

# **TYM**

## **OPERATOR'S MANUAL**

### **FOR**

### **TRACTORS**

**ET350 ECONO**



**BYUCKSAN GROUP**  
**TONGYANG MOOLSAN CO., LTD.**

# **JIANGDONG**

## **Off-Road compression-Ignition Engine**

### **Emission Control System Warranty statement**

#### **EMISSION RELATED SYSTEM DEFECT WARRANTY**

The warranty period shall begin on the engine or equipment purchaser of certified fuel.

JIANGDONG Group.co. warrants to the ultimate purchaser and each subsequent purchaser of certified off-road compression-ignition engine (powering off-road machines and equipment), that such engine is;

- 1) Designed, built, and equipped so as to confirm with all applicable regulations adopted by the Environmental Protection Agency.
- 2) Free from defects in materials and workmanship which cause the failure of a warranted part to be identical in all material respects to the part as described in the engine manufacturer's application for certification for period of five years for 3000 hours of operation, whichever occurs first, for all engines rated at 19kw and greater, except as noted below, in the absence of a device to measure hours of use, the engine shall be warranted for a period of five years. For all engines rated less than 19kw, and for constant speed engine rated under 37kw with rated speeds higher than or equal to 3000 rpm, the period of two years or 1500 hours of operation, whichever occurs first, shall apply, in the absence of a device to measure hours of use, the engine shall be warranted for a period of two years.

If a warranted part fails because of a defect during the terms of this warranty, JIANGDONG will repair or replace it at any authorized JIANGDONG dealer. Any other parts damaged by the failure of a warranted part will also be repaired or replaced. The repair and/or replacement will be made at no charge to the owner for parts, labor and diagnosis. Any such part repaired or replaced under the warranty shall be warranted for the remaining warranty periods.

In case of emergency, repairs may be performed at any service establishment, or by the owner, using any replacement part.

JIANGDONG Group.co.will reimburse the owner for their expenses, including diagnostic charges for such emergency repair. These expenses shall not exceed JIANGDONG Group.co. suggested retail price for all warranted parts replaced, and labor charges based on JIANGDONG Group.co.recommended time allowance for the warranty repair and geographically appropriate hourly labor rate.

A part not available within 30 days or a repair not being complete within 30 days constitute an emergency.

As a condition of reimbursement, replaced parts and receipt invoices must be presented at a place of business of an authorized JIAGDONG engine dealer or other establishment and authorized by JIANGDONG Group.co.

This warranty covers the following emission-related parts and components.

- Fuel Injection pump
- Nozzle Assembly
- Injection pipe
- Turbocharger (if equipped)
- Intake, Exhaust manifold

If failure of these components results in failure of another part, both will be covered by this warranty. Any replacement part may be used for maintenance or repairs. The owner should ensure that such parts are equivalent in design and durability to JIANGDONG genuine parts.

Use of non-genuine JIANGDONG parts does not invalidate the warranty. However JIANGDONG Group.co. is not liable for parts, which are not genuine JIANGDONG parts.

## **RESPONSIBILITY AND LIMITATIONS.**

These warranties are subject to the following:

### **JIANGDING Group.co.RESPONSIBILITIES.**

During the emission warranty period, if a defect in material or workmanship of a warranted parts or component is found. JIANGDONG Group.co.will provide;

-New, remanufactured, or repaired parts and-or components required to correct the defect.  
Items replaced under this warranty become the property of JIANGDONG Group.co.

-Labor, during normal working hours, required to make the warranty repair.  
This includes diagnosis and labor to remove and install the engine, if necessary.

### **Owner's Warranty Responsibilities.**

As the JIANGDING Group.co. off-road compression-ignition owner, you are responsible for the performance of the required maintenance listed in your Owner's Manual. JIANGDONG Group.co. cannot deny warranty solely for the lack of required maintenance was the reason for the repair, then the claim will be denied.

You are responsible for presenting your JIANDONG engine to a DIANGDONG Group.co.dealer as soon as a problem exists. The warranty repairs should be completed in a reasonable amount of time, not to exceed 30 days.

As the JIAMGDONG engine owner, you should also be aware that JIANGDONG Group.co.may deny you warranty coverage if your JIANGDONG engine or parts has failed due to abuse, neglect, improper maintenance or unapproved, modifications. If you have any questions regarding your warranty rights and responsibilities, you should contact JIANGDONG Group.co.

Division at 1801 Quality Drive

## **LIMITATION**

The emission control system defects warranty and the emission control system performance warranty shall not apply to: - malfunctions in any part directly caused by abuse, misuse, modification, improper adjustment except those done by a dealership during warranty service work, alterations, tempering connections, improper or inadequate maintenance, neglect or use of leaded diesel or other fuels not recommended in the owner's Manual.

- Damage resulting from accident or an Act of God.
- Failure that are a direct result of a lack of performance of required emission control maintenance as outlined in your Owner' Manual.
- Parts or accessories used in applications for which they were not designed or not approved for use on the engine by JIANGDONG Group.co.
- Parts not supplied by JIANGDONG Group.co.or damage to other parts caused directly by non-JIANGDONG Parts or non-equivalent parts.
- The charge for diagnostic labor which does not lead to the determination that a warrantable condition exists.
- JIANGDONG Group.co.is not responsible on which or consequential damages such as downtime or loss-use of engine powered equipment.
- Although you purchase the equipment on which JIANGDONG engine is mounted, if the equipment is not manufactured by JIANGDONG, you will make contact with purchasing dealer.

## **EMERGENCY SERVICE**

If emergency Emission Control System Warranty service is required and the owner is unable to readily locate an authorized JIANGDONG dealer or if a warranted part is available within 30 days, then, repairs may be performed at any available service establishment, or by the owner, using any replacement part. JIANGDONG will reimburse the owner for the owner's expenses including diagnostic charges for such emergency repair or replacement at JIANGDONG's suggested retail price for all warranted parts replaced and labor charges based on JIANGDONG's recommended time allowance for the warranty repair and the geographically appropriate hourly labor rate. Replaced part and copies of paid original receipts must be available for presentation to JIANGDONG as a condition of reimbursement for these emergency repairs.

In addition, the owner must provide JIANGDONG a detailed description indicating why the situation was considered an emergency and why an authorized JIANGDONG dealer was not being complete within 30 days constitutes an emergency.

## FOREWARD

Thank you for purchasing our ET 350 ECONO tractor. ET 350 ECONO tractor is characterized by its compact construction, and big excess power. With relevant implement, it can make various kind or work, such as plowing, **Rototilling**, harrowing, seeding, harvesting, irrigation, electric generation, transportation and gardening, etc...

The correct usage, adjustment and maintenance of the tractor may prolong their service life, and give their full play. This book, for this reason, is complied to provide the above information for owners of the tractor. The user of the tractor is required to read this book carefully before putting the tractor into operation, and strictly to observe the regulations and instructions in using and servicing the tractors.

This Operation Manual excludes the information for engine chapter, which you can find on the separate Engine Operation Manual attached with.

With the requirements of customers and the developments of engineering science, this product will be improved continuously. So please notice the contents of the book may be somewhat not accordance with the tractor you have owned. We will publish new one periodically.

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# CHAPTER 1. MAIN SPECIFICATIONS OF TRACTOR

## General specifications

| Tractor Model                                    |             | ET 350 ECONO                              |
|--------------------------------------------------|-------------|-------------------------------------------|
| Type                                             |             | Frameless, 4WD tractor                    |
| Rated draft(kn/kgf)                              |             | 9.14/932                                  |
| Dry weight(kg)                                   |             | 1450                                      |
| Min. operation weight(kg)                        |             | 1565                                      |
| Wheel tread(mm)                                  | Front wheel | 1160                                      |
|                                                  | Rear wheel  | 1100~1400                                 |
| <b>Radius of turning circle(m)</b>               |             |                                           |
| With one side braked                             |             | 3.4                                       |
| Without braking                                  |             | 3.8                                       |
| Min,ground clearance(mm)                         |             | 290                                       |
| Overall dimensions(mm)                           |             |                                           |
| Length                                           |             | 3070                                      |
| Width                                            |             | 1493                                      |
| Height(to the top of steering wheel)             |             | 1540                                      |
| <b>Theoretical travel speed of tractor(km/h)</b> |             |                                           |
| 1st gear                                         |             | 1.74                                      |
| 2nd gear                                         |             | 2.20                                      |
| 3rd gear                                         |             | 3.58                                      |
| 4th gear                                         |             | 5.68                                      |
| 5th gear                                         |             | 6.83                                      |
| 6th gear                                         |             | 8.63                                      |
| 7th gear                                         |             | 14.04                                     |
| 8th gear                                         |             | 22.27                                     |
| 1st rev. Gear                                    |             | 1.63                                      |
| 2nd rev.Gear                                     |             | 6.38                                      |
| <b>Engine</b>                                    |             |                                           |
| Model                                            |             | TY395E                                    |
| Type                                             |             | Vertical,in-line,water-cooled,four-stroke |
| Number of cylinders                              |             | 3                                         |
| Bore X <b>Stroke</b> (mm)                        |             | 95/105                                    |

|                                            |             |                                                                                      |
|--------------------------------------------|-------------|--------------------------------------------------------------------------------------|
| <b>Tractor Model</b>                       |             | <b>ET 350 ECONO</b>                                                                  |
| Rated speed(r/min)                         |             | 230                                                                                  |
| Rated output(kW/hp)                        |             | 25.7/35                                                                              |
| Max.torque(Nm)                             |             | $\geq 122.7$                                                                         |
| Speed at max. torque(r/min)                |             | $\leq 1725$                                                                          |
| Fuel consumption(g/kWh)                    |             | 245                                                                                  |
| Oil consumption(g/kWh)                     |             | $\leq 2.04$                                                                          |
| Method of lubrication                      |             | Pressure and splash combined                                                         |
| Method of cooling                          |             | Closed and forced water circulation                                                  |
| Method of starting                         |             | Electric starting                                                                    |
| Rotating direction(as viewed from the fan) |             | Clockwise                                                                            |
| <b>Transmission system</b>                 |             |                                                                                      |
| Clutch                                     |             | Dry single-disk constant engagement or Double Belleville spring interlock controlled |
| Gear box                                   |             | Straight gear (4+1) X 2                                                              |
| Central drive                              |             | Spiral bevel gear                                                                    |
| Differential                               |             | Two bevel planetary-gear, closed type                                                |
| Final drive                                |             | External exterior engagement, straight gear type                                     |
| Brake                                      |             | Pedal, mechanical-actuated, closed shoe-type                                         |
| <b>Running and steering system</b>         |             |                                                                                      |
| Type of drive                              |             | Rear-wheel drive                                                                     |
| Type of front axle                         |             | Tube with adjustable wheel tread                                                     |
| Specification of tire                      | Front wheel | 6.50-16                                                                              |
|                                            | Rear wheel  | 11.2-24                                                                              |
| Tire pressure(MPa)                         | Front wheel | 0.23~0.25                                                                            |
|                                            | Rear wheel  | 0.10~0.12                                                                            |
| Toe-in(mm)                                 |             | 3~11                                                                                 |
| Camber, front wheel                        |             | 2°                                                                                   |
| Kingpin inclination                        |             | 10°                                                                                  |
| Kingpin caster                             |             | 0                                                                                    |
| Steering gear                              |             | Worm and roller or BZZ1-80 fully-hydraulic                                           |
| Ackerman steering                          |             | Backward of axle                                                                     |
| Working facilities                         |             |                                                                                      |
| Hydraulic lift                             |             |                                                                                      |
| Type                                       |             | Partial separated units                                                              |
| Working depth control                      |             | Draft and position control combined                                                  |

|                                         |                                                                                                                                                                                                                                                                                                              |
|-----------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Tractor Model</b>                    | <b>ET 350 ECONO</b>                                                                                                                                                                                                                                                                                          |
| Oil pump type                           | CBN316L                                                                                                                                                                                                                                                                                                      |
| Opening pressure of relief Valve(MPa)   | 13.7                                                                                                                                                                                                                                                                                                         |
| <b>Hydraulic cylinder</b>               |                                                                                                                                                                                                                                                                                                              |
| Type                                    | Horizontal, single-action piston type                                                                                                                                                                                                                                                                        |
| Bore(mm)                                | 85                                                                                                                                                                                                                                                                                                           |
| Stroke(mm)                              | 110                                                                                                                                                                                                                                                                                                          |
| Distributor                             | Sliding valve control type                                                                                                                                                                                                                                                                                   |
| Rated lift capacity(at hitch shaft)(kN) | 8.33                                                                                                                                                                                                                                                                                                         |
| <b>Suspension linkage</b>               |                                                                                                                                                                                                                                                                                                              |
| Type                                    | Rear-mounted, three - point ball joint, category I                                                                                                                                                                                                                                                           |
| Upper hitch pin diameter(mm)            | $\phi 19 \begin{smallmatrix} +0.51 \\ +0.30 \end{smallmatrix}$                                                                                                                                                                                                                                               |
| Lower hitch pin diameter                | $\phi 22.4 \begin{smallmatrix} +0.33 \\ +0 \end{smallmatrix}$                                                                                                                                                                                                                                                |
| <b>Power take-off shaft</b>             |                                                                                                                                                                                                                                                                                                              |
| Type                                    | Non-independent or semi-independent                                                                                                                                                                                                                                                                          |
| Dimensions of spline                    | 8-spline- $38 \begin{smallmatrix} +0.032 \\ +0.100 \end{smallmatrix}$ X $29 \begin{smallmatrix} 0 \\ -0.28 \end{smallmatrix}$ X $6 \begin{smallmatrix} -0.04 \\ -0.01 \end{smallmatrix}$ or<br>6-spline- $34.79 \pm 0.06$ X $28.91 \pm 0.05$ X $8.69 \begin{smallmatrix} -0.040 \\ -0.098 \end{smallmatrix}$ |
| <b>PTO Speed(r/min)</b>                 | 540,1000                                                                                                                                                                                                                                                                                                     |
| <b>Electrical system</b>                |                                                                                                                                                                                                                                                                                                              |
| Type                                    | 12V, Negative-grounded, single-line system                                                                                                                                                                                                                                                                   |
| Alternator                              | JF11(14V,350W) or FWB 15C31                                                                                                                                                                                                                                                                                  |
| Regulator                               | FT-70 or FT-111                                                                                                                                                                                                                                                                                              |
| Starting motor                          | QD146                                                                                                                                                                                                                                                                                                        |
| Battery                                 | 6-QA-90                                                                                                                                                                                                                                                                                                      |
| Head light                              | 12V upper beam 45W. Lower beam 40W                                                                                                                                                                                                                                                                           |
| Tail light                              | 12V 32CP                                                                                                                                                                                                                                                                                                     |
| Multi - indicating panel                |                                                                                                                                                                                                                                                                                                              |
| <b>Filling capacities(l)</b>            |                                                                                                                                                                                                                                                                                                              |
| Fuel tank                               | 40                                                                                                                                                                                                                                                                                                           |
| Engine cooling system                   | 7~9                                                                                                                                                                                                                                                                                                          |
| Engine oil sump                         | 4.5                                                                                                                                                                                                                                                                                                          |
| Fuel injection pump                     | 0.3                                                                                                                                                                                                                                                                                                          |
| Hydraulic oil tank                      | 5.7                                                                                                                                                                                                                                                                                                          |
| Chassis                                 | 20.8                                                                                                                                                                                                                                                                                                         |
| Hydraulic lift                          | 7                                                                                                                                                                                                                                                                                                            |
| Front drive axle                        | 6                                                                                                                                                                                                                                                                                                            |
| Intermediate Housing                    | 3.5                                                                                                                                                                                                                                                                                                          |

## CHAPTER 2. SAFETY REGULATIONS AND IMPORTANT INSTRUCTIONS

### 2.1 SAFETY INSTRUCTIONS

#### RECOGNIZE SAFETY INFORMATION

This symbol means **ATTENTION! YOUR SAFETY IS INVOLVED.** The message that follows the symbol contains important information about safety. Carefully read the message



#### SIGNAL WORDS.

A signal word—DANGER, WARNING OR CAUTION—is used with safety alert symbol. DANGER identifies the most serious hazards. Safety signs with signal Word —DANGER OR WARNING—are typically near specific hazards. General precautions are listed on CAUTION safety signs.



**DANGER**



**WARNING**

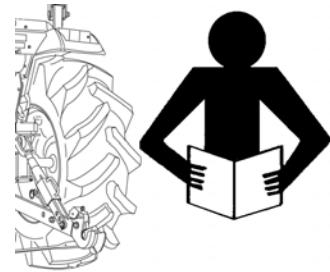


**CAUTION**

#### READ SAFETY INSTRUCTION

Carefully read all safety instructions given in this manual for your safety. Tempering with any of the safety devices can cause serious injuries or death. Keep all safety signs in good condition. Replace missing or damaged safety signs.

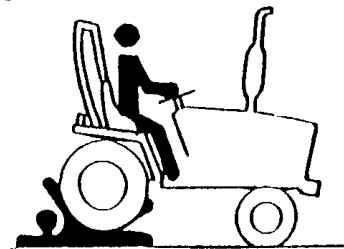
Keep your tractor in proper condition and do not allow any unauthorized modifications to be carried out on the Tractor, which may impair the function/safety and affect Tractor life.



#### PROTECTION CHILDREN

Keep children and others away from the Tractor while operating.  
**BEFORE YOU REVERSE**

- Look behind Tractor for children.
- Do not let children to ride on Tractor or any implement.



### USE OF ROPS AND SEAT BELT

The Roll Over Protective Structure(ROPS) has been certified to industry and/or government standards. Any damage or alternation to the ROPS, mounting hard-ware, or seat belt voids the certification and will reduce or eliminate protection for the operator in the event of a roll-over. The ROPS, mounting hardware, and seat belt should be checked after the first 100 hours of Tractor and every 500 hours thereafter for any evidence of damage, wear or cracks. In the event of damage or alteration, the ROPS must be replaced prior to further operation of the Tractor.

The seat belt must be worn during machine operation when the machine is equipped with a certified ROPS.

Failure to do so will reduce or eliminate protection for the operator in the event of a roll over.



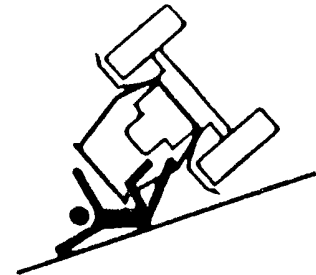
### PRECAUTION TO AVOID TIPPING

Do not drive where the Tractor could slip or tip.

Stay alert for holes and rocks in the terrain, and other hidden hazards.

Slow down before you make a sharp turn.

Driving forward out of a ditch or mired condition could cause Tractor to tip over backward. Back out of these situations if possible

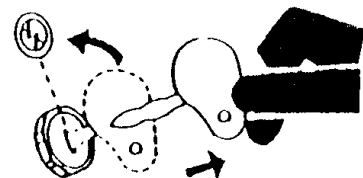


### PARK TRACTOR SAFELY

Before working on the Tractor ;

Lower all equipment to the ground.

Stop the engine and remove the key



### KEEP RIDERS OFF TRACTOR

Do not allow riders on the Tractor.

Riders on Tractor are subject to injury such as being stuck by foreign objects and being thrown off of the Tractor



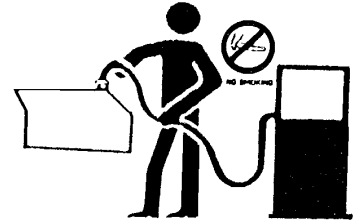
### **HANDLE FUEL SAFELY-AVOID FIRES**

Handle fuel with care; it is highly flammable. Do not refuel the Tractor while smoking or near open flame or sparks.

Always stop engine before refueling Tractors.

Always keep your tractor clean of accumulated grease, and debris.

Always clean up spilled fuel.



### **STAY CLEAR OF ROTATING SHAFTS**

Entanglement in rotating shaft can cause serious injury or death.

Keep PTO shield in place at all times.

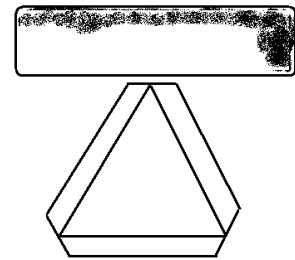
Wear close fitting clothing. Stop the engine and be sure PTO drive is stopped before making adjustments, connections, or cleaning out PTO driven equipment.



### **ALWAYS USE SAFETY LIGHTS AND DEVICES**

Use of hazard warning lights and turn signals are recommended when towing equipment on public roads unless prohibited by state or local regulations.

Use slow moving vehicle (SMV) sign when driving on public road during both day & night time, unless prohibited by law



### **PRACTICE SAFE MAINTENANCE**

Understand service procedure before doing work.

Keep the surrounding area of the Tractor clean and dry.

Do not attempt to service Tractor when it is in motion.

Keep body and clothing away from rotating shafts.

Always lower equipment to the ground. Stop the engine.

Remove the key. Allow Tractor to cool before any work repair is caused on it.

Securely support any Tractor elements that must be raised for service work.

Keep all parts in good condition and properly installed.

Replace worn or broken parts. Replace damage/missing decals.

Remove any buildup of grease or oil from the Tractor.

Disconnect battery ground cable(–) before making adjustments on electrical systems or welding on Tractor



### **AVOID HIGH-PRESSURE FLUIDS**

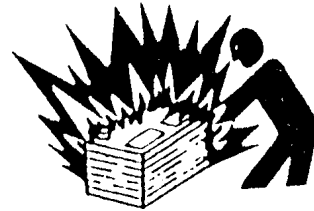
Escaping fluid under pressure can penetrate the skin causing serious injury. Keep hands and body away from pinholes and nozzles, which eject fluids under high pressure. If ANY fluid is injected into the skin. Consult your doctor immediately.



### **PREVENT BATTERY EXPLOSIONS**

Keep sparks, lighted matches, and open flame away from the top of battery. Battery gas can explode.

Never check battery charge by placing a metal object across the poles.



### **PREVENT ACID BURNS**

Sulfuric acid in battery electrolyte is poisonous. It is strong enough to burn skin, cause holes in clothing and cause blindness if found entry into eyes.

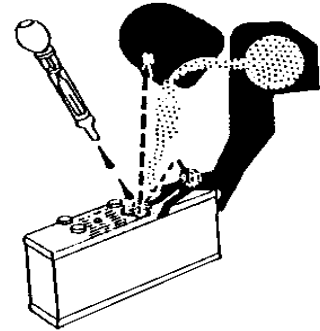
For adequate safety always;

- 1.Fill batteries in a well-ventilated area.
- 2.Wear eye protection and acid proof hand gloves
3. Avoid breathing direct fumes when electrolyte is added.
4. Do not add water to electrolyte as it may splash off causing severe burns.

If you spill acid on yourself;

- 1.Flush your skin with water.
- 2.Flush your eyes with water for 10-15 minutes.

Get medical attention immediately.



### **SERVICE TRACTOR SAFELY**

Do not wear a necktie, scarf or loose clothing when you work near moving parts. If these items were to get caught, severe injury could result.

Remove rings and other jeweler to prevent electrical shorts and entanglement in moving parts.



### **WORK IN VENTILATED AREA**

Do not start the Tractor in an enclosed building unless the doors & windows are open for proper ventilation, as tractor fumes can cause sickness or death. If it is necessary to run an engine in an enclosed area remove the exhaust fumes by connecting exhaust pipe extension.



### **TRACTOR RUNAWAY**

1. The tractor can start even if the transmission is engaged position causing Tractor to runaway and serious injury to the people standing nearby the tractor.
2. For additional safety keep the pull to stop knob (fuel shut off control) in fully pulled out position. Transmission in neutral position, Foot brake engaged and PTO lever in disengaged position while attending to Safety Starter Switch or any other work on Tractor.

### **SAFETY STARTER SWITCH**

1. Clutch operated safety switch is provided on all Tractors which allow the starting system to become operational only when the Clutch pedal is fully pressed.
2. Do not By-pass this safety starter switch or work on it. Only Authorized Dealers are recommended to work on safety starter switch.
3. On some models Safety Starter switch is provided on transmission High-low shifter lever and in PTO shifter lever. The tractor can be started only if High-low shifter lever is in neutral position.



Caution

Safety Starter Switch is to be replaced after every 2000 hours/4 years, whichever is earlier

## 2.2 Safety Regulations

- (1) Only those people who have been trained properly are allowed to drive a tractor.
- (2) Before moving a tractor, you must observe whether there are obstacles on the road, especially whether there is a man between the tractor and its trailer or its implement.
- (3) Nobody is permitted to get on or alight from a moving tractor. While the engine is running, nobody shall be allowed to work under the tractor for inspection and repair.
- (4) When climbing or going down a steep hill, drive only at low gear. It is not permitted to shift gear under such conditions.
- (5) When a tractor is used for transportation, the left and right brake pedals must be locked together.
- (6) Never make sharp turns when the tractor is being driven at high speeds. It is even more strictly forbidden to make sharp turns with one side braked.
- (7) Frequently inspect the tightness of bolts and nuts, fasten those connections such as the engine and the chassis, driving wheels(or paddy wheels) and the axle shaft, steering gear and intermediate housing, etc.. Retighten any loosening of bolts and nuts.
- (8) At the time of personnel changing shift, any troubles occurred with the tractor must be informed to the workers of next shift. If necessary, the troubles must be eliminated before the tractor is assigned to work.

## 2.3 Important instructions

- (1) Tractors that are newly delivered from the plant or rebuilt must undergo running – in process according to the requirements stated in Chapter 3 before being assigned to work under normal load.
- (2) Before starting the tractor, you must inspect the fuel system, electric system, cooling system and the lubrication system. In any condition, it must not be permitted to fill unfiltered fuel into the fuel tank, After starting the engine, you must ensure that the instruments or meters are working normally.
- (3) When moving the tractor with implements attached, hydraulic lock of lifter must be turned to the locking position.
- (4) When hydraulic power output is used, the lift arm shall be at the lowest position and the cutoff valve shall be turned in. On the other hand, if the attached implement is used for fields work, the cut-off valve shall be turned out. It is not allowed to work both at the same time.
- (5) When the tractor is used for stationary work through the use of belt and pulley system, the range shift lever must be put in the neutral position, and the main gear shift lever must be in the 1st or 2ed gear position, thus ensuring good lubrication of the front bearing of the 1st shaft in the transmission housing.
- (6) This tractor is equipped with silicon rectifier alternator whose negative terminal is grounded. Any mistake of wiring will damage the alternator and the regulator. It is strictly forbidden to make short circuit tests by contacting the terminal to the ground, as this will destroy the diode. When the engine is stopped, the key shall be turned to the position “0” to prevent the battery from continued discharging.

## 2.4 (ROPS) Roll Over Protective Structures

### Roll Over Protective Structures (ROPS)

ET 350 ECONO tractor is equipped with a frame for the protection of operators.

In the case of cab tractors the frame is incorporated in the cab structure.

The objective of the frame or cab structure is to protect the operator in the event of a roll over and they are designed to support the entire weight of the tractor in that event.

ET 350 ECONO tractor's ROPS frame or cab structure is designed and has been tested to meet industry and or Government standards.

Included in these tests were all mounting bases and bolts or other fasteners.

### DANGER

**For ROPS frames to be effective and protect the operator, the seat belt provided must be worn in order to keep operators within the ROPS protected area in the event of a roll over. Failure to use the seat belt can still cause serious injury or death.**

On some models the ROPS frame has a fold down feature, which can be used to enter low buildings etc.

Take care when lowering the upper section of the ROPS frame and take extreme care while driving the tractor with the ROPS frame lowered.

Do not wear the seat belt with the ROPS lowered and please remember that the fold down facility is for special circumstances only and must not be lowered for general use.

### **Use of the tractor with the ROPS lowered can cause fatal injuries.**

As the ROPS frame or cab together with the seat belt was designed to meet certain standards, they must be maintained in good order and condition.

To achieve this objective, both the structure and the seat belt should be inspected on a regular basis (every time the tractor is serviced)

In the event that the seat belt is damaged or frayed, it should be replaced and in the event that the ROPS frame or any part of the mounting structure is damaged or cracked, the faulty component must be replaced with a new unit.

Such a unit must meet all of the test criteria of the original unit.

Fitment of an inferior item or items affects the certification of the entire ROPS structure and the effectiveness of the structure in the event of an accident.

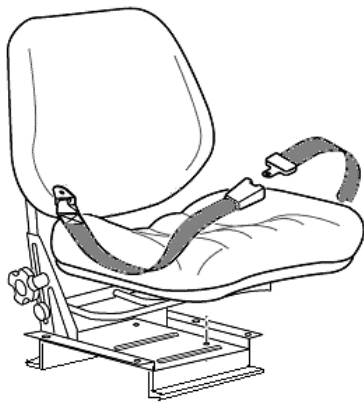
**Drilling or welding of the ROPS structure is forbidden.**

### **Damage of the ROPS**

If the tractor has rolled over or the ROPS has damaged (such as striking an overhead object during transport), It must be replaced to provide the original protection. After an accident, check for damages to the 1.ROPS. 2.Seat 3.seat belt & seat mountings. Before you operate a Tractor, replace all damaged parts.

### **DO NOT WELD, DRILL OR STRAIGHTEN THE ROPS**

|                                                                                                       |                                                                                                                                                                                                                                                                                                           |
|-------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <br><b>Warning</b>   | Never attach chains, ropes to the ROPS for pulling purposes; this will cause the Tractor to tip backwards. Always pull from the Tractor drawbar. Be careful when driving through door opening or under low overhead objects. Make sure there is sufficient overhead clearance for the ROPS fatal injuries |
| <br><b>Warning</b>   | If the ROPS is removed or replaced, make certain that the proper hardware is used to replace the ROPS and the recommended torque values are applied to the attaching bolts                                                                                                                                |
| <br><b>Warning</b> | Always wear your seat belt if the tractor is equipped with ROPS                                                                                                                                                                                                                                           |



**Sliding seat**

**FOR Sliding seat**

To select Seat position, move Adjusting lever and slide Seat closer to or away from Dash panel and controls.

**NOTE:** Do not use solvents to clean the seat. Use warm water with a little detergent added.

Before operating a Tractor it is important to adjust the seat to the most comfortable position & check whether it is properly locked in its position. Figure 1 identifies the seat fitted to your Tractor.

|                                                                                                      |                                                                                                                                                                                              |
|------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <br><b>Danger</b> | Check whether the seat properly locked in its position before driving the tractor                                                                                                            |
| <br><b>Danger</b> | Always use the seat belt when the ROPS is installed. Do not use the seat belt if a foldable ROPS is down or there is no ROPS. Check the seat belt regularly and replace if frayed or damaged |

## 2.5 SAFETY SIGNS

(Replace all missing, damaged or illegible signs)

### GENERAL SAFETY INFORMATION

IMPORTANT: This “**General safety Information**” should be kept with the machine at all times as reference data.



This symbol means **ATTENTION! YOUR SAFETY IS INVOLVED.**

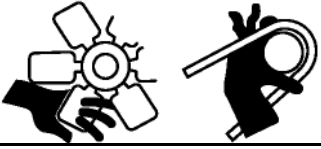
The message that follows the symbol contains important information about safety. Follow recommended precautions and safe operating practice.



## WARNING

- Before starting and operating know the operating and safety instructions in the operators Manual and on the tractor
- Clear the area of bystanders.
- Locate and know operation of controls.
- Start engine only from Operator’s seat with depressed clutch pedal, transmission in the neutral , PTO disengaged and hydraulic control in lower position
- Slow down on turns, rough ground and slopes to avoid upset.
- Do not permit anyone but the operator to ride on the tractor. There is no safe place for rider.
- Lock brakes together, use warning lights and SMV emblem while driving on roads.
- Lower equipment, place gear shift levers in neutral, stop engine, remove the key and apply parking brake before leaving the tractor seat.
- Air pressures are specified by the manufacturer

**FAILURE TO FOLLOW ANY OF THE INSTRUCTIONS ABOVE CAN CAUSE SERIOUS INJURY TO THE OPERATOR.**

|                                                                                                  |
|--------------------------------------------------------------------------------------------------|
|  <b>CAUTION</b> |
|                 |
| <p>KEEP HANDS AND CLOTHING AWAY FROM ROTATING FAN AND BELTS TO PREVENT SERIOUS INJURY</p>        |

|                                                                                                  |
|--------------------------------------------------------------------------------------------------|
|  <b>WARNING</b> |
|                 |
| <p>It is dangerous to remove the radiator cap while the system is hot .</p>                      |

|                                                                                     |
|-------------------------------------------------------------------------------------|
|  |
|  |
| <p><b>Operator's Manual</b></p>                                                     |



|                                                                                                                                                                                                                                                  |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  <b>CAUTION</b>                                                                                                                                               |
| <p>TO PROTECT ENGINE AND HYDRAULIC COMPONENTS.</p> <ul style="list-style-type: none"> <li>● Idle engine for 1 minute before shut down or full load operation.</li> <li>● Do not exceed 1/2 throttle for first 5 minutes of operation.</li> </ul> |

|                                                                                      |                                                                                                                                                                        |
|--------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  |  <b>CAUTION</b>                                                                   |
|                                                                                      | <p>Rotating driveline contact can cause Death</p> <p><b>KEEP AWAY !</b></p> <p>Keep all drive line.</p> <p>Tractor and equipment shields in place during operation</p> |



## DANGER

BLINDNESS CAN RESULT FROM BATTERY EXPLOSION. KEEP SPARKS OR OPEN FRAMES AWAY FROM BATTERY. DO NOT JUMP START. BURNS CAN RESULT FROM BATTERY ACID. IN CASE OF CONTACT FLUSH IMMEDIATELY WITH WATER .



## WARNING

- Pull only from drawbar. Pulling from any other point can cause rear overturn.
  - Do not operate with unshielded PTO.
  - Disengage PTO and stop engine before servicing tractor or attaching and detaching implements.
  - When towing equipment use a Safety chain
- FAILURE TO FOLLOW ANY OF THE INSTRUCTIONS ABOVE CAN CAUSE SERIOUS INJURY TO THE OPERATOR OR OTHER PERSONS.**



## WARNING

- Start engine only from operators seat. If safety start switch is bypassed engine can start with transmission in gear.
  - Do not connect or short across terminal on starter solenoid.
  - Attach booster cables as shown on battery decal and operators manual.
- Starting in gear causing runaway can result in serious injury.**

### FRONT TYRE (6.5-16) PRESSURE

Air pressure: 23~25PSI

### REAR TYRE (11.2-24) PRESSURE

Air pressure: 10~12 PSI



## WARNING

DO NOT REST FOOT ON CLUTCH PEDAL. MAY RESULT IN DAMAGE TO CLUTCH ASSEMBLY.

## UNIVERSAL SYMBOLS

Some of the universal symbols have been shown below with an indication of their meaning

|                                                                                     |                                  |                                                                                     |                                 |                                                                                       |                                          |
|-------------------------------------------------------------------------------------|----------------------------------|-------------------------------------------------------------------------------------|---------------------------------|---------------------------------------------------------------------------------------|------------------------------------------|
|    | Engine speed<br>rev/minX100)     |    | Pressured-<br>open slowly       |    | Corrosive<br>substance                   |
|    | Hours,<br>recorded               |    | Continuous<br>variable          |    | "Tortoise"<br>Slow or<br>minimum Setting |
|    | Engine<br>coolant<br>temperature |    | Warning                         |    | "Hare" fast or<br>maximum<br>setting     |
|    | Fuel level                       |    | Hazard<br>warning               |    | Transmission<br>oil pressure             |
|   | Engine<br>Stop<br>control        |  | Neutral                         |  | Turn signal                              |
|  | Lights                           |  | Fan                             |  | Transmission<br>oil temperature          |
|  | Horn                             |  | Power take<br>off engaged       |  | parking brake                            |
|  | Engine oil<br>pressure           |  | Power<br>take off<br>Disengaged |  | Work lamps                               |
|  | Air filter                       |  | Lift arm/raise                  |  | Differential<br>lock                     |
|  | Battery charge                   |  | Lift arm/lower                  |  | See<br>operator's<br>manual              |

## CHAPTER 3. OILING AND RUNNING – IN PROCESS

### 3.1 Oiling and Fueling of Tractor

#### 1. Oiling and Fueling Points of the Tractor

The oiling and fueling points of the tractor & Specification of fuel and lubricants are shown in Table 3-1

Table 3-1 Specifications of fuels and lubricants for tractor

| Fueling and Oiling points                                                                                                                                                                                                                                        | Brand of fuel and lubricants                                                                      |                                                                                                      |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------|
|                                                                                                                                                                                                                                                                  | At ambient temperature above 0°C                                                                  | At ambient temperature below 0°C                                                                     |
| Fuel tank                                                                                                                                                                                                                                                        | No.0 light diesel fuel(GB252-87)                                                                  | No.10 light diesel fuel(GB252-87)                                                                    |
| Engine oil sump,speed governor                                                                                                                                                                                                                                   | No.HC-11 diesel engine oil (SY1152-77)<br>Recommended foreign brand :<br>SAE 30 Oil or equivalent | No.HC-8 diesel engine oil (SY1152-77)<br>Recommended foreign brand :<br>SAE 15W/30 Oil or equivalent |
| Hydraulic lift, oil tank                                                                                                                                                                                                                                         | No.HC-11 diesel engine oil (SY1152-77)<br>Recommended foreign brand :<br>SAE 30 Oil or equivalent | No.HC-8 diesel engine oil (SY1152-77)<br>Recommended foreign brand :<br>SAE 15W/30 Oil or equivalent |
| Final drive, front driving axle                                                                                                                                                                                                                                  | 90-GL-3 gear oil or gear oil<br>SAE 80                                                            | 85W-90-GL-3 gear oil or gear oil<br>SAE 80                                                           |
| 2 grease nipples in clutch bearings                                                                                                                                                                                                                              | ZN-sodium based lubrication grease (GB492-87) Recommended foreign brand : BRB3-MOBIL              |                                                                                                      |
| 15 grease nipples, including 1 nipple in each of water pump bearing, left and right steering arm, two front driving shafts and front/rear bush seats ; 2 nipples in each of axle bushing of clutch pedal & intermediate housing, 4nipples in connection rod ends | ZG-2 calcium based lubrication grease (GB491-65) Recommended foreign brand : AA2, B2-MOBIL        |                                                                                                      |

#### 2. Instructions on the Use of Fuel

- (1) Fuel must be settled for at least 48 hours before used.
- (2) Fuel must be carefully filtered when it is handled
- (3) It is not permitted to wipe any containers or fuel line connections with felts, cotton waste or used cloth.

### **3.2 Running-in of a New Tractor**

A new tractor or a rebuilt tractor must be properly run-in so that the fitting and contacting surface of the parts can be well contact with each other, resulting in that the tractor can withstand loads more reliably without the early worn or damaging of the parts.

#### **1. Preparations before Running-in**

- (1) Inspect and tighten all accessible bolts and nuts.
- (2) Fill up lubricating oil, fuel and water to the rated level.
- (3) Clean all external parts of the tractor.

#### **2. Running-in of the Tractor**

##### **A. Idling running-in of the engine (10 min)**

Start the engine according to the specified procedures. With the raising of water temperature and oil temperature, gradually increase the speed. Carefully inspect whether there are leakages of water, oil or gases. Listen to the engine for any abnormal noise. Be careful to watch the water temperature gauge, oil pressure gauge, and ammeter to see if they are working normally.

##### **B. Running-in of hydraulic hitch system (10min)**

When the tractor is properly attached with its implement and the engine is kept at its rated speed, operate the control handle and thus raise and descend the implement for at least 20 times. To prevent possible damage of the implement, this test must not be carried out on ground with hard surface.

##### **C. Running-in of tractor without load (2 hours)(Table 3-2)**

After starting the tractor according to specified procedures, run the tractor without load according to the following specifications.

During running-in of the tractor without load, it is required to make turns both to the right and to the left. It is also required to make turns with brakes. In such running-in procedures, the following should be noted :

- (1) Observe and listen to the engine, power trains, wheels and steering system to see whether they are working properly.
- (2) Notice whether the clutch, brake and gear – shifting are working normally and conveniently.
- (3) Observe whether the instruments, meter and the electric equipment are working normally.

When any abnormality or troubles are found, they shall be analyzed immediately to find out the causes. Then only after removal of the troubles, can the running-in procedure be resumed.

##### **D. Running-in of tractor with load (48hours)**

Running-in the tractor with load is the procedure that make tractor to work with a certain load.

Load and speed must be increased from low to high as specified in the Table 3-3

Table 3-2 Time to run-in tractor without load

| Speed      | 3rd | 4th | 5th | 6th | Rev.1 |
|------------|-----|-----|-----|-----|-------|
| Time (min) | 20  | 30  | 30  | 30  | 10    |

Table 3-3 Time in hours of the tractor running-in under load

| Running-in<br>time(hrs)<br>Load(Kgf) | Gear of<br>Transmission | 3rd | 4th | 5th | 6th | total |
|--------------------------------------|-------------------------|-----|-----|-----|-----|-------|
| 170 (1/4 load)                       |                         | 3   | 4   | 5   | 5   | 17    |
| 340 (1/2 load)                       |                         | 3   | 5   | 5   | 5   | 18    |
| 510 (3/4 load)                       |                         | 3   | 5   | 5   |     | 13    |

Under conditions when it is hard to provide tractor with specified load, it is permissible to replace the load with same equivalent work. During the running-in periods, any trouble and working condition should be recorded in detail.

### 3.3 Work on the Tractor after Running-in

- (1) After running-in, drain immediately the oil cells in different parts of the tractor chassis while it is still warm. Then fill some kerosene or diesel fuel into the Oil cells, run the tractor for 2~3min in the 2nd and reverse 1st speed. Raise up and descend down the hitch for a few times. Stop the tractor and immediately drain out the flushing oil. Once again the cells are filled with clean new oil.
- (2) While the engine is still warm, drain the oil from the oil sump. After cleaning the oil sump and the oil filter, fill new clean oil into the engine.
- (3) Inspect and tighten all accessible bolts and nuts.
- (4) After inspecting and adjusting, add grease to the nipples.
- (5) Record all findings and conclusions. Only after this, can the tractor be delivered to the customers for normal usage.

## CHAPTER 4. OPERATION FOR TRACTOR

### 4.1 Controls and Instruments

The controls and the instruments of the tractor are shown in Fig.4-1, Fig.4-2, Fig.4-3

#### 1. Preheating Starting switch 10 (Electricity lock)(Fig.4-2)

Insert key into the switch. Turn the key clockwise, the electrical equipment and battery are connected, the preheating plug is preheated, then continue to turn it to the “start” position.

#### 2. Front head light switch 23

Push the switch to the upside, the front head light(upper beam) is turned on, and its pilot lamp is turned on ; (No.1) When in the neutral position, the front head light is turned off.

#### 3. Steering light switch

Push the switch to the upside, the left steering light (is turned on,) and the left steering pilot lamp in the gauge is turned on; Push the switch to the downside, the right steering light (is turned on,) and the right steering pilot lamp is turned on; when in the neutral position, the steering light and steering pilot lamp are turned off.

#### 4. Hand throttle 26 (Fig.4-2)

Pull the hand throttle backward, the fuel flow will increase. While push it forward, fuel flow will decrease.

#### 5. Shut-off full rod 22 (Fig.4-2)

Pull rod backward, the engine will be stopped. Then push it forward to the original position.

#### 6. Foot throttle 15 (Fig. 4-2)

Depress the pedal down, the fuel flow will increase : loosen it, the fuel flow will decrease .

#### 7. Decompressing lever 12 (Fig. 4-2)

Turning the lever clockwise is for the decompressing position.

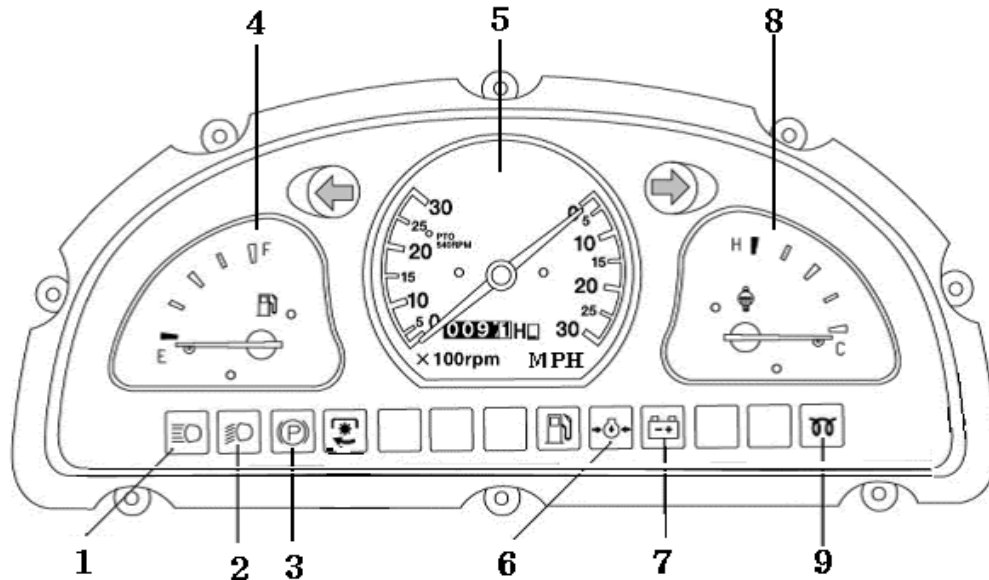
#### 8. Main and sub-shifting levers 19,20 (Fig. 4-2)

The positions of main and sub-shifting levers are as shown in the mark carved in the top surface of upper front cover of transmission housing. Shift the two levers into different positions respectively, various forward and reverse speeds can be obtained. The neutral position is in the middle.

#### 9. Clutch pedal 21(Fig. 4-2)

Depress the pedal, the release arm will touch stop screw, thus the clutch is disengaged.

## ► WARNING LIGHTS



(Fig.4-1) Instruments and Warning Light

- |                            |                                   |                      |              |
|----------------------------|-----------------------------------|----------------------|--------------|
| 1. Front head pilot lamp   | 2. Tail pilot lamp                | 3. Brake pilot lamp  | 4. Oil gauge |
| 5. Rated speed/Hour gauge  | 6. Oil pressure pilot lamp        | 7. Charge pilot lamp |              |
| 8. Water temperature gauge | 9. Starting/Preheating pilot lamp |                      |              |

### 10. Left and right brake pedals 13, 17 (Fig. 4-2)

Depress the left brake pedal to brake the left driving wheel, the left turning radius of the tractor can be reduced. Depress the right brake pedal to brake the right driving wheel, the right turning radius can be reduced.

### 11. Charge pilot lamp 7 (Fig.4-1)

Turn the key clockwise, the electrical equipment is connected, the charging lamp is lighting and starting the engine; When the battery is being charged, the pilot lamp is turned off. If it is turned on, it means the charging system has problem.

### 12. Water temperature gauge 8 (Fig.4-1)

The gauge shows the water temperature of the cooling system. The normal water temperature is in the range of 70~90°C

### 13. Rated speed gauge 5 (Fig.4-1) The gauge shows the rated speed of engine. And accumulate working time of engine.

### 14. Oil pressure pilot lamp 6 (Fig.4-1)

Turn the key clockwise, the electrical equipment is connected, the lamp is lighting and starting the engine, the lamp will be turned off, it means the oil pressure is normal; otherwise oil pressure is abnormal.

### 15. Brake lock plate 14 (Fig.4-2)

The brake lock plate can connect left and right pedals as a whole so that the left and right driving wheels can be braked simultaneously when the pedals are depressed.

