

GUIDE
FOR INTERPRETING RESULTS
and
TECHNICAL DATA
for the
ASE STUDENT CERTIFICATION



Developed by ASE in partnership with



2013

Prepared by

**NATIONAL INSTITUTE FOR
AUTOMOTIVE SERVICE EXCELLENCE (ASE)**

PREFACE

This guide contains information on interpreting your students' results on the ASE Student Certification exams. Also, it includes documentation of the technical adequacy of the assessment program for its intended purposes.

The Automotive Youth Educational Systems (AYES), the National Automotive Technicians Education Foundation (NATEF), and SkillsUSA jointly offer the ASE Student Certification tests. These tests, developed by the National Institute for Automotive Service Excellence (ASE), are appropriate for evaluating students who are near the end of their studies in the areas of Automobile Service and Repair, Collision Repair and Refinish, and Medium/Heavy Duty Truck.

NATEF administers the industry's accreditation program for career-entry Automobile, Collision Repair and Refinish, and Medium/Heavy Duty Truck Training Programs. The standards for becoming a NATEF accredited program include specifications covering the content of instruction, tools and equipment, hours, and instructor qualifications. Concurrently, the National Institute for Automotive Service Excellence (ASE) conducts periodic analyses of the tasks and knowledges required to successfully perform many of the vehicle service jobs in the automotive industry. NATEF policy stipulates that the task lists developed by ASE are to serve as the basis for the NATEF task lists. In this way, the content of the NATEF exams are kept current, consistent with ASE, and linked to the specific tasks and knowledges requisite to the successful performance of the various automotive service occupations.

The examinations are intended for students completing two-year secondary or post-secondary automotive technician training programs.

Notice to Organizations Using the ASE Student Certification Examinations: The National Institute for Automotive Service Excellence (ASE) has developed these examinations expressly for use in the context of student evaluation and voluntary certification of students, and all future revisions and refinements will be made in that context. ASE expressly disclaims any responsibility for the actions of organizations or entities which decide to use these examinations in any context other than student evaluation and/or voluntary certification of students.

Questions pertaining to this program should be directed to ASE Student Certification, c/o NATEF at 101 Blue Seal Drive, SE, Suite 101, Leesburg, VA 20175. Phone 800-362-0544. Or, go to www.ASEStudentCertification.com for more information.

TABLE OF CONTENTS

PREFACE 1
TABLE OF CONTENTS 2
ASE STUDENT CERTIFICATION 3
 Description of the Battery 3
 Automobile 3
 Collision Repair And Refinish 3
 M/H Truck 3
 Test Development Procedures 3
 Content Specifications 3
 Question Writing 3
 Test Assembly 4
 Passing Standards 4
INTERPRETING RESULTS 4
 Notice to Organizations Using ASE Student Certification Examinations 4
 Performance Comparisons 4
 Percentile Rank Tables 4
 Comparing Your Students to Another Group 5
 Comparing Means 5
SCORE REPORTS 5
 Who Gets Reports 5
 Score Reports Retention and Replacement 5
 Automobile Percentile Rank Table – 2013 6
 How To Use This Table 7
 Collision Repair and Refinishing Percentile Rank Table – 2013 8
 How To Use This Table 8
 Medium / Heavy Truck Percentile Rank Table – 2013 9
 How To Use This Table 9
TECHNICAL DATA 10
 Glossary of Terms 10
 Validity 11
 ASE Student Certification Test Form Statistics - Spring 2013 12

ASE STUDENT CERTIFICATION

Description of the Battery

The student certification assessments consists of three series of secure multiple-choice examinations: Automobile Service and Repair, Collision Repair and Refinish, and Medium/Heavy Truck.

