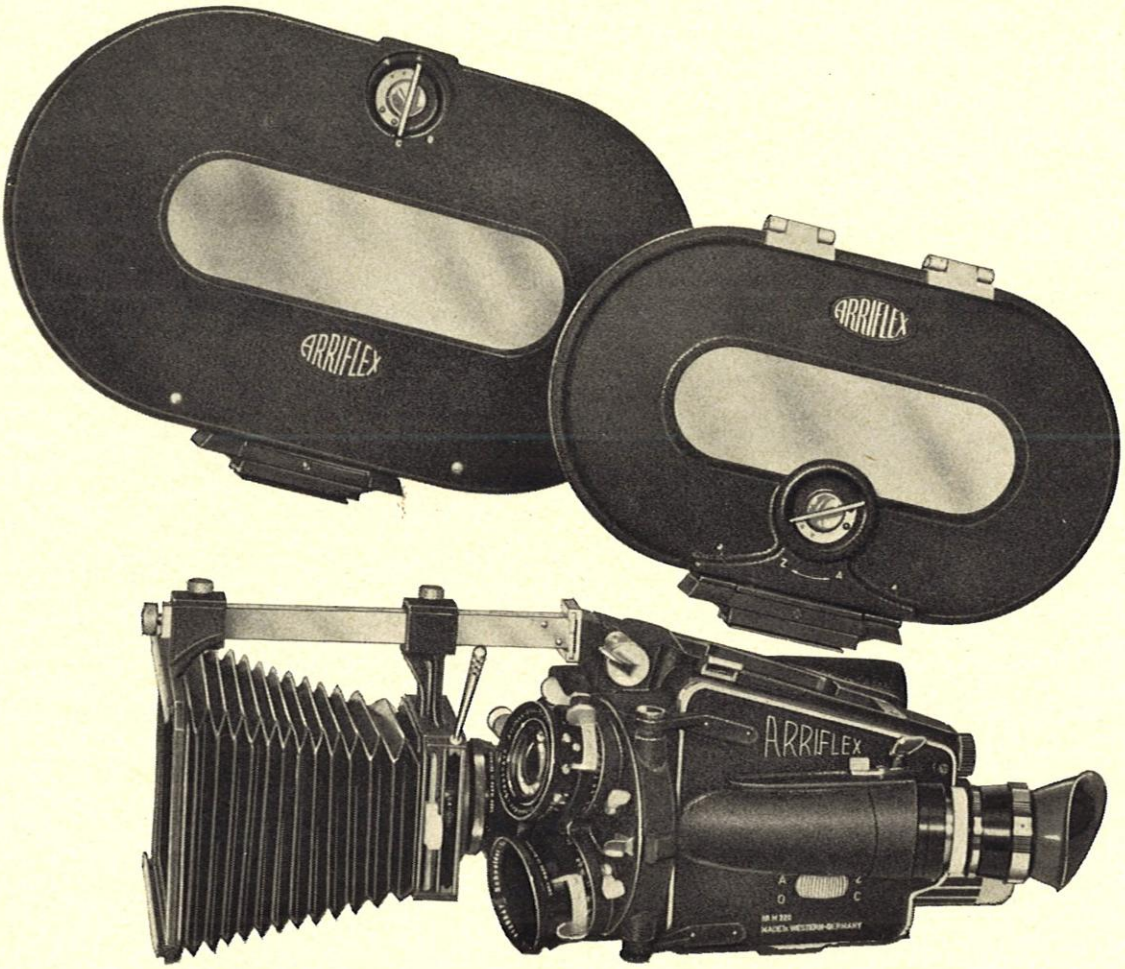
200 ft (60 m) MAGAZINE

and

400 ft (120 m) MAGAZINE

for the 16 mm **ARRIFLEX 16 M**

Mirror Reflex Motion Picture Camera

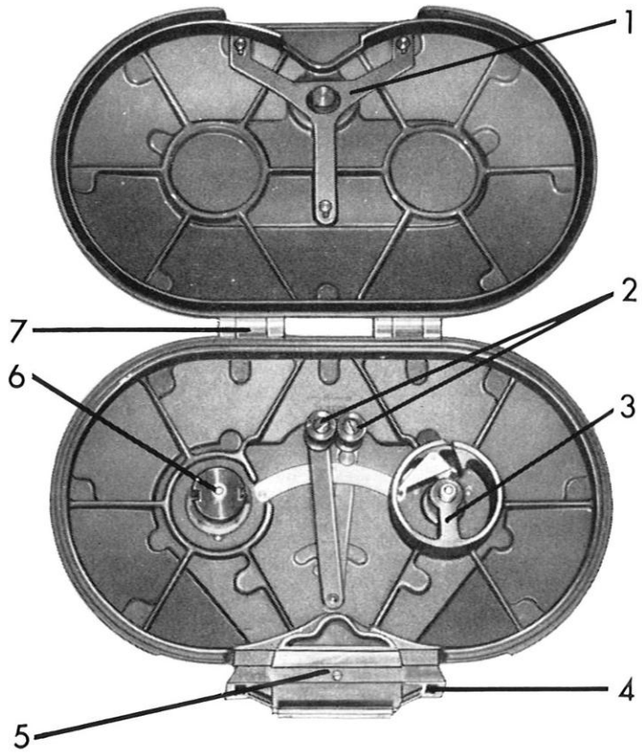


Description · Operating Instructions · Maintenance

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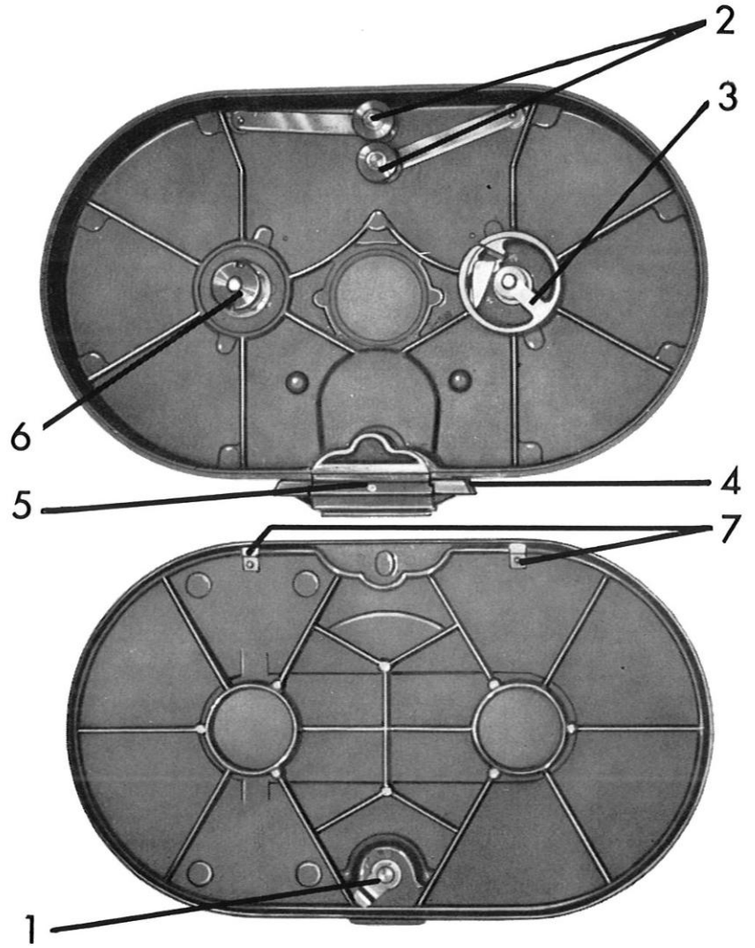
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The 200 ft Magazine for the ARRIFLEX 16 M



1 = Latch
2 = Film tensioning rollers
3 = Collapsible take-up core
4 = Dovetail
5 = Magazine throat
6 = Core holder
7 = Cover hinge

The 400 ft Magazine for the ARRIFLEX 16 M



1 = Latch
2 = Film tensioning rollers
3 = Collapsible take-up core
4 = Dovetail
5 = Magazine throat
6 = Core holder
7 = Retaining brackets

1. Description

1.01 General Information

For the 16 mm ARRIFLEX 16 M mirror reflex motion picture camera there are three quick-change magazines available with built-in feed and take-up mechanisms and maximum film capacities of 200 ft (60 m), 400 ft (120 m) and 1 200 ft (360 m). If black-and-white film is used, the 400 ft (120 m) magazine will accept unexposed film reels up to a total length of 500 ft. Moreover, the 200 ft magazine is equipped to take 100 ft daylight loading reels, and the 400 ft magazine to take 100 and 200 ft daylight loading reels. There is very little difference in the design of these two single-compartment magazines, and the following information is therefore applicable to both the 200 ft and 400 ft magazines for the ARRIFLEX 16 M. Passages referring to deviations in the 400 ft magazine are printed in *italics*.
The 1 200 ft (360 m) magazine is dealt with in a separate booklet.

1.02 The Magazine Drive

The magazine is driven from the camera via a mechanical transmission. The bearings are all ball bearings. To reduce noise, all metal gears have been paired with plastic gears.

1.03 The Magazine Throat

The feed and take-up sprockets in the magazine throat guarantee constant length of the film loop which passes through the camera on forward and reverse drive. The labyrinth-type film channel of the magazine throat prevents the ingress of undesirable light into the magazine. It was consequently possible to dispense with velvet for making the magazine light-tight. The dovetail projection of the magazine throat also serves to mount the magazine on the camera.

