



**REPAIR
MANUAL**

CLAAS

**CLAAS
DOMINANT / CONSTANT /
MARKANT**

AFTER SALES SERVICE -

The Main Pillar of Sales

After Sales Service means advising and explaining as well as assisting in servicing and thus maintaining the value of machines and implements. This notion having become inseparable from agriculture machinery sales has prompted us to perfect our After Sales Service to a point where owners of CLAAS Machines trust in the knowledge of our constant care and attention. Agriculture machinery in particular cannot afford to stand idle in view of the very short harvest period. The Field Service must, therefore, respond with greater speed than elsewhere and by their constant vigilance as well as the supply of all necessary spares at shortest notice and lastly by their ability to make adjustments in the field with least delay give farmers and contractors alike the assurance that their CLAAS Machines will be ready for work at all times.

The range of facilities for this purpose has been constantly extended by the CLAAS After-Sales Service Department. Mention should also be made in this connection of the regular Fitters' Courses at the Works, the constant flow of Instructions to Service Depots through Works Information Bulletins, the Advice and Information available from our After Sales Service Engineers and finally the Technical Help given by our Work Fitters. The present Repair Manual forms a further link in the close relationship between the Works and the CLAAS Repair Depots.

Aiming at assisting every Fitter at our Dealers we have combined the experience of our Assembly Lines with that gained by our Field Engineers in a richly illustrated manual describing each repair process. The essential Main Tasks have been sub-divided into individual stages and particular attention has been paid to certain aspects for easy reference of all Fitters. The illustrations depict each progressive stage of every operation and are self-explanatory, whilst the text draws attention to specific adjustments, the use of Special Tools etc.

This manual is meant to inform all CLAAS Workshop Personnel how to carry out specific repairs and maintenance on CLAAS Machines and to instruct them in the use of Special Tools designed for this purpose and will be supplemented from time to time as alterations and modifications in the construction of our machines take place.

Only after closer contact has been established between Owners of our machines and our After Sales Service and the knowledge has become proverbial that CLAAS Machines are constantly ready for work, thus providing a solid foundation for the reputation of CLAAS, can we claim to have achieved the spirit of the caption of this introduction

After Sales Service — the Main Pillar of Sales

A handwritten signature in black ink, appearing to read 'Helmut Sch...', is positioned at the bottom right of the page.

HOW TO DEAL CORRECTLY WITH SUPPLEMENTS

This repair manual will be kept up-to-date by supplements in accordance with all the latest modifications to our machines. It is important that you should keep this valuable source of information **constantly up-to-date** by inserting the supplements correctly as they appear.

It will assist you in your correct filing of these additional bulletins if you acquaint yourself right away with the lay-out and arrangement of this Manual. Future information sheets will then present no difficulties.

The Repair Manual is divided into 8 Main Sections as shown on the plastic index pages.

In each Section the pages are indicated by a 3 figure reference.

The first figure indicates the number of the group.

The second figure indicates the page number within the section.

The third figure, the one after the stroke, indicates the current number of the supplement.

Furthermore, the illustrations are numbered chronologically within each group.

Where supplementary information cannot be condensed on one page, it is possible that several supplementary pages may carry the same page number. In such cases the pages should be inserted with the numbers of the illustrations following each other.

The plastic index pages (Summary of group) are exchanged at the same time as the supplements so that they indicate correctly what information and how many pages each group contains.

Coloured margins indicate the different types of machines.

Group Index

Technical data _____

Cross section of machine _____

Drive schematic _____

Pick-up feeder _____

Ram and bale chamber _____

Knotting mechanism, needles and related parts _____

Machine covering, wheels and related parts _____

Bale chutes and baler accessories _____

Technische Daten

Technical data

Fiche technique

Datos técnicos

Características técnicas

Dati tecnici

Tehniska data

Tekniske data

Technische gegevens

Tehnički podaci

Technical data

Model DOMINANT

Group 1

1 - 1/0

Technical data

1 - 2/0

Technical data

Technical data (DOMINANT)

	Tyre size		Tyre pressure
Tyres:	left	10 - 15 AM 6 PR A 19)	2 atü (28 p.s.i.)
	right	7,00 - 12 AM 4 PR A 19) standard	2 atü (28 p.s.i.)
	left	11,5 - 15 AM 6 PR A 19)	2 atü (28 p.s.i.)
	right	8,50 - 12 AM 4 PR A 19) optional	2 atü (28 p.s.i.)
Wheel base:	2180 mm (7 ft. 2 in.)		
Speed:	90 ram strokes per minute under load		
Filling capacities:	Main transmission	6 liter (10.6 pints)	Hypoid oil SAE 90
	Intermediate transmission	1 liter (1.76 pints)	Gear oil SAE 90
Torque tensions:	Slip clutch on flywheel	52 mkp (376.116 ft.lb.)	
	Slip clutch on pick-up attachment	16 mkp (115.728 ft.lb.)	
Shear bolts:	Flywheel	one M 8 x 65 8 G	DIN 931
	Feeder	four M 8 x 40 8 G	DIN 931

S E T T I N G S

Safety devices:	The top of the ram stop must be 25-30 mm (1 to 1 3/16 in.) in front of the ram face when the stop is level with the bale chamber floor plate and the needles return.
Brakes:	Needle carrier brake; the springs must be tightened to a length of 25 mm (1 in.).
	Knotter shaft brake; the springs must be tightened to a length of 28-29 mm (1 7/64 to 1 9/64 in.).
Needle setting:	a) When the needles enter the bale chamber they must be 30 to 50 mm (1 3/16 to 1 31/32 in.) behind the face of the ram. (Needle points level with the bale chamber floor plate).
	b) The needles should rub lightly against the knotter frame.
	c) The bottom edge of the needle must clear the top edge of the retainer plate by 3 to 5 mm (1/8 to 3/16 in.).
	d) With the needles at top dead centre the distance from the rear edge of the retainer plate to the needle roller centre must be 90 to 95 mm (3 17/32 to 3 3/4 in.).
Knotters:	a) The clearance between twine guide and knotter bill should not exceed 1 mm (0.03937 in.).
	b) When keying the knotter drive disc, a fraction of a clearance must be left between the pinion of the knotter bill and the drive disc. (Approx. 0.1 to 0.2 mm = 0.00394 to 0.00787 in.).

