



**OMEGA SOFTWARE  
PRODUCTS, INC.**

222 S. Riverside Plaza  
Chicago, IL 60606

© 1980 Omega Software Products, Inc.

# INSTRUCTIONS

The purpose of the **Locksmith** is to allow the user to backup ALL of his valuable disks, especially the ones which can not be backed up using conventional disk copy programs.

The **Locksmith** is unlike any other disk copy program you have ever used before. Instead of reading the disk a sector at a time, the **Locksmith** reads and copies an entire track at a time. **Locksmith** does not make any assumptions about the disk being copied — the disk can be 13 sector, 16 sector, or even other non-standard formats. **Locksmith** does not use the checksum information on the disk, because it may have been altered in an attempt to make the disk uncopyable. Because **Locksmith** cannot verify the data on the disk by using checksum techniques, it must use other methods to verify the disk data. These other techniques are NOT as reliable as verification using the checksum, so **Locksmith** may occasionally read the same track several times until it has been read properly. Your patience may be required on difficult disks.

**Locksmith** also tends to be more susceptible to errors caused by large disk speed variance than other disk copy programs. Because of this, **Locksmith** should be used only when other copy programs fail. If a disk fails to copy successfully, it sometimes helps to reverse the drives used for the original and copy diskettes.

Also note that in order to copy 16 sector disks such as DOS 3.3, PASCAL, or Apple III SOS disks, that the 16-sector P6A prom must be installed on the disk controller board. All new Apple disk drives include the new proms. (or they may be purchased separately)

It is recommended that after a disk is copied by the **Locksmith**, that the user place the original in a safe place and use the copy diskette. Things occasionally go wrong, and it is better to clobber the copy diskette than the original.

To use the **Locksmith**, insert it in slot 6 drive 1 and boot it. It will boot on either a 13-sector or a 16-sector disk controller. When the boot is complete, remove the disk and replace it in its protective envelope.

The **Locksmith** will prompt you for the drive number of the original and copy diskettes. Enter either '1' or '2'. If the same number is entered for both, a single-drive copy will be performed. (If a single drive copy is being done, you will be prompted to switch disks for each track). Next, **Locksmith** asks whether error retry should be automatic or manual. In automatic mode, disk errors are retried until they exceed a specific threshold, at which time the error is considered permanent, and the track is copied as-is. In manual retry mode, whenever an error occurs, you will be asked whether the track should be read again or simply copied as-is.

You will be asked whether to copy the entire diskette (tracks 00 to 22 hex) or specific tracks. Occasionally, track 23 (hex) is used. Some disk drives (particularly more recent ones) are not able to seek as far as this track, but if your drives do, and you suspect this track being used on the original disk, specify a track range of 00 to 23 after indicating you want selected tracks.

The **Locksmith** copies each track in four phases:

1. Read original disk
2. Analyze disk data
3. Write copy disk
4. Verify copy disk

You can tell which phase the program is in by the inverse R, A, W, or V below the appropriate track number.

**Locksmith** issues the following error codes:

**Code 1**-*The track is garbage. This is probably an erased track.*

**Code 2**-*The track is garbage.*

**Code 4**-*The track did not read reliably.*

**Code 8**-*After writing the copy disk, the track did not re-read correctly.*

**Half Tracks:**

Some disk protection methods employ the use of half-track recording. That is, tracks which are written halfway between the positions where tracks would normally be written. Although these half-tracks are rarely used, your disk drive is capable of reading and writing these half-tracks, and **Locksmith** supports half-track mode.

If you suspect that the diskette you wish to copy employs half-tracks, select a specific range of tracks and reply with "0.5" when asked for the track increment. Don't bother copying in half-track mode unless you suspect the disk is recorded in this mode, because it takes twice as long to copy a diskette in this mode.

If you are using two drives to copy every half-track, these drives must have seek mechanisms which are adjusted very close to one another. If your disks aren't matched closely, use a single drive copy when copying every half-track.

To minimize problems when copying every half-track, the target copy disk is erased prior to being written, to insure a magnetically "clean" surface, as half-track copies are more sensitive to adjacent track noise (cross-talk).

While the disk is being erased, an inverse "E" will be seen in the track status area.

You can greatly reduce the inherent unreliability caused by cross-talk of adjacent half-tracks by copying only the half-tracks used on the original diskette. These are, of course, not generally known, but can usually be determined by a little detective work. A useful technique would be to copy every half-track and use the error codes returned from each half-track to determine which tracks are used, and which are not. Error codes 2 and 4 sometime indicate reading a track one half-track away. For example, some disks might appear to use only every 1½ tracks. (0, 1½, 3, 4½, etc.) You can specify and increment of 1.5 if this appears to be the case. Once you have determined which tracks are used, you should make a note of it for later use.

When copying every half-track in automatic mode, reduced error recovery is used to save time in attempting to copy unused half-tracks. In addition, tracks which don't read reliably are skipped rather than copied as-is when copying every half-track.

When copying half-tracks, the status line for half-tracks can be found immediately below the status line for integral tracks.

In selected track mode, you can specify a start and end track on half-track boundaries. For instance, you can select tracks from 1.5 to A.5 (hex) in steps of 1.5.

*(Continued on next page)*

*(Continued from inside)*

#### Synchronized Tracks:

Some disk protection methods check to make sure that certain tracks exist with a specific timing relationship between them. If you suspect this technique, or when all else fails, specify "selected tracks" and select "synchronized tracks" when asked.

#### Extended Error Retry:

If you select a single track to copy, you may specify that extended retry is to be used. In this mode, the track will be retried repeatedly until it is copied correctly, regardless of the number of retries needed.

#### Misc. notes:

Note that the inverse "V", indicating copy disk verify, appears for a very short time, and is not usually seen unless the verify fails.

Manual mode now allows the user 3 choices in the event of an error:

1. Re-read track
2. Copy track as-is
3. Skip track

Also please note — **Locksmith** will not copy itself.

If, after following the above instructions and suggestions, you have found a disk that **Locksmith** doesn't copy, please let us know by mail. (Include your **Locksmith** registration number, which can be found on the disk label.) If you are the first to notify us of a problem and we are able to fix the problem in a future version, we will send you the new version free of charge. New versions of the **Locksmith**, as they become available, will be offered to current registered users at a nominal charge for disk copying, postage, and handling.

This offer is open only to registered **Locksmith** owners only — be sure to include your **Locksmith** serial number, which is stamped on the disk label.

An identical copy of **Locksmith** is included on both sides of the diskette, but if both copies become unusable, send us the original **Locksmith** diskette and \$3.00 for postage and handling, and we will send you a replacement copy.