

Garmin AT, Inc.  
2345 Turner Rd SE  
Salem, OR 97302

**MX20  
STC Manual**

September 30, 2003  
Part #: 560-5066-04 Rev -

**Garmin AT, Inc.**

**MX20  
STC Manual**

Document Number: 560-5066-04

Document Revision: -  
September 30, 2003

This manual is a collection of applicable STC documents for the MX20, not including the AFM. The documents included in this manual include the following: STC Document, Master Data List, System Configuration Index, and Instructions for Continued Airworthiness.

**MX20  
STC Manual**

September 30, 2003  
Part #: 560-5066-04 Rev -

Garmin AT, Inc.  
2345 Turner Rd. SE  
Salem, OR 97302

**Revision Log**

<b>Rev</b>	<b>Date</b>	<b>Description</b>	<b>EN</b>	<b>By</b>	
-	07/15/02	Initial release.	7360	RF	
01 -	8/7/02	Release for SW Version 3.3	7382	CWH	
02 -	2/26/03	Release for SW Version 4.1	7581	RF	
02 A	6/20/03	Release for SW Version 5.0	7321	RF	
03 -	8/11/03	Release for SW Version 5.1	7707	RF	
-04	9/30/03	Company name change	7718	RF	

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Garmin AT, Inc.  
2345 Turner Rd SE  
Salem, OR 97302

**MX20**  
**STC Document**

October 16, 2003  
Part #: 560-5053-06 Rev -

**Garmin AT, Inc.**

**MX20**  
**STC Document**

Document Number: 560-5053-06  
Document Revision: -  
October 16, 2003

**MX20  
STC Document**

October 16, 2003  
Part #: 560-5053-06 Rev -

Garmin AT, Inc.  
2345 Turner Rd. SE  
Salem, OR 97302

**Revision Log**

<b>Rev</b>	<b>Date</b>	<b>Description</b>	<b>EN</b>	<b>By</b>
-	02/23/00	Initial release. Word 97 for Windows.		RF
-01	12/21/00	Revised for Ident function, terrain advisories during cold weather ops, degraded targets and tan targets at 35 kts. Software version 2.2.	6774	RF
-02	5/16/02	Revised for TCAS/TAS and WX Radar sensors	7328	RF
-03	7/02/02	Revised for traffic "pop-up." Software version 3.2	7340	RF
-04	8/26/02	Revised for software version 3.3	7382	RF
-05	2/26/03	Revised for software version 4.1	7581	RF
-06	10/16/03	Revised for software version 5.0 and 5.1 (includes STC reissue for company name change from UPS Aviation Technologies to Garmin AT).	7718	MAK

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## **STC SA02154AK**

STC SA02154AK is an STC to cover installation of the Apollo MX20 and Goodrich i-line Multi-Function Display in accordance with information provided in the Garmin AT MX20 STC Master Drawing List, P/N 560-5050-XX as referenced in the STC.

**This STC, and the data associated with it, may be used with this written permission of Garmin AT, Inc. for the sole and express purpose of installation and approval of installation of either Garmin AT Apollo or Goodrich i-line systems.**

This STC is provided along with FAA approved STC data. The STC data includes FAA approved Airplane Flight Manual Supplement(s). The STC includes an approved model list that should be consulted for applicability to each installation. If the installation is covered under the STC, then the approved AFM can be directly used for that installation. The installer should complete page 1 of the AFM (add make/model, registration number and serial number) and include it with the aircraft's existing flight manual.

United States Of America  
Department of Transportation - Federal Aviation Administration  
**Supplemental Type Certificate**

*Number* SA02154AK

*This Certificate issued to* Garmin AT, Inc.  
2345 Turner Road, S.E.  
Salem, Oregon 97309

*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 \* of the \* Regulations.*

*Original Product Type Certificate Number:* \* \* See attached FAA Approved Model List (AML) No. SA02154AK for list of approved airplane models and applicable airworthiness regulations  
*Make:* \*  
*Model:* \*

*Description of Type Design Change:*

Configuration 1

Installation of the Garmin AT, Inc., Apollo MX20 Multi-Function Display, P/N 430-0270-501, in accordance with Garmin AT, Inc., Apollo MX20 Supplemental Type Certificate Master Drawing List, P/N 560-5050-05, Revision C, dated August 27, 2003, or later FAA approved revision.

(See Continuation Sheet 3)

*Limitations and Conditions:*

1. Airplane Flight Manual Supplement or Supplemental Airplane Flight Manual, P/N 560-1032-05, Revision C, FAA approved October 14, 2003, or later FAA approved revision, is a required part for installation of Configuration 1, 2, and 3.

(See Continuation Sheet 3)

*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:* June 15, 1999

*Date reissued:* October 14, 2003

*Date of issuance:* February 18, 2000

*Date amended:* December 21, 2000;  
May 16, 2002; July 2, 2002;  
August 14, 2002;  
February 26, 2003



*By direction of the Administrator*

*Gregory J. Holt*  
(Signature)

Gregory J. Holt  
Manager  
Anchorage Aircraft Certification Office

(74172)

United States Of America  
Department of Transportation - Federal Aviation Administration

# Supplemental Type Certificate

(Continuation Sheet)

*Number* SA02154AK

*Date of application:* June 15, 1999

*Date of issuance:* February 18, 2000

*Date reissued:* October 14, 2003

*Date amended:* December 21, 2000; May 16, 2002;  
July 2, 2002; August 14, 2002;  
February 26, 2003

*Description of Type Design Change:*

Configuration 2

Installation of the Garmin AT, Inc., Apollo MX20 Multi-Function Display, IO Traffic, P/N 430-0270-600, in accordance with Garmin AT, Inc., Apollo MX20 Supplemental Type Certificate Master Drawing List, P/N 560-5050-05, Revision C, dated August 27, 2003, or later FAA approved revision.

Configuration 3

Installation of the Garmin AT, Inc., Apollo MX20 Multi-Function Display, IO Traffic/Radar, P/N 430-0270-700, in accordance with Garmin AT, Inc., Apollo MX20 Supplemental Type Certificate Master Drawing List, P/N 560-5050-05, Revision C, dated August 27, 2003, or later FAA approved revision.

Configuration 4

Installation of the Goodrich i-linc Multi-Function Display, P/N 430-0270-800, in accordance with Garmin AT, Inc., Apollo MX20 Supplemental Type Certificate Master Drawing List, P/N 560-5050-05, Revision C, dated August 27, 2003, or later FAA approved revision.

Configuration 5

Installation of the Goodrich i-linc, Radar, Multi-Function Display, P/N 430-0270-900, in accordance with Garmin AT, Inc., Apollo MX20 Supplemental Type Certificate Master Drawing List, P/N 560-5050-05, Revision C, dated August 27, 2003, or later FAA approved revision.

*Limitations and Conditions:*

2. Airplane Flight Manual Supplement or Supplemental Airplane Flight Manual, P/N 560-1045-02, Revision C, FAA approved October 14, 2003, or later FAA approved revision, is a required part for installation of Configuration 4 and 5.
3. For Continued Airworthiness Instructions of Configuration 1, refer to the Apollo MX20 Installation Instructions, P/N 560-1025-02, dated January 17, 2000, or later FAA approved revision.
4. For Continued Airworthiness Instruction of Configurations 2, 3, 4, and 5, refer to the Apollo Instructions for Continued Airworthiness, P/N 560-1048-00, Revision -, dated June 26, 2002, or later FAA approved revision.
5. Compatibility of this design change with previously approved modifications must be determined by the installer.
6. 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.

