```
REGRESSION
  /SELECT=Train_Test EQ 1
  /MISSING LISTWISE
  /STATISTICS COEFF OUTS R ANOVA
  /CRITERIA=PIN(.05) POUT(.10)
  /NOORIGIN
  /DEPENDENT price
  /METHOD=STEPWISE wheel_base length width height weight engine_size bore stro
ke comp_ratio
    horsepower peak_rpm city_mpg hwy_mpg
  /SAVE PRED RESID.
```

Regression

Notes

Output Created		09-MAR-2018 12:52...
Comments		
Input	**Data**	/Users/keithmccormick/Desktop/Exercise Files/CH04/04_09/Auto Imports with Train Test.sav
	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	201
Missing Value Handling	**Definition of Missing**	User-defined missing values are treated as missing.
	Cases Used	Statistics are based on cases with no missing values for any variable used.

Notes

Syntax		REGRESSION /SELECT=Train_Test EQ 1 /MISSING LISTWISE /STATISTICS COEFF OUTS R ANOVA /CRITERIA=PIN(.05) POUT(.10) /NOORIGIN /DEPENDENT price /METHOD=STEPWISE wheel_base length width height weight engine_size bore stroke comp_ratio horsepower peak_rpm city_mpg hwy_mpg /SAVE PRED RESID.
Resources	**Processor Time**	00:00:00.04
	Elapsed Time	00:00:00.00
	Memory Required	14832 bytes
	Additional Memory Required for Residual Plots	0 bytes
Variables Created or Modified	**PRE_2**	Unstandardized Predicted Value
	RES_2	Unstandardized Residual

Variables Entered/Removed[a,b]

Model	Variables Entered	Variables Removed	Method
1	engine_size	.	Stepwise (Criteria: Probability-of-F-to-enter <= .050, Probability-of-F-to-remove >= .100).
2	weight	.	Stepwise (Criteria: Probability-of-F-to-enter <= .050, Probability-of-F-to-remove >= .100).
3	peak_rpm	.	Stepwise (Criteria: Probability-of-F-to-enter <= .050, Probability-of-F-to-remove >= .100).
4	width	.	Stepwise (Criteria: Probability-of-F-to-enter <= .050, Probability-of-F-to-remove >= .100).

Variables Entered/Removed[a,b]

Model	Variables Entered	Variables Removed	Method
5	stroke	.	Stepwise (Criteria: Probability-of-F-to-enter <= .050, Probability-of-F-to-remove >= .100).
6	comp_ratio	.	Stepwise (Criteria: Probability-of-F-to-enter <= .050, Probability-of-F-to-remove >= .100).

a. Dependent Variable: price

b. Models are based only on cases for which Train_Test = 1.00

Model Summary [g,h]

Model	R		R Square	Adjusted R Square	Std. Error of the Estimate
	Train_Test = 1.00 (Selected)	Train_Test ~= 1.00 (Unselected)			
1	.886[a]		.784	.783	3604.709
2	.903[b]		.816	.814	3339.592
3	.908[c]		.825	.822	3268.244
4	.911[d]		.831	.826	3225.792
5	.915[e]		.837	.831	3177.386
6	.918[f]	.928	.843	.837	3123.510

a. Predictors: (Constant), engine_size

b. Predictors: (Constant), engine_size, weight

c. Predictors: (Constant), engine_size, weight, peak_rpm

d. Predictors: (Constant), engine_size, weight, peak_rpm, width

e. Predictors: (Constant), engine_size, weight, peak_rpm, width, stroke

f. Predictors: (Constant), engine_size, weight, peak_rpm, width, stroke, comp_ratio

g. Unless noted otherwise, statistics are based only on cases for which Train_Test = 1.00.

h. Dependent Variable: price

ANOVA[a,b]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	7.706E+9	1	7.706E+9	593.017	.000[c]
	Residual	2.118E+9	163	12993927.1		
	Total	9.824E+9	164			
2	Regression	8.017E+9	2	4.008E+9	359.408	.000[d]
	Residual	1.807E+9	162	11152872.9		
	Total	9.824E+9	164			
3	Regression	8.104E+9	3	2.701E+9	252.898	.000[e]
	Residual	1.720E+9	161	10681420.5		
	Total	9.824E+9	164			
4	Regression	8.159E+9	4	2.040E+9	196.015	.000[f]
	Residual	1.665E+9	160	10405733.4		
	Total	9.824E+9	164			
5	Regression	8.218E+9	5	1.644E+9	162.809	.000[g]
	Residual	1.605E+9	159	10095778.9		
	Total	9.824E+9	164			
6	Regression	8.282E+9	6	1.380E+9	141.483	.000[h]
	Residual	1.541E+9	158	9756313.89		
	Total	9.824E+9	164			

a. Dependent Variable: price

b. Selecting only cases for which Train_Test = 1.00

c. Predictors: (Constant), engine_size

d. Predictors: (Constant), engine_size, weight

e. Predictors: (Constant), engine_size, weight, peak_rpm

f. Predictors: (Constant), engine_size, weight, peak_rpm, width

g. Predictors: (Constant), engine_size, weight, peak_rpm, width, stroke

h. Predictors: (Constant), engine_size, weight, peak_rpm, width, stroke, comp_ratio

Coefficients[a,b]

Model: 6

	Unstandardized Coefficients		Standardized Coefficients		
	B	Std. Error	Beta	t	Sig.
(Constant)	-53150.698	13697.601		-3.880	.000
engine_size	126.641	11.774	.659	10.756	.000
weight	2.716	1.211	.183	2.243	.026
peak_rpm	2.541	.651	.147	3.905	.000
width	555.703	236.411	.155	2.351	.020
stroke	-2588.280	827.533	-.105	-3.128	.002
comp_ratio	192.410	75.282	.098	2.556	.012

a. Dependent Variable: price

b. Selecting only cases for which Train_Test = 1.00

Excluded Variables[a]

