

TM 9-1802C

WAR DEPARTMENT TECHNICAL MANUAL

ORDNANCE MAINTENANCE HULL AND WATER DRIVE FOR 2½-TON 6x6 AMPHIBIAN TRUCK, (GMC DUKW-353)

RESTRICTED

Dissemination of restricted matter.—The information contained in restricted documents and the essential characteristics of restricted materiel may be given to any person known to be in the service of the United States and to persons of undoubted loyalty and discretion who are cooperating in Government work, but will not be communicated to the public or to the press except by authorized military public relations agencies. (See also paragraph 18b, AR 380-5, 28 September 1942.)

WAR DEPARTMENT TECHNICAL MANUAL
TM 9-1802C RESTRICTED

ORDNANCE MAINTENANCE
HULL AND WATER DRIVE
FOR 2½-TON 6x6 AMPHIBIAN
TRUCK, (GMC DUKW-353)



WAR DEPARTMENT
21 DECEMBER 1943

RESTRICTED

Dissemination of restricted matter.—The information contained in restricted documents and the essential characteristics of restricted materiel may be given to any person known to be in the service of the United States and to persons of undoubted loyalty and discretion who are cooperating in Government work, but will not be communicated to the public or to the press except by authorized military public relations agencies. (See also paragraph 18b, AR 380-5, 28 September 1942.)

WAR DEPARTMENT
Washington 25, D. C., 21 December 1943

TM 9-1802C—Hull and Water Drive for 2½-ton 6x6 Amphibian Truck (DUKW-353), is published for the information and guidance of all concerned.

[A. G. 300.7 (17 Aug. 1943)]

BY ORDER OF THE SECRETARY OF WAR:

G. C. MARSHALL
Chief of Staff.

OFFICIAL:

J. A. ULIO,
Major General,
The Adjutant General.

DISTRIBUTION: R9(4); Bn9(2); C9(8).

(For explanation of symbols, see FM 21-6)

ORDNANCE MAINTENANCE

HULL AND WATER DRIVE FOR 2½-TON 6 x 6 AMPHIBIAN TRUCK (DUKW-353)

CONTENTS

		Paragraphs	Pages
CHAPTER	1. INTRODUCTION	1-2	5-16
CHAPTER	2. WATER DRIVE SYSTEM	3-20	17-61
SECTION	I. Water Drive System Description	3	17-18
	II. Water Propeller Transfer Case.	4-10	19-35
	III. Water Propeller Shafts and Universal Joints	11-14	36-42
	IV. Water Propeller	15-16	43-47
	V. Strut and Bearing	17-19	48-56
	VI. Water Drive System Fits and Tolerances	20	57-61
CHAPTER	3. BILGE PUMP SYSTEMS.....	21-41	62-99
SECTION	I. Description	21-22	62-65
	II. Oberdorfer Bilge Pump System	23-28	66-78
	III. Gould Bilge Pump System	29-34	79-86
	IV. Higgins Bilge Pump System...	35-40	87-98
	V. Bilge Pump System Fits and Tolerances	41	99
CHAPTER	4. STEERING SYSTEM	42-52	100-126
SECTION	I. Steering System Description ..	42	100
	II. Steering Gear Assembly.....	43-48	101-118
	III. Rudder and Linkage	49-52	119-126

CONTENTS

		Paragraphs	Pages
CHAPTER	5. TIRE INFLATION SYSTEM	53-91	127-215
SECTION	I. Description	53-55	127-128
	II. Air Cooled Compressor	56-59	129-144
	III. Water Cooled Compressor	60-63	145-171
	IV. Compressor Governor	64-68	172-180
	V. Water Cooled Compressor Drive	69-72	181-185
	VI. Air Tank and Lines	73-75	186-189
	VII. Inflation and Deflation Control Valve Unit	76-80	190-196
	VIII. Line Valves and Manifold	81-86	197-202
	IX. Tire Inflation Hub Device	87-90	203-212
	X. Tire Inflation System Fits and Tolerances	91	213-215
CHAPTER	6. WINCH AND DRIVE	92-100	216-237
SECTION	I. Winch System Description	92	216-217
	II. Winch Assembly	93-98	218-232
	III. Winch Drive Shaft and Universal Joints	99-100	233-237
CHAPTER	7. HULL AND ASSOCIATED PARTS	101-109	238-268
SECTION	I. Repair of Basic Hull	101-104	238-254
	II. Hull Associated Parts	105-109	255-268
REFERENCES		269-270
INDEX		271-272

CHAPTER I

INTRODUCTION

	Paragraph
Scope	1
Maintenance Allocation	2

1. SCOPE.

a. The instructions contained in this manual are for the information and guidance of personnel charged with the maintenance and repairs of 2½-ton Amphibian Truck, 6 x 6 (GMC DUKW-353). These instructions are supplementary to field and technical manuals prepared for the using arm. This manual does not contain information which is intended primarily for the using arm, since such information is available to ordnance personnel in 100-series TM's or FM's.

