

**MULTIQUARTZ** is a name well known and appreciated by many **Directors of Photography**, that use it with satisfaction since many years and love its ruggedness, coupled to its unique features both electronics and mechanics.

# MULTIQUARTZ

MULTICONTROL FOR **ARRI 35 III**

## OPERATING INSTRUCTIONS



The **MULTIQUARTZ** is a very sophisticated, yet rugged unit that is used together with **Arri 35 III** cameras, designed **according the needs of ever more demanding Film Industry**.

No modification is necessary to the camera!

The unit, after being mechanically and electronically connected, can be immediately used.

All the controls are ergonomically set on the front panel so, with a short practice, You will be acquainted and familiar with the control knobs to start filming with Your **MULTIQUARTZ**.

**It is advisable, to get immediately the best from Your MULTIQUARTZ, to spend a few minutes reading and understanding the following pages.**

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## CRYSTAL CONTROLLED SPEED OPERATIONS



Through the **MAIN Selector knob (1)**, is possible to select the following frame rates :

Upper Range:	4.5	9	18	36	72	switch (2) on 18
	6	12	24	48	96	switch (2) on 24




switch (2)

Lower Range:	6.25	12.5	25	50	100	switch (3) on 25
	7.5	15	30	60	120	switch (3) on 30

switch (3)

All these speeds are **Crystal controlled** with an accuracy of  $\pm 15$  ppm, corresponding to  $\pm 1$  frame over 1.000 feet .

These speeds can be varied up or down, even when the camera is running, allowing the possibility to make unique special effects (provided the necessary **f/stop** adjustments) .  
 Within each range (18 - 24 - 25 - 30) each speed differs from the next of exactly one **f/stop** .

When the **MAIN Selector knob (1)** is set on any position from 6 to 48 (4.5 to 36) or from 6.25 to 50 (7.5 to 60), the **auxiliary selector switch (4)** **MUST** stay on its central position !  
 Only in this case the speeds will be selected through the **MAIN Selector knob (1)** !

This **switch (4)** gives You the possibility to use two extra crystal controlled speeds:

**23.976**    and    **29.97**    fps

**23.976** fps must be used with **144° shutter** : it is employed to shoot both playing actors and TV sets on the same scene, locking the “shutter bar” on television sets.

**29.97** fps must be used with **180° shutter** : it is employed to film only the screen of a television set , without people moving.

Both these speeds are for filming television sets working on **NTSC** System (U.S.A. , Japan, etc.)

The **selector switch** (4) is automatically unoperative, for safety purposes, when the **MAIN control knob** (1) is set on **96 (72)**, **VAR** or **100 (120) fps**.

## PHASE TV

**PHASE TV** red pushbutton (5) is used, when the camera is running, to change smoothly the speed of the camera . It works at any selected rate of fps.

When it is used with TV filming speeds, with appropriate shutter setting, it moves the “shutter bar” in any desired position within the frame . When the button is released, “shutter bar” is locked in the selected position.

When this button is depressed when camera is off, it allows to film short slates or to check the correct film loading.

## HIGH SPEED OPERATIONS

The following **HIGH SPEED** rates are available:

**96 (72)** and **100 (120) fps**: all of these Crystal controlled.

On **VAR** mode at any speed up to **130 fps**.

During **HIGH SPEED** operations, the selected speed is automatically reached smoothly with a soft start using an **acceleration “ramp”**, making easier and safer the filming even with full load and cold weather.

**SYNC** speed green cue light will glow when sync is reached.



An auxiliary 12 V battery is needed to shoot **HIGH SPEED** takes . It must be plugged into the auxiliary 4 pin Cannon connector, located on the right side of MULTIQUARTZ.

The plug of the connection cable **MUST** have absolutely the same outputs of the camera cable!

**Any spare camera cable is valid !**

## VARIABLE SPEED OPERATIONS

When the **MAIN selector knob** (1) is set on **VAR** position, the speed can be manually changed through infinite positions, with **control knob** (8) from **2** up to **50 fps** on normal operations. When **HIGH SPEED** is selected, speed rates from **2** up to **130 fps** are available. A second 12V battery must be connected to the MULTIQUARTZ.

