



Illustrated Parts Manual

**Model
644**

HIGHLANDER

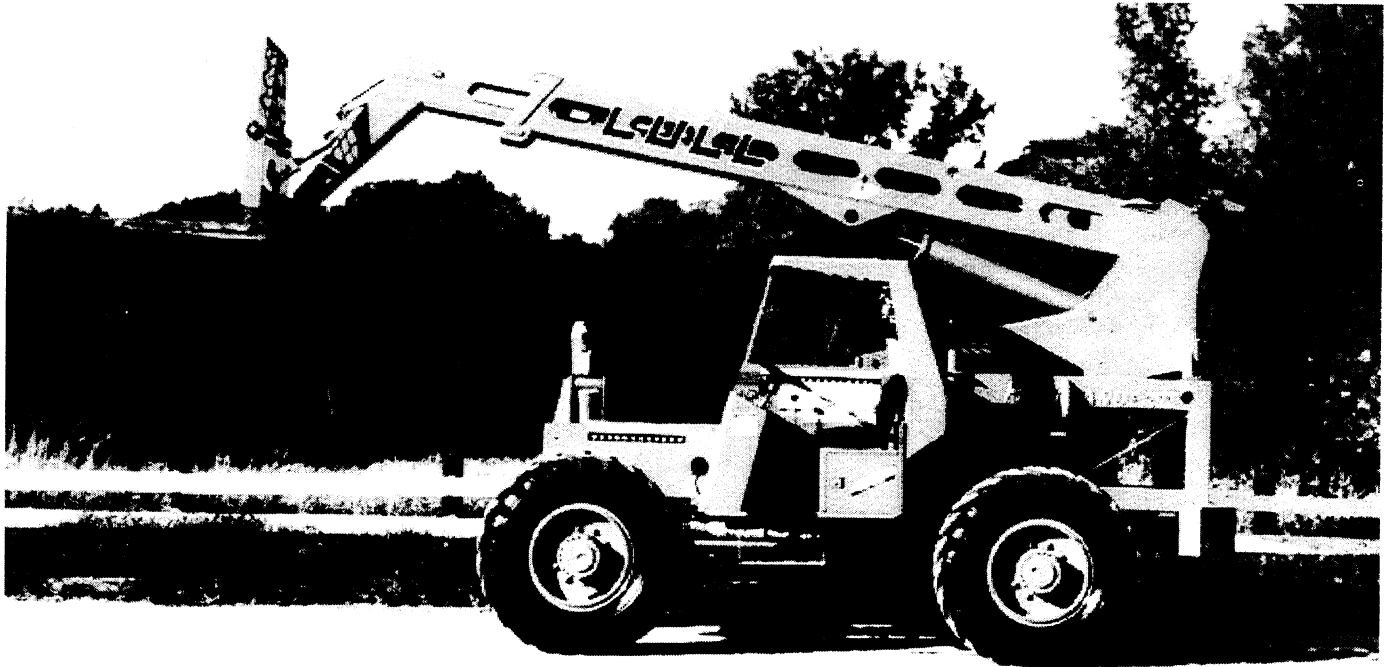
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August 1994

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JLG®

GENERAL INFORMATION



You have purchased one of the finest rough terrain forklifts available on the market today. To ensure that your forklift will provide years of safe dependable service, the manufacturer strongly recommends that all persons operating or servicing this machine be trained and authorized to a level appropriate for their area of responsibility. The manufacturer also depends on all persons operating or servicing this machine to read, fully understand and follow all safety, operational and maintenance related instructions applicable to their area of responsibility.

LULL® INDUSTRIES has made every effort to provide information as complete and accurate as possible for its forklifts. However, because of owner requirements, equipment and control variations may exist between machines. In addition, due to **LULL®** INDUSTRIES' policy of continually striving to improve its products, occasional discrepancies may exist between machines and the descriptions and information contained herein.

This parts book provides detailed information on the acquisition of service/replacement parts necessary to keep your rough terrain forklift in good working order. Should, however a defect or failure occur to the machine during the warranty period immediately contact your local authorized **LULL®** INDUSTRIES dealer. The information contained in this parts book is provided to assist owners, operators and service personnel in the proper upkeep and maintenance of **LULL®** INDUSTRIES rough terrain forklifts. For detailed descriptions of major components see your machines Service and Maintenance manual.

