# Inter Office Memo

ATARI

Coin Operated Games Division

To: Distribution

From: S. Mangat SM

Subject: TOP 10 TYPE OF I.C. FAILURES ON STAR WARS PCB Date: 9-27-83

The last four weeks data has been collected of all the I.C.'s that the technicians have removed from the Star Wars boards to repair them.

The following are the I.C.'s that failed at more than 1% rate. In calculating the percentage of the failing I.C. the total usuage of the particular I.C.'s were considered.

| TYPE | TOTAL USED | TOTAL REPLACED | % REPLACED |
|---|---|---|---|
| 1. 131159 | 984 | 97 | 9.8 |
| 2. 137179 | 181 | 89 | 4.8 |
| 3. 74LS299 | 3910 | 158 | 4.04 |
| 4. 74LS165 | 3128 | 121 | 3.86 |
| 5. 2128 | 5298 | 101 | 1.9 |
| 6. 74LS191 | 6007 | 101 | 1.6 |
| 7. 74LS139 | 1574 | 24 | 1.5 |
| 8. 74LS385 | 782 | 10 | 1.3 |
| 9. TL082 | 6336 | 74 | 1.16 |
| 10. 13201 | 1692 | 23 | 1.35 |

The total usuage figure is derived from the total number of boards processed during the week multiplied by the total number of I.C.'s used per board.

As at PCB, the incoming equipment is very slow and does a very limited test, it is impossible to verify the failed components. To varify these failed components using the PCB is very time consuming and it is not a good test as certain timing problems can not be detected. The only other alternative is to pretest these parts at an outside test house and monitor the performance of these parts. At component level these parts can be returned to vendor if excessive failure occurs. Once the parts are soldered in the board, the vendor will never take the parts back and it is hard to prove that vendor is at fault. The pretesting of parts will also highlight the design timing problems.