Chapter 10
Load, Record, Verify

The Load, Record and Verify (LRV) tape or disk lets you:

Load programs and user logic into the 984's memory.

Make back-ups.

Verify their accuracy.

The LRV Menu Tree at the end of this chapter diagrams the LRV menu options and their interconnecting paths.

LRV Disk And Tape Loader Tape

Features

The LRV uses the softkeys available on the P190 and the function keys on the personal computer keyboard to input user choices to its menus.

Load   loads a previously recorded program, including the configuration table and traffic cop, into the 984's memory. Memory size must be sufficient to store all the logic.

Record   Backs-up a 984 memory onto tape or disk.

Relocate Logic   Loads the user logic only (no configuration table and no traffic cop) from a previously recorded program into the 984's memory. This is usually done when copying programs from another controller, or when replacing user logic over a new configuration table and traffic cop.

Verify   Compares a 984's memory against a back-up. This verifies that data that has been loaded or backed up has been done so accurately. This function can also be used to verify that there has been no corruption of 984 memory.

Start   Starts the controller solving logic and updating I/O.

Stop   Stops the controller from solving logic and updating I/O.

Evaluate Tape   Tests tapes for integrity (P190 only).

➤   **CAUTION   The Evaluate Tape function erases all data on the tape.**
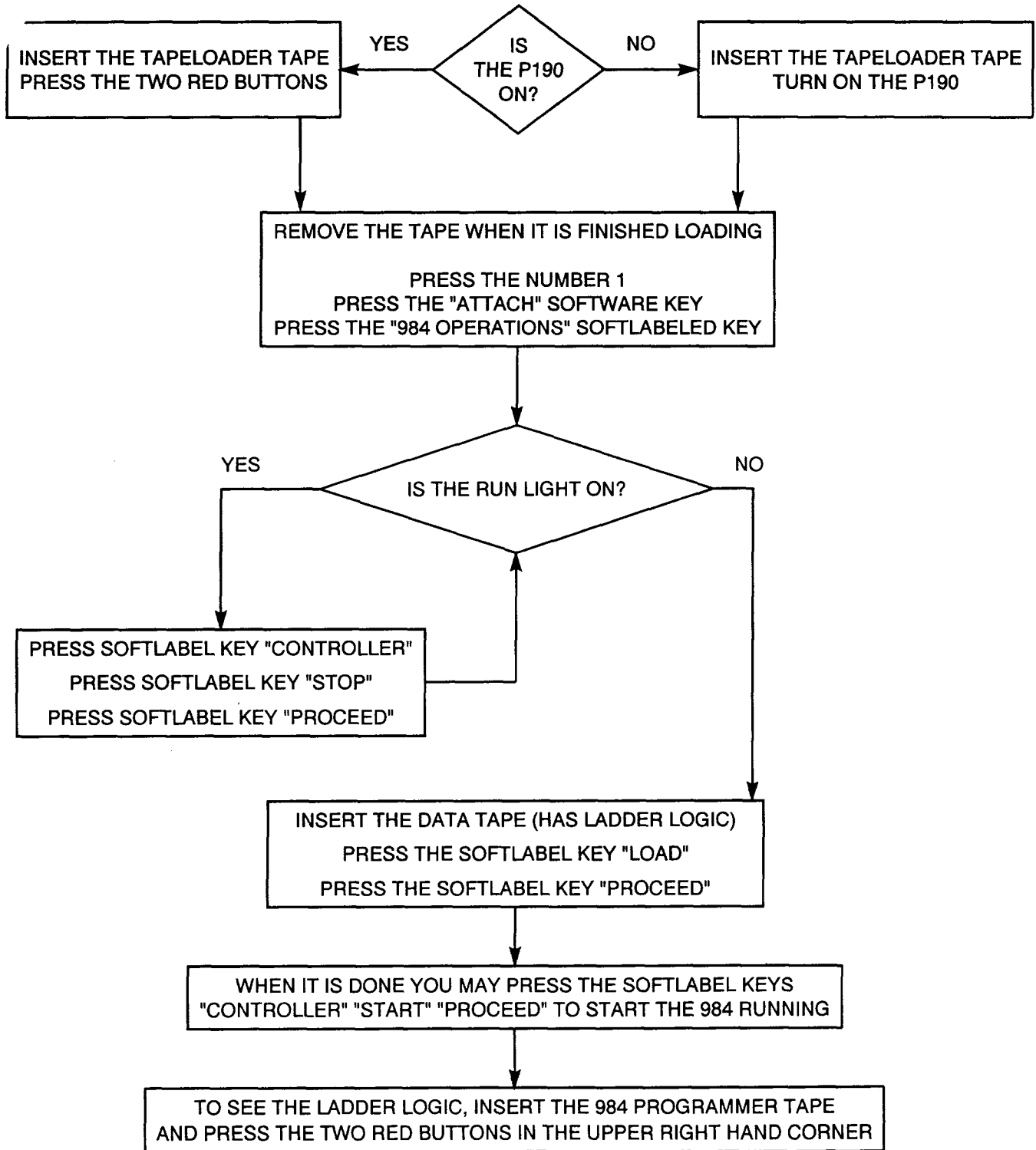
LRV Examples