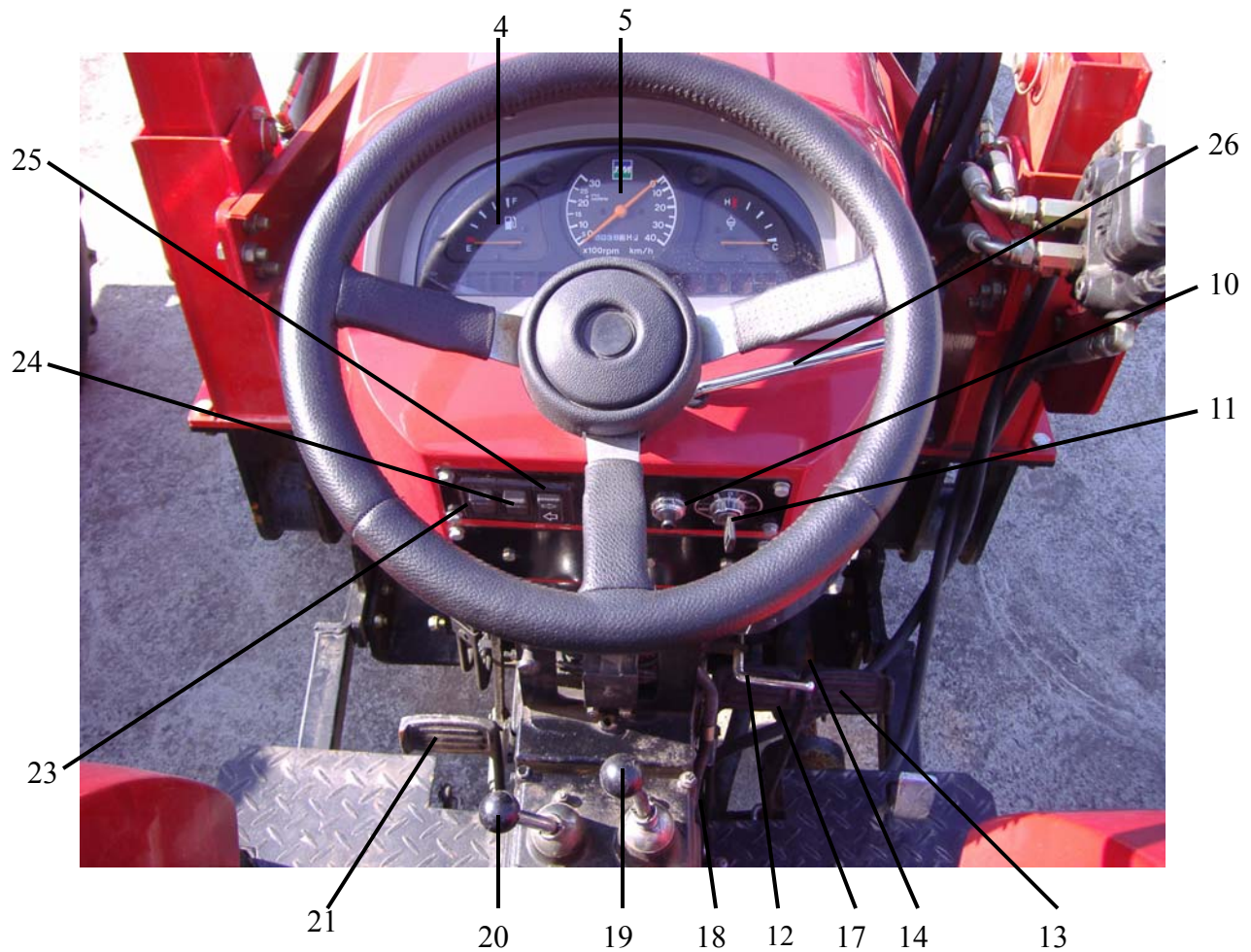


**Fig.4-2 Tractor controls**

- |                       |                             |                            |                                |
|-----------------------|-----------------------------|----------------------------|--------------------------------|
| 10. Electricity lock  | 11. Horn button             | 12. Decompression handle   | 13. Brake pedal RH             |
| 14. Lock plate        | 15. Foot throttle           | 16. Draft control          | 17. Brake pedal LH             |
| 18. Brake pawl        | 19. Main gear shift lever   | 20. Range gear-shift lever | 21. Clutch pedal               |
| 22. Shut-off pull rod | 23. Front head light switch | 24. Tail light switch      | 25. Steering pilot lamp switch |
| 26. Throttle handle   |                             |                            |                                |

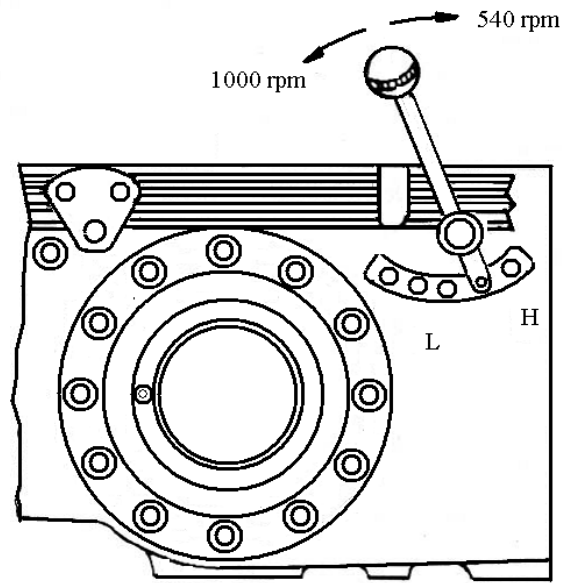


Fig.4-3 Control lever of PTO shaft

**16. Brake lock pawl 18 (Fig.4-2)**

The brake lock pawl is used when the tractor is parked on a slope or in storage for a long period. Push the pawl up to lock brake pedals so that the brake can be kept in braking. Pull the pawl back, the parking will be eliminated.

**17. Fuel gauge**

Turn the key clockwise, the electrical equipment is connected, it indicates how much fuel in the fuel tank.

**18. Control lever of PTO shaft (Fig.4-3)**

For the engagement of the power take-off shaft, shift the lever forward or backward for high or low speed respectively. Place the lever in middle position to disengage the shaft.

**19. Implement lowering speed control valve**

This valve has the following function ; (1) Adjust the lowering speed of the implement. (2) Lock the implement to keep it in lifting position. (3) Block the oil circuit feeding to cylinder and then ready for doing hydraulic power take-off.

**20. Lifter control handle 16 (Fig.4-3)**

The upper segment on the sector plate is for position control, the middle for combined control and the lower for draft control.

## 4.2 Operating and Driving

### 1. Starting the Engine

#### A. Preparations for the starting

- (1) Perform daily inspection and service (see chapter 6 for details). Remove all troubles discovered.
- (2) Put the shifting levers at the “neutral” position.
- (3) Open the fuel cock on the sediment cup.
- (4) Push the fuel feed pump to remove air in the supply system.
- (5) Turn the crankshaft a few circles with the crank.

#### B. Starting procedure

- (1) Put the throttle handles at the position of maximum fuel supply.
- (2) Insert the key into electric lock, turn it to starting position for about 5 seconds. Then engine will start.

#### C. Points to be noticed and auxiliary measures for starting.

- (1) The key should be turned to the change position after starting the engine.
- (2) When it is difficult to start the engine, put the **decompressor** to the decompression position and key to the preheating position. After about 10 seconds, the key is turned quickly to the starting position. After another 5 seconds the decompression mechanism is invalidated and the engine will be started.
- (3) For each starting, the electric starter shall not be run over 5 seconds. When the starting failed for the first time, it can be tried again after the elapse of 2 minutes. When the engine failed to start for 3 times, the **cause** shall be investigated and removed.
- (4) When the atmospheric temperature is lower than 0°C, the engine will be hard to start. It is permissible to add hot oil of 75~80°C into the oil sump. Also, hot water of 80~90°C can be added into the radiator.

#### D. Operation of the engine after starting.

- (1) After starting the engine, immediately return throttle handle to the “Idling” position for a few minutes
- (2) After idling, the engine speed is gradually increased to the medium speed range for about 10 seconds. To warm up the engine, the speed is again increased to 1000~1500r/min.
- (3) Only after the water temperature has reached over 60°C, can the engine be permitted to work at full load.

## 2. Start to move the Tractor

- (1) Loosen the fixing pawl of the brake pedals.
- (2) Depress the clutch pedal and put the shifting lever at the required speed.
- (3) Gradually depress the throttle and raise the engine speed.
- (4) Sound the horn if necessary. Be sure that nothing will obstruct the movement of the tractor.
- (5) Gradually engage the clutch, thus starting the tractor.

## 3. Driving The Tractor

### A. Selecting the speed

It will increase the productivity and the economical gains when the speed is properly chosen.

For the proper usage of the various speeds, see Table 4-1.

The 1st, 2nd and 3rd speeds can not be used for plowing and harrowing (even more so with the purpose to get greater draft force), otherwise, the transmission system will be seriously overloaded to cause damage of the tractor.

### B. When driving, take notice of the following points:

- (1) Notice frequently the readings of the meters. Water temperature gauge, normally at 70~90°C. Oil pressure gauge, normally at 0.2~0.4MPa. Ammeter, normally at the middle or in the positive range. Any undue readings shall be investigated and the trouble removed.
- (2) Listen carefully to the engine. If there be any abnormal or knocking sound, the engine shall be immediately stopped to the remove the abnormalities.
- (3) Sharp turns can be made only when the tractor is at low speed. When the tractor is working in the fields, particularly in the paddy fields, turn with single side braking can be made. In transportation work, it is strictly forbidden to make single side braking to make sharp turn at high speeds.
- (4) It is forbidden to continuously run the engine under overload when black fumes will come out of the exhaust pipe.
- (5) It is not permitted to rest the foot on the clutch pedal or brake pedal, nor is it permissible to drive down-hill in the neutral gear or with the clutch disengaged. When passing over obstructions, must decrease throttle or put the gear-shift lever to low position. It is not allowed to control the speed of the tractor with maneuvering of the brakes fail to work, the tractor must be stopped for repairing.
- (6) When the tractor is working in the paddy fields, if the front end of the tractor tends to rise up, the clutch pedal should be immediately depressed to cut off the driving torque, thus avoiding the danger of overturning the tractor.

#### 4. Stopping the engine and the Tractor

- (1) Decrease the throttle opening and depress clutch pedal. When necessary, depress also the brake pedal, thus halting the tractor.
- (2) Put the shifting levers to the neutral position, release the clutch pedal and lock the brake pedal if necessary.
- (3) Idling the engine for something until the water temperature drops to below 70°C, then pulling the shut-off pull rod to stop the engine. It is strictly forbidden to stop the engine suddenly from high temperature.

Table 4-1 Usage of various speeds of tractor

| gear  | 1st                                | 2nd | 3rd        | 4th                            | 5th | 6th | 7th            | 8th |
|-------|------------------------------------|-----|------------|--------------------------------|-----|-----|----------------|-----|
| Usage | Rotary tillage,<br>Transplantation |     | Harvesting | Plowing, harrowing and seeding |     |     | Transportation |     |

#### 4.3 Operation of the Working facilities

##### 1. Operation and Control of the PTO Shaft (see Fig.4-3)

- (1) Put the control lever of the PTO shaft at neutral position. Remove the PTO shaft guard and connect reliably the PTO shaft to the implement.
- (2) Depress the clutch pedal. Depending on the requirement of the implement the control lever of the PTO shaft is set at the high or low position
- (3) Gradually release the clutch pedal to start the implement. First run the implement at low speed to inspect the the operation condition. If it runs normally, it will be put to work in the normal condition.

##### 2. The Operation and Control of the Hydraulic Lift System (see Fig 5-12, 5-13)

##### (1) The main technical specifications of hydraulic lift system

|                                |                                                                         |
|--------------------------------|-------------------------------------------------------------------------|
| Type                           | : Partial separated units                                               |
| Working depth control          | : Position control, draft and position combined control, float control  |
| Type of pumping                | : CB310(right-handed)(ET 350 ECONO)<br>CB310(left-handed)(ET 350 ECONO) |
| Displacement of oil pump(mL/r) | : 10;14                                                                 |
| Change over valve              | : Two-position, Y-way sliding type                                      |

|                              |                                       |
|------------------------------|---------------------------------------|
| Opening pressure (MPa) of    |                                       |
| system release valve         | : $14 \pm 0.5$                        |
| cylinder release valve       | : $18 \pm 0.5$                        |
| Rated lifting capacity(N)    | : 7850(at lower draw-bar hitch point) |
| Dim. and Qty. of oil outlets | : M18X1.5;1                           |

## (2) To operate the hydraulic lift

When a tractor operates in the field, the control of working depth is selected according to its attachments and job requirements. There are three ways available for working depth control through putting the control handle at different positions on the sector plate, which include position control, draft and position combined control and float control. The upper segment on the sector plate is for position control, the middle for combined control and the lower for draft control.

There are a hydraulic output connection and a control valve for lowering speed, located on the cylinder head in the front end of hydraulic lift. The lowering speed control valve also hand wheel clockwise will slow down the lowering speed. As the hand wheel is turned to the end, the pressure oil in the cylinder will completely sealed to lock the hydraulic system. Hydraulic locking is necessary when a tractor attached with implement travels from one spot to another. When the hydraulic output is used, the lifting arm must be at its lowest position and the hydraulic system must be completely locked to enclose oil from entering into the cylinder. To supply hydraulic output, operate the handle.

## 4.4 Operation of Electrical Equipment

The electrical equipment of the tractor is used to start engine, meet the needs of giving indication signals and lighting for operation at night, etc.. Therefore it is very important to use the electrical equipment correctly.

### 1. Battery

#### A. Preparation

- (1) Clean the surface of a new battery. Screw off the plastic cover and make the air hole on the cover open.
- (2) The specific gravity of the electrolyte used in the battery is  $1.26(15^{\circ}\text{C})$  in the tropics,  $1.28(15^{\circ}\text{C})$  in temperate zone and  $1.29(15^{\circ}\text{C})$  in frigid zone. Fill the battery with the electrolyte when it cooled to  $25\sim 30^{\circ}\text{C}$ . After a standstill of 20 minutes, the battery can be used.
- (3) The electrolyte level should be 10~15mm above the protecting plate.
- (4) If the battery is stored over a year, it should be charged with electric current of 11.5A for 5 hours.

## B. Routine use

- (1) In routine use the dust and dirt on the battery surface should be cleaned periodically and keep the terminals and all contacts in good connecting condition.
- (2) Keep the air hole on the plastic cover unimpeded so as to protect the battery from trouble because of too much gas in the battery.
- (3) Check the height of electrolyte level periodically (Fig.4-4). The height of electrolyte level is within 10~15mm in the measuring tube. If the electrolyte is below that level, add distilled water. In case electrolyte overflows under unusual conditions, the electrolyte mixed with reference to local temperature can be added.

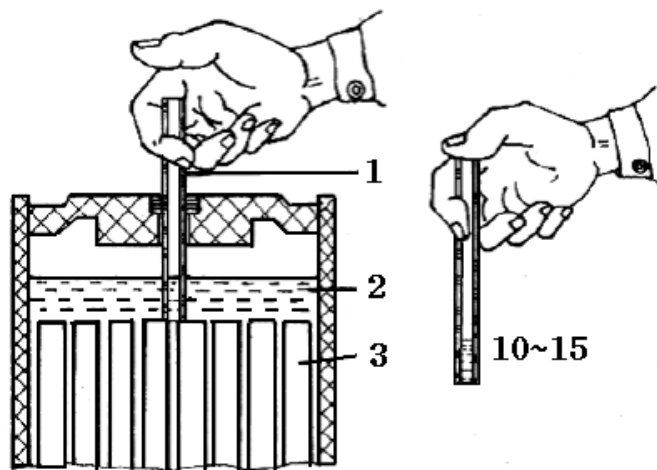


Fig 4-4. Checking the electrolyte level

1. Grease tube 2. Electrolyte 3. Plate

- (4) Keep the generator and regulator in good working condition and make the consumed electric power be added in time.
- (5) Never check the electricity storage by the method of short circuit so as to protect the battery from being damaged.
- (6) The battery should have enough electric power. When the voltage value of a cell is below 1.7v, the battery should be recharged.
- (7) In order to prolong the service life of the battery, the horn should not be used frequently and starting engine should be carried out according to the regulations.

## 2. The Generator and Regulator.

- (1) Generator is used with regulator.
- (2) The generator is connected with ground by negative pole. The generator is connected with the regulator and the battery by negative pole. They can not be connected in wrong way or in counter direction. Otherwise the generator and regulator may be damaged.
- (3) Keep the generator clean and contacts between wires in good condition.
- (4) Check the tension of the generator belt regularly and adjust it if necessary.
- (5) When the tractor is to be stopped, the key in the preheating starting switch should be moved to “O” position to disconnect the field coil of the generator and the battery so as to avoid the battery discharging to the generator.

**Note :** Checking the generator by short circuit is seriously prohibited, otherwise the silicon rectifier and the regulator may be damaged.

### 3. The Starter

- (1) Keep the starter clean and the contacts between wires in good condition.
- (2) The time for each starting should not be over 10 seconds. The shortest interval between two startings must be more than 2 minutes. If the engine can not be started after several startings, the trouble should be found out and removed, then the engine can be restarted.
- (3) If the engine is started in winter, it should be preheated and then can be started with the starter.

## CHAPTER 5 IMPORTANT ADJUSTMENTS

### 5.1 Important adjustment Data of Engine

The main adjustment data of engine is shown in Engine Operation Manual.

### 5.2 The Components of Clutch

#### (1) Its Structure

For the structure of double-action clutch, refers to Fig.5-1, and for its components see Table 5-1, where the code numbers indicated with asterisk refer to components specially designed for double-action clutch.

A double-action clutch incorporates two clutches. The master clutch at the rear consists of clutch shaft, clutch driven disk assembly, clutch pressure plate and the rear Belleville spring. The PTO clutch is located in the front, and consists of clutch shaft, clutch pressure plate, clutch driven disk and the front Belleville spring. The clutch cover and the fixed clutch pressure plate provide positioning and supporting for the rear clutch. Power is delivered from the engine through the master engagement sleeve and PTO engagement sleeve respectively to the input shaft of the transmission and PTO, allowing for separated power transmission for tractor running and power takeoff.

#### (2) Adjustment, Control and Working Principle

A. When the clutch assemble is secured to the flywheel by six bolts M 10X70, the following adjustments should be made.

a. Adjust the spherical nut on the bolt until a distance of 66 mm is reached between the working plane of release levers and the side surface of flywheel and the differences in working plane of the three release levers should not exceed 0.15mm. Lock the spherical nut with thin nut after adjustment.

B. The free travel and working travel should be adjusted after installation:

a. Adjust the relative position of adjusting fork in the push-rod of clutch until a free travel of  $A=4\sim 7\text{mm}$  is reached at the clutch pedal.

b. Adjust the height of bolt M 10X45 until a working travel of  $B=25\sim 36\text{mm}$  is reached at the clutch pedal.

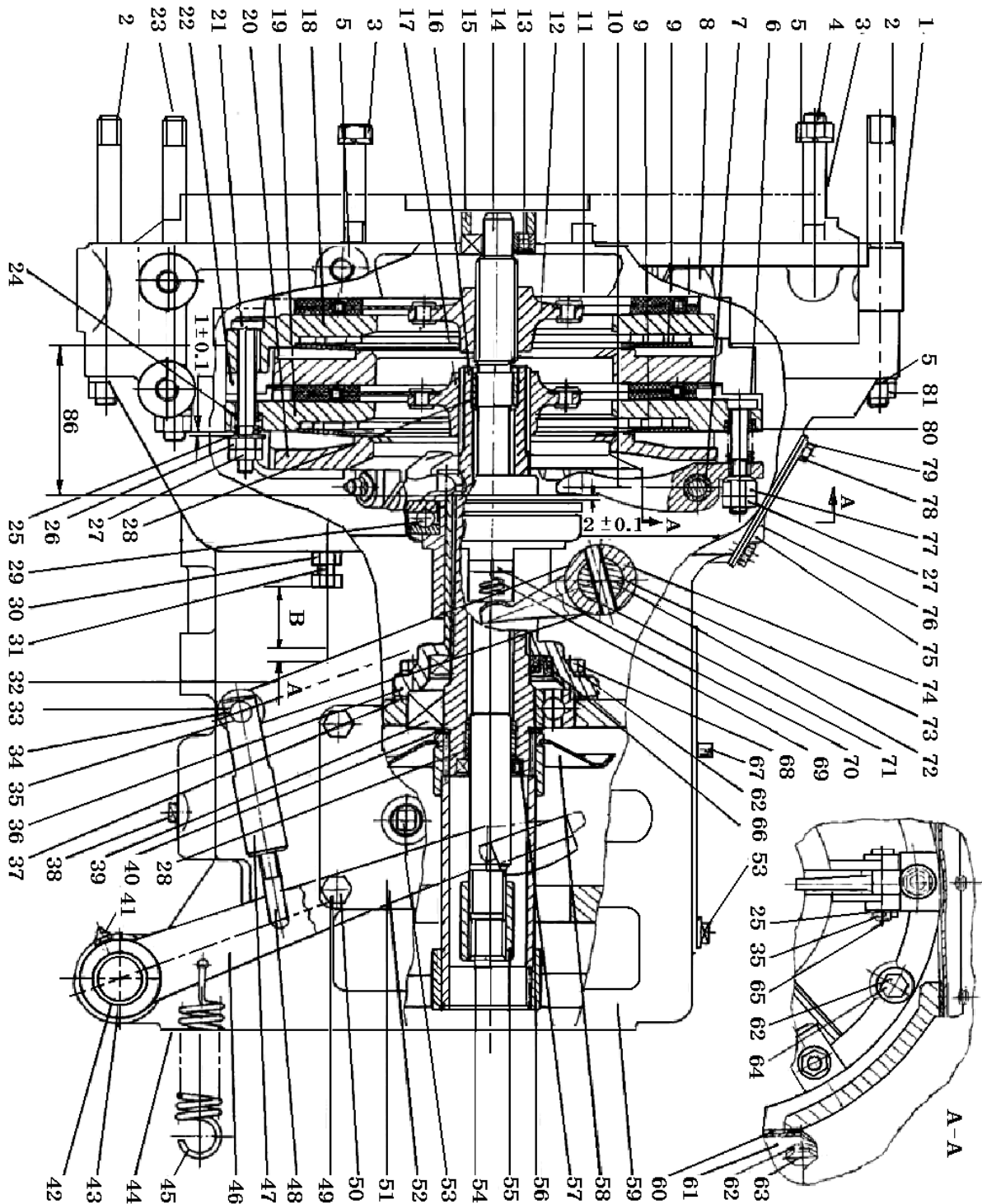


Fig. 5-1 Double-action clutch

Free travel: A=4~7mm (at clutch pedal)

Working travel: B=25~36mm (at clutch pedal)

Table 5-1 Detailed Component List of Double-action Clutch

| No. | Code        | Description                          | Qty |
|-----|-------------|--------------------------------------|-----|
| 1   | 25.21.111   | Paper gasket, bridge casing          | 1   |
| 2   | GB898-88    | Stud AM 12X150                       | 2   |
| 3   | GB5782-86   | Bolt M 12X75                         | 4   |
| 4   | GB898-88    | Stud AM 12X70                        | 1   |
| 5   | GB898-87    | Spring washer 12                     | 10  |
| 6   | 250.21.111* | Adjusting screw                      | 3   |
| 7   | 250.21.120* | Bush                                 | 3   |
| 8   | 25.21.229   | Plug                                 | 1   |
| 9   | 250.21.104* | Belleville spring                    | 2   |
| 10  | 250.21.128* | Release lever                        | 3   |
| 11  | GB5782-86   | Bolt M 12X95                         | 1   |
| 12  | 25.21.013   | Drive plate assembly, clutch         | 1   |
| 13  | GB278-89    | Ball bearing                         | 1   |
| 14  | 250.36.102* | Shaft, PTO clutch                    | 1   |
| 15  | 25.21.230   | Spacing sleeve                       | 1   |
| 16  | 250.36.101* | Shaft, master clutch                 | 1   |
| 17  | 250.21.011* | Driven plate assembly, master clutch | 1   |
| 18  | 250.21.105* | Pressure plate, PTO clutch           | 1   |
| 19  | 250.21.107* | Pressure plate, master clutch        | 1   |
| 20  | 250.21.109* | Clutch cover                         | 1   |
| 21  | 250.21.101* | Pull-rod                             | 3   |
| 22  | 250.21.106* | Fixed pressure plate, PTO shaft      | 1   |
| 23  | GB898-88    | Stud AM12X170                        | 2   |
| 24  | 250.21.102* | Pressure spring                      | 3   |
| 25  | GB97.1-85   | Flat washer 10                       | 7   |
| 26  | GB6173-86   | Nut fine M 10X1                      | 6   |
| 27  | GB6173-86   | Nut fine M 10X1                      | 6   |
| 28  | SF-1*       | Bush 220                             | 2   |
| 29  | *           | Release bearing 9688213              | 1   |

| Signal No. | Code          | Description                                               | Qty |
|------------|---------------|-----------------------------------------------------------|-----|
| 30         | GB6170-86     | Nut M10                                                   | 1   |
| 31         | GB55781-86    | Bolt M10X45                                               | 1   |
| 32         | 250.21.116*-A | Release arm, clutch                                       | 1   |
| 33         | GB882-86      | Pin shaft B8X30                                           | 1   |
| 34         | GB97.1-86     | Flate washer 8                                            | 1   |
| 35         | GB91-86       | Splite pin 3.2X20                                         | 5   |
| 36         | 250.36.125*   | Support, release bearing seat                             | 1   |
| 37         | 250.36.129*   | Paper gasket, release bearing seat                        | 1   |
| 38         | ZBT32001.5-87 | Screw plug II-1/4"                                        | 1   |
| 39         | GB276-89      | Ball bearing 210                                          | 1   |
| 40         | GB894.1-86    | Retaining ring, shaft                                     | 1   |
| 41         | GB1152-79     | Oil cup                                                   | 3   |
| 42         | 25.21.136     | Bush                                                      | 1   |
| 43         | 25.21.116     | Bush                                                      | 3   |
| 44         | 25.21.140     | Paper gasket intermediate housing to transmission housing | 1   |
| 45         | 25.21.110     | Clutch pedal spring                                       | 1   |
| 46         | 25.21.130*    | Clutch pedal                                              | 1   |
| 47         | 25.21.107     | Adjusting fork, clutch puch-rod                           | 1   |
| 48         | 250.21.114*   | Clutch push-rod                                           | 1   |
| 49         | GB5781-86     | Bolt M8X20                                                | 6   |
| 50         | GB93-87       | Spring washer 8                                           | 6   |
| 51         | 250.36.136*   | Side cover                                                | 1   |
| 52         | 250.36.137    | Paper gasket, side cover                                  | 1   |
| 53         | ZBT32001.5-87 | Screw plug II-1/2"                                        | 2   |
| 54         | GB119-86      | Cylindrical pin                                           | 1   |
| 55         | 250.36.122*   | Joint sleeve, PTO shaft                                   | 1   |
| 56         | 250.36.016    | Main joint sleeve weldment assy                           | 1   |
| 57         | GB9877.1-88   | Metal-cased oil seal 22X36X10                             | 1   |
| 58         | 250.36.017*   | Oil thrower weldment assy                                 | 1   |
| 59         | 250.36.135*   | Intermediate housing                                      | 1   |

| Signal No. | Code        | Description                         | Qty |
|------------|-------------|-------------------------------------|-----|
| 60         | 250.36.131* | Rubber pad, cover                   | 1   |
| 61         | 250.36.128* | Watch window cover                  | 1   |
| 62         | GB93-87     | Spring washer 10                    | 12  |
| 63         | GB5781-86   | Bolt M10X20                         | 2   |
| 64         | GB5782-86   | Bolt M10X70                         | 6   |
| 65         | GB882-86    | Pin shaft B10X45                    | 3   |
| 66         | GB9877.1-88 | Metal-cased oil seal 42X62X12       | 1   |
| 67         | GB119-86    | Pin D8X16                           | 2   |
| 68         | GB5781-86   | Bolt M10X30                         | 4   |
| 69         | 250.21.113* | Return spring, release bearing seat | 2   |
| 70         | 250.21.131* | Release bearing seat                | 1   |
| 71         | GB876-86    | Spring pin 10X40                    | 2   |
| 72         | 250.21.117  | Release fork rod, clutch            | 1   |
| 73         | 25.21.115   | Bush                                | 1   |
| 74         | 250.21.112* | Release fork                        | 1   |
| 75         | 250.36.154* | Upper cover                         | 1   |
| 76         | 250.36.155* | Gasket, upper cover                 | 1   |
| 77         | 250.21.118* | Spherical nut                       | 3   |
| 78         | GB5781-86   | Bolt M6X15                          | 6   |
| 79         | GB93-87     | Spring washer 6                     | 6   |
| 80         | 250.21.108* | Return spring                       | 3   |
| 81         | GB6170-86   | Nut N12                             | 5   |
|            |             |                                     |     |
|            |             |                                     |     |
|            |             |                                     |     |
|            |             |                                     |     |
|            |             |                                     |     |
|            |             |                                     |     |
|            |             |                                     |     |
|            |             |                                     |     |

Note : The asterisk “\*” indicates that this component is specially designed for use on double-action clutch.

C. When the first of clutch pedal is depressed, the three release levers actuate the clutch pressure plate through adjusting bolts to disengage the master clutch, interrupting power transmission to the running system on the tractor, while the clearance ( $1 \pm 0.1$ ) at the three pull-rods is eliminated and the clutch for power take-off continues to work. Only the clutch pedal is further depressed, can the full-rod drive the pressure plate of PTO clutch to disengage the PTO clutch. The second stage of disengagement cuts off power transmission to power take-off shaft. As the clutch pedal is released, the PTO clutch is first engaged and then the master clutch. The user can be trained to accurately distinguish the stage of release. For apprentice drivers who are not skillful enough to operate the clutch and only want to release the first working stage, a limiting mechanism on the clutch release lever can be used to control the first stage working travel.

### (3) Repair and Maintenance

A. The clutch should engage smoothly and disengage thoroughly. If any problem is found, check and adjust relevant clearance if necessary.

B. During technical maintenance Class 111, oil in the rear of bridge casing (the same as used in the transmission) should be changed. The oil level should be at the lower edge of the screw hole to ensure that the oil thrower weldment can provide lubrication for bearing.

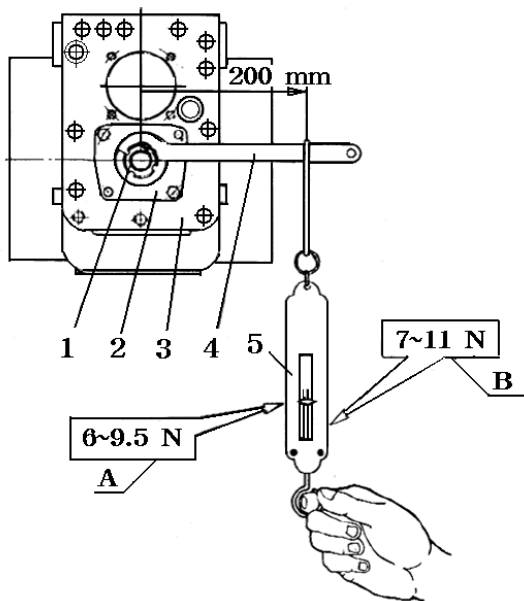


Fig. 5-2 Preloading of front bearing of the second shaft and that of the differential bearing

### 5.3 Adjustment of Transmission

- A. The spring scale reading after preloading the front bearing of the second shaft
- B. The spring scale reading after preloading the differential bearing and that of the front bearing of the second shaft.

- 1. Circular nut
- 2. Front bearing cover of the second shaft
- 3. Transmission housing
- 4. Special wrench
- 5. Spring scale

- (1) For the preloading of the front bearing No.27305 of the 2nd shaft and that of the differential bearing No.7210, see Fig.5-2. The preloading of bearing No.27305 requires a frictional torque of 1.2~1.9N\*m, Which corresponds to a reading in force on the spring scale of 6.5~9.5 N. The preloading of bearing No.7210 requires a frictional torque of 0.9~1.4 N\*m. When this is transformed to the 2nd shaft and added to it the preloading torque of bearing No.27305 (1.2~1.9 N\*m), the corresponding reading on spring scale should be 7~11 N.
- (2) Make sure that the axial play shall be less than 0.1mm.  
This can be made by means of changing the number and thickness of the shims.
- (3) For the condition of teeth contact, see Fig. 5-3

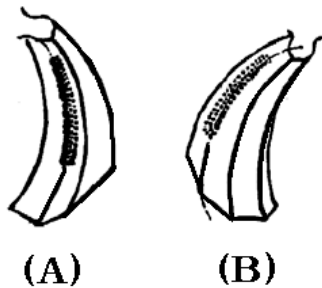


Fig. 5-3 Ideal condition of teeth contact of spiral bevel gears when the tractor is driven forward  
(A-Small gear, B-Big gear)

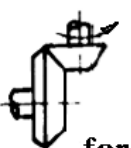
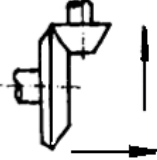
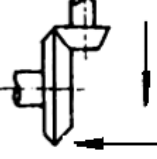
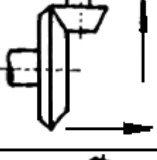
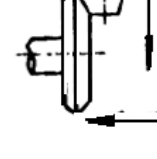
| <br>forward | <br>backward | Direction of adjustment                                                               |
|----------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|
|            |             |   |
|           |            |  |
|           |            |  |
|           |            |  |

Fig. 5-4 Adjustment of teeth contact condition for spiral bevel gear

In case of abnormal teeth contact condition, it is possible to make adjustments according to Fig. 5-4.

The solid line with arrow head shows the adjustment of teeth contact, while the dashed line shows the adjustment of backlash.

- (4) When it is assured of normal teeth contact condition, the backlash could be adjusted to 0.1~0.2 mm.

## 5.4 Adjustment of Brakes

The adjustment of the brakes is shown in Fig. 5-5. The length of the control rod is adjusted so that when the top of the brake pedal is subjected to a force of 13 N, the travel should be 20~40 mm.

It shall be assured also that the left and right brakes will work equally effectively.

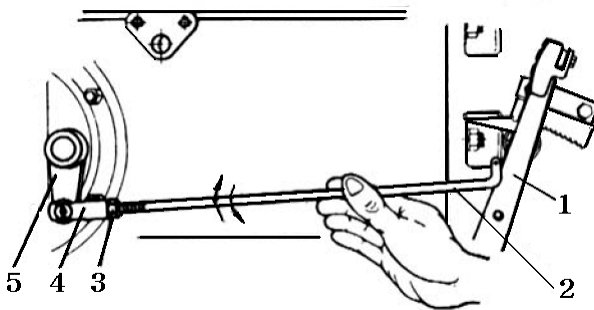


Fig. 5-5 Adjustment of brakes

1. Brake pedal
2. Control rod
3. Lock nut
4. Adjusting fork
5. Rocker arm of cam

## 5.5 Adjustment of Final Drive

For adjustment of preloading of the drive shaft bearings, see Fig. 5-6

- (1) Place of piece of fuse wire of about 2mm diameter between the inner bearing cover and the bearing No.7307. Place also a set of adjusting shims of a total thickness of about 1.5 mm. After mounting the inner bearing cover, tighten the bolts with a torque of 40~50 N\*m, to press the fuse into a flat plate.
- (2) Dismount the bearing cover, take out the fuse plate and measure its thickness.
- (3) Deduct the thickness of the fuse plate from the total thickness of the shims. This will form a set of shims, the use of which will result in clearance or interference of less than 0.1 mm. Assemble the shims and bearing cover and tighten the bolts with a torque of 40~50 N\*m.

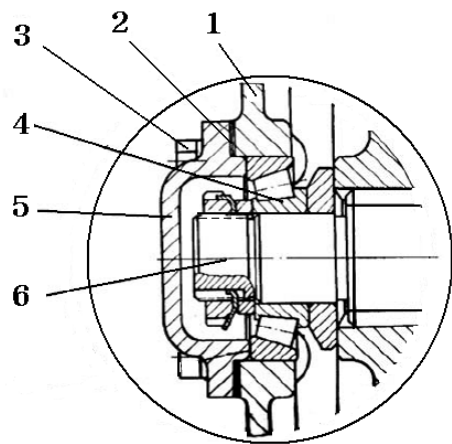


Fig. 5-6 Adjustment of preloading the bearings of the drive shaft

1. Housing of final drive
2. Adjustment shims of the drive shaft
3. Bolts
4. Bearing No. 7307
5. Inner bearing cover of drive shaft
6. Drive shaft

### 5-6 Fully hydraulic steering system

The tractor is adopted fully hydraulic steering system. It mainly consists of BZZ1-80 hydraulic steering gear, hydraulic oil tank, HLCB-D08/06 pump, hydraulic oil cylinder. Its theoretical diagram please see Fig. 5-7, the structural diagram please see Fig. 5-8. The flow rate of hydraulic oil is a constant 6ml/rev and 8L/min. The rated working pressure is 10MPa.

From the pump 12 constant flows hydraulic pressure oil to hydraulic steering gear 2, and the steering wheel is motionless, then the hydraulic pressure oil returned oil pipe 10 from steering, and flows to hydraulic oil tank 23. The steering wheel is working, the hydraulic oil flows into the left side or right side of steering cylinder 16, which make the direction adjusted.

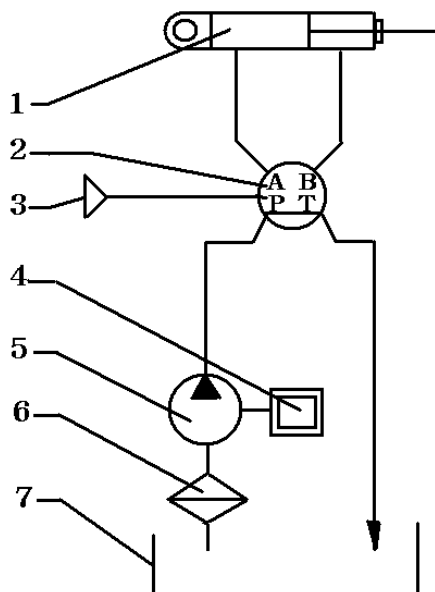


Fig. 5-7 Principle of hydraulic steering

1. Steering cylinder
2. Fully hydraulic steering gear
3. Steering wheel
4. Diesel engine
5. Front gear oil pump
6. Filter
7. Steering oil tank

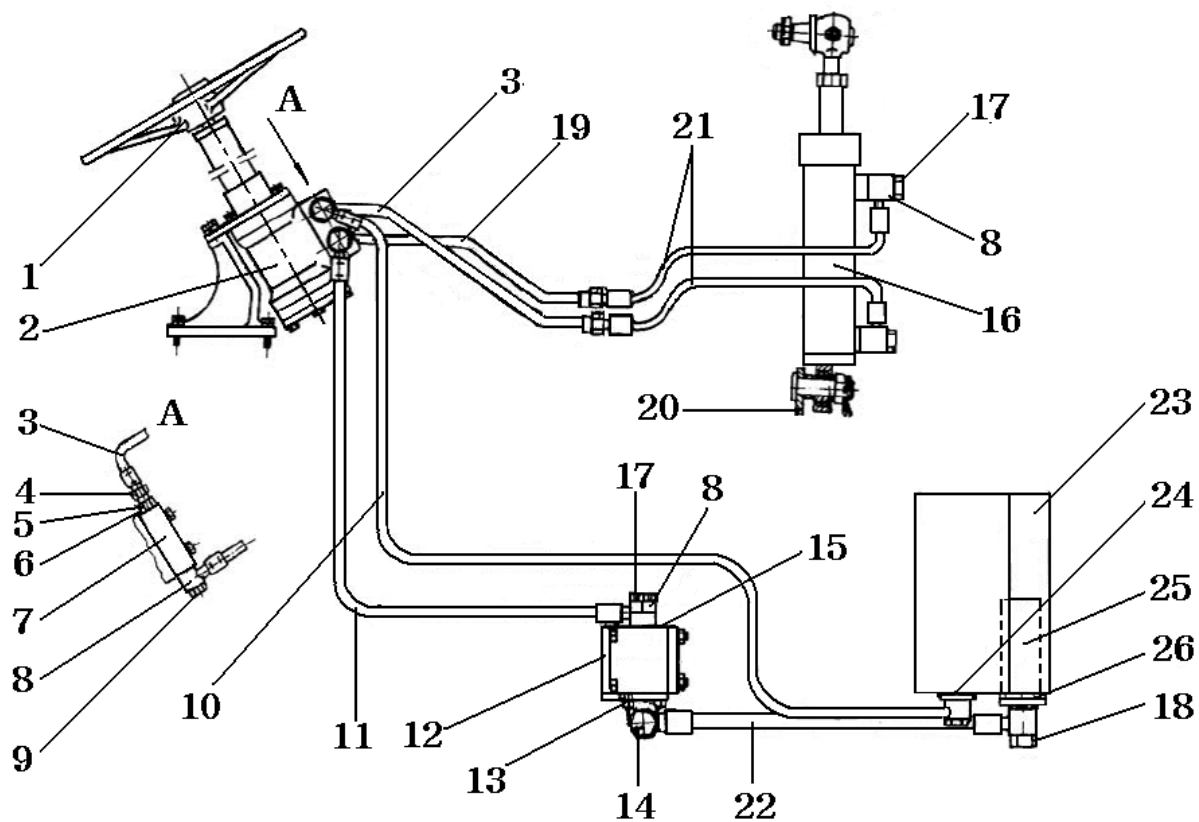
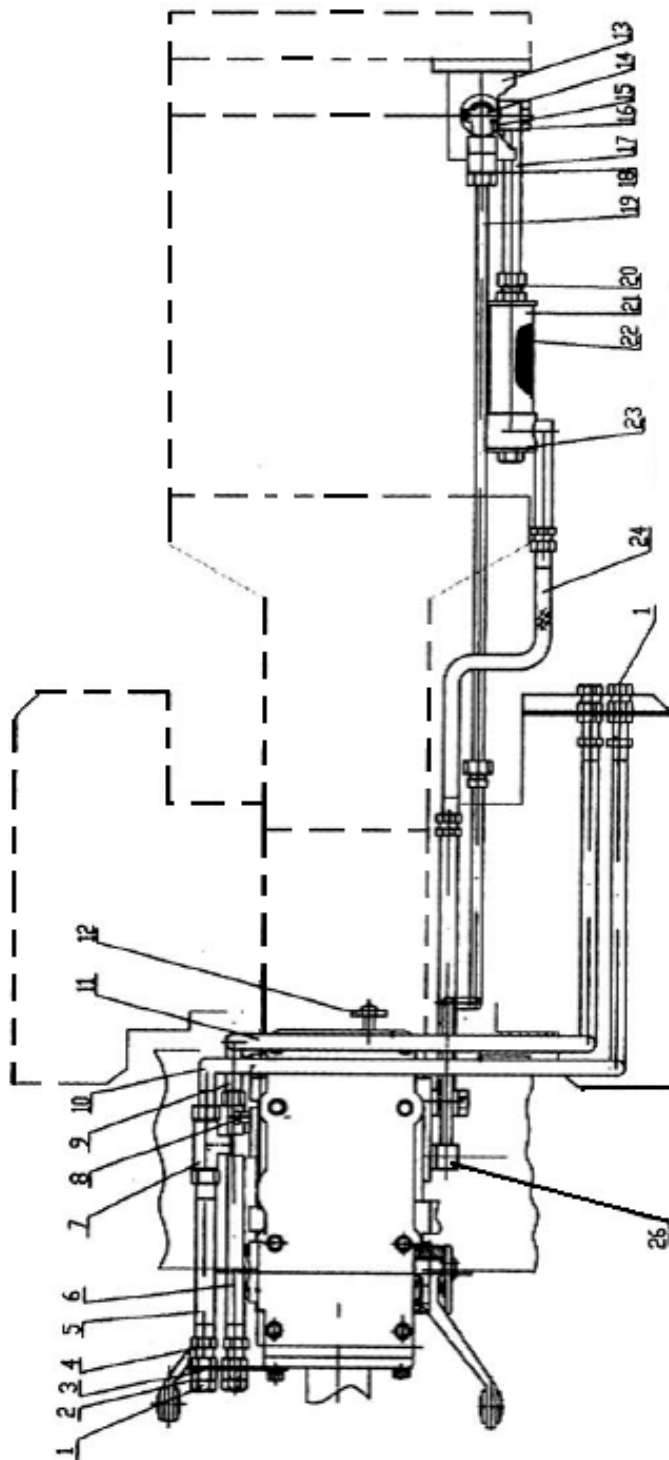


Fig. 5-8 Connection of pipelines and hydraulic components

- |                                        |                                          |
|----------------------------------------|------------------------------------------|
| 1. Steering wheel assy                 | 2. Hydraulic steering gear mounting assy |
| 2. Steering gear A-cylinder iron pipe  | 4. O-ring 13X1.9                         |
| 5. Steering gear ports A and B joint   | 6. Multi-sealed washer 2                 |
| 7. Connecting block                    | 8. O-ring 24X2.4                         |
| 9. Hollow bolt M20X1.5X43              | 10. Return oil pipe, steering gear       |
| 11. Inlet oil pipe, steering gear      | 12. Gear pump                            |
| 13. Union                              | 14. Hollow bolt M24X1.5X48               |
| 15. Multi-sealed washer 18             | 16. Steering cylinder assy               |
| 17. Hollow bolt M18X1.5X43             | 18. O-ring 28X2.4                        |
| 19. Steering gear B-cylinder iron pipe | 20. Front seat weldment assy             |
| 21. Steering cylinder tube             | 22. Steering gear oil pump inlet tube    |
| 23. Hydraulic oil tank weldment assy   | 24. O-ring 35X3.1                        |
| 25. Filter weldment assy               | 26. O-ring 55X3.1                        |

### 5-7 Lifter hydraulic tube line system (Fig. 5-9)



1. Plug M22X1.5
2. Multi-washer 22
3. Straight joint M18X1.5-M22X1.5
4. O-ring 16X2.4
5. Hydraulic PTO pipe assy I
6. Hydraulic PTO pipe assy II
7. Hydraulic PTO joint assy I
8. Cut-off valve
9. Hydraulic PTO joint assy II
10. Hydraulic PTO joint assy III
11. Hydraulic PTO joint assy IV
12. Implement lowering speed control valve
13. Gear pump
14. Union
15. Oil outlet joint
16. Hollow bolt M24X1.5X48
17. Hollow bolt M24X1.5X48
18. O-ring 28X2.4
19. Lifter front pressure oil tube assy
20. O-ring 24X2.4
21. Filter housing assy
22. Filter element assy
23. O-ring 55X3.1
24. Low pressure rubber hose assy
25. Quick joint
26. Lifter high pressure oil tube assy

Fig. 5-9 Lifter hydraulic pipeline system

The gear pump is installed on the engine. The oil tube of front loader shall be reliably connected with the joint **25** of oil pressure outlet tube at first when the front loader is working, then put the lift arm at the lowest position to exhaust remaining oil in the lift cylinder. Then turn on the adjusting rod of cut-off valve clockwise to shutoff the oil supply into the oil cylinder. Either the draft control or the position control handle adjusted to the “lifting” position. The front loader can be operated now. When the rear hydraulic output is used, turn out two plugs 1, exchange the joint 25, it shall be turned in and reliably connected. Turning the hand wheel clockwise will slow down the lowering speed. As the hand wheel is turned to the end, the pressure oil in the cylinder will completely sealed to lock the hydraulic system. Hydraulic locking is necessary when a tractor attached with implement travels from one spot to another.

### 5.8 Adjustment of the Tread

- (1) The distance between the front wheels can be adjusted to have 4 different lengths by means of the telescopic tubes within the range of 1100~1400 mm.
- (2) For the driving wheels, the tread may be changed by the wheel spokes and the wheel **rim**s. This makes it possible to have 5 different lengths of the tread within the range of 1000~1400 mm. Please see Fig. 5-10

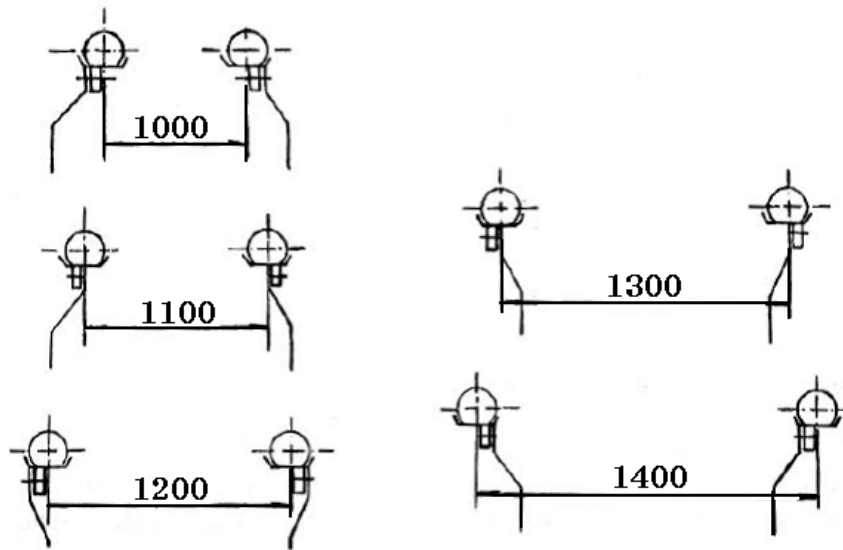


Fig. 5-10 Tread adjustment of the driving wheel

## 5.9 Adjustment of the Lifter

(1) For the adjustment of spring assembly of draft control system, see Fig. 5-11.

After the spring assembly is put together, the clearance between the washer and the shoulder of the spring rod should be 1.8~2.4 mm

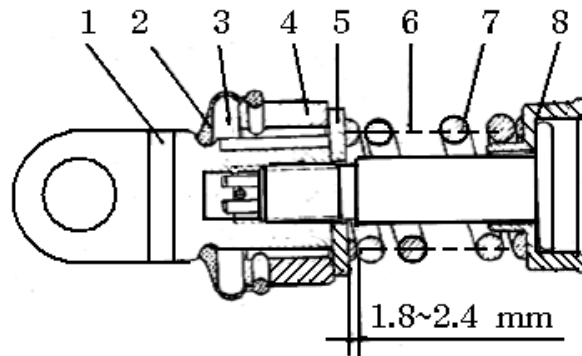


Fig. 5-11 Adjustment of draft control spring assembly

1. Upper link connector 2. Dustproof cover 3. Pin 4. Nut 5. Washer of draft control spring  
6. Spring rod 7. Draft control spring 8. Spring seat

(2) For the adjustment of push rod of the draft control system, please see Fig. 5-12. Put the draft control spring assemble into the lift housing, make its front end to contact surface E of the housing, and insert the locating pin.

Put the draft and position control handles in the vertical position, adjust the length of the push rod, and make sure that its end will contact the surface A of the spring rod. At same time, make the control end G of the draft control lever have a clearance of 1.5~2 mm with the end surface of the main control valve at moment the main control valve in outmost position.

