

Minutes
Camera Cranes Working Group
June 24, 2000
9:00 a.m.
Los Angeles Convention Center

Please note the new attendance requirement: At the June 1999 meeting an attendance policy was adopted that requires that each voting member or his alternate attend meetings. If he and his alternate miss three consecutive meetings, their voting status will be changed to observer. This rule went into effect at the January 2000 meeting, and this meeting is the second meeting since the attendance policy went into effect.

Chairs: Ed Clare; PERA; principal; general interest
Andy Romanoff; Panavision Remote; principal; producer

Recording secretary: Karl G. Ruling, ESTA

Members attending: Kenneth Shore; ABC Products; observer; producer (joined at this meeting)
Warwick (Wick) Hempleman; Applied Film Theory; observer; user (joined at this meeting)
Edward M. Smith; Chapman/Leonard Studio Equipment, Inc.; observer; producer
Scott A. Howell; Cine Moves Inc.; principal; user (joined at this meeting)
Nico Bally; Cranium Inc.; principal; general interest
Ken Eddy; Filmair ; principal; producer
Timothy Wade; IATSE Local 600; principal; user
Dennis McDonald; ISAIA & Co./Highrise Support Systems; principal; producer
Roy Isaia; ISAIA & Co./Highrise Support Systems; alternate; producer (joined at this meeting)
Dennis Knopf; J. L. Fisher, Inc.; principal; producer
Jimmy Fisher; Jimmy Fisher Co.; principal; producer
John S. Leeward; Leeward Camera Systems; principal; user (joined at this meeting)
Claus H. Boelter; Movie Tech LP; principal; producer (joined at this meeting)
Kent H. Jorgensen; MPS Grips, Local 80; principal; user
Joel Johnson; O Connor Engineering; principal; producer
Ralf Przybilla; Panther; principal; producer (joined at this meeting)
Louis Therrien; Production Safety Services; principal; general interest
Robert Lynn; William F. White Ltd.; principal; user
Mike Sinclair; William F. White Ltd.; alternate; user (joined at this meeting)

Visitors: Greg Hill, Chapman/Leonard Studio Equipment, Inc.
Paul Steinman; Dragon's Head Productions, Inc.
Lawrence Orlick; International Cinematographers Guild, Local 600 IATSE
James Borland; Filmair International
Tony R. Covell; VFG Plc.
Bill Groener; Production Arts (PRG)

Voting members unrepresented by either a principal or an alternate at this meeting:

- * Brian Branigan; Brian Branigan; individual; user
- Constant Tresfon; Egripment B.V.; principal; producer
- Jan van Vlaardingen; Egripment B.V.; alternate; producer
- Boots, Managing Director; Egripment US (Egripment B.V.); alternate; producer
- * Anatoliy Kokush; Filmotechnie International Corp.; principal; producer
- * Daniel M. Mahoney; IATSE Local 52; principal; user
- * Mitch Lillian; Ichabod Crane Inc.; principal; user
- * Paulina Briones; TCC/Telescopic Crane; principal; producer
- * Mark A. Hotchkiss; Technocrane Ltd.; alternate; producer
- * Simon Jayes; Technocrane Ltd.; principal; producer
- * Vincent Zarlengo; Vincent Zarlengo; individual; user

* Indicates that two successive meetings have been missed since the introduction of the attendance requirement.

1 Opening remarks

Ed Clare called the meeting to order at 9:04 a.m.

2 Attendance and membership

2.1 Introductions of those present

Ed Clare started a round of self-introductions. Ruling circulated a pink attendance sheet to take roll.

2.2 Determination of quorum (7 needed)

Clare asked for a show of hands of voting members. He determined that we have a quorum and announced this.

2.3 Recognition of alternate voting members

Ruling reminded people that only one vote per organization is allowed. The alternate can vote or the principal, but not both.

2.4 Requirements for membership

Ruling reviewed the requirements for membership. The working group is open to all who are affected by the work of the group. There is no charge for participation, but voting members must attend meetings and bear their own expenses for attending.

2.5 Processing of new membership requests

The following applications had been received by the beginning of the meeting. Ed Clare briefly read the applications.

- Claus H. Boelter; Movie Tech LP; principal; producer
- Warwick ("Wick") Hempleman; Applied Film Theory; observer; user
- Roy Isaia; ISAIA & Co./Highrise Support Systems; alternate; producer
- Scott A. Howell; Cine Moves Inc.; principal; user
- Kenneth Shore; ABC Products; observer; producer

Mike Sinclair; William F. White Ltd.; alternate; user
 Robert Lynn; William F. White Ltd.; principal; user (had been listed as alternate before)

Louis Therrien moved that the working group accept all the applications. The motion was seconded. The motion was accepted unanimously via a voice vote.

After the above applications had been processed, a second set was offered:

Ralf Przybilla; Panther; principal; producer
 John S. Leeward; Leeward Camera Systems; principal; user

Kent Jorgensen moved that these applications be accepted. The motion was seconded. The motion was unanimously accepted via a voice vote.

