US Department of Transportation
UAS FAA Exemption Request

Craig Byrom
21234 Branford Hills Lane
Katy, Texas 77450
512-731-4341
cbyrom1@gmail.com

All following request and subject matter is regarding a DJI S1000 Octocopter, a professional aerial cinematography platform owned by Craig Byrom. UAS system specifications are attached in package along with photos.

Request for exemption of air worthiness certification form FAA. Due to the size, manufacturing process and assembly by DJI trained technician in the US at UAVdirect LLC., Liberty Hill, TX and the lack of flamables or person on board along with built in safety features such as auto land to point of takeoff in the event that communication is lost and the ability to stay in flight in the event a single motor is lost. Not to mention that the use of this system will be in a closed commercial, TV, Motion, Picture or private property environment. Line of sight, under 400 feet.

These exemption requests are similar to Grant of Exemption No. 11062 and would like for you to take that in to consideration please.

Request for exemption from,
14 CFR §§ 61.113(a) and (b); 91.119(c); 91.121; 91.151(a); 91.405(a); 91.407(a)(1); 91.409(a)(1) and (2); and 91.417(a) and (b) to the extent necessary to allow Craig Byrom with pilot to operate UAS for the purpose of scripted, closed-set filming for the motion picture and television industry. Extend these exemptions to flight over personal property for mapping purposes of said property ; home, farm or ranch at the request of the property owner. All line of sight with a ceiling under 400 feet and a spotter.

Allowing these exemption will increase the safety to the public and individuals working on set along with material equipment in its proximity due to the nature of the UAS and how it operates. No fuel or flammable liquids or solids will be flown overhead or be stored on the ground, because none is needed like there is in manned flight.

Awarding these exemptions would also allow me to perform much needed and wanted mapping of farm and ranch land for property owners to better understand their land and what areas need more attention.

I will also be offering my services to law enforcement in the small towns I grew up in for search and rescue knowing that typically they do not have the budget to own or have a UAS on hand to do search and rescue. About 5 years ago a friend of mine came up missing on his family ranch land just outside of Devine, Texas and they did not find his body until about 3 weeks later being that the ranch was so big. I hope I may help someone else not have to go through the same thing his mother Molly Sue had to go through.

My history, work and personal is 20 + years in the film business. I do physical full scale Special Effects, I carry my State of Texas Pyro license and my ATF explosives license. I grew up ranching and love the outdoors and flying along with my UAS flying. I have been flying RC for approximately 14 years. Have been flying my Unmanned Aerial Systems for one and a half years and have hundreds of hours on them all. I am currently in flight school at West Houston Airport in the hopes that I can pilot this UAS when I receive my credentials instead of hiring a pilot to fly. But in the mean time I have a pilot to hire with amazing credentials.

Attached is a copy of the application I just submitted to register this vehicle with the FAA.

UAS S1000 specifications and photos.

Thank you

Craig Byrom

Diagonal Wheelbase	1045mm
Frame Arm Length	386mm
Frame Arm Weight (with Motor, ESC, Propeller)	325g
Center Frame Diameter	337.5mm
Center Frame Weight (with Landing Gear Mounting Base, Servos)	1330g
Landing Gear Size	460mm(Length)×511mm(Width)×305mm(Height) (Top width: 155 mm)
Motor	
Stator Size	41×14mm
kV	400rpm/V
Max Power	500W
Weight (with Cooling Fan)	158g
ESC	
Working Current	40A
Working Voltage	6S LiPo
Signal Frequency	30Hz ~ 450Hz
Drive PWM Frequency	8KHz
Weight (with Radiators)	35g
Foldable Propeller (1552/1552R)	
Material	High strength performance engineered plastics
Size	15×5.2inch
Weight	13g
Flight Parameters	
Takeoff Weight	6.0Kg ~ 11.0Kg
Total Weight	4.2Kg
Power Battery	LiPo (6S, 10000mAh~20000mAh, 15C(Min))
Max Power Consumption	4000W
Hovering Power Consumption	1500W (@9.5Kg Takeoff Weight)
Hovering Time	15min (@15000mAh& 9.5Kg Takeoff Weight)
Working Environment Temperature	-10 °C ~ +40 °C

Date :	February 24, 2014
S1000 User Manual Version :	1.00
S1000 ESC Firmware Version :	3.6

February 24 2014 S1000 Launched

S1000 Overview

1. **Safe and stable**
   (1) The S1000's V type mixer design provides large amounts of propulsion while improving power efficiency. Combined with a DJI flight controllers like the A2, it is guaranteed to remain stable even with the loss of a rotor.
   (2) Integrated into the center frame is a power distribution system using our patented coaxial cable connector. It is more efficient, reliable and easy to install and eliminates the need for soldering. Its main power cord uses an AS150 sparkproof plug and an XT150 plug, preventing creators from mixing up polarity when plugging in the battery and preventing short circuits.
   (3) All frame arms as well as the retractable landing gear are made from carbon fiber, ensuring light weight and high structural stability.

2. **Professional octocopter**
   (1) Weighing approximately 4kg with a maximum takeoff weight of about 11kg, the S1000 can easily carry equipment as heavy as a 5D mark 3. Used with a 6S 15000mAh battery it can fly for up to 15 minutes.
   (2) The gimbal is mounted low on the frame on a specially designed bracket. When combined with our retractable landing gear, it offers a clear and wide shooting angle.
   (3) Gimbal and battery are mounted to the same bracket, with dampers placed between the bracket and the frame. This significantly reduces high-frequency vibrations and makes shots clearer and sharper. The battery tray's position also makes it more stable and convenient for mounting and dismounting.
   (4) Supports all Zenmuse Z15 gimbal systems.
   (5) Optimized for A2 wiring and installation, connecting an A2 flight controller and setting flight parameters is easy. The A2's antenna is kept away from any carbon fiber or metal, ensuring a better signal.

