

TABLE OF CONTENTS

General Description 1
Specifications 1 - 2
Component Parts of MC-571-AC Sound System 3 - 4
Optional Pistol Grips 5
Optional NiCad Battery 5
Main Camera Head and Layout 6
Rear Control Panel 6 - 7
Mechanism Transport Movement 8
Magazine Insertion 8
Left Side Cover 8 - 10
Sync Motor Mount and Capacitor Mount 9
Camera Battery and Charger11 - 12
Magazines and Lenses
Filtering and Mounting Holes
Depth of Focus Tables
Camera Operation 16 - 17
Film Threading
Battery Care
Cleaning the Camera 19 - 20
Lubrication
Shoulder Pod, Braces and Tripods 21 - 22
Carrying Cases and Audio Systems 21 - 22
Circuit Diagram
Filters and Lens Accessories 24
Warranty

LISTING OF FIGURES

Figure	No.	Description	<u>Pa</u>	age
1		MC-571-AC Sound System		3
2		Side View	• •	4
3		MC-571-AC with Side Mounted Amplifier	• •	4
4		Fixed Handle with Thumb Switch	• •	5
5		Adjustable Hand Formed Handle	• •	5
6		Ni-Cad Battery with Built In Charger	• •	5
7		Camera Head and Film Transport Movement	• •	6
8		Front View	• •	7
9		Rear Control Panel	• •	7
10		AC Sync Motor and Capacitor Mounting	• •	9
11		Angle View with Frezzi Pod		10
12		Side Cover Removal		10
13		Battery and Charger		11
14		Battery Connected to Charger		12
15		Charger Top Panel	• :	12
16		Battery Insertion	•	12
17		Proper Battery Seating	•	12
18		Auto-Iris Option	•	13
19		Depth of Focus Tables	•	15
20		MC-571-AC used as "A One-Man Band"	•	17
21		External Power Operation		17
22		Shoulder Operation	•	17
23		Threading Diagram		18
24		P-L Shoulder Brace		22
25		Deluxe Carrying Case		22

GENERAL RESEARCH LABORATORIES DIVISION

FREZZOLINI ELECTRONICS INC.

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FREZZOLINI MC-571AC SPECIFICATION AND OPERATION MANUAL

Ι GENERAL

The FREZZOLINI MC-571AC lightweight 16mm single/double system sound camera has been specifically designed for the television newsfilm cameraman utilizing genuine Bach Auricon movement parts built into a lightweight magnesium body. The MC-571AC incorporates a built-in temperature compensated precision crystal controlled inverter and an internal quick-change battery. The MC-571AC, being the first "Cordless Camera" of its kind, has been in the field for over two years and has proven to be rugged, reliable and most newsworthy.

IISPECIFICATIONS

16mm (Super 16 optional) Format:

400' or 1200', single perforated, B wind Film:

911 Dimensions: Height 7" Width

9-7/16" Length

Weight:

9 lbs. 14 oz. - camera body only 16 lbs. 6 oz. - (includes Angenieux 12-120mm

zoom lens with V-30 finder, Mitchell 400' magazine,

internal battery and AC crystal inverter)

Sound

Synchronization: a) Crystal Control: Standard on all cameras

b) Pilotone: 50 or 60 Hz pilotone output

optional

c) Single System: All cameras wired for magnetic sound, film recording head optional.

Motor Drive: AC Synchronous Motor

Less than 0.25%/RMS from 0.5 to 250 Hz Flutter & WOW:

Crystal Control Sync Accuracy: +20 ppm

24 or 25 fps (standard on all cameras) Camera Speed:

"Power-On" Light: Amber light indicates power on

Shutter: Guillotine Type

> Frame Exposure Time: 24 fps - 1/50 second

25 fps - 1/60 second

Camera Power Sources: a) Internal quick-change battery
b) The MC-571AC can be powered by any

110 VAC power source by utilizing the external power input plug which is standard on all cameras.

Battery: a) 9 volts DC at 5AH (Silver Zinc)

Weight: 1 lb. 9 oz. b) 9 volts DC at 2AH (Nickel Cadmium)(optional) Weight: 1 1b. 15 oz. with built-in charger.

Battery Size: 2-13/16x1-11/16x4-1/16"

Internal Battery Capacity: .3200 feet of film per charge

(silver zinc)

1200 feet of film per charge

(Ni-Cad 2AH)

Recharge Cycle Time: 6-8 hours (silver Zinc)

hours (Ni-Cad 2AH) 12

Camera Center Plate Movement: Genuine Bach Auricon

Lens Mount: "C" (Heavy-Duty Lens Mount optional)

Recommended Lens: Angenieux 12-120mm Zoom Lens f2.2 Angenieux 9.5-57mm Zoom Lens f1.6

Recommended Viewfinder: Angenieux V-30 1" finder with TV

Reticle for hand-held operation CV-III 3-1/2" V.F. for brace or

tripod operation

Filter Slot: Behind the lens, gelatin filter holder

Mitchell 400' Magnesium Magazine Magazines:

Mitchell 1200' Magazine

Footage Counter: 4-digit counter graduated in feet

Front Handle: Optional (See Figures 4 & 5)

Shoulder Pod: The Frezzi Shoulder Pod provides the stability

and comfort of shooting needed for hand held operation. (Optional)

Zoom Finder Support: Optional for 7-1/2" View Finder

Camera Heater: Optional with external battery pack

Camera Door Hinge: Optional TV T Shutter: Optional

Camera Carrying Case: Optional Bloob Light: Optional

(See Fig. 25)

Magazine Case: Optional Optional Buckle Trip:

III COMPONENT PARTS OF THE MC-571AC SOUND SYSTEM

- A. Main Camera Head, including film mechanism plate, magazine drive belt (2), magazine well cover plate and filter holder (2).
- B. Battery Pack One Silver Zinc 5AH or 1 Ni-Cad 2AH.
- C. Battery Charger and Accessory Cables (1-external power inverter cable, 1-AC line cable and AC line cable for charger).