1.04 The Spindles

The take-up friction systems are designed for forward and reverse drive and automatically act on the spindles alternately, depending on the direction in which the camera is running. The friction intensity is accurately set in the factory. The left spindle carries a removable core holder, and the right spindle the removable, collapsible take-up core. If the magazines are loaded with daylight loading reels instead of reels on plastic cores, the core holder and collapsible take-up core must be removed beforehand; they are released by depressing the spring-loaded pins protruding from the centre of the spindles.

1.05 The Collapsible Take-up Core

The collapsible take-up core has considerable advantages. For instance, the film leader is clamped by lever pressure, and unintentional loosening and the resultant complications are eliminated. The diameter of the clamped core is 2 in. (50.8 mm). The film winds round the core in a perfect circle, so there is no fear of ridge formation and consequent unroundness of the reel. The end of the film is released when the clamp is pressed inwards. At the same time, the diameter of the collapsible take-up core is reduced so that the reel can be taken out easily.

1.06 The Film-Tensioning Arms

are used only for film on plastic cores. The outside edges of the guide rollers at the end of the tensioning arms lie round the edges of the film reels and ensure that they are wound smoothly. Simultaneously the front tensioning lever scans the size of the feed reel; the scanned footage is registered in feet or metres on the counter scale.

1.07 The Footage Counter

at the back of the magazines is calibrated for black-and-white film. If colour film is used, the unexposed footage can be roughly determined by deducting one-fifth of the indicated length of film. Scales are available in feet and metres; they are interchangeable.

1.08 The Film

must be wound emulsion inwards on type T plastic cores. For 16 mm stock perforated on one side only, only type B winding should be used. The magazine will take all international standard 16 mm cores with an internal diameter of 1" with slot or lug and an external diameter of 2". The maximum capacity of 200 ft (60 m) and 400 ft (120 m) laid down by the manufacturer should not be exceeded (except for the possibility mentioned under 1.01 of loading 500 ft of black-and-white film in the 400 ft magazine).

2. Operating Instructions

It is advisable first of all to practice handling the magazines with a test film by daylight in accordance with the following instructions. Later work in the darkroom or changing bag will then prove all the easier.

2.01 Opening the Magazines

First unlock the magazine cover by turning the catch from C to O (Z–A), simultaneously depressing the semi-circular safety spring. The hinged lid of the 200 ft magazine can then be folded back. *In contrast to the 200 ft magazine, the cover of the 400 ft magazine is not hinged. After opening the catch, it should be folded slightly forward by means of the protruding edge above the catch and lifted out of the two guide notches on the inside of the magazine.*



Fig. 1
Unlocking and lifting off the cover of the 400 ft magazine

2.02 Loading the Film

Place the opened magazine and the reel of film on a level surface as shown in Fig. 3. Use scissors to trim off the beginning of the film leader at right angles, cutting through the middle of a perforation.

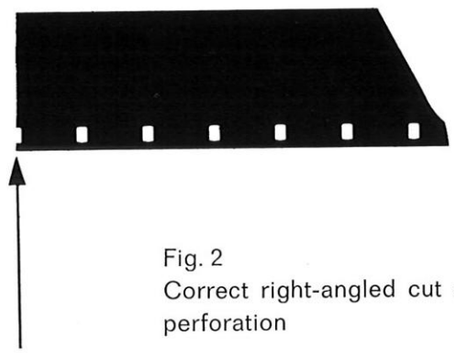


Fig. 2
Correct right-angled cut across the leader through the middle of a perforation

