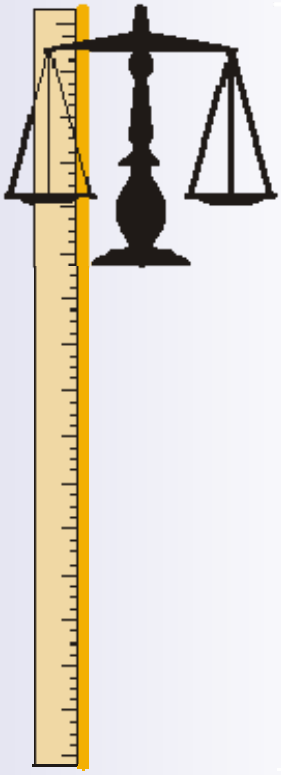
Division of Measurement Standards

Training Module



Eight

Device Type Evaluation

Training for the Weights and Measures Official

TRAINING FOR THE WEIGHTS AND MEASURES OFFICIAL

CURRICULUM

MODULE 8 - DEVICE TYPE EVALUATION

Module 1 - Introduction to Weights and Measures

Module 2 - Laws and Regulations

Module 3 - Enforcement Procedures

Module 4 - Legal Action

Module 5 - Legal Metrology

Module 6 - Field Standards and Test Equipment

Module 7 - Basic Weighing and Measuring Principles

Module 9 - Weighing Devices

Module 10 - Measuring Devices

Module 11 - Weighmaster Enforcement

Module 12 - Petroleum Products

Module 13 - Quantity Control

Module 14 - Service Agencies and Agents

Acknowledgment

Developing a training program for weights and measures officials is a challenging and ambitious project. It requires time, dedication, and expertise from many individuals.

It is impossible to list the names of the many people who contributed to the development of this course. However, gratitude is extended to the following groups whose dedication and commitment made this training module a reality.

Module Team

Charlie Nelson—Team Leader
Gary Castro
John Cline
Dennis Gorman
Aimee Harris
Dan Reiswig

Editing Team

Dennis Johannes
David Lazier
Roger Macey

Production Team

Carol Allen
Angie Averitt

Module Eight
Device Type Evaluation

Table of Contents

Introduction/Objectives 1

SEGMENT 1

1. Type Evaluation 2
2. Self-Evaluation Questions 3

SEGMENT 2

1. History 4
2. National Type Evaluation Program 6
3. Self-Evaluation Questions 10

SEGMENT 3

1. Organization of Type Evaluation Program 11
2. National Conference on Weights and Measures and National Type Evaluation Program 12
3. Mutual Recognition Program 13
4. Self-Evaluation Questions 14

SEGMENT 4

1. Type Evaluation Process 15
2. Field Enforcement Role in Type Evaluation Process 16
3. Self-Evaluation Questions 21

Glossary 22

Bibliography and References 24

Self-Evaluation Answers 25

Feedback 27

Introduction

Welcome to "Device Type Evaluation". This is the eighth module in the series "Training for the Weights and Measures Official". It will introduce you to the reasons for type approval, a brief history and development of type approval, and how type evaluation is organized in California and the United States.

At the end of each segment in this module you will find a series of self-evaluation questions to test your knowledge. Although you are not required to complete the self-evaluation, we encourage you to take a few minutes to read the questions before moving on to the next segment. Answers are provided at the end of the module. If you are unsure of a response, reread the training material and it will give you the information you need.

Module Objectives

When you have completed this module you will:

- Understand the purpose of type evaluation.
- Understand how to use type approval information to perform inspections of new installations as well as inspections of modified or repaired instruments.
- Know how to obtain approval information when preparing for an initial inspection.
- Be able to provide assistance to the public and effectively use enforcement tools when devices are found in commercial service which have not been approved.
- Become more adept at making initial installation inspections for new, modified, and repaired instruments.

Type Evaluation

Type evaluation is the examination of weighing or measuring devices for the legal purpose of certifying that their design and performance complies with all applicable weights and measures requirements. It ensures that the manufacturer of the device, the user, and the consumer have confidence that the device complies with weights and measures laws. It is unlawful for a device to be placed into commercial use unless it is type approved by the Department of Food and Agriculture.

Type approval examination allows new and modified devices to be examined for compliance with weights and measures requirements before they are installed and used in commercial applications. If any deficiencies are found during the type evaluation process, the manufacturer will be required to correct the deficiencies.

The process involves the testing of a model or models of a particular measuring instrument, main element, or system that defines the design and measurement technology for the type. Typically, prototype commercial devices or pre-production commercial devices are submitted for evaluation. The devices are tested using National Institute of Standards and Technology (NIST) Handbook 44, a uniform set of criteria and test procedures developed for commercial devices.

During the approval testing, functions of a device necessary for the measurement process, and how they can affect final quantity determination, price calculation for transactions, or the validity of transactions must be evaluated.

Examples include:

- The transmission, processing, and correction or adjustment of measurement signals or values.
- The display, storage, or recording of measurement values.
- The sizing of letters, numerals, and characters of symbols.
- Environmental influence on measurement.

