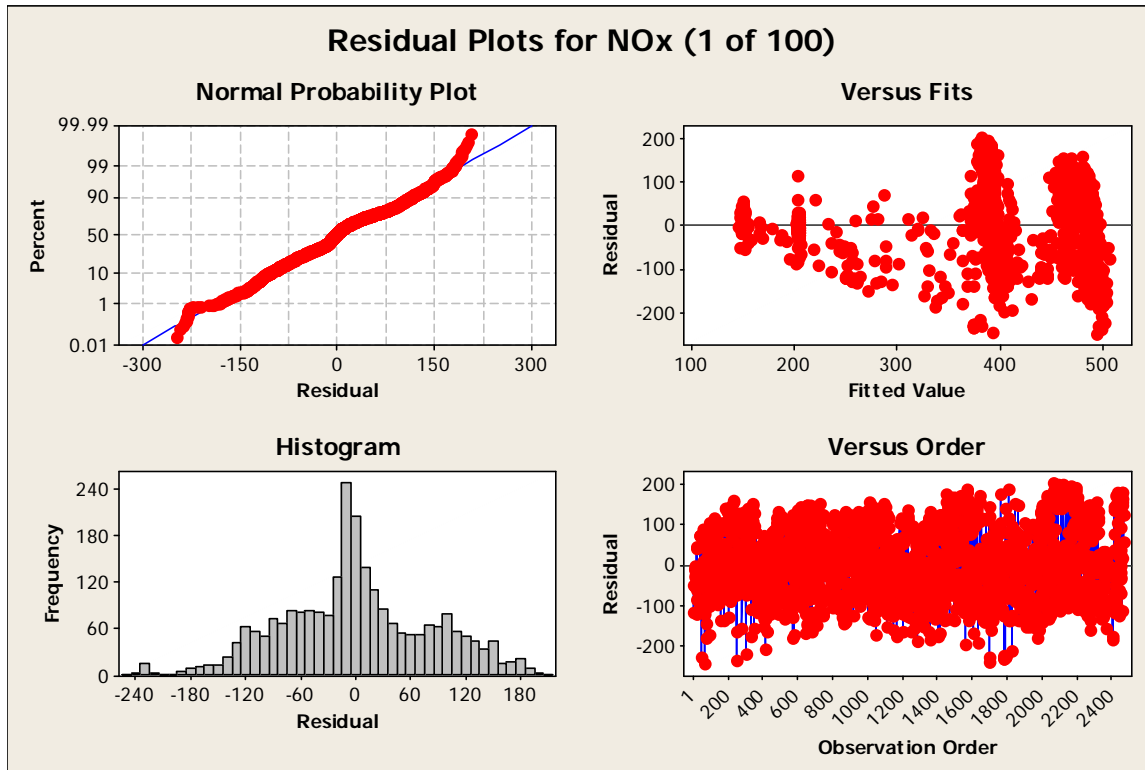


APPENDIX B: Compactor Analysis



General Linear Model: NOx versus compactor

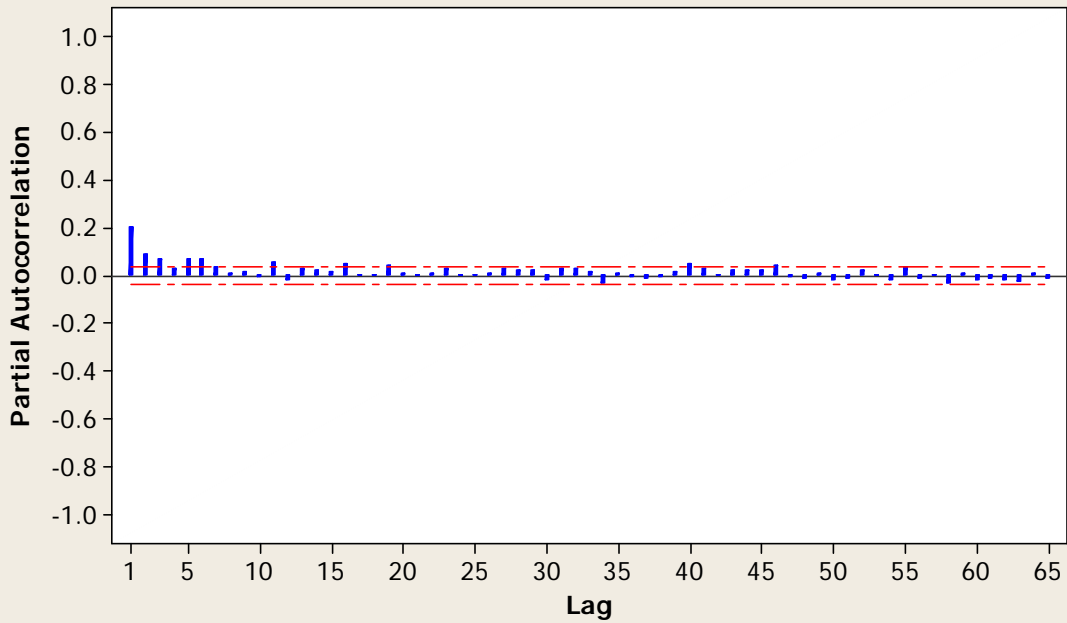
```
Factor      Type  Levels  Values
compactor  fixed      2     1, 2
```

Analysis of Variance for NOx, using Adjusted SS for Tests

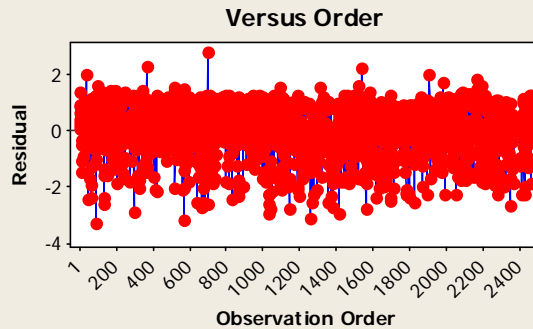
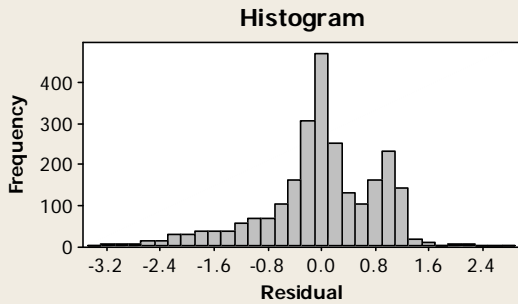
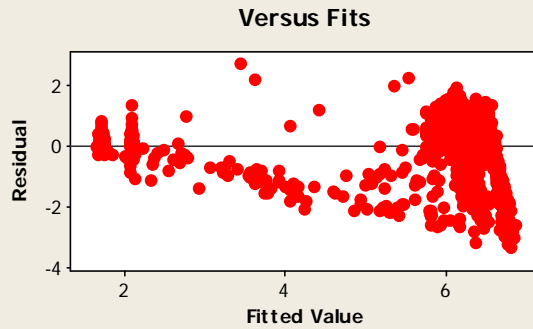
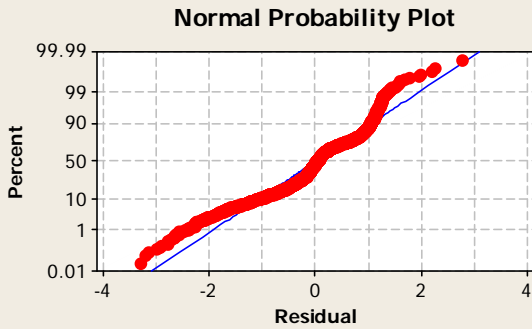
| Source | DF | Seq SS | Adj SS | Adj MS | F | P |
|-----------------------|------|----------|----------|----------|---------|-------|
| EngineSpeed | 1 | 32475720 | 30913375 | 30913375 | 4723.16 | 0.000 |
| compactor | 1 | 4617459 | 94535 | 94535 | 14.44 | 0.000 |
| compactor*EngineSpeed | 1 | 129327 | 129327 | 129327 | 19.76 | 0.000 |
| Error | 2466 | 16140136 | 16140136 | 6545 | | |
| Total | 2469 | 53362642 | | | | |

S = 80.9016 R-Sq = 69.75% R-Sq(adj) = 69.72%

Partial Autocorrelation Function for residuals from GLM (1 of 100)
(with 5% significance limits for the partial autocorrelations)



Residual Plots for CO2 (1 of 100)



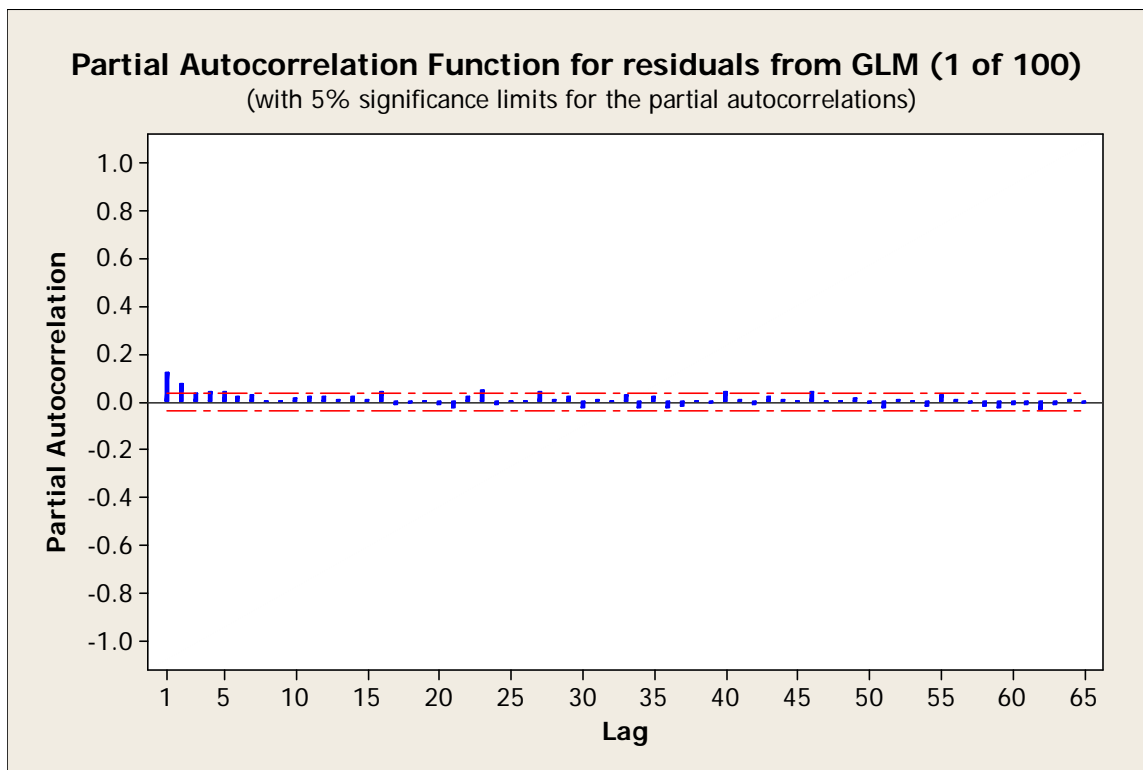
General Linear Model: CO2 versus compactor

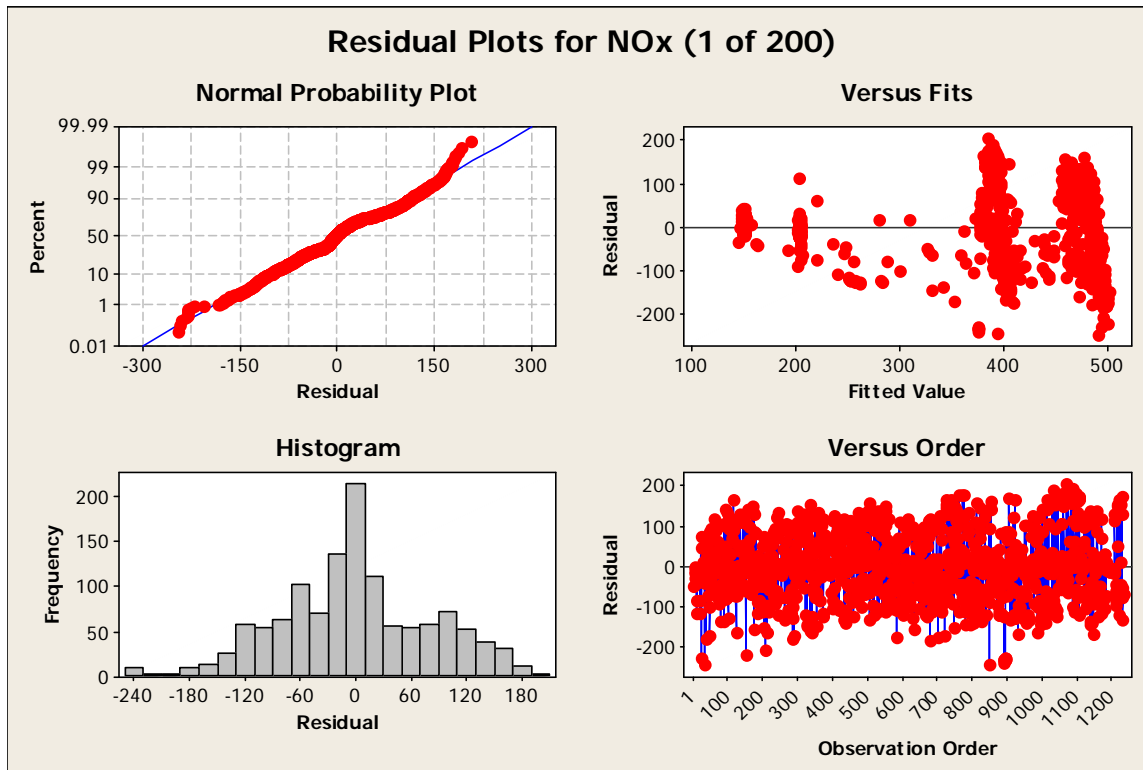
| Factor | Type | Levels | Values |
|-----------|-------|--------|--------|
| compactor | fixed | 2 | 1, 2 |

Analysis of Variance for CO2, using Adjusted SS for Tests

| Source | DF | Seq SS | Adj SS | Adj MS | F | P |
|-----------------------|------|---------|--------|--------|----------|-------|
| EngineSpeed | 1 | 9009.2 | 8840.8 | 8840.8 | 12815.70 | 0.000 |
| compactor | 1 | 132.9 | 18.3 | 18.3 | 26.46 | 0.000 |
| compactor*EngineSpeed | 1 | 0.7 | 0.7 | 0.7 | 0.98 | 0.322 |
| Error | 2466 | 1701.2 | 1701.2 | 0.7 | | |
| Total | 2469 | 10843.9 | | | | |

