SUBJECT: FISCAL WEEK DATING PLAN USING GE CALENDAR

In using punched card equipment or electronic computers it often becomes necessary to perform various date calculations. These occur in scheduling the delivery date of orders, calculating the due date of parts and materials, determining the impact of machine loads on the shop based on their operation cycles, and scheduling the dates for engineering, planning, etc. Manually this chore is not a difficult one, since by using a standard GE fiscal calendar, lead times which have been expressed either in working days or weeks can readily be added or subtracted. However, the minute we go to machines which cannot actually look at a complete calendar, the problem becomes more complex.

IBM's own answer to this dilemma has been the establishment of a working day calendar wherein each working day is assigned a number from 000 to 999. For us to adopt this procedure, however, would entail GE's carrying two calendar systems - a fiscal date and a working day calendar. A procedure has been developed to solve this dilemma. It is capable of permitting direct automatic addition and subtraction of weeks and days yet is based upon and convertible to the GE fiscal calendar.

The basis of the plan is very simple. Each day is identified by a four-digit number. The first digit relates to the year -- for example 5 would mean 1955. The next two digits delineates the fiscal week (the 26th fiscal week would be the week starting June 27 and ending July 3). The fourth and final digit relates to the day of the week:

0 = Monday
2 = Tuesday
4 = Wednesday
6 = Thursday
8 = Friday

To put this together, for example, 5264 would be June 29, 1955, or Wednesday of the 26th fiscal week in 1955. If lead times are expressed in weeks then they are multiplied by 10 for adding or subtracting to the date involved. If lead times are expressed in days, then they are multiplied by 2 for calculation purposes. Some examples follow:

. Due complete date = 5264.
Lead time for the rotor is 12 days.
What is the rotor start date?

5264
- 24 (2x12)
5240 or 6/13/5

. Order received on 5242.
Delivery cycle is four weeks.
When can the completed product be delivered?

5242
+ 40 (4x10)
5282 or 7/12/5

The immediate question which arises, of course, is what do you do for the end of the year, and can these fiscal dates be converted automatically to calendar dates. Concerning end-of-year procedures, correct answers are obtained by comparing the last three digits of the date to see if they exceed 528 or are less than 010. In either case the date is obviously an impossible one and the right answer is found by subtracting 480 or adding 480 to the result. Subtraction is used if the original calculation required subtraction and similarly for addition.

Some examples are:

. Due complete date = 6020
Lead time for rotor = 12 days
What is the rotor start date?

6020
- 24
5996

→ [010 / 528] all valid dates are included in this range

996 is outside this range of values,
so to get the right date:

5996
- 480
5516

. Order received on 5502
Delivery cycle is four weeks
When can the completed product be delivered?

5502
+ 40
5542

→ [010 / 528]

542 is outside the acceptable range, hence:

5542
+ 480
6022

There is, of course, the additional complication in that certain years, such as 1954, have 53 weeks instead of 52. In this case, special wiring or programming is

required during that year so that tests are made against 538 and the subtraction or addition factor is 470.

The date conversion problem such as will be faced in a purchasing organization can also be handled automatically. All that is required is a deck of punched cards which have on them the fiscal date for the Monday of each week, the calendar date for that Monday (i.e. 061355 is June 13, 1955), and the number of days in the month. This can be used in a 602A or a 604 calculator as well as the larger machines to compute an exact calendar date from a fiscal date. Naturally, on a large computer this data might be filed on magnetic tape. Some examples are included below:

. 5260 = 062755 (June 27, 1955)
June has 30 days
Date to be converted is 5268

```
 5268
-5260
   8 ÷ 2 = 4
```

```
 062755
  + 400
 063155
```

→ [30

31 is greater than 30 by 01
so 063155 = 070155

. 5220 = 053055 (May 30, 1955)
May has 31 days
Date to be converted is 5226

```
 5226
-5220
   6 ÷ 2 = 3
```

```
 053055
  + 300
 053355
```

→ [31

33-31 = 02

or 053355 = 060255

Another feature of this plan is the simplification possibility for those departments where week number alone is sufficient (day of the week isn't necessary). Here, the

last digit can be dropped, and since lead times are frequently expressed in weeks anyhow, no multiplication is necessary prior to computation. For example, 526 (26th week of 1955) minus 4 weeks lead time equals 522.

One complexity which at the moment cannot be handled directly is that of a six day week. It appears that this matter requires coding so elaborate that the standard smaller IBM machines could not be used. However, it still would be quite feasible on a large-scale digital machine. Another problem is that of lead times or cycles of more than one year which can only be handled through special provisions and procedures.

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