BMW R 75 in detail®

German WWII BMW R 75 Motorcycles With Sidecar

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WINGS & WHEELS PUBLICATIONS

PHOTO MANUAL FOR MODELERS®

The BMW (Bayerische Motoren Werke) in Munnich was founded in 1917 by a merger of two companies - The Gustav Otto Flugmaschinenfabrik and Bayerische Flugzeugwerke. The factory specialized in production of aircraft engines. After WW II due to the Treaty of Versailles the factory after drastic reduction in aircraft industry had to alter the production plane. Since 1921 BMW started supplying motorcycle engines to motorcycle manufacturers such as Victoria, BMW, EISCN and others. The supplied engines were of flat two cylinders design with SV distribution with an output of 6 HP and displacement 498 ccm. In 1923 BMW company introduced in Paris Car Show the first motorcycle of its own production with the blue-white rotating propeller emblemon the fuel tank. The motorcycle was characterized with the same features that are characteristic for BMW motorcycles till the present days. The motorcycle was equipped with an inovative engine described above with an upgraded output of 8,5 HP placed across in the frame. Running for-

were soon accepted into the Reichswehr. In 1939 they played a significant role in the equipment of Wehrmacht. Wehrmacht started the WW II with a single seat one cylinder BMW R 4 (produced since 1932 with OHV engine with a displacement of 398 ccm) and BMW R 35 (produced since 1937 with OHV engine with a displacement of 342 ccm). Next BMW model introduced into service with the Wehrmacht was usually equipped with a sidecar and with a flat two-cylinder engine. These were known as the BMW R 12 (produced since 1935, equipped with SV engine with 745 ccm).

The most famous military motorcycle of BMW brand was without any doubt the BMW R 75. Heereswaffenamt ordered its production already before the outbreak of WW II. During December 1937 two competing factories the BMW and Zündapp started with a development of models BMW R 75 and Zündapp KS 750. First prototype of the new R 75 was introduced to the army in 1939. Alongside with the prototype KS 750 it passed the hard military trials. Since the

Trailers Details

Various manufacturers produced the infantry trailers. They differed mainly in size, frame type and use of wheels - either full metal or with holes. This particular trailer is equipped with consrtuction for canvas. For illustration two trailers are attached to the BMW R 75.

Trailers Details

MBW R7 5 (late) from the Collectio of Vladimír Léhar at Zvole, Czech Republic

These facts lead to unprecedented suggestion - that the BMW factory had to introduce without licence from Zündapp several modern features of Zündapp motorcycles on BMW motorcycles. The leadres of BMW factory rejected such a proposal but on OKH orders the unification of certain parts was introduced. The unification included the introduction of differential with a shutter, change in distribution from SV to OHV and incorporating of hydraulic brakes on the rear wheels. Serial production of the motorcycle which retained all the characteristic features of BMW and added several revolutionary features was commenced in 1941. This lead to an introduction of a motorcycle that was described as a motorcycle with a sidecar for colonial and special service.

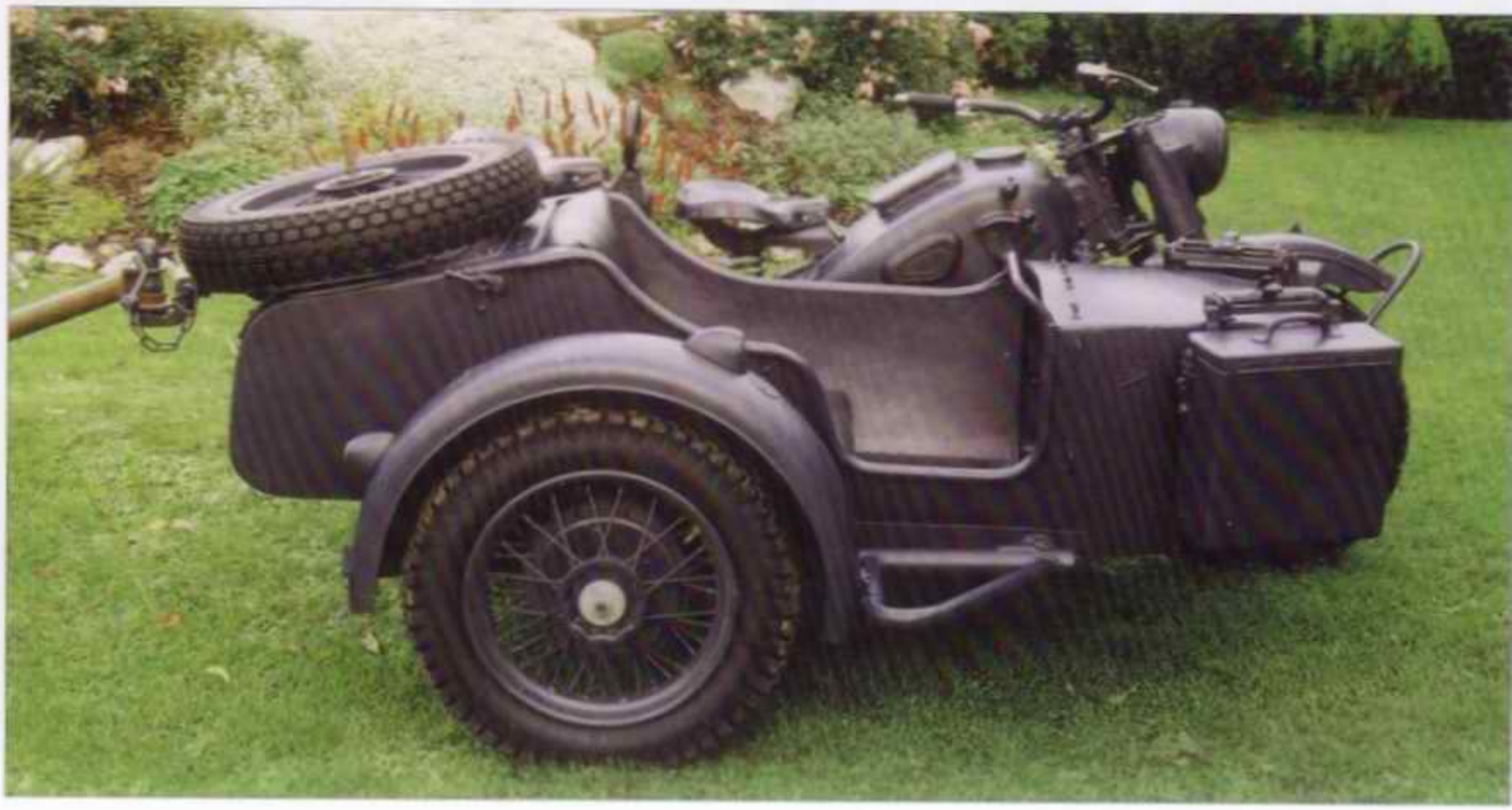
Construction of the motorcycle was based on principal demands for a motorcycle with a good cross-country ability through a rough terrain and reliability during combat conditions. The motorcycle was equipped with car-type tyres and oversized brakes. Front mechanical brakes and rear hydraulic brakes enabled the motorcycle to drive from even the steep slopes. The motorcycle was capable of wading deep waters. This was possible due to water sealed spark plugs containers, air intakes up to the level of fuel tank, carburettors sealed by waterproof covers and exhaust pipe reaching the level of co-driver's seat. Silent running of the engine was secured by a exhaust pipe muffler that enabled sufficient expansion of exhaust fumes before reaching the surrounding air. This feature was much appreciated by the crews during actual combat.

The frame of the motorcycle was screwed from eight parts. This simplyfied production and in case of any damage in the field it enabled a fast changing of defect part. The most interesting part of the motorcycle was its revolutionary system of drive of the sidecar wheel with a differential. Features from the car production were introduced into the design and production of the motorcycle. By means of an extra pedal it was possible to lock the differential.

Walk Around

With this feature the manoeuvreability of the motorcycle was excellent not only on roads but in terrain as well. Both rear wheels powered enabled the motorcycle to travel in muddy terrain as well as on steep hills. Well selected gearing in gearbox enabled to select variety of speeds. The gear box contained speeds suitable for cross country as well as road drive.

Two handles were located on the right side of the fuel tank. With one handle shifted to the front and shifting of the road gear it was possible to shift via second handle or even the left foot up to four front drive speeds and one for rear drive. Shifting the handle to the rear and using the cross country type gear it was possible to use up to three speeds for front drive and one for rear drive. Constant speed of abt 3 kilometers per hour could be used for marching columns vithout using the clutch.



Walk Around

Zündapp KS 750 were the top developments among the military motorcycles during the WW II times. Manned by an experienced driver this motorcycle was able to show even unimaginable performance. It was a sucessful but very complicated machine with high production costs. Together with the collapsing power of Wehrmacht and diminishing number of experienced drivers new demands occured - demands for a simple and low-cost production cost motorcycle and cross-country cars. This demand was fully met with the introduction of the Volkswagen VW 82 Kubelwagen. Production of BMW R 75 motorcycle was therefore terminated during 1944. Total production reached 16,500 units of these remarkable motorcycles.