After the above additions, the voting body for this meeting was:

| | | | |
|--------------------------|--|---|-------------------------------|
| Brian Branigan | Brian Branigan | I | user |
| Charles Huenergardt | Chapman/Leonard Studio Equipment, Inc. | P | producer |
| Leonard Chapman | Chapman/Leonard Studio Equipment, Inc. | A | producer |
| Scott A. Howell | Cine Moves Inc. | P | user |
| Nico Bally | Cranium Inc. | P | general interest |
| Constant Tresfon | Egripment | P | producer |
| Boots, Managing Director | Egripment | A | producer |
| Jan van Vlaardingen | Egripment B.V. | A | producer |
| Ken Eddy | Filmair | P | producer |
| Anatoly Kokush | Filmotechnie International Corp. | P | producer |
| Daniel M. Mahoney | I.A.T.S.E. Local 52 | P | user |
| Timothy Wade | I.A.T.S.E. Local 600 | P | user |
| Mitch Lillian | Ichabod Crane Inc. | P | user |
| Dennis McDonald | ISAIA & Co./Highrise Support Systems | P | producer |
| Roy Isaia | ISAIA & Co./Highrise Support Systems | A | producer |
| Dennis Knopf | J. L. Fisher, Inc. | P | producer |
| Jimmy Fisher | Jimmy Fisher Co. | P | producer |
| John S. Leeward | Leeward Camera Systems | P | user |
| Claus H. Boelter | Movie Tech LP | P | producer |
| Kent H. Jorgensen | MPS Grips, Local 80 | P | user |
| Rex Worthy | MPS Grips, Local 80 | A | user |
| Joel Johnson | O Connor Engineering | P | producer |
| Audiel R. Lam | O Connor Engineering | A | producer |
| Andy Romanoff | Panavision | P | producer |
| Ralf Przybilla | Panther | P | producer |
| Ed Clare | PERA | P | general interest |
| Louis Therrien | Production Safety Services | P | general interest |
| Paulina Briones | TCC/Telescopic Crane | P | producer |
| Simon Jayes | Technocrane Ltd. | P | producer |
| Mark A. Hotchkiss | Technocrane Ltd. | A | producer |
| Vincent Zarlengo | Vincent Zarlengo | I | user |
| Robert Lynn | William F. White Ltd. | P | user |
| Mike Sinclair | William F. White Ltd. | A | user |
| | | | 24 principals and individuals |

The quorum requirement for the next meeting will be eight.

3 Approval of the minutes from the previous meeting

Kent Jorgensen moved that the minutes be accepted as written. The motion was seconded. Unanimously accepted by a voice vote.

4 Call for patents

Ed Clare read the following:

"ESTA intends to publish no standard that contains protected intellectual property, unless that property can be licensed by anyone for a reasonable fee. ESTA uses a

process of open patent disclosure to implement this intent. ESTA does not conduct patent searches and does not warrant that its standards contain no protected intellectual property. "

"In keeping with the open disclosure policy, I ask if anyone present wishes to notify the working group of the existence of a patent or copyright that might protect material in a standard being developed by the working group. You need not be the holder of the patent or copyright in order to notify the working group of its existence."

Clare paused to allow working group members to identify any protected intellectual property issues. None were identified.

and Anti-Trust Statement

Ed Clare read the following:

"The ESTA Board of Directors, the Technical Standards Committee, and the leadership of this Working Group will reject or nullify any actions that restrain trade. Anyone who feels that an action restraining trade is being or has been taken is requested to bring the matter to the attention of the chair immediately. Anyone who feels that actions in restraint of trade have been taken and not properly annulled is requested to notify the TSC chair or ESTA president immediately."

"ESTA legal counsel has informed us that any member of this working group may be found individually liable for any action that restrains trade taken by this working group. An individual convicted of a violation of the Sherman Act may be fined as much as \$100,000 and be imprisoned for up to three years. An easy to read pamphlet describing restraint of trade is available from the Technical Standards Committee."

Again, no issues were raised.

5 Approval of agenda

Kent Jorgensen moved that the agenda be approved as written. The motion was seconded. The motion was accepted unanimously on a voice vote.

6 Old Business

6.1 American National Standard for Cranes task group — Progress report

Kent Jorgensen reported that the task group had hoped to have a first draft finished for this meeting, but that a third is done. The task group will get a rough version finished in the next few weeks. It may have some "ridiculous" requirements, says Jorgensen, but the requirements will be in there because some requirement is needed and proposing something is one way to get a response. He requested that people respond to these requirements by proposing some requirements that are more reasonable. The draft document is based on the A92.6 standard.

6.2 Operators handbook task group

Kent Jorgensen pointed out that the handbook is not a standard. He said the text is done, and that an illustrator has been found. The task group is now negotiating the fee for the illustrations. .