3. **Portable and easy to use**
   (1) All eight arms can be completely folded down and the 1552 folding propeller can be tucked away, minimizing the S1000's size for transportation.
   (2) To fly, simply lift the frame arms up, lock them in place with the red clips and power up the system. This greatly saves on pre-flight prep time.
   (3) On the center frame there are 3 XT60 power sockets and 8 positions reserved for equipment installation, making installs easier and tidier.

4. **Easy to control and fly**
   (1) Each frame arm is designed with an 8° introversive and a 3° inclination, making the aircraft more stable when rolling and pitching and more flexible when rotating.
   (2) Each frame arm has a built-in 40A electronic speed controller (ESC). When combined with its 4114 pro motor and high performance 1552 folding propellers, it is capable of a maximum thrust of 2.5Kg.

New Product Specification

SPREADING WINGS S1000 (http://www.dji.com/product/spreading-wings-s1000)

Frame	**Diagonal Wheelbase**	1045mm
	Frame Arm Length	386mm
	Frame Arm Weight (Including Motor, ESC, Propeller)	325g
	Center Frame Diameter	337.5mm
	Center Frame Weight (With Landing Gear Mounting Base, Servos)	1330g
	Landing Gear Size	460mm (Length) ×511mm (Width) ×305mm (Height), (Top width: 155 mm)
Motor	**Stator Size**	41×14mm
	KV	400rpm/V
	Max Power	500W
	Weight(With Cooling Fan)	158g
ESC	**Working Current**	40A
	Working Voltage	6S LiPo
	Signal Frequency	30Hz ~ 450Hz
	Drive PWM Frequency	8KHz
	Weight(With Radiators)	35g
Foldable Propeller (1552/1552R)	**Material**	High strength performance engineered plastics
	Size	15×5.2inch

	Weight	13g
Flight Parameters	**Takeoff Weight**	6.0Kg ~ 11.0Kg
	Total Weight	4.2Kg
	Power Battery	LiPo (6S、10000mAh~20000mAh、15C(Min))
	Max Power Consumption	4000W
	Hover Power Consumption	1500W (@9.5Kg Takeoff Weight)
	Hover Time	15min (@15000mAh & 9.5Kg Takeoff Weight)
	Working Environment Temperature	-10 °C ~ +40 °C
Gain Value Settings	**For A2 Flight Controller**	Basic: Roll 120%, Pitch 120%, Yaw 120% Attitude: Roll 170%, Pitch 170%, Vertical 120%
	For WooKong-M Flight Controller	Basic: Roll 180%, Pitch 180%, Yaw 120% Attitude: Roll 180%, Pitch 180%, Vertical 120%

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FORM APPROVED
OMB No. 2120-0042

UNITED STATES OF AMERICA DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION-MIKE MONRONEY AERONAUTICAL CENTER
AIRCRAFT REGISTRATION APPLICATION

CERT: ISSUE DATE

UNITED STATES REGISTRATION NUMBER **N**

AIRCRAFT MANUFACTURER & MODEL
DJI S1000

AIRCRAFT SERIAL No.
CB14

FOR FAA USE ONLY

TYPE OF REGISTRATION (Check One box)

☑ 1. Individual ☐ 2. Partnership ☐ 3. Corporation ☐ 4. Co-Owner ☐ 5. Government
☐ 8. Non-Citizen Corporation ☐ 9. Non-Citizen Corporation Co-Owner

NAME OR APPLICANT (Person(s) shown on evidence of ownership. If individual, give last name, first name, and middle initial.)

Byrom, Craig D.

TELEPHONE NUMBER: (512 731-4341

ADDRESS (Permanent mailing address for first applicant on list) (If P.O. Box is used, physical address must also be shown.)

Number and street: 21234 Branford Hills Lane

Rural Route: P.O. Box:

CITY	STATE	ZIP CODE
Katy	Texas	77450

☐ **CHECK HERE IF YOU ARE ONLY REPORTING A CHANGE OF ADDRESS**

ATTENTION! Read the following statement before signing this application.
This portion MUST be completed.

A false or dishonest answer to any question in this application may be grounds for punishment by fine and/or imprisonment (U.S. Code, Title 18, Sec. 1001).

CERTIFICATION

I/WE CERTIFY:

(1) That the above aircraft is owned by the undersigned applicant, who is a citizen (including corporations) of the United States.

(For voting trust, give name of trustee: _____), or:

CHECK ONE AS APPROPRIATE:

a. ☐ A resident alien, with alien registration (Form 1-151 or Form 1-551) No. _____

b. ☐ A non-citizen corporation organized and doing business under the laws of (state) _____ and said aircraft is based and primarily used in the United States. Records or flight hours are available for inspection at _____

(2) That the aircraft is not registered under the laws of any foreign country; and

(3) That legal evidence of ownership is attached or has been filed with the Federal Aviation Administration.

NOTE: If executed for co-ownership all applicants must sign. Use reverse side if necessary.

TYPE OR PRINT NAME BELOW SIGNATURE

EACH PART OF THIS APPLICATION MUST BE SIGNED IN INK.

SIGNATURE	TITLE	DATE
Craig D. Byrom	Owner	10/5/14
SIGNATURE	TITLE	DATE
SIGNATURE	TITLE	DATE

NOTE Pending receipt of the Certificate of Aircraft Registration, the aircraft may be operated for a period not in excess of 90 days, during which time the PINK copy of this application must be carried in the aircraft.

Aircraft Registration Letter

Craig D. Byrom -- Pilot
21234 Branford Hills Lane
Katy, Texas 77450

Copy

Aircraft being registered is a DJI S1000 UAV Octocopter with a DJI A2 GPS Flight control system. There are photos and Aircraft specifications included in package.

The aircraft does not come with a factory serial number, but the hand engraved serial number is ; CB14.

Attached is the bill of sale to myself (Craig D. Byrom) from UAV Direct, a DJI distributor located at 14365 West State HWY 29, Liberty Hill, Texas 78642.

This aircraft was built and test flown for airworthiness by a UAV Direct technician who is also a pilot and aircraft mechanic.