Model		Beta In	t	Sig.	Partial Correlation	Collinearity Statistics
						Tolerance
1	wheel_base	.182[b]	4.261	.000	.317	.657
	length	.202[b]	4.228	.000	.315	.526
	width	.270[b]	5.268	.000	.382	.432
	height	.126[b]	3.576	.000	.270	.996
	weight	.332[b]	5.283	.000	.383	.288
	bore	.058[b]	1.327	.186	.104	.690
	stroke	-.077[b]	-2.104	.037	-.163	.980
	comp_ratio	.059[b]	1.619	.107	.126	.994
	horsepower	.178[b]	2.737	.007	.210	.301
	peak_rpm	.069[b]	1.843	.067	.143	.932
	city_mpg	-.146[b]	-2.963	.004	-.227	.522
	hwy_mpg	-.153[b]	-2.983	.003	-.228	.478
2	wheel_base	.056[c]	.961	.338	.076	.337
	length	.026[c]	.343	.732	.027	.204
	width	.160[c]	2.322	.021	.180	.232
	height	.040[c]	.997	.320	.078	.698
	bore	-.029[c]	-.658	.512	-.052	.587
	stroke	-.065[c]	-1.921	.056	-.150	.976

Excluded Variables[a]

Model		Beta In	t	Sig.	Partial Correlation	Collinearity Statistics Tolerance
	comp_ratio	.015[c]	.423	.673	.033	.931
	horsepower	.109[c]	1.743	.083	.136	.285
	peak_rpm	.099[c]	2.855	.005	.220	.911
	city_mpg	-.030[c]	-.558	.577	-.044	.392
	hwy_mpg	-.010[c]	-.170	.865	-.013	.324
3	wheel_base	.084[d]	1.460	.146	.115	.329
	length	.029[d]	.397	.692	.031	.204
	width	.155[d]	2.295	.023	.178	.232
	height	.066[d]	1.654	.100	.130	.668
	bore	-.008[d]	-.185	.853	-.015	.570
	stroke	-.071[d]	-2.145	.033	-.167	.972
	comp_ratio	.072[d]	1.899	.059	.148	.750
	horsepower	.015[d]	.202	.840	.016	.195
	city_mpg	.048[d]	.811	.419	.064	.311
	hwy_mpg	.072[d]	1.131	.260	.089	.266
4	wheel_base	.027[e]	.415	.679	.033	.252
	length	-.043[e]	-.553	.581	-.044	.172
	height	.059[e]	1.468	.144	.116	.662
	bore	-.007[e]	-.170	.866	-.013	.570
	stroke	-.079[e]	-2.432	.016	-.189	.962
	comp_ratio	.062[e]	1.649	.101	.130	.739
	horsepower	.052[e]	.684	.495	.054	.187
	city_mpg	.038[e]	.652	.516	.052	.309
	hwy_mpg	.065[e]	1.022	.308	.081	.266
5	wheel_base	.028[f]	.436	.663	.035	.252
	length	-.062[f]	-.796	.427	-.063	.171
	height	.054[f]	1.369	.173	.108	.661
	bore	-.033[f]	-.762	.447	-.061	.539
	comp_ratio	.098[f]	2.556	.012	.199	.672
	horsepower	.036[f]	.480	.632	.038	.186
	city_mpg	.065[f]	1.115	.266	.088	.300
	hwy_mpg	.097[f]	1.539	.126	.121	.256

Excluded Variables[a]

Model		Beta In	t	Sig.	Partial Correlation	Collinearity Statistics Tolerance
6	wheel_base	.020[g]	.313	.754	.025	.251
	length	-.050[g]	-.653	.515	-.052	.170
	height	.045[g]	1.158	.249	.092	.655
	bore	-.013[g]	-.307	.760	-.024	.520
	horsepower	.125[g]	1.585	.115	.125	.159
	city_mpg	-.049[g]	-.655	.514	-.052	.177
	hwy_mpg	.002[g]	.025	.980	.002	.163

a. Dependent Variable: price

b. Predictors in the Model: (Constant), engine_size

c. Predictors in the Model: (Constant), engine_size, weight

d. Predictors in the Model: (Constant), engine_size, weight, peak_rpm

e. Predictors in the Model: (Constant), engine_size, weight, peak_rpm, width

f. Predictors in the Model: (Constant), engine_size, weight, peak_rpm, width, stroke

g. Predictors in the Model: (Constant), engine_size, weight, peak_rpm, width, stroke, comp_ratio

Residuals Statistics[a,b]

Train_Test = 1.00 (Selected)

	Minimum	Maximum	Mean	Std. Deviation	N
Predicted Value	-929.51	45870.96	12862.72	7106.389	165
Residual	-9870.965	14597.254	.000	3065.840	165
Std. Predicted Value	-1.941	4.645	.000	1.000	165
Std. Residual	-3.160	4.673	.000	.982	165

Residuals Statistics[a,b]

Train_Test ~= 1.00 (Unselected)

	Minimum	Maximum	Mean	Std. Deviation	N
Predicted Value	6221.51	32079.79	14555.52	7561.879	30
Residual	-5068.357	9688.862	811.609	3737.722	30
Std. Predicted Value	-.935	2.704	.238	1.064	30
Std. Residual	-1.623	3.102	.260	1.197	30

a. Dependent Variable: price

b. Pooled Cases