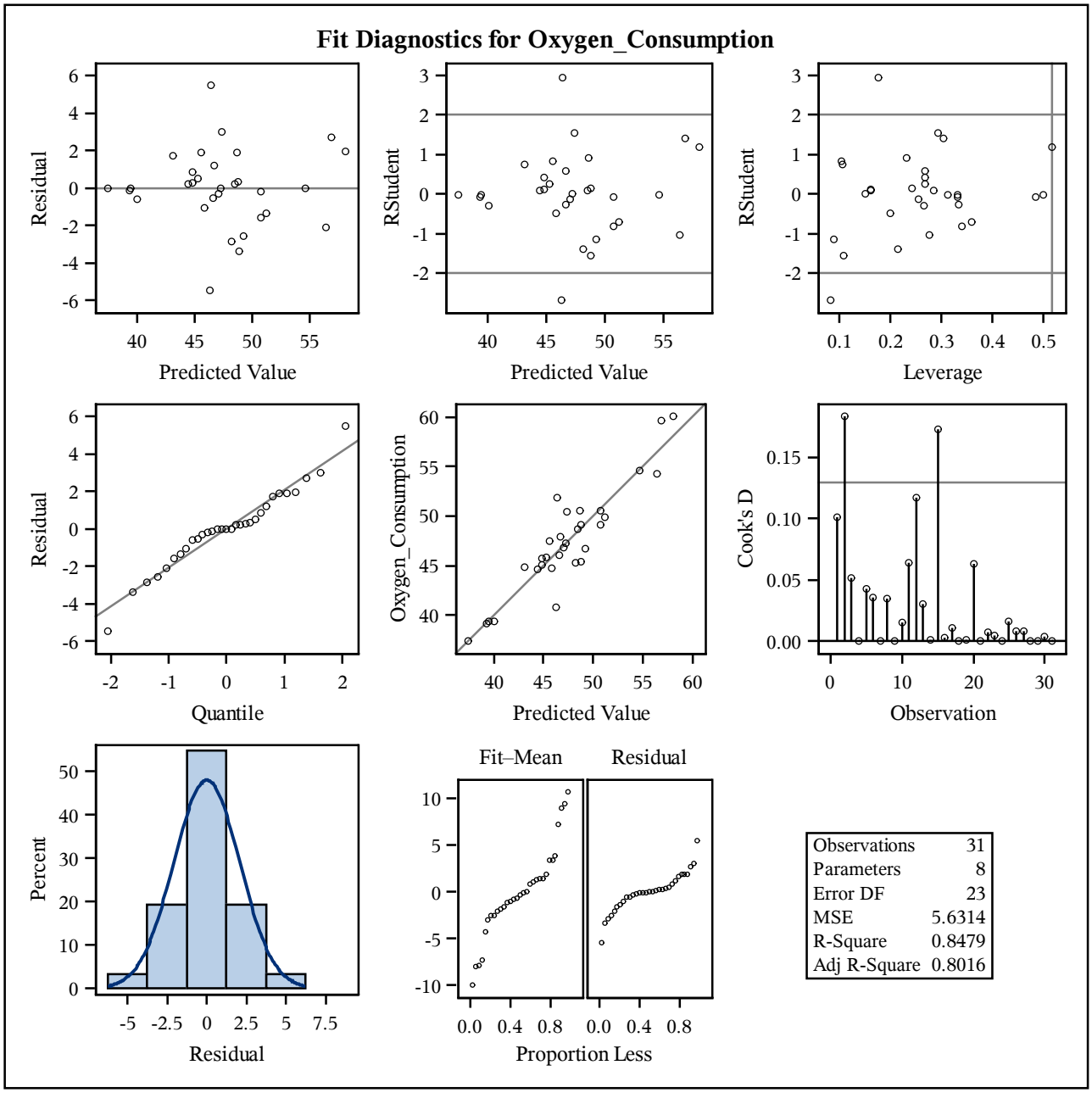
***The REG Procedure***
***Model: ALL_REG***
***Dependent Variable: Oxygen_Consumption***

***R-Square Selection Method***

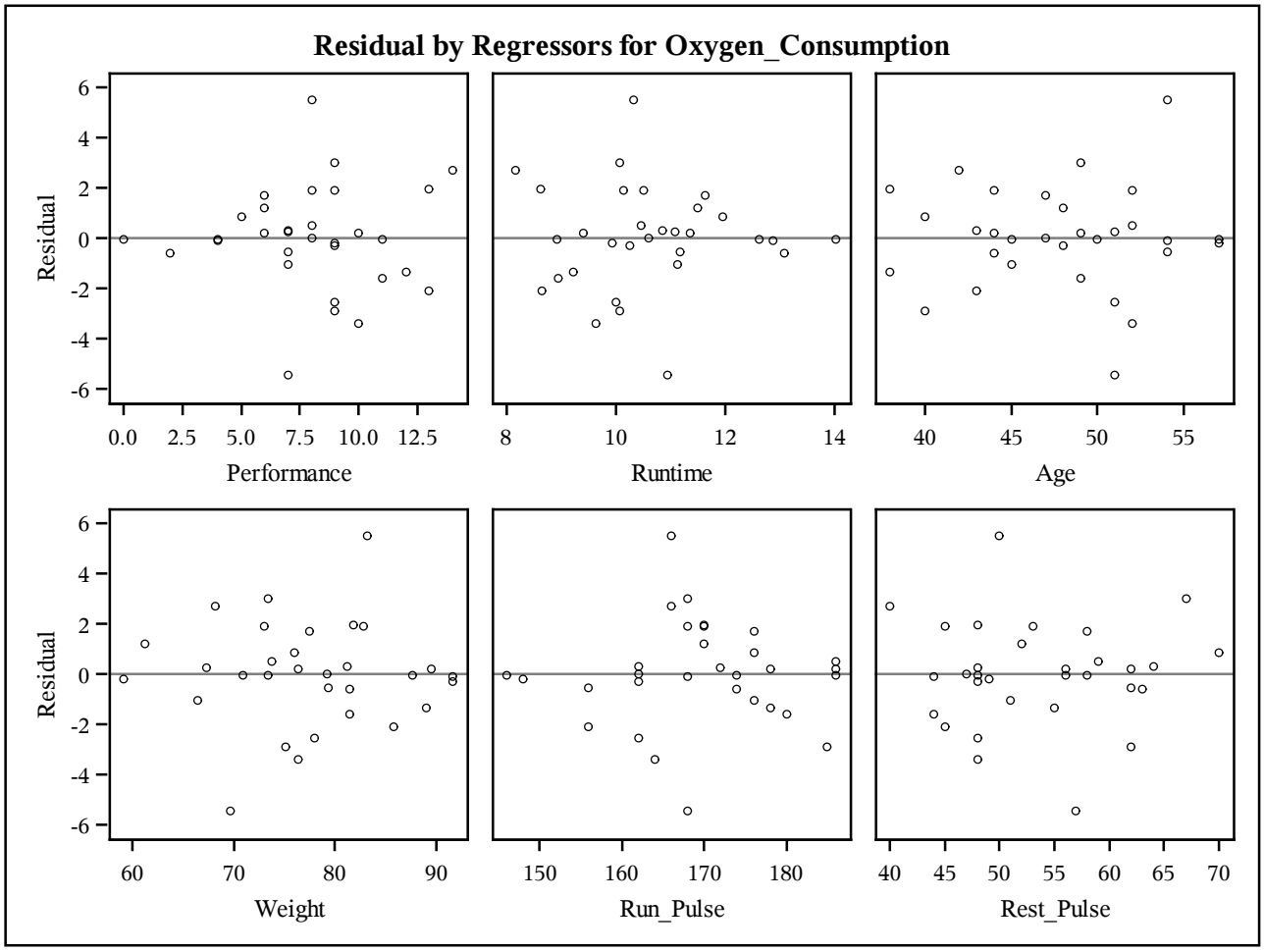
| | |
|---|---|
| **Number of Observations Read** | 31 |
| **Number of Observations Used** | 31 |