Pick-up attachment: Basic setting: On level surface the tines should clear the ground by 20 to 30 mm (13/16 to 1 3/16 in.).

Feeder: With the ram at front dead centre the left hand feeder tines must be positioned 380 mm \pm 20 mm (15 in. \pm 3/4 in.) from the left side panel of the bale chamber. The right hand feeder crank must be off set to the left hand feeder crank by 180° (U.K. 90°).

Hitching baler to tractor: Hitch the baler to the tractor in such a way that the P.T.O. drive shaft runs in as straight a line as possible when the baler is working.

Dimensions: Overall length 4480 mm (approx. 14 ft. 9 in.) dimensions
Overall width 2560 mm (approx. 8 ft. 5 in.) in transport
Overall height 1530 mm (approx. 5 ft.) position

Weight: 1450 kg (3196.67 lbs.)

The terms right, left, front and rear are used with reference to the travel direction of the machine.

Technical data

Model CONSTANT

Group 1

1 - 1/0

Technical data

1 - 2/0

Technical data

CONSTANT

Technical data (CONSTANT)

Tyres:	Tyre size		Tyre pressure
	left	10 - 15 AM 6 PR A 19)	2 atü (28 p.s.i.)
	right	7,00 - 12 AM 4 PR A 19) standard	2 atü (28 p.s.i.)
	left	11,5 - 15 AM 6 PR A 19)	2 atü (28 p.s.i.)
	right	8,50 - 12 AM 4 PR A 19) optional	2 atü (28 p.s.i.)
Wheel base:	2270 mm (7 ft. 5 in.)		
Speed:	90 ram strokes per minute under load		
Filling capacity:	Main transmission	6 liter (10.6 pints) Hypoid oil SAE 90	
Torque tensions:	Slip clutch on flywheel	52 mkp (376.116 ft.lb.)	
	Slip clutch on pick-up attachment	16 mkp (115.728 ft.lb.)	
Shear bolts:	Flywheel	one	M 10 x 65 8 G DIN 931
	Feeder	six	M 8 x 50 8 G DIN 931

SETTINGS

Safety devices:	The top of the ram stop must be 25-30 mm (1 to 1 3/16 in.) in front of the ram face when the stop is level with the bale chamber floor plate and the needles return.
Brakes:	Needle carrier brake; the springs must be tightened to a length of 25 mm (1 in.).
	Knotter shaft brake; the springs must be tightened to a length of 28-29 mm (1 7/64 to 1 9/64 in.).
Needle setting:	a) When the needles enter the bale chamber they must be 0 to 20 mm (0 to 25/32 in.) behind the face of the ram. (Needle points level with the bale chamber floor plate).
	b) The needles should rub lightly against the knotter frame.
	c) The bottom edge of the needle must clear the top edge of the retainer plate by 3 to 5 mm (1/8 to 3/16 in.).
	d) With the needles at top dead centre the distance from the rear edge of the retainer plate to the needle roller centre must be 90 to 95 mm (3 17/32 to 3 3/4 in.).
Knotters:	a) The clearance between twine guide and knotter bill should not exceed 1 mm (0.03937 in.).
	b) When keying the knotter drive disc., a fraction of a clearance must be left between the pinion of the knotter bill and the drive disc. (Approx. 0.1 to 0.2 mm = 0.00394 to 0.00787 in.).

- Pick-up attachment: Basic setting: On level surface the tines should clear the ground by 20 to 30 mm (13/16 to 1 3/16 in.).
- Feeder: With the ram at front dead centre the distance from the left pair of feeder tines to the right hand needle slot must be 30 to 40 mm (1 3/16 to 1 9/16 in.). The right hand feeder crank must be off set to the left hand feeder crank by 180° (U.K. 90°).
- Hitching baler to tractor: Hitch the baler to the tractor in such a way that the P.T.O. drive shaft runs in as straight a line as possible when the baler is working.
- Dimensions: Overall length 4180 mm (approx. 13 ft. 9 in.) dimensions in
Overall width 2480 mm (approx. 8 ft. 2 in.) transport
Overall height 1350 mm (approx. 4 ft. 5 in.) position
- Weight: 1140 kg (2513.24 lbs.)

The terms right, left, front and rear are used with reference to the travel direction of the machine.

Technical data

Model MARKANT

Group 1

1 - 1/0

Technical data

1 - 2/0

Technical data

Technical data (MARKANT)

		Tyre size	Tyre pressure
Tyres:	left	8,50 - 12 AM 4 PR A 19)	2 atü (28 p.s.i.)
	right	7,00 - 12 AM 4 PR A 19)	2 atü (28 p.s.i.)
			standard
	left	11,50 - 15 AM 6 PR A 19)	2 atü (28 p.s.i.)
	right	7,00 - 12 AM 4 PR A 19)	2 atü (28 p.s.i.)
			optional
Wheel base:	2270 mm (7 ft. 5 in.)		
Speed:	75 ram strokes per minute under load		
Filling capacity:	Main transmission	6 liter (10.6 pints) Hypoid oil SAE 90	
Torque tensions:	Slip clutch on flywheel	52 mkp (376.116 ft.lb.)	
	Slip clutch on pick-up attachment	16 mkp (115.728 ft.lb.)	
Shear bolts:	Flywheel	one M 8 x 65 8 G DIN 931	
	Feeder	four M 8 x 40 8 G DIN 931	

