

Air Film Camera Systems

REPORT NO. AFSP-006

INSTALLATION MANUAL

AFSP-1 SINGLE POLE UTILITY MOUNT



STC NUMBER SR01785LA

6245 Aerodrome Way
Hangar No. 2
Georgetown, Ca 95634

LOG OF REVISIONS

REV	REVISION DATE	PAGES EFFECTED	COMMENTS
N/C	5/10/2005	ALL	ORIGINAL SUBMITTAL
A	6/15/2005	ALL	MINOR NOTE CHANGE

FAA APPROVED MODEL LIST (AML) NO. SR01785LA
AIRFILM CAMERA SYSTEMS
FOR

INSTALLATION OF AIRFILM SINGLE POLE UTILITY BRACKET ON HELICOPTER MODELS LISTED

ISSUE DATE : May 31, 2005

ITEM	AIRCRAFT MAKE	AIRCRAFT MODEL	ORIGINAL TYPE CERTIFICATE NUMBER	CERTIFICATION BASIS FOR ALTERATION	MASTER DWG. LIST		INSTALLATION INSTRUCTIONS		RFM SUPPLEMENT NUMBER/REV. NO. & DATE	AML AMENDMENT DATE
					REPORT NO.	REV. NO. & DATE	REPORT NO.	REV. NO. & DATE		
1	EUROCOPTER FRANCE	AS350-C AS350-D AS350-D1 AS350-B AS350-B1 AS350-B2 AS350-B3 AS350-BA	H9EU	FAR 27 AND AMENDMENTS LISTED ON TCDS H9EU	AFSP-010	REV. N/C 2/17/05	AFSP-006	REV. N/C 5/10/05	REV. N/C 5/12/05	N/A
2	EUROCOPTER FRANCE	AS355E AS355F AS355F1 AS355F2 AS355N	H11EU	FAR 27 AND AMENDMENTS LISTED ON TCDS H11EU	AFSP-010	REV. N/C 2/17/05	AFSP-006	REV. N/C 5/10/05	REV. N/C 5/12/05	N/A

FAA APPROVED : Michael E. O'Neil
ACTING MANAGER, AIRFRAME BRANCH
LOS ANGELES AIRCRAFT CERTIFICATION OFC.

1.0 INTRODUCTION AND GENERAL DESCRIPTION:

The AFSP-1 Single Pole Mount system is Installed on the Eurocopter AS350 & AS355 series helicopters. It can be installed on High or Low Gear aircraft. The mount can be installed on the right or left hand side of the aircraft.

AS350 models B, B1, B2, BA, B3, C, D, and D1
AS355 models E, F, F1, F2 and N

The AFSP-1 mount system consists of a support bar that attaches to the forward landing gear cross tube and floor tuning hammer weight attachment points. A single tube allows for the mounting of a camera / sensor system.

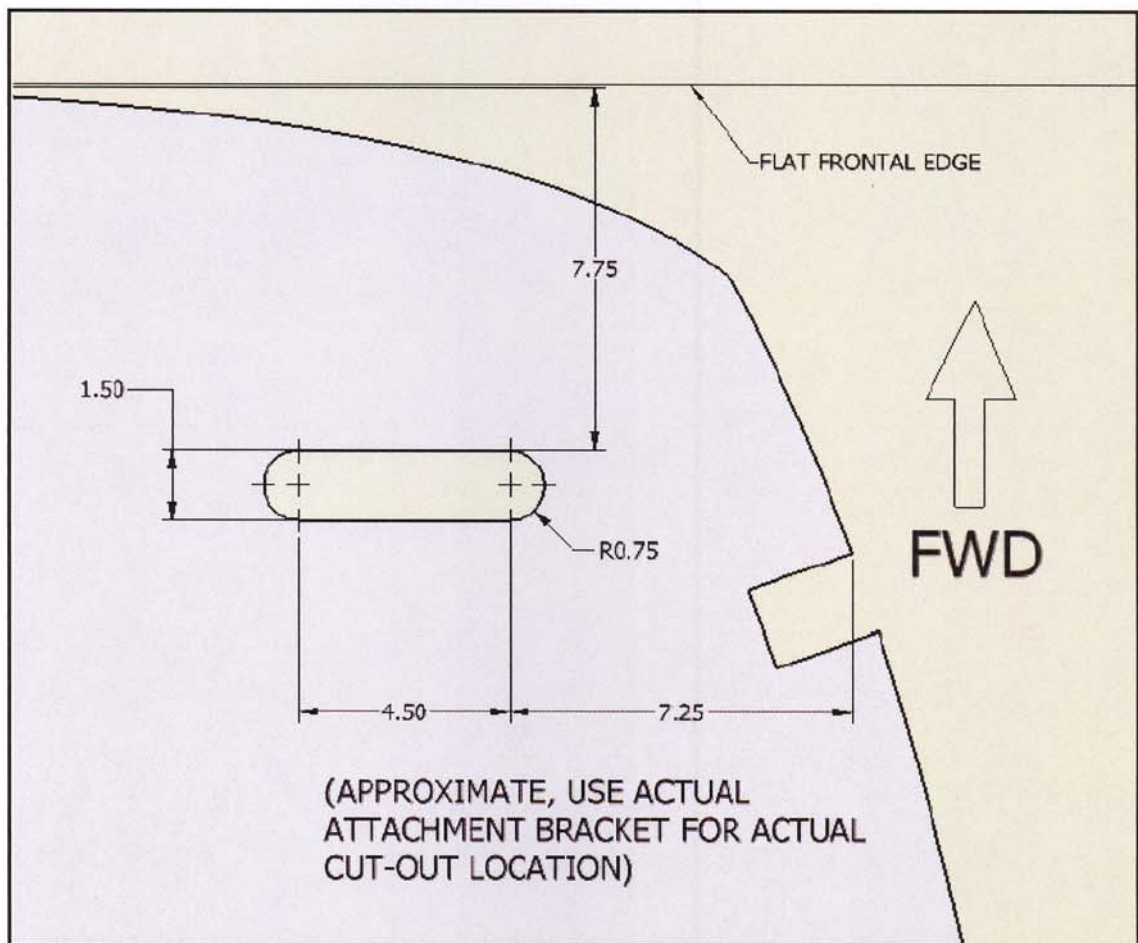
After installation, calculate weight and balance for Installed items and check for proper loading of aircraft.

