



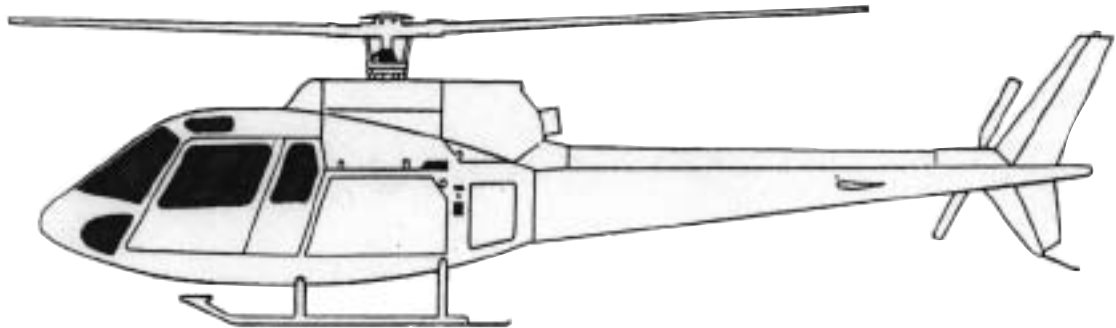
MIDDLE MOUNT

ASTAR / TWINSTAR

INSTALLATION MANUAL



Tyler - Middle Mount
For *Eurocopter* AS-350 & AS-355 Series Helicopters
FAA STC # SH5050NM



PLEASE RETURN THIS MANUAL WITH EQUIPMENT

This manual is available for download from our web site.



Tyler Camera Systems 14218 Aetna Street Van Nuys, California 91401 • USA
www.tylermount.com • 800-390-6070 • (818) 989-4420 • FAX (818) 989-0423





MODEL: Middle Mount

REPORT #: TCS 4-90

JOB #: A-Star

DATE: 4-24-90

MIDDLE MOUNT (MODEL 403)
 INSTALLATION MANUAL FOR
 ASTAR / TWINSTAR HELICOPTERS

PREPARED BY: N. Tyler

OF PAGES: 18

 5-27-90

CHECKED BY: D. Witcher

OF DRAWINGS: 0

 5-29-90

APPROVED BY: 

REVISIONS

DATE	PAGES AFFECTED	REVISION LETTER	REVISION	APPROVAL
4-24-90	All	NC	Original Issue	
3/29/01	All	A	Addition of Base Frame	
11-11-04	ALL	B	ADDED B3 MODEL	

FIG. 1 - Astar cabin with rear seats stored
Right Side View



The Middle Mount can be installed on either side of the helicopter utilizing the standard method of attachment using Tie Down Straps, or with fasteners using a Base Frame Assembly (which enables quick change-over from one side to the other). This manual shows the right and left side installations using Straps (Page 1 of 18 through 6 of 18) plus, left side using Base Frame (Page 7 of 18 through 10 of 18).

Using the Tie Down Straps, to shoot out the right side door, follow these steps:
Remove right side doors (front & rear). Remove rear seat cushions, fold rear seats upward and remove rear passenger seat belts.

Before Proceeding...

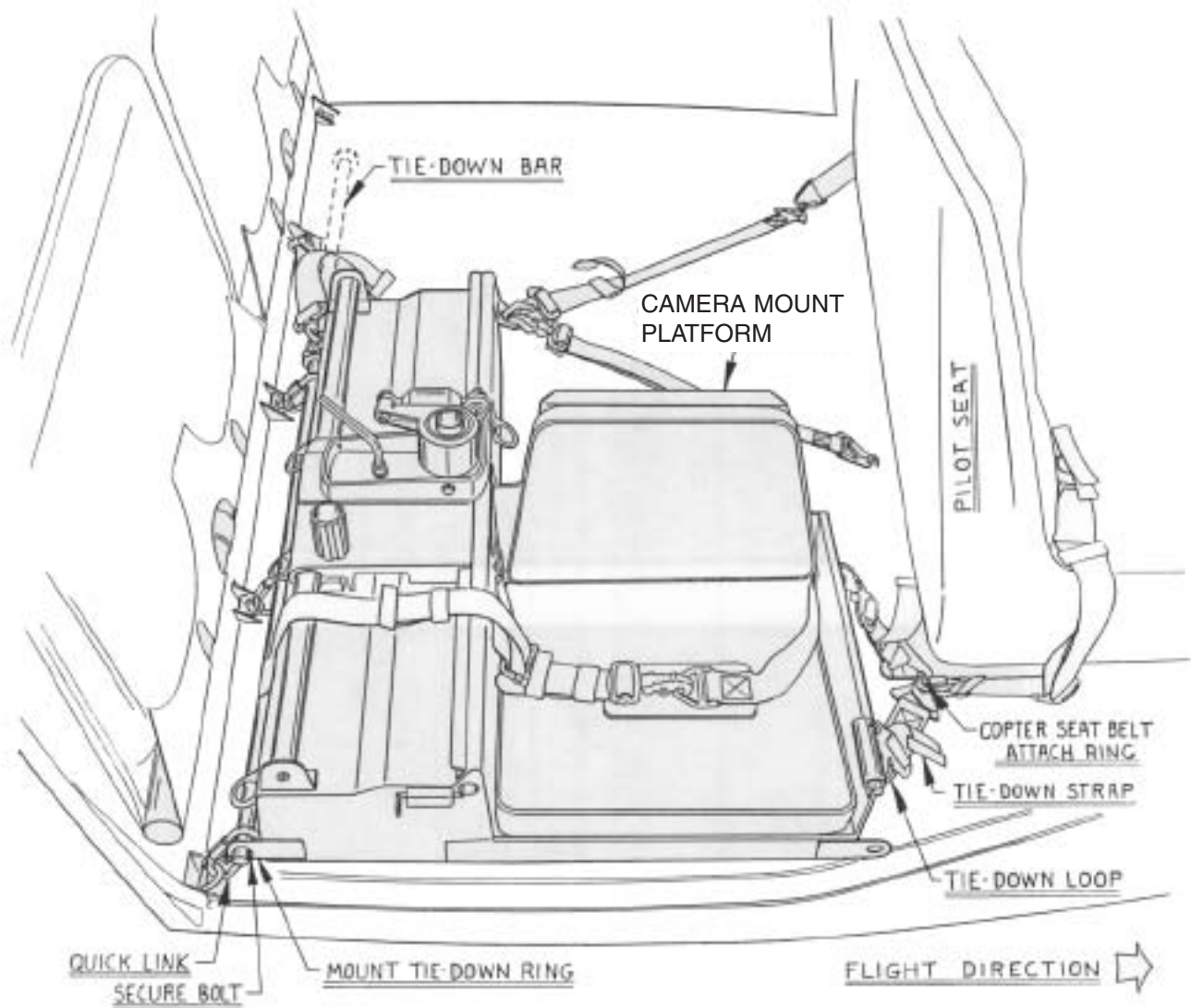
- Visually inspect all Tiedown straps for chaffing or wear.
- Visually check Tiedown bar for deformity or burrs.
- Visually check Major Mount for signs of damage.