S = 0.830568 R-Sq = 84.31% R-Sq(adj) = 84.29%





Results for: 1 of 200

General Linear Model: NOx versus compactor

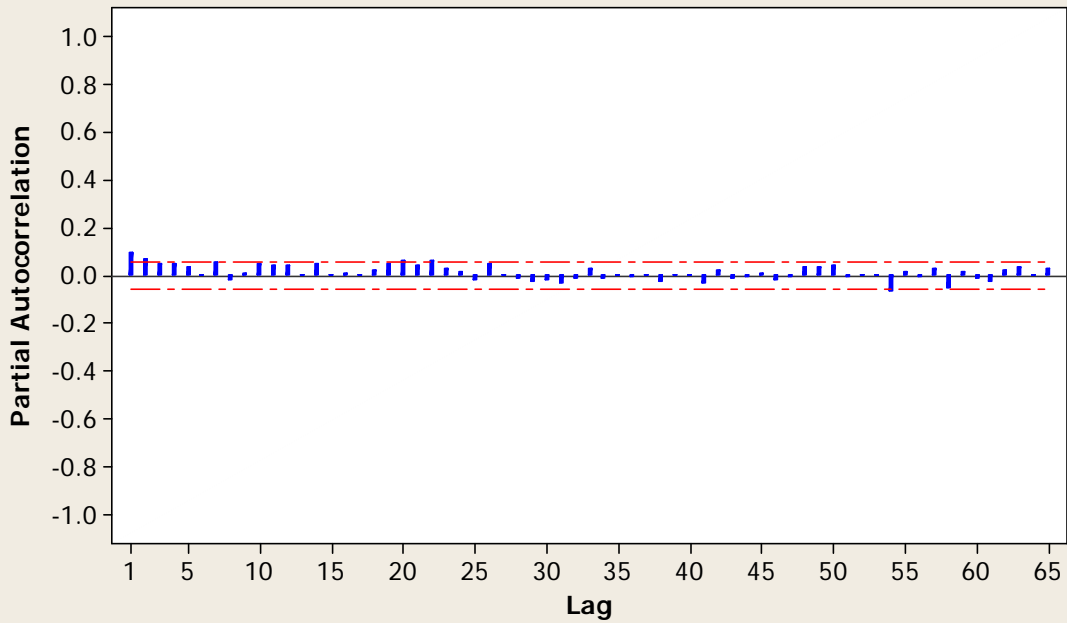
| Factor | Type | Levels | Values |
|-----------|-------|--------|--------|
| compactor | fixed | 2 | 1, 2 |

Analysis of Variance for NOx, using Adjusted SS for Tests

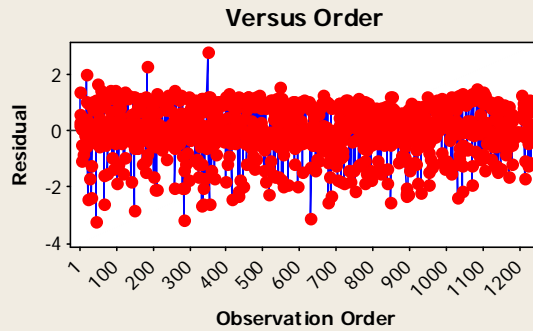
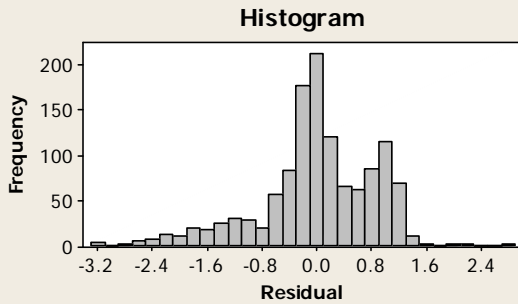
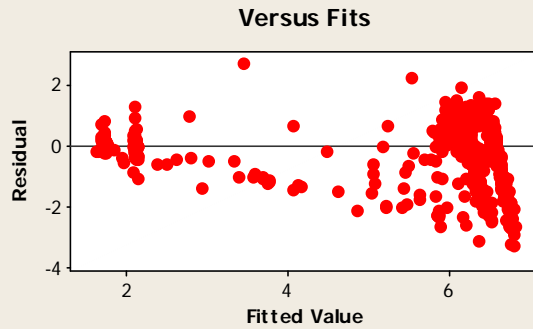
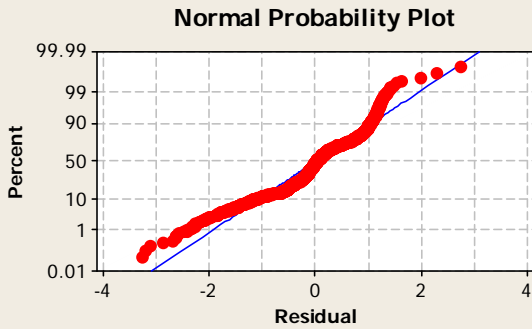
| Source | DF | Seq SS | Adj SS | Adj MS | F | P |
|-----------------------|------|----------|----------|----------|---------|-------|
| EngineSpeed | 1 | 16158885 | 15497316 | 15497316 | 2358.17 | 0.000 |
| compactor | 1 | 2146991 | 49967 | 49967 | 7.60 | 0.006 |
| compactor*EngineSpeed | 1 | 53340 | 53340 | 53340 | 8.12 | 0.004 |
| Error | 1231 | 8089822 | 8089822 | 6572 | | |
| Total | 1234 | 26449038 | | | | |

S = 81.0663 R-Sq = 69.41% R-Sq(adj) = 69.34%

Partial Autocorrelation Function for residuals from GLM (1 of 200) (with 5% significance limits for the partial autocorrelations)



Residual Plots for CO2 (1 of 200)



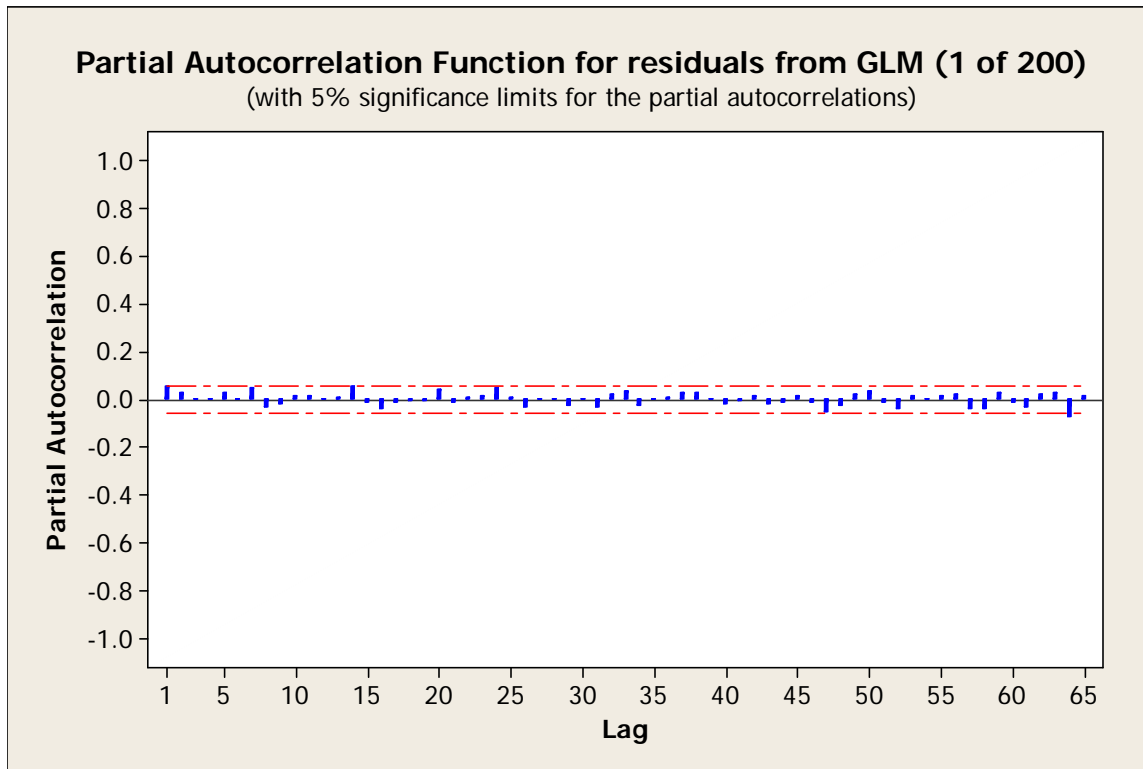
General Linear Model: CO2 versus compactor

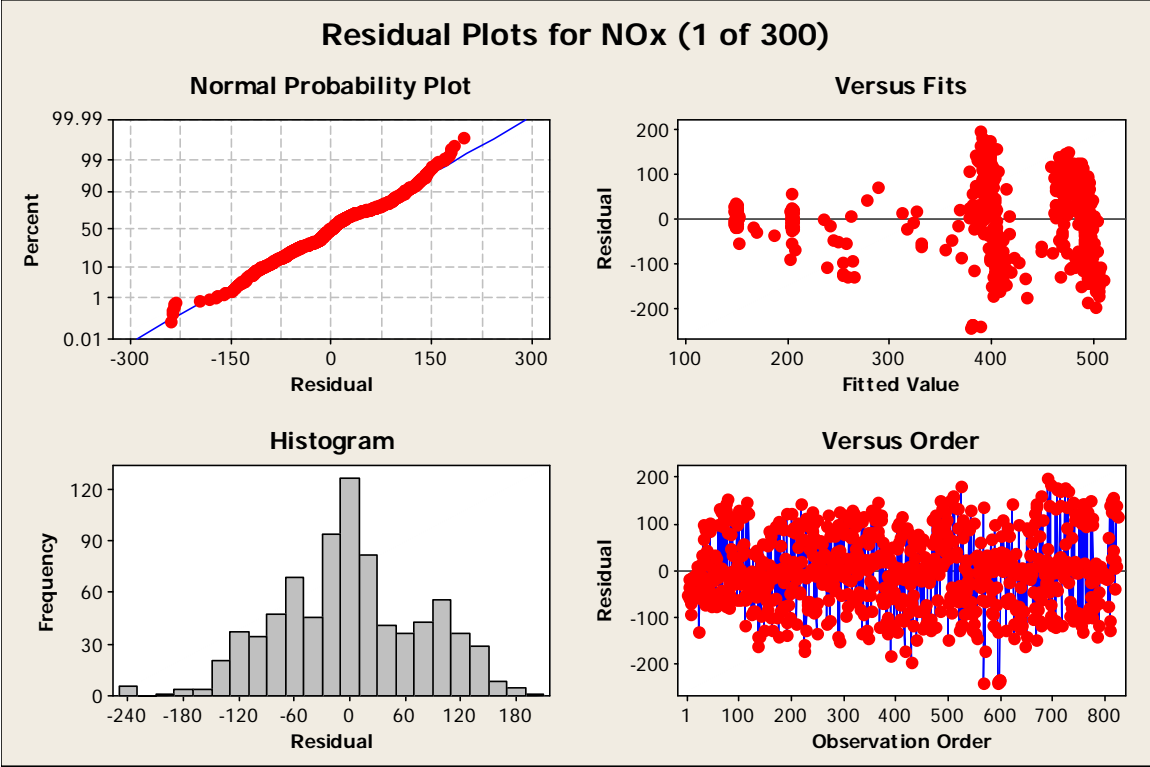
| Factor | Type | Levels | Values |
|-----------|-------|--------|--------|
| compactor | fixed | 2 | 1, 2 |

Analysis of Variance for CO2, using Adjusted SS for Tests

| Source | DF | Seq SS | Adj SS | Adj MS | F | P |
|-----------------------|------|--------|--------|--------|---------|-------|
| EngineSpeed | 1 | 4492.7 | 4422.9 | 4422.9 | 6407.72 | 0.000 |
| compactor | 1 | 56.8 | 10.7 | 10.7 | 15.47 | 0.000 |
| compactor*EngineSpeed | 1 | 1.1 | 1.1 | 1.1 | 1.55 | 0.214 |
| Error | 1231 | 849.7 | 849.7 | 0.7 | | |
| Total | 1234 | 5400.3 | | | | |

S = 0.830814 R-Sq = 84.27% R-Sq(adj) = 84.23%





Results for: 1 of 300

General Linear Model: NOx versus compactor

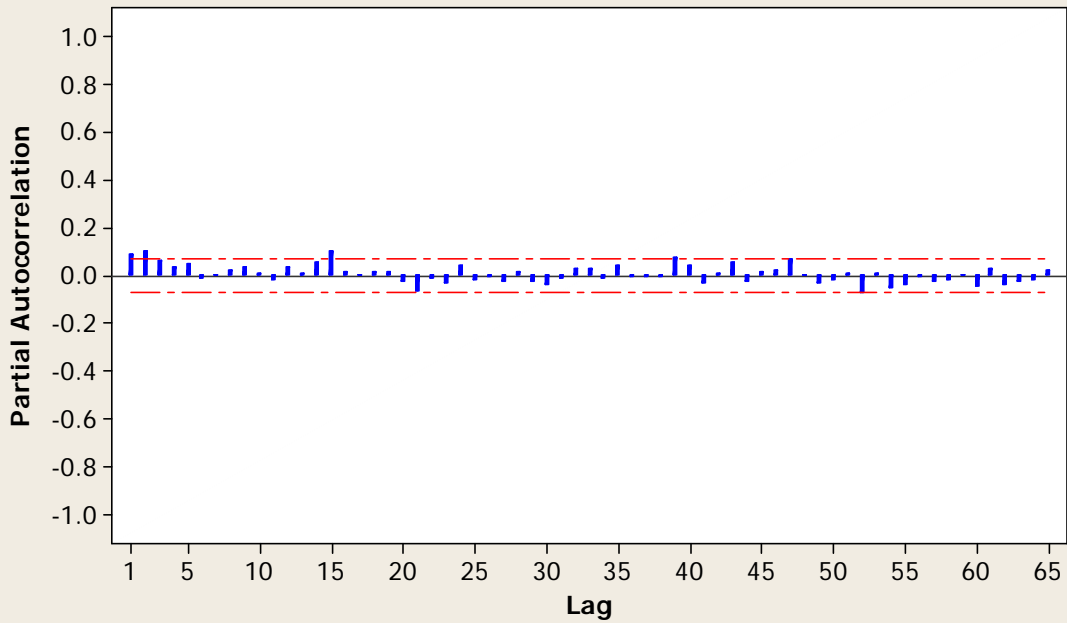
```
Factor      Type   Levels  Values
compactor  fixed      2      1, 2
```