SELF-EVALUATION QUESTIONS

1. What is the purpose of type evaluation?

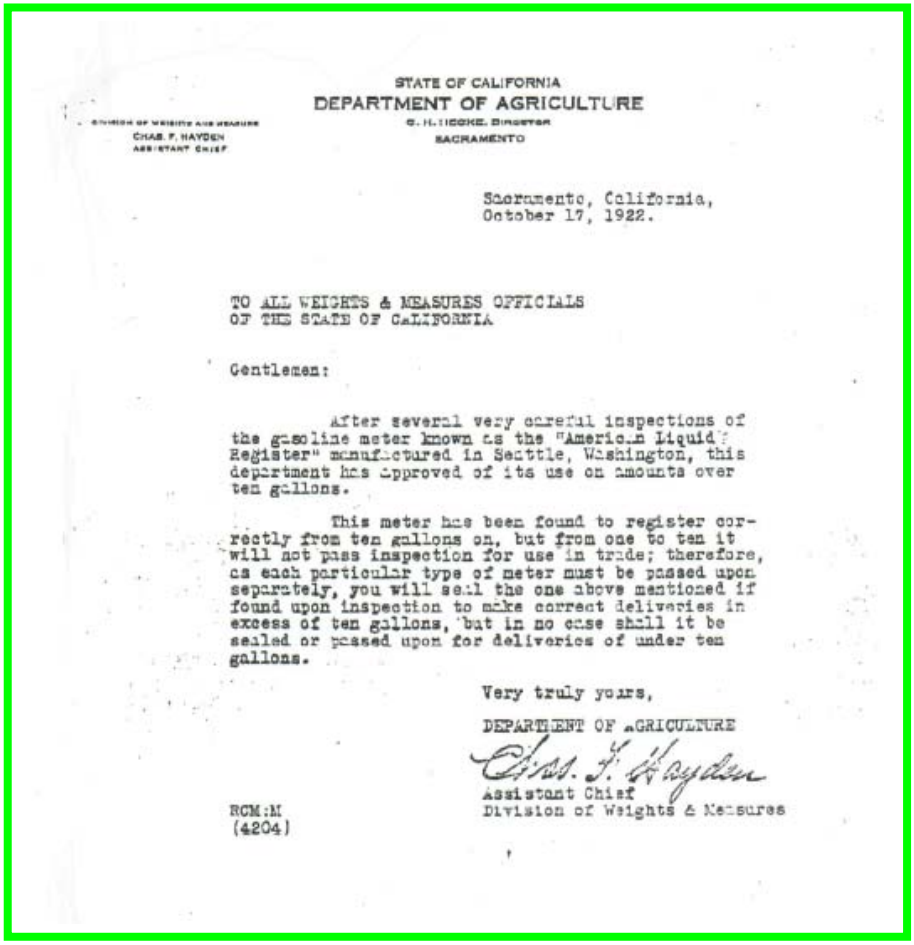
2. The uniform set of criteria and test procedures for devices are found in what publication?

History

California Type Evaluation Program

1922 The California Division of Measurement Standards holds approvals dating as far back as 1922. The basic purpose of the California approval process has always been to methodically evaluate the submitted device against the specifications and tolerances adopted by the State. There were in existence a number of devices which predated requirements that commercial weighing and measuring instruments be approved by the Department of Food and Agriculture.

1922 Type Approval



STATE OF CALIFORNIA
DEPARTMENT OF AGRICULTURE
G. H. TICCKE, Director
SACRAMENTO

DIVISION OF WEIGHTS AND MEASURES
CHAS. F. HAYDEN
ASSISTANT CHIEF

Sacramento, California,
October 17, 1922.

TO ALL WEIGHTS & MEASURES OFFICIALS
OF THE STATE OF CALIFORNIA

Gentlemen:

After several very careful inspections of the gasoline meter known as the "American Liquid Register" manufactured in Seattle, Washington, this department has approved of its use on amounts over ten gallons.

This meter has been found to register correctly from ten gallons on, but from one to ten it will not pass inspection for use in trade; therefore, as each particular type of meter must be passed upon separately, you will seal the one above mentioned if found upon inspection to make correct deliveries in excess of ten gallons, but in no case shall it be sealed or passed upon for deliveries of under ten gallons.

Very truly yours,

DEPARTMENT OF AGRICULTURE

Chas. F. Hayden

Assistant Chief
Division of Weights & Measures

RCM:M
(4204)

1949 The current statute, Section 12500.5 of the California Business and Professions Code, when enacted in 1949, exempted devices already in service until they were condemned or voluntarily replaced.

The number of applications and the complexity of weighing and measuring systems continued to increase during the following years of growth in scientific and technological research and development budgets.

1960 There were a few other states conducting independent type evaluation programs at this time. Manufacturers who offered devices in several states were required to obtain approvals in multiple jurisdictions in which there were some differences in the specifications or in interpretation of the requirements. Many states simply recognized California Certificates of Approval and recognized the need for a National Type Evaluation Program.

1980 By 1980, there were 16 different approval authorities in the United States. These consisted of both state and local programs. Lack of a uniform approach was becoming more of an obstacle as jurisdictions adopted different versions of Handbook 44, and interpretation of the requirements was becoming more diverse. The depth of review required by the various jurisdictions varied from just a paperwork process in some jurisdictions to full testing and evaluation of prototype equipment required to be placed into its intended service in other jurisdictions.

