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00781 ****
00782 *PROGRAM FOR USE WITH AM9511 A.P.U.
00783 ****
00784 *
00785 *GENERAL CALLING SEQUENCE:-
00786 *
00787 * JSR XXXXX XXXXX=FUNCTION NAME
00788 * FDB ADD1 ADDRESS OF 1ST OPERAND
00789 * FDB ADD2 ADDRESS OF 2ND OPERAND
00790 * FDB ADDR ADDRESS OF RESULT
00791 * _____ RETURN
00792 *
00793 *THERE MAY BE 0,1,OR 2 OPERANDS
00794 *
00795 *FUNCTIONS AVAILABLE ARE:-
00796 *
00797 * DXADD ADDITION (32-BIT FIXED POINT)
00798 * DXSUB SUBTRACTION ( " " )
00799 * DXMUL MULTIPLICATION ( " " ) RES=LO.HALF
00800 * DXMULH MULTIPLICATION ( " " ) RES=HI.HALF
00801 * DXDIV DIVISION ( " " )
00802 * PUPI CONSTANT PI
00803 * FPADD ADDITION
00804 * FPSUB SUBTRACTION
00805 * FPMUL MULTIPLICATION
00806 * FPDIV DIVISION
00807 * FSQRT SQUARE ROOT
00808 * PWRX POWER Y**X
00809 * LOG10 LOG BASE 10
00810 * LOGE LOG BASE E
00811 * EXPX EXPONENTIAL E**X
00812 *
00813 * FPSIN SINE
00814 * FPCOS COSINE
00815 * FPTAN TANGENT
00816 * FPASIN ARCSINE
00817 * FPACOS ARCCOSINE
00818 * FPATAN ARCTANGENT
00819 *
00820 * CXTFS CONVERT 16-BIT FX.PT TO 32-BIT FL.PT
00821 * CFTXS CONVERT 32-BIT FL.PT TO 16-BIT FX.PT
00822 * CXTFD CONVERT 32-BIT FX.PT TO FL.PT
00823 * CFTXD CONVERT 32-BIT FL.PT TO FX.PT
00824 *
00825 * CSGNF CHANGE SIGN OF OPERAND LOADED
00826 * FETCH RETRIEVE TOP-OF-STACK
00827 * EXCHF RETRIEVE NEXT-ON-STACK
00828 *
00829 *
00830 *THE TOP-OF-STACK NUMBER IS ALWAYS RETRIEVED
00831 *AND STORED AT "ADDR"
00832 *
00833 *ALSO:-
00834 * CLEAN CLEARS THE A.P.U. STACK
00835 *
00836 ****

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00838A B800

ORG \$B800

0028 PUP1

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00840
00841
00842
00843
00844A B800 06 1A A PUP1 LDAB #$1A 1A IS OPCODE FOR "PI".
00845A B802 30 LDCOM TSX
00846A B803 EE 00 A LDX 0,X
00847A B805 09 DEX
00848A B806 09 DEX
00849A B807 FF 0850 A STX XKEEP
00850A B80A 20 40 B84C BRA STEP1
00851
00852A B80C 06 2C A DXADD LDAB #$2C
00853A B80E 20 6F B87F BRA LOAD42
00854
00855A B810 06 2D A DXSUB LDAB #$2D
00856A B812 20 6B B87F BRA LOAD42
00857
00858A B814 06 2E A DXMULL LDAB #$2E
00859A B816 20 67 B87F BRA LOAD42
00860
00861A B818 06 36 A DXMULH LDAB #$36
00862A B81A 20 63 B87F BRA LOAD42
00863
00864A B81C 06 2F A DXDIV LDAB #$2F
00865A B81E 20 5F B87F BRA LOAD42
00866
00867A B820 06 10 A FPADD LDAB #$10 ADDITION
00868A B822 20 5B B87F BRA LOAD42
00869
00870A B824 06 11 A FPSUB LDAB #$11 SUBTRACTION
00871A B826 20 57 B87F BRA LOAD42
00872
00873A B828 06 12 A FPMUL LDAB #$12 MULTIPLICATION
00874A B82A 20 53 B87F BRA LOAD42
00875
00876A B82C 06 13 A FPDIV LDAB #$13 DIVISION
00877A B82E 20 4F B87F BRA LOAD42
00878
00879A B830 06 01 A FSQRT LDAB #$01 SQ.ROOT
00880A B832 20 46 B87A BRA LOAD41
00881
00882A B834 06 08 A PWRX LDAB #$08 POWERS
00883A B836 20 47 B87F BRA LOAD42
00884
00885A B838 06 08 A LOG10 LDAB #$08 LOG 10
00886A B83A 20 3E B87A BRA LOAD41
00887
00888A B83C 06 09 A LOGE LDAB #$09 LOG E
00889A B83E 20 3A B87A BRA LOAD41
00890
00891A B840 06 0A A EXPX LDAB #$0A EXPONENTIAL
00892A B842 20 36 B87A BRA LOAD41
00893