Basic technical specifications

Engine:
Water cooled four-stroke
petrol two cylinder OHV
Displacement: 745 ccm
Output: 19 KW / 26 HP /
Fuel tank: 24 liters
Carburetter: 2 x Graetzin Sa 24
Fuel consumption:
6,7 - 9 liters per 100 kilometers
Radius: 270 - 360 kilometers
Lowest constant speed:
3 kilometers per Hour
Highest speed:
92 kilometers per Hour
Short climbing possibility:
40 degrees
Long climbing possibility:
35 degrees
Size:
Length: 2400 mm
Width : 1730 mm
Height : 1000 mm
Weight : 400 Kg
Payload : 820 Kgs

Walk Around

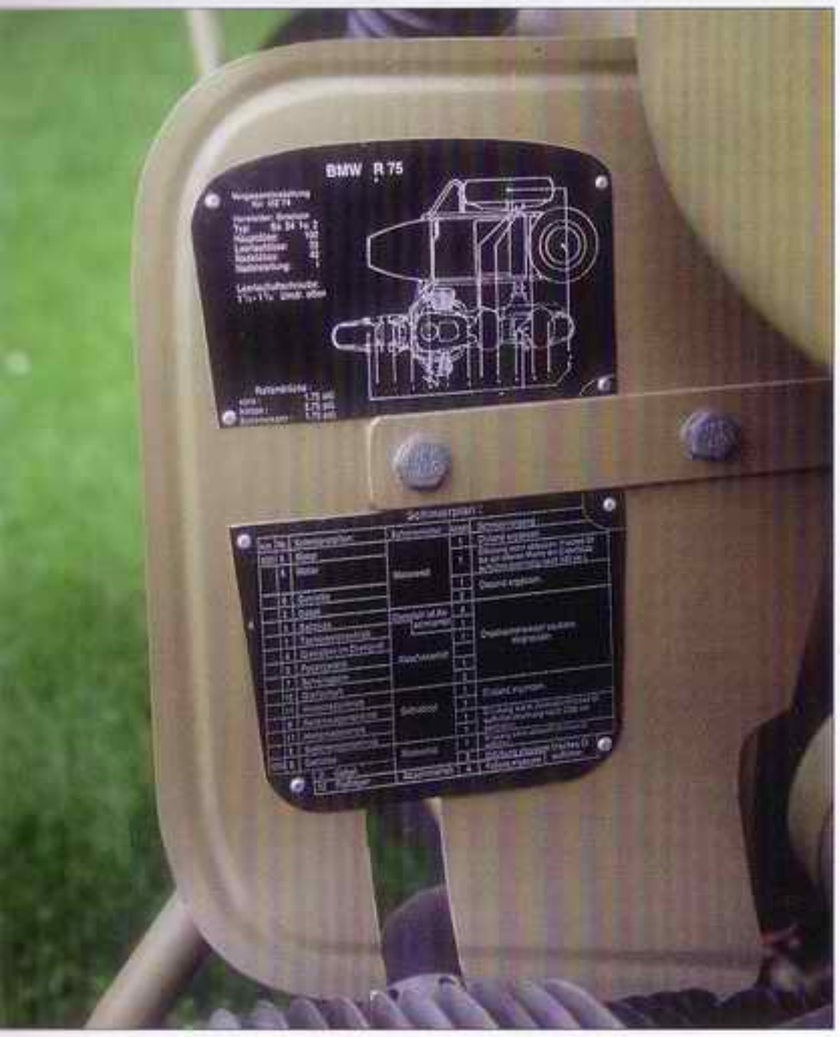
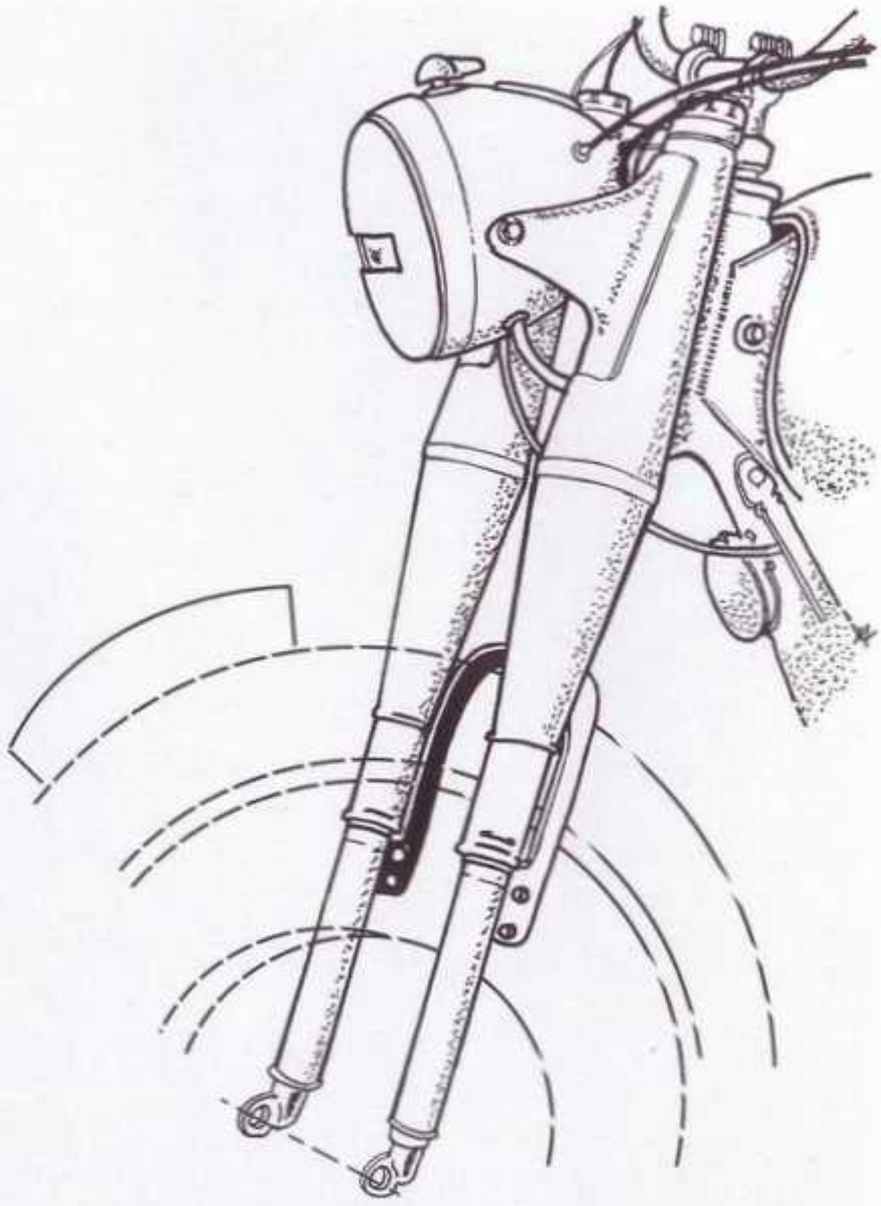


Photo on the left shows a detailed view of label on the left foot shield with motorcycle lubricating plan, location of carburetter nozzles and tyre pressure prescription. Prescribed tyre pressure for front wheel is 1,75 atm, for rear 2,75 atm and 1,75 atm for the side car wheel. Last production series did not have side protective rubber pads on the fuel tank.

Front Wheel Details



Top drawing shows original metal housing of a shock absorber of front wheel that was later changed for a rubber bag that was more suitable for field use as it protected more properly from dust and dirt entering the shock absorber. On the left an older model still without searchlight installed. Below - well seen label with inscriptions on degree of interference. At this reconstruction stage still empty holders of immatriculation plates. Front fender had a mudguard on the right side for protection of a passenger in the side car against dirt from the front wheel.

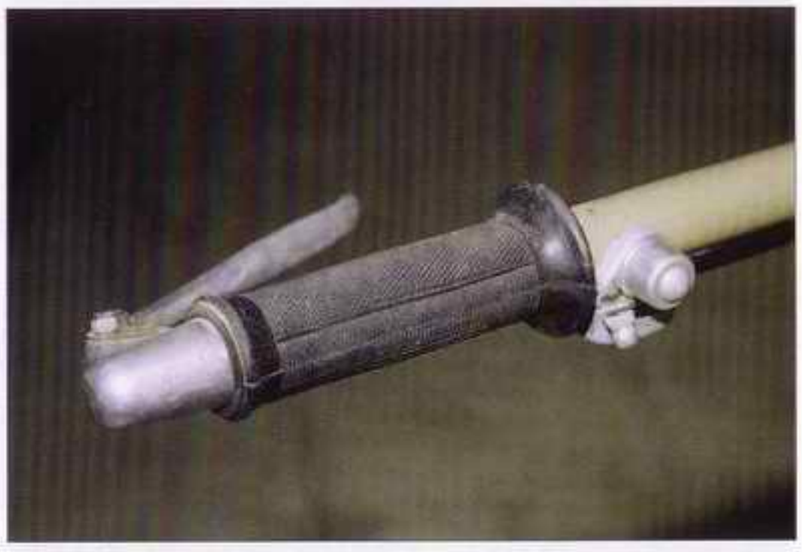
Construction of the motorcycle enabled superior manoeuvreability. Turning diameter was really minimal - 4,7 meters to the left and 3,6 meters to the right.

