

# MASSEY FERGUSON

## 1160/1165/1180/1190

### SERVICE MANUAL

#### 1449251M1

### TABLE OF CONTENTS

<a href="#">Introduction</a>	<a href="#">0-1</a>
<a href="#">Sheet Metal &amp; 3-Point Hitch</a>	<a href="#">1A-1</a>
<a href="#">Major Components</a>	<a href="#">1B-1</a>
<a href="#">Engine 1160/1180/1190 Only</a>	<a href="#">2A-1</a>
<a href="#">Fuel System 1160/1180/1190 Only</a>	<a href="#">2B-1</a>
<a href="#">Cooling System and Air cleaner</a>	<a href="#">2C-1</a>
<a href="#">Iseki Diesel Engine 1165</a>	<a href="#">3A-1</a>
<a href="#">Clutch</a>	<a href="#">4A-1</a>
<a href="#">Transmission</a>	<a href="#">5A-1</a>
<a href="#">Power Shuttle</a>	<a href="#">5B-1</a>
<a href="#">Power Shuttle - Foldout</a>	<a href="#">5B-2</a>
<a href="#">Front Axle (4WD)</a>	<a href="#">6A-1</a>
<a href="#">Rear Axle and Brakes</a>	<a href="#">7A-1</a>
<a href="#">Power Assist Steering</a>	<a href="#">8A-1</a>
<a href="#">Power Steering System - 1165</a>	<a href="#">8B-1</a>
<a href="#">Hydraulic System</a>	<a href="#">9A-1</a>
<a href="#">Electrical system</a>	<a href="#">10A-1</a>
<a href="#">Electrical system - Foldout</a>	<a href="#">10A-2</a>
<a href="#">Starter</a>	<a href="#">10B-1</a>
<a href="#">Alternator</a>	<a href="#">10C-1</a>

# INTRODUCTION

## CONTENTS

<b>INDEXING .....</b>	<b>0-2</b>
<b>SPECIAL TOOLS .....</b>	<b>0-2</b>
<b>REPAIR &amp; REPLACEMENTS .....</b>	<b>0-2</b>
<b>REPAIR TIME SCHEDULE .....</b>	<b>0-2</b>
<b>MF1165 POWER SHUTTLE.....</b>	<b>0-2</b>
<b>AMENDMENTS .....</b>	<b>0-3</b>
<b>SAFETY PRECAUTIONS .....</b>	<b>0-3</b>
<b>TRACTOR IDENTIFICATION .....</b>	<b>0-4</b>
Model/Serial Numbers .....	0-4
<b>SPECIAL TORQUE'S (MF 1160/1165).....</b>	<b>0-5</b>
<b>SPECIAL TORQUE'S (MF 1180/1190) .....</b>	<b>0-6</b>
Torque chart .....	0-7
<b>LUBRICATION &amp; PERIODIC MAINTENANCE.....</b>	<b>0-9</b>
Specifications & Capacities 1160/80/90.....	0-9
Specifications & Capacities 1165 .....	0-10
<b>PERIODIC MAINTENANCE SCHEDULE .....</b>	<b>0-11</b>
<b>LUBRICATION/FILL POINTS-1160/80/90 .....</b>	<b>0-12</b>
<b>LUBRICATION/FILL POINTS-1165 .....</b>	<b>0-13</b>
<b>MAJOR COMPONENTS .....</b>	<b>0-14</b>
<b>GENERAL DIMENSIONS .....</b>	<b>0-15</b>
<b>SPECIFICATIONS .....</b>	<b>0-17</b>
<b>SPECIFICATIONS (CONT'D) .....</b>	<b>0-19</b>
Tire Inflation Pressures .....	0-20
<b>WHEELS &amp; TIRES 1160/65/80/90 .....</b>	<b>0-20</b>
Wheel Bolt Torque .....	0-20
<b>TRANSMISSION SPEEDS .....</b>	<b>0-21</b>
<b>SEALANTS &amp; ADHESIVES .....</b>	<b>0-25</b>

# INTRODUCTION

The purpose of this manual is to assist dealers and distributors in the efficient repair and maintenance of Massey-Ferguson farm machinery. Carrying out the procedures as detailed, together with the use of special tools where appropriate will enable the operations to be completed within the time stated in the repair time schedule.