Ed Clare asked Bill Groener, chair of ESTA's Technical Standards Committee, to explain what the TSC had decided to do about the working group's request to distribute the document for free via the web. Groener explained that the document would be distributed through the ESTA website. CCWG members wishing to distribute the document from their website would do so by providing a link to the ESTA site, where the document would be stored. Ruling explained that this would maintain control of the document so there would not be unauthorized changes. Also would make sure there is one version that is the current version.

There was an open discussion of money issues to support the work of the CCWG and the overseeing TSC. Kent Jorgensen pointed out that standards work costs money. Money is needed to cover staff salaries, office expenses, and, in this case, the fees of an illustrator.

6.2.1 Approval or revision of draft document

There was a general discussion of a new draft camera crane operator's handbook document, which was distributed at the meeting [appended to these minutes]. The topics discussed include curved tracks, track stops, replacement parts (including bolt grades), and whether gloves should be worn when handling uncoated lead weights, coated lead weights, or all weights. There was also a discussion of the advisability of pushing cranes over cables, and the practice of adding or removing weight from the weight bucket to make it nose or tail heavy.

It was decided that comments on the distributed draft document should be sent to Jorgensen via email (kentboy@earthlink.net) or via fax to 818-526-0719. Comments should be sent by 28 July. The task group worked out a time line for its work so that the revised document can be mailed to the working group in time to allow at least a 21-day working group ballot period (perhaps longer) with the ballot period ending September 30.

Tim Wade moved that the finished document be sent to the working group for acceptance by a letter ballot. On this ballot, votes of "accept" and "accept in principle" shall be considered positive votes. A simple majority will be enough to move the document forward to the TSC. The ballot shall have an abbreviated schedule so that it will close on September 30. The motion was seconded. The motion was accepted unanimously by a show of hands.

6.2.2 Publication and distribution

These topics were discussed above. There was no additional discussion.

7 New business

7.1 Discussion of the ongoing relationship of the working group and ESTA's TSP

There was a general discussion of fundraising.

7.2 Election of co-chairs for 2000-2001

Kent Jorgensen nominated Ed Clare as a co-chair. The motion was seconded. Tim Wade moved that Jimmy Fisher be the second co-chair. The motion was seconded. There was a voice vote to approve both. The nominees for chairs were accepted unanimously.

Bill Groener explained that officially the Technical Standards Committee appoints working group chairs. However, he did not expect the TSC to object to the working group's choice and expected that the TSC would honor it.

Andy Romanoff thanked the group for allowing him to serve as co-chair, and stated that he was very positively impressed by the level of cooperation within the working group.

8 Other business

None.

9 Schedule for future meetings

Ed Clare announced that the next meeting will be scheduled for mid-January 2001. The exact date will be determined after Karl Ruling's schedule for other meetings is consulted.

10 Adjournment

Louis Therrien moved that the meeting adjourn. The motion was seconded. The motion was approved unanimously by a voice vote. Ed Clare declared the meeting adjourned at 11:22 a.m.

Working group membership after processing of new membership requests:

| Name | Company | Parent Co./Org Represented | Vot. Stat | Int. Cat. |
|--------------------------|--|--|-----------|-----------|
| Kenneth Shore | ABC Products | ABC Products | O | P |
| Warwick Hempleman | Applied Film Theory | Applied Film Theory | O | U |
| Brian Branigan | Brian Branigan | Brian Branigan | I | U |
| Charles Huenergardt | Chapman/Leonard Studio Equipment, Inc. | Chapman/Leonard Studio Equipment, Inc. | P | P |
| Edward M. Smith | Chapman/Leonard Studio Equipment, Inc. | Chapman/Leonard Studio Equipment, Inc. | O | P |
| Leonard Chapman | Chapman/Leonard Studio Equipment, Inc. | Chapman/Leonard Studio Equipment, Inc. | A | P |
| Scott A. Howell | Cine Moves Inc. | Cine Moves Inc. | P | U |
| Nico Bally | Cranium Inc. | Cranium Inc. | P | G |
| Constant Tresfon | Egripment B.V. | Egripment B.V. | P | P |
| Boots, Managing Director | Egripment US | Egripment B.V. | A | P |
| Jan van Vlaardingen | Egripment B.V. | Egripment B.V. | A | P |
| Ken Eddy | Filmair | Filmair | P | P |
| Anatoliy Kokush | Filmotechnie International Corp. | Filmotechnie International Corp. | P | P |
| Bob Kewin | Fireman's Fund Insurance Company | Fireman's Fund Insurance Company | O | G |
| Paul Holehouse | Fireman's Fund Insurance Company | Fireman's Fund Insurance Company | O | G |
| Denise Dimin | Fireman's Fund Insurance Company | Fireman's Fund Insurance Company | O | G |
| Robert P. Joyce | Fireman's Fund Insurance Company | Fireman's Fund Insurance Company | O | G |