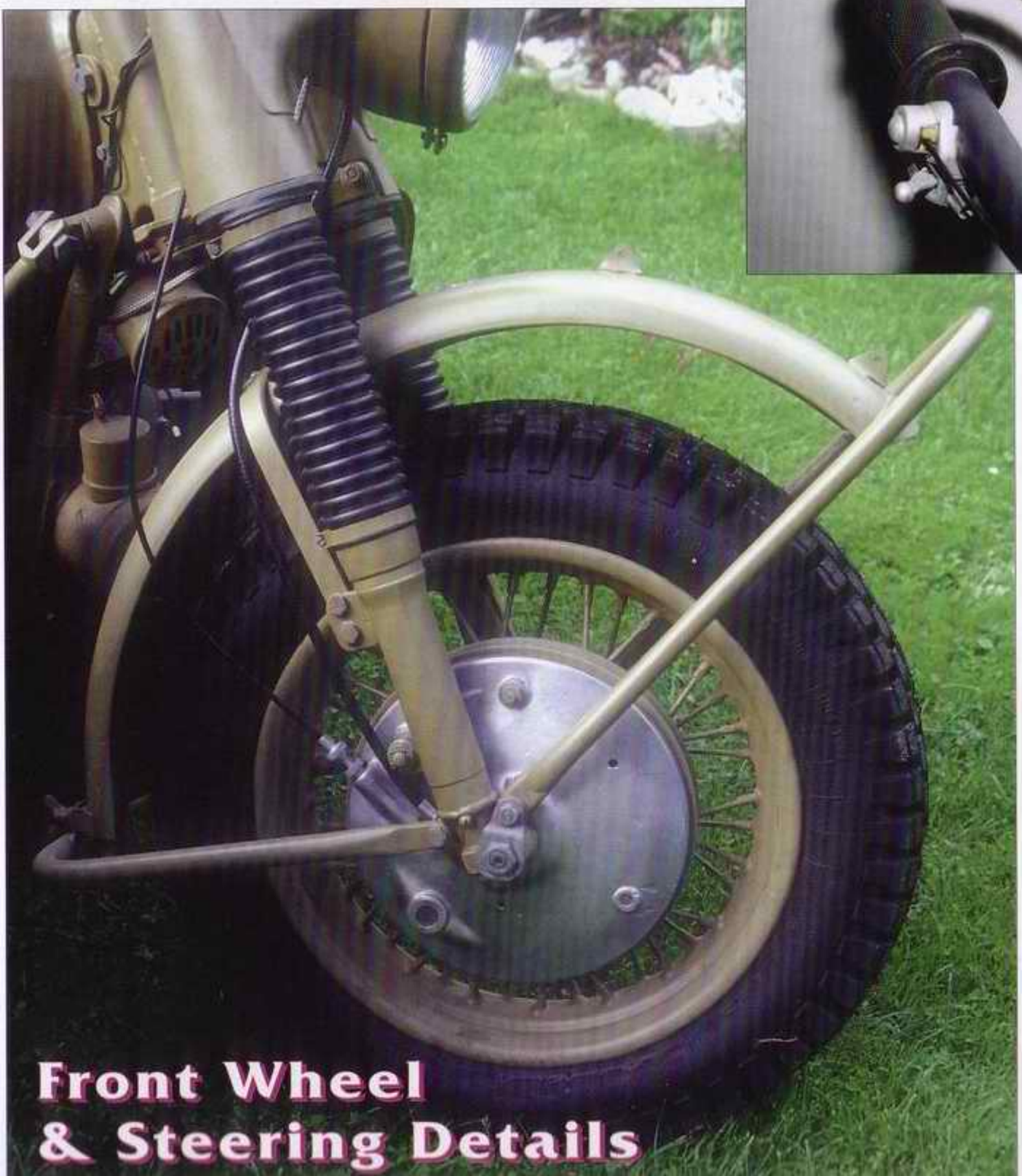
Front Wheel/fork Details

Photos on this page show details of joints of front fork with the frame. On the left two photos of the horn produced by Bosch company, below joint of the fork in the frame seen from both sides. On the upper right - searchlight body with tachometer and switch that turned light on either for park lights and long distance mode. On next page - same details of late production model.

