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An HP-25 Program for Solving the Strong Shock Algorithm for Yield and Origin-Shift

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GTO 07 followed by R/S once the calculator has stopped. W and R_0 will be computed and displayed

as before. The user can then continue to add or delete points as desired.

TABLE I
THE HP-25 PROGRAM

Step	Instruction	Notes	Step	Instruction	Notes	Register Usage
00	STOP		25	x	R_0	0 Δ^{-1}
	x < 0	Remove data point?		RCL 3		1 a
	GTO 45			RCL 5		2 b
	RCL 2			x		3 N
	y^x	t_i^b		RCL 7		4 ΣR_i
05	Σ^+		30	RCL 4		5 $\Sigma R_i t_i^b$
06	NOP	(or GTO 00 - see text)		x		6 $\Sigma (t_i^b)^2$
07	2			-		7 Σt_i^b
	RCL 3			RCL 0		
	x < y	$N \geq 2 ?$		x		
10	GTO 00		35	RCL 1		
	RCL 5			$\div$		
	x			1		
	RCL 7			RCL 2		
	x^2			-		
15	-		40	3		
	1/x	Δ^{-1}		x $\div$ y		
	STO 0			$\div$		
	RCL 7			y^x	$(y)=R_0, (x)=W$	
	RCL 5			GTO 00		
20	x		45	CHS	Take out data point.	
	RCL 4			RCL 2		
	RCL 6			y^x		
	x			Σ^-		
	-		49	GTO 06		

TABLE II
USER INSTRUCTIONS

Step	Instructions
1	Enter program
2	Clear registers [press f STK]
3	Load register 1 with a-value [key in a value followed by STO 1]
4	Load register 2 with b-value [key in b value followed by STO 2]
5	Initiate program [press f PRGM in run mode]
6	Key in first radius point (m) and press ENTER
7	Key in first time point (ms)
8	Restart program [press R/S]. Program stops and displays 1.00.
9-11	Key in next radius and time points and press R/S

When program stops, W is displayed in x-register

R_0 is available for display

in y-register [press x $\leftrightarrow$ y]

If program step 06 is changed to GTD 00, program skips over calculation of W and R_0 after each point is entered and stops with the display showing the number of points so far entered. To do the W, R_0 calculation, press GTD 07 and R/S. Results are given as in above case.

Options:

1. To enter additional points, repeat steps 9 - 11.
2. To remove a point, execute steps 9 - 11, but set time value negative.
3. To reinitiate for another problem, start over from step 2.

REFERENCES

1. H. C. Goldwire, Jr., "Solving the Strong Shock Algorithm for Yield and Origin-Shift," Los Alamos Scientific Laboratory report LA-6786 (In preparation).