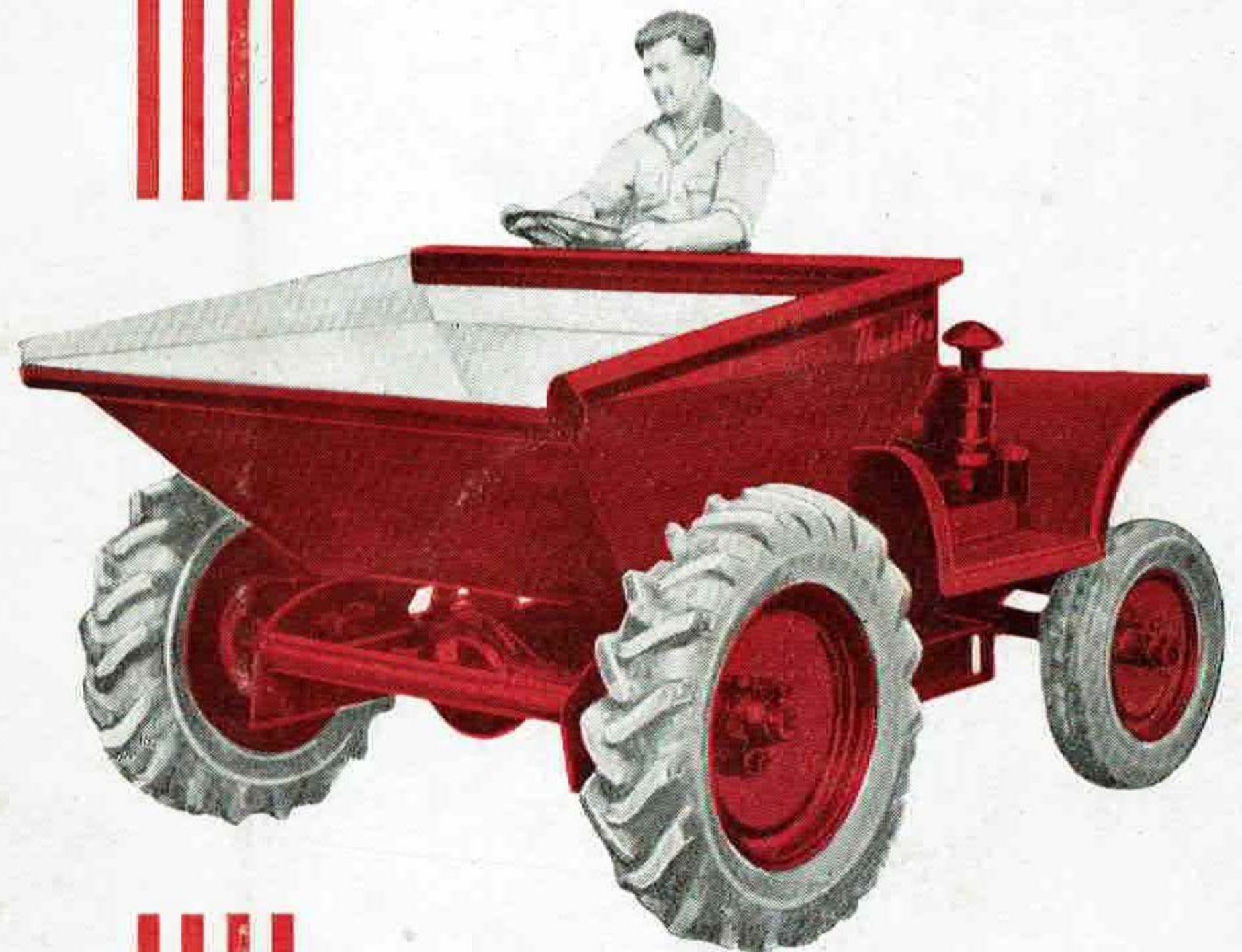


# The **THWAITES DUMPER**

**“ORION”**



**OPERATING INSTRUCTIONS  
and  
SPARE PARTS LIST**



THE  
**THWAITES DUMPER**

*(Type A)*

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**4-Wheel | Cubic Yard Model**

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**OPERATING INSTRUCTIONS  
and  
SPARE PARTS LIST**

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Specifications and Details given herein are subject to  
variation and modification

**THWAITES ENGINEERING CO LTD**

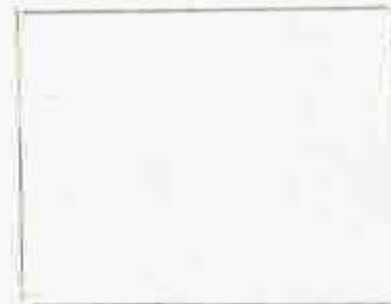
**Cubbington, Leamington Spa, England**

Telephone: LEAMINGTON SPA 3089 (7 lines)



