

The Mercedes-Benz Grand Prix Racing car was first introduced on July 4, 1934 at the French Grand Prix. It was raced in thirteen Grand Prix events in Europe and South America and was retired in 1935 after placing first in 10 of these events. The Mercedes-Benz W-196 had many sophisticated firsts in racing car history, desmodromic valving, full fuel injection system, a very comfortable independent torsion bar suspension and air cooled 4 wheel brakes with the brakes mounted at the center of the car. General specifications of the actual race car from which your Thimble Drome Mercedes-Benz Grand Prix Racer was modeled are: Weight—1,455 Lbs. Dry With Tires, Wheelbase—87 inches, tires—Front 6.00x16 and Rear 7.00x16, Transmission—5 Gears Forward, 1 Reverse Gear and 4 Gears Synchronized. Engine: Horsepower—290, Max. R.P.M.—9500, Displacement—152.27 Cubic Inches, Cylinders—8 In Line Horizontal, Carburetion—Fuel Injection.

HOW THIS CAR OPERATES

This racer is powered by a Thimble Drome .049 engine mounted under the hood. To open the hood, pull the steering wheel to release the lock and raise the hood which hinges at the front (See Fig. 1).

A Flywheel (See Fig. 1) is mounted on the engine shaft to smooth running operation and to help accelerate the car after launching without killing the engine. There is also a centrifugal blower mounted on the shaft which forces air from around the engine into the blower chamber and out through the side of the car (See Fig. 1). This keeps the engine from overheating while adjusting the needle valve before launching the car.

From the flywheel a driveshaft (See Fig. 1) of especially tough plastic transmits power to the gear unit on the rear axle. The gear unit (See Fig. 1) is composed of bevel gears in a closed plastic gear case. The gear ratio is 3.07:1 which affords plenty of power for acceleration without slowing the engine to the stalling point. It also provides for all the speed a car of this size and weight can attain from the engine.

It will be noted that the axles are fastened to very tough plastic springs (See Fig. 1). This allows the car to hug the surface fairly well at high speeds instead of bouncing the whole car on every rough spot. The misalignment between the gear case and engine due to the springing action is taken up by universal joints at either end of the drive shaft.

The car runs in a circular path around a center post to which it is attached by a steel cable and a plastic bridle, (See Fig. 2). The surface should be as smooth as possible and while the car will run on dirt, for long life the surface should be macadam, wood or concrete preferably swept free of dirt and dust.

The circle, when using the cable made for this car, is 15 feet in diameter. A longer cable will make it difficult to launch the car without having it spin in. The wheels are purposely set straight ahead without steering to facilitate smooth starts. This keeps the car pulling tightly on the cable at all times. It is undesirable to have the car spin in while launching it as it sometimes tangles and kinks the cable.

A muffler is provided (See Fig. 1) for roaring action or quiet neighborhood operation. Exhaust noise is controlled as shown in the sketch at Fig. 3.

It will be noticed that all joints and bearings such as axle bearings, wheel bearings, gear bushings, etc. are quite loose giving the car a somewhat sloppy feel when cranking. This is done purposely and is absolutely necessary. When running metal against metal, close fits are used but manufacturing costs are high. When running these special plastics against metal, loose fits are absolutely necessary. Tight fits will not work at all but the parts, if fitted loosely, will wear better than metal to metal and reasonable manufacturing costs and selling prices are maintained.

All parts are held together by screws and "E" rings and the car may be easily taken apart and reassembled. Care must be exercised that screws in plastic are never overtightened. Tighten all screws just barely snug plus 1/8th turn.

The tires on this car are made of vinyl plastic instead of rubber. This is done in order to make the tires slip during initial acceleration. Slipping helps prevent too sudden a load on the engine which might slow it down too rapidly causing it to stall. The vinyl, while harder, will far outwear rubber and the axle springs take up any shock of rough surface making soft tires unnecessary.

