

~~RAM~~

AIRCRAFT CORPORATION

~~AIRPLANE SUPPLEMENTAL FLIGHT MANUAL~~

~~FOR~~

~~LANDPLANE OR FLOATPLANE~~

~~CESSNA MODELS 172I, 172K, 172L, AND 172M~~

~~WITH~~

~~LYCOMING O-320-D2J OR O-320-E2D (AS MODIFIED PER STC SE3692SW)~~

~~MODEL NUMBER~~ 172K

~~REGISTRATION NUMBER~~ N70916

~~SERIAL NUMBER~~ 17258791

This Supplemental Flight Manual is F.A.A. approved material and must be in the airplane for all operations when Lycoming O-320-D2J or O-320-E2D (as modified per STC SE3692SW) engine is installed in accordance with STC SA2375SW. The information contained herein supplements or supersedes the information in the form of placards, markings, and manual material. For limitations, procedures and performance information not contained in this Supplemental Flight Manual consult the basic airplane placards, markings and manual material.

F.A.A. APPROVED:

Larry Andriesen
for Larry Andriesen, Manager
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Southwest Region
FEDERAL AVIATION ADMINISTRATION
Southwest Region
Fort Worth, Texas 76101

AUG 27 1987

Date: _____

STC No. SA2375SW

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AIRCRAFT CORPORATION

CESSNA 172I, 172K, 172L, AND 172M

SUPPLEMENTAL FLIGHT MANUAL

I. GENERAL

- 1. ENGINE Lycoming O-320-D2J Or Lycoming O-320-E2D
(As Modified Per STC SE3692SW)
- 2. FUEL 100/130 Minimum Octane
- 3. PROPELLER McCauley 1C160/CTM7557
Or
McCauley 1C160/DTM7557
- PROPELLER (Seaplane Only) McCauley 1A175/ETM8042
Or
McCauley 1A175/ATM8042

II. LIMITATIONS

- 1. ENGINE LIMITS Maximum Continuous: 150 HP - 2650 RPM
Take-Off (5 Minutes): 160 HP - 2700 RPM
- 2. PROPELLER LIMITS Static RPM at maximum throttle setting:
Not over 2420, not under 2300
Diameter: Maximum 75.0 inches
Minimum 74.0 inches
- 3. PROPELLER LIMITS (Seaplane Only) Static RPM at maximum throttle setting:
Not over 2570, not under 2470
Diameter: Maximum 80.0 inches
Minimum 78.5 inches
- 4. ENGINE INSTRUMENT MARKINGS Tachometer:
Green Arc 2200 - 2650 RPM
Yellow Arc 2650 - 2700 RPM
Redline 2700 RPM

Oil Pressure:
Redline 25 PSI
Green Arc 60-90 PSI
Redline 100 PSI

Cylinder Head Temperature (If Installed):
Green Arc 225 - 425 F.
Redline 500 F.

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CESSNA 172I, 172K, 172L, AND 172M

SUPPLEMENTAL FLIGHT MANUAL

III. PROCEDURES

No Change

IV. PERFORMANCE

The performance of this airplane equipped with a Lycoming O-320-D2J or O-320-E2D (as modified per STC SE3692SW) engine is equal to or better than the original F. A. A. approved performance

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Department of Transportation - Federal Aviation Administration

Supplemental Type Certificate

Number SA2375SW-D

This Certificate issued to RAM Aircraft, Limited Partnership
7505 Karl May Drive
Waco, TX 76708

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 3 of the Civil Air Regulations.

Original Product Type Certificate Number : 3A12

Make: Cessna

Model: 172D; 172E; 172F; 172G; 172H; 172I; 172K;
172L; 172M; 172N

Description of Type Design Change.

Installation of Lycoming O-320-D2G, O-320-D2J, or O-320-E2D (as modified by STC SE3692SW-D) engine rated for 160 h.p. take-off and 150 h.p. METO for models 172I, 172K, 172L, and 172M according to RAM Dwg. R17201 Rev. F dated 12/9/86; or installation of Lycoming O-320-D2G, O-320-D2J, or O-320-E2D (as modified by STC SE3692SW-D) engine rated for 160 h.p. take-off and 145 h.p. METO for models 172D, 172E, 172F, 172G, and 172H according to RAM Dwg. 17202, Rev. K dated 12/9/86; or installation of Lycoming O-320-D2G, O-320-D2J or O-320-E2D (as modified by STC SE3692SW-D) engine (160 h.p., 2700 r.p.m) in model 172N according to RAM Dwg. 17203, Rev. L dated 12/9/86; or later FAA approved revision.