Analysis of Variance for NOx, using Adjusted SS for Tests

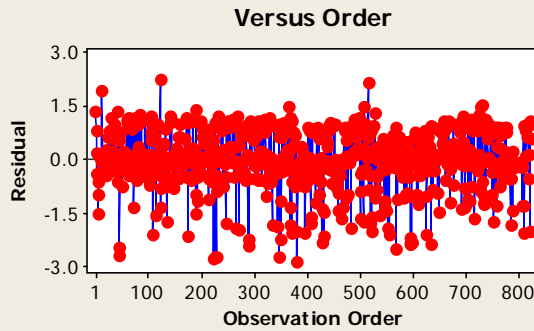
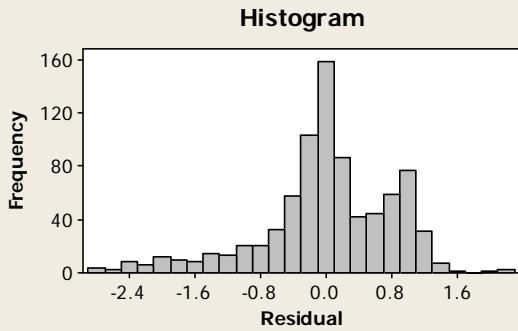
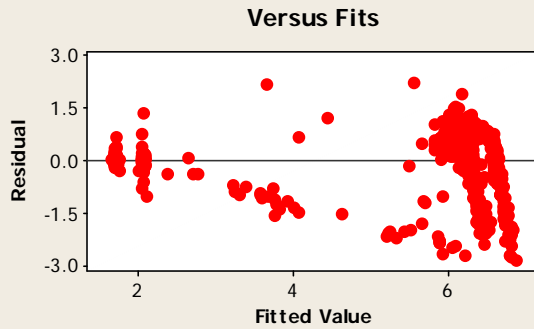
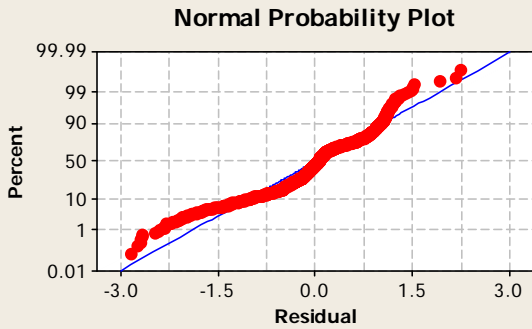
| Source | DF | Seq SS | Adj SS | Adj MS | F | P |
|-----------------------|-----|----------|----------|----------|---------|-------|
| EngineSpeed | 1 | 11248863 | 10806656 | 10806656 | 1742.83 | 0.000 |
| compactor | 1 | 1513172 | 33442 | 33442 | 5.39 | 0.020 |
| compactor*EngineSpeed | 1 | 39398 | 39398 | 39398 | 6.35 | 0.012 |
| Error | 820 | 5084533 | 5084533 | 6201 | | |
| Total | 823 | 17885966 | | | | |

S = 78.7442 R-Sq = 71.57% R-Sq(adj) = 71.47%

Partial Autocorrelation Function for residuals form GLM (1 of 300)
(with 5% significance limits for the partial autocorrelations)



Residual Plots for CO2 (1 of 300)



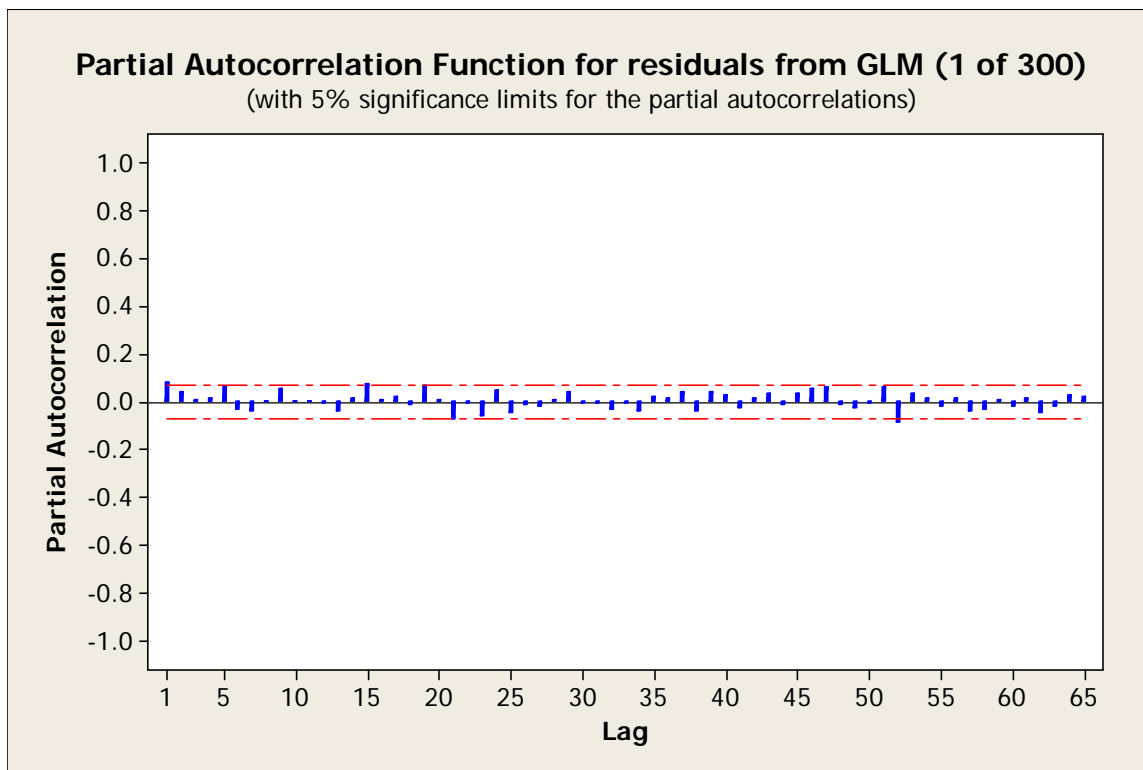
General Linear Model: CO2 versus compactor

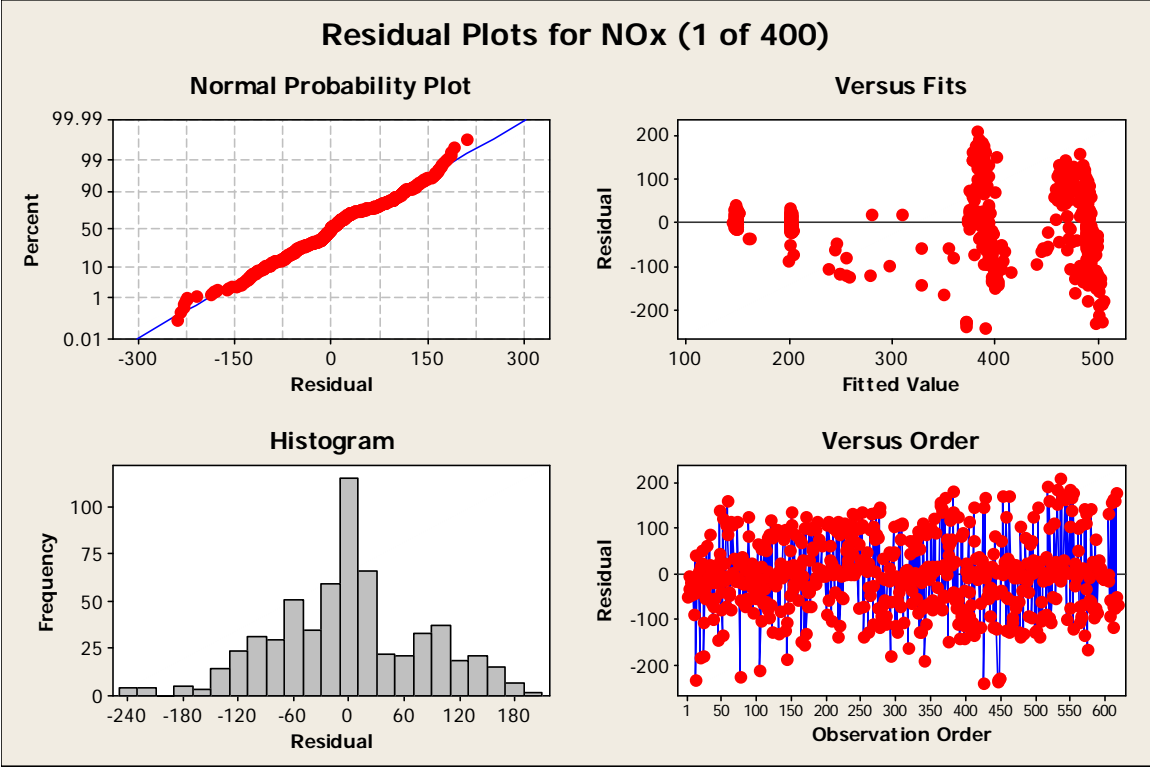
Factor Type Levels Values
compactor fixed 2 1, 2

Analysis of Variance for CO2, using Adjusted SS for Tests

| Source | DF | Seq SS | Adj SS | Adj MS | F | P |
|-----------------------|-----|--------|--------|--------|---------|-------|
| EngineSpeed | 1 | 3088.7 | 3035.5 | 3035.5 | 4580.70 | 0.000 |
| compactor | 1 | 39.9 | 5.8 | 5.8 | 8.77 | 0.003 |
| compactor*EngineSpeed | 1 | 0.3 | 0.3 | 0.3 | 0.42 | 0.519 |
| Error | 820 | 543.4 | 543.4 | 0.7 | | |
| Total | 823 | 3672.2 | | | | |

S = 0.814051 R-Sq = 85.20% R-Sq(adj) = 85.15%





Results for: 1 of 400

General Linear Model: NOx versus compactor

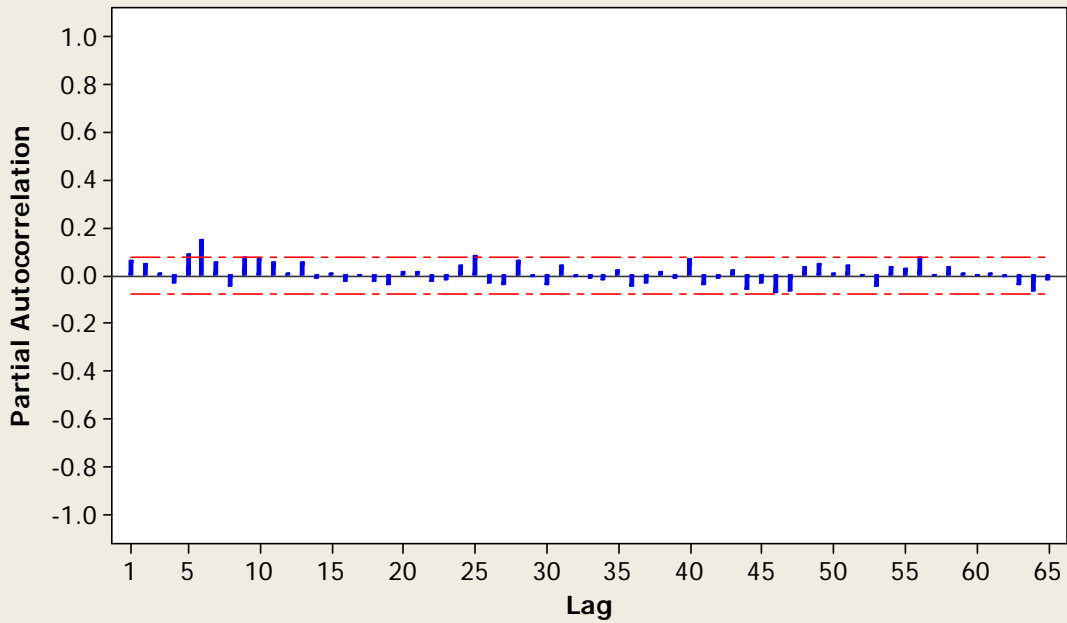
```
Factor      Type   Levels  Values
compactor  fixed      2      1, 2
```

Analysis of Variance for NOx, using Adjusted SS for Tests

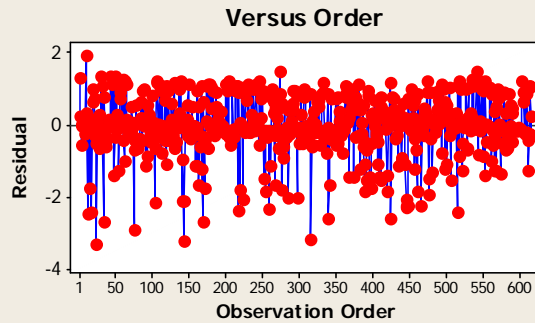
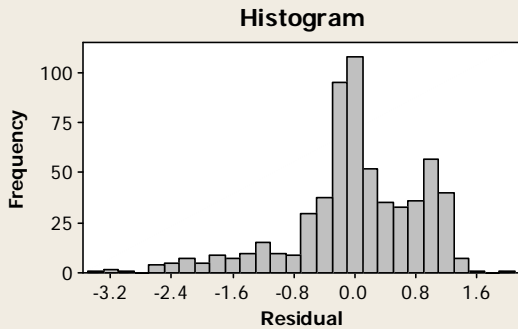
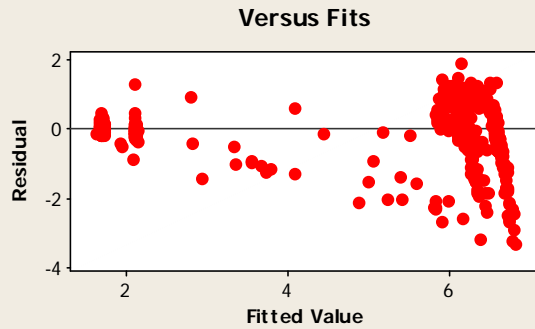
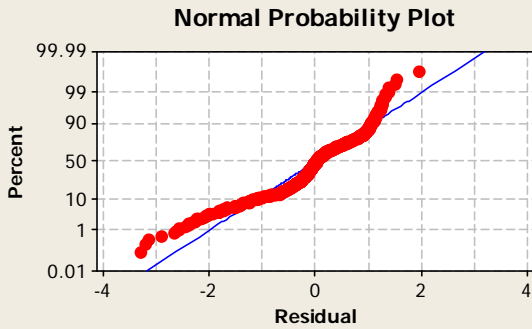
| Source | DF | Seq SS | Adj SS | Adj MS | F | P |
|-----------------------|-----|----------|---------|---------|---------|-------|
| EngineSpeed | 1 | 8159681 | 7850801 | 7850801 | 1170.54 | 0.000 |
| compactor | 1 | 1225183 | 19764 | 19764 | 2.95 | 0.087 |
| compactor*EngineSpeed | 1 | 41880 | 41880 | 41880 | 6.24 | 0.013 |
| Error | 614 | 4118077 | 4118077 | 6707 | | |
| Total | 617 | 13544821 | | | | |