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00894A	B844	C6	00	A	FETCH	LDAB	#\$00	RETRIEVE TOS
00895A	B846	20	BA	B802		BRA	LICOM	
00896					*			
00897A	B848	C6	19	A	EXCHF	LDAB	#\$19	RETRIEVE NOS
00898A	B84A	20	B6	B802		BRA	LICOM	
00899					*			
00900					*			
00901A	B84C	20	6B	B8B9	STEP1	BRA	LOADP1	
00902					*			
00903					*			
00904A	B84E	C6	1E	A	CFTXD	LDAB	#\$1E	FL.PT TO 32-BIT FX.PT
00905A	B850	20	28	B87A		BRA	LOAD41	
00906					*			
00907A	B852	C6	1C	A	CXTFD	LDAB	#\$1C	32-BIT FX.PT TO FL.PT
00908A	B854	20	24	B87A		BRA	LOAD41	
00909					*			
00910A	B856	C6	15	A	CSGNF	LDAB	#\$15	CH.SIGN OF OPERAND LOADED
00911A	B858	20	20	B87A		BRA	LOAD41	
00912					*			
00913					*			
00914A	B85A	C6	02	A	FPSIN	LDAB	#\$02	SINE
00915A	B85C	20	1C	B87A		BRA	LOAD41	
00916					*			
00917A	B85E	C6	03	A	FPCOS	LDAB	#\$03	COSINE
00918A	B860	20	18	B87A		BRA	LOAD41	
00919					*			
00920A	B862	C6	04	A	FPTAN	LDAB	#\$04	TANGENT
00921A	B864	20	14	B87A		BRA	LOAD41	
00922					*			
00923A	B866	C6	05	A	FPASIN	LDAB	#\$05	ARCSINE
00924A	B868	20	10	B87A		BRA	LOAD41	
00925					*			
00926A	B86A	C6	06	A	FPACOS	LDAB	#\$06	ARCCOSINE
00927A	B86C	20	0C	B87A		BRA	LOAD41	
00928					*			
00929A	B86E	C6	07	A	FPATAN	LDAB	#\$07	ARCTANGENT
00930A	B870	20	08	B87A		BRA	LOAD41	
00931					*			
00932A	B872	C6	1D	A	CXTFS	LDAB	#\$1D	C.16-BIT FX.PT TO FL.PT
00933A	B874	20	71	B8E7		BRA	KXTFS	
00934					*			
00935A	B876	C6	1F	A	CFTXS	LDAB	#\$1F	C.FL.PT TO 16-BIT FX.PT
00936A	B878	20	77	B8F1		BRA	KFTXS	
00937					*			

00939
00940
00941
00942
00943

*
*EXTRA ENTRY POINTS MUST BE PLACED BEFORE "PUPI"
*

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00945 *****
00946 *FP.APU MAIN PROGRAM-LOADING OF OPERAND(S)
00947 *****
00948 *
00949A B87A 30 LOAD41 TSX
00950A B87B EE 00 A LDX 0,X
00951A B87D 20 21 B8A0 BRA LOAD4C

00953A B87F 30 LOAD42 TSX
00954A B880 EE 00 A LDX 0,X
00955A B882 FF 0850 A STX XKEEP
00956A B885 EE 00 A LDX 0,X

00958A B887 A6 03 A LDAA 3,X
00959A B889 B7 E700 A STAA INOUT
00960A B88C A6 02 A LDAA 2,X
00961A B88E B7 E700 A STAA INOUT
00962A B891 A6 01 A LDAA 1,X
00963A B893 B7 E700 A STAA INOUT
00964A B896 A6 00 A LDAA 0,X
00965A B898 B7 E700 A STAA INOUT