Front Fork Details

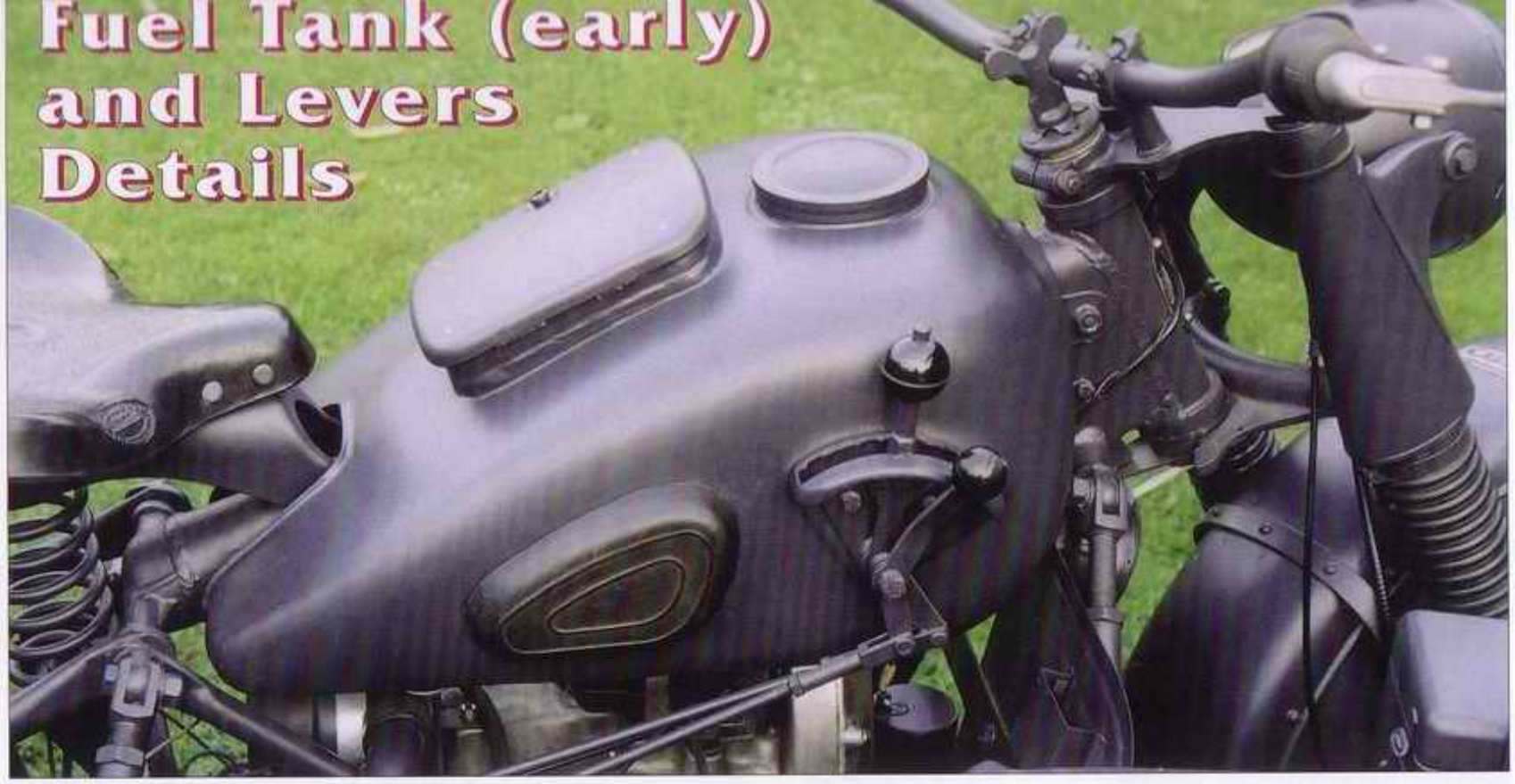
Front Wheel/fork Details





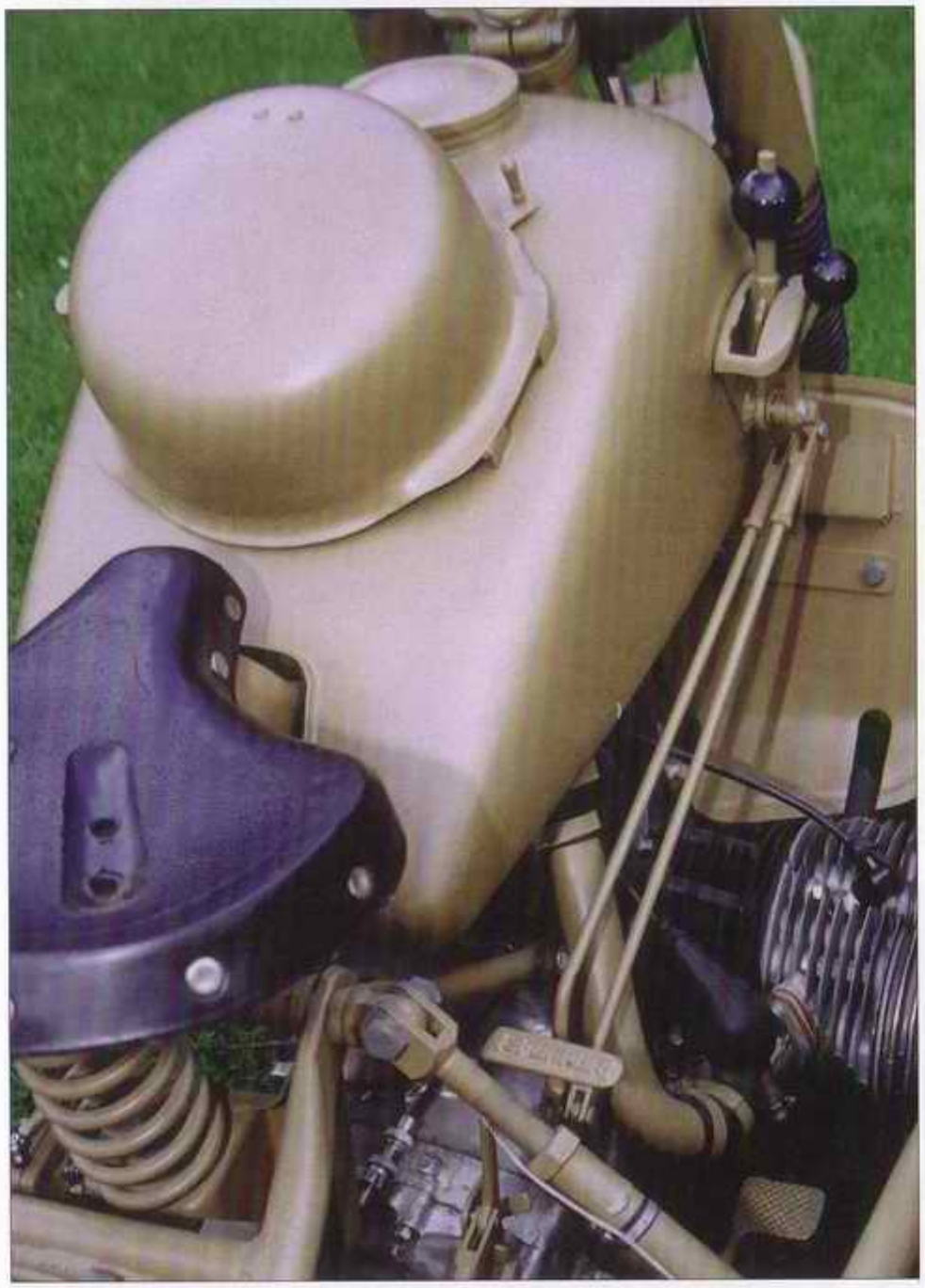
Front Wheel & Steering Details

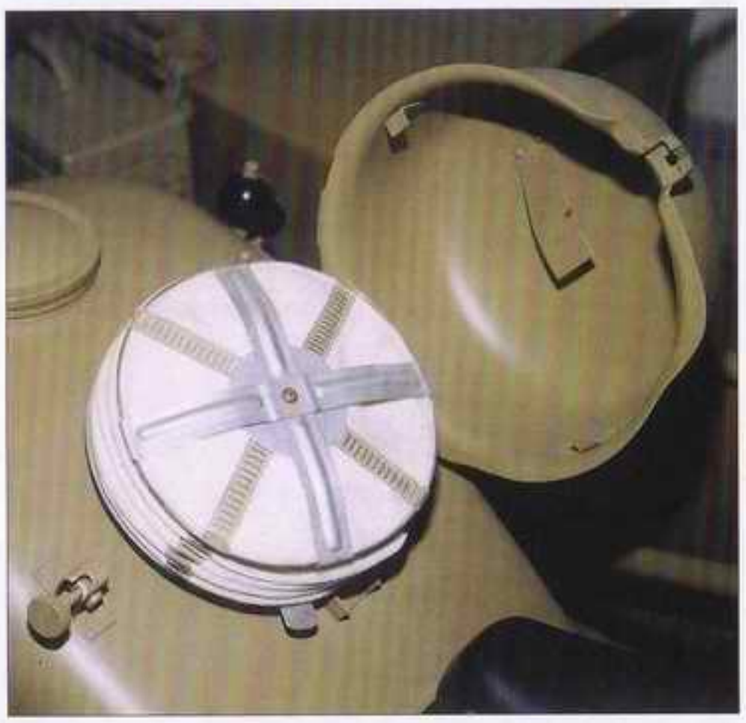
Fuel Tank (early) and Levers Details

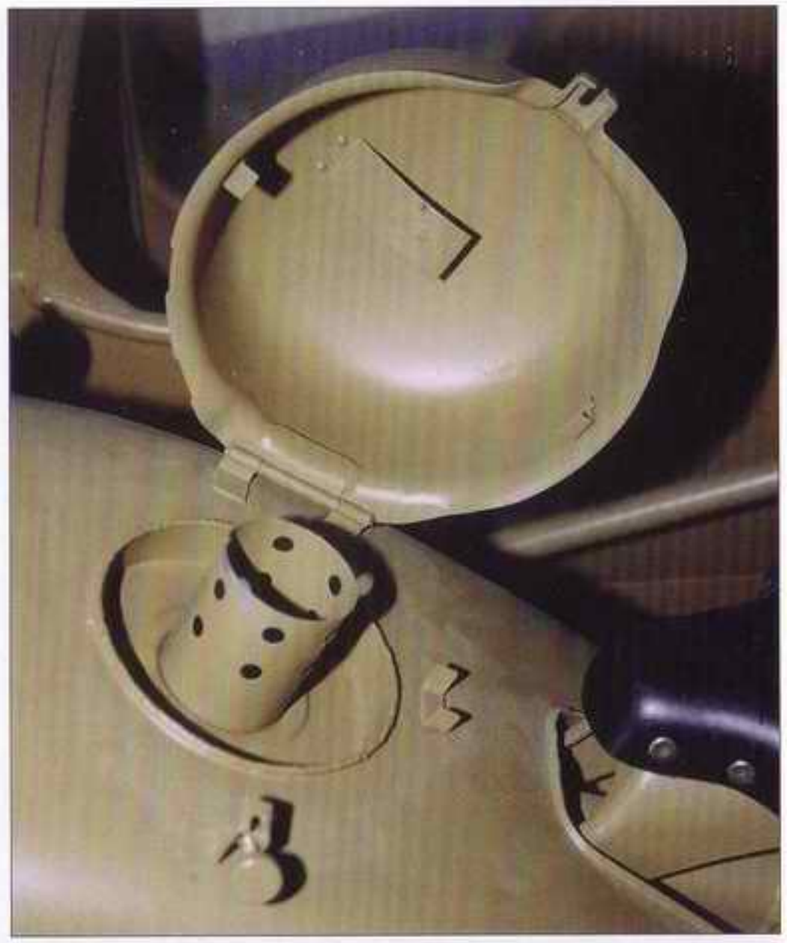


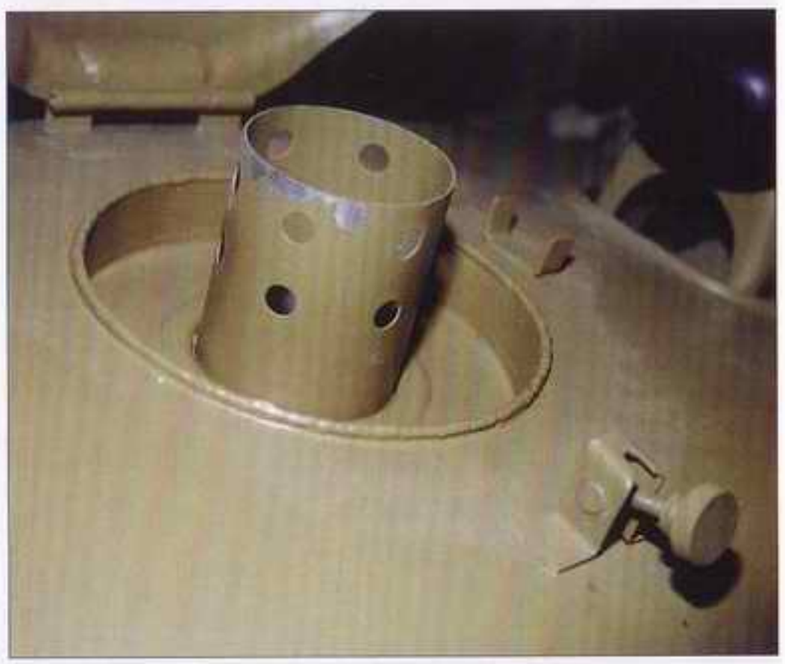
Previous page - view on front wheel of late production model and detail of driving handle.
Above - right handle with accelerator, below left handle. Contrary to Zündapp KS 750 two cables leading to the two carburetters. On swich there is a horn button and switch for searchlight. The older type of fuel tank had a lockable box on top usually used for first aid kit.
This page on the left - details of gear switches.

Air Filter Details



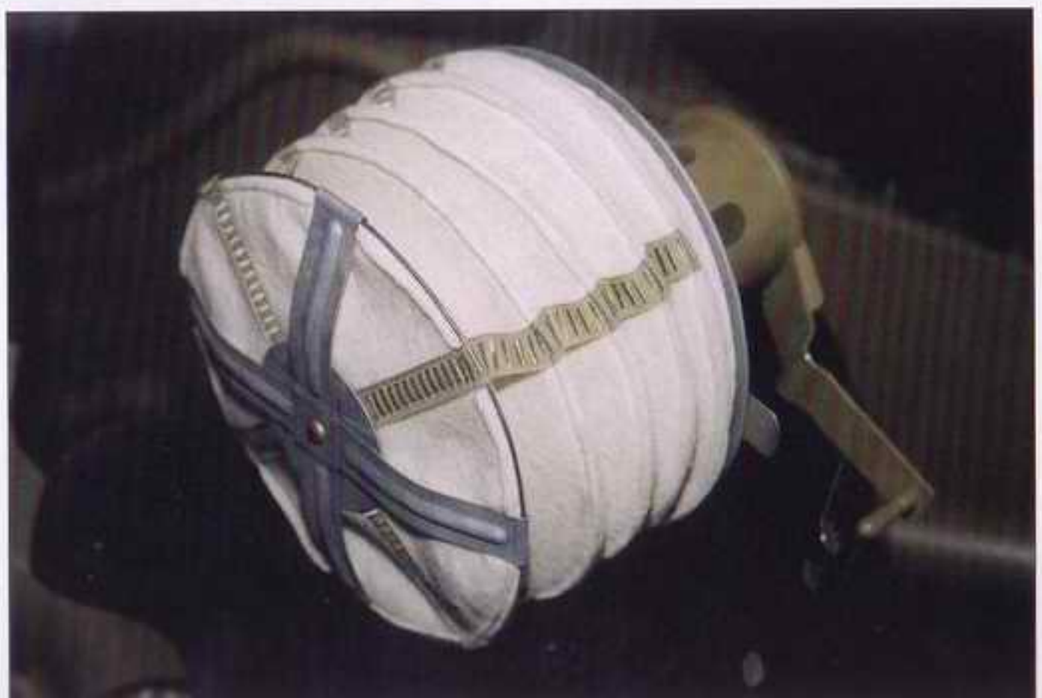






Above closed air filter cover from the front, below folded. On the right - details of intake pipe after filter was taken out. Opening in pipe fit the openings in the center pipe of the filter (below right).

Owerall view of new type of fuel tank with distinctive cover of air filter on the place where usually a first aid kit was located. Below in the middle fully extended air filter, on the right side lower side of air filter with metal cuff and handle joint with perforated center. This handle was used to regulate the air flow towards both carburetters. First pieces of this fuel tank type did not ha-



Right - overall view of fuel tank, aboveand below details of gear handle. The bigger handle near the fuel tank was used for gearing of 4 speeds front and one reverse. Smaller handle was used fot gear reduction either for road (front) or cross country (rear). Manufacturer prescribed only 3 reduced speeds forward drive but experienced drivers used all four.

Instruments Details

Fuel Tank/levers Details

Seats Details

Details and overall view of drivers seat, its fixing with the frame, one oversized spring. On opposite page different type of drivers seat on later model of R 75.

Front Seat Details

Seats Details

Swinging tandem seat was fixed with the frame and springed via horizontal coil spring, this system was identical with the Zündapp KS 750 motorcycles. Front seat of R 75 as opposed to KS 750 was springed only with one coil spring in its longitudinal axe. Side equipment bags were screwed to the seat carrier.

The motorcycle was equiped with various seat types produced by Drilastic company. Motorcycles of later series could have been equiped with rear seat produced by Framo company. The tandem seat of the passenger was equiped with a handle coated with rubber. A rubber block was located below the passengers seat to protect from hitting the frame of the tandem seat.

