SENATE NATURAL RESOURCES
EXHIBIT NO. 9
DATE Jan. 19, 2009
BILL NO. SB111

MECHANIZED EQUIPMENT
FOR
FIRE AND FUELS OPERATIONS

DOZER BOSS TRAINING S-232

2008 WORKSHOP HELENA, MONTANA

Compiled by Valerie Jaffe
for
USFS, MT DNRC, and Equipment Cooperators

MECHANIZED EQUIPMENT
FOR
FIRE AND FUELS OPERATIONS

DOZER BOSS TRAINING S-232

HELENA, MT
April 14-18, 2008

US Forest Service
Montana Department of Natural Resources
Equipment Cooperators

ACKNOWLEDGEMENTS 1
MORE INFORMATION 1
TARGET AUDIENCE 1
INTRODUCTION 2
RISK REDUCTION AND SAFETY 3
MECHANIZED STRATEGIES AND TACTICS 4
EQUIPMENT STRIKE TEAM AND TASK FORCE SCENARIOS 5
EQUIPMENT SELECTION CONSIDERATIONS 7
MACHINE CATEGORIES 7
DOZERS 8
SKIDDERS 11
FELLER BUNCHERS 14
HARVESTERS 16
FORWARDERS 20
SKIDGINES 22
SUPER-SKIDGINES 28
EXCAVATORS AND SHOVELS 32
MULCHERS 35
OTHER EQUIPMENT 40
OCCUPATIONAL SAFETY 44

Figure 1. Forest Engineering Research Institute of Canada (FERIC) Handbook HB-12 3
Table 1. Types of machines used for various fire tasks 4

ACKNOWLEDGEMENTS

Contributors to this guide include logging contractors, equipment manufacturers and distributors, agency personnel from federal, state, and local government, and workshop volunteers. Excerpts and images were taken from the Big Iron Guidebook (J.Steele, et al, 2004) and Mechanized Fire Equipment CD (San Dimas Technology& Development Center, 2005). Review, edits, and oversight of this publication were done by Kevin Erickson and Stephen "Obie" A. O'Brien of the US Forest Service.

Many contractors volunteered their time and equipment for the Helena area, Montana workshop. Without the equipment cooperators, the field demonstration of the profiled equipment in this guide could not have occurred. The Workshop logo design was donated by Top Sign & Graphics.

MORE INFORMATION

This document can also be viewed online and downloaded. Query for locations using a search engine, or contact one of the following:

- Stephen "Obie" A. O'Brien, USFS Regional Logging Engineer, saobrien@fs.fed.us, (406) 439-4757 (cell), 406-495-3798 (office). Helena, MT
- Kevin Erickson, Fire Equipment Specialist, kerickson@fs.fed.us, (406) 829-7084, Missoula, MT

TARGET AUDIENCE

Readers will find this workshop guide not only useful for making notes while observing operations in the field, but as a future resource when sharing information or ordering equipment.

Information here will assist all personnel directly and indirectly involved in managing wildfire, from Incident Commanders and Resource Advisors to Field Operations. Dispatch and Contracting Officers will benefit from a better understanding of the equipment and task terminology. Team Leaders will estimate production capabilities and direct improved field strategies. Hand crews and air support will see what is available for integrated tactics.

INTRODUCTION

In-woods demonstration of specialized and logging equipment was added this year to the standard Dozer Boss S232 training to improve fire suppression and site rehab operations. Lack of fire team knowledge and agency administrator confidence to apply mechanized alternatives demands we attend to shortfalls in current training. Successful deployment of mechanized tactics for fuels and fire management results from realistic training in safe, timely and cost-effective strategies.

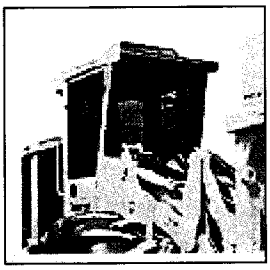
Logging equipment and hybrid machines are available today to increase personnel safety on the fireline, while reducing costs of initial attack, indirect suppression, and post-fire rehab. Just as critical, these machines are used to protect both natural resources and property. Some modern equipment designs offer smaller, more flexible footprints for sensitive sites and soils. Machines in this guide may displace some traditional fire suppression methods; yet, assist and support hand and aerial crews.

The integration of all fire tools is critical to reduce costs and decrease fire damages. For this purpose, more than fifteen skilled equipment operators will demonstrate their dependable machinery during the workshop for a variety of fire-related management needs: WUI protection, line building, fuel reduction, and hazard tree removal. Observers have this booklet of equipment profiles to review machine types, sources, operation experience, and ordering classifications.

The workshop field demonstration includes willing and able equipment contractors; yet, a small sample of the many available professionals with woods-savvy and critical fire and fuels expertise. Equipment manufacturers and distributors are also on-hand to provide information and answer questions. No attempt is made here to claim any one make, model, or equipment type is best. In fact, synergy of equipment combinations yields the most cost-effective approach.

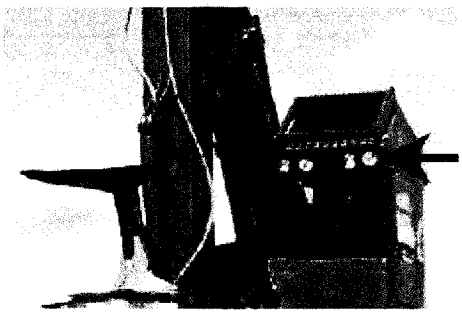
This guide primarily serves to show equipment categories; specifically those machines used in the workshop field demonstration areas. A few considerations for selecting machines for a fire task are offered before the equipment profiles section. It is not a comprehensive treatment of fire management, strategies, or tactics. More comprehensive mechanized training materials will derive from these in-woods training sessions.

Preparing for new issues, arising from larger and more frequent wildfires across the continent, requires a revised approach to field operations. This document is simply one of many materials essential to develop and update mechanized options based on our collective experience. Opportunities for safer, more effective, and less costly fire operations are born out of collaborative efforts like these between private, academic, and public sectors.



RISK REDUCTION AND SAFETY

Working with logging equipment is inherently dangerous, and each machine hired for fire and fuels jobs must be outfitted against falling objects and rollovers (FOPS/ROPS). Of course, safety measures and skills of each operator are what make each piece of equipment function well or best. Field conditions may require less, or more operator skills and experience; so, confirm their training and work record.



In comparison, FOPS/ROPS machines with night lighting translate to fewer hand crew hazards and the option to build fireline at night, when most fires lay down. Enclosed cabs protect the operator's lungs and hearing. While production using one machine working night or day is significantly greater, and less expensive than a 20-person hand crew, safety is the primary advantage.

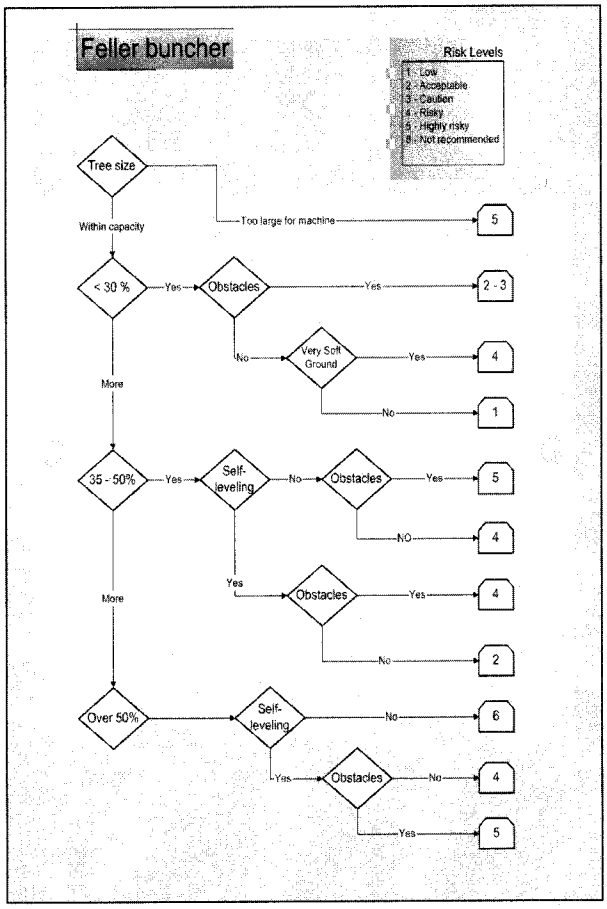


Figure 1. Forest Engineering Research Institute of Canada (FERIC) Handbook HB-12

MECHANIZED STRATEGIES AND TACTICS

"This guide book will look at machines that can clip, snip, prune, skid, haul, bunch, pile, yard, saw, chew, push, dig, scrape, scratch, dump, slosh, squirt, and plow. In some cases, there may be a newly designed machine that can do most of these actions. The tactical key is knowing what you want to occur, where, and for how long. Anticipating your needs will definitely facilitate the ordering and mobilization phase particularly if the equipment has to do interstate travel. " J.Steele, et al, Big Iron Guidebook, 2004.

Maximizing production capabilities and operating shifts are factored into equipment design. Working in tandem or task force, machines can offer the best solution for initial attack. Fire operations today have more equipment types and models to choose from for accomplishing fire tasks. Select from a wide array for desired speed, maneuverability, soil and vegetation impacts, night and reclamation capabilities, and footprint.

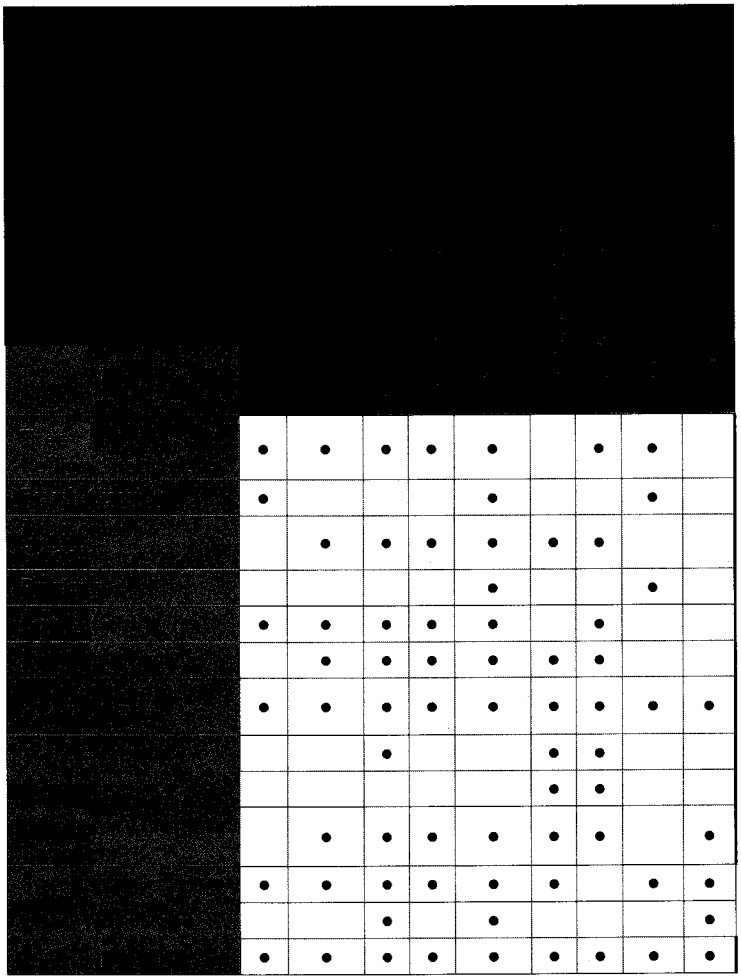


Table 1. Types of machines used for various fire tasks

EQUIPMENT STRIKE TEAM AND TASK FORCE SCENARIOS

Equipment teams of complimentary machines, directed in proper series, expand tactical options and strategies. The following sample scenarios from the Big Iron Use Guide (J.Steele, et al, 2004) illustrate mechanized equipment opportunities when selecting machine types for team tasks.

- Trees are abundant with dense understory poles and saplings, and shrubs comprise a significant component as ladder fuels. Consider using 1-3 Feller Bunchers in the lead, then rubber tired skidders with swing grapples to skid and deck logs. Whole tree skid or pile brush and sort saplings and pole size trees if they will be disposed of separately.

