

<>F ?W
<>F ?P ?I ?S ?L ?E
<>F D 56,72; 0 0,1; Z 2;
<>F T 6,16,26,36,46,56,66;
@PROGRAM @NAME: <>T3 @[FORMAT] <>L
@DATE: <>T3 @AUGUST 30TH., 1971 <>L
@LANGUAGE: <>T3 @[IMP] <>L
@KEYWORDS: <>T2 DOCUMENTATION,PAGINATE,REFORMAT,PAGE SIZE,RIGHT JUSTIFY
<>L
@PURPOSE: <>T2 TO SEGMENT A TEXT FILE INTO NUMBERED PAGES OF ARBITRARY
<>L
<>T2 DIMENSIONS <>L
<>L
_[@GENERAL @DESCRIPTION]

<>P @THE BASIC FUNCTION OF THIS PROGRAM IS TO REFORMAT AN INPUT FILE INTO LINES OF A SPECIFIED LENGTH AND PUT A SPECIFIED NUMBER OF THESE LINES ON A PAGE; THIS BEHAVIOUR MAY BE MODIFIED LOCALLY TO PRODUCE FOR EXAMPLE 'NEW LINE', 'NEW PARAGRAPH' AND SO ON. @THE DISTINCTION BETWEEN AN ACCEPTABLE REFORMATTING AND AN UNACCEPTABLE ONE IS TO A LARGE EXTENT SUBJECTIVE AND DEPENDENT ON THE VAGARIES OF INDIVIDUAL USERS; THIS PROGRAM IS THEREFORE INTENDED TO DEAL WITH THE CLEAR-CUT CASES AND PROVIDE THE MEANS FOR THE USER TO DEAL WITH THE REST AS HE CHOOSES. @TO THIS END, A LARGE NUMBER OF OPTIONS ARE AVAILABLE WITH WHICH TO MODIFY THE PROGRAM'S BEHAVIOUR. @DEFAULTS EXIST FOR ALL OPTIONS TO EASE THE LOAD ON THE USER.

<>P @BECAUSE OF DEFICIENCIES IN THE CHARACTER SET PRESENTLY GUARANTEED (@EDINBURGH 60 @CHARACTER @STANDARD @SUBSET OF @[ISO]) IT IS NECESSARY TO EXTEND IT ARTIFICIALLY BY USING SHIFT CHARACTERS TO REPRESENT UPPERCASE LETTERS AND UNDERLINING.

<>P @IN ADDITION TO PRODUCING FORMATTED PRIMARY OUTPUT, THE PROGRAM CAN PRODUCE A NEW SOURCE FILE AND A PAGED, LINE-NUMBERED LISTING OF IT. @PLAIN LANGUAGE FILES WHICH ARE REPEATEDLY ALTERED TEND TO BECOME FRAGMENTED BECAUSE MODIFICATIONS SELDOM FIT CONVENIENTLY INTO THE SPACE AVAILABLE ON EXISTING LINES; USE OF THE 'NEW SOURCE FILE' FACILITY GREATLY REDUCES THE EDITING EFFORT SUBSEQUENTLY REQUIRED BY PREVENTING THIS FRAGMENTATION FROM OCCURRING. @ALSO, BY KEEPING THE SOURCE FILE IN A STANDARD FORMAT, IT SIMPLIFIES EDITING DIRECTLY FROM A PRIMARY OUTPUT LISTING.

<>P @PRIMARY OUTPUT CAN BE IN @[ISO] OR AN ALTERNATIVE CODE (@ATLAS IN THE DISTRIBUTED VERSION); THE OUTPUT CODE IS SELECTED AS ONE OF THE OPTIONS MENTIONED ABOVE. @TO PROVIDE A DIFFERENT ALTERNATIVE CODE, ONLY ONE SUBROUTINE NEED BE CHANGED.

<>P @TO FACILITATE MAKING MINOR ALTERATIONS TO EXISTING DOCUMENTS, SPECIFIED PAGES MAY BE GENERATED SINGLY.

<>P @VARIOUS CONDITIONS ARE DIAGNOSED AS ABNORMAL AND A MONITOR MESSAGE PRINTED ALONG WITH THE OFFENDING SOURCE LINE; THE PROGRAM RECOVERS FROM ALL SUCH ERRORS AND CONTINUES. @NOTE HOWEVER THAT A NEW SOURCE FILE GENERATED FROM A FAULTY ONE IS ITSELF LIKELY TO HAVE PARTS MISSING RATHER THAN CONTAIN THE ORIGINAL ERRORS.