This Manual is published for informational purposes only and the information so provided should not be considered as all inclusive or covering all contingencies. If further information is required, consult your authorized **JLG Industries, Inc.** dealer or contact the **JLG Industries, Inc.** Technical Publications Department

GENERAL INFORMATION

ORDERING PARTS

See Inside back cover for details.

- Section 5 — “Lower Hydraulics”
- Section 6 — “Brakes”
- Section 7 — “Electrical”
- Section 8 — “Decals And Accessories”
- Section 9 — “Fork Carriage (s)”
- Numerical Index

Please read and thoroughly understand the following functional descriptions. Knowing how to properly use this document will help ensure proper service/replacement part identification.

INDEX OF ABBREVIATIONS

The “Index of Abbreviations” is a listing of abbreviations commonly used in this catalogue. You will find the complete word and/or a description for the abbreviation immediately to the right of the abbreviation.

MASTER TABLE OF CONTENTS

The Master “Table of Contents” is located at the front of the parts book and displays the section and page number location of major components within the parts book.

SECTION TABLE OF CONTENTS

The Section “Table of Contents” is located at the front of each section and displays the page number location of major components within each individual section of the parts book.

SECTION INDEX

The Section “Index” lists major components as well items with the most frequent replacement histories.

NUMERICAL INDEX

The “Numerical Index” displays parts contained in the parts book by part number, in numerical order, and their corresponding section and page number locations.

VEHICLE IDENTIFICATION

The serial number plate is mounted to the operators platform rear wall, behind the operators seat. The Serial number is a ten (10) digit alpha-numeric number that identifies a specific machines type, date of production and design configuration. The last four (4) digits of the serial number identify the individual machine.

WARRANTY REGISTRATION

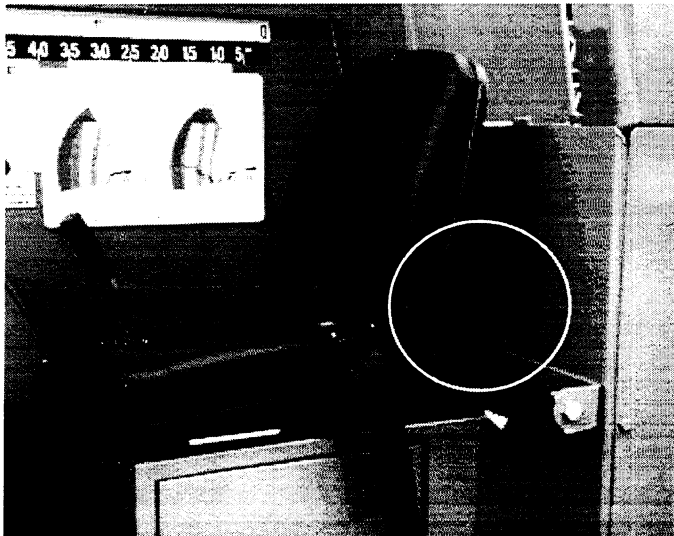
The **LULL®** INDUSTRIES warranty is a separate document provided to the customer upon receipt of the machine. Proper registration is an important warranty requirement. The Pre-Delivery Inspection Form must be signed by the customer when the machine is delivered. The Warranty Registration card must be filled out by the dealer and returned to the **LULL®** INDUSTRIES “Warranty Administrator” indicating the date the machine went into service.

HOW TO USE THIS PARTS BOOK

This Parts Book is divided into the following sections:

- General Information, including Index of Abbreviations
- Master Table of Contents
- Illustrated Parts Breakdown
 - Section 1 — “Drive Train”
 - Section 2 — “Frame And Platform”
 - Section 3 — “Boom And Transfer”
 - Section 4 — “Upper Hydraulics”

GENERAL INFORMATION



SERIAL NUMBER LOCATION

The machine serial number must match the serial number referenced in the serial number column of the parts listing. Machines with identical model numbers that are similar in design, may still have differences in service component parts due to design modifications, product improvement, component obsolescence, etc. To properly identify service parts for your machine, the machine model number and serial number must be determined prior to researching service/replacement parts in this parts book.

ILLUSTRATED PARTS BREAKDOWN

SECTION TITLE

The "Section Title" appears at the upper outside corner of each page and is used as a quick reference point for determining specific section location when skimming through the document.

GROUP TITLE

The "Group Title" appears at the lower outside corner of each page and is used as a quick reference point for determining specific "Parts Group" location when skimming through the document.