- Shrubs comprise the majority of the tree understory, and they pose an important threat as ladder fuels and contribute significantly to fire spread. Consider using some kind of brush cutter, or mulcher ahead of a 1-2 Feller Bunchers. Follow this with a couple skidders with swing grapples.

- Tree size material will accumulate in large quantities. Consider processing these tree lengths either on site or at a landing. If done onsite, and their slash will not contribute to the fire, and can be handled adequately; consider using a dangle head cut to length system backed up by rubber tired skidders with swing grapples or log forwarders.

- Use mulchers to follow and process slash into the soil. Fireline construction can occur in several ways that include small dozers, rubber tired skidders using their blades, excavators, or relying on the soil exposure caused from skidding tree lengths.

- On steep terrain, or where light hand tactics are desired, a control minimal width fuel break may be constructed using a Tracked Feller Bunchers, a Tracked Skidder to remove trees, and an Excavator to put in fireline.

- Open stands or where there is abundance of old growth, disease or snags, the fireline can be constructed using an Excavator followed by a Feller Buncher that removes hazard trees and snags. The Feller Buncher can also break apart log jackpots that are close to the fireline and pose a threat that will later be mopped up.

- Fuel breaks and shaded fuel breaks can be constructed as mentioned above, and then improved for holding or major burnout operations using mulchers to treat shrubs and litter, as well as prune trees 20-30 feet up their boles.

- Newly constructed firelines can be worked with crews supported by Skidgines or Super-skidgines. They provide water support through mobile hot spotting and mop up, hose lays, refilling crew bladder bags, or mobile attack on running surface fires.

- Skidgines can be supported with Excavators for holding and improving fireline. They can also be used to support crews during mop up in heavy fuels, as well as initial attack on spot fires. Both of these pieces of equipment are good for backing up burnout operations. Excavators are also good to follow dozers and improve their fireline by breaking up and sorting through the berms of dirt and slash.

- Combining aerial water delivery to super-skidgines increases the efficiency of ground-based water availability compared to bucket and air drops, by eliminating empty refill cycles and increasing ground and ladder-fuel water delivery.

Strike teams include two of most machines, to reduce impacts of breakdowns on time-critical fireline. Task forces (mix of machines) listed by terrain/vegetation/task:

Gentle ground (<35% slope), forested with maximum root collar diameter <32", traditional pioneering and clearing vegetation for a fireline.

- 1 dozer strike team (one larger dozer with cable or winch, one smaller), or 1 dozer and 1 shovel plus
- 2 feller-bunchers wth high-speed saw heads
- 1-2 rubber-tired skidders
- 2 mulchers
- 2 skidgines
- 1 super-skidgine

Steep ground (< 55% slope), forested with maximum collar diameter <24", traditional fireline construction.

- 1 large dozer with winch or large cable
- 1 high track dozer or excavator
- 2 steep-slope feller bunchers with hot saw heads
- 2 boom-mounted mulchers
- 1-2 tracked skidders
- 2 pumper cats or soft track skidgines

Steep ground (<55% slope), forested with big timber, traditional fireline construction.

- 2 large dozers with winch or large excavators
- 2 large shovels with grapples
- 2-5 hand faller pairs

Wildland Urban Interface (WUI) fuelbreak construction

- 1 large dozer with winch or large shovel with large cable
- 1 smaller dozer with 6-way blade or small excavator
- 1-2 feller-bunchers with intermittent bar saw heads
- 1-2 boom-mounted with horizontal mulcher, or substitute a horizontal strip mulcher for a boom-mounted
- If gentle ground... 2 skidgines; if steep and broken, 2 soft-track skidgines.
- If a long way to water, then add a super-skidgine.
- If material needs to be moved, either skidders or forwarders.

Brush vegetation

- 1 large dozer with winch and brush blade, or large shovel with large cable
- 1 smaller dozer
- 2-4 mulchers, Rubber tired for gentle, boom for steep
- 2 skidgines

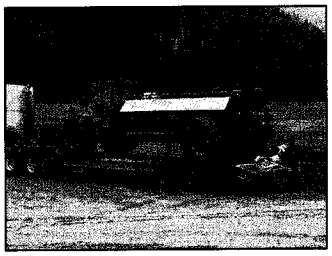
Grassy vegetation

- 1 medium dozer with winch
- 1-2 road graders
- 1-2 farm tractors with disc
- 2-4 skidgines or off-road engines

"Order two, if you need to get through." Always account for breakdowns.

EQUIPMENT SELECTION CONSIDERATIONS

When selecting singular or multiple pieces of equipment, many factors require consideration. The following provide an initial set of criteria.



- Scope of the work (line building, monitoring, indirect lines)
- Area(s) affected, and potentially affected.
- Tandem and complimentary machine opportunities.
- Type of terrain and vegetation.
- Size of forest fuels.
- Reclamation required.
- Remoteness of worksite area.
- Hand crews support (water and hose delivery, crew and supplies transport).
- Property type and inclusions (WUI, structures, private, public).
- Equipment extraction and transport.
- Nighttime lighting options.
- Area access and road conditions.
- Available information (slope class and vegetation maps)

	COMPANY NAME CONTACT ADDRESS PHONE1 FAX EMAIL WEBSITE PROFILE DATE
EQUIPMENT TYPE SPECIFICATIONS / ATTACHMENTS	
PURPOSES / USES	
TRANSPORT	
OPERATOR(S)	
AGENCY ORDERING CLASSIFICATION	
BUSINESS DETAILS / FIRES	

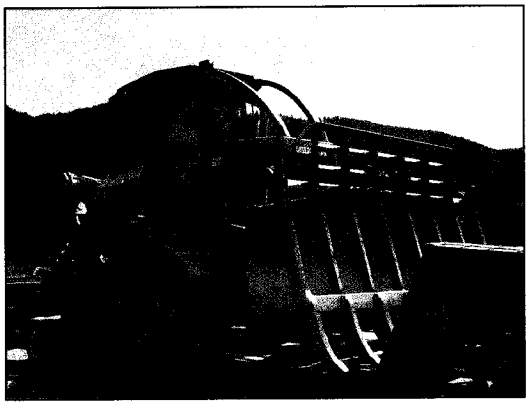
MACHINE CATEGORIES

General equipment categories discussed in the workshop include dozers, skidders, skidgines, super-skidgines, feller-bunchers, forwarders, and excavators. Hybrid and inter-changeable equipment are presented under the general category of "Other".

Most category descriptions were derived and updated from those in the Northern Rockies *Big Iron Use Guide (2004)* and the Northern Rockies Coordinating Group (NRCG) equipment contract language. Each is represented by equipment profiles of the machines used in the live in-woods demonstration.

Information provided by the equipment owner has been entered on their equipment profile form. Contact the owner directly for additional information.

DOZERS



Dozers, commonly called Bulldozers, Tractors, or CATs, are the primary mechanized fire-fighting tool across North America. They are built for pushing and pulling, with steel tracks and grousers (cleats) to ensure good traction.

Dozers are carriers that have many attachments built for them to serve different functions. Most useful on fires are angle blades to cut firelines and pioneer trails through timber. In the Southeast, it pulls a fire plow to quickly build a trenched line.

Key attachments include winches for pulling stuck vehicles or moving logs, brush rakes (as featured in the picture here) for piling and separating brush from soil, ripper teeth for anchoring machines, rehabilitating firelines, road construction, or clearing rippable rock for leveling helispots.

There are three types of dozers: Type 1 (largest), Type 2 and 3 (smallest). According to the Fireline Handbook, dozers are limited to <75% favorable slopes.

TYPE 2 DOZER W/6-WAY BLADE

COMPANY NAME DSJr Trucking, Inc.

CONTACT Dave Sheets, Jr., Janice Grosfield

ADDRESS Drawer D
Drummond, MT 59832

PHONE1 406-288-3279
FAX 406-288-0085

EMAIL sheetstrucking@hotmail.com

PROFILE DATE 4/21/08

SPECIFICATIONS / ATTACHMENTS 1994 D5H Dozer; 130 HP; Full brush guarding; FOPS/ROPS; 6-way blade; swinging boom grapple; Climate control cab; seat belt; fire extinguisher; Pulaski, shovel, first-aid kit.

PURPOSES / USES

- skidding
- rehab fireline
- build roads
- build fireline
- tree and brush placement for drainage control
- blading

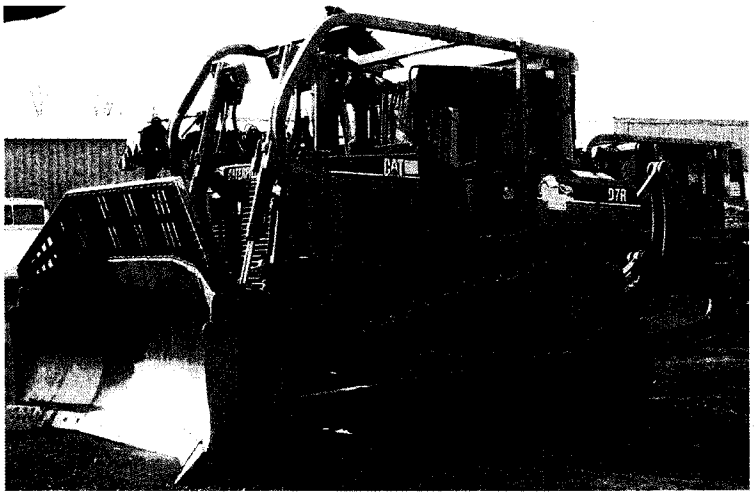
TRANSPORT Contractor provided transport; 3-axle tilt bed or larger lowboy, i.e. single + double drop

OPERATOR(S) Ike Lott (ALP logger SFI accredited), Red card equivalent

AGENCY ORDERING CLASSIFICATION Dozer Type 2 with 6-Way Blade and Swinging Grapple

BUSINESS DETAILS / FIRES
Fires: Derby, Mussigbrod, Rat Creek, Pattengail, Snow-Talon, Jocko Lakes.
Numerous private road and logging jobs

TYPE 1 DOZER D7R



COMPANY NAME
Sun Mountain Logging

CONTACT Rex Anderson

ADDRESS PO BOX 389
Deer Lodge, MT 59722

PHONE1 406-560-0382

PHONE2 406-846-3799

FAX 406-846-3714

EMAIL majesticmtnlogging@hotmail.com

WEBSITE www.sunmtnlumber.com
PROFILE DATE 04/07/2008

EQUIPMENT 1997 Caterpillar D7R 240 Horsepower;
SPECIFICATIONS / ATTACHMENTS Width 12', Height 11'2", Length 24', 16.4" ground clearance, 9.8 PSI ground pressure, operating weight 57,056 lbs; equipped with a U blade and ripper. Daily maintenance is performed on this machine. Operator safety includes ROPS canopy with sweeps, safety belts, PPE, shovel, axe, fire extinguisher and lights.

PURPOSES / USES

- building fire line, opening/building roads, pushing danger trees, hose lays
- rehab: water bars, fire line restoration, obliterating roads

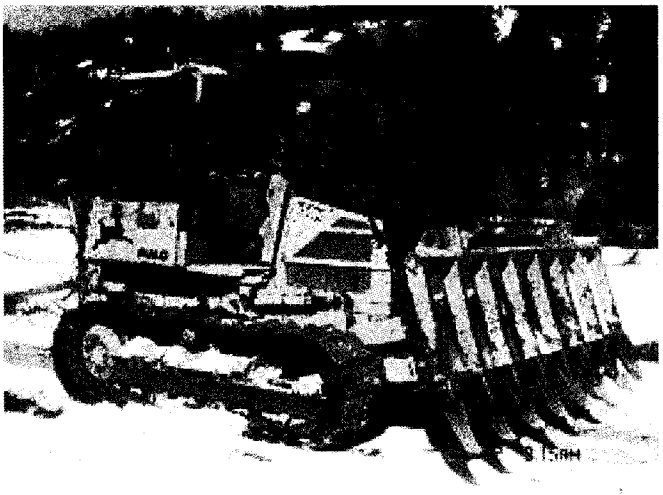
TRANSPORT lowboys available for delivery/ pick up at anytime and may remain on sight during entire incident

OPERATOR(S) All Sun Mountain employees are yellow card holders and available to run machinery

AGENCY ORDERING CLASSIFICATION Dozer Type 1 with U-Blade and Ripper

BUSINESS DETAILS / FIRES Experience with USFS, BIA, BLM, Montana DNRC. Dispatched from Deer Lodge, Montana. Fire suppression experience since 1976.