<>P @IF, AS MAY BE CONVENIENT WHEN USING A SMALL, NON-MULTIPROGRAMMED COMPUTER, THE PRIMARY OUTPUT IS SENT DIRECTLY TO THE CONSOLE TYPEWRITER, BOUNDARY MARKERS CAN BE PRINTED TO SIMPLIFY THE SUBSEQUENT SEPARATION OF THE OUTPUT INTO PAGES.

<>N

__[@OPERATING THE @PROGRAM]

<>P @THE PROGRAM USES TWO STREAMS FOR INPUT AND FOUR FOR OUTPUT; THESE ARE ALLOTTED AS FOLLOWS: <>L

<>T __[INPUT] <>L

<>T 0 <>T CONSOLE(COMMAND INFORMATION) <>L

<>T 1 <>T SOURCE INPUT FILE <>L

<>L

<>T __[OUTPUT] <>L

<>T 0 <>T CONSOLE(DIAGNOSTIC MESSAGES) <>L

<>T 1 <>T PRIMARY OUTPUT <>L

<>T 2 <>T NEW SOURCE FILE <>L

<>T 3 <>T PAGED,LINE-NUMBERED LISTING OF (2) <>L

<>T 4 <>T PAGE SEPARATORS: FOR USE IF (1) IS SENT TO CONSOLE <>L

<>L

<>P @THE SOURCE FILE CONTAINS, NORMALLY AT THE BEGINNING, ONE OR MORE __[FLAG LINES] WHICH CONTAIN REQUESTS FOR VARIOUS __[OPTIONS] TO BE SET OR CAUSE A QUERY TO BE TYPED ON THE CONSOLE INQUIRING HOW THE OPTION IS TO BE SET ON THIS PARTICULAR RUN OF @(FORMAT). @THE FILE WILL ALSO CONTAIN CONTROL SYMBOLS, CONSISTING OF A __[CONTROL MARKER] (LEFT ANGLE BRACKET FOLLOWED BY A RIGHT ANGLE BRACKET) FOLLOWED BY A LETTER. @FOR EXAMPLE:

<>L

<>D2

'<>@P @THIS IS THE START OF A PARAGRAPH.....'

<>

MARKS THE START OF A NEW PARAGRAPH. <>L

<>P @DETAILS OF THE OPTIONS AND CONTROL SYMBOLS AVAILABLE ARE GIVEN ON FOLLOWING PAGES.

<>P @ALL LETTERS ARE TAKEN AS __[LOWER CASE] UNLESS EXPLICITLY MARKED AS UPPERCASE. @THE CONVENTION FOLLOWED IS THAT A

<>F U .;
COMMERCIAL 'AT'(@)

<>F U @,__;
ACTS AS AN UPPERCASE SHIFT ON THE IMMEDIATELY FOLLOWING CHARACTER. @ITS SCOPE MAY BE EXTENDED BY ENCLOSING THE CHARACTER STRING IN PARENTHESES OR SQUARE OR ANGLE BRACKETS PRECEDED BY THE SHIFT.

<>F U @,;

<>P @AN UNDERLINE(_)

<>F U @,__;
IS USED SIMILARLY TO DENOTE UNDERLINING.

<>P @WHERE UPPERCASE AND UNDERLINING SCOPES OVERLAP, SEPARATE BRACKETTING MUST BE USED FOR EACH, EVEN IF THEIR SCOPES ARE IN FACT THE SAME; SUCH BRACKETTING MUST BE STRICTLY NESTED. @UNMATCHED CLOSING BRACKETS ARE NOT RECOGNISED AS SUCH AND DO NOT THEREFORE CAUSE SPECIAL PROBLEMS.

<>N

_[@CONTROL @SYMBOLS]

<>P @CONTROL SYMBOLS ARE USED TO IMPLEMENT THOSE FEATURES WHICH WILL BE REQUIRED FREQUENTLY; _[OPTIONS] ARE USED FOR THOSE FACILITIES WHICH IN SIMPLE APPLICATIONS WOULD BE SET ONLY ONCE. @OBVIOUSLY THIS DISTINCTION WILL BREAK DOWN IF THE AVAILABLE FEATURES ARE EXPLOITED TO THE UTMOST; ONE MIGHT FOR EXAMPLE CHOOSE TO RESET THE LINE LENGTH ON A PARTICULAR PAGE TO MAKE THE PAGE BOUNDARY FALL IN A MORE CONVENIENT PLACE.

