGINE

Visible through the vent holes in each side of the magneto is the distributor block and the O.D. of the nylon gear, on which are red lines on the side of the frame with the Slick insignia and black on the opposite side. When the red line on the gear tooth is in line with the red line on the distributor block, the spark will occur at the post nearest the red lines. Also, the timing holes in the bottom of the frame and shaft will be in line and for assembly onto the engine, the timing pin should be put in place in the frame and rotor. After the magneto is assembled on to the engine, be sure to remove the timing pin.

WARNING . . . Do not time with red line and black together.

INSPECTION INSTRUCTIONS FOR MODEL 664 AIRCRAFT MAGNETO

Each 300 Hour Check

Check opening of contact points. Should be .010" to .012".

The surface between contact points should have a satin, silvery appearance. If dark blue or black, disassemble point and remove this surface with a stone.

Replenish oil in cam oiler (use SAE 70 oil in wick), use approximately three (3) drops. Oil wick should touch cam very lightly at one corner. Adjust by bending support.

Check freeness of distributor shaft in Oilite Bearings, oil with two (2) drops oil and allow to seep or soak into bearing. (Use SAE 30 oil.)

Carbon brush in end of distributor shaft must make contact with spring lead on coil. If worn replace brush. Brush projects out of shaft 1/16". Check spring terminal on coil by inserting gear shaft in bearing. Press against spring and release. Spring must return or lift gear.

Check vent holes in four (4) vent plugs. Air must flow freely to vent magneto. Test by blowing through screen. KEEP MAGNETO CLEAN.

Each 1,000 Hour Check

Slick (formerly Case) Magnetos.

- a. Magnetos for correct timing to engine and security of attachment.

NOTE 5. . . As long as Slick magneto timing is correct, the magnetos need be checked internally only at 500-hour intervals. Check the following whenever a magneto is disassembled.

- b. Breaker points for security, pits, burns, and carbon deposits.
- c. Cam oiler pad for correct lubrication.
- d. Ventilator screens for cleanliness and security.
- e. Carbon brush for excessive wear. The brush should protrude a minimum of 1/32" from the shaft.

- f. Each end of the distributor gear shaft for correct lubrication.
- g. The magnetos for correct internal timing during reassembly, timing to the engine, and security of attachment.

ALWAYS KEEP THE MAGNETO CLEAN

IGNITION TIMING

Install magnetos with timing marks aligned and No. 1 piston on compression stroke at angles before top center shown in following table.

	C125	C145	O300
Right Magneto fires upper plugs B.T.C.:	28°	26°	26°
Left Magneto fires lower plugs B.T.C.:	30°	28°	28°