Limitations and Conditions:

(See continuation sheet 3 of 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: September 07, 1976

Date reissued: October 08, 2001; September 20, 2002;
May 12, 2008, August 25, 2008

Date of issuance: November 01, 1976

Date amended: June 10, 1977; March 30, 1978;
November 9, 1978; January 26, 1979; February 3, 1981;
September 28, 1981; November 5, 1981; August 28,
1987 Revision 8



By direction of the Administrator

Terry L. Bowden
(Signature)

Terry L. Bowden
DAS administrator DAS-700100-SW
RAM Aircraft LP Waco, Texas

(Title)

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

Supplemental Type Certificate

(Continuation Sheet)

Number SA2375SW-D

Date of Issuance: November 01, 1976

Amended Date: August 28, 1987

Reissuance Date: August 25, 2008

Limitations and Conditions (Continued):

1. The following appropriate FAA Approved Manual is required:

Cessna Models	Airport Flight Manual for Landplane with Lycoming O-320-D2G engine	Airplane Supplemental Flight Manual for Landplane of Floatplane with Lycoming O-320-D2G engine	Airplane Supplemental Flight Manual for Landplane or Floatplane with Lycoming O-320-D2J engine or O-320-E2D (as modified by STC SE3692SW-D)
172I, 172K 172L, 172M	November 1, 1976 or June 10, 1977 or March 30, 1978	January 26, 1979 or May 1, 1981	November 5, 1981 or August 27, 1987
172D, 172E 172F, 172G, 172H	June 9, 1977 or March 29, 1978	January 25, 1979 or April 30, 1981	November 5, 1981 or August 27, 1987
172N	Not required	Not required	Not required

2. For additional limitations see the applicable flight manual listed above.

3. Compatibility of this design change with previously approved modifications must be determined by the installer. 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-

CHANGES:

1. Remove the existing Lycoming O-320-E2D engine and McCauley propeller as instructed in the Cessna 172I-M Service Manual.
2. Aircraft with McCauley propeller Part No. 1C172/MTM 7653 will require the purchase of a new propeller as the 1C172/MTM 7653 propeller is not fully compatible with the 160 H.P. engine. The new replacement propeller Part No. is 1C160/DTM 7557. The new propeller will come complete with the spacer and mounting bolts.
3. In all cases, retain the existing baffles, hoses, alternator, vacuum pump, spinner and spinner bulkhead for reinstallation with the new engine.
4. Aircraft with McCauley Propeller Part No. 1C160/CTM 7553 or 1C160/DTM 7553 will require the propeller be sent to an F.A.A. approved Propeller shop and be repitched to 1C160/CTM 7557 or 1C160/DTM 7557. Any repair or balancing at the same time is on an as required basis.
5. Inspection and replacement of dirty air filter, worn or damaged shock mounts, hoses, etc. at this time is recommended, but not part of the basic engine exchange.
6. Remove any optional engine items from the removed O-320-E2D for reinstallation on the new engine. For example, an existing primer system and/or oil filter should be installed on the new engine if existing on the removed engine.
7. Install the new O-320-D2G or O-320-D2J or O-320-E2D (as modified per STC SE3692SW) in the aircraft including all baffles, shock mounts, vacuum pump, exhaust stacks, cowling, etc. as instructed in the Cessna Model 172I-M Service Manual.
8. Install exchange remarked tachometer marked as specified on Sheet Two of the STC Airplane Flight Manual.
9. Perform Engine Ground and Flight Functional Checks including Post Flight Inspection for oil and fuel leaks, etc. per the Cessna Model 172I-M Service Manual.
10. Revised placards adjacent to Fuel Filler caps to specify 100 Octane, (lettering to be one-half inch minimum) or install RAM supplied decal adjacent to Fuel Filler Cap. (Decal p/n 17202-147)
11. Float equipped aircraft are required to incorporate Propeller p/n 1A175/ETM 8042 or 1A175/ATM 8042 in lieu of 1C160/DTM 7557, which is to be installed per the Cessna Parts & Service Manuals for the appropriate 172I-M model aircraft.