If the tires should start slipping on the wheel so cranking of

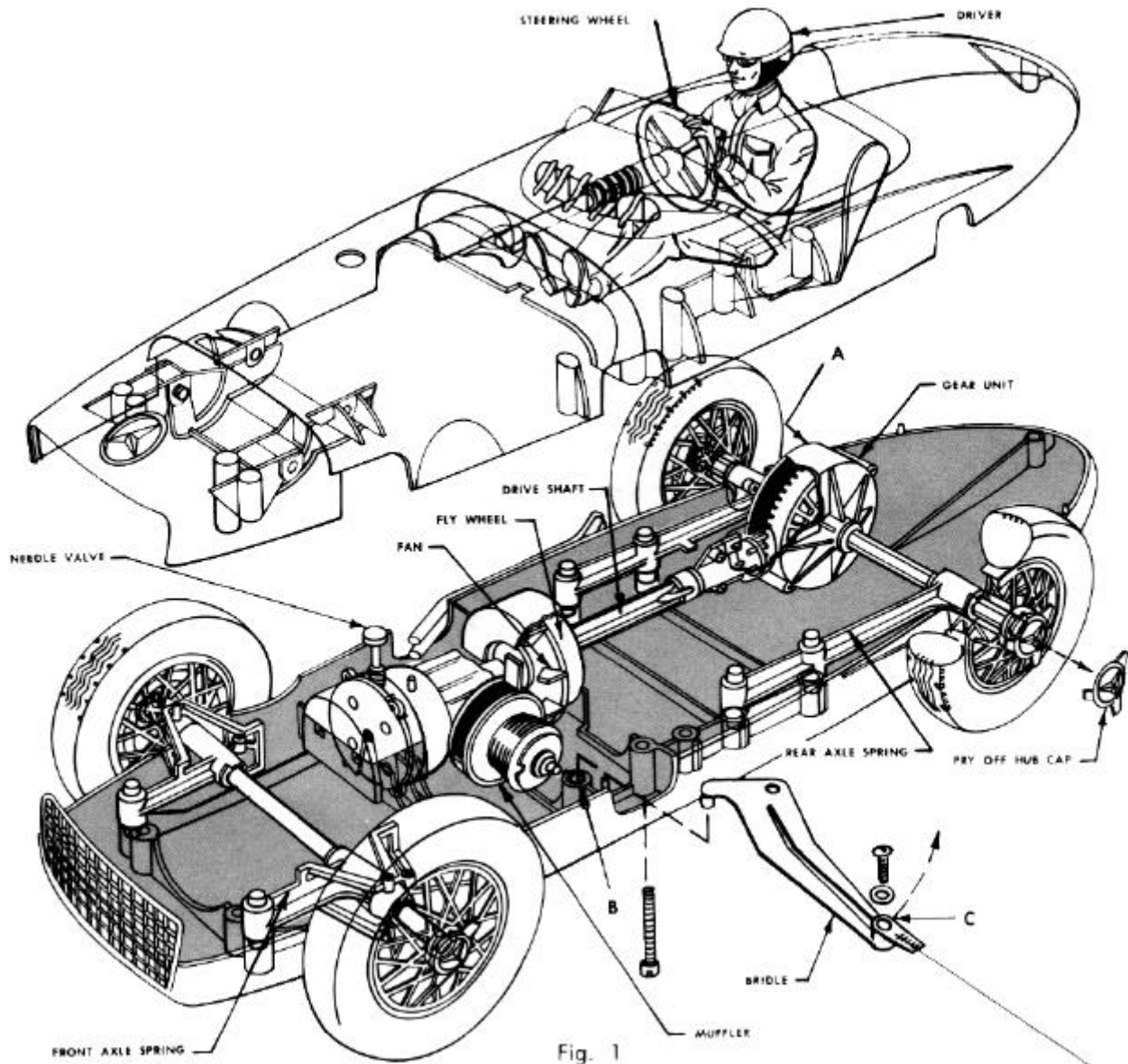


Fig. 1

the engine is difficult, the tire must be removed and any oil causing the slipping must be washed off the tire and the wheel. To remove the tire place the wheel in hot water for a few minutes and it will become soft and stretchy and easily removable.