D. Camera Pistol Grip:

a) fixed handle with thumb switch. (See Figure 4)
 b) adjustable contoured with fore-finger switch. (See Figure 5)

E. Magazine.

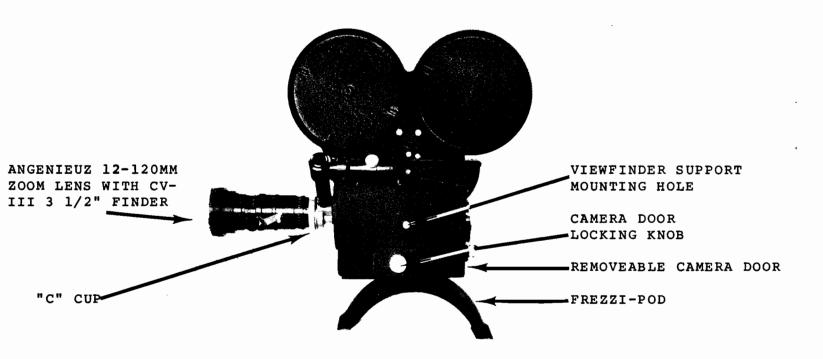
F. Lens and Lens "C" Cup.

- G. Audio Amplifier and Recording Head.
- H. Shoulder Pod or Brace.

Items A-C are standard; Items D-H are optional. See Figures 1-6.



Figure 1
MC-571AC SOUND SYSTEM



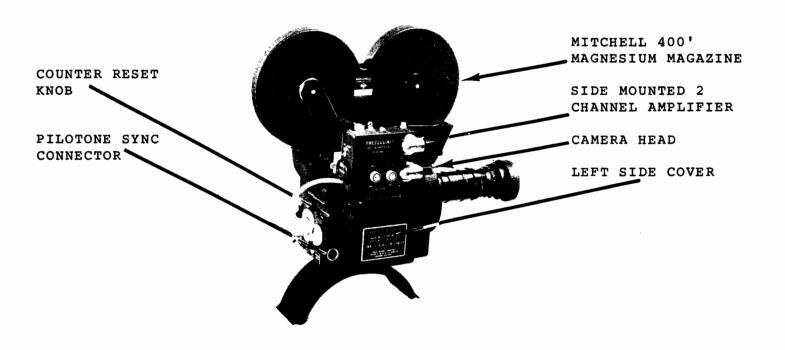
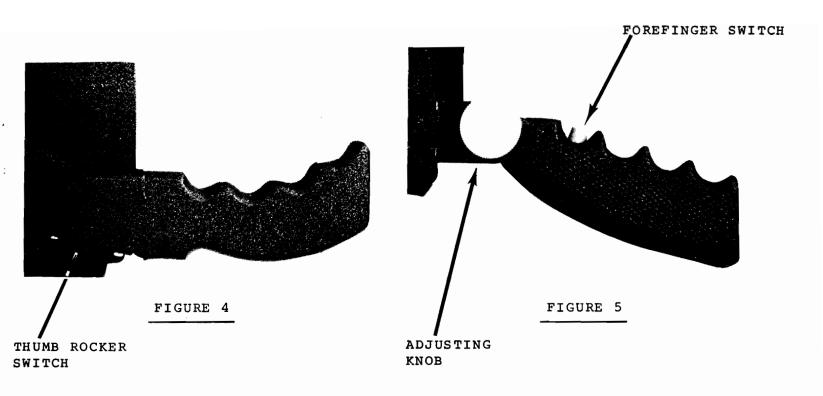


FIGURE 3



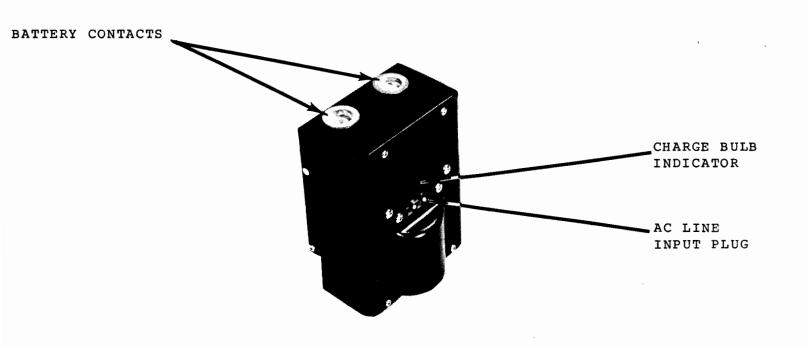
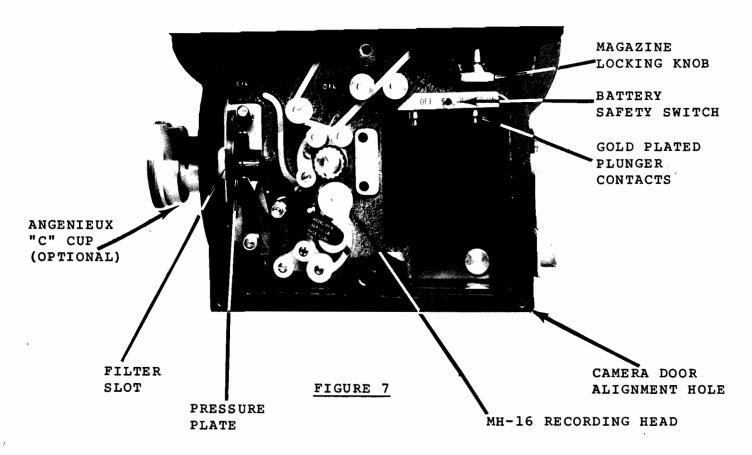


