



U. S. Department  
of Transportation

**Federal Aviation  
Administration**

Small Airplane Directorate  
Chicago Aircraft Certification Office  
2300 E. Devon Avenue  
Des Plaines, IL. 60018

Not - DFMF  
w/ HOC

March 08, 2006

Mr. Leonard Spector  
Otto Engineering  
Otto Controls Division  
2 East Main Street  
Carpentersville, IL 60110

Dear Mr. Spector:

This is in response to your letter, dated February 09, 2006, requesting Technical Standard Order (TSO) authorization for Microphone, Part Numbers VM-58A and VM-59A. The Statement of Conformance to TSO-C58a and data submitted are accepted. Effective this date, you are authorized to identify the following Microphone, Part Numbers VM-58A and VM-59A with the marking requirements defined in 14 Code of Federal Regulations (CFR) Section 21.607(d) and in TSO-C58a.

Your Quality Control System as defined in Otto Engineering Quality Manual Document 1QA000001, Rev. AD, dated September 19, 2005, is considered satisfactory for production of this equipment at your Carpentersville, Illinois, manufacturing facility.

The following statement must be furnished with each manufactured unit:

“The conditions and tests required for TSO approval are minimum performance standards. It is the responsibility of those installing this article either on or within a specific type or class of aircraft to determine that the aircraft installation conditions are within the TSO standards. TSO articles must have separate approval for installation in an aircraft. The article may be installed only if performed under 14 CFR part 43 or the applicable airworthiness requirements.”

The following submitted data, (except Item b, c, d, e, & f) will be retained in our files:

- a. Statement of Conformance in your letter dated 02/09/06,
- b. Otto Communications, Aircraft Microphone Instruction Manual 804198, dated 01/06,

- c. Dwg. No. VM-58A, Rev. B, dated 01/27/06,
- d. Dwg. No. VM-59A, Rev. B, dated 01/27/06,
- e. Engineering Parts List, 02/06/06 and,
- f. Dwg. No. 612849, Rev. C, dated 10/19/05.

Any design change to this TSO article must be forwarded to this office as outlined in 14 CFR § 21.611 with minor change submittal intervals not to exceed six months. Also, as recipient of this authorization, you are required to report any failure, malfunction, or defect relating to this authorization in accordance with the provisions of 14 CFR § 21.3.

This authorization is not transferable to another person or location and is effective until surrendered, withdrawn, or otherwise terminated by the Administrator.

If you have any questions regarding this authorization, contact me at (847) 294-7564.

