





M3A2 HALFTRACK

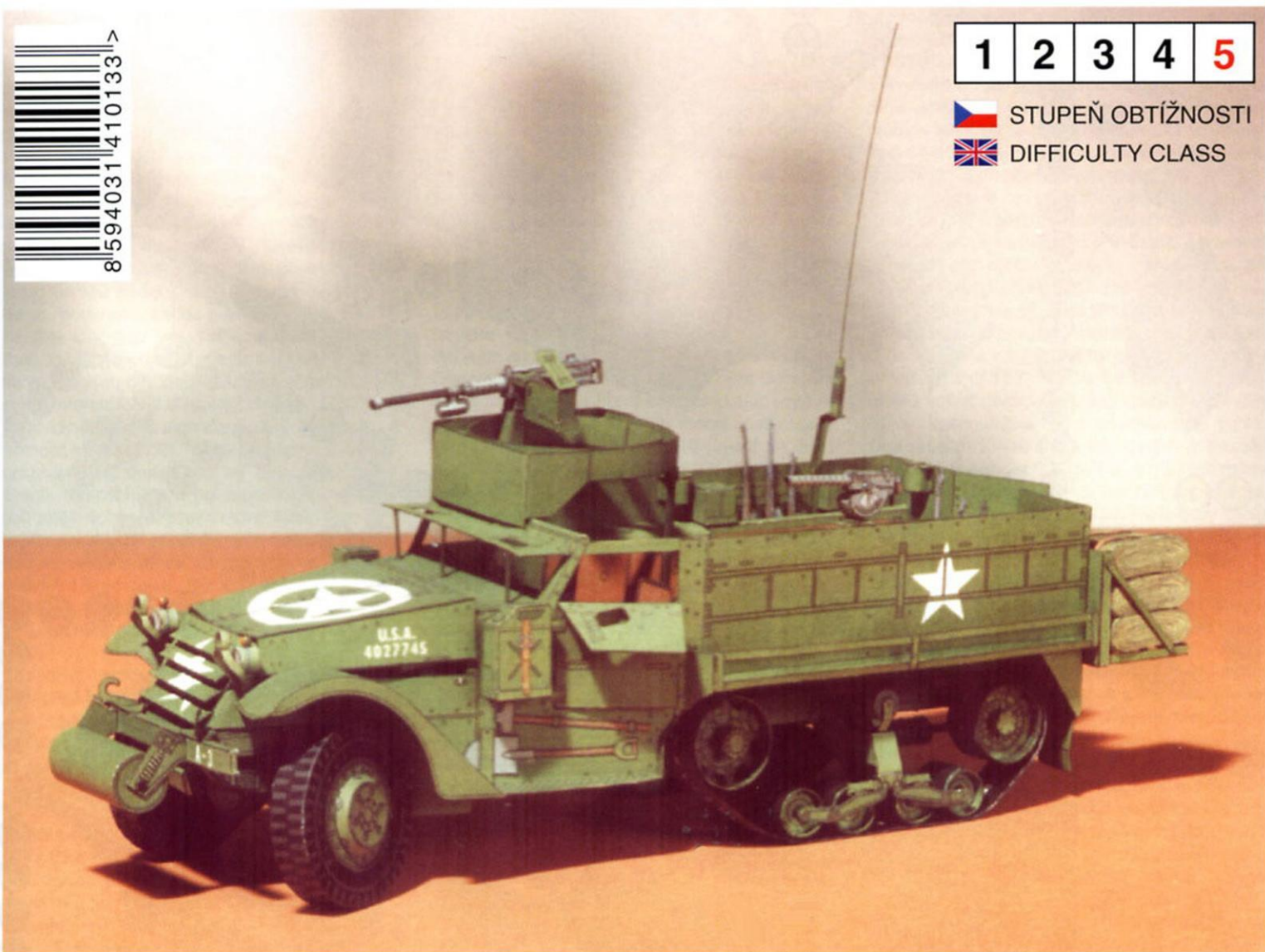
MODEL AMERICKÉHO OBRNĚNÉHO TRANSPORTNÍHO VOZIDLA
V MĚŘÍTKU 1:35



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 STUPEŇ OBTÍŽNOSTI

 DIFFICULTY CLASS



papírový plastický model / paper kit / papier modell

M3A2 HALFTRACK

The half track first appeared as a regular weapon in World War II and served as the main personnel carrier of U.S. and German armoured divisions. It adomed war history with its numerous variations and characteristic designs. As an accompanying vehicle of the tank, it showed its mobility to the full.

There were big differences as follows between the U.S. and German half tracks. In the U.S. half track, engine power was transmitted also to the front axle and steering was made only through the front wheels. In the German half track, the front wheels had no brake, and the vehicle controlled the direction of travel by changing the angle of the front wheels or by fractionally idling the sprocket wheel on one side through the link according as steering angle was under or over 15°. These differences arose because the Americans originally made their half track by replacing the rear wheels of a truck by tracks, while the Germans originally made theirs by adding wheels to the front of a full-track vehicle in order to make its body longer. The Americans designed their half track as an armoured fighting vehicle from the beginning. On the other hand, the Germans used the very same chassis both for their non-armoured vehicle and armoured fighting vehicle, which put their half track at a disadvantage. Although it showed desired performance on European roads, its mobility was much limited in the field, particularly in muddy places, because the front wheels were not driven and the engine did not offer sufficient power.

It had been known since World War I that the tractive force of a truck with two rear axles would remarkably increase if tracks were fastened round its rear wheels. A number of nations had continued their own efforts to study and develop the half track, rear suspension for the tracks being the main object of their study. Under these circumstances, a Citroën-Kégresse half-track vehicle succeeded in running across the Sahara Desert, which renewed their enthusiasm for developing the half track.

In the United States, the Ordnance Bureau of the Department of the Army started earnest study and development of the half track in 1925 when it purchased two Citroën-Kégresse vehicles from France. The P17 half-track tractor purchased from France in 1931 had a very great influence on the American designs and ideas of the half track. The first U.S. military half track was the T1 experimental half-track reconnaissance car made in December 1932 by Jos. Cunningham, Son & Co., of Rochester, New York which was then developing the T1 experimental light tank. The new half-track vehicle had an open top body and an improved version of Citroën-Kégresse running gear.

By 1937, non-armoured half tracks, T1 - T9E1, for reconnaissance, hauling weapons, carrying personnel and transporting material were trial-manufactured by Cunningham, Linn, GMC and Marmon-Herrington. These were intended to be used mainly by mechanized cavalry and artillery. The half tracks T9 - T9E1 trial manufactured by Marmon-Herrington were based on the chassis of the Ford 1 1/2-ton 4x2 truck of model 1936 and combined front drive with rear-bogie tracks. These half tracks had Kégresse type bogies which were full of faults. In the meanwhile, Marmon-Herrington, and one other manufacturer jointly developed suspension for rubber tracks of one-piece belt type devised by B.F. Goodrich. The suspension achieved very good results in tests and was adopted by the Department of Defense. It later became the basic suspension of the M2 and M3 half track series and further the standard equipment of all U.S. half tracks.