Load Procedure

Step 1   (P190) Load a working copy of the Tape Loader tape into the the P190 and press the red keys, <INIT> and <INIT LOCK>.
(Personal Computer) Select LRV from the Modicon Main Executive menu or select the reset level menu by pressing <ALT-F9>.

Step 2   After the program loads and the menu is displayed, enter the number of the unit to which you want to attach.

Step 3   Press the softkey labeled <ATTACH UNIT#>.

Step 4   Press the softkey labeled <984 OPERATIONS>.

Step 5   Press the softkey labeled <CONTROLLER OPERATIONS>.

Step 6   Press the softkey labeled <STOP 984>.

Step 7   Press the softkey labeled <PROCEED>.

Step 8   Press the softkey labeled <LOAD 984>.

Step 9   (P190) Remove the tape loader tape and insert the (previously backed up) tape to be loaded.
(Personal Computer) Insert a blank, formatted floppy disk in the drive.

Step 10   Press the softkey labeled <PROCEED>.

The screen will display count, memory type and address information while the load proceeds.

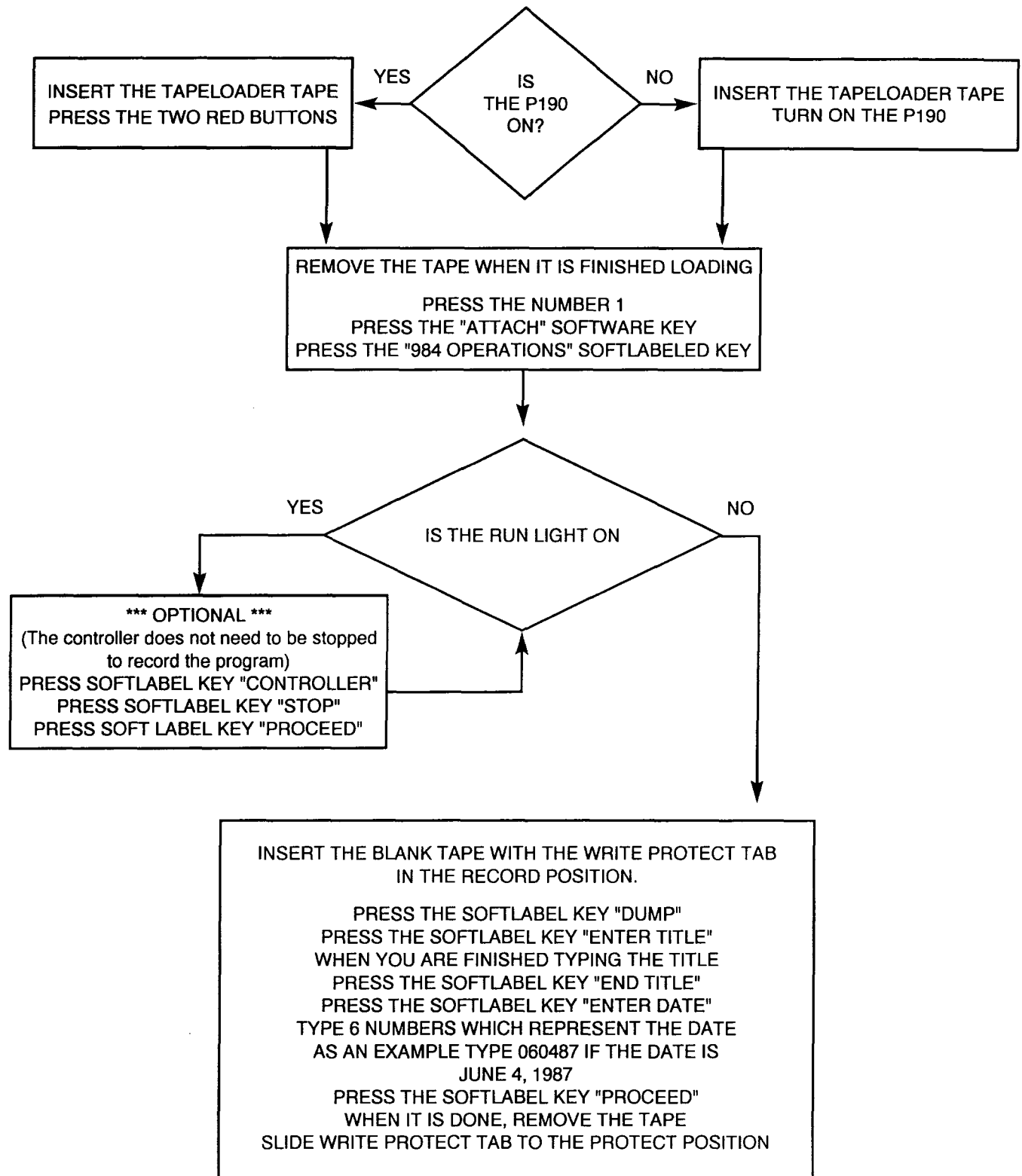When finished, the message LOAD COMPLETE is displayed.