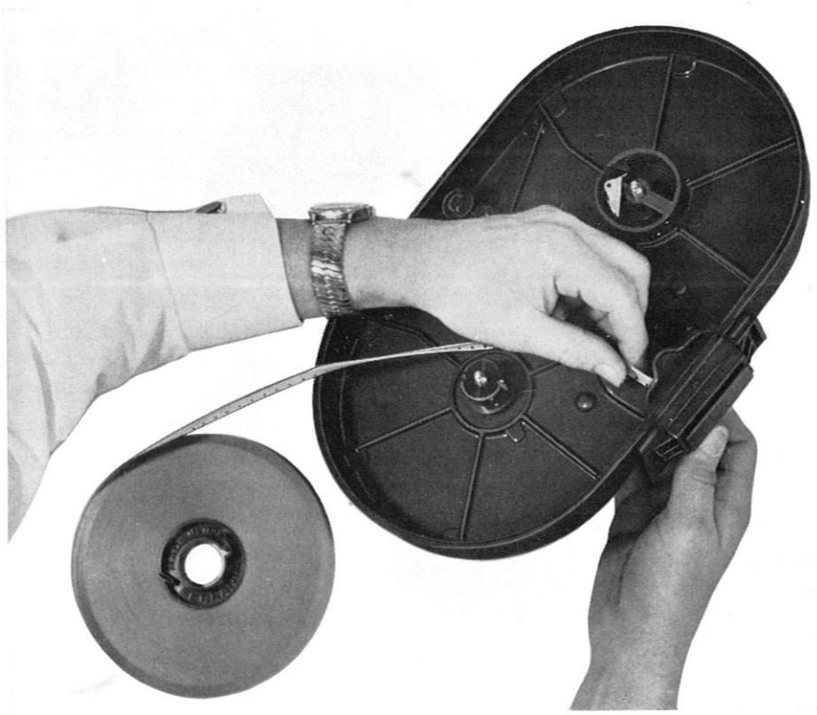


Fig. 3
The leader is inserted in the feed mechanism

It is preferable to insert the leader in the feed mechanism before placing the film reel in the magazine. The film should be inserted into the feed mechanism from inside, ensuring that it runs parallel to the back wall of the magazine. Careful turning of the drive gear facilitates threading the film through until it emerges from the left-hand film channel of the magazine throat.
When the reel is subsequently placed on the left spindle, the drive lug of the core holder will automatically snap into the slot in the plastic core. In the case of cores with a lug, their correct insertion into the slot of the core holder must

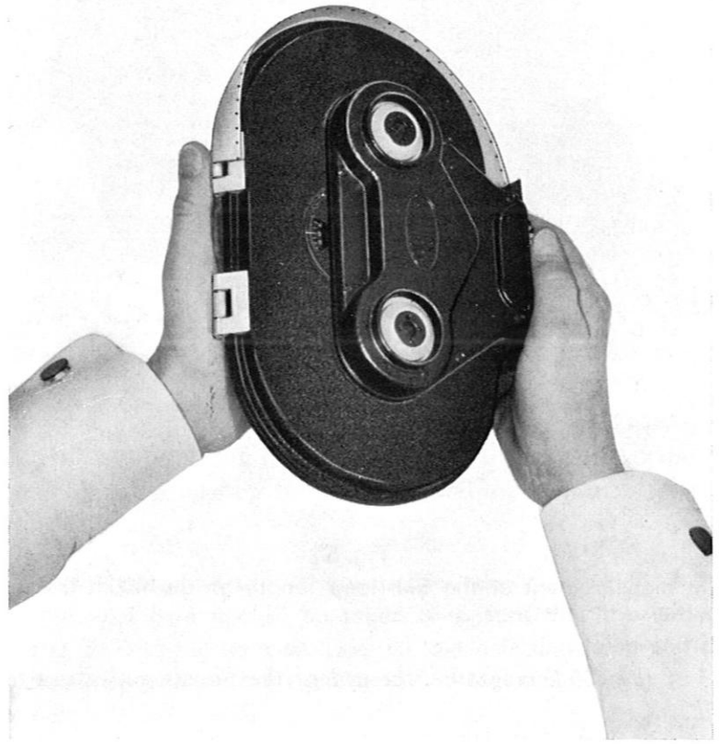


Fig. 4
Exact measurement of the film loop length on the 200 ft magazine

be watched from the outset. The reel should be tautly wound and have no saucer-shaped depressions after positioning in the magazine. The left-hand, spring-loaded film tensioning lever is now positioned so that the guide roller rests against the feed reel. (See also section 1.05). Before forming the film loop, pull the leader out of the left-hand film channel of the magazine throat so far that when it is laid smoothly round the left outer edge of the magazine housing the end of the film reaches the red mark on the left-hand cover hinge. If too much film has been pulled out, the surplus is reeled back.



Fig. 5
Exact measurement of the film loop length on the 400 ft magazine

In the case of the 400 ft magazine, the end of the film is pulled out to the white marking rib.
After the exact length of the film loop has been determined as described above (39 perforations including the first halved one), it must not be subsequently altered in any circumstances. Now insert the film from outside into the right-hand channel of the magazine throat and into the take-up mechanism, moving

the drive gear slightly until the leader is picked up by the take-up sprocket and making sure, as already mentioned, that the film loop length remains unchanged. On a properly formed loop, 36 perforations should still be visible.



Fig. 6
Film loop at the magazine throat. Insertion of the film through the right-hand film channel, past the take-up sprocket and into the interior of the magazine

The film leader is attached to the collapsible take-up core by means of the clamp lever. Special care should be taken to ensure that the end of the film is inserted straight into the core slot, i.e. so that it is untwisted and lies against the stop plate. Then position the right-hand film tensioning arm.

