
GROUP 13




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This group is structurally similar to that of the vehicle **0TV025** and consequently the disassembly and reassembly procedures remain the same.

SERVICE DATA AND SPECIFICATIONS

TECHNICAL DATA

		Model	YP milano 		V8 
		Variations	LH		milano 
Gear ratios			181.14	161.16	161.36
					161.24
Speed gear ratios	1st speed	1 : 2.875			
	2nd speed	1 : 1.720			
	3rd speed	1 : 1.226			
	4th speed	1 : 0.946			
	5th speed	1 : 0.780			
	R. speed	1 : 3.000			
Differential ratio			4.10 : 1		3.54 : 1
Differential-speed gear overall ratios Nominal speed at 1000 r.p.m.	1st speed	1 : 11.787		1 : 10.193	
	km/h (mi/h)	9.239 (5.74)		—	
	2nd speed	1 : 7.052		1 : 6.098	
	km/h (mi/h)	15.442 (9.60)		—	
	3rd speed	1 : 5.027		1 : 4.347	
	km/h (mi/h)	21.663 (13.46)		—	
	4th speed	1 : 3.879		1 : 3.354	
	km/h (mi/h)	28.074 (17.45)		—	
	5th speed	1 : 3.198		1 : 2.765	
	km/h (mi/h)	34.052 (21.16)		—	
	R. speed	1 : 12.300		1 : 10.636	
	km/h (mi/h)	8.854 (5.50)		—	

GENERAL SPECIFICATIONS

FLUIDS AND LUBRICANTS

Applicat. No.	Application	Type	Name	Q.ty
1	Differential-speed gear roller bearings Detent devices Clutch fork spherical pin and thrust bearing seat	GREASE	<ul style="list-style-type: none"> - AGIP: Grease 33 FD - SHELL: Retinax AX - ESSO: Norva 275 - IP: Autogrease FD Std. No. 3671-69833	-
2	Propeller shaft rear joint seat Ball joint on speed control lever Reverse speed sliding gear inner bush Bush for bevel pinion on clutch-speed gear casing	GREASE	ISECO: Molykote BR2 Std. No. 3671-69841	5 cm ³ (0.3 cu in)
3	Clutch-speed gear casing seal rings <ul style="list-style-type: none"> - Inner seal lip - Outer surface 	GREASE OIL	ISECO: Molykote BR2 Std. No. 3671-69841 <ul style="list-style-type: none"> - AGIP: Rotra MP SX SAE 75W/90 - SHELL: Spirax HD 80W/90 - IP: Pontiac HDS SAE 75W/90 Std. No. 3631-69408	-
4	Differential-speed gear unit oil refilling	OIL	<ul style="list-style-type: none"> - AGIP: Rotra MP SX SAE 75W/90 - SHELL: Spirax HD 80W/90 - IP: Pontiac HDS SAE 75W/90 Std. No. 3631-69408	4.56 lb (2.070 kg)
5	Bushes for speed transmission and selection lever and speed transmission and engagement lever (isostatic control) Ball joint on speed transmission and engagement lever end	GREASE	Molykote Longterm No. 2 Std. No. 3671-69831	-

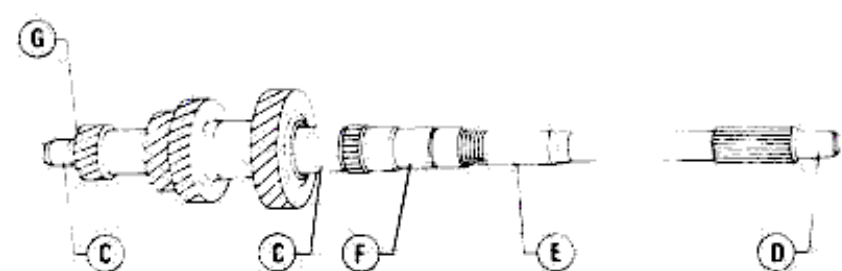
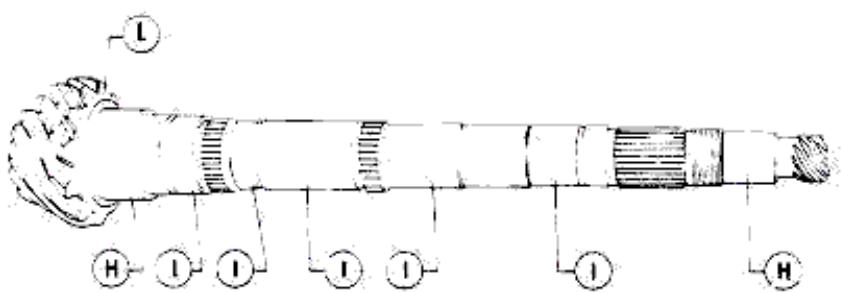
GEARBOX