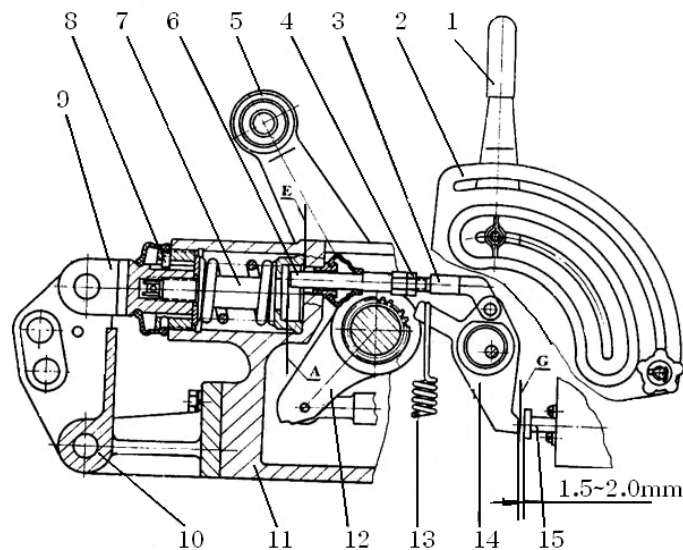


Fig. 5-12 The adjustment of the push rod of the draft control system

- |                                         |                                     |                         |                        |             |
|-----------------------------------------|-------------------------------------|-------------------------|------------------------|-------------|
| 1. Draft control handle                 | 2. Sector plate                     | 3. Link arm             | 4. Lock nut            | 5. Lift arm |
| 6. Push rod of the draft control system | 7. Spring rod                       | 8. Dowel rod            |                        |             |
| 9. Spring assembly of draft control     | 10. Rocker arm of upper hitch point | 11. Lift housing        |                        |             |
| 12. Inner lift arm                      | 13. Pull spring                     | 14. Draft control lever | 15. Main control valve |             |

(3) For adjustment of position control cam, please see Fig. 5-13

Put the handles of the position, and draft control in the vertical position. Make the lift arm an angle of  $60^\circ$  with horizontal plane and make the inner lift arm have a clearance of 4mm with the housing.

The position control cam is so turned that the control end of the position control lever push the main control valve  $5.1+0.2\text{mm}$  into its block from its outmost position. Then tighten the belt on the position control cam.

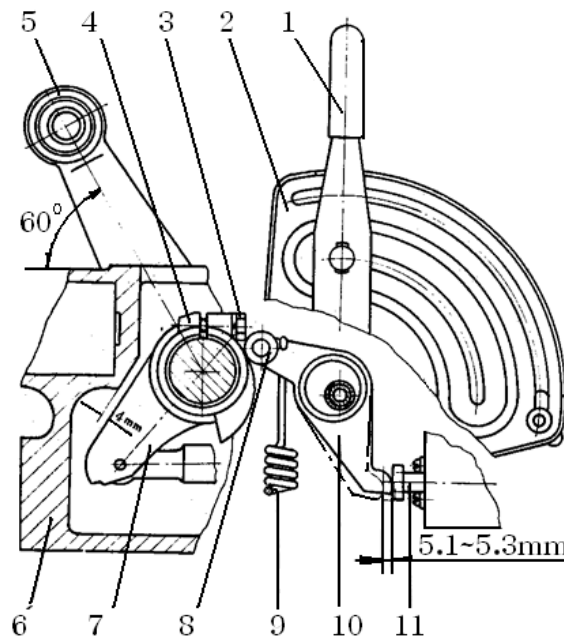
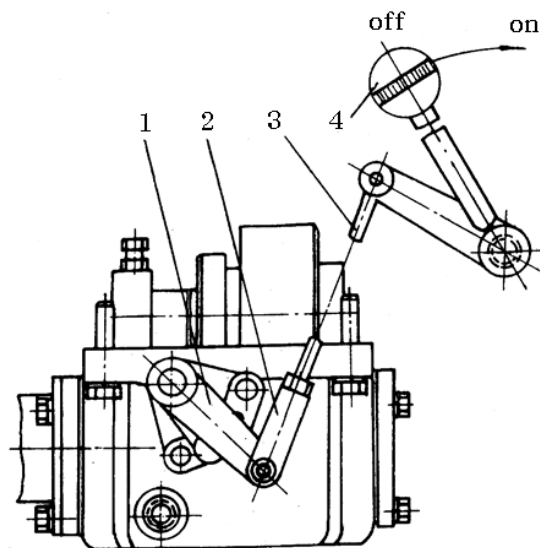


Fig. 5-13 Adjustment of the cam of position control

- |                            |                                      |                        |                             |
|----------------------------|--------------------------------------|------------------------|-----------------------------|
| 1. Position control handle | 2. Sector plate for position control | 3. Bolt                | 4. Cam for position control |
| 5. Lift arm                | 6. Lift housing                      | 7. Inner lift arm      | 8. Roller                   |
| 9. Pull spring             | 10. Position control lever           | 11. Main control lever |                             |

## 5.10 The Operation Controls of Front Drive Axle

The separating and joint of front drive axle of 4 wheel drive tractors are controlled by the handle under the left side of drivers seat. See Fig. 5-14 No.4. Put the handle backward, it shuts together the front drive axle, other wise if takes off them.



Points to be noticed here: while taking off or shutting together the front drive axle, first press down the clutch pedal, then operate the controlling handle.

Fig. 5-14 Transfer case & control mechanism assy

1. Release rocker
2. Adjustment fork
3. Draw bar
4. Handle control

When the tractor is traveling on the fine road or at high speed, the power of front drive should be cut off, thus the drive wheels changed to the driven wheels in order to reduce the wearing of tires and prevent the parasitic power of drive system from producing. On the contrary, you should shut together the front drive axle to enforce the pulling power and raise efficiency.

### 5.11 The Structure and Adjustment of Front Drive Axle

- (1) The structure and power transmission are shown in Fig. 5-15 & 5-16

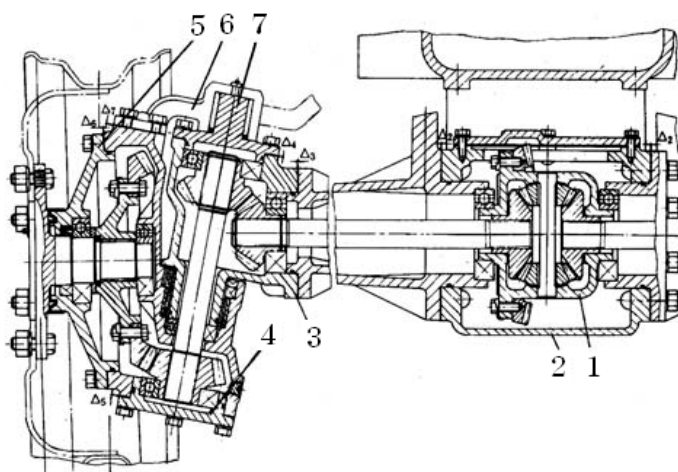
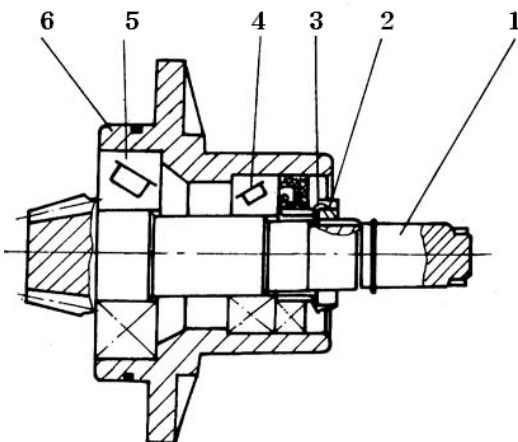


Fig. 5-15 Structure diagram of front drive axle

1. Differential assy
2. Central drive case
3. Front axle sleeve
4. Bearing cap, side drive
5. Side drive cover
6. Steering arm
7. Shaft cap, steering arm

1. Former high-low sliding gear    2/3. Intermediate gear    4. Output slider gear  
5. Ball-shape joint sleeve    6. Front center drive gear    6. Front central drive, follower gear  
8. Two-stage drive gear , front side drive    9. Two-stage follower gear, front side drive  
10. Front wheel    11. Two stage follower gear, front side drive  
12. One –stage drive gear , front side drive    13. Planet gear, front axle  
14. Front semi-shaft gear    15. Transmission shaft

(2) The bearing preloading of front drive conical gear is shown in Fig. 5-17



- 1.Front central drive gear
- 2.Round nut
- 3.Thrust washer
- 4.Model 7206 bearing
- 5.Model 27307 bearing
- 6.Housing

When assembling, the rolling bearings model 27307 & model 7206 are needed to enforce some preload. Since the friction of bearing brings about the axial clearance between the front central drive gears and makes some alteration, while the clearance surpasses 0.1 mm (measured by clock gauge), the adjustment is required. Dismount the assy of Fig. 5-17, prize open the thrust washer, turn the round nut and thus enforce the assy to produce 1~1.5 N\*m force moment, at last lock the round nut with thrust washer.

(3) Check on gear-meshing of front central drive gear pair.

After the set-up of front central drive gear pair, we can observe their gear-meshing conditions and inspect their gear backlash through the square hole on the upper side of front central drive case to sure whether they are turning normally or not.

① Check the mark

The fitting meshing marks should be on the central drive gears, not less than 13 mm long and 3.5mm wide, distributing over the middle side of tooth depth, a little bit nearby the narrow end. The mark must be under the condition of no-oil, first smear evenly the tooth-face of driven gear with red lead oil, then run the gear both in positive and negative directions in order to make marks over the both sides of drive gear.

② Check the gear backlash

The tooth space of the gear pair should be 0.15~0.30mm measured by S-shape fuse or other soft metal, about 25mm long, put in the unworking faces between the meshed teeth, then turning the follower gear and fetching out the squeezed fuse, the thinnest degree is just the tooth space. We had better measure 3 points around the gear circle.

③ Adjustment

The meshing contact mark and tooth space can be adjusted by way of increasing or decreasing the thickness of gaskets  $\delta_1$  (see Fig. 5-19) between the front central drive housing and the front central drive gear assy, and of gasket group  $\delta_1$  (see Fig. 5-15) between the front axle sleeve and front central housing. Point should be noted that group  $\delta_2$  have two groups between the right side and the left side, while increasing the left side thickness, decreasing correspondently the right one's number at the same time. The details of adjustment, please see "Adjustment of teeth contact condition for spiral bevel gears" on Chapter 5.

(4) Adjustment of two-stage bevel gear pair, front axle side drive (see Fig. 5-15)

Here is the same way with the above-mentioned to adjust the tooth contact two-stage bevel gear pair, side drive and clearance by means of increasing and decreasing the thickness of adjusting gasket  $\delta_3$  of front one-stage drive gear, side drive; and of adjusting gasket  $\delta_4$  of bearing cap under the side drive; again of the adjusting gasket  $\delta_5$  of the steering rocker bearing cover; and once again of the gasket  $\delta_6$  of front side drive housing cover.

- (5) After the fitting of front axle, it requires to run the front central drive gear shaft by hand. If it running handy and producing equal speeds between the right and the left front drive shafts. It means well-fitting, otherwise you should fit it again.

### 5.12 The Structure, installation and Disassembly of Transmission Shaft and Transfer Case

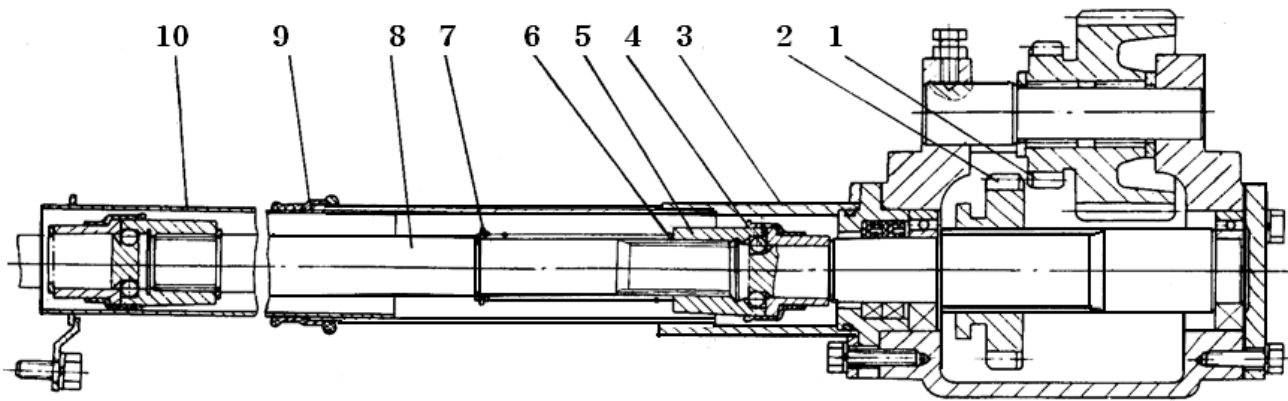


Fig. 5-18 Transfer case and transmission shaft assy

1. Intermediate gear   2. Sliding gear   3. Rear sleeve assy   4. Steel ball   5. Ball joint sleeve  
6. Spring   7. Snap ring   8. Transmission shaft   9. Protection shield   10. Front sleeve assy

When disassembling the transmission shaft, first you should take apart the 3 bolts (M8X25) from the rear sleeve assy, secondly slide forward the rear sleeve assy until the axial snap ring is shown, then loosen the snap ring and move the ball joint sleeve toward the front central drive housing until it stops moving forward again. Now you can easily disassembly the drive shaft. Here pay attention to the losses of steel balls and their mixture with those steel balls which should be installed on the shift fork shaft of the transmission housing.

### 5.13 Connection and Adjustment of Front Axle and Its Bracket

The front axle and the bracket are connected by the front & rear supports. When the tractor travels on the zigzag path, the front axle can swing around to reach  $\pm 11^\circ$  swing angles. Since the frequent swinging wearing, one of its adjusting ring on the rear support is easy to be worn out, thus you should give it an instant help by adjusting the bolt on the front support (in clockwise direction and lock the nut.) The adjusting ring should be changed a new one after using for some time.

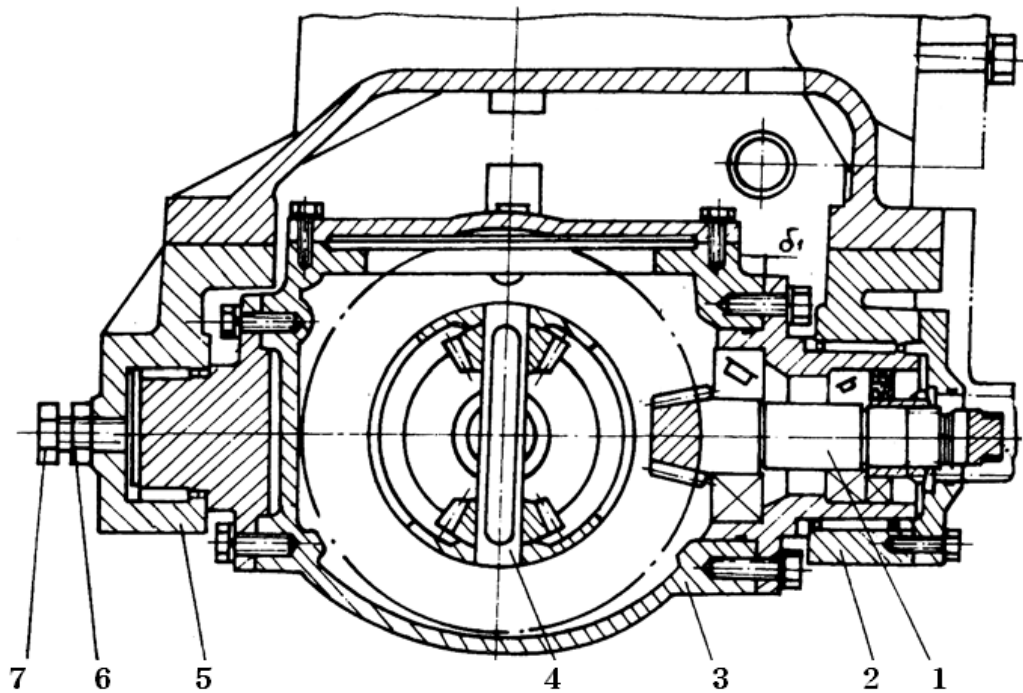


Fig. 5-19 Front central drive ass'y

1. Front central drive gear ass'y   2. Rear support   3. Central drive case   4. Differential ass'y  
5. Front support   6. Lock nut   7. Adjusting bolt

#### 5.14 Adjusting of Front Wheel Deflection Angle and Toe-in

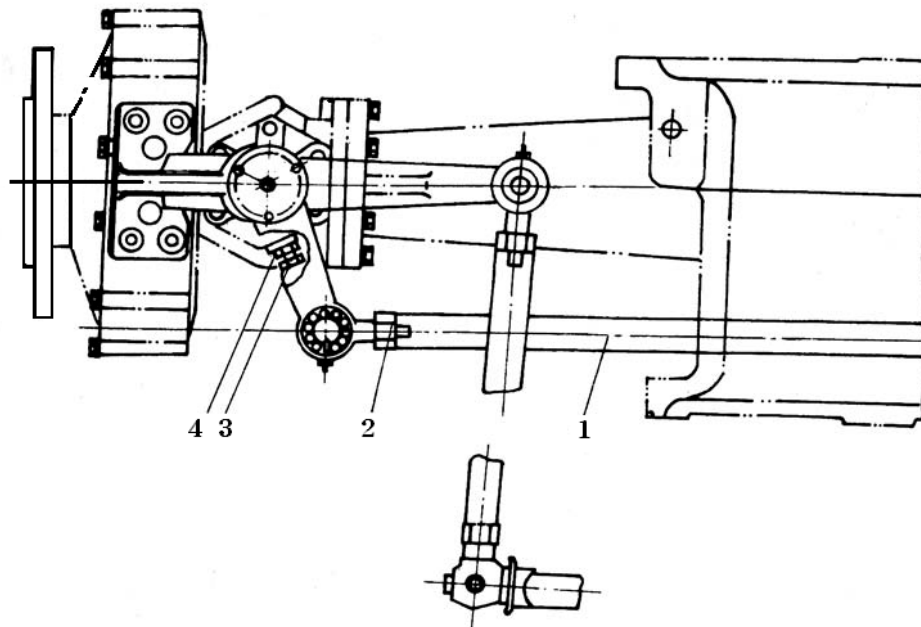


Fig. 5-20 Steering mechanism assy

1. Cross-rod   2. Lock nut M8X1.5 (L.H)   3. Adjusting bolt   4. Lock nut M10

When the tractor steering, the max. deflection angle can be measured according to the number of min. turning circle radius. If the degree is over big, we can adjust the bolt (see Fig. 5-20 No.3) to decrease it. The toe-in difference of front wheels should be 3~11 mm reached by adjusting length of the cross-rod of the steering trapezoid (see Fig. 5-20 No.1)

### **5.15 Lubricating Points of Front Drive System and Steering system**

- (1) Gear oil SAE90 (above 0°C temperature) or Gear oil SAE 85W-90 (the same temperature asked) can be filled into the front central drive, front sleeve and front side drive case until the oil flows out from the sides of sleeve.

Note : The speed of oil flowing into side drive is a little bit slower than that of other parts. There force pay attention to the available failure resulting from the oil shortage of other parts.

- (2) Present front axle and steering bars have 10 grease nipples together including the front & rear supports, the two front drive shafts, two steering rocker caps and the rest 4 on the steering connectors, which shall be added new grease per shift.

## **CHAPTER 6 TECHNICAL MAINTENANCE OF TRACTOR**

### **6.1 Technical Maintenance per Shift**

The following maintenance work should be made before and after each shift.

- (1) Fill fuel, lubricating oil and grease according to the instructions of oil chart and table.
- (2) Check the water level of the radiator and replenish it if necessary.
- (3) Inspect whether there is dirt or water in the fuel sediment cup. Clean it and expel the air from the fuel line.
- (4) Inspect and remove any leakage of oil, water and air from the fittings.
- (5) Check and tighten fasteners of all fittings.
- (6) Check the tire and its inflation pressure.
- (7) Check and bring along all the necessary tools.
- (8) Clean the dust on the surface of the batteries and the rust of the battery terminals. Check the electrolyte level in the batteries (18 ~ 23 mm above the separator), add distilled water if it is insufficient. Check should be done every 60 hours when working in winter or in wet area.

### **6.2 1st Technical Maintenance**

The following maintenance work should be made after every 100 hours of working.

- (1) Complete all the maintenance items in technical maintenance per shift.
- (2) Change the oil in the oil sump.
- (3) Wash the fuel tank and its inlet screen.
- (4) Wash the oil filter and change the element if necessary.
- (5) Wash the cleaner and change the oil or clean the dust of air cleaner element.
- (6) Check the tension of the fan belt by pressing with thumb nearly midway on its straight portion, if the belt deflects about 15 mm the tension is correct.
- (7) Turn off the plugs on each side of transmission brakes and the plug under the flywheel housing. Check and drain any oil that may leak out.

### **6.3 2nd Technical Maintenance**

The following maintenance work should be made after every 500 hours of working.

- (1) Carry out all the maintenance items in technical maintenance per shift and primary technical maintenance.
- (2) Wash the oil sump, inlet screen and strainer.
- (3) Check the injection pressure and the condition of atomization. Clean and readjust the nozzles if necessary.
- (4) Check the working of the injection pump and its advanced angle. Readjust it if necessary.
- (5) Wash the fuel filter, change the element if necessary. Expel the air from fuel lines after reassembling.
- (6) Check and readjust the valve clearance and the free-turning clearance of steering wheel.
- (7) Check and readjust the free travel and working travel of the brake pedal and the clutch pedal.
- (8) Check the clearance of front wheel bearing. Readjust it and adjust front toe-in if necessary.
- (9) Wash the screen in hydraulic system.

### **6.4 3rd Technical Maintenance**

After every 1000 hours of working the following maintenance work should be made.

- (1) Carry out all the maintenance items in technical maintenance per shift, technical maintenance of primary and secondary.
- (2) Clean the dust and dirt on the tractor, the dust between radiator pipes and the scale in the water pump.
- (3) Dismount the engine. Clean the carbon deposit on the cylinder head. Check the valve seats (reamer the valve seat and grind the valve if necessary). Clean the carbon deposit on the piston. Check the piston ring end gap, the wear-out of cylinder sleeve, the corrosion of alloy surface of connecting-rod bearing and crankshaft bearing and change the bearing if necessary.
- (4) Wash the main oil passage in cylinder block. Check wear-out of the end cover of oil pump and the working of the pressure-limiting valve on the oil filter cover. Readjust them if necessary.
- (5) Change the lubricant in transmission housing and final drive housing and clean the magnet in transmission housing.
- (6) Renew the grease in the front wheel hub.
- (7) Check the Specific gravity of battery electrolyte and discharge condition. Correct the specific gravity of electrolyte or recharge if necessary.

- (8) Inspect the voltage regulator. Readjust it if necessary.
- (9) Inspect the components and parts of the alternator and the starter, especially the brush and silicon rectifier. Repair or change them if necessary.
- (10) Check the grease in steering gear and renew it if necessary.
- (11) After reassembling of the tractor, a short-time running-in is necessary to inspect the action of every part.

### **6.5 Special Maintenance in Winter**

Attention should be paid to the following items when atmospheric temperature is below 5°C

- (1) Starting engine is forbidden if there is no water in the cooling system.
- (2) The coolant temperature should not be below 60°C when the tractor begins to work.
- (3) For long stay the water in the cooling system should be drained out (the water temperature should be dropped down to 50~55°C before draining), so should the oil in the oil sump.
- (4) Under extremely low atmospheric temperature anti freezing coolant with lower freezing point should be used, which consists of 94% alcohol and water, the proportion of volume being 2.5 (alcohol):5.5(water).
- (5) The tractor should stay inside room.

## CHAPTER 7 TROUBLE SHOOTING

### 7.1 Engine

Engine trouble and possible cause and possible remedy are shown in Engine Operation Manual.

### 7.2 Chassis

#### 1. Clutch

| Trouble and possible cause                                                                                                                                                                                                                                                                                                                               | Possible remedy                                                                                                                                                                                                                      |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>A. Clutch slips</b><br>(1) Friction disk stained with oil<br>(2) Pressing spring weakened or broken<br>(3) Short or no pedal free travel<br>(4) Driven disk curved, uneven wear-out or excessively worm-out.<br>(5) Tree-release-lever end forces not in the same plane.                                                                              | (1) Flush friction disk with gasoline and remove oil leakage<br>(2) Replace spring<br>(3) Readjust pedal free travel according to the specification.<br>(4) Rectify or replace driven disk<br>(5) Adjust the release lever end faces |
| <b>B. Clutch disengaged Incompletely, hand to engage or engaged with sound and tractor started off with shake.</b><br>(1) Pedal working travel too short and excessive free travel.<br>(2) Driven disk curved excessively.<br>(3) Three-release-lever end faces not in the same plane.<br>(4) Friction disk broken<br>(5) Friction disk spline too tight | (1) Adjust pedal working travel and free travel<br>(2) Rectify or replace driven disk<br>(3) Adjust the release lever end faces<br>(4) Replace friction disk<br>(5) Repair spline                                                    |
| <b>C. Vibration and noise in clutch</b><br>(1) Release lever pressure spring broken<br>(2) Release bearings lubrication insufficient or damaged<br>(3) Splined hole of driven disk or clutch spined shaft worn out<br>(4) Clutch front bearing damaged                                                                                                   | (1) Replace spring<br>(2) Lubricate or replace release bearings<br>(3) Replace worn out parts<br>(4) Replace front bearing                                                                                                           |

## 2. Brake

| Trouble and possible cause                                                                                                                                                         | Possible remedy                                                                                                                      |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------|
| <b>A. Ineffective brake</b><br>(1) The shifting block broken.<br>(2) Friction disk is excessively worn-out.<br>(3) The steel ball is distorted<br>(4) Excessive pedal free travel. | (1) Replace shifting block<br>(2) Exchange friction disk<br>(3) Replace steel ball<br>(4) Readjust pedal free travel                 |
| <b>B. Two wheels can not be braked simultaneously</b><br>(1) Right and left pedal travel different.<br>(2) One pressure disk is excessively worn-out                               | (1) Readjust pedal travel<br>(2) Replace pressure disk                                                                               |
| <b>C. Brake disengaged incompletely and overheated</b><br>(1) The return spring weakened<br>(2) Brake pedals will not return<br><br>(3) Short pedal free travel                    | (1) Replace spring<br>(2) Check return spring for damage, shaft for being gripped and remove them.<br>(3) Readjust pedal free travel |

## 3. Transmission box

| Trouble and possible cause                                                                                                                                                                                                           | Possible remedy                                                                                                                                                   |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>A. Abnormal sound in transmission box</b><br>(1) Transmission box bearing or rolling needle excessively worn out or damaged.<br>(2) Abnormal meshing of main drive gears.<br><br>(3) Shaft splines and gear splined hole worn out | (1) Check and replace worn out parts.<br><br>(2) Examine meshing traces and backlash and adjust them in accordance with regulations<br>(3) Replace worn out parts |
| <b>B. Gear engagement out of order</b><br>(1) For excessively worn out or deformed<br>(2) For shaft locking spring weakened<br>(3) Tooth profile or spline excessively worn out                                                      | (1) Replace fork<br>(2) Replace spring<br>(3) Replace worn out parts                                                                                              |
| <b>C. Transmission box overheated</b><br>(1) Short clearance of bearing or gears<br>(2) Insufficient or excessive lubricating oil<br><br>(3) Deteriorated lubricating oil                                                            | (1) Readjust the clearance<br>(2) Add or drain out lubricating oil to specified level<br>(3) Replace lubricating oil                                              |

#### 4. Traction devices and steering system

| Trouble and possible cause                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Possible remedy                                                                                                                                                                                                                                                                                              |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>A. Front wheel swing</b><br>(1) Excessive clearance of front wheel bearing or kingpin sleeve worn out excessively<br>(2) Wrongly adjusted toe-in<br>(3) Ball pin and ball pin seat worn out excessively<br>(4) Pitman arm and ball pin fixing nut loose<br><br><b>B. Early worn out of front wheel tires</b><br>(1) Wrongly adjusted toe-in<br>(2) Front wheel pressure insufficient<br><br><b>C. Excessive steering wheel free travel</b><br>(1) Ball pin and ball pin seat won out excessively | (1) Adjust bearing clearance and replace kingpin sleeve<br>(2) Readjust toe-in<br>(3) Replace ball pin and ball pin seat<br>(4) Check and tighten the nut<br><br>(1) Readjust toe-in<br>(2) Inflate tire to specified pressure<br><br>(1) Replace ball pin or ball pin seat<br>(2) Check and tighten the nut |

#### 5. Hydraulic system

| Trouble and possible cause                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Possible remedy                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>A. Lack of lifting force or lifter will not lift</b><br>(1) Low oil level or improper type of oil<br>(2) Clogged oil inflow trainer<br>(3) Air in hydraulic system<br><br>(4) Oil pump seriously worn out, leaking serious<br>(5) Lower valve is open<br>(6) Main control valve or return valve worn out seriously<br>(7) Ineffective safety valve<br>(8) Cylinder leaking seriously<br><br>(9) Leakage at distributor seal rings<br><br><b>B. Implement lifted with shake</b><br>(1) Lower valve is close<br>(2) Closed lowering speed regulating valve or shut-Off valve<br><br><b>C. Implement lifted with shake</b><br>(1) Check valve worn out and closed incompletely<br>(2) Leakage at seal rings of the distributor and Cylinder | (1) Add proper oil to specified level<br>(2) Flush the strainer<br>(3) Drain system and tighten contactor or replace seal ring<br>(4) Replace oil pump seal ring<br>(5) Dismount and clean<br>(6) Replace worn out parts<br><br>(7) Readjust or repair safety valve<br>(8) Replace seal ring or replace worn out parts if necessary<br>(9) Replace seal rings<br><br>(1) Dismount and clean<br>(2) Open the valve<br><br>(1) Repair or replace check valve<br>(2) Find out the position of leakage and replace worn out seal rings |

## 7.3 Electrical System

### 1. Battery

| Trouble and possible cause                                                                                                                                                                                                  | Possible remedy                                                                                                                                                                                                                          |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>A. Frequently insufficient electric power</b><br>(1) Low electrolyte level<br>(2) Short circuit plates<br>(3) Plates <b>sulphurized</b><br>(4) Defective generator or regulator<br>(5) Defective wire contraction        | (1) Add to specified level<br>(2) Clean deposit, change electrolyte and replace spacers or plates<br>(3) Charge repeatedly to remove <b>sulphur</b><br>(4) Repair generator or regulator<br>(5) Check wire contraction to remove trouble |
| <b>B. Battery overheated</b><br>(1) Short circuit of plates<br>(2) High changing electric current                                                                                                                           | (1) Clean deposit, change electrolyte and replace spacers or plates<br>(2) Adjust regulator                                                                                                                                              |
| <b>C. Charge capacity of battery distinctively reduces</b><br>(1) Plates <b>sulphurized</b><br>(2) <b>Sulphuric</b> acid not pure<br>(3) Plate curved, active material peeled off and spacer damaged to cause short circuit | (1) Charge repeatedly to remove <b>sulphur</b><br>(2) Use proper electrolyte<br>(3) Replace plate                                                                                                                                        |

### 2. Generator

| Trouble and possible cause                                                                                                                                                                                                                                     | Possible remedy                                                                                                                                 |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>A. Generator will not work</b><br>(1) Rectifying unit damaged<br>(2) Block brush gripped and no contraction with collector ring<br>(3) Stator winding or rotator winding broken circuit, short circuit or negative pole and terminals defective insulation. | (1) Adjust belt tension or replace belt<br>(2) Repair or replace rotator winding or stator winding.<br>(3) Repair or replace block brush spring |
| <b>B. Lack of generator power</b><br>(1) Loose generator belt<br>(2) Some rectifying unit damaged<br>(3) Defective block brushes and collector ring stained with oil.<br>(4) Part of rotator winding or stator winding short circuit.                          | (1) Remount the generator correctly<br>(2) Replace generator bearings<br>(3) Repair<br>(4) Repair                                               |

| Trouble and possible cause                                                                                                                                                                                                                                                                                                                                                                                                    | Possible remedy                                                                                                                                                                                                                                     |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>C. Unsteady generator electric current</b><br>(1) Loosened generator belt<br>(2) Rotator winding or stator winding near short circuit or broken circuit.<br>(3) Low pressure of block brush spring and defective contraction of block brush<br>(4) Loose terminals<br><b>D. Abnormal sound in generator</b><br>(1) Generator wrongly mounted<br>(2) Generator bearing damaged<br>(3) Rotator hitting stator or other parts | (1) Adjust belt tension or replace belt<br>(2) Repair or replace rotator winding or stator Winding<br>(3) Repair or replace block brush spring<br>(4) Repair<br>(1) Remount the generator correctly<br>(2) Replace generator bearings<br>(3) Repair |

## 2. Generator

| Trouble and possible cause                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Possible remedy                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>A. Starter will not work</b><br>(1) Connecting wire broken or defective contraction of connecting wire and switch contacts<br>(2) Fuse blown<br>(3) Battery no electricity or low battery voltage<br>(4) No contraction of block brushes with direction exchangers<br>(5) Short circuit of starter<br><b>B. Starter can run but cannot start engine</b><br>(1) Shaft bushing excessively worn out and rotator frictioning with magnet<br>(2) Defective contraction of block bushes with direction exchangers.<br>(3) Direction exchanger surface burnt or stained with oil<br>(4) Welding of wire connecting armature and direction exchanger broken<br>(5) Defective contraction of wire<br>(6) Magnetic switch contacts sintered<br>(7) Battery insufficiently charged<br>(8) Low atmosphere temperature | (1) Weld or replace connecting wire, clean the oil on contacts and tighten the nuts on contacts<br>(2) Replace fuse<br>(3) Charge battery<br>(4) Change block brush, adjust brush spring pressure<br>(5) Remove short circuit<br>(1) Replace shaft bushing<br>(2) Flush direction exchanger surface, correct brush contacting surface and adjust spring pressure<br>(3) Grind direction exchanger surface, remove oil on direction exchanger surface<br>(4) Re-weld<br>(5) Tighten nuts<br>(6) Repair magnetic switch contacts<br>(7) Charge battery<br>(8) Use starting methods at low atmosphere Temperature |

| Trouble and possible cause                                                                                                                                                         | Possible remedy                                                |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------|
| <b>C. Starter continues running after engine has been Started.</b><br>(1) Magnetic switch contacts sintered<br>(2) Incorrect adjustment of the travel of magnetic switch iron core | (1) Repair magnetic switch contacts<br>(2) Readjust the travel |
| <b>D. Starter begins to run and hits the end face of ring gear before starter gear has been meshed</b><br>Short magnetic switch travel                                             | Readjust magnetic switch travel                                |

#### Appendix : Check of silicon rectifiers

When checking silicon rectifiers take off the plate connecting generator winding with rectifiers and measure rectifiers one by one with an **avometer** of high inner resistance in RX1 step (Fig. 7-1)

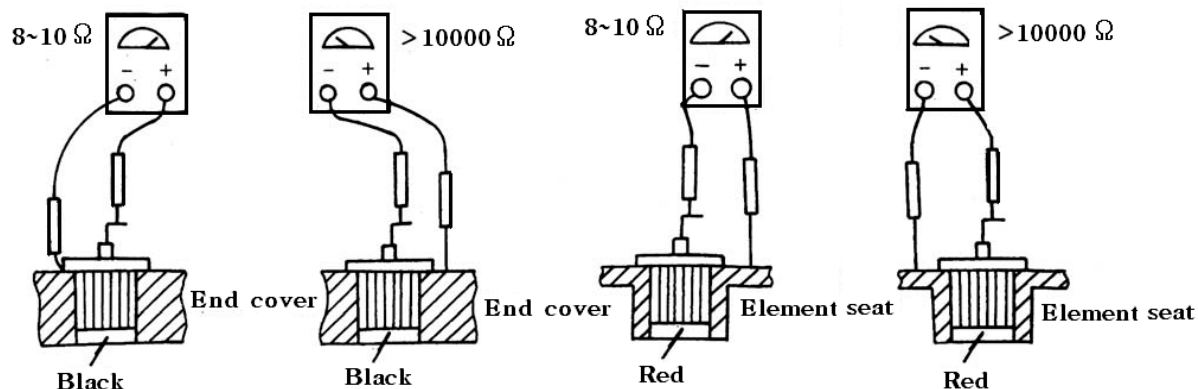


Fig. 7-1 Check silicon rectifiers

First measure the rectifiers on the rear end cover. Contact “-” measure stick of **avometer** with end cover, and “+” measure stick with rectifier wire, the reading on the **avometer** should be 8~10Ω. Then contact “-” measure stick with rectifier wire and “+” measure stick with end cover, the reading on the **avometer** should be over 10000Ω. The electrode of the three rectifiers on the rectifier panel is opposite to that of the three rectifiers on the end cover. The result of measurement is also apposite. If the positive resistance is below 1Ω, this means the result are of short circuit. If the negative resistance is hundreds of kΩ, this means the rectifiers are of open circuit.

## CHAPTER 8 APPENDICES

### 8.1 Tightening Torque of important Bolts and Nuts

Table 8-1 Tightening torque of important bolts and nuts

| Parts to be connected                                      | Tightening torque, (kg m) |
|------------------------------------------------------------|---------------------------|
| Cylinder head and cylinder block                           | 12~14                     |
| Connecting rod cap and connecting rod                      | 10~12                     |
| Cover of main bearing and cylinder block                   | 14~16                     |
| Flywheel and crankshaft                                    | 10~12                     |
| Bracket and engine                                         | 9~12                      |
| Front bush of 2nd shaft and transmission housing           | 4~6                       |
| Inner bearing cover of drive shaft and final drive housing | 4~5                       |
| Intermediate housing and flywheel housing                  | 3.5~5                     |
| Intermediate housing and transmission housing              | 6~8                       |
| Rear axle sleeve and transmission housing                  | 6~8                       |
| Rear axle sleeve and final drive housing                   | 6~8                       |
| Front axle sleeve and front axle arm                       | 6~8                       |
| Lifter housing and transmission housing                    | 2~3                       |
| Steering-gear case and intermediate housing                | 2~3                       |
| Front wheel spoke and front wheel hub                      | 12~14                     |
| Rear wheel spoke and drive shaft                           | 12~14                     |
| Rear wheel spoke and rear wheel rim                        | 7~9                       |
| Ballast weight on rear wheels                              | 3.5~5                     |

## 8.2 Diagram of Transmission system

For transmission system diagram, please see Fig. 8-1 and Table 8-2 and 8-3.

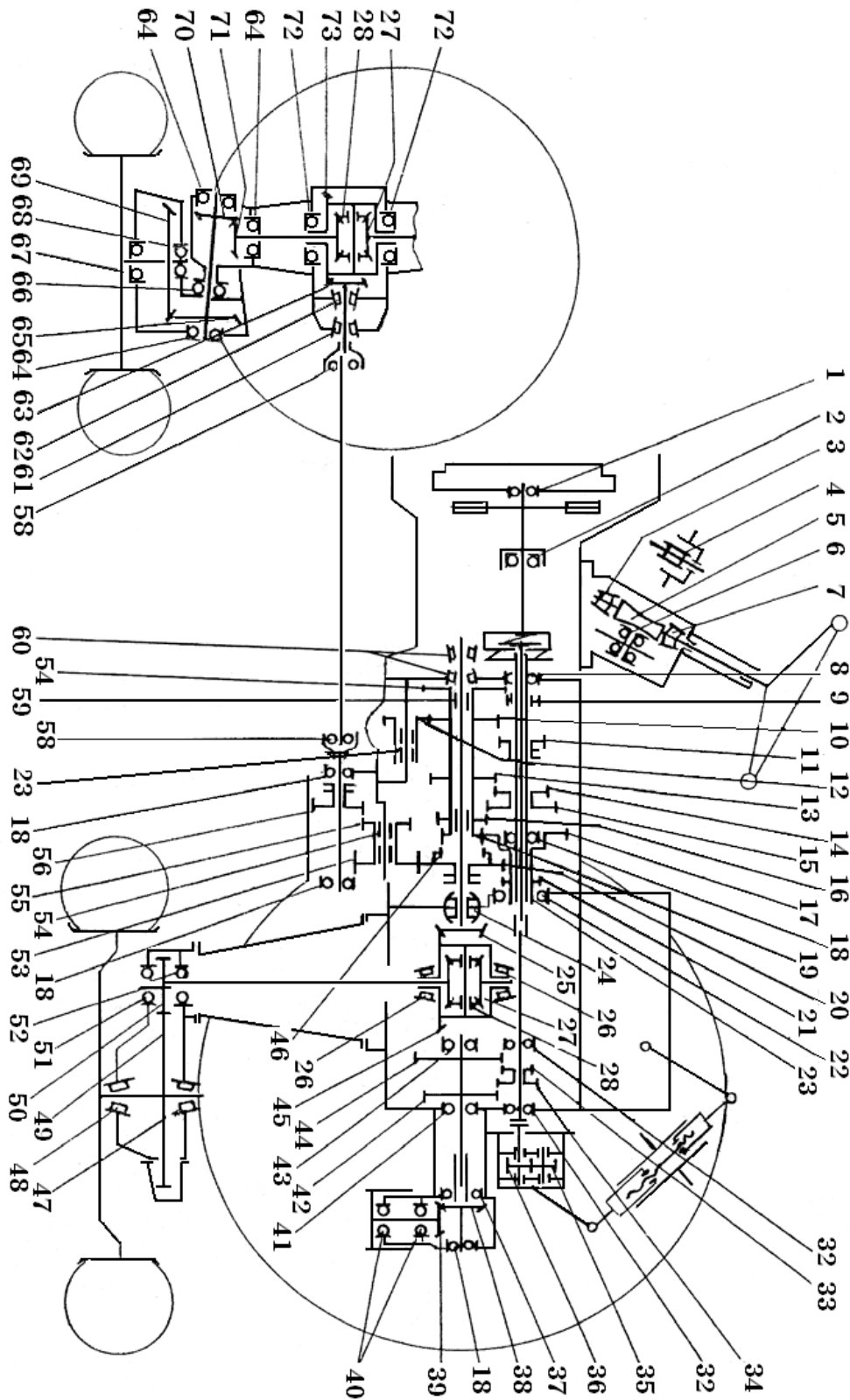


Fig. 8-1 Transmission system diagram

Table 8-2 Bearing No. and needles size of the tractor

| Item | Bearing No. | Item | Bearing No.   | Item | Bearing No.            | Item | Bearing No. |
|------|-------------|------|---------------|------|------------------------|------|-------------|
| 1    | 60203       | 22   | 208           | 41   | 50207                  | 60   | 27305       |
| 2    | 688908      | 23   | 2.5X16X90     | 43   | 305                    | 61   | 7207        |
| 3    | 977907K     | 24   | 92608 or 3608 | 47   | 7307                   | 62   | 27307       |
| 4    | 922205      | 26   | 7210          | 48   | 7212                   | 64   | 46208       |
| 6    | 776701      |      |               | 51   | 50209                  | 66   | 8206        |
| 7    | 977907      | 32   | 205(305)      | 52   | 209                    | 67   | 46209       |
| 8    | 907         | 37   | 210           | 59   | 3X24X130               | 68   | 207         |
| 18   | 106         | 40   | 306           | 58   | Steel ball $\phi$ 8X12 | 72   | 46210       |

Table 8-3 Gear teeth and modulus of the tractor

| Item | Gear teeth X m | Item | Gear teeth X m | Item | Gear teeth X m | Item | Gear teeth X m |
|------|----------------|------|----------------|------|----------------|------|----------------|
| 5    | 1X4.6685       | 20   | 42X3           | 42   | 39X3           | 65   | 15X5           |
| 9    | 18X3           | 21   | 19X3           | 44   | 47X3           | 69   | 44X5           |
| 10   | 32X3           | 25   | 14X4.2(10X5.2) | 45   | 53X4.2(43X5.2) | 70   | 16X5           |
| 11   | 28X3           | 27   | 20X4.3         | 46   | 22X3           | 71   | 14X5           |
| 12   | 25X3           | 28   | 12X4.3         | 49   | 77X4 [ 74X 4 ] | 73   | 44X4.1         |
| 13   | 39X3           | 33   | 14X3           | 50   | 13X4 [ 16X 4 ] |      |                |
| 14   | 22X3           | 34   | 22X3           | 53   | 30X3           |      |                |
| 15   | 34X3           | 35   | 10X3           | 54   | 43X3           |      |                |
| 16   | 26X3           | 36   | 10X3           | 55   | 21X3 (20X3)    |      |                |
| 17   | 39X3           | 38   | 26X3.5         | 56   | 28X3 (29X3)    |      |                |
| 19   | 22X3           | 39   | 18X3.5         | 63   | 9X4.1          |      |                |

### 8.3 Electrical system wiring diagram

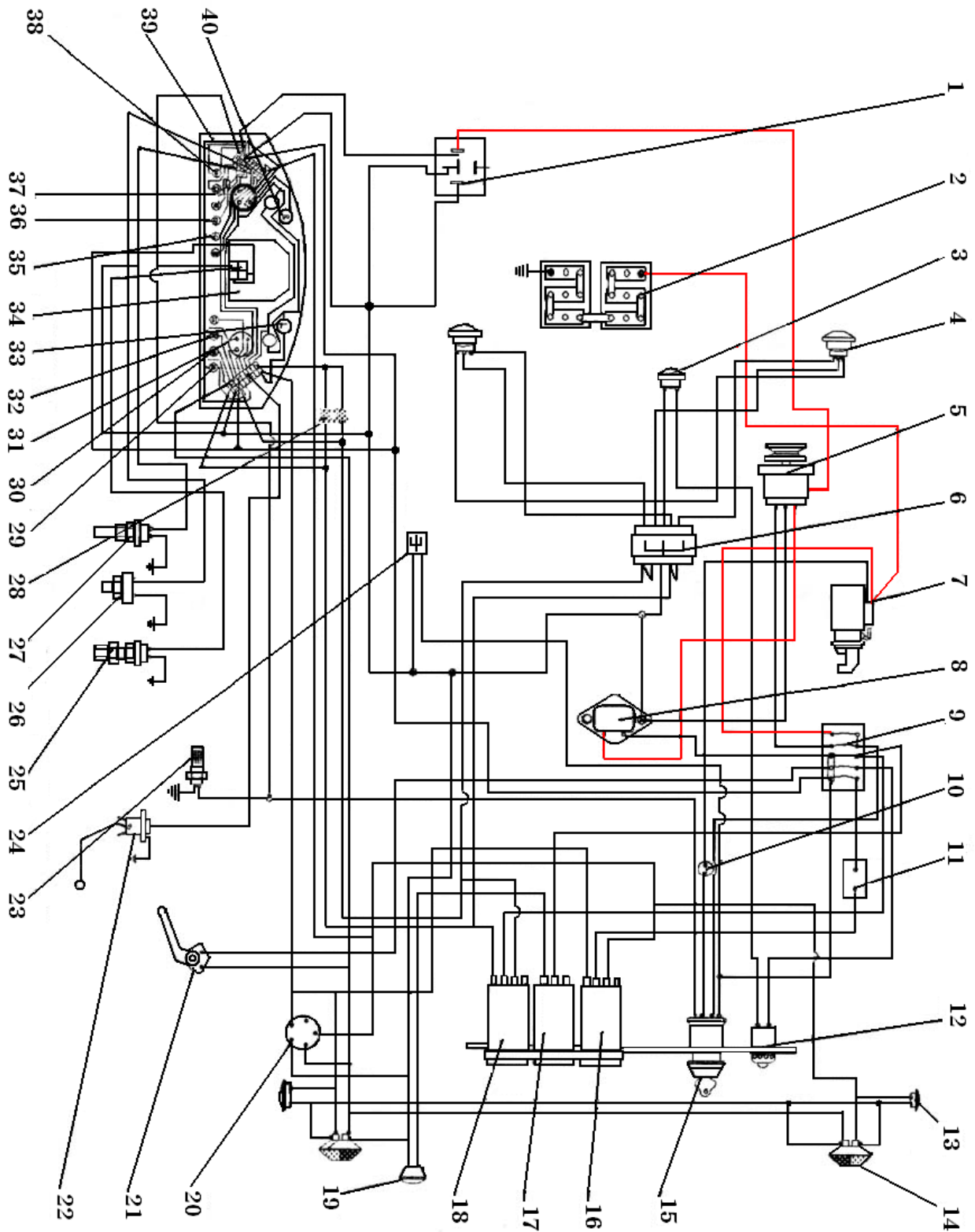
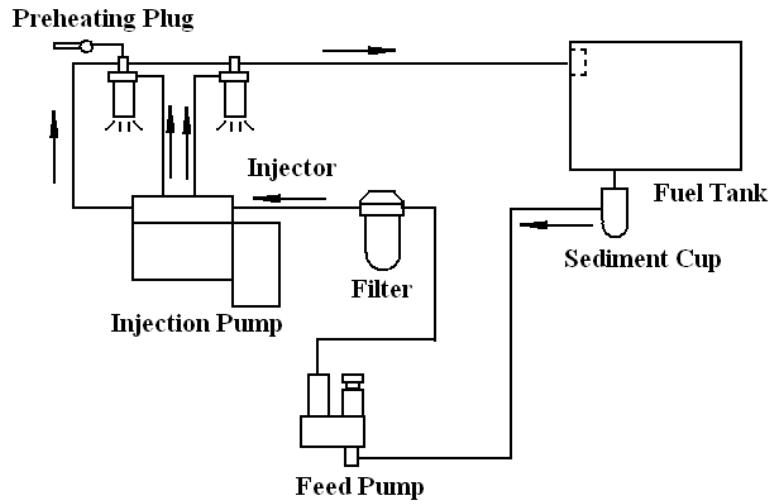


