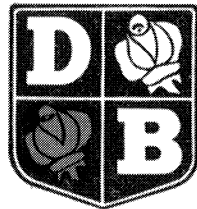


# DAVID BROWN

**880 DIESEL TRACTOR**

**OPERATOR'S MANUAL**



**DAVID BROWN TRACTORS LIMITED**

# Safety Points

- Don't** operate the independent foot brake when travelling in the higher gears.
- Don't** run on the highway without locking the two foot brake pedals together.
- Don't** run the PTO or Belt Pulley without a guard.
- Don't** wear loose clothing near moving parts of the tractor, engine, or implements.
- Don't** attempt to start the engine in gear.
- Don't** leave the isolating/starter key in the tractor when unattended, especially where children have access.
- Don't** swerve or turn sharply at speed.
- Don't** let the clutch in suddenly on a slope, or brake hard if running backwards down hill, or the tractor may rear up.
- Don't** use the differential lock on the public highway.
- Don't** try to make a sharp turn unless the differential lock is out of engagement.
- Don't** operate the tractor on dangerously steep ground. Move cautiously on steep slopes, because the sudden swing of a heavy implement, or the pull of a trailer, may cause trouble. Use the clutch, brakes, throttle and steering *slowly*. Beware especially of slippery surfaces.
- Don't** carry passengers on the tractor or hitch.
- Don't** turn with a projecting implement without making sure there is room for it.
- Don't** hitch trailed implements above the center line of the rear axle.

# Introduction

The 880 tractor with 3-cylinder diesel engine incorporates the latest refinements of technical design and is the culmination of many years of development and rigorous field testing. In fact, it is a tractor which does a wide range of farming jobs well, reliably and efficiently.

Good design is backed up by skilled manufacture on some of the most modern machines currently available in Europe. The potential life and efficiency which is built into the tractor by careful choice of materials, close manufacturing limits and expert assembly, requires the co-operation of the user whose responsibility it is to carry out the *regular* lubrication and maintenance outlined in this book.

Almost any but the complete novice will be able to carry out the various work which a tractor driver is required to do. But to do this in the easiest, quickest and most efficient way, not to mention the *safest* way because a tractor can be a dangerous machine if handled foolishly and without thought, requires knowledge and skills which have to be acquired. This book gives the necessary information, armed with which, the user will quickly gain skill after a little practice.

It is suggested that time spent in reading the Operation and Regular Maintenance sections of this book *before* the new tractor is put into use, will be amply repaid. It is appreciated that the tractor will only be used occasionally for some tasks and the book should be kept readily available at all times so that one's memory may be refreshed. For ease of use the book is divided into 4 sections as indicated in the contents list opposite.

In case of difficulty of any kind, the person most fitted to assist you is your David Brown dealer. Besides having specialist knowledge of the product, he has a great experience of local conditions which will be especially useful to you. In any problem always quote the full *prefix* and *serial number* of the tractor and also the *engine type* and *number*.

# **DAVID BROWN**

## **880 Diesel Tractor**

*Model—880/UE*

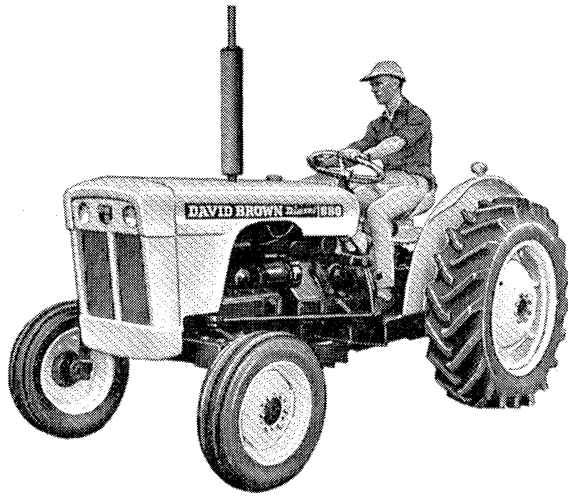
*With 3-cylinder Diesel Engine*

## **Operator's Manual**

*Further copies of this book may be obtained  
from your dealer at nominal cost*

**DAVID BROWN TRACTORS LIMITED**  
**MELTHAM            YORKSHIRE            ENGLAND**

Publication No. TP613 – First Published September, 1964



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## PRECAUTIONS WITH A NEW TRACTOR

Although every engine is tested and partly run-in at the factory care should be taken during the first 25 to 50 hours' use. Avoid excessive speeds or heavy loading. Do not allow the engine to labor, change to a lower gear instead. Use the middle range of engine speeds from 1400 to 1800 rpm. If possible use light loads to begin with and gradually increase the loading until the engine is fully run-in. If high speed or heavy loading must be used, keep this down to very short periods interspersed with periods of light loading.

Long periods of idling should be avoided at all times as the rate of carbon formation is fairly high at low temperatures.

### FIFTY-HOUR SERVICE

After 50 hours, change the engine oil and filter element, drain and flush the transmission and final drive housings and clean the magnetic filter. Refill with new oil. Check the valve clearances and tightness of cylinder head and main external nuts and bolts.