FIGURE 6

- III A. Main Camera Head. Constructed from a lightweight magnesium alloy and consists of the head, removable camera door, left side cover film transport mechanism, magazine locking mount, top carrying handle and rear control panel.
 - 1. Removable Camera Door. The loading door is completely removable by rotating the two locking knobs counter clockwise. An optional top hinged door is available and is disengaged by rotating one locking knob.
 - 2. Rear Control Panel. This consists of an amber "power on" bulb, AC voltmeter, 5-pin external power input plug (Amphenol No. 165-35), 8-pin audio connector (Cannon No. P8-14), 4-digit footage counter, GOB-7X fuse and housing and 3-position selector switch. (See Figure 9)



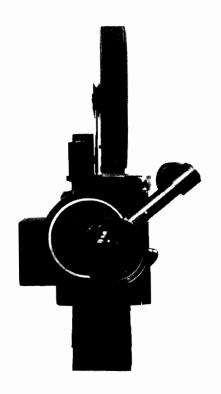
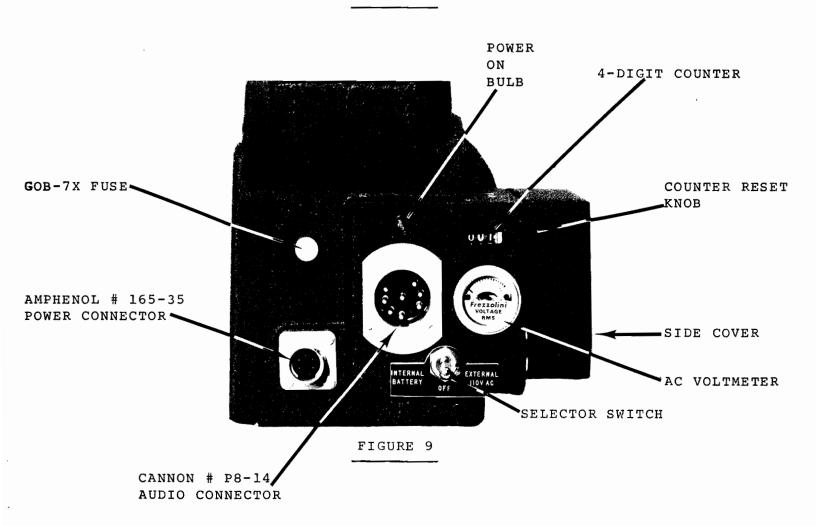


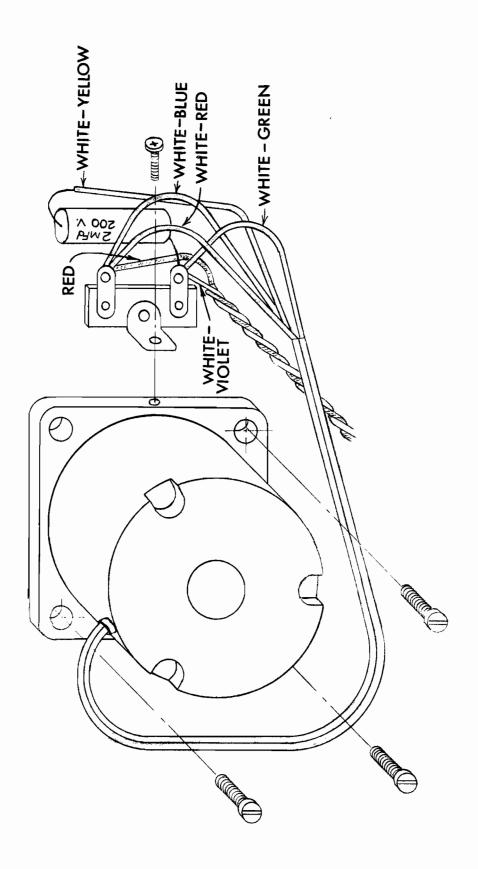
FIGURE 8



- 3. Mechanism Transport Movement. The MC-571AC mechanism plate is genuine Bach Auricon modified with a special mount which will accept the internal camera battery. The special battery mount consists of two gold-plated plunger contacts and a safety switch which will immobilize the camera for transport. See Figure 7.
- 4. Magazine Insertion.
 - a) Open the removable camera door.
 - b) Remove magazine well cover plate by rotating the magazine locking knob clockwise.
 - c) Insert a loaded magazine into the magazine well and slide the magazine under the shoe.
 - d) Rotate the magazine locking knob counter-clockwise until the magazine is secure. See Figure 7.
- 5. Left Side Cover. The MC-571AC left side cover houses the AC crystal inverter and AC synchronous motor. See Figure 11 and 12.