Rear Fender Details

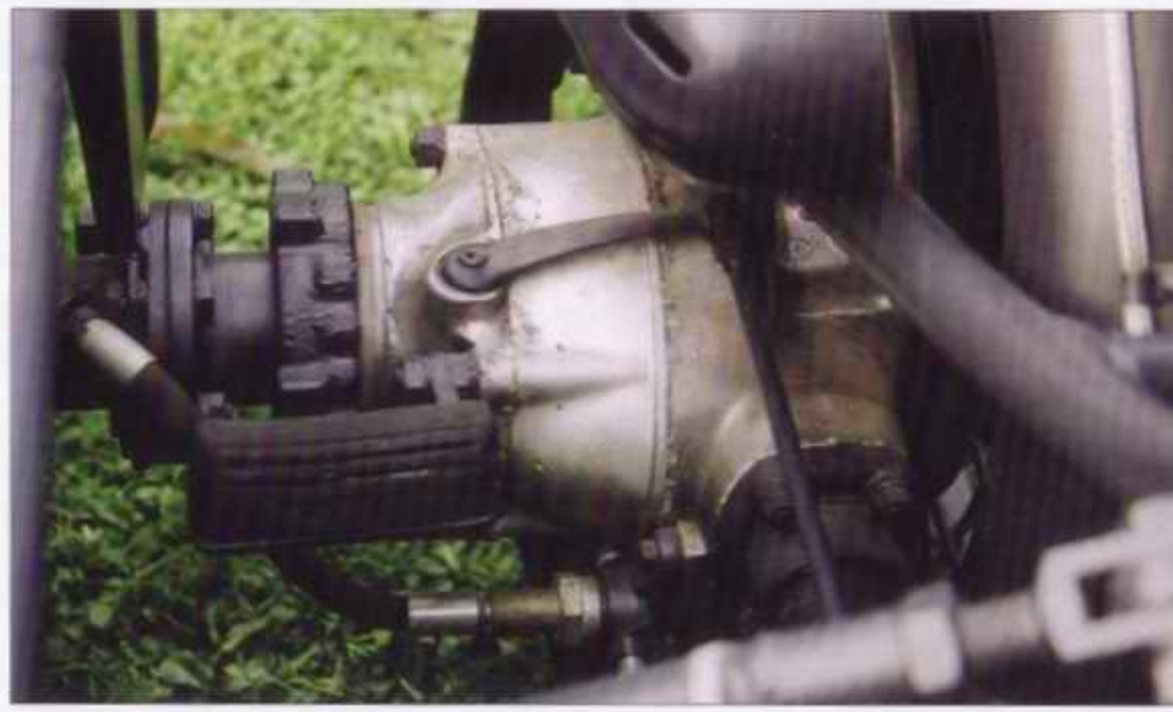
There were no differences between both models at the rear, only a visible difference in Drilastic company seats is evident. Note the hinge and wing screw-nut that enabled folding of rear fender. This procedure was essential for rear wheel replacement. Electrical wiring to rear light was laid over the fender. This was convenient for possible replacement of wiring without the necessity to dismantle the rear wheel. Photos on this double page show the nonadvantageous placing of the exhaust pipe to the right side as this arrangement severly diminished room for

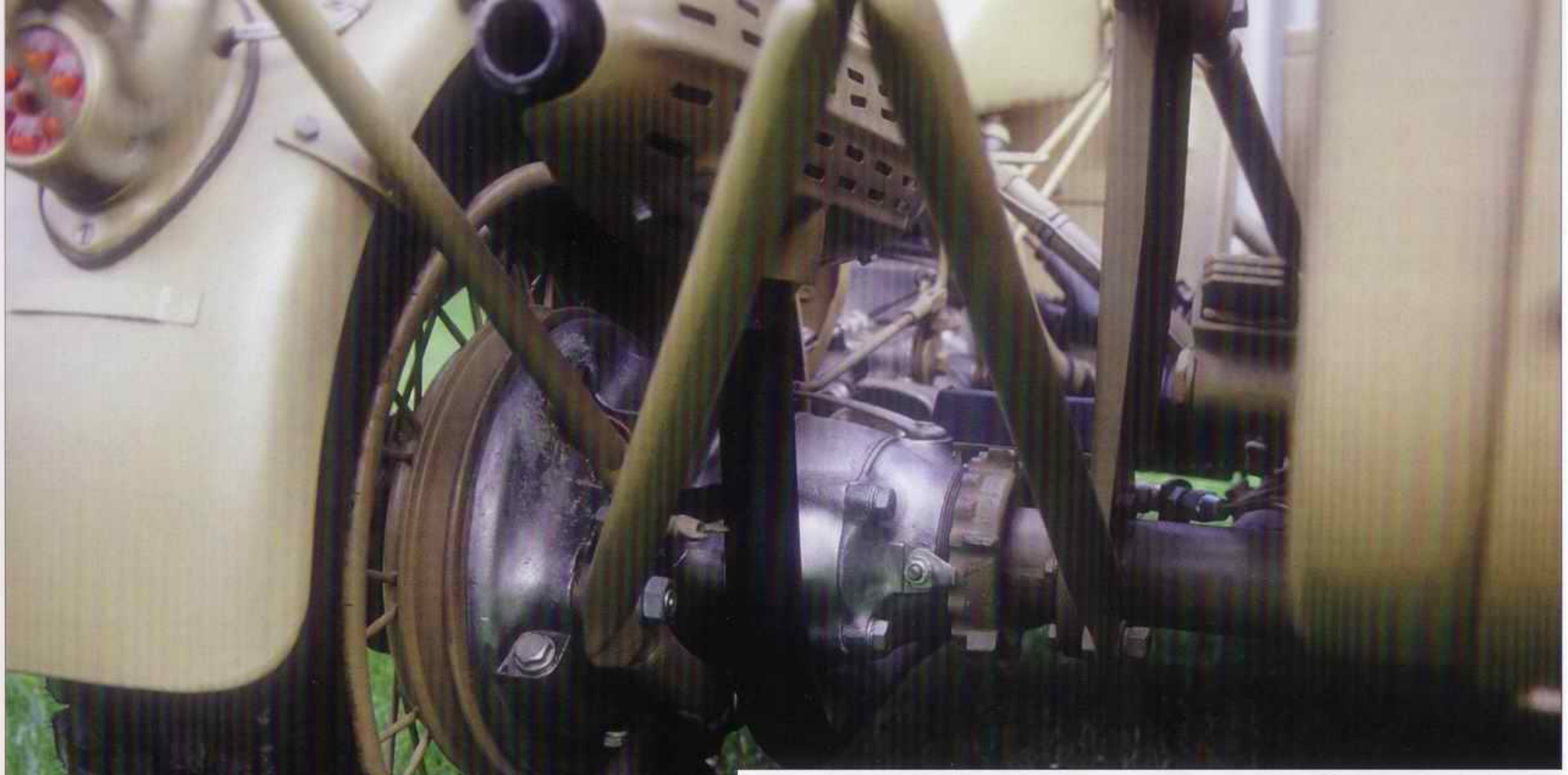
Rear Fender Details

Rear Axle Details

On the left overall view of rear wheel with equipment bags removed. On the left towing hook with catch. Below view of rear axle differential. Right rear foot rest is placed on the differential. Behind the foot rest a pivot with piston-rod for differential handling. Lowest photo - detail of perforated cover of exhaust pipe silencer.

Opposite page details of differential, below right detailed photo of right side of R 75 before side car installation.