**Note**—The transmission is filled at the factory with special oil which contains inhibitors to prevent corrosion and assist initial bedding in. This oil **must** be discarded after 50 hours and the transmission refilled with new oil of the type recommended on pages 42.

# Section 1—Operation

## STARTING THE DIESEL ENGINE

1. With fuel in the tank and the valve turned on, pull the fuel cut-off rearward to the running position, and drop into the retaining slot.
2. Open the throttle wide (towards the driver).
3. **Put the shift lever in neutral.**
4. Disengage the clutch.
5. Switch on and operate the starter switch (turn the key to the right against the spring).

Release the starter switch immediately the engine runs and close the throttle to give about 1000 rpm to warm up. Check that the oil warning light goes out.

### STARTING IN COLD WEATHER

The wing nut on the side of the Injection Pump should be screwed in **before** trying to start the engine. As soon as the engine is running, the screw must be unscrewed otherwise erratic running with black exhaust will occur. In conditions when starting is difficult the use of ether or a proprietary starting fluid is recommended. This should be used on the felt attached to the plastic plug in the top of the manifold. Replace and start immediately. When starting is difficult, short presses on the starter will be no use. The engine should be kept turning by the starter until the engine runs unaided. However, if it fails to run, release the starter switch after 25 seconds and wait 20 seconds before trying again, otherwise the battery will be overheated and damaged.

Use of the starter places a heavy drain on the batteries and adequate running time should be allowed to enable the generator to replace the charge. Use of the correct grade of oil in the engine, and pressing the clutch while starting, will help to reduce the load on the starter.

### STOPPING THE ENGINE

Reduce engine speed, lift the fuel cut-off and allow it to move forward to the stop position. Switch off and remove the key. Do not stop the engine by turning off the fuel as this will produce air locks necessitating complete venting of the fuel system.

## CONTROLS

The engine and tractor controls are shown in Fig. 1/1 and 1/2.

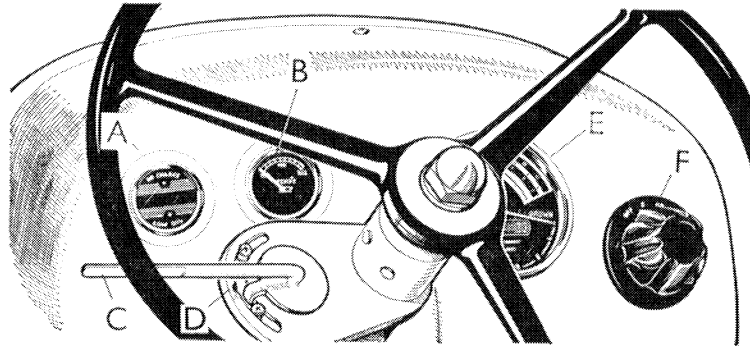


Fig. 1/1. Instrument panel

- |                                       |                                   |
|---------------------------------------|-----------------------------------|
| A. Warning lights<br>(Oil and charge) | D. Rated speed setting (1800 rpm) |
| B. Water temperature (U581)           | E. Tractormeter                   |
| C. Throttle lever                     | F. Light switch                   |

### OIL WARNING LIGHT

The amber light is illuminated when oil pressure is too low. Make sure that it lights when the isolating switch is turned on and goes out when the engine runs.

### NO CHARGE WARNING LIGHT

The red light is illuminated when the isolating switch is turned on but will go out as soon as the dynamo begins to charge.

### THROTTLE CONTROL LEVER

When fully rearwards the diesel engine is governed to its maximum speed. When the lug on the lever is brought into line with the corresponding mark on the quadrant (Fig. 1/1), the engine is governed at its rated speed of 1800 rpm. This position should be used for most purposes to conserve fuel and engine life. It also gives a PTO speed of 540 rpm in low ratio.

### LIGHT SWITCH

This has 4 positions as follows: (1) Fully counterclockwise—all lights out. (2)—Side and tail (and rear license plate) lights. (3)—Side and tail lights plus the head lamps. (4)—Head lights only. The rear flood lamp operates when the head lamps are on but incorporates its own switch



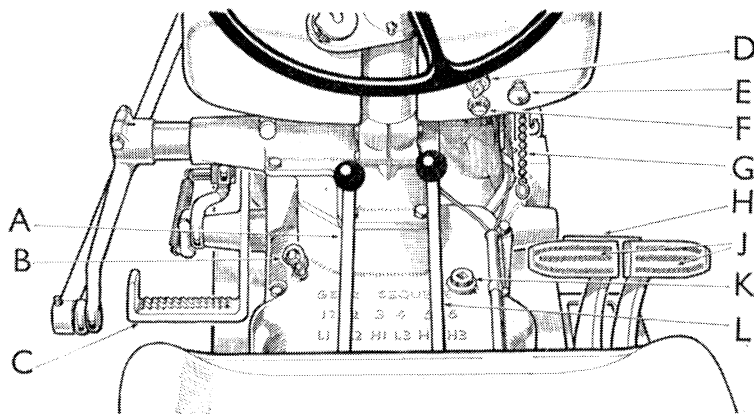


FIG. 1/2. Controls

- |                                 |                                 |
|---------------------------------|---------------------------------|
| A. H/L range lever              | G. Radiator blind control -U580 |
| B. Transmission dip-stick       | H. Locking bar                  |
| C. Clutch pedal                 | J. Brake pedals                 |
| D. Isolating and starter switch | K. Transmission filler plug     |
| E. Engine stop control          | L. Shift lever                  |
| F. Fuse holder                  |                                 |

allowing it to be switched off when not required. The 4th position is designed for use in the field and conserves the battery. It must not be used on the highway. The 3rd position is recommended for this purpose.