Realizing that the German mobile troops for the blitzkrieg tactics at the beginning of World War II mainly consisted of full- and half-track vehicles, the

Americans, who already had the suspension with high productivity, started manufacturing half tracks in large quantities. There were a great variety of American half tracks. Their basic types mass-produced and actively used were as follows:

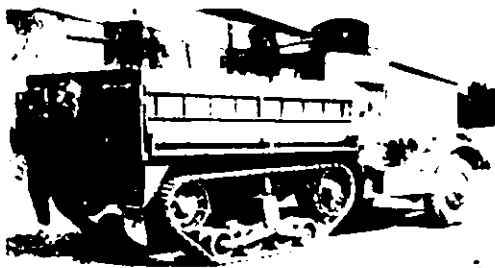
Half Track M2:

The first production half track officially adopted by the U.S. Army. In 1939, an experimental vehicle named „T14 Half Track APC“ was made by Diamond T. Motor on the basis of the body of a wheeled armoured car which was being used by armoured cavalry. In September 1940, the experimental vehicle was accepted for production as the Half Track M2. From 1940 to 1943, Autocar manufactured 2,992 and White Motor Company 8,423, which made a total of 11,415. Half Track M2AI:

A modified version of the Half Track M2. On the upper right of the driver seat, it carried a ring mount M45 (often called „Pulpit“) for a 0.50-inch (12.7 mm) Browning heavy-barrelled machine gun M2. From October 1943 to March 1944, a total of 1,643 were manufactured.

Half Track M3:

This was intended to carry personnel and material of various units in armoured divisions. Autocar and Diamond T. Motor Car Company produced a total of 12,499 in parallel with the Half Track M2. Both the M3 and M2 were supplied to the Allies including the Soviet Union and Britain as well as to the U.S. Army.



Half Track M3A1 :

A modified version of the M3. Like the M2AI, it carried an anti-aircraft ring mount M45 (for a 0.50-inch Browning) on the upper right of the driver seat. From October 1943 to March 1944, a total of 2,862 were manufactured by White, Autocar and Diamond T. Like the M3, the M3AI was used in World War II by units in U.S. armoured divisions as an armoured command car, armoured ambulance car, armoured radio car and armoured general purpose car. The M3A1 was also used by British armoured troops. A variation with a recovery job on the front was also used by the British as an armoured recovery car. Half Track M3A2: The final production version of the M3. This was an M3-based „general purpose car“ intended to be used in place of the existing M2, M2AI, M3 and M3AI. In July 1943, a prototype named „T29“ was completed and, in October 1943, accepted for production as the Half Track M3A2. This was a much polished vehicle. From 1944 on, the M3A2 saw active service as the main vehicle of armoured infantry in armoured divisions. The M3A2, like the M2 and M3 series, was a light armoured fighting vehicle with open-top body, to which hard-faced armour plates were welded or bolted. Armour was 6.25 - 12.7 mm in thickness, the front of the vehicle being protected with relatively thick steel plate. The M3A2 accommodated 5 - 12 men i.e. one fully equipped platoon.

The M3A2 carried the standard weapons consisting of an anti-aircraft 0.50-inch Browning heavy-barrelled machine gun M2, 0.30-inch Browning machine gun M1919A4, 2.36-inch rocket launcher (bazooka) M9 or M9AI, 0.45-inch submachine gun M3, twelve 0.30-inch rifles and twelve Garand rifles. In stowage boxes inside the vehicle, the following ammunition was carried: 330 rounds of 0.50-inch machine-gun ammunition, 2,000 rounds of 0.30-inch machine-gun ammunition, 6 A/T rockets M6, 24 mines M1, 48 hand grenades and 180 rounds of 0.45-inch

machine-gun ammunition.

When necessary, additional machine-gun ammunition (600 rounds for the 0.50-inch Browning and 6,000 rounds for the 0.30-inch Browning) was carried in place of two seats.

The M3A2, like the M2 and M3 series, had a White 160 AX, 4-cycle, series 6-cylinder, watercooled, gasoline engine offering 143 hp/3,000 rpm. Engine power was transmitted through the dry-type single-plate clutch, constant mesh transmission with 4 forward and 1 reverse speeds, 2-speed transfer case and banjo-type rear axle to the sprocket wheels. The vehicle used all-wheel drive system in which the front axle of the split type received power from the transfer case if necessary. The vehicle carried 227 litres of fuel and fuel consumption ratio was 1.49 km/l. Maximum cruising range was 320 km and maximum speed on good road reached 72 km/h.

