

VISIBLE-RESULTS



Massey Ferguson Technology

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VISIBLE-RESULTS



MASSEY FERGUSON

MF500 SERIES TRACTOR WORKSHOP SERVICE MANUAL
 Publication No. 1856 072 M2

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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 locating information, each division of the manual is preceded by a contents page listing the operation 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 number is quoted under the operation heading and is repeated in, or following, the instruction involving its use.

INDEXING

For convenience the manual is divided into parts and sections, each page bearing a part and section number.

Example:—7A—15
Part 7 Section A Page 15

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

SPECIAL TOOLS

Where the use of a special tool is specified in an

operation the tool number will be shown under the operation heading and also following the instruction requiring its use.

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, for example the assembly of the differential unit. Distributors are therefore urged to check their tools against the list provided. Where necessary, tools may be ordered from: V. L. Churchill & Co. Ltd., London Road, Daventry, England.

REPAIRS AND 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 and 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 manufacturers 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.

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REPAIR TIME SCHEDULE

The operations 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 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.

AMENDMENTS

Under normal conditions revised pages are issued carrying 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 before 7A—17. To assist in identifying amendments on revised pages, two asterisks (**) will be inserted at the beginning and at the end of the amended paragraph, section, instruction or illustration.

To ensure that a record of amendments to this manual is readily available, the list of amendments will be re-issued with each set of revised pages, quoting the amendment number, date of issue, appropriate instructions and revised page numbers.

NOTE—Service Bulletins and Amendment Sheets are issued to the Massey-Ferguson Distributors and Dealers only and are not for general publication.

Amendment No.	Date	Page Issued

Amendment No.	Date	Page Issued

INTRODUCTION

GENERAL INSTRUCTIONS

SAFETY

Your safety and that of others is always the first consideration when working around machines. Safety is a matter of thoroughly understanding the job to be done, the correct use of tools and equipment, and the application of good common sense.

SYSTEM FAULTS

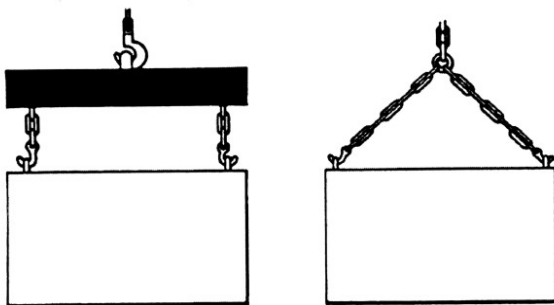
The following procedure combined with the information contained in the workshop manual will be helpful in tracing system faults accurately. It consists of following a number of logical steps to locate and correct the problem.

1. Determine the problem.
2. List possible causes.
3. Devise checks.
4. Conduct checks in logical order to determine cause.
5. Consider remaining service life against cost of parts and labour.
6. Make necessary repair.
7. Recheck.

HANDLING OF HEAVY COMPONENTS

Unless otherwise specified, all removals should be accomplished using an adjustable lifting beam and hoisting equipment. All supporting chains or cables should be parallel to each other and as near vertical as possible in relation to the object being lifted.

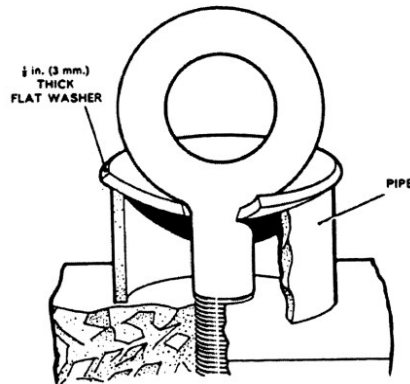
When removing a component on an angle remember that the capacity of an eyebolt diminishes as the angle between the supporting members and the object becomes less than 90° (Fig. 1).



Correct and incorrect method of lifting a component

Eyebolts and brackets should never be bent and should only have stress in tension. A length of pipe and a washer can be used to help relieve these stresses on eyebolts (Fig. 2). In some cases special lifting fixtures are available to obtain correct balance and provide for safe handling. If in doubt consult relevant section of workshop manual.

WARNING—If a part resists removal check to be certain all nuts and bolts have been removed and that an adjacent part is not interfering.



Forged eyebolt support

REMOVAL AND INSTALLATION OF COMPONENT PARTS

Cleanliness

The most important single item in preserving the long life of the machine is to keep dirt out of vital working parts. Precautions have been taken to safeguard against this. Enclosed compartments, seals and filters have been provided to keep the supply of air, fuel and lubricants clean. These safeguards must be maintained.

Whenever hydraulic, fuel, lubricating oil or air lines are disconnected, clean the point of disconnection as well as the adjacent area. As soon as the disconnection is made, cap, plug or tape the line or opening to prevent entry of foreign material. The same recommendations for cleaning and covering apply when access covers or inspection plates are removed.

Clean and inspect all parts. Be sure all passages and holes are open. Cover all parts to keep them clean. Be sure parts are clean when they are installed. Leave new parts in their containers until ready for assembly.

Assembly

When reassembling a machine, complete each step in turn. Do not partially assemble one part and start assembling some other part. Make all adjustments as recommended. Always check the job after it is completed to see nothing has been overlooked.

Recheck the various adjustments before returning the machine to the job.

NOTE—Clean the rust preventative compound from all machined surfaces of new parts before installing them.

Lubrication

Where applicable, fill the compartments of the components serviced with the amount, type and grade of lubricant recommended in the Regular Maintenance Section (1B) of this Manual.

Shims

When shims are removed, tie them together and identify them as to location. Keep shims clean and flat until they are reinstalled.

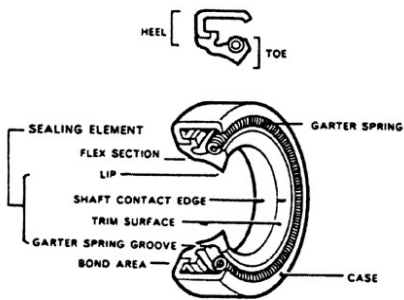
Gaskets

Be sure the holes in the gaskets correspond with the lubricant passages in the mating parts. If gaskets are to be made, select material of the proper type and thickness. Be sure to cut holes in the right places. Blank gaskets can cause serious damage.

Lip Type Rubber Seals

Lubricate the lips of lip-type rubber seals before installation. Use petroleum jelly. Do not grease on any seal except a grease seal.

The main parts of a lip-type seal are the case, sealing element, and garter spring. The picture below illustrates the construction of a simple lip-type seal. The cross section at the top shows the terms "heel" and "toe" used to identify the sides of a single element seal. With few exceptions, the toe of an oil seal with one lip is next to the lubricant that is sealed. Some seals have a second auxiliary lip, which does not carry a garter spring.



Lip-type seal construction

If, during installation, the seal lip must pass over a shaft that has splines, a keyway, rough surface or a sharp edge, the lip can be easily damaged. Always use a seal protector, when one is provided.

Cables and Wires

When removing or disconnecting a group of cables or wires, tag each one to assure proper assembly.

Bearing Bushes and Press Fits

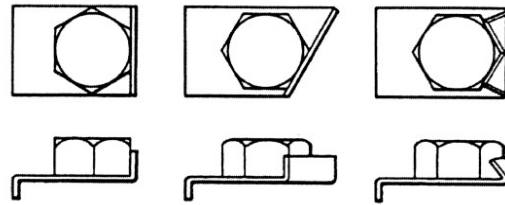
Do not install bearing bushes with a hammer. Use a press if possible and be sure to apply the pressure directly in line with the bore. If necessary, drive on a bearing using a bearing driver or a bar with a smooth flat end. If a sleeve bearing has an oil hole, align it with the oil hole in the mating part. When one part is pressed into another lubricate the mating surfaces.

Assemble tapered parts dry. Before assembling, be sure the tapers are clean, dry and free from burrs.

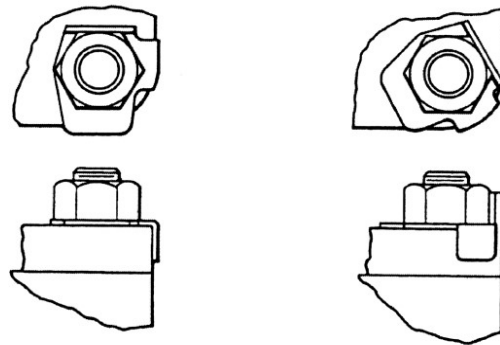
Use of Bolts in Blind Holes

Use bolts of the correct length. A bolt which is too long may "bottom" before the head is tight against the part it is to hold. The threads can be damaged when a "long" bolt is removed.

If a bolt is too short, there may not be enough threads engaged to hold the part securely.



Correct and incorrect methods of installing flat metal locks.



Correct and incorrect method for lock positioning and bending.

Locking Devices

Lockwashers, flat metal locks or cotter pins are used to lock nuts and bolts.

Flat metal locks must be installed properly to be effective. Bend one end of the lock around the edge of the part. Bend the other end against one flat surface of the nut or bolt head.

Always install new locks in compartments which house moving parts.

When installing lockwashers on housings made of aluminium, use a flat washer between the lockwasher and the housing.

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PRESSURE (KN/m² to lbf/m², lbf/in² to KN/m²)

KN/m ²		lbf/in ²	KN/m ²		lbf/in ²	KN/m ²		lbf/in ²
6-8948	1	0-1450	234-423	34	4-9300	461-952	67	9-7150
13-7896	2	0-2900	241-318	35	5-0750	468-846	68	9-8600
20-6844	3	0-4350	248-213	36	5-2200	475-741	69	10-0050
27-5792	4	0-5800	255-108	37	5-3650	482-636	70	10-1500
34-4740	5	0-7250	262-002	38	5-5100	489-531	71	10-2950
41-3688	6	0-8700	268-898	39	5-6550	496-426	72	10-4400
48-2636	7	1-0150	275-792	40	5-8000	503-320	73	10-5850
55-1584	8	1-1600	282-687	41	5-9450	510-215	74	10-7300
62-0532	9	1-3050	289-582	42	6-0900	517-110	75	10-8750
68-9480	10	1-4500	296-476	43	6-2350	524-005	76	11-0200
75-8428	11	1-5950	303-371	44	6-3800	530-899	77	11-1650
82-7376	12	1-7400	310-266	45	6-5250	537-794	78	11-3100
89-6324	13	1-8850	317-161	46	6-6700	544-689	79	11-4550
96-5272	14	2-0300	324-056	47	6-8150	551-584	80	11-6000
103-422	15	2-1750	330-950	48	6-9600	558-479	81	11-7450
110-317	16	2-3200	337-845	49	7-1050	565-374	82	11-8900
117-212	17	2-4650	344-740	50	7-2500	572-268	83	12-0350
124-106	18	2-6100	351-635	51	7-3950	579-163	84	12-1800
131-001	19	2-7550	358-529	52	7-5400	586-058	85	12-3250
137-896	20	2-9000	365-424	53	7-6850	592-953	86	12-4700
144-791	21	3-0450	372-319	54	7-8300	599-848	87	12-6150
151-686	22	3-1900	379-214	55	7-9750	606-742	88	12-7600
158-580	23	3-3350	386-109	56	8-1200	613-637	89	12-9050
165-475	24	3-4800	393-004	57	8-2650	620-532	90	13-0500
172-370	25	3-6250	399-898	58	8-4100	627-427	91	13-1950
179-265	26	3-7700	406-793	59	8-5550	634-322	92	13-3400
186-159	27	3-9150	413-688	60	8-7000	641-216	93	13-4850
193-054	28	4-0600	420-583	61	8-8450	648-111	94	13-6300
199-949	29	4-2050	427-478	62	8-9900	655-006	95	13-7750
206-844	30	4-3500	434-372	63	9-1350	661-901	96	13-9200
213-739	31	4-4950	441-267	64	9-2800	668-796	97	14-0650
220-634	32	4-6400	448-162	65	9-4250	675-690	98	14-2100
227-528	33	4-7850	455-057	66	9-5700	682-585	99	14-3550

TORQUE (Nm to lbf/ft, lbf/ft to Nm)

Nm		lbf/ft	Nm		lbf/ft	Nm		lbf/ft
1-3558	1	0-7376	46-0972	34	25-0784	90-8386	67	49-4912
2-7116	2	1-4752	47-4530	35	25-8160	92-1944	68	50-1568
4-0674	3	2-2128	48-8088	36	26-5536	93-5502	69	50-8944
5-4232	4	2-9504	50-1646	37	27-2912	94-9060	70	51-6320
6-7790	5	3-6880	51-5204	38	28-0288	96-2618	71	52-3696
8-1348	6	4-4256	52-8762	39	28-7664	97-6176	72	53-1072
9-4906	7	5-1632	54-2320	40	29-5040	98-9734	73	53-8448
10-8464	8	5-9008	55-5878	41	30-2416	100-3292	74	54-5824
12-2022	9	6-6384	56-9436	42	30-9792	101-6850	75	55-3200
13-5580	10	7-3760	58-2994	43	31-7168	103-0418	76	56-0576
14-9138	11	8-1136	59-6552	44	32-4544	104-3976	77	56-7952
16-2696	12	8-8512	61-0110	45	33-1920	105-7534	78	57-5328
17-6254	13	9-5888	62-3668	46	33-9296	107-1092	79	58-2704
18-9812	14	10-3264	63-7226	47	34-6672	108-4640	80	59-0080
20-3370	15	11-0640	65-0784	48	35-4048	109-8200	81	59-7456
21-6928	16	11-8016	66-4342	49	36-1424	111-1768	82	60-4832
23-0486	17	12-5392	67-7900	50	36-8800	112-5336	83	61-2208
24-4044	18	13-2768	69-1458	51	37-6176	113-8894	84	61-9584
25-7602	19	14-0144	70-5016	52	38-3552	115-2452	85	62-6960
27-1160	20	14-7520	71-8574	53	39-0928	116-6010	86	63-4336
28-4718	21	15-4896	73-2132	54	39-8304	117-9568	87	64-1712
29-8276	22	16-2272	74-5690	55	40-5680	119-3136	88	64-9088
31-1834	23	16-9648	75-9248	56	41-3056	120-6694	89	65-6464
32-5392	24	17-7024	77-2806	57	42-0432	122-0252	90	66-3840
33-8950	25	18-4400	78-6364	58	42-7808	123-3810	91	67-1216
35-2508	26	19-1776	79-9922	59	43-5184	124-7378	92	67-8592
36-6066	27	19-9152	81-3480	60	44-2560	126-0936	93	68-5968
37-9624	28	20-6528	82-7038	61	44-9936	127-4494	94	69-3344
39-3182	29	21-3904	84-0596	62	45-7312	128-8052	95	70-0720
40-6740	30	22-1280	85-4154	63	46-4688	130-1610	96	70-8096
42-0298	31	22-8656	86-7712	64	47-2064	131-5178	97	71-5472
43-3856	32	23-6032	88-1270	65	47-9440	132-8736	98	72-2848
44-7414	33	24-3408	89-4828	66	48-6816	134-2294	99	73-0224

CAPACITY (Imp. gall to litre, litre to Imp. gal)

Imp. gal		litre	Imp. gal		litre	Imp. gal		litre
0-2199	1	4-5459	7-4766	34	154-561	14-733	67	304-575
0-4398	2	9-0918	7-6965	35	159-107	14-9532	68	309-121
0-6597	3	13-6377	7-9164	36	163-652	15-1731	69	313-667
0-8796	4	18-1836	8-1363	37	168-198	15-393	70	318-213
1-0995	5	22-7295	8-3562	38	172-744	15-6129	71	322-759
1-3194	6	27-2754	8-5761	39	177-290	15-8328	72	327-305
1-5393	7	31-8213	8-7960	40	181-836	16-0527	73	331-851
1-7592	8	36-3672	9-0159	41	186-382	16-2726	74	336-397
1-9791	9	40-9131	9-2358	42	190-929	16-4925	75	340-943
2-1990	10	45-4590	9-4557	43	195-474	16-7124	76	345-488
2-4189	11	50-0049	9-6756	44	200-019	16-9323	77	350-034
2-6388	12	54-5508	9-8955	45	204-566	17-1522	78	354-580
2-8587	13	59-0967	10-1154	46	209-111	17-3721	79	359-126
3-0786	14	63-6426	10-3353	47	213-657	17-5920	80	363-672
3-2985	15	68-1885	10-5552	48	218-203	17-8119	81	368-218
3-5184	16	72-7344	10-7751	49	222-749	18-0318	82	372-764
3-7383	17	77-2803	10-995	50	227-295	18-2517	83	377-310
3-9582	18	81-8262	11-2149	51	231-841	18-4716	84	381-856
4-1781	19	86-3721	11-4348	52	236-387	18-6915	85	386-402
4-3980	20	90-9180	11-6547	53	240-933	18-9114	86	390-947
4-6179	21	95-4639	11-8746	54	245-479	19-1313	87	395-493
4-8378	22	100-009	12-0945	55	250-025	19-3512	88	400-039
5-0577	23	104-556	12-3144	56	254-570	19-5711	89	404-585
5-2776	24	109-102	12-5343	57	259-116	19-7910	90	409-131
5-4975	25	113-648	12-7542	58	263-662	20-0109	91	413-677
5-7174	26	118-193	12-9741	59	268-209	20-2308	92	418-223
5-9373	27	122-739	13-1940	60	272-754	20-4507	93	422-769
6-1572	28	127-285	13-4139	61	277-299	20-6706	94	427-315
6-3771	29	131-831	13-6338	62	281-846	20-8905	95	431-861
6-5970	30	136-377	13-8537	63	286-392	21-1104	96	436-406
6-8169	31	140-923	14-0736	64	290-938	21-3303	97	440-952
7-0368	32	145-469	14-2935	65	295-483	21-5502	98	445-498
7-2567	33	150-015	14-5134	66	300-029	21-7701	99	450-044

CAPACITY (Imp. pt. to litres, litres to Imp. pt.)

Imp. pt.		litres	Imp. pt.		litres	Imp. pt.		litres
1-7599	1	0-5682	59-8366	34	19-3188	117-913	67	38-0694
3-5198	2	1-1364	61-5965	35	19-8870	119-673	68	38-6376
5-2797	3	1-7046	63-3564	36	20-4552	121-433	69	39-2058
7-0396	4	2-2728	65-1163	37	21-0234	123-193	70	39-7740
8-7995	5	2-8400	66-8762	38	21-5916	124-953	71	40-3422
10-5594	6	3-4902	68-6361	39	22-1598	126-713	72	40-9104
12-3193	7	3-9774	70-3960	40	22-7280	128-473	73	41-4786
14-0792	8	4-5456	72-1559	41	23-2962	130-233	74	42-0468
15-8391	9	5-1138	73-9158	42	23-8644	131-993	75	42-6150
17-5990	10	5-6820	75-6757	43	24-4326	133-752	76	43-1832
19-3589	11	6-2502	77-4356	44	25-0008	135-512	77	43-7514
21-1188	12	6-8184	79-1955	45	25-5690	137-272	78	44-3196
22-8787	13	7-3866	80-9554	46	26-1372	139-032	79	44-8878
24-6386	14	7-9548	82-7153	47	26-7054	140-792	80	45-456
26-3985	15	8-5230	84-4752	48	27-2736	142-552	81	46-0242
28-1854	16	9-0912	86-2351	49	27-8418	144-312	82	46-5924
29-9183	17	9-6594	87-9950	50	28-4100	146-072	83	47-1606
31-6782	18	10-2276	89-7549	51	28-9782	147-832	84	47-7288
33-4381	19	10-7958	91-5148	52	29-5464	149-592	85	48-2970
35-1980	20	11-3640	93-2747	53	30-1146	151-351	86	48-8652
36-9579	21	11-9322	95-0346	54	30-6828	153-111	87	49-4334
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42-2376	24	13-6368	100-314	57	32-3874	158-391	90	51-1380
43-9975	25	14-2050	102-074	58	32-9556	160-151	91	51-7062
45-7574	26	14-7732	103-834	59	33-5238	161-912	92	52-2744
47-5173	27	15-3414	105-594	60	34-0920	163-671	93	52-8426
49-2772	28	15-9096	107-354	61	34-6602	165-431	94	53-4108
51-0371	29	16-4778	109-114	62	35-2284	167-191	95	53-9790
52-7970	30	17-0460	110-874	63	35-7966	168-950	96	54-5472
54-5569	31	17-6142	112-634	64	36-3648	170-710	97	55-1154
56-3168	32	18-1824	114-394	65	36-9330	172-470	98	55-6836
58-0767	33	18-7506	116-153	66	37-5012	174-230	99	56-2518

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INTRODUCTION

LENGTH (m to ft, ft to m)

m		ft	m		ft	m		ft
0-3048	1	3-2808	10-3632	34	111-549	20-4216	67	219-816
0-6096	2	6-5617	10-6680	35	114-829	20-7264	68	223-097
0-9144	3	9-8425	10-9728	36	118-110	21-0312	69	226-378
1-2192	4	13-1234	11-2776	37	121-391	21-3360	70	229-659
1-5240	5	16-4042	11-5824	38	124-672	21-6408	71	232-940
1-8288	6	19-6850	11-8872	39	127-953	21-9456	72	236-220
2-1336	7	22-9659	12-1920	40	131-234	22-2504	73	239-501
2-4384	8	26-2467	12-4968	41	134-514	22-5552	74	242-782
2-7432	9	29-5276	12-8016	42	137-795	22-8600	75	246-063
3-0480	10	32-8084	13-1064	43	141-076	23-1648	76	249-344
3-3528	11	36-0892	13-4112	44	144-357	23-4696	77	252-625
3-6576	12	39-3701	13-7160	45	147-638	23-7744	78	255-906
3-9624	13	42-6509	14-0208	46	150-919	24-0792	79	259-186
4-2672	14	45-9318	14-3256	47	154-199	24-3840	80	262-467
4-5720	15	49-2126	14-6304	48	157-480	24-6888	81	265-748
4-8768	16	52-4934	14-9352	49	160-761	24-9936	82	269-029
5-1816	17	55-7743	15-2400	50	164-042	25-2984	83	272-310
5-4864	18	59-0551	15-5448	51	167-323	25-6032	84	275-591
5-7912	19	62-3360	15-8496	52	170-604	25-9080	85	278-871
6-0960	20	65-6168	16-1544	53	173-885	26-2128	86	282-152
6-4008	21	68-8976	16-4592	54	177-165	26-5176	87	285-433
6-7056	22	72-1785	16-7640	55	180-446	26-8224	88	288-714
7-0104	23	75-4593	17-0688	56	183-727	27-1272	89	291-995
7-3152	24	78-7402	17-3736	57	187-008	27-4320	90	295-276
7-6200	25	82-0210	17-6784	58	190-289	27-7368	91	298-556
7-9248	26	85-3018	17-9832	59	193-570	28-0416	92	301-837
8-2296	27	88-5827	18-2880	60	196-850	28-3464	93	305-118
8-5344	28	91-8635	18-5928	61	200-131	28-6512	94	308-399
8-8392	29	95-1444	18-8976	62	203-412	28-9560	95	311-680
9-1440	30	98-4252	19-2024	63	206-693	29-2608	96	314-961
9-4488	31	101-706	19-5072	64	209-974	29-5656	97	318-241
9-7536	32	104-987	19-8120	65	213-255	29-8704	98	321-522
10-0584	33	108-268	20-1168	66	216-535	30-1752	99	324-803

WEIGHT (Kg to lb, lb to Kg)

Kg		lb	Kg		lb	Kg		lb
0-4536	1	2-2046	15-4224	34	74-9564	30-3912	67	147-708
0-9072	2	4-4092	15-8760	35	77-1610	30-8448	68	149-913
1-3608	3	6-6138	16-3296	36	79-3656	31-2984	69	152-117
1-8144	4	8-8184	16-7832	37	81-5702	31-7520	70	154-322
2-2680	5	11-0230	17-2368	38	83-7748	32-2056	71	156-527
2-7216	6	13-2276	17-6904	39	85-9794	32-6592	72	158-731
3-1752	7	15-4322	18-1440	40	88-1840	33-1128	73	160-936
3-6288	8	17-6368	18-5976	41	90-3886	33-5664	74	163-140
4-0824	9	19-8414	19-0512	42	92-5932	34-0200	75	165-345
4-5360	10	22-046	19-5048	43	94-7978	34-4736	76	167-549
4-9896	11	24-2506	19-9584	44	97-0024	34-9272	77	169-754
5-4432	12	26-4552	20-4120	45	99-2070	35-3808	78	171-958
5-8968	13	28-6598	20-8656	46	101-412	35-8344	79	174-163
6-3504	14	30-8644	21-3192	47	103-616	36-2880	80	176-368
6-8040	15	33-0690	21-7728	48	105-821	36-7416	81	178-573
7-2576	16	35-2736	22-2264	49	108-025	37-1952	82	180-777
7-7112	17	37-4782	22-6800	50	110-230	37-6488	83	182-982
8-1648	18	39-6828	23-1336	51	112-435	38-1024	84	185-186
8-6184	19	41-8874	23-5872	52	114-639	38-5560	85	187-391
9-0720	20	44-0920	24-0408	53	116-844	39-0096	86	189-596
9-5256	21	46-2966	24-4944	54	119-048	39-4632	87	191-800
9-9792	22	48-5012	24-9480	55	121-253	39-9168	88	194-005
10-4328	23	50-7058	25-4016	56	123-458	40-3704	89	196-209
10-8864	24	52-9104	25-8552	57	125-662	40-8240	90	198-414
11-3400	25	55-115	26-3088	58	127-867	41-2776	91	200-619
11-7936	26	57-3196	26-7624	59	130-071	41-7312	92	202-823
12-2472	27	59-5242	27-2160	60	132-276	42-1848	93	205-028
12-7008	28	61-7288	27-6696	61	134-481	42-6384	94	207-232
13-1544	29	63-9334	28-1232	62	136-685	43-0920	95	209-437
13-6080	30	66-1380	28-5768	63	138-889	43-5456	96	211-642
14-0616	31	68-3426	29-0304	64	141-094	43-9992	97	213-846
14-5152	32	70-5472	29-4840	65	143-299	44-4528	98	216-051
14-9688	33	72-7518	29-9376	66	145-504	44-9064	99	218-255

CONVERSION TABLES

Inches	Decimals	Milli- metres	Inches to Millimetres		Millimetres to Inches		Fahrenheit and Centigrade				
			Inches	Milli- metres	mm	inches	°F	°C	°C	°F	
1/32	1/64	.015625	.3969		0-001	.000039	-20	-28.9	-30	-22	
	3/64	.046875	1.1906		0-002	.000079	-15	-26.1	-28	-18.4	
1/16	5/64	.078125	1.9844	.0001	.00254	0-003	.000118	-10	-23.3	-26	-14.8
	7/64	.109375	2.7781	.0002	.00508	0-004	.000157	-5	-20.6	-24	-11.2
3/32	9/64	.140625	3.5719	.0003	.00762	0-005	.000197	0	-17.8	-22	-7.6
	11/64	.171875	4.3656	.0004	.01016	0-006	.000236	1	-17.2	-20	-4
1/8	13/64	.203125	5.1594	.0005	.01270	0-007	.000276	2	-16.7	-18	-0.4
	15/64	.234375	5.9531	.0006	.01524	0-008	.000315	3	-16.1	-16	3.2
3/16	17/64	.265625	6.7469	.0007	.01778	0-009	.000354	4	-15.6	-14	6.8
	19/64	.296875	7.5406	.0008	.02032	0-01	.00039	5	-15.0	-12	10.4
1/4	21/64	.328125	8.3344	.0009	.02286	0-02	.00079	10	-12.2	-10	14
	23/64	.359375	9.1281	.001	.0254	0-03	.00118	15	-9.4	-8	17.6
5/16	25/64	.390625	9.9219	.002	.0508	0-04	.00157	20	-6.7	-6	21.2
	27/64	.421875	10.7156	.003	.0762	0-05	.00197	25	-3.9	-4	24.8
7/16	29/64	.453125	11.5094	.004	.1016	0-06	.00236	30	-1.1	-2	28.4
	31/64	.484375	12.3031	.005	.1270	0-07	.00276	35	1.7	0	32
1/2	33/64	.515625	13.0969	.006	.1524	0-08	.00315	40	4.4	2	35.6
	35/64	.546875	13.8906	.007	.1778	0-09	.00354	45	7.2	4	39.2
9/16	37/64	.578125	14.6844	.008	.2032	0-1	.00394	50	10.0	6	42.8
	39/64	.609375	15.4781	.009	.2286	0-2	.00787	55	12.8	8	46.4
5/8	41/64	.640625	16.2719	.01	.254	0-3	.01181	60	15.6	10	50
	43/64	.671875	17.0656	.02	.508	0-4	.01575	65	18.3	12	53.6
11/16	45/64	.703125	17.8594	.03	.762	0-5	.01969	70	21.1	14	57.2
	47/64	.734375	18.6531	.04	1.016	0-6	.02362	75	23.9	16	60.8
3/4	49/64	.765625	19.4469	.05	1.270	0-7	.02756	80	26.7	18	64.4
	51/64	.796875	20.2406	.06	1.524	0-8	.03150	85	29.4	20	68
13/16	53/64	.828125	21.0344	.07	1.778	0-9	.03543	90	32.2	22	71.6
	55/64	.859375	21.8281	.08	2.032	1	.03937	95	35.0	24	75.2
7/8	57/64	.890625	22.6219	.09	2.286	2	.07874	100	37.8	26	78.8
	59/64	.921875	23.4156	.1	2.54	3	.11811	105	40.6	28	82.4
15/16	61/64	.953125	24.2094	.11	2.794	4	.15748	110	43.3	30	86
	63/64	.984375	25.0031	.12	3.048	5	.19685	115	46.1	32	89.6
				.13	3.302	6	.23622	120	48.9	34	93.2
				.14	3.556	7	.27559	125	51.7	36	96.8
				.15	3.810	8	.31496	130	54.4	38	100.4
				.16	4.064	9	.35433	135	57.2	40	104
				.17	4.318	10	.39370	140	60.0	42	107.6
				.18	4.572	11	.43307	145	62.8	44	112.2
				.19	4.826	12	.47244	150	65.6	46	114.8
				.20	5.080	13	.51181	155	68.3	48	118.4
				.21	5.334	14	.55118	160	71.1	50	122
				.22	5.588	15	.59055	165	73.9	52	125.6
				.23	5.842	16	.62992	170	76.7	54	129.2
				.24	6.096	17	.66929	175	79.4	56	132.8
				.25	6.350	18	.70866	180	82.2	58	136.4
				.26	6.604	19	.74803	185	85.0	60	140
						20	.78740	190	87.8	62	143.6
						21	.82677	195	90.6	64	147.2
						22	.86614	200	93.3	66	150.8
						23	.90551	205	96.1	68	154.4
						24	.94488	210	98.9	70	158
						25	.98425	215	100.0	75	167
						26	1.02362	220	101.7	80	176
						27	1.06299	225	104.4	85	185
						28	1.10236	230	107.2	90	194
						29	1.14173	235	110.0	95	203
						30	1.18110	240	112.8	100	212
						31	1.22047	245	115.6	105	221
						32	1.25984	250	118.3	110	230
						33	1.29921		121.1	115	239
						34	1.33858				
						35	1.37795				
						36	1.41732				
						37	1.45669				
						38	1.49606				
						39	1.53543				
						40	1.57480				

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INTRODUCTION

Torque Loading

Apply proper torque values to all bolts and nuts when re-assembling equipment. When a specific value is required, the value is quoted in the text. All other nuts, bolts and taperlock studs should be tightened to the values detailed in the Standard Torque loading Chart.

