

## **Appendix A**

The second version of the engine parts manual.

# **Engine Parts Manual**

*by Joseph & Jacques*

# Part I

[Is there something wrong with a *main* engine part? Find the name of that *main* engine part below and follow the path!]

Listen mate, things can go wrong when flying an air balloon! Especially when there is something wrong with your cylinder heads! Or even worse; with your piston liners! This would be even more dreadful if your air boxes would also decide to stop working. When that happens you'll simply wish you had stayed in bed, so you could have dreamed peacefully about varlometers and sump pans, instead of actually trying to fix them. Of course these are not as hard to fix as distributor caps or ignition leads, but you get the point

Go to part II

You should also be aware to buy enough spark plugs before flying off to who-knows-where. Also; do not forget to buy a compass, or you'll never get to who-knows-where. And when you are still in the store, please keep a lookout for some cheap boost pressure sensors, since you never know when you might need those.

There are a few parts that require lots of cleaning while flying with your balloon. For starters, there will be the piston engine valves who think it is their job to get dirty. They are wrong, but it is sadly your job to keep them clean. Next there is the intercooler to take care of, although it is a bit tricky to get to it. There will be a panel somewhere that you'll have to remove, and you'll then see it behind the turbocharger gaskets. Following that it might be time to check the pollen filters, since they will need a replacement when they are full.

Go to part III

Now, when you're flying only to the right while you are steering to the left, it might be that your oil seals have burned away or that there is a really strong wind going towards the right. That, or your flywheel is broken. That is generally the point where you should start worrying. You could use the diagnostic system to detect the exact location of your problem, or you could connect the connecting rod to the battery. But never do this while your pyrometer is busy.

Now, listen very carefully, I shall say this only once: never use your booster more than once each day. If you do not listen to this advice, then the catalytic converter will heat up and then you can say bye-bye to your favorite radio channel. Also, when things heat up it will cause the exhaust sytem to hyperventilate which will likely confuse the oxygen sensor. And there is a good chance the emergency exit will open up, AKA the bottom of the basket, when things are confused. Which is why you always want to wear your parachute.

Go to part VI

On a final note; if your altimeter gives weird readings that you do not understand then there can be multiple reasons for this weird behaviour. There is (i) something very wrong with the propane burner, (ii) your parachute valve cord just snapped or (iii) you are drunk. If (iii) is the case, I would suggest to give this manual to your fellow-air balloontist, before you make matters worse. Well, I will leave you to it then. Good luck!

Ps: did you know you drop slower when pressing the sequence of w-d-s-a over and over again? Strange, but true.

## Part II

[ Find the three smaller parts you have to fix below and decide their order. ]  
 [ Then push the corresponding keys. Hint: The Roman numerals come first. ]

**ii** 8 B C 6 9 7  
**forged crankshaft. mechanical governor. fuel filter. anti-vibration system. weight measurer. starting system**

**V** X T V Y U Z Q  
 fuel injection system, side valve, overhead valve, transportguard, cast iron camshaft, float feed carburetor, kool bore

**vi** L K O P N M  
**gross torque, v-twin cylinder engine, ignition system, high oil fill tube, compression release, super lo-tone muffler**

**i** 5 1 0 3 4 2  
 splash lubrication, oil bath air cleaner, debris management system, single cylinder engine, cartridge air cleaner, direct overhead valve

**iii** E F H I J G  
 fuel tank cap, pressure lubrication, dura-bore, dual ball bearings, lo-tone muffler, foam air cleaner