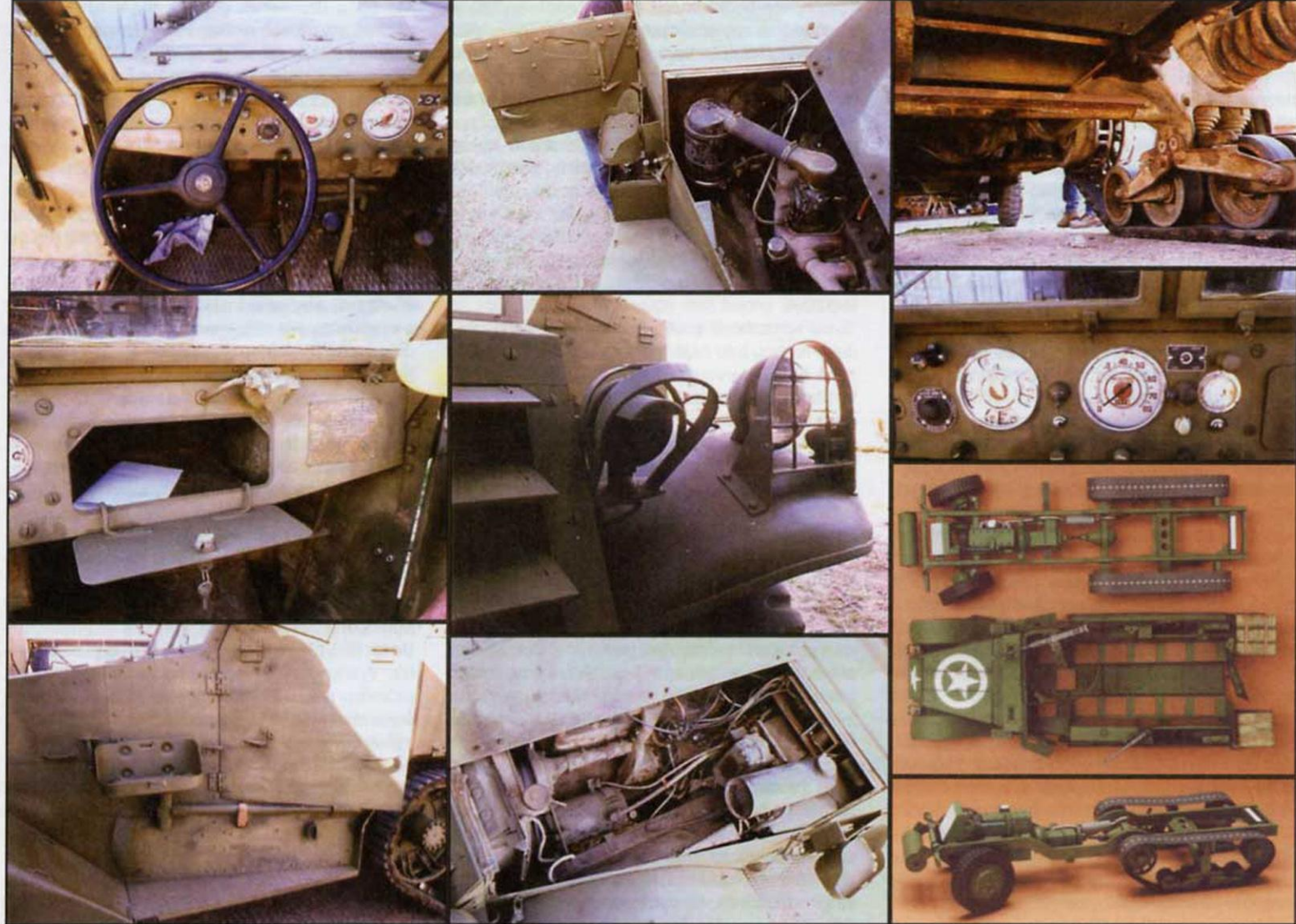
Front suspension was the same in construction as that of a usual car. Rear suspension had the following construction: Two rows of four road wheels - each wheel had a rubber tyre, 305 mm in diameter and 105 mm in width, which was peculiar to American half tracks - were connected through links to the bogie assembly equipped with vertical volute springs. The belttype rubber track was supported by top rollers at the top of the bogie assembly and by the idler wheel serving as rear body support. The sprocket wheel engaged with guides in the centre of the track to drive it.

From May 1941 to 1945, the United States produced as many as 45,044 half tracks including the officially designated versions and experimental versions of self-propelled mortars, self-propelled cannons, self-propelled howitzers, self-propelled multi-barrelled guns, etc. as well as the M2 and M3 series. This total was made up as follows: 37,164 personnel carriers and 7,880 self-propelled guns. These vehicles were used in all theatres of war by 16 armoured divisions, independent mechanized cavalry groups, independent tank destroyer groups, independent armoured groups and some units in infantry divisions.

In the case of the M3A2, 448 vehicles were used per armoured division. They were allotted to units in the division at the approximate rate as follows: 72 to each of the three armoured infantry battalions; 20 to each of the three rifle companies; 11 to the headquarters; 11 to the headquarters company; and 1 to the service company. Details of vehicle allotment to the rifle companies in the armoured infantry battalion of the armoured division in 1944 are tabulated as follows:

The rifle squad vehicle accommodated the driver and nine squad members consisting of one squad leader, one assistant squad leader, five riflemen, one automatic rifleman and one ammunition carrier. The platoon leader's vehicle carried 12 men including the platoon leader and his sergeant. The mortar squad vehicle accommodated eight men consisting of one squad leader, two gunners, two ammunition carriers, two riflemen and one driver. The light machine gun squad vehicle carried 13 men consisting of one squad leader, one assistant squad leader, four riflemen, two machine gunners, two assistant machine gunners, two ammunition carriers and one driver. The anti-tank squad vehicle carried seven men consisting of one squad leader, two gunners, two ammunition carriers, one rifleman and one driver.

From the Korean War on, The United States gradually replaced their half tracks with fulltrack M113 series vehicles. Today, about 30 years after the end of World War II, armies of many countries including the Self Defense Forces of Japan are still using half tracks as fighting vehicles. We often receive the news that these half tracks were running about in the Mideastern War, Vietnam War and riots in South America. In the United States, however, these vehicles are merely kept in museums or by enthusiasts.



M3A2 HALFTRACK

We have prepared an extensive detailed kit of US combat vehicle M3A2 Halftrack. Thus precise and carefully work is necessary. Your premium will be an authentic kit of US combat vehicle M3A2 Halftrack. The kit is optional. The simplest alternative of the kit is prepared for less experienced modeller or for quick built up, where you can omit detailed parts or leave out building of an engine and thus have an engine hood closed in your model. Gormands have some parts doubled. The difference between them is the U.S.A 402774S or U.S.A 403653S marking only.

Preparing works for cutout model:

In front of the building are some preparative works necessary. Line for bend that should be incised from the print face side are printed with full line. Moreover the full line has beside of the part the black arrow with its tip heading toward to the bend edge. Lines that should be incise from the reverse side are dot and dashed printed. Cutout from parts are marked with the red crossed lines and cuts are marked with the red line. The red dot is used where a hole for pin or wire should be. The whole model is separated onto several independent parts. Each independent part has part numbers with its special prime color. The blue color is for the front part of car body – passenger cabin. The green color is for the rear side of the car body. Orange for undercarriage and gray for the engine and the equipment. Some parts have their prime color yellow. They are the special simplified parts for simple model. You can use them if you do not

dare to build the more complex and thus better look model. Pink number prime color marks the M3A2 Halftrack U.S.A 403653S series. Capital letter L or R beside the numbers designate the left or right hand side of car. Do not hurry up and parts that are stiffened with another mounted layers of paper let thoroughly dry under the load. Meanwhile you can prepare parts from the skewers or another materials. These parts are printed in its correct model size and color. You have to use several skewers in diameter. Here is a list of part numbers, its diameters and amounts.



