

CAMS

5TH CATEGORY - HISTORIC RACING

GROUP Nb

APPROVED VEHICLE SPECIFICATION

This form details the approved specifications of individual vehicle models in the 5th Category Historic car group. To be issued with an Historic Log Book, cars need to comply with these specifications, the physical appearance shown in the illustrations and the general historic rules as detailed in the current CAMS Manual of Motor Sport.

Make of Car: Ford Model: Cortina GT Mk 1*

Period of Original Manufacture: 1963 - 1966

CAMS Historic Group: Group Nb

Date of Issue of this Document: January 1999

*Note: This specification sheet relates to both the early model body (with parking lights separate from the grille) and the 'Aeroflow Ventilation' model introduced in September 1964.



SECTION 1 - CHASSIS

1.1 CHASSIS FRAME

Description:	Unitary construction	Period of Manufacture: 1963-1966
Manufacturer:	Ford Motor Co. Ltd.	
Chassis no. from:	Relevant Body Model codes are 27132 (2 door) and 27232 and 27234 (4 door). Not applicable for "specification only" cars.	
Chassis no. location:		
Material:	Steel	
Comments:	Strengthening of the body shell is recommended by seam welding inside the front strut towers, rear shock absorber towers and along the chassis rails, and the insertion of gussets where the rails intersect with the floor and the fire wall.	

1.2 FRONT SUSPENSION

Description:	Independent McPherson strut, combined with torque reactor and stabiliser bar.	
Spring medium:	Coil. Alteration of ride height is allowed by methods employed in the period.	
Damper Type:	Telescopic double acting integrated with McPherson strut tube	Adjustable: No
Anti-sway bar:	Yes	Allowed: Yes
Suspension adjustable:	See comments below	Adjustable: No
Comments:	Method: The main elements of the front suspension, ie McPherson struts located by track control arms and a forward mounted anti-roll bar which doubles as castor bars, must be retained. Desired camber and castor may be achieved by the relocation of the upper strut mounts, the lower pick-up points in the cross-member, and the sway bar mounts in the chassis rails. The movement of any of these points by up to 1" (25 mm) is acceptable. Shock absorbers may be adjustable internally or externally. Anti-dive characteristics may be achieved by the lowering of the front sway bar mounts using an additional cross member or mounting blocks/spacers. Additional sway bars are acceptable and may be adjustable.	

1.3 REAR SUSPENSION

Description:	Live axle located by leaf springs, and upper trailing arms (early models were without trailing arms).	
Spring medium:	Multi-leaf semi-elliptic. Alteration of ride height is allowed by methods employed in the period.	
Damper type:	Telescopic double acting	Adjustable: No
Anti-sway bar:	No	Allowed: Yes
Suspension adjustable:	No	Adjustable: No
Comments:	Method: Leaf springs are free but must use original pick-up points; bush material is free. Axle location may be improved by the use of an A-frame, additional trailing arms, a Panhard rod or a Watts linkage and joints/bushes are free. It should be stressed however that any additional axle-locating components must not override the original components. This means that the car must be driveable at racing speeds with the additional components disconnected. Additional sway bars are acceptable and may be adjustable.	

1.4 STEERING

Type: Recirculating ball. **Make:**
Comments: The original form and type of steering, including rod ends, must be retained.

1.5 BRAKES

Type:	Front	Rear
Dimensions:	Disc	Drum
Material of drum/disc	244 x 12.7 mm	229 x 44.5 mm
No. cylinders/pots per wheel:	Cast iron	Cast iron
Actuation:	2	1
Caliper: Make, Material, Type:	Girling, cast iron, two pot	
Master cylinder make:	Girling	Type: Hydraulic
Comments:	The original Cortina braking system is generally adequate, but pedal boxes employing dual master cylinders with adjustable brake bias may be employed, provided that fitment does not require modification of the body-shell other than additional bracketry. Discs and drums may be replaced by others of the same thickness, width and diameter. Drums and backing plates may be drilled for lightness and cooling purposes. Disc brake callipers may be replaced by others from the period. The use of a servo is optional. Front brake cooling ducts are advisable.	