Automobile

- Suspension and Steering
- Brakes
- Electrical/Electronic Systems
- Engine Performance
- Engine Repair
- Automatic Transmission/Transaxle
- Manual Drive Train and Axles
- Heating and Air Conditioning
- Maintenance and Light Repair

Collision Repair And Refinish

- Painting and Refinishing
- Structural Analysis and Damage Repair
- Non-structural Analysis and Damage Repair
- Mechanical and Electrical Components

M/H Truck

- Diesel Engines
- Electrical/Electronic Systems
- Brakes
- Suspension and Steering

Each series is comprised of individual tests that relate to one or more of the technical areas under the NATEF Standards. Students may be assigned a single examination, all examinations, or any combination of them. The examinations emphasize the application of knowledge and theory to tasks actually performed by automotive technicians.

The examinations are currently administered twice annually, in the Fall and in the Spring. Separate student score reports are prepared for each of the examinations. There are 40 – 60 scored questions in each examination, but the tests as given will be longer because of the inclusion of nonscored "pretest" questions. Administration time is recommended to be 60 – 90 minutes per exam. Each student will be given a pass/fail status on each test attempted. For each test passed, students earn an ASE Student Certification.

Test Development Procedures

Content Specifications

ASE periodically conducts analyses of the work of the automotive technician in the various subject areas. Job Analysis Workshops involving subject matter experts from around the country are convened specifically for this purpose. The task lists contained in the standards for NATEF's accreditation program are tied to ASE's task lists derived from these job analyses. The task lists are then organized into content outlines. These subject areas are then weighted according to judgments of frequency and criticality, and these weights are translated into numbers of questions in each content area. This provides the content specifications for the examinations. As described earlier, the task lists are designed to correspond to the tasks required to successfully perform the various automotive service procedures.

Question Writing

Items (test questions) are written by groups of subject matter experts (SME's) who are selected and trained by the ASE staff. The item writing teams include faculty members of educational institutions as well as experienced, working automotive technicians.

After the SME's draft the items and assign content codes, the items are reviewed by other SME's for accuracy. They are then edited, formatted, and entered into a permanent item bank. SME's then review and approve all the text changes. Newly written items are tried out as nonscored "pretest" items embedded into the test forms. Data collected in this manner are then used to identify any items that may

not function properly so that they can be rewritten or discarded if necessary. All data are banked with the item text in the item banks.

Test Assembly

Subject matter experts begin test assembly by selecting pretested items from the bank for each of the examinations. Items are selected to meet both content and statistical (performance) specifications. Items selected for the examinations are appropriately distributed among the NATEF tasks. Each form of the examination will sample the NATEF tasks, however not all tasks will be tested by each form of the examination. Relevant item statistics include discrimination (item-test correlation) indices that exceed 0.20 and a difficulty level (P-value) within the range of 0.20 to 0.90. Items with unsatisfactory statistics are discarded or rewritten.

Each annual form may contain a combination of pre-tested and new items. Before final scoring, statistical and content analysis is conducted on all items as a final check to detect flaws.

Passing Standards

Passing standards are individually set for each of the examinations. The determination of passing scores for high-stakes examinations like the ASE Student Certification tests must be done systematically and with care. Several methods are possible, but the one chosen as most appropriate is called a contrasting-groups approach. This method is based on actual performance of real students, not judgments of how students are likely to perform. Criterion groups of "should-pass," "borderline," and "should-not pass" students are selected in advance of testing. These selections are made by instructors with detailed knowledge of the level of preparedness of the students. After testing, a passing score is selected that minimizes the false-positive and false-negative classifications in the obtained score distributions of these groups. Passing standards set this way are generally regarded by instructors and administrators as more appropriate and more realistic than test-based judgmental approaches. These same passing standards are then carried forward to future forms of the ASE Student Certification Exams.

INTERPRETING RESULTS

The ASE Student Certification score reports allow comparisons of a school's or student's performance with that of others participating in the program during the same year. Mean scores and pass/fail proportions are calculated for each of the examinations. These are reported at the instructor and school level. State reports comparing all the schools in a state are provided to the designated state level supervisor.