DOZER WITH BRUSH BLADE



COMPANY NAME Flanagan Quality Contracting

CONTACT Dale Flanagan

ADDRESS 8940 Sharptail Lane
Missoula, MT 59808

PHONE1 (406)-239-4031

PHONE2 (406)-531-7323

FAX (406)-549-9881

EMAIL dale.flanagan@Yahoo.com

PROFILE DATE 4/20/08

SPECIFICATIONS / ATTACHMENTS: 2000 650H John Deer Type 2 Dozer With Brush Rake, Winch, Lighting Package, Brush Bar Woods Package, FOPS/ROPS and Fully Screened in Cab.

PURPOSES / USES:

- Build Fire Line
- Skid
- Rehab
- Structure Protection
- Night operations

TRANSPORT: Lowboy

OPERATOR(S) Dale Flanagan 9 Years (ALP Logger and SFI Accredited), Ben Flanagan 7 Years (ALP logger Program and SFI Accredited Program), And Earl Flanagan 6 Years (ALP Logger and SFI Accredited), Jay Flanagan 7 Years. (ALP Logger and SFI Accredited)

AGENCY ORDERING CLASSIFICATION Type 2 Dozer

BUSINESS DETAILS / FIRES: Been on various Fires, Fuel Reduction and Thinnings since 2000

SKIDDERS

Skidders are the means to remove logs, trees, and debris to locations for disposal, or collection points for removal or storage. The skidder can operate with cable chokers that are stored and controlled by a rear-mounted winch. Some have integral arches to facilitate skidding, and some do not.

Efficient skidders today usually have grapples, referred to as a swing grapple. These can be large grapples, or smaller boom mounted grapples. This allows the operator to pick up several pieces at one time, or a bunch of brush. It also allows the operator to pick up individual pieces and bunch them to get a full drag.

Skidders can be wheel mounted or track mounted, with hard or soft track mounting. There are advantages to soft tracks when on fragile soils such as riparian areas, or steep rocky terrain. In both cases, the soft tracks leave a softer footprint and afford better traction than a hard track. Tracks provide a firmer traction and stronger pull than tires. Rubber tires can move faster and slip less on rock than tracks. Hybrid tires with track bands, found on many forwards combine speed, float, and climbing traction.

RT SKIDDER WITH GRAPPLE

COMPANY NAME DSJr Trucking, Inc.

CONTACT Dave Sheets, Jr.,
Janice Grosfield

ADDRESS Drawer D
Drummond, MT 59832

PHONE1 406-288-3279
FAX 406-288-0085

EMAIL sheetstrucking@hotmail.com

PROFILE DATE 3/21/08

SPECIFICATIONS / ATTACHMENTS
648H 2008 John Deere; 182 HP; winch; dual function grapple; 9' blade; FOPS/ROPS; climate control cab; brush guarded; back-up alarm; independent fire suppression system; chains; lights; seat belt; first-aid kit; shovel, Pulaski, fire extinguisher.

PURPOSES / USES
- skidding logs
- build fireline
- tree and brush placement for drainage control

TRANSPORT Contractor provided transport; 2-axle tilt bed or larger lowboy, i.e. single + double drop

OPERATOR(S) John Restad

AGENCY ORDERING CLASSIFICATION Skidder Type 1, Grapple with Tire Chains

BUSINESS DETAILS / FIRES
Fires: Pattengail, Snow-Talon, Jocko Lakes.
Numerous private logging and salvage jobs

FELLER BUNCHERS

Tree falling occurs in three ways: felling, feller bunching, and harvesting. The cutting heads are different, machines are either wheel or track mounted, felling control is dissimilar, and additional tactical actions may be needed to supplement the action. One of the most popular in the Northern Rockies is the track-mounted, self- leveling feller buncher.

Significant features that make these machines desirable for fire suppression work are they can work on slopes up to 60% and have a self-leveling cab to 36°. They can sit in one location and reach the knuckle boom out to the trees or brush. This minimizes having to reposition the machine for each tree or clump of brush. The cutting head usually has clamping or grabbing arms that hold onto the material while its being cut, and then when the boom re-positions the material to place it or bunch it.

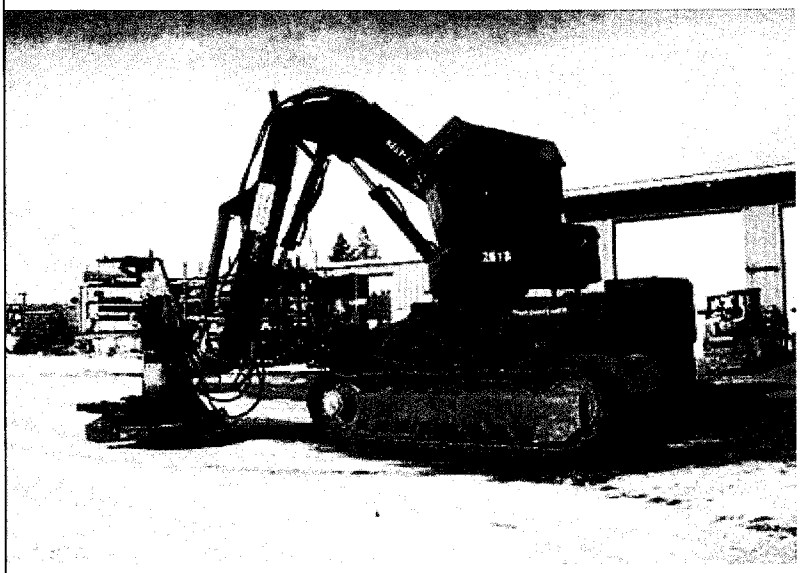
An added feature is they can sever groups of stems in one motion. It can be trees or shrubs; regardless, this feature reduces the number of cuts necessary. The high-speed disc saw is a continuously running circular cutting head with approximately 18 cutting teeth. It spins in one direction and discharges saw dust in that direction. It operates close to the ground, and will often include dirt, rocks, and other loose debris in the discharge. This becomes a safety item and any firefighters in the vicinity must stay at least 300 feet from all sides of the machine. In addition, if a bearing in the arbor of the saw boom comes loose, the saw head will wobble and hit the top plate, potentially causing friction and sparks.

Feller bunchers are large machines and have a slow travel rate, less than 9 miles/hour at top speed. Although this is faster than most firefighters travel, safety zones still need to be considered a standard part of the tactics if a burnover is possible. Safety zone sizes are not documented, but recent experience suggests fuel breaking should be between 200'-500' depending on the machine size, type, condition, and numbers of machines in a single safety zone. If machines are left on the fireline for extended periods, a safe zone must be considered.

Crews working at night must be allowed to reconnaissance the work area during daylight. Most of these machines have integrated light systems that provide a wide area illumination. This benefits the operators and ground forces during the day when lots of dust or smoke are present. If reflective ribbon is available, this also facilitates night operations for the machine operators.

Feller bunchers can be used for initial attack, and require more thought for transport and off-loading. They can be used in areas where tree or shrub densities would slow down fireline production, or where snags present too high a danger for non-mechanical personnel.

BOOM-MOUNTED HIGH-SPEED DISC SAW



COMPANY NAME J & M Logging Inc

CONTACT Jonathan Sheets

ADDRESS PO Box 40
Ovando, MT 59854

PHONE1 406-793-0795

PHONE2 406-544-0795 cell

FAX 406-793-0796

EMAIL jmlogging@blackfoot.net

PROFILE DATE 3/18/08

SPECIFICATIONS / ATTACHMENTS
1998 2618 Timber Jack Feller buncher with 22 inch disc saw FOPS and ROPS, lights
7 psi ground pressure, 9 feet wide 12 feet high, cutting swath 45 feet, can cut on vertical grade of 50%, side hill to 30%.
Can be fit with digging Clam for rehab on steep ground.

PURPOSES / USES
To cut, pile and bunch trees, brush and snags along roads and fire lines for safety, suppression, erosion and salvage purposes.

TRANSPORT Double drop trailer provided by contractor.

OPERATOR(S) Ike Lott (ALP logger SFI accredited), Red card equivalent

AGENCY ORDERING CLASSIFICATION Feller Buncher Type 2

BUSINESS DETAILS / FIRES
Fire history: 2003 Snow-Talon, 2006 Derby Fire, 2007 Jocko Lakes Fire, Fool Creek Rehab, Skyline Rehab.
Pre season EERA east side acquisition team Helena Montana
Helena Montana dispatch 1-406-449-5475

HARVESTERS

Harvesters are mechanized cutting heads that fell individual trees, and can then delimb and buck into log lengths. They can usually cut in both the vertical and horizontal position. They are commonly mounted on machines with rubber tires with track bands, or attached to the booms of tracked carriers, ex. excavator or "Timbco".

Fire applications include maneuverability, due to lighter boom requirements allowing longer reaches of 24-50'. The horizontal cutting feature allows downed trees and jack-strawed piles to be easily cut and pulled apart.

Harvesters only cut when the tree is engaged. This makes them a safer mechanical felling option around crews than feller bunchers.

HARVESTER

COMPANY NAME J & M Logging Inc

CONTACT Jonathan Sheets

ADDRESS PO Box 40
Ovando, MT 59854

PHONE1 406-793-0795
PHONE2 406-544-0795 cell

FAX 406-793-0796

EMAIL jmlogging@blackfoot.net

PROFILE DATE 3/18/08

SPECIFICATIONS / ATTACHMENTS
1998 2618 Timber Jack Feller Buncher, with 762 Harvester Head.
FOP and ROPS lights, 7psi ground pressure 9 feet wide, 12 feet high, cutting swath 60 feet. Vertical grade of 50 %, side hill of 30%.

PURPOSES / USES

- Can cut 25 inch tree in vertical or horizontal position.
- Can build corduroy trail or bridge for wet lands or creek crossing.
- Can cut snags or trees for fire line or road safety.
- Can process logs for salvage and leave brush for erosion control.
- Works best in large wood and blow down.

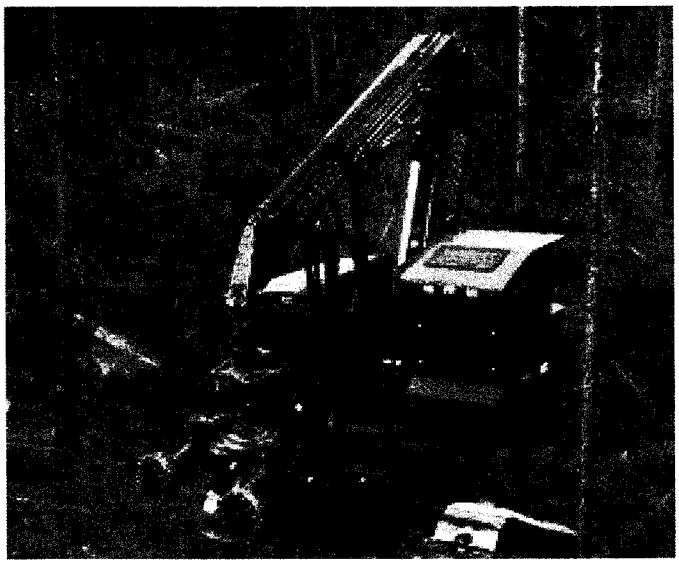
TRANSPORT Double drop lowboy provided by contractor.

OPERATOR(S) Jonathan Sheets (ALP logger SFI accredited) Red card equivalent

AGENCY ORDERING CLASSIFICATION FB1 with Harvester Head

BUSINESS DETAILS / FIRES
Fire experience: 2003 Snow Talon, 2006 Keep Kool, Telegraph, Sand Basin, Derby, 2007 Jocko Lakes.
Pre Season: EERA east side acquisition team Helena Montana
Helena Dispatch 1-406-449-5475

HARVESTER



COMPANY NAME Flanagan Quality Contracting

CONTACT Dale Flanagan

ADDRESS 8940 Sharptail Lane
Missoula, MT 59808

PHONE1 (406)-239-4031

PHONE2 (406)-531-7323

FAX (406)-549-9881

EMAIL dale.flanagan@Yahoo.com

PROFILE DATE 4/4/08

SPECIFICATIONS / ATTACHMENTS:
2003 Timberjack 608L Tracked Harvester With Waratha 470 Dangle Harvester Head. Full Lighting Package. Teleboom. (30 Feet of Reach)

PURPOSES / USES:

- Structure Protection
- Able To Work At Night
- Can cut 25 inch tree in vertical or horizontal position.
- Can build corduroy trail or bridge for wet lands or creek crossing.
- Can cut snags or trees for fire line or road safety.
- Can process logs for salvage and leave brush for erosion control.
- Works best in large wood and blow down.