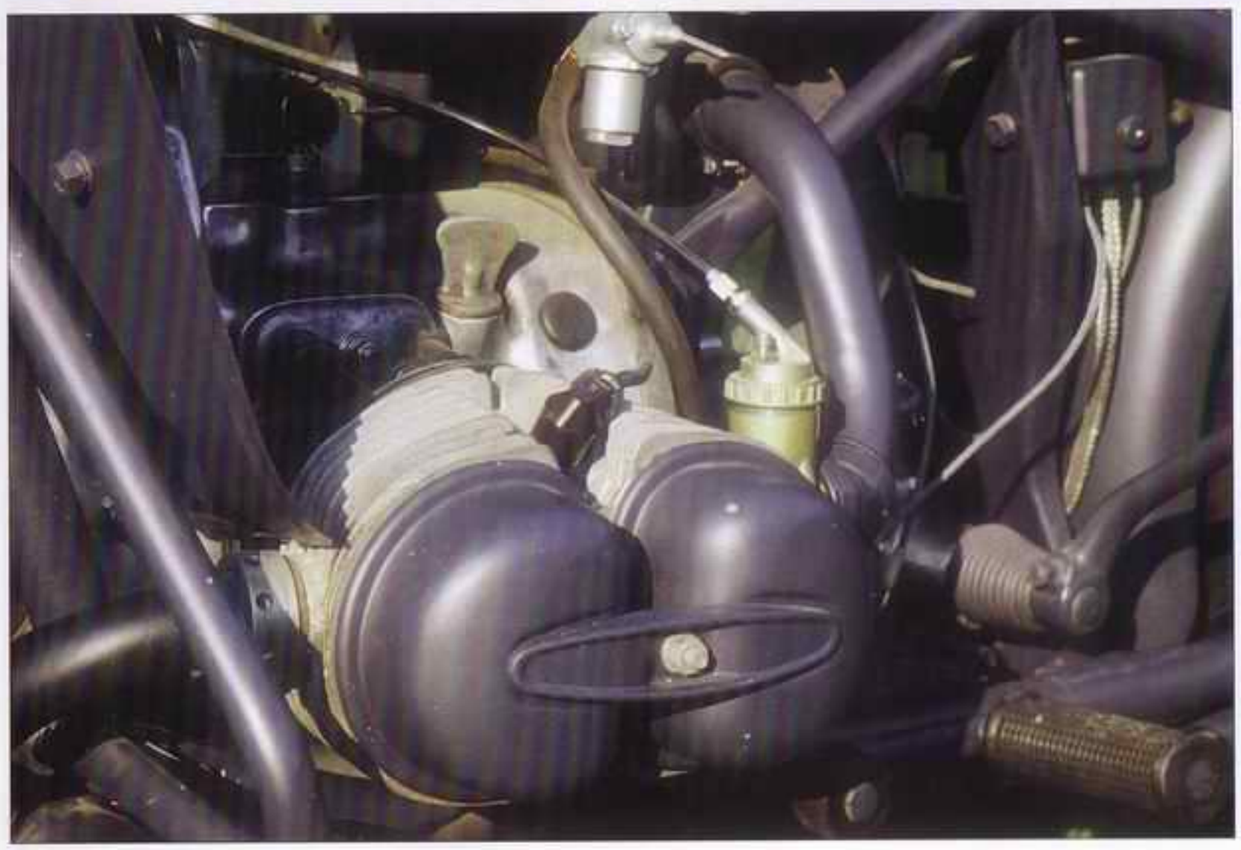




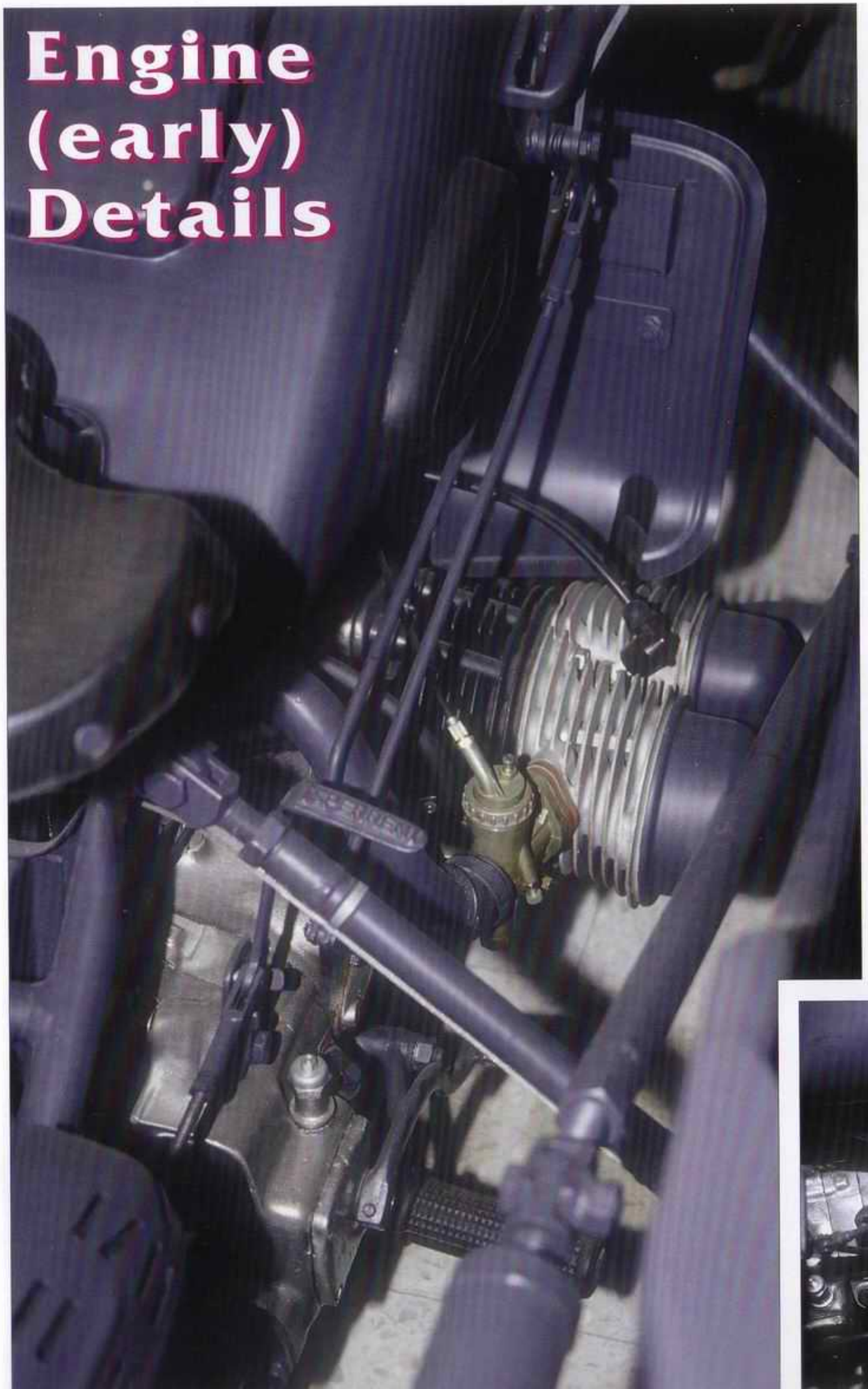
Upper left photo - towing hook with attached with shaft of trailer, below detail of rear foldable part of a fender. Well seen is fixing of cover with the muffler of the exhaust pipe.

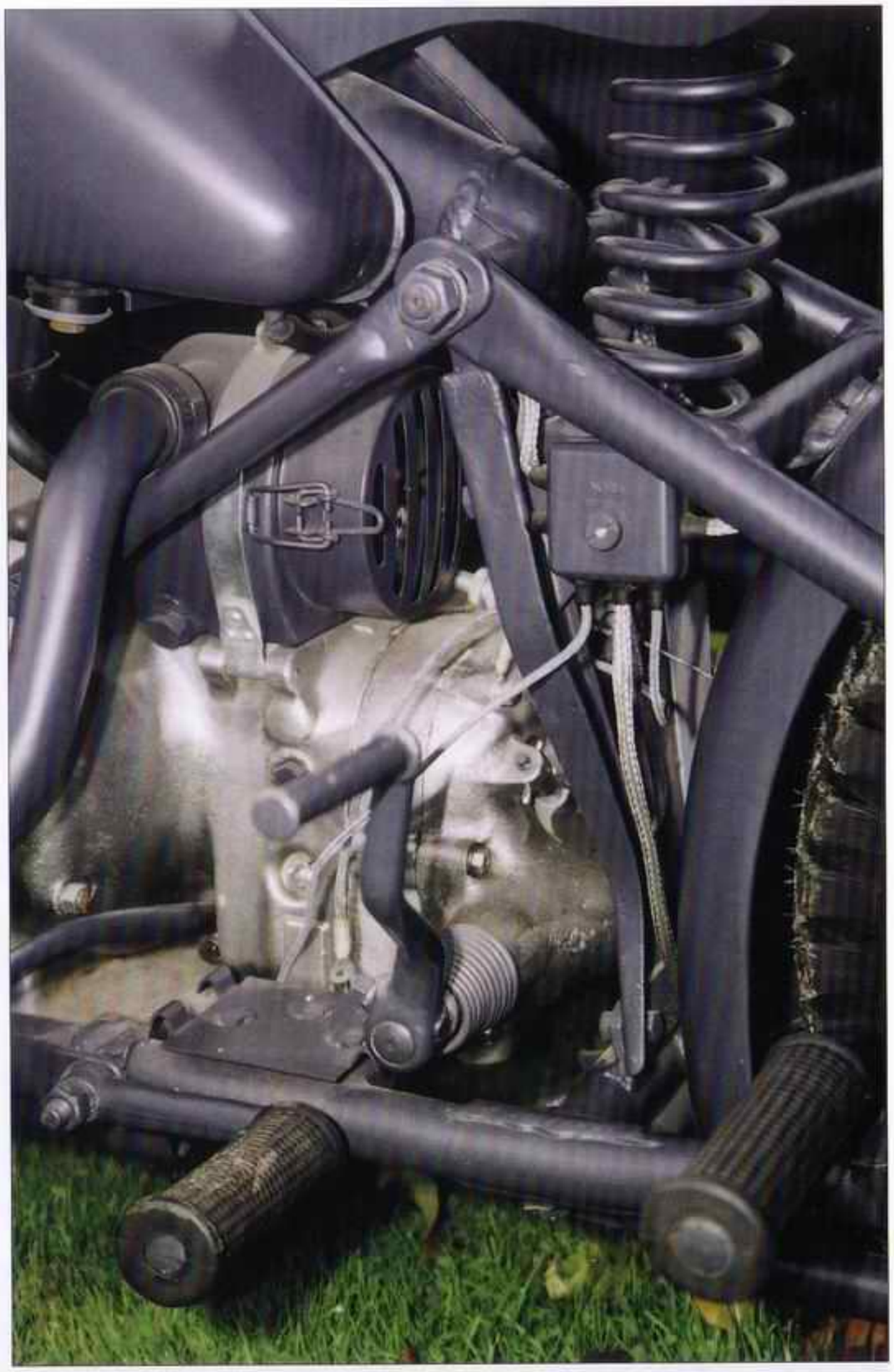
On opposite page an overall view of the engine from the left and head of the cylinder of the older model. Valves cover on the cylinder head was on this specified model smooth, iron type, usually in vehicle's colour. Well seen is the piping from the air filter to the carburetters. The air filter is placed on the axis above the transmittion with intake holes facing to the rear. Carburetters are located on the rear side of both cylinders. Thinner black pipe is supply of fuel to the carburetter.

