



Hand Crank

Instruction Manual

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2. Safety Instructions and Legal Disclaimer

2.1. Safety Instructions


 Please follow these instructions to help ensure against injury to yourself and damage to the system or other objects. This safety information is additional to the product-specific operating instructions in general and must be strictly observed for safety reasons. They are no substitute to settled down your own safety measures.


Warning signs


 Possible risk of injury or damage to equipment.


 This symbol indicates the risk of electrical shock or fire danger that could result in injury or equipment damage.


General Safety Instructions


 Read and understand all safety and operating instructions before you operate or install the system.







 Retain all safety and operating instructions for future reference.



 Heed all warnings on the system and in the safety and operating instructions before you operate or install the system. Follow all installation and operating instructions.

 Do not use accessories or attachments not recommended by ARRI, as they may cause hazards and void the warranty.

 Do not repair any part of the system. Repairs must be carried out by authorized ARRI repair shops.

 Do not remove any safety measure of the system.

-  Do not operate the system in high humidity areas or expose it to water or moisture.
-  Do not place the system on an unstable cart, stand, tripod, bracket or table. The system may fall, causing serious personal injury and damage to the system or other objects.
-  Operate the system using only the type of power source indicated in the manual. Unplug the power cord by gripping the plug, not the cord.
-  Never insert objects of any kind into any part of the system through openings, as the objects may touch dangerous voltage points or short out parts. This could cause fire or electrical shock.
-  Unplug the system from the power outlet before opening any part of the system or before making any changes on the system, especially the attaching or removing of cables.
-  Do not use force!

-  Do not use solvents in cleaning!
-  Do not remove any screws which are secured with paint!

Any violation of these safety instructions or the non-observance of personal care could cause serious injuries (including death) and damages on the system or other objects.

Product specifications

In the case of inquiries or when ordering parts, please advise serial number and model.

Explanation of the Symbols in the manual

Note: Indicates important remarks and cross references.

 **Caution!**

Indicates subjects of particular importance

2.2 Disclaimer

Before using the products described in this manual be sure to read and understand all respective instructions. The ARRI Hand Crank is only available for commercial customers. The customer grants by utilization, that the ARRI Hand Crank or other components of the system are only deployed for commercial use. Otherwise the customer has the obligation to contact ARRI preceding the utilization.

While ARRI endeavors to enhance the quality, reliability and safety of their products, customers agree and acknowledge that the possibility of defects thereof cannot be eliminated entirely. To minimize risks of damage to property or injury (including death) to persons arising from defects in the products, customers must incorporate sufficient safety measures in their work with the system and have to heed the statuted canonic use.

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3. Description

The Hand Crank HC-1 offers run-speed control of an ARRIFLEX 435 Advanced or 435 Xtreme camera via a hand-wheel. This feature enables film shooting in the style of hand-cranked silent movies combined with the convenient advantages of a state-of-the-art motion picture camera.

Features:

- Run forward or reverse (direction set on the camera)
- 3 different gear ratios: approx. 16 frames, 8 frames or 4 frames per revolution
- Gear ratios may be changed during hand crank operation
- Ramp speed can be changed in hand crank operation mode (movement has to stand still)
- Dynamic switching between NORM operation and hand crank (PS/CCU) camera mode during standby

3.1 ARRI order numbers

K2.55022.0	Hand Crank HC-1
K4.65321.0	Cable HC-1 (1.5 m/5 ft) KC-106-S Connects HC-1 to 435 Advanced or 435 Xtreme 25 pin motion control connector

3.2 System requirements

ARRIFLEX 435 Advanced or 435 Xtreme camera with Software Version V02.83 and Firmware Version V03.06 or higher.

Cable HC-1 (1.5 m/5 ft) KC 106-S

ARRI Power Unit NG12/26-R for LO and Std ramp speed and less than 60fps.

For HI ramp speed and more than 60 fps demands a camera battery NC24/7R or any power supply unit with at least 28V / 15 A DC capability should be used.

3.3 Mounting facilities

The Hand Crank HC-1 may be mounted through a 3/8" tapped hole in-axis, as well as on the four M5 tapped holes at the Hand Crank's casing.