Contact info for UAV Direct is 855-788-6363 Jake Lahman

Their parent company Is Maxsur LLC.

The DJI S1000 is designed to maintain safe flight in the event that one of the 8 motors is lost.

It is also programed to land itself at its takeoff point in the event communication is lost with its ground station.

My intentions for use are aerial photography in the controlled environment of the Television/ Film Industry along with the Farm and Ranch community.

My area of operation will be line of sight with the utilization of a spotter and a ceiling of less than 400 feet.

My experience and back ground :

I have been a RC/ UAV pilot for 13 years as an enthusiast.

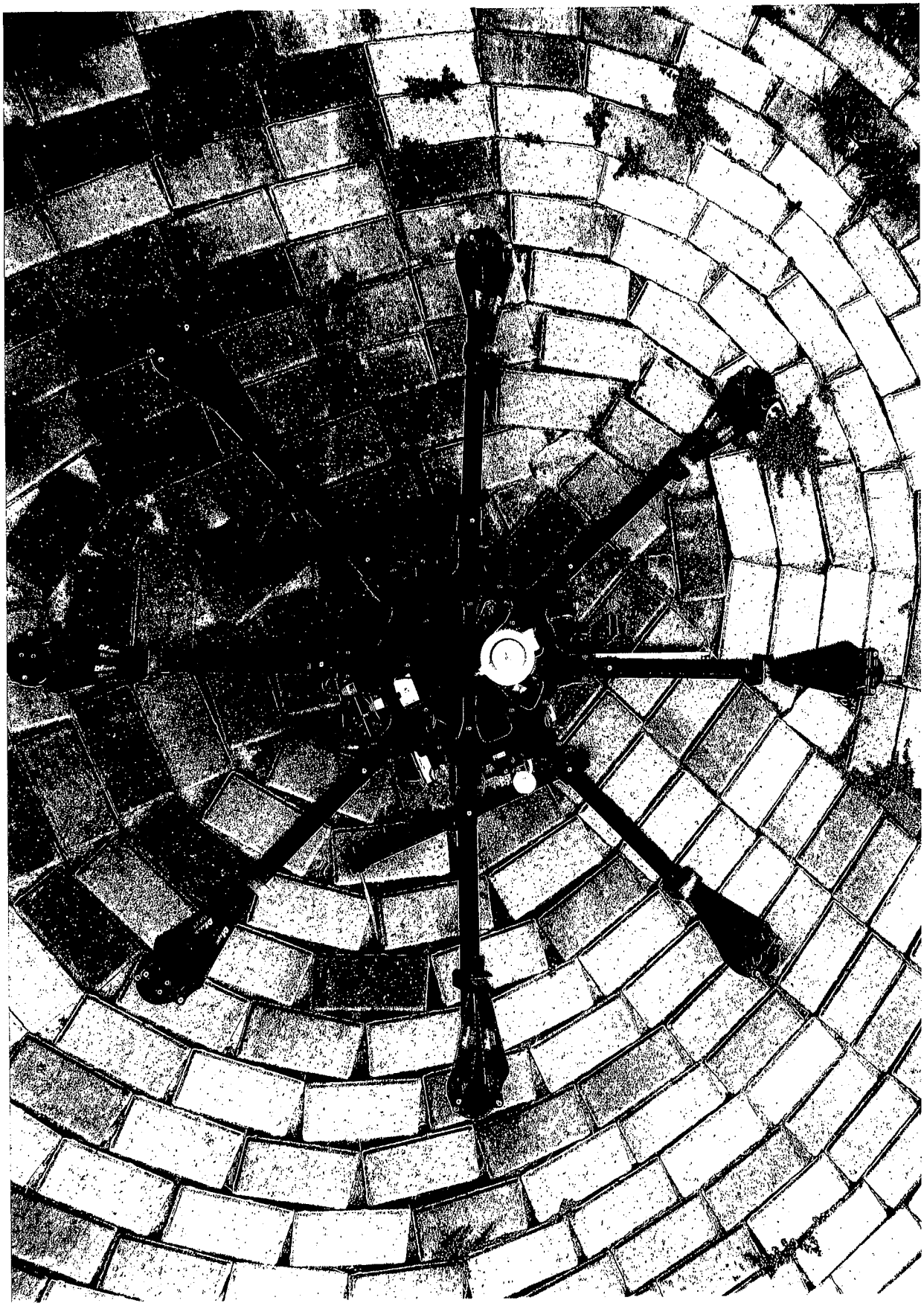
My profession;

