100[L, M].—HENRY E. FETTIS & JAMES C. CASLIN, *Table of the Jacobian Zeta Function*, Aerospace Research Laboratories, Wright-Patterson Air Force Base, Ohio. Ms. of 36 computer sheets deposited in the UMT File.

Using the notation of Byrd & Friedman [1], the authors tabulate 10D values of the product $K(k)Z(\beta, k)$ of the complete elliptic integral of the first kind and the Jacobian zeta function, for $\beta = 0°(1°)90°$ and $\arcsin k = 1°(1°)89°$. No provision is made for interpolation; indeed, interpolation to the full precision of the table is not generally feasible because of the large number of successive differences that would be required in both arguments.

By means of the well-known relation $K(k)Z(\beta, k) = K(k)E(\beta, k) - E(k)F(\beta, k)$, the tabular entries before rounding to 10D were derived from values of both complete and incomplete elliptic integrals of the first and second kinds that were initially calculated to about 16S by use of double-precision arithmetic. (See the preceding review.)

Errors detected in the corresponding 6D table in [1], as the result of the present authors' comparison thereof with their table, are listed separately in this issue.

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1. P. F. BYRD & M. D. FRIEDMAN, *Handbook of Elliptic Integrals for Engineers and Physicists*, Springer-Verlag, Berlin, 1954.

101[L, M].—HENRY E. FETTIS & JAMES C. CASLIN, *Heuman Lambda Function*, Aerospace Research Laboratories, Wright-Patterson Air Force Base, Ohio. Ms. of 36 computer sheets deposited in UMT File.

The Heuman lambda function, usually designated $\Lambda_0(\alpha, \beta)$, is the product of $2/\pi$ and the complete elliptic integral of the third kind, namely

$$\int_0^{\pi/2} \frac{1}{1 - p\sin^2\phi} \frac{d\phi}{\sqrt{1 - k^2\sin^2\phi}},$$

in the circular case, $k^2 < p < 1$. The variable α is the modular angle (so that $k = \sin\alpha$) and the variable β is defined implicitly by the relation

$$p = \sin^2\alpha/(\sin^2\alpha + \cos^2\alpha\cos^2\beta).$$

The authors adopt the notation $\Lambda_0(\theta, k)$ in the present 10D table; thus, the range of parameters can be expressed as $\theta = 0°(1°)90°$ and $\arcsin k = 0°(1°)90°$. No differences are provided.

These tabulated values of the lambda function were derived from the computer data underlying the authors' 10D manuscript tables of the elliptic integrals of the first and second kinds by means of the relation

$$\Lambda_0(\theta, k) = (2/\pi)\{E(k)\cdot F(\theta, k') + K(k)\cdot[E(\theta, k') - F(\theta, k')]\}$$

where k' represents the complementary modulus.

This table may be considered a valuable extension of the original 6D table of Heuman [1], which has been abridged in Byrd & Friedman [2].

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