00967A B89B FE 0850 A LDX XKEEP
00968A B89E 08 INX
00969A B89F 08 INX

00971A B8A0 FF 0850 A LOAD4C STX XKEEP
00972A B8A3 EE 00 A LDX 0,X

00974A B8A5 A6 03 A LDAA 3,X
00975A B8A7 B7 E700 A STAA INOUT
00976A B8AA A6 02 A LDAA 2,X
00977A B8AC B7 E700 A STAA INOUT
00978A B8AF A6 01 A IXTFS LDAA 1,X
00979A B8B1 B7 E700 A STAA INOUT
00980A B8B4 A6 00 A LDAA 0,X
00981A B8B6 B7 E700 A STAA INOUT

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00983 *****
00984 *FP.APU MAIN PROGRAM-LOAD COMMANDS AND *
00985 *LOOK FOR ERRORS. RETRIEVE ANSWER *
00986 *****
00987 *
```

00988A B8B9 F7 E704 A LOADPI STAB COMND

```
00990A B8BC B6 E704 A LOOP1 LDAA COMND
00991A B8BF 48 ASLA
00992A B8C0 25 FA B8BC BCS LOOP1
00993A B8C2 46 RORA
00994A B8C3 84 1E A ANDA #00011110
00995A B8C5 26 50 B924 BNE WRONG
```

```
00997A B8C7 FE 0850 A LDX XKEEP
00998A B8CA EE 02 A LDX 2,X
```

```
01000A B8CC B6 E700 A LDAA INOUT
01001A B8CF A7 00 A STAA 0,X
01002A B8D1 B6 E700 A LDAA INOUT
01003A B8D4 A7 01 A STAA 1,X
01004A B8D6 B6 E700 A IFTXS LDAA INOUT
01005A B8D9 A7 02 A STAA 2,X
01006A B8DB B6 E700 A LDAA INOUT
01007A B8DE A7 03 A STAA 3,X
```

```
01009A B8E0 FE 0850 A LDX XKEEP
01010A B8E3 31 INS
01011A B8E4 31 INS
01012A B8E5 6E 04 A JMP 4,X
```

```
01014 *****
01015 *FP.APU SUB-PROGRAM FOR CXTFS *
01016 *****
01017 *
01018A B8E7 30 KXTFS TSX
01019A B8E8 EE 00 A LDX 0,X
01020A B8EA FF 0850 A STX XKEEP
01021A B8ED EE 00 A LDX 0,X
01022A B8EF 20 BE B8AF BRA IXTFS
01023 *
01024 *****
```


01026

01027

01028

01029

01030A B8F1 30

01031A B8F2 EE 00 A

01032A B8F4 FF 0850 A

01033A B8F7 EE 00 A

*FP.APU SUB-PROGRAM FOR CFTXS

*

KFTXS TSX

LIX 0,X

STX XKEEP

LIX 0,X

01035A B8F9 A6 03 A

01036A B8FB B7 E700 A

01037A B8FE A6 02 A

01038A B900 B7 E700 A

01039A B903 A6 01 A

01040A B905 B7 E700 A

01041A B908 A6 00 A

01042A B90A B7 E700 A

LDAA 3,X

STAA INOUT

LDAA 2,X

STAA INOUT

LDAA 1,X

STAA INOUT

LDAA 0,X

STAA INOUT

01044A B90D F7 E704 A

STAB COMND

01046A B910 B6 E704 A LOOP2

01047A B913 48

01048A B914 25 FA B910

01049A B916 46

01050A B917 84 1E A

01051A B919 26 09 B924

LDAA COMND

ASLA

BCS LOOP2

RORA

ANDA #200011110

BNE WRONG

01053A B91B FE 0850 A

01054A B91E EE 02 A

01055A B920 09

01056A B921 09

01057A B922 20 B2 B8D6

LIX XKEEP

LIX 2,X

DEX

DEX

BRA IFTXS