*Note: To assist with location information, each division of the manual is proceeded by a contents page listing the operations in numerical order.*

Each instruction within an operation has a sequence number, and to complete the operation in the minimum time it is essential that these instructions are performed in numerical sequence commencing at 1 unless otherwise stated. When applicable, these sequence numbers identify the components in the appropriate illustration. Where performance of an operation requires the use of a special tool. The tool is called out in that operation.

## INDEXING

For convenience, the manual is divided into parts, sections and sub-sections with each page number bearing the part and section number. Page numbers are located at top outside of each page. Beneath the page number is written title of manual division

Page number example: 7A-15

Part 7 section A, page 15

This simplifies cross-referencing and enables the subject to be found easily.

*Note: Page numbers will be consecutive within each sub-section. A void of page numbers may be used between these sub-sections in order to provide space for future amendments and also to indicate the beginning/end of adjustments and also to indicate the beginning/end of adjacent sub-sections.*

## SPECIAL TOOLS

Where the use of a special tool is specified in an operation, the tool will be called out for, 1.

The use of the special tools mentioned in the text contributes to a safe, efficient and profitable repair. Some operations are impracticable without their use.

Make certain proper tools are available when starting the job.

## REPAIR & REPLACEMENTS

When service parts are required, it is essential that only genuine Massey-Ferguson replacements are used.

- Attention is particularly drawn to the following points concerning repairs and the fitting of replacement parts accessories:
- Safety features embodied in the tractor may be impaired if other than genuine parts are fitted.
- In certain territories, legislation prohibits the fitting of parts not to the tractor manufacturer's specification.
- Torque wrench setting figures given in the Workshop manual must be strictly adhered to.
- Locking devices where specified must be fitted. If the efficiency of a locking device is impaired during removal it must be renewed.
- The tractor warranty may be invalidated by the fitting of other than genuine Massey-Ferguson parts. All Massey-Ferguson replacements have the full backing of the manufacturers warranty. Massey-Ferguson Distributors and Dealers are obliged to supply only genuine service parts.

## REPAIR TIME SCHEDULE

The operation listed in the Repair Time Schedule refer to those described in this manual. The time set against each operation in the schedule is established by performing the actual operation in the schedule is established by performing the actual operations on standard machines using special tools where applicable. The Repair Time Schedule for use with this manual is issued as a separate publication.

*NOTE: Repair Time Schedules are issued to Massey-Ferguson Distributors and Dealers only and are not for general publication.*

## MF1165 POWER SHUTTLE

Information pertaining to Power Shuttle 1165 tractors is located in Section 5B. Section 5B covers complete Power Shuttle, PTO, electrical and hydraulic details.

## AMENDMENTS

Under normal conditions, revised pages issued carry the same number as the existing pages requiring amendment. The new pages are inserted in place of the existing ones. The old pages should then be discarded.

In some cases additional pages or completely new sections may be issued. These pages are to be inserted immediately following the page carrying the next lowest page number, or section number as appropriate.

Where new pages are required to be positioned between existing pages, the new page numbers will contain a suffix letter.

Example New Page Number: 7A-16a.

This page is inserted after existing page number 7A-16 and before page number 7A-17. Correspondingly a further new page numbered 7A-16b would be positioned after 7A-16a but 7A-17.

