



- **Cargo Rack**
- **Power Bench**
- **Sensor Frame**

## **MD500**

### **Installation Manual**



**Tyler • Cargo Rack • Power Bench • Sensor Frame**  
**For MD500 Series Helicopters**  
**FAA STC # SR01682LA**



**PLEASE RETURN THIS MANUAL WITH EQUIPMENT**

This manual is available for download from our web site.



Tyler Camera Systems 14218 Aetna Street Van Nuys, Ca 91401 • USA  
www.tylermount.com • (818) 989-4420 • Fax (818) 989-0423





MODEL: MD 369

REPORT #: INST MD5-001

JOB #: \_\_\_\_\_

DATE: 08/17/04

CARGO RACK (MODEL H500)  
INSTALLATION MANUAL FOR  
MD 369 D,E,F,FF,500N,600N MODELS

PREPARED BY: C. Tyler

# OF PAGES: 19

CHECKED BY: N. Tyler

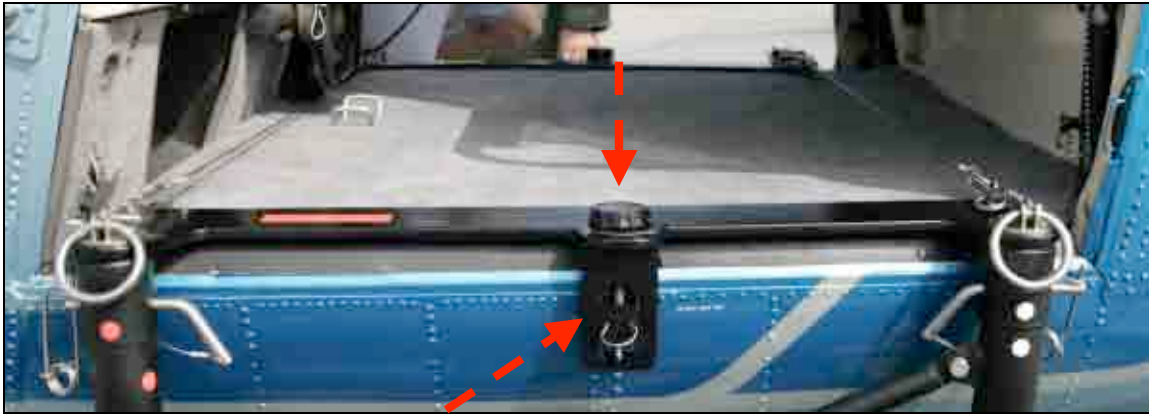
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APPROVED BY: G. Wood

**RECORD OF REVISIONS**

No.	Revision Inserted	Date	EFFECTIVE PAGES	By D.E.R.
0	N/C	08/17/04	ALL	
1	A	08/12/08	ADDITION OF SENSOR FRAME	
2				
3				
4				

## **SECTION 1 – INSTALLATION OF CARGO RACK (17” or 48”)**



- 1.) Place floor plates (left and right sides) on floor of ship as shown. Insert tab into side of aircraft. Note: Lightly tighten the Lock Knobs (later they will be tightened firmly).



- 2.) Install Cross Cables Assemblies (two on each side) and leave cam-over buckles open (until later).



- 3.) Assemble left/right-front and left/right-rear Platform Tubes by placing them laterally under the ship and connecting the halves with the L-Pins and Safety Clips.



- 4.) Lift Support Tubes up and insert both tubes (on each side) into floor-plate receptacles and fasten with the L-Pins and Safety Clips.



- 4.) Install fore-to-aft cross brace, using pip-pins.

