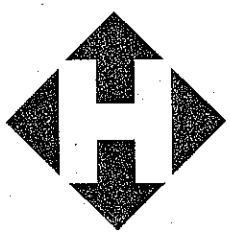


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HAYES

G R O U P



HAYES

FOREST SERVICES LIMITED

**EQUIPMENT MAINTENANCE
SEMINAR
Nicola Tribal Association
February 16, 2002**

Presented by

**Al Waugh, Equipment and Maintenance Manager
Earl Smith, First Nations Development Officer**



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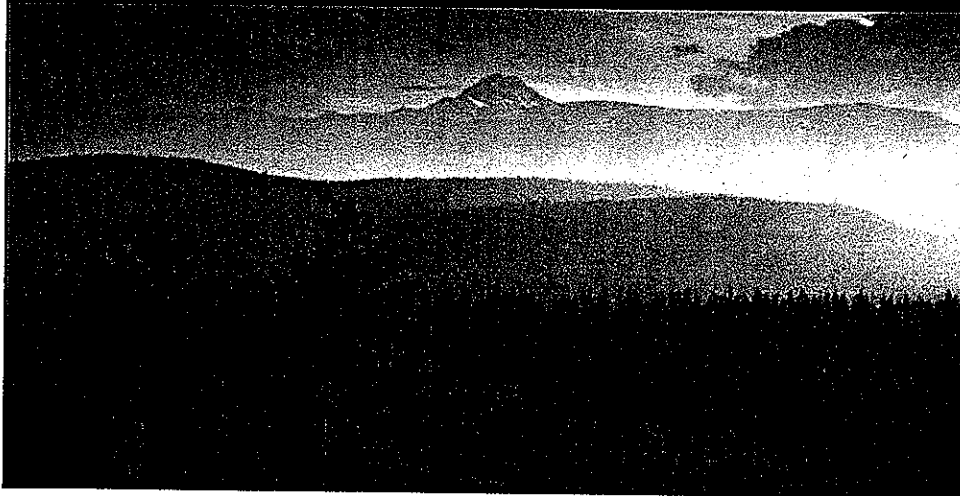
When it comes to the forest, we know the way.



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Maintenance Seminar

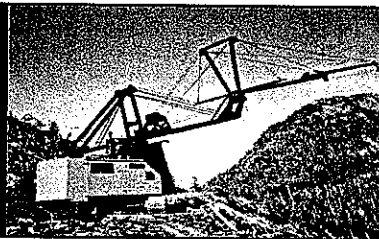
Al Waugh, Manager, Equipment and Maintenance
Earl Smith, First Nations Development Officer





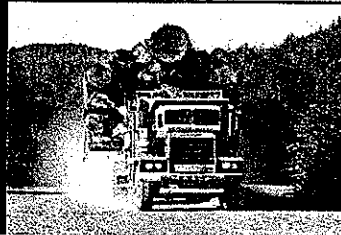
Maintenance Seminar

- Yarders
- Feller Bunchers
- Log Loaders
- Processor Harvesters
- Skidders
- Logging Trucks
- Support Equipment
- Road Building Equipment
- Fire Pumps, Hoses, Pump Cans, and Hand Tools
- Power Saws
- Radios



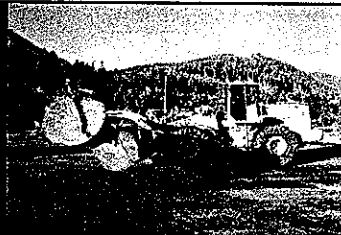
Equipment Utilization Plan

- Falling.
- Know your yarding capability.
- Loading capacity.
- Haul distances.
- Loading capacity.
- Sorting equipment.
- Fuel source for machines.
- Crew transportation (bus, crummy, pickup or boat).
- Time of year in which you will log.