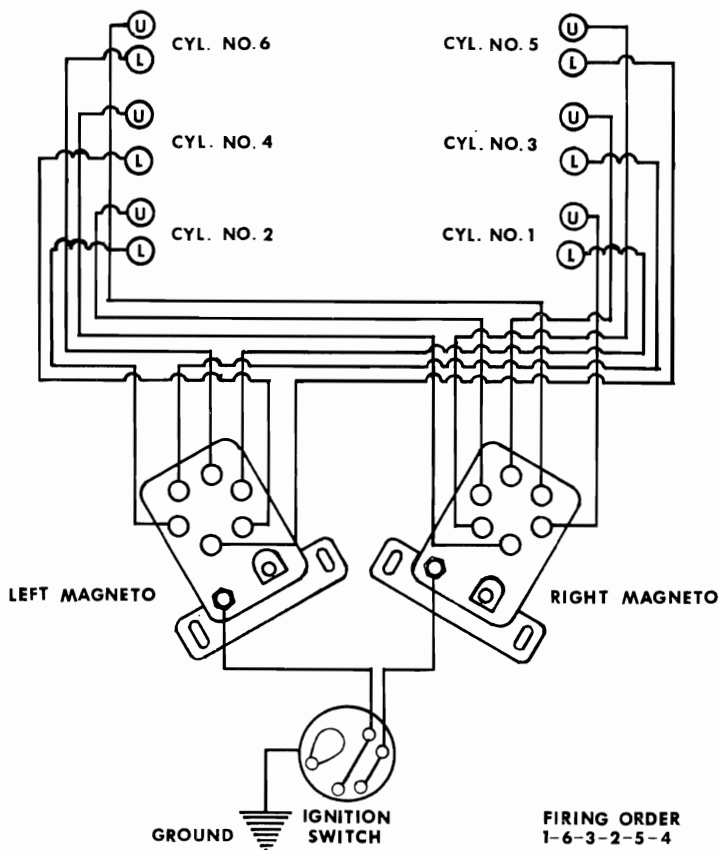


Figure 7. WIRING DIAGRAM FOR SLICK MAGNETO

BENDIX S6LN-21 MAGNETO

1. The ball bearings are grease packed and require no lubrication between overhauls. The breaker arm felt wick should be moist with SAE No. 30 oil, but not visibly wet.
2. At periodic inspections check breaker opening thus:
 - a. Remove aluminum plug from inspection hole at top.
 - b. Remove breaker cover at bottom of rear side.

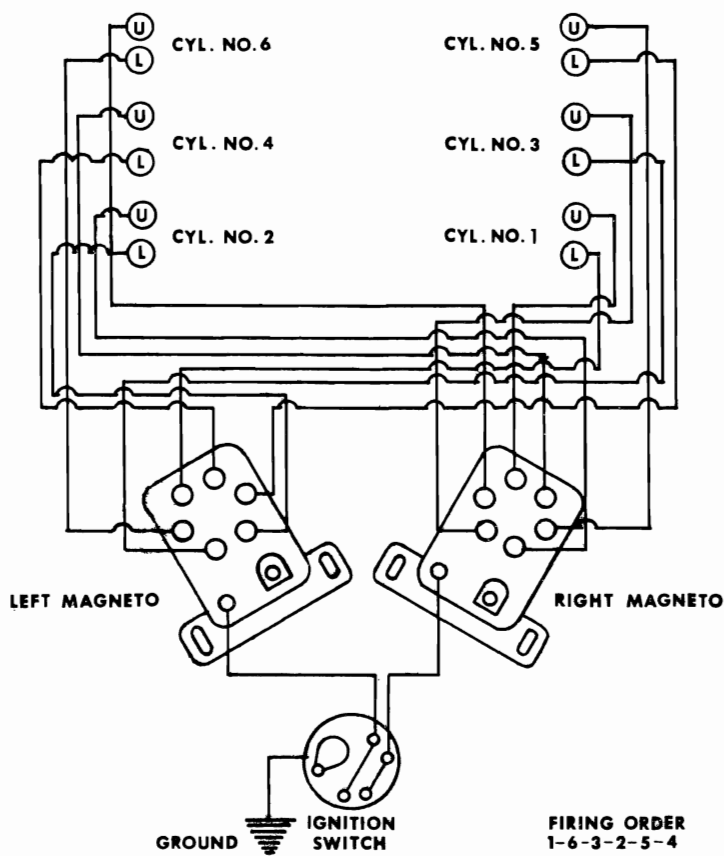


Figure 8. WIRING DIAGRAM FOR SCINTILLA MAGNETO

- c. Turn propeller backward until white distributor gear tooth aligns with timing pointer under inspection hole. Turn propeller 10° or so further.
- d. Remove switch wire terminal, and place a thin card insulator between breaker grounding spring and case.
- e. Connect a Bendix No. 11-851 timing light across the breaker points.
- f. Tap propeller forward until timing light indicates that breaker points have opened. Check timing marks.
- g. If timing marks are not aligned turn propeller to align them.
- h. Loosen breaker retaining screws, and shift the assembly until the points just open. Tighten screws and re-check timing.
- i. Wipe any oil from breaker points with a clean, lintless cloth moistened in gasoline. Do not allow the cloth to touch the oil impregnated breaker cam.
- j. If breaker points are burned or badly worn, do not attempt to dress them. Replace the complete breaker.
- k. Remove the insulator card, reconnect the switch wire terminal, and see that it contacts the spring and holds the spring away from the magneto case.