SETTINGS

Safety devices:	The top of the ram stop must be 25-30 mm (1 to 1 3/16 in.) in front of the ram face when the stop is level with the bale chamber floor plate and the needles return.
Brakes:	Needle carrier brake; the springs must be tightened to a length of 25 mm (1 in.).
	Knotter shaft brake; the springs must be tightened to a length of 28-29 mm (1 7/64 to 1 9/64 in.).
Needle setting:	a) When the needles enter the bale chamber they must be 0 to 20 mm (0 to 25/32 in.) behind the face of the ram. (Needle points level with the bale chamber floor plate).
	b) The needles should rub lightly against the knotter frame.
	c) The bottom edge of the needle must clear the top edge of the retainer plate by 3 to 5 mm (1/8 to 3/16 in.).
	d) With the needles at top dead centre the distance from the rear edge of the retainer plate to the needle roller centre must be 90 to 95 mm (3 17/32 to 3 3/4 in.).
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	b) When keying the knotter drive disc, a fraction of a clearance must be left between the pinion of the knotter bill and the drive disc. (Approx. 0.1 to 0.2 mm = 0.00394 to 0.00787 in.).

Pick-up attachment: Basic setting: On level surface the tines should clear the ground by 20 to 30 mm (13/16 to 1 3/16 in.).

Feeder: With the ram at front dead centre the distance from the left pair of feeder tines to the right hand needle slot must be 30 to 40 mm (1 3/16 to 1 9/16 in.). The right hand feeder crank must be off set to the left hand feeder crank by 180° (U.K. 90°).

Hitching baler to tractor: Hitch the baler to the tractor in such a way that the P.T.O. drive shaft runs in as straight a line as possible when the baler is working.

Dimensions: Overall length 4180 mm (approx. 13 ft. 9 in.) dimensions in
Overall width 2480 mm (approx. 8 ft. 2 in.) transport
Overall hieght 1350 mm (approx. 4 ft. 5 in.) position

Weight: 1120 kg (2469.15 lbs.)

The terms right, left, front and rear are used with reference to the travel direction of the machine.

Technical data

Model TRABANT

Group 1

1 - 1/0

Technical data

1 - 2/0

Technical data

Technical data (TRABANT)

Tyres:		Tyre size		Tyre pressure
	left	7,00 - 12 AM 4 PR)	standard	2 atü (28 p.s.i.)
	right	155 R - 15		2 atü (28 p.s.i.)
	left	8,50 - 12 AM 4 PR)	optional	2 atü (28 p.s.i.)
right	7,00 - 12 AM 4 PR)	2 atü (28 p.s.i.)		
Wheel base:	2130 mm (7 ft.)			
Speed:	75 ram strokes per minute under load			
Filling capacity:	Main transmission	6 liter (10,6 pints) Hypoid oil SAE 90		
Torque tensions:	Slip clutch on flywheel	52 mkp (376.116 ft.lb.)		
	Slip clutch on pick-up attachment	16 mkp (115.728 ft.lb.)		
Shear bolts:	Flywheel	one M 8 x 65 8 G DIN 931		

SETTINGS

Safety devices:	The top of the ram stop must be 25-30 mm (1 to 1 3/16 in.) in front of the ram face when the stop is level with the bale chamber floor plate and the needles return.
Brakes:	Needle carrier brake; the springs must be tightened to a length of 25 mm (1 in.).
	Knotter shaft brake; the springs must be tightened to a length of 28-29 mm (1 7/64 to 1 9/64 in.).
Needle setting:	a) When the needles enter the bale chamber they must be 0 to 20 mm (0 to 25/32 in.) behind the face of the ram. (Needle points level with the bale chamber floor plate).
	b) The needles should rub lightly against the knotter frame.
	c) The bottom edge of the needle must clear the top edge of the retainer plate by 3 to 5 mm (1/8 to 3/16 in.).
	d) With the needles at top dead centre the distance from the rear edge of the retainer plate to the needle roller centre must be 90 to 95 mm (3 17/32 to 3 3/4 in.).
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Pick-up attachment: Basic setting: On level surface the tines should clear the ground by 20 to 30 mm (13/16 to 1 3/16 in.).

Feeder: Adjust the feeder connecting rod to a length of 380 mm (15 in.) measured from bore centre to bore centre.

Hitching baler to tractor: Hitch the baler to the tractor in such a way that the P.T.O. drive shaft runs in as straight a line as possible when the baler is working.

Dimensions: Overall length 4120 mm (approx. 13 ft. 6 in.) dimensions in
Overall width 2320 mm (approx. 7 ft. 7 in.) transport
Overall height 1350 mm (approx. 4 ft. 5 in.) position

Weight: 870 kg (1918 lbs.)

The terms right, left, front and rear are used with reference to the travel direction of the machine.