National Type Evaluation Program

1976 California was instrumental in calling for a National Conference on Weights and Measures Task Force on a National Type Evaluation Program. The Task Force was formed and was asked to develop a blueprint for a nationally-based type evaluation program by creating: administrative framework, initial set of test procedures and technical criteria, and participation by industry and weights and measures officials.

The Task Force determined that an effective program also must:

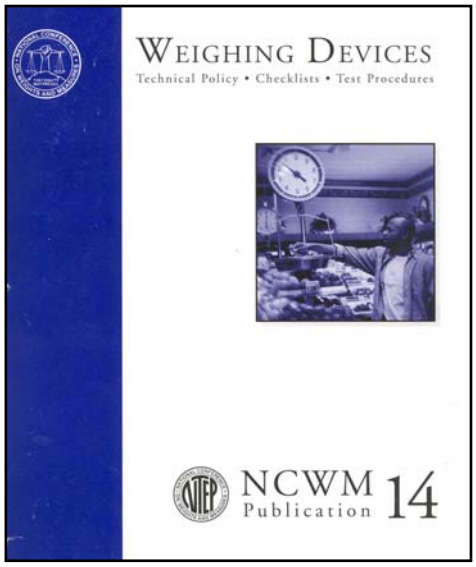
- Establish a uniform set of criteria and test procedures for evaluating commercial devices.
- Establish a system in which one evaluation satisfies all states.
- Provide a minimum level of assurance to weights and measures officials prior to device installation that the device is capable of meeting Handbook 44 requirements.
- Provide weights and measures officials and prospective device purchasers with information about devices found to comply with Handbook 44 based upon successful type evaluations.

1979 California law was amended to allow the Director to enter into agreement with the National Institute of Standards and Technology, Office of Weights and Measures, and other weights and measures jurisdictions to accept the certification of each other for prototype examinations.

1984 Effort continued and the National Type Evaluation Program was finally established by the National Conference on Weights and Measures as a cooperative program among states.

The National Type Evaluation Program (NTEP) has helped promote uniformity of type evaluation throughout the United States by maintaining a consistent interpretation and application of Handbook 44 requirements. The increasing workload is more manageable since a single evaluation is all that is necessary to satisfy all jurisdictions. It reduces the cost and time previously required to get commercial equipment to market while reducing the burden of performing evaluations on the participating state jurisdictions. It has also helped to reduce costly mistakes by businesses that use weighing and measuring devices for commerce. NTEP has been able to establish consensus requirements for evaluation of the effects from environmental influence factors such as temperature, electro-magnetic field (EMF), and radio frequency interference (RFI).

The scope of the requirements for type evaluation in National Conference on Weights and Measures (NCWM), Publication 14, Section C, is all equipment that affects the measurement process or the validity of the transaction. This would include electronic cash registers interfaced with scales and service station consoles interfaced with retail fuel dispensers. Publication 14 also covers all equipment to the point of the first indicated or recorded representation of the final quantity on which a transaction will be based.



A NTEP Certificate of Conformance (CC) will be issued upon successful testing results. No certificate will be issued for unsuccessful evaluation. The manufacturer can correct the device and resubmit. The CC contains information about device capacity, division, size, and unique features. This detailed information is needed by weights and measures personnel as well as service personnel to verify that a device is covered by an NTEP Certificate of Conformance. The following information is contained in most current evaluations:

- Device model and description
- Applicant information
- Standard features and options
- Effective date
- Applications for the device
- Identification placement and description
- Sealing
- Operation
- Test conditions
- Evaluating technicians

Weights and measures officials, scale dealers, and service agents must verify that a specific model of device is covered by a California Certificate of Approval or an NTEP CC and that it is set up consistent with instructions on the certificate. Copies of the CCs are available on the internet at http://www.ncwm.net/ntephome.html. The database can be searched by device type, company, or CC number. Certificates can be displayed and printed.

State of California
Department of Food and Agriculture
Division of Measurement Standards

Certificate Number: 5314-02
Page 1 of 2

California Type Evaluation Program
Certificate of Approval
for Weighing and Measuring Devices

For:
Hopper Scale Weighing/Load Receiving Element
Load Cell Electronic
Model: MTW-WP-10K
n_{max}: 4 000 e_{min}: 2 lb
Capacity: 1 600 lb to 10 000 lb
Platform: Height: 45 in to 112.5 in
Diameter: 36 in to 79.2 in
Accuracy Class: III L

Submitted by:
Montana Tank Works
4119 2nd Avenue South
Billings, MT 59101
Tel: (406) 254-1930
Fax: (406) 256-5802
Contact: David Mueller

Standard Features and Options

Primary weight indications and motion detection are provided by an approved and compatible weight indicator.

Hopper dimensions: 90 inches high by 72 inches diameter
Hopper construction: Mild steel

Load cell type: (3) Rice Lake Model RL20000B-10K capacity 10 000 lb (Certificate of Conformance Number 98-044) or NTEP certified equivalent.