Fig. 8-2 Electrical system wiring diagram

1. Charge relay
2. Battery
3. Horn
4. Front head lamp
5. Generator
6. 8-plugs socket
7. Starting motor
8. Regulator
9. Fuse box
10. Safety switch
11. Blinker
12. Horn button
13. Direction light
14. Direction brake lamp
15. Electricity lock
16. Direction light switch
17. Tail lamp switch
18. Front head lamp switch (Upper beam, lower beam)
19. Tail lamp
20. 5-plugs socket
21. Brake switch
22. Oil sensor
23. Preheating plug
24. Engine checking electric plug
25. Rated speed sensor
26. Oil pressure sensor
27. Water temperature sensor
28. Unidirectional electric capacity
29. Front head Pilot lamp
30. Tail pilot lamp
31. Oil gauge
32. Brake pilot lamp
33. Left steering pilot lamp
34. Tachometer/hour meter
35. Oil pressure pilot lamp
36. Change pilot lamp
37. Water temperature gauge
38. Preheating pilot lamp
39. Back of wiring diagram with cluster panel
40. Right steering pilot lamp

## 8.4 Fuel System Diagram



## 8.5 Hitch System Dimensions

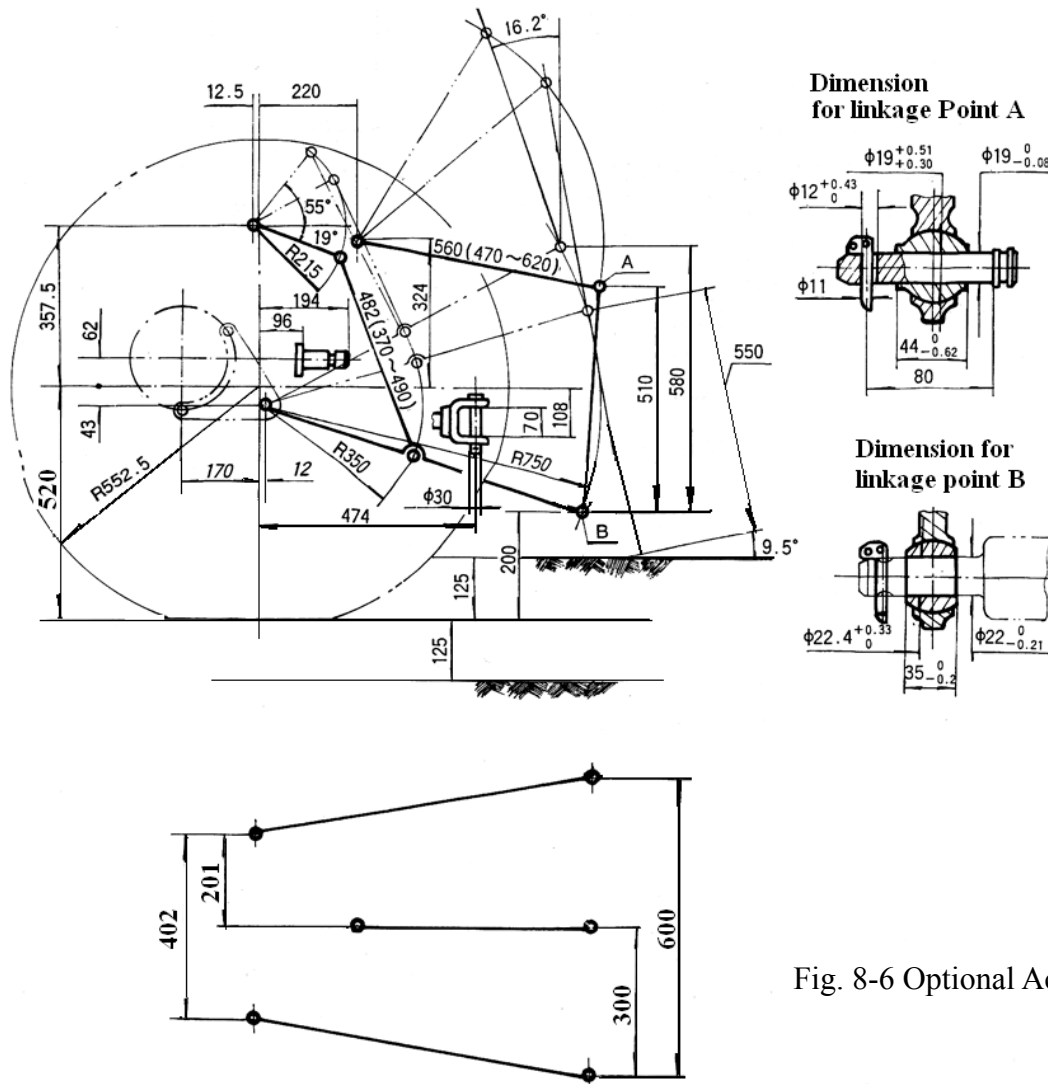


Fig. 8-6 Optional Accessories

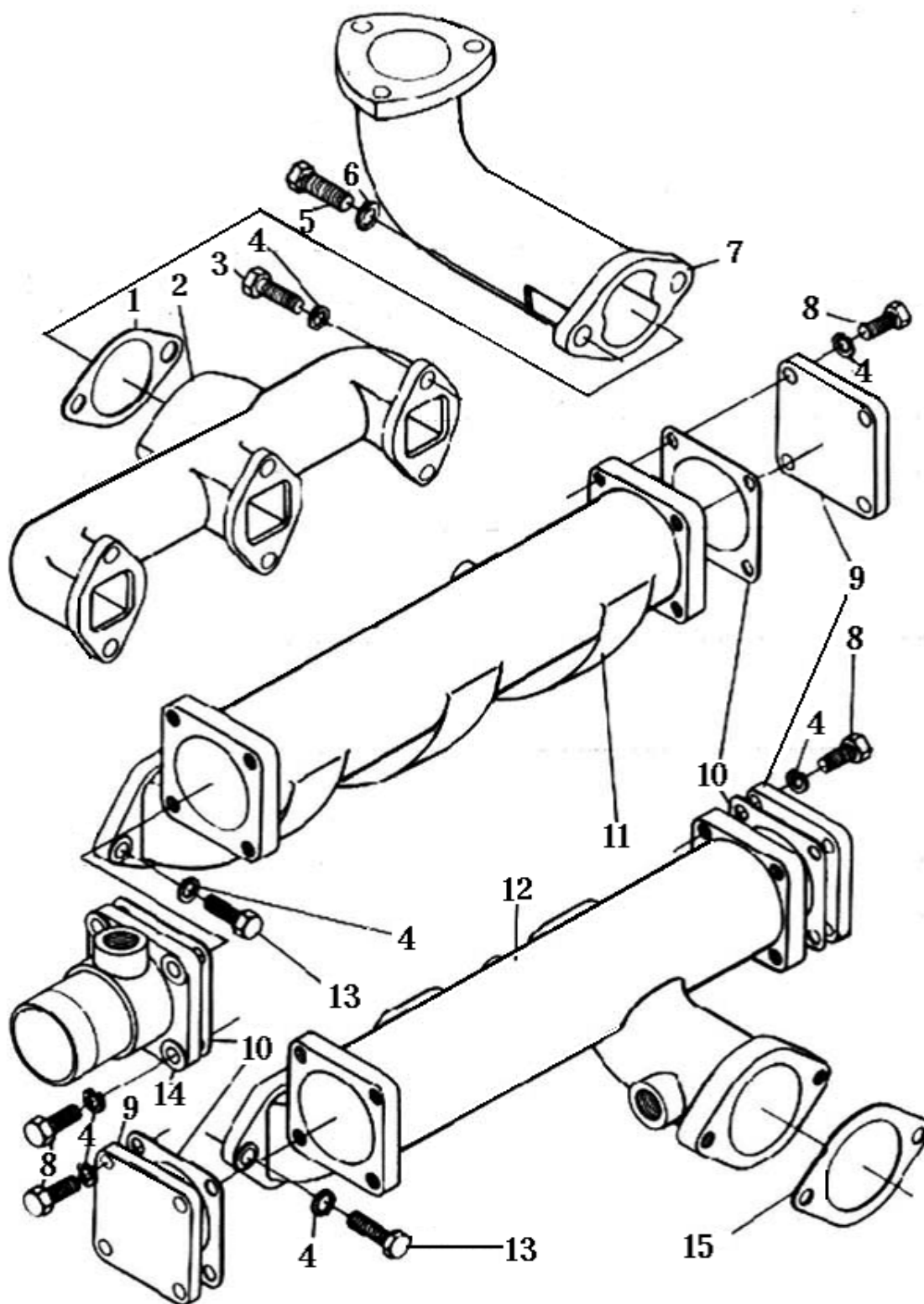
Table 8-5 Optional accessories

| Item | Description                     | Quantity | Application                           |
|------|---------------------------------|----------|---------------------------------------|
| 1    | Rear wheel ballast              | 4        | Dry field operation or transportation |
| 2    | Air brake device                | 1 Set    | For trailer                           |
| 3    | Roll-over protective structure  | 1 Set    | For safety                            |
| 4    | Paddy wheel of ground-grip tire | 2        | Paddy field operation                 |
| 5    | Roof                            | 1 Set    | Sun protection                        |

# **ET 350 ECONO 4WD TRACTOR**

## **ENGINE** **PARTS CATALOGUE**

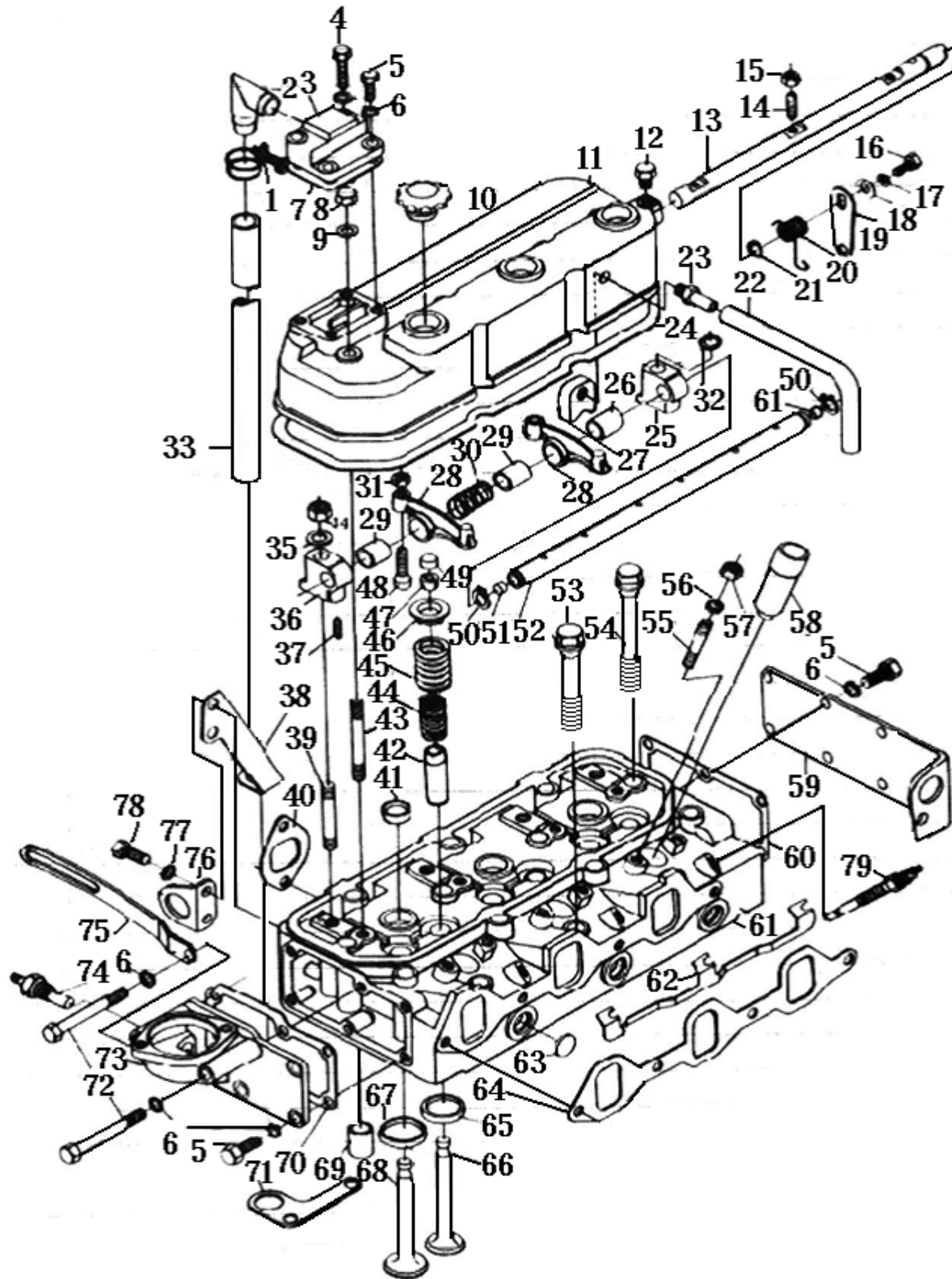
## 1. INTAKE AND EXHAUST PIPE ASSEMBLY



## 1. INTAKE AND EXHAUST PIPE ASSEMBLY

| No. | Code              | Name                      | QTY |
|-----|-------------------|---------------------------|-----|
| 1   | TY295I.10.2-3     | Exhaust pipe gasket       | 1   |
| 2   | TY395I.10-2       | Exhaust connecting pipe   | 1   |
| 3   | GB5783-86         | Stud bolt M8 X 35         | 6   |
| 4   | GB93-87           | Washer 8                  | 12  |
| 5   | GB5783-86         | Stud bolt M10 X 22        | 2   |
| 6   | GB93-87           | Washer 10                 | 2   |
| 7   | TY395I.10-2-4EPA  | Exhaust pipe              | 1   |
| 8   | GB5783-86         | Stud bolt M8 X 20         | 4   |
| 9   | TY395I.10-4       | Intake pipe flange        | 2   |
| 10  | TY395I.10-5       | Intake pipe flange gasket | 2   |
| 11  | TY395IT.10.1-1NBa | Intake pipe (30Ps)        | 1   |
| 12  | TY395IT.10-1NBa   | Intake pipe (35Ps)        | 1   |
| 13  | GB5783-86         | Stud bolt M8 X 22         | 6   |
| 14  | TY395I.10.1-2NBa  | Intake connecting pipe    | 1   |
| 15  |                   | Intake pipe elbow gasket  | 1   |

## 2. CYLINDER HEAD ASSEMBLY



## 2. CYLINDER HEAD ASSEMBLY

| No. | Code             | Name                             | QTY |
|-----|------------------|----------------------------------|-----|
| 1   |                  | Hoop assembly                    | 1   |
| 2   | TY395IT.1.2-10NB | Ventilate pipe fittings          | 1   |
| 3   | TY395IT1.2-12NB  | Ventilate room blind flange      | 1   |
| 4   | GB5783-86        | Bolt M8 X 40                     | 2   |
| 5   | GB5783-86        | Bolt M8 X 20                     | 2   |
| 6   | GB 859-87        | Washer 8                         | 24  |
| 7   | TY395IT.1.2-11NB | Ventilate board gasket , plug    | 1   |
| 8   | GB923-88         | Nut M8                           | 4   |
| 9   | GB848-85         | Washer 8                         | 4   |
| 10  | TY395.1.2-4      | Adjusting hole cover             | 3   |
| 11  | TY395.1.2-1      | Cylinder head bonnet             | 1   |
| 12  | TY395.1.2-6      | Locating screw                   | 1   |
| 13  | TY395.1.2-2      | Decompression shaft              | 1   |
| 14  | TY395.1.2-3      | Reduce pressure screw            | 3   |
| 15  | GB6170-86        | Nut M6                           | 3   |
| 16  | GB5783-86        | Bolt M6 X 16                     | 1   |
| 17  | BN859-87         | Washer 6                         | 1   |
| 18  | TY395.1.2-8      | Washer                           | 1   |
| 19  | TY395.1.2-2      | Decompression handle             | 1   |
| 20  | TY295I.1.3-4     | Spring , twisting force          | 1   |
| 21  | GB3452.1-2       | O ring (rubber seal 11.8 X 2.65) | 1   |
| 22  | SG79-84          | Pipe 8 X 0.6 X 190               | 1   |
| 23  | TY295I.1-25      | Wind pipe(Connector)             | 1   |
| 24  | TY395.1-1        | Cylinder head bonnet gasket      | 1   |
| 25  | TY295.1-10       | Rockshaft carrier II             | 3   |
| 26  | TY295.1-13       | Rockshaft bush I                 | 2   |
| 27  | TY295I.1.4a      | Respirator becomes always        | 1   |
| 28  | Ty295.1-23       | Valve rocker arm                 | 6   |

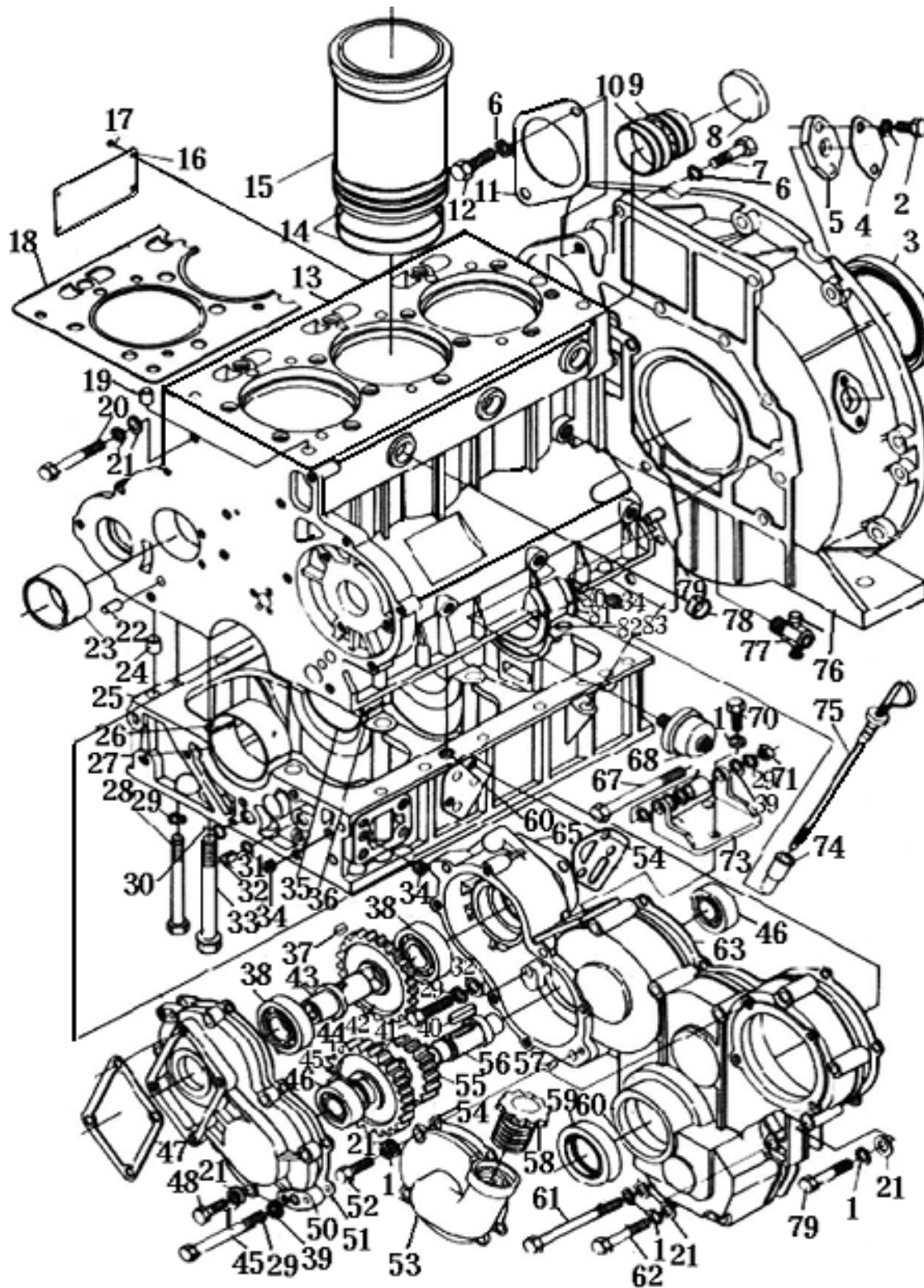
## 2. CYLINDER HEAD ASSEMBLY

| No. | Code             | Name                                 | QTY |
|-----|------------------|--------------------------------------|-----|
| 29  | S195-03005       | Rocker arm bush                      | 6   |
| 30  | TY295.1-14       | Rockshaft spring                     | 3   |
| 31  | GB6170-86        | Nut M8                               | 4   |
| 32  | TY495.1.24       | Rockshaft carrier washer             | 3   |
| 33  | TY284IT.1.2-13NB | Stick pipe                           | 1   |
| 34  | GB6170-86        | Nut M12                              | 4   |
| 35  | GB859-87         | Washer 12                            | 3   |
| 36  | TY295.1-11       | Rockshaft carrier II                 | 1   |
| 37  | TY295.1-22       | Screw                                | 1   |
| 38  | TY395IT.1.2-14NB | Stick pipe location board            | 1   |
| 39  | TY495.1-12       | The carrier of rockshaft fires screw | 4   |
| 40  | TY295.1-20       | Exhaust pipe gasket                  | 3   |
| 41  | TY295.1.1-5      | Water plug $\Phi$ 28                 | 3   |
| 42  | S195-03011       | Valve guide stem                     | 6   |
| 43  | GB899-88         | Bolt AM8 X 80                        | 4   |
| 44  | TY295.1-3        | Valve spring (Inner)                 | 6   |
| 45  | TY295.1-4        | Valve spring (Outer)                 | 6   |
| 46  | S195-03008       | Spring seat cover                    | 6   |
| 47  | S195-03007       | Valve collects                       | 12  |
| 48  | S195-03006-1     | Valve clearance adjusting screw      | 6   |
| 49  | TY495.1-23       | Valve cap                            | 6   |
| 50  | GB894.1-86       | Check ring 16                        | 2   |
| 51  | TY295.1.2-2      | Rockshaft plug                       | 2   |
| 52  | TY395.1.3.2-1    | Rockshaft                            | 1   |
| 53  | TY395I.1-5EPA    | Cylinder head bolt I                 | 3   |
| 54  | TY295.1-6        | Cylinder head bolt II                | 11  |
| 55  | GB899-88         | Bolt AM8 X 50                        | 6   |
| 56  | GB859-87         | Washer 8                             | 6   |

## 2. CYLINDER HEAD ASSEMBLY

| No. | Code             | Name                             | QTY |
|-----|------------------|----------------------------------|-----|
| 57  | GB6170-86        | Nut M8                           | 6   |
| 58  | TY395I.1.16EPA   | Injection bush                   | 3   |
| 59  | TY295.1-8        | Rear cover plate                 | 1   |
| 60  | TY295.1-7        | Rear cover plate gasket          | 1   |
| 61  | TY395.I.1.1-1EPA | Cylinder head                    | 1   |
| 62  | TY395I.1-3       | Wring board                      | 1   |
| 63  | TY295.1.1-4      | Stopper                          | 3   |
| 64  | TY295.1-9        | Intake pipe gasket               | 1   |
| 65  | TY295.1-.        | Exhaust valve seat               | 3   |
| 66  | TY295.1-2        | Exhaust valve                    | 3   |
| 67  | TY295.1.1-2      | Intake valve seat                | 3   |
| 68  | TY295.1-1        | Intake valve                     | 3   |
| 69  | TY495.2.1-8      | Front cover plate gasket         | 3   |
| 70  | TY295.1-19       | Bolt M8 X 80                     | 1   |
| 71  | TY395IT.1.2-15NB | Front cover plate                | 1   |
| 72  | GB5782-86        | Water temperature induction plug | 2   |
| 73  | TY395I.2-6EPA    | Belt tightening pulley bracket   | 1   |
| 74  | NJ-12DI          | Hoisting ring                    | 1   |
| 75  | TY295.2.20a      | Washer 10                        | 1   |
| 76  | TY295.1-21       | Bolt M10 X 20                    | 1   |
| 77  | GB859-87         | Injection                        | 2   |
| 78  | GB5783-86        | Fuel injector locator            | 2   |
| 79  | PF68S19          |                                  | 3   |
| 80  | TY395I.1.1-7EPA  | TY395EPA series                  | 3   |
| 81  | TY395I.1.1-8EPA  | TY385EPA series                  | 3   |
| 82  | TY395I.1-30EPA   | TY385EPA series                  | 1   |
| 83  | TY395I.1-31EPA   |                                  | 1   |
| 84  | TY395I.1-32EPA   |                                  | 1   |

### 3. CYLINDER BLOCK ASSEMBLY



### 3. CYLINDER BLOCK ASSEMBLY

| No. | Code             | Name                                          | QTY |
|-----|------------------|-----------------------------------------------|-----|
| 1   | GB859-87         | Washer 8                                      | 32  |
| 2   | GB5783-86        | Bolt M8 X 16                                  | 2   |
| 3   | GB2600-80        | Oil seal PG 100 X 130 X 12                    | 1   |
| 4   | TY395I.2-17      | Cover of observation hole                     | 1   |
| 5   | TY395I.2-18      | Gasket of observation hole                    | 1   |
| 6   | GB859-87         | Washer 12                                     | 12  |
| 7   | GB5783-86        | Bolt M12 X24                                  | 10  |
| 8   | TY295.2.1-11     | Plug                                          | 1   |
| 9   | TY295.2.1-3      | Rear camshaft bush                            | 1   |
| 10  | TY295.2.1-2      | Inside camshaft bush                          | 1   |
| 11  | TY295.2-23       | Start generator gasket                        | 1   |
| 12  | GB5783-86        | Bolt M12 X 35                                 | 2   |
| 13  | TY395.2.1-1      | Cylinder block                                | 1   |
| 14  | TY295.2-8        | Water sealing ring                            | 6   |
| 15  | TY395I.2-7EPA    | Cylinder sleeve                               | 3   |
| 16  | TY395I-2-29      | Name plate                                    | 1   |
| 17  | GB867-86         | Blind Rivet (2 X 6)                           | 4   |
| 18  | TY395.2-6EPA     | Cylinder head gasket                          | 1   |
| 19  | TY295.2.1-10     | Pin                                           | 2   |
| 20  | GB5782-86        | Bolt M 10 X 110                               |     |
| 21  | GB859-87         | Washer 8                                      |     |
| 22  | TY295.2.1-5      | Pin                                           | 2   |
| 23  | TY295.2.1-2      | Front camshaft bush                           | 1   |
| 24  | TY395IT.2.1-10NB | Pin                                           | 1   |
| 25  | TY395.2.1-3      | Main bearing cap                              | 1   |
| 26  | TY295.2-4        | Front and rear main bearing half shelf(upper) | 2   |
| 27  | TY295.2-5        | Front and rear main bearing half shelf(lower) | 2   |
| 28  | GB5782-86        | Bolt M10 X 110                                | 8   |

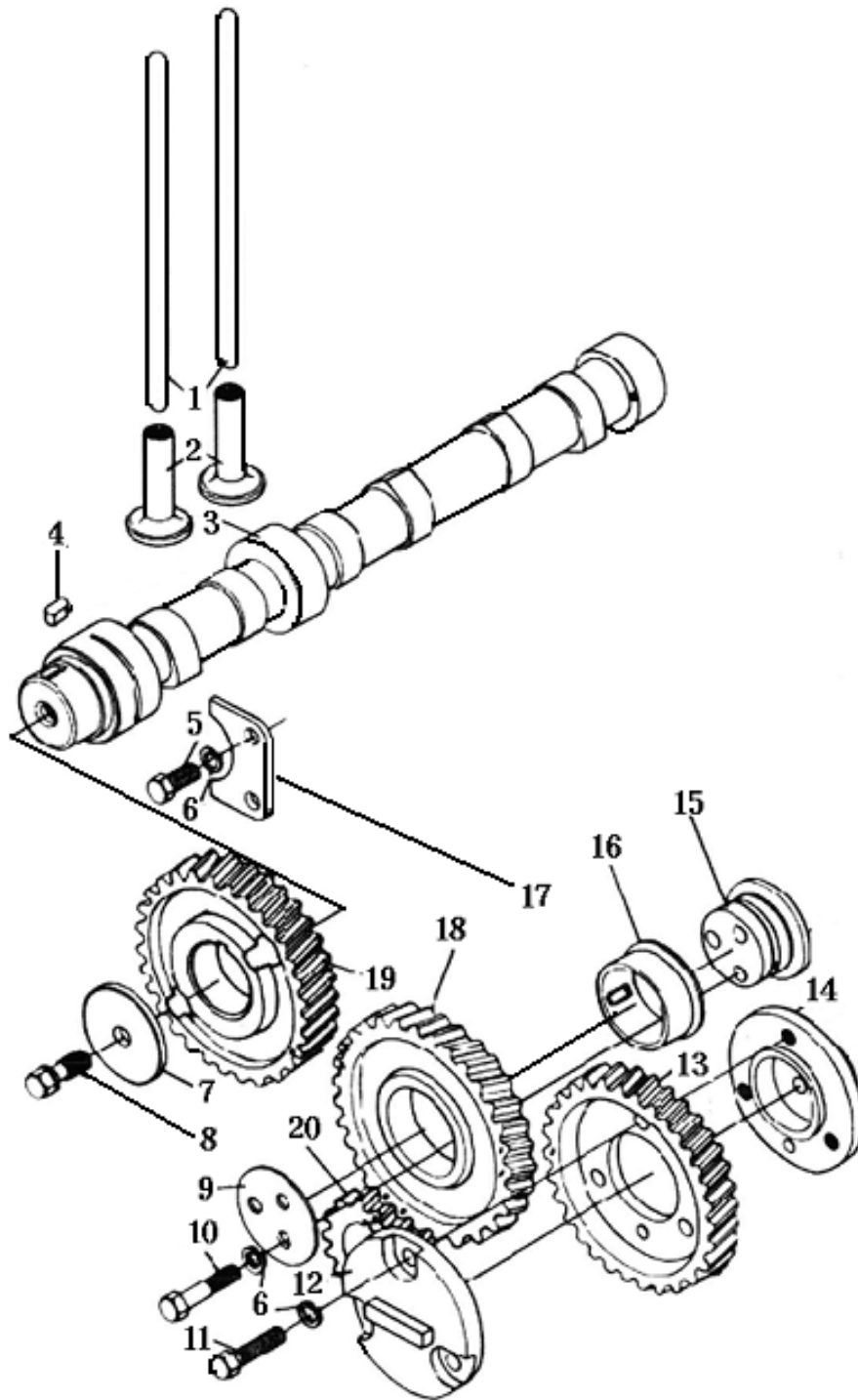
### 3. CYLINDER BLOCK ASSEMBLY

| No. | Code          | Name                                  | QTY |
|-----|---------------|---------------------------------------|-----|
| 29  | GB859-87      | Washer 10                             |     |
| 30  | GB3452.1-82   | O ring 11.8 X 1.8                     | 1   |
| 31  | GB3452.1-82   | O ring 15 X 1.8                       | 1   |
| 32  | TY495.2.1-8   | Elastic sleeve                        | 3   |
| 33  | TY295.2.1-8   | Main bearing cap                      | 8   |
| 34  | TY495.2.1-8   | Oil gallery plug                      | 6   |
| 35  | TY295.2-6     | Middle main bearing half shelf(upper) | 4   |
| 36  | TY295.2-7     | Middle main bearing half shelf(lower) | 4   |
| 37  | GB1096-79     | Key(10 X 16)                          | 1   |
| 38  | GB296-82      | Ball bearing 203                      | 1   |
| 39  | GB93-87       | Washer10                              |     |
| 40  | GB1096-79     | Key(10 X 34)                          | 1   |
| 41  | GB5782-86     | Bolt M10 X 110                        |     |
| 42  | TY295IT.16-4a | Hydraulic pump gear II                | 1   |
| 43  | TY295.2-11    | Transmission shaft ,lift pump         | 1   |
| 44  | TY295IT.2-37b | Hydraulic pump gear I                 | 1   |
| 45  | GB874-1-86    | Circlip 30                            | 1   |
| 46  | GB276-82      | Ball bearing 106                      | 1   |
| 47  | TY295.2-13    | Gasket ,lift pump                     | 1   |
| 48  | GB5782-86     | Bolt M8 X 30                          | 12  |
| 49  | GB5782-86     | Bolt M10 X 95                         | 2   |
| 50  | TY295.2-12    | Cover ,lift pump                      | 1   |
| 51  | TY295.2-13    | Gasket,lift pump                      | 1   |
| 52  | GB5782-86     | Bolt M10 X 30                         | 2   |
| 53  | TY395.2-5     | Cover , air pump hole                 | 1   |
| 54  | TY395.2-4     | Gasket ,air pump hole                 | 1   |
| 55  | TY295IT.16-2a | Transfer axle gear                    | 1   |
| 56  | TY295IT.2-32a | Transfer axle                         | 1   |

### 3. CYLINDER BLOCK ASSEMBLY

| No. | Code           | Name                                  | QTY |
|-----|----------------|---------------------------------------|-----|
| 57  | GB119-86       | Pin 5 X 10                            | 2   |
| 58  | TY295IT.2.3    | Oil filler assembly                   | 1   |
| 59  | JB2600-80      | Oil seal PG 45 X 65 X 12              | 1   |
| 60  | TY395.2-3      | Gear case cover                       | 1   |
| 61  | GB5782-86      | Bolt M8 X 75                          | 2   |
| 62  | GB5783-86      | Bolt M8 X 30                          | 2   |
| 63  | TY295.2-9      | Gear case gasket                      | 1   |
| 64  | TY295.2-22     | Oil clarifier gasket                  | 1   |
| 65  | TY295IT.16-12a | 13.2 X 2.65 Type O rubber             | 1   |
| 66  | GB3452.1-2     | Seal ring 13.2 X 2.65                 | 1   |
| 67  | TY295IT.2-35b  | Alternator support body               | 1   |
| 68  | CY-412         | Oil pressure sensor                   | 1   |
| 69  | TY295I.2-27    | Electrical generator's pipe           | 1   |
| 70  | GB5782-86      | Bolt M10 X 60                         | 3   |
| 71  | GB859-87       | Washer 10                             | 3   |
| 72  | GB5782-86      | Bolt M8 X 55                          | 6   |
| 73  | TY295.2-19     | Alternator support body               | 1   |
| 74  | TY295I.2.2.2   | Oil level gauge connect               | 1   |
| 75  | TY295I.2.2.1   | Oil lever dipstick                    | 1   |
| 76  | TY295.2-1      | Flywheel box                          | 1   |
| 77  | S195-01300A    | Water-draining cock                   | 1   |
| 78  | TY295.2.1-4    | Oil stopper                           | 7   |
| 79  | TY295.2.1-10   | Pin 10                                | 2   |
| 80  | TY295.2-3      | Upper thrust piece ,crankshaft        | 2   |
| 81  | TY495.2-26     | Lower thrust piece ,crankshaft(outer) | 1   |
| 82  | TY495.2-25     | Lower thrust piece,crankshaft(inner)  | 1   |
| 83  | TY395.2-2      | Flywheel box gasket                   | 1   |

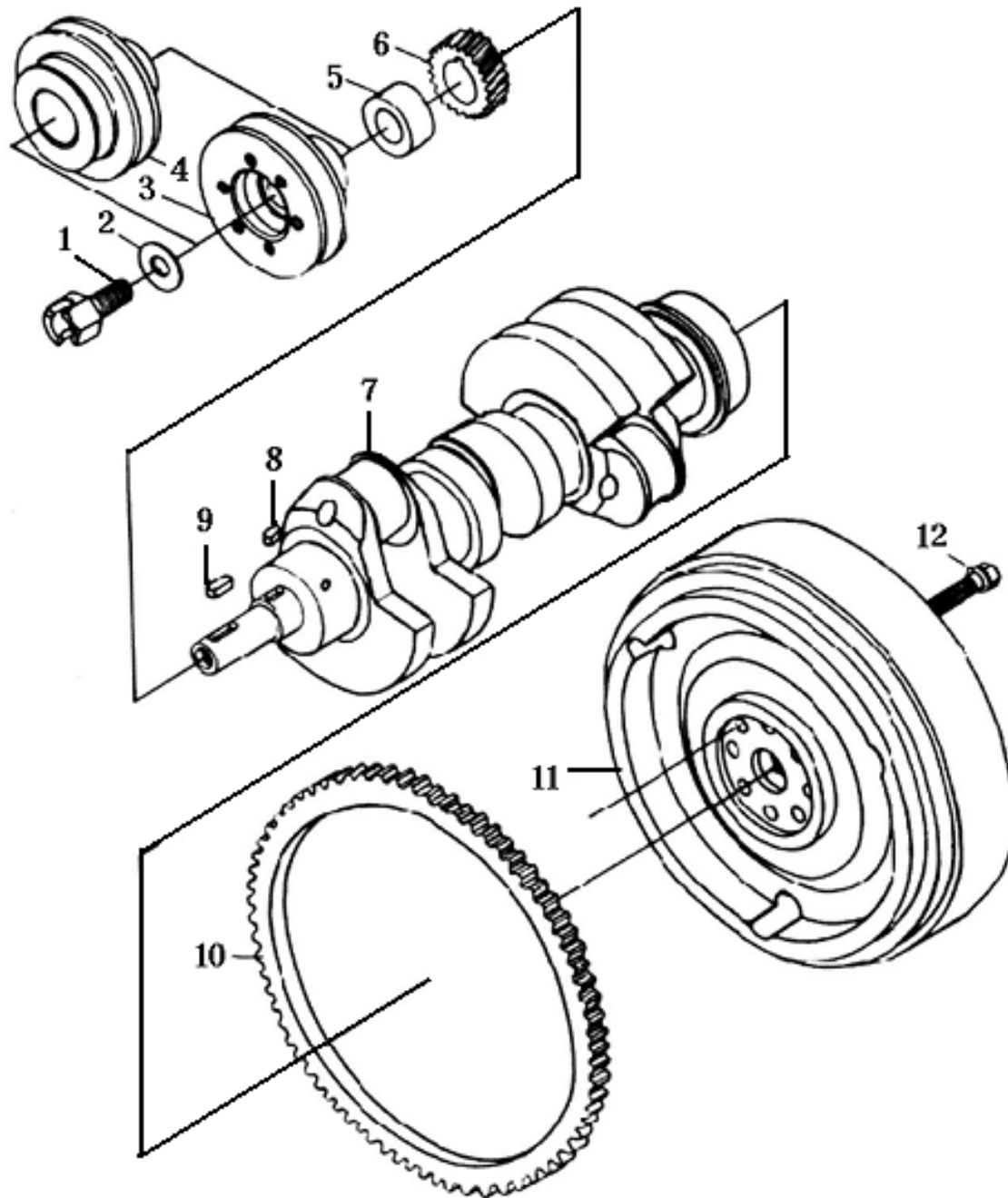
## 4. CAMSHAFT ASSEMBLY



## 4. CAMSHAFT ASSEMBLY

| No. | Code          | Name                      | QTY |
|-----|---------------|---------------------------|-----|
| 1   | TY295.3-3     | Valve push rod            | 6   |
| 2   | TY295.3-2     | Valve tappet              | 6   |
| 3   | TY395I.3-1EPA | Camshaft                  | 1   |
| 4   | S195-02003    | Flat key                  | 1   |
| 5   | GB5783-86     | Bolt M8 X 16              | 2   |
| 6   | GB859-87      | Washer 8                  | 8   |
| 7   | TY295.3-13    | Camshaft gear hold down   | 1   |
| 8   | TY295.3-14    | Screw                     | 3   |
| 9   | TY295.3-9     | Idle gear hold down       | 1   |
| 10  | GB5782-86     | Bolt M8 X 40              | 3   |
| 11  | GB5783-86     | Bolt M8 X 25              | 3   |
| 12  | TY2100II.3-10 | Drive shield              | 1   |
| 13  | TY295.3-10    | Fuel injection pump gear  | 1   |
| 14  | TY295.3-11    | Flange joint of fuel pump | 1   |
| 15  | TY295.3-7     | Idle gear shaft           | 1   |
| 16  | TY295.3-8     | Idle gear bush            | 1   |
| 17  | TY295.3-5     | Thrust piece              | 1   |
| 18  | TY295.3-6     | Idle gear                 | 1   |
| 19  | TY295.3-4     | Camshaft gear             | 1   |
| 20  |               |                           | 1   |

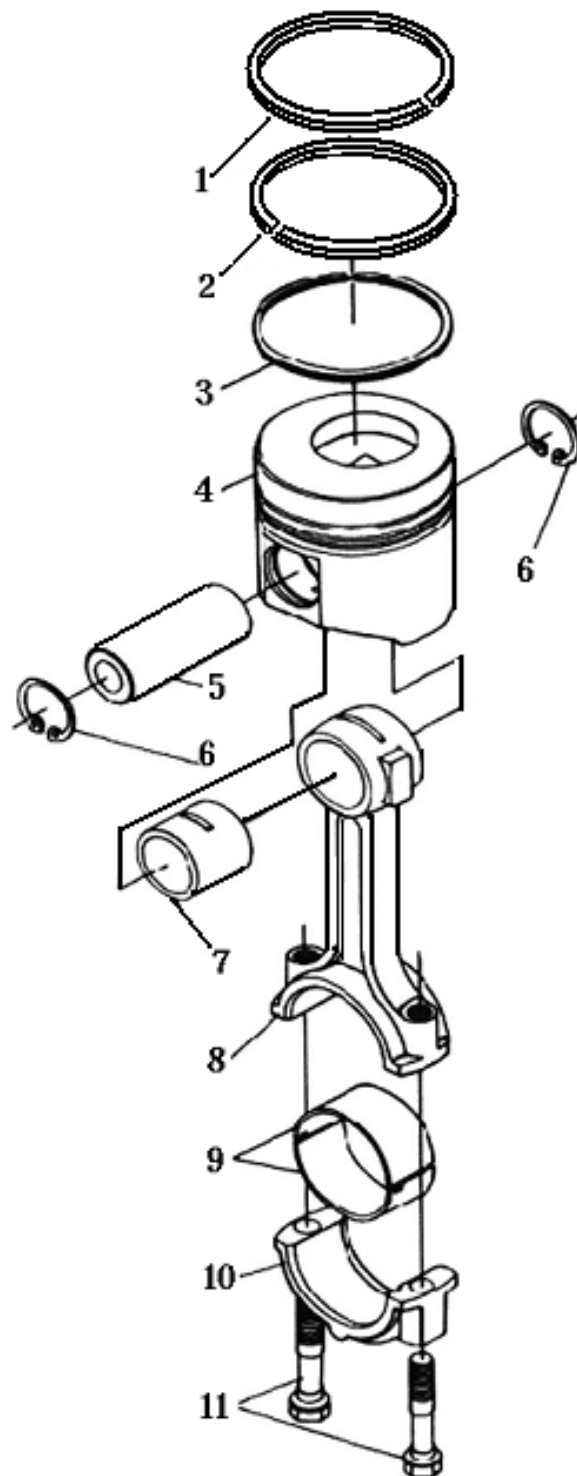
## 5. CRANKSHAFT-FLYWHEEL ASSEMBLY



## 5. CRANKSHAFT-FLYWHEEL ASSEMBLY

| No. | Code           | Name                 | QTY |
|-----|----------------|----------------------|-----|
| 1   | TY295.4.2-7    | Starting claw        | 1   |
| 2   | TY295.4.2-8    | Starting claw washer | 1   |
| 3   | TY375I.4.2-9   | Belt pulley          | 1   |
| 4   | TY295IT.4.2-9a | Belt pulley          | 1   |
| 5   | TY295.4.2-6    | Bush                 | 1   |
| 6   | TY295.4.2-5    | Crankshaft           | 1   |
| 7   | TY395I.4.2-4   | Crankshaft           | 1   |
| 8   | S195-05008     | Key                  | 1   |
| 9   | GB1567-79      | Key A8 X 5 X 28      | 1   |
| 10  | TY295.4.2-2    | Flywheel gear ring   | 1   |
| 11  | TY395I-4.2-1   | Flywheel             | 1   |
| 12  | TY295.4.2-3    | Flywheel bolt        | 6   |

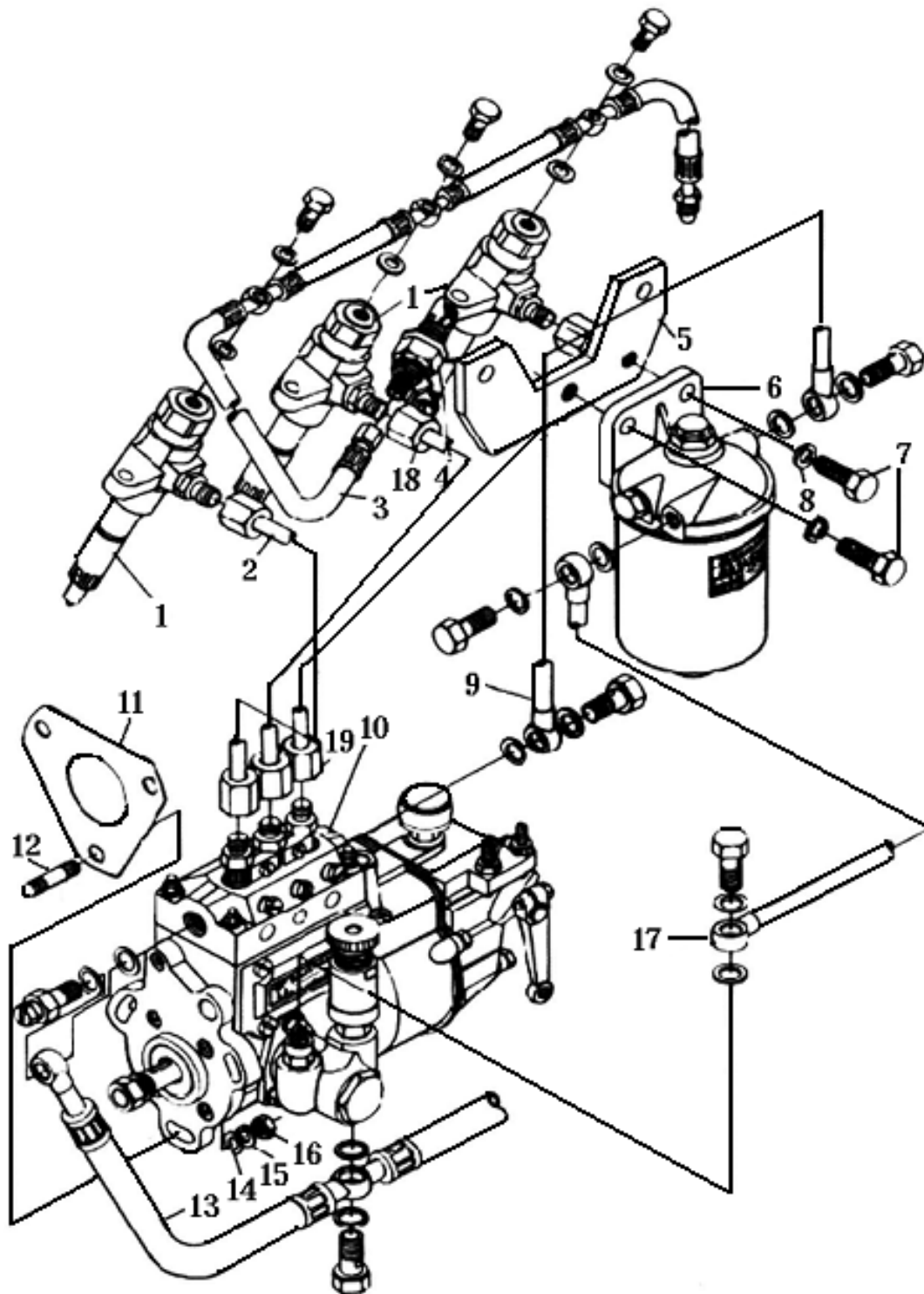
## 6. PISTON CONNECTING ROD ASSEMBLY



## 6. PISTON CONNECTING ROD ASSEMBLY

| No. | Code            | Name                         | QTY |
|-----|-----------------|------------------------------|-----|
| 1   | TY395I.4.1-1EPA | Compression ring (1)         | 3   |
| 2   | TY395I.4.1-1EPA | Compression ring (2)         | 3   |
| 3   | TY395I.4.1.1EPA | Oil scraper ring             | 3   |
| 4   | TY395I.4.1-4EPA | Piston                       | 3   |
| 5   | TY295.4.1-3     | Piston pin                   | 3   |
| 6   | GB893-76        | Circlip 37                   | 6   |
| 7   | TY395.4.1.2-2   | Connecting small rod bushing | 3   |
| 8   | TY295.4.1.2-1   | Connecting rod assembly      | 3   |
| 9   | TY295.4.1-6     | Connecting rod bearing shell | 3   |
| 10  | TY295.4.1.2-3   | Connecting rod cap           | 3   |
| 11  | TY295.4.1.2-4   | Connecting rod bolt          | 6   |