- End -

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

UPS Aviation Technologies, Inc  
 2345 Turner Road SE  
 Salem, OR 97302

Approved Model List Number UPS-AT-03  
 Original Issue Date: February 18, 2000  
 Amendment Date: February 25, 2002  
 Approved Model List for STC No. SA02154AK

<u>Aircraft Make and Model Designation</u>	<u>Original Type Certificate Number</u>	<u>Certification Basis</u>
<b>Aermacchi S.p.A.</b>		
F.260, F.260B, F.260C, F.260D, F.260E, F.260F	A10EU	CAR 3
S.205 - 18/F, S.205 - 18/R, S.205 - 20/F, S.205 - 20/R,	A9EU	FAR 23
S.205 - 22/R, S.208, S.208A S.211A	A86EU	FAR 23
<b>Aerostar Aircraft Corp</b>		
PA-60-600 (Aerostar 600), PA-60-601 (Aerostar 601), PA-60-601P (Aerostar 601P), PA-60-602P (Aerostar 602P), PA-60-700P (Aerostar 700P)	A17WE	FAR 23
<b>Britten-Norman</b>		
BN-2 Series	A29EU	FAR23
<b>Cessna</b>		
170, 170A, 170B	A-799	CAR 03
172, 172A, 172B, 172C, 172D, 172E, 172F, 172G, 172H, 172I, 172K, 172L, 172M, 172N, 172P, 172Q, 172R, 172S	3A12	CAR 3, FAR 23
172RG,P172D, R172E, R172F, R172G, R172H, R172J, R172K, 175, 175A, 175B, 175C	3A17	CAR 3
177, 177A, 177B, 177RG	A13CE	FAR 23
180, 180A, 180B, 180C, 180D, 180E, 180F, 180G, 180H, 180J, 180K	5A6	CAR 3
182, 182A, 182B, 182C, 182D, 182E, 182F, 182G, 182H, 182J, 182K, 182L, 182M, 182N, 182P, 182Q, 182R, 182S, R182, T182, TR182	3A13	CAR 3, FAR 23
185, 185A, 185B, 185C, 185D, 185E, A185E, A185F	3A24	CAR 3
190, 195, 195A, 195B	A-790	CAR 3
210, 210A, 210B, 210C, 210D, 210E, 210F, T210F, 210G, T210G, 210H, T210H, 210J, T210J, 210K, T210K, 210L, T210L, 210M, T210M, 210N,P210N, T210N, 210R	3A21	CAR 3
P210R, T210R, 210-5 (205), 210-5A (205A)	3A21	CAR 3
205, 206; P206, P206-A, P206-B, P206-C, P206-D, P206-E; TP206A, TP206-B, TP206-C, TP206-D, TP206-E; U206, U206-A, U206-B, U206-C, U206-D, U206-E, U206-F, U206-G; TU206A, TU206-B, TU206-C, TU206-D,	A4CE	CAR 3, FAR 23



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<u>Aircraft Make and Model Designation</u>	<u>Original Type Certificate Number</u>	<u>Certification Basis</u>
<b>Cessna (continued)</b>		
TU206-E, TU206-F, TU206-G, 206H, T206H		
207, 207A, T207, T207A	A16CE	FAR 23
208, 208A, 208B	A37CE	FAR 23
310, 310A (USAF U-3A), 310B, 310C, 310D, 310E (USAF U-3B), 310F, 310G, 310H, E310H, 310I, 310J, 310J-1, E310J, 310K, 310L, 310N, 310P, T310P, 310Q, T310Q, 310R, T310R	3A10	CAR 3
320, 320A, 320B, 320C, 320D, 320E, 320F, 320- 1, 335, 340, 340A	3A25	CAR 3
336	A2CE	CAR 3
337, 337A (USAF 02B), 337B, T337B, 337C, 337E, T337E, T337C, 337D, T337D, M337B (USAF 02A), 337F, T337F, 337G, T337G, 337H, P337H, T337H, T337H-SP	A6CE	CAR 3, FAR 23
401, 401A, 401B, 402, 402A, 402B, 402C, 411, 411A, 414, 414A, 421, 421A, 421B, 421C, 425	A7CE	CAR 3
404, 406	A25CE	FAR 23
441	A28CE	FAR 23
<b>Cirrus Design Corp</b>		
SR20, SR22	A00009CH	FAR 23
<b>Commander Aircraft Co.</b>		
112, 112TC, 112B, 112TCA, 114, 114A, 114B, 114TC	A12SO	CAR 3
<b>Embraer</b>		
EMB-110P1, EMB-110P2	A21SO	FAR23,25
<b>DeHavilland/Bombardier</b>		
DHC-2 Mark I, DHC-2 Mark II, DHC-2 Mark III	A-806	CAR 3
(Twin Otter) DHC-6-1, DHC-6-100, DHC-6- 200, DHC-6-300	A9EA	CAR 3
<b>Diamond Aircraft Company</b>		
DA 20-A1, DA20-C1	TA4CH	FAR 23
<b>Fairchild</b>		
SA26-T, SA26-AT, SA226-T, SA226-AT,	A5SW	CAR 3

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<u>Aircraft Make and Model Designation</u>	<u>Original Type Certificate Number</u>	<u>Certification Basis</u>
<b>Fairchild (continued)</b>		
SA226-T(B), SA227-AT, SA227-TT SA226-TC, SA227-AC (C-26A), SA227-BC (C- 26A), SA227-PC SA227-CC, SA227-DC	A8SW  A18SW	FAR 23  FAR 23
<b>Lancair Company, The</b> LC40-550FG	A00003SE	FAR 23
<b>Learjet</b> 23	A5CE	CAR 3
<b>Lake/Revo</b> COLONIAL C-1, COLONIAL C-2, LAKE LA- 4, LAKE LA-4A, LAKE LA-4P, LAKE LA-4- 200, LAKE MODEL 250	1A13	CAR 3
<b>Luscombe Aircraft Corporation</b> 11A	A-804	CAR 3
<b>Maule</b> Bee Dee M-4, M-4, M-4C, M-4S, M-4T, M-4- 180C, M-4-180S, M-4-180T, M-4-210, M-4- 210C, M-4-210S, M-4-210T, M-4-220, M-4- 220C, M-4-220S, M-4-220T, M-5-180C, M-5- 200, M-5-210C, M-5-210TC, M-T-220C, M-5- 235C, M-6-180, M-6-235, M-7-235, MX-7-235, MX-7-180, MX-7-420, MXT-7-180, MT-7-235, M-8-235, MX-7-160, MXT-7-160, MX-7-180A, MXT-7-180A, MX-7-180B, MXT-7-420, M-7- 235B, M-7-235A, M-7-235C MX-7-180C, M-7-260, M-7-420, M7-7-260, MT-7-420, M-7-260C	3A23  3A23	CAR 3  CAR 3
<b>Mooney Aircraft Corp</b> M20, M20A, M20B, M20C, M20D, M20E, M20F, M20G, M20J, M20K, M20L, M20M, M20R, M20S M22	2A3  A6SW	CAR 3  CAR 3
<b>Navion Aircraft Company, Ltd</b> (Navion) L-17A, L-17B, L-17C, B, D, E, F, G, H	A-782	CAR 3

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<u>Aircraft Make and Model Designation</u>	<u>Original Type Certificate Number</u>	<u>Certification Basis</u>
<b>Partenavia</b> P68, P68B, P68C, P68C-TC, P68 "Observer,"	A31EU	FAR 23
<b>Partenavia (continued)</b> P68 "Observer 2," P68 TC "Observer", AP68TP 300 "Spartacus", AP68TP 600 "Viator", VA300		
<b>Pilatus Aircraft Limited</b> PC-12	A78EU	FAR 23
<b>Piper</b> PA-23, PA-23-160, PA-23-235, PA-23-250, PA- E23-250	1A10	CAR 3
PA-28-140, PA-28-150, PA-28-151, PA-28-160, PA-28-161, PA-28-180, PA-28-235, PA-28S- 160, PA-28R-180, PA-28S-180, PA-28-181, PA- 28R-200, PA-28R-201, PA-28R-201T, PA- 28RT-201, PA-28RT-201T, PA-28-201T, PA- 28-236	2A13	CAR 3
PA-30, PA-39, PA-40	A1EA	CAR 3
PA-31, PA-31-300, PA-31-325, PA-31-350	A20SO	CAR 3
PA-31P, PA-31T, PA-31T1, PA-31T2, PA- 31T3, PA-31P-350	A8EA	CAR 3
PA-32R-301(SP), PA-32R-301(HP), PA-32R- 301T, PA-32-301, PA-32-301T	A3SO	CAR 3
PA-34-200, PA-34-200T, PA-34-220T (III), PA-34-220T (IV)	A7SO	CAR 3
PA-42, PA-42-720, PA-42-1000	A23SO	FAR 23
PA-42-720R	A32SO	FAR 23
PA-44-180, PA-44-180T	A19SO	FAR 23
PA-46-310P, PA-46-350P	A25SO	FAR 23
<b>The New Piper Aircraft, Inc</b> PA-24, PA-24-250, PA-24-260, PA-24-400	1A15	CAR 3
PA-32-260, PA-32-300, PA-23S-300, PA-32R- 300, PA-32RT-300, PA-32RT-300T, PA-32R- 301(SP), PA-32R-301(HP), PA-32R-301T, PA- 32-301, PA-32-301T		
PA-20	1A4	CAR 3
PA-22	1A6	CAR 3