A modification to the forward belly panel per Section 2 is required to provide for the T Bracket. Antenna, lights, and additional installed equipment may need to be relocated to provide clearance for the camera mount system.

If camera / sensor installations require additional power or system requirements beyond the placarded OEM auxiliary power outlet, additional certification(s) may be required.

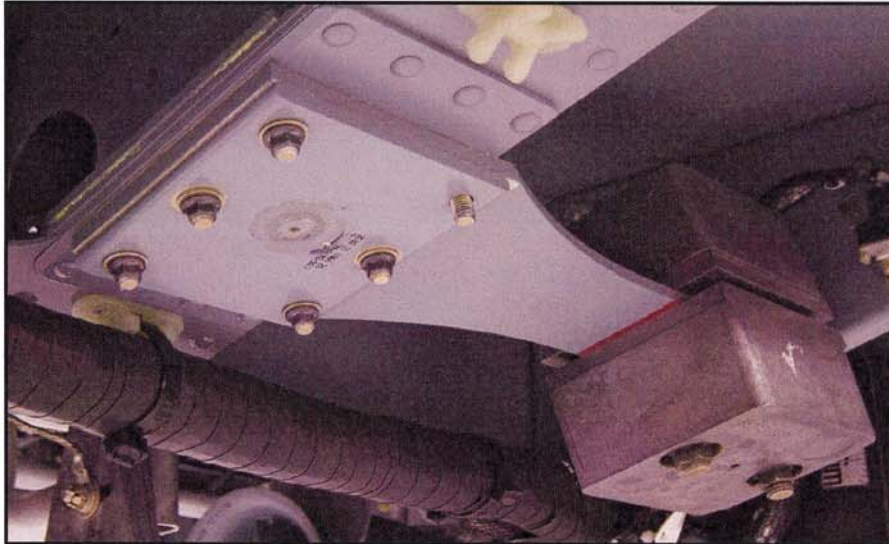
2.0 INSTALLATION INSTRUCTIONS: NOSE MOUNT SUPPORT

- 2.1 Confirm that the mount will not interfere with any exterior kits, antennas, and other exterior mounted assemblies.
- 2.2 Remove the forward belly panel – Use caution for any antennas located on the panel. Disconnect any cabling before removing the panel.
- 2.3 Straight cut through material per the following drawing.



- 2.2 Remove foam core from around edge of cutout. Min 0.200 in depth.
- 2.3 Edge fill cutout in belly panel with epoxy / filler with supplied West Systems 101 Epoxy Repair Kit, refer to manufacturer's instructions or equivalent ie: Ciba Giegy AV1258/HV1258.
- 2.4 Lay-up 9 oz fiberglass tape as supplied in West Systems 101 Epoxy Repair Kit (or equivalent) over edge filling to provide edge protection for belly panel. Refer to manufacturers instructions.