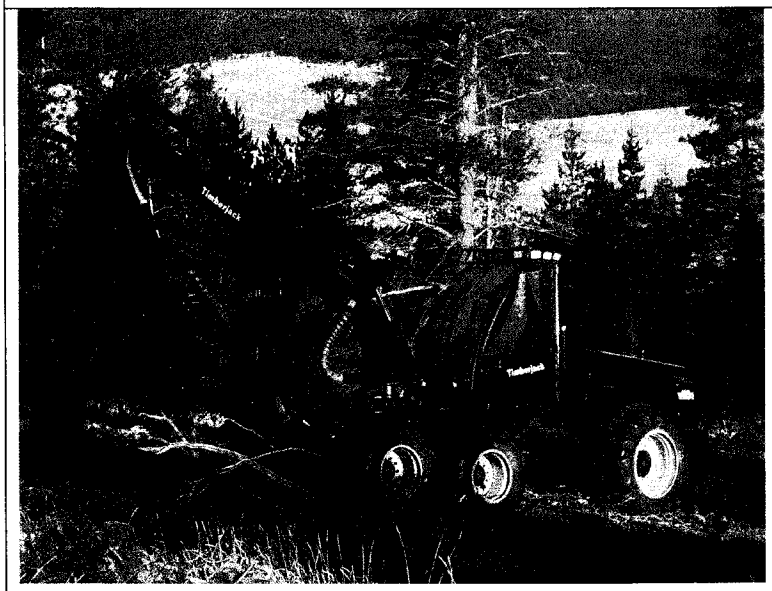
TRANSPORT: Double drop lowboy provided by contractor. Comes with Support Vehicle.

OPERATOR(S) Dale Flanagan 9 Years (ALP Logger and SFI Accredited), Ben Flanagan 6 Years (ALP logger Program and SFI Accredited Program), And Earl Flanagan 4 Years (ALP Logger and SFI Accredited)

AGENCY ORDERING CLASSIFICATION FB1 with harvester head

BUSINESS DETAILS / FIRES:
EERA Certified. EERA Agreement Number AG-03R6-07-E049.
2003 Strawberry Fire, 2003 Fish Creek Fire, 2007 Jocko Fire.

HARVESTER



COMPANY NAME D'Avis Logging

CONTACT Mark D'Avis

ADDRESS 6230 Lone Pine
Helena, MT 59602

PHONE 1 (406) 439-1633

PHONE 2 (406) 457-0212

EMAIL mad59602@yahoo.com

PROFILE DATE 4/6/2008

SPECIFICATIONS / ATTACHMENTS
1998 Timberjack 1270B, 762C harvesting head, 204 hp, 6 wheel drive with tracks and chains, weight 35,052 lbs, length 24', width 9'7", transport height 12'2", ground clearance 25", full working lights, FOPS, ROPS, ISO compliant safety cabin, crane reach 33', top speed 15.5 mph, slope capability 50%, fuel capacity 132 gal, fuel type diesel, fuel use 3 gph, maintenance interval 10 hrs, manual fire suppression, first aid kit, fire tools, PPE, 45 watt vhf radio with external antenna, felling diameter 25.6", delimbing 15.5 ft per second

PURPOSES / USES

- efficient cutting and piling of fireline brush and trees
- fell, delimb, cut to length and pile accurately measured shortwood.
- low ground pressure for sensitive areas
- night operations
- works with forwarder to clear fireline and fuelbreaks

TRANSPORT

OPERATOR(S) Mark D'Avis, experience 7 years harvester and RFD fire training

AGENCY ORDERING CLASSIFICATION Type 1 Harvester

BUSINESS DETAILS / FIRES
Most recent fires Judith Complex 2000 skidding trees felled by hand and machine with grapple skidder and Wolf Creek 2000 skidding trees pushed over by dozers.

FORWARDERS

Log Forwarders can be either track or rubber tired mounted. They are designed to use constructed trails or wander through a harvested stand to pick up manufactured logs, place them in their log bunks and haul to a deck for truck loading and hauling.

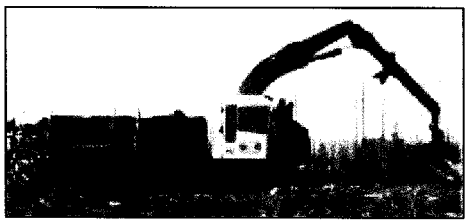
Forwarders are used during wildfire suppression is to 1) facilitate log removal from a major fuel break by working with a cut-to-length felling operation; 2) place a large volume (1000-3000 gallon), baffled tank in the bunks to establish a water supply in remote areas over rough terrain.

Forwarders offer self-drafting pumps, but are usually supported with water tenders to reduce travel and fill times. They can support multiple hose lines with gravity or pressure-fed hose systems. They provide an excellent water source to refill porta-tanks located away from roads. They can use rubber tires or soft tracks for improved traction and stability.

Some considerations prior to ordering forwarders include:

1) The number of operational periods to be used determines water tank size and track or wheel mount, as well as use on roads or off roads;
2) 24-hour service requires machine operators double shift;
3) These machines are large and require adequate road space, as well as support vehicles (tractor truck, lowboy, maintenance vehicle);
4) Radio communication to/from the operator;
5) Low tank profiles provide better safety performance and allow visibility over the top of the tank.

Forwarders can be used during initial attack. Although they require more consideration for transportation and use, they offer large quantities of water to crews, or to support skidgine operations well off-road. They support initial actions, and may be considered as an automatic dispatch during extreme conditions. They can be supported by water tenders, if there are no reasonable fill sites close to the fire.



Due to the forwarder's high center of gravity, slope limits are critical. Generally, a fully-loaded forwarder can safely traverse a 40% favorable grade, 30% adverse slope, and 12% side-hill slope.

FORWARDER

COMPANY NAME Mote Lumber

CONTACT Doug Mote

ADDRESS PO Box 6938
Helena, MT 59604

PHONE (406) 439-1632

FAX (406) 458-5949

EMAIL dogon@in-tch.com

PROFILE DATE 4/2/2008

SPECIFICATIONS / ATTACHMENTS
2007 Ponsse Wisent, 174 hp, 6 wheel drive with tracks and chains, weight 27,558 lbs, carrying capacity 26,455 lbs, length 356", width 108", transport height 146", ground clearance 25", full working lights, FOPS, ROPS, ISO compliant safety cabin, crane reach 33', top speed 17mph, slope capability 50%, fuel capacity 31 gal, fuel type diesel, fuel use 2 gph, maintenance interval 10 hrs, manual and onboard automatic fire suppression, first aid kit, tow strap, fire tools, PPE, blade, 45 watt vhf radio with external antenna, 3 watt cell phone with external antenna, gps, available saw attachment for grapple

PURPOSES / USES

- Efficient transport of fireline brush, trees and debris
- movement of materials and supplies
- low ground pressure for sensitive areas
- night operations
- works with harvester to clear fireline and fuelbreaks

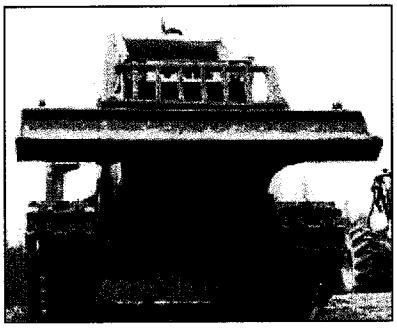
TRANSPORT Kenworth T800 with 3-axle tiltdeck, single operator

OPERATOR(S) Doug Mote, experience 4 years forwarder and 30 years fire

AGENCY ORDERING CLASSIFICATION Type 2 Forwarder

BUSINESS DETAILS / FIRES
Under contract with MT DNRC, CLO for initial attack.
Most recent fire was Meriwether 2007 for fireline cleanup.

SKIDGINES



A skidgine can be a rubber-tired skidder or hard or soft tracked tractor with baffled water tank and pump system securely fixed to the machine. A mechanical engineer must certify that the tank and pump have been mounted properly and does not impair the machine's center of gravity for use as an approved skidgine in the Northern Rockies. Tanks can be removable or integrated as a fixed component of the machine. Side hill use is the biggest safety concern for operators.

Skidgines have the versatility of bringing water over rough terrain and using it with a crew in remote areas. It can travel at speeds up to 12 mph on flat ground. These features have made Skidgines excellent patrol tools and initial attack for spot fires along remote sections of fireline.

Skidgines are good tools for patrolling fireline, hotspotting, mobile attack, hauling water to crews, and assisting crews during mop up. Although they are not allowed to haul people, they can haul equipment and supplies. These machines do offer the option of emergency extraction of firefighters during fireline abandonment. This method should never be relied upon as the only means of emergency response.

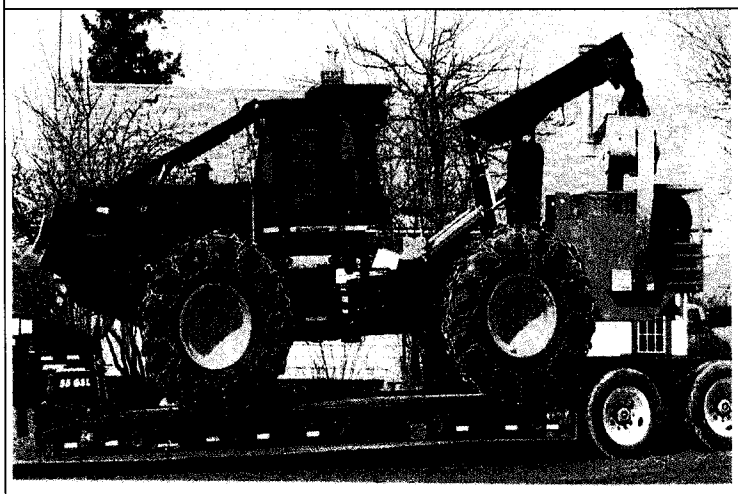
They have been used successfully during initial attack of spot fires and as a first out initial attack tool in the field. They are highly mobile and easily transported which provides versatility during initial attack as well as moving from one point to another on a large fire. This feature is desirable for spot fire containment on large fires as they can be strategically located for quick response, using water for rapid knock down and then using the blade to construct fireline before the fire has the time to build momentum. Should the fire exceed the first fireline, this machine can quickly reinstall another.

Hard track Skidgines are dozers called pumper cats, and are equipped with saddle tanks in the 300-800 gallon range. They usually have their blade attached and can provide scraping tasks along with water support. Their contract specifications in the Northern Rockies are the same as a skidgine.

Skidgines with soft tracks can distribute equipment weight more evenly, which causes less impact on the ground. They usually have a front blade, and are designed to carry the tank and water weight. Tank volumes range from 500 to 1600 gallons with an integrated or attached tank. They are a faster than a dozer, but have a high maintenance record, run very loud, and can operate on steeper slopes than RT Skidders (60%).

Skidders with a strapped-on tank and swing grapple combination offer other options. The water tank can be dropped, and the skidder-grapple combination used with crews for brush piling along fuel breaks or around homes. The front blade and water are used in combination during hotline construction (spot fires or initial attack).

SKIDGINE WITH GRAPPLE AND REMOVABLE TANK



COMPANY NAME DSJr Trucking, Inc.

CONTACT Dave Sheets, Jr.,
Janice Grosfield

ADDRESS Drawer D
Drummond, MT 59832

PHONE1 406-288-3279
FAX 406-288-0085

EMAIL sheetstrucking@hotmail.com

PROFILE DATE 3/21/08

SPECIFICATIONS / ATTACHMENTS 648G III 2000 John Deere; Quick attack 405 gallon water tank, attaches w/ hitch setup for skidder/skidgines conversion within ½ hour; lights; full brush guarding; ROPS/FOPS; climate control cab; seat belt; back-up alarm; chains; 9' blade; first-aid kit; pulaski, shovel, fire extinguisher.

PURPOSES / USES

- hauling water and supplies to remote and inaccessible areas
- patrolling fireline, extinguishing hot spots
- mop-up w/ hand crews
- build fireline w/ blade

TRANSPORT Contractor provided transport; 2-axle tilt bed or larger lowboy, i.e. single + double drop

OPERATOR(S) David Sheets, Jr.

