

Operating Tips . . .

FOR BETTER NAVION FLYING

Vol. 1 No. 10

Published by the Training Service Department of the Ryan Aeronautical Company, San Diego, to help those who own, operate, and service aviation airplanes obtain the full utility and satisfaction of which the Navion is capable.

OCTOBER 1950

SPARK PLUG INFORMATION FOR PILOTS AND MAINTENANCE MEN

It is a spark that starts the burning of gasses in your engine, which, as expansion occurs, are mechanically converted into power. The spark plug, where this spark occurs, must therefore perform its function rapidly and continuously. Proper handling, careful inspection and correct servicing of spark plugs are therefore important.

The major overhaul or complete reconditioning of aviation type spark plugs should only be performed in shops with the know-how and special equipment necessary to do this work. On the other hand, careful cleaning by the pilot or line mechanic will often make a misfiring plug entirely satisfactory for continued service. Experience has revealed that under certain operating conditions lead and carbon deposits form on the exposed ceramic core. In some cases, lead deposits will be sufficient to prevent the plug from firing properly. When this occurs, it is necessary to remove the deposit.

The simplest way to remove such deposits, is to lightly blast the plugs in a standard cleaning machine with approved type abrasive. Do Not hold the plug on the blasting machine any longer than is necessary, as damage to the electrodes or ceramic core may result. It is not necessary to blast the plugs until the entire core exposure is white.

Before re-installing plugs, the electrode gap should be carefully checked with a "wire type" gage. The correct plug gap for the Lycoming GO-435-C2 engine is .015-.018 inch, while that for the plugs in the Continental E-185-3 is .018 to .022 inch. Next the cylinder bushing threads and seats should be cleaned. A good plug gasket is then slipped into place on the plug and a coating of mica lubricant applied to the threads to prevent their seizing in the cylinder at high temperatures. The plug should screw easily into the cylinder, never forced. To prevent damage, over tightening of plugs should be avoided. In no case should plug tightening torque exceed 500 inch pounds on a torque wrench.

The spark plug terminal sleeve should be wiped with a clean, dry cloth before inserting into plug

barrel and the elbow nut tightened moderately. Too much force on the elbow nut might result in loosening the core in the shell when the nut is backed off.

SPARK PLUG USAGE CHART

Engine Type	Recommended Spark Plug Types			
	Standard		Platinum Points	
Continental E-185-3 (185 h.p.)	707-S	BG	RB613-S	BG
	706-SR	BG	RB613-S	BG
	708-S	BG	RB590-S	BG
	708-SR	BG	RB-590-S	BG
Continental E-185-3 (205 h.p.)	706-S	BG	RB485-S	BG
	706-SR	BG	RB485-S	BG
Lycoming GO-435-C2	SH-2K	Autolite	RB485-S	BG

Type Specifications	Thread Dia.	Reach
BG 706	18 mm.	1/2 inch
BG 707	14 mm.	3/8 inch
BG 708	14 mm.	1/2 inch
BG RB485-S	18 mm.	1/2 inch
BG RB613-S	14 mm.	3/8 inch
BG RB590-S	14 mm.	1/2 inch
Autolite SH-2K	18 mm.	1/2 inch

Gap Specification

(See Text of Article)

NOTE: Plugs having 1/2 inch reach should not be installed as replacements for plugs having a 3/8 inch reach. The reason for this being that the exposed plug insert threads become clogged with a hard carbon deposit, which is apt to damage the threads on both the plug and insert when an attempt is made to install a longer reach plug than the original.

DON'T MISJUDGE YOUR RADIO

Some Navion owners have remarked that they believe their Navion radio equipment to be less sensitive than others because of the relative low noise level in the RCA Receiver when tuning between stations. This is a very desirable feature from the standpoint of tuning ease, as the receiver is "silent" when no stations are present. This effect is achieved by the use of a special circuit, known as "squelch", which prevents annoying static, and other extraneous noises from being heard in the headset or speaker when tuning from station to station. This does not affect the ability of the receiver to receive weak signals; as long as a usable signal is present, the signal will be heard when the receiver is precisely tuned.

It should also be noted that the MARKER BEACON receiver operates only when the BAND SWITCH is in the RANGE position. It is inoperative in any other position. This, also, adds to the convenience of using the RCA, as the marker beacon signal will not be heard when listening to the broadcast band, or when the selector is in the RANGE VOICE position.

V.H.F. RADIO IS DIFFERENT

It is fairly common knowledge that VHF, (Very High Frequency) signals are usable only over line of sight. Obviously, when the aircraft is on the ground, the VHF transmitting range is very limited, and to complicate matters a few airports have their VHF

receiving antennas some distance from the control tower. Under these conditions, there may be times when it will not be possible to contact the tower when on the ground. This difficulty can be easily remedied when approaching the field by calling the tower at these airports when still airborne. Most airports now have their VHF Receiving antennas right at the control tower and no difficulty will be experienced with these stations. Keep in mind that your Navion is equipped with an "Anti-noise" type microphone; this unit has very excellent noise-reducing properties, but it should be held very close to the lips when speaking. Remember, slow, distinct enunciation is the "secret" of good communications.

ARE YOU AN "INSTRUMENT TAPPER"?

Have you ever noticed how many pilots have fallen into the habit of constantly tapping the face of any instrument on the panel that gives an indication not to their liking. Tapping very seldom, if ever, changes the gage reading, but it can break or loosen the glass dial face, or even damage the internal mechanism of the instrument. If you must tap the instrument, don't tap on the glass - tap the instrument panel or the edge of the gage case. The slight vibration normally present in the instrument panel while the engine is running, is usually sufficient to keep the instrument pointers from sticking.