Sincerely,

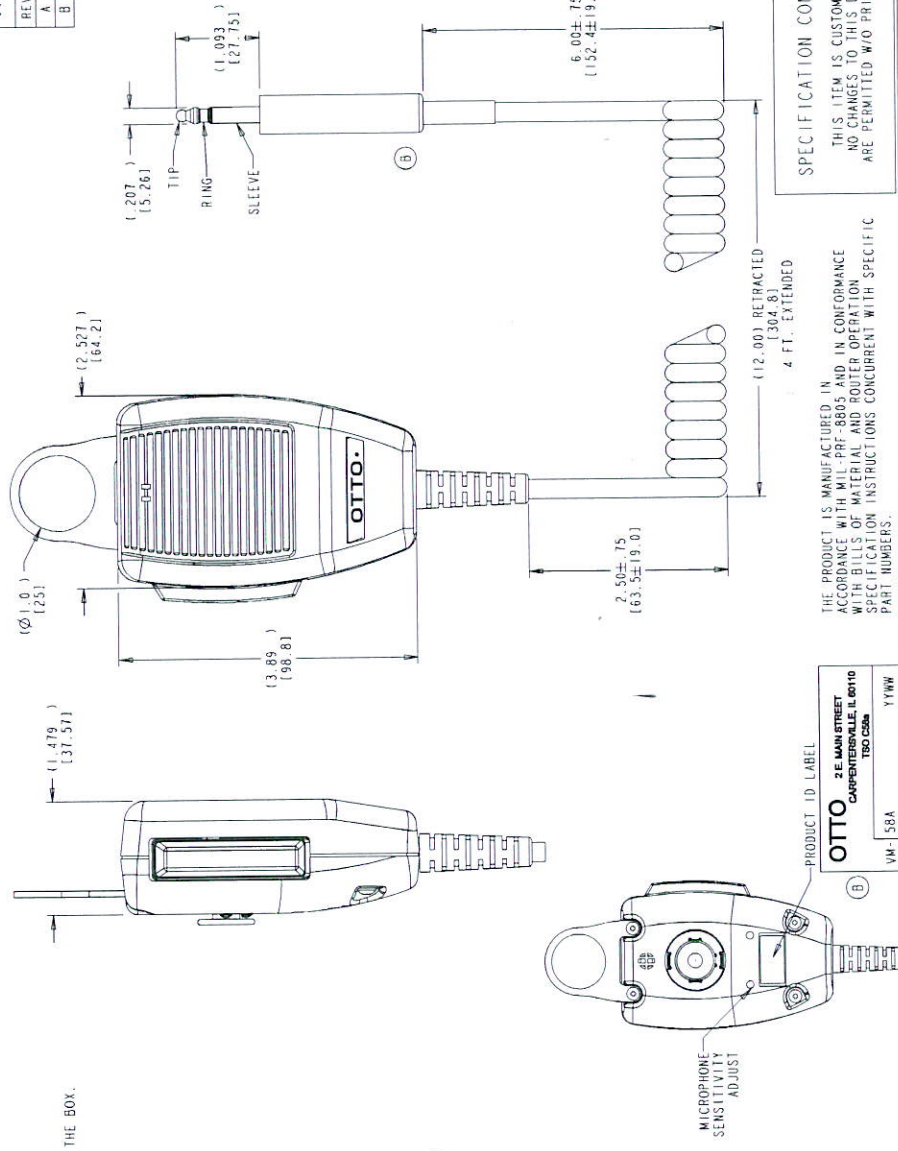


Roy E. Boffo III  
Sr. Systems Engineer  
Systems & Flight Test Branch

5 Enclosures

VM-58A

REV	QCN #	DATE	APR
A	030071	19 DEC 05	SMP
B	030590	27 JAN 06	SMP



**SPECIFICATION CONTROLLED DRAWING**  
 THIS ITEM IS CUSTOMER/ATO CONTROLLED.  
 NO CHANGES TO THIS DOCUMENT OR DETAILS  
 ARE PERMITTED W/O PRIOR CUSTOMER APPROVAL

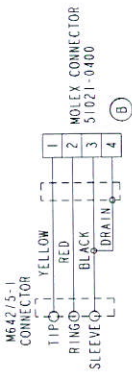
THE PRODUCT IS MANUFACTURED IN  
 ACCORDANCE WITH MIL-PRF-8805 AND IN CONFORMANCE  
 WITH BILLS OF MATERIAL AND ROUTER OPERATION  
 SPECIFICATION INSTRUCTIONS CONCURRENT WITH SPECIFIC  
 PART NUMBERS.

UNLESS OTHERWISE SPECIFIED:	DESCRIPTION
DIMENSIONS ARE IN INCHES	OTTO CONTROLS
TOLERANCES:	DIVISION OF
.XX ± .03	OTTO ENGINEERING, INC.
.XXX ± .010	CARPENTERSVILLE, ILLINOIS USA
ANGLES ±.2°	
DO NOT SCALE	