NOMINAL SIZE (diameter)	WRENCH SETTING Nm (lbf-ft)	
	A	B
$\frac{1}{8}$ in	6-78 to 8-13 (5 to 6)	10-85 to 13-55 (8 to 10)
$\frac{1}{4}$ in	13-55 to 16-27 (10 to 12)	20-34 to 24-40 (15 to 18)
$\frac{3}{8}$ in	25-76 to 29-82 (19 to 22)	40-67 to 47-45 (30 to 35)
$\frac{1}{2}$ in	44-74 to 51-52 (33 to 38)	67-79 to 74-57 (50 to 55)
$\frac{5}{8}$ in	63-72 to 71-86 (47 to 53)	103-04 to 115-24 (76 to 85)
$\frac{3}{4}$ in	88-13 to 98-97 (65 to 73)	155-92 to 169-47 (115 to 125)
$\frac{7}{8}$ in	135-58 to 169-47 (100 to 125)	200-05 to 230-48 (155 to 170)
1 in	237-26 to 271-16 (175 to 200)	271-16 to 406-74 (270 to 300)

Standard Torque Loadings

COLUMN A

Non-Rigid Joints

Column "A" specifies the spanner torques to be used with non-rigid joints where extrusion, deformity or other damage would result when higher clamping forces are used.

Limited Strength Nuts

The torque values in column "A" are also the maximum recommended for weld nuts, slotted nuts or other limited strength nuts.

Standard Nuts with Lock Washers

When lock washers are used under the nut, the torque values in column "A" should be applied. Laboratory tests indicate that lock washers substantially reduce the friction under the nut. This is especially true if the bolt, nut and lock washer are oiled. Due to this reduction in friction, proper bolt elongation is obtained by use of the torque in column "A". Column "B" torques may cause failure of the nut or bolt during assembly.

COLUMN B

Column "B" is the wrench torque to be used for assembly of rigid joints where extrusion, deformity or other damage will not result, and it is desirable to obtain more elastic elongation of the bolt or stud to ensure that it remains tight.

SPECIAL TOOLS

Tool No.	Description	Tool No.	Description
ENGINE			
PD.1C	Valve Guide Remover and Replacer (Main Tool)	MF.195-4	Front Axle Pivot Pin Bush Remover/Replacer and P.t.o. Bush Remover/Replacer
PD.1C-1	Adaptor for PD.1C	MF263	Front Axle and Steering Bush Remover (Main Tool)
PD.1C-4	Adaptor for PD.1C	MF.263-2	Front Axle and Steering Bush Remover/Replacer Adaptors (1½ in)
4RL	Tension Wrench	MF.263-3	Front Axle and Steering Bush Remover/Replacer Adaptors (1⅞ in)
No. 13	Tension Wrench	MF.264	Front Axle and Steering Bush Reamer (Main Tool)
38 U3	Piston Ring Compressor	MF.264-1	Reamer and Pilot
PD.41B	Piston Height and Valve Depth Gauge	MF.264-2	Reamer and Pilot
PD.137	Valve Guide Reamer 0-015 in oversize	MF.268A	Steering Wheel Remover
PD.138	Valve Guide Reamer 0-030 in oversize	MF.322	Front Axle Pivot Pin Bush Remover and Replacer
PD.141	Oil Seal Replacer	MF.332	Power Steering Pump Oil Seal Protector
PD.145	Crankshaft Rear Oil Seal Pilot	6312A	Steering Drop Arm Remover
PD.150	Cylinder Liner Remover and Replacer (Main Tool)		
PD.152-2	Oil Seal Pilot		
PD.150-1A	Adaptors for PD.150		
PD.150-1B	Adaptor		
PD.150-7B	Adaptor		
PD.150-7	Adaptors for PD.150		
PD.155B	Basic Puller	REAR AXLE	
PD.155-1	Adaptor for PD.155A	MF.9A	Differential Housing Holder
335	Con Rod Jig and Master Arbor	MF.10	Bench Plate
PD.336-6	Arbor Adaptor 2-6459 in dia.	MF.26A	Handle
6000C	Diesel Compression Tester	MF.26B	Axle Shaft Bearing Remover (Main Tool)
6000C-3	Adaptor for 6000C	MF.197	Wheel Axle Outer Bearing Cone and Differential Cone Replacer (Main Tool)
6000C-4A	Adaptor for 6000C	MF.197-2	Differential Carrier-Plate Bearing Cone Replacer Adaptor
6118B	Valve Spring Compressor	MF.200-2	Drive Cover Assembly and Bearing Remover
PD.6118-3	Adaptor for 6118B	MF.200-3	Differential Carrier Plate Bearing Cone Remover Adaptor
7600	Bearing Remover	MF.200-22	Differential Bearing Remover Adaptor
7066	Circlip Pliers	MF.200-23	Driving Pinion Bearing and Pilot Bearing Remover/Replacer Adaptor
FC.9900	Injector Tester	MF.200-24	Epicyclic Hub Inner Bearing Cone Remover Adaptor
MF.200-26	Water Pump Overhaul Kit	MF.200-27	Driver Cover and Bearing Assembly Remover Adaptor
6200C	Small End Reaming Fixture	MF.202A	Rear Drive Shaft Needle Bearing Remover
316X	Valve Seat Cutter Handle	MF.203A	Rear Drive Shaft Needle Bearing Replacer and P.t.o. Remover/Replacer
316-10	Pilot (⅜ in dia. Valve Guide)	MF.245D	Rear Axle Preload Gauge
316-12	Pilot (⅜ in dia. Valve Guide)	MF.245D-1	Straight Edge
316-13	Pilot	MF.257	Differential Bearing Cone Replacer
316-125	Pilot (0-015 in oversize on ⅜ in Guide)	MF.258	Differential Housing Holder
PD.317-22	Valve Seat Cutter	MF.265A	Planetary Carrier Assembly Remover
PD.317-23	Valve Seat Cutter		
317-30	Valve Seat Cutter		
317-G19	Valve Seat Glazebreaker		
317G-25	Valve Seat Glazebreaker		
317G-30	Valve Seat Glazebreaker		
**MS.67B	Static Timing Tool		
**PD.67B-1	Adaptor		
FRONT AXLE AND STEERING			
**MS.62A	Danfoss Oil Seal and Spring Plate Kit		
MF.147-7	Power Steering Adaptor		

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SPECIAL TOOLS

Tool No.	Description	Tool No.	Description
MF.266B	Planetary Carrier Bush Inner Coil Seal Bearing Cone and Unit Replacer	MF.333	Draft Control Rod Gauge (Increased Tension Range)
MF.267A	Epicyclic Hub Pre-load Gauge	MF.349	Valve Seal Forming Tool
MF.295B	Wheel Guide Pilots	MF.350	Valve Circlip Replacer
MF.555-2A	Differential Coupling Bearing Cone Remover	MF.351	Valve Plug Remover and Replacer
MF.1105-2A	Differential Bearing Cup Remover/Replacer	MF.352	Control Valve Spring Retainer
MF.1105-7A	Differential Bearing Cup Remover/Replacer Adaptor	MF.353	Control Valve Body 'O' Ring Guide
MF.1105-8	Epicyclic Hub Inner Bearing Cup Remover/Replacer Adaptor	MF.354	Control Valve Body Replacer
MF.1105-11	Rear Axle Shaft Oil Seal Remover and Replacer	MF.356	Position and Draft Control Setting Gauge
** T.4062A	Pre-load Gauge	** MF.357	Screwdriver Adjuster
CLUTCH & TRANSMISSION		MF.357A	Dummy Bolt and Screwdriver Adjuster
MF.159A	Single and Dual Clutch Centraliser	** MF.358	Quadrant Setting Pin
MF.177	Transmission Main Drive Shaft Oil Seal Pilot	MF.359	Pressure Control Bleed Pipe
MF.178	P.t.o. Main Drive Shaft Pilot	MF.360	Hydraulic Pump Adjusting Kit
MF.200-25	Multi-Purpose Bearing Remover	MF.363	Quadrant Lever Retainer Tool
MF.215	Secondary Clutch Setting Gauge	MF.364	Oil Seal Replacer (P.t.o.)
MF.218A	Front P.t.o. Housing Replacer (Main Tool)	810	Hydraulic Pressure and Flow Test Fixture (Main Tool)
MF.218A-2	Front P.t.o. Housing Replacer Adaptor	MF.810-1	Adaptor
MF.255B	Multi-Power Pinion Oil Seal Replacer and Assembly Sleeve	MF.810-4	Multi-Power Pump Flow Adaptor
MF.256A	Multi-Power Pinion Assembly Inner Oil Seal Replacer	MF.810-6	I.p.t.o. Pressure Gauge Adaptor
MF.314	Lever Fulcrum Height Setting Gauge	MULTI-PURPOSE & MISCELLANEOUS TOOLS	
MF.315	Main Drive Shaft Retainer Needle Bearing and Seal Remover/Replacer	13	Tension Wrench
MF.331	Transmission Input Shaft Oil Seal Replacer	** MS.74	Magnetic Pick-up Tool with a Flexible Handle
MF.347	Transmission Case Drill and Ream Jig	MF.148A	Hydraulic Pressure Test Equipment (Main Tool)
MF.1105-6	Differential Carrier Plate Oil Seal Remover/Replacer Adaptor	MF.195	Bearing Cups Remover/Replacer (Main Tool)
7600B	Flywheel Spigot Bearing Remover (Main Tool)	MF.200	Hand Press (Main Tool)
MF.7600-1	Flywheel Spigot Bearing Remover Adaptor	MF.260	Low Pressure Hydraulic Test Set (Main Tool)
P.T.O. & HYDRAULICS		270	Tractor Splitting Kit
MF.163	Spring Retainer Nut Wrench	** MF.278	Dial Indicator with Magnetic base
MF.166	Hydraulic Adaptor for Life Cover	MF.365-1	Plates
MF.167	P.t.o. Oil Seal Pilot	MF.356-3	Short Support Bars
MF.195-6	Two Speed P.t.o. Shaft Needle Bearing Remover/Replacer	MF.356-4	Long Support Bars
MF.226A	Hydraulic Life Cover Remover/Replacer	MF.365-6	Bar Pins
MF.226A-3	Lift Cover Cradle Adaptor Set	MF.365-7	Tommy Bar
		MF.365-8	Stands
		550	Driver Handle (Main Tool)
		555	Three Leg Adjustable Puller (Main Tool)
		MF.1105	Bearing Remover (Main Tool)
		7065M	Heavy Duty Circlip Pliers
		7066	Circlip Pliers
		HD.3	Circlip Plier Points
		** CAB	
		PT.468	Locking Strip replacer
		18G.468A	Adaptor
		** 600.358	Wheel part

SEALANTS

Sealants quoted in this Workshop Service Manual may be obtained from, as follows:

<i>Sealant</i>	<i>Description</i>	<i>Part No.</i>	<i>Obtained from</i>
A	PERKINS HYLOMAR UNIVERSAL JOINTING COMPOUND		} Massey-Ferguson Central Part Operation Urmston Manchester
	Aerosol	1861 127 M1	
	Gel	1861 117 M1	
B	MASSEY-FERGUSON LOCTITE 221		
	10 cc Bottle	1810 590 M1	
	50 cc Bottle	1889 194 M1	
C	MASSEY-FERGUSON LOCTITE 270		
	10 cc Bottle	1810 581 M1	
	50 cc Bottle	1810 589 M1	
D	EVOSTICK COULERSEAL		
E	DUNLOP THIXOFIX		Normal trade retail outlets

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**MF 500 SERIES TRACTOR
WORKSHOP SERVICE MANUAL**

PART 1

Publication No. 1856 072 M1

comprising

- A GENERAL SPECIFICATION**
- B REGULAR MAINTENANCE**
- C PRE-DELIVERY AND INSTALLATION**

**SPECIFICATION
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VISIBLE-RESULTS

1A—02

SPECIFICATION

MF550 TRACTOR

ENGINE

Make: Perkins, to MF specification
Type and Model: Four-stroke, direct injection diesel AD3.152
Number of Cylinders: Three
Bore: 91,44 mm (3.6 in)
Stroke: 127 mm (5 in)
Capacity: 2,5 litre (152.7 in³)
Compression Ratio: 16.5:1
Firing Order: 1, 2, 3
Horsepower: 47 PS (34.5 kW) at 2250 rev/min (DIN 70020). 49 hp at 2250 rev/min (B.S. AU 141: 1967 Ambient Conditions)
Maximum Torque (at 1400 rev/min): 169 Nm (125 lbf ft) (DIN 70020). 177 Nm (131 lbf ft) (B.S. AU 141: 1967 Ambient Conditions)
Lubrication: Throwaway, cannister type full flow external filter
Valves: Overhead, pushrod operated
Valve tip Clearance (Inlet and Exhaust): 0,30 mm (0.012 in) cold. 0,25 mm (0.010 in) hot

FUEL SYSTEM AND AIR CLEANER

Fuel Lift Pump: A.C. Delco with hand primer
Fuel Filter: C.A.V. filter with transparent sediment bowl
Injection Pump: C.A.V. Distributor type, with mechanical governor
Engine Speeds (no load): Idling—700 to 750 rev/min. Maximum—2390 rev/min
Injection Timing: 16° B.T.D.C.
Injectors: C.A.V. type nozzles and nozzle holders
Initial setting pressure 19,25 N/mm² (190 Atmosphere). Working pressure 17,27 N/mm² (170 Atmosphere)
Easy Starting Aid: C.A.V. Thermostart Mark III C
Air Cleaner: Two stage, dry element, removable for cleaning with warning light and buzzer

ELECTRICAL SYSTEM

Voltage: 12 volt NEGATIVE EARTH
Battery: 17 plate, 96 Ah. Lucas Mono Lid. Exide Mono Lid. Lucas Aqualok. Exide Auto-Fil
Starter Motor: Lucas M45G or M50G with a solenoid engaged pinion. Safety device operated by the dual range selector
Alternator: Lucas 23ACR or Motorola 9AR 2501K
Light Bulb Sizes:
Headlights UK 36/36W, Others 45/40W
Side Lights 5W
Rear Lights 5W
Indicator Lights 21W
Brake Lights 21W
Number Plate Lights 5W
Plough Light 36W
Panel Lights 2.2W
Interior Light 5W

Fuses:

Dipped Headlights 15A
Side Lights 10A
Brake Lights 10A
Warning Light 15A
Main Beam Headlights 15A
Flashing Indicators 10A
Plough Light 10A
Blower Motor 17A
Wiper Motor 10A
Interior Light 2A
Horn 35A
Cigar Lighter 35A
Fresh Air Blower: Two speed blower with a maximum output of 12 m³/min (425 ft³/min)

COOLING SYSTEM

Type: Thermostat controlled with centrifugal pump to assist circulation. Four bladed fan driven by a belt from the crankshaft.
Fan Belt Deflection (Total): 13 mm (0.5 in) midway between the fan pulley and the crankshaft pulley

TRANSMISSION

Clutch Live P.t.o. Tractors: Dual clutch, Auburn ventilated type, with a 305 mm (12 in) main drive disc, coil spring operated, and a 254 mm (10 in) p.t.o. disc, Belleville spring operated.
i.p.t.o. Tractors: Single clutch, Auburn ventilated type, with a 305 mm (12 in) main drive disc, coil spring operated. There is a continuous drive to the i.p.t.o. shaft via a plate bolted to the clutch cover. A dual clutch is fitted for certain cold climate territories.
Eight Speed Gearbox: The eight speed gearbox has eight forward and two reverse speeds. This is achieved by using a four forward and one reverse speed gearbox, compounded by an epicyclic unit.
Eight Speed Synchromesh Gearbox (Certain Territories): The eight speed synchromesh gearbox has eight forward and two reverse speeds. This is achieved by using a four forward and one reverse speed gearbox, with synchromesh as third and fourth gears, compounded by an epicyclic unit.
Multi-Power Gearbox: The Multi-Power gearbox has twelve forward and four reverse speeds. This is achieved by using a three forward and one reverse speed gearbox, compounded by an epicyclic unit and an additional set of high ratio constant mesh gears actuated by a hydraulic clutch
Epicyclic Reduction: 4:1
Final Drive Ratio: 6.17:1

POWER TAKE-OFF

Live Power Take-off: Engine, or engine and ground speed drives are engaged by a lever to the left of the operator's seat

Independent Power Take-off: Engine speed i.p.t.o. is engaged by a lever to the left of the operator's seat. The i.p.t.o. clutch is a multi-plate, wet clutch

Reduction Ratio (Standard Pump): 3-12:1. (High Flow Pump)—3-51:1.

Speeds (Standard Pump): 540 rev/min at 1 685 engine rev/min. (High Flow Pump)—540 rev/min at 1 893 engine rev/min

Ground Speeds: Forward travel for each revolution of the p.t.o. shaft
 551 mm (21.7 in)—11-32 tyres
 520 mm (20.5 in)—11-28 tyres
 519 mm (20.4 in)—13-24 tyres
 P.t.o. shaft rotates clockwise for forward travel and anticlockwise for reverse travel.

Power Take-off Shaft: Six splines, 35 mm (1.38 in) diameter, with an annular groove for securing p.t.o. couplings

HYDRAULIC SYSTEM

Ferguson Pump: Four cylinder scotch yoke type pump driven from the forward end of the p.t.o. shaft, supplies oil, under pressure to the ram cylinder and four external take-off points

Tapping Point Thread Sizes: Top— $\frac{3}{8}$ N.P.S.M. Side— $\frac{3}{8}$ N.P.T.F.

Pressure Control System: The Pressure Control System operates from 0,69 to 18,2 N/mm² (100 to 2 650 lbf/in²)

Pump Maximum Output (Standard Pump): 17 litre/min (3.8 Imp. gal/min) at 2 250 engine rev/min
 (High Flow Pump) 26,5 litre/min (5.9 Imp. gal/min) at 2 250 engine rev/min

Pump Maximum Pressure: 17,6 N/mm² (2 550 lbf/in²)

Linkage: Three point linkage, with Category 1 or 2 interchangeable ball ends. A barrel turnbuckle type, adjustable top link is fitted plus check chains adjustable for Category 1 and 2

Maximum Lift Capacity: 1 415 kg (3 120 lb)

AUXILIARY HYDRAULICS

Auxiliary Pump: Gear type pump with separate gear train and output for Multi-Power and i.p.t.o. supply

Pump Output Standard Ferguson Pump: To auxiliaries—36 litre/min (7.9 Imp. gal/min). To Multi-Power/i.p.t.o.—21,3 litre/min (4.7 Imp. gal/min)

High Flow Ferguson Pump: To auxiliaries—36 litre/min (7.9 Imp. gal/min). To Multi-Power/i.p.t.o.—19 litre/min (4.2 Imp. gal/min)

Relief Valve Pressure: Auxiliaries—17,3 to 19,3 N/mm² (2 500 to 2 800 lbf/in²). Multi-Power/i.p.t.o.—4,8 to 6,9 N/mm² (700 to 1 000 lbf/in²)

Multi-Power/i.p.t.o. Pump: Gear type pump

Pump Output Standard Ferguson Pump: 21,3 litre/min (4.7 Imp. gal/min)

High Flow Ferguson Pump: 19 litre/min (4.2 Imp. gal/min)

Relief Valve Pressure: 4,8 to 6,9 N/mm² (700 to 1 000 lbf/in²)

Multi-Power/i.p.t.o./Auxiliary Filtration: Externally mounted 25 micron filter with replaceable cartridge type element

Standard Flow Ferguson Pump				
Application	Output at 2 250 engine rev/min (720 p.t.o. rev/min)			
	litre/min	Imp. gal/min	Hydraulic PS	Hydraulic hp
Ferguson Pump Only	17,0	3.8	5,9	5.8
Auxiliary Pump Only	36,0	7.9	11,3	11.1
Combined Flow	53,0	11.7	16,5	16.3

High Flow Ferguson Pump				
Application	Output at 2 250 engine rev/min (1 185 p.t.o. rev/min)			
	litre/min	Imp. gal/min	Hydraulic PS	Hydraulic hp
Ferguson Pump Only	26,5	5.9	9,1	9.0
Auxiliary Pump Only	36,0	7.9	11,3	11.1
Combined Flow	62,5	13.8	19,6	19.3

BRAKES

Type: Girling 355 x 50 mm (14 x 2 in) twin shoe, internally expanding, full servo brakes, mechanically operated, either together or independantly to assist steering.

Parking Brake: Operates on both rear wheels simultaneously

STEERING

Type: Hydrostatic, with a gear pump and integral reservoir

Toe-in: 3 mm ($\frac{1}{8}$ in)

Turns Lock to Lock: 3.1

FRONT AXLE

Type: Three section, adjustable for track width

Wheel Camber: 3° 30'

Wheel Castor: 4° 56'

VISIBLE-RESULTS

1A—04

SPECIFICATION

TRACK ADJUSTMENTS

Front Track: 1321 to 1828 mm (52 to 72 in) in 102 mm (4 in) increments

Rear Track: 1321 to 1930 mm (52 to 76 in) in 102 mm (4 in) increments

WHEELS AND TYRES

Front:

4.50 x 16 wheels fitted with 6-00-16, 6 ply tyres

5.50 x 16 wheels fitted with 7-50-16, 6 ply tyres

4.50 x 19 wheels fitted with 6-00-19, 6 ply tyres

Rear:

W10 x 28 wheels fitted with 11-28, 6 ply tyres

W10 x 32 wheels fitted with 11-32, 6 ply tyres

W12 x 24 wheels fitted with 13-24, 6 ply tyres

Water Ballasting: Additional weight for each rear tyre:-

11-28 tyres—94 kg (208 lb)

11-32 tyres—143 kg (316 lb)

13-24 tyres—194 kg (428 lb)

CAPACITIES

Fuel Tank: 67 litre (15 Imp. gal)

Engine Sump (including filter): 6,8 litre (12 Imp. pt)

Cooling System: 10,2 litre (18 Imp. pt)

Transmission:

Eight Speed—28 litre (49.5 Imp. pt)

Multi-Power—27 litre (48 Imp. pt)

Power Steering Reservoir: 0,8 litre (1.3 Imp. pt)

GENERAL DIMENSIONS (Fig. 1)

A. Overall Height: 2261 mm (91 in)

B. Overall Width: 1651 mm (65 in)

C. Overall Length: 3556 mm (140 in)

D. Wheelbase: 2076 mm (81.8 in)

Ground Clearance:

E. Under Drawbar Frame: 287 mm (11.3 in)

F. Under Engine Sump: 375 mm (14.8 in)

Turning Circle: 7,1 m (23.3 ft) Without Brakes. 6,2 m (20.3 ft) With Brakes

Weight (with fuel, oil and water): 2083 kg (4592 lb)

Note: The above dimensions are for a tractor fitted with 6-00-19 front tyres and 11-32 rear tyres at 1321 mm (52 in) track setting.

MOUNTING POINTS (Fig. 2)

1. 184 mm (7.25 in)

2. 92 mm (3.62 in)

3. 4 holes tap $\frac{3}{8}$ in 11 UNC 3B x 32 mm ($1\frac{1}{2}$ in)

4. 102 mm (4 in)

5. 1243 mm (49 in)

6. 4 holes tap $\frac{3}{8}$ in 10 UNC 3B x 27 mm ($1\frac{1}{8}$ in)

7. 76 mm (3 in)

8. 152 mm (6 in)

9. 43 mm (1.69 in)

10. 86 mm (3.38 in)

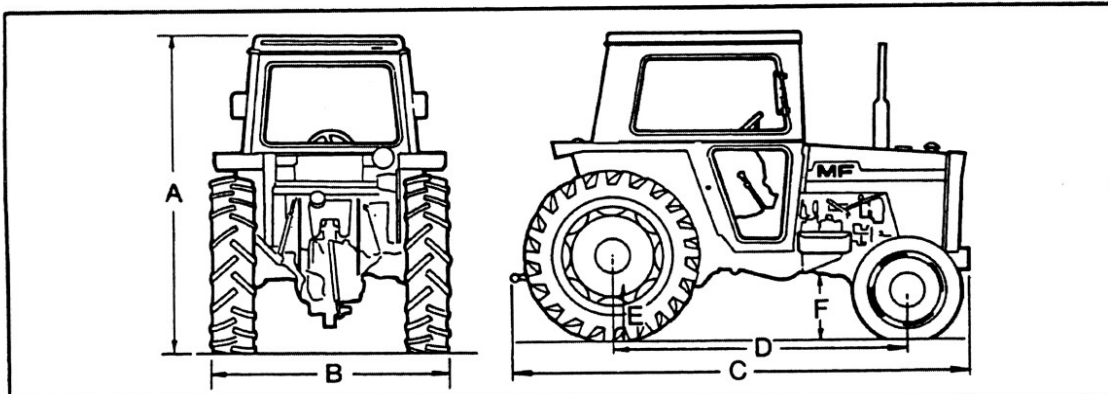


FIG. 1

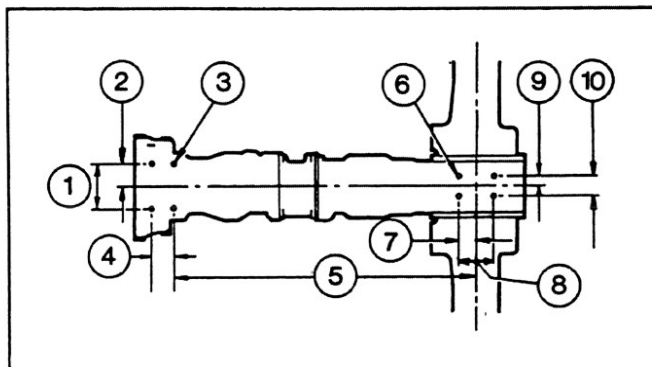


FIG. 2

MF565 TRACTOR

ENGINE

Make: Perkins, to MF specification
Type and Model: Four-stroke, direct injection diesel A4.236
Number of Cylinders: Four
Bore: 98,4 mm (3-875 in)
Stroke: 127 mm (5 in)
Capacity: 3,86 litre (236 in³)
Compression Ratio: 16:1
Firing Order: 1, 3, 4, 2
Horsepower: 60 PS (44 kW) at 2000 rev/min (DIN 70020). 63 hp at 2000 rev/min (B.S. AU 141: 1967 Ambient Conditions)
Maximum Torque (at 1 200 rev/min): 230 Nm (170 lbf ft) (DIN 70020)
Lubrication: Throwaway, cannister type full flow external filter
Valves: Overhead, pushrod operated
Valve Tip Clearance (Inlet and Exhaust): 0,30 mm (0-012 in) cold. 0,25 mm (0-010 in) hot

FUEL SYSTEM AND AIR CLEANER

Fuel Lift Pump: A.C. Delco, with hand primer
Fuel Filter: C.A.V. filter, with transparent sediment bowl
Injection Pump: C.A.V. Distributor type, with mechanical governor
Engine Speeds (no load): Idling:700 to 750 rev/min
 Maximum—2160 rev/min
Injection Timing: 23° B.T.D.C.
Injectors: C.A.V. type nozzles and nozzle holders
 Initial setting pressure 17,73 N/mm² (175 Atmosphere). Working pressure 17,23 N/mm² (170 Atmosphere)
Easy Starting Aid: C.A.V. Thermostart Mark III C
Air Cleaner: Two stage, dry element, removable for cleaning with warning light and buzzer

ELECTRICAL SYSTEM

Voltage: 12 volt NEGATIVE EARTH
Battery: 17 plate, 96 or 125 Ah. Lucas Mono Lid. Exide Mono Lid. Lucas Aqualok. Exide Auto-Fil
Starter Motor: Lucas M45G or M50G with a solenoid engaged pinion. Safety device operated by the dual range selector.
Alternator: Lucas 23ACR or Motorola 9AR 2501K
Light Bulb Sizes:
 Headlights UK 36/36W, others 45/40W
 Side Lights 5W
 Rear Lights 5W
 Indicator Lights 21W
 Brake Lights 21W
 Number Plate Lights 5W
 Plough Light 36W
 Panel Lights 2-2W
 Interior Light 5W

Fuses:

Dipped Headlights 15A
 Side Lights 10A
 Brake Lights 10A
 Warning Lights 15A
 Main Beam Headlights 15A
 Flashing Indicators 10A
 Plough Light 10A
 Blower Motor 17A
 Wiper Motor 10A
 Interior Light 2A
 Horn 35A
 Cigar Lighter 35A
Fresh Air Blower: Two speed blower with a maximum output of 12 m³/min (425 ft³/min)

COOLING SYSTEM

Type: Thermostat controlled with centrifugal pump to assist circulation. Four bladed fan driven by a belt from the crankshaft
Fan Belt Deflection (Total): 13 mm (0-5 in) midway between the fan pulley and the crankshaft pulley

TRANSMISSION

Clutch Live p.t.o. Tractors: Dual clutch, Auburn ventilated type, with a 305 mm (12 in) main drive disc, coil spring operated, and a 254 mm (10 in) p.t.o. disc, Belleville spring operated
I.p.t.o. Tractors: Single clutch, Auburn ventilated type, with a 305 mm (12 in) main drive disc, coil spring operated. There is a continuous drive to the i.p.t.o. shaft via a plate bolted to the clutch cover. A dual clutch is fitted for certain cold climate territories
Eight Speed Gearbox: The eight speed gearbox has eight forward and two reverse speeds. This is achieved by using a four forward and one reverse speed gearbox, compounded by an epicyclic unit
Eight Speed Synchromesh Gearbox (Certain Territories): The eight speed synchromesh gearbox has eight forward and two reverse speeds. This is achieved by using a four forward and one reverse speed gearbox, with synchromesh on third and fourth gears, compounded by an epicyclic unit
Multi-Power Gearbox: The Multi-Power gearbox has twelve forward and four reverse speeds. This is achieved by using a three forward and one reverse speed gearbox, compounded by an epicyclic unit and an additional set of high ratio constant mesh gears actuated by a hydraulic clutch
Gearbox Epicyclic Reduction: 4:1
Final Drive: Bevel drive with epicyclic final hub reduction giving an overall ratio of 10-83:1

VISIBLE-RESULTS

1A—06

SPECIFICATION

POWER TAKE-OFF

Live Power Take-off: Engine, or engine and ground speed drives are engaged by a lever to the left of the operator's seat

Independent Power Take-off: Engine speed i.p.t.o. is engaged by a lever to the left of the operator's seat. The i.p.t.o. clutch is a multi-plate, wet clutch

Reduction Ratio:

Standard Pump—3:12:1

High Flow Pump—3:12:1 (540 rev/min). 1:69:1 (1 000 rev/min)

Speeds:

Standard Pump—540 rev/min at 1 685 engine rev/min

High Flow Pump—540 rev/min at 1 686 engine rev/min. 1 000 rev/min at 1 690 engine rev/min

Ground Speeds: Forward travel for each revolution of the p.t.o. shaft.