AGENCY ORDERING CLASSIFICATION Skidder/Skidgine Type 1

BUSINESS DETAILS / FIRES
Fires: Derby, Big Creek, Jocko Lakes, Rat Creek, Pattengail, Sawmill Complex, Sand Basin, Sappington Junction, Clark Canyon, Meriweather

FMC SOFT TRACK SKIDGINE

COMPANY NAME Soft Track Attack

CONTACT Larry Covey

ADDRESS 540 Elk Haven Road
Troy, MT 59935

PHONE1 (406) 295-5770

PHONE2 (406) 670-4998

FAX (406) 295-5771

EMAIL sftrack@libby.org

WEBSITE www.softtrackattack.com

PROFILE DATE 3/20/08

SPECIFICATIONS / ATTACHMENTS 1977 FMC MODEL CA-210 (21O HORSEPOWER) width 8'6", height 9'6", length 20', 22" ground clearance; blade, remote control water cannon, 13 horse Honda 350 Gal/min hydraulic water pump @ 100 psi/min, drafting capabilities; 1500 Gal water tank; CAFS; rear spray heads; rear vision camera and backup alarm; two hose reels, hardline and .75" hose; 1" and 1.5" soft line nozzles and fittings, 3" dump valve; 15 mph., 60 gal fuel diesel tank, 2 cycle. Daily check of lube, fluid, suspension, electrical, and water systems. Operator safety includes in cab fire curtain, radio, safety belts, PPE, shovel, Pulaski, first aid kit, up to 60% slope operation, off-road night lighting

PURPOSES / USES
Water delivery - Control, patrol and mopup; Hand and air crew support; Materials and equipment retrieval; Areas of sensitive soils and vegetation; 0-60% slope water and equipment carrier; Night operations: patrol, burn out, hand crew support; Blading fire-line, opening roads, pushing danger trees, hose lays; Water Monitor: wet fire line, put out torching trees, Structure protection; Rehab: cutting water bars, fire line restoration, lingering mop-ups; Suppressing fire starts by other mechanized equip ex., hot saws, cats

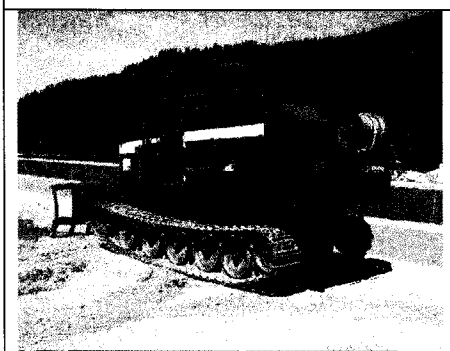
TRANSPORT Soft Track Attack lowboys available to deliver/pick up, also available for the duration of incident by EERA: chase vehicle with each soft track unit

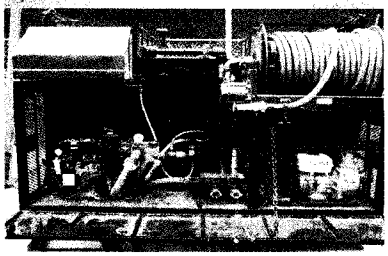
OPERATOR(S) Caleb Covey (FF2, RC w/ 3yrs fire and 10 yrs overall); Larry Covey FF2, RC w/ 8 years fire, 15 years w/machine; operators have Red Card certification, many are FF2 certified and all receive excellent performance evaluations at Incident.

AGENCY ORDERING CLASSIFICATION Soft Track Type 1; Best Value contract AG-0343-C-07-3151

BUSINESS DETAILS / FIRES
Best Value contractor; worked for USFS,BIA, BLM, DNR; Admin dispatch from Libby; but, resources stationed Columbia Falls, Missoula, Bonners Ferry, Grangeville, Idaho; 2007 Fires Best Value: Brush Creek/ Whitefish, Sawmill/ Missoula, Skyland, Essex, Jocko Lakes; Landmark and East Zone Fires McCall, Idaho, Grays Creek Fire, Idaho; BIA/EERA Warm Springs OR; 2006 FIRES: Best Value: Red Eagle, St. Mary's, MT; WA DNR: Tripod (in Winthrop, Loomis, and Conconully, WA; Columbia Complex, Dayton, WA, and Bisbee Fire, Kettle Falls, WA.

SOFT TRACK SKIDGINE





COMPANY NAME: Upper Valley Contracting

CONTACT: Jim Kruckeberg

ADDRESS: 11716 North 55 East
Idaho Falls, Idaho 83401

PHONE1 208/523-9506

PHONE2 208/390-9506

FAX : 208/523-9506

EMAIL: upper_valley_contracting@hotmail.com

WEBSITE: kmc-kootrac.com

PROFILE DATE: 4/2/08

SPECIFICATIONS / ATTACHMENTS

KMC Model 2100 Tracked Vehicle c/w KMC Tracker Unit. Detroit Diesel Model 6V53 (200HP) engine; Clark 28000 Series powershift transmission; Controlled steering differential-hydraulic assist; Planetary final drives; KMC reman torsion bar suspension ; KMC reman tracks an dsprockets-80%; Screen enclosed ROPS cab w/ full doors; KMC reman road wheels and Idler wheels. Fire tank: 1300 Gall steel tank; Wajax Model BB-4 high pressure pump; 18 HP BS engine-2cycle-4cycle; 12 V start; Nordic Model 3900 Power hose reel; Scotty foam educter/mixer, Model 4071 w/ matching aspirating nozzles; Honda WF30X volume pump; 5.5 HP/163 CC displacement; single cylinder-4cycle; manual start/self primer; discharge 158k GPM-4 PSI, 264 GPM-5.5 PSI

PURPOSES / USES

Designed for fire suppression; all phases of fuels/fire scenario from reduction through suppression and post-fire remediation; hotlines; move logs; provide all around water support. Versatility of the 6-way blade allows construction of difficult fireline and holding completed line with 1250 Gal tank complete with foam capabilities. Extremely valuable during mop-up in remote, roadless areas.

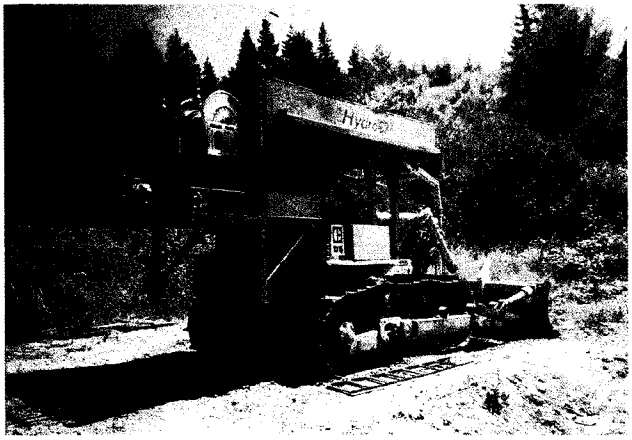
TRANSPORT via Upper Valley Contracting low bed

OPERATOR(S) Jim Kruckeberg, Andy Kruckeberg

AGENCY ORDERING CLASSIFICATION Soft Track Type 1

BUSINESS DETAILS / FIRES

PUMPER CAT



COMPANY NAME: Mark Rector

CONTACT: Mark Rector

ADDRESS: PO Box 336
Powers, OR 97466

PHONE1 541-439-4901

PHONE2 541-439-3591

PROFILE DATE: 4/6/08

SPECIFICATIONS / ATTACHMENTS
HydroCat 175-horse power D7 Cat with a mounted 1500-gallon water tank. The HydroCat is equipped with a Rodwin pump powered by an 18-horse power Honda motor. A live reel is mounted on the unit to facilitate quick release and retraction of the fire hose. It also has a foam unit to enhance fire control capabilities. There is a 6-inch quick drain valve on the tank. The tank is equipped with supports, which can be lowered to support the tank, leaving the HydroCat free to move about without the tank. Trailing can be done with or without the tank mounted on the cat.

PURPOSES / USES
Dozer, hotline, water delivery, mopup; access difficult terrain that is inaccessible to most water units, providing water and/or foam support; for wildfires, prescribed burns, back burns, and mop up.

TRANSPORT
A lo-boy equipment hauler is on standby at all times and we are willing to travel wherever the HydroCat is needed.

OPERATOR Mark Rector, engineer and operator, is an experienced operator with more than 30 years experience on all types of terrain. Adding the HydroCat to his resume has proven his excellent capabilities in D7 Cat operations. Performance ratings from all dozer bosses on forest fires have been excellent. All have recommended rehire for future work.

AGENCY ORDERING CLASSIFICATION
Pumper Cat Type 2; aftermarket certification by mechanical engineer stating 1500 Gal tank does not overgross the equipment. Dispatched out of USFS Region 6.

BUSINESS DETAILS / FIRES

2005 Fires: Blossom Fire, Biscuit Fire.
Performance referral: Rich "Mac" MacDonald, Powers RD, Siskiyou NF

SKIDGINE

(Similar to the one in this photo. Request photo from owner/operator)

COMPANY NAME James E. Woodward, Inc.

CONTACT James E. Woodward

ADDRESS 16089 HWY 26
Mitchell, Oregon 97750

PHONE1 541-462-3200

PHONE2 541-462-3200

FAX

EMAIL woodward4321@hotmail.com

PROFILE DATE 4/10/08

SPECIFICATIONS / ATTACHMENTS
(95 U) 518G CAT Skidgine 1000 Gallon Water Tank With 32 Gal / Min Spray Capacity At 60 Psi With 250 Ft Of Hose On Reel On Front Of The Skidgine Is A Spray Nozzle .32 Gprm 60 Psi

PURPOSES / USES Dozer, hotline, water delivery, mopup; access difficult terrain that is inaccessible to most water units, providing water support; for wildfires, prescribed burns, back burns, and mop up.

TRANSPORT 1981 Kenworth, W900 Transport 40 To 49.99 Ton, 1969 Paige Lowboy Trailer Detachables, 1986 Freightliner Truck, 1969 Hyster Lowboy Trailer

OPERATOR(S)

AGENCY ORDERING CLASSIFICATION

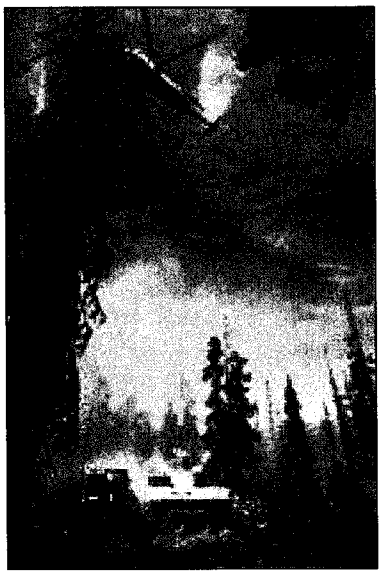
BUSINESS DETAILS / FIRES

Also available: 1994 312L CAT EXCAVATOR HYDRAULIC (100 Or LESS FWHP), 1991 GMC Tender Truck, 1971 INTERNATIONAL TD15B Crawler Dozer- Power Class 3 (126-175 FWHP)

SUPER-SKIDGINES

Super-Skidgines are the largest skidgines (1000-3000 Gallons) capacity. They are normally 4-, 6-, or 8-wheel forwarders with detachable baffled water tanks. They can move quickly; up to 12-15 MPH. For traction in steep country, they use steel track bands. Around paved surfaces, they can run just on tires.

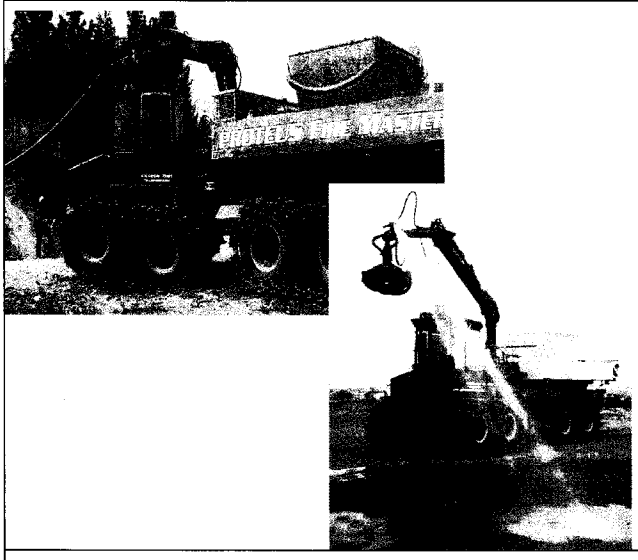
Super-Skidgines can have water cannons mounted on the boom for cooling down hotspots or fire up high in the trees.