Parts with blue prime color:

5 – the transparent foil, 56 – the steering wheel rod (5/100'(1.3 mm) in diameter, 0.74'(18.8 mm) in length, 1 piece), key legs 76 for the screen guard shield (2/100'(0.5 mm) in diameter, 0.34'(8.5 mm) in length, 3 pieces), the ball-pin headed pin as a blinker 81 (ball-pin headed pins, 0.22'(5.5 mm) in length, 2 pieces)

Parts with green prime color:

the vertical pin of main machine gun 86(5/100'(1.2 mm) in diameter, 1.43'(36.3 mm) in

length, 1 piece), the aerial 79 (8/1000'(0.2 mm) in diameter, 2.17'(55 mm) in length, 1 piece), the horizontal pin 85 of main machine gun (pin, 0.18'(4.5 mm) length, 1 piece), the vertical pin 86 of main machine gun (5/100'(1.2 mm) in diameter, 0.315'(8 mm) in length, 1 piece), the main machine gun barrel 75 (from 4/100'(1.2 mm) to 5/100'(1.2 mm) in diameter, 1.795'(45.6 mm) in length, 1 piece), the side machine gun barrel 96(43/100'(1.1 mm) in diameter, 0.95'(24 mm) in length, 3 pieces), the horizontal pin 105 of side machine gun (pin, 0.154'(3.9 mm) in length, 3 pieces), the vertical pin 106 of side machine gun (43/100'(1.1 mm) in diameter, 0.197'(5 mm) in length, 3 pieces).

Parts with yellow prime color:

the winch drum axis 14 (4/100'(1mm) in diameter, 0.24'(6.1 mm) in length, 2 pieces), chocks 33 (4/100'(1mm) in diameter, 0.24'(6.1 mm) in length, 2 pieces), shock absorbers (5/100'(1.3 mm) in diameter, 0.64'(16.18 mm) in length, 2 pieces), bottom wheel axes 59 (59/1000'(1.5mm) in diameter, 0.32'(8.2 mm) in length, 8 pieces), upper wheel axes 63 (51/1000'(1.3mm) in diameter, 0.32'(8 mm) in length, 2 pieces), rear axle axis 66 (71/1000'(1.8mm) in diameter, 1.38'(35 mm) in length, 1 piece), front wheel axes 100 (83/1000'(2.1mm) in diameter, 0.315'(8 mm) in length, 1 piece), the front axle 110 (11/100'(2.8mm) in diameter, 36.5'(1.44 mm) in length, 1 piece), vertical pins of the front axle 112 (63/1000'(1.6mm) in diameter, 0.28'(7 mm) in length, 2 pieces), chocks 118 (pin, 0.11'(2.8 mm) length, 2 pieces), the front axle 110 (11/100'(2.8 mm) in diameter, 2.21'(56.1 mm) in length, 1 piece).

Parts with the gray prime color:

The alternator shaft 28 (59/1000'(1.5mm) in diameter, 0.453'(11.5 mm) in length, 1 piece), the engine shaft 32 (63/1000'(1.6mm) in diameter, 0.53'(13.5 mm) in length, 2 pieces), the engine pipeline 49 (55/1000'(1.4 mm) in diameter, 0.52'(13.3 mm) in length, 1 piece), the engine sucking pipeline 62 (63/1000'(1.6mm) in diameter, 0.47'(12 mm) in length, 1 piece), the shaft 75 (55/1000'(1.4mm) in diameter, 0.236'(6 mm) in length, 1 piece), the shaft 77 (55/1000'(1.4mm) in diameter, 0.236'(6 mm) in length, 1 piece), the exhaust pipe 83 (71/1000'(1.8mm) in diameter, app. 3.95'(100 mm) in length, 1 piece).

So that all the preparation has finished. Lets begin with M3A2 Halftrack building.

Building Instructions:

Passenger cabin

Parts of the passenger cabin have numbers with blue prime color. Begin with a cooler mask. You can choose from two versions of the cooler. The first one has the cooling clack valves open. It is built from parts 1 and 2 that reverse sides are stick together. The cooling clack valves are parts 3a,3c,3d. The second one is without the cooling clack valves. It is built from parts 1 and 2 that have the yellow prime color. Make a screen from the transparent foil using the profile form part 5. Paste the screen in the part 4 to make the wind screen. Let it dry under the load and than set there the two wind-screen-wipers 6. Attach the upper side of an engine hood 7 up to the wind screen. You can choose one with a white star insignia or the second one which has a circle rounded star insignia. If You want to have the engine hood open, it is necessary to cut from the part 7 parts 7a and 7b. Onto the reverse side of the part 7 stick an inner part 8. Then optionally cut parts 8a and 8b, they would have its reverse sides stick with parts 7a and 7b. Side sections of the engine hood are made from parts 9 and 10 (option from two different markings again). The open engine hood request parts 9a and 10a cut. Both parts 9 and 10 attach onto a cooler mask and connect them with an upper side of the engine hood. Stick up part 11 and 12 onto the reverse side of parts 9 and 10. The arrows shows parts 11a and 11b for optional cut. The open engine hood requests sticking each reverse side of parts with its opposite. Do it this way: 9a with 11a, 10a with 12a, 7a with 8a, 7b with 8b. Let it dry thoroughly under the load. Then connect the side sections of engine hoods together using hinges 13 (option from two versions of them, see part 7). Hinges 13 will be fitted by means of hinges 14 onto the engine hood 7. Keep them in the safe place (e.g. box) for later use. Cut the two door parts 15 and 16. For bent upper side of the doors cut the parts 15a and 16a and connect them using hinges 17. Hinges 18 fix the door onto the hood and in the meantime keep them in the safe place (e.g. box) for later use.

Cabin interior

Treat the cabin floor 19 and attach the left part of the cabin which is built from parts 20 and 21. Do not forget to make a hole in the marked place. Next, attach the right hand side of the cabin which is built from parts 22,23,24 and from the front part 25. Finally fit the two oblique plates 26 and 27 onto the floor. Form the outer bottom side of the floor from part 28 (do not forget to make a hole in the marked place again) and part 29 and its reverse sides stick with the finished inner part of the cabin. Use the same procedure with the whole part which is

made from parts 30,31,32 and 33. Most of the cabin bottom side is covered with finished part 34. Parts 35, 36 create a door-sill. Parts 37 and 38 constitute left and right side of cabin interior. There is a time to build a dashboard 39 inside. Than stick up there the two little splash boards 40 and 41.

So created inner part of the cabin connect step by step with finished seam side of the outer part, except a place for the door-step, where the two splash boards will be stick in. Inside of the dashboard is place for a larger part 42 and two smaller 43, 44. Set the engine hoods onto them. Steering contents an axis 56, two sleeves 57, 58 and the steering wheel 59.

The gear shift 60, a handbrake 61, actuating levers 62,63 and two seats are placed in the floor. Make the seats from pedestal 64 and peculiar seat 65 and the seat back 66. The back seat consist of the seat 67 and the seat back 68 and legs 69. Meanwhile keep it in the safe place (e.g. box) for later use.

Front splash boards

Lets continue to build two opposing splash boards. Parts of the right splash board have an attachment R, the left ones are marked with capital L. Shape the upper side of the splash board from part 45, next stick it onto reverse hip of the part 46, and stick its reverse side with the reverse side of part 47. Use the same analogy with reverse sides of parts 48 and 45. Stick part 49 with its opposite part 50 and finish the splash board by attaching of part 51, which reverse side will be used for sticking with the front part of the hood. The valve of the part 45 should be paste between parts 9,36 and parts 10,35.