| Number in Model | R-Square | Adjusted R-Square | C(p) | Variables in Model |
|---|---|---|---|---|
| **1** | 0.7461 | 0.7373 | 11.3942 | Performance |
| **1** | 0.7434 | 0.7345 | 11.8074 | Runtime |
| **1** | 0.1595 | 0.1305 | 100.1000 | Rest_Pulse |
| **1** | 0.1585 | 0.1294 | 100.2529 | Run_Pulse |
| **2** | 0.7647 | 0.7479 | 10.5794 | Runtime Age |
| **2** | 0.7640 | 0.7472 | 10.6839 | Performance Run_Pulse |
| **2** | 0.7614 | 0.7444 | 11.0743 | Runtime Run_Pulse |
| **2** | 0.7597 | 0.7425 | 11.3400 | Performance Age |
| **3** | 0.8101 | 0.7890 | 5.7169 | Runtime Run_Pulse Maximum_Pulse |
| **3** | 0.8096 | 0.7884 | 5.7963 | Runtime Age Run_Pulse |
| **3** | 0.8072 | 0.7858 | 6.1523 | Performance Run_Pulse Maximum_Pulse |
| **3** | 0.8003 | 0.7781 | 7.2046 | Performance Age Run_Pulse |
| **4** | 0.8355 | 0.8102 | 3.8790 | Runtime Age Run_Pulse Maximum_Pulse |
| **4** | 0.8253 | 0.7984 | 5.4191 | Performance Age Run_Pulse Maximum_Pulse |
| **4** | 0.8181 | 0.7901 | 6.5036 | Performance Weight Run_Pulse Maximum_Pulse |
| **4** | 0.8160 | 0.7877 | 6.8265 | Runtime Weight Run_Pulse Maximum_Pulse |
| **5** | 0.8469 | 0.8163 | 4.1469 | Runtime Age Weight Run_Pulse Maximum_Pulse |
| **5** | 0.8421 | 0.8105 | 4.8787 | Performance Age Weight Run_Pulse Maximum_Pulse |
| **5** | 0.8356 | 0.8027 | 5.8571 | Runtime Age Run_Pulse Rest_Pulse Maximum_Pulse |
| **5** | 0.8355 | 0.8026 | 5.8738 | Performance Runtime Age Run_Pulse Maximum_Pulse |
| **6** | 0.8476 | 0.8096 | 6.0381 | Performance Runtime Age Weight Run_Pulse Maximum_Pulse |
| **6** | 0.8475 | 0.8094 | 6.0633 | Runtime Age Weight Run_Pulse Rest_Pulse Maximum_Pulse |
| **6** | 0.8421 | 0.8026 | 6.8779 | Performance Age Weight Run_Pulse Rest_Pulse Maximum_Pulse |
| **6** | 0.8356 | 0.7945 | 7.8565 | Performance Runtime Age Run_Pulse Rest_Pulse Maximum_Pulse |
| **7** | 0.8479 | 0.8016 | 8.0000 | Performance Runtime Age Weight Run_Pulse Rest_Pulse Maximum_Pulse |

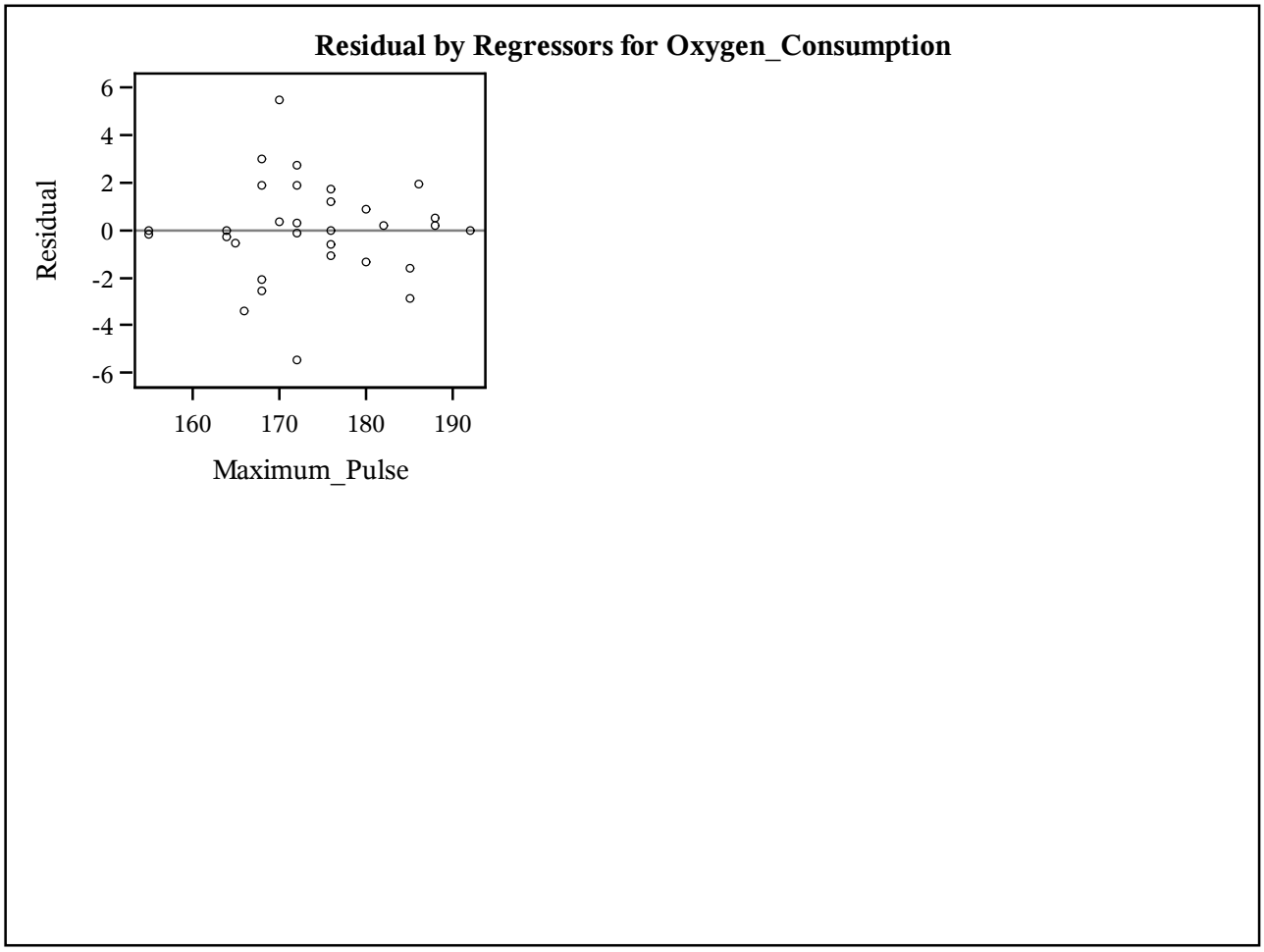
***The REG Procedure***
***Model: ALL_REG***
***Dependent Variable: Oxygen_Consumption***