## GUARANTEE

*In order to bring this guarantee into force, the attached post card must be completed and returned to the manufacturers within 7 days of purchase.*



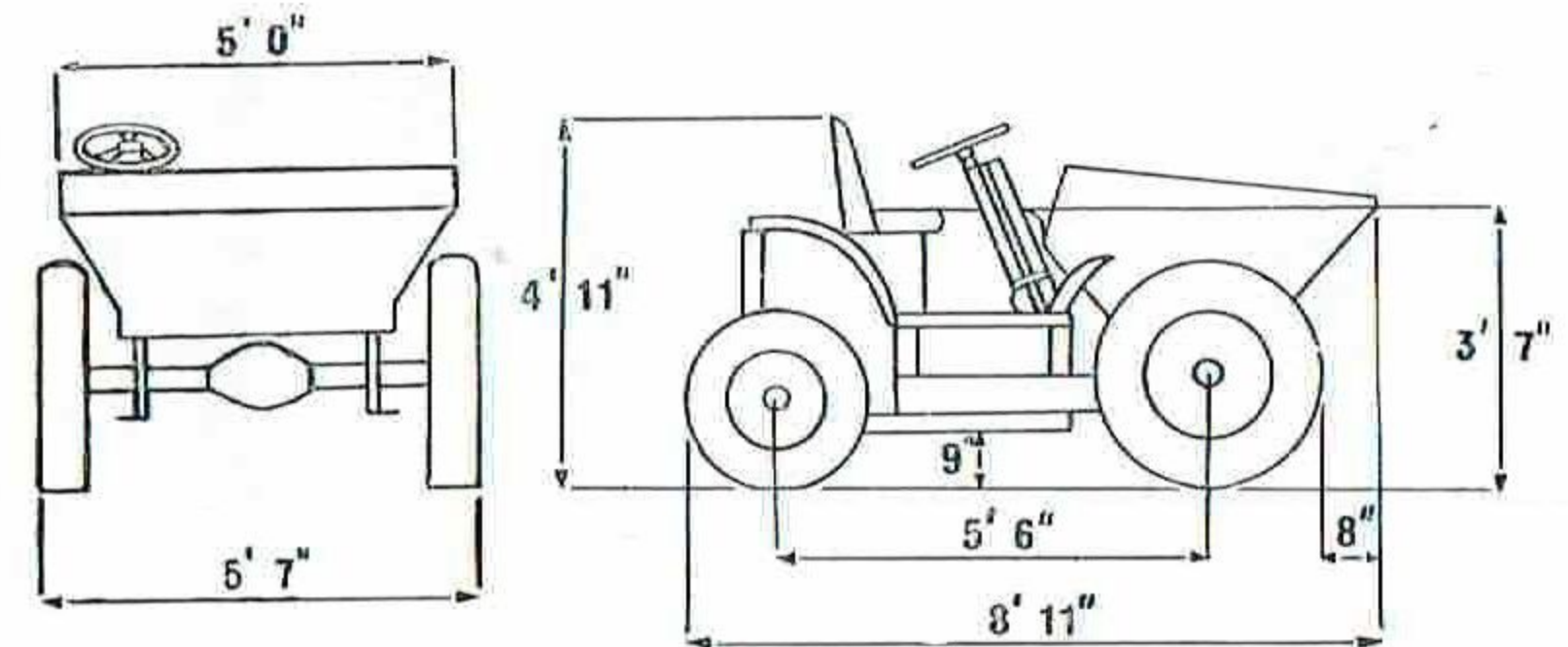
**THWAITES ENGINEERING CO LTD**

**CUBBINGTON**

**LEAMINGTON SPA**

## GENERAL INFORMATION

Engine . . . . .	Petter Type P.H.1 air-cooled Diesel
Bore . . . . .	3 <sup>7</sup> / <sub>16</sub> in. (87.3 m.m.)
Stroke . . . . .	110 m.m. (4.33 in.)
Cubic Capacity . . . . .	765 c.c. (46.77 cu. in.)
No. of Cylinders . . . . .	1
Maximum Operating Speed . . . . .	1650 r.p.m.
Oil Sump Capacity . . . . .	5 pts. (2.85)
Fuel Tank Capacity . . . . .	1 <sup>1</sup> / <sub>2</sub> gals. (6.8 litres)
Tyre Size (front) . . . . .	750 × 20 Track Grip
Tyre Size (rear) . . . . .	600 × 16
Tyre Pressure (front) . . . . .	44 lbs. sq. in.
Tyre Pressure (rear) . . . . .	24 lbs. sq. in.
Clutch . . . . .	"Girling" Expanding Shoe Type
Chain Drive . . . . .	Renold Roller Link <sup>3</sup> / <sub>4</sub> "
Brakes, Hand and Pedal . . . . .	"Girling"
Steering . . . . .	Burman
Gear Box . . . . .	Constant Mesh 3 Speeds Forward and 1 Reverse
Speed . . . . .	Max. 12 m.p.h.
Weight unladen . . . . .	21 cwts.
Turning radius . . . . .	9 ft.