SEALANTS AND SURFACE FIXING AGENTS

Application	Type	Name	Q.ty
Surfaces of differential-speed gear casing and clutch-speed gear casing mating with intermediate flange Mating surfaces between Reverse speed engagement safety devices and differential-speed gear casing NOTE: Use denatured ethyl alcohol to clean the surfaces.	SEALING COMPOUND	LOWAC Perfect Seal Std. No. 3522-00011	-

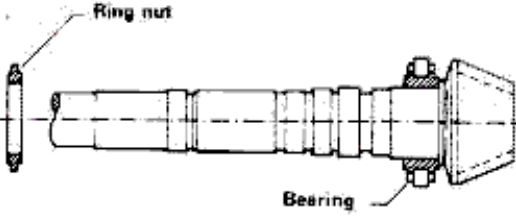
CHECKS AND ADJUSTMENTS

Axial clearance between fork and synchronizers sleeves	G mm (in)	0.7 to 0.9 (0.0275 to 0.0354)
Spring test load	C N (lb; kg)	90 to 97.6 (20.25 to 21.96; 9.18 to 9.95)
Spring length - Unloaded	L mm (in)	30.6 (1.2)
- Loaded	L _C mm (in)	18.8 (0.74)
Gears axial and radial clearance	mm (in)	0.1 to 0.15 (0.00394 to 0.00591)
<p>Pinion, shaft and rear ring nut</p> <ul style="list-style-type: none"> - Squareness deviation of ring nut support planes mm (in) 0.02 (0.000787) - Ring nut installation interference fit mm (in) 0.019 to 0.060 (0.000748 to 0.00236) - Eccentricity in seats H of front and rear bearings with respect to seats I of gear bushes and intermediate bearings mm (in) 0.02 (0.000787) - Squareness deviation for abutment plane L of rear bearing inner race with respect to seats H mm (in) 0.02 (0.000787) 		
<p>Main shaft</p> <ul style="list-style-type: none"> - Eccentricity in seats C of differential-speed gear casing bearings and intermediate flange with respect to centering seat D on clutch shaft, to seat E of clutch-speed gear casing bearing and to seat F of 5th speed gear mm (in) 0.03 (0.00118) - Squareness deviation of abutment plane G for rear bearing inner race with respect to seats C of bearings mm (in) 0.03 (0.00118) 		

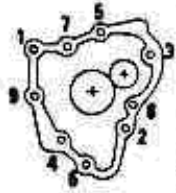


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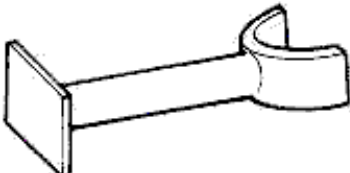



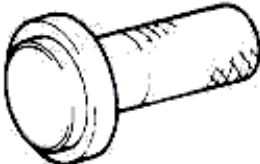
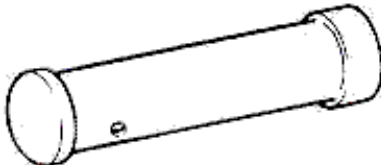
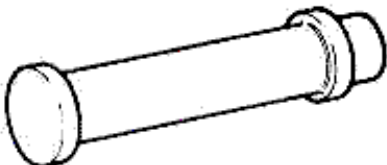
HEATING TEMPERATURES

Application	Measurement unit	°C (°F)
Heating temperature for roller bearing locking ring nut of bevel pinion shaft (head side) 		140 (284)
Heating temperature of clutch-speed gear casing for installation of Reverse speed gear pin, and bush of speed selection and engagement rod		140 to 160 (284 to 320)
Heating temperature of 3rd and 4th speed driving gears for installation on main shaft		195 to 210 (383 to 410)