```

01059
01060
01061
01062
01063A B924 47
01064A B925 47
01065A B926 24 08 B930
01066A B928 CE B96B A
01067A B92B BD F024 A
01068A B92E 20 29 B959
01069
01070A B930 47
01071A B931 24 08 B93B
01072A B933 CE B979 A
01073A B936 BD F024 A
01074A B939 20 1E B959
01075
01076A B93B 81 03 A
01077A B93D 26 08 B947
01078A B93F CE B988 A
01079A B942 BD F024 A
01080A B945 20 12 B959
01081
01082A B947 81 01 A
01083A B949 26 08 B953
01084A B94B CE B9A4 A
01085A B94E BD F024 A
01086A B951 20 06 B959
01087
01088A B953 CE B9C8 A
01089A B956 BD F024 A
01090
01091A B959 CE 0850 A
01092A B95C BD F01E A
01093A B95F BD F021 A
01094A B962 CE B9DC A
01095A B965 BD F027 A
01096A B968 7E F0F3 A
01097
01098A B96B 4F A
01099A B978 04 A
01100A B979 55 A
01101A B987 04 A
01102A B988 41 A
01103A B9A3 04 A
01104A B9A4 4E A
01105A B9C7 04 A
01106A B9C8 44 A
01107A B9DB 04 A
01108A B9DC 07 A
01109

*****
*FP.APU-IDENTIFY ERRORS
*****
*
WRONG ASRA
ASRA
BCC NEXT1
LDX #MSS10
JSR PDATA
BRA EEND
*
NEXT1 ASRA
BCC NEXT2
LDX #MSS20
JSR PDATA
BRA EEND
*
NEXT2 CMPA #$03
BNE NEXT3
LDX #MSS30
JSR PDATA
BRA EEND
*
NEXT3 CMPA #$01
BNE NEXT4
LDX #MSS40
JSR PDATA
BRA EEND
*
NEXT4 LDX #MSS50
JSR PDATA
*
EEND LDX #XKEEP
JSR OUT4HS
JSR FCRLF
LDX #MSS60
JSR PDATA1
JMP HOME
*
MSS10 FCC /OVERFLOW AT /
FCB 4
MSS20 FCC /UNDERFLOW AT /
FCB 4
MSS30 FCC /ARGUMENT OUT OF RANGE AT /
FCB 4
MSS40 FCC /NEGATIVE ARGUMENT NOT ALLOWED AT
FCB 4
MSS50 FCC /DIVIDE BY ZERO AT /
FCB 4
MSS60 FCC 7,7,7,7,4
*

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AGE 022 AMPRM3

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01111 *****
01112 *
01113     E700 A INOUT EQU $E700
01114     E704 A COMND EQU $E704
01115     0850 A XKEEP EQU $850
01116     F024 A PDATA EQU $F024
01117     F027 A PDATA1 EQU $F027
01118     F01E A OUT4HS EQU $F01E
01119     F021 A PCRLF EQU $F021
01120     F0F3 A HOME EQU $F0F3
01121 *

```

```

01123 *****
01124 *CLEAN - CLEAR OUT APU STACK
01125 *****
01126 *
01127A B9E1 06 17 A CLEAN LDAB #$17
01128A B9E3 4F CLRA
01129A B9E4 B7 E700 A STAA INOUT
01130A B9E7 B7 E700 A STAA INOUT
01131A B9EA B7 E700 A STAA INOUT
01132A B9ED B7 E700 A STAA INOUT
01133A B9F0 F7 E704 A STAB COMND
01134A B9F3 F7 E704 A STAB COMND
01135A B9F6 F7 E704 A STAB COMND

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01137A B9F9 39 RTS
01138 *
01139 *
01140 END
TOTAL ERRORS 00000

```

```

B0EB AGAIN 00167 00170*
B04E CFTXD 00404 00904*
B076 CFTXS 00384 00935*
B9E1 CLEAN 00180 01127*
E704 COMND 00988 00990 01044 01046 01114*01133 01134 01135
B856 CSGNF 00414 00910*
B852 CXTFD 00394 00907*
B872 CXTFS 00374 00932*
B80C DXADD 00441 00852*
B81C DXDIU 00493 00864*
B818 DXMULH 00479 00861*
B814 DXMULL 00467 00858*
B810 DXSUB 00455 00855*
B959 EEND 01068 01074 01080 01086 01091*
B71A ERR0R 00669 00673*
B745 ERR1R 00700 00704*
B755 ERR4R 00663 00667 00674 00686 00716*
B754 ERR5R 00694 00698 00705 00712 00715*
B775 ERR6R 00728 00732*
B848 EXCHF 00431 00897*
B840 EXPX 00292 00891*
B844 FETCH 00423 00894*