<>P @A LIST OF CONTROL LETTERS AND THEIR EFFECTS FOLLOWS. <>I2

<>L

<>L

_[LETTER] <>T3 _[EFFECT] <>L

@L _N <>T2 @EXPLICIT NEW LINE. @CLOSE OFF THE CURRENT LINE AND FOLLOW IT BY _[N-1] BLANK LINES. <>L

<>L

@N _N <>T2 @EXPLICIT NEW PAGE. @CLOSE OFF THE CURRENT PAGE AND FOLLOW IT BY _[N-1] BLANK(BUT NUMBERED) PAGES. @IF A NEW PAGE HAS JUST BEEN STARTED BUT IS AS YET EMPTY, THE 'CLOSE' IS OMITTED.

<>L

<>L

@P <>T2 @NEW PARAGRAPH. @CLOSE OFF THE CURRENT LINE IF IT IS NON-NUL AND INDENT THE FOLLOWING LINE TO THE FIRST TAB STOP. @NEW PAGE IF ONLY ONE FREE LINE IS LEFT ON THE CURRENT PAGE. <>L

<>L

@S <>T2 @NEW SECTION. @CLOSE OFF THE CURRENT PAGE, INCREMENT SECTION NUMBER BY ONE, RESET PAGE NUMBER TO ONE. <>L

<>L

@T _N <>T2 @TAB. @IF _N IS OMITTED TAB TO NEXT STOP SET; IF _N IS SUPPLIED GO TO THE _NTH STOP. @STOPS ARE IMPLICITLY NUMBERED UPWARDS FROM 1. <>L

<>L

@I _N <>T2 @INDENT SUBSEQUENT LINES TO THE _NTH TAB STOP. @THIS IS OVERRIDDEN FOR ANY LINE FOLLOWING AN EXPLICIT NEW LINE(@L).

@CANCELLED BY @P, @S, @N. <>L

<>L

@D _N <>T2 @DIAGRAM: THE LINES UP TO BUT EXCLUDING THE NEXT CONTROL MARKER ARE TO BE COPIED DIRECTLY WITHOUT REFORMATTING EXCEPT TO FOLLOW THE THE UNDERLINING AND UPPERCASE INPUT CONVENTIONS; _N IS USED TO DECIDE WHETHER THE DIAGRAM SHOULD GO ON THE CURRENT PAGE OR THE NEXT ONE. @A DIAGNOSTIC IS PRINTED IF THE DIAGRAM DOES NOT IN FACT CONTAIN _N LINES. @A CONTROL MARKER CAN BE USED ALONE, WITHOUT THE USUAL LETTER, ON A LINE BY ITSELF, AND AGAINST THE LEFT-HAND MARGIN TO TERMINATE THE DIAGRAM IF NEED BE. @REFORMATTED SOURCE FILES WILL HAVE THIS MARKER INSERTED ANYWAY TO AVOID PROBLEMS

CONNECTED WITH DOUBLE SPACING PARAGRAPHS SO THERE IS USUALLY NO NEED FOR THE USER TO PUT IT IN. <>L

<>T2 @WHILE A SWITCH TO DIAGRAM MODE AND BACK DOES NOT CANCEL INDENTING, AS DO @[P, S.] AND @N, THE DIAGRAM ITSELF IS NOT INDENTED. <>L2

@E <>T2 @MARKS END OF INPUT FILE. @CLOSE OFF LAST PAGE, TERMINATE THIS RUN OF @[FORMAT]. <>L

<>L

@V _N <>T2 @VERIFY THAT AT LEAST _N FREE LINES ARE LEFT ON THE CURRENT PAGE. @IN DETAIL: CLOSE CURRENT LINE OFF IF IT IS NON-NULL, CHECK WHETHER OR NOT _N OR MORE LINES ARE LEFT AND IF NOT, TAKE A NEW PAGE.

<>N

_[@OPTIONS]

<>P @THE PROGRAM IS PARAMETERISED SO THAT BY ALTERING VARIOUS FLAGS AND CONSTANTS ITS BEHAVIOUR CAN BE MODIFIED ON A RATHER MORE PERMANENT BASIS THAN BY USING THE CONTROL SYMBOLS JUST DESCRIBED; THESE VARIABLES ALL HAVE DEFAULT VALUES AND FOR ANY ONE APPLICATION IT IS LIKELY THAT ONLY A FEW WILL NEED TO BE ALTERED.