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 Salem, OR 97302

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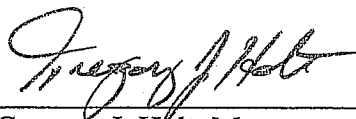
<u>Aircraft Make and Model Designation</u>	<u>Original Type Certificate Number</u>	<u>Certification Basis</u>
<b>Raytheon</b>		
35, A35, B35, C35, D35, E35, F35, G35, 35R, 35-33, 35-A33, 35-B33, 35-C33, 35-C33A, E33, E33A, E33C, F33, F33A, F33C, G33, H35, J35, K35, M35, N35, P35, S35, V35, V35A, V35B, 36, A36, A36TC, B36TC	3A15	CAR 3
F90	A31CE	FAR 23
200 (A100-1 (U-21J)), 200C, 200CT, 200T, A200 (C-12A) or (C-12C), A200C (UC-12B), A200CT (C-12D) or (FWC-12D) or (RC-12D) or (C-12F) or (RC-12G) or (RC-12H) or (RC-12K), or (RC-12P) B200, B200C (C-12F) or (UC-12F) or (UC-12M), or (C-12R), B200CT, B200T, 300, B300, B300C, 300LW, 1900, 1900C (C-12J), 1900D	A24CE	FAR 23
65-90, 65-90A, A90, B90, C90, C90A	3A20	CAR 3, FAR 23
95, B95, B95A, D95A, E95, 95-55, 95-A55, 95-B55, 95-B55A, 95-B55B (T-42A), 95-C55, 95-C55A, D55, D55A, E55, E55A, 56TC, A56TC, 58, 58A	3A16	CAR 3
58P, 58PA, 58TC, 58TCA	A23CE	FAR 23
99, 99A, 99A(FACH), A99, A99A, B99, C99, 100, A100 (U-21F), A100A, A100C, B100	A14CE	FAR 23
2000	A38CE	FAR 23
19A, B19, M19A, 23, A23, A23A, A23-19, A23-24, B23, C23, A24, A24R, B24R, C24R	A1CE	CAR 3
65, A65, A65-8200, 65-80, 65-A80, 65-A80-8800, 65-B80, 65-88, 65-A90, 70, E90, H90, 65-A90-1, 65-A90-2, 65-A90-3, 65-A90-4	3A20	CAR 3
60, A60, B60	A12CE	FAR 23
3N, 3NM, 3TM, JRB-6, D18C, D18S, E18S, RC-45J (SNB-5P), E18S-9700, G18S, H18, C-45G, TC-45G, C-45H, TC-45H, TC-45J, UC-45J (SNB-5	A-765	CAR 3
50 (L-23A), B50 (L-23B), C50, D50(L-23E), D50A, D50B, D50C, D50E, D50E-5990, E50 (L-23D, RL-23D), F50, G50, H50, J50	5A4	CAR 3
<b>Short Brothers</b>		
SC-7	A15EU	FAR 23

UPS Aviation Technologies, Inc  
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<u>Aircraft Make and Model Designation</u>	<u>Original Type Certificate Number</u>	<u>Certification Basis</u>
<b>SOCATA</b>		
TB20, TB21, TB200	A51EU	FAR 23
TBM 700	A60EU	FAR 23
GA-7	A17S0	FAR 23
MS 880B, MS 885, MS 892A-150,	7A14	CAR 3
MS 892E-150, MS 893A, MS 893E, MS 894A,	7A3	CAR 3
MS 894E M.S. 760 (Paris I), M.S. 760B (Paris II), M.S. 760.A (Paris IA),		
Rallye 100S, Rallye 150 ST, Rallye 150 T,	7A14	CAR 3
Rallye 235 E, Rallye 235C		
TB 10, TB 20, TB 200, TB 21, TB9, TBM 700	A51EU	FAR 23
<b>Tiger Aircraft LLC</b>		
AA-1, AA-1A, AA-1B, AA-1C,	A11EA	FAR 23
AA-5, AA-5A, AA-5B, AG-5B	A16EA	FAR 23
<b>Twin Commander</b>		
500, 500-A, 500-B, 500-U, 500-S, 520, 560,	6A1	CAR 3
560-A, 560-E		
560F, 680, 680-E, 680F, 680FL, 680FL(P),	2A4	CAR 3
680T, 680V, 680W, 681, 685, 690, 690A, 690B,		
690C, 690D, 695, 695A, 695B, 720		
700	A12SW	FAR 23
<b>Zenair Ltd.</b>		
CH2000	TA5CH	FAR 23

FAA Approved:



Gregory J. Holt, Manager  
Anchorage Aircraft Certification Office

Amended: December 21, 2000, May 16, 2002, July 2, 2002,  
August 14, 2002, February 25, 2002



# **Apollo MX20 Aircraft STC Master Drawing List**

Part Number: 560-5050-05  
Document Revision: C  
27 August 2003

**Garmin AT, Inc.**  
2345 Turner Rd SE  
Salem, OR 97302 USA

Phone (503) 581-8101  
FAX (503) 364-2138

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Printed in the USA

## Apollo MX20 Aircraft STC Master Drawing List

Garmin AT, Inc.  
2345 Turner Rd SE  
Salem, OR 97302

27 August 2003  
Part #: 560-5050-05 Rev C

### Revision Log

Rev	Date	Description	EN	By
-	01/27/00	Initial release, MS Word 97 SR-1	6399	CWH
01 -	07/28/00	Updated for amended STC to include V2.0 s/w	6607	CWH
02 -	11/30/00	Updated for amended STC to include V2.2 s/w	6774	CWH
02 A	08/24/01	Updated for minor change V2.3 s/w	6991	CWH
03 -	03/20/02	Updated for V3.0 & Goodrich configurations	7285	CWH
03 A	04/25/02	Updated for minor change V3.1 s/w	7301	CWH
03 B	05/08/02	Update Incorrect Goodrich Manuals Revision -- To Revision A	7314	CWH
03 C	06/06/02	Updated for minor change V3.2 software	7340	CWH
03 D	06/26/02	Added new document - <i>Apollo MX20 Instruction for Continued Airworthiness</i> to section 2.1 & 2.2	7360	CWH
04 -	08/07/02	Updated for minor change V3.3 software	7382	CWH
04 A	08/09/02	Updated for AFM changes to V3.3	7391	CWH
05 -	10/21/02	Updated for changes for V4.0 SW	7475	JDB
05 A	02/10/03	Changed software to V4.1	7571	RDG
05 B	25 July 2003	Update for V5.0 MX20 & latest versions of all documents (2.1, 2.2, 3.). Clarify use of previous FAA-approved revisions in configuration index (2.1, 2.2, 3.). Remove TSO software and label data from list of substantiating documents & clarify revision status (2.3). Add "aircraft STC" to distinguish from rotorcraft STC (title, header, 1.2).	7621	MAK
05 C	27 August 2003	Update company name from UPS Aviation Technologies to Garmin AT. Update Goodrich company name to "L3 (formerly Goodrich)" (1.1,2.2,3.).	7718	MAK

<b>Garmin AT, Inc.</b>	Cage Code <b>0XCJ6</b>	P. O. Box 13549 Salem, Oregon USA
Title: <b>Apollo MX20 Master Drawing List</b>		Number: <b>560-5050</b>
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FAA Approved  
Date:

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# Apollo MX20 Aircraft STC Master Drawing List

Garmin AT, Inc.  
2345 Turner Rd SE  
Salem, OR 97302

27 August 2003  
Part #: 560-5050-05 Rev C

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## 1 Introduction

### 1.1 Purpose

The purpose of this document is to list the data required to support STC installation of the Garmin AT Multifunction Display in accordance with STC requirements and to list other data associated with the STC which is not required for installation. Garmin AT manufactures both the Apollo *MX20* and the L3 (formerly Goodrich) *i-linc* system. This Master Data List covers both units.

