

ELECTRIC TRACTOR DRIVE

MANUAL TC-680

Revised 8/01

INSTALLATION, OPERATING AND MAINTENANCE INSTRUCTIONS



READ THIS MANUAL BEFORE USING THESE PRODUCTS.

This manual contains important safety, installation, operation and maintenance information. Make this manual available to all persons responsible for the operation, installation and maintenance of these products.



FAILURE TO FOLLOW THESE PRECAUTIONS MAY RESULT IN DEATH, SEVERE INJURY OR PROPERTY DAMAGE:

I. SAFETY PRECAUTIONS:

THIS TRACTOR IS DESIGNED FOR SAFE OPERATION WITHIN THE LIMITS OF ITS DESIGN CAPACITY AND ADJUSTMENT RANGE. THE TRACTOR SHOULD BE OPERATED ONLY BY QUALIFIED PERSONNEL WHO HAVE BEEN TRAINED IN THE SAFE OPERATION OF THIS EQUIPMENT. LISTED BELOW ARE SOME SUGGESTED PRECAUTIONS:

1. DO NOT OPERATE THE UNIT WITH MALFUNCTIONING OR DAMAGED COMPONENTS.
2. DO NOT USE THE TRACTOR TO TRANSPORT HUMAN CARGO.
3. DO NOT TRANSPORT LOADS OVER PERSONNEL.
4. DO MAKE SURE THE SUPPORTING STRUCTURE IS SUITED FOR THE INTENDED LOADS.
5. DO NOT ATTEMPT TO MOVE MORE THAN THE RATED CAPACITY OF THE TRACTOR.
6. DO ALLOW ONLY QUALIFIED PERSONNEL TO OPERATE THIS EQUIPMENT.
7. DO AVOID JOGGING, QUICK REVERSING OR SWINGING OF THE LOAD.
8. DO NOT LEAVE A LOAD SUSPENDED IN THE AIR UNATTENDED.
9. LIMIT SWITCHES WHEN PROVIDED ARE EMERGENCY DEVICES AND ARE NOT INTENDED TO STOP THE TRACTOR IN NORMAL OPERATION.
10. DO ALWAYS DISCONNECT AND PROPERLY LOCKOUT THE POWER TO THE UNIT BEFORE SERVICING OR MAKING ADJUSTMENTS.
11. DO ALWAYS USE MANUFACTURERS REPLACEMENT PARTS WHEN REPAIR PARTS ARE NEEDED.
12. DO NOT OPERATE THE UNIT ON A BEAM FOR WHICH IT IS NOT INTENDED.
13. DO NOT USE THE TRACTOR IN A MANNER FOR WHICH IT WAS NOT INTENDED OR IN AN UNSAFE MANNER.

II. INSTALLATION INSTRUCTIONS

A. GENERAL INSTRUCTIONS:

1. THE POWER SUPPLY SHOULD BE WITHIN PLUS OR MINUS 10% OF THE VOLTAGE SPECIFIED.
2. SUPPORTING STRUCTURES AND ALL EQUIPMENT MUST BE CAPABLE OF SUPPORTING ALL LOADS INCLUDING EQUIPMENT WEIGHT AND RATED CAPACITY.
3. CHECK LUBRICATION LEVEL IN THE TRACTOR GEARBOX.
4. CHECK THE UNIT FOR SHIPPING DAMAGE.
5. READ AND UNDERSTAND THIS MANUAL PRIOR TO INSTALLATION.

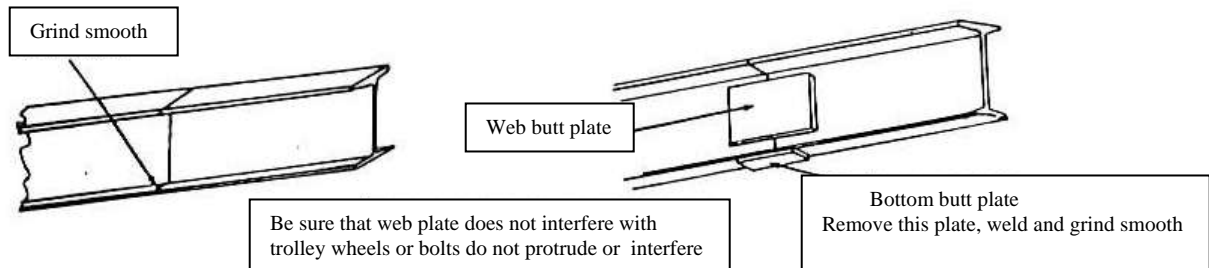
B. BEAM PREPARATION:

FOR PROPER OPERATION THE TROLLEY OR CRANE MUST MOVE FREELY ALONG THE ENTIRE LENGTH OF THE BEAM. THE BEAM RUNNING SURFACE MUST BE SMOOTH AND FREE OF DIRT OR OTHER OBSTRUCTIONS. CHECK EACH BEAM SPLICE TO INSURE THERE IS NO MISALIGNMENT. IF NECESSARY, REALIGN THE BEAMS AND GRIND THE SPLICE SMOOTH. IF WEB BUTT PLATES OR SPLICE PLATES ARE USED AT THE BEAM CONNECTIONS, CHECK TO BE SURE THEY WILL NOT INTERFERE WITH THE MOVEMENT OF THE CARRIER OR THE TRACTOR.

THE TRACTOR WILL NOT OPERATE PROPERLY IF BOTTOM BUTT PLATES ARE USED AT BEAM JOINTS. IF YOUR RUNWAY BEAM HAS THIS TYPE OF JOINT DO NOT ATTEMPT TO OPERATE THIS TRACTOR ON THIS BEAM. CONSULT A STRUCTURAL ENGINEER TO DETERMINE IF THE BOTTOM BUTT PLATES CAN BE REMOVED TO PROVIDE A SMOOTH OPERATING SURFACE FOR THE TRACTOR DRIVE WHEEL.

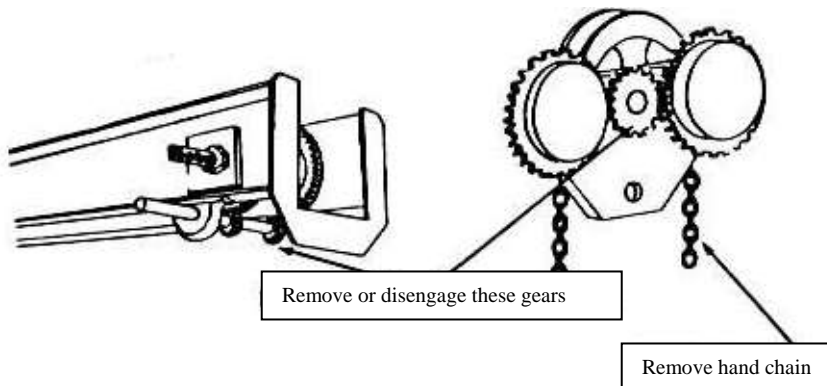


MAKE CERTAIN THE BEAM AND METAL TRACTOR WHEELS ARE FREE OF PAINT TO ASSURE AN ELECTRICAL GROUND PATH.