Temperature Range: -10°C to 40°C (14°F to 104°F)

This device was evaluated under the California Type Evaluation Program (CTEP) and was found to comply with the applicable technical requirements of California Code of Regulations for "Weighing and Measuring Devices." Evaluation results and device characteristics necessary for inspection and use in commerce are on the following pages.

Effective Date: October 10, 2002

Mike Cleary, Director

National Conference on Weights and Measures
15245 Shady Grove Road, Suite 130 • Rockville, MD 20850

Certificate Number : 01-003
Page 1 of 2

National Type Evaluation Program
Certificate of Conformance
for Weighing and Measuring Devices

For:
Indicating Element
Digital Electronic
Model: PR 1713
n_{max}: 10 000

Accuracy Class: III/ IIIL

Submitted by:

GLOBAL Weighing Technologies
5510 Old Ellis Pointe, Suite 200
Roswell, GA 30076
Tel: (678) 393-9960
Fax: (678) 393-9961
Contact: Klaus Schoeke

Standard Features and Options

Semi automatic (push-button) zero
Automatic zero setting mechanism (AZSM)
Initial zero setting mechanism (IZSM)
RS-232 communication port
Vacuum Fluorescent Display (VFD)
lb, kg, g & t Units (No units button, Must be defined during set-up and is sealable)
AC power 120 / 240 volts
Stainless Steel Housing
Ability to set and/or signal alarms/ indicating lights to represent a near full, full or empty, near empty bin, hopper or any application that a limiting indication is needed or required

Temperature Range of -10°C to 40°C (14°F to 104°F)

This device was evaluated under the National Type Evaluation Program (NTEP) and was found to comply with the applicable technical requirements of Handbook 44, "Specifications, Tolerances, and Other Technical Requirements for Weighing and Measuring Devices." Evaluation results and device characteristics necessary for inspection and use in commerce are on the following pages.

Effective Date: January 22, 2001

Louis E. Straub
Chairman, NCWM, Inc.

G. Weston Diggs
Chairman, National Type Evaluation Program Committee
Issue date: January 26, 2001

Note: The National Conference on Weights and Measures does not "approve","recommend", or "endorse" any proprietary product or material, either as a single item or as a class or group. Results shall not be used in advertising or sales promotion to indicate explicit or implicit endorsement of the product or material by the NCWM.

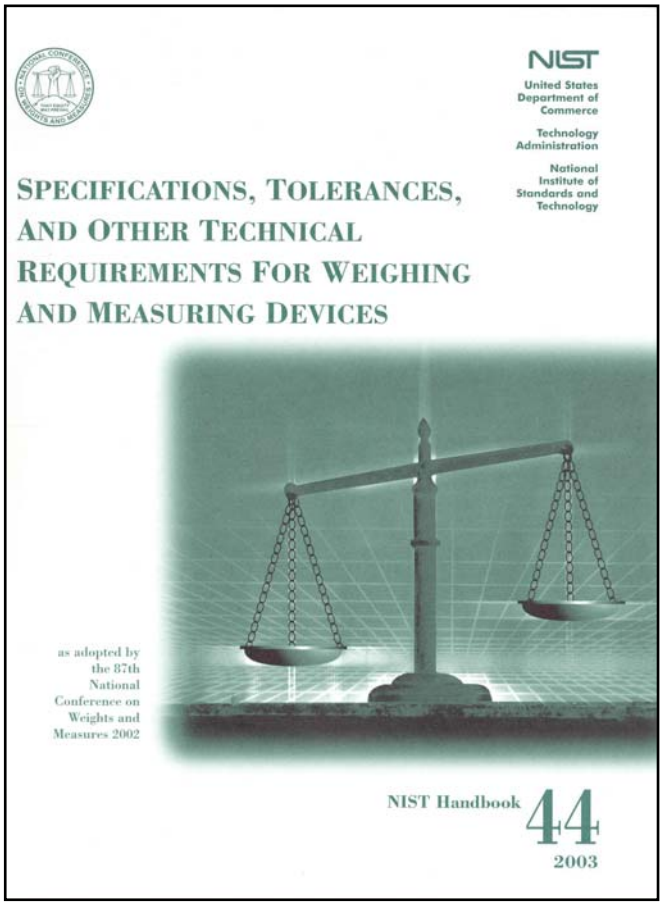
The manufacturer of the device is responsible for all costs associated with NTEP evaluations.

The manufacturer of the device is responsible for keeping up with changes to Handbook 44. The CC must be kept active by the applicant annually until the device is no longer produced for commercial purposes. In California, the certificates remain valid unless withdrawn or revoked. NCWM charges holders of CCs an annual “maintenance” fee for their active CCs. This fee is separate from the lab evaluation/NTEP fees. The fee is presently $100 per year per CC.

Currently, over 44 states and Puerto Rico require NTEP CCs for commercial devices. Each state's CC requirement is via adoption of the Uniform Regulation for National Type Evaluation (Handbook 44) or by jurisdiction policy. The number of states that require NTEP CCs continues to increase. The Scale Manufacturer's Association is very active in promoting adoption.

A type may vary in its measurement range, size, performance, and operating characteristics as specified in the CC.

No metrological changes to the device are permitted after type evaluation except to correspond to changes in Handbook 44.