SECTION 2 - ENGINE

2.1 ENGINE

Make:	Ford		
Model:	116E (5 main bearing pre cross flow engine).		
No. cylinders:	4	Configuration:	In-line
Cylinder Block-material:	Cast iron	Four Stroke	
Bore - Original:	80.97 mm	Max. allowed:	N/A
Stroke - original:	72.75/72.925 mm	Max. allowed:	72.75/72.925 mm
Capacity - original:	1499.9cc	Max. allowed:	1600cc
Cooling method:	Water and fan		
Identifying marks:	Cylinder block designated 120E at lower left rear.		
Comments:	Cylinder blocks designated 120E must be used. Datsun 1600 steel cranks are in common use but considerable machining is required and care must be taken not to exceed the original stroke as this will render the vehicle ineligible. Reducing the stroke and increasing the bore is acceptable under the Group Nb rules provided the capacity class limit of 1600cc is not exceeded. Forged pistons and "performance" connecting rods are strongly recommended if 7500 rpm is to be regularly exceeded.		

2.2 CYLINDER HEAD

Make:	Ford				
No. of valves/cylinder-	1	Inlet:	1	Exhaust:	1
No. of ports total:	8	Inlet:	4	Exhaust:	4
No. of camshafts:	1	Location:	In cylinder block	Drive:	Chain
Valve actuation:	Push rod and rocker				
Spark plugs/cylinder:	1				
Identifying marks:	N/A				

Comments: The Group Nb regulations allow the use of any original Ford push-rod non-crossflow cylinder head. All other components used in the head assembly such as rockers, rocker shafts and posts, valves and valve springs are free, and the head itself may be modified, only by the removal of metal. The addition of any material is prohibited.

2.3 LUBRICATION

Method: Wet sump, external oil pump driven off camshaft located in cylinder block.

Oil cooler standard: No **Location:**

Comments: A high capacity, well baffled sump is essential and a high capacity oil pump and oil cooler are strongly recommended.

2.4 IGNITION

Type: Coil and distributor.

Make: N/A

Comments: All components of the ignition system may be replaced by high-performance variants. Electronic ignition is specifically prohibited, but electronic rev-limiters separate from the rev-counter are allowed. Modern electronic rev counters with laser-type shift lights are not acceptable.

2.5 FUEL FEED

Carburettor: Make: Weber **Model:** Original - 28/36/DCD22
No: Original 1 **Size:**

Comments: Twin Weber 40DCOE, 42DCOE and 45DCOE, with relevant manifolding are routinely used. The equivalent Dellorto carburettors are not acceptable as they were not available pre 1965.

SECTION 3 - TRANSMISSION

3.1 CLUTCH

Make: **Type:** Dry Plate **Diameter:** 203 mm

No. of Plates: 1 **Actuation:** Hydraulic

Comments: Internal clutch components, dimensions and materials are free. Original hydraulic actuation is required.

3.2 TRANSMISSION

Make: Ford **Model:**

No. forward speeds: 4 **Gearbox location:** Conventional behind engine connected via bell-housing.

Gear change type and location: Central remote lever

Case material: Cast Iron **Identifying marks:**

Comments: The original 4 speed synchromesh gearbox is generally reliable when used with push-rod engines. Lotus close-ratio gears are recommended, however, when more power is being sought, a purpose-built straight-cut close-ratio gear set, as available from a specialist manufacturer such as Quaife Engineering, is strongly recommended. It should be noted however that the combination of a powerful "cammy" engine and close-ratio gearing requires the use of alternative differential ratios to achieve optimum gearing for each circuit. For those not wishing to pursue the ultimate set-up, a good compromise suitable for most circuits can be achieved by employing 'intermediate' gear ratios, ie 1st - 2.97; 2nd - 2.01; 3rd - 1.39; 4th - 1.0; and a 4.4:1 differential.

3.3 FINAL DRIVE

Make: Ford **Model:**

Wheel drive method: Rear drive live axle with differential.