Figure 10-1   Loading a User Program Into a 984 PLC

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                                    IS
  INSERT THE TAPELOADER TAPE   YES  THE P190  NO   INSERT THE TAPELOADER TAPE
  PRESS THE TWO RED BUTTONS  ◄──────  ON?  ──────►    TURN ON THE P190
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REMOVE THE TAPE WHEN IT IS FINISHED LOADING

PRESS THE NUMBER 1
PRESS THE "ATTACH" SOFTWARE KEY
PRESS THE "984 OPERATIONS" SOFTLABELED KEY

YES   IS THE RUN LIGHT ON?   NO

PRESS SOFTLABEL KEY "CONTROLLER"

PRESS SOFTLABEL KEY "STOP"

PRESS SOFTLABEL KEY "PROCEED"

INSERT THE DATA TAPE (HAS LADDER LOGIC)

PRESS THE SOFTLABEL KEY "LOAD"

PRESS THE SOFTLABEL KEY "PROCEED"

WHEN IT IS DONE YOU MAY PRESS THE SOFTLABEL KEYS
"CONTROLLER" "START" "PROCEED" TO START THE 984 RUNNING

TO SEE THE LADDER LOGIC, INSERT THE 984 PROGRAMMER TAPE
AND PRESS THE TWO RED BUTTONS IN THE UPPER RIGHT HAND CORNER

Record Procedure (Program Dump or Back-up)

Step 1   (P190) Load a working copy of the Tape Loader tape into the P190 and press the red keys, <INIT> and <INIT LOCK>.
(Personal Computer) Select LRV from the Modicon Main Executive menu or select the reset level menu by pressing <ALT-F9>.

Step 2   After the program loads and the menu is displayed, enter the ID number of the unit to which you want to attach.

Step 3   Press the softkey labeled <ATTACH UNIT #>.

Step 4   Press the softkey labeled <984 OPERATIONS>.

Step 5   Press the softkey labeled <DUMP 984>. (The controller may be running.)

Step 6   (P190) Remove the tape loader tape and insert a write enabled blank tape.
(Personal Computer) Insert a blank, formatted floppy disk in the drive.

Step 7   If desired, optional steps are:

7a. Press the <ENTER TITLE> softkey and key in a maximum of 52 characters of title information.

7b. Press the softkey labeled <END TITLE>.

7c. Press the softkey labeled <ENTER DATE> and enter a six digit date code (e.g., 050790 for May 7,1990).

Step 8   Press the softkey labeled <PROCEED>.

Step 9   When finished the DUMP FINISHED prompt is displayed.