b. This manual contains a description of and procedure for the disassembly, inspection, repair, and assembly of Water Drive System, Bilge Pump Systems, Steering System, Tire Inflation Systems, Winch System, and Hull and Associated Parts.

c. TM 9-802 contains information concerning operation, service, maintenance, inspection, and lubrication of the entire vehicle.

d. TM 9-1802A contains a description of and procedure for the removal, disassembly, inspection, repair, and assembly of engine assembly, and includes such accessories as clutch, engine lubrication system units, ignition system units, generator and regulator, starter and controls, carbureter, governor, fuel filter, air cleaner, fuel pump, water pump, radiator, and fan and belts.

e. TM 9-1802B contains a description of and procedure for the disassembly, inspection, repair, and assembly of transmission, main transfer case, power take-off, propeller shaft and universal joints (driving axle), front axle, rear axles, brake system units, spring suspension, and wheels and hubs.

2. MAINTENANCE ALLOCATION.

a. Indicated below are the maintenance duties for which tools and parts have been provided for the using arm personnel. Other replacements or repairs are the responsibility of ordnance maintenance personnel but may be performed by using arm personnel when circumstance permits, within the discretion of the commander concerned. Echelons and words as used in this list of maintenance allocations are defined as follows:

HULL AND WATER DRIVE—2½-TON AMPHIBIAN TRUCK

FIRST AND SECOND ECHELON: Table III AR 850-15	Operating organizations, driver, operator, or crew, companies and detachments, battalions, squadrons, regiments, and separate companies and detachments (first and second echelons, respectively).
THIRD ECHELON: Table III AR 850-15	Technical light and medium maintenance units, including Post and Port Shops.
FOURTH ECHELON: Table III AR 850-15	Technical heavy maintenance and field depot units, including designated post and service command shops.
FIFTH ECHELON: Table III AR 850-15	Technical base Units.
SERVICE: Par. 24 a (2) and (3) in part AR 850-15	Preventive maintenance, checking and replenishing fuel, oil, grease, water and antifreeze, air, and battery liquid; checking and tightening nuts and bolts; cleaning; and making external adjustment of subassemblies or assemblies and controls.
REPLACE: Par. 24 a (5) AR 850-15	To remove an unserviceable part, assembly, or subassembly from a vehicle and replace it with a serviceable one.
REPAIR: Par. 24 a (4) in part AR 850-15	To restore to a serviceable condition, such parts, assemblies or subassemblies as can be accomplished without completely disassembling the assembly or subassembly, and where heavy riveting, or precision machining, fitting, balancing, or alining is not required.
REBUILD: Par. 24 a (6) AR 850-15	Consists of stripping and completely reconditioning and placing in serviceable condition any vehicle or unserviceable part, subassembly, or assembly of the vehicle, including welding, riveting, machining, fitting, alining, balancing, assembling, and testing.
RECLAMATION: AR 850-15 Par. 24 a (7) and in part CIR. 75, dated 3/16/43	Salvage of serviceable or economically repairable units and parts removed from vehicles, and their return to stock. This includes the process which recovers and/or reclaims unusable articles or component parts thereof and places them in a serviceable condition.

INTRODUCTION

- NOTES:**
- (1) Operations allocated will normally be performed in the echelon indicated by "X."
 - (2) Operations allocated to the third echelon as indicated by "E" may be performed by these units in emergencies only.
 - (3) Operations allocated to the fourth echelon by "E" are normal fifth echelon operations. They will not be performed by the fourth echelon, unless the unit is expressly authorized to do so by the chief of the service concerned.
 - (4) Technical Bulletins of the 2830-series should be consulted for detailed information relative to reclamation procedure.

	ECHELONS			
	2nd	3rd	4th	5th
ABSORBERS, SHOCK				
Absorber assemblies, shock (w/linkage)—replace...	X			
Absorber assemblies, shock (w/linkage)—repair....		X		
Absorber assemblies, shock (w/linkage)—rebuild...			E	X
AXLE, FRONT				
Arm, steering (knuckle)—replace.....		X		
*Axle assembly—replace.....	*	X		
Axle assembly—repair.....		X		
Axle assembly—rebuild.....			E	X
Bearings, wheel—adjust and/or replace.....	X			
Drums, brake—replace.....	X			
Gears, bevel and pinion—adjust.....		X		
Hub assemblies—replace.....	X			
Hub assemblies—repair.....		X		
Hub assemblies—rebuild.....			X	
Hub and drum assemblies—replace.....	X			
Retainers, wheel grease—replace.....	X			
Rod assembly, tie—replace.....	X			
Rod assembly, tie—repair.....		X		
Seals, axle shaft—replace.....		X		
Seals, trunnion housing oil—replace.....	X			
Shafts, axle—replace.....		X		
Wheel alinement, toe-in—adjust.....	X			
Wheel alinement, camber and caster—check.....		X		
AXLES AND SUSPENSION, REAR (TANDEM)				
*Axle assemblies—replace.....	*	X		
Axle assemblies—repair.....		X		
Axle assemblies—rebuild.....			E	X
Bearings, spring seat—adjust and/or replace.....	X			

*See note on page 16.