| Name | Company | Parent Co./Org Represented | Vot. Stat | Int. Cat. |
|-------------------|--------------------------------------|--------------------------------------|-----------|-----------|
| Daniel M. Mahoney | IATSE Local 52 | I.A.T.S.E. Local 52 | P | U |
| Timothy Wade | IATSE Local 600 | I.A.T.S.E. Local 600 | P | U |
| Mitch Lillian | Ichabod Crane Inc. | Ichabod Crane Inc. | P | U |
| Dennis McDonald | ISAIA & Co./Highrise Support Systems | ISAIA & Co./Highrise Support Systems | P | P |
| Roy Isaia | ISAIA & Co./Highrise Support Systems | ISAIA & Co./Highrise Support Systems | A | P |
| Dennis Knopf | J. L. Fisher, Inc. | J. L. Fisher, Inc. | P | P |
| Jimmy Fisher | Jimmy Fisher Co. | Jimmy Fisher Co. | P | P |
| John S. Leeward | Leeward Camera Systems | Leeward Camera Systems | P | U |
| Claus H. Boelter | Movie Tech LP | Movie Tech LP | P | P |
| Kent H. Jorgensen | MPS Grips, Local 80 | MPS Grips, Local 80 | P | U |
| Rex Worthy | MPS Grips, Local 80 | MPS Grips, Local 80 | A | U |
| Joel Johnson | O Connor Engineering | O Connor Engineering | P | P |
| Audiel R. Lam | O Connor Engineering | O Connor Engineering | A | P |
| Andy Romanoff | Panavision Remote | Panavision | P | P |
| Ralf Przybilla | Panther | Panther | P | P |
| Ed Clare | PERA | PERA | P | G |
| Louis Therrien | Production Safety Services | Production Safety Services | P | G |
| Richard Fezzey | Richard Fezzey | Richard Fezzey | O | U |

| Name | Company | Parent Co./Org Represented | Vot. Stat | Int. Cat. |
|-------------------|-----------------------|----------------------------|-----------|-----------|
| Tim Smythe | Silvertrucks | Silvertrucks | O | G |
| Scott Taylor | Taylor & Taylor Ltd. | Taylor & Taylor Ltd. | O | G |
| Paulina Briones | TCC/Telescopic Crane | TCC/Telescopic Crane | P | P |
| Simon Jayes | Technocrane Ltd. | Technocrane Ltd. | P | P |
| Mark A. Hotchkiss | Technocrane Ltd. | Technocrane Ltd. | A | P |
| Colin Waters | TMB Associates | TMB Associates | O | G |
| Vincent Zarlengo | Vincent Zarlengo | Vincent Zarlengo | I | U |
| Eckart Steffens | SOUNDLIGHT | VPLT | O | G |
| Robert Lynn | William F. White Ltd. | William F. White Ltd. | P | U |
| Mike Sinclair | William F. White Ltd. | William F. White Ltd. | A | U |

Voting Status

P Principal voting representative for a company or organization

A Alternate voting representative for a company or organization

I Individual representing no organization other than himself or herself

O Observer; non-voting

Categories of interest

P Producer (manufacturer) of camera cranes and related equipment

U User of camera cranes and related equipment

G General interest in camera cranes and related equipment

Draft Purposes Only

6/15/00

CAMERA CRANE

OPERATOR'S HANDBOOK

Camera crane illustration



1. A camera crane is safe if used properly. However, improper use, assembly and disassembly can cause property damage, serious bodily injury and even death. This handbook of safe practices, procedures and conditions coupled with common sense, good judgment and proper evaluation of each situation will greatly reduce the risk of accidents.

This handbook is a recommendation. All pertinent laws and regulations take precedent and should be followed. **NOTE ABOUT REFLECTING CURRENT STATE OF THE ART, WHICH WILL CHANGE.**

1.1. A safe attitude is the single most important element of preventing accidents. Decide that you will use a crane the correct way. Decide that you will not have an accident.

1.2. As the Camera Crane Grip, you are the camera crane expert. Take charge of the camera crane. Everyone should know who is in charge of and operating, the camera crane.

Use good sense
Take charge

1.3. Clause about sound mind and body.

2. Training

2.1. Increase your experience and knowledge in operating camera cranes of your craft. Read camera crane manuals, attend training, watch videos, talk to co-workers and stay current on equipment and skills.

Assemble and/or operate camera cranes only with trained and authorized personnel.

Educate yourself
Use trained personnel

3. Camera Crane Selection

3.1. Evaluate the requirements of the shots(s) to make a decision on which crane to use. Take all criteria into consideration including the following: Height, reach, space limitations, speed, environmental conditions, access to site, exposure to hazards, weight limits, load requirements, remote or rideable operation and prior experience.

Access to site
Choose the right crane
Exposure to hazards
Height
Load requirements
Prior experience
Reach
Remote or rideable operation
Space limitations
Weight limits

4. Inspection

4.1. Inspect the crane prior to and during assembly. The camera crane should have been inspected prior to shipping. Because damage may occur during transportation, inspect the crane components again prior to and during assembly.

4.2. Also inspect and test a camera crane prior to operation but after assembly and set up to ensure all aspects are operating properly.