Notice to Organizations Using ASE Student Certification Examinations

The National Institute for Automotive Service Excellence (ASE) has developed these examinations expressly for use in the context of student evaluation and voluntary certification of students, and all future revisions and refinements will be made in that context. ASE expressly disclaims any responsibility for the actions of organizations or entities which decide to use these examinations in any context other than student evaluation and/or voluntary certification of students.

Performance Comparisons

Percentile Rank Tables

Following this narrative are tables of percentile ranks of the national population of examinees who took the current year's test forms in the spring administration. This is useful for comparing your students' performance to the national sample. Instructions for using the table are presented below each table.

Comparing Your Students to Another Group

The statistics reported for each administration are based upon the group taking the examinations in that testing period, and do not include prior year's administrations. Total group statistics are given for comparison purposes.

A critical issue is the extent to which the composition of your examinee group resembles that of any other group to which they are being compared. If population characteristics (e.g. age, amount of prior experience, etc.) account for differences between your students and another group, then the comparison may be of less use to you. You must make a judgment about any other characteristics that may contribute to differences in achievement, then decide how to interpret the comparison.

Comparing Means

Mean scores of groups can be compared if they were tested in the same year. However, the means of small groups can be expected to contain increased sampling error, and so should not be interpreted to accurately represent the performance of any larger population. For example, if only a few students from a school take a particular test, their performance should not be assumed to represent all the students in that school. Also, year-to-year differences between the means of groups, especially small groups, should be interpreted with caution. These statistics will include sampling error, as described above, plus error resulting from any differences in test form difficulty across administrations.

SCORE REPORTS

Who Gets Reports

Reports are prepared for students, instructors, and state supervisors. Student reports include number correct in each of the content areas, the total score, and pass/fail. The instructor report shows a summary of the information contained on that instructor's student score reports. Copies of the student reports are also provided to instructors. State reports summarize the results in terms of mean scores and pass/fail rates from each school in that state and are available to the designated state level supervisor.

Score Reports Retention and Replacement

All recipients, including students, are allowed to keep their score reports. The ASE Student Certification partner organizations do not provide a records-maintenance service, so duplicate or replacement copies of these reports are not normally available. Records are normally maintained in the test delivery system for the current and previous year and can be accessed according to the user's role in the system. Older data are not available.

Automobile Percentile Rank Table – 2013

Number Correct	Engine Repair (ER)	Auto Trans & Transxl (AT)	Manual Drive Train & Axles (MD)	Susp & Steering (SS)	Brakes BR	Elec/Elec Systems (EE)	Heat & A/C (AC)	Engine Perform (EP)	Maint & Repair (MR)	Number Correct
0-5	1	1	1	1	1	1	1	1	1	0-5
6	1	1	1	1	1	1	1	1	2	6
7	1	1	1	1	1	1	2	1	2	7
8	1	2	2	2	2	2	3	2	2	8
9	2	3	4	3	3	3	5	2	2	9
10	3	5	6	5	5	5	7	4	2	10
11	5	8	9	7	8	7	10	6	3	11
12	7	11	12	10	11	10	14	8	3	12
13	9	13	14	13	15	13	17	11	4	13
14	12	16	18	17	19	17	20	14	5	14
15	15	19	21	21	23	22	24	18	7	15
16	18	22	24	26	28	27	27	22	9	16
17	21	24	28	31	33	31	31	27	10	17
18	26	28	32	37	38	36	35	31	12	18
19	30	31	36	43	43	41	39	36	14	19
20	34	35	40	49	48	47	42	42	17	20
21	38	40	44	55	53	51	46	47	18	21
22	43	43	48	61	58	57	49	52	21	22
23	47	48	52	66	63	61	53	58	23	23
24	52	52	57	71	68	66	57	63	25	24
25	57	56	62	75	72	70	61	69	28	25
26	60	61	67	79	76	74	66	73	30	26
27	64	65	72	83	79	78	70	77	33	27
28	69	70	76	87	83	82	74	81	35	28
29	73	75	80	90	86	85	78	85	37	29
30	76	80	85	92	89	89	82	88	40	30
31	80	84	88	94	91	92	86	91	43	31
32	84	89	91	96	93	94	89	94	46	32
33	87	92	94	97	95	96	92	95	49	33
34	90	95	97	98	97	97	95	97	52	34
35	93	97	99	99	98	99	97	98	55	35
36	96	98	99	99	99	99	98	99	59	36
37	98	99	99	99	99	99	99	99	62	37
38	99	99	99	99	99	99	99	99	65	38
39	99	99	99	99	99	99	99	99	68	39
40	99	99	99	99	99	99	99	99	71	40
41									74	41
42									76	42
43									79	43
44									81	44
45									83	45
46									86	46
47									88	47