- 2.5 Using a 6mm-socket remove an existing metric nut off of the hammer weight. Replace with special nuts provided 6 each side (A700)



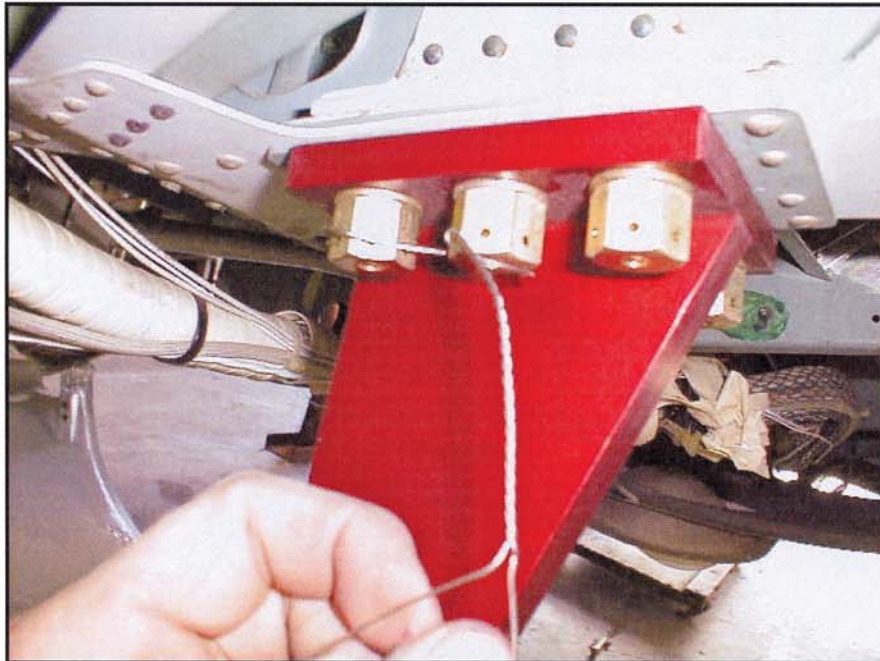
CAUTION: REMOVE AND REPLACE NUTS ONE AT A TIME, TO ENSURE THE HAMMER WEIGHT DOES NOT MOVE FROM PRESET LOCATION

- 2.6 Attach the HAMMER WEIGHT -T BRACKETS (A701) to the hammer weight existing bolts. (SEE ABOVE CAUTION)
Place the bracket up to the underside of the hammer weight attachment nuts.