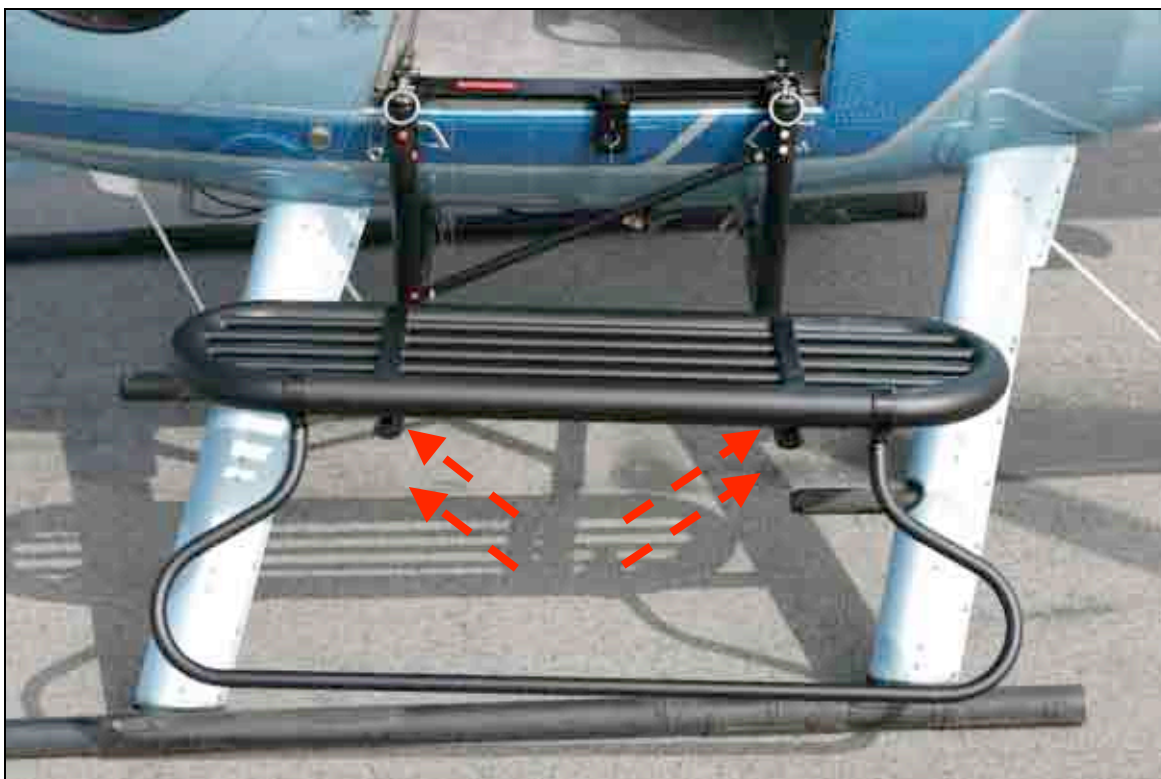


- 5.) Firmly tighten Lock Knobs (one on each side).



- 6.) Adjust for snug tension, then latch cam-over buckles and secure with pip-pins.



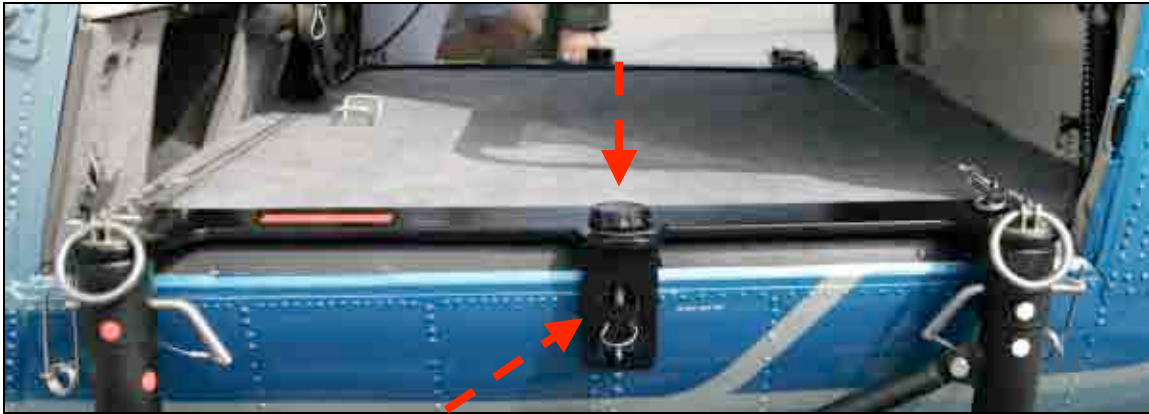


- 5.) Install Cargo Rack (17" or 48") using four (4) bolts, but do not tighten bolts at this time.



***Alternate Cargo Rack (48")***

## **SECTION 2 – INSTALLATION OF POWER BENCH (31”)**



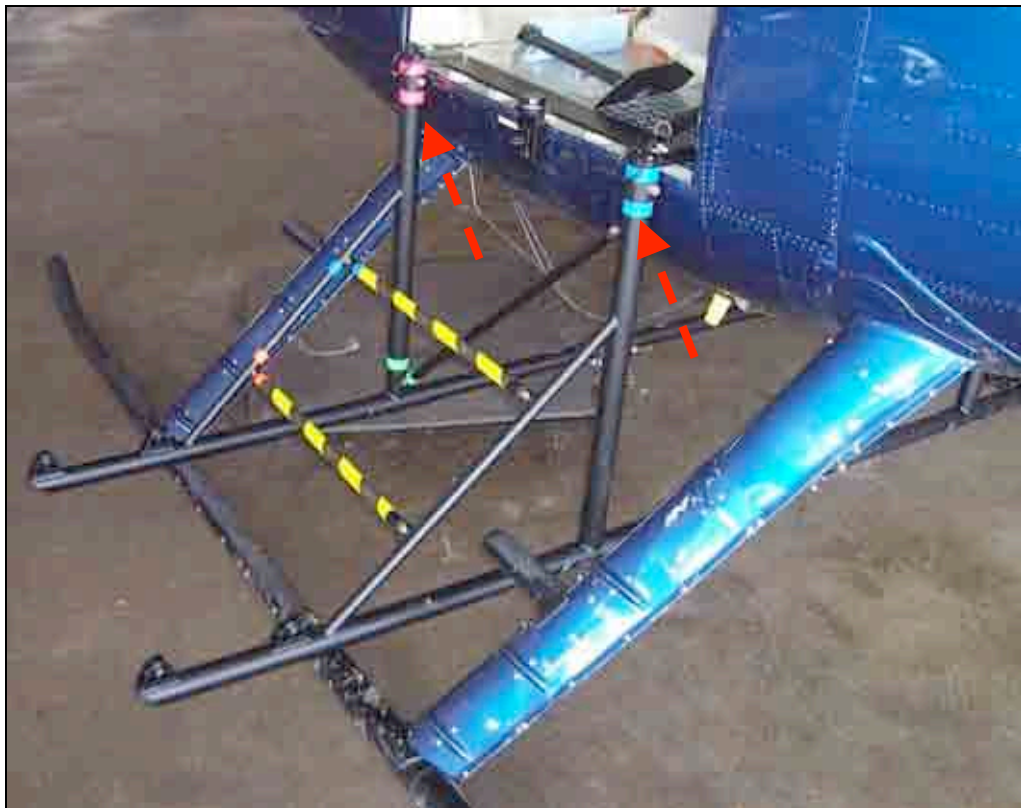
- 1.) Place floor plates (left and right sides) on floor of ship as shown. Insert tab into side of aircraft. Note: Lightly tighten the Lock Knobs (later they will be tightened firmly).