TROLLEY OR CRANE PREPARATION:

CHECK THE TROLLEY OR CRANE FOR FREE MOVEMENT ALONG THE ENTIRE LENGTH OF THE RUNWAY BEAM. IF THE CARRIER IS HAND GEARED, REMOVE THE DRIVE PINIONS AND HAND CHAIN FROM THE OLD DRIVE MECHANISM TO ALLOW THE CARRIER TO OPERATE AS A PLAIN PUSH-TYPE UNIT. CHECK AND RELUBRICATE THE CARRIER WHEEL BEARINGS AND BE CERTAIN THAT THEY OPERATE FREELY AND ARE IN GOOD CONDITION. FINALLY, CHECK THE TRAVEL OF THE CARRIER ALONG THE ENTIRE BEAM LENGTH, FIRST WITH NO LOAD AND THEN UNDER LOAD TO INSURE THE CARRIER WILL ROLL FREELY AND NOT INTERFERE WITH THE TRACTOR OPERATION.



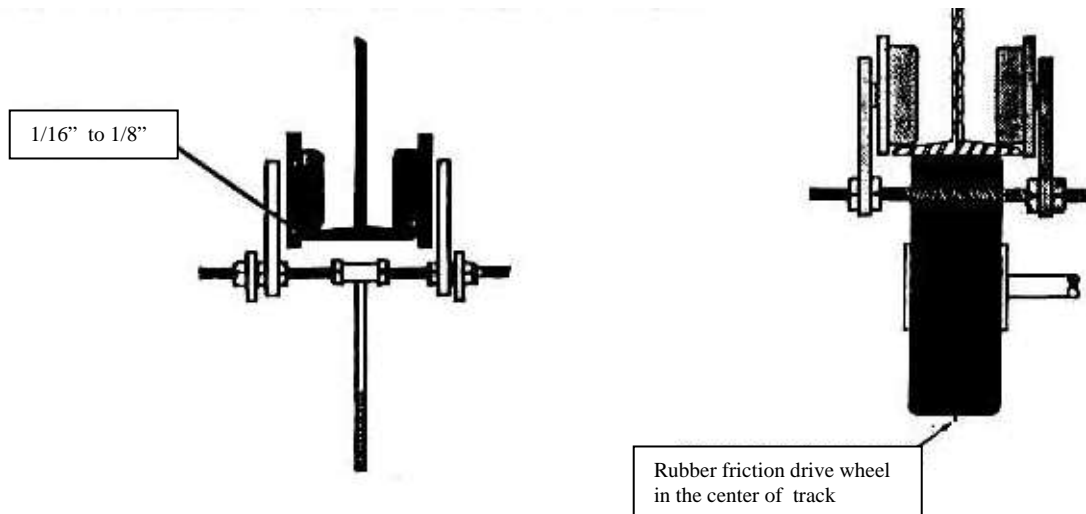
ADDITIONAL BEAM NOTES:

THE BEAM MUST BE FREE OF DIRT, OIL AND GREASE FOR THE TRACTOR TO OPERATE PROPERLY. THE STANDARD UNIT IS ADJUSTABLE FOR STANDARD I-BEAMS AND FLAT FLANGE BEAMS FROM 3.38" TO 8" WIDE. THE MAXIMUM FLANGE THICKNESS IS .62" FOR THE STANDARD UNIT. THE MINIMUM CURVE FOR THE STANDARD UNIT IS 36" RADIUS. FOR BEAMS OUTSIDE THIS ADJUSTMENT RANGE OR FOR PATENTED OR CUSTOM TRACK APPLICATIONS CONSULT THE FACTORY. DO NOT ATTEMPT TO OPERATE A STANDARD TRACTOR ON A BEAM FOR WHICH IT IS NOT DESIGNED.

C. TRACTOR INSTALLATION:

THE EASIEST INSTALLATION OF THE TRACTOR ONTO A BEAM IS TO SLIDE THE UNIT ONTO AN OPEN BEAM END. NOTE: BE SURE TO REINSTALL THE BEAM STOPS BEFORE OPERATING THE UNIT. IF AN OPEN BEAM END IS NOT AVAILABLE, THE UNIT CAN BE INSTALLED IN THE MIDDLE OF A BEAM BY REMOVING ONE OF THE TROLLEY SIDE PLATES AND REASSEMBLING THE UNIT ON THE BEAM.

REGARDLESS OF WHICH INSTALLATION METHOD IS TO BE USED, THE TRACTOR SHOULD BE ADJUSTED PRIOR TO BEING PLACED ON THE BEAM TO PROVIDE .062" TO .125" TOTAL CLEARANCE BETWEEN THE BEAM AND THE VERTICAL FLANGE OF THE WHEEL. THE UNIT SHOULD BE ADJUSTED TO POSITION THE DRIVE WHEEL IN THE CENTER OF THE BEAM. REMOVE THE TENSION SPRING FROM THE TENSIONER EYEBOLT TO ALLOW THE DRIVE WHEEL TO DROP BELOW THE BEAM. INSTALL THE UNIT ONTO THE BEAM AND REINSTALL THE TENSION SPRING. ADJUST THE SPRING UP UNTIL THE DRIVE WHEEL JUST CONTACTS THE BOTTOM OF THE RUNWAY BEAM. TIGHTEN THE TENSION SPRING NUT TWO (2) TURNS TO APPLY PRESSURE TO THE DRIVE WHEEL. OPERATE THE TRACTOR THE ENTIRE LENGTH OF THE BEAM WITH NO LOAD. AFTER CONNECTING THE CARRIER TO THE TRACTOR, AGAIN OPERATE THE TRACTOR AND UNLOADED CARRIER THE ENTIRE LENGTH OF THE BEAM. OPERATE THE TRACTOR WITH INCREASING LOADS UP TO THE CAPACITY OF THE CARRIER. IF NECESSARY, TIGHTEN THE TENSION SPRING TO APPLY MORE FORCE TO THE DRIVE WHEEL. DO NOT TIGHTEN THE SPRING ANY MORE THAN IS NECESSARY TO MOVE THE LOAD SMOOTHLY DOWN THE BEAM. OVER TIGHTENING THE TENSION SPRING WILL ONLY INCREASE THE LOAD ON THE DRIVE WHEEL AND TROLLEY AND ACCELERATE WEAR OF THESE COMPONENTS. SOME SLIPPAGE IS NORMAL AT START-UP, BUT THE DRIVE WHEEL SHOULD NOT SLIP AFTER THE UNIT IS ROLLING. CHECK ALL ADJUSTING NUTS TO INSURE THEY ARE TIGHT BEFORE PLACING THE UNIT INTO SERVICE.



D. CONNECTING THE CARRIER:

THE TRACTOR IS DESIGNED TO BE ATTACHED TO THE CARRIER WITH THE CLEVIS AND PIN SUPPLIED ON ONE END OF THE UNIT. POSITION THE TRACTOR ON THE BEAM WITH THE CLEVIS PIN NEXT TO THE CARRIER. INSTALL A CONNECTING BRACKET TO THE CARRIER SO A CONNECTING LINK CAN BE USED TO ATTACH THE CARRIER AND THE TRACTOR. AFTER INSTALLATION, OPERATE THE UNIT UNDER LOAD AND OBSERVE THE LINKAGE. IF THE CONNECTING BRACKET OR CONNECTING LINK FLEXES, INCREASE THE SIZE OF THESE MEMBERS. REPEATED FLEXING WILL FASTIGUE THESE PARTS AND CAUSE PREMATURE FAILURE.