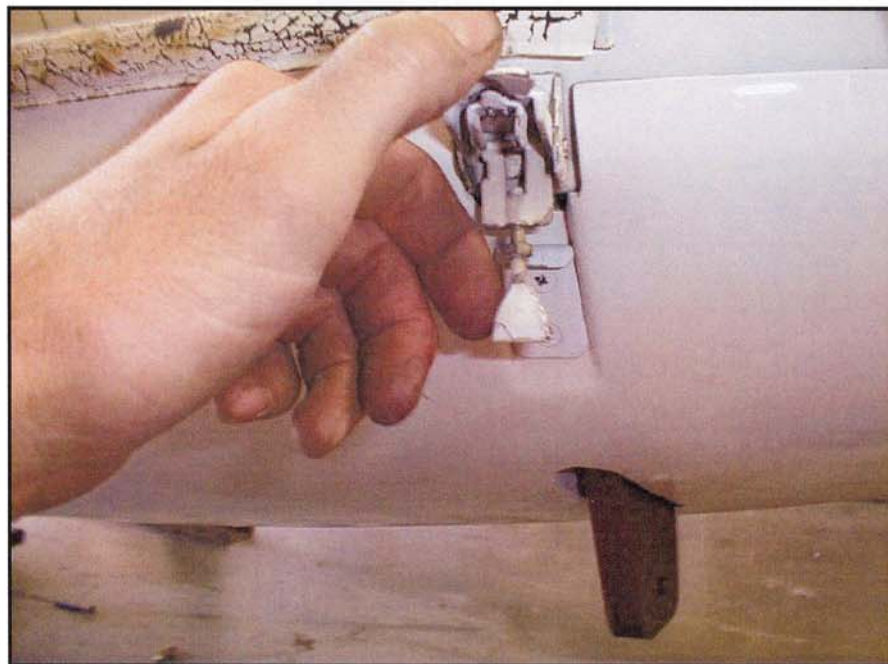


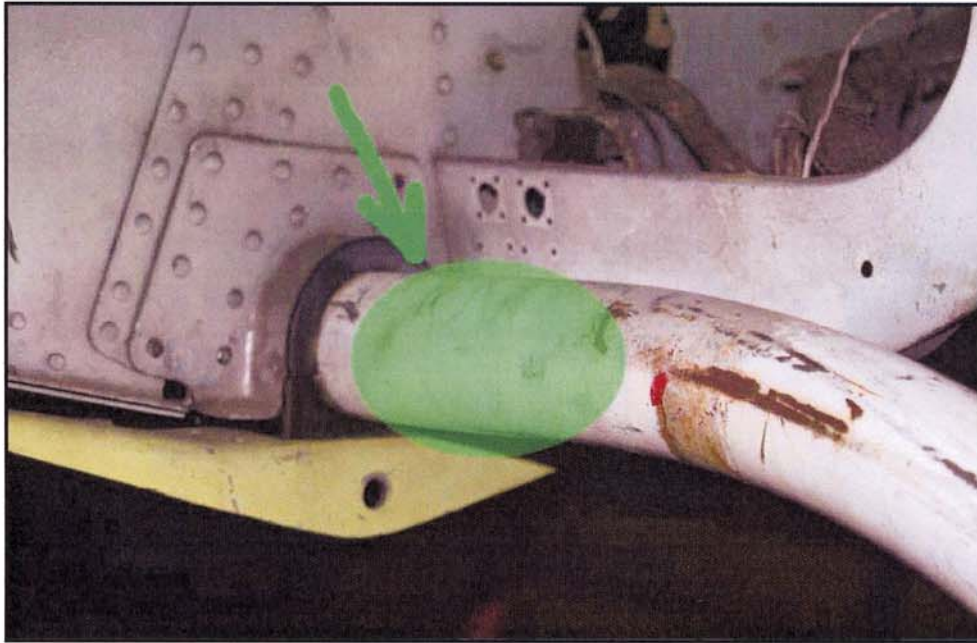
- 2.7 Torque nuts to 72-84 in lbs. (use caution when using the 3/4" socket wrench to tighten bolts- note that the bolts are 6mm dia and proper torque will be achieved quickly).

- 2.8 Use 0.032 diameter safety wire to secure all nuts as shown.

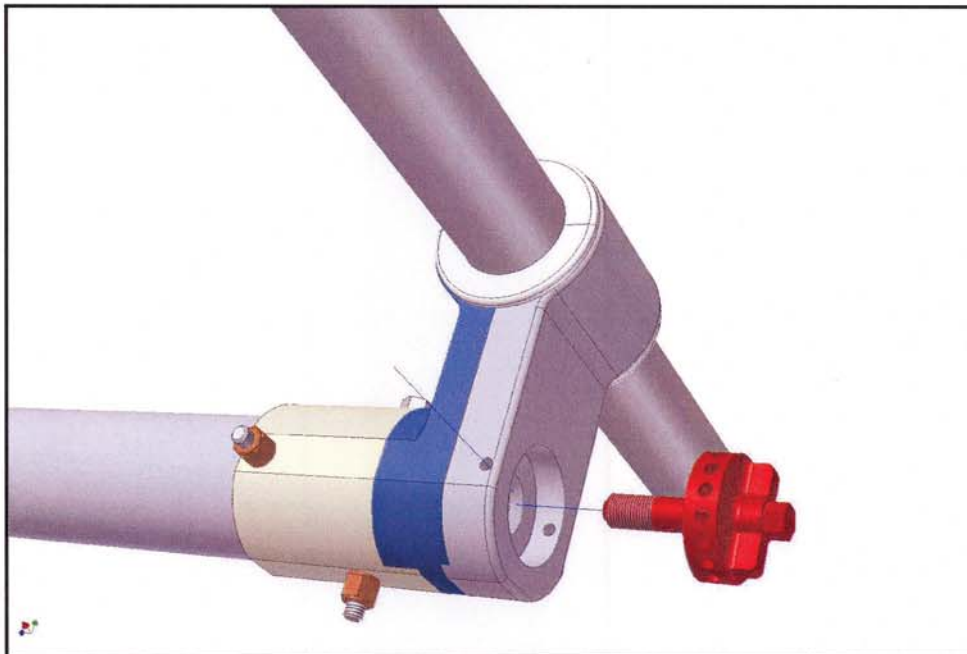


- 2.9 Attach the modified forward belly panel. Check that clearance holes allow the T brackets to extend through the panel.