2.03 Daylight Loading Reels

When daylight loading reels are used, both the core holder and the collapsible take-up core must be removed beforehand; they are released by depressing the

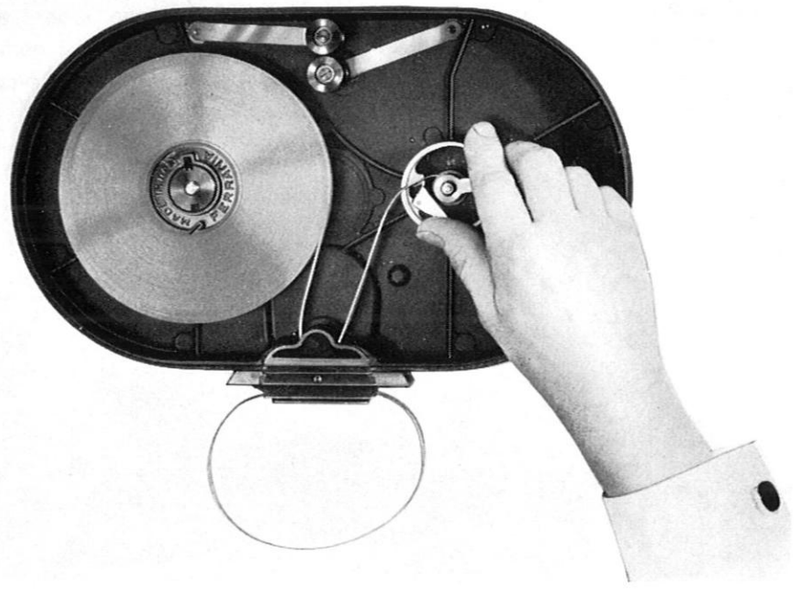


Fig. 7
Attaching the leader to the collapsible take-up core with the clamp lever

spring-loaded pins protruding from the centre of the spindles. The film tensioning arms must be put in the rest position, i.e. in the 200 ft magazine the two film tensioning rollers are pressed against each other until the film tensioning arms snap into the catch, where they are locked in the middle of the arc-shaped guide rail so that the daylight loading reels can turn unimpeded. If the arms are subsequently required to perform their normal functions when the magazine is loaded with reels on plastic cores, they are released from the locked position by pushing the guide rollers apart (Fig. 8).

In the 400 ft magazine, first the tensioning arm which acts on the feed reel is swung up to a position close to the magazine wall where it snaps into a notch. The second arm is swung in the direction of the first one and locked against the back magazine wall. The guide rollers of the tensioning arms now lie one against the other. To release them, press the roller of the hooked-in right-hand lever against the magazine wall. The left-hand lever is disengaged from the notch by lifting it slightly.

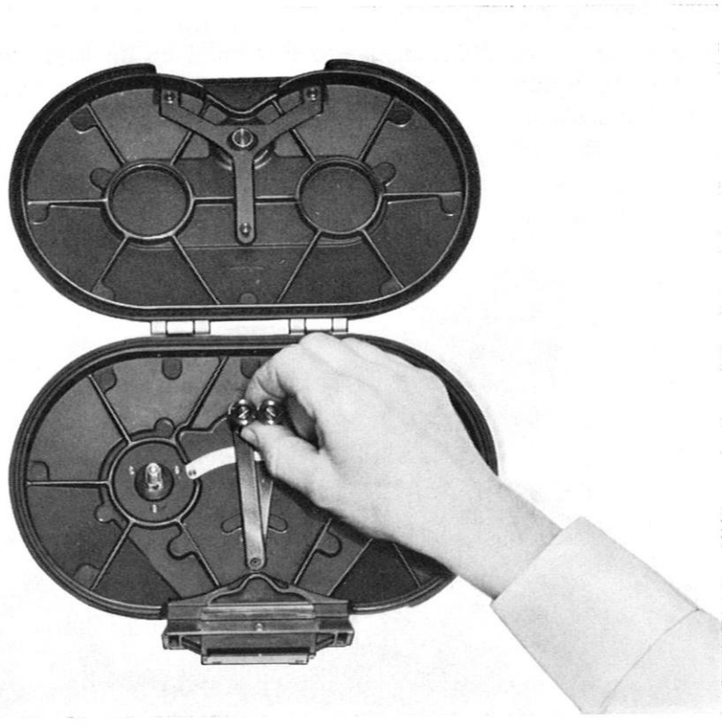


Fig. 8
The film tensioning levers of the 200 ft magazine are released from their locked position by pushing the two guide rollers apart with thumb and forefinger

As described in Section 2.02, the magazine and daylight loading reel are placed on a flat surface, the leader trimmed and inserted from inside into the feed mechanism so that it emerges from the left-hand film channel of the magazine throat. The full daylight loading reel is now placed on the left spindle, turned slightly until it slips over the square driver pin and finally pressed down until it snaps into place. Following the instructions under 2.02, after the loop has been formed the leader is passed through the right-hand channel of the magazine throat into the interior of the magazine, then attached to the empty daylight loading reel outside the magazine, making sure that it will not come loose by giving it a few turns with the hand. The empty reel is then placed on the right-hand spindle and pressed down until it snaps into place.