NOTE: The "Parts Group" title must match that of the corresponding Illustration to ensure proper service/replacement part identification.

PARTS GROUP TITLE

The "Parts Group Number" identifies individual "Parts Groups" and is used to tie "Parts Group" to their corresponding illustration.

NOTE: The "Parts Group Number" must match that of the corresponding Illustration to ensure proper service/replacement part identification.

GROUP NO.

The identifying number for the specific parts group and its corresponding illustration.

PAGE NUMBER

Each section is numbered in sequence beginning with the first group in the section and continuing through the last group within section.

NOTE: Page numbers for specific "Parts Groups" may be quickly obtained by using either the Section's Table of Contents or Index located at the front of each section.

DATE

The release date, or last revision, of a specific parts group and corresponding illustration.

ITEM NUMBER

The "ITEM" Number is used to identify and locate specific individual parts or assemblies within a "Parts Group's" corresponding Illustration.

PART NO.

The **LULL®** INDUSTRIES part number for the part.

SEE PAGE REFERENCE

Some parts listings contain "See Page" references for assemblies and sub-assemblies that are broken down in separate "Parts Groups". In these instances the "PART NO." field will contain the "See Page" reference and the page number that contains the "Parts Group" for that component.

DESCRIPTION

The description of the part listed. Additional part description information can be found in the "REMARKS" column.

GENERAL INFORMATION

QTY. (QUANTITY)

The quantity of a part within the next highest vehicle assembly or "Parts Group". Complete component assemblies, for such items as valves and drive train components, will not list a quantity in the parts group breakdown for that component. In these instances, the quantity will appear in the parts list for the component's next highest assembly or "Parts Group".

SERIAL NUMBER

The serial number reference displays the last four (4) digits of the serial number range for a given part or assembly. When more than one (1) serial number break is present for a specific part or assembly, the most current part is displayed first with all previous serial number breaks appearing below in chronological order.

| Description | Group Number | Section Title |
|--|------------------|---|
| ELECTRICAL | | |
| Item No. 18364 (1 of 2) | | |
| ITEM PART NO. | DESCRIPTION | QTY SERIAL NO. REMARKS |
| 1 | P21553 | Wire Harness 1 Upper |
| 1A | 26153B | Wires 1 Gauges - Power |
| 2 | P21550 | Wire Harness 1 Lower |
| 3 | P19102 | Wire Harness 1 Backup Alarm |
| 4 | P19101 | Wires 1 Horn (3 Wires) |
| 5 | P19284 | Wires 1 Gauges - Ground |
| 6 | 25917A | Indicator Light, Oil 1 |
| 7 | P20970 | Indicator Light, Fan Belt 1 |
| 8 | P20408 | Horn, Oil Light 1 |
| 9 | P20986 | Connector, FIC - Pipe 2 |
| 10 | 17914A | The Junction 1 |
| 11 | 16273A | Mounting Bracket, Fuse 1 |
| NI | P04201 | Bolt, Hx. 2 M12-1.75 x 20mm, Fuse Block Bracket Mounting |
| NI | P04609 | Lockwasher 2 M12, Fuse Block Bracket Mounting |
| 12 | 16357A | Rod, Hold Down 2 |
| 13 | 16344C | Battery Box 1 |
| 14 | 16355B | Battery Box Cover 1 |
| 15 | P18122 | Battery, 6 Volt 2 Gould PN 2T590 or Equiv. |
| 16 | P18122 | Battery Cable 1 Negative to Positive |
| 17 | P18853 | Battery Cable 1 Positive |
| 18 | P19834 | Battery Cable 1 Negative |
| 19 | P19835 | Battery Cable 1 Ground |
| 20 | P23214 | Gauge, Fuel 1 Replaces P18728 |
| 21 | P23216 | Gauge, Oil Pressure 1 Replaces P18730 |
| 22 | P23218 | Gauge, Ammeter 1 Replaces P18732 (N.L.A.) |
| 23 | P23219 | Gauge, Hourmeter 1 Replaces P18733 (N.L.A.) |
| 24 | P23220 | Gauge, Trans. Oil Temp. 1 Replaces P18734 (N.L.A.) |
| 25 | P19472 | Sender, Trans. Oil Temp. 1 |
| 26 | P23215 | Sender, Fuel 1 Replaces P18729 |
| 27 | P23217 | Sender, Oil Pressure 1 Replaces P18731 |
| 28 | P20958 | Switch, Oil Light 1 |
| 29 | P20954 | Switch, Fan Belt Light 1 |
| 30 | P19105 | Switch, Backup 1 |
| 31 | P20812 | Switch, Neutral Start 1 |
| 32 | P11092 | Switch, Ignition 1 Without Cold Start |
| 33 | P24766 | Switch, Ignition 1 With Cold Start |
| 34 | P13774 | Backup Alarm 1 |
| 35 | P13707 | Horn 1 |
| 36 | P13709 | Horn Relay 2 |
| NI | P02057 | Screw, Slotted Rd. Hd. 4 #10-24 x 3/4", Horn Relay Mounting |
| NI | P01306 | Lockwasher 4 #10, Horn Relay Mounting |
| NI | P01504 | Nut, Hx. 4 #10-24, Horn Relay Mounting |
| 37 | P19293 | Fuse, AXC - 30 AMP 4 |
| 37 | P24349 | Fuse Block 2 Replaces P18096 (N.L.A.) |
| 38 | P17553 | Clamp, Harness 3 |
| 39 | P10215 | 45° Elbow, Street 1 |
| 40 | P26926 | Resistor, Heat Indicator 1 |
| | | Switch |
| Electrical Assembly (Deutz/Clark) | | |
| Part No. | Page Number 7-40 | Date June, 1994 |