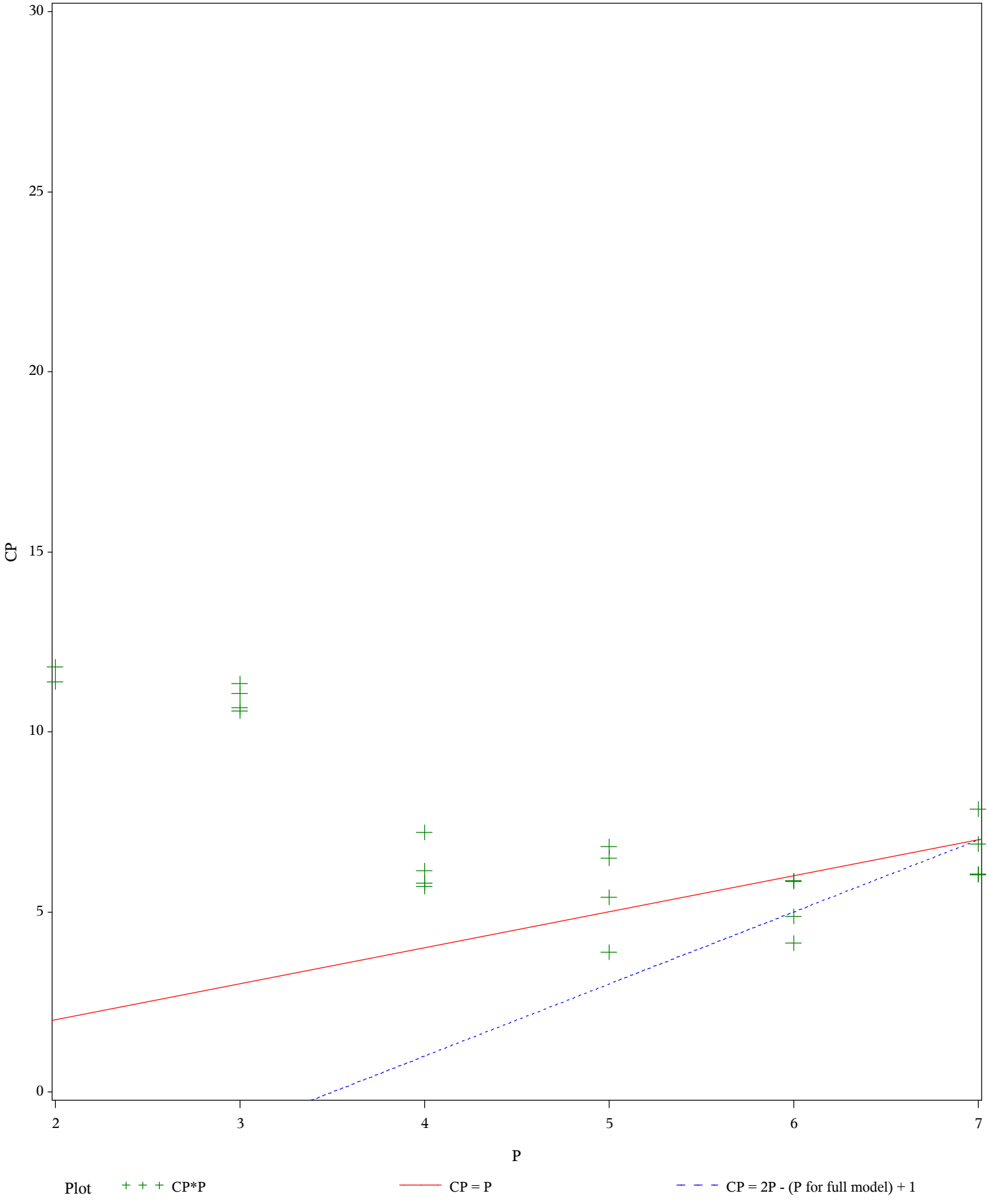
***The REG Procedure***
***Model: ALL_REG***
***Dependent Variable: Oxygen_Consumption***



***The REG Procedure***
***Model: ALL_REG***
***Dependent Variable: Oxygen_Consumption***



## Stepwise Regression Methods



***The REG Procedure***
***Model: FORWARD***
***Dependent Variable: Oxygen_Consumption***

| | |
|---|---|
| **Number of Observations Read** | 31 |
| **Number of Observations Used** | 31 |

***Forward Selection: Step 1***

***Variable Performance Entered: R-Square = 0.7461 and C(p) = 11.3942***

| Analysis of Variance | | | | | |
|---|---|---|---|---|---|
| **Source** | **DF** | **Sum of Squares** | **Mean Square** | **F Value** | **Pr > F** |
| **Model** | 1 | 635.34150 | 635.34150 | 85.22 | <.0001 |
| **Error** | 29 | 216.21305 | 7.45562 | | |
| **Corrected Total** | 30 | 851.55455 | | | |

| **Variable** | **Parameter Estimate** | **Standard Error** | **Type II SS** | **F Value** | **Pr > F** |
|---|---|---|---|---|---|
| **Intercept** | 35.57526 | 1.36917 | 5033.48080 | 675.13 | <.0001 |
| **Performance** | 1.47507 | 0.15979 | 635.34150 | 85.22 | <.0001 |

***Bounds on condition number: 1, 1***

***Forward Selection: Step 2***

***Variable Run_Pulse Entered: R-Square = 0.7640 and C(p) = 10.6839***

| Analysis of Variance | | | | | |
|---|---|---|---|---|---|
| **Source** | **DF** | **Sum of Squares** | **Mean Square** | **F Value** | **Pr > F** |
| **Model** | 2 | 650.60420 | 325.30210 | 45.33 | <.0001 |
| **Error** | 28 | 200.95035 | 7.17680 | | |
| **Corrected Total** | 30 | 851.55455 | | | |

| **Variable** | **Parameter Estimate** | **Standard Error** | **Type II SS** | **F Value** | **Pr > F** |
|---|---|---|---|---|---|
| **Intercept** | 48.60983 | 9.03851 | 207.58002 | 28.92 | <.0001 |
| **Performance** | 1.39954 | 0.16511 | 515.66060 | 71.85 | <.0001 |
| **Run_Pulse** | -0.07327 | 0.05024 | 15.26270 | 2.13 | 0.1559 |

***The REG Procedure***
***Model: FORWARD***
***Dependent Variable: Oxygen_Consumption***

***Forward Selection: Step 2***

***Bounds on condition number: 1.1091, 4.4366***

***Forward Selection: Step 3***

***Variable Maximum_Pulse Entered: R-Square = 0.8072 and C(p) = 6.1523***

| Analysis of Variance | | | | | |
|---|---|---|---|---|---|
| **Source** | **DF** | **Sum of Squares** | **Mean Square** | **F Value** | **Pr > F** |
| **Model** | 3 | 687.38657 | 229.12886 | 37.68 | <.0001 |
| **Error** | 27 | 164.16798 | 6.08030 | | |
| **Corrected Total** | 30 | 851.55455 | | | |

| **Variable** | **Parameter Estimate** | **Standard Error** | **Type II SS** | **F Value** | **Pr > F** |
|---|---|---|---|---|---|
| **Intercept** | 39.50427 | 9.10596 | 114.43553 | 18.82 | 0.0002 |
| **Performance** | 1.32166 | 0.15524 | 440.73994 | 72.49 | <.0001 |
| **Run_Pulse** | -0.35931 | 0.12515 | 50.11542 | 8.24 | 0.0079 |
| **Maximum_Pulse** | 0.33522 | 0.13629 | 36.78237 | 6.05 | 0.0206 |