- E. ELECTRICAL CONNECTION:**
THE TRACTOR IS SUPPLIED WITH A WIRING DIAGRAM IN THE CONTROL PANEL. REFER TO THIS DIAGRAM FOR ELECTRICAL CONNECTIONS. **WARNING:** ELECTRICAL HAZARD!!! USE PROPER LOCK-OUT/TAG-OUT PROCEDURES DURING INSTALLATION AND WHENEVER THIS USNIT IS SERVICED. VERIFY THAT ALL COMPONENTS ARE WIRED FOR YOUR INTENDED VOLTAGE. REFER TO MANUFACTURERS CONNECTION DIAGRAMS ON THE COMPONENTS FOR PROPER CONNECTIONS.

- III. INSPECTION:**
ADD THE TRACTOR TO THE INSPECTION LIST FOR THE HOIST. REFER TO THE ANSI B30.16 SPECIFICATION FOR INSPECTION AND RECORD KEEPING REQUIREMENTS. THE FOLLOWING ARE GENERAL INSPECTION GUIDELINES:

DAILY INSPECTION:

- a) INSPECT ALL CONTROLS FOR PROPER OPERATION.
- b) INSPECT ALL OPERATING MECHANISMS FOR PROPER OPERATION.

QUARTERLY INSPECTION:

- a) CHECK ALL ITEMS UNDER DAILY INSPECTION.
- b) CHECK FOR LOOSE BOLTS, NUTS AND SET SCREWS.
- c) INSPECT FOR WORN, DISTORTED, CORRODED OR DAMAGED PARTS.
- d) CHECK ELECTRICAL PARTS FOR EVIDENCE OF DETERIORATION OF CONTROLS, SWITCHES OR CONTROL PENDANTS.
- e) CHECK TRANSMISSION FLUID LEVEL.

ANNUAL INSPECTION:

- a) CHECK ALL ITEMS UNDER DAILY AND QUARTERLY INSPECTION.
- b) CHECK THE TROLLEY GEARBOX FOR EXCESSIVE BACKLASH IN THE WORM GEAR SET.
- c) INSPECT THE SUPPORTING STRUCTURE FOR CONTINUED ABILITY TO SUPPORT THE IMPOSED LOADS.

- IV. MAINTENANCE:**
A PREVENTIVE MAINTENANCE PROGRAM BASED ON THE FOLLOWING RECOMMENDATIONS SHOULD BE ESTABLISHED FOR THE TRACTOR. IT IS RECOMMENDED THAT RECORDS BE KEPT AND MADE AVAILABLE TO APPOINTED PERSONNEL.

NOTE: ONLY PARTS PURCHASED FROM THE MANUFACTURER SHOULD BE USED IN REPAIRING THIS EQUIPMENT.

- A. MAINTENANCE PROCEDURE:**
BEFORE ADJUSTMENT OR REPAIRS ARE BEGUN THE FOLLOWING PRECAUTIONS SHOULD BE TAKEN:
- 1. THE MAIN SWITCH ON THE LINE FEEDING THE TRACTOR SHOULD BE IN THE OPEN POSITION AND PROPERLY LOCKED-OUT/TAGGED-OUT.
 - 2. WARNING AND "OUT OF ORDER" SIGNS SHOULD BE PLACED ON THE EQUIPMENT.
 - 3. THE EQUIPMENT SHOULD BE LOCKED IN POSITION ON THE RUNWAY BEAM WITH NO LOAD BEING SUPPORTED TO AVOID INAVERTENT MOTION OF THE UNIT.
 - 4. BEFORE PLACING THE EQUIPMENT BACK IN SERVICE, A DAILY INSPECTION SHOULD BE PERFORMED AS WELL AS A FUNCTIONAL TEST TO INSURE THE UNIT IS OPERATING PROPERLY.