*Note: Service bulletins and Amendments Sheets are issued to the Massey-Ferguson Distributors and Dealers only and are not for general publication.*

## SAFETY PRECAUTIONS

- Make sure that all persons are in a safe position before starting the engine, or operating ANY of the controls.
- Always stop the engine before leaving the operator's platform.
- Wait for all moving parts to stop COMPLETELY before starting any work on the tractor.
- Before starting service procedures, attached equipment should be resting on the ground and all hydraulic control levers operated back and forth several times with engine stopped.
- If it becomes necessary to go under raised attachment (i.e.: to perform adjustments, etc.), safety stands must be used to support the attachment.
- Make sure the battery ground cable is disconnected before working on or near the electrical system of electrical system components.
- Keep hands, feet and clothing a safe distance away from moving belts, pulleys and other moving parts. Make sure all safety shields are installed.
- Be extra careful when performing any checks, inspections, adjustments or tests that require operating the engine, the hydraulic controls, OR with the machine in motion.
- Make sure dependable jacks of adequate lifting capacity AND suitable stands (or wooden blocking) are used to securely block up the machine when removing any of the wheels or axles.

- Before any attempt is made to disconnect or remove any hydraulic component, make sure the hydraulic pressure within the system is relieved and the engine is stopped.
- Carry out the repair procedures in a "common sense" manner. Safety procedures cannot be over-emphasized when working on, or around machinery, especially when working on engine driven and /or hydraulically actuated equipment.
- Safety also depends upon the skill of the serviceman in the use of tools and other shop equipment while performing the recommended service procedures.
- Exercise extreme caution when testing hydraulic or fuel system components as fluid ejected under high pressure can easily penetrate skin causing serious infection.
- When it is necessary to remove hoods, shields, ROPS, etc. to conduct repair operation, all items must be reinstalled to unit and secured in original fashion.
- Do not bend, drill holes, or weld on the ROPS structure, if the ROPS is damaged in any way it must be replaced.

**Personal injury may result if these precautions are not followed.**

Look for this symbol to point out important safety precautions. It means: ATTENTION! BECOME ALERT! YOUR SAFETY IS INVOLVED.



## 0-4 - INTRODUCTION

### TRACTOR IDENTIFICATION

#### Model/Serial Numbers

Each tractor is identified by means of Tractor model and serial numbers. As a further identification, engine and chassis are provided with identification numbers

To assist the parts department in ordering parts, list the tractor model and serial numbers on the parts order form.

Tractor Model	(M.S.N.)

Tractor Serial Number

**FIGS. 0-01 & 0-02:** Tractor identification plate, 1, located below operator's seat on left-hand side of vertical floor panel. Contains model number, machine series number and weight in addition to Tractor serial number.

Engine Model Number

Engine Serial Number

**FIG. 0-03:** Engine model number, 1, is cast on left side of engine block, below the injection pump.

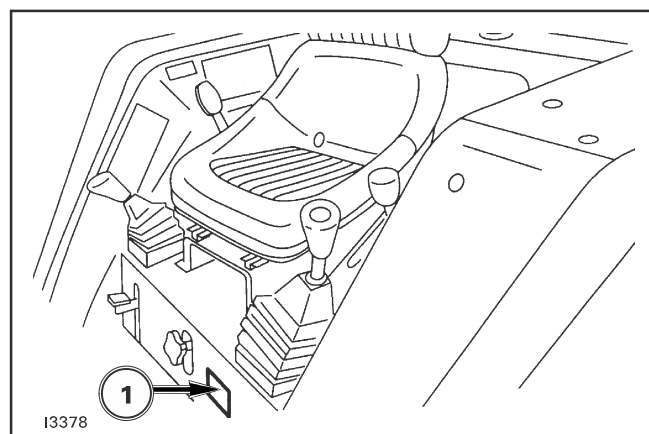
Engine serial number, 2, is stamped into cylinder block, above engine model number.