FIG. 2 - Seat Belt Attach Points
Right Side View



Install 3 “Quick-Rings” (#TW55) through helicopter seat belt attach rings and tighten.

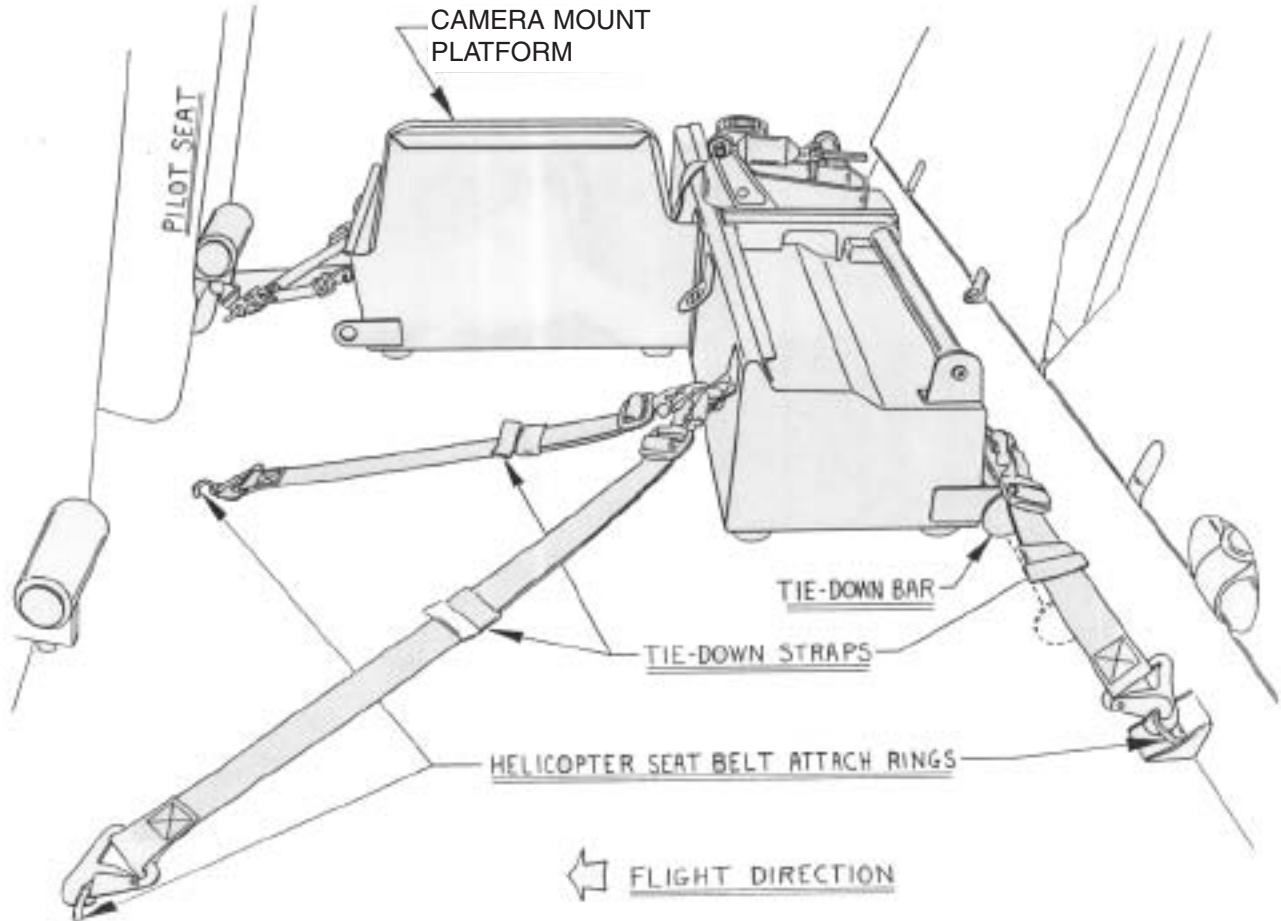
FIG. 3 - Camera Platform tie-down (right side installation)
Right Side View



Place Camera Platform on helicopter rear floor (right side). Slip Tie-down Bar through rear Platform Tie-down Ring, then through the first two Quick-rings. Continue by sliding Tie-down Bar through Secondary camera operator Safety Strap, then through third Quick-ring and front Mount Tie-down Ring. Secure with bolt and nut, through end of Tie-down Bar.

Attach two (2) Tie-down Straps to helicopter seat belt attach ring and to the Mount Tie-down Loops (front as shown) and pull straps tight.

FIG. 4 - Camera Platform tie-down (right side installation)
Left Side View



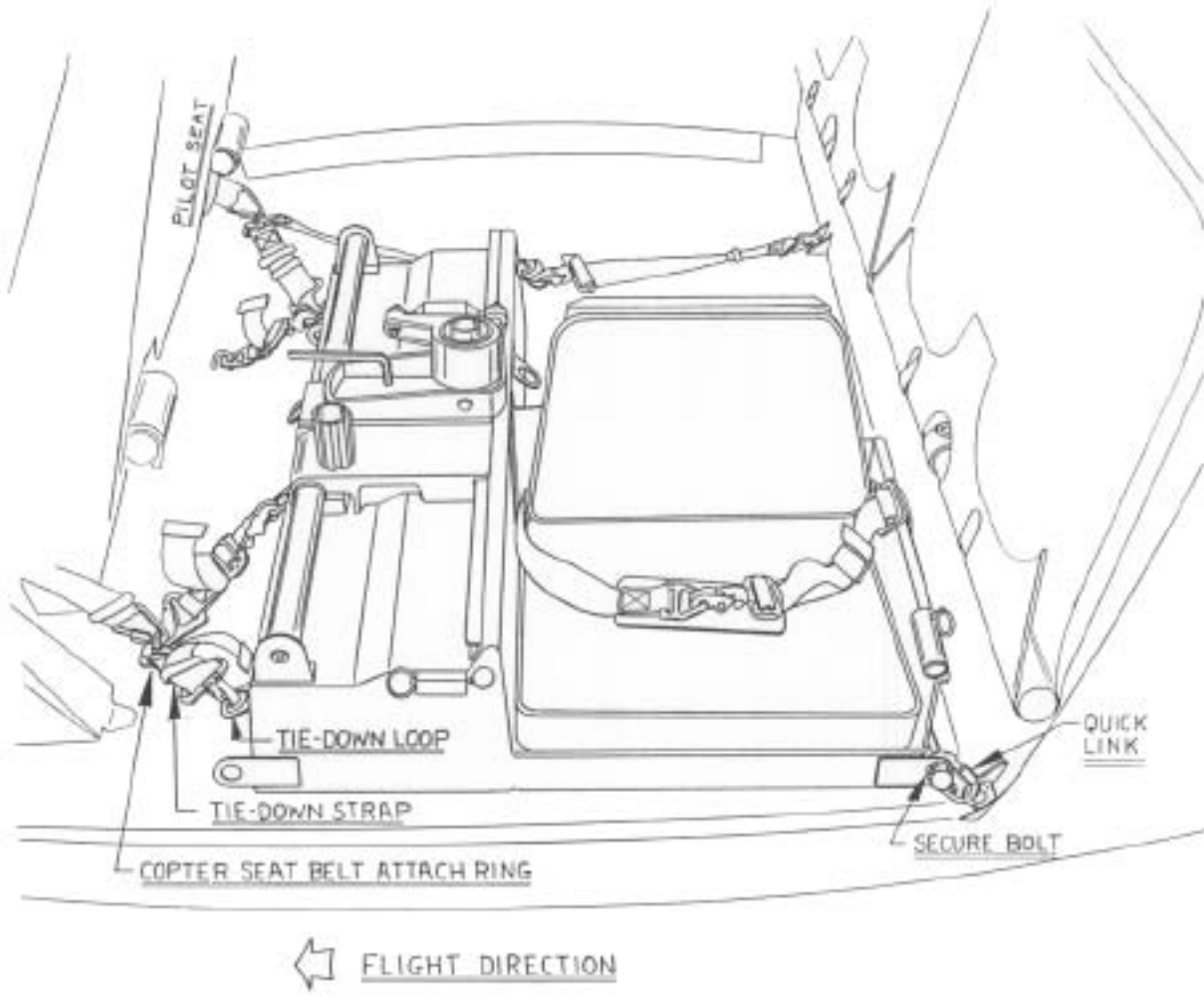
Attach three (3) tie-down straps to (existing) helicopter seat belt attach rings and to mount tie-down loops (rear) as shown. Pull straps tight.