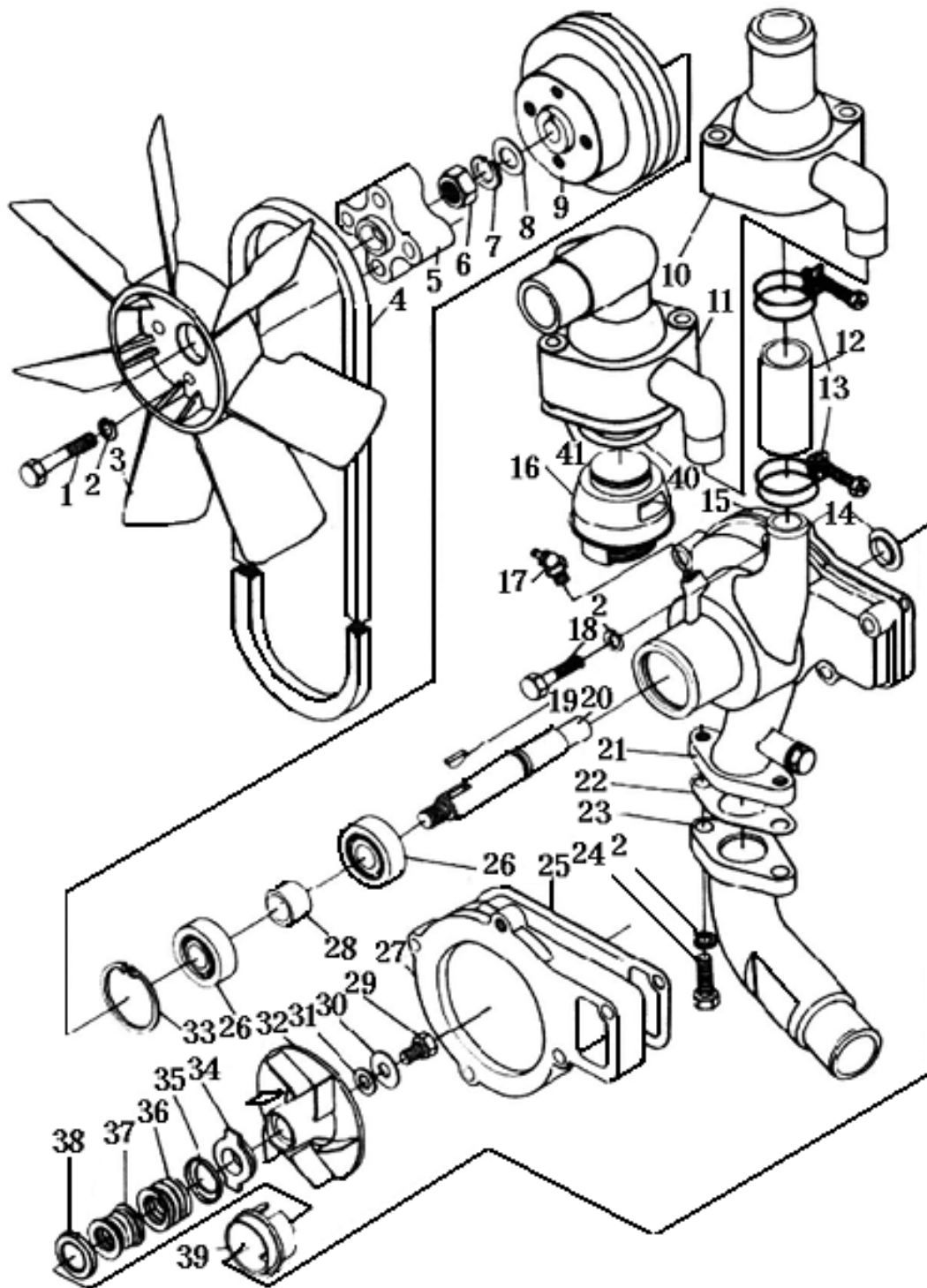
## 7. FUEL SYSTEM ASSEMBLY



## 7. FUEL SYSTEM ASSEMBLY

| No. | Code             | Name                                                                 | QTY    |
|-----|------------------|----------------------------------------------------------------------|--------|
| 1   | PF68S19          | Injection assy                                                       | 3      |
| 2   | TY395.15.1       | High pressure pipe , cylinder I                                      | 1      |
| 3   | TY395.15.7       | Injector fuel return pipe                                            | 1      |
| 4   |                  | Heat plug                                                            | 1      |
| 5   | TY395I.10-3NB    | Cleaner clamp                                                        | 1      |
| 6   | C0708A           | Fuel filter assy                                                     | 1      |
| 7   | GB5782-86        | Bolt M10 X 25                                                        | 1      |
| 8   | GB859-87         | Washer 10                                                            | 1      |
| 9   | TY395.15.6       |                                                                      | 1      |
| 10  |                  | Fuel injection pump                                                  | 1      |
| 11  | TY395.2-7        | Fuel injection pump gasket                                           | 1      |
| 12  | GB899-88         | Stud Bolt AM8 X 25                                                   | 3      |
| 13  | TY395.14.4       | Fuel pipe assy between fuel-tank<br>transfer-pump and injection-pump | 1<br>3 |
| 14  | GB848-87         | Washer 8                                                             | 3      |
| 15  | GB859-87         | Washer 8                                                             | 3      |
| 16  | GB6170-86        | Nut M8                                                               | 1      |
| 17  | TY395.15.5       | Oil return line assembly                                             | 1      |
| 18  | TY395.15.3       | High pressure pipe ,cylinder II                                      | 1      |
| 19  | TY395.15.4       | High pressure pipe ,cylinder II                                      | 3      |
| 20  | TY395I.15.1-1EPA |                                                                      | 2      |
| 21  | TY395I.15.6-3EPA | 150                                                                  | 1      |
| 22  | TY395I.15.6-5EPA | 320                                                                  | 1      |
| 23  | TY395I.15.6-6EPA | 180                                                                  |        |

## 8. COOLING SYSTEM



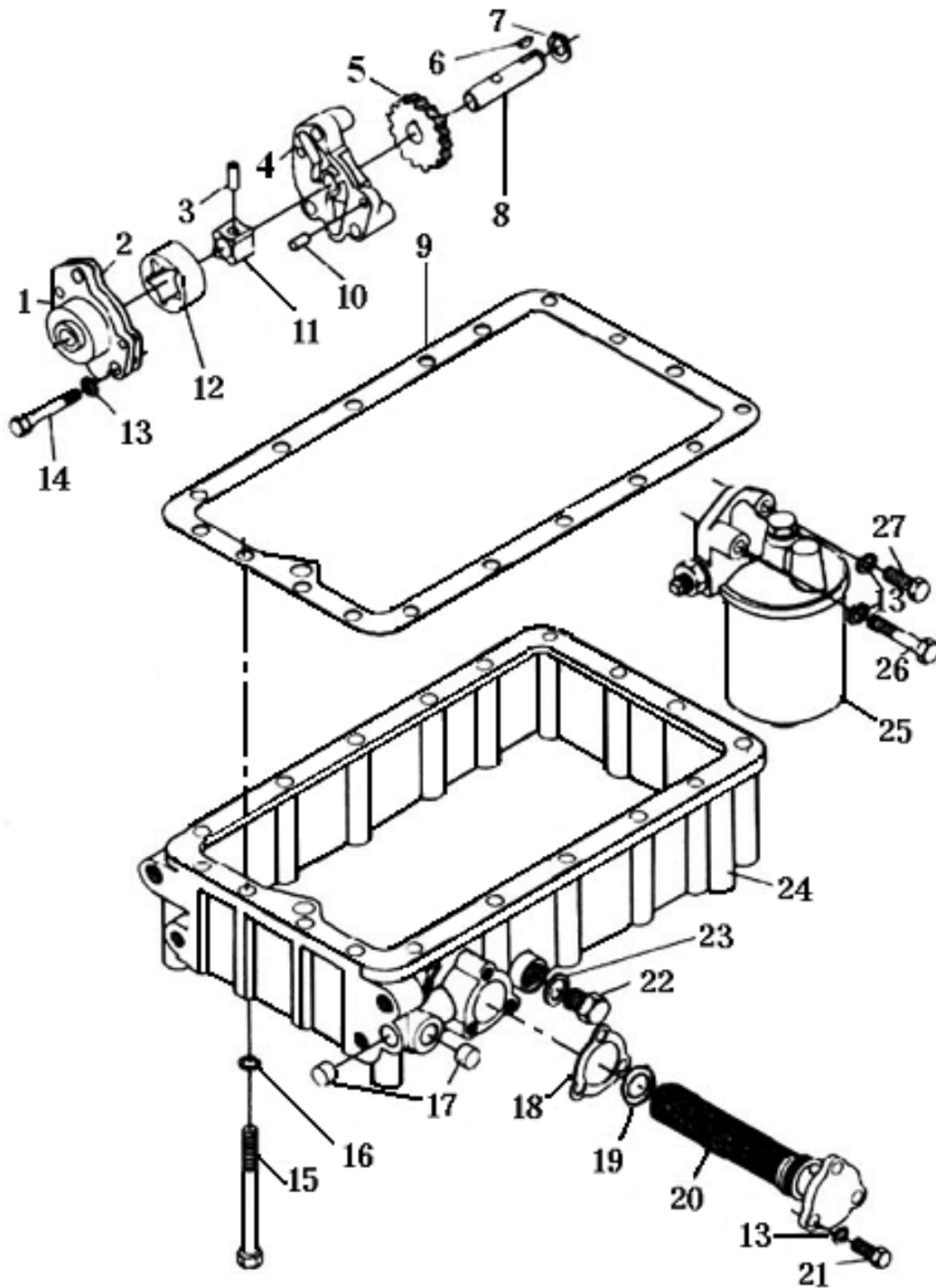
## 8. COOLING SYSTEM

| No. | Code         | Name                            | QTY |
|-----|--------------|---------------------------------|-----|
| 1   | GB5782-86    | Bolt M8 X 45                    | 4   |
| 2   | GB859-87     | Flat Washer 8                   | 7   |
| 3   | TY395I.12-15 | Radiator Fan                    | 1   |
| 4   | HG4-401-74   | Fan Belt 13 X 8 X 1000          | 1   |
| 5   | TY395I.12-18 | Radiator Fan                    | 1   |
| 6   | GB6173-86    | Nut M12                         | 1   |
| 7   | GB859-87     | Spring Washer 12                | 1   |
| 8   | GB9731-85    | Flat Washer 12                  | 1   |
| 9   | TY295.12-5   | Pulley                          | 1   |
| 10  | TY295.13-1   | Temperature Regulator Upper cap | 1   |
| 11  | TY295IT.13-1 | Temperature Regulator Upper cap | 1   |
| 12  | TY295.13-7   | Small water tube                | 1   |
| 13  | TY295.13.3   | Hoop assembly Φ33               | 2   |
| 14  | 295-14006    | Water thrower                   | 1   |
| 15  | TY295.12-13  | Water pump washer               | 1   |
| 16  | TY295I.13.5  | Temperature Regulator Assembly  | 1   |
| 17  | GB1152-76    | Oil cup                         | 1   |
| 18  | GB5782-86    | Bolt M8 X 35                    | 1   |
| 19  | GB1099-79    | Key 5 X 16                      | 1   |
| 20  | TY295.12-4   | Water pump shaft                | 1   |
| 21  | TY295.12-1   | Water pump assembly             | 1   |
| 22  | TY295.12-7   | Water pump tube gasket          | 1   |
| 23  | TY295.13-4   | Lower water tube                | 1   |
| 24  | GB5783-86    | Bolt M 8 X 14                   | 2   |
| 25  | TY295.12-14  | Water pump seat washer          | 1   |
| 26  | GB278-76     | Rolling bearing 60203           | 2   |
| 27  | TY295.12-21  | Water pump seat                 | 1   |
| 28  | TY295.12-12  | Bearing sleeve                  | 1   |

## 8. COOLING SYSTEM

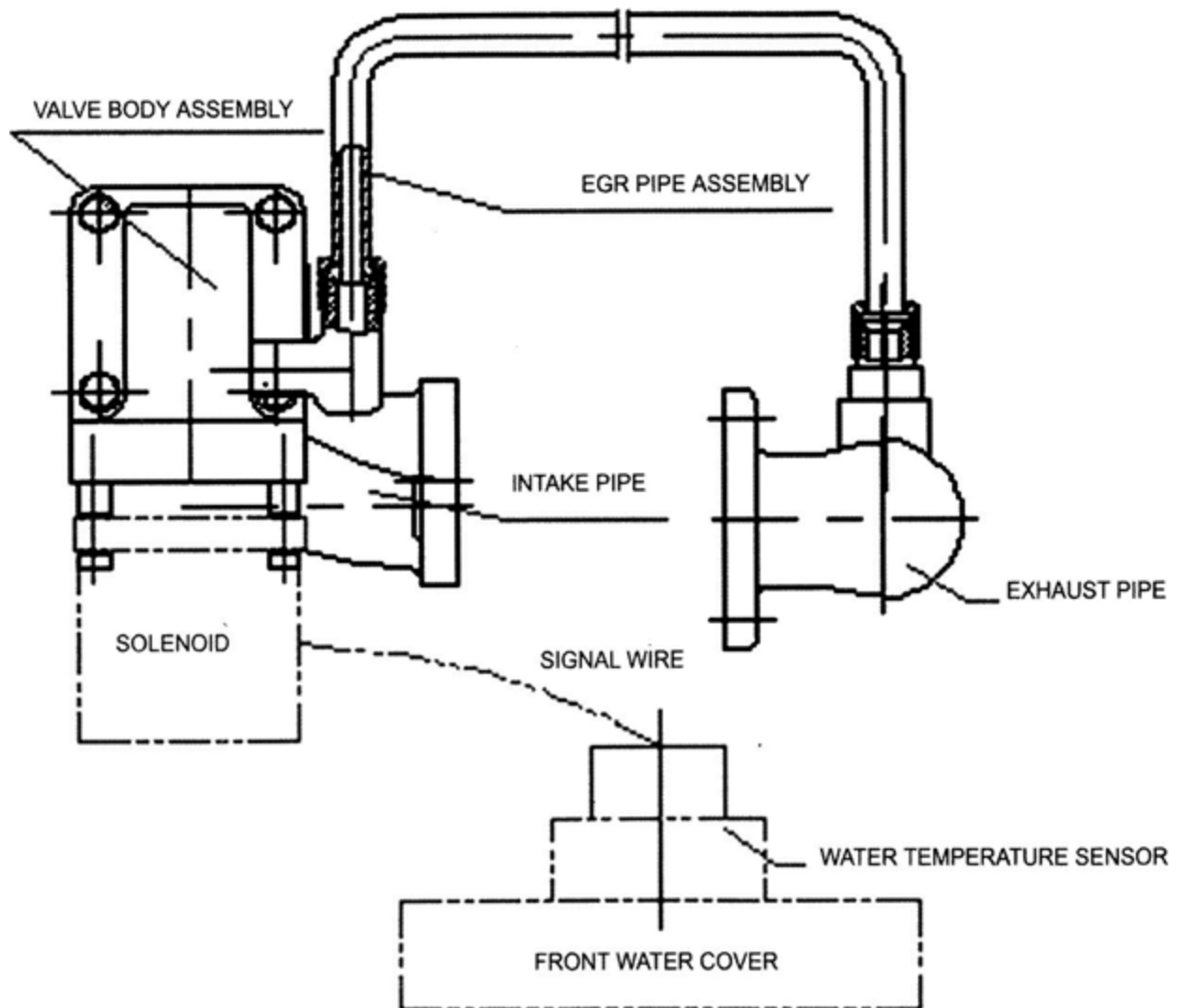
| No. | Code       | Name                                  | QTY |
|-----|------------|---------------------------------------|-----|
| 29  | GB5783-86  | Bolt M8 X 14                          | 1   |
| 30  | 295-14005  | Locking ring                          | 1   |
| 31  | GB97.1-85  | Washer 8                              | 1   |
| 32  | TY295.12-3 | Water pump wheel                      | 1   |
| 33  | GB893.1-86 | Circlip 40                            | 1   |
| 34  | 295-14100b | Water seal assembly II                | 1   |
| 35  | TY295.12-9 | Water seal spring seat                | 2   |
| 36  | TY295.12-8 | Water seal spring                     | 1   |
| 37  | TY295.12-7 | Rubber, water seal                    | 1   |
| 38  | TY295.12-9 | Water seal spring seat                | 2   |
| 39  | 295-14100a | Water seal assembly I                 | 1   |
| 40  | TY295.13-3 | Temperature regulator gasket          | 1   |
| 41  | TY295.13-2 | Temperature regulator over cap gasket | 1   |

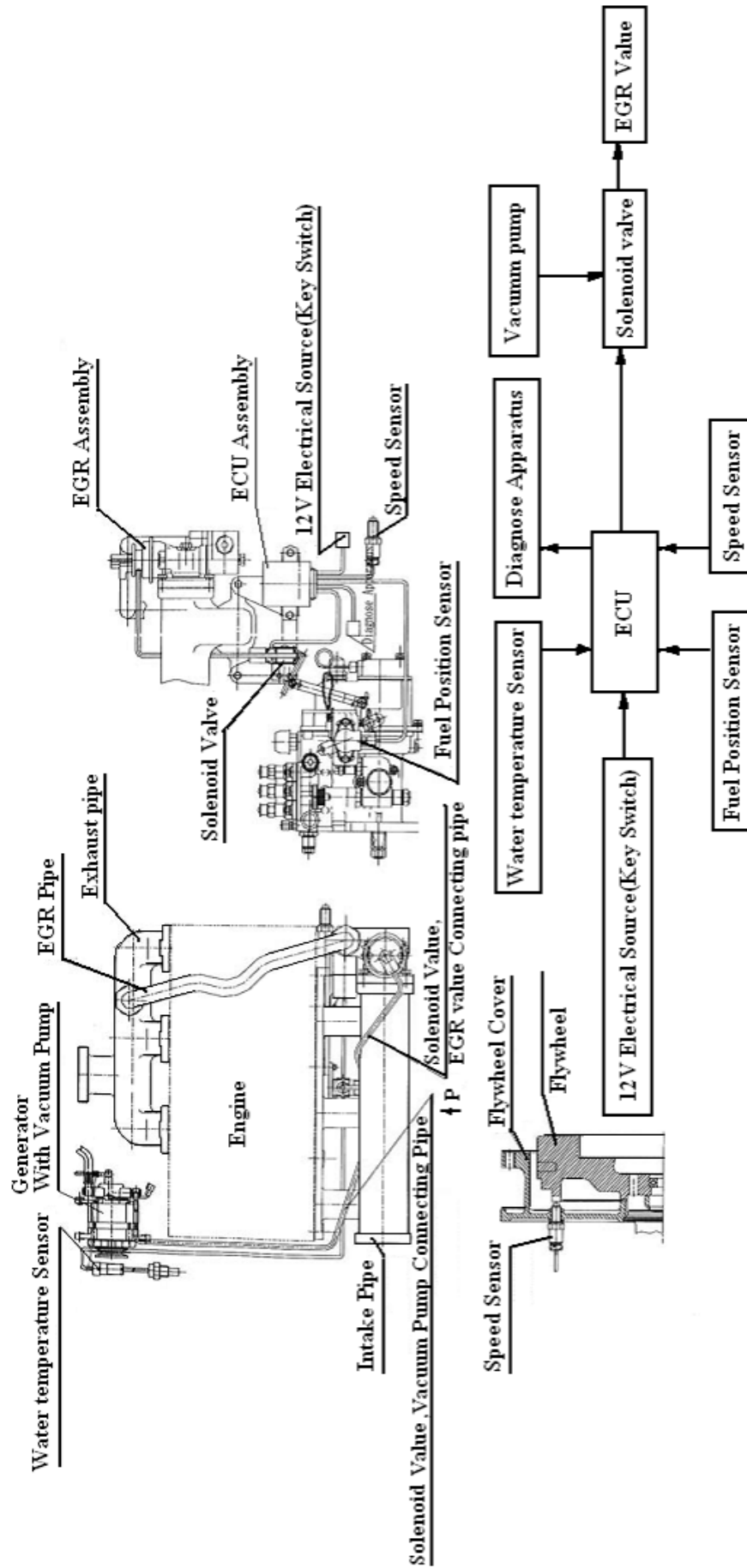
## 9. LUBRICATION SYSTEM ASSY



## 9. LUBRICATION SYSTEM ASSY

| No. | Code         | Name                              | QTY |
|-----|--------------|-----------------------------------|-----|
| 1   | TY395.5-1    | Upper oil pump body               | 1   |
| 2   | TY395.5-5    | Upper oil pump body gasket        | 1   |
| 3   | TY395.5.1-3  | Pin                               | 1   |
| 4   | TY395.5-4    | Lower oil pump body               | 1   |
| 5   | TY395.5-3    | Oil pump gear                     | 1   |
| 6   | GB1098-79    | Key 4 C 65 C 16                   | 1   |
| 7   | GB894.1-86   | Check ring 14                     | 1   |
| 8   | TY395.5.1-2  | Oil pump shaft                    | 1   |
| 9   | TY395.7-2    | Oil sump gasket                   | 1   |
| 10  | GB119-86     | Pin A 5 X 14                      | 2   |
| 11  | TY395.5.1-1  | Inner rotor                       | 1   |
| 12  | TY395.5-2    | Outer rotor                       | 1   |
| 13  | GB859-87     | Washer 8                          | 8   |
| 14  | GB70-85      | Screw M8 X 55                     | 3   |
| 15  | GB5782-86    | Bolt M10 X 65                     | 18  |
| 16  | GB59-87      | Washer 10                         | 18  |
| 17  | TY295I.7-7   | Stopper                           | 2   |
| 18  | TY295.7.1-2  | Oil sucking and straining gasket  | 1   |
| 19  | TY295I.7.1-3 | Sealing ring                      | 1   |
| 20  | TY395.7.1.1  | Oil Sucking and Straining Element | 1   |
| 21  | GB5782-86    | Bolt M8 X 22                      | 3   |
| 22  | TY295I.7-2   | Oil drain plug                    | 1   |
| 23  | TY295I.7-3   | Oil drain plug washer             | 1   |
| 24  | TY395.7-1    | Oil sump                          | 1   |
| 25  | J0810A       | Oil filter                        | 1   |
| 26  | GB5782-86    | Bolt M8 X 50                      | 1   |
| 27  | GB5783-86    | Bolt M8 X 25                      | 1   |





**Electric EGR Illustration Diagram**

## **Appendix I Spare Parts Supplied with the engine**

| <b>No.</b> | <b>Name</b>                 | <b>Quantity</b> |
|------------|-----------------------------|-----------------|
| 1          | Cylinder head gasket        | 1               |
| 2          | Valve collect               | 2               |
| 3          | Outer valve spring          | 2               |
| 4          | Inner valve spring          | 2               |
| 5          | Intake valve                | 2               |
| 6          | Exhaust valve               | 2               |
| 7          | Piston ring                 | 2 set           |
| 8          | Exhaust pipe packing        | 2               |
| 9          | Fuel filter cartridge       | 1               |
| 10         | Lube-oil filter cartridge   | 1               |
| 11         | Front crankshaft oil seal   | 1               |
| 12         | Rear crankshaft oil seal    | 1               |
| 13         | Cylinder head cover packing | 1               |
| 14         | Lube – oil filter packing   | 1               |
| 15         | Main bearing                | 1set            |
| 16         | Connecting rod bearing      | 1set            |

## **Appendix II Tools Supplied with the Engine**

| <b>No.</b> | <b>Name</b>               | <b>Quantity</b> |
|------------|---------------------------|-----------------|
| 1          | Valve remover             | 1               |
| 2          | Filler gauge (0.35, 0.45) | 1set            |

# **ET 350 ECONO 4WD TRACTOR**

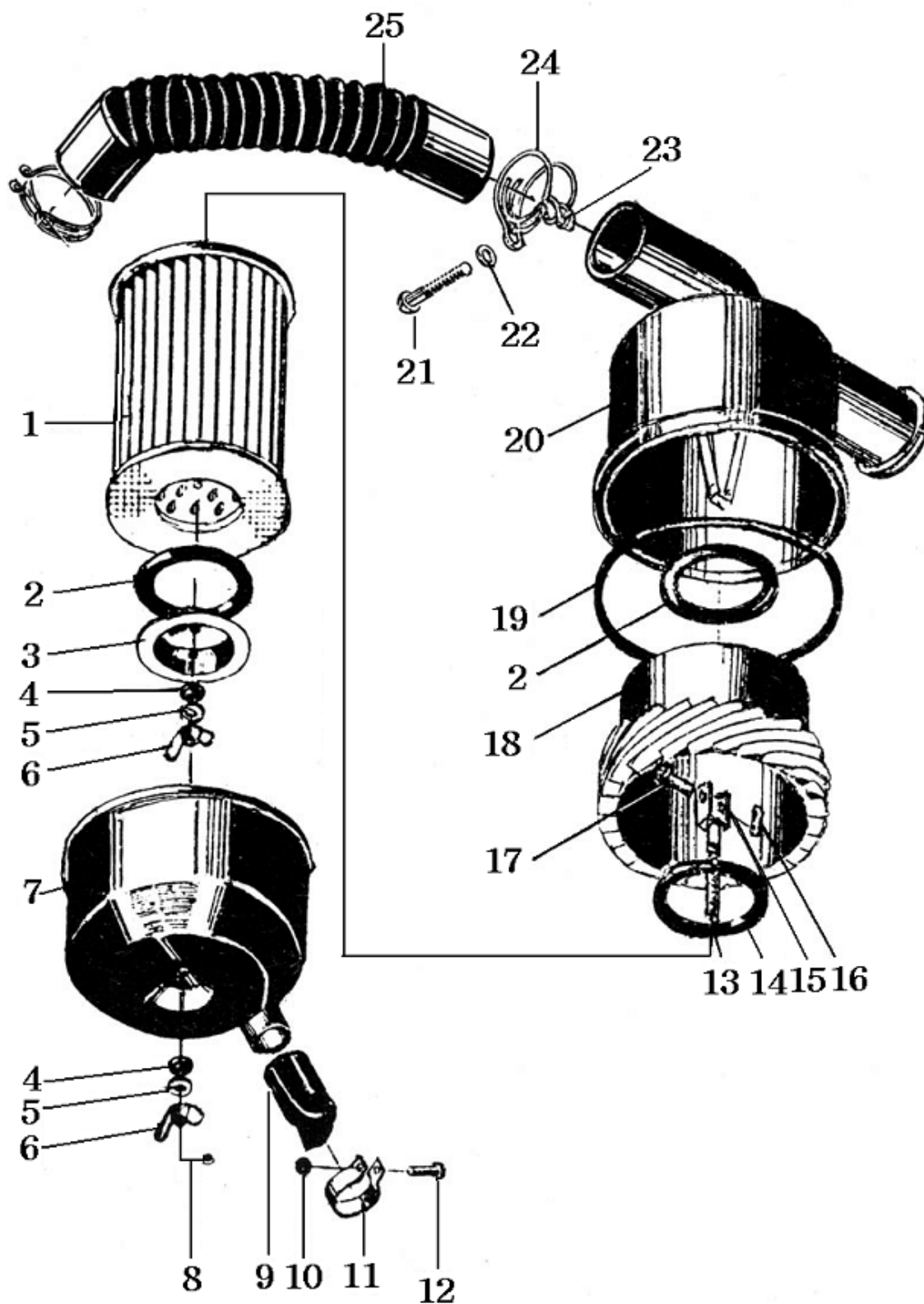
## **Chassis**

### **PARTS CATALOGUE**

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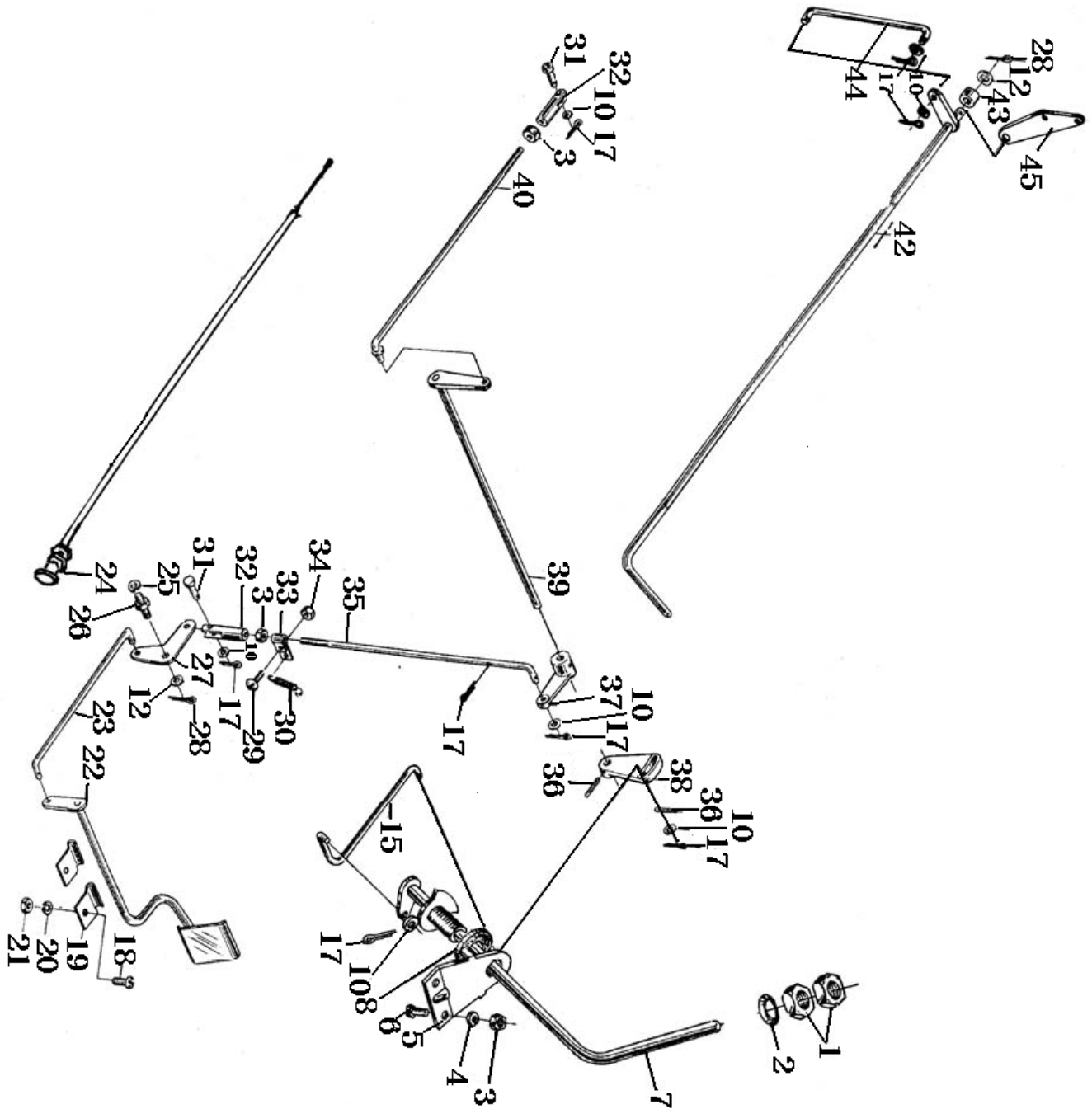
## 1. DRY AIR FILTER



## 1. DRY AIR FILTER

| No. | Code          | Name                               | 350 Qty |
|-----|---------------|------------------------------------|---------|
| 1   | K1317A-1000   | Filter cartridge subassembly K1317 | 1       |
| 2   | K1317A-0003   | Filter cartridge sealing ring      | 2       |
| 3   | K1317A-0002   | Filter cartridge plate             | 1       |
| 4   | K1317A-5001   | Rubber ring                        | 2       |
| 5   | K1317A-5002   | Washer                             | 2       |
| 6   | GB62-88       | Nut M8                             | 2       |
| 7   | K1317A-4000   | Lower casing                       | 1       |
| 8   | GB91-86       | Cotter pin 2X20                    | 1       |
| 9   | K1317QNS-0006 | Dust remover                       | 1       |
| 10  | GB6170-86     | Nut M6                             | 1       |
| 11  | K1317QNS-0005 | Clamp                              | 1       |
| 12  | GB76-85       | Half round head screw M6 X 22      | 1       |
| 13  | K1317A-3008   | Pull – rod                         | 1       |
| 14  | K1317A-2001   | Sealing ring                       | 1       |
| 15  | K1317A-3007   | Small tie – bar                    | 1       |
| 16  | GB91-86       | Cotter pin 2 X 10                  | 1       |
| 17  | GB882-86      | Pin B 6 X 22                       | 1       |
| 18  | K1317A-2000   | Guide blade assembly               | 1       |
| 19  | K1317A-0001   | Filter housing sealing ring        | 1       |
| 20  | K1317A-3000   | Upper casing                       | 1       |
| 21  | GB67-85       | Screw M5 X 55                      | 2       |
| 22  | GB96-85       | Washer                             | 2       |
| 23  | 42.13.133     | Nut, clamp                         | 2       |
| 24  | 18.11.110     | Clip (φ61)                         | 2       |
| 25  | 390T-7007     | Rubber hose, air cleaner           | 1       |

## 2. ENGINE CONTROL MECHANISM ASSY



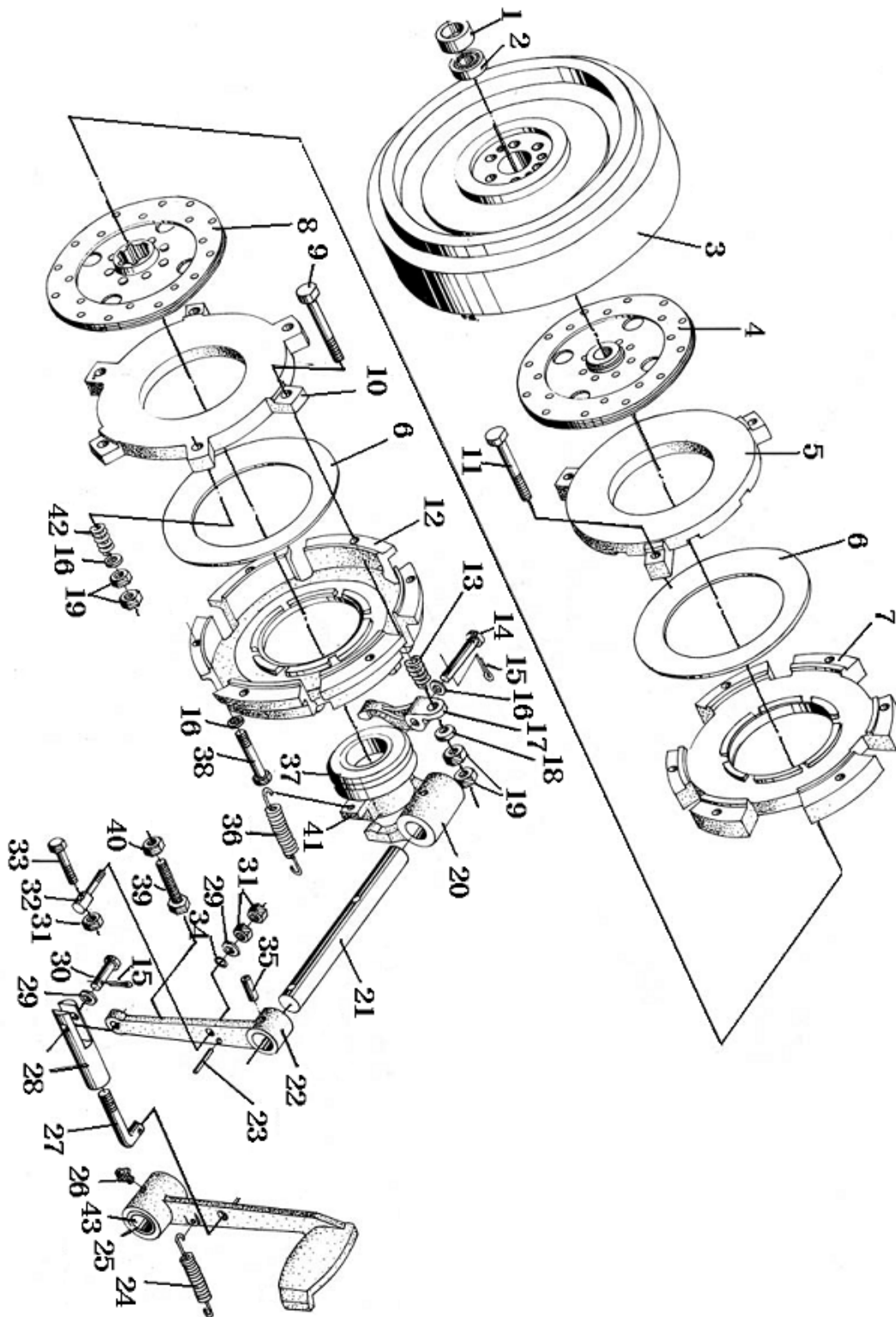
## 2. ENGINE CONTROL MECHANISM ASSY

| No. | Code         | Name                                   | 350 Qty |
|-----|--------------|----------------------------------------|---------|
| 1   | GB6173-86    | Nut M 16 X 1.5                         | 2       |
| 2   | 25.20.120    | Butterfly spring                       | 1       |
| 3   | GB6170-86    | Nut M6                                 | 4       |
| 4   | GB93-87      | Washer6                                | 2       |
| 5   | 25.20.101-1  | Limiting seat                          | 1       |
| 6   | GB5781-86    | Bolt M6 X 16                           | 2       |
| 7   | TY35.20.015  | Handle assy                            | 1       |
| 8   | 25.20.103-1  | Friction plate                         | 1       |
| 10  | GB97.1-85    | Washer6                                | 11      |
| 12  | GB97.1-86    | Washer10                               | 2       |
| 15  | 25.20.109    | Handle throttle pull rod               | 1       |
| 17  | GB91-86      | Cotter pin 2 X 16                      | 12      |
| 18  | GB67-88      | Screw                                  | 2       |
| 19  | 25.20.110    | Half round shaft seat                  | 2       |
| 20  | GB6170-86    | Washer8                                | 2       |
| 21  | GB6170-86    | Nut M8                                 | 2       |
| 22  | TYM35.20.013 | Transmission shaft assy, foot throttle | 1       |
| 23  | 25.20.134    | Tie rod, foot throttle                 | 1       |
| 24  | 350.20.014   | Shut-off pull rod assy                 | 1       |
| 25  | GB93-87      | Washer10                               | 1       |
| 26  | 25.20.115    | Countershaft                           | 1       |
| 27  | 25.20.114    | L-rocker, foot throttle                | 1       |
| 28  | GB91-86      | Cotter pin 3 X 35                      | 2       |
| 29  | GB67-88      | Screw M4 X 10                          | 1       |
| 30  | 25.20.119    | Return spring                          | 2       |

## 2. ENGINE CONTROL MECHANISM ASSY

| No. | Code         | Name                                   | 350 Qty |
|-----|--------------|----------------------------------------|---------|
| 31  | GB882-86     | Pin A6 X 20                            | 3       |
| 32  | 25.20.117    | Link fork                              | 2       |
| 33  | 25.20.104    | Clip                                   | 1       |
| 34  | GB6170-86    | Nut M4                                 | 1       |
| 35  | 300.20.136   | Rod, foot throttle                     | 1       |
| 36  | GB119-86     | Pin 3ga X 22                           | 2       |
| 37  | 25.20.105    | Rocker                                 | 1       |
| 38  | 25.20.106    | Sector rocker                          | 1       |
| 39  | TYM35.20.012 | Transmission shaft assy, hand throttle | 1       |
| 40  | 350.20.018   | Throttle push rod assy                 | 1       |

### 3. CLUTCH



### 3. CLUTCH

| No. | Code           | Name                              | 350 Qty |
|-----|----------------|-----------------------------------|---------|
| 1   | 25.21.230      | Pad sleeve                        | 1       |
| 2   | GB278-89       | Bearing 60203                     | 1       |
| 3   | TY395L · 4.2-1 | Flywheel                          | 1       |
| 4   | 25.21.013      | Driven disk assy, clutch          | 1       |
| 5   | 250.21.105     | Clutch pressure plate, PTO        | 1       |
| 6   | 250.21.104     | Disk spring                       | 2       |
| 7   | 250.21.106     | Clutch fixing pressure plate, PTO | 1       |
| 8   | 250.21.011     | Driven disk assy, main clutch     | 1       |
| 9   | 250.21.101     | Pull rod                          | 3       |
| 10  | 250.21.107     | Pressure plate, main clutch       | 1       |
| 11  | 250.21.111     | Adjusting bolt                    | 3       |
| 12  | 250.21.109     | Clutch cover                      | 1       |
| 13  | 250.21.108     | Return spring                     | 3       |
| 14  | GB882-86       | Pivot pin B10 X 45                | 3       |
| 15  | GB91-86        | Pin 3.2 X 20                      | 5       |
| 16  | GB97.1-85      | Washer 10                         | 13      |
| 17  | 250.21.128     | Release level                     | 3       |
| 18  | 250.21.118     | Spherical washer                  | 3       |
| 19  | GB6173-86      | Nut M 10 X 1                      | 12      |
| 20  | 250.21.112     | Release fork                      | 1       |
| 21  | 250.21.117-1   | Release fork rod, clutch          | 1       |
| 22  | 250.21.116-A   | Release arm, clutch               | 1       |
| 23  | GB309-84       | Needle 3 X 24                     | 1       |
| 24  | 25.21.110      | Clutch pedal spring               | 1       |
| 25  | 250.21.130     | Clutch pedal                      | 1       |

### 3. CLUTCH

| No. | Code       | Name                                | 350 Qty |
|-----|------------|-------------------------------------|---------|
| 26  | GB1152-79  | Oil cup M6                          | 3       |
| 27  | 25.21.106  | Clutch push rod                     | 1       |
| 28  | 25.21.107  | Adjusting fork, clutch push rod     | 1       |
| 29  | GB97.1-85  | Washer 8                            | 2       |
| 30  | GB882-86   | Pin B8 X 30                         | 1       |
| 31  | GB6170-86  | Nut M8                              | 3       |
| 32  | 250.21.145 | Swing bolt                          | 1       |
| 33  | GB5781-86  | Bolt M8 X 45                        | 1       |
| 34  | GB1235-76  | O-ring 13 X 1.9                     | 1       |
| 35  | GB876-86   | Pin 8X40                            | 2       |
| 36  | 250.21.113 | Return spring, release bearing seat | 2       |
| 37  |            | Ball bearing 9688213                | 1       |
| 38  | GB5782-86  | Bolt M10 X 70                       | 6       |
| 39  | GB5781-86  | Bolt M10 X 45                       | 1       |
| 40  | GB6170-86  | Nut M10                             | 1       |
| 41  | 250.21.131 | Release bearing seat                | 1       |
| 42  | 250.21.102 | Pressure spring                     | 3       |
| 43  | 25.21.136  | Bush                                | 1       |



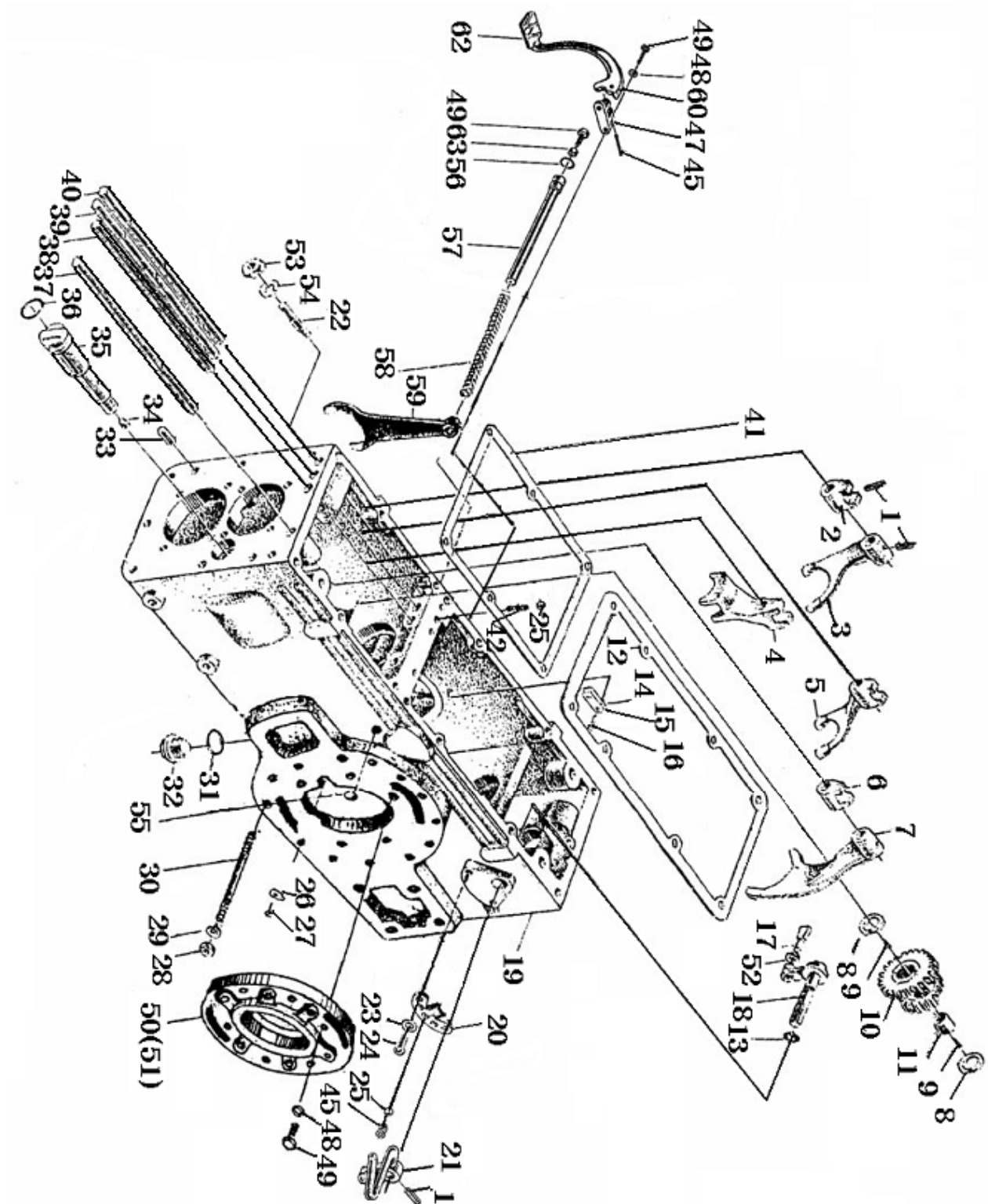
## 4. INTERMEDIATE HOSE ASSY

| No. | Code          | Name                                                          | 350 Qty |
|-----|---------------|---------------------------------------------------------------|---------|
| 1   | 250.36.011-2  | Mid-connecting case assy                                      | 1       |
| 2   | 25.21.111     | Paper gasket, intermediate housing                            | 1       |
| 3   | GB93-87       | Washer12                                                      | 13      |
| 4   | GB5782-86     | Bolt M12 X 60                                                 | 3       |
| 5   | GB898-88      | Stud AM 12 X 200                                              | 3       |
| 7   | GB5781-86     | Bolt M 10 X 30                                                | 4       |
| 8   | GB93-87       | Washer10                                                      | 6       |
| 9   | 250.36.125    | Support, release bearing seat                                 | 1       |
| 10  | 250.36.129    | Paper gasket, release bearing seat                            | 1       |
| 11  | GB9877.1-88   | Cased seal 42 X 62 X 12                                       | 1       |
| 12  | GB5782-86     | Bolt M 12 X 110                                               | 2       |
| 13  | GB5782-86     | Bolt M 12 X 120                                               | 2       |
| 14  | 25.21.141     | Cover                                                         | 1       |
| 15  | 25.21.142     | Paper gasket cover                                            | 1       |
| 16  | GB98-87       | Washer 8                                                      | 6       |
| 17  | GB5781-86     | Bolt M 10 X 20                                                | 2       |
| 18  | 250.36.155    | Gasket, upper cover                                           | 1       |
| 19  | 250.36.154    | Upper cover                                                   | 1       |
| 20  | GB93-87       | Washer 8                                                      | 9       |
| 21  | GB5781-86     | Bolt M 6 X 15                                                 | 6       |
| 22  | GB827-86      | Rivet 2 X 5                                                   | 4       |
| 23  |               | Tractor nameplate                                             | 1       |
| 24  | ZBT32001.5-87 | Plug II – Z1/2”                                               | 2       |
| 25  | 25.21.140     | Paper gasket, intermediate housing to<br>transmission housing | 1       |

## 4. INTERMEDIATE HOSE ASSY

| No. | Code          | Name                                 | 350 Qty |
|-----|---------------|--------------------------------------|---------|
| 26  | GB276-89      | Bearing 21                           | 1       |
| 27  | 250.36.101    | Main clutch shaft                    | 1       |
| 28  | GB9877.1-88   | Cased seal 22 X 36 X 10              | 1       |
| 29  | 250.36.102-4  | Clutch shaft, power take-off         | 1       |
| 30  | 250.36.122    | Joint sleeve, power take-off         | 1       |
| 31  | GB119-86      | Pin D 5 X 30                         | 1       |
| 32  | 250.36.016-4  | Main joint sleeve weldment assy      | 1       |
| 33  | 25.21.113     | Paper gasket, cover                  | 1       |
| 34  | 250.36.112    | Cover                                | 1       |
| 35  | GB5781-86     | Bolt M8 X 20                         | 9       |
| 36  | 250.36.017    | Oil thrower weldment assy            | 1       |
| 37  | GB1152-89     | Oil cup M6                           | 2       |
| 38  | 25.21.229     | Plug                                 | 1       |
| 39  | GB6170-86     | Nut M12                              | 7       |
| 40  | ZBT32001.5-87 | Plug II-Z1/4"                        | 1       |
| 41  | GB894.1-86    | Retainer ring 50                     | 1       |
| 42  | 250.36.130    | Paper gasket, driven shaft end cover | 1       |
| 43  | 250.36.126    | End cover, driven shaft              | 1       |
| 44  | SF-1          | Bush 2220                            | 2       |

