SERVICE BULLETIN

QUALITY INFORMATION ANALYSIS
OVERSEAS SERVICE DEPT. MITSUBISHI MOTORS CORPORATION

SERVICE BULLETIN	**No.:** MSB-99E22-502	
	Date: 1999-12-15	**<Model>** SPACE STAR (DG0A) **<M/Y>** 99-10

Subject: CORRECTION OF SPECIAL TOOL NOS. FOR F5MR3 TRANSMISSION

Group: MANUAL TRANSAXLE **Draft No.:** 99MT520815

CORRECTION — **INTERNATIONAL CAR ADMINISTRATION OFFICE**

T.NITTA - PROJECT LEADER
AFTER SALES SERVICE & CS PROMOTION

1. Description:

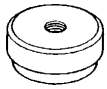
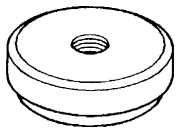
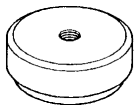
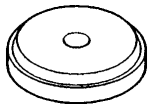
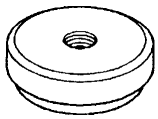
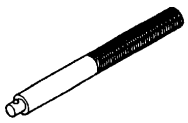
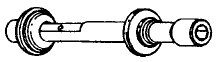
This Service Bulletin informs you of correction of the numbers of the special tools used for installation of the input and output shaft bearing cups.

2. Applicable Manuals:

Manual	Pub. No.	Language	Page(s)
Front Wheel Drive Manual Transmission (E-W) Supplement	PWEE9508-B	(English)	22A-2-1, 22A-2-2, 22A-2-3, 22A-2-4, 22A-4-5, 22A-6-6
	PWES9509-B	(Spanish)	
	PWEF9510-B	(French)	
	PWEG9511-B	(German)	
	PWED9512-B	(Dutch)	
	PWEW9513-B	(Swedish)	
	PWEI9508	(Italian)	

3. Details:

2.SPECIAL TOOLS

Tool	Number	Name	Use
	MB990926	Installer	Fitting shift rail assembly oil seal
	MB990927	Installer	Removing input shaft front bearing <F5MR1, F5MR2>
	MB990930	Installer	Removing small differential bearing <F5MR1, F5MR2>
	MB990931	Installer	Fitting output shaft bearing
	MB990932	Installer	Fitting input and output shaft rear bearings
	MB990933	Installer	Fitting input and output shaft rear bearing cups <F5MR3>
	MB990934	Installer	Fitting small differential bearing <F5MR1, F5MR2>
	MB990938	Handle	Various installers
	MB996000	Spindle	Fitting large and small bearing cups <F5MR3>
	MB990929	Installer	Fitting input shaft bearing cup <F5MR3>

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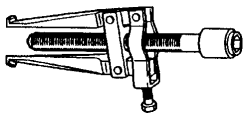
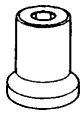
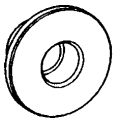
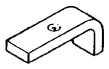
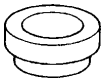
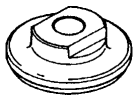
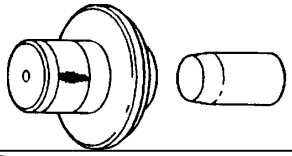
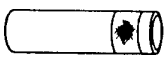
Tool	Number	Name	Use
	MB996001	Bearing puller	Removing output shaft front bearing
	MB996003	Socket wrench	Removing and installing differential gear <F5MR3>
	MB996004	Bearing drift	Fitting large and small bearing cups <5MR3>
	MB996005	Counterhold	Removing and installing differential gear <F5MR3>
	MB996006	Bracket	Removing output shaft front bearing
	MB996007	Bearing bush drift	Fitting selector shaft bushes
	MB996008	Bearing drift	Fitting large and small bearing cups <F5MR3>
	MB996010	Oil seal drift	Fitting differential gear assembly oil seal
	MB996011	Bearing drift	Fitting input shaft bearing cup <F5MR3>