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B3CA	FN0	00185	00505*							
B3CF	FN1	00193	00507*							
B408	FN10	00311	00527*							
B40E	FN11	00323	00529*							
B414	FN12	00335	00531*							
B41B	FN13	00347	00533*							
B422	FN14	00359	00535*							
B429	FN15	00371	00537*							
B42F	FN16	00381	00539*							
B435	FN17	00391	00541*							
B43B	FN18	00401	00543*							
B441	FN19	00411	00545*							
B3D5	FN2	00205	00509*							
B447	FN20	00421	00547*							
B44D	FN21	00429	00549*							
B453	FN22	00178	00551*							
B459	FN23	00437	00553*							
B45F	FN24	00449	00555*							
B465	FN25	00463	00557*							
B46C	FN26	00475	00559*							
B473	FN27	00487	00561*							
B3DB	FN3	00219	00511*							
B3E1	FN3A	00231	00513*							
B3E7	FN4	00245	00515*							
B3ED	FN5	00255	00517*							
B3F2	FN6	00269	00519*							
B3F8	FN7	00279	00521*							
B3FD	FN8	00289	00523*							
B402	FN9	00299	00525*							
B86A	FPACOS	00352	00926*							
B820	FPADD	00197	00867*							
B866	FPASIN	00340	00923*							
B86E	FPATAN	00364	00929*							
B85E	FPCOS	00316	00917*							
B82C	FPDIU	00237	00876*							
B828	FPMUL	00223	00873*							
B85A	FPSIN	00304	00914*							
B824	FPSUB	00211	00870*							
B862	FPTAN	00328	00920*							
B830	FSQRT	00248	00879*							
F0F3	HOME	00168	01096	01120*						
B8D6	IFTXS	01004*	01057							
B7BB	IN1E2	00733	00770*							
B77A	IN10PR	00195	00209	00221	00235	00247	00259	00271	00281	00291
		00303	00315	00327	00339	00351	00363	00383	00393	00403
		00413	00439	00453	00465	00477	00491	00742*		
B7B5	IN1X2	00373	00768*							
B7AA	IN20PR	00196	00210	00222	00236	00260	00440	00454	00466	00478
		00492	00762*							
F015	INCHNP	00024*	00046	00634	00643					
B79C	INHALF	00754*	00771							
E700	INOUT	00959	00961	00963	00965	00975	00977	00979	00981	01000
		01002	01004	01006	01036	01038	01040	01042	01113*	01129
		01130	01131	01132						
B783	INSUB	00730	00745*	00765						
B8AF	IXTFS	00978*	01022							
B8F1	KFTXS	00936	01030*							
B8E7	KXTFS	00933	01018*							

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B802 LDCOM 00845*00895 00898
B87A LOAD41 00880 00886 00889 00892 00905 00908 00911 00915 00918
00921 00924 00927 00930 00949*
B87F LOAD42 00853 00856 00859 00862 00865 00868 00871 00874 00877
00883 00953*
B8A0 LOAD4C 00951 00971*
B8B9 LOADPI 00901 00988*
B838 LOG10 00272 00885*
B83C LOGE 00282 00888*
B8BC LOOP1 00990*00992
B910 LOOP2 01046*01048
B6CB MOVE2 00181 00612*
B96B MSS10 01066 01098*
B979 MSS20 01072 01100*
B988 MSS30 01078 01102*
B9A4 MSS40 01084 01104*
B9C8 MSS50 01088 01106*
B9DC MSS60 01094 01108*
B930 NEXT1 01065 01070*
B93B NEXT2 01071 01076*
B947 NEXT3 01077 01082*
B953 NEXT4 01083 01088*
B009 NEXT8 00036*00170 00182 00190 00202 00216 00228 00242 00252
00266 00276 00286 00296 00308 00320 00332 00344 00356
00368 00378 00388 00398 00408 00418 00426 00434 00446
00460 00472 00484 00498 00681
B003 NEXT9 00034*00164
F01B OUT2HS 00026*00610 00611 00619 00620 00621 00622
F01E OUT4HS 01092 01110*
B6BC OUTPT2 00387 00607*
B6D2 OUTPT4 00189 00201 00215 00227 00241 00251 00265 00275 00285
00295 00307 00319 00331 00343 00355 00367 00377 00397
00407 00417 00425 00433 00445 00459 00471 00483 00497
00616*
B6EE PACK2 00634*00745 00751 00754 00757
F021 PCRLF 00036 01093 01119*
F024 PDATA 00035 00038 00179 00186 00194 00206 00208 00220 00232
00234 00246 00256 00258 00270 00280 00290 00300 00302
00312 00314 00324 00326 00336 00338 00348 00350 00360
00362 00372 00382 00392 00402 00412 00422 00430 00438
00450 00452 00464 00476 00488 00490 00608 00613 00617
00720 00743 00763 00769 01067 01073 01079 01085 01089
01116*
F027 PDATA1 00624 00718 00749 00777 01095 01117*
B800 PUI 00187 00844*
B834 PWRX 00261 00882*
0808 RES 00025*00609 00618
B2B0 RTN 00374*00727
B71E RTN10 00675*00707
B01C SP1 00048 00051*
B023 SP2 00052 00055*
B02A SP3 00056 00059*
B031 SP4 00060 00063*
B038 SP5 00064 00067*
B03F SP6 00068 00071*
B046 SP7 00072 00075*
B04D SP8 00076 00079*
B054 SP9 00080 00083*