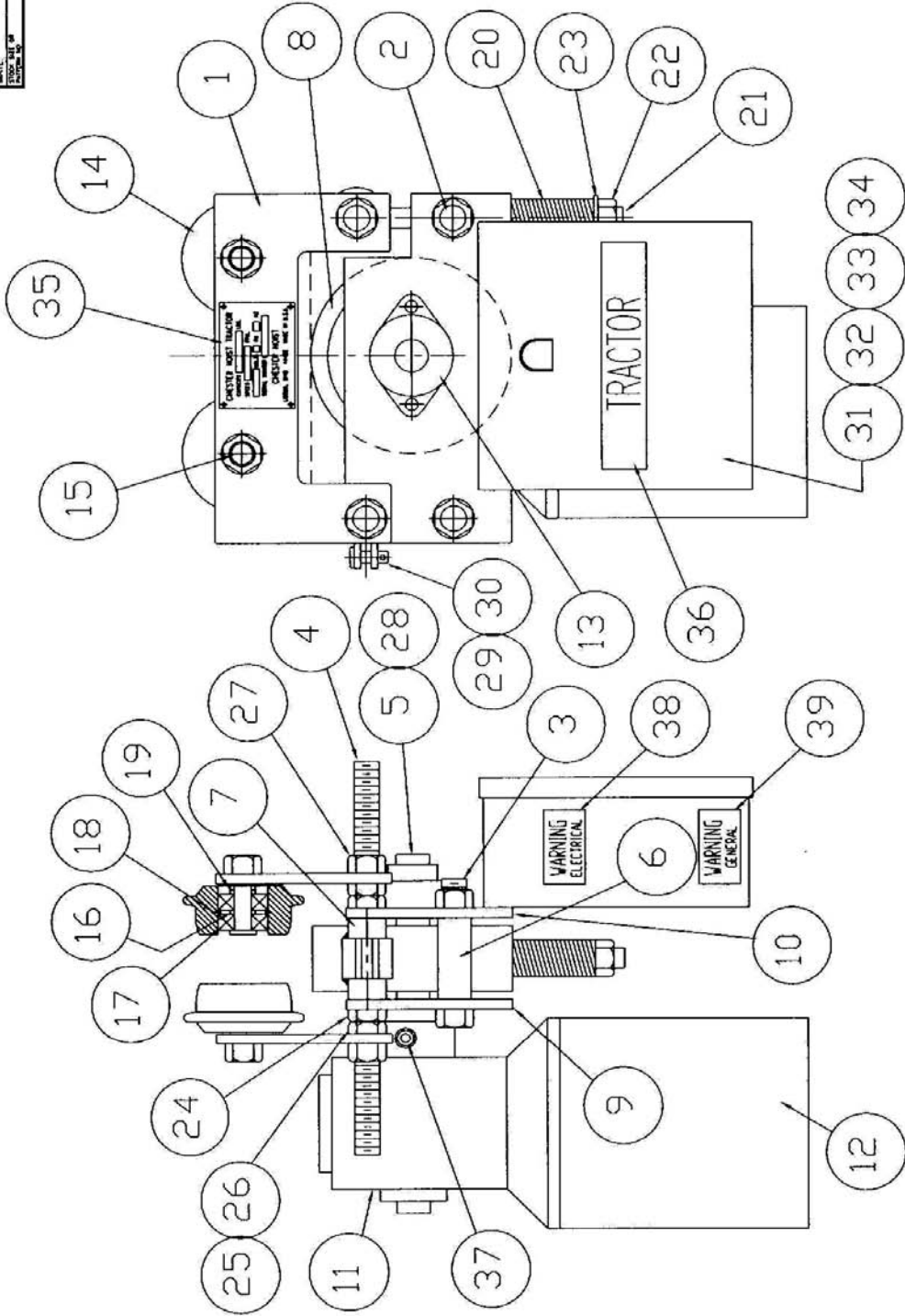
- B. ADJUSTMENTS AND REPAIRS:
ANY UNSAFE CONDITIONS DISCLOSED BY INSPECTION SHOULD BE CORRECTED BEFORE OPERATION OF THE UNIT RESUMED. ADJUSTMENTS AND REPAIRS SHOULD BE PERFORMED ONLY BY QUALIFIED PERSONNEL. ADJUSTMENTS SHOULD BE MADE AFTER PARTS ARE REPLACED OR MALFUNCTIONS DETECTED TO INSURE PROPER OPERATION OF THE UNIT.
- C. REPAIRS OR REPLACEMENTS:
REPAIRS OR REPLACEMENTS SHOULD BE PROVIDED PROMPTLY AS NEED FOR PROPER OPERATION. THE FOLLOWING ARE EXAMPLES:
1. REPLACE ALL PARTS THAT ARE WORN EXCESSIVELY, CRACKED, DISTORTED OR BROKEN.
 2. REPLACE PITTED OR BURNED ELECTRICAL CONTACTS IN SETS ONLY.
 3. KEEP PUSHBUTTON CONTROL STATIONS CLEAN AND THE FUNCTION LABELS LEGIBLE.
 4. REPLACE MISSING OR ILLEGIBLE WARNING LABELS.
- D. LUBRICATION:
PROPER LUBRICATION IS ESSENTIAL FOR THE OPERATION OF THIS TRACTOR. THE FOLLOWING PARTS NEED TO BE LUBRICATED:
1. GEARBOX – SHOULD BE KEPT FULL TO THE LEVEL PLUG JUST BELOW THE TOP OF THE GEARBOX JUST BELOW THE WORM SHAFT BEARING CAP. THE VENT PLUG MUST BE INSTALLED IN THE FILLER HOLE IN THE TOP OF THE GEARBOX NEXT TO THE BEARING CAP. USE MOBILGEAR #634 OR EQUIVALENT. GEARBOX CAPACITY IS 16 FL. OZ. AND SHOULD BE CHANGED ANNUALLY OR MORE FREQUENTLY FOR HARD USE.
 2. DRIVE SHAFT BEARING – THIS BEARING IS PROVIDED WITH A GREASE FITTING FOR EASY LUBRICATION. RELUBRICATE THIS BEARING QUARTERLY WITH A NLGI NO. 2 GREASE.
 3. TROLLEY WHEEL BEARINGS – THESE BEARINGS ARE SEALED AND PERMANENTLY LUBRICATED AND NORMALLY REQUIRE NO FURTHER LUBRICATION. HOWEVER, IF DESIRED, THE BEARINGS CAN BE RELUBRICATED BY REMOVING THE BEARINGS AND ONE SEAL AND RELUBRICATING WITH A NLGI NO. 2 GREASE.
- V. FUNCTIONAL TESTING:
AFTER THE UNIT HAS BEEN REPAIRED OR ADJUSTED, THE SYSTEM SHOULD BE OPERATED TO INSURE THE PROPER FUNCTION OF ALL CONTROLS AND OPERATING MECHANISMS. THIS TEST SHOULD BE PERFORMED UNDER UNLOADED AND LOADED CONDITIONS. THE EQUIPMENT SHOULD NOT BE RETURNED TO SERVICE UNTIL THIS TEST HAS BEEN PERFORMED BY A QUALIFIED PERSON.
- VI. ILLUSTRATED PARTS LIST:
- GENERAL: THE ILLUSTRATED PARTS LIST ATTACHED IS INTENDED TO HELP YOU IDENTIFY REPLACEMENT PARTS FOR YOUR TRACTOR DRIVE UNIT. IF ASSISTANCE IS REQUIRED IN THE USE OF THIS MANUAL, PLEASE CONTACT THE FACTORY.
- HOW TO USE THIS PARTS LIST: TO IDENTIFY A PART FROM YOUR TRACTOR, LOCATE THE PART ON THE ILLUSTRATION FOR THE AFFECTED SECTION OF THE UNIT. AN ARROW WILL POINT TO THE PART WITH AN ITEM NUMBER. THIS ITEM NUMBER WILL CORRESPOND TO A PART DESCRIPTION, PART NUMBER AND QUANTITY REQUIRED ON THE PARTS LIST.

WHEN ORDERING PARTS, PLEASE PROVIDE THE FOLLOWING INFORMATION:

1. SERIAL NUMBER AND MODEL NUMBER OF THE TRACTOR
2. YOUR POWER SUPPLY (VOLTAGE, PHASE AND CYCLES.
3. PART NUMBER, PART NAME AND NUMBER REQUIRED.

NOTE: AUTHORIZATION FOR RETURN MUST BE RECEIVED FROM CHESTER HOIST BEFORE RETURNING ANY EQUIPMENT FOR INSPECTION OR WARRANTY REPAIR.

| | |
|----------------|----------|
| PT. NO. | NO. REQ. |
| MATL. | WEIGHT |
| TRAC. PART NO. | |
| FRAC. PART NO. | |



TRACTOR PARTS LIST

| | | | | |
|-------|------|------|---------|-----|
| DR. | JMS | TR. | CK. | AP. |
| SCALE | HOME | DATE | 5-23-96 | |
| REV. | REV. | NO. | | |

Dwg. No. C-38549

TOL. +/- 1/64" ON FRACTIONAL DIM.

| NO. | DESCRIPTION | REV. | DATE |
|-----------|---------------|------|---------|
| 1 | ADDED ITEM 39 | | 8-10-96 |
| REVISIONS | | | |