442 mm (17.41 in)—11-32 tyres

477 mm (18.80 in)—11-36 tyres

494 mm (19.45 in)—12-36 tyres

469 mm (18.49 in)—14-30 tyres

493 mm (19.46 in)—15-30 tyres

509 mm (20.05 in)—12-38 tyres

452 mm (17.77 in)—13-28 tyres

P.t.o. shaft rotates clockwise for forward travel and anticlockwise for reverse travel

Power Take-off Shaft: Six spline (540 rev/min), 21 spline (1 000 rev/min), 35 mm (1.38 in) diameter, with an annular groove for securing p.t.o. couplings

HYDRAULIC SYSTEM

Ferguson Pump: Four cylinder, scotch yoke type pump driven from the forward end of the p.t.o. shaft, supplies oil, under pressure to the ram cylinder and four external take-off points

Tapping Point Thread Sizes: Top— $\frac{3}{8}$ N.P.S.M. Side— $\frac{3}{8}$ N.P.T.F.

Pressure Control System: The Pressure Control system operates from 0,69 to 20,7 N/mm² (100 to 3 000 lbf/in²)

Pump Maximum Output:

Standard Pump—15 litre/min (3.4 Imp. gal/min) at 2 000 engine rev/min

High Flow Pump—26,5 litre/min (5.9 Imp. gal/min) at 2 000 engine rev/min

Pump Maximum Pressure: 20,7 N/mm² (3 000 lbf/in²)

Linkage: Three point linkage, with Category 1 or 2 interchangeable ball ends. A barrel turnbuckle type, adjustable top link is fitted, plus check chains adjustable for Category 1 and 2

Maximum Lift Capacity: 1 542 kg (3 400 lb)

AUXILIARY HYDRAULICS

Auxiliary Pump: Gear type pump with separate gear train and output for Multi-Power and i.p.t.o. supply

Pump Output: To auxiliaries—36 litre/min (7.9 Imp. gal/min). To Multi-Power/i.p.t.o.—19 litre/min (4.2 Imp. gal/min)

Relief Valve Pressure: Auxiliaries—19,3 N/mm² (2 500 to 2 800 lbf/in²). Multi-Power/i.p.t.o.—4,8 to 6,9 N/mm² (700 to 1 000 lbf/in²)

Multi-Power/I.p.t.o. Pump: Gear type pump

Pump Output: 19 litre/min (4.2 Imp. gal/min)

Relief Valve Pressure: 4,8 to 6,9 N/mm² (700 to 1 000 lbf/in²)

Multi-Power/I.p.t.o./Auxiliary Filtration: Externally mounted 25 micron filter with replaceable cartridge type element

Standard Flow Ferguson Pump				
Application	Output at 2 000 engine rev/min (640 p.t.o. rev/min)			
	litre/min	Imp. gal/min	Hydraulic PS	Hydraulic hp
Ferguson Pump Only	15,0	3.4	6,5	6.4
Auxiliary Pump Only	36,0	7.9	11,3	11.1
Combined Flow	51,0	11.3	16,0	15.8

High Flow Ferguson Pump				
Application	Output at 2 000 engine rev/min (1 185 p.t.o. rev/min)			
	litre/min	Imp. gal/min	Hydraulic PS	Hydraulic hp
Ferguson Pump Only	26,5	5.9	11,2	11.0
Auxiliary Pump Only	36,0	7.9	11,3	11.1
Combined Flow	62,5	13.8	19,6	19.3

BRAKES

Type: Girling, oil immersed 222,4 mm (8.75 in) mechanical five plate disc brakes, operated together or independently to assist steering

Parking Brake: Operates on both rear wheels simultaneously

STEERING

Type: Hydrostatic, with a gear pump and integral reservoir

Toe-in: 3 mm ($\frac{1}{8}$ in)

Turns Lock to Lock: 3-3

FRONT AXLE

Type: Three section, adjustable for track width

Wheel Camber: 4° Normal Duty. 3° 30' Heavy Duty

Wheel Castor: 5° 30' Normal Duty. 0° Heavy Duty

TRACK ADJUSTMENTS

Front Track:

Normal Duty—1 220 to 1 828 mm (48 to 72 in) in 102 mm (4 in) increments

Heavy Duty (Std. Cl.)—1 321 to 1 727 mm (52 to 68 in) in 102 mm (4 in) increments

Heavy Duty (Hi. Cl.)—1 346 to 1 753 mm (53 to 69 in) in 102 mm (4 in) increments

Rear Track:

1 321 to 2 235 mm (52 to 88 in) in 102 mm (4 in) increments

WHEELS AND TYRES

Front:

- 4.50 x 16 wheels fitted with 6.00-16, 4 or 6 ply tyres
- 4.50 x 19 wheels fitted with 6.00-19, 4 or 6 ply tyres
- 5.50 x 16 wheels fitted with 7.50-16, 6 ply tyres
- 5.50 x 18 wheels fitted with 7.50-18, 8 ply tyres

Rear:

- W10 x 32 wheels fitted with 11-32, 6 ply tyres
- W10 x 36 wheels fitted with 11-36 or 12-36, 6 ply tyres
- DW14 x 30 wheels fitted with 14-30 or 15-30, 6 ply tyres
- DW12 x 38 wheels fitted with 12-38, 6 ply tyres
- W12 x 28 wheels fitted with 13-28, 6 ply tyres

Water Ballasting: Additional weight for each tyre:-

- 11-32 tyres: 143 kg (316 lb)
- 11-36 tyres: 159 kg (349 lb)
- 12-36 tyres: 143 kg (316 lb)
- 14-30 tyres: 266 kg (627 lb)
- 15-30 tyres: 352 kg (787 lb)
- 12-38 tyres: 222 kg (457 lb)
- 13-28 tyres: 200 kg (440 lb)

CAPACITIES

- Fuel Tank:** 80 litre (17.4 Imp. gal)
- Engine Sump (including filter):** 7,1 litre (12.5 Imp. pt)
- Cooling System:** 14,2 litre (25 Imp. pt)
- Transmission Eight Speed:** 33 litre (57 Imp. pt)
- Multi-Power:** 32 litre (56 Imp. pt)
- Epicyclic Hubs:** 1,71 litre (3 Imp. pt)
- Power Steering Reservoir:** 0,9 litre (2 Imp. pt)

GENERAL DIMENSIONS (Fig. 1)

- A. Overall Height:** 2413 mm (95 in)
- B. Overall Width:** 1854 mm (73 in)
- C. Overall Length:** 3772 mm (148.5 in)
- D. Wheelbase:** 2248 mm (88.5 in)
- Ground Clearance:**
- E. Under Drawbar Frame:** 328 mm (12.9 in)
- F. Under Engine Sump:** 431 mm (17 in)
- Turning Circle:** 7,2 m (23.8 ft) Without Brakes. 6,6 m (21.8 ft) With Brakes
- Weight (with fuel, oil and water):** 2 824 kg (6 225 lb)

Note: The above dimensions are for a tractor fitted with 7.50-16 front tyres and 14-30 rear tyres at 1 524 mm (60 in) track setting.

MOUNTING POINTS (Fig. 2)

1. 102 mm (4 in)
2. 102 mm (4 in)
3. 10 holes (5 each side) tap $\frac{3}{8}$ in 10 UNC 23 x 32 mm (1 $\frac{1}{2}$ in)
4. 57 mm (2.25 in)
5. 73 mm (2.87 in)
6. 60 mm (2.38 in)
7. 1 989 mm (80.8 in)
8. 254 mm (10 in)
9. 184 mm (7.25 in)
10. 92 mm (3.62 in)
11. 4 holes tap $\frac{3}{8}$ in 11 UNC 33 x 32 mm (1 $\frac{1}{2}$ in)
12. 102 mm (4 in)
13. 1 243 mm (49 in)
14. 4 holes tap $\frac{3}{8}$ in 10 UNC 33 x 27 mm (1 $\frac{1}{4}$ in)
15. 76 mm (3 in)
16. 152 mm (6 in)
17. 43 mm (1.69 in)
18. 86 mm (3.38 in)

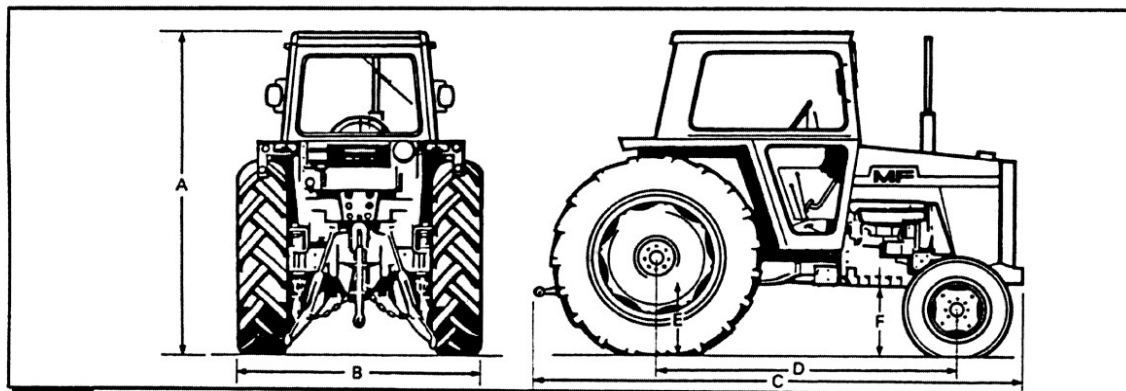


FIG. 1

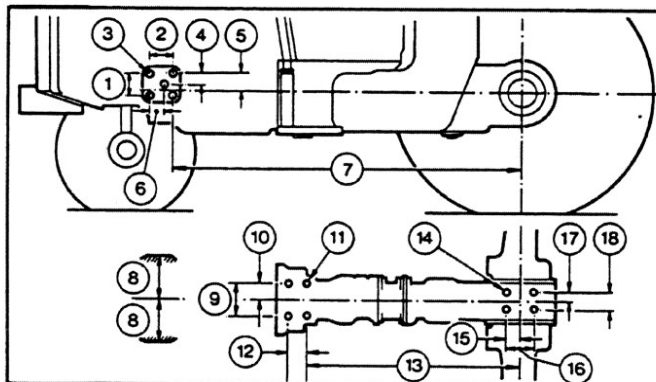


FIG. 2

VISIBLE-RESULTS

A1—08

SPECIFICATION

MF575 TRACTOR

ENGINE

Make: Perkins, to MF specification
Type and Model: Four-stroke, direct injection diesel A4.236
Number of Cylinders: Four
Bore: 98,4 mm (3.875 in)
Stroke: 127 mm (5 in)
Capacity: 3,86 litre (236 in³)
Compression Ratio: 16:1
Firing Order: 1, 3, 4, 2
Horsepower: 66 PS (48,5 kW) at 2000 rev/min (DIN 70020). 69 hp at 2000 rev/min (B.S. AU 141: 1967 Ambient Conditions)
Maximum Torque (at 1250 rev/min): 255 Nm (188 lbf ft) (DIN 70020)
Lubrication: Throwaway, cannister type full flow external filter
Valves: Overhead, pushrod operated
Valve Tip Clearance (Inlet and Exhaust): 0,30 mm (0.012 in) cold. 0,25 mm (0.010 in) hot

FUEL SYSTEM AND AIR CLEANER

Fuel Lift Pump: A.C. Delco, with hand primer
Fuel Filter: C.A.V. filter, with transparent sediment bowl
Injection Pump: C.A.V. Distributor type, with mechanical governor
Engine Speeds (no load): Idling—700 to 750 rev/min. Maximum—2160 rev/min
Injection Timing: 23° B.T.D.C.
Injectors: C.A.V. type nozzles and nozzle holders
Initial setting pressure 17,73 N/mm² (175 Atmosphere). Working pressure 17,23 N/mm² (170 Atmosphere)
Easy Starting Aid: C.A.V. Thermostart Mark III C
Air Cleaner: Two stage, dry element, removable for cleaning with warning light and buzzer

ELECTRICAL SYSTEM

Voltage: 12 volt NEGATIVE EARTH
Battery: 17 plate, 96 or 125 Ah. Lucas Mono Lid. Exide Mono Lid. Lucas Aqualok. Exide Auto-Fil
Starter Motor: Lucas M45G or M50G with a solenoid engaged pinion. Safety device operated by the dual range selector
Alternator: Lucas 23ACR or Motorola 9AR 2501K
Light Bulb Sizes:
Headlights UK 36/36W, others 45/40W
Side Lights 5W
Rear Lights 5W
Indicator Lights 21W
Brake Lights 21W
Number Plate Lights 5W
Plough Light 36W
Panel Lights 2.2W
Interior Light 5W

Fuses:

Dipped Headlights 15A
Side Lights 10A
Brake Lights 10A
Warning Lights 15A
Main Beam Headlights 15A
Flashing Indicators 10A
Plough Light 10A
Blower Motor 17A
Wiper Motor 10A
Interior Light 2A
Horn 35A
Cigar Lighter 35A
Fresh Air Blower: Two speed blower with a maximum output of 12 m³/min (425 ft³/min)

COOLING SYSTEM

Type: Thermostat controlled with centrifugal pump to assist circulation. Four bladed fan driven by a belt from the crankshaft
Fan Belt Deflection (Total): 13 mm (0.5 in) midway between the fan pulley and the crankshaft pulley

TRANSMISSION

Clutch:
Live p.t.o. Tractors—Dual clutch, Auburn ventilated type, with a 305 mm (12 in) main drive disc, coil spring operated, and a 254 mm (10 in) p.t.o. disc, Belleville spring operated
I.p.t.o. Tractors—Single clutch, Auburn ventilated type, with a 305 mm (12 in) main drive disc, coil spring operated. There is a continuous drive to the i.p.t.o. shaft via a plate bolted to the clutch cover. A dual clutch is fitted for certain cold climate territories
Eight Speed Gearbox: The eight speed gearbox has eight forward and two reverse speeds. This is achieved by using a four forward and one reverse speed gearbox, compounded by an epicyclic unit
Eight Speed Synchromesh Gearbox (Certain Territories): The eight speed synchromesh gearbox has eight forward and two reverse speeds. This is achieved by using a four forward and one reverse speed gearbox, with synchromesh on third and fourth gears, compounded by an epicyclic unit
Multi-Power Gearbox: The Multi-Power gearbox has twelve forward and four reverse speeds. This is achieved by using a three forward and one reverse speed gearbox, compounded by an epicyclic unit and an additional set of high ratio constant mesh gears actuated by a hydraulic clutch
Gearbox Epicyclic Reduction: 4:1
Final Drive: Bevel drive with epicyclic final hub reduction giving an overall ratio of 10.83:1

POWER TAKE-OFF

Live Power Take-off: Engine, or engine and ground speed drives are engaged by a lever to the left of the operator's seat

Independent Power Take-off: Engine speed p.t.o. is engaged by a lever to the left of the operator's seat. The i.p.t.o. clutch is a multi-plate, wet clutch

Reduction Ratio:

Standard Pump—3:12:1

High Flow Pump—3:12:1 (540 rev/min). 1:69:1 (1 000 rev/min)

Speeds:

Standard Pump—540 rev/min at 1 685 engine rev/min

High Flow Pump—540 rev/min at 1 686 engine rev/min. 1 000 rev/min at 1 690 engine rev/min

Ground Speeds: Forward travel for each revolution of the p.t.o. shaft.

469 mm (18.5 in)—14-30 tyres

506 mm (19.9 in)—14-34 tyres

494 mm (19.5 in)—12-36 tyres

477 mm (18.8 in)—11-36 tyres

509 mm (20 in)—12-38 tyres

P.t.o. shaft rotates clockwise for forward travel and anticlockwise for reverse travel

Power Take-off Shaft: Six spline (540 rev/min), 21 spline (1 000 rev/min), 35 mm (1.38 in) diameter for securing p.t.o. couplings.

HYDRAULIC SYSTEM

Ferguson Pump: Four cylinder, scotch yoke type pump driven from the forward end of the p.t.o. shaft, supplies oil, under pressure to the ram cylinder and four external take-off points

Tapping Point Thread Sizes: Top— $\frac{3}{8}$ N.P.S.M. Side— $\frac{3}{8}$ N.P.T.F.

Pressure Control System: The Pressure Control system operates from 0,69 to 20,7 N/mm² (100 to 3 000 lbf/in²)

Pump Maximum Output: Standard Pump—15 litre/min (3.4 Imp. gal/min) at 2 000 engine rev/min

High Flow Pump—26,5 litre/min (5.9 Imp. gal/min) at 2 000 engine rev/min

Pump Maximum Pressure: 20,7 N/mm² (3 000 lbf/in²)

Linkage: Three point linkage, with Category 1 or 2 interchangeable ball ends. A barrel turnbuckle type, adjustable top link is fitted, plus check chains adjustable for Category 1 and 2

Maximum Lift Capacity: 1 796 kg (3 960 lb)

AUXILIARY HYDRAULICS

Auxiliary Pump: Gear type pump with separate gear train and output for Multi-Power and i.p.t.o. supply

Pump Output: To auxiliaries—36 litre/min (7.9 Imp. gal/min). To Multi-Power/i.p.t.o.—19 litre/min (4.2 Imp. gal/min)

Relief Valve Pressure: Auxiliaries—17,3 to 19,3 N/mm² (2 500 to 2 800 lbf/in²). Multi-Power/i.p.t.o.—4,8 to 6,9 N/mm² (700 to 1 000 lbf/in²)

Multi-Power/i.p.t.o. Pump: Gear type pump

Pump Output: 19 litre/min (4.2 Imp. gal/min)

Relief Valve Pressure: 4,8 to 6,9 N/mm² (700 to 1 000 lbf/in²)

Multi-Power/i.p.t.o./Auxiliary Filtration: Externally mounted 25 micron filter with replaceable cartridge type element

Standard Flow Ferguson Pump				
Application	Output at 2 000 engine rev/min (640 p.t.o. rev/min)			
	litre/min	Imp. gal/min	Hydraulic PS	Hydraulic hp
Ferguson Pump Only	15,0	3.4	6,5	6.4
Auxiliary Pump Only	36,0	7.9	11,3	11.1
Combined Flow	51,0	11.3	16,0	15.8

High Flow Ferguson Pump				
Application	Output at 2 000 engine rev/min (1 185 p.t.o. rev/min)			
	litre/min	Imp. gal/min	Hydraulic PS	Hydraulic hp
Ferguson Pump Only	26,5	5.9	11,2	11.0
Auxiliary Pump Only	36,0	7.9	11,3	11.1
Combined Flow	62,5	13.8	19,5	19.3

BRAKES

Type: Girling, oil immersed 222,4 mm (8.75 in) mechanical five plate disc brakes, operated together or independently to assist steering

Parking Brake: Operates on both rear wheels simultaneously

STEERING

Type: Hydrostatic, with a gear pump and integral reservoir

Toe-in: 3 mm ($\frac{1}{8}$ in)

Turns Lock to Lock: 3:3

FRONT AXLE

Type: Three section, adjustable for track width

Wheel Camber: 3° 30'

Wheel Castor: 0°

TRACK ADJUSTMENTS

Front Track: 1 346 to 1 753 mm (53 to 69 in) in 102 mm (4 in) increments

Rear Track: 1 422 to 2 134 mm (56 to 84 in) in 102 mm (4 in) increments

VISIBLE-RESULTS

1A—10

SPECIFICATION

WHEELS AND TYRES

Front:

5.50 x 16 wheels fitted with 7.70-16, 6 or 8 ply tyres

5.50 x 18 wheels fitted with 7.50-18, 6 ply tyres

4.50 x 19 wheels fitted with 6.00-19, 4 or 6 ply tyres

Rear:

W16L x 30 wheels fitted with 14-30, 6 ply tyres

DW14 x 30 wheels fitted with 14-30, 6 ply tyres

W14 x 34 wheels fitted with 14-34, 6 ply tyres

W10 x 36 wheels fitted with 11-36 or 12-36, 6 ply tyres

W12 x 38 wheels fitted with 12-38, 6 ply tyres

Water Ballasting: Additional weight for each rear tyre:-

14-30 tyres: 284 kg (627 lb)

14-34 tyres: 308 kg (680 lb)

11-36 tyres: 159 kg (349 lb)

12-36 tyres: 143 kg (316 lb)

12-38 tyres: 222 kg (457 lb)

CAPACITIES

Fuel Tank: 98 litre (21.6 Imp. gal)

Engine Sump (including filter): 7.1 litre (12.5 Imp. pt)

Cooling System: 11.4 litre (20 Imp. pt)

Transmission:

Eight Speed—33 litre/min (57 Imp. pt)

Multi-Power—32 litre (56 Imp. pt)

Epicyclic Hubs: 1.7 litre (3 Imp. pt)

Power Steering Reservoir: 1.1 litre (2 Imp. pt)

GENERAL DIMENSIONS (Fig. 1)

A. Overall Height: 2496 mm (98.2 in)

B. Overall Width: 1854 mm (73 in)

C. Overall Length: 3772 mm (148.5 in)

D. Wheelbase: 2248 mm (88.5 in)

Ground Clearance:

E. Under Drawbar Frame: 328 mm (13 in)

F. Under Engine Sump: 457 mm (18 in)

Turning Circle: 8.7 m (28.5 ft) Without Brakes. 7.9 m (25.9 ft) With Brakes

Weight (with fuel, oil and water): 2824 kg (6225 lb)

Note: The above dimensions are for a tractor fitted with 7.50-16 front tyres and 14-30 rear tyres at 1524 mm (60 in) track setting.

MOUNTING POINTS (Fig. 2)

1. 102 mm (4 in)
2. 102 mm (4 in)
3. 10 holes (5 each side) tap $\frac{3}{8}$ in 10 UNC 23 x 32 mm (1 $\frac{1}{2}$ in)
4. 57 mm (2.25 in)
5. 73 mm (2.87 in)
6. 60 mm (2.38 in)
7. 1989 mm (78.3 in)
8. 254 mm (10 in)
9. 184 mm (7.25 in)
10. 92 mm (3.62 in)
11. 4 holes tap $\frac{3}{8}$ in 11 UNC 33 x 32 mm (1 $\frac{1}{2}$ in)
12. 102 mm (4 in)
13. 1243 mm (49 in)
14. 4 holes tap $\frac{3}{8}$ in 10 UNC 33 x 27 mm (1 $\frac{1}{8}$ in)
15. 76 mm (3 in)
16. 152 mm (6 in)
17. 43 mm (1.69 in)
18. 86 mm (3.38 in)

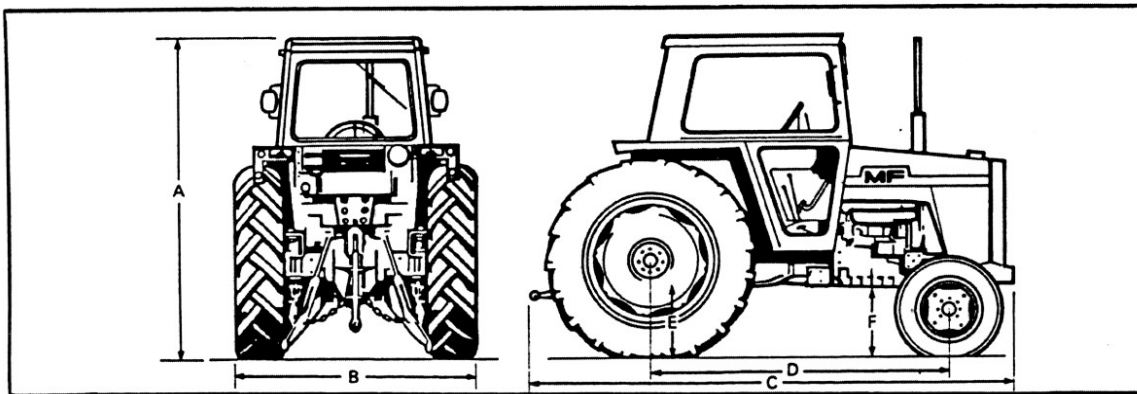


FIG. 1

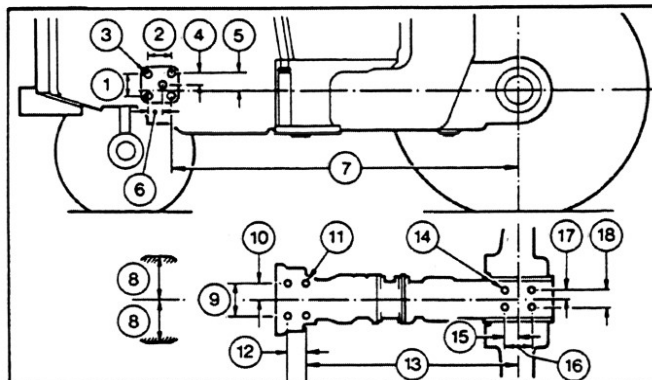


FIG. 2

MF590 TRACTOR

Engine

Make: Perkins, to MF specification
Type and Model: Four-stroke, direct injection diesel A4.248
Number of Cylinders: Four
Bore: 100,96 mm (3.975 in)
Stroke: 127 mm (5 in)
Capacity: 4,06 litre (248 in³)
Compression Ratio: 16:1
Firing Order: 1, 3, 4, 2
Horsepower: 75 PS (56 kW) at 2 200 rev/min (DIN 70020). 79 hp at 2 200 rev/min (B.S. AU 141: 1967 Ambient Conditions)
Maximum Torque (at 1 400 rev/min): 275 Nm (202.5 lbf ft) (DIN 70020). 287 Nm (212 lbf ft) (B.S. AU 141: 1967 Ambient Conditions)
Lubrication: Throwaway, cannister type full flow external filter
Valves: Overhead, pushrod operated
Valve Tip Clearance (Inlet and Exhaust): 0,30 mm (0.012 in) cold. 0,25 mm (0.010 in) hot

FUEL SYSTEM AND AIR CLEANER

Fuel Lift Pump: A.C. Delco, with hand primer
Fuel Filter: C.A.V. filter, with transparent sediment bowl
Injection Pump: C.A.V. Distributor type, with mechanical governor
Engine Speeds (no load): Idling—700 to 750 rev/min. Maximum—2 350 rev/min
Injection Timing: 24° B.T.D.C.
Injectors: C.A.V. type nozzles and nozzle holders
 Initial setting pressure 18,74 N/mm² (185 Atmosphere). Working pressure 17,23 N/mm² (170 Atmosphere)
Easy Starting Aid: C.A.V. Thermostart Mark III C
Air Cleaner: Two stage, dry element, removable for cleaning with warning light and buzzer

ELECTRICAL SYSTEM

Voltage: 12 volt NEGATIVE EARTH
Battery: 17 plate, 96 or 125 Ah. Lucas Mono Lid. Exide Mono Lid. Lucas Aqualok. Exide Auto-Fil
Starter Motor: Lucas M45G or M50G with a solenoid engaged pinion. Safety device operated by the dual range selector
Alternator: Lucas 23ACR or Motorola 9AR 2501K
Light Bulb Sizes:
 Headlights UK 36/36W, others 45/40W
 Side Lights 5W
 Rear Lights 5W
 Indicator Lights 21W
 Brake Lights 21W
 Number Plate Lights 5W
 Plough Light 36W
 Panel Lights 2.2W
 Interior Light 5W

Fuses:

Dipped Headlights 15A
 Side Lights 10A
 Brake Lights 10A
 Warning Lights 15A
 Main Beam Headlights 15A
 Flashing Indicators 10A
 Plough Light 10A
 Blower Motor 17A
 Wiper Motor 10A
 Interior Light 2A
 Horn 35A
 Cigar Lighter 35A
Fresh Air Blower: Two speed blower with a maximum output of 12 m³/min (425 ft³/min)

COOLING SYSTEM

Type: Thermostat controlled with centrifugal pump to assist circulation. Six bladed fan driven by a belt from the crankshaft
Fan Belt Deflection (Total): 13 mm (0.5 in) midway between the fan pulley and the crankshaft pulley

TRANSMISSION

Clutch:
 Live p.t.o. Tractors—Dual clutch, Auburn ventilated type, with a 305 mm (12 in) main drive disc, coil spring operated, and a 254 mm (10 in) p.t.o. disc, Belleville spring operated
 I.p.t.o. Tractors—Single clutch, Auburn ventilated type, with a 305 mm (12 in) main drive disc, coil spring operated. There is a continuous drive to the i.p.t.o. shaft via a plate bolted to the clutch cover. A dual clutch is fitted for certain cold climate territories
Eight Speed Gearbox: The eight speed gearbox has eight forward and two reverse speeds. This is achieved by using a four forward and one reverse speed gearbox, compounded by an epicyclic unit
Eight Speed Synchromesh Gearbox (Certain Territories): The eight speed synchromesh gearbox has eight forward and two reverse speeds. This is achieved by using a four forward and one reverse speed gearbox, with synchromesh on third and fourth gears, compounded by an epicyclic unit
Multi-Power Gearbox: The Multi-Power gearbox has twelve forward and four reverse speeds. This is achieved by using a three forward and one reverse speed gearbox, compounded by an epicyclic unit and an additional set of high ratio constant mesh gears actuated by a hydraulic clutch
Gearbox Epicyclic Reduction: 4:1
Final Drive: Bevel drive with epicyclic final hub reduction giving an overall ratio of 14.6:1

VISIBLE-RESULTS

1A—12

SPECIFICATION

POWER TAKE-OFF

Live Power Take-off: Engine speed drive is engaged by a lever to the left of the operator's seat

Independent Power Take-off: Engine speed i.p.t.o. is engaged by a lever to the left of the operator's seat. The i.p.t.o. clutch is a multi-plate, wet clutch

Reduction Ratio:

540 rev/min—3.51:1

1 000 rev/min—1.90:1

Speeds: 540 rev/min at 1 893 engine rev/min. 1 000 rev/min at 1 900 engine rev/min

Power Take-off Shaft: Six spline (540 rev/min), 21 spline (1 000 rev/min), 35 mm (1.38 in) diameter, with an annular groove for securing p.t.o. couplings

Application	Output at 2 200 engine rev/min (1 157 p.t.o. rev/min)			
	litre/ min	Imp. gal/min	Hydraulic PS	Hydraulic hp
Ferguson Pump Only	25,7	5.7	10,9	10.7
Auxiliary Pump Only	35,0	7.7	11,0	10.8
Combined Flow	61,0	13.4	19,1	18.8

HYDRAULIC SYSTEM

Ferguson Pump: Four cylinder, scotch yoke type pump driven from the forward end of the p.t.o. shaft, supplies oil, under pressure to the ram cylinder and four external take-off points

Tapping Point Thread Sizes: Top— $\frac{3}{8}$ N.P.S.M. Side— $\frac{3}{8}$ N.P.T.F.