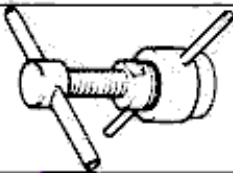





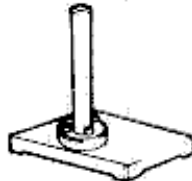
TIGHTENING TORQUES

Application	Measurement unit	N·m (ft·lb; kg·m)
Main shaft nut		93 to 103 (68.7 to 75.9; 9.5 to 10.5)
Bevel pinion shaft securing nut		112 to 124 (84.4 to 91.1; 11.4 to 12.6)
Nuts securing differential speed gear casing and clutch-speed gear casing to intermediate flange	 <p>Tightening order</p>	12 to 14 (8.7 to 10.1; 1.2 to 1.4)
Screws securing shoulder plate to intermediate flange		14 to 15 (10.1 to 11.6; 1.4 to 1.6)
Containers for the laking of spring and balls securing rods		17 to 20 (12.3 to 15.2; 1.7 to 2.1)
Nut securing ball joint connecting rear lever to transmission lever		25.1 to 31 (18.1 to 23.1; 2.5 to 3.2)
Nut securing speed selection tie rod		11.3 to 14 (8 to 10.1; 1.1 to 1.4)
Bolt securing speed selection and transmission lever to speed transmission and engagement lever		8.1 to 10 (5.8 to 7.2; 0.8 to 1)
Bolt and screw securing bracket to speed gear rubber pad		8.1 to 10 (5.8 to 7.2; 0.8 to 1)
Bolts securing speed gear unit rubber pads to casing		18.6 to 23 (13.7 to 16.6; 1.9 to 2.3)
Fast idle switch (on intermediate flange)		40 to 48 (26.9 to 35.4; 4.1 to 4.9)
Screws securing clutch unit to differential speed gear unit		29 to 32 (21 to 23.1; 2.9 to 3.2)
Screws securing propeller shaft joint to clutch shaft fork		55 to 57 (40.5 to 41.9; 5.6 to 5.8)
Unions for clutch hydraulic system pipes		8 to 10 (5.8 to 7.2; 0.8 to 1)
Unions for clutch hydraulic system hoses		10 to 15 (7.2 to 10.8; 1 to 1.5)
Screws securing forks of 1st - 2nd - 3rd and 4th speed		21 to 23 (15.2 to 16.6; 2.1 to 2.3)
Screws securing speed gear - differential unit to lateral support small block		18.6 to 23.5 (13.7 to 17.3; 1.9 to 2.4)
Screws (lower) securing speed control lever support to body		20 to 32.5 (14.5 to 23.5; 2 to 3.25)
Screws (upper) securing speed control lever support to body		4.8 to 6 (3.6 to 4.3; 0.5 to 0.6)
Nut securing plate for Reverse speed engagement safety device		8.3 to 10.3 (6.5 to 7.2; 0.9 to 1.05)
Bolt securing lever to external speed control rod		13 to 16 (9.4 to 11.6; 1.3 to 1.6)

SPECIAL SERVICE TOOLS

Tool number	Tool name	Page ref.
A.2.0075	Support for jacking up car 	-
A.2.0267	Dummy rods for striking rod balls and speed engagement detent balls. 	-
A.2.0268	Spacer for removing De Dion axle 	-
A.2.0349-0100	Half-ring support plate for disassembling ring nut and inner race of pinion shaft bearing (to be used with A.2.0401 and A.2.0402) 	-
A.2.0401	Half-rings for removing inner race of pinion shaft rear bearing - (to be used with A.2.0349-0100) 	-
A.2.0402	Half-rings for removing ring nut of pinion shaft rear bearing - (to be used with A.2.0349-0100) 	-
A.3.0192	Puller-driver for outer race of pinion shaft bearing on intermediate flange (Solutions with intermediate roller ball bearings) 	-
A.3.0343	Driver for main shaft oil seal ring 	-
A.3.0346	Driver for pinion shaft bush 	-

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Tool number	Tool name	Page ref.
A.3.0361	Puller for inner race of main shaft rear bearing 	-
A.3.0532	Driver for bush of speed selection and engagement rod 	-
A.3.0596	Puller-driver for outer race of main shaft bearing on intermediate flange 	-
A.4.0145	Support of gauge for determining pinion shim (to be used with C.6.0166) 	-
A.5.0181 A.50249	Wrench, ³² 30 mm. for main shaft nut Wrench, 30 mm. for Main shaft nut 	-
A.5.0216	Spanner for plug of speed control rod ball 	-
C.6.0166	Reference gauge for determining pinion shim (to be used with A.4.0145) 	-