Subject: Sources of Mining Cost Data

Surface Operations

The Highway Departments in the various states put out compilations of equipment rental rates. These are in various forms e.g., Colorado issues a Construction Equipment Rental Rate Manual; California issues a list of rental rates with each highway contract offer. The rates are updated as necessary - every year or so. Copies of these rental rate compilations are usually available upon request.

Typically these rates are state-wide, for large projects and assume the specific equipment is at the job. Thus, adjustments may be necessary to allow for local conditions, scale of operations and procurement (move-in) costs.

It must be determined upon what basis the rental rates are figured with or without operator, allowance for profit, time, maintenance, etc.

Since these rates are on an hourly basis, adjustment may be necessary to provide for extended operations. Usually the daily rate is eight times the hourly rate, the weekly rate three times the daily and the monthly rate three times the weekly.

If the operation is to be long term (over a year) or continual, the equipment would probably be purchased rather than rented. In these situations the equipment of the proposed operation should be capitalized and figured on an actual cost of (1) ownership, (2) direct operating costs and (3) indirect costs.

Local dealers in heavy construction equipment will often supply data as to cost of equipment, allowance for maintenance and repair, fuel requirements, productive capacity and rate of depreciation. NOTE: On heavy equipment tires are usually figured separately and may be a major operating expense.

FOR ADDITIONAL COPIES WRITE TO DIRECTOR, PORTLAND SERVICE CENTER, BOX 3861, PORTLAND, ORE., 97208
Caterpillar Tractor Company, Peoria, Illinois, puts out an informative booklet, FUNDAMENTALS OF EARTHMOVING (free on request). The attached forms, showing calculations of equipment costs, are adapted from their data.

Please send any additional references on this subject or other minerals subjects to DSC (D-310). If the complete article or publication is needed, DSC (D-310) will attempt to obtain a copy or a loan for you.
**HOURLY OWNING & OPERATING COST ESTIMATE WORK SHEET**

Machine: D9E (Tire Size) ---

Attachments: Cushion pushin

<table>
<thead>
<tr>
<th>Description</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Delivered Price</td>
<td>$44,945</td>
</tr>
<tr>
<td>Approximate Tire Replacement Cost</td>
<td>$</td>
</tr>
<tr>
<td>Depreciation Value (Delivered Price Less Tires)</td>
<td>$44,945</td>
</tr>
<tr>
<td>Depreciation Period</td>
<td>5 Years</td>
</tr>
<tr>
<td>Hours</td>
<td>10,000</td>
</tr>
</tbody>
</table>

**OWNING COSTS**

- Depreciation: Dep. Val. 44,945 + Ser. Life, Hrs. 10,000 = $4,49
- Int., Ins., Taxes: $0.03 x Del. Price 44,945 + 1000 = 1.35
- Total Hourly Owning Cost = $5.84

**OPERATING COSTS**

- Fuels and Lubricants:
  - Diesel Fuel: 14.9 gph x $0.15 per gal. = 2.24
  - Gasoline (start & clean): $0.03 per hour = 0.03
  - Lube Oil, crankcase: 0.14 gph x $1.00 per gal. = 0.14
  - Lube Oil, trans. & fin. dr.: 0.04 gph x $1.00 per gal. = 0.04
  - Hyd. Oil, start & run: 0.01 gph x $1.00 per gal. = 0.01
  - Filters: $replace cost + ____ hrs. (oil change period) = 0.06
  - Grease: ____ lbs./hr. x $____ per lb. = --
- Repairs (including labor): 90% x hourly dep. cost = 4.04
- Tires: replace. cost $ + tire life (hrs.) = 6.56
- Total Hourly Operating Cost = $6.56

**OPERATOR'S WAGE** = 3.00

**TOTAL HOURLY OWNING AND OPERATING COST** = $15.40
ESTIMATING
HOURLY OWNING AND OPERATING COSTS

MACHINE PRICE INCL. ATTACHMENTS, DELIVERED: MODEL 631B
- LESS TIRE REPLACEMENT COST:
   FRONT: 400
   DRIVE: 400
   REAR: 1500
   TOTAL TIRE REPLACEMENT COST:
   LESS RESALE OR TRADE-IN VALUE (OPTIONAL)
   NET VALUE FOR DEPRECIATION:

OWNING COSTS
1 DEPRECIATION: NET DEPRECIATION VALUE = $7800
   DEPRECIATION PERIOD IN HOURS
2 INTEREST, INSURANCE, TAXES:
   ANNUAL RATES: INT. 1%, INS. 15%, TAXES 1%
   ESTIMATED ANNUAL USE: 2100 HOURS
   FACTOR X DELIVERED PRICE
   TOTAL OWNING COSTS

OPERATING COSTS
3 FUEL: CONSUMPTION X UNIT COST
4 LUBRICANTS, FILTERS, GREASE:
   CONSUMPTION X UNIT COST = TOTAL
   ENGINE
   TRANSMISSION
   FINAL DRIVES
   HYDRAULICS
   GREASE
   FILTERS
   LUBRICANTS, FILTERS, GREASE SUB-TOTAL
5 TIRES: REPLACEMENT COST = $9000
   ESTIMATED LIFE
6 REPAIRS: REPAIR FACTOR X DELIVERED PRICE
   7 SPECIAL ITEMS:
   SPECIAL ITEMS SUB-TOTAL
8 TOTAL OPERATING COSTS
OPERATOR'S HOURLY WAGE
TOTAL HOURLY OWNING AND OPERATING COSTS