SELF-EVALUATION QUESTIONS

1. What does CTEP stand for?
2. What does National Type Evaluation Program “CC” stand for?
3. What test procedure outline is used by type approval officials?
4. How far back in history does the California Division of Measurement Standards hold approvals?
5. When did the National Type Evaluation Program become established by the National Conference on Weights and Measures?

Organization of Type Evaluation Program

California Type Evaluation Program

The California Type Evaluation Program (CTEP) is authorized under Division 5 of the California Business and Professions Code. It is part of the State of California, Department of Food and Agriculture, Division of Measurement Standards. The program is divided into three laboratories: Liquid Measuring Devices, Weighing Devices, and Compressed Gas Devices.

Liquid Measuring Devices: Responsible for evaluations of utility meters (i.e., electric meters or water meters), retail motor fuel dispensers and nozzles, wholesale meters, vehicle mounted meters, and any other types of meters that operate under ambient pressure conditions.

Weighing Devices: Specialize in evaluation of all types of scales (i.e., vehicle, platform, counter, and jewelry scales).

Compressed Gases: Specialize in evaluation of measuring devices in which a measured product is maintained under pressure other than ambient. This lab also evaluates wire and cordage meters and taximeters.

California Division of Measurement Standards CTEP program is the only laboratory in the United States that is fully certified in all areas of weighing and measuring. The unique aspect of the California CTEP program is the ability to perform electric meter and vapor meter type evaluations which no other state does. Testing of measuring and weighing devices are conducted so that they meet the requirements of the NTEP program and satisfy the needs of the client and the regulatory authorities. The laboratory is independent from any pressures – commercial, financial, or others - which adversely affect the quality of test and resulting reports. The laboratory maintains client confidentiality and proprietary rights of all information including type of work performed and results of tests to the extent allowable by State law and in accordance with NCWM Publication 14, Administrative Procedures.

National Conference on Weights and Measures and National Type Evaluation Program

Today, weights and measures standards must have the ability to perform in a dynamic global marketplace. There are evolving technologies like computer-interfaced supermarket checkout scales and in-motion weigh scales to the advent of new marketing practices such as those used to implement "cash discounts" and "buyers' clubs" programs. Effective weights and measures management requires a continuous review and updating process. The National Conference on Weights and Measures (NCWM) is formed to meet such a need.

The Board of Directors is the policy-making body of NCWM and has responsibility for the overall operation of the organization and oversees the activities of four standing committees, each addressing a specialized area of the NCWM standards program.

The NCWM maintains several standing committees, one of which is relevant to this module.

National Type Evaluation (NTEP) Committee

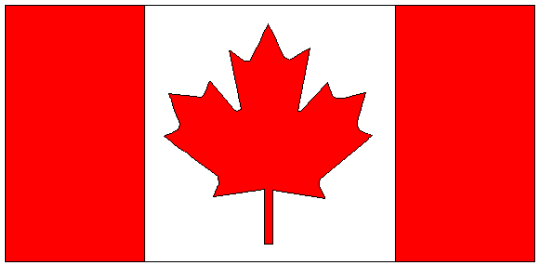
The NTEP Committee oversees the operation of the NTEP program. It sets the goals and objectives as well as the operating policies and procedures. The Committee also serves as the arbiter in any dispute involving NTEP activities. The Committee authorizes the participating laboratories and sponsors technical sub-committees in various areas to develop technical test procedures and evaluation criteria.

These subcommittees, called sectors, are a critical part of the success of the NTEP program. Industry representatives and weights and measures officials join to find a consensus on the proper tests and evaluation criteria. The technical expertise and knowledge of industry, combined with the regulatory know-how of the weights and measures officials, provide standards that are responsive to the marketplace as well as cost effective.

Mutual Recognition Program

United States/Canada Mutual Recognition Program

Both the United States and Canada operate type evaluation or approval programs for weighing and measuring devices intended to be used in commercial applications. Manufacturers who wish to market their products in either country must, under the present legislation and rules, have them evaluated and approved in each country separately. Canada and the United States have reached a bilateral agreement by which one country recognizes the examination and tests of certain device types performed by the other country. This agreement is known as the U.S./Canada Mutual Recognition of Type Evaluation Program.



The U.S./Canada Mutual Recognition of Type Evaluation Program allows the staff of the type evaluation or approval laboratories in either country to perform type evaluations to the common and unique requirements of both countries. In this way, a single type evaluation will satisfy the type evaluation requirements of both countries. On the basis of the evaluation and test results, each country will continue to issue its own Notice of Approval (Canada) or Certificate of Conformance (United States). This program was designed to respond to industry's concerns. It eliminates the duplication of approval or type evaluation work between the two countries, which should contribute to reduce costs and time delays for device manufacturers.

SELF-EVALUATION QUESTIONS

1. What authorizes the California Type Evaluation Program (CTEP) laboratory?

2. The CTEP laboratory is divided into how many groups and what are they?

3. Which national program was formed to continuously review and update evolving technologies like computer-interfaced supermarket checkout scales?