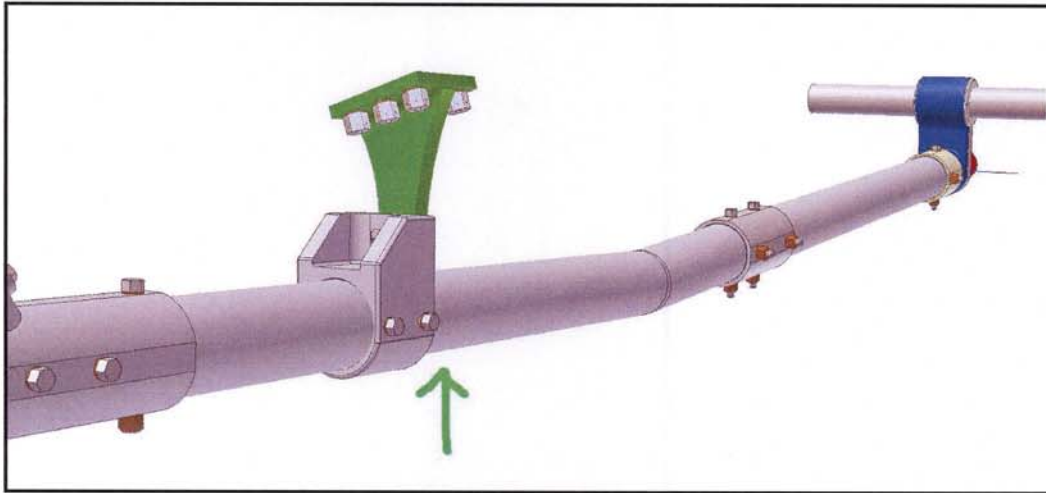




- 2.10 Locate area on FWD cross tube as shown in picture above. The attachment area is approximately 2 inches outside of the cargo swing attach bracket shown in green.

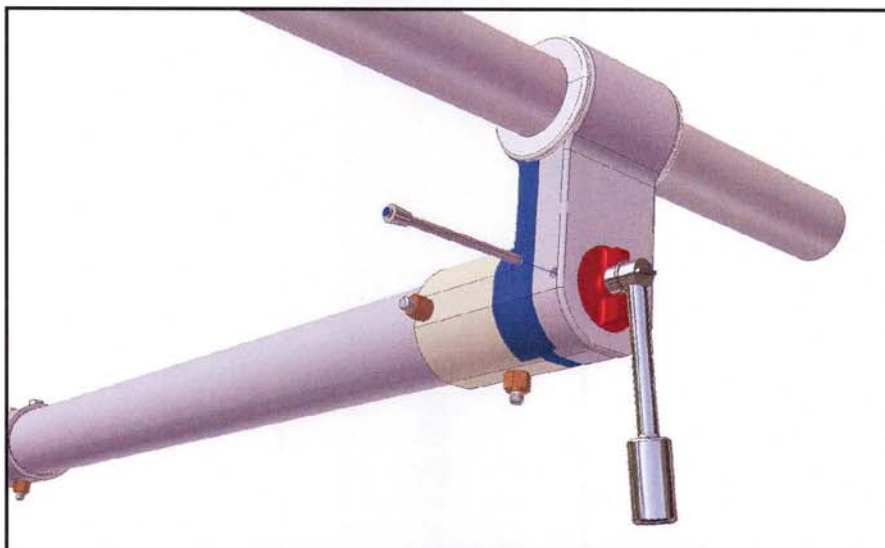


- 2.11 Attach the aft end of the AFSP-1 mount to the forward cross tube. Use the Delrin Gear pad's AFSP-25 or 3/16" Neoprene rubber to protect the aircraft landing gear. Hand tighten the assembly and allow the forward area of the mount to rest on floor.



- 2.12 Raise the AFSP-1 Mount assembly to line up the AFSP-36 with the installed T-bracket. Attach using the following fasteners and torque to 160-190 In Lbs.

QTY	TYPE - NUMBER	ITEM
1	AN6-23A	HEX HEAD BOLT
2	AN960-616	WASHERS
1	AN365-624A	STOP NUTS



- 2.13 Torque the AFSP-1 aft section around the FWD cross tube to 160-240 Inch Lbs.

- 2.14 Install ¼ Safety Pin provided to secure AFSP-24 locking bolt.
- 2.15 **Check entire mount for proper bolt torque settings, and security.**

3.0 FINAL INSTALLATION INSTRUCTIONS:

- 3.1 Check entire mount for security and proper bolt torque settings.
- 3.2 Calculate Weight and Balance.
- 3.3 Install the following Placard in cockpit.

REDUCE PUBLISHED V_{NE} BY 15 KIAS
WITH A PAYLOAD INSTALLED OR MOUNT ONLY

- 3.4 Make log book entries as required by Federal Aviation Regulations.
- 3.5 Return aircraft to service

4.0 REMOVAL INSTRUCTIONS

To remove AFSP-1 mount from aircraft::

- 4.1 Follow directions in reverse order and replace all original hardware / fixtures that were removed for installation of AFSP-1 mount.
- 4.2 Remove any AFSP-1 mount placards from cockpit
- 4.3 Calculate weight and balance
- 4.4 Make appropriate log book entry
- 4.5 Return Aircraft to service

5.0 WEIGHT AND BALANCE

The following table presents the location of the weight center of gravity of the mount and payload sensor/camera for adjustment of the aircraft weight and center of gravity with the mount installed.