**This completes the RIGHT SIDE installation of
the Camera Platform, utilizing the Restraint Straps.**

**Continue, starting on Page 11 of 18
for remainder of Middle Mount installation.**

**To install the Camera Platform on the LEFT SIDE
utilizing the Restraint Straps,
follow instructions starting on Page 5 of 18.**

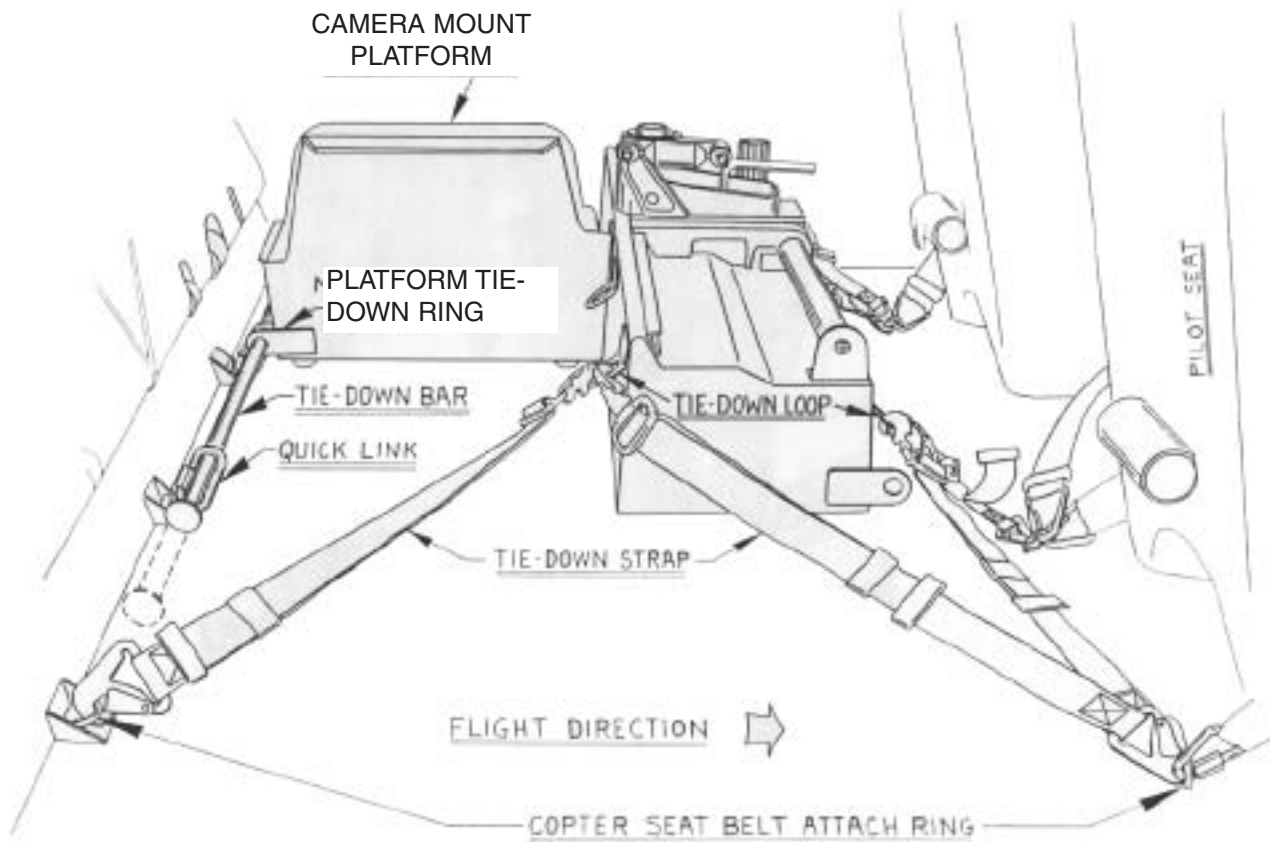
FIG. 14 - Camera Platform tie-down (left side installation)
Left Side View



Attach two (2) Tie-down Straps to (existing) helicopter seat belt attach rings and to Seat Base Tie-down Loops (front, as shown).

Pull Straps tight. Continue installation on page 5.

FIG. 13 - Camera Platform tie-down (left side installation)
Right Side View



To shoot out the left side door, follow these steps.

Remove left side doors (front & rear). Remove rear seat cushions, fold rear seats upward and remove rear passenger seat belts.

Install 3 "Quick-Rings" (#TW55) through (existing) helicopter attach rings and tighten (see page 2).

Place Camera Platform on helicopter rear floor (left side). Slip Tie-down Bar through rear Platform Tie-down Ring, then through the first two Quick-rings. Continue by sliding Tie-down Bar through Secondary camera operator Safety Strap, then through third Quick-ring and front Mount Tie-down Ring. Secure with bolt and nut, through end of Tie-down Bar.

Attach four (4) Tie-down Straps to (existing) helicopter attach rings and to the Mount Tie-down Loops (rear as shown) and pull straps tight.