Chassis Number

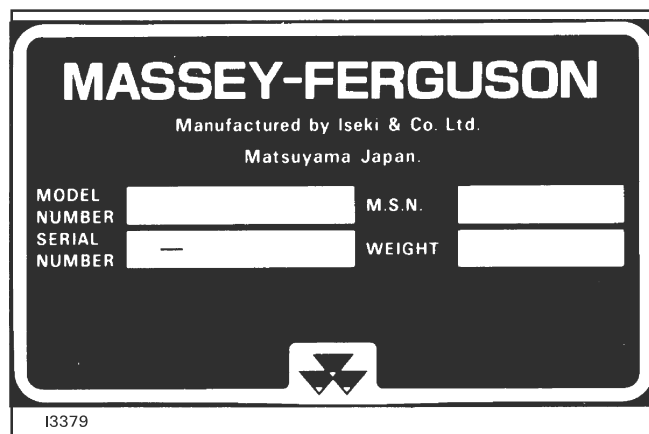
**FIG. 0-04:** Chassis number, 1, is stamped in right side of front frame, on MF 1160/1165.

Chassis number, 1, is stamped in left side of front frame, on MF 1180/1190.

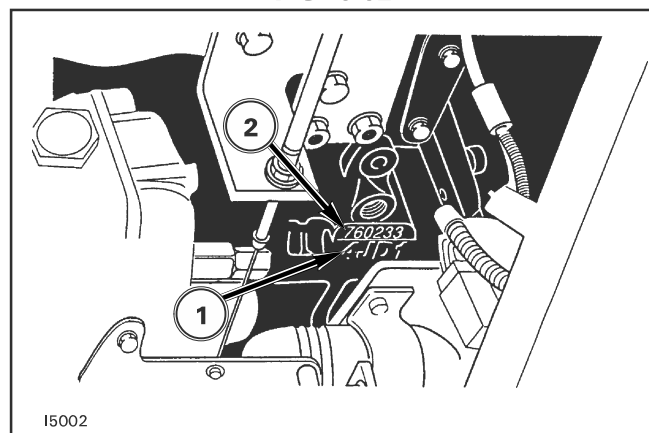
*Note: Reference to left-hand and right hand, uses throughout this book, refers to the position when seated in operator's seat and facing forwards.*