Pressure Control System: The Pressure Control system operates from 0,69 to 20,7 N/mm² (100 to 3 000 lbf/in²)

Pump Maximum Output: 25,7 litre/min (5.7 Imp. gal/min) at 2 200 engine rev/min

Pump Maximum Pressure: 20,7 N/mm² (3 000 lbf/in²)

Linkage: Three point linkage, with Category 2 ball ends. A barrel turnbuckle type, adjustable top link is fitted, plus check chains

Maximum Lift Capacity: 2 223 kg (4 900 lb)

BRAKES

Type: Girling, oil immersed 222,4 mm (8.75 in) mechanical five plate disc brakes, operated together or independently to assist steering

Parking Brake: Operates on both rear wheels simultaneously

STEERING

Type: Hydrostatic, with a gear pump and integral reservoir

Toe-in: 3 mm ($\frac{1}{8}$ in)

Turns Lock to Lock: 3.3

FRONT AXLE

Type: Three section, adjustable for track width

Wheel Camber: 3° 30'

Wheel Castor: 0°

AUXILIARY HYDRAULICS

Auxiliary Pump: Gear type pump with separate gear train and output for Multi-Power and i.p.t.o. supply

Pump Output: To auxiliaries—35 litre/min (7.7 Imp. gal/min). To Multi-Power/i.p.t.o.—16,6 litre/min (3.7 Imp. gal/min)

Relief Valve Pressure: Auxiliaries—17,3 to 19,3 N/mm² (2 500 to 2 800 lbf/in²). Multi-Power/i.p.t.o.—4,8 to 6,9 N/mm² (700 to 1 000 lbf/in²)

Multi-Power/i.p.t.o. Pump: Gear type pump

Pump Output: 16,6 litre/min (3.7 Imp. gal/min)

Relief Valve Pressure: 4,8 to 6,9 N/mm² (700 to 1 000 lbf/in²)

Multi-Power/i.p.t.o./Auxiliary Filtration: Externally mounted 25 micron filter with replaceable cartridge type element

TRACK ADJUSTMENTS

Front Track: 1 346 to 1 753 mm (53 to 69 in) in 102 mm (4 in) increments

Rear Track P.A.V.T. Wheels: 1 422 to 2 388 mm (56 to 94 in)—12-38 tyres. 1 524 to 2 388 mm (60 to 94 in)—14-34, 15-30 and 15-34 tyres

Pressed Steel Wheels—1 524 to 2 261 mm (60 to 89 in)

All track settings are adjustable in 102 mm (4 in) increments

WHEELS AND TYRES

Front:

5-50 x 16 wheels fitted with 7-50-16, 6 or 8 ply tyres

5-50 x 18 wheels fitted with 7-50-18, 8 ply tyres

Rear:

W12 x 38 pressed steel or P.A.V.T. wheels fitted with 12-38, 6 ply tyres

W14 x 34 P.A.V.T. wheels fitted with 14-34 or 15-34, 6 ply tyres

W14 x 30 P.A.V.T. wheels fitted with 15-30, 6 ply tyres

Water Ballasting: Additional weight for each rear tyre:-

12-38 tyres: 222 kg (457 lb)

14-34 tyres: 329 kg (725 lb)

15-30 tyres: 352 kg (787 lb)

15-34 tyres: 385 kg (850 lb)

CAPACITIES

Fuel Tank: 98 litre (21.6 Imp. gal)

Engine Sump (including filter): 8 litre (14.5 Imp. pt)

Cooling System: 14.2 litre (25 Imp. pt)

Transmission:

Eight Speed—33 litre (57 Imp. pt)

Multi-Power—32 litre (56 Imp. pt)

Epicyclic Hubs: 3.1 litre (5.4 Imp. pt)

Power Steering Reservoir: 1.1 litre (2 Imp. pt)

GENERAL DIMENSIONS (Fig. 1)

A. Overall Height: 2540 mm (100 in)

B. Overall Width: 2032 mm (80 in)

C. Overall Length: 3886 mm (153 in)

D. Wheelbase: 2286 mm (90 in)

Ground Clearance:

E. Under Drawbar Frame: 381 mm (15 in)

F. Under Engine Sump: 483 mm (19 in)

Turning Circle: 8.8 m (28.9 ft) Without Brakes. 7.8 m (25.6 ft) With Brakes

Weight (with fuel, oil and water): 3378 kg (7448 lb)

Note: The above dimensions are for a tractor fitted with 7-50-16 front tyres and 12-38 rear tyres at 1626 mm (64 in) track setting.

MOUNTING POINTS (Fig. 2)

1. 102 mm (4 in)

2. 102 mm (4 in)

3. 10 holes (5 each side) tap $\frac{3}{8}$ in 10 UNC 23 x 32 mm (1 $\frac{1}{2}$ in)

4. 57 mm (2.25 in)

5. 73 mm (2.87 in)

6. 60 mm (2.38 in)

7. 2052 mm (80.8 in)

8. 254 mm (10 in)

9. 184 mm (7.25 in)

10. 92 mm (3.62 in)

11. 4 holes tap $\frac{3}{8}$ in 11 UNC 33 x 32 mm (1 $\frac{1}{2}$ in)

12. 102 mm (4 in)

13. 1243 mm (49 in)

14. 4 holes tap $\frac{3}{8}$ in 10 UNC 33 x 27 mm (1 $\frac{1}{2}$ in)

15. 76 mm (3 in)

16. 152 mm (6 in)

17. 43 mm (1.69 in)

18. 86 mm (3.38 in)

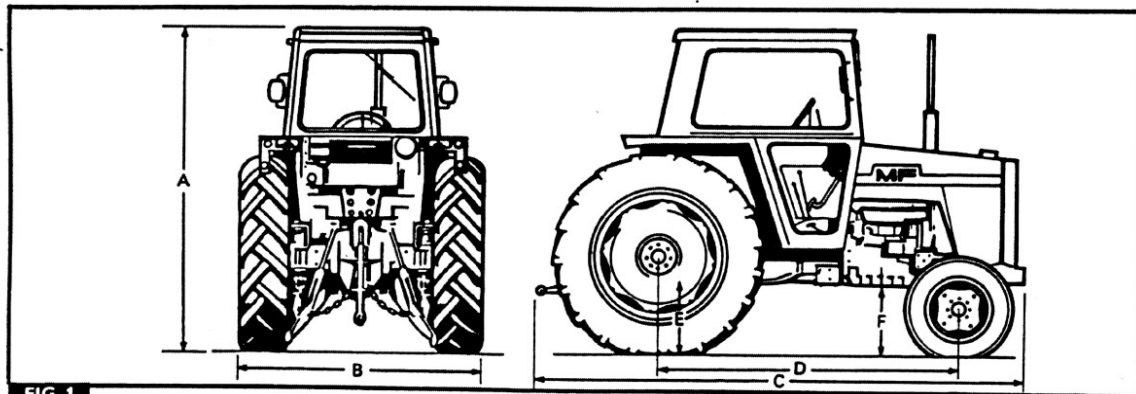


FIG. 1

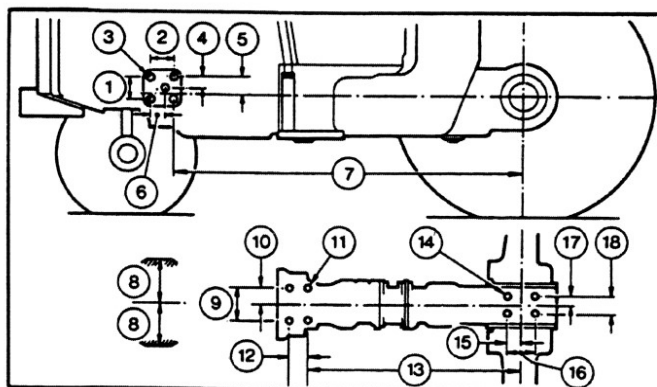


FIG. 2

VISIBLE-RESULTS

1A-14

SPECIFICATION

MF560 TRACTOR

ENGINE

Make: Perkins, to MF specification
Type and Model: Four-stroke, direct injection diesel AD4.203
Number of Cylinders: Four
Bore: 91,4 mm (3.6 in)
Stroke: 127 mm (5 in)
Capacity: 3,35 litre (203 in³)
Compression Ratio: 16:1
Firing Order: 1, 3, 4, 2
Horsepower: 56 PS (41 kW) at 2 000 rev/min (DIN 70020)
Maximum Torque (at 1 200 rev/min): 218 Nm (161 lbfft) (DIN 70020)
Lubrication: Throwaway, cannister type full flow external filter
Valves: Overhead, pushrod operated
Valve Tip Clearance (Inlet and Exhaust): 0,30 mm (0.012 in) cold. 0,25 mm (0.010 in) hot

FUEL SYSTEM AND AIR CLEANER

Fuel Lift Pump: A.C. Delco, with hand primer
Fuel Filter: C.A.V. filter, with transparent sediment bowl
Injection Pump: C.A.V. Distributor type, with mechanical governor
Engine Speeds (no load): Idling—700 to 750 rev/min. Maximum—2 140 rev/min
Injection Timing: 23° B.T.D.C.
Injectors: C.A.V. type nozzles and nozzle holders
 Initial setting pressure 17,73 N/mm² (175 Atmosphere). Working pressure 17,23 N/mm² (170 Atmosphere)
Easy Starting Aid: C.A.V. Thermostart Mark III C
Air Cleaner: Two stage, dry element, removable for cleaning with warning light and buzzer

ELECTRICAL SYSTEM

Voltage: 12 volt NEGATIVE EARTH
Battery: 96 Ah. Fulmen
Starter Motor: France—Paris Rhone D11E-137 or DHE-84
 Others—Lucas M45G or M50G with a solenoid engaged pinion. Safety device operated by the dual range selector
Alternator: Motorola 9AR 2501K
Light Bulb Sizes:
 Headlights 45/40W
 Side Lights 5W
 Rear Lights 5W
 Indicator Lights 21W
 Brake Lights 21W
 Number Plate Lights 5W
 Plough Light 36W
 Panel Lights 2.2W
 Interior Light 5W

Fuses:

Dipped Headlights 15A
 Side Lights 10A
 Brake Lights 10A
 Warning Lights 15A
 Main Beam Headlights 15A
 Flashing Indicators 10A
 Plough Light 10A
 Blower Motor 17A
 Wiper Motor 10A
 Interior Light 2A
 Horn 35A
 Cigar Lighter 35A

Fresh Air Blower: Two speed blower with a maximum output of 12 m³/min (425 ft³/min)

COOLING SYSTEM

Type: Thermostat controlled with centrifugal pump to assist circulation. Four bladed fan driven by a belt from the crankshaft
Fan Belt Deflection (Total): 13 mm (0.5 in) midway between the fan pulley and the crankshaft pulley

TRANSMISSION

Clutch Live P.t.o. Tractors: Dual clutch, Auburn ventilated type, with a 305 mm (12 in) main drive disc, coil spring operated, and a 254 mm (10 in) p.t.o. disc, Belleville spring operated
I.p.t.o. Tractors: Single clutch, Auburn ventilated type, with a 305 mm (12 in) main drive disc, coil spring operated. There is a continuous drive to the i.p.t.o. shaft via a plate bolted to the clutch cover. A dual clutch is fitted for certain cold climate territories
Eight Speed Synchromesh Gearbox: The eight speed synchromesh gearbox has eight forward and two reverse speeds. This is achieved by using a four forward and one reverse speed gearbox, with synchromesh on third and fourth gears, compounded by an epicyclic unit
Multi-Power Gearbox: The Multi-Power gearbox has twelve forward and four reverse speeds. This is achieved by using a three forward and one reverse speed gearbox, compounded by an epicyclic unit and an additional set of high ratio constant mesh gears, actuated by a hydraulic clutch
Gearbox Epicyclic Reduction: 4:1
Final Drive: Bevel drive with epicyclic final hub reduction giving an overall ratio of 10.83:1

VISIBLE-RESULTS

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SPECIFICATION

POWER TAKE-OFF

Live Power Take-off: Engine speed drive is engaged by a lever to the left of the operator's seat.

Independent Power Take-off: Engine speed i.p.t.o. is engaged by a lever to the left of the operator's seat. The i.p.t.o. clutch is a multi-plate, wet clutch

Reduction Ratio (Standard Pump): 3:12:1. (High Flow Pump)—3:12:1 at 540 rev/min. 1:69:1 at 1 000 rev/min

Speeds (Standard Pump): 540 rev/min at 1 684 engine rev/min. (High Flow Pump)—540 rev/min at 1 686 engine rev/min. 1 000 rev/min at 1 690 engine rev/min

Power Take-off Shaft: Six spline (540 rev/min), 21 spline (1 000 rev/min), 35 mm (1.38 in) diameter, with an annular groove for securing p.t.o. couplings

Standard Flow Ferguson Pump				
Application	Output at 2 000 engine rev/min (640 p.t.o. rev/min)			
	litre/min	Imp. gal/min	Hydraulic PS	Hydraulic hp
Ferguson Pump Only	15,0	3.4	6,5	6.4
Auxiliary Pump Only	36,0	7.9	11,3	11.1
Combined Flow	51,0	11.3	16,0	15.8

HYDRAULIC SYSTEM

Ferguson Pump: Four cylinder, scotch yoke type pump driven from the forward end of the p.t.o. shaft, supplies oil, under pressure to the ram cylinder and four external take-off points

Tapping Point Thread Sizes: Top— $\frac{3}{8}$ N.P.S.M. Side— $\frac{3}{8}$ N.P.T.F.

Pressure Control System: The Pressure Control System operates from 0,69 to 20,7 N/mm² (100 to 3 000 lbf/in²)

Pump Maximum Output (Standard Pump): 15 litre/min (3.4 Imp. gal/min) at 2 000 engine rev/min

(High Flow Pump) 26,5 litre/min (5.9 Imp. gal/min) at 2 000 engine rev/min

Pump Maximum Pressure: 20,7 N/mm² (3 000 lbf/in²)

Linkage: Three point linkage, with Category 1 or 2 interchangeable ball ends. A barrel turnbuckle type, adjustable top link is fitted, plus check chains adjustable for Category 1 and 2

Maximum Lift Capacity: 1 542 kg (3 400 lb)

AUXILIARY HYDRAULICS

Auxiliary Pump: Gear type pump with separate gear train and output for Multi-Power and i.p.t.o. supply

Pump Output: To auxiliaries—36 litre/min (7.9 Imp. gal/min). To Multi-Power/i.p.t.o.—19 litre/min (4.2 Imp. gal/min)

Relief Valve Pressure: Auxiliaries—17,3 to 19,3 N/mm² (2 500 to 2 800 lbf/in²). Multi-Power/i.p.t.o.—4,8 to 6,9 N/mm² (700 to 1 000 lbf/in²)

Multi-Power/i.p.t.o. Pump: Gear type pump

Pump Output: 19 litre/min (4.2 Imp. gal/min)

Relief Valve Pressure: 4,8 to 6,9 N/mm² (700 to 1 000 lbf/in²)

Multi-Power/i.p.t.o./Auxiliary Filtration: Externally mounted 25 micron filter with replaceable cartridge type element

High Flow Ferguson Pump				
Application	Output at 2 000 engine rev/min (1 185 p.t.o. rev/min)			
	litre/min	Imp. gal/min	Hydraulic PS	Hydraulic hp
Ferguson Pump Only	26,5	5.9	11,2	11.0
Auxiliary Pump Only	36,0	7.9	11,3	11.1
Combined Flow	62,5	13.8	19,5	19.3

BRAKES

Type: Girling, oil immersed 222,4 mm (8.75 in) mechanical five plate disc brakes, operated together or independently to assist steering

Parking Brake: Operates on both rear wheels simultaneously.

Trailer Brakes: Hydraulically operated by brake pedals

STEERING

Type: Hydrostatic, with a gear pump and integral reservoir

Toe-in: 3 mm ($\frac{1}{8}$ in)

Turns Lock to Lock: 3:3

FRONT AXLE

Type: Three section, adjustable for track width

Wheel Camber: 3° 30'

Wheel Castor: 4° 56'

TRACK ADJUSTMENTS

Front Track: 1 321 to 1 828 mm (52 to 72 in) in 102 mm (4 in) increments

Rear Track: 1 321 to 2 235 mm (52 to 88 in) in 102 mm (4 in) increments

WHEELS AND TYRES

Front:

- W4-00 x 16 wheels fitted with 6-00-16, 4 ply tyres
- W4-00 x 19 wheels fitted with 6-00-19, 6 ply tyres
- 5-50F x 16 wheels fitted with 7-50-16, 6 ply tyres

Rear:

- W10 x 32 wheels fitted with 11-32, 6 ply tyres
- W10 x 36 Double disc wheels fitted with 11-36, 6 ply tyres
- W12-28 Double disc wheels fitted with 14-28, 12-28 or 13-28, 6 ply tyres

Water Ballasting: Additional weight for each rear tyre:-

- 11-32 tyres: 143 kg (316 lb)
- 11-36 tyres: 159 kg (349 lb)
- 14-28 tyres: 254 kg (559 lb)
- 12-28 tyres: 169 kg (362 lb)
- 13-28 tyres: 200 kg (440 lb)

CAPACITIES

- Fuel Tank:** 67 litre (15 Imp. gal)
- Engine Sump (including filter):** 7,1 litre (12.5 Imp. pt)
- Cooling System:** 11,4 litre (20 Imp. pt)
- Transmission:**
 - Eight Speed—33 litre (57 Imp. pt)
 - Multi-Power—32 litre (56 Imp. pt)
- Epicyclic Hubs:** 1,7 litre (3 Imp. pt)
- Power Steering Reservoir:** 1,1 litre (2 Imp. pt)

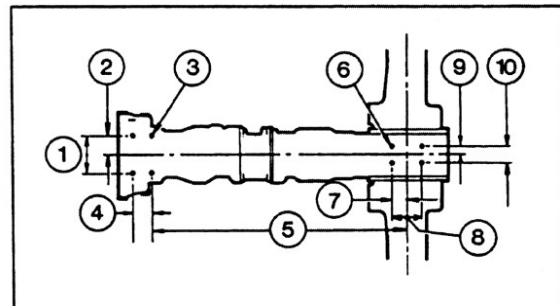
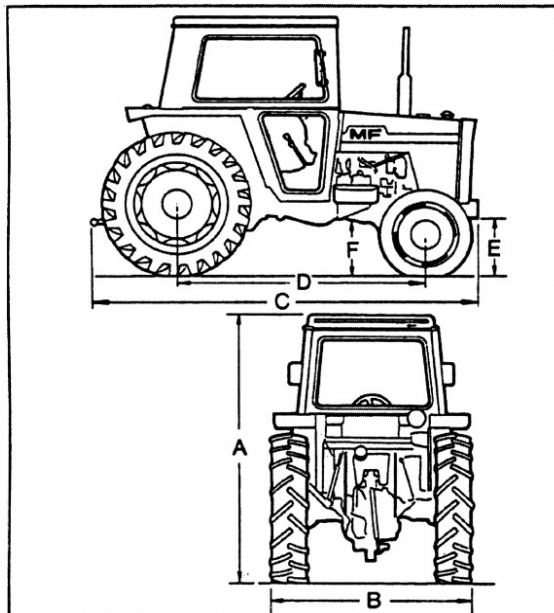
GENERAL DIMENSIONS (Fig. 1)

- A. Overall Height:** 2337 mm (92 in)
- B. Overall Width:** 1829 mm (72 in)
- C. Overall Length:** 3708 mm (146 in)
- D. Wheelbase:** 2172 mm (85.5 in)
- Ground Clearance:**
 - E. Under Weight Frame:** 343 mm (13.5 in)
 - F. Under Engine Sump:** 381 mm (15 in)
- Turning Circle:** 8,5 m (28 ft) Without Brakes
- Weight (with fuel, oil and water):** 2762 kg (6 090 lb)

Note: The above dimensions are for a tractor fitted with 7.50-16 front tyres and 14-28 rear tyres at 1524 mm (60 in) track setting.

MOUNTING POINTS (Fig. 2)

1. 184 mm (7.25 in)
2. 92 mm (3.62 in)
3. 4 holes tap $\frac{3}{8}$ in 11 UNC 3B x 32 mm (1 $\frac{1}{2}$ in) 102 mm (4 in)
4. 1243 mm (49 in)
5. 4 holes tap $\frac{3}{4}$ in 10 UNC
6. 3B x 27 mm (1 $\frac{1}{8}$ in)
7. 76 mm (3 in)
8. 152 mm (6 in)
9. 43 mm (1.69 in)
10. 86 mm (3.38 in)



VISIBLE-RESULTS

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SPECIFICATION

MAINTENANCE

Part 1—Section B

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50 HOUR FREE SERVICE	02
250 HOUR FREE SERVICE	02
MAINTENANCE PERIODS	03

GENERAL

This section has been compiled to enable the reader to ascertain quickly what action is necessary at any maintenance period. Also detailed is the 'Running-in' procedure and the obligatory maintenance specified in the 50 and 250 Hour Free Service Vouchers. These recommended services will safeguard the life of the tractor when properly carried out.

RUNNING-IN

The following precautions should be taken during the running in period:

1. Diesel engines require a different type of running in from petrol engines. Experience has shown that usage of the tractor, during its first 50 hours of operation, can have a marked difference on the performance and life of the engine. From new the tractor should be engaged in work which will load the engine as near to full conditions as possible.
2. Use a low gear when pulling heavy loads.
3. During the running in period, check frequently the tightness of all screws, bolts, nuts, etc.
4. To ensure proper clutch life, care must be taken to bed-in the friction plates properly. During the first 15 hours of the tractor's life, frequently, but carefully engage and disengage the clutch(es). During the first 50 hours a careful watch must be kept on the clutch pedal free travel, which should be adjusted as soon as the pedal travel increases.
5. Do not forget your free service entitlement, which entails changing oil and filters.

VISIBLE-RESULTS

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MAINTENANCE

50 HOUR FREE SERVICE

To be carried out after 50 hours running

Engine

Change the engine oil.
Change the engine oil filter.
Check and adjust the engine slow running speed.

Fuel System and Air Cleaner

Change the primary fuel filter element.
Check the dry air cleaner hoses and unloader valve.

Cooling System

Check the radiator coolant level and replenish if necessary.
Check the alternator/fan belt tension and adjust if necessary.

Electrical System

Check the battery electrolyte level and replenish if necessary.
Wipe the battery top and smear the terminals with petroleum jelly.
Check the alternator/fan belt tension and adjust if necessary.
Check the tightness of all cable clips and terminals and check all wiring for chafing.
Check the safety start switch for correct operation.
Check all lights for operation.

Steering

Check the front hub adjustment and adjust if necessary.
Check the power steering oil level and replenish if necessary.
Change the power steering pump filter element.
Change the power steering oil.

Transmission and Hydraulics

Change the transmission oil.
Clean the hydraulic pump oil strainer.
Change the transmission oil filter element.
Check the oil level in the epicyclic hubs and replenish if necessary. Not MF 550 tractors.
Check the operation of all hydraulics.

Clutch and Brakes

Check the clutch pedal free travel and adjust if necessary.
Check the live p.t.o. clutch setting and adjust if necessary.
Check the brakes and adjust if necessary.

Cab

Check the screenwasher bottle level and replenish if necessary.
Clean the cab air filter.
Check the torque of the cab securing bolts and tighten if necessary.

Miscellaneous

Check the torque of the wheel nuts and tighten if necessary.
Check the tyre pressures and adjust if necessary.
Lubricate all points with grease or oil where necessary.
Examine for external leaks, generally check all other nuts, bolts, clips and hoses for tightness.
Road test the tractor, checking the instruments and services for correct functioning.

250 HOUR FREE SERVICE

To be carried out before 250 hours of running

Engine

Change the engine oil.
Change the engine oil filter.
Check and adjust the engine slow running speed.

Fuel System and Air cleaner

Change the primary fuel filter element.
Check the dry air cleaner hoses and unloader valve.

Cooling System

Check the radiator coolant level and replenish if necessary.
Check the alternator/fan belt tension and adjust if necessary.

Electrical System

Check the battery electrolyte level and replenish if necessary.
Wipe the battery top and smear the terminals with petroleum jelly.
Check the alternator/fan belt tension and adjust if necessary.
Check the safety start switch for correct operation.
Check all lights for operation.

Steering

Check the front hub adjustment and adjust if necessary.
Check the power steering oil level and replenish if necessary.

Transmission and Hydraulics

Check the transmission oil level and replenish if necessary.
Change the transmission oil filter element.
Check the oil level in the epicyclic hubs and replenish if necessary. Not MF 550 tractors.
Check the operation of all hydraulics.

Clutch and Brakes

Check the clutch pedal free travel and adjust if necessary.
Check the live p.t.o. clutch setting and adjust if necessary.
Check the brakes and adjust if necessary.

Cab

Check the screenwasher bottle level and replenish if necessary.
Clean the cab air filter.
Check the torque of the cab securing bolts and tighten if necessary.

Miscellaneous

Check the torque of the wheel nuts and tighten if necessary.
Check the tyre pressures and adjust if necessary.
Lubricate all points with grease or oil where necessary.
Examine for external leaks, generally check all other nuts, bolts, clips and hoses for tightness.
Road test the tractor, checking the instruments and services for correct functioning.

MAINTENANCE PERIODS

Carry out operation below when Tachometer reads—	10	100	200	250	300	400	500	600	700	750	800	900	000
GREASING	O	O	O	O	O	O	O	O	O	O	O	O	O
ENGINE Check the engine oil level and replenish if necessary Change the engine oil—See note 2 Change the engine oil filter—See note 2 Check the tappets and adjust if necessary Clean the engine breather pipe	O	O	O	O O O	O	O	O O O X X	O	O	O O O	O	O	O O O X X
FUEL SYSTEM AND AIR CLEANER Inspect the fuel filter glass bowl and drain off any water Renew the fuel filter element Service the injectors Drain clean and refill the fuel tank Check the dry air cleaner hoses and unloader valve Replace the dry air cleaner elements—See note 3	O	O	O	O	O	O	O O X	O	O	O	O	O	O O X X O O
COOLING SYSTEM Check the radiator coolant level and replenish if necessary Clean the radiator fins Drain flush and refill the cooling system	O	O	O	O	O	O	O O O	O	O	O	O	O	O O O
ELECTRICAL SYSTEM Check the battery electrolyte level and replenish if necessary Wipe the battery top and smear the terminals with petroleum jelly Check the alternator fan belt tension and adjust if necessary Examine the alternator		O	O O		O	O	O O O	O	O		O O O	O	O O O X
STEERING Check the power steering oil level and replenish if necessary Change the power steering pump filter element Check the front hub adjustment and adjust if necessary Check the front wheel alignment and adjust if necessary		O	O		O	O	O O X	O	O		O	O	O O O X
TRANSMISSION AND HYDRAULICS Check the transmission oil level and replenish if necessary Change the transmission oil Clean the hydraulic oil strainer Change the transmission oil filter element Check the oil level in the epicyclic hubs and replenish if necessary. Not MF 550 Tractors Change the oil in the epicyclic hubs—See note 4. Not MF 550 Tractors		O	O		O	O	O O O O	O	O		O	O	O O O O O O
CLUTCH AND BRAKES Check the clutch pedal free travel and adjust if necessary* Check the live p.t.o. clutch setting and adjust if necessary* Check the brakes and adjust if necessary* *See note 5		O X	O X O		O X	O X O	O X O	O X O	O X		O X O	O X	O X O
SAFETY CAB Check the screenwasher bottle level and replenish if necessary Clean the cab air filter Replace the cab air filter Check the torque of the cab securing bolts and tighten in necessary	O O	O O	O O	O O	O O	O O	O O O X	O O	O O	O O	O O	O O	O O O X
MISCELLANEOUS Check the differential lock and adjust if necessary Check the torque of the wheel nuts, bolts and tighten if necessary Check the tyre pressures and adjust if necessary	O	O O	O O	O	O	O	O O O	O	O	O	O	O	O O O

NOTES

1. All operations marked X are to be carried out by your Massey-Ferguson Distributor or Dealer.
2. The oil change period at 250 hours assumes proper maintenance of the engine and auxiliaries (i.e. air cleaner and lubrication filter) and that the fuel and oil used have been of the approved type and specification. If inadequate maintenance, or inferior oils have been used, engine oil changes must be more frequent.
3. The dry air cleaner elements must be renewed every 1000 hours, or yearly or after a maximum of ten washings of the main element.
4. If conditions are wet, muddy, or exceptionally humid, change the oil in the epicyclic hubs every 200 hours.
5. If heavy work is involved the clutch and brake adjustments must be made more frequently.

VISIBLE-RESULTS

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MAINTENANCE

PRE-DELIVERY AND INSTALLATION

Part 1—Section C

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TRACTOR INSTALLATION	02
TRACTOR STORAGE	02
PREPARING THE TRACTOR PRIOR TO RETURN TO WORK	03
TRACTOR WATERPROOFING	04

GENERAL

To ensure the regular maintenance of the tractor during the 12 month Warranty period, two free services must be carried out by the supplying Distributor or Dealer.

The two Free Service Vouchers, detailing the servicing to be carried out, cover the first 50 and 250 hours running of the tractor.

The timing of these two services has been calculated to provide maximum tractor efficiency throughout the Warranty period thus safeguarding the subsequent life of the tractor.

PRE-DELIVERY CHECK

The following items must be checked by the Distributor before delivery to a Dealer and by the Dealer before delivery to an Owner or Operator.

1. Check and replenish the battery electrolyte level. Clean the battery top and smear the terminals with petroleum jelly. Charge the battery if necessary.
2. Check all electrical connections, cable clips and lights.
3. Check and replenish the levels in the following:
 - Hydro-Static steering reservoir
 - Engine sump
 - Centre housing
 - Epicyclic hubs.
4. Lubricate all greasing points.
5. Check and adjust the alternator/fan belt tension.