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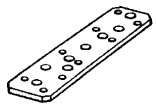
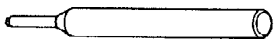
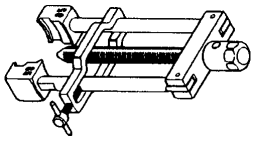
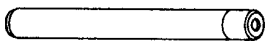
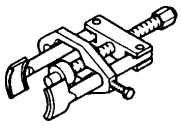
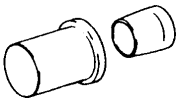
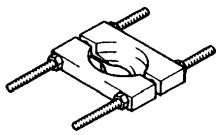
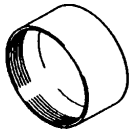
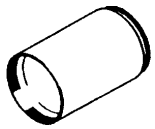
Tool	Number	Name	Use
	MB996012	Mounting plate	Calculate the pre-tention of input and output shafts with new bearings <F5MR3> **<Deleted>**
	MB996013	Bearing drift	Fitting ouput shaft bearing <F5MR3>
	MB998019	Spring pin extractor	Removing springs pins
	MB998020	Bearing puller	Removing 5th gear synchronizer hub
	MB998245	Spring pin installer	Installation of spring pin and lock pin
	MB998348	Bearing and gear puller	Removing 5th gear wheel
	MB998717	Installer	Fitting input shaft front bearing <F5MR1, F5MR2>
	MB998801	Bearing remover	Removing input and output shaft bearings <F5MR3>
	MB998812	Installer cap	Fitting 4th gear wheel bearing bush <F5MR3>

Fitting output shaft bearing <F5MR3>

<Added>

Tool	Number	Name	Use
	MD998813	Installer-100	Fitting 4th gear wheel bearing bush <F5MR3>
	MB998819	Installer adapter (40)	Fitting 4th gear wheel bearing bush <F5MR3>

Fitting output shaft bearing <F5MR3>

<Added>

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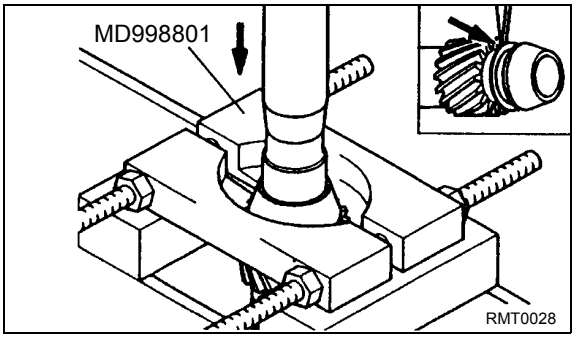
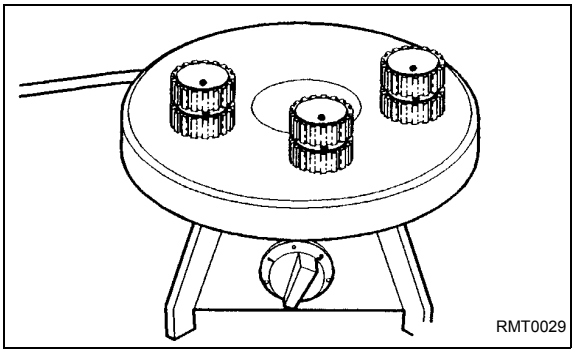
	MB998816	Installer adapter (30)	Fitting input shaft bearing <F5MR3>



◀J▶ BEARING CUP/OUTPUT SHAFT REMOVAL

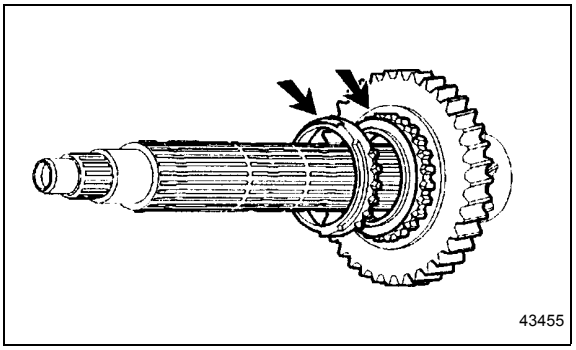
(1) Place the output shaft on a soft surface.
(2) Tap the bearing cup partway off the output shaft with a chisel.
(3) Locate the bearing remover MD998801 behind the bearing cup.
(4) Press the output shaft out of the bearing cup.