RAM Aircraft Corporation

P.O. Box 5219 Waco, Texas 76708 Madison Cooper Airport

Drawing Title: RAM Series 172 Engine Installation

Engineer: Phillip T. Crawford

Drawing No. R17201-#

Date: December 10, 1986

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11. Also, on float equipped aircraft it is required that the lower cowling air exit must be modified to be the same as the 1967 172H model configuration. This is to be accomplished by installing Cessna Lip-Cowl p/n 0552010 -68. Cowling skin and stiffeners trimmed to fit p/n 0552010-68. Install with two rows AN470-AD4 rivets 1.5 maximum spacing. Fastener minimum edge distance - 2.0 diameter. Finished head on exterior of cowl. Break all sharp edges. Finish: Zinc chromate primer and color coat to match existing cowling.

12. Oil pressure reference pick-up at front of engine. Remove plug at right front of engine, install 17202-78 fitting, 17202-108 line (same as Cessna 0500118-164), AN832-3 bulkhead fitting and AN924-3 nut. Secure line as shown on page 4. Use existing oil pressure reference hose from baffle to firewall.

13. Optional CHT gage and associated hardware may be installed. Approved gage and hardware: AID CHT Gage p/n 29-2006, AN4076-1 fitting, 8T752C Bayonet Thermocouple, TE102-5 lead.

14. If aircraft equipped with 8 hole aft spinner bulkhead (0550236-3), match drill with 1C160/DTM 7557 propeller for 10 hole configuration (0550321-10).

15. Refer to RAM drawing 1005 for RAM p/n - Vendor p/n cross reference.

16. On D2J engines, modify front forward left-hand baffle, if required. See Fig. 2 on sheet 8.

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Engineer: Phillip T. Crawford

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PARTS LIST

QTY.	P/N	DESCRIPTION	NOTE
1	0-320-D2G or 0-320-D2J or 0-320-E2D (Per STC SE3692SW)	Engine	Lycoming
1	60297-16	Engine Operator's Manual	Lycoming
2	17202-147	Decal-100 Octane	RAM
1	SSP1872	Engine Logbook	Lycoming
1	66224	Gasket, Carburetor	Lycoming
1	A1164A	Shorting Bar	Cessna
1	AN924-3	Nut-Oil Pressure	
1	AN832-3	Bulkhead Union Oil Pressure	
1	17202-78	Fitting, Oil Pressure	
1	17202-84	Bracket, Oil Pressure	
1	MS20074-04-04	Bolt	
1	AN936A-416	Washer	
1	17202-108	Line, Oil Pressure	
1	AN526-10R8	Screw	
1	AN363-1032	Nut	

OPTIONAL ITEMS

QTY.	P/N	DESCRIPTION	NOTE
1	17202-159	Tachometer	RAM
1	C294510-0301	Air Filter	Cessna
1	1C160/DTM7557 or 1A175/ETM 8042	Propeller	Cessna
1	1A175/ETM 8042 or 1A175/ATM 8042	Propeller	Cessna
1	1A175/ATM 8042	Propeller	Cessna
4	J9613-49	Shock Mount	Cessna
1	172Q2-145	Oil Drain Fitting	Cessna
2	172-1W	Decal-RAM 172(W)	RAM
2	172-2B	Decal-RAM 172(B)	RAM

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OPTIONAL ITEMS

OIL FILTER ADAPTER INSTALLATION

QTY. -----	P/N -----	DESCRIPTION -----	NOTE -----
1	LW77852	Oil Filter Adapter	Lycoming
1	53E19600	Oil Filter Control Valve	Lycoming
1	CH48110	Oil Filter	
1	LW12795	Gasket, Oil Filter	Lycoming
1	STD-1411	Nut	Lycoming
1	25C-10-P03	Stud	Lycoming
2	STD-1856	Screw	Lycoming
4	STD-8	Washers	Lycoming

PRIMER SYSTEM

1	17202-260	Line	RAM
2	AN824-2D	Tee	
1	17202-262	Line	RAM
1	17202-263	Line	RAM
3	S1949-1	Tubing	
3	AN4022-1	Jet	
1	17202-266	Line	RAM
3	71910	Clamp	Cessna
3	AN515-6-10	Screw	
3	MS21045L06	Nut	
1	17202-270	Line	RAM
5	S2300-1	Bracket	Cessna
5	S1485D2	Clamp	Cessna
5	S1021Z8-8C	Screw	Cessna
5	AN363-832	Nut	
1	MS21919-DG3	Clamp	

CHT GAGE AND ASSEMBLY

1	29-2006	CHT Gage	
1	AN4076-1	Fitting	
1	8T752C	Bayonet-Thermocouple	
1	TE102-5	Lead	

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