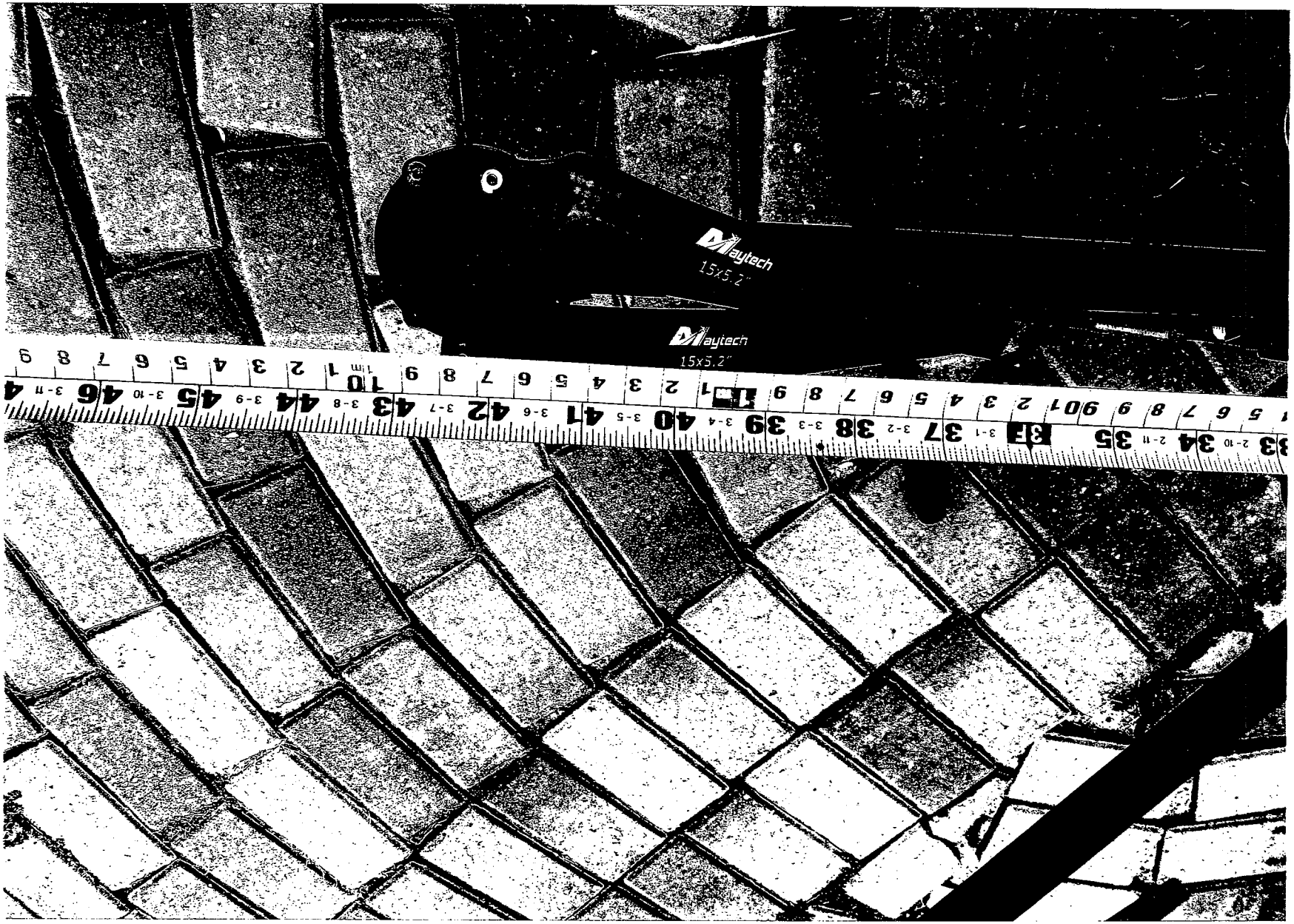
20 years in the Film industry as a Special Effects Technician and a rancher all my life.

I am currently in flight school at West Houston Airport for my private pilots license to broaden my flying knowledge, skills and experience.

I will use this aircraft registration to send in with my letter of exemption for the commercial use of this UAS in NAS in the United States.

Thank you
Craig Byrom
512-731-4341

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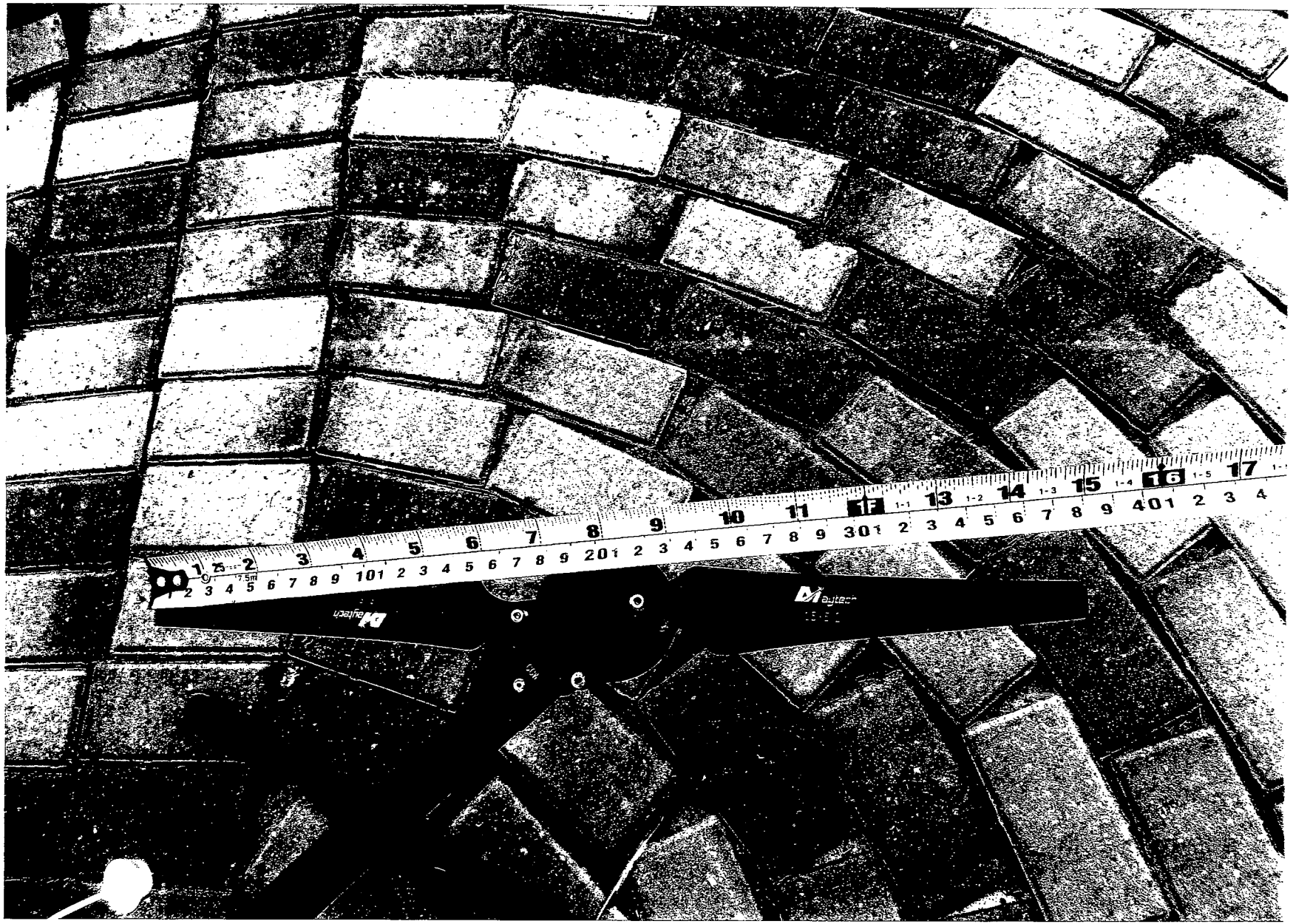