48									90	48
49									92	49
50									93	50
51									95	51
52									96	52
53									97	53
54									98	54
55									99	55
56									99	56
57									99	57
58									99	58
59									99	59
60									99	60

How To Use This Table

A percentile is the percentage of students who scored at or below the midpoint of a given score interval. To use the table, find the student's Number Correct score for a given test in the left (or far right) column, and then look over to that test's column to find the percentile equivalent. For example, if a student scored 25 correct on Engine Repair, first find 25 in the left column. Then look to the right under the Engine Repair heading, and you will find 57. A score of 25 on the Engine Repair test is at the 57th percentile of the national population of students who took this exam in the Spring of 2013.

Collision Repair and Refinishing Percentile Rank Table – 2013

Number Correct	Struct Anlys & Dmg Rep (SR)	Nonstr Anlys & Dmg Rep (NS)	Mech & Elect Comp (ME)	Paint & Refinish (PR)	Number Correct
0-5	1	1	1	1	0-5
6	1	1	1	1	6
7	1	1	1	1	7
8	2	1	1	1	8
9	2	1	2	2	9
10	3	2	4	3	10
11	5	3	5	4	11
12	6	5	8	6	12
13	8	7	10	8	13
14	11	9	13	11	14
15	14	11	17	14	15
16	17	14	22	17	16
17	22	19	27	21	17
18	26	22	33	24	18
19	31	27	39	29	19
20	36	31	44	34	20
21	42	36	51	39	21
22	49	43	58	43	22
23	54	50	65	50	23
24	58	57	70	56	24
25	65	63	74	63	25
26	71	71	79	68	26
27	77	77	83	73	27
28	82	82	86	78	28
29	86	86	90	81	29
30	90	90	94	85	30
31	93	92	96	88	31
32	96	95	97	92	32
33	98	96	98	94	33
34	99	98	99	96	34
35	99	99	99	98	35
36	99	99	99	99	36
37	99	99	99	99	37
38	99	99	99	99	38
39	99	99	99	99	39
40	99	99	99	99	40

How To Use This Table

A percentile is the percentage of students who scored at or below the midpoint of a given score interval. To use the table, find the student's Number Correct score for a given test in the left (or far right) column, and then look over to that test's column to find the percentile equivalent. For example, if a student scored 25 correct on Structural Analysis and Damage Repair, first find 25 in the left column. Then look to the right under the Structural Analysis and Damage Repair heading, and you will find 65. A score of 25 on the Structural Analysis and Damage Repair test is at the 65th percentile of the national population of students who took this exam in the Spring of 2013.