6. Except when an anti-freeze solution is provided, flush the cooling system and refill with soft water.
7. Remove the clutch pedal keeper and check the clutch adjustment.
8. Check that the correct fuel is in the tank and the content is sufficient.
9. Check the torque of the cylinder head, inlet and exhaust manifold nuts and bolts.
10. Check and adjust the tappets and inspect the valve springs.
11. Check the injectors, de-aerate the fuel system and tighten all fuel pipe connections.
12. Check the security of the engine air cleaner hoses.
13. Fit the lower and top links and free the linkage joints.
14. Start the engine.
15. Check the instruments and warning lights for efficient operation.
16. Check the engine governor with the foot and hand linkage and the tachometer.
17. Attach an implement and check the tractor hydraulics for efficient operation.
18. Check and adjust the tyre pressures.
19. Check the security of all nuts, bolts, plugs, unions and clips.
20. Check all hoses for chafing and leaks.
21. Check the headlamp alignment.
22. Road test the tractor, checking the brakes, instruments and services for efficient operation.

PRE-DELIVERY AND INSTALLATION

TRACTOR INSTALLATION

Instructions are to be given to the Owner or Operator on the items listed below:

1. Safety Precautions.
2. Location and Significance of Tractor and Engine Serial Numbers.
3. Instruments and Controls.
4. Running In.
5. Starting and Stopping Procedures.
6. Gear Selection and danger of changing gear on the move.
7. Coasting and Towing.
8. Use of Multi-Power.
9. Use and Adjustment of Brakes and Interlock Latch.
10. Use and Adjustment of Clutch.
11. Use and Adjustment of Differential Lock.
12. P.t.o. Speed and Usage.
13. Operation of Hydraulic Lift System.
14. Attaching and Detaching Implements. (Danger of towing from Top Link).
15. Lubrication and Grease Points.
16. Changing of Factory Fill Oils.
17. Engine and Transmission Filter Replacements.
18. Operation of Fuel System. De-aeration and Air Cleaner.
19. Cooling System, Frost Precautions and Alternator/Fan Belt Adjustment.
20. Maintenance of Electrical Equipment. Negative Earth System.
21. Power Steering.
22. Wheel Track Settings.
23. Tyre Pressures.
24. Security of all Nuts and Bolts.
25. Fuel Handling and Storage.
26. Use and Attachment of Auxiliary Hydraulic Equipment.
27. Fill in the Serial No. etc., details in the Operator Instruction Book.

TRACTOR STORAGE

General

When preparing a tractor for storage, comply with the following recommendations to ensure that the tractor is in good condition when required for use. Thoroughly clean the tractor, giving particular attention to the greasing points and oil filler plugs. Park the tractor in a dry, level and covered area away from the weather and livestock with easy exit in case of fire.

When the tractor has to be stored in the open air, park it on level ground in the shelter of a building or wall and completely cover it with a good tarpaulin.

Tyres

1. Jack up the tractor and position wooden blocks under the axles to relieve the tyres of all weight.
2. Inflate the tyres a little above the normal pressure and chalk that pressure on the tyre wall. Protect the tyres from direct sunlight.
3. When ballasted tyres are not filled with calcium chloride, deflate the tyres, empty out the water and re-inflate with air.
4. When wheel weights are fitted, remove, clean and paint any bare metal and refit.

Hydraulic Lift System

1. Check and replenish the transmission oil level in the centre housing to the high mark on the response cover dipstick.
2. Using the tractor hydraulics, with the response control in "FAST", raise and lower the linkage several times.
3. Engage the p.t.o. for a short period to obtain the maximum circulation of transmission oil around the centre housing.
4. Raise the linkage to the "Transport" position and support the two lift arms in this position with wooden props.
5. Leave the two quadrant levers in the 'Transport' position i.e., the "Draft" control (outer) lever past the "UP" and the "Position" control (inner) lever in "TRANSPORT". Do NOT MOVE the quadrant control levers from these positions.

Hydro-Static Steering

1. Remove the filler plug from the reservoir and add the approved oil to the bottom of the oil filler plug hole. Refit the filler plug.
2. Clean and coat the exposed steering rams with grease.

Engine

1. Drain the engine sump. when hot if possible.
2. Change the filter element.
3. Refill the engine sump with an approved grade of oil.
4. Seal the crankcase breather, exhaust and air cleaner pipes with adhesive tape.
5. Clean the dry air cleaner unit.

Cooling System

1. Drain the radiator and cylinder block, when hot if possible and leave the taps in the open position.
2. Rest the radiator cap on the filler neck.

Fuel System

1. Clean the fuel filler bowls, renew the elements and drain the fuel tank.
2. Adding a rust inhibitor, refill the fuel tank and bleed the fuel system of air.
3. Start the engine and run at half speed for 15 minutes to circulate the fuel through the lift and distributor pumps, filters, pipework and ejectors.
4. Top-up the fuel tank completely to prevent condensation forming on the unfilled portion of the tank thus resulting in rust and water contaminating the fuel. Rust if permitted to form in any large quantity can cause filter blockage.
5. Seal the gap between the sides of the fuel filler cap and pipe.
6. Remove the injectors and spray approximately 18 ccs (1/32 pt) of engine oil into each cylinder bore. Using new joint washers, refit the injectors and slowly rotate the crankshaft one complete revolution. Do not bleed the fuel system of air.
7. Lubricate the foot and hand throttle control linkage.

PRE-DELIVERY AND INSTALLATION

Clutch

Fully depress the clutch pedal and hold down with a wooden keeper or wedge. The clutch friction plates (main and p.t.o.) will not then bond themselves to the flywheel or pressure plates.

Battery

1. Remove the battery from the tractor.
2. Check the electrolyte level and top up as necessary.
3. Clean the battery top and coat the terminals with petroleum jelly.
4. Fully charge the battery from an external source.
5. Repeat the external charge every month during the storage period and top up the electrolyte as necessary.
6. Store the battery in a cool, dry, dust free location but not directly on a concrete or metal surface. There must be no possibility of freezing.

Alternator and Starter Motor

1. Smear the alternator terminals with petroleum jelly.
2. Smear the starter motor and solenoid terminals with petroleum jelly.

Sheet Metal, Exposed Castings and Bright Metal Components

1. All rusty, scratched or bare patches of castings and/or sheet metal must be cleaned with abrasive papers and repainted. Matching colours are available for all M.F. Tractors.
2. The bright metal components and surfaces must be cleaned and/or degreased and the protectives sprayed or brushed on.

Cab

1. Empty the windscreen washer bottle.
2. Remove and exclude the windscreen wiper blade from daylight.
3. Remove and store the rear view mirrors, free and lubricate all hinges and locking devices.
4. Close the cab side and rear windows.
5. Wash and dry the inside and outsides of the cab windscreen, side and rear windows with soap and water.
9. Cover the windscreen, side and rear windows.
7. Lock the cab door, note the number of the door key. Store the key in a known spot in case of fire.

PREPARING THE TRACTOR PRIOR TO RETURN TO WORK

Cab

1. Remove the covers and wash the cab windscreen, side and rear windows.
2. Refit the windscreen wiper blade.
3. Refit the rear view mirrors.
4. Fill the windscreen washer bottle.

Sheet Metal and Bright Metal Components

1. Clean off the protective from the bright metal parts and surrounding sheet metal.
2. Wash the sheet metal.

Alternator and Starter Motor

1. Clean the petroleum jelly from the alternator terminals.
2. Clean the petroleum jelly from the starter motor and solenoid terminals.

Battery

1. Check that the battery is fully charged. Do not check the electrolyte strength immediately after adding distilled water.
2. Check that the electrolyte is at the correct level.
3. Clean the battery top and smear the terminals with petroleum jelly.
4. Refit the battery to the tractor.

Clutch

Remove the wooden keeper or wedge from the clutch pedal linkage.

Fuel System

1. Remove the adhesive tape seal from the fuel filler cap and pipe.
2. Check the level in the fuel tank: investigate any loss and eliminate the cause.
3. Bleed the fuel system of air.

Cooling System

1. Close the taps in the cylinder block and radiator.
2. Refill the cooling system slowly with clean rain or soft water.
3. In winter, refill the cooling system with an anti-freeze solution.
4. Check all connections and joints for leaks.
5. After the engine has been run for fifteen minutes, see 'Starting the Engine', permit the radiator to cool, check the coolant level and replenish as necessary.

Engine

1. Remove the adhesive tape seals from the crankcase breather, exhaust and air cleaner pipes.
2. Check the engine oil level, investigate any loss and eliminate the cause.

Hydro-static Steering

1. Check the hydro-static steering reservoir oil level, investigate any loss and eliminate the cause.
2. Clean the steering rams of grease and leave clean and dry.

Hydraulic Lift System

1. Check the centre housing transmission oil level, investigate any loss and eliminate the cause.
2. Remove the two wooden props from the lift arms.

Tyres

1. Check the tyre pressures, investigate any loss and eliminate the cause.
2. Adjust the tyre pressures or deflate the tyres, replace the ballast as before and re-inflate as necessary.
3. Jack up the axles and remove the wooden blocks,

Fuel Gauge and Warning Lights

Turn the starter key to '+' and check that the fuel gauge begins to register and all warning lights glow. Investigate any mal-function and eliminate the cause.

Starting the Engine

1. Start the engine and run on a light load.
2. Check that the tachometer and fuel gauge register and all warning lights become extinguished. Investigate any mal-function and eliminate the cause.
3. Continue to run the engine for no more than 15 minutes, check all system for correct function. Investigate any mal-function and eliminate the cause.

VISIBLE-RESULTS

1C-04

PRE-DELIVERY AND INSTALLATION

TRACTOR WATERPROOFING

General

Before working in water, such as in Paddy Fields or flooded areas, certain waterproofing modifications must be made to the tractor.

Ideally, only tractors with disc brakes should be used in water as little can be done to ensure the efficiency of drum brakes when the water depth exceeds 600 mm (24 in).

In addition, two extra maintenance services are required.

ELECTRICAL EQUIPMENT 'VYPATCH' Putty and 'VYCOAT'

The 'VYPATCH' Putty and 'VYCOAT' recommended for sealing the starter motor and solenoid assembly is available from:

Products Division,
Plastic Coatings Ltd.
Trading Estate,
Farnham,
Surrey,
England.

Starter Motor and Solenoid Assembly

1. Remove the starter motor and solenoid assembly.
2. Thoroughly clean the exterior of the starter motor and solenoid assembly.
3. Blank off the drive end bracket.
4. Seal all the openings in the starter motor and solenoid assembly with 'VYPATCH'.
5. Apply a thick coating of grease to the starter motor and solenoid terminals and ensure that the drive end bracket is blanked off.
6. Spray the exterior of the starter motor and solenoid assembly with a thick coat of 'VYCOAT'.
7. Dry for at least 10 minutes and spray the exterior of the starter motor and solenoid assembly with a second thick coat of 'VYCOAT'.
8. Let the 'VYCOAT' harden and clean the grease coating from the starter motor and solenoid terminals and remove the blank from the drive end bracket.
9. Refit the starter motor and solenoid assembly to the engine.
10. Reconnect the wiring harness.

Battery

Clean the battery top and smear the battery terminals with petroleum jelly.

Engine

Engine Breather Pipe

NOTE: The engine breather pipe is of a critical length and after modification it can be longer but NEVER shorter. When refitted it must point generally in a downward direction without 'U' bends or restrictions to trap liquid or dirt.

1. Shorten the existing breather pipe by approximately 200 mm (8 in).
2. Attach a 225 mm (9in) length of rubber piping to the shortened engine breather pipe.
3. Route the rubber piping to the front of the engine and secure it to one of the timing case bolts with a suitable clip.

Engine Dipstick

1. Remove the engine dipstick and store in the tool box.
2. Fit a tapered rubber plug to the engine dipstick tube.

Transmission

Clutch Housing Drain Hole

1. Discard the split pin in the drain hole in the clutch housing.
2. Enlarge the drain hole, tap and fit a screwed plug.

Clutch Housing Cover Plate Gasket

1. Remove the four bolts and the cover plate beneath the clutch housing.
2. Refit the cover plate to the clutch housing with the gasket (part No. 180 481 M1) between and the four original bolts.

Clutch Pedal Cross-shaft

1. Drill and tap the two bosses from which the pedal cross-shaft protrudes.
2. Fit two grease nipples to the tappings. Should the grease nipples foul the pedal cross-shaft, fit small fibre washers to the threaded shank.
3. Grease the cross-shaft until the grease just exudes from around the pedal cross-shaft but do not over grease.

P.T.O. Shaft Cap

1. Remove the p.t.o. cap.
2. Grease both threads.
3. Refit the p.t.o. cap and screw it fully home.

Centre Housing Dipstick

1. Remove the centre housing dipstick from the response control cover and store in the dipstick.
2. Fit a tapered rubber plug to the response control cover.

Brakes

Pedal Cross-shaft

1. Drill and tap the two bosses from which the pedal and cross-shaft protrudes.
2. Fit two grease nipples to the tappings. Should the grease nipples foul the pedal cross shaft, fit small fibre washers to the threaded shanks.
3. Grease the two nipples until the grease just exudes from around the pedal cross shaft.

Extra Maintenance

Every 10 hours or Daily

Charge all grease points with an approved grease until it exudes from the seals or shafts.

Every 50 hours or Weekly

1. Remove the clutch housing, drain plug, permit any water to drain away and refit the drain plug.
2. Ensure that the engine breather pipe is unobstructed.

**MF 500 SERIES TRACTOR
WORKSHOP SERVICE MANUAL**

PART 2

Publication No. 1856 072 M1

comprising

- A SHEET METAL**
- B CAB AND FITTINGS**

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GENERAL

The front grille, hood, front side panels, rear trim and centre panels are all of sheet metal. They provide protection for the operator and the tractor, but the tractor must not be operated with any of these sheet metal components removed. To prevent corrosion, always keep the sheet metal components clean and respray the metal as soon as possible when any parts become chipped.

VISIBLE-RESULTS

2A—02

SHEET METAL

FRONT SIDE PANEL

Removal and Refitment

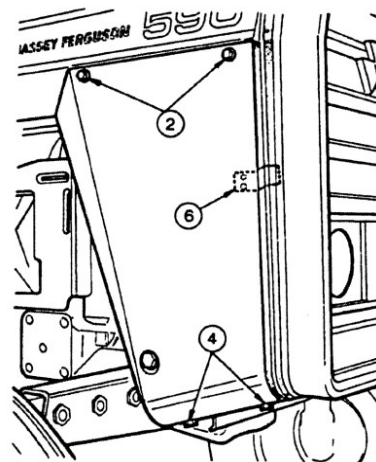
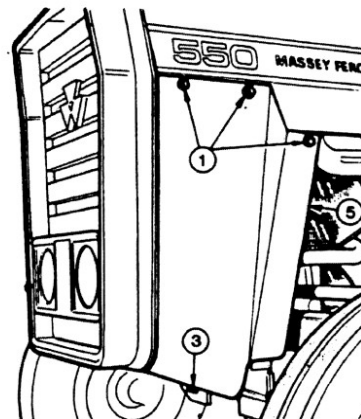
2A—01—02

Removal

1. MF 550 and 560 tractors, remove the three top bolts.
2. MF 565, 575 and 590 tractors, remove the two top bolts.
3. MF 550 and 560 tractors, slacken or remove the one bottom bolt.
4. MF 565, 575 and 590 tractors, slacken or remove the two bottom bolts.
5. Remove the side panel, lifting the rear edge outwards and pulling the panel rearwards to withdraw the front clamp plate.
6. When necessary, remove the two bolts to remove the front clamp plate.

Refitment

7. Reverse procedures 1 to 6 except:
 - (a) The clamp plate is positioned with the cranked end facing forward and outward.
 - (b) Tighten the side panel securing bolts to a torque of 20 Nm (15 lbf ft).



HOOD

Removal and Refitment

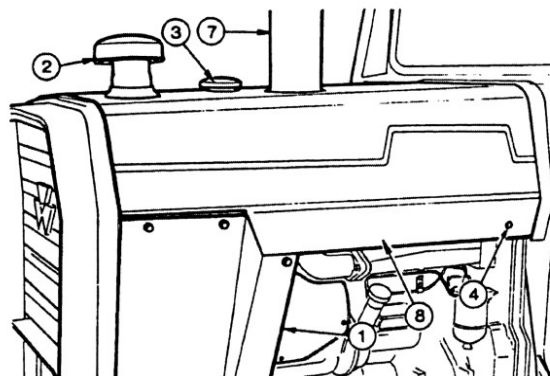
2A—02—02

Removal

1. Remove the front side panels, operation 2A—01—02.
2. Remove the air cleaner pre-cleaner.
3. Remove the radiator cap.
4. Remove the two bolts securing the rear end of the hood.
5. Raise the hood to expose the exhaust silencer fixing clamp and prop the hood in the raised position.
6. Slacken the exhaust clamp nut and bolt.
7. Remove the exhaust silencer.
8. Remove the hood.

Refitment

9. Reverse procedures 1 to 8, except:
 - (a) Ensure the rubber sealing strip at the rear of the hood is fully located on the hood.
 - (b) After fitting the exhaust silencer, lower the hood and push rearwards until it seats against the cab.
 - (c) Tighten the hood securing bolts to a torque of 20 Nm (15 lbf ft).



HOOD SEAL

Removal and Refitment

2A—03—02

Removal

1. Remove the hood, operation 2A—02—02.
2. Pull off the rubber seal.

Refitment

3. Clean the rear edge of the hood.
4. Fit a new rubber sealing strip to the rear edge of the hood, engaging the edge of the hood into the slot in the seal.
5. The seal should be fitted evenly to the hood, without an overhang at one end and too little rubber at the other end.
6. Refit the hood, operation 2A—02—02.

FRONT GRILLE

Removal and Refitment

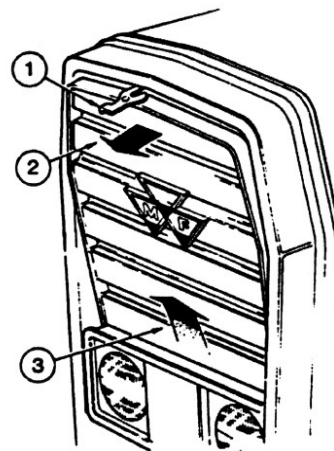
2A-04-03

Removal

1. Pull the front grille release catch forward.
2. Pull the grille forwards.
3. Remove the grille, lifting it upwards.
4. When necessary, remove two screws and washers to remove the motif.

Refitment

5. Reverse procedures 1 to 4.



FRONT LOWER PANEL

Removal and Refitment

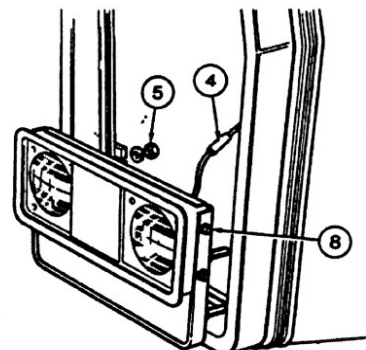
2A-05-03

Removal

1. Remove the front grille, operation 2A-05-03.
- ** 2. MF 550 and 560 tractors, disconnect the battery Part 9A, to allow the battery to be moved from side to side giving access to the lower panel securing nuts.
3. MF 565, 575 and 590 tractors, disconnect the battery cables.
4. Disconnect the headlamp harness.
5. Remove the nut and washer securing the headlamp earthing wire.
6. Remove the three remaining nuts and washers.
7. Withdraw the front lower panel forwards.
8. When necessary, remove the four side bolts securing the headlamp assembly.
9. Remove the headlamp assembly.

Refitment

10. Reverse procedures 1 to 9, except:
 - (a) Refit the headlamp assembly with the two screws of each lamp uppermost.
 - (b) Check the operation of the headlamps before refitting the grille.



VISIBLE-RESULTS

2A-04

SHEET METAL

NOSE ASSEMBLY

Removal and Refitment

2A-06-04

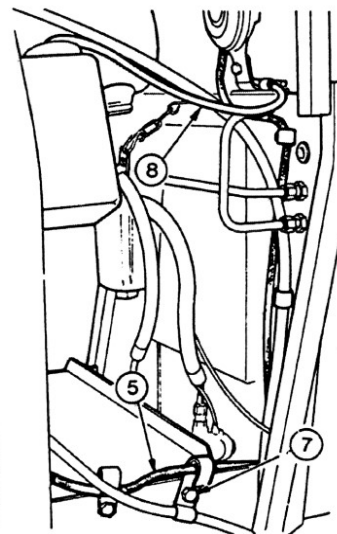
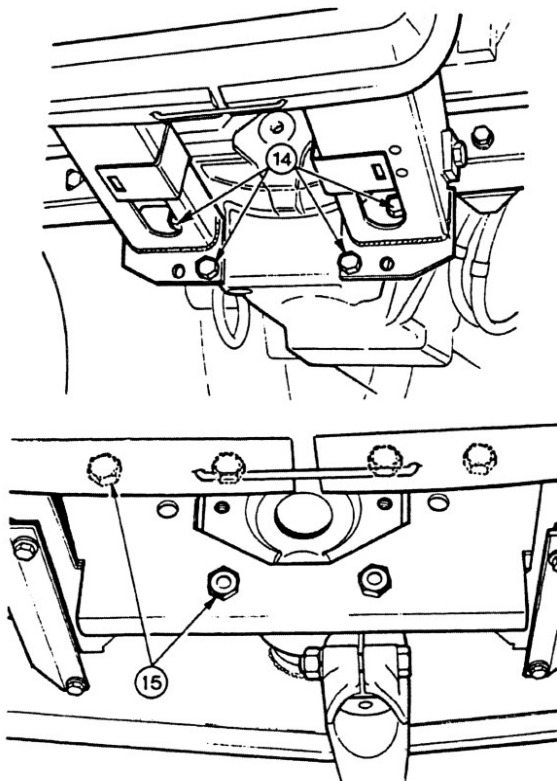
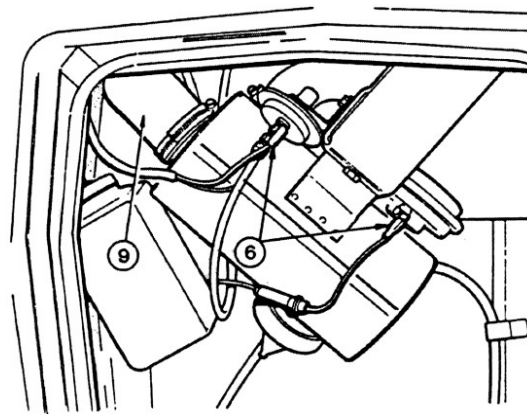
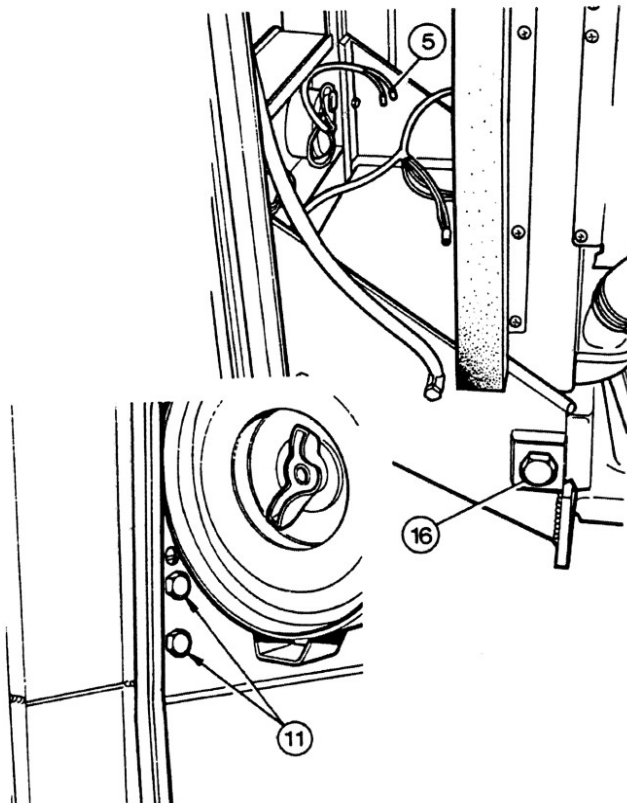
Removal

NOTE: The nose assembly is very heavy and awkward to handle, therefore extreme care must be taken.

1. Remove the front side panels, operation 2A-01-02.
 2. Remove the hood, operation 2A-02-02.
 3. Remove the front grille, operation 2A-04-03.
 4. Remove the battery, Part 9A.
 5. Disconnect and remove the headlamp harness from the nose assembly.
 6. MF 550 and 560 tractors, disconnect the horn and air cleaner indicator wiring.
 7. MF 565, 575 and 590 tractors, remove the bolt securing the battery positive cable fixing clip.
 8. Disconnect the windscreen washer bottle pipe.
 9. Disconnect the air cleaner hose.
 10. MF 565, 575 and 590 tractors, remove the air cleaner assembly, Part 4C.
 11. MF 565, 575 and 590 tractors, remove the two bolts securing the air cleaner mounting bracket on the nose.
 12. Support the nose assembly using a jib crane and sling.
 13. Remove the weight frame (if fitted).
 14. MF 550 and 560 tractors, remove the four bolts securing the nose assembly. The two lower bolts are fitted with nuts and washers.
 15. MF 565, 575 and 590 tractors, remove the six bolts securing the nose assembly.
- NOTE:** These bolts may have been removed during procedure 13.
16. Remove the two large side bolts.
 17. Move the jib crane and nose assembly from the front of the tractor.

Refitment

18. Reverse procedures 1 to 17, except:
 - (a) Tighten the securing bolts to a torque of 271Nm (200 lbf ft).



RADIATOR TOP PANEL AND SUPPORT FRAME

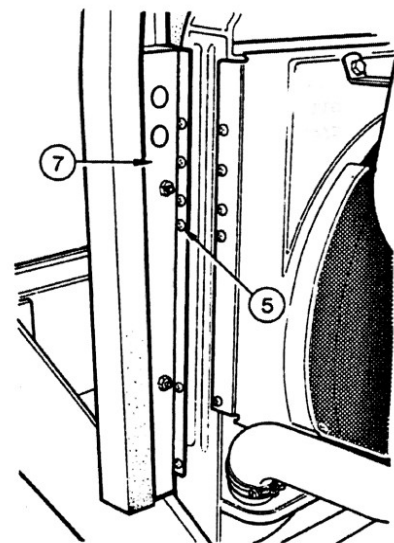
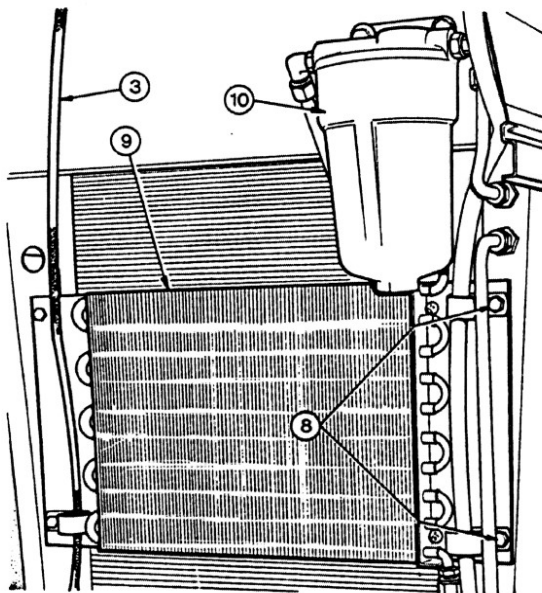
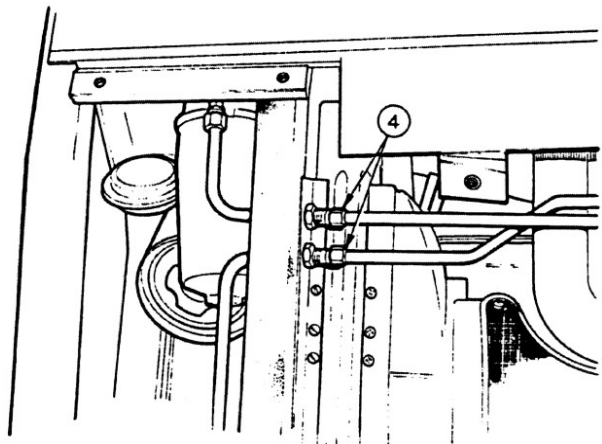
Removal and Refitment 2A-07-05
(MF 550 and 560 Tractors)

Removal

1. Remove the nose assembly, operation 2A-06-04.
2. Disconnect the battery positive cable at the starter motor solenoid and pull the cable clear.
3. Unclip the lighting harness.
4. Disconnect the Multi-Power/Transmission oil cooler feed and return pipes (if fitted).
5. Remove the twelve screws (six on each side) securing the frame to the radiator.
6. Withdraw the frame forwards to clear the engine air inlet pipe.
7. Remove the support frame.
8. When necessary, remove the four bolts securing the oil cooler (if fitted).
9. Remove the oil cooler.
10. Remove the oil filter and pipes (if fitted).