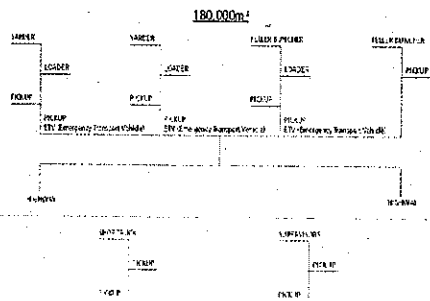


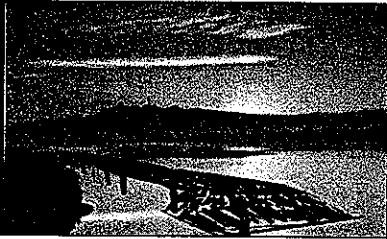
Equipment Utilization

- Expected hours.
- Keeping records.
- Buying machines vs. leasing.
- Type of machine.
- Hours worked.
- Cost of borrowing.
- Development of hourly equipment rates.
- Equipment productivity records.
- Safety.



Division Equipment Chart





Owner and Operator Form

- Years of ownership.
- Estimated total hours.
- Delivered price.
- Replacement cost less residual.
- Insurance costs.
- Fuel consumption.
- Labour cost.

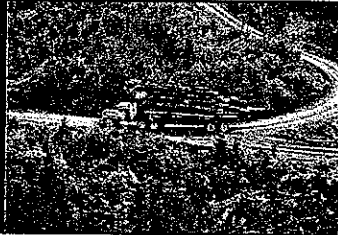


Owner and Operator Form

Hayes | O & O Form 

HOURLY OWNING AND OPERATING COSTS ESTIMATE

A. Machine _____
B. Estimated Ownership Period _____
C. Estimated Hours of Yearly Use _____
D. Estimated Total Hours of Use _____



Owner and Operator Form

OWNING COSTS

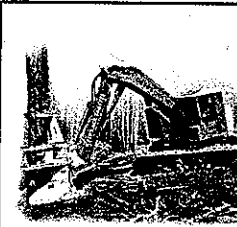
E. Delivered Price _____
 F. Less Tax Reduction at Cost _____
 G. Delivered Price Less Taxes _____
 H. Less Residual Value _____
 I. Replacement Cost _____
 J. Cost per Hour = _____
 K. Interest, Insurance, Taxes _____
 L. Replacement Cost _____
 M. Total Hours of Use _____

Average Investment Formula: $\frac{M+I}{2N}$
 N = Years of Ownership

Interest Rate _____
 Insurance, Taxes _____
 Total R, L, Y _____

Delivered Price	x	Average Investment	x	Total R, L, Y	/	Hours worked per Year	=	
-----------------	---	--------------------	---	---------------	---	-----------------------	---	--

I. Total Hourly Owning Costs (D + J) = _____



Owner and Operator Form

OPERATING COSTS

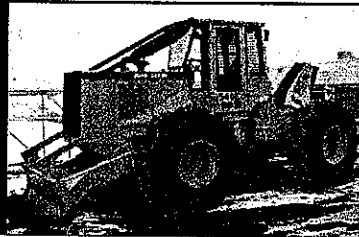
M. Fuel Price / Gal (G) x Hourly Consumption _____ x _____ = _____
 N. Oil, Lube, Filters, Misc. (See Instructions) _____ x _____ = _____
 O. Tires Replacement Costs / Est. Tire Life _____ / _____ = _____
 P. Undercarriage: (See Instructions) _____ x _____ = _____
 Q. Repairs & Labour: (See Instructions) _____ x _____ = _____
 R. Special Wear Items: (See Instr.) Cost / Life _____ / _____ = _____
 S. Total Operating Costs _____



Owner and Operator Form

S. Total Operating Costs _____
T. Total Owning Costs (S) + _____
U. Total Owning & Operating Costs _____
(Does not include operator wages)

Hayes Forest Services Limited | 7235 Tiers Creek Drive Decatur BC V9A 6R1 | Tel: 250 729 6200 | Fax: 250 729 6208 | www.hayes.bc.ca



Operation costs

Use the blue book (Rental Rate Guide).