## 5. TRANSMISSION HOUSING

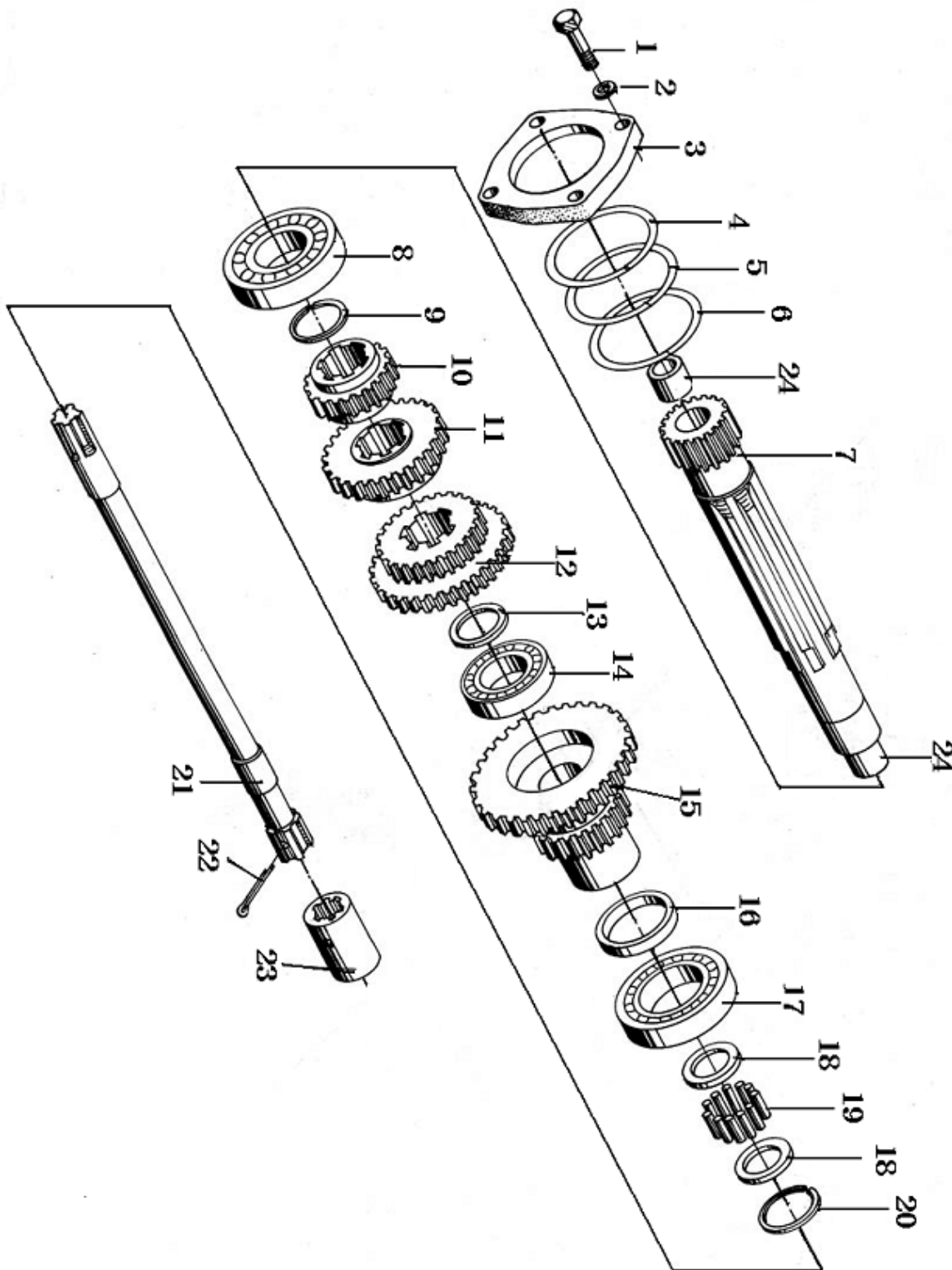


## 5. TRANSMISSION HOUSING

| No. | Code         | Name                                 | 350 Qty |
|-----|--------------|--------------------------------------|---------|
| 1   | GB879-86     | Pin 5 X 25                           | 7       |
| 2   | 25.37.137    | 3-4 gear shift block                 | 1       |
| 3   | 25.37.123    | 3-4 gear shift fork                  | 1       |
| 4   | 25.37.121    | 1st gear shift fork                  | 1       |
| 5   | 25.37.122    | 2-R gear shift fork                  | 1       |
| 6   | 25.37.138-A  | High-low gear shifting block         | 1       |
| 7   | 25.37.124    | High-low gear shift fork             | 1       |
| 8   | 25.37.153    | Thrust ring, reverse gear shaft      | 2       |
| 9   | GB309-84     | Needle 2.5 X 16                      | 56      |
| 10  | 25.37.113    | Reverse gear                         | 1       |
| 11  | 25.37.145    | Spacer, reverse shaft needle         | 1       |
| 12  | 25.37.156    | Paper gasket, transmission rear      | 1       |
| 13  | GB1235-76    | O-ring 16 X 2.4                      | 1       |
| 14  | 25.37.166    | Lock plate, adjusting nut            | 2       |
| 15  | 35.37.167    | Lock plate                           | 2       |
| 16  | GB5781-86    | Bolt M6 X 12                         | 4       |
| 17  | 25.37.167    | Shift block, PTO                     | 1       |
| 18  | 25.37.131-1  | PTO fork shaft                       | 1       |
| 19  | 404.37.176-1 | Transmission housing                 | 1       |
| 20  | 25.37.165-1  | Retaining plate, PTO shaft drive rod | 1       |
| 21  | 25.37.015    | Drive rod assy, PTO                  | 1       |
| 22  | GB898-88     | Stud AM 14 X 4.5 X 40                | 7       |
| 23  | GB93-87      | Washer 8                             | 2       |
| 24  | GB67-85      | Screw M8 X 16                        | 2       |
| 25  | GB308-89     | Steel ball 11/32"                    | 5       |
| 26  | 25.37.175    | Flat key, differential bearing seat  | 2       |
| 27  | GB68-85      | Screw M6 X 12                        | 2       |
| 28  | GB6171-86    | Nut M 12 X 1.5                       | 24      |
| 29  | GB93-87      | Washer 12                            | 24      |
| 30  | GB-T899      | Stud AM12-M12 X 1.5 X 150-8.8        | 24      |

| No. | Code       | Name                                   | 350 QTY |
|-----|------------|----------------------------------------|---------|
| 31  | GB1235-76  | O-ring 35X3.1                          | 1       |
| 32  | 25.37.024  | Plug assy                              | 1       |
| 33  | GB119-86   | Pin D12X25                             | 4       |
| 34  | 25.37.219  | Plug, reverse gear shaft               | 1       |
| 35  | 25.37.120  | Reverse gear shaft                     | 1       |
| 36  | GB1235-76  | O-ring 32X3.1                          | 1       |
| 37  | 25.37.129  | High-Low shift fork                    | 1       |
| 38  | 25.37.123  | 1st gear shift fork shaft              | 1       |
| 39  | 25.37.127  | 2-R gear shift fork shaft              | 1       |
| 40  | 25.37.128  | 3-4 gear shift fork shaft              | 1       |
| 41  | 25.37.169  | Gasket, box cover                      | 1       |
| 42  | 25.37.147  | Lock spring, selector rod              | 4       |
| 43  | 25.37.022  | Change-gear lever ball head assy       | 1       |
| 44  | 25.55.227  | Drive rod                              | 1       |
| 45  | 25.55.228  | Retaining spring                       | 1       |
| 46  | 25.37.140  | Pin,differential lock pedal            | 1       |
| 47  | 25.37.141  | Differential pedal seat                | 1       |
| 48  | GB93-87    | Washer10                               | 14      |
| 49  | GB5781-86  | Bolt M10X25                            | 15      |
| 50  | 400.37.197 | Steel ball seat(L.H.)                  | 1       |
| 51  | 400.37.198 | Steel ball seat(R.H.)                  | 1       |
| 52  | GB97.1-85  | Washer8                                | 1       |
| 53  | GB6171-86  | Bolt M14X1.5                           | 7       |
| 54  | GB93-87    | Washer14                               | 7       |
| 55  | 25.37.168  | Plug, shifting block                   | 1       |
| 56  | GB1235-76  | O-ring20X2.4                           | 1       |
| 57  | 25.37.130  | Shift fork shaft, differential         | 1       |
| 58  | 25.37.148  | Spring, differential                   | 1       |
| 59  | 25.37.125  | Shifting block, differential           | 1       |
| 60  | GB119-86   | Pin D3X25                              | 1       |
| 62  | TYM.37.026 | Drive pedal welding assy, differential | 1       |
| 63  | GB6170-86  | Bolt 10                                | 1       |

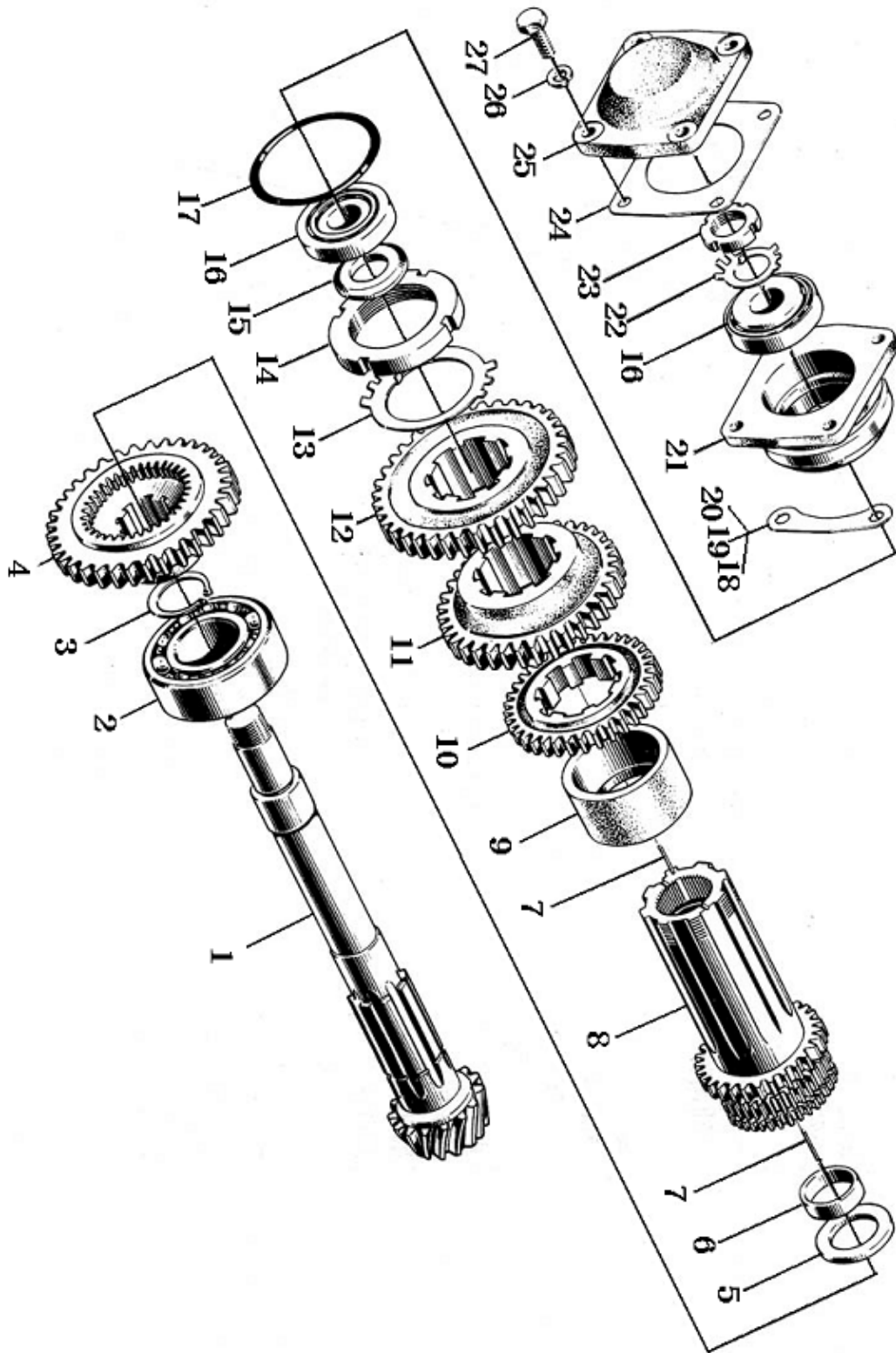
## 6. PRIMARY SHAFT



## 6. PRIMARY SHAFT

| No. | Code         | Name                                      | 350 QTY |
|-----|--------------|-------------------------------------------|---------|
| 1   | GB5781-86    | Bolt M10X25                               | 4       |
| 2   | GB93-87      | Washer10                                  | 4       |
| 3   | 250.37.319   | Front bearing cover,primary shaft         | 1       |
| 4   | 25.37.157    | Adjusting shim,primary shaft0.1           | Several |
| 5   | 25.37.158    | Adjusting shim,primary shaft0.2           | Several |
| 6   | 25.37.159    | Adjusting shim,primary shaft0.5           | Several |
| 7   | 250.37.388-1 | Primary shaft                             | 1       |
| 8   | GB276-89     | Ball bearing 208                          | 1       |
| 9   | GB894.1-86   | Snap ring 40                              | 1       |
| 10  | 250.37.304   | 1-R sliding gear                          | 1       |
| 11  | 250.37.308   | 3 gear sliding gear                       | 1       |
| 12  | 250.37.306   | 2-4 gear sliding gear                     | 1       |
| 13  | 250.37.352   | Bearing cir-clip                          | 1       |
| 14  | GB276-89     | Ball bearing 107                          | 1       |
| 15  | 250.37.311   | High-Low gear twin gear                   | 1       |
| 16  | 250.37.351   | Twin-gear thrust sleeve                   | 1       |
| 17  | GB276-89     | Ball bearing 110                          | 1       |
| 18  | 250.37.350   | Needle bearing stopper ring,primary shaft | 2       |
| 19  | GB309-84     | Needle bearing 3X16                       | 45      |
| 20  | GB893.1-86   | Snap ring 38                              | 1       |
| 21  | 250.37.302   | PTO drive shaft                           | 1       |
| 22  | GB91-86      | Cotter pin5X40                            | 1       |
| 23  | 25.37.136-1  | Splined connection sleeve                 | 1       |
| 24  | SF-1         | Bush 2220                                 | 2       |

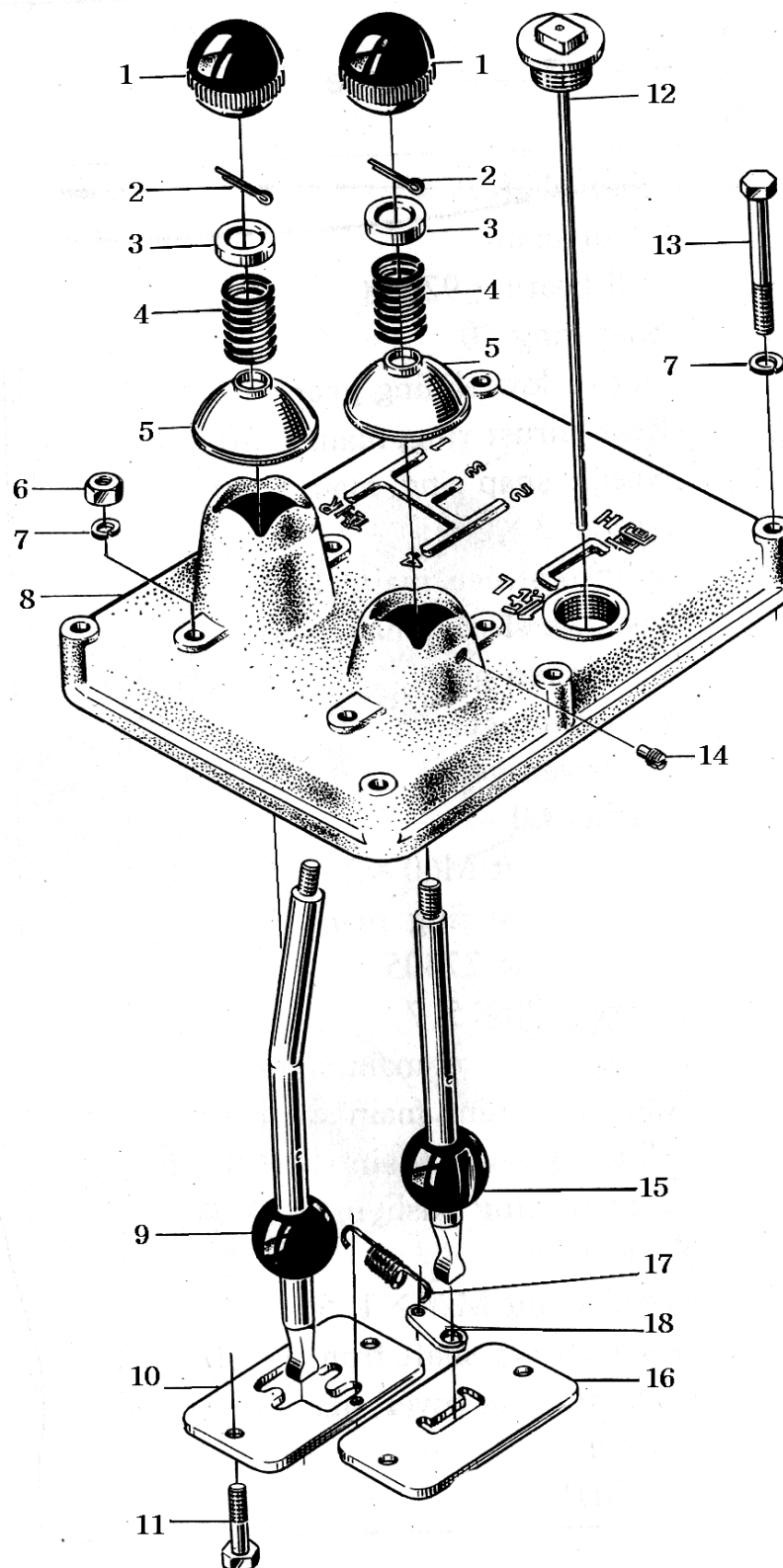
## 7. MAIN SHAFT



## 7. MAIN SHAFT

| No. | Code       | Name                                  | 350 QTY |
|-----|------------|---------------------------------------|---------|
| 1   | 300.37.101 | Main shaft                            | 1       |
| 2   | GB283-87   | Ball bearing 92608                    | 1       |
| 3   | GB894.1-86 | Snap ring40                           | 1       |
| 4   | 25.37.112  | High-low sliding gear                 | 1       |
| 5   | 25.37.152  | Rear thrust ring,main shaft           | 1       |
| 6   | 25.37.144  | Needle snap ring,main shaft           | 1       |
| 7   | GB309-84   | Needle3X24                            | 72      |
| 8   | 250.37.310 | Splined sleeve,main shaft             | 1       |
| 9   | 250.37.342 | Distance sleeve,main shift            | 1       |
| 10  | 250.37.307 | 2nd driven gear                       | 1       |
| 11  | 250.37.309 | 3rd driven gear                       | 1       |
| 12  | 250.37.305 | 1st driven gear                       | 1       |
| 13  | GB858-88   | Washer 60                             | 1       |
| 14  | GB810-88   | Circular nut M60X2                    | 1       |
| 15  | 25.37.151  | Front thrust ring,main shaft          | 1       |
| 16  | GB298-84   | Ball bearing 27305                    | 2       |
| 17  | GB1235-76  | O-ring90X5.7                          | 1       |
| 18  | 25.37.132  | Adjusting shim,main shaft 0.1         | Several |
| 19  | 25.37.133  | Adjusting shim,main shaft 0.2         | Several |
| 20  | 25.37.134  | Adjusting shim,main shaft 0.5         | Several |
| 21  | 25.37.117  | Front bearing bush,main shaft         | 1       |
| 22  | GB858-88   | Washer 24                             | 1       |
| 23  | GB810-88   | Circular nut M24X1.5                  | 1       |
| 24  | 25.37.170  | Gasket,main shaft front bearing cover | 1       |
| 25  | 25.37.135  | Front bearing cover,main shaft        | 1       |
| 26  | GB93-87    | Washer 10                             | 4       |
| 27  | GB5781-86  | Bolt M10X35                           | 4       |

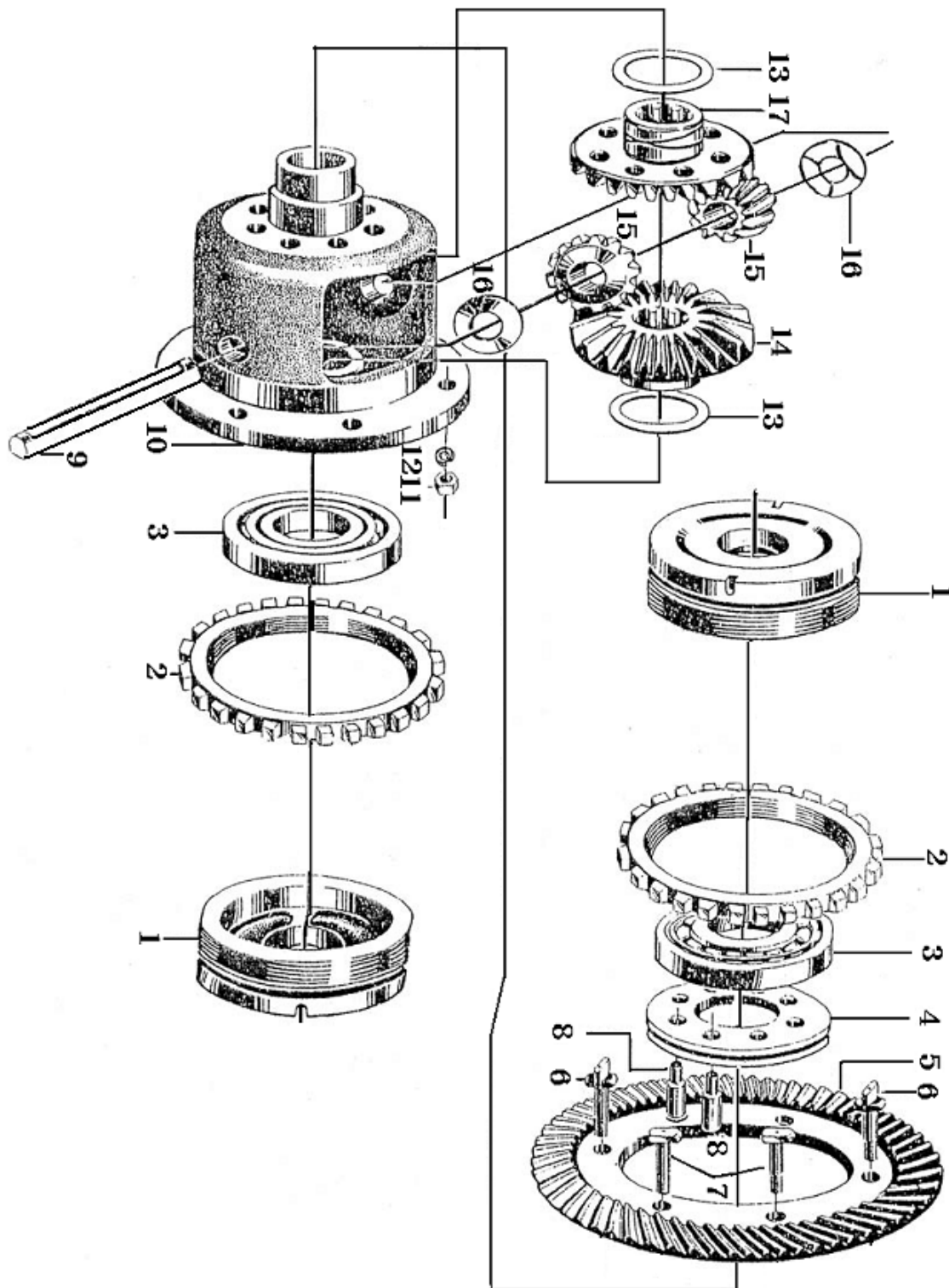
## 8.TRANSMISSION COVER ASSY



## 8.TRANSMISSION COVER ASSY

| No. | Code        | Name                                   | 350 QTY |
|-----|-------------|----------------------------------------|---------|
| 1   | 25.37.022   | Change-gear lever ball head assy       | 2       |
| 2   | GB91-86     | Cotter pin 2.5X20                      | 2       |
| 3   | 25.37.195   | Pressure ring,change-gear lever spring | 2       |
| 4   | 25.37.194   | Spring, change-gear lever              | 2       |
| 5   | 25.37.196   | Boot,change-gear lever                 | 2       |
| 6   | GB6170-86   | Nut M8                                 | 4       |
| 7   | GB93-87     | Washer 8                               | 10      |
| 8   | 250.37.389  | Transmission cover, front              | 1       |
| 9   | 300.37.192  | Main change-gear lever                 | 1       |
| 10  | 250.37.390  | Guide plate,main change-gear           | 1       |
| 11  | GB5780-86   | Bolt M8X32                             | 4       |
| 12  | 25.37.019   | Dipstick assy                          | 1       |
| 13  | GB5780-86   | Bolt M8X45                             | 6       |
| 14  | GB75-85     | Screw M8X12                            | 2       |
| 15  | 300.37.193  | Auxiliary change-gear lever            | 1       |
| 16  | 25.37.191-1 | Guide plate,auxiliary change-gear      | 1       |
| 17  | 25.37.224   | Draw spring                            | 1       |
| 18  | 25.37.223   | Link plate                             | 1       |

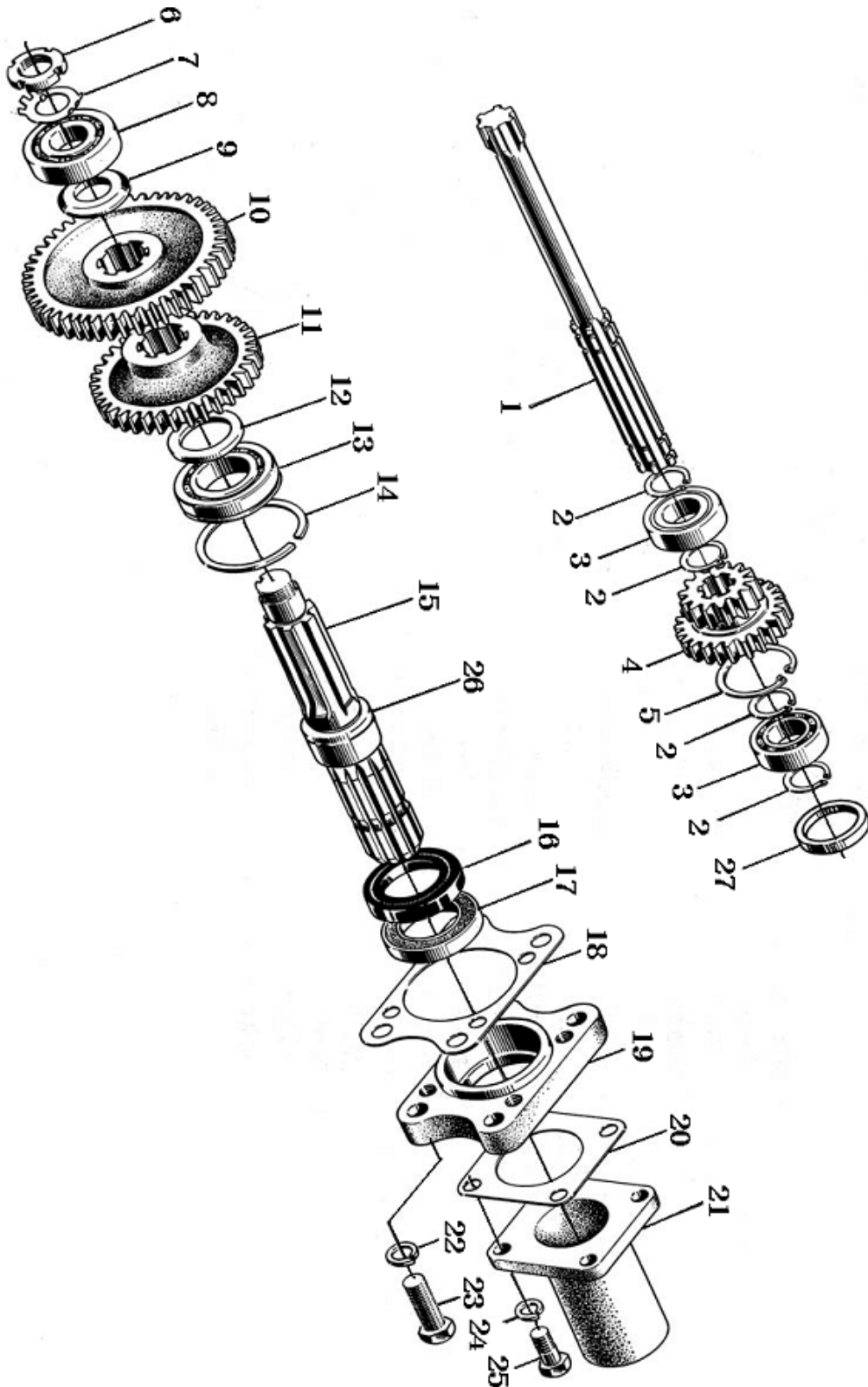
## 9. DIFFERENTIAL



## 9. DIFFERENTIAL

| No. | Code       | Name                        | 350 QTY |
|-----|------------|-----------------------------|---------|
| 1   | 25.37.164  | Differential bearing seat   | 2       |
| 2   | 25.37.150  | Adjusting nut, differential | 2       |
| 3   | GB/T297    | Bearing 7210                | 2       |
| 4   | 25.37.203  | Differential lock assy      | 1       |
| 5   | 300.37.180 | Differential crown gear     | 1       |
| 6   | 25.37.205  | Stop bolt                   | 2       |
| 7   | 25.37.187  | Bolt,differential crown     | 4       |
| 8   | 25.37.204  | Bolt,differential lock      | 8       |
| 9   | 25.37.183  | Shaft, planet pinion        | 1       |
| 10  | 25.37.179  | Differential housing        | 1       |
| 11  | GB6170-86  | Nut M10                     | 6       |
| 12  | GB93-87    | Washer 10                   | 6       |
| 13  | 25.37.184  | Gasket, axle shaft gear     | 2       |
| 14  | 25.37.181  | Axle shaft gear(L)          | 1       |
| 15  | 25.37.201  | Planet pinion               | 2       |
| 16  | 25.37.185  | Gasket,planet pinion        | 2       |
| 17  | 25.37.182  | Axle shaft gear(R)          | 1       |

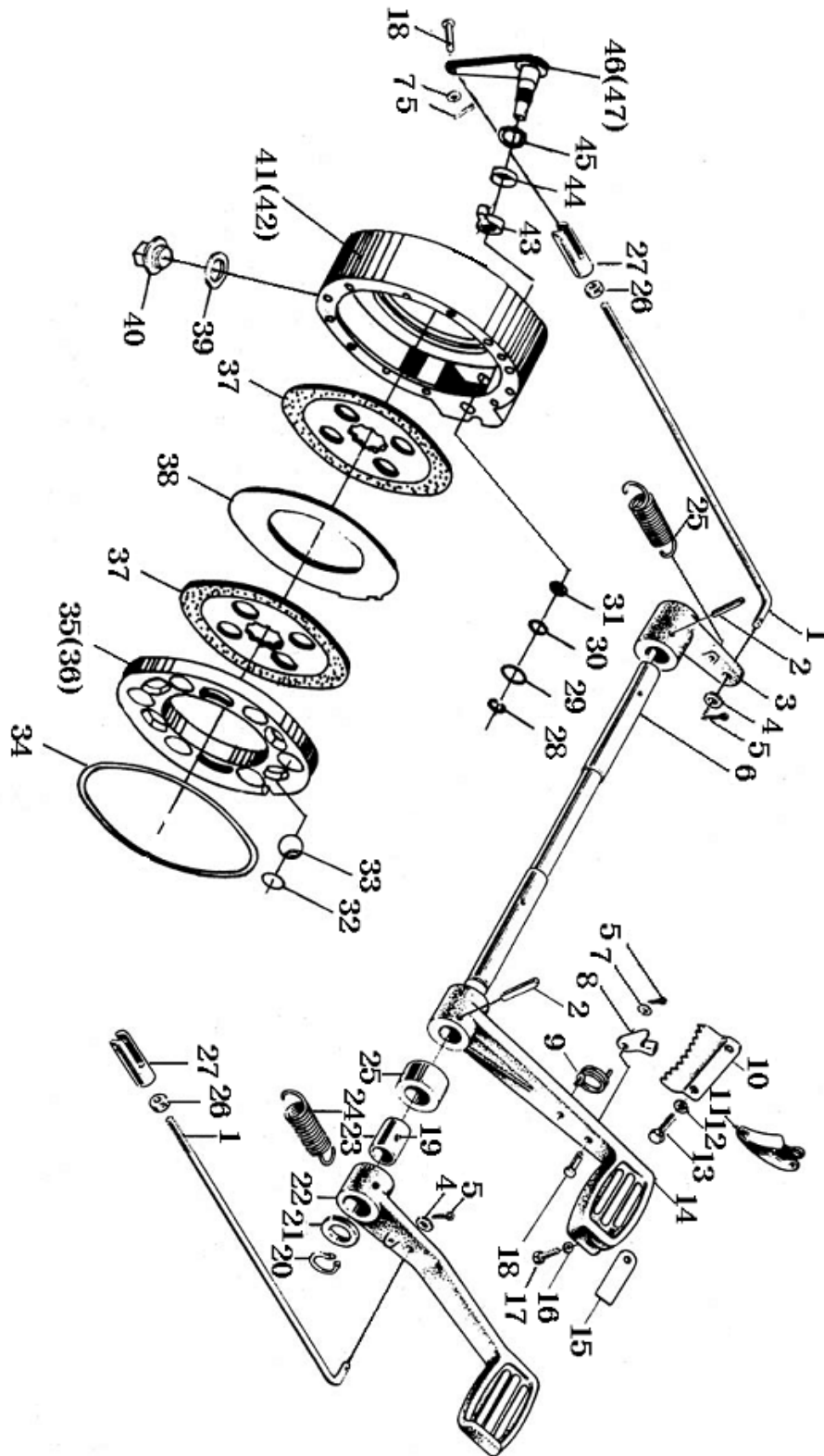
## 10.PTO SHAFT ASSY



## 10.PTO SHAFT ASSY

| No. | Code        | Name                         | 350 QTY |
|-----|-------------|------------------------------|---------|
| 1   | 25.37.102   | Driving shaft, PTO           | 1       |
| 2   | GB894.1-86  | Snap ring 25                 | 4       |
| 3   | GB276-89    | Ball bearing 205             | 2       |
| 4   | 25.37.114   | Sliding gear, PTO            | 1       |
|     | 300.37.114  | Sliding gear, PTO            | 1       |
| 5   | GB893.1-86  | Snap ring 52                 | 1       |
| 6   | GB810-88    | Circular nut M24X1.5         | 1       |
| 7   | GB858-88    | Washer 24                    | 1       |
| 8   | GB276-89    | Ball bearing 305             | 1       |
| 9   | 25.37.151   | Front thrust ring,main shaft | 1       |
| 10  | 300.37.116  | Low speed gear,PTO           | 1       |
| 11  | 300.37.115  | High speed gear,PTO          | 1       |
| 12  | 25.37.165   | Rear thrust ring,PTO shaft   | 1       |
| 13  | GB277-89    | Ball bearing 50207           | 1       |
| 14  | GB305-89    | Thrust ring 72               | 1       |
| 15  | 25.37.103   | PTO shaft                    | 1       |
| 16  | GB9877.1-88 | Oil seal 45X65X12            | 1       |
| 17  | 25.37.021   | Felt seal assy               | 1       |
| 18  | 25.37.172   | Gasket,rear end cover        | 1       |
| 19  | 25.37.118   | Rear end cover,PTO shaft     | 1       |
| 20  | 25.37.173   | Gasket,PTO shaft guard       | 1       |
| 21  | 25.37.146   | PTO shaft guard              | 1       |
| 22  | GB93-87     | Washer 12                    | 4       |
| 23  | GB5781-86   | Bolt M12X40                  | 4       |
| 24  | GB93-87     | Washer 10                    | 4       |
| 25  | GB5781-86   | Bolt M 10X30                 | 4       |
| 26  | 25.37.221   | Washer, PTO                  | 1       |
| 27  | 300.37.232  | Bush                         | 1       |

## 11. BRAKE ASSY



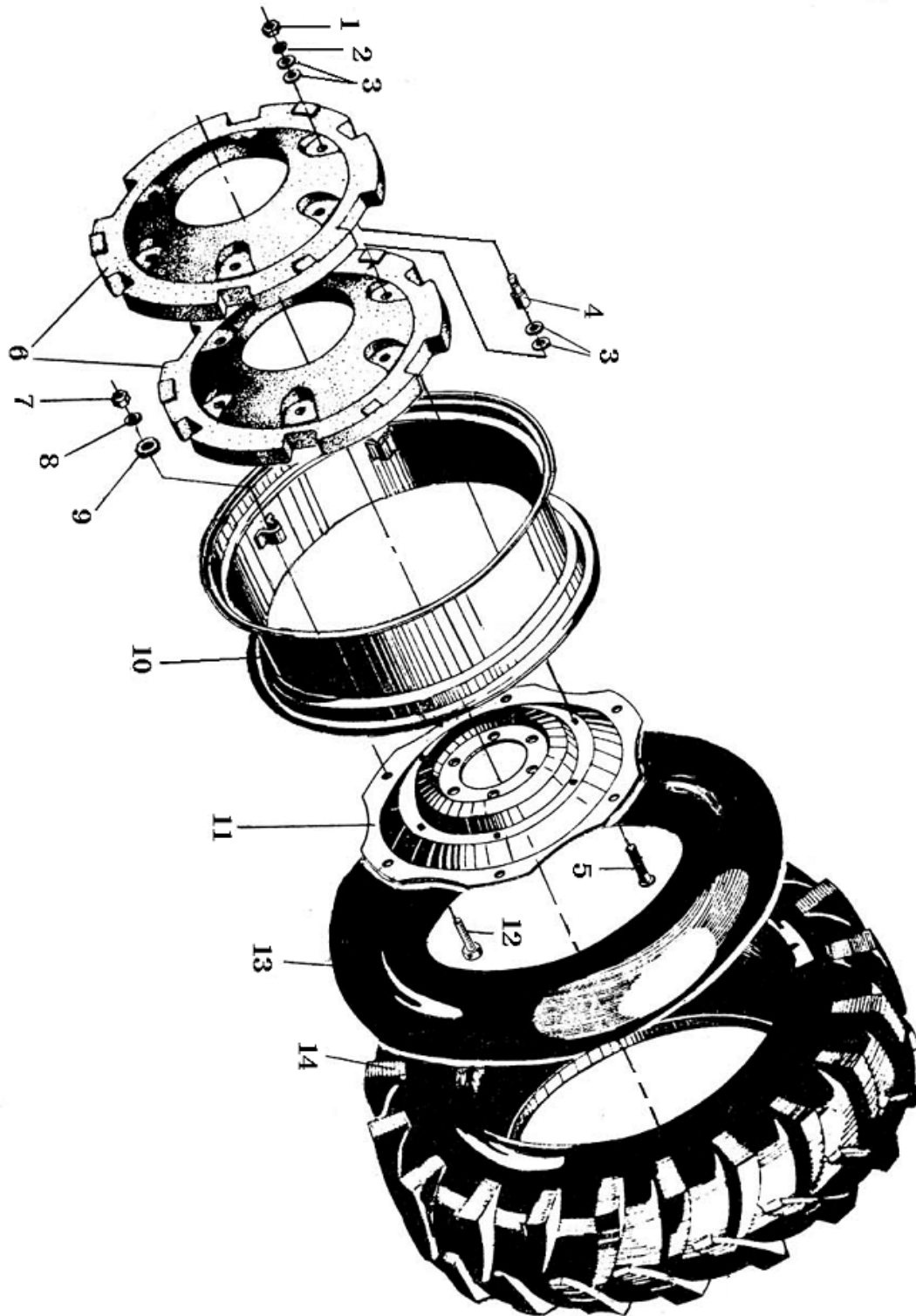
## 11. BRAKE ASSY

| No. | Code        | Name                   | 350 QTY |
|-----|-------------|------------------------|---------|
| 1   | 400.43.111  | Pull rod               | 2       |
| 2   | GB879-86    | Pin 8X45               | 2       |
| 3   | 25.43.136   | Pull arm               | 1       |
| 4   | GB97.1-85   | Washer 10              | 2       |
| 5   | GB91-86     | Cotter pin 2.5X20      | 5       |
| 6   | 25.43.102   | Brake pedal shaft      | 1       |
| 7   | GB97.1-85   | Washer 8               | 3       |
| 8   | 25.43.114   | Pawl                   | 1       |
| 9   | 25.43.110   | Torsion spring         | 1       |
| 10  | 25.43.112   | Ratchet plate          | 1       |
| 11  | 25.43.113   | Pawl rocker            | 1       |
| 12  | GB93-87     | Washer 10              | 2       |
| 13  | GB5781-86   | Bolt M10X20            | 2       |
| 14  | 25.43.127-1 | Brake pedal,L.H        | 1       |
| 15  | 25.43.130   | Lock plate             | 1       |
| 16  | GB93-87     | Washer 8               | 1       |
| 17  | GB5781-86   | Bolt M8X25             | 1       |
| 18  | GB882-86    | Pin A8X30              | 3       |
| 19  | GB1152-79   | Oil cup M6             | 1       |
| 20  | GB894.1-86  | Snap ring 25           | 1       |
| 21  | 25.43.121   | Snap ring              | 1       |
| 22  | 25.43.132-1 | Right Brake pedal      | 1       |
| 23  | 25.43.137   | Bush,right brake pedal | 1       |
| 24  | 25.21.110   | Pedal spring           | 2       |
| 25  | 25.43.104   | Socket                 | 1       |

## 11. BRAKE ASSY

| No. | Code       | Name                      | 350 QTY |
|-----|------------|---------------------------|---------|
| 26  | GB6170-86  | Nut M10                   | 2       |
| 27  | 25.43.109  | Adjusting fork,pull rod   | 2       |
| 28  | GB/T894.1  | Snap 18                   | 2       |
| 29  | 300.43.109 | Washer                    | 2       |
| 30  | GB3452.1   | O-ring 18X2.65            | 2       |
| 31  | 300.43.114 | Bush, crankshaft          | 2       |
| 32  | 300.43.102 | Block                     | 12      |
| 33  | GB/T308    | Steel ball 18.0000G 100b  | 12      |
| 34  | 300.43.101 | O-ring                    | 2       |
| 35  | 300.43.104 | Right brake presses plate | 1       |
| 36  | 200.43.103 | Left brake pressure plate | 1       |
| 37  | 300.43.011 | Brake friction disk plate | 4       |
| 38  | 300.43.105 | Spacing plate             | 2       |
| 39  | 300.43.153 | Brake final drive         | 2       |
| 40  | 300.43.154 | Plug                      | 2       |
| 41  | 300.43.122 | Right brake case          | 1       |
| 42  | 300.43.121 | Left brake case           | 1       |
| 43  | 300.43.106 | Shifting block            | 2       |
| 44  | 300.43.107 | Bushing                   | 2       |
| 45  | GB3452.1   | O-Ring 20X2.65            | 2       |
| 46  | 300.43.022 | Right crank assy          | 1       |
| 47  | 300.43.014 | Left crank assy           | 1       |

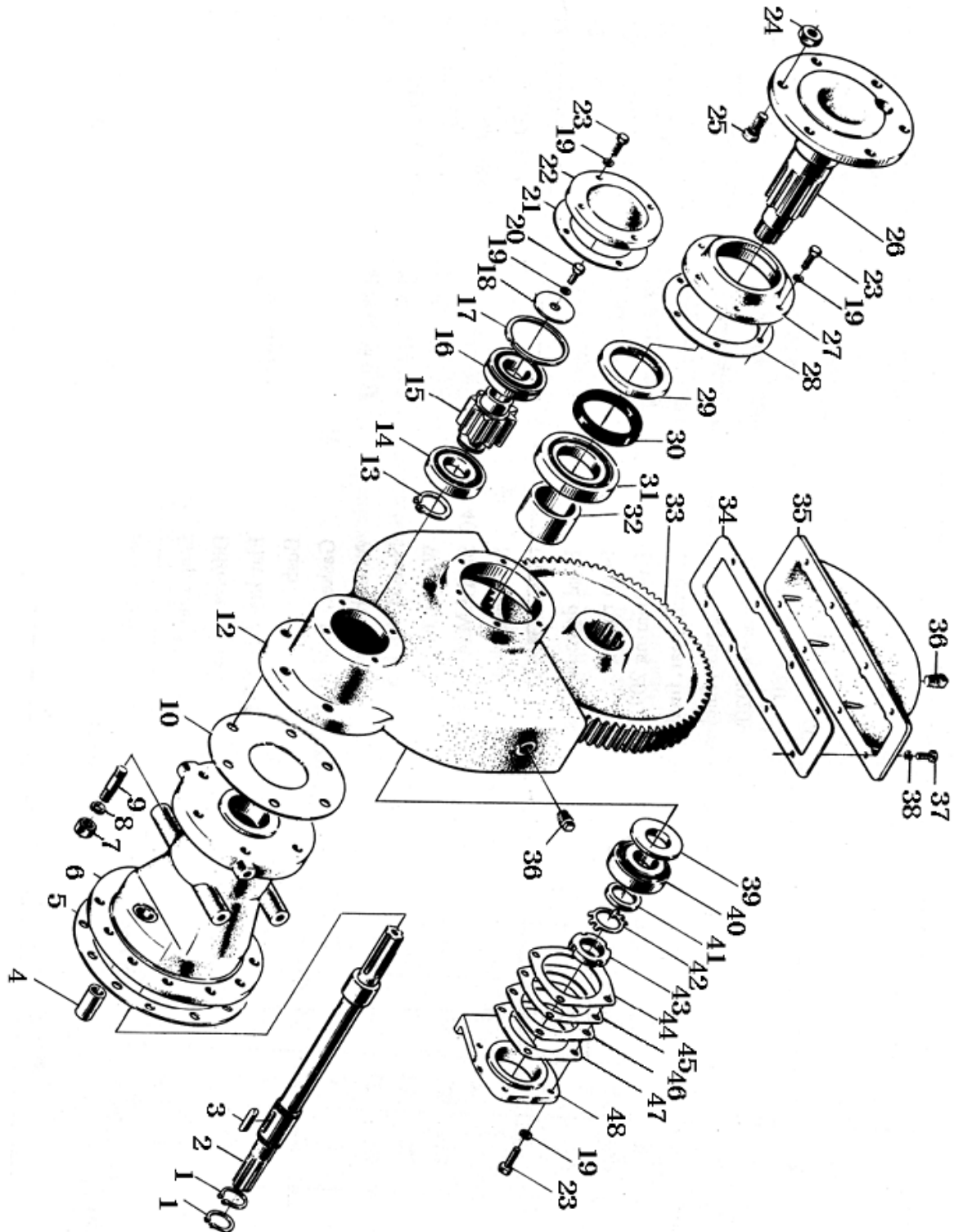
## 12. REAR DRIVING WHEEL ASSY



## 12. REAR DRIVING WHEEL ASSY

| No. | Code       | Name                 | 350 QTY |
|-----|------------|----------------------|---------|
| 1   | GB6170-86  | Nut M12              | 6       |
| 2   | GB93-87    | Washer 12            | 6       |
| 3   | GB96-85    | Washer 12            | 6       |
| 4   | 300.34.106 | Bolt                 | 6       |
| 5   | GB12-88    | Bolt M12X60          | 6       |
| 6   | 300.34.105 | Ballast              | 4       |
| 7   | GB6171-86  | Nut M14X1.5          | 12      |
| 8   | GB93-87    | Washer 14            | 12      |
| 9   | GB97.1-85  | Washer 14            | 12      |
| 10  | 300.34.011 | Drive wheel rim assy | 2       |
| 11  | 300.34.103 | Drive wheel spoke    | 2       |
| 12  | GB5785-86  | Bolt M14X1.5X70      | 12      |
| 13  |            | Tube 11.2-24         | 2       |
| 14  |            | Tube 11.2-24         | 2       |