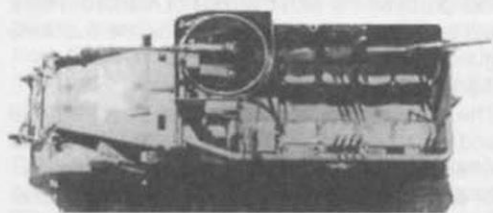
Outfit and operating elements

Form into an appropriate shape the toolbox 52 and place it onto the right threshold. Next the part of the outfit is an axle 53 attached onto part 10, a hammer 54 and paddle-board 55. That are fixed on the hip of the hood 9. To make two petrol cans shape parts 71,72,73. Petrol cans are hold onto the hood by means of the two holders that are made from parts 74 and 70. Now You can shape a screen guard shield 75 which is supported by the three key legs 76. The three key legs 76 are made from the three pins. Keep the key legs in the safe place (e.g. box) for later use to prevent their violation. Shape the two headlights from parts 77,78 and 79. Do not forget to make a hole into the part 78 where the ball-pin as a blinker 81 would be pasted. The headlight holders 80 fix the headlights onto the hood 9 and 10. Protective frame shaped from parts 82 and 83 are the only things to be fix onto a place of holders 80. Keep the headlights altogether with four hood shuts 84 in the safe place (e.g. box) for later fix.

Hood back side

Parts of the cabin hood back side have a green prime color. Shape bottom part 1 and fix onto it an under seat-storage room 2 and 3. Onto the reverse side of part no 1 glue a reverse side of the floor 4 and the side walls 5,6. Fix the underside parts 7,8 onto it. Fix the separation part between front and rear side 9 onto the front side. On the other hand create the back side from part 11 supplemented from the rear side by means of part 10. There is an option from the two versions. Glue the side plates 12,13 onto the finished whole part. For realistic view of ladders it is possible to seal up them using parts 12a and 13a. Now You can stick the covers 15 onto the seat-storage rooms and fix onto them the seats 16. Make the two tanks individually. The left one create from parts 17,18, and 19 and the right one create from

parts 21,22 and 23. Furnish them with the seat backs 20 and place them onto a marked area in parts 5 and 6 altogether with cartridge boxes 24,25, cartridges created from parts 36,37 and gun holders 26 and chocks 27. Between the tank a the backside paste the bulkhead 28 with arms 29,30 onto the left side and onto the right side the bulkhead 31 with arm 32. Cut the rear door 33, bend it and in the marked place cut the hole. From the reverse side get through the grab handle 34 and whole part 33 bend where marked and stick together the reverse sides of this part. Prevent violation of the grab handle when it dry under the load. Then fix on the marked place the cartridge box 35 formed into an appropriate shape. Then continue with the three machine gun holders. Two on the sides 5,6 and one on the reverse wall 6. Form a gun holder sheet 38. Before its closing stick up into it a coiled up roll 39. The roll must have a hole for the gun holder. Now close the sheet and stick it onto upper side a pad 40. The left outfit carrier create from part 41 and encompass it by sticking up the part 42 and fix it on the rear side of part 11. Fix the door handle onto the marked place of rear entry door which particularly overlap the carrier holder. Use the same way to build the right one using parts 43 and 44. Now You can stick together front and back side of the hood and place there inside the three seats You had left in the box.



Outfit carriers

Initially complete side carriers for the exchange bogie wheels. Create the left one from processed part 46 and attach it onto part 47. Use the same way to built the right carrier that contents parts 48 and 49. Let both carriers thoroughly dry and place them into the marked places in the car sides. You can create exchange bogie wheels and place them into the carriers. They are constituted of circle parts 51,53 and the coiled up parts, the inner 51 and the outer 52. There are two rear outfit carriers as well. Create left one from part 54, encompass it by coiling up the part 55. Use the same way to built the right one which contents parts 56 and 57. You can fix them both vertically or horizontally onto a car body with respect the placing of the outfit. For horizontal position it is necessary to make struts 58 for fixing its correct position.

Gun turret

Form the outer part of the beam 59 and its reverse side fix onto the inner side of the beam 60. Stiff it by means of the strut 62. Into the strut 62 is pasted a beam 61 by means of which reverse side is the strut fixed into a beam 59. Bent the lead rim 63 in the marked place and stick it into a circle shape. Let it dry thoroughly and by means of holders 64, 65, 66 and 67 place it amidst the beam 59 and 60. Coil the column You fixed before by means of the part 69 and at the other hand create the holder from parts 70,71. Finally fix the part 72 onto the market place in the beam 60. That will be used to fix the whole gun turret onto the side wall of the car body.

Main machine gun

Make holes in the marked places in part 73 and form it into a machine gun's shape. Form the bottom part and close it using part 74. Color

the gun barrel 75 and when dry, coil the barrel using parts 76,77,78,79 where marked. Lead the gun barrel through the holes in the part 73 and fix it there by means of a glue drop. Glue the laying gears 80,81,82 onto the upper side of the machine gun. Fix the part 83 onto its rear side. Create a hole in the machine gun holder 84 and fix there the vertical pin. Use the horizontal pin 85 to lock the machine gun into its holder 84. The vertical pin 86 leads through the hole in holder 87. Fix its position gluing a pad 90 from the opposite side. Use the glue carefully to have a movable machine gun in its holder 87. The holder 87 should freely slide along the lead rim 63 by means of parts 88 and 89. Add a cartridge 91 coiled by the holder 92 and closed from the upper side with the lid 93. Using the part 94 to join the machine gun and its cartridge.

Side machine guns

Make holes into the marked places in part 95 and form it into the machine gun's body. Color the gun barrel 96 and when dry coil it using part 97 in the marked place and shift in it into the machine gun body 95. Glue a laying gear 99 onto an upper side of the machine gun. The part 98 fix onto the rear side. The revolving gun holder create from formed bottom part 102 which has a hole for pin 106. Glue it with outer parts 103,104 and inner parts 100,101.

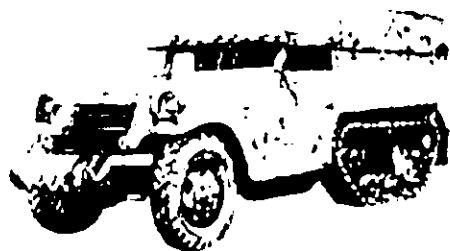
Attention! Before glue make a pin holes in all four parts where with the red dot marked. There will be a horizontal pin that holds the machine gun in its position.