Ratios: Original 3.9 or 4.4:1

Differential: Semi floating hypoid **Type:**

Comments: Fully locked differentials are commonly used although limited slip differentials are preferable. A wide range of differential ratios is available including 4.1, 4.4, 4.7, 4.9, 5.1, 5.3 and 5.65:1. The crownwheel and pinion is the Achilles heel of the Corina, and care must be taken that sufficient oil is retained in the "banjo" of the housing to ensure adequate lubrication of the differential at all times, particularly through long, sweeping corners. Fully floating axle assemblies are now allowed under revisions to the Group N Rules.

3.4 TRANSMISSION SHAFTS (EXPOSED)

Number: 1 **Location:** Transmission output shaft to rear axle.
Description: Single piece tubular steel tailshaft with two Hardy-Spicer type universal joints.
Comments:

3.5 WHEELS & TYRES

Wheel type:	Original: Pressed disc	Material:	Original: Steel
	Allowed:		Allowed:
Fixture method:	Studs	No. studs:	4
	FRONT		REAR
Wheel dia. & rim width			
	Original: 4.0J x 13"		4.0J x 13"
	Allowed: 6.0" max		6.0" max
Tyre section:			
	Original: N/A		
	Allowed: No specific restrictions		
Aspect ratio - minimum:	60%		

Comments: Corinas were homologated with a range of wheel sizes such that all Cortinas in Group Nb may run the maximum allowed 6" x 13". Period style alloy wheels are recommended, but some 'minilite' style wheels are prone to cracking in competition, and care should be taken if buying second-hand wheels. Wheel spacers may be used to widen the track provided the wheels/tyres remain within the bodywork when viewed from above.

SECTION 4 - GENERAL

4.1 FUEL SYSTEM

Tank Location:	Floor of boot	Capacity:	36.4 litres
Fuel pump, type and location:	Original, mechanical driven off camshaft.	Make:	AC

Comments: The replacement of the original tank with a purpose-made alloy tank or foam-filled fuel cell is strongly recommended. Location must not be changed and where the fuel filler is located inside the boot, a spill tray draining to the outside is required.

4.2 ELECTRICAL SYSTEM

Voltage: 12	Dynamo/alternator:	Originally dynamo, alternator permitted
Battery Location:	Originally on right side of engine compartment.	

Comments: Replacement of the original generator with an alternator is recommended and to avoid bracket failure through vibration, the alternator may be mounted on the left-hand inner guard. The position of the battery is free, however when moved from its original location the battery tray should also be relocated. An isolation switch as close as possible to the battery is also required.

4.3 BODYWORK

Type:	Unitary construction	Material:	Steel
No. of seats:	4	No. doors:	2 or 4

Comments: Interior and exterior trim must be present in its entirety, and with some models this will include chrome strips around the window surrounds and roof gutters. Australian assembled Corina GT's were fitted with full length stainless steel body strips; UK assembled Cortina GT's were not fitted with such body strips.

For safety purposes, a fire-wall of aluminium sheet is required between the luggage compartment and the passenger compartment, including access via the rear pillars.