4.3. Inspect camera cranes before each day or at the beginning of each shift with qualified personnel (e.g., key grip, camera/dolly grip vendor's representative or other qualified personnel as determined by the Producer) following an inspection protocol supplied by the manufacturer.

4.4. If components are missing, damaged or improperly fitted, remove the crane from service immediately. Replace or repair missing or damaged components in accordance with the

manufacturer's procedures and specifications prior to the crane being returned to service.

4.5. Include, but do not limit, the inspection to the following tests and visual inspections:

- (a) Structural components
- (b) Operating mechanisms for poor adjustment interfering with proper operation
- (c) Operating mechanisms for excessive wear
- (d) Emergency controls
- (e) Safety devices
- (f) Personal protective devices including seat belts and fall protection
- (g) Hydraulic system leaks
- (h) Cables and wiring harness
- (i) Loose or missing parts
- (j) Tires and wheels
- (k) Placards, warnings and control markings
- (l) Outriggers, stabilizers and other structures
- (m) Other items specified by the manufacturer

4.6 Survey the entire working area including the path to and from the area in which the camera crane will be used. Look for the following hazards and any others:

- (a) Drop-offs, holes or uneven ground
- (b) Cables and hoses
- (c) Bumps and ground obstructions
- (d) Debris
- (e) Overhead obstructions
- (f) High voltage conductors
- (g) Explosive and/or flammable atmosphere locations
- (h) Inadequate surface and support to withstand all load forces
- (i) Wind and weather conditions including man-made effects
- (j) Presence of unauthorized persons
- (k) Special effects
- (l) Other possible unsafe conditions

4.7. Inspect the crane

4.8. Before assembly

4.9. Before operation

- (a) Cables/wiring
- (b) Each day/shift
- (c) Emergency controls
- (d) Excessive wear
- (e) Leaks
- (f) Manufacturer items
- (g) Missing parts
- (h) Outriggers/stabilizers
- (i) Placards/warnings
- (j) Poor adjustment
- (k) Replace or repair missing/damaged components
- (l) Safety devices
- (m) Seat belts
- (n) Structural components
- (o) Inspect the area
- (p) Bumps/ground obstructions
- (q) Debris
- (r) Drop-offs/holes
- (s) Explosive/flammable atmosphere
- (t) High voltage conductors
- (u) Overhead obstructions
- (v) Special effects
- (w) Surface/supports for load
- (x) Unauthorized persons
- (y) Wind/weather
- (z) Other conditions

5. Assembly/Set Up

5.1. Allow sufficient time to assemble, set up, inspect and test equipment prior to use.

5.2. An assembly/usage manual, supplied by the manufacturer/vendor, should accompany each camera crane. The manual should clearly show assembly, set up, inspection, operation,

maintenance and storage instructions and maximum payload and gross weight in all configurations. Read and follow the assembly/usage manual.

5.3. Camera cranes have heavy parts and may require considerable force and precision to assemble. **Have an adequate number of persons available to lift, lower or position parts.** Alternatively, use hoists, lifts, tailgates or other mechanical handling equipment to assemble or move the unassembled camera crane where feasible.

5.4. Adequately brace or block camera crane parts against falling during assembly or disassembly.

5.5. During assembly, keep the arm in balance as much as possible. Build out the front and back of the arm, adding counter weights as necessary. Use a manufacturer-supplied support or a support adequately stable and rated for the capacity.

While building the crane

5.6. Tying the arm to the base while loading or unloading weights may cause the crane to become unstable and/or tip over. Do not tie the arm to the base unless this procedure is specified by the manufacturer.

5.7. Use the largest base and lowest tilt point possible to maximize the stability of the camera crane. The height, length and total load of the crane determines the appropriate base. Refer to the manufacturer's assembly/usage manual or contact the manufacturer to determine the appropriate base.
(Illustration)

5.8. Make certain the camera crane base is positioned on a flat and level surface, platform or track system capable of supporting the load. Take the weight of all personnel, equipment and the camera crane into consideration.

5.9. Assembly or use of a camera crane on a slope or incline can be dangerous. It increases the likely hood of instability or tipping over.

Use wheel chocks under at least two wheels on slightly inclined surfaces. Refer to the manufacturer's recommendations for use on a slope or incline.

5.10. Brace crane tracks built on a slope or incline to ensure they will not slip, slide or fall down the slope.

5.11. When mounting a camera crane on tracks, level the tracks in both directions so the camera crane will not tip sideways or frontward/backward.

5.12. Install wedges or other track leveling materials so that they can't be kicked or knocked out of position.

5.13. Place appropriate safety stops (e.g. sandbags or clamps) near the ends of the crane tracks to prevent the camera crane from over running the tracks. **Do not depend on these stops.** Always bring the crane and its base to a gentle stop before coming to the end of the track.

5.14. Do not exceed the maximum payload of the crane arm specified by the manufacturer. Do not use counterbalance weights beyond the maximum number specified by the manufacturer/vendor. Consult the manufacturer/vendor regarding configurations that are not explicitly specified in the assembly/usage manual.