Medium / Heavy Truck Percentile Rank Table – 2013

Number Correct	Truck Diesel Engines (DE)	Truck Brakes (TB)	Truck Susp & Steering (TS)	Truck Elect/Elect Systems (TE)	Number Correct
0-5	1	1	1	1	0-5
6	1	1	1	1	6
7	1	2	1	1	7
8	1	3	2	2	8
9	1	5	4	3	9
10	4	8	5	5	10
11	5	9	8	6	11
12	7	12	11	8	12
13	10	17	15	11	13
14	14	22	18	14	14
15	19	27	22	17	15
16	23	32	26	21	16
17	29	39	32	25	17
18	34	45	38	30	18
19	39	50	43	34	19
20	44	54	49	38	20
21	48	60	55	43	21
22	55	64	60	48	22
23	60	68	64	53	23
24	64	71	71	59	24
25	68	75	75	64	25
26	71	79	79	68	26
27	74	85	83	72	27
28	78	87	86	76	28
29	82	90	90	80	29
30	85	92	91	83	30
31	88	94	93	87	31
32	90	95	95	90	32
33	93	97	97	92	33
34	95	98	98	94	34
35	97	99	98	97	35
36	98	99	99	98	36
37	99	99	99	98	37
38	99	99	99	99	38
39	99	99	99	99	39
40	99	99	99	99	40

How To Use This Table

A percentile is the percentage of students who scored at or below the midpoint of a given score interval. To use the table, find the student's Number Correct score for a given test in the left (or far right) column, and then look over to that test's column to find the percentile equivalent. For example, if a student scored 25 correct on Diesel Engines, first find 25 in the left column. Then look to the right under the Diesel Engines heading, and you will find 68. A score of 25 on the Diesel Engines test is at the 68th percentile of the national population of students who took this exam in the Spring of 2013.

TECHNICAL DATA

Glossary of Terms

ASE computes both item- and test-level statistics as well as candidate performance statistics separately for each form of each of the examinations. Following this narrative are the data tables for the current forms of the exams. The information below is intended to help interpret the technical data in these tables.

N of Items

This refers to the number of *scored* items (questions) in the test form. However, students may have been administered more questions than this. ASE "pretests" newly written or revised questions by embedding them into test forms as non-scored items. Most often, test forms will contain about 10-15 non-scored pretest items.

Mean

The mean of a set of scores is commonly referred to as the average. This is the sum of all scores divided by the number of scores.

Variance and Std. Dev. (Standard Deviation)

These statistics convey the spread of a set of scores. The variance is the average of the squared deviations of the scores about the mean. The standard deviation (Std. Dev.) is a more easily interpretable statistic. It can be thought of as the average amount that scores differ from the mean score (although this definition is not precisely correct). When the standard deviation is larger the scores are more spread out. As a rule of thumb, about two-thirds of the scores of a sample are likely to fall within one standard deviation of the mean.

Skew

Distributions of scores are rarely bilaterally symmetrical. If the scores are clustered more to the left with a longer tail to the right, skew is positive. If the tail is longer to the left, skew is negative.

Kurtosis

Compared to the standard normal shape, score distributions may be more peaked (positive kurtosis) or more flat (negative kurtosis). Skew and kurtosis are included in these reports in the interest of completeness, but this information has limited practical value for the instructor in interpreting student scores.

Median

This is the test score above (and below) which 50% of the students scored. In other words, it is the middle score in the group of scores. Because score distributions are rarely perfectly symmetrical, the median will seldom be exactly equal to the Mean.

Alpha (Coefficient Alpha, or Test Reliability)

The measurement of any cognitive characteristic contains some degree of inconsistency or error. For example, an examinee taking parallel forms of the same examination would likely earn somewhat different scores on the two forms. These differences might be due to sources of error originating with the examinee, the testing environment, or the examination itself. Reliability as considered here refers to freedom from random error originating in the test itself.

The reliability coefficients reported for the ASE Student Certification examinations are measures of internal consistency computed by the Coefficient Alpha formula (also known as KR-20 in the dichotomous case such as this). Reliability coefficients range from zero to one, with a value of one indicating perfect reliability. The size of a reliability coefficient is affected by several factors including the degree to which the test items are measuring the same cognitive construct and the number of items in the test. All other things being equal, longer tests generally have higher reliability.