To replace the crystal controlled inverter or to make motor adjustments, the following will apply:

- a) Remove the internal camera battery.
- b) Remove the four 4-40 Allen Head screws which secure the side cover. <u>Caution</u>: One screw is undersized and must be replaced next to the counter reset knob. See Figure 12.
- c) Disconnect the two round 4-pin amphenol connectors by pulling them straight apart. Do not twist. At this time, the cover with the inverter should be disconnected from the camera body.
- d) To remove the inverter from the cover, unscrew the 2/56 screw from the cover. When replacing the inverter, make certain all necessary insulation is replaced with the inverter. See Figure 12.
- e) To adjust Sync Motor, loosen the three 8/32x1/2 mounting screws and rotate the motor. See Figure 10.
- f) To replace the 2 mfd capacitor, see Figure 10.



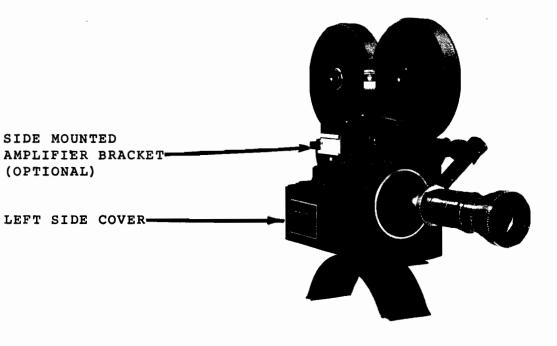
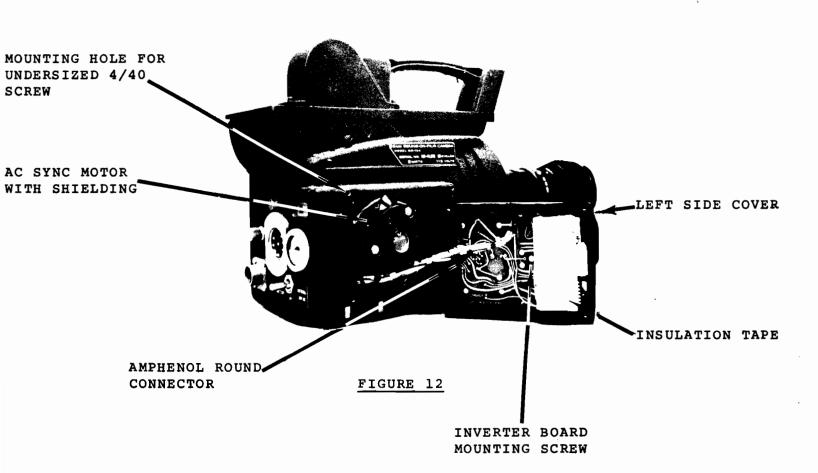


FIGURE 11



III B. Camera Battery and Battery Charger. See Figure 13.

1. Charging the battery:

a) Mount the charger to the battery and secure the charger by rotating the thumb wheel clockwise. See Figure 14.

b) Insert the AC line cord to the AC input plug which is located on the right side of the charger.

c) Turn the toggle switch to the "ON" position. this time, the amber and red bulb should be on.
When the battery is fully charged, the red bulb should be fully off. See Figure 15.
d) The battery will be fully charged in 6-8 hours, depending on the state of charge.

e) To charge Ni-Cad batteries:

1. Remove battery from camera.

- 2. Insert AC line cord to battery input plug. At this time, the amber bulb should glow.
- 3. The battery will be fully charged in 12-14 hours. The amber bulb will not turn off at the end of charge.
- 2. Inserting the battery into the camera:

a) Open the camera removable door.

b) Tilt the battery with the case openings under the gold plunger assemblies. See Figure 16.

c) Push the battery all the way in until it is firmly seated. The battery will only make proper contact when it is properly seated. See Figure 17.