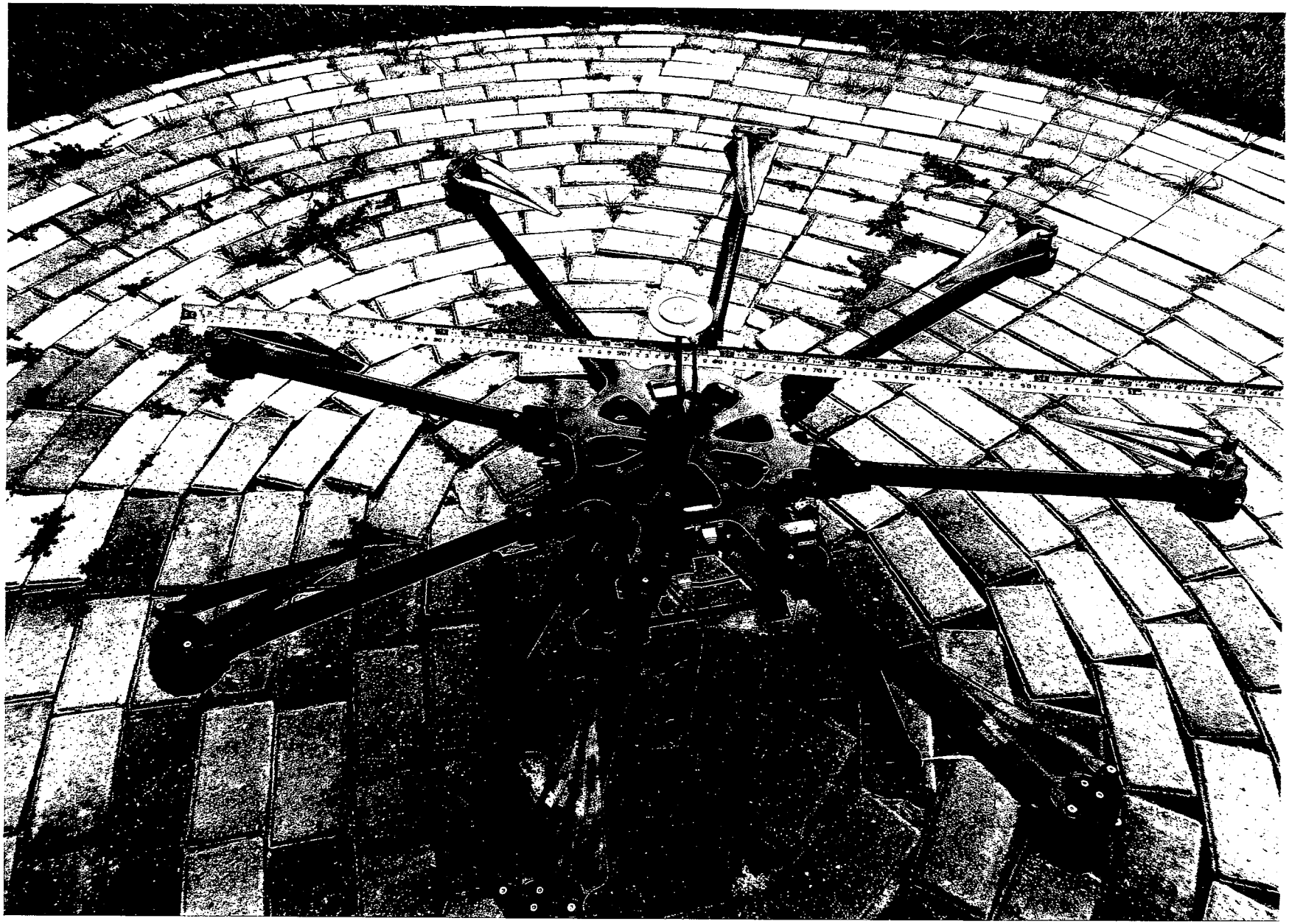

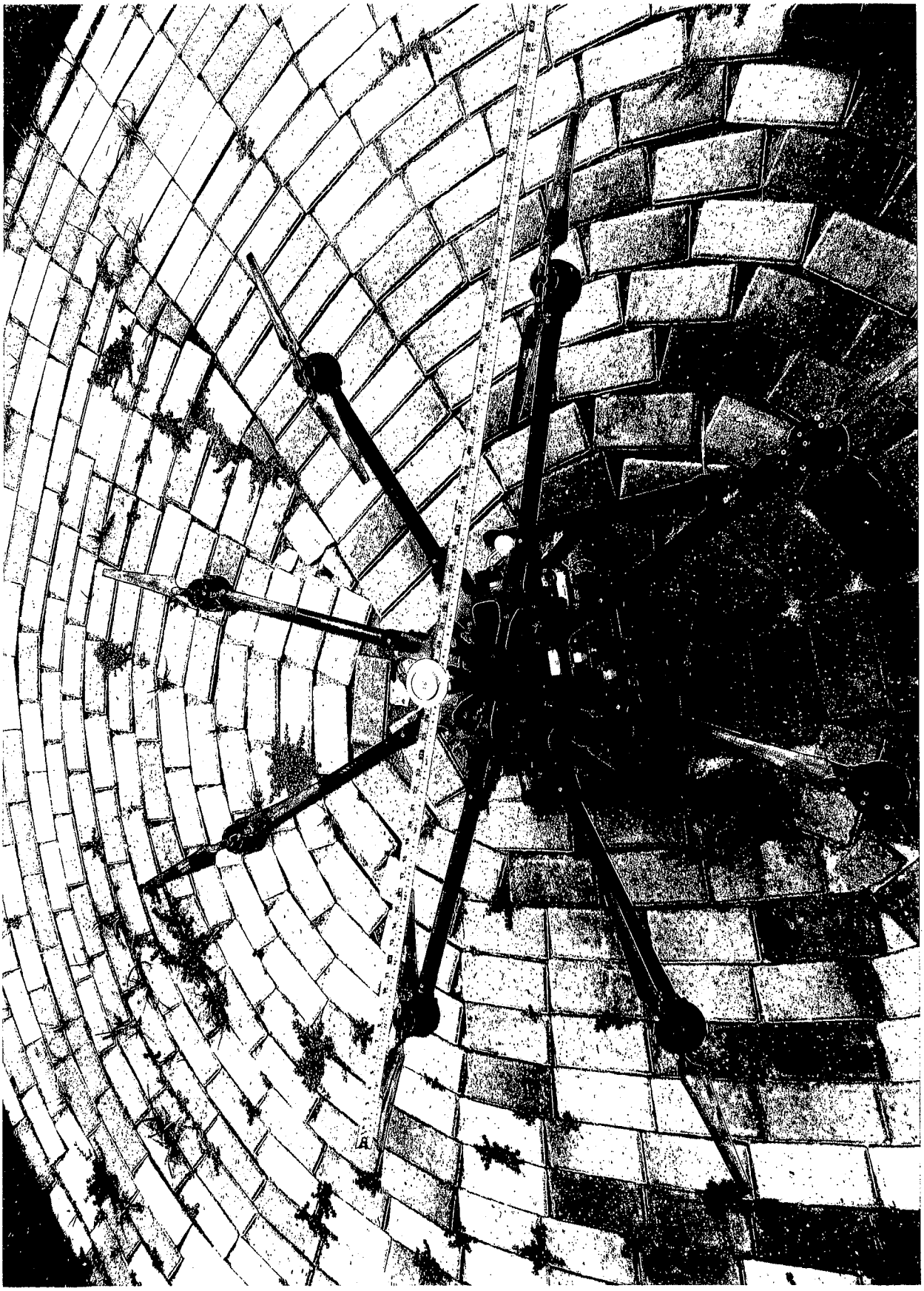

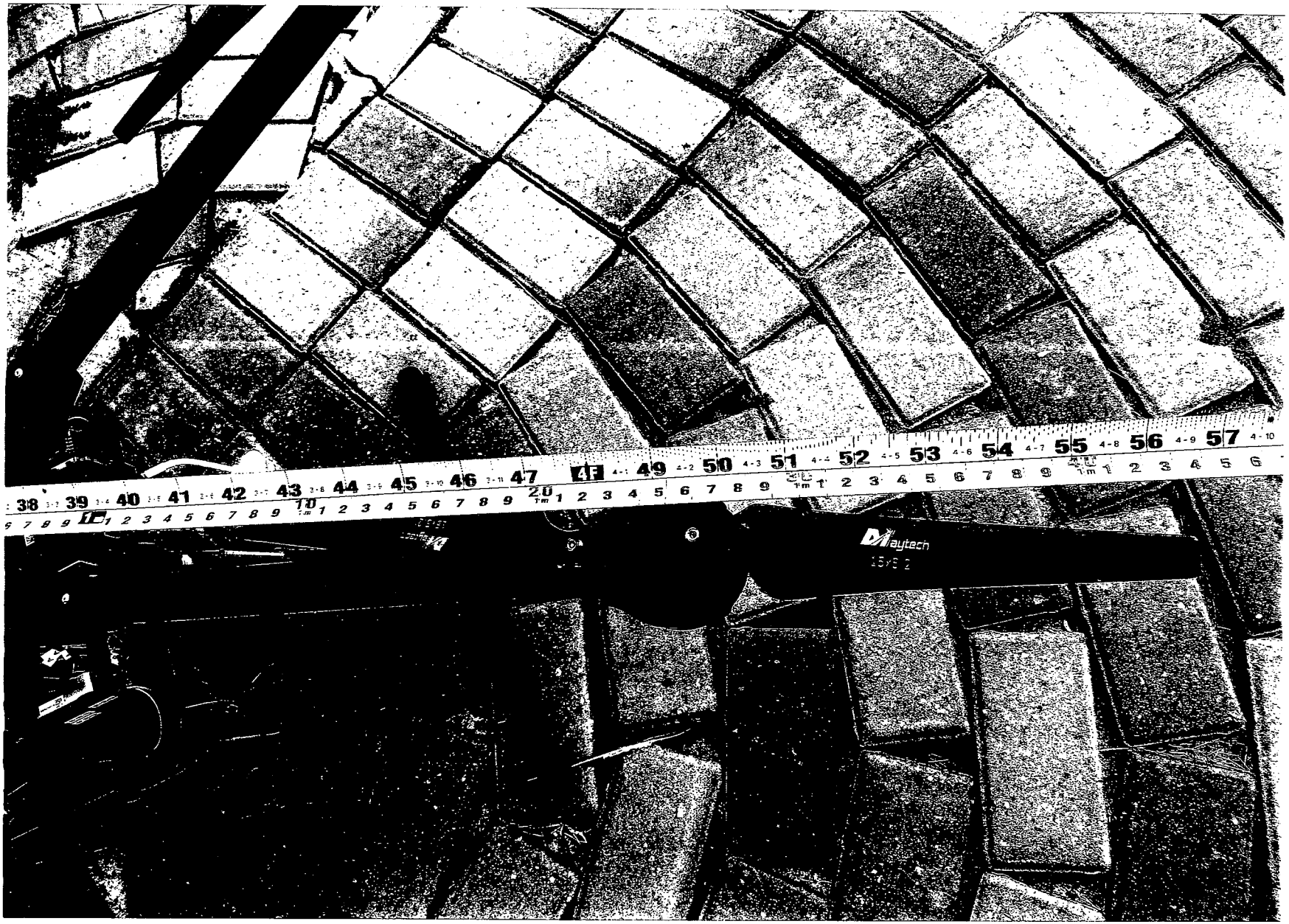