- 2.) Install Cross Cables Assemblies (two on each side) and leave cam-over buckles open (until later).



- 2.) Assemble left/right-front and left/right-rear Platform Tubes by placing them laterally under the ship and connecting the halves with the L-Pins and Safety Clips.



- 3.) Lift Support Tubes up and insert both tubes (on each side) into floor-plate receptacles and fasten with the L-Pins and Safety Clips.





- 4.) Install fore-to-aft cross brace, using pip-pins.



- 5.) Firmly tighten Lock Knobs (one on each side).



- 6.) Adjust for snug tension, then latch cam-over buckles and secure with pip-pins.



- 4.) Install 31" Power Bench using four (4) bolts, but do not tighten bolts at this time.

### **SECTION 3 – OPTIONAL COUNTERWEIGHT INTALLATION**



#### ***Optional Counterweight Unit for Cargo Rack or Power Bench***

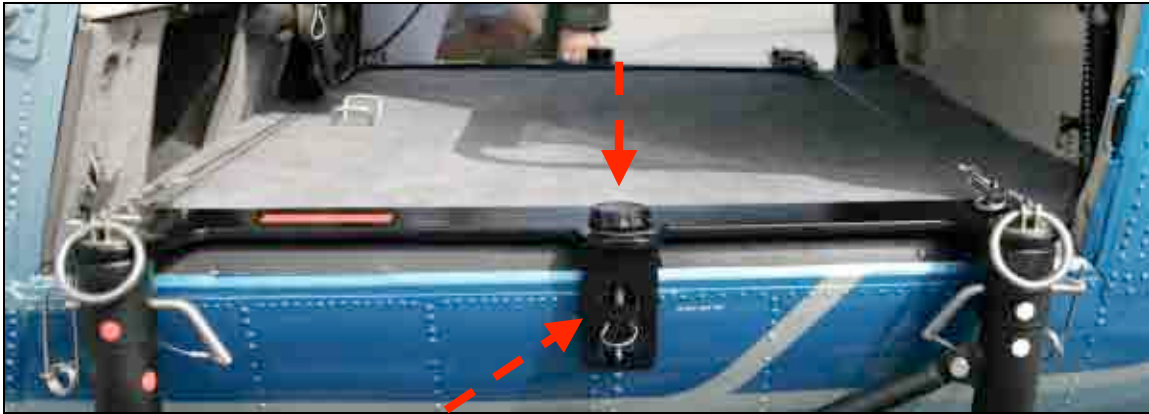
The *optional* Counterweight Unit is used to laterally balance the helicopter against the payload of the Cargo Rack on the opposite side. Therefore, the Counterweight is attached instead of a second Cargo Rack Bench.

The Counterweight Unit is comprised of the following components and may be installed in these configurations:

- Frame only
- Frame and Box
- Frame and Extension Tube (not shown)
- Frame, Extension Tube and Box

- 1.) Attach Counterweight Frame to main support frame by securely tightening the four (4) bolts supplied.
- 2.) Insert Counterweight Box into Counterweight Tube (with or without the Extension Tube) and secure with Safety-Pin(s) and Clip(s).
- 3.) If necessary, add ballast weight into Counterweight Box (see Weight & Balance section, page 18 of this manual).

### **SECTION 3 – INSTALLATION OF SENSOR FRAME**



- 1.) Place floor plates (left and right sides) on floor of ship as shown. Insert tab into side of aircraft. Note: Lightly tighten the Lock Knobs (later they will be tightened firmly).



- 2.) Install Cross Cables Assemblies (two on each side) and leave cam-over buckles open (until later).



- 3.) Lift Sensor Frame Support Tubes up and insert into floor-plate receptacles (each side) and fasten with the L-Pins and Safety Clips.



- 4.) Attach fore-to-aft cross brace (left side and right side) using pip-pins.



- 5.) Firmly tighten Lock Knobs (one on each side).





