

SERVICE BULLETIN
GARRETT ENGINE DIVISION



REVISION TRANSMITTAL SHEET

This sheet transmits Revision 5 to Service Bulletin No. TPE331-72-0120 titled ENGINE - CONVERSION - Convert Engine Model TPE331-6-251M to Engine Model TPE331-6-252M or Engine Model TPE331-6-252M to Engine Model TPE331-6-251M.

This is a COMPLETE revision. This bulletin has been reprinted in its entirety. Please remove and discard all pages of prior issues and replace with pages of this revision.

Reason for Revision:

NOTE: This revision MAY REQUIRE further action if in compliance with a previous issue. Refer to Section 2., Accomplishment Instructions to determine if further action is required.

This service bulletin is revised to expand the caution note in the accomplishment instructions.

Section 1

Title page is revised to reflect latest revision date.

Section 2

Caution preceding step 2.B.(2) is expanded to detail electrical connection requirements.

List of Effective Pages:

<u>Page No.</u>	<u>Date</u>	<u>Page No.</u>	<u>Date</u>
1	Dec 13/91	6	Nov 14/79
2	Apr 27/90	7	Jan 7/81
3	Dec 13/91	8	Nov 14/79
4	Dec 13/91	9	Nov 14/79
5	Nov 14/79	10	Apr 27/90

Previous Revisions:

Revision 1 dated Nov 14/79
Revision 2 dated July 28/80
Revision 3 dated Jan 7/81
Revision 4 dated Apr 27/90

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ENGINE - CONVERSION - Convert Engine Model TPE331-6-251M to Engine Model TPE331-6-252M or Engine Model TPE331-6-252M to Engine Model TPE331-6-251M

1. Planning Information

A. Effectivity

This service bulletin is applicable to the following turboprop aircraft engines.

<u>Part No.</u>	<u>Model No.</u>	<u>Serial No.</u>	<u>Aircraft Application</u>
896160-1/ -3/-5	TPE331-6-251M	All	Mitsubishi MU-2J/ -2K/-2L/-2M
3101300-2	TPE331-6-252M	All	Mitsubishi MU-2J/ -2K/-2L/-2M

B. Reason

The conversion of above Engine Models, as outlined in this service bulletin is furnished for the convenience of the owner/operators.

C. Description

This service bulletin provides instructions for conversion of Engine Model TPE331-6-251M to Engine Model TPE331-6-252M or Engine Model TPE331-6-252M to Engine Model TPE331-6-251M.

D. Compliance

Optional, based on operator's experience.

NOTE: Supplemental Type Certificate SA2202SW must be complied with concurrently with Service Bulletin TPE331-72-0120.

E. Approval

The engine model conversion authorized by this service bulletin complies with applicable Federal Aviation Regulations and is FAA approved.

F. Manhour Requirements

An estimated 60 man-hours are required for the engine conversion.

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1. G. Material - Price and Availability

Information regarding price and availability of parts may be obtained from a Garrett authorized service facility or the aircraft manufacturer's appointed service facility. (Refer to Service Information Letter (SIL) P331-27 for a complete listing of these facilities.)

H. Tooling - Price and Availability

No special tooling is required except that already listed in publications referenced in paragraph J.

I. Weight and Balance

No change.

J. Publications References

The sources of information used in the preparation of this service bulletin include Garrett engineering documentation and the following.

	<u>Model No.</u>	<u>Maintenance Manual</u>	<u>Engine Illustrated Parts Catalog</u>
R	TPE331-6-251M	72-01-32	72-01-30
R	TPE331-6-252M	72-01-32	72-01-30

R K. Service Bulletin References

R None.

R L. Other Publications Affected

R Same as those listed under paragraph J, Publications References.

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2. Accomplishment Instructions

- A. Refer to Engine Manuals listed in Section 1 for applicable disassembly, cleaning, inspection, reassembly and testing instructions.

CAUTION: SUPPLEMENTAL TYPE CERTIFICATE SA2202SW MUST BE COM-
PLIED WITH CONCURRENTLY WITH SERVICE BULLETIN
TPE331-72-0120.

NOTE: Retain all removed parts for possible reconversion.

- B. Convert engine as follows.