CHESTER HOIST - P.O. BOX 449 - LISBON, OHIO 44432 - PH: 330-424-7248

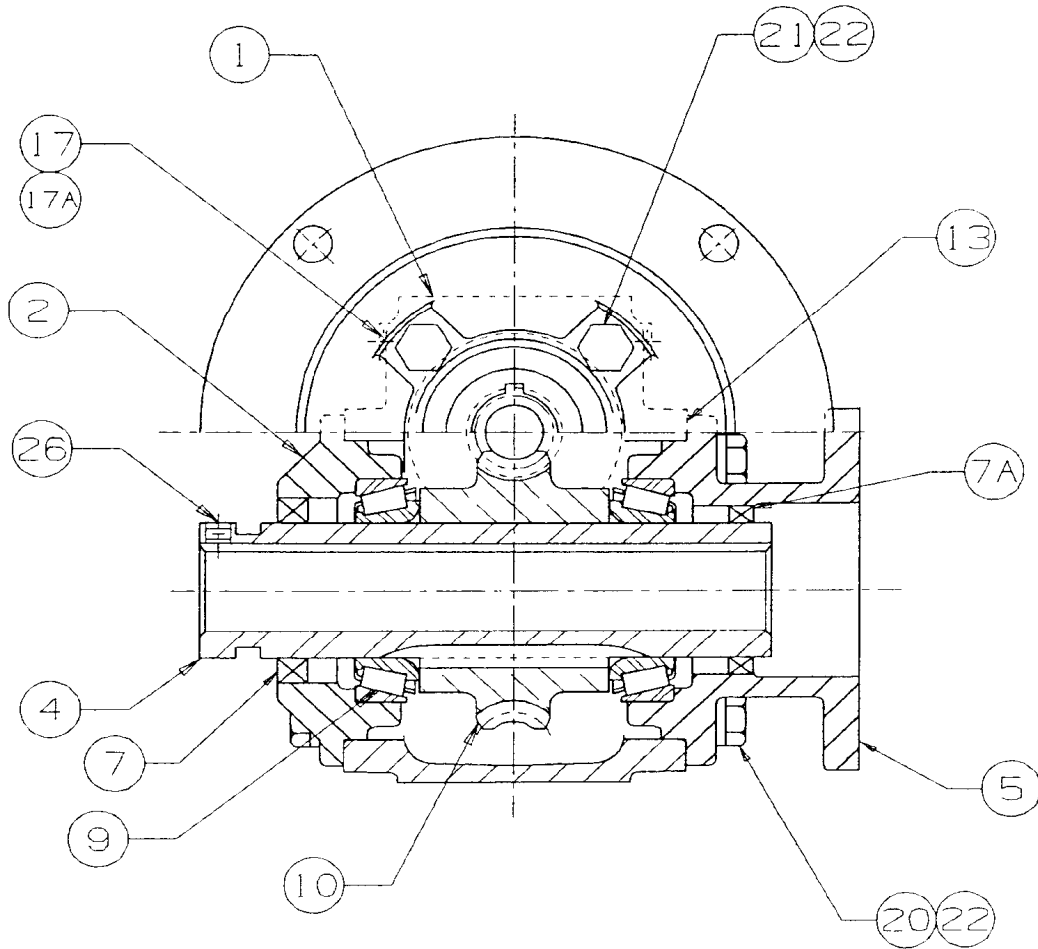
TRACTOR PARTS LIST

Use With Drawing C-38549

| <u>Item</u> | <u>Part Number</u> | <u>Description</u> | <u>Qty</u> |
|-------------|--------------------|---|------------|
| 1 | C-38255 | Trolley side plate | 2 |
| 2 | C-38257 | Tensioner cross piece | 1 |
| 3 | 15-.75-4.0 | Drive assembly separator bolt | 1 |
| 4 | C-38259 | Trolley separator stud | 2 |
| 5 | C-41220 | Drive wheel axle | 1 |
| 6 | C-38262 | Drive assembly pipe spacer | 1 |
| 7 | C-38263 | Pipe spacer with tongue | 1 |
| 8 | C-38264 | Drive wheel | 1 |
| 9 | C-38256-1 | Drive side frame plate | 1 |
| 10 | C-38256-2 | Control side frame plate | 1 |
| 11 | AD965 | Gearbox (50:1) (55 FPM) | * |
| 11 | AD964 | Gearbox (40:1) (70 & 35 FPM) | * |
| 11 | AD962 | Gearbox (25:1) (105 FPM) | * |
| 12 | 863K2069 | Motor (1/2 HP @ 1800) (105,70,55 FPM) | * |
| 12 | 863K2040 | Motor (1/4 HP @ 900) (35 FPM) | * |
| 13 | GVFTD-1 | Drive axle bearing | 1 |
| 14 | C-37000-1 | Trolley wheel | 4 |
| 15 | C-9110-0025 | Trolley axle | 4 |
| 16 | C-23854-R1 | Bearing spacer | 4 |
| 17 | C-9107-005 | Trolley wheel bearing | 8 |
| 18 | N5000-137 | Wheel snap ring | 4 |
| 19 | C-9303-0025 | Wheel spacer | 20 |
| 20 | AD-905 | Tensioner spring | 1 |
| 21 | AD-906 | Tensioner eyebolt | 1 |
| 22 | 83-.62-2 | .62 nylok full nut for eyebolt | 1 |
| 23 | 3-.62 | .62 flat washer for eyebolt | 1 |
| 24 | 108-.75-2 | .75 nylok jam nut for frame | 2 |
| 25 | H-4142 | .75 internal tooth lock washer | 13 |
| 26 | 97-.75-2 | .75 jam nut for trolley adjustment | 7 |
| 27 | 71-.75-2 | .75 full nut for trolley adjustment | 4 |
| 28 | H-4261C | Drive axle key (.25 x .25 x 2.0) | 2 |
| 29 | AD-907 | .37 x 1.0 clevis pin | 1 |
| 30 | 135-.15-1.0 | .15 x 1.0 cotter pin for clevis pin | 1 |
| 31 | as required | Trolley control (less mtg. bkt.) | 1 |
| 32 | 15-.25-.62 | .25 x .62 control mounting bolt | 2 |
| 33 | 1-.25 | .25 control mounting lockwasher | 2 |
| 34 | 71-.25-2 | .25 control mounting nut | 2 |
| 35 | C-38459 | Serial number tag | 1 |
| 36 | AD-854-S | Chester Hoist label | 1 |
| 37 | 672-.25-.375 | .25 x .375 socket hd. 1/2 dog set screw | 2 |
| 38 | EW-1 | Electrical hazard warning label | 1 |
| 39 | C-38846 | General warning label | 1 |
| | Gearbox lubricant | Mobilgear 634 or equivalent | 16 oz. |

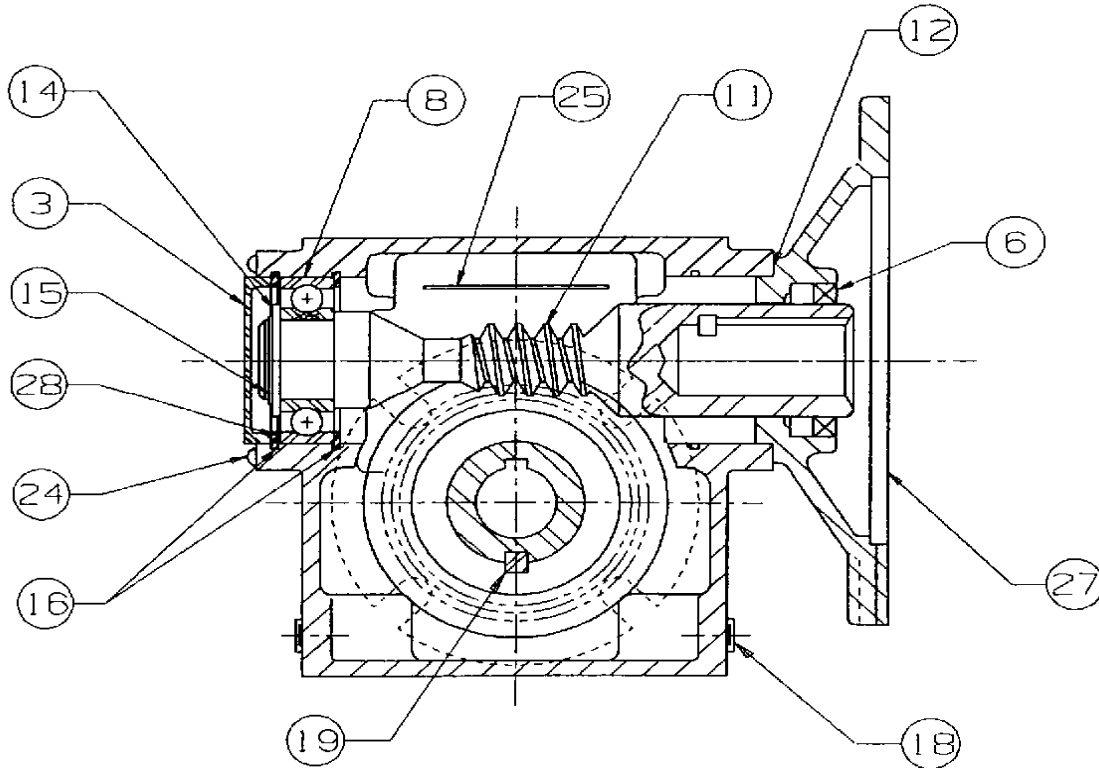
*Select Motor and Gearbox to suit proper speed
Always Specify Tractor Serial Number When Ordering Parts.

