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TECHNOLOGY AND DEVELOPMENT PROGRAM

TD NEWS

NOVEMBER DECEMBER

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San Dimas Technology and Development Center

Introduction to Mechanized Trail Equipment

The *Introduction to Mechanized Trail Equipment* video will be distributed by the San Dimas Technology and Development Center (SDTDC) during November. Over the past decade vast improvements have been made in mechanized trail equipment. The machines are easier to operate and the operators can use them more comfortably. New attachments, such as rock drills, jackhammers, winches, and compressors have made the equipment more versatile. Mechanized trail equipment such as trail dozers and small excavators can allow land managers to construct and maintain trails more efficiently without compromising user experience. Like any other tool, mechanized trail equipment requires skill and training to use safely and effectively.

This video provides an introduction to the use of mechanized trail equipment in a forest environment. The video focuses on the SWECO 480 trail dozer and the Bobcat excavator. Topics include: instruction on safe and efficient operation of mechanized trail equipment, trail planning and proper equipment selection, and operator training and certification.

For further information on this video project, contact Ralph Gonzales, Project Leader:
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Upgrading the Spark Arrester Laboratory

The Spark Arrester Qualification Program at SDTDC operates the only spark arrester qualification facility in the United States. All internal and external combustion engines used on Federally managed land must be equipped with a spark arrester qualified by the Forest Service under the spark arrester qualification program. General-purpose spark arresters, spark arresters used on motorcycles and ATV's, and those used on generators are qualified in the spark arrester laboratory at SDTDC. This lab is being upgraded. Upgrades include replacing the original orifice meter with a thermal dispersion meter and automating the flow controls and data entry. These upgrades will reduce the workload for technicians conducting the tests and improve the accuracy of data being collected. Benefits include:

- Improving the low-flow measurement accuracy. The accuracy is 1 percent of the reading +/- 0.6 SCFM (standard cubic feet per minute) at low flows and 1 percent of the reading +/- 10 SCFM at high flows.

Upgrading the Spark Arrester Laboratory
(continued)

- Displaying readings in standard cubic feet per minute, eliminating the need to convert pressure measurement readings to flow readings.
- Eliminating the need to change orifice plates during a qualification evaluation.
- Measuring flows ranging from 5 to 2,000 SCFM with the new flow meter.

Construction during the upgrade of the spark arrester laboratory at SDTDC.

For additional information about the laboratory upgrade, contact Ralph Gonzales, Spark Arrester Project Leader:
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Spark Arrester Video

A spark arrester video is being produced by SDTDC. The video will be released in both VHS and CD format. The video will contain five parts: *Introduction to Spark Arresters, Multiposition Small Engine, General Purpose, Off-Highway Vehicles,* and *Railroad Locomotive.* Part I of the video is complete. Once the series is finished, the CD version will contain all five parts of the video, five Tech Tips corresponding to the video sections, and a link to the Spark Arrester Web page on the Forest Service Intranet. More information will be available as the project nears completion.

Spark Arrester Guide Available Online

An online Spark Arrester Guide is available on the Forest Service's internal computer network at: *http://fsweb.sdtdc.wo.fs.fed.us/programs/fire/spark /sag-index.html.*

Both volumes of the Spark Arrester Guide are available online. The user can search the guide by manufacturer, model, type, and exhaust system number. The online guide is updated every quarter.

Missoula Technology and Development Center

Guide to Energy-Efficient Equipment

Commercial buildings in the United States consume 5.3 quadrillion Btu's of energy each year at a cost of more than $70 billion. The majority of this energy is derived from electricity and natural gas. The American Council for an Energy Efficient Economy (ACEEE) is offering an up-to-date guide to the energy consumption characteristics of lighting equipment; heating, ventilating, and air conditioning (HVAC) systems; and electric motors.

The *Guide to Energy-Efficient Commercial Equipment* is an excellent resource for facility managers trying to implement energy-efficiency projects and for individuals designing systems for new buildings. This free 185-page book describes how best to select equipment that contributes to employee comfort and productivity while reducing power consumption. Lighting, HVAC systems, and electric motors are the guide's primary focus, but other equipment such as dry-type distribution transformers, office equipment, vending machines, icemakers, and drinking water dispensers are also discussed. A list of the most efficient products, by brand name and number, is also included.

For additional information about the guide, visit ACEEE's home page at: http://aceee.org/pubs/e1.htm. *Call 1–800–363–3732 to order the guide.*

For further information on Forest Service energy-efficiency programs, contact Steve Oravetz, Engineering Program Leader:
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Counting Traffic on Trails and Roads

October 2000 marks the beginning of the second year of the National Recreation Use Monitoring (NRUM) study. This 4-year study is gathering statistically valid visitor-use counts on National Forest System lands for Congress. Counts include vehicles using roads and individuals using trails.

The K-Hill KBA-II pneumatic counter is one of the two types of counters being supplied to Forest Service field units by MTDC.

MTDC is supplying technical support and accountability for the equipment. The Center has distributed over 350 counters to field units throughout the Forest Service. Two types of counters will be used this year: the K-Hill KBA-II, a pneumatic unit for counting vehicles on both paved and unimproved roads, and the TrailMaster TM-1500, an active infrared device that counts individuals on trails. Each pneumatic unit is shipped with 50 feet of hose and hold-down devices for paved surfaces and unimproved roads. The infrared counters include a sending unit and a receiving unit that can be easily attached to trees alongside a trail.