If a driver is desired, the driver parts found in the poly bag can be assembled as illustrated in Fig. 1. Use styrene cement, apply to all edges that fit together. Press the two parts together and hold firmly for a few minutes before adding the next part. Cement the driver's left arm in place after he has been positioned in the car. To install the driver, remove the top rear half of the body by loosening the three rear screws. Remove the seat, cement the driver into the seat, reposition the seat and screw the body back together. Styrene cement and paints for coloring the driver may be obtained from your local hobby shop.

PREPARATION FOR RUNNING

1. A good running spot on macadam or concrete or other hard surface is first selected. The car should run in a circle of about 15 feet in diameter. The center post should be anchored securely at the center of the circle or on a heavy weight such as a steel plate which may then be placed at the center. Since so many conditions exist and there are so many ways of mounting a center post we will leave it to the user to figure the way which will be the easiest and most convenient. However, in any case make certain the center post is anchored securely.
2. The bridle is installed by opening the hood. The slender boss of the bridle is inserted into the socket (See B Fig. 1) on the left side of the body. Press down firmly and rotate the bridle into the slot between the body top and body bottom. The bridle is secured into position by means of the long self-tapping screw provided. This screw inserts through the body bottom, passes through the small hole in the bridle and threads into the body top.

3. Attach the tether to the boss at the end of the bridle (See C Fig. 1) with the tether link around the boss and retain with the short screw and washer provided. The car is now ready to be run on the tether about a center post. The Thimble Drome tether is available (Cat. #937-75c) and allows the car to run in a 15 foot diameter circle. If you prefer the tether is available with other accessories in kit form (Cat. #960-\$1.98) which includes battery connector, fuel, etc. from your local hobby shop.
4. Oil all axle bearings and wheel bearings. Oil universal joints. Put a drop of oil where rotating parts enter gear case. Remove screw (See A Fig. 1) and squirt some oil in the gear case, approximately a teaspoonful. This may be done with most any oil can.
5. Hook up a 1½ volt battery to a glow plug connector as per Fig. 5.

STARTING THE ENGINE

Starting procedure must be carried through without delay otherwise the engine will flood and refuse to start quickly. Familiarize yourself with the procedure before actually trying to start engine. If delays occur after the tank is filled, close the needle valve to prevent flooding.

1. Pull the steering wheel and raise the hood.
2. Open the muffer (See Fig. 3).
3. Close the needle valve—turn clockwise until it seats but do not force it.
4. Fill the tank with Thimble Drome Glow Fuel. This is done as per Sketch 4. When fuel overflows under bottom of car the tank is full.
5. It is especially recommended that the Thimble Drome filler cap with stainless steel filter be used in the fuel can for filling so that foreign particles which would clog the jets do not get

into the fuel tank. Also, dirt is prevented from getting into the can of fuel. This is extremely important as the jets are very small.

6. Connect the battery to the glow plug by slipping the glow plug clip on the glow plug. (Please refer to Paragraph 1 under "Failure to Start".)
7. Open the needle valve 3¼ turns counter clockwise.
8. Stick the fuel hose into the muffler and put a few drops of fuel into the engine exhaust ports (See Fig. 4).
9. Pick up car and crank the engine by turning one rear wheel vigorously in the forward direction. The engine should start immediately.
10. Adjust needle valve clockwise to best running position, disconnect glow plug clip, close muffler if desired, close hood, make the final needle valve adjustment and the car is ready to roll.