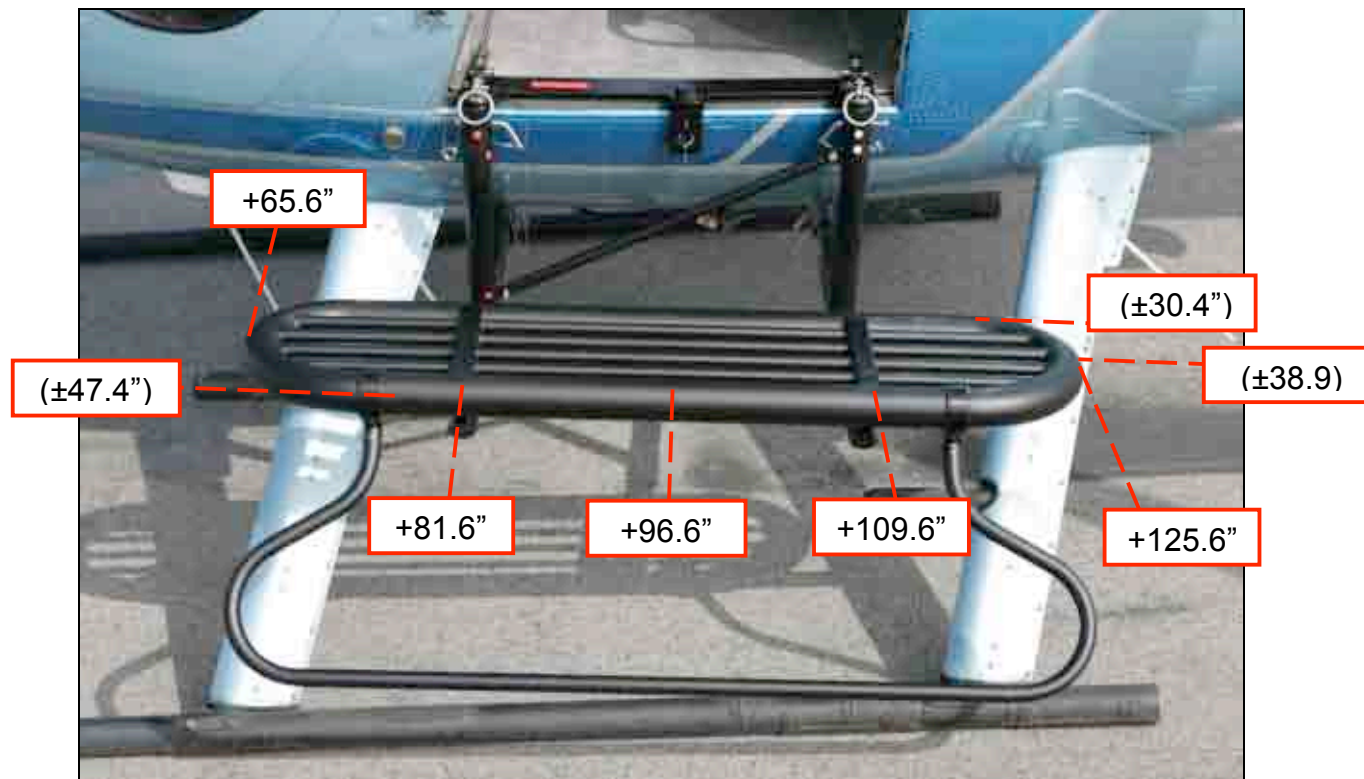
6.) Adjust for snug tension, then latch cam-over buckles and secure with pip-pins.



ABOVE PHOTO IS FOR EXAMPLE ONLY  
The assembled framework (off of ship).

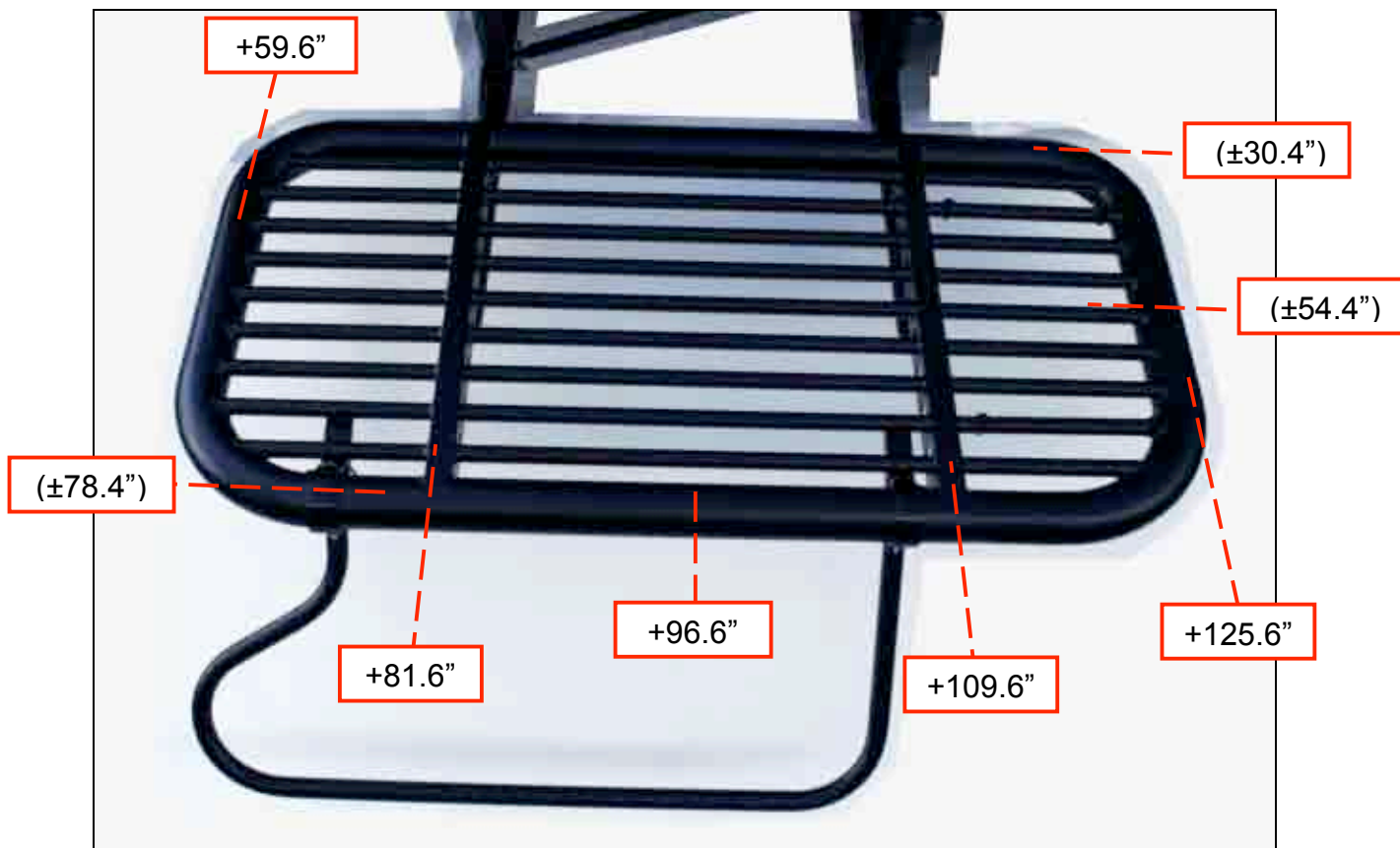
Note: Install of Sensor Package is not shown. However, a device can attach to the fore and aft tabs, and is fasted using four bolts specific to the device.