**This completes the LEFT SIDE installation of
the Camera Platform, utilizing the Restraint Straps.**

**Continue, starting on Page 11 of 18
for remainder of Middle Mount installation.**

**To install the Camera Platform on the (LEFT SIDE shown)
utilizing the Base Frame Assembly
follow instructions starting on Page 7 of 18.**

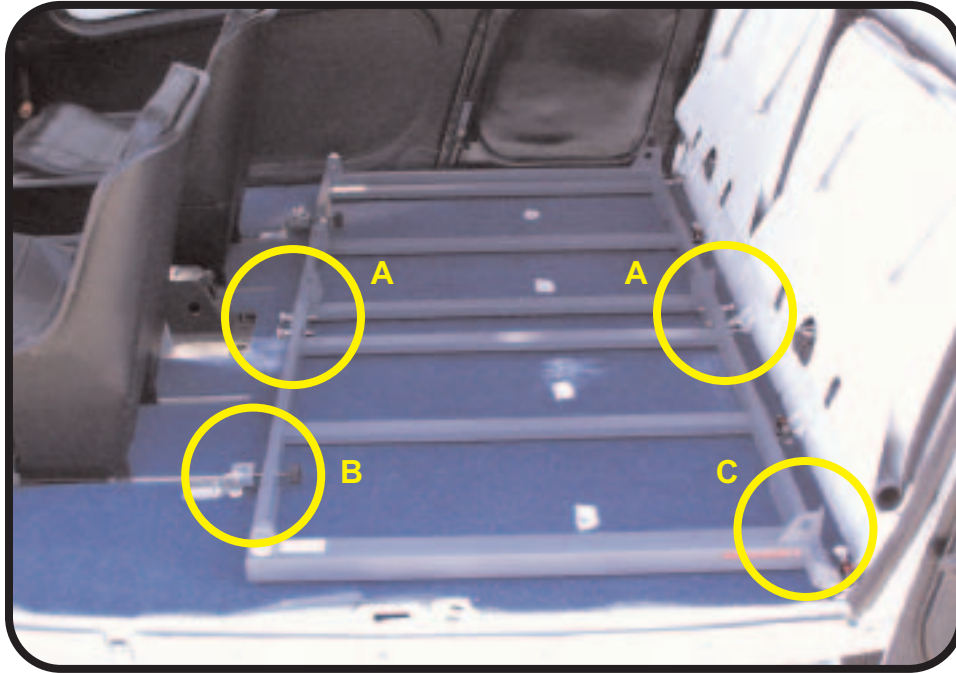


Using the Base Frame Assembly, to shoot out of either side of the helicopter, follow these steps:

Remove left side doors (front & rear). Remove rear seat cushions, fold rear seats upward and remove rear passenger seat belts.



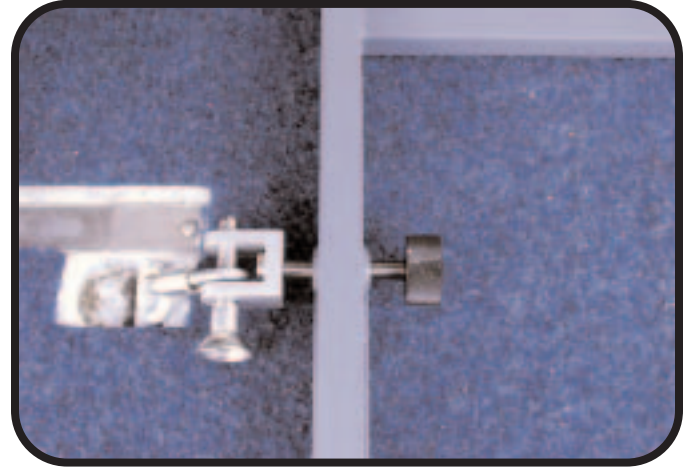
Insert four Pin-Studs on the outboard (existing) helicopter attach rings (leave the center attach ring unused).



After connecting the two halves of the Base Frame and fastening with four PI-Pins (A), Place the Base Frame Assembly on the floor of the helicopter with the Tensioning Knobs (B) forward, and the Locking Bar Sockets (C) up.



Place each of the four hinging tabs over the Pin-Studs and fasten with PI-Pins.

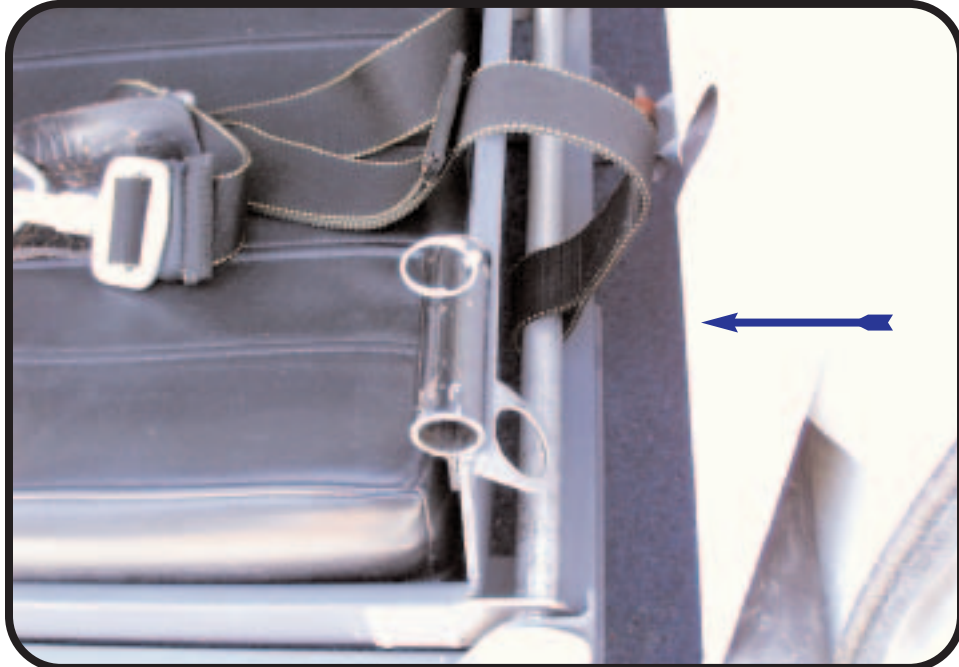


Fasten one or two Quick-Links (depending on carpet thickness) to the outer (existing) seat belt attach points just behind the forward seats. Then fasten the Quick-Links to the Tensioners with PI-Pins (as shown). Tighten the Tensioner Knobs to take up play.