RUNNING THE CAR

1. Have center post and cable assembly made up and attached to the car before starting the engine.
2. Start the engine and adjust for best running mixture.
3. Hold the car so it is pointing in the direction it will go and while it is being held tightly at the end of the cable swing it in the direction of travel and release it. This is best done by holding the car in the right hand and with your back to the direction the car is launched. Swing the car past you to your rear and release. Keep the cable tight as you swing it. Do not release the car so late that it is thrown into the air, but release as it swings under so it goes scooting off in the line of travel. If the car is launched with a slack cable it may spin into the circle and get wound up in the cable.
4. To run the car more slowly open the needle valve counter clockwise until the engine slows down a little. More careful launching is required for slow runs to prevent stopping the engine.
5. To stop the car before the fuel is exhausted hold a cloth across the path of travel. Hold it lightly with the thumb and fingers about 6 inches above the track allowing the cloth to hang down. The car will run up to the cloth and jerk it free of your hands. The cloth then drapes over the car causing it to slide to a stop.
6. Excess castor oil inside the car after and while running is natural. Castor oil in the fuel is necessary for lubrication and it does not burn completely but is blown out the exhaust inside the car.
7. If it is desired to wash the car do not use gasoline or petroleum solvents as they will ruin the finish of the car. Use soap and water only or just wipe clean.

TIPS AND GENERAL INFORMATION

8. When factory service is needed for any reason do not return the entire car. Remove the part on which service is needed and return only the part or engine as the case may be!
9. Always use Thimble Drome Glow Fuel in the blue can for best results. Never use gasoline or nitro-benzine fuels with the shoe polish odor.
10. Should the engine be taken apart be sure to reassemble it with the pickup tube in the correct position. In running counter clockwise, the fuel is thrown to the outside bottom quarter

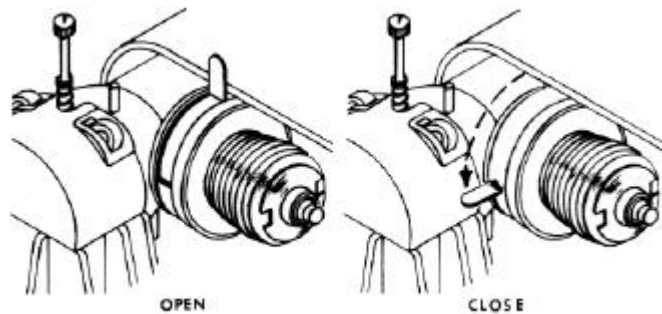


Fig. 3

of the tank and the fuel pickup should be about 45° up on the right side otherwise the car will not use all the fuel and only make short runs.

11. Always use the special Thimble Drome wrenches when working on Thimble Drome engines. Use of pliers, channellocks or other improper tools will only damage the engine and result in costly repairs. Thimble Drome wrenches can be purchased at most hobby shops.
12. The glow plug is built right into the head in one unit. When the plug burns out just replace the entire head at the regular glow plug price.
13. After the last run, oil the engine with a light oil (SAE 10 is good), close the hood and protect it from dust and dirt.
14. If the engine gets dirt on it through crack-up or otherwise do not run it until it is thoroughly cleaned. Take it apart, wash it, oil it and reassemble.