Engine (early) Details

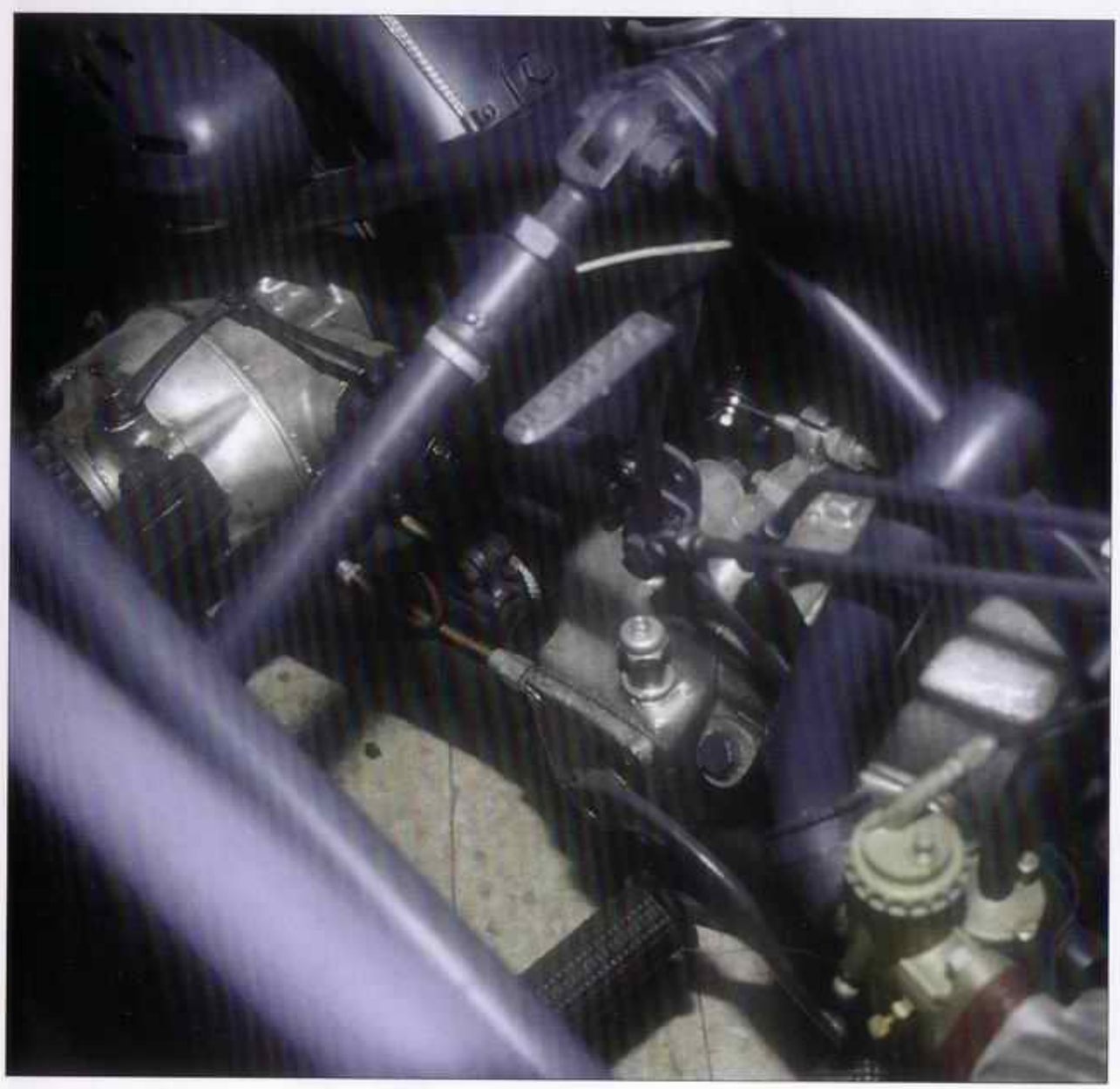


Engine (early) Details

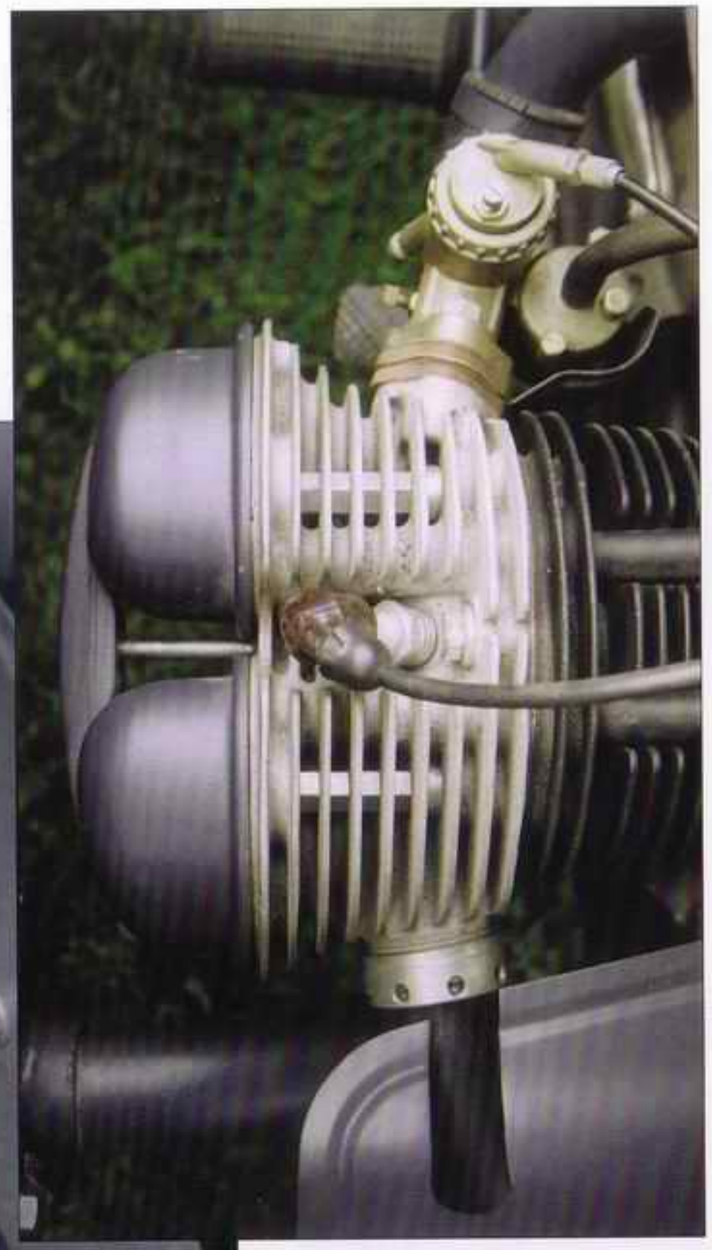




Pulleys from the gearing levers to the transmittion are well seen on the photos on next page on the left as well as below. On the right detail of air filter.
This page - above details of engine block with BMW logo clearly seen with punched serial number 761411 on the cover of the distribution. Below are two views of left side of the transmittion with pulleys and lever of differential locking of the rear axle. Joining of the frame of the trailer with the frame of the BMW R 75 is also well seen.



Engine Details



On the left details of a dynamo and collecting cylinder of the exhaust piping, below exhaust pipe protruding from the cylinder, above right and left cylinder from the top with markant articulated ribs of cylinder body. Well seen are also smooth covers of cylinder heads.

pedal of differential locking, on the right joining of pedal with transmittion body and pulley protruding aft towards the differential. Below view of a dynamo from front right.