Refitment

11. Reverse procedures 1 to 10.



VISIBLE-RESULTS

2A-06

SHEET METAL

RADIATOR TOP PANEL AND SUPPORT FRAME

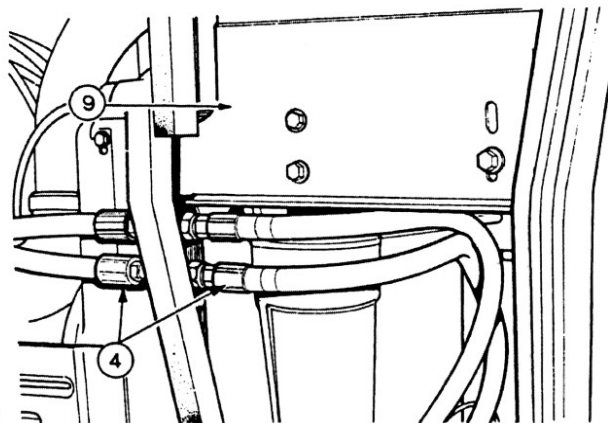
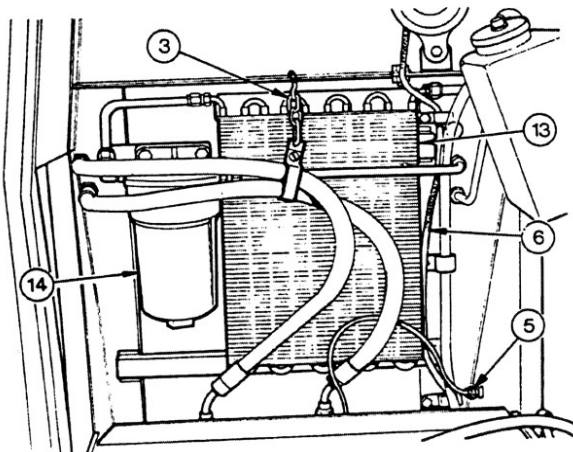
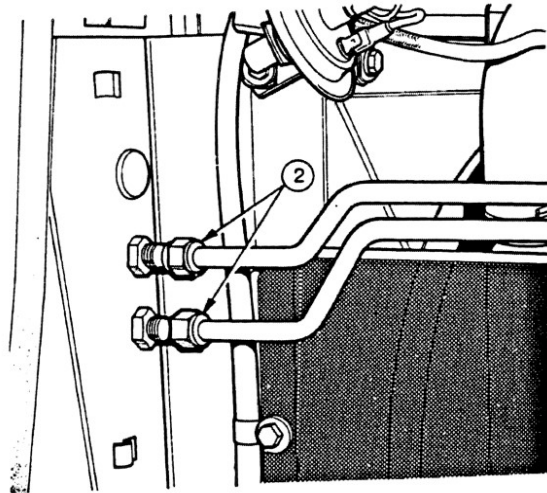
Removal and Refitment 2A-08-06
(MF 565, 575 and 590 tractors)

Removal

1. Remove the nose assembly, operation 2A-06-04.
2. Disconnect the Multi-Power/Transmission oil cooler feed and return pipes (if fitted).
3. Unclip the power steering ram hoses support chain.
4. Disconnect the two power steering ram hoses from each side of the support frame.
5. Disconnect the power steering ram grease pipe from the support frame (if fitted).
6. Unclip the lighting harness.
7. Disconnect the horn wiring.
8. Remove the bolt securing the air filter support bracket.
9. Remove the air filter support bracket.
10. Remove the radiator assembly, Part 4B.
11. Remove the four bolts securing the base of the support frame.
12. Lift the support frame upwards to clear the power steering ram and then remove the frame.
13. When necessary, remove the oil cooler and pipes (if fitted).
14. Remove the oil filter assembly (if fitted).
15. When necessary, remove the horn.

Refitment

16. Reverse procedures 1 to 15.



HOOD SUPPORT (REAR)

**Removal and Refitment
(MF 550 tractors only)**

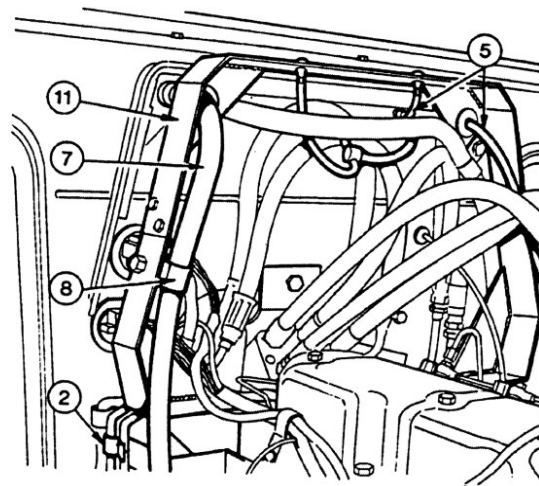
2A—09—07

Removal

1. Remove the hood, operation 2A—02—02.
2. Remove the screw and clamp supporting the R.H. and L.H. power steering metal pipework.
3. Disconnect the fuel filter pipes.
4. Remove the fuel filter rear support bracket and the filter assembly.
5. Disconnect the screenwasher pipes.
6. Drain the cooling system, by opening the engine drain tap.
7. Disconnect the heater returns hose and pull clear of the support assembly.
8. Remove the nuts and bolts securing the heater hose brackets to the support assembly.
9. Remove the two nuts and washers from the R.H. support bracket.
10. Remove the remaining nut and washer from the L.H. support bracket.
11. Withdraw the hood support bracket upwards, feeding the remaining pipework and hoses between the two support legs.

Refitment

12. Reverse procedures 1 to 11, except:
 - (a) Tighten the hood support bracket nuts to a torque of 27 Nm (20 lbf ft).
 - (b) Refill the cooling system, ensuring that the engine drain tap is closed.



HOOD SUPPORT (REAR)

**Removal and Refitment
(MF 560, 565, 575 and 590 tractors)**

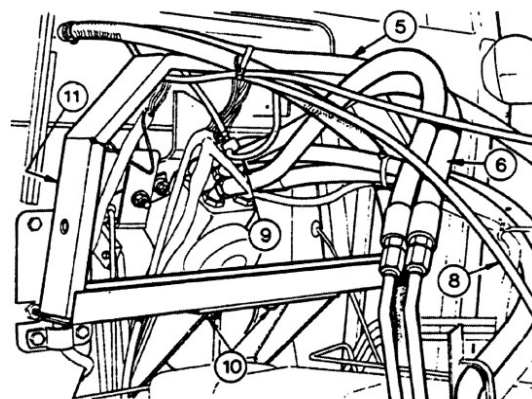
2A—10—07

Removal

1. Remove the hood, operation 2A—02—02.
2. Remove the front grille, operation 2A—04—03.
3. Disconnect the battery.
4. Drain the cooling system by opening the engine drain tap.
5. Disconnect the two heater hoses.
6. Disconnect the four power steering hoses.
7. Disconnect the bulkhead electrical connector plugs.
8. Disconnect the tachometer cable from the engine.
9. Disconnect the windscreen washer pipes.
10. Remove the two hood support bracket bolts.
11. Remove the hood support assembly.

Refitment

12. Reverse procedures 1 to 11, except:
 - (a) Tighten the hood support bolts to a torque of 27 Nm (20 lbf ft).
 - (b) Refill the cooling system, ensuring that the engine drain tap is closed.
 - (c) Refill and bleed the steering system, Part 7B.



VISIBLE-RESULTS

2A-08

SHEET METAL

BATTERY SUPPORT TRAY

Removal and Refitment

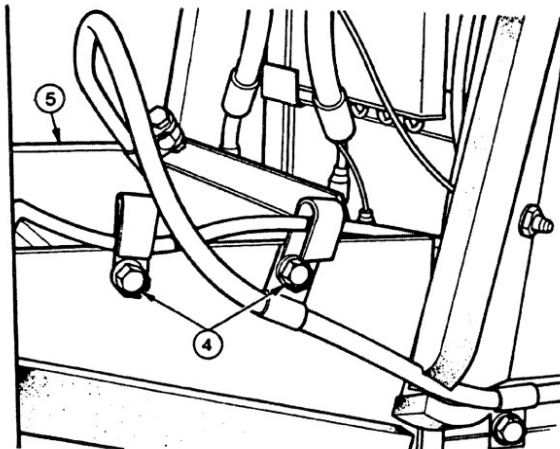
2A-11-08

Removal

1. Remove both front side panels, operation 2A-01-02.
2. Remove the front grille, operation 2A-04-03.
3. Remove the battery, Part 9A.
4. Remove the four bolts securing the battery tray; one bolt secures the battery earth strap and on MF 565, 575 and 590 tractors one bolt secures the positive cable fixing clip.
5. Lift out the battery support tray.

Refitment

6. Reverse procedures 1 to 5, except:
 - (a) The battery tray is positioned with the lip to the rear.
 - (b) MF 550 and 560 tractors, fit the negative (earth) cable to the front left hand bolt.
 - (c) MF 565, 575 and 590 tractors, fit the negative (earth) cable to the front right hand bolt and fit the positive (starter motor) cable fixing clip to the rear left hand bolt.



REAR NUMBER PLATE ASSEMBLY

Removal and Refitment

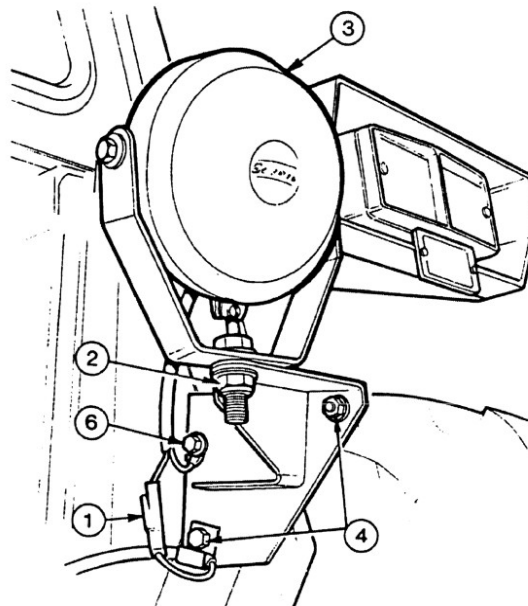
2A-12-08

Removal

1. Disconnect the number plate lamp wiring connector.
2. MF 550 and 560 tractors, remove the two screws and nuts securing the number plate assembly.
3. MF 565, 575 and 590 tractors, remove the four screws and nuts securing the number plate assembly.
4. Remove the rear number plate assembly.

Refitment

5. Reverse procedures 1 to 4.



PLOUGH LAMP BRACKET

Removal and Refitment

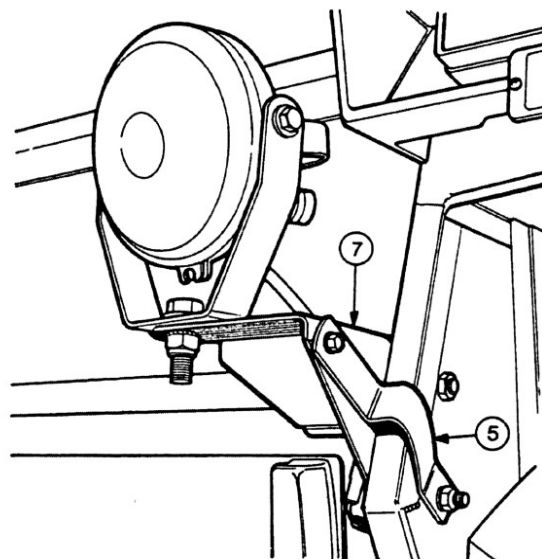
2A-13-08

Removal

1. Disconnect the plough lamp wiring connector.
2. Remove the nut, bolt and washers.
3. Remove the plough lamp.
4. Remove the two nuts and bolts.
5. Remove the bracket support strap.
6. Remove the bolt.
7. Remove the plough lamp bracket.

Refitment

8. Reverse procedures 1 to 7, except:
 - (a) Connect the lamp earth wire to the upper bolt on the bracket.



REAR SHEET METAL

**REAR CENTRE PANEL
Removal and Refitment
(MF 550 and 560 tractors)**

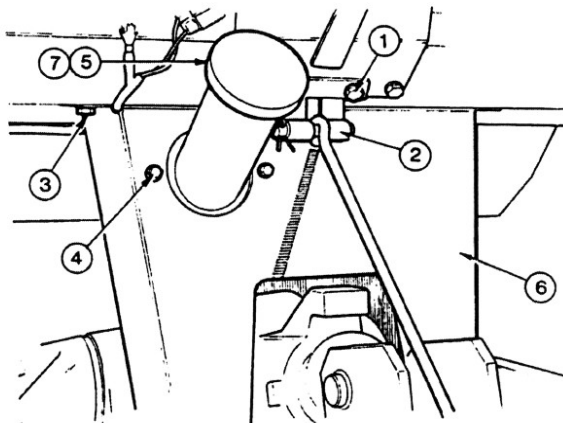
2A-14-09

Removal

1. Remove the two bolts.
2. Remove the top link support bracket assembly.
3. Remove the two panel retaining bolts.
4. Remove the two fuel pipe retaining bolts.
5. Remove the fuel cap.
6. Manoeuvre the centre panel over the fuel pipe and lift clear.
7. Refit the fuel cap.

Refitment

8. Reverse procedures 1 to 7, except:
 - (a) Tighten the centre panel retaining bolts to a torque of 11 Nm (8 lbf ft).



**REAR CENTRE PANEL
Removal and Refitment
(MF 565, 575 and 590 tractors)**

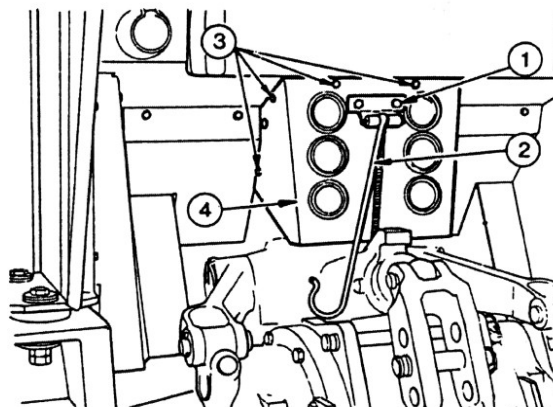
2A-15-09

Removal

1. Remove the two bolts.
2. Remove the top link support bracket assembly.
3. Remove the eight centre panel retaining bolts.
4. Remove the centre panel.

Refitment

5. Reverse procedures 1 to 4, except:
 - (a) Tighten the centre panel retaining bolts to a torque of 11 Nm (8 lbf ft).



**L.H. REAR TRIM PANEL
Removal and Refitment
(MF 550 and 560 tractors)**

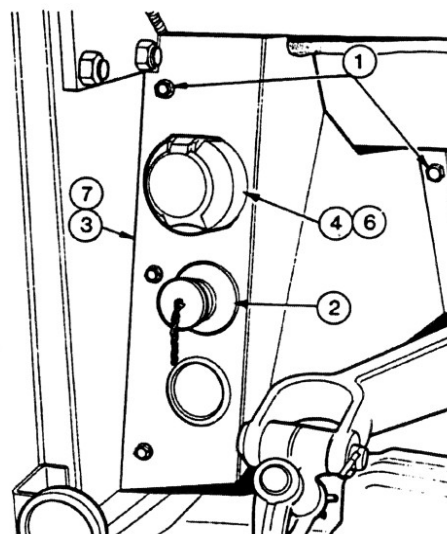
2A-16-09

Removal

1. Remove the five bolts retaining the L.H. trim panel.
2. Unscrew the trailer tipping pipe and trailer brake valve connectors (if fitted).
3. Manoeuvre the panel to gain access to the rear of the trailer plug socket.
4. Remove the trailer plug socket screws and nuts.
5. Disconnect and label the trailer plug wiring.
6. Remove the trailer plug socket.
7. Remove the L.H. trim panel.

Refitment

8. Reverse procedures 1 to 7, except:
 - (a) Tighten the panel retaining bolts to a torque of 20 Nm (15 lbf ft).



VISIBLE-RESULTS

2A—10

SHEET METAL

R.H. REAR TRIM PANEL

Removal and Refitment
(MF 550 and 560 tractors)

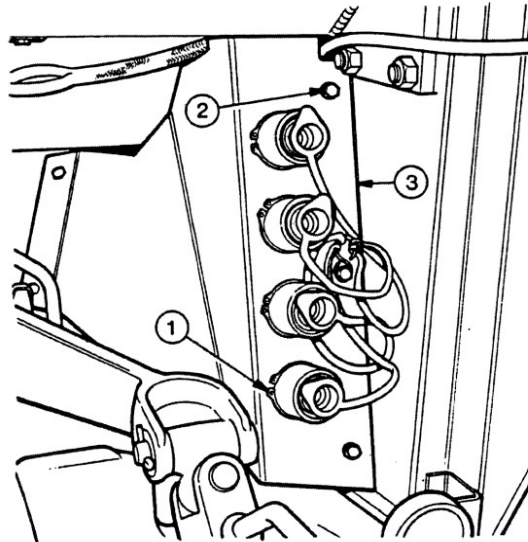
2A—17—10

Removal

1. Remove the spool valve circlips (if fitted).
2. Remove the five bolts retaining the R.H. trim panel.
3. Remove the R.H. trim panel.

Refitment

4. Reverse procedures 1 to 3, except:
(a) Tighten the panel retaining bolts to a torque of 20 Nm (15 lbf ft).



L.H. and R.H. REAR TRIM PANELS

Removal and Refitment
(MF 565, 575 and 590 tractors)

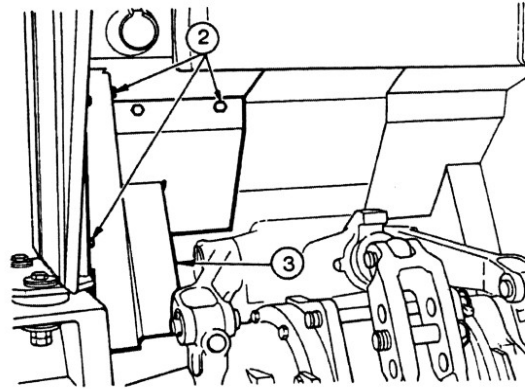
2A—18—10

Removal

1. Remove the rear centre panel, operation 2A—15—09.
2. Remove the five bolts retaining the L.H. or R.H. trim panel.
3. Remove the L.H. or R.H. trim panel.

Refitment.

4. Reverse procedures 1 to 3, except:
(a) Tighten the panel retaining bolts to a torque of 11 Nm (8 lbf ft).



REAR FILLER PANEL

Removal and Refitment
(MF 550 and 560 tractors)

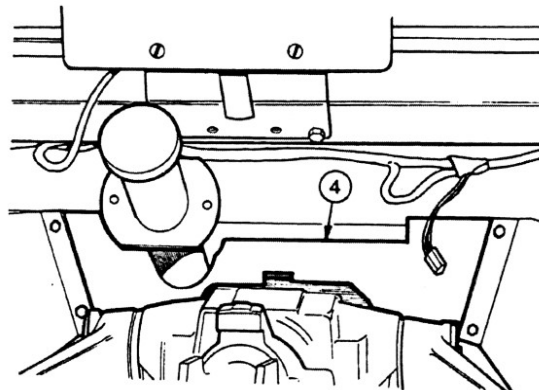
2A—19—10

Removal

1. Remove the rear centre panel, operation 2A—14—09.
2. Remove the L.H. rear trim panel, operation 2A—16—09.
3. Remove the R.H. rear trim panel, operation 2A—17—10.
4. Remove the rear filler panel.

Refitment

5. Reverse procedures 1 to 4.



REAR UPPER PANEL

Removal and Refitment 2A-20-11
(MF 565, 575 and 590 tractors)

Removal

1. Remove the rear number plate assembly, operation 2A-12-08.
2. Remove the number plate wiring grommets and push the wiring and connectors through the appropriate panel holes.
3. Remove the rear centre panel, operation 2A-15-09.
4. Remove the L.H. and R.H. rear trim panels, operation 2A-18-10.
5. Disconnect the plough lamp wiring connector and feed the wiring, connector and grommet through the panel hole.
6. Loosen the upper fuel hose clip.
7. Remove the three bolts.
8. Remove the fuel pipe.
9. Remove the trailer plug socket screws and nuts.
10. Disconnect and label the trailer plug wiring
11. Remove the trailer plug socket.
12. Remove the three bolts securing the upper section of the upper panel to the rear window assembly.
13. Remove the rear upper panel.

Refitment

14. Reverse procedures 1 to 13, except:
 - (a) Tighten the retaining bolts to a torque of 11 Nm (8 lbf ft).

REAR SPOOL VALVE PLATE

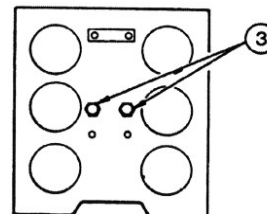
Removal and Refitment 2A-21-11
(MF 565, 575 and 590 tractors)

Removal

1. Remove the rear centre panel, operation 2A-15-09.
2. Remove the spool valve circlips (if fitted).
3. Remove the two bolts.
4. Remove the spool valve plate.

Refitment

5. Reverse procedures 1 to 4, except:
 - (a) Tighten the bolts to a torque of 20 Nm (15 lbf ft).



REAR SPOOL VALVE PLATE BRACKET

Removal and Refitment 2A-22-11
(MF 565, 575 and 590 tractors)

Removal

1. Remove the rear spool valve plate, operation 2A-21-11.
2. Remove the four bolts securing the bracket.
3. Remove the spool valve plate bracket.

Refitment

4. Reverse procedures 1 to 3, except:
 - (a) Tighten the bolts to a torque of 20 Nm (15 lbf ft).

VISIBLE-RESULTS

2A—12

SHEET METAL

Part 2 — Section B

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VISIBLE-RESULTS

2B—02

CAB AND FITTINGS

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GENERAL

The cab is a welded all steel fabrication with an integral safety frame of square section steel tube. It is lined throughout with anticoustic vinyl faced foam which reduces the interior noise level to meet new legislation.

A laminated rubber and foam floor mat is also fitted. The cab is glazed with toughened safety glass. The right hand side window and rear screen are both hinged to permit opening. A hinged lower window is fitted below the rear view screen to give convenient access to the implement controls.

The door (a two-door version is supplied for certain market requirements) is lockable and a latch is fitted to retain the door in the open position.

The cab is fitted with a comprehensive manually

controlled air ventilation/heating system. Filtered air entering the cab roof from the rear passes to twin blowers in the roof mounted plenum chamber assembly.

Here the air is either heated or fed at ambient air temperature to the windscreen or cab interior by means of adjustable vents.

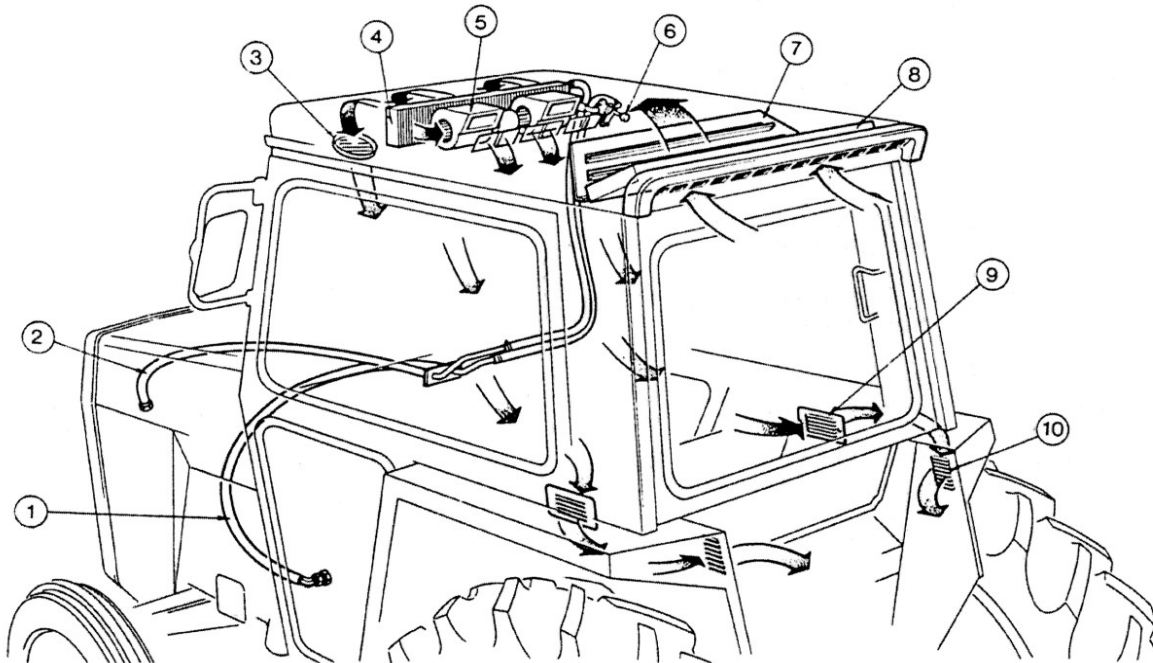
Air recirculation is obtainable by sealing off the rear air intake, whereby the cab interior air is re-cycled using the twin blowers.

A heat exchanger is fitted adjacent to the air blowers and fed by hot water from the engine water pump. The temperature is controlled by a flow valve mounted in the plenum chamber which is operated from within the cab.

VISIBLE-RESULTS

2B-04

CAB AND FITTINGS



KEY TO FIGURE 1

- ** 1. Hose—water feed
- 2. Hose—water return
- 3. Windscreen demister duct
- 4. Heat exchanger
- 5. Blower unit
- 6. Water flow control valve
- 7. Recirculation flap
- 8. Air filter
- 9. Air outlet grille—cab interior
- 10. Air outlet grille—cab exterior

DOOR

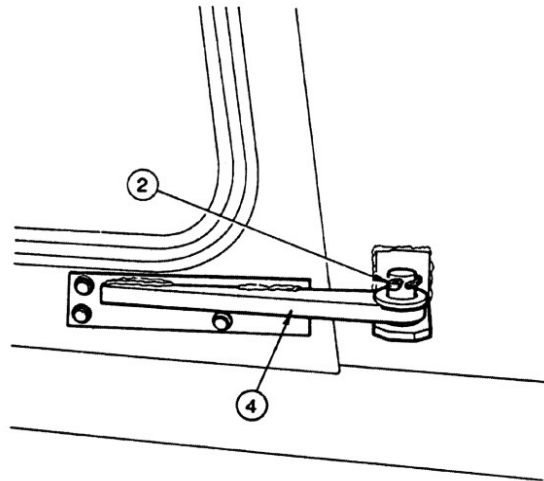
Removal and Replacement 2B-01-05

Removal

1. Remove the two bolts securing the door catch bracket.
2. Remove the two split pins and washers from the door hinges.
3. Lift the door and remove.
4. Remove the door hinge brackets.

Replacement

4. Reverse procedures 1-3 except:
 - (a) Align the new door having the hinge bracket to door bolts finger tight only. Check that the top edge is parallel with the cab roof.

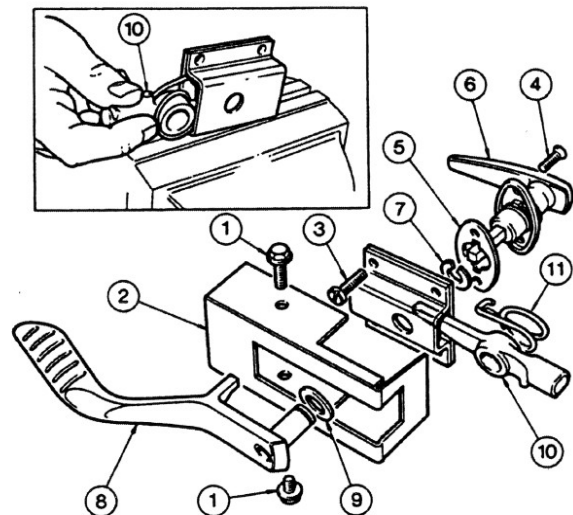


DOOR HANDLES

Removal and Replacement 2B-02-05

Removal

1. Remove the two bolts securing the inner cover plate.
2. Withdraw the cover plate.
3. Remove the four screws retaining the striker housing.
4. Remove the two screws securing the exterior door handle.
5. Remove the gasket.
6. Withdraw the exterior door handle.
7. With the striker housing secured in a vice remove the circlip retaining the interior door handle.
8. Withdraw the interior door handle.
9. Remove the fibre washer.
10. With the striker housing in a vice withdraw the striker.
11. Remove the return spring.



Replacement

12. Reverse procedures 1-11.

VISIBLE-RESULTS

2B—06

CAB AND FITTINGS

SEAT ASSEMBLY

Removal and Refitment

2B—03—06

Removal

1. Disengage the seat runner lock by operating the lever.
2. Maintain pressure on the lever, withdraw the seat assembly forwards until it is clear of the seat runners.
3. Remove the seat assembly from the cab.

Refitment

4. Reverse procedures 1-3.

SEAT HYDRAULIC SHOCK ABSORBER (Type XL and XH)

Removal and Replacement

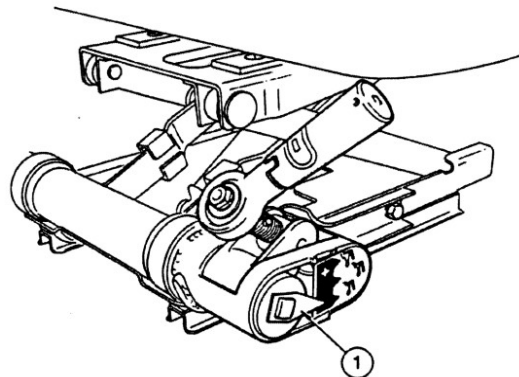
2B—04—06

Removal

1. Remove the seat assembly operation 2B—03—06.
WARNING: Before proceeding release the seat spring tension by operating the ratchet to bring the indicator to position '—'.
2. Remove the circlips and clevis pin securing the shock absorber front pivot.
3. Invert the assembly and remove the circlip and clevis pin from rear pivot.
4. Remove the shock absorber.

Replacement

5. Reverse procedures 1-4.



**SEAT WEIGHT ADJUSTING MECHANISM
(Type XL and XH)**

Servicing 2B-05-07

Disassembly

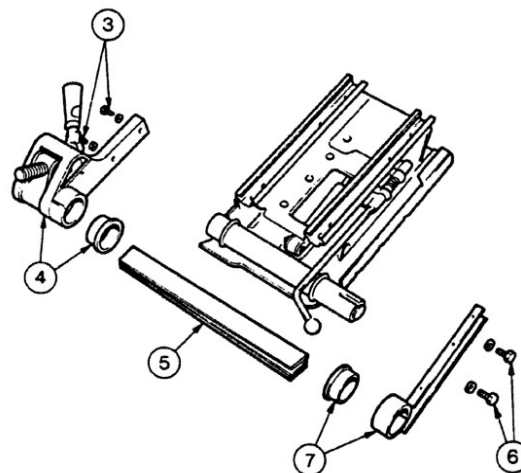
1. Remove the seat assembly, operation 2B-03-06.
2. Remove the four screws securing the seat pan and remove the pan.

WARNING: Before proceeding release the seat spring tension by operating the ratchet to bring the indicator to position '—', operation 2B-04-06.

3. Remove the two screws and washers (three on 'XH' units) securing the ratchet assembly bracket to the frame.
4. Fully depress the frame assembly and remove the ratchet and sintered bronze bearing.
5. Remove the torsion bar.
6. Remove the two screws and washers (three on 'XH' units) securing the bearing support bracket.
7. Remove the bracket and sintered bearing.