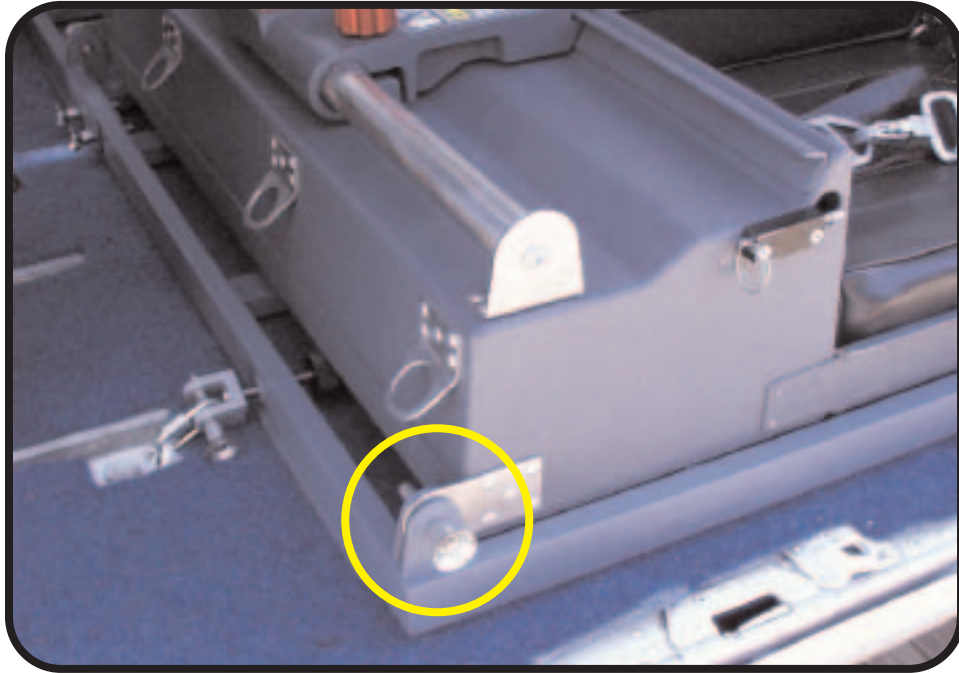


Install Camera Platform onto the Base Frame Assembly.

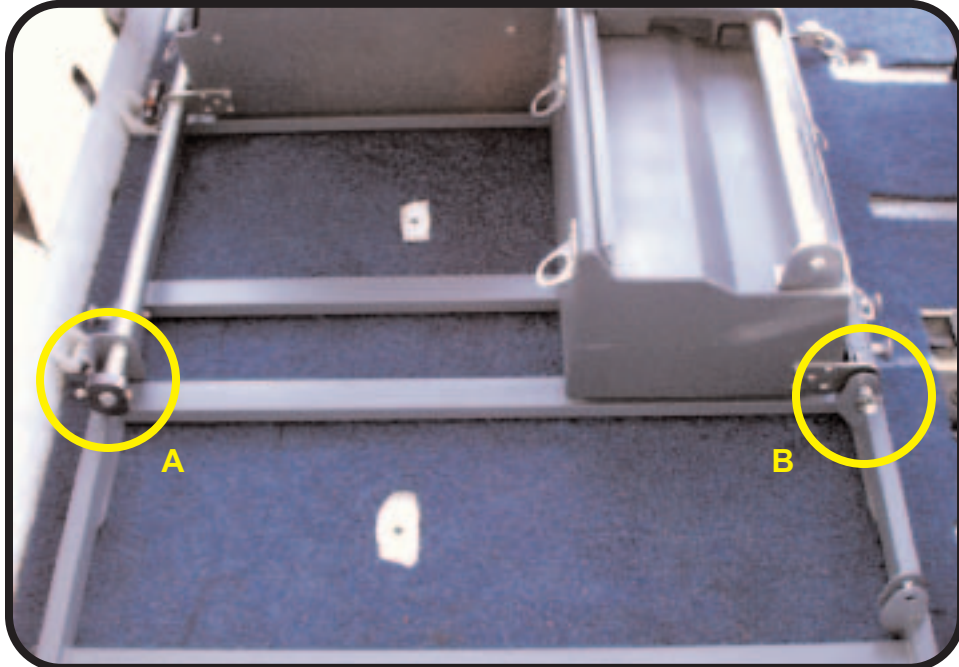
Note: The Camera Platform can be installed on either the left or right side.
(left side show)



Insert Locking Bar through the Base Frame, Camera Platform and Secondary Operator Safety Strap near the firewall of the helicopter.



Secure the front of the Camera Platform to the Base Frame Assembly with one PI-Pin at outboard side.



Secure the rear of the Camera Platform to the Base Frame Assembly by securing the Locking Bar with its Retainer, Bolt and Nut (A), and one PI-Pin (B) at inboard side.

This completes the LEFT SIDE installation of the Camera Platform, utilizing the Base Frame Assembly.

Follow instructions on Page 11 of 18 for remainder of Middle Mount installation.

Note: Utilizing the Base Frame Assembly (instead of the Restraint Straps) enables quick change-over from one side to the other.

To quickly change the Camera Platform over to the other side, remove the camera package, counterweight and arm assembly, then...

Remove the two PI-Pins and Locking Bar (shown on Page 10 of 18), replace the Camera Platform on the opposite side, and re-insert the two PI-Pins and Locking Bar in the right side attach points.

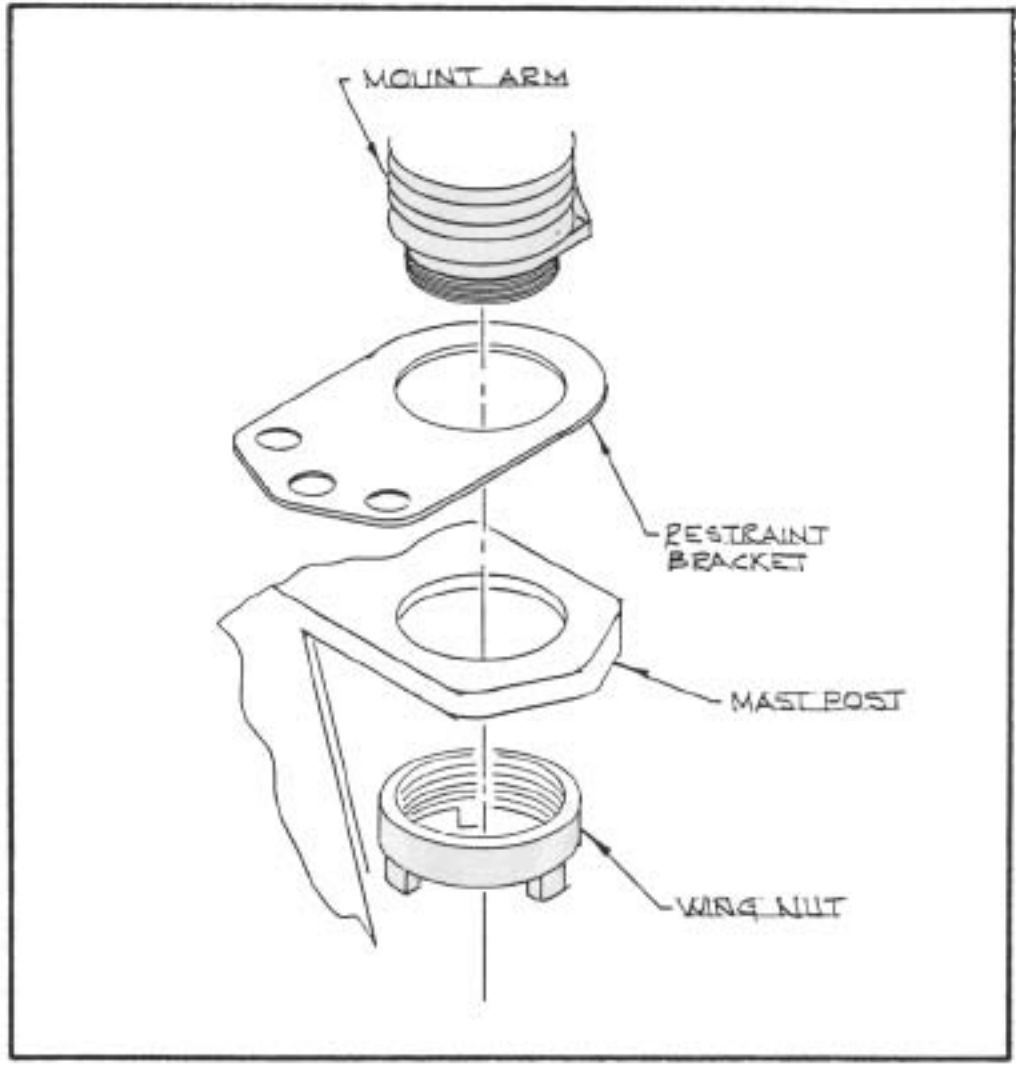
Then re-attach the camera package, counterweight and arm assembly.