Aerial

The aerial holder is made of the bent part 109 and stiffen by strut 110. Color the aerial 113 and when dry coil it using part 97 in the marked place and its tip coil it with part 112. Fix the thicker tip of the aerial using a glue drop onto the aerial holder. When thoroughly dry stick it onto its place in part 6.

Traction mechanism of the truck create from the bent part 107 and locker 108. Fix the whole part on its place in the truck's rear side. The two wheel cover ups let dry under the load and place them onto the bottom side of part 10. Shape and stick the two ammunition boxes 115,116 and place them closely to the machine guns finally.

It was the end of this part of M3A2 Halftrack.



Chassis with axle rods

Lets begin with another individual car part. Parts of chassis have numbers with orange prime color. Redraw a chassis carrier 3 onto a 7/10' (1.8 mm) cardboard. When dry, from inner side, glue part 1 onto this basis and from outer side the part 2, the part 4 from upper side and with the part 5 from the bottom side. Connect both main beams with struts 6,7,8 by means of the stiffener 9 placed above a chassis. Form the front bumper 10,11 altogether the winch drum 12,13. To ensure of free rotation of the winch drum glue its axis 14 in its tips only. The front bumper is again optional from doubled parts. The difference between the parts is the marking U.S.A 402774S or U.S.A 403653S.

Fix the front bumper holders 15 onto a side of the chassis. Glue an engine holder 18 onto the marked place in the front part of the chassis. Next glue the stiffeners 16 and hooks 17 onto them. The leaf springs of the front axle are optional from doubled parts. One more realistic, the second one, more simply having numbers with yellow prime color. Both have the same procedure of building, its up to You which one You choose. Cut them and form the encompass part 21, then attach side parts 19 and 20. Keep the instruction figure and glue the leaf springs thoroughly onto its place.

The drive shaft and the bogie wheels

Form the drive shaft with the jack-in-the-box from the part 24. Onto which one attach the front part 23 and the rear part 22. The drive shaft cut the jack-in-the-box into two parts. The front part resemble a conical frustum. Create its shell from part 28. From one side it is closed with the basement 27 and from the opposite side with the basement 29. The second part of the jack-in-the-box is a hemisphere. Form it from a shell 30 and attach it by means of valve 31 onto the drive shaft. Fix the finished drive shaft onto the supporting structure using holders 25 and sleeves 26. If You decided to build the more simply version without an engine you can replace the drive shaft with part 24. More simply part 24 has a number with yellow prime color. Now You can build the slack adjuster axle shafts marked R for the right side one and L for the left side one. You can choose again, from one more realistic or the second one, more simply. Begin the difficult one with a pendulum axis which is created from parts 34,35,36. Than continue with a shock absorber holders 37,38,39 and close it with part 40.

Color the axis of the slack adjuster - part 41. Lay the spring 42 around the axis of the slack adjuster 41. You can choose from the two options, one more realistic or the second simple one. There are the two ways of use of the part 42 possible. The spring is drawn in the one side and on the opposite is indicated only. So that if you have chosen a simply way of building, coil up so the part 42 to have a drawn spring visible. For realistic view of the part 42 coil up the part reverse and make the spring from the thin dark green/gray colored wire that way, you coil it onto the part 42 where indicated. Lock it from one side with a chock 43. That one slide onto an axis. Whole slack adjuster part set into the holder 38. Use the part 44 to attach the whole slack adjuster into the pendulum axis 35. To fix the whole part onto the marked place use the part 45. Another part of the slack adjuster is a chock. The chock is created from part 32 that is coiled onto the colored part 33. Use the same way of building for the opposite slack adjuster mechanism. If the model looks too difficult or You are not satisfied with your work then build a simple version. It contents the three parts only. The more simply pendulum axis 34, the slack adjuster mechanism 42 and the chock 32. All three more simply parts have a number with yellow prime color.

Another sophisticated parts of the model are the two axle shafts of the bogie wheels. Form them from parts 46 that will be closed with the part 47 and from the opposite side attach the part 48. Glue the reverse sides of parts 49 and 50 to built a compression plate. The compression plate serve as a shock absorber by means of the two springs 51. Create the mechanism of the bogie wheels from parts 52,53. Bend them where marked and stick them up. When thoroughly dry glue it onto the marked place.

There is eight similar bogie wheel's holders. So

that the only one will be described. Roll the rim 55 and close the wheel shape with its wheel disks 55. The two parts 56 fix onto a face side of the rim 55 and their reverse sides stick up onto the reverse sides of parts 57. At the end fix onto the wheels its two tyre casings 58. Slide the wheels onto the four prepared axes 59 and lock them at the both sides with the four wheel holders 53. Attach the whole wheel mechanism onto an axle shaft 48 altogether with shock absorber and compression plates 49,50. The last detail of the axle shaft is a doubled wheel of chain belt tightener. Make both wheels from the rim 62 and the two wheel discs 60,61. Slide them onto an axis 63 so that to have the mark for part 64 in opposite. Finally place the doubled wheel by means of the holder 64 in the axle shaft 48. The simply version of axle shafts is prepared again. Main parts of the axle shaft (parts 46,47,48) are the same. The simple wheel holders 52 have numbers with yellow prime color.

They hold the simple wheels, you can create them from the tyre casing 55 and the wheel discs 54 that are firmly connected with the wheel holders. Form the double wheels from parts 60,62 and the holder 64. When the axle shaft is placed, stiff it, using a stiffener from colored skewer 66. The skewer 66 has its ends coiled with the parts 65. Slide the skewer through the holes in the both axle shafts. Level them perpendicular to the ground and drop them with the glue. The belt tightener wheels consist of the two parts that are connected by means of the mid wheel 74. Form the inner wheel rim and put inside the wheel disc 68. Form the same way the outer wheel rim 70 and close it with part 71. Cover the outer reverse surface of the inner wheel rim 69 with the glue and plug-in it to the outer wheel rim 70. Onto a disk of inner wheel rim place a hub. The hub consists of the parts 75 and 76.

The second part of the belt tightener wheel create from wheel rim 73 that is closed from one side with the wheel disc 71 and from the opposite with the wheel disc 72. Connect both parts with part 74 and glue it thoroughly onto the pendulum axis 36.

Simply versions have again the numbers with the yellow prime color. Put the disc 68 into the inner wheel rim 69. The outer wheel rim part of the stretching wheel make from part 73. Close it with the disc 72 and from the opposite side slide an inner wheel rim with the glue. Fix onto the inner disc the hub which is made from parts 75 and 76.