Reassembly

8. Check condition of components and replace as necessary.
9. Reverse procedures 1-7.



FLOOR MAT—(MF 590-575 Tractors)

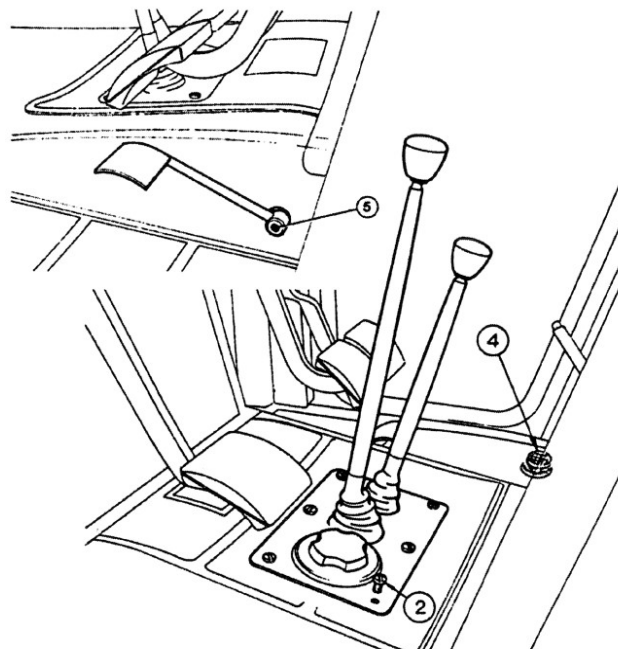
Removal and Refitment 2B-06-07

Removal

1. Remove the floor mat kick plate.
2. Remove the gearbox filler plug cover plate by removing the six securing screws.
3. From underneath the cab remove the circlip retaining the differential lock pedal gaiter support.
4. Withdraw the gaiter and support.
5. Slacken off the allen screw and remove the foot throttle pedal.
6. Remove the floor mat from the cab.

Refitment

7. Reverse procedures 1-6.



VISIBLE-RESULTS

2B-08

CAB AND FITTINGS

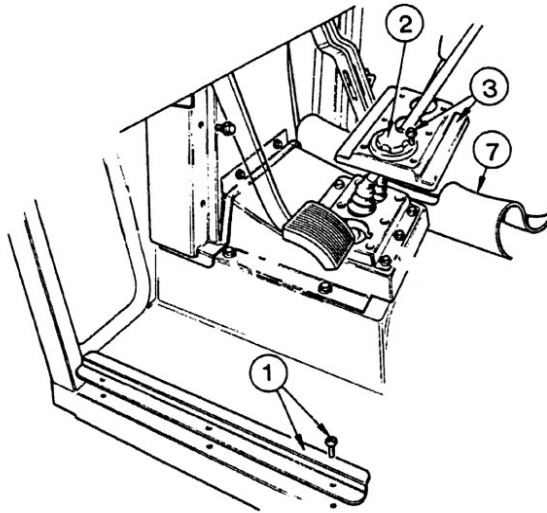
FLOOR MAT—(MF 565 Tractor) 2B-07-08 Removal and Refitment

Removal

1. Remove the floor mat kick plate.
2. Remove the gearbox filler plug access cover.
3. Remove the six bolts and remove the trim panel.
4. From underneath the cab remove the circlip retaining the differential lock pedal gaiter support.
5. Withdraw the gaiter and support.
6. Remove the foot throttle pedal by slackening the securing allen screw.
7. Remove the floor mat from the cab.

Refitment

8. Reverse procedures 1-7.



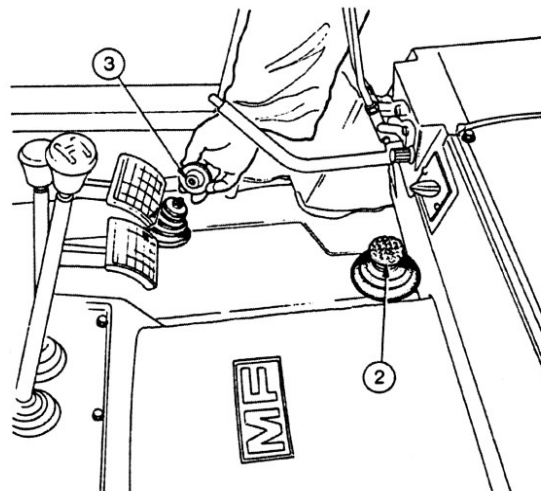
FLOOR MAT—(MF 550 Tractor) 2B-08-08 Removal and Refitment

Removal

1. Remove the floor mat kick plate.
2. Unscrew the differential lock pedal and remove.
3. Release the locknut and unscrew the foot throttle pedal.
4. From underneath the cab remove the two circlips retaining the throttle and differential lock pedal gaiter supports and remove.
5. Remove the floor mat from the cab.

Replacement

6. Reverse procedures 1-5.



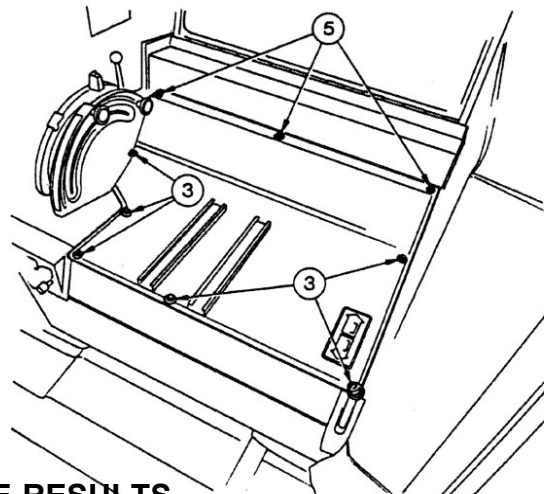
SEAT FLOOR/INSPECTION PANEL 2B-09-08 Removal and Refitment

Removal

1. Remove the seat, operation 2B-03-06.
2. Remove six of the floor securing bolts.
3. Remove the two rear sheet metal cover panels, Part 2A.
4. Remove the three remaining bolts and securing nuts, from beneath the floor.
5. Lift the floor panel and remove from the cab.

Refitment

6. Clean the joint faces between the panel and the floor and apply recommended sealing compound (D).
7. Reverse procedures 1-6.



**FLOOR INSPECTION PANEL
(MF 590-575 Tractors)**

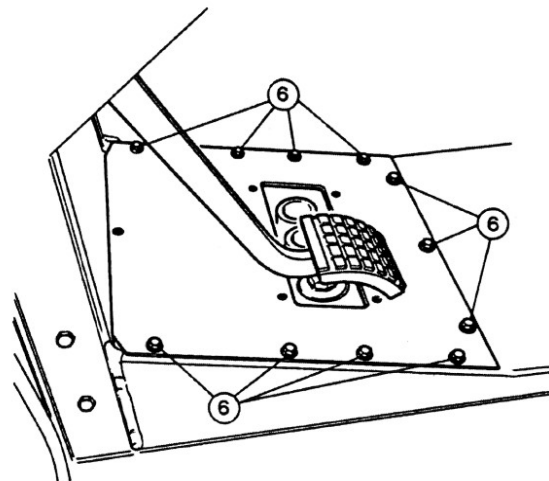
Removal and Refitment 2B-10-09

Removal

1. Remove the bulkhead inspection panel, operation 2B-13-10.
2. Remove L.H. floor mat kick plate.
3. Remove the gearbox filler plug cover plate by removing the six screws.
4. Remove the gear levers, Part 5B.
5. Lift the floor mat to gain access to the floor inspection panel.
6. Remove the retaining bolts and lift out the panel.

Refitment

7. Clean the joint face between the panel and the cab floor and apply recommended sealing compound (D) to both joint faces.
8. Reverse procedures 1-6.



**FRONT FLOOR INSPECTION PANEL
(MF 565 Tractor)**

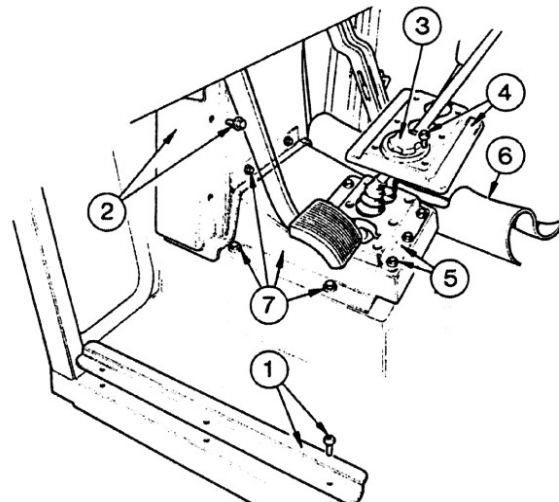
Removal and Refitment 2B-11-09

Removal

1. Remove the floor mat kick plate.
2. Remove the four bolts and withdraw the bulkhead trim panel.
3. Remove the gearbox filler plug access cover.
4. Remove the six bolts and remove the trim panel.
5. Remove the six bolts and remove the gear lever dust cover.
6. Lift the floor mat clear to the right hand side of the cab.
7. Remove the six bolts securing the floor panel and remove.

Refitment

8. Clean the joint faces between the panel and the cab floor. Apply recommended sealing compound (D) to both faces.
9. Reverse procedures 1-7.



**BULKHEAD INSPECTION PANEL
(MF 565 Tractor)**

Removal and Refitment

Removal 2B-12-09

1. Remove the front floor inspection panel, operation 2B-11-09.
2. Remove the two remaining securing bolts and withdraw the bulkhead panel.

Refitment

3. Clean the joint faces between the panel and the bulkhead. Apply a suitable sealing compound to both faces.
4. Reverse procedures 1-2.

VISIBLE-RESULTS

2B—10

CAB AND FITTINGS

BULKHEAD INSPECTION PANEL (MF 590, 575 Tractors)

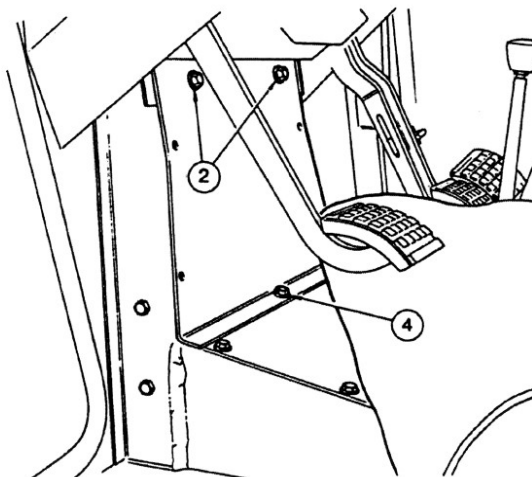
Removal and Refitment 2B—13—10

Removal

1. Remove the bulkhead trim panel.
2. Remove the two retaining bolts.
3. Loosen the floor mat kick plate.
4. Pull back the floor mat and remove remaining securing bolt.
5. Withdraw the panel from the cab.

Refitment

6. Clean the joint faces between the panel and the bulkhead. Apply recommended sealing compound (D) to both faces.
7. Reverse procedures 1-5.



INSPECTION PANEL—TRANSMISSION SPACER—(MF 550 Tractor)

Removal and Refitment 2B—14—10

Removal

1. Remove the floor mat. See 2B—08—08.
2. Remove the securing bolts and remove the inspection panel.
3. Remove the sealing compound and clean the joint faces.

Refitment

4. Apply recommended sealing compound (D) to both joint faces.
5. Reverse procedures 1-3.

INSPECTION PANEL—TRANSMISSION SPACER—(MF 565 Tractor)

Removal and Refitment 2B—15—10

Removal

1. Remove the floor mat kick plate.
2. Remove the gearbox filler plug access cover.
3. Remove the six screws and remove the trim panel.
4. Pull back the floor mat to clear the inspection panel.
5. Remove the securing bolts and remove the inspection panel.
6. Remove the sealing compound and clean the joint faces.

Refitment

7. Apply recommended sealing compound (D) to both joint faces.
8. Reverse procedures 1-6.

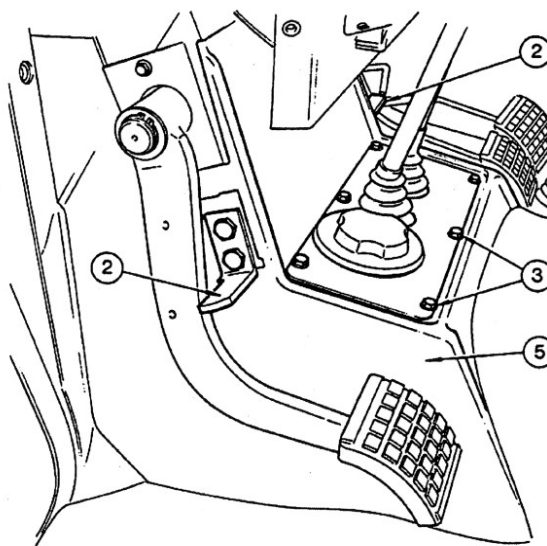
BULKHEAD TRIM PANEL—(MF 550 Tractor)
Removal and Refitment 2B-16-11

Removal

1. Remove the instrument panel cowl, operation 2B-27-16.
2. Remove the clutch and brake pedal stops.
3. Remove the gearbox filler plug mounting plate by removing the six bolts.
4. Remove the gear levers, Part 5B.
5. Withdraw the trim panel from the cab.

Refitment

Reverse procedures 1-5.



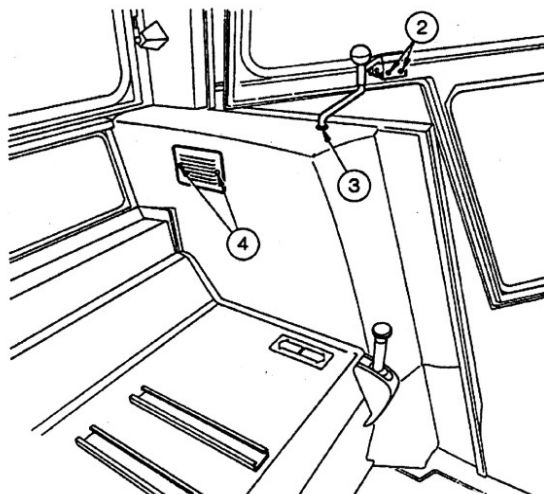
INTERIOR WHEEL ARCH TRIM—L.H.
Removal and Replacement 2B-17-11

Removal

1. Remove seat assembly, operation 2B-03-06.
2. Disconnect the door catch by removing the two retaining bolts.
3. Remove the door catch assembly by unscrewing the assembly from the threaded boss located in the wheel arch.
4. Remove the two screws securing the air outlet grill and withdraw the grill.
5. Peel the foam backed trim away from the wheel arch.
6. Remove all traces of adhesive and foam using a scraper.

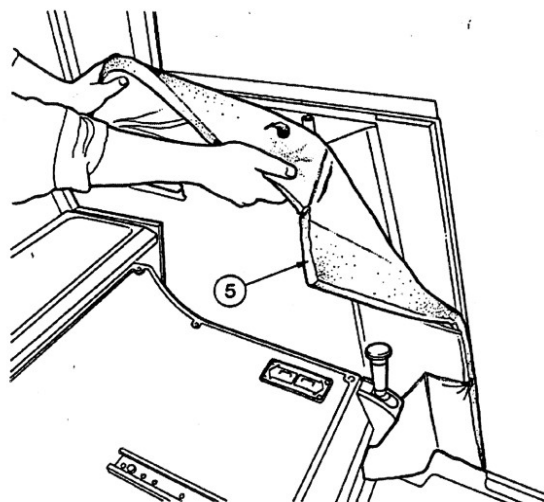
Replacement

7. Using recommended contact adhesive (E) lay the new trim into position.
8. Reverse procedures 1-6.



INTERIOR WHEEL ARCH TRIM—R.H.
2B-18-11

1. Remove seat assembly.
2. Read as for operation 2B-17-11 but omit procedures 2 and 3.



VISIBLE-RESULTS

2B—12

CAB AND FITTINGS

REAR WINDOW ASSEMBLY

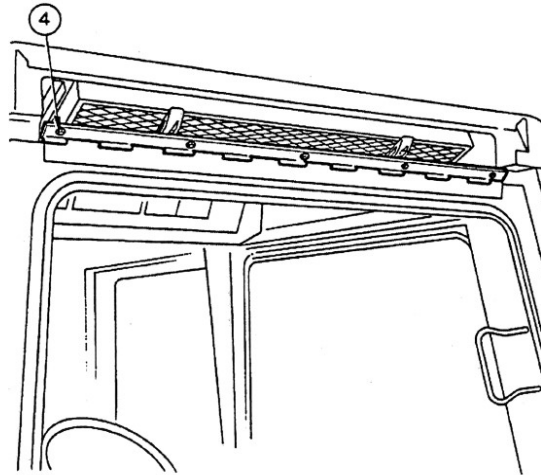
Removal and Refitment 2B—19—12

Removal

1. Unscrew the two knurled screws and lift off the roof filter cover.
2. Raise and support the window.
3. Disconnect the window struts by removing the retaining nuts.
4. Close window and remove the five bolts and nuts securing the window assembly.
5. Withdraw the window assembly from the cab.

Refitment

6. Reverse procedures 1-5.



REAR WINDOW STRUTS

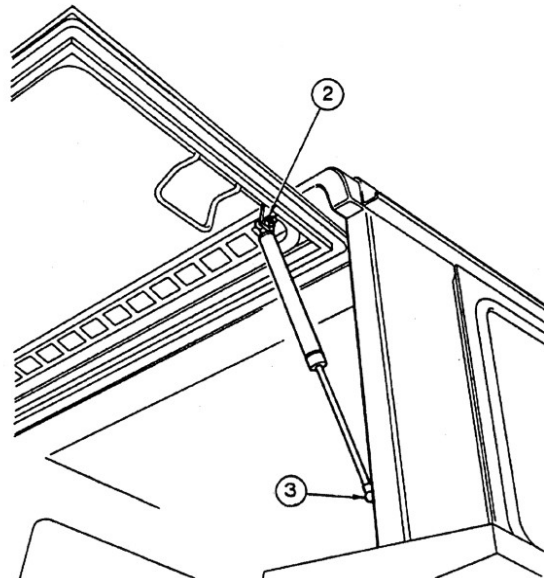
Removal and Replacement 2B—20—12

Removal

1. Raise the window. If replacing both struts fit a suitable support.
2. Disconnect the strut from the window frame by removing the securing nut.
3. Unscrew the lower ball connector from the cab and remove the strut assembly.
4. If necessary repeat operations 1-3 for the other strut.

Replacement

5. Reverse procedures 1-4.



REAR LOWER WINDOW ASSEMBLY

Removal and Refitment 2B—21—12

1. Remove the number plate, Part 2A.
2. Remove the five bolts securing the rear lower window to the cross-member.
3. Remove the window assembly.

Refitment

4. Reverse procedures 1-3.

SIDE WINDOW ASSEMBLY

Removal and Refitment 2B—22—12

Removal

1. Remove the bolts securing the window catch to the window frame.
2. Remove the five bolts securing the window assembly to the cab.
3. Remove the window assembly.

Refitment

4. Reverse procedures 1-3.

SIDE WINDOW CATCH

Removal and Refitment

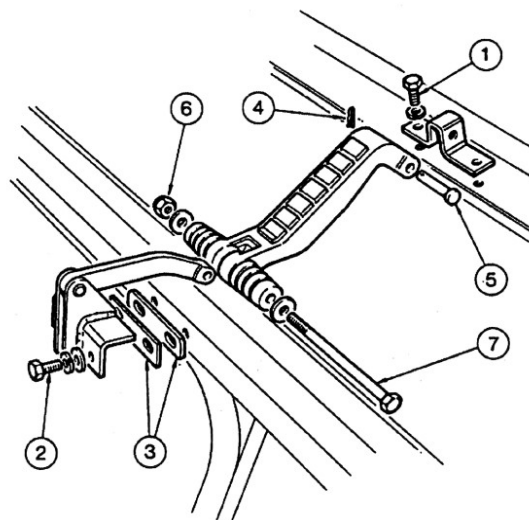
2B-23-13

Removal

1. Remove the two bolts and washers securing the catch to the window frame.
2. Remove the two bolts and washers securing the catch to the cab.
3. Remove the catch assembly.
4. Remove the 'R' clip.
5. Withdraw the clevis pin.
6. Remove retaining nut.
7. Withdraw the hinge bolt.

Refitment

8. Reverse procedures 4-7.
9. Refit the catch to the cab but do not tighten the bolts.
10. Refit the catch to the window frame.
11. Fully tighten the catch to cab securing bolts.



WINDOW GLASS

Removal and Replacement

2B-24-13

Special Tools: Locking strip replacer, Pt. No. 468 and adaptor 18G 468A.

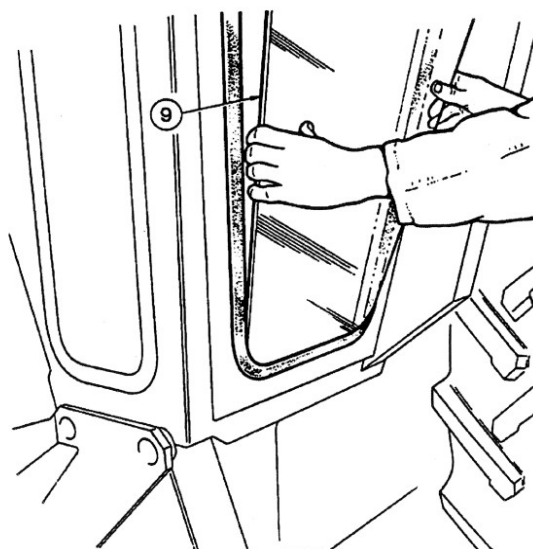
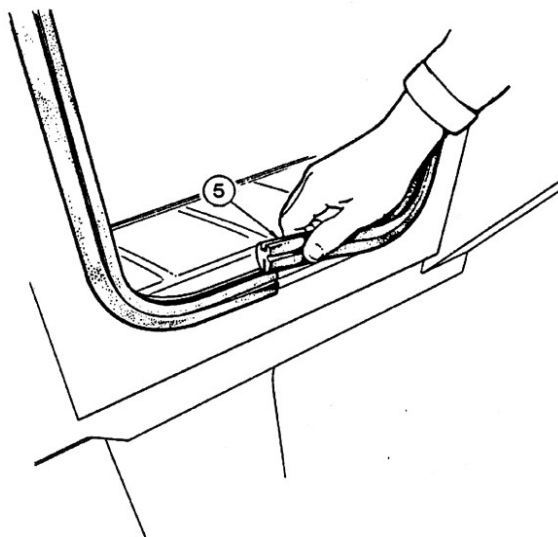
NOTE: the following procedure is used for all the window glass with the exception of the rear lower window.

Removal

1. To remove the glass if defective, scratched, chipped etc., prise out the locking strip at the butt joint and remove completely from the rubber moulding. (If the glass has shattered remove all broken pieces).
2. With a firm pressure at one of the bottom corners, press out the screen from the interior of the cab.
3. Remove the rubber moulding and ensure that the cab frame is clean and undamaged.

Replacement

4. Press the glass rubber moulding into the cab frame aperture with the butt joint at the bottom, centre position.
5. With a knife trim off the moulding with a 9,5 mm ($\frac{3}{8}$ in) overlap.
6. Force the overlap into position, producing a neat tight butt joint.
7. Lubricate the screen rubber moulding with a soft soap and water solution, petroleum jelly or a silicone base lubricant to assist replacement of the glass.
8. **WARNING:** Before handling the glass ensure that hands are clean, dry and free of lubricant.
9. Position the new glass into the bottom channel of the rubber moulding.

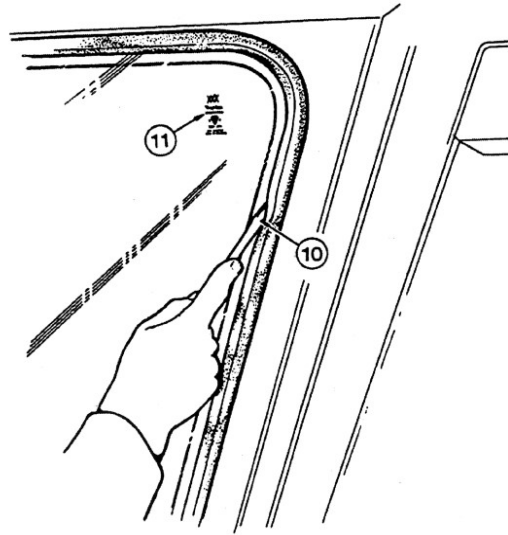


VISIBLE-RESULTS

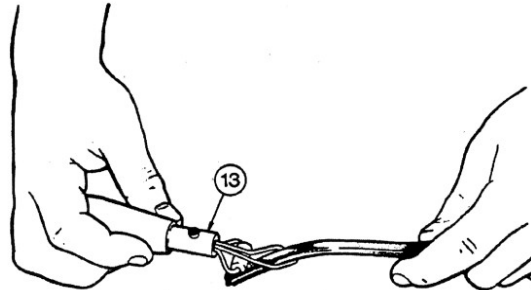
2B—14

CAB AND FITTINGS

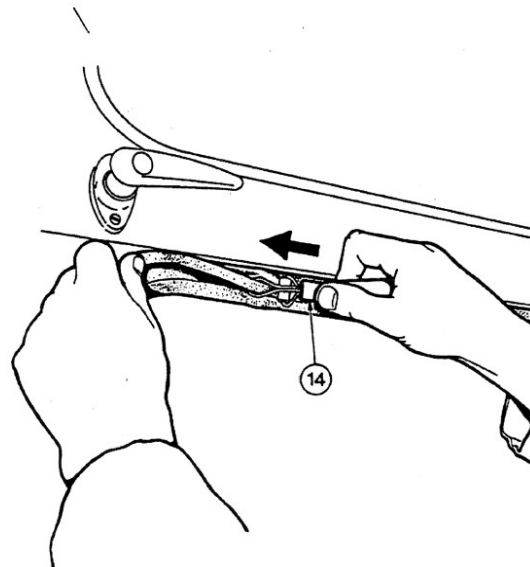
10. Using a smooth edge lever feed the glass into its correct seating in the rubber moulding. Use the lever between the inner edge of the rubber moulding and the glass.
11. NOTE: Replace the glass with the 'TRIPLEX' legend facing the outside of the cab.
12. Continue using the lever from the bottom R.H. corner until the glass is in position.

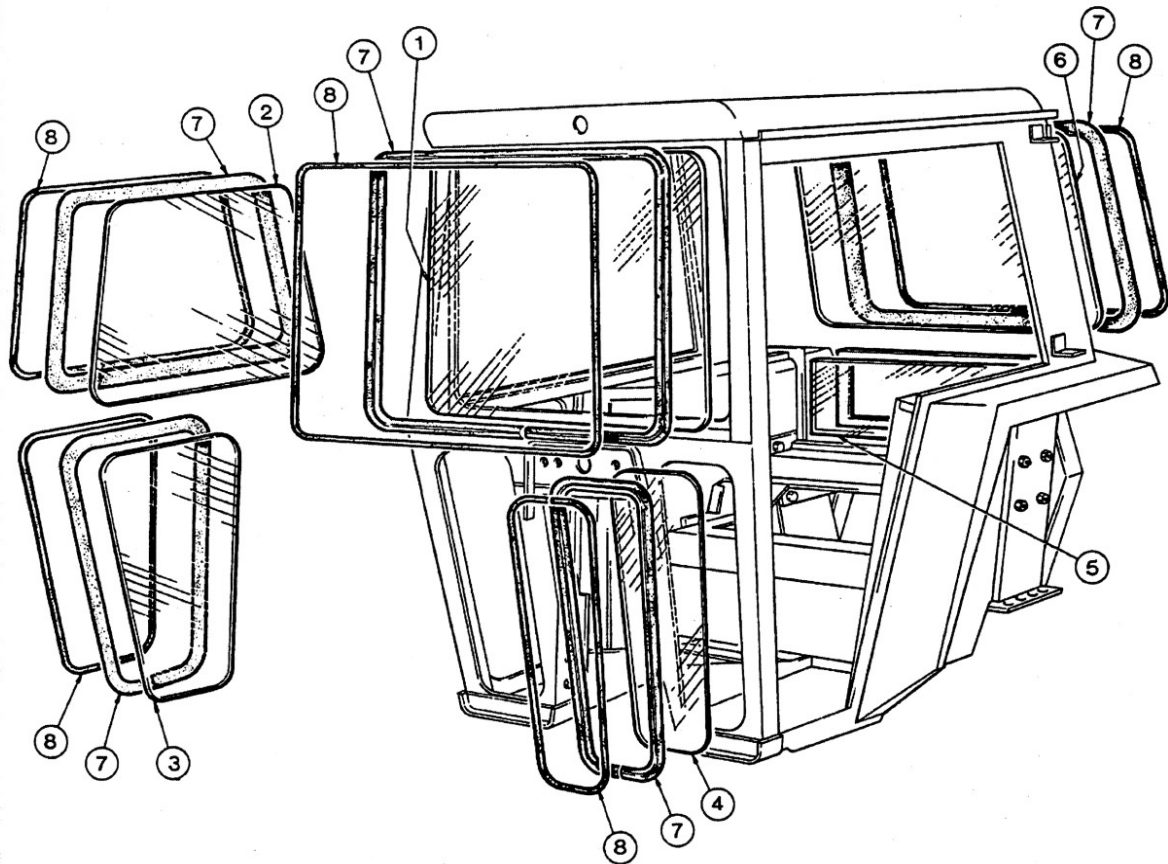


13. Using the lubricant as in procedure (7) smear the locking strip liberally and load it onto the special tool.



14. Using the special tool insert the locking strip into the rubber moulding using a firm pressure. Start at a point opposite the butt joint of the rubber surround. i.e., the top of the frame—centre position.
15. Trim the locking strip with an overlap of 3 mm ($\frac{1}{8}$ in) approx. Force in the overlap producing a neat and tight butt joint.





KEY TO FIGURE 2

- 1 Windscreen glass
- 2 Side window and door glass
- 3 Lower side window and lower door glass
- 4 Bulkhead glass
- 5 Rear lower window glass
- 6 Rear window glass
- 7 Rubber moulding
- 8 Locking strip

VISIBLE-RESULTS

2B—16

CAB AND FITTINGS

REAR LOWER WINDOW GLASS

Removal and Replacement 2B—25—16

Removal

1. Remove all broken glass from the window frame.
2. Scrape off all the sealer and clean the frame.

Replacement

3. Using suitable sealant strip, place it in position onto the window frame as close to the inner edge of the aperture as possible.
4. Place the new glass into position, laying it onto the sealing strip. Place the 'TRIPLEX' legend in the top R.H. corner facing the outside of the cab.
5. Apply a firm even pressure onto the glass until the sealant strip is compressed and has spread to a rectangular section approximately half the original thickness.

DOOR, SIDE WINDOW AND REAR WINDOW SEALS

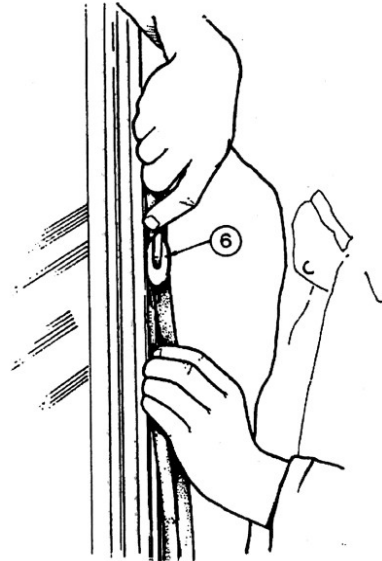
Removal and Replacement 2B—26—16

Special Tools: Wheel Part No. 600-358.