- Blue book use as a guide only
- All found, less operator.
- They have a forestry section now.



Maintenance

- The best and most cost effective maintenance is preventative.
- Good vigilance.
- Operator interaction.
- Service crews with good work habits.
- Clean machines.
- Record keeping.

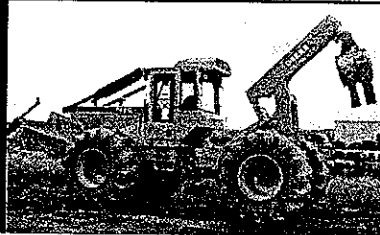


Service Intervals (example)

- 250 hr engine and general check over.
- 500 hr hydraulic oil filters and engine service.
- 750 hr engine and general check over.
- 1000 hr engine and hydraulic oil.
- 1250 hr engine and general check over.
- 1500 hr hydraulic oil filters and engine service.
- 1750 hr engine service and general check over.
- 2000 hr complete service - all oils and filters changed.



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Equipment Maintenance

Computer program that tracks;

- Costs per hour.
- Fuel usage.
- Overhead.
- Production.
- Maintenance repairs.
- Hourly wages.
- Life to date cost.

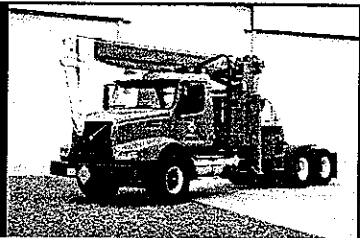


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Equipment Maintenance

- Track service intervals.
- Vehicles hours and kilometers.
- Dates.
- Work order number.
- Costs.
- Production cost/maintenance.
- MVI (motor vehicle inspections).
- Insurance/values.



Trip Sheet

DRIVER'S DAILY VEHICLE INSPECTION REPORT

CAMPER _____ INSPECTION DATE _____ INSPECTION TIME _____
 ADDRESS _____
 CITY _____

DRIVER'S Daily Points
TRUCK/TRACTOR CHECK ANY DEFECTIVE ITEM ANALYZE DETAILS UNDER REMARKS
 1. Tires _____
 2. Brakes _____
 3. Oil _____
 4. Lights _____
 5. Horn _____
 6. Windshield _____
 7. Mirrors _____
 8. Steering _____
 9. Suspension _____
 10. Exhaust _____
 11. Fuel System _____
 12. Water System _____
 13. Electrical _____
 14. Other _____

TRAILER
 1. Deck _____
 2. Brakes _____
 3. Lights _____
 4. Horn _____
 5. Mirrors _____
 6. Steering _____
 7. Suspension _____
 8. Exhaust _____
 9. Fuel System _____
 10. Water System _____
 11. Electrical _____
 12. Other _____

PRE-TRIP INSPECTION POINT TO INSURE SAFETY OF VEHICLE & SAFETY FACTORY
 REMARKS _____
 DRIVER'S SIGNATURE _____ DATE _____
 ABOVE DEFECTS CORRECTED? _____ ANY DEFECTS NEED NOT BE CORRECTED FOR SAFE OPERATION OF VEHICLE
 SUPERVISOR/Mechanic's SIGNATURE _____ DATE _____



Maintenance Repair Sheet

- Maintenance repair sheets are also part of our maintenance program.
- Operators are required to fill these sheets out at the start of every shift.
- This helps to track repairs and any safety and maintenance problems.
- These sheets are a WCB requirement and any repairs done must be signed off by the mechanic or operator.