S = 81.8961 R-Sq = 69.60% R-Sq(adj) = 69.45%

Partial Autocorrelation Function for residuals from GLM (1 of 400)
(with 5% significance limits for the partial autocorrelations)



Residual Plots for CO2 (1 of 400)



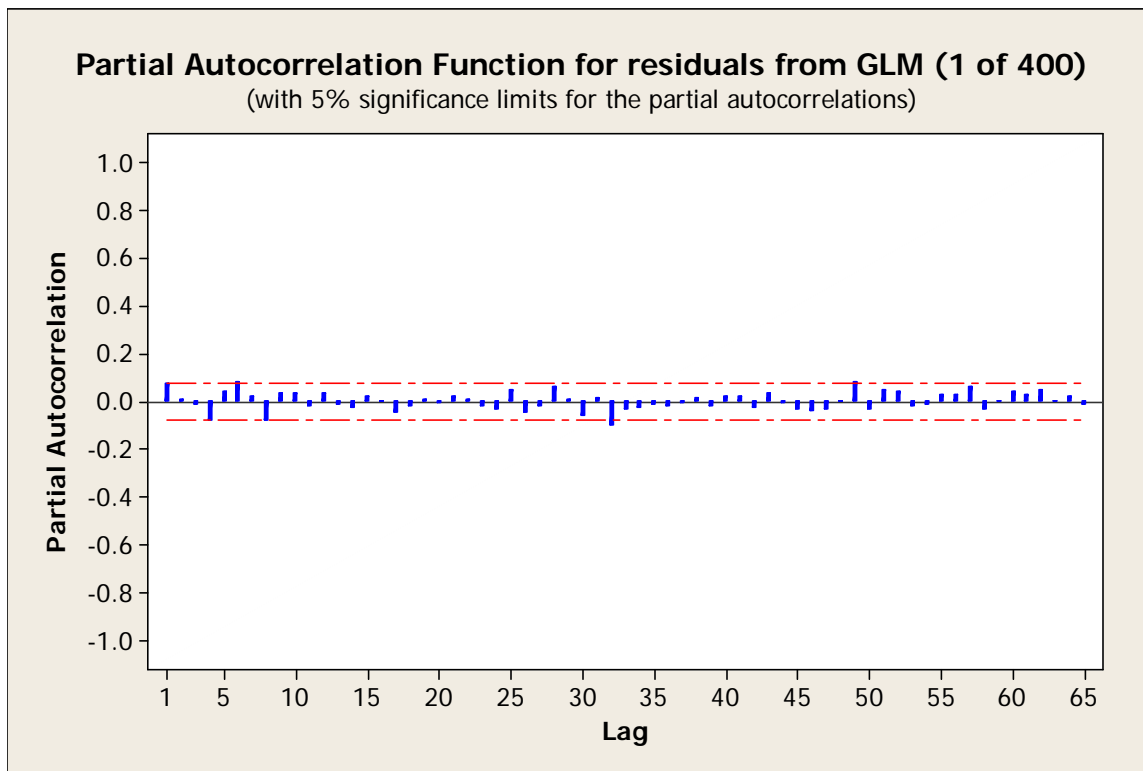
General Linear Model: CO2 versus compactor

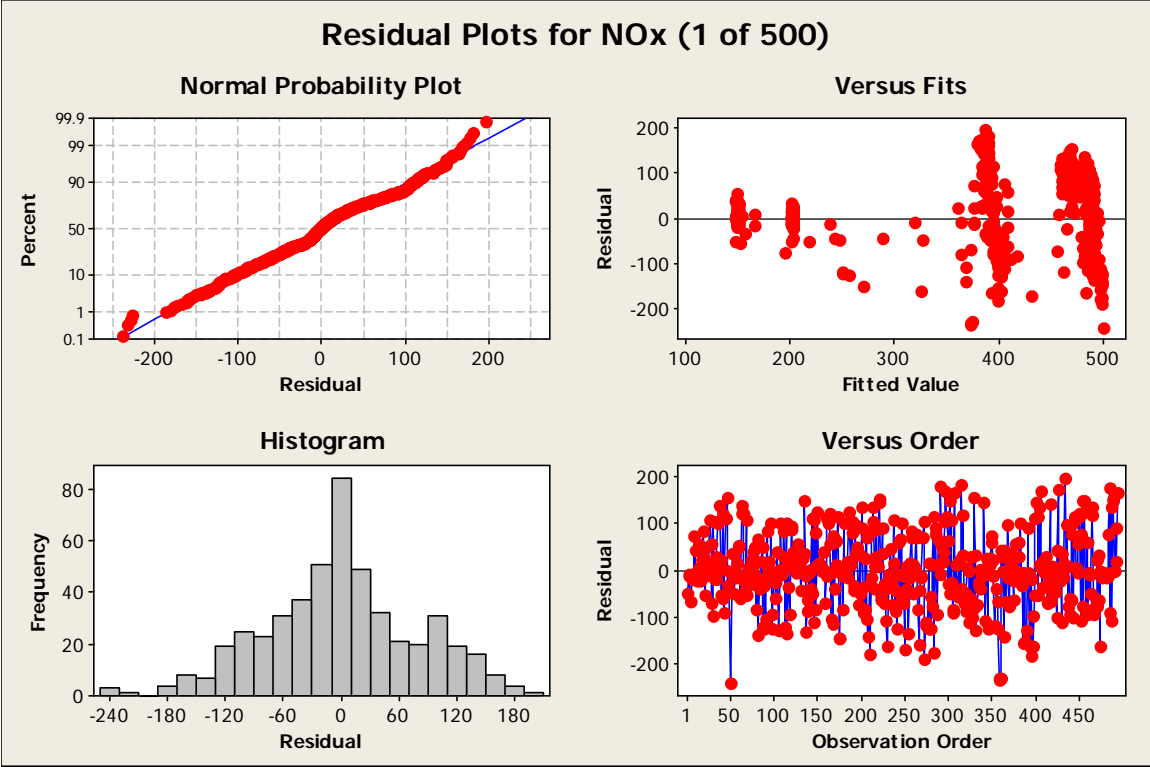
| Factor | Type | Levels | Values |
|-----------|-------|--------|--------|
| compactor | fixed | 2 | 1, 2 |

Analysis of Variance for CO2, using Adjusted SS for Tests

| Source | DF | Seq SS | Adj SS | Adj MS | F | P |
|-----------------------|-----|---------|---------|---------|---------|-------|
| EngineSpeed | 1 | 2258.07 | 2215.77 | 2215.77 | 3018.89 | 0.000 |
| compactor | 1 | 35.37 | 5.60 | 5.60 | 7.62 | 0.006 |
| compactor*EngineSpeed | 1 | 0.35 | 0.35 | 0.35 | 0.47 | 0.491 |
| Error | 614 | 450.66 | 450.66 | 0.73 | | |
| Total | 617 | 2744.44 | | | | |

S = 0.856720 R-Sq = 83.58% R-Sq(adj) = 83.50%





Results for: 1 of 500

General Linear Model: NOx versus compactor

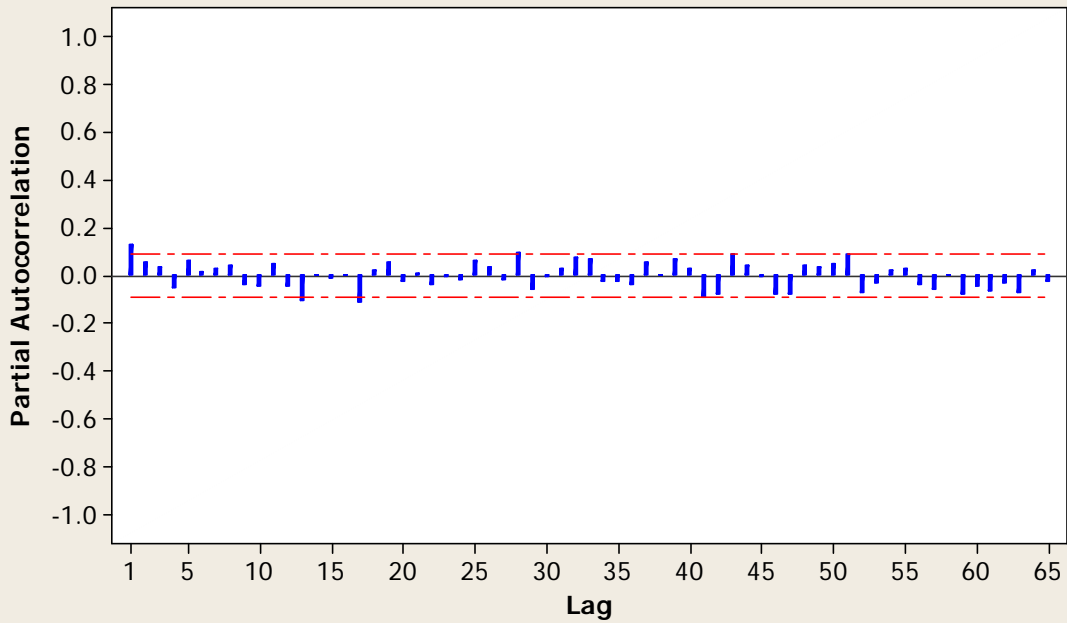
Factor Type Levels Values
 compactor fixed 2 1, 2

Analysis of Variance for NOx, using Adjusted SS for Tests

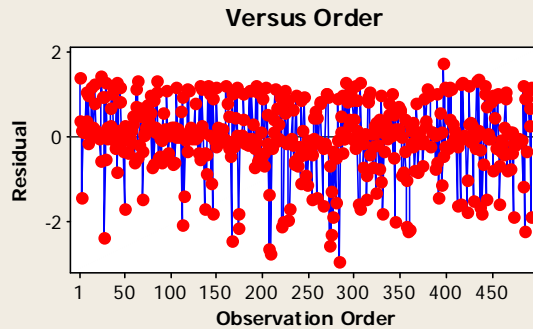
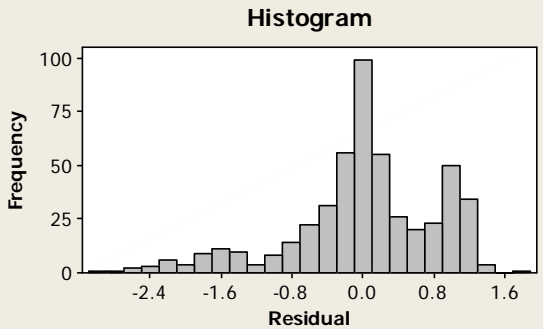
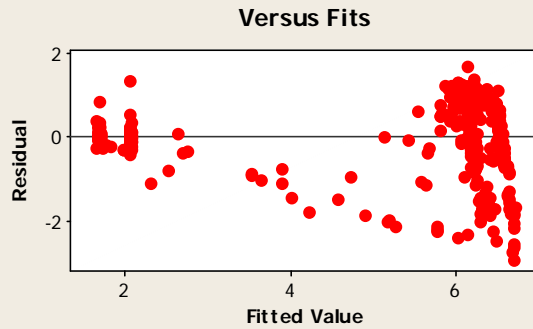
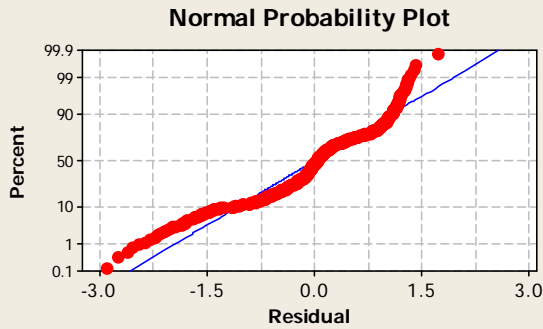
| Source | DF | Seq SS | Adj SS | Adj MS | F | P |
|-----------------------|-----|----------|---------|---------|---------|-------|
| EngineSpeed | 1 | 6862161 | 6457793 | 6457793 | 1022.54 | 0.000 |
| compactor | 1 | 919757 | 17066 | 17066 | 2.70 | 0.101 |
| compactor*EngineSpeed | 1 | 30969 | 30969 | 30969 | 4.90 | 0.027 |
| Error | 490 | 3094574 | 3094574 | 6315 | | |
| Total | 493 | 10907461 | | | | |

S = 79.4698 R-Sq = 71.63% R-Sq(adj) = 71.46%

Partial Autocorrelation Function for residuals from GLM (1 of 500) (with 5% significance limits for the partial autocorrelations)



Residual Plots for CO2 (1 of 500)



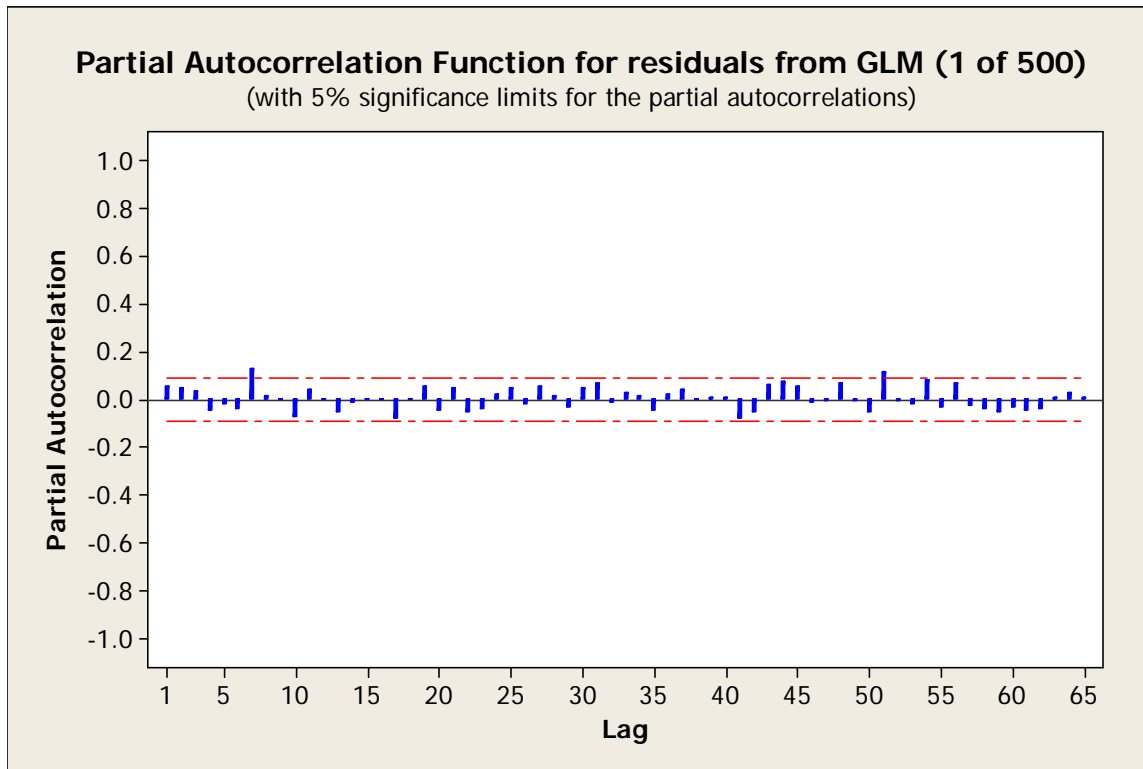
General Linear Model: CO2 versus compactor