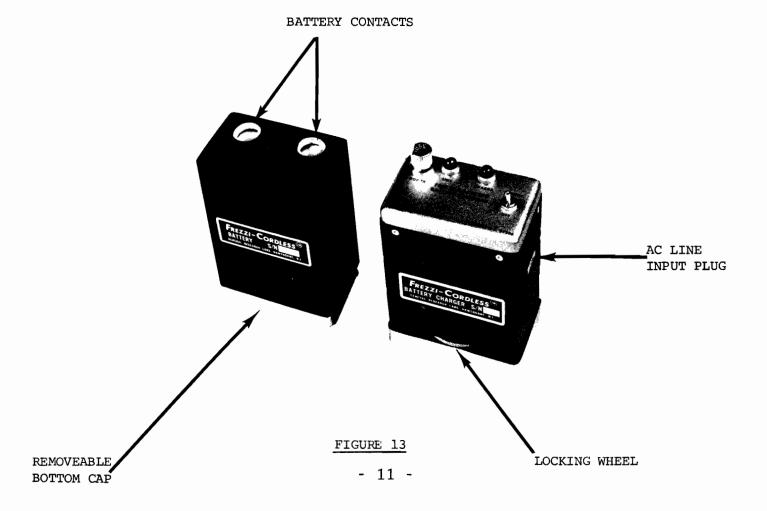




FIGURE 14

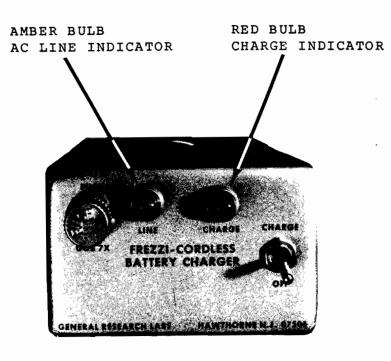


FIGURE 15

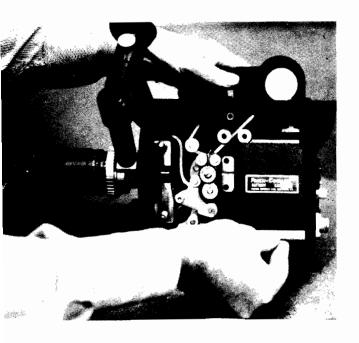


FIGURE 16

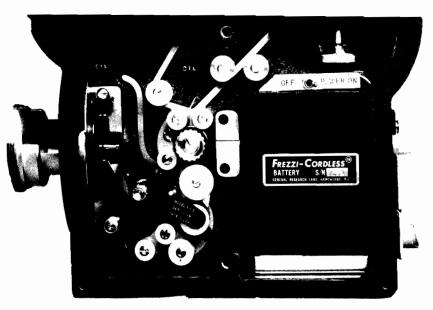


FIGURE 17

- III E. Magazines. The FREZZOLINI MC-571AC is to be used with either 400' Mitchell Magnesium Magazines or 1200' Mitchell Magazines. Two 400' take-up belts are included with every new MC-571AC system.
 - F. Lenses. The MC-571AC is designed to be used with Angenieux, C-mount type lenses. A wide selection of lenses and finders are available by FREZZOLINI. View finders may be ordered in lengths of 1" (V-30), 3-1/2" (CV-III), 7-1/2" or 10". A TV reticle can be incorporated in any of these finders. The 1" or "zero" view finder is designed primarily for "off-the-shoulder" shots, whereas, the 3-1/2" or 7-1/2" view finders enable the cameraman to work off a brace or tripod. See Figure 2.

A new Angenieux auto-iris system is now available by FREZZO-LINI. This system requires an optional power connector mounted on front of camera body. See Figure 18.



FIGURE 18

FILTERING AND MOUNTING HOLES

- 1. Filter Slot. The MC-571AC incorporates a behind-thelens filter slot which will accept a 1-1/8x3/4" gelatin filter holder. Two filter holders are included with every new MC-571AC system. See Figure 7.
- Series "9" Filters. Angenieux zoom lens with an adapter ring will accept series "9" filters. See page 22 for filter specifications.

FREZZOLINI maintains a large stock of Tiffen filters, sunshades, Angenieux zoom lenses and accessories.

Bottom Mounting Holes

Each MC-571AC camera is equipped with a 3/8-16 and 1/4-20 mounting hole for tripod and shoulder brace screws.

Viewfinder Support Mounting Hole

A 1/4-20 mounting hole is standard on all MC-571 removable camera doors. See Figure 2.

DEPTH OF FOCUS TABLES

1	OUVERTURE	f/2,2	f/2,8	f/4	f/5,6	f/8	f/11	f/16	f/22	DIMENSIONS	
2	DISTANCE HYPERFOCALE	217,40	172,40	120,50	85,50	59,90	43,70	30,00	21,80	DE L'OBJET	1
3	DISTANCE O B J E T	loin	loin	loin	loin	loin	loin	loin	loin	largeur	2
•		près	près	près	près	près	près	près	près	hauteur	
	20 m	22,00 18,40	22,60 18,00	23,90 17,20	25,90 16,30	30,00 15,10	36,30 13,90	∞ 12,20	∞ 10,70	1,59 1,18	
	10 m	10,50 9,59	10,60 9,48	10,90 9,28	11,30 9,01	11,90 8,65	12,80 8,23	14,60 7,63	17,80 7,01	0,780 0,585	
	7 m	7,21 6,80	7,27 6,75	7,40 6,65	7,57 6,51	7,85 6,32	8,22 6,11	8,93 5,78	9,97 5,42	0,540 0,404	
	5 m	5,10 4,90	5,13 4,87	5,19 4,82	5,27 4,75	5,40 4,66	5,57 4,54	5,87 4,36	6,29 4,17	0,378 0,284	
	4 m	4,06 3,94	4,08 3,92	4,12 3,89	4,17 3,85	4,25 3,78	4,34 3,71	4,52 3,59	4,76 3,46	0,298 0,224	
	3 m	3,03 2,97	3,04 2,96	3,06 2,94	3,09 2,91	3,13 2,88	3,18 2,84	3,27 2,78	3,38 2,70	0,218 0,162	
	2,50 m	2,52 2,48	2,53 2,47	2,54 2,46	2,56 2,44	2,58 2,42	2,62 2,39	2,67 2,35	2,75 2,30	0,178 0,132	
	2 m	2,01 1,99	2,02 1,98	2,02 1,98	2,03 1,97	2,05 1,95	2,07 1,94	2,10 1,91	2,14 1,88	0,138 0,102	
	1,75 m	1,76 1,74	1,76 1,74	1,77 1,73	1,78 1,73	1,79 1,72	1,80 1,70	1,82 1,68	1,85 1,66	0,118 0,088	
	1,50 m	1,51 1 49	1,51 1 49	1,51 1 40	1,52 1 48	1,52	1,53	1,55	1,57	0,096	_

F = 120 mm

When you set the focussing-scale to a given distance, the lens is not in focus only on that distance, a zone of sharpness extends in front of and behind that distance. The width of that zone of sharpness is not constant: it increases at short focal length and small aperture, and decreases at long focal length and wide aperture.