SERIAL NUMBER IDENTIFICATION

| MONTH | YEAR | MODEL | ENGINE | TRANSMISSION | AXLES | SN |
|--------|--------|------------|--------------------|--|---|-------------------------------------|
| A-JAN | 6-1986 | A-2044 | 1-3208 CAT | A-28000 CLARK SPEC R-28460 | 1-ROCKWELL 1875 FRT 1045 RR | (2044) |
| B-FEB | 7-1987 | B-622 | 2-6V-53 DETROIT | B-18301 CLARK SPEC 289482 | 2-HURTH 174 W/STD RR | (622) |
| C-MAR | 8-1988 | C-622/4 | 3-F4L912 DEUTZ | C-4023 FUNK SPEC 10185 | 3-HURTH 174 W/FLUID DRIVE POWER ASSIST | (622-4) (824) |
| D-APR | 9-1989 | D-824 | 4-4239D DEERE | D-4023 FUNK SPEC 11212 | 4-HURTH 172 W/FLUID DRIVE POWER ASSIST | (522-4) |
| E-MAY | 0-1990 | E-522/4 | 5-4239T DEERE | E-1724 FUNK SPEC 9673 | 5-ROCKWELL H-262 FRT | (1522) |
| F-JUNE | 1-1991 | F-1522 | 6-4236 PERKINS | F-1724M FUNK SPEC 13102 | 6-SPICER PS1350 R30BP121-5 FRT R30BP122-11 RR 22" STEER-LOW PRES. BRKS.-19.31:1 | (644) (844) |
| G-JULY | 2-1992 | G-1044 | 7-4236T PERKINS | G-2263 FUNK SPEC 12768 | 7-CLARK 196385 FRT 196386 RR | (M10K) |
| H-AUG | 3-1993 | H-522 | 8-F4L913T DEUTZ | H-4023 FUNK SPEC 12624 | 8-SPICER 102BP101-1 FRT 102BP101-2 RR | (USDCH) |
| J-SEPT | 4-1994 | J-844B | 9-4236 PERKINS GAS | J-1724 FUNK SPEC 12195 (W/INCHING) | 9-ROCKWELL PSC 1875 FRT PSM 1614 RR | (3044) (2044B) |
| K-OCT | 5-1995 | K-3044 | 10-6.359T DEERE | K-T12366 CLARK SPEC 277218 | 10-HURTH 172 W/STD RR | (522) |
| L-NOV | | L-USDCH | 11-8.2T DETROIT | L-T135L33 CAT SPEC 8E7769 | 11-SPICER PS7036 070BP126-23 FRT 070BP126-17 RR 35" STEER-LOW PRES. BRKS-22.52:1 | (644) |
| M-DEC | | M-MLULL10K | 12-4039D DEERE | M-T135L43 CAT SPEC 104-5102 | 12-SPICER PS1350 (ZF) R30BP121-8 FRT R30BP122-27 RR 27" STEER-LOW PRES BRKS-19.31:1 | (844B) (1044B) |
| | | N-L-522/4 | 13-483.9 CUMMINS | N-3WG-100 ZF SPEC 4651 033 004 | 13-SPICER PS7036 070BP141-6 FRT 070BP141-5 RR 35" STEER-HIGH PRES. BRKS-22.52:1 | (6K w/5C YOKES) (644 w/5C YOKES) |
| | | P-L-622/4 | 14-48T3.9 CUMMINS | P-4WG-100 ZF SPEC 4651 004 017 | 14-SPICER PS1350 (FUNK) R30BP121-4 FRT R30BP122-7 RR 27" STEER-LOW PRES. BRKS-19.31:1 | (1044) (844) (644) |
| | | Q-L-824 | 15-3708T CAI | Q-3WG-100 ZF SPEC 4651 033 004 | | |
| | | R-1044B | 16-4039T DEERE | R-2263R FUNK SPEC Y214686A | | |
| | | S-6K (600) | | | | |
| | | T-2044B | | | | |
| | | U-644 | | | | |