TABLE 5.1 WEIGHT AND CENTER OF GRAVITY LOCATIONS

DESCRIPTION	WEIGHT (lbs)	STATION (in)	BL (in)
AFSP-1 MOUNT	44	53.9	-21
PAYLOAD	150 max	5.7	-21.8

6.0 QUALIFIED PAYLOAD LIST

The maximum weight and frontal area allowed to be installed on AFSP-1 Single Pole Utility Mount are as follows:

- W = 150 lbs
- Frontal area = 2.5 square feet
- Gimbal/Payload Diameter = 15.5 inches
- Minimum ground clearance = 6 inches

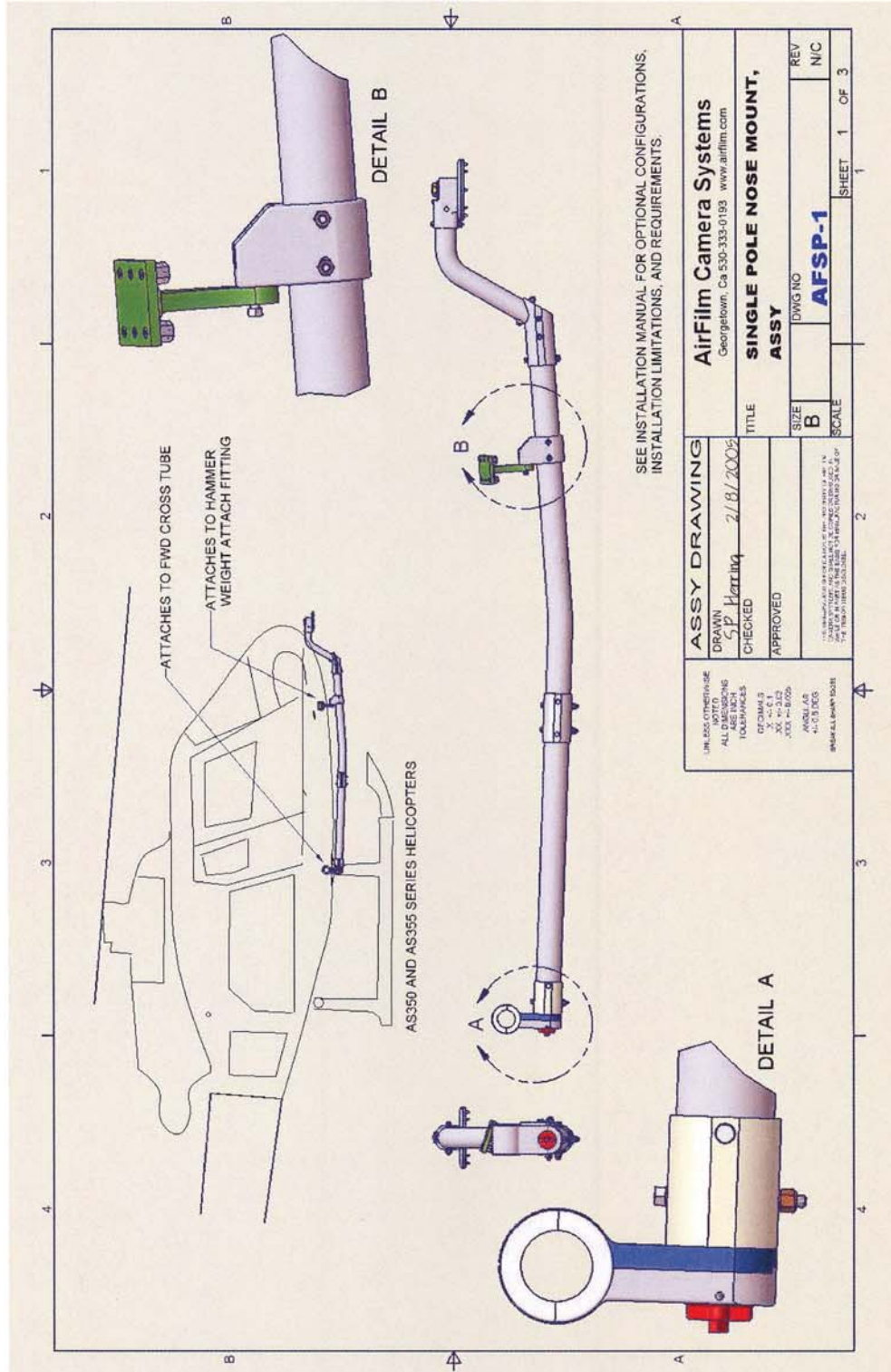
Table 6.1 contains a list of payloads that meet the above parameters. If a sensor or payload is not on the list, determination of the frontal area and weight must be made to establish if it is eligible for installation.