# OPERATING INSTRUCTIONS

## (1) On first receiving the machine

- (a) Check oil level in engine sump.
- (b) Fill fuel tank.
- (c) Check oil level in filter.
- (d) Check oil level in gear box.
- (e) Check oil level in back axle.
- (f) Check tyre pressures.
- (g) Lubricate driving chain with oil.
- (h) Take particular care that no wrapping is left near the exhaust.

## Additionally on EXPORT machines received crated

- (j) Fit driving wheels.
- (k) Fit steering wheels.
- (l) Attach skip to chassis securely with split pins provided.
- (m) Place steering wheel on column, securing with key and nut provided.

## (2) Starting the Engine

- (a) Take starting handle located on floorboard.
- (b) Lift overload stop, allowing fuel pump rack to move into full fuel position.
- (c) Operate priming lever on the fuel pump until the injector is heard to "squeak," usually four to six strokes.
- (d) Lift decompression lever.
- (e) Rotate engine as fast as possible and, when flywheel is turning at a good speed, push down decompression lever and engine will now fire.

## OPERATING INSTRUCTIONS—*continued*

## (3) To stop engine

- (a) Lift priming lever into horizontal position and hold until engine stops.

## (4) Driving the Dumper

- (a) Sit comfortably on dumper and release hand-brake situated to the left of the seat and below.
- (b) Depress clutch pedal situated to the left of steering column.
- (c) Engage required gear by selecting with hand operated lever, left, and below steering wheel.
- (d) Slowly release clutch pedal, when the machine will move in the direction selected.
- (e) Depress throttle pedal (right of column) the amount required.

### NOTE

- (a) When using dumper on the HIGHWAY, do not allow load to obstruct driver's vision to the lip of skip.
- (b) Do not use high speed gear over site conditions when dumper is loaded.

## (5) To tip skip

- (a) Release the body catch situated on the left hand of operator, by raising the handle.
- (b) Return to catch by pulling skip back until catch retains it firmly.



## RUNNING ADJUSTMENTS

### (1) To adjust wear in clutch: See opposite

- (a) Slide back clutch aperture cover on chain guard, having slackened securing bolts.
- (b) Then turn the square-headed screw in the clutch back plate in a clockwise direction until tight, then turn back until the clutch rotates freely with clutch pedal fully depressed.  
*Note:* Never adjust clutch from wired rod nuts or by adjusting compression spring.
- (c) To adjust transmission chain, slacken gearbox retaining bolts, move gearbox the required amount, and then secure firmly with the four retaining bolts.
- (d) Finally secure the clutch aperture cover in position.