#### FUEL VALVE

Mounted on the right-hand fuel tank support, the knob is pulled out to turn the fuel on and pushed in to cut off the fuel. It should only be closed for servicing purposes.

#### BRAKES

Twin foot pedals at the right-hand side give independent control of the brakes for steering in confined spaces. The locking bar H. Fig. 1/2 must be used to connect them together for use on the highway. Individual use may cause a dangerous swerve besides giving only half braking power.

#### LIVEDRIVE CLUTCH

There are two main stages of pedal movement. Stage 1—Complete disengagement of the transmission clutch is denoted by an increase in pedal pressure. In practice the pedal should always be pressed to this point. "Easing" of the clutch to reduce forward speed, when baling etc., to allow the implement to clear a heavy patch, is detrimental to the life of the clutch plates. When moving off with a loaded trailer on road haulage, engine speed should be kept as low as possible, full engagement of the clutch should be

obtained as quickly as possible, then, the throttle opened. **The clutch should not be operated at full engine speed or excessive wear will result.**

Stage 2—Fully depressing the clutch pedal also disengages the PTO. Between stages 1 and 2 there is a short buffer stage of constant pressure to prevent accidental slipping of the PTO clutch when only using the transmission clutch. If the PTO clutch is not used frequently, the pedal should be fully operated once a week and the PTO “freed” to prevent binding of the plates.

### **TRACTORMETER**

The lower half of the scale shows the speed of the engine. Red lines indicate the correct engine speed to give PTO speeds of 540 rpm and 1000 rpm in high speed ratio. A blue line gives the engine speed required for the PTO speed of 540 rpm in low speed ratio.

The center panel gives the total number of hours which the engine has run, based on an average running speed. This figure should be used as a basis for regular servicing of the tractor.

The upper scales indicate the forward traveling speed of the tractor in any of the six speeds.

### **TRANSMISSION**

The main transmission has 3 forward and 1 reverse speed. The secondary transmission, controlled by a separate shift lever, has two ratios—high and low designated H and L. The combination of these two ratios gives a choice of 6 forward and 2 reverse speeds. The order of the speeds 1 to 6 and the necessary combination of the shift lever settings is shown on top of the transmission cover.

The H/L shift lever also has a neutral position mid-way and should be used when the tractor is stationary for belt pulley or PTO work.

Experience is the best guide to the choice of speeds for any particular requirement, but if the engine is laboring, denoted by loss of speed when the load is applied, select a lower speed.

The transmission is of the sliding gear type, and gear shifting while the tractor is in motion must be undertaken only by an experienced driver.

### **12-SPEED TRANSMISSION**

Twelve speed tractors have three shift levers. The H/L range and main levers are as shown in Fig. 1/2 with a third lever on the left. The extra lever has two positions: normal (marked “N”) and slow (marked “S”). In the normal rearward position “N” the speeds obtainable are the same as the 6-speed gearbox. In the forward position “S” an additional slower range of speeds is available.

**TRAVEL SPEEDS AT A P.T.O. SPEED OF  
540 RPM**

TRAVELING SPEEDS—MPH			Engine Speed rpm	6-Speed	12-Speed
12-4/11-28 tires 9/50 ratio	12-4/11-28 tires 11/49 ratio	14-9/13-28 tires 11/49 ratio			
0-3	0-4	0-5	1100	—	1
0-6	0-7	0-8	1800	—	1
0-6	0-7	0-8	1100	—	2
0-8	1-0	1-0	1100	—	3
0-9	1-1	1-2	1100	1	4
0-9	1-2	1-3	1800	—	2
1-0	1-3	1-4	1100	—	5
1-3	1-6	1-7	1800	—	3
1-3	1-6	1-7	1100	—	6
1-4	1-8	2-0	1800	1	4
1-5	1-8	2-0	1100	2	7
1-7	2-1	2-3	1800	—	5
2-0	2-5	2-7	1100	3	8
2-1	2-6	2-8	1800	—	6
2-4	2-9	3-2	1100	—	9
2-4	3-0	3-2	1800	2	7
2-7	3-3	3-6	1100	4	10
3-2	4-0	4-4	1800	3	8
3-3	4-1	4-4	1100	5	11
3-8	4-8	5-2	1800	—	9
4-4	5-5	6-0	1800	4	10
5-4	6-7	7-3	1800	5	11
6-0	7-4	8-1	1100	6	12
9-8	12-2	13-3	1800	6	12

For a full list of Travel Speeds see the Data section at the end of this book

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