Airfilm Camera Systems AFSP-1 SINGLE POLE MOUNT - INSTALLATION INSTRUCTIONS	AFSP-006 Rev. A
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TABLE 6.1 AFSP-1 SINGLE POLE UTILITY BRACKET QUALIFIED PAYLOAD LIST

MFG.	PART NUMBER DESCRIPTION	MAX WEIGHT (lbs)	DIA (in)	HT (in)	AREA (ft ²)	ADAPTOR OR ISOLATOR	DOVE TAIL OR QUICK DISC
CINEFLEX	HIDEF V14	70.0	14.5	20.8	2.0	ISO RING	MALE TAPER
FLIR SYSTEMS	STAR SAFIRE SERIES TURRET	105	15.1	19.50	1.8	ISO-RING	DOVETAIL
FLIR SYSTEMS INC	ULTRA FORCE II / LEO SERIES	95.0	16.0	20	2.2	FLIR ADAPTOR	DOVETAIL
FLIR SYSTEMS INC	ULTRA MEDIA SERIES	88.0	15.0	17.5	1.8	ISO-RING OPT / QUICK DISC	DOVETAIL
FLIR SYSTEMS INC	STAR SAFIRE SERIES	105.0	15.1	19.1	1.8	ISO-RING OPT/ QUICK DISC	DOEVTAIL
ISRAEL AIRCRAFT IND	POP SENSOR 200 SERIES	36.4	11.0	15.0	1.2	COLLAR	DOVETAIL
ISRAEL AIRCRAFT IND	HMOSP SERIES SENSOR	70.5	15.0	20	2.1	ADAPTOR	DOVETAIL
POLYTECH INC	KELVIN 275 SERIES /COBALT	25	11.0	15.0	1.2	SPIDER PLATE	DOVETAIL
POLYTECH INC	KELVIN 350 SERIES	49	14.0	17.0	1.7	SPIDER PLATE	DOVETAIL
POLYTECH	KELVIN 350 MK II	51.0	14.0	17	1.7	SPIDER PLATE	DOVETAIL
WESCAM INC	MODEL 12 / MX-12 SERIES IMAGER	46	12.0	14.6	1.1	DIRECT	DOVETAIL
WESCAM INC	MX-15 SERIES IMAGER	94	15.5	18.5	2.2	WESCAM ADAPTOR	MALE TAPER
GYROCAM	DAY / NIGHT VISION	75.0	15.0	18.5	1.8	DIRECT	DOVETAIL
GYROCAM	TRIPLE SENSOR	65.0	15.1	18.5	1.8	DIRECT	DOVETAIL
GYROCAM	36 XLD BROADCAST	75	13.8 3	18.5	1.7	DIRECT	DOVETAIL
GYROCAM	GYROLIGHT	60.0	15.0	20.8	2.2	DIRECT	DOVETAIL
SPECTROLAB	SX-5 STARBURST SEARCHLIGHT	19.0	7.5	11.3	0.6	DIRECT	DOEVTAIL
SPECTROLAB	SX-16 NIGHTSUN	40.0	11.0	18	1.8	DIRECT	DOVETAIL
SPECTROLAB	NIGHTSUN XP	54.0	12.0	23.7	2.0	DIRECT	DOVETAIL

APPENDIX A: - REFERENCE DRAWINGS



Airfilm Camera Systems

AFSP-1 SINGLE POLE MOUNT - INSTALLATION INSTRUCTIONS

AFSP-006
Rev. A

NOTE:

1. ATTACHES TO AS350 / AS355 SERIES AIRCRAFT RH / LH
2. ITEMS 20 & 22 SHOWN FOR TYPICAL INSTALLATION AT MOUNTING POINT - NOT REQUIRED SEE APPROVED PAYLOAD LIST.