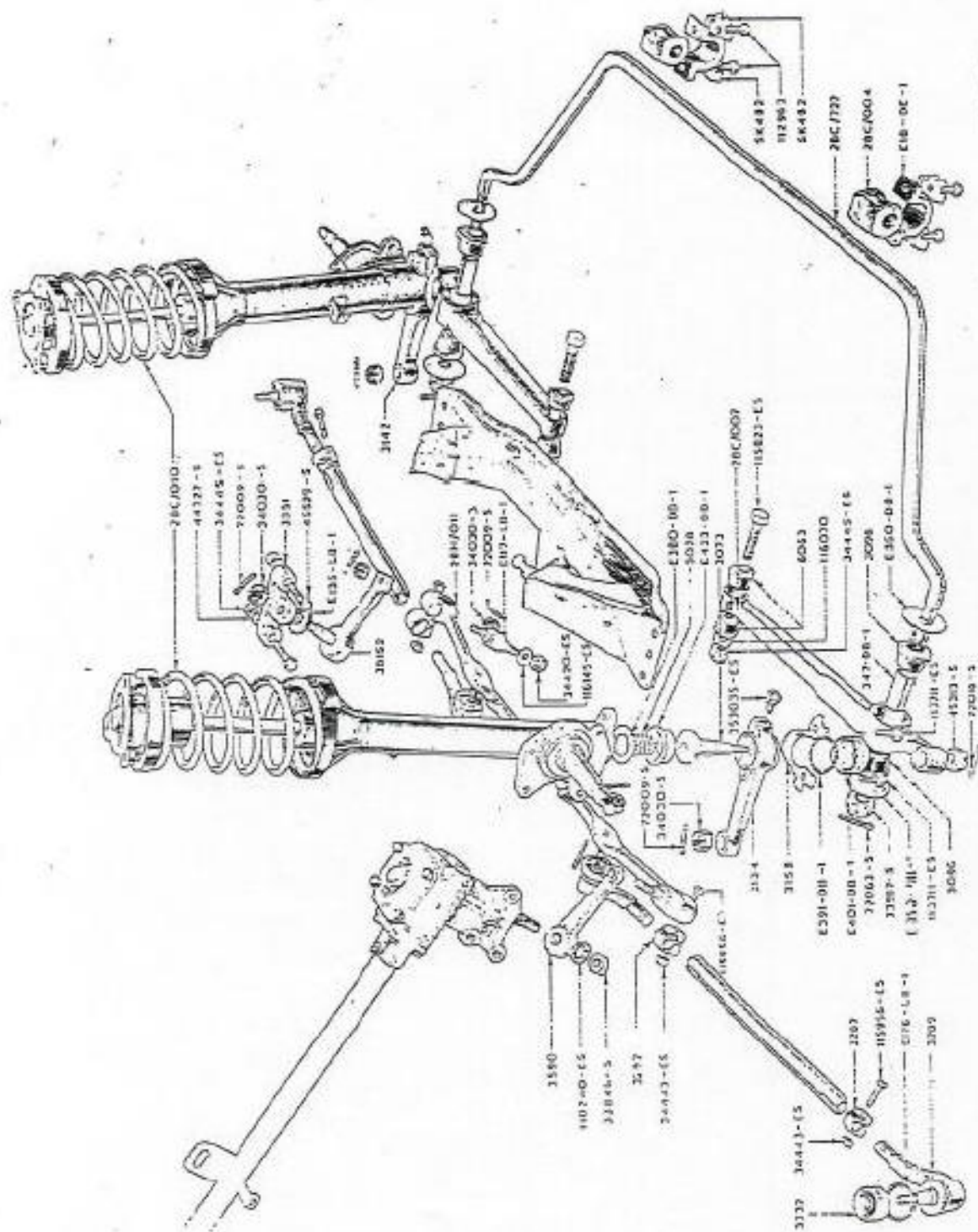
4.4 DIMENSIONS

Track - Front:	1290 +/-25 mm	Rear:	1270 +/-25mm
Wheelbase:	2489 +/-25 mm	Overall length:	4275 mm
Dry weight:	Original, with water, oil and spare wheel, 790 kg (2 door), 818 kg (4 door).		