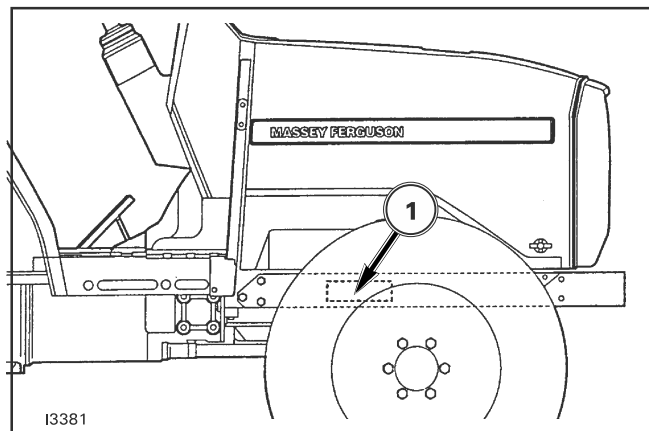
**FIG. 0-01**



**FIG. 0-02**



**FIG. 0-03**



**FIG. 0-04**

**SPECIAL TORQUE'S (MF 1160/1165)**

Front axle - 4wd (MF 1160/1165)		
Description	Bolt and nut (Hardness)	Torque Nm (ft.-lbs.)
Axle bracket – engine-bolt torque	M14 (7T)	127 - 147 (94 - 109)
Front pivot casting (support) -bolt torque	M12 (7T)	88 - 108 (65 – 80)
Rear pivot casting (support) -bolt torque	M18 (7T)	119 - 136 (88 – 101)
Front axle final drive - bolt torque	M12 (7T)	88 - 108 (65 – 80)
Bearing cover – bolt torque	M8 (7T)	24 - 33 (18 – 25)
Wheel shaft cover – bolt torque	M10 (7T)	54 - 69 (40 – 51)
Front wheel – bolt torque	M16 (7T)	157 - 176 (116 - 130)
Bevel gear case – bolt torque	M8	12 - 17 (9 – 13)
Differential support - bolt torque	M8	12 - 17 (9 – 13)
Rear gear – differential support-bolt torque	M8	12 - 17 (9 – 13)
Bevel pinion lock nut	See torque procedure-part 6A	
Transmission (MF 1160/1165)		
Description	Bolt and nut (Hardness)	Torque Nm Nm (ft.-lbs.)
Front transmission to engine bolt nuts	M12 (7T)	88 - 108 (65 - 80)
Front transmission to spacer transmission – bolts and nuts	M12 (7T)	88 - 108 (65 - 80)
Spacer transmission to differential housing – bolt and nuts	M12 (7T)	88 - 108 (65 - 80)
Input housing – bolts and nuts	M12 (7T)	88 - 108 (65 - 80)
Drive pinion housing – bolts	M10 (7T)	54 - 69 (40 - 51)
Drive pinion nut	See torque procedure part 5-A	
Differential case – bolts	M12	48 - 68 (36 - 51)
Differential case – ring gear nuts	M12 (7T)	88 - 108 (65 - 80)
Rear axle (MF 1160/1165)		
Rear axle to differential housing bolts	M10 (7T)	54 - 69 (40 - 51)
Brake housing – bolts	M10 (7T)	54 - 69 (40 - 51)
Rear wheel - bolts and nuts	M22	363 - 382 (268 - 282)
Cylinder cover and other (MF 1160/1165)		
Hydraulic cylinder cover to differential Housing bolts and nuts	M10 (7T)	54 - 69 (40 - 51)
Hydraulic cylinder head bolts	M12 (7T)	88 - 108 (65 - 80)
Hydraulic control valve bolts	M8	12 - 17 (9 - 13)
Lower link bracket bolts and nuts	M14	69 - 78 (51 - 58)

---

## 0-6 - INTRODUCTION

---



### SPECIAL TORQUE'S (MF 1180/1190)

Description	Bolt and nut (Hardness)	Torque Nm Nm (ft.-lbs.)
Axle bracket to engine – bolts	M16 (7T)	157 - 176 (116 - 130)
Front pivot support – bolts	M12 (7T)	88 - 108 (65 - 80)
Rear pivot support-bolts	M14 (7T)	127 - 147 (94 - 108)
Front axle to final drive – bolts	M12 (7T)	88 - 108 (65 - 80)
Final drive bearing cover bolts	M8 (7T)	24 - 33 (18 - 25)
Wheel shaft cover bolts	M10 (7T)	54 - 69 (40 - 51)
Front wheel bolts	M16 (7T)	157 - 176 (116 - 130)
Bevel gear case bolts	M8	12 - 17 (9 - 13)
Differential support bolts	M8	12 - 17 (9 - 13)
Ring gear to differential housing	M8	12 - 17 (9 - 13)
Bevel pinion lock nut	See torque procedure in 6A	
<b>Transmission</b>		
Front transmission to engine bolts and nuts	M12 (7T)	88 - 108 (65 - 80)
Front transmission to spacer transmission bolts and nuts	M12 (7T)	88 - 108 (65 - 80)
Spacer transmission to rear differential bolts and nuts.	M12 (7T)	88 - 108 (65 - 80)
Input housing bolts and nuts	M12 (7T)	88 - 108 (65 - 80)
Drive pinion housing bolts	M10 (7T)	54 - 69 (40 - 51)
Drive pinion nut	See torque procedure part 5A	
Differential case-bolts	M12	48 - 68 (36 - 51)
Differential case-ring gear nuts	M12 (7T)	88 - 108 (65 - 80)
<b>Rear axle (MF 1180/1190)</b>		
Rear axle to differential housing bolts	M10 (7T)	54 - 69 (40 - 51)
Brake housing bolts	M10 (7T)	54 - 69 (40 - 51)
Rear wheel bolts and nut	M22	363 - 383 (268 - 282)
<b>Cylinder cover and others (MF 1180/1190)</b>		
Hydraulic cylinder cover to differential housing bolts and nuts	M10 (7T)	54 - 69 (40 - 51)
Hydraulic cylinder head bolts	M12 (7T)	88 - 108 (65 - 80)
Hydraulic control valve bolts	M8	12 - 17 (9 - 13)
Lower link bracket bolts and nuts	M14	69 - 78 (51 - 58)