TROLLEY TRANSMISSION ASSY- FRONT VIEW
ASSEMBLY NUMBER AD-965 50:1 RATIO



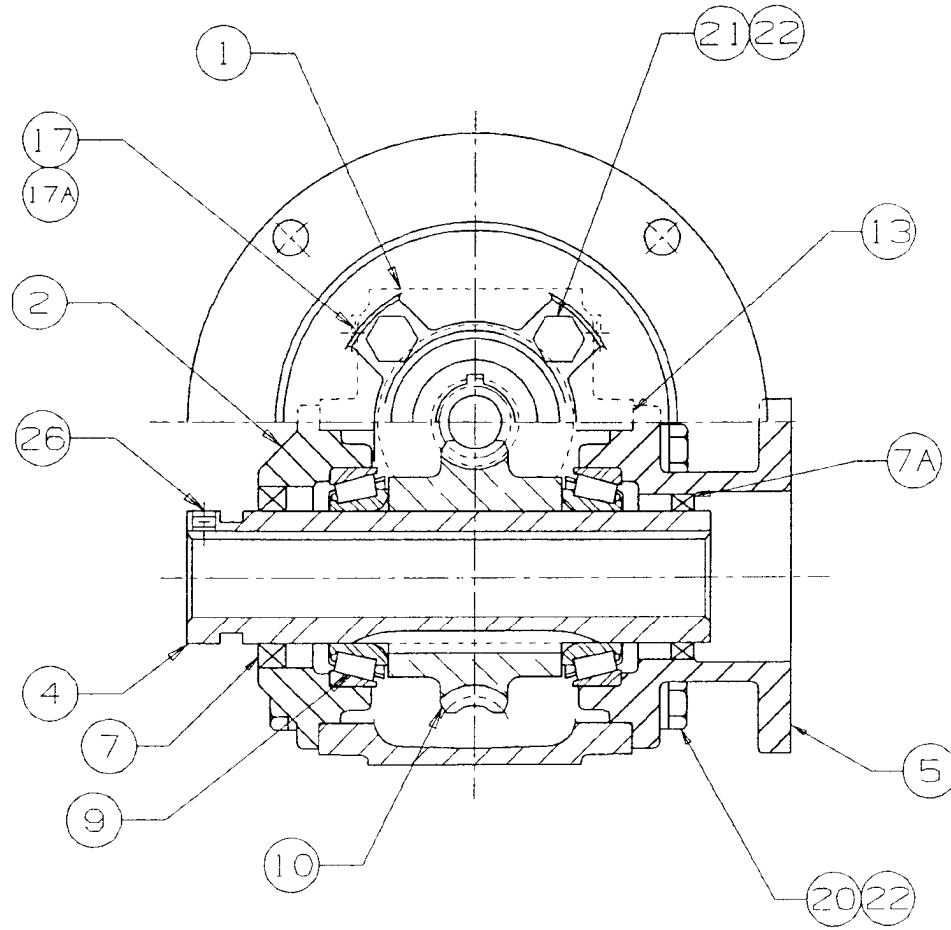
| FIG.NO. | DESCRIPTION | QTY. | PART# |
|---------|-----------------------------------|------|-----------|
| 1 | HOUSING | 1 | AD965-1 |
| 2 | SLOW SPEED COVER | 1 | AD965-2 |
| 4 | SLOW SPEED SHAFT | 1 | AD965-4 |
| 5 | SLOW SPEED COVER AND FLANGE | 1 | AD965-5 |
| 7 | SLOW SPEED OIL SEAL | 1 | AD965-7 |
| 7A | SLOW SPEED OIL SEAL | 1 | AD965-7A |
| 9 | SLOW SPEED BEARING (CUP AND CONE) | 2 | AD965-9 |
| 10 | SLOW SPEED WORM GEAR | 1 | AD965-10 |
| 13 | SLOW SPEED GASKET | 2 | AD965-13 |
| 17 | 1/8 PIPE PLUG WITH VENT | 1 | AD965-17 |
| 17A | VENT PIN | 1 | AD965-17A |
| 20 | 5/16-18 X 7/8" LG. HHCS | 8 | AD965-20 |
| 21 | 5/16-18 X 1 1/4" LG. HHCS | 4 | AD965-21 |
| 22 | 5/16" LOCK WASHER | 12 | AD965-22 |
| 26 | SET SCREWS | 2 | AD965-26 |

TROLLEY TRANSMISSION ASSY- RIGHT VIEW
ASSEMBLY NUMBER AD-965 50:1 RATIO



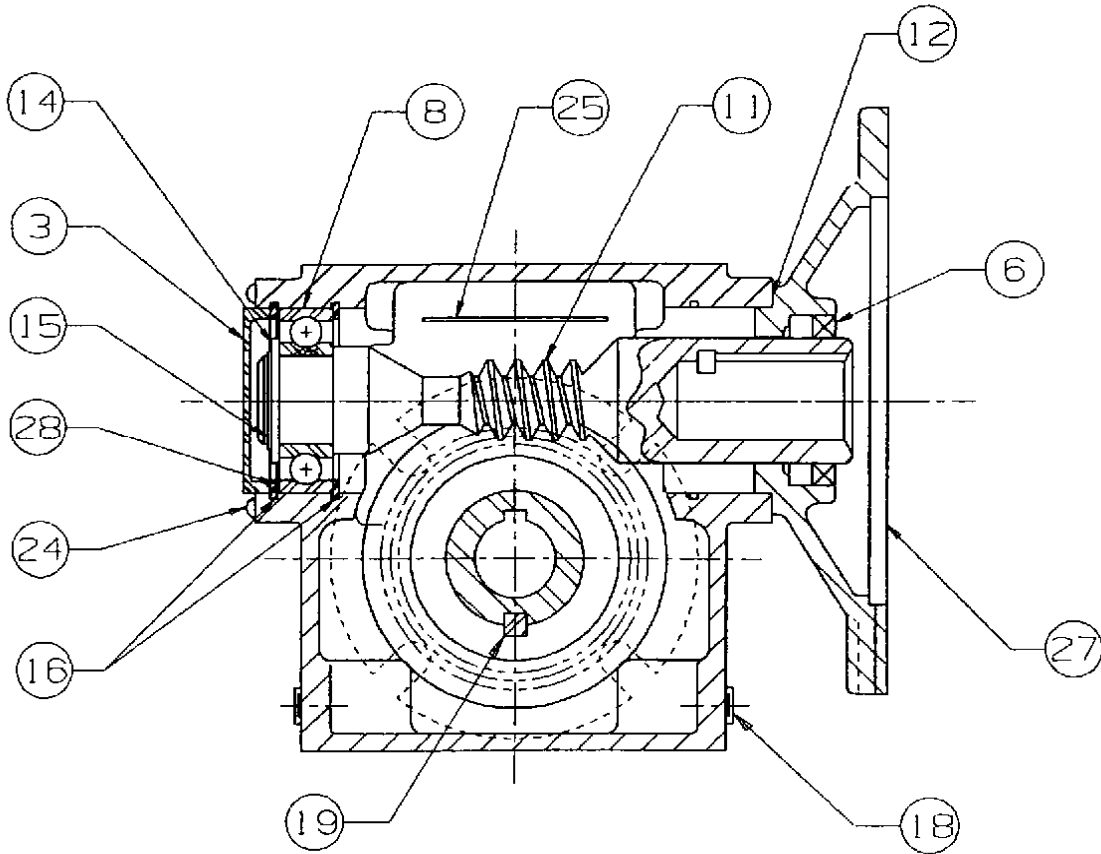
| FIG.NO. | DESCRIPTION | QTY. | PART# |
|---------|----------------------------------|------|-----------|
| 3 | HOUSING PLUG | 1 | AD965-3 |
| 6 | HIGH SPEED OIL SEAL | 1 | AD965-6 |
| 8 | HIGH SPEED BEARING | 1 | AD965-8 |
| 11 | HIGH SPEED WORM ON SHAFT | 1 | AD965-11 |
| 12 | HIGH SPEED GASKET | 1 | AD965-12 |
| 14 | HIGH SPEED SPACER | 1 | AD965-14 |
| 15 | HIGH SPEED RING | 1 | AD965-15 |
| 16 | HIGH SPEED RET. RING | 2 | AD965-16 |
| 18 | 1/8 PIPE PLUG | 5 | AD965-18 |
| 19 | SLOW SPEED KEY | 1 | AD965-19 |
| 24 | 5/16-18 BUTTON PLUG | 4 | AD965-24 |
| 25 | VENT SHIELD | 1 | AD965-25 |
| 27 | MOTOR ADAPTER 56C | 1 | AD965-27 |
| 28 | SHIM H.S. 1.50 X 2.03 X .001THK. | 1 | AD965-28A |
| | SHIM H.S. 1.50 X 2.03 X .002THK. | 1 | AD965-28B |
| | SHIM H.S. 1.50 X 2.03 X .005THK. | 1 | AD965-28C |
| | SHIM H.S. 1.50 X 2.03 X .010THK. | 1 | AD965-28D |