### 1.2 Scope

This document applies to STC SA02154AK. This document includes general installation requirements, special installation instructions, and it provides an index of STC data including both data required for installation and data associated with the STC, but not required for installation.

### 1.3 STC includes Approved Model List

The STC includes an approved model list that should be consulted for applicability to each installation. If the installation is covered under the STC, then the approved AFM can be directly used for that installation. The installer should complete page 1 of the AFM (add make/model, registration number and serial number) and include it with the aircraft's existing flight manual.

## 2 Data Required for Installation

### 2.1 Apollo MX20 Installation Data

Documents should be of the version listed<sup>1</sup> or later FAA approved revisions.

Doc No.	Description	Rev
560-5050-05	Apollo MX20 Master Drawing List	C
560-5051-03	Apollo MX20 System Configuration Index	F
560-1032-05	Apollo MX20 AFM Supplement	C
560-1048-00	Apollo MX20 Instructions for Continued Airworthiness	-
560-1025-07	Apollo MX20 MFD Installation Manual	-
560-1026-05	Apollo MX20 MFD User's Guide	B

<sup>1</sup> Other previously FAA-approved versions listed in the Configuration Index may be used, if needed to support older software versions.

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### 2.2 L3 (formerly Goodrich) i-linc Installation Data

Documents should be of the version listed<sup>2</sup> or later FAA approved revisions.

Doc No.	Description	Rev
560-5050-05	Apollo MX20 Master Drawing List	C
560-5051-03	Apollo MX20 System Configuration Index	F
560-1045-02	Goodrich i-linc AFM Supplement	C
560-1048-00	Apollo MX20 Instructions for Continued Airworthiness	-
0040-19000-01	Goodrich i-linc MFD Installation Manual	C
0040-19001-01	Goodrich i-linc Pilot's Guide	E

### 2.3 Related Data (Substantiating Data)

The following documents contain information related to this STC but are not required for installations. Revisions are latest available at the date of STC issue or latest amendment request.

Doc No.	Description	Rev
424-0751-000	Apollo MX20 Installation kit	A
424-0753-000	Apollo MX20 IO Installation kit	-
310-0429-01	Mounting Tube, MFD	G
PD1415	MX20 System Safety Assessment	D
PD1453	Apollo MX20 Environmental Test Report	F
PD1490	Apollo MX20 System Certification Plan	-
PD1492	Apollo MX20 Ground & Flight Test Plan V4.0	-
PD4043	Capstone Phase 2 FIS/TIS Certification Plan	-
PD6000	Capstone Phase 3 Radar-like Services Certification Plan	B

### 2.4 Reference Documents

The following documents are used as reference for the installation.

- FAA AC 43.13-1B, Acceptable Methods, Techniques, and Practices - Aircraft Inspection and Repair
- FAA AC 43.13-2A, Acceptable Methods, Techniques, and Practices - Aircraft Alterations
- FAA AC 20-138, Airworthiness approval of GPS

## 3 Parts List & Equipment Configuration

Please refer to the MX20 System Configuration Index (560-5051-03 Rev D or later FAA approved versions) for documentation that provides information about all current, valid configurations of the Apollo MX20 and L3 (formerly Goodrich) i-linc equipment. The configuration index also shows the manual versions corresponding to each software version.

<sup>2</sup> Other previously FAA-approved versions listed in the Configuration Index may be used, if needed to support older software versions.

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### 4 General Installation Requirements

#### 4.1 General

The installation must be done in accordance with all applicable FARs. The installation shall conform to the data listed in section 2.1 Data Required for Installation.

#### 4.2 Mechanical

Mechanical installation, wiring, cable bundling and routing, and connections to existing aircraft systems must conform to those specific instructions or requirements found in the STC data. In any area where specific installation instructions or requirements are not provided in the STC data, the installer shall conform to the recommended practices and procedures found in AC 43.13-2A, Chapter 2, Radio Installations, and Chapter 3, Antenna Installations; AC 43.13-1B, Chapter 11, Electrical Systems, Section 3,4 and 7.

#### 4.3 Hardware

Hardware not supplied with the equipment, or otherwise specified in the appropriate installation manuals or other STC data (ie screws, nuts, tie wraps.... etc) should be from standard aircraft hardware as described by AC 43.13-1B, Chapter 5, Aircraft Hardware.

#### 4.4 Wiring

All wire used in the installation should be of appropriate standard aircraft quality grade and size as described in AC 43.13-1B, Chapter 11, Sections 5-20.

#### 4.5 Circuit Protection

All circuits must be protected in accordance with AC 43.13-1B, Chapter 11, Section 4, Circuit Protection Devices.

#### 4.6 Electrical Load Analysis

An electrical load analysis shall be performed on each aircraft, as described in AC 43.13-1B, Chapter 11 Section 3.

### 5 Special Installation Instructions

None

**Apollo MX20**  
**System Configuration Index**

Part Number: 560-5051-03  
Document Revision: F  
27 August 2003

**Garmin AT, Inc.**  
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## Apollo MX20 System Configuration Index

Garmin AT, Inc.  
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27 August 2003  
Part #: 560-5051-03 Rev F

### Revision Log

Rev	Date	Description	EN	By
00 -	01/25/00	Initial release.	6442	JDB
00 A	04/18/00	Update to include MX 20 user supplement	6480	LK
00 B	8/4/00	Updated for V2.0 release; included MX20 V2.0 user supplement for use with 1.2 manual.	6584	JDB
00 C	11/28/00	Updated for V2.2 release; included MX20 V2.2 user supplement for use with 2.0 manual.	6729	JDB
00 D	08/23/01	Updated for V2.3 release: included MX20 V2.3 user supplement for use with 2.2 manual	6991	CWH
02 -	03/20/02	Updated for V3.0 release: included Goodrich configurations	7285	CWH
02 A	04/25/02	Updated for V3.1 release	7301	CWH
02 B	05/08/02	Update Incorrect Goodrich Manuals Revision -- to Revision A	7314	CWH
02 C	06/06/02	Updated for V3.2 release	7340	CWH
02 D	08/05/02	Updated for V3.3 release	7382	JDB
03 -	10/21/02	Updated for V4.0 release	7475	JDB
03 A	02/10/03	Updated for V4.1 release	7571	RDG
03 B	05/05/03	Add helicopter install supplement	7321	MAK
03 C	06/18/03	Updated for V5.0 release. Included all previously approved software and manual versions	7609	RDG MAK
03 D	25 July 2003	Correct error in 561-1077, 561-1078, and 561-1082 part numbers (Table 1). Add new table to clarify AFM for each software version (Table 8).	7707	MAK
03 E	7 Aug 2003	Updated for V5.1 release. Correct error in traffic function when connected to L3 (formerly Goodrich) Skywatch TRC497 or Skywatch HP TRC899.	7707	PKP
03 F	27 Aug 2003	Update company name from UPS Aviation Technologies to Garmin AT. Add reference to Rev C AFMs (Table 8) and Goodrich company name to "L3 (formerly Goodrich)" (1.1). Update AFM for v5.1 to Rev C (Table 8).	7718	MAK

<b>UPS Aviation Technologies</b> A United Parcel Service Company		Cage Code <b>0XCJ6</b>	P. O. Box 13549 Salem, Oregon USA
Title:	<b>MX20 System Configuration Index</b>		Number: <b>560-5051</b>
Prepared By:	Jeff Bethel	Date:	01/25/00
Approved By:	<i>Jeff Bethel</i> MX20 Project Manager (approval signature on file)	Date:	<i>1/25/00</i>
Approved By:	<i>Craig Hudson</i> Capstone Program Manager (approval signature on file)	Date:	<i>1/25/00</i>
Approved By:	<i>Tom Mosher</i> Senior Systems Engineer (approval signature on file)	Date:	<i>1/25/00</i>

# Apollo MX20 System Configuration Index

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27 August 2003  
Part #: 560-5051-03 Rev F

## 1. INTRODUCTION

### 1.1 PURPOSE

The purpose of this document is to list the valid Garmin AT Multifunction Display unit configurations as approved by the FAA.