Engine Details

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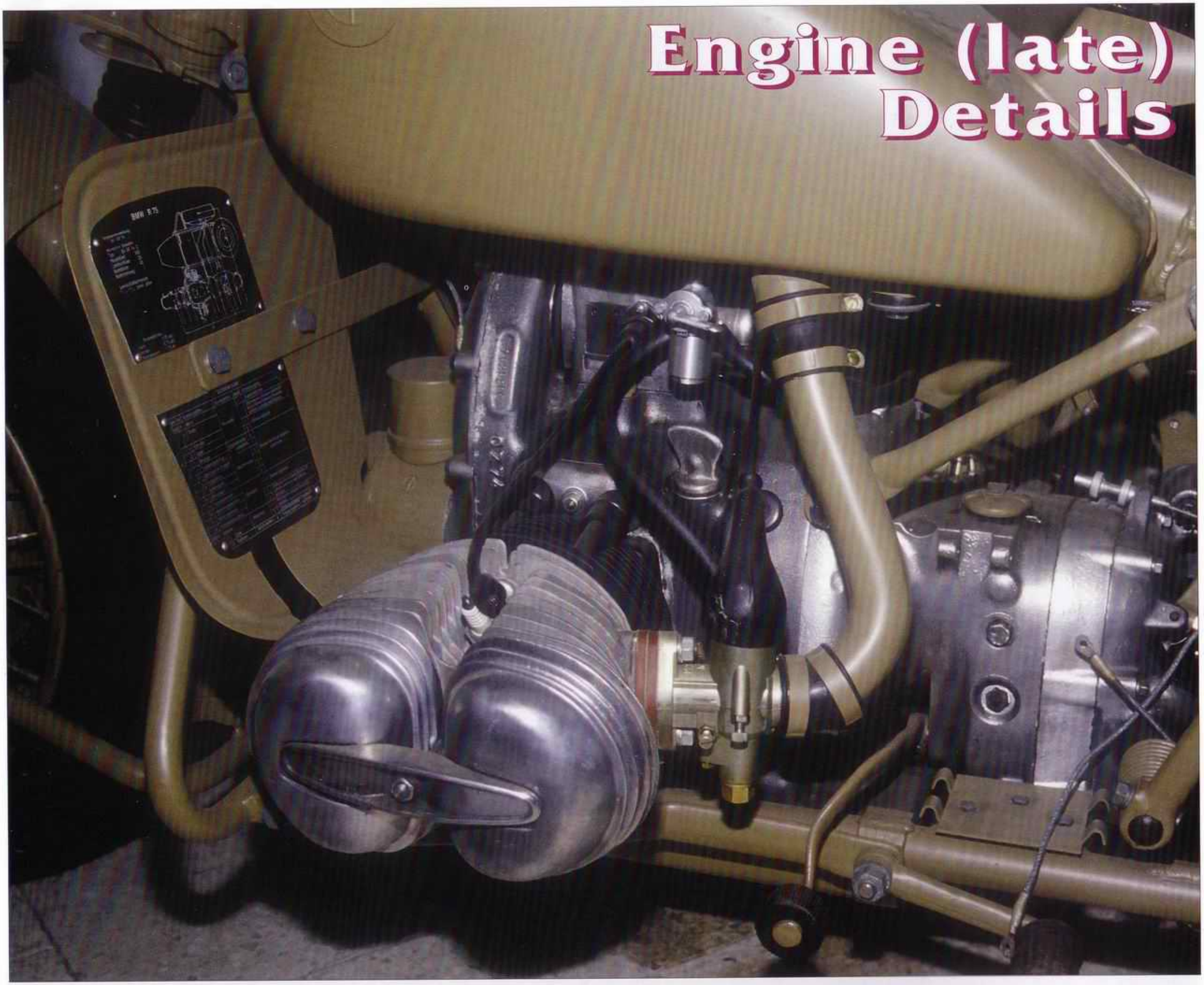
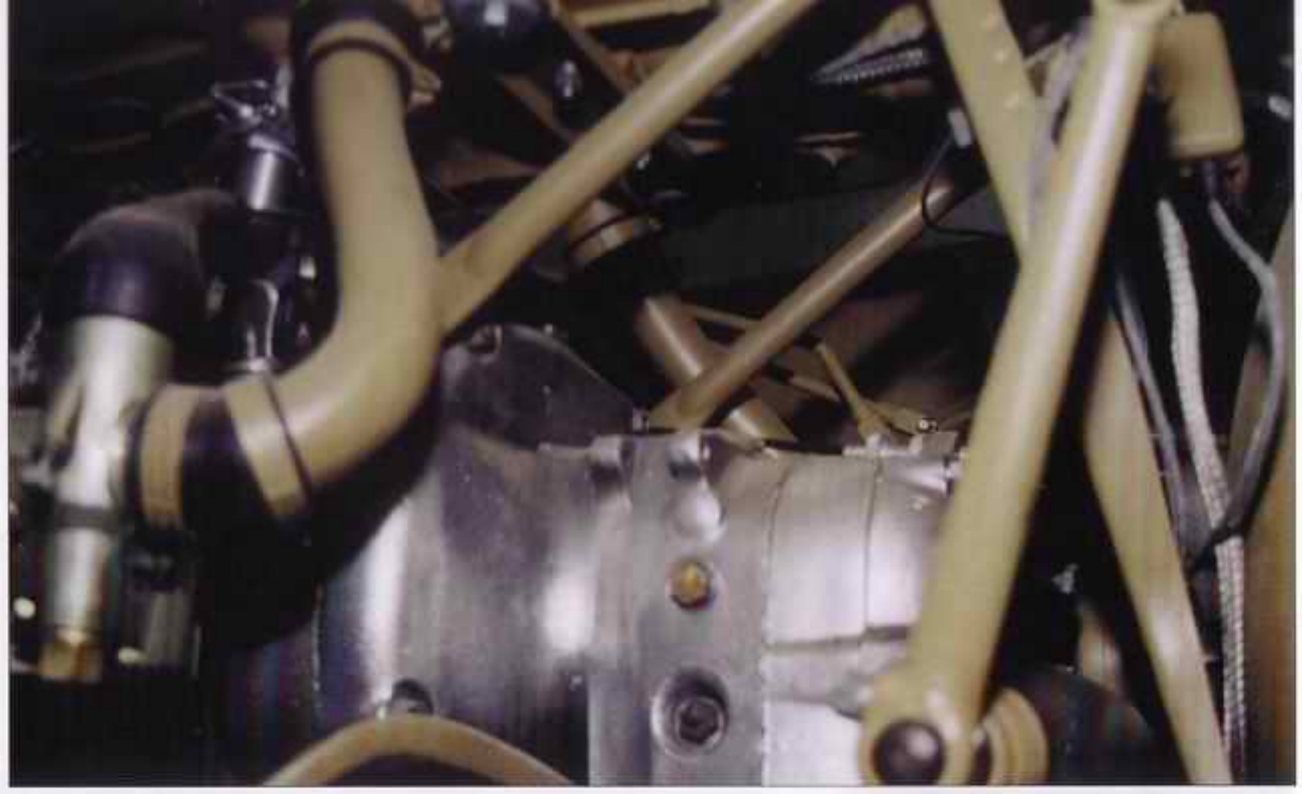
pedal of differential locking, on the right joining of pedal with transmittion body and pulley protruding aft towards the differential. Below view of a dynamo from front right.

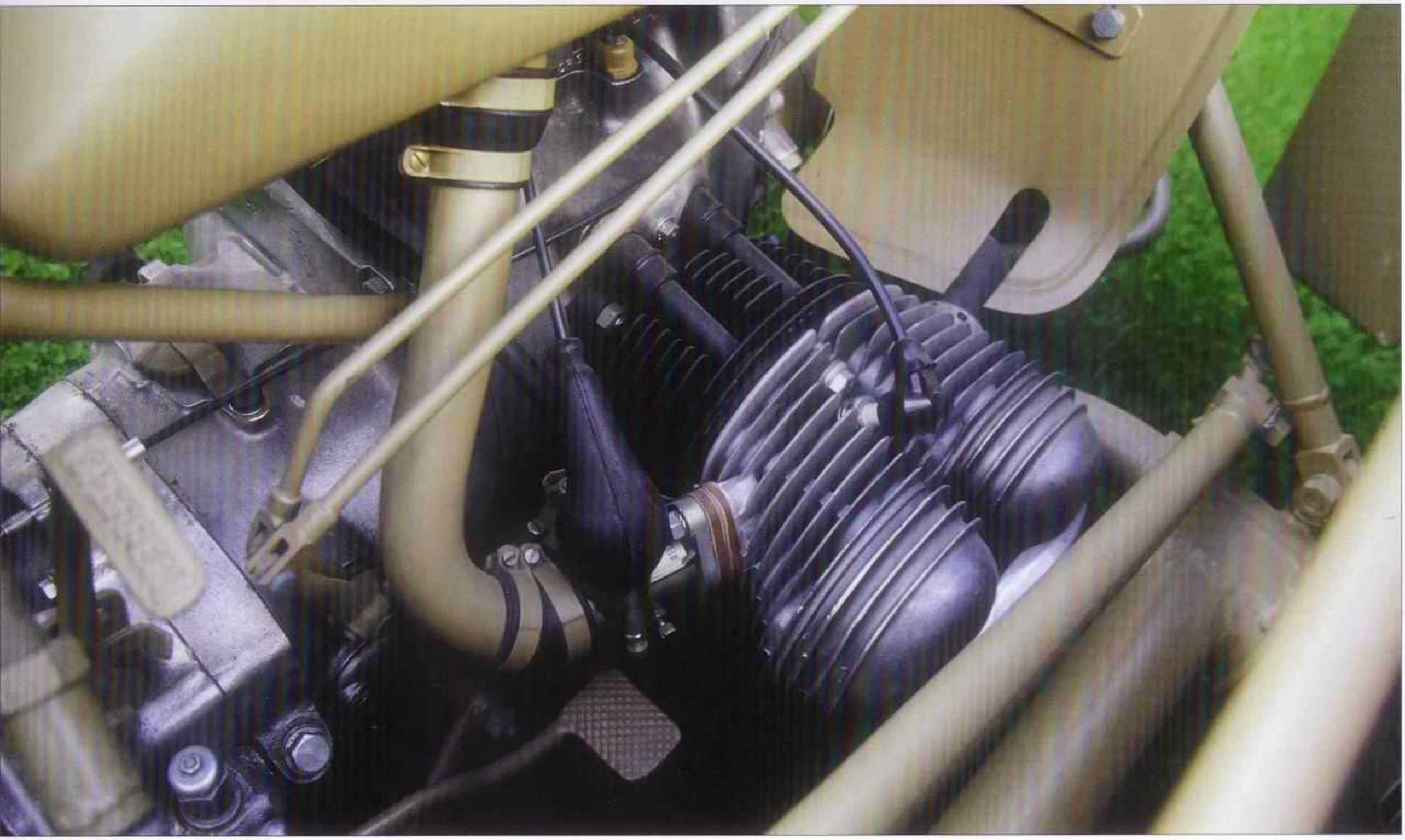
Engine (late) Details



This page - overall view of engine of the later model. At first sight it differs from the older model by having different aluminium covers of the valves of the cylinder heads. For increase of the cooling effect they are with ribs as well. Carburetter is protected from the top by a rubber cover from which a cable leads to the right driving fork. There is a 6 V battery bed battery is identical (7 Ah) as the one located in KS 750. This battery bed contrary to KS 750 is located directly on the frame.

Opposite page - view of lower part of a fuel tank on the right and details





Engine (late) Details

Below - right side of the motorcycle still without the sidecar fixed. This model has already the air filter on the fuel tank but still with the side rubber mats. On the left and above detail of right side of the engine from previous double page.

Gearbox Details

Two details of a cardan shaft protruding from the transmittion to the differential of rear axle. Construction of a tube frame below the shaft, next to it brake fluid piping and exhaust pipe. On the photo above pulley of the differential locking.

Above two views of an empty frame of the sidecar, on the left below detail of the foot rest enabeling drive with one foot outside. Below a detail of fixing of inner spring of the frame. Both side car models are BW 43 models manufactured by Stieb company. They differ from BW 40 by having leaf springs.

Stieb BW 43 Sidecar Details

Above an empty frame of the sidecar of a later production model, on the right above two details of fenders and outer spring of the frame. Fender of the sidecar as well as the front wheel had protection mats on the inner side. Below details of rear axle and brake drum of side wheel. Piping of the brake fluid is located on the upper part of the axle.

Sidecar Details

Sidecars were equipped with an anti slip wooden floor. There were cringles located on the perimeter of the passenger compartment for protection canvas fixing.

Sidecar Details

two overall views of a sidecar with a new canvas and next to it two views of a fender of a sidecar. Label on the fender warns about the necessity to lubricate once per week the hub of the side wheel.

Above on the left - locking of an equpment holder, in the middle and right inner side - an opened lid of storage place of a sidecar.
On the left location of a frame with three ammunition containers for MG 34/42 ammunition clearly point to the size of the storage space of the sidecar.
On the right - lower side of the frame with three ammunition containers.

Accessories Details

Next page - views of rear equipment containers and below frame in transport (locked) opened position (right) position

Trailers Details

Above - a label on the shaft of the trailer. Inscribtions indicate the permitted load of the shaft when being towed by a motor vehicle (431,5 Kg). Below a type label on the frontal wall of the trailer. Includes type marking - infantry trailer JF 8, weight of the trailer (81,5 Kg), payload (350 Kg), year of production etc.