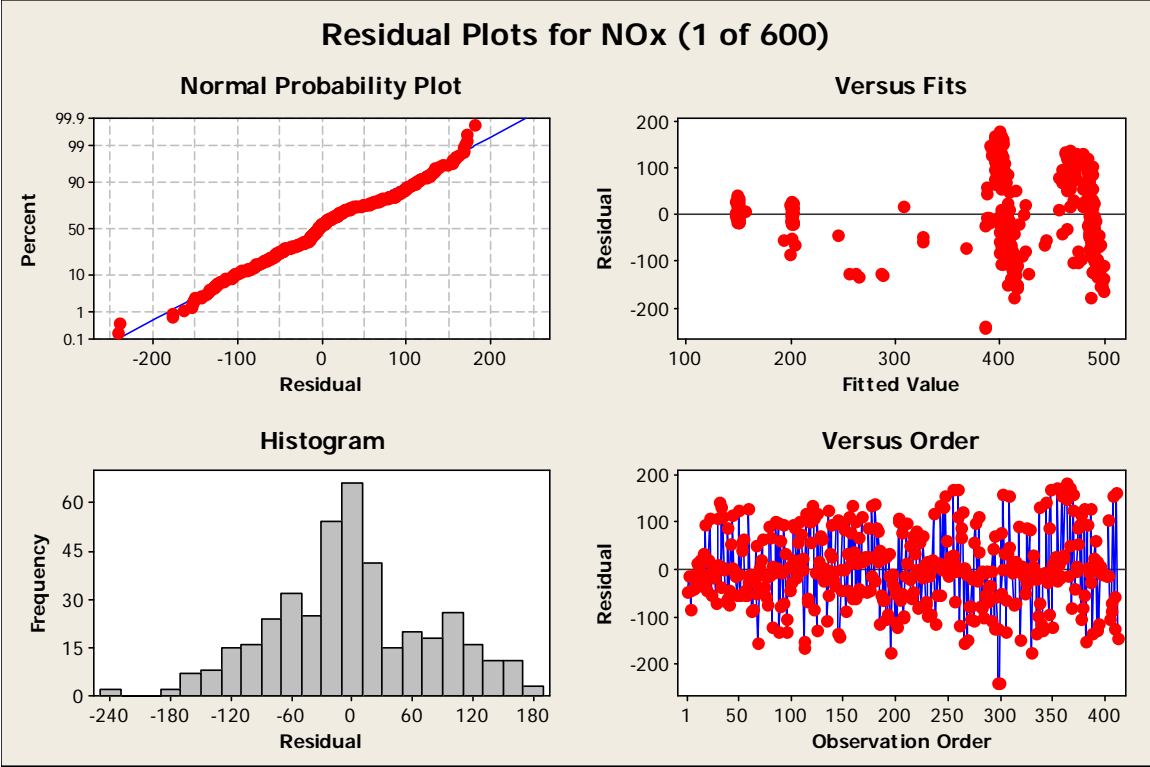
Factor Type Levels Values
compactor fixed 2 1, 2

Analysis of Variance for CO2, using Adjusted SS for Tests

| Source | DF | Seq SS | Adj SS | Adj MS | F | P |
|-----------------------|-----|---------|---------|---------|---------|-------|
| EngineSpeed | 1 | 1851.15 | 1810.19 | 1810.19 | 2575.56 | 0.000 |
| compactor | 1 | 26.67 | 3.66 | 3.66 | 5.21 | 0.023 |
| compactor*EngineSpeed | 1 | 0.11 | 0.11 | 0.11 | 0.15 | 0.698 |
| Error | 490 | 344.39 | 344.39 | 0.70 | | |
| Total | 493 | 2222.32 | | | | |

S = 0.838353 R-Sq = 84.50% R-Sq(adj) = 84.41%





Results for: 1 of 600

General Linear Model: NOx versus compactor

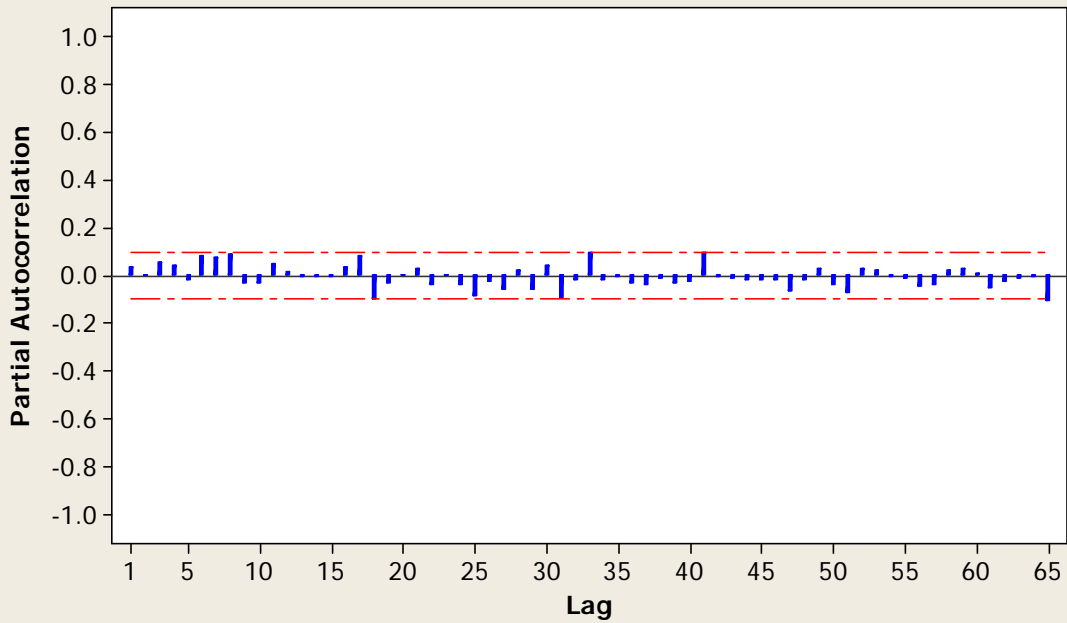
```
Factor      Type  Levels  Values
compactor  fixed      2     1, 2
```

Analysis of Variance for NOx, using Adjusted SS for Tests

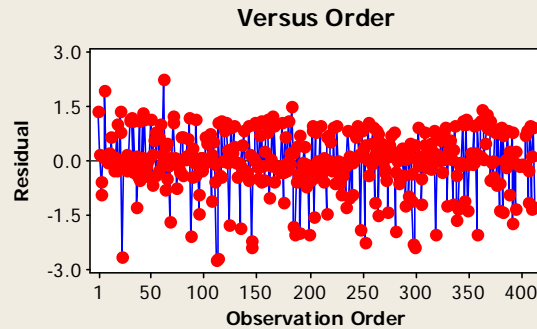
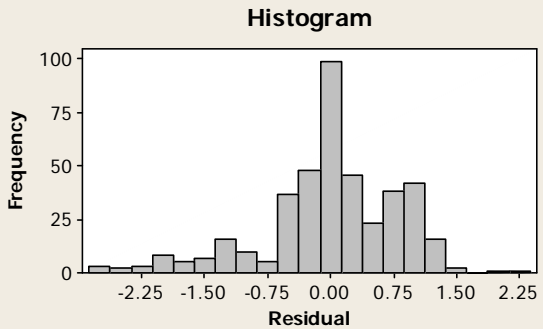
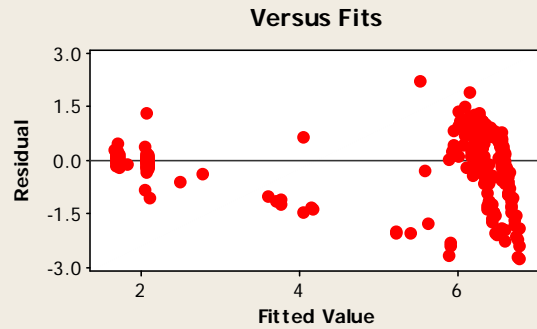
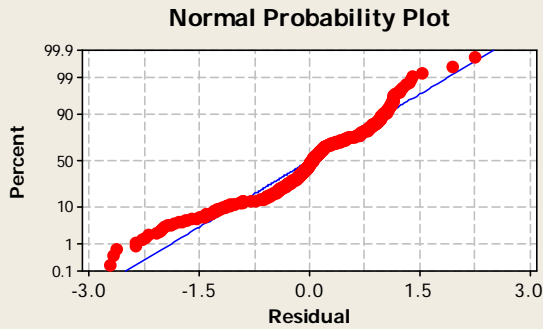
| Source | DF | Seq SS | Adj SS | Adj MS | F | P |
|-----------------------|-----|---------|---------|---------|--------|-------|
| EngineSpeed | 1 | 5710682 | 5493606 | 5493606 | 894.38 | 0.000 |
| compactor | 1 | 608726 | 19985 | 19985 | 3.25 | 0.072 |
| compactor*EngineSpeed | 1 | 10227 | 10227 | 10227 | 1.66 | 0.198 |
| Error | 408 | 2506078 | 2506078 | 6142 | | |
| Total | 411 | 8835712 | | | | |

S = 78.3731 R-Sq = 71.64% R-Sq(adj) = 71.43%

Partial Autocorrelation Function for residuals from GLM (1 of 600)
(with 5% significance limits for the partial autocorrelations)



Residual Plots for CO2 (1 of 600)



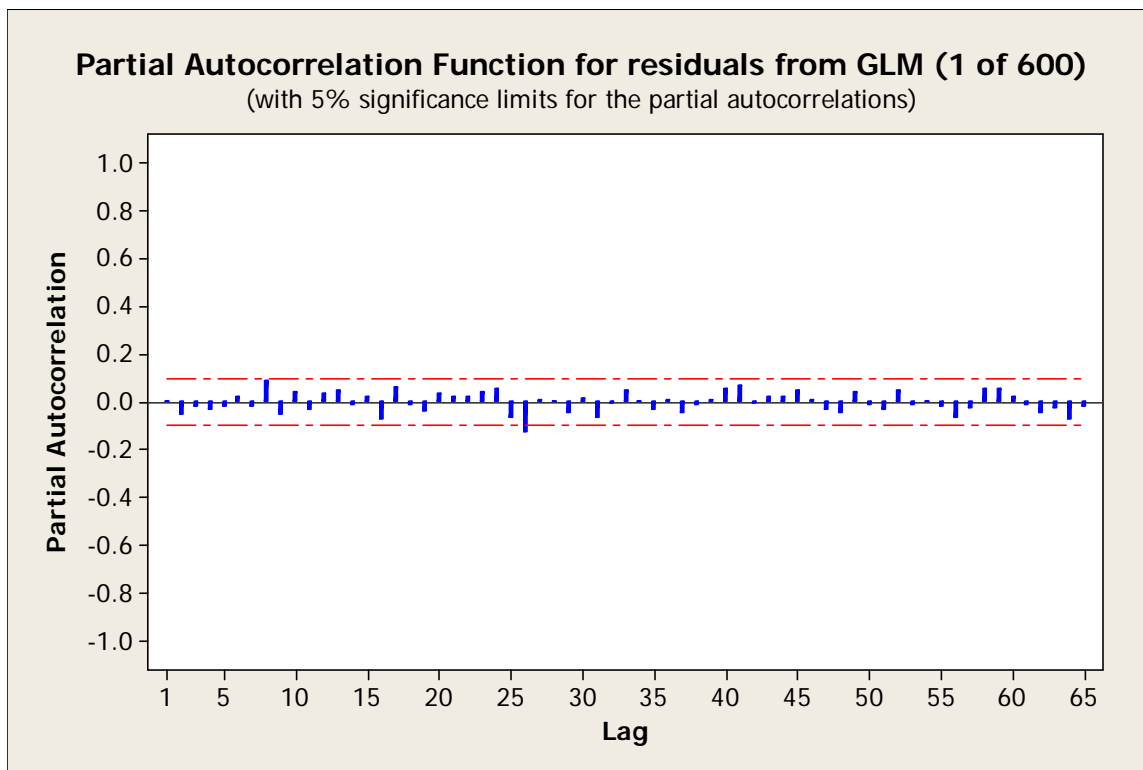
General Linear Model: CO2 versus compactor

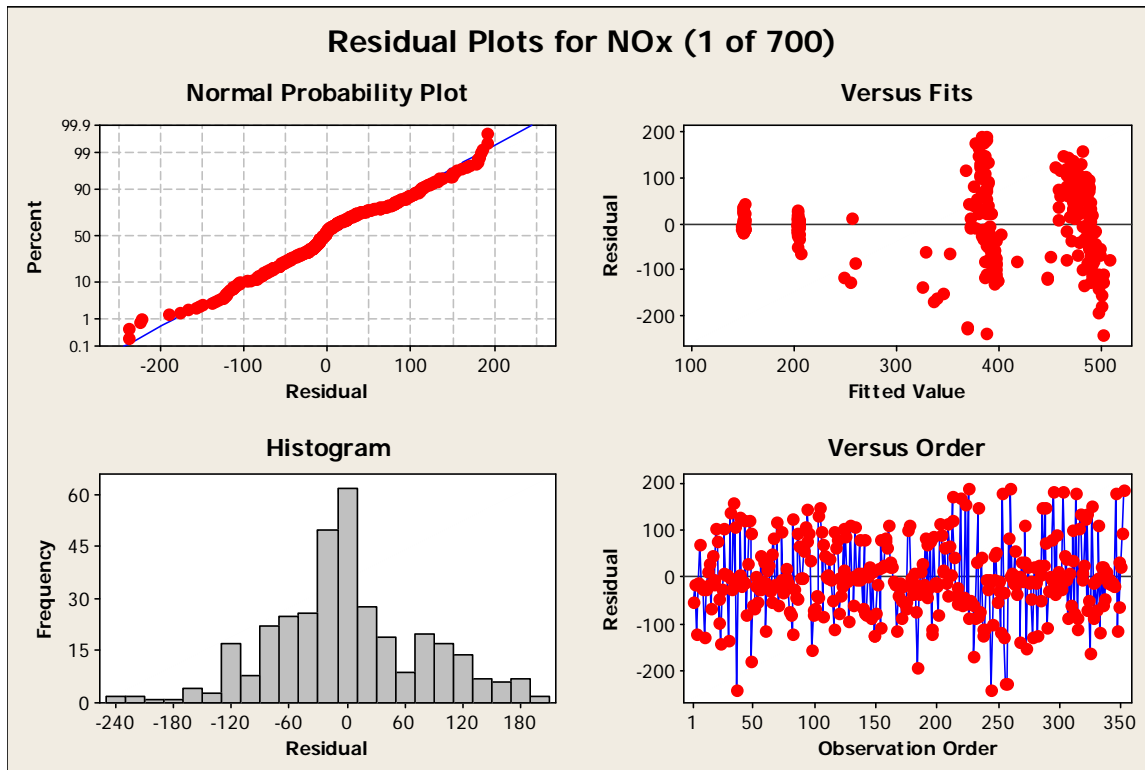
Factor Type Levels Values
compactor fixed 2 1, 2