SEM (Standard Error of Measurement)

Error of measurement results from unreliability and refers to random error associated with a test score. Such error may inflate or depress an examinee's score. As measurement error goes up, reliability goes down and the standard error of measurement goes up. The SEM represents the standard deviation of a theoretical distribution of obtained scores scattered about the theoretical true score of the candidate. As such, it is a function of both reliability and the standard deviation of test scores. Standard error of measurement may be thought of as a "margin of error" that can be used to express the degree of confidence in the accuracy of a test score.

Mean Pcnt Corr (Mean Percent Correct, or Item Difficulty)

The item difficulty, defined as the percentage of examinees answering the item correctly, is computed for each item. Items that are either too difficult (20% or lower) or too easy (90% or higher) are flagged and examined by subject matter experts for flaws. The mean item difficulty expressed as mean percent correct (Mean Pcnt Corr) is provided for each test form.

Mean Biserial (Item Discrimination)

This is the mean Biserial correlation between the selection of the correct option and total test scores. Biserial correlation coefficients are used as indices of the discriminating power of the options within the items. The correct option should correlate positively with total score. Any items that fail to discriminate between examinees having high and low ability are subject to content review and may be either (1) eliminated or (2) rewritten and subsequently pilot tested as new items. The mean biserial of the correct options of the items in each test are provided in the statistical tables, indicated by "Mean Biserial."

Validity

Validity refers to the degree to which interpretations of test scores are appropriate. For exams such as these, evidence of the appropriateness of the test content is the central validity argument, and proper test construction methods are the primary assurance that the exams can support the intended interpretations.

The ASE Student Certification examinations are designed and constructed to assess examinees' mastery of the NATEF task lists. The participation of subject matter experts on the item-writing teams and the item and test review processes are designed to ensure conformity of the tests with the approved NATEF task list. Following this, ASE staff select test items that are (1) appropriate to the purpose of the test, (2) suitably balanced over topics and skills, (3) free from irrelevant sources of difficulty, and (4) as a group, comparable with previous test forms in difficulty and other performance characteristics. These, plus other rigorous psychometric procedures for item development and test construction, provide excellent assurance of content appropriateness of the exams. ASE Student Certification examinations are not intended to predict future success on any other test or endeavor.

ASE Student Certification Test Form Statistics - Spring 2013

Automobile 2008 NATEF Standards

Test: Suspension and Steering (SS)

N of Items	40
Mean	20.946
Variance	41.296
Std. Dev.	6.426
Skew	0.124
Kurtosis	-0.445
Median	21.000
Alpha	0.798
SEM	2.885
Mean Pcnt Corr	52
Mean Biserial	0.433

Test: Engine Repair (ER)

N of Items	40
Mean	24.085
Variance	57.385
Std. Dev.	7.575
Skew	-0.099
Kurtosis	-0.781
Median	24.000
Alpha	0.867
SEM	2.764
Mean Pcnt Corr	60
Mean Biserial	0.524

Test: Brakes (BR)

N of Items	40
Mean	21.235
Variance	50.131
Std. Dev.	7.080
Skew	0.154
Kurtosis	-0.596
Median	21.000
Alpha	0.839
SEM	2.842
Mean Pcnt Corr	53
Mean Biserial	0.478

Test: Automatic Transmission & Transaxle (AT)

N of Items	40
Mean	23.360
Variance	57.647
Std. Dev.	7.593
Skew	-0.249
Kurtosis	-0.855
Median	24.000
Alpha	0.863
SEM	2.813
Mean Pcnt Corr	58
Mean Biserial	0.515

Test: Electrical/Electronic Systems (EE)

N of Items	40
Mean	21.488
Variance	47.736
Std. Dev.	6.909
Skew	0.099
Kurtosis	-0.674
Median	21.000
Alpha	0.824
SEM	2.902
Mean Pcnt Corr	54
Mean Biserial	0.456

Test: Manual Drive Train & Axles (MD)