They are the only vehicle that have been refilled by aerial bucket drops. This feature is not universal, but saves empty refilling trips. They are excellent for mop-up with crews and ferrying water beyond the range of engines.

They are slope-limited to <40% favorable slopes, <35% adverse slopes, and <12% side slopes. Most have functioning grapples for moving logs and brush. Some have 6-way dozer blades for light earthwork.

SUPER-SKIDGINE PROTEUS FIRE MASTER WITH REMOVABLE TANK



COMPANY NAME
BILL JONES EQUIPMENT TECHNOLOGIES

CONTACT Bill Jones

ADDRESS PO Box 326
Lolo, MT 59847

PHONE1 (406) 360 6007 Cell

PHONE2 (406) 273 2302 Home

FAX (406) 273-3333

EMAIL billjones@yahoo.com

PROFILE DATE 3/26/08

SPECIFICATIONS / ATTACHMENTS
TD81 CICERON 20 Ton Log Forwarder 250 HP; 30 KM Forwarder, 24 KM Reverse Speed; 6-Way Dozer; Monitor & Foam; 3000 Gallon Tank Helicopter-Refillable; CTE Fire Pump 100 GPM@100 PSI

Proteus II Fire Master has a Timber Pro single grip harvester head that can convert to a log forwarder in 10-15 minutes. It has a self-leveling cab, bar saw to 36", grapple grips, and a 3,000-gallon water tank. It is mounted on soft crawler tracks and supports hardline or 1 ½" hose lays., a 4" dump valve, and 18 hp auxiliary pump and separate trash pump that fills the tank in 13 minutes.

PURPOSES / USES
- Large off-road water carrying capability
- Fill of Porta-tanks
- Support multiple nozzles for crew mop-up
- Water cannon for cooling hot spots or fire in upper reaches of trees
- Aerial refilling (Helo buckets) with 6-way blades

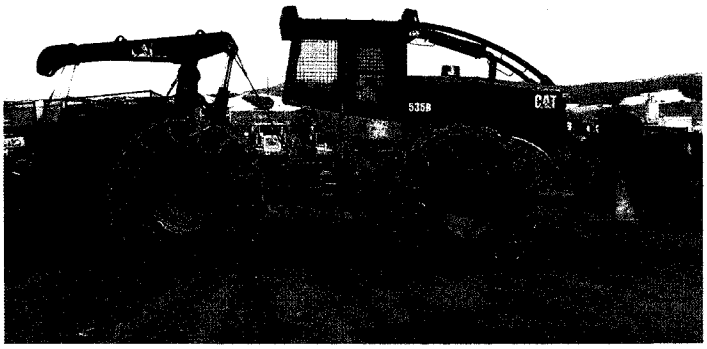
TRANSPORT Large lowboy

OPERATOR(S) Bill Jones

AGENCY ORDERING CLASSIFICATION Forwarder 20 Ton; may be classed as a Type 1; Dispatched from Lolo NF

BUSINESS DETAILS / FIRES Gold Creek (2003), Chimney (2007), Rombo (2007), Flathead NF (2007), MT Fire (2000), Fire performance evaluation available. A 1500 gallon, 6-wheel forwarder also available.

SUPER-SKIDGINE



COMPANYNAME Sun Mountain Logging

CONTACT Rex Anderson
ADDRESS PO BOX 389
Deer Lodge, MT 59722

PHONE1 406-560-0382

PHONE2 406-846-3799

FAX 406-846-3714

EMAIL majesticmtnlogging@hotmail.com

WEBSITE www.sunmtnlumber.com
PROFILE DATE 04/07/2008

EQUIPMENT TYPE 2003 Caterpillar 535B Skidder with skidgine (200 Horsepower)
SPECIFICATIONS / ATTACHMENTS Width 11', Height 10'5" Length 21'6", 22.9" ground clearance, operating weight 37,300 lbs; equipped with useable blade with removal of water tank, 2 water tanks (total capacity 1100 gallons), tanks have gas powered water pumps @ 100 psi minimum, drafting capabilities, 2 hose reels, 1" and 1.5" soft line hose with nozzles and fittings, 3" dump valve, hard line; travel speed up to 17 mph, 83 fuel diesel tank, daily maintenance is performed on this machine. Operator safety include ROPS canopy with sweeps, safety belts, PPE, shovel, axe, fire extinguisher, lights and radio. Industry exclusive lock-up torque converter clutch that provides increases to operating speed along with improved power and fuel efficiency. The 525B and 535B are powered by Cat 3126 diesel engines

PURPOSES / USES

- water delivery to hand and air support crews, fill portable tanks, mop up
- use with blade to push danger trees, opening roads, build fire line and can use for rehab purposes
- structure protection
- initial attack on fire starts

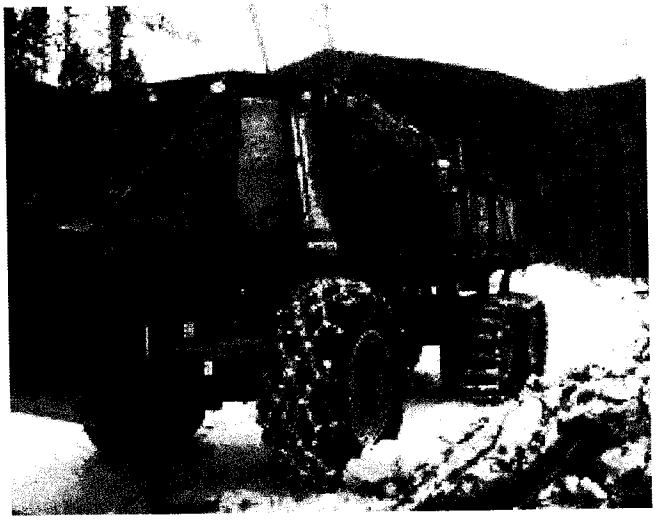
TRANSPORT lowboys available for delivery/pick up at anytime and many remain on sight during entire incident

OPERATOR(S) All Sun Mountain employees are yellow card holders and available to run machinery

AGENCY ORDERING CLASSIFICATION Skidder Type 1

BUSINESS DETAILS / FIRES
Experience with USFS, BIA, BLM, Montana DNRC. Dispatched from Deer Lodge, Montana. Fire suppression experience since 1976.

SUPER-SKIDGINE / FORWARDER



COMPANY NAME Flanagan Quality Contracting

CONTACT Dale Flanagan

ADDRESS 8940 Sharptail Lane
Missoula, MT 59808

PHONE1 (406)-239-4031

PHONE2 (406)-531-7323

FAX (406)-549-9881

EMAIL dale.flanagan@Yahoo.com

PROFILE DATE 4/20/08

SPECIFICATIONS / ATTACHMENTS: 2007 1110D John Deer Forwarder With 1500 Gallon Water Tank Making It a Type II Super Skidgine. Proportional Decking Blade, Loader boom grapple, Rear tire Track bands and Front tire chains. Full lighting Package. Comes with Support Vehicle.

PURPOSES / USES:
Equipped with tank it is a Type II Super-skidgine, capable of delivering Large Off Road Water caring Capability, Fills Portable water tanks, Structure Protection, Water support for hand crews doing Mop up and portable water capacity for traveling with mechanized line building taskforces. Equipped w/ the log bunks it functions as a log Forwarder capable of transporting Brush and Logs off the line. The light package allows for full nighttime operational capability. With the chains and track bands removed it is capable of travel on paved roads.

TRANSPORT: Double Drop Lowboy, approximately a 25' bed.

OPERATOR(S) Dale Flanagan 9 Years (ALP Logger and SFI Accredited), Ben Flanagan 7 Years (ALP logger Program and SFI Accredited Program), And Earl Flanagan 6 Years (ALP Logger and SFI Accredited), Jay Flanagan 7 Years. (ALP Logger and SFI Accredited)

AGENCY ORDERING CLASSIFICATION Type II Super Skidgine . See the NRCG website, business committee, Equipment supplement pages for current specifications and rates.

BUSINESS DETAILS / FIRES:
Been On Various Fires, Fuel Reduction, and Thinnings. Have been a participant in 3 Forest Service fire equipment demos in Montana since 2003. Since 2000. Also available 2000 1010B Timberjack Forwarder.

EXCAVATORS AND SHOVELS

The design of the excavator is for digging. They have a knuckle boom crane with a digging bucket, and some type of assist appendage to the bucket. They are usually hard track mounted and were designed for digging trenches and holes. The adaptation to fire suppression and fuels projects is multi-faceted, which gives us many options for use.

The knuckle boom allows the working end to reach out away from the cab, and has been used to dig fireline, cup trench, pick up and move debris from large fuel jackpots, assist crews doing mop-up, prune reserve trees, slash pull back from reserve trees, pile slash, and rehabilitate fireline, safety zones, roads and camp sites. This type of machine can fix anything a dozer creates.

Tracks, machine balance, knuckle boom, dozer blade, and bucket combinations all give excavators advantages to work on steep slopes and steep side hill slopes. It is necessary to order excavators with "thumbs" to allow more precise actions, such as disassembly of piles and jackpots.

Some excavators have 6-way blades and can operate with brush rakes. Blades also provide necessary anchoring when working on steep slopes. The boom reaches out and helps pull the machine while the tracks turn, and the blade is grounded on the downhill side to provide purchase for the machine. Excavator cabs are not self-leveling and the machines are sensitive to uneven terrain because of a high center of gravity. Operators use the boom and blade to effectively work slopes up to 100% and side hills of 45°.

Excavators have proven to be excellent fireline diggers in rocky terrain. They provide a better service than dozers in heavy fuels because they pick material up, they can sort through green and burned debris, and build dirt free piles. These features make the excavator good for hotline construction because the boom offers separation of the operator from the fire. They can also scoop up hot spots and move them back into the fire further from the perimeter. In some instances, hose can be fashioned onto the boom and water applied to hot spots to cool them off for further work without exposing ground forces.

Excavators have been used successfully as initial attack tools. They are highly mobile, can off- and on-load most anywhere because of the boom and bucket assists. They can be used around structures because of maneuverability, and have been successful at leaving minimal disturbance in homeowner yards.

Slashbuster Excavators have become the machine of choice for completing site rehabilitation. Reshaping terrain contours and bucket and thumb dexterity provide grooming and debris placement that improves our chances for rehabilitation success.

EXCAVATOR WITH 6-WAY BLADE AND BUCKET WITH THUMB

COMPANY NAME Blackfoot Reforestation

CONTACT Art Wear (Owner/Operator)
Sam Smith (Owner/Operator)

ADDRESS 11960 Buffalo Speedway
Missoula, MT 59832
PHONE1 406-542-7480 (Home/Office)
PHONE2 406- 240-4953 (Art cell)
PHONE2 406- 240-9508 (Sam cell)
FAX 406-542-7480

EMAIL teewear@msn.com
WEBSITE

PROFILE DATE 4/7/08

SPECIFICATIONS / ATTACHMENTS
2007 Kobelco ED 190 with 10' 6-way dozer blade, Hydraulic thumb
2006 Kobelco ED 150 with 10' 6-way dozer blade, Hydraulic thumb
2000 Hundai LCM 130 with 10' 6-way dozer blade, Hydraulic thumb. All machines are guarded for FOPS/ROPS.

PURPOSES / USES
- Hot fireline construction from 3' wide (for sensitive areas) to 10' wide.
- Can work on 85% slopes (gradability)
- Knock down snags and Limb trees
- Brush out fuel breaks
- Mop-up and Rehab

TRANSPORT Trucks and trailershave US DOT numbers and inspections for interstate travel.

OPERATOR(S) Art Wear (15 yrs), Sam Smith (8 yrs), Dave Ogren (5 yrs), Nick Ostle (2 yrs).

AGENCY ORDERING CLASSIFICATION Type 1 Excavator, Dispatched from Missoula

BUSINESS DETAILS / FIRES
2007 Black Cat, West Fork Butte, Jocko Lakes; 2006 Lolo NF; 2005 I-90 Complex.
References: Ninemile RD, Laura Ward; Lolo Hot Shots, Steve Karkaner; Helena Hot Shots, Fred Thompson

SHOVEL WITH LOG GRAPPLE AND BUCKET WITH THUMB

COMPANY NAME DSJr Trucking, Inc.