**Selector switch** (7) must stay on **2 - 50/130** position.

MULTIQUARTZ has a special feature: the **CMP (COMPUTER)** position of the **selector switch** (7), that allows a fine micrometric adjustment of the speed from **26** up to **36 fps** with the same **control knob** (8). This is used to film computer monitors, that usually are not running on exact TV sync frame rates. Camera shutter must be set on **180°** position.

Camera speed must be adjusted with **control knob** (8) turning it gently until the "shutter bar" in the monitor is stationary. Then You move it off the frame just pressing the **PHASE TV** red **pushbutton** (5), as usual. This can be rehearsed without film.

## MULTIFUNCTION DISPLAY

The **MULTIFUNCTION Display** is a powerful tool inside the MULTIQUARTZ.

The display shows **in advance** the selected speed, when the camera is off. This feature allows to save film stock, especially when You select a speed on **VAR** mode, with camera not running.

You will soon appreciate this feature: it is very important to know and check the selected frame rates always in advance!

When the camera starts, automatically the **Tachometer** will show the actual speed of the camera. **The accuracy** of the reading is:  $\pm 0.1$  fps.

When on **SINGLE FRAME** mode, the display will change automatically into **Exposed frames counter**, so that the display will not show any longer the speed, but the exposed frames.

## CAM - MQ

The **switch** (9) **CAM - MQ** selects the operation mode either from internal controls of the camera (**CAM**) or from MULTIQUARTZ (**M.Q.**).

When the **switch** (9) is set on **CAM** position and the camera is off, the display will show only the speed selected from MULTIQUARTZ, because there is no sufficient information available from camera electronics to know the **fps** in advance.

When the camera is running, actual speed is shown with better resolution of the camera tachometer.

## SINGLE FRAME OPERATIONS

On **SINGLE FRAME** position, selected through the **MAIN control knob** (1), the **multifunction display** will change automatically from **Tachometer** to **Exposed frames counter** and the same **Phase TV red pushbutton** (5) will be then used for single shots .

**RESET pushbutton** (11) , is used to zero all the digits of the display, anytime is needed .



Switch (2)

Two operations mode are possible :

- A) **Continuous** : just running the camera. The frame rate is **90 fpm** (frames per minute) or **1.5 fps** , Crystal controlled , with an exposure time of **1/3 sec**.  
**Switch** (2) must be set on **24**.
- B) **Single shots** : by depressing gently the red **pushbutton** (5) (**PHASE TV**) or through the **Remote Control/Phase Shifter** accessory .  
Exposure time is always **1/3 sec**.

Exposed frames will be shown on the **Multifunction display**.

Operation are possible either **FORWARD** or **REVERSE**; but, when set on **REVERSE** mode, counter will not decrement.

## REVERSE OPERATIONS

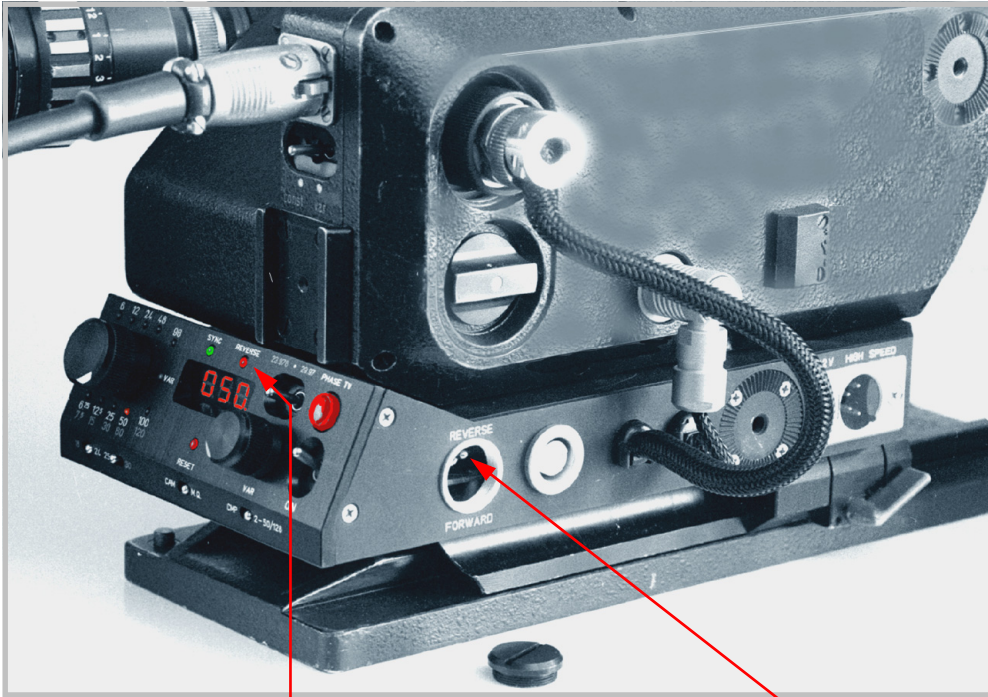
To operate on **REVERSE**, **ARRI 35 III** cameras must be equipped with **no-standard longer claw**.