### 1.2 SCOPE

This document is used to detail the valid configurations available and accessories, as well as the proper User and Installation guide revisions.

## 2. INSTALLATION DATA

Installation instructions are included in the installation manual. The installation manuals are specific to the configurations detailed in Table 1 and Table 2.

## 3. CONFIGURATION DATA

The valid configurations for use in all installations are listed in Table 1. The unit must be labeled with the mod letter(s), if any, as listed in the "Required Mods" column. (Note: The unit may also be marked with additional mods that are not required for valid configurations.)

The valid antennas for use for all installations are listed in Table 2.

The valid software configurations for use for all installations are listed in Table 3, Table 4, and Table 5.

The valid hardware configurations for use for all installations are listed in Table 6 and Table 7.

The valid AFM revisions for each MX20 MFD or i-linc MFD software version are listed in Table 8.

Note: The i-linc is currently produced by L3 (formerly Goodrich).

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**Table 1: Apollo MX20 Series Configurations**

Model #	Part #	Rev	Description	Required Mods	Comment
MX20	<b>430-0270-000</b>		<b>Apollo MX20 w/GPS</b>	<b>None</b>	<b>Requires a GPS antenna - see Table 2</b>
	560-1025-02	-	Apollo MX20 MFD Installation Manual		Supports V1.1 software
	560-1025-02	A	Apollo MX20 MFD Installation Manual		Supports V1.2 software
	560-1025-02	B	Apollo MX20 MFD Installation Manual		Supports V2.0 software
	560-1025-03	-	Apollo MX20 MFD Installation Manual		Supports V2.2 software
	560-1025-04	-	Apollo MX20 MFD Installation Manual		Supports V2.3 software
	560-1026-00	-	Apollo MX20 MFD User's Guide		560-1026-00 includes version 1.1 software enhancements.
	560-1026-00	A	Apollo MX20 MFD User's Guide		560-1026-00 includes version 1.2 software enhancements.
	560-1026-01	-	Apollo MX20 MFD User's Guide		560-1026-01 includes version 2.0 software enhancements.
	560-1026-02	-	Apollo MX20 MFD User's Guide		560-1026-02 includes version 2.2 software enhancements.
	560-1026-03	-	Apollo MX20 MFD User's Guide		560-1026-03 includes version 2.3 software enhancements.
	560-1033-00	-	MX20 User's Guide Supplement V1.2		Required when using MX Users Guide 560-1026-00 with V1.2
	560-1039-00	-	MX20 User's Guide Supplement V2.0		Required when using MX Users Guide 560-1026-00 with V2.0
	561-0271-00	-	MX20 User's Guide Supplement V2.2		Required when using MX Users Guide 560-1026-01 with V2.2
561-1070-00	-	MX20 User's Guide Supplement V2.3		Required when using MX Users Guide 560-1026-02 with V2.3	
MX20	<b>430-0270-001</b>		<b>Apollo MX20 w/GPS</b>	<b>None</b>	<b>Requires a GPS antenna - see Table 2</b>
	560-1025-04	-	Apollo MX20 MFD Installation Manual		Supports V2.3 software
	560-1025-05	-	Apollo MX20 MFD Installation Manual		Supports V3.1, 3.2, 3.3 software
	560-1025-06	-	Apollo MX20 MFD Installation Manual		Supports V4.1 software
	560-1025-07	-	Apollo MX20 MFD Installation Manual		Supports V5.0 and V5.1 software
	560-1054-00		Apollo MX20 Helicopter Installation Supplement		Only required for Helicopter installations
	560-1026-04	A	Apollo MX20 MFD User's Guide		560-1026-04 Rev A includes V3.1 software enhancements.
	560-1026-04	B	Apollo MX20 MFD User's Guide		560-1026-04 Rev B includes V3.2 & 3.3 s/w enhancements.
	560-1026-05	-	Apollo MX20 MFD User's Guide		560-1026-05 Rev- includes V4.0 software enhancements.
	560-1026-05	A	Apollo MX20 MFD User's Guide		560-1026-05 Rev A includes V4.1 software enhancements.
	560-1026-05	B	Apollo MX20 MFD User's Guide		560-1026-05 Rev B includes V5.0 and V5.1 software enhancements.
	561-1077-00		MX20 User's Guide Supplement V4.0		Required when using MX Users



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**Table 1: Apollo MX20 Series Configurations**

Model #	Part #	Rev	Description	Required Mods	Comment
	561-1077-01		MX20 User's Guide Supplement V4.1		Guide 560-1026-04 with V4.0 Required when using MX Users Guide 560-1026-05 Rev- with V4.1
	561-1078-01		MX20 Install Guide Supplement V4.1		Required when using MX Install Guide 560-1025-05 with V4.1
	561-1082-00		MX20 User's Guide Supplement V5.0		Required when using MX User's Guide 560-1026-05 Rev A with V5.0 or V5.1.
MX20	<b>430-0270-500</b>		<b>Apollo MX20</b>	<b>None</b>	
	560-1025-02	-	Apollo MX20 MFD Installation Manual		Supports V1.1 software
	560-1025-02	A	Apollo MX20 MFD Installation Manual		Supports V1.2 software
	560-1025-02	B	Apollo MX20 MFD Installation Manual		Supports V2.0 software
	560-1025-03	-	Apollo MX20 MFD Installation Manual		Supports V2.2 software
	560-1025-04	-	Apollo MX20 MFD Installation Manual		Supports V2.3 software
	560-1026-00	-	Apollo MX20 MFD User's Guide		560-1026-00 includes version 1.1 software enhancements.
	560-1026-00	A	Apollo MX20 MFD User's Guide		560-1026-00 includes version 1.2 software enhancements.
	560-1026-01	-	Apollo MX20 MFD User's Guide		560-1026-01 includes version 2.0 software enhancements.
	560-1026-02	-	Apollo MX20 MFD User's Guide		560-1026-02 includes version 2.2 software enhancements.
	560-1026-03	-	Apollo MX20 MFD User's Guide		560-1026-03 includes version 2.3 software enhancements.
	560-1033-00	-	MX20 User's Guide Supplement V1.2		Required when using MX Users Guide 560-1026-00 with V1.2
	560-1039-00	-	MX20 User's Guide Supplement V2.0		Required when using MX Users Guide 560-1026-00 with V2.0
	561-0271-00	-	MX20 User's Guide Supplement V2.2		Required when using MX Users Guide 560-1026-01 with V2.2
	561-1070-00	-	MX20 User's Guide Supplement V2.3		Required when using MX Users Guide 560-1026-02 with V2.3
MX20	<b>430-0270-501</b>		<b>Apollo MX20</b>	<b>None</b>	
	560-1025-04	-	Apollo MX20 MFD Installation Manual		Supports V2.3 software
	560-1025-05	-	Apollo MX20 MFD Installation Manual		Supports V3.1, 3.2, 3.3 software
	560-1025-06	-	Apollo MX20 MFD Installation Manual		Supports V4.1 software
	560-1025-07	-	Apollo MX20 MFD Installation Manual		Supports V5.0 and V5.1 software
	560-1054-00		Apollo MX20 Helicopter Installation Supplement		Only required for Helicopter installations
	560-1026-04	A	Apollo MX20 MFD User's Guide		560-1026-04 Rev A includes V3.1 software enhancements.
	560-1026-04	B	Apollo MX20 MFD User's Guide		560-1026-04 Rev B includes

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**Table 1: Apollo MX20 Series Configurations**