CONTACT Dave Sheets, Jr.,
Janice Grosfield

ADDRESS Drawer D
Drummond, MT 59832
PHONE1 406-288-3279
FAX 406-288-0085

EMAIL sheetstrucking@hotmail.com
WEBSITE

PROFILE DATE 3/21/08

SPECIFICATIONS / ATTACHMENTS
2007 Kobelco ED190 Bladerunner; 44,000 lbs.; 115 HP, 6-way blade; bucket with thumb; lights, full brush guarding w/ 12" cutwalks; ROPS/FOPS; Climate control cab; seat belt; fire extinguisher; Pulaski, shovel, first-aid kit; back-up alarm.

PURPOSES / USES

- tree and brush removal
- rehab
- build roads
- build fireline w/ 6-way blade and/or bucket
- water drainage installation
- blading
- 0-0% slope operations

TRANSPORT Contractor provided transport; 3-axle tilt bed or larger lowboy, i.e. single + double drop

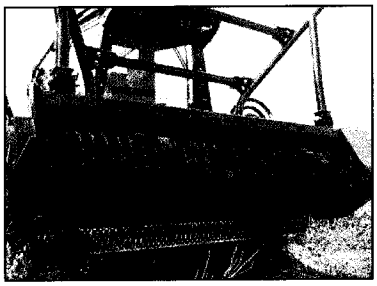
OPERATOR(S) Tyson Keith

AGENCY ORDERING CLASSIFICATION Excavator Type 2 with 6-Way Blade

BUSINESS DETAILS / FIRES
Fires: Derby, Big Creek, Nine Mile, Mussigbrod, Rat Creek, Pattengail, Snow-Talon, Sand Basin, Clark Canyon.
Numerous private road and culvert jobs

MULCHERS

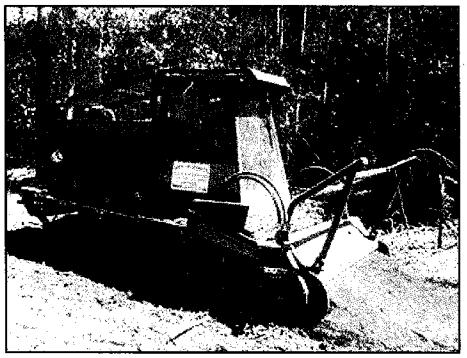
Presently, there are two types of mulchers. Mulchers can be used on many types of terrain.



1) Excavator type boom-mounted mulcher heads. Very maneuverable and can reach areas inaccessible to carrier mounts. The boom-mounted is an excavator with an attachment cutting head. On the end of the arm is a device that chops or flails woody vegetation. The machines come in various sizes for different needs and land characteristics. Excavator-mounted mulchers can operate on much steeper ground, up to 70% depending on carrier design.

2) Carrier-mounted mulching heads, commonly called strip mulchers. Generally, more powerful and faster than boom-mounted mulchers. Strip mulchers can operate on slopes up to 40%, depending on site conditions and whether on rubber or tracks.

CARRIER-MOUNTED MULCHER



COMPANY NAME Get'Er Done Wiest, LLC

CONTACT Gary Wiest (Owner/Operator)
Sharon (admin)

ADDRESS 561 Wiest Road
Brady, MT 59416

PHONE1 406-753-2393 Home/Office

PHONE2 406-450-1968 Cell

FAX 406-753-2395 Fax

EMAIL wiest@3riversdbs.net

WEBSITE www.geterdoneboys.com

PROFILE DATE 3/18/08

SPECIFICATIONS / ATTACHMENTS Gyro-Trak 25XP (GT-25XP)
Track width=28", overall width=9', length=19'6", height=9', weight=23.5K, clearance=14", ground pressure=3.5psi; engine: Cummins Turbo Diesel (QSB 5.9 L Tier III), 6cyl, 260HP, torque=730 lb-ft; fuel tank=97G, hydraulic tank=72G; hsydrostatic drive/steer system; tracks=6nylon/poly reinforced w/steel crosslinks; cutter head: Toma-Ax 700HF, planar fixed-tooth head, dual Rexroth hydraulic motors, individually-mounted teeth, 2350 RPM drum speed; FOPS/ROPS, 6 lights, auxillary hydraulic, Lexan safety windshield, rear sweeps for protection, 15K lb. winch, pressurized cabin, hydraulic push bar; 0-52+% operational slope limitations; daily maintenance=1hr/8hr operation; firesolutions box (nitrogen cylinder=600gal water), fire extinguisher, tow cable; fully-contained unit (no leaks), extreme weather machine.

PURPOSES / USES

- Strip mulching around WUIs
- Suitable for sensitive sites and thin pavement due to low PSI and rubber track.

TRANSPORT Service Truck: 16' long with 4000W power plant; 29' Trailer.

OPERATOR(S) Kyle Mielke (RC), Jim Bartsch (RC), Gary Wiest (RC, EMT), Roger Michaels (RC 4/08)

AGENCY ORDERING CLASSIFICATION Type 1 Track-Mounted Mulcher (Proposed)

BUSINESS DETAILS / FIRES
G. Wiest, Conservationist of the Year, Federal IDIQ rated; current EERA with USFS

CARRIER-MOUNTED MULCHER

COMPANY NAME Get'Er Done Weist, LLC

CONTACT Gary Wiest (Owner/Operator)
Sharon (admin)

ADDRESS 561 Wiest Road
Brady, MT 59416

PHONE1 406-753-2393 Home/Office

PHONE2 406-450-1968 Cell

FAX 406-753-2395 Fax

EMAIL wiest@3riversdbs.net

WEBSITE www.geterdoneboys.com

PROFILE DATE 3/18/08

SPECIFICATIONS / ATTACHMENTS
2006 ASV RC 100 PosiTrac on tracks w/ 6' FECON Brush Mulching Head .
Winch; lighting, operator protection (FOPS, ROPS).

PURPOSES / USES Strip mulching around WUIs; Not for use in forested environment due to lack of FOPS (Falling Objects Protection) and ROPS (Rollover Protection); Suitable for sensitive sites and thin pavement due to low PSI and rubber track.

TRANSPORT Service Truck: 16' long with 4000W power plant; 29' Trailer. CDLicense

OPERATOR(S)
Kyle Mielke (RC), Jim Bartsch (RC), Gary Wiest (RC, EMT), Roger Michaels (RC 4/08)

AGENCY ORDERING CLASSIFICATION Type 3 Track-Mounted Mulcher (Proposed)

BUSINESS DETAILS / FIRES
Ahorn and Fool Creek Fires, 2007; Rehab on Fool Creek Fire
Rating/Reference info: Brad McBratney, USFS, L&CNF; Dennis Erickson, DNRC; Gary Ellingson.
G. Wiest, Conservationist of the Year, Federal IDIQ rated; current EERA with USFS

BOOM-MOUNTED MULCHER

COMPANY NAME: Fire Solutions Inc.

CONTACT: Levi Cheff

ADDRESS: PO Box 16988
Missoula, MT 59808

PHONE1: 406-239-2810

FAX: 406-721-3151

EMAIL: levi@firesolutions.myrf.net

PROFILE DATE: 3/30/08

SPECIFICATIONS: 2007 Kobelco ED150. 6 way Dozer Blade, Hydraulic Thumb; 480SX Slashbuster Masticating Cutting Head with Rotating Shroud. Highly maneuverable in small spaces; lift from side or front; reach approx. 28'; 35,720 lbs. Operating weight; 6.2 psi; inside/outside lighting; enclosed, controlled environment cab.

ATTACHMENTS: HAHN 140 Processing Head, Grapple Bucket with Thumb, Mulching Head.

PURPOSES / USES: Reduce fire hazard in and out of the Wild Land Urban Interface; Able to traverse many different terrains for fuel reduction; Brushing of small and large brush; Reduce ladder fuels; ROW clearing; excavation

This Kobleco ED150 meets or exceeds ROPS/FOPS requirements.

TRANSPORT: Attached to a 35-ton lowboy and tractor.

OPERATOR(S): Levi Cheff (Owner); FFII, S-130, S-190, I-100, S-131 (Advanced Squad Boss)

AGENCY ORDERING CLASSIFICATION Type 2 Boom-Mounted Mulcher (proposed)

BUSINESS DETAILS / FIRES Pattengail (2007), North Howard (LNF 2003)
Accredited Logging Professional
References: Dave Marsh, MT DNRC; Jeffrey Sholty, Sholty Contracting; Norm Jones, Norm Jones Contracting

CARRIER-MOUNTED MULCHER, STEEL-TRACKED, SINGLE GROUSERS

COMPANY NAME Cascade Brush Clearing

CONTACT Richard Brown

ADDRESS 2660 NE HWY 20, Suite 610
Bend, OR 97701

PHONE1 (800) 945-3873

PHONE2 (541) 322-0842

FAX (541) 610-1909

EMAIL info@cascadebrush.com

WEBSITE www.cascadebrush.com
PROFILE DATE 03/18/08

SPECIFICATIONS / ATTACHMENTS
Rayco 100 L Loader Equipped w/ dozer blade and track loading; 100 HP; 1 head mulcher with 48 (approx) carbide teeth on drum; 1 hydrolic cooling system; 1 engine cooler; ground clearance 14"; skidder winch; hand tool fire cache; 26 Gal fueltank, daily runs 6-8 hours; 3-6 MPH low/6.2 MPH high operational track speed; optimal operations on 0-30% slope; small brush production requires approx 2 Acre/Hr. Loader arms reach 10' high; 4.9psi ground pressure. masticates 8" diameter wood, stumps, slash piles, grapple piles.

Attachment: dozer blade, grapple, mulcher, flat mowers

PURPOSES / USES
- Brushing; 0-30% slope; small brush, large brush.
- Strip mulching around WUIs
- Suitable for sensitive sites and thin pavement due to low PSI
- Build fireline

TRANSPORT
Owner has own transport with rapid response. Peterbuilt tilt bed lowboy; tractor self-contained inside a dumpster that loads on lowboy; grapple loading/off-loading; can go places other lowboys can't, based on load/off-load capability.

OPERATOR(S) Richard Brown (RC 4/08)

AGENCY ORDERING CLASSIFICATION Type 3 Track-Mounted Mulcher (proposed)

BUSINESS DETAILS / FIRES
Federal certification and registered as Business Operator
Agreements: USFS-EERA, BLM-IDIQ; BLM referral- Dave Reed 541-683-2237; Kevin Dubler, Fire Chief, Julian Cuyamaca, Fire Protection District 760-765-1510

OTHER EQUIPMENT

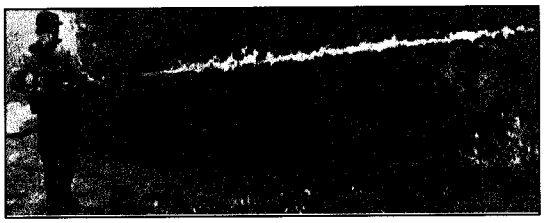
Slash Bundler

The slash bundler could be described as a "trash compactor" that is mounted on an 8-wheel drive "forwarder" that is normally used for transporting logs from harvest units to log landings. The bundler picks up tree limbs and tops that are normally leftover residue from logging or other fuels reduction activities and rolls the material into compressed "logs" bound with twine. The "slash logs" created by this machine are meant to be transported by log trucks to chipping facilities that turn the slash logs into wood chips. These chips can then be burned in "cogeneration plants" to power steam turbines that create electricity.

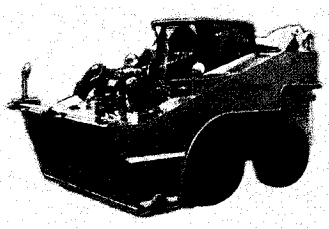
For fire site rehabilitation, these slash logs yield weed-free "logs" for erosion and silt barriers, and for stream course stabilization. Currently, there are two companies making slash bundlers (John Deere and Valmet). They come permanently mounted on a forwarder carrier, or can be detached to sit in the forwarder bunks.

Terra Torch

Tracked carrier, suitable for accessing paved roadways. This carrier is a platform for multiple attachments, including water, foam, site seeding, and as a terra torch.

