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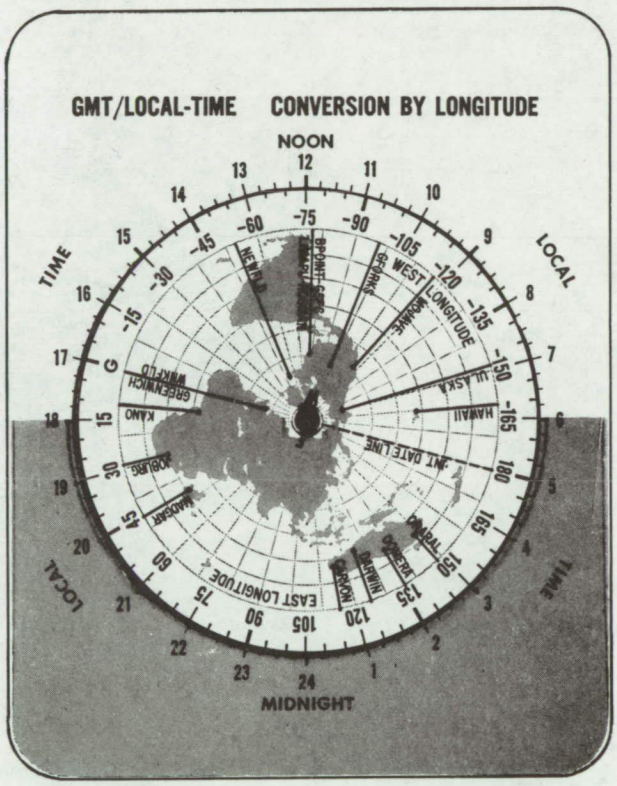
NASA TECH BRIEF

GMT/Local-Time Conversion Chart



GMT/LOCAL-TIME CONVERSION BY LONGITUDE

DESIGNED BY C. CREVELING

1. TO FIND LOCAL-TIME, GIVEN GMT & LONGITUDE
   - SET G ON MOVEABLE CIRCLE TO GIVEN GREENWICH TIME ON FIXED LOCAL-TIME SCALE.
   - OPPOSITE GIVEN LONGITUDE ON MOVEABLE CIRCLE, READ LOCAL-TIME ON FIXED SCALE.
   - FORMULA IS: $T_{LOCAL} = GMT + \frac{LONGITUDE}{15}$

2. TO FIND GMT, GIVEN LOCAL-TIME & LONGITUDE
   - SET GIVEN LONGITUDE ON MOVEABLE CIRCULAR SCALE TO LOCAL-TIME ON FIXED SCALE.
   - READ GMT FROM FIXED SCALE AT G(GREENWICH) INDEX ON MOVEABLE SCALE.
   - FORMULA IS: $GMT = T_{LOCAL} - \frac{LONGITUDE}{15}$

3. TO FIND LONGITUDE FROM GMT & LOCAL-TIME
   - SET G ON MOVEABLE SCALE OPPOSITE GIVEN GMT ON FIXED SCALE.
   - READ LONGITUDE ON MOVEABLE SCALE AGAINST GIVEN LOCAL-TIME ON FIXED SCALE.
   - FORMULA IS: $LONGITUDE = 15\,(T_{LOCAL} - GMT)$

The problem:

In the calculation of local time, Greenwich Mean Time (GMT), and location by degree of longitude, navigators in the past have had to determine two of the factors in order to ascertain the third. While this is done in a straightforward manner, using relatively simple formulae, it consumes appreciable time and is inconvenient in the case of fast-moving transportation media where the operator of the transport must interrupt his normal operational routines.

The solution:

A GMT/local-time conversion by longitude pocket instrument that automatically indicates the desired information by simply manipulating the moveable portion of the instrument in accordance with a set of simple instructions imprinted on the instrument's reverse side.

(continued overleaf)

Notes:

1. While this device has been designed to aid NASA personnel in quick-look evaluation of a given satellite's reported position in relation to the STADAN (Satellite Tracking and Data Acquisition Network) stations, its polar projection map makes it an ideal tool for instructing students in the time/longitude relationship of easily identified terrestrial points and areas.
2. The device should be useful to operators of high-speed aircraft which must respect and avoid international boundaries.
3. Inquiries concerning this invention may be directed to:

   Technology Utilization Officer
   Goddard Space Flight Center
   Greenbelt, Maryland 20771
   Reference: B67-10548

Patent status:

Inquiries about obtaining rights for the commercial use of this invention may be made to NASA, Code GP, Washington, D. C. 20546.

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(GSC-10521)