Model #	Part #	Rev	Description	Required Mods	Comment
					V3.2 & 3.3 s/w enhancements.
	560-1026-05	-	Apollo MX20 MFD User's Guide		560-1026-05 Rev- includes V4.0 software enhancements.
	560-1026-05	A	Apollo MX20 MFD User's Guide		560-1026-05 Rev A includes V4.1 software enhancements.
	560-1026-05	B	Apollo MX20 MFD User's Guide		560-1026-05 Rev B includes V5.0 and V5.1 software enhancements.
	561-1077-00		MX20 User's Guide Supplement V4.0		Required when using MX Users Guide 560-1026-04 with V4.0
	561-1077-01		MX20 User's Guide Supplement V4.1		Required when using MX Users Guide 560-1026-05 Rev- with V4.1
	561-1078-01		MX20 Install Guide Supplement V4.1		Required when using MX Install Guide 560-1025-05 with V4.1
	561-1082-00		MX20 User's Guide Supplement V5.0		Required when using MX User's Guide 560-1026-05 Rev A with V5.0 or V5.1.
<b>MX20 IO</b>	<b>430-0270-600</b>		<b>Apollo MX20 IO Traffic</b>	<b>None</b>	
	560-1025-05	-	Apollo MX20 MFD Installation Manual		Supports V3.1, 3.2, 3.3 software
	560-1025-06	-	Apollo MX20 MFD Installation Manual		Supports V4.1 software
	560-1025-07	-	Apollo MX20 MFD Installation Manual		Supports V5.0 and V5.1 software
	560-1054-00		Apollo MX20 Helicopter Installation Supplement		Only required for Helicopter installations
	560-1026-04	A	Apollo MX20 MFD User's Guide		560-1026-04 Rev A includes V3.1 software enhancements.
	560-1026-04	B	Apollo MX20 MFD User's Guide		560-1026-04 Rev B includes V3.2 & 3.3 s/w enhancements.
	560-1026-05	-	Apollo MX20 MFD User's Guide		560-1026-05 Rev- includes V4.0 software enhancements.
	560-1026-05	A	Apollo MX20 MFD User's Guide		560-1026-05 Rev A includes V4.1 software enhancements.
	560-1026-05	B	Apollo MX20 MFD User's Guide		560-1026-05 Rev B includes V5.0 and V5.1 software enhancements.
	561-1077-00		MX20 User's Guide Supplement V4.0		Required when using MX Users Guide 560-1026-04 with V4.0
	561-1077-01		MX20 User's Guide Supplement V4.1		Required when using MX Users Guide 560-1026-05 Rev- with V4.1
	561-1078-01		MX20 Install Guide Supplement V4.1		Required when using MX Install Guide 560-1025-05 with V4.1
	561-1082-00		MX20 User's Guide Supplement V5.0		Required when using MX User's Guide 560-1026-05 Rev A with

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Part #: 560-5051-03 Rev F

**Table 1: Apollo MX20 Series Configurations**

Model #	Part #	Rev	Description	Required Mods	Comment
					V5.0 or V5.1.
MX20 IO	<b>430-0270-700</b>		<b>Apollo MX20 IO Traffic/Radar/Taws</b>	<b>None</b>	
	560-1025-05	-	Apollo MX20 MFD Installation Manual		Supports V3.1, 3.2, 3.3 software
	560-1025-06	-	Apollo MX20 MFD Installation Manual		Supports V4.1 software
	560-1025-07	-	Apollo MX20 MFD Installation Manual		Supports V5.0 and V5.1 software
	560-1054-00		Apollo MX20 Helicopter Installation Supplement		Only required for Helicopter installations
	560-1026-04	A	Apollo MX20 MFD User's Guide		560-1026-04 Rev A includes V3.1 software enhancements.
	560-1026-04	B	Apollo MX20 MFD User's Guide		560-1026-04 Rev B includes V3.2 & 3.3 s/w enhancements.
	560-1026-05	-	Apollo MX20 MFD User's Guide		560-1026-05 Rev- includes V4.0 software enhancements.
	560-1026-05	A	Apollo MX20 MFD User's Guide		560-1026-05 Rev A includes V4.1 software enhancements.
	560-1026-05	B	Apollo MX20 MFD User's Guide		560-1026-05 Rev B includes V5.0 and V5.1 software enhancements.
	561-1077-00		MX20 User's Guide Supplement V4.0		Required when using MX Users Guide 560-1026-04 with V4.0
	561-1077-01		MX20 User's Guide Supplement V4.1		Required when using MX Users Guide 560-1026-05 Rev- with V4.1
	561-1078-01		MX20 Install Guide Supplement V4.1		Required when using MX Install Guide 560-1025-05 with V4.1
	561-1082-00		MX20 User's Guide Supplement V5.0		Required when using MX User's Guide 560-1026-05 Rev A with V5.0 or V5.1.
i-linc	<b>430-0270-800</b>		<b>Goodrich i-linc</b>	<b>None</b>	
	0040-19000-01	A	Goodrich i-linc MFD Installation Manual		Supports IO Capabilities (V3.1, V3.2, V3.3)
	0040-19000-01	B	Goodrich i-linc MFD Installation Manual		Supports V4.1 software
	0040-19000-01	C	Goodrich i-linc MFD Installation Manual		Supports V5.0 and V5.1 software
	0040-19001-01	A	Goodrich i-linc Pilot's Guide		Supports V3.1 software
	0040-19001-01	B	Goodrich i-linc Pilot's Guide		Supports V3.2 software
	0040-19001-01	C	Goodrich i-linc Pilot's Guide		Supports V3.3 software
	0040-19001-01	D	Goodrich i-linc Pilot's Guide		Supports V4.1 software
	0040-19001-01	E	Goodrich i-linc Pilot's Guide		Supports V5.0 and V5.1 software
i-linc	<b>430-0270-900</b>		<b>Goodrich i-linc Radar</b>	<b>None</b>	

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Part #: 560-5051-03 Rev F

**Table 1: Apollo MX20 Series Configurations**

Model #	Part #	Rev	Description	Required Mods	Comment
	0040-19000-01	A	Goodrich i-linc MFD Installation Manual		Supports IO Capabilities (V3.1, V3.2, V3.3)
	0040-19000-01	B	Goodrich i-linc MFD Installation Manual		Supports V4.1 software
	0040-19000-01	C	Goodrich i-linc MFD Installation Manual		Supports V5.0 and V5.1 software
	0040-19001-01	A	Goodrich i-linc Pilot's Guide		Supports V3.1 software
	0040-19001-01	B	Goodrich i-linc Pilot's Guide		Supports V3.2 software
	0040-19001-01	C	Goodrich i-linc Pilot's Guide		Supports V3.3 software
	0040-19001-01	D	Goodrich i-linc Pilot's Guide		Supports V4.1 software
	0040-19001-01	E	Goodrich i-linc Pilot's Guide		Supports V5.0 and V5.1 software

Note: The i-linc is currently produced by L3 (formerly Goodrich)

**Table 2: Antennas**

Model #	Part #	Description	Comment
GPS Antennas			
A-33	590-1104	A-33 GPS Oval ARINC style antenna (Aero Antenna P/N AT-575-9)	
	560-0949-01	A-33 Antenna Installation Manual	
A-34	590-1112	A-34 GPS antenna (Aero Antenna P/N AT-575-93)	same "teardrop" footprint as Apollo A-16 and A-23 loran antennas
	560-5047-00	A-34 Antenna Installation Manual	

**Table 3: Software Configuration Options**

Garmin AT Labeled Data Cards		
138-0448-011	Garmin AT World Wide Jepp/Obstacles/ Application/OS	32 Meg Bezel Mounted MX20 Data Card. S/W Version correlates to – suffix of 138#
138-0448-012	Garmin AT World Wide Jepp/Obstacles/ Application/OS	32 Meg Bezel Mounted MX20 Data Card. S/W Version correlates to – suffix of 138#
138-0448-020	Garmin AT World Wide Jepp/Obstacles/ Application/OS	32 Meg Bezel Mounted MX20 Data Card. S/W Version correlates to – suffix of 138#
138-0448-022	Garmin AT World Wide Jepp/Obstacles/ Application/OS	32 Meg Bezel Mounted MX20 Data Card. S/W Version correlates to – suffix of 138#
138-0448-023	Garmin AT World Wide Jepp/Obstacles/ Application/OS	32 Meg Bezel Mounted MX20 Data Card. S/W Version correlates to – suffix of 138#
138-0448-031	Garmin AT World Wide Jepp/Obstacles/ Application/OS	32 Meg Bezel Mounted MX20 Data Card. S/W Version correlates to – suffix of 138#
138-0448-032	Garmin AT World Wide Jepp/Obstacles/ Application/OS	32 Meg Bezel Mounted MX20 Data Card. S/W Version correlates to – suffix of 138#