TROLLEY TRANSMISSION ASSY- FRONT VIEW
ASSEMBLY NUMBER AD-964 40:1 RATIO



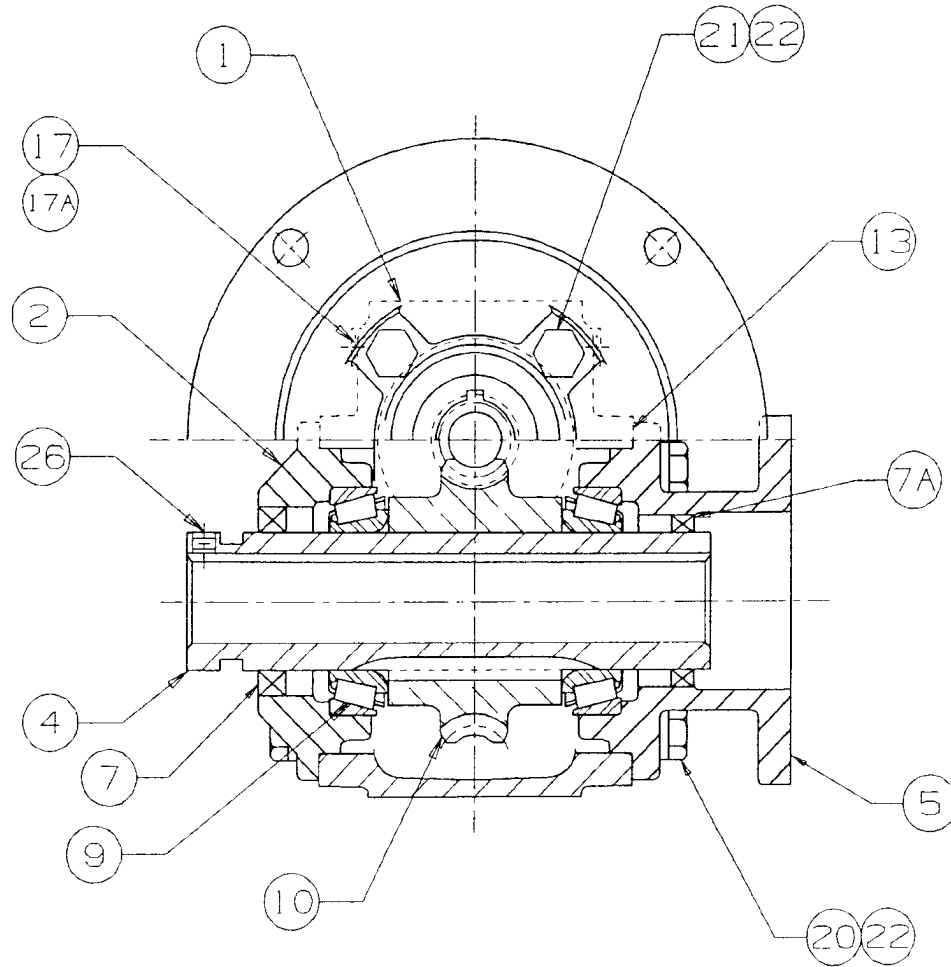
| FIG.NO. | DESCRIPTION | QTY. | PART# |
|---------|-----------------------------------|------|-----------|
| 1 | HOUSING | 1 | AD964-1 |
| 2 | SLOW SPEED COVER | 1 | AD964-2 |
| 4 | SLOW SPEED SHAFT | 1 | AD964-4 |
| 5 | SLOW SPEED COVER AND FLANGE | 1 | AD964-5 |
| 7 | SLOW SPEED OIL SEAL | 1 | AD964-7 |
| 7A | SLOW SPEED OIL SEAL | 1 | AD964-7A |
| 9 | SLOW SPEED BEARING (CUP AND CONE) | 2 | AD964-9 |
| 10 | SLOW SPEED WORM GEAR | 1 | AD964-10 |
| 13 | SLOW SPEED GASKET | 2 | AD964-13 |
| 17 | 1/8 PIPE PLUG WITH VENT | 1 | AD964-17 |
| 17A | VENT PIN | 1 | AD964-17A |
| 20 | 5/16-18 X 7/8" LG. HHCS | 8 | AD964-20 |
| 21 | 5/16-18 X 1 1/4" LG. HHCS | 4 | AD964-21 |
| 22 | 5/16" LOCK WASHER | 12 | AD964-22 |
| 26 | SET SCREWS | 2 | AD964-26 |