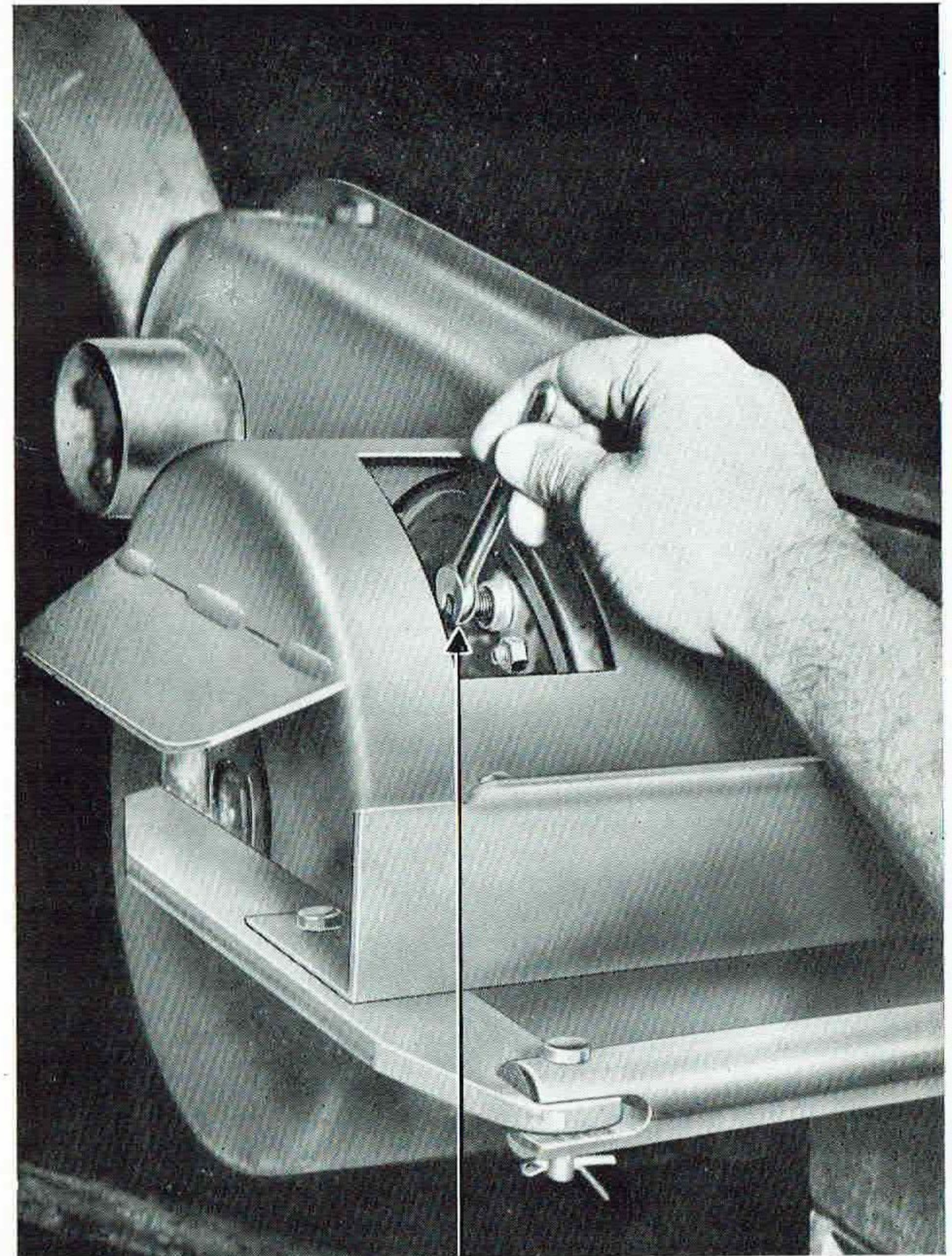
*Note:* Never adjust transmission chain too tight. Slight up and down movement of chain is necessary after adjustment.

### A FEW DO'S AND DON'TS

- Do grease all the grease nipples regularly. (See greasing instructions).
- Do check oil level in engine daily.
- Do check oil level in back axle regularly.
- Do check oil level in air filter attached to engine.
- Do wash down skip and chassis every day, especially after using the dumper for carrying concrete.
- Do check tyre pressures.