Since the film counter is out of operation when daylight loading reels are used, film consumption must be read off from the combined footage and frame counter on the camera.

2.04 Closing the Magazines

The cover of the 200 ft magazine is closed on its hinge, made light-tight and locked by turning the catch to the right until the semi-circular safety spring snaps into place.

To close the 400 ft magazine, place the two retaining brackets of the magazine cover obliquely from above into the two guide notches provided inside the magazine and close the cover carefully. If the cover is fitted on properly, no force is necessary. As soon as the cover is completely closed, lock it by turning the catch to the right until the semi-circular safety spring snaps into place.

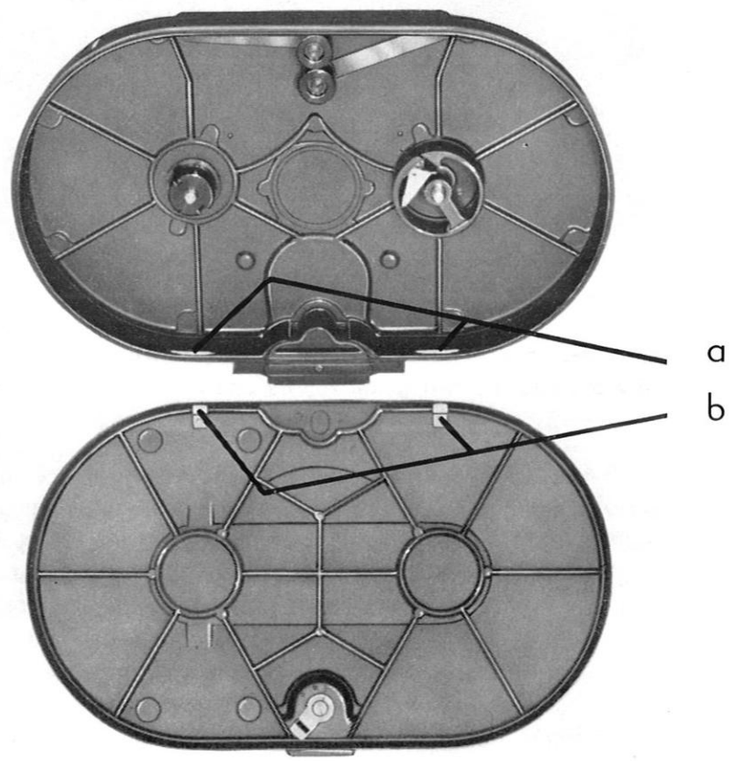


Fig. 9
a) Notches b) Retaining brackets

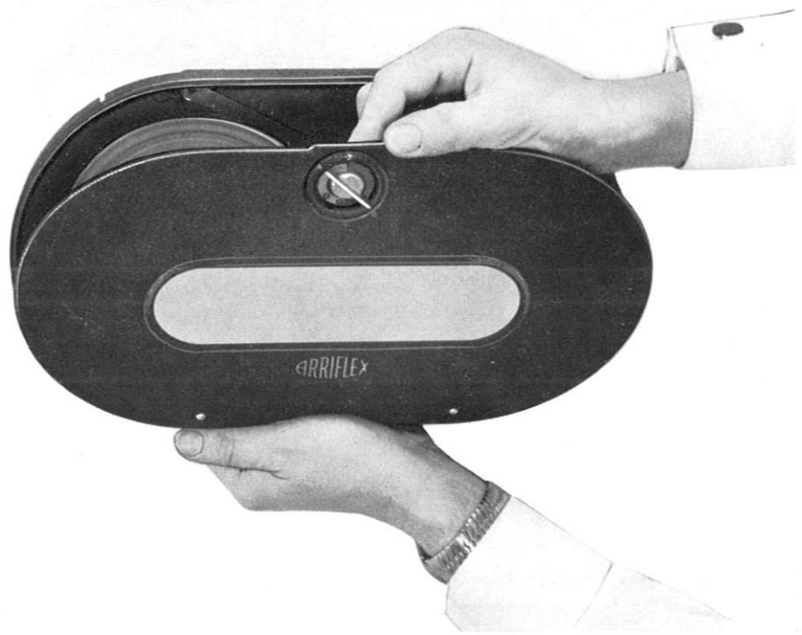


Fig. 10
Closing the cover of the 400 ft magazine

2.05 Tensioning the Film in the Magazines

If the camera is transported with the magazine mounted or if a new magazine is mounted, the film should always be tensioned in the magazine before starting shooting. The two knurled knobs on the back wall of the magazine should be turned in the direction of the arrows until it can be felt from the resistance that any slack in the film has been taken up, thus ensuring jerk-free starting of the camera.