GENERAL INFORMATION

INDEX OF ABBREVIATIONS

A/R > > > > > > > > > > > > As Required
 ACCEL. > > > > > > > > > > > Accelerator
 ACCUM. > > > > > > > > > > Accumulator
 AMP > > > > > > > > > > Ampere
 ASSY > > > > > > > > > > Assembly
 AUX. > > > > > > > > > > Auxiliary
 B/M > > > > > > > > > > Bill of Material
 BKT. > > > > > > > > > > Bracket
 CCA > > > > > Cold Cranking Amperes
 CONT > > > > > > > > > > Continued
 CONT. > > > > > > > > > > Control
 CYL > > > > > > > > > > Cylinder
 D.P.D.T. > > > > > Dual Pole, Dual Throw
 D.P.S.T. > > > > > Dual Throw, Single Pole
 DIA. > > > > > > > > > > Diameter
 DIAG. > > > > > > > > > > Diagram
 DIFF. > > > > > > > > > > Differential
 ELECT. > > > > > > > > > > Electrical
 EQUIP. > > > > > > > > > > Equipment
 EQUIV. > > > > > > > > > > Equivalent
 F > > > > > > > > > > > Front
 FIG. > > > > > > > > > > > Figure
 FRT. > > > > > > > > > > > Front
 FSO > > > > > > Factory Sales Ordering
 FWD > > > > > > > > > > > Forward
 GA. > > > > > > > > > > > Gauge
 GAL. > > > > > > > > > > > Gallon
 GP. > > > > > > > > > > > Group
 GR. > > > > > > > > > > > Grade
 HD. > > > > > > > > > > > Head
 HX. > > > > > > > > > > > Hex
 HYD. > > > > > > > > > > > Hydraulic
 HYDR. > > > > > > > > > > > Hydraulic
 I.D. > > > > > > > > > > > Inner Diameter
 ID. > > > > > > > > > > > Identification
 IGN. > > > > > > > > > > > Ignition

IN. > > > > > > > > > > > > > Inches
 INST. > > > > > > > > > > > > Installation
 INSTAL. > > > > > > > > > > > > Installation
 INTERMED. > > > > > > > > > > > Intermediate
 JIC > > > > > > > Joint Industry Council
 l > > > > > > > > > > > > Liter
 L.F. > > > > > > > > > > > > Left Front
 L.R. > > > > > > > > > > > > Left Rear
 LB. > > > > > > > > > > > > Pounds
 LG. > > > > > > > > > > > > Long
 LH > > > > > > > > > > > > Left Hand
 M. > > > > > > > > > > > > Metric
 MECH. > > > > > > > > > > > > Mechanical
 MFG. > > > > > > > > > > > > Manufacturing
 MFGR. > > > > > > > > > > > > Manufacturer
 MISC. > > > > > > > > > > > > Miscellaneous
 mm > > > > > > > > > > > > Millimeter
 MOUNT. > > > > > > > > > > > > Mounting
 MTG. > > > > > > > > > > > > Mounting
 MTR. > > > > > > > > > > > > Motor
 N.L.A. > > > > > > > > > > > > No Longer Available
 N.P.N. > > > > > > > > > > > > No Part Number
 N.S.S. > > > > > > > > > > > > Not Sold Separately
 N/A. > > > > > > > > > > > > Not Applicable
 N/OFF > > > > > > > > > > > > Normally Off
 N/ON > > > > > > > > > > > > Normally On
 NI > > > > > > > > > > > > Not Illustrated
 NO. > > > > > > > > > > > > Number
 O.D. > > > > > > > > > > > > Outer Diameter
 P/N > > > > > > > > > > > > Part Number
 P/O > > > > > > > > > > > > Part of an Assembly
 PKG. > > > > > > > > > > > > Package
 PRESS. > > > > > > > > > > > > Pressure
 PROP. > > > > > > > > > > > > Propeller
 PT. > > > > > > > > > > > > Point, Pint
 PTO > > > > > > > > > > > > Power Take Off
 QT. > > > > > > > > > > > > Quart