- (1) Material required for conversion from one model number to another are listed in Section 3 Material. Items required for Engine Model TPE331-6-251M are coded BA, BB, BC in Engine Maintenance Manual and Engine Illustrated Parts Catalog, while items required for Engine Model TPE331-6-252M are coded GA. Removal and installation of applicable coded items must be accomplished in accordance with Engine Maintenance Manual.

CAUTION: MAKE ELECTRICAL CONNECTIONS IN ACCORDANCE WITH THE AIRCRAFT MAINTENANCE MANUAL AND/OR APPROPRIATE AIRCRAFT DOCUMENTS TO PREVENT ENGINE MALFUNCTION AND/OR DAMAGE TO COMPONENTS. FOR THE -251M CONFIGURATION, THE TORQUE/TEMPERATURE LIMITER REQUIRES AN INPUT SIGNAL FROM THE PROP GOVERNOR MONOPOLE. FOR THE -252M CONFIGURATION, THIS INPUT MUST BE DELETED FOR PROPER ENGINE OPERATION.

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- (2) Propeller Governor Assembly is not replaced. However, the attaching lever, arm and associated hardware shall be changed when converting from one engine model to another. After conversion the propeller governor assembly shall be reidentified by adding letter C following serial number on identification plate and obliterating the existing part number and adding new part number as follows.

For converted Engine Model TPE331-6-251M, reidentify Propeller Governor Assembly as Part No. 895394-4.

For converted Engine Model TPE331-6-252M, reidentify Propeller Governor Assembly as Part No. 893651-8.

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2. C. Upon completion of this conversion accomplish the following.
- (1) Obliterate old part number, model number, series number, and modification record from nameplate.
 - (2) Stamp new part number and model number (as applicable) adjacent to old numbers using a metal stamp.

<u>Old Part No.</u>	<u>Old Model No.</u>	<u>New Part No.</u>	<u>New Model No.</u>
896160-1/ -3/-5	TPE331-6-251M	3101300-2	TPE331-6-252M
3101300-2	TPE331-6-252M	896160-1/ -3/-5	TPE331-6-251M

- (3) Stamp letter "C" suffix following serial number to denote conversion.
- D. Check and ensure proper engine operation in accordance with Aircraft Flight Manual and/or appropriate aircraft documents.
- E. Make entry in engine log book noting date of compliance, engine operating time (and serial number of installed component if applicable) and compliance with this service bulletin (and service bulletin revision number if applicable).
- F. Complete Record of Conversion form and return to pre-printed address. Contact local Garrett authorized service center to obtain forms, if required.
- G. Validate engine identification plate for previously converted engines as follows.
- (1) Inspect engine identification plate for proper model and part number with letter "C" following the serial number on all engines that have been converted. If the model, part, and serial number are correct no further action is required.
 - (2) If the model and/or the part number are not correct contact Customer Support Department of Garrett General Aviation Services Division, P.O. Box 29003, Phoenix, AZ 85038-9003.



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R 3. Material Information

R The following is a listing of parts peculiar to each engine model. Parts
R common to both engine models are not listed.

R Parts Required R for Engine	Unit Net	Parts Required for Engine
R Model TPE331-6-252M	Quantity	Model TPE331-6-251M

R Anti-Ice Installation

R 3101887-1	1	*	Tube Assy	
R 211-501-9111	2	*	Clamp	
R 525-617-9003	1	*	Nut	
R AN815-3J	1	*	Union	
R MS9489-05	1	*	Bolt	
R MS9490-08	1	*	Bolt	MS21279-14
R MS9593-036	1	*	Angle Bracket	
R MS21279-11	1	*	Bolt	
R			Tube Cap	S8495-3C

R Turbine Oil Line Installation

R 3101426-1	1	*	Tube Assy	896616-1
R 211-501-9111	1	*	Clamp	
R 211-501-9112	1	*	Clamp	
R MS21043-3	1	*	Nut	
R MS9489-05	1	*	Bolt	

R Fire Shield Installation

R 896302-5	1	*	Shield Half	896302-3
R 3101417-1	1	*	Shield Cover	
R MS21279-04	2	*	Bolt	

R Fuel Shutoff Valve Installation

R 3101407-1	1	*	Tube Assy	896947-1
R 3101406-1	1	*	Tube Assy	
R S9412-554	1	*	Packing	
R AN815-4J	1	*	Union	
R AN824-4J	1	*	Tee	
R 893007-7	1	*	Fitting	893007-9
R	1	*	Tube Cap	S8495-4C