1<sup>st</sup> = 4

2<sup>nd</sup> = 1

3<sup>rd</sup> = 2

4<sup>th</sup> = 6

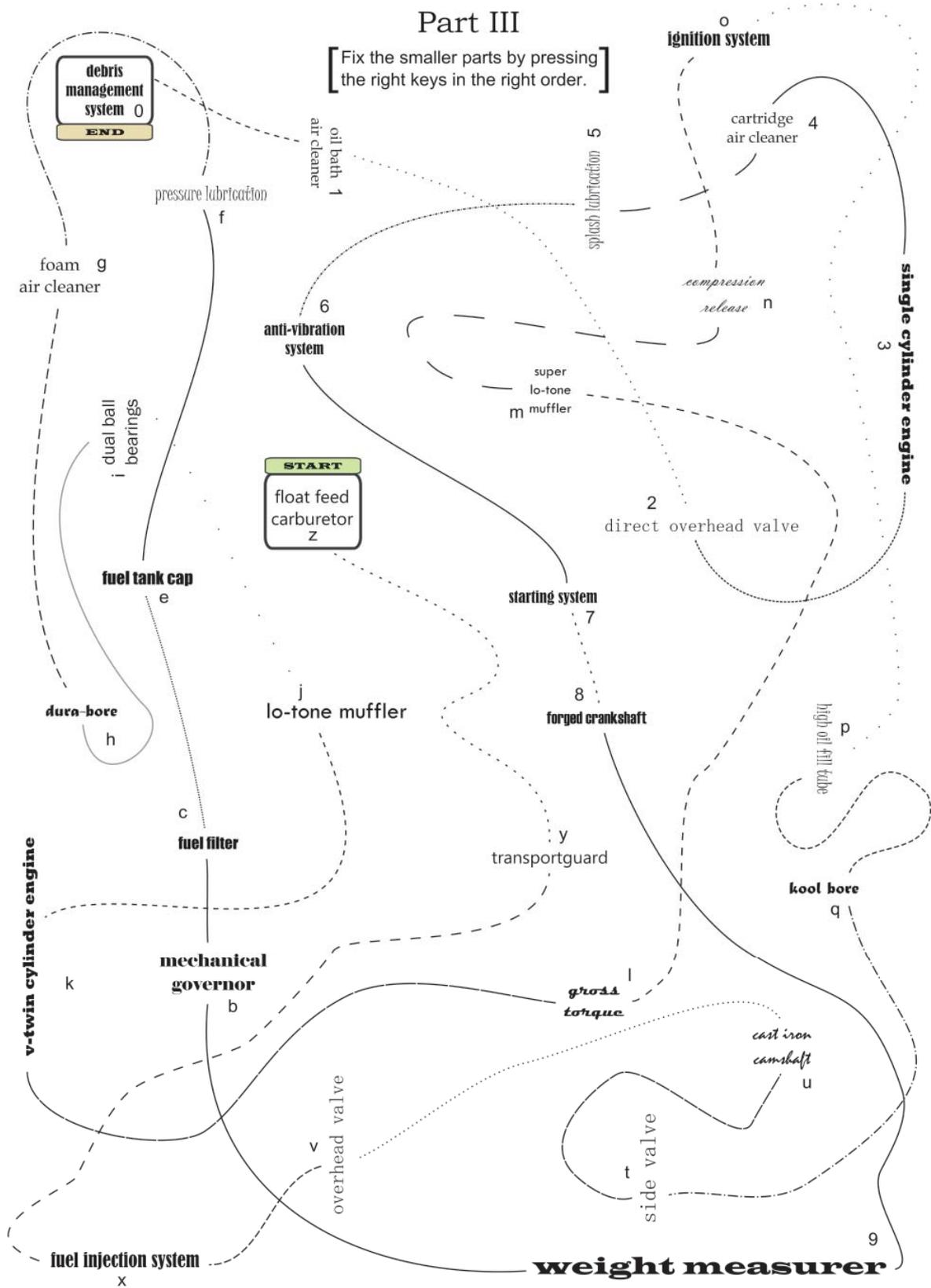
5<sup>th</sup> = 5

6<sup>th</sup> = 3

7<sup>th</sup> =

# Part III

[ Fix the smaller parts by pressing the right keys in the right order. ]



## Part IV

[ The smaller parts of the broken main engine part can be fixed by pressing the right keys on your keyboard. ]  
 [ The mapping of the keys and smaller parts can be found here. Parts need to be fixed in order of appearance. ]



anti-vibration system	6
cartridge air cleaner	4
cast iron camshaft	U
compression release	N
debris management system	0
direct overhead valve	2
dual ball bearings	I
dura-bore	H
float feed carburetor	Z
foam air cleaner	G
forged crankshaft	8
fuel filter	C
fuel injection system	X
fuel tank cap	E
gross torque	L
high oil fill tube	P
ignition system	O
kool bore	Q
lo-tone muffler	J
mechanical governor	B
oil bath air cleaner	1
overhead valve	V
pressure lubrication	F
side valve	T
single cylinder engine	3
splash lubrication	5
starting system	7
super lo-tone muffler	M
transportguard	Y
v-twin cylinder engine	K
weight measurer	9

