**Calibration of Iterated Local search Tournament for Large Instances**

|  |  |
| --- | --- |
| Parameter |  |
| Fine Local search : FLS | Yes-No |
| PerLen | 1-2-3 |
| Destruction size : PerSol | 1-10-30-50 |
| Loop Size: VNS Loop | 100-200-300 |
| Temperature factor : Toursize | 2-3-4-5 |

We have 288 combinations \* 5 replications for each instance \*144 Instances

**Analysis of Variance**

**Analysis of**

**Variance for RDI -**

**Type III Sums of**

**Squares**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| *Source* | *Sum of Squares* | *Df* | *Mean Square* | *F-Ratio* | *P-Value* |
| MAIN EFFECTS |  |  |  |  |  |
| A:2LS | 19451.1 | 1 | 19451.1 | 57.33 | 0.0000 |
| B:PerLen | 1.07143E6 | 2 | 535714. | 1579.09 | 0.0000 |
| C:PerSol | 2.226E6 | 3 | 742001. | 2187.15 | 0.0000 |
| D:VNSloop | 196852. | 2 | 98426.0 | 290.12 | 0.0000 |
| E:TourSize | 19784.7 | 3 | 6594.9 | 19.44 | 0.0000 |
| INTERACTIONS |  |  |  |  |  |
| AB | 8815.24 | 2 | 4407.62 | 12.99 | 0.0000 |
| AC | 30320.8 | 3 | 10106.9 | 29.79 | 0.0000 |
| AD | 76100.7 | 2 | 38050.4 | 112.16 | 0.0000 |
| AE | 2887.4 | 3 | 962.465 | 2.84 | 0.0366 |
| BC | 4.83026E6 | 6 | 805043. | 2372.98 | 0.0000 |
| BD | 91438.3 | 4 | 22859.6 | 67.38 | 0.0000 |
| BE | 18217.9 | 6 | 3036.31 | 8.95 | 0.0000 |
| CD | 204514. | 6 | 34085.7 | 100.47 | 0.0000 |
| CE | 52243.7 | 9 | 5804.86 | 17.11 | 0.0000 |
| DE | 2536.25 | 6 | 422.708 | 1.25 | 0.2791 |
| RESIDUAL | 7.03278E7 | 207301 | 339.254 |  |  |
| TOTAL (CORRECTED) | 7.91786E7 | 207359 |  |  |  |

All F-ratios are

based on the

residual mean

square error.

1. **PerSol**

****

Remove 1 from the PerSol values and repeat

**Analysis of**

**Variance for RDI -**

**Type III Sums of**

**Squares**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| *Source* | *Sum of Squares* | *Df* | *Mean Square* | *F-Ratio* | *P-Value* |
| MAIN EFFECTS |  |  |  |  |  |
| A:2LS | 1831.73 | 1 | 1831.73 | 5.45 | 0.0196 |
| B:PerLen | 3.03104E6 | 2 | 1.51552E6 | 4508.03 | 0.0000 |
| C:PerSol | 112114. | 2 | 56056.9 | 166.75 | 0.0000 |
| D:VNSloop | 28772.2 | 2 | 14386.1 | 42.79 | 0.0000 |
| E:TourSize | 331.846 | 3 | 110.615 | 0.33 | 0.8044 |
| INTERACTIONS |  |  |  |  |  |
| AB | 25516.4 | 2 | 12758.2 | 37.95 | 0.0000 |
| AC | 5995.24 | 2 | 2997.62 | 8.92 | 0.0001 |
| AD | 62092.6 | 2 | 31046.3 | 92.35 | 0.0000 |
| AE | 324.143 | 3 | 108.048 | 0.32 | 0.8099 |
| BC | 1.29943E6 | 4 | 324858. | 966.31 | 0.0000 |
| BD | 51971.1 | 4 | 12992.8 | 38.65 | 0.0000 |
| BE | 18925.6 | 6 | 3154.26 | 9.38 | 0.0000 |
| CD | 4738.58 | 4 | 1184.64 | 3.52 | 0.0070 |
| CE | 3397.45 | 6 | 566.241 | 1.68 | 0.1203 |
| DE | 405.423 | 6 | 67.5705 | 0.20 | 0.9766 |
| RESIDUAL | 5.22662E7 | 155470 | 336.182 |  |  |
| TOTAL (CORRECTED) | 5.69131E7 | 155519 |  |  |  |

All F-ratios are

based on the

residual mean

square error.

1. PerLen

****

It is clear that we should choose PerLen=2

1. **3- PerSol**



It is clear that we should set it 10

1. **4-VNS \_Loop**

****

There is not a big difference but it is better to choose 200

1. **2LS**



Second local local search should be considered

1. **TourSize**



Tournament size not very significant but 3 is the better

2LS :1

Per\_Len 2

Per\_Sol 10

VNSloop 200

Toursize 3