1. Remove the rear window, operation 2B—19—12.
2. Remove the side window, operation 2B—22—12.
3. Remove the rubber seal moulding from the windows and door.

Replacement

4. Ensure the retaining channel is clean and undamaged.
5. Lubricate the channel and the new seal with a soft soap solution, petroleum jelly or silicone base grease.
6. Using Special Tool Pt. No. 600-358 press the seal rubber into position. Position the wheel onto the inner edge of the moulding and using a firm pressure roll the moulding into the channel.
7. Work around the frame in one direction only ensuring a good fit at each corner.
8. Trim the seal approximately 13 mm (0.5 in) beyond the joint.
9. Force in the overlap to obtain a tight butt joint.
10. Reverse procedures 1-2.



INSTRUMENT PANEL COWL

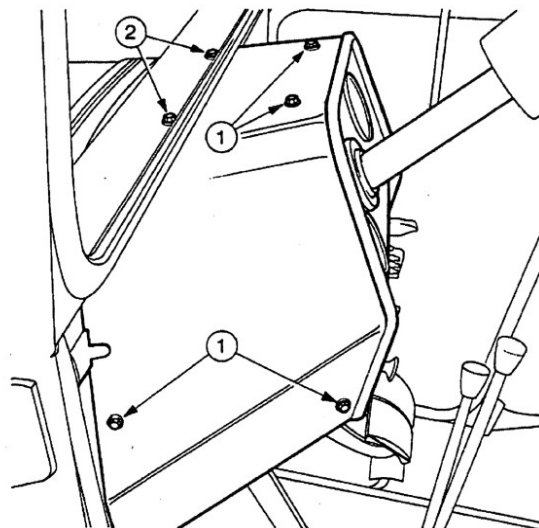
Removal and Refitment 2B—27—16

Removal

1. Remove the six bolts securing the cowl inside the cab.
2. From outside the cab remove the two bolts securing the cowl to the front cross member.
3. Withdraw and remove the cowl from the cab.

Refitment

4. Reverse procedures 1—3.



REAR VIEW MIRROR AND BRACKET

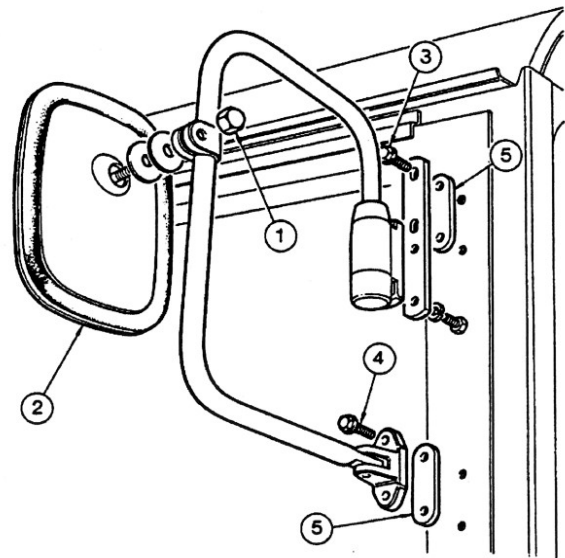
Removal and Refitment 2B-28-17

Removal

1. Remove the domed securing nut.
2. Remove the mirror.
3. Remove the two securing bolts at the upper hinge.
4. Remove the two securing bolts at the lower hinge.
5. Remove the spacers and bracket assembly.

Replacement

6. Reverse procedures 1-5.



ROOF FILTER RETAINER

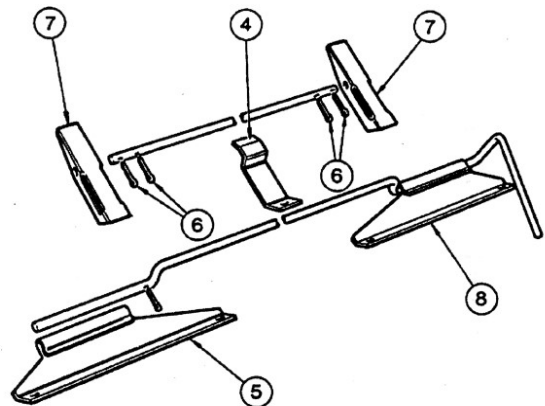
Removal and Refitment 2B-29-17

Removal

1. Remove the rear window, operation 2B-19-12.
2. Remove the filter element.
3. Lift out the retainer assembly.
4. Remove the centre retaining bracket.
5. Remove the L.H. retaining bracket and split pin.
6. Remove the four split pins securing the filter catches and remove the support rod.
7. Remove the filter catches from the support rod.
8. Remove the R.H. main retaining bracket.

Refitment

9. Reverse procedures 1-8.

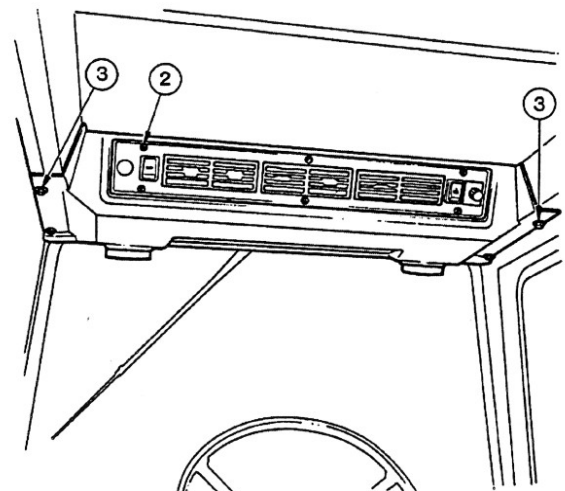


REAR HEADLINER

Removal and Refitment 2B-30-17

Removal

1. Release the interior light unit by removing the two retaining screws.
2. Release the air flow vent unit by removing the eight retaining screws.
3. Remove the two rearmost bolts from the plenum chamber cover panel.
4. Remove the ten bolts securing the headliner.



VISIBLE-RESULTS

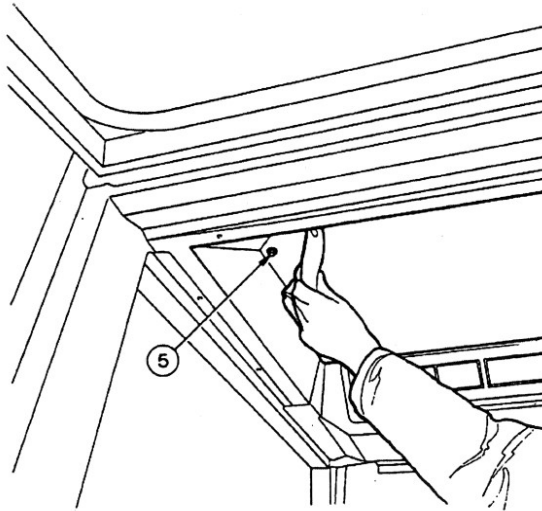
2B-18

CAB AND FITTINGS

5. Pull back each corner of the foam insulating panel to reveal the four remaining securing bolts and remove the bolts.
6. With the aid of a second operator lower the headliner slowly from the rear of the cab and thread the interior light unit out through its aperture.
7. Disengage the front edge of the rear headliner from the front headliner.
8. Remove the headliner from the cab.

Refitment

9. Reverse procedures 1-8.



RECIRCULATION AIR FLAP CONTROL

Removal and Replacement

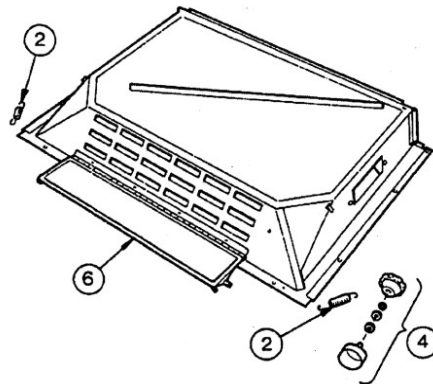
2B-31-18

Removal

1. Remove the rear headliner operation 2B-30-17.
2. Remove the two return springs.
3. Slacken the grub screw securing the control knob.
4. Remove the control knob, two nylon washers, spring washer and the cam.
5. Check all components for wear.

Replacement

6. Check the condition of the foam air sealing on the air flap. If damaged remove the strip completely from the flap and ensure that the sealing face is clean.
7. Remove backing paper from the new self-adhesive strip and place into position using a firm pressure.
8. Reverse procedures 1-5.



FRONT HEADLINER

Removal and Refitment

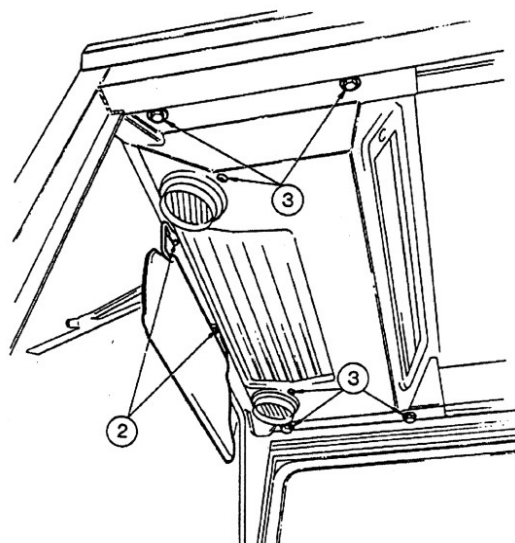
25-32-18

Removal

1. Remove the vent panel, operation 2B-33-19.
2. Remove the two bolts securing the sun visor and remove the visor.
3. Remove the four bolts and four screws securing the panel.
4. Disengage the front headliner from the rear headliner.
5. Remove the headliner.

Refitment

6. Reverse procedures 1-5.



AIR FLOW VENT PANEL

Removal and Refitment

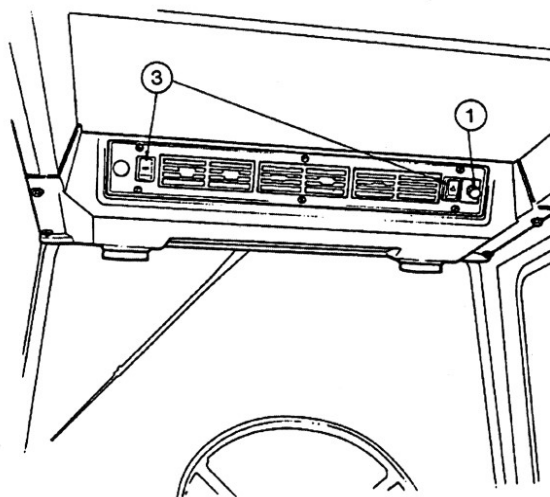
2B-33-19

Removal

1. Slacken the grub screw and withdraw the heater control knob.
2. Remove the six securing screws and withdraw the panel.
3. Disconnect the cables from the blower and wiper switches.

Refitment

Reverse procedures 1-3.
See Part 9 for correct position for re-wiring the wiper and blower switches.



PLENUM CHAMBER

Removal and Refitment

2B-34-19

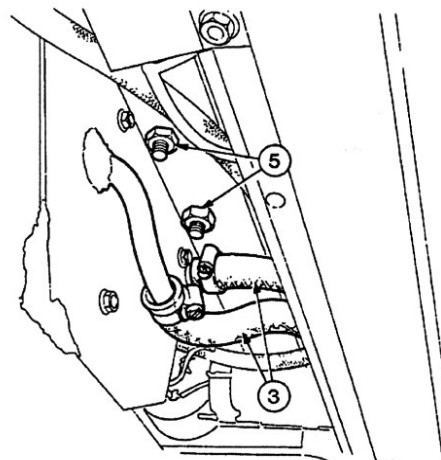
Removal

1. Remove the front headliner, operation 2B-32-18.
2. Remove the radiator cap and drain the cooling system via the drain taps on the radiator and cylinder block.
3. Disconnect the supply and return heater hoses.
4. Pull the wiper and blower switch wires through the grommet in the plenum chamber.
5. Remove the four nuts and washers securing the plenum chamber assembly to the roof.

CAUTION: The Plenum Chamber assembly is heavy. Exercise care when lowering the assembly from the roof. Use of a second operator is recommended.

Refitment

6. Reverse procedures 1-5.



BLOWER ASSEMBLY

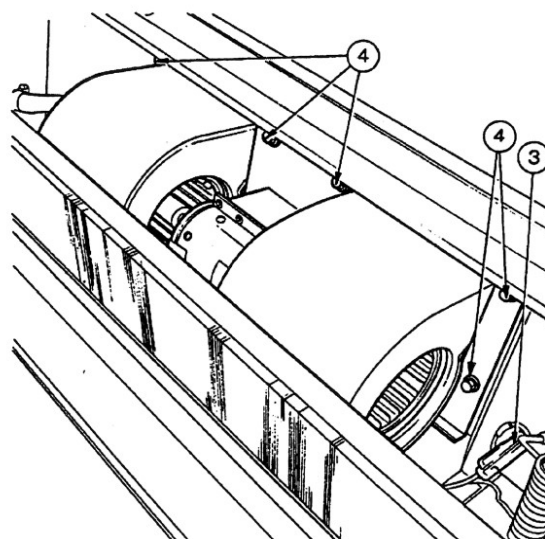
Removal and Replacement

2B-35-19

1. Remove the plenum chamber, operation 2B-34-19.
2. Remove the heat exchanger, operation 2B-39-22.
3. Disconnect the blower motor lead.
4. Remove the six bolts securing the blower and motor assembly to the centre panel.

Replacement

Reverse procedures 1-4.



VISIBLE-RESULTS

2B—20

CAB AND FITTINGS

BLOWER IMPELLORS

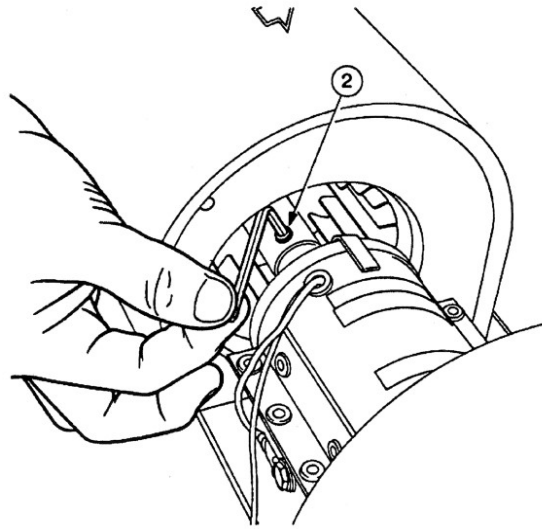
Removal and Replacement 2B—36—20

Removal

1. Remove the motor and blower assembly, operation 2B—35—19.
2. Slacken the two grub screws and withdraw the impellers.

Replacement

3. Reverse procedures 1-2, except:
NOTE: Ensure adequate clearance between the impellor and the casing.



HEATER CONTROL VALVE

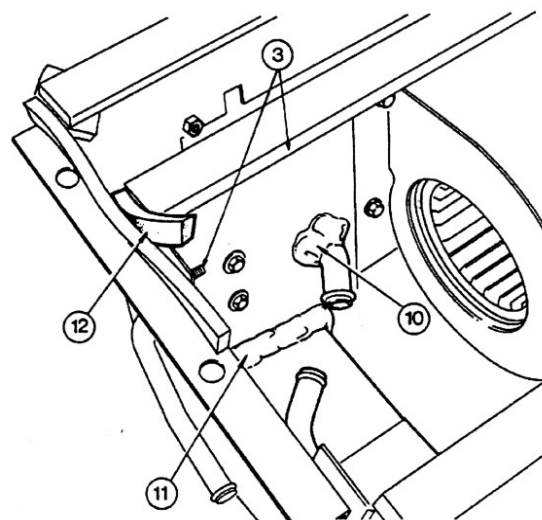
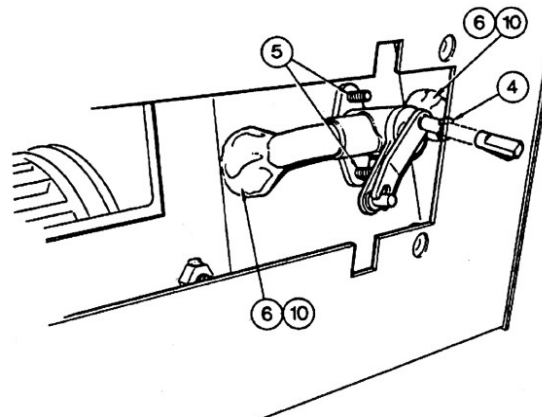
Removal and Refitment 2B—37—20

Removal

1. Remove the plenum chamber assembly. See 2B—34—19.
2. Disconnect the hose at the control valve.
3. Remove the four bolts that secure the centre panel.
4. Remove the circlip and pull the control lever forward to disengage.
5. Remove the two bolts that retain the control valve to the centre panel.
6. Remove the sealer from the stub pipe apertures in the plenum chamber. Retain the plastic type sealing compound and re-use during re-assembly.
7. By displacing the centre panel slightly remove the control valve from the housing and centre panel.
8. Withdraw the control lever.

Refitment

9. Reverse procedures 1-8.
10. Re-seal the control valve stub pipes at the plenum chamber with the original sealer. See procedure 6.
11. Re-seal any openings between the centre panel and the plenum chamber with recommended sealing compound (D).
12. Replace foam air seals if necessary.

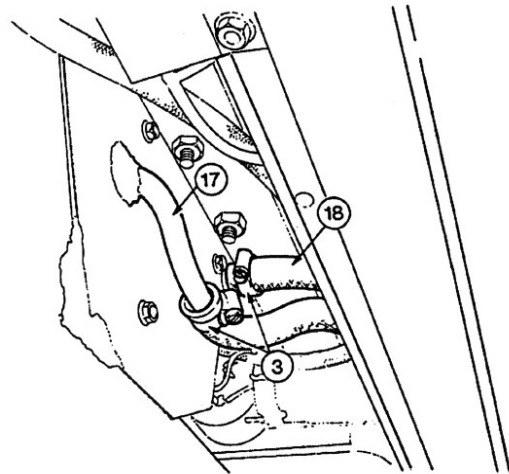


HEATER HOSES

Removal and Replacement 2B-38-21

Removal

1. Remove the front headliner, operation 2B-32-18
2. Remove the radiator cap and drain the cooling system via the drain taps on the radiator and cylinder block.
3. Disconnect the heater hoses from the inlet and outlet stub pipes.
4. Remove the plenum chamber, operation 2B-34-19.
5. Release the windscreen wiper motor, Part 9A.
6. Remove the protective sponge insert.
7. Remove the two securing bolts and withdraw the trip switch mounting panel.
8. Disconnect the hoses from the bulkhead stub pipes.
9. Withdraw both hoses from the R.H. cab pillar.
10. Remove the hood, Part 2A.
11. Detach the hoses from the bulkhead to engine block and from the bulkhead to water pump and remove.

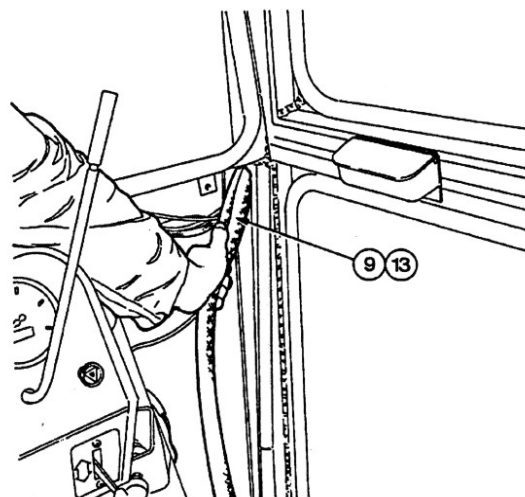
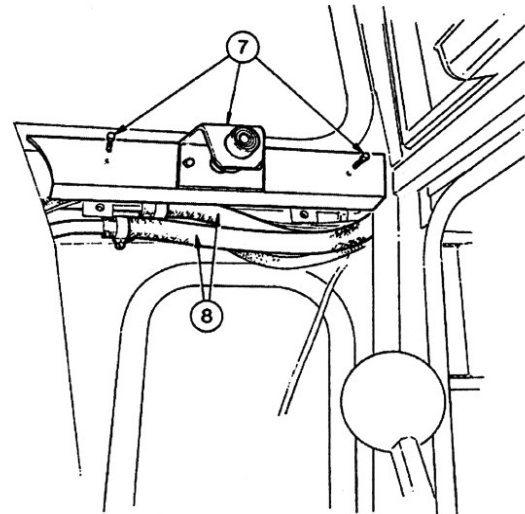


Replacement

12. Reverse procedures 10 and 11.
13. Lubricate the exterior of the new hoses with petroleum jelly, soap and water or similar and feed the hoses into position from the bottom of the R. H. cab pillar.
14. When the hoses appear at the roof pull them into the cab with a pair of tongs or pliers. Take care not to damage the hose.
15. Reconnect the hoses to the control valve (INLET) and heat exchanger (OUTLET).
16. Refit the protective sponge insert ensuring that the wiring harness also passes between the sponge.
17. Reconnect the hoses at the bulkhead transfer pipes.

NOTE: The feed hose from the water pump is connected to the control valve (INLET) in the plenum chamber.

18. The return hose from the heat exchanger is connected through to the engine cylinder block.
19. Replenish the cooling system.
20. Open the heater control valve fully then run the engine and replenish the cooling system as necessary.



VISIBLE-RESULTS

2B—22

CAB AND FITTINGS

HEAT EXCHANGER

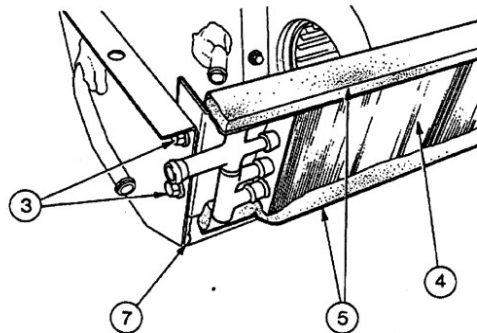
Removal and Replacement 2B—39—22

Removal

1. Remove the plenum chamber, operation 2B—34—19.
2. Disconnect the hose at the heat exchanger stub pipe.
3. Remove the four bolts securing the heat exchanger.
4. Lift out the heat exchanger.

Replacement

5. Fit new self-adhesive foam air seals to the lower front edge of the heat exchanger.
6. Replace the heat exchanger with the four securing bolts.
7. Re-seal any openings between the heat exchanger and the plenum chamber with recommended sealing compound (D).



WINDSCREEN DEMISTER DUCTS

Removal and Refitment 2B—40—22

Removal

1. Pull the duct assembly from the front headliner.
2. Press out the fluted plate from the grommet.

Refitment

3. Reverse procedures 1-2.
Use a soap and water solution, petroleum jelly or a similar lubricant to assist replacing the rubber grommet.

REAR CROSS BRACE

Removal and Refitment 2B—41—22

Removal

1. Remove the rear lower window, operation 2B—21—12.
2. Remove the rear sheet metal panels, Part 2A.
3. Remove the three rear seat floor retaining bolts and nuts.
4. Remove the eight attachment bolts securing the cross brace.
5. Withdraw the cross brace downwards and then rearwards.

Refitment

6. Ensure the joint faces are clean and undamaged.
7. Apply a recommended sealing compound (D) to both faces.
8. Replace the cross brace. If necessary expand the rear cab frame with a hydraulic ram or similar to ease replacement.
9. Replace retaining bolts and tighten to a torque of 80 lb. ft. (11 kgm).

CAB ASSEMBLY— (MF 565, 575 & 590 Tractors)

Removal and Replacement 2B—42—23

Special Tools: A crane of 2000 kg (2 tons) MINIMUM capacity.

A bracket secured to the cab roof (there are two tapped holes in the cab roof designed solely for this purpose) capable of supporting 2000 kg (2 tons).

Removal

1. Carry out procedures 1-15, 17 and 18, operation 3A—04.
2. Carry out procedures 2 and 3, 5-10, 13 and 14, operation 3A—08.
3. Carry out procedures 4, 5, 7, 9, 10 and 13, operation 3A—06.

NOTE: Under no circumstances should attempts be made to lift the tractor using roof mountings.

4. Lift off the cab, taking care not to foul any components.
5. Strip out all components to be transferred to the new cab.

Replacement

6. Transfer all required components to the new cab.
7. Carry out procedures 24 (a) and (b), operation 3A—08.
8. Carry out procedures 30 (a), operation 3A—06.
9. Reverse procedures 1-4.

CAB ASSEMBLY (MF 550) Tractor

Removal and Replacement 2B—43—23

Special Tools: A crane of 2000 kg (2 Tons) MINIMUM capacity.

A bracket screwed to the cab roof (There are two tapped holes in the cab roof designed solely for this purpose) capable of supporting 2000 kg (2 Tons).

Removal

1. Carry out procedures 1-7, 9-15, 17 and 18, operation 3A—03.
2. Carry out procedures 4, 5, 6, 9 and 10, operation 3A—05.
3. Carry out procedures 2, 5, 6, 7 and 8, operation 3A—07.
4. Lift off the cab, taking care not to foul any components.

NOTE: Under no circumstances should attempts be made to lift the tractor using the roof mountings.

5. Strip out all components to be transferred to the new cab.

Replacement

6. Transfer all required components to the new cab.
7. Carry out procedure 29 (a), operation 3A—05.
8. Carry out procedures 22 (a) and (b), operation 3A—07.
9. Reverse procedures 1-4.

VISIBLE-RESULTS

2B-24

CAB AND FITTINGS

**MF 500 SERIES TRACTOR
WORKSHOP SERVICE MANUAL
PART 3**

Publication No. 1856 072 M1

comprising

A SPLITTING THE TRACTOR

SPLITTING THE TRACTOR

Part 3 — Section A

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3A—02—04	Splitting Procedure (MF 550, MF 560) Splitting Procedure (MF 565, MF 575 and MF 590)	
** 3A—03—06	SPLITTING THE TRACTOR BETWEEN THE ENGINE AND THE TRANSMISSION	06
3A—04—08	Splitting Procedure (MF 550, MF 560) Splitting Procedure (MF 565, MF 575 and MF 590)	
** 3A—05—10	SPLITTING THE TRACTOR BETWEEN THE TRANSMISSION AND SPACER HOUSING AND WITHDRAWING THE ENGINE AND TRANSMISSION FORWARDS	10
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GENERAL

This section gives the procedures for splitting the tractor at four main points allowing access to the four major mechanical assemblies of the tractor.

VISIBLE-RESULTS

3A-02

SPLITTING THE TRACTOR

SPLITTING THE TRACTOR BETWEEN THE FRONT AXLE AND ENGINE

** Splitting Procedure (MF 550, MF 560) 3A-01-02

Disassembly

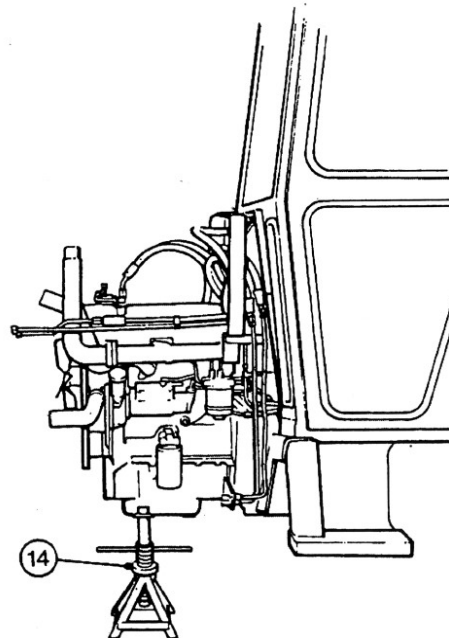
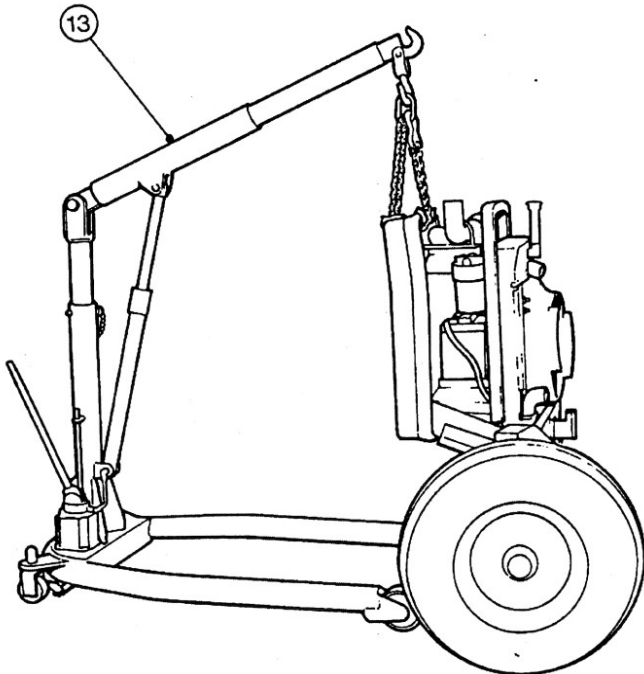
1. Remove the radiator cap and drain the cooling system via the drain taps on the radiator and cylinder block.
2. Disconnect the battery negative cable at the battery and the positive cable at the starter solenoid.
3. Remove the hood, Part 2A.
4. Disconnect the steering pipes.
5. Remove the pipe.
6. Disconnect the oil pipes (if fitted).
7. Disconnect the radiator top and bottom hoses.
8. Disconnect the headlight and horn wires and thread them through the retaining clips to leave the cable on top of the engine.
9. Disconnect the air cleaner indicator wires.
10. Disconnect the radiator support bar.
11. Disconnect the windscreen washer pipe.
12. Apply the tractor handbrake.

13. Support the nose assembly using a jib crane and chain.
14. Support the tractor under the sump using a suitable jack stand.
15. Fit hard wood wedges between the front axle casting and beam on both sides to prevent the beam from pivoting.
16. Remove the two bolts, one nut and washers from the left hand side of the tractor.
17. Remove the two bolts, spacer, nut and washers from the right hand side of the tractor.
18. Carefully wheel the two front wheels, front axle and jib crane forwards away from the engine.

WARNING: Take care to keep the front axle assembly level once it has been withdrawn from the engine, otherwise it could overbalance and cause injury.

Reassembly

19. Reverse procedures 1 to 18, except: Tighten the front axle retaining nuts and bolts to a torque of 235 Nm (175 lbf ft).



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Information.**