The driving wheels are very detailed. Study thoroughly its building procedure to prevent faults. Create the inner disc by connecting parts 77 and 78 with its reverse sides. By means of valves attach them onto wheel rim 79 and onto its reverse side glue the outer wheel rim 80. Made the hub from parts 87,88 and place it onto the inner disc. The second half of the driving wheel create from wheel rim part 84 a the two discs 82,83. The inner side of the wheel create from wheel rim 85 and disc 86 that is used for attach the driving wheel with the axle shaft 31. Connect the both part by means of the formed part 81. The part shape is obvious from figure F. You can create the simply version of the inner wheel rim from inner the simply version of the inner wheel rim 79. Paste inside the disc 77 with the hub 87,88. Plug-in the whole part of the wheel rim part 84 and close with the wheel disc 83 and the outer parts 85,86. Both chain belts bend where marked, glue it and let thoroughly dry under the load. Form the chain belt shape thoroughly around the driving whe-

els, the stretching wheels and the wheels. To prevent its moving fix them using a glue drop where they contact with the wheels.

Front axle and the wheels

Cut the outer side of the tire and from the inner side stick the disc 90. Form the opposite side of the wheel and from the reverse side attach the wheel disc 93 by means of a wheel rim 92. Form the tyre tread 91 and attach it onto a disc 89. Coil up the part 95 and stick it in the hole for an axis 100 and close it with the wheel disc 94. Who wants, he can stick the tire specimen 104 onto the tire. Stick the parts 97 onto the cardboard 4/100in (0.9 mm) and make holes where marked. Glue parts 96,98 and 99 onto the disc. Stick in to the hole the axle 100, prepared before, and let its tip protrude from the side of disc 98. When dry, stick the wheel in and secure it using a keeper pin 101. Hide the axis's tip into the housing created from parts 102,103. The wheels should have to rotate freely around the axis. Coil up the part 109 onto a prepared axle 110. Onto this place will be glued a gear box. Make its medium part from the two disks 106,107. Onto it attach the cone part 104 and from the opposite side glue the gear box body which consists from parts 105 and 108. The finished part stick in onto the axis and glue in the marked place in the part 109.

Form two steering pins 111 and axes 112 stick in the holes and let their tips protrude in the half. When dry stick them precisely in opposite alignment onto the both tips of the front axle 110. Onto a protrude tips of the pins stick in the crescent shape formed parts 113 and secure them with sleeves. Coil the sleeves from parts 114. Ensure of their correct position before sticking. Its position is obvious from figure G. When dry, place it onto the sleeves the pushing rods 115. The pushing rods 115 have holes. Create a shifting lever from parts 116(do not forget cut the holes) and 117. Place the steering rods 115 and secure them with the chocks 118 You have prepared before. On the front side of the axle fix the two sleeves 114 and the protective shields 119. Onto this steering mechanism fix the wheels. If Your work has been precise then You can move the wheels by means of shifting lever's 116,117 horizontal movement around the axis 112. When everything works properly then fix the front axle onto the chassis by means of the holders 120,121,122.

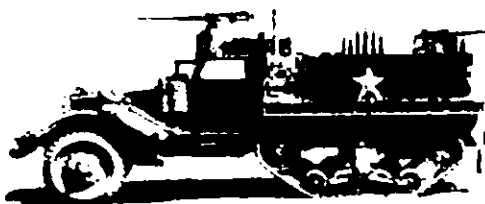
If you do not want to have movable wheels the simply version of the front axle is prepared. The simply version has the same beginning like the difficult one. Cut the side outer part of the tyre and from its reverse side stick the disc 90 (number has a yellow prime color). Form the tyre tread 91 and attach it onto the wheel disc 89 and close it with the disc 94 (number has a yellow prime color). Both wheels stick in onto the prepared colored axis 110(number has a yellow prime color). Secure it with a keeper pin 101. Drop with a glue and hide the axis tips with the hood 102 and 103. The wheels must freely rotate around the axis 110. Fix the front axis onto a chassis by means of the simple holders 120.

Engine

The engine parts have gray prime color. If you built a model with the hood closed omit this part of instructions. Shape the engine block 1. From the bottom side and close it with part 2. Place a stiffener 3 inside. The holes in the stiffener must overlap with holes in the engine block. Close whole part with part 4. Onto the part 4 glue the formed engine vat 5. Create a clutch from part 6 which is shaped in to a conical frustum. Close it with part 7 and from the opposite side attach

a periphery part 8 of the clutch. Both part glue with its reverse sides 9 and let it thoroughly dry. Form the part 10 into a conical frustum and attach from the one side part 11 and the jag 12 in the marked place. Complete the whole clutch and fix it onto the engine block 1.

Create a gearbox from parts 13,14 and 15. Lay upon themselves parts 17,18,19 to achieve 4/10' (1 mm) thick part and close in periphery with part 20. Attention! Parts 17 and 19 must be exactly in opposite position! Glue the parts 21,22 with their reverse sides and fix whole part where marked in part 17 and 19. This created an engine brake and connect it with the gear box 15 using part 16. Attach the whole part onto the clutch 11. Make the exhaust pipes from parts 23,24,25 and place it onto the engine block's side 1. The simply version of the exhaust pipe has number 25 with the yellow prime color. Shape the two engine holders from parts 26 and 27.



Prepare a skewer 28. Clue it with part 29 and then with part 30. So that the cylinder occur. Close it with part 31. It is an alternator. Stick it into the cutout in the engine block 27. Create two band wheels from parts 33,34 and 35,36. Slide them onto the prepared axes 32, drop the glue and slide them into a holes in the engine block 1. Shape the cooler part 43 and where marked glue the funnel 44 with the lid 45. Create the water cooler pump from rim 37. Close the one side using part 38 and the opposite side with the lid 39. Place the band wheel onto it. The band wheel is created from part 40,41,42. The whole part attach onto a finished cooler body. Create the cooling pipe lines shaping the part 46 and close it with parts 47,48. Do not forget to make a hole in the part 48 for cooler pipe lines 48 that connect it with the water cooler pump 41. Create the connecting pipe lines by clue up part 50 onto a skewer 49. Create the distributor with rolling the part 54 in diameter that respond to the diameter of parts 55 and 56. This is the upper and the bottom part. Shape the part 51 using a skewer and close the both sides with parts 52,53. When dry, place it altogether with cooling pipeline 50, distributor 56 and carburetor 67 where marked in the engine block 1. Now place the whole engine onto a chassis using the holders 26,27 and 57. Onto the three band wheels 34,36,29 place the two cone belts 58. Strengthen them using the cooler 43 with water pump and the band wheel 40 that firmly fixed onto a chassis 8. To prevent movement of the cone belts fix it with the glue drop, where the cone belts has an abutment with band wheels.