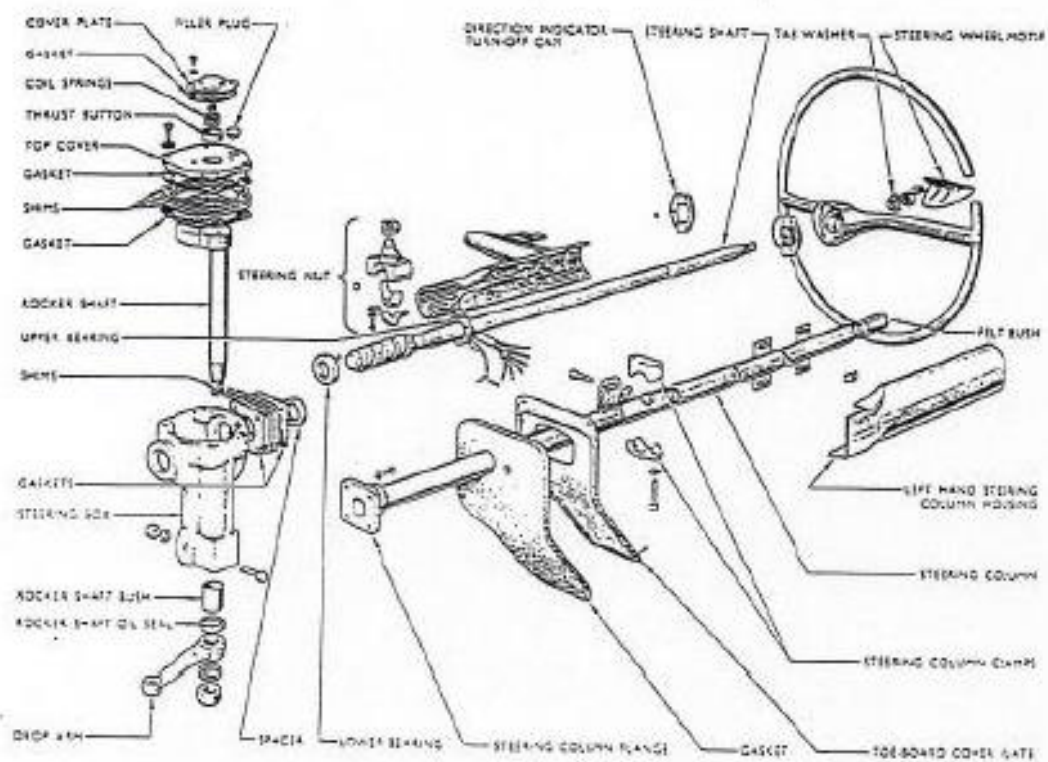
Comments: In Group Nb, track is free provided the wheels remain within the bodywork. With some wheel designs, wheel spacers may be used to maximise allowable track.

4.5 SAFETY EQUIPMENT

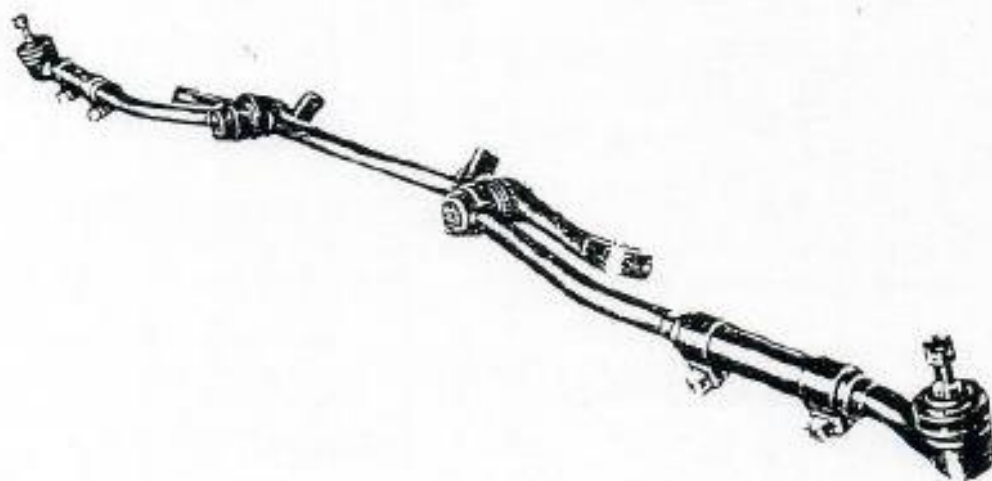
- Fire extinguisher required
- Seat belt required
- Rollbar required
- Electrical cut off switch required
- Safety fuel tank optional