A **FORWARD-REVERSE switch** is inside the cover cap on the right side of **MULTIQUARTZ** .

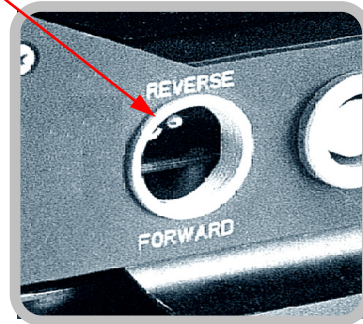
**REVERSE** operations is announced by the **red cue light** over the display, that will stay **on** all the time the **MULTIQUARTZ** will run the camera on **REVERSE**. This cue light is blinking on the latest versions to evidence even more the special preset of **MULTIQUARTZ** and camera!

With modified cameras and Standard **MULTIQUARTZ**, operation on **REVERSE** are safely possible only up to **50 fps**. A safety circuit inside the **MULTIQUARTZ** prevents possible mistakes, allowing **HIGH SPEED** shooting only **FORWARD**.

## REVERSE OPERATIONS



Red **CUE** light



A special version of MULTIQARTZ is available, with the possibility to shoot both FORWARD and REVERSE, even at HIGH SPEED and with a top speed of **130 fps** .

Especially modified cameras are needed for that !



## BATTERY MONITOR INDICATORS

**BATTERY MONITOR** indicators on the left side of MULTIQUARTZ will show all the time the approximate charge of your batteries in % **increments** and the correct polarity of the cables, when they are lit.

When last LED is on, an approximated **25 %** charge is left on the battery.

Normal operation, with **one 12 V battery**, plugged into the camera.



HIGH SPEED operation, with a **second 12V battery**, plugged into MULTIQUARTZ.



## ACCESSORY Fischer socket

The socket on the right side of MULTIQUARTZ allows external accessories to be used with Your unit :

- A) Remote control/Phase shifter**, useful with Video Assist and the camera far from the operator or for SINGLE FRAME operations, when the camera must be absolutely fixed and not touched.
- B) As power supply socket** for zoom controls, radio remote controls and other possible devices.

**Accessory Fischer socket outputs**



- 1) Signal GND
- 2) Index
- 3) -
- 4) Reference Freq. cy
- 5) Int/ Ext
- 6) Actual Freq. cy
- 7) Remote
- 8) EXT Freq. cy
- 9) GND
- 10) Aux out for Remote Control accessory
- 11) + 12 V



WARNING !

Mechanical tip

10 mm MAX

Non Standard Baseplate screw  
or accessories holding screw

protuding more than 10 mm

from plane of the MULTIQUARTZ baseplate  
can damage  
internal digital board !

Due to the highly sophisticated electronics modules inside Your MULTIQUARTZ,  
it is advisable not to attempt any unauthorized adjustment .

Contact Your Agent for that !

Your MULTIQUARTZ has been manufactured with the best components available  
from the state of the art and servicing with other than specified or commercial spares  
will not certainly improve its features and specifications .

Special care has been devoted to minimize all the factors that can influence the  
reliable, money making work of Your MULTIQUARTZ, through a careful marriage of the  
materials selected .

Years of dependable rental work on hard jobs have demonstrated  
its capabilities with full satisfaction of our Customers !

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