## **SECTION 4 – WEIGHT & BALANCE**



**Cargo Rack (17" wide)**

Weight: 33 lbs.



**Cargo Rack (48" wide)**

Weight: 78 lbs.



**Power Bench (31" wide)**

Weight: 45 lbs.



### ***Optional Counterweight Unit for Cargo Rack or Power Bench***

Configuration	Weight (lbs.)	Lateral C.G.
• <b>Frame only</b>	26	(±22.0")
• <b>Box (empty) on Frame</b>	19	(±63.4")
• <b>Extension Tube on Frame</b>	35	(±51.5")
• <b>Box (empty) on Extension Tube &amp; Frame</b>	19	(±103.4")

Notes: The Extension Tube is not shown. When the above listed lateral positions were calculated, the Counterweight Box was empty. Therefore, adjustments to the figures will be required if weight is added to the Counterweight Box. *Up to 80 lbs. of lead plates (20 lbs. each) can be loaded into the Counterweight Box.*



MD 500 WEIGHT & BALANCE DATA (Weight x Arm = Moment) SAMPLE SHEET						
<b>Tyler Special Operations Platform</b>		AIRCRAFT MODEL MD 520 N	REGISTRATION	AIRCRAFT S/N	AGENCY	DATE
<b>ITEM:</b>		LONGITUDINAL WEIGHT	ARM	MOMENT	LATERAL ARM	MOMENT
AIRCRAFT EMPTY WEIGHT & C.G.		1874	108.42	203179.08	-0.53267	-998.22358
PILOT (FORWARD LEFT)		200	73.5	14700	-13	-2600
C0-PILOT (FORWARD RIGHT)		0	73.5	0	15.5	0
PAX (AFT LEFT)		0	105	0	-12.2	0
PAX (AFT RIGHT)		0	105	0	12.2	0
FUEL (64 gals.) 6.8Lbs. X # of gals:	64	435.2	97.7	42519.04	0	0
sub total		2509.2	563.12	260398.12	1.96733	3598.22358
<b>TYLER SPECIAL OPERATIONS PLATFORM:</b>	WT					
STD MOUNT FRAMEWORK	68	0	96.9	0	0	0
DROP DOWN MOUNT FRAMEWORK	77	0	96.9	0	0	0
SENSOR FRAMEWORK ( <i>specialty</i> )	44	0	96.9	0	0	0
R/H BENCH SEAT 17"	33	0	96.9	0	38.9	0
L/H BENCH SEAT 17"	33	0	96.9	0	-38.9	0
L/H BENCH SEAT 31" STD (STEEL 67#)	42	0	96.9	0	54.4	0
L/H BENCH SEAT 31" DROP DOWN	45	0	96.9	0	62.9	0
R/H BENCH SEAT 31" DROP DOWN	45	0	96.9	0	62.9	0
R/H COUNTER WT ARM (used w/48" bench)	26	0	96.9	0	22	0
R/H COUNTER WT w/ EXTENSION ARM	35	0	96.9	0	51.5	0
R/H COUNTER WT BOX	19	0	96.9	0	63.4	0
WEIGHTS 20 LBS EA (80 LBS MAX)	20	0	96.9	0	63.4	0
R/H COUNTER WT BOX ON EXTENSION	19	0	96.9	0	103.4	0
WEIGHTS 20 LBS EA (80 LBS MAX)	20	0	96.9	0	103.4	0
L/H BENCH SEAT 48" (STEEL)	78	0	96.9	0	-45.4	0
PAX R/H BENCH 17" (Forward Right)		0	65.6	0	38.9	0
PAX L/H BENCH 17" (Forward Left)		0	65.6	0	-38.9	0
PAX R/H BENCH 31" STD (FORWARD)		0	65.6	0	45.4	0
PAX L/H BENCH 31" D DOWN (FORWARD)		0	59.6	0	-45.4	0
PAX R/H BENCH 31" D DOWN (FORWARD)		0	59.6	0	45.4	0
PAX L/H BENCH 48"(FORWARD)		0	59.6	0	54.4	0
SENSOR BOX ( <i>specialty</i> )	125	0	96.9			
sub total		0	472.5	0	0	0
<b>TOTAL AIRCRAFT WEIGHT:</b>		2509.2	103.7773474	260398.12	1.434012267	3598.22358
AIRCRAFT MAX GROSS WEIGHT:		3350				
NEW USEFUL LOAD:		840.8				
<b>NEW CENTER OF GRAVITY (LONGITUDINAL)</b>		103.7773474				
<b>NEW CENTER OF GRAVITY (LATERAL)</b>		-1.434012267				
<b>LONGITUDINAL C.G. LIMITS:</b>		<b>LATERAL C.G. LIMITS:</b>				
<i>FORWARD LIMIT:</i>		L/H LIMIT: -3.0 IN. MINUS				
99.0 in. @ 3350 lbs.		R/H LIMIT: + 3.0 IN. PLUS				
99.0 in. @ 2600 lbs.						
101.4 in. @ 1796 lbs.		<b>EXPANDED LATERAL C.G. LIMITS:</b>				
<i>REARWARD LIMIT:</i>		L/H LIMIT: -5.0 IN. MINUS				
105.5 in. @ 3350 lbs.		R/H LIMIT: + 5.0 IN. PLUS				
107.8 in. @ 2600 lbs.						
110.3 in. @ 1796 lbs.						

