3. The nose gear position light lens assembly was removed and incorrectly reinstalled.

4. The first officer became preoccupied with his attempts to remove the jammed light assembly.

5. The captain divided his attention between attempts to help the first officer and orders to other crewmembers to try other approaches to the problem.

6. The flightcrew devoted approximately 4 minutes to the distraction, with minimal regard for other flight requirements.

It is obvious that this accident, as well as others, was not the final consequence of a single error, but was the cumulative result of several *minor* deviations from normal operating procedures which triggered a sequence of events with disastrous results.

2.2 Conclusions

(a) Findings

1. The *crew* was trained, qualified, and certificated for the operation.

2. The aircraft was certificated, equipped, and maintained in accordance with applicable regulations.

3. There was no failure or malfunction of the structure, powerplants, systems, or components of the aircraft before impact, except that both bulbs in the nose landing gear position indicating system were burned out.

4. The aircraft struck the ground in a 28° left bank with a high rate of sink.

5. There was no fire until the integrity of the left wing fuel tanks was destroyed after the impact.

6. The tumor in the cranial cavity of the captain did not contribute to the accident.

7. The autopilot was utilized in basic CWS.

8. The flightcrew was unaware of the low force gradient input required to effect a change in aircraft attitude while in CWS.

9. The company training program met the requirements of the Federal Aviation Administration.

10. The three flight crewmembers were preoccupied in an attempt to ascertain the position of the nose landing gear.

11. The second officer, followed later by the jump seat occupant, went into the forward electronics bay to check the nose gear down position indices.

12. The second officer was unable visually to determine the position of the nose gear. Too Dark

13. The flightcrew did not hear the aural altitude alert which sounded as the aircraft descended through 1, 750 feet m. s. 1.

14. There were several manual thrust reductions during the final descent.

15. The speed control system did not affect the reduction in thrust.

16. The flightcrew did not monitor the flight instruments during the final descent until seconds before impact.

17. The captain failed to assure that a pilot was monitoring the progress of the aircraft at all times.

(b) Probable Cause

The National Transportation Safety Board determines that the probable cause of this accident was the failure of the flightcrew to monitor the flight instruments during the final 4 minutes of flight, and to detect an unexpected descent soon enough to prevent impact with the ground. Preoccupation with a malfunction of, the nose landing gear

position indicating system distracted the crew's attention from the instruments and allowed the descent to go unnoticed.

3. RECOMMENDATIONS

As a result of the investigation of this accident, the Safety Board on April 23, 1973, submitted three recommendations (A-73-1 through 13) to the Administrator of the Federal Aviation Administration: Copies of the recommendation letter and the Administrator's response thereto are included in Appendix H.

Recommendations concerning the crash survival aspects of this accident have been combined with those of two other recent accidents and were submitted to the FAA on June 15, 1973. (See Appendix I.)

The Board further recommends that the Federal Aviation Administration:

> Review the ARTS III program for the possible development of procedures to aid flighterews when marked deviations in altitude are noticed by an Air Traffic Controller. (Recommendation A-73-46.)

The Board is aware of the present rulemaking proceedings initiated by the Flight Standards Service on April 18 concerning the required installation of Ground Proximity Warning Devices. However, in view of this accident and of previous recommendations on this subject made by this Board, we urge that the Federal Aviation Administration expedite its rulemaking proceedings.