Maintenance Repair Sheet

024051

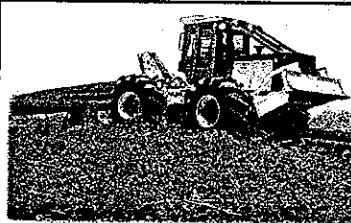
HAYES PREVENTATIVE MAINTENANCE INSPECTION REPORT
Tractors and Loaders

Date of inspection: _____
Machine number: _____
Hour Meter reading: _____

Engine	WHEEL PAIR POOR	Ladders & work platforms	WHEEL PAIR POOR	Tires	WHEEL PAIR POOR
Oil level		Oil level		Pressure & tread	
Water level		Boom & bucket		Chassis & control	
Hydraulic oil		Boom & bucket check for cracks		Final drive	
Belts		Hydraulics		Final drive	
Clutch & gears		Undercarriage		Skid shoes	
Oil filter		Flare & oil tank		Paint	

If any of above fair or poor, please fill reason below:

Daily and weekly greasing as per schedule YES NO Burn down once a week for inspection YES NO



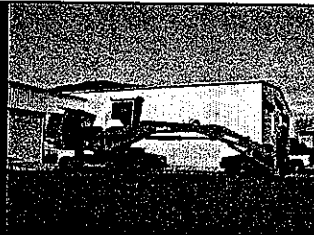
Cable or Wire Rope

- Strawline.
- Chokers.
- Closing lines.
- Taglines.
- Guylines.
- Straps.
- Haulbacks / mainlines.



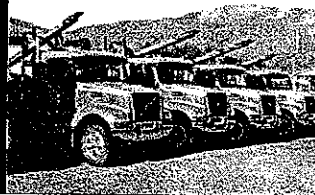
Maximize Rope Life and Cut Costs

- Check size before you order a replacement.
- Regularly check the drums.
- Check your sheaves.
- Keep lubricated.
- Shorten up whenever necessary.
- Upend.
- Check for metal wear.



Leasing

- You are the "Lessee" and the Company you are leasing from is the "Lessor".
- There are business advantages by leasing equipment over purchasing.



Leasing Advantages

- Offers the ability to manage equipment obsolescence.
- Increases borrowing capacity.
- Tax advantages and buy backs.
- Off balance sheet financing increases borrowing power.
- Equipment dealerships can offer incentives for leasing.



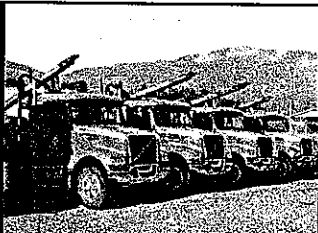
Leasing Advantages

- Frees up capital.
- Provisions are less strict than bank indentures.
- Zero down payment.
- Creditor claims are restricted.
- Faster turnaround on machines (they can be turned back to the Lessor if the machine is not right for your operation at the end of lease).



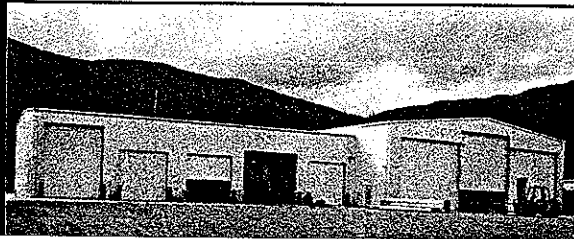
Leasing Options

- There are many different leases each with their own advantages and disadvantages.
- Your Accountant or Financial Adviser should be able to recommend which option is best for your business.



Leasing Examples

- Capital.
- Operating.



Capital Leases

Only one of these criteria must be met:

- Lease term = 75% or more of estimated life of equipment.
- NPV (Net Present Value) of lease payment = 90% or more of the value at inception.
- Lease contains a bargain purchase price.
- Arrangement to transfer ownership of the equipment to Lessee by end of lease term.