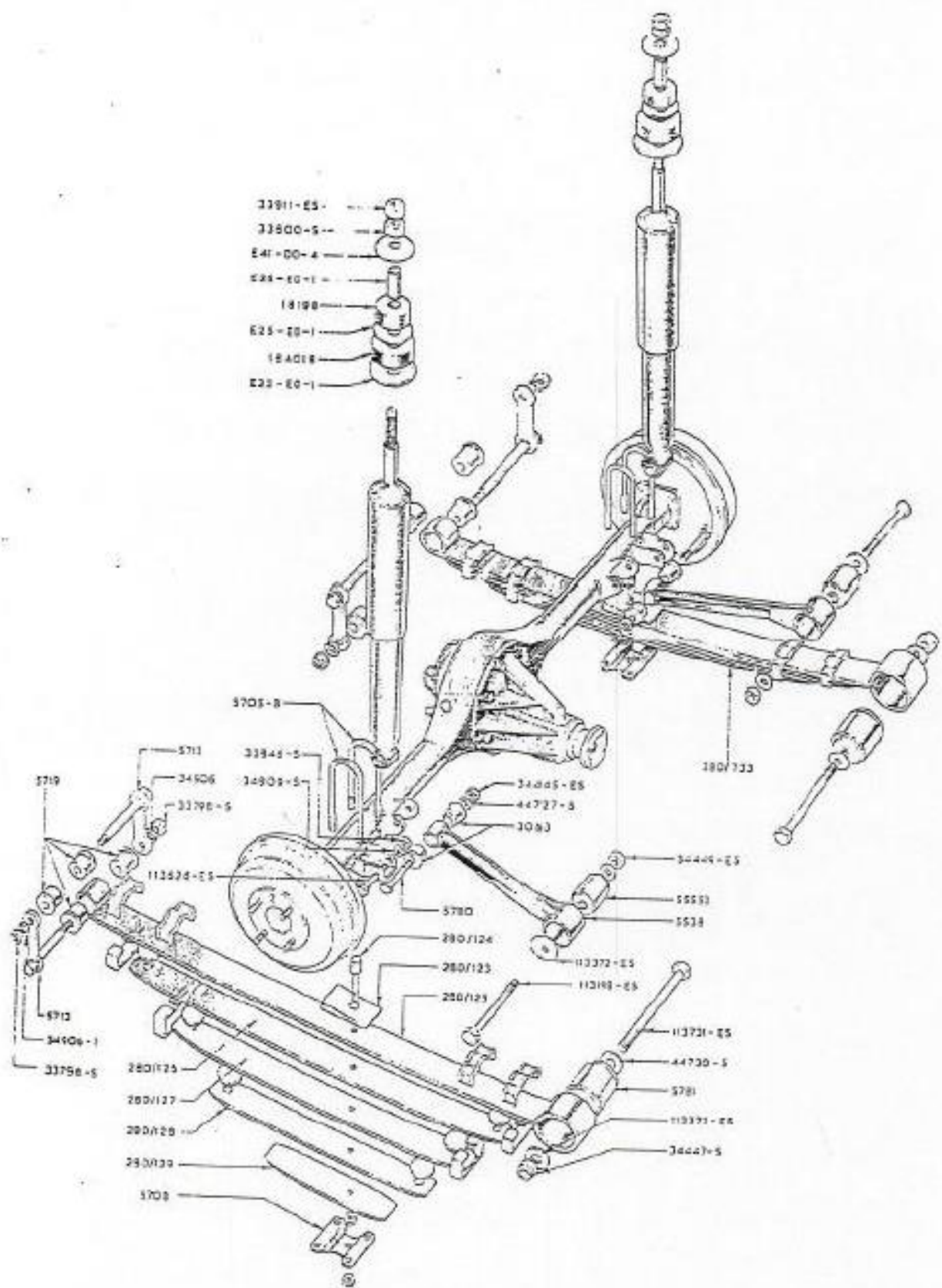
FRONT SUSPENSION AND STEERING



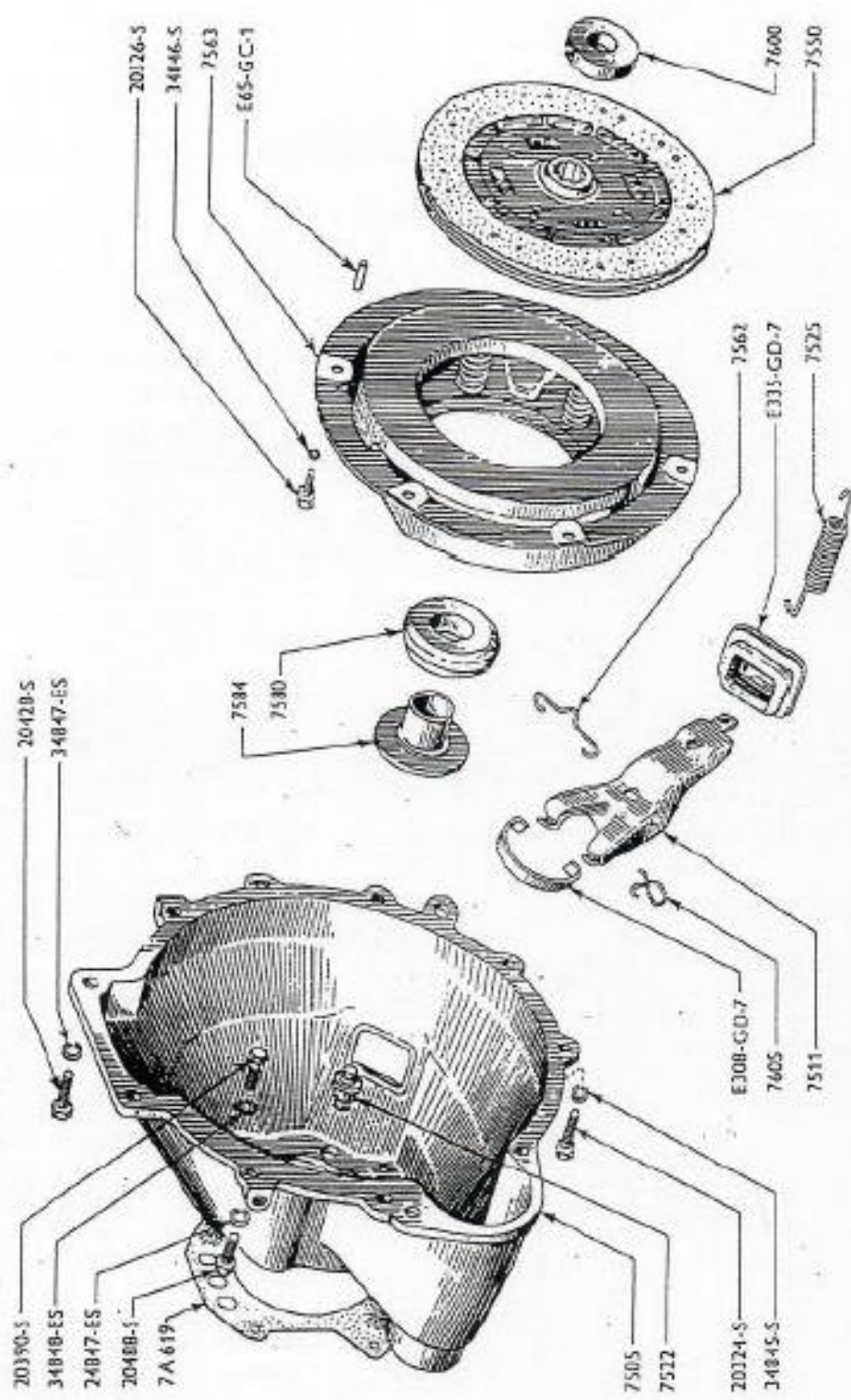
Components of steering column and gearbox



Steering linkage shown assembled



REAR SUSPENSION



CLUTCH HOUSING AND RELEASE MECHANISM