Maschinenübersicht

Cross section of the machine

Vue en coupe de la machine

Vista general de la máquina

Máquina em corte

Vista generale

Maskinöversikt

Maskinoversigt

Overzicht van de machine

Pregled mašine

Cross section of machine

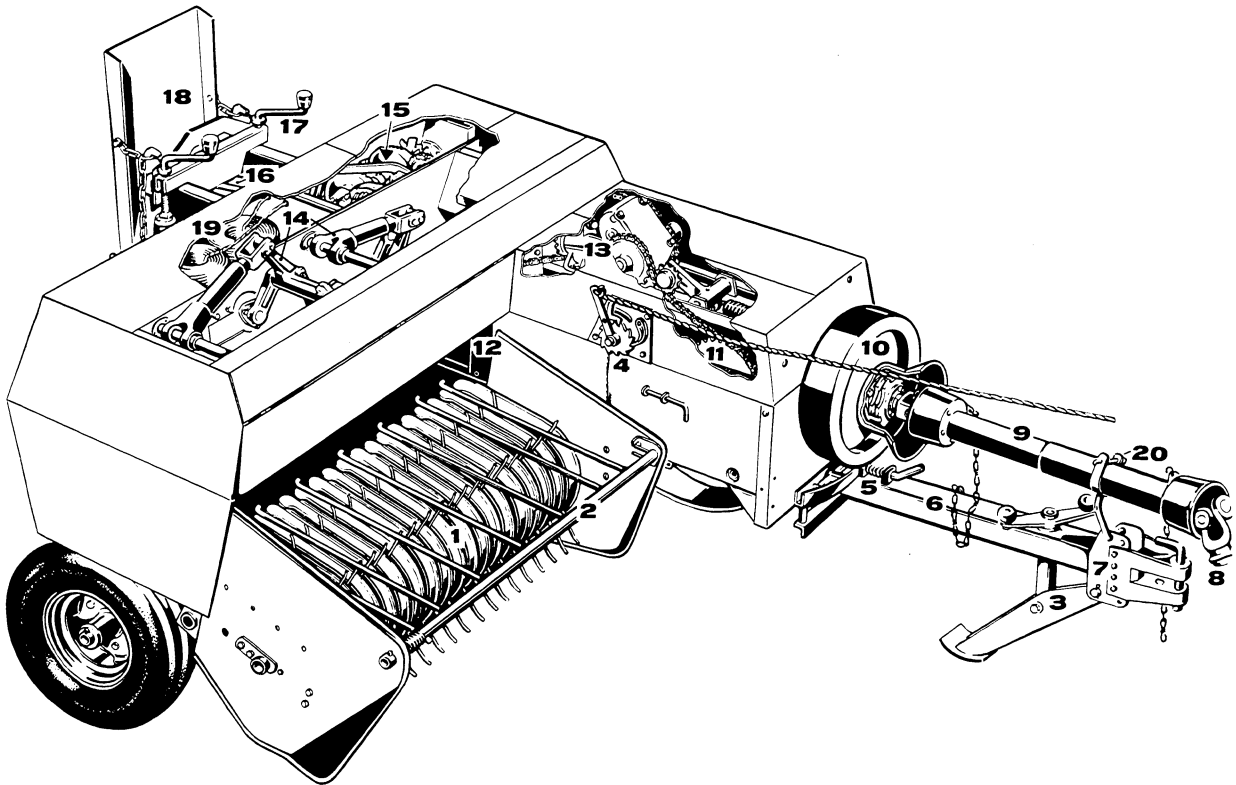
Model DOMINANT

Group 2

2 - 1/0

Cross section of machine

Cross section of CLAAS-DOMINANT



Key

- | | |
|-------------------------------|-----------------------------------|
| 1 Pick-up | 11 Hypoid gear box |
| 2 Compressing rake | 12 Baling ram with knife |
| 3 Draw bar jack | 13 Intermediate transmission |
| 4 Pick-up lift | 14 Feeder |
| 5 Lateral adjustment | 15 Knotter |
| 6 Draw bar | 16 Bale chamber |
| 7 Draw bar clevis | 17 Bale chamber adjusting handles |
| 8 P.T.O. drive shaft coupling | 18 Bale chute |
| 9 P.T.O. drive shaft | 19 Twine box |
| 10 Flywheel | 20 P.T.O. drive shaft support |