<>P @OPTIONS ARE SET BY A _[FLAG LINE], DISTINGUISHED BY ITS CONTAINING CONTROL SYMBOL @F. @WHEN THIS IS ENCOUNTERED, THE PART OF THE LINE LYING TO THE RIGHT OF THE CONTROL SYMBOL IS DECODED AS OPTION-SETTING INFORMATION.

<>P @THE BASIC OPTIONS ARE AS FOLLOWS: (DEFAULTS IN BRACKETS) <>L

<>L

@P <>T2 PRIMARY FORMATTED OUTPUT IS REQUIRED. (YES) <>L

@S <>T2 A NEW SOURCE FILE IS REQUIRED. (YES) <>L

@L <>T2 A PAGED, LINE-NUMBERED LISTING OF @S IS REQUIRED. (NO) <>L

<>L

@I <>T2 PRIMARY OUTPUT IS TO BE IN @[ISO] CODE. (YES) <>L

@J <>T2 PRIMARY OUTPUT LINES ARE TO BE RIGHT JUSTIFIED. (NO) <>L

<>L

@O N1,N2; <>T2 SET ORIGIN: <>L

<>T2 INITIAL SECTION NO. = N1, INITIAL PAGE NO. = N2. (0,0) <>L

<>T2 N2=0 SUPPRESSES BOTH PAGE AND SECTION NUMBER. <>L

<>T2 N1=0 SUPPRESSES SECTION NUMBER ONLY. <>L

<>L

@D N1,N2; <>T2 SET PAGE DIMENSIONS: <>L

<>T2 LINES/PAGE = N1, CHARACTERS/LINE = N2. (60,72) <>L

<>L

<>V2

@T N1,N2,N3,...; <>T3 SET TAB STOPS: <>L

<>T2 TAB1 = N1, TAB2 = N2, TAB3 = N3,... ETC <>L

<>T2 @UP TO 20 TAB STOPS MAY BE SET. (8,16,24,32, ... ETC) <>L

<>L

<>P @WHERE AN OPTION REQUIRES NO PARAMETERS AND PRESENTS A SIMPLE BINARY CHOICE, E.G. PRIMARY OUTPUT IS OR IS NOT REQUIRED, THE LETTER MAY BE

PRECEDED BY '\ ' TO UNSET THAT OPTION THUS: <>L

<>D2

@[<>F S \L P \I]

<>

REQUESTS A NEW SOURCE FILE, NO LISTING, AND FORMATTED PRIMARY OUTPUT IN THE SECONDARY OUTPUT CODE.

<>D2

@[<>F O 3.1; D 50,80;]

<>

SETS THE SECTION NUMBER TO 3 AND PAGE TO 1, AND ALSO SETS THE PAGE DIMENSIONS TO 50 LINES, EACH CONTAINING 80 CHARACTERS. @OBVIOUSLY \@D FOR EXAMPLE, IS MEANINGLESS. <>L

<>P @ANY OPTION SETTING LETTER MAY BE PRECEDED BY '?'; IF THIS IS DONE, A QUERY WILL BE PRINTED ON THE CONSOLE REQUESTING THE APPROPRIATE INFORMATION. @THESE QUERIES MAY BE ANSWERED EITHER WITH _(@Y)ES/_(@N)O OR WITH A RESPONSE SPECIFIC TO THAT PARTICULAR QUESTION. @THUS: <>L

<>D2

@[<>F ?I]

<>

WOULD CAUSE @['ISO OUTPUT(I)?'] TO BE PRINTED ON THE CONSOLE. @THE ANSWER '@Y' IS EQUIVALENT TO '@I' AND '@N' TO '\@I' FOR THIS PARTICULAR QUESTION.

<>P @TO FACILITATE TYPING AHEAD WHERE AN OPERATING SYSTEM PERMITS IT, THAT OPTION IS SET TO WHICH THE ANSWER RECEIVED IS SPECIFIC. @Y/@N IS NON-SPECIFIC AND IS TAKEN AS REPLY TO THE QUESTION ASKED. @THE BENEFIT IS THAT IF A NUMBER OF OPTIONS INVOLVE CONSOLE QUERIES, IT IS NOT NECESSARY TO ANSWER THE QUESTIONS IN THE ORDER IN WHICH THEY ARE ASKED. @THUS IF TYPING AHEAD ONE SUPPLIED @['P I \S \L'] AS A RESPONSE TO:

<>D2

@[<>F ?S ?P ?I ?L]

<>

THE OPTIONS REQUESTED WOULD BE SET CORRECTLY.