**Torque chart**

<b>Torque chart for metric fasteners (zinc coated)</b>						
Normal size  In mm	Strength class		Strength class		Strength class	
	ISO 4.6 (SAE1)		ISO 8.8 (SAE 5)		ISO 10.9 (SAE 8)	
	Torque Nm (lbf-ft.)		Torque Nm (lbf-ft.)		Torque Nm (lbf-ft.)	
	Min.	Max.	Min.	Max.	Min.	Max.
M3	0.5 (0.3)	0.7 (0.5)	1.3 (0.9)	1.7 (1.3)	1.8 (1.3)	2.4 (1.8)
M4	1.2 (0.9)	1.6 (1.2)	3.1 (2.3)	4.1 (3.0)	4.3 (3.2)	5.7 (4.2)
M5	2.2 (1.6)	3.0 (2.2)	6.0 (4.4)	8.0 (5.9)	8.5 (6.3)	11.5 (8.5)
M6	4.0 (2.9)	5.0 (3.7)	10 (7.4)	14 (10.3)	14 (10.3)	20 (14.8)
M8	9.5 (7.0)	12.5 (9.2)	25 (18.4)	35 (26)	36 (26)	46 (34)
M10	19 (14)	25 (18)	50 (37)	70 (52)	72 (53)	96 (71)
M12	33 (24)	43 (32)	90 (66)	120 (89)	120 (89)	160 (118)
M16	84 (62)	110 (81)	200 (148)	260 (192)	300 (221)	400 (295)
M20	160 (118)	210 (155)	420 (310)	560 (413)	600 (443)	800 (590)
M24	280 (207)	360 (266)	720 (531)	860 (634)	1000 (738)	1300 (959)
M30	540 (398)	720 (531)	1400 (1033)	1800 (1328)	2100 (1549)	2800 (2065)
M36	950 (700)	1250 (922)	2500 (1844)	3300 (2434)	3600 (2655)	4800 (3540)

## 0-8 - INTRODUCTION

<b>Torque chart for inch fasteners (zinc coated)</b>						
Normal size	Strength class-below SAE 5 (plain head)		Strength class SAE 5 		Strength class-in inches SAE 8 	
	Torque Nm (lbf-ft.)		Torque Nm (lbf-ft.)		Torque Nm (lbf-ft.)	
	Min.	Max.	Min.	Max.	Min.	Max.
1/4	6.8 (5)	8.1 (6)	10.8 (8)	15 (11)	16.2 (12)	21.7 (16)
5/16	13.5 (10)	16.2	22 (16)	30 (22)	31 (23)	42 (31)
3/8	24 (18)	28 (21)	39 (29)	53 (39)	56 (41)	75 (55)
7/16	41 (30)	46 (34)	64 (47)	85 (63)	91 (67)	121 (89)
1/2	61 (45)	70 (52)	99 (73)	131 (97)	140 (103)	185 (137)
5/8	122 (90)	142 (105)	198(146)	263 (194)	279 (206)	371 (274)
3/4	217 (160)	250 (185)	350 (258)	464 (342)	495 (365)	658 (485)
7/8	--	--	569 (420)	800 (759)	800 (590)	1071 (790)
1	--	--	847 (635)	1119 (825)	1200 (885)	1580 (1165)
1-1/8	--	--	1051 (775)	1390 (1025)	1681 (1240)	2224 (1640)
1-1/4	--	--	1491 (1100)	1966 (1450)	2386 (1760)	3159 (2330)
1-1/2	--	--	2576 (1900)	3390 (2500)	4121 (3040)	5437 (4010)

*NOTE: Above torques are for "rigid" joints or joints meeting the following conditions:*

1. Damage will not occur to joined members of an assembly.
2. It is desirable to use a higher clamping force.
3. Fastener threads are not lubricated prior to assembly.