PREPARATION BEFORE REASSEMBLY <F5MR3>

BEARING BUSHES INSTALLATION

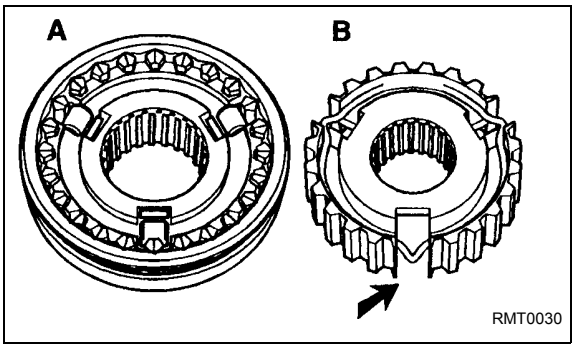
(1) Place the three bearing bushings on a hot plate.
(2) Heat the bearing bushings to 150°C maximum.



REASSEMBLY SERVICE POINTS

▶A◀ 1ST GEAR WHEEL INSTALLATION

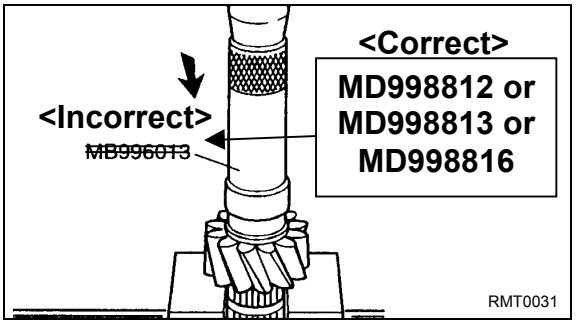
Locate the gear wheel together with the synchronizer ring on the shaft.



▶B◀ SYNCHRONIZER SPRINGS INSTALLATION

(1) Place the hub on a workbench.
(2) Position the two synchronizer springs so that the wider sections engage the recesses in the hub.
(3) Locate the synchronizer sleeve on the hub.

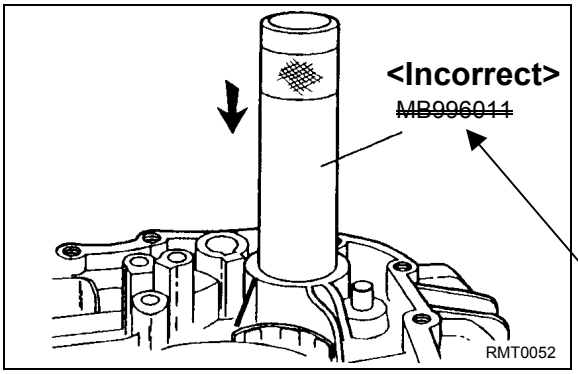
NOTE
Take specal note of the engaging sleeve lugs.



▶C◀ OUTPUT SHAFT BEARING CUP INSTALLATION

(1) Place the output shaft under a press and support the 1st gear wheel.
(2) Press the bearing cup on to the output shaft with bearing drift ~~MB996013~~.**<Incorrect>**

<Correct>
MD998812 or MD998813 or MD998816



▶H◀ INPUT SHAFT BEARING CUP INSTALLATION

(1) Coat the mating face with the specified sealant.
(2) Press the bearing cup against the stop with installer ~~MB990611~~.

<Incorrect>

<Correct>

MB990929 or MB990938

<Correct>

MB990929 or MB990938