



Major injury to Harrison Ford at Pinewood Studios on 12 June 2014

| Incident Details | |
|---|---|
| Brief Description | During a filming rehearsal the IP was struck by the door moving down and was pushed into a prone position. The door motion was immediately halted by use of emergency control procedures and the door was then raised and made safe. The IP suffered fractured leg. |
| Brief description of why this incident has been selected for investigation. | Serious multiple fractures |
| Further information/Major hazard precursor | |

| Investigation Overview | | |
|-----------------------------|-----------------------------|-----------------------------|
| COIN Investigation Case No. | 4378355 | Show in COIN (double-click) |
| Name(s) of Duty holder(s) | Foodles Production (UK) Ltd | |
| Investigating Inspector | Graham Tompkins | |
| Investigator Line Manager | Chris Taylor | |
| Investigation TRIM Folder | 4.7.7698. | |
| MENT site | | Show in MENT (double-click) |

| | |
|-----------------------|-----------------|
| Date Report Completed | |
| Authors | Graham Tompkins |

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| | | |
|---|--|------------|
| | HSL to undertake a literature study of reaction times. | |
| Resource issues | Specialist HF and Mech-Ex required [REDACTED] [REDACTED] [REDACTED] | |
| Reasons for continuing / curtailing investigation | | [REDACTED] |
| | Name | Signature |
| HSE Lead Investigator | Graham Tompkins | |
| Investigation Manager | Chris Taylor | |
| Names of others attending | | |
| Date of next planned review | | |

| Specialist Support | | |
|--------------------|--|-----------------------------|
| Date of Request | Name | Role / Specialism |
| | David Schofield [REDACTED] (subsequently HSL) | Mechanical Human Factors |
| Advice Requested | | |
| | | |

FACTUAL REPORT

| Duty Holder Details: Foodles Production (UK) Ltd | | | |
|--|---|------------------------|---|
| Name of Duty Holder | Foodles Production (UK) Ltd | Role | Employer |
| Address | 3 Queen Caroline Street LONDON W6 9PE | Registered Office | 3 Queen Caroline Street LONDON W6 9PE |
| Duty Holder Status | Company | Companies House No. | 08463295 |
| Date of Birth | | National Insurance No. | |

Description of the facts and circumstances leading to the incident including preventative measures taken by the duty holder(s)

The Factual report should be completed for all investigations including, proportionally, curtailed investigations.

Give a factual account of the events leading up to the incident (or ill health condition) and its outcome. Identify and describe any relevant machinery, equipment, substances, workplace and environmental factors.

Describe the risk control measures in place at the time of the incident, including:

- Physical protection
- Systems and methods of work
- Training and instruction
- Knowledge of the hazards and precautions by the relevant parties
- Supervision and monitoring
- Risk assessments
- Actual work practices (where applicable) up to the time of the incident
- Any measure that were missing or not in use

Describe the factual underlying causes – identified by asking 'why' to the immediate causes in the context of the above management factors such as knowledge and monitoring. Professional judgement is needed to determine the appropriate extent of probing.

Witnesses

Harrison FORD – IP

[REDACTED] – [REDACTED]
[REDACTED] – [REDACTED]
[REDACTED] – [REDACTED]
[REDACTED] – [REDACTED]
[REDACTED] – [REDACTED]
[REDACTED] – [REDACTED]
[REDACTED] – [REDACTED]
[REDACTED] – [REDACTED]
[REDACTED] – [REDACTED]
[REDACTED] – [REDACTED]
[REDACTED] – [REDACTED]

Dutyholders

Foodles Production (UK) Ltd – a motion picture production company responsible for the UK production aspects of Star Wars Episode VII – The Force Awakens. Employer of the special effects team, cast (save FORD (IP)), Directors (save [REDACTED]), designers etc

Foodles (US) – a motion picture production company (affiliated with Foodles Production (UK) Ltd) - Employer of FORD, [REDACTED] and certain other US based individuals.

JHA Safety – H&S Consultants – [REDACTED]

Effects Warehouse Production – hardware hire company

Digital Remote Automation Motion Ltd – [REDACTED]

Site

M Stage, Pinewood Studios, Iver Heath, Bucks, SL0 0NH

Circumstances surrounding the accident, the outcome and consequences, eg extent of any injury

Star Wars VII is a sequel to three 1970/80s productions, it casts some of the original actors/actresses and props including spacecraft in particular the millennium falcon (MF).