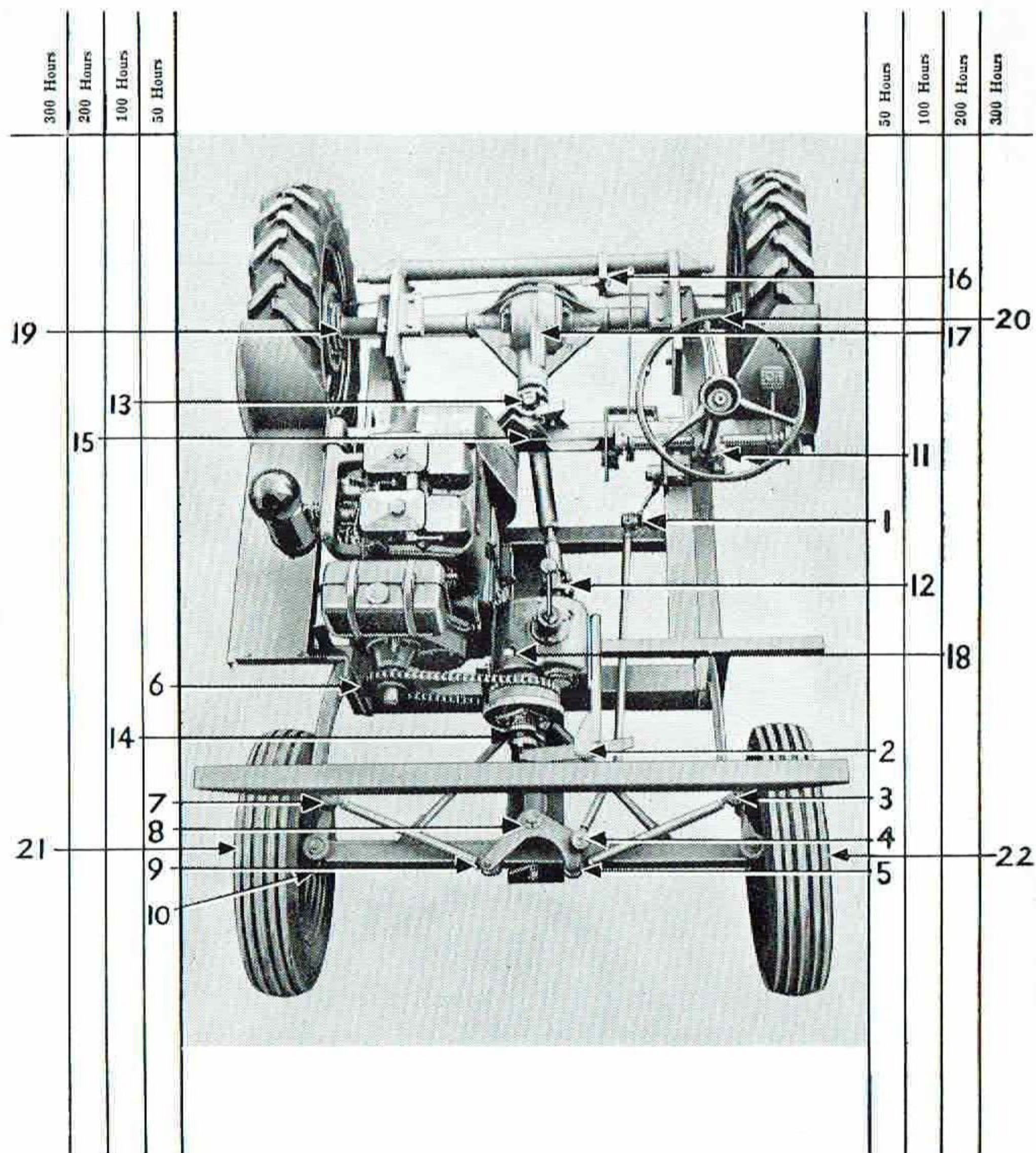
### DON'TS

- Don't allow left foot to rest on clutch pedal.
- Don't allow grease on clutch drum.
- Don't adjust transmission chain too tight.
- Don't adjust clutch from wired rods.
- Don't continue to run with clutch needing adjustment.