A suitable handwheel (not provided with the Hand Crank) can be ordered seperately:

K2.34385.0 Handwheel small



Mounting example ARRIHEAD

K2.52153.0 WHA-2 Rosette Bracket

K2.52225.0 Dovetail Shoe



Mounting example ARRIFLEX 435

K2.55018.0 Hand Crank Support



Mounting example Sachtler Head

K2.52153.0 WHA-2 Rosette Bracket

K2.52225.0 Dovetail Shoe

K4.53058.0 Sachtler Rosette Adapter large

K4.53057.0 Sachtler Rosette Adapter small

4. Setup

Fasten the Hand Crank on a convenient position using the previously mentioned accessories. Connect the KC 106-S cable to the Hand Crank and the 435 Advanced / Xtreme 's 26pin Motion Control connector on the right camera side.

Note: *Never attempt to extend the KC 106-S using a self-made cable extension. In the 26-pole cable connector there are built-in electronics, which possibly will not work with inapplicable equipment. If you should have the need for a longer connection cable, please contact your local ARRI Service Dept.*

5. Operating

Power-on the camera.

The camera detects the Hand Crank automatically and will insert the Hand Crank menu ("EC" stands for External Control).

Select PS/CCU on the NORM/PS switch.

Press the MODE button repeatedly until the Hand Crank menu appears on the camera display.

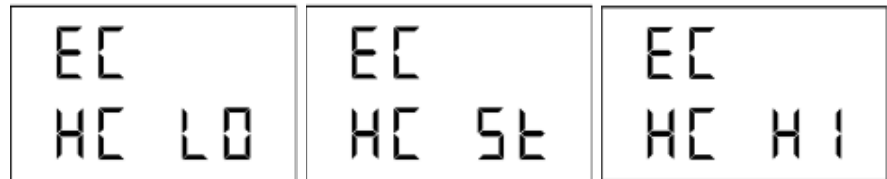


Push the SEL button and select one out of three gear ratios:

Gear ratio HC LO 1:1 4,096 frames per revolution

Gear ratio HC St 1:2 8,192 frames per revolution

Gear ratio HC HI 1:4 16,384 frames per revolution

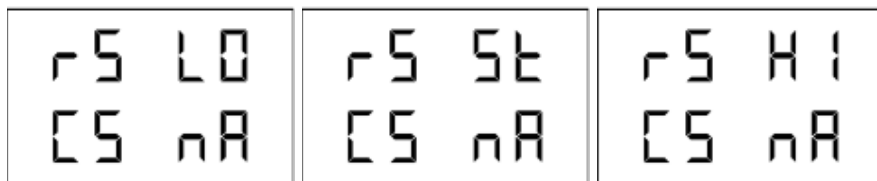


Confirm your selection pushing the SET button.

NOT READY will flash-up shortly on the display and the green RUN Led will light up steadily.

Now the camera speed may be controlled by the rotation speed of the Hand Crank wheel.

The preceding ramp speed menu enables the selection of one out of three acceleration values:



Ramp Speed LO	25fps ²	smooth speed changes
Ramp Speed St	40fps ²	medium speed changes
Ramp Speed HI	100fps ²	fast speed changes

The selection procedure is the same as described in the previous paragraph.

Note: *Maximum camera speed and Ramp Speed will be automatically limited to the magazine capabilities. For details please refer to the 435 Advanced / 435 Xtreme User Manual*

The camera will run either forward OR reverse only, due to safety reasons.

To change direction either disable the Hand Crank control in the Hand Crank menu or push the NORM/PS switch to NORM position. Then the Change Direction selection will be available in the PS menu as usual.

Once you have activated the Hand Crank mode, you may quickly switch over to pre-selected camera NORM and PS/CCU speeds in between, without losing the Hand Crank settings:

Push the NORM/PS switch to the NORM position. The selection will terminate the Hand Crank mode immediately. Pressing the RUN button will start the camera with the selected NORM speed. You may then push the NORM/PS switch to the PS/CCU position and the camera will run at the set PS/CCU speed or follow an optionally connected RCU control.

After camera STOP the Hand Crank mode will be reentered automatically with the NORM/PS switch in the PS/CCU position.

For magazine change and movement threading push the NORM/PS switch to NORM position also. In this mode the camera functions are available as used.

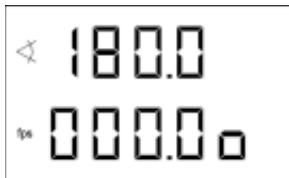
Note: *After power-on, External speed Control in the Hand Crank menu is always OFF.*

In Hand Crank mode the viewing position can be monitored on the display in the main (fps) menu.

A "C" (Closed) as displayed below in the main menu shows the mirror viewing position



Mirror position "o" (open) as displayed enables film exposure



Note: *The displayed shutter angle depends on the actual set angle!*

This function is available at very low camera speeds only, at higher speeds the "o" "C" toggle will be disabled.



6. ARRI Service

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