***Bounds on condition number: 8.1227, 50.931***

***Forward Selection: Step 4***

***Variable Age Entered: R-Square = 0.8253 and C(p) = 5.4191***

| Analysis of Variance | | | | | |
|---|---|---|---|---|---|
| **Source** | **DF** | **Sum of Squares** | **Mean Square** | **F Value** | **Pr > F** |
| **Model** | 4 | 702.77828 | 175.69457 | 30.70 | <.0001 |
| **Error** | 26 | 148.77627 | 5.72216 | | |
| **Corrected Total** | 30 | 851.55455 | | | |

***The REG Procedure***
***Model: FORWARD***
***Dependent Variable: Oxygen_Consumption***

***Forward Selection: Step 4***

| Variable | Parameter Estimate | Standard Error | Type II SS | F Value | Pr > F |
|---|---|---|---|---|---|
| **Intercept** | 55.88849 | 13.33542 | 100.50593 | 17.56 | 0.0003 |
| **Performance** | 1.23818 | 0.15897 | 347.15423 | 60.67 | <.0001 |
| **Age** | -0.16144 | 0.09844 | 15.39171 | 2.69 | 0.1130 |
| **Run_Pulse** | -0.33710 | 0.12216 | 43.56925 | 7.61 | 0.0105 |
| **Maximum_Pulse** | 0.26739 | 0.13854 | 21.31755 | 3.73 | 0.0646 |

***Bounds on condition number: 8.4502, 77.481***

***Forward Selection: Step 5***

***Variable Weight Entered: R-Square = 0.8421 and C(p) = 4.8787***

| Analysis of Variance | | | | | |
|---|---|---|---|---|---|
| **Source** | **DF** | **Sum of Squares** | **Mean Square** | **F Value** | **Pr > F** |
| **Model** | 5 | 717.08415 | 143.41683 | 26.66 | <.0001 |
| **Error** | 25 | 134.47041 | 5.37882 | | |
| **Corrected Total** | 30 | 851.55455 | | | |

| Variable | Parameter Estimate | Standard Error | Type II SS | F Value | Pr > F |
|---|---|---|---|---|---|
| **Intercept** | 62.17928 | 13.49230 | 114.23682 | 21.24 | 0.0001 |
| **Performance** | 1.19926 | 0.15596 | 318.04934 | 59.13 | <.0001 |
| **Age** | -0.18877 | 0.09690 | 20.41315 | 3.80 | 0.0627 |
| **Weight** | -0.08827 | 0.05412 | 14.30587 | 2.66 | 0.1155 |
| **Run_Pulse** | -0.36603 | 0.11976 | 50.24137 | 9.34 | 0.0053 |
| **Maximum_Pulse** | 0.30806 | 0.13661 | 27.35207 | 5.09 | 0.0331 |

***Bounds on condition number: 8.7415, 105.27***

***The REG Procedure***
***Model: FORWARD***
***Dependent Variable: Oxygen_Consumption***

***Forward Selection: Step 6***

***Variable Runtime Entered: R-Square = 0.8476 and C(p) = 6.0381***

| Analysis of Variance | | | | | |
|---|---|---|---|---|---|
| **Source** | **DF** | **Sum of Squares** | **Mean Square** | **F Value** | **Pr > F** |
| **Model** | 6 | 721.81791 | 120.30298 | 22.25 | <.0001 |
| **Error** | 24 | 129.73665 | 5.40569 | | |
| **Corrected Total** | 30 | 851.55455 | | | |

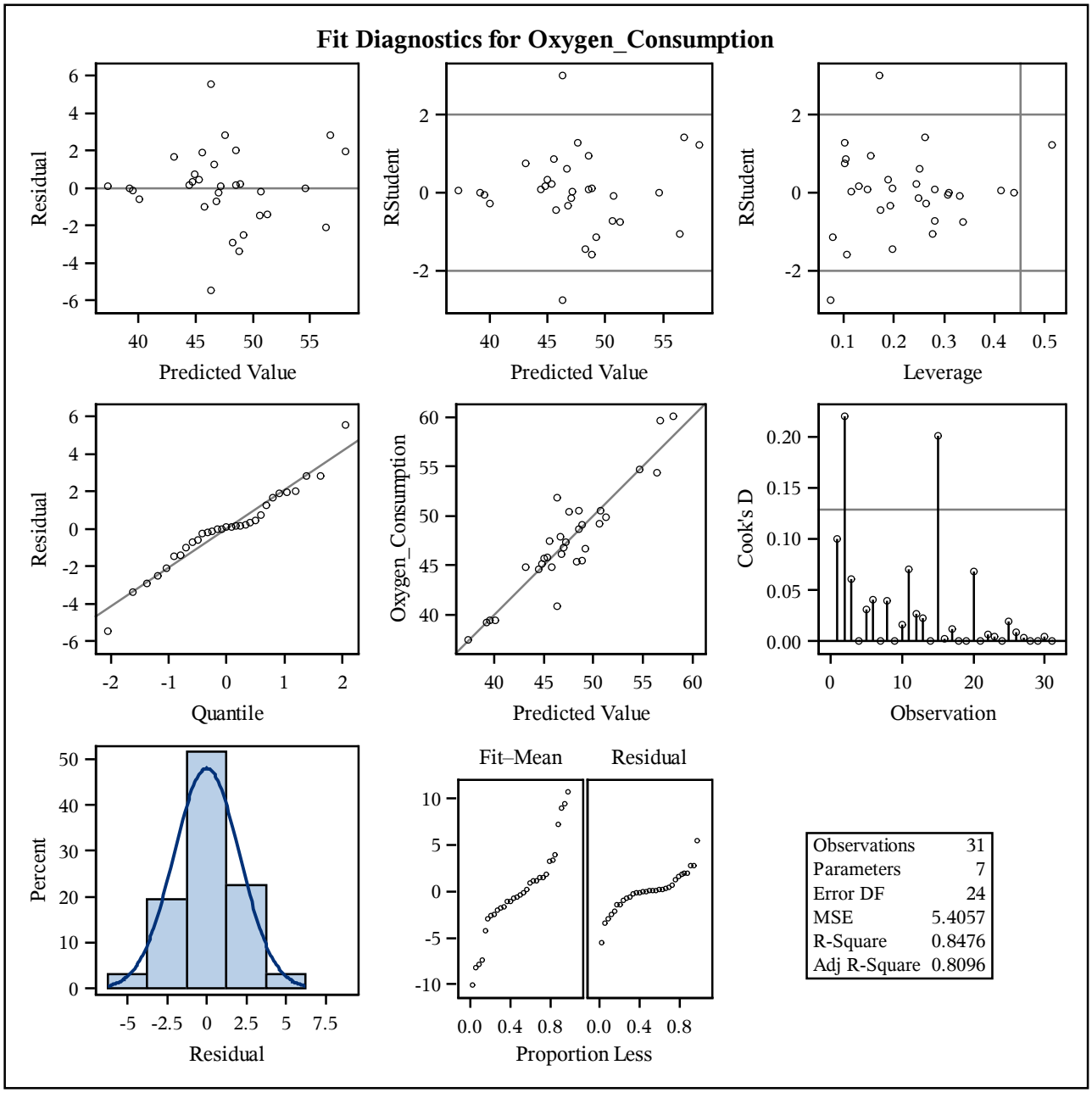
| Variable | Parameter Estimate | Standard Error | Type II SS | F Value | Pr > F |
|---|---|---|---|---|---|
| **Intercept** | 90.83022 | 33.47159 | 39.80699 | 7.36 | 0.0121 |
| **Performance** | 0.32048 | 0.95201 | 0.61258 | 0.11 | 0.7393 |
| **Runtime** | -1.98433 | 2.12049 | 4.73376 | 0.88 | 0.3587 |
| **Age** | -0.20470 | 0.09862 | 23.28867 | 4.31 | 0.0488 |
| **Weight** | -0.07689 | 0.05560 | 10.33766 | 1.91 | 0.1794 |
| **Run_Pulse** | -0.36818 | 0.12008 | 50.81482 | 9.40 | 0.0053 |
| **Maximum_Pulse** | 0.30593 | 0.13697 | 26.96687 | 4.99 | 0.0351 |