HULL AND WATER DRIVE—2½-TON AMPHIBIAN TRUCK

	ECHELONS			
	2nd	3rd	4th	5th
AXLES AND SUSPENSION, REAR (TANDEM)				
(Cont'd)				
Bearings, wheel—adjust and/or replace.....	X			
Drums, brake—replace.....	X			
Gears, bevel and pinion—adjust.....		X		
Hub assemblies—replace.....	X			
Hub assemblies—repair.....		X		
Hub assemblies—rebuild.....			X	
Hub and drum assemblies—replace.....	X			
Retainers, wheel grease—replace.....	X			
Rod assemblies, torque—replace.....	X			
Rod assemblies, torque—repair.....		X		
Rod assemblies, torque—rebuild.....			X	
Seat assemblies, spring—replace.....	X			
Seat assemblies, spring—repair.....		X		
Seat assemblies, spring—rebuild.....			E	X
Shaft, trunnion—replace.....		X		
Shaft, trunnion—rebuild.....			E	X
Shafts, axle—replace.....	X			
Spring assemblies, rear suspension—replace.....	X			
Spring assemblies, rear suspension—repair.....		X		
Spring assemblies, rear suspension—rebuild.....			E	X
BRAKE, PARKING				
Band assembly—adjust and/or replace.....	X			
Band assembly—repair (reline).....		X		
Controls and linkage—adjust and/or replace.....	X			
Controls and linkage—repair.....		X		
BRAKES, SERVICE (HYDROVAC)				
Cleaner assembly, air—service and/or replace.....	X			
Cleaner assembly, air—repair.....		X		
Controls and linkage—adjust and/or replace.....	X			
Controls and linkage—repair.....		X		
Cylinder assembly, master—replace.....	X			
Cylinder assembly, master—repair.....		X		
Cylinder assembly, master—rebuild.....			X	
Cylinder assembly, power (hydrovac)—replace....	X			
Cylinder assembly, power (hydrovac)—repair....		X		
Cylinder assembly, power (hydrovac)—rebuild....			X	
Cylinder assemblies, wheel—replace.....	X			
Cylinder assemblies, wheel—repair.....		X		
Cylinder assemblies, wheel—rebuild.....			X	
Hose, flexible, lines and connections—replace and/or repair.....	X			
Shoe assemblies—adjust and/or replace.....	X			
Shoe assemblies—repair (reline).....		X		

INTRODUCTION

	ECHELONS			
	2nd	3rd	4th	5th
CASE, TRANSFER (MAIN)				
*Case assembly, transfer—replace.....	*	X		
Case assembly, transfer—repair.....		X		
Case assembly, transfer—rebuild.....			E	X
Controls and linkage—adjust and/or replace.....	X			
Controls and linkage—repair.....		X		
Drum, parking brake—replace.....	X			
CASE, TRANSFER (WATER PROPELLER)				
*Case assembly, transfer—replace.....	*	X		
Case assembly, transfer—repair.....		X		
Case assembly, transfer—rebuild.....			E	X
Controls and linkage—adjust and/or replace.....	X			
Controls and linkage—repair.....		X		
Pulley, bilge pump drive—replace.....	X			
CLUTCH				
Bearing, pilot or release—replace.....	X			
Clutch—replace and/or repair.....		X		
Clutch—rebuild.....			E	X
Controls and linkage—adjust and/or replace.....	X			
Controls and linkage—repair.....		X		
Plate, clutch driven—replace.....	X			
Plate, clutch driven—repair (reline).....		X		
COOLING GROUP				
Connections—replace.....	X			
Radiator assembly—replace.....	X			
Radiator assembly—repair.....		X		
Radiator assembly—rebuild.....			X	
System, cooling—service.....	X			
Tank, overflow—replace.....	X			
Tank, overflow—repair.....		X		
ELECTRICAL GROUP				
Battery—service (recharge) and/or replace.....	X			
Battery—repair.....		X		
Battery—rebuild.....			X	
Cables, battery—replace and/or repair.....	X			
Filters—replace.....	X			
Horn assembly—adjust and/or replace.....	X			
Horn assembly—repair.....		X		
Lamp assemblies—adjust and/or replace.....	X			

*See note on page 16.