The Proper Care & Feeding of the Rotax Motor

PART #24: A COMPREHENSIVE GUIDE TO TROUBLESHOOTING

by Mike Stratman

It has occurred to me that the little man in our trademark cartoon may need some help. But often times anger and frustration seem the natural reactions when you would rather be flying than tinkering. Possibly the hardest part of diagnosing engine trouble is knowing where to start.

One of the most common inquiries we receive is information concerning or help with troubleshooting. A lot of people think troubleshooting is an art form, when really it is a step-by-step procedure that should lead to the resolution of most common problems.

This month we'll set up a complete and comprehensive guide to troubleshooting. Hopefully this issue will find its way to a permanent spot on the shop or hangar wall. As well as finding the problem, we hope you understand what to do to fix the problem so as to prevent a recurrence. You will notice that we will be referring to past issues of the "Care & Feeding Series" for a more detailed explanation of a given situation. If you are looking for all 24 parts of this series, they are reprinted as a special service guide in the rear of the CPS catalog and updated within a few days of the actual publication. The newer your CPS catalog, the more of these issues you will have to refer to including this month's issue in a few weeks. All parts are also available in Ultralight Flying! back issues.

Engine problems fall into three main classifications: fuel, electrical, and mechanical failures. Often times it's hard to distinguish between fuel and electrical problems. Follow the flow chart from beginning to end and the problem should surface with a minimum of time and expense.

FUEL IN TANK & READY TO GO?

DOES FUEL REACH CARBURETOR??  NO  → A. BLOCKAGE IN FUEL LINE  PART 2

YES  → B. BLOCKAGE IN FUEL VALVE  PART 2

C. BLOCKAGE IN NEEDLE & SEAT  PART 10

D. FUEL TANK NOT VENTED  PART 2

E. FUEL FILTER CLOGGED — REPLACE  PART 2

F. FUEL PUMP INSTALLED IMPROPERLY — REPLACE  PART 2

G. FUEL PUMP DEFECTIVE OR BLOCKED — REPLACE  PART 2

DOES FUEL REACH COMBUSTION CHAMBER??  NO  → A. THROTTLE VALVE STUCK  PART 10

B. CARB BLOCKED OR THROTTLE VALVE NOT OPENING  PART 10

C. NO CRANKCASE PRESSURE  PART 15

YES  → A. NEEDLE VALVE STUCK OPEN  PART 10

B. FLOAT AND/OR FLOAT ARM STUCK  PART 10

C. NEEDLE VALVE NOT SEATED PROPERLY  PART 2

DO FUEL EXITS OVERFLOW TUBES??  YES  → A. NO SPARK OR TIMING OUT  PART 22

B. EXCESSIVE USE OF CHOKE  PART 10

C. EXCESSIVE USE OF PRIMER  PART 10

NO  → NO REFERENCE ARTICLE

DOES ENGINE FLOOD??  YES  → A. FAULTY IGNITION COIL  PART 3

B. PLUG WIRE BROKEN OR ARCING  PART 3

C. IGNITION SWITCH ON??  NO REFERENCE ARTICLE

D. FAULTY IGNITION SWITCH  PART 3

E. POOR CONNECTION AT COIL  PART 3

IS SPARK PRESENT AT SPARK PLUG CAP??  NO  → A. PLUG FOULED (REPLACE)  PART 9

B. PLUG FLOODED (REPLACE)  PART 9

C. BROKEN PLUG (REPLACE)  PART 9

D. PLUG GAP TOO GREAT  PART 9

YES  → A. AIR CLEANER BLOCKED  PART 2

B. ENGINE FLOODED  PART 2 & PART 10

C. THROTTLE VALVE OPEN TOO FAR  PART 10

D. CONTAMINATED FUEL (WATER)  PART 19

E. POOR IGNITION TIMING  PART 22

F. NO COMPRESSION  PART 15

G. ENRICHENER VALVE CLOSED  PART 2

H. INTAKE LEAK  PART 15

I. IMPROPER FUEL MIXTURE  PART 10

J. BLOWN HEAD GASKET  PART 15

K. FAULTY SPARK PLUGS  PART 9

L. GEAR BOX IMPROPERLY LOADED  PART 4

IS ENGINE DIFFICULT TO START??  NO  →