***Bounds on condition number: 48.957, 700.99***

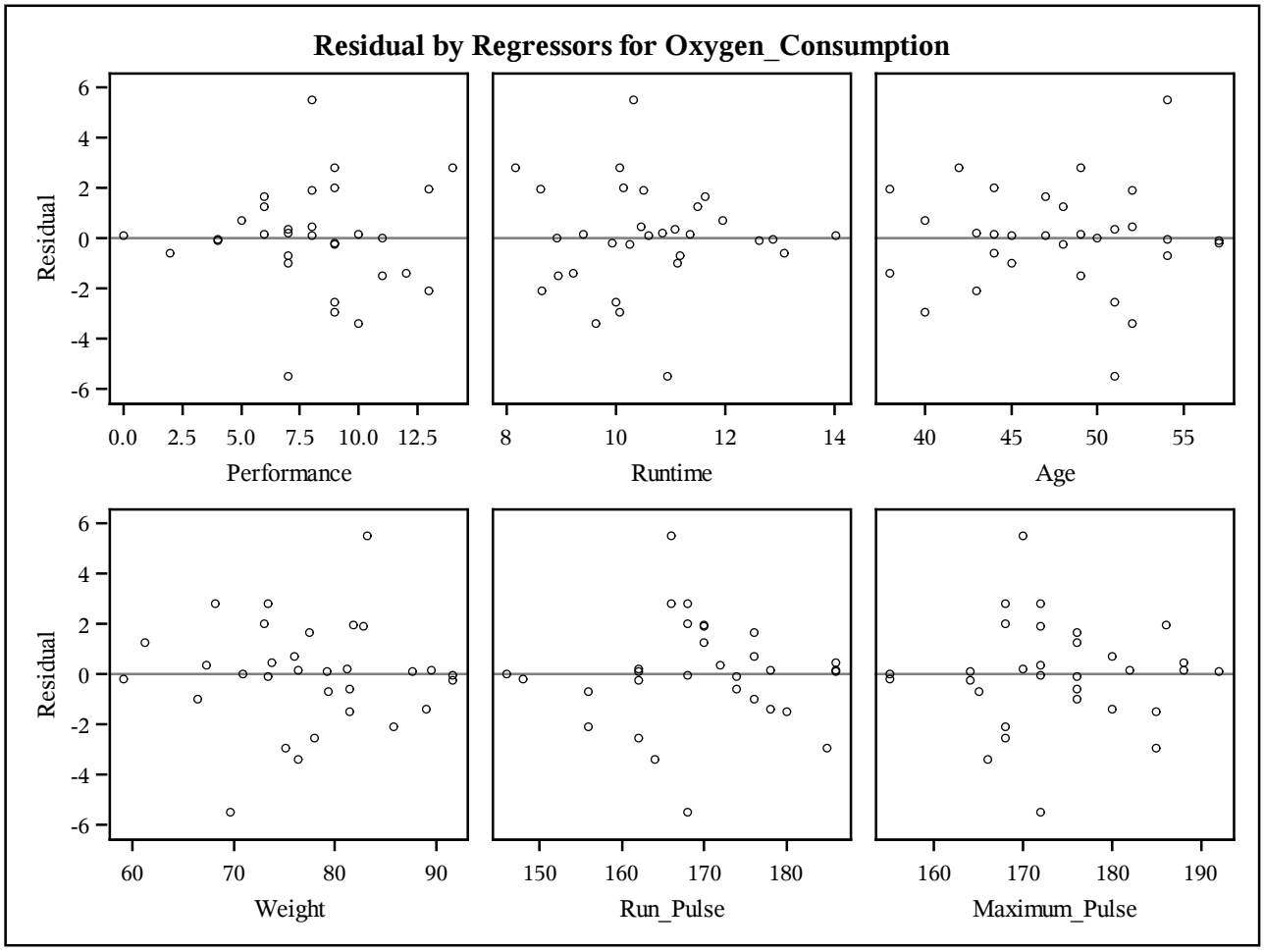
***No other variable met the 0.5000 significance level for entry into the model.***

| Summary of Forward Selection | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Step** | **Variable Entered** | **Number Vars In** | **Partial R-Square** | **Model R-Square** | **C(p)** | **F Value** | **Pr > F** |
| **1** | Performance | 1 | 0.7461 | 0.7461 | 11.3942 | 85.22 | <.0001 |
| **2** | Run_Pulse | 2 | 0.0179 | 0.7640 | 10.6839 | 2.13 | 0.1559 |
| **3** | Maximum_Pulse | 3 | 0.0432 | 0.8072 | 6.1523 | 6.05 | 0.0206 |
| **4** | Age | 4 | 0.0181 | 0.8253 | 5.4191 | 2.69 | 0.1130 |
| **5** | Weight | 5 | 0.0168 | 0.8421 | 4.8787 | 2.66 | 0.1155 |
| **6** | Runtime | 6 | 0.0056 | 0.8476 | 6.0381 | 0.88 | 0.3587 |

***The REG Procedure***
***Model: FORWARD***
***Dependent Variable: Oxygen_Consumption***



***The REG Procedure***
***Model: FORWARD***
***Dependent Variable: Oxygen_Consumption***



***The REG Procedure***
***Model: BACKWARD***
***Dependent Variable: Oxygen_Consumption***

| | |
|---|---|
| **Number of Observations Read** | 31 |
| **Number of Observations Used** | 31 |

***Backward Elimination: Step 0***

***All Variables Entered: R-Square = 0.8479 and C(p) = 8.0000***

| Analysis of Variance | | | | | |
|---|---|---|---|---|---|
| **Source** | **DF** | **Sum of Squares** | **Mean Square** | **F Value** | **Pr > F** |
| **Model** | 7 | 722.03251 | 103.14750 | 18.32 | <.0001 |
| **Error** | 23 | 129.52204 | 5.63139 | | |
| **Corrected Total** | 30 | 851.55455 | | | |

| **Variable** | **Parameter Estimate** | **Standard Error** | **Type II SS** | **F Value** | **Pr > F** |
|---|---|---|---|---|---|
| **Intercept** | 93.33753 | 36.49782 | 36.82939 | 6.54 | 0.0176 |
| **Performance** | 0.25756 | 1.02373 | 0.35646 | 0.06 | 0.8036 |
| **Runtime** | -2.08804 | 2.22856 | 4.94363 | 0.88 | 0.3585 |
| **Age** | -0.21066 | 0.10519 | 22.58631 | 4.01 | 0.0571 |
| **Weight** | -0.07741 | 0.05681 | 10.45445 | 1.86 | 0.1862 |
| **Run_Pulse** | -0.36618 | 0.12299 | 49.91978 | 8.86 | 0.0067 |
| **Rest_Pulse** | -0.01389 | 0.07114 | 0.21460 | 0.04 | 0.8469 |
| **Maximum_Pulse** | 0.30490 | 0.13990 | 26.74945 | 4.75 | 0.0398 |