5.15. Properly secure all equipment and items on a camera crane to protect against falling and striking personnel. There should be no loose items on the crane.

5.16. If the camera crane is equipped with outriggers/stabilizers, follow the manufacturer's/vendor's instructions regarding their proper use. Take care that the feet of the outriggers/stabilizers will not sink into soft soil or asphalt, otherwise, the unit may become unstable and/or tip over. Use adequate means of distributing the outrigger/stabilizer load.

PUT IN APPROPRIATE VERB IN FRONT

- (a) Follow the manufacturer's manual
- (b) Allow enough time for set-up, inspection and test
- (c) Make available sufficient crew and/or handling equipment
- (d) Braced or blocked all parts
- (e) Do not tie boom arm to base unless specified
- (f) Use largest base possible
- (g) Operate on flat/level surface
- (h) Chock two wheels on incline
- (i) Brace dolly tracks
- (j) Level dolly tracks
- (k) Secure wedges and other support
- (l) Place safety stops near the ends of track
- (m) Do not exceed maximum payload
- (n) Secure all equipment/objects against falling
- (o) Support outrigger feet

6 Operation

- 6.1. Read and follow all manufacturer's placards on the equipment.
- 6.2. Become familiar with the camera crane you are going to use. Practice with it until you are comfortable with its feel, movement and operation.
- 6.3. Conduct a rehearsal or “walk-through” to communicate the intended camera crane action and possible deviations to all persons involved to ensure they are aware of its movement. Rehearse scenes so that everyone concerned becomes familiar with the intended motion of the camera crane. If any change becomes necessary, communicate it to all persons involved and confirm everyone understands and agrees to said change(s).
- 6.4. Seat belts should be provided on all camera cranes that carry passengers. Make sure all passengers use them.
- 6.5. When operating a camera crane, ensure that there is adequate clearance for operation. Consider potential obstructions or hazards, such as power lines, helicopter rotors, fire sprinkler heads, etc. Establish a safe operating zone with qualified personnel and the

designated on-set safety coordinator. Have the designated on-set safety coordinator maintain the safe operating zone.

- 6.6. Persons may be struck by moving or operating camera cranes. Keep all non-essential personnel clear of safe operating zone.
- 6.7. If the crane arm and/or bucket comes in contact with structures on the base such as, handles or speed rail the momentum of the crane, may cause the unit to become unstable and/or tip over.
- 6.8. Maintain visibility between the crane operator and the nose of the crane to ensure the crane does not strike any personnel or objects. When operating the crane over a wall, partition or obstruction, use a spotter to maintain line of sight.

6.9. Personnel shall only mount and dismount when given permission by the operator in control of the crane arm. Arm balance must always be maintained.

6.10. High voltage lines represent a hazard to cranes. The table below gives minimum approach distances required by regulation.

6.11. Do not operate a camera crane within 10 feet of high-voltage power lines of 50,000 volts or less.

| Nominal Voltage | Minimum Required Distance (Feet) |
|---------------------------|---|
| 600 to 50,000 | 10 |
| over 50,000 to 75,000 | 11 |
| over 75,000 to 125,000 | 13 |
| over 125,000 to 175,000 | 15 |
| over 175,000 to 250,000 | 17 |
| over 250,000 to 370,000 | 21 |
| over 370,000 to 550,000 | 27 |
| over 550,000 to 1,000,000 | 42 |

Source: Title 8 California Code of Regulations, Subchapter 5, Group 2, Article 37 , Section 2946

29 Code of Federal Regulations 1926.451(F)(6)

6.12 Do not operate any part of a camera crane directly under high-voltage power lines unless the maximum reach of the crane, equipment and personnel are outside the minimum required distance in the table above.

6.13. Do not operate any part of a camera crane over high-voltage power lines.

6.14. Use a remote head in situations where there is a significant risk to the passengers.

6.15. Wear appropriate protective gloves when handling uncoated lead counterweights and wash hands after use.

6.16. Correct or report any crane-related unsafe practices, procedures or conditions to the appropriate person.

6.17. Use caution pushing camera cranes over cables, speed bumps, curbs or other uneven surfaces. This can cause the unit to become unstable and/or tip over.

6.18. Clear the dolly path of objects that might puncture the.

6.19. Use extreme caution moving or operating a camera crane up or down an incline. The unit may break loose, become unstable and/or tip over.

6.20. Use extreme caution when operating a camera crane on curved track or curved path. Be aware that excess speed could cause the unit to tip over.

6.21. When moving a camera crane on or off track, reduce the arm weight to allow for safe movement to minimize the chances of the unit unstable and or tipping over. Always maintain balance.