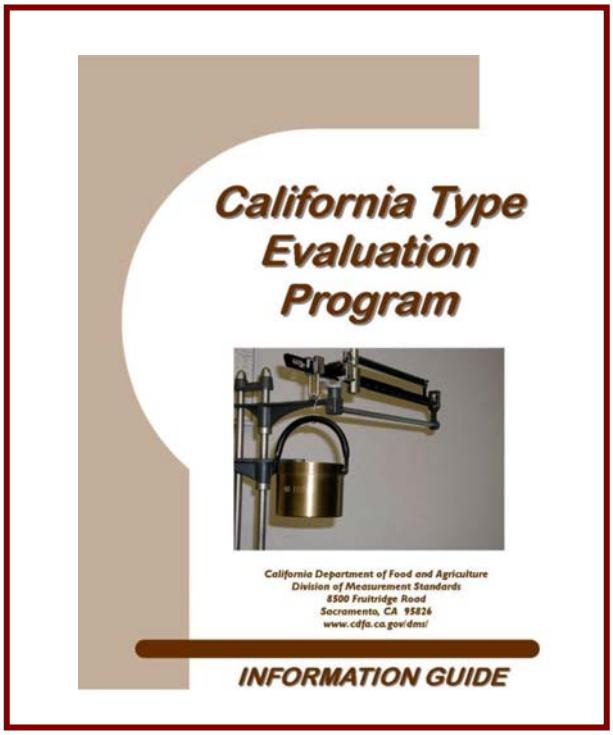
4. What responsibility does the Board of Directors of National Conference on Weights and Measures have?

5. What does the National Type Evaluation Program Committee do?

Type Evaluation Process

California Application Procedure

A California Type Evaluation Program Information Guide is available on the Division's web page at www.cdfa.ca.gov/dms. The Program Guide details the required and highly recommended documentation to accompany the application, the applicant's responsibility during the type evaluation process, the applicant's responsibility after the evaluation, the corrective action procedures, and the process for notification of test failure and withdrawal.



National Application Procedure

National Type Evaluation Program (NTEP) applicant information can be found on the web at www.ncwm.net. A NTEP Process Guide is available that provides answers to questions which device manufacturers or applicants may have regarding the NTEP. It acts as a guide through the type evaluation application process including definitions, what devices must be submitted for type evaluation, how many representative devices need to be submitted and selection criteria, and the cost of type evaluation.

Field Enforcement Role in the Type Evaluation Process

Although the California Type Evaluation Program (CTEP) is a resource for county weights and measures officials, they in turn provide a valuable service for the program.

Occasionally, the enforcement official may have concerns that a device may not meet legal requirements because a production model does not meet the type-approved model. When these situations occur, weights and measures officials contact the type evaluation staff to obtain additional information. CTEP staff can assist the official in determining compliance. Frequently though, this type of inquiry will lead to the discovery of a device that is not approved. Then CTEP staff, working with the field officials, can arrange for the manufacturer to submit the device for evaluation.

It is clear that the weights and measures official can assist CTEP with increased vigilance in type approval determination.

Determining if the device meets type evaluation

The Certificate of Approval lists detailed information about the device(s) so the inspector or service agency can perform the necessary tests to verify the device does in fact comply.

It also gives us clues on a device seen for the first time. By reviewing the certificate, it will give us a glimpse of what the device is capable of doing. The certificate gives us the following information as outlined:

- Certificate of Approval number
- Make and model
- Responsible party (manufacturer)
- Features and options the device is permitted to have
- Effective date of the approval
- Application (type of service the device is intended for)
- Identification (identification badge location)
- Sealing (identifies what type of sealing method and location of sealing)
- Operation (special operating procedures the device may have)
- Test conditions (type of testing that was conducted and associated components that were involved in the testing)
- Type evaluation criteria used (code of regulations version that was used as the basis for compliance)
- Tested by (the name of the CTEP individual that conducted the testing or evaluation)

CERTIFICATE NUMBER LAST TWO DIGITS INDICATE YEAR ISSUED

State of California
Department of Food and Agriculture
Division of Measurement Standards

Certificate Number: 5319-03
Page 1 of 2

TYPE OF DEVICE AND MODEL

California Type Evaluation Program
Certificate of Approval for Weighing and Measuring Devices

APPLICANT INFORMATION

For:

Vehicle Tank Meter Controller System
Model: SMF256

Submitted by:

Streicher Mobile Fueling, Inc.
800 W. Cypress Creek Road, Suite 580
Ft. Lauderdale, FL 33309
Tele: (954) 308-4200
Fax: (954) 308-4218
Contact: Robert Jarrett
www.mobilefueling.com

Standard Features and Options

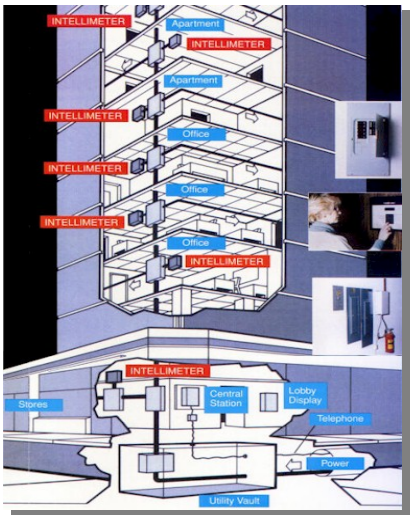
- Fuel tracking controller
- Hand-held bar code scanner
- Wireless LAN
- Portable battery operated ticket printer
- Software version 8.15.01 or higher