## 13. FINAL DRIVE ASSY



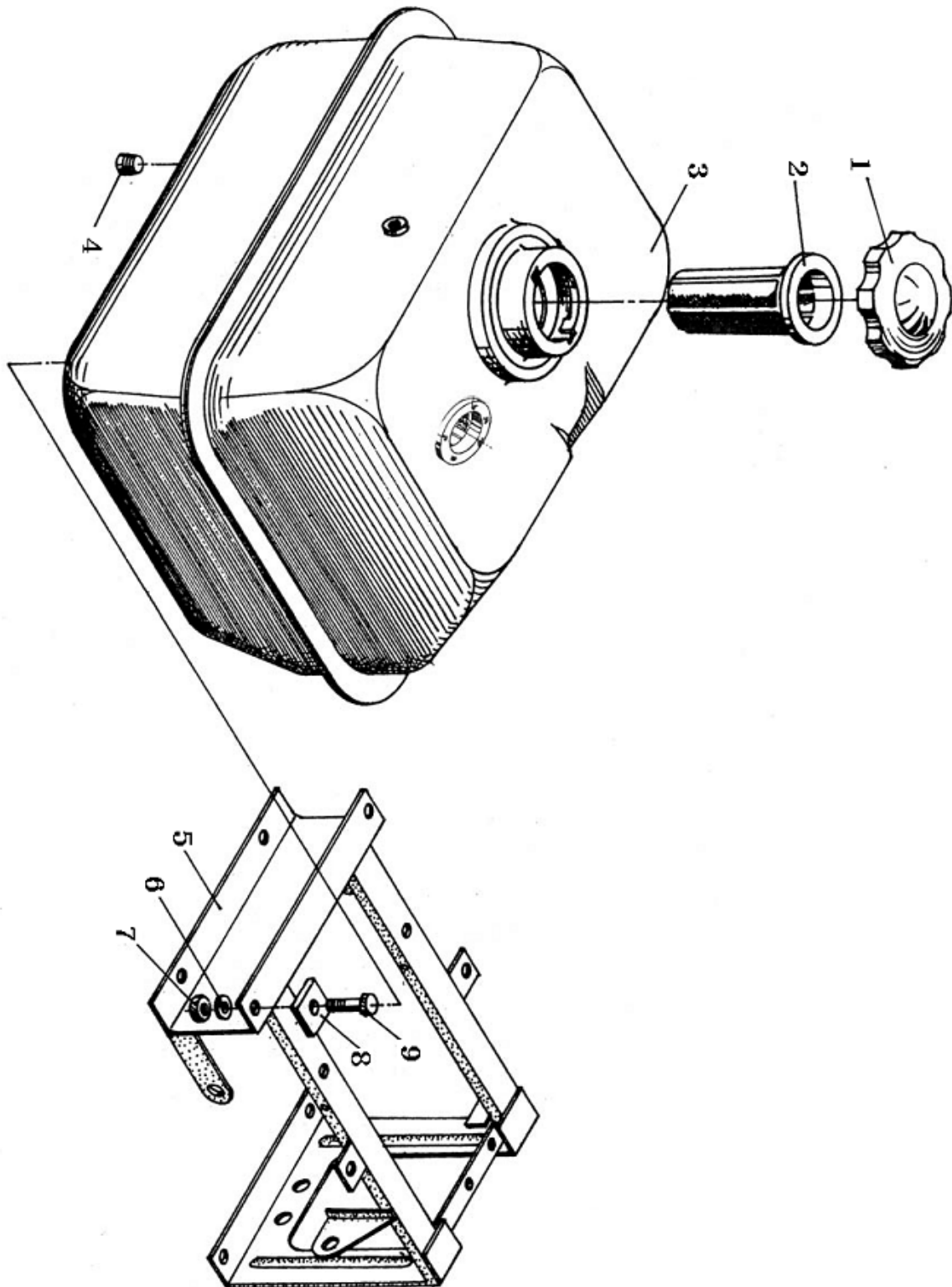
### 13. FINAL DRIVE ASSY

| No. | Code             | Name                       | 350 QTY |
|-----|------------------|----------------------------|---------|
| 1   | GB894.1-86       | Snap ring 32               | 4       |
| 2   | TYM35.39.103     | Differential axle          | 2       |
| 3   | GB1096-79        | Flat key A 10X45           | 2       |
| 4   | 25.39.124        | Bush                       | 2       |
| 5   | 25.39.108        | Gasket,final drive hosing  | 2       |
| 6   | TYM35.39123(127) | Axle shaft sleeve L (R)    | 2       |
| 7   | GB6171-86        | Nut M14X1.5                | 12      |
| 8   | GB93-87          | Washer 14                  | 12      |
| 9   | GB898-88         | Stud AM 14X1.5X40          | 12      |
| 10  | 25.39.129-1      | Middle gasket, final drive | 2       |
| 12  | 25.39.101-1      | Final drive housing        | 2       |
| 13  | GB894.1-86       | Snap ring 40               | 2       |
| 14  | GB276-89         | Ball bearing 209           | 2       |
| 15  | 25.39.125a       | Driving gear, final drive  | 2       |
| 16  | GB277-89         | Ball bearing 50209         | 2       |
| 17  | GB305-89         | Thrust ring 80             | 2       |
| 18  | 25.39.123        | Snap rim, axle end         | 2       |
| 19  | GB93-87          | Washer 10                  | 30      |
| 20  | GB5781-86        | Bolt M 10X20               | 2       |
| 21  | 25.39.120-1      | Gasket, axle shaft sleeve  | 2       |
| 22  | 25.39.109-1      | Bearing cover,axle         | 2       |
| 23  | GB5781-86        | Bolt M 10X25               | 28      |
| 24  | 25.39.114        | Nut, hub                   | 12      |
| 25  | 25.39.113        | Nut, hub                   | 12      |
| 26  | 25.39.102        | Rear shaft                 | 2       |

## 13. FINAL DRIVE ASSY

| No. | Code          | Name                                   | 350 QTY |
|-----|---------------|----------------------------------------|---------|
| 27  | 25.39.106     | Outer bearing cover, rear shaft        | 2       |
| 28  | 25.39.119     | Gasket, rear shaft outer end cover     | 2       |
| 29  | 25.39.014     | Felt seal assy                         | 2       |
| 30  | GB9877.1-88   | Oil seal assy                          | 2       |
| 31  | GB297-84      | Ball bearing 7212                      | 2       |
| 32  | 25.39.111     | Thrust sleeve                          | 2       |
| 33  | 25.39.105     | Final drive driven gear                | 2       |
| 34  | 25.39.118     | Gasket, final drive cover              | 2       |
| 35  | 25.39.110     | Final drive cover                      | 2       |
| 36  | ZBT32001.5-87 | Plug $\square$ -Z1/2"                  | 6       |
| 37  | GB5781-86     | Bolt M8X20                             | 16      |
| 38  | GB93-87       | Washer 8                               | 16      |
| 39  | 25.39.112     | Taper washer                           | 2       |
| 40  | GB297-84      | Ball bearing 7307                      | 2       |
| 41  | 25.39.104     | Inner end washer, rear shaft           | 2       |
| 42  | GB858-88      | Washer 33                              | 2       |
| 43  | GB812-88      | Circular nut M33X1.5                   | 2       |
| 44  | 25.39.115     | Adjusting shim, rear shaft 0.1         | Several |
| 45  | 25.39.116     | Adjusting shim, rear shaft 0.2         | Several |
| 46  | 25.39.117     | Adjusting shim, rear shaft 0.5         | Several |
| 47  | 25.39.130     | Paper gasket, rear shaft               | 1       |
| 48  | 254.39.107A   | Inner bearing cover, drive shaft, L.H. | 1       |
|     | 254.39.107B   | Inner bearing cover, drive shaft, R.H. | 1       |

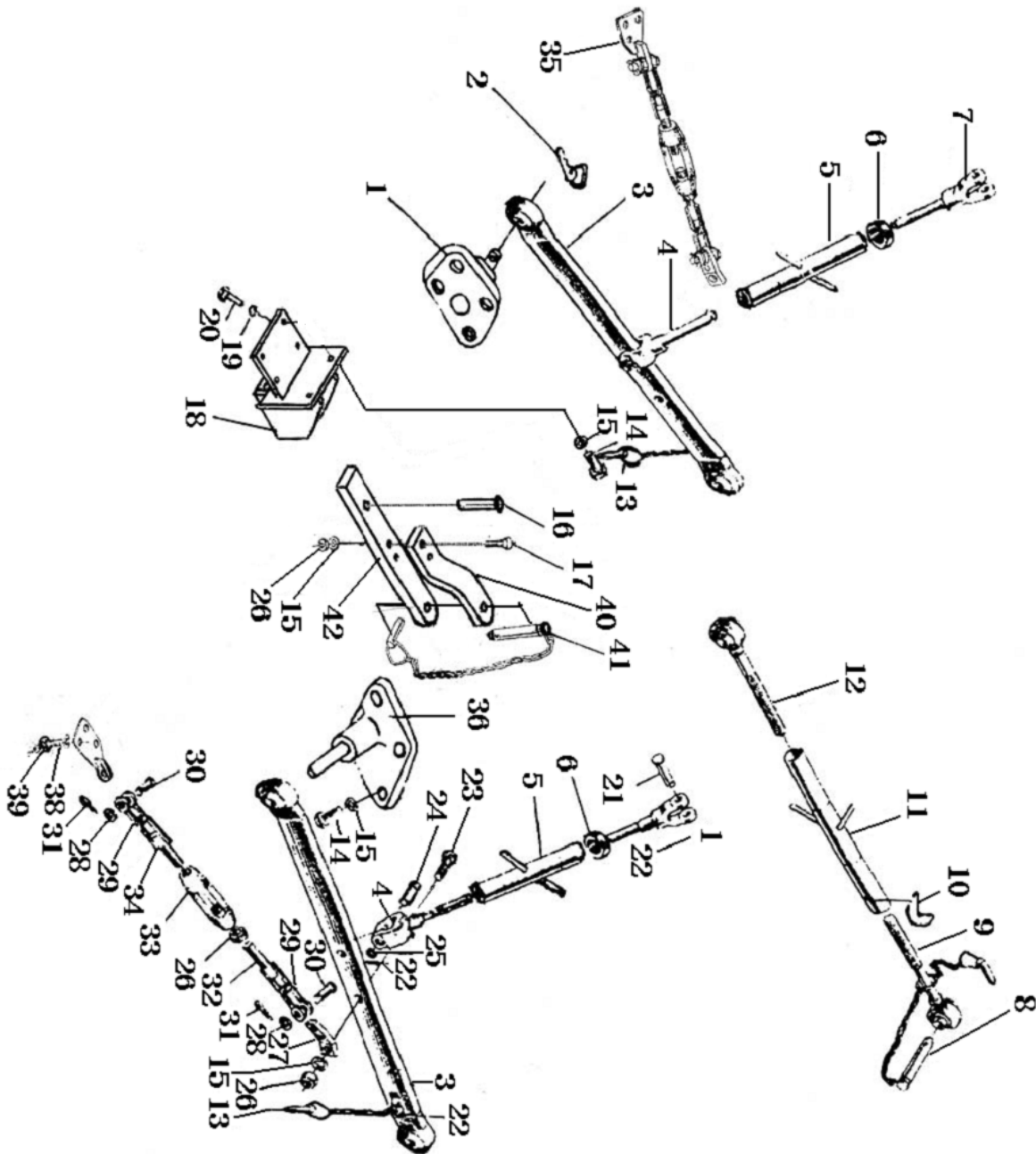
## 14. FUEL TANK & BRACKET



## 14. FUEL TANK & BRACKET

| No. | Code          | Name                                                                                          | 350 QTY |
|-----|---------------|-----------------------------------------------------------------------------------------------|---------|
| 1   | 25.50.012     | Tank cap assy                                                                                 | 1       |
| 2   | 25.50.013     | Screen assy fuel tank filter                                                                  | 1       |
| 3   | 300.50.011    | Tank weldment assy                                                                            | 1       |
| 4   | ZBT32001.5-87 | Plug  -Z1/4" | 1       |
| 5   | 300.20.021    | Bracket weldment assy                                                                         | 1       |
| 6   | GB93-87       | Washer 8                                                                                      | 4       |
| 7   | GB6170-86     | Nut M8                                                                                        | 4       |
| 8   | 25.50.103     | Rubber gasket                                                                                 | 4       |
| 9   | GB12-88       | Bolt M8X25                                                                                    | 4       |

## 15. SUSPENSION LINKAGE ASSY



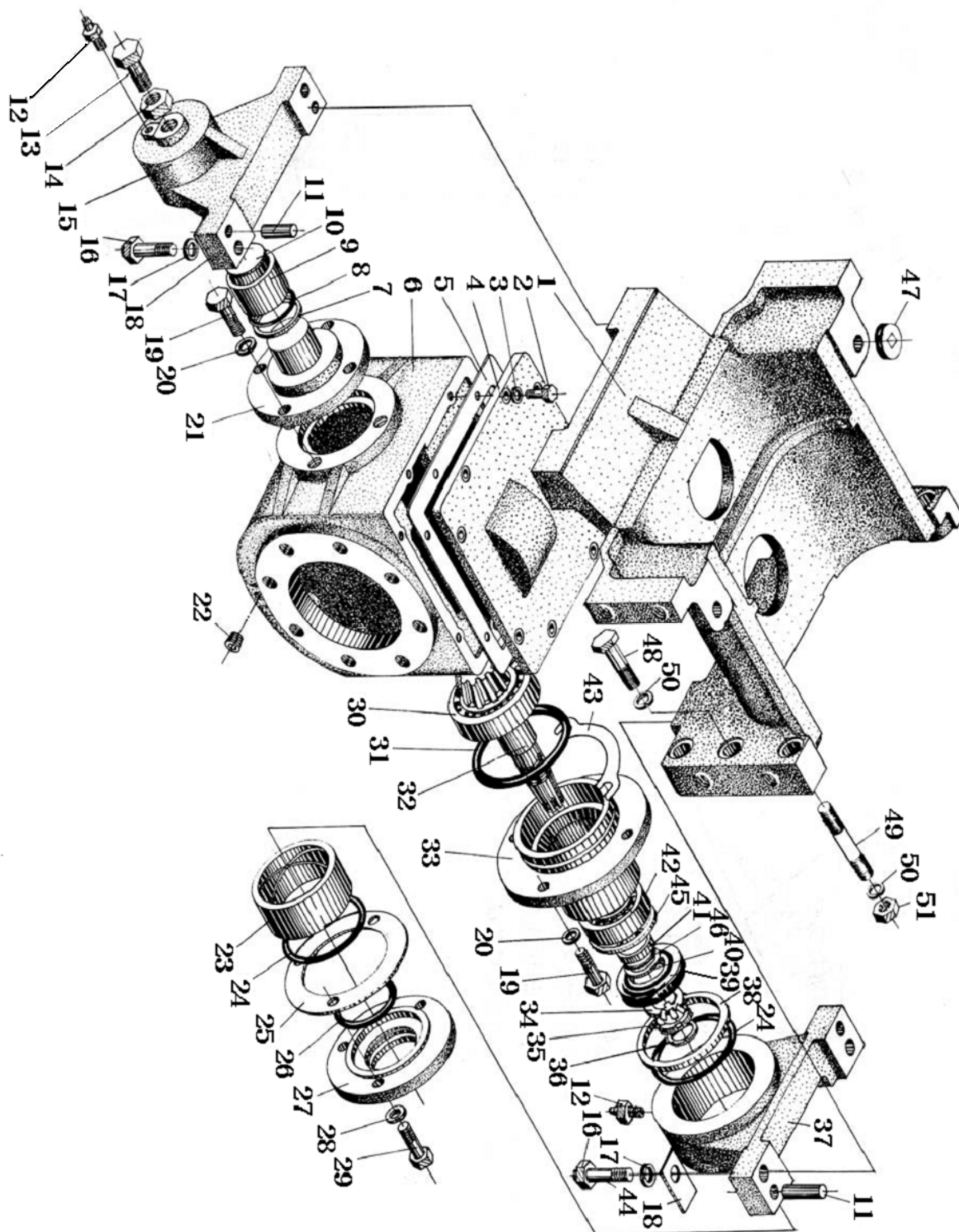
## 15. SUSPENSION LINKAGE ASSY

| No. | Code         | Name                                      | 350 QTY |
|-----|--------------|-------------------------------------------|---------|
| 1   | 400.56.056   | Right lower connecting link weldment assy | 1       |
| 2   | 25.556.018   | Linchpin assy                             | 4       |
| 3   | 400.56.024   | Lower link assy                           | 2       |
| 4   | 25.56.051    | Lower end assy, lift link                 | 2       |
| 5   | 25.56.050    | Lift link mid-sleeve weldment assy        | 2       |
| 6   | 25.56.113-1  | Lifting link                              | 2       |
| 7   | GB8172-86    | Nut M22                                   | 2       |
| 8   | 25.56.023    | Pin and linch pin assy                    | 1       |
| 9   | 25.56.020    | Rear end assy, upper link                 | 1       |
| 10  | 25.56.106    | Lock ring, upper link                     | 1       |
| 11  | 25.56.022    | Buckle assy                               | 1       |
| 12  | 25.56.021    | Front end assy, upper link                | 1       |
| 13  | 25.56.028    | Chain & lock pin assy                     | 2       |
| 14  | GB5781-86    | Bolt M16X45                               | 6       |
| 15  | GB93-87      | Washer 16                                 | 10      |
| 16  | TYM35.56.103 | Connecting pin                            | 1       |
| 17  | GB5782-86    | Bolt M16X80                               | 2       |
| 18  | TYM35.56.040 | Linkage rack assy                         | 1       |
| 19  | GB93-87      | Washer 14                                 | 6       |
| 20  | GB5781-86    | Bolt M14X40                               | 4       |
| 21  | 25.56.102    | Connecting pin, lift link                 | 2       |
| 22  | GB91-86      | Cotter pin 3X25                           | 6       |
| 23  | 25.56.105    | Connecting screw, check chain             | 2       |
| 24  | GB882-86     | Pin shaft B16X45                          | 2       |
| 25  | GB848-85     | Washer 16                                 | 6       |

## 15. SUSPENSION LINKAGE ASSY

| No. | Code         | Name                                     | 350 QTY |
|-----|--------------|------------------------------------------|---------|
| 26  | GB6170-86    | Nut M16                                  | 4       |
| 27  | 25.56.150    | Link plate,check chain                   | 2       |
| 28  | GB97.1-85    | Washer 10                                | 4       |
| 29  | 25.56.118    | Connecting ring                          | 4       |
| 30  | GB882-86     | Pin shaft B10X40                         | 4       |
| 31  | GB91-86      | Cotton pin 2.5X20                        | 4       |
| 32  | 400.56.039   | Right-hand screw assy                    | 2       |
| 33  | 25.56.117    | Adjusting rod                            | 2       |
| 34  | 400.56.038   | Left-hand screw assy                     | 2       |
| 35  | 25.56.044    | Right connecting link assy               | 1       |
| 36  | 400.56.055   | Left lower connecting link weldment assy | 1       |
| 37  | 25.56.04.3   | Left connecting link assy                | 1       |
| 38  | GB93-87      | Washer 12                                | 6       |
| 39  | GB5781-86    | Stud M12X25                              | 6       |
| 40  | TYM35.56.101 | Crooked linkage drawbar                  | 1       |
| 41  | TYM35.56.041 | Linkage pin assy                         | 1       |
| 42  | TYM35.56.102 | Straight linkage drawbar                 | 1       |

## 16. FRONT DRIVING AXLE ASSY (A)



## 16. FRONT DRIVING AXLE ASSY (A)

| No. | Code          | Name                                     | 350 QTY |
|-----|---------------|------------------------------------------|---------|
| 1   | 254.31.148    | Bracket                                  | 1       |
|     | 304.31.148    | Bracket                                  | 1       |
| 2   | GB5781-86     | Bolt M16X16                              | 1       |
| 3   | GB93-87       | Washer 6                                 | 1       |
| 4   | 254.31.109    | Front central transmission housing cover | 1       |
| 5   | 254.31.108    | Gasket                                   | 1       |
| 6   | 254.31.107    | Front central transmission housing       | 1       |
| 7   | 254.31.111    | Front snap ring                          | 1       |
| 8   | GB1235-79     | O-ring 46X3.5                            | 1       |
| 9   | 254.31.162    | Bush(B)                                  | 1       |
| 10  | 254.31.170    | Gasket                                   | 1       |
| 11  | GB119-86      | Pin D12x35                               | 4       |
| 12  | GB1152-89     | Oil cup M6                               | 2       |
| 13  | 254.31.171    | Adjusting bolt                           | 1       |
| 14  | GB6171-86     | Nut M16X1.5                              | 1       |
| 15  | 254.31.161    | Front bush seat                          | 1       |
| 16  | GB6171-86     | Nut M14X1.5                              | 4       |
| 17  | GB93-87       | Washer 14                                | 4       |
| 18  | 254.31.172    | Cover plate                              | 4       |
| 19  | GB5783-86     | Bolt M12X35                              | 8       |
| 20  | GB93-87       | Washer 12                                | 8       |
| 21  | 254.31.110    | Front pivot shaft                        | 1       |
| 22  | ZBT32001.5-87 | Plug ■■ -Z 1/4 ■■                        | 1       |
| 23  | 254.31.160    | Bush(A)                                  | 1       |
| 24  | GB1235-79     | O-ring 80X3.1                            | 2       |
| 25  | 254.31.102    | Gasket                                   | 1       |
| 26  | GB1235-79     | O-ring 54X3.5                            | 1       |
| 27  | 254.31.101    | Cover                                    | 1       |

## 16. FRONT DRIVING AXLE ASSY (A)

| No. | Code         | Name                                   | 350 QTY |
|-----|--------------|----------------------------------------|---------|
| 28  | GB93-87      | Washer 8                               | 3       |
| 29  | GB5781-86    | Bolt M8X25                             | 3       |
| 30  | GB298-84     | Bearing 27307                          | 1       |
| 31  | GB1235-79    | O-ring 95X3.1                          | 1       |
| 32  | 254.31.157   | Front central drive gear               | 1       |
| 33  | 254.31.156   | Bearing seat, Front central drive gear | 1       |
| 34  | GB858-88     | Washer 27                              | 1       |
| 35  | GB810-88     | Circular nut M27X1.5                   | 1       |
| 36  | GB894.1-86   | Snap ring 25                           | 1       |
| 37  | 254.31.159   | Rear bush seat                         | 1       |
| 38  | 254.31.103   | Washer                                 | 1       |
| 39  | GB9877.1-88  | Oil seal SD35X62X12                    | 1       |
| 40  | 254.31.173   | Spacer                                 | 1       |
| 41  | 254.31.158-1 | Shaft bush                             | 1       |
| 42  | GB597-84     | Bearing 7206                           | 1       |
| 43  | 254.31.104   | Adjusting shim                         | Several |
|     | 254.31.105   | Adjusting shim                         | Several |
|     | 254.31.106   | Adjusting shim                         | Several |
| 44  | GB898-88     | Stud AM14X1.5X40                       | 4       |
| 45  | 254.31.177   | Spacer                                 | 1       |
| 46  | GB1235-79    | O-ring 32X3.1                          | 1       |
| 47  | 300.31.116   | Rubber gasket radiator                 | 2       |
| 48  | GB5782-86    | Bolt M16X50                            | 6       |
|     | GB5785-86    | Bolt M14X1.5X100                       | 4       |
| 49  | GB898-88     | Stud AM14X1.5X70                       | 2       |
| 50  | GB93-87      | Washer 16                              | 6       |
|     | GB93-87      | Washer 14                              | 6       |
| 51  | GB6170-86    | Nut M16                                | 6       |
|     | GB6170-86    | Nut M14X1.5                            | 6       |



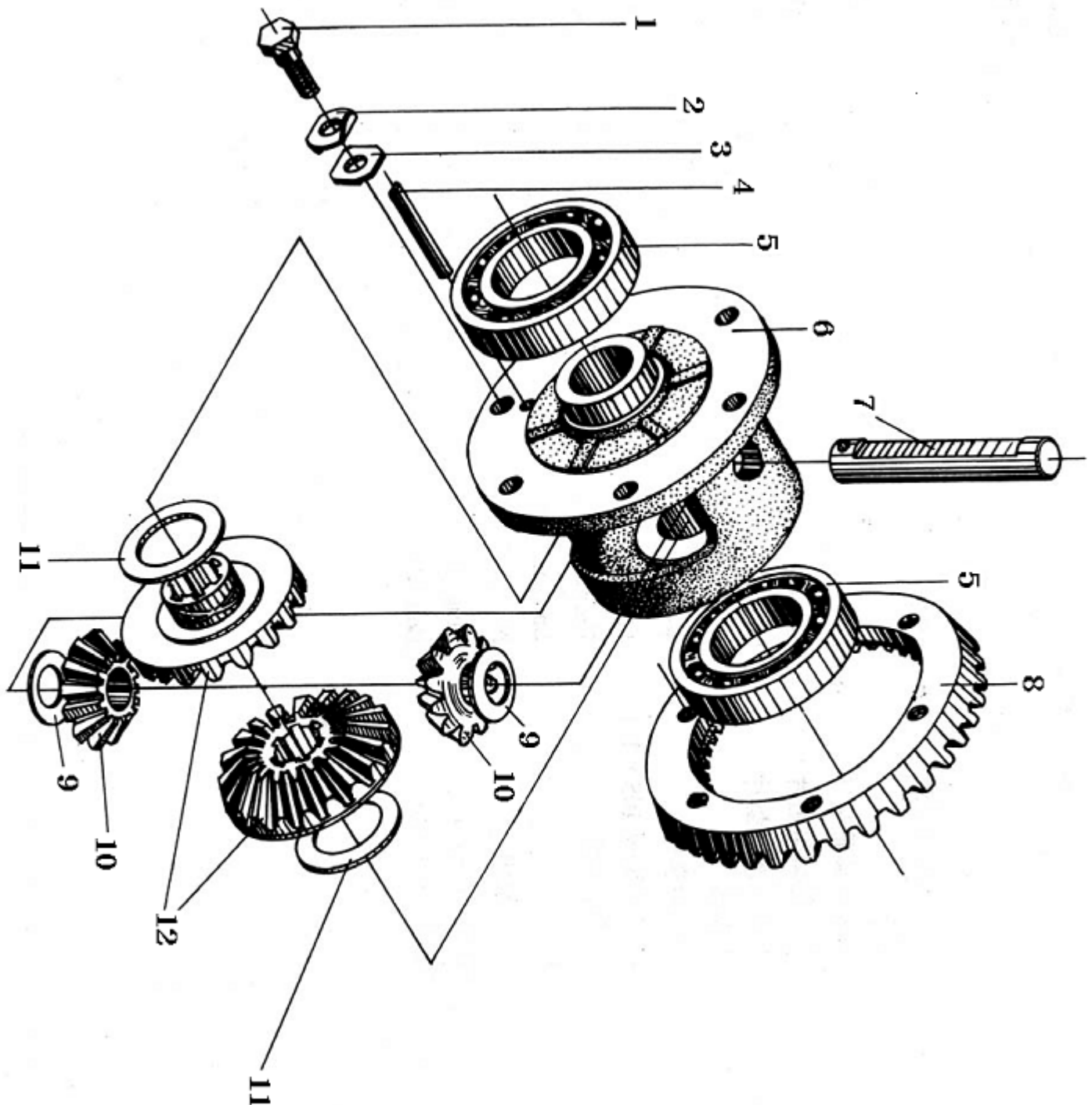
## 17. FRONT DRIVING AXLE ASSY (B)

| No. | Code        | Name                                  | 350 QTY |
|-----|-------------|---------------------------------------|---------|
| 1   | GB301-84    | Bearing 8206                          | 2       |
| 5   | 254.31.180  | Bush,side transmission housing        | 2       |
| 6   | GB9877.1-88 | Oil seal PD55X75X12                   | 2       |
| 7   | 254.31.018  | Felt seal assy                        | 2       |
| 9   | 254.31.123  | Three hole housing                    | 2       |
| 10  | 254.31.129  | Front driving upright shaft           | 2       |
| 11  | GB894.1-86  | Snap ring 30                          | 4       |
| 12  | 254.31.121  | Front side transmission driven gear 1 | 2       |
| 13  | GB292-83    | Bearing 46208                         | 4       |
| 14  | GB1235-76   | O-ring 80X3.1                         | 4       |
| 15  | 254.31.118  | Adjusting shim                        | Several |
|     | 254.31.119  | Adjusting shim                        | Several |
|     | 254.31.120  | Adjusting shim                        | Several |
| 16  | 254.31.117  | Steering rocker shaft cover           | 2       |
| 17  | GB1235-76   | O-ring 30X3.1                         | 2       |
| 18  | GB5781-86   | Bolt M8X25                            | 12      |
| 19  | GB93-87     | Washer 8                              | 12      |
| 20  | 254.31.122  | Front side transmission drive gear 1  | 2       |
| 21  | 254.31.124  | Adjusting shim                        | Several |
|     | 254.31.125  | Adjusting shim                        | Several |
|     | 254.31.126  | Adjusting shim                        | Several |
| 22  | GB93-87     | Washer 12                             | 28      |
| 23  | GB5783-86   | Bolt M12X35                           | 28      |
| 24  | 254.31.116  | Plug                                  | 2       |

## 17. FRONT DRIVING AXLE ASSY (B)

| No. | Code          | Name                       | 350 QTY |
|-----|---------------|----------------------------|---------|
| 25  | 254.31.112    | Adjusting shim             | Several |
|     | 254.31.113    | Adjusting shim             | Several |
|     | 254.31.114    | Adjusting shim             | Several |
| 26  | 254.31.149    | Front differential         | 2       |
| 27  | 254.31.175    | Front sleeve(R.H.)         | 1       |
| 28  | GB1235-76     | O-Ring 105X3.1             | 2       |
| 29  | 254.31.115    | Front sleeve(L.H.)         | 1       |
| 30  | GB894.1-86    | Snap ring 28               | 2       |
| 31  | GB6170-86     | Nut M10                    | 4       |
| 32  | ZBT32001.5-87 | Plug Ⅱ- Z 1/2 <sup>Ⅱ</sup> | 2       |
| 33  | GB5781-86     | Bolt M10X30                | 4       |

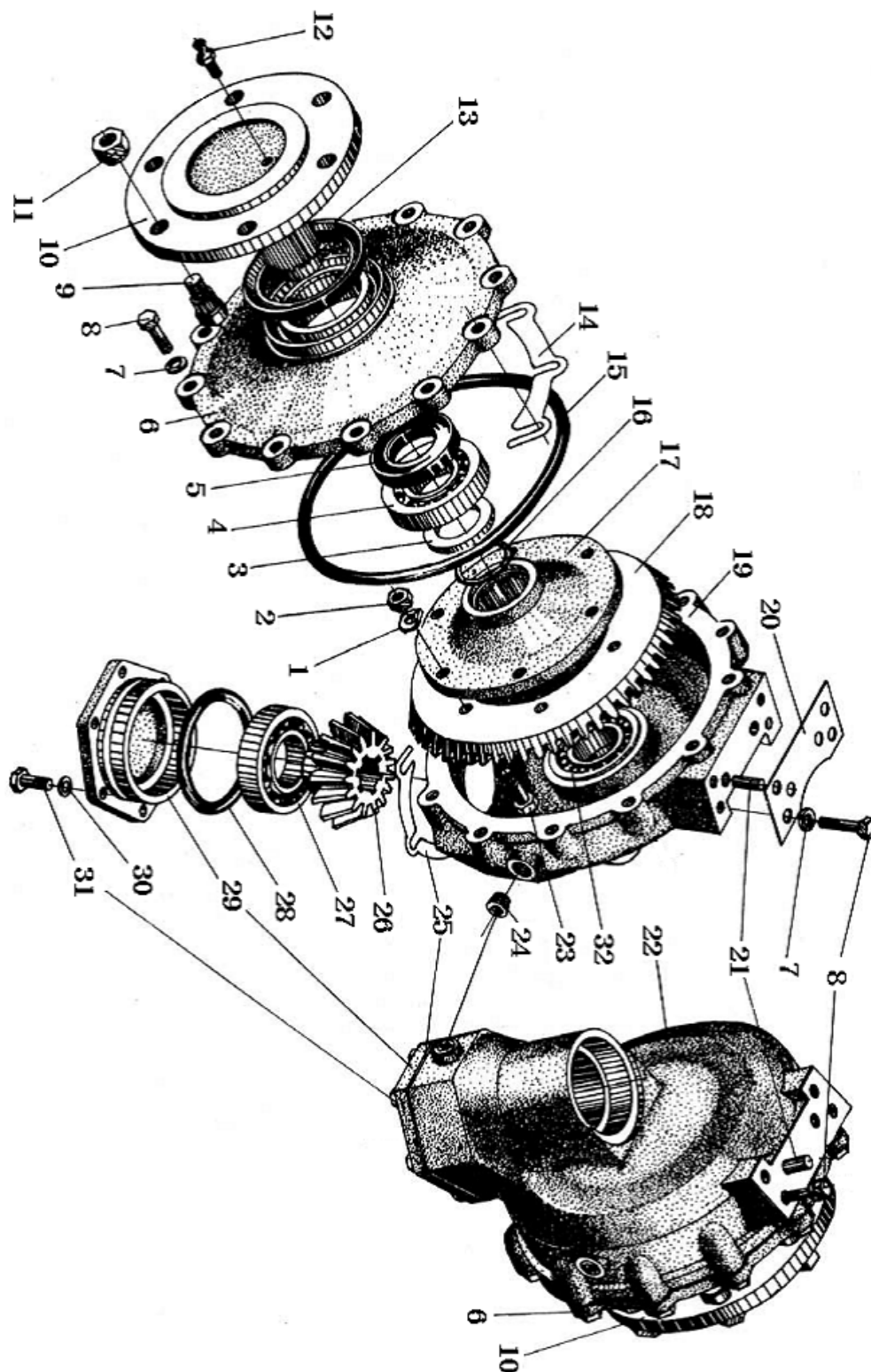
## 18. FRONT DRIVING AXLE ASSY (C)



## 18. FRONT DRIVING AXLE ASSY (C)

| No. | Code       | Name                                | 350 QTY |
|-----|------------|-------------------------------------|---------|
| 1   | 254.31.150 | Bolt, Front central driven gear     | 6       |
| 2   | GB854-88   | Washer 10                           | 6       |
| 3   | 254.31.151 | Lock pin block                      | 1       |
| 4   | 254.31.153 | Lock pin, Front planet pinion shaft | 1       |
| 5   | GB292-83   | Bearing 46210                       | 2       |
| 6   | 254.31.155 | Front differential housing          | 1       |
| 7   | 254.31.154 | Front planet pinion shaft           | 1       |
| 8   | 254.31.152 | Front central driven gear           | 1       |
| 9   | 25.37.185  | Washer, planet gear                 | 2       |
| 10  | 25.37.201  | Planet gear                         | 2       |
| 11  | 25.37.184  | Washer, differential side gear      | 2       |
| 12  | 25.37.181  | Differential side gear              | 2       |

## 19. FRONT DRIVING AXLE ASSY (D)



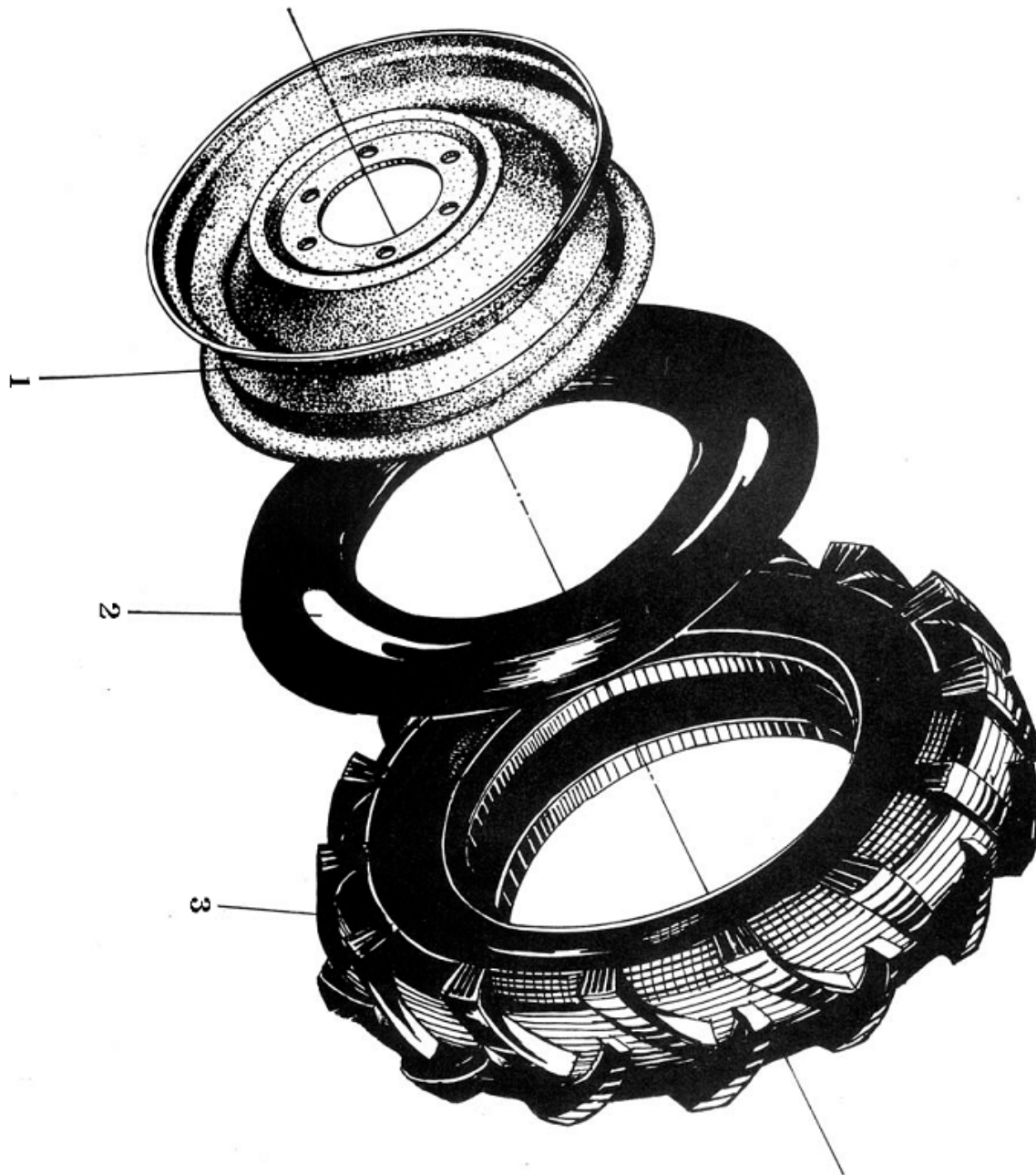
## 19. FRONT DRIVING AXLE ASSY (D)

| No. | Code        | Name                                   | 350 QTY |
|-----|-------------|----------------------------------------|---------|
| 1   | GB854-88    | Washer 10                              | 12      |
| 2   | GB6170-86   | Nut M10                                | 12      |
| 3   | 254.31.141  | Washer                                 | 2       |
| 4   | GB292-83    | Bearing 46209                          | 2       |
| 5   | GB9877.1-88 | Oil seal PD50 X 70 X 12                | 2       |
| 6   | 254.31.138  | Front side transmission housing cover  | 2       |
| 7   | GB97-87     | Washer 10                              | 32      |
| 8   | GB5781-86   | Bolt M10 X 30                          | 32      |
| 9   | 25.39.113   | Bolt, hub                              | 12      |
| 10  | 254.31.021  | Front driving shaft weldment assy      | 2       |
| 11  | 25.39.114   | Nut, hub                               | 12      |
| 12  | GB1152-89   | Oil cup M6                             | 2       |
| 13  | 254.31.140  | Oil seal                               | 2       |
| 14  | 254.31.135  | Adjusting shim                         | Several |
|     | 254.31.136  | Adjusting shim                         | several |
|     | 254.31.137  | Adjusting shim                         | several |
| 15  | GB1235-76   | O-ring 220 X 5.7                       | 2       |
| 16  | 254.31.139  | Hemicycle snap ring                    | 4       |
| 17  | 254.31.142  | Front side gear hub                    | 2       |
| 18  | 254.31.144  | Front side transmission driven gear II | 2       |
| 19  | 254.31.163  | Front side transmission housing (L.H.) | 1       |
| 20  | 254.31.145  | Adjusting shim                         | several |
|     | 254.31.146  | Adjusting shim                         | several |
|     | 254.31.147  | Adjusting shim                         | several |

## 19. FRONT DRIVING AXLE ASSY (D)

| No. | Code          | Name                                   | 350 QTY |
|-----|---------------|----------------------------------------|---------|
| 21  | GB119-86      | Pin D 8 X 22                           | 4       |
| 22  | 254.31.176    | Front side transmission housing (R.H.) | 1       |
| 23  | 254.31.143    | Bolt, large bevel gear                 | 12      |
| 24  | ZBT32001.5-87 | Plug II – Z 1/2”                       | 4       |
| 25  | 254.31.131    | Adjusting shim                         | Several |
|     | 254.31.132    | Adjusting shim                         | several |
|     | 254.31.133    | Adjusting shim                         | several |
| 26  | 254.31.130    | Front side transmission drive gear II  | 2       |
| 27  | GB292-83      | Bearing 46208                          | 2       |
| 28  | GB1235-76     | O-ring 95 X 3.1                        | 2       |
| 29  | 254.31.134    | Side transmission lower cover          | 2       |
| 30  | GB93-87       | Washer 8                               | 12      |
| 31  | GB5781-86     | Bolt M8 X 25                           | 12      |
| 32  | GB276-89      | Bearing 207                            | 2       |

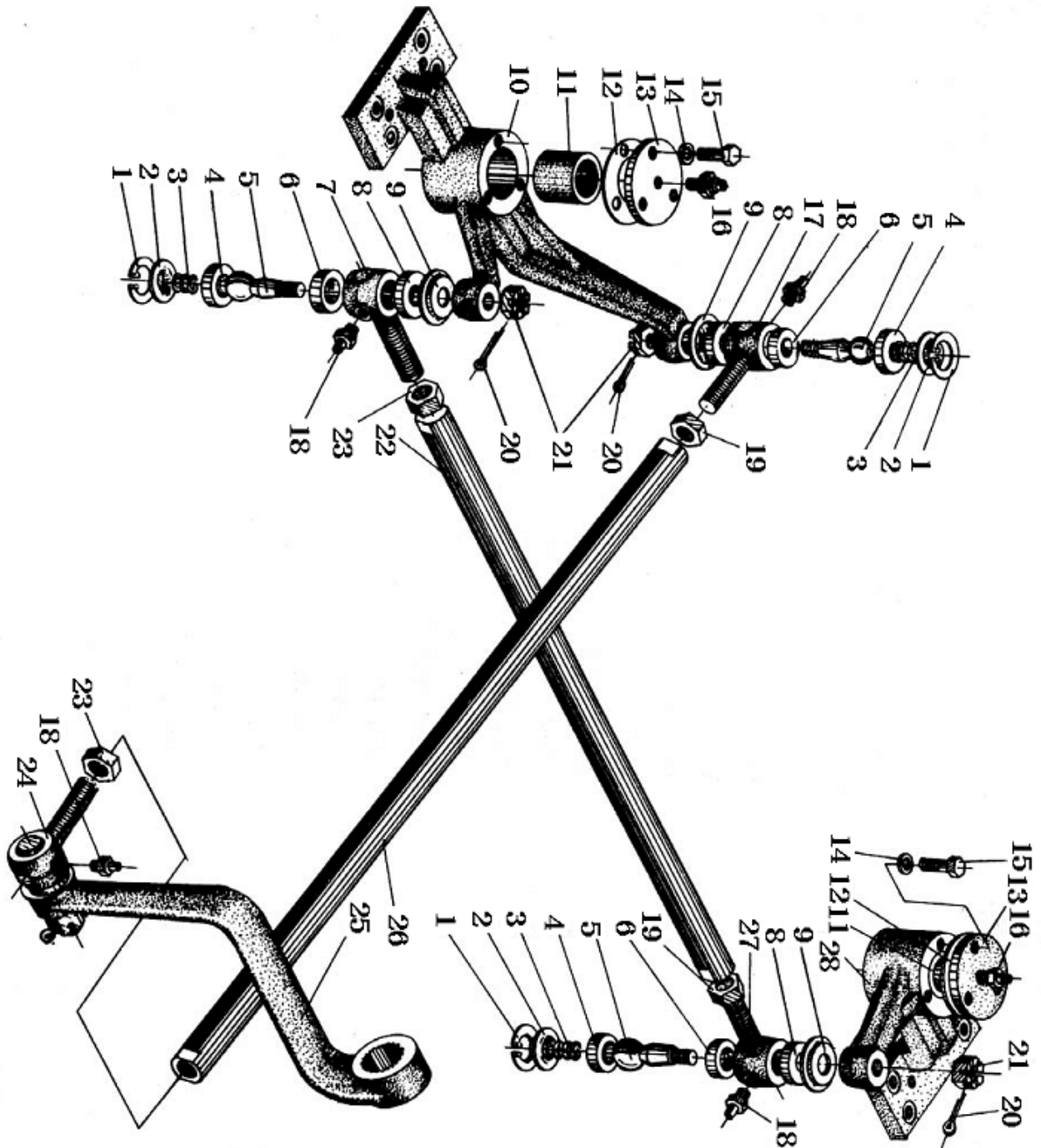
## 20. FRONT DRIVING WHEEL ASSY



## 20. FRONT DRIVING WHEEL ASSY

| No. | Code       | Name                         | 350 QTY |
|-----|------------|------------------------------|---------|
| 1   | 254.32.011 | Front driving wheel rim assy | 2       |
| 2   |            | Tube 6.50-16                 | 2       |
| 3   |            | Tire 6.50-16                 | 2       |

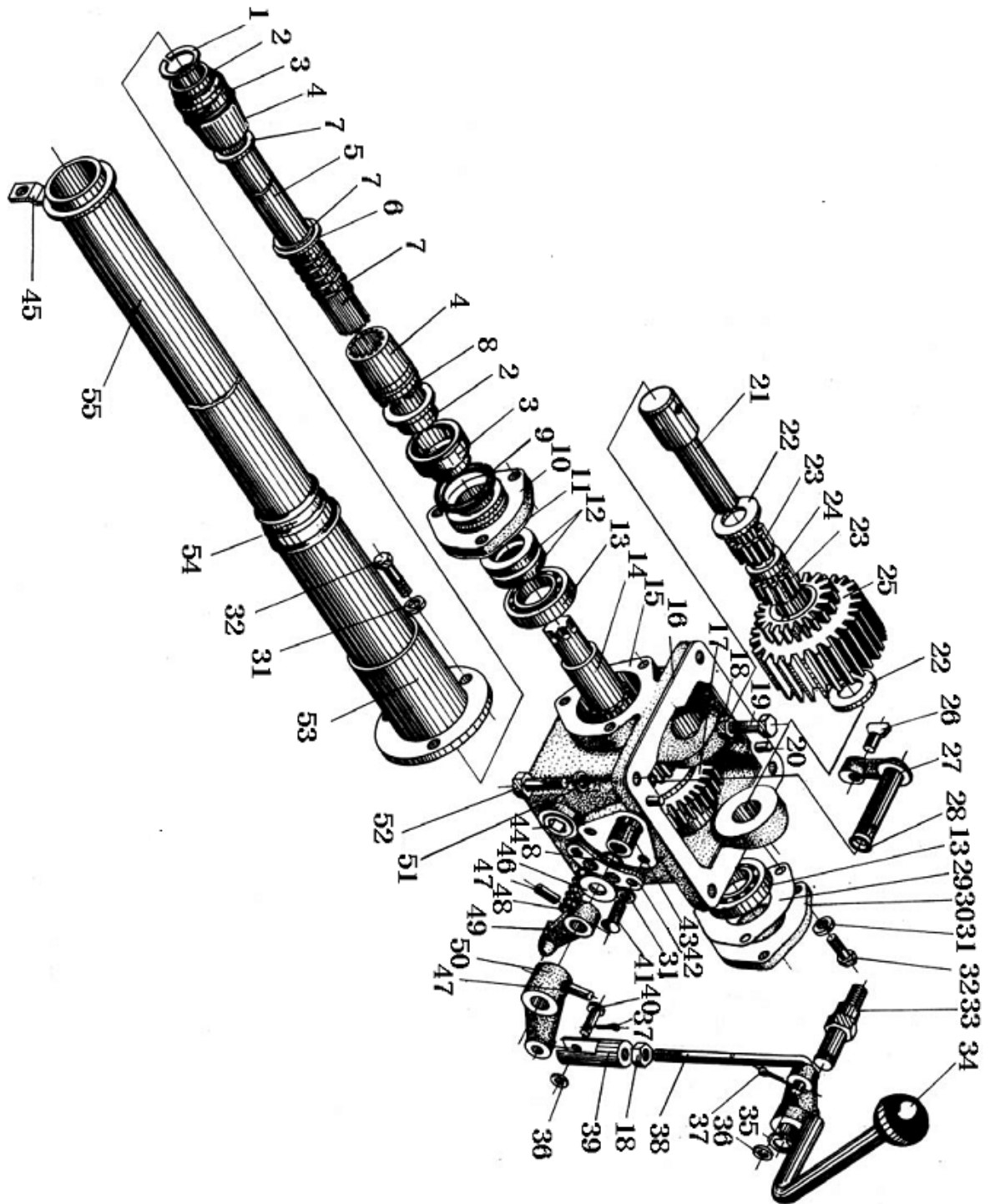
## 21. STEERING MECHANISM



## 21. STEERING MECHANISM

| No. | Code         | Name                        | 350 QTY |
|-----|--------------|-----------------------------|---------|
| 1   | GB893.1-86   | Snap ring 30                | 3       |
| 2   | 130-3003075B | Spring seat, steering joint | 3       |
| 3   | 130-3003069B | Steering joint spring       | 3       |
| 4   | 130-3003072B | Ball pin lover seat         | 3       |
| 5   | 130-3003032  | Ball pin                    | 3       |
| 6   | 130-3003079B | Ball pin upper seat         | 3       |
| 7   | 130-3003071B | Steering joint (L.H.)       | 1       |
| 8   | 130-3003074  | Dustproof gasket            | 3       |
| 9   | 130-3003073  | Washer, steering joint      | 3       |
| 10  | 254.40.101   | Steering rocker (L.H)       | 1       |
| 11  | 25.31.118    | Bush                        | 2       |
| 12  | 254.40.108   | Paper gasket                | 2       |
| 13  | 254.40.107   | Steering rocker cover       | 2       |
| 14  | GB93-87      | Washer 6                    | 6       |
| 15  | GB5781-86    | Bolt M6 X 12                | 6       |
| 16  | GB1152-89    | Oil cup M6                  | 2       |
| 17  | 130-3003016  | Front steering joint        | 1       |
| 18  | GB1152-89    | Oil cup M10 X 1             | 4       |
| 19  | GB6171-86    | Nut M18 X 1.5               | 2       |
| 20  | GB91-86      | Cotter pin 3 X 20           | 4       |
| 21  | GB6181-86    | Nut M12 X 1.25              | 4       |
| 22  | 254.40.104   | Tie rod                     | 1       |
| 23  | GB6171-86    | Nut M18 X 1.5 (L.H.)        | 2       |
| 24  | 130-3003061A | Steering joint assy (L.H.)  | 1       |
| 25  | 254.40.106   | Pitman arm                  | 1       |
| 26  | 254.40.105   | Drag link                   | 1       |
| 27  | 130-3003068B | Steering joint (R.H.)       | 1       |
| 28  | 254.40.103   | Steering rocker (R.H.)      | 1       |