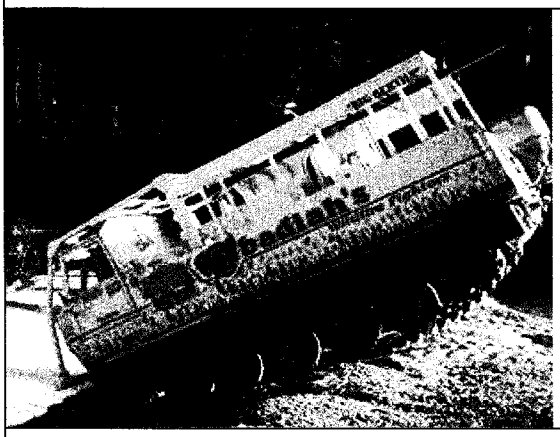


Bobcat Skidsteer



Unique fleet of 6-8 small, maneuverable, mechanized units with operator protection. These rubber-tired carriers are a platform for numerous attachments. Past use has included camp functions of dust abatement and supply handling. Has potential for line uses in and around home sites, eliminating the need for hose lays. Popular with USFS Region 6 crews.

FIRE FIGHTING/CARGO /AMPHIBIOUS CREW HAULER & EMERGENCY EVAC VEHICLE



COMPANY NAME Obadiah's Wildfire Fighters

CONTACT Woody Chain
ADDRESS 249 Silver Drive
Troy, MT 59935

PHONE (800) 968-8604
FAX (406) 295-9490
EMAIL woody@wildfirefighters.com
WEBSITE http://www.wildfirefighters.com

PROFILE DATE 3/24/08

SPECIFICATIONS / ATTACHMENTS Ex-military aircraft aluminum, non-armored personnel carrier M548; Equipped with head and tail lights, as well as halogen scene lights mounted 360 degrees for night operations; Cab seats 4 safely with seat belts, fully enclosed and heated. Rear **enclosed cargo area adaptable for evacuation seating or placement of stretcher for emergency medical evacuation where other transport options are not available.** Operator equipped with BK narrow band radio with headset and microphone, first aid kit, PPGs, fire shelters, Pulaski, shovels, and all required safety equipment. 20ton PTO driven front mounted winch. **Speed in water** with track 3.6 MPH, **Slope operation** 60%, **Side slope operation** 40%, **Trench crossing** 66 "; **Vertical wall climbing** 24"; **Breaking** 20 MPH 34' on pavement; **Emergency Response Specs;** Tank 500/500=1000 gal (twin 500 gal mixing chambers) this allows for mixing a batch of fire retardant gel or hydro seed, while applying simultaneously. Two 5 hp Hydroquip slurry-mixing pumps for powering mixing jets, one 5 hp Honda pressure pump for application purposes. Darley Diesel 32hp water-cooled fire rated 500psi @50 gal per minute high-pressure pump. Snuffer aspirated foam mixer/injection system. Twin side mounted Hanney electric hose reels, each with 200' of Reeltech fire rated 1" hardline hose. 11/2", 1", and ¾ hose onboard with extra nozzles, and various necessary fittings for wildfire suppression. Roof mounted water cannon, twin 3" dump/draft valves, 30' 3" draft hose, Kawasaki 3" portable pump, can draft 200 gal per min

PURPOSES / USES

- Rubber pads on tracks for WUI operations.
- 40+ MPH speed for quick transport/response
- Amphibious crew and cargo transport
- Dry seeding and hydro-seeding
- Twin Hose reels for working with hand crews
- 40,000lb winch for vehicle recovery operations
- Night Operations wildfire suppression support

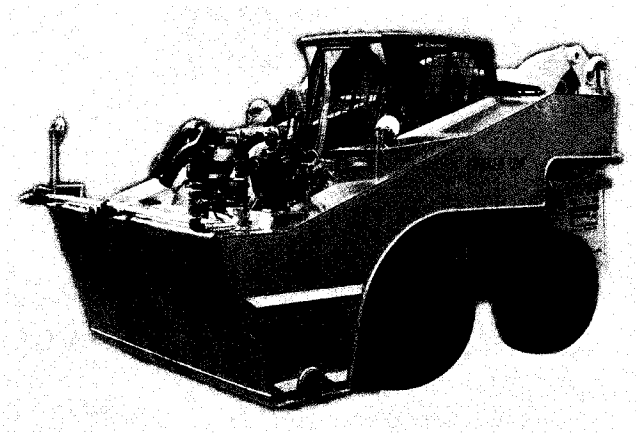
TRANSPORT AND SUPPORT
Lowboy transport for equipment. Available for duration per EERA. Obadiah's Shop van and mechanic provide equipment maintenance, support and repair services.

OPERATOR(S)
Lawrence "Woody" Chain is a Vol Fire Fighter and has been fighting wildfires since 2000. S-130/190, I-200, S-290, S-234, S-131, S230/231, FF1 & FF2 Eng Boss Trainee. Designer/builder, operator 5 yrs exp.

AGENCY ORDERING CLASSIFICATION ST- Type 1 Soft Track; Dispatched from Missoula MT.

BUSINESS DETAILS / FIRES
Under Best Value Agreement # AG-0343-C-07-3133 Dispatched from Lolo Nat Forrest, Region One, Missoula MT. Ph 406-329-3333 fax 406-329-3682 Contracting officer Deborah Wesselius. Worked for the BLM, USPS, BIA, and USFS. Moose Fire, Missionary Ridge Fire, Florence/Biscuit Complex, Hinman Fire, Black Mt.Complex, Blackfoot Lake Fire, Crazy Horse Fire, Cedar/Old Fires, Hurricane Katrina & Rita, Sawmill Complex, and Jocko Lakes Fires.

BOBCAT A300 SKIDSTEER



COMPANY NAME Horizon Development, Inc.

CONTACT Steve Bieker

ADDRESS PO Box 296
Clackamas, OR 97015

PHONE 1 (503) 519-0513

PHONE 2 (503) 761-0689

EMAIL stevebieker@yahoo.com

PROFILE DATE 4/8/08

SPECIFICATIONS / ATTACHMENTS
2008 Bobcat A300 All wheel Steer Loader, 81 hp turbo-charged diesel engine, 2 speed 6mph & 12 mph; Tanker Top SB400A water tank system, 400 gal capacity, side-winder water monitor, foam capable, Grading bucket, Pallet forks, 92" root grapples, ROPS/FOPS, 23 gal fuel capacity, 10 hour maintenance intervals, Base machine operating weight 7992 lbs, wireless remote control up to 1500 ft.

PURPOSES / USES
- Fire camp dust abatement
- Street cleaning
- Load/unload supplies
- Equipment cleaning & weed wash

TRANSPORT Standard 350 PU with Bobcat trailer; Hook lift roll-off trailer

OPERATOR(S) Steve Bieker - 22 yrs experience heavy equipment operator

AGENCY ORDERING CLASSIFICATION Name request Bobcat A300 with Attachments. Dispatch: Umatilla NF, C.O. Gary Duval

BUSINESS DETAILS / FIRES
Most recent fires:
2007 Battle Creek Complex camp facilities dust abatement
2006 Columbia Complex rehab & camp facilities dust abatement
Tripod Complex back burn pre-treatment, mop up & camp facilities
22 Fires since 2003 Biscuit Fire.

BUNDLER

COMPANY NAME Tim West

CONTACT Tim West

ADDRESS Bonners Ferry, ID

PHONE1 (208) 255-8637

FAX (309) 749-2489

EMAIL WestTimothyM@JohnDeere.com

WEBSITE

PROFILE DATE 4/1/08

SPECIFICATIONS / ATTACHMENTS Machine max weight= 54,000 lb. 24,500 kg; John Deere 6068 Tier II engine@182 hp 136 kW; Climate-controlled operator's station; Hydrostatic drive transmission; TMC™ (Total Machine Control); Bundling process integrated with TMC; 24V electrical system; Highflow hydraulic system; Boom reach 33 ft. 10 m; Machine based on 1410D forwarder; Gradability is equal to a 1410D forwarder. Standard bundle 30 in. x 10 ft. 76 cm x 3 m; Standard bundle weighs an average of 1,000 lb. 454 kg; Average production = 15 to 30 bundles per hour; Bundles can be stored, vary in length; Plastic or natural fiber twine can be used; Bundles can be processed through a grinder or chipper.

PURPOSES / USES Full-tree utilization; Reduces hazardous fuels; Eliminates in-the-woods burning of slash piles; Eliminates in-the-woods chipping; Can be used in soft or hard wood stands; Storm damage cleanup; weed-free slash log bundles for site rehab and soil stabilization and woody debris

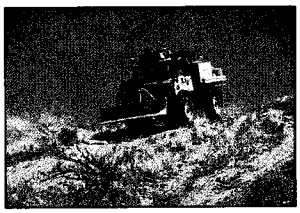
TRANSPORT 25' Deck lowboy

OPERATOR(S)

AGENCY ORDERING CLASSIFICATION Type 2 Bundler

BUSINESS DETAILS / FIRES Reference: Marvin Nelson, Cornell, MI

OCCUPATIONAL SAFETY



Highlights of OSHA General Requirements for Machines and Vehicle:

What are the general safety requirements?

- All machines and vehicles must be maintained in a serviceable condition as determined by inspection at the beginning of each work shift. Those with defects or damage affecting their safe operation must not be used. [1910.266(f)(1)(i) and (ii) and 1910.266(g)(1) and (g)(2)]
- Operating and maintenance instructions must be placed in all machines and vehicles and followed by the operator and mechanics. [1910.266(f)(1)(iii) and (g)(3)]
- Machines must be started and operated only by designated employees. [1910.266(g)(4) and (f)(2)(1)]
- Seats, securely fastened to the vehicle, and seat belts must be used by persons operating and riding in or on machines and vehicles. [1910.266(g)(6) and 1910.0266(f)(2)(viii)]
- Tools being transported in a vehicle must be secured or arranged so they do not present a hazard to the operator or passengers. [1910.266(e)(1)(vii)]
- Vehicles used to transport employees off public roads or to perform logging operations must meet applicable requirements for machines. [1910.266(g)(7)]
- Operators of stationary machines equipped with ROPS and FOPS or overhead guards must wear seatbelts. [1910.266(d)(3)(iii)]

What are the operational requirements?

- Machines must be operated so no hazards are created to employees or equipment. [1910.266(f)(2)(vii)]
- Before leaving a machine, the operator must secure it by applying the parking brake or brake lock, placing the transmission in park position, placing each moving element to the ground position, and discharging the pressure or stored energy in the moving elements. [1910.266(f)(2)(x)(A), (B), and (C) and 1910.266(f)(2)(xi)]

What are the requirements for brake systems?

- Each machine must have serviceable primary and secondary brakes sufficient to stop and hold the machine under all conditions of use, and parking brakes. [1910.266(f)(7)(i) and (ii)]

What are the requirements for operator access?

- Each machine cab must have a second means of exiting, with walking and working surfaces having slip resistant surfaces which are kept free of material that may result in fire, slipping or falling. [1910.266(f)(5)(i) - (iv)]

What are the requirements for exhaust systems?

- The engine exhaust pipes must be effectively muffled and be located to direct the exhaust away from the operator, guarded or mounted to protect employees from contact, and equipped with spark arresters. [1910.266(f)(6)(i) thru (iii)]

What are the requirements for guarding the machine's parts and debris?

- Guards must be in place at all times the machine is in operation to protect employees from exposed moving parts of the machine and flying debris from the operation of the machine. [19100.266(f)(8)(i) thru (iii)]

What are the requirements for protective structures for operators?

- Requirements for protective structures can be found at [1910.266(f)(3)(i) thru (xv)].

Additional Machines and Vehicles Information:

- Machines: OSHA Logging Standard, Logging Standard Amendment, Compliance Directive, CPL 2-1.19, and Compliance Directive, CPL 2-1.22

- Vehicles: OSHA Logging Preamble, Compliance Directive, CPL 2-1.19 and Compliance Directive, CPL 2-1.22

Additional Related Information:

- Employee-Owned Vehicles: Logging Standard Amendment
- Machine Brakes: Logging Standard Amendment
- Machine Cab Enclosures: Logging Standard Amendment and Compliance Directive, CPL 2-1.22
- Machine Operator Manuals: OSHA Logging Preamble
- Machine Shutdown: Logging Standard Amendment
- Mechanical Protective Structures: Logging Standard Amendment
- Riders on Machines: OSHA Logging Preamble
- ROPS/FOPS: OSHA Logging Preamble, Logging Standard Amendment and Compliance Directive, CPL 2-1.22
- Seatbelts: OSHA Logging Preamble and Compliance Directive, CPL 2-1.19