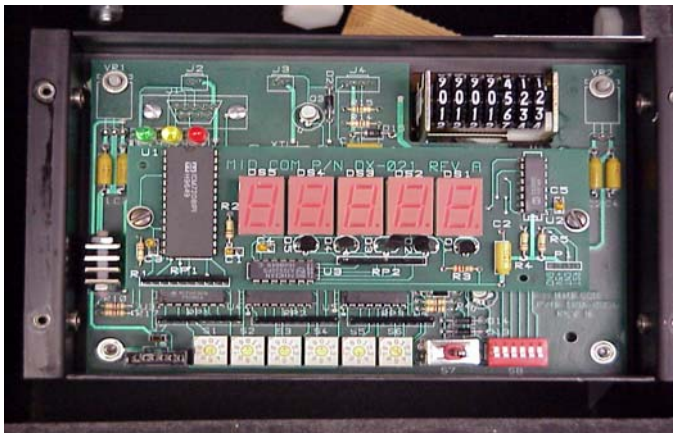
DESCRIPTION OF FEATURES AND OPTIONS

This device was evaluated under the California Type Evaluation Program (CTEP) and was found to comply with the applicable technical requirements of California Code of Regulations for "Weighing and Measuring Devices." Evaluation results and device characteristics necessary for inspection and use in commerce are on the following pages.

Effective Date: January 17, 2003

Mike Cleary, Director





What are the differences between type approval testing and routine field testing?

Type Approval Testing	Routine Field Enforcement Testing
• Requires comprehensive testing that includes examining the software, hardware, and all other optional peripheral equipment that is associated with the devices. • Examines the design, features, operating characteristics, and performance of devices, testing all the functionality it has to ensure it does not have the potential to facilitate fraud. • The type approval testing uses NCWM Publication 14 and the Device Enforcement Program Manual. Example: The device susceptibility to temperature or voltage variations, durability, stability of indication under load, integrity of adjustments, etc., are best determined under controlled conditions.	• Testing is done to ensure the device is being used as it is intended, based on type approval certificate information. • Field enforcement officials use the Device Enforcement Program Manual as the guideline for field testing for compliance.

Software components can be reviewed by checking the version number and in some cases, serial number. The information of what software is being used in the approved hardware is usually explained in either the “Features and Options”, “Identification” or “Test Conditions” section of the Certificate of Approval.

What is a device type?

A device type is a model or models of a particular measuring instrument, main element, or system that defines the design and measurement technology for the type. A specific type may vary in its measurement range, size, performance, and operating characteristics as specified in the Certificate of Conformance or Certificate of Approval issued as a result of successful completion of the type evaluation process.

What is the policy or philosophy of testing main elements?

Many manufacturers produce both complete weighing or measuring systems and separate indicating and weighing/load-receiving elements to be “mixed and matched” with other compatible equipment. Some manufacturers produce only one part of the complete system. In both the United States and Canada, the practice of “mixing and matching” equipment is permitted and recognized in the type evaluation or approval process by evaluating separate main elements and issuing type evaluation certificates for the separate main elements. It is unrealistic and cost prohibitive to conduct type evaluations on every combination of indicating and weighing or measuring elements; hence, the “mixing and matching” of equipment is permitted. It is the responsibility of the manufacturers and the distributors that “mix and match” equipment to assure that each combination of equipment works properly and is installed and set up consistent with weights and measures requirements.

Which devices must be submitted for type evaluation?

Only those devices used in commercial applications are subject to weights and measures requirements. Components or equipment attached to or used in conjunction with a device are required to be submitted for type evaluation only if they have or can have an effect on the accuracy of the device. Printers, secondary indicators, electronic cash registers interfaced with scales, or consoles interfaced with gasoline dispensers require approval only if they perform metrological functions other than changing unit prices or calculating total price. However, such devices are subject to metrological control during field inspections.

Course of Action

What does the inspector do when the device does not meet type approval?

If an inspector finds a non-approved device in commercial use, he has one of two options: He may seize the device or mark it as an “Unapproved Device”. Marking is normally done with a yellow tag used for convenience and conformity.

This, as you would expect, is commonly referred to as “yellow tag” or “yellow tagging a device” and is recognized as “removing a device from commercial service because it is unapproved”. If after 30 days the “yellow tagged” device has not been brought into compliance, the sealer has the option of seizure. From a practical standpoint, when a non-approved device is found in a field application, dialogue begins with the manufacturer regarding the need for evaluation and approval. It is often found that manufacturers are unaware of this requirement and are more than willing to submit their device for evaluation. The matter is then passed to the CTEP and further field enforcement is usually unnecessary. CTEP may give the device a temporary use permit on the condition the manufacturer will submit the device for evaluation.

SELF-EVALUATION QUESTIONS

1. How does the field official assist CTEP staff?

2. What is the reason for the practice of “mixing and matching”?

3. What type of permit do officials issue for a device that does not have a Certificate of Approval, but is undergoing type evaluation in the field?

