

# REMARK ON ALGORITHM 662

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[“Software for an Implementation of Weeks’ Method for the Inverse Laplace Transform Problem,” B. S. Garbow, G. Giunta, J. N. Lyness, and A. Murli, *ACM Trans. Math. Softw.* 14, 2 (June 1988), 171–176.]

There are several errors in two subroutines, MODUL1 and MODUL2, of the package that this Remark corrects.

MODUL1.

—Avoid possible use of undefined operand.

REPLACE line:

```
if (nstop - nsbot .lt. 5) then
```

WITH lines:

```
nsdiff = nstop - nsbot
if (nsdiff .lt. 5) then
```

—Check that MTOP is at least 8 to ensure sufficient storage for arrays whose dimensions are given in terms of MTOP.

INSERT comment at the end of the documentation of parameter NSTATE:

```
c    -4 ⇒ mtop is not at least 8. No calculation
      is done.
```

INSERT lines:

```
if (mtop .lt. 8) then
  nstate = -4
  return
end if
```

BEFORE line (currently first executable statement):

```
if (sigma .le. sigma0) sigma = sigma0 + sigdef
```

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## MODUL2.

—Avoid improper logarithm argument.

REPLACE lines:

```

blog = log(bvalue)
slog = log(abs(sigma))
tlog = 0.0
if (abs(tvalue) .gt. 1) tlog = log(abs(tvalue))

```

WITH lines:

```

one = 1.0
blog = log(max(abs(bvalue), one))
slog = log(max(abs(sigma), one))
tlog = log(max(abs(tvalue), one))

```

ADD “one” to the list of declared variables.

—Handle negative values of T or B.

REPLACE line:

```

if (blog + tlog .gt. ovlog .or. slog + tlog .gt.
ovlog) return

```

WITH line:

```

if (blog + tlog .gt. ovlog .or. slog + tlog + 1
.gt. ovlog) return

```

REPLACE lines:

```

thresh = ovlog - alfa - log(max(xmact, 2 + bt))
if (bthalf .le. thresh) then

```

WITH lines:

```

thresh = ovlog - alfa - log(max(xmact, 2 +
abs(bt)))
if (abs(bthalf) .le. thresh) then

```

REPLACE line:

```

thresh = exp(ovlog - alfa)/(2 + bt)

```

WITH line:

```

thresh = exp(ovlog - alfa)/(2 + abs(bt))

```

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