Turn square-headed screw in clutch back plate for adjustment



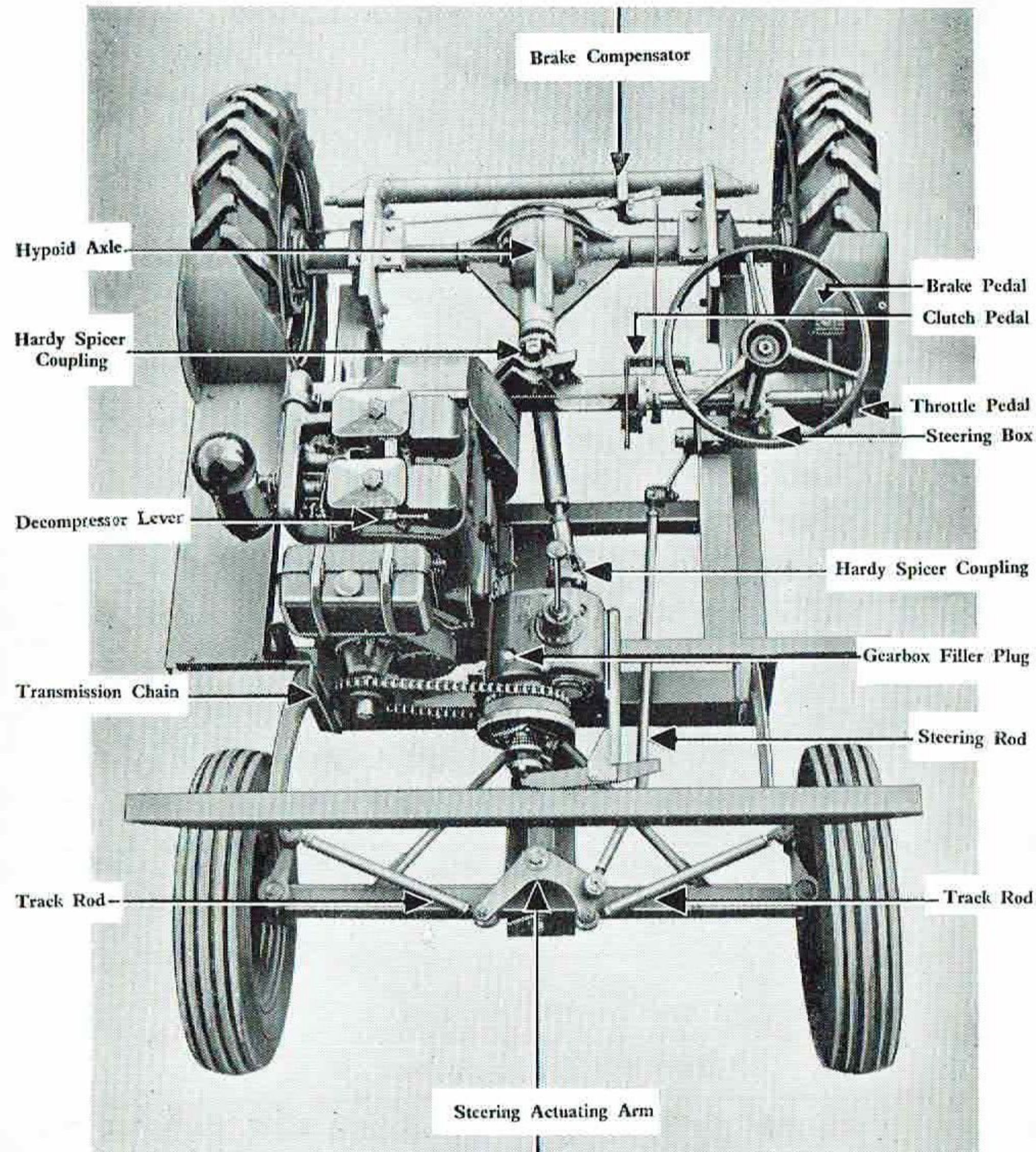


### LUBRICATING OIL RECOMMENDATIONS

(a) ENGINE Below 40° F. (4.4° C.)	Diesel
	Rotella Oil 10
	Rotella Oil 20
40° F. to 90° F. (4.4° to 32° C.)	Rotella Oil 20
Over 90° F. (32° C.)	Rotella Oil 30
(b) STEERING BOX BACK AXLE	Spirax E.P. 90 "
(c) GEAR BOX	Castrol XL

	LUBRICATION	Reference to Chart Page 8
EVERY 50 HOURS	Grease Track Rod Ends and Drag Links Grease Stub Axle Bearings Oil Clutch Actuating Arm Oil Transmission Chain Oil Steering Actuating Arm	1, 3, 4, 5, 7, 9, 10 2 6 8
EVERY 100 HOURS	Check and Top up Steering Box Grease Hardy Spicer Couplings Grease Clutch Slider	11 12, 13 14
EVERY 200 HOURS	Grease Skip Catch Grease Brake Compensator Check and Top up Back Axle Check and Top up Gearbox	15 16 17 18
EVERY 300 HOURS	Grease Front Wheel Hubs Grease Rear Wheel Hubs	19, 20 21, 22
CHECK DAILY ENGINE SUMP OIL LEVEL		





## SPARE PARTS LIST

Part No.	Description	No. off.	Price each
<b>SPROCKETS</b>			
OS 4000	Engine Sprocket ... ..	1	£ 3 2 0
OS 4001	Clutch Plate Wheel ... ..	1	3 9 10
<b>DRIVE CHAIN</b>			
OC 4002	Main Drive Chain ... ..	1	4 5 0
OC 4003	Connecting Link ... ..	1	4 7
OC 4004	Half Link ... ..	1	4 10
<b>TRANSMISSION</b>			
OT 4005	Clutch Drum ... ..	1	8 7 8
OT 4006	Clutch Drum Bearings ... ..	2	15 7
OT 4007	Clutch Drum Oilseals... ..	2	6 5
OT 4008	Clutch Drum Circlip ... ..	1	2 6
OT 4009	Clutch Drum Screws and Nuts 3/8" BSF	4	1 3
OT 4010	Clutch Backplate ... ..	1	1 14 5
OT 4011	Clutch Shoes ... ..	2	18 0
OT 4012	Clutch Shoes Springs ... ..	2	4 4
OT 4013	Clutch Adjuster... ..	1	1 14 11
OT 4014	Clutch Expander c/w Dust Cover	1	2 1 5
OT 4015	Clutch Slide Guide Rod and Nuts...	1	5 1
OT 4016	Clutch Back Plate Boss ... ..	1	3 1 10
OT 4017	Clutch Back Plate Boss Bolts and Nuts...	4	1 1
OT 4018	Clutch Slide c/w Nut ... ..	1	3 7 2
OT 4019	Clutch Slide Spring ... ..	1	1 1 0
OT 4020	Clutch Slide Grease Nipple ... ..	1	1 1 1
OT 4021	Clutch Slide Thrust Bearing ... ..	1	2 7 4
OT 4022	Gearbox ... ..	1	61 5 6
OT 4023	Gearbox Gear Lever ... ..	1	2 10 6
OT 4024	Gearbox Gear Lever Cover c/w Screws...	1	7 0
OT 4025	Gearbox Mounting Bolts 3/8" UNF x 1" long	8	1 3
OT 4026	Gearbox Mounting Screws 3/8" UNF ...	4	1 1
OT 4027	Gearbox Clutch Arm Mounting Bracket OS	1	2 19 2
OT 4028	Gearbox Mounting Bracket NS ... ..	1	2 0 4
OT 4029	Gearbox Mounting Bracket Bolts 1/2" BSF	4	1 3
OT 4030	Prop Shaft ... ..	1	15 6 4
OT 4031	Prop Shaft Coupling Gearbox End ... ..	1	7 15 7
OT 4032	Prop Shaft Coupling Axle End ... ..	1	7 15 7
OT 4033	Prop Shaft Coupling Bolts and Nuts ...	8	1 3
OT 4034	Driving Axle c/w Hubs and Brakes ...	1	135 19 9
OT 4035	Driving Axle Anchor Bolts ... ..	4	1 11
<b>CHASSIS ASSEMBLY</b>			
OA 4036	Chassis ... ..	1	172 0 0
OA 4037	Rear Axle c/w Radius Rods... ..	1	17 4 0
OA 4038	Rear Axle Pivot Pin c/w Nut and Split Pin	1	1 4 9
OA 4039	Rear Axle Pivot Pin Bushes ... ..	2	4 10
OA 4040	Rear Axle Pivot Pin Washer ... ..	1	4 0
OA 4041	King Pin c/w Washer and Bolt ... ..	2	1 10 11
OA 4042	King Pin Thrust Washer ... ..	4	2 5
OA 4043	King Pin Allen Screws c/w Lock Nut ...	2	1 1
OA 4044	Stub Axle (offside) ... ..	1	8 9 4
OA 4045	Stub Axle (nearside) ... ..	1	8 9 4
OA 4046	Stub Axle Bushes ... ..	4	4 10