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R Parts Required R for Engine R Model TPE331-6-252M	Quantity	Unit Net Price	Key Word	Parts Required for Engine Model TPE331-6-251M
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R Fuel System Lines Installation

R 3101429-1	1	*	Tube Assy	896946-1
R 3101416-1	1	*	Tube Assy	896945-1
R 3101766-1	1	*	Tube Assy	896619-1
R 894615-1	1	*	Tube Assy	896657-1
R 3101414-1	1	*	Tube Assy	896522-1
R 3101415-1	1	*	Tube Assy	896502-1
R 893007-8	1	*	Fitting	893007-15
R 897071-1	1	*	Elbow	866956-2
R 897073-1	1	*	Tee	
R S8157N281-312	1	*	Spacer	
R S8495-4C	1	*	Cap	
R S8145-15A	1	*	Warning Tag	
R S8145-53A	1	*	Warning Tag	
R 211-501-9003	8	*	Clamp	
R 211-501-9004	1	*	Clamp	
R 525-595-9005	6	*	Nut	
R 211-501-9113	1	*	Clamp	
R AN815-3J	2	*	Union	
R AN919-2J	3	*	Reducer	
R AN901-4C	1	*	Gasket	
R AN924-4J	2	*	Nut	
R AN960C716	2	*	Washer	
R AN6289J3	1	*	Nut	
R MS9556-05	6	*	Bolt	
R MS9556-10	1	*	Bolt	
R MS9592-048	1	*	Bracket	
R MS28777-3	1	*	Ring	
R MS21279-14	1	*	Bolt	
R MS9593-096	1	*	Bracket	MS9102-10
R		*	Filter	337-541-9104
R 394312-4-1	1	*	Fuel Pressure	394312-2-1
R		*	Regulator	
R	3	*	Nut	MS21043-3
R	1	*	Union	AN815-3C
R	1	*	Union	AN815-4C
R	1	*	Reducer	894085-1
R	6	*	Clamp	211-501-9003
R	2	*	Clamp	211-501-9004
R	2	*	Nut	AN6289J3
R	4	*	Bolt	MS9489-05

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Parts Required for Engine		Unit		Parts Required for Engine
Model TPE331-6-252M	Quantity	Net	Key Word	Model TPE331-6-251M

Torque and Temperature Limiter Installation

3101437-1	1	*	Elbow	
3101409-1	1	*	Tube Assy	896724-1
3101410-1	1	*	Tube Assy	896725-1
S9412-552	2	*	Packing	S8316AA5
3101436-1	1	*	Universal Bolt	
3101432-1	1	*	Reducer Elbow	AN919-1S
AN6289J2	1	*	Nut	AN6289J5
MS21279-08	1	*	Bolt	
MS28777-2	1	*	Ring	MS28777-4
S9412-008	1	*	Packing	
211-501-9004	2	*	Clamp	
525-613-9005	2	*	Nut	
MS9556-05	1	*	Bolt	
MS9592-050	1	*	Bracket	
211-501-9003	1	*	Clamp	
S8157N52-250	1	*	Washer	
		*	Tee	893028-1
		*	Tube Assy	896726-1
		*	Gasket	S8316AA4
		*	Ring	MS28777-5
		*	Nut	AN6289J4
		*	Gasket	MS9135-01
		*	Tee	AN824-4S
		*	Fitting	893007-11

Fuel Control and Fuel Pump Installation

R 893561-11 or -12	1	*	Fuel Control	895410-15
869169-1	1	*	Inlet Sensor	893578-8
897400-1	1	*	Fuel Pump Assy	895413-1
869381-1	1	*	Regulator Valve	
			Assy	
867915-1	1	*	Support	3101412-1
868767-1	1	*	Support	
893307-1	1	*	Insulator	895266-2
S8157N19-005	AR	*	Washer	
S8157N19-025	AR	*	Washer	
S8157N19-030	AR	*	Washer	
S8157N19-050	AR	*	Washer	