Simply version of the cone belts have numbers 58 with yellow prime color. Roll the part 59 and close it with parts 60 and 61(upper side) create an air filter. Using prepared skewer which is coiled with part 63 and connector (parts 64,65,66), connect the filter with carburetor 67. Switches, fuses and another electric equipment is hidden in the boxes that are shaped from parts 68,69 and parts 70,71. Place the boxes onto the bulkhead 28 where marked. Roll the part 72 to get a reservoir and close it from both side with parts 73. Put the lid 74 onto its upper side. Prepare the shaft 75 and clue up the part 76 around it. Clue it so that the shaft can has a

free shifting in and out of the part 76. Both ends of this shifting shaft fit with the cardan joints that are made from parts 78 and 79. Shift the shaft in appropriate length and place it between the engine gear box 15 and the front axle gear box 105 (part 105 has number with orange prime color). The second shaft prepare from the skewer 77 that it has the cardan joints in its ends too. They are made from parts 78,79 again. Glue a disc 80 onto the cardan joint which is the nearest to rear drive shaft. Place the shaft between the engine brake 17 and the rear drive shaft gear box 29 (part 29 has number with yellow prime color). You can create the simple cardan joints from parts 78 (part 78 has number with a yellow prime color). Parts 83 shows the upper and side view of an exhaust pipe. Shape it from the soft wire of appropriate diameter or from the tubule tin. Fix the silencer onto the marked place in part 83. Shape the rim of the part 81 and close it with two parts 82 when slid it onto the exhaust pipe. The second possible way is to make the silencer separately and glue it into a paper tube. There must be left a hole in the center. Cut the shaped soft wire of appropriate diameter or tubule tin in the middle. Glue the both halves in the silencer.

It depends on You which way of the building You choose.

The model is almost finished and You can fix firmly the car body onto a chassis. Glue the reverse sides of the bend shields (an orange prime color) that separate an engine room from the front wheels. When dry place them in the space of the front part of car body and the chassis.

Armament and equipment

By the way into the M3A2 Halftrack armament belongs the five guns 84 and six machine guns 85. When dry place them into the gun holder inside the rear part of the track. Make the cartridge boxes from parts 89,90 and place them freely into the compartment altogether with the radio station 87, mobile sender 88 and the four paddles 86. In the event that You built the car with open outfit carriers You can place there packed blankets and cover sheets.

Make the three packs for the left one. The upper one from parts 93,94 the middle one from parts 95,96 and the bottom one from parts 91,92. All three packs place upon themselves and begird them with the two belts 97. Shape parts 101, then close them with parts 102 that are for the right carrier. There is eight packed cover sheets, that are begird with the four belts 103. Finally make the four bags from parts 98,99 and 100 and place them freely into the M3A2 Halftrack.

The M3A2 Halftrack is done. We believe that You had managed it successfully and You have achieved a satisfactory result as usually. Enjoy the building of M3A2 Halftrack. We are looking forward You to meet with our another cutout kit.

Yours sincerely Antonín Krejčíř & Mega Graphic
Photo Václav Holíč

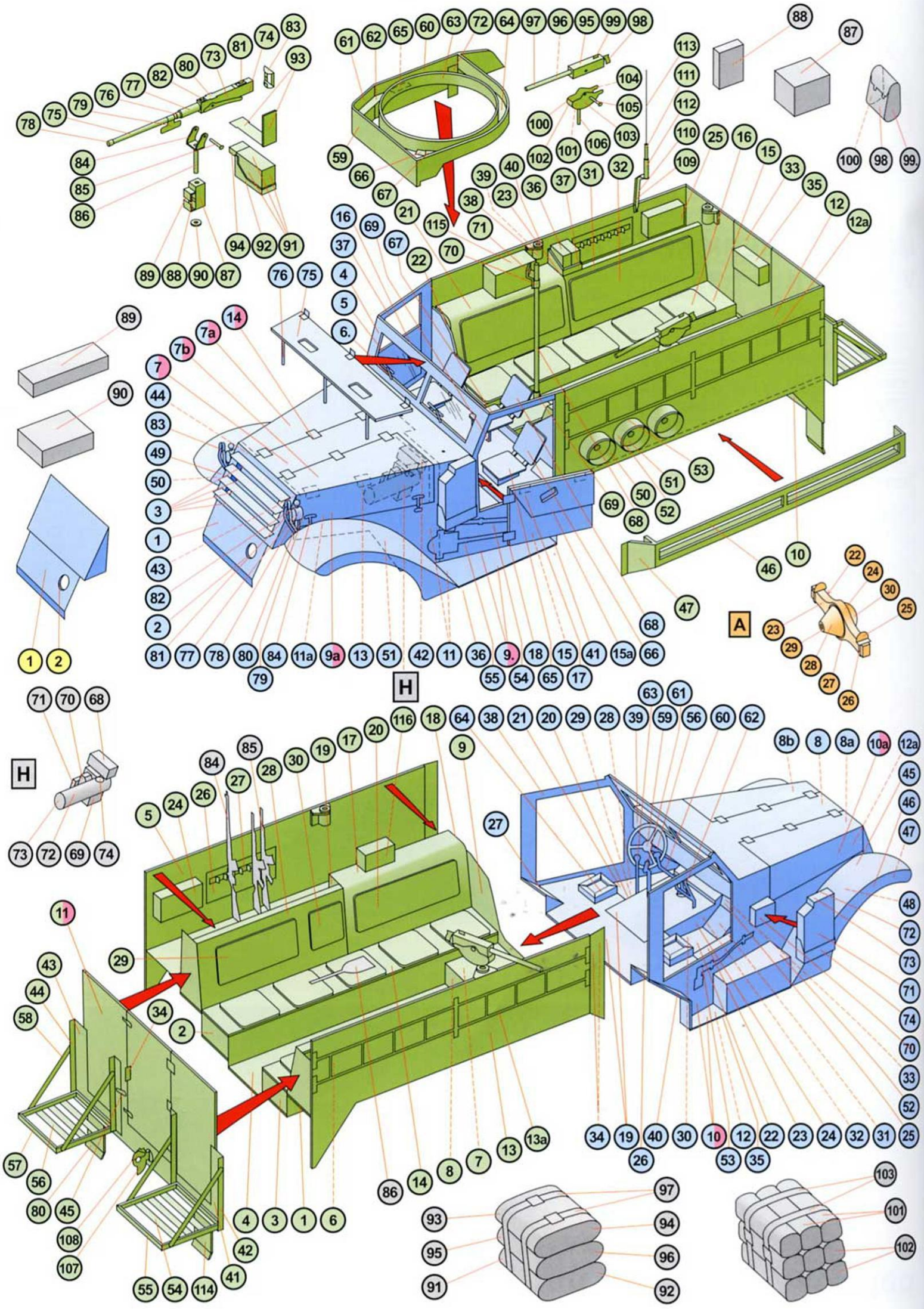
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Distribuce českých a polských papírových modelů

MODELEX
P.O.Box 192
120 00 Praha 2
Czech republic



tel.: +420 603 736 913
+420 608 233 706
www.modelex.net
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