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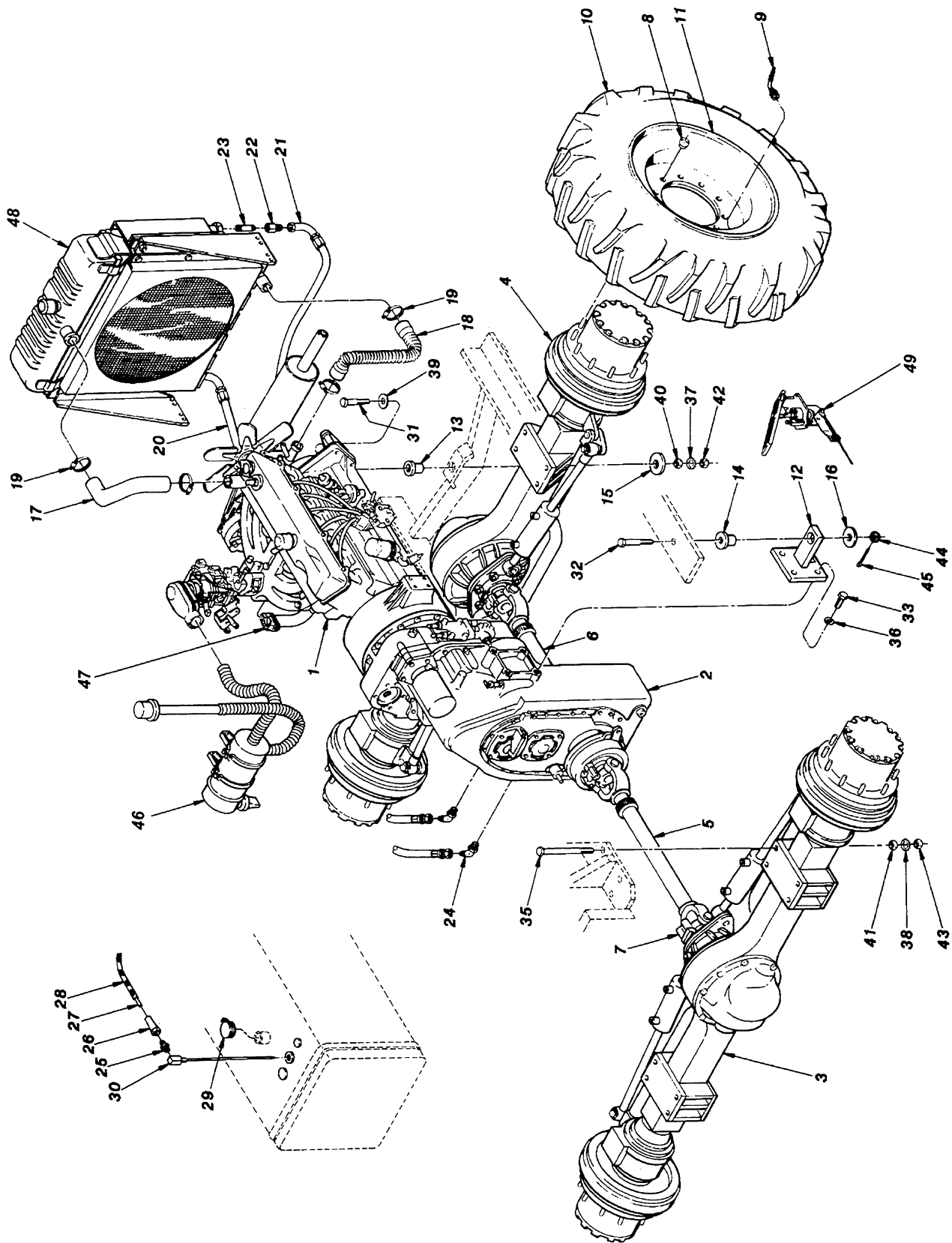


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