PRODUCT ID LABEL  
**OTTO**  
 CARPENTERSVILLE, ILLINOIS  
 VM-58A YYWW  
 MADE IN USA

MANUFACTURING  
 SPEC

BACK VIEW  
 SCALE 1:2



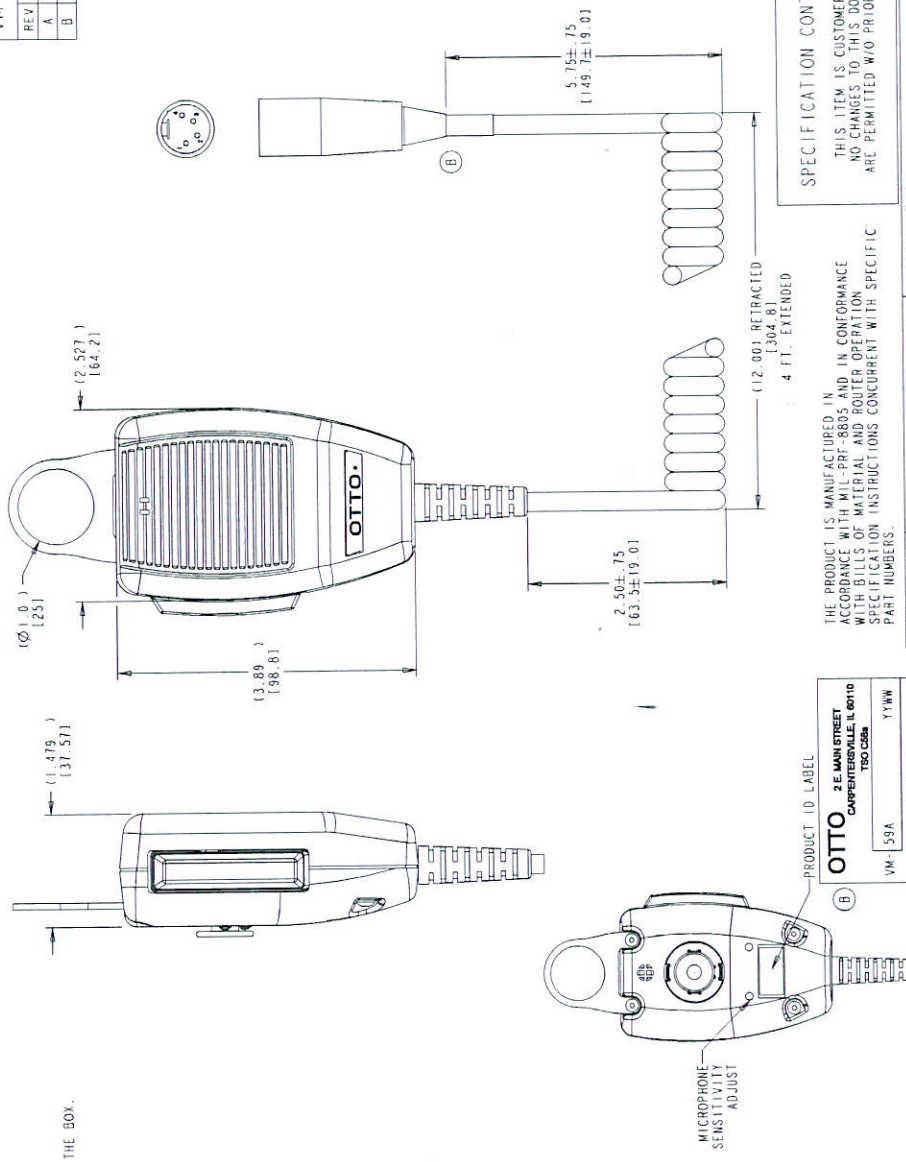
- NOTES: (B)
- PACKAGING AND MARKING:  
EACH MICROPHONE INDIVIDUALLY BAGGED IN A CLEAR PLASTIC BAG INSIDE A BOX WITH A LABEL ON THE BOX.
  - OPERATING TEMPERATURE: -40 TO +60°C  
STORAGE TEMPERATURE: -54 TO +85°C
  - MICROPHONE SENSITIVITY (ADJUSTABLE):  
FACTORY PRESET: -116dBV (28mV) @ 1kHz  
TEST CONDITIONS PER RTCA D0-214  
8VDC, 470 Ω LOAD, 114dB SPL
  - DC SUPPLY CURRENT:  
8mA NOMINAL
  - PTT SWITCH:  
RATING: 1A RESISTIVE @ 28VDC  
LIFE: 100,000 CYCLES
  - NET WEIGHT: 0.75 LBS MAX
  - CONNECTOR: A4M TYPE (4 CONDUCTOR)
  - ENVIRONMENTAL:  
MEETS REQUIREMENTS OF RTCA-D0214.  
(CONTACT MANUFACTURER FOR TEST METHODS)
  - THE MODEL VM-58A IS FAA CERTIFIED FOR AIRCRAFT USE UNDER FAA TSO-C58A REQUIREMENTS.