Cross section of machine

Model CONSTANT

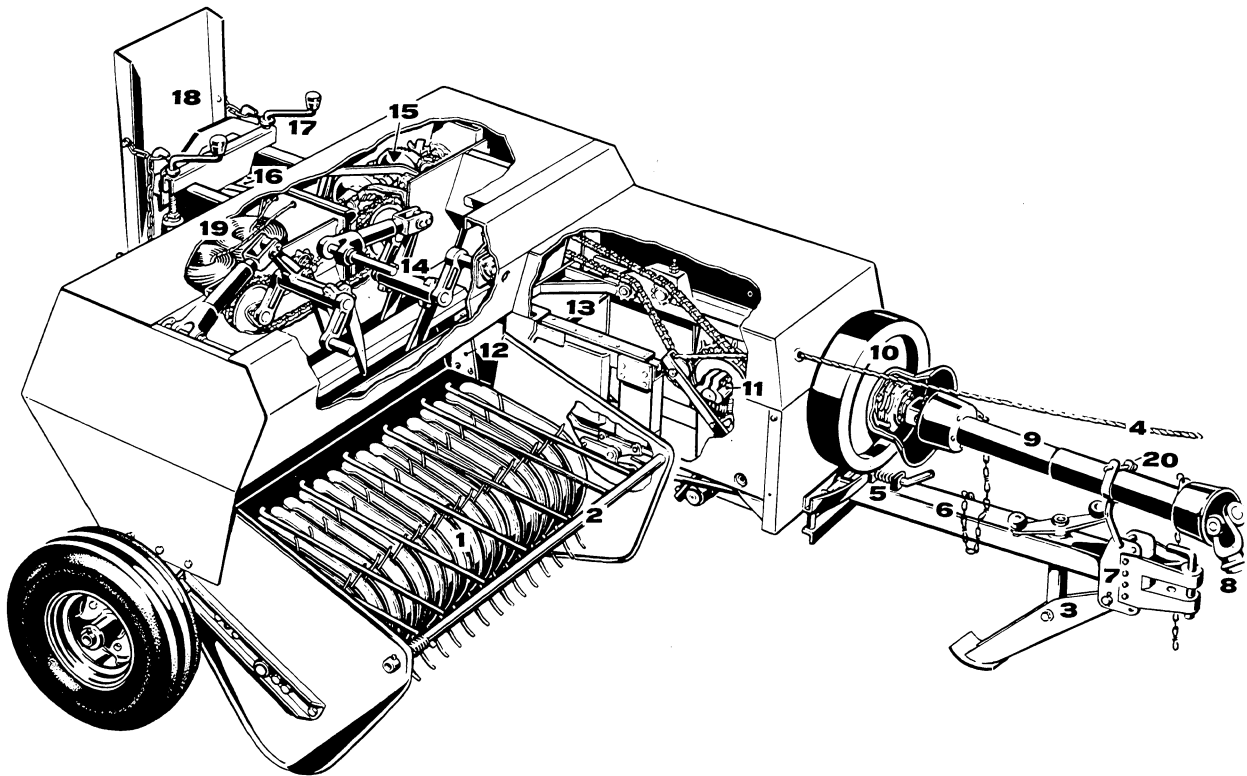
Group 2

2 - 1/0

Cross section of machine

CONSTANT

Cross section of CLAAS - CONSTANT



CONSTANT

Key

- | | |
|-------------------------------|-----------------------------------|
| 1 Pick-up | 11 Hypoid gear box |
| 2 Compressing rake | 12 Knife |
| 3 Draw bar jack | 13 Baling ram |
| 4 Pick-up lift | 14 Feeder |
| 5 Lateral adjustment | 15 Knotter |
| 6 Draw bar | 16 Bale chamber |
| 7 Draw bar clevis | 17 Bale chamber adjusting handles |
| 8 P.T.O. drive shaft coupling | 18 Bale chute |
| 9 P.T.O. drive shaft | 19 Twine box |
| 10 Flywheel | 20 P.T.O. drive shaft support |

Cross section of machine

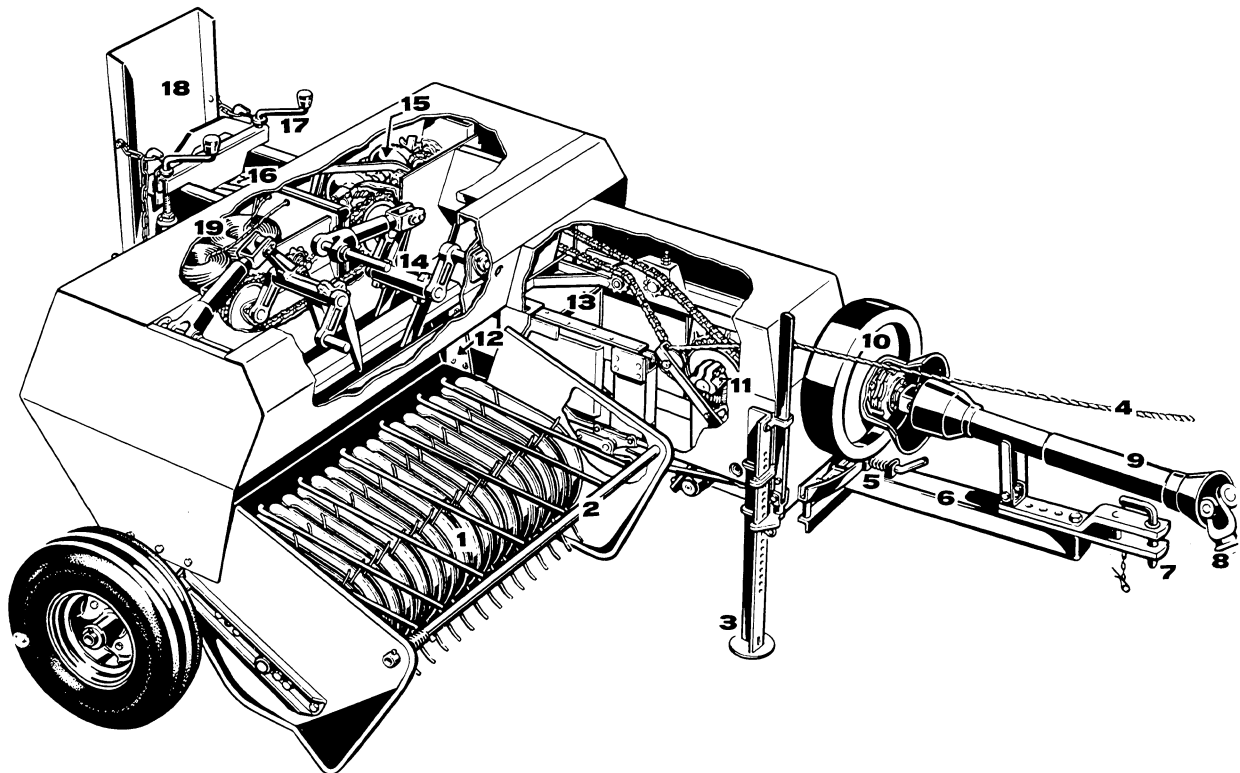
Model MARKANT

Group 2

2 - 1/0

Cross section of machine

Cross section of CLAAS - MARKANT



Key

- | | |
|-------------------------------|-----------------------------------|
| 1 Pick-up | 11 Hypoid gear box |
| 2 Compressing rake | 12 Knife |
| 3 Draw bar jack | 13 Baling ram |
| 4 Pick-up lift | 14 Feeder |
| 5 Lateral adjustment | 15 Knotter |
| 6 Draw bar | 16 Bale chamber |
| 7 Draw bar clevis | 17 Bale chamber adjusting handles |
| 8 P.T.O. drive shaft coupling | 18 Bale chute |
| 9 P.T.O. drive shaft | 19 Twine box |
| 10 Flywheel | |