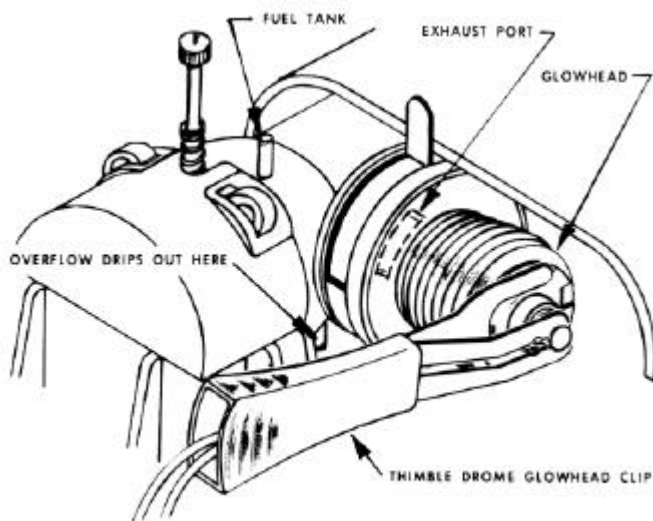


Fig. 4

15. Do not tighten the head too firmly. Set it up very lightly. Allow the engine to cool before removing head so it will loosen easier. Too much pressure against the exhaust ports to hold the cylinder from turning may force the cylinder out of round or even turn a burr into the bore. A new cylinder is usually required to remedy such damage.
16. To remove the glow plug from a hot engine—pour a little fuel slowly over the glow plug to reduce the plug temperature. Do not pour it over the cylinder. The plug will then release easily. A hot plug may stick and forced removal may damage the cylinder.
17. Tampering with the reed valve can do no good unless it is necessary to remove dirt as per Paragraph 8 under "Failure to Start." The slightest bend or dent in the reed may prevent the engine from running at all.
18. If it is desired to remove the cylinder from the engine, it is first necessary to remove the fuel tank assembly. The muffler can then be rotated so the holes line up 90° to the exhaust ports. remove the sliding spring band and insert the wrench through the muffler opening to engage the cylinder.

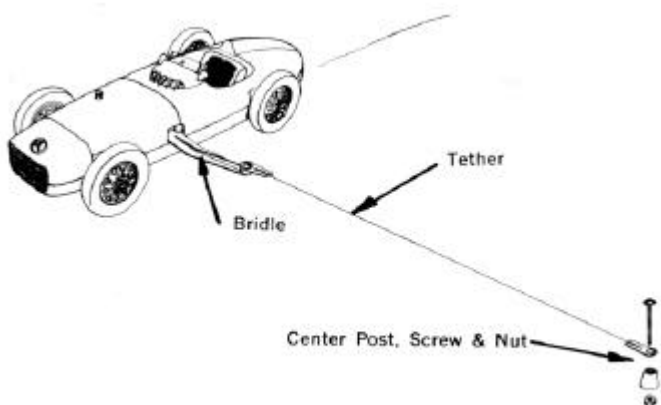


Fig. 2

FAILURE TO START

1. If the engine coughs and spits a bit of fuel spray from the exhaust, it is too rich. Close the needle valve and continue cranking until the engine starts briefly. Open the needle valve again and crank it over. It should start immediately.
2. If it starts up with lots of power and dies immediately, prime and crank again. If it continues to start briefly and powerfully then dies, it is too lean. Open the needle valve a half turn, prime the engine, and try again. Repeat if necessary. If the car has been used then put away for some time, these symptoms will occur due to a castor oil deposit in the tiny fuel jets. Starting and priming may be required as many as eight or ten times to clean the castor oil so fuel will flow through. This occurs only on the first start of a new running session.
3. If the engine still persists in above action, it is possible the carburetor jet is stopped up. Disassemble the tank and clean out the fuel passages and jet with a fine wire then reassemble.
4. If at any time the car runs very poorly or refuses to start, the first thing to do is to check the glow plug. It may have worked loose, which it will do occasionally. When this happens, compression leaks out and the engine will fire weakly or not at all. The car must be opened up and the glow plug screwed down snugly.
5. If castor oil from the exhaust has cooked on the head building up a heavy brown deposit, the glow clip may not make

contact and the engine will fail to fire. To remedy this, the top of the head should then be scraped clean.