4. What options does a weights and measures official have when he finds an unapproved device?

5. Where can a person find a California Type Approval Program Guide?

6. Where can a person find National Type Evaluation Program application information?

GLOSSARY

A LISTING OF TERMINOLOGY AND ACRONYMS MOST COMMONLY USED BY WEIGHTS AND MEASURES OFFICIALS.

CC – Certificate of Conformance.

Certificate of Approval – An official certificate issued by the California Type Evaluation Program after successful completion of evaluation and testing of sample devices. It indicates that the submitted device type meets applicable weights and measures requirements for commercial weighing and measuring instruments. This certificate is required only for the commercial use of weighing and measuring instruments within the Sate of California.

Certificate of Conformance – An official certificate issued by the National Conference on Weights and Measures (NCWM). California is a participating National Type Evaluation Program laboratory and is authorized to evaluate weighing and measuring instruments for NCWM Certificates of Conformance when assigned by NCWM. NCWM certificates are accepted in all states and form a basis for mutual recognition certification (NCWM and Measurement Canada) for some device types. Information and applications for NCWM certificates as well as for mutual recognition with Measurement Canada.

CTEP – California Type Evaluation Program.

Device Type – A device type is a model or models of a particular measuring or weighing instrument, main element, or system that defines the design and technology for the type. A specific type may vary in its measurement or weighing range, size, performance, and operating characteristics as specified on the certificate.

Instrument or Device – A weighing or measuring instrument or system used to determine physical quantity or an element or component of a weighing or measuring instrument that performs a metrological function that can be separately examined or is subject to specified error limits or other requirements.

Weighing or measuring instruments often include other related functions and features governed by weights and measures requirements such as display, storage, or comparison of measured values, price computations, value determinations, etc.

GLOSSARY

A LISTING OF TERMINOLOGY AND ACRONYMS MOST COMMONLY USED BY WEIGHTS AND MEASURES OFFICIALS.

Measurement or Measuring Instrument – When used in general terms, measurement or measuring instrument includes devices or systems employed in the determination of physical quantity such as, but not limited to, weighing, dimensional measurement, volume determination, determination of energy or power content, timing devices, counting instruments, etc. Often weight determination is identified separately when being distinguished from other measuring instruments; hence, the terms “weights and measures” or “weighing and measuring instruments”.

Metrological Functions – Elements or features of a measurement instrument or system that perform the measurement process or that may affect the final quantity determination or resulting price determinations. This includes accessories that can affect the validity of transactions based upon the measurement process. Metrological functions include determination of quantities; the transmission, processing, storage, or other corrections or adjustments of measurement data or values; and the display or recording of measurement values or other derived values such as price or worth or charges resulting from the measurement process.

NCWM – National Conference on Weights and Measures.

NTEP – National Type Evaluation Program.

Type Evaluation – The examination of a prototype weighing or measuring instrument(s) for the legal purpose of certifying that its design and performance complies with all applicable weights and measures requirements. It is unlawful for an instrument to be placed into commercial use which is not type approved by the Department.

Use for Commercial Purposes – Refers to weighing or measuring instruments: used in buying, selling or exchanging goods, things or commodities; used in determining value of goods or services for compensation or assessment; or for establishing the cost for services or hire on the basis of measurement.

BIBLIOGRAPHY AND REFERENCES

Business and Professions Code Section 12500.5.

SELF-EVALUATION ANSWERS

Segment 1

1. To examine devices for design and performance requirements for weights and measures.
2. National Institute of Standards and Technology, Handbook 44.

Segment 2

1. California Type Evaluation Program.
2. Certificate of Conformance.
3. National Conference on Weights and Measures, Publication 14.
4. They hold approvals as far back as the 1920's.
5. National Type Evaluation Program was established in 1984.

Segment 3

1. Division 5 of the California Business and Professions Code.
2. They are divided into 3 programs – Liquid Measuring Devices, Weighing Devices, and Compressed Gases.
3. National Conference on Weights and Measures (NCWM).
4. It is the policy making body of NCWM and has responsibility for overall operation of the organization. Oversees activities of four standing committees.
5. Sets the goals and objectives as well as the operation of the National Type Evaluation Program (NTEP), serves as the arbiter in any dispute involving NTEP activities, and authorizes in various areas to develop technical test procedures and evaluation criteria.
6. www.cdfa.ca.gov/dms.
7. www.ncwm.net.

SELF-EVALUATION ANSWERS

Segment 4

1. By increased vigilance in type approval determination.

2. It is unrealistic and cost prohibitive to evaluate every combination of indicating and weighing and measuring elements.

3. Temporary use permit.

4. Seize the device or remove it from commercial service.

We would appreciate your taking a few moments to complete our training evaluation feedback form. We welcome your comments and any suggestions you might have regarding Training Module 8. You may E-mail your response to us at DMS@cdfa.ca.gov or mail to Division of Measurement Standards at 6790 Florin Perkins Road, Suite 100, Sacramento CA 95828-1812.

1. Did this module fulfill your expectations?

2. What did you like/dislike about this module?

3. What areas would you like to see improved?

4. What specific changes, if any, would you recommend?

5. How could this module be better organized to make it easier to follow and learn from?

6. Was this module too basic or too advanced for someone with an entry level background in weights and measures?

7. Additional comments or suggestions.