- (a) Familiarize yourself with equipment
- (b) Practice movement and operation
- (c) Dry run/walk-through action with those involved
- (d) Maintain recommended clearance from: power lines and conductors, helicopter rotors and fire sprinkler heads
- (e) Use caution pushing over cables, speed bumps or curbs
- (f) Caution up or down an incline
- (g) Clear the path of all obstructions.
- (h) Clearance between jib arm or bucket and base obstructions
- (i) Communicate any changes in the shot
- (j) Correct or report unsafe practices, procedures or conditions
- (k) Gloves for uncoated lead weights
- (l) Washed hands after using lead
- (m) Maintain required distance when operating under or near high voltage power lines maintain.
- (n) Do not operate over high voltage power lines
- (o) Use extreme caution on curved track/path
- (p) Maintain visibility of a crane or use a spotter.
- (q) Clear non essential personnel from the safe operating zone
- (r) Mount or dismount only when given permission by operator.
- (s) Follow manufacturer's placards
- (t) Reduce arm weight when moving on/off track. Maintain balance.
- (u) Use a remote head when there is significant risk to personnel.
- (v) Establish a safe
- (w) maintain a safe operating zone maintained
- (x) Use seat belts or other fall protection

7. Insert Camera Car

7.1. All rigging of equipment is to be performed in a safe manner:

7.1.1 By qualified experienced personnel.

7.1.2. In an area secured for the purpose of rigging and free of known hazards, including other vehicular traffic.

7.1.3. Additionally, the driver will inspect the vehicle after rigging changes are made to ensure they won't adversely affect safe operation of the vehicle.

7.2. All equipment, including camera cranes shall be secured to the vehicle only in accordance with manufacturer's recommendations.

7.3. Use risers that are designed and manufactured to withstand forces generated by a camera crane in motion. Not all risers are strong enough for every system or intended for use with a camera car stopping fast.

7.4. Always rehearse shots under controlled conditions to ascertain safety in movement not only of the vehicle but the boom arm as well.

7.5. The camera crane vehicle and crane arm shall be checked before and after use by a qualified experienced driver/operator, and that operator must be present during any use of the vehicle or boom arm. The driver/operator shall have the authority to make any adjustments or decisions that may affect the safe operation of the vehicle and or crane arm.

7.6. Use a remote head when operating a camera crane arm whenever mounted on an insert car.

- (a) Rig in an area free of traffic
- (b) Secured to the vehicle in accordance with manufacturer's recommendations
- (c) Rehearse the shot under actual filming conditions
- (d) I Inspected the crane before and after every use
- (e) Use only remote head on crane arms mounted on insert cars.
- (f) Use appropriate riser

8. Weather

8.1. Do not use a camera crane when exposed to extreme weather conditions, including thunderstorms, heavy rain, extreme heat or cold, etc. whether natural or man-made, unless appropriate provisions are taken to ensure worker protection and safety.

8.2. Do not operate a camera crane if there is a probability of being struck by lightning.

8.3. Do not use a camera crane arm when winds make it difficult to be control by one operator or when the wind speed exceeds the manufacturer's recommendations. Never operate a camera arm in winds greater then 25 miles per hour.

8.4. Most camera cranes are designed to operate in moderate temperatures. If you will be using the crane in extremes of hot or cold temperatures, contact the manufacturer for information on safe operations in this application.

- (a) Do not operate in adverse weather
- (b) Take appropriate provisions in heavy rain, extreme heat or cold
- (c) Do not operate when lightning is present
- (d) Do not use in unsafe winds

9. Storage

9.1. Secure unattended camera cranes by locking or choking the wheels and by adding or removing weight to the arm... When leaving a crane outdoors, secure the crane arm nose to the ground.

9.2. When storing a crane, make it nose or tail heavy by adding or removing weight from the weight bucket. Never use sandbags or temporary weights to secure the crane for storage.

9.3. Store a camera crane on a flat and level surface, platform or track system capable of supporting the intended load. Do not store it on an incline.

- (a) Secure unattended camera crane

- (b) Weight nose down
- (c) Stored on level surface

10. Maintenance

10.1. Maintain a camera crane according to the manufacturer's/vendor's instruction.

10.2. Anytime a camera crane is used in dusty, sandy, salty or other adverse environments, clean and inspect it. If necessary perform any maintenance recommended by the manufacturer.

- (a) Manufacturer's maintenance recommendations
- (b) Dirty, dusty, sandy, salty environments

11. Definitions

11.1. Authorized personnel (authorized person): Approved or assigned to perform a specific type of duty or duties at a specific location or locations at a work site.

11.2. Camera Crane: A, counterbalanced, camera platform used for moving the camera and/or its associated crew in any direction required.

11.3. Camera Crane Grip: A person qualified in the use and operation of a camera crane.

11.4. Dolly/Base: Manual or powered cart used to provide movement for camera crane.

11.5. Dolly Grip: A person qualified in the use and operation of a dolly.

11.6. Insert Camera Car: Any self propelled vehicle specifically engineered for mounting and manning cameras and other equipment for the primary purpose of filming from a stationary or moving vehicle.