Analysis of Variance for CO2, using Adjusted SS for Tests

| Source | DF | Seq SS | Adj SS | Adj MS | F | P |
|-----------------------|-----|---------|---------|---------|---------|-------|
| EngineSpeed | 1 | 1559.05 | 1532.99 | 1532.99 | 2316.56 | 0.000 |
| compactor | 1 | 16.49 | 3.64 | 3.64 | 5.50 | 0.020 |
| compactor*EngineSpeed | 1 | 0.50 | 0.50 | 0.50 | 0.75 | 0.387 |
| Error | 408 | 270.00 | 270.00 | 0.66 | | |
| Total | 411 | 1846.03 | | | | |

S = 0.813482 R-Sq = 85.37% R-Sq(adj) = 85.27%





Results for: 1 of 700

General Linear Model: NOx versus compactor

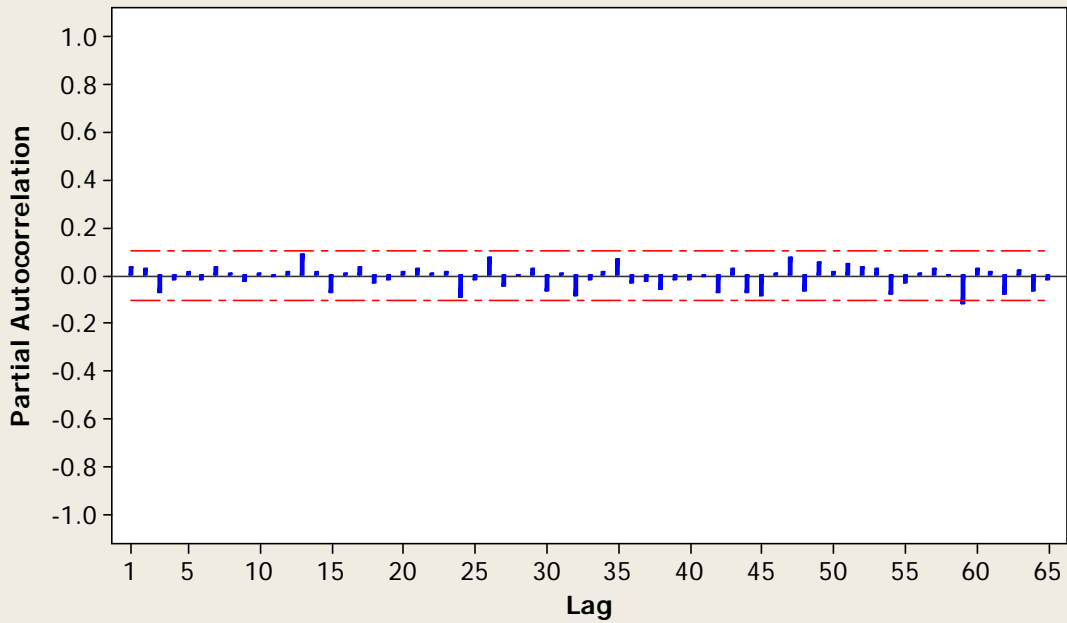
| Factor | Type | Levels | Values |
|-----------|-------|--------|--------|
| compactor | fixed | 2 | 1, 2 |

Analysis of Variance for NOx, using Adjusted SS for Tests

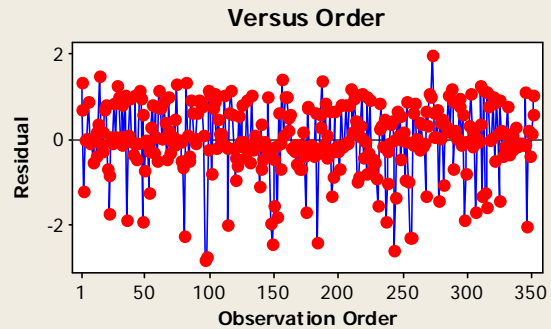
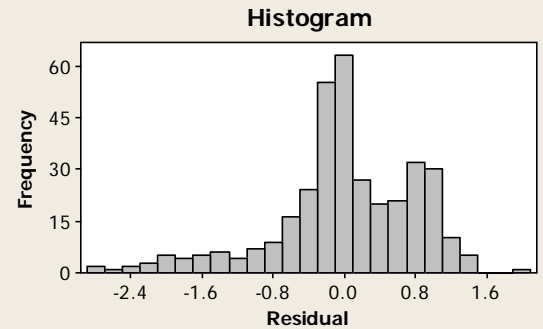
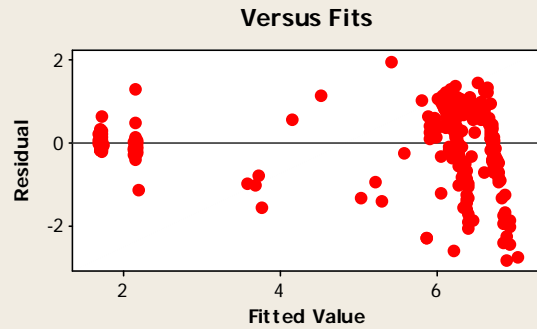
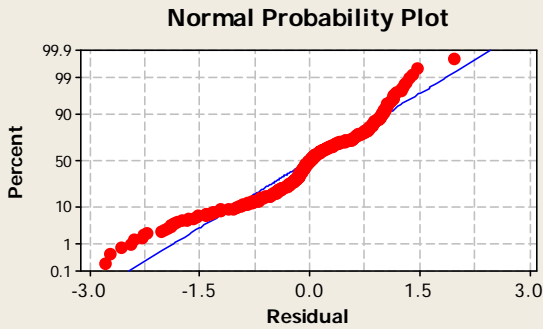
| Source | DF | Seq SS | Adj SS | Adj MS | F | P |
|-----------------------|-----|---------|---------|---------|--------|-------|
| EngineSpeed | 1 | 4695056 | 4492286 | 4492286 | 706.80 | 0.000 |
| compactor | 1 | 704132 | 10504 | 10504 | 1.65 | 0.199 |
| compactor*EngineSpeed | 1 | 27864 | 27864 | 27864 | 4.38 | 0.037 |
| Error | 348 | 2211822 | 2211822 | 6356 | | |
| Total | 351 | 7638873 | | | | |

S = 79.7233 R-Sq = 71.05% R-Sq(adj) = 70.80%

Partial Autocorrelation Function for residuals from GLM (1 of 700)
(with 5% significance limits for the partial autocorrelations)



Residual Plots for CO2 (1 of 700)



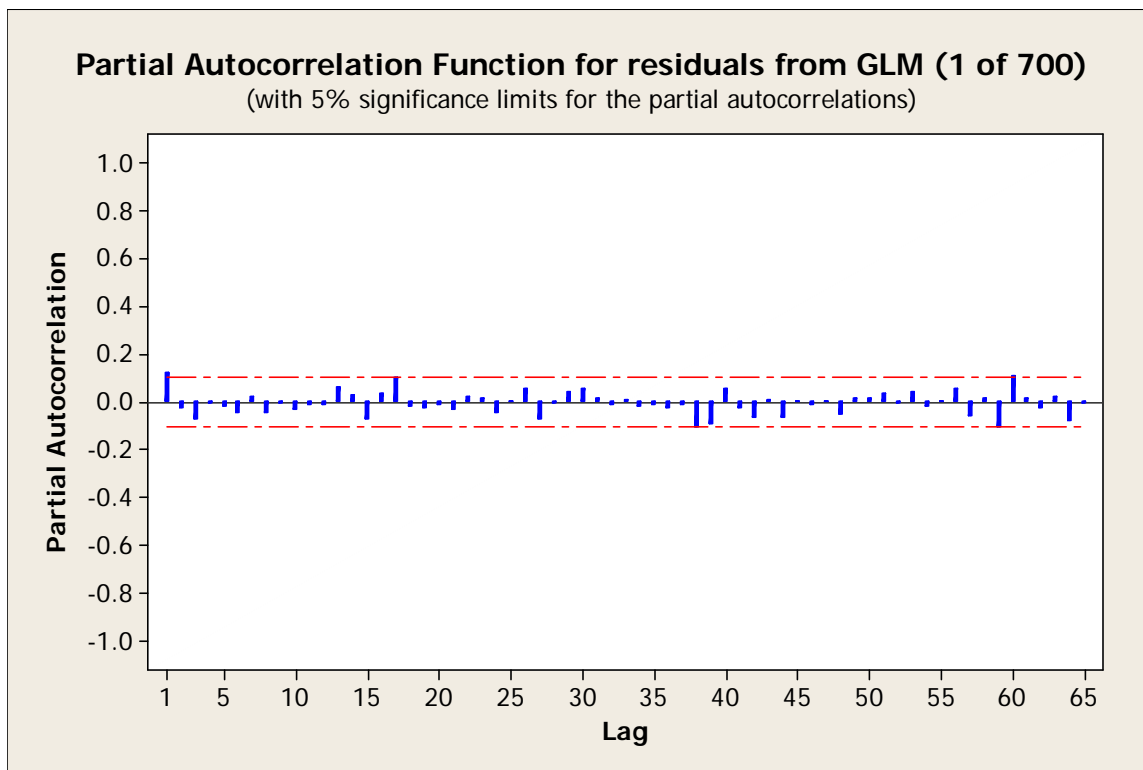
General Linear Model: CO2 versus compactor

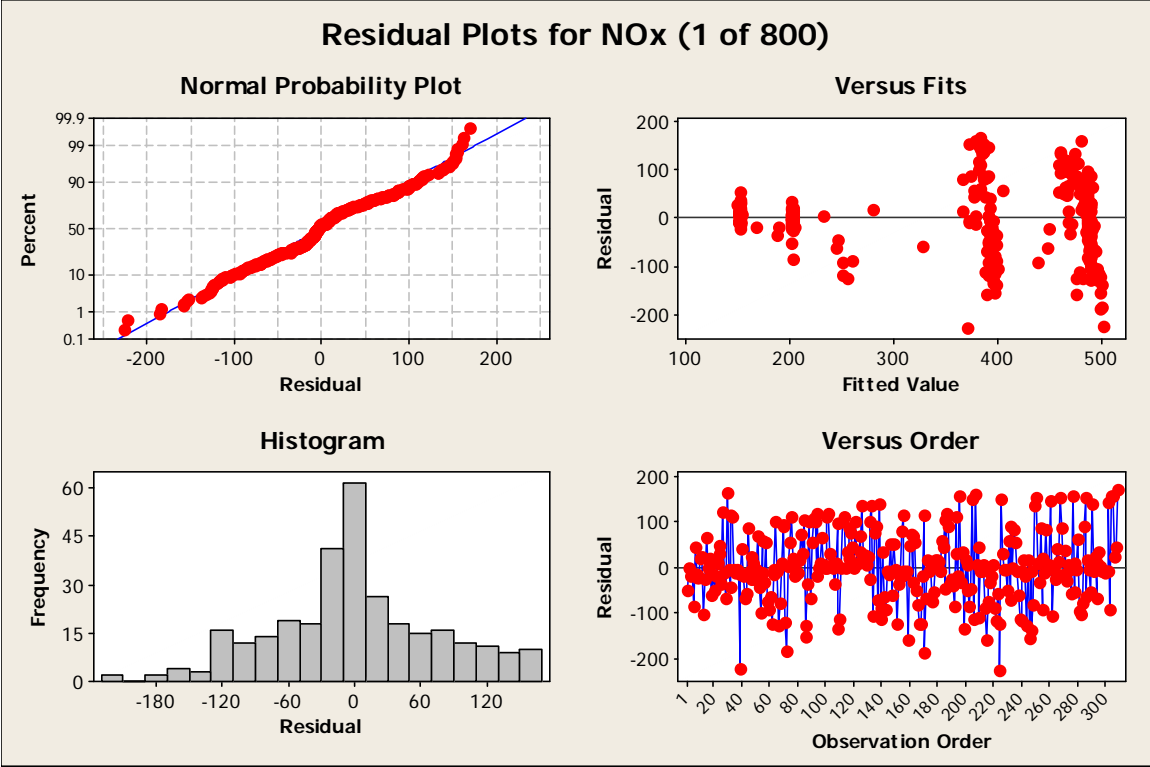
Factor Type Levels Values
compactor fixed 2 1, 2

Analysis of Variance for CO2, using Adjusted SS for Tests

| Source | DF | Seq SS | Adj SS | Adj MS | F | P |
|-----------------------|-----|---------|---------|---------|---------|-------|
| EngineSpeed | 1 | 1388.28 | 1344.98 | 1344.98 | 2076.82 | 0.000 |
| compactor | 1 | 26.26 | 3.11 | 3.11 | 4.80 | 0.029 |
| compactor*EngineSpeed | 1 | 0.03 | 0.03 | 0.03 | 0.05 | 0.826 |
| Error | 348 | 225.37 | 225.37 | 0.65 | | |
| Total | 351 | 1639.94 | | | | |