In practice there is no need constantly to refer to depth-of-focus tables; you will only use them for a special shot to determine the amount of movement you can permit your object to undergo. This information is most useful at short distances, long focal length, or wide aperture.

FIGURE 19

IV CAMERA OPERATION

Basically, the FREZZOLINI MC-571AC is operated similarly to any Auricon 400' Conversion. The following steps should be adhered to:

- Set the battery safety switch to the "ON" position.
- Reset the counter to zero.
- С. Check the magazine seating.
- Check the film flow. D.
- Check the lens installation. Ε.
- F. Check for proper filtering (see Filter Chart, pg. 23) Check the battery pack.
- G.
- Η. Check the audio amplifier and connection of recording head.
- For operation with internal battery. Ι. Set the toggle switch on the rear control panel to the "internal battery" position. If an optional pistol grip is used, depress the switch for operation. At this time, the camera should be in operation, the amber bulb should be on and a reading of a minimum of 110 VAC should be registered on the AC voltmeter of the rear control panel.
 - For operation with external 110 VAC. Set the rear toggle switch to "External 110 VAC". Install either an AC line cord or power pack cable to the 5-pin amphenol connector. The camera can be switched ON and OFF by either the rear toggle switch, front pistol grip or external remote cable.
 - For operation with external 9 volts DC. Attach the special battery adapter (optional) to the external 9-volt battery. Install the cable to the 5-pin amphenol connector No. 165-35. Turn the rear toggle switch to the "External 110 VAC" position. If a pistol grip is used, depress the switch for operation. See Figures 4 and 5.

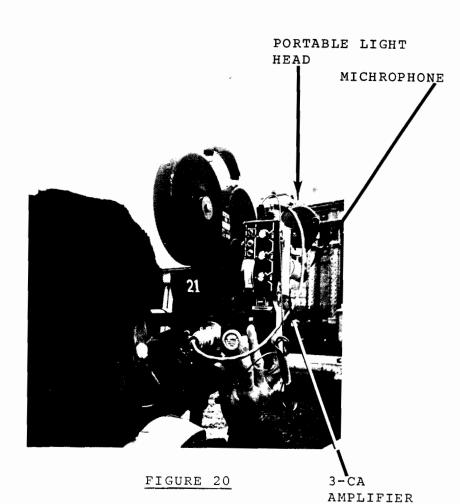
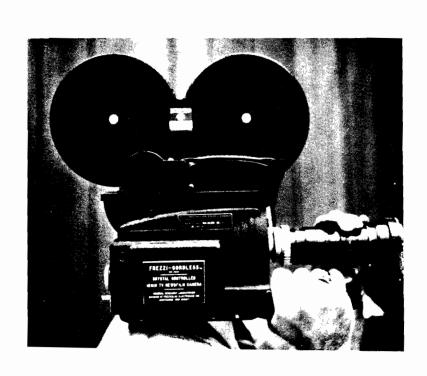




FIGURE 21



MC-571AC USED AS A "ONE MAN BAND"

FIGURE 22

FILM THREADING

- 1. Load the magazine having a two-foot loop exposed.
- 2. Install the magazine securely.
- 3. To thread the film, follow the threading diagram in Figure 23, making sure the pressure plate is lifted and the film is correctly seated on the loop control sprocket and gate.
- 4. To check your threading, turn the threading knob counter-clockwise. If the flow is smooth, operate the camera for a few seconds.

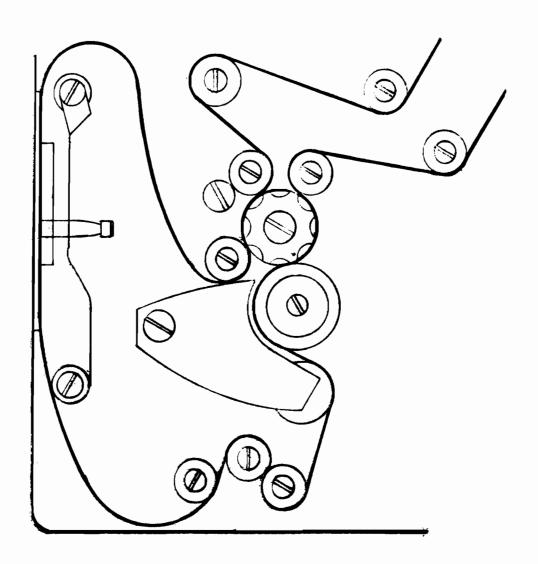


FIGURE 23

MAINTENANCE

BATTERY CARE

- The two silver battery contacts should be cleaned periodically. Dirty or oxidized contacts will impare the operation of the camera. If there is any evidence of battery leakage, wrap the battery in a plastic bag and return it to either your dealer or directly to the manufacturer: FREZZOLINI ELECTRONICS INC., 7 Valley Street, Hawthorne, New Jersey 07506.
- Gold plated plunger contacts. The two plunger contacts located on the special battery mount, Figure 7, should be cleaned periodically with a solvent such as benzine.
- Charger Contacts. The two goldplated contacts located on the bottom portion of the charger should be cleaned periodically with the same solvent as above.
- D. If the battery is to be stored, it should be:

 - Discharged completely Kept in a cool area...40°F. recommended.