DRWN.	JWM	SIZE	FSCM	NO.	DRAWING NO.	REV.
CHKD.	JWM	B			VM-58A	B
APFD.	TDS					

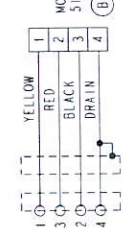
Scale: NTS  
 Sheet 1 of 2

VM-59A

REV	OCN #	DATE	APR
A	030071	19 DEC 05	SMP
B	030590	27 JAN 06	SMP



- NOTES: (B)
1. PACKAGING AND MARKING: EACH MICROPHONE INDIVIDUALLY BAGGED IN A CLEAR PLASTIC BAG INSIDE A BOX WITH A LABEL ON THE BOX.
  2. OPERATING TEMPERATURE: -40 TO +60°C  
STORAGE TEMPERATURE: -54 TO +85°C
  3. MICROPHONE SENSITIVITY (ADJUSTABLE):  
FACTORY PRESET: -114dBV (28mv) @ 1KHZ  
TEST CONDITIONS PER RTCA DO-214  
8VDC, 470 Ω LOAD, 114dB SPL
  4. DC SUPPLY CURRENT:  
8ma NOMINAL
  5. PTT SWITCH:  
RATING: 1A RESISTIVE @ 28VDC  
LIFE: 100,000 CYCLES
  6. NET WEIGHT: 0.75 LBS MAX
  7. CONNECTOR: A4M TYPE (4 CONDUCTOR)
  8. ENVIRONMENTAL:  
MEETS REQUIREMENTS OF RTCA-DO214.  
(CONTACT MANUFACTURER FOR TEST METHODS)
  9. THE MODEL VM-59A IS FAA-CERTIFIED FOR AIRCRAFT USE UNDER FAA TSO-C38A REQUIREMENTS.



SWITCHCRAFT CONNECTOR A4M	1	2	3	4
1	YELLOW			
2	RED			
3	BLACK			
4	DRAIN			

BACK VIEW  
SCALE 1:2

PRODUCT ID LABEL  
**OTTO**  
2 E MAIN STREET  
CAMPBELLVILLE, IN 46110  
VM-59A  
YYWW  
MADE IN USA

MANUFACTURING  
SPC

UNLESS OTHERWISE SPECIFIED, DIMENSIONS ARE IN INCHES.  
TOLERANCES:  
.XX ±.03  
.XXX ±.010  
ANGLES ±.2°  
DO NOT SCALE

THE PRODUCT IS MANUFACTURED IN ACCORDANCE WITH MIL-PRF-8805 AND IN CONFORMANCE WITH BILLS OF MATERIAL AND ROUTER OPERATION SPECIFICATION INSTRUCTIONS CONCURRENT WITH SPECIFIC PART NUMBERS.

SPECIFICATION CONTROLLED DRAWING  
THIS ITEM IS CUSTOMER/ATP CONTROLLED. NO CHANGES TO THIS DOCUMENT OR DETAILS ARE PERMITTED W/O PRIOR CUSTOMER APPROVAL.

DESCRIPTION		DRAWING NO.		REV.	
OTTO CONTROLS DIVISION OF OTTO ENGINEERING INC. CAMPBELLVILLE, ILLINOIS USA		VM, NON-DTME AVIATION MICROPHONE	WITH A4M TYPE CONNECTOR	VM-59A	B
UNLESS OTHERWISE SPECIFIED, DIMENSIONS ARE IN INCHES.	TOLERANCES: .XX ±.03 .XXX ±.010 ANGLES ±.2° DO NOT SCALE	DRWN. JKM	SIZE FSCM NO	DRAWING NO.	REV.
OTTO ENGINEERING, INC.	PROPERTY OF OTTO ENGINEERING, INC. DISTRIBUTION TO THE INTERESTS OF OTTO ENGINEERING, INC.	CHKD. JKM	B 21649	VM-59A	B
APPD. TDS	WT.	PROBATION	Scale NTS	Sheet 1 OF 2	