S = 0.804746 R-Sq = 86.26% R-Sq(adj) = 86.14%





Results for: 1 of 800

General Linear Model: NOx versus compactor

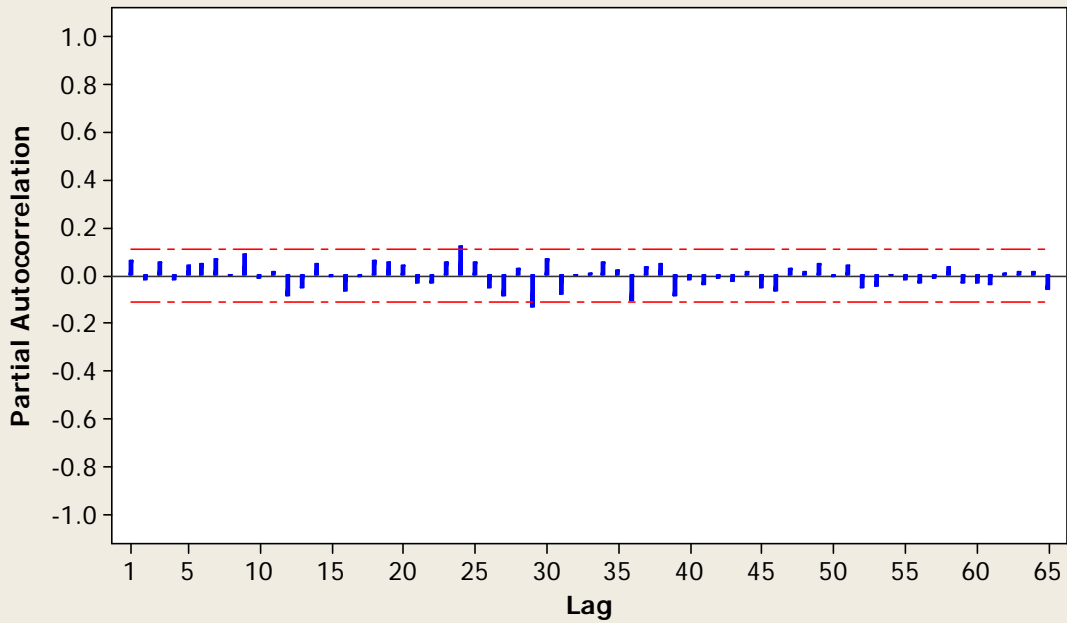
```
Factor      Type   Levels  Values
compactor  fixed      2      1, 2
```

Analysis of Variance for NOx, using Adjusted SS for Tests

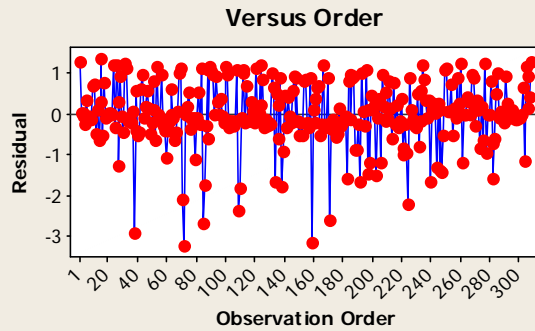
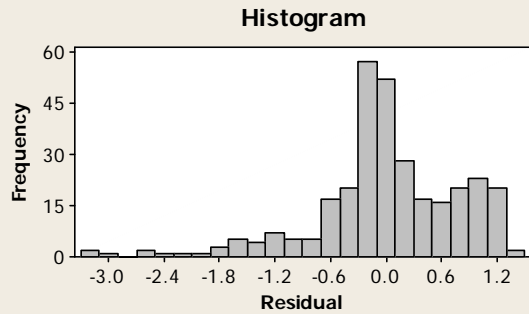
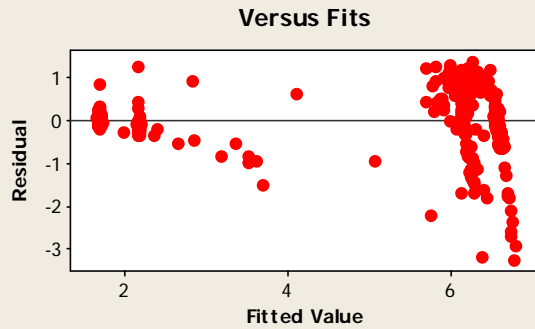
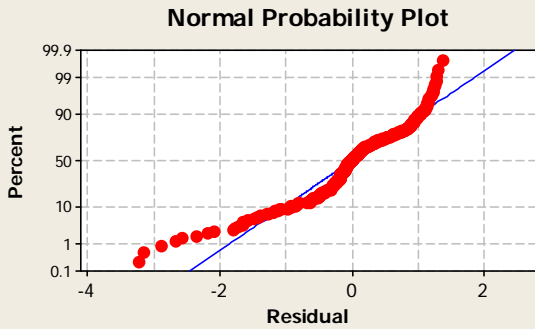
| Source | DF | Seq SS | Adj SS | Adj MS | F | P |
|-----------------------|-----|---------|---------|---------|--------|-------|
| EngineSpeed | 1 | 4396393 | 4130488 | 4130488 | 715.24 | 0.000 |
| compactor | 1 | 581737 | 8543 | 8543 | 1.48 | 0.225 |
| compactor*EngineSpeed | 1 | 26878 | 26878 | 26878 | 4.65 | 0.032 |
| Error | 305 | 1761365 | 1761365 | 5775 | | |
| Total | 308 | 6766373 | | | | |

S = 75.9932 R-Sq = 73.97% R-Sq(adj) = 73.71%

Partial Autocorrelation Function for residuals from GLM (1 of 800)
(with 5% significance limits for the partial autocorrelations)



Residual Plots for CO2 (1 of 800)



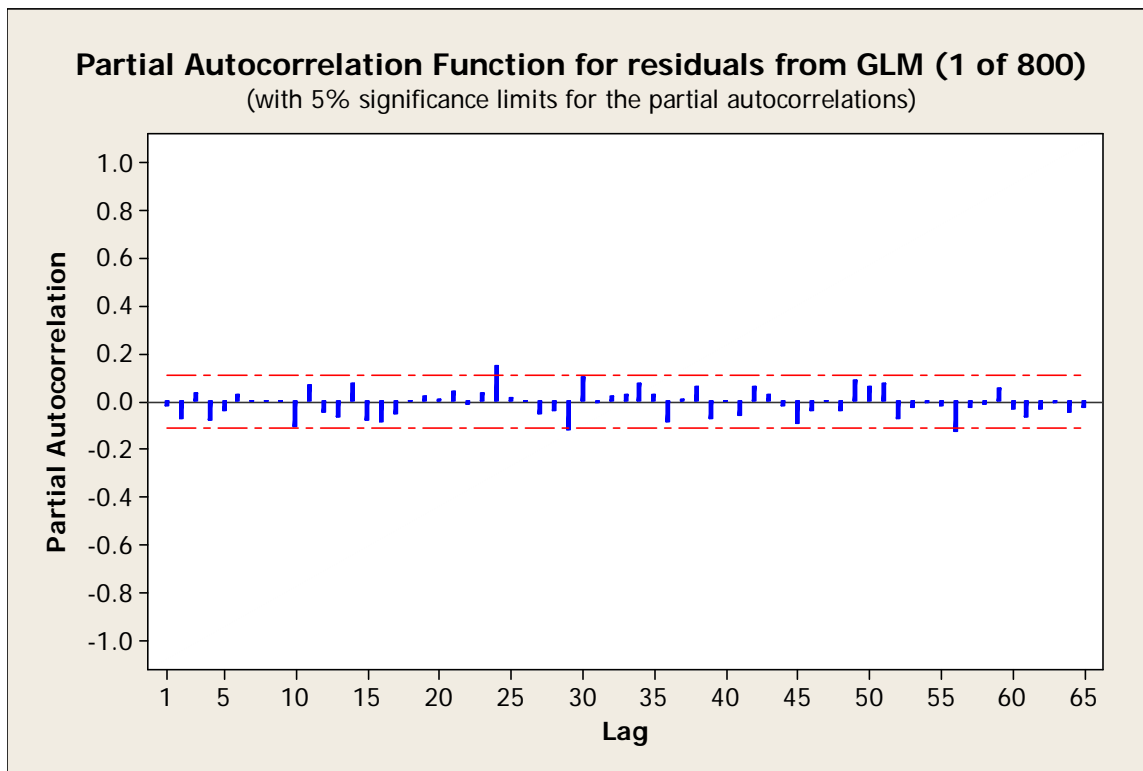
General Linear Model: CO2 versus compactor

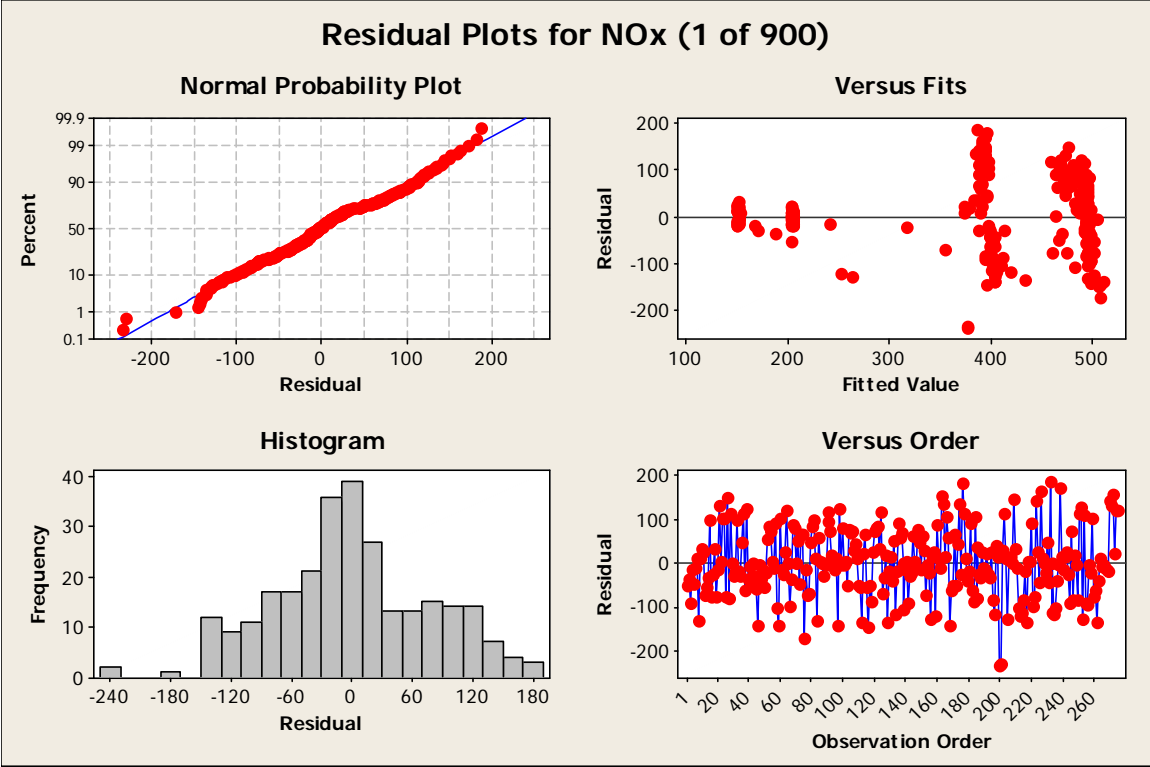
Factor Type Levels Values
compactor fixed 2 1, 2

Analysis of Variance for CO2, using Adjusted SS for Tests

| Source | DF | Seq SS | Adj SS | Adj MS | F | P |
|-----------------------|-----|---------|---------|---------|---------|-------|
| EngineSpeed | 1 | 1200.40 | 1170.98 | 1170.98 | 1827.41 | 0.000 |
| compactor | 1 | 22.78 | 3.69 | 3.69 | 5.76 | 0.017 |
| compactor*EngineSpeed | 1 | 0.15 | 0.15 | 0.15 | 0.24 | 0.623 |
| Error | 305 | 195.44 | 195.44 | 0.64 | | |
| Total | 308 | 1418.77 | | | | |

S = 0.800492 R-Sq = 86.22% R-Sq(adj) = 86.09%





Results for: 1 of 900

General Linear Model: NOx versus compactor

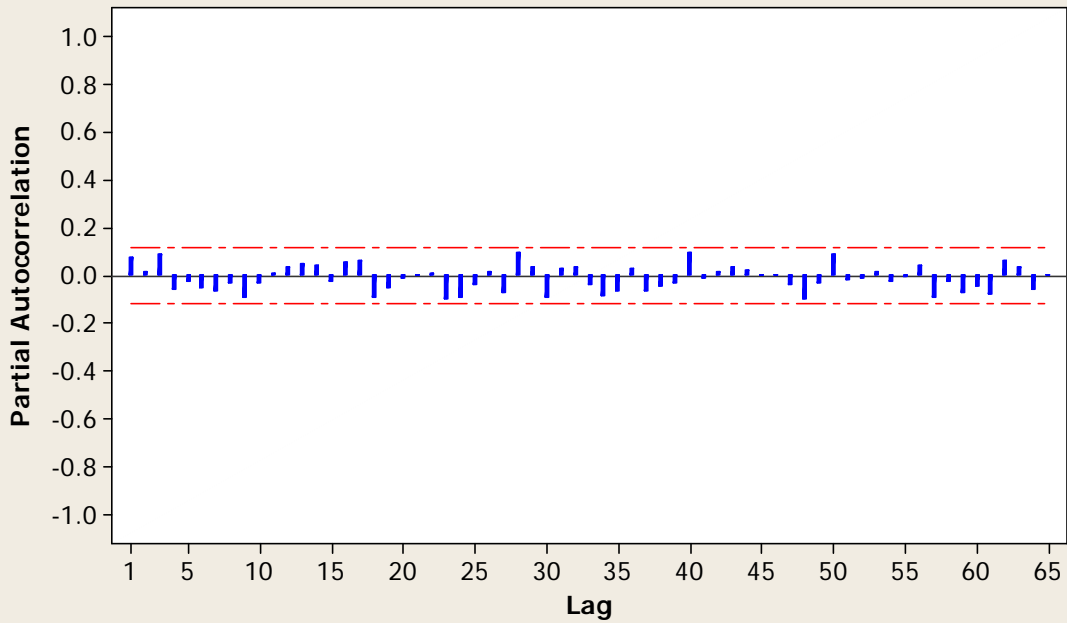
```
Factor      Type   Levels  Values
compactor  fixed      2      1, 2
```