11.7. Manufacturer: A person or entity who makes, builds or produces a camera crane, dolly or camera support equipment.

11.8. Camera Crane Operator: A qualified person who controls the movement of a camera crane.

11.9. Outriggers: Device that increases the stability of a camera crane, and that are capable of lifting and leveling the camera crane.

11.10. On Set Safety Coordinator: The employer's designated safety person. Generally, the First Assistant Director or his/her qualified designee.

11.11. Qualified person/designee. A person who by reason of knowledge, experience or training is familiar with the operation to be performed and the hazards involved.

11.12. Safe Operating Zone: An area where the movement of the crane shot has been evaluated for potential hazards.

11.13. Stabilizers: Devices that increase the stability of a camera crane but are not capable of lifting it.

11.14. Trained: Received instruction on the use and operation of a camera crane and can demonstrate the ability to follow the instructions.

11.15. Vendor: A person or entity who buys from a manufacturer or distributor and who generally sells, rents and services camera cranes.

REVIEW

A camera crane can be very safe if used properly. However, improper assembly, disassembly and operation have caused in the past, and can cause in the future, property damage, serious bodily injury and even death. This handbook of safe practices, procedures and conditions coupled with common sense, good judgment and proper evaluation of each situation will greatly reduce the risk of similar tragic accidents.

However, a safe attitude is the single most important element of preventing accidents. Decide that you will not use a crane the wrong way. Decide that you will not have an accident. [NICO WANTS THIS CHANGED TO POSITIVE STATEMENTS.]

As the Camera Crane Grip, you are the camera crane expert. Take charge of the camera crane. Everyone should know who is in charge of, and operating, the camera crane.

12. Checklist

1. Use good sense
2. Take charge

13. Training

1. Educate yourself
2. Use trained personnel

14. Camera Crane Selection

1. Choose the right crane
2. Height
3. Reach
4. Space limitations
5. Access to site
6. Exposure to hazards
7. Weight limits
8. Load requirements
9. Remote or rideable operation
10. Prior experience

15. Inspection

1. Inspect the crane
2. Before assembly
3. Before operation

4. Each day/shift
5. Structural components
6. Poor adjustment
7. Excessive wear
8. Emergency controls
9. Safety devices
10. Seat belts
11. Leaks
12. Cables/wiring
13. Missing parts
14. Placards/warnings
15. Outriggers/stabilizers
16. Manufacturer items
17. Replace or repair missing/damaged components
18. Inspect the area
19. Drop-offs/holes
20. Bumps/ground obstructions
21. Debris
22. Overhead obstructions
23. High voltage conductors
24. Explosive/flammable atmosphere
25. Surface/supports for load
26. Wind/weather
27. Unauthorized persons
28. Special effects
29. Other conditions

16. Assembly/Set Up

1. Read/follow the manual
2. Allow enough time for set-up, inspection and test
3. Crew and/or handling equipment available
4. Parts braced or blocked
5. Arm not tied to base
6. Manufacturer's height to base width ratio followed
7. Largest base possible used
8. Flat/level surface
9. Two wheels chocked on incline
10. Dolly tracks braced
11. Dolly tracks leveled

12. Wedges secured
13. Safety stops on track ends
14. Maximum payload not exceeded on boom arm
15. All equipment/items secured against falling
16. Outrigger feet supported

17. Operation

Familiarize yourself with equipment

1. Practice movement and operation
2. Dry run/walk-through action with those involved
3. Rehearse movement
4. Communicate changes
5. Read and follow placards
6. Seat belts used
7. Adequate clearance from: power lines and conductors, helicopter rotors and fire sprinkler heads
8. Safe operating zone established
9. Safe operating zone maintained
10. Clearance between jib arm or bucket and base obstructions
11. Personnel clear of operating areas
12. Operating area marked with flags, signs or cones
13. Operator sees nose or communicating with spotter
14. Personnel notified to step off only after Operator approval
15. Outside minimum distances from power lines
16. Not over power lines
17. Not under power lines
18. Remote head used when extended from bridge, cliff or building
19. Gloves for uncoated lead weights
20. Hands washed from lead
21. Correct or report unsafe practices, procedures or conditions
22. Do not run over cables, speed bumps or curbs
23. Clear the path of nails, glass or sharp metal
24. Operate carefully on curved track/path
25. Reduce arm weight when moving on/off track

Insert Camera Car

1. Rigging area free of traffic

2. Secured to the vehicle
3. Vehicle speed safe
4. Shot rehearsed with vehicle moving
5. Set-up inspected before and after use
6. Remote head used on moving vehicle
7. Riser can withstand forces

19. Weather

1. Do not operate in adverse weather
2. In thunderstorms, heavy rain, extreme heat or cold
3. With epoxy/graphite in extreme cold or hot
4. In wind over 25 miles per hour
5. When lightning is probable

20. Storage

1. Unattended camera crane secured
2. Nose not weighted down
3. Nose not tied down
4. Stored on level surface
5. Base secured on ice or snow

21. Maintenance

1. Dirty, dusty, sandy, salty environments
2. Manufacturer's maintenance recommendations
3. Seat belts