FIG. 5 - Mast Post installation



Install mast post into lord mount assembly. Rotate until mast post drops into detent / slot.

FIG. 6 - Arm to Mast Post installation



Install the Camera Platform Arm into the Mast Post, with the Restraint Strap Bracket inbetween Mast Post and Arm (facing aft, as shown). Secure with the large Wing Nut. Note: Arm must be held level while tightening Wing Nut. Do not over-tighten Wing Nut. Attach the three Camera Platform Restraint Straps to the holes in the Bracket. Adjust the slack in the Straps to a minimum, but do not snug tight.

FIG. 7 - Restraint Strap Bracket installation



Attach the three (3) Restraint Straps to the Restraint Strap Bracket.

Attach the other ends of two (2) Straps to the helicopter attach points on the rear seat pivot shaft.

Attach the other Strap to the helicopter seat belt attach point (right rear side).

Note: Do not pull Straps tight; Mount needs freedom of movement (in the Lord Mount) to function properly.

FIG. 8 - Balance Weight installation



Attach Balance Weight to rear of Arm and secure with two (2) PI-Pins; one goes into the Arm and the other goes through the Turn-buckle assembly.

FIG. 9 - Camera Package installation

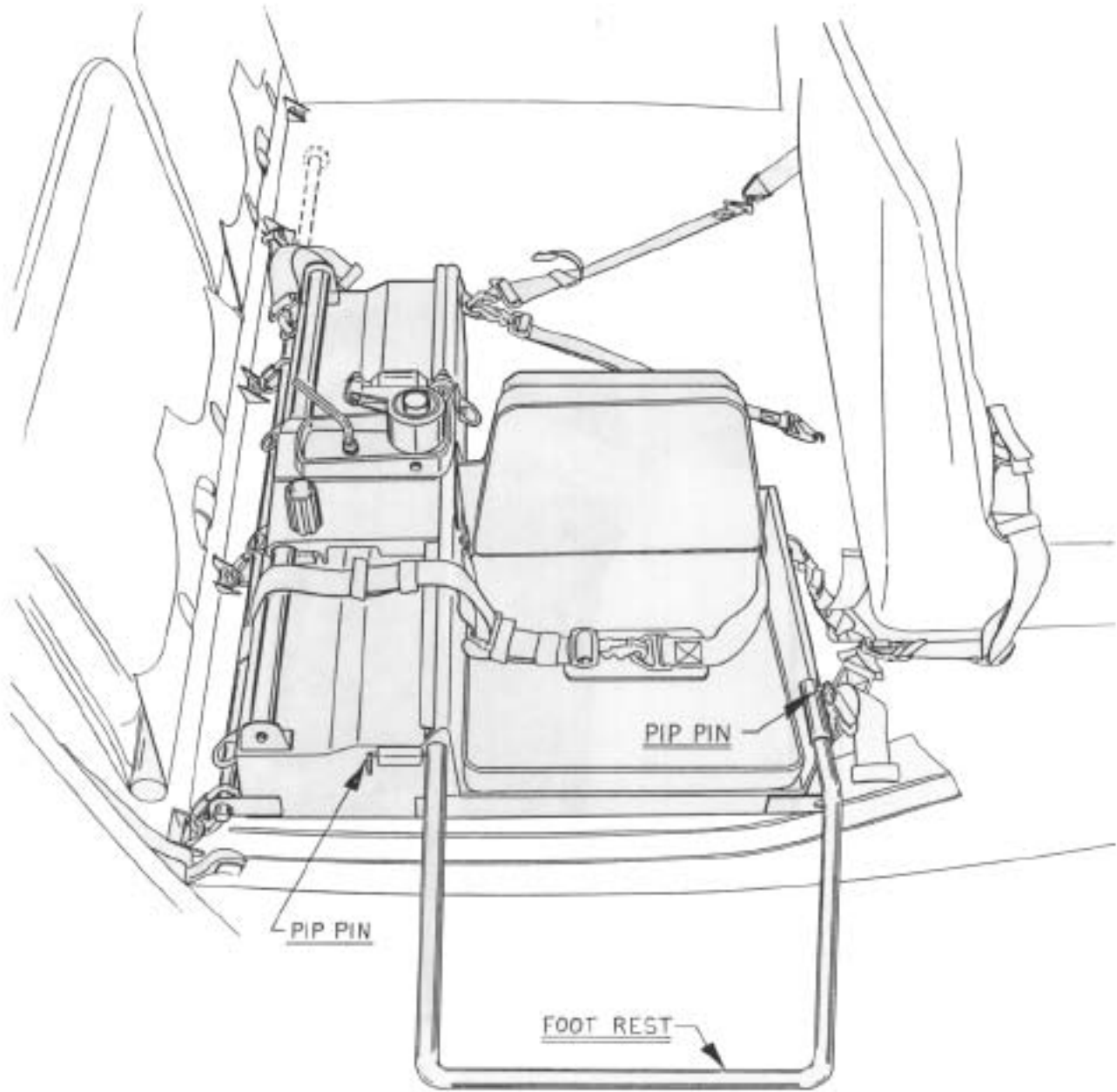


Open the lever on the X-Y Adjustment Head and slide the Camera Package (with the Quick Release Plate attached to the bottom) into the X-Y Adjustment Head on the front of the Arm.