United States Of America  
Department of Transportation - Federal Aviation Administration

# Supplemental Type Certificate

*Number* SR020671A

*This Certificate issued to* Tyler Camera Systems  
14218 Actna Street  
Van Nuys, California 91401

*Certifies that the change in the type design for the following product with the limitations and conditions thereof as specified herein meets the airworthiness requirements of Part 6 of the Civil Air Regulations & Part 27 of the Federal Aviation Regulations. Certification basis is set forth in Type Certificate Data Sheet H-3717.*

*Original Product Type Certificate Number :* H3WE

*Make :* MD Helicopters Inc. (MDHI)

*Model :* 369D, 369E, 369F, 369FF, 500N

*Description of Type Design Change :* Installation of External Attach Frame in accordance with FAA Approved Tyler Camera Systems Master Drawing List No. MDEF-001, Revision A, dated June 28, 2007, for MDHI models 369D, 369E, 369F, 369FF, 500N, or later FAA approved revision. The Installation Manual is No. MDINSTAL-005 dated January 3, 2007 or later FAA approved revision and the Instructions for Continued Airworthiness is in MDEF-005, dated 14 August 2007 or later FAA accepted revision.

*Limitations and Conditions :* Approval of this change in type design applies to the aircraft models listed above only. The installation should not be incorporated in any aircraft unless it is determined that the interrelationship between this installation and any previously approved configuration will not introduce any adverse effect upon the airworthiness of the aircraft. If the holder agrees to permit another person to use this certificate to alter the product, the holder shall give the other person written evidence of that permission. (Continued)

*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 :* September 7, 2006

*Date received :*

*Date of issuance :* September 4, 2007

*Date amended :*



*By direction of the Administrator*

*Michael E. O'Neil*  
(Signature)

for Manager, Airframe Branch  
Los Angeles Aircraft Certification Office  
(Title)

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

INSTRUCTIONS: The transfer endorsement below may be used to notify the appropriate FAA Regional Office of the transfer of this Supplemental Type Certificate.

The FAA will reissue the certificate in the name of the transferee and forward it to him.

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**TRANSFER ENDORSEMENT**

Transfer the ownership of the Supplemental Type Certificate Number \_\_\_\_\_

to *(Name of transferee)* \_\_\_\_\_

*(Address of transfer)* \_\_\_\_\_

*(Number and street)*

\_\_\_\_\_  
*(City, State, and Zip code)*

from *(Name of grantor)* *(Print or type)* \_\_\_\_\_

*(Address of grantor)* \_\_\_\_\_

*(Number and street)*

\_\_\_\_\_  
*(City, State, and Zip code)*

Extent of Authority (if licensing agreement): \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Date of Transfer: \_\_\_\_\_

Signature of grantor *(In ink)*: \_\_\_\_\_

---

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

United States Of America  
Department of Transportation - Federal Aviation Administration  
**Supplemental Type Certificate**  
(Continuation Sheet)  
*Number* SR02067LA

*Limitations and Conditions:* (Continued)

The FAA Approved Rotorcraft Flight Manual Supplement No. Document Number EF-RFM-001, dated August 28, 2007, or later FAA Approved revisions, for the External Attach Frame is required.

A copy of this Certificate must be maintained as part of the permanent records for the modified aircraft. If the holder agrees to permit another person to use this certificate to alter the product, the holder shall give the other person written evidence of that permission.

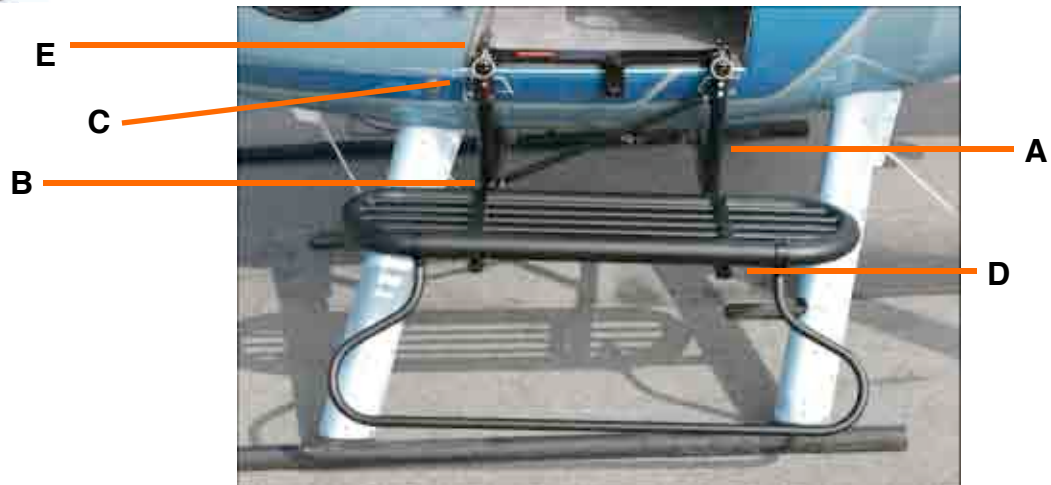
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*Any alteration of this certificate is punishable by a fine of not exceeding \$1,000, or imprisonment not exceeding 3 years, or both.*