***Bounds on condition number: 54.342, 888.21***

***Backward Elimination: Step 1***

***Variable Rest_Pulse Removed: R-Square = 0.8476 and C(p) = 6.0381***

| Analysis of Variance | | | | | |
|---|---|---|---|---|---|
| **Source** | **DF** | **Sum of Squares** | **Mean Square** | **F Value** | **Pr > F** |
| **Model** | 6 | 721.81791 | 120.30298 | 22.25 | <.0001 |
| **Error** | 24 | 129.73665 | 5.40569 | | |
| **Corrected Total** | 30 | 851.55455 | | | |

***The REG Procedure***
***Model: BACKWARD***
***Dependent Variable: Oxygen_Consumption***

***Backward Elimination: Step 1***

| Variable | Parameter Estimate | Standard Error | Type II SS | F Value | Pr > F |
|---|---|---|---|---|---|
| **Intercept** | 90.83022 | 33.47159 | 39.80699 | 7.36 | 0.0121 |
| **Performance** | 0.32048 | 0.95201 | 0.61258 | 0.11 | 0.7393 |
| **Runtime** | -1.98433 | 2.12049 | 4.73376 | 0.88 | 0.3587 |
| **Age** | -0.20470 | 0.09862 | 23.28867 | 4.31 | 0.0488 |
| **Weight** | -0.07689 | 0.05560 | 10.33766 | 1.91 | 0.1794 |
| **Run_Pulse** | -0.36818 | 0.12008 | 50.81482 | 9.40 | 0.0053 |
| **Maximum_Pulse** | 0.30593 | 0.13697 | 26.96687 | 4.99 | 0.0351 |

***Bounds on condition number: 48.957, 700.99***

***Backward Elimination: Step 2***

***Variable Performance Removed: R-Square = 0.8469 and C(p) = 4.1469***

| Analysis of Variance | | | | | |
|---|---|---|---|---|---|
| **Source** | **DF** | **Sum of Squares** | **Mean Square** | **F Value** | **Pr > F** |
| **Model** | 5 | 721.20532 | 144.24106 | 27.66 | <.0001 |
| **Error** | 25 | 130.34923 | 5.21397 | | |
| **Corrected Total** | 30 | 851.55455 | | | |

| Variable | Parameter Estimate | Standard Error | Type II SS | F Value | Pr > F |
|---|---|---|---|---|---|
| **Intercept** | 101.33835 | 11.86474 | 380.36418 | 72.95 | <.0001 |
| **Runtime** | -2.68846 | 0.34202 | 322.17052 | 61.79 | <.0001 |
| **Age** | -0.21217 | 0.09437 | 26.35286 | 5.05 | 0.0336 |
| **Weight** | -0.07332 | 0.05360 | 9.75445 | 1.87 | 0.1836 |
| **Run_Pulse** | -0.37071 | 0.11770 | 51.71988 | 9.92 | 0.0042 |
| **Maximum_Pulse** | 0.30603 | 0.13452 | 26.98596 | 5.18 | 0.0317 |

***Bounds on condition number: 8.7438, 104.92***

***The REG Procedure***
***Model: BACKWARD***
***Dependent Variable: Oxygen_Consumption***

***Backward Elimination: Step 3***

***Variable Weight Removed: R-Square = 0.8355 and C(p) = 3.8790***

| Analysis of Variance | | | | | |
|---|---|---|---|---|---|
| **Source** | **DF** | **Sum of Squares** | **Mean Square** | **F Value** | **Pr > F** |
| **Model** | 4 | 711.45087 | 177.86272 | 33.01 | <.0001 |
| **Error** | 26 | 140.10368 | 5.38860 | | |
| **Corrected Total** | 30 | 851.55455 | | | |

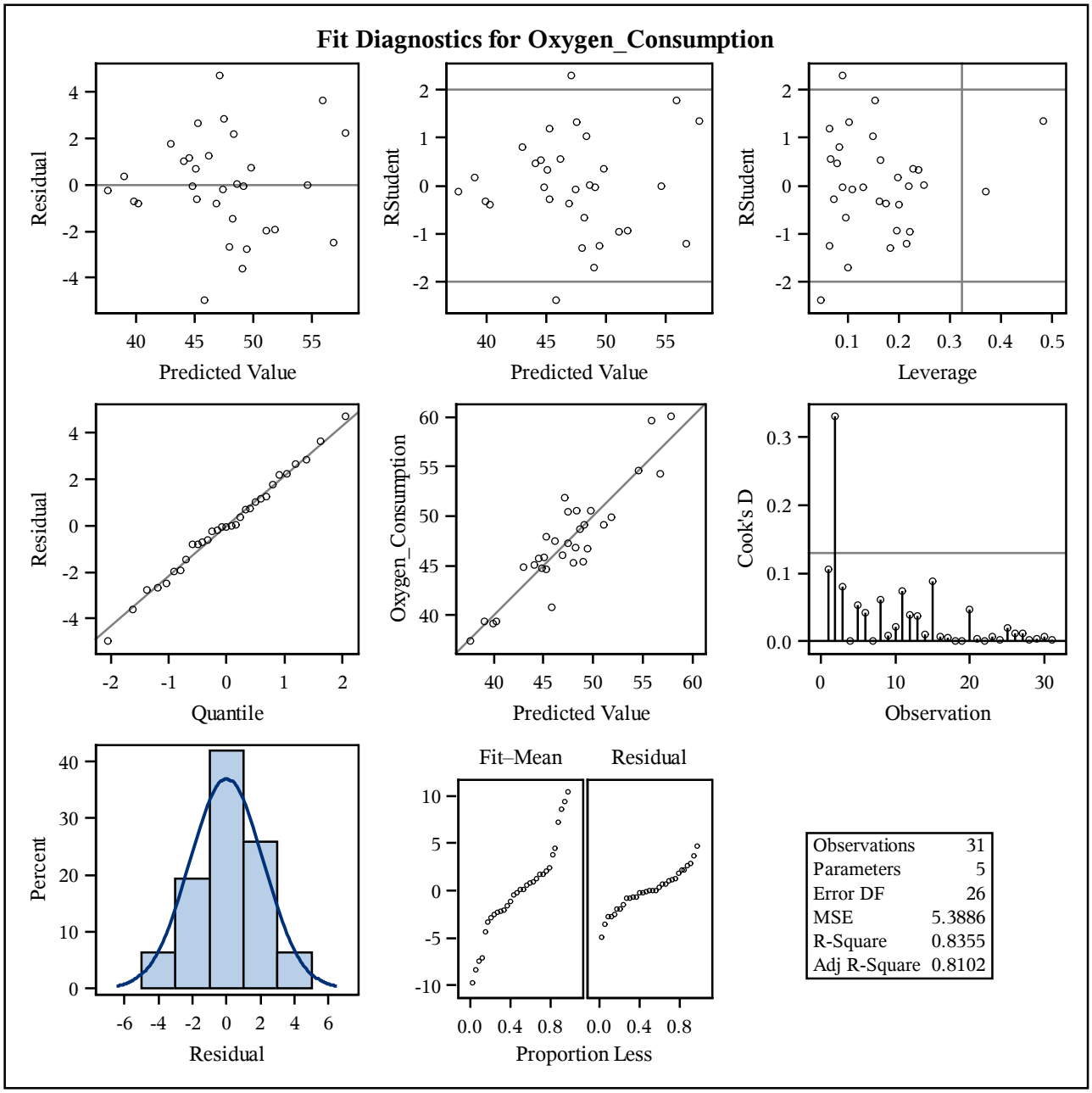
| **Variable** | **Parameter Estimate** | **Standard Error** | **Type II SS** | **F Value** | **Pr > F** |
|---|---|---|---|---|---|
| **Intercept** | 97.16952 | 11.65703 | 374.42127 | 69.48 | <.0001 |
| **Runtime** | -2.77576 | 0.34159 | 355.82682 | 66.03 | <.0001 |
| **Age** | -0.18903 | 0.09439 | 21.61272 | 4.01 | 0.0557 |
| **Run_Pulse** | -0.34568 | 0.11820 | 46.08558 | 8.55 | 0.0071 |
| **Maximum_Pulse** | 0.27188 | 0.13438 | 22.05933 | 4.09 | 0.0534 |