The following conditions will require a torque value different than stated above:

1. Reduced torque required: non-parallel clamping surfaces, thick or highly compressible gaskets are used. Or when a higher torque may damage joined assemblies.
2. Clip nuts, weld nuts, self-tapping hardware. Or any condition that causes reduced thread engagement will warrant a torque less than stated above.
3. Special torque values, stated in this manual, must be strictly adhered to as stated in the specific operation.

*NOTE: A number of special torques are used in assembly of tractors. See list.*

## **LUBRICATION & PERIODIC MAINTENANCE**

### **Specifications & Capacities 1160/80/90**

#### **Engine Oil**

Use Massey Ferguson Multiguard ® or equivalent in the appropriate SAE viscosity. Oil must meet or exceeds; MIL-L-46152 requirements, API service "CC" (MF 1160/1180), MIL-L-2104C API Service "CD" (MF 1190).

Capacity (Crankcase and Filter) ..... 7.4 U.S. qts. (7.0 liters)

Recommended Viscosity:

78°F (25°) and Above ..... SAE 30W, 10W-30

32°-78°F (0°-25°C) ..... SAE 20W, 10W-30

Below 32°F (0°C) ..... SAE 10W, 10W-30

*Multiguard® 15W-40 may be used in ambient temperature above 14°F (-10°C).*

Recommended Change Interval:

Initial Oil and Filter Change ..... 50 hours

Oil and Filter Change, Thereafter ..... Every 150 hours

#### **Engine Coolant**

Freezing Protection (Original Factory Fill) ..... -30°F (-34°C)

Recommended Coolant ..... 50/50 mixture ethylene glycol and water

System Capacity ..... 9.5 U.S. qts (9.0 liters)

#### **Fuel Tank**

Capacity ..... MF 1160 - 12.7 U.S gals. (48.0 liters)

..... MF 1180/1190 - 13.5 U.S. gals. (51.0 liters)

Fuel Recommended, Above 39°F (4°C) ..... No. 2 or No. 2-D

Fuel Recommended, Below 39°F (4°C) ..... No. 1 or No. 1D

#### **Transmission & Differential Housing**

##### **(Including Hydraulic System)**

Capacity ..... MF 1160 - 7.7 U.S. gals. (29.0 liters)

..... MF1180/1190 - 8.5 U.S. gals (32.0 liters)

Recommended Lubricant ..... MF Permatran III®, or SAE 80 GL-4

Recommended Change Interval ..... First 50 hours, every 300 hours thereafter

#### **Power Steering**

Capacity (Reservoir) ..... 2.0 U.S. qts (1.9 liters)

Recommended Lubricant ..... Only MF Permatran III®

Recommended Change Interval ..... First 50 hours, every 300 hours thereafter

#### **Front Axle (4-WD Only)**

Capacity (Common Reservoir) ..... MF 1160 - 6.9 U.S. qts. (6.5 liters)

..... MF1180/1190 - 7.4 U.S. qts (7.0 liters)

Recommended Lubricant ..... MF Permatran III®, or SAE 80 GL-4

Recommended Change Interval ..... Every 300 hours

#### **Grease Fittings**

Grease Interval (All fittings) ..... Every 50 hours

Recommended Grease ..... Massey Ferguson M-1105 or equivalent lithium base grease No. 2

*NOTE: Change intervals stated above are for normal usage. Due to adverse operating conditions that may be experienced (extremely dusty or muddy), change intervals may need to be more frequent.*

*Due to lighter viscosity oil requirements of the power steering system, only Massey Ferguson Permatran III® should be used. Use of alternative oil may result in sluggish or inoperative steering system.*