CLEANING THE CAMERA

- The lens should be cleaned with special lens tissue and cleaning solvent. It is recommended that the front and rear elements of the lens are cleaned regularly.
- Film Compartment. The camera gate and interior should be inspected and cleaned regularly. Lint or other foreign matter in the aperture should be removed with a small camel hair brush. The MC-571AC is equipped with a "Chrome-Ball" gate which will not collect emulsion or scratch film during normal use. However, if "soft emulsion" type film is run through the gate, such as some of the fine-grain sound-recording films, a slight amount of emulsion may gather around the "Balls" in the gate. This type film is not designed as a picture taking film and should not be run through the gate, except for specific test purposes, after which the gate should be carefully cleaned gate should be carefully cleaned.

NEVER USE ANY METAL ARTICLE TO REMOVE EMULSION FROM THE GATE. It may scratch and ruin the gate. Use a pointed toothpick, or other wood stylus. Do NOT use a pencil point.

The aperture plate may be easily inspected by removing the pressure plate. Hold the edge of the pressure plate in the gate with the left thumb and raise the hinged pressure member with the right hand, away from the pressure plate, and over the finger grip. Hold the pressure bar away and lift out the pressure plate completely. Do not allow the spring member to snap down against the aperture plate. Lower it gently.

To replace the pressure plate, hold the pressure bar away and set the film pressure plate in the gate with the small pin up, engaging the lower edge of the pressure plate in the notch in the shoe over the movement, simultaneously. Let the pressure bar down slowly over the finger grip until it again presses on the pressure plate. Lift the pressure plate a few times by grasping the finger grip and see that the shoe over the movement is opened by the pressure plate.

LUBRICATION

The MC-571AC should be lubricated after having shot 60,000 feet of film. Lubrication holes are located on the film mechanism plate, Figure 7. Lubricating oil is supplied with new MC-571AC systems.

SHOULDER PODS, BRACES AND TRIPODS

FREZZOLINI has designed the Frezzi Pod which is to be used with short viewfinders for off-the-shoulder shots. It provides the stability and comfort of shooting which is greatly needed for hand-held operation. See Figure 2.

FREZZOLINI also maintains a stock of professional tripod heads, legs and triangles. For those requiring a shoulder brace, the lightweight P-L shoulder brace is now available. See Figure 24.

CARRYING CASES

Deluxe Camera Case. FREZZOLINI has a deluxe location camera case for the MC-571AC which enables the camera to be packed completely assembled and have ample room for two additional magazines and additional accessories. See Figure 25.

AUDIO SYSTEM

- 1. The MC-571AC will accept the FREZZOLINI MH-16 recording head, as well as the Auricon head for single system operation. FREZZOLINI maintains a wide selection of audio amplifiers, recording heads, microphones and accessories.
- For double system, a pilot-tone output is available. Also, a crystal control oscillator is available for the NAGRA III or IV. This will enable "wire-less" doublesystem filming.
- 3. FREZZOLINI is staffed to modify or repair all Auricon-type audio equipment.

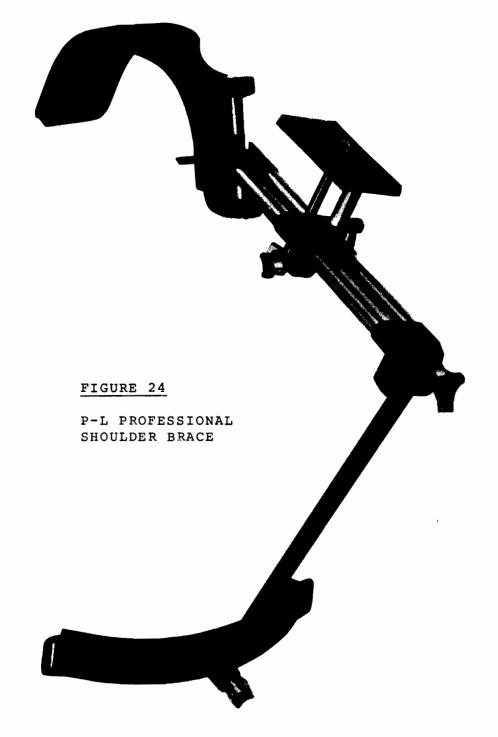
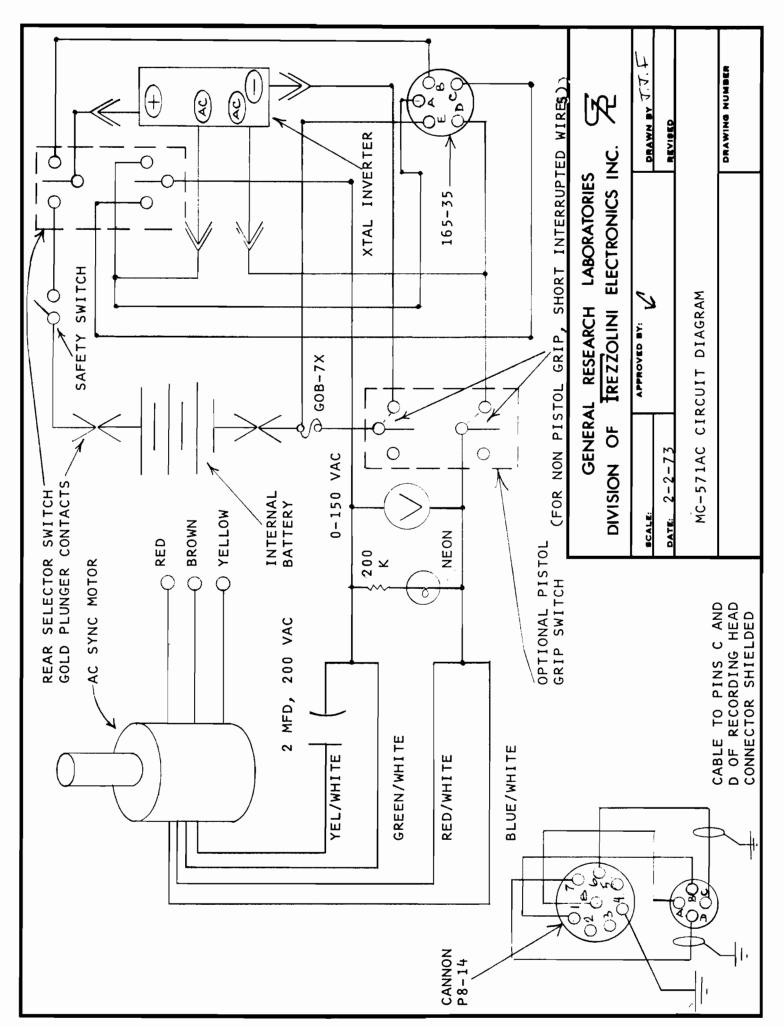