6. If the engine still refuses to fire at all, unscrew the glow plug and connect it to the clip. If the little coil inside does not get red hot, it is either burned out or the battery is dead, or the connections are made incorrectly. Replace the battery or the plug, or correct the connections. Glow plugs are never guaranteed. Do not return the engine to the factory for a burned out glow plug because the cost to you will be excessive. Buy a new plug from your dealer.
7. Very heavy priming is often required for starting. These engines do not flood out as easily as most. Unless it is actually spitting out raw fuel, it may need even more priming even though you have already primed it as much as most engines will stand.
8. If the plug, battery and connections are known to be good, and if the jet has been checked for stoppage, and if the fuel is known to be the correct kind, yet the engine will not fire at all, it is possible there is dirt or a piece of foreign matter under the reed valve. This is very unlikely unless the venturi screen has been removed. If the venturi screen has been removed you may expect this kind of trouble. The foreign matter can be removed by carefully disassembling the tank, unsnapping the reed retainer wire and removing the reed. When reassembling be sure to replace the reed with the same side against the venturi. Any dents or bending of the reed will make it useless. Handle it carefully.

WARRANTY

The engine is guaranteed against defects in materials and workmanship for 30 days from the date of purchase. Glow Plugs are never guaranteed because of their delicate nature. No other guarantee is made or implied. Do Not Take Engine Back To Your Dealer. Send it directly to the factory for service.

Send \$1.00 in with engine for ANY service. For charge in excess of \$1.00 you will be notified. Complete overhaul, new performance guaranteed — \$2.50.

If the entire car is sent for engine service the minimum charge will be \$2.50 and the engine overhaul will be \$4.00. The factory does not recommend other car service as all component parts are readily available and easily replaced.

PARTS FOR THE MERCEDES-BENZ ENGINE

Minor repairs, examinations or adjustments—\$1.00 plus parts. Complete overhaul (guaranteed new engine performance)—\$2.50 including parts. On all C.O.D. shipments, purchaser pays Postage and C.O.D. fees.

PART NO.	NAME	LIST PRICE
351	Crankcase	1.25
302-1	Glow Head .....	.65
303	Piston and Rod	1.50
304-2	Cylinder	1.50
365	Crankshaft	1.50
363	Reed Retainer Ring .....	.15
364	Reed Valve .....	.25
5096	Needle Valve and Spring .....	.60
352	Prop Drive Plate .....	.15
1202	Tank Back .....	.75
5037	Tank with reed assembly	1.00
354	Gasket Set .....	.10
369	Screw Set .....	.20
1530	Wrench .....	.25
350-3	Engine Special	4.50

PARTS FOR THE MERCEDES-BENZ RACER

IMPORTANT: See your local hobby shop for parts. If he does not have them you may order direct from factory. Use part numbers as shown below when ordering. Send your remittance with your order. NO C.O.D.'s PLEASE. If you live in California, add 4% sales tax.

926	Center Post Set (Center Post, Screw & Nut) .....	.75
937	Stainless Steel Tether (with links) .....	.75
6001	Body Bottom	1.50
6019	Front Wheel & Tire with Knock-Off Nut .....	.75
6021	Rear Wheel & Tire with Knock-Off Nut .....	.75
6022	Front Axle with "E" Rings .....	.50
6023	Rear Axle with "E" Rings .....	.50
6026	Front Axle Springs (2 Required) .....	.50
6027	Rear Axle Springs (2 Required) .....	.50
6030	Drive Pinion .....	.35
6031	Axle Gear .....	.50
6032	Transmission (Gear Unit) Complete	4.00
6033	Drive Shaft .....	.35
6034	Flywheel, Fan & Screw	1.00
6035	Engine Mount .....	.50
6041	Body Top Parts (Top Rear, Hood Top, Top Front, Hood Hinge, and Circle Star Ornament)	2.25
6046	Decorative Accessories (Seat, Rear View Mirrors, Exhaust Stacks, Ex- haust Shield, Mirror Cowls, Grill Screen and Upholstery Label)	1.25
6059	Set of Stickers .....	.30
6070	Driver Un-Assembled	1.00
6076	Dash Panel, Windscreen and Steering Wheel Component Un-Assembled	1.25
6084	Set of Screws, "E" Rings and Washers .....	.50
6086	Muffler Assembly	1.95
6090	Bridle with Screws and Washer50
6020	Car Less Engine	16.00

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