Part No. Description No. off. Price each

Chassis Assembly—Continued

Part No.	Description	No. off.	Price each
			£ s d
OA 4047	Stub Axle Grease Nipple 3/8" BSF	4	1 4
OA 4048	Stub Axle Nut	2	2 11
OA 4049	Track Rod	2	1 10 8
OA 4050	Track Rod Ball Ends	4	1 5 10
OA 4051	Track Rod Ball Ends Grease Nipples	4	1 3
OA 4052	Drag Link	1	1 18 8
OA 4053	Drag Link Ball Ends	2	1 5 10
OA 4054	Drag Link Ball Ends Grease Nipples	2	1 3
OA 4055	Track Rod and Drag Link Actuating Arm	1	2 6 3
OA 4056	Track Rod and Drag Link Actuating Arm Grease Nipple	1	1 1
OA 4057	Track Rod and Drag Link Coupling Bush	1	6 10
OA 4058	Track Rod Actuating Arm Pivot Pin	1	19 6
OA 4059	Steering Box Assembly	1	9 4 11
OA 4060	Steering Box Drop Arm	1	1 18 8
OA 4061	Steering Box Drop Arm Nut	1	2 11
OA 4062	Steering Column Clamp	1	19 11
OA 4063	Steering Column Dust Cover	1	6 1
OA 4064	Steering Column Retaining Disc	1	13 5
OA 4065	Footbrake Pedal	1	1 15 0
OA 4066	Footbrake Cable c/w Clevis End	1	1 16 7
OA 4067	Footbrake Operating Shaft c/w Actuating Arm	1	1 17 7
OA 4068	Footbrake Operating Shaft Bearing Housing	2	15 7
OA 4069	Footbrake Operating Shaft Oilite Bearing	2	4 10
OA 4070	Throttle Pedal	1	1 1 0
OA 4071	Throttle Pedal Connecting Link	1	4 0
OA 4072	Throttle Pedal Operating Shaft Complete	1	1 19 3
OA 4073	Throttle Rod c/w Washers and Split Pins	1	8 1
OA 4074	Clutch Pedal	1	1 19 9
OA 4075	Clutch Pedal Bush	1	4 10
OA 4076	Clutch Pedal Return Spring c/w Rod	1	16 8
OA 4077	Clutch Operating Rod...	1	1 6 11
OA 4078	Clutch Operating Rod Clevis Pins	2	1 7
OA 4079	Clutch Actuating Arm	1	1 3 8
OA 4080	Clutch Actuating Arm Clevis Pin...	1	2 11
OA 4081	Skip Locking Catch	1	1 14 5
OA 4082	Skip Locking Catch Shaft c/w Grease Nipple	1	10 3
OA 4083	Skip Locking Catch Operating Lever	1	2 0 4
OA 4084	Skip Locking Catch Operating Lever Shaft	1	18 10
OA 4085	Skip Locking Catch Joining Link c/w Washer and Split Pins	1	7 3
OA 4086	Skip Locking Catch Spring	1	6 6
OA 4087	Handbrake Lever	1	4 2 9
OA 4088	Handbrake Lever Pawl	1	2 3
OA 4089	Handbrake Lever Spring	1	6
OA 4090	Handbrake Lever Ratchet	1	5 9
OA 4091	Handbrake Lever Operating Cable c/w Clevis	1	1 7 5
OA 4092	Handbrake Lever Clevis Pin	1	2 11
OA 4092A	Handbrake Cable Relay Arm	1	19 6
OA 4092B	Handbrake Cable Relay Arm Pin c/w Cotter	1	2 10
OA 4092C	Handbrake Cable Axle End	1	1 7 5
OA 4093	Brake Compensating Assembly c/w Straps and Swivel Pins	1	2 2 6
OA 4094	Brake Rod (offside)	1	9 5
OA 4095	Brake Rod (nearside)	1	3 9
OA 4096	Brake Rod Clevis End	2	2 11
OA 4097	Brake Rod Nuts (long)	2	1 1
OA 4098	Brake Rod Nuts (short)	2	4