FIGURE 25

DELUXE LOCATION CARRYING CASE



TIFFEN SERIES 9 or 8½ FILTERS AND ACCESSORIES

Series No. 8½ filters available at same price as series No. 9 filters.						
ADAPTER RINGS for Angenieux 12 x 120 zoom.	LIST PRICE					
72M-9 accepts series 9 filters and 9WA lens shade						
RETAINING RING						
86M/86M to hold second filter with 72M/86M adapter ring						
LENS SHADE 9WA fit 72M-9 adapter ring or 901 retaining ring	14.75					
LS 86M wide angle, fits 72M/86M adapter ring or retaining ring supplied with lens	14.75					
LENS CAP						
LC72M aluminum, black finish threads directly into lens	8.00					
CLOSE-UP LENSES						
+1/4 diopter +1/2 diopter +3/4 diopter +1 diopter +1-1/2 diopter +2 diopter +3 diopter +4 diopter	18.50					
+5 diopter						
+6 diopter	20.50					
SPLIT/FIELD LENSES						
+1/4 diopter +1/2 diopter +3/4 diopter +1 diopter						
+1-1/2 diopter +2 diopter +3 diopter +4 diopter	45.00					
STANDARD COLOR FILTERS Clear, 1A Sky, UV14, UV15, UV16, UV17, UV Haze 1, UV Haze 2A 3 Aero 1, 6, 8, 9, 11, 12, 13, 15, 16, 21, 23A, 25, 29, 47, 47B, 56, 58, 61, 70, 72B, 74, 80A, 80B, 80C, 80D, 81, 81A, 81B, 81C, 81D, 81EF, 82, 82A, 82B, 82C, 85, 85B, 85C, 106, 113						
COMBINATION COLORS*						
38N5, 8N5, 23A+56, 57+8, 85N3, 85N4, 85N6, 85N9, 85N1.0, 85BN3, 85BN6, 85BN9, 85BN1.0	28.50					
FLUORESCENT LIGHT CORRECTION FILTERS						
FL-B for tungsten films, FL-D for daylight films	28.50					
POLARIZING FILTERS	19.50					
POLARIZING FILTER IN ROTATING MOUNT threads into adapter ring and accepts additional filters and lens shade	60.00					
COMBINATION POLARIZING FILTERS						
85 POL, 85B POL						
NEUTRAL DENSITY FILTERS						
ND 0.1, 0.2, 0.3, 0.4, 0.5, 0.6, 0.7, 0.8, 0.9 or 1.0						
ND 1.2, 1.5 or 2.0						
ND 4.0						
DIFFUSION EFFECT						
No. 1, 2, 3, 4 or 5	. 24.25					

TIFFEN

series 9 filters and lens accessories

For Angenieux 12-120mm, 15-150mm

WARRANTY

FREZZOLINI ELECTRONICS guarantees each new MC-571AC Cordless Camera to be free from defects in material and workmanship under normal use and service. Our obligation under this guarantee is limited to repairing and/or replacing any part or parts thereof FOB factory except the battery, within six (6) months from the date of shipment from the factory, and which, upon our examination, shall disclose to our satisfaction to have been thus defective. The battery is unconditionally guaranteed for ninety (90) days, and will be replaced on a pro-rated basis for a period of one (1) year.

This guarantee shall not apply to batteries nor shall it apply to any unit which shall have been repaired or altered in any way so as in our opinion to have affected its stability or reliability nor shall it apply to any unit which has been subjected to misuse, neglect or accident.

This guarantee is expressly in lieu of all other guarantees expressed or implied, and of all other obligations or liabilities on our part, and we neither assume nor authorize any representative or other person to assume for us any other liability in connection with the sale of these units.

