



TOP: Operating the Mule in low silhouette crawling position, near the front.
BOTTOM: Sergeant at Fort Sill, Oklahoma drives a Mule.(Both photos: U.S. Army)

MULE

WILLYS "MECHANICAL MULE"

By: Dennis R. Spence

The Willys "Mechanical Mule" (or simply, Mule) is a platform type infantry weapons carrier with full-time 4 wheel drive. It was the U.S. Army's first tactical vehicle capable of carrying more than its own weight - no easy achievement. The Mule was designed for use in forward areas (hence, its low profile) to help take the load off the infantryman's back.

Willys built the first prototype in 1953 under a development contract from the U.S. Army. Production began in September 1957, with vehicles going to the Army and to the Marines. Willys built 2,452 up to 1960, and 1,905 from 1962 to 1964. The Mule with a different engine has been built by other manufacturers from 1964 to 1970, showing the brilliance of the original Willys concept.

The Mule is constructed mostly of aluminum and magnesium making it lightweight and suitable for air lift operations. It is essentially a platform mounted on two axles and 4 wheels, with no spring suspension (shock is absorbed by the 4 low pressure tires).

An air-cooled 4 cylinder horizontal opposed gasoline engine is mounted under the platform at the rear. The Willys AO-4-53 engine and a 3 forward speed trans give a maximum speed of 25 MPH. Instead of the usual odometer, an engine hour meter is provided. A metal gage rod is attached to the underside of the fuel tank (8 gal.) filler to provide a fuel level reading.

Spark for fuel ignition is provided by a magneto. It is chain and sprocket driven at crankshaft speed. A mechanically operated AC fuel pump supplies gasoline to the Tillotson carburetor. A fuel primer pump assists in cold weather starting.

A starter handle is attached to a cable that runs through a tube from the front of the vehicle to the rear. This turns the engine crankshaft several revolutions. In addition, an emergency starting crank is standard equipment.

Relatively unique is the optional 4 wheel steering. Also the steering column may be secured in any 1 of 3 positions: (1) for conventional driving from the seat, (2) intermediate position for driving from a standing position, and (3) extreme forward position for driving from crouched position (remember, you're up at the front lines!) In this last position, the transmission shift lever must be in reverse speed position at all times.

To minimize its low profile, storage under the platform is provided for the driver's seat and the driver's footrest, and the handrails can be lowered to a flush position.

Like most postwar U.S. Army vehicles, the Mule has shielded waterproof ignition (conduit is used by the Mule). The Mule does not have lights of any type, nor does it have a spare tire. Instead of hydraulic brakes, an external expanding type is used on the front driveshaft. It is operated by either the foot pedal or the handbrake lever. A tow bar is standard.

SPECIFICATIONS

Nomenclature - Truck, platform, utility:
1/2 ton, 4x4, M274 and M274A1 (early vehicles:
Carrier, light weapons, infantry...)

Engine - Gross H.P. 17 @ 3200 rpm. Gross torque 3116 ft. @ 2100 rpm. Compression ration 6.5:1 Displacement 53 cu. in.

Weight - Unloaded, fully equipped, 900 lb.
Payload capacity, 1000 lb. Gross, 2075 lb.

Dimensions - Wheelbase 53 in. Length, with footrest, approx. 118 in. Length, platform, 95 in. Height over platform, 27.5 inches. Height, lowest operable (over steering wheel) 36.7 in.

Tires - 4 ply 7.50 X 10, 12 PSI.

The above article refers to the Willys-built Mule, M274 and M274A1. On the following page, all the Mule models are outlined.

Little known is that a "Super Mule" was built by Willys, the XM443. It had a 3/4 ton rating instead of a 1/2 ton rating.

ORIGINAL NOMENCLATURE - Carrier, light weapons, infantry, 1/2 ton, 4 X 4.
LATER NOMENCLATURE - Truck, platform, utility, 1/2 ton, 4 X 4.