***Bounds on condition number: 8.4426, 76.969***

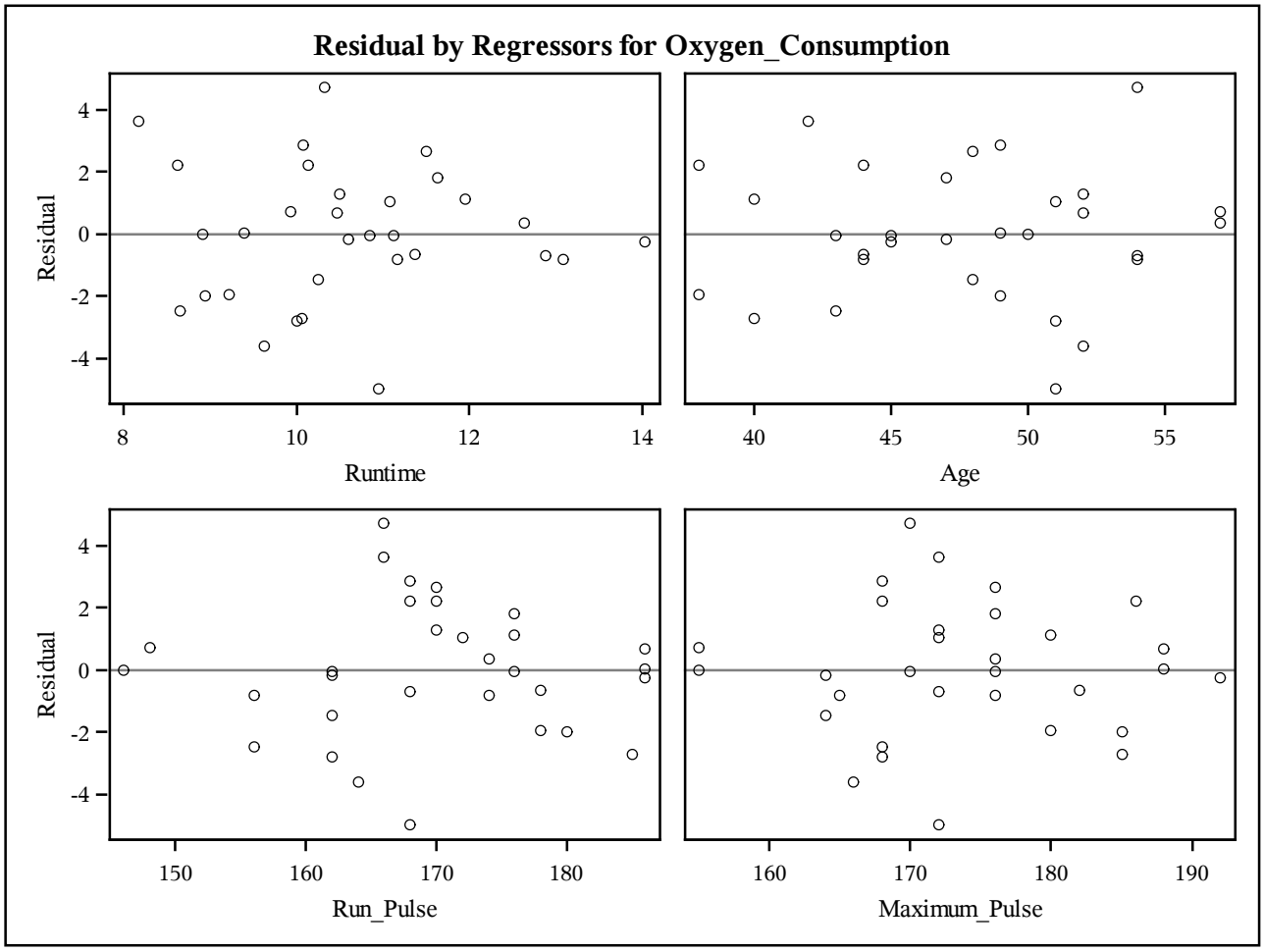
***All variables left in the model are significant at the 0.1000 level.***

| Summary of Backward Elimination | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Step** | **Variable Removed** | **Number Vars In** | **Partial R-Square** | **Model R-Square** | **C(p)** | **F Value** | **Pr > F** |
| **1** | Rest_Pulse | 6 | 0.0003 | 0.8476 | 6.0381 | 0.04 | 0.8469 |
| **2** | Performance | 5 | 0.0007 | 0.8469 | 4.1469 | 0.11 | 0.7393 |
| **3** | Weight | 4 | 0.0115 | 0.8355 | 3.8790 | 1.87 | 0.1836 |

***The REG Procedure***
***Model: BACKWARD***
***Dependent Variable: Oxygen_Consumption***



***The REG Procedure***
***Model: BACKWARD***
***Dependent Variable: Oxygen_Consumption***



***The REG Procedure***
***Model: STEPWISE***
***Dependent Variable: Oxygen_Consumption***

| | |
|---|---|
| **Number of Observations Read** | 31 |
| **Number of Observations Used** | 31 |

***Stepwise Selection: Step 1***

***Variable Performance Entered: R-Square = 0.7461 and C(p) = 11.3942***

| Analysis of Variance | | | | | |
|---|---|---|---|---|---|
| **Source** | **DF** | **Sum of Squares** | **Mean Square** | **F Value** | **Pr > F** |
| **Model** | 1 | 635.34150 | 635.34150 | 85.22 | <.0001 |
| **Error** | 29 | 216.21305 | 7.45562 | | |
| **Corrected Total** | 30 | 851.55455 | | | |

| **Variable** | **Parameter Estimate** | **Standard Error** | **Type II SS** | **F Value** | **Pr > F** |
|---|---|---|---|---|---|
| **Intercept** | 35.57526 | 1.36917 | 5033.48080 | 675.13 | <.0001 |
| **Performance** | 1.47507 | 0.15979 | 635.34150 | 85.22 | <.0001 |