Close the lever and secure by twisting the safety catch straight up.

Plug in the camera and zoom cables to the center of the Handles of the Arm.

FIG. 10 - Footrest installation
Right Side View



Install (optional) Footrest to Camera Platform and secure with PI-pins (one on either side).

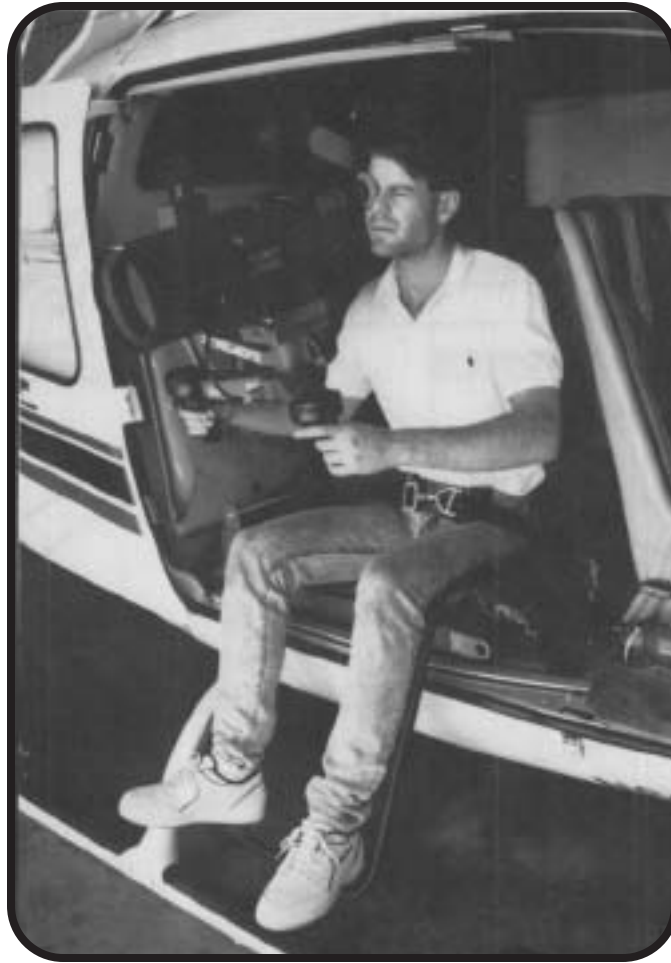
FIG. 11 - Wind-screen installation
Right Side View



Install Wind-screen to existing helicopter door hinges.
Secure with 3/16" bolts and nuts.
Typical for right or left side installation.

This completes the (Right Side) Camera Platform installation.

FIG. 11 - Camera Operator position during flight
Right Side View



Camera Operator position when shooting from the Right Side. Always wear Operator Safety Strap, and pull slack out of Secondary Operator Safety Strap. Do not change seating position during flight.

United States of America
Department of Transportation — Federal Aviation Administration
Supplemental Type Certificate

Number SH5050NM

This certificate, issued to Tyler Camera Systems

certifies that the change in the type design for the following product with the limitations and conditions therefor as specified hereon meets the airworthiness requirements of Part 27 of the Federal Aviation

Regulations: (Certification basis is set forth in T.C. Data Sheet H9EU for Model AS-350 and H11EU for Model AS-355)

Original Product — Type Certificate Number: H9EU; H11EU

Make: Aerospatiale (S.N.I.A.S.)

Model: AS-350 Series; AS-355 Series

Description of Type Design Change: Installation of Tyler Middle Mount Camera System in aft compartment of Aerospatiale AS-350 and AS-355 Series helicopters in accordance with FAA approved Tyler Camera Systems Master Drawing Lists TCS 2-90, Revision N/C, dated April 30, 1990 and TCS 4-90, Revision N/C, dated April 24, 1990, or later FAA approved revisions.

Limitations and Conditions: The limitations and conditions of Data Sheet H9EU or H11EU apply to the Tyler Middle Mount Camera System installation except as outlined on page 3 of this STC. A copy of this STC must be included in the permanent records of each helicopter modified in accordance with this STC.

This certificate and the supporting data which is the basis for approval shall remain in effect until surrendered, suspended, revoked, or a termination date is otherwise established by the Administrator of the Federal Aviation Administration.

Date of application: May 21, 1986

Date received:

Date of issuance: February 27, 1991

Date approved:



By direction of the Administrator
Michael Q. Cahan

(Signature)
Acting Manager, Los Angeles Aircraft
Certification Office

(Title)

Any alteration of this certificate is punishable by a fine of not exceeding \$1,000, or imprisonment not exceeding 3 years, or both.

This certificate may be transferred in accordance with FAR 21.47.

United States of America
Department of Transportation—Federal Aviation Administration
Supplemental Type Certificate
(Continuation Sheet)

Number SH5050NM

Limitations and Conditions (Continued)

The FAA Approved Rotorcraft Flight Manual Supplement No. TCS 2-91, dated February 14, 1991, or later FAA approved revision, for the Middle Mount Camera System installation is required.

Operation Limitations: The following flight speed limitations apply to Aerospatiale Models AS-350 and AS-355 Series helicopter, equipped with the Tyler Middle Mount Camera System installation.

I. LIMITATIONS

1. V_{NE} = 70 knots - power ON or OFF at sea level with mount, with or without camera assembly and Lexan Wind Guard.
2. Reduce V_{NE} by 3 knots per 1000 ft. in altitude above 3000 ft. pressure altitude.

The approval of this change in type design applies basically to Aerospatiale Models AS-350 and AS-355 Series helicopters. This approval should not be extended to other aircraft of these models on which other previously approved modifications are incorporated unless it is determined by the installer that the interrelationship between this change and any of those other previously approved modifications will introduce no adverse effect upon the airworthiness of that aircraft. This determination should include consideration of significant changes in weight distribution such as an increase in the fixed disposable weight in the fuselage.

END

Any alteration of this certificate is punishable by a fine of not exceeding \$1,000, or imprisonment not exceeding 3 years, or both.

FAA FORM 8110-2-1 (10-69)

This certificate may be transferred in accordance with FAR 21.47.

C FAA AC 82-0357B

Tyler Camera Systems
14218 Aetna Street
Van Nuys, CA 91401

RFM SUPPLEMENT TO
Aerospatiale AS-350 & AS-355
Series Helicopters
STC SH5050NM

TYLER CAMERA SYSTEMS
FAA APPROVED
ROTORCRAFT FLIGHT MANUAL SUPPLEMENT
TO THE
AEROSPATIALE AS-350 & AS-355 SERIES
ROTORCRAFT FLIGHT MANUAL
TYLER MIDDLE MOUNT MODEL 403

This supplement must be attached to the FAA Approved Rotorcraft Flight Manual Aerospatiale AS-350 & AS-355 when the rotorcraft is modified by the installation of Tyler Middle Mount Model 403 in accordance with STC SH5050NM.