<>P @IRREVELANT QUERIES ARE SUPPRESSED; FOR EXAMPLE, '?@I' IS REDUNDANT UNLESS PRIMARY OUTPUT IS REQUIRED. @THE NUMBER OF QUERIES ACTUALLY TYPED IS THUS IN GENERAL DEPENDENT ON THE ORDER IN WHICH THEY ARE ANSWERED AND THE REPLIES RECEIVED.

<>P @IN AN ATTEMPT TO ELIMINATE A POSSIBLE HAZARD, REQUESTS FOR A LISTING ARE IGNORED UNLESS A NEW SOURCE FILE IS ALSO REQUESTED.

<>P @A SIMPLE EXAMPLE FOLLOWS, AFTER WHICH MORE INFORMATION ABOUT THE AVAILABLE OPTIONS IS GIVEN.

<>N3

_[@MORE @OPTIONS]

<>P @ANOTHER NINE OPTIONS ARE AVAILABLE IN ADDITION TO THOSE PREVIOUSLY LISTED. @THEY ARE AS FOLLOWS: (DEFAULTS IN BRACKETS) <>I1 <>I <>L
<>L
@C <>T1 @PRINT CARRYOVER WORDS (A SLASH FOLLOWED BY THE NEXT WORD) AT THE BOTTOM OF EACH PAGE; SUPPRESSED IF THIS NEXT WORD IS PRECEDED BY AN EXPLICIT TAB. (ON) <>L
<>L
@E <>T1 @PRINT (ON THE CONSOLE) THE CURRENT LINE NUMBER IN THE INPUT FILE WHEN THE BOTTOM OF A PRIMARY OUTPUT PAGE IS REACHED. @THIS INFORMATION CAN BE USED ALONG WITH A SOURCE LISTING TO DETECT UNFORTUNATE PAGING AND HELP IN DECIDING HOW BEST TO CORRECT IT. (OFF) <>L
<>L
@R <>T1 @TABS ARE TO BE RELATIVE TO THE CURRENT INDENTATION LEVEL, I.E. IF INDENTED TO TAB STOP N WITH THIS OPTION ENABLED:
<>F R
<>I2 <>L
(1) <>T A SUBSEQUENT 'TAB X' GOES TO STOP [N+X] RATHER THAN X.
<>L
(2) <>T AFTER EXPLICIT NEWLINE, THE NEXT LINE STARTS AT TAB-STOP [N-1] RATHER THAN THE LEFT-HAND MARGIN. <>L
(3) <>T INDENT MODE IS [NOT] CANCELLED AUTOMATICALLY BY NEW PARAGRAPH, SECTION AND PAGE AND DIAGRAMS [ARE] INDENTED. <>I1 <>L
<>T @AS A GENERAL GUIDE, '\@R' IS INTENDED TO BE SIMPLE TO USE FOR MOST JOBS; '@R' GIVES MORE POWER WHEN IT IS NEEDED.
<>F \R
<>I <>L
<>L
@U X,Y; <>T2
<>F U .;
(DEFAULT IS @,_) <>L
<>F U @,._;
<>T1 @RESET THE UPPERCASE AND UNDERLINE SHIFT CHARACTERS TO X AND Y RESPECTIVELY. @IF X,Y OR BOTH ARE OMITTED A NON-CHARACTER VALUE IS SET, EFFECTIVELY DISABLING THAT SHIFT FUNCTION; THE COMMA AND SEMI-COLON ARE [BOTH] OBLIGATORY. <>L
<>L
@X N; <>T2 (DEFAULT IS 2) <>L
<>T1 @SET THE NUMBER OF SPACES TO BE INSERTED BETWEEN SENTENCES WHEN '\@J' IS SET. <>L
<>L
@Z N; <>T2 (DEFAULT IS 1) <>L
<>T1 @SET THE NUMBER OF NEWLINE CHARACTERS WHICH REPRESENT ONE LOGICAL NEWLINE IN THE PRIMARY OUTPUT. @NOTE THAT IF THE PAGE SIZE REQUESTED IS NOT A MULTIPLE OF N, THE CARRYOVER WORD WILL IN GENERAL BE UNEVENLY SPACED AT THE BOTTOM OF THE PAGE. <>L
<>L
@W <>T1 @PROCESS THE WHOLE FILE(@W) RATHER THAN GENERATE SINGLE PAGES(\@W). @IF \@W IS SPECIFIED, THE PROGRAM REQUESTS A SECTION AND PAGE NUMBER THEN GENERATES THAT PAGE ONLY. @THIS SEQUENCE IS REPEATED UNTIL THE USER TYPES '*' IN RESPONSE TO THE QUERY. @['*REWOUND*'] IS TYPED ON THE CONSOLE WHENEVER A PAGE REQUEST MAKES IT NECESSARY TO REWIND THE INPUT FILE. <>L
<>T @IF ?@W OR \@W IS SET IT MUST BE THE [VERY FIRST OPTION MARKER] APPEARING IN THE INPUT FILE. @ONCE SET, IT CANNOT BE UNSET ON THAT