The script requires the use of a sliding (opening and closing) curved vertical door at the top of an inclined ramp to replicate the original '1970's entry to the MF. The special effects team designed and built a single leaf door that travelled up and down within a curved track system. The door was opened and closed by a hydraulic linkage controlled by a manually activated computerised system. It was tested and put into service by the Special Effects Team (SET). The SET integrated the machine into the rest of the MF prop.

Movement of the door (up or down) was activated by [REDACTED]. [REDACTED] was located at a control panel outside of the MF (GRT2). [REDACTED] received visual and audible cues to activate the machine from a camera (positioned on/in the prop) and over a headset. The audible signal was given by [REDACTED] its purpose was to ready the door for use. The striking of a prop button located to the right of the door provided the visual cue to operate the door. Occasionally when there was no visual cue eg the camera was outside the prop a verbal command was issued by [REDACTED] to close the door.

On the day of the accident the script required FORD, [REDACTED] and two other actors entering the prop through the door ([REDACTED] in character was meant to be injured requiring FORD's assistance) and the door being closed behind them by the striking of the prop button (GRT1).

After the actors got into costume there was a walk-through of the action. As scripted [REDACTED] suggested to [REDACTED] that the door should close after the actors had walked through it ([REDACTED] this was agreed and an announcement made to the cast and SET.

[REDACTED] released the hydraulic oil into the accumulator tanks. Simultaneously [REDACTED] assisted [REDACTED] to relocate the camera that had been positioned on the ramp looking into the prop to inside the prop focusing on the prop button, the upper section of the door track was also in focus.

During the first rehearsal, [REDACTED] was not ready to activate the door after the actors crossed the threshold and it did not close. Prior to the second entry [REDACTED] was ready and after FORD made contact with the prop button seen by [REDACTED] on the camera monitor, [REDACTED] activated the control system to close the door. Unaware of [REDACTED] actions FORD simultaneously moved towards the door for another rehearsal. The door struck FORD knocking him to the ground [REDACTED] and [REDACTED] pressed their respective emergency stops, the door came to a halt, with FORD underneath pinned just above his waist. FORD suffered fractures of his left tibia and fibula and a deep laceration to his left hand.

Plant

Vertical sliding curved door approximately 1.2 m width and 2.0 m height constructed of steel framework overlaid with inner and outer steel facings and cladding with a steel chamfered leading edge. Closing time 1.2 - 1.3 seconds. Closing speed 1.54 - 2m/s

Four bladder Mobile Hydraulic Pack design pressure (max output of hydraulic power pack) = 210 Bar g,
Operating Pressure = 150 Bar g,
Hydraulic accumulator set pressure = 80 Bar g

Electronic Control system –operated by via a laptop with adjustable door's travel speed.

Systems and methods of work

Operation of the machine was via a control panel which was only active when a 'dead mans' foot pedal was depressed and three 'e'stops were open.

Opening the door - [REDACTED] would say 'open' when the actors were at to the door. [REDACTED] sequenced the control system and the door would open.

Closing the door - when [REDACTED] judged that all persons were clear of the door's path, he would say 'close'

in his radio set and [REDACTED] would close the door from the control panel when [REDACTED] saw the prop button being struck. FORD for his part adopted the practice of saying 'clear' when he was through the door.

Training and instruction

SET designed, manufactured and commissioned the machine. [REDACTED] was involved in this process and was the ultimate machine operator.

No training or instructions on door operation was required by the cast. Awareness of the machine use normally given to the entire production team via the 'filming brief for the day'.

Knowledge of the hazards and precautions by the relevant parties

SET – Designed and built the machine and were therefore aware of the hazards. During commissioning/testing there is no evidence that a person was within the danger zone.

Cast - Prior to the day of the accident the machine had been used during filming to open as a 'reveal' of the cast.

Risk assessments

[REDACTED] assessed the risk involved with using the machine (prior to the inclusion of it being integrated into the film set and thereafter) He identifies the risk of a person getting crushed during downward movement as potentially fatal.

Preventative measures taken by duty holder(s) AFTER incident

Describe measures taken by the duty holder(s) post incident to manage risks. Use the list above as a guide. State which, if any, measures were identified by HSE as being required.

Use of hydraulic doors stopped during the film making. CGI alternatives used to finish the film

ANALYSIS OF COMPLIANCE

[REDACTED]

Causal Factors

[REDACTED]