CAUTION . . . Do not remove the five screws which attach the two halves of the case. Do not fail to remove the insulator card from the breaker housing. Remove timing light and replace cover and plug.

INSTALLING MAGNETO AND TIMING

With the magneto timing marks lined up as instructed in the above paragraphs, magneto is set to fire on number one cylinder.

1. Turn propeller to place No. 1 piston on its compression stroke at the correct angle. (Refer to above paragraphs.)
2. With a new gasket in place, install the magneto and gear assembly on its mount pad, meshing the magneto and camshaft gear teeth with timing marks still aligned.
3. Place flat washer over each 5/16 stud and screw 5/16 plain nuts down lightly.

4. Rotate magneto clockwise, closing contact points, then tap magneto counterclockwise through the angle provided by the slots in the mounting flange, until the contact points start opening. This can be determined by use of a .0015" shim; however, a timing light is recommended.

5. Tighten the 5/16" nuts and secure. For a positive check on magneto timing, turn crankshaft clockwise until contact points are closed, then turn crankshaft counterclockwise until points start opening, i.e., when a light drag is felt on .0015" feeler stock or light goes out in timing light. Then check degrees given on timing disk at center line of crankcase.

NOTE 6 . . . The above crankshaft directions are given looking at engine from the propeller end.

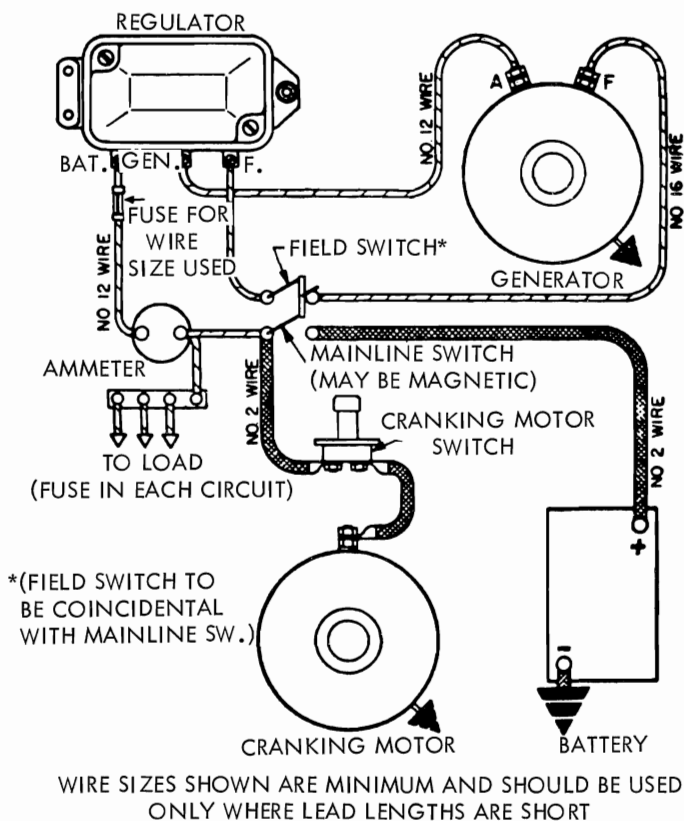


Figure 9. TYPICAL ACCESSORY WIRING DIAGRAM

NOTE 7 . . . No. 1 piston firing position may be determined by alignment of angle marks on edge of propeller flange with crankcase split below crankshaft. A Time Rite piston position indicator with "D" arm and proper scale may also be used (in No. 1 upper spark plug hole).

CARBURETOR

The Marvel Type MA-3SPA carburetor is standard equipment of C125 and C145 Engines. It is of the plain-tube fixed-jet type, and has such features as an enclosed accelerating pump mechanism, simplified fuel passages to prevent vapor locking, idle cut-off to prevent starting of engine accidentally, and manual mixture control.

Do not open and close throttle with this type carburetor, when starting a hot engine, as this will cause excessive flooding and make starting difficult. However, two or three strokes of the throttle when engine is cold will aid starting.

Make all idle adjustment of carburetor with engine thoroughly warmed up.



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