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IGE 025 AMFRM3

B05B SPA	00084	00087*							
B7C0 SPACE	00753	00756	00775*						
B062 SPB	00088	00091*							
B069 SPC	00092	00095*							
B070 SPD	00096	00099*							
B077 SPE	00100	00103*							
B07E SPF	00104	00107*							
B085 SPG	00108	00111*							
B08C SPH	00112	00115*							
B093 SPI	00116	00119*							
B09A SPJ	00120	00123*							
B0A1 SPK	00124	00127*							
B0A8 SPL	00128	00131*							
B0AF SPM	00132	00135*							
B0B6 SPN	00136	00139*							
B0BD SPO	00140	00143*							
B0C4 SPP	00144	00147*							
B0CB SPQ	00148	00151*							
B0D2 SPR	00152	00155*							
B0D9 SPS	00156	00159*							
B0E4 SPZ	00163	00166*							
B34C STEP1	00850	00901*							
B704 TEST91	00636	00658*							
B72F TEST92	00645	00689*							
B0EE TP1	00160	00178*							
B1D3 TP10	00069	00279*							
B1E9 TP11	00073	00289*							
B1FF TP12	00081	00299*							
B21B TP13	00085	00311*							
B237 TP14	00089	00323*							
B253 TP15	00093	00335*							
B26F TP16	00097	00347*							
B28B TP18	00101	00359*							
B2A7 TP19	00125	00371*							
B0FD TP2	00141	00185*							
B2BD TP20	00133	00381*							
B2D3 TP21	00129	00391*							
B2E9 TP22	00137	00401*							
B2FF TP23	00153	00411*							
B315 TP24	00157	00421*							
B326 TP25	00149	00429*							
B337 TP26	00105	00437*							
B352 TP27	00109	00449*							
B373 TP28	00113	00463*							
B38E TP29	00117	00475*							
B10E TP3	00049	00193*							
B3A9 TP30	00121	00487*							
B129 TP4	00053	00205*							
B14A TP5	00057	00219*							
B165 TP6	00061	00231*							
B186 TP7	00145	00245*							
B19C TP8	00077	00255*							
B1ED TP9	00065	00269*							
B924 WRONG	00995	01051	01063*						
0650 XKEEP	00716	00729	00732	00747	00750	00775	00778	00849	00955
	00967	00971	00997	01009	01020	01032	01053	01091	01115*
B479 XN1	00563*	00742	00768						
B515 XN10	00301	00313	00325	00337	00349	00361	00578*		

AGE 026 AMPRM3

B527	XN11	00580*00717	
B534	XN12	00582*00719	
B541	XN13	00584*00748	
B543	XN16	00034 00585*	
B6B9	XN17	00037 00599*	
B486	XN2	00565*00762	
B493	XN3	00567*00607	00616
B4A0	XN4	00569*00623	
B4B0	XN5	00570*00612	
B4B5	XN6	00571*00776	
B4B7	XN7	00207 00451	00572*
B4D6	XN8	00233 00489	00574*
B4F5	XN9	00257 00576*	
B727	YES3	00660 00683*	
B74C	YES33	00691 00709*	