APPENDIX D

THE BOOTSTRAP AND ABSOLUTE LOADERS

D.1 THE BOOTSTRAP LOADER

The Bootstrap Loader should be toggled into the highest available core memory bank.

Location	Instruction
xx7744	016701
xx7746	000026
xx7750	012702
xx7752	000352
xx7754	005211
xx7756	105711
xx7760	100376
xx7762	116162
xx7764	000002
xx7766	xx7400
xx7770	005267
xx7772	177756
xx7774	000765
xx7776	yyyyyy

xx represents the highest available core memory bank. For example, the first location of the Loader would be one of the following, depending on memory size, and xx in all subsequent locations would be the same as the first.

Location	Memory Bank	Memory Size
017744	0	4K
037744	1	8K
057744	2	12K
077744	3	16K
117744	4	20K
137744	5	24K
157744	6	28K

The contents of location xx7776 (yyyyyy) in the Instruction column above should contain the device status register address of the paper tape reader to be used when loading the bootstrap formatted tape, specified as follows:

Teletype Paper Tape Reader	177560
High-Speed Paper Tape Reader	177550

Set SR to xx 7744 → Press LOAD ADDR → Load or Verify Instructions ?

Load → Set SR to 016701 → Lift DEP → Set SR to next Instruction → Lift DEP → All Instructions Deposited ? — No → (back to Set SR to next Instruction); Yes → 1

Verify → Press EXAM → Lift DEP → Set SR to correct Instruction; Instruction Correct ? — No → Set SR to correct Instruction; Yes → All instructions verified ? — No → Press EXAM; Yes → Finished
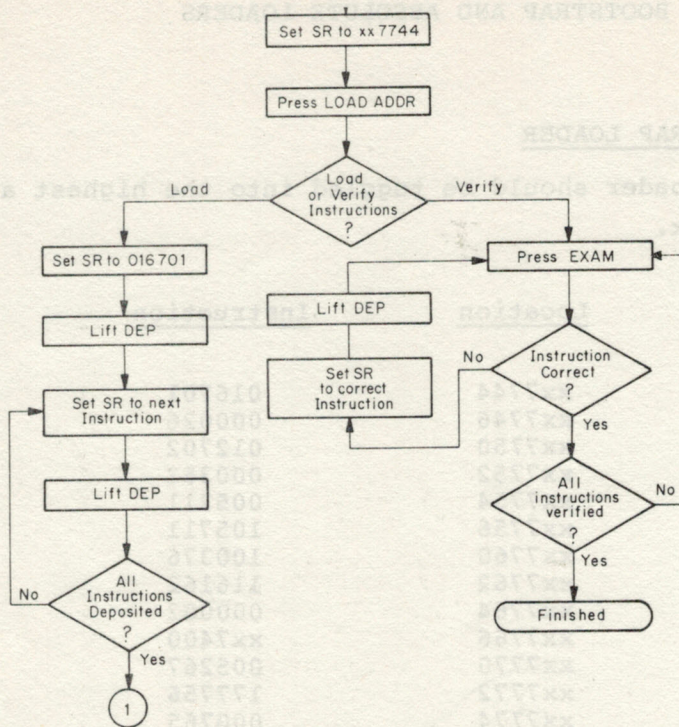
Figure D-1. Loading and Verifying the Bootstrap Loader

D.2 THE ABSOLUTE LOADER

D.2.1 Loading the Absolute Loader

The Bootstrap Loader is used to load the Absolute Loader into core (see Figure D-2). The Absolute Loader occupies locations xx7474 through xx7743, and its starting address is xx7500.

D.2.2 Loading with the Absolute Loader

When using the Absolute Loader, there are three types of loads available: normal, relocated to specific address, and continued relocation (see Figure D-3).

Optional switch register settings for the three types of loads are listed below:

	Switch Register	
Type of Load	Bits 1-14	Bits 0
Normal	(ignored)	0
Relocated - continue loading where left off	0	1
Relocated - load in specified area of core	nnnnn (specified address)	1

```
                ( Load Bootstrap Loader ) - - - - ─┤ Fig. D-1

                 ┌─────────────────┐
                 │ Set ENABLE/HALT │
                 │    To HALT      │
                 └─────────────────┘

                 ┌─────────────────┐         ┌──────────────────────┐
                 │ Place  Absolute │ - - - - │ Code 351 Must Be     │
                 │ Loader  Tape In │         │ Over Reader Sensors  │
                 │ Specified Reader│         └──────────────────────┘
                 └─────────────────┘

                 ┌─────────────────┐
                 │ Set SR To xx7744│
                 └─────────────────┘

                 ┌─────────────────┐
                 │ Press LOAD ADDR │
                 └─────────────────┘

                 ┌─────────────────┐
                 │ Set ENABLE/HALT │
                 │   To ENABLE     │
                 └─────────────────┘

                 ┌─────────────────┐
                 │  Press START    │
                 └─────────────────┘

                 ┌─────────────────┐
                 │ Tape Reads In   │
                 │ And Stops       │
                 │ At End Of Data  │
                 └─────────────────┘

                (  Absolute Loader  )
                (   Is  In Core     )
```

Figure D-2. Loading the Absolute Loader Into Core.