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R Parts Required R for Engine R Model TPE331-6-252M	Quantity	Unit Net Price	Key Word	Parts Required for Engine Model TPE331-6-251M
R MS9489-06	2	*	Bolt	
R MS21279-18	3	*	Bolt	
R MS21279-08	3	*	Bolt	MS21279-11
R MS21288-08	1	*	Bolt	MS21279-11
R MS21280-11	1	*	Bolt	MS21289-09
R	1	*	Washer	AN960C416
R	1	*	Bolt	MS21279-14
R	3	*	Washer	AN960C10
R 868405-1	1	*	Transfer Tube	
R 868405-2	1	*	Transfer Tube	
R 869383-1	1	*	Plug	
R 869383-2	1	*	Plug	
R S8154-243C005	AR	*	Shim	
R S8154-243C010	AR	*	Shim	
R S8154-243C020	AR	*	Shim	
R S9412-010	3	*	Packing	
R S9412-012	3	*	Packing	
R S9412-013	1	*	Packing	
R S9412-021	1	*	Packing	
R S9412-028	1	*	Packing	
R MS21279-16	3	*	Bolt	MS21279-14
R NAS1291CRM	3	*	Nut	
R Linkage Installation				
R 866545-3	1	*	Screw Assy	
R 866549-1	1	*	Nut	
R	1	*	Adapter Arm	895405-1
R 868513-5	1	*	Shaft Assy	
R 866550-1	2	*	Spacer	
R 868598-1	1	*	Lever Assy	869756-1
R 868599-1	1	*	Lever Assy	
R 869103-1	1	*	Arm	
R 869108-1	1	*	Spring	
R 893086-1	1	*	Shaft Assy	
R 893019-1	1	*	Arm Assy	
R 893089-1	1	*	Lever	
R		*	Rod	895427-31
R 869748-1	1	*	Lever Assy	869809-1
R 137-515-9003	1	*	Rod End	895189-2
R	1	*	Arm	869398-12
R 895427-24 or	1	*	Rod	895427-46
R 895427-25				
R 868518-1	1	*	Serrated Plate	
R 868519-1	1	*	Arm	893570-1

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R Parts Required R for Engine		Unit	Parts Required for Engine	
R Model TPE331-6-252M	Quantity	Net Price	Key Word	Model TPE331-6-251M
R 869106-1	1	*	Lever Assy	
R 893578-7 or	AR	*	Stud	
R -14 or -16				
R 137-515-9003	4	*	Rod End	
R 893083-1	1	*	Arm Assy	
R 893084-1	1	*	Arm Assy	
R S8157N79-020	3	*	Washer	
R S8157N79-050	2	*	Washer	
R S8157N153-020	AR	*	Washer	
R S8157N132-005	AR	*	Washer	
R S8157N132-032	AR	*	Washer	
R S8157N132-063	AR	*	Washer	
R S8157N49-005	AR	*	Washer	
R S8157N49-010	AR	*	Washer	
R Propeller Governor Attaching Hardware				
R 869125-1	1	*	Arm Assy	
R		*	Arm	895392-1
R		*	Lever	895404-1
R AN960C8L	1	*	Washer	
R		*	Bolt	NAS1096-2-16
R		*	Nut	AN320C5
R		*	Washer	S8157N13-090
R		*	Cotter Pin	MS24665-151
R Inlet Temperature Sensor Installation				
R	1	*	Tube	310276-1
R	1	*	Tube	896547-1
R	1	*	Tee	897073-1
R	1	*	Cap	S8495-4C
R	1	*	Gasket	AN901-4C
R	2	*	Nut	AN924-4C
R	1	*	Elbow	897071-1
R	2	*	Washer	AN960C716
R	1	*	Filter	897072-1
R	1	*	Tube	3101277-1
R	3	*	Nut	MS21043-3
R	3	*	Bolt	MS9489-05
R	1	*	Clamp	211-501-9116
R	1	*	Bracket	MS9593-096

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Parts Required for Engine Model TPE331-6-252M	Quantity	Unit New Price	Key Word	Parts Required for Engine Model TPE331-6-251M
	2	*	Jumper	MS25083-2BB6
	1	*	Bolt	MS21279-07
	1	*	Union	3101372-1
	2	*	Packing	S9412-554

Fuel Control Heat Installation

1	*	Tube Assy	3101274-1
1	*	Tube Assy	3101275-1
1	*	Bolt	897029-1
2	*	Washer	S8157AE49-020
1	*	Elbow	897028-1
1	*	Nut	AN924-4J
1	*	Washer	AN960C716
1	*	Elbow	AN833-4J
1	*	Elbow	897046-2
1	*	Shim	3101285-1

*Refer to Section 1, Paragraph G.