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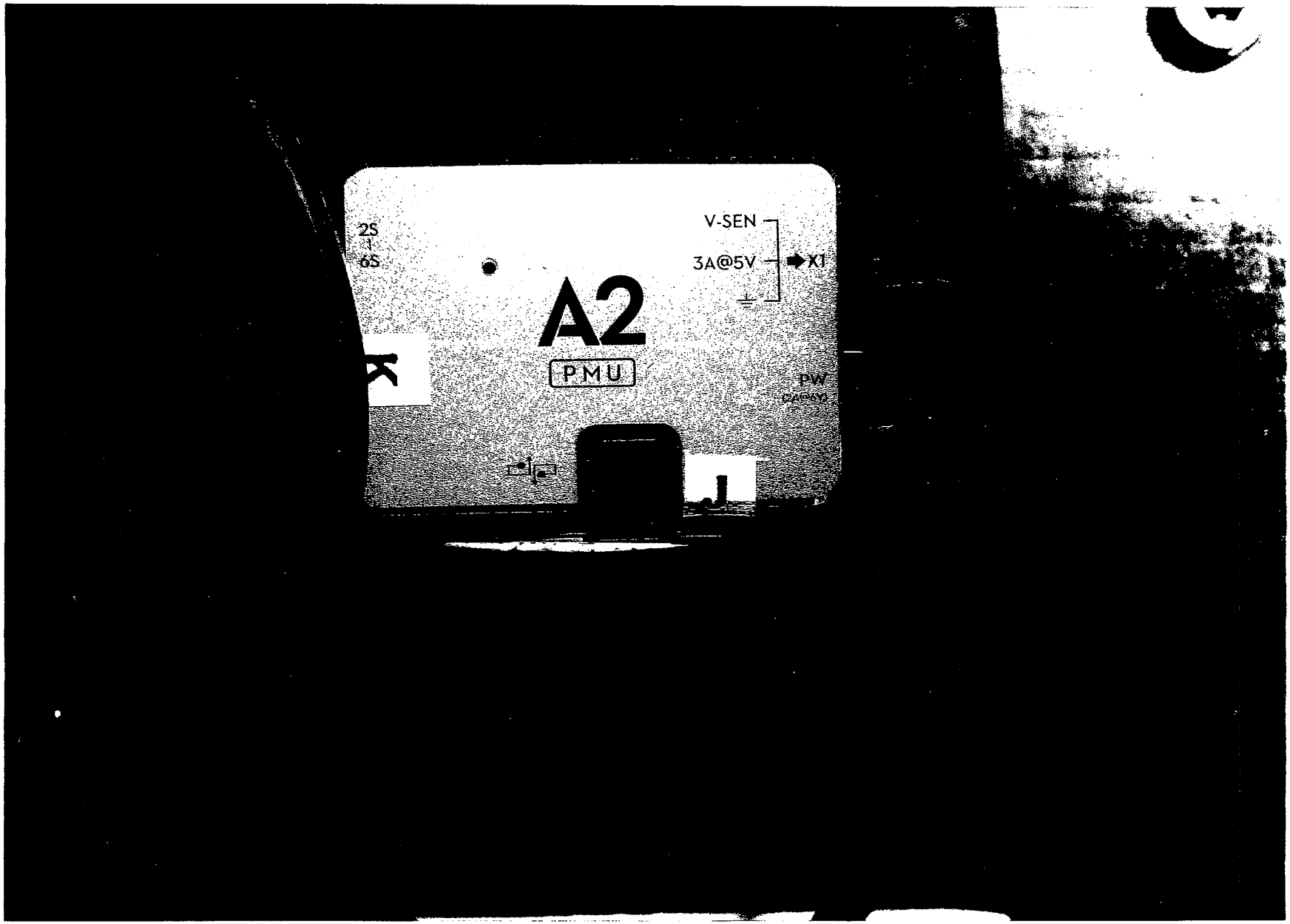