2.06 Attaching the Loop Protector

To prevent possible damage to the film loop when the magazine is not mounted on the camera, we recommend the use of the loop protector, which can be quickly attached to or removed from the magazine throat. When attaching it, the film loop is pushed loosely into the magazine throat and the loop protector slid over the film into the slot between the magazine throat and the retaining plate.



Fig. 11
Tensioning the loaded film by turning the knurled knobs on the back wall of the magazine in the direction of the arrows



Fig. 12
Attaching the loop protector to the magazine throat

2.07 Removing Exposed Film from the Magazines

The clamp lever of the collapsible take-up core is released, thus freeing the leader. At the same time the diameter of the take-up core is reduced so that the reel can be easily removed. A plastic core should be placed in the reel.
After releasing the collapsible take-up core, the 400 ft magazine should preferably be turned over to take out the exposed film, holding the hand out flat under the reel and letting the latter slip out of the magazine.

2.08 Transport and Storage of Magazines

A large and a small ARRI magazine case are available for transporting and storing the 200 ft and 400 ft magazines for the ARRIFLEX 16 M. In these cases the magazines stand side by side, a position which is advisable whatever method is used. The large case takes four 200 ft magazines, or two 400 ft and two 200 ft magazines, or four 400 ft magazines. The small case accepts four 200 ft magazines or two 400 ft magazines, or one 400 ft and two 200 ft magazines.

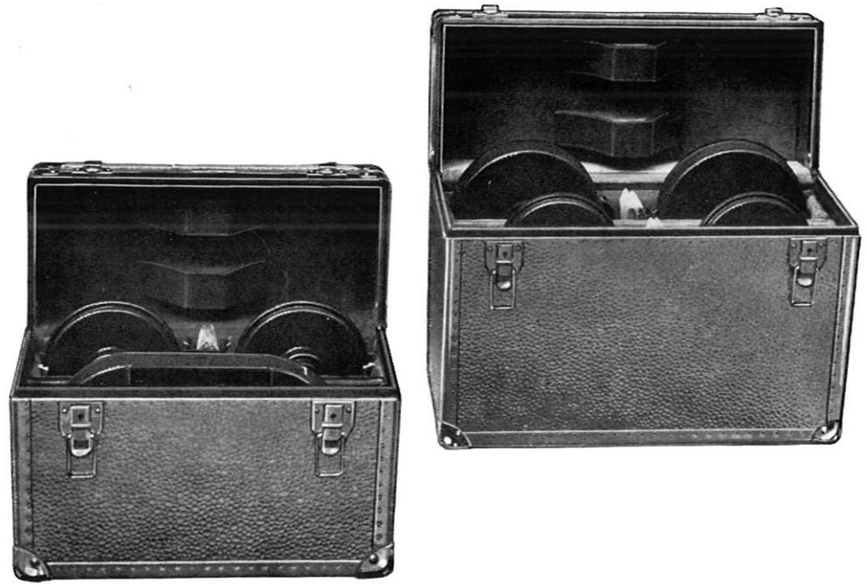


Fig. 13
The large and the small ARRI Special Cases for transporting and storing 200 ft and 400 ft magazines for the ARRIFLEX 16 M

3. Maintenance

3.01 General Information

The 200 ft and 400 ft magazines for the ARRIFLEX 16 M do not in general need any special maintenance. The built-in dry friction systems should be protected against oil, grease and moisture, as otherwise the friction will be diminished or completely cancelled. Only the cover of the magazine throat should be removed from time to time and the film channels and sprockets of the feed and take-up mechanisms cleaned of emulsion dust and any adhering film chips. The magazines should always be kept spotlessly clean to prevent scratching of the film.