TROLLEY TRANSMISSION ASSY- RIGHT VIEW
ASSEMBLY NUMBER AD-964 40:1 RATIO



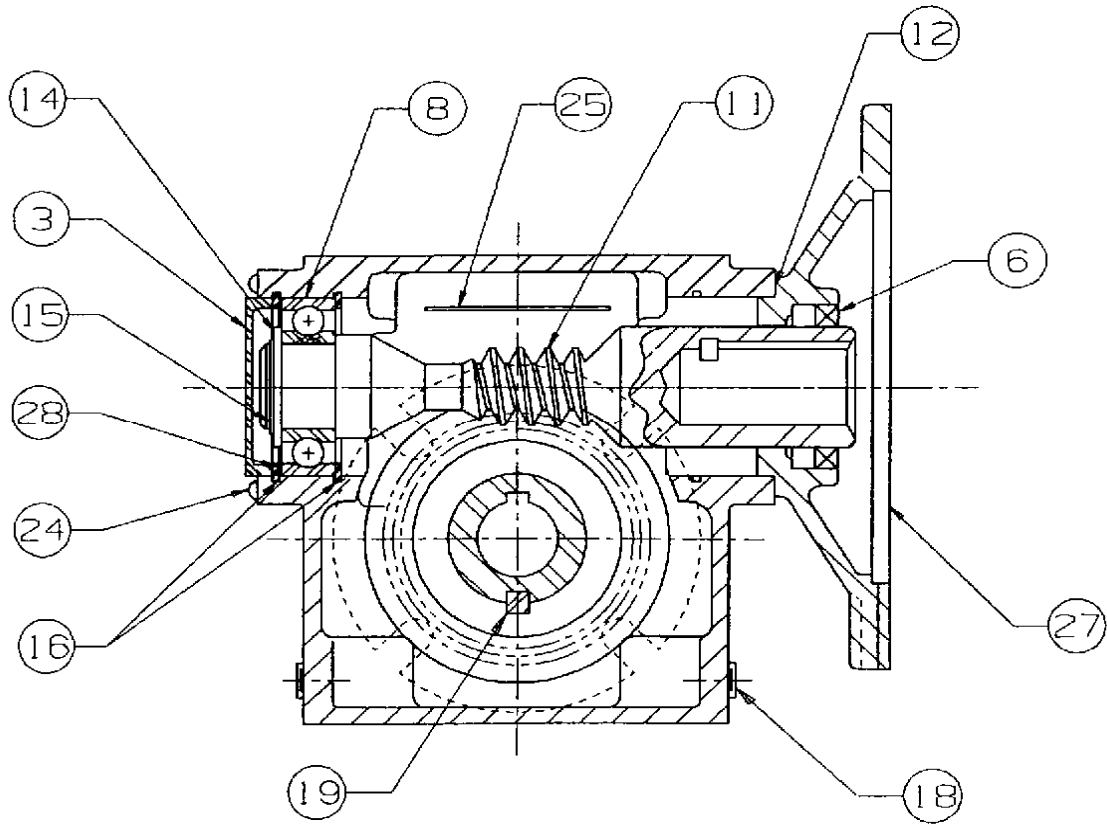
| FIG.NO. | DESCRIPTION | QTY. | PART# |
|---------|----------------------------------|------|-----------|
| 3 | HOUSING PLUG | 1 | AD964-3 |
| 6 | HIGH SPEED OIL SEAL | 1 | AD964-6 |
| 8 | HIGH SPEED BEARING | 1 | AD964-8 |
| 11 | HIGH SPEED WORM ON SHAFT | 1 | AD964-11 |
| 12 | HIGH SPEED GASKET | 1 | AD964-12 |
| 14 | HIGH SPEED SPACER | 1 | AD964-14 |
| 15 | HIGH SPEED RING | 1 | AD964-15 |
| 16 | HIGH SPEED RET. RING | 2 | AD964-16 |
| 18 | 1/8 PIPE PLUG | 5 | AD964-18 |
| 19 | SLOW SPEED KEY | 1 | AD964-19 |
| 24 | 5/16-18 BUTTON PLUG | 4 | AD964-24 |
| 25 | VENT SHIELD | 1 | AD964-25 |
| 27 | MOTOR ADAPTER 56C | 1 | AD964-27 |
| 28 | SHIM H.S. 1.50 X 2.03 X .001THK. | 1 | AD964-28A |
| | SHIM H.S. 1.50 X 2.03 X .002THK. | 1 | AD964-28B |
| | SHIM H.S. 1.50 X 2.03 X .005THK. | 1 | AD964-28C |
| | SHIM H.S. 1.50 X 2.03 X .010THK. | 1 | AD964-28D |

TROLLEY TRANSMISSION ASSY- FRONT VIEW
ASSEMBLY NUMBER AD-962 25:1 RATIO



| FIG. NO. | DESCRIPTION | QTY. | PART# |
|----------|-----------------------------------|------|-----------|
| 1 | HOUSING | 1 | AD962-1 |
| 2 | SLOW SPEED COVER | 1 | AD962-2 |
| 4 | SLOW SPEED SHAFT | 1 | AD962-4 |
| 5 | SLOW SPEED COVER AND FLANGE | 1 | AD962-5 |
| 7 | SLOW SPEED OIL SEAL | 1 | AD962-7 |
| 7A | SLOW SPEED OIL SEAL | 1 | AD962-7A |
| 9 | SLOW SPEED BEARING (CUP AND CONE) | 2 | AD962-9 |
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| 13 | SLOW SPEED GASKET | 2 | AD962-13 |
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| 17A | VENT PIN | 1 | AD962-17A |
| 20 | 5/16-18 X 7/8" LG. HHCS | 8 | AD962-20 |
| 21 | 5/16-18 X 1 1/4" LG. HHCS | 4 | AD962-21 |
| 22 | 5/16" LOCK WASHER | 12 | AD962-22 |
| 26 | SET SCREWS | 2 | AD962-26 |

TROLLEY TRANSMISSION ASSY- RIGHT VIEW
ASSEMBLY NUMBER AD-962 25:1 RATIO



| FIG. NO. | DESCRIPTION | QTY. | PART# |
|----------|----------------------------------|------|-----------|
| 3 | HOUSING PLUG | 1 | AD962-3 |
| 6 | HIGH SPEED OIL SEAL | 1 | AD962-6 |
| 8 | HIGH SPEED BEARING | 1 | AD962-8 |
| 11 | HIGH SPEED WORM ON SHAFT | 1 | AD962-11 |
| 12 | HIGH SPEED GASKET | 1 | AD962-12 |
| 14 | HIGH SPEED SPACER | 1 | AD962-14 |
| 15 | HIGH SPEED RING | 1 | AD962-15 |
| 16 | HIGH SPEED RET. RING | 2 | AD962-16 |
| 18 | 1/8 PIPE PLUG | 5 | AD962-18 |
| 19 | SLOW SPEED KEY | 1 | AD962-19 |
| 24 | 5/16-18 BUTTON PLUG | 4 | AD962-24 |
| 25 | VENT SHIELD | 1 | AD962-25 |
| 27 | MOTOR ADAPTER 56C | 1 | AD962-27 |
| 28 | SHIM H.S. 1.50 X 2.03 X .001THK. | 1 | AD962-28A |
| | SHIM H.S. 1.50 X 2.03 X .002THK. | 1 | AD962-28B |
| | SHIM H.S. 1.50 X 2.03 X .005THK. | 1 | AD962-28C |
| | SHIM H.S. 1.50 X 2.03 X .010THK. | 1 | AD962-28D |



THIS EQUIPMENT IS INTENDED FOR INDUSTRIAL USE ONLY AND IS NOT INTENDED FOR TRANSPORTING HUMAN CARGO OR FOR TRANSPORTING MOLTEN METAL.



USE OF REPLACEMENT PARTS OTHER THAN SUPPLIED BY THE MANUFACTURER MAY LEAD TO DANGEROUS OPERATION. ACCORDINGLY, THE MANUFACTURER CANNOT BE RESPONSIBLE IN SUCH CASES AND OUR WARRANTY WILL BE VOIDED.

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