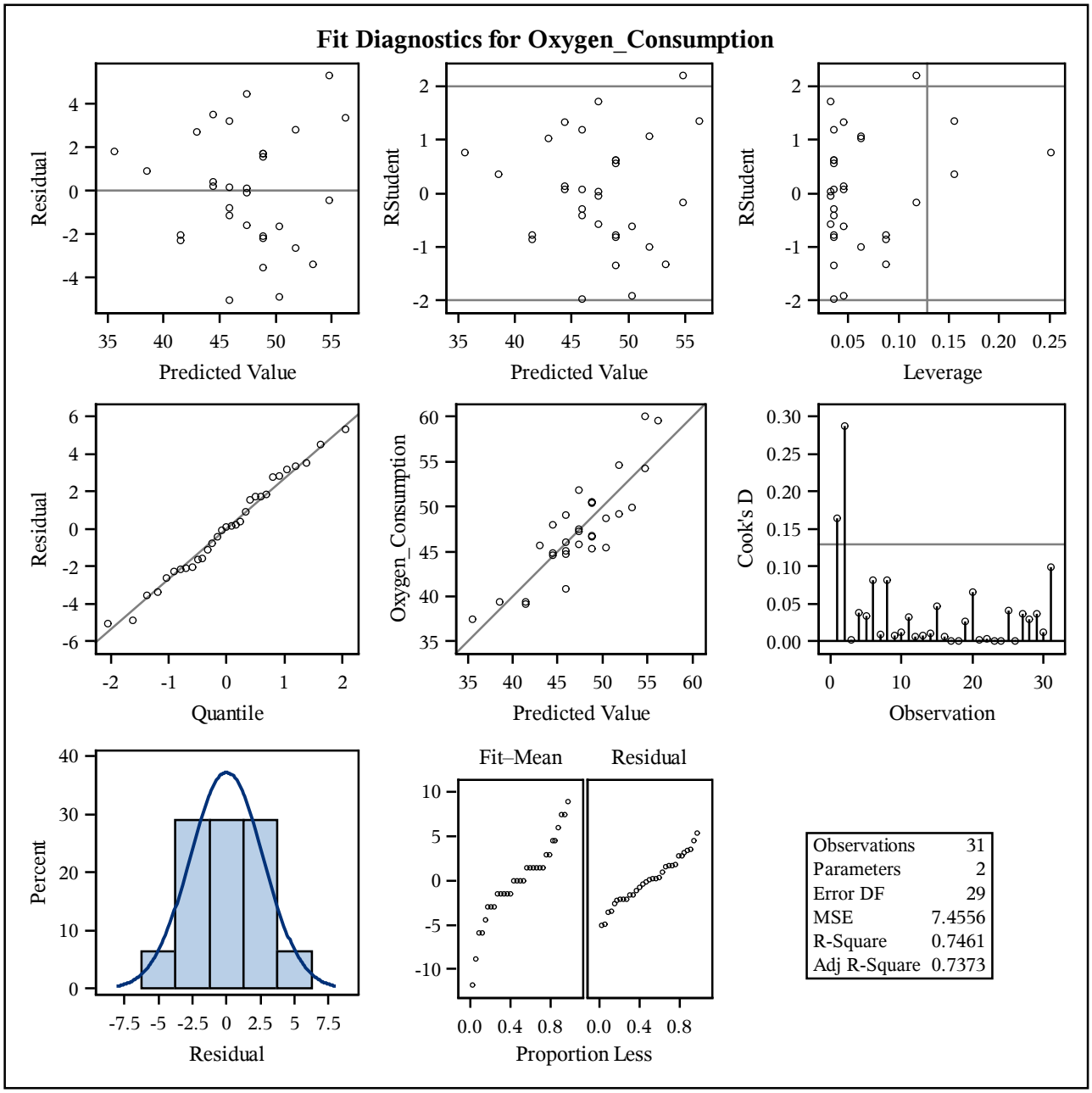
***Bounds on condition number: 1, 1***

***All variables left in the model are significant at the 0.1500 level.***

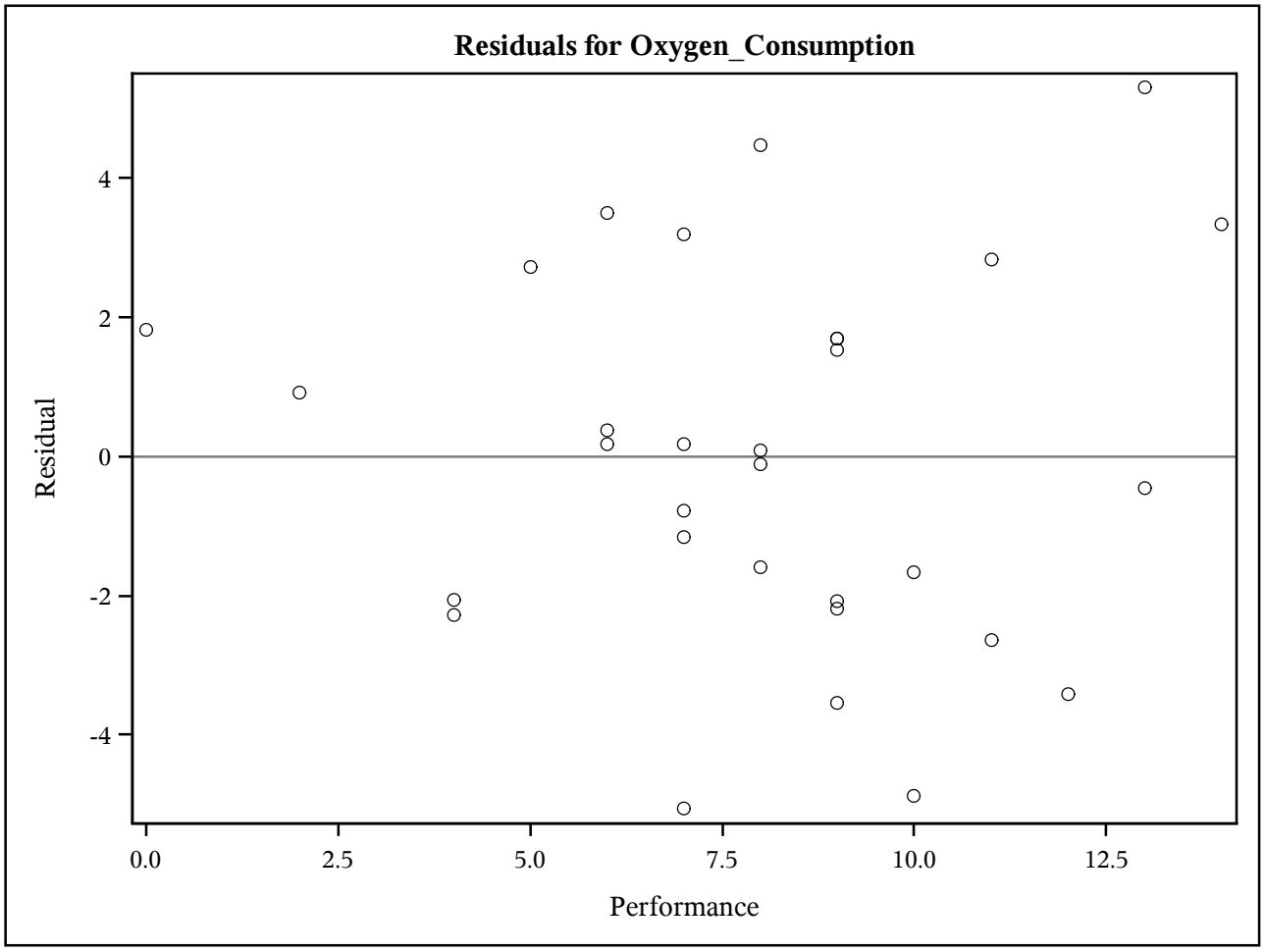
***No other variable met the 0.1500 significance level for entry into the model.***

| Summary of Stepwise Selection | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **Step** | **Variable Entered** | **Variable Removed** | **Number Vars In** | **Partial R-Square** | **Model R-Square** | **C(p)** | **F Value** | **Pr > F** |
| **1** | Performance | | 1 | 0.7461 | 0.7461 | 11.3942 | 85.22 | <.0001 |

***The REG Procedure***
***Model: STEPWISE***
***Dependent Variable: Oxygen_Consumption***



***The REG Procedure***
***Model: STEPWISE***
***Dependent Variable: Oxygen_Consumption***



***The REG Procedure***
***Model: STEPWISE***
***Dependent Variable: Oxygen_Consumption***