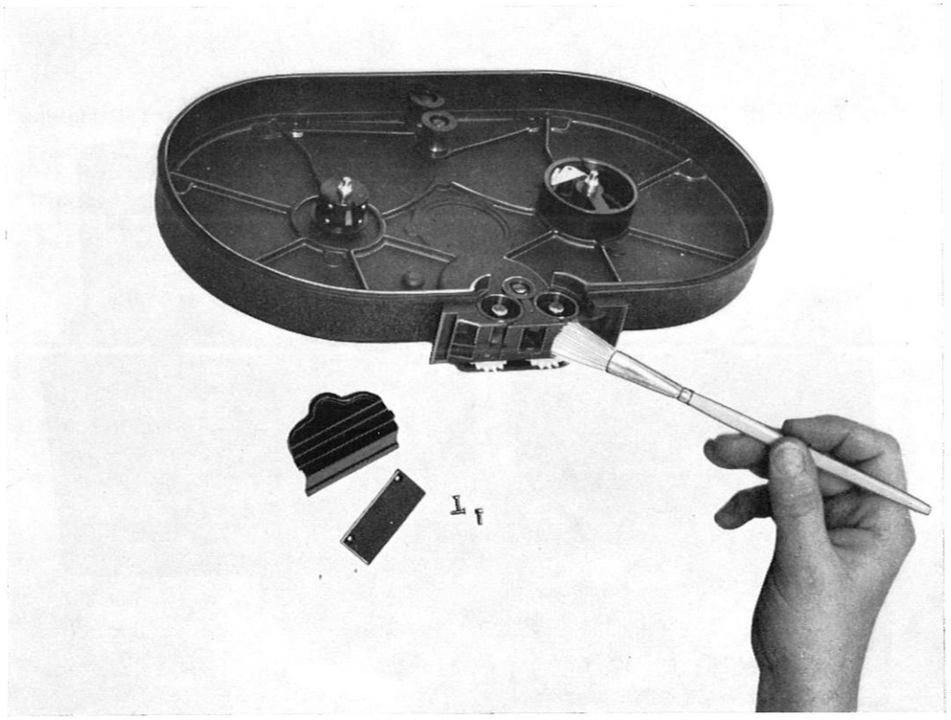


Fig. 14
Cleaning the film guides and sprockets in the magazine throat with the cover removed

3.02 Adjusting the Take-up Friction Systems

In the event that, after a long period of use, it becomes necessary to readjust one or both friction systems, the spindle should be held firm inside the magazine and the screw discs in the middle of the knurled friction system casing (outside on the transmission side of the magazine) should be turned clockwise until the desired friction intensity is obtained. The screw disc snaps perceptibly into a stop every 90°. Friction is reduced by turning the screw disc in an anticlockwise direction.
The take-up friction systems should be disassembled only by authorised ARRI service workshops; a special leaflet has been printed describing this operation. The manufacturers have intentionally refrained from supplying special tools for adjusting the friction systems, as this might tempt people to change the friction intensity, which is accurately set during manufacture, before it diminishes as a result of long use.

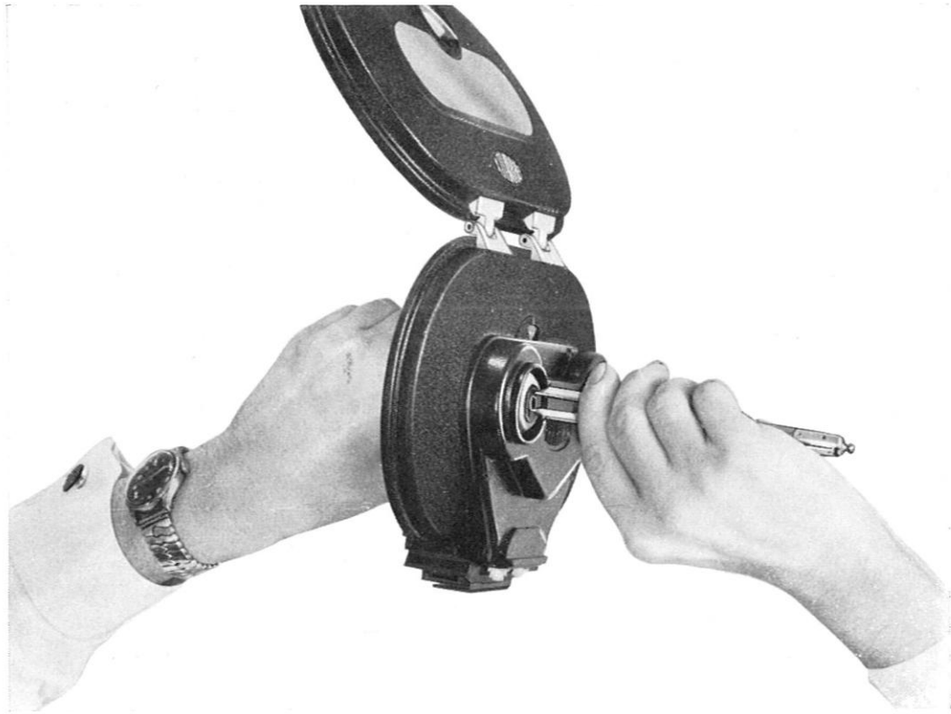


Fig. 15
Adjusting the take-up friction system

3.03 Interchanging Film Counter Scales

The film counter scales for the 400 ft magazine are available with foot and metre graduations; they can be interchanged after loosening the 5 fastening screws.
The film counter scale of the 200 ft magazine can be exchanged for another marked in feet or metres, as the case may be, only at the factory or by authorized ARRI service workshops.



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