## Introduction

The main jet for the carburetor of a kart needs to be selected based on the weather conditions – regardless of the model of the carburetor. This is due to the fact that the amount of oxygen in a specific volume changes with different air temperature and air pressure. After having done the adjustment for the carburetor once you can select the correct main jet for every weather by using the following tables.

## Procedure

To select the main jet with the correct size you write the main jet which you determined while doing the one-time adjustment of your carburetor into the field of table 2 which corresponds to the weather conditions which prevailed at that time. Then you mark the corresponding field in table 1 (reference oxygen content) and you mark this main jet in table 3 (reference main jet).

Now you look up the present oxygen content in table 2 und calculate the difference to the reference oxygen content.

From table 3 you can now select the proper main jet by searching in column "rel. area" for the row which shows this difference to the reference main jet.

## Example

The adjustment of the carburetor resulted in a 168 main jet at a temperature of 25°C (77°F) and an air pressure of 1015 mbar. You write 168 in the corresponding field of table 2 and mark the reference oxygen content in table 1 (100%) and the reference main jet in table 3 (100.0%).

For a temperature of 5°C (41°F) and an air pressure of 1030 mbar you can look up the present oxygen content in table 1 (110%) which is 10% above the reference oxygen content. You now select the 176 main jet from table 3, since this one has a cross sectional area which is about 10% bigger than the one of the reference main jet. The 176 main jet provides 10% more fuel for the additional 10% of oxygen in the combustion chamber.

**NOTICE :**

**In case that you want to do a selection for mainjets or weather conditions that are not included in the tables you may download the software of the LogIT data logging and analysis system from www.logit-online.de . It contains both this module to select a mainjet and many additional useful tools to optimize the setup of your kart.**

## table 1 : relative oxygen content  (N/V = p/T)

| T [°F  °C]\ p[mbar] | 970 | 980 | 990 | 1000 | 1010 | 1020 | 1030 | 1040 | 1050 |
|---|---|---|---|---|---|---|---|---|---|
| 32   0 | 106% | 107% | 108% | 109% | 110% | 111% | 112% | 114% | 115% |
| 41   5 | 104% | 105% | 106% | 107% | 108% | 109% | 110% | 111% | 113% |
| 50   10 | 102% | 103% | 104% | 105% | 106% | 107% | 108% | 110% | 111% |
| 59   15 | 100% | 101% | 102% | 103% | 105% | 106% | 107% | 108% | 109% |
| 68   20 | 99% | 100% | 101% | 102% | 103% | 104% | 105% | 106% | 107% |
| 77   25 | 97% | 98% | 99% | **100%** | 101% | 102% | 103% | 104% | 105% |
| 86   30 | 95% | 96% | 97% | 98% | 99% | 100% | 101% | 102% | 103% |
| 95   35 | 94% | 95% | 96% | 97% | 98% | 99% | 100% | 101% | 102% |

## table 2 : main jet

| T [°F  °C]\ p[mbar] | 970 | 980 | 990 | 1000 | 1010 | 1020 | 1030 | 1040 | 1050 |
|---|---|---|---|---|---|---|---|---|---|
| 32   0 | | | | | | | | | |
| 41   5 | | | | | | | | | |
| 50   10 | | | | | | | | | |
| 59   15 | | | | | | | | | |
| 68   20 | | | | | | | | | |
| 77   25 | | | | | | | | | |
| 86   30 | | | | | | | | | |
| 95   35 | | | | | | | | | |

## table 3 : relative fuel flow

| Main jet [mm/100] | area [mm²] | rel. fuel flow |
|---|---|---|
| 150 | 1.77 | 79.7% |
| 152 | 1.81 | 81.9% |
| 154 | 1.86 | 84.0% |
| 156 | 1.91 | 86.2% |
| 158 | 1.96 | 88.4% |
| 160 | 2.01 | 90.7% |
| 162 | 2.06 | 93.0% |
| 164 | 2.11 | 95.3% |
| 166 | 2.16 | 97.6% |
| **168** | **2.22** | **100.0%** |
| 170 | 2.27 | 102.4% |
| 172 | 2.32 | 104.8% |
| 174 | 2.38 | 107.3% |
| 176 | 2.43 | 109.8% |
| 178 | 2.49 | 112.3% |
| 180 | 2.54 | 114.8% |
| 182 | 2.60 | 117.4% |
| 184 | 2.66 | 120.0% |
| 186 | 2.72 | 122.6% |
| 188 | 2.78 | 125.2% |
| 190 | 2.84 | 127.9% |

Notice :

The calculation is based on the relative geometric dimensions of the mainjet and the barometric pressure formula. It does not take into account variing burning mechanisms in the combustion chamber due to the different temperature of the air, the fuel and the combustion chamber itself. Variations of the fuel flow due to pressure variations and/or variing fuel flow mechanisms are also not accounted for.