Analysis of Variance for NOx, using Adjusted SS for Tests

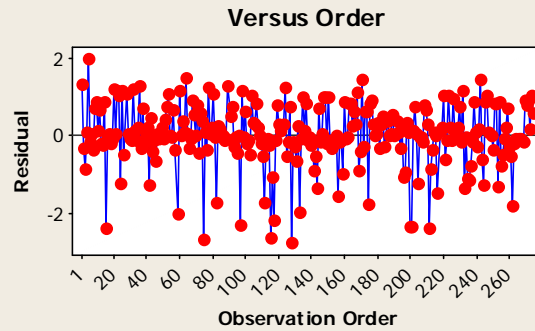
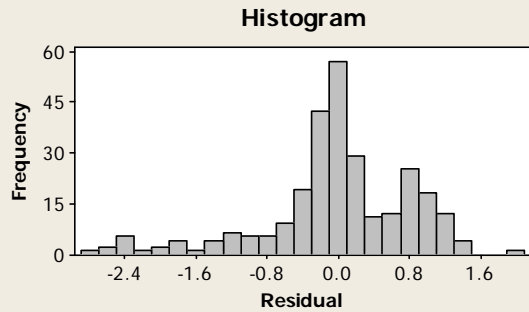
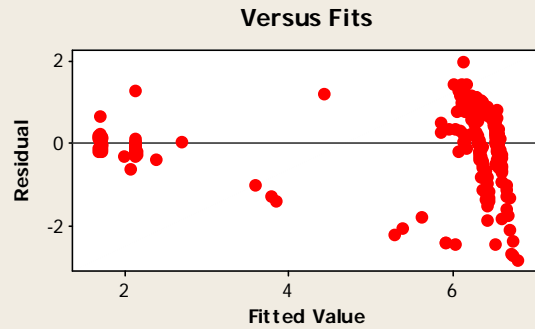
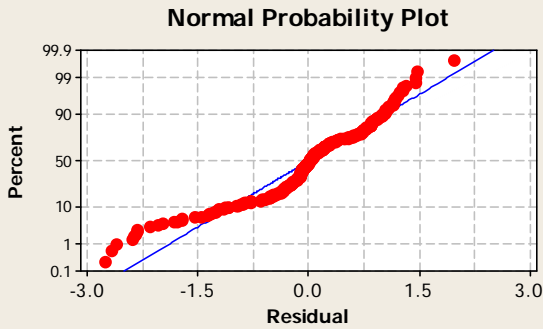
| Source | DF | Seq SS | Adj SS | Adj MS | F | P |
|-----------------------|-----|---------|---------|---------|--------|-------|
| EngineSpeed | 1 | 3882022 | 3595761 | 3595761 | 589.66 | 0.000 |
| compactor | 1 | 539347 | 9048 | 9048 | 1.48 | 0.224 |
| compactor*EngineSpeed | 1 | 18536 | 18536 | 18536 | 3.04 | 0.082 |
| Error | 271 | 1652573 | 1652573 | 6098 | | |
| Total | 274 | 6092477 | | | | |

S = 78.0900 R-Sq = 72.88% R-Sq(adj) = 72.57%

Partial Autocorrelation Function for residuals from GLM (1 of 900)
(with 5% significance limits for the partial autocorrelations)



Residual Plots for CO2 (1 of 900)



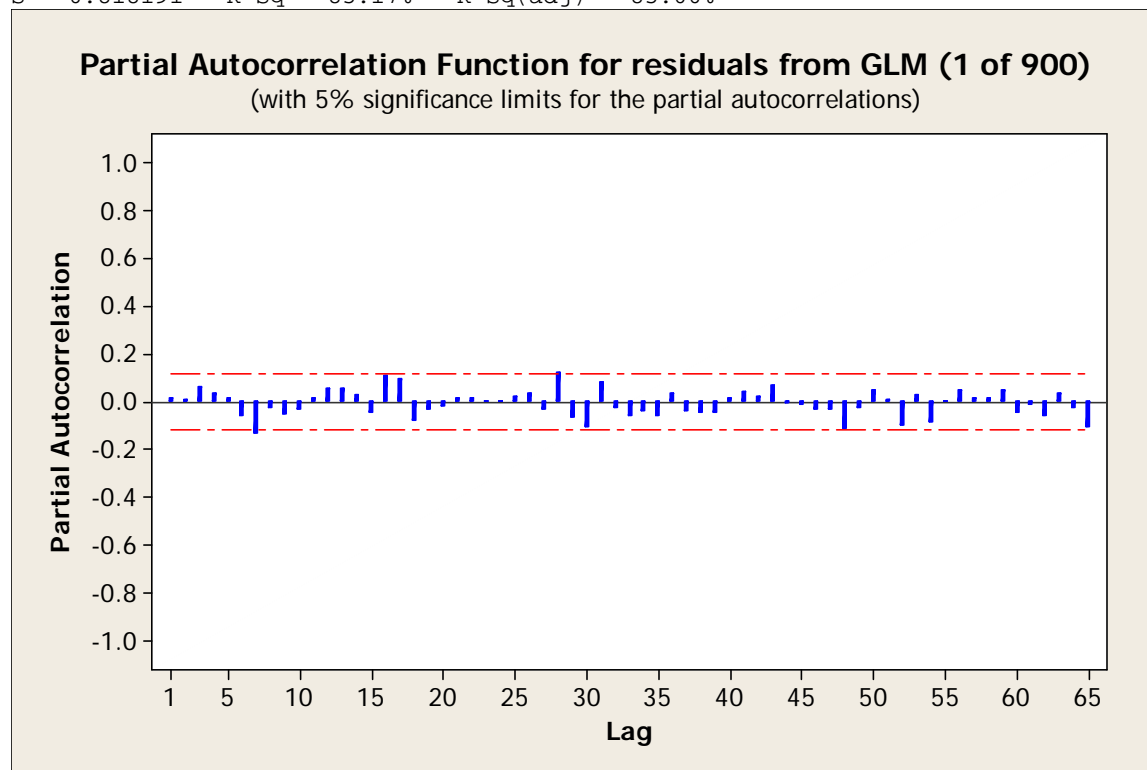
General Linear Model: CO2 versus compactor

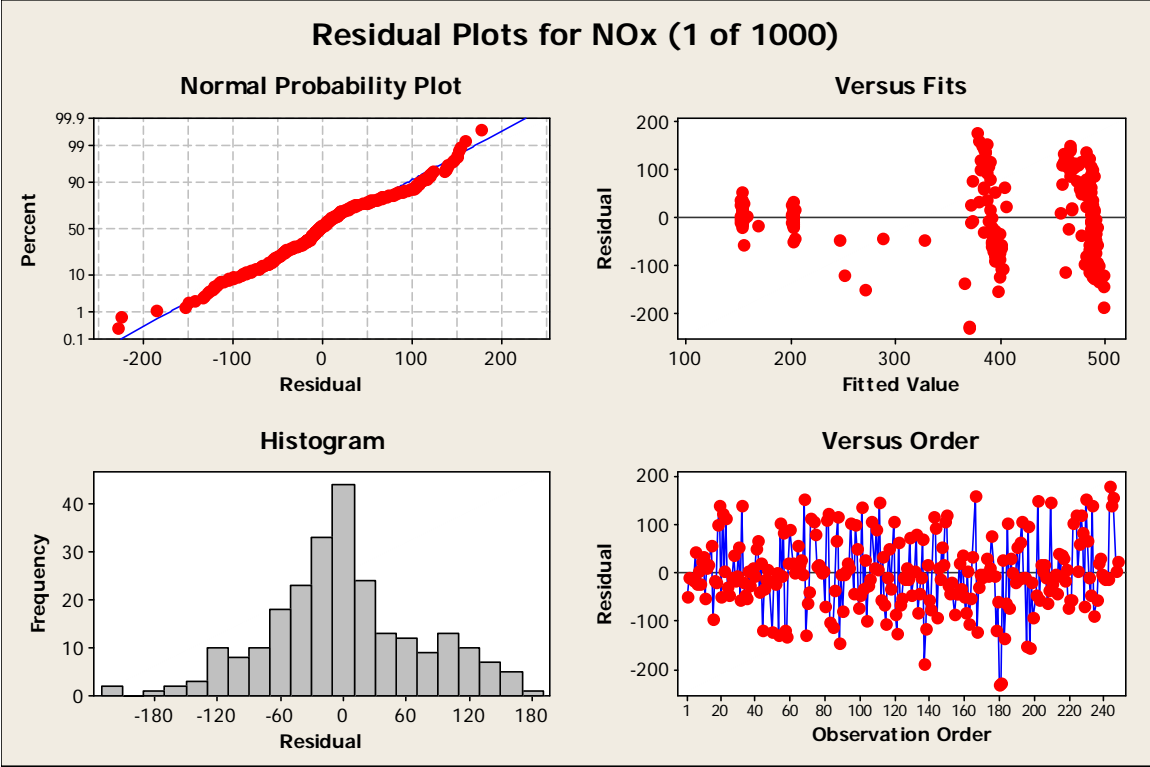
Factor Type Levels Values
compactor fixed 2 1, 2

Analysis of Variance for CO2, using Adjusted SS for Tests

| Source | DF | Seq SS | Adj SS | Adj MS | F | P |
|-----------------------|-----|---------|---------|---------|---------|-------|
| EngineSpeed | 1 | 1030.60 | 1009.42 | 1009.42 | 1507.87 | 0.000 |
| compactor | 1 | 10.02 | 3.49 | 3.49 | 5.21 | 0.023 |
| compactor*EngineSpeed | 1 | 0.89 | 0.89 | 0.89 | 1.33 | 0.250 |
| Error | 271 | 181.42 | 181.42 | 0.67 | | |
| Total | 274 | 1222.93 | | | | |

S = 0.818191 R-Sq = 85.17% R-Sq(adj) = 85.00%





Results for: 1 of 1000

General Linear Model: NOx versus compactor

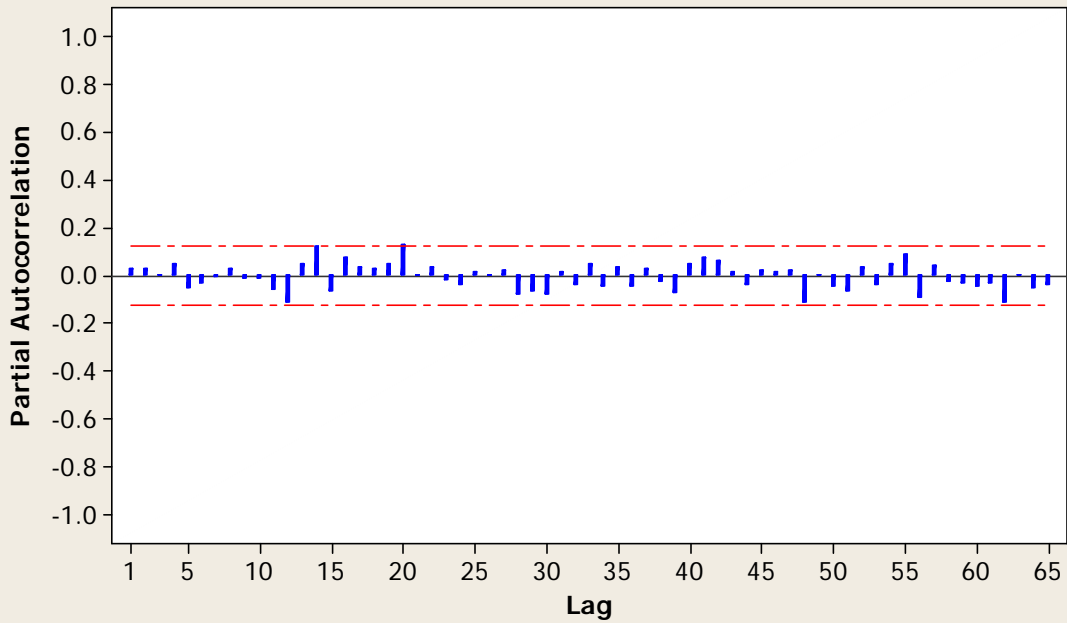
```
Factor      Type   Levels  Values
compactor  fixed      2      1, 2
```

Analysis of Variance for NOx, using Adjusted SS for Tests

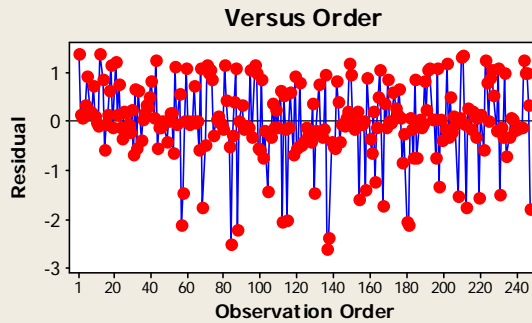
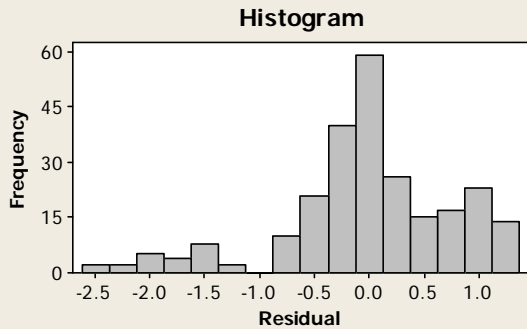
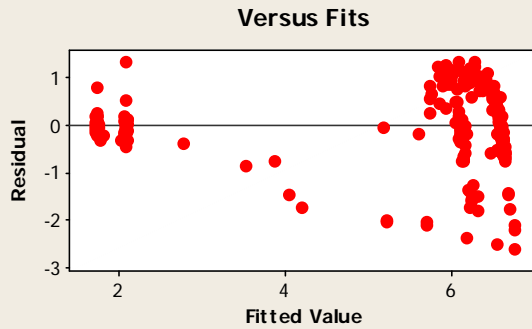
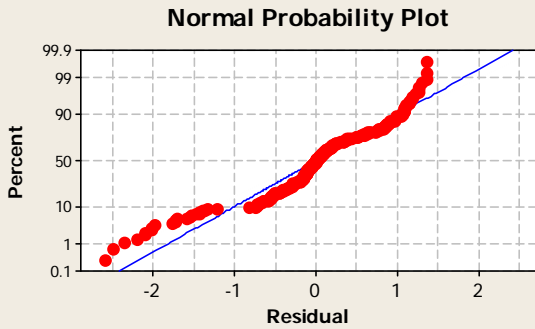
| Source | DF | Seq SS | Adj SS | Adj MS | F | P |
|-----------------------|-----|---------|---------|---------|--------|-------|
| EngineSpeed | 1 | 3628836 | 3316541 | 3316541 | 607.30 | 0.000 |
| compactor | 1 | 456138 | 5635 | 5635 | 1.03 | 0.311 |
| compactor*EngineSpeed | 1 | 23460 | 23460 | 23460 | 4.30 | 0.039 |
| Error | 244 | 1332518 | 1332518 | 5461 | | |
| Total | 247 | 5440952 | | | | |

S = 73.8995 R-Sq = 75.51% R-Sq(adj) = 75.21%

Partial Autocorrelation Function for residuals from GLM (1 of 1000)
(with 5% significance limits for the partial autocorrelations)



Residual Plots for CO2 (1 of 1000)



General Linear Model: CO2 versus compactor

Factor Type Levels Values
compactor fixed 2 1, 2

Analysis of Variance for CO2, using Adjusted SS for Tests

| Source | DF | Seq SS | Adj SS | Adj MS | F | P |
|-----------------------|-----|---------|--------|--------|---------|-------|
| EngineSpeed | 1 | 978.56 | 940.44 | 940.44 | 1514.93 | 0.000 |
| compactor | 1 | 18.34 | 1.15 | 1.15 | 1.85 | 0.175 |
| compactor*EngineSpeed | 1 | 0.12 | 0.12 | 0.12 | 0.19 | 0.665 |
| Error | 244 | 151.47 | 151.47 | 0.62 | | |
| Total | 247 | 1148.49 | | | | |

S = 0.787899 R-Sq = 86.81% R-Sq(adj) = 86.65%