Part No. Description No. off. Price each

AUXILIARY EQUIPMENT

Part No.	Description	No. off.	Price each
			£ s d
OE 4099	Skip Complete	1	52 15 0
OE 4100	Skip Anchor Pin c/w Nut and Spacer	1	1 11 0
OE 4101	Skip Return Handle	1	7 3
OE 4102	Skip Return Handle "J" Bolt and Nuts...	1	2 11
OE 4103	Skip Radius Arm	2	16 0
OE 4104	Skip Check Chain	2	2 12 5
OE 4105	Skip Check Chain Clevis Pin c/w Cotter Pin	4	4 0
OE 4106	Steering Wheel	1	3 17 11
OE 4107	Steering Wheel Nut	1	2 5
OE 4108	Steering Wheel Dust Cover	1	6 2
OE 4109	Seat Complete	1	7 7 10
OE 4110	Seat Cushion	1	4 0 7
OE 4111	Seat Mounting Bolts	2	1 7
OE 4112	750 x 20 Wheels...	2	4 11 5
OE 4113	750 x 20 Track-grip Tyres	2	
OE 4114	750 x 20 Tubes	2	
OE 4115	750 x 20 Wheel Nuts	10	3 9
OE 4116	600 x 16 Wheels...	2	3 6 8
OE 4117	600 x 16 Tyres	2	
OE 4118	600 x 16 Tubes	2	
OE 4119	600 x 16 Wheel Nuts	6	3 9
OE 4120	Rear Wheel Hub Complete	2	4 11 5
OE 4121	Rear Wheel Hub Shell	2	3 0 9
OE 4122	Rear Wheel Hub Bearings (large)	2	2 0 5
OE 4123	Rear Wheel Hub Bearings (small)	2	1 4 2
OE 4124	Rear Wheel Hub Oil Seals	2	7 5
OE 4125	Rear Wheel Hub Oil Seals Dust Cover	2	3 9
OE 4126	Rear Wheel Hub Caps	2	6 2
OE 4127	PH 1 Diesel Engine	1	
OE 4128	Oil Type Air Cleaner	1	
OE 4129	Starting Handle...	1	3 12 6
OE 4130	Starting Dog c/w Pin	1	1 5 10
OE 4131	Engine Mounting Bolts and Nuts	4	2 10
OE 4132	Engine Exhaust Pipe	1	1 19 0

HOUSING AND GUARDS

OH 4133	Rear Mudguard	1	20 3 2
OH 4134	Rear Mudguard Bolts and Nuts	8	11
OH 4135	Seat Support c/w Bolts	1	2 2 6
OH 4136	Drive Chain Case	1	6 14 5
OH 4137	Mudguard (front) nearside	1	4 8 2
OH 4138	Mudguard (front) offside	1	3 14 2
OH 4139	Mudguard (front) Bolts and Nuts	7	11
OH 4140	Front Engine Guard	1	16 2
OH 4141	Front Engine Guard Bolts and Nuts	3	11
OH 4142	Side Engine Guard	1	13 5
OH 4143	Side Engine Guard Bolts and Nuts	2	11
OH 4144	Rear Grill Guard	1	9 8 2
OH 4145	Rear Grill Guard Bolts and Nuts	6	11
OH 4146	Offside Footboard	1	7 15 11
OH 4147	Offside Footboard Bolts and Nuts	6	11

WHEN ORDERING SPARES  
PLEASE QUOTE MACHINE SERIAL NUMBER  
LOCATED ON NAME PLATE