## Tyler / MD-500 TSOP & Power Bench Hardware Specifications



### ***TSOP***

ITEM	HARDWARE	SIZE	PART #	QTY.
A	L-PIN	7/16	17.4 Stainless Steel 4	
B	BOLT	-	AN6-10A	2 (PER SIDE)
C	BOLT	-	AN7-26A	2 (PER SIDE)
D	BOLT	-	AN6-25A	4 (PER SIDE)
E	QUICK PIN	5/16	Stainless Steel	2 (PER SIDE)



### ***Power Bench***

ITEM	HARDWARE	SIZE	PART #	QTY.
A	L-PIN	7/16	17.4 Stainless Steel 4	
B	BOLT	-	AN6-10A	6 (PER SIDE)
C	BOLT	-	AN7-26A	2 (PER SIDE)
D	BOLT	-	AN6-25A	4 (PER SIDE)
E	QUICK PIN	5/16	Stainless Steel	2 (PER SIDE)





14218 Aetna St.  
Van Nuys, CA. 91401  
Document Number CR-RFM-002

**FAA APPROVED**  
**ROTORCRAFT FLIGHT MANUAL SUPPLEMENT**  
**FOR THE**  
**MD HELICOPTERS MODEL**  
**MD-500D, 500E, 530FF, & 520N**  
**WHEN EQUIPPED WITH THE**  
**TYLER CARGO RACK**

REGISTRATION #: \_\_\_\_\_ SERIAL #: \_\_\_\_\_

The information in this supplement is FAA approved material and must be attached to the FAA Approved MD-500 series Rotorcraft Flight Manual when the aircraft has been modified by the installation of Tyler Camera Systems MD-5 Cargo Rack System in accordance with:

**STC # SR 01682 LA**

The information contained herein supplements or supersedes the information in the basic Rotorcraft Flight 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: \_\_\_\_\_

*Patrick Power*

Manager, Flight Test Branch, ANM-160L  
Federal Aviation Administration  
Los Angeles Aircraft Certification Office  
Transport Airplane Directorate

FAA DATE: \_\_\_\_\_

*November 17, 2004*



## LOG OF PAGES

Rev No.	Pg No	Date	Description of Change	FAA Approved
Initial Issue	1-9	17 Nov 2004	Initial Issue	<p><i>Patrick Power</i></p> <hr/> <p>Mgr, Flight Test Branch ANM-160L, FAA, Los Angeles ACO, Transport Airplane Directorate</p> <p>DATE: <u>November 17, 2004</u></p>



## 1. SECTION 1 – GENERAL

The Tyler Camera Systems MD-5 Cargo Rack consists of the steel tubular frame members that attach to the lip of the aft flooring and are positioned by an attachment at the jack points. The system can be easily installed by two people in less than 5 minutes.



Figure 1 Right Front View of Installed Racks with Load



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Supplement to the MD Helicopters RFM for  
Models MD-500D, 500E, 530FF, & 520N  
when modified with the MD 5 Cargo Rack System

STC Number SR 01682 LA

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**Figure 2 Left Side View of the Installed Racks with Load**

The aircraft has been demonstrated with a load having a flat plate area of 3.2 square feet.





**Figure 3 Front View with Right Rack Loaded**



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**Figure 4 Rear View of the Wide Bench with Load**

### **CAUTION**

Lateral CG can be easily exceeded with heavy weights on the racks.  
See Limitation Section.



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## 2. SECTION 2 – LIMITATIONS

### 2.1 TYPES OF OPERATIONS

No passengers may be carried external to the aircraft on the cargo racks. Crewmembers or other persons necessary for the conduct of the external load operations may only be carried in accordance with 14 CFR section 133.35.

### 2.2 AIRSPEED

Reduce the published Power – On  $V_{NE}$  30 KIAS with the cargo racks installed and **NO** cargo.

Reduce the published Power – On  $V_{NE}$  50 KIAS with the cargo racks installed and **ANY** cargo attached to the racks, but not lower than the published autorotational minimum speed.

Power-Off  $V_{NE}$  ..see the placards

When the lateral CG is between  $\pm 2.0$  and  $\pm 5.0$  inches

Forward airspeed  $V_{NE}$  70 KIAS

Rearward/sideward airspeed  $V_{NE}$  20 KIAS

### 2.3 WEIGHT LIMITS

Maximum Weight per Rack: 500 pounds

### 2.4 LATERAL CG LIMITS

The lateral center of gravity limit is  $\pm 5.0$  inches with airspeed limits published above.