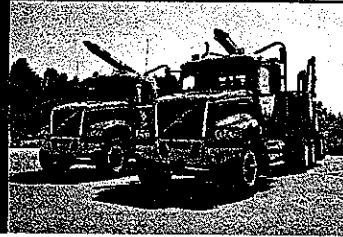


Operating Leases

- Usually short term.
- Can be cancelled at the option of the Lessee.
- Lessor may provide maintenance or a schedule of maintenance and upkeep of the asset.



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Conditions of Lease Returns (Read your leases carefully)

- General appearance.
- Track condition.
- Tire condition.
- Approved hours for resale.



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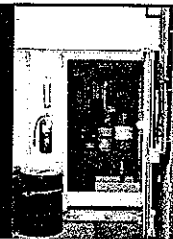
Machine Maintenance for Leasing

- General maintenance, appearance and service interval.
- Operating lease requirement that proper maintenance records are kept for the entire lease.
- Possible oil samples for the last year.



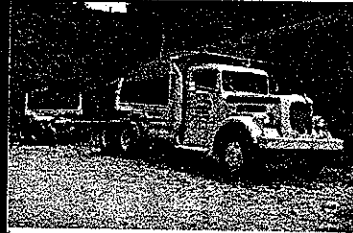
Buy Out or Return

- Should be thought out carefully.
- Cost of repairs that are coming up.
- Buy out? Is the machine worth the dollars set for the residual.
- Check the used equipment ads and the auction pricing.
- Talk to operators and managers.
- Check out the new replacement for any advantages or disadvantages.



Environmental

- Oils and antifreeze must be recycled.
- Machine washing must be undertaken on a pad.
- Areas must be kept clean.
- Forest Practice Code.



ICBC Inspector

These items are checked at the scales.

- Licensed vehicles over 5000 kg must be inspected.
- Trip sheets must be filled out.
- Brake adjustment.
- General repair of vehicles.
- Tires.



ICBC/National Safety Code

- Preventative Maintenance Inspection Facility.
- Tracks safety records and trip inspection sheets.
- Crew transportation vehicle and Driver's Abstracts for all drivers.
- Audits on our records periodically.
- Trip inspection sheets must be filled out daily and signed off by the driver.



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When it comes to the forest, we know the way.



HOURLY OWNING AND OPERATING COSTS ESTIMATE

A. Machine _____
 B. Estimated Ownership Period _____
 C. Estimated Hours of Yearly Use _____
 D. Estimated Total Hours of Use _____

OWNING COSTS

E. Delivered Price _____
 F. Less Tire Replacement Cost _____
 G. Delivered Price Less Tires _____
 H. Less Residual Value _____

J. Cost per Hour = $\frac{\text{I. Replacement Cost}}{\text{Replacement Cost}} = \frac{\text{Total Hours of Use}}{\text{Total Hours of Use}}$

K. Interest, Insurance, Taxes

Average Investment Formula: $\frac{N+1}{2N}$

N = Years of Ownership

Interest Rate _____

Insurance, Taxes + _____

Total IR, I, T _____

Delivered Price	X	Average Investment	X	Total IR, I, T	/	Hours Worked per Year	=	_____
-----------------	---	--------------------	---	----------------	---	-----------------------	---	-------

L. Total Hourly Owing Costs (J + K) = _____

OPERATING COSTS

M. Fuel: Price / Gal (l) x Hourly Consumption _____ x _____ = _____
 N. Oils, Lube, Filters, Misc. (See Instructions) _____
 O. Tires: Replacement Costs / Est. Tire Life _____ / _____ = _____
 P. Undercarriage: (See Instructions) _____
 Q. Repairs & Labour: (See Instructions) _____
 R. Special Wear Items: (See Instr.) Cost / Life _____ / _____ = _____

Basic Factor Extended Factor
 _____ x _____ = _____
 _____ / _____ = _____

S. Total Operating Costs _____
 T. Total Owing Costs (L) + _____

U. Total Owing & Operating Costs _____
 (Does not include operator wages)

Hayes | Division Equipment Chart



180,000m³