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138-0448-033	Garmin AT World Wide Jepp/Obstacles/ Application/OS	32 Meg Bezel Mounted MX20 Data Card. S/W Version correlates to – suffix of 138#
138-0448-041	Garmin AT World Wide Jepp/Obstacles/ Application/OS	32 Meg Bezel Mounted MX20 Data Card. S/W Version correlates to – suffix of 138#
138-0448-050	Garmin AT World Wide Jepp/Obstacles/ Application/OS	32 Meg Bezel Mounted MX20 Data Card. S/W Version correlates to – suffix of 138#
138-0448-051	Garmin AT World Wide Jepp/Obstacles/ Application/OS	32 Meg Bezel Mounted MX20 Data Card. S/W Version correlates to – suffix of 138#
138-0456-011	Garmin AT World Wide Jepp/Obstacles/ Application/OS – ‘Chart View’ Card	192 Meg Bezel Mounted MX20 Data Card. S/W Version correlates to – suffix of 138#
138-0456-012	Garmin AT World Wide Jepp/Obstacles/ Application/OS – ‘Chart View’ Card	192 Meg Bezel Mounted MX20 Data Card. S/W Version correlates to – suffix of 138#
138-0456-020	Garmin AT World Wide Jepp/Obstacles/ Application/OS – ‘Chart View’ Card	192 Meg Bezel Mounted MX20 Data Card. S/W Version correlates to – suffix of 138#
138-0456-022	Garmin AT World Wide Jepp/Obstacles/ Application/OS – ‘Chart View’ Card	192 Meg Bezel Mounted MX20 Data Card. S/W Version correlates to – suffix of 138#
138-0456-023	Garmin AT World Wide Jepp/Obstacles/ Application/OS – ‘Chart View’ Card	192 Meg Bezel Mounted MX20 Data Card. S/W Version correlates to – suffix of 138#
138-0456-031	Garmin AT World Wide Jepp/Obstacles/ Application/OS – ‘Chart View’ Card	192 Meg Bezel Mounted MX20 Data Card. S/W Version correlates to – suffix of 138#
138-0456-032	Garmin AT World Wide Jepp/Obstacles/ Application/OS – ‘Chart View’ Card	192 Meg Bezel Mounted MX20 Data Card. S/W Version correlates to – suffix of 138#
138-0456-033	Garmin AT World Wide Jepp/Obstacles/ Application/OS – ‘Chart View’ Card	192 Meg Bezel Mounted MX20 Data Card. S/W Version correlates to – suffix of 138#
138-0456-041	Garmin AT World Wide Jepp/Obstacles/ Application/OS – ‘Chart View’ Card	192 Meg Bezel Mounted MX20 Data Card. S/W Version correlates to – suffix of 138#
138-0456-050	Garmin AT World Wide Jepp/Obstacles/ Application/OS – ‘Chart View’ Card	192 Meg Bezel Mounted MX20 Data Card. S/W Version correlates to – suffix of 138#
138-0456-051	Garmin AT World Wide Jepp/Obstacles/ Application/OS – ‘Chart View’ Card	192 Meg Bezel Mounted MX20 Data Card. S/W Version correlates to – suffix of 138#
<b>Goodrich Labeled Data Cards</b> (Note: The i-linc is currently produced by L3 (formerly Goodrich))		
138-0460-031	Goodrich i-linc World Wide Jepp/Obstacles/ Application/OS	32 Meg Bezel Mounted MX20 Data Card. S/W Version correlates to – suffix of 138#
138-0460-032	Goodrich i-linc World Wide Jepp/Obstacles/ Application/OS	32 Meg Bezel Mounted MX20 Data Card. S/W Version correlates to – suffix of 138#
138-0460-033	Goodrich i-linc World Wide Jepp/Obstacles/ Application/OS	32 Meg Bezel Mounted MX20 Data Card. S/W Version correlates to – suffix of 138#
138-0460-041	Goodrich i-linc World Wide Jepp/Obstacles/ Application/OS	32 Meg Bezel Mounted MX20 Data Card. S/W Version correlates to – suffix of 138#
138-0460-050	Goodrich i-linc World Wide Jepp/Obstacles/ Application/OS	32 Meg Bezel Mounted MX20 Data Card. S/W Version correlates to – suffix of 138#
138-0460-051	Goodrich i-linc World Wide Jepp/Obstacles/ Application/OS	32 Meg Bezel Mounted MX20 Data Card. S/W Version correlates to – suffix of 138#
138-0458-031	Goodrich i-linc World Wide Jepp/Obstacles/ Application/OS – ‘Chart View’ Card	192 Meg Bezel Mounted MX20 Data Card. S/W Version correlates to – suffix of 138#
138-0458-032	Goodrich i-linc World Wide Jepp/Obstacles/ Application/OS – ‘Chart View’ Card	192 Meg Bezel Mounted MX20 Data Card. S/W Version correlates to – suffix of 138#
138-0458-033	Goodrich i-linc World Wide	192 Meg Bezel Mounted MX20 Data Card.

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	Jepp/Obstacles/ Application/OS – 'Chart View' Card	S/W Version correlates to – suffix of 138#
138-0458-041	Goodrich i-linc World Wide Jepp/Obstacles/ Application/OS – 'Chart View' Card	192 Meg Bezel Mounted MX20 Data Card. S/W Version correlates to – suffix of 138#
138-0458-050	Goodrich i-linc World Wide Jepp/Obstacles/ Application/OS – 'Chart View' Card	192 Meg Bezel Mounted MX20 Data Card. S/W Version correlates to – suffix of 138#
138-0458-051	Goodrich i-linc World Wide Jepp/Obstacles/ Application/OS – 'Chart View' Card	192 Meg Bezel Mounted MX20 Data Card. S/W Version correlates to – suffix of 138#

**Table 4: Software Configuration Matrix (Continued)**

Software Load	P/N	V1.1	V1.2	V2.0	V2.2	V2.3	V3.1	V3.2	V3.3	V4.1
MX20 Standard Card	138-0448-xxx	011	012	020	022	023	031	032	033	041
MX20 Chart View Card	138-0456-xxx					023	031	032	033	041
Goodrich Standard Card	138-0460-xxx						031	032	033	041
Goodrich Chart View Card	138-0458-xxx						031	032	033	041

Note: The i-linc is currently produced by L3 (formerly Goodrich)

**Table 5: Software Configuration Matrix (Continued)**

Software Load	P/N	V5.0	V5.1							
MX20 Standard Card	138-0448-xxx	050	051							
MX20 Chart View Card	138-0456-xxx	050	051							
Goodrich Standard Card	138-0460-xxx	050	051							
Goodrich Chart View Card	138-0458-xxx	050	051							

Note: The i-linc is currently produced by L3 (formerly Goodrich)

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**Table 6: Hardware Configuration Matrix**

Hardware	P/N	V1.1	V1.2	V2.0	V2.2	V2.3	V3.1	V3.2	V3.3	V4.1
Garmin AT MX20 w/GPS	430-0270-	000	000	000	000	000	001	001	001	001
Garmin AT MX20	430-0270-	500	500	500	500	500	501	501	501	501
Garmin AT MX20 I/O Traffic	430-0270-								600	600
Garmin AT MX20 I/O Traffic/Radar	430-0270-								700	700
Goodrich i-linc	430-0270-							800	800	800
Goodrich i-linc Radar	430-0270-							900	900	900

Note: The i-linc is currently produced by L3 (formerly Goodrich)

**Table 7: Hardware Configuration Matrix (Continued)**

Hardware	P/N	V5.0	V5.1							
Garmin AT MX20 w/GPS	430-0270-	001	001							
Garmin AT MX20	430-0270-	501	501							
Garmin AT MX20 I/O Traffic	430-0270-	600	600							
Garmin AT MX20 I/O Traffic/Radar	430-0270-	700	700							
Goodrich i-linc	430-0270-	800	800							
Goodrich i-linc Radar	430-0270-	900	900							

Note: The i-linc is currently produced by L3 (formerly Goodrich)

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**Table 8: Airplane Flight Manual Revisions for MX or i-linc Software Versions**