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                              ┌─────────┐
                              │   IS    │
        YES                   │ THE P190│                   NO
  ┌──────────────┐◄───────────│   ON?   │───────────►┌──────────────┐
  │ INSERT THE TAPELOADER TAPE│         │            │ INSERT THE TAPELOADER TAPE
  │ PRESS THE TWO RED BUTTONS │         │            │ TURN ON THE P190
  └──────────────┘            └─────────┘            └──────────────┘
```

INSERT THE TAPELOADER TAPE
PRESS THE TWO RED BUTTONS

IS
THE P190
ON?

INSERT THE TAPELOADER TAPE
TURN ON THE P190

REMOVE THE TAPE WHEN IT IS FINISHED LOADING

PRESS THE NUMBER 1
PRESS THE "ATTACH" SOFTWARE KEY
PRESS THE "984 OPERATIONS" SOFTLABELED KEY

IS THE RUN LIGHT ON

YES

NO

*** OPTIONAL ***
(The controller does not need to be stopped
to record the program)
PRESS SOFTLABEL KEY "CONTROLLER"
PRESS SOFTLABEL KEY "STOP"
PRESS SOFT LABEL KEY "PROCEED"

INSERT THE BLANK TAPE WITH THE WRITE PROTECT TAB
IN THE RECORD POSITION.

PRESS THE SOFTLABEL KEY "DUMP"
PRESS THE SOFTLABEL KEY "ENTER TITLE"
WHEN YOU ARE FINISHED TYPING THE TITLE
PRESS THE SOFTLABEL KEY "END TITLE"
PRESS THE SOFTLABEL KEY "ENTER DATE"
TYPE 6 NUMBERS WHICH REPRESENT THE DATE
AS AN EXAMPLE TYPE 060487 IF THE DATE IS
JUNE 4, 1987
PRESS THE SOFTLABEL KEY "PROCEED"
WHEN IT IS DONE, REMOVE THE TAPE
SLIDE WRITE PROTECT TAB TO THE PROTECT POSITION

Relocate Procedure

The 984 must have:

A valid configuration table and Traffic cop.

An equal number of logic segments between the relocated logic and the target 984.

Step 1   (P190) Load a working copy of the Tape Loader tape into the P190 and press the red keys, <INIT> and <INIT LOCK>.
(Personal Computer) Select LRV from the Modicon Main Executive menu or select the reset level menu by pressing <ALT-F9>.

Step 2   After the program loads and the menu is displayed, enter the ID number of the unit to which you want to attach.

Step 3   Press the softkey labeled <ATTACH UNIT#>.

Step 4   Press the softkey labeled <984 OPERATIONS>.

Step 5   Press the softkey labeled <CONTROLLER OPERATIONS>.

Step 6   Press the softkey labeled <STOP 984>

Step 7   Press the softkey labeled <PROCEED>.

Step 8   Press the softkey labeled <RELOCATE LOGIC>.

Step 9   (P190) Remove the tape loader tape and insert the (previously backed up) tape to be loaded.
(Personal Computer) Insert the floppy disk containing the logic to be loaded.

Step 10   Press the softkey labeled PROCEED.

Verify Procedure

Step 1 (P190) Load a working copy of the Tape Loader tape into the P190 and press the red keys, <INIT> and <INIT LOCK>.
(Personal Computer) Select LRV from the Modicon Main Executive menu or select the reset level menu by pressing <ALT-F9>.

Step 2 After the program loads and the menu is displayed, enter the ID number of the unit to which you want to attach.

Step 3 Press the softkey labeled <ATTACH UNIT#>.
Step 4
Press the softkey labeled <984 OPERATIONS>.

Step 5 (P190) Press the softkey labeled <VERIFY TAPE WITH 984>.
Remove the tape loader tape and insert the back-up to be verified or checked against the 984 memory.
(Personal Computer) Press the softkey labeled <VERIFY DISK WITH 984>. Insert the back-up disk to be verified or checked against the 984 memory.

Step 6 Select whether or not you want to view each miscompare using the <PAUSE/CONTINUE> toggle key.