Cross section of machine

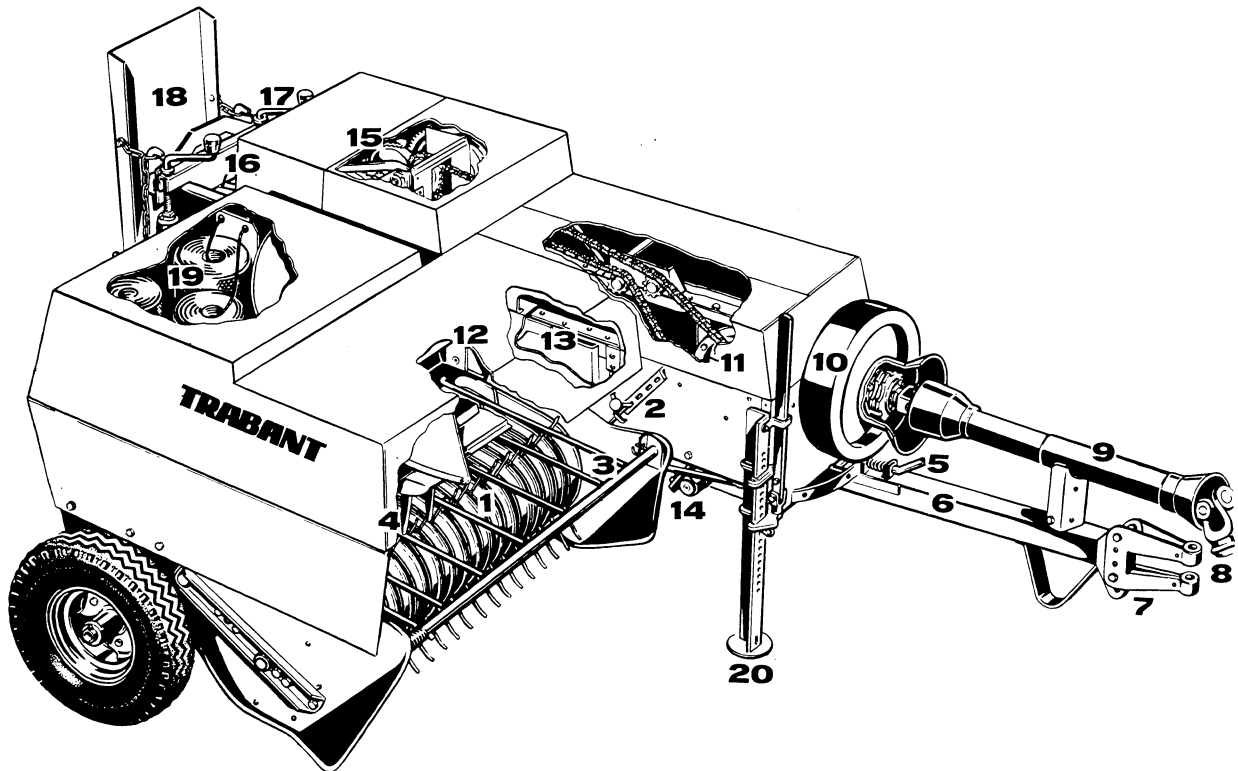
Model TRABANT

Group 2

2 - 1/0

Cross section of machine

Cross section of CLAAS - TRABANT



Key

- | | |
|-------------------------------|-----------------------------------|
| 1 Pick-up | 11 Hypoid gear box |
| 2 Pick-up height adjustment | 12 Knife |
| 3 Compressing rake | 13 Baling ram |
| 4 Feeder tines | 14 Ram connecting rod |
| 5 Lateral adjustment | 15 Knotter |
| 6 Draw bar | 16 Bale chamber |
| 7 Draw bar clevis | 17 Bale chamber adjusting handles |
| 8 P.T.O. drive shaft coupling | 18 Bale chute |
| 9. P.T.O. drive shaft | 19 Twine box |
| 10 Flywheel | 20 Baler jack |

Maschinenantriebe

Drive schematic

Schéma des commandes

Accionamientos

Exquema das transmissões

Trasmissioni

Drivning

Kraftlinier

Aandrijvingen

Pogoni mašine

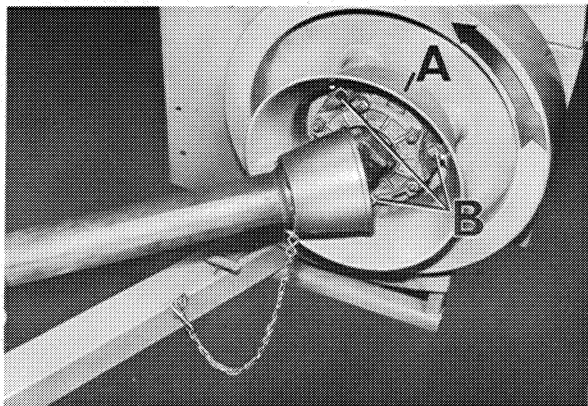
Machine drives

Model DOMINANT

Group 3

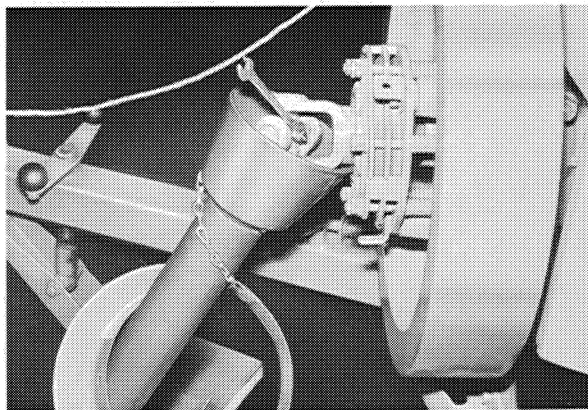
- | | |
|----------|--|
| 3 - 1/0 | P.T.O. drive shaft |
| 3 - 3/0 | Slip clutch on flywheel |
| 3 - 3/0 | Flywheel |
| 3 - 4/0 | Main transmission |
| 3 - 7/0 | Removing and dismantling intermediate transmission |
| 3 - 10/0 | Assembling intermediate transmission |
| 3 - 12/0 | Timing |