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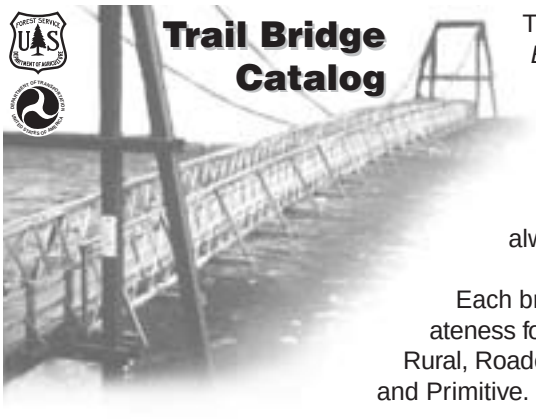
Trail Bridge Internet Catalog

MTDC has published the *Trail Bridge Catalog* on the Forest Service Intranet (*http://fsweb.mtdc.us.fs.fed.us/bridges*) where it is available to Forest Service and Bureau of Land Management employees. This publication is intended for engineers, land managers, and anyone else involved in trail planning and construction. Forest Service policy is to design facilities that fit esthetically into Recreation Opportunity Spectrum classes. This catalog contains guidelines for selecting bridge types that fit these classifications.



The catalog is divided into five sections: *Trail Bridge Types, Trail Bridge Decks, Trail Bridge Handrails, Trail Bridge Abutments,* and *Trail Bridge Materials.* Each section contains sketches, pictures, example drawings, and standard drawings (where available). Span ranges and safety recommendations are discussed. The example drawings are intended for informational purposes only. Bridges—including the handrails, decks, and abutments—should always be designed by a qualified engineer.

Each bridge type, deck handrail, and abutment is evaluated for appropriateness for the six Recreation Opportunity Spectrum classifications: Urban, Rural, Roaded Natural, Semiprimitive Motorized, Semiprimitive Nonmotorized, and Primitive.

The Autocad drawings have been converted to a format that allows them to be displayed in the current version of Internet Explorer after you have installed a special viewer.

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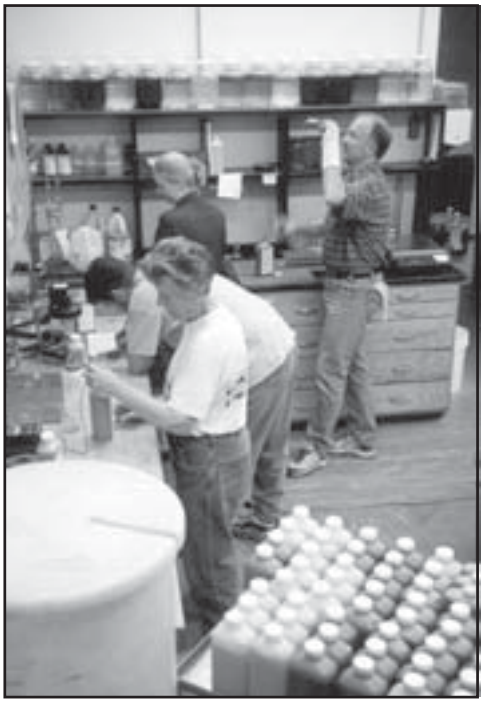
Wildland Fire Chemical Systems Program Has Banner Year

This year's busy fire season broke records for the number of fire-retardant samples tested by the Wildland Fire Chemical Systems Program (WFCS). During the month of August, 512 samples were tested, more than are normally tested during an entire year. On August 7th, the busiest day, 96 samples were tested. Through mid-October the Program had tested 1,050 samples and expects to test up to 1,200 before the end of the season. Samples from each truckload of retardant delivered to tanker bases are sent to WFCS. Each sample is tested and the results are reported back to the base within 24 hours. If specific samples raise quality concerns, the cause of the problem is determined and steps are taken to correct it.



Teamwork helped handle the record number of fire retardant samples tested this fire season.

Wildland Fire Chemical Systems Program Has Banner Year *(continued)*

Sometimes the problem may simply be improper mixing—a problem that can be quickly corrected at the base. The problem may be with the product itself, requiring that WFCS notify the supplier. Either way, WFCS works quickly to ensure that firefighters are supplied with a retardant that meets all performance requirements.

For additional information on the Wildland Fire Chemical Systems Program, contact:
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Electronic Fee-Collection Machine Evaluation

The need to collect more and sometimes higher fees at recreation facilities has prompted Forest Service managers to look beyond conventional collection techniques. To help those considering investing in electronic collection equipment, MTDC documented onsite use of electronic fee collection machines in the report, *Field Evaluation of Electronic Fee-Collection Machines for Recreation Sites.*

MTDC looked at three electronic fee collection machines: the Lexis 901 Pay Station, the VenTek Pay Station, and the QBS Pay Station. The Center made field visits to equipment installation sites and reviewed manufacturer's specifications to compare the products. MTDC has not tested the equipment.

Before deciding on an electronic fee-collec-tion system, recreation managers need to carefully consider these factors:

- The amount of revenue to be generated.
- The risk of vandalism.
- The availability of power.
- Climate.
- Fee-collection plan.
- Operating personnel.

Contact information and machine specifications can be found in appendixes at the end of the report. A copy of the report has been mailed to Forest Service and BLM offices nationwide. To order *Field Evaluation of Electronic Fee-Collection Machines for Recreation Sites,* call MTDC at: 406–329–3978, or send E-mail to: *wo_mtdc_pubs@fs.fed.us*.

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The QBS Concord Pay Station.

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