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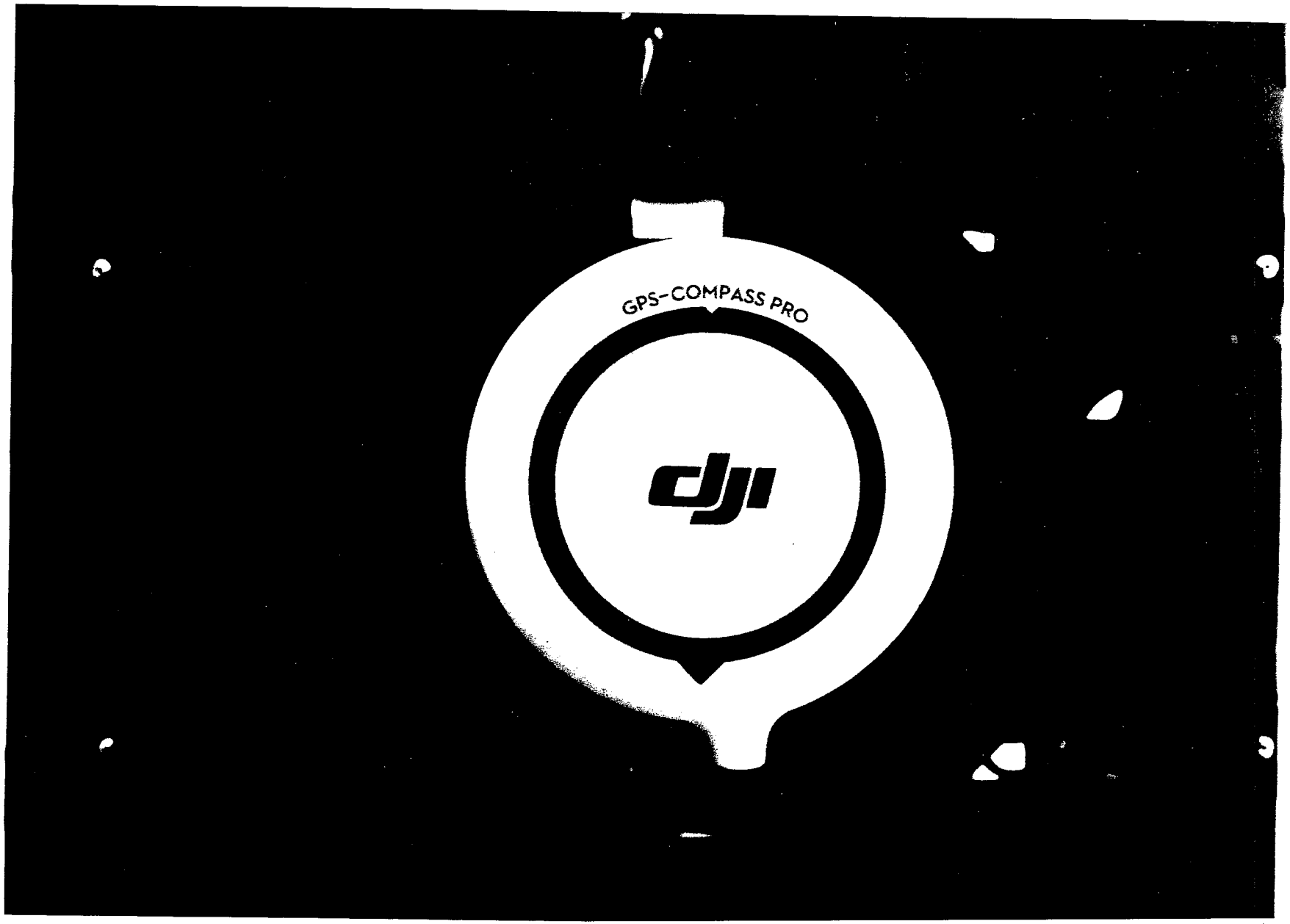
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