Step 7 Press the softkey labeled <PROCEED>.
There are two possibilities for a miscompare:

Any miscompare labeled as WORDS under MEMORY TYPE is the result of normal operation of the controller. This indicates memory differences between the time the tape was made and the time it was verified.

Miscompares labeled as NODES under MEMORY TYPE, indicate logic that is different from tape to memory. It should be investigated further by checking the program.

Verification pauses for review when a miscompare is found. The softkeys:

<CONTINUE> continues the verification.

<PROCEED> restarts the verification.

<ABORT> stops the verification and displays the exit level menu.

Start Procedure

Step 1   (P190) Load a working copy of the Tape Loader tape into the P190 and press the red keys, <INIT> and <INIT LOCK>.
(Personal Computer) Select LRV from the Modicon Main Executive menu or select the reset level menu by pressing <ALT-F9>.

Step 2   After the program loads and the menu is displayed, enter the ID number of the unit to which you want to attach.

Step 3   Press the softkey labeled <ATTACH UNIT#>.

Step 4   Press the softkey labeled <984 OPERATIONS>.

Step 5   Press the softkey labeled <CONTROLLER OPERATIONS>.

Step 6   Press the softkey labeled <START 984>.

Step 7   Press the softkey labeled <PROCEED>.

Stop Procedure

Step 1   (P190) Load a working copy of the Tape Loader tape into the P190 and press the red keys, <INIT> and <INIT LOCK>.
(Personal Computer) Select LRV from the Modicon Main Executive menu or select the reset level menu by pressing <ALT-F9>.

Step 2   After the program loads and the menu is displayed, enter the ID number of the unit to which you want to attach.

Step 3   Press the softkey labeled <ATTACH UNIT#>.

Step 4   Press the softkey labeled <984 OPERATIONS>.

Step 5   Press the softkey labeled <CONTROLLER OPERATIONS>.

Step 6   Press the softkey labeled <STOP 984>.

Step 7   Press the softkey labeled <PROCEED>.

Evaluate Procedure - P190 Only

➤ **CAUTION**   **This test destroys any data on the tape that is evaluated.**

Step 1   (P190) Load a working copy of the Tape Loader tape into the P190 and press the red keys <INIT> and <INIT LOCK>.
(Personal Computer) Select LRV from the Modicon Main Executive menu or select the reset level menu by pressing <ALT-F9>.

Step 2   After the program loads and the menu is displayed, enter the ID number of the unit to which you want to attach.

Step 3   Press the softkey labeled <ATTACH UNIT#>.

Step 4   Press the softkey labeled < PROCEED> or softkey <CANCEL>.

The test makes two staggered read/write 10 minute passes on the evaluation tape.

The test can be stopped at any time by pressing the softkey <STOP>, continued by pressing the softkey <PROCEED>, or ended by pressing the softkey <ABORT>.

LRV Menu Tree

Figure 10-3   P190 Tape Loader Menu Tree

984 OPERATIONS	584 OPERATIONS	484 OPERATIONS	184/384 OPERATIONS	EVALUATE TAPE	ATTACH UNIT #

CONTROLLER OPERATIONS	RELOCATE LOGIC	LOAD 984	DUMP 984	VERIFY TAPE WITH 984	RELEASE 984

PROCEED	CANCEL

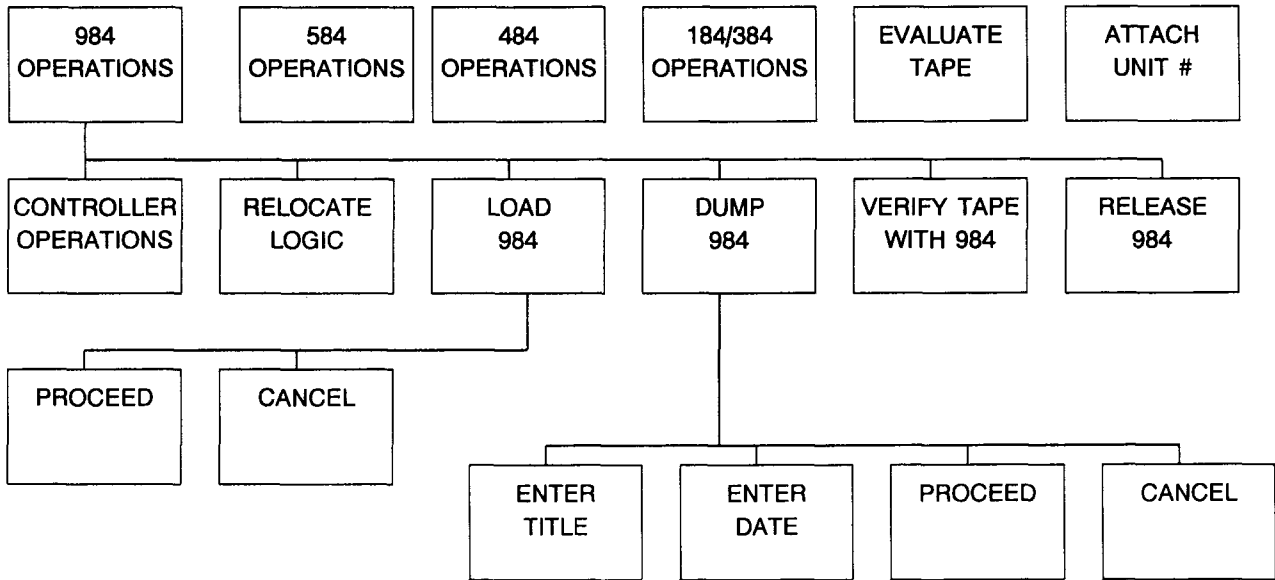| ENTER TITLE	ENTER DATE	PROCEED	CANCEL

Figure 10-4   Personal Computer LRV Menu Tree

984 OPERATIONS	584 OPERATIONS	RETURN TO MODICON EXEC	ATTACH UNIT #

CONTROLLER OPERATIONS	RELOCATE LOGIC	LOAD 984	DUMP 984	VERIFY DISK WITH 984	RELEASE 984

ENTER TITLE	ENTER DATE	PROCEED	CANCEL