Removing and dismantling P.T.O. shaft:



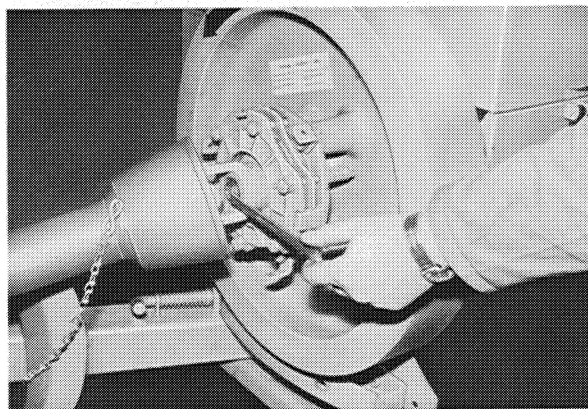
1

Detach shield (A) from the three brackets (B).
(Fig. 1)



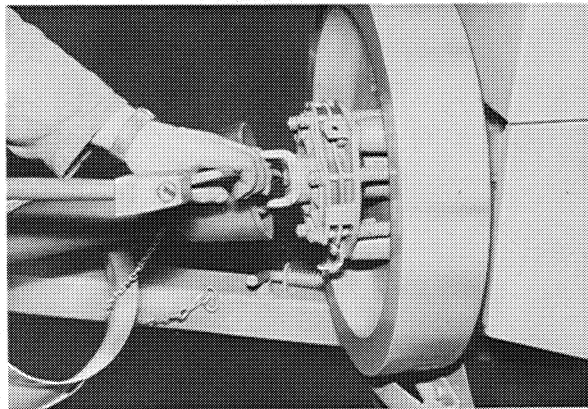
2

To safeguard grease nipple against damage when pulling off the universal joint, remove it.
(Fig. 2)



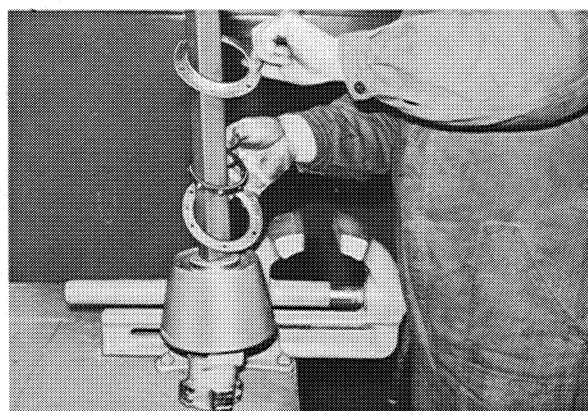
3

Screw M 12 fitting screw, facing the front, out of the stub, remove retaining washer and refit screw.
(Fig. 3)



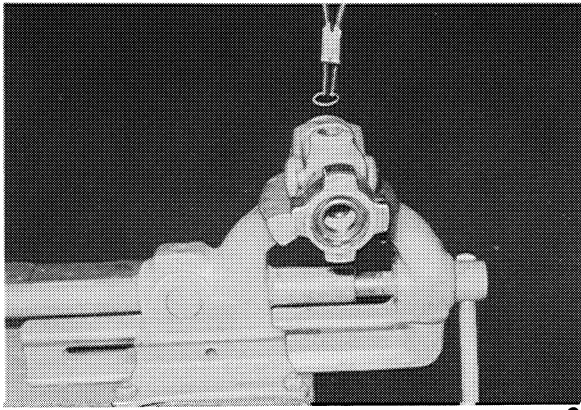
4

Drive key extractor between universal joint and screw head (turning the screw out as necessary) thus pulling the universal joint off the stub.
(Fig. 4)



5

Remove rivets and take P.T.O. shaft guard apart to replace the square tube or to work on the universal joint. To reconnect the P.T.O. shaft guard use screws in place of hollow rivets, if no rivets are not on hand.
(Fig. 5)

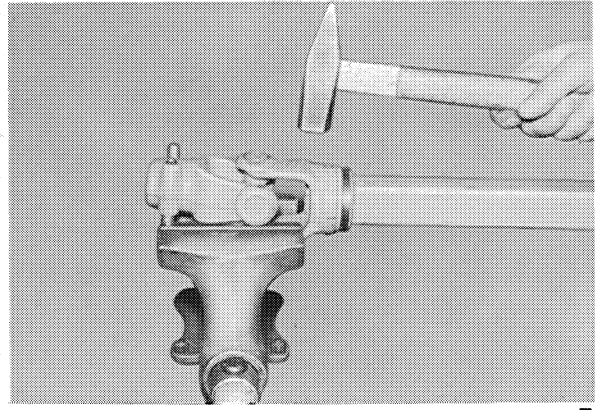


6

Taking universal joint apart:

To replace needle bearing or cross of universal joint, first remove the circlips on each side of joint.

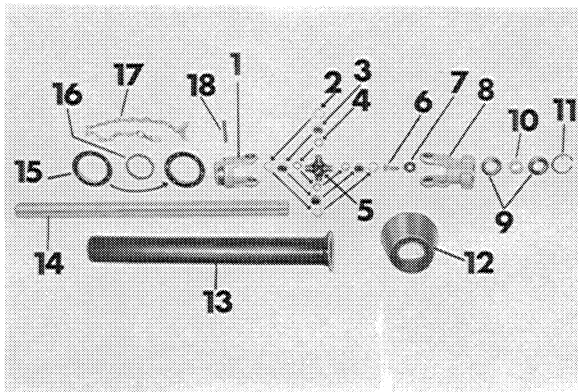
(Fig. 6)



7

Put universal joint on a vise and drive bearing bushings off spider.