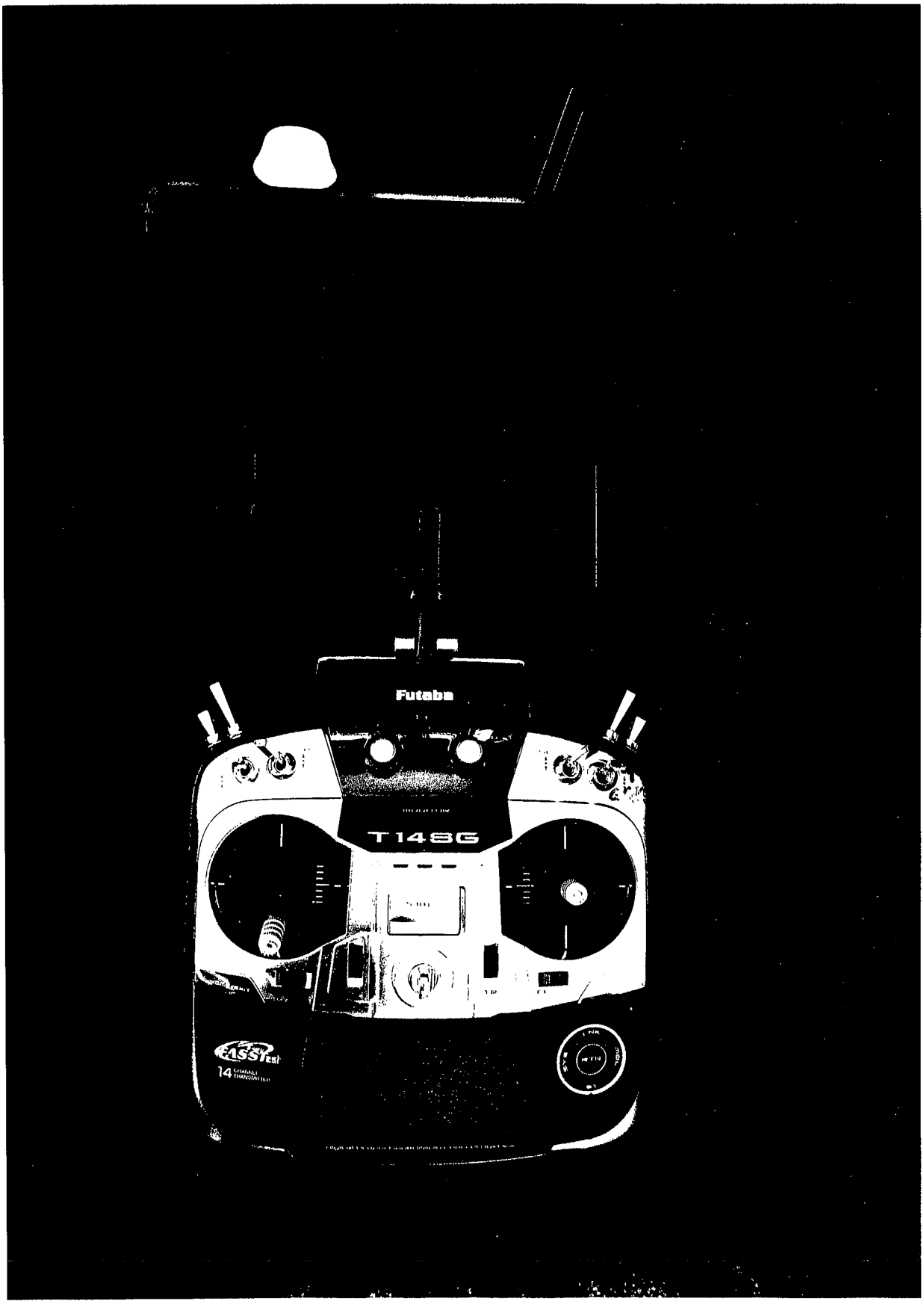
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