N of Items	40
Mean	22.369
Variance	55.141
Std. Dev.	7.426
Skew	-0.179
Kurtosis	-0.814
Median	23.000
Alpha	0.851
SEM	2.867
Mean Pcnt Corr	56
Mean Biserial	0.492

Test: Engine Performance (EP)

N of Items	40
Mean	22.067
Variance	45.255
Std. Dev.	6.727
Skew	0.002
Kurtosis	-0.542
Median	22.000
Alpha	0.824
SEM	2.819
Mean Pcnt Corr	55
Mean Biserial	0.471

Test: Heating and Air Conditioning (AC)

N of Items	40
Mean	22.318
Variance	63.036
Std. Dev.	7.940
Skew	-0.075
Kurtosis	-0.940
Median	23.000
Alpha	0.876
SEM	2.799
Mean Pcnt Corr	56
Mean Biserial	0.533

Collision Repair and Refinishing

Test: Painting and Refinishing (PR)

N of Items 40
 Mean 23.239
 Variance 43.638
 Std. Dev. 6.606
 Skew -0.134
 Kurtosis -0.496
 Median 24.000
 Alpha 0.820
 SEM 2.803
 Mean Pcnt Corr 58
 Mean Biserial 0.465

Test: Structural Analysis & Damage Repair (SR)

N of Items 40
 Mean 22.568
 Variance 38.650
 Std. Dev. 6.217
 Skew -0.215
 Kurtosis -0.422
 Median 23.000
 Alpha 0.785
 SEM 2.880
 Mean Pcnt Corr 56
 Mean Biserial 0.427

Test: Nonstruct. Analysis & Damage Repair (NS)

N of Items 40
 Mean 23.129
 Variance 35.773
 Std. Dev. 5.981
 Skew -0.201
 Kurtosis -0.253
 Median 24.000
 Alpha 0.776
 SEM 2.832
 Mean Pcnt Corr 58
 Mean Biserial 0.427

Test: Mechanical & Electrical Components (ME)

N of Items 40
 Mean 21.364
 Variance 36.995
 Std. Dev. 6.082
 Skew 0.059
 Kurtosis -0.299
 Median 21.000
 Alpha 0.772
 SEM 2.906
 Mean Pcnt Corr 53
 Mean Biserial 0.413

Medium/Heavy Truck

Test: Diesel Engines (DE)

N of Items 40
 Mean 22.247
 Variance 49.414
 Std. Dev. 7.030
 Skew 0.193
 Kurtosis -0.730
 Median 22.000
 Alpha 0.841
 SEM 2.805
 Mean Pcnt Corr 56
 Mean Biserial 0.488

Test: Truck Electrical/Electronic Sys. (TE)

N of Items 40
 Mean 22.861
 Variance 53.145
 Std. Dev. 7.290
 Skew -0.019
 Kurtosis -0.635
 Median 23.000
 Alpha 0.853
 SEM 2.798
 Mean Pcnt Corr 57
 Mean Biserial 0.504

Test: Truck Brakes (TB)

N of Items 40
 Mean 20.213
 Variance 47.177
 Std. Dev. 6.869
 Skew 0.222
 Kurtosis -0.549
 Median 20.000
 Alpha 0.829
 SEM 2.839
 Mean Pcnt Corr 51
 Mean Biserial 0.468

Test: Truck Susp. & Steering (TS)

N of Items 40
 Mean 20.914
 Variance 44.496
 Std. Dev. 6.671
 Skew 0.180
 Kurtosis -0.407
 Median 21.000
 Alpha 0.811
 SEM 2.898
 Mean Pcnt Corr 52
 Mean Biserial 0.446

Automobile 2012 NATEF Standards

Test: Maintenance and Repair (MR)

N of Items	60
Mean	33.130
Variance	138.067
Std. Dev.	11.750
Skew	-0.190
Kurtosis	-0.555
Median	34.000
Alpha	0.914
SEM	3.442
Mean Pcnt Corr	55
Mean Biserial	0.524