The information contained herein supplements or supersedes the basic manual only in those areas listed herein. For limitations, procedures and performance information not contained in this supplement, consult the basic Rotorcraft Flight Manual.

FAA APPROVED: *Donald Armstrong*
Manager, Flight Test Branch, ANM-160L
Federal Aviation Administration
Los Angeles Aircraft Certification Office
Transport Airplane Directorate

DATE: *Feb. 14, 1991*

I. LIMITATIONS:

1. $V_{NE} = 70$ knots - power ON or OFF at sea level with mount, with or without camera assembly and Lexan Wind Guard.
2. Reduce V_{NE} by 3 knots per 1000 ft. in altitude above 3000 ft. pressure altitude.

II. NORMAL OPERATIONS:

1. The basic Tyler Camera Systems 403 Middle Mount configuration is with camera assembly (camera, mount and film magazine) installed. Operation, installation and removal of the camera assembly and camera ballast are to be conducted in accordance with Tyler Camera Systems Installation Manual No. TCS 4-90, "Tyler 403 Middle Mount for Aerospatiale AS-350 & AS-355 Series Helicopters".
2. The **403 Middle Mount** may be installed or removed by a *Tyler Camera Systems* trained technician, pilot or mechanic, and must be recorded in accordance with FAR 43.9. Caution: Handle mount with care as it is heavy and unwieldy.

VI. WEIGHT & BALANCE:

Compute Longitudinal and Lateral CG using the following stations for the mount and operator:

Right Side	<u>Longitudinal</u>	<u>Lateral</u>
Mount :	92.02	+17
Operator:	82.02	+24
Left Side	<u>Longitudinal</u>	<u>Lateral</u>
Mount :	81.52	-17
Operator:	92.27	-24

Lateral CG limits may be exceeded when the pilot, mount and operator are all on the right side of the aircraft.

FAA APPROVED

DATE: FEB 14 1991



U.S. Department of Transportation
Federal Aviation Administration

MAJOR REPAIR AND ALTERATION (Airframe, Powerplant, Propeller, or Appliance)

Form Approved
OMB No. 2120-0020

For FAA Use Only
Office Identification

INSTRUCTIONS: Print or type all entries. See FAR 43.9, FAR 43 Appendix B, and AC 43.9-1 (or subsequent revision thereof) for instructions and disposition of this form. This report is required by law (49 U.S.C. 1421). Failure to report can result in a civil penalty not to exceed \$1,000 for each such violation (Section 901 Federal Aviation Act of 1958).

1. Aircraft	Make Aerospatale	Model AS-350 & AS-355 Series
	Serial No. 1234	Nationality and Registration Mark N5678M
2. Owner	Name (As shown on registration certificate) Local Copters, Inc.	Address (As shown on registration certificate) Your Town, USA

3. For FAA Use Only

4. Unit Identification				5. Type	
Unit	Make	Model	Serial No.	Repair	Alteration
AIRFRAME (As described in item 1 above)				X
POWERPLANT					
PROPELLER					
APPLIANCE	Type				
	Manufacturer				

**FAA FORM 337
TYLER MIDDLE MOUNT
SAMPLE ONLY**

6. Conformity Statement

A. Agency's Name and Address Local Copters, Inc. Your Town, USA	B. Kind of Agency <input checked="" type="checkbox"/> U.S. Certificated Mechanic <input type="checkbox"/> Foreign Certificated Mechanic <input type="checkbox"/> Certificated Repair Station <input type="checkbox"/> Manufacturer	C. Certificate No. CRS 000-000
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D. I certify that the repair and/or alteration made to the unit(s) identified in item 4 above and described on the reverse or attachments hereto have been made in accordance with the requirements of Part 43 of the U.S. Federal Aviation Regulations and that the information furnished herein is true and correct to the best of my knowledge.

Date 01/01/91	Signature of Authorized Individual
-------------------------	--

7. Approval for Return To Service

Pursuant to the authority given persons specified below, the unit identified in item 4 was inspected in the manner prescribed by the Administrator of the Federal Aviation Administration and is APPROVED REJECTED

BY	FAA Fit Standards Inspector	Manufacturer	Inspection Authorization	Other (Specify)
	FAA Designee	<input checked="" type="checkbox"/> Repair Station	Person Approved by Transport Canada Airworthiness Group	

Date of Approval or Rejection 01/01/91	Certificate or Designation No. CRS 000-000	Signature of Authorized Individual
--	--	------------------------------------

NOTICE

Weight and balance or operating limitation changes shall be entered in the appropriate aircraft record. An alteration must be compatible with all previous alterations to assure continued conformity with the applicable airworthiness requirements.

8. Description of Work Accomplished

(If more space is required, attach additional sheets. Identify with aircraft nationality and registration mark and date work completed.)

Installation of Tyler Camera Systems Camera Mount.

Installation of Tyler Middle Mount Model 403 and Camera System in accordance with STC #SH5050NM, dated February 27, 1991, using Tyler Installation Manual Model 403 for Aerospatiale AS-350 & AS-355 Series Helicopters, dated 4-24-90.

Limitations are stated in Flight Manual Supplement TCS 2-91.

Weight and Balance revised to reflect camera and mount installation.

XXXXXXXXXXXXXXXXXXXXX NOTHING FOLLOWS XXXXXXXXXXXXXXXXXXXXX

**FAA FORM 337
TYLER MIDDLE MOUNT
SAMPLE ONLY**

Additional Sheets Are Attached

SAMPLE ONLY

SAMPLE ONLY

AEROSPATIALE HELICOPTER WEIGHT AND BALANCE

MODELS AS-350 AND AS-355 SERIES

ITEM	WEIGHT	ARM	MOMENT
Equipped Empty Weight*	2,628.0*		367,092.96
Crew**	400.0**	61.02	24,408.00
Cameraman***	200.0***	99.99	19,998.00
Fuel****	700.0****	136.81	95,767.00
Middle Mount	222.0	99.99	22,197.78

TOTAL	4,150.0	127.58	529,463.74

NOTE: ANY C.G. BETWEEN 124.8 AND 135.0 IS ACCEPTABLE.

Forward Limit: 124.8 in.
Rear Limit (up to gross weight of 2,865 lbs.): 139.7 in.
Rear Limit (above that up to 4,300 lbs.): 135.0 in.

4,300 LBS. IS MAXIMUM TAKE-OFF WEIGHT.

CAUTION:

- * Use Equipped Empty Weight (EEW) as listed on Weight and Balance form in Aircraft Flight Manual of actual ship to be used.
- ** Pilot & 1 Front Passenger (combined weight could exceed 400 lbs.).
- *** Cameraman's weight could exceed 200 lbs.
- **** Fuel weight could exceed 700 lbs.