Load ABS Loader) - - - - - Fig. D-2

Set ENABLE/HALT
To ENABLE

Set xx7776 To
Specify Reader   HSR = 177550
                         LSR = 177560
                         xx Is Highest
                         Core Bank

Place Tape In Reader

Set SR to xx7500
Press LOAD ADDR

Press START

Tape
No ◄—— Reads In
         ?
         Yes

Tape Stops

Check-
Yes ◄—— sum Error
          ?
          No

BASIC Prints   Name,
No ◄——   ?   Version Number,
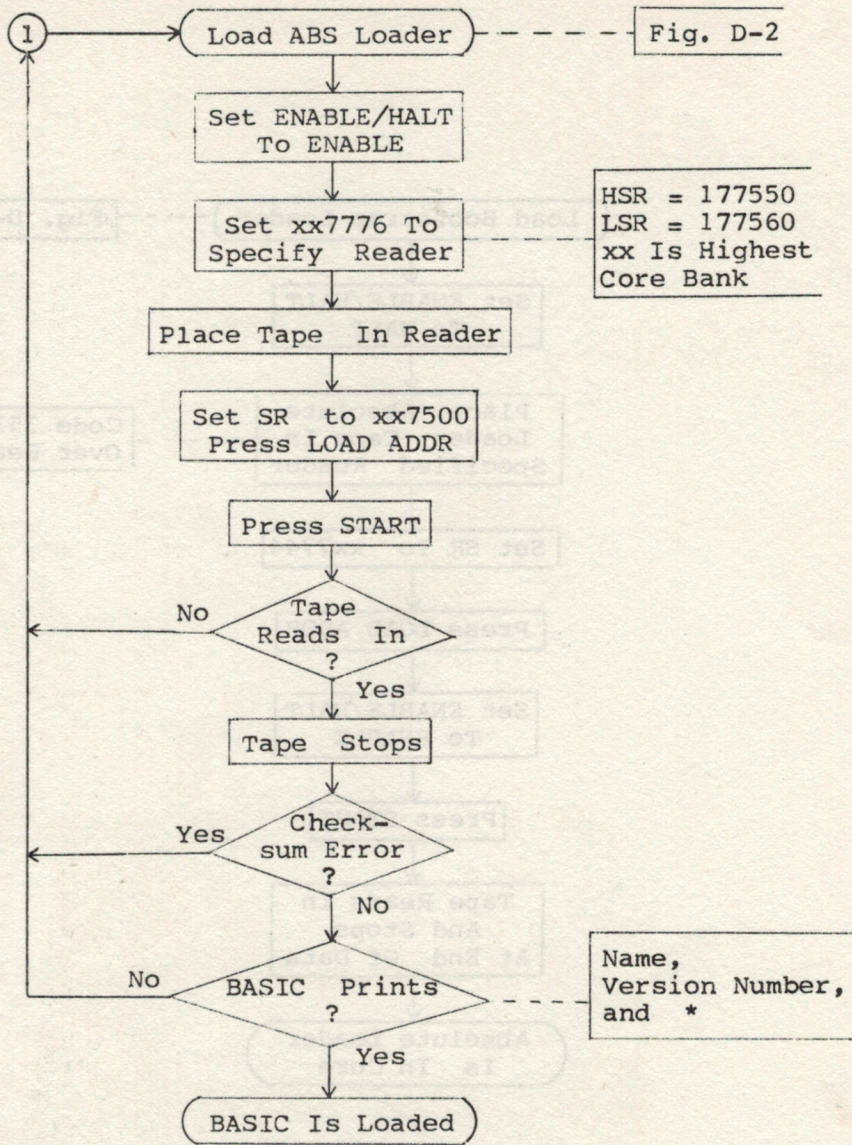   and *
                    Yes

BASIC Is Loaded)

Figure D-3. Loading BASIC with the Absolute Loader.

D-4