ASSY DRAWING

DRAWN: *SP Harting* 2/18/2005

CHECKED: _____

APPROVED: _____

UNLESS OTHERWISE NOTED:
ALL DIMENSIONS ARE IN INCHES
TOLERANCES
DIMENALS
XX ± 0.03
XXX ± 0.025
ANGLES
4:5:3003
SPECIAL-BEAR BOSS

ITEM	QTY	PART NUMBER	DESCRIPTION
1	1	96025A038	WASHER
2	1	A952	T-BRACKET ASSY
3	1	AFSP-10	FWD CROSS TUBE BRACKET ASSY
4	1	AFSP-32	RISER TUBE
5	1	AFSP-35	ANGLE BRACKET
6	1	AFSP-36	COLLAR BRACKET
7	1	AFSP-40	MAIN TUBE FWD
8	1	AFSP-41	SADDLE WASHER
9	13	AN365-624A	STOP NUT
10	1	AN6-23A	HEX BOLT
11	3	AN6-35A	HEX BOLT
12	3	AN6-40A	HEX BOLT
13	9	AN6-42A	HEX BOLT
15	8	AN960-416L	WASHER THIN
16	29	AN960-616	WASHER
17	1	CF-10	CINEFLEX MALE TAPER FITTING ASSY
18	1	CF-11	CINEFLEX STYLE FEMALE TAPER ASSY
19	1	CF-112	HEX BOLT SPECIAL
20	1	CINEFLEX_HD	CINEFLEX CAMERA (OR EQUIV @ PAYLOAD)
21	8	MS16988-43	SOCKET CAP SCREW
22	1	V1725	17.25 INCH VIBRATION REDUCER
23	1	AFSP-31	MAIN TUBE AFT
24	1	AFSP-42	CONNECTION SLEEVE
25	4	AFSP-43	BUSHING

AFSP-31 AND AFSP-42 NOT USED
IF AFSP-40-1 ALTERNATE CONFIGURATION TUBE IS USED.

ASSY DRAWING

DRAWN: *SP Harting* 2/18/2005

CHECKED: _____

APPROVED: _____

UNLESS OTHERWISE NOTED:
ALL DIMENSIONS ARE IN INCHES
TOLERANCES
DIMENALS
XX ± 0.03
XXX ± 0.025
ANGLES
4:5:3003
SPECIAL-BEAR BOSS

AirFilm Camera Systems
Georgetown, Ca 930-333-0193 www.airfilm.com

TITLE SINGLE POLE NOSE MOUNT, ASSY

SIZE B DWG NO AFSP-1

SCALE

REV N/C

SHEET 2 OF 3

4
3
2
1

The DT-1 Dovetail set is a mechanical interface to accommodate the rapid installation / removal of various payloads. The dovetail set is to be used for payloads with a maximum weight of 300lbs. The dovetail set can be used on both fixed wing aircraft and rotorcraft. Dovetail is secured by aligning locking teeth on lower dovetail (male) with recesses on upper (female). Once aligned, tighten knobs and install safety pin through corresponding holes. DT-1 weight = 2.4 Lbs

LIMITATIONS:
Dovetail to be installed on aircraft with VNE of 210 kts or less
Maximum payload attached to dovetail set: 300lbs
Safety pin must be installed and locked prior to flight

Installation of DT-11 (UPPER DOVETAIL) and DT-13 (LOWER DOVETAIL)

- Carefully align upper and lower plate
- Slide lower dovetail until locking teeth are aligned with corresponding teeth in upper dovetail
- Hand tighten teeth by turning knobs counter clockwise, max torque 50 inch pounds
- For limited access for tightening, the knobs have 5/16th allen key recess
- Align knob through holes to allow installation of safety pin
- Ensure safety pin locked
- Ensure that no free play or movement exist between the payload and the aircraft mount and dovetail plates.

4
3
2
1

Installation DT-13 (LOWER DOVETAIL) to payload.
 Install lower dovetail to payload using QTY 4 MS2004-X (Length as required) bolts into payload sensor. Ensure that bolts are tighten to proper torque and safety requirements(see payload requirements from sensor manufacture)

Installation DT-11 (UPPER DOVETAIL) to aircraft mount.
 Install upper (female) dovetail to airframe using minimum of 4 AN 4-XXA (length as required) - AN960-416 washer and MS21042-4 Stop Nuts or equivalent hardware as required. Upper dovetail has multiple through holes to accommodate various bolt patterns

4
3
2
1

UNLESS OTHERWISE NOTED, ALL DIMENSIONS ARE IN INCH TOLERANCES

DECIMALS
 .X = 0.0005
 .XX = 0.0015
 .XXX = 0.0050
 .XXX = 0.0050
 .XXXX = 0.0050

ALL DIMENSIONS ARE TO CENTER UNLESS OTHERWISE SPECIFIED

ASSY DRAWING

DRAWN: *S.P. Herring* 7/16/2004

CHECKED: _____

APPROVED: _____

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AirFilm Camera Systems
 Georgetown, Ca 93033-0193 www.airfilm.com

DOVE TAIL ASSY INSTALLATION

SIZE: B DWG NO: **DT-1 INSTALL**

SCALE: _____

REV: N/C

SHEET 1 OF 1