Software Version	Part #	Description	Comment
5.0 & 5.1	560-1028-03 Rev C	Capstone System Airplane Flight Manual Supplement	
	560-1032-05 Rev C	MX20 MFD System Airplane Flight Manual Supplement	
	560-1045-02 Rev C	i-linc MFD System Airplane Flight Manual Supplement	
4.1	560-1028-03 Rev A	Capstone System Airplane Flight Manual Supplement	
	560-1032-05 Rev A	MX20 MFD System Airplane Flight Manual Supplement	
	560-1045-02 Rev A	i-linc MFD System Airplane Flight Manual Supplement	
3.3	560-1032-04 Rev -	MX20 MFD System Airplane Flight Manual Supplement	
	560-1045-01 Rev -	i-linc MFD System Airplane Flight Manual Supplement	
3.2	560-1032-03 Rev A	MX20 MFD System Airplane Flight Manual Supplement	
	560-1045-00 Rev A	i-linc MFD System Airplane Flight Manual Supplement	
3.1	560-1032-03 Rev -	MX20 MFD System Airplane Flight Manual Supplement	
	560-1045-00 Rev -	i-linc MFD System Airplane Flight Manual Supplement	
2.2	560-1028-02 Rev -	Capstone System Airplane Flight Manual Supplement	
	560-1032-02 Rev -	MX20 MFD System Airplane Flight Manual Supplement	
2.0	560-1028-02 Rev -	Capstone System Airplane Flight Manual Supplement	
	560-1032-01 Rev -	MX20 MFD System Airplane Flight Manual Supplement	
1.1	560-1028-01 Rev A	Capstone System Airplane Flight Manual Supplement	
	560-1032-00 Rev -	MX20 MFD System Airplane Flight Manual Supplement	

**Notes:** Note: The i-linc is currently produced by L3 (formerly Goodrich)



# **Apollo MX20**

## **Instructions for Continued Airworthiness**

Part Number: 560-1048-00

Document Revision: -

June 26, 2002

UPS Aviation Technologies

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## Apollo MX20 Instructions for Continued Airworthiness

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June 26, 2002  
Part #: 560-1048-00 Rev -

### Revision Log

Rev	Date	Description	EN	By	Auth	Chk
-	06/26/02	Initial release, MS Word 97 SR-1	7360	CWH		

<b>UPS Aviation Technologies</b> A United Parcel Service Company		P. O. Box 13549 Salem, Oregon USA
Title:	<b>Apollo MX20 Instructions for Continued Airworthiness</b>	Number: <b>560-1048</b>
Prepared By:	Craig Hudson	Date: <b>06/26/02</b>
Approved By:	Jeff Bethel, MX20 Project Manager	Date:
Approved By:	Craig Hudson, Capstone Program Manager	Date:
Approved By:	Chris Schulte, Senior Systems Engineer (DER)	Date:

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## 1 Introduction

This document is designed to assist the installing agency of the Apollo MX20 or Goodrich i-line Multi-function Display in preparing Instructions for Continued Airworthiness in response to 14 CFR 23.1529 and Part 23 Appendix G. They include information required by the operator to adequately maintain the Multi-function Display. This product has built-in-self test features and fault annunciation that notify the pilot in the event of system component failure. The product is designed to not require any regular maintenance except as indicated in this document.

### 1.1 *Permission to use Certain Documents*

Permission is granted to any corporation or person applying for approval of a UPSAT Apollo MX20 or Goodrich i-line installation to use and reference appropriate STC documents to accomplish the Instructions for Continued Airworthiness and show compliance with STC engineering data.

## 2 Instructions for Continued Airworthiness

### 2.1 Introduction

Content, Scope, Purpose and Arrangement:	This document identifies the Instruction for Continued Airworthiness for installation of the UPSAT Apollo MX20 or Goodrich i-line Multi-function Display.
Applicability:	Applies to aircraft altered by installation of the Multi-function Display.
Definition of Abbreviations:	N/A, None.
Precautions:	N/A, None
Units of measurement:	N/A, None
Referenced publications:	Apollo MX20 Master Drawing List 560-5050, Apollo MX20 Installation Manual 560-1025, Goodrich Installation Manual 0040-19000-01 and STC SA02154AK.
Distribution:	This document should be contained in the permanent aircraft record.

### 2.2 *Description of Alteration*

Installation of the Apollo MX20 or Goodrich i-link system may interface with other previously installed aircraft equipment as described in the appropriate Installation Manuals as detailed in section 2.1 of this document.

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### **2.3 Control, Operating Information**

See Apollo MX20 User's Guide 560-1026 or Goodrich Pilot's Guide 0040-19001-01.

### **2.4 Servicing Information**

None.

### **2.5 Maintenance Instructions**

#### **2.5.1 Equipment Calibration**

The MX20 design requires no adjustments or calibration.

#### **2.5.2 Cleaning the Front Panel**

The front bezel, keypad, and display can be cleaned with a soft cotton cloth dampened with clean water. DO NOT use any chemical-cleaning agents. Care should be taken to avoid scratching the surface of the display.

#### **2.5.3 Display Backlight**

The display backlight lamps are rated by the manufacturer as having a usable life of 10,000 hours. This life may be more or less than the rated time depending on the operating conditions of the MX20. Over time, the backlight lamps will dim and the display will not perform as well in direct sunlight conditions. The user must determine by observation when the display brightness is not suitable for its intended use. Contact UPS Aviation Technologies when the backlight lamps require service.

#### **2.5.4 Lithium Battery Replacement**

The internal keep-alive battery will require replacement after 5 years of service. The Li battery is only included in Apollo MX20 units with internal GPS (part number 430-0270-0xx). The effect of battery failure is a loss of the real time clock in the GPS receiver. The unit will still work with loss of battery power; however, GPS acquisition may take considerably longer time (20 minutes). There is no hazard associated with such a failure.

To replace the battery, the MX20 must be removed from the aircraft and serviced by an appropriately rated UPS AT service center. If the aircraft is to fly without the unit installed, placard the aircraft accordingly.

**Note: The battery is to be replaced ONLY with UPS AT part number 148-0052-00, or a UPS AT approved equivalent.**

### **CAUTION**

The battery may explode if mistreated. Risk of fire, explosion, and burns. Do not recharge, disassemble, heat above 100°C, or incinerate.

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### **2.5.5 Altitude Encoder**

In this VFR non-essential system, it is recommended that the altitude encoder be calibrated every 24 months. Refer to the manufacturer's installation and calibration manual.

### **2.6 Troubleshooting Information**

Error indications are displayed on the Multi-function Display. See Troubleshooting sections contained in the appropriate Installation Manual as detailed in section 2.1 of this document.

### **2.7 Removal and Replacement Information**

See instructions contained in the appropriate Installation Manual as detailed in section 2.1 of this document. If the unit is removed and reinstalled a simple self-test of the system will determine proper operation of the system.

If any work has been done on the aircraft that could affect the system wiring, antenna cable, or any interconnected equipment, a thorough checkout in accordance with the Installation manual should be conducted.

Antenna installation, removal and replacement should be in accordance with applicable provisions of AC43.13-1B and 43.13-2A.

### **2.8 Diagrams**

See the appropriate Installation Manual as detailed in section 2.1 for drawings applicable to this installation.

### **2.9 Application of protective treatments**

None, N/A.

### **2.10 Data relative to structural fasteners**

None, N/A.

### **2.11 Special Tools**

No special tools are required for system checkout. See appropriate Installation Manual as detailed in section 2.1 of this document for system checkout procedures.

### **2.12 Additional Instructions for Aircraft Operating under FAR 121/135**

1. Aircraft Electrical Loads: Perform aircraft electrical system load analysis. See appropriate Installation Manual as detailed in section 2.1 of this document.
2. Methods of balancing flight controls: N/A.
3. Special Repair Methods applicable to the airplane: See certificate holder's General Maintenance Manual for instructions.

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### ***2.13 Airworthiness Limitation Section***

See Aircraft Flight Manual Supplement for system limitations as detailed in the Master Drawing List as detailed in section 2.1.

### ***2.14 Implementation and Record Keeping***

Incorporate operational test and troubleshooting guides into Aircraft Maintenance manuals. Update the wiring diagram manual and equipment list as necessary. Add each component to the reliability program as necessary.

For operators under FAR 91, the owner/operator is responsible for ensuring the ICA is made part of the applicable section 91.409 inspection program for their aircraft.

For operators under FAR 121/135, this ICA must be incorporated into the operator's approved maintenance program through coordination and approval with the certificate holder's PMI/POI as applicable.