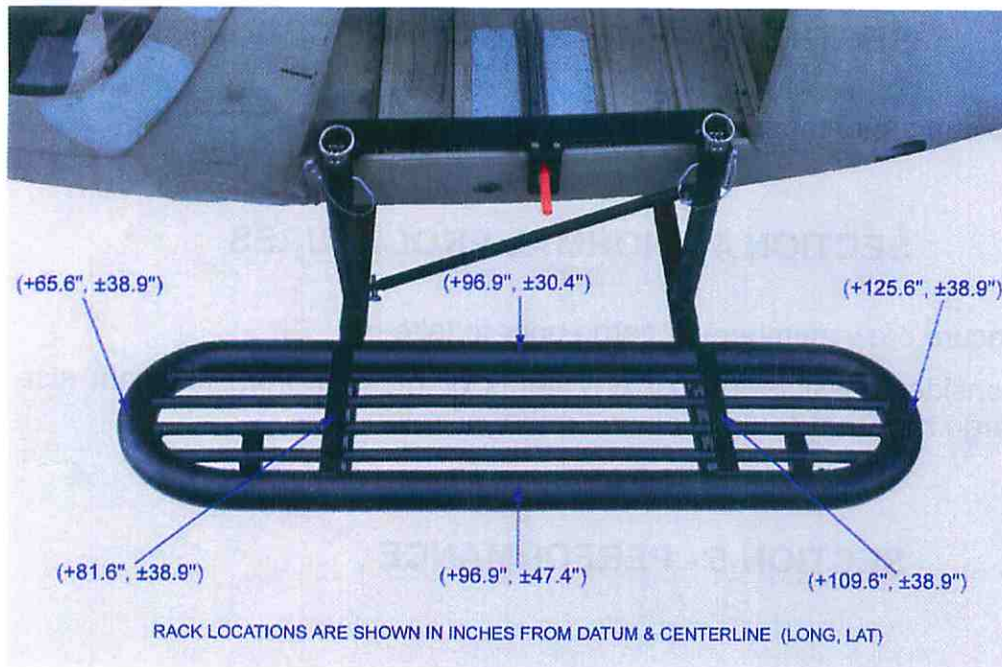




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**Figure 5 Station Locations for the Narrow Bench Cargo Rack**



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### 3. **SECTION 3 – EMERGENCY PROCEDURES**

No change to the basic flight manual

### 4. **SECTION 4 – NORMAL PROCEDURES**

Secure crew members or cargo prior to take-off.

Consider possible loss of any items or material from the right side cargo rack that could impinge on the tail rotor.

### 5. **SECTION 5 - PERFORMANCE**

No Change

### 6. **SECTION 6 – WEIGHT AND BALANCE**

The weight and balance data must be considered for each flight.

Distribution of the load on the rack must be considered. Concentrated loads should be placed between the two attach points if possible.

#### **CAUTION**

**Lateral CG can be easily exceeded with heavy weights on the racks. Compute the aircraft weight and balance before flight with loads on the racks.**

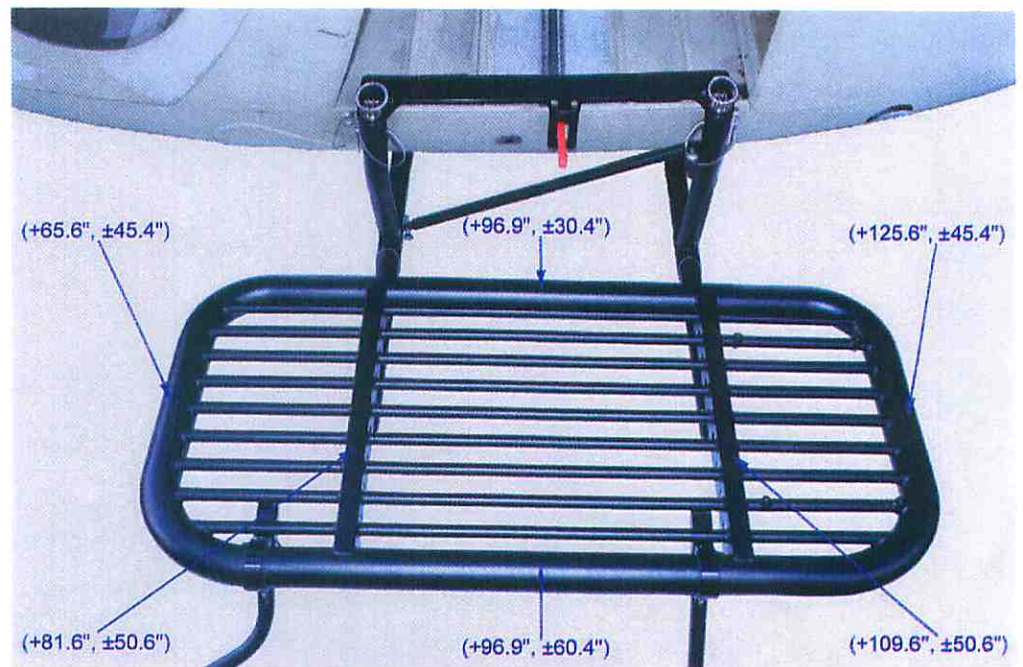




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**Figure 6 Station Locations for the Wide Bench Cargo Rack**



Transport  
Canada

Transports  
Canada

1100-9700 Jasper Avenue  
Edmonton, Alberta T5J 4E6

February 05, 2008

Your file:      Votre référence:

Our file:      Notre référence:  
**C-07-0681**

Tyler Camera Systems  
14218 Aetna Street  
Van Nuys, California  
United States of America, 91401

**ATTENTION: GEORGE WOOD**

Dear Sirs:

**SUBJECT:      ACCEPTANCE OF FOREIGN STC SR01682LA – INSTALLATION OF CARGO  
RACK – MCDONNELL DOUGLAS MODELS HC 369, 369A, 369D, 369E, 369F,  
369FF, 369H, 369HE, 369HM, 369HS, 500N – ISSUED TO TYLER CAMERA  
SYSTEMS**

This is in response to your application dated 2007 June 7, requesting Transport Canada approval of the subject STC on the above noted model Rotorcraft.

In accordance with our current policy associated with the review of foreign STCs, some STCs applicable to certain categories of aircraft may be accepted solely on the basis of their foreign certification, and do not require the issue of a corresponding certificate by Transport Canada. The subject STC falls within these criteria.

This STC will be entered in the national index of STCs that have been reviewed and accepted by Transport Canada for installation on Canadian-registered aeronautical products.

This letter confirms formal acceptance of the referenced STC by Transport Canada.

Yours truly,

D.S. Austen  
Senior Engineer, Aircraft Certification  
Prairie and Northern Region  
Phone: 780-495-5226  
Facs: 780-495-7963

CC:      Gregory S. DiLibero, Manager  
Airframe Branch – ANM-120L  
Los Angeles Aircraft Certification Office  
Federal Aviation Administration

**Canada**