## 22. TRANSFER CASE ASSY



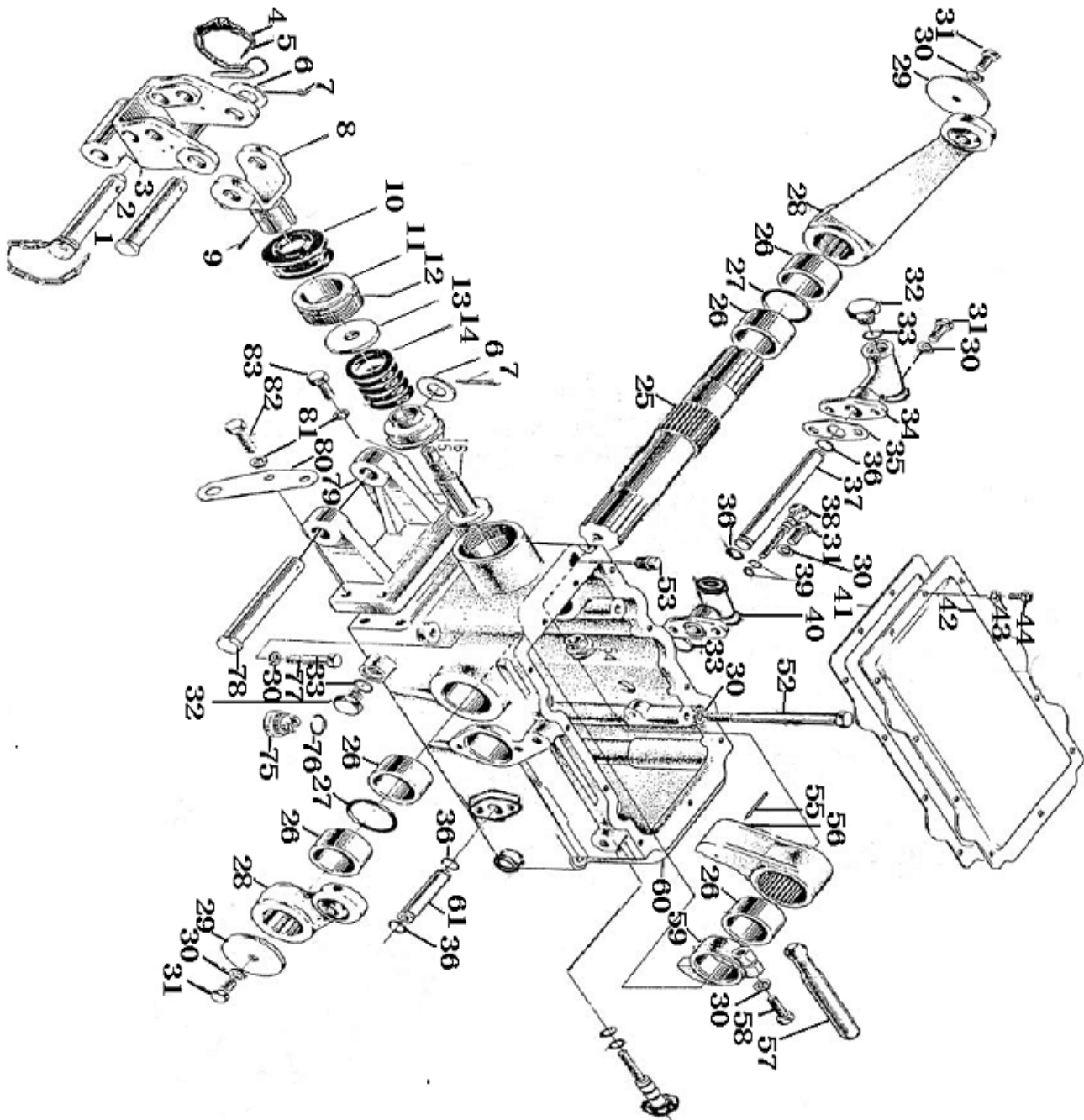
## 22. TRANSFER CASE ASSY

| No. | Code        | Name                        | 350 QTY |
|-----|-------------|-----------------------------|---------|
| 1   | GB876.1-86  | Snap ring 25                | 2       |
| 2   | 254.42.102  | Thrust bush                 | 2       |
| 3   | 254.42.103  | Rubber cover                | 2       |
| 4   | 254.42.101  | Ball connection sleeve      | 2       |
| 5   | 304.42.107  | Transmission shaft          | 1       |
| 6   | 254.42.105  | Washer                      | 1       |
| 7   | 254.42.104  | Spring                      | 1       |
| 8   | GB308-89    | Steel ball $\phi 8(11/32")$ | 12(1)   |
| 9   | GB1235-76   | O-ring 55 X 3.1             | 1       |
| 10  | 254.42.109  | Front cover                 | 1       |
| 11  | 254.42.110  | Gasket, front cover         | 1       |
| 12  | GB9877.1-88 | Oil seal PD 30 X 45 X 10    | 2       |
| 13  | GB276-89    | Bearing 106                 | 2       |
| 14  | 254.42.108  | Transfer case PTO shaft     | 1       |
| 15  | 254.42.129  | Transfer case body          | 1       |
| 16  | 254.42.116  | Gasket, transfer case       | 1       |
| 17  | 304.42.112  | Sliding gear                | 1       |
| 18  | GB6170-86   | Nut M8                      | 2       |
| 19  | GB5781-86   | Screw M8 X 25               | 1       |
| 20  | GB119-86    | Pin D8 X 16                 | 2       |
| 21  | 254.42.111  | Intermediate gear shaft     | 1       |
| 22  | 254.42.113  | Snap ring                   | 2       |
| 23  | GB309-84    | Needle 3 X 24               | 58      |
| 24  | 254.42.115  | Needle snap ring            | 1       |
| 25  | 304.42.114  | Intermediate gear           | 1       |
| 26  | 25.37.139   | Shift block PTO             | 1       |
| 27  | 254.42.119  | Release fork shaft          | 1       |

## 22. TRANSFER CASE ASSY

| No. | Code          | Name                         | 350 QTY |
|-----|---------------|------------------------------|---------|
| 28  | GB1235-76     | O-ring 20 X 2.4              | 2       |
| 29  | 254.42.117    | Gasket, real cover           | 1       |
| 30  | 254.42.118    | Real cover                   | 1       |
| 31  | GB97-87       | Washer 8                     | 8       |
| 32  | GB5781-86     | Bolt M8 X 25                 | 6       |
| 33  | 254.42.123    | Control lever support shaft  | 1       |
| 34  | 254.42.014    | Control lever assy           | 1       |
| 35  | GB894.1-86    | Snap ring 16                 | 1       |
| 36  | GB97.1-85     | Washer 8                     | 2       |
| 37  | GB91-86       | Cotter pin 2.5 X 20          | 2       |
| 38  | 254.42.121    | Pull rod                     | 1       |
| 39  | 254.42.122    | Adjusting fork pull rod      | 1       |
| 40  | GB882-86      | Pin B8 X 30                  | 1       |
| 41  | GB67-85       | Screw M8 X 14                | 2       |
| 42  | 25.37.163     | Retaining plate, release rod | 1       |
| 43  | 254.42.130    | Bush                         | 1       |
| 44  | ZBT32001.5-87 | Plug II – Z 1/2"             | 1       |
| 45  | 254.42.133    | Pressure block               | 1       |
| 46  | 25.37.220     | Washer                       | 1       |
| 47  | GB879-86      | Pin 5 X 25                   | 2       |
| 48  | 25.55.228     | Retaining spring, lock shaft | 1       |
| 49  | 25.37.186     | Rocker release fork          | 1       |
| 50  | 254.42.120    | Release arm                  | 1       |
| 51  | GB93-87       | Washer 10                    | 4       |
| 52  | GB5781-86     | Bolt M10 X 40                | 4       |
| 53  | 254.42.015    | Rear sleeve welding assy     | 1       |
| 54  | 25.55.162     | Dustproof cover              | 1       |
| 55  | 304.42.011    | Front sleeve welding assy    | 1       |

## 23. HYDRAULIC POWER LIFT



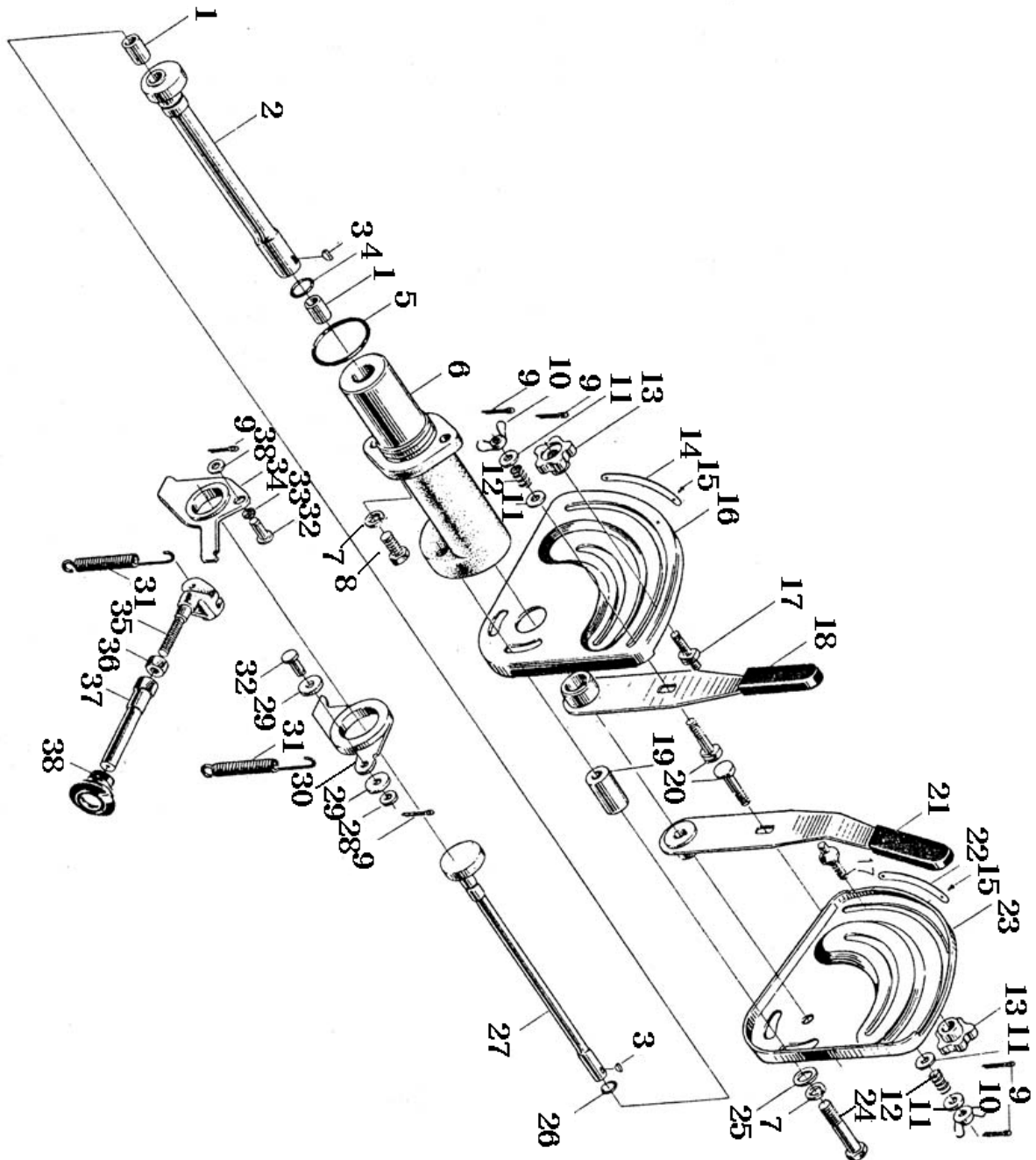
## 23. HYDRAULIC POWER LIFT

| No. | Code        | Name                                 | 350 QTY |
|-----|-------------|--------------------------------------|---------|
| 1   | 25.55.019   | Chain assy upper link front link pin | 1       |
| 2   | 25.55.126   | Upper link pin, rocker arm           | 1       |
| 3   | 25.55.127   | Upper hitch point rocker arm         | 1       |
| 4   | 25.56.028   | Chain & lock pin assy                | 1       |
| 5   | GB91-86     | Cotter pin 3 X 25                    | 1       |
| 6   | GB95-85     | Washer 20                            | 2       |
| 7   | GB91-86     | Cotter 5 X 35                        | 2       |
| 8   | 25.55.163   | Upper link connector                 | 1       |
| 9   | GB119-86    | Pin B3 X 40                          | 1       |
| 10  | 25.55.162   | Cover, dust                          | 1       |
| 11  | 25.55.161   | Nut                                  | 1       |
| 12  | GB119-86    | Pin C4 X 14                          | 1       |
| 13  | 25.55.160   | Disk, pressure spring seat           | 1       |
| 14  | 25.55.157   | Spring, draft control                | 1       |
| 15  | 25.55.159   | Spring seat                          | 1       |
| 16  | 25.55.158   | Spring rod                           | 1       |
| 17  | 30B.55.102  | Lift shaft                           | 1       |
| 18  | 30B.55.105  | Lift shaft bush                      | 5       |
| 19  | 25.55.106   | O-ring 52 X 5.7                      | 2       |
| 20  | 30B.55.016  | Lift arm assy                        | 2       |
| 21  | 25.55.014   | Pressure plate, lift arm             | 2       |
| 22  | GB93-87     | Washer 10                            | 19      |
| 23  | GB5781-86   | Bolt M10 X 20                        | 6       |
| 24  | 25.55.109   | Hex, threaded plug                   | 2       |
| 25  | GB1235-76   | O-ring 22 X 2.4                      | 11      |
| 26  | 350.54.022H | Joint, hydraulic PTO I               | 1       |
| 27  | 25.55.249   | Paper gasket, hydraulic PTO joint    | 1       |

## 23. HYDRAULIC POWER LIFT

| No. | Code        | Name                                  | 350 QTY |
|-----|-------------|---------------------------------------|---------|
| 28  | GB1235-76   | O-ring 16 X 2.4                       | 4       |
| 29  | 25.55.115   | Pipe, hydraulic PTO                   | 1       |
| 30  | 25.55.111   | Adjusting rod, shut-off valve         | 1       |
| 31  | GB1235-76   | O-ring 13 X 1.9                       | 2       |
| 32  | 350.54.023H | Joint, hydraulic PTO II               | 1       |
| 33  | 30B.55.225  | Paper gasket, lift cover              | 1       |
| 34  | 30B.55.042  | Lift cover assy                       | 1       |
| 35  | GB93-87     | Washer 8                              | 11      |
| 36  | GB5780-86   | Bolt M 8X 16                          | 11      |
| 37  | GB5780-86   | Bolt M10 X 180                        | 4       |
| 38  | 25.55.041   | Filter cover dipstick assy            | 1       |
| 39  | 25.55.146   | Seal bush seat                        | 1       |
| 40  | GB119-86    | Pin D5 X 45.                          | 1       |
| 41  | 30B.55.153  | Inner lift arm                        | 1       |
| 42  | 30B.55.154  | Piston arm rod                        | 1       |
| 43  | GB5780-86   | Bolt B M10 X 30                       | 1       |
| 44  | 25.55.107   | Position control cam                  | 1       |
| 45  | 30B.55.116  | Hydraulic power lift housing          | 1       |
| 46  | 25.55.116   | Inlet pipe                            | 1       |
| 47  | 25.55.110   | Spring hook                           | 1       |
| 48  | GB1235-76   | O-ring 24 X 2.4                       | 1       |
| 49  | GB5780-86   | Bolt M10 X 100                        | 4       |
| 50  | 25.55.128   | Link pin, rocker arm                  | 1       |
| 51  | 25.55.125   | Bracket, upper hitch point rocker arm | 1       |
| 52  | 25.55.248   | Fixing plate, joint                   | 1       |
| 53  | GB93-87     | Washer 12                             | 4       |
| 54  | GB5780-86   | Bolt M12 X 35                         | 1       |
| 55  | GB5780-86   | Bolt M12 X 35                         | 2       |

## 24. POWER LIFT CONTROL MECHANISM



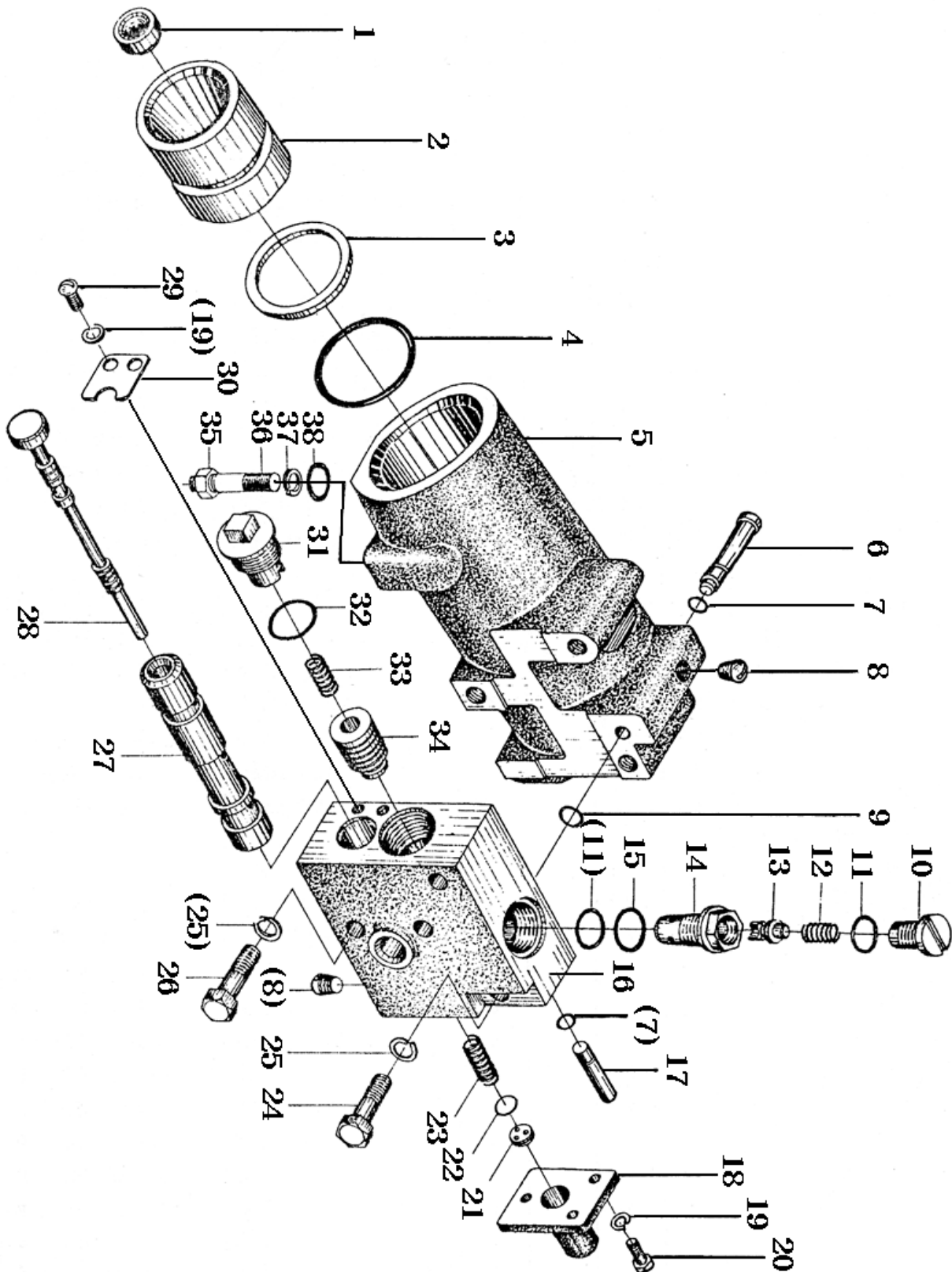
## 24. POWER LIFT CONTROL MECHANISM

| No. | Code      | Name                                      | 350 QTY |
|-----|-----------|-------------------------------------------|---------|
| 1   | 25.55.198 | Bush, handle shaft                        | 2       |
| 2   | 25.55.038 | Position control eccentric cam assy       | 1       |
| 3   | GB1099-79 | Woodruff key 4 X 13                       | 2       |
| 4   | GB1235-76 | O-ring 20 X 2.4                           | 1       |
| 5   | GB1235-76 | O-ring 48 X 3.5                           | 1       |
| 6   | 25.55.136 | Sector plate support                      | 1       |
| 7   | GB93-87   | Washer 10                                 | 4       |
| 8   | GB5780-86 | Bolt M10 X 20                             | 2       |
| 9   | GB91-86   | Cotter pin 2 X 10                         | 6       |
| 10  | GB62-86   | Nut M6                                    | 2       |
| 11  | GB96-85   | Washer 6                                  | 4       |
| 12  | 25.55.131 | Pressure spring, lever                    | 2       |
| 13  | 25.55.141 | Dowel hand wheel                          | 2       |
| 14  | 25.55.196 | Guide plate, position control             | 1       |
| 15  | GB867-86  | Rivet 2 X 6                               | 4       |
| 16  | 25.55.195 | Sector plate, position control            | 1       |
| 17  | 25.55.140 | Dowel pin                                 | 2       |
| 18  | 25.55.025 | Position control lever assy               | 1       |
| 19  | 25.55.137 | Sleeve, sector plate                      | 2       |
| 20  | 25.55.132 | Pressure screw, lever                     | 2       |
| 21  | 25.55.024 | Draft control lever assy                  | 1       |
| 22  | 25.55.194 | Guide plate, draft control                | 1       |
| 23  | 25.55.193 | Draft control sector plate                | 1       |
| 24  | GB5780-86 | Bolt M10 X 35                             | 2       |
| 25  | GB97.1-84 | Washer 10                                 | 2       |
| 26  | GB1235-76 | O-ring 10 X 1.9                           | 1       |
| 27  | 25.55.029 | Welding assy, draft control eccentric cam | 1       |

## 24. POWER LIFT CONTROL MECHANISM

| No. | Code      | Name                              | 350 QTY |
|-----|-----------|-----------------------------------|---------|
| 28  | GB97.1-85 | Washer 6                          | 2       |
| 29  | 25.55.144 | Roller                            | 2       |
| 30  | 25.55.030 | Position control lever assy       | 1       |
| 31  | 25.55.118 | Pull spring                       | 2       |
| 32  | 25.55.143 | Pin                               | 2       |
| 33  | 25.55.221 | Bush, draft control lever         | 1       |
| 34  | 25.55.031 | Draft control lever assy          | 1       |
| 35  | 25.55.150 | Link arm                          | 1       |
| 36  | GB6170-86 | Nut M10                           | 1       |
| 37  | 25.55.152 | Draft control push rod            | 1       |
| 38  | 25.55.145 | Seal bush, draft control push rod | 1       |

## 25. CYLINDER-DISTRIBUTOR ASSY



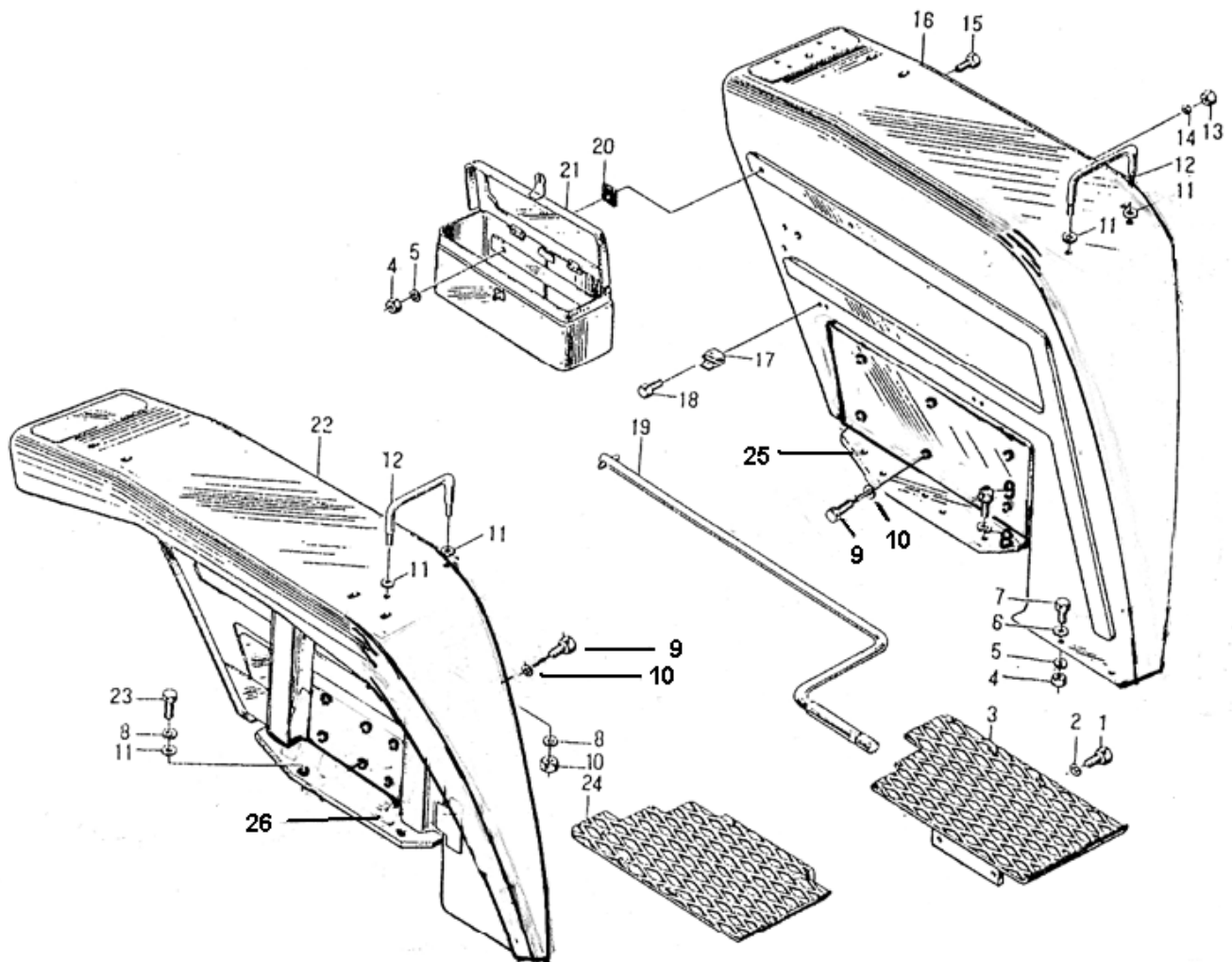
## 25. CYLINDER-DISTRIBUTOR ASSY

| No. | Code          | Name                       | 350 QTY |
|-----|---------------|----------------------------|---------|
| 1   | 30B.55.207    | Ball seat, piston          | 1       |
| 2   | 30B.55.206    | Piston                     | 1       |
| 3   | GB1235-76     | Snap ring A70 X 2          | 1       |
| 4   | GB1235-76     | O-ring 70 X 5.7            | 1       |
| 5   | 30B.55.168    | Cylinder                   | 1       |
| 6   | 250.55.188    | Shutoff valve              | 1       |
| 7   | GB1235-76     | O-ring 10 X 1.9            | 2       |
| 8   | ZBT32001.5-87 | Plug IV – Z 1/8            | 2       |
| 9   | GB1235-76     | O-ring 13 X 1.9            | 1       |
| 10  | 250.55.177    | Plug                       | 1       |
| 11  | GB1235-76     | O-ring 20 X 2.4            | 2       |
| 12  | 250.55.171    | Spring, check valve        | 1       |
| 13  | GB1235-76     | Check valve                | 1       |
| 14  | 250.55.182    | Check valve seat           | 1       |
| 15  | 250.55.170    | O-ring 26 X 2.4            | 1       |
| 16  | 250.55.216    | Distributor housing        | 1       |
| 17  | 250.55.187    | Adjusting valve speed      | 1       |
| 18  | 25.55.183     | Cover, valve               | 1       |
| 19  | GB93-87       | Washer 6                   | 5       |
| 20  | GB5780-86     | Bolt M6 X 15               | 3       |
| 21  | 25.55.035     | Steel ball                 | 1       |
| 22  | 25.55.179     | Gasket                     | 1       |
| 23  | 25.55.181     | Spring, main control valve | 1       |
| 24  | GB5780-86     | Bolt M8 X 50               | 1       |
| 25  | GB93-87       | Washer 8                   | 3       |
| 26  | GB5780-86     | Bolt M8 X 60               | 2       |
| 27  | 250.22.217    | Bush, main control valve   | 1       |
| 28  | 250.55.172    | Main control valve         | 1       |

## 25. CYLINDER-DISTRIBUTOR ASSY

| No. | Code       | Name                     | 350 QTY |
|-----|------------|--------------------------|---------|
| 29  | GB67-76    | Half-round screw M6 X 10 | 2       |
| 30  | 25.55.180  | Limiting plate           | 1       |
| 31  | 250.55.176 | Rear plug, return valve  | 1       |
| 32  | 250.55.178 | O-ring 28 X 2.4          | 1       |
| 33  | 250.55.184 | Spring, return valve     | 1       |
| 34  | 250.55.173 | Return valve             | 1       |
| 35  | GB52-76    | Nut M 14 X 1.5           | 4       |
| 36  | GB898-76   | Stud AM 14 X 1.5         | 4       |
| 37  | GB93-76    | Washer 14                | 4       |
| 38  | GB1235-76  | O-ring 26 X 2.4          | 4       |

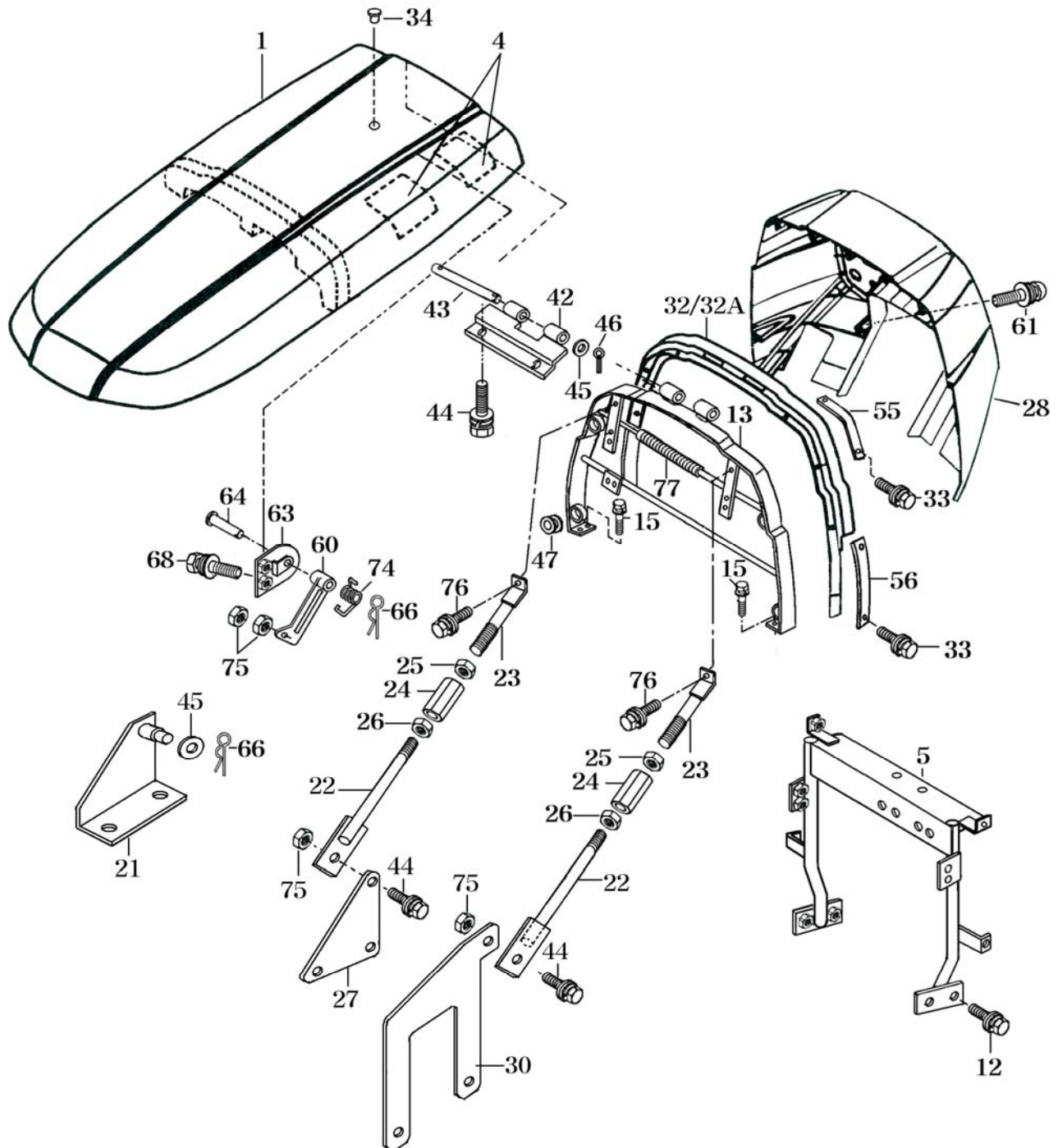
## 26. FENDER, FLOOR BOARD & TOOL BOX



## 26. FENDER, FLOOR BOARD & TOOL BOX

| No. | Code         | Name                                | 350 QTY |
|-----|--------------|-------------------------------------|---------|
| 1   | GB5781-86    | Bolt M10 X 25                       | 4       |
| 2   | GB93-87      | Washer 10                           | 1       |
| 3   | 254.47.043-1 | Pedal assy, L.H                     | 1       |
| 4   | GB6170-86    | Bolt M8                             | 6       |
| 5   | GB93-87      | Washer 8                            | 6       |
| 6   | GB97.1-86    | Washer 8                            | 4       |
| 7   | GB5781-86    | Bolt M8 X 20                        | 4       |
| 8   | GB93-87      | Washer 12                           | 12      |
| 9   | GB5781-86    | Bolt M12 X 25                       | 18      |
| 10  | GB6170-86    | Bolt 12                             | 4       |
| 11  | GB97.1-86    | Washer 12                           | 18      |
| 12  | 25.47.194    | Handle                              | 2       |
| 13  | GB6170-86    | Bolt M6                             | 6       |
| 14  | GB93-87      | Washer 6                            | 6       |
| 15  | GB5781-8616  | Bolt M8 X 25                        | 2       |
| 16  | 25.47.021-3  | Left fender assy                    | 2       |
| 17  | 25.47.165    | Catch, starter handle               | 1       |
| 18  | GB5781-86    | Bolt M6 X 16                        | 3       |
| 19  | 25.49.021-1  | Starter handle assy                 | 6       |
| 20  | 25.50.103    | Rubber washer                       | 1       |
| 21  | 25.49.011    | Toolbox assy                        | 2       |
| 22  | 25.47.022-3  | Right fender assy                   | 1       |
| 23  | GB5781-86    | Bolt M12 X 30                       | 1       |
| 24  | 25.47.042-1  | Pedal assy, R.H.                    | 2       |
| 25  | 25.47.023-A  | Left fender support welding assy 1  | 1       |
| 26  | 25.47.024-A  | Right fender support welding assy 1 | 1       |

## 27. BONNET (1)



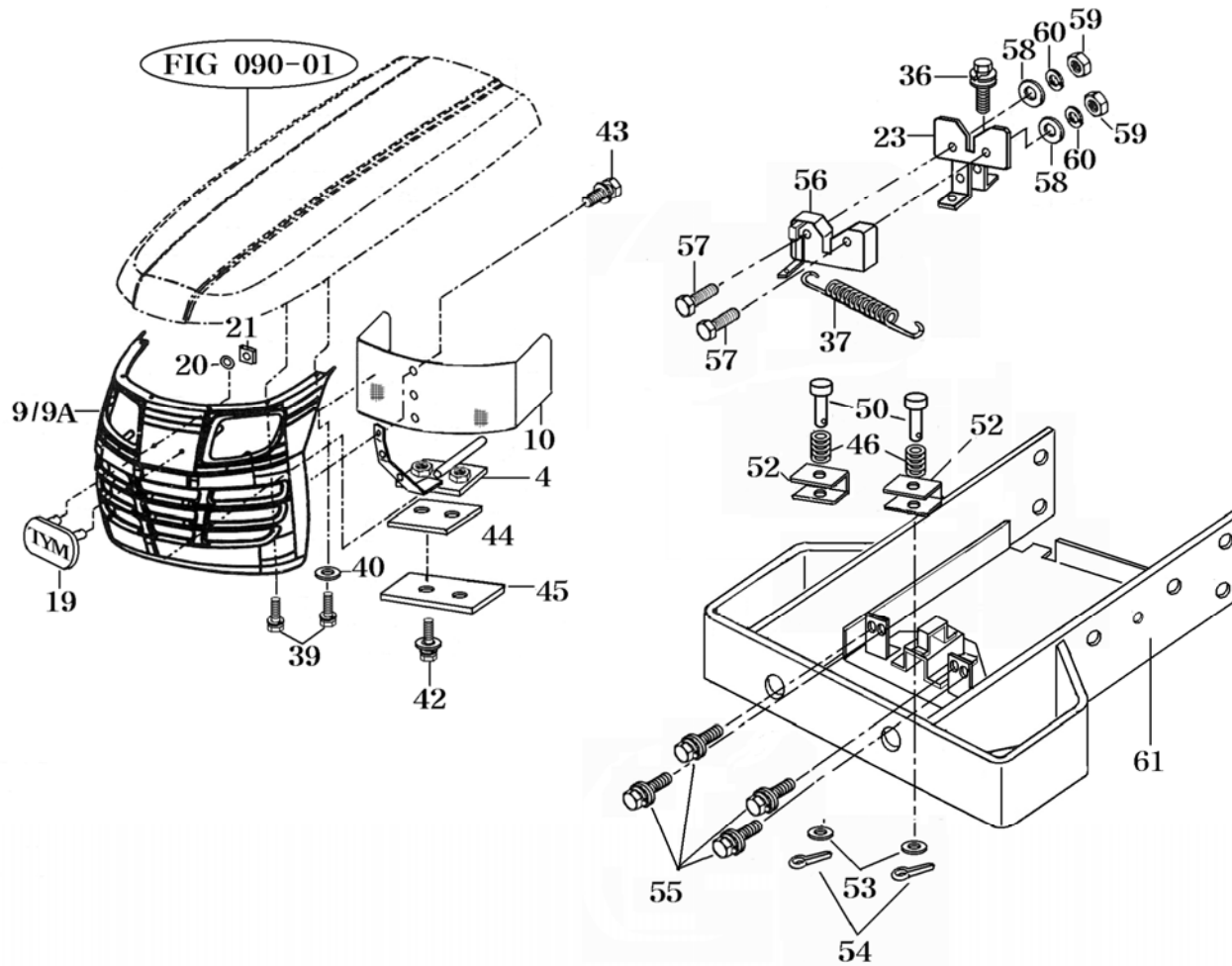
## 27. BONNET (1)

| No. | Code         | Name                            | 350 QTY |
|-----|--------------|---------------------------------|---------|
| 1   | 16506201002D | Hood comp                       | 1       |
| 4   | 16506010140  | Sponge                          | 2       |
| 5   | 12706011000D | Frame comp, FR HOOD             | 1       |
| 12  | V2183608035  | Bolt, HEX/SP M8 X 35            | 4       |
| 13  | 16506022006D | Frame comp, hood                | 1       |
| 15  | V2173608025  | Bolt, HEX/S M8 X 25             | 4       |
| 21  | TYM3547011   | Supporting rack welding assy    | 1       |
| 30  | TYM3547015   | Supporting rod welding assy, LH | 2       |
| 27  | TYM3547014   | Supporting rod welding assy, RH | 2       |
| 24  | 36401090020  | Adjuster                        | 2       |
| 25  | V3042600100  | Nut, HEX/2 M10                  | 2       |
| 26  | 36252120070  | Nut, L M10                      | 2       |
| 22  | TYM3547118   | Supporting rack I               | 1       |
| 28  | TYM3547      | Cover, dash                     | 1       |
| 22  | TYM3547119   | Supporting rack II              | 1       |
| 32  | 12706301040  | Insulator                       | 1       |
| 32A | 16506301042  | Insulator                       | 1       |
| 33  | V2103606016  | Bolt, HEX/P M6 X 16             | 8       |
| 34  | 15606060100  | Cap, 11                         | 1       |
| 42  | 16506054500D | Bracket comp, hood              | 1       |
| 43  | 16506024550  | Pin                             | 1       |
| 44  | V2183608020  | Bolt, HEX/SP M8 X 20            | 4       |
| 45  | 16991600080  | Washer, Hood frame              | 3       |
| 46  | V5001925020  | Pin, split 2.5 X 20             | 2       |
| 47  | 16996015511  | Roller, guard                   | 4       |
| 55  | 16506010350D | Plate, A                        | 2       |
| 56  | 16506010360D | Plate, B                        | 2       |

## 27. BONNET (1)

| No. | Code        | Name                  | 350 QTY |
|-----|-------------|-----------------------|---------|
| 60  | 16506014201 | Guide comp, hood lock | 1       |
| 63  | 16506014401 | Plate comp, hood lock | 1       |
| 64  | 16506014501 | Pin, hood lock        | 1       |
| 66  | 39081700200 | Pin, SNAP/8           | 1       |
| 68  | V2183608025 | Bolt, HEX/SP M8 X 25  | 2       |
| 74  | 14601162230 | Spring                | 1       |
| 75  | V3003600100 | Nut, HEX/1 M10        | 4       |
| 76  | V2183608020 | Bolt, HEX/SP M8 X 20  | 2       |
| 77  | 16501020070 | Tube, corrugate 210   | 1       |
| 77  | 16501020070 | Tube, corrugate 210   | 1       |

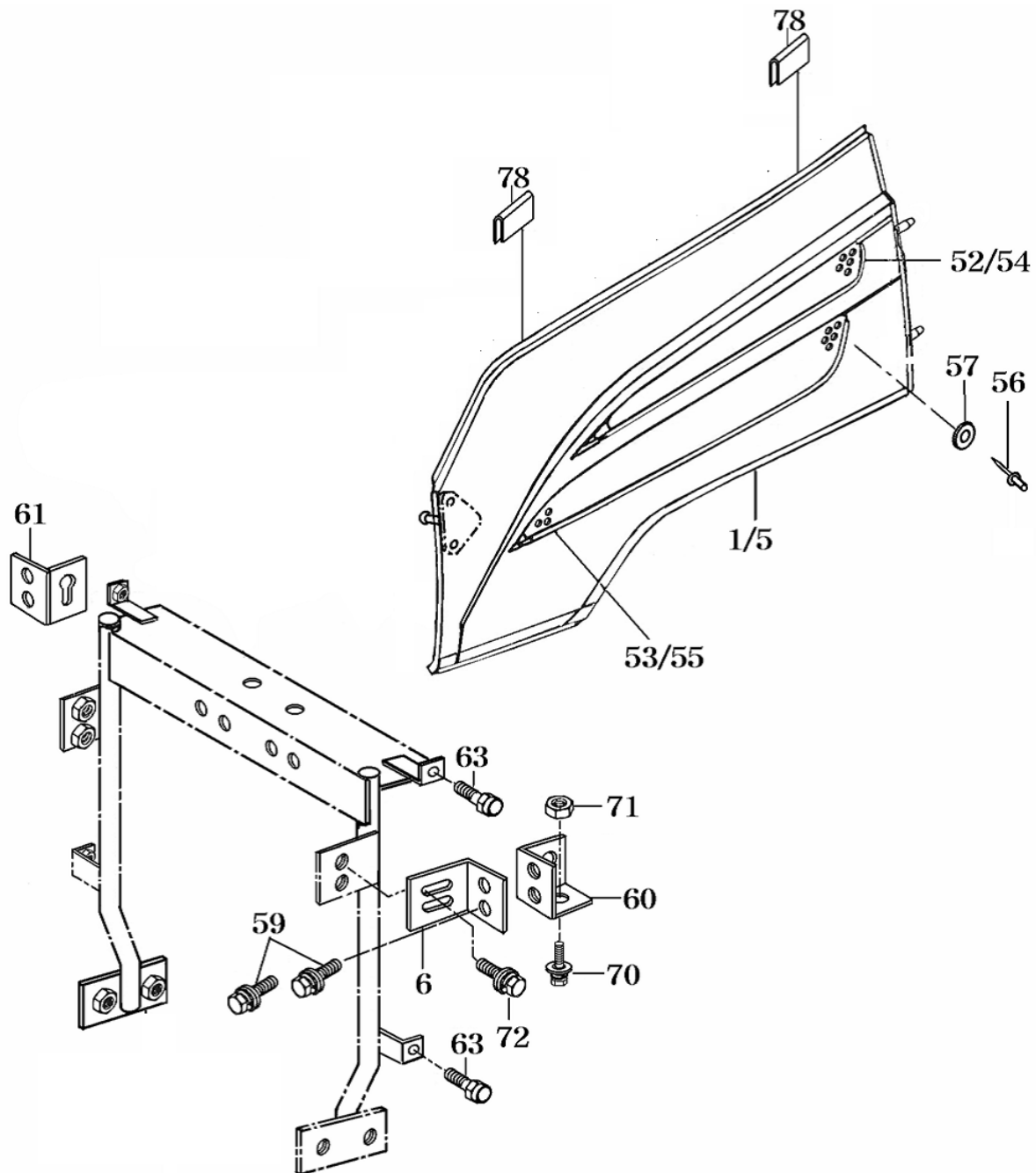
## 28. BONNET (2)



## 28. BONNET (2)

| No. | Code         | Name                               | 350 QTY |
|-----|--------------|------------------------------------|---------|
| 4   | 13206013201D | Pin comp                           | 1       |
| 9   | 12756012010D | Grille                             | 1       |
| 9A  | 16406012010D | Grill                              | 1       |
| 10  | 16506010010D | Net                                | 1       |
| 19  | 16506010260  | Label                              | 1       |
| 20  | 14446010150  | Washer, net                        | 8       |
| 21  | V3501100060  | Nut, push-on spring M6             | 8       |
| 23  | 13206014200D | Stay comp, plate                   | 1       |
| 36  | V2183608025  | Bolt, HEX/SP M8 X 25               | 2       |
| 37  | 14143120020  | Spring, tension 53                 | 1       |
| 39  | V2193606016  | Bolt, HEX/SPL M6 X 16              | 6       |
| 40  | 35065033020  | Washer, wire <b>withdrawer</b>     | 4       |
| 42  | V2183608030  | Bolt, HEX/SP M8 X 30               | 2       |
| 43  | V2123606012D | Bolt, HEX/SP M6 X 12               | 3       |
| 44  | 16506011950D | Plate                              | 1       |
| 45  | 16506010023  | Plate                              | 1       |
| 46  | 16506010031  | Spring                             | 2       |
| 50  | 16506020050  | Pin                                | 2       |
| 52  | 16506014700D | Plate comp                         | 2       |
| 53  | V4111600080  | Washer, plain M8                   | 2       |
| 54  | V5001925020  | Pin, split 2.5 X 20                | 2       |
| 55  | V2183608025  | Bolt, HEX/SP M8 X 25               | 4       |
| 56  | 13206014800  | Lock comp, hood                    | 1       |
| 57  | V2053606035  | Bolt, HEX C/R M6 X 35              | 2       |
| 58  | V4111600060  | Washer, plain M6                   | 2       |
| 59  | V3002600060  | Nut, HEX/1 M6                      | 2       |
| 60  | V4011600060  | Washer, spring M6                  | 2       |
| 61  | TYM3548021   | Battery frame support welding assy | 1       |

## 29. SIDE COVER



## 29. SIDE COVER

| No. | Code         | Name                  | 350 QTY |
|-----|--------------|-----------------------|---------|
| 1   | 16506202102D | Cover comp, LH SIDE   | 1       |
| 5   | 16506203102D | Cover comp, RH SIDE   | 1       |
| 6   | 16506010080D | Plate, adjuster       | 2       |
| 52  | 16506202030D | Net, upper LH side    | 1       |
| 53  | 16506202040D | Net, low LH side      | 1       |
| 54  | 16506203030D | Net, upper RH side    | 1       |
| 55  | 16506203040D | Net, low RH side      | 1       |
| 56  | V5502040093  | Rivet, blind 4 X 9.3  | 32      |
| 57  | V4111600040  | Washer, plain 4       | 32      |
| 59  | V2193606016  | Bolt HEX/SPL M6 X 16  | 4       |
| 60  | 16506013500D | Plate comp, LH        | 1       |
| 61  | 16506013600D | Plate comp, RH        | 1       |
| 63  | 16506200070  | Bolt, adjuster        | 4       |
| 70  | V2053606035  | Bolt, HEX C/R M6 X 35 | 2       |
| 71  | V3002600060  | Nut, HEX/1 M6         | 2       |
| 72  | V2183608020  | Bolt, HEX/SP M6 x 20  | 4       |
| 78  | 16506040431  | Insulator             | 4       |

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Printed on June. 2006

**2<sup>nd</sup>** EDITION