(Fig. 7)

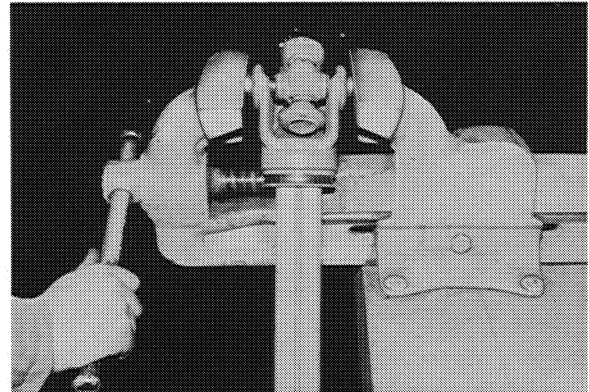


8

Universal joint taken apart:

- 1 - Fork
- 2 - Circlips (four)
- 3 - Needle bearing bushings (four)
- 4 - Seal rings (four)
- 5 - Universal joint spider
- 6 - Fitting bolt M 12 x 25 8 G DIN 933
- 7 - Retaining washer 12.5 x 3.5 x 4
- 8 - Fork, on machine side
- 9 - Bearings (two)
- 10 - Spacer
- 11 - Circlip
- 12 - Guard
- 13 - Guard tube
- 14 - Square tube
- 15 - Bearing caps (two)
- 16 - Ball retainer
- 17 - Chain
- 18 - Roll pin

(Fig. 8)



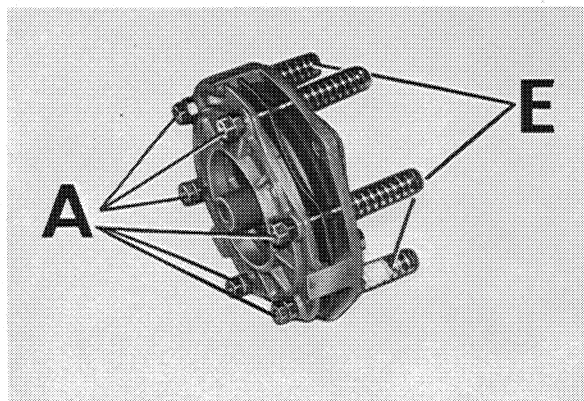
9

When assembling universal joint position bushings straight on the spider ends and press them on evenly by means of a vise.

(Fig. 9)

CAUTION! Do not drive bushings home with a hammer. Doing so will damage the needle bearings.

Dismantling slip clutch:



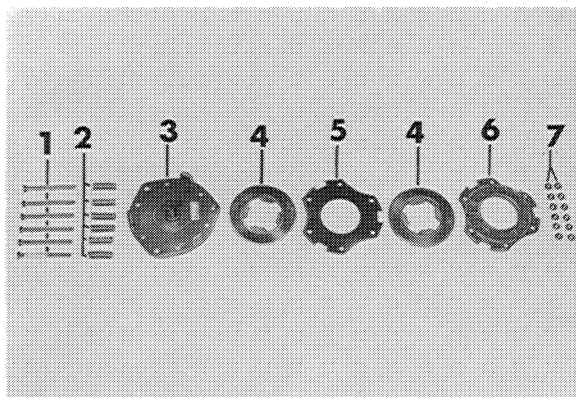
10

To dismantle slip clutch remove the P.T.O. shaft and unbolt slip clutch from flywheel. Remove bolts (A) together with pressure springs (E) to take slip clutch apart.

A – Hex. bolts M 10 x 1 x 110

E – Pressure springs

(Fig. 10)



11

Slip clutch taken apart:

1 - Hex. bolts M 10 x 1 x 110 5 D – DIN 960 (six)

2 - Pressure springs (six)

3 - Clutch flange

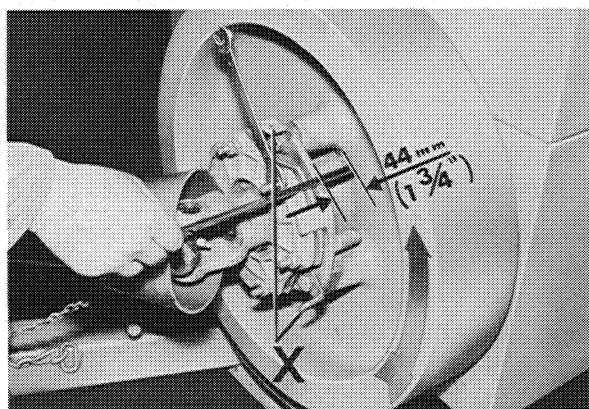
4 - Driving discs (two)

5 - Intermediate disc

6 - Front disc of clutch

7 - Nuts and lock nuts (twelve)

(Fig. 11)

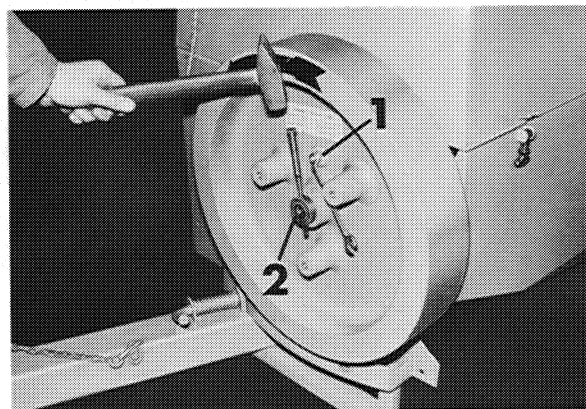


12

Before mounting bolt the clutch and P.T.O. shaft together. Then attach clutch together with the brackets (X) holding the shield to flywheel.

Set torque by adjusting the six bolts and compressing springs to a length of 40 mm (1 3/4 in.).

(Fig. 12)



13

Removal of flywheel:

Remove roll pin of stop collar (2) and unscrew shear bolt (1).

(Fig. 13)