RUN OF THE PROGRAM NOR CAN SOURCE FILES OR LISTINGS BE PRODUCED.
<>N

_[@PAGE @DIMENSIONS]

<>P @THE PAGE SIZE SET BY THE '@D' OPTION IS SPECIFIED IN TERMS OF
_[PHYSICAL] LINES ON THE OUTPUT DEVICE; THE '@Z' OPTION DEFINES A
RELATIONSHIP BETWEEN PHYSICAL AND LOGICAL LINES BUT DOES NOT DIRECTLY
AFFECT THE VALUE SET BY '@D'.

<>P @THE PAGE NUMBERING SCHEME AND CARRYOVER WORD EACH INCREASE THE
ACTUAL PAGE SIZE BY ONE _[LOGICAL] LINE OVER THAT SET BY '@D', THE
FORMER BEING A CONSTANT OVERHEAD, THE LATTER ONLY APPLYING IF THE
APPROPRIATE OPTION IS SET. @THE ACTUAL PAGE SIZE IS THEREFORE _[@D+@Z]
PHYSICAL LINES IF THE CARRYOVER OPTION IS TURNED OFF AND _[@D+2*@Z] IF I
T
IS ON.

<>P @IT IS POSSIBLE TO GENERATE PAGES CONTAINING A NUMBER OF LINES
WHICH IS NOT A MULTIPLE OF '@Z' AT THE TIME THE PAGE IS TURNED; IF THIS
OCCURS, THE PAGE WILL IN FACT BE THE CORRECT SIZE BUT THE CARRYOVER
WORD AND LINE NUMBER WILL BE UNEVENLY SPACED AT THE BOTTOM.

<>L3

_(@FURTHER @EXAMPLE)

<>P @AS A FURTHER EXAMPLE OF HOW THE PROGRAM CAN BE USED, A LISTING IS
ATTACHED OF THE MAIN INPUT FILE FROM WHICH THIS DOCUMENT WAS ITSELF
GENERATED. @NOTE THAT THE PREVIOUS EXAMPLE WAS PRODUCED BY OVERPRINTING
TWO BLANK PAGES SPECIALLY LEFT FOR THE PURPOSE; THE CONTENT OF THESE
PAGES IS NOT REPEATED IN THE ATTACHED LISTING.

<>N

_[@RESTRICTIONS] <>T2 20.8.71 <>I <>L

- 1) <>T 'END-OF-PAGE' LINES PRINTED ON THE CONSOLE USING THE '@E'
OPTION ARE IN FACT THE _ (SECOND LINE ON THE FOLLOWING PAGE). <>L2
- 2) <>T @WHEN IN SINGLE PAGE MODE(\@W), CONSECUTIVE PAGES CANNOT BE
GENERATED WITHOUT REWINDING THE INPUT FILE AND DOING A SEPARATE PASS
OVER IT TO ACCESS EACH PAGE; THIS CAN BE AVOIDED BY OUTPUTTING
ALTERNATE PAGES ON TWO PASSES. <>L2

<>T @RESTRICTIONS (1) AND (2) BOTH STEM FROM THE SAME BASIC DESIGN
FAULT. @WHILE THE CURE IS CONCEPTUALLY VERY SIMPLE IT WOULD IN
PRACTICE REQUIRE QUITE EXTENSIVE CHANGES TO BE MADE TO THE PROGRAM.
<>E