MULE MODELS

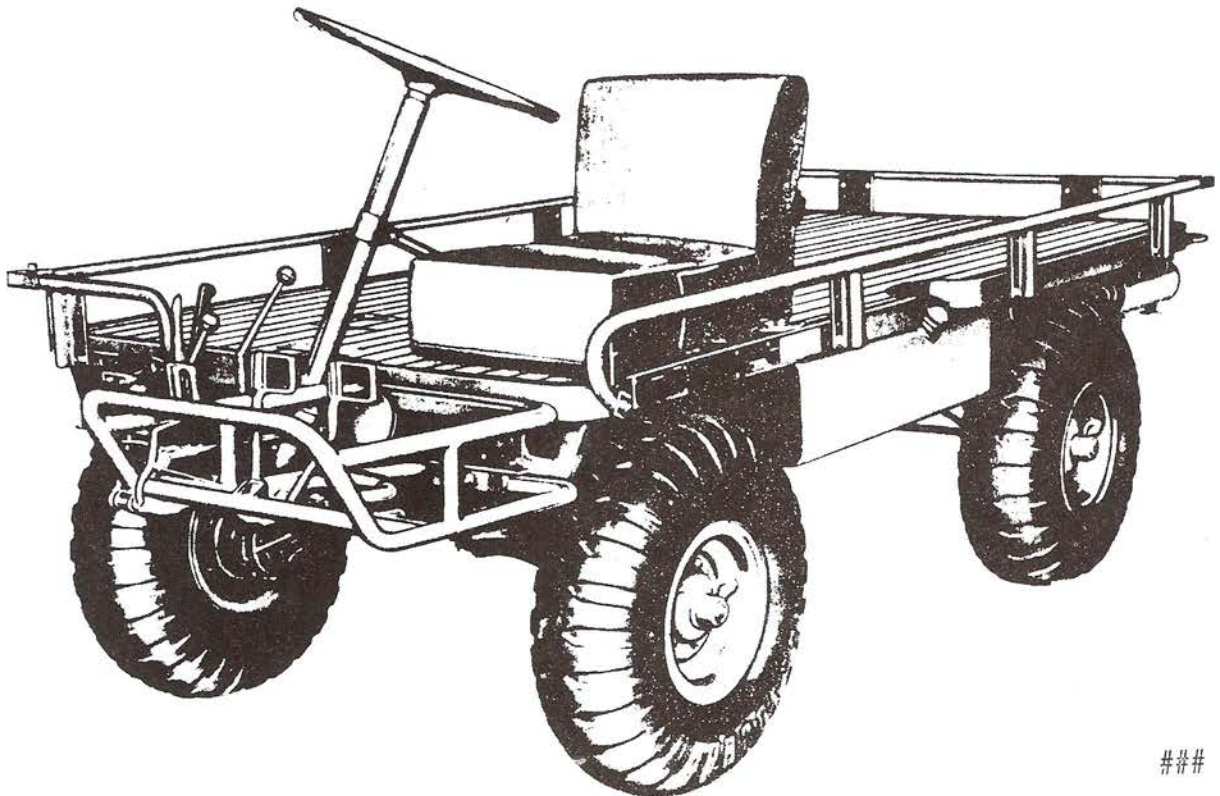
G823 4 WHEEL STEERING

- M274 - Willys - 2,452 built 1956 to 1960.
A04-53 engine (4 cyl)
TM 9-7101-35
TM 9-2805-211.
- M274A1 - Willys - 1,905 built 1962 to 1964.
A04-53 engine (4 cyl)
TM 9-7101-35
TM 9-2805-211.
- M274A2 - Bowen-McLaughlin-York - 3,609 built 1964 to 1967.
A042 engine (2 cyl)
TM 5-2805-213-14/24P.
- M274A3 - Result of installation of A0-42 engine into M274
A042 engine (2 cyl)
TM 5-2805-213-14/24P
Source change 1, TM 9-2 320-213-20, 14 Feb '66.
- M274A4 - Result of installation of A0-42 engine into M274A1
A042 engine (2 cyl)
TM 5-2805-213-14/24P
Source change 1, TM 9-2 320-213-20, 14 Feb '66.

G400 2 WHEEL STEERING

- M274A5 - Baifield Industries - 2,400 built, 1965 to 1969
A042 engine (2 cyl)
TM 5-2805-213-14/24P.
- M274A5 - Brunswick Corp. Technical Products Div. - 874 built, 1968 to 1970
A042 engine (